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Native Vegetation Clearance

Upper Yorke Road

Port Broughton to Bute

MM 4.83 to MM 29.36

Data Report

Clearance under the *Native Vegetation Regulations 2017*

12 February 2024

Amendment 1 – Scope Reduction

28 February 2024

Prepared by JS Ayre & Associates

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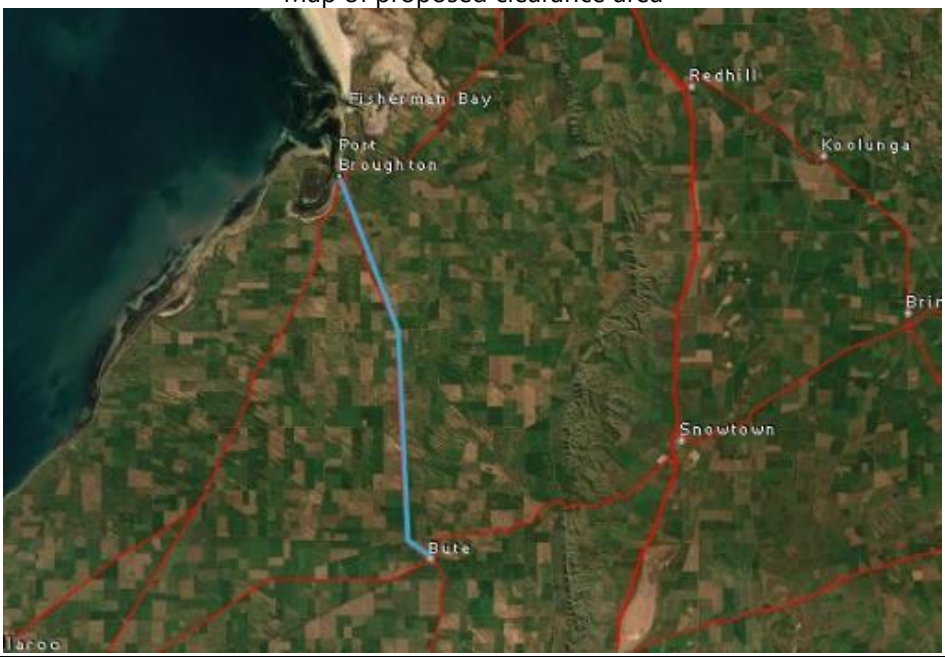
1. Application information

Application Details

Applicant:	Department for Infrastructure and Transport		
Key contact:	[redacted]		
Landowner:	The Crown		
Site Address:	Upper Yorke Road, MM 4.83 to 29.36 (Port Broughton to Bute)		
Local Government Area:	DC Barunga West	Hundred:	Wokurna, Wiltunga
Title ID:	N/A Road reserve	Parcel ID	N/A Road reserve

Summary of proposed clearance

Purpose of clearance	Clearance required to accommodate the road upgrade including shoulder sealing, culvert extensions, curve widening and aprons to side roads.
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 – 1.0002 ha of (VA1) *Eucalyptus gracilis/E. oleosa* mid mallee woodland, fair to good condition 0.0185 ha of (VA2) *Casuarina pauper* woodland, fair to poor condition 0.1915 ha of (VA3) *Eucalyptus gracilis, E. oleosa, E. socialis* mallee woodland, fair to good condition 0.05 ha of (VA4) *Callitris gracilis* woodland, fair condition Plus 1 *Casuarina pauper*, and 2 *Eucalyptus phenax* scattered trees in poor to good condition.
Total proposed clearance - area (ha) and number of trees	1.2602 ha and 3 scattered trees are proposed to be cleared.
Level of clearance	Level 4
Overlay (P&D Code)	Native Vegetation Overlay
Map of proposed clearance area 	
Mitigation hierarchy	Significant scope review achieved reduction of impacts from 2.085ha to 1.2602ha
SEB Offset proposal	Payment **$38,910.11**

2. Purpose of clearance

2.1 Description

Under the Government's Road Safety Program, the Upper Yorke Road from Port Broughton to Bute is to be upgraded. Included in the scope of works is shoulder sealing, curve widening, reseal and rehabilitation of the carriageway at strategic locations, culvert extensions, safety barrier installation and sealing of side road aprons. Some of the works will impact vegetation within the road reserve.

2.2 Background

The road carries 700vpd and traverses agricultural land with grazing and cropping farms, and the township of Port Broughton at the northern end of the site and Bute at the southern end. The carriageway and shoulder width is substandard, as is the road surface, and the upgrade is required to meet current safety standards. Numerous local roads intersect the Upper Yorke Road and there have been 8 serious road accidents since 2018.

Concurrent with this project is the Upper Yorke Road upgrade from Kulpara to Arthurton, 23km south of this project, and which is the subject of a separate clearance application.

