The Rural City of Murray Bridge
Preliminary Documentation Assessment Report
Maurice Road 2010/5713

VERSION 28.2.2020

MURRAY BRIDGE
THRIVING COMMUNITIES

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

Acknowledgement of traditional owners

We acknowledge the Ngarrindjeri people as the traditional owners of this land on which we meet and work. We respect and acknowledge their spiritual connection as the custodians of this land and that their cultural heritage beliefs are still important to the living people today.

We recognise the living culture and combined energies of the Ngarrindjeri people our global pioneers and community members today for their unique contribution to the life of our region.

MAKE IT YOURS

Murray Bridge is changing. We're creating an environment where you can make your own opportunities, make a home, make an investment, and make memories.

1 Introduction

The Rural City of Murray Bridge (Council) has identified road infrastructure works along Maurice Road between the Murray Bridge quarry and the Old Princes Highway. Following initial discussions with the Department of Agriculture, Water and the Environment (DAWE); Council recognises that the proposed works are considered as significant impacts to listed threatened species – covering both flora and fauna – under the Environment protection and Biodiversity Conservation Act 1999 (EPBC Act).

Changes to the design undertaken in 2010 have been implemented and this alters the development footprint.

In order to comply with the requirements of the EPBC Act, Council is conducting a public consultation process to inform interested parties of the proposed works.

2 Purpose

With respect the to proposed road infrastructure works, the purpose of this document is for Council to consult with:

1. Department of Water and Environment (DAWE)
2. Native Vegetation Council (NVC)
3. Landscapes SA
4. General public

This will provide additional clarity for Council to develop effective environmental mitigation measures and risk management systems associated with potential impacts to EPBC Act listed species that have been identified as being in the vicinity of the proposed works.

3 Proponent Details

The Rural City of Murray Bridge

2 Seventh Street

Murray Bridge

SA 5253

Telephone: (08) 8539 1100

Web page: https://www.murraybridge.sa.gov.au/

4 Legislation

4.1 Federal Legislation – Environment Protection and Biodiversity Conservation Act, 1999

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) protects the environment, particularly matters of national environmental significance.

4.2 South Australia State Legislation – Native Vegetation Act 1991

The project area, located near Murray Bridge, is subject to the conditions of the Native Vegetation Act, 1991 (SA).

With reference to the principles of clearance of native vegetation under this Act, an assessment of native vegetation situated within the project area has been completed and subsequently approved by the Native Vegetation Council – please refer to Section 11 for further details.

4.3 South Australia State Legislation - National Parks and Wildlife Act, 1972

The National Parks and Wildlife Act, 1972 (SA) protects vegetation located within Conservation Parks, Conservation Reserves and any flora and fauna species listed under Schedules 7, 8, and 9 of the Act. The flora and fauna of the Ferries McDonald Conservation Park and Monarto Conservation Park also occur within the project area, and are protected under this Act.

There are a number of species listed under Schedules 7, 8 and 9 which occur within the project area; and others that although not recorded during the most recent survey, are considered; please refer to Section 10 for further details.

5 Planning Approvals

Not required under the Local Government Act 1999, Road Infrastructure.

6 Project Background

In 2010, Council completed a design to upgrade Maurice Road to implement safety improvements associated with the existing gravel surface and sharp bends. An application was lodged with the DAWE to upgrade Maurice Road. as significant impacts on listed threstened species may occur during the proposed construction and sealing of Maurice Road, Murray Bridge, 5253 (refer Appendix 1A – 1F).

A delegate of the Minister determined that the proposed action (i.e. road infrastrcture works) is a controlled action under the EPBC Act for significant impacts on listed threatened species (Section 18), and the subsequent assessment approach would be by preliminary documentation.

The areas adjacent to Maurice Road contain EPBC Act listed flora and fauna habitat. The flora and fauna of concern are:

- Flora:
    - Monarto Mintbush (*Prosthanthera eurybioides)*
    - Menzel's Wattel Acacia (*Acacia menzelli)*
- Fauna:
    - Malleefowl *(Leipoa ocellata)*

Following initial investigations in 2010, the design for Maurice Road has been subject to review and was varied to align with current road design guidelines. The layout of the updated design is provided in Appendix 2. These recent changes have included:

- Minor modifications to the proposed road alignment
- Addition of a new 'T' junction between Maurice Road and the Old Princes Highway, which will impact some roadside vegetation.

This design variation has increased the proposed extent of vegeation distrubance by 0.234 ha (from 0.12 ha to 0.354 ha) and Council has notified the Department of Agriculture, Water and the Environment of these changes (refer Appendix 3).

7 Stakeholder Engagement and Consultation

In 2010, public consultation was required through the Native Vegetation Act, 1991 (SA). On this occasion, feedback was received from:

- Native Vegetation Assessment Panel (NVAP) – refer to Appendix 1D
- SA Murray Darling Basin Natural Resources Management Board – Landscape SA – refer Appendix 1E
- Two people owning land on Maurice Road – refer Appendix 1F

Through implementing recent design variations, Council needs to conduct a new public consultation process to satisfy the requirements of the EPBC Act.

8 Site Description and Development Footprint

Maurice Road is managed by Council and located on the western outskirts of Murray Bridge, SA. The proposed infrastructure works are along a 3.1km section of road that is currently unsealed with limestone gravel consisting of numerous severe and unsafe curves. The existing road reserve is 20m wide.

Private land will be purchased to remove the severe curves that currently exist in the existing road route. The majority of land being aquired is assocaited with primary production.

A section of Crown Land is being acquired to improve the alignment of Maurice Road (i.e. reduce impact of the numerous severe and unsafe curves). This proposed land acquisition is partially vegetated and consists of good endemic native vegetation. The extent of vegetation removal within this portion of land is expected to be in the order of 12m to accommodate the the proposed road footprint. Where road side swales and batters are necessary the extent of vegetation removal is anticipated to be up to 17m. In some select areas, very good vegetation occurs within the proposed road shoulder and batter areas.

The road infrastructure works will comprise:

- Cut and fill of new and existing sections of roadway
- Stormwater mitigation
- Granular pavement construction
- Sealing of the new road

The aim is to create a safer road for all road users.

A major benefit of the sealing of Maurice Road will be the elimination of huge dust plumes created by existing traffic movements on the current unsealed limestone rubble pavement, which will help protect the remnant roadside vegetation, especially Monarto Mint Bush – Prostanthera eurybioides.

The Council Roadside Vegetation Management Plan will be utilised to reduce impacts on all native vegetation.

9 Vegetation Assessments

Table 9.1 below lists the EPBC recognised flora occur within the Council area:

Table 9.1 – EPBC Recognised Flora

Species	Common Name	National	State	Regional
Acacia menzelii	Menzel's Wattle	V	V	V
Acacia rhetinocarpa	Resin Wattle	V	V	V
Caladenia colorata	Coloured Spider-orchid	E	E	E
Caladenia concolor	Crimson Spider-orchid	V	E	-
Caladenia tensa	Sandhill Greenhood	E	-	CR
Olearia pannosa ssp. pannosa	Silver Daisy-bush	V	V	V
Prostanthera eurybioides	Monarto Mintbush	E	E	E
Pterostylis arenicola	Sandhill Greenhood	V	V	V
Senecio macrocarpus	Large-fruit Groundsel	V	V	V
Thelymitra epipactoides	Metallic Sun-orchid	E	E	CR

CR: Critically Endangered

E: Endangered

V: Vulnerable

In 2010, Council engaged Rural Solutions to compile a Vegetation Data Report (refer Appendix 1D). In Section 4.2.2, it stated that a population of Monarto Mintbush *Prostanthera eurybioides* was situated in the vicinity of the site. Following a complete walk through of the site, Rural Solutions stated:

- No individuals of the Endangered Monarto Mintbush were located during the site inspeciton within the clearance zone
- A handful of mature specimens (likely remnant) were located approximately 15 metres from the new proposed road verge
- However, please note, previous recordings of this plant as identified at Points A and B (as identified on the attached *Advisory plan 5 of 5*) were inspected, but no live individual were observed at these locations (or within the close vicinity)

In 2021, folloiwng updates to the design, Council engaged T&S Environmental to undertake a vegetation survey (refer Appendix 4). This second survey was undertaken to understand if the presence of Monato Mint Bush and Menzel's Wattle rectruitment were impected by the design updates. In compiling this report the following databases were queried:

- EPBC Act protected matters Search Tool
- Biological database of South Australia
- Atlas of Living Australia

In Section 3.1, it mentioned that active searches were undertaken of several threatened flora species which are expected to be found in this area, in these vegetation communities. This included, but was not limited to, Prostanthra eurybioides (Monarto Mintbush), Acacia menzelli (Menzel's Wattle), Olearia pannosa ssp. Pannosa (Silvery Daisy –bush) and Acacia retinocarpa (Resin Wattle).

This second flora survey only identified Acacia menzelii (Menzel's Wattle) and Prostanthera eurybioides (Monarto Mintbush) at the site.

The two flora surveys (from 2010 and 2021) concluded that there were no EPBC listed flora present within the construction zone. The nearest endangered plant was a Monarto Mintbush *Prostanthera eurybioides* 11m from the new proposed road reserve and construction zone. A consolidated list of the flora species identified on site by both Rural Solutions and T&S Environmental is provided in the tabel below.

Table 9.2 – Common Flora Observed During Site Surveys - Rural Solutions (2010) and T&S Environmental (2021)

Species Name	Common Name
Acacia argyrophylla	Silver Mulga-bush
Acacia calamifolia	Wallowa
Acacia rhigiophylla	Dagger-leaf Wattle
Acacia rigens	Nealie
Allocasuarina verticillata	Drooping Sheoak
Arthropodium sp.	Vanilla-lily
Austrostipa elegantissima	Feather Spear-grass
Austrostipa sp.	Spear-grass
Billardiera cymosa ssp.	Sweet Apple-berry
Boronia coerulescens ssp. coerulescens	Blue Boronia
Bursaria spinosa ssp.	Bursaria
Clematis microphylla	Old Man's Beard
Correa reflexa var. reflexa	Native Fuchsia
Dianella brevicaulis	Short-stem Flax-lily
Dianella revoluta var. revoluta	Blue Flax-lily
Enchylaena tomentosa var. tomentosa	Ruby Saltbush
Eucalyptus calycogona ssp.	Square-fruit Mallee
Eucalyptus incrassata	Ridge-fruited Mallee
Eucalyptus leptophylla	Narrow-leaf Red Mallee
Eucalyptus leptophylla	Narrow-leaf Red Mallee
Eucalyptus leucoxylon ssp.	South Australian Blue Gum
Eucalyptus phenax	White Mallee
Eucalyptus porosa	Mallee Box
Eucalyptus socialis	Red Mallee
Exocarpos aphyllus	Leafless Cherry
Helichrysum leucopsideum	Satin Everlasting
Lasiopetalum behrii	Velvet Bush
Lomandra effusa	Scented Mat-rush
Lomandra multiflora ssp. dura	Hard Mat-rush
Maireana brevifolia	Short-leaf Bluebush
Melaleuca lanceolata	Dryland Tea-tree
Melaleuca uncinata	Broombush
Pittosporum angustifolium	Native Apricot
Rhagodia candolleana	Sea-berry Saltbush
Rytidosperma caespitose	*Common Wallaby Grass*
Rytidosperma sp.	Wallaby-grass
Senna artemisioides ssp. petiolaris	Silver Cassia

10 Threatened Species Assessment

The EPBC Act lists the following fauna occur within the Council area:

Table 10.1 – EPBC Recognised Fauna

Species Name	Common Name	National	State	Regional
Leipoa ocellata	Malleefowl	V	V	V

V: Vulnerable

As part of Council's engagement with T&S Environmental in 2021, a threatened species assessment was undertaken by Barron Environmental. A total of 10 hours site search time was completed on 6/5/21 and 14/5/21; in accordance with EPBC Act guidelines. The Threatened Fauna Search report was compiled on 23/5/21 by Phil Barron (surveyor and author) and is provided in Appendix 7. The formal qualifications and capabilities of Phil Barron are provided in Appendix 8 and Appendix 9 respectively.

The fauna observed during the Threatened Fauna Search on the 6th and 14th of May 2021 is provided in the table below:

Table 10.2 – Fauna Observed – Threatended Fauna Search (6th and 14th May 2021)

Threatened or Introduced Animal Species Recorded or Observed (Native and Introduced)		Threatened Species - Rating				
Species	**Common Name**	**EPBC**	**SA**	**Past Record**	**Observed**	**Introduced Species**
Acanthiza chrysorrhoa	Yellow-rumped Thornbill				Y	
Acanthiza nana	Yellow Thornbill				Y	
Acanthiza uropygialis	Chestnut–rumped				Y	
Aegotheles cristatus cristatus	Australian Owlet-nightjar				Y	
Anthochaera carunculata	Red Wattle Bird				Y	
Aphelocephala leucopsis	Southern Whiteface				Y	
Barnardius zonarius barnardi	Mallee Ringneck				Y	
Colluricincla harmonica	Grey Shrikethrush				Y	
Corcorax melanorhamphos	White-winged Chough		R		Y	
Corvus nmellori	Little Raven				Y	
Cracticus torquatus	Grey Butcherbird				Y	
Dicaeum hirundinaceum	Mistletoebird				Y	
Drymodes brunneopygia	Southern Scrub Robin				Y	
Eolophus roseicapilla	Galah				Y	
Falco berigora	Brown Falcon				Y	
Falco cenchroides	Nankeen Kestrel				Y	
Gavicalis virescens	Singing Honeyeater				Y	
Geopelia placida	Peaceful Dove				Y	
Gymnorhina tibicen	Australian Magpie				Y	
Hirundo neoxena	Welcome Swallow				Y	
Hylacola cauta	Shy Heathwren		R		Y	
Lichenostomus cratitius occidentalis	Purple-gaped		R		Y	
Malurus lamberti	Variegated Fairywren				Y	
Melanodryas cucullata cucullata	Hood Robin		R		Y	
Melithreptus brevirostris	Brown-headed				Y	
Milvus migrans	Black Kite				Y	
Neophema elegans	Elegant Parrot		R		Y	
Northiella haematogaster	Eastern Bluebonnet				Y	
Ocyphaps lophotes	Crested Pigeon				Y	
Pachycephala rufiventris rufiventris	Rufous Whistler				Y	
Pardalotus punctatus	Spotted Pardalote				Y	
Pardalotus striatux	Striated Pardalote				Y	
Petoica goodenovii	Red-capped Robin				Y	
Phaps chalcoptera	Common Bronzewing				Y	
Phylidonyris novaehollandiae	New Holland Honeyeater				Y	

Threatened or Introduced Animal Species Recorded or Observed (Native and Introduced)		Threatened Species - Rating				
Species	**Common Name**	**EPBC**	**SA**	**Past Record**	**Observed**	**Introduced Species**
Pomatostomus superciliosus superciliosus	White-browed Babbler				Y	
Psephotus haemantonotus	Red-rumped Parrot				Y	
Ptilotula penicillata	White-plumed Honeyeater				Y	
Rhipidura albiscapa	Grey Fantail				Y	
Rhipidura leucophrys	Willie Wagtail				Y	
Smicrornis brevirostris	Weebill				Y	
Stagonopleura guttata	Diamond Firetail		V		Y	
Strepera versicolor melanoptera	Black-winged Currawong				Y	
Sturnus vulgaris	European Starling				Y	*
Mammals						
Lepus europaeus	European Brown Hare				Y	*
Macropus fuliginosus	Western Grey Kangaroo				Y	
Oryctolagus cuniculus	Rabbit (European rabbit)				Y	*
Vulpes vulpes	Fox (Red Fox)				Y	*
Total = 48 Species: 5 Rare & 1 Vulnerable (SA) & 4 Introduced						

On the 5th of July2021, T&S Environmental recorded the presence of Threatened Species - Fauna at the site during its vegetation assessment in the table below (also refer to Appendix 4), this compliments the fauna survey compiled by Barron Environmental.

Table 10.3 - Fauna Observed – Threatended Species – T&S Environmental (5th July 2021)

Threatened or Introduced Animal Species Recorded or Observed (Native and Introduced)		Threatened Species - Rating				
Species	**Common Name**	**EPBC**	**SA**	**Past Record**	**Observed**	**Introduced Species**
Falco peregrinus	Peregrine Falcon		R	Y		
Hieraetus morphnoides	Little Eagle		V	Y		
Leipoa ocellat	Malleefowl	V	V	Y		
Lichenostomus cratitius occidentalis	Purple-gaped Honeyeater (mainland SA		R	Y	Y	
Melanodryas cucullata	Hooded Robin		R	Y	Y	
Melithreptus gularis	Black-chinned Honeyeater		ssp	Y	Y	
Microeca fascinans	Jacky Winter		ssp	Y		
Neophema elegans	Elegant Parrot		R	Y	Y	
Petroica boodang	Scarlet Robin		R	Y		
Stagonopleura guttata	Diamond Firetail		V	Y	Y	
Stagonopleura bella	Beautiful Firetail		R	Y		
Strepera versicolor melanoptera	Black-winged Currawong			Y	Y	
Trichosurus vulpecula	Common Brushtail Possum		R	Y		
Burhinus grallarius	Bush Stonecurlew		R	Y		
Myiagra inquieta	Restless Flycatcher		R	Y		

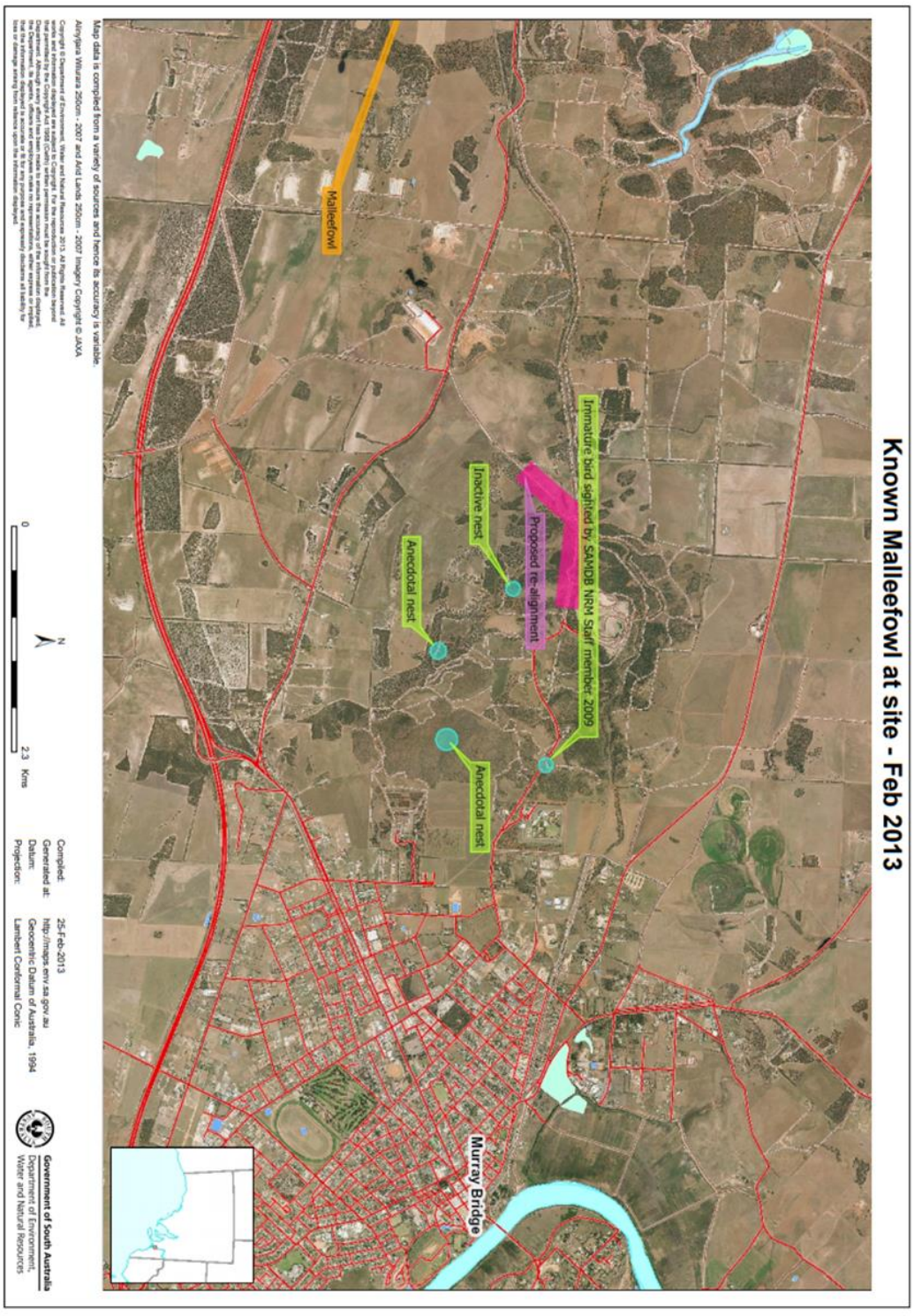
For both site surveys conducted at the site there was no sighting of Malleefowl, which is listed by EPBC and State listed Threatened Fauna.

The report provided by Barron Environmetnal outlined the following points:

- No Malleefowl, or signs thereof, were observed during the search.
- Although no Malleefowl or viable habitat was observed a total of 48 fauna species were observed, including 44 bird species, of which 5 are rated as Rare and 1 Vulnerable in SA (NP&W Act) (Table 1):
    - Elegant Parrot
    - Hooded Robin
    - Purple-gaped Honeyeater
    - Shy Heathwren
    - White-winged Chough – Rare
    - Diamond Firetail – Vulnerable

With the exception of White-winged Choughs, all these threatened species were observed more than 200m from the proposed road development and not expected to be adversely affected by it, including the mobile and adaptable Choughs.

Additional information relating to regional anecdotal evidence of malleefowl is provided on the following page and in Appendix 10.



-
- Green highlight – Sites of anecdotal nests and immature bird sighting (2009)
- Pink Highlight – Proposed road re-alignment
- Orange Highlight – 5,700m from the intersection of Maurice Road and Prices Highway

11 Removal of Native Vegetation

Council initiated a native vegetation survey in 2010 and again in 2021, due to the length of time it has taken for funding to become available for the upgrade of Maurice Road. Unfortunately, the updated road design is slightly changed and is now impacting on more native vegetation.

Council decided to redesign this road in-house to reduce the impact on native vegetation. By following Austroads design standards, the clearance would be 7m carriageway, 3m clearways both side of the carriageway and 1 in 6 batters where required. Austroads design guidelines would be more invasive on clearance zones. The varying impact on the vegetation is more to do with the alignment changes (improvements) to curve safety and stormwater.

A summary of the variation from 2010 and 2021 are summarised in the table below

Table 11.1: Changes in Area for Vegetation Removal – Maurice Road

Rural Solutions (2010)		TS Environmental (2021)
A1	4,5,6 = 0.07 ha	A1 = 0.14 ha
B1	2,3 = 0.03 ha	B1 = 0.094 ha
C1	1 = 0.02 ha	C1 = 0.025 ha
D1	new	D1 & E1 = 0.095 ha
Total Area: 0.12ha		Total Area: 0.354ha

Maps of the proposed clearance areas (based on the current design) are provided in Appendix 5.

11.1 Description of Variations to Areas

A1

Increases significantly due to risk aversion of clearance required. The actual extent of clearance at this site is anticipated to be less than the nominated 0.14ha because the batter extent will be less invasive in rock (slope of 1:1) compared to loam/topsoil (varying slope of 1:3 to 1:6). Due to the steepness of this section, an extra 1m width is included for stormwater runoff.

B1

This increases significantly due to risk with the direction of the proposed horizontal curve. This update to the design increases the radius of the horizontal curve which improves road safety along this element of the new roadway.

C1

This area is not significantly changed from 2010.

D1 & E1

Additional areas of clearance are at the Princes Highway/ Maurice Road 'T' Junction and where the proposed road cuts through the roadside vegetation on Maurice Road. The existing intersection is a 'Y' Junction creating visibility issues when entering the Old Princes Highway. Moving the intersection 240m to the east has increased the safety at this location by giving more visibility to the west which reduces the risk of rear end collision with slower moving vehicles using the intersection on the 100km/hr Princes Highway.

11.2 Summary

Council will compensate the Native Vegetation Council through SEB's and plans to plant 2,000 seedlings and 1.1km of direct seeding within the old road reserves and excess open paddocks bought as part of the road design. A copy of the approval from the Native Vegetation Council – NVC 2021/3184/415 is provided in Appendix 6.

Construction of the road will be over 2 – 3 years due to the funding sourced and the cost to construct 3.1km of roadway. During construction Council will follow all protocols relating to the Roadside Vegetation Management Plan 2014 – 2019 (2020 – 2025 is currently at the NVC awaiting approval).

https://www.murraybridge.sa.gov.au/search?collection=murray-bridge-council-meta&query=roadside+vegetation+management+plan

The new design creates no difference in impacts on matters of national environmental significance compared with impacts of the original proposal. Dust on the Monarto Mint-bush will be remediated during road construction and prevented after sealing. Visibility of Mallee fowl will be better in stages A1 to E1. This will be achieved by allowing vision of mallee fowl at greater distances.

Council is also in the process of requesting a speed reduction from 100km/hr to 80km/hr with the Department for Infrastructure and Transport.

There will be the loss of habitat in the short term due to the realignment of the road, we cannot replicate vegetation/ habitat that is lost, however clearance will be 0.354ha and we aim to replant/ rehabilitate 3.3ha including 2,000 seedlings and 1.1ha direct seeding. Menzel's Wattle *Acacia menzelii* will be part of the direct seeding mix as requested by Landscape SA.

Anticipated timing

The aim is to begin construction February 2022. Completion is aimed to be end of March.

Feasible alternatives considered

There were no feasible alternatives due to the Adelaide to Melbourne Railway line, Kinchina Conservation Park and excellent remnant vegetation on private property.

12 Site Sustainability for Mallleefowl

Based on historical records and the report compiled by Barron Environmental no Malleefowl, or signs thereof, were observed during the search.

Malleefowl observations appear to be low, with the last sighting of a Malleefowl anywhere near the project site being a juvinile chick in 2011. However Malleefowl are known to roam several kilometres searching for new nesting and therefore Council must assume there may be malleefowl present.

Accordingly, Council has compiled a Mallefowl Management Plan which has drawn information from the National Recovery Plan for Malleefowl compiled by Joe Benshemesh in 2007 (reference below):

National Recovery Plan for Malleefowl *Leipoa ocellata*;

Benshemesh, J. (2007). *National Recovery Plan for* Malleefowl *(Leipoa ocellata)*. Department for Environment and Heritage, South Australia. Available from: http://www.environment.gov.au/system/files/resources/dd346674-08ab-403d-8c11-5b88e8247e8f/files/malleefowl.pdf. In effect under the EPBC Act from 08-Jan-2010.
National Recovery Plan for Malleefowl
Leipoa ocellata — Malleefowl (environment.gov.au)

The habitat requirements of Malleefowl anywhere in Australia are poorly understood but a sandy substrate and abundance of leaf litter are clear requirements for the construction of the birds' incubator-nests, as well as dense canopy cover and fire history also seen as important in some studies, with birds preferring old growth (i.e. long unburnt) mallee (Benshemesh 2007 – the National Recovery Plan for Malleefowl)

No Malleefowl, or signs thereof, were observed during the search and the area and habitat within it is now not considered suitable or viable for a sustaining a pair or population of this species. Degrading factors encountered for Malleefowl include the presence of the following:

- Excessive grazing pressure (rabbits,kangaroos, livestock).
- Expected excessive levels feral or domestic predators (cats, dogs and foxes). Several foxes were also observed during the search.
- Excessive disturbance (human, including residential, recreation and mining activities, as well as fire (prescribed burns or wildfires) and livestock and/or other farming activities).
- Much of the remnant vegetation was on rocky outcrops or generally rocky terrain and otherwise 'heavy' soils and was considered unsuitable vegetation, including older open "Monarto woodland" style revegetation (40-50 years old), dense Broombush shrubland and other vegetation with low leaf-litter.
- High weed density, especially bridal creeper, in some areas

Realigning Maurice Road will improve advance visibility of mallee fowl for road users by adopting horizontal curve radii consistent with Austroads design guidelines (i.e. reducing blind spots caused by current tight curves). Council is also in the process of requesting a speed reduction from 100km/hr to 80km/hr with the Department for Infrastructure and Transport.

13 Mallefowl Management Plan

13.1 Background

The upgrading of Council Roads occurs from time to time. Where there are known populations of Malleefowl and the road is being altered from it current state, it is recommended that this plan be utilised in conjunction with Councils Roadside Vegetation Management Plan.

The period of impact during the construction phase is expected to be over a three month period. Road sealing will be undertaken from March/April 2022. Following the construction phase, the work site will be rehabilitated to as close as practicable to its original state. This Malleefowl Management Plan (MMP) aims to minimise potential impacts upon Malleefowl from the construction and ongoing operations.

13.2 Objectives

The objective of this MMP is to provide measures that minimise potentially adverse impacts for Melleefowl due to the upgrade of Council roads.

In particular, the items to be addressed within this MMP are:

- Review of literature pertaining to the biology and ecology of Malleefowl (including habitat requirements, nesting and foraging activity and current threats); which will provide the context and known aspects of Malleefowl breeding ecology leading to the development of the mitigation measures and monitoring protocols outlined within the plan.
- Information related to Malleefowl including habitat and breeding requirements and known habitat within the project area.
- Identification of potential threats/impacts arising from this project.
- Outline of relevant legislation and its legislative context.
- Detailed methods for identifying and measuring Malleefowl mortality associated with the upgrade of Council roads.
- The approved plan must be implemented.

This ensures suitable responsibilities and measures are identified through the implementation of the MMP.

This MMP outlines the actions and management strategies to protect local populations of Malleefowl - *Leipoa ocellata* from impacts associated with the upgrade of roads within the Council area in South Australia.

This MMP is developed in accordance with the conditions attached to the decision of the Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities with respect to the Ferries McDonald Road Project 2008. It has also been developed from discussions with representatives of the:

- Lanscapes South Australia Murraylands and Riverland,
- Department of Environment, Water and Natural Resources (DEWNR) and
- Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities.

This report should be read in conjunction with the Traffic Management Plan prepared concurrently with this MMP to protect and increase the population viability of Malleefowl

13.3 Key Points for the Malleefowl Management Plan

The Malleefowl Recovery Plan (Benshemesh) discusses key threats to the species on pages 24 to 30. With respect to the site at Maurice Road, the key points for effective management of Melleefowl needs to consider and incorporate the following:

1. Malleefowl are known to nest near busier roads than Maurice Road. Mallee Fowl are observed regularly by Council road maintenance staff and do not appear to be perturbed by works or people and just wander off. Based on this information, Malleefowl possess a reaonable

threshold to accommodate noise, dust, movement and light from the presence of people and heavy machinery.

2. It is unlikely that clearing of vegetation will result in a loss of potential habitat for the Malleefowl, because the soil structure mainly consists of steep slopes, rocky outcrops and red loam over clay. These soil types are not consistent with the Malleefowl's preference for lighter soils.
3. Road construction workers will be required to placea ll food scraps into sealed bins. This will alleviate any encouragement of feral fauna. Also, Council will remove two rabbit warrens from the construction zone.
4. During the road construction phase, all efforts to reduce impact on Malleefowl Leipoa ocellata will be taken by reducing speeds (with the installation of a traffic management plan – that will incorporate 25 km/h speed zones for active worksite areas) and dust suppression by watering the road.
5. Workers will be inducted on site with:
    a) regular tool box meetings discussing risk to EPBC listed species
    b) eliminate water pooling (encouraging Malleefowl Leipoa ocellata to the side of the road to drink),
    c) food scraps by road workers will not be discarded – this encourages cats and foxes into the area
6. Road works to avoid the pooling water as not to encourage Malleefowl to the roadside
7. Contractors shall monitor the site for any deceased Malleefowl Leipoa ocellata; this can be completed whilst checking the traffic management plan (i.e. safety signage) – which is usually twice a day while road construction works are in progress.
8. To reduce impact on Mallee Fowl it is proposed to install fauna friendly signage to inform road users that the road passes through a significant area called Kinchina Conservation Park and wildlife is present.

9. Request permission from The Department for Infrastructure and Transport of South Australia (DIT SA) to reduce the current open speed limit on the limestone rubble road to a sealed 80km/hr. road.

Please refer to Appendix – 11. Mallee Fowl Management Plan and 10. CEMP - Construction Environmental Management Plan. (This plan is a guide presently and was utilised during the construction of Ferries McDonald Road. A new plan will be created before and works commence).

13.4 Benefits of the Malleefowl Management Plan

1. Reduce permanent habitat loss – approximately 18,000m^2 will be revegetated compared to 3,540m^2 being removed (an increase of 14,460m^2).
2. Reduce the threat of grazing pressure on Malleefowl populations – 33,000m^2 now removed from sheep grazing and old road reserves.
3. Reduce predation – SA Landscape/ NRM manage. If fox dens are within Council land; Council will gas foxes and remove dens. Food scraps during construction will be removed daily.
4. Reduce isolation of fragmented populations – increasing vegetation cover – An increase of 14,460m^2 of vegetation and 33,000m^2 of grazing pressure.
5. Reduce Malleefowl mortality on roads – visibility by straightening the road and proposed speed reduction
6. Reduce fire threats – N/A
7. Promote Malleefowl-friendly agricultural practices N/A

13.5 Limitations

A number of limitations exist that the MMP has attempted to address. In particular, there is an incomplete knowledge of the Malleefowl population of the area and its population dynamics, dispersal regimes and methods/timing for dispersal. As such, a precautionary approach has been adopted in order to reduce impacts such that they are not significant.

13.6 Exclusions

The MMP does not address any requirements with regard to native vegetation clearance approvals under the Native Vegetation Act 1991. Where requirements of this plan potentially overlap with requirements of native vegetation clearance approvals this is indicated.

See Appendix - 11 Malleefowl Management Plan.

14 Monarto Mintbush Management Plan

14.1 Background

The nearest Monarto Mint-bush observed will be 18m and 23m respectively with one senesced plant at 11m from the proposed construction zone.

Monarto Mint-bush *Prostanthera eurybioides*
Red – existing plants
Yellow – senesced/ dead
Orange – 25 x 10 year old Rural City of Murray Bridge plantings

This information can be viewed in detail in Appendix 13.

Site photos indicating examples of existing Monarto Mintbush are provided in Appendix 14.

A plan indicating the location of existing Monarto Mintbush in relation to the proposed road design is provided in Appendix 15.

14.2 Benefits of the Monarto Mintbush Management Plan

There is no risk to Monarto Mint Bush within the construction zone and an extremely low risk of any viable seed within the construction zone. The sealing of Maurice Road will eliminate the dust that currently exists on the current rubble road.

A major benefit of the sealing of Maurice Road will be the elimination of the huge amounts of dust created by the unsealed limestone rubble road, which will protect the remnant roadside vegetation, especially Monarto Mint-ush – Prostanthera eurybioides from dust and out of control vehicles on the gravel road."

During the road construction all efforts to reduce impact on Monarto Mint-bush Prostanthera eurybioides, Mezel's Wattle, Acacia menzelii and Malleefowl Leipoa ocellata will be taken by reducing speeds and dust suppression by watering the road. Workers will be inducted on site with regular tool box meetings discussing risk to Monarto Mintbush

14.3 Avoidance and Mitigation Measures

A major benefit of the sealing of Maurice Road will be the elimination of the huge amounts of dust created by the limestone rubble road that will protect the remnant roadside vegetation, especially Monarto Mint Bush – *Prostanthera eurybioides* from dust and out of control vehicles on the gravel road.

During construction water is utilised to suppress dust as well as compaction to create a sustainable strong road surface.

There were no feasible road design alternatives to enhance the preservation of Monarto Mintbush due to the Adelaide to Melbourne Railway line, Kinchina Conservation Park and excellent remnant vegetation on private property.

15 Rehabilitation activities and offsets

The Rural City of Murray Bridge has initiated a vegetation report by TS Environmental Consulting to the Native Vegetation Council NVC for the payment of a Significant Environmental Benefit (SEB) to the amount of $7,466.84.

Total clearance of remnant roadside vegetation is 0.35 ha, proposed replanting of 2000 seedlings and 1100m of direct seeding equates to 3.5ha of revegetated area. The Rural City of Murray Bridge proposes to plant a minimum of 250 Monarto Mint Bush – *Prostanthera eurybioides* & 100 Menzel's Wattle *Acacia menzelii* as part of the 2,000 seedlings. Menzel's Wattle *Acacia menzelii* will also be included into the direct seeding mix.

16 Economic and Social Matters

16.1 Financial investment

This year (2021) as part of the recent Australian Government's 2021-22 Budget announcements, the Rural City of Murray Bridge has received additional funding allocation of $972,614 through the Local Roads and Community Infrastructure (LRCI) Program (refer Council Report in Appendix 16). This funding has set the ground works to get Maurice Road sealed and a safer roadway for all to use.

16.2 Costs and benefits

The cost to plant, water and maintain the area after the construction of Maurice Road will exceed $20,000, not including continued weed control thereafter and watering at least two years after planting. Stage 1 project cost will be $$972,614. The main benefit will be the removal of excessive dust from the current limestone rubble road.

