

Appendix 4: Native Vegetation Clearance

Kimba Intersection

Data Report

Clearance under the *Native Vegetation Regulations 2017*

July 2021

Prepared by Tim Milne, T&M Ecologists



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1. Application information

Application Details

Applicant:	Department for Infrastructure and Transport (Note: This application was drafted by CPB Contractors, Head Contractor and member of the Port Wakefield to Port Augusta Alliance, which were contracted by the Commissioner of Highways for the design of the proposed Kimba Intersection Upgrade and Rest Area project).		
Key contact:	Catherine Gray, Senior Environmental Advisor, DIT. Telephone 08 8402 1874 Email Catherine.gray@sa.gov.au		
Landowner:	The Commissioner of Highways		
Site Address:	Eyre Highway, Kimba Junction. Road No. 2000 (RRD795.9 – 796.2) Section: Intersection of Eyre Highway and Cowell-Kimba Road, Southeast of Kimba town centre.		
Local Government Area:	District Council of Kimba	Hundred:	Solomon
Title ID:	Road Reserve CT/5833/145 CT/5670/486 CT/5428/912	Parcel ID	Road Reserve H501100 S236 H501100 S125 D38941 A101

Summary of proposed clearance

Purpose of clearance	Clearance required for removal of decommissioned level crossing (intersection upgrade) and construction of heavy vehicle rest area, Kimba.
Native Vegetation Regulation	<i>Regulation 12(32) – Works on behalf of Commissioner of Highways</i>
Description of the vegetation under application	The vegetation in the impact area comprises a combination of planted amenity trees with no native understorey, sections of remnant mallee with understorey generally in moderate to good condition, and areas of revegetation with a mix of indigenous and non-indigenous native species with scattered remnant mallees, principally <i>Eucalyptus brachycalyx</i> . These areas of mixed revegetation generally support some level of remnant native understorey, with <i>Atriplex stipitata</i> , <i>Maireana brevifolia</i> and <i>Enchylaena tomentosa</i> the most abundant species. The areas considered to be remnant native vegetation as per the <i>Native Vegetation Act 1991</i> are shown in the Figure below.
Total proposed clearance - area (ha) and number of trees	1.3523 hectares
Level of clearance	Level 3, escalating to Level 4 due to SAV with Principle 1(b)
Overlay (Planning and Design Code)	Native vegetation Act applies

Map of proposed clearance area



Source: Esri, DigitalGlobe, GeoEye, AeroVista, USDA, USGS, AEX, Geomatics, Airphoto, IGN, ICF, substep, and the GIS User Community

Vegetation description

- 1: Eucalyptus spp. revegetation woodland with scattered emergent remnant Eucalyptus brachycalyx and Pinus halepensis
- 2: Eucalyptus brachycalyx mallee
- Clearance envelope



Mitigation hierarchy	<p>a) Avoidance – outline measures taken to avoid clearance of native vegetation</p> <p>Multiple concept design options were considered for upgrade of Eyre Highway through Kimba. Impact on native vegetation was a key value criteria in the assessment of these options, particularly the impact on remnant <i>Eucalyptus brachycalyx</i>. Multiple concept design options had considerably more native vegetation removal than the preferred option. Accordingly, along with other factors, those other options were not progressed.</p> <p>Within detailed design activities for the preferred option, impact on native vegetation was further reduced by:</p> <ul style="list-style-type: none"> a) Reducing the project extents on each approach (i.e. tying in earlier) than the documented within the preferred concept design b) Steepening batters on the Eyre Highway western approach from 6:1 to 5:1, whilst remaining safe for car and heavy vehicle movements c) Drainage infrastructure positioned to minimise removal of vegetation. This includes realigning swales to avoid trees and match batter lines where possible to retain within the road footprint. d) Adjusting the eastern alignment to the south to negate vegetation impacts on the northern side. <p>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).</p> <p>Vegetation removal will be confirmed in the field; in some cases pruning only may be necessary.</p> <p>Where clearance cannot be avoided all reasonable measures will be taken to minimise further impacts to native vegetation during construction activities. Such measures include: delineating native vegetation to be retained with exclusion zone fencing, use of non-destructive excavation techniques where practical, education and training of site staff regarding native vegetation protection, minimisation and strict use of designated access points/routes etc, engagement of suitably qualified consultants (ecologist, arborists, fauna spotter-catchers etc), stabilisation of batters for the prevention of erosion, ongoing weed management to avoid the introduction and spread of weed species, effective dust mitigation by ongoing dust suppression and revegetation of disturbed areas. Retention and relocation of suitable hollows removed from trees is also preferred.</p> <p>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.</p> <p>The adjoining areas of roadside native vegetation impacted during construction activities and the batters will likely be rehabilitated via topsoiling and (subject to climatic conditions) hydroseed treatments. The final details of the hydroseed treatment methodology are still in development, but the intent is as follows:</p> <ul style="list-style-type: none"> a) place 100mm layer of site won topsoil;
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	<p>b) hydroseed with native hydroseed mix similar to the vegetation species composition found on site. Final species mixes will be developed in consultation with hydroseeding contractors and local seed suppliers.</p> <p>a) 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.</p> <p>Significant Environmental Benefit will be achieved by payment into the Native Vegetation Fund.</p>
SEB Offset proposal	Payment into the Native Vegetation Fund of \$19,959.10 (inc. administration fee)

2. Purpose of clearance

2.1 Description

The purpose of the proposed clearance is for the upgrade of the intersection of the Eyre Highway and the Cowell-Kimba Road in the township of Kimba.

The Eyre Highway (the Highway) is the primary road link between South Australia and Western Australia, supporting a high proportion of interstate and intrastate heavy freight vehicles. At Kimba, the Highway is discontinuous with vehicles required to travel through closely staggered intersections to remain on the Highway. Insufficient road widths make these turning movements difficult and unsafe for heavy vehicles. Accordingly, the Department for Infrastructure and Transport (The Department) has identified the need to realign the Eyre Highway through Kimba to allow for uninterrupted, continuous through movements on the Highway. The existing level crossing will be removed as the railway line has been decommissioned. This upgrade will improve safety and increase freight productivity.

In addition, there currently is no formal eastbound rest area for heavy vehicles in Kimba. The Highway has a high proportion of fatigue regulated heavy vehicles, with The Department needing to support their compliance with National Heavy Vehicle Fatigue Laws through the provision of regular, suitable rest areas. Accordingly, The Department has identified that the intersection upgrade is to include the provision of an eastbound rest area. The Plans detailing the proposed works are included as Appendix 7.1.

2.2 General location map

The general location of the site is shown in Figure 1.

