Native Vegetation Clearance

Seppeltsfield Road Marananga

Data Report

Clearance under the *Native Vegetation Regulations 2017*

27 January 2023

Prepared by Dr M Louter and Dr T How

Native Vegetation Clearance Seppeltsfield Road Marananga Data Report

27 January 2023

Version 5

Prepared by for Paradigm Marananga Unit Trust c/o Studio Nine Architects

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Cover photograph: Location of one of the proposed accommodation units, showing *Austrostipa* spp. (Spear Grass), *Rytidosperma* sp. Grassland with Avena sp. and emergent olives.

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Glossary and abbreviations

BAM	Bushland Assessment Method
BDBSA	Biological Database of South Australia (maintained by DEW)
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEW	Department for Environment and Water (South Australia)
EBS	Environment and Biodiversity Services Pty Ltd (trading as EBS Ecology)
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	Proposed tourist facilities and accommodation within an existing vineyard
Project area	The area of impact
SA	South Australia(n)
SEB	Significant Environmental Benefit
sp.	Species
spp.	Species (plural)
ssp.	Sub-species
TEC	Threatened Ecological Community
var.	Variety (a taxonomic rank below that of species and subspecies, but above that of form)

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1. Application information

Table 1. Application details.

Applicant:	**Paradigm Marananga Pty Ltd**		
Key contact:	**Lucy White -** Studio Nine Architects		
Landowner:	Paradigm Marananga Pty Ltd Trustee Paradigm Marananga Unit Trust		
Site Address:	LOT: 2DP Seppeltsfield Road, Marananga		
Local Government Area:	Northern and Yorke Landscape Management Region	**Hundred:**	Nuriootpa (160700)
Title ID:	CT6063/563	**Parcel ID**	D82077 A2

Table 2. Summary of the proposed clearance.

Purpose of clearance:	Clearance required for the construction 8 accommodation cabins with a 3.5 metre wide gravel driveway to each cabin, and a future proposed cellar door, including deck, carpark and loading area. Wastewater infrastructure is required, including stormwater pipes, waste water soakage areas, detention basins, bio-retention trenches, and rainwater tanks.
Native Vegetation Regulation:	Regulation 12, Schedule 1; clause 33 New dwelling or buildings
Description of the vegetation under application:	A total of 2.17 ha of native vegetation is proposed to be cleared, consisting of: - VA1: *Eucalyptus leucoxylon / E. odorata* open woodland over *Acacia pycnantha* in fair condition (1.33 ha). - VA2: *Austrostipa spp. (Spear Grass), Rytidosperma sp.* Grassland with *Avena sp*. and emergent olives in fair condition (0.84 ha). Additionally, non-native vegetation not included under the NV Act, but part of the clearance includes 0.46 ha of Exotic grassland (no native species).
Total proposed clearance – area (ha) and/or number of trees:	A total of 2.17 ha of native vegetation is proposed to be cleared.
Level of clearance:	Level 3
Overlay (Planning and Design Code):	Native Vegetation Overlay

Map of proposed clearance area:

