APPENDIX 8

Addendum – Crudine Ridge Wind Farm, Part 3A Ecological Assessment – Alternate access – Aarons Pass Road, and north access points

Eco Logical Australia Pty Ltd

Addendum – Crudine Ridge Wind Farm, Part 3A Ecological Assessment

Alternate access - Aarons Pass Road, and north site access point

Prepared for
Wind Prospect CWP

14 November 2013

DOCUMENT TRACKING

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This document has been prepared by Eco Logical Australia Pty Ltd with support from Wind Prospect CWP.

Contents

List of figures

List of tables

Abbreviations

ABBREVIATION	DESCRIPTION
CRWF	Crudine Ridge Wind Farm
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
OEH	NSW Office of Environment and Heritage
SEWPaC	Commonwealth Department of Sustainability, Environment, Populations and Communities
WTG	Wind Turbine Generators
TSC Act	*Threatened Species Conservation Act 1995*
*	Denotes exotic species

1 Introduction

1.1 Crudine Ridge Wind Farm Part 3A Assessment

Wind Prospect CWP Pty Ltd on behalf of Crudine Ridge Wind Farm Pty Ltd is proposing to develop and build a wind energy facility known as the Crudine Ridge Wind Farm (CRWF) (the proposal) on Crudine Ridge, part of the Great Dividing Range in the central tablelands. The proposal is located approximately 45 km south of Mudgee, 45 km north of Bathurst, and 60 km northeast of Orange, New South Wales (NSW) (**Figure 1**).

A Part 3A Ecological Assessment has been prepared for the proposal (ELA 2012a), which has been on public exhibition, however, the proposal is yet to receive approval.

Following exhibition of the Ecological Assessment, an alternative heavy haulage route has been identified along Aarons Pass Road, along with an amended site access point at the northern end of the CRWF site. Road upgrades along Aarons Pass Rd are required for the transport of the Wind Turbine Generators (WTGs) from the Port of Newcastle to the CRWF site and the alternate northern access point has been designed at the request of the landowner.

These upgrades will be assessed as an addendum to the Ecological Assessment of the wider Crudine Ridge Wind Farm under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The location of Aarons Pass Rd and the property access point can be seen in **Figures 2 and 4**.

1.2 Structure of the Addendum

The addendum has been divided into two parts. Part A considers the impacts along Aarons Pass Road and Part B considers the northern site access point.

The addendum must be read in conjunction with the Part 3A Ecological Assessment. While the addendum contains information, survey methods, results and impacts associated with the proposed alternate haulage route along Aarons Pass Road, and the northern site access point, considerable other information, such as the justification for the project and legislative context, is contained in the Part 3A Ecological Assessment.

Part A – Aarons Pass Rd

1.3 Alternate heavy haulage route along Aarons Pass Rd

Downer Infrastructure has prepared a heavy haulage report survey and assessment of upgrades required for the transport of the WTGs. This report suggested the Port of Newcastle as the preferred Port of Import due to its proximity to the site and relatively few oversize / over dimension vehicle travel restrictions. The proposed route is 411 km and is assuming the use of the new Hunter Expressway, which is due to open in December 2013. While undertaking the route survey, Downer assumed a swept path on a worst case scenario of approximately 60 m blades, with an assumed overhang of 12 m (Downer, 2013).

Currently, Aarons Pass Rd does not meet specifications for the heavy haulage of WTG components required for the CRWF. As such, Downer has recommended an upgrade to a 6 m unsealed gravel paving. It is not considered necessary to seal the road to accommodate this traffic. Corner widening, reducing crest angle, and the creation of passing bays are necessary upgrades for the safe passage of WTG components along Aarons Pass Rd.

Based on advice from Downer, passing bays are required approximately every 1 km along Aarons Pass Rd. Wind Prospect CWP identified 42 potential locations for passing bays along the approximately 20 km length of road in areas that appeared to be disturbed or cleared of native vegetation. The dimensions of each passing bay have been estimated at 15 x 4 m. The final number and selection of passing bays will be determined in consultation with Mid-Western Regional Council.

Some general pruning of overhanging trees will be required to create a vertical clearance plane of six by six metres. With traffic management in place i.e. pilot vehicles holding oncoming traffic at nearest passing bay and industry standard radio protocol between pilots vehicles and over-sized vehicles, this route would be a safe and viable option for the transportation of the WTG components

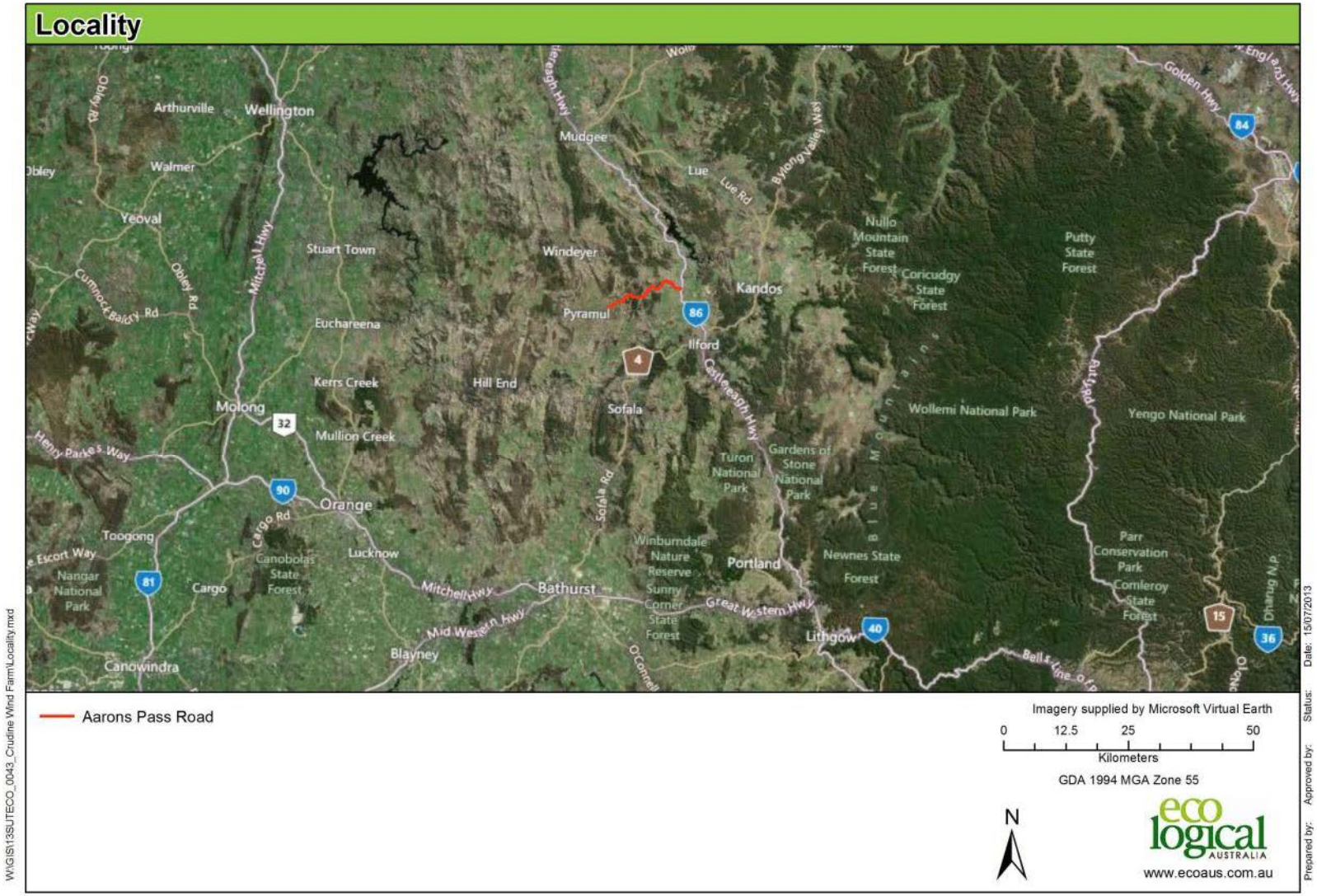

Figure 1: Locality

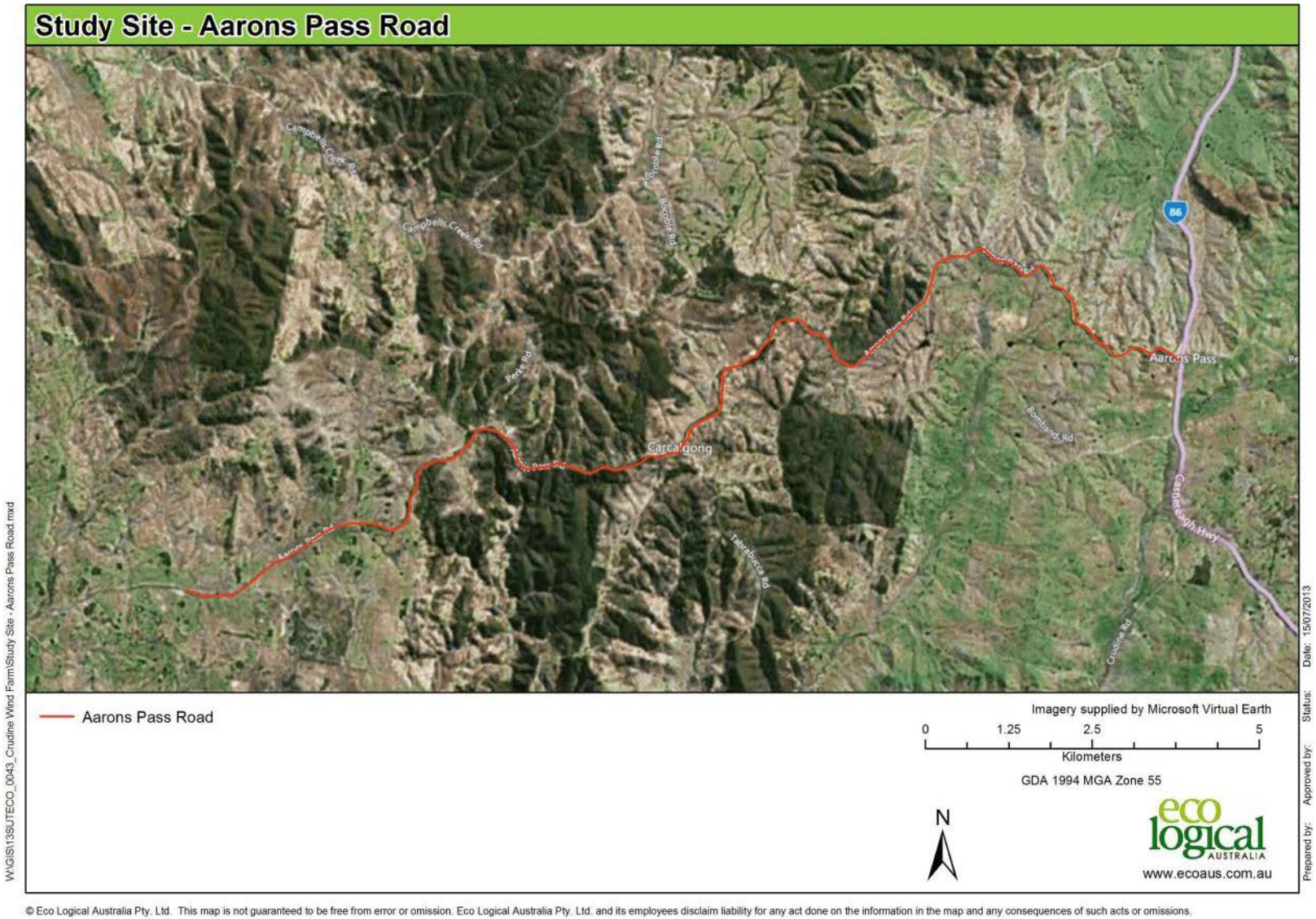

Figure 2: The section of Aarons Pass Rd proposed for upgrading

2 Methods

2.1 Literature and data review

A review of all readily available literature and database records pertaining to the ecology of the study area and surrounding locality were reviewed to provide important background information for this Ecological Assessment. Existing vegetation mapping and other available GIS data were also used. Information reviewed included:

- Downer 2013 *Crudine Ridge Wind Farm Route Survey and Upgrade Assessment*. Prepared for Wind Prospect CWP.
- Eco Logical Australia Pty Ltd (ELA) 2012. *Crudine Ridge Wind Farm, Part 3A Ecological Assessment*. Prepared for Wind Prospect CWP.
- Wind Prospect CWP Pty Ltd 2013. *Crudine Ridge Wind Farm, Aarons Pass Road - Passing Bay Assessment*. Prepared for Crudine Ridge Wind Farm Pty Ltd.

The *Roadside Management Guidelines* (Mid-Western Regional Council 2011) and *Roadside Vegetation Assessment Report* (Mid-Western Regional Council 2010) documents were made available by Mid-Western Regional Council and a review conducted. Although these documents address a number of threatened species and communities, only a small portion of species listed were applicable to the CRWF Aarons Pass Road upgrade.

The assessment of likelihood for threatened and migratory species identified from the database searches to occur or to have the potential to occur within the locality was assessed in ELA 2012a. This addendum considers the changes to the level of impact to threatened species, populations and communities, provides a summary of the revised impacts and determines the need for a revised significant impact assessment.

2.2 Field survey

Field survey was conducted from the 2-4 July 2013 by Liz Norris (ELA senior botanist) and Siobhan Isherwood (Wind Prospect CWP) at the locations identified for road upgrades and potential passing bays along Aarons Pass Rd (**Figure 3**).

At each section proposed for upgrade and passing bays, the boundary of the proposed works were identified by Wind Prospect CWP, and a random meander of the impact area was undertaken. At each location, all vascular flora species, hollow bearing trees and habitat features were noted. Floristic data was used to determine the likely vegetation type impacted and the locations of hollow bearing trees were recorded with a hand held GPS device (typically accurate to within 5-10 m).

Some passing bays inspected during field survey were eliminated from further consideration due to poor line of site, inadequate size and proximity to more suitable sites. These include Passing Bays 1, 10, 17, 33, and 37.

Incidental sightings of fauna were noted during the survey.