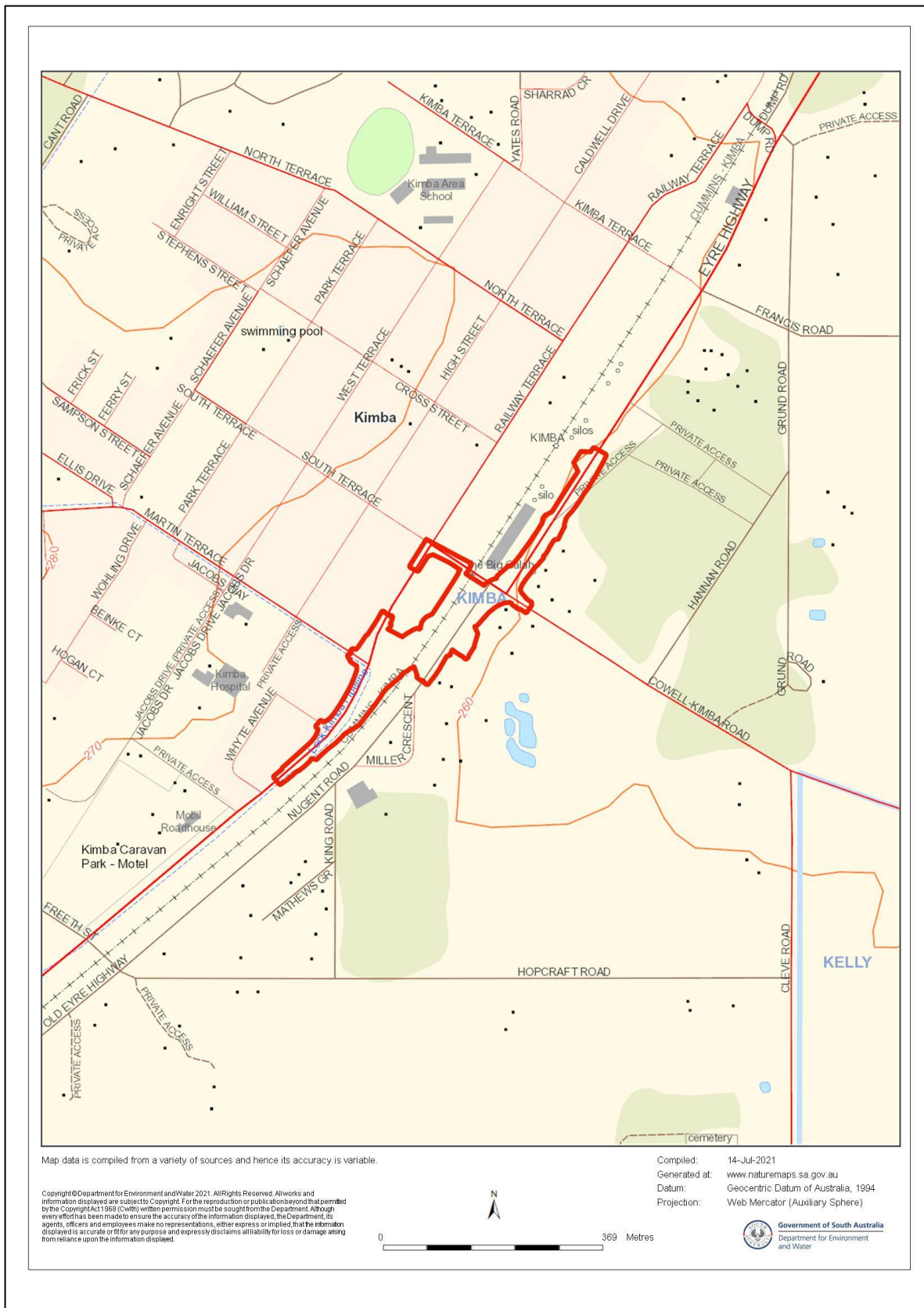


Figure 1: Location map. The proposed location of the intersection upgrade is outlined in red.



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

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0 738 Metres

Compiled: 14-Jul-2021
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 1994
Projection: Web Mercator (Auxiliary Sphere)



Government of South Australia
Department for Environment
and Water

Figure 2: Aerial photograph of the broader landscape.

2.3 Details of the proposal

The Kimba Intersection Upgrade and Rest Area project comprises the following works:

- Realignment of Eyre Highway through the proposed decommissioned railway corridor, tying into the existing western side of the Cowell-Kimba road (on the eastern approach) and the eastern side of Whyte Avenue (on the western approach).
- Martin Terrace will be extended slightly to intersect with the new Highway.
- Cowell-Kimba Road and Nugent Road will be adjusted to match into the realigned Eyre Highway at T-intersections. Channelised right turns are provided for right in movements to Martin Terrace, Nugent Road and Cowell-Kimba Road
- A new eastbound heavy vehicle rest area will be located parallel to the realigned highway within the railway reserve with two parallel parks on each side of the access road.

Design drawings are attached in Appendix 7.1.

2.4 Approvals required or obtained

Native Vegetation Act 1991

Consent to clear native vegetation under the *Native Vegetation Act 1991* is subject to this application and data report.

Native Vegetation Regulation

Regulation 12(32) – Works on behalf of Commissioner of Highways.

Development Application information (if applicable)

No Development Approval is required for the project.

3. Method

3.1 Flora assessment

Site inspection was undertaken from 15th to 17th February 2021. Data was collected using the Native Vegetation Council's Bushland Assessment methodology (June 2020). See Section 4 for details.

3.1 Fauna assessment

Database searches (Biological Database of South Australia, including Birdlife Australia data¹, and the Protected Matters Search Tool²) for State and Nationally threatened fauna species which may use the vegetation under application were undertaken, using a 5km radius from the centroid of the trees proposed for clearance.

Appendix 7.2 provides the full list of fauna species within a 5km radius and a likelihood assessment that any fauna species of conservation significance would utilize the vegetation under application is provided in Table 1 (Section 4). In addition, opportune field survey was undertaken whilst on site, with species observed noted in Appendix 7.2.

¹ This data has been sourced from the South Australian Department for Environment and Water Biological Database of SA. Recordset number DEWNRBDBSA201110-2.

² *Environment Protection & Biodiversity Conservation Act 1999*

4. Assessment Outcomes

4.1 Vegetation Assessment

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

The site lies in the Kimba Environmental Biogeographic (IBRA) Association in the Eyre Hills IBRA subregion of the Eyre Yorke Block IBRA region. There is 16% native vegetation remaining in this IBRA Association and 29% remaining in this IBRA subregion, with 31% of this remnant vegetation in the IBRA Association being protected. The centroid of the site shows a 7% vegetation cover within 5km³, indicating a relatively cleared local landscape, as also demonstrated by Figure 2, with some patches of remnant mallee and roadside vegetation occurring within a predominantly cleared landscape.

The site lies in the Buckleboo Land System, which is described as “very gently undulating plains and rises formed on Tertiary clays (Blanchetown Clay equivalent), capped by highly calcareous windblown silty sands (Woorinen Formation). There are minor deposits of Moornaba Sand as low to moderate linear sandhills, and scattered granitic outcrops protruding through the clay substrate.”. Soils are identified as “loam over poorly structured red clay”. The site is generally gently undulating, with some minor drainage lines. The southern section of the site is bisected by the Cummins to Kimba railway line (not currently in operation).

The vegetation in the impact area comprises a combination of planted amenity trees with no native understorey, sections of remnant mallee with understorey generally in moderate condition, and areas of revegetation with a mix of indigenous and non-indigenous native species with scattered remnant mallees, principally *Eucalyptus brachycalyx*. These areas of mixed revegetation generally contained some level of remnant native understorey, with *Atriplex stipitata*, *Maireana brevifolia* and *Enchylaena tomentosa* the most abundant species. The areas considered to be remnant native vegetation as per the *Native Vegetation Act 1991* are discussed in Section 4.1.1 below.

No plant species of state or national conservation significance were observed during field survey, and there are no Biological Database of South Australia records for any plant species of conservation significance in the potential impact area.

4.1.1 Details of the vegetation associates to be impacted

Figure 3 shows the remnant vegetation communities which are present within the impact area. These are discussed below.

³ Based on a Naturemaps search www.naturemaps.sa.gov.au 1/3/21



Figure 3: Areas of remnant vegetation in the impact area.

**Vegetation
Association**

**1. *Eucalyptus* spp. revegetation woodland with scattered emergent remnant
Eucalyptus brachycalyx and **Pinus halepensis***



Indicative photograph of this community, taken facing SW at 632441, 6331977 (WGS 84, Zone 53S).