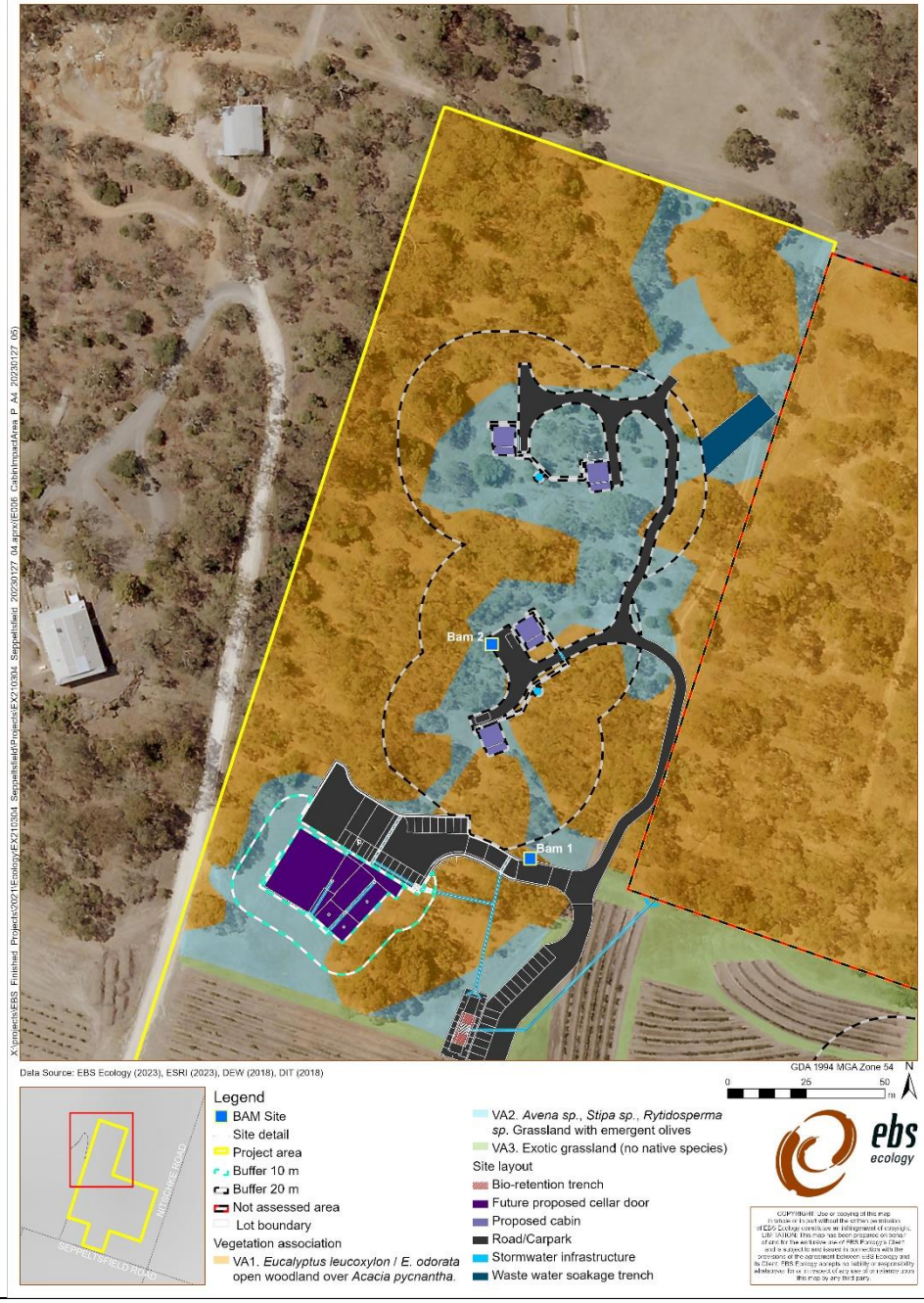

	 **Figure 1.** Location of the Project area and proposed clearance.
Mitigation Hierarchy:	<u>Avoidance</u> Where possible, the Project has adjusted the design plans to avoid native vegetation as much as possible. In initial design plans the location of the proposed future cellar door and the north-west cabins were situated in VA1 and VA2 in areas containing mature trees. However, after advice from EBS Ecology these locations were adjusted and the proposed future cellar door, carpark and cabin locations were placed to be in more open areas of lower quality and on pre-existing cleared areas, thereby avoiding impacts to trees and other vegetation as much as possible. Designs were refined a second time to readjust the location of the proposed future cellar door away from the boundary and neighbouring buildings which required changes to the orientation of buildings and moving the car parking areas to reduce impacts on vegetation. Additionally, two cabins were removed from the plan to further reduce impacts on vegetation.

	Existing cleared tracks are present within the northern area of the Project area, and these tracks could be used to provide access to the northern cabins, thereby avoiding impacts to native vegetation as much as possible. Threatened flora species were not observed in these areas during the field survey, and therefore it is unlikely that the proposed Project will impact on threatened flora. <u>Minimisation</u> The impact to vegetation has been minimised by placing infrastructure in areas where vegetation is sparser, more degraded and of lower quality than the surrounding areas. The cabins in the east are located in an area that consists of vineyards and exotic grassland, bordering onto good quality native vegetation on the eastern boundary. The location of these cabins has been chosen to avoid impacts to native vegetation where possible. Access tracks to these cabins consist of cleared areas of exotic grassland in between vineyards. These areas are devoid of native vegetation, as they were historically cleared for vineyards. <u>Rehabilitation or restoration</u> The proposed Project infrastructure is permanent, and land clearance associated with the project is unlikely to be rehabilitated or restored. However, EBS recommends that Declared and Environmental weed species (e.g. Olives and Bridal Creeper) are controlled.
SEB Offset proposal	Payment of **$64,943.46**, of which $3,385.68 is administration costs.

2. Purpose of clearance

2.1. Description

Studio Nine Architects is proposing to develop tourist facilities and accommodation within an existing vineyard (the Project). Clearance is required for the construction of 8 accommodation cabins with a 3.5 metre wide gravel driveway to each cabin and a proposed future cellar door and accommodation, including a deck, carpark and loading area. Wastewater infrastructure is required, including stormwater pipes, waste water soakage areas, detention basins, bio-retention trenches, and rainwater tanks.

The proposed development requires the removal of native vegetation for infrastructure, and therefore EBS Ecology has been contracted by Studio Nine Architects to undertake a native vegetation survey to determine the level of native vegetation clearance and prepare a vegetation clearance application.

Objectives

The key objectives of the ecological assessment were to:

- Conduct a desktop flora and fauna assessment (EBS 2021 - Attachment 1);
- Carry out a detailed flora survey and fauna field assessment;
- Provide guidance on location of infrastructure;
- Provision of ecological information for the Environmental Statement; and
- Calculation of the Significant Environmental Benefit (SEB) for input into a Native Vegetation Clearance report.

2.2. Background

2.2.1. Environmental Setting

The Project area is within the Light Regional Council within the suburb of Marananga (Figure 2). It falls within the Northern and Yorke Landscape Management Region. The Project area contains LOT: 2 DP: 82077 CT: 6063/563 (within which the Project is proposed). The Project is associated with an existing vineyard. Surrounding land use of the Project is horticultural and rural residential. The Project area receives mean annual rainfall of 543 mm (DEW 2019). Seven percent (7%) of the 5 km radius is mapped as native vegetation (DEW 2019).

The Interim Biogeographical Regionalisation of Australia (IBRA) is a national and regional planning framework for the systematic development of a comprehensive, adequate and representative National Reserve System. The IBRA descriptions are a good tool for broad descriptions of the landscape that the Project area falls within.

The Project area falls across the Rosedale IBRA environmental association (Table 3).

Table 3. IBRA environmental landscape summary.

