Native Vegetation Clearance

75-79 Hannaford Road, Blackwood

Data Report

Clearance under the *Native Vegetation Regulations 2017*

26/06/2023

Prepared by H. Merigot (NVC Accredited Consultant)

Glossary and abbreviations

BDBSA	Biological Database of South Australia (maintained by DEW)
DAWE	Department of Agriculture, Water and the Environment (Commonwealth) (now DCCEEW)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEW	Department for Environment and Water (South Australia)
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ha	Hectare(s)
IBRA	Interim Biogeographical Regionalisation of Australia
km	Kilometre(s)
NatureMaps	Initiative of DEW that provides a common access point to maps and geographic information about South Australia's natural resources in an interactive online mapping format
NPW Act	*National Parks and Wildlife Act 1972*
NV Act	*Native Vegetation Act 1991*
NVC	Native Vegetation Council
PMST	Protected Matters Search Tool (under the EPBC Act; maintained by DAWE)
Project	New dwelling at 75-79 Hannaford Road, Blackwood
Project Area	75-79 Hannaford Road, Blackwood
SA	South Australia(n)
Search Area	5 km buffer of the Project Area considered in the desktop assessment database searches
SEB	Significant Environmental Benefit
sp.	Species
spp.	Species (plural)
ssp.	Sub-species
STAM	Scattered Tree Assessment Method
TEC	Threatened Ecological Community
var.	Variety (a taxonomic rank below that of species and subspecies, but above that of form)

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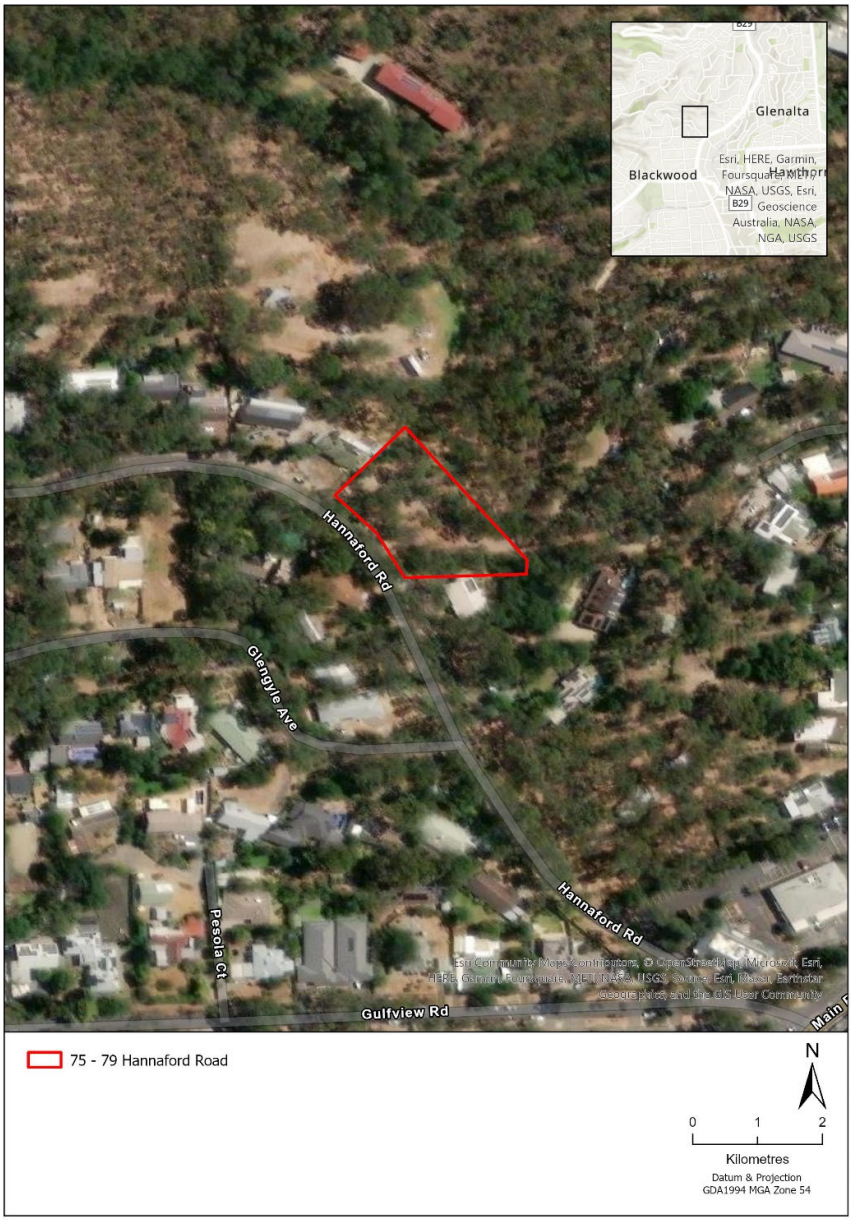
Applicant Information

Table 1. Application details.

Applicant:	Mark Thomas		
Key contact:			
Landowner:	Tim Curtin		
Site Address:	75-79 Hannaford Road, Blackwood, South Australia, Australia 5051		
Local Government Area:	City of Mitcham	**Hundred:**	Adelaide
Title ID:	CT/6232/107	**Parcel ID**	D121400 A50

Table 2. Summary of the proposed clearance.

Purpose of clearance:	Clearance is required for the construction of a house, rainwater tanks and stormwater detention pit, including the CFS requirement for a 20 m clearance buffer (vegetation management zone)
Native Vegetation Regulation:	Regulation 12, Schedule 1; clause 33, House or Buildings
Description of the vegetation under application:	56 scattered trees including one *Acacia melanoxylon* (Blackwood), one *Eucalyptus camaldulensis* (River Red-Gum), 42 *Eucalyptus obliqua* (Messmate Stringybark) and one *Eucalyptus leucoxylon* ssp. *leucoxylon* (South Australian Blue Gum) from good to excellent in health.
Total proposed clearance – area (ha) and/or number of trees:	43 scattered trees are proposed to be cleared.
Level of clearance:	Level 4
Overlay (Planning and Design Code):	Native Vegetation Overlay

Map of proposed clearance area:	
Mitigation Hierarchy:	***Avoidance –*** The applicant has chosen the location of the house to utilise the existing cleared area and driveway access. The form of the house and inclusion of garaging under the house footprint has been designed to reduce the extent of the building across the site with the benefit of retaining vegetation. The applicant is restricted from minimising their clearance by the Native Vegetation Regulations 2017 (Regulation 9(1) clause 17 Fire prevention and control) requiring the clearance of all vegetation within 20 m of a new dwelling. CFS information is still to be obtained as council have requested Native Vegetation data report prior to CFS assessment. The applicant only plans to clear native vegetation as required by CFS. ***Minimization –*** The sewer connection point is at the western corner of the block. Trenching to this connection point is to be down the existing track so as to minimise any disturbance to the Native Vegetation. Stormwater overflow from

	the house tank (minimal overflow expected as the whole of house is plumbed to this tank) will terminate into a rock filled swale running along contours as per the site plan in Attachment 1. Trenching to this swale can be minimal and positioned so as not to interfere with Native Vegetation. Sewerage, stormwater requirements and rainwater tanks will all be located within the 20 m fire prevention buffer. The existing track will require an upstand or swale on the outer side to manage potential erosion and negative impacts on Native Vegetation. ***Rehabilitation or restoration –*** The applicant is keen to 'live in the bush' and will engage in a restorative approach to site landscaping. They will use endemic plant species to help retain the newly imposed levels as well as minimise stormwater run-off and maintain this vegetation as per CFS recommendations.
SEB Offset proposal	Payment of **$21,379.35**, which includes a $1,114.56 administration fee into the NV fund.

1. Purpose of clearance

1.1. Description

H. Merigot has been engaged by Good House Pty. Ltd. on behalf of the landowners to undertake a Native Vegetation data report for the construction of a residential building and associated infrastructure (The Project) at 75-79 Hannaford Road, Blackwood (the Project Area).

Objectives

The objectives were to undertake a flora and fauna assessment for the proposed building and infrastructure including the following project components:

- 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 Scattered Trees Assessment Method (STAM) and Bushland Assessment Method (BAM); and
- Calculate the Significant Environmental Benefit (SEB) offset requirements based on the impact footprint.

The report presents findings of the desktop assessment; in addition to results of the STAM and BAM required for assessing trees proposed for clearance under the Native Vegetation Regulations.

1.2. Background

The Project Area is located on private property, which contains one Certificate Title embracing a total of 0.2714 hectares (ha) of land, which consists of a mixture of remnant native scattered trees and planted trees over an understorey consisting of primarily introduced flora species. The property is approximately 250 meters north-west of Main Road and approximately 1.6 km west of Belair National Park and is also surrounded by other residential properties.

The Project Area is within the City of Mitcham Council within the suburb of Blackwood. It falls within the Green Adelaide Management Region. The Project Area contains the following Certificate Title (CT) CT/6232/107 (within which the Project is proposed). The property is within the Hills Neighbourhood zone, in a high risk bushfire area and receives a mean annual rainfall of 697 millimetres (mm).

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 in the Flinders Lofty Block IBRA Bioregion, Mount Lofty Ranges IBRA Subregion and Mt Terrible IBRA Environmental Association.

Approximately 15% (46,342 ha) of the Mount Lofty Ranges IBRA Subregion and approximately 41% (7,889 ha) of the Mt Terrible IBRA Environmental Association is mapped as remnant vegetation. Of this, 27% (12,706 ha) and 41% (3,206 ha) is formerly conserved and protected, respectively (DEW 2023).

1.3. General location map

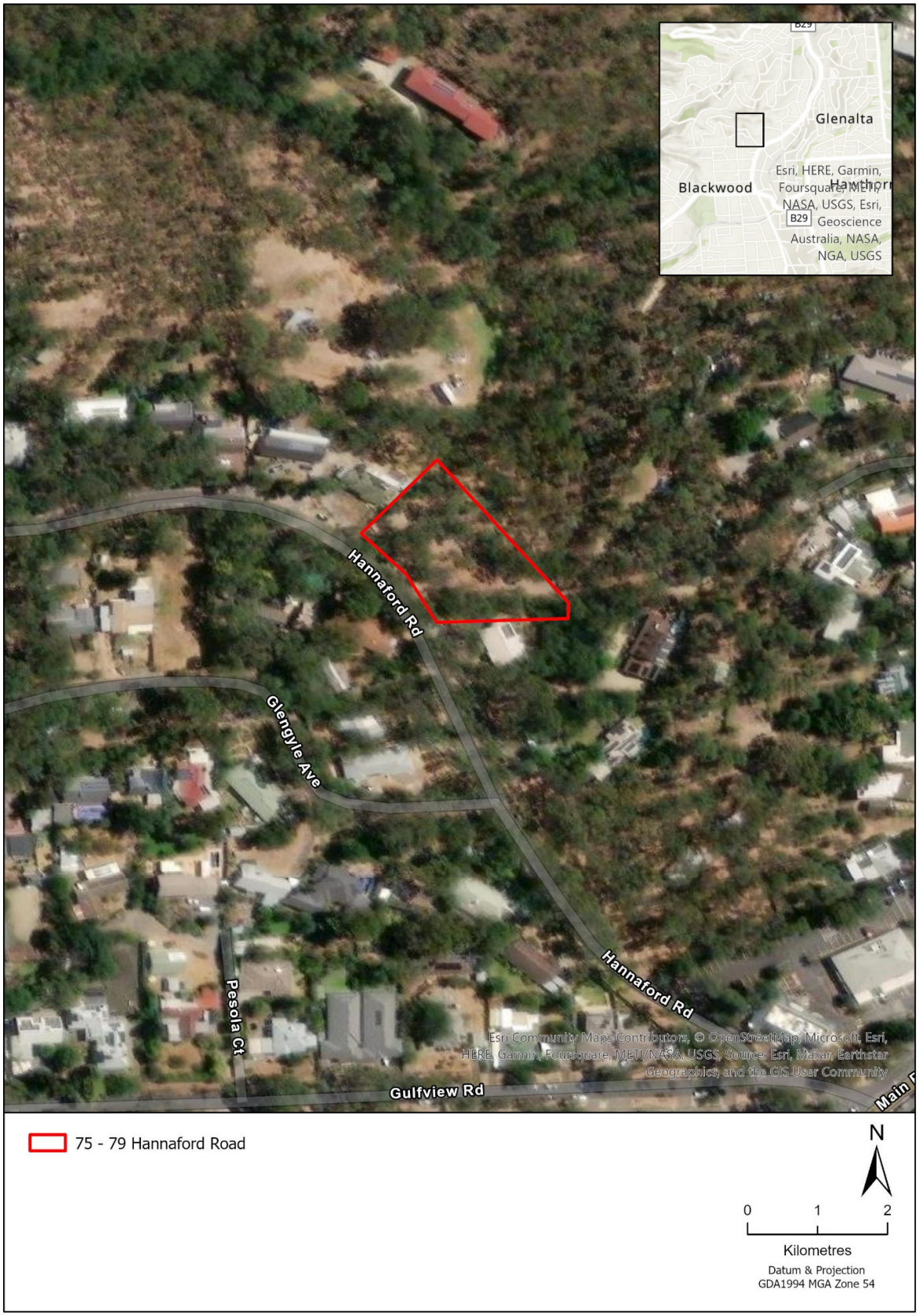


Figure 1. Location of the Project Area.