Indicative photograph of this community, taken facing SW at 632727, 6332268 (WGS 84, Zone 53S).

General description	<p>This community was present principally in southern sections of the assessment area, although there was one small patch at the northern end. The overstorey was generally a mix of planted indigenous and non-indigenous native Eucalypts, but with some <i>Melaleuca</i>, <i>Callitris</i> and <i>Acacia</i> species also present. There were also scattered old remnant <i>Eucalyptus brachycalyx</i> present, some of which contained moderate to large hollows. There were also scattered emergent <i>*Pinus halepensis</i> (a Declared species), along with seedlings of the same species. The understorey was quite similar to the other sections of mallee, with the low shrubs <i>Atriplex stipitata</i>, <i>Maireana brevifolia</i> and <i>Enchylaena tomentosa</i> generally forming cumulative cover of 5-20%.</p>				
Threatened species or community	<p>May provide habitat for the following State Rare fauna species:</p> <ul style="list-style-type: none"> • White-winged Chough (<i>Corcorax melanoramphos</i>) • Purple-gaped Honeyeater (<i>Lichenostomus cratitius occidentalis</i>) • Gilbert's Whistler (<i>Pachycephala inornata</i>) <p>No plant species of conservation significance observed, and not considered to be a threatened ecological community.</p>				
Landscape context score	1.1	Vegetation Condition Score	34.41	Conservation significance score	1.04
Unit biodiversity Score	39.36	Area (ha)	1.0834	Total biodiversity Score	42.65

Vegetation Association	2. <i>Eucalyptus brachycalyx</i> mallee
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Indicative photograph of this community, taken facing SW at 632389, 6331956 (WGS 84, Zone 53S).

General description	These sections of remnant mallee were found in central sections of the assessment area (Figure 4). The mallee was identified as <i>Eucalyptus brachycalyx</i> . Trees were generally in good condition, and there were old trees with moderate to large hollows present. There was a prominent medium to large shrub layer, which includes <i>Senna artemisioides</i> ssp. <i>X coriacea</i> , <i>Geijera linearifolia</i> , <i>Exocarpos aphyllus</i> , <i>Acacia oswaldii</i> and <i>Pittosporum angustifolium</i> . The dominant understorey species were the low shrubs <i>Atriplex stipitata</i> , <i>Maireana brevifolia</i> and <i>Enchylaena tomentosa</i> , There were scattered * <i>Pinus halepensis</i> seedlings in this area, with a stand of mature specimens of this Declared species adjacent.				
Threatened species or community	<p>May provide habitat for the following State Rare fauna species:</p> <ul style="list-style-type: none"> • White-winged Chough (<i>Corcorax melanoramphos</i>) • Purple-gaped Honeyeater (<i>Lichenostomus cratitius occidentalis</i>) • Gilbert's Whistler (<i>Pachycephala inornata</i>) <p>No plant species of conservation significance observed, and not considered to be a threatened ecological community.</p>				
Landscape context score	1.1	Vegetation Condition Score	53.02	Conservation significance score	1.04
Unit biodiversity Score	60.65	Area (ha)	0.2689	Total biodiversity Score	16.31

4.2 Threatened Species assessment

Table 1 provides the results of database searches for threatened fauna undertaken within a 5km radius of the tree under application and includes the likelihood of any of these species utilizing the remnant vegetation for habitat.

Table 1: Fauna species of conservation significance list (within 5km radius) – see Appendix 7.2 for a full list.

Source: 1 = Biological Database of South Australia; 2 = EPBC Act Protected Matters Search Tool (PMST), 3 = Birdlife Australia data

Conservation status codes: CR = Critically Endangered; EN/E = Endangered; VU/V = Vulnerable; RA/R - Rare

Class	Species name	Common name	Conservation status		Source	No. of records	Date of last record	Likelihood	Rationale
			EPBC	NPW					
AVES	<i>Calidris ferruginea</i>	Curlew Sandpiper	CR	E	2	NA	NA	Unlikely	No suitable habitat or records. In Australia, Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters. ⁴ Migratory species, breeding in Northern Hemisphere, and flying to the Southern Hemisphere in the southern spring and summer.
AVES	<i>Falco hypoleucos</i>	Grey Falcon	VU	R	2	NA	NA	Unlikely	No suitable habitat or records. Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey ⁵ .
AVES	<i>Grantiella picta</i>	Painted Honeyeater	VU	R	2	NA	NA	Unlikely	No suitable habitat or records. Found in dry open forests and woodlands, and is strongly associated with mistletoe. It may also be found along rivers, on plains with scattered trees and on farmland with remnant vegetation. It has been seen in urban parks and gardens where large eucalypts are available ⁶ .
AVES	<i>Leipoa ocellata</i>	Malleefowl	VU	V	1, 2, 3			Unlikely	Mounds would have been noted if present in the site. Habitat limited and in close proximity to urban area. The Malleefowl is found principally in the semi-arid to arid zone in shrublands and low woodlands dominated by mallee and associated habitats such as Broombush <i>Melaleuca uncinata</i> and Scrub Pine <i>Callitris verrucosa</i> . Malleefowl also occur in Red Ironbark <i>E. sideroxylon</i> woodland at the eastern limit of their distribution, and in Brown Stringybark <i>E. baxteri</i> / <i>E. aranacea</i> woodland in the south of Victoria and South Australia. ⁷ Only 1 record within 5km which is 1.6km south of Kimba and is from 1900.
AVES	<i>Pedionomus torquatus</i>	Plains-wanderer	CR	E	2	NA	NA	Unlikely	No suitable habitat or records. Plains-wanderers inhabit sparse grasslands with c.50% bare ground, with most vegetation less than 5 cm in height and some widely spaced plants up to 30 cm high. The species may occasionally use lower-quality habitat including cereal stubble, but cannot persist in an

⁴ Department of the Environment (2015). Conservation Advice *Calidris ferruginea* curlew sandpiper. Canberra: Department of the Environment.

⁵ <https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10330> accessed 10/10/2018

⁶ <https://birdlife.org.au/bird-profile/painted-honeyeater>

⁷ Benshemesh, J. (2007). National Recovery Plan for Malleefowl. Department for Environment and Heritage, South Australia.

Class	Species name	Common name	Conservation status		Source	No. of records	Date of last record	Likelihood	Rationale
			EPBC	NPW					
									agricultural landscape. ⁸ No existing records occur within 5km of the project area.
AVES	<i>Rostratula australis</i>	Australian Painted Snipe	EN	E	2	NA	NA	Unlikely	No suitable habitat or records. Inhabits many different types of shallow, brackish or freshwater terrestrial wetlands, especially temporary ones which have muddy margins and small, low-lying islands. Suitable wetlands usually support a mosaic of low, patchy vegetation, as well as lignum and canegrass.
AVES	<i>Acanthiza iredalei iredalei</i>	Slender-billed Thornbill (western)		R	3	2	2/3/2017	Unlikely	Habitats considered unsuitable. Their preferred habitat includes shrublands, sometimes near mangroves, salt lakes, or salt flats. They usually choose chenopod shrublands dominated by Samphire (<i>Sarcocornia spp.</i>), Bluebush (<i>Maireana spp.</i>) or Saltbush (<i>Atriplex spp.</i>). Sometimes they have been seen in low heath on sand plains as well.
AVES	<i>Amytornis whitei aenigma</i>	Rufous Grasswren		R	1	3	21/11/1976	Unlikely	The subspecies is known only from the mallee-vegetated dune fields of the southern Yellabinna, western Eyre Peninsula. Its habitat is open scrub of mallee species, including <i>Eucalyptus yumbarrana</i> over mid and understorey shrubs and tussock grass <i>Triodia scariosa</i> . Other records of grasswrens, including specimens which resemble and are predicted to be included in this subspecies are from the mallee of the eastern Eyre Peninsula, in a similar landform and rainfall regime ⁹ .
AVES	<i>Ardeotis australis</i>	Australian Bustard		V	1	1	15/5/1999	Unlikely	Unlikely – habitats not considered favourable. Favoured habitat is open grasslands, perhaps with some trees, spinifex plains and low shrublands. This bustard will enter denser areas of vegetation after fire, and is observed on artificial cleared areas such as golf courses and farmland ¹⁰ .
AVES	<i>Biziura lobata menziesi</i>	Musk Duck		R	1	1	24/9/2018	Unlikely	Unlikely – needs wetland areas. Musk Ducks favour deep water where they dive for crustaceans, aquatic insects, fish, and amphibians, together with a small quantity of vegetation ¹¹ . One record from 2018 near the rubbish dump, sewage ponds on northern outskirts of Kimba.
AVES	<i>Cinclosoma castanotum</i>	Chestnut-backed Quailthrush		R	1	2	19/9/1925	Unlikely	Historical records only – unlikely in these small patches in close proximity to town. Inhabits the mallee and sclerophyll woodlands of the semi-arid parts of southern Australia. Everywhere the bird occurs on soils that are sandy, feeding on the ground often among spinifex ¹² .