There will be the loss of habitat in the short term due to the realignment of the road, we cannot replicate the loss of vegetation/ habitat, clearance will be 0.354ha and replant/ rehabilitate 3.5ha including 2,000 seedlings and 1.1ha direct seeding.

16.3 Scale of social and economic impacts

Although there has been no loss of life due to the gravel road surface and severe curves, there has been many injuries (injury statistics have not been sourced) and damage to vehicles. Unfortunately the impact of dust to roadside vegetation and the many vehicles losing control into roadside vegetation on Maurice Road has impacted significantly on that vegetation.

17 Application of recovery plans and threat abatement plans

Introduced fauna and flora (cats, foxes and rabbits) are present in the project area and have severe impacts on Malleefowl *Leipoa ocellata.* Pigs, goats and *Phytophthora cinnamomi* are not known to be present within the area.

Control of cats, rabbits and foxes is the responsibility of Landscapes SA and land holders. Council within its Construction Environmental Management Plan will induct workers on their responsibility not to discard food scraps and not leave areas of water pooling.

There are two rabbit warrens within the work zone, the Rural City of Murray Bridge will rip and remove those two rabbit warrens. No rabbit warrens were noticed adjacent to the work zone.

18 References

- https://www.murraybridge.sa.gov.au/

Type into the search bar - roadside vegetation management plan 2014 - 2109

- https://www.murraybridge.sa.gov.au/search?collection=murray-bridge-council-meta&query=environmental+management+plan

Type into the search bar - environmental management plan 2020 - 2024

- Species Profile and Threats Database
- National Recovery Plan for Malleefowl
- Recovery Plan for Prostanthera eurybioides (Monarto Mintbush)
- Threat abatement plan for predation by feral cats
- Threat abatement plan for competition and land degradation by rabbits
- Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs
- Threat abatement plan for competition and land degradation by unmanaged goats
- Threat abatement plan for predation by the European red fox
- Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi*

19 Appendices

1. Submission 2010/5713

   1A: Referral form (EPBC 2010/5713)

   1B: Native Vegetation Council – Regulation Advice Notification

   1C: Draft Roadside Vegetation Management Plan 2010

   1D: Maurice Road Vegetation Data Report 2010

   1E: Minutes Audit Report – Green Australia comments

   1F: File note – objection

   1G: Various photos and maps
2. Proposed Alignment 2021
3. EPBC Variations 2021 – Letter to Department of Agriculture, Water and the Environment
4. Native Vegetation Clearance Report 2021 – T&S Environmental
5. Maps of Proposed Native Vegetation Clearance 2021
6. 2021 – Native Vegetation Council Decision Notification
7. Fauna Survey May 2021 – Barron Environmental
8. Consultant CV - Barron Environmental
9. Consultant Capability - Barron Environmental
10. Regional Anecdotal Evidence of Malleefowl
11. Malleefowl Management Plan
12. CEMP – Construction Environmental Management Plan – *Guide Only, new CEMP will be created prior to works*
13. Historic Mintbush locations
14. Current Photo Monarto Mintbush Nearest to Roadworks
15. Detailed Plan of Monarto Mintbush locations and the proposed construction area
16. Council endorsement of funding and road hierarchy 2021
17. Proposed signs highlighting wildlife in the area

Appendix 1: Submission 2010/5713

Appendix 1A: Referral Form (EPBC 2010/5713)

Australian Government

Referral of proposed action

What is a referral?

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) provides for the protection of the environment, especially matters of national environmental significance (NES). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Australian Government Environment Minister or the Minister's delegate. (Further references to 'the Minister' in this form include references to the Minister's delegate.) To obtain approval from the Environment Minister, a proposed action should be referred. The purpose of a referral is to obtain a decision on whether your proposed action will need formal assessment and approval under the EPBC Act.

Your referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be undertaken. These decisions are made within 20 business days, provided that sufficient information is provided in the referral.

Who can make a referral?

Referrals may be made by or on behalf of a person proposing to take an action, the Commonwealth or a Commonwealth agency, a state or territory government, or agency, provided that the relevant government or agency has administrative responsibilities relating to the action.

When do I need to make a referral?

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- Great Barrier Reef Marine Park (sections 24B and 24C)
- The environment, if the action involves Commonwealth land (sections 26 and 27A), including:
    - actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land);
    - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- The environment, if the action is taken by the Commonwealth (section 28)
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C)

You may still make a referral if you believe your action is not going to have a significant impact, or if you are unsure. This will provide a greater level of certainty that Commonwealth assessment requirements have been met.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from:

- the Policy Statement titled Significant Impact Guidelines 1.1 – Matters of National Environmental Significance. Additional sectoral guidelines are also available.
- the Policy Statement titled Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies.

- the interactive map tool (enter a location to obtain a report on what matters of NES may occur in that location).

Can I refer part of a larger action?

In certain circumstances, the Minister may not accept a referral for an action that is a component of a larger action and may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (Section 74A, EPBC Act). If you wish to make a referral for a staged or component referral, read 'Fact Sheet 6 Staged Developments/Split Referrals' and contact the Referral Business Entry Point (1800 803 772).

Do I need a permit?

Some activities may also require a permit under other sections of the EPBC Act or another law of the Commonwealth. Information is available on the Department's web site.

Is your action in the Great Barrier Reef Marine Park?

If your action is in the Great Barrier Reef Marine Park it may require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If a permission is required, referral of the action under the EPBC Act is deemed to be an application under the GBRMP Act (see section 37AB, GBRMP Act). This referral will be forwarded to the Great Barrier Reef Marine Park Authority (the Authority) for the Authority to commence its permit processes as required under the Great Barrier Reef Marine Park Regulations 1983. If a permission is not required under the GBRMP Act, no approval under the EPBC Act is required (see section 43, EPBC Act). The Authority can provide advice on relevant permission requirements applying to activities in the Marine Park.

The Authority is responsible for assessing applications for permissions under the GBRMP Act, GBRMP Regulations and Zoning Plan. Where assessment and approval is also required under the EPBC Act, a single integrated assessment for the purposes of both Acts will apply in most cases. Further information on environmental approval requirements applying to actions in the Great Barrier Reef Marine Park is available from http://www.gbrmpa.gov.au/ or by contacting GBRMPA's Environmental Assessment and Management Section on (07) 4750 0700.

The Authority may require a permit application assessment fee to be paid in relation to the assessment of applications for permissions required under the GBRMP Act, even if the permission is made as a referral under the EPBC Act. Further information on this is available from the Authority:

Great Barrier Reef Marine Park Authority

2-68 Flinders Street PO Box 1379
Townsville QLD 4810
AUSTRALIA

Phone: + 61 7 4750 0700
Fax: + 61 7 4772 6093

www.gbrmpa.gov.au

What information do I need to provide?

Completing all parts of this form will ensure that you submit the required information and will also assist the Department to process your referral efficiently.

You can complete your referral by entering your information into this Word file.

Instructions

Instructions are provided in green text throughout the form.

Attachments/supporting information

The referral form should contain sufficient information to provide an adequate basis for a decision on the likely impacts of the proposed action. You should also provide supporting documentation, such as environmental reports or surveys, as attachments.

Coloured maps, figures or photographs to help explain the project and its location should also be submitted with your referral. Aerial photographs, in particular, can provide a useful perspective and context. Figures should be good quality as they may be scanned and viewed electronically as black and white documents.

Maps should be of a scale that clearly shows the location of the proposed action and any environmental aspects of interest.

Please ensure any attachments are below two megabytes (2mb) as they will be published on the Department's website for public comment. To minimise file size, enclose maps and figures as separate files if necessary. If unsure, contact the Referral Business Entry Point for advice. Attachments larger than two megabytes (2mb) may delay processing of your referral.

Note: the Minister may decide not to publish information that the Minister is satisfied is commercial-in-confidence.

How do I submit a referral?

Referrals may be submitted by mail, fax or email.

Mail to:

Referral Business Entry Point
Environment Assessment Branch
Department of the Environment, Water, Heritage and the Arts
GPO Box 787
CANBERRA ACT 2601

- If submitting via mail, electronic copies of documentation (on CD/DVD or by email) are appreciated.

Fax to: 02 6274 1789

- Faxed documents must be of sufficiently clear quality to be scanned into electronic format.
- Address the fax to the mailing address, and clearly mark it as a 'Referral under the EPBC Act'.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

Email to: epbc.referrals@environment.gov.au

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral as a Microsoft Word file and, if possible, a PDF file.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

What happens next?

Following receipt of a valid referral (containing all required information) you will be advised of the next steps in the process, and the referral and attachments will be published on the Department's web site for public comment.

The Department will write to you within 20 business days to advise you of the outcome of your referral and whether or not formal assessment and approval under the EPBC Act is required. There are a number of possible decisions regarding your referral:

The proposed action is NOT LIKELY to have a significant impact and does NOT NEED approval

No further consideration is required under the environmental assessment provisions of the EPBC Act and the action can proceed (subject to any other Commonwealth, state or local government requirements).

The proposed action is NOT LIKELY to have a significant impact IF undertaken in a particular manner

The action can proceed if undertaken in a particular manner (subject to any other Commonwealth, state or local government requirements). The particular manner in which you must carry out the action will be identified as part of the final decision. You must report your compliance with the particular manner to the Department.

The proposed action is LIKELY to have a significant impact and does NEED approval

If the action is likely to have a significant impact a decision will be made that it is a *controlled action*. The particular matters upon which the action may have a significant impact (such as World Heritage values or threatened species) are known as the *controlling provisions*.

The controlled action is subject to a public assessment process before a final decision can be made about whether to approve it. The assessment approach will usually be decided at the same time as the controlled action decision. (Further information about the levels of assessment and basis for deciding the approach are available on the Department's web site.)

The proposed action would have UNACCEPTABLE impacts and CANNOT proceed

The Minister may decide, on the basis of the information in the referral, that a referred action would have clearly unacceptable impacts on a protected matter and cannot proceed.

Compliance audits

If a decision is made to approve a project, the Department may audit it at any time to ensure that it is completed in accordance with the approval decision or the information provided in the referral. If the project changes, such that the likelihood of significant impacts could vary, you should write to the Department to advise of the changes. If your project is in the Great Barrier Reef Marine Park and a decision is made to approve it, the Authority may also audit it. (See "*Is your action in the Great Barrier Reef Marine Park,"* p.2, for more details).

For more information

- call the Department of the Environment, Water, Heritage and the Arts Community Information Unit on 1800 803 772 or
- visit the web site www.environment.gov.au/epbc

All the information you need to make a referral, including documents referenced in this form, can be accessed from the above web site.

Referral of proposed action

Project title:

Maurice Road Realignment

1 Summary of proposed action

NOTE: You must also attach a map/plan(s) showing the location and approximate boundaries of the area in which the project is to occur. Maps in A4 size are preferred. You must also attach a map(s)/plan(s) showing the location and boundaries of the project area in respect to any features identified in 3.1 & 3.2, as well as the extent of any freehold, leasehold or other tenure identified in 3.3(j).

1.1 **Short description**

Use 2 or 3 sentences to uniquely identify the proposed action and its location.

This Project is to realign the road corridor. The current alignment has sharp bends and is dangerous in its current state with many cars loosing control and ending up in the roadside vegetation.

1.2 **Latitude and longitude**

Latitude and longitude details are used to accurately map the boundary of the proposed action. If these coordinates are inaccurate or insufficient it may delay the processing of your referral.

	Latitude			Longitude		
location point	degrees	minutes	seconds	degrees	minutes	seconds
-35	6	41	139	12	22	
-35	6	41	139	12	15	
-35	6	40	139	11	55	
-35	6	47	139	11	48	

The Interactive Mapping Tool may provide assistance in determining the coordinates for your project area.

If area less than 5 hectares, provide the location as a single pair of latitude and longitude references. If area greater than 5 hectares, provide bounding location points.

If the proposed action is linear (eg. a road or pipeline), provide coordinates for each turning point.

Do not use AMG coordinates.

1.3 **Locality and property description**

Provide a brief physical description of the property on which the proposed action will take place and the project location (eg. proximity to major towns, or for off-shore projects, shortest distance to mainland).

The alterations to Maurice Road are 8km from Murray Bridges CBD towards the West.

1.4 **Size of the development footprint or work area (hectares)**

The proposed road redirection equates to 5000m2

1.5 **Street address of the site**

Maurice Road

1.6 **Lot description**

Describe the lot numbers and title description, if known.

Lot 9 CT Vol 5714 Fol 490
Sec 530 CT Vol 5322 Fol 455
Sec 529 CT Vol 5824 Fol 624
Existing Road Reserve

1.7 **Local Government Area and Council contact (if known)**

If the project is subject to local government planning approval, provide the name of the relevant council contact officer.

The Rural City of Murray Bridge
Glenn Dean 08 8539 1167
Fax 08 8531 0170
g.dean@murraybridge.sa.gov.au

1.8	**Time frame** Specify the time frame in which the action will be taken including the estimated start date of construction/operation. Construction of new road alignment start date will be May 2011. Land acquisition and transfer will be required to begin at the beginning of February 2011.		
1.9	**Alternatives to proposed action** Were any feasible alternatives to taking the proposed action (including not taking the action) considered but are not proposed?	No	No
			Yes, you must also complete section 2.2
1.10	**Alternative time frames etc** Does the proposed action include alternative time frames, locations or activities?	No	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.12	**State assessment** Is the action subject to a state or territory environmental impact assessment?		No
		Yes	Yes, you must also complete Section 2.4
1.12	**Component of larger action** Is the proposed action a component of a larger action?	No	No
			Yes, you must also complete Section 2.6
1.13	**Related actions/proposals** Is the proposed action related to other actions or proposals in the region (if known)?	No	No
			Yes, provide details:
1.14	**Australian Government funding** Has the person proposing to take the action received any Australian Government grant funding to undertake this project?	No	No
			Yes, provide details:
1.15	**Great Barrier Reef Marine Park** Is the proposed action inside the Great Barrier Reef Marine Park?	No	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

NOTE: It is important that the description is complete and includes all components and activities associated with the action. If certain related components are not intended to be included within the scope of the referral, this should be clearly explained in section 2.6.

2.1 Description of proposed action

This should be a detailed description outlining all activities and aspects of the proposed action and should reference figures and/or attachments, as appropriate.

1. Detailed survey of realignment
2. Land acquisitions to realignment of road.
3. Native vegetation approval has been sought pending EPBC approvals
4. Native vegetation cut and mulched on site.
5. Top soil removed from road realignment and placed on old road.
6. Rubble laid on new roadway.
7. New signage placed as requested by NVC and required for road conditions.
8. Rip old roadway and spread top soil
9. Replace fencing.

2.2 Alternatives to taking the proposed action

This should be a detailed description outlining any feasible alternatives to taking the proposed action (including not taking the action) that were considered but are not proposed (note, this is distinct from any *proposed* alternatives relating to location, time frames, or activities – see section 2.3).

No alternative available

2.3 Alternative locations, time frames or activities that form part of the referred action

If you have identified that the proposed action includes alternative time frames, locations or activities (in section 1.9) you must complete this section. Describe any alternatives related to the physical location of the action, time frames within which the action is to be taken and alternative methods or activities for undertaking the action. For each alternative location, time frame or activity identified, you must also complete (where relevant) the details in sections 1.2-1.9, 2.4-2.7, 4 and 3.3. Please note, if the action that you propose to take is determined to be a controlled action, any alternative locations, time frames or activities that are identified here may be subject to environmental assessment and a decision on whether to approve the alternative.

N/A

2.4 Context, planning framework and state/local government requirements

Explain the context in which the action is proposed, including any relevant planning framework at the state and/or local government level (e.g. within scope of a management plan, planning initiative or policy framework). Describe any Commonwealth or state legislation or policies under which approvals are required or will be considered against.

We can detail the legislative requirements for NV Act and EPBC Act, can you fill in the details for any other legislation that must be complied with.

Proposal has been adopted in the 2010/ 2011 Rural City of Murray Bridge Council Management Plan. There are no legislative requirements.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

If you have identified that the proposed action will be or has been subject to a state or territory environmental impact statement (in section 1.10) you must complete this section. Describe any environmental assessment of the relevant impacts of the project that has been, is being, or will be carried out under state or territory legislation. Specify the type and nature of the assessment, the relevant legislation and the current status of any assessments or approvals. Where possible, provide contact details for the state/territory assessment contact officer.

Describe or summarise any public consultation undertaken, or to be undertaken, during the assessment. Attach copies of relevant assessment documentation and outcomes of public consultations (if available).

See attachments

2.6 Public consultation (including with Indigenous stakeholders)

Your referral must include a description of any public consultation that has been, or is being, undertaken. Where Indigenous stakeholders are likely to be affected by your proposed action, your referral should describe any consultations undertaken with Indigenous stakeholders. Identify the relevant stakeholders and the status of consultations at the time of the referral. Where appropriate include copies of documents recording the outcomes of any consultations.

See attachment, on ground inspection by indigenous stake holders will be sought prior to any earth works. Local property owner response.

2.7 A staged development or component of a larger project

If you have identified that the proposed action is a component of a larger action (in section 1.11) you must complete this section. Provide information about the larger action and details of any interdependency between the stages/components and the larger action. You may also provide justification as to why you believe it is reasonable for the referred action to be considered separately from the larger proposal (eg. the referred action is 'stand-alone' and viable in its own right, there are separate responsibilities for component actions or approvals have been split in a similar way at the state or local government levels).

Not Applicable

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest.

Your assessment of likely impacts should refer to the following resources (available from the Department's web site):

- specific values of individual World Heritage properties and National Heritage places and the ecological character of Ramsar wetlands;
- profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*; and
- associated sectoral and species policy statements available on the web site, as relevant.

Note that even if your proposal will not be taken in a World Heritage area, Ramsar wetland, Commonwealth marine area, the Great Barrier Reef Marine Park or on Commonwealth land, it could still impact upon these areas (for example, through downstream impacts). Consideration of likely impacts should include both direct and indirect impacts.

3.1 (a) World Heritage Properties

Description

N/A

Nature and extent of likely impact

Address any impacts on the World Heritage values of any World Heritage property.

N/A

3.1 (b) National Heritage Places

Description

N/A

Nature and extent of likely impact

Address any impacts on the National Heritage values of any National Heritage place.

N/A

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

N/A

Nature and extent of likely impact

Address any impacts on the ecological character of any Ramsar wetlands.

N/A

3.1 (d) Listed threatened species and ecological communities

Description

1. Prostanthera eurybioides (Monarto Mint Bush)
2. Acacia menzellii (Menzel's Wattle)
3. Leipoa ocellata (Mallee Fowl)

Nature and extent of likely impact

Address any impacts on the members of any listened threatened species or any threatened ecological community, or their habitat.

- Dust is commented on in reports, the road reserve will be 20m and the proposal is to place the road to the South of the road reserve, this will place dust at 25m, not 15m as stated on Prostanthera eurybioides (Monarto Mint Bush).
- The Leipoa ocellata (Mallee Fowl) nest will be approximately 40m further away from the inactive nest.
- There are no Acacia menzellii (Menzel's Wattle) in the vicinity of the proposed road works.

3.1 (e) Listed migratory species

Description

N/A

Nature and extent of likely impact

Address any impacts on the members of any listed migratory species, or their habitat.

N/A

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

N/A

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth marine area.

N/A

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Description

If the action will affect Commonwealth land also describe the more general environment. The Policy Statement titled *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* provides further details on the type of information needed. If applicable, identify any potential impacts from actions taken outside the Australian jurisdiction on the environment in a Commonwealth Heritage Place overseas.

N/A

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth land. Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

N/A

3.1 (h) The Great Barrier Reef Marine Park

Description

N/A

Nature and extent of likely impact

Address any impacts on any part of the environment of the Great Barrier Reef Marine Park

Note: If your action occurs in the Great Barrier Reef Marine Park you may also require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If so, section 37AB of the GBRMP Act provides that your referral under the EPBC Act is deemed to be an application under the GBRMP Act and Regulations for necessary permissions and a single integrated process will generally apply. Further information is available at www.gbrmpa.gov.au

N/A

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

You must describe the nature and extent of likely impacts (both direct & indirect) on the whole environment if your project:

- is a nuclear action;
- will be taken by the Commonwealth or a Commonwealth agency;
- will be taken in a Commonwealth marine area;
- will be taken on Commonwealth land; or
- will be taken in the Great Barrier Reef marine Park.

Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.2 (a)	**Is the proposed action a nuclear action?**	No	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**	No	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	No	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))		

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	No	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	No	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))

3.3 Other important features of the environment

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed above). If at Section 2.3 you identified any alternative locations, time frames or activities for your proposed action, you must complete each of the details below (where relevant) for each alternative identified.

N/A

3.3 (a) Flora and fauna

3.3 (b) Hydrology, including water flows

3.3 (c) Outstanding natural features

3.3 (d) Remnant native vegetation

3.3 (e) Current state of the environment

Include information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops.

3.3 (f) Commonwealth Heritage Places or other places recognised as having heritage values

3.3 (g) Indigenous heritage values

3.3 (h) Other important or unique values of the environment

Describe any other key features of the environment affected by, or in proximity to the proposed action (for example, any national parks, conservation reserves, wetlands of national significance etc).

N/A

3.3 (i) Tenure of the action area (eg freehold, leasehold)

3.3 (j) Existing land/marine uses of area

3.3 (k) Any proposed land/marine uses of area

4 Measures to avoid or reduce impacts

Note: If you have identified alternatives in relation to location, time frames or activities for the proposed action at Section 2.3 you will need to complete this section in relation to each of the alternatives identified.

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

For any measures intended to avoid or mitigate significant impacts on matters protected under the EPBC Act, specify:
- what the measure is,
- how the measure is expected to be effective, and
- the time frame or workplan for the measure.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

Provide information about the level of commitment by the person proposing to take the action to implement the proposed mitigation measures. For example, if the measures are preliminary suggestions only that have not been fully researched, or are dependent on a third party's agreement (e.g. council or landowner), you should state that, that is the case.

Note, the Australian Government Environment Minister may decide that a proposed action is not likely to have significant impacts on a protected matter, as long as the action is taken in a particular manner (section 77A of the EPBC Act). The particular manner of taking the action may avoid or reduce certain impacts, in such a way that those impacts will not be 'significant'. More detail is provided in the *Guideline on Particular Manner Decisions under the EPBC Act* available at the Department's web site.

For the Minister to make such a decision (under section 77A), the proposed measures to avoid or reduce impacts must:
- clearly form part of the referred action (eg be identified in the referral and fall within the responsibility of the person proposing to take the action),
- be must be clear, unambiguous, and provide certainty in relation to reducing or avoiding impacts on the matters protected, and
- must be realistic and practical in terms of reporting, auditing and enforcement.

More general commitments (eg preparation of management plans or monitoring) and measures aimed at providing environmental offsets, compensation or off-site benefits CANNOT be taken into account in making the initial decision about whether the proposal is likely to have a significant impact on a matter protected under the EPBC Act. (But those commitments may be relevant at the later assessment and approval stages, including the appropriate level of assessment, if your proposal proceeds to these stages). Refer to the Guideline on Particular Manner Decisions under the EPBC Act available at the Department's web site.

N/A

5 Conclusion on the likelihood of significant impacts

Identify whether or not you believe the action is a controlled action (ie. whether you think that significant impacts on the matters protected under Part 3 of the EPBC Act are likely) and the reasons why.

5.1 Do you THINK your proposed action is a controlled action?

No	No, complete section 5.2
	Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

Specify the key reasons why you think the proposed action is NOT LIKELY to have significant impacts on a matter protected under the EPBC Act.

The road speed limit is an open speed limit of 100km per hour. This speed is unlikely to be achieved due to close proximity of vegetation to the road shoulders, gravel surface and sweeping bends in the realignment area.

The Flora Assessment (February 2010) completed by Rural Solutions SA.
There was no assessment completed for Mallee Fowl as it was not known until SANRMMDB notified Glenn Dean. There is 1 nest 500m from the existing road, the other nest being over 2km to the South. SANRMDB officer Sarah Lance has informed council that the nest is inactive this year (2010)

Revegetation Program will be implemented as recommended in the Rural Solutions SA report and Native Vegetation Council (NVC) Report. NVC have recommended Council plant 50 Monarto Mint Bush and add Acacia menzelii to the revegetation mix. The management plan which will provide a Significant Environmental Benefit (SEB) will be undertaken by Council's Parks & Gardens Supervisor.

Environment Management Plan (EMP) will be implemented prior to, during and following construction activities as recommended in the Rural Solutions SA Report. Daily on-site inductions will occur with all construction personnel to ensure adherence and auditing of the EMP.

5.3 Proposed action IS a controlled action

Type 'x' in the box for the matter(s) protected under the EPBC Act that you think are likely to be significantly impacted. (The 'sections' identified below are the relevant sections of the EPBC Act.)

	Matters likely to be impacted
N/A	World Heritage values (sections 12 and 15A)
N/A	National Heritage places (sections 15B and 15C)
N/A	Wetlands of international importance (sections 16 and 17B)
X	Listed threatened species and communities (sections 18 and 18A)
N/A	Listed migratory species (sections 20 and 20A)
N/A	Protection of the environment from nuclear actions (sections 21 and 22A)
N/A	Commonwealth marine environment (sections 23 and 24A)
N/A	Great Barrier Reef Marine Park (sections 24B and 24C)
N/A	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
N/A	Protection of the environment from Commonwealth actions (section 28)
N/A	Commonwealth Heritage places overseas (sections 27B and 27C)

Specify the key reasons why you think the proposed action is likely to have a significant adverse impact on the matters identified above.

N/A

6 Environmental record of the responsible party

NOTE: If a decision is made that a proposal needs approval under the EPBC Act, the Environment Minister will also decide the assessment approach. The EPBC Regulations provide for the environmental history of the party proposing to take the action to be taken into account when deciding the assessment approach.

		Yes	No
6.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** • The Rural City of Murray Bridge has recently endorsed its Roadside Vegetation Management Plan. • RCMB regularly work with the NVC on vegetation clearance works associated with road works • Council notifies NVC of any untoward behaviour in relation to clearance and excessive weed control by private land holders • The RCMB continues to experience significant increases in regional growth and with it increased urbanisation, infrastructure and resource use. The impacts of these is addressed through Council's "Urban Growth Development Plan". Council has maintained a focus on biodiversity conservation • Council will employ an NRM Officer before the end of the year.		
6.2	**Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **No** **If yes, provide details** N/A		
6.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?** **If yes, provide details of environmental policy and planning framework** See attachment		
6.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** Yes **Provide name of proposal and EPBC reference number (if known)** 2008/4211		

7 Information sources and attachments

(For the information provided above)

7.1 References

- List the references used in preparing the referral.
- Highlight documents that are available to the public, including web references if relevant.
- Maurice Road Vegetation Data Report
- Native Vegetation Council Regulation Advice Notification
- Photographs of accidents
- Letter from AA&R Division confirmation no listed Aboriginal heritage sites
- Native Vegetation Assessment Panel Minutes
- Greening Australia comments
- Arial Photography maps of the location
- File note email on objection from Mrs C J Bryant

7.2 Reliability and date of information

For information in section 3 specify:

- source of the information;
- how recent the information is;
- how the reliability of the information was tested; and
- any uncertainties in the information.
- Details on attachments
- All less than 12 months old
- All information relevant and not tested
- No uncertainties apply

7.3 Attachments

Indicate the documents you have attached. All attachments must be less than two megabytes (2mb) so they can be published on the Department's website. Attachments larger than two megabytes (2mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.3)	✓	
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.4)	✓	
	copies of any flora and fauna investigations and surveys (section 3)	✓	

technical reports relevant to the assessment of impacts on protected matters and that support the arguments and conclusions in the referral (section 3 and 4)	✓	
report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)	✓	

8 Contacts, signatures and declarations

NOTE: Providing false or misleading information is an offence punishable on conviction by imprisonment and fine (s 489, EPBC Act).

Under the EPBC Act a referral can only be made by:

- the person proposing to take the action (which can include a person acting on their behalf); or
- a Commonwealth, state or territory government, or agency that is aware of a proposal by a person to take an action, and that has administrative responsibilities relating to the action[1].

Project title: Maurice Road Realignment

8.1 Person proposing to take action

This is the individual, government agency or company that will be principally responsible for, or who will carry out, the proposed action.

If the proposed action will be taken under a contract or other arrangement, this is:

- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

If the proposed action requires a permit under the Great Barrier Reef Marine Park Act[2], this is the person requiring the grant of a GBRMP permission.

The Minister may also request relevant additional information from this person.

If further assessment and approval for the action is required, any approval which may be granted will be issued to the person proposing to take the action. This person will be responsible for complying with any conditions attached to the approval.

If the Minister decides that further assessment and approval is required, the Minister must designate a person as a proponent of the action. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent will generally be the person proposing to take the action[3].

Name	Mr Dave Allen
Title	Works Overseer/Manager
Organisation	Rural City of Murray Bridge (RCMB) Council
ACN / ABN (if applicable)	ABN 90 501 266 817
Postal address	PO Box 421 Murray Bridge SA 5253
Telephone	(08) 8539-1169 or Mobile: 0412-814-922
Email	d.allen@murraybridge.sa.gov.au
Declaration	I declare that the information contained in this form is, to my knowledge, true and not misleading. I agree to be the proponent for this action.
Signature	Date

[1] *If the proposed action is to be taken by a Commonwealth, state or territory government or agency, section 8.1 of this form should be completed. However, if the government or agency is aware of, and has administrative responsibilities relating to, a proposed action that is to be taken by another person which has not otherwise been referred, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

[2] *If your referred action, or a component of it, is to be taken in the Great Barrier Reef Marine Park the Minister is required to provide a copy of your referral to the Great Barrier Reef Marine Park Authority (GBRMPA) (see section 73A,* EPBC Act*). For information about how the GBRMPA may use your information, see http://www.gbrmpa.gov.au/privacy/privacy_notice_for_permits.*

[3] *If a person other than the person proposing to take action is to be nominated as the proponent, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

8.2 Person preparing the referral information (if different from 8.1)

Individual or organisation who has prepared the information contained in this referral form.

Name	Mr Glenn Dean *on behalf of* The Sustainable Development Division
Title	Parks & Gardens Supervisor
ACN / ABN (if applicable)	ABN 90 501 266 817
Postal address	PO Box 421 Murray Bridge SA 5253
Telephone	(08) 8539-1167 or Mobile: 0438-545-747
Email	g.dean@murraybridge.sa.gov.au

Declaration I declare that the information contained in this form is, to my knowledge, true and not misleading.

Signature Date

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

- ❑✓ Completed all required sections of the referral form?
- ❑✓ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ❑✓ Provided a map showing the location and approximate boundaries of the project area?
- ❑✓ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ❑✓ Provided complete contact details and signed the form?
- ❑✓ Provided copies of any documents referenced in the referral form?
- ❑✓ Ensured that all attachments are less than two megabytes (2mb)?
- ❑✓ Sent the referral to the Department (electronic and hard copy preferred)?

Appendix 1B: Native Vegetation Council Regulation Advice Notification – 22 June 2010

SF915

Native Vegetation Council

- 9 JUL 2010

Reference: NVAP Mtg 27 Item 2.1; 10WLB02080
File: 2010/3030/415

Contact: Melissa McCallum
Telephone: 83030 9374

Hannaford Building,
Entry 3, Waite Rd,
Urrbrae SA 5064

GPO Box 2834
Adelaide SA 5001

Ph| 08 8303 9777
Fx| 08 8303 9780

nvc@sa.gov.au

22 June 2010

Mr Glen Dean
Rural City of Murray Bridge
PO Box 421,
MURRAY BRIDGE SA 5253

cc: NRM Board

REGULATION ADVICE NOTIFICATION

Regulation 5(1)(d) – Clearance for building or provision of infrastructure

Dear Mr Dean,

At its meeting on 22 June 2010 the Native Vegetation Assessment Panel (NVAP) considered the matter of clearance, based on information provided by the Native Vegetation Management and Biodiversity Unit (NVMBU) and yourself, the vegetation proposed as per the consultant's report.

The NVAP would like to thank you and Mr Waddington for attending the meeting. The native vegetation clearance associated with establishing the road re-alignment of Maurice Road (as shown on the *Regulation Advice Plan*) for safety was assessed in accordance with Regulation 5(1)(d) – clearance for provision of infrastructure (Attachment 1).

Assessment Advice – Maurice Road

The NVAP is satisfied that clearance is required for the road re-alignment (in accordance with part (i) of the Regulation) and that clearance has been minimised in the planning stage (part (iv)).

Clearance of 0.12 hectares of vegetation plus 3 scattered trees as described in the consultant report being established for road realignment is exempt under Regulation 5(1)(d) ***subject to meeting the SEB requirements****:*

- Clearance is minimised as shown on Regulation Advice Plan
- Any vegetation cleared is not stockpiled in areas with native vegetation
- machinery used in the establishment of the track is confined to the track
- Protection of both remnant and planted specimens of Monarto Mintbush during the construction of the road
- Payment of the **$1,080,** or the initiation of Bridal Creeper Control program to the cost of $1,080 in the vicinity of the clearance, must occur within one month of this letter, to achieve the significant environmental benefit required under part (v) of Regulation 5(1)(d).
- An area a minimum of **1.58 hectares** is setaside as shown on Regulation Advice Plan
- The onground SEB is to include:

  - rehabilitate / revegetate an area of 0.92 hectares of existing road surface to the satisfaction of the SAMDBNRMB Biodiversity Unit;
  - 50 Monarto Mintbush to be planted in nearby Council Reserve and maintained for atleast 5 years; and
  - *Acacia menzelii* (Menzel's Wattle) be added to the revegetation mix (as per 5.6.2 in the report)
- Erect signs to warn drivers where Malleefowl may be on the road ahead.
- **Prior** to works occurring:
  - An aerial plan is provided showing the locations of the Monarto Mintbush to be planted before clearance occurs
  - Top soil be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised.

Please complete the attached form, "*Understanding of Regulation Advice*" (including signature and date) within one month of receiving it, to confirm with the Native Vegetation Council Secretariat that you fully understand the Advice and Conditions detailed in this letter.

Therefore, clearance for road realignment is exempt under *Regulation 5(1)(d) - building or infrastructure in the public interest.*

Please contact Melissa McCallum on the telephone number provided above if you have any questions.

Yours sincerely

7/7/2000

Mike Hodder
Delegate
Native Vegetation Council

Attachment 1

Note: Please refer to the full wording of the Regulation in the "*Guide to the Native Vegetation Regulations 2003*" which is available from the following web site link:
http://www.nvc.sa.gov.au/assets/files/NV_REGS_GUIDE_SEP_09.pdf

5(1)(d) Building or provision of infrastructure, including infrastructure in the Public Interest

Pursuant to Section 27(1)(b) of the Act, native vegetation may, subject to any other Act or law to the contrary, be cleared if—

(i) —

(A) the clearance is incidental to the construction or expansion of a building or infrastructure and the Minister has, by instrument in writing, declared that he or she is satisfied that the clearance is in the public interest; or

(B) the clearance is required in connection with the provision of infrastructure or services to a building or proposed building, or to any place; and

(ii) any development authorisation required by or under the *Development Act 1993* has been obtained; and

(iii) the Council is satisfied (on the basis of information provided to the Council by the person seeking the benefit of this paragraph and such other information as the Council thinks fit) that, after taking into account the need to preserve biological diversity and the nature and purposes of any proposed building or infrastructure that is yet to be constructed, the proposed site of the building or infrastructure is the most suitable that is available; and

(iv) the Council is satisfied (on the basis of information provided to the Council by the person seeking the benefit of this paragraph and such other information as the Council thinks fit) that, there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared; and

(v) the clearance is undertaken in accordance with a standard operating procedure determined or approved by the Council for the purposes of this provision or a management plan that has been approved by the Council, and either—

(A) there will be a significant environmental benefit on the property where the clearance is being undertaken or within the same region of the State; or

(B) either—

- the owner of the land (or a person acting on his or her behalf); or
- a person connected with the construction or expansion of the building or infrastructure, or the provision of the infrastructure or services (as the case requires),

has, on application to the Council to proceed with clearing the vegetation in accordance with this provision, made a payment into the Fund of an amount considered by the Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) of the Act.

Definition of intact stratum

A substantially intact stratum of native vegetation is defined by sn 3A of the Native Vegetation Act 1991 as an area that, in the opinion of the Native Vegetation Council, has not been seriously degraded by human activity (but not degradation that has been caused by fire) during the immediately preceding period of 20 years.

A 'stratum' of native vegetation means a layer of a plant community consisting of plants that comprise native vegetation that have a similar growth habit. An area may be considered to have an intact stratum, even if another stratum is degraded.

Note: *Please read the Regulation Advice Notification and sign the form underneath to acknowledge that you have understood the Advice made by the Native Vegetation Council, and return by fax or post to:*

Send to: Secretary, Native Vegetation Council
GPO Box 2834
Adelaide SA 5001

Fax to: 8303 9780

UNDERSTANDING OF REGULATION ADVICE

File: **2010/3030/415 Rural City of Murray Bridge**
Document No.: **10WLB02080**

I clearly understand the Native Vegetation Council's Regulation Advice Notification, the conditions associated with clearance and the Regulation Advice Plan(s).

I have read and fully understand the:

☐ ***Regulation Advice Notification and the Conditions attached to the Advice***

(and)

☐ ***The Regulation Advice Plan***

Name of Landowner(s) or Company: .....

