JS Ayre & Associates
PO Box 123
EDWARDSTOWN SA 5039
M: 0416 151 234
E: ayrej@ihug.com.au
ABN 68 501 409 165

Native Vegetation Clearance

Stage 2, VS 2020/025 Part 1D
Horrocks Highway Upgrade
Clare to Undalya, MM 178.9 – MM 206
Shoulder Sealing, Culvert Extensions and Hazard Reduction
Data Report

Clearance under the *Native Vegetation Regulations 2017*

4 May 2021

Prepared by Jackie Ayre, JS Ayre & Associates

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1. Application information

Application Details

Applicant:	Department for Infrastructure and Transport		
Key contact:	Ms Catherine Gray Senior Environmental Advisor Transport Planning and Program Development Department for Infrastructure and Transport **T** 8402 1874 • **M** 0419 851 548 • **E** catherine.gray@sa.gov.au		
Landowner:	The Crown		
Site Address:	MM 178.9 to MM 206, Horrocks Highway, Clare to Undalya		
Local Government Area:	Clare and Gilbert Valleys Council	Hundred:	Clare, Upper Wakefield and Alma
Title ID:	N/A (Road Reserve)	Parcel ID	N/A (Road Reserve)

Summary of proposed clearance

Purpose of clearance	Clearance required to accommodate shoulder sealing, hazard reduction, curve and pavement widening works to improve safety
Native Vegetation Regulation	Regulation 12, Schedule 1; clause 32, Works on behalf of Commissioner of Highways
Description of the vegetation under application	Size, type and general condition • 0.0625ha of *Eucalyptus leucoxylon ssp pruinosa/Allocasuarina verticillata* Woodland in fair condition; • 0.045ha *Eucalyptus leucoxylon/ Eucalyptus camaldulensis* Woodland in poor condition; • 0.002ha of *Acacia victoriae* Shrubland in poor condition; and • 117 scattered *Eucalyptus camaldulensis, E. leucoxylon ssp pruinosa. E. odorata, Acacia pycnantha and Callitris gracilis* in poor to good condition.
Total proposed clearance - area (ha) and number of trees	Clearance of 0.1095ha of remnant vegetation and impact to 117 scattered trees, (60 at LF1.0; 32 at LF 0.8; 24 at LF 0.6; and 1 at LF 0.4)
Level of clearance	Level 4
Overlay (Planning and Design Code)	Native Vegetation Overlay

Mitigation hierarchy	As a result of a site assessment to identify potential mitigation options, the total number of trees impacted (formerly LF 1.0) has been reduced from 129 to 117; 60 will require removal; 32 may suffer root and/or canopy impacts up to LF 0.8; 24 at LF 0.6, and one at LF 0.4. Only where use of guard rail would pose an unacceptable risk to road users, or where works will directly impact or render the tree structurally unsound, have scattered trees been earmarked for removal. In addition, mitigation has reduced the areas of vegetation impacted from 0.2655ha to 0.1095ha, by the installation of guard rail.
SEB Offset proposal	Payment of **$169 404.39**

2. Purpose of clearance

2.1 Description

The proposed upgrade aims to achieve a formed width of 10.6m on straight sections, and 11.6m on curves.

Criteria for Federal Government Stimulus Package 2 funding requires all non-frangible vegetation within 5m of the new edge line to be removed or protected by guardrail or other measures.

Several scattered remnant trees, and areas of remnant vegetation patches, occur within or close to the construction area and/or funding criteria requirements, and are likely to be impacted. Impact to some scattered trees has been determined based on the type, and encroachment, of works into the Structural Root Zones and Tree Protection Zones.

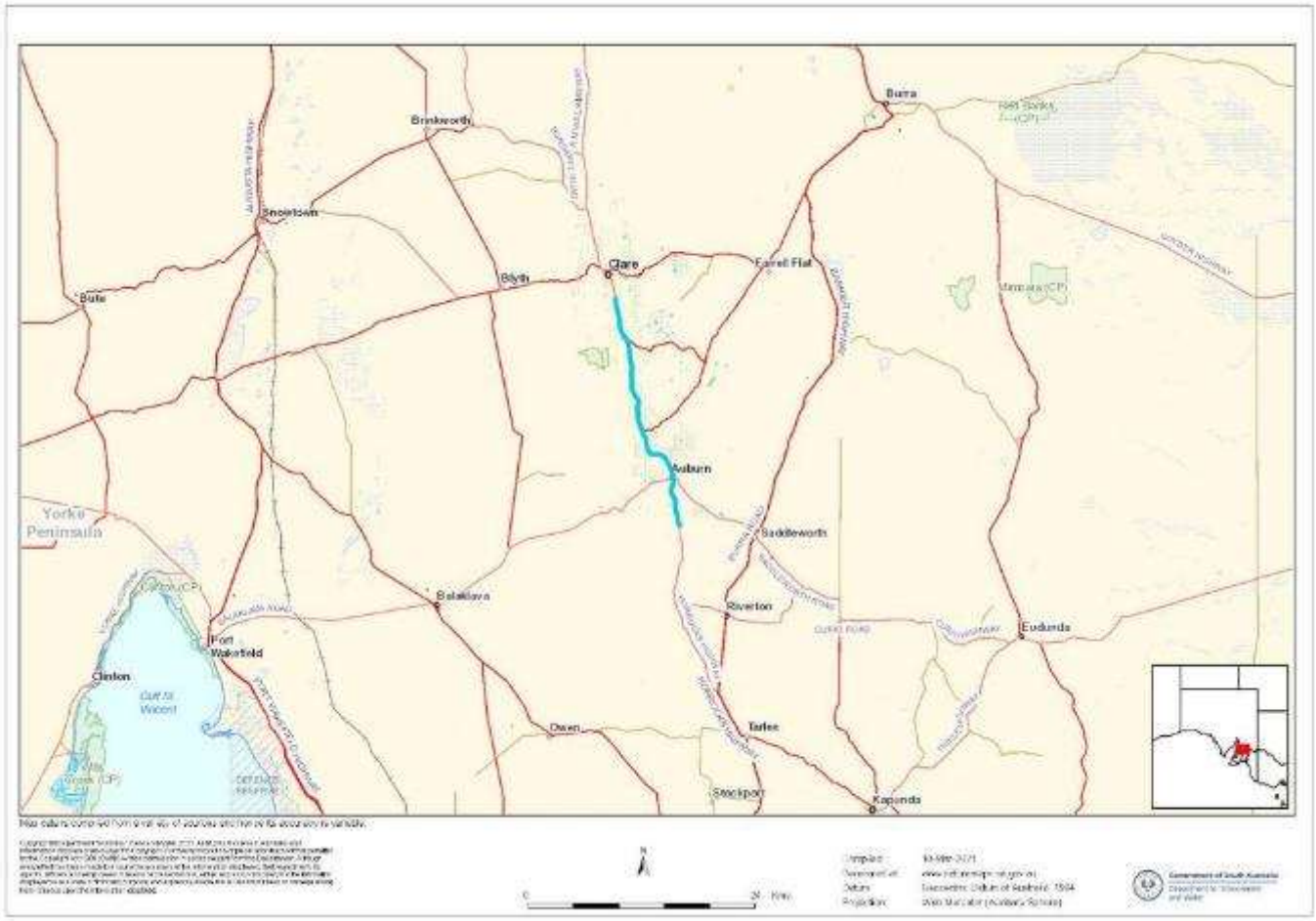
2.2 Background

The project site covers both sides of the Horrocks Highway from MM 178.9 on the southern outskirts of Clare, to MM 206.00, at Undalya. The impacts to vegetation are a consequence of implementation of construction and safe operation of the highway, and to meet clearance requirements for federal funding criteria.

The surrounding land is used for cropping and grazing. Remnant vegetation patches occur consistently in the surrounding landscape for the northern half of the project, reducing to sparse scattered trees in paddocks and the road reserve around the southern portion.

This project is part of **Stage 2, Part 1D** of the broader Horrocks Highway upgrade project. Further sections to the north are the subject of recent or current clearance applications; 1A Wilmington to Melrose, 1B Gladstone to Crystal Brook Turnoff (Level 1), 1C Murraytown to Wirrabara, and 1F Crystal Brook Turnoff to Yacka (see part 2.5, Approvals required or obtained). Other sites, including 1G Undalya to Giles Corner (in progress), 1E south of Wirrabara to Laura, and 1H between RM Williams Way junction to Clare, are proposed in the near future.

2.3 General location map



See part 4.1 for scattered tree and patch locations

2.4 Details of the proposal

The upgrade works consist of the following activities:

- Removal or protection of all hazards including non-frangible vegetation, non-trafficable embankments (less than 1:6 batter slope), deep culverts or stobie poles within 5m of the new edge line, in accordance with criteria for Federal Government Stimulus Package funding requirements
- Shoulder sealing, culvert extensions, guard fence installation
- Pavement overlays, 150mm by 10.6m (plus 1m on outside curves).
- Potential cut/fill batter extensions to raise shoulders to match with pavement height
- Potential minor clearance associated with maintenance activities (e.g., around Maintenance Markers). This impact is under the 'maintenance' clause of the SOP and is not accounted for in this report.

Works to seal shoulders and widen curves requires excavation of the shoulder to a depth of 150mm, compaction and sealing. Impact zones are 10.6m on straight sections, and 11.6m on curves, with an additional 1.0m either side for Contractor's Activity Zone (except where significant vegetation precludes this).

Guard rail impacts result from rammed or excavated footings and deflection zone requirements behind safety barriers. Where trees are within 8.5m of the road centreline, in most cases they have been allocated a Loss Factor of 1.0; where outside this area, Loss Factors have been determined based on the nature of works (guard railing/shoulder sealing) and anticipated impact within Structural Root Zones and Tree Protection Zones, or to canopies.

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

- Native Vegetation Act 1991 - this report is in part fulfillment of the requirements of this Act. There are four clearance applications associated with the Horrocks Highway upgrade project; Part 1A – Wilmington to Melrose (Level 4, NVAP approval); Part 1B – Gladstone to Crystal Brook turnoff (Level 1, internal DIT approval) 1C – Murraytown to Wirrabara (Level 3 – approved) and 1F Crystal Brook Turnoff (Gulnare) to Yacka (Level 3, approved). Future sites in progress or currently being assessed, include 1E Wirrabara to Murraytown; 1G Undalya to Giles Corner and 1H Rm Williams Way Junction to Clare.
- Planning, Development and Infrastructure Act 2016 - N/A
- Water Resources Act 1997 – N/A
- Environment Protection and Biodiversity Conservation Act 1999 – N/A
- National Parks and Wildlife Act 1972 – N/A
- Landscapes SA Act 2019 (e.g. water affecting activity permit) – N/A
- Aboriginal Heritage Act 1988 – work will be mainly within the previously disturbed shoulder and is not considered to pose a high risk of encountering Aboriginal sites or objects. The Departmental Policy includes a Stop Works Procedure which is a guideline for the assessment and management of Aboriginal objects, sites and remains, should any be disturbed during construction of infrastructure projects or maintenance activities.

2.6 Native Vegetation Regulation

Regulation 12, Schedule 1; clause 32, Works on behalf of Commissioner of Highways – clearance of vegetation incidental to new work being undertaken; and in accordance with an NVC-approved SOP.

3. Method

3.1 Flora assessment

Following a review of background information and literature, 20.0 hours was spent on site between 13 and 20 January 2021, by Jackie Ayre of JS Ayre & Associates. A follow up assessment to determine mitigation opportunities occurred on 22 February 2021. The scope of works was outlined in contract documents provided by the client prior to the field survey and informed by research using Naturemaps and Google Earth street view. The project manager was available to clarify the scope during the site assessment. The survey involved an assessment of numerous trees and remnant patches in relation to the works, and a general assessment of the site including identification of possible habitat for species of conservation significance.

An online search was undertaken for Environment Protection and Biodiversity Conservation (EPBC) Act "Matters of Environmental Significance" and an interrogation of the Atlas of Living Australia (AoLA) and the BDBSA databases was completed as background to the field assessment. Sixteen threatened plant species were recorded in the database search; nine State rated and Seven EPBC rated, however, none were observed on site.

3.2 Fauna assessment

A review of databases including the EPBC Act "Matters of Environmental Significance", AoLA and BDBSA was undertaken prior to the site visit to establish fauna species known, or considered likely, to occur at the site. Thirteen threatened species including four at subspecies level, were recorded on databases; three at EPBC level, ten at State Level. One (White-winged Chough) was observed during the field survey.

All observations, calls and evidence of presence were recorded as field notes. Bird species were recorded when heard calling, or when observed within, adjacent to, or flying over the site, aided by the use of binoculars. Evidence of fauna species presence was searched for and recorded when observed. If hollows were found, closer inspection with binoculars was undertaken.

4. Assessment Outcomes

4.1 Vegetation Assessment

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

- *Landform, geography and soils*
  The area is described as hillslopes, foot slopes and plains of sandy loam to clay loam soils. Elevation ranges from around 500m above sea level to the north, and 300m to the south.
- *Landform feature of significance (rivers, creeks, rocky outcrops, etc.)* The Hutt River runs through Clare township mostly to the east; Eyre Creek is located at Watervale and Leasingham, and the Wakefield River travels south, east of Auburn to Undalya. Multiple low order streams cross the project site. Six RSSD sites – #10016, Auburn heritage conservation area; and #10306 #10015 #10017 #10018 #10305, occur within the project site but relate to bridges or monuments and not vegetation.
- *General overview of the vegetation under application*
  Three vegetation associations were observed across the site – *Eucalyptus leucoxylon ssp pruinosa/Allocasuarina verticillata/Acacia pycnantha +/- Callitris gracilis* Woodland*; Eucalyptus camaldulensis/E. leucoxylon ssp pruinosa* Woodland; and *Acacia victoriae* Shrubland. These occurred on road reserve and in private property adjacent. River Red Gums were evident around creek lines and low lying areas but also across the site, sometimes associated with SA Blue Gum, as scattered trees. Amenity plantings occurred within or close to townships and also along property boundaries. Weed species were abundant across the entire site. Understorey across all associations was almost exclusively exotic herbs, forbs and shrubs (e.g. *Avena barbata/fatua*, *Olea europaea, Rosa canina*).
- *General description of the vegetation relating to type and condition*
  The vegetation occurs as mostly highly degraded woodland consisting of trees over exotic species and infiltrated by Declared and Environmental weeds. Low species diversity was observed across much of the project site.
- *Provide a description of the landscape context for the vegetation*
  The remnant vegetation in this application exists as narrow fringes on road reserve, much of which has connectivity with patches on private property, most under 50ha, via vegetated boundary fencelines, creeks and local roads. Three remnant patches greater than 50ha occur near the site – one adjoining road reserve around MM 182 – 183; one east of Clare with connectivity to roadside vegetation; and one with limited connectivity, at the southern end of the project. Spring Gully Conservation Park lies 2.3km west of the site with some linkage to the roadside vegetation under assessment. Three Heritage Agreements occur nearby but none with significant connectivity to the vegetation subject to impact.