2.3 General location map

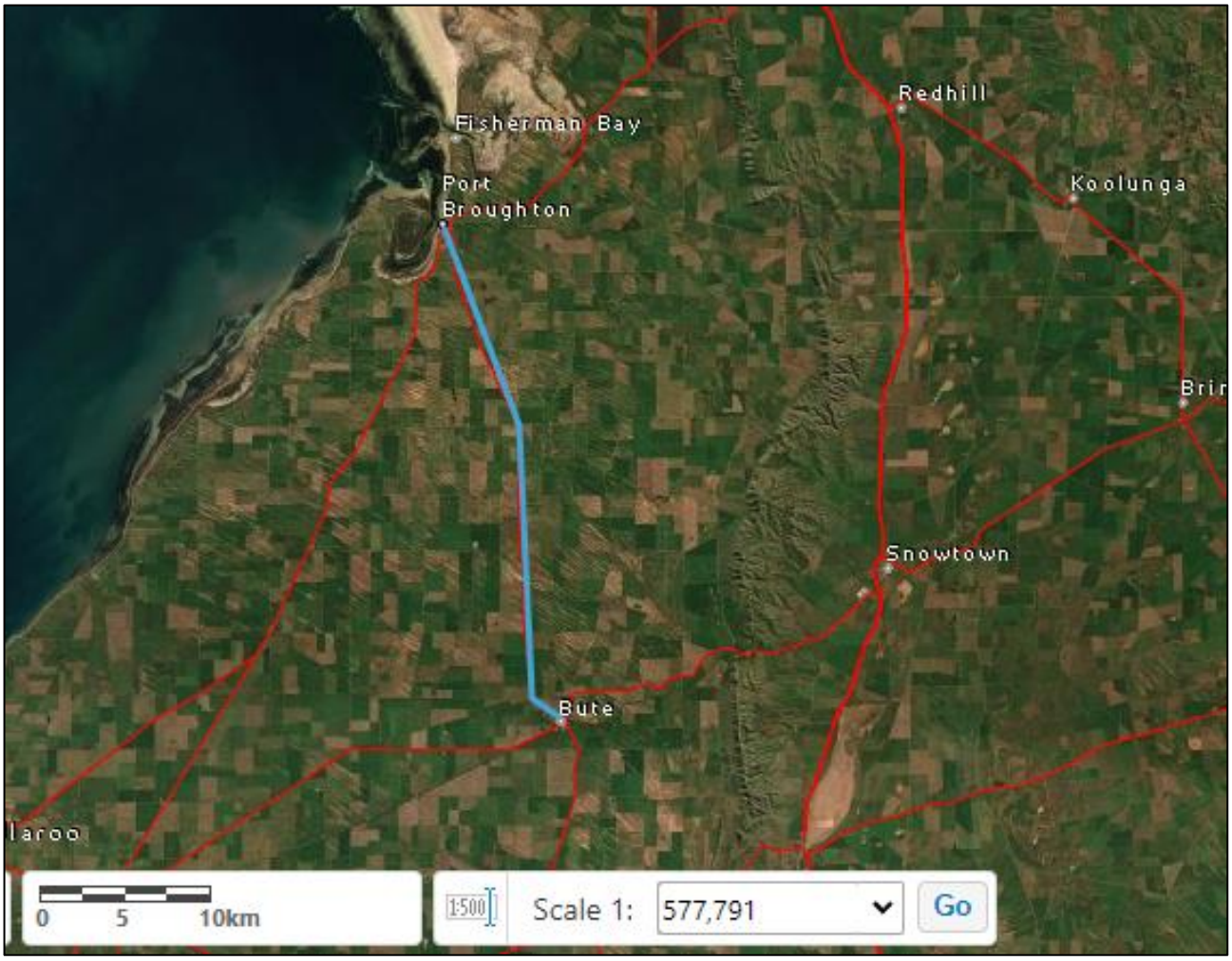


Figure 1. Site map

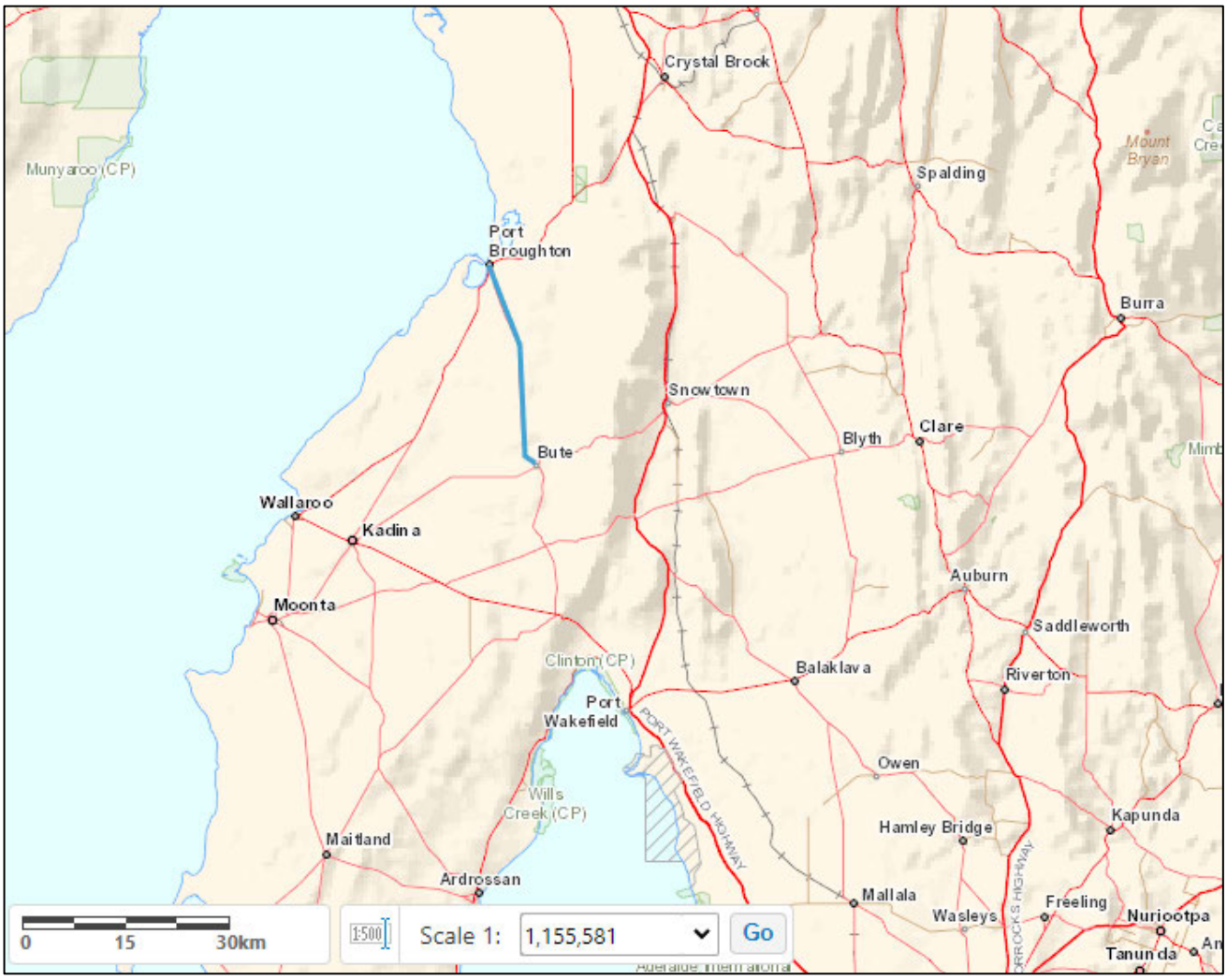


Figure 2. Location map

2.4 Details of the proposal

The proposed works include culvert extensions in five places; safety barrier at one location; additional pavement widths around curves; shoulder sealing for most of the length of road, and sealed aprons to side roads at two sites. Shoulder sealing will include boxing out to either 80mm or 300mm depth and sealing to accommodate a 2m shoulder width. A safety barrier is required to reduce the hazard presented by a drop-off, however this did not present any impact to vegetation.

The majority of impacts is confined to root systems of vegetation on the edge of the road reserve, with some clearance to occur where embankments require excavation, or where hazardous trees have been identified.

The project scope called for the assessment of:

- 12m total width for shoulder sealing at 6m from centreline (original scope called for 7m from centreline) – impact at nineteen locations
- 5m x 5m around six culverts to be extended (original scope called for 10m x 10m) – impact at five sites
- 8m from centreline around five curves to be widened (original assessment was 9m) – impact at four curve sites
- 30m length x 2m width either side of side roads for proposed aprons – impact recorded at two side roads
- one guardrail site – no impact was noted at this site

A general vegetation assessment was undertaken at three potential stack sites, however these were deemed unsuitable for use and DIT advised these have been removed from the scope of works.

The Maintenance Activity Zone (MAZ) was not included in the assessment.

The department's original scoping plan is attached and provides details of the location of proposed works. Shoulder sealing (SS) sites were aggregated within vegetation associations, as per the following table. Location of the 19 shoulder sealing sites, curves and culvert extensions is shown in the figures at *4.1 Assessment Outcomes*.

Note: the site assessment showed that many MM's were up to 600m out. This was taken into account as much as possible during the site assessment. This did not have a significant impact on the assessment; where curves were not at the MM's in the scope, the closest curve meeting the scope description was assessed. The assessor is confident the correct sites were surveyed.

SITE #	MM's	SIDE OF ROAD	IMPACT AREA M^2	VEG ASSN
Scattered Trees				
1	5.21	LHS	-	VA2
2	24.1	LHS	-	VA1
3	24.1	LHS	-	VA1
Shoulder sealing				
SS1	4.830 - 7.20	LHS	900	VA1
SS2	4.830 – 5.0	RHS	65	VA1
SS2a	5.0 – 5.5	RHS	185	VA2
SS2b	5.5 – 8.7	RHS	1200	VA1
SS3	8.9 – 9.2	RHS	115	VA1
SS4	9.5- 10.1;	LHS	225	VA1
SS4a	10.4-11.1; 11.3-11.7	LHS	350	VA3
SS5	9.5-10.5	RHS	375	VA1
SS5a	10.5-12.6	RHS	1400	VA3
SS6	12.4-12.6	LHS	75	VA1
SS7	13.2 – 14.0	LHS	300	VA1
SS8	14.1 – 14.2; 14.4 – 15.0; 15.0 – 15.2, 15.5 – 15.6	RHS	420	VA1
SS9	14.4 – 16.0	LHS	400	VA1
SS10	16.2- 16.3; 16.5 – 16.75	RHS	175	VA1
SS11	16.5 – 17.3; 17.4 – 21.0	LHS	2200	VA1
SS12	17.9 -18.4	RHS	125	VA1
SS13	19.9 – 20.05; 20.05 – 20.4	RHS	125	VA1
SS14	20.9 – 21.6	RHS	350	VA1
SS15	22.0 – 22.4; 22.6 – 22.7; 22.7 – 23.1	LHS	250	VA1
SS16	22.8 – 23.0	RHS	100	VA1
SS16a	23.2 – 23.85;	RHS	165	VA3
SS16b	24.1 – 24.7	RHS	150	VA1
SS17	24.2 – 25.5	LHS	490	VA1
SS17a	25.5 – 26.1	LHS	225	VA4
SS18	26.05 – 26.1; 26.3 – 26.4	RHS	50	VA4
SS19	26.1 – 26.4; 26.4 – 26.7;	LHS	225	VA4
SS19a	26.7 – 29.0	LHS	575	VA1
TOTAL SHOULDER SEALING IMPACT			11215 m^2	