Flinders Lofty Block IBRA bioregion	
Temperate to arid Proterozoic ranges, alluvial fans and plains, and some outcropping volcanics, with the semi-arid to arid north supporting native cypress, black oak (belah) and mallee open woodlands, *Eremophila* and *Acacia* shrublands, and bluebush/saltbush chenopod shrublands on shallow, well-drained loams and moderately-deep, well-drained red duplex soils. The increase in rainfall to the south corresponds with an increase in low open woodlands of *Eucalyptus obliqua* and *E. baxteri* on deep lateritic soils, and *E. fasciculosa* and *E. cosmophylla* on shallower or sandy soils.	
Mount Lofty Ranges IBRA subregion	
This subregion extends from north of the Fleurieu Peninsula to the Barossa Valley, and is predominantly an undulating to low hilly upland with steeper marginal ranges and hills. The Barossa Valley is the lowest area in this subregion and represents a structural basin. The rest of the subregion consists of hilly uplands on sandstone and shale with northerly trending strike ridges and dissected lateritic tableland remnants. Low open woodland commonly dominated by *Eucalyptus obliqua* and *E. baxteri* are found in higher rainfall areas on deep, lateritic soils. Shallower or sandy soils support *E. fasciculosa*, *E cosmophylla* and in the northern part of the region *E. goniocalyx. E leucoxylon* dominates the woodlands on podzolised soils in the lower rainfall areas, *E. viminalis ssp. cygnetensis* dominate the wetter and cooler woodlands and *E. odorata* characterises drier sites. Eucalypts give way to drooping sheoak (*Allocasuarina verticillata*) in the most arid woodlands and in coastal situations on shallow rocky soils.	
Remnant vegetation	Approximately 15% (46342 ha) of the subregion is mapped as remnant native vegetation, of which 27% (12706 ha) is formally conserved.
Landform	Hills and valleys; alternating subparallel hilly ridges and valleys with a general N-S trend in north. In the south, hilly dissected tableland.
Geology	Dissected lateritized surface in south.
Soil	Hard setting loams with red clayey subsoils, highly calcareous loamy earths, hard setting loams with mottled yellow clayey subsoil, coherent sandy soils, cracking clays.
Vegetation	Eucalyptus woodlands with a shrubby understorey.
Conservation significance	129 species of threatened fauna, 270 species of threatened flora. 4 wetlands of national significance.
Rosedale IBRA environmental association	
Remnant vegetation	Approximately 5% (3089 ha) of the association is mapped as remnant native vegetation, of which 11% (331 ha) is formally conserved.
Landform	Undulating to rolling plain on shale with broad floodplains.
Geology	Shale and alluvium.
Soil	Hard pedal red duplex soils, reddish friable loams and brown self-mulching cracking clays.
Vegetation	Open parkland of SA blue gum, sugar gum, river red gum or exotic conifers.
Conservation significance	70 species of threatened fauna, 66 species of threatened flora. 0 wetlands of national significance.

2.3. General location map

Figure 2. General location map of the Project area.

2.4. Details of the proposal

The proposal relates to clearance for construction of accommodation a proposed future cellar door along Seppeltsfield Road near Marananga, 1.3 km south of the Sturt Highway in the Barossa Valley region of South Australia. The development includes plans for:

- 8 accommodation cabins with a 3.5 metre wide gravel driveway to each cabin,
- stormwater pipes, with a 0.5 m wide buffer around them,
- waste water soakage areas,
- detention basins,
- bio-retention trenches,
- rainwater tanks,
- a proposed future cellar door,
- a deck, and
- a carpark and loading area.

Design plans (as provided to EBS Ecology on 21/12/2022) for the accommodation and proposed future cellar door are provided in Attachment 2.

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

Native Vegetation Act 1991 – this application.

Planning, Development and Infrastructure Act 2016 – Approval is required for this Project.

Environment Protection and Biodiversity Conservation Act 1999 – No approval required.

National Parks and Wildlife Act 1992 - EBS has the required flora collection permit (K25613-20).

Landscape South Australia 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.

2.6. Native Vegetation Regulation

Clearance is to be assessed under Regulation 12(33) – New dwelling or building – to allow clearance of vegetation for a new building which will be approved under the *Planning, Development and Infrastructure Act 2016*. The building/s must be situation in a location that avoids and minimises the loss of native vegetation. It should be demonstrated that alternatives have been conserved.

2.7. Development Application information

The Project area at Seppeltsfield Road, Marananga occurs within the Rural Planning Zone (no Subzone) and comes under the Native Vegetation Overlay.

3. Method

3.1. Desktop assessment

A desktop assessment was undertaken to determine the potential for any threatened flora and 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).

3.1.1. PMST report

A Protected Matters Search Tool (PMST) report was generated on 23 April 2021 to identify nationally threatened flora and fauna, migratory fauna and TECs under the EPBC Act relevant to the Project area (DAWE 2021a). 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.

3.1.2. BDBSA data extract

A search of the Biological Database of South Australia (BDBSA) was obtained from the Department for Environment and Water (DEW) in April 2021 (Recordset DEWNRBDBSA210413-3), to identify flora and fauna species previously recorded within a 5 km buffer around the Project area (DEW 2021a). 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.

3.1.3. Literature review

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

- Aerial imagery;
- Spatial datasets, e.g. DEW biological survey sites, IBRA, vegetation cover, protected areas, vegetation floristic mapping, and surface and ground water (DEW 2019); and
- Reports, plans and web-based information, including:
    - EPBC species profiles, conservation advices and recovery plans.

The aforementioned information was used to assess:

- Native vegetation cover within the Project area and immediate surrounds;
- Previous survey effort within the area;

- Vegetation associations present (including associations of conservation significance);
- Flora and fauna species of conservation significance known or likely to occur within the area;
- Relevant values such as geological and cultural heritage known or likely to occur within the area; and
- Key threatening processes (e.g. invasive species) that may require specific management.

3.1.4. 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 provide limited habitat or feeding resources for the species. Recorded within 20 -40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.
Unlikely	Recorded within the previous 20 years, but the area provide no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter. Recorded within 20 -40 years; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area. No records despite adequate survey effort.