Signature of Landowner(s) or seal of Company and authorised signatory:
(Please note that the landowner [not agent] must sign here

.....

.....

.....

.....

Date : .....

Regulation 5(1)(d) - Building or provision of infrastructure

Rural City of Murray Bridge - Realignment of Maurice Rd

N

Meters
0 10 20 30 40 50

Scale: 1:2000

REGULATION ADVICE PLAN 1 of 2

TO FORM PART OF THE DECISION OF THE NATIVE VEGETATION COUNCIL

APPLICATION NO. 2010/3030/415

HUNDRED of MOBILONG

Adjacent Section 530
Certificate of Title Vol 5322 Fol 455

- Scattered trees_clearance exempt
- Heritage Agreements
- Property / Section Boundary
- Roads

Produced for: Native Vegetation Council
By: Native Vegetation & Biodiversity Management Unit
Dept. for Water, Land & Biodiversity Conservation

Date of Imagery: 2008

Date:
Version: 01
Datum: GDA94

Government of South Australia
Department of Water, Land and Biodiversity Conservation

Regulation 5(1)(d) - Building or provision of infrastructure

Rural City of Murray Bridge - Realignment of Maurice Rd

Meters
0 30 60 90 120 150

Scale: 1:5000

N

REGULATION ADVICE PLAN 2 of 2

TO FORM PART OF THE DECISION OF THE NATIVE VEGETATION COUNCIL

APPLICATION NO. 2010/3030/415

HUNDRED of MOBILONG

Adjacent Allotment 23 DP 12046
Certificate of Title Vol 5714 Fol 490

Adjacent Section 530
Certificate of Title Vol 5322 Fol 455

Adjacent Section 529
Certificate of Title Vol 5824 Fol 624

- **Tree 3 - clearance exempt**
- **Clearance exempt 5(1)(d)**
- **'significant environmental benefit' (SEB) area**
- **Property / Section Boundary**
- **Heritage Agreements**
- **Roads**

Produced for: Native Vegetation Council
By: Native Vegetation & Biodiversity Management Unit
Dept. for Water, Land & Biodiversity Conservation

Date of Imagery: 2008

Datum: GDA94

Government of South Australia
Department of Water, Land and Biodiversity Conservation

Appendix 1C: Draft Roadside Vegetation Management Plan 2010

1245.3.4 DRAFT ROADSIDE VEGETATION MANAGEMENT PLAN (SF558)

Officer: Glenn Dean

Priority - 1 - (✓) Legislative 2 - ( ) Corporate 3 - ( ) Other

Purpose

For Council to endorse the 'Draft Roadside Native Vegetation Management Plan' as an interim guideline whilst the Native Vegetation Council (NVC) finalises its Roadside Vegetation Management Plan template.

Attachment 1245.3.4 - Draft Roadside Native Vegetation Management Plan

Priority

Legislative – Roadside vegetation is protected by Local Government Act 1999 and the Native Vegetation Act 1991.

Discussion

The purpose of this draft Roadside Vegetation Management Plan is to provide a basis for Council to manage native vegetation on roadsides within The Rural City of Murray Bridge.

The Plan sets out criteria and guidelines relating to the clearance of roadside vegetation and also includes sections dealing with enhancement of roadsides, through protection and management of significant sites and through revegetation programs. Roadsides are now highly valued for their remnant vegetation and the role this vegetation plays in the conservation of natural resources. This includes the conservation of water, soil, indigenous flora and fauna and the contribution this vegetation makes to landscape values across an area.

Local Governments are bound by federal and state legislation and policies to conserve native vegetation and the contribution it makes to Australia's biodiversity and sustainability.

Historically the main uses of roadsides were seen as flanking established transport routes, but they have evolved into encompassing a diverse range of activities that can often be perceived to have competing values and uses. If the user of this Plan is unsure, it may be wise to seek the advice of suitably qualified staff at The Rural City of Murray Bridge (NRM Officer), the Native Vegetation Council or a suitably qualified consultant. This Plan is intended to be the beginning of a learning process involving Council, the community and interested parties.

The Plan cannot hope to deal with all issues or possible circumstances which may arise and is intended as a guide.

Essentially the Plan seeks to balance the needs of the community to clear or destroy vegetation for a particular purpose, against the benefits or advantages which accrue to the community by retaining Healthy Native Vegetation. Roadsides represent one of the few remaining opportunities to retain native vegetation.

Council has committed itself to "protect the biodiversity of the region by promoting and implementing sustainable land management practices".
The management of roadside vegetation presents a challenge to the Rural City of Murray Bridge and the management of roadside vegetation has caused concern in the past.

The reasons for the challenge lay with the need to balance the competing interests and needs which utilise and compete for the road reserves within the city boundaries.

The uses which compete for space with road reserves include the following:
- People walking, riding bikes, riding horses or using motorised vehicles.
- Services such as drainage channels or drains.
- Signage which may be for road traffic control, for tourist or information

Purposes
The needs of users need to be balanced against the benefits of retaining actual vegetation and wildlife including:
- Retaining rare, significant or endangered vegetation.
- Retaining biodiversity.
- For erosion and dust control.
- For wildlife corridors, for the movement of fauna.
- Keeping remnant vegetation intact.

Council as owner of the road reserve is vested with the responsibility of maintaining these resources in an efficient, cost effective and appropriate manner.

It must be recognised that Road Reserves are often dynamic in nature, particularly those close to human habitation however, those reserves in 'out of the way' locations may not be subject to dynamic change or impact, but still require careful management.

Roadside vegetation is protected by both the Local Government Act 1934 and the Local Government Act 1999. It is also protected by the Native Vegetation Act 1991.

There are several Acts of parliament that affect the way in which Roadside Vegetation is managed within South Australia. These Acts include; *Local Government Act 1999, Native Vegetation Act 1991, Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth legislation) and the *National Parks and Wildlife Act 1972.* Council must ensure all works or activities conducted within road reserve areas have prior Council permission and are being conducted subject to the requirements under the relevant Act of parliament.

Recommendation
1. That Item Number 1245.3.4 on Council Agenda dated 13th September 2010 received;
2. That Council endorse the Draft Roadside Native Vegetation Management Plan until such time when the Native Vegetation Council Roadside Management Plan is legislated.

Cr England moved

1. *That Item Number 1245.3.4 on Council Agenda dated 13th September 2010 received;*

2. *That Council endorse the Draft Roadside Native Vegetation Management Plan until such time when the Native Vegetation Council Roadside Management Plan is legislated*
3. *That the roadside survey data assembled in the Roadside Vegetation Plan compiled by Michael Hyde be considered within Council's Roadside Vegetation Plan*

Seconded by Cr Weinmann and CARRIED

Attachment 1245.3.5 Roadside Native Vegetation Management Plan

THE RURAL CITY OF MURRAY BRIDGE

Roadside Native Vegetation Management Plan

The Rural City of MURRAY BRIDGE

Bridge to Opportunity

Contents

FOREWORD

The purpose of this Roadside Vegetation Management Plan is to provide a basis for Council to manage native vegetation on roadsides within The Rural City of Murray Bridge.

The Plan sets out criteria and guidelines relating to the clearance of roadside vegetation, and also includes sections dealing with enhancement of roadsides, through protection and management of significant sites and through revegetation programs. Roadsides are now highly valued for their remnant vegetation and the role this vegetation plays in the conservation of natural resources. This includes the conservation of water, soil, indigenous flora and fauna and the contribution this vegetation makes to landscape values across an area.

Local Governments are bound by federal and state legislation and policies to conserve native vegetation and the contribution it makes to Australia's biodiversity and sustainability.

Historically the main uses of roadsides were seen as flanking established transport routes, but they have evolved into encompassing a diverse range of activities that can often be perceived to have competing values and uses. If the user of this Plan is unsure, it may be wise to seek the advice of suitably qualified staff at The Rural City of Murray Bridge (NRM Officer), the Native Vegetation Council or a suitably qualified consultant. This Plan is intended to be the beginning of a learning process involving Council, the community and interested parties.

The Plan cannot hope to deal with all issues or possible circumstances which may arise and is intended as a guide.

Essentially the Plan seeks to balance the needs of the community to clear or destroy vegetation for a particular purpose, against the benefits or advantages which accrue to the community by retaining Healthy Native Vegetation. Roadsides represent one of the few remaining opportunities to retain native vegetation.

Council has committed itself to "protect the biodiversity of the region by promoting and implementing sustainable land management practices".

BACKGROUND

The management of roadside vegetation presents a challenge to the Rural City of Murray Bridge and the management of roadside vegetation has caused concern in the past.

The reasons for the challenge lay with the need to balance the competing interests and needs which utilise and compete for the road reserves within the city boundaries.

The uses which compete for space with road reserves include the following:

- People walking, riding bikes, riding horses or using motorised vehicles.
- Services such drainage channels or drains.
- Signage which may be for road traffic control, for tourist or information

Purposes

- Introduced weeds or unwanted vegetation species.
- The needs of users need to be balanced against the benefits of retaining actual vegetation and wildlife including:
- Retaining rare, significant or endangered vegetation.
- Retaining biodiversity.
- For erosion and dust control.

- For wildlife corridors, for the movement of fauna.
- Keeping remnant vegetation intact.

Council as owner of the road reserve is vested with the responsibility of maintaining these resources in an efficient, cost effective and appropriate manner.

It must be recognised that Road Reserves are often dynamic in nature, particularly those close to human habitation however, those reserves in 'out of the way' locations may not be subject to dynamic change or impact, but still require careful management.

Roadside vegetation is protected by both the Local Government Act 1934 and the Local Government Act 1999. It is also protected by the Native Vegetation Act 1991.

There are several Acts of parliament that affect the way in which Roadside Vegetation is managed within South Australia. These Acts include; *Local Government Act 1999, Native Vegetation Act 1991, Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth legislation) and the *National Parks and Wildlife Act 1972.* Council must ensure all works or activities conducted within road reserve areas have prior Council permission and are being conducted subject to the requirements under the relevant Act of parliament.

Local Government Act 1999

Under the *Local Government Act 1999* any works on road reserves requires the permission of the local council. The Rural City of Murray Bridge is responsible for all roads within the Council area (with the exemption of the main arterial roads under the care and control of Transport SA) and is therefore responsible for the adjacent road reserve areas. Any works or activities to be conducted on, over, or under, these road reserves, requires permission from The Rural City of Murray Bridge.

Native Vegetation Act 1991

Under the *Native Vegetation Act 1991* removal or disturbance of native vegetation requires permission from the Native Vegetation Council unless a specific exemption applies through the regulations of the Act. The *Native Vegetation Act 1991* includes an exemption 5(1)(y) allowing district councils to clear roadside vegetation if it is in accordance with;

1. Where the clearance complies with a management plan prepared by the local Council and approved by the Native Vegetation Council.
2. Where the clearance complies with guidelines issued by the Native Vegetation Council.

The guidelines issued by the Native Vegetation Council involve three levels:

- Works to be undertaken without consultation with the Native Vegetation Council.
- Works requiring endorsement of the Native Vegetation Council Secretariat.
- Works of a sensitive or significant nature requiring approval of the Native Vegetation Council.

Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act 1999 protects matters of national environmental significance. There are many matters of national environmental significance, with three in particular relevant to this RVMP;

Peppermint Box (Eucalyptus odorata) Grassy Woodland and Iron-grass Natural Temperate Grassland (Lomandra species) and Mallee Fowl (Leipoa ocellata)

- Nationally threatened species and communities which are listed under the EPBC Act 1999 Under the EPBC Act a person must not take action that has, will have, or is likely to have a significant impact on matters of national environmental significance. These actions require approval from the Environment Minister and may only be undertaken with this approval.

National Parks and Wildlife Act 1972

The *National Parks and Wildlife Act 1972* was established in part to provide for the conservation of wildlife in a natural environment. Under the *National Parks and Wildlife Act 1972*, which is administered by the Department for Water, the removal of native plant species from road reserves requires a permit. Permits are issued by the Department for Water and provide for both the general removal of native plant species and the removal of native plant species for commercial purposes, subject to the conditions of the permit.

Natural Resources Management Act 2004

The *Natural Resources Management Act 2004* was established, in part, to repeal the *Animal and Plant Control (Agricultural Protection and Other Purposes) Act 1986.* The *Natural Resources Management Act 2004* provides for the control of plants and animals for reasons including the protection of agriculture, and the environment, and for public safety. Under the *Natural Resource Management Act 2004*, it is the responsibility of the landholder to control declared pest plants and pest animals within road reserves immediately adjacent to their land, to half way across the road reserve.

Other Legislation

Numerous other Acts of parliament regulate works on roadsides. These may include, but are not limited to-

- *Fences Act 1975*
- *Telecommunications (Interceptions) Act 1988*
- *Electricity Corporations Act 1994*
- *Development Act 1993*
- *Country Fires Act 1989*
- *Occupational Health, Safety and Welfare Act 1986*
- *Road Traffic Act 1961*

LIST OF ACRONYMS & GLOSSARY OF TERMS

Carriageway: The formed section of road reserve currently allowing for the passage of vehicles.

Clearance envelope: Area necessary for the safe passage of legal height vehicles across the full width of the traffic lanes.

Endemic: Present within the localised area since before European settlement.

Fauna: All animals within a given area or environment

Flora: Plants of a given area or environment, or a list of such plants

Indigenous: Native to the area

Introduced plants: All plant species that are not indigenous to the area (not present prior to European settlement).

Low impact: Selective and non intrusive removal of vegetation whilst retaining top soils

Native vegetation: Means a plant or plants of a species indigenous to South Australia including a plant or plants growing in or under water.

Natural regeneration: New growth of indigenous plants from seed and sucker growth; often refers to regrowth after disturbances (especially fire).

Non-indigenous: Not native to the area; includes native species introduced from other parts of Australia

Pest plants / weeds: Introduced plants that adversely affect native vegetation and / or agricultural crops.

Remnant vegetation: Native vegetation that remains in much the same form and composition in the same location since European settlement.

Road reserve: A corridor of land bordered by property boundaries.

Road shoulder: The area on a sealed road between the edge of seal and the road verge.

Roadside vegetation: Any vegetation growing on roadsides. This includes native vegetation of conservation value, and vegetation dominated by introduced species.

Road Verge: The area between the edge of the carriageway, or the edge of the shoulder, and the vegetation.

One chain roads: Road reserve 20m wide

Two chain roads: road reserve 40m wide

Three chain roads: road reserve 60m wide

Undeveloped Road: A road reserve not developed for the passage of vehicles.

Vegetation (or plant material): Any living or dead plant material. This includes native trees, shrubs, herbs and grasses.

Very Minor Clearance: Defined as localized clearance, such as pruning of branches of removal of one or two tree saplings or shrubs which are known to be common in the area. (from the "Guidelines for the Management of Roadside Vegetation, Native Vegetation Council, July 1997")

Weed: A plant of a species that is not indigenous and invades endemic native vegetation

AREA AFFECTED BY THE PLAN

This Plan applies to all roadside reserves situated within The Rural City of Murray Bridge with the following exceptions:

1. INTRODUCTION

Councils are responsible for most road reserves within their municipality, and must make decisions in consultation with other authorities, on appropriate management for each road and adjoining roadsides.

Road reserves were initially established to provide legal access, and a route from one place to another. Since that time, road reserves have evolved to cover a wide range of activities. For example, service corridors for gas, electricity, drainage, sewage and communications are usually located on roadsides.

Maintaining remnant vegetation within road reserves is important for many reasons. Roadside vegetation provides many functional benefits including the prevention of weed establishment, shelter for stock in adjacent land, help in defining road curves leading to a safer driving environment, and a reduction in soil erosion and hence road maintenance requirements. The presence of remnant vegetation in road reserves also provides many conservation benefits. Road reserves can support rare or threatened plant species or vegetation associations, they can provide important habitat for fauna, act as corridors between blocks of remnant vegetation, and they provide an important source of seed for local revegetation projects. Furthermore, road reserves containing native vegetation add to the visual amenity of areas where there has been broad-scale clearance.

Any significant disturbance to native vegetation within road reserves has the potential to cause long-term damage which will have long-term negative impacts. Good roadside management practices are required to ensure road reserves containing remnant native vegetation are protected and preserved to help prevent future management problems. Roadsides are now highly regarded for their vegetation value as well as their contributions towards flora and fauna conservation. This value is especially crucial where native vegetation has been cleared from adjacent privately owned land. Roadside vegetation has thus become an important environmental asset, although protecting and enhancing this asset while maintaining the other functions of roadsides can be difficult.

Location for Management Plan

The plan is specifically for The Rural City of Murray Bridge rural roads system.

2. POLICY

Strategic Environment

The Rural City of Murray Bridge is committed to protecting the bio-diversity of the region A key objective is to manage the environment so as to minimise native plant and animal species decline. This is to be achieved in part by protecting vegetation buffer zones and open space areas. Council recognises the environmental value of native roadside vegetation and is committed to its conservation wherever practicable. Clearance of roadside vegetation may be required in some cases. Three key issues commonly affecting roadside clearances are firstly, for Council to ensure the safety of road users within the Council district, secondly, to allow landholders to fence their properties and thirdly to allow property owners access to the roadway.

3. ROLE OF THE ROADSIDE VEGETATION MANAGEMENT PLAN

The purpose of this Plan is to provide Council with a management plan for roadside vegetation. It also outlines the role of other bodies involved in roadside vegetation management, and identifies consultation processes required when roadside clearances are planned. It should be noted that these processes not only apply to Council, but to the community and private landholders.

This plan is the responsibility of the Executive Manager Sustainable Development, and has been developed to assist Council staff and other roadside users in the management of road reserves. It is intended that the Plan be a useful tool in managing roadside vegetation for both the public and private sector. Interested persons are encouraged to contact Council for more information.

4. MANAGEMENT ISSUES

4.1 Road Construction

4.1.1 Council Guidelines

Road widening, realignments, road constructions and road works will be designed, where possible, to minimise native vegetation clearance. For new road works, unless the clearance is very minor and localised (such as pruning of branches, or removal of eight to ten trees, saplings or shrubs, which are known to be common in the area), Council will consult with the Native Vegetation Council Secretariat, Department of Water Land and Biodiversity Conservation.

In order to achieve maximum conservation of vegetation during road construction or road widening activities, it is essential to plan carefully before any works are undertaken.

Whenever possible, new roads should be constructed on land free of remnant native vegetation, or on regrowth vegetation. When existing roads are widened and vegetation threatened, careful planning is required for rehabilitation while taking into account the need to provide adequate road safety, and to comply with design and engineering standards.

Road works should seek to retain native roadside vegetation as an aid to control dust and drift generated by vehicles using the roadway. Keep removal and disturbance of native vegetation and the disturbance of top soil to a minimum, to prevent the spread of weed species and diseases.

Whenever possible, fell trees away from native vegetation and into the construction zone. Cleared native vegetation should be reused as mulch, and for seed collection. Mulched material becomes a seed source and should be utilized in revegetation programs, particularly those being undertaken as part of the construction project.

4.1.2 Standards of Clearance for Construction of Roads

The standard for roads within the Council area shall vary according to the type and level of traffic, the nature of the roadside vegetation, and the need for roadside drainage works, and will generally be as follows:

- Width of carriageway – up to 7 metres

- Width of shoulder – generally 1 metre
- Width of clearance outside of shoulder – up to 2 Metres

4.1.3 Consultation

The Roadside Vegetation Management Plan has also been prepared for endorsement by the Native Vegetation Council with respect to required management of indigenous roadside vegetation.
There will be regular environmental revision (training) for all staff.

4.1.4 Road construction of undeveloped roads

4.1.5
Where a new road is to be constructed on a previously undeveloped road reserve which will affect the native vegetation, consultation with the Native Vegetation Council Secretariat, Department for Water will be undertaken.

4.1.6 Realignment Widening

4.1.7
Council will consult with the Native Vegetation Council Secretariat Department for Water Regarding road realigning or widening programs that will require clearance of native vegetation greater than 10 mature plants.

4.1.6 The design and construction of roads and tracks through bushland shall:

- Be located such that there is no practicable alternative that would involve less clearance of vegetation, or clearance of vegetation that has been degraded to a greater extent, or clearance of vegetation which is less significant.
- Eliminate steep inclines which are vulnerable to erosion.
- Eliminate steep shoulders or include protection against erosion and
- Allow for the collection of surface runoff into the scrubland where it will assist with the ongoing viability of the natural vegetation

4.2 Verge Maintenance for Road Safety

4.2.1 Council Guidelines

Council believes there is a need to create and maintain an adequate road safety clearance on the road verge. The lateral clearances to be up to 2 metres from the shoulder edge and up to 5.1 metres vertical above the shoulder. A slightly larger area may be needed to provide adequate sight distance around curves and at road intersections.

Regrowth may be removed without clearance approval provided low impact methods are used. However, regrowth that is several years old and established, must be treated as if it were existing endemic vegetation, where Native Vegetation Council clearance is required.

4.2.2 Road Curves

For road curves, the amount of clearance will be determined on a case-by-case basis and, where practicable, only those plants impeding visibility will be removed. These clearance zones will be maintained by trimming, slashing and rolling according to the following guidelines:

- Where small trees or other similar vegetation intrude into the clearance zone more commonly or continuously, clearance will normally be undertaken by chemical control subject to the following conditions:

- Amount of clearance to be minimised as far as is practicable

- At particular sites where threatened plants occur in the clearance zone outside of the 1 metre road shoulder, alternative clearance methods such as low impact will be used where practicable to retain and protect those species; or steps will be taken to ensure that the removal of these plants is offset by planting of the species at other more suitable locations in accordance with the Native Vegetation Council.

4.2.3 Clearance at Intersections

Native vegetation will be cleared at intersections to provide adequate sight distance for approaching traffic. The amount of clearance will vary according to specific site requirements and will be based upon assessment of such factors as road design, speed, local topography and type of vegetation. Clearance for sight triangles at intersections should be undertaken in accordance with Austroads Standards. In addition, only those larger plant species that actually impede visibility will be removed following assessment by Council's Engineer. Lower shrubs and groundcovers, which are not a problem in this respect, will generally be retained.

Where threatened plants have been identified within these clearance zones, and where these plants impede visibility, the management of these will be discussed with suitably qualified people.

As part of Council's maintenance program it is proposed that the Infrastructure Department develop a program depicting roadside vegetation assessment and trimming schedules. The program should include information showing in which year, all roads will be assessed (and trimmed if required). This program should be incorporated into Council's GIS (or similar) program and a summary of the program included in all subsequent reviews of the Management Plan.

The following factors will be taken into consideration when determining clearance at roadsides:

- Department for Transport, Energy and Infrastructure guidelines concerning widths, lengths, setbacks and overhang (usually 5m)
- Visual amenity values
- Safety
- Signage
- Drainage
- Rare or Threatened species - Mallee Fowl (Leipoa ocellata) under the *Environment Protection and Biodiversity Conservation Act 1999 and the Native Vegetation Act 1991 (amended 2003)*, such as Resin Wattle (*Acacia rhetinocarpa)* and *Menzel's Wattle* (*Acacia menzelii), Silver Daisy Bush (Olearia pannosa),* which are listed under the above Acts.

Purpose of roadside vegetation i.e.

- Wildlife corridor;
- Backdrop to scenery;
- Other purposes

4.2.4 General Practices

Care should be taken to ensure that vegetation is removed only where necessary and vegetation is to be retained where possible. Machinery should be parked, manoeuvred or stored at a limited number of sites to minimise disturbance. Materials stockpiled should be kept to a minimum number of sites to minimise disturbance. Stockpiling should only occur where there is no alternative due to damage to the surrounding vegetation. The vegetation removed should be chipped immediately and used as mulch to aid in the revegetation of the off road work area.

Equipment should be cleaned prior to removal from the worksite, where the site is within a weed infested area, to prevent the spread of weeds. Any plants removed that are considered to be weed species, should be loaded on a truck, and covered for the trip to the land fill site, where they will be composted.

Any significant or special vegetation should be documented in Council's GIS or mapping system to ensure its retention. When staff are unsure of the quality, value or significance of native vegetation, it is recommended the advice of a qualified expert in native vegetation management be sought and regard had for this advice in decision making.

4.3 Quarries / Stockpile sites

4.3.1 Council Guidelines

The use of road reserves and private property for the purposes of quarrying or stockpile sites is an important requirement for road construction or road maintenance activities. Quarrying entails the removal of rock and gravel materials creating a small pit. Stockpile sites are areas of road reserve used for the storage of material including aggregate, gravel, road base, topsoil, overburden and mulch, which may be required for road construction or maintenance projects.

Quarries tend to be sites in which gravel and rock are permanently removed whilst stockpile sites tend to be temporarily located close-by and used during specific projects. If poor planning and management occurs, the positioning of, and use of quarries and stockpile sites has the potential to severely impact upon native vegetation within road reserves. Impacts to roadside vegetation may include the physical removal of native vegetation within road reserves, physical damage to native vegetation, soil disturbance, and the introduction of pest weed species.

Council will ensure quarries and stockpile sites are created and managed to minimise the impact and disturbance of native vegetation with previous quarries and stockpile sites being utilised prior to the installation of new ones. Council will consult with the Native Vegetation Council Secretariat before clearance regarding new proposed quarry and stockpile sites.

4.4 Control of Plant and Animal Pests

4.4.1 Council Guidelines

Weed control methods that have minimal off-target effects will be encouraged. The removal of exotic weeds from road reserves is a key component to this management plan.

Council may seek assistance on a case by case basis, such as correctional services groups, to assist with weed control.

A weed or pest plant is any plant that is growing in the wrong place and competing with other plants for water, nutrients, and light. Pest plants are a major threat to the continued protection and

enhancement of remnant vegetation remaining on roadsides. All weeds and pest plants are not endemic to the area, and could include plants native to Australia, but not the region.

The spread of pest plants along roadsides is enhanced by their linear nature and are aided by machinery and vehicles, the movement of water in drains, the movement and dumping of soil, and grading shoulders. Continual disturbance of roadsides by the indiscriminate burning, clearing, grazing, ploughing of fire breaks, or pest plant and animal control, creates conditions for invasion by pest plants and exotic grasses. Council will therefore discourage unnecessary disturbance on roadsides both by its own works staff and by adjoining landholders.

4.5 Clearance along fence-lines powerlines, and other services

4.5.1 Clearance for Fence Construction / Maintenance

A landholder that wishes to clear native vegetation on a road reserve, to enable construction or maintenance of a boundary fence, requires Council consent. In granting consent, Council will apply the following criteria:

Where the roadside vegetation consists largely of trees, only branches protruding through or overhanging the fence, or trees growing on the actual fence alignment, should be removed, provided it is not a rare or threatened type;
Where shrubs or bushes are growing through the fence line, those plants growing within one metre of the fence alignment can be removed.

Subject to written application to Council, permission may be granted to landowners to clear and maintain native vegetation:

Support / encourage landholders to relocate new fence lines 3 – 5 metres into their property so as to conserve roadside vegetation.
Tracks (up to 5 metres in width) for vehicular access to the fence should be cleared on the landholder's property.
Where road reserves are wider than 20m, clearance of shrubs and bushes up to 2m from the fence line may be permitted where there is a high bushfire risk, or there is fence maintenance problems associated with vigorously growing shrubs.
According to its assessment of individual cases, Council may vary the above criteria. Council may seek the advice of the Native Vegetation Council Secretariat as to whether additional consents are required. If they are required, Council will coordinate applications for consent.

4.5.2 Ploughing and Grading of Roadsides

Ploughing or grading of the fence-line roadside clearance zone will not be considered an acceptable maintenance practice. Slashing may be an appropriate alternative.

Where clearance exceeds the standards, consultation with the Native Vegetation Council Secretariat should occur either directly or through Council.

4.5.3 Powerlines and Other Services

Traditionally, services such as powerlines, water supplies and telecommunications have often been established along road reserves. Construction of these services can involve clearance of native vegetation, as can ongoing maintenance of those services.

The following policies generally apply:

- New or replacement services are to be established on cleared land wherever possible;
- Where services occur on roadsides the clearance of native vegetation must be kept to a minimum;
- Existing clearance standards can be maintained without consultation with the Native Vegetation Council Secretariat of Department for Water and
- The disturbance of understorey vegetation and spoils (e.g. by vehicles and machinery) must be kept to a minimum.

Consultation should occur with the Native Vegetation Council Secretariat of the Department of Water Land and Biodiversity Conservation where:

- New services are planned to be established along roadsides containing native vegetation;
- Maintenance clearance in excess of existing standards is proposed.

4.6 Property access

Clearance of native vegetation may be required by landowners to provide for access, or improved access to private properties / adjoining allotments. Proposed construction of driveways or widening of driveways that would require the removal of native vegetation must be in accordance with obligations under the *Native Vegetation Act 1991* and requires development approval from the council under the *Local Government Act 1999* and along arterial roads, Transport SA.

- Constructing or widening driveways can potentially impact on significant and sizable areas of native vegetation and council intends to manage property access applications such that the clearance or disturbance of native vegetation is minimised.

- Council will ensure all vegetation clearance for property access complies with Native Vegetation Council and local council guidelines. Any approved clearance will be conducted using minimal impact techniques. This will enable landholders to gain appropriate access to private properties, while minimising the impact on native vegetation within both road reserves and private property.

- New property access points should be limited to two per property. Additional access points should only be approved where there is a legitimate reason. Where additional access points are approved, and native vegetation clearance is required, compensatory revegetation should be undertaken.

- Property access points (taking into account clearance required for safe sight distance) should be located such that there is no practicable alternative that would involve less clearance of vegetation, or clearance of vegetation that has been degraded to a greater extent, or clearance of vegetation which is less significant.

4.7 Bushfire Hazard Reduction

4.7.1 Council Guidelines

Where necessary, the reduction of possible bushfire fuels along roadsides will be achieved through the least invasive means i.e. low impact.

Existing fuel breaks up to 5 metres wide may be maintained as such, although some reduction of width may be required where the break is not considered necessary by the Local Bushfire Prevention Committee.

Where removal of native vegetation is considered necessary for roadside fuel reduction, there will be prior consultation with the Native Vegetation Council Secretariat of the Department for Water.

The main bushfire hazard along the Council's roadsides is associated with exotic grasses & plants. Accordingly, where roadside fuel reduction is needed it will be almost always achieved through reduction and appropriate removal of exotic vegetation.

For new fuel breaks, where removal of native vegetation is considered necessary for roadside fuel reduction, there will be prior consultation with the Native Vegetation Council Secretariat of the Department for Water. Any removal of native vegetation for fuel reduction purposes will need to be linked with the local District Bushfire Prevention Plan. A framework for fuel management on roadsides is provided in the bushfire prevention plans prepared by District Bushfire Prevention Committees, using guidelines issued by the South Australian Country Fire Service (SACFS).

4.8 Grazing of Roadsides

4.8.1 Council Guidelines

The Rural City of Murray Bridge will not generally allow the grazing of stock in areas of native vegetation. Grazing in travelling stock routes is to be encouraged in preference to road reserves.

However, any such grazing must comply with the requirements of the *Native Vegetation Act 1991*. Details on the limitations placed on grazing of native vegetation can be obtained from the Native Vegetation Council Secretariat.

4.8.2 Grazing Guidelines

Grazing of stock in areas of native vegetation can have severe impact such as damaging plants, assisting weed invasion, preventing natural regeneration, and compacting and polluting the soil.

Grazing of roadsides of native vegetation requires the written consent of Council. It is also noted that grazing may be an acceptable form of roadside management in some situations (e.g. through grazing of exotic grasses). However, many weed seeds are not easily broken down by digestion in animals such as horses, and therefore these animals may spread the weeds, rather than help to control them.

The droving of stock between properties is recognised as a necessary activity. However, roads with significant roadside vegetation should be avoided.

Clearance approval from the Native Vegetation Council Secretariat of Department for Water is required for any grazing likely to cause damage to native roadside vegetation.

When applications for grazing are made, and Council grants consent, it should be entered onto Council's GIS, or other mapping system.

4.9 Removal of Plant Material

4.9.1 Council Guidelines

The removal of plant material from roadsides includes:

- Cutting of timber;
- Brush-cutting;
- Seed collection;
- Flower harvesting.

Within the district governed by the Rural City of Murray Bridge all such activities related to the removal of plant material are prohibited without prior approval.

Requests to conduct collection of plant matter must be put in writing to Council. Consultation with the Native Vegetation Council Secretariat should also occur.

4.9.2 Issues Affecting the Removal of Plant Material

Dead timber provides habitats for native fauna and is also important in the recycling of nutrients. Collection will only be permitted when it is proven necessary for fuel reduction, to assist rabbit control, or to remove timber that is hazardous to traffic or fencing. Larger trees with hollows, including dead trees, will be retained where practicable. If trees with hollows are to be removed, hollow sections will be transferred to remaining nearby trees.

Cutting of live timber

Any cutting of live timber outside the scope of these guidelines requires consent of Council, and also clearance consent from the Native Vegetation Council under the *Native Vegetation Act 1991*.

The protection of low under-story plants, including native grasses, will be given priority.

Seed collection

Revegetation programs using local native species are strongly supported by Council and the Native Vegetation Council. Roadsides are often ideal sites for seed collection. However, care is needed to minimise damage to the parent plant and to avoid depleting the seed supply to such an extent that natural regeneration of plants on the roadside is affected.

Seed collection from roadsides requires consent of Council. Preference will be given to collection for local revegetation projects or rehabilitation works. A permit to collect seed is also required under the *National Parks and Wildlife Act 1972*. Permits can be requested from the Wildlife Management Section of the Department for Water. The section can also provide guidance as to how the seed should be collected.

Flower harvesting

The harvesting of flowers from roadsides requires consent of Council, and clearance consent from the Native Vegetation Council. Harvesting of roadside flowers, particularly for commercial purposes, is not favoured because of its impact on the vegetation and the landscape or amenity of the area.

4.10 Maintenance of Vegetation Diversity

4.10.1 Council Guidelines

Council recognises that roadside vegetation plays an important role as a native fauna habitat and wildlife corridor. By adopting the range of programs and policies set out in this management plan, Council will promote the conservation of habitat where possible, as well as the creation of new habitat by means of revegetation programs.

4.11 Management of Vegetation of Particular Conservation Significance

4.11.1 Council Guidelines

Council will endeavour to preserve vegetation or other sites of significance situated within road reserves. When such a site is identified it will be included within Council's GIS database.

Where there are sites along roads which are significant, they will be treated with special care when road construction, maintenance, or work by service authorities, is undertaken.

These areas may be special because they have

- Scientific, historic or conservation value;
- Remnant vegetation with conservation significance;
- Regenerating native plants necessary for the conservation of roadside vegetation;
- Native grasslands and wild flower areas that might be overlooked because there are no shrubs or trees;
- Native vegetation of significance to the Aboriginal community and
- Rare, threatened or endangered plants and animal species;

4.11.2 Management of Rare or Endangered Species

Development of a system for recording in Council's GIS program to record occurrences of significant species and / or communities, and of roadsides that are important because of their diversity of native species, and / or good condition,
Encourage surveys to document significant species and / or communities, and vegetation on roadsides.
Manage the on ground marking system to identify flora and fauna.
Establishment of work practices to ensure protection of significant sites.
A complete or thorough understanding of Council's road reserves over time.

4.12 Revegetation

4.12.1 Council Guidelines

Revegetation for roadsides must also consider the following:

- Replanting near powerlines must comply with the relevant guidelines of the power supply companies;

- Replanting on roadsides where exposure to the elements of windy araes is an issue should be carefully planned. In general, lower shrub species should be planted in the windward side, grading to taller vegetation on the leeward side;
- On roadsides containing some remnant native vegetation, it may be possible to encourage natural regeneration through control of exotic weeds and grasses;
- Direct seeding of native species, using seed collected locally, can be a very effective and economical approach;
- Particular care is needed in dealing with native grassland areas as it may be inappropriate to plant trees or shrubs in those areas;
- Revegetation should allow for such items as access to fences and properties, future service requirements and maintenance of revegetation.
- Any revegetation on roadsides requires Council's written approval.
- Council encourages, upon application, the revegetation of roadsides with local endemic native species by adjoining landowners and community groups.
- The use of local endemic native plants is preferred, using seed collected locally. These are more suited to local conditions and should require minimal maintenance.

4.13Drainage and Erosion Control

4.13.1 Council Guidelines

Clearance will not be undertaken in a manner which creates undesirable drainage situations. When clearance of vegetation is being undertaken, consideration will be given to:

- Undertaking such works prior to the summer or dry season to allow revegetation to commence;
- Seeding or revegetation to encourage suitable regrowth;
- Introduction of soil stabilisation measures such as mulching which also aids in dust control.

4.14Removal of Other Roadside Material

4.14.1 Council Guidelines

The accumulation of litter, unwanted build up of soils or other wastes can be found in road reserves. Such unwanted materials should be removed quickly and conveniently. Material should be removed in a manner that minimises clearance and damage to adjacent native vegetation. If these wastes are allowed to remain over a period of time it may encourage the build-up of household litter and domestic wastes. Such maintenance can be time and resource consuming.

4.15Planting On Roadsides

4.15.1 Council Guidelines

All planting on roadsides requires the consent of Council. Application forms are available from council offices.