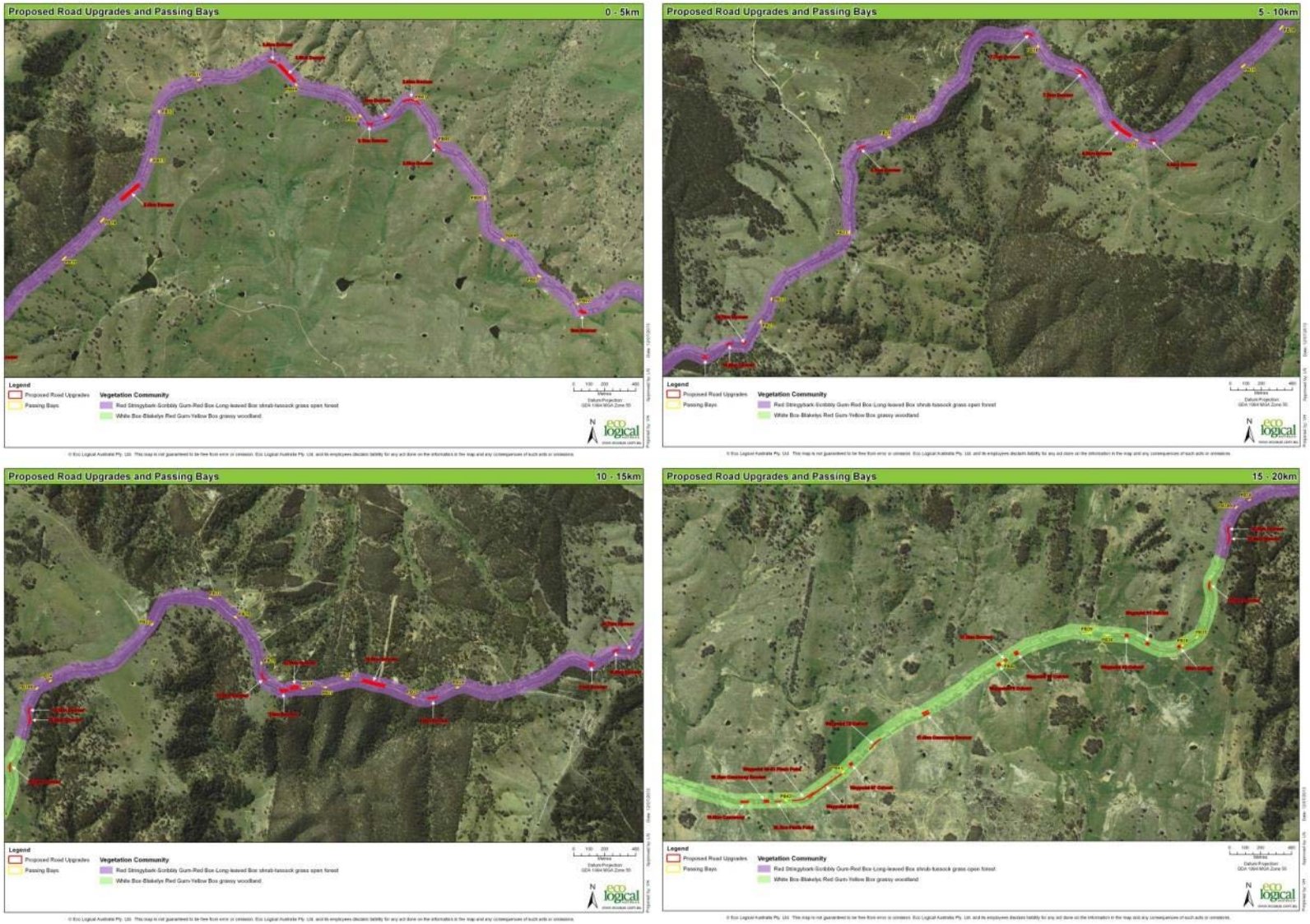

Figure 3: The location of proposed road upgrades and potential passing bays along Aarons Pass Rd (divided into 5 km sections)

3 Results

3.1 Vegetation communities

The survey identified two Biometric vegetation types (**Figure 3**):

- Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest
- White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion

White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion conforms to the TSC listed White Box, Yellow Box, Blakely's Red Gum Woodland and (in part) the EPBC White Box, Yellow Box, Blakely's Red Gum grassy woodland and derived native grassland. These communities and their conservation significance are discussed in the Part 3A Ecological Assessment.

3.2 Flora

Flora species identified during the survey are included in Addendum Appendix B. No threatened flora, or their habitat, were identified during the survey.

3.3 Fauna

Only one threatened fauna species was observed during the site survey: *Climacteris picumnus victoriae* (Brown Treecreeper), which is a vulnerable species under the TSC Act.

No EPBC Act listed species were observed.

Hollow bearing trees and/or woodland are potential habitat for a number of threatened species, as identified in the Part 3A Ecological Assessment.

Much of the land adjoining Aarons Pass Rd is well vegetated. While *Phascolarctos cinereus* (Koala) have been recorded in the area, the majority of trees impacted along the road are not known Koala feed trees.

4 Impact assessment

Addendum Appendix B documents the area of impact per passing bay and road upgrade location. The cumulative impact of the proposed upgrade to Aarons Pass Rd is provided in **Table 1**. The final area impacted will be lower than that estimated below, as approximately 20 of the 40 passing bays surveyed will be required.

A summary of the total project area impacted, considering the upgrade to Aarons Pass Rd, the alternate northern site access point, and the remaining wind farm, is presented in Section 9.

Table 1: Summary of impacted vegetation along Aarons Pass Rd

BIOMETRIC VEGETATION TYPE	CONDITION	AREA IMPACTED ALONG AARONS PASS RD (HA)
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion (Benson 290)	Moderate to Good Pasture/DNG	0.06
	Moderate to Good Woodland	1.20
Total vegetation impacted		**1.26**
White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (Benson 282)	Moderate to Good Pasture/DNG	0
	Moderate to Good Woodland	0.28
Total vegetation impacted		**0.28**

Vegetation in “cleared” condition does not meet the requirements of Biometric vegetation, and has not been considered further in the assessment of impacts.

Part B – Northern site access point

An alternate access point to the site off Aarons Pass Rd has been surveyed and assessed. The alternate site access point was selected at the request of the landowner to avoid high value grazing land (**Figure 4**). **Figure 4** also identifies the amount of vegetation to be cleared under each option.

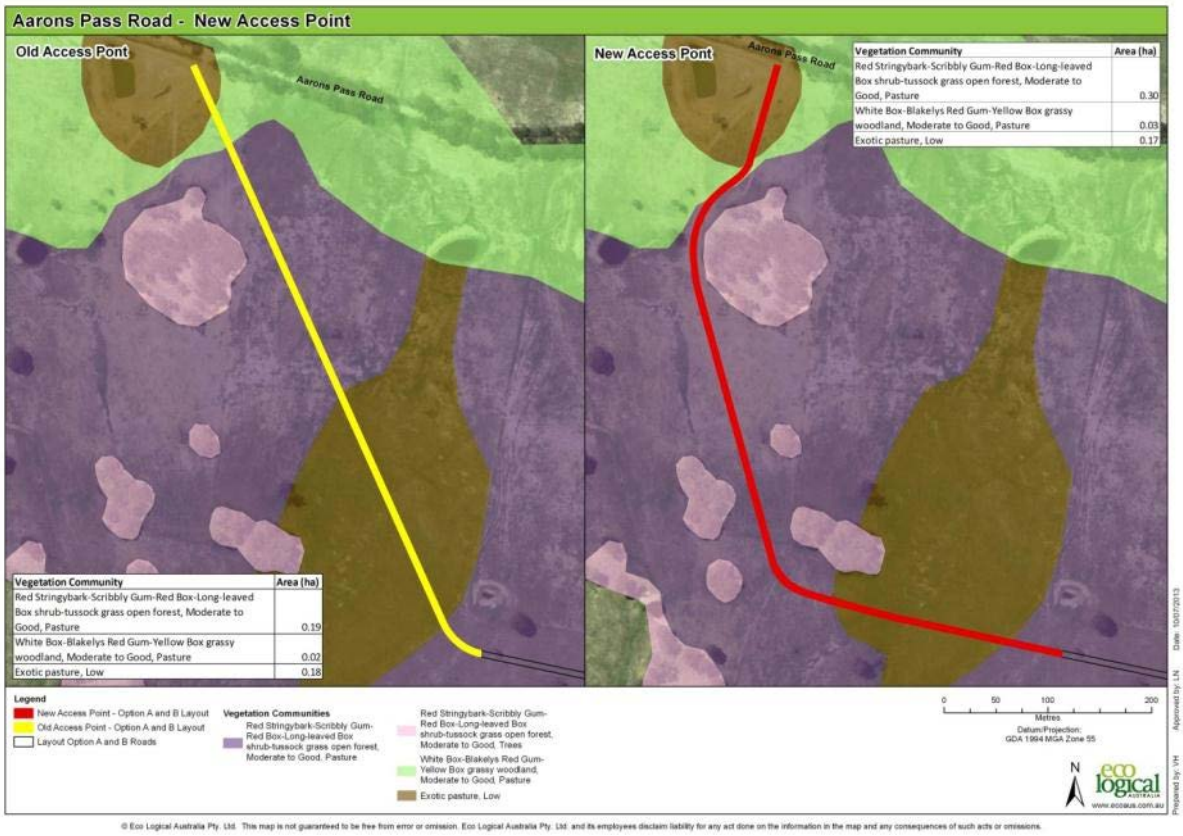

Figure 4: Alternate northern site access point off Aarons Pass Rd.

5 Methods

5.1 Literature and data review

A review of all readily available literature and database records pertaining to the ecology of the study area and surrounding locality were reviewed to provide important background information for this Ecological Assessment. Existing vegetation mapping and other available GIS data were also utilised. Information reviewed included:

- Downer 2013 *Crudine Ridge Wind Farm Route Survey and Upgrade Assessment*. Prepared for Wind Prospect CWP.
- Eco Logical Australia Pty Ltd (ELA) 2012. *Crudine Ridge Wind Farm, Part 3A Ecological Assessment*. Prepared for Wind Prospect CWP.
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The *Roadside Management Guidelines* (Mid-Western Regional Council 2011) and *Roadside Vegetation Assessment Report* (Mid-Western Regional Council 2010) documents were made available by Mid-Western Regional Council and a review conducted. Although these documents address a number of threatened species and communities, only a small portion of species listed were applicable to CRWF Aarons Pass Road upgrade.

The assessment of likelihood for threatened and migratory species identified from the database searches to occur or to have the potential to occur within the locality was assessed in ELA 2012a. This addendum considers the changes to the level of impact to threatened species, populations and communities, provides a summary of the revised impacts and determines the need for a revised significant impact assessment.

5.2 Field survey

Field survey was conducted on the 3 July 2013 by Liz Norris (ELA senior botanist) and Siobhan Isherwood (Wind Prospect CWP) at the proposed northern site access point.

All vascular flora species, hollow bearing trees and habitat features were noted. Floristic data was used to determine the likely vegetation type impacted and the locations of hollow bearing trees were recorded with a hand held GPS device (typically accurate to within 5-10 m).

Incidental sightings of fauna were noted during the survey.

6 Results

6.1 Vegetation communities

The survey identified two Biometric vegetation types:

- Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest
- White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion

White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion conforms to the TSC listed White Box, Yellow Box, Blakely's Red Gum Woodland and (in part) the EPBC White Box, Yellow Box, Blakely's Red Gum grassy woodland and derived native grassland. These communities and their conservation significance are discussed in the Part 3A Ecological Assessment.

Site photos and a description of the area are provided below.

Site description and vegetation:

Vegetation of the site is characterized by native and exotic pasture grasses. Scattered paddock trees are dominated by *Eucalyptus macrorrhyncha* (Red Stringybark) with adjacent woodland patches dominated by *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box) and *Eucalyptus mannifera* subsp. *mannifera* over an exotic dominated understorey.


Figure 5: Photos of northern alternative site access point

Dominant species:

Groundcovers: *Austrostipa scabra, Rytidosperma racemosum* var. *racemosum, Aristida ramosa, Dichelachne micrantha, Lomandra filiformis* var. coriacea

Biometric Vegetation Type:

Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site Condition: Biometric – Moderate to good - good.

Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna:

Two individuals of the Brown Tree Creeper were observed in the woodland copse adjacent to and outside the development footprint. This species has been recorded during previous surveys.

Conservation significance:

Not threatened.

The site contains few habitat features but includes tussock grasses, leaf and grass litter and woody debris under trees.

Mitigation measures:

- Install erosion and sediment control measures during construction.
- Avoid or minimize impacting contour banking works within paddock.
- Minimize the spread of exotic species.

Impact assessment required: No

7 Summary of impacts

7.1 Summary of vegetation communities impacted

Table 2 summarises the change in impact from that assessed in the Part 3A Ecological Assessment. A positive number indicates an increased area of impact, where a negative number indicates a reduced area of impact.

Table 2: Change in impact for each vegetation type impacted by upgrades to Aarons Pass Rd, and realignment of the northern site access point.

BIOMETRIC VEGETATION TYPE	CONDITION	AARONS PASS RD	NORTHERN SITE ACCESS	NET TOTAL
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion (Benson 290)	Pasture/DNG	0.06	0.11	0.17
	Woodland	1.20	0	1.20
TOTAL		**1.26**	**0.11**	**1.37**
White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (Benson 282)	Pasture/DNG	0.00	0.01*	0.01
	Woodland	0.28	0	0.28
TOTAL		**0.28**	**0.01**	**0.29**

* Note that Pasture/DNG does not meet EPBC definition of the community.

The net total increased impact, including both communities and condition types, is 1.66 ha.

7.2 Cumulative impact assessment

Tables 32 and 34 from the Part 3A Ecological Assessment (ELA 2012a) indicated the area of impact to threatened species, populations and ecological communities as a result of developing the wind farm. Updates to the tables, in accordance with the net balance of impact outlined in **Table 2** are provided below in **Tables 3** and **5**. Changes to the area impacted have been highlighted for each ecological community and species potentially impacted.

The proposed upgrades to Aarons Pass Rd and the alternate northern access will increase the impact to Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion by 1.37 ha and increase the impact area to White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion by 0.29 ha.

Table 3: Offset outcomes for overall impacts to biodiversity values (NSW) – ecosystem credits (as per Table 32 of ELA 2012a)

BIOMETRIC VEGETATION TYPE	CONDITION	IMPACT			TIER 2 OFFSET TARGET (HA)	OFFSET : IMPACT RATIO
		IMPACT AREA (HA)	CREDITS REQUIRED	AVERAGE CREDITS REQUIRED /HA		
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion (Benson 290)	DNG	90.07 (89.9+0.17)	3567 (3,560 + 7)	39.6	383	4.3:1
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion (Benson 290)	Woodland	7.80 (6.6+1.20)	495 (419+76)	63.5	53	6.9:1
Sub-total		**97.87 (96.5+1.37)**	**4,062**	**41.2**	**436**	**4.5:1**
White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (Benson 282)	Low Pasture	0.3	7	22.8	1	3.3:1
White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (Benson 282)	DNG	2.41 (2.4+0.01)	58	27.6	6	2.9:1

BIOMETRIC VEGETATION TYPE	CONDITION	IMPACT			TIER 2 OFFSET TARGET (HA)	OFFSET : IMPACT RATIO
		IMPACT AREA (HA)	CREDITS REQUIRED	AVERAGE CREDITS REQUIRED /HA		
White Box - Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (Benson 282)	Woodland	3.28 (3.0+0.28)	226 (207 +19)	68.8	24	7.3:1
Sub-total		**5.69** **(5.4+0.29)**	**291**	**50.3**	**31**	**5.5:1**
Total		**104.76** **(103.1+1.66)**	**4,353**	**41.4**	**467**	**4.5:1**

Note: Pasture = Derived Native Grassland; 1.2 ha of Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest on the South Eastern Highlands

The proposed addendums have increased the area of impact to native vegetation communities from 103.1 ha to 104.76 ha. Based on the number of credits required (4,355) this would require an offset in the order of 468 ha with matching like for like vegetation types to meet a Tier 2 offset in accordance with the OEH Major Projects Offset Policy (OEH 2011).