⁸ Department of the Environment (2015). Conservation Advice *Pedionomus torquatus* plains-wanderer. Canberra: Department of the Environment.

⁹ Black, A eta al 2020. Two new but threatened subspecies of Rufous Grasswren *Amytornis whitei* (Maluridae), *Bulletin of the British Ornithologists' Club*, 140(2):151-163 (2020).

¹⁰ https://en.wikipedia.org/wiki/Australian_bustard

¹¹ <https://birdssa.asn.au/birddirectory/musk-duck/> accessed 10/10/2018.

¹² *Readers Digest Complete Book of Australian Birds, 2nd Edition 1986.*

Class	Species name	Common name	Conservation status		Source	No. of records	Date of last record	Likelihood	Rationale
			EPBC	NPW					
AVES	<i>Corcorax melanorhamphos</i>	White-winged Chough		R	1, 3	7	22/9/2018	Likely	White-winged Choughs are found in open forests and woodlands. They tend to prefer the wetter areas, with lots of leaf-litter, for feeding, and available mud for nest building ¹³ . Records occur on the outskirts of Kimba in mallee patches.
AVES	<i>Falco subniger</i>	Black Falcon		R	1	1	13/12/1988	Unlikely	Only historical record and area unlikely to form significant habitat for this species. The Black Falcon is sparsely spread in the inland and across northern, eastern, southern and central Australia. It is found along tree-lined watercourses and in isolated woodlands, mainly in arid and semi-arid areas. ¹⁴
AVES	<i>Hylacola cauta</i>	Shy Heathwren		R	1	5	17/7/1963	Unlikely	Historical records and unlikely to occur in the relatively open habitats of the areas assessed. This species inhabits mostly mallee woodland that has relatively dense shrub and heath understorey.
AVES	<i>Lichenostomus cratitius occidentalis</i>	Purple-gaped Honeyeater		R	1, 3	2	24/9/2015	Possible	May possibly feed in mallee eucalypts when in flower. Species occurs in mallee eucalypt associations, preferring mallee heathland, but also often in mallee woodland ¹⁵ .
AVES	<i>Lophochroa leadbeateri</i>	Major Mitchell's Cockatoo		R	1	1	1/1/1900	Unlikely	No recent records and habitat not considered suitable. Require extensive woodlands, particularly favouring conifers (<i>Callitris</i> spp.), sheoak (<i>Allocasuarina</i> spp.) and eucalypts. Unlike other cockatoos, Major Mitchell pairs will not nest close to one another, so they cannot tolerate fragmented, partly cleared habitats, and their range is contracting ¹⁶ .
AVES	<i>Pachycephala inornata</i>	Gilbert's Whistler		R	1, 3	5	25/11/2010	Possible	This species may possibly occur in the areas of mallee and revegetation. The species usually inhabits semi-arid mallee or box-ironbark eucalypt, acacia, cypress-pine or Belah shrublands and woodlands (or mixed assemblages of these), usually with a dense, continuous or patchy understorey of shrubs such as Acacias, Eremophila, Dodonaea or Senna; they inhabit these shrubs in the understorey. They also inhabit thickets of paperbarks, including Broombush, or mixed patches of mallee-Broombush ¹⁷ .
Reptilia	<i>Echopsis curta</i>	Bardick		R	1	1	1/1/1950	Unlikely	Considered unlikely in close proximity to urban areas, and lack of recent records. Usually found under logs or other debris on sandy or loamy soils ¹⁸ .

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

¹³ Birdlife Australia Bird Profiles (2018). <http://www.birdlife.org.au/bird-profile/white-winged-chough> accessed 10/10/2018.

¹⁴ Birdlife Australia Bird Profiles (2020). <http://www.birdlife.org.au/bird-profile/black-falcon> accessed 25/8/2020

¹⁵ <https://www.hbw.com/species/purple-gaped-honeyeater-lichenostomus-cratitius> accessed 10/10/2018/

¹⁶ https://en.wikipedia.org/wiki/Major_Mitchell%27s_cockatoo

¹⁷ <https://www.birdlife.org.au/bird-profile/gilberts-whistler>

¹⁸ Cogger, H.G. 2014. *Reptiles and Amphibians of Australia*, CSIRO Publishing, Victoria, 7th Edition.

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.

There are no cumulative impacts outside the clearances detailed in Section 4.1. No root disturbance of any other large trees will occur.

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

Multiple concept design options were considered for upgrade of Eyre Highway through Kimba. Impact on native vegetation was a key value criteria in the assessment of these options. Other concept design options had considerably more native vegetation removal than the preferred option. Accordingly, along with other factors, these were not progressed.

Within detailed design activities of the preferred option, impact on native vegetation was reduced by:

- a) Reducing the project extents on each approach (i.e. tying in earlier) than the documented within the preferred concept design
- b) Steepening batters on the Eyre Highway western approach from 6:1 to 5:1, whilst remaining safe for car and heavy vehicle movements
- c) Drainage infrastructure positioned to minimise removal of vegetation. This includes realigning swales to avoid trees and match batter lines where possible to retain within the road footprint.
- d) Adjusting the eastern alignment to the south to negate vegetation impacts on the northern side.

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).

Vegetation removal will be confirmed in the field; in some cases pruning only may be necessary.

Where clearance cannot be avoided all reasonable measures will be taken to minimise further impacts to native vegetation during construction activities. Such measures include: delineating native vegetation to be retained with exclusion zone fencing, use of non-destructive excavation techniques where practical, education and training of site staff regarding native vegetation protection, minimisation and strict use of designated access points/routes etc, engagement of suitably qualified consultants (ecologist, arborists, fauna spotter-catchers etc), stabilisation of batters for the prevention of erosion, ongoing weed management to avoid the introduction and spread of weed species, effective dust mitigation by ongoing dust suppression and revegetation of disturbed areas. Retention and relocation of suitable hollows removed from trees is also preferred.

c) Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimized, such as allowing for the re-establishment of the vegetation.

The adjoining areas of roadside native vegetation impacted during construction activities and the batters will be rehabilitated via topsoiling and (subject to climatic conditions) hydroseed treatments. The final details of the hydroseed treatment methodology are still in development, but the intent is as follows:

- place 100mm layer of site won topsoil;
- hydroseed with native hydroseed mix similar to the vegetation species composition found on site. Final species mixes will be developed in consultation with hydroseeding contractors and local seed suppliers.