Council will promote the maintenance of the plants, in cooperation with support agencies or groups or adjoining landholders where involved, until the plants are able to look after themselves, approximately two years post planting. Long term maintenance of the vegetation will be determined at the planning stage of the project. Usually this will involve weed control only. The

Operations Director or appropriate officer will monitor the site and make sure it is maintained to give the plants every opportunity to survive.

Council approval is required before planting can occur.

Advice will be sought so that approved plantings meet the requirements of other bodies e.g. ETSA, Telecom, SA Water.
Vehicle site lines must be maintained to appropriate Australian Standards.

4.15.2 Consultation and recommendations

Council undertake to identify and categorise unused road reserves to establish the management status of roadsides is not commonly understood, especially with respect to plantings undertaken without due authorisation.

Many instances of roadside plantings are inappropriate causing problems for conservation of indigenous vegetation, risk management, sight vision, bushfire prevention, service provision, cultural and visual amenity. Such plantings may for a variety of reasons include:

- Extension of the front garden
- Screening for noise and privacy
- Windbreaks and shelter belts
- Buffers and revegetation.
- Prevent inappropriate plantings being undertaken on road reserves.
- Use local media and Council publications to advise the community of the need to seek authorisation for any plantings on road reserves.
- Develop recommendations for suitable plant species for use at a localised level.
- Without appropriate application approval plantings will be removed.
- Permission is required from Council for all plantings on roadsides.

Applications must be made on forms which are available from council.

4.16 Horse Riding

4.16.1 Council Guidelines

Investigate on site the impact or likely impact horse riding may be having on significant environmental areas.

The Operations Director or appropriate officer could initiate discussions with Pony Clubs and Local Riders operating within the district to develop a horse riding policy to protect significant environmental areas along roadsides.

Horse riding is an important part of our cultural and historic heritage and legitimate use of the roads. Horse riding on roadside verges, can be very damaging to remnant vegetation. Horses may trample down vegetation as they move along causing disturbance and creating the opportunity for weeds to invade. Horses can also spread weeds and disease contained in their hooves and manure, from one area to another.

4.16.2 Management of Horse Riding

To provide active management of horse use to minimise the environmental impact on roadside vegetation.

Negotiate with appropriate stakeholders the preparation of a suitable trail network and appropriate management guidelines.

4.17 Unused Road Reserves

4.17.1 Council Guidelines

The conservation and recreational value of all unused road reserves located within the district should be assessed by the Council.

The conservation and recreational value of unused roads should be determined prior to issuing a lease, selling the reserve or allowing a road to be developed.

Unleased, unused road reserves that are of high conservation value or of potential significance as a wildlife corridor not be made available for future lease or sold.

Where unused road reserves are of high conservation value or of potential significance as a wildlife corridor the Council will work to have these areas recognised by DEH and measures devised to ensure they are protected or restored.

Where there is no alternative but to lease an unused road reserve of high conservation value or of potential significance as a wildlife corridor, the lease be issued with strict conservation conditions. If these areas are not managed to the satisfaction of Council in consultation with DEH, the lease should be revoked.

When current leases expire, unused road reserves that have been assessed as being of potential significance as a wildlife corridor, such leases are not to be renewed. Council will look at all possible options to convert these areas into conservation zones.

New roads will not be built on unused road reserves of high conservation value or of potential significance as a wildlife corridor unless there is no alternative.

Where there is no alternative but to build a new road on an unused road reserve of high conservation value or of potential significance as a wildlife corridor it should be built in such a way that minimises impact to flora and fauna values.

Where there is no alternative but to sell an unused road reserve of high conservation value or of potential significance as an environmental corridor, a conservation covenant should be placed on the reserve prior to its sale.

Landholders already leasing unused road reserves of high conservation value or of potential significance as a wildlife corridor will be encouraged with incentives and information from Council or DEH, to manage these areas so as to protect flora and fauna values. Where a leased unused road reserve has been degraded by current management practices, but has potential significance as a Strategic Wildlife Corridor, the landholder will be encouraged to rehabilitate the area by DEH or by the Council. All possible funding options should be considered.
Where there is no alternative but to lease an unused road reserve that can provide a recreational link, the lease should provide for the appropriate type of access and management guidelines.

Unused road reserves can provide some of the best examples of remnant vegetation. Where these areas have potential as wildlife corridors or contain significant flora they should be retained as reserves whenever there is an opportunity to do so.

Some unused road reserves may be unsuitable sites because of drainage, erosion or some other reason, for establishing a future road and this should be investigated prior to any works being undertaken.

Council is the responsible authority for unused road reserves.

4.17.2 Management of Unused Road Reserves

Identify and map all unused road reserves, stone reserves, water reserves and rail corridors under the control of council. Ascertain the status of this land. (Whether they have been sold, rented or illegally used).

Assess areas for consideration or recreational value.

Those roads identified for protection of remnant vegetation, wildlife habitat, and strategic environmental corridors or for their recreational or tourism opportunities will not be subject to disposal.

4.18Trail Bikes And Off-Road Vehicles

4.18.1 Council Guidelines

This section refers to all unauthorised traffic on roadsides including bicycles, mountain bikes, trikes and motorbikes, all terrain vehicles, go-kart and billy-carts etc. To prevent environmental damage to roadsides caused by trail bikes and off road vehicles. The establishment of trails along roadsides for use by trail bikes or off-road vehicles is prohibited. Council will not endorse the use of unregistered vehicles on roadsides.

4.18.2 Management of Road Reserves

Any existing use of roadsides by unregistered and unauthorised traffic should be determined and reported. Any new incursions along roadsides by unregistered and unauthorised traffic should be reported. Illegal use of trail bikes and off-road vehicles (including motorbikes) on roadside occurs throughout our region for a variety of reasons. Many of these vehicles are unregistered, and cause damage to roadside vegetation. Initiate discussions with relevant authorities, (e.g. Department Motor Registration, Rural Watch, Police) to help discourage illegal activity. Identify and assess sites being damaged by trail bikes and off road vehicles, with a view to stopping the activity and negotiating rehabilitation strategies. Review the provision of recreational opportunities for trail bike users.

5. CONSULTATION, ENVIRONMENTAL ASSESSMENT & REVIEW

5.1 Operator Training and Supervision

5.1.1 Council Guidelines

Natural Resources staff could help to develop maintenance, restoration or enhancement projects for road sides that help define desired or site-specific visual amenity and landscape requirements.

- Refer to Roadside Marker Scheme.
- Main roads and entrances into townships or communities should be given highest priority. Any opportunities to provide vista, should be considered at the planning stage and incorporated into the landscape design.
- Landscapes recognised as significant, even at a local level, will be recorded and preserved.
- Roads should be designed to blend into the surrounding landscape whenever this is possible.
- Rubbish to be cleaned up from roadsides on a regular basis when funding permits.
- Investigate ways of reducing the incidence of domestic rubbish dumping.
- Council will, where possible, ensure that its employees and contractors are appropriately trained / supervised in the requirements of this Plan.

5.1.2 Consultation and Training

The NRM officer will arrange training to outside work staff every 5 years and induction of new employees in relation to the Roadside Management Plan.

Vegetation on roadsides plays an important role in contributing to visual amenity and landscape values. Landscape character of an area can contribute to its appeal as a tourist destination. Roadside vegetation can define this character and often is the districts "front garden" for visitors.

Maintaining and upgrading the visual amenity and landscape value of roadsides is an important aspect of roadside management in the District. Identify and record sites of significant vegetation e.g. significant species, significant vegetation precincts and communities, rare, vulnerable or threatened species. Maintain Roadside Marker Scheme for identified sites.

As well as significant vegetation, roadsides contain items of national, regional and local cultural and heritage significance. Identify and record sites of cultural and heritage significance.

Consultation with local residents, neighbours and the wider community about proposals and works programs is essential.

5.1.3 Counter Staff

In implementing this Plan, Council will ensure front counter staff is sufficiently aware of this Plan to give public details of the **NRM OFFICER.**

5.1.4 Community Awareness

The Rural City of Murray Bridge believes it has, over the years, made considerable progress in raising the level of community awareness regarding the values of roadside vegetation and the rules and regulations that apply to it. These efforts will continue, and this policy document will also be publicised as appropriate.

6. REFERENCES

- Alexandrina Council (2009) Road Reserve Management Program
- City of Whyalla (2008) Roadside Management Plan
- City of Greater Bendigo (1995) Roadside Management Guidelines
- City of Greater Bendigo (1995) Roadside Management Plan
- Department for Environment, Heritage & Aboriginal Affairs (1998)
- Whyalla Conservation Park Management Plan, DEHAA, Adelaide
- District Council of Karoonda East Murray Roadside Vegetation Management Plan 2006
- District Council of Onkaparinga (nd) Roadside Vegetation Management
- District Council of Tumby Bay (nd) Roadside Vegetation Management Plan
- Gawler Ranges Soil Conservation Board (1996) Gawler Ranges Soil Conservation District Plan
- Kangaroo Island Council (1997) Roadside Vegetation Management Plan
- Native Vegetation Council (1997) Guidelines for the Management of Roadside Vegetation, Native Vegetation Council, Adelaide.
- Native Vegetation Council (2004) Preparing Roadside Vegetation Management Plans, Guidelines for Local Government
- Tioxide Australia (1991) Titanium Dioxide Manufacturing Plant – Draft Environmental Impact Statement, Dames & Moore, Adelaide.
- Tioxide Australia (1992) Titanium Dioxide Manufacturing Plant Whyalla – Supplement to the Draft Environmental Impact Statement, Dames & Moore, Adelaide

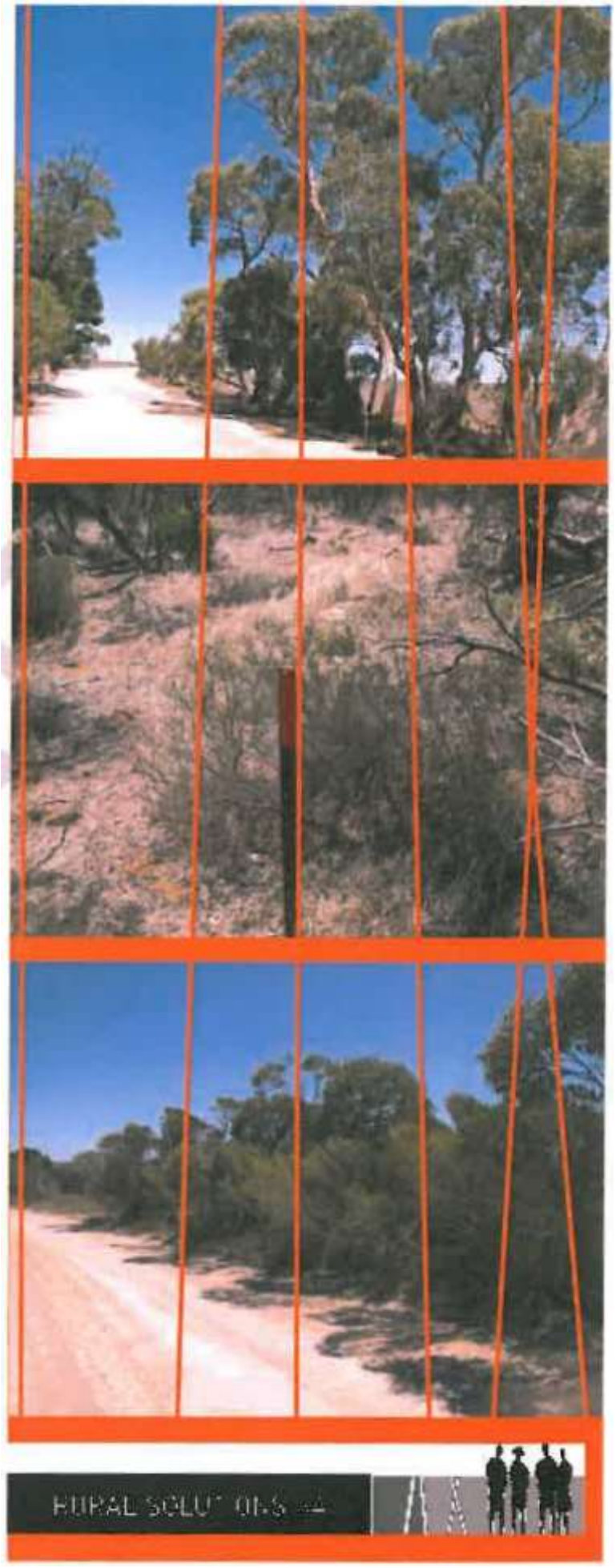
Appendix 1D: Maurice Road Vegetation Data Report 2010

Rural Solutions

Rural City of Murray Bridge

Maurice Road
Vegetation Data Report

(Native Vegetation Act SA 1991)



INSPECTING / REPORTING OFFICER:

Jeff Edwards
Rural Solutions SA
GPO Box 1671
Adelaide SA 5001
Ph: 0427883415

INSPECTION DATE:

Thursday 25th February 2010

RURAL SOLUTIONS SA

Version 1: Thursday, 18 March 2010

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1 PROJECT SUMMARY

1.1 PROJECT STATEMENT

The Rural City of Murray Bridge (RCMB) propose to straighten a short section of Maurice Road, Murray Bridge in order to increase safe passage of all vehicles types by modifying two sharp bends in the current road layout.

The road re-alignment proposes to remove 0.12 hectares of native vegetation and three scattered trees. Refer attached advisory plan *1 of 5* for more detail.

1.2 EXAMPLE OF VEGETATION UNDER APPLICATION

Photo 1
Roadside vegetation under proposal to be cleared. Mallee *(Eucalyptus soc1alis,* Red Mallee over *Rhagod1a crassifolia* (Fleshy Saltbush).

Photo 2
Scattered tree.

Example, *Eucalyptus leucoxylon* (SA Blue Gum) situated along the roadside.

1.3 REGULATION 5 (1) (D)

Followmg discussion With the Native Vegetation Group [1] the realignment of a small sectron of Maurice Road will requrre native vegetation clearance consent under the Native Vegetation Act 1991. regulatron 5 1 (d) *Building or provision of infrastructure, including mfrastructure in the Public Interest.* Refer attachment 1.

This regulation permits clearance of vegetation considered to be in the public interest, or provision of infrastructure or services to an existing or approved building or site that may not be located in natrve vegetation. Relevant authorisation must also be obtained as required by the Development Act 1993.

Approval for vegetation clearance for such developments is conditional on the achievement of a significant environmental benefit (SEB) elsewhere on the property or region to compensate for the vegetation to be cleared.

[1] Pers.Comm.February 2010: Peter Fanner Biodiversity Officer Native Vegetation Group.DWLBC.

1.4 SEB SUMMARY

Patch	Area of vegetation to be cleared (hectares).	SEB ratio.	Option 1: Vegetation Offset. Hectares	Option 2: $ Payment into NVC fund.
Patch 1:	0.02	6:1	0.12	$ 1336.80
Patch 2:	0.01	6:1	0.06	
Patch 3	0.02	4:1	0.08	
Patch 4:	0.02	8:1	0.16	
Patch 5:	0.04	8:1	0.32	
Patch 6:	0.01	6:1	0.06	
		Tree Score		
Tree 1:		38.2	1.12	$2784.78
Tree 2:		52.7		
Tree 3:		24.0		
TOTALS			1.92 hectares	$4121.58

The required offset to compensate for clearance associated with the Maurice Road realignment is 1.92 hectares. The Rural City of Murray Bridge propose and would prefer to provide an area for vegetation off-set (option 1) by permanently setting aside an area permanently protected for native vegetation (1 58ha as detailed on *advisory plan 4 of 5).*

The proposed set-as1de area is slightly less than that required under regulation. To accommodate for this shortfall the Rural City of Murray Bridge in combination with the local community, will commit to,

- funding the upgrade of the fence along the realigned roadside, and
- assisting in the establishment and 12 month maintenance of 50 *Prostanthera eurybioides* (Monarto Mintbush) seedlings placed into the nearby reserve area, appropriately guarded and regularly watered during dry conditions to aid establishment.

Payment Opt1on is included as advisory only.

1.5 ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

It was noted that a population of *Prostanthera eurybioides* (Monarto Mintbush) is located in the close proximity of the road realignment (individual plants observed adjacent to vegetation patch 4 and 5 under application *-refer attached Advisory plans 3 of 5 and 5 of5).*

Monarto Mintbush is a nationally *Endangered* species under the Commonwealths EPBC Act 1999 due to only two known isolated populations in the state of South Australia. No live Monarto Mintbush specimens were recorded by the inspecting consultant within the propose clearance zone associated with the road realignment.

However it is recommended that a referral of the proposed development be sent to the Commonwealth under the EPBC Act to ensure the threat to the existing population is

managed appropriately and any likely impact is minimised as a result of the road realignment and ongoing site management.

2 PROJECT LOCATION

The project site is located approximately 6 km northwest of the Rural City of Murray Bridge, South Australia. Hundred of Mobilong.

The Road reserve is adjacent to land parcels:

- Lot 9 CT Vol 5714 Fol490
- Sec 530 CT Vol 5322 Fol455
- Sec 529 CT Vol 5824Fol 624

Figure 1 – Location of project site.

3 ADVISORY PLANS

A total of five Advisory Plans are included in this report.

Advisory Plan 1	Represents an overview of the clearance areas (patches of vegetation and scattered trees) under regulation 5 1(d) *Building or provision of infrastructure, including infrastructure in the Public Interest.*
Advisory Plan 2	A close up of scattered trees 1 and 2
Advisory Plan 3	A close up of scattered tree 3, and vegetation patches 1-6 proposed for clearance
Advisory Plan 4	Proposed on-site SEB option (revegetation and natural regeneration areas).
Advisory Plan 5	Proximity of Monarto Mintbush to proposed re-alignment. (historical data)

3.1 MAP 1 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
1of5

TO FORM PART OF THE ADVICE TO THE
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3.2 MAP 2 OF 5

Native Vegetation Clearance Application

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NATIVE VEGETATION COUNCIL

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3.3 MAP 30F 5

Native Vegetation Clearance Application

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3.4 MAP 40F 5

Native Vegetation Clearance Application

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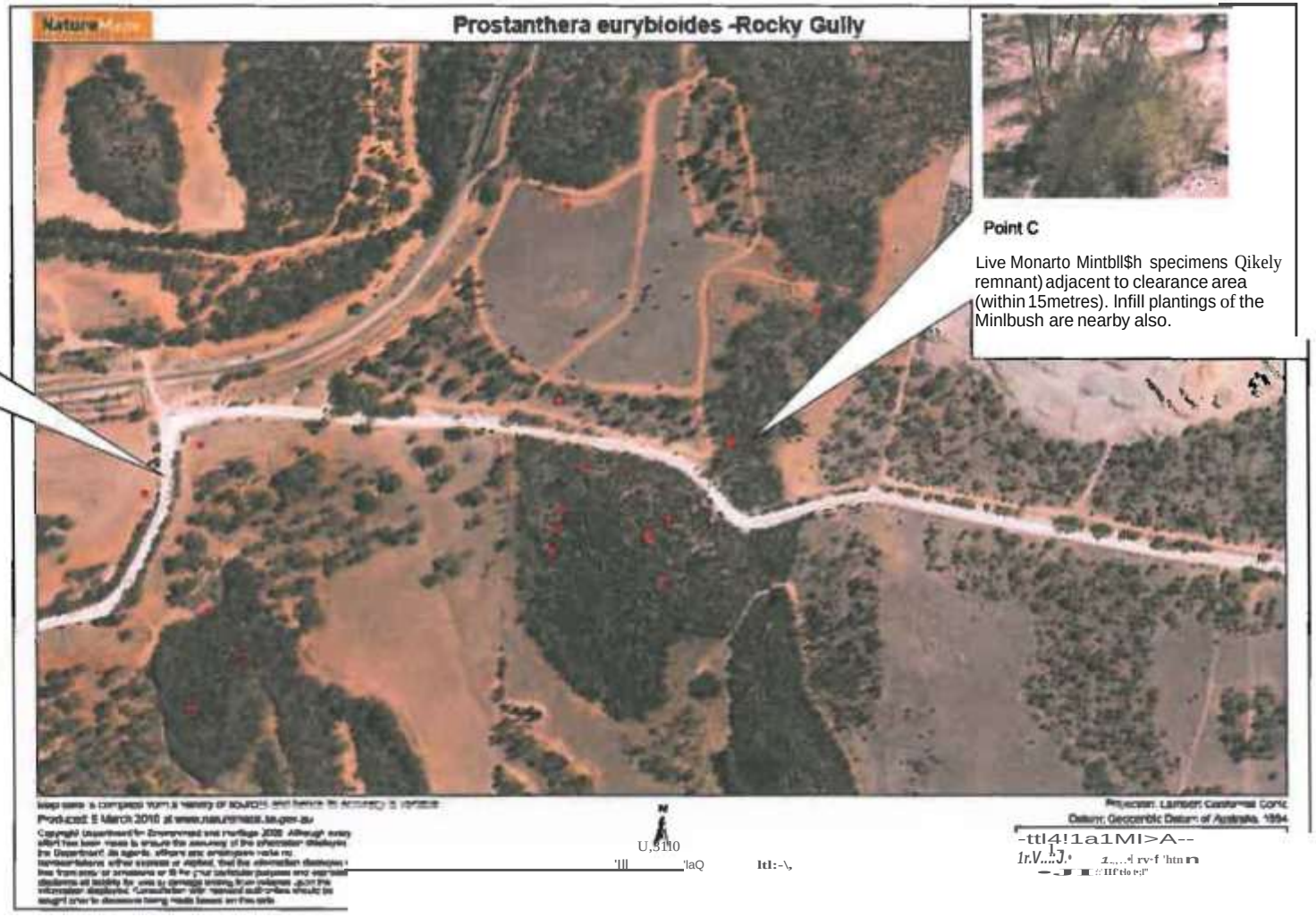
3.5 **MAP** 5 OF 5[2]

Point A & B

Both these areas were investigated thoroughly and no ve presence of the endangered Monarto Mintbush could be observed in the impact area- despite historical data suggesting otherwise.



[2] Map forwarded to RSSA from **the** Murray Darling NRM body, via DEH threatened Species Unit March 2010.

4 BACKGROUND INFORMATION

4.1 DISCUSSIONS WITH THE LANDOWNER

As detailed in *Advisory Plan 1 of* 5, the Rural City of Murray Bridge (RCMB) proposes to straighten a short section of Maurice Road, Murray Bridge in order to increase safe passage of all vehicles. Through discussion with Glenn Dean (Parks and Gardens Supervisor, RCMB), it was noted this section of road was becoming notably busier with heavy vehicle traffic as a result of increased industrial activity in the region. In addition many young drivers have come unstuck on the sharp bends, and the local community is concerned for lives.

Following re-alignment RCMB propose to rehabilitate the existing section of road, through a combination of fencing, vermin control, soil ripping and revegetation with local indigenous species. Negotiations with the adjacent landowner are likely to result in a realignment of property boundaries, with some areas merged into existing heritage agreements for permanent conservation.

Maurice Road is an unsealed road, and currently no plans exist to seal the road in the near future. This section of road is currently being re-graded and repaired at the time of inspection.

4.2 ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

4.2.1 Monarto Mintbush

A population of *Prostanthera eurybioides* (Monarto Mintbush} is located in the close proximity of the road realignment (adjacent vegetation patch 4 and 5, with an additional two recordings adjacent vegetation patch 2} – *refer attached Advisory plan* 5 *of* 5}.

Monarto Mintbush is a nationally *Endangered* species under the Commonwealths EPBC Act 1999 due to only two known isolated populations in the state of South Australia.

In accordance with the EPBC Act 1999, any activity that is likely to have a significant impact on the population of remnant Monarto Mintbush will need to be referred to the Commonwealth for consultation.

For more information regarding the management of the Monarto M1ntbush refer the Draft Recovery Plan for additional details on impacts and future management opportunity for this species (DEH Threatened Species Unit)[3].

4.2.2 Site Assessment

A complete walk through was conducted during Rural Solutions SA assessment of the area to be cleared in association with the re-alignment of the road.

Refer Advtsory plan 5*of* 5	
Point A & B	Inspected no live Individuals found
Pointe	Inspected A comb1nat1on of planted and a handful of naturally occurring specimens present. The naturally occurring plants were located within 15metres of the impact area.

- No individuals of the Endangered Monarto Mintbush were located during the site Inspection with1n the clearance zone.
- A handful of mature spec1mens (likely remnant) were located approximately 15 metres from the newly proposed road verge (near clearance patch 4 and 5).
- However please note, previous recordings of this plant as identified at points A and B (as identified on the attached *Advisory plan* 5 *of* 5} were inspected, but no live individual were observed at these locations (or within the close vicinity}.

[3] Pound. L., Obst C. & How T., Environmental and Biodiversity Services, '2009 Recovery Plan for *Prostanthera eurybioides* (Monarto Mintbush)'.

4.2.3 Referral to the Commonwealth (EPBC)

Following consultation with the SA Murray Darling NRM Board, they are very concerned about every known plant as there are so few of this particular species left. Given the close proximity of the clearance site to the endangered remnant population of Monarto Mintbush, its a recommendation of this report that a referral of the proposed development be sent to the Commonwealth under the EPBC Act. This action will further ensure the threat to the existing population is managed appropriately and any likely impact is minimised as a result of the road realignment and ongoing site management.

Summary of issues (there may be others)

Development Stage	Issues and potential Impacts
During Development	Physical disturbance to road side vegetation (i.e. inappropriate stockpilmg, parking or grading). [Environmental development guidelines will ass1st to minimise this risk].
Post Development	There is a risk of an increase in weed distribution as a result of the road verge being brought closer to the remnant population There is a risk of an Increased level of dust that may impact on vegetation (Including threatened plants} in the close proximity of a newly aligned road verge. • In the immediate vicinity of the source, dust can stress vegetation through blocking stomata (adversely affecting gas exchange), reducing light availability (reducing photosynthetic ability and limiting plant growth and cumulative effects, e.g. drought stress on already stressed species[4]]. • There is information suggesting dust can impact vegetation up to 20metres from the road verge depending on vegetation type, however local information regarding this matter in mallee environments is not readily available[4]. • Advice from a leading authority on the subject (Dr. David Dooly from the University of Queensland) suggested that plants would be affected adversely only if dust loads were high, which would require a considerable number of large trucks using the road during the dry season[4].

[4] Pers. comm. Dr. David Dooly Centre for Mined Land Rehabilitation, University of Queensland St. Lucia Qld 4072, March 2010

Photo 3: Example of airborne dust generation following the passing of a utility vehicle adjacent to clearance site. Maurice Road,Murray Bridge.

NATIVE VEGETATION UNDER APPLICATION

4.3 VEGETATION PATCHES (1-6)

4.3.1 Patch 1

Photo 4: Patch 1.

Native Species Present *Eucalyptus calycagona* (Square Fruited Mallee) +*E. Phenax* (White Mallee), Mallee over *Rhagodia crassifolia* (Fleshy Saltbush), *Maireana brevifolia* (Bluebush), *Dianella revoluta ssp. revoluta* (Black-anther Flax Lily) *Enchy/aena tomentosa* (Ruby Saltbush) and *Lomandra effusa* (Scented Iron Grass).

Also refer weed list below.

Area	0.02ha
Disturbances and other comments	Road verge • Dust impact. Damage to understorey vegetation from grading on road verge. Narrow strip of vegetation (exposed to edge effect). Good mulch layer. Farming • Backs onto farming property. Degraded fences. Weeds • *Lycium ferocissimum* (African Boxthorn) *Asparagus asparagoides* (Bridal Creeper), Brassica sp., and introduced grasses. Vermin • Rabbits (observed at time of inspection). Scats and digging also present.
SEB Ratio	6:1 [This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate to severe weed impact. Clearance of this small section of roadside vegetation is not likely to be considered by the NVC to be significantly at variance to the principals, subject to a suitable offset].

4.3.2 Patch 2

Photo 5: Patch 2

Native Species Present
Eucalyptus socialis (Red Mallee) +*E. Phenax* (White Mallee) Mallee, over *Pittosporum angustifolium* (Native Apricot), *Mela/euca lanceolata* (Dry-land Tea Tree), *Enchylaena tomentosa* (Ruby Saltbush), and *Clematis mtcrophy/1/a* (Old Mans Beard).

Also refer weed list below.

Area	0.01ha
Disturbances and other comments	Road verge • Dust impact Damage to understorey vegetation from grading on road verge and a minor culvert. Narrow strip of vegetation (exposed to edge effect). Good mulch layer. Farming • Backs onto farming property. Weeds • *Asparagus asparagoides* (Bridal Creeper), Brassica sp., and introduced grasses. Vermin • Rabbit scats and digging present directly adjacent site.
SEB Ratio	6:1

[This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate to severe weed impact. There is significant disturbance from road maintenance activities. Clearance of this small section of roadside vegetation is not likely to be considered by the NVC to be significantly at variance to the principals, subject to a suitable offset).

4.3.3 Patch 3

Photo 6: Patch 3.

Native Species Present
Lomandra effusa (Scented Iron Grass), Grassland over *Austrodanthonia caespitosa* (Wallaby Grass), *Austrostipa sp.* (Spear Grass) and a few *Enchylaena tomentosa* (Ruby Saltbush).

{Refer rear of photo – left of road sign] Two plants *(AIIocasuarina verticillata* and *Acac1a calamifolia)* (that appear to have been planted), fall on the edge of this patch – clearance requ1red.

Also refer weed list below.

Area

002ha

Disturbances and other comments

Road verge

- Cleared highly disturbed vegetation.
- All canopy has likely been removed.
- Damage to understorey vegetation from grading on road verge clearly visible in the attached photo 6.
- Narrow strip of vegetation (exposed to edge effect).

Farming

- Backs onto farming property and is exposed to general farming practices.

Weeds

- Few weeds Avena (Wild oats} and other exotic grasses.

Vermin

- Rabbits scats and digging present.

SEB Ratio

4:1

[This patch has considerable disturbance as vegetation is largely reduced to scattered understorey vegetation with a reasonable native grassy layer. Weed diversity is low during summer, but still notable and throughout the entire area. Some exposed soil due to disturbance, subject to a suitable offset).

4.3.4 Patch 4

Photo 7: Patch 4

Native Species Present
Eucalyptus porosa (Mallee Box), Open Mallee over *Pittosporum angustifolium* (Native Apricot) *Rhagodia crassifolia* (Fleshy Saltbush), *Dianella revoluta var. revoluta* (Black-anther Flax Lily), *Lomandra effusa* (Scented Iron Grass), *Enchylaena tomentosa* (Ruby Saltbush), Moss.

Also refer weed list below.

Area	0.02ha
Disturbances and other comments	Road verge • Buffered from the near by road verge. Weeds • *Ehrharta calycina* (Veldt Grass), *Avena sp.* (Wild Oats). *(Bridal Creeper near by).* Grazmg • Kangaroo scats throughout. Grazing impact was noted. Vermin • Rabbits (observed at time of inspection). Scats and digging also present. Threatened Plants • Directly adjacent known population of *Prostanthera eurybioides* (Monarto Mintbush).
SEB Ratio	8:1 [This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate but not severe weed impact. Clearance of this small section of vegetation is likely to be considered by the NVC to be at variance to the principals based on near by threatened plant association as this habitat type may provide potential habitat and buffering for the Monarto Mintbush. Under regulation clearance will be assessed subject to suitable off-set].

4.3.5 Patch 5

Photo 8: Patch 5

Native Species Present *Mela/euca uncinata* (Broombush) Tall Open Shrubland over *Lomandra effusa* (Scented Iron Grass), *Dianella revoluta var. revo/uta* (Black-anther Flax Lily), *Rhagodia crassifolia* (Fleshy Saltbush).

[Grazed samples]? possibly *Lomandra dura* (Mat Rush), *Austrostipa sp.* (Spear grass)

Rocky.

Also refer weed list below.

Area	0.04ha
Disturbances and other comments	Weeds • *Asparagus asparag01des* (BridalCreeper) *Ehrharta calycina* (Veldt Grass), *Avena* sp. (Wild Oats). Vermin • Rabbits (observed at time of inspection). Scats and diggings also present. Graz1ng • Kangaroo scats throughout. There was considerable grazing impact, likely associated with high Kangaroo numbers in the area. • Minimal germination and regeneration of native vegetation observed. Threatened Plants • Directly adjacent known population of *Prostanthera eurybioides* (Monarto Mintbush).
SEB Ratio	8:1

[This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate to severe weed impact. Clearance of this small section of vegetation is likely to be considered by the NVC to be at variance to the principals based on near by threatened plant association as this habitat type may provide potential habitat and buffering for the Monarto Mintbush. Under regulation clearance will be assessed subject to suitable off-set].

4.3.6 Patch 6

Photo 9: Patch 6

Native Species Present
Eucalyptus Phenax (White Mallee) Open Mallee over *Melaleuca uncinata* (Broombush), *Lomandra effusa* (Scented Iron Grass), *Rhagodia crassifolia* (Fleshy Saltbush), *Maireana brevifolia* (Bluebush), *Enchylaena tomentosa* (Ruby Saltbush), Moss.

One young *Callitris gracilis* (Native Pme) -likely seeded from near by planted specimens.

Rocky. Good cover of leaf litter.

Also refer weed list below.

Area	0.01ha
Disturbances and other comments	Road verge • Dust 1mpact. Damage to understorey vegetation from grading on road verge. Narrow strip of vegetation (exposed to edge effect). Site is adjacent to a revegetation area and near by ploughed paddock. Weeds • *Asparagus asparagoides* (Bridal Creeper) *Ehrharta calycina* (Veldt Grass), *Avena sp.* (Wild Oats). Water Pipe • Water pipe adjacent. Take care during excavation to relocate.
SEB Ratio	6:1

[This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate to severe weed impact. There is significant disturbance from road maintenance activities. Clearance of this small section of roadside vegetation is not likely to be considered by the NVC to be significantly at variance to the principals, subject to suitable off-set].

4.4 SCATTERED TREES

There are two trees that pose a risk to larger vehicle travelling along Maurice Road. Councilhave requested removal of these trees to improve site safety and safe movement of larger vehicles as part of the total Maurice Road upgrade program. Tree 3 is located in direct line of the proposed new road section.

4.4.1 Tree 1

Photo 10: *Eucalyptus leucoxylon ssp. Jeucoxylon* (SA Blue Gum) over *Melaleuca acuminata* (Honey Myrtle), *Enchylaena tomentosa* (Ruby Saltbush).

Tree Score	38.2
Species	*Eucalyptus leucoxylon ssp. leucoxylon* (SA Blue Gum)
Disturbances and other comments	Road verge • Disturbed vegetation site, grading occurs to the base of the tree. Weeds • *Lycium ferocissimum* (African Boxthorn) *Asparagus asparagoides* (Bridal Creeper), Brassica sp., *Sonchus* sp. (Sow Thistle) and introduced grasses. Rare Plant *Eucalyptus leucoxylon* ssp. *leucoxylon* is considered Rare in the Murray Mallee region

Photo 11: Tree 1 rationale for clearance.

The clearance envelope is 5metres m height from the edge of the road formation (road edge).

- As identified in the area marked With a red X, removal of this section of tree from the clearance envelope would result in total canopy removal. The tree requires total removal based on Transport SA guidelines.

4.4.2 Tree 2

Photo 12
Eucalyptus Jeucoxylon ssp. leucoxylon (SA Blue Gum) over *Enchylaena tomentosa* (Ruby Saltbush).

Tree Score	52.7
Species	*Eucalyptus leucoxylon* (SA Blue Gum)
Disturbances and other comments	Road verge • Disturbed vegetation site, grading occurs to the base of the tree. Weeds • *Asparagus asparagoides* (Bridal Creeper), Brassica sp., *Sonchus sp.* (Sow Thistle) and introduced grasses. Hollow • Small crack in the main trunk approximately 2-3metres off the ground. Rare Plant *Eucalyptus leucoxylon* ssp. *leucoxylon* is considered Rare in the Murray Mallee region

Photo 13: Tree 2 rationale for clearance

The clearance envelope 1s 5metres in height from the edge of the road formation (road edge).

- As identified 1n the area marked with a red X, removal of this section of tree from the clearance envelope would result in total canopy removal. The tree requires totalremoval based on Transport SA guidelines.

4.4.3 Tree 3

Photo 14: *Callitris gracilis* (Native Pine) present over bare ground.

In direct line of proposed new road alignment.

Road verge

- Disturbed vegetation site, grading occurs to the base of the tree.

Tree Score: 24

5 SIGNIFICANT ENVIRONMENTAL BENEFIT (SEB)

5.1 REGULATION 5 (1) (D)

Following discuss1on with the Native Vegetation Group[5] the realignment of a small section of Maurice Road will require native vegetation clearance consent under the Native Vegetation Act 1991, regulation 5 1 (d) *Building or provision of infrastructure, including infrastructure in the Public Interest.* Refer attachment 1.

This regulation permits clearance of vegetation considered to be in the public interest, or provision of infrastructure or services to an existing or approved building or site that may not be located in native vegetation. Relevant authonsation must also be obtained as required by the Development Act 1993.

Approval for vegetation clearance for such developments is conditional on the achievement of a significant environmental benefit (SEB) elsewhere on the property or region to compensate for the vegetation to be cleared.