7.3 Changes to offset requirements

Since the exhibition of the EA report (ELA 2012), 674 ha of property S2 (Lots 128 and 129 Dp756878 and parts Lots 132 and 135 Dp756878) have been secured as the preferred offset property. An 'option to purchase' has been entered into with the land holder which will be exercised post project approval.

The proposed offset property was inspected by Eco Logical Australia senior botanist Liz Norris on 13 October 2011 to confirm vegetation types, condition and respective areas (**Figure 6** and **Table 4)**. The inspection indicated large areas of regrowth woodland in good condition with abundant hollow bearing trees and fallen logs and few weeds and areas of DNG with predominantly native perennial grasses (*Austrostipa densiflora* and *Microlaena stipoides*) and associated herbs (*Dichondra repens, Cheilanthes sieberi*, *Echinopogon caespitosus*, *Wahlenbergia* spp.). There are scattered older paddock trees in the DNG and extensive eucalypt regeneration as shown in the aerial photographs.

Table 4: Vegetation types and condition on proposed offset property

MNES	Area (ha)
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest, Moderate to Good (Woodland)	299.82
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest, Moderate to Good (Regrowth/native pasture)	19.7
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest, Moderate to Good (Derived Native Grassland with scattered regrowth)	71.49
White Box-Blakely's Red Gum-Yellow Box grassy woodland, Moderate to Good (Woodland)	73.52
White Box-Blakely's Red Gum-Yellow Box grassy woodland, Moderate to Good (Derived Native Grassland with scattered regrowth)	209.8
Total	**674.33**

The proposed offset property exceeds the offset requirement for White Box-Blakely's Red Gum-Yellow Box grassy woodland and is only short 47 ha in meeting a full Tier 2 offset for Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest. This deficit is made up by the surplus 42.5 ha of existing White Box - Blakely's Red Gum - Yellow Box grassy woodland and a further 209.8 ha of regenerating White Box - Blakely's Red Gum - Yellow Box grassy woodland DNG.

Legal mechanism proposed to protect offset property

The property will have a conservation covenant (or other similar conservation mechanism registered on title e.g. Conservation Agreement under s.69B of the *National Parks and Wildlife Act* 1974, a Trust Agreement under s.36 of the *Nature Conservation Trust Act* 2001 or a Biobanking Agreement under s.127 of the *Threatened Species Conservation Act* 1995) and provide in perpetuity funding for conservation management implemented in accordance with a Biodiversity Management Plan.

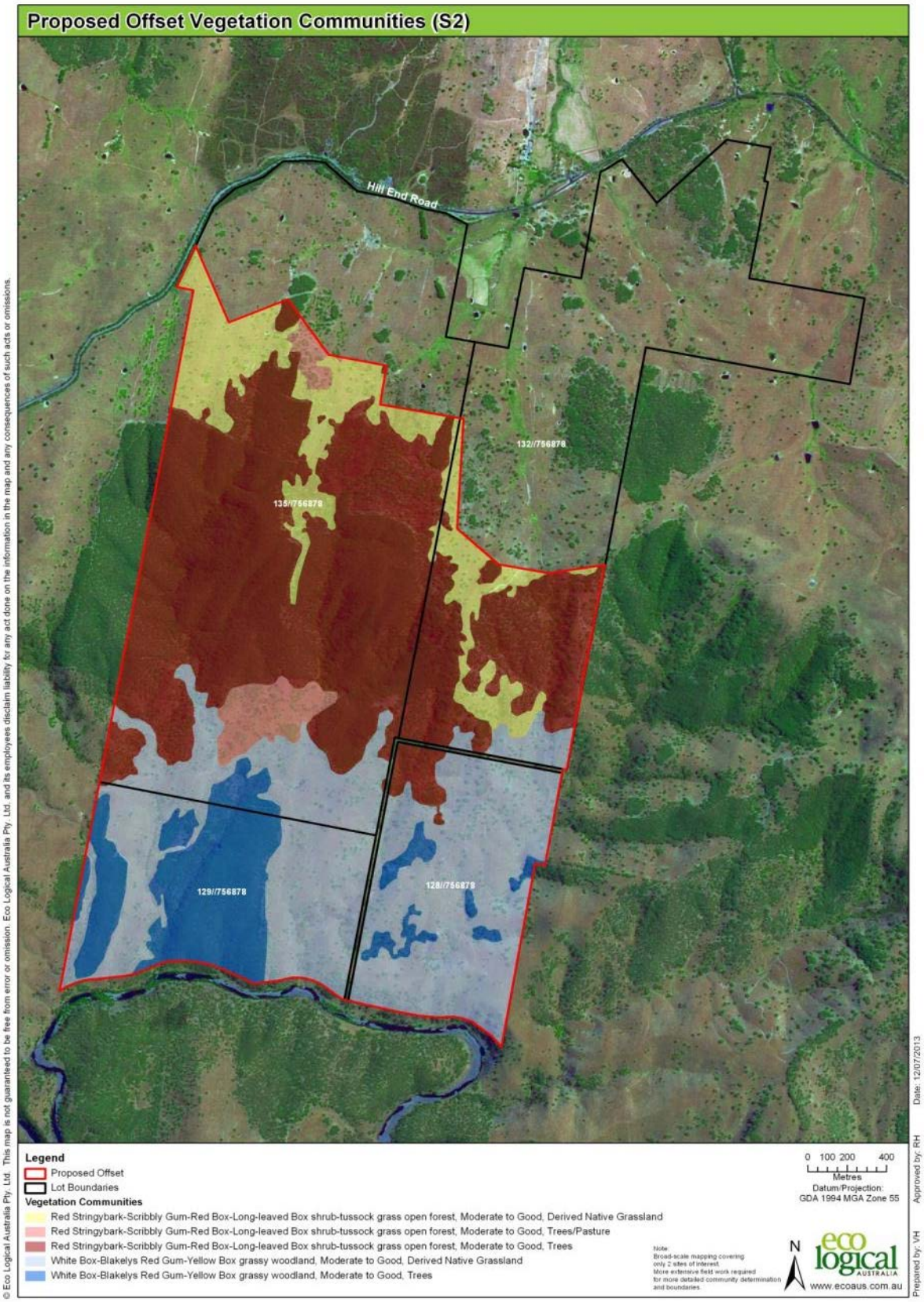

Figure 6: Vegetation on proposed offset property showing cadastre boundaries and Lot/DP details

Table 5: Offset measures for impacts to Matters of NES (EPBC Act) (as per Table 34 of ELA 2012a)

MATTERS OF NES	CONDITION	IMPACT AREA (HA)	TIER 3-2 OFFSET TARGET (HA)	OFFSET: IMPACT RATIO
White Box grassy woodland of the Nandewar and Brigalow Belt South Bioregions	Woodland	3.28 (3.0+0.28)	6.5 - 24	2 - 7.3#
Total		**3.28 (3.0+0.28)**	6.5 - 24	2 - 7.3#
EPBC Act listed Species				
Swift Parrot and Regent Honeyeater (Potential habitat)*				
Broad-leaved Peppermint-Brittle Gum - Red Stringybark dry open forest on the southeastern highlands	DNG	0.06	2.15 – 2.4	30.71 - 34.2
Broad-leaved Peppermint-Brittle Gum - Red Stringybark dry open forest on the southeastern highlands	Woodland	0.01		
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion	DNG	4.49	196 - 437	15.9 – 35.6
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion	Woodland	7.80 (6.6+1.20)		
White Box-Blakely's Red Gum-Yellow Box grassy woodland	DNG	0.12	6.8 – 30.0	2.0 – 8.82
White Box-Blakely's Red Gum-Yellow Box grassy woodland	Woodland	3.28 (3.0+0.28)		
Total		**15.76 (14.28+1.48)**	**204.95 – 469.4**	**13.0– 29.78**

MATTERS OF NES	CONDITION	IMPACT AREA (HA)	TIER 3-2 OFFSET TARGET (HA)	OFFSET: IMPACT RATIO
Large-eared Pied Bat, Greater (eastern) Long-eared Bat, Superb Parrot, Satin Flycatcher and Spotted–tailed Quoll (Potential foraging habitat)				
Broad-leaved Peppermint-Brittle Gum - Red Stringybark dry open forest on the southeastern highlands	DNG	0.01	2.15 – 2.4	215 - 240
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion	Woodland	7.80 (6.6+1.20)	196 - 437	25.12 – 56.0
White Box-Blakely's Red Gum-Yellow Box grassy woodland	Woodland	3.28 (3.0+0.28)	6.8 – 30.0	2.1 – 9.15
Total		**11.09 (9.61+1.48)**	**204.95 – 469.4**	**18.5 – 42.32**
Grey-headed Flying-fox (Potential foraging habitat)				
Broad-leaved Peppermint-Brittle Gum - Red Stringybark dry open forest on the southeastern highlands	DNG	1.2	2.15 – 2.4	1.77 – 1.98
Broad-leaved Peppermint-Brittle Gum - Red Stringybark dry open forest on the southeastern highlands	Woodland	0.01		
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion	DNG	4.49	196 -437	15.9 -35.6
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion	Woodland	7.80 (6.6+1.20)		
White Box-Blakely's Red Gum-Yellow Box grassy woodland,	DNG	2.47	6.8 – 30.0	1.18 – 5.2

MATTERS OF NES	CONDITION	IMPACT AREA (HA)	TIER 3-2 OFFSET TARGET (HA)	OFFSET: IMPACT RATIO
White Box-Blakely's Red Gum-Yellow Box grassy woodland,	Woodland	3.28 (3.0+0.28)		
Total		**19.25 (17.77+1.48)**	**204.95 – 496.4**	**10.6 - 25.78**
***White-throated Needletail and Rainbow Bee-eater* (Potential habitat)**				
Broad-leaved Peppermint-Brittle Gum - Red Stringybark dry open forest on the southeastern highlands	DNG	0.39	2.15 – 2.4	5.37– 6
Broad-leaved Peppermint-Brittle Gum - Red Stringybark dry open forest on the southeastern highlands	Woodland	0.01		
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion	DNG	29.41	196 - 437	6.07 13.55
Red Stringybark - Scribbly Gum - Red Box - Long-leaved Box shrub - tussock grass open forest the NSW South Western Slopes Bioregion	Woodland	2.84 (1.64+1.20)		
Wet Tussock Grassland	Grassland	0.02		
White Box-Blakely's Red Gum-Yellow Box grassy woodland	DNG	0.11		
Total		**32.78 (31.58+1.20)**	**198.15 – 439.4**	**6.04 – 13.40**

MATTERS OF NES	CONDITION	IMPACT AREA (HA)	TIER 3-2 OFFSET TARGET (HA)	OFFSET: IMPACT RATIO

Note:

proportion of "woodland" White Box grassy woodland of the Nandewar and Brigalow Belt South Bioregions in final offset area is likely to be significantly higher as these areas will be preferentially targeted.

* Whilst Swift Parrot and Regent Honeyeater will utilise scattered paddock tress for foraging, they have not been included in the impact totals as these trees will not be affected by the proposal. Roads, powerlines and turbine pads will be located to avoid scattered paddock trees as outlined in Chapter 5 of the Part 3A Ecological Assessment.

DNG = Derived Native Grassland

Pasture/DNG in table 2 not included here.

ELA (2013) have undertaken offset calculations in accordance with the EPBC Act offset policy (2012) to determine the offset requirements for MNES. These calculations indicate that the proposed offset property is capable of meeting all EPBC offset requirements.

The Part 3A Ecological Assessment assessed the overall impact of the proposal on threatened species, populations and ecological communities through the Part 3A Significant Impact Guidelines and the EPBC Significant Impact Criteria.

The significant impact assessments have been reviewed, and while the impacts discussed in this addendum will result in an increased impact area for some species and ecological communities, the scale of the impact does not alter the outcomes of any of the significant impact assessment, thereby warranting that they be re-drafted.

The impact of the proposal is centred on the vegetation to be removed and the habitat it may provide for threatened fauna. While the increased impacts do not require re-drafting of the significant impact assessments, the increased area will be factored into the offset requirements for the proposal (refer to ELA 2013).

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Addendum Appendix A: Site descriptions Aarons Pass Road

Site ID: I.0 km Road works


Proposed works: Remove two trees on RHS and level corner on both sides (Downer 2013).

Site description and vegetation:
The left hand side of the road comprises a dirt verge and nature strip of scattered eucalypts over a native grassy understorey. The right hand side of the road comprises eucalypts and *Acacia implexa* regeneration over an exotic dominated shrubby and grassy understorey. This area is a low point for drainage.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus polyanthemos* (Red Box), *Eucalyptus* sp.
Shrubs:	*Acacia implexa, Phytolacca octandra**
Groundcovers:	*Joycea pallida, Dianella longifolia, Bromus catharticus*, Phalaris* sp.*, Lolium* sp.*, Hypochaeris radicata*, Modiola caroliniana*, Arctotheca calendula** and *Cirsium vulgare*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric Moderate to good - poor
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. One hollow bearing tree on RHS.

One hollow bearing tree (Datum GDA94, Zone 55)

SPECIES	EASTING	NORTHING
Eucalyptus rossii	761616	6360291

Area impacted: 262 m²

Mitigation measures:

- Avoid removing the hollow bearing tree on the right hand side of the road. If removal is required then hollow requires inspection prior to removal.
- Erosion and sediment control measures around drainage area.

Impact assessment required: No

Site ID: Passing Bay 02

Proposed works: Potential passing bay – RHS.

Site description and vegetation:
Open road verge and nature strip adjacent to farm gate. Several shrubs of *Acacia implexa* and a ground layer dominated by native and exotic grasses and forbs to 50% cover, and bare earth.

Adjacent vegetation comprises woodland of Narrow-leaved Stringy Bark (*Eucalyptus tenella)* and Red Box (*Eucalyptus polyanthemos*) and scattered shrubs of *Acacia implexa.*

Dominant species:

Shrubs:	*Acacia implexa*
Groundcovers:	*Rytidosperma racemosum, Rytidosperma* sp., *Aristida ramosa, Myoporum debilis,* occasional *Myoporum debilis,* and *Bromus catharticus*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened.

The site lacks a range of habitat features – no rocky areas, tussock grasses, woody debris and tree hollows.

Area impacted: 60 m²

Mitigation measures:
- Minimize impacts to adjacent vegetation during construction including tree roots.
- Install erosion and sediment control measures during construction.

Site ID: Passing Bay 03

Proposed works: Potential passing bay - RHS.

Site description and vegetation:
Open road verge and disturbed nature strip including a road drainage swale. Vegetation dominated by few native shrubs and groundcover species to 50% cover, and bare earth.