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.

Significant Environmental Benefit will be achieved by payment into the Native Vegetation 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	Vegetation community 2 has a Unit Biodiversity Score of >50. Both communities scored a threatened fauna score of 1.04.	Seriously at variance At variance	This could be reduced to 'At variance' under the non-essential habitat provision – the area was considered potential habitat for three bird species considered Rare at state level. The clearance envelope is small and is considered to be non-essential habitat for these three bird species. The clearance will have a negligible impact on these species' local populations over the long term (ie next 20 to 50 years).
Principle 1c - plants of a rare, vulnerable or endangered species	No plant species of conservation significance observed in the site.	Not at variance	-
Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered:	No plant communities of conservation significance present in assessed areas.	Not at variance	-

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	-
	Area (ha)	1.3523
	Total biodiversity Score	58.96
Seriously at variance with principle 1(b), 1(c) or 1 (d)	Yes - seriously at variance with Principle 1b.	
Risk assessment outcome	Level 4	

4.7 NVC Guidelines

Provide any other information that demonstrates that the clearance complies with any relevant NVC guidelines related to the activity.

NA

5. Clearance summary

Clearance Area Summary table

Clearance summary Table - Agricultural region														
Bushland assessment														
Block	Site	Native 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
	1	21	1	0	0.04	39.364325	1.0834	42.65	1			44.78	\$13,491.33	\$742.02
	2	14	1	0	0.04	60.649875	0.2689	16.31	1			17.12	\$5,159.22	\$283.76
	3							0.00	1			0.00	\$0.00	\$0.00
	4							0.00	1			0.00	\$0.00	\$0.00
	5							0.00	1			0.00	\$0.00	\$0.00
<i>Insert additional rows into the table as required.</i>						Total	1.3523	58.9560611				61.90	\$18,650.55	\$1,025.78
IBRA Association percent vegetation remnancy (%)						16								
IBRA Subregion percent vegetation remnancy (%)						29								
Is the vegetation associated with a Wetland						No								
Economies of Scale Factor						0.35								
Rainfall (mm)						331								
		Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment								
Application		58.96	61.90	\$18,650.55	\$1,025.78	\$19,676.33								
Risk level		4												
Level 2, 3 or 4														
Principle	Seriously at variance	Vegetation Association	Trees	At variance	Vegetation Association	Trees								
a - Plant species diversity	Yes	1		Yes	2									
b - Wildlife habitat	Yes	2		Yes	1									
c - Rare plant species														
d - Rare plant communities														
e - Remnancy				Yes	All									
f - Wetland														

NOTE: There is a slight discrepancy between SEB offset dollar values calculated in this spreadsheet and the value calculated in each of the individual Bushland Assessment datasheets (Appendix 7.3). This is due to an inherent error in the formulae within these datasheets provided by the Native Vegetation Council.

6. Significant Environmental Benefit

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

ACHIEVING AN SEB

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

- Establish a new SEB Area on land owned by the proponent.
- Use SEB Credit that the proponent has established
- Apply to have SEB Credit assigned from another person or body. with this Data Report.
- Apply to have an SEB to be delivered by a Third Party.
- Pay into the Native Vegetation Fund.

7. Appendices

Appendix 7.1: Kimba Level Crossing Removal and Rest Area Design Drawings

Appendix 7.2: Fauna Species List (5km radius of the site), from Biological Database of South Australia Search (including Birdlife Australia data), including records from this survey

CLASS	SPECIES	COMMON NAME	Observed this survey	Conservation status		
				EPBC	NPWA	Region
AMPHIBIA	<i>Neobatrachus pictus</i>	Burrowing Frog				LC
AVES	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	X			LC
AVES	<i>Acanthiza apicalis</i>	Inland Thornbill				LC
AVES	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill				LC
AVES	<i>Acanthiza iredalei</i>	Slender-billed Thornbill		ssp	ssp	
AVES	<i>Accipiter cirrocephalus cirrocephalus</i>	Collared Sparrowhawk				NT
AVES	<i>Accipiter fasciatus fasciatus</i>	Brown Goshawk				NT
AVES	<i>Aegotheles cristatus cristatus</i>	Australian Owlet-nightjar				LC
AVES	<i>Amytornis whitei aenigma</i>	Rufous Grasswren (EP, southern NW)			R	RA
AVES	<i>Anas gracilis gracilis</i>	Grey Teal				
AVES	<i>Anthochaera carunculata woodwardi</i>	Red Wattlebird (MLR, AP, YP, EP, far west, Yellabinna)	X			
AVES	<i>Anthus australis</i>	Australian Pipit				LC
AVES	<i>Aphelocephala leucopsis leucopsis</i>	Southern Whiteface				NT
AVES	<i>Ardea pacifica</i>	White-necked Heron				NT
AVES	<i>Ardeotis australis</i>	Australian Bustard			V	NT
AVES	<i>Artamus cinereus</i>	Black-faced Woodswallow				NT
AVES	<i>Artamus cyanopterus</i>	Dusky Woodswallow				LC
AVES	<i>Artamus personatus</i>	Masked Woodswallow				LC
AVES	<i>Aythya australis</i>	Hardhead				VU
AVES	<i>Barnardius zonarius</i>	Australian Ringneck				LC
AVES	<i>Biziura lobata menziesi</i>	Musk Duck			R	
AVES	<i>Cacatua sanguinea sanguinea</i>	Little Corella				NT
AVES	<i>Cacomantis pallidus</i>	Pallid Cuckoo				NT
AVES	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper				NT
AVES	<i>Chalcites basalis</i>	Horsfield's Bronze Cuckoo				LC
AVES	<i>Chenonetta jubata</i>	Maned Duck				NT
AVES	<i>Cheramoeca leucosterna</i>	White-backed Swallow				NT
AVES	<i>Cincloramphus cruralis</i>	Brown Songlark				LC
AVES	<i>Cincloramphus mathewsi</i>	Rufous Songlark				NT
AVES	<i>Cinclosoma castanotum (NC)</i>	Chestnut-backed Quailthrush (Chestnut Quailthrush)			ssp	
AVES	<i>Colluricincla harmonica</i>	Grey Shrikethrush				LC
AVES	<i>Columba livia</i>	Feral Pigeon				
AVES	<i>Coracina novaehollandiae</i>	Black-faced Cuckooshrike				LC
AVES	<i>Corcorax melanorhamphos</i>	White-winged Cough			R	NT
AVES	<i>Corvus bennetti</i>	Little Crow				NT