5.2 SEB SUMMARY

Patch	Area of vegetation to be cleared (hectares).	SEB ratio.	Option 1: Vegetation Offset. Hectares	Option 2: $ Payment into NVC fund.
Patch 1:	0.02	6:1	0.12	$ 1336.80
Patch 2:	0.01	6:1	0.06	
Patch 3	0.02	4:1	0.08	
Patch 4:	0.02	8:1	0.16	
Patch 5:	0.04	8:1	0.32	
Patch 6				
		Tree Score		
Tree 1:		38.2	1.12	$2784.78
Tree 2		52.7		
Tree 3		24.0		
TOTALS			1.92 hectares	$4121.58

[5] Pers. Comm. February 2010: Peter Farmer Biodiversity Officer Native Vegetation Group. DWLBC.

5.3 PROPOSAL

- Required set-aside 1.92hectares.

The RuralCity of Murray Bridge propose and would prefer to provide an area for vegetation off-set (option 1) by permanently setting aside an area for native vegetation (1.58ha as detailed on *advisory plan 4 of 5).* Revegetation of the old section of road and paddock would be required as part of the permanent set-aside option 1.

The proposed set-aside area is less than that required under regulation. To accommodate for this shortfall the Rural City of Murray Bridge in combination with the localcommunity, will commit to;

- funding the upgrade of the fence along the realigned roadside, and
- assist in the establishment and 12 month maintenance of 50 *Prostanthera eurybioides* (Monarto Mintbush) seedlings placed into the nearby reserve area. These seedlings must be appropriately guarded and regularly watered during dry conditions to aid establishment.

Payment SEB Option is included as advisory only

5.4 EXAMPLE OF VEGETATION WITHIN THE SEB

The total area of the proposed set-aside is a total of 1.58 hectares.

Photo 15:

This photo represents proposed SEB adJacent clearance patch 6.

Native Species Present
Eucalyptus Phenax (White Mallee) +/- *Eucalyptus ca/ycagona* (Square fruited Mallee) Very Open Mallee over *Mela/euca uncmata* (Broombush), *Lomandra effusa* (Scented Iron Grass), *Pittosporum angustifolium* (Native Apricot), *Acacia calamifolia* (Wallowa wattle), *Lasiopetalum behrii* (Velvet Bush), *Hibbertia sp.* (Guinea Flower), *Rhagodia crassifolia* (Fleshy Saltbush). *Maireana brevifolia* (Bluebush), *Enchy/aena tomentosa* (Ruby Saltbush), Moss.

Rocky. Good cover of leaf litter.

Decommissioned road would require soil ripping and revegetation using direct seeding following adequate rabbit control.

Adjacent existing Heritage Agreement.

Photo 16:

This photo represents proposed SEB near by clearance patch 4.

Native Species Present

Eucalyptus porosa {Mallee Box) Open Mallee over *Acacia rhigiophylla* (Dagger-leaf Wattle), *Bursaria spinosa* (SA Christmas Bush). *Plttosporum angustifolium* (Native Apricot) *Rhagodia crassifolia* (Fleshy Saltbush), *D1anel/a revoluta var. revoluta* (Black-anther Flax Lily), *Lomandra effusa* (Scented Iron Grass), *Enchylaena tomentosa* (Ruby Saltbush), Moss.

Rocky. Good cover of leaf litter.

Decommissioned road would require soil ripping and revegetation using direct seeding following adequate rabbit control.

Adjacent existing Hentage Agreement

Photo 17:

This photo represents proposed SEB between clearance patches 1-2.

Native Species Present

E. Phenax (White Mallee) *+Eucalyptus socialis* (Red mallee) *+/-Eucalyptus calycagona* (Square Fruited Mallee) Mallee over *Rhagodia crassifolia* (Fleshy Saltbush), *Maireana brevifolia* (Bluebush), *Dtane/Ja revoluta* ssp *revoluta* (Black-anther Flax Lily), *Enchy/aena tomentosa* (Ruby Saltbush). *Clematis mtcrophy/Ja* (Old Mans Beard), *Acacia wilhelmiana* (Nealie Wattle) and *Lomandra effusa* (Scented Iron Grass).

Photo 18:

Paddock areas as shown and decommissioned road (photo 16) would require soil ripping and revegetation using direct seeding following adequate weed and rabbit control.

5.5 SEB CALCULATIONS

5.5.1 Vegetation Patch 1-6 Calculations

Patch	Clearance Area	SEB ratio	SEB Requirement (ha)
Patch 1:	0.02	6:1	0.12
Patch 2:	0.01	6:1	0.06
Patch 3	0.02	4:1	0.08
Patch 4:	0.02	8:1	0.16
Patch 5:	0.04	8:1	0.32
Patch 6:	0.01	6:1	0.06
Totals	0.12		0.80ha

Calculations	AreaSEB	0.80ha
	PaymentSEB	Payment$ = Land value (1551) X set-aside area (0.80ha) + management costs (800/ha) X clearance area (0.12ha) (2357.52 + 96)
		Sub total = $ 1336.80

5.5.2 Scattered Trees Calculations

Wildlife Habitat Value Categories (labelled from 1 to 6)

Tree No.	Species	Height (m)	Diaback %	Hollows (no. & size)	1.Height Weighllld 1,2 or 3plls x 1.05	2.Health (weighted) 6pts max relative to % dieback	Hollows 1.2 or 3pts.	3.Holows (weighted) 1,2 or 3pts. x 1.45	S!itability for threatened species 1.2 or3pb.	4.Threatened species (we9lted) 1,20r 3pls. xO. 65	Density 1.2 or3pts	5. Density (weighted) 1,2 or 3pts x0.4	Proximity to otllerveg. 1.2 cr3pts	6. Proximity to other veg. (weighted) 1,2 or 3pts. x 0.35	Total Score (sum cjcategories cubed, and lhen divided by 55.5) 0-100
1	*Eucalyptus leucoxylon*	14.0	5	0	2.1	5.8	1	1A5	3	1.95	3	1.2	1	0.35	38.2
2	*Euc•lyptus teuc:xylon*	12.0	5	1s	2.1	5.8	2	2.9		1.95	3	1.2	1	0.35	52.7
3	*C.Illtrls gracilis*	3.5	0	0	1.05	6	▮	1A6	1	0.65	2	0.8	3	1.05	24.0

Description	Species	Set-Aside Requirement (ha)	For Payment Option (ha)
Trees 1,2,3	*2 Euc. leucoxylon* *1 Callitris gracilis* *HSC: SEB has a combination of intact vegetation wfth moderate to high Species diversity, variable weed invasion and cleared land- average HSC taken.* *LCR: wfthin 100m of core vegetation area.*	Total SEB potnts required 976.6 HSR= c 350 LCR= g 2.5 Offset required (ha) 1.12	Total SEB points required 976.6 HSR= f 275 LCR= m 2 Offset required (ha) 1.78 *Usina Minimum HSR/LCR score as SEB unknown*

Clearance
{cano y) area

Tree 1
Tree2
Tree 3
0 03ha

Calculations Scattered trees	• SEB offset 1.12
Calculations for payment Scattered trees	• SEB offset (due to low H$!'ld LCR scortt J quired} = 1.78ha • TotalClearance (canopy 0.03ha • Land value= 1551/ha Payment into the N x Yegetati&n) ·unq • Set-aside are by lan (8)) = $2760.78; plus ga1 ,1 1.7 ($-1551/ha managem_erjt sts mcifti{:led byetation clearance area ($800 x 0.03) $24

Sub total$2784.'1J

[6] NVC policy document reference.

5.6 REVEGETATION AND MANAGEMENT GUIDELINES- SEB

5.6.1 Management issues and objectives

EnvironmentaWeeds and Vermin

Environmentalweeds pose a threat to the biodiversity and visual amenity value of the area, by out-competing native plants for light, space and nutrients, and potentially displacing local fauna by reducing natural food resources and suitable habitat.

Bridal Creeper *(Asparagus asparagoides)* is a significant threat to the road reserve as it has the ability to smother native vegetation and reduces its ability to photosynthesise, grow and regenerate.

Rabbits were active and appear to be in high numbers.

Management objectives and key actions	During revegetation process implement an environmentalpest plant and animalcontrollmonitonng program to encourage natural regeneration of native vegetation and improve regeneration success. • Engage the local animal and plant control offrcer (NRM) to plan works. • Liaise with neighbounng landowners to assist management of vermrn adopting a holistic approach to fox and rabbrt management. • Seek assistance to release brological control for BridalCreeper. • Adequately prepare site for revegetation, controlling broad leaf weeds as a priorrty on old paddock areas. • Monitor weed control rmplementabon / techniques.

Native Vegetation and Native Fauna

This site contains a good variety of native vegetation (in patches) and these areas are to be retained and enhanced

Native vegetation and habitat	It is a priority management imtrative to protect and maintain the diversity of natrve vegetation types for wildlife habitat and conservation across the total property. • Protect and maintain native vegetation and the diversity of habitat types for wildlife conservation. • Fence road verge. • Control environmental threats (weeds & vermin) to encourage natural regeneration of native vegetation and reduce risks to wrldlife. • Protect and maintain habitat features including dead vegetation. Do not be tempted to 'tidy up' or remove habitat features such as fallen timber, logs, bark and leaf litter. • Long term take care when pruning vegetation along road verge or upgrading road surface.

Revegetation

Sections of the SEB will contain decommission roads and paddock areas. These areas will require active revegetation (long term objective to encourage the site to be self sustaining).

To add value to the proposed SEB (in lieu of falling short of required offset) the Rural City of Murray Bridge will assist the local community to establishment and maintain for a minimum 12 months, 50 *Prostanthera eurybioides* (Monarto Mintbush) seedlings. These shall be placed into nearby reserve areas, appropriately guarded and regularly watered during dry conditions to aid establishment.

Revegetation

Decommissioned Roads

- Collect local native seed 9-12 months prior to revegetation activities and store.
- Deep rip soil in late summer. Cross rip to allow for good root development.
- Sow site down to a cover crop (sterile rye) early autumn.
- Direct seed a suite of local native plants m autumn. Focus on the establishment of colonis1ng species to encourage a rapid cover of site and control eros1on. Monitor for mites.
- Control germinating weeds and rabbits as a prionty

Paddocks

- Sow paddock to a cover crop and mange weeds using non-residual herb1c1de for minimum 12 months. Broad leaf selective.
- Burn site in autumn and immediately control germinating weeds.
- Direct seed a suite of localnative plants mid autumn. Focus on the: establishment of coloms1ng species. Monitor for mites.
- Once suitable m1croclimates develop increase plant diversity (Tubestock planhng)
- Control germinating weeds and rabbits as a priority.

Monarto MJntbush

- Consult Threatened species officer and NRM.
- W1th a permit, collect local cutting material and supply to state flora nursery.
- Prepare !;ite for planting (spot spray weeds)
- Plant seedlings and water in.
- Guard seedlings, use hardwood stakes to prevent them being knocked over.
- Control germinating weeds around plants and rabbits as a priority.
- Follow up watering during extended dry periods in the first summer.

5.6.2 Revegetation Mix

Direct seeding

Trees
Callitris gracilis
Pittosporum angustifolium
Eucalyptus porosa
Eucalyptus socialis
Eucalyptus calycagona
Eucalyptus phenax
Allocasuarina verticillata

Shrubs
Acacia calamifolia
Acacia wilhelmiana
Acacia rhigiophylla
Acacia brachybotrya
Dodonaea viscosa ssp. cuneata
Bursaria spinosa
Melaleuca uncinata

Understorey
Enchylaena tomentosa
Rhagodia crassifolia
Austrodanthonia caespitosa and local *Austrostipa* (brush cut and lay seed on site)

Tubestock mix

Infill understorey
Dianella revoluta
Lasiopetalum behrll
Clematis microphylla
Lomandra dura
Lomandra effusa

Threatened Plant
Prostanthera eurybioides
(Peffl)ission to collect will nef:ld to be sought from DEH, consistent with tecovery plan).

6 GUIDELINES DURING DEVELOPMENT

To minimise negative environmentalimpact associated with the proposed road realignment; all works must be constructed withrn strict environmentalguidelines to avoid damage to native vegetation and threatened plant communities.

Decommission road sections will be rehabilitated following site works.

6.1.1 Potentialenvironmental risk

Potentialenvironmentalrisks are listed below (but other may be present):

Potential Impacting Activity	EnvironmentalRisk	Likely Impact[7]
Community Consultation	Failure to consult the communrty on environmental and social impacts can lead to project delays and implications.	Moderate
Equipment and Material usage and storage	The project will remove ground features, native vegetation and native fauna habitat as part of the road upgrade. • There is an associated risk from vehicles, people and equipment damaging native vegetation (including threatened plant habitat} outsrde the clearance envelope from parkrng, grading, tum around areas, and sorl/rubble storage.	Moderate to High
	The movement of vehicles within the site has the potential to spread weeds and soilpathogens.	Moderate
Construction Activities.	Waste generated from staff and operational activitres have the ability to cause environmental harm to soil, vegetation, fauna and water bodies.	Low

[7] Low- Minor risk of occuning
Moderate- Possible risk of occuning (greater than 50% chance)
High – Likely risk of occuning

6.1.2 General construction considerations for Rural City of Murray Bridge

Issue	Suggested action
Community Consultation	Prior to construction and Implementation of works RCMB must have suitably consulted the community to ensure that: • The Department for Environment and Heritage, Natural Resource Management Board, Neighbounng Landowners, EPBC Act representative and other key stakeholders have been suitably consulted on the proJect process and design; and that any outstanding environmental issues have been identified for protection. • The local community are suitability informed as to the works being undertaken. • All indigenous cultural and heritage assessment and consultation has been completed and that any such area has been identified for protection.
Construction activities	• Conduct an induction of construction personnelbefore they commence work at the site to Inform them of the identified environmentaland heritage values of the site. • Flag off all 'no go' areas prior to commencement of works to avoid accidentaldamage These willinclude clearly identifying Monarto Mintbush protection areas, where all construction related activities are to be excluded. • Clearly mark out the native vegetation clearance envelope prior to removal. • Do not stock pile cleared vegetation on other vegetation. • Clearly define vehicle tum around areas, stockpiling points (if requ1red) and rest areas to avoid environmentalharm. • Regularly wet down road to minimise dust during works. • To avo1d the spread of weeds and soilpathogens ensure all vehicles and equipment is clean and free of weeds and dirt each t1me before working on site. • All s1te action areas need to be monitored on a daily basis to observe environmentalimpact and compliance. Any damage to vegetation outside the clearance envelope is to be reported to the site supervisor immediately.
Post works	Rehabilitate degraded sites and decommissioned roads • Control vermin and weeds • Condition soils • Revegetate deared areas with local native vegetation.

7 ATTACHMENT 1 • REGULATION

7.1 REGULATION 5{1)(0}

Building or provision of infrastructure, Including infrastructure in the Public Interest

Pursuant to Section 27(1){b) of the Act, native vegetation may, subject to any other Act or law to the contrary, be cleared **if–**

(i)–

- (a) the clearance is incidental to the construction or expansion of a building or infrastructure and the Minister has. by instrument in writing, declared that he or she is satisfied that the clearance is in the public interest; or
- (b) the clearance is required in connection with the provision of Infrastructure or services to a building or proposed building, or to any place; and

(ii) any development authorisation required by or under the *Development Act 1993* has been obtained; and

(iii) the Council is satisfied (on the basis of information provided to the Council by the person seeking the benefit of this paragraph and such other information as the Council thinks fit) that, after taking into account the need to preserve biological diversity and the nature and purposes of any proposed building or mfrastructure that is yet to be constructed, the proposed site of the building or Infrastructure is the most suitable that is available; and

(iv) the Council is satisfied (on the basis of Information provided to the Council by the person seeking the benefit of this paragraph and such other information as the Council thinks fit) that, there 1s no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared; and

(v) the clearance is undertaken in accordance with a standard operating procedure determmed or approved by the Council for the purposes of this provision or a management plan that has been approved by the Council, and either-

- (a) there will be a significant environmental benefit on the property where the clearance is being undertaken or within the same region of the State; or
- (b) either-
  - the owner of the land (or a person acting on his or her behalf);
  - or a person connected with the construction or expansion of the building or infrastructure, or the provision of the infrastructure or services (as the case requires),

  has, on application to the Council to proceed with clearing the vegetation in accordance with this provision, made a payment into the Fund of an amount considered by the Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) of the Act.

a ATTACHMENT 2- SUMMARY SPECIES LIST

8.1 CLEARANCE AREAS

		MU
CHENOPODIACEAE		
Enchylaena tomentosa var.	Ruby Saltbush	
Maireana brevifolia	Short-leaf Bluebush	
Rhagodia crassifolia	Fleshy Saltbush	
COMPOSITAE		
*Sonchus sp.	Sow-thistle	
CRUCIFERAE		
*Brassica sp.		
CUPRESSACEAE		
Callitris gracilis syn. preissii	Southern Cypress Pine	
FAMILY NOT ASSIGNED		
Moss sp.		
GRAMINEAE		
*Avena barbata/fatua	Wild Oat	
Austrodanthonia caespitosa	Common Wallaby-grass	
*Ehrharta calycina	Perennial Veldt Grass	
Austrostipa sp.	Spear-grass	
LILIACEAE		
Dianella revoluta var revoluta	Blue Flax-lily	
Lomandra effusa	Scented Mat-rush	
Lomandra multiflora ssp. dura	Hard Mat-rush	
*Asparagus asparagoides	Bridal Creeper	
MYRTACEAE		
Eucalyptus calycogona	White Box	
Eucalyptus leucoxylon	South Australian Blue Gum	
Melaleuca lanceolata ssp. lanceolata	Dalby Tea-tree	
PITIOSPORACEAE		

porum angustifoliu̲m 1 Native A ricot

Pitta;

-RANUNcul.AcEAE

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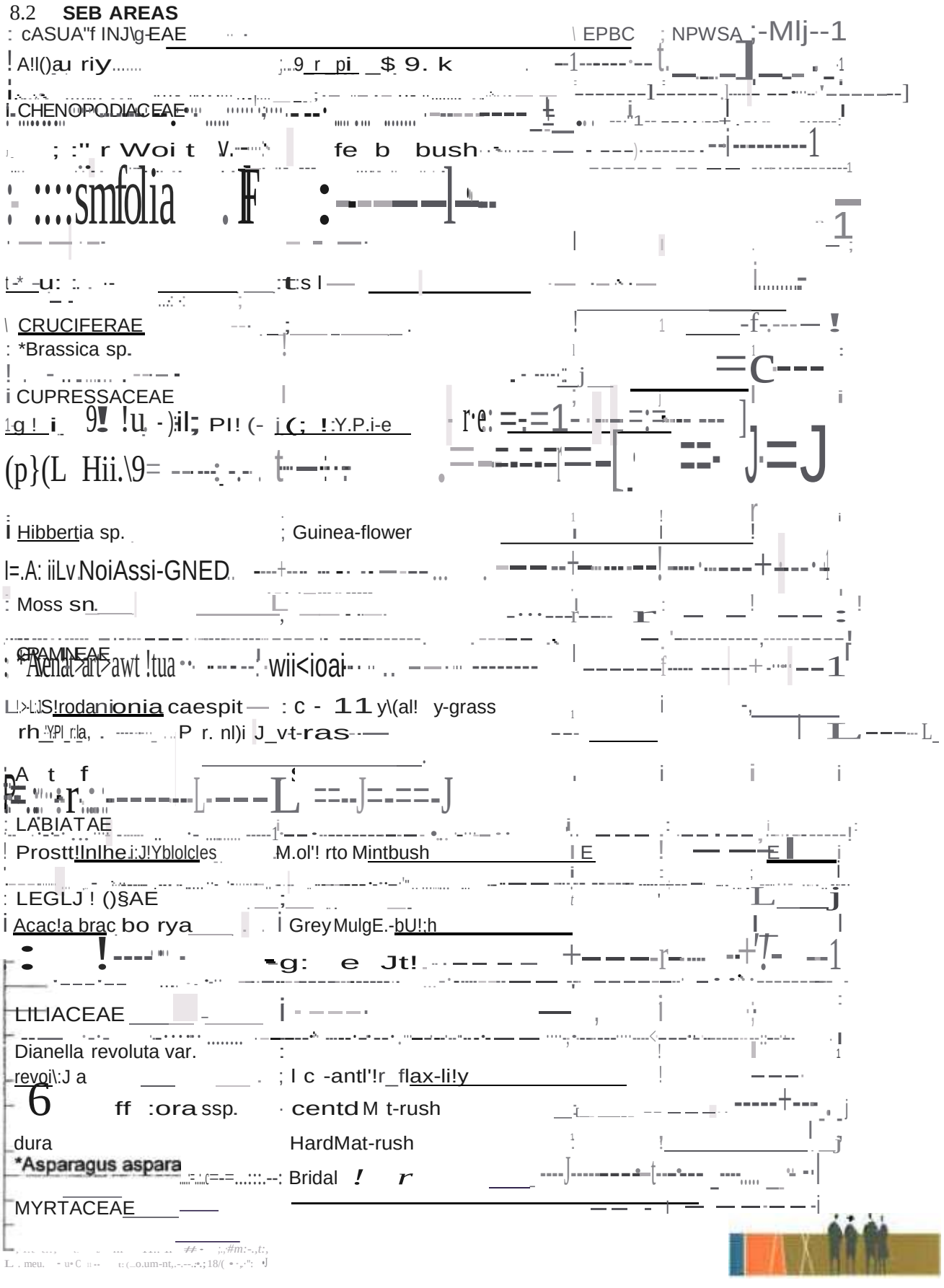
8.2 **SEB AREAS**



Eucalyptus calycogona var. calyc29.Qna	Square-frl:;!iLMee
Melaleuca lanceolata ssp. f!i uncinaTa	ZJ! a-tr
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PrffosPORACEAE	
Pi!! q sporum ang!! stifolium	Nativ , p!!c-t
.91E? !!!atis c!O.P. hy a	Old a !!'s ;:;.d

RANUNCULACEAE	
Dodonaea viscosa	Hop-bush
SAPINDACEAE	
*Lycium ferocissimum	African Boxthorn
SOLANACEAE	
Lasiopetalum behrii	Pink Velvet-bush

I:_egend

EPBC Conservation Status

X	!!!..ct: Ie d u9 that!b l!" '!l.b C? (t, E!<h a.!l.!!!d Species Is known only to surv ve in cultivation, in captivity or as a naturalised
EW	p<?plli.,!lJn. O!Jls t ng
CE	Critically endangered: species is facing an extremely high risk of extinction in the wild
E	Endangeieifsi>eC•e s iS.t&Ciil9- a ver}<h'i9il risk of exifnction fn iii e d'ftitile riea M
V	ulneta l!'- P iis faci !!!g!t risk of ext!nction i"- thwtldJn the near fut
	Species Is the focus of a conservation program, without which It would become V\Jnerablewlth ars

1-NSWs.A conserv tlon stat u:

E	End;g red: rare and in danger of b!!'9 xtin-
R	u rable:ra and at risk.!f!> ten !t !!!O..Lhe1C?t:: 9!'!'
R	are: having a low overall frequency, confined to a restricted range or scattered spars_!ly a wider area

gi .'l !. O.!l !.Yit!!

X	Presum,d inct: n decorded for more than 50.Y!!a'!.
	!..End&!l9!_red: M!!' N.ot in<:!
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T	Jh at ne,d : a!'.!!.."-likely be omeeith Lnd <11n!!a Ee
	Rare: having a low overall frequency, confined to a restricted range or scattered
J	P-arse E. ver a widr![!!!
K	Uncertain: either threatened or rare but insufficient data for a more precise assessment
u	uon:
N	N()t of p a ar s!o.llifi c

SF915

Native Vegetation Counei l

-9 JUL 2010

Reference NVAP Mtg 271tem 2 1;10WLB02080
File 201 030/415

Contact: Melissa McCallum
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22 June 2010

Mr Glen Dean
Rural City of Murray Bridge
PO Box 421,
MURRAY BRIDGE SA 5253

cc: NRM Board

REGULATION ADVICE NOTIFICATION

Regulation 5(1)(d) -Clearance for building or provision of infrastructure

Dear Mr Dean,

At its meeting on 22 June 2010 the Native Vegetation Assessment Panel (NVAP) considered the matter of clearance, based on Information provided by the Native Vegetation Management and Biodiversity Unit (NVMBU) and yourself, the vegetation proposed as per the consultant's report.

The NVAP would like to thank you and Mr Waddington for attending the meeting. The native vegetation clearance associated with establishing the road re-alignment of Maurice Road (as shown on the *Regulatton Advice Plan)* for safety was assessed in accordance with Regulation 5(1}(d)- clearance for provision of infrastructure (Attachment 1).

Assessment Advice- Maurice Road

The N'vAP is satisfied that clearance is required for the road re-alignment (in accordance wtth part (1) of the Regulation) and that dearance has been minimised in the planning stage (part (tv}).

Clearance of 0 12 hectares of vegetatton plus 3 scattered trees as described in the consultant report bemg established for road realignment is exempt under Regulat1on 5(1)(d) subject to meeting the SEB requirements·

- Clearance is m1n1mised as shown on Regulation Advice Plan
- Any vegetation cl£:ared as not stockpiled 1n areas with native vegetation
- machinery used in the establishment of the track is confined to the track
- Protection of both remnant and planted specimens of Monarto M1ntbush durmg the construction of the road
- Payment of the $1,080, or the initiation of Bridal Creeper Control program to the cost of $1,080 in the vicinity of the clearance, must occur within one month of this letter, to achieve the significant environmental benefit required under part (v) of Regulation 5(1)(d).
- An area a mmimum of 1.58 hectares is setaside as shown on Regulation AdVIce Plan
- The onground SEB is to mclude

rehabilitate / revegetate an area of 0.92 hectares of existing road surface to the satisfaction of the SAMDBNRMB Biodiversity Unit;

- 50 Monarto Mintbush to be planted in nearby Council Reserve and maintained for atleast 5 years; and
- *Acacia menzelii* (Menzel's Wattle) be added to the revegetation mix {as per 5.6 *2* in the report)

- Erect signs to warn drivers where Malleefowl may be on the road ahead.
- Prior to works occurring·

  An aerial plan is provided showing the locations of the Monarto Mintbush to be planted before clearance occurs

  Top soil be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised.

Please complete the attached form, *"Understanding of Regulation Advice"* {including signature and date) within one month of receiving It, to confirm with the Native Vegetation Council Secretanat that you fully understand the Advice and Conditions detailed in this letter

Therefore, clearance for road realignment is exempt under *Regulation 5(1)(d) -building or infrastructure in the pubftc interest*

Please contact Melissa McCallum on the telephone number provided above if you have any questions.

Yours sincerely

!Jterc(<(2ctv

Delegate
Native Vegetation Council

Attachment 1

Note: Please refer to the full wording of the Regulation In the *"Guide to the NatiVe Vegetation Regulations 2003"* which is available from the following web site link:
http.//www.nvc.sa gov.au/assetslfiles/NV REGS GUIDE SEP 09_pdf

5(1)(d) Building or provision of infrastructure, including infrastructure in the Public Interest

Pursuant to Section 21(1)(b) of the Act, native vegetation may, subJect to any other Act or law to the contrary, be cleared **if–**

(i)–

(A) the clearanc.e is incidental to the construction or expansion of a bulldmg or infrastructure and the Minister has. by instrument in writing, declared that he or she is satisfied that the clearance is tn the public interest; or

(B) the clearanre is required in connection with the provision of infrastructure or servir.es to a building or proposed building, or to any place, and

(II) any development authorisatton requtred by or under the *Development Act 1993* habeen obtained; and

(iii) the Council is satisfied (on the bas1s of Information prov1ded to the Council by the person seeking the benefit of this paragraph and such other information as the Council th1nks fit) that, after taking into account the need to preserve biological divel"3ity and the nature and purposes of any proposed building or infrastructure that is yet to be constructed, the proposed site of the building or infrastructure is the most suitable that is available, and

(iv') the Council is satisfied (on the basis of information provided to the Council by the person seeking the benefit of this paragraph and such other mformat1on %J the Council thinks fit) that, there is no other practicable alternative that would mvolve no clearance or the clearance of less vegetation or the dearance of vegetation that IS less significant or {if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared. and

(v) the clearance is undertaken in accordance with a standard operating procedure determined or approved by the Council for the purposes of this provis1on or a management plan that has been approved by the Council, and **elther-**

(A) there will be a significant environmental benefit on the property where the clearance is being undertaken or w1thm the same regton of the State, or

(B) either-

- the owner of the land (or a person acting on h1s or her behalf); or
- a person connected with the construction or expansion of the building or mfrastructure, or the provision of the infrastructure or $9rv!ces (as the case requires),

has, on application to the Council to proceed wtth clearing the vegetation in accordance wtth th1s provision, made a payment Into the Fund of an amount considered by the Council to be $Ufficient to achieve a Significant environmentalbenefit in the manner contemplated by section 21(6) of the Act.

Definition of intact stratum

A substantially Intact stratum of native vegetation is defined by sn *3A of the NatiVe Vegetation Act 1991* as *an area that, ir, the opinion of the Native Vegetation Council, has not been sertously degraded by human activity (but not degradation that* has *been caused by fh) during the immediately preceding period of 20 years..*

A 'stratum' of native vegetation means a layer of a plant ciJmmunit}i consisting of plants that comprise nawe vegetat1on that have a *s1milar growth habit An area may be Ct.Vlsideled to have an intact stratum, even if another stratum ts degraded*

8<

Note: *Please read the Regulotton Advice Notification and sign the form underneath to acknowledge that you hove understood the Advtce made by the Nattve Vegetation Council, and return by fox or post tC':*

Send to: Secretary,Native Vegetation Council
GPO Box 2834
Adela1de SA 5001

Fax to: 8303 9780

UND,ERSTANDING OF REGULATIONADVICE

File: 2010/3030/415 RuralCity of Murray Bridge
Document No.: 1OWLB02080

I clearly understand the Native Vegetation Council's Re(ililation AdVice Notification, the conditions a sociated with clearance and *the Regulation Adve Piat: (s).*

I have *read and fully understand the:*

D *Regulation A ice Notification and* the *Conditions attached to th AdVit:e*

(and)

O *The Regulation Advice Plan*

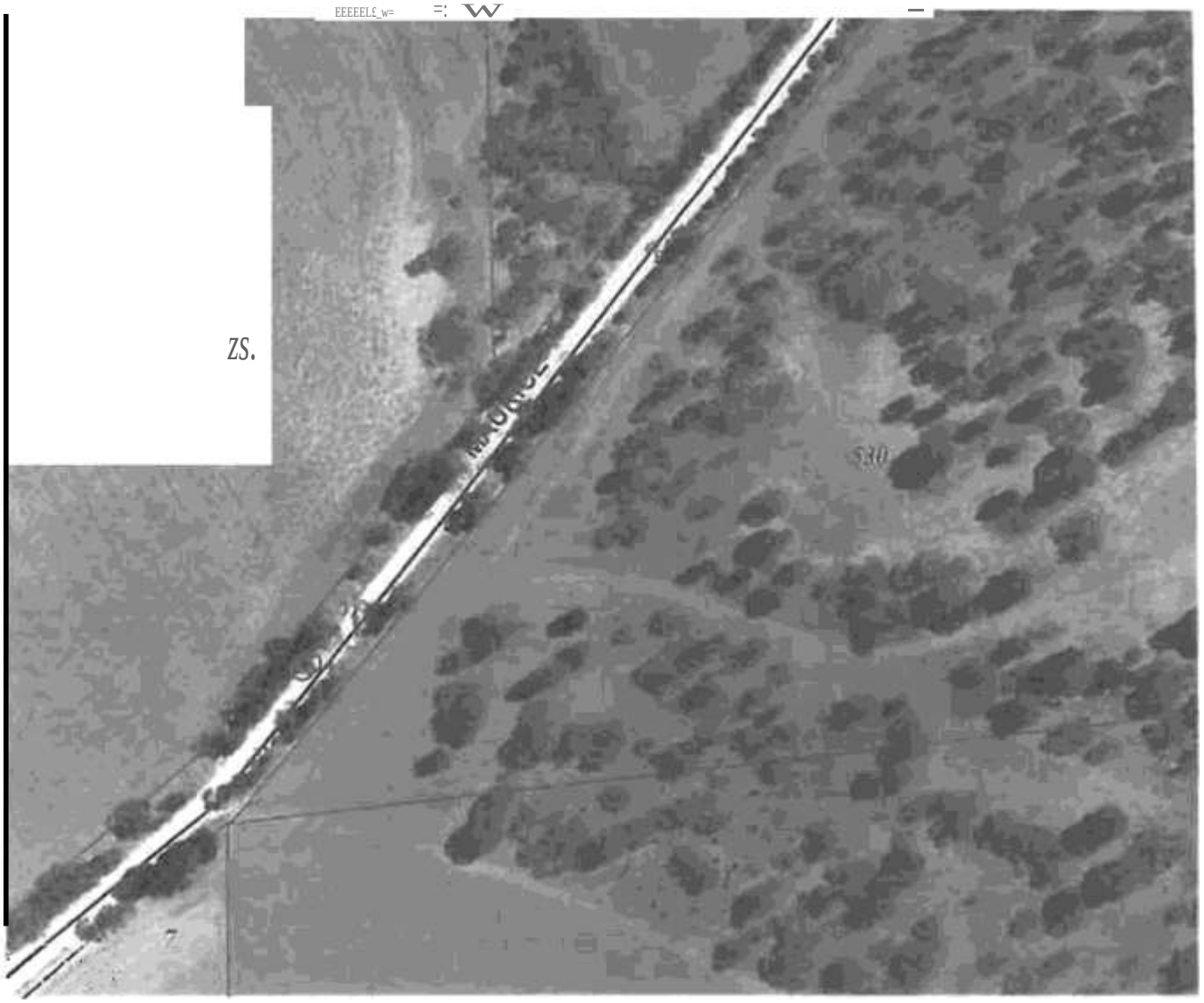
Name Qf Landowner(s) or Company

Signaturofla d ner(s) or seal of Company and authorls.ed Signatory
(PI ase note that the iandowner [nat agent] must sign here

Date

Regulation 5(1)(d) -Building or provision of infrastructure

Rural City of Murray Bridge • Realignment of Maur ce Rd



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REGULATION ADVICE PLAN 1of2

TO FORM PART OF THE DECISION OF THE NATIVE VEGETATION COUNCIL

APPLICATION NO. 2010/3030/415

HUNDRED of MOBILONG

Adjacent Section 530
Certificate of Title Vol5322 Fol455

Q Scattered trees_clearance exempt

Heritage Agreements

O Property / Section Boundary

Roads

Produced for Nativ"l'Jegetatioo Council
By Nativ& Vegetation & BiodVer:sUy Managm1ent Unit
Dept. for Water, Land & Biodi11ersity Conservation

Date of Imagery: 2008

Date·
Version. 01
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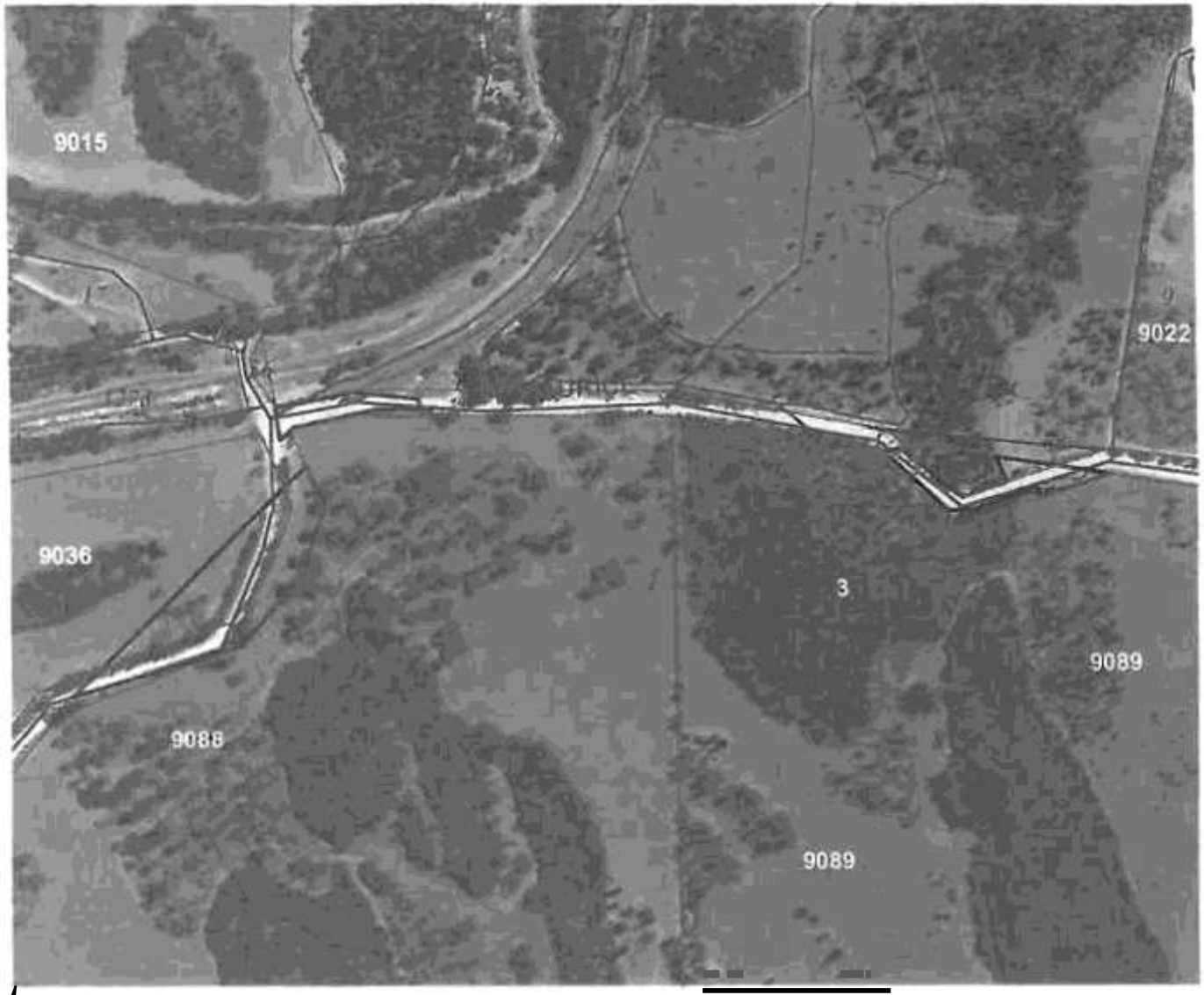
Govenuntnt of South AustrAlia.