Details of the vegetation association proposed to be impacted

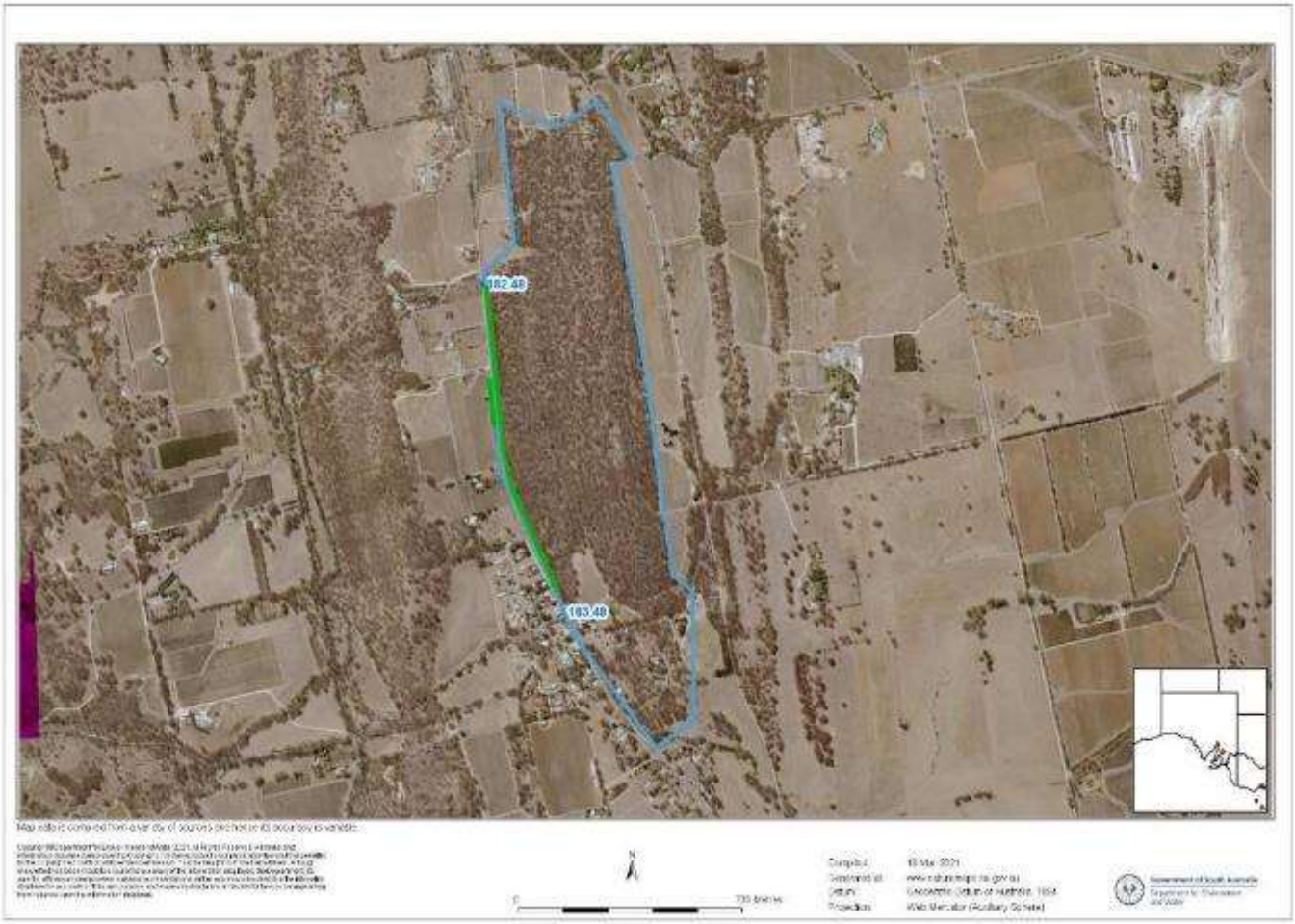
Vegetation Association	Vegetation Association 1; *Eucalyptus leucoxylon ssp pruinosa/Allocasuarina verticillata/Acacia pycnantha +/- Callitris gracilis* Woodland

Photo 1. Looking south east from approximate MM182.0, GPS 280413/6248995.

Photo 2. Looking east into the remnant patch near MM 182.6. *Lavandula stoechas* is the dominant understorey across much of the site, although this species was not observed in the road reserve.

General description	The dominant species was *Eucalyptus leucoxylon ssp pruinosa* with scattered *Acacia pycnantha* and occasional *Callitris gracilis*. Understorey consists of exotic herbaceous and woody species dominated by *Lavandula stoechas (*on private property*), Avena barbata/fatua* (Wild Oats), *Olea europaea* and *Rosa canina,* with *Malus pumila, Fraxinus angustifolia* and *Phalaris aquatica* present where the vegetation occurs on road reserve. Very few small patches of native grasses were observed but these were in low numbers and very sparsely spread. The association is very degraded both on roadside and private property, but by different species. It is estimated that 0.0625ha, (made up of two sites: MM 182.0 – MM 182.6 LHS and MM 183.3 – 183.5 RHS, aggregated) will be impacted by works and/or federal funding criteria requirements for clearance within 8.3m of the road centreline. Installation of guard rail has reduced impact considerably.				
Threatened species or community	No threatened flora species were observed at the sites, however access to private property was not available to conduct a thorough search (also the time of year was not conducive to finding more cryptic or seasonal flora species). Fauna species recorded as occurring in the area include the (State listed) White-winged Chough, Eastern Shrike-tit, Jacky Winter, Scarlet Robin and Common Brushtail Possum (see Section 4.2 for more detail). The EPBC listed Australian Painted Snipe and Pygmy Bluetongue were not observed nor are likely to occur in this association.				
Landscape context score	1.19	Vegetation Condition Score	23.43	Conservation significance score	1.10
Unit biodiversity Score	30.67	Area (ha)	0.0625	Total biodiversity Score	1.92

<u>Site map</u> showing areas of proposed impact - Vegetation Association 1



Vegetation Association	Vegetation Association 2; *Eucalyptus leucoxylon ssp pruinosa/Eucalyptus camaldulensis var camaldulensis* Woodland

Photo 3. Looking south east from approximate MM188.3, LHS, GPS 281816/6242457. *Eucalyptus camaldulensis var camaldulensis* dominates this section of the association

Photo 4. Looking south at the roadside portion of the remnant near MM 188.85, RHS, GPS *Eucalyptus leucoxylon ssp pruinosa* and *Eucalyptus camaldulensis var camaldulensis share* dominance.

General description	The two Eucalypt species share dominance across most of the site, with River Red Gum more prevalent near watercourses or low lying areas. Understorey appeared devoid of any native species within the area of impact. On private property adjacent (not accessed) the odd *Acacia pycnantha* was observed. Weed species making up the understorey included *Avena barbata/fatua*, *Phalaris aquatica, Scabiosa atropurpurea, Olea europaea* and *Rosa canina, Malus pumila, Fraxinus angustifolia, Prunus domestica* and *Crataegus monogyna*. The association is very degraded on the roadside. It is estimated that 0.0450ha, (made up of two sites: VA2 1) 0.0300ha from MM 188.30 – MM 189.85 LHS, LF 0.8, and VA2 2) 0.0150 ha from MM 188.30 – MM 189.85 RHS, LF 1.0 will be impacted by works and/or federal funding criteria requirements for clearance within 8.3m of the road centreline. Installation of guard rail has reduced impact significantly to both sites.
Threatened species or community	No threatened flora species were observed at the sites, however access to private property was not available to conduct a thorough search and conditions were not conducive to finding more cryptic or seasonal flora species. Fauna species recorded as occurring in the area include the (State listed) White-winged Chough, Eastern Shrike-tit, Jacky Winter, Scarlet Robin and Common Brushtail Possum (see Section 4.2 for more detail). The EPBC listed Australian Painted Snipe and Pygmy Bluetongue were not observed nor are likely to occur in this association.

VA2 1) Landscape context score	1.19	Vegetation Condition Score	11.92	Conservation significance score	1.06
Unit biodiversity Score	15.03	Area (ha)	0.030	Total biodiversity Score	0.45

VA2 2) Landscape context score	1.19	Vegetation Condition Score	11.92	Conservation significance score	1.06
Unit biodiversity Score	15.03	Area (ha)	0.015	Total biodiversity Score	0.23

<u>Site map</u> showing areas of proposed impact - Vegetation Association 2

Vegetation Association	Vegetation Association 3; *Acacia victoriae* Shrubland

Photo 5. Looking north west from approximate MM 202.10, GPS 286210/6231023. *Acacia victoriae* is the only native species present.

General description	Elegant Wattle is the only remnant species present and impacted at this site. Weed species making up the understorey included *Avena barbata/fatua, Scabiosa atropurpurea, and Lolium perenne.* The association is very degraded with one half of the shrub dead. It is estimated that 0.002ha will be impacted by works and/or federal funding criteria requirements for clearance within 8.3m of the new road centreline.				
Threatened species or community	No threatened flora species were observed at the site. Fauna species recorded as occurring in the area include the (State listed) White-winged Chough, Eastern Shrike-tit, Jacky Winter, Scarlet Robin and Common Brushtail Possum (see Section 4.2 for more detail). The EPBC listed Australian Painted Snipe and Pygmy Bluetongue were not observed nor are likely to occur in this association. None of the threatened species are likely to find optimum habitat in this small patch.				
Landscape context score	1.15	Vegetation Condition Score	4.03	Conservation significance score	1.06
Unit biodiversity Score	4.91	Area (ha)	0.002	Total biodiversity Score	0.01

<u>Site map</u> showing areas of proposed impact - Vegetation Association 3

Details of the scattered trees proposed to be impacted (in order of impact level)

Loss Factor 1.0

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
2 179.01 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	10.0	0	20	0	0.41	Medium tree in poor condition providing limited habitat for threatened species. Main impact = within 8.0m of CL	2
3 179.45 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	11.0	0	30	0	0.57	Small tree in good condition providing limited habitat for threatened species. Main impact = within 8.0m of CL	3
4 179.5 RHS	Eucalyptus camaldulensis var camaldulensis	2	1.0	**1.0**	16.0	0	45	0	3.86	Small trees in good condition providing limited habitat for threatened species. Main impact = within 8.5m of CL	4
5 179.5 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	12.0	0	20	5	0.44	Small tree in good condition providing limited habitat for threatened species. Main impact = within 8.5m of CL	5
11 180.25 LHS	Eucalyptus camaldulensis var camaldulensis	12	1.0	**1.0**	12.0	0	30	0	2.39	Large trees in good condition providing potential habitat for threatened species. Main impact = within 7.5m of CL	11
14 180.6 LHS	Eucalyptus odorata	1	1.0	**1.0**	10.0	0	40	20	2.00	Medium tree in fair condition providing potential habitat for threatened species. Main impact = within 8.0m of CL	14

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
15 180.60 LHS	Eucalyptus camaldulensis var camaldulensis	4	1.0	**1.0**	14.0	0	40	10	4.60	Group, ranging in size, in good condition providing potential habitat for threatened species. Main impact = within 8.5m of CL.	15
16 180.65 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	18.0	0	75	0	3.50	Large tree in good condition providing habitat for threatened species. Main impact = within 8.0m of CL.	16
22 181.31 RHS	Callitris gracilis	20	1.0	**1.0**	8.0	0	10	0	6.89	Small to medium trees in good condition providing potential habitat for threatened species. Main impact = on embankment within 7.0 – 8.5m of CL	22
24 181.90 LHS	Eucalyptus leucoxylon ssp pruinosa	2	1.0	**1.0**	15.0	0	45	5	4.94	One large, one small tree in good condition providing potential habitat for threatened species. Main impact = within 8.0 - 8.2m of CL, drain upgrade impacts	24
27 186.15 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	14.0	0	50	50	0.61	Large tree in poor condition, 50% dead with no hollows, providing limited habitat for threatened species. Main impact = within 8.2m of CL	27
29 186.30 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	7.0	0	30	80	0.18	Small tree in poor condition providing limited habitat for threatened species. Main impact = within 8.0m of CL	29
32 187.20 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	18.0	0	80	0	3.66	Medium tree in good condition providing potential habitat for threatened species. Main impact = within 7.5m of CL	32

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
33 187.30 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	14.0	0	80	5	0.37	Large tree in fair condition providing habitat for threatened species. Main impact = within 8.5m of CL on a curve	33
40 188.042 LHS	Eucalyptus camaldulensis var camaldulensis	1	0	**1.0**	14	0	30	5		Medium tree in good condition, providing potential habitat for threatened species. Main impact = drain upgrade	40
41 188.05 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	8.0	0	8	10	0.23	Small tree in good condition providing limited habitat for threatened species. Main impact = within 8.5m of CL, drain impacts	41
43 188.10 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	12.0	0	10	0	0.36	Small tree in good condition providing limited habitat for threatened species. Main impact = within 8.5m of CL	43
44A 188.2 LHS	Eucalyptus camaldulensis var camaldulensis	2	0	**1.0**	20	0	55	10	7.86	Large tree and medium tree in good condition providing potential habitat for threatened species Main impact = guard rail terminal, hazard risk	44A
46 189.025 LHS	Eucalyptus leucoxylon ssp pruinosa	1	0	**1.0**	18	0	75	20	5.92	Large tree in fair condition providing potential habitat for threatened species Main impact = within 4.6m of CL	46
52 190.008 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	16.0	0	100	10	3.45	Large tree in good condition providing habitat for threatened species. Main impact = within 6.8m of CL	52

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
53 190.05 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	18.0	2	100	10	4.26	Large tree in good condition providing habitat for threatened species. Main impact = within 6.6m of CL.	53
56 192.60 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	18.0	0	90	5	3.70	Large tree in good condition providing habitat for threatened species. Main impact = within 6.0m of CL. Removal is worst-case scenario	56
60 194.7 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**1.0**	14.0	0	70	0	2.25	Medium tree in good condition providing habitat for threatened species. Main impact = culvert works. Removal is worst-case scenario	60

Loss Factor 0.8

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
7 179.80 RHS	Eucalyptus camaldulensis var camaldulensis	15	1.0	**0.8**	22.0	3	80	20	72.93	Small, medium and large trees in good condition providing potential habitat for threatened species. Main impact = within 8.5m of CL. Impact mitigated by guard rail	7
9 179.95 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.8**	14.0	0	30	5	0.64	Medium tree in fair condition providing potential habitat for threatened species. Main impact = within 8.0m of CL. Impact mitigated by guard rail	9
10	Eucalyptus leucoxylon ssp pruinosa	1	1.0	**0.8**	12.0	0	30	20	1.03	Large tree in good condition providing limited habitat for threatened species.	10

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
179.95 RHS										Main impact = within 7.5m of CL. Impact mitigated by guard rail	
19 180.80 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.8**	18.0	0	80	5	3.54	Large tree in good condition providing habitat for threatened species. Main impact = within 7.0m of CL. Impact mitigated by guard rail	19
23 181.30 LHS	Eucalyptus leucoxylon ssp pruinosa	1	1.0	**0.8**	15.0	0	50	5	2.59	Large tree in good condition providing potential habitat for threatened species. Main impact = within 8.5m of CL. Impact mitigated by guard rail	23
34 187.55 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.8**	14.0	0	80	15	2.22	Medium tree in good condition providing potential habitat for threatened species. Main impact = within 6.4m of CL. Impact mitigated by guard rail	34
44 188.2 LHS	Eucalyptus camaldulensis var camaldulensis	3	1.0	**0.8**	20.0	1	100	5	14.22	Large tree in good condition providing habitat for threatened species. Main impact = within 7.5m of CL. Impact mitigated by guard rail	44
45 188.2 LHS	Eucalyptus camaldulensis var camaldulensis	2	1.0	**0.8**	24.0	1	110	5	13.70	Large tree in good condition providing habitat for threatened species. Main impact = within 7.7m of CL. Impact mitigated by guard rail	45
57 193.25 LHS	Eucalyptus camaldulensis var camaldulensis	2	1.0	**0.8**	18.0	0	80	5	7.09	Two medium trees in good condition providing habitat for threatened species. Main impact = within 7.2m of CL. Impact mitigated by guard rail	57
64	Eucalyptus camaldulensis	3	1.0	**0.8**	14.0	0	60	5	5.90	Large and medium trees in fair - good condition providing habitat for threatened species. Main impact =	64

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
204.75 LHS	var camaldulensis									within 6.5m of CL. Impact mitigated by guard rail	
65 204.90 LHS	Eucalyptus leucoxylon ssp pruinosa	2	1.0	**0.8**	12.0	0	55	0	4.62	Large trees in good condition providing habitat for threatened species. Main impact = within 6.3m of CL. Impact mitigated by guard rail	65

Loss Factor 0.6

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
6 179.7 RHS	Eucalyptus camaldulensis var camaldulensis	2	1.0	**0.6**	18.0	0	80	5	7.09	Large trees in good condition providing habitat for threatened species. Main impact = within 8.5m of CL. Impact mitigated by guard rail	6
8 179.9 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.6**	15.0	0	45	5	1.33	Medium tree in good condition providing potential habitat for threatened species. Main impact = within 8.0m of CL. Impact mitigated by guard rail	8
12 180.45 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.6**	12.0	0	40	10	1.04	Large tree in good condition providing potential habitat for threatened species. Main impact = within 8.0m of CL. Impact mitigated by guard rail	12
13 180.45 LHS	Eucalyptus camaldulensis var camaldulensis	2	1.0	**0.6**	12.0	0	40	5	2.16	One large, one small tree in good condition providing potential habitat for threatened species. Main impact = within 8.0m of CL. Impact mitigated by guard rail	13