3.2. Flora Assessment

The flora assessment was undertaken by NVC Accredited Consultants Dr T. How and Dr M. Louter on 11 May 2021 in accordance with the Bushland Assessment Method (BAM) (NVC 2020a). The survey included a vegetation assessment and passive fauna assessment.

3.2.1. Bushland Assessment Method

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

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

The Conservation Significance Scores were calculated from direct observations of flora and direct and historical observations of fauna species of conservation significance. All fauna identified as known to occur in the PMST, and fauna with BDBSA records since 1995 and with a spatial reliability of less than 1 km, within 5 km of the Project area, were included in the BAM scoresheets. Species determined as unlikely to occur within the Project area will be

removed by the Native Vegetation Branch if the finding is supported. Marine and/or wetland species were omitted from the scoresheets given the Project area is terrestrial.

3.3. Fauna assessment

Opportunistic observations of fauna occurring within the Project area were recorded while on site, and habitat was assessed for signs of fauna (scats, tracks, traces), and the value of habitat within the Project area was qualitatively assessed, with species of national and state significance in mind. For each opportunistic fauna observation, the species, number of individuals, GPS location, detection methodology (sight, sound or sign) and habitat were recorded. Weather conditions during the survey were favourable, with mild daytime temperatures and light winds.

4. Assessment outcomes

4.1. Vegetation assessment

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

Field work undertaken during this Project has identified and mapped three Vegetation Associations (VA) in the Project area, as per Table 5 and Figure 3-Figure 4 below.

The Project area is located within a Medium Risk Bushfire area and therefore a 10m clearance buffer has been applied around the proposed future cellar door impact area and a 20m clearance buffer has been applied around the proposed cabin impact areas.

To account for potential clearance around buildings and/or dwelling, data has been presented with a 20-metre buffer around each cabin and a 10-meter buffer around the proposed future cellar door to incorporate vegetation management that will be required in this zone. A loss factor of 1 was utilised in these calculations.

Table 5. Vegetation Associations within Block A.

Block	Site	Vegetation Association	Area (ha) 10 meter buffer
A	A1	VA1. *Eucalyptus leucoxylon* / *E. odorata* open woodland over *Acacia pycnantha*.	1.33
	A2	VA2: *Avena sp., Austrostipa sp., Rytidosperma sp.* Grassland with emergent olives.	0.84
	NA	VA3. Exotic grassland (no native species).	0.46

Native vegetation is present on the northern and eastern side of the Project area, whereas the southern area is occupied mainly by vineyards and exotic grassland. The native vegetation within the Project area for clearance consists of relatively homogeneous vegetation on the low hills and gentle slopes in the north. These two native vegetation associations were in fair condition with emergent olive trees scattered throughout them. The region has been largely cleared leaving only small areas of native vegetation. The Project area is surrounded by horticultural and rural residential land with small areas of native vegetation present.

NatureMaps identified three Land Types within the Project area:

Land Type	Location	Geomorphology	Description
E1	Eastern side of the Project area.	Soils formed on basement rock.	Low hills and rises with mainly neutral to alkaline gradational soil, calcareous soil and / or shallow stony soil.
D1	Middle of the Project area.	Soils formed on basement rock.	Low hills and rises with mainly sandy to loamy, texture contrast soil with calcareous subsoil.
J	North-west corner of the Project area	Soils formed on outwash sediments derived from basement rock highs.	Plains and gentle slopes with mainly deep texture contrast soil with calcareous subsoil.

4.1.2. Details of the vegetation associates proposed to be impacted

The three VAs are described below in Table 6 to Table 8.

Table 6. Summary of VA1.

Vegetation association	*Eucalyptus leucoxylon* / *E. odorata* open woodland over *Acacia pycnantha*.
Site photo (south – south west)	
General description	A total of 10 native and 4 exotic flora species were recorded for this vegetation association. *Eucalyptus leucoxylon* (South Australian Blue Gum) and *E. odorata* (Peppermint Box) were the dominant overstorey tree species, with mature individuals scattered throughout the site (average height ~12 m). Mature and regenerated *Acacia pycnantha* (Golden Wattle) was a sub-dominant canopy species and covered the midstorey as well. The ground layer was made up of a mix of sparse native grasses and some scattered herbs and *Lomandra densiflora*. A few individuals of *Eucalyptus camaldulensis ssp*. (River Reg Gum) were scattered throughout the Project area.
Threatened species or community	State Rare *Corcorax melanorhamphos* (White-winged Chough) was recorded during the field survey. Desktop assessment recorded the following species: Likely - *Trichosurus vulpecula* (Common Brushtail Possum) – (State Rare) Possible - *Acacia iteaphylla* (Flinders Ranges Wattle) (State Rare) - *Austrostipa densiflora* (Fox-tail Spear-grass) (State Rare) - *Austrostipa tenuifolia* (State Rare) - *Bothriochloa macra* (Red-leg Grass) (State Rare) - *Centrolepis cephaloformis* ssp. *cephaloformis* (Cushion Centrolepis) (State Rare) - *Eucalyptus behriana* (Broad-leaf Box) (State Rare) - *Euphrasia collina subsp. osbornii* (Osborn's Eyebright) (Nationally Endangered) - *Isoetes drummondii ssp. Drummondii* (Plain Quillwort) (State Rare) - *Maireana rohrlachii* (Rohrlach's Bluebush) (State Rare)

	- *Olearia pannosa subsp. pannosa* (Silver Daisy-bush) (Nationally and State Vulnerable)				
Overstorey and midstorey	*Eucalyptus leucoxylon* and *E. odorata* and *Acacia pycnantha*				
Understorey	Common native species included: • *Aristida behriana* (Brush Wire Grass) • *Austrostipa* sp. (Spear-grass) • *Rhytidosporum ssp.* (Wallaby-grass) • *Lomandra densiflora* (Soft Tossuck Mat Rush)				
Exotic species	Common weed species included: • *Olea europaea ssp.* (Olive) • *Avena sp*. (Oat) • *Ehrharta sp.*(Veldt Grass) • *Oxalis pes-caprae* (Soursob)				
Landscape Context Score	1.14	**Vegetation Condition Score**	30.32	**Conservation Significance Score**	1.04
Unit Biodiversity Score	35.95	**Area (ha)**	1.33	**Total Biodiversity Score**	47.81

Table 7. Summary of VA2.