SITE #	MM's	SIDE OF ROAD	IMPACT AREA M^2	VEG ASSN
Culverts				
A	MM 4.885	LHS	25	VA1
B	MM 4.885	RHS	25	VA1
C	MM 6.380	LHS	25	VA1
D	MM 6.380	RHS	2	VA1
E	MM 8.169	LHS	nil	VA1
F	MM 8.169	RHS	5	VA1
TOTAL CULVERT IMPACT			82 m^2	
Curves				
1	MM 8.893 – 9.238	LHS	345	VA1
2	MM 12.370 – 12.849	LHS	480	VA1
3	MM21.430 – 21.710	LHS	nil	VA1
4	MM21.860 – 22.108	RHS	230	VA1
5	MM28.252 – 28.694	RHS	250	VA1
TOTAL CURVE IMPACT			1285 m^2	
Side road aprons				
1	Haldanes Road, MM 24.618, SW corner of I/S	RHS	10	VA1
2	Wiltunga Road, MM 24.618, NE corner of I/S	LHS	10	VA1
Stack sites				
STK ST 1	23.45 – 23.72	RHS	Not suitable for use	N/A
STK ST 2	21.2 – 21.4	RHS	Not suitable for use	N/A
STK ST 3	12.7 – 12.8 approximately	RHS	Not suitable for use	N/A

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

Provide details of the following approvals or applications under the follow legislation, where relevant:

- *Native Vegetation Act 1991* – this report is in part fulfillment of the requirements of this Act
- *Planning, Development and Infrastructure Act 2016* – N/A
- *Environment Protection and Biodiversity Conservation Act 1999* (impacts on MNES) – N/A
- *National Parks and Wildlife Act 1972* (e.g. flora collection permit) – N/A
- *Landscapes SA Act 2019* (e.g. water affecting activity permit) – N/A
- *Aboriginal Heritage Act 1988* – N/A

2.6 Native Vegetation Regulation

Regulation 12, Schedule 1; clause 32, Works on behalf of Commissioner of Highways.

3. Method

3.1 Flora assessment

A site assessment was undertaken on 29-30 November 2023 by Jackie Ayre of JS Ayre & Associates. The scope of works was outlined by the client prior to the field survey and informed by research using NatureMaps and Google Earth. The survey involved a general assessment of vegetation on 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. Four threatened plant species, including 1 EPBC Endangered, 1 Vulnerable, and 2 State Rare listed species were recorded within the search criteria of 'known presence, within 5km since 1995'. One, State R rated *Geijera parviflora*, was found on site but is not in an area to be impacted by works. No other species were found, but there is potential for two listed Orchid species to be present in the less disturbed habitat away from the road edge. The time of survey was not conducive to observing annual species.

The shoulder sealing sites are long and narrow, and the assessment involved vegetation within 6m from the CL (centreline) at strategic locations. The impact was thus 6m, minus the existing carriageway and shoulder widths. Where there were minor changes in the proximity of remnant vegetation to the road shoulder, short cut or fill embankments, and property accesses, for efficiency, impact width was averaged across the assessment sites. Where vegetation was consistent for long stretches, impact width was measured and noted accordingly.

Five shoulder sealing sites are within DIT RSSD sites # 794, 982 and 981.

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. 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. Evidence of fauna species presence was searched for and recorded when observed. If hollows were found, closer inspection with binoculars was undertaken.

Eight listed species were recorded within the search criteria, six of which were excluded due to being dependent on habitat not found on the site. The State rated subspecies of the Yellow-throated Miner was also excluded from the list of threatened species for this site. No other listed species were observed.

See Part 4.2 and Appendix 1 for further details.

4. Assessment Outcomes

4.1 Vegetation Assessment

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

- *Landform, geography and soils*
  The Upper Yorke Road straddles the Wokurna and Bute-Thomas Plain Land Systems. Within these the landform is described as gently undulating plains and a few rises with extensive cover of dunefields; and slopes forming a flat topped rise. Soils are calcareous siliceous sands, calcareous loam, and clay loam over red clay.
- *Landform feature of significance (rivers, creeks, rocky outcrops, etc.)*
  Dunes are a feature of the landscape. There are no streams featured within the project site, nor other significant landscape features.
- *General overview of the vegetation under application as a whole*
  The site contains three scattered trees, remnants of a Eucalyptus (mixed) mallee woodland and Black Oak Woodland. Four vegetation associations were noted; mallee woodland over sclerophyll shrubs, mallee woodland over chenopod shrubs, Black Oak woodland and Southern Cypress Pine woodland.
- *General description of the vegetation relating to type and condition*
  The vegetation across all associations ranges from fair to good condition, depending on (largely) the distance from the road edge. The Black Oak and Cypress Pine woodlands are very disturbed and individual trees within these are in fair to poor condition generally. Bridal Creeper was noted at many of the sites but consisted of dead material (possibly a result of the season and low rainfall).
- *Description of the landscape context for the vegetation*
  The vegetation is almost totally confined to road reserves across the landscape, with clearance being significant and only very small patches persisting outside of road reserves.

Details of the vegetation associations/scattered trees proposed to be impacted

Vegetation Association	Vegetation Association 1; *Eucalyptus gracilis/E. oleosa* mid mallee woodland.

Photo 1. Indicative impact - culvert site A. Taken facing east, MM 4.885 LHS

Photo 2. Indicative impact, curve extension, MM 8.893 – 9.238 LHS facing north

Photo 3. Indicative impact, shoulder sealing, MM 17.4 LHS, facing south

General description	This association covers the majority of the impacted vegetation, including most of the shoulder sealing sites, all impacted culvert extension, curve and side road sites. The complexity, diversity and condition changes moderately across the length of the association, however it can be broadly described as a mid-mallee woodland with a sclerophyll shrub understorey, consistent with the BCM YP4 community. The dominant species are *Eucalyptus gracilis, E. oleosa, E. brachycalyx*, over *Acacia, Senna* and *Rhagodia* spp. Disturbed with weed invasion and litter close to the road shoulder, grading to more diverse and less degraded closer to property boundaries. Dead Bridal Creeper was present, sometimes in large patches, otherwise small occurrences.				
Threatened species or community	The State Rare listed *Geijera parviflora* was present in the road verge vegetation but not within the impact site, which was limited to less than 1m from the shoulder.				
Landscape context score	1.12	Vegetation Condition Score	43.08	Conservation significance score	1.08
Unit biodiversity Score	52.11	Area (ha)	1.0002	Total biodiversity Score	52.12

Vegetation Association	Vegetation Association 2; *Casuarina pauper* woodland with a shrub understorey.

Photo 4. Indicative shoulder sealing impact, MM 5.0 – 5.5 LHS facing south

General description	A small patch existing within the more common mallee woodland, this association is dominated by *Casuarina pauper* in fair condition overall. Disturbance is as at VA1 and other sites, with weeds and litter present close to the road. There were environmental but no declared weeds noted in this patch. Shoulder sealing impact site 2a lies within this association.				
Threatened species or community	No threatened flora or fauna under the NP&W Act or EPBC Act listed species or community were noted within this association.				
Landscape context score	1.12	Vegetation Condition Score	30.19	Conservation significance score	1.04
Unit biodiversity Score	35.16	Area (ha)	0.0185	Total biodiversity Score	0.65

Vegetation Association	Vegetation Association 3; *Eucalyptus gracilis, E. oleosa, E. socialis* mallee woodland with a chenopod understorey.				
 Photo 5, Indicative shoulder sealing impact, approximate MM 13.5 LHS facing south					
General description	*Eucalyptus gracilis, E. oleosa, E. socialis* dominate the upper storey with mainly chenopods including *Marieana, Rhagodia, Atriplex spp.* in the understorey. At times *Santalum acuminatum* is present also. Shoulder sealing impact sites 4a, 5a, and 16a have been aggregated within this association. Disturbed with weed invasion and litter close to the road shoulder, grading to more diverse and less degraded closer to property boundaries. The association is consistent with the BCM YP5 community.				
Threatened species or community	No threatened flora or fauna under the NP&W Act or EPBC Act listed species or community were noted within this association.				
Landscape context score	1.12	Vegetation Condition Score	31.22	Conservation significance score	1.04
Unit biodiversity Score	36.36	Area (ha)	0.1915	Total biodiversity Score	6.96

Vegetation Association	Vegetation Association 4; *Callitris gracilis* woodland.