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
17 180.78 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.6**	14.0	0	50	5	1.33	Large tree in good condition providing habitat for threatened species. Main impact = within 7.0m of CL. Impact mitigated by guard rail	17
18 180.78 LHS	Eucalyptus camaldulensis var camaldulensis	2	1.0	**0.6**	16.0	0	60	25	2.79	Two large trees in good condition providing potential habitat for threatened species. Main impact = within 7.5 – 8.0m of CL. Impact mitigated by guard rail	18
20 181.29 LHS	Eucalyptus leucoxylon ssp pruinosa	1	1.0	**0.6**	15.0	0	60	0	3.66	Large tree in good condition providing potential habitat for threatened species. Main impact = within 8.3m of CL. Impact mitigated by guard rail	20
21 181.30 LHS	Eucalyptus leucoxylon ssp pruinosa	1	1.0	**0.6**	14.0	0	50	10	2.34	Large tree in good condition providing potential habitat for threatened species. Main impact = within 8.5m of CL. Impact mitigated by guard rail	21
35 187.55 RHS	Eucalyptus leucoxylon ssp pruinosa	1	1.0	**0.6**	16.0	1	100	30	4.69	Large tree in poor condition providing potential habitat for threatened species. Main impact = within 8.5m of CL. Impact mitigated by guard rail	35
36 187.7 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.6**	14.0	0	40	80	0.41	Large tree in poor condition providing limited habitat for threatened species. Main impact = within 8.4m of CL. Impact mitigated by guard rail	36
37 187.85 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.6**	16.0	0	40	20	1.17	Large tree in good condition providing habitat for threatened species. Main impact = within 8.4m of CL. Impact mitigated by guard rail	37

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
38 187.90 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.6**	10.0	0	50	20	0.64	Small tree in fair condition providing limited habitat for threatened species. Main impact = within 8.0m of CL. Impact mitigated by guard rail	38
50 189.880 RHS	Eucalyptus leucoxylon ssp pruinosa	1	0	**0.6**	9	0	15	0		Within 8.5m of CL, remove 1 stem	50
51 189.99 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.6**	14.0	0	50	5	1.33	Medium tree in good condition providing potential habitat for threatened species. Main impact = within 8.0m of CL. Impact mitigated by guard rail	51
54 190.45 RHS	Eucalyptus camaldulensis var camaldulensis	2	1.0	**0.6**	18.0	0	90	5	7.41	One large, one medium tree in good condition providing habitat for threatened species. Main impact = within 8.4m of CL. Impact mitigated by guard rail	54
58 193.25 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0.6**	20.0	0	70	20	2.55	Large tree in fair condition providing habitat for threatened species. Main impact = within 7.9m of CL. Impact mitigated by guard rail	58
66 205.20 RHS	Eucalyptus leucoxylon ssp pruinosa	4	1.0	**0.6**	20.0	3	90	20	28.72	Large trees in good condition providing habitat for threatened species. Main impact = within 8.5m of CL. Impact mitigated by guard rail	66

Loss Factor 0.4

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
25 181.95 LHS	Eucalyptus leucoxylon ssp pruinosa	1	1.0	**0.4**	14.0	0	25	0	1.27	Small tree in good condition providing potential habitat for threatened species. Main impact = culvert works, minor root impacts	25

Loss Factor 0

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
1 179.0 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	30.0	6	320	15	15.00	Very large tree, significant landscape feature, in very good condition providing habitat for threatened species. Within 8.5m of CL but no impact	1
28 186.2 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	16.0	0	120	5	3.89	Large tree in good condition providing potential habitat for threatened species. Within 8.3m of CL but no impact	28
30 186.3 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	16.0	0	90	5	3.41	Large tree in good condition providing potential habitat for threatened species. Within 7.9m of CL but no impact	30
31 186.3 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	16.0	0	90	5	3.41	Large tree in good condition providing potential habitat for threatened species. Within 8.0m of CL but no impact	31

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
39 187.9 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	14.0	0	40	50	0.54	Medium tree in fair condition providing limited habitat for threatened species. Within 8.0m of CL but not impacted	39
42 188.05 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	12.0	0	50	5	1.21	Medium tree in good condition providing potential habitat for threatened species. Within 8.5m of CL but no impact	42
47 189.30 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	16.0	0	65	0	2.35	Medium tree in good condition providing habitat for threatened species. Main impact = culvert works. Impact mitigated by guard rail	47
48 189.30 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	7.0	0	15	0	0.29	Small tree in good condition providing potential habitat for threatened species. Main impact = culvert works. Impact mitigated by guard rail	48
49 189.30 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	16.0	0	50	30	1.21	Large tree in fair condition providing habitat for threatened species. Main impact = culvert works. Impact mitigated by guard rail	49
55 191.010 RHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	20.0	1	200	5	8.31	Large tree in good condition providing habitat for threatened species. Main impact = on embankment, large base is within 8.2m of CL, but no impact	55
59 194.7 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	18.0	0	120	10	4.08	Very large tree in very good condition providing habitat for threatened species. Culvert to be relocated, no impact	59

Tree # & MM	Tree spp.	No. of trees	Loss factor pre & post mitigation		Height (m)	Hollows	Diam (cm)	Canopy dieback (%)	Bio diversity Score	General comments, main impact (CL = centre line)	Photo # (see App 1)
61 194.85 RHS	Eucalyptus camaldulensis var camaldulensis	6	1.0	**0**	12.0	0	30	0	3.59	Small trees in good condition providing potential habitat for threatened species. Main impact = within 7.9 – 8.5m of CL. No impact	61
62 204.50 RHS	Eucalyptus leucoxylon ssp pruinosa	2	1.0	**0**	16.0	0	95	0	11.71	Large trees in good condition providing habitat for threatened species. Main impact = within 7.5 – 8.5m of CL, no impact	62
63 204.70 LHS	Eucalyptus camaldulensis var camaldulensis	1	1.0	**0**	18.0	2	120	10	4.62	Very large tree in good condition providing habitat for threatened species. On private property. Not impacted	63
67 205.30 RHS	Eucalyptus camaldulensis var camaldulensis	5	1.0	**0**	18.0	0	40	5	9.71	Small to medium trees in good condition providing habitat for threatened species. Main impact = within 8.0m of CL, not impacted	67

Location of scattered trees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ST 22


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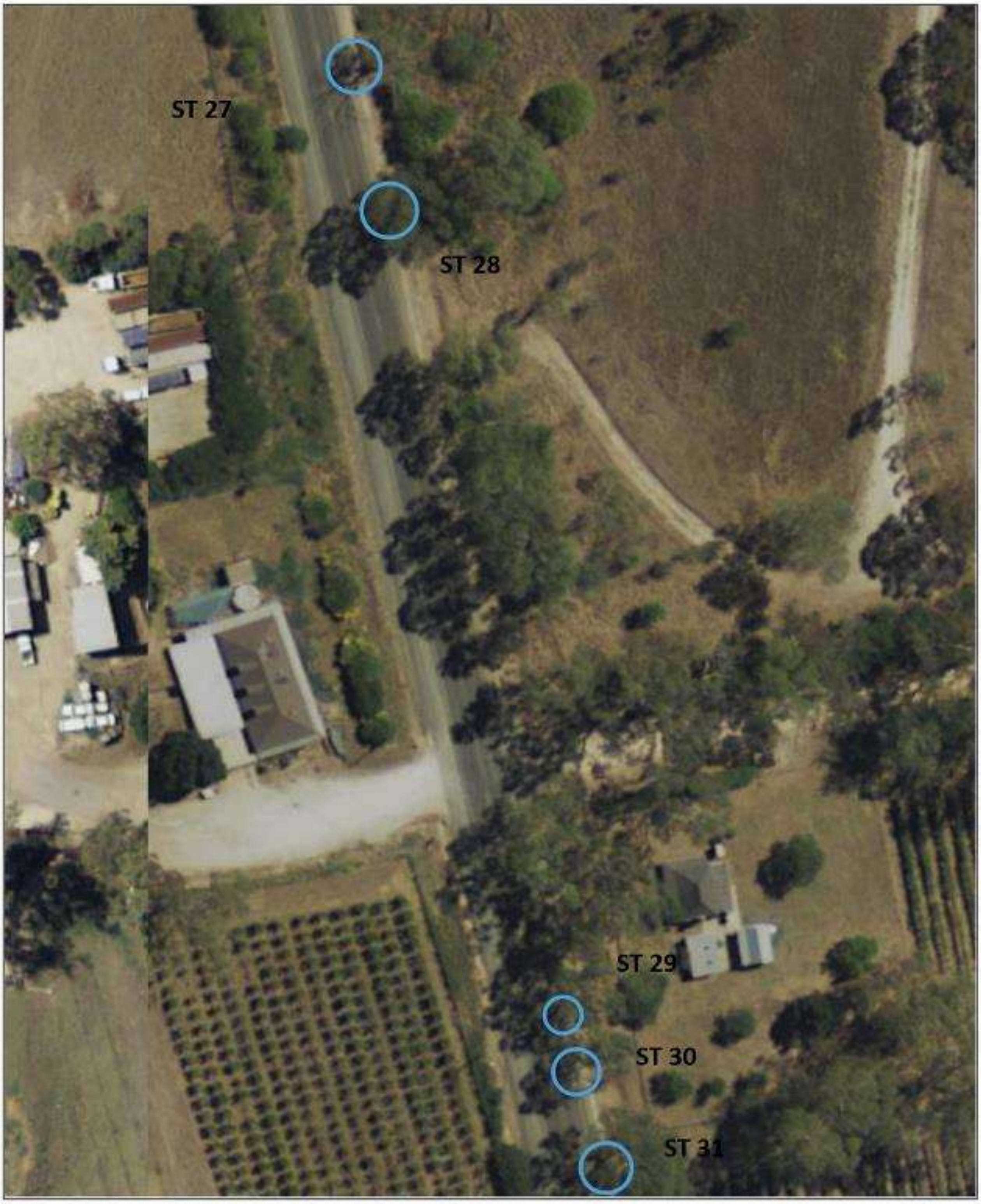

Map data is compiled from a variety of sources and hence its accuracy is variable

Compiled:

Datum:

Projection:

N

Metres

Government of South Australia

Department for Environment and Water


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4.2 Threatened Species assessment

Species observed on site, or recorded within 5km (50km in the arid zone) of the application area since 1995, or the vegetation is considered to provide suitable habitat

Species (common name)	NP&W Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Corcorax melanorhamphos (White-winged Chough)	R	-	4	2011	Open forests and woodlands, wetter areas with leaf litter and mud	Highly likely – recorded in the last 10 years, habitat available.
Falcunculus frontatus frontatus (Eastern Shriketit)	R	-	4	2008	Eucalypt forest and woodland, gullies and along rivers, parks, gardens	Likely – woodland habitat available
Hieraaetus morphnoides (Little Eagle)	V	-	4	2000	Woodlands, forests and open country	Possible – habitat available
Melithreptus gularis (Black-chinned Honeyeater)	ssp	-	4	2007	Upper levels of eucalypt forests/woodlands with box and ironbarks, sometimes gardens and street trees	Likely – habitat available
Microeca fascinans (Jacky Winter)	ssp	-	4	2006	Open woodland with open shrub layer and bare ground	Likely – habitat available
Petroica boodang boodang (Scarlet Robin)	R	-	4	2007	Mainly open forests, woodlands, grassy woodlands with abundant logs and fallen timber	Possible – limited habitat available.
Strepera versicolor (Grey Currawong)	ssp	-	4	2007	Broad habitat range including mallee, woodlands, heaths, farms, orchards	Likely – habitat available.
Turnix varius varius (Painted Buttonquail)	R	-	4	2007	Forests and woodlands with understorey and deep leaf litter	Possible – limited habitat available
Rostratula australis (Australian Painted Snipe)	-	EN	4,6	2001	Wetlands	Unlikely, no suitable habitat in impact area, most recent record is ~50km away
Trichosurus vulpecula (Common Brushtail Possum)	R	-	4	2020	Eucalyptus and Sheoak woodlands	Highly likely – recorded in the last

					especially with hollows	10 years, habitat available.
Tachyglossus aculeatus (Short-beaked Echidna)	ssp	-ssp	4	2016	Wide range of habitat types	Likely – habitat available
Pseudophryne bibronii (Brown Toadlet)	R	-	4	2003	Wide range of habitat types, with areas wet after rain	Likely – habitat available
Tiliqua adelaidensis (Pygmy Blue-tongue Lizard)	E	EN	4,6	2007	Native grassland or grassy woodland	Possible, but unlikely, suitable habitat is limited
Source; 1- BDBSA, 2 - AoLA, 3 – NatureMaps 4 – Observed/recorded in the field, 5 - Protected matters search tool, 6 – others NP&W Act; E= Endangered, V = Vulnerable, R= Rare EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable						

Criteria for the likelihood of occurrence of species within the Study 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.

4.3 Cumulative impact

Clearance directly required for the development

The direct impacts of the upgrade works, as far as can be determined, have been included in this data report. The DIT SOP allows for pruning or removal associated with maintaining clearance envelopes, sight distance, protection or repair of infrastructure, or where vegetation is causing damage to infrastructure or structurally unsound and posing a safety risk. Such activity is allowable and would occur regardless of this upgrade and as such cannot be regarded as cumulative impact.

Subsequent clearance that will be permitted or required

No further clearance is anticipated in relation to the project, apart from that described in part 2.2 above and/or required under maintenance.

Indirect clearance that may occur as a result of the development

All anticipated and potential indirect clearance has been included in this data report. Sealed shoulders and the installation of guard rail may reduce impact (indirectly) by minimising potential for vehicle/tree impacts and thus clearance of potentially hazardous trees may be avoided, or Loss Factor reduced.

Future stages or associated components of a development

As already noted in 2.2 above, this project is part 1D, Stage 2, of the broader Horrocks Highway upgrade project. Further sections between Wilmington and Tarlee are the subject of recent, current or proposed future clearance applications (see part 2.5, Approvals required or obtained).

4.4 Address the Mitigation Hierarchy

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

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

The initial site assessment identified 129 Scattered Trees within 8.5m of the road centreline, or on culverts or embankments to be upgraded, subject to impact for works or federal funding criteria. Some of this impact was considered avoidable if as many trees as possible were protected by guard rail. As a result of a site assessment to identify potential mitigation options, the total number of trees impacted has been reduced to 117. Twenty four trees will be retained, and impacts reduced to nil; 60 will require removal; 32 may suffer root and/or canopy impacts up to LF 0.8; 24 at LF 0.6, and one at LF 0.4. Only where use of guard rail would pose an unacceptable risk to road users, or where works will directly impact or render the tree structurally unsound, have scattered trees been earmarked for removal.

In addition, areas of *Eucalyptus leucoxylon ssp pruinosa* Woodland (0.201ha) and *E. leucoxylon ssp pruinosa/E. camaldulensis* Woodland (0.0625ha) were previously proposed for clearance (LF1.0); this has been reduced to 0.0625ha and 0.045ha, respectively, by the installation of guard rail.

The nature of tree root systems triggers an overestimate of impacts in order to adequately account for and offset potential impacts. It is likely that some of the trees assessed will not suffer any detrimental impact, while others may be impacted slightly more than accounted for, however everything has been done to ensure potential impacts are included in this assessment.

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 works are programmed to occur where justified by road safety audits and crash data. Whilst there is limited scope for amendments or alternatives, in some cases lower impact methods are proposed to minimise clearance.

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.

This is not an option at the development site; however, the appropriate SEB offset will be provided.