Vegetation association	*Austrostipa spp. (Spear Grass), Rytidosperma sp.* Grassland with *Avena sp* and emergent olives.
Site photo (south - southwest)	
General description	A total of 16 native and 10 exotic flora species were recorded for this broad vegetation association. *Austrostipa spp. (Spear Grass)* and *Rytidosperma sp.* were the dominant species throughout this VA. Some areas had substantial moss and lichen cover, predominantly in the northern section of the Project area. The ground layer was made up of a mix of native grasses, some herbs/forbs and scattered *Lomandra densiflora and L. multiflora ssp*. A few regenerated individuals of *Eucalyptus leucoxylon* and *E. odorata* and *Acacia pycnantha* were present in some sections of the Project area (at proposed Cabins and future Cellar Door and Carpark, see Photos of Infrastructure location).

Threatened species or community	State Rare *Corcorax melanorhamphos* (White-winged Chough) was recorded during the field survey. Desktop assessment recorded the following species: Likely - *Trichosurus vulpecula* (Common Brushtail Possum) – (State Rare) Possible - *Acacia iteaphylla* (Flinders Ranges Wattle) (State Rare) - *Austrostipa densiflora* (Fox-tail Spear-grass) (State Rare) - *Austrostipa tenuifolia* (State Rare) - *Bothriochloa macra* (Red-leg Grass) (State Rare) - *Centrolepis cephaloformis* ssp. *cephaloformis* (Cushion Centrolepis) (State Rare) - *Eucalyptus behriana* (Broad-leaf Box) (State Rare) - *Euphrasia collina subsp. osbornii* (Osborn's Eyebright) (Nationally Endangered) - *Isoetes drummondii ssp. Drummondii* (Plain Quillwort) (State Rare) - *Maireana rohrlachii* (Rohrlach's Bluebush) (State Rare) - *Olearia pannosa subsp. pannosa* (Silver Daisy-bush) (Nationally and State Vulnerable)
Overstorey and midstorey	*Rytidosperma ssp.* and *Austrostipa spp. (Spear Grass)* Very few emergent *Eucalyptus leucoxylon* and *E. odorata* and *Acacia pycnantha*
Understorey	Common native species included: • *Austrostipa* sp. (Spear-grass) • *Rhytidosporum ssp.* (Wallaby-grass) • *Aristida behriana* (Brush Wire Grass) • *Lomandra densiflora* (Soft Tussock Mat-rush) • *Lomandra multiflora ssp.*(Many-flower Mat-rush)
Exotic species	Common weed species included: • *Olea europaea ssp.* (Olive) • *Avena sp*. (Oat) • *Oxalis pes-caprae* (Soursob) • *Juncus subnodulosus* (Blunt-flowered Rush) and *Trifolium sp*. (Clover)

Landscape Context Score	1.14	**Vegetation Condition Score**	36.12	**Conservation Significance Score**	1.02
Unit Biodiversity Score	42.00	**Area (ha)**	0.84	**Total Biodiversity Score**	35.28

Table 8. Summary of VA3.

Vegetation association	Exotic grassland (no native species).
Site photo (south) **Photo taken at location of cabin # 9**	
General description	Exotic grassland without any native vegetation species present.
Threatened species or community	N/A
Extent	0.46 ha

4.1.3. Site maps showing areas of proposed impact

Figure 3. Site map showing details of proposed infrastructure (10m clearance buffer around proposed future Cellar Door and 20m clearance buffer around Cabins) (Map 1 of 2).

Figure 4. Site map showing details of proposed infrastructure (20m clearance buffer around Cabins) (Map 2 of 2).

4.1.4. Photo log

Proposed future Cellar Door and Carpark (Pic 1 of 3) (direction east)

Proposed future Cellar Door and Carpark (Pic 2 of 3) (direction: south-south east)

Proposed future Cellar Door and Carpark (Pic 3 of 3) (direction: south – south west)

4.2. Threatened species assessment

A desktop assessment was undertaken for the proposed Project (EBS 2021). The sections below present a summary of the desktop results only. For more information and specific details on likelihood assessments, refer to the desktop report (EBS 2021 – Provided as Attachment 1).

Matters of National Environmental Significance (MNES)

The EPBC Act PMST report identified 2 Threatened Ecological Communities (TECs):

- Critically Endangered Iron-grass Natural Temperate Grassland of South Australia – may occur
- Critically Endangered Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia - likely to occur

Condition Classes and Timing of Assessments

The EPBC Listing Advice distinguishes better quality remnants of Peppermint Box Grassy Woodland that are protected by the listing, from remnants with low native species diversity that are not considered part of the ecological community and not protected under the EPBC Act (Threatened Species Scientific Committee 2007). Three different condition

classes are defined on the basis of remnant patch size, native species diversity and composition (Table 9). Condition Classes A and B make up the listed ecological community, with Condition Class A representing the areas of best condition. Condition Class C represents Peppermint Box Grassy Woodland remnants considered too degraded to be part of the listed community, but of sufficient biodiversity value to target for restoration (Turner 2012). For a patch of vegetation to fall within a condition class it must meet or exceed each of the thresholds. For example, to meet condition class A, a patch must be at least 0.1 ha in size **and** have more than 30 native species **and** at least 10 native broad-leaved herbaceous species not on the disturbance resistant list **and** have at least five native perennial grass species (Australian Government 2007). Spring is the best time to survey to identify herbaceous species and some grasses.