CLASS	SPECIES	COMMON NAME	Observed this survey	Conservation status		
				EPBC	NPWA	Region
AVES	<i>Corvus coronoides</i>	Australian Raven	X			LC
AVES	<i>Corvus mellori</i>	Little Raven				LC
AVES	<i>Corvus sp.</i>	Crows				
AVES	<i>Cracticus torquatus leucopterus</i>	Grey Butcherbird				LC
AVES	<i>Daphoenositta chrysoptera pileata</i>	Black-capped Sittella				NT
AVES	<i>Dicaeum hirundinaceum hirundinaceum</i>	Mistletoebird				NT
AVES	<i>Dromaius novaehollandiae</i>	Emu		ssp	ssp	LC
AVES	<i>Drymodes brunneopygia</i>	Southern Scrub Robin				LC
AVES	<i>Egretta novaehollandiae</i>	White-faced Heron				LC
AVES	<i>Elanus axillaris</i>	Black-shouldered Kite				RA
AVES	<i>Eseyornis melanops</i>	Black-fronted Dotterel				VU
AVES	<i>Eolophus roseicapilla</i>	Galah	X			LC
AVES	<i>Eopsaltria griseogularis rosinae</i>	Western Yellow Robin				LC
AVES	<i>Erythronyctes alba</i>	Red-kneed Dotterel				NT
AVES	<i>Falco berigora</i>	Brown Falcon				LC
AVES	<i>Falco cenchroides</i>	Nankeen Kestrel				LC
AVES	<i>Falco subniger</i>	Black Falcon			R	EN
AVES	<i>Fulica atra</i>	Eurasian Coot				RA
AVES	<i>Gavialis vireescens</i>	Singing Honeyeater	X			LC
AVES	<i>Geopelia placida placida</i>	Peaceful Dove	X			VU
AVES	<i>Grallina cyanoleuca</i>	Magpielark	X			LC
AVES	<i>Gymnorhina tibicen</i>	Australian Magpie				LC
AVES	<i>Haliastur sphenurus</i>	Whistling Kite				EN
AVES	<i>Himantopus leucocephalus</i>	White-headed Stilt				RA
AVES	<i>Hirundo neoxena neoxena</i>	Welcome Swallow				LC
AVES	<i>Hylacola cauta</i>	Shy Heathwren			ssp	LC
AVES	<i>Lalage tricolor</i>	White-winged Triller				NT
AVES	<i>Leipoa ocellata</i>	Malleefowl		VU	V	VU
AVES	<i>Lichenostomus cratitius</i>	Purple-gaped Honeyeater			ssp	LC
AVES	<i>Lophochroa leadbeateri</i>	Major Mitchell's Cockatoo			R	VU
AVES	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck				NT
AVES	<i>Malurus assimilis assimilis</i>	Purple-backed Fairywren	X			LC
AVES	<i>Malurus pulcherrimus</i>	Blue-breasted Fairywren				LC
AVES	<i>Malurus splendens</i>	Splendid Fairywren	X			LC
AVES	<i>Manorina flavigula</i>	Yellow-throated Miner	X	ssp	ssp	LC
AVES	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater				LC
AVES	<i>Melopsittacus undulatus</i>	Budgerigar				VU
AVES	<i>Merops ornatus</i>	Rainbow Bee-eater				RA

CLASS	SPECIES	COMMON NAME	Observed this survey	Conservation status		
				EPBC	NPWA	Region
AVES	<i>Microcarbo melanoleucos melanoleucos</i>	Little Pied Cormorant				NT
AVES	<i>Microeca fascinans</i>	Jacky Winter			ssp	NT
AVES	<i>Nesoptilotis leucotis</i>	White-eared Honeyeater				LC
AVES	<i>Ninox boobook</i>	Australian Boobook				LC
AVES	<i>Nymphicus hollandicus</i>	Cockatiel				VU
AVES	<i>Ocyphaps lophotes</i>	Crested Pigeon	X			LC
AVES	<i>Pachycephala inornata</i>	Gilbert's Whistler			R	RA
AVES	<i>Pachycephala pectoralis</i>	Australian Golden Whistler				LC
AVES	<i>Pachycephala rufiventris rufiventris</i>	Rufous Whistler	X			
AVES	<i>Pardalotus punctatus</i>	Spotted Pardalote				LC
AVES	<i>Pardalotus striatus substriatus</i>	Striated Pardalote	X			LC
AVES	<i>Parvipsitta porphyrocephala</i>	Purple-crowned Lorikeet				NT
AVES	<i>Passer domesticus domesticus</i>	House Sparrow				
AVES	<i>Pelecanus conspicillatus</i>	Australian Pelican				NT
AVES	<i>Petrochelidon ariel</i>	Fairy Martin				NT
AVES	<i>Petrochelidon nigricans</i>	Tree Martin				LC
AVES	<i>Petroica goodenovii</i>	Red-capped Robin				LC
AVES	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant				NT
AVES	<i>Phaps chalcoptera</i>	Common Bronzewing				LC
AVES	<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater				LC
AVES	<i>Platalea flavipes</i>	Yellow-billed Spoonbill				NT
AVES	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe				NT
AVES	<i>Pomatostomus superciliosus</i>	White-browed Babbler				LC
AVES	<i>Psephotellus varius</i>	Mulga Parrot				LC
AVES	<i>Ptilotula ornata</i>	Yellow-plumed Honeyeater	X			LC
AVES	<i>Ptilotula penicillata</i>	White-plumed Honeyeater				
AVES	<i>Purnella albifrons</i>	White-fronted Honeyeater				LC
AVES	<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet				VU
AVES	<i>Rhipidura albiscapa</i>	Grey Fantail	X			LC
AVES	<i>Rhipidura leucophrys leucophrys</i>	Willie Wagtail				LC
AVES	<i>Smicrornis brevirostris</i>	Weebill	X			LC
AVES	<i>Spilopelia chinensis</i>	Spotted Dove				0
AVES	<i>Strepera versicolor</i>	Grey Currawong			ssp	LC
AVES	<i>Sturnus vulgaris vulgaris</i>	Common Starling				
AVES	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe				VU
AVES	<i>Tribonyx ventralis</i>	Black-tailed Nativehen				LC
AVES	<i>Turdus merula merula</i>	Common Blackbird				
AVES	<i>Vanellus miles</i>	Masked Lapwing	X			LC

CLASS	SPECIES	COMMON NAME	Observed this survey	Conservation status		
				EPBC	NPWA	Region
AVES	<i>Vanellus tricolor</i>	Banded Lapwing				NT
AVES	<i>Zosterops lateralis</i>	Silvereye				LC
MAMMALIA	<i>Cercartetus concinnus</i>	Western Pygmy-possum				LC
MAMMALIA	<i>Macropus fuliginosus</i>	Western Grey Kangaroo				LC
MAMMALIA	<i>Notomys mitchellii</i>	Mitchell's Hopping-mouse				LC
MAMMALIA	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat				LC
MAMMALIA	<i>Rattus rattus</i>	Black Rat (Ship Rat, Roof Rat)				
MAMMALIA	<i>Vespadelus regulus</i>	Southern Forest Bat				LC
REPTILIA	<i>Anilius bituberculatus</i>	Rough-nosed Blind Snake				RA
REPTILIA	<i>Demansia reticulata</i>	Desert Whipsnake				RA
REPTILIA	<i>Diplodactylus calcicolus</i>	South Coast Stone Gecko				
REPTILIA	<i>Echiopsis curta</i>	Bardick			R	RA
REPTILIA	<i>Hemiergis initialis</i>	Western Earless Skink				RA
REPTILIA	<i>Lerista dorsalis</i>	Southern Four-toed Slider				LC
REPTILIA	<i>Lerista edwardsae</i>	Myall Slider				LC
REPTILIA	<i>Moloch horridus</i>	Thorny Devil				RA
REPTILIA	<i>Nephrurus stellatus</i>	Starred Knob-tailed Gecko				LC
REPTILIA	<i>Pseudonaja affinis</i>	Dugite				RA
REPTILIA	<i>Simoselaps bertholdi</i>	Desert Banded Snake				RA
REPTILIA	<i>Tiliqua rugosa</i>	Sleepy Lizard				LC
REPTILIA	<i>Tiliqua scincoides</i>	Eastern Bluetongue				RA

**Appendix 7.3: Scattered Tree Assessment Scoresheets associated with the proposed clearance and SEB Area
(to be submitted in Excel format)**