1.4. Details of the proposal

The proposed dwelling and infrastructure consist of:

- a residential building including garaging under the house footprint;
- driveway (landscaping and improving accessibility;
- rainwater tanks; and
- stormwater detention pit (and associated pipeline).

As per CFS requirements, the clearance incorporates a 0 to 20 m clearance buffer area from the building as part of the vegetation management zone. Additionally, as per CFS requirements, a rainwater tank will be installed near the road.

The location of the house and infrastructure have been selected to minimise impacts to vegetation. This includes utilising the area of already cleared land for the location of the house, rainwater tanks, driveway and carparking space. Design plans are provided in Attachment 1.

Due to time constraints, this report is also being submitted to the Native Vegetation Branch for pre-assessment to determine if the risk level can be moderated down.

1.5. Approvals <u>required</u> *or* <u>obtained</u>

Approvals or applications under the follow legislation are required:

- *Native Vegetation Act 1991* – this data report.
- *Planning, Development and Infrastructure Act 2016* – this data report lodged with the Development Application.
- *EPBC Act* 1999 – EPBC approval is unlikely to be required for this Project.
- *NPW Act 1972* – no flora was collected as part of this assessment; no approvals required.
- *Landscape SA Act 2019* – A Water Affecting Activity Permit is not required for this Project; a Permit to transport declared weeds on a public road may be required for this Project.
- *Aboriginal Heritage Act 1988* – Approval will be required if any sites, objects or remains are uncovered during the works.

1.6. Native Vegetation Regulation

An assessment against the Principles of Clearance under the *Native Vegetation Act 1991* is considered to not be required as the clearance associated with the Project is in accordance with Division 5 of the *Native Vegetation Regulations 2017*, which allows for the clearance of native vegetation in relation to specific activities as set out in Schedule 1, Parts 4, 5 or 6 of the Regulations. The Project is considered to be permitted under the following regulation:

Regulation 12 (33) - new dwelling or building

(1) Clearance of vegetation required in order to erect a building or structure or other facility that is ancillary to a building, provided that any development authorisation required by or under the *Planning, Development and Infrastructure Act 2017* has been obtained.

(2) Subclause (1) does not apply to

a. clearance of vegetation established in accordance with a condition of a consent for clearance of vegetation; or

b. clearance of vegetation undertaken in connection with subdivision of the land on which the vegetation is growing or is situated; or

c. clearance that would be contrary to—

i. a condition of a consent for clearance of vegetation; or

ii. a condition imposed in connection with clearance of vegetation permitted under these regulations; or

iii. a condition in respect of clearance permitted under the revoked regulations.

1.7. Development Application information

Table 3. Planning and Design Codes zones and overlays.

Zones	Hills Neighborhood
Overlays	Hazards (Bushfire – High Risk)
	Native Vegetation
	Regulated and Significant Tree

This data report has been submitted with the Development Application.

2. Method

2.1. Desktop assessment

A desktop assessment was undertaken to determine the potential for any threatened fauna species and Threatened Ecological Communities (TECs) (both Commonwealth and State listed) to occur within the Project Area. This was achieved by undertaking database searches using a 5 km buffer of the Project Area (Search Area).

2.1.1. PMST report

A Protected Matters Search Tool (PMST) report was generated on 22/05/2023 to identify nationally threatened flora and fauna, migratory fauna and TECs under the EPBC Act relevant to the Project Area (DCCEEW 2023a). Only species and TECs identified in the PMST report that are likely or known to occur within the Search Area were assessed for their likelihood of occurrence within the Project Area.

2.1.2. BDBSA data extract

A data extract from the Biological Database of South Australia (BDBSA) was obtained from NatureMaps to identify flora and fauna species that have been recorded within 5 km of the Project Area (data extracted 22/05/2023>; DEW 2023). 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 Department for Environment and Water's (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.

2.1.3. Likelihood of occurrence

The criteria for the likelihood of occurrence of threatened species within the Project Area are described in Table 4.

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

Likelihood	Criteria
Highly Likely/Known	Recorded in the last 10 years, the species does not have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution or; The species was recorded as part of field surveys.
Likely	Recorded within the previous 20 years, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.
Possible	Recorded within the previous 20 years, the area falls inside the known distribution of the species, but the area provides limited habitat or feeding resources for the species. Recorded within 20 - 40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.

Likelihood	Criteria
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.

2.2. Flora assessment

The flora assessment was undertaken on 13 May 2023 by NVC Accredited Consultant H Merigot in accordance with the Scattered Tree Assessment Method (STAM) (NVC 2020).

2.2.1. 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 2020).

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 2.1.2) and the lists of scattered tree 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).

2.3. Fauna assessment

2.3.1. Field survey

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, on trees were noted as an indication of availability of suitable habitat. Particular attention was paid to identifying habitat for threatened species. For each fauna opportunistic observation, the species, number of individuals, GPS location, detection methodology (sight, sound, or sign) and habitat were recorded.

2.4. Limitations

2.4.1. Desktop assessment

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

Flora and fauna records were sourced from the PMST and BDBSA. The BDBSA only includes verified flora and fauna records submitted to DEW or partner organisations. It is recognised that knowledge is poorly captured, and 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 and BDBSA flora and fauna records were limited to a 5 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. 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 km radius. 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.

2.4.2. Flora

The ecological assessment was conducted in autumn. Threatened orchid species and numerous forbs, herbs and grasses are typically not in flower at this time of year, and therefore it is possible that species were present that were undetectable at the time of the field survey.

3. Assessment outcomes

3.1. Vegetation assessment

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

The property is a sloped block with an existing driveway that curves to the bottom of the property. The vegetation on the property consists of planted introduced and locally native tree species. The native vegetation consisted predominantly of scattered *Eucalyptus obliqua* (Messmate Stringybark). The *E. obliqua* range for smaller saplings to more mature trees. No trees within the Project Area were hollow bearing. The understorey within the Project Area was highly disturbed consisting of exotic grasses and herbs.

A list of flora species observed within the Project Area is provided in Appendix 1. There was a total of 30 flora species observed during the field survey.

A list of fauna species observed within the Project Area is provided in Appendix 2. There was a total of six fauna species observed during the field survey.

3.1.2. Details of the scattered trees proposed to be impacted

A total of 43 scattered trees are proposed to be impacted within the Project Area, which includes 42 *Eucalyptus obliqua* (Messmate Stringybark) and one *Eucalyptus leucoxylon* ssp. *leucoxylon* (South Australian Blue Gum) from good to excellent in health (Table 5).

Further detail on scattered trees is provided in the Scattered Tree Assessment scoresheet (Attachment 2).

Scattered tree using fauna species in the Project Area are provided in Appendix 3.

Photographs of scattered trees are provided in Appendix 4.

Table 5. Details of the scattered trees proposed to be impacted.

Tree ID	Tree species	# of Trees	Height (m)	Diameter (cm)	Canopy dieback (%)	Biodiversity Score	Fauna Habitat Score
2	*Eucalyptus obliqua*	1	8.0	19	15	0.35	1.8
3	*Eucalyptus obliqua*	1	13.0	23.5	0	0.64	1.8
4	*Eucalyptus obliqua*	1	6.5	19.5	2	0.37	1.8
5	*Eucalyptus obliqua*	1	7.5	22.5	10	0.39	1.8
6	*Eucalyptus obliqua*	1	7.0	13	5	0.31	1.8
7	*Eucalyptus obliqua*	1	5.0	8	20	0.18	1.8
9	*Eucalyptus leucoxylon* ssp. *leucoxylon*	1	3.0	5	0	0.18	1.8
10	*Eucalyptus obliqua*	1	9.0	22.5	0	0.48	1.8
22	*Eucalyptus obliqua*	1	5.0	12.5	2	0.27	1.8
23	*Eucalyptus obliqua*	1	9.0	33.5	20	0.53	1.8
24	*Eucalyptus obliqua*	1	11.0	31.5	0	1.02	1.8
25	*Eucalyptus obliqua*	1	14.0	27	10	1.01	1.8
26	*Eucalyptus obliqua*	1	10.0	26.5	30	0.43	1.8
27	*Eucalyptus obliqua*	1	10.5	28	0	0.61	1.8
28	*Eucalyptus obliqua*	1	10.0	28	0	0.59	1.8
29	*Eucalyptus obliqua*	1	0.5	1	0	0.12	1.8
30	*Eucalyptus obliqua*	1	8.5	26	1	0.50	1.8
31	*Eucalyptus obliqua*	1	7.0	21	5	0.38	1.8
32	*Eucalyptus obliqua*	1	8.0	33.5	0	0.59	1.8
33	*Eucalyptus obliqua*	1	8.0	14.5	0	0.36	1.8
34	*Eucalyptus obliqua*	1	8.5	21	5	0.43	1.8
35	*Eucalyptus obliqua*	1	6.5	18.5	15	0.31	1.8

Tree ID	Tree species	# of Trees	Height (m)	Diameter (cm)	Canopy dieback (%)	Biodiversity Score	Fauna Habitat Score
36	*Eucalyptus obliqua*	1	6.5	24	10	0.38	1.8
37	*Eucalyptus obliqua*	1	6.0	17.5	10	0.31	1.8
38	*Eucalyptus obliqua*	1	6.5	13	0	0.31	1.8
39	*Eucalyptus obliqua*	1	6.5	32	40	0.35	1.8
40	*Eucalyptus obliqua*	1	11.0	44.5	5	1.24	1.8
41	*Eucalyptus obliqua*	1	3.5	10	0	0.22	1.8
42	*Eucalyptus obliqua*	1	4.0	7	5	0.20	1.8
43	*Eucalyptus obliqua*	1	7.0	19.5	25	0.30	1.8
44	*Eucalyptus obliqua*	1	7.0	17	5	0.34	1.8
45	*Eucalyptus obliqua*	1	8.5	40	10	0.98	1.8
46	*Eucalyptus obliqua*	1	8.5	26	0	0.51	1.8
47	*Eucalyptus obliqua*	1	10.0	37	10	1.00	1.8
48	*Eucalyptus obliqua*	1	8.0	41.5	10	0.96	1.8
49	*Eucalyptus obliqua*	1	9.0	21.5	0	0.47	1.8
50	*Eucalyptus obliqua*	1	6.5	20	5	0.36	1.8
51	*Eucalyptus obliqua*	1	5.0	3	0	0.20	1.8
52	*Eucalyptus obliqua*	1	6.0	15.5	0	0.32	1.8
53	*Eucalyptus obliqua*	1	8.0	17	5	0.37	1.8
54	*Eucalyptus obliqua*	1	9.5	22	5	0.47	1.8
55	*Eucalyptus obliqua*	1	8.0	27.5	10	0.47	1.8
56	*Eucalyptus obliqua*	1	0.9	1	0	0.13	1.8

3.1.3. Site map showing areas of proposed impact

Figure 2. Scattered trees within the Project Area. Trees within the 20 m buffer are proposed for clearance.

3.1.4. Photo log

The following photos were taken to give a general idea of the vegetation and landscape in the Project Area (see Figure 3 to Figure 8 inclusive).

Figure 3. Looking north from the south-east corner

Figure 4. Looking south-west from the north-east corner.

Figure 5. Looking north north-east from the south-west corner

Figure 6. Looking south-east from the north-west corner.

Figure 7. Where the dwelling within the Project Area is proposed to be built (1 of 2).

Figure 8. Where the dwelling within the Project Area is proposed to be built (2 of 2).

3.2. Threatened species assessment

3.2.1. Matters of National Environmental Significance

A PMST search identified several Matters of National Environmental Significance (MNES) relevant to the Project Area including:

- One Threatened Ecological Community (TEC), Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia;
- Sixteen listed migratory species; and
- Forty listed threatened species (including 16 plant species and 24 fauna species).

3.2.2. Threatened Ecological Communities

The TEC is described in detail in *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South Eastern Australia: A guide to the identification, assessment and management of a nationally threatened ecological community* (SEWPAC, 2012).

Although the Project Area is within the known distribution of this TEC, Grey Box does not occur within the Project Area and as such is not considered to be the EPBC Act listed Endangered community.