Regulation 5(1)(d) - Building or prevision of infrastructure
Rra! City of Murray Bridge - Reangnment of Maurice Rd



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REGULATION ADVICE PLAN 2 of2

TO FORM PART OF THE DECISION OF THE NA11VE VEGETAnON COUNCIL

APPLICATION NO. 2010/3030/415

HUNDRED of MOBILONG

Adjacent Allotment 23 DP 12046
Certificate of Title Vol5714 Fol490

Adjacent Section 530
Certificate of Title Vol5322 Fol455

Adjacent Section 529
Certtficate of Title Vol5824 Fol624

O Tree 3 -clearance exempt

CJ Clearance exempt 5(1Kd)

D '81gnlficant environmentalbenefit'(SEB) area

D Property / Section Boundary

Heritage Agreements

Roads

Produced for - Native Vegetation COUncil
By·Native Vegetation & Biodiversity Management Ul'"it
Dept. for Water, Land & Biodiversity Conservation

Date of Imagery - 2000

Datllll. GDA94

Accidents within proposed realignment

Government of South Australia
Department of the Premier and Cabinet

PhysIcalId.DPC10D07861
File No.DPC10/0166

GPC Bov 2343
Ad!!laid!! SA 5001
DX S62r)1
Tel llB 82:!6 3500
Fax 08 *8226* 3535
WNW.ptemcab.sa.gov.au

Glenn Dean
Parks and Gardens Supervisor
Rural City of Murray Bridge
PO Box 421
MURRAY BRIDGE SA 5253

Dear Glenn

Thank you for your correspondence (email) dated 29 September 2010, regarding the road alignment of Maurice Road, Murray Bridge.

I advise that the Central Archive, which includes the Register of Aboriginal Sites and Objects (the Register), administered by the Department of the Premier and Cabinet-Aboriginal Affairs and Reconciliation Division (DPC-AARD), has no entry for Aboriginal sites in the area of your project location.

The Register is not a comprehensive record of all Aboriginal sites and objects in South Australia. The applicant is advised that sites or objects may exist in the proposed development area, even though the Register does not identify them. All Aboriginal sites and objects are protected under the *Aboriginal Heritage Act 1988* (the Act), whether they are listed in the Register or not. Land within 200 metres of a watercourse (particularly the River Murray and its overflow areas) in particular, may contain Aboriginal sites and objects.

It is an offence to damage, disturb or interfere with any Aboriginal site or damage any Aboriginal object (registered or not) without the authority of the Minister for Aboriginal Affairs and Reconciliation (the Minister). If the planned activity is likely to damage, disturb or interfere with a site or object, authorisation of the activity must be first obtained from the Minister under Section 23 of the Act. Section 20 of the Act requires that any Aboriginal sites, objects or remains, discovered on the land, need to be reported to the Minister. Penalties apply for failure to comply with the Act.

For further information please contact the Aboriginal Heritage Branch on telephone (08) 8226 8900.

Yours sincerely

Justin Weame
SENIOR HERITAGE INFORMATION OFFICER
ABORIGINAL AFFAIRS & RECONCILIATION DIVISION

30 September 2010

MINUTE *forming* ENCLOSURE *to* 2010/3030/415

TO: NATIVE VEGETATION ASSESSMENT PANEL

RE: AUDIT REPORT FOR APPLICATION BY THE RURAL CITY OF MURRAY BRIDGE TO STRAIGHTEN 2 SHARP BENDS IN MAURICE ROAD, ROCKY GULLY. REGULATION 5(1)(d)

THROUGH: LEADER ASSESSMENTS, NATIVE VEGETATION & BIODIVERSITY MANAGEMENT UNIT

PURPOSE

To seek your consideration of clearance as outlined in the consultant report against *Regulation 5(1)(d) - infrastructure.* The Rural City of Murray Bridge is proposing to re-align two bends in Maurice Road to improve safety for road users. See detailed maps in the consultant report for locations.

Clearance is summarised here;

Patch Number	Native Vegetation summary	Clearance Area	SEB ratio	SEB requirement
1	*Eucalyptus calycogona* + *E. phenax* mallee over *Rhagodia crassifolia, Maireana brevifolia, Dianella revoluta* ssp. *revoluta, Enchylaena tomentosa* & *Lomandra effusa.*	0.02	6:1	0.12
2	*Eucalyptus socialis* + *E. phenax* mallee, over *Pittosporum angustifolium, Me/a/euca /anceolata, Enchy/aena tomentosa* & *Clematis microphyllla.*	0.01	6:1	0.06
3	*Lomandra effusa* grassland over *Austrodanthonia caespitosa, Austrostipa* sp. & a few *Enchylaena tomentosa.*	0.02	4:1	0.08
4	*Eucalyptus porosa* open mallee over *Pittosporum angustifolium, Rhagodia crassifolia, Dianella revoluta* var. *revoluta, Lomandra effusa, Enchy/aena tomentosa,* Moss.	0.02	8:1	0.16
5	*Melaleuca uncinata* tall open shrubland over *Lomandra effusa, Dianel/a revo/uta* var. *revoluta, Rhagodia crassifolia.*	0.04	8:1	0.32
6	*Eucalyptus phenax* open mallee over *Melaleuca uncinata, Lomandra effusa, Rhagodia crassifolia, Maireana brevifolia, Enchy/aena tomentosa,* Moss.	0.01	6:1	0.06
TOTALS		0.12		0.8

Plus 3 scattered trees;

Tree 1 – SA Blue Gum, score 38.2
Tree 2 – SA Blue Gum, score 52.7
Tree 3 – Native Pine, score 24

BACKGROUND

The NV&BMU has reviewed the consultant's data report and supports the information provided. The native vegetation is an important remnant and provides habitat for species of conservation significance. The following points may be considered when assessing the application;

- *Lelpoa ocellata* (Malleefowl) has been sighted in the area (see SA Murray Darling Basin NRM comment).

  Nationally, the Malleefowl is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999.* In South Australia, Malleefowl is listed as Vulnerable under the *National Parks and Wildlife Act 1972- Schedule 8.*

  Clearance of habitat has been a major cause of the marked decline in the distribution of the Malleefowl.

  From the Recovery Plan;*'corridors of native vegetation that link remnants may greatly benefit Malleefowl and enable populations to persist much longer by facilitating movement of animals between habitat patches. There* is *evidence that Malleefowl use even narrow roadside strips of native vegetation in preference to crossing open ground'.*

  Objective 7 from the Recovery Plan is reducing Malleefowl mortality on roads.

- *Eucalyptus leucoxylon* ssp. *leucoxylon* (SA Blue Gum) has a rare rating for the Murray Herbarium region. Trees 1 & 2 score more than 30 points and are proposed for removal on the roadside surrounded by farmland.

- The proximity of the new sections of road to individual plants of *Prosanthera eurybioides* (Monarto Mintbush) listed as Endangered under the EPBC Act is of concern as highlighted in the consultant report.

- *Acacia menzelii* (Menzel's Wattle) rated as Vulnerable under the EPBC Act is also in the area but not directly proposed for removal.

- There are no plant species proposed for clearance listed under the NP&W Act 1972 or the EPBC Act 1999.

- *Lomandra effusa* tussock grassland in Patch 3 would not meet the criteria for the Iron grass Natural Temperate Grassland listed as 'critically endangered' under the EPBC Act.

- The clearance is located in a region where about 10% native vegetation remains. Relatively intact roadside vegetation In this area is considered to have high value as a remnant.

DISCUSSION

Regulation 5(1)(d)

Part (iv) requires that clearance is minimised;

> *'that there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that* has *been degraded to* a *greater extent than the vegetation proposed to be cleared'*

Therefore Regulation 5(1)(d) does not apply unless the Native Vegetation Assessment Panel is satisfied that the proposed road realignment cannot be established without the need to clear native vegetation, and that the route chosen contains the least amount of vegetation and the least significant vegetation.

From information in the consultant report it is suggested that the proposed route is the most practical available; it utilises cleared areas, effort will be put in to acquiring cleared land and it avoids the direct removal of Monarto Mintbush and Menzel's Wattle.

Trees 1 and 2 are to be removed to achieve the vertical height clearance of 5 metres required for larger vehicles.

Significant Environmental Benefit (SEB)

Part (v) of Regulation 5(1)(d) requires that an appropriate offset be achieved for native vegetation that is cleared.

If clearance of patch 1-6 and the 3 single trees was approved then the following SEB figures would apply;

- a payment into the Native Vegetation Fund of $4114, or
- revegetation of 1.92 hectares in accordance with an approved management plan

The SA Murray Darling Basin NRM Board Biodiversity Unit (SAMDBNRMB) has commented (see below) that the area is critical habitat for Malleefowl and therefore the SEB requirement should be increased. NVBMU consider that a 20% increase is appropriate. This results in SEB requirements of;

- a payment into the Native Vegetation Fund of $4938, or
- 2.3 hectares put aside for the protection of native vegetation only with an approved management plan

RC Murray Bridge has proposed 3 SEB areas over a total area of 1.58 hectares. The SEB area proposed falls short of the requirements by 0.72. The RC Murray Bridge proposes to fulfil the shortfall by propagating 50 Monarto Mintbush and planting in nearby reserve areas. NVBMU considers that this should attract a discount of 0.1 hectares.

SAMDBNRMB considers that the proposed site is unsuitable because the existing sections of road surface in the area proposed as the off-set is highly altered and even with ripping and preparation works will not be suitable for establishing vegetation of equal or better condition than that which is proposed to be removed. It is recommended that the road surface be revegetated, but not be included in the vegetation off-set, unless it can be revegetated to a standard that satisfies SAMDBNRMB.

The SEB fulfils the 'like species for like species' guideline adopted by the Native Vegetation Council for the establishment of a SEB except for the SA Blue Gum which will not be present in the SEB areas.

Comment from other agencies

Comment has been sought and provided by the SA Murray Darling Basin Natural Resources Management Board Biodiversity Unit. See attached comments for consideration. The main points are;

- The road should be bitumised if possible to reduce the potential dust hazard to Monarto Mintbush
- The clearance area is considered to be 'critical habitat' for the Monarto Mintbush and Menzel's Wattle and this should be reflected in the SEB requirements.

- Top soil should be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised.

The RC Murray Bridge has decided not to submit a referral under the EPBC Act. I discussed this with the Commonwealth Department and here is the response;

> As *discussed, each person proposing to take an action determines whether or not they need to send* a *referral to this Department based on whether they believe the proposal will have an impact on any matters protected under the* Environment Protection and Biodiversity Conservation Act 1999 *(EPBC ACT). In this* case *Mr Dean* was *forwarded links to the Department's website for referrals, including a link to the significance guidelines.*
>
> *If* a *person determines not to refer* a *proposal and the proposal does impact on* a *matter protected under the Act, then the action* is *likely to be investigated and if found to breach the Act, compliance action may be taken. Many people choose to refer their proposal for surety.*

It is difficult to determine if this application would lead in the long term to the death of more Malleefowl by allowing increased traffic speeds on the road.

ADVICE

It is advised that NVAP endorses the proposal subject to;

- Establishment of an on ground SEB of 2.2 hectares
  accept the management actions in the consultant report Section 5.6 through to section 6.1.2
  ensure planting and maintenance of 50 Monarto Mintbush
  accept the 0.92 hectares of existing road surface as satisfying part of the SEB requirement only if RC Murray Bridge is prepared to rehabilitate / revegetate to the satisfaction of the SAMDBNRMB Biodiversity Unit.
- *Acacia menzelii* (Menzel's Wattle) be added to the revegetation mix (5.6.2 in the report)
- An aerial plan is provided showing the locations of the Monarto Mintbush to be planted before clearance occurs
- Erect signs to warn drivers where Malleefowl may be on the road ahead
- Top soil should be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised
- The protection of both remnant and planted specimens of Monarto Mintbush during the construction of the road

Melissa McCallum
ASSESSMENT OFFICER
NATIVE VEGETATION & BIODIVERSITY MANAGEMENT UNIT

Date:

Attachments:

Comment from SA Murray Darling Basin Natural Resources Management Board
Advisory Plans from consultant report

Application for Clearance of Native Vegetation

South Australian Murray-Darling Basin Natural Resources Management Board
Biodiversity Unit

Comments provided by: Kylle Moritz / Sarah Lance

Date: 27105110

Re: Application for clearance of native vegetation to straighten a section of Maurice Road at Rockv Gully. Murray Bridge.

Based on the information provided the application has been assessed for its potential impacts on the biodiversity and conservation of the site and surrounding area.

The SA MOB NRM Board has concerns about the proximity of the proposed road realignment to existing naturally occurring and planted plants of the nationally endangered *Prostanthera eurybioides.* The proposed clearance works will occur within 15 meters from existing *Prostanthera eurybioides.* Concerns include:

- The protection of both remnant and planted specimens of *Prostanthera eurybioides* during the construction of the road.
- The loss of a buffer that currently exists between the road and the *Prostanthera eurybioides.*
- The impact that dust will have on the *Prostanthera eurybioides* following realignment. The report states that *"There* is *information suggesting dust can impact vegetation up to 20 meters from the road verge depending on vegetation type, however local information regarding this matter in ma/lee environments* is *not readily available".* The dust load on plants along the existing road is currently very high and easily observed. With increased truck traffic and increased speed, which is predicted to occur once the road is straightened, dust loads will only increase and potentially negatively affect *Prostanthera eurybioides* and other vegetation close to the road. Is there a likelihood of bitumen to reduce dust impact?
- The report does not specify the number of *Prostanthera eurybioides* near the proposed works only that "A handful of mature specimens (likely remnant) were located approximately 15 meters...". Suggest that the number of plants needs to be specified.
- *Prostanthera eurybioides* seedlings were planted into the Rocky Gully area adjacent the proposed road realignment as part of a Threatened Flora Recovery program. It is felt that these specimens should be afforded equal protection as the naturally occurring plants given the extremely low number of *Prostanthera eurybioides* that occur in the area.
- Emphasis should be placed on the areas importance in terms of it being critical habitat for the nationally endangered *Prostanthera eurybioides* and the nationally vulnerable *Acacia menzelii.* Is this included in the SEB calculations?
- There is potentially viable seed in the soil seed bank of both *Prostanthera eurybioides* and *Acacia menzefii.* It is recommended that the Council provide collection of top soil from around mature plants prior to road works or notify the SA MOB NRM Board Threatened Flora Recovery program prior to road works to enable this.

General comments include:

- The SEB score appears low given the proximity to remnant *Prostanthera eurybioides* and the fact that the proposed road will be going through critical habitat of this nationally endangered species and *Acacia menzelii,* a nationally vulnerable species.
- We would encourage the use of seed of *Prostanthera eurybioides* rather than cuttings for the revegetation works. This will help to increase the genetic diversity of plants in the area. Work has been undertaken by staff at the Botanic Gardens, Adelaide, to improve the success of seed germination in this species. The SA MOB can assist the Council in this area.
- It is felt that including the existing sections of road surface in the area proposed as the vegetation off-set is not acceptable. The existing road is highly altered and even with ripping and preparation works will not be suitable for establishing vegetation of equal or better condition than that which is proposed to be removed. It is recommended that the road surface be revegetated, but not be included in the vegetation off-set.
- The report states that fencing be upgraded along sections of the realigned roadside. Will this be all sections or just adjacent the public land? If the latter, it is recommended that the fence at the property owned by Boland/Bryant, which is adjacent the western proposed realignment, be included in the Council funded fencing. This property contains the largest population of *Prostanthera eurybioides* in the area (currently 123 plants) and has been damaged by cars running off the road.
- Correction: the southern dot near section 1 on map 3 is not a *Prostanthera eurybioides,* but *Acacia menzelii* (historical data). The data search called up all threatened plants in the area including this *Acacia.*
- The realignment has been suggested for road safety reasons, however there are concerns that the traffic speed will increase through this area due to the removal of sharp bends. A small population of Malleefowl occurs in the area, with a Malleefowl mound located at Boland's property adjacent the proposed road realignment. A Malleefowl chick was also observed in this area in 2009. Increased traffic speed is a concern for the safely of this species.

3.1 MAP 1 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
1 of 5

TO FORM PART OF THE ADVtCE TO THE
NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG
Lot 9 CT Vol 5714 Fot 490
sec 530 CT Vol 5322 Fol 45$
Sec 529 CT Vol 582A Fol 824

- Scattered Tree Removal
- Vegetation Clearance Patdlea
- Proposed Road Alignment

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3_2 MAP 2 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
2of5

TO FORM PART OF THE ADVICE TO THE

NATIVE VEGETAT ON COUNCIL

HUNDRED of MOBILONG

Scatterecs Tree Removal

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3.3 MAP 3 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
3of5

TO FORM PART OF THE ADVICE TO THE
NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

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3.4 MAP 4 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
4of5

TO FORM PART Of THE ADVICE TO THE
NATIVE VEGETATION COUNCil.

HUNDRED of MOBil.ONG

Lot 9 CT Vol 57f4 Fol 490
sec 530 CT Vol 5322 FOl 455
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Scattered Trae Removal
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SEB Proposed Revegetation/Bush Care

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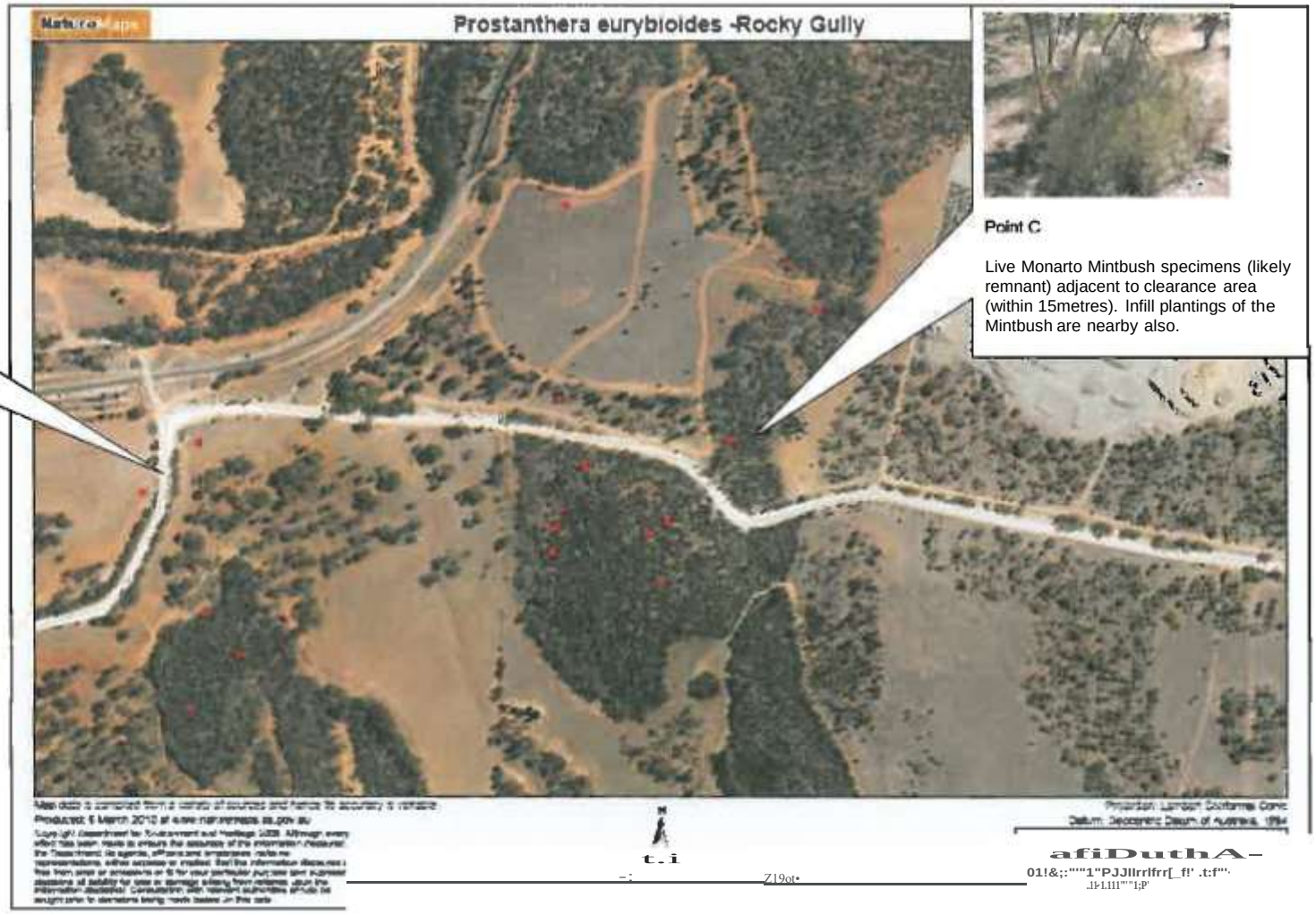
3.5 **MAP 5 OF 5**[2]

PointA&B

Both these areas were investigated thoroughly and no live presence of the endangered Monarto Mintbush could be observed in the impact area- despite historicaldata suggesting otherwise.



[2] Map forwarded to RSSA from the Murmy Darting NRM body, via DEH threatened Species Unit March 2010.

Comments on the impact to biodiversity values by the proposed Maurice road upgrade at Rocky Gully near Murray Bridge

Overview:

The proposed Development Application by Rural City of Murray Bridge for Road realignment at Maurice road, Rocky Gully (see attached location map) will position the road very closely to a population of *Prostanthera eurybioides,* Monarto mintbush (Nationally Endangered plant,EPBC Act 1999). The proposed upgrade addresses the improvement of road safety.

At this site the mintbush is a naturally occurring remnant. There has been some conservation effort[1] over many years to re-establish mintbush in cleared areas and volunteerl effort has been used to assist with management. A brief site visit confirms the presence of mintbush within about 20m of the proposP.d new road edge.

There are many best practice methods to minimise environmental damage during road construction activities for which advice can be sought through consultancy services. It is the intention here to adv1se Council on the need to ensure that specific biodiversity management tasks are included in the planning and operationalphase.

Site map:

Map showing current and on going community mintbush revegetation project and location of some known plants close to the road.There are 691individualplants known in the Rocky Gully area.

[1] Willoughby,N. (2009) Error!Reference source not found.,Department for Environment and Heritage,South Australia.
[2] Green Corps (Mission Australia, 2009 and others), Greening Australia,Eastern Hills and Murray Plains Catchment group (2004 and ongoing), State Flora,

Conservation value:

Prostanthera eurybioides,Monarto mintbush is a Nationally Endangered plant under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999)[3]. Meaning that any activities that are likely to have a significant impact will need to be reoffered to the Federal Minister for the Environment (DEWHA). It is endemic to South Australia,meaning that it is only known to occur in a defined geographical area in this state.

Monarto Mintbush is at particular risk from grazing by rabbits and kangaroos which may be reducing seed set and survival of seedlings. Small population size and a lack of recruitment are also major threats.General weed invasion of habitats is inhibiting seedling germination and survival. Trail bike riding is a concern,along with the possibility that individualplants are being removed by collectors.

Ecology:

Monarto mintbush is found in tall shrublands or open woodlands,usually associated with rocky granite outcrops. When present in tall shrublands there are very few overstorey species present. The dominant species that is found in this habitat type is;Broombush *(Melaleuca uncinata)* Understorey plants are typically dominated by scattered shrubs over native grasses,lilies and herbs.When present in an open woodland the dominant overstorey species present include;Mallee Box *{Eucalyptus porosa)* Blue Gum *(Eucalyptus Jeucoxylan ssp. leucoxylon)* Beaked Red Mallee *(Eucalyptus socialis)* Narrow-leaf Red Mallee *(Eucalyptus leptophyl/a)* Understorey plants are typically dominated by scattered shrubs over native grasses,lilies and herbs.

- Spreading shrub <lm high.
- Branches covered in short,curled hairs.
- Leaves are clustered,thick and hairless.
- The base of the flowers is mid-green with a red or maroon tinge
- The petals are light purple,partly fused together,10-12 mm long. with orange and dark-purple dots on the inner side of the flower.
- Flowering occurs from September to November
- Grows on sandy loam and loam soils

Project History:

Monarto mintbush is included in the Nat1onal Recovery Plan for Nine threatened Flora in the MDB NRM region (Obst,2004). The Threatened Flora proJect of the SA MDB Natural Resource Management Board continues to oversee the ongoing act1ons documented m this plan.

Suggested actions and advice:

- Seek a professional environmental assessment to ensure compliance with the EPBC Act and the Native Vegetation Act 2003 (South Australia) including Significant Environmental Benefit for vegetation clearance.
- Avoid disturbance to ind1v1dual plants
- Min1m1se vegetation clearance within and close to the patch
- Promote reestablishment of local mintbush plants using locally collected seed
- Mark individual plants dunng construction
- Look at further resourcing to continue the revegetation project
- Expand the native vegetation that adjoins the known population
- Ideally the Rocky Gully Conservation Area should be formally protected as a Conservation Park under the National Parks and Wildlife 1972.
- Translocations of individual plants that may need to be removed is not considered ideal due to the risks of survivorship.

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3 Department of the Environment. Water, Heritage and the Arts (2009). *Prostanthera eurybioides* in Species Profile and Threats Database, Department of the Environment, Water. Heritage and the Arts. Canberra. Available from: http://www.environment.gov.au/sprot. Accessed 2009-12-171705:04.

Green Corps team working on the planted mintbush

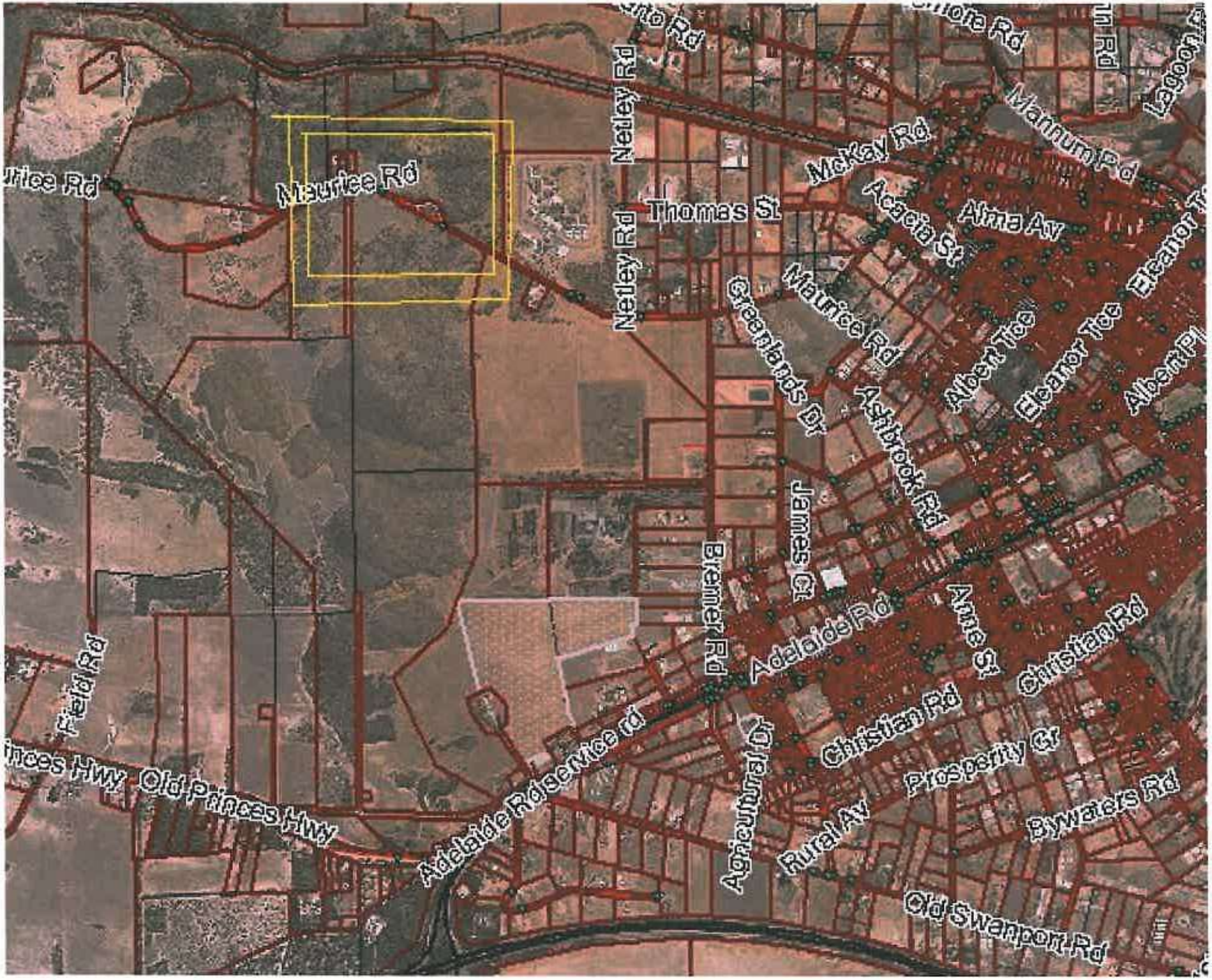
View south from mintbush patch to Maurice road upgrade corner

View east through scrub on the alignment of the proposed upgrade

View west through s•:rub along road alignment

Mintbush flowers

Location map



Town Centre 500m

Hawkins Rd
70
Maryleen Rd
100
90

Appendix 1E: Minutes Audit Report

Greening Australia Comments

MINUTE *forming* ENCLOSURE *to* 2010/3030/415

TO: **NATIVE VEGETATION ASSESSMENT PANEL**

RE: **AUDIT REPORT FOR APPLICATION BY THE RURAL CITY OF MURRAY BRIDGE TO STRAIGHTEN 2 SHARP BENDS IN MAURICE ROAD, ROCKY GULLY. REGULATION 5(1)(d)**

THROUGH: **LEADER ASSESSMENTS, NATIVE VEGETATION & BIODIVERSITY MANAGEMENT UNIT**

PURPOSE

To seek your consideration of clearance as outlined in the consultant report against *Regulation 5(1)(d) – Infrastructure*. The Rural City of Murray Bridge is proposing to re-align two bends in Maurice Road to improve safety for road users. See detailed maps in the consultant report for locations.

Clearance is summarised here;

Patch Number	Native Vegetation summary	Clearance Area	SEB ratio	SEB requirement
1	*Eucalyptus calycogona* + *E. phenax* mallee over *Rhagodia crassifolia, Maireana brevifolia, Dianella revoluta* ssp. *revoluta, Enchylaena tomentosa* & *Lomandra effusa.*	0.02	6:1	0.12
2	*Eucalyptus socialis* + *E. phenax* mallee, over *Pittosporum angustifolium, Melaleuca lanceolata, Enchylaena tomentosa* & *Clematis microphyllla.*	0.01	6:1	0.06
3	*Lomandra effusa* grassland over *Austrodanthonia caespitosa, Austrostipa* sp. & a few *Enchylaena tomentosa.*	0.02	4:1	0.08
4	*Eucalyptus porosa* open mallee over *Pittosporum angustifolium, Rhagodia crassifolia, Dianella revoluta* var. *revoluta, Lomandra effusa, Enchylaena tomentosa,* Moss.	0.02	8:1	0.16
5	*Melaleuca uncinata* tall open shrubland over *Lomandra effusa, Dianella revoluta* var. *revoluta, Rhagodia crassifolia.*	0.04	8:1	0.32
6	*Eucalyptus phenax* open mallee over *Melaleuca uncinata, Lomandra effusa, Rhagodia crassifolia, Maireana brevifolia, Enchylaena tomentosa,* Moss.	0.01	6:1	0.06
TOTALS		0.12		0.8

Plus 3 scattered trees;

Tree 1 – SA Blue Gum, score 38.2
Tree 2 – SA Blue Gum, score 52.7
Tree 3 – Native Pine, score 24

BACKGROUND

The NV&BMU has reviewed the consultant's data report and supports the information provided. The native vegetation is an important remnant and provides habitat for species of conservation significance. The following points may be considered when assessing the application;

- *Leipoa ocellata* (Malleefowl) has been sighted in the area (see SA Murray Darling Basin NRM comment).

  Nationally, the Malleefowl is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999.* In South Australia, Malleefowl is listed as Vulnerable under the *National Parks and Wildlife Act 1972 – Schedule 8.*

  Clearance of habitat has been a major cause of the marked decline in the distribution of the Malleefowl.

  From the Recovery Plan; '*corridors of native vegetation that link remnants may greatly benefit Malleefowl and enable populations to persist much longer by facilitating movement of animals between habitat patches. There is evidence that Malleefowl use even narrow roadside strips of native vegetation in preference to crossing open ground'.*

  Objective 7 from the Recovery Plan is reducing Malleefowl mortality on roads.

- *Eucalyptus leucoxylon* ssp. *leucoxylon* (SA Blue Gum) has a rare rating for the Murray Herbarium region. Trees 1 & 2 score more than 30 points and are proposed for removal on the roadside surrounded by farmland.

- The proximity of the new sections of road to individual plants of *Prosanthera eurybioides* (Monarto Mintbush) listed as Endangered under the EPBC Act is of concern as highlighted in the consultant report.

- *Acacia menzelii (*Menzel's Wattle) rated as Vulnerable under the EPBC Act is also in the area but not directly proposed for removal.

- There are no plant species proposed for clearance listed under the NP&W Act 1972 or the EPBC Act 1999.

- *Lomandra effusa* tussock grassland in Patch 3 would not meet the criteria for the Iron-grass Natural Temperate Grassland listed as 'critically endangered' under the EPBC Act.

- The clearance is located in a region where about 10% native vegetation remains. Relatively intact roadside vegetation in this area is considered to have high value as a remnant.

DISCUSSION

Regulation 5(1)(d)

Part (iv) requires that **clearance is minimised;**

> *'that there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared'*

Therefore Regulation 5(1)(d) does not apply unless the Native Vegetation Assessment Panel is satisfied that the proposed road realignment cannot be established without the need to clear native vegetation, and that the route chosen contains the least amount of vegetation and the least significant vegetation.

From information in the consultant report it is suggested that the proposed route is the most practical available; it utilises cleared areas, effort will be put in to acquiring cleared land and it avoids the direct removal of Monarto Mintbush and Menzel's Wattle.

Trees 1 and 2 are to be removed to achieve the vertical height clearance of 5 metres required for larger vehicles.

Significant Environmental Benefit (SEB)

Part (v) of Regulation 5(1)(d) requires that an appropriate offset be achieved for native vegetation that is cleared.

If clearance of patch 1-6 and the 3 single trees was approved then the following SEB figures would apply;

- a payment into the Native Vegetation Fund of $4114, or
- revegetation of 1.92 hectares in accordance with an approved management plan

The SA Murray Darling Basin NRM Board Biodiversity Unit (SAMDBNRMB) has commented (see below) that the area is critical habitat for Malleefowl and therefore the SEB requirement should be increased. NVBMU consider that a 20% increase is appropriate. This results in SEB requirements of;

- a payment into the Native Vegetation Fund of $4938, or
- 2.3 hectares put aside for the protection of native vegetation only with an approved management plan

RC Murray Bridge has proposed 3 SEB areas over a total area of 1.58 hectares. The SEB area proposed falls short of the requirements by 0.72. The RC Murray Bridge proposes to fulfil the shortfall by propagating 50 Monarto Mintbush and planting in nearby reserve areas. NVBMU considers that this should attract a discount of 0.1 hectares.

SAMDBNRMB considers that the proposed site is unsuitable because the existing sections of road surface in the area proposed as the off-set is highly altered and even with ripping and preparation works will not be suitable for establishing vegetation of equal or better condition than that which is proposed to be removed. It is recommended that the road surface be revegetated, but not be included in the vegetation off-set, unless it can be revegetated to a standard that satisfies SAMDBNRMB.

The SEB fulfils the 'like species for like species' guideline adopted by the Native Vegetation Council for the establishment of a SEB except for the SA Blue Gum which will not be present in the SEB areas.

Comment from other agencies

Comment has been sought and provided by the SA Murray Darling Basin Natural Resources Management Board Biodiversity Unit. See attached comments for consideration. The main points are;

- The road should be bitumised if possible to reduce the potential dust hazard to Monarto Mintbush
- The clearance area is considered to be 'critical habitat' for the Monarto Mintbush and Menzel's Wattle and this should be reflected in the SEB requirements.