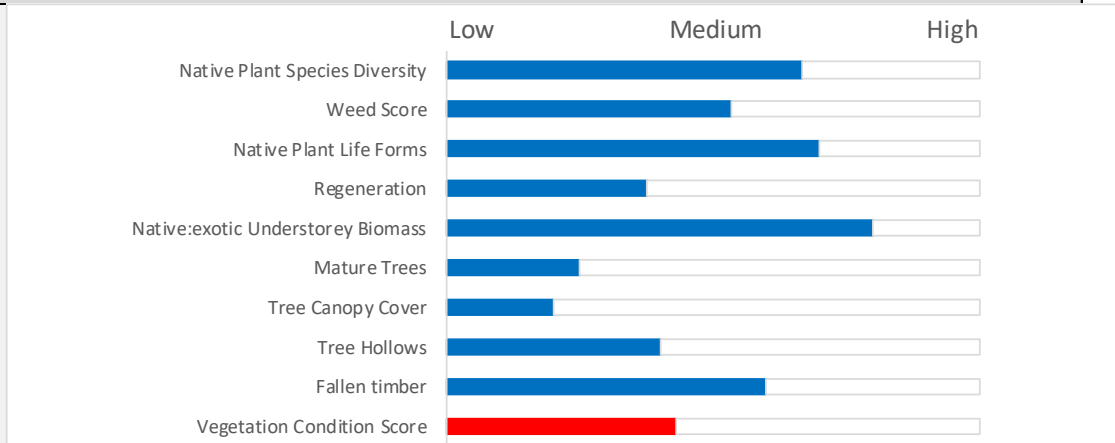
Vegetation Condition Scores

SITE:	Kimba site 1
BCM COMMUNITY	EP 8.1 Mallee & Low Woodlands with Open Sclerophyll Shrub & Chenopod Understorey
VEGETATION ASSOCIATION DESCRIPTION	Eucalyptus spp. revegetation woodland with scattered emergent remnant
SIZE OF SITE (Ha)	1.0834

Benchmarked attributes (Scores determined by comparing to a Benchmark community)				Native Plant Life Forms	Cover rating
Number of Native Species (Minus herbaceous annuals for spring Surveys)				Trees > 15m	
21				Trees 5 - 15 m	
Native Plant Species Diversity Score (max 30) from benchmark score <i>weighted by a factor of 2</i>				Trees < 5m	1
20.0				Mallee > 5m	1
Number of regenerating native species				Mallee < 5m	1
Regeneration Score (max 12) from benchmark community weighted by a factor of 1.5				Shrubs > 2m	1
4.5				Shrubs 0.5 - 2m	2
Weed species (Top 5 Cover x Invasiveness)				Shrubs < 0.5	3
	Cover (max 6)	Weed Threat Rating (max 5)	C x I	Forbs	1
Pinus halepensis	2	3	6	Mat Plants	
Chondrilla juncea	1	2	2	Grasses > 0.2m	1
Marrubium vulgare	1	3	3	Grasses < 0.2m	2
Gazania linearis	1	3	3	Sedges > 1m	
Carrichtera annua	1	2	2	Sedges < 1m	
Cover x Threat			16	Hummock grasses	
Weed Score (max 15) from benchmark community				Vines, scramblers	
8				Mistletoe	
Native Plant Life Forms (max 20) from benchmark score <i>weighted by a factor of 2</i>				Ferns	
				Grass-tree	
				Total	13
					14.0

Non-Benchmarked Attributes (Scores determined from direct field observations)		<i>Is the community naturally treeless?</i>	<input type="checkbox"/>
Native:exotic Understorey biomass Score (max 5)		Fallen Timber/Debris (max 5)	3
4		Hollow-bearing trees Score (max 5)	2
		Mature Tree Score (max 8)	2
		Tree Canopy Cover Score (max 5)	1

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	45.50
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	19.50
VEGETATION CONDITION SCORE (Positive veg attributes x ((80 - Negative vegetation attributes) / 80))	34.41



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)	<input type="checkbox"/>
State (Provisional List of Threatened Ecosystems of SA) Vulnerable community (0.2 pts)	<input type="checkbox"/>
State (Provisional List of Threatened Ecosystems of SA) Endangered community (0.3 pts)	<input type="checkbox"/>
Nationally (EPBC Act) Vulnerable community (0.35 pts)	<input type="checkbox"/>
Nationally (EPBC Act) Endangered or Critically Endangered community (0.4 pts)	<input type="checkbox"/>
<i>Note; all sites will score a minimum Conservation Significance Score of 1</i> Threatened Community Score	1

Number of Threatened Flora Species recorded for the site (within the site)	Number
<i>*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.</i>	
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 = 0.16 pts; 20 or > = 0.2 pts	0
Threatened Flora Score	0

Potential habitat for Threatened Fauna Species (number observed or previously recorded)	Number
<i>*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.</i>	
State Rare species observed or locally recorded (1 pt each)	3
State Vulnerable species observed or locally recorded (2.5 pt each)	0
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	3
Threatened Fauna Score	0.04

CONSERVATION SIGNIFICANCE SCORE **1.04**

Total Scores for the Site		Vegetation Condition x Landscape Context x Conservation Significance =	
LANDSCAPE CONTEXT SCORE	Score 1.10	UNIT BIODIVERSITY SCORE	39.36
VEGETATION CONDITION SCORE	34.41	Total Biodiversity Score	
CONSERVATION SIGNIFICANCE SCORE	1.04	(Biodiversity Score x hectares)	42.65

Photo Point and Vegetation Survey Location	Direction of the Photo
	Southwest
	GPS Reference
	Datum WGS84
	Zone (52, 53 or 54) 53
	Easting (6 digits) 632441
	Northing (7 digits) 6331977
	Description

What is the purpose of Assessment?

Clearance

SEB Area

Other

Assessment for Clearance		Approximate hectares required	
Loss Factor	1.0		5.60
Loadings for clearance of protected areas		Economies of Scale Factor	0.35
Reductions for rehabilitation of impact site		Mean Annual rainfall for the site (mm)	331
SEB Points required	44.78	Payment into the fund (GST Exclusive)	\$19,685.22
		Administration fee (GST Inclusive)	\$752.69

Plant Species Recorded (Native and Introduced)		Listed Species			Natives only		Introduced Species
Species	Common Name	EPBC	SA	Not in quadrat	Regen	Annual Herbs Spring survey	
<i>Acacia halliana</i>	Hall's Wattle						
<i>Acacia ligulata</i>	Umbrella Bush						
<i>Acacia oswaldii</i>	Umbrella Wattle						
<i>Acacia sclerophylla</i> var. <i>sclerophylla</i>	Hard-leaf Wattle						
<i>Atriplex stipitata</i>	Bitter Saltbush				Yes		
<i>Austrostipa elegantissima</i>	Feather Spear-grass						
<i>Austrostipa</i> sp.	Spear-grass						
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush				Yes		
<i>Eucalyptus brachycalyx</i>	Gilja						
<i>Geijera linearifolia</i>	Sheep Bush						
<i>Lomandra effusa</i>	Scented Mat-rush						
<i>Maireana pentatropis</i>	Erect Mallee Bluebush						
<i>Melaleuca lanceolata</i>	Dryland Tea-tree						
<i>Roepera apiculata</i>	Pointed Twinleaf						
<i>Roepera aurantiaca</i> ssp. <i>aurantiaca</i>	Shrubby Twinleaf						
<i>Rytidosperma</i> sp.	Wallaby-grass						
<i>Sclerolaena obliquicuspis</i>	Oblique-spined Bindyi						
<i>Sclerolaena uniflora</i>	Small-spine Bindyi						
<i>Senna artemisioides</i> ssp. <i>X coriacea</i>	Broad-leaf Desert Senna						
<i>Vittadinia</i> sp.	New Holland Daisy						
<i>Walwhalleya proluta</i>	Rigid Panic						