3.2.3. Threatened Flora

Of the 16 nationally listed threatened flora species identified in the PMST or BDBSA search, 12 were listed as 'known' or 'likely' to occur within 5 km of the Project Area. Based on known distributions, records, and suitability of habitat, three have been assessed as possible to occur within the Project Area:

- *Prasophyllum pallidum* (Pale Leek-orchid) (EPBC Act: VU; NPW Act: R);
- *Prasophyllum pruinosum* (Plum Leek-orchid) (EPBC Act: EN; NPW Act: E); and
- *Veronica derwentiana* ssp. *homalodonta* (Mount Lofty Speedwell) (EPBC Act: CE; NPW Act: E).

A BDBSA data extract from NatureMaps found an additional 42 State listed species with records within 5 km of the Project Area since 1995. Based on known distributions, records, and suitability of habitat, 14 are assessed as possible to occur within the Project Area:

- *Bothriochloa macra* (Red-leg Grass) (NPW Act: R);
- *Caladenia pusilla* (Pigmy Caladenia) (NPW Act: R);
- *Diuris behrii* (Behr's Cowslip Orchid) (NPW Act: V);
- *Dianella longifolia var. grandis* (Pale Flax-lily) (NPW Act: R);
- *Eryngium ovinum* (Blue Devil) (NPW Act: V);
- *Festuca benthamiana* (Bentham's Fescue) (NPW Act: R);
- *Glycine tabacina* (Variable Glycine) (NPW Act: V);

- *Logania saxatilis* (Rock Logania) (NPW Act: R);
- *Rytidosperma laeve* (Smooth Wallaby-grass) (NPW Act: R);
- *Sphaerolobium minus* (Leafless Globe-pea) (NPW Act: R);
- *Thelymitra carnea* (Small Pink Sun-orchid) (NPW Act: R);
- *Thelymitra flexuosa* (Twisted Sun-orchid) (NPW Act: R);
- *Thelymitra grandiflora* (Great Sun-orchid) (NPW Act: R); and
- *Thelymitra ixioides* (Spotted Sun-orchid) (NPW Act: E).

Only species listed as known or likely to occur in the PMST search or those with BDBSA records since 1995 within 5 km of the Project Area are discussed further and assessed for potential occurrence within the Project Area (Table 6). BDBSA flora record located within 5 km of the Project Area is provided in Appendix 5.

Table 6. Likelihood of occurrence of threatened flora species identified in the desktop assessment. The data source and threat levels are described in the table footer (green shading = known / highly likely or likely to occur, orange shading = possible to occur) (DCCEEW 2023a; DEW 2023).

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Acacia dodonaeifolia	Hop-bush Wattle		R	2	2017	Endemic to SA and found mainly on southern Eyre Peninsula and southern Mt Lofty Ranges. Grows in woodland and open forest vegetation in hard acidic, yellow duplex, red shallow porous loamy, sandy alkaline yellow duplex soils (SSCC 2018).	**Unlikely** – habitat on site is not suitable and not observed during field survey.
Acacia iteaphylla	Flinders Ranges Wattle		R	2	2022	Naturally occurs in the Flinders Ranges, across to the Gawler Ranges, and on the Eyre Peninsula. Naturalised beyond its native range in some parts of south-eastern and southern SA (SSCC 2018).	**Unlikely –** not within known range of this species, but may occur as offspring from planted individuals.
Allocasuarina robusta	Mount Compass Oak-bush	EN	E	2	2001	Associated with swamps of the Fleurieu Peninsula. Grows in low-lying areas with sandy loam soil, often around the margins of swamps and creeks (Willson and Bignall 2009).	**Unlikely** – no suitable habitat within the Project Area and not generally within the range of this species.
Amphibromus archeri	Pointed Swamp Wallaby-grass		R	2	2017	Grows in damp areas such as lagoons, waterholes, and swamps, often on predominantly sandy soils. Found in KI, in the Mount Lofty Ranges and in the southeast of SA (SSCC 2018).	**Unlikely** – no swampy habitat within the Project Area.
Anogramma leptophylla	Annual Fern		R	2	2005	Common on damp banks and ground amongst grasses or in rocky crevices.	**Unlikely** – Project Area understorey highly

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
							degraded, no suitable habitat on site.
Austrostipa densiflora	Fox-tail Spear-grass		R	2	2008	Found in the Flinders Ranges, southern Mount Lofty Ranges and Kangaroo Island, growing in rocky site on sandy, shallow rock or low-fertility soils. Has a distinct dense flower head (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Austrostipa gibbosa	Swollen Spear-grass		R	2	2021	Occurs in the southern Flinders Ranges, Mount Lofty Ranges and the South-east in SA growing on rich loamy soil along creeks and seasonally wet areas in woodland and grassland (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Austrostipa multispiculis	Many-flowered Spear-grass		R	2	2021	Endemic to South Australia and found on the Yorke Peninsula, Kangaroo Island and the Mount Lofty Ranges growing on limestone loams and sandy loams in woodland and grassland (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Bothriochloa macra	Red-leg Grass		R	2	2013	Mainly found in open grassy woodland communities and is often found in disturbed sites. More common in the SE of SA (SSCC 2018).	**Possible** – some possible habitat on site, but highly disturbed understorey and not observed during the field survey.
Caladenia argocalla	White-beauty Spider-orchid	EN	E	1	Known	Endemic to the Mount Lofty Ranges Region of SA. Occurs in intact grassy woodlands often with *E. leucoxylon* (South Australian Blue Gum) and *Allocasuarina verticillata* (Drooping Sheoak). Usually grows on a gentle slope with a southerly	**Unlikely** – no suitable habitat within the Project Area and understorey within the

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
						aspect and in clay loam soils. Flowering from late September to October (Quarmby 2010).	Project Area highly degraded.
Caladenia behrii	Pink-lipped Spider-orchid	EN	E	1, 2	Known / 2001	Occurs on the Fleurieu Peninsula of SA. Grows in fertile, shallow loams, amongst *Eucalyptus goniocalyx* / *E. fasciculosa* woodland and amongst *E. obliqua* / *E. microcarpa* / *E. leucoxylon* woodland. The understorey is usually open and shrubby. Also recorded amongst *E. fasciculosa* & *Xanthorrhoea semiplana*. Generally found in quartzite-derived soils on steep south facing slopes but also on ridge tops and occasionally near creek beds. Often grows alongside bushwalking paths, vehicle tracks or roads due to the openness of these locations (TSSC 2021).	**Unlikely** – no records < 20 years old, no suitable habitat within the Project Area and understorey within the Project Area highly degraded.
Caladenia gladiolata	Bayonet Spider-orchid	EN	E	1	Likely	Occurs singly or in small groups in shrubby or grassy woodland and forest in well-drained soils dominated by *Eucalyptus leucoxylon, Eucalyptus cladocalyx* or *Eucalyptus fasciculosa*. Only known from a few populations (Quarmby 2010).	**Unlikely** – no suitable habitat within the Project Area and understorey within the Project Area highly degraded.
Caladenia leptochila ssp. *leptochila*	Narrow-lip Spider-orchid		R	2	2017	Found growing in clay or gravelly soils in shrubby forest in the Mount Lofty Ranges (Jones, 2006).	**Unlikely** – no suitable habitat within the Project Area and understorey within the Project Area highly degraded.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Caladenia pusilla	Pigmy Caladenia		R	2	2016	Widespread but localised, mostly in damp heathland and woodland near the coast and dry sclerophyll forest inland, often on well-drained sandy soils (Royal Botanic Gardens Victoria 2020).	**Possible** – some suitable overstorey within the Project Area, however understorey highly disturbed.
Caladenia rigida	Stiff White Spider-orchid	EN	E	1	Known	Inhabits ridge tops and hillslopes in grey-brown loam often associated with coarse quartzite gravel or sandstone pebbles. Vegetation is usually an open-forest with a relatively open understorey of low shrubs and sedges (Quarmby 2010).	**Unlikely** – no recent records, although some suitable habitat but highly degraded understorey.
Caladenia tensa	Greencomb Spider-orchid	EN		1	Likely	Aeolian sand deposits in Callitris, *E. leucoxylon* Woodland and *Melaleuca uncinata* mallee in Murray-Darling Depression bioregion. Winter active geophyte, with long narrow leaf emerging, followed by 1-2 flowers (TSSC 2016a).	**Unlikely** – no recent records, no suitable habitat on site and highly disturbed understorey.
Cardamine gunnii	Spade-leaf Bitter-cress		V	2	2019	Found primarily in the lower South-east in South Australia, growing in moist habitats. Previously known only from one Native Forest Reserve in lowland redgum swamps (SSCC 2018).	**Unlikely** – scattered records in the MLR, habitat in Project Area is highly disturbed.
Carex gunniana	Mountain Sedge		R	2	2018	Occurs mainly on swampy and damp ground primarily alongside streams and watercourses.	**Unlikely** – no suitable habitat on site, understorey highly degraded.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Cladium procerum	Leafy Twig-rush		R	2	2014	Found in northern and southern Flinders Ranges, southern Mount Lofty Ranges and lower South-east in South Australia growing in coastal swamps and margins of deep-water creeks (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Correa glabra var. *leucoclada*	Rock Correa		R	2	2019	Found in the southern Mount Lofty ranges in South Australia, growing in hilly areas along banks of streams in shady spots (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Dennstaedtia davallioides	Lacy Ground-fern		E	2	1996	Naturalised in SA, located in the SE. Occurs on rainforest margins or moist sites in tall open forest.	**Unlikely** – no recent records, no suitable habitat on site, understorey highly degraded.
Dianella longifolia var. *grandis*	Pale Flax-lily		R	2	2022	Occurs under a variety of overstorey Eucalypt species but is a grassy woodland specialist, e.g., Blue Gum, Candlebark, Manna Gum, Stringybark and Grey Box.	**Possible** – recent records but understorey highly disturbed and not observed during field survey.
Diuris behrii	Behr's Cowslip Orchid		V	2	2022	Found in the southern Flinders Ranges and the Mount Lofty Ranges with a few records from Eyre Peninsula growing in native grassland, open woodland and grassy forest; grows on more fertile soils, especially amongst *Themeda* sp. (Kangaroo Grass) and *Triodia* on gentle slopes and flats (SSCC 2018).	**Possible** – despite recent records, understorey is highly degraded and unlikely to support this species.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Drosera praefolia	Early Sundew		R	2	1995	Usually occurs in dry exposed sites in compacted clay-sand in low woodland associated with *Eucalyptus fasciculosa, Acacia paradoxa, Allocasuarina verticillata, Xanthorrhoea semiplana*. Often on exposed ridge tops but extending almost to sea level. Commonly occurs with other *Drosera* spp. An isolated population occurs in Mount Bold (Bates 1991).	**Unlikely** – no recent records, highly disturbed understorey and not observed during field survey.
Eryngium ovinum	Blue Devil		V	2	2021	Found in the wetter parts of the Mount Lofty Ranges and a few sites in the lower South-East in South Australia, growing in open woodland on damp clay and sandy soils (SSCC 2018).	**Possible** – despite recent records, highly disturbed understorey is unlikely to support this species.
Eucalyptus fasciculosa	Pink Gum		R	2	2022	Grows on moist, well-drained alluvial soils near watercourses but also grows on drier sites at higher altitudes. Tolerates snow and some flooding (Nicolle, 2013).	**Unlikely** – despite recent records, it was not observed during field survey.
Eucalyptus viminalis ssp. *viminalis*	Manna Gum		R	2	2022	Generally recorded as growing in mallee scrubland but has also been found growing in coastal heathlands, sclerophyll forests and woodlands. It is also found in heathy openings in wet sclerophyll forest and in a swamp at Mt Compass (Nicolle, 2013).	**Unlikely** – despite recent records, it was not observed during field survey.
Festuca benthamiana	Bentham's Fescue		R	2	2013	Limited information available, distribution widespread but localised in SA. Known from the	**Possible** – suitable habitat may occur in the