Table 9. Condition Classes defined under the EPBC Act for the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia.

Condition class	Minimum patch size (ha)	Native species diversity [1,2]	No. of native broad-leaved herbaceous species[1] (excluding disturbance resistant species[3])	No. of native perennial grass species[1]
Listed ecological community				
A	≥ 0.1 ha	> 30	≥ 10	≥ 5
B	≥1.0 ha	> 15	≥ 3	≥ 2
Degraded patches amenable to rehabilitation				
C		> 5	No minimum	≥ 1

Notes

[1] As measured in a 50m x 50m quadrat (or equivalent to make 2,500m2 if patch is narrower – e.g. roadside corridor).

[2] *Eucalyptus odorata* should be one of the species recorded in the quadrat.

[3] Disturbance resistant species: - *Ptilotus spathulatus; Sida corrugata; Oxalis perennans; Convolvulus erubescens; Euphorbia drummondii (syn. Chamaesyce drummondii); Maireana enchylaenoides*.

[4]NB *Convolvulus erubescens* is no longer considered to occur in South Australia (Barker *et al.* 2005) and specimens previously named as this species are now ascribed to eight other taxa in the genus with *C. angustissimus subsp. angustissimus, C. angustissimus subsp. peninsularum* and *C. remotus* possibly occurring in the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland ecological community.

Approximately 8 ha of native vegetation within the Project area was mapped as an EPBC Act Critically Endangered Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia in very low condition (EBS 2021).

Native species diversity was of poor to moderate condition at the site: A total of 10 native and 4 exotic flora species were recorded for VA1 during the field survey, thereby classifying this vegetation as Condition Class C: Peppermint Box Grassy Woodland remnants considered too degraded to be part of the listed community, but of sufficient biodiversity value to target for restoration. It should be noted that the field survey was undertaken outside of the Spring period, and more flora species could be present at the site that were not detected at the time of field assessment.

Threatened Flora and Fauna

In summary, the following 12 threatened species have been recorded within 5 km of the Project area since 1995 or are known to occur:

Ten species of threatened flora:

- *Acacia iteaphylla* (Flinders Ranges Wattle) (SA Rare) - Possible
- *Austrostipa densiflora* (Fox-tail Spear-grass) (SA Rare) - Possible
- *Austrostipa tenuifolia* (SA Rare) - Possible
- *Bothriochloa macra* (Red-leg Grass) (SA Rare) - Possible
- *Centrolepis cephaloformis* ssp. *cephaloformis* (Cushion Centrolepis) (SA Rare) - Possible

- *Eucalyptus behriana* (Broad-leaf Box) (SA Rare) - Possible
- *Euphrasia collina subsp. osbornii* (Osborn's Eyebright) (Nationally Endangered) - Possible
- *Isoetes drummondii ssp. Drummondii* (Plain Quillwort) (SA Rare) - Possible
- *Maireana rohrlachii* (Rohrlach's Bluebush) (SA Rare) - Possible
- *Olearia pannosa* subsp. *pannosa* (Silver Daisy-bush) (Nationally and SA Vulnerable) - Possible

Two threatened fauna species have been recorded within 5 km of the Project area since 1995:

- *Corcorax melanorhamphos* (White-winged Chough) - SA Rare - Likely; and
- *Trichosurus vulpecula* (Common Brushtail Possum) – SA Rare - Likely.

For more information and specific details on habitat suitability and likelihood assessments for individual species, refer to the desktop report (EBS 2021 – Provided as Attachment 1).

4.3. Cumulative impacts

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

Direct impact: The direct impact of the Project is the removal of 2.17 ha of native vegetation.

Impact to native vegetation from all construction associated with the development will be limited to the removal of native vegetation identified in this report, including clearance directly related to infrastructure, and clearance for fire protection (10 metre around buildings – proposed future cellar door and 20 metres around dwellings- cabins). Vegetation clearance will also be required for stormwater management infrastructure (e.g. stormwater pipes, waste water soakage areas, detention basins, bio-retention trenches, and rainwater tanks).

Potential indirect impacts of the Project include:

- Tree root zone impacts, depending on the level of impact to the vegetation;
- Dust generation, which may impact surrounding vegetation; and
- Noise generation, which may impact fauna species in the area.

It is unlikely that the Project will alter the hydrology (e.g. raised or lowered water table, flooding, impounding water or reduced water supply) and impact of the condition or health of the native vegetation being retained in surrounding areas.

4.4. Addressing the Mitigation Hierarchy

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

a) Avoidance

Where possible, the Project has adjusted the design plans to avoid native vegetation as much as possible. Placement of the units is to maximise views and provide a connection to the existing (producing) vines. The

cabin locations in general were located deliberately across the whole site as to try and limit impacts on vegetation as well as ensure privacy between cabins.

In initial design plans the location of the proposed future cellar door and the north-west cabins were situated in VA1 and VA2 in areas containing mature trees. However, after advice from EBS these locations were adjusted and the proposed future cellar door, carpark and cabin locations were placed to be in more open areas of lower quality and on pre-existing cleared areas, thereby avoiding impacts to trees and other vegetation as much as possible. Designs were refined a second time to readjust the location of the proposed future cellar door away from the boundary and neighbouring buildings which required changes to the orientation of buildings and moving the car parking areas to reduce impacts on vegetation. Additionally, two cabins were removed from the plan to further reduce impacts on vegetation.