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 appropriate SEB offset requirement will be met, in this case via a payment into the Native Vegetation Fund of **$169 404.39**

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

Principle of clearance	Relevant information	Assessment against the principles	Moderating factors that may be considered by the NVC
Principle 1b - significance as a habitat for wildlife	Of 13 species listed, including 2 EPBC EN; 6 State R, 1V and 4 at ssp level, 2 are considered highly likely; 6 Likely; 4 Possibly, and 1 unlikely, to use the vegetation assessed (see 4.2 for details) Patches; **Threatened Fauna Score** VA1 – 0.1 VA2 – 0.1 VA3 – 0.1 **Unit biodiversity Score** VA1 – 30.67 VA2 – 15.60 VA3 – 5.10 Trees; **Fauna Habitat Score** - 1 **Biodiversity Score** - seven groups of trees numbered 6, 7, 22, 44, 44A, 45 and 66 have a TBS of >7, however only trees within group 66 have an individual biodiversity score of >7 and these are proposed for root impacts, not removal.	<u>Seriously at Variance</u> All vegetation associations assessed have a Threatened Fauna Score of greater than or equal to 0.05, therefore clearance is SAV Four trees in group 66 have a TBS of >7 (impact is LF 0.6) therefore clearance is (potentially) SAV <u>At Variance</u> – All scattered trees assessed have a Threatened Fauna Habitat Score of 1 (i.e. greater than 0 but less than 1.2) therefore clearance is AV	*Impact significance*. Removal of 60 scattered trees and potential root impacts to 57 others; and removal of 0.1095ha of remnant Woodland/Shrubland is unlikely to adversely affect habitat critical to the survival of a species. Scattered Trees numbered 7, 35, 44, 45, 53 and 66 have hollows, however, with the exception of tree 53, none are proposed for removal. In addition, 0.030ha of the impact across the patches is confined to root pruning for guard rail installation which should have limited impact on habitat values in the long term. *Non-essential habitat*. Small linear segments of non-pristine woodland, and trees scattered and on the fringe of a larger remnant, is considered sub-optimum habitat and clearance may have negligible impact on the local fauna populations over the long term.
Principle 1c - plants of a rare, vulnerable or endangered species	The threatened species recorded for the site were not noted during the assessment, and even if present are unlikely to be impacted. All scattered trees and patches had a Threatened Flora Score of 0	<u>Seriously at Variance</u> N/A <u>At Variance</u> – N/A	
***Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered*:**	N/A	<u>Seriously at Variance</u> N/A	

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	117
	Area (ha)	0.1095
	Total Biodiversity Score	274.81
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b)
Risk assessment outcome		Level 4 (SAV with 1(b) and TBS >250)

5. Clearance summary

Clearance Area(s) Summary table

Block	Site	Species div score	Threatened Eco comm Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Bio score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
VA1	1	9	1	0	0.1	30.67	0.0625	1.92	1			2.01	1672.37	91.98
VA2	1	6	1	0	0.1	15.60	0.03	0.47	0.8			0.39	315.73	17.37
VA2	2	6	1	0	0.1	15.60	0.015	0.23	1			0.25	197.33	10.85
VA3	1	6	1	0	0.1	5.10	0.002	0.01	1			0.01	7.12	0.39
						Total	**0.1095**	**2.63**				**2.66**	**$2192.55**	**$120.59**

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 incl admin fee
2	1	**1**	**0**	0.41	1.0	0.43	$315.86
3	1	**1**	**0**	0.57	1.0	0.59	$432.42
4	2	**1**	**0**	3.86	1.0	4.05	$2,951.87
5	1	**1**	**0**	0.44	1.0	0.47	$340.30
6	2	**1**	**0**	7.09	0.6	4.47	$3,253.11
7	15	**1**	**0**	72.93	0.8	61.26	$44,627.29
8	1	**1**	**0**	1.33	0.6	0.84	$609.12
9	1	**1**	**0**	0.64	0.8	0.54	$390.84
10	1	**1**	**0**	1.03	0.8	0.87	$631.28
11	12	**1**	**0**	6.36	1.0	6.68	$4,863.11
12	1	**1**	**0**	1.04	0.6	0.65	$475.69
13	2	**1**	**0**	2.16	0.6	1.36	$992.26
14	1	**1**	**0**	2.00	1.0	2.10	$1,531.58
15	4	**1**	**0**	4.60	1.0	4.83	$3,519.17
16	1	**1**	**0**	3.50	1.0	3.68	$2,680.91
17	1	**1**	**0**	1.33	0.6	0.84	$611.11
18	2	**1**	**0**	2.79	0.6	1.76	$1,278.63
19	1	**1**	**0**	3.54	0.8	2.98	$2,168.74
20	1	**1**	**0**	3.66	0.6	2.30	$1,678.31
21	1	**1**	**0**	2.34	0.6	1.47	$1,074.09
22	20	**1**	**0**	9.19	1.0	9.65	$7,030.99
23	1	**1**	**0**	2.59	0.8	2.17	$1,582.24
24	2	**1**	**0**	4.94	1.0	5.18	$3,777.03
25	1	**1**	**0**	1.27	0.4	0.53	$388.02
27	1	**1**	**0**	0.61	1.0	0.64	$467.61
29	1	**1**	**0**	0.18	1.0	0.19	$137.73
32	1	**1**	**0**	3.66	1.0	3.85	$2,802.32
33	1	**1**	**0**	0.37	1.0	0.39	$285.44
34	1	**1**	**0**	2.22	0.8	1.87	$1,360.76
35	1	**1**	**0**	4.69	0.6	2.95	$2,151.74
36	1	**1**	**0**	0.41	0.6	0.26	$186.36
37	1	**1**	**0**	1.17	0.6	0.74	$538.75
38	1	**1**	**0**	0.64	0.6	0.40	$293.13
39	1	**1**	**0**	0.54	1.0	0.57	$414.71
40	1	**1**	**0**	2.37	1.0	2.49	$1,816.19
41	1	**1**	**0**	0.23	1.0	0.24	$172.41
43	1	**1**	**0**	0.36	1.0	0.37	$272.95
44	3	**1**	**0**	14.22	0.8	11.95	$8,704.13
44A	2	**1**	**0**	7.86	1.0	8.26	$6014 .67
45	2	**1**	**0**	13.70	0.8	11.51	$8,384.78

Tree or Cluster ID	Number of trees	Fauna Habitat score	Threatened flora score	Biodiversity score	Loss factor	SEB Points required	SEB Payment incl admin fee
46	1	**1**	**0**	5.92	1.0	6.22	$4,530.02
50	1	**1**	**0**	2.13	0.6	1.34	$978.12
51	1	**1**	**0**	1.33	0.6	0.84	$611.11
52	1	**1**	**0**	3.45	1.0	3.62	$2,636.30
53	1	**1**	**0**	4.26	1.0	4.47	$3,256.04
54	2	**1**	**0**	7.41	0.6	4.67	$3,399.88
56	1	**1**	**0**	3.70	1.0	3.89	$2,833.23
57	2	**1**	**0**	7.09	0.8	5.95	$4,337.48
58	1	**1**	**0**	2.55	0.6	1.60	$1,168.64
60	1	**1**	**0**	2.25	1.0	2.36	$1,721.53
64	3	**1**	**0**	5.90	0.8	4.96	$3,609.81
65	2	**1**	**0**	4.62	0.8	3.88	$2,826.70
66	4	**1**	**0**	28.72	0.6	18.10	$13,182.82
Total	**117**			**272.18**		**228.28**	**$167 091.25**

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	274.81	231.55	$160 572.88	$8831.51	$169 404.39

Economies of Scale Factor	0.5
Rainfall (mm, averaged across sites)	575

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:

☒ 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:

- Payment amount required (including admin. fee) **$169 404.39**

7. Appendices

Appendix 1. Fauna and Flora Species Lists

CLASS NAME	SPECIES	COMNAME	ESACT STATUS CODE	NPWACT STATUS CODE
AVES	Corcorax melanorhamphos	White-winged Chough		R
AVES	Falcunculus frontatus frontatus	Eastern Shriketit		R
AVES	Hieraaetus morphnoides	Little Eagle		V
AVES	Melithreptus gularis	Black-chinned Honeyeater		ssp
AVES	Microeca fascinans	Jacky Winter		ssp
AVES	Petroica boodang boodang	Scarlet Robin		R
AMPHIBIA	Pseudophryne bibronii	Brown Toadlet		R
AVES	Strepera versicolor	Grey Currawong		ssp
MAMMALIA	Tachyglossus aculeatus	Short-beaked Echidna	ssp	ssp
MAMMALIA	Trichosurus vulpecula	Common Brushtail Possum		R
AVES	Turnix varius varius	Painted Buttonquail		R
AVES	Rostratula australis	Australian Painted Snipe	EN	
REPTILIA	Tiliqua adelaidensis	Pygmy Blue-tongue Lizard	EN	

FAMILYNAME	SPECIES	COMNAME	ESACT STATUS CODE	NPWACT STATUS CODE
CRASSULACEAE	Crassula sieberiana	Sieber's Crassula		E
RHAMNACEAE	Cryptandra campanulata	Long-flower Cryptandra		R
LILIACEAE	Dianella longifolia var. grandis	Pale Flax-lily		R
UMBELLIFERAE	Eryngium ovinum	Blue Devil		V
MYRTACEAE	Eucalyptus macrorhyncha ssp. macrorhyncha	Red Stringybark		R
SCROPHULARIACEAE	Euphrasia collina ssp. osbornii	Osborn's Eyebright	EN	E
GRAMINEAE	Lachnagrostis limitanea	Spalding Blown-grass	EN	E
GRAMINEAE	Rytidosperma tenuius	Short-awn Wallaby-grass		R
ORCHIDACEAE	Thelymitra batesii			R
ORCHIDACEAE	Thelymitra grandiflora	Great Sun-orchid		R
LILIACEAE	Thysanotus tenellus	Grassy Fringe-lily		R
LEGUMINOSAE	Acacia spilleriana	Spillers Wattle	EN	
ORCHIDACEAE	Cladenia argocalla	White-beauty Spider-orchid	EN	
ORCHIDACEAE	Caladenia tensa	Greencomb Spider-orchid	EN	
ORCHIDACEAE	Olearia pannosa subsp pannosa Prasophyllum pallidum	Silver Daisy-bush Pale Leek-orchid	VU VU	

Appendix 2. Bushland and Scattered Tree Vegetation Assessment Scoresheets

Vegetation Condition Scores

SITE:	VA1
VEGETATION ASSOCIATION DESCRIPTION	Eucalyptus leucoxylon ssp pruinosa/Allocasuarina verticillata Woodlan
SIZE OF SITE (Ha)	0.0625

Native Plant species diversity

Score the diversity of species present in the site as a proportion to what would be expected in a vegetation of that community in very good condition (approaching a pre-European state)

<5% (3 Points)	☐
5-10% (6 Points)	☐
11 - 20% (9 Points)	☑
21 - 30% (12 Points)	☐
31 - 40 % (15 Points)	☐
41 - 50% (18 Points)	☐
51 - 60% (21 Points)	☐
61 - 70% (24 Points)	☐
71 - 80% (27 Points)	☐
>80% (30 Points)	☐
Native Plant species diversity score (max score of 30)	9

Weed Scores

Does the site contain plant species declared under the *NRM Act 2004* (1.5 points)	☑
Cover rating for all declared weeds (max of 6)	2
Does the site contain environmental weeds (introduced plants with the capacity to invade and exclude native species from bushland. This typically includes species with a BCM weed threat rating of 3, 4 or 5). (1 Point)	☑
Cover rating for all environmental weeds (max of 6)	5
Weed Score (max score of 15)	7

Is the community naturally treeless?	☐
Mature Tree Score (max 8)	2
Fallen timber/debris (max 5)	0.5
Hollow-bearing trees Score (max 5)	2
Tree Canopy Cover Score (max 5)	3
Native:exotic Understorey biomass score (max 5)	2

Regeneration

No regeneration present (0 Points)	☐
Very low regeneration, consisting of highly scattered juvenile plants of a limited number of species (3 points)	☐
Regeneration present, consisting of multiple individual juvinile plants but a limited number of species (6 points)	☑
Multiple species regenerating, but low numbers of juvenile plants (9 points)	☐
Multiple species regenerating with multiple individual juviniles present with varying age classes (12 points)	☐
Regeneration Score (Max 12)	6

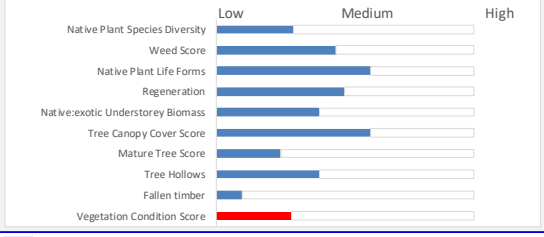
Native Plant life form

All strata of vegetation heavily impacted and native vegetation represented by only scattered plants (4 points)	☐
All strata of vegetation impacted with limited structural diversity, largely uniform age classes and reduced vegetation cover (8 points)	☐
At least one strata of vegetation has been impacted, with reduced structural diversity, elements may be missing (such as plant species that provide specific structural features e.g. sedges or mid layer shrubs) and reduce vegetation cover (12 points)	☑
Limited impacts on native vegetation, with a diversity of structural features and a varied age class, with only a minor loss in structurally diversity, vegetation cover or structural elements (16 points)	☐
All strata of vegetation present, little or no sign of disturbance. A variety of life forms and associated age classes present. Vegetation cover near complete (20 points)	☐
Native Plant life form score (max 20)	12

Vegetation Condition Score calculation

Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms + Mature Trees + Fallen timber/debris + Hollow-bearing trees

If the community is naturally treeless this score is multiplied by 1.24	31.50
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	20.50
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))	**23.43**



VA1 Scoresheet V2.xlsm

Conservation Significance Score

Is the vegetation association considered a Threatened Ecological community or Ecosystem?	Yes/No
State (Provisional List of Threatened Ecosystems of SA) **Rare** community (0.1 pt)	☐
State (Provisional List of Threatened Ecosystems of SA) **Vulnerable** community (0.2 pts)	☐
State (Provisional List of Threatened Ecosystems of SA) **Endangered** community (0.3 pts)	☐
Nationally (EPBC Act) V**ulnerable** community (0.35 pts)	☐
Contains a Nationally (EPBC Act) **Endangered** or **Critically Endangered** community (0.4 pts)	☐
Note; all sites will score a minimum Conservation Significance Score of 1 **Threatened CommuntiyScore**	1

Number of Threatened Flora Species recorded for the site (within the site)	**Number**
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species recorded (1 pt each)	0
State **Vulnerable** species recorded (2.5 pt each)	0
State **Endangered** recorded (5 pts each)	0
Nationally **Vulnerable** species recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species recorded (20 pts each)	0
0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16pts; 20 or > = 0.2 pts	**0**
Threatened Flora Score	0

Potential habitat for Threatened Fauna Species (number observed or previously recorded)	**Number**
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species observed or locally recorded (1 pt each)	6
State **Vulnerable** species observed or locally recorded (2.5 pt each)	1
State **Endangered** species observed or locally recorded (5 pt each)	0
Nationally **Vulnerable** species observed or locally recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species observed or locally recorded (20 pts each)	2
0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts	**48.5**
Threatened Fauna Score	**0.1**
CONSERVATION SIGNIFICANCE SCORE	**1.1**

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	**1.19**
VEGETATION CONDITION SCORE	**23.43**
CONSERVATION SIGNIFICANCE SCORE	**1.10**

Vegetation Condition x Landscape Context x Conservation Significance =

UNIT BIODIVERSITY SCORE	30.67
Total Biodiversity Score (Biodiversity Score x hectares)	1.92

Photo Point and Vegetation Survey Location

Direction of the Photo	
SSE	
GPS Reference	
Datum	WGS84
Zone (52, 53 or 54)	54
Easting (6 digits)	280413
Northing (7 digits)	6248559
Description	
SA Blue gum /Drooping Sheaok Woodland over exotic grasses and French Lavender	

Assessment for Clearance

Loss Factor	1.0
Loadings for clearance of protected areas	
Reductions for rehabilitation of impact site	
SEB Points required	**2.01**

Approximate hectares required	0.25
Economies of Scale factor	0.50
Mean Annual rainfall for the site (mm)	630
Payment into the fund (GST Exclusive)	**$1,672.37**
Administration fee (GST Inclusive)	**$91.98**

Vegetation Condition Scores

SITE:	VA2 1) LHS
VEGETATION ASSOCIATION DESCRIPTION	Eucalyptus leucoxylon/ Eucalyptus camaldulensis Woodland
SIZE OF SITE (Ha)	0.03