- Top soil should be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised.

The RC Murray Bridge has decided not to submit a referral under the EPBC Act. I discussed this with the Commonwealth Department and here is the response;

> *As discussed, each person proposing to take an action determines whether or not they need to send a referral to this Department based on whether they believe the proposal will have an impact on any matters protected under the* Environment Protection and Biodiversity Conservation Act 1999 *(EPBC ACT). In this case Mr Dean was forwarded links to the Department's website for referrals, including a link to the significance guidelines.*
>
> *If a person determines not to refer a proposal and the proposal does impact on a matter protected under the Act, then the action is likely to be investigated and if found to breach the Act, compliance action may be taken. Many people choose to refer their proposal for surety.*

It is difficult to determine if this application would lead in the long term to the death of more Malleefowl by allowing increased traffic speeds on the road.

ADVICE

It is advised that NVAP endorses the proposal subject to;

- Establishment of an on ground SEB of 2.2 hectares
  - accept the management actions in the consultant report Section 5.6 through to section 6.1.2
  - ensure planting and maintenance of 50 Monarto Mintbush
  - accept the 0.92 hectares of existing road surface as satisfying part of the SEB requirement only if RC Murray Bridge is prepared to rehabilitate / revegetate to the satisfaction of the SAMDBNRMB Biodiversity Unit.
- *Acacia menzelii* (Menzel's Wattle) be added to the revegetation mix (5.6.2 in the report)
- An aerial plan is provided showing the locations of the Monarto Mintbush to be planted before clearance occurs
- Erect signs to warn drivers where Malleefowl may be on the road ahead
- Top soil should be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised
- The protection of both remnant and planted specimens of Monarto Mintbush during the construction of the road

Melissa McCallum
ASSESSMENT OFFICER
NATIVE VEGETATION & BIODIVERSITY MANAGEMENT UNIT

Date:

Attachments:

Comment from SA Murray Darling Basin Natural Resources Management Board
Advisory Plans from consultant report

Application for Clearance of Native Vegetation

South Australian Murray-Darling Basin Natural Resources Management Board Biodiversity Unit

Comments provided by: **Kylie Moritz / Sarah Lance**

Date: **27/05/10**

Re: <u>Application for clearance of native vegetation to straighten a section of Maurice Road at Rocky Gully, Murray Bridge.</u>

Based on the information provided the application has been assessed for its potential impacts on the biodiversity and conservation of the site and surrounding area.

The SA MDB NRM Board has concerns about the proximity of the proposed road realignment to existing naturally occurring and planted plants of the nationally endangered *Prostanthera eurybioides.* The proposed clearance works will occur within 15 meters from existing *Prostanthera eurybioides.* Concerns include:

- The protection of both remnant and planted specimens of *Prostanthera eurybioides* during the construction of the road.
- The loss of a buffer that currently exists between the road and the *Prostanthera eurybioides.*
- The impact that dust will have on the *Prostanthera eurybioides* following realignment. The report states that "*There is information suggesting dust can impact vegetation up to 20 meters from the road verge depending on vegetation type, however local information regarding this matter in mallee environments is not readily available".* The dust load on plants along the existing road is currently very high and easily observed. With increased truck traffic and increased speed, which is predicted to occur once the road is straightened, dust loads will only increase and potentially negatively affect *Prostanthera eurybioides* and other vegetation close to the road. Is there a likelihood of bitumen to reduce dust impact?
- The report does not specify the number of *Prostanthera eurybioides* near the proposed works only that "A handful of mature specimens (likely remnant) were located approximately 15 meters...". Suggest that the number of plants needs to be specified.
- *Prostanthera eurybioides* seedlings were planted into the Rocky Gully area adjacent the proposed road realignment as part of a Threatened Flora Recovery program. It is felt that these specimens should be afforded equal protection as the naturally occurring plants given the extremely low number of *Prostanthera eurybioides* that occur in the area.
- Emphasis should be placed on the areas importance in terms of it being critical habitat for the nationally endangered *Prostanthera eurybioides* and the nationally vulnerable *Acacia menzelii.* Is this included in the SEB calculations?
- There is potentially viable seed in the soil seed bank of both *Prostanthera eurybioides* and *Acacia menzelii.* It is recommended that the Council provide collection of top soil from around mature plants prior to road works or notify the SA MDB NRM Board Threatened Flora Recovery program prior to road works to enable this.

General comments include:

- The SEB score appears low given the proximity to remnant *Prostanthera eurybioides* and the fact that the proposed road will be going through critical habitat of this nationally endangered species and *Acacia menzelii*, a nationally vulnerable species.
- We would encourage the use of seed of *Prostanthera eurybioides* rather than cuttings for the revegetation works. This will help to increase the genetic diversity of plants in the area. Work has been undertaken by staff at the Botanic Gardens, Adelaide, to improve the success of seed germination in this species. The SA MDB can assist the Council in this area.
- It is felt that including the existing sections of road surface in the area proposed as the vegetation off-set is not acceptable. The existing road is highly altered and even with ripping and preparation works will not be suitable for establishing vegetation of equal or better condition than that which is proposed to be removed. It is recommended that the road surface be revegetated, but not be included in the vegetation off-set.
- The report states that fencing be upgraded along sections of the realigned roadside. Will this be all sections or just adjacent the public land? If the latter, it is recommended that the fence at the property owned by Boland/Bryant, which is adjacent the western proposed realignment, be included in the Council funded fencing. This property contains the largest population of *Prostanthera eurybioides* in the area (currently 123 plants) and has been damaged by cars running off the road.
- Correction: the southern dot near section 1 on map 3 is not a *Prostanthera eurybioides*, but *Acacia menzelii* (historical data). The data search called up all threatened plants in the area including this *Acacia*.
- The realignment has been suggested for road safety reasons, however there are concerns that the traffic speed will increase through this area due to the removal of sharp bends. A small population of Malleefowl occurs in the area, with a Malleefowl mound located at Boland's property adjacent the proposed road realignment. A Malleefowl chick was also observed in this area in 2009. Increased traffic speed is a concern for the safety of this species.

3.1 MAP 1 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
1 of 5

TO FORM PART OF THE ADVICE TO THE NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG
Lot 9 CT Vol 5714 Fol 499
Sec 530 CT Vol 5322 Fol 456
Sec 529 CT Vol 5824 Fol 624

- Scattered Tree Removal
- Vegetation Clearance Patches
- Proposed Road Alignment

N

0 130 260 390 520 650 Metres

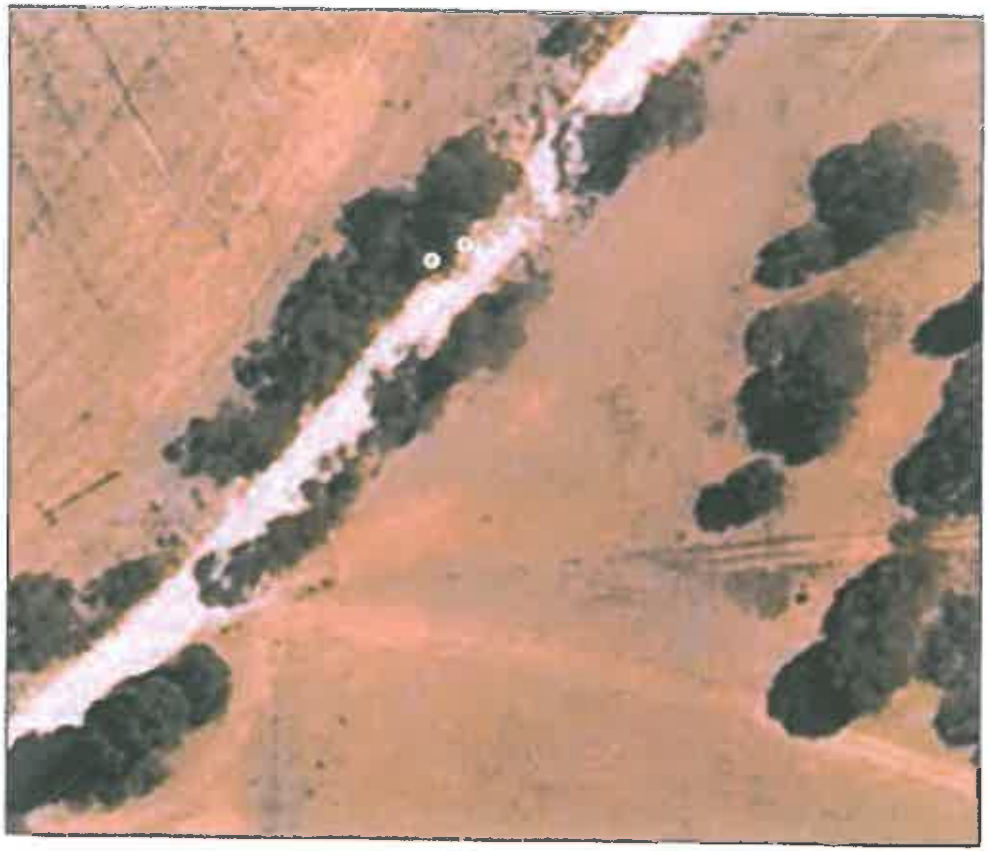
Scale: 1:7500

Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.2 MAP 2 OF 5

Native Vegetation Clearance Application



ADVISORY PLAN
2 of 5

TO FORM PART OF THE ADVICE TO THE NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Scattered Tree Removal

Date of Photography 2008

Scale: 1:500

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.3 MAP 3 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
3 of 5

TO FORM PART OF THE ADVICE TO THE
NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Lot 9 CT Vol 5714 Fol 480
Sec 530 CT Vol 5322 Fol 465
Sec 528 CT Vol 5824 Fol 624

Scattered Tree Removal
Vegetation Clearance Patches
Proposed Road Alignment

N

0 90 180 270 360 450 Metres

Scale: 1:5000

Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.4 MAP 4 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
4 of 5

TO FORM PART OF THE ADVICE TO THE
NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Lot 9 CT Vol 5714 Fol 490
Sec 530 CT Vol 5322 Fol 468
Sec 529 CT Vol 5824 Fol 624

Scattered Tree Removal
Vegetation Clearance Patches
Proposed Road Alignment
SEB Proposed Revegetation/Bush Care

N

0 90 180 270 360 450 Metres

Scale: 1:6000

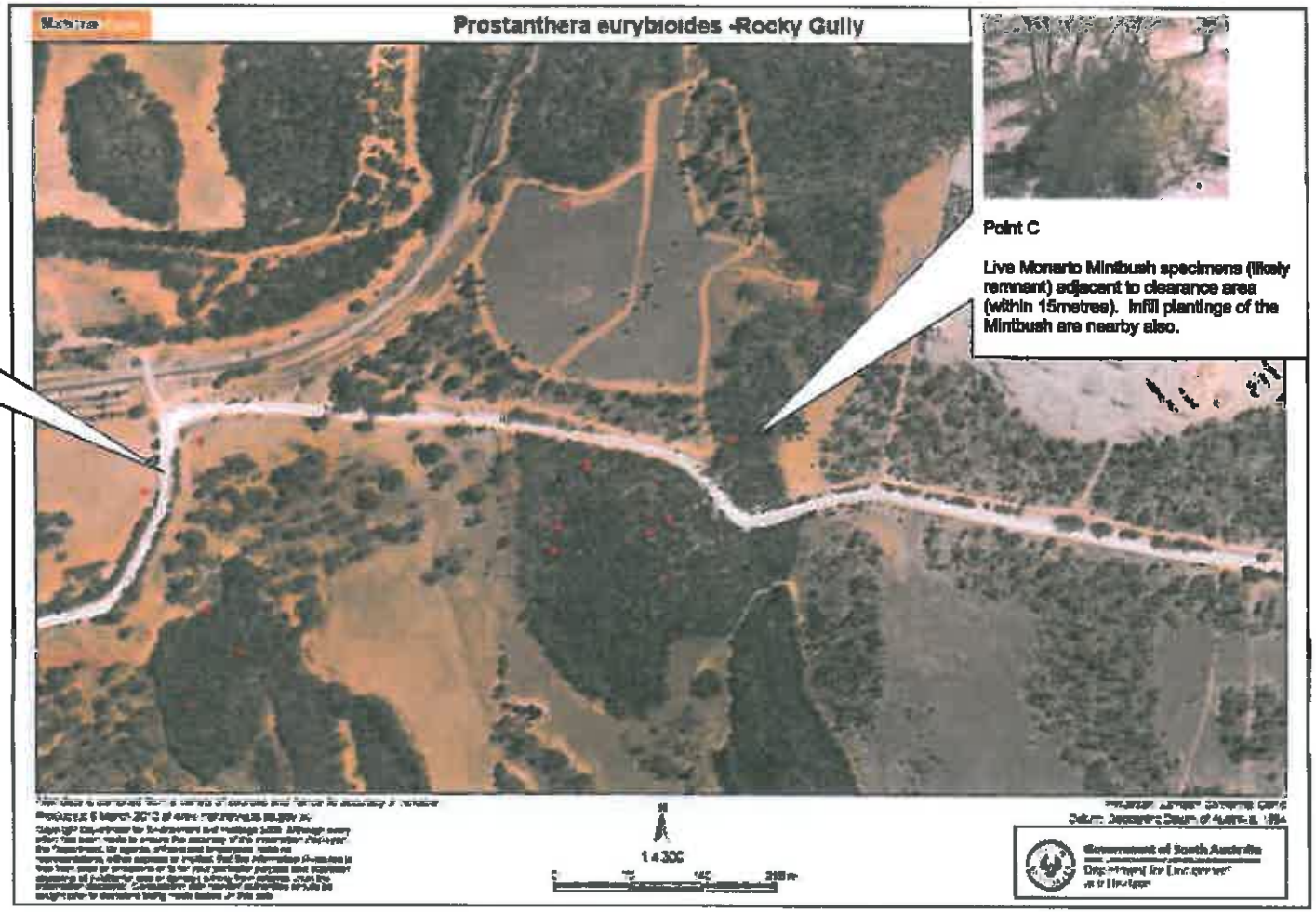
Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.5 MAP 5 OF 6[2]

Point A & B

Both these areas were investigated thoroughly and no live presence of the endangered Monarto Mintbush could be observed in the impact area- despite historical data suggesting otherwise.



Point C

Live Monarto Mintbush specimens (likely remnant) adjacent to clearance area (within 15metres). Infill plantings of the Mintbush are nearby also.

[2] Map forwarded to RSSA from the Murray Darling NRM body, via DEH threatened Species Unit March 2010.

Jo Spencer Landscape Restoration Officer SA MDB NRM M 0427 181383

Comments on the impact to biodiversity values by the proposed Maurice road upgrade at Rocky Gully near Murray Bridge

Overview:

The proposed Development Application by Rural City of Murray Bridge for Road realignment at Maurice road, Rocky Gully (see attached location map) will position the road very closely to a population of *Prostanthera eurybioides*, Monarto mintbush (Nationally Endangered plant, EPBC Act 1999). The proposed upgrade addresses the improvement of road safety.

At this site the mintbush is a naturally occurring remnant. There has been some conservation effort[1] over many years to re-establish mintbush in cleared areas and volunteer[2] effort has been used to assist with management. A brief site visit confirms the presence of mintbush within about 20m of the proposed new road edge.

There are many best practice methods to minimise environmental damage during road construction activities for which advice can be sought through consultancy services. It is the intention here to advise Council on the need to ensure that specific biodiversity management tasks are included in the planning and operational phase.

Site map:

Map showing current and on going community mintbush revegetation project and location of some known plants close to the road. There are 691 individual plants known in the Rocky Gully area.

[1] Willoughby, N. (2009) **Error! Reference source not found.**, Department for Environment and Heritage, South Australia.
[2] Green Corps (Mission Australia, 2009 and others), Greening Australia, Eastern Hills and Murray Plains Catchment group (2004 and ongoing), State Flora,

Conservation value:

Prostanthera eurybioides, Monarto mintbush is a Nationally Endangered plant under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999)[3]. Meaning that any activities that are likely to have a significant impact will need to be reoffered to the Federal Minister for the Environment (DEWHA). It is endemic to South Australia, meaning that it is only known to occur in a defined geographical area in this state.

Monarto Mintbush is at particular risk from grazing by rabbits and kangaroos which may be reducing seed set and survival of seedlings. Small population size and a lack of recruitment are also major threats. General weed invasion of habitats is inhibiting seedling germination and survival. Trail bike riding is a concern, along with the possibility that individual plants are being removed by collectors.

Ecology:

Monarto mintbush is found in tall shrublands or open woodlands, usually associated with rocky granite outcrops. When present in tall shrublands there are very few overstorey species present. The dominant species that is found in this habitat type is; Broombush (*Melaleuca uncinata*) Understorey plants are typically dominated by scattered shrubs over native grasses, lilies and herbs. When present in an open woodland the dominant overstorey species present include; Mallee Box (*Eucalyptus porosa*) Blue Gum (*Eucalyptus leucoxylon ssp. leucoxylon*) Beaked Red Mallee (*Eucalyptus socialis*) Narrow-leaf Red Mallee (*Eucalyptus leptophylla*) Understorey plants are typically dominated by scattered shrubs over native grasses, lilies and herbs.

- Spreading shrub <1m high.
- Branches covered in short, curled hairs.
- Leaves are clustered, thick and hairless.
- The base of the flowers is mid-green with a red or maroon tinge
- The petals are light purple, partly fused together, 10-12 mm long, with orange and dark-purple dots on the inner side of the flower.
- Flowering occurs from September to November
- Grows on sandy loam and loam soils

Project History:

Monarto mintbush is included in the National Recovery Plan for Nine threatened Flora in the MDB NRM region (Obst, 2004). The Threatened Flora project of the SA MDB Natural Resource Management Board continues to oversee the ongoing actions documented in this plan.

Suggested actions and advice:

- Seek a professional environmental assessment to ensure compliance with the EPBC Act and the Native Vegetation Act 2003 (South Australia) including Significant Environmental Benefit for vegetation clearance.
- Avoid disturbance to individual plants
- Minimise vegetation clearance within and close to the patch
- Promote reestablishment of local mintbush plants using locally collected seed
- Mark individual plants during construction
- Look at further resourcing to continue the revegetation project
- Expand the native vegetation that adjoins the known population
- Ideally the Rocky Gully Conservation Area should be formally protected as a Conservation Park under the National Parks and Wildlife 1972.
- Translocations of individual plants that may need to be removed is not considered ideal due to the risks of survivorship.

[3] Department of the Environment, Water, Heritage and the Arts (2009). *Prostanthera eurybioides* in Species Profile and Threats Database, Department of the Environment, Water, Heritage and the Arts, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed 2009-12-17T17:05:04.

Green Corps team working on the planted mintbush

View south from mintbush patch to Maurice road upgrade corner

View east through scrub on the alignment of the proposed upgrade

View west through scrub along road alignment

Mintbush flowers

Jo Spencer Landscape Restoration Officer SA MDB NRM M 0427181585

Location map

Appendix 1F: File Note - Objection

Glenn Dean

From: Glenn Dean
Sent: Wednesday, 25 November 2009 12:50 PM
To: Glenn Dean

Spoke with Mrs C J Bryant about proposed road realignment on Maurice Road. This was to ascetain what endangered species were in the area as I was aware her block was under a Heritage Agreement. She objected to any improvement and suggested the road be closed. I said the realignment would make the road safer by removing the dangerous bends and it was not practicable to close the road.

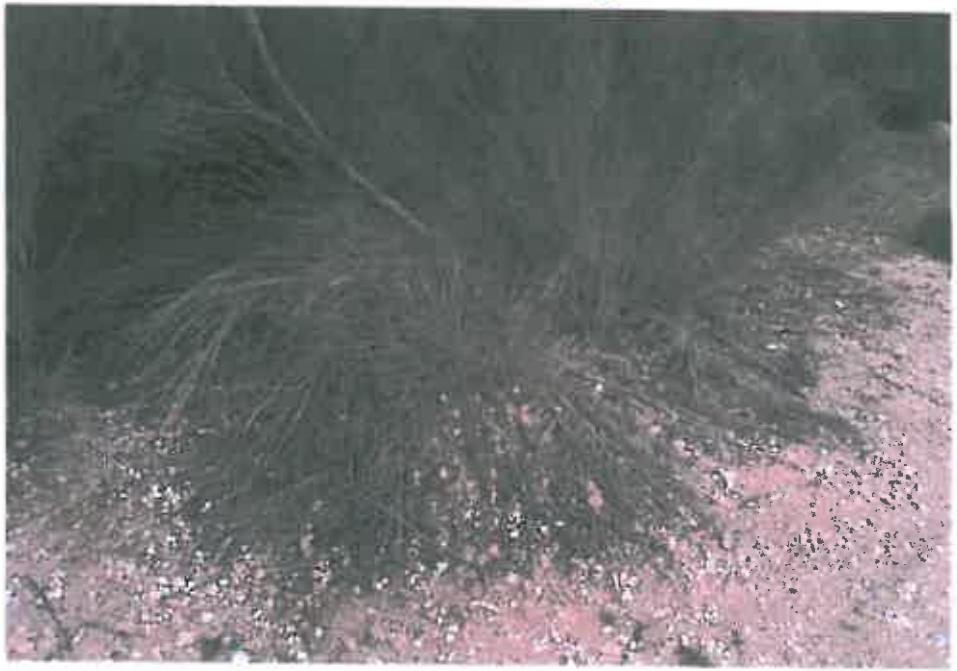
Glenn Dean
Parks and Gardens Supervisor
Rural City of Murray Bridge

Phone: 08 8539 1167
Mobile: 0438 545 747
Fax: 08 8531 0170

Website: www.murraybridge.sa.gov.au
Disclaimer: http://www.murraybridge.sa.gov.au/site/page.cfm?u=398

Appendix 1G: Various Photos and Maps - 2010

Accidents within proposed realignment

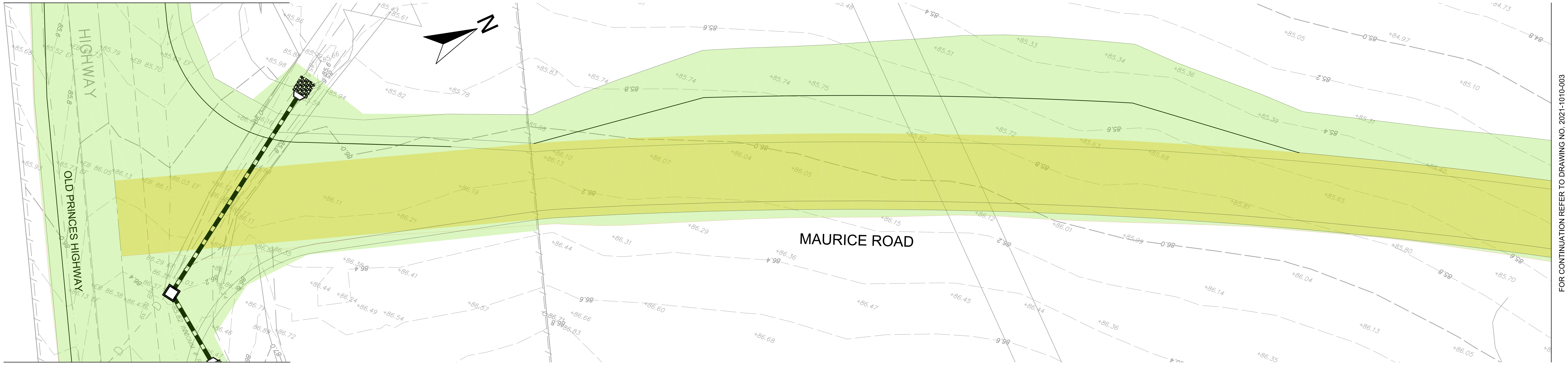


Town Centre soon


70
100
90

Appendix 2: Proposed Alignment 2021

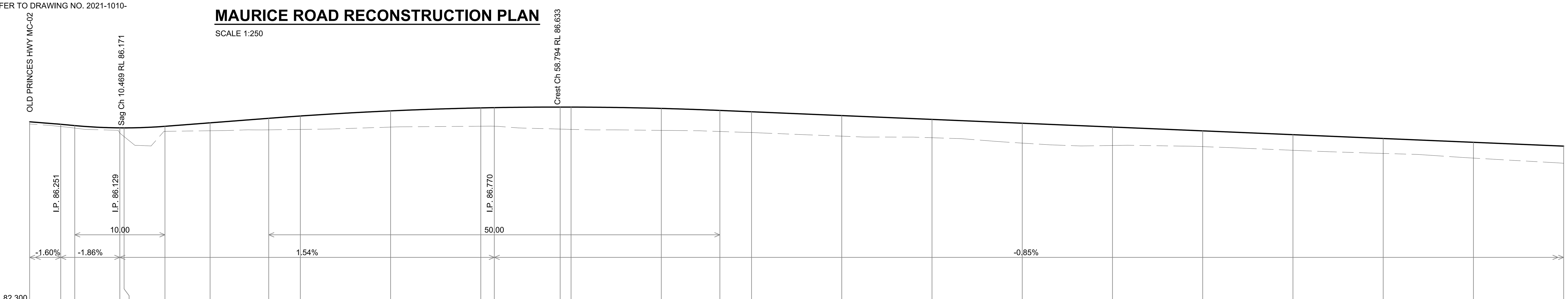
FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-



FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-

MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



CHAINAGE	EXISTING SURFACE	DESIGN SURFACE	CUT/FILL
0.000	86.26	86.307	0.049
3.444	86.20	86.251	0.050
5.000	86.17	86.222	0.055
10.000	86.06	86.172	0.117
10.469	85.98	86.171	0.192
15.000	86.10	86.206	0.111
20.000	86.11	86.284	0.177
26.495	86.13	86.384	0.256
30.000	86.14	86.435	0.298
40.000	86.19	86.549	0.360
50.000	86.21	86.615	0.407
51.495	86.21	86.620	0.412
58.794	86.14	86.633	0.488
60.000	86.14	86.633	0.494
70.000	86.12	86.603	0.487
76.495	86.09	86.558	0.466
80.000	86.07	86.529	0.461
90.000	85.99	86.444	0.456
100.000	85.95	86.359	0.406
110.000	85.83	86.275	0.441
120.000	85.78	86.190	0.409
130.000	85.76	86.106	0.350
140.000	85.67	86.021	0.346
150.000	85.61	85.936	0.331
160.000	85.50	85.852	0.351
170.000	85.39	85.767	0.380

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

NOTES:

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2. ALL UTILITY SERVICE INSPECTION COVERS SHALL BE ADJUSTED AS REQUIRED
3.
4. LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM
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6. ALL EXISTING SERVICES ARE TO BE LOCATED ONSITE PRIOR TO CONSTRUCTION COMMENCING. ALL EXISTING SERVICES MUST BE MAINTAINED AT ALL TIMES, EXCEPT WHEN IT BECOMES NECESSARY TO ALTER THEM. IN THIS INSTANCE, THE CONTRACTOR SHALL INFORM RCMB PROJECT MANAGER AND SHALL WORK WITH THE REVENANT UTILITY COMPANY TO ALTER THE SERVICE.

PAVEMENT

NTS

LEGEND

SCALE — HORIZ 1:250: 0, 10, 15, 20, 25 — VERT 1:50: 0, 5

CHECK PRINT - INCOMPLETE REVISION			
DISTRIBUTION	NAME	SIGNATURE	DATE
DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

THIS DRAWING HAS NOT BEEN CHECKED/VERIFIED AND MUST NOT BE RELIED UPON. - PLOT DATE Jun 24, 2021 - 2:04pm

CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.
A	18.3.21	ISSUED FOR COMMENT				

A1

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\D\C\dwg\Rev_A\Maurice_D_2021-1003.dwg

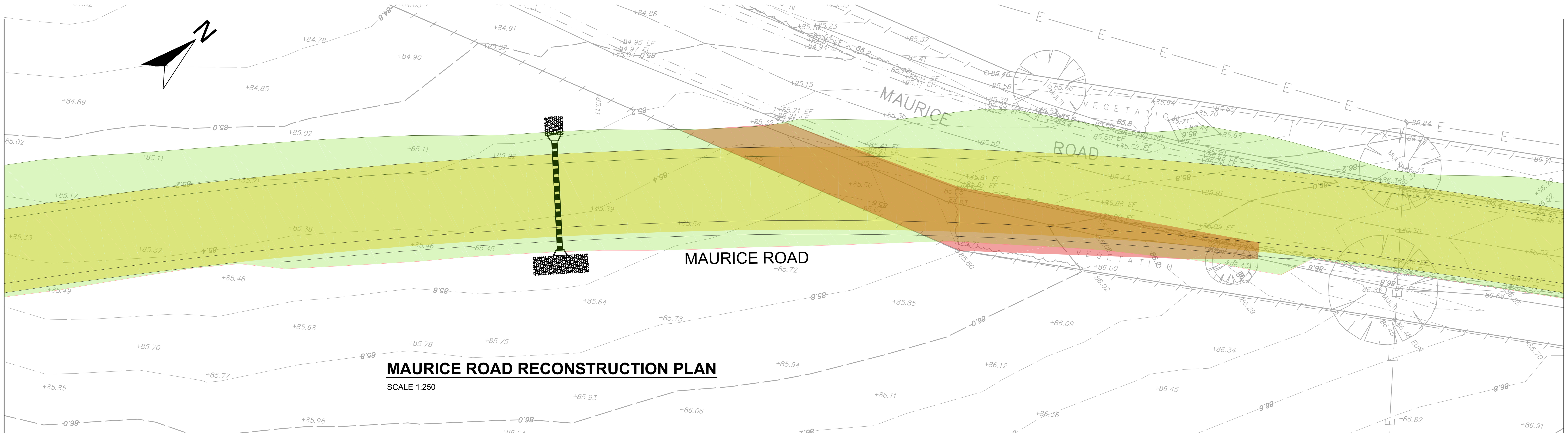
		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE — Bridge to Opportunity

MAURICE ROAD
RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-002
REV: A

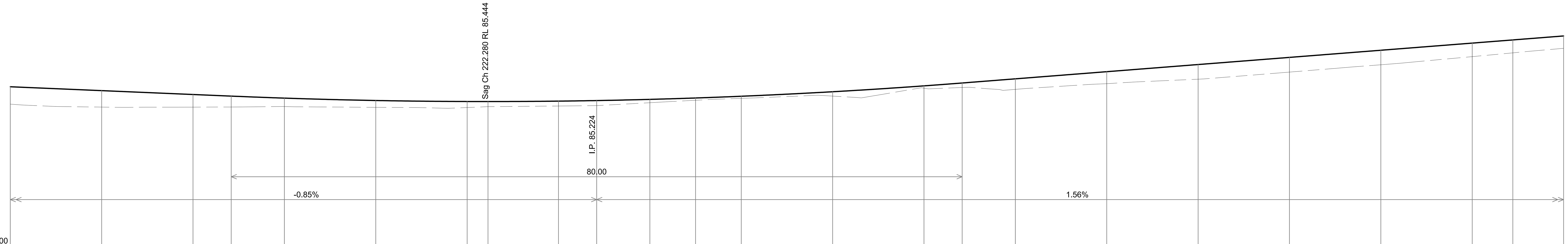
FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-002



FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-004

MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



R.L. 82.300

CUT/FILL	0.380	0.361	0.277	0.239	0.184	0.150	0.132	0.112	0.107	0.110	0.073	0.050
DESIGN SURFACE	85.767	85.683	85.598	85.563	85.519	85.467	85.445	85.444	85.453	85.465	85.491	85.522
EXISTING SURFACE	85.39	85.32	85.32	85.32	85.33	85.32	85.31	85.33	85.35	85.36	85.42	85.47
CHAINAGE	170.000	180.000	190.000	194.181	200.000	210.000	220.000	222.280	230.000	234.181	240.000	244.999

CUT/FILL	0.046	0.096	0.050	0.098	0.230	0.262	0.320	0.322	0.317	0.295	0.283	0.270
DESIGN SURFACE	85.560	85.658	85.787	85.849	85.940	86.096	86.253	86.409	86.565	86.721	86.791	86.878
EXISTING SURFACE	85.51	85.56	85.74	85.75	85.71	85.83	85.93	86.09	86.25	86.43	86.51	86.61
CHAINAGE	250.000	260.000	270.000	274.181	280.000	290.000	300.000	310.000	320.000	330.000	334.445	340.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

PAVEMENT

NTS

NOTES:

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LEGEND

SCALE
HORIZ 1:250 0 10 15 20 25
VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

DISTRIBUTION	NAME	SIGNATURE	DATE
DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

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CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.
A	18.3.21	ISSUED FOR COMMENT				

A1

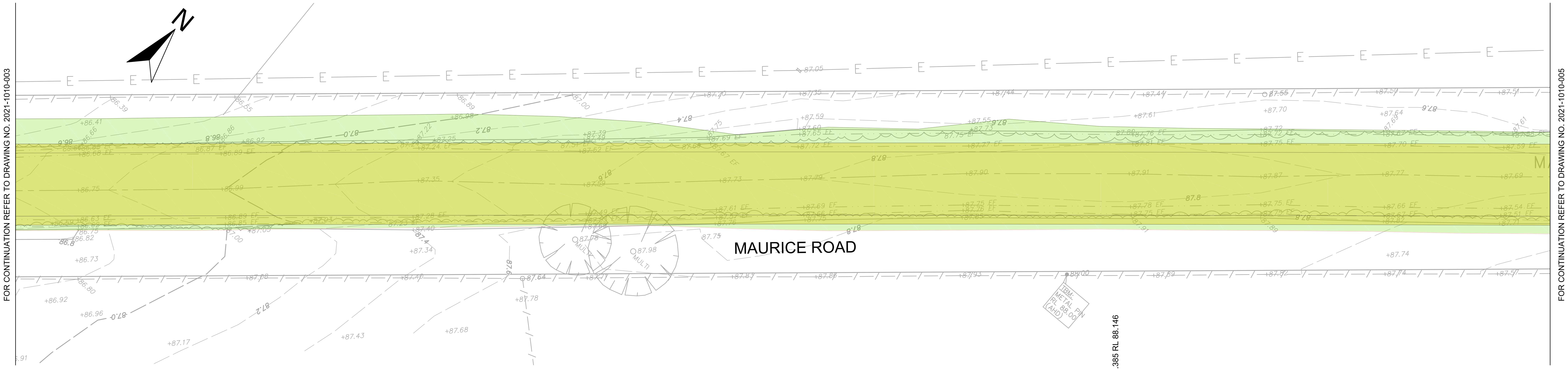
FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\D\C\dwg\Rev_A\Maurice_D_2021-1003.dwg

		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

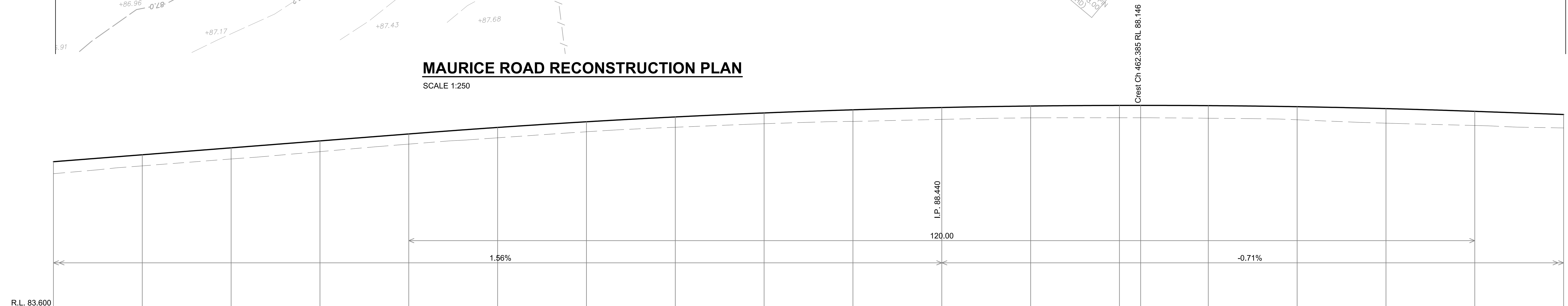
MAURICE ROAD
RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-003
REV: A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



CUT/FILL	0.270	0.250	0.251	0.241	0.229	0.233	0.225	0.232	0.243	0.261
DESIGN SURFACE	86.878	87.034	87.190	87.346	87.503	87.649	87.777	87.886	87.976	88.047
EXISTING SURFACE	86.61	86.78	86.94	87.10	87.27	87.42	87.55	87.65	87.73	87.79
CHAINAGE	340.000	350.000	360.000	370.000	380.000	390.000	400.000	410.000	420.000	430.000

CUT/FILL	0.268	0.267	0.278	0.278	0.284	0.295	0.328	0.318	0.303
DESIGN SURFACE	88.099	88.132	88.146	88.146	88.141	88.117	88.074	88.012	87.941
EXISTING SURFACE	87.83	87.87	87.87	87.87	87.86	87.82	87.75	87.69	87.64
CHAINAGE	440.000	450.000	460.000	462.385	470.000	480.000	490.000	500.000	510.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

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PAVEMENT

NTS

LEGEND

SCALE
HORIZ 1:250 0 10 15 20 25
VERT 1:50 0 5

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DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

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A1

CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.
A	18.3.21	ISSUED FOR COMMENT				