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
						MLR and Flinders Ranges. Recently has been located in Sturt Gorge.	Project Area, but unlikely to persist in highly degraded understorey.
Glycine latrobeana	Clover Glycine	VU	V	1	Known	Inhabits native grasslands, dry sclerophyll forests, woodlands and low open woodlands, typically with a grassy ground layer, and growing on undulating plains. Prefers gentle south-west facing ridge slopes and lower south facing river valley slopes (Carter and Sutter 2010).	**Unlikely** – no recent records, no suitable habitat on site and highly disturbed understorey.
Glycine tabacina	Variable Glycine		V	2	2021	Found in the southern Flinders Ranges, southern Mount Lofty Ranges and the lower South-east in South Australia, growing in *Eucalyptus camaldulensis* woodland, more often in shady or moist gullies on sandy loam soils (SSCC 2018).	**Possible** – recent records, however vegetation and understorey in Project Area is not suitable.
Grevillea angustiloba ssp. *wirregaensis*	Dissected Holly-leaf Grevillea		E	2	2017	Primarily found in the SE of South Australia, in heath and mallee woodland.	**Unlikely** – outside of known distribution of this species, no suitable habitat.
Grevillea aquifolium	Prickly Grevillea		R	2	2011	On calcareous sand in sclerophyllous woodland, and in heath on sands, limestone pavements and sandstone outcrops.	**Unlikely** – no suitable habitat within the Project Area and highly degraded understorey.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Isoetes drummondii ssp. *drummondii*	Plain Quillwort		R	2	2004	Growing in wet depressions subject to flooding in the winter and spring months.	**Unlikely** – no recent records, no suitable habitat on site, understorey highly degraded.
Juncus amabilis			V	2	2013	Found in the southern Mount Lofty Ranges and the South-east in South Australia, growing damp sites.	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Juncus australis	Austral Rush		R	2	2009	Found in the southern Mount Lofty Ranges and the South-east in South Australia, growing in wet or seasonally wet situations in grasslands and woodlands (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Juncus prismatocarpus	Branching Rush		E	2	2018	Found at Mypolonga and Mount Compass in South Australia, growing along the edges of creeks and rivers near permanent water (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Logania saxatilis	Rock Logania		R	2	2020	Occurs in the FR, NL, MU, SL regions of SA. Associated with Grassy Woodlands in the foothills and hills face of the Southern Lofty Ranges.	**Possible** – some suitable habitat may occur on site, however highly degraded understorey.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Luzula ovata	Clustered Wood-rush		R	2	2013	Occurs in the Mount Lofty Ranges and the lower South-east in South Australia, growing in swampy areas (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Microtis rara	Sweet Onion-orchid		R	2	2016	Uncommon plant occurring in small groups around permanent swamp margins often in deeply shaded places and flowering more freely after bushfires.	**Unlikely** – no suitable habitat on site and highly degraded understorey.
Olearia pannosa ssp. *pannosa*	Silver Daisy-bush	VU	V	1	Likely	Endemic to SA, scattered throughout agricultural areas. Occurring in sandy flat areas and in hilly rocky areas in woodland or mallee, including overlapping with Peppermint Box Grassy Woodland of SA (DOE 2013).	**Unlikely** – no suitable habitat within the Project Area and highly degraded understorey.
Prasophyllum pallidum	Pale Leek-orchid	VU	R	1, 2	Known / 2017	Pale Leek-orchid is known singly or in groups in better soils of woodland and grassy open forest. Recorded in woodlands and forests dominated by *Eucalyptus leucoxylon, E. goniocalyx, E. fasciculosa, E. microcarpa, Callitris gracilis/Eucalyptus fasciculosa*, and *Allocasuarina verticillata* (Bates 2009).	**Possible** – although some suitable habitat on site understorey is highly degraded.
Prasophyllum pruinosum	Plum Leek-orchid	EN	E	1, 2	Known / 2017	It has been recorded in the Adelaide and MLR region from eight geographically isolated and distinct locations, which extend from the Barossa Valley to Belair NP. Preferred habitat includes open woodland and grassy forest, in the open or in the	**Possible** – although some suitable habitat on site understorey is highly degraded.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
						shelter of broom-like shrub growing in fertile loams, usually with other leek-orchids (Bates, 2009).	
Pterostylis arenicola	Sandhill Greenhood	VU	V	2	2012	Occurs within mallee communities that are usually dominated by *Eucalyptus porosa, Eucalyptus diversifolia, Acacia pycnantha*, and *Allocasuarina verticillata*, with understorey typically composed of open shrub, heath, sedge and grass (DEWHA 2008).	**Unlikely** – no suitable habitat within the Project Area and highly degraded understorey.
Pterostylis cucullata ssp. *sylvicola*	Leafy Greenhood	VU	E	1, 2	Known / 2016	There are two subspecies of *Pterostylis cucullata*. One is a coastal ssp. that occurs in stabilised coastal sand dunes, on open ground but under a scrub layer. The other ssp. is a montane variety which occurs on riverbanks or protected alluvial flood plains (TSSC 2016b).	**Unlikely** – no suitable habitat within the Project Area and highly degraded understorey.
Pterostylis curta	Blunt Greenhood		R	2	2018	Often in moist shaded areas on heavy to well-drained soils mostly in open forest and wet sclerophyll forests and coastal scrub.	**Unlikely** – no suitable habitat within the Project Area and highly degraded understorey.
Pterostylis foliata	Slender Greenhood		R	2	2018	Occurs in small groups in sheltered, shaded spots in open forest often with *Eucalyptus fasciculosa* and colonising *Pinus radiata* plantations. Widespread but uncommon in the Adelaide hills (eFlora 2007).	**Unlikely** – no suitable habitat within the Project Area and highly degraded understorey.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Ptilotus angustifolius	Narrow-leaf Yellow-tails		E	2	2017	Endemic to South Australia and found near Quorn, north-east of Port Augusta, south to Victor Harbor, growing on rocky slopes or hills, occurring with *Eucalyptus microcarpa* (SSCC 2018).	**Unlikely** – no suitable habitat within the Project Area and highly degraded understorey.
Rytidosperma laeve	Smooth Wallaby-grass		R	2	2013	Ecologically variable, from alpine moorland to open grassland or light woodland, often in seasonally damp habitats (Sharp and Simon 2002).	**Possible** – some suitable habitat within the Project Area but highly degraded understorey.
Sphaerolobium minus	Leafless Globe-pea		R	2	2019	Scattered mainly across higher rainfall parts of SA and southern Victoria, occurring in sclerophyll forests, woodlands and heathlands Royal Botanic Gardens Victoria 2020).	**Possible** – recent records but understorey highly disturbed and not observed during field survey.
Stellaria angustifolia ssp. *tenella*	Swamp Starwort		R	2	2013	Found on Kangaroo Island, southern Mount Lofty Ranges and the lower South-east in South Australia, growing in in moist areas around swamps, rivers, lakes or dams often found growing in muddy or grassy areas after water has receded (SSCC 2018).	**Unlikely** – no suitable habitat on site, understorey highly degraded.
Thelymitra carnea	Small Pink Sun-orchid		R	2	2017	Widespread and relatively common, solitary or in small colonies, occurring in a variety of habitats, from margins of swampy heaths to open-forests of drier areas (Royal Botanic Gardens Victoria 2020).	**Possible** – suitable habitat may occur in the Project Area, but unlikely to persist in

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
							highly degraded understorey.
Thelymitra flexuosa	Twisted Sun-orchid		R	2	2016	Occurs singly or as small clumps of plants in soil which is very wet in winter, in open forest or heathland in higher rainfall districts (eFlora 2007).	**Possible** – suitable habitat may occur in the Project Area, but unlikely to persist in highly degraded understorey.
Thelymitra grandiflora	Great Sun-orchid		R	2	2020	Occurs singly or as small clumps of plants in forest clearings, woodland and scrub in well drained gravelly clay soils which may be laterite or podsols, or mixed with sand, extending to dry rocky ridges in better soils (Bates 2009).	**Possible** – suitable habitat may occur in the Project Area, but unlikely to persist in highly degraded understorey.
Thelymitra ixioides	Spotted Sun-orchid		E	2	2013	Found in the southern Mount Lofty Ranges and the lower South-east in South Australia, growing in woodland or swampy ground (SSCC 2018).	**Possible** – suitable habitat may occur in the Project Area, but unlikely to persist in highly degraded understorey.
Thelymitra matthewsii	Spiral Sun-orchid	VU	E	1	Likely	Favours open forests and woodlands in well-drained sand and clay loams. It is a post-disturbance coloniser that is usually found in open areas around old quarries and gravel pits, on road verges, disused tracks and animal trails. In SA, it is	**Unlikely** – no recent records and highly degraded understorey within the Project Area.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
						known from three fairly old collections from KI and in SW of Keith. It has recently been found to occur south of Meningie, and on western KI. Open ground layer is common (Duncan 2010).	
Veronica derwentiana ssp. *homalodonta*	Mount Lofty Speedwell	CE	E	1	Likely	Occurs in moist areas, gullies, creeklines and high rainfall areas. Largely occurs in *Eucalyptus obliqua* Forests with or without additional overstorey species (such as *Eucalyptus fasciculosa, Eucalyptus viminalis* ssp. *cygnetensis* & *Eucalyptus leucoxylon*) (TSSC 2009).	**Possible** – no recent records, however some suitable habitat, although highly degraded understorey unlikely to support this species.

Conservation status:
Aus: Australia (EPBC Act). SA: South Australia (NPW Act). 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. Mi (W): listed as a Migratory Wetland species under the EPBC Act. Mi (Ma): listed as a Migratory Marine species under the EPBC Act.
PMST result: Likelihood of species or species habitat to occur within 5 km of the Project Area.
Source of Information:
1: PMST (DCCEEW 2023a) – 5 km buffer applied to Project Area.
2: BDBSA search (DEW 2023a) – 5 km buffer applied to Project Area.
Abbreviations within Distribution and preferred habitat:
EP: Eyre Peninsula; FP: Fleurieu Peninsula; FR: Flinders Ranges; KI: Kangaroo Island; MLR: Mount Lofty Ranges; MU: Murraylands; NL: Northern Lofty; NP: National Park; NSW: New South Wales QLD: Queensland; SL: Southern Lofty; SE: Southeast / South-Eastern; SW: South-Western; Tas: Tasmania; Vic: Victoria; WA: Western Australia; YP: Yorke Peninsula.

3.2.4. Threatened Fauna

Of the 40 nationally listed threatened fauna and migratory species identified in the PMST or BDBSA search, 23 were listed as 'known' or 'likely' to occur within 5 km of the Project Area. Based on known distribution, records, and suitability of habitat, one was assessed as likely to occur within the Project Area:

- *Pteropus poliocephalus* (Grey-headed Flying-fox) (EPBC Act: VU; NPW Act: R).

Additionally, based on known distributions, records, and suitability of habitat, two are assessed as possible to occur within the Project Area:

- *Isoodon obesulus obesulus* (Southern Brown Bandicoot) (EPBC Act: EN; NPW Act: V); and
- *Zoothera lunulata halmaturina* (South Australian Bassian Thrush) (EPBC Act: EN; NPW Act: R).

A BDBSA data extract from NatureMaps found an additional 16 State listed species with records within 5 km of the Project Area since 1995. Based on known distributions, records, and suitability of habitat, 3 are considered likely to occur within the Project Area:

- *Falco peregrinus macropus* (Peregrine Falcon) (NPW Act: R);
- *Petroica boodang boodang* (Scarlet Robin) (NPW Act: R); and
- *Zanda funerea whiteae* (Yellow-tailed Black Cockatoo) (NPW Act: V).

Additionally, based on known distributions, records, and suitability of habitat, five State listed species are assessed as possible to occur within the Project Area:

- *Antechinus flavipes* (Yellow-footed Antechinus) (NPW Act: V);
- *Coturnix ypsilophora australis* (Brown Quail) (NPW Act: V);
- *Falcunculus frontatus frontatus* (Eastern Shriketit) (NPW Act: R);
- *Lophoictinia isura* (Square-tailed Kite) (NPW Act: E); and
- *Trichosurus vulpecula* (Common Brushtail Possum) (NPW Act: R).

Only species listed as known or likely to occur in the PMST search or those with BDBSA records since 1995 within 5 km of the Project Area are discussed further and assessed for potential occurrence within the Project Area (Table 7). BDBSA fauna record located within 5 km of the Project Area is provided in Appendix 6.

Table 7. Likelihood of occurrence of threatened flora species identified in the desktop assessment. The data source and threat levels are described in the table footer (green shading = known / highly likely or likely to occur, orange shading = possible to occur) (DCCEEW 2023a; DEW 2023).