Native Plant species diversity

Score the diversity of species present in the site as a proportion to what would be expected in a vegetation of that community in very good condition (approaching a pre-European state)

<5% (3 Points)	☐
5-10% (6 Points)	☑
11 - 20% (9 Points)	☐
21 - 30% (12 Points)	☐
31 - 40 % (15 Points)	☐
41 - 50% (18 Points)	☐
51 - 60% (21 Points)	☐
61 - 70% (24 Points)	☐
71 - 80% (27 Points)	☐
>80% (30 Points)	☐
Native Plant species diversity score (max score of 30)	6

Weed Scores

Does the site contain plant species declared under the *NRM Act 2004* (1.5 points)	☑
Cover rating for all declared weeds (max of 6)	4
Does the site contain environmental weeds (introduced plants with the capacity to invade and exclude native species from bushland. This typically includes species with a BCM weed threat rating of 3, 4 or 5). (1 Point)	☑
Cover rating for all environmental weeds (max of 6)	3
Weed Score (max score of 15)	6

Is the community naturally treeless?	☐
Mature Tree Score (max 8)	2
Fallen timber/debris (max 5)	0.5
Hollow-bearing trees Score (max 5)	1
Tree Canopy Cover Score (max 5)	3
Native:exotic Understorey biomass score (max 5)	0

Regeneration

No regeneration present (0 Points)	☐
Very low regeneration, consisting of highly scattered juvenile plants of a limited number of species (3 points)	☑
Regeneration present, consisting of multiple individual juvinile plants but a limited number of species (6 points)	☐
Multiple species regenerating, but low numbers of juvenile plants (9 points)	☐
Multiple species regenerating with multiple individual juviniles present with varying age classes (12 points)	☐
Regeneration Score (Max 12)	3

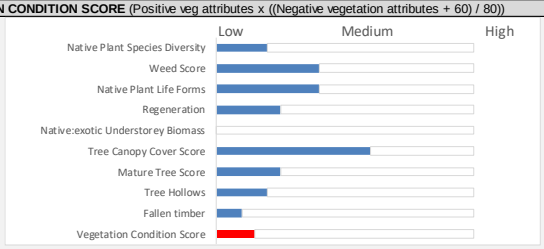
Native Plant life form

All strata of vegetation heavily impacted and native vegetation represented by only scattered plants (4 points)	☐
All strata of vegetation impacted with limited structural diversity, largely uniform age classes and reduced vegetation cover (8 points)	☑
At least one strata of vegetation has been impacted, with reduced structural diversity, elements may be missing (such as plant species that provide specific structural features e.g. sedges or mid layer shrubs) and reduce vegetation cover (12 points)	☐
Limited impacts on native vegetation, with a diversity of structural features and a varied age class, with only a minor loss in structurally diversity, vegetation cover or structural elements (16 points)	☐
All strata of vegetation present, little or no sign of disturbance. A variety of life forms and associated age classes present. Vegetation cover near complete (20 points)	☐
Native Plant life form score (max 20)	8

Vegetation Condition Score calculation

Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms + Mature Trees + Fallen timber/debris + Hollow-bearing trees

If the community is naturally treeless this score is multiplied by 1.24	20.50
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	33.50
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))	**11.92**



Conservation Significance Score

Is the vegetation association considered a Threatened Ecological community or Ecosystem?	**Yes/No**
State (Provisional List of Threatened Ecosystems of SA) **Rare** community (0.1 pt)	☐
State (Provisional List of Threatened Ecosystems of SA) **Vulnerable** community (0.2 pts)	☐
State (Provisional List of Threatened Ecosystems of SA) **Endangered** community (0.3 pts)	☐
Nationally (EPBC Act) V**ulnerable** community (0.35 pts)	☐
Contains a Nationally (EPBC Act) **Endangered** or **Critically Endangered** community (0.4 pts)	☐
Note; all sites will score a minimum Conservation Significance Score of 1 **Threatened CommuntiyScore**	1

Number of Threatened Flora Species recorded for the site (within the site)	**Number**
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species recorded (1 pt each)	0
State **Vulnerable** species recorded (2.5 pt each)	0
State **Endangered** recorded (5 pts each)	0
Nationally **Vulnerable** species recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species recorded (20 pts each)	0
0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16pts; 20 or > = 0.2 pts	**0**
Threatened Flora Score	0

Potential habitat for Threatened Fauna Species (number observed or previously recorded)	**Number**
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species observed or locally recorded (1 pt each)	6
State **Vulnerable** species observed or locally recorded (2.5 pt each)	1
State **Endangered** species observed or locally recorded (5 pt each)	0
Nationally **Vulnerable** species observed or locally recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species observed or locally recorded (20 pts each)	2
0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts	**48.5**
Threatened Fauna Score	**0.1**
CONSERVATION SIGNIFICANCE SCORE	**1.1**

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	1.19
VEGETATION CONDITION SCORE	11.92
CONSERVATION SIGNIFICANCE SCORE	1.10

Vegetation Condition x Landscape Context x Conservation Significance =

UNIT BIODIVERSITY SCORE	15.60
Total Biodiversity Score (Biodiversity Score x hectares)	0.47

Photo Point and Vegetation Survey Location

Direction of the Photo

South

GPS Reference

Datum	WGS84
Zone (52, 53 or 54)	54
Easting (6 digits)	281816
Northing (7 digits)	6242457

Description

Blue Gum/ Red Gum Woodland over exotic shrubs

Assessment for Clearance

Loss Factor	0.8
Loadings for clearance of protected areas	
Reductions for rehabilitation of impact site	
SEB Points required	**0.39**

Approximate hectares required	0.05
Economies of Scale factor	0.50
Mean Annual rainfall for the site (mm)	609
Payment into the fund (GST Exclusive)	**$315.73**
Administration fee (GST Inclusive)	**$17.37**

VA2 1 Scoresheet V2.xlsm

Vegetation Condition Scores

SITE:	VA2 2) RHS
VEGETATION ASSOCIATION DESCRIPTION	Eucalyptus leucoxylon/ Eucalyptus camaldulensis Woodland
SIZE OF SITE (Ha)	0.015

Native Plant species diversity Score the diversity of species present in the site as a proportion to what would be expected in a vegetation of that community in very good condition (approaching a pre-European state)	
<5% (3 Points)	☐
5-10% (6 Points)	☑
11 - 20% (9 Points)	☐
21 - 30% (12 Points)	☐
31 - 40 % (15 Points)	☐
41 - 50% (18 Points)	☐
51 - 60% (21 Points)	☐
61 - 70% (24 Points)	☐
71 - 80% (27 Points)	☐
>80% (30 Points)	☐
Native Plant species diversity score (max score of 30)	6

Weed Scores	
Does the site contain plant species declared under the *NRM Act 2004* (1.5 points)	☑
Cover rating for all declared weeds (max of 6)	4
Does the site contain environmental weeds (introduced plants with the capacity to invade and exclude native species from bushland. This typically includes species with a BCM weed threat rating of 3, 4 or 5). (1 Point)	☑
Cover rating for all environmental weeds (max of 6)	3
Weed Score (max score of 15)	6

Is the community naturally treeless?	☐
Mature Tree Score (max 8)	**2**
Fallen timber/debris (max 5)	**0.5**
Hollow-bearing trees Score (max 5)	**1**
Tree Canopy Cover Score (max 5)	**3**
Native:exotic Understorey biomass score (max 5)	**0**

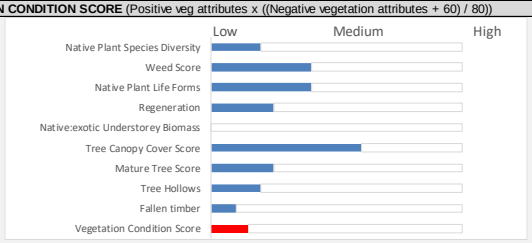
Regeneration	
No regeneration present (0 Points)	☐
Very low regeneration, consisting of highly scattered juvenile plants of a limited number of species (3 points)	☑
Regeneration present, consisting of multiple individual juvinile plants but a limited number of species (6 points)	☐
Multiple species regenerating, but low numbers of juvenile plants (9 points)	☐
Multiple species regenerating with multiple individual juviniles present with varying age classes (12 points)	☐
Regeneration Score (Max 12)	3

Native Plant life form	
All strata of vegetation heavily impacted and native vegetation represented by only scattered plants (4 points)	☐
All strata of vegetation impacted with limited structural diversity, largely uniform age classes and reduced vegetation cover (8 points)	☑
At least one strata of vegetation has been impacted, with reduced structural diversity, elements may be missing (such as plant species that provide specific structural features e.g. sedges or mid layer shrubs) and reduce vegetation cover (12 points)	☐
Limited impacts on native vegetation, with a diversity of structural features and a varied age class, with only a minor loss in structurally diversity, vegetation cover or structural elements (16 points)	☐
All strata of vegetation present, little or no sign of disturbance. A variety of life forms and associated age classes present. Vegetation cover near complete (20 points)	☐
Native Plant life form score (max 20)	8

Vegetation Condition Score calculation

Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms + Mature Trees + Fallen timber/debris + Hollow-bearing trees

If the community is naturally treeless this score is multiplied by 1.24	20.50
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	33.50
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))	**11.92**



Conservation Significance Score

Is the vegetation association considered a Threatened Ecological community or Ecosystem?	**Yes/No**
State (Provisional List of Threatened Ecosystems of SA) **Rare** community (0.1 pt)	☐
State (Provisional List of Threatened Ecosystems of SA) **Vulnerable** community (0.2 pts)	☐
State (Provisional List of Threatened Ecosystems of SA) **Endangered** community (0.3 pts)	☐
Nationally (EPBC Act) V**ulnerable** community (0.35 pts)	☐
Contains a Nationally (EPBC Act) **Endangered** or **Critically Endangered** community (0.4 pts)	☐
Note; all sites will score a minimum Conservation Significance Score of 1 **Threatened CommuntiyScore**	1

Number of Threatened Flora Species recorded for the site (within the site)	**Number**
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species recorded (1 pt each)	0
State **Vulnerable** species recorded (2.5 pt each)	0
State **Endangered** recorded (5 pts each)	0
Nationally **Vulnerable** species recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species recorded (20 pts each)	0
0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16pts; 20 or > = 0.2 pts	**0**
Threatened Flora Score	0

Potential habitat for Threatened Fauna Species (number observed or previously recorded)	**Number**
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species observed or locally recorded (1 pt each)	6
State **Vulnerable** species observed or locally recorded (2.5 pt each)	1
State **Endangered** species observed or locally recorded (5 pt each)	0
Nationally **Vulnerable** species observed or locally recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species observed or locally recorded (20 pts each)	2
0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts	**48.5**
Threatened Fauna Score	**0.1**

CONSERVATION SIGNIFICANCE SCORE	**1.1**

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	**1.19**
VEGETATION CONDITION SCORE	**11.92**
CONSERVATION SIGNIFICANCE SCORE	**1.10**

Vegetation Condition x Landscape Context x Conservation Significance =

UNIT BIODIVERSITY SCORE	15.60
Total Biodiversity Score (Biodiversity Score x hectares)	0.23

Photo Point and Vegetation Survey Location

Direction of the Photo	
South	
GPS Reference	
Datum	WGS84
Zone (52, 53 or 54)	54
Easting (6 digits)	281816
Northing (7 digits)	6242457
Description	
Blue Gum/ Red Gum Woodland over exotic shrubs	

Assessment for Clearance

Loss Factor	1.0
Loadings for clearance of protected areas	
Reductions for rehabilitation of impact site	
SEB Points required	**0.25**

Approximate hectares required	0.03
Economies of Scale factor	0.50
Mean Annual rainfall for the site (mm)	609
Payment into the fund (GST Exclusive)	**$197.33**
Administration fee (GST Inclusive)	**$10.85**

VA2 2 Scoresheet V2.xlsm

Vegetation Condition Scores

SITE:	VA3
VEGETATION ASSOCIATION DESCRIPTION	Acacia victoriae Shrubland
SIZE OF SITE (Ha)	0.002

Native Plant species diversity

Score the diversity of species present in the site as a proportion to what would be expected in a vegetation of that community in very good condition (approaching a pre-European state)

<5% (3 Points)	☐
5-10% (6 Points)	☑
11 - 20% (9 Points)	☐
21 - 30% (12 Points)	☐
31 - 40 % (15 Points)	☐
41 - 50% (18 Points)	☐
51 - 60% (21 Points)	☐
61 - 70% (24 Points)	☐
71 - 80% (27 Points)	☐
>80% (30 Points)	☐
Native Plant species diversity score (max score of 30)	6

Weed Scores

Does the site contain plant species declared under the *NRM Act 2004* (1.5 points)	☐
Cover rating for all declared weeds (max of 6)	
Does the site contain environmental weeds (introduced plants with the capacity to invade and exclude native species from bushland. This typically includes species with a BCM weed threat rating of 3, 4 or 5). (1 Point)	☑
Cover rating for all environmental weeds (max of 6)	4
Weed Score (max score of 15)	11

Is the community naturally treeless?	☑
Tree attributes not scored for	
treeless community	

Native:exotic Understorey biomass score (max 5)	0

Regeneration

No regeneration present (0 Points)	☑
Very low regeneration, consisting of highly scattered juvenile plants of a limited number of species (3 points)	☐
Regeneration present, consisting of multiple individual juvinile plants but a limited number of species (6 points)	☐
Multiple species regenerating, but low numbers of juvenile plants (9 points)	☐
Multiple species regenerating with multiple individual juviniles present with varying age classes (12 points)	☐
Regeneration Score (Max 12)	0

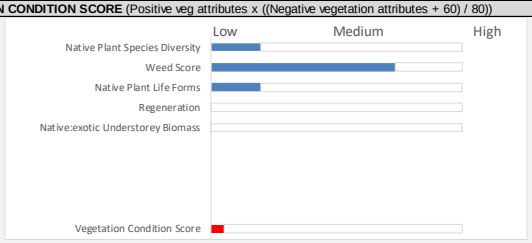
Native Plant life form

All strata of vegetation heavily impacted and native vegetation represented by only scattered plants (4 points)	☑
All strata of vegetation impacted with limited structural diversity, largely uniform age classes and reduced vegetation cover (8 points)	☐
At least one strata of vegetation has been impacted, with reduced structural diversity, elements may be missing (such as plant species that provide specific structural features e.g. sedges or mid layer shrubs) and reduce vegetation cover (12 points)	☐
Limited impacts on native vegetation, with a diversity of structural features and a varied age class, with only a minor loss in structurally diversity, vegetation cover or structural elements (16 points)	☐
All strata of vegetation present, little or no sign of disturbance. A variety of life forms and associated age classes present. Vegetation cover near complete (20 points)	☐
Native Plant life form score (max 20)	4

Vegetation Condition Score calculation

Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms + Mature Trees + Fallen timber/debris + Hollow-bearing trees

If the community is naturally treeless this score is multiplied by 1.24	12.40
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - (Biomass score x 2))exp2/2)	54.00
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))	**4.03**



Conservation Significance Score

Is the vegetation association considered a Threatened Ecological community or Ecosystem?	**Yes/No**
State (Provisional List of Threatened Ecosystems of SA) **Rare** community (0.1 pt)	☐
State (Provisional List of Threatened Ecosystems of SA) **Vulnerable** community (0.2 pts)	☐
State (Provisional List of Threatened Ecosystems of SA) **Endangered** community (0.3 pts)	☐
Nationally (EPBC Act) V**ulnerable** community (0.35 pts)	☐
Contains a Nationally (EPBC Act) **Endangered** or **Critically Endangered** community (0.4 pts)	☐
Note; all sites will score a minimum Conservation Significance Score of 1 **Threatened CommuntiyScore**	1

Number of Threatened Flora Species recorded for the site (within the site)	**Number**
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species recorded (1 pt each)	0
State **Vulnerable** species recorded (2.5 pt each)	0
State **Endangered** recorded (5 pts each)	0
Nationally **Vulnerable** species recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species recorded (20 pts each)	0
0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16pts; 20 or > = 0.2 pts	**0**
Threatened Flora Score	0