Dominant species:
Shrubs: *Cassinia arcuata, Eucalyptus* sp. (small saplings).

Groundcovers: *Themeda australis, Rytidosperma* sp. and *Aristida ramosa.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened.

Site lacks a range of habitat features – no rocky areas, tussock grasses, or fallen timber.

Area impacted: 80 m²

Mitigation measures:
- Minimize impacts to adjacent roadside vegetation generally.
- Install erosion and sediment control measures during construction.

Comments:
Site requires earthworks to level an area suitable for a passing bay. These works will remove shrubs and groundcover species as noted above. No impact to adjacent tree roots, but presence of drainage swale needs consideration.

Site ID: Passing Bay 04


Proposed works: Potential passing bay - LHS

Site description and vegetation:
Open road verge and disturbed nature strip dominated by bare earth, litter and stones. Few native shrubs and groundcover species.

Adjacent vegetation comprises woodland of Narrow-leaved Stringy Bark (*Eucalyptus tenella),* Brittle Gum (*Eucalyptus mannifera*), Red Box (*Eucalyptus polyanthemos*) and Scribbly Gum (*Eucalyptus rossii*), over scattered shrubs of *Cassinia quinquefaria, Acacia dealbata* and *Acacia implexa.* The groundcovers are dominated by native species including *Joycea pallida, Lomandra multiflora, Lomandra filiformis* subsp*. coriacea, Dianella longifolia* and *Chrysocephalum apiculatum.*

Dominant species:
Groundcovers: *Joycea pallida*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened.

Few habitat features present but includes tussock grasses and woody debris.

Area impacted: 100 m²

Mitigation measures:
- Minimize impacts to adjacent roadside vegetation generally.
- Install erosion and sediment control measures during construction.

Comments:
Site requires earthworks to level an area suitable for a passing bay. These works will remove a few tussocks of *Joycea pallida* and some woody debris and litter. No impact to adjacent tree roots is considered.

Site ID: Passing Bay 05


Proposed works: Potential passing bay - LHS.

Site description and vegetation:
Open road verge and disturbed nature strip dominated by bare earth, litter and stones.

Adjacent vegetation comprises woodland of Narrow-leaved Stringy Bark (*Eucalyptus* tenella) and Scribbly Gum (*Eucalyptus rossii*) and Red Box (*Eucalyptus polyanthemos* subsp. polyanthemos) over a grassy understorey dominated by native species including *Joycea pallida, Rytidosperma caespitosum, Aristida ramosa, Austrostipa densiflora* and *Lomandra filiformis* subsp*. coriacea.*

Dominant species:

Trees:	*Eucalyptus tenella, Eucalyptus polyanthemos* subsp. *polyanthemos, Eucalyptus rossii*
Shrubs:	*Cassinia quinquefaria, Cassinia arcuata, Acacia implexa*
Groundcovers:	*Joycea pallida, Aristida ramosa, Rytidosperma caespitosum* and *Bromus catharticus*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened.

No habitat features.

Area impacted: 100 m²

Mitigation measures:
- Minimize impact to adjacent trees
- Install erosion and sediment control measures during construction.

Site ID: 2.5 km road works

Proposed works: Fill and cut to widen on LHS required (Downer 2013).

Site description and vegetation:
Open road verge and mixed vegetated and non-vegetated nature strip with few weeds.

Adjacent vegetation comprises woodland of Narrow-leaved Stringy Bark (*Eucalyptus* tenella) and Scribbly Gum (*Eucalyptus rossii*), over a grassy understorey dominated by native species including *Joycea pallida, Rytidosperma caespitosum, Aristida ramosa, Austrostipa densiflora* and *Lomandra filiformis* subsp*. coriacea.*

Dominant species:

Trees:	*Eucalyptus tenella, Eucalyptus polyanthemos* subsp. *polyanthemos, Eucalyptus rossii*
Shrubs:	*Cassinia quinquefaria, Cassinia arcuata, Acacia implexa*
Groundcovers:	*Joycea pallida, Aristida ramosa, Rytidosperma caespitosum* and *Bromus catharticus*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened.

No habitat features.

Area impacted: 236 m²

Mitigation measures:
- Avoid and /or minimize impact to adjacent trees.
- Install erosion and sediment control measures during construction.

Site ID: Passing Bay 06

Proposed works: Potential passing bay – LHS

Site description and vegetation:
Open road verge and grassy nature strip characterized by a mix of native and exotic grasses and forbs.

Adjacent vegetation comprises woodland of Narrow-leaved Stringy Bark (*Eucalyptus* tenella) and Scribbly Gum (*Eucalyptus rossii*), over a grassy understorey dominated by native species including *Joycea pallida, Rytidosperma caespitosum, Aristida ramosa, Austrostipa densiflora* and *Lomandra filiformis* subsp*. coriacea.*

Dominant species:
Groundcovers: *Aristida ramosa, Rytidosperma* sp. *Hypochaeris radicata* and *Paspalum dilatatum*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened.

Habitat features include tussock grasses and leaf litter.

Area impacted: 60 m²

Mitigation measures:
- Avoid and /or minimize impact to adjacent trees.
- Site requires leveling and removal of soil - install erosion and sediment control measures during construction.
- Avoid stockpiling soils material on adjacent vegetation.

Site ID: Passing Bay 07

Proposed works: Potential passing bay – RHS.

Site description and vegetation:
Open road verge and exotic –dominated grassy nature strip adjacent to farm gate.

Adjacent vegetation comprises woodland of Narrow-leaved Stringy Bark (*Eucalyptus* tenella) and Scribbly Gum (*Eucalyptus rossii*), over a shrubby and grassy understorey dominated by *Acacia implexa, Cassinia quinquefaria, Rytidosperma laevis* and *Chrysocephalum apiculatum.*

Dominant species:
Groundcovers: *Cynodon dactylon* and *Paspalum dilatatum*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened.

Few habitat features.

Area impacted: 80 m²

Mitigation measures:
- Avoid and /or minimize impact to adjacent trees
- Site requires leveling and removal of soil - Install erosion and sediment control measures during construction.

Comments: Site is included in Site 2.8 km road works.

Site ID: 2.8km road works

Proposed works: Fill and level on outside of corner (Downer 2013).

Site description and vegetation:
Open road verge and vegetated nature strip (includes a potential passing bay (PB08) adjacent to farm gate).

Adjacent vegetation comprises and open Woodland of Narrow-leaved Stringy Bark (*Eucalyptus* tenella) and Scribbly Gum (*Eucalyptus rossii*), over a shrubby and grassy understorey dominated by *Acacia implexa, Cassinia quinquefaria, Rytidosperma laevis* and *Chrysocephalum apiculatum.*

Dominant species:

Trees:	*Eucalyptus polyanthemos* subsp. *polyanthemos, Eucalyptus rossii, Eucalyptus tenella*
Shrubs:	*Acacia implexa, Cassinia quinquefaria,*
Groundcovers:	*Joycea pallida, Cynodon dactylon*, Paspalum dilatatum*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council - Modified

Presence of threatened flora and/or fauna: Nil

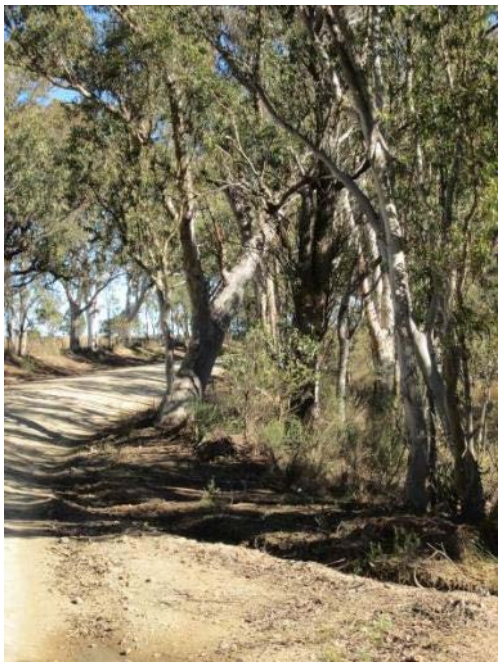
Conservation significance:
Not threatened.

Area impacted: 618 m²

Mitigation measures:
- Avoid and /or minimize impact to adjacent trees
- Site requires leveling and removal of soil.
- Install erosion and sediment control measures during construction.

Comments: Site includes area considered for Passing Bay 07

Site ID: 3.0 km Road works



Proposed works: Remove approximately two trees on right and level corner (Downer 2013).

Site description and vegetation:
Earth verge and batter, with scattered eucalypts over a native shrubby and grassy understorey.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha (*Red Stringybark), *Eucalyptus polyanthemos* (Red Box), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Acacia implexa, Cassinia quinquefaria, Persoonia linearis.*
Groundcovers:	*Joycea pallida, Dianella longifolia, Rytidosperma* sp.

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened.

Area impacted: 180 m²

Mitigation measures:
- One tree may require removal (*Eucalyptus rossii*) – not hollow-bearing.
- Avoid and /or minimize impact to adjacent trees where possible.
- Install erosion and sediment control measures during construction.

Impact assessment required?: No

Site ID: 3.1 km Road works

Site photo: Refer to Downer Infrastructure Report 2013, page 51.

Proposed works: Remove two trees as indicated on right and level corner (Downer 2013).

Site description and vegetation:
Earth verge and batter, with scattered eucalypts over a native shrubby and grassy understorey.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box)
Shrubs:	*Cassinia quinquefaria, Acacia sertiformis, Olearia elliptica.*
Groundcovers:	*Joycea pallida, Dianella longifolia, Rytidosperma* sp., *Senecio quadridentatus*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition:	Biometric – Moderate to good - good Mid-Western Regional Council - Modified

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened.

Area impacted: 219 m²

Mitigation measures:

- Avoid and/or minimize impacts adjacent tree species, in particular to one small Stringybark at GDA94: easting 760246 and northing 6361495.
- Install erosion and sediment control measures during construction.
- Consideration of drainage swale within site

Impact assessment required?: No

Site ID: Passing Bay 08

Proposed works: Development of passing bay - LHS.

Site description and vegetation:
Bare earth verge, with scattered native grasses along property fence line.

Adjacent vegetation comprises woodland of Red Stringy Bark (*Eucalyptus macrorrhyncha*) and Scribbly Gum (*Eucalyptus rossii*), over a shrubby and grassy understorey dominated by *Acacia dealbata, Cassinia quinquefaria, Joycea pallida* and *Echinopogon caespitosus.*

Dominant species:
Groundcovers: *Joycea pallida*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened.

Area impacted: 60 m²

Mitigation measures:
- Avoid and/or minimize impacts adjacent tree species at each end of the bay area.
- Install erosion and sediment control measures during construction.

Impact assessment required: No

Site ID: Passing Bay 09

No site photo

Proposed works: Development of passing bay - LHS

Site description and vegetation:
Vegetation at site dominated by scattered native grasses

Adjacent trees include *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box), *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum). Shrubs include *Acacia dealbata, Acacia implexa, Cassinia quinquefaria* over a ground layer dominated by *Themed triandra* and *Joycea pallida.*

Dominant species:
Groundcovers: *Joycea pallida, Rytidosperma* sp.

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Few habitat features present but include some tussock grasses and leaf litter.

Area impacted: 60 m²

Mitigation measures:
- Avoid and/or minimize impacts adjacent tree species at each end of the bay area.
- Install erosion and sediment control measures during construction.

Impact assessment required: No

Site ID: 3.8 km Road works

Site photo: Refer to Downer Infrastructure Report 2013, page 52.

Proposed works: Crest of hill needs to suit vertical curve of R 200 (Downer 2013)

Site description and vegetation:
Gravel road pavement, with native vegetation located in adjoining nature strips on either side of road.

Dominant species:

Trees: *Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box), *Eucalyptus rossii* (Scribbly Gum)

Shrubs: *Acacia dealbata, Cassinia arcuata, Cassinia quinquefaria, Dillwynia phylicoides, Styphelia triflora*

Groundcovers: *Joycea pallida, Themeda triandra, Echinopogon caespitosus.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near Natural

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened. Good quality native vegetation with structural diversity and a range of habitat features including shrubs, tussock grasses, woody debris, litter, hollow bearing trees (3) and stags.

Three hollow-bearing trees and stag (Datum – GDA94 Zone 56H):

SPECIES	EASTING	NORTHING
Eucalyptus polyanthemos subsp. *polyanthemos*	198157	6360657
Stag	198119	6360686
Eucalyptus macrorrhyncha	198116	6360676

Area impacted: 1,500 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.
- Minimize impacts to hollow bearing trees.

Impact assessment required: No

Site ID: 3.9 km Road works

Site photo: Refer to Downer Infrastructure Report 2013, page 53.

Proposed works: Remove approximately five trees and level inside of corner (Downer 2013).

Site description and vegetation:
Earth verge and road batter and with nature strip dominated by native trees, shrubs and grasses.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus rossii* (Scribbly Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum)
Shrubs:	*Cassinia arcuata, Macrozamia* sp.
Groundcovers:	*Joycea pallida, Austrostipa* sp., *Lomandra filiformis* subsp. *coriacea, Goodenia hederacea*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – modified (earthworks)

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened. Habitat features include tussock grasses, woody debris and leaf litter.

Area impacted: 240 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.

Impact assessment required: No

Site ID: Passing Bay 11

Proposed works: Development of passing bay – RHS

Site description and vegetation:
Earth road verge adjoining disturbed and largely cleared roadside nature strip and drainage swale. Dominant vegetation cover comprises a few native shrubs and grasses, and exotic groundcovers.

Adjacent vegetation includes *Eucalyptus macrorrhyncha*(Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over a shrub layer of *Acacia dealbata, Cassinia quinquefaria* and a ground layer dominated by *Joycea pallida, Themeda triandra, Rytidosperma* sp. and *Phalaris* sp.

Dominant species:

Shrubs:	*Acacia dealbata, Cassinia arcuata*
Groundcovers:	*Themeda triandra, Rytidosperma* sp., *Dianella longifolia, Plantago lanceolata*, Echium plantagineum**

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - poor
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened. Disturbed roadside habitat with drainage swale.

Area impacted: 45 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No

Site ID: Passing Bay 12

Proposed works: Development of passing bay - RHS

Site description and vegetation:
Earth road verge adjoining disturbed and largely cleared roadside nature strip located under an electrical transmission easement. Vegetation comprises a few native shrubs and native and exotic grasses and forbs. Cut stumps and woody debris piles are present.

Adjacent vegetation includes *Eucalyptus macrorrhyncha*(Red Stringybark), *Eucalyptus rossii* (Scribbly Gum), and *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box) in roadside corridor.

Dominant species:

Shrubs:	*Acacia implexa*
Groundcovers:	*Themeda triandra, Microlaena stipoides*, *Marrubium vulgare*, Modiola caroliniana* Echium plantagineum*, Hypochaeris radicata*, Paspalum dilatatum**

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Disturbed roadside habitat within electrical transmission easement. Few habitat features within site.