Vegetation Condition Scores

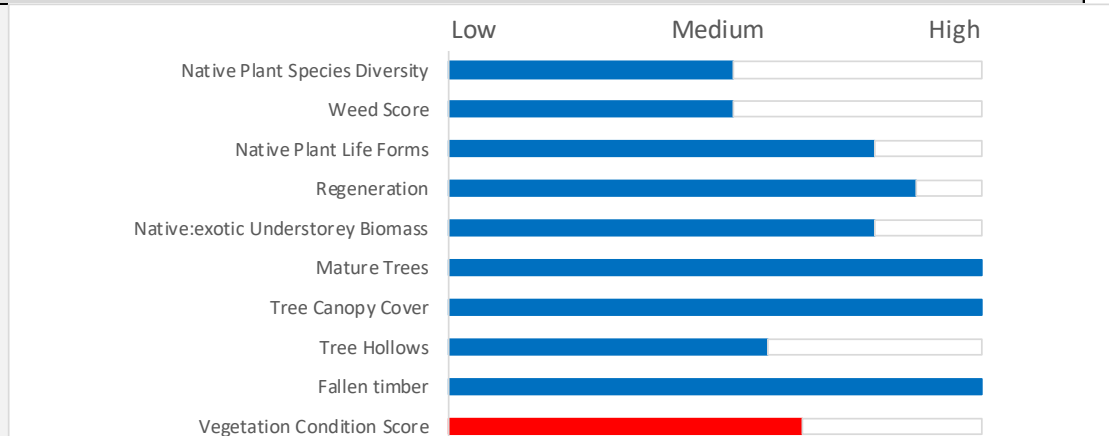
SITE:	Kimba site 2
BCM COMMUNITY	EP 8.1 Mallee & Low Woodlands with Open Sclerophyll Shrub & Chenopod Understorey
VEGETATION ASSOCIATION DESCRIPTION	Eucalyptus brachycalyx mallee
SIZE OF SITE (Ha)	0.2689

Benchmarked attributes (Scores determined by comparing to a Benchmark community)				Native Plant Life Forms	Cover rating
Number of Native Species (Minus herbaceous annuals for spring Surveys)	14			Trees > 15m	
Native Plant Species Diversity Score (max 30) from benchmark score <i>weighted by a factor of 2</i>	16.0			Trees 5 - 15 m	
				Trees < 5m	
Number of regenerating native species	5			Mallee > 5m	4
Regeneration Score (max 12) from benchmark community weighted by a factor of 1.5	10.5			Mallee < 5m	2
				Shrubs > 2m	2
				Shrubs 0.5 - 2m	2
				Shrubs < 0.5	3
				Forbs	1
Weed species (Top 5 Cover x Invasiveness)	Cover (max 6)	Weed Threat Rating (max 5)	C x I	Mat Plants	
Pinus halepensis	2	3	6	Grasses > 0.2m	1
Rosa canina	1	3	3	Grasses < 0.2m	1
Marrubium vulgare	1	3	3	Sedges > 1m	
Gazania linearis	1	3	3	Sedges < 1m	
Cirsium vulgare	1	2	2	Hummock grasses	
	Cover x Threat		17	Vines, scramblers	
Weed Score (max 15) from benchmark community			8	Mistletoe	
				Ferns	
				Grass-tree	
				Total	16
Native Plant Life Forms (max 20) from benchmark score <i>weighted by a factor of 2</i>					16.0

Non-Benchmarked Attributes (Scores determined from direct field observations)		<i>Is the community naturally treeless?</i>	<input type="checkbox"/>
Native:exotic Understorey biomass Score (max 5)	4	Fallen Timber/Debris (max 5)	5
		Hollow-bearing trees Score (max 5)	3
		Mature Tree Score (max 8)	8
		Tree Canopy Cover Score (max 5)	5

Vegetation Condition Score calculation

Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms Fallen timber/debris + Hollow-bearing trees <i>- If the community Score is Not Benchmarked (SNB) for regeneration this score is multiplied 1.24</i> <i>- If the community is naturally treeless this score is multiplied by 1.29</i>	58.50
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - Biomass score - Tree Canopy Cover Score)exp2/2)	7.50
VEGETATION CONDITION SCORE (Positive veg attributes x ((80 - Negative vegetation attributes) / 80))	53.02



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)	<input type="checkbox"/>
State (Provisional List of Threatened Ecosystems of SA) Vulnerable community (0.2 pts)	<input type="checkbox"/>
State (Provisional List of Threatened Ecosystems of SA) Endangered community (0.3 pts)	<input type="checkbox"/>
Nationally (EPBC Act) Vulnerable community (0.35 pts)	<input type="checkbox"/>
Nationally (EPBC Act) Endangered or Critically Endangered community (0.4 pts)	<input type="checkbox"/>
<i>Note; all sites will score a minimum Conservation Significance Score of 1</i> Threatened Community Score	1

Number of Threatened Flora Species recorded for the site (within the site)	Number
<i>*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.</i>	
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 = 0.16 pts; 20 or > = 0.2 pts	0
Threatened Flora Score	0

Potential habitat for Threatened Fauna Species (number observed or previously recorded)	Number
<i>*If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.</i>	
State Rare species observed or locally recorded (1 pt each)	3
State Vulnerable species observed or locally recorded (2.5 pt each)	0
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	3
Threatened Fauna Score	0.04

CONSERVATION SIGNIFICANCE SCORE **1.04**

Total Scores for the Site		Vegetation Condition x Landscape Context x Conservation Significance =	
LANDSCAPE CONTEXT SCORE	Score 1.10	UNIT BIODIVERSITY SCORE	60.65
VEGETATION CONDITION SCORE	53.02	Total Biodiversity Score	
CONSERVATION SIGNIFICANCE SCORE	1.04	(Biodiversity Score x hectares)	16.31

Photo Point and Vegetation Survey Location	Direction of the Photo
	South
	GPS Reference
	Datum WGS84
	Zone (52, 53 or 54) 53
	Easting (6 digits) 632389
	Northing (7 digits) 6331956
Description	

What is the purpose of Assessment?

Clearance

SEB Area

Other

Assessment for Clearance		Approximate hectares required	
Loss Factor	1.0		2.14
Loadings for clearance of protected areas		Economies of Scale Factor	0.35
Reductions for rehabilitation of impact site		Mean Annual rainfall for the site (mm)	331
SEB Points required	17.12	Payment into the fund (GST Exclusive)	\$5,299.36
		Administration fee (GST Inclusive)	\$287.83

Plant Species Recorded (Native and Introduced)		Listed Species			Natives only		Introduced Species
Species	Common Name	EPBC	SA	Not in quadrat	Regen	Annual Herbs Spring survey	
<i>Acacia oswaldii</i>	Umbrella Wattle						
<i>Atriplex stipitata</i>	Bitter Saltbush				Yes		
<i>Austrostipa sp.</i>	Spear-grass						
<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush				Yes		
<i>Eucalyptus brachycalyx</i>	Gilja				Yes		
<i>Exocarpos aphyllus</i>	Leafless Cherry						
<i>Geijera linearifolia</i>	Sheep Bush				Yes		
<i>Maireana brevifolia</i>	Short-leaf Bluebush						
<i>Maireana pentatropis</i>	Erect Mallee Bluebush						
<i>Pittosporum angustifolium</i>	Native Apricot						
<i>Salsola australis</i>	Buckbush						
<i>Sclerolaena diacantha</i>	Grey Bindyi						
<i>Sclerolaena uniflora</i>	Small-spine Bindyi						
<i>Senna artemisioides ssp. X coriacea</i>	Broad-leaf Desert Senna				Yes		