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
AMPHIBIA							
Pseudophryne bibronii	Brown Toadlet		R	2	2010	In SA, it occurs in the SE, KI, MLR and FR regions. Found in damp areas with cover provided by logs and stones. Occupies forests, heathlands and grasslands. Occasionally utilizes small temporary dams and vegetated roadside drainage lines and ditches which are characterized by leaf litter and grassy debris (Wilson and Bignall 2009).	**Unlikely** – no wetland habitat within the Project Area.
AVES							
Actitis hypoleucos	Common Sandpiper	Mi (W)	R	1	Likely	Varied coastal and interior wetlands: narrow muddy edges of billabongs, river pools, mangroves, among rocks reefs and rocky beaches (Morcombe 2021).	**Unlikely** – no wetland habitat within the Project Area.
Aphelocephala leucopsis	Southern Whiteface	VU		1	Likely	Occurs in open woodland and shrubland habitat with an understorey of grasses and / or low shrubs. Suitable habitat is usually dominated by *Acacia* spp. or *Eucalyptus* spp. on ranges, foothills, lowlands and plains (DCCEEW 2023b).	**Unlikely** – outside of main distribution of this species, no recent records.
Apus pacificus	Fork-tailed Swift	Mi (Ma)		1	Likely	Widespread but almost exclusively aerial. Mostly occur over inland plains and dry or open habitats.	**Unlikely** – no recent records, no suitable habitat, may only occur as flyover.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Botaurus poiciloptilus	Australasian Bittern	EN	E	1	Known	Freshwater wetlands and rarely in estuaries or tidal wetlands, favouring wetlands dominated by sedges, rushes and reeds growing over a muddy or peaty substrate.	**Unlikely** – no wetland habitat within the Project Area.
Calidris ferruginea	Curlew Sandpiper	CE Mi (W)	E	1	Likely	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons. They occur in both fresh and brackish waters (DOE 2015).	**Unlikely** – no wetland habitat within the Project Area.
Corcorax melanorhamphos whiteae	White-winged Chough		R	2	2023	Prefers drier forests, woodlands of *Eucalyptus* sp., crops and pastures (Pizzey and Knight 2021).	**Unlikely** – habitat within Project Area not preferred.
Coturnix ypsilophora australis	Brown Quail		V	2	2017	Prefers dense grasslands, often on the edges of open forests, and bracken (Birdlife Australia 2023).	**Possible** – within distribution of this species, but no dense understorey. May traverse through Project Area only.
Falco hypoleucos	Grey Falcon	VU	R	1, 2	Known / 2003	This species is mainly found where annual rainfall is less than 500 mm and is essentially confined to the arid and semi-arid zones at all times. The species frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses (Schoenjahn 2018).	**Unlikely** – no recent records, no suitable habitat within the Project Area.
Falco peregrinus macropus	Peregrine Falcon		R	2	2020	Found everywhere from woodlands to open grasslands and coastal cliffs – though less frequently	**Likely** – some suitable habitat within the

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
						in desert regions. This species prefers open habitats such as grasslands, tundra and meadows and nests on cliff faces and in crevices (Pizzey and Knight 2021).	Project Area, recent record.
Falcunculus frontatus frontatus	Eastern Shriketit		R	2	2008	Eucalyptus woodlands and forest, within a wide range of woodland/forest communities. Prefers dense grasslands, often on the edges of open forests, and bracken (Birdlife Australia 2023).	**Possible** – older record, vagrant to this area. Some suitable habitat within the Project Area, recent record.
Gallinago hardwickii	Latham's Snipe	Mi (W)	R	1	Likely	This is a wetland species that occurs on shallow water with tussocks and other green or dead growth (Pizzey and Knight 2021).	**Unlikely** – no wetland habitat within the Project Area.
Gerygone olivacea olivacea	White-throated Gerygone		R	2	2002	Prefers tress and saplings in open forests and woodlands, lightly timbered hills and scrub regrowth. Sometimes found in trees along watercourses (Pizzey and Knight 2021).	**Unlikely** – vagrant to the area, no recent records.
Grantiella picta	Painted Honeyeater	VU	R	1	Likely	Forest, woodland, dry scrub, often with abundant mistletoe. Dependent on mistletoe berries (DAWE 2021a).	**Unlikely** – vagrant to the area, regionally extinct in the MLR. No recent records.
Hirundapus caudacutus	White-throated Needletail	VU Mi (T)		1	Known	Almost exclusively aerial in Australia, recorded most commonly above wooded areas (Pizzey and Knight 2021).	**Unlikely** – no recent records, no suitable habitat, may only occur as flyover.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Hylacola pyrrhopygia parkeri	Chestnut-rumped Heathwren	EN	E	1	Known	Inhabits heaths of coastal, mountain and hinterland areas, dense undergrowth of forests and woodlands. Found in South-eastern Australia. In SA occurs in the SE, Adelaide Mount Lofty Ranges and Northern Yorke districts (Wilson and Bignall 2009).	**Unlikely** – no recent records. No suitable habitat within the Project Area.
Lathamus discolor	Swift Parrot	CE	E	2	1995	Swift Parrots are found in dry sclerophyll forests and woodlands, suburban parks and gardens, and flowering fruit trees. In Tasmania, where they breed, they are often among Tasmanian Blue Gum (*Eucalyptus globulus*). Infrequently sighted in the Mount Lofty Ranges in the past but not for a number of years (Birdlife Australia 2023).	**Unlikely** – no recent records, vagrant to MLR, considered regionally extinct in the MLR.
Leipoa ocellata	Malleefowl	VU	V	1	Likely	Inhabits semi-arid regions of southern Australia. Occupies shrublands and low woodlands that are dominated by mallee vegetation. It also occurs in other habitat types including eucalypt or native pine Callitris woodlands, acacia shrublands, Broombush vegetation or coastal heathlands (Benshemesh 2007).	**Unlikely** – no suitable habitat within the Project Area.
Lophoictinia isura	Square-tailed Kite		E	2	2019	The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW and Victoria. Found in a variety of timbered habitats including dry woodlands	**Possible** – some suitable habitat within the Project Area.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
						and open forests. Shows a particular preference for timbered watercourses (Pizzey and Knight 2021).	
Melanodryas cucullata cucullata	South-eastern Hooded Robin	EN	R	1	Likely	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. Sub-populations in SA are recorded from the Barossa, Monarto, Onkaparinga River, Ashbourne, Port Willunga areas as well as isolated records from elsewhere in the hills and Fleurieu. Requires large remnants (>50 ha) with open areas, young eucalypts or shrubs for nesting and numerous perches for foraging (DCCEEW 2023c).	**Unlikely** – no recent records, habitat within the Project Area is not preferred.
Myiagra cyanoleuca	Satin Flycatcher	Mi (T)	E	1	Likely	Known inhabitant of forest, woodland, mangroves and coastal heath scrub. Prefers dense, wet gullies of heavy eucalypt forest in breeding season (Morcombe 2021).	**Unlikely** – no recent records, vagrant to MLR.
Myiagra inquieta	Restless Flycatcher		R	2	2008	Found throughout northern and eastern mainland Australia, as well as in south-western Australia. The Restless Flycatcher is found in open forests and woodlands and is frequently seen in farmland (Birdlife Australia 2023).	**Unlikely** – no suitable habitat within the Project Area.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Neophema chrysostoma	Blue-winged Parrot	VU	V	1	Likely	Blue-winged parrots inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones (DCCEEW 2023d).	**Unlikely** – no recent records, no suitable habitat within the Project Area.
Oriolus sagittatus sagittatus	Olive-backed Oriole		R	2	2004	Occurs in SE SA and is a vagrant visitor to the rest of the state where it lives in forests, woodlands and rainforests, as well as well-treed urban areas, particularly parks and golf courses (Pizzey and Knight 2021).	**Unlikely** – no recent records, vagrant to MLR.
Pandion haliaetus	Osprey	Mi (W)		1	Likely	Prefers coastal and terrestrial wetlands and require a range of habitats from coastal cliffs, estuaries, mangroves and large lakes for foraging (DAWE 2020).	**Unlikely** – no recent records, no suitable habitat within the Project Area.
Petroica boodang boodang	Scarlet Robin		R	2	2018	This species occurs in foothill forests, woodlands and watercourses. In autumn-winter, they occur in more open habitats such as river red gum woodlands, golf courses, parks, orchards and gardens (Birdlife Australia 2023).	**Likely** – suitable habitat within the Project Area.
Rostratula australis	Australian Painted Snipe	EN	E	1	Likely	Generally, inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged	**Unlikely** – no wetland habitat within the Project Area.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
						grassland or saltmarsh, dams, rice crops, sewage farms and bore drains (DCCEEW 2022).	
Stagonopleura bella samueli	Western Beautiful Firetail	EN	R	1	Likely	Resides in a wide range of Eucalypt dominated vegetation communities that have a grassy understorey, including woodland, forest and mallee. Only small pockets of this species have been observed near the coast (Birdlife Australia 2023).	**Unlikely** – no recent records, no suitable habitat within the Project Area.
Stagonopleura guttata	Diamond Firetail	VU	V	1	Known	Endemic to Australia, occurring mainly on the inland slopes of the Great Dividing Range and in the AMLR/Eyre Peninsula region of SA. Reside in a wide range of Eucalypt dominated vegetation communities that have a grassy understorey, including woodland, forest and mallee. Most occur on the inland slopes of the Great Dividing Ranges, with only small pockets near the coast (DCCEEW 2023e).	**Unlikely** – no recent records, habitat within the Project Area is not preferred.
Tringa nebularia	Common Greenshank	Mi (W)		1	Likely	Found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. It occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass (Pizzey and Knight 2021).	**Unlikely** – no wetland habitat within the Project Area.
Zanda funerea whiteae	Yellow-tailed Black Cockatoo		V	2	2021	Eucalyptus forests and woodlands. Plantations of Eucalyptus and introduced Pinus sp. (Pizzey and Knight 2021).	**Likely** – suitable habitat within the Project Area.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Zoothera lunulata halmaturina	South Australian Bassian Thrush	EN	R	1, 2	Known / 2013	Damp, densely forested areas and gullies are favoured by the Bassian Thrush, usually with a thick canopy overhead and leaf-litter below (DAWE 2022).	**Possible** – within distribution of this species, but no dense understorey. May traverse through Project Area.
MAMMALIA							
Antechinus flavipes	Yellow-footed Antechinus		V	2	2023	The Yellow-footed Antechinus occupies a variety of habitats, including dry arid scrubland and sclerophyll forest. Generally occurs in leaf litter, fallen logs and areas of denser understorey (Menkhorst and Knight 2010).	**Possible** – within distribution of this species, but no dense understorey. May traverse through Project Area.
Isoodon obesulus obesulus	Southern Brown Bandicoot	EN	V	1, 2	Known / 2023	This species prefers dense ground cover, tall grass and low shrubbery. They live near swamps and rivers as well as in thick scrub in drier areas. They make their nests on the ground and in logs. The nests consist of sticks, leaves, grass, and soil (TSSC 2016c).	**Possible** – within distribution of this species, but no dense understorey. May traverse through Project Area.
Ornithorhynchus anatinus	Platypus		E	2	2017	Found in freshwater systems and relies on the banks of water bodies for the establishment of resting and nesting areas (Grant and Temple-Smith 2010).	**Unlikely** - no suitable habitat within the Project Area.
Pteropus poliocephalus	Grey-headed Flying-fox	VU	R	1, 2	Likely / 2020	Grey-headed Flying-foxes forage up to 40 km from their roost at Botanic Park each night. Food plants	**Likely** – suitable habitat within the Project Area.

Scientific Name	Common Name	EPBC Act	NPW Act	Data source	PMST likelihood/ Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
						are typically planted trees, both native and exotic, that provide fruit or a rich source of nectar (DAWE 2021b).	
Trichosurus vulpecula	Common Brushtail Possum		R	2	2020	Utilises various woodland habitats and suburban environs. Feeds on flowers, fruit, buds and leaves of native vegetation. Requires hollows (within dead or alive tree) or on ground for daytime nesting (Strahan & van Dyck 2008).	**Possible** – recent records, but no suitable hollow bearing trees within the Project Area.
REPTILIA							
Egernia cunninghami	Cunningham's Skink		E	2	2017	Occurs in forests and rock outcrops where they bask on top of outcrops and will scurry between rock ledges to shelter (Cogger 2014).	**Unlikely** – no suitable habitat within the Project Area.
Varanus rosenbergi	Heath Goanna		V	2	2007	Habitat across southern Australia includes coastal heaths, humid woodlands, and wet and dry sclerophyll forests (Cogger 2014).	**Unlikely** – no suitable habitat within the Project Area.

Conservation status:
Aus: Australia (EPBC Act). SA: South Australia (NPW Act). 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. Mi (W): listed as a Migratory Wetland species under the EPBC Act. Mi (Ma): listed as a Migratory Marine species under the EPBC Act.
PMST result: Likelihood of species or species habitat to occur within 5 km of the Project Area.
Source of Information:
1: PMST (DCCEEW 2023a) – 5 km buffer applied to Project Area.
2: BDBSA search (DEW 2023) – 5 km buffer applied to Project Area.
Abbreviations within Distribution and preferred habitat:
EP: Eyre Peninsula; FP: Fleurieu Peninsula; FR: Flinders Ranges; KI: Kangaroo Island; MLR: Mount Lofty Ranges; MU: Murraylands; NL: Northern Lofty; NP: National Park; NSW: New South Wales QLD: Queensland; SL: Southern Lofty; SE: Southeast / South-Eastern; SW: South-Western; Tas: Tasmania; Vic: Victoria; WA: Western Australia; YP: Yorke Peninsula.