Area impacted: 75 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No

Site ID: Passing Bay 13

Proposed works: Development of passing bay - LHS

Site description and vegetation:
Earth road verge adjoining disturbed and largely cleared roadside nature strip adjacent to property gate entrance. Vegetation comprises native and exotic grasses and forbs.

Adjacent vegetation includes *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum) and shrubs including *Acacia implexa, Cassinia arcuata, Persoonia linearis* and *Acacia sertiformis.*

Dominant species:
Groundcovers: *Aristida ramosa, Joycea pallida, Rytidosperma* sp. *Lomandra filiformis* subsp. *coriacea, Goodenia hederacea, Hypochaeris radicata*, Paspalum dilatatum*, Verbena bonariensis**

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Disturbed and previously cleared roadside habitat adjacent to farm gate entrance with few habitat features.

Area impacted: 100 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation. The site requires leveling and removal of fill material.

Impact assessment required: No

Site ID: 5.3 km Road works - crest

Proposed works: Crest of hill needs to suit vertical curve of R 200 (Downer 2013).

Site description and vegetation:
Gravel road pavement, with native vegetation located in adjoining nature strips on either side of road.
Adjacent vegetation includes *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum) and shrubs including *Acacia implexa, Cassinia arcuata, Persoonia linearis* and *Acacia sertiformis.*

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus rossii* (Scribbly Gum), *Eucalyptus blakelyi* (Blakely's Red Gum)
Shrubs:	*Acacia dealbata, Acacia implexa, Acacia sertiformis, Dillwynia phylicoides, Ozothamnus diosmifolius, Dillwynia phylicoides, Styphelia triflora*
Groundcovers:	*Joycea pallida, Aristida ramosa, Rytidosperma caespitosum, Echinopogon caespitosus.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural.

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Good quality native vegetation with structural diversity and a range of habitat features including shrubs, tussock grasses, woody debris, litter and one hollow bearing tree.

One hollow bearing tree (Datum GDA94, Zone 55):

SPECIES	EASTING	NORTHING
Eucalyptus rossii	758717	6361052

Area impacted: 1,500 m²

Mitigation measures:

- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No

Site ID: Passing Bay 14

Proposed works: Development of a passing bay - LHS

Site description and vegetation:
Earth road verge adjoining disturbed and largely cleared roadside nature strip with a drainage swale adjacent to property fence. Vegetation where present comprises native and exotic grasses and forbs.

Adjacent vegetation includes *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum).

Dominant species:
Groundcovers: *Bothriochloa macra, Aristida ramosa, Rytidosperma caespitosum, Echinopogon caespitosus, Paspalum dilatatum*, Hypochaeris radicata*, Dactylis glomerata, Trifolium* sp.

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened.

Area impacted: 90 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, including the spread of weed species.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation. The site requires leveling and removal of fill material.

Impact assessment required: No

Site ID: Passing Bay 15

Proposed works: Development of a passing bay - LHS

Site description and vegetation:
Earth road verge adjoining disturbed and largely cleared roadside nature strip with a drainage swale adjacent to property fence. Vegetation where present is dominated by native grasses comprises native grasses and forbs. Standing water present in road verge.

Adjacent vegetation includes *Eucalyptus macrorrhyncha* (Red Stringybark) and occasional *Eucalyptus rossii* (Scribbly Gum).

Dominant species:
Groundcovers: *Aristida ramosa, Rytidosperma caespitosum, Echinopogon caespitosus, Joycea pallida, Haloragis heterophylla*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened.

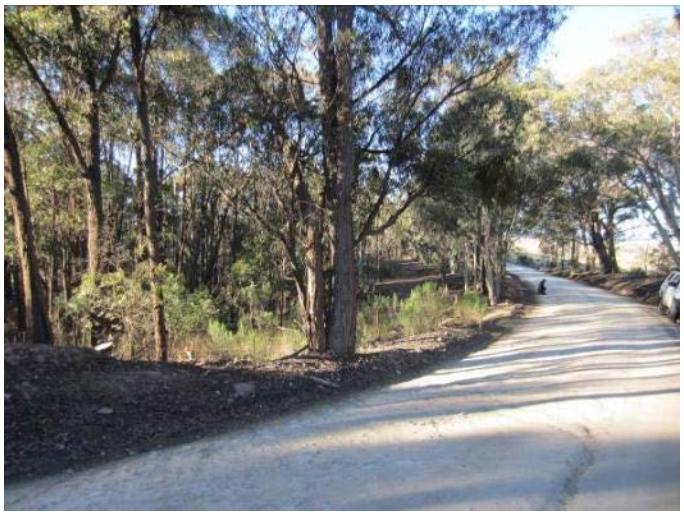
Area impacted: 90 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation. The site requires leveling and removal of fill material.

Impact assessment required: No

Comments: Site may not be suitable due to the narrow width from verge to property fence.

Site ID: 6.6 km Road works



Proposed works: Remove approximately five trees and fill in and level inside corner. Fence post needs to be moved approximately one to two meters (Downer 2013).

Site description and vegetation:
Earth verge and small batter dominated by gravelly soils with few ground covers. Understorey dominated by scattered shrubs and leaf litter.

Dominant species:
Trees: *Eucalyptus macrorrhyncha* (Red Stringybark

Shrubs: *Cassinia arcuata*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Few habitat features but includes scattered shrubs, some woody debris and leaf litter.

Area impacted: 192 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation during tree removal.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation

Impact assessment required: No

Site ID: Passing Bay 16

Proposed works: Development of a passing bay - LHS

Site description and vegetation:
Earth road verge adjoining largely cleared roadside nature strip adjacent to property fence and drainage swale. Few trees are present but include *Eucalyptus mannifera* subsp. *mannifera.* Where present, the understorey is dominated by native grasses.

Adjacent vegetation includes *Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus rossii* (Scribbly Gum) and scattered *Eucalyptus mannifera* subsp. *mannifera.*

Dominant species:

Trees:	*Eucalyptus mannifera* subsp. *mannifera*
Shrubs:	*Cassinia arcuata*
Groundcovers:	*Aristida ramosa, Rytidosperma* sp.*, Echinopogon caespitosus*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Few habitat features are present but include scattered tussock grasses and leaf litter.

Area impacted: 45 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation including adjacent trees.
- Install erosion and sediment control measures during construction.

- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No

Site ID: 6.9 km Road works

Proposed works:
Incline and decline of hill to suit maximum grade 15% crest to suit vertical curve of R 200. (Downer 2013).

Site description and vegetation:
Gravel road pavement, with native vegetation located in adjoining nature strips on either side of road.
Vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) and *Eucalyptus rossii* (Scribbly Gum) over an understorey of native shrubs and grasses.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) and *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Acacia dealbata, Hibbertia obtusifolia, Podolobium ilicifolium, Persoonia linearis*
Groundcovers:	*Joycea pallida, Aristida ramosa, Rytidosperma caespitosum, Lomandra filiformis* subsp. *coriacea, Hardenbergia violacea*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Good habitat features including grass tussocks, woody debris, leaf litter, scattered rocks, and tree hollows.

Three hollow-bearing trees (Datum – GDA94 Zone 56H)

SPECIES	EASTING	NORTHING
Eucalyptus rossii	196041	6358901
Stag	196026	6358906
Stag	196040	6358904

Area impacted: 1,500 m²

Mitigation measures:

- Avoid and/or minimize impacts to adjacent roadside vegetation, including trees and stags with hollows.
- Re-locate timber to non-impacted sites to provide habitat.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No

Site ID: 7.3 km Road works

Proposed works:
Fill in RHS corner to edge of vegetation (Downer 2013).

Site description and vegetation:
Earth road verge and small batter adjoining vegetated nature strip adjacent to property fence. Trees dominated by *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over a native dominated shrubby and grassy understorey.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia quinquefaria, Persoonia linearis, Acacia dealbata*
Groundcovers:	*Joycea pallida*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Some habitat features including grass tussocks, woody debris and leaf litter.

Area impacted: 440 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.

Impact assessment required: No

Site ID: Passing Bay 18

Proposed works: Development of a passing bay - LHS

Site description and vegetation:
Earth road verge adjoining cleared roadside nature strip comprising earthworks and two drainage swales. Minor vegetation regrowth on drainage swales comprising Shrubs and groundcovers.

Adjacent vegetation includes *Eucalyptus macrorrhyncha* (Red Stringybark) *and Eucalyptus rossii* (Scribbly Gum).

Dominant species:
Shrubs: *Cassinia arcuata*

Groundcovers: *Dianella longifolia*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened. Habitat features poor.

Area impacted: 60 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Consideration of drainage swales in development of passing bay

Impact assessment required: No

Site ID: 7.7 km Road works

Proposed works:
Fill in RHS of corner and level camber (Downer 2013).

Site description and vegetation:
Earth road verge and small batter adjoining vegetated nature strip adjacent to property fence. Trees dominated by *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over a native dominated shrubby and grassy understorey, similar to Site 7.3 km road works.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia quinquefaria, Persoonia linearis*
Groundcovers:	*Joycea pallida, Dianella longifolia*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural to modified.

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Habitat features include shrubs, grass tussocks, woody debris and leaf litter.

Area impacted: 258 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, especially tree root zones.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation

Impact assessment required: No

Site ID: 8.1 km Road works

Site Photo: Refer Downer Infrastructure Report (2013), page 59.

Proposed works:
Remove of two trees LHS (Downer 2013).
Site description and vegetation:

Earth road verge and small batter adjoining vegetated nature strip. Trees dominated by *Eucalyptus macrorrhyncha* (Red Stringybark) over a native dominated shrubby and grassy.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark)
Shrubs:	*Cassinia quinquefaria*
Groundcovers:	*Joycea pallida*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural to modified.

Presence of threatened flora and/or fauna: Nil

Conservation significance:
Not threatened. Habitat features include shrubs, grass tussocks, woody debris and leaf litter.

Area impacted: Minor – for tree removal. No change to road pavement width.

Mitigation measures:

- Avoid and/or minimize impacts to adjacent roadside vegetation during removal of trees.

Impact assessment required: No

Site ID: Passing Bay 19

Proposed works: Development of a passing bay - RHS

Site description and vegetation:
Earth road verge adjoining disturbed roadside nature strip from previous soil road works. Native-dominated shrubs and grassy regrowth on soil mounds. Scattered rubbish present.

Adjacent vegetation includes *Eucalyptus macrorrhyncha* (Red Stringybark) *and Eucalyptus rossii* (Scribbly Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) and *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box).

Dominant species:
Shrubs: *Cassinia arcuata, Acacia dealbata, Acacia implexa*

Groundcovers: *Lepidosperma laterale*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – poor
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened.

Area impacted: 45 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.

Impact assessment required: No

Comments: Small and narrow site requiring some levelling and fill.

Site ID: Passing Bay 20

Proposed works: Development of a passing bay - RHS

Site description and vegetation:
Earth road verge adjoining disturbed roadside nature strip with earth spoil piles, rocky debris and two drainage swales with standing water. Native-dominated shrubs and grassy regrowth present. Exotic groundcovers common.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum).

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Rytidosperma racemosum, Echinopogon caespitosus, Juncus* sp., *Centipeda minima, Hypochaeris radicata**

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - poor
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened.

Area impacted: 60 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction. This is a fairly major drainage site for the road pavement on either side.

Impact assessment required: No**:** Not threatened.

Comments:
Site collects runoff and drainage from upslope road pavements and terrain either side of this location and may not be suitable as a passing bay.

Site ID: 9.1 km Road works

Proposed works:
Fill in and level RHS of corner (Downer 2013).

Site description and vegetation:
Earth road verge and small batter adjoining vegetated nature strip. Trees dominated by *Eucalyptus tenella* (Narrow-leaved Stringybark) , *Eucalyptus rossii* (Scribbly Gum) and occasional *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over a native dominated shrubby and grassy understorey.

Adjacent vegetation is similar.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii*
Shrubs:	*Cassinia arcuata, Podolobium ilicifolium, Persoonia linearis*
Groundcovers:	*Austrostipa bigeniculata, Goodenia hederacea, Lomandra longifolia*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural - modified

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include shrubs, grass tussocks, woody debris and leaf litter.

Area impacted: 238m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation

Impact assessment required: No.

Site ID: Passing Bay 21

Proposed works: Development of a passing bay – RHS.

Site description and vegetation:
Earth road verge adjoining disturbed and cleared roadside nature strip adjacent to property entrance.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over shrubby and grassy understorey of *Cassinia arcuata, Acacia implexa* and *Joycea pallida.*

Dominant species: Nil

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low – cleared.
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil

Conservation significance: Not threatened.

Area impacted: 80 m²

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.

Impact assessment required: No**.**

Comments: Minor levelling required. Site considered good for a passing bay as minimal impacts to surrounding vegetation.

Site ID: Passing Bay 22

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge and small batter adjoining shrubby roadside nature strip.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over a shrubby and grassy understorey with few exotic species.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata, Acacia implexa, Olearia elliptica*
Groundcovers:	*Rytidosperma* sp., *Chrysocephalum apiculatum*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural - modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance: Not threatened. Good habitat features including, shrubs, tussock grasses, woody debris and abundant leaf litter.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species as a result of earthworks.

Impact assessment required: No**.**

Site ID: Passing Bay 23

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge adjoining cleared roadside nature strip adjacent to property entrance. Scattered native grasses and forbs present.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over a shrubby and grassy understorey with few exotic species.

Dominant species:
Shrubs: *Cassinia arcuata, Olearia elliptica*

Groundcovers: *Joycea pallida, Austrostipa bigeniculata, Conyza* sp.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural - modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Few habitat features present but includes tussock grasses and woody debris.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation

Impact assessment required: No**.**

Comments: Good site for developing a passing bay due to cleared area and minimal impacts to adjacent vegetation.

Site ID: 10.7 km Road works

Proposed works:
Remove trees/bushes and fill inside of corner and extend culvert underneath to suit. There is a fence situated out if view on the RHS in the bushes that may have to be relocated (Downer 2013).

Site description and vegetation:
Earth road verge adjoining vegetated nature strip comprising regrowth of *Cassinia arcuata, Acacia obtusifolia* and *Olearia elliptica*. Trees dominated by *Eucalyptus tenella* (Narrow-leaved Stringybark) and *Eucalyptus rossii* (Scribbly Gum). Previously disturbed site due to construction of culvert and installation of drainage pipe under the road pavement.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata, Acacia obtusifolia, Olearia elliptica, Cassinia longifolia*
Groundcovers:	*Joycea pallida*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good –good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include shrubs, grass tussocks, woody debris and leaf litter.

Area impacted: 90 m².

Mitigation measures:
Minimize impacts to adjacent roadside vegetation. Erosion and sediment control. Re-vegetation of road batter and adjoining areas following construction works around culvert.

Impact assessment required: No.

Site ID: 10.9 km Road works

Proposed works:
Fill in and level RHS of corner (Downer 2013).