Existing cleared tracks are present within the northern area of the Project area, and these tracks could be used to provide access to the northern cabins, thereby avoiding impacts to native vegetation as much as possible. Threatened flora species were not observed in these areas during the field survey, and therefore it is unlikely that the proposed Project will impact on threatened flora.

b) Minimization

The impact to vegetation has been minimised by placing infrastructure in areas where vegetation is sparser, more degraded and of lower quality than the surrounding areas.

The cabins in the east are located in an area that consists of vineyards and exotic grassland, bordering onto good quality native vegetation on the eastern boundary. The location of these cabins has been chosen to avoid impacts to native vegetation as much as possible. As such these cabins are placed on exotic grassland without native flora present. Access tracks to these cabins consist of cleared areas of exotic grassland in between vineyards. These areas are devoid of native vegetation, as they were historically cleared for vineyards.

c) Rehabilitation or restoration

NA - The proposed Project infrastructure is permanent, and land clearance associated with the project is unlikely to be rehabilitated or restored. However, EBS recommends that Declared and Environmental weed species (e.g. Olives and Bridal Creeper) are controlled.

d) Offset

Any adverse impact on native vegetation or ecosystems that cannot be avoided or minimised will be offset by implementing an SEB that outweighs that impact (see Section 6).

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

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

Table 10. 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 A total of 27 plant species was recorded in the Project area, 13 of which were introduced species (Appendix 2). A1 had 14 plant species (4 of which were introduced) A2 had 26 plant species (10 of which were introduced) Bushland Plant Diversity Score: A1 - 10 / 30 A2 – 15 / 30
	Assessment against the principles **At Variance** - A1, A2
	Moderating factors that may be considered by the NVC - Amount of clearance related to area of remnant vegetation The IBRA Mount Lofty Ranges IBRA subregion has 15% is mapped as remnant native vegetation, of which 27% (12706 ha) is formally conserved. The IBRA Rosedale IBRA environmental association approximately 5% (3089 ha) of the association is mapped as remnant native vegetation, of which 11% (331 ha) is formally conserved.
Principle 1(b) – significance as a habitat for wildlife	Relevant information A total of 17 bird species and two mammal species were recorded using the vegetation during the current fauna assessment (Appendix 1). Of those, three species were introduced species. No Nationally listed threatened species were recorded during the fauna assessment. The State Rare White-winged Chough (*Corcorax melanorhamphos*) was observed using the area during the field assessment. The vegetation associations do not have high (>60) Unit Biodiversity Scores and are woodland and grassland vegetation in fair condition, due the amount of disturbance and weeds present. The area surrounding some of the Project area is used vineyards, the remainder and wider landscape consists of remnant native vegetation. As a result of the connectivity of the surrounding vegetation, the native vegetation in the northern area of the Project area is likely to provide a corridor for fauna movement or a habitat refuge. Threatened Fauna Score – A1 – 0.04 A2 – 0.02 Unit Biodiversity Score – A1 – 35.95 A2 – 42.00
	Assessment against the principles **At Variance** - A1, A2
	Moderating factors that may be considered by the NVC Is the clearance likely to:

Principle of clearance	Considerations
	• Lead to a long-term decrease in the size of a population; • Reduce the area of occupancy of the species; • Fragment an existing population into two or more populations; • Adversely affect habitat critical to the survival of a species; • Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline; • Result in invasive species that are harmful to a threatened species becoming established in the threatened species habitat; and - Interfere with the recovery of the species.
Principle 1(c) – plants of a rare, vulnerable or endangered species	Relevant information No Nationally or State threatened flora species were recorded during the assessment. Threatened species may have been present within the site, but undetectable at the time of assessment, due season and conditions. Threatened Flora Score – 0 (A1 and A2)
	Assessment against the principles **Not at Variance**
	Moderating factors that may be considered by the NVC N/A
Principle 1(d) – the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered	Relevant information No TECs under the EPBC Act or threatened ecosystems under the DEW Provisional list of threatened ecosystems are present within the Project area. VA1 was classed as Condition Class C: Peppermint Box Grassy Woodland remnants considered too degraded to be part of the listed TEC. Threatened Community Score - 1
	Assessment against the principles **Not at Variance**
	Moderating factors that may be considered by the NVC N/A
Principle 1(e) – it is significant as a remnant of vegetation in an area which has been extensively cleared	Relevant information Rosedale IBRA Association remnancy – 5% Mount Lofty Ranges IBRA Subregion remnancy – 15% The vegetation is in a poor to fair condition with a high proportion of weed species present in the vegetation. Total Biodiversity Score – 83.09
	Assessment against the principles **Seriously at variance**
	Moderating factors that may be considered by the NVC The region has been largely cleared leaving only small areas of native vegetation.
Principle 1(f) – it is growing in, or in association with, a wetland environment	Relevant information The vegetation is not associated with a wetland environment.
	Assessment against the principles **Not at Variance**

Principle of clearance	Considerations
	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 The vegetation on the low hills and rises is likely to be regarded by the community as part of the local landscape and therefore has high amenity value. Given the surrounding vegetation, the removal of vegetation for the proposed Project is unlikely to adversely impact the amenity of the area. No cultural or historical values of the areas have been identified.
	Moderating factors that may be considered by the NVC N/A

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

4.6. Risk assessment

The level of risk associated with the application

The level of risk associated with the application is Level 3 (Table 11). Moderating factors that the NVC may consider in order to update the outcome of the assessment against the principles are outlined in Table 10. Any further clearance applications associated with the development will consider the level of risk of this application and the determining factors.

Table 11. Summary of the level of risk associated with the application (based on clearance with 10m buffer).