Potential habitat for Threatened Fauna Species (number observed or previously recorded)	**Number**
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species observed or locally recorded (1 pt each)	6
State **Vulnerable** species observed or locally recorded (2.5 pt each)	1
State **Endangered** species observed or locally recorded (5 pt each)	0
Nationally **Vulnerable** species observed or locally recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species observed or locally recorded (20 pts each)	2
0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts	**48.5**
Threatened Fauna Score	**0.1**

CONSERVATION SIGNIFICANCE SCORE	**1.1**

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	1.15
VEGETATION CONDITION SCORE	4.03
CONSERVATION SIGNIFICANCE SCORE	1.10

Vegetation Condition x Landscape Context x Conservation Significance =

UNIT BIODIVERSITY SCORE	5.10
Total Biodiversity Score (Biodiversity Score x hectares)	0.01

Photo Point and Vegetation Survey Location

Direction of the Photo	
NNW	
GPS Reference	
Datum	WGS84
Zone (52, 53 or 54)	54
Easting (6 digits)	286210
Northing (7 digits)	6231023
Description	
Acacia Shrubland in poor condition	

Assessment for Clearance

Loss Factor	1.0
Loadings for clearance of protected areas	
Reductions for rehabilitation of impact site	
SEB Points required	**0.01**

Approximate hectares required	0.00
Economies of Scale factor	0.50
Mean Annual rainfall for the site (mm)	504
Payment into the fund (GST Exclusive)	**$7.12**
Administration fee (GST Inclusive)	**$0.39**

VA3 Scoresheet.xlsm

SEB Required for Scattered Trees

(Version - 1 July 2020)

Landscapes Region	**N&Y**	**Total Biodiversity Score**	272.18
Mean Annual Rainfall (mm)	**526**	**Total SEB Points required**	**228.28**
Economies of Scale factor	**0.5**	**Total SEB $ required**	**$167,091.25**

IBRA Association	**Clare**

Tree Species	Number of Trees	Total SEB Points required	Payment in NV Fund (GST Exclusive)	Administration fee (GST Inclusive)	Total
Eucalyptus camaldulensis	40	171.50	$118,987.06	$6,544.29	$125,531.34
Eucalyptus leucoxylon ssp pruinosa	11	45.03	$31,238.44	$1,718.11	$32,956.56
Eucalyptus odorata	1	2.10	$1,458.65	$80.23	$1,538.88
Callitris preissii	1	9.65	$6,696.18	$368.29	$7,064.47
0	0	0.00	$0.00	$0.00	$0.00