Site description and vegetation:
Earth road verge and small batter adjoining vegetated nature strip comprising native trees shrubs and groundcovers species.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark)
Shrubs:	*Acacia obtusifolia, Persoonia linearis, Podolobium ilicifolium*
Groundcovers:	*Joycea pallida*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good.
Mid-Western Regional Council – Near natural to modified

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include shrubs, grass tussocks, woody debris and leaf litter.

Area impacted: 168 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, in particular, tree roots of adjacent to road batter
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Site ID: 11.0 km Road works

Proposed works:
Remove trees on inside corner and level, extend culvert underneath to suit (Downer 2013).

Site description and vegetation:
Earth road verge and disturbed roadside habitat comprising native trees, shrubs and groundcovers species with few exotic species. Disturbed soil and woody vegetation piles from previous earth and culvert works.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata*
Groundcovers:	*Joycea pallida, Lomandra longifolia*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good -good
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include shrubs, grass tussocks, woody debris and leaf litter.

Area impacted: 203 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Re-vegetation of road batter and adjoining areas following construction of culvert.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Comments: - Road verge on left hand side to be widened and would include the removal of several *Cassinia arcuata* regrowth.

Site ID: Passing Bay 24

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge adjoining cleared roadside nature strip comprising earthworks and two drainage swales. Low cover of scattered native grasses and forbs.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a shrubby and grassy understorey of *Acacia terminalis* subsp. *aurea, Acacia obtusifolia*

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Joycea pallida, Rytidosperma* sp.*, Dianella longifolia, Hypochaeris radicata*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil.

Conservation significance: Not threatened. Few habitat features present.

Area impacted: 45 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Comments: Small site with two drainage swales.

Site ID: 12.0 km Road works

Proposed works:
Remove trees and level RHS of corner (Downer 2013).

Site description and vegetation:
Earth road verge and small batter adjoining vegetated nature strip comprising native trees, shrubs and groundcovers species

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata, Acacia terminalis* subsp. *aurea, Acacia obtusifolia*
Groundcovers:	*Joycea pallida, Echinopogon caespitosus, Platyscae ericoides, Dianella longifolia*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural - Modified

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include shrubs, grass tussocks, woody debris, leaf litter and scattered rocks. No hollow-bearing trees.

Area impacted: 400 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Site ID: Passing Bay 25

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge adjoining cleared roadside nature strip comprising earthworks and drainage swale. Low cover of scattered native grasses and forbs.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a shrubby and grassy understorey of *Acacia terminalis* subsp. *aurea, Acacia obtusifolia, Cassinia arcuata* and *Joycea pallida*.

Dominant species:
Groundcovers: *Joycea pallida, Echinopogon caespitosus*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil.

Conservation significance: Not threatened. Few habitat features present.

Area impacted: 45 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Consideration of drainage swale.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Comments: Small disturbed site with drainage swale.

Site ID: 12.5 km Road works

Proposed works:
Crest to suit R 200 (Downer 2013).

Site description and vegetation:
Gravel road pavement, with native vegetation located in adjoining nature strips on either side of road.

Vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated shrubby and grassy understorey.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata, Acacia obtusifolia, Acacia terminalis* subsp. *aurea, Podolobium ilicifolium*
Groundcovers:	*Joycea pallida, Lomandra longifolia, Phyllanthus hirtellus*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Near natural.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include shrubs, grass tussocks, woody debris, leaf litter and scattered rocks. No hollow-bearing trees but a number of stags present along the RHS.

Area impacted: 1,500 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Re-vegetation of road batter and adjoining areas following pavement modifications if required.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Comments: A number of stags are present along the RHS possibly impacted by underground Telstra cabling. Some gravel piles and rubbish also present on the RHS from previous road works.

Site ID: Passing Bay 26

Proposed works: Development of a passing bay – RHS.

Site description and vegetation:
Earth road verge adjoining cleared roadside nature strip with few shrubs and grasses.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated shrubby and grassy understorey.

Dominant species:
Shrubs: *Acacia sertiformis*

Groundcovers: *Joycea pallida, Echinopogon caespitosus*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil.

Conservation significance: Not threatened. Few habitat features present.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.

Impact assessment required: No.

Comments: Good site with minimal vegetation cover.

Site ID: Passing Bay 27

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge adjoining vegetated nature strip with few shrubs and grasses. Previously cleared with bare earth and surface stones common.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated shrubby and grassy understorey.

Dominant species:
Shrubs: *Acacia obtusifolia, Cassinia arcuata*

Groundcovers: *Joycea pallida*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Few habitat features present including scattered woody debris and some rubbish.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.

Impact assessment required: No**.**

Comments: Good site with minimal vegetation cover.

Site ID: Passing Bay 28


Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge adjoining mainly cleared nature strip with few shrubs and grasses and a drainage swale.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated shrubby and grassy understorey.

Dominant species:
Shrubs: *Acacia obtusifolia, Cassinia arcuata*

Groundcovers: *Austrostipa bigeniculata*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Few habitat features present but includes scattered shrubs, woody debris and small rocks.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction and consideration of drainage swale
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Comments: Small site with drainage swale.

Site ID: 12.9 km Road works

Proposed works:
Level out on RHS. Fill in to level up camber on LHS (Downer 2013).

Site description and vegetation:
Earth road verge and batter adjoining vegetated nature strips dominated by *Eucalyptus tenella* (Narrow-leaved Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated understorey of shrubs and grasses.

Adjacent vegetation is similar.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata, Acacia obtusifolia*
Groundcovers:	*Joycea pallida, Lomandra multiflora, Austrostipa* sp.

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – good.
Mid-Western Regional Council – Near natural – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include scattered shrubs, grass tussocks, woody debris and leaf litter. No hollow-bearing trees.

Area impacted: 618 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Site ID: 13.0 km Road works


Proposed works:
Remove RHS embankment and approximately ten trees. Move fence post. Widen road on LHS as far as possible without tree removal (Downer 2013).

Site description and vegetation:
Earth road verge and batter (LHS) and embankment (RHS) adjoining vegetated nature strips and paddocks dominated by *Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated understorey of shrubs and grasses. Young eucalypt saplings are common along the RHS.

Dominant species:

Trees: *Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus macrorrhyncha* (red Stringybark), *Eucalyptus rossii* (Scribbly Gum)

Shrubs: *Cassinia arcuata*

Groundcovers: *Joycea pallida, Rytidosperma* sp., *Dianella longifolia*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good.
Mid-Western Regional Council – Near natural.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include scattered shrubs, grass tussocks, occasional woody debris and abundant leaf litter and one hollow-bearing tree.

One hollow bearing tree (Datum GDA94, Zone 56):

SPECIES	EASTING	NORTHING
Eucalyptus rossii	198116	6360673

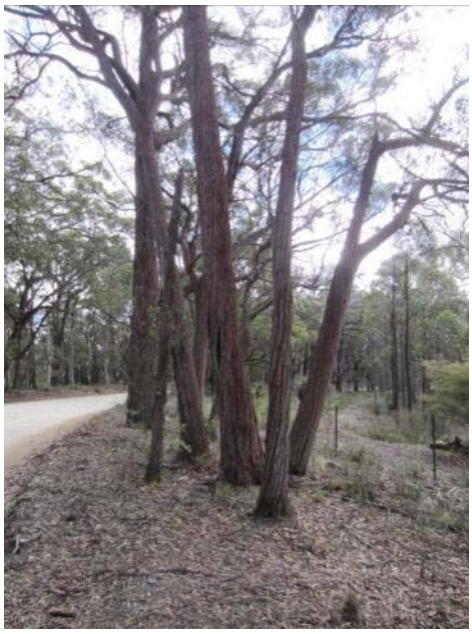
Area impacted: 486 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, in particular, avoiding the removal of one hollow-bearing tree.
- Install erosion and sediment control measures during construction.

- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Site ID: 13.2 km Road works



Proposed works:
Remove approximately 15 trees and level. Relocate fencing to suit (Downer 2013).

Site description and vegetation:
Earth road verge and batter adjoining vegetated nature strip and adjacent paddock dominated by *Eucalyptus tenella* (Narrow-leaved Stringybark) and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated understorey of shrubs and grasses.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Acacia obtusifolia, Persoonia linearis*
Groundcovers:	*Joycea pallida*, *Dichelachne micrantha, Dianella longifolia*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – good
Mid-Western Regional Council – Near natural.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include scattered shrubs, grass tussocks, occasional woody debris and abundant leaf litter.

Area impacted: 328 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Comments: Potentially 21 trees to be removed (19 Narrow-leaved Stringybark and 2 Scribbly Gum) depending upon total impact area.

Site ID: Passing Bay 29

Proposed works: Development of a passing bay – RHS.

Site description and vegetation:
Earth road verge adjoining mainly cleared nature strip with few shrubs and grasses, bounded at the property fence by a row of *Eucalyptus tenella* (Narrow-leaved Stringybark

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated shrubby and grassy understorey.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark)
Shrubs:	*Cassinia arcuata*
Groundcovers:	*Rytidosperma racemosum* var. *racemosum, Joycea pallida*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Few habitat features present but includes scattered woody debris and leaf litter.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Comments: Good site requiring minimal earthworks.

Site ID: Passing Bay 30

Proposed works: Development of a passing bay – RHS.

Site description and vegetation:
Earth road verge adjoining mainly cleared nature strip with scattered grasses

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated shrubby and grassy understorey.

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Rytidosperma racemosum* var. *racemosum, Echinopogon caespitosus*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance: Not threatened. Few habitat features present.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Comments: Reasonable site requiring some levelling and tree protection. Located adjacent to property entrance and home.

Site ID: Passing Bay 31


Proposed works: Development of a passing bay – RHS.

Site description and vegetation:
Earth road verge adjoining previously graded nature strip with scattered grasses.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated shrubby and grassy understorey.

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Joycea pallida*, *Rytidosperma racemosum* var. *racemosum, Aristida ramosa, Poa annua*, Hypochaeris radicata*.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Few habitat features present in selected area but adjoining areas have shrubs, tussock grasses, leaf litter and woody debris.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Minimize spread of weeds into adjoining high value vegetation.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Comments: This passing bay adjoins a patch of high value vegetation as recognised by Mid-Western Regional Council and currently acts as a buffer to this high value patch. The establishment of a passing bay may this impact this area during earthworks, further spreading weeds. There is also a poor line of site for traffic approaching from the west.

Site ID: Passing Bay 32

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge adjoining previously graded nature strip with scattered trees of *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over grasses and a drainage swale.

Adjacent vegetation includes *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over a native-dominated shrubby and grassy understorey.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata*
Groundcovers:	*Joycea pallida*, *Rytidosperma racemosum* var. *racemosum, Chrysocephalum apiculatum, Lomandra filiformis* subsp. *coriacea*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – poor
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Few habitat features present in selected area but adjoining areas have shrubs, tussock grasses, leaf litter and woody debris.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction and consideration of existing drainage swale.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Comments: Narrow, disturbed site with evidence of previous grading and earth works associated with a drainage swale.

Site ID: Passing Bay 34

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge and batter adjoining previously graded nature strip with scattered trees of *Eucalyptus tenella* (Narrow-leaved Stringybark), and *Eucalyptus rossii* (Scribbly Gum) over native shrubs and grasses.

Adjacent vegetation is similar.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata, Cassinia longifolia*
Groundcovers:	*Joycea pallida*, *Rytidosperma racemosum* var. *racemosum, Chrysocephalum apiculatum, Lomandra filiformis* subsp. *coriacea*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Few habitat features present but includes scattered shrubs, piled woody debris and leaf litter.

Area impacted: 45 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Comments: Narrow, disturbed site with evidence of previous earth works, and stockpiling of woody debris.

Site ID: Passing Bay 34A

Proposed works: Development of a passing bay – RHS.

Site description and vegetation:
Earth road verge and adjoining largely cleared nature strip with a minimal cover of scattered native shrubs and grasses.

Adjacent vegetation dominated by *Eucalyptus tenella* (Narrow-leaved Stringybark) and *Eucalyptus rossii* (Scribbly Gum).

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Aristida ramosa, Dianella longifolia, Lomandra filiformis* subsp. *coriacea*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil.

Conservation significance: Not threatened. Few habitat features present.

Area impacted: 60 m².

Mitigation measures:

- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots at eastern end of bay.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No**.**

Site ID: 15.3 km Road works

Site Photo: Refer to Downer Infrastructure Report (2103), page 69.

Proposed works:
Remove approximately 6 trees and level corner (Downer 2013).

Site description and vegetation:
Earth road verge and batter adjoining vegetated nature strip dominated by *Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum) over a native-dominated understorey of shrubs and grasses.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum)
Shrubs:	*Cassinia arcuata, Olearia elliptica,*
Groundcovers:	*Austrostipa* sp. *Dianella longifolia*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good – good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include scattered shrubs, grass tussocks, occasional woody debris and leaf litter. No hollow-bearing trees in vicinity.

Area impacted: 215 m².

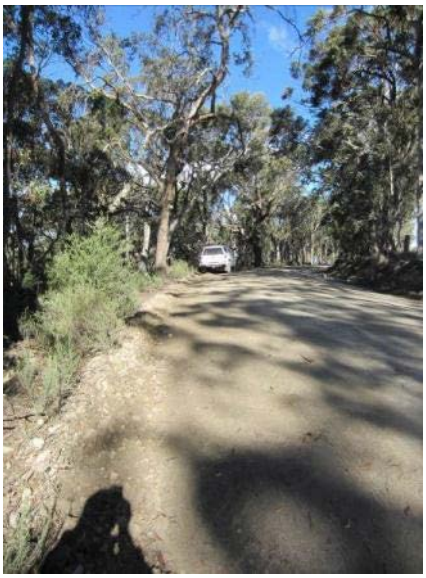
Mitigation measures:

- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to trees and roots at each end of impact area.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Comments: Disturbed site with piled timber and soil mounds within the nature strip. Potential for six trees to be removed.

Site ID: 15.4 km Road works



Proposed works:
Fill and level corner (Downer 2013).

Site description and vegetation:
Earth road verge and recently graded batter adjoining vegetated nature strip dominated by *Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum) and *Eucalyptus mannifera* subsp. *mannifera* over a native-dominated understorey of shrubs and grasses.

Dominant species:

Trees:	*Eucalyptus tenella* (Narrow-leaved Stringybark), *Eucalyptus rossii* (Scribbly Gum), *Eucalyptus mannifera* subsp. *mannifera*
Shrubs:	*Cassinia arcuata, Melicytus dentatus, Olearia elliptica*
Groundcovers:	*Rytidosperma* sp.

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good –good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include scattered shrubs, grass tussocks, woody debris and leaf litter. No hollow-bearing trees in vicinity.

Area impacted: 317 m².

Mitigation measures:

- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Site ID: 15.7 km Road works

Site Photo: Refer to Downer Infrastructure Report (2103), page 71.

Proposed works:
Remove approximately four trees and level inside corner (Downer 2013).