Total clearance	No. of trees	-
	Area (ha)	2.17
	Total biodiversity Score	83.09
Seriously at variance with principle 1(b), 1(c) or 1 (d)		-
Risk assessment outcome		Level 3

5. Clearance summary

CFS has deemed the Project Area a Medium Bushfire Risk. EBS has implemented a 10m clearance zone / buffer around the proposed future cellar door and a 20m clearance zone / buffer around each cabin to meet bushfire risk requirements and implemented a loss factor of 1 for the buildings/dwellings and infrastructure has been applied to the clearance buffer.

Clearance of a 10 metre buffer around the proposed future cellar door and a 20 metre buffer around cabins (Loss factor 1 – total clearance)

Table 12. Clearance Area(s) Summary table with a 10 metre buffer around the proposed future cellar door and a 20 metre buffer around cabins.

Block	Site	Species diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
A	1	12	1	0	0.04	35.95	1.33	47.81	1			50.20	$35,026.03	$1,926.43
A	2	18	1	0	0.02	42.00	0.84	35.28	1			37.04	$26,531.75	$1,459.25
						Total	**2.17**	**83.09**				**87.24**	**$61,557.78**	**$3,385.68**

Table 13. Totals summary table with a 10 metre buffer for the proposed future cellar door and 20 metres for the cabins.

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	**83.09**	**87.24**	**$61,557.78**	**$3,385.68**	**$64,943.46**

Economies of Scale Factor	0.5 (both sites)
Rainfall (mm)	529 (Site 1) 543 (Site 2)

6. Significant Environmental Benefit

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

ACHIEVING AN SEB

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

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

☐ Use SEB Credit that the proponent has established.

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

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

☒ Pay into the Native Vegetation Fund.

PAYMENT SEB

Studio Nine Architects proposes to achieve the SEB by paying into the Native Vegetation Fund.

The total SEB payment required for the clearance of clearance (10 m buffer around the proposed future cellar door and a 20 m buffer around cabins) of **2.17 ha** of native vegetation with a Total Biodiversity Score of 83.09 is **$64,943.46**, which includes an administration fee of $3,385.68 (Table 13).

7. References

Croft SJ, Pedler JA, Milne TI (2007) Bushland Condition Monitoring Manual – Northern Agricultural & Yorke Peninsula Regions. Nature Conservation Society of South Australia, Adelaide.

Department for Environment and Water (DEW) (2021a) NatureMaps. Available at: http://data.environment.as.gov.au/NatureMaps/Pages/default.aspx [Accessed 23 April 2021].

Department for Environment and Water (DEW) (2021b). Database extract sourced from the South Australian Biological Database of South Australia. Data Licence number 2794 [Obtained 19 April 2021].

Department of the Environment and Energy (DAWE) (2020a). Protected Matters Search Tool. Available at: http://www.environment.gov.au/webgis-framework/apps/pmst/pmst-coordinate.jsf [Accessed 23 April 2021].

Department of the Environment and Energy (DAWE) (2021b). Species Profile and Threats Database. Department of Agriculture Water and the Environment. https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

Native Vegetation Council (NVC) (2020a) Bushland Assessment Manual July 2020. Native Vegetation Council, Adelaide. Available at: https://www.environment.sa.gov.au/topics/native-vegetation/clearing/vegetation-assessments.

8. Appendices

Appendix 1. Fauna Species List.

Species Name	Common name	Comments
Birds		
Anthochaera carunculata	Red Wattlebird	
Cacatua sanguinea	Little Corella	
Corcorax melanorhamphos	White-winged Chough	State Rare
Corvus coronoides	Australian Raven	
Eolophus roseicapilla	Galah	
Gymnorhina tibicen	Australian Magpie	
Macropus (Osphranter) robustus	Euro	
Manorina melanocephala	Noisy Miner	
Ocyphaps lophotes	Crested Pigeon	
Pardalotus striatus	Striated Pardalote	
Platycercus elegans	Crimson Rosella	
Psephotus haematonotus	Red-rumped Parrot	
Ptilotula penicillata	White-plumed Honeyeater	
Rhipidura leucophrys	Willie Wagtail	
Strepera versicolor	Grey Currawong	
Sturnus vulgaris	Common Starling	Introduced
Trichoglossus haematodus	Rainbow Lorikeet	
Anthochaera carunculata	Red Wattlebird	
Mammals		
Lepus europaeus	European Brown Hare	Introduced
Vulpes	Fox (Red Fox)	Introduced

Appendix 2. Flora Species List.

Species Name	Common name
Acacia pycnantha	Golden Wattle
**Aristida behriana*	Brush Wire-grass
**Asparagus asparagoides f.*	Bridal Creeper
Astroloma humifusum	Cranberry Heath
Austrostipa sp.	Spear-grass
**Avena sp.*	Oat
Dianella revoluta var.	
**Echium plantagineum*	Salvation Jane
**Ehrharta sp.*	Veldt Grass
Elymus sp.	Wheat-grass
Eucalyptus camaldulensis ssp.	River Red Gum
Eucalyptus leucoxylon hybrid	South Australian Blue Gum Hybrid
Eucalyptus odorata	Peppermint Box
Haloragis sp.	Raspwort

Species Name	Common name
**Juncus subnodulosus*	Blunt-flowered Rush
Lomandra densiflora	Soft Tussock Mat-rush
Lomandra multiflora ssp.	Many-flower Mat-rush
**Medicago sp.*	Medic
**Olea europaea ssp.*	Olive
**Oxalis pes-caprae*	Soursob
**Plantago lanceolata var.*	Ribwort
**Romulea sp.*	Onion-grass
Rytidosperma sp.	Wallaby-grass
Salsola australis	Buckbush
Themeda sp.	Ilintji
**Trifolium sp.*	Clover
**Vulpia sp.*	Fescue

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