Photo 6. Indicative shoulder sealing impact, approximate MM 25.5 LHS, facing south

General description	*Callitris gracilis* dominates the overstorey, with closely spaced trees reducing diversity in the understorey. The odd Eucalypt appears, and chenopod and sclerophyllous shrubs occur with scattered sparse grasses on the edges of the patch. Dead Bridal Creeper residue is present, Google Earth shows a significant infestation at the time of the imagery (7/23). Shoulder sealing sites 17a, 18 and 19 are aggregated here.				
Threatened species or community	No threatened flora or fauna under the NP&W Act or EPBC Act listed species or community were observed.				
Landscape context score	1.12	Vegetation Condition Score	29.53	Conservation significance score	1.04
Unit biodiversity Score	34.40	Area (ha)	0.05	Total biodiversity Score	1.72

Tree ID – Tree 1 Tree spp: *Casuarina pauper* Number of trees: 1 Height (m): 12 Hollows: nil Diameter (cm): 30 Canopy dieback (%): 70 Total Biodiversity Score: 0.52	

Photo 7. A Mature Black Oak in poor condition, within 7m of the road CL, roots potentially impacted by shoulder sealing. Potential value for threatened species but appears in decline. Loss factor 1.0.

Tree ID – Tree 2 Tree spp: *Eucalyptus phenax* Number of trees: 1 Height (m): 8 Hollows: nil Diameter (cm): 25 Canopy dieback (%): 70 Total Biodiversity Score: 1.23	

Photo 8. A White Mallee in poor condition, within 7m of the road CL, roots potentially impacted by shoulder sealing. Potential value for threatened species but is in decline with no evident hollows. Loss factor 1.0.

Tree ID – Tree 3 Tree spp: *Eucalyptus phenax* Number of trees: 1 Height (m): 8 Hollows: nil Diameter (cm): 20 Canopy dieback (%): 20 Total Biodiversity Score: 2.17	

Photo 9. A White Mallee in good condition, within 7m of the road CL, roots potentially impacted by shoulder sealing. Potential value for threatened species. Loss factor 1.0.

Site maps showing areas of proposed impact – scattered trees

Figure 3. Scattered tree 1

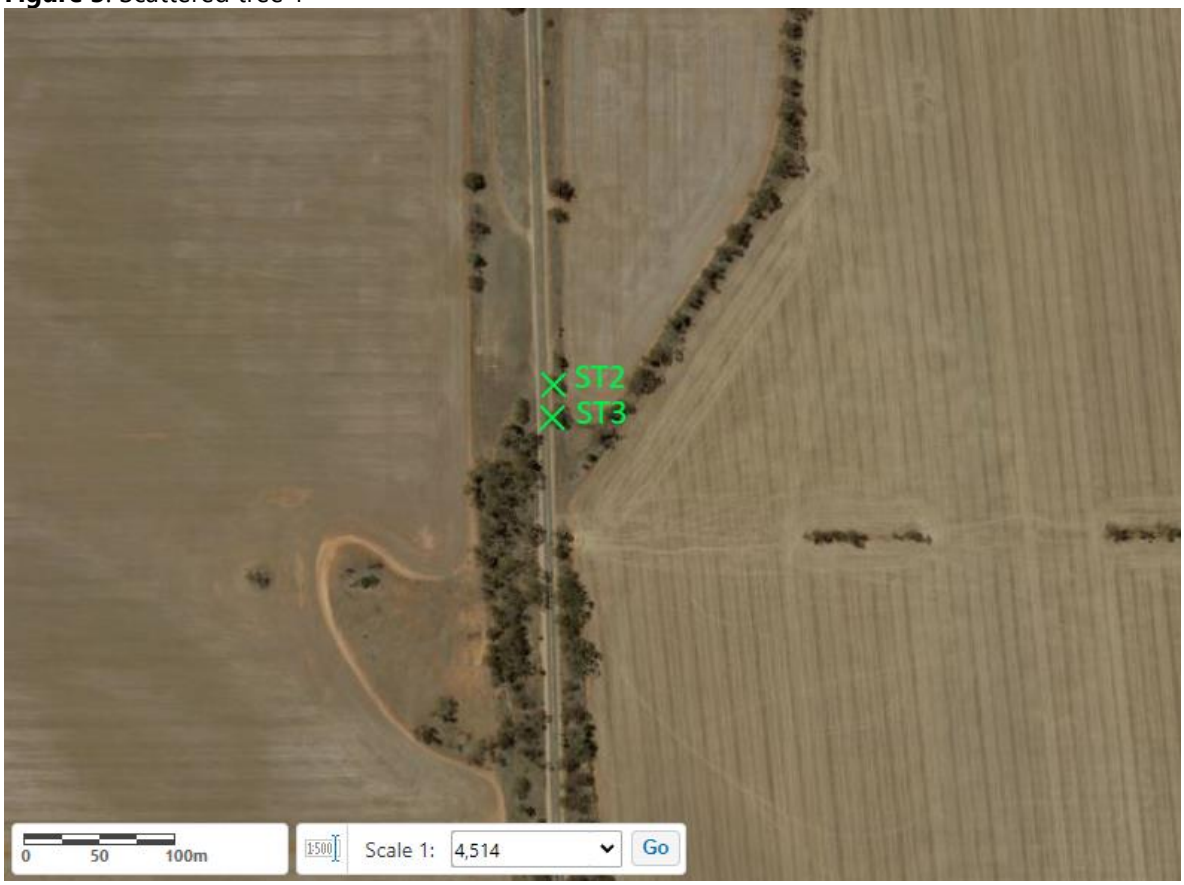


Figure 4. Scattered trees 2 and 3

Site maps showing areas of proposed impact – culverts and curves

Figure 5. Culvert extension sites A, B

Figure 6. Culvert extension sites C ,D

Figure 7. Culvert extension sites E, F (Culvert site E not impacted)