Site description and vegetation:
Earth road verge and embankment adjoining vegetated nature strip dominated by *Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus rossii* (Scribbly Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) and *Eucalyptus bridgesiana* (Apple Box) over a native-dominated understorey of shrubs and grasses and exotic species.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum), *Eucalyptus bridgesiana* (Apple Box)
Shrubs:	*Cassinia arcuata, Melicytus dentatus, Olearia elliptica*
Groundcovers:	*Rytidosperma* sp., *Poa sieberiana* var. *sieberiana, Lomandra filiformis* subsp. *coriacea, Hypochaeris radicata*, Rubus fruiticosus* agg. spp.*

Biometric Vegetation Type:
Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Not threatened. Habitat features include scattered shrubs, grass tussocks, abundant woody debris and leaf litter. No hollow-bearing trees in vicinity.

Area impacted: 219 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required: No.

Site ID: Passing Bay 35

Proposed works:
Development of a passing bay – LHS.

Site description and vegetation:
Narrow earth road verge and adjoining nature strip located between a culvert and drainage swale. Vegetation dominated by *Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over a grassy understorey.

Adjacent vegetation is similar

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Rytidosperma racemosum* var. *racemosum, Lomandra filiformis* subsp. *coriacea, Hypericum perforatum*, Echium plantagineum**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of an EEC of high value in the area.

Few habitat features present but include scattered woody debris and leaf litter.

Area impacted: 45 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots at eastern end of bay.
- Install erosion and sediment control measures during construction and consideration of drainage swale and culvert.

- Minimize the spread of exotic species.
- Avoid stockpiling road gravel on native vegetation.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – native species are present in the understorey and it is likely that the site has a viable seed bank

Comments: Small disturbed site resulting from construction works and maintenance of drainage swale, culvert and general road maintenance.

Site ID: 16.0 km Culvert

Proposed works:
Road and drainage needs widening to at least 6 metres (Downer 2013).

Site description and vegetation:
Earth road verge and adjoining vegetated nature strip dominated by *Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) and *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box) over an understorey of native and exotic shrubs and grasses. Disturbed site containing culvert and drainage swale.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum), *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box)
Shrubs:	*Cassinia arcuata, Melicytus dentatus, Olearia elliptica*
Groundcovers:	*Rytidosperma racemosum* var. *racemosum.*, *Poa sieberiana* var. *sieberiana, Lomandra filiformis* subsp. *coriacea, Tagetes minuta*, Cirsium vulgare*, Marrubium vulgare**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good - good
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of an EEC of high value in the area.

Habitat features include scattered shrubs, grass tussocks, abundant woody debris and leaf litter. No hollow-bearing trees in vicinity.

Area impacted: 180 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots at eastern end of bay.
- Install erosion and sediment control measures during construction and consideration of drainage swale and culvert.

- Minimize the spread of exotic species.

Potential for 10 trees to be removed or impacted as a result of upgrading the culvert (5 x Brittle Gum, 1 x stag, 1 x *Acacia implexa,* 1 x Red Box and 1 x *Eucalyptus* sp.)

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – native species are present in the understorey and it is likely that the site has a viable seed bank

Site ID: Passing Bay 36

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Narrow earth road verge and batter and adjoining nature strip. Vegetation dominated by *Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over a grassy understorey mixed with areas of bare earth and surface stones.

Dominant species:

Trees:	*Eucalyptus macrorrhyncha* (Red Stringybark), *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum)
Shrubs:	*Cassinia arcuata,*
Groundcovers:	*Rytidosperma racemosum* var. *racemosum, Austrostipa scabra, Euchiton* sp.

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of an EEC of high value in the area..

Few habitat features present but include scattered tussock grasses, woody debris and leaf litter.

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.

- Minimize the spread of exotic species.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – native species are present in the understorey and it is likely that the site has a viable seed bank.

Comments:.
Approximately 400 mm depth of soil material will require removal for the formation of a passing bay.

Site ID: C1 Culvert

Proposed works: Widen road at culvert.

Site description and vegetation:
Narrow section of road with earth verge and batter with culvert. Vegetation dominated by *Eucalyptus blakelyi* (Blakely's Red Gum) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over a grassy understorey. Disturbed site with culvert and drainage swales.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum)
Shrubs:	*Acacia dealbata, Melicytus dentatus*
Groundcovers:	*Rytidosperma racemosum* var. *racemosum, Austrostipa scabra, Euchiton* sp.

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good – good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of an EEC of high value in the area.

Few habitat features present but include scattered tussock grasses, woody debris and leaf litter.

Area impacted: 180 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction and consideration of drainage swale and culvert.
- Minimize the spread of exotic species.

Potential for 3 trees to be removed or impacted as a result of upgrading the culvert (1 x Blakely's Red Gum, and 2 x Brittle Gum)

Impact assessment required:

EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – native species are present in the understorey and it is likely that the site has a viable seed bank.

Site ID: C2 Culvert

No Site Photo

Proposed works: Widen road at culvert.

Site description and vegetation:
Narrow section of road with earth verge and batter with culvert. Vegetation dominated by *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over a grassy understorey of native and exotic grasses. Disturbed site with culvert and drainage swales.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum)
Shrubs:	*Melicytus dentatus*
Groundcovers:	*Poa sieberiana* var. *sieberiana, Phalaris aquatica**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good - poor
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of an EEC of high value in the area.

Few habitat features present but include scattered tussock grasses, woody debris and leaf litter.

Area impacted: 180 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction and consideration of drainage swale and culvert.
- Minimize the spread of exotic species.

Potential for 8 trees to be removed or impacted as a result of upgrading the culvert (1 x Blakely's Red Gum, 2 x Red Stringybark and 5 x Brittle Gum). Minimize impacts to adjacent roadside vegetation to prevent tree loss where possible. Erosion and sediment control around culvert.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes - although the understorey is degraded, there are native species present and likely to be a viable seed bank.

Site ID: Passing Bay 38

Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Narrow earth road verge and batter adjoining previously graded nature strip. Disturbed roadside habitat dominated by a mix native and exotic grasses with a cover of 70%.

Adjacent vegetation dominated by *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over a grassy understorey.

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Rytidosperma racemosum* var. *racemosum, Bothriochloa macra, Paspalum dilatatum*, Phalaris* sp.*, *Cirsium vulgare**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good - poor
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of an EEC of high value in the area.

Few habitat features present

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation
- Install erosion and sediment control measures during construction .
- Minimize the spread of exotic species.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes - although the understorey is degraded, there are native species present and likely to be a viable seed bank.

Site ID: Passing Bay 39

Proposed works: Development of a passing bay – RHS.

Site description and vegetation:
Earth road verge adjoining previously graded and cleared nature strip adjacent to property entrance. Disturbed roadside habitat dominated by a mix of bare earth, surface stones, and native and exotic grasses.

Adjacent vegetation dominated by *Eucalyptus macrorrhyncha* (Red Stringybark) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over a grassy understorey of *Themeda triandra* and *Phalaris* sp.

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Rytidosperma* sp. *Aristida ramosa, Eleusine tristachya* Cynodon dactylon**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of an EEC of high value in the area.

Few habitat features present

Area impacted: 80 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – No. Although there are native species present, the site is an existing property access with an extensive area of bare earth. It is unlikely that there is a viable seed bank present at this site.

Site ID: C3 Culvert

Proposed works: Widen road and culvert.

Site description and vegetation:
Narrow section of road (5m) with batter and culvert. Vegetation dominated by *Eucalyptus bridgesiana* (Apple Box) over scattered shrubs and a grassy understorey dominated by exotic grasses. Disturbed site with culvert and drainage swales.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum)
Shrubs:	*Melicytus dentatus, Acacia dealbata*
Groundcovers:	*Phalaris aquatica*, Dactylis glomerata*, Bromus catharticus*, Hypericum perforatum*, Plantago lanceolata**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good – poor.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of an EEC of high value in the area.

Few habitat features present but include scattered shrubs, grasses, woody debris and leaf litter.

Area impacted: 302 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction and consideration of drainage swale and culvert.
- Minimize the spread of exotic species.

Potential for 8 trees to be removed or impacted as a result of upgrading the culvert (1 x Blakely's Red Gum, 2 x Red Stringybark and 5 x Brittle Gum.)

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – although exotic species predominate, it is likely that the site contains a viable seed bank.

Site ID: 17.3 km Causeway

No Site Photo

Causeway appears suitable, however, maximum axle loading needs to be determined (refer Downer Report 2013), page 73

Site description and vegetation:
Exotic dominated grassy vegetation on either side of causeway.

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified this area as being an EEC of high value.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – although exotic species predominate, it is likely that the site contains a viable seed bank.

Site ID: C4 Culvert

No Site Photo: Small culvert adjacent to Passing Bay 40.

Proposed works:
Widen Culvert and road pavement.

Site description and vegetation:
Earth road verge and adjoining vegetated nature strip dominated by exotic shrubs and grasses. Disturbed site containing culvert.

Dominant species:
Shrubs: *Verbena bonariensis**

Groundcovers: *Phalaris aquatica*, Dactylis glomerata*, Cirsium vulgare**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Degraded patch within White Box, Yellow Box Blakely's Red Gum Woodland EEC.
Mid-Western Regional Council has identified this area as being an EEC of high value.

Few habitat features but includes grass tussocks and occasional woody debris.

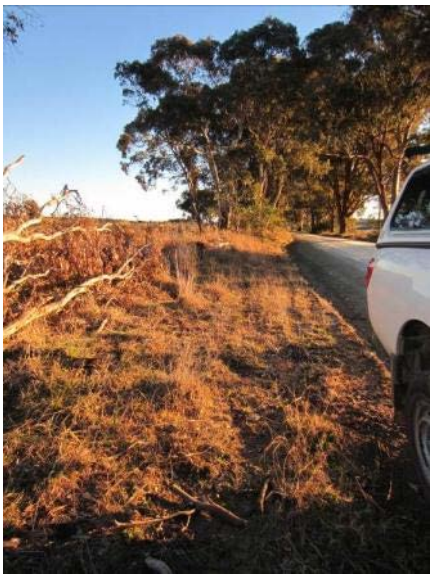
Area impacted: 180 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation., particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – No – there are no native species in the understorey and the site is unlikely to respond to assisted natural regeneration.

Site ID: Passing Bay 40



Proposed works: Development of a passing bay – LHS.

Site description and vegetation:
Earth road verge adjoining vegetated nature strip dominated by few trees and saplings of *Eucalyptus blakelyi* (Blakely's Red Gum) and exotic-dominated grasses.

Adjacent vegetation dominated by *Eucalyptus blakelyi* (Blakely's Red Gum) over an exotic-dominated grassy understorey.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum)
Shrubs:	*Verbena bonariensis**
Groundcovers:	*Themeda triandra, Rytidosperma racemosum* var. *racemosum, Phalaris* sp.*, *Paspalum dilatatum**, *Hypochaeris radicata**, *Plantago lanceolata**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Degraded patch within White Box, Yellow Box, Blakely's Red Gum Woodland EEC.
Mid-Western Regional Council has identified this area as being an EEC of high value.

Few habitat features present.

Area impacted: 80 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – although exotic species predominate, it is likely that the site contains a viable seed bank.

Site ID: 17.9 km causeway

Proposed works:
Causeway is founded on poor sub-layer and will crack under load. Recommend full replacement (Downer 2013).

Site description and vegetation:
Earth road verge adjoining vegetated nature strip dominated *Eucalyptus blakelyi* (Blakely's Red Gum) over an exotic dominated grassy understorey. Disturbed site with earthworks and drainage swales either side of causeway.

Adjacent vegetation dominated by *Eucalyptus blakelyi* (Blakely's Red Gum) over an exotic-dominated grassy understorey.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum),
Groundcovers:	*Themeda triandra, Poa sieberiana* var. *sieberiana, Phalaris* sp.*, *Paspalum dilatatum*, Dactylis glomerata*, Plantago lanceolata**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good – poor.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Degraded patch within White Box, Yellow Box, Blakely's Red Gum Woodland EEC

Few habitat features present.

Area impacted: 410m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – although exotic species predominate, it is likely that the site contains a viable seed bank.

Site ID: C5 Culvert

No Site Photo

Proposed works: Widen road and culvert.

Site description and vegetation:
Narrow section of road culvert. Vegetation dominated shrubs of *Melicytus dentatus* and a grassy understorey dominated by exotic grasses. One small *Eucalyptus bridgesiana* (Apple Box) located on the LHS.

Dominant species:

Trees:	*Eucalyptus bridgesiana* (Apple Box)
Shrubs:	*Melicytus dentatus*
Groundcovers:	*Phalaris aquatica*, Dactylis glomerata*, Paspalum dilatatum**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good – poor.
Mid-Western Regional Council – Degraded.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence this EEC within the area.

Few habitat features present but include scattered shrubs, and grasses.

Area impacted: 100 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Potential for one Apple Box on the LHS to be removed as a result of upgrading the culvert. Erosion and sediment control around culvert.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – although exotic species predominate, it is likely that the site contains a viable seed bank.

Site ID: C6 Culvert


Proposed works: Widen road and culvert.

Site description and vegetation:
Narrow section of road with culvert. Vegetation dominated by *Eucalyptus bridgesiana* (Apple Box) and *Eucalyptus blakelyi* (Blakely's Red Gum) over scattered shrubs and a grassy understorey dominated by exotic grasses.

Dominant species:

Trees:	*Eucalyptus bridgesiana* (Apple Box), *Eucalyptus blakelyi* (Blakely's Red Gum)
Shrubs:	*Melicytus dentatus*
Groundcovers:	*Phalaris aquatica*, Dactylis glomerata*, Paspalum dilatatum**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good – poor
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence of this EEC within the area.

Few habitat features present but include scattered shrubs, grasses, woody debris and leaf litter.

Area impacted: 280 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Potential for four trees to be removed on LHS as a result of upgrading the culvert and road widening (2 x Apple Box, 1 x Blakely's Red Gum, 1 x Yellow Box). Erosion and sediment control around culvert.

Impact assessment required:

EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – although exotic species predominate, it is likely that the site contains a viable seed bank.

Site ID: Passing Bay 41

Proposed works: Widen road and culvert.

Site description and vegetation:
Bare earth verge and adjoining nature strip dominated by exotic grasses and bare earth adjacent to property entrance.

Adjacent vegetation comprises *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box), *Eucalyptus blakelyi* (Blakely's Red Gum) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over an exotic-dominated grassy understorey.

Dominant species:
Groundcovers: *Dactylis glomerata*, Rytidosperma caespitosum*

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Degraded patch of White Box, Yellow Box, Blakely's Red Gum Woodland EEC.

Few habitat features present.

Area impacted: 180 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – No. Although there are native species present, the site is an existing property access with an extensive area of bare earth. It is unlikely that there is a viable seed bank present at this site.

Site ID: W1

Proposed works: Widen road.