Scattered Tree Scoresheet V5.xlsx

Appendix 3. Scattered Tree Photos

Photo 1. MM 179.00 RHS, RETAIN NO IMPACT

Photo 2. MM 179.01 LHS, REMOVAL

Photo 3. MM 179.45 RHS, REMOVAL

Photo 4. MM 179.5 RHS, REMOVAL

Photo 5. MM 179.5 RHS, REMOVAL

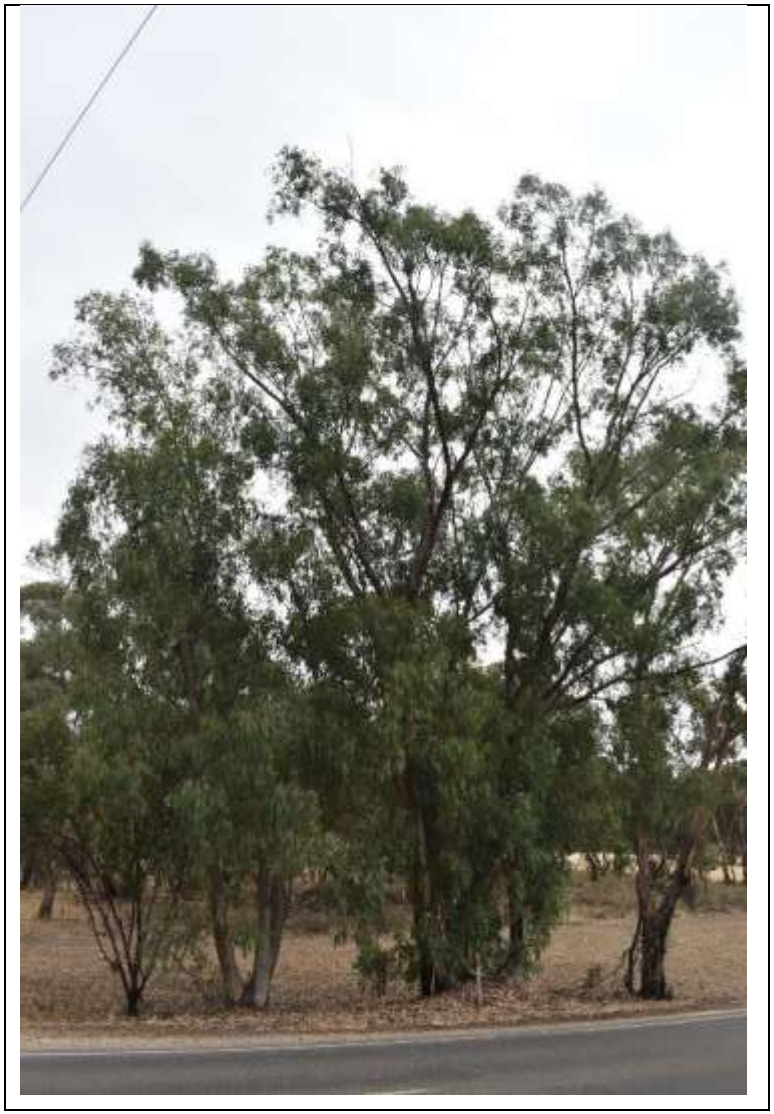


Photo 6. MM 179.7 RHS, ROOT PRUNE LF 0.6

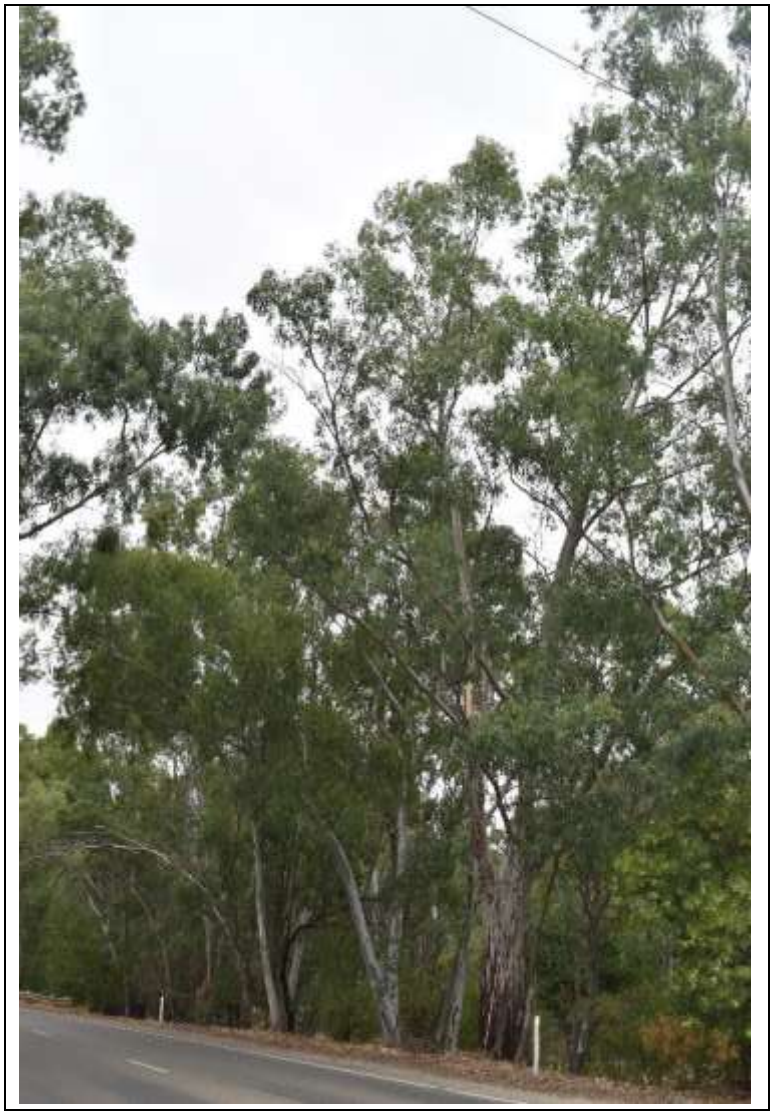


Photo 7. MM 179.80 RHS, ROOT PRUNE LF 0.8

Photo 8. MM 179.9 LHS, ROOT PRUNE LF 0.6

Photo 9. MM 179.95 RHS, ROOT PRUNE LF 0.8

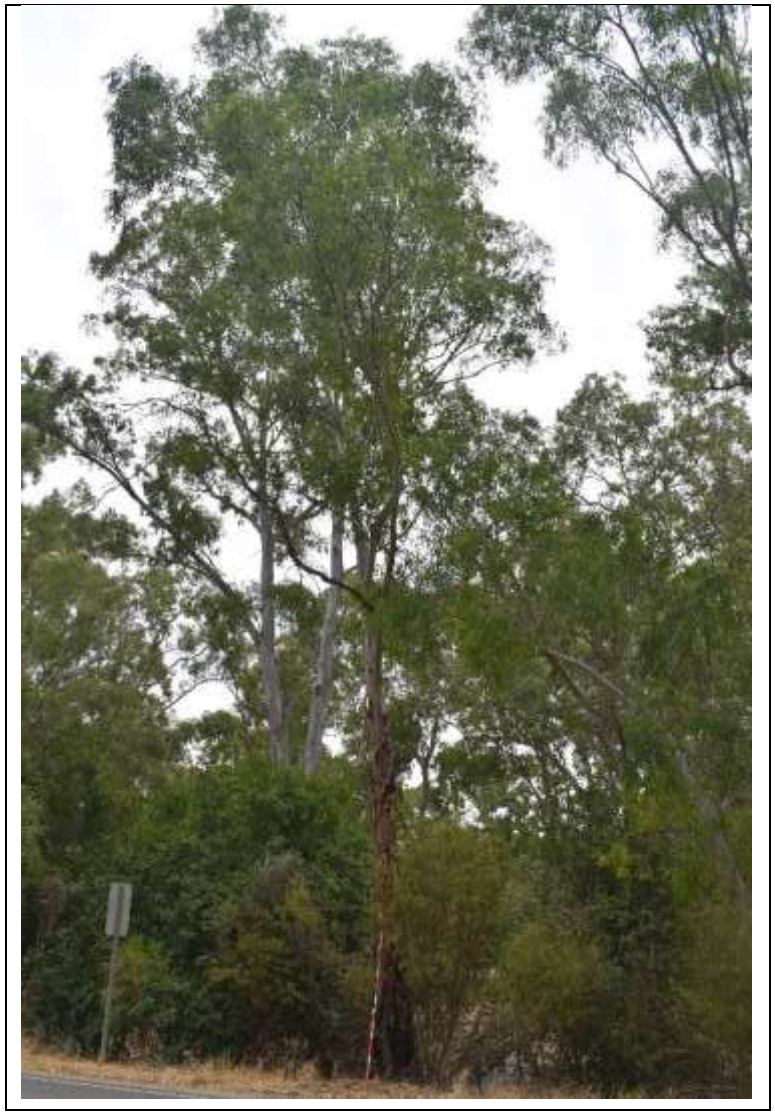


Photo 10. MM 179.95 RHS, ROOT PRUNE LF 0.8

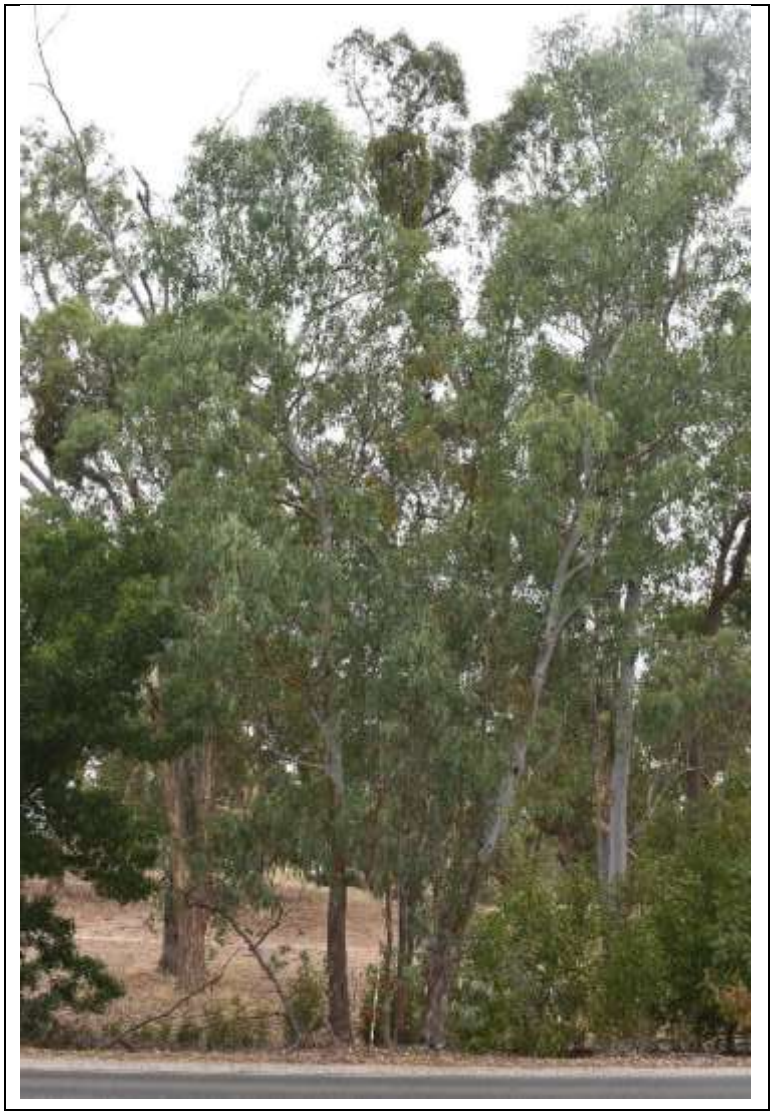


Photo 11. MM 180.25 LHS, REMOVAL

Photo 12. MM 180.45 LHS, ROOT PRUNE LF 0.6

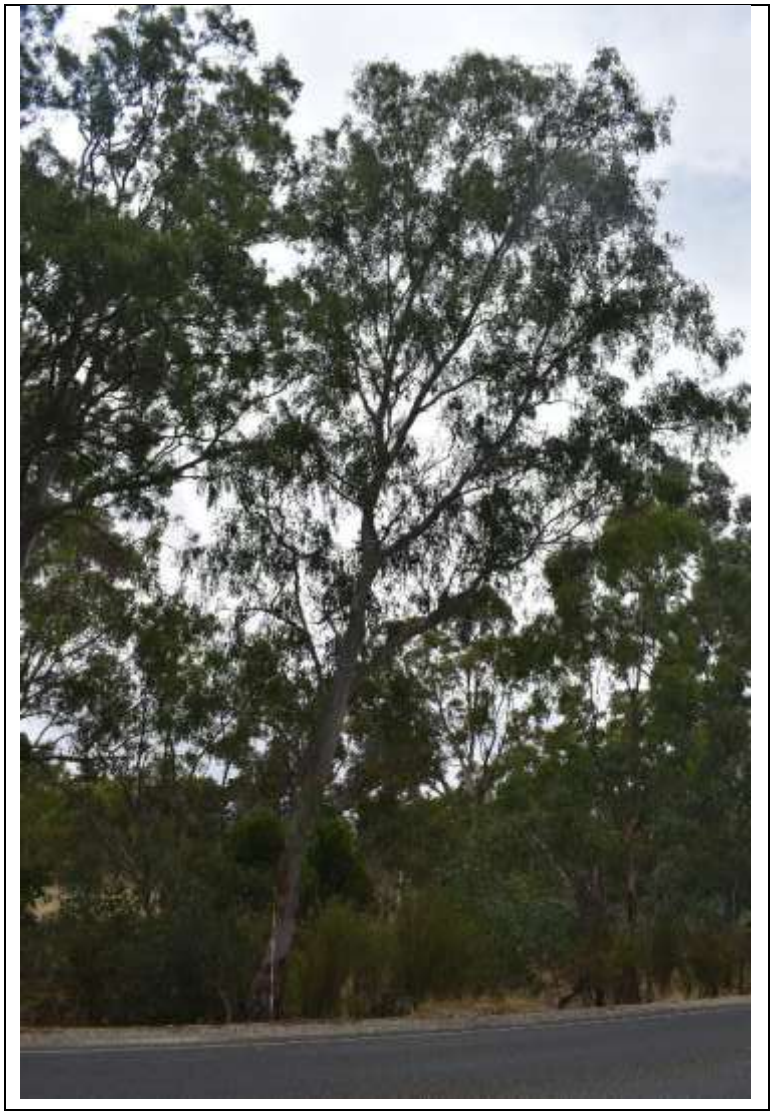


Photo 13. MM 180.45 LHS, ROOT PRUNE LF 0.6

Photo 14. MM 180.60 LHS, REMOVAL

Photo 15. MM 180.60 LHS, REMOVAL

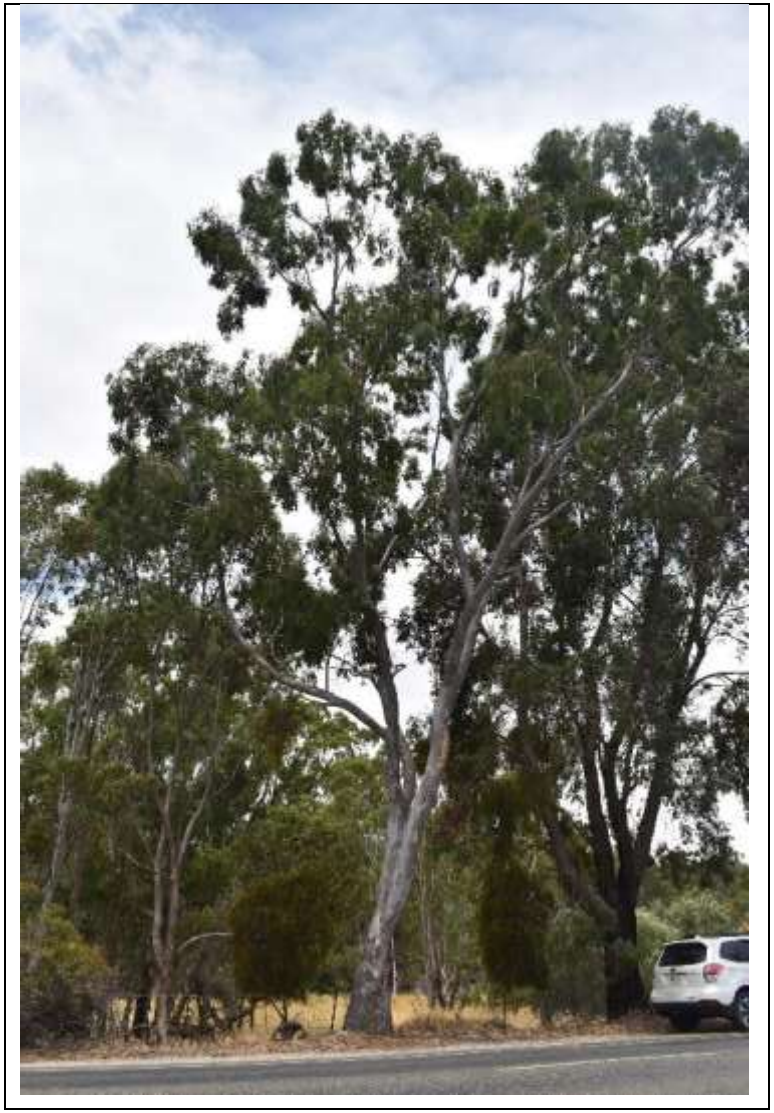


Photo 16. MM 180.65 LHS, REMOVAL

Photo 17. MM 180.78 LHS, ROOT PRUNE LF 0.6

Photo 18. MM 180.78 LHS, ROOT PRUNE LF 0.6

Photo 19. MM 180.80 LHS, ROOT PRUNE LF 0.8

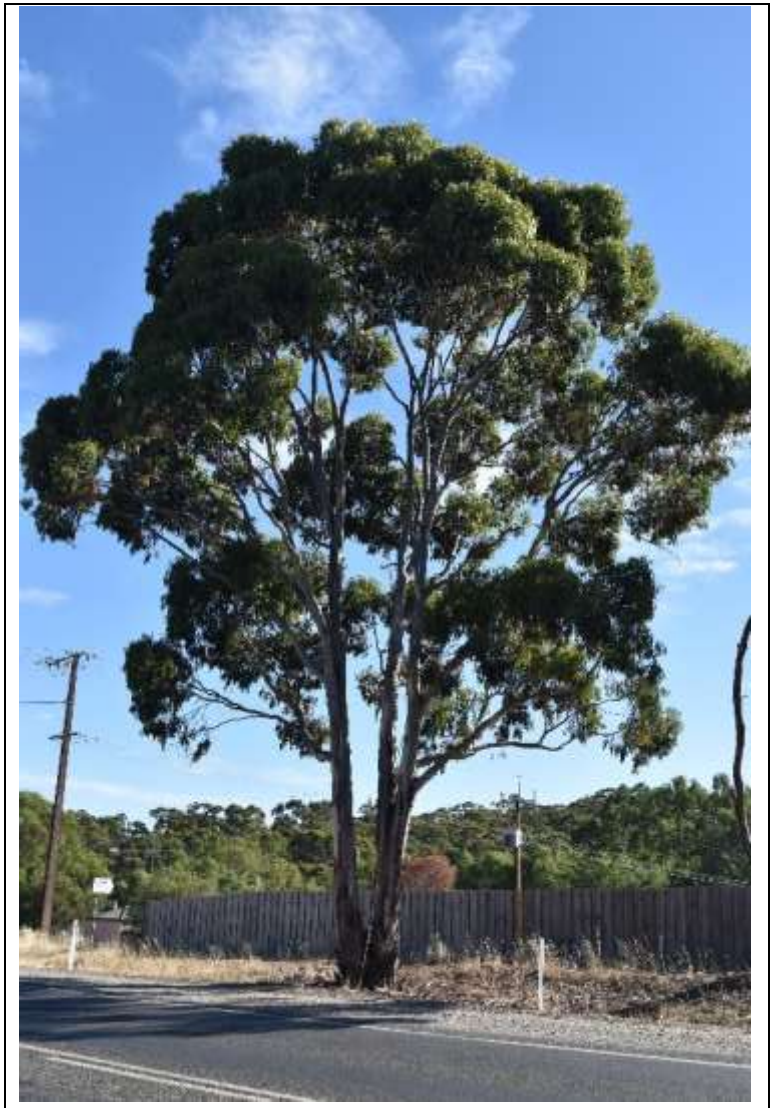


Photo 20. MM 181.29 LHS, ROOT PRUNE LF 0.6

Photo 21. MM 181.30 LHS, ROOT PRUNE LF 0.6

Photo 22. MM 181.31 RHS, REMOVAL

Photo 23. MM 181.30 LHS, ROOT PRUNE LF 0.8

Photo 24. MM 181.9 LHS, REMOVAL

Photo 25. MM 181.95 LHS, Culvert, ROOT PRUNE LF 0.4

Photo 27. MM 186.15 LHS, REMOVAL

Photo 28. MM 186.2 LHS, NO IMPACT

Photo 29. MM 186.30 LHS, REMOVAL

Photo 30. MM 186.3 LHS, NO IMPACT

Photo 31. MM 186.3 LHS, NO IMPACT

Photo 32. MM 187.2 LHS, REMOVAL

Photo 33. MM 187.3 LHS, REMOVAL

Photo 34. MM 187.55 LHS, ROOT PRUNE LF 0.8

Photo 35. MM 187.55 RHS, ROOT PRUNE LF 0.6