3.3. 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 impacts of the proposal include the complete removal of native vegetation 43 scattered trees, which includes 42 *Eucalyptus obliqua* (Messmate Stringybark) and one *Eucalyptus leucoxylon* ssp. *leucoxylon* (South Australian Blue Gum).

All construction access and earthworks fall within the works extent of the Project Area. A 20 m fire prevention buffer around the dwelling contributes to the cumulative impact of the Project due to Regulation 9(1) clause 17 Fire prevention and control.

Potential indirect impacts of the proposal include:

- Dust generation during construction, which may impact surrounding vegetation; and
- Noise generation, both during construction and from traffic, which may impact fauna species in the area.
- Changes to flow regimes, which may impact surrounding vegetation.

3.4. 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 applicant has chosen the location of the house to utilise the existing cleared area and driveway access. The form of the house and inclusion of garaging under the house footprint has been designed to reduce the extent of the building across the site with the benefit of retaining vegetation.

The applicant is restricted from minimising their clearance by the Native Vegetation Regulations 2017 (Regulation 9(1) clause 17 Fire prevention and control) requiring the clearance of all vegetation within 20 m of a new dwelling. CFS information is still to be obtained as council have requested Native Vegetation data report prior to CFS assessment. The applicant only plans to clear native vegetation as required by CFS.

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 sewer connection point is at the western corner of the block. Trenching to this connection point is to be down the existing track so as to minimise any disturbance to the Native Vegetation. Stormwater overflow from the house tank (minimal overflow expected as the whole of house is plumbed to this tank) will terminate into a rock filled swale running along contours as per the site plan in Attachment 1. Trenching to this swale can be minimal and positioned so as not to interfere with Native Vegetation. Sewerage, stormwater requirements and rainwater tanks will all be located within the 20 m fire prevention buffer.

The existing track will require an upstand or swale on the outer side to manage potential erosion and negative impacts on Native Vegetation.

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.

The applicant is keen to 'live in the bush' and will engage in a restorative approach to site landscaping. They will use endemic plant species to help retain the newly imposed levels as well as minimise stormwater run-off and maintain this vegetation as per CFS recommendations.

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.

The applicant will offset any clearance with a payment into the Native Vegetation Fund.

3.5. 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*.

Table 8. Assessment against the Principles of Clearance.

Principle of clearance	Considerations
Principle 1(a) – it comprises a high level of diversity of plant species	Relevant information No remnant bushland was present within the Project Area. The vegetation in the Project Area consists of native remnant scattered trees. A total of 30 flora species were observed in the Project Area, which included eight native and 22 introduced species. None of these species are listed as threatened under the EPBC Act or NPW Act. A total of 43 scattered trees are proposed for removal within the Project Area, which includes 42 *Eucalyptus obliqua* (Messmate Stringybark) and one *Eucalyptus leucoxylon* ssp. *leucoxylon* (South Australian Blue Gum). Threatened Flora Score – 0
	Assessment against the principles Not at Variance
	Moderating factors that may be considered by the NVC N/A

Principle of clearance	Considerations
Principle 1(b) – significance as a habitat for wildlife	Relevant information A number of EPBC Act and NPW Act listed fauna species were assessed as likely or possibly to occur in the Project Area based on known distributions, and suitability of habitat and / or presence of recent records within 5km of the Project Area: • *Pteropus poliocephalus* (Grey-headed Flying-fox) (EPBC Act: VU; NPW Act: R). • *Isoodon obesulus obesulus* (Southern Brown Bandicoot) (EPBC Act: EN; NPW Act: V); and • *Zoothera lunulata halmaturina* (South Australian Bassian Thrush) (EPBC Act: EN; NPW Act: R). • *Falco peregrinus macropus* (Peregrine Falcon) (NPW Act: R); • *Petroica boodang boodang* (Scarlet Robin) (NPW Act: R); and • *Zanda funerea whiteae* (Yellow-tailed Black Cockatoo) (NPW Act: V). • *Antechinus flavipes* (Yellow-footed Antechinus) (NPW Act: V); • *Coturnix ypsilophora australis* (Brown Quail) (NPW Act: V); • *Falcunculus frontatus frontatus* (Eastern Shriketit) (NPW Act: R); • *Lophoictinia isura* (Square-tailed Kite) (NPW Act: E); and • *Trichosurus vulpecula* (Common Brushtail Possum) (NPW Act: R). There was a total of six fauna species observed during the field survey, all of which were birds. Trees; Fauna Habitat Score – 1.8 (all trees) Biodiversity Score – 0.12 - 2.02
	Assessment against the principles Seriously at Variance All trees
	Moderating factors that may be considered by the NVC The removal of 43 scattered trees is unlikely to adversely affect habitat critical to the survival of wildlife, in particular threatened species. Of the EPBC Act listed threatened species assessed as potentially occurring within the Project Area, two area typically occur in and use dense understorey, Southern Brown Bandicoot and South Australian Bassian Thrush. The Project Area does not contain dense understorey habitat, consisting predominantly of exotic grasses. As such, the clearance of vegetation for this dwelling is unlikely to lead to a long-term decrease in the size of populations, reduce the area of occupancy or fragment populations of threatened fauna species. Although there are nearby records of Grey-headed Flying Foxes and this area may be used for perching and foraging, it is approximately 11 km from the nearest camp. As such, clearance is unlikely to negatively impact on critical habitat or affect the size of the population, area of occupancy, or contribute to the decline of this species. For the EPBC Act listed species. The vegetation within the Project Area is not critical habitat as it is not preferred habitat and as such these species are unlikely to be adversely impacted by this clearance.

Principle of clearance	Considerations
	Additionally, the vegetation proposed to be removed is unlikely to be considered critical habitat for the state listed species listed above for the following reasons: - There is no understorey present (for the Yellow-footed Antechinus and Brown Quail); - there is an absence of hollows within the Project Area (i.e., for the Common Brushtail Possum and Yellow-tailed Black Cockatoo); - The species listed are not typically scattered tree using species; and - Habitat is not preferred (I.e., for the Peregrine Falcon and Square-tail Kite). As such, this minimises impacts to these species so that they will not be adversely impacted by the proposed clearance. Therefore, the proposed clearance is unlikely to lead to a long-term decrease in the size of populations or area of occupancy of threatened species. Additionally, the proposed clearance is unlikely to fragment existing populations or modify or destroy critical habitat for these species. Therefore, it is considered that the moderating factors could be applied.
Principle 1(c) – plants of a rare, vulnerable or endangered species	<u>Relevant information</u> Based on known distributions, records, and suitability of habitat, three EPBC Act listed threatened species have been assessed as possible to occur within the Project Area: • *Prasophyllum pallidum* (Pale Leek-orchid) (EPBC Act: VU; NPW Act: R); • *Prasophyllum pruinosum* (Plum Leek-orchid) (EPBC Act: EN; NPW Act: E); and • *Veronica derwentiana* ssp. *homalodonta* (Mount Lofty Speedwell) (EPBC Act: CE; NPW Act: E). A BDBSA data extract from NatureMaps found an additional 42 State listed species with records within 5 km of the Project Area since 1995. Based on known distributions, records, and suitability of habitat, 14 are assessed as possible to occur within the Project Area: • *Bothriochloa macra* (Red-leg Grass) (NPW Act: R); • *Caladenia pusilla* (Pigmy Caladenia) (NPW Act: R); • *Diuris behrii* (Behr's Cowslip Orchid) (NPW Act: V); • *Dianella longifolia var. grandis* (Pale Flax-lily) (NPW Act: R); • *Eryngium ovinum* (Blue Devil) (NPW Act: V); • *Festuca benthamiana* (Bentham's Fescue) (NPW Act: R); • *Glycine tabacina* (Variable Glycine) (NPW Act: V); • *Logania saxatilis* (Rock Logania) (NPW Act: R); • *Rytidosperma laeve* (Smooth Wallaby-grass) (NPW Act: R); • *Sphaerolobium minus* (Leafless Globe-pea) (NPW Act: R); • *Thelymitra carnea* (Small Pink Sun-orchid) (NPW Act: R); • *Thelymitra flexuosa* (Twisted Sun-orchid) (NPW Act: R); • *Thelymitra grandiflora* (Great Sun-orchid) (NPW Act: R); and

Principle of clearance	Considerations
	• *Thelymitra ixioides* (Spotted Sun-orchid) (NPW Act: E). No threatened species were observed within the Project Area. The understorey vegetation within the Project Area is highly disturbed with few native species present. Although the survey was not undertaken during spring so orchids would not have been evident, the highly disturbed nature of the site suggests the orchid species are unlikely to be present. Threatened Flora Score(s) – 0 (all trees)
	<u>Assessment against the principles</u> Not at Variance All trees
	<u>Moderating factors that may be considered by the NVC</u> N/A
Principle 1(d) – the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered	<u>Relevant information</u> No threatened communities under the EPBC Act or threatened ecosystems under the DEW Provisional list of threatened ecosystems are considered present within the clearance area. Threatened Community Score - 1
	<u>Assessment against the principles</u> Not at Variance
	<u>Moderating factors that may be considered by the NVC</u> NA
Principle 1(e) – it is significant as a remnant of vegetation in an area which has been extensively cleared	<u>Relevant information</u> Mt Terrible IBRA Association remnancy – 15% Mount Lofty Ranges IBRA Subregion remnancy – 41% The majority of scattered trees in the Project Area were established and ranged from good to excellent in health. Total Biodiversity Score – 19.91
	<u>Assessment against the principles</u> <u>At Variance</u>
	<u>Moderating factors that may be considered by the NVC</u> Native vegetation in the Mt Terrible IBRA Association has been extensively cleared in some areas. Given the surrounding area is dominated by housing and urban development, scattered trees in the Project Area represent some of the vegetation that has been cleared in this area. However, species within the Project Area have not been selectively removed within the Mt Terrible IBRA Association and as such are not underrepresented in the vegetation that remains. In the surrounding area there are native scattered trees that will remain to provide suitable habitat for fauna.
Principle 1(f) – it is growing	<u>Relevant information</u> No vegetation within the Project Area is associated with or growing in a wetland environment.

Principle of clearance	Considerations
in, or in association with, a wetland environment	Assessment against the principles Not at Variance
	Moderating factors that may be considered by the NVC N/A
Principle 1(g) – it contributes significantly to the amenity of the area in which it is growing or is situated	Relevant information No remnant bushland was present within the Project Area. The vegetation consists of native remnant scattered trees. As such, any vegetation within the area would contribute to the amenity of the area.
	N/A
	Moderating factors that may be considered by the NVC Given the urban setting of the Project and as there are native scattered trees that will remain in the general area, the amenity of the area will not drastically be modified.

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.

3.6. Risk assessment

The level of risk associated with the application

Table 9. Summary of the level of risk associated with the application.

Total clearance	No. of trees	43
	Area (ha)	-
	Total biodiversity Score	19.91
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1 (b)
Risk assessment outcome		Level 4

Note: due to time constraints, this report is also being submitted to the Native Vegetation Branch for pre-assessment to determine if the risk level can be moderated down.