Site description and vegetation:
Narrow section of road pavement. Vegetation dominated by *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus bridgesiana* (Apple Box) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) and over scattered shrubs and a grassy understorey dominated by exotic grasses. Disturbed nature strip through previous grading and earthworks.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus bridgesiana* (Apple Box) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum)
Shrubs:	*Acacia dealbata*
Groundcovers:	*Dactylis glomerata*, Paspalum dilatatum*, Plantago lanceolata**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence this EEC within the area.

Few habitat features present but include scattered shrubs, grasses and leaf litter.

Area impacted: 270 m².

Mitigation measures:
Potential for one Apple Box on the LHS to be removed as a result of upgrading the culvert. Erosion and sediment control around culvert.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – No. Although there are native species present, the site is an existing property access with an extensive area of bare earth. It is unlikely that there is a viable seed bank present at this site.

Site ID: W2

Proposed works: Widen road.

Site description and vegetation:
Narrow section of road pavement. Vegetation dominated by *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus bridgesiana* (Apple Box) and *Eucalyptus macrorrhyncha* (Red Stringybark) and over scattered shrubs and a grassy understorey dominated by exotic grasses. Disturbed nature strip through previous grading and earthworks.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus bridgesiana* (Apple Box) and *Eucalyptus macrorrhyncha* (Red Stringybark)
Shrubs:	*Acacia dealbata, Cassinia arcuata*
Groundcovers:	*Dactylis glomerata*, Paspalum dilatatum*, Plantago lanceolata**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good.
Mid-Western Regional Council – Modified.

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council have identified the presence this EEC within the area.

Few habitat features present but include scattered shrubs, grasses and occasional woody debris.

Area impacted: 150 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – although exotic species predominate, it is likely that the site contains a viable seed bank.

Site ID: Passing Bay 42

Proposed works: Development of a passing bay – RHS.

Site description and vegetation:
Earth road verge and small batter adjoining disturbed nature strip dominated by exotic grasses and forbs. Mounded soil and rubble present.

Adjacent vegetation includes *Eucalyptus blakelyi* (Blakely's Red Gum), and *Eucalyptus polyanthemos* subsp. *polyanthemos* (Red Box) over an exotic-dominated grassy understorey.

Dominant species:

Shrubs:	*Cassinia arcuata*
Groundcovers:	*Aristida ramosa, Austrostipa scabra, Dactylis glomerata*, Hypochaeris radicata**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Low.
Mid-Western Regional Council – Degraded

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box, Yellow Box, Blakely's Red Gum Woodland EEC. Mid-Western Regional Council have identified the presence this EEC within the area.

Few habitat features present but includes grasses and occasional woody debris

Area impacted: 60 m².

Mitigation measures:
- Avoid and/or minimize impacts to adjacent roadside vegetation, particularly avoiding impact to tree roots.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – although exotic species predominate, it is likely that the site contains a viable seed bank.

Comments: Reasonable site requiring some levelling and tree protection.

Site ID: W3

Proposed works: Widen road pavement to suit to minimum 6 m.

Site description and vegetation:
Narrow section of road pavement adjoining verge and vegetated nature strip dominated by *Eucalyptus bridgesiana* (Apple Box) and *Eucalyptus melliodora* (Yellow Box) over an understorey of scattered shrubs and exotic grasses and forbs.

Adjacent vegetation is similar.

Dominant species:

Trees:	*Eucalyptus bridgesiana* (Apple Box) and *Eucalyptus melliodora* (Yellow Box)
Shrubs:	*Melicytus dentatus*
Groundcovers:	*Themeda triandra, Paspalum dilatatum*, Dactylis glomerata*, Hypochaeris radicata**

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good.
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box-Yellow Box-Blakely's Red Gum Woodland EEC. Mid-Western Regional Council have identified the presence this EEC within the area.

Few habitat features present but includes dense grasses, occasional woody debris and hollow bearing trees.

Two hollow bearing trees on RHS (Datum GDA94, Zone 56):

SPECIES	EASTING	NORTHING
Eucalyptus bridgesiana	198870	6360380
Eucalyptus melliodora	198867	6360377

Area impacted: 60 m².

Mitigation measures:

- Recommend widening the road pavement on the LHS to avoid removal of the two hollow-bearing trees on the RHS.
- Remove large woody debris into adjacent areas to provide habitat.
- Minimize impacts to adjacent roadside vegetation generally.
- Install erosion and sediment control measures during construction.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.
TSC Act – Yes – the understorey is predominantly grassy containing some native species. A viable seed bank is likely to be present.

Comments: Reasonable site requiring some levelling and tree protection.

Site ID: 19.2 km culvert

Proposed works: Widen road pavement at culvert to suit to minimum 6 m.

Site description and vegetation:
Narrow section of road pavement adjoining verge and vegetated nature strip dominated by *Eucalyptus blakelyi* (Blakely's Red Gum) over an understorey of scattered shrubs and exotic grasses and forbs. Site includes a drainage swale.

Adjacent vegetation is similar.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus melliodora* (Yellow Box)
Shrubs:	*Acacia dealbata, Melicytus dentatus*
Groundcovers:	*Dactylis glomerata*, Phalaris* sp.*, *Paspalum dilatatum*, Plantago lanceolata*, Trifolium* sp.*

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good.
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box-Yellow Box-Blakely's Red Gum Woodland EEC. Mid-Western Regional Council have identified the presence this EEC within the area.

Few habitat features present but includes dense grasses, occasional woody debris and hollow bearing trees. The site also contains piles of soil fill and concrete.

Area impacted: 205 m².

Mitigation measures:

- Minimize impacts to adjacent roadside vegetation generally, especially to adjacent tree roots where possible.

- Install erosion and sediment control measures during construction.

Impact assessment required:
EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.
TSC Act – Yes – the understorey is predominantly grassy containing some native species. A viable seed bank is likely to be present.

Site ID: 19.2 km Causeway

Proposed works: Causeway paving is cracked suggesting poor subgrade. Suggest replacing subgrade and repaving (Downer 2013).

Site description and vegetation:
Concrete pavement adjoining verge and vegetated nature strip dominated by *Eucalyptus blakelyi* (Blakely's Red Gum) and *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum) over an understorey of scattered shrubs, and exotic grasses and forbs.

Adjacent vegetation is similar.

Dominant species:

Trees:	*Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus mannifera* subsp. *mannifera* (Brittle Gum)
Shrubs:	*Acacia dealbata, Cassinia arcuata*
Groundcovers:	*Dactylis glomerata*, Phalaris* sp.*, *Paspalum dilatatum*, Plantago lanceolata*, Trifolium* sp.*

Biometric Vegetation Type:
White Box-Blakely's Red Gum-Yellow Box grassy woodland.

Site condition: Biometric – Moderate to good.
Mid-Western Regional Council – Modified

Presence of threatened flora and/or fauna: Nil.

Conservation significance:
Vegetation at this site conforms to the White Box-Yellow Box-Blakely's Red Gum Woodland EEC. Mid-Western Regional Council has identified the presence this EEC within the area.

Few habitat features present but includes dense grasses, occasional woody debris and hollow bearing trees.

Area impacted: 301 m².

Mitigation measures:

- Minimize impacts to adjacent roadside vegetation generally, especially to adjacent tree roots where possible.
- Install erosion and sediment control measures during construction.
- Minimize the spread of exotic species.

Impact assessment required:

EPBC Act – No – understorey does not contain 12 or more native understorey species excluding grasses.

TSC Act – Yes – the understorey is predominantly grassy containing some native species. A viable seed bank is likely to be present.

Addendum Appendix B: Flora and fauna species list

Flora species

SCIENTIFIC NAME	COMMON NAME	LEGAL STATUS	NATIVE/ EXOTIC	RSB-RBX-LLB-SG	WBX-BRG-YBX
Acacia buxifolia	Box-leaved Wattle	U	N	X	
Acacia dealbata	Silver Wattle	U	N	X	
Acacia implexa	Hickory Wattle	U	N	X	
Acacia terminalis	Sunshine Wattle	U	N	X	
Acacia ulicifolia	Prickly Moses	U	N	X	
Acaena ovina		U	N		X
Acetosella vulgaris	Sorrel	U	E		X
Aristida ramosa	Purple Wiregrass	U	N	X	
Aristida spp.		U	N	X	
Asperula conferta	Common Woodruff	U	N		X
Austrostipa scabra	Speargrass	U	N	X	
Austrostipa bigeniculata		U	N	X	
Bidens pilosa	Cobbler's Pegs	U	E		
Billardiera scandens	Apple-berry	U	N	X	
Bothriochloa macra	Red Grass	U	N	X	
Brassica spp.		U	E		X
Bromus catharticus	Praire Grass	U	E	X	X
Calotis cuneifolia	Purple Burr-Daisy	U	N	X	
Cassinia arcuata	Sifton Bush	U	N	X	
Cassinia quinquefaria		U	N	X	
Centaurium spp.		U	E	X	
Cheilanthes sieberi subsp. *sieberi*		U	N	X	
Chondrilla juncea				X	
Choretrum candollei	White Sour Bush	U	N	X	
Chrysocephalum apiculatum	Common Everlasting, Yellow But	U	N	X	
Cirsium vulgare	Spear Thistle	U	E	X	
Clematis aristata	Old Man's Beard	U	N	X	
Conyza sp.		U	E	X	
Cynodon dactylon	Couch	U	N	X	
Dactylis glomerata	Cocksfoot	U	E		X
Daviesia genistifolia	Broom Bitter Pea	U	N		X
Dianella longifolia		U	N	X	
Dichelachne micrantha	Shorthair Plumegrass	U	N	X	
Dichelachne spp.		U	N	X	
Dillwynia phylicoides		U	N	X	
Echinopogon caespitosus	Bushy Hedgehog-grass	U	N	X	
Echium plantagineum	Purple Viper's Bugloss	U	E	X	

SCIENTIFIC NAME	COMMON NAME	LEGAL STATUS	NATIVE/ EXOTIC	RSB-RBX-LLB-SG	WBX-BRG-YBX
Eleusine tristachya	Goose Grass	U	E		X
Elymus scaber		U	N		X
Eragrostis spp.		U	N		X
Eremophila debilis	Amulla	U	N	X	
Eucalyptus albens	White Box	U	N	X	X
Eucalyptus blakelyi	Blakely's Red Gum	U	N	X	X
Eucalyptus bridgesiana	Apple Box	U	N	X	X
Eucalyptus macrorhyncha	Red Stringybark	U	N	X	X
Eucalyptus mannifera subsp. *mannifera*		U	N	X	X
Eucalyptus melliodora	Yellow Box	U	N	X	X
Eucalyptus polyanthemos subsp. *polyanthemos*	Red Box	U	N	X	X
Eucalyptus rossii		U	N	X	
Eucalyptus tenella		U	N	X	
Euchiton sp.		U	N		X
Exocarpos cupressiformis	Native Cherry	U	N	X	
Galium gaudichaudii	Rough Bedstraw	U	N	X	
Geranium sp.		U	N	X	
Glycine clandestina		U	N	X	
Gonocarpus tetragynus		U	N	X	
Goodenia hederacea subsp. *hederacea*	Ivy Goodenia	U	N	X	
Haloragis heterophylla		U	N	X	
Hardenbergia violacea	False Sarsaparilla	U	N	X	
Hibbertia obtusifolia	Hoary guinea flower	U	N	X	
Hypericum perforatum	St. Johns Wort	U	E		X
Hypochaeris radicata	Catsear	U	E	X	
Indigofera australis	Australian Indigo	U	N	X	
Joycea pallida	Silvertop Wallaby Grass	U	N	X	
Juncus sp.		U	N	X	
Lactuca serriola	Prickly Lettuce	U	E	X	
Lolium sp.		U	E	X	
Lomandra filiformis subsp. *coriacea*	Wattle Matt-rush	U	N	X	
Lomandra longifolia	Spiny-headed Mat-rush	U	N	X	
Lomandra multiflora	Many-flowered Mat-rush	U	N	X	
Malva parviflora	Small-flowered Mallow	U	E	X	
Marrubium vulgare	Horehound	U	E	X	
Microlaena stipoides		U	N	X	
Modiola caroliniana	Red-flowered Mallow	U	E	X	
Monotoca scoparia		U	N	X	
Olearia elliptica	Sticky Daisy Bush	U	N	X	
Panicum queenslandicum	Yadbila Grass	U	N		X
Paspalum dilatatum	Paspalum	U	E	X	

SCIENTIFIC NAME	COMMON NAME	LEGAL STATUS	NATIVE/ EXOTIC	RSB-RBX-LLB-SG	WBX-BRG-YBX
Phalaris aquatica	Phalaris	U	E		X
Phalaris sp.		U	E		X
Phytolacca octandra	Inkweed	U	E	X	
Pimelea curviflora var. sericea		U	N		X
Plantago lanceolata	Lamb's Tongues	U	E	X	
Platysace ericoides		U	N	X	
Poa sieberiana		U	N		X
Pultenaea sp.		U	N	X	
Rosa rubiginosa	Sweet Briar	U	E		X
Rubus fruticosus spp. agg.	Blackberry complex	U	E		X
Rytidosperma racemosa var. *racemosa*		U	N	X	
Rytidosperma spp.		U	N	X	
Senecio prenanthioides		U	N	X	
Senecio quadridentatus	Cotton Fireweed	U	N	X	
Setaria parviflora					X
Solanum nigrum	Black-berry Nightshade	U	E	X	
Sonchus oleraceus	Common Sow-thistle	U	E	X	
Stackhousia viminea	Slender Stackhousia	U	N	X	
Styphelia triflora	Pink Five-Corners	U	N	X	
Tagetes minuta	Stinking Roger		E		X
Themeda triandra	Kangaroo Grass	U	N	X	
Trifolium spp.		U	E	X	
Verbascum thapsus subsp. *thapsus*	Blanket Weed	U	E	X	
Verbena bonariensis	Purpletop	U	E	X	
Veronica plebeia	Trailing Speedwell	U	N	X	
Wahlenbergia communis	Tufted Bluebell	U	N		X
Xanthorrhoea johnsonii		P13	N	X	
Zornia dyctiocarpa		U	N		X

Fauna species

SCIENTIFIC NAME	COMMON NAME	LEGAL STATUS	NATIVE / EXOTIC	RSB-RBX-LLB-SG	WBX-BRG-YBX
Birds					
Alisterus scapularis	Australian King Parrot	P	N		X
Gymnorhina tibicen	Australian Magpie	P	N		X
Acanthiza pusilla	Brown Thornbill	P	N	X	
Climacteris picumnus victoriae	**Brown Treecreeper**	V	N		X
Ocyphaps lophotes	Crested Pigeon	P	N		X
Platycercus elegans	Crimson Rosella	P	N	X	X
Psephotus haematonotus	Red-rumped Parrot	P	N		X
Frogs					
Crinia signifera	Common Eastern Froglet	P	N		X
Litoria sp.		P	N		X
Mammals (non flying)					
Macropus giganteus	Eastern Grey Kangaroo	P	N	X	X
Vulpes vulpes	Fox	U	E		X
Capra hircus	Goat	U	E	X	
Sus scrofa	Pig	U	E		X
Oryctolagus cuniculus	Rabbit	U	E		X

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