Figure 8. Curve 1

Figure 9. Curve 2

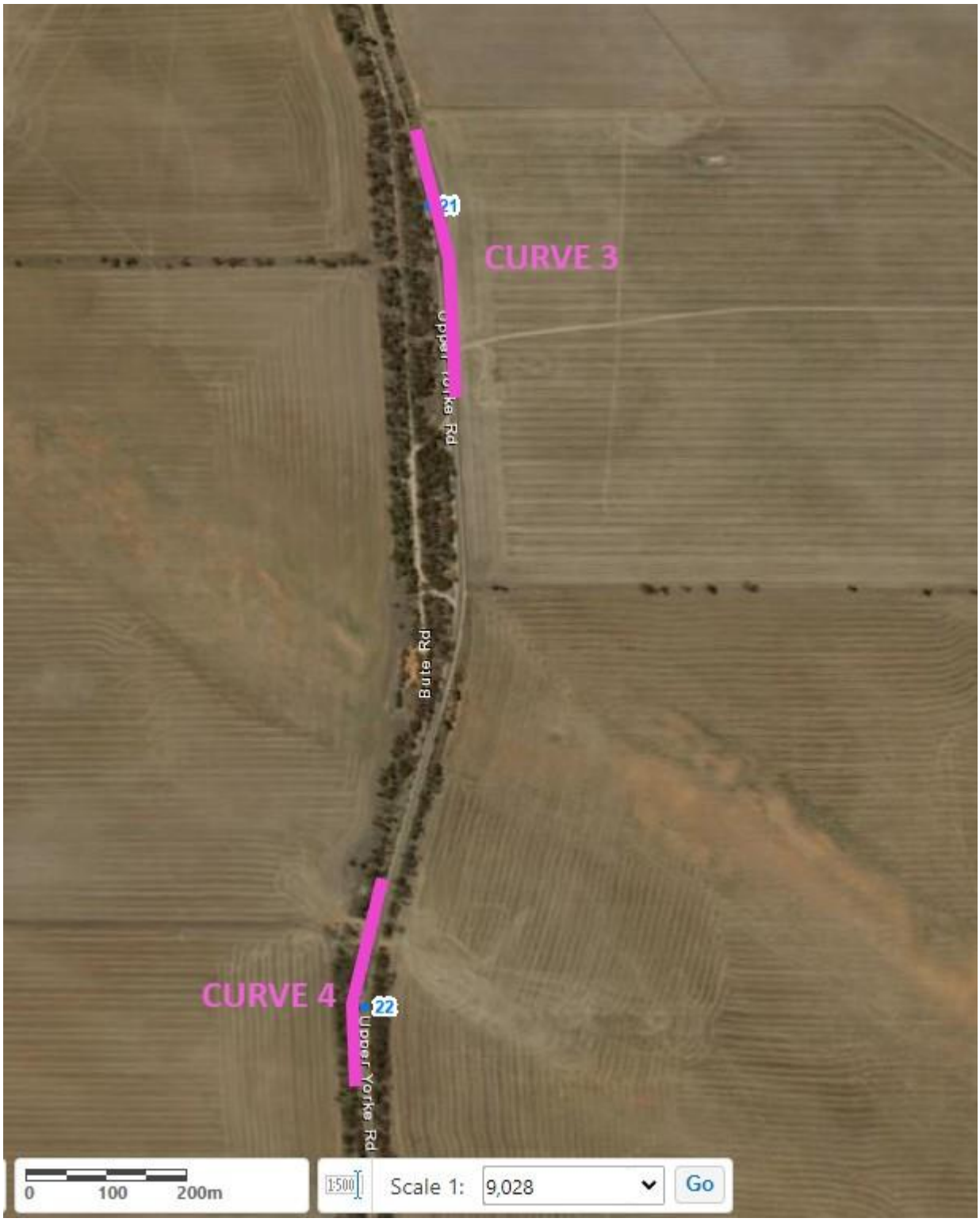


Figure 10. Curve 3 (no impact), 4

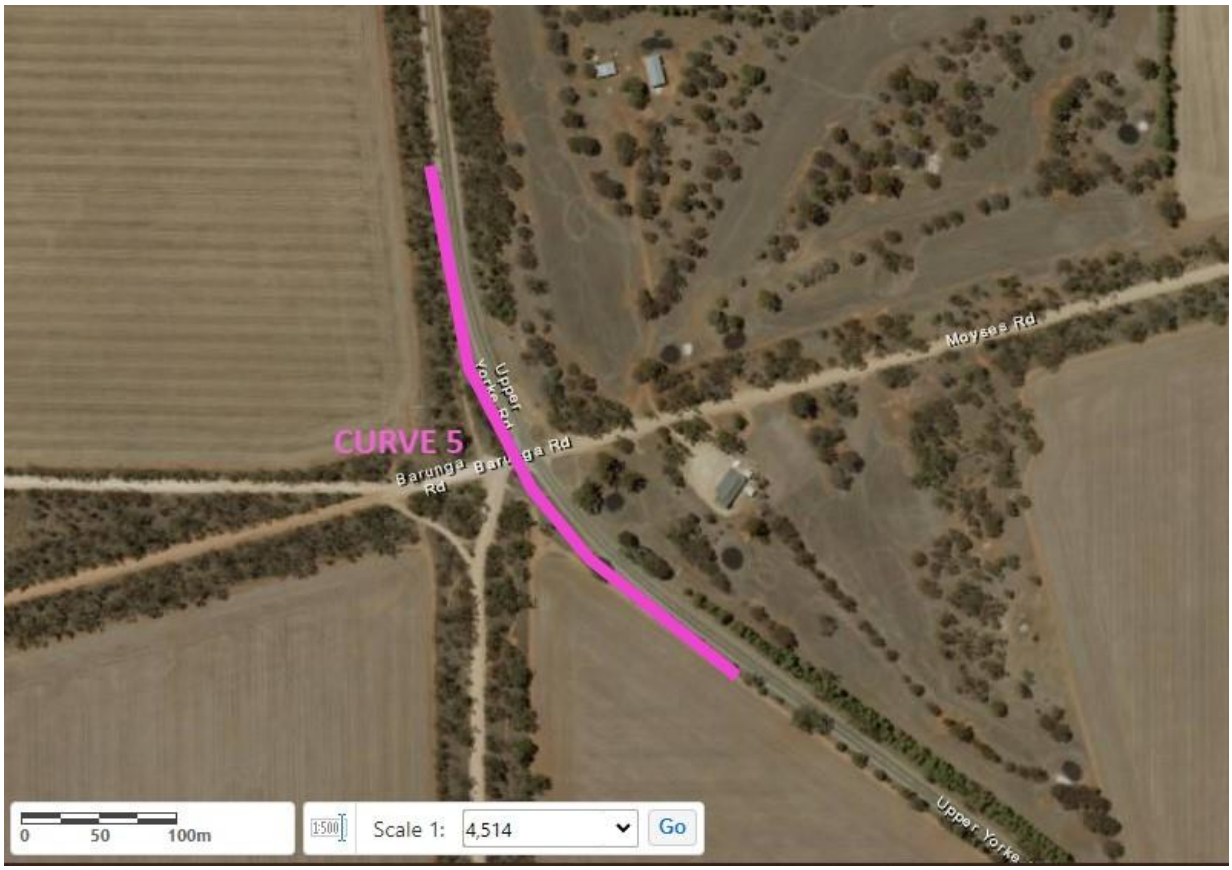


Figure 11. Curve 5

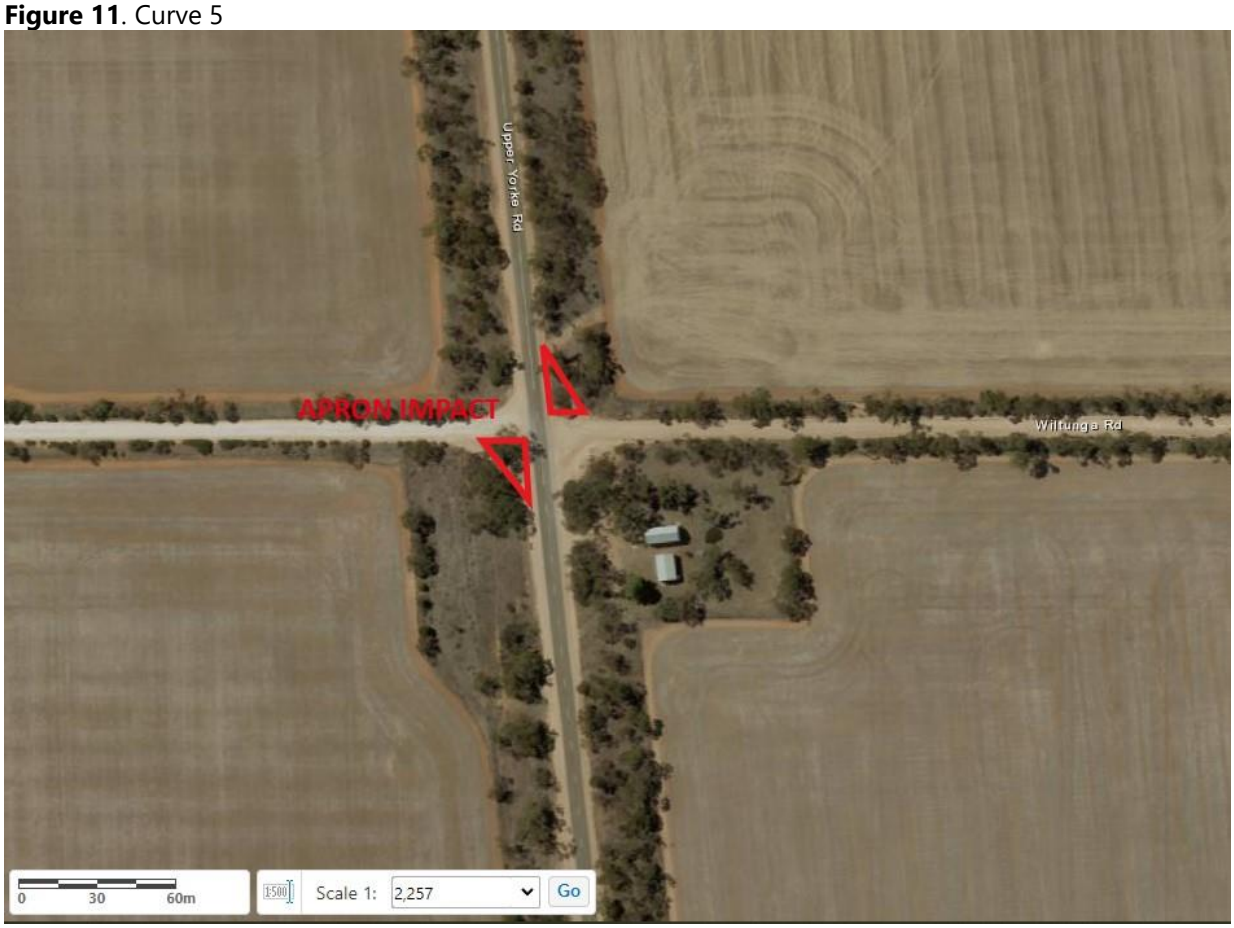


Figure 12. Impact at side roads Haldanes and Wiltunga MM 24.618

Site map showing areas of proposed impact - shoulder sealing

Figure 13. Shoulder sealing sites 1 and 2

Figure 14. Shoulder sealing sites 4, 5 and 6

Figure 16. Shoulder sealing sites 7 and 8

Figure 17. Shoulder sealing sites 9 and 10

Figure 18. Shoulder sealing sites 11, 12 and 13

Figure 19. Shoulder sealing sites 14 and 15

Figure 20. Shoulder sealing sites 16 and 17

Figure 21. Shoulder sealing sites 18 and 19

4.2 Threatened Species assessment

Flora

The Environment Protection and Biodiversity Conservation (EPBC) Act "Matters of Environmental Significance"; Atlas of Living Australia (AoLA); and BDBSA databases searches identified 4 threatened flora species within the search criteria. The species identified via the PMST and listed here are restricted to 'species or species habitat known to occur in the area' as per the NVC guidelines.

The State Rare rated *Geijera parviflora* (Wilga) was observed on site, however none were within the area of impact. The State rare listed Rohrlach's Bluebush was not noted, however two Orchid species *Caladenia macroclavia* and *C. brumalis* have some potential to occur in the less degraded vegetation away from the roadside. A spring survey may confirm, or otherwise, the presence of these. They are unlikely to be present amongst the narrow band of vegetation close to the road potentially impacted by the works.

Flora species recorded within 5km 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
Maireana rohrlachii Rohrlach's Bluebush	R	-	3	1998	Found on saline or sandy loam soils rich in gypsum, often fringing lakes, and in seasonally wet areas in mallee and chenopod shrublands	Possible, but not noted and habitat either not suitable or too disturbed.
Caladenia macroclavia Large-club Spider-orchid	E	EN	5	2002	Grows in fertile shallow loams in mallee-broombrush woodland in sandy loam over limestone with Yorrell, Red Mallee and Ridge Fruited Mallee dominating at all sites. Sea Box, Broombush and chenopods is present at some sites, with sedges and grasses at others	Possible away from roadside but habitat too disturbed and edge effects likely to reduce the possibility of this species occurring on the site.
Geijera parviflora Wilga	R	-	3	2001	Red soils and sandy loam in woodland communities often association Belah and Cattlebush	Known, but not present on the road reserve area impacted by works.
Caladenia brumalis Winter Spider-orchid	-	VU	5	-	Woodland, mallee shrubland and sedgeland in restricted coastal locations	Possible, habitat on road reserve very disturbed, potentially present further from verges.
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						

Fauna

The Environment Protection and Biodiversity Conservation (EPBC) Act "Matters of Environmental Significance"; Atlas of Living Australia (AoLA); and BDBSA databases searches identified eight threatened species recorded within 5km of the proposed impact site since 1995. Seven were excluded (pelagic, marine or aquatic dependent species, or subspecies not from the region assessed (EPBC Act) ssp (Yellow-throated Miner)). The remaining includes one NPW Act V species (Australian Bustard). See Appendix 1 for the full list of threatened species recorded.

The likelihood of the listed fauna finding habitat at the site is as follows:

Likelihood of Occurrence	No. of Species
Highly likely/known	0
Likely	0
Possible	0
Unlikely	1

Fauna species observed on site, or recorded within 5km 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
Ardeotis australis (Australian Bustard)	V	-	3	2017	Dry plains, open woodlands, favoring tussock and hummock grasslands, sometimes seen on farmland and golf courses.	Unlikely - a single record in paddocks to the east of the site. Unlikely to find critical habitat among the road side vegetation.
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

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.

The cumulative impacts must consider all the clearance that is likely to result from the application, including the following;

- *clearance directly required for the development (e.g. access, building footprints, associated infrastructure – power and water, etc.),* all associated clearance including shoulder sealing, curve widening, culvert extension , guard rail installation and side road apron impact, plus the CAZ has been included in the impact tally. The MAZ is not included in the impact.