3.7. NVC guidelines

Other information that demonstrates that the clearance complies with any relevant NVC guidelines related to the activity

N/A

4. Clearance summary

Scattered trees Summary table

Tree or Cluster ID	Number of trees	Fauna Habitat score	Threatened flora score	Biodiversity score	Loss factor	SEB Points required	SEB Payment (including Admin Fee)
2	1	1.8	0	0.35	1.0	0.37	$377.68
3	1	1.8	0	0.64	1.0	0.67	$683.02
4	1	1.8	0	0.37	1.0	0.38	$393.60
5	1	1.8	0	0.39	1.0	0.41	$422.91
6	1	1.8	0	0.31	1.0	0.32	$328.14
7	1	1.8	0	0.18	1.0	0.19	$196.91
9	1	1.8	0	0.18	1.0	0.19	$192.05
10	1	1.8	0	0.48	1.0	0.51	$517.43
22	1	1.8	0	0.27	1.0	0.28	$285.53
23	1	1.8	0	0.53	1.0	0.55	$564.96
24	1	1.8	0	1.02	1.0	1.07	$1,092.41
25	1	1.8	0	1.01	1.0	1.06	$1,081.58
26	1	1.8	0	0.43	1.0	0.45	$458.57
27	1	1.8	0	0.61	1.0	0.64	$651.62
28	1	1.8	0	0.59	1.0	0.62	$631.80
29	1	1.8	0	0.12	1.0	0.13	$129.00
30	1	1.8	0	0.50	1.0	0.53	$541.84
31	1	1.8	0	0.38	1.0	0.40	$412.32
32	1	1.8	0	0.59	1.0	0.62	$636.21
33	1	1.8	0	0.36	1.0	0.38	$389.84
34	1	1.8	0	0.43	1.0	0.45	$458.18
35	1	1.8	0	0.31	1.0	0.33	$332.52
36	1	1.8	0	0.38	1.0	0.40	$410.31
37	1	1.8	0	0.31	1.0	0.32	$328.34
38	1	1.8	0	0.31	1.0	0.33	$333.75
39	1	1.8	0	0.35	1.0	0.37	$374.69
40	1	1.8	0	1.24	1.0	1.30	$1,328.01
41	1	1.8	0	0.22	1.0	0.23	$238.24
42	1	1.8	0	0.20	1.0	0.21	$211.24
43	1	1.8	0	0.30	1.0	0.31	$318.50
44	1	1.8	0	0.34	1.0	0.36	$368.63
45	1	1.8	0	0.98	1.0	1.03	$1,049.27
46	1	1.8	0	0.51	1.0	0.53	$546.95
47	1	1.8	0	1.00	1.0	1.05	$1,071.34
48	1	1.8	0	0.96	1.0	1.01	$1,035.98
49	1	1.8	0	0.47	1.0	0.49	$504.36
50	1	1.8	0	0.36	1.0	0.38	$386.77
51	1	1.8	0	0.20	1.0	0.21	$214.73

Tree or Cluster ID	Number of trees	Fauna Habitat score	Threatened flora score	Biodiversity score	Loss factor	SEB Points required	SEB Payment (including Admin Fee)
52	1	1.8	0	0.32	1.0	0.34	$345.68
53	1	1.8	0	0.37	1.0	0.39	$396.70
54	1	1.8	0	0.47	1.0	0.49	$503.42
55	1	1.8	0	0.47	1.0	0.49	$499.78
56	1	1.8	0	0.13	1.0	0.13	$134.52
Total	**43**			**19.91**		**20.90**	**$21,379.35**

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	19.91	20.90	$20,264.79	$1,114.56	$21,379.35

Economies of Scale Factor	0.5
Rainfall (mm)	697

5. Significant Environmental Benefit

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

ACHIEVING AN SEB

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

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

☐ Use SEB Credit that the proponent has established.

☐ Apply to have SEB Credit assigned from another person or body.

☐ Apply to have an SEB to be delivered by a Third Party.

☒ Pay into the Native Vegetation Fund.

PAYMENT SEB

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

The total SEB offset required for the clearance of 43 scattered trees is **$21,379.35**, which includes a $1,114.56 administration fee.

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7. Appendices

Appendix 1. Flora species recorded in the Project Area

Scientific name	Common name
Acacia melanoxylon	Blackwood
Acacia pycnantha	Golden Wattle
*Acacia salicina**	Willow Wattle
Aloe sp.*	Aloe
Brachychiton populneus ssp. *populneus**	Kurrajong
Centaurea sp.*	Centaury
*Conyza bonariensis**	Flax-leaf Fleabane
Enchylaena tomentosa var. *tomentosa*	Ruby Saltbush
Eucalyptus camaldulensis ssp. *camaldulensis*	River Red Gum
Eucalyptus cladocalyx ssp.*	Sugar Gum
Eucalyptus leucoxylon ssp. *leucoxylon*	South Australian Blue Gum
Eucalyptus obliqua	Messmate Stringybark
Eucalyptus platypus ssp. *platypus**	Round-leaved Moort
*Ficus macrophylla**	Moreton Bay Fig
Fraxinus angustifolia ssp.*	Narrow-leaved Ash
*Geranium dissectum**	Cut-leaf Geranium
*Hakea francisiana**	Bottlebrush Hakea
Iris sp.*	Iris
Lolium sp.*	Ryegrass
Lomandra effusa	Scented Mat-rush
Olea europaea ssp.	Olive
*Oxalis pes-caprae**	Soursob
*Panicum hillmanii**	Witch-grass
Plantago lanceolata var.*	Ribwort
*Polygonum aviculare**	Wireweed
*Quercus robur**	English Oak
Rytidosperma sp.	Wallaby-grass
*Schinus molle**	Pepper-tree
*Solanum nigrum**	Black Nightshade
*Sonchus oleraceus**	Common Sow-thistle
*Tropaeolum majus**	Nasturtium

***Denotes an introduced species**

Appendix 2. Fauna species recorded in the Project Area

Scientific name	Common name
Anthochaera carunculata woodwardi	Red Wattlebird
*Columba livia**	Feral Pigeon
Dacelo novaeguineae novaeguineae	Laughing Kookaburra
Gymnorhina tibicen	Australian Magpie
*Spilopelia chinensis**	Spotted Dove
Strepera versicolor melanoptera	Black-winged Currawong

***Denotes an introduced species**

Appendix 3. Scattered tree using fauna species in the Project Area

Scientific name	Common name	EPBC Act	NPW Act	MLR	Resource use	Habitat / status
AVES	**Birds**					
Acanthiza chrysorrhoa	Yellow-rumped Thornbill			NT	P, N	w/r
Acanthiza nana	Yellow Thornbill			NT	P, F	w
Chalcites basalis	Horsfield's Bronze Cuckoo			NT	P	s
Falco peregrinus macropus	Peregrine Falcon		R	RA	P, H, N	w/r
Falcunculus frontatus frontatus	Crested Shriketit		R	RA	F	w
Gerygone olivacea olivacea	White-throated Gerygone		R	RA	P, F	s
Lathamus discolor	Swift Parrot	CR	E	CR	P, F	s
Lophoictinia isura	Square-tailed Kite		E	EN	P	s
Melithreptus brevirostris pallidiceps	Brown-headed Honeyeater			NT	P, F	w
Melithreptus lunatus	White-naped Honeyeater			NT	P, F	w
Ninox boobook	Australian Boobook			NT	P, H	w
Oriolus sagittatus sagittatus	Olive-backed Oriole		R	RA	P, F	s
Pachycephala rufiventris rufiventris	Rufous Whistler			NT	P, F	w/s
Pardalotus punctatus	Spotted Pardalote			NT	P, F	w
Parvipsitta porphyrocephala	Purple-crowned Lorikeet			NT	P, H, F	w/s
Petrochelidon nigricans	Tree Martin			NT	P, H	w/s
Petroica boodang boodang	Scarlet Robin		R	VU	P	w
Psephotus haematonotus haematonotus	Red-rumped Parrot			NT	P, H	w/s
Rhipidura leucophrys leucophrys	Willie Wagtail			NT	P, N, F	w/r
Todiramphus sanctus sanctus	Sacred Kingfisher			NT	P. H	w
Zanda funerea whiteae	Yellow-tailed Black Cockatoo		V	VU	P, H	w
Zosterops lateralis pinarochrous	Silvereye			NT	P, F	w/s
MAMMALIA	**Mammals**					

Scientific name	Common name	EPBC Act	NPW Act	MLR	Resource use	Habitat / status
Pteropus poliocephalus	Grey-headed Flying-fox	VU	R	RA	P, F	r
Trichosurus vulpecula	Common Brushtail Possum		R	LC	H, N, F	w/r

EPBC Act: Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable

NPW Act: CE = Critically endangered, E = Endangered, V = Vulnerable, R = Rare

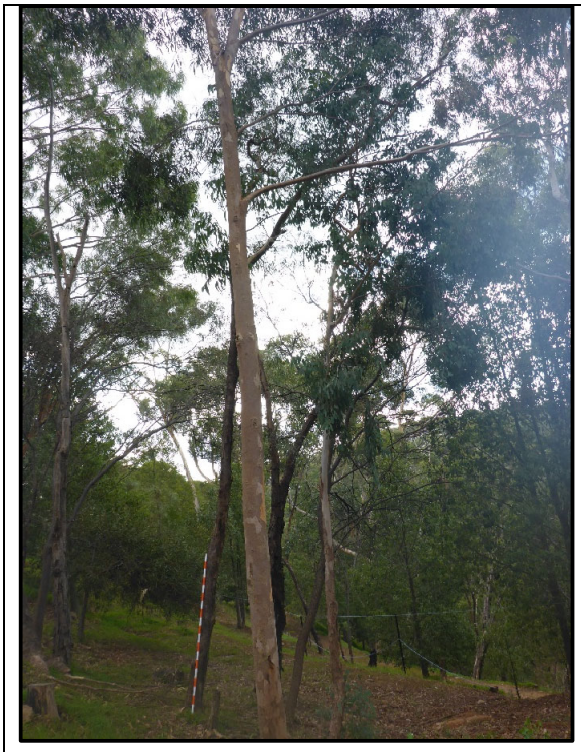
MLR: LC = Least Concern (Common), NT = Near Threatened (Uncommon), RA = Rare, VU = Vulnerable, EN = Endangered, CR = Critically Endangered

Resource use: P = perching/roosting, N = nesting, H = using hollow for nesting/roosting, F = feeding

Habitat/status: s = seasonal (includes waterbirds using trees near seasonal wetlands, seasonal and nomadic species), w = woodland birds that occasionally use adjacent scattered trees, r=species that can reside in scattered trees.

Sources: BSBSA records within 5 km of the Project Area (DEW 2023), Scattered Tree Assessment Manual (NVC 2020b).

Appendix 4. Photographs of scattered trees proposed to be impacted

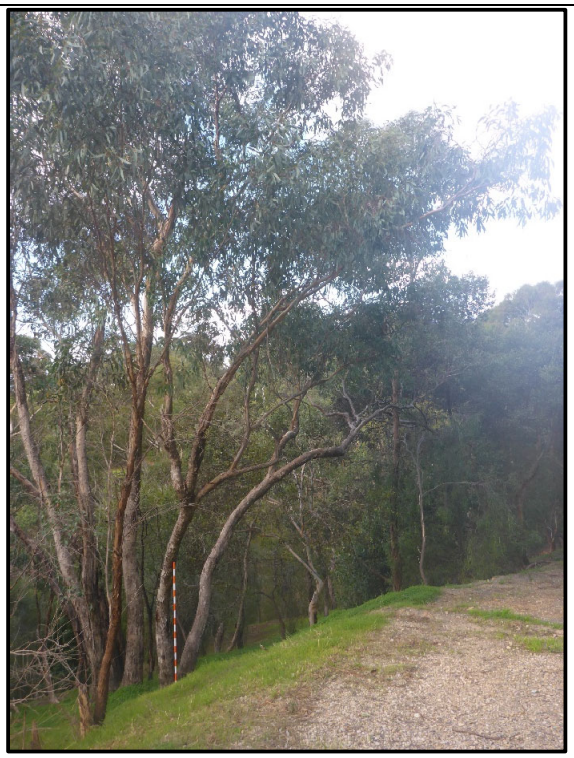


Tree 2 – *Eucalyptus obliqua*

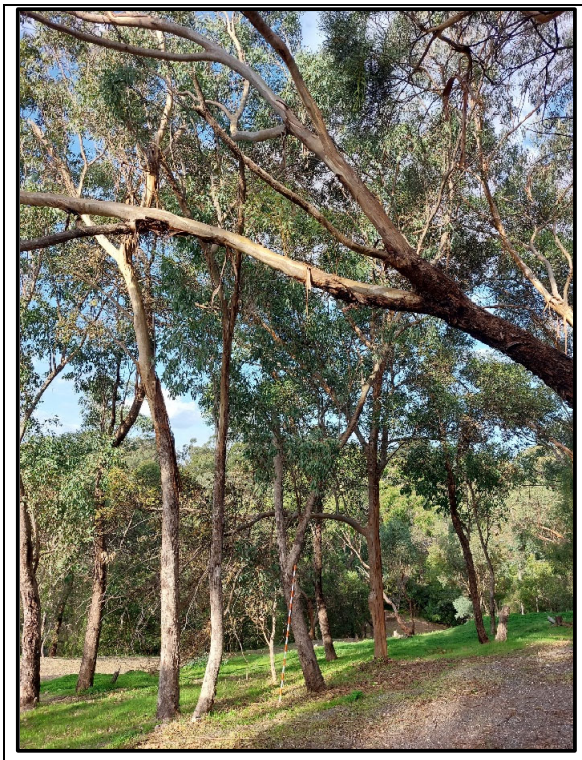
Tree 3 – *Eucalyptus obliqua*

Tree 4 – *Eucalyptus obliqua*

Tree 5 – *Eucalyptus obliqua*

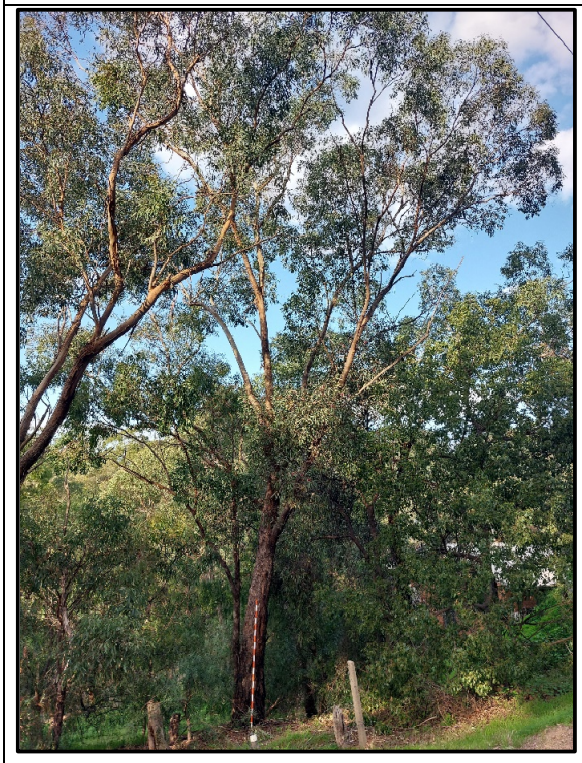
	
Tree 6 – *Eucalyptus obliqua*	Tree 7 – *Eucalyptus obliqua*
	
Tree 9 – *Eucalyptus leucoxylon* ssp. *leucoxylon*	Tree 10 – *Eucalyptus obliqua*