Photo 36. MM 187.7 RHS, ROOT PRUNE LF 0.6

Photo 37. MM 187.85 RHS, ROOT PRUNE LF 0.6

Photo 38. MM 187.90 RHS, ROOT PRUNE LF 0.6

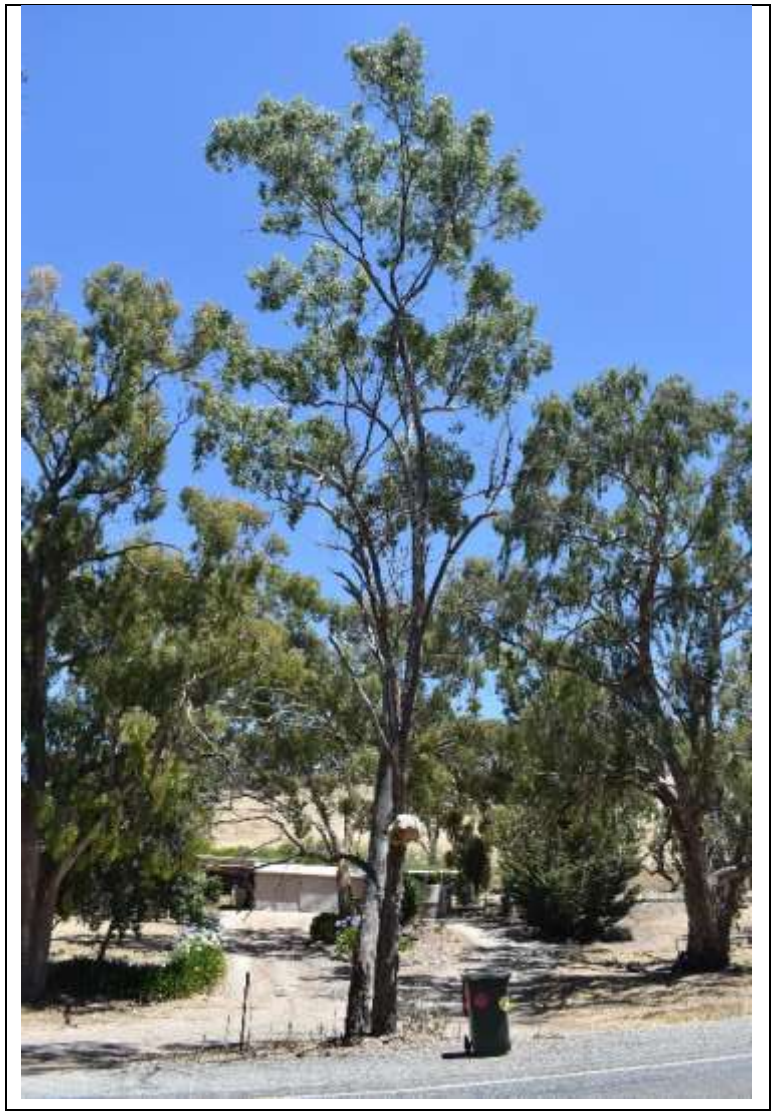


Photo 39. MM 187.90 RHS, NO IMPACT

Photo 40. MM 188.042 LHS, REMOVAL

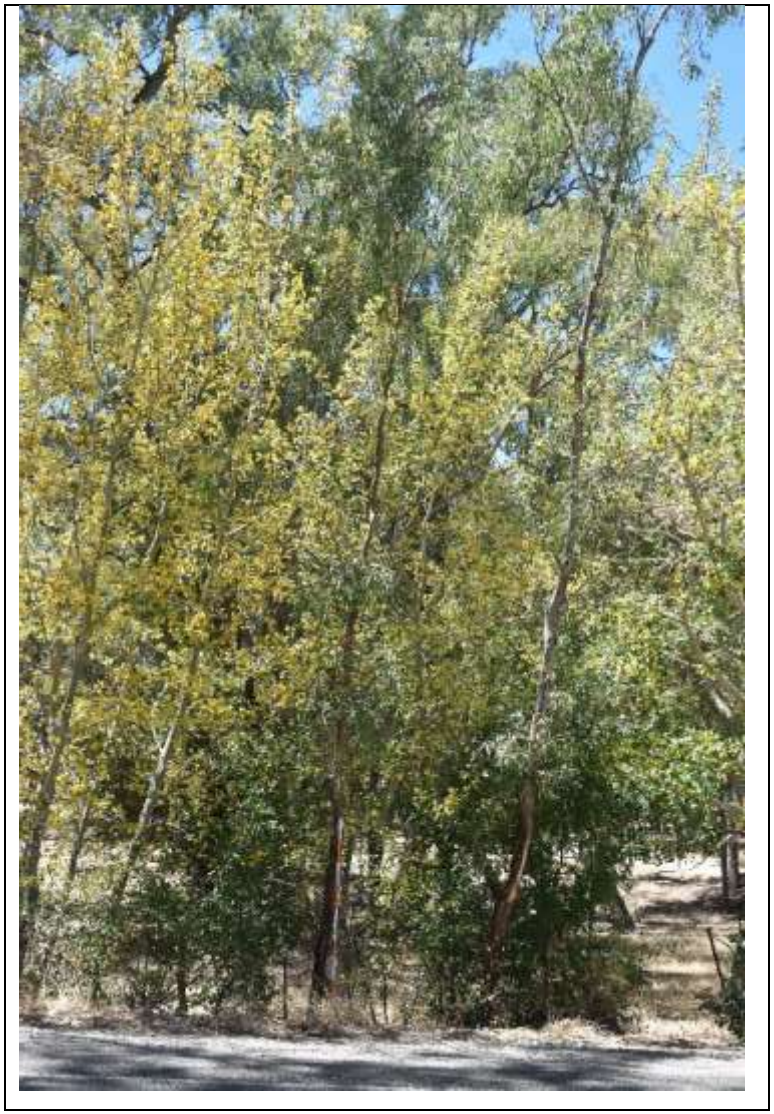


Photo 41. MM 188.05 LHS, REMOVAL

Photo 42. MM 188.05 LHS, NO IMPACT

Photo 43. MM 188.10 RHS, REMOVAL

Photo 44. MM 188.2 LHS, ROOT PRUNE LF 0.8

Photo 44A. MM 188.2 LHS, REMOVAL

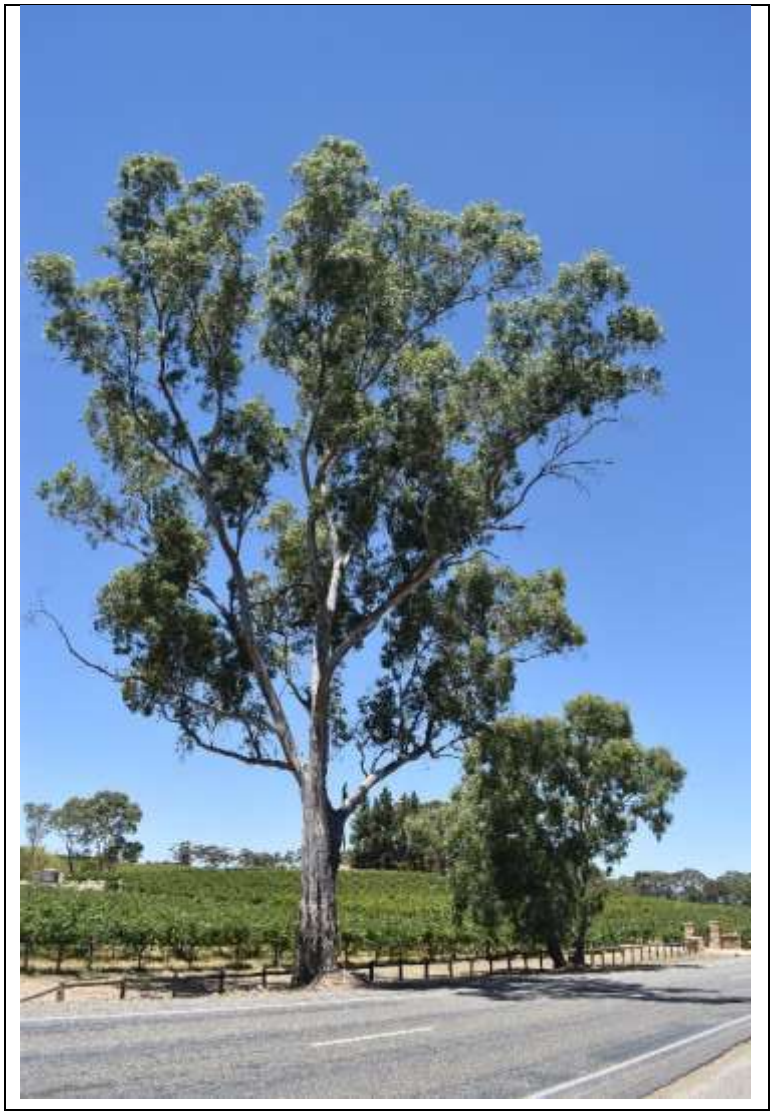


Photo 45. MM 188.2 LHS, ROOT PRUNE LF 0.8

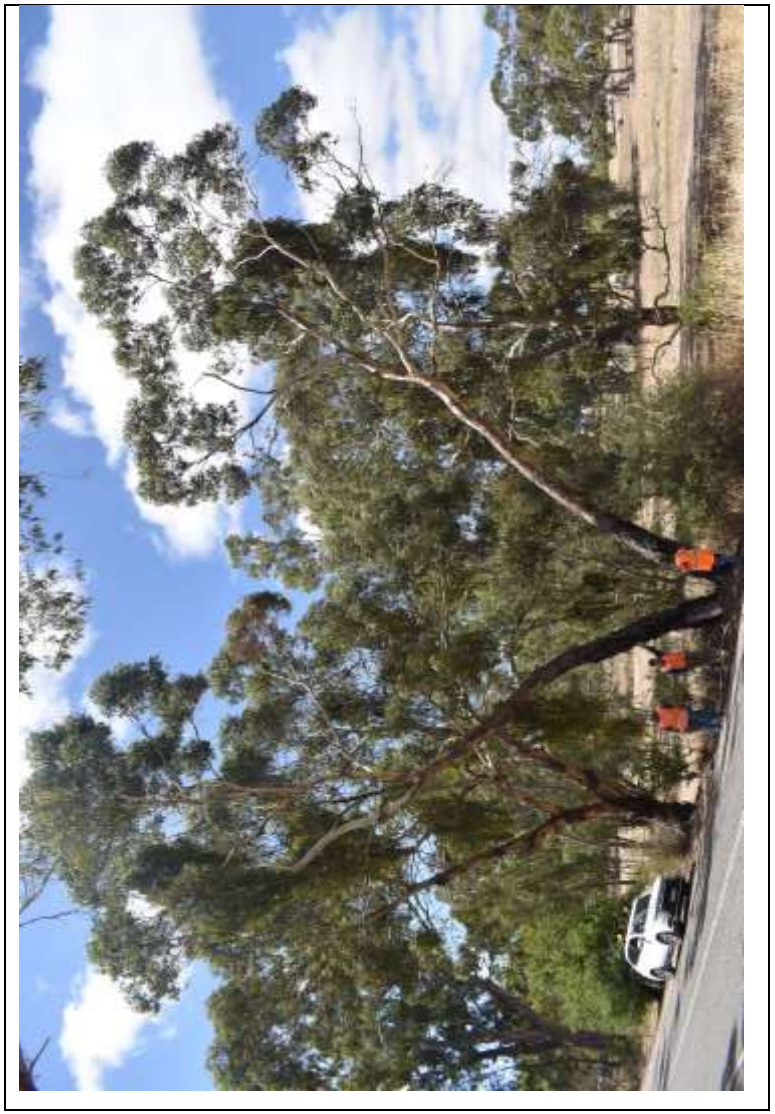


Photo 46. MM 189.025 LHS, REMOVAL

Photo 47. MM 189.3 Culvert #96 LHS, NO IMPACT

Photo 48. MM 189.3 Culvert #97 LHS, NO IMPACT

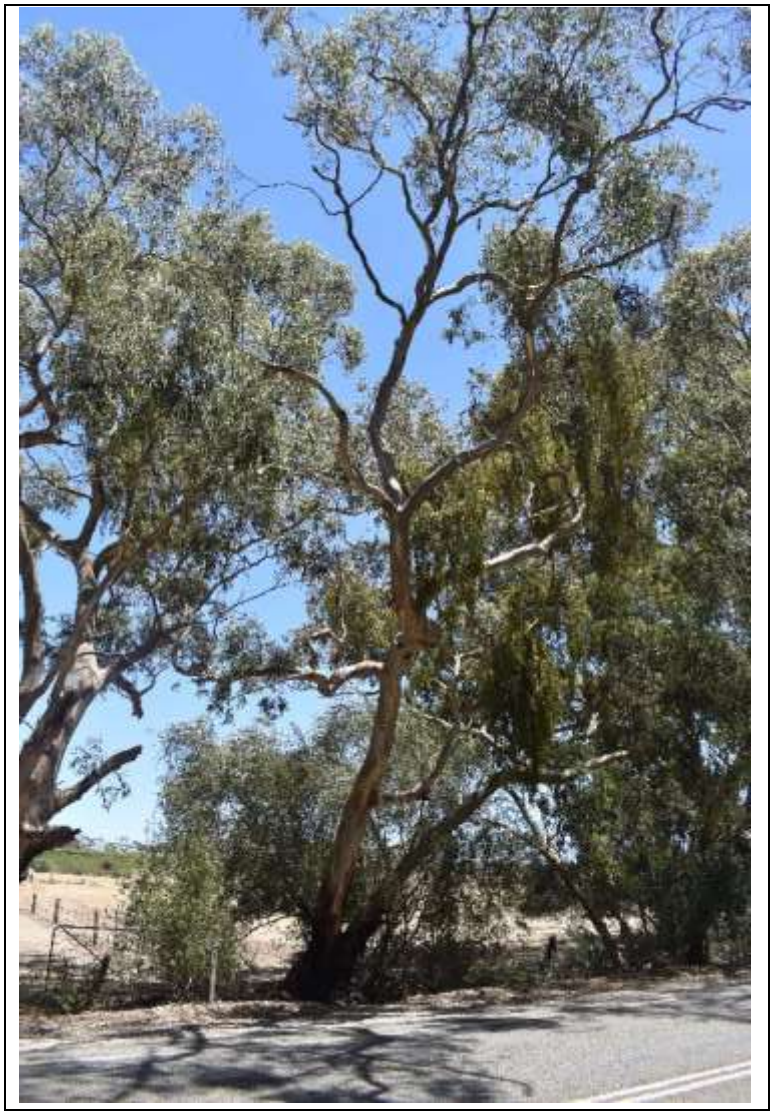


Photo 49. MM 189.3 Culvert #97 RHS, NO I MPACT

Photo 50. MM 189.880 RHS, CANOPY PRUNE LF 0.6

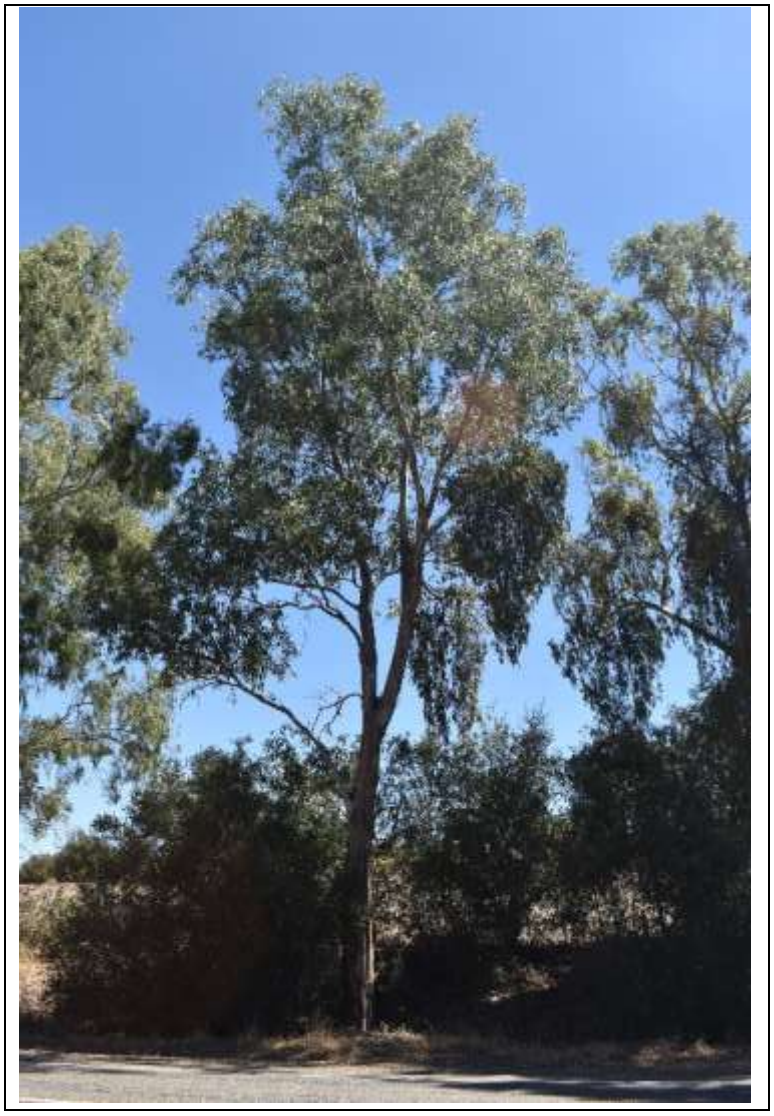


Photo 51. MM 189.99 RHS, ROOT PRUNE LF 0.6

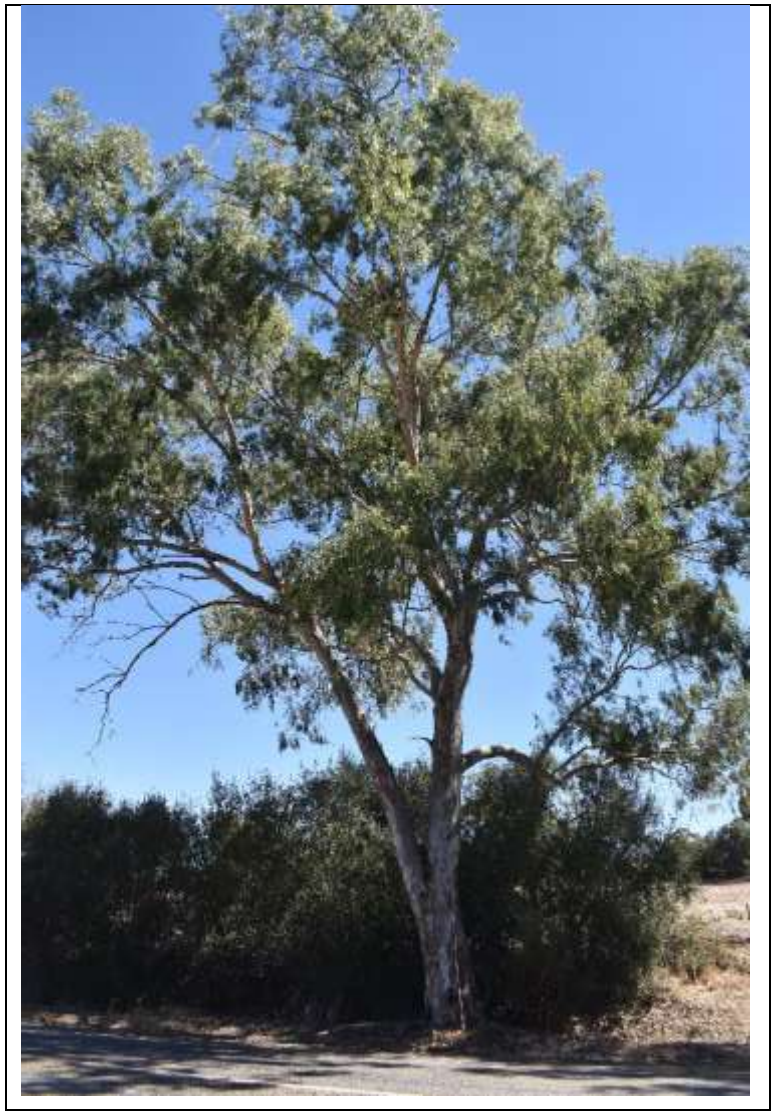


Photo 52. MM 190.007 RHS, REMOVAL

Photo 53. MM 190.05 RHS, REMOVAL

Photo 54. MM 190.45 RHS, ROOT PRUNE LF 0.6

Photo 55. MM 191.010 RHS, NO IMPACT

Photo 56. MM 192.6 LHS, REMOVAL (WORST CASE SCENARIO)

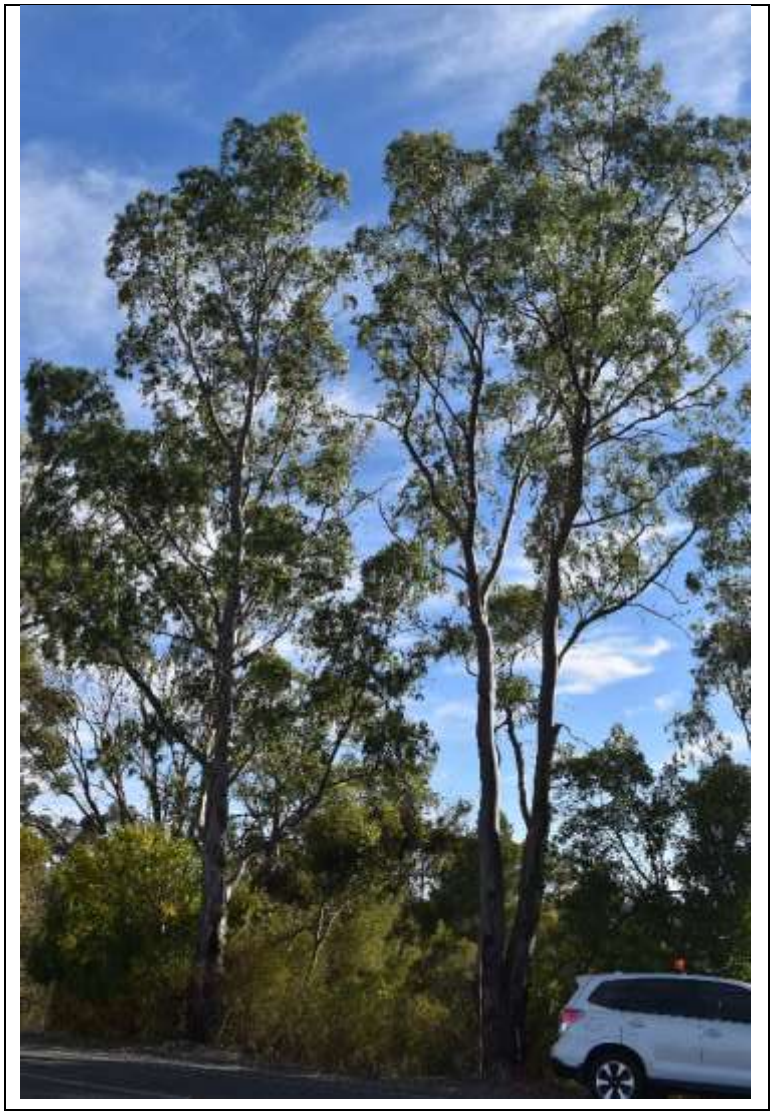


Photo 57. MM 193.25 LHS, ROOT PRUNE LF 0.8

Photo 58. MM 193.25 LHS, ROOT PRUNE LF 0.6

Photo 59. MM 194.7 Culvert #109 LHS, NO IMPACT

Photo 60. MM 194.7 RHS CULVERT 109, REMOVAL (WORST CASE SCENARIO)

Photo 61. MM 194.85 RHS, NO IMPACT

Photo 62. MM 204.5 RHS, NO IMPACT

Photo 63. MM 204.7 Culvert #130 LHS, NO IMPACT

Photo 64. MM 204.75 LHS, ROOT PRUNE LF 0.8

Photo 65. MM 204.9 LHS, ROOT PRUNE LF 0.8

Photo 66. MM 205.2 RHS, ROOT PRUNE LF 0.6

Photo 67. MM 205.3 RHS, NO IMPACT