- *subsequent clearance that will be permitted or required (e.g. 10m around a building, 20m around a dwelling, clearance for fire protection),* not applicable it this case, no buildings or fences are proposed.
- *indirect clearance that may occur as a result of the development (e.g. dust generation smoothing vegetation, altered hydrology inundating or drying vegetation, impacting on tree root zones (the application of fill) impacting on tree health),* all associated and indirect impacts have been included in the tally.
- *future stages or associated components of a development (noting, the clearance for future stages of a development does not need to be assessed as part of this application, only discussed to provide the NVC with the full context of the proposed clearance).* There are no future stages proposed, however another upgrade on the Upper Yorke Road, (Kulpara to Arthurton) has been assessed separately.

4.4 Address the Mitigation Hierarchy

a) ***Avoidance – outline measures taken to avoid clearance of native vegetation***
There are no options to relocate the project. The project scope has been reviewed in light of the impact. Stack site locations have been removed from the scope, and a review of the required distance from CL for shoulder sealing and curves has resulted in a reduction of impacts from 2.085ha to 1.2602ha.

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).***
A review of the design or scale of works has significantly reduced impact and these have been incorporated into this data report.

c) ***Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimized, such as allowing for the re-establishment of the vegetation.***
Rehabilitation is not feasible at the site – the offset payment will be made to compensate for the loss of biodiversity.

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 full SEB offset required will be met via payment into the NV fund.

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

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

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	No threatened species were noted, nor are consider likely to find suitable habitat amongst the vegetation assessed. Patches; Threatened Fauna Score – 0.04 (all) Unit biodiversity Score 158.03 (total) Trees; Fauna Habitat Score 1.8 (all) Total Biodiversity Score -3.92	Seriously at Variance Vegetation Association VA1 & Scattered Trees At Variance – N/A	Impact Significance – impact is largely confined to root systems in a narrow strip of vegetation on the road verge and is unlikely to negatively affect the long term viability of the population.

Principle 1c - plants of a rare, vulnerable or endangered species	the State rare listed *Geijera parviflora* was present in the vegetation associations assessed, but not within the impact zone. Other more cryptic plant species may be present in the better patches, but if present are unlikely to be impacted by the narrow band of works on the edge of the road shoulder. Threatened Flora Score(s) VA1- 0.04 Others - 0	Seriously at Variance N/A At Variance – VA1	Impact significance - the project is unlikely to impact the threatened species, individuals of which are located outside the works footprint.
Principle 1d - vegetation of a that is Rare, Vulnerable or Endangered plant community	No threatened communities under the EPBC Act or threatened ecosystems under the DEW Provisional list of threatened ecosystems were observed on site. Threatened Community Score 1 (all)	Seriously at Variance N/A	

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	3
	Area (ha)	1.2602
	Total biodiversity Score	65.37
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b)
Risk assessment outcome		Level 4

5. Clearance summary

Clearance Area(s) Summary table

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
VA1	1	28	1	0.04	0.04	52.11	1.0002	52.12	1			54.73	$29,404.52	$1,617.25
VA2	1	15	1	0	0.04	35.16	0.0185	0.65	1			0.68	$366.97	$20.18
VA3	1	15	1	0	0.04	36.36	0.1915	6.96	1			7.31	$3,928.25	$216.05
VA4	1	15	1	0	0.04	34.4	0.05	1.72	1			1.81	$970.36	$53.37
						Total	**1.2602**	**61.453822**				**64.53**	**$34,670.10**	**$1,906.86**

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	Admin Fee
1	1	1.8	0	0.52	1	0.55	$293.37	$16.14
2	1	1.8	0	1.23	1	1.29	$693.92	$38.17
3	1	1.8	0	2.17	1	2.28	$1,224.24	$67.33
Total	**3**			**3.92**		**4.12**	**$2,211.53**	**$121.63**

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	65.37	68.64	$36,881.62	$2,028.49	**$38,910.11**

Economies of Scale Factor	0.5
Rainfall (mm)	360

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) **$38,910.11**

7. Appendices

Appendix 1. Flora and Fauna Species List

Data sourced from PMST and BDBSA database searches based on species known to occur (EPBC Act) and within the 5km buffer, since 1995.