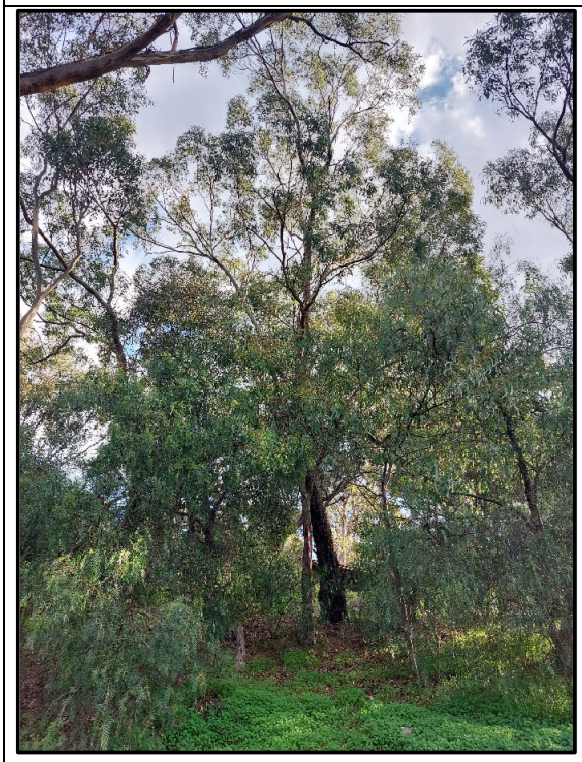
	
Tree 22 – *Eucalyptus obliqua*	Tree 23 – *Eucalyptus obliqua*
	
Tree 24 – *Eucalyptus obliqua*	Tree 25 – *Eucalyptus obliqua*

	
Tree 26 – *Eucalyptus obliqua*	Tree 27 – *Eucalyptus obliqua*
	
Tree 28 – *Eucalyptus obliqua*	Tree 29 – *Eucalyptus obliqua*

	
Tree 30 – *Eucalyptus obliqua*	Tree 31 – *Eucalyptus obliqua*
	
Tree 32 – *Eucalyptus obliqua*	Tree 33 – *Eucalyptus obliqua*

	
Tree 34 – *Eucalyptus obliqua*	Tree 35 – *Eucalyptus obliqua*
	
Tree 36 – *Eucalyptus obliqua*	Tree 37 – *Eucalyptus obliqua*

	
Tree 38 – *Eucalyptus obliqua*	Tree 39 – *Eucalyptus obliqua*
	
Tree 40 – *Eucalyptus obliqua*	Tree 41 – *Eucalyptus obliqua*

	
Tree 42 – *Eucalyptus obliqua*	Tree 43 – *Eucalyptus obliqua*
	
Tree 44 – *Eucalyptus obliqua*	Tree 45 – *Eucalyptus obliqua*

	
Tree 46 – *Eucalyptus obliqua*	Tree 47 – *Eucalyptus obliqua*
	
Tree 48 – *Eucalyptus obliqua*	Tree 49 – *Eucalyptus obliqua*

	
Tree 50 – *Eucalyptus obliqua*	Tree 51 – *Eucalyptus obliqua*
	
Tree 52 – *Eucalyptus obliqua*	Tree 53 – *Eucalyptus obliqua*

	
Tree 54 – *Eucalyptus obliqua*	Tree 55 – *Eucalyptus obliqua*
	
Tree 56 – *Eucalyptus obliqua*	

Appendix 5. BDBSA flora record within 5 km of the Project Area

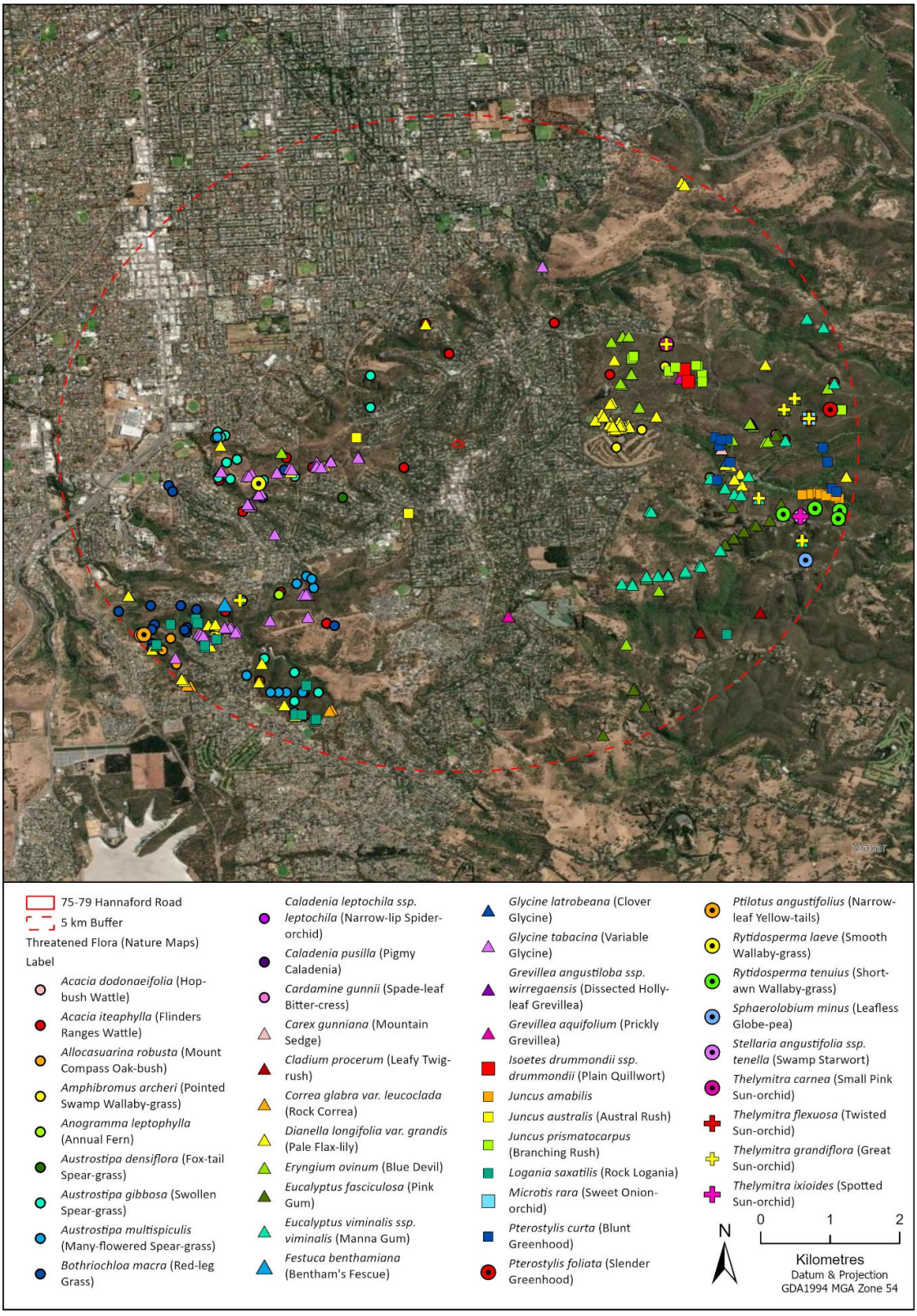


Figure 9. BDBSA flora record located within 5 km of the Project Area.

Appendix 6. BDBSA fauna record within 5 km of the Project Area

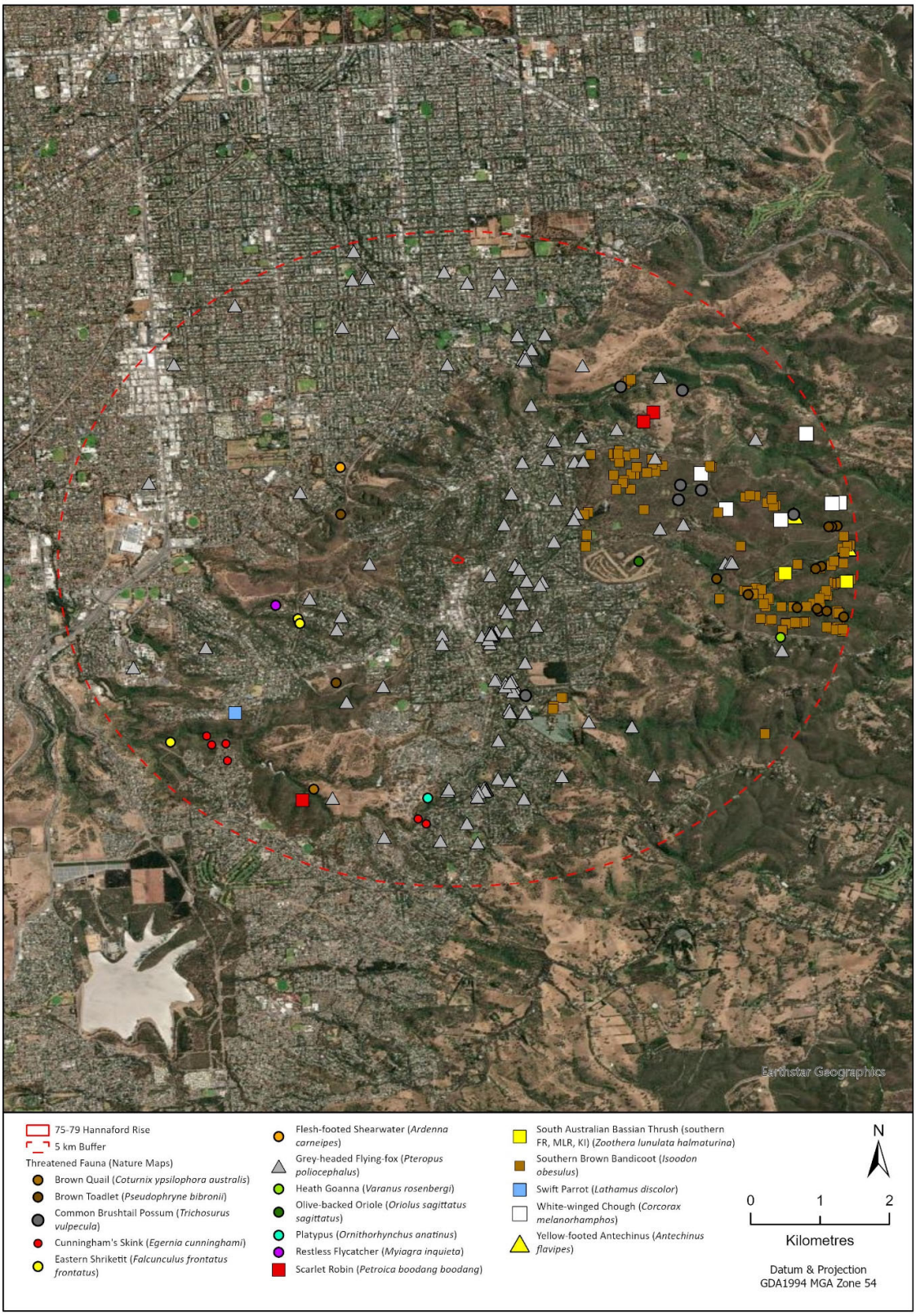


Figure 10. BDBSA fauna record located within 5 km of the Project Area.