FAMILY NAME	SPECIES	COMMON NAME	NATIONAL RATING	STATE RATING	DATE OF LAST RECORD	
AMARANTHACEAE	Maireana rohrlachii	Rohrlach's Bluebush		R	02-Jan-1998	
ORCHIDACEAE	Caladenia macroclavia	Large-club Spider-orchid	EN	E	28-Sep-2002	
RUTACEAE	Geijera parviflora	Wilga		R	22-Mar-2001	
ORCHIDACEAE	Caladenia brumalis	Winter Spider-orchid	VU		PMST	

CLASS NAME	SPECIES	COMMON NAME	NATIONAL RATING	STATE RATING	DATE OF LAST RECORD	
AVES	Ardeotis australis	Australian Bustard		V	30-May-2017	LIKELY
AVES	Egretta sacra sacra	Pacific Reef Heron		R	09-Mar-2006	UN
AVES	Pandion haliaetus cristatus	Eastern Osprey		E	16-Mar-2016	UN
AVES	Calidris ferruginea	Curlew Sandpiper	CR			UN
AVES	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover		EN	PMST	UN
AVES	Calidris canutus	Red Knot, Knot	EN		PMST	UN
AVES	Thalassarche steadi	White-capped Albatross	VU		PMST	UN

Highlighted species excluded due to no suitable habitat or ssp not found in this region

Listed Threatened Species [Resource Information]

Species ID	Scientific Name	Common Name	Class	Simple Presence	Presence Text	Threatened Category	Buffer Status
847	*Numenius*	Eastern Curlew, Far	Bird	Known	Species or species	Critically Endangered	In feature area
856	*Calidris ferruginea*	Curlew Sandpiper	Bird	Known	Species or species	Critically Endangered	In feature area
1768	*Dermochelys coriacea*	Leatherback Turtle,	Reptile	Known	Foraging, feeding or	Endangered	In feature area
40	*Eubalaena australis*	Southern Right Whale	Mammal	Known	Breeding known to	Endangered	In buffer area only
1763	*Caretta caretta*	Loggerhead Turtle	Reptile	Known	Species or species	Endangered	In feature area
879	*Charadrius mongolus*	Lesser Sand Plover,	Bird	Known	Species or species	Endangered	In buffer area only
55012	*Caladenia macroclavia*	Large-club Spider-	Plant	Known	Species or species	Endangered	In feature area
855	*Calidris canutus*	Red Knot, Knot	Bird	Known	Species or species	Endangered	In feature area
64470	*Carcharodon*	White Shark, Great	Shark	Known	Species or species	Vulnerable	In buffer area only
64462	*Thalassarche steadi*	White-capped	Bird	Known	Foraging, feeding or	Vulnerable	In feature area
54993	*Caladenia brumalis*	Winter Spider-orchid	Plant	Known	Species or species	Vulnerable	In feature area

PMST search results snipped from excel report.

Appendix 2. Bushland and Scattered Tree Vegetation Assessment Scoresheets

VA1 Scoresheet

Vegetation Condition Scores

SITE:	Sites: aggregated SS sites, Side Roads, Culverts and Curves
BCM COMMUNITY	YP 4 Mallee with a Sclerophyll Shrub Understorey with Broombush and/or Mallee Honey myrtle
VEGETATION ASSOCIATION DESCRIPTION	*Eucalyptus gracilis/E. brachycalyx/E. oleosa mid mallee woodland*
SIZE OF SITE (Ha)	1.0002

Benchmarked attributes
(Scores determined by comparing to a Benchmark community)

Number of Native Species (Minus herbaceous annuals for spring Surveys)	49
Native Plant Species Diversity Score (max 30) from benchmark score *weighted by a factor of 2*	28.0
Number of regenerating native species	6
Regeneration Score (max 12) from benchmark community weighted by a factor of 1.5	7.5

Weed species (Top 5 Cover x Invasiveness)	Cover (max 6)	Weed Threat Rating (max 5)	C x I
Asteriscus spinosus	2	2	4
Carrichtera annua	1	2	2
Reichardia tingitana	1	2	2
Salvia verbenaca var.	2	2	4
Asparagus asparagoides forma	1	5	5
Cover x Threat			17
Weed Score (max 15) from benchmark community			4

Native Plant Life Forms	Cover rating
Trees > 15m	
Trees 5 - 15 m	1
Trees < 5m	
Mallee > 5m	3
Mallee < 5m	2
Shrubs > 2m	3
Shrubs 0.5 - 2m	3
Shrubs < 0.5	3
Forbs	
Mat Plants	
Grasses > 0.2m	
Grasses < 0.2m	1
Sedges > 1m	
Sedges < 1m	1
Hummock grasses	
Vines, scramblers	1
Mistletoe	
Ferns	
Grass-tree	
Total	18
Native Plant Life Forms (max 20) from benchmark score *weighted by a factor of 2*	14.0

Non-Benchmarked Attributes
(Scores determined from direct field observations)

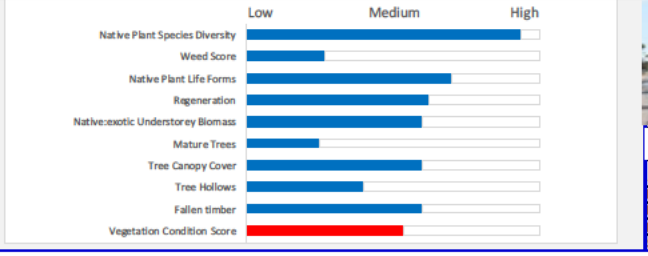
Native:exotic Understorey biomass Score (max 5)	3

Is the community naturally treeless?	☐
Fallen Timber/Debris (max 5)	3
Hollow-bearing trees Score (max 5)	2
Mature Tree Score (max 8)	2
Tree Canopy Cover Score (max 5)	3

Vegetation Condition Score calculation

Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms
Fallen timber/debris + Hollow-bearing trees
- If the community Score is Not Benchmarked (SNB) for regeneration this score is multiplied 1.24
- If the community is naturally treeless this score is multiplied by 1.29

	56.50
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	19.00
VEGETATION CONDITION SCORE (Positive veg attributes x ((80 - Negative vegetation attributes) / 80))	43.08



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) **Vulnerable** community (0.35 pts)	☐
Nationally (EPBC Act) **Endangered or Critically Endangered** community (0.4 pts)	☐
Note; all sites will score a minimum Conservation Significance Score of 1 **Threatened Community Score**	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)	1
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 = 0.16 pts; 20 or > = 0.2 pts	1
Threatened Flora Score	0.04

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)	0
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)	0
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	2.5
Threatened Fauna Score	0.04
CONSERVATION SIGNIFICANCE SCORE	1.08

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	1.12
VEGETATION CONDITION SCORE	43.08
CONSERVATION SIGNIFICANCE SCORE	1.08

Vegetation Condition x Landscape Context x Conservation Significance = UNIT BIODIVERSITY SCORE	52.11
Total Biodiversity Score (Biodiversity Score x hectares)	52.12

Photo Point and Vegetation Survey Location

Direction of the Photo	
South	
GPS Reference	
Datum	WGS84
Zone (52, 53 or 54)	54
Easting (6 digits)	218351
Northing (7 digits)	6269582
Description	
Eucalyptus mallee woodland indicative of the impacted sites as described in the report.	

What is the purpose of Assessment? Clearance | SEB Area | Other

Assessment for Clearance

Loss Factor	1.0	Approximate hectares required	6.84
Loadings for clearance of protected areas		Economies of Scale Factor	0.5
Reductions for rehabilitation of impact site		Mean Annual rainfall for the site (mm)	355
SEB Points required	54.73	Payment into the fund (GST Exclusive)	$28,996.72
		Administration fee (GST Inclusive)	$1,594.82

VA2 Scoresheet

Vegetation Condition Scores

SITE:	VA 2, Shoulder Sealing site 2a
VEGETATION ASSOCIATION DESCRIPTION	Casuarina pauper Woodland with a shrub dominated understorey
SIZE OF SITE (Ha)	0.0185

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)	15

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)	3
Weed Score (max score of 15)	12

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

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 juvinilies present with varying age classes (12 points)	☐
Regeneration Score (Max 12)	3

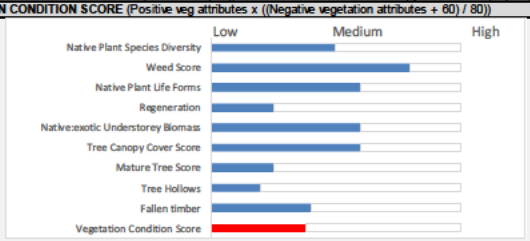
Native Plant life form

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)	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	35.00
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	11.00
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))	**30.19**



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) **Vulnerable** 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 **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)	0
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)	0
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 **Threatened Fauna Score**	2.5 / 0.04
CONSERVATION SIGNIFICANCE SCORE	1.04

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	1.12
VEGETATION CONDITION SCORE	30.19
CONSERVATION SIGNIFICANCE SCORE	1.04

Vegetation Condition x Landscape Context x Conservation Significance =	
UNIT BIODIVERSITY SCORE	35.16
Total Biodiversity Score (Biodiversity Score x hectares)	0.65

Photo Point and Vegetation Survey Location

Direction of the Photo	
South	
GPS Reference	
Datum	WGS84
Zone (52, 53 or 54)	54
Easting (6 digits)	216856
Northing (7 digits)	6272960
Description	
Casuarina pauper woodland impacted by shoulder sealing works	

Assessment for Clearance

Loss Factor	1.0
Loadings for clearance of protected areas	
Reductions for rehabilitation of impact site	
SEB Points required	0.68

Approximate hectares required	0.09
Economies of Scale factor	0.50
Mean Annual rainfall for the site (mm)	365
Payment into the fund (GST Exclusive)	$372.09
Administration fee (GST Inclusive)	$20.46

VA 3 Scoresheet

Vegetation Condition Scores

SITE:	VA3, Shoulder Sealing sites 4a, 5a, 16a aggregated
VEGETATION ASSOCIATION DESCRIPTION	Mallee with an open chenopods and sclerophyllous shrub understorey
SIZE OF SITE (Ha)	0.1915

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)	15

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)	1
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)	10.5

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

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

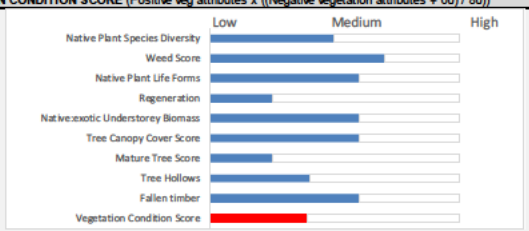
All strata of vegetation heavily impacted and native vegetation represented by only scattered plants (4 points)	☐
All strata of vegetation impacted with limited structural diversity, largely uniform age classes and reduced vegetation cover (8 points)	☐
At least one strata of vegetation has been impacted, 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)	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

	37.00
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	12.50
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))	31.22



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) **Vulnerable** 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 **Threatened Flora Score**	0

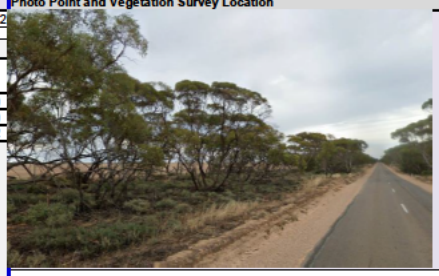
Potential habitat for Threatened Fauna Species (number observed or previously recorded)	Number
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species observed or locally recorded (1 pt each)	0
State **Vulnerable** 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)	0
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 **Threatened Fauna Score**	2.5 0.04
CONSERVATION SIGNIFICANCE SCORE	1.04

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	1.12
VEGETATION CONDITION SCORE	31.22
CONSERVATION SIGNIFICANCE SCORE	1.04

Vegetation Condition x Landscape Context x Conservation Significance =	
UNIT BIODIVERSITY SCORE	36.36
Total Biodiversity Score (Biodiversity Score x hectares)	6.96

Photo Point and Vegetation Survey Location



Direction of the Photo	
South	
GPS Reference	
Datum	WGS84
Zone (52, 53 or 54)	54
Easting (6 digits)	220066
Northing (7 digits)	6265654
Description	
Mallee woodland with chenopod understorey, impacted by shoulder sealing	

Assessment for Clearance

Loss Factor	1.0
Loadings for clearance of protected areas	
Reductions for rehabilitation of impact site	
SEB Points required	7.31

Approximate hectares required	0.91
Economies of Scale factor	0.50
Mean Annual rainfall for the site (mm)	365
Payment into the fund (GST Exclusive)	$3,983.20
Administration fee (GST Inclusive)	$219.08

VA 4 Scoresheet

Vegetation Condition Scores

SITE:	VA4, Shoulder Sealing sites 17a, 18 and 19 aggregated
VEGETATION ASSOCIATION DESCRIPTION	Callitris gracilis Woodland with a shrub dominated understorey
SIZE OF SITE (Ha)	0.05

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)	15

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 juvinlles present with varying age classes (12 points)	☐
Regeneration Score (Max 12)	3

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)	1
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)	10.5

Native Plant life form

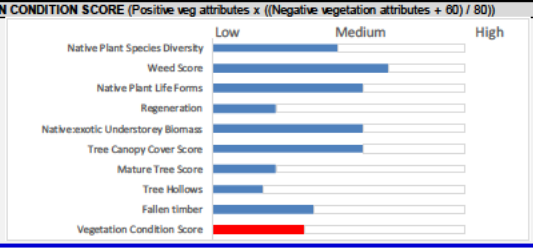
All strata of vegetation heavily impacted and native vegetation represented by only scattered plants (4 points)	☐
All strata of vegetation impacted with limited structural diversity, largely uniform age classes and reduced vegetation cover (8 points)	☐
At least one strata of vegetation has been impacted, 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

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

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	35.00
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	12.50
VEGETATION CONDITION SCORE (Positive veg attributes x ((Negative vegetation attributes + 60) / 80))	29.53



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) **Vulnerable** 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 **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)	0
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)	0
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 **Threatened Fauna Score**	2.5 0.04
CONSERVATION SIGNIFICANCE SCORE	1.04

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	1.12
VEGETATION CONDITION SCORE	29.53
CONSERVATION SIGNIFICANCE SCORE	1.04

Vegetation Condition x Landscape Context x Conservation Significance =	
UNIT BIODIVERSITY SCORE	34.40
Total Biodiversity Score (Biodiversity Score x hectares)	1.72

Photo Point and Vegetation Survey Location

Direction of the Photo	
South	
GPS Reference	
Datum	WGS84
Zone (52, 53 or 54)	54
Easting (6 digits)	220887
Northing (7 digits)	6253547
Description	
Callitirs gracilis woodland impacted by shoulder sealing	

Assessment for Clearance

Loss Factor	1.0
Loadings for clearance of protected areas	
Reductions for rehabilitation of impact site	
SEB Points required	1.81

Approximate hectares required	0.23
Economies of Scale factor	0.50
Mean Annual rainfall for the site (mm)	365
Payment into the fund (GST Exclusive)	$983.78
Administration fee (GST Inclusive)	$54.11

Scattered Tree Scoresheet

SEB Required for Scattered Trees

(Version - 28 July 2023)

Landscapes Region	N&Y
Mean Annual Rainfall (mm)	352
Economies of Scale factor	0.5
IBRA Association	Wokurna

Total Biodiversity Score	3.92
Total SEB Points required	4.12
Payment $ (GST exclusive	$2,164.44
Admin fee (GST inclusive)	$119.04
Total SEB $ required	$2,283.48

Tree Species	Number of Trees (total)	Number of trees (proposed removed)	Number of trees (proposed pruning)	Total SEB Points required	Payment in NV Fund (GST Exclusive)	Administration fee (GST Inclusive)	Total
Casuarina pauper	1	1	0	0.54	$285.99	$15.73	$301.72
Eucalyptus phenax ssp.	2	2	0	3.58	$1,878.44	$103.31	$1,981.76
0	0	0	0	0.00	$0.00	$0.00	$0.00