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\D\C\dwg\Rev_A\Maurice_D_2021-1003.dwg

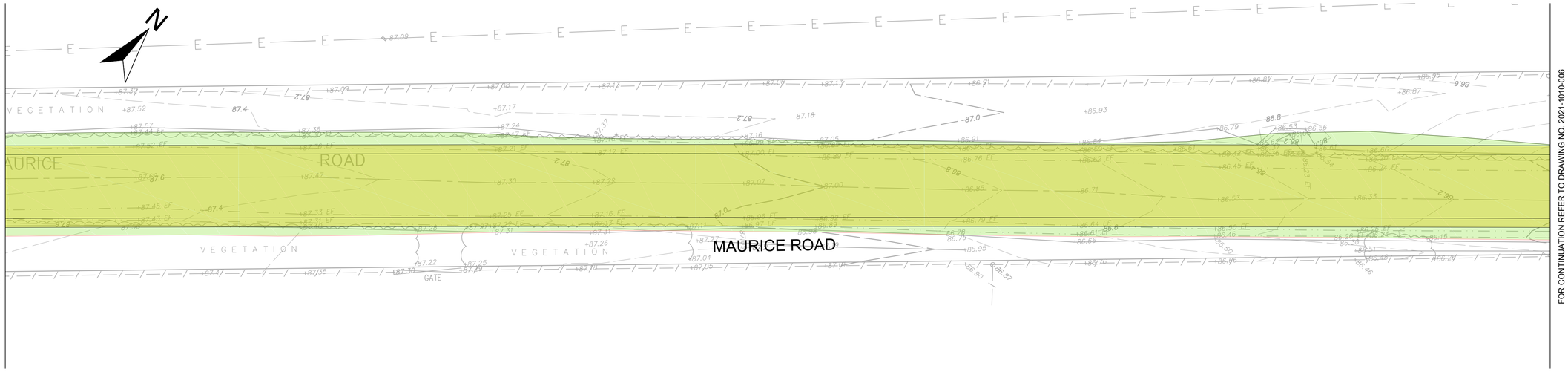
		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-004
REV: A

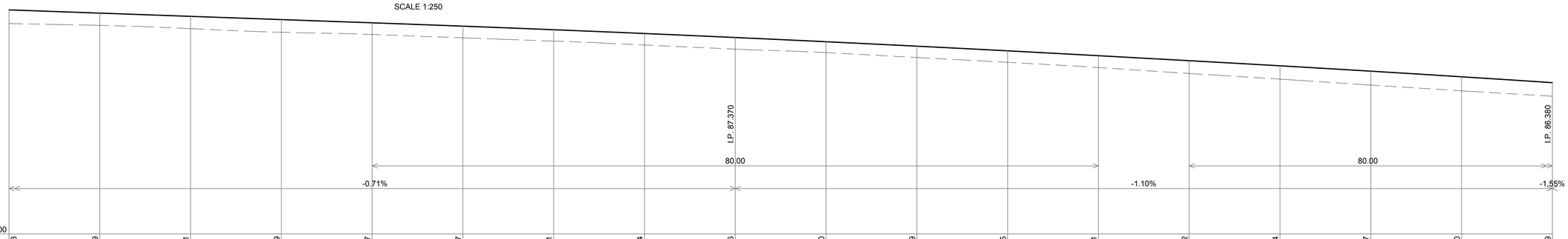
FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-004



FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-006

MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



R.L. 83.000																		
CUT/FILL	0.303	0.269	0.271	0.279	0.257	0.257	0.251	0.254	0.256	0.240	0.249	0.255	0.261	0.282	0.294	0.307	0.310	0.299
DESIGN SURFACE	87.941	87.869	87.798	87.727	87.655	87.582	87.503	87.420	87.331	87.238	87.140	87.038	86.930	86.820	86.707	86.589	86.465	86.335
EXISTING SURFACE	87.64	87.60	87.53	87.45	87.40	87.32	87.25	87.17	87.07	87.00	86.89	86.78	86.67	86.54	86.41	86.28	86.16	86.04
CHAINAGE	510.000	520.000	530.000	540.000	550.000	560.000	570.000	580.000	590.000	600.000	610.000	620.000	630.000	640.000	650.000	660.000	670.000	680.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

PAVEMENT

NTS

NOTES:

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LEGEND

HORIZ 1:250 0 10 15 20 25

SCALE

VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

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DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

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							MANAGER	MJ
							DESIGN	AC
							DRAWN	AC
A	18.3.21	ISSUED FOR COMMENT					CHECKED	
CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.	SIGNATURES	DATE

A1

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\DrCvlwg\Rev_A\Maurice_D_2021-1003.dwg

The Small City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION

GENERAL ARRANGEMENT AND LONGITUDINAL

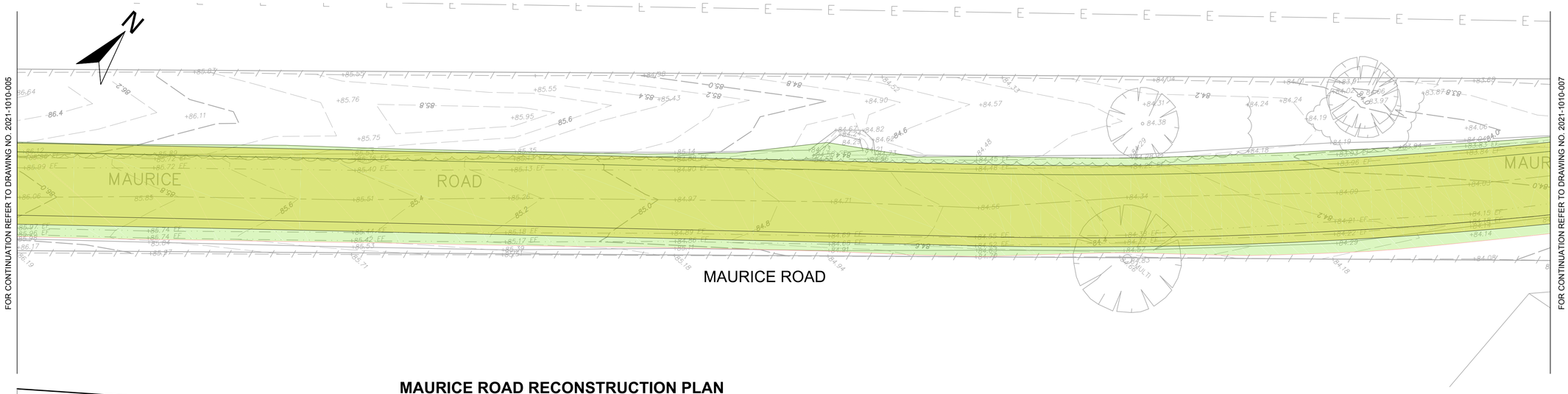
SCALE AT A1: AS SHOWN

PROJECT NUMBER: PR-

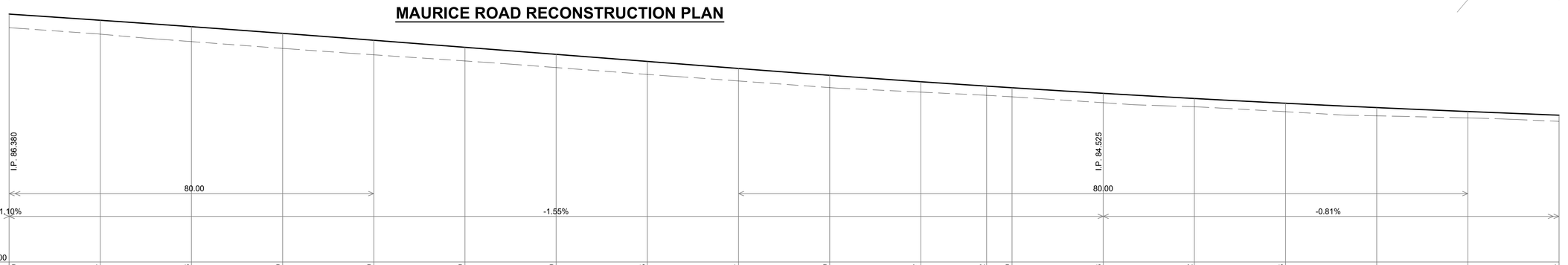
DATE COMMENCED: 17-MARCH-2021

DRAWING NUMBER: 2021-1010-005

REV: A



MAURICE ROAD RECONSTRUCTION PLAN



R.L. 80.900																					
CUT/FILL	0.299	0.304	0.328	0.330	0.319	0.299	0.289	0.285	0.274	0.269	0.227	0.202	0.199	0.206	0.182	0.186	0.181	0.141	0.134		
DESIGN SURFACE	86.335	86.200	86.060	85.913	85.762	85.607	85.453	85.298	85.143	84.993	84.852	84.757	84.721	84.598	84.485	84.381	84.286	84.200	84.118		
EXISTING SURFACE	86.04	85.90	85.73	85.58	85.44	85.31	85.16	85.01	84.87	84.72	84.62	**84.55**	84.52	84.39	84.30	84.20	84.10	84.06	83.98		
CHAINAGE	680.000	690.000	700.000	710.000	720.000	730.000	740.000	750.000	760.000	770.000	780.000	787.210	790.000	800.000	810.000	820.000	830.000	840.000	850.000		

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

PAVEMENT

NTS

LEGEND

NOTES:

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HORIZ 1:250 0 10 15 20 25
SCALE
VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

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DRAFTING	A.CATANZARITI		
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A	18.3.21	ISSUED FOR COMMENT				

A1

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\DrC\dwg\Rev_A\Maurice_D_2021-1003.dwg

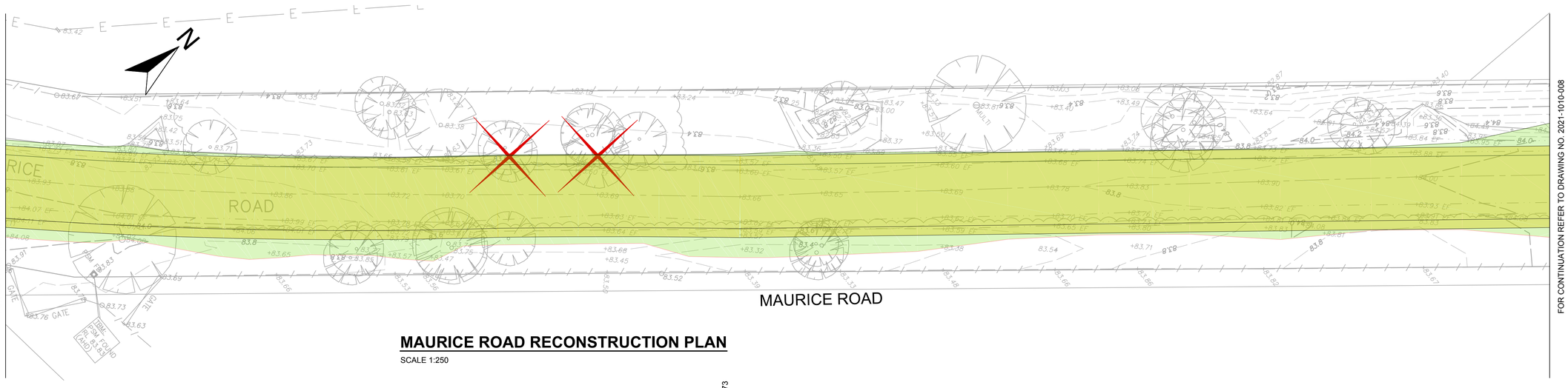
MANAGER	MJ	
DESIGN	AC	
DRAWN	AC	
CHECKED		
SIGNATURES		DATE

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD
RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-006
REV: A

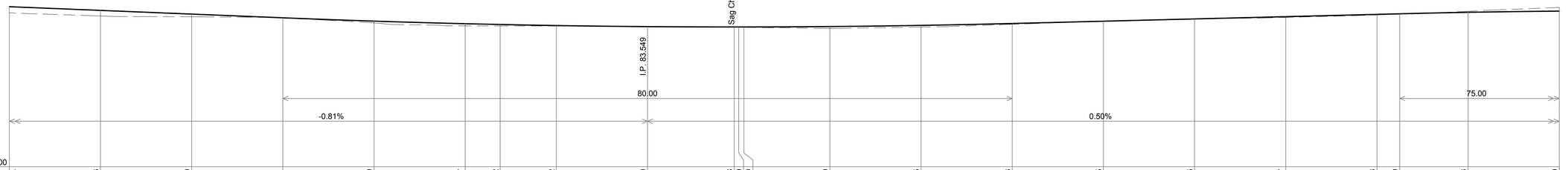
FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-006



FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-008

MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



R.L. 80.600																							
CUT/FILL	0.134	0.123	0.060	0.001	0.039	0.047	0.032	0.012	0.000	0.008	0.009	0.010	0.040	0.035	0.018	0.005	0.005	0.017	0.013	0.009	-0.023	-0.080	
DESIGN SURFACE	84.118	84.037	83.956	83.874	83.801	83.744	83.727	83.704	83.680	83.673	83.673	83.673	83.682	83.707	83.749	83.799	83.849	83.899	83.950	83.962	83.994	84.021	
EXISTING SURFACE	83.98	83.91	83.90	83.87	83.76	83.70	83.70	83.69	83.68	83.67	83.66	83.66	83.64	83.67	83.73	83.79	83.84	83.88	83.94	83.95	84.02	84.10	
CHAINAGE	850.000	860.000	870.000	880.000	890.000	900.000	903.833	910.000	920.000	929.509	930.000	930.571	940.000	950.000	960.000	970.000	980.000	990.000	1000.000	1002.500	1010.000	1020.000	

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

PAVEMENT

NTS

LEGEND

NOTES:

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HORIZ 1:250 0 10 15 20 25
SCALE
VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

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DESIGN			
DESIGN VERIFICATION			

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CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.
A	18.3.21	ISSUED FOR COMMENT				

A1

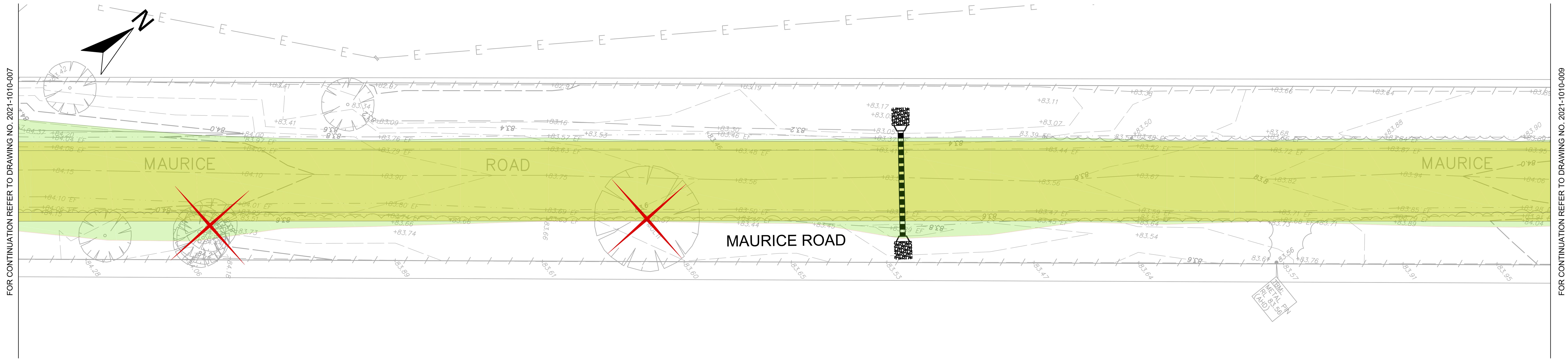
FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\DrC\dwg\Rev_A\Maurice_D_2021-1003.dwg

MANAGER	MJ	
DESIGN	AC	
DRAWN	AC	
CHECKED		
SIGNATURES		DATE

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

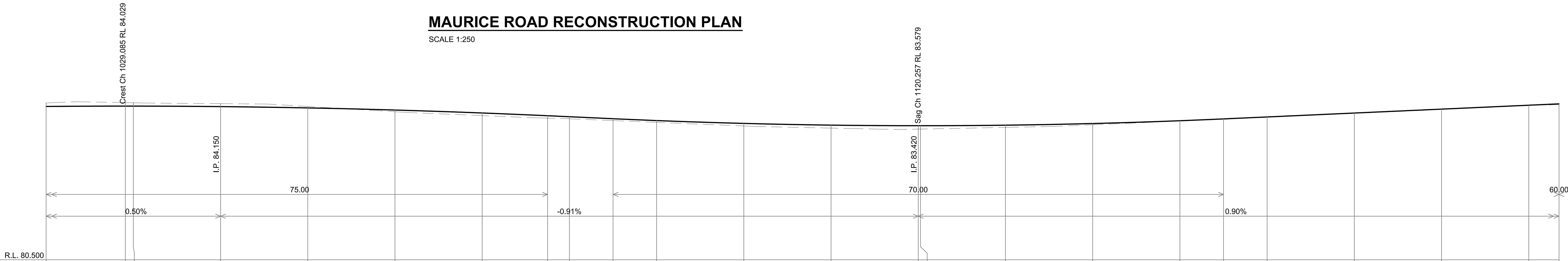
MAURICE ROAD
RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-007
REV: A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



CHAINAGE	EXISTING SURFACE	DESIGN SURFACE	CUT/FILL
1020.000	84.10	84.021	-0.080
1029.085	84.11	84.029	-0.080
1030.000	84.10	84.029	-0.076
1040.000	84.09	84.017	-0.068
1050.000	84.02	83.987	-0.033
1060.000	83.90	83.939	0.039
1070.000	83.81	83.871	0.060
1077.500	83.75	83.808	0.056
1080.000	83.74	83.785	0.047
1085.000	83.70	83.739	0.042
1090.000	83.66	83.697	0.042
1100.000	83.57	83.632	0.059
1110.000	83.52	83.592	0.068
1120.000	83.50	83.579	0.079
1120.257	83.50	83.579	0.078
1130.000	83.54	83.591	0.050
1140.000	83.60	83.629	0.029
1150.000	83.69	83.693	0.003
1155.000	83.74	83.735	-0.004
1160.000	83.79	83.780	-0.008
1170.000	83.87	83.870	-0.001
1180.000	83.95	83.960	0.006
1190.000	84.04	84.049	0.004
1193.470	84.06	84.081	0.020

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

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PAVEMENT

NTS

LEGEND

SCALE: HORIZ 1:250 (0, 10, 15, 20, 25) VERT 1:50 (0, 5)

CHECK PRINT - INCOMPLETE REVISION			
DISTRIBUTION	NAME	SIGNATURE	DATE
DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

THIS DRAWING HAS NOT BEEN CHECKED/VERIFIED AND MUST NOT BE RELIED UPON. - PLOT DATE Jun 24, 2021 - 2:05pm

CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.
A	18.3.21	ISSUED FOR COMMENT				

A1

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\D\C\dwg\Rev_A\Maurice_D_2021-1003.dwg

		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

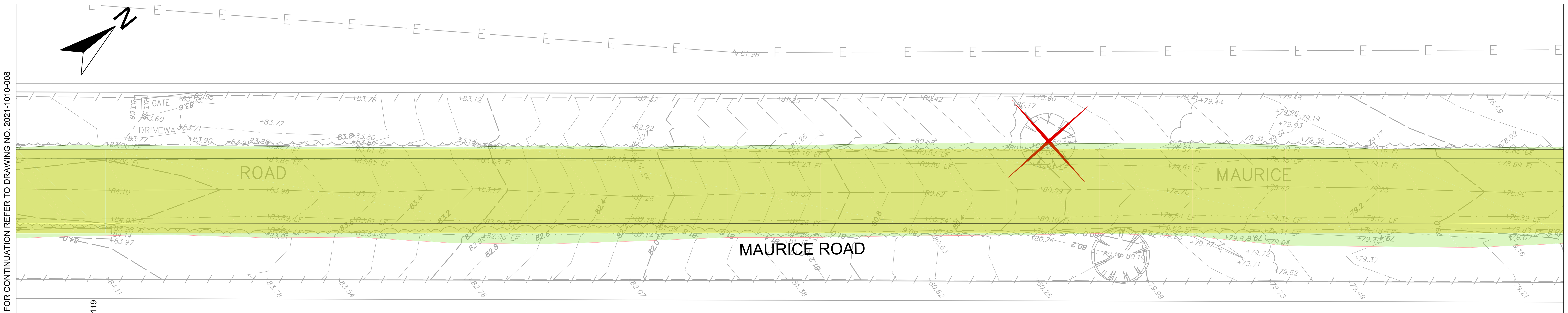
The Rural City of MURRAY BRIDGE — Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-008
REV: A

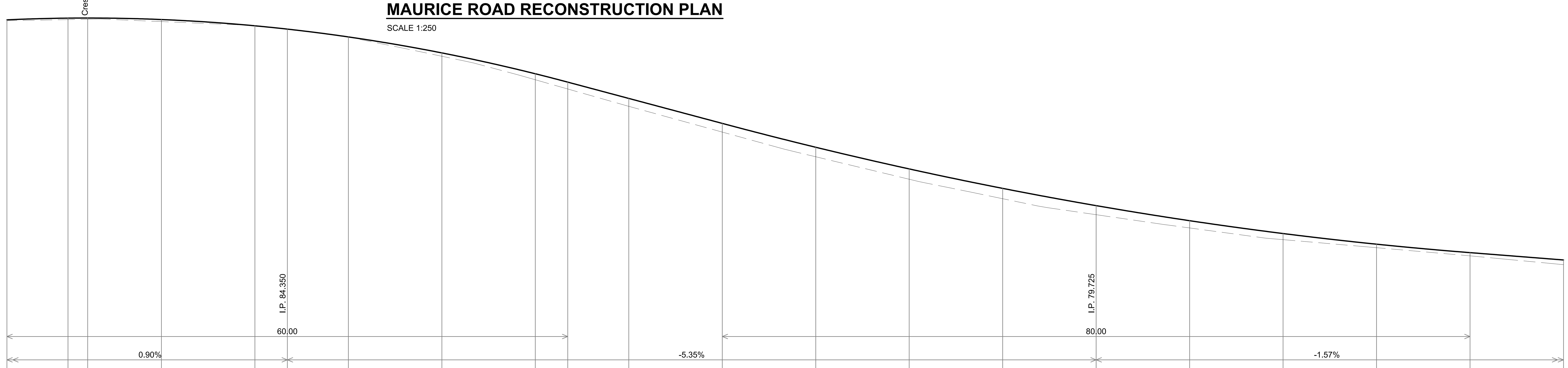
FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-008

FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-010



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



R.L. 75.800

CUT/FILL	0.020	0.032	0.026	0.044	-0.005	0.001	0.005	0.071	0.129	0.147	0.169
DESIGN SURFACE	84.081	84.117	84.119	84.087	83.953	83.882	83.715	83.372	82.926	82.747	82.398
EXISTING SURFACE	84.06	84.09	84.09	84.04	83.96	83.88	83.71	83.30	82.80	82.60	82.23
CHAINAGE	1193.470	1200.000	1202.109	1210.000	1220.000	1223.470	1230.000	1240.000	1250.000	1253.470	1260.000

CUT/FILL	0.186	0.203	0.220	0.221	0.194	0.155	0.131	0.075	0.069	0.101
DESIGN SURFACE	81.863	81.352	80.888	80.472	80.102	79.780	79.505	79.277	79.096	78.939
EXISTING SURFACE	81.68	81.15	80.67	80.25	79.91	79.62	79.37	79.20	79.03	78.84
CHAINAGE	1270.000	1280.000	1290.000	1300.000	1310.000	1320.000	1330.000	1340.000	1350.000	1360.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

NOTES:

1. ALL CONSTRUCTION WORK TO BE IN ACCORDANCE WITH RCMB STANDARD SPECIFICATION (AUGUST 2020 V1.6)
2. ALL UTILITY SERVICE INSPECTION COVERS SHALL BE ADJUSTED AS REQUIRED
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PAVEMENT

NTS

LEGEND

SCALE HORIZ 1:250 0 10 15 20 25
VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

DISTRIBUTION	NAME	SIGNATURE	DATE
DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

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A1

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\D\C\dwg\Rev_A\Maurice_D_2021-1003.dwg

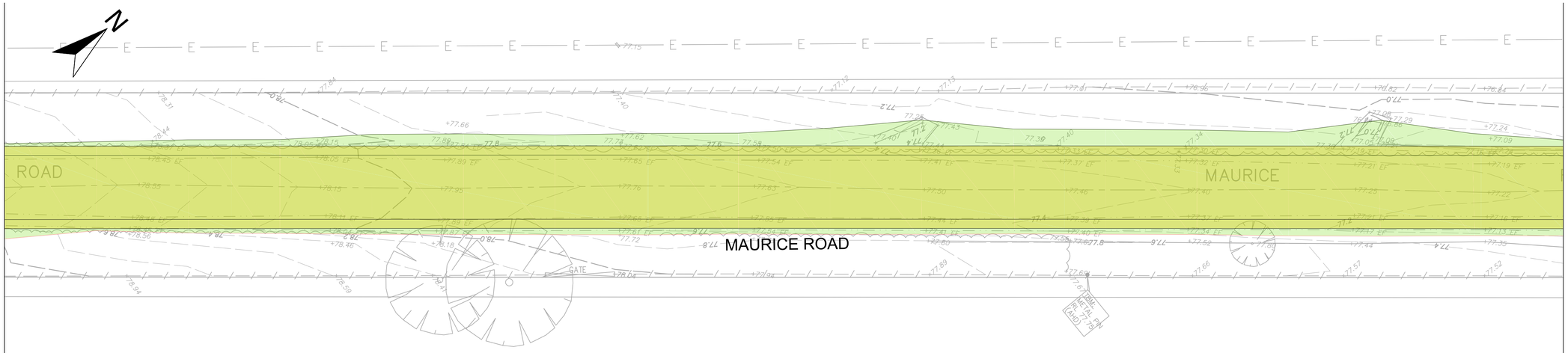
		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-009
REV: A

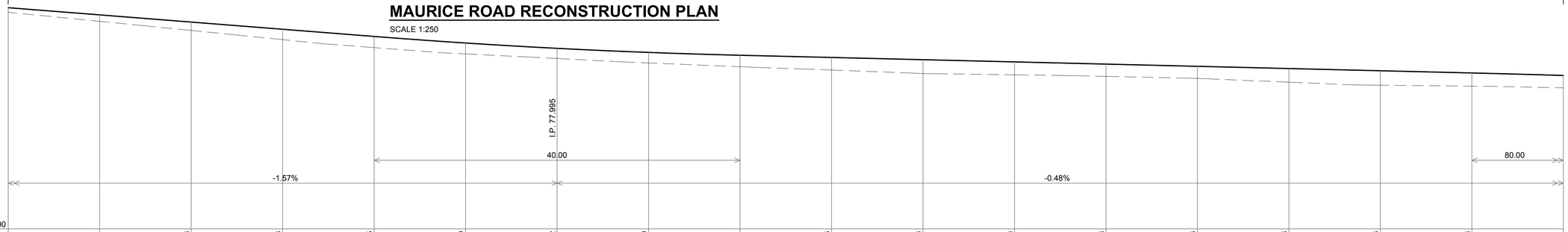
FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-009



FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-010

MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



R.L. 74.100																		
CUT/FILL	0.101	0.141	0.183	0.228	0.245	0.239	0.222	0.230	0.251	0.275	0.303	0.283	0.268	0.266	0.298	0.316	0.288	0.271
DESIGN SURFACE	78.939	78.781	78.624	78.467	78.310	78.166	78.049	77.960	77.898	77.850	77.801	77.753	77.704	77.656	77.607	77.559	77.510	77.456
EXISTING SURFACE	78.84	78.64	78.44	78.24	78.07	77.93	77.83	77.73	77.65	77.57	77.50	77.47	77.44	77.39	77.31	77.24	77.22	77.18
CHAINAGE	1360.000	1370.000	1380.000	1390.000	1400.000	1410.000	1420.000	1430.000	1440.000	1450.000	1460.000	1470.000	1480.000	1490.000	1500.000	1510.000	1520.000	1530.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

PAVEMENT

NTS

LEGEND

NOTES:

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HORIZ 1:250 0 10 15 20 25

SCALE

VERT 1:50 0 5

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A1

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\DrC\dwg\Rev_A\Maurice_D_2021-1003.dwg

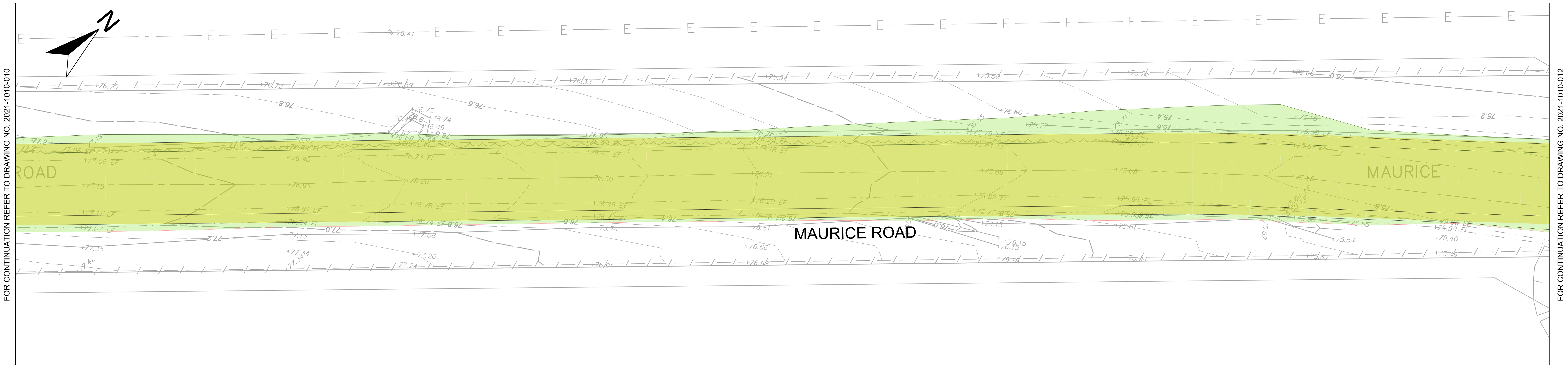
		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION

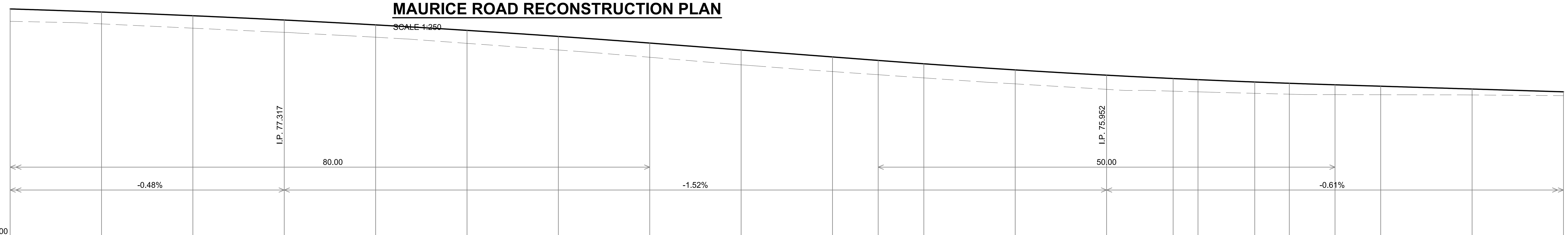
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1	AS SHOWN
PROJECT NUMBER	PR-
DATE COMMENCED	17-MARCH-2021
DRAWING NUMBER	2021-1010-010
REV	A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



CUT/FILL	0.271	0.259	0.272	0.268	0.269	0.284	0.296	0.311	0.324	0.320	0.313
DESIGN SURFACE	77.456	77.388	77.307	77.213	77.107	76.988	76.855	76.710	76.559	76.407	76.331
EXISTING SURFACE	77.18	77.13	77.04	76.95	76.84	76.70	76.56	76.40	76.24	76.09	76.02
CHAINAGE	1530.000	1540.000	1550.000	1560.000	1570.000	1580.000	1590.000	1600.000	1610.000	1620.000	1625.000

CUT/FILL	0.309	0.305	0.309	0.277	0.267	0.247	0.238	0.214	0.186	0.129	0.084
DESIGN SURFACE	76.258	76.124	76.008	75.936	75.911	75.859	75.831	75.798	75.768	75.706	75.645
EXISTING SURFACE	75.95	75.82	75.70	75.66	75.64	75.61	75.59	75.58	75.58	75.58	75.56
CHAINAGE	1630.000	1640.000	1650.000	1657.283	1660.000	1666.216	1670.000	1675.000	1680.000	1690.000	1700.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

PAVEMENT

NTS

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LEGEND

SCALE HORIZ 1:250 0 10 15 20 25 VERT 1:50 0 5

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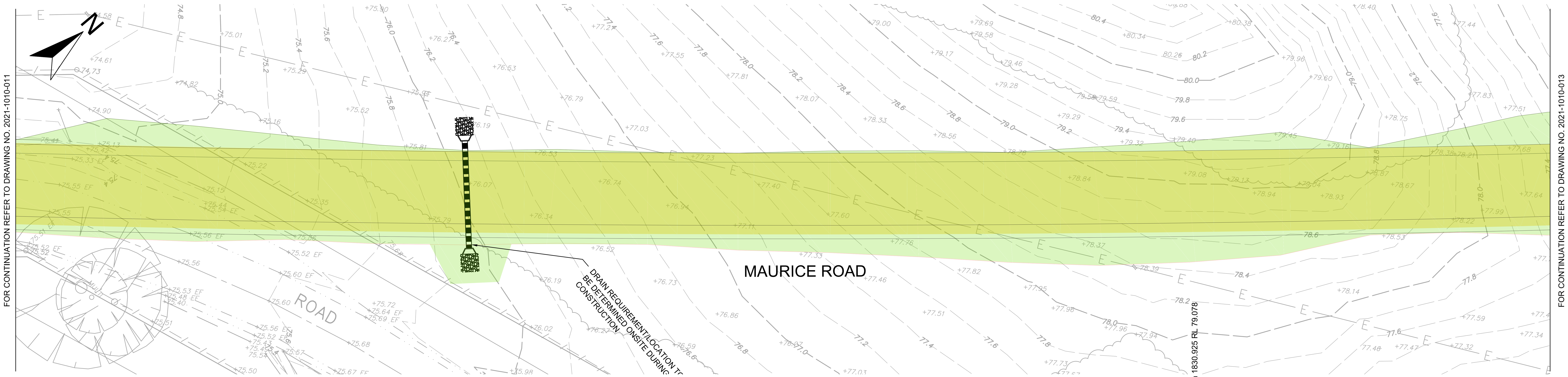
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE — Bridge to Opportunity

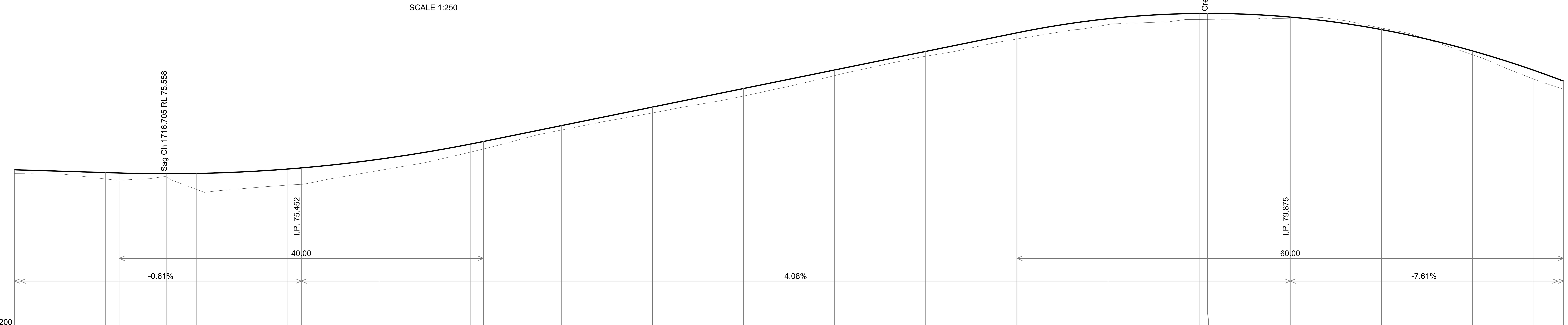
MAURICE ROAD RECONSTRUCTION GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-011
REV: A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



CUT/FILL	0.084	0.140	0.156	0.078	0.352	0.353	0.361	0.247	0.176	0.165	0.097	0.129
DESIGN SURFACE	75.645	75.583	75.574	75.558	75.565	75.662	75.686	75.876	76.208	76.267	76.614	77.022
EXISTING SURFACE	75.56	75.44	75.42	75.48	75.21	75.31	75.32	75.63	76.03	76.10	76.52	76.89
CHAINAGE	1700.000	1710.000	1711.466	1716.705	1720.000	1730.000	1731.466	1740.000	1750.000	1751.466	1760.000	1770.000

CUT/FILL	0.165	0.124	0.106	0.136	0.130	0.132	0.130	0.026	-0.034	0.084	0.194	0.177
DESIGN SURFACE	77.430	77.837	78.245	78.652	78.962	79.078	79.078	78.998	78.724	78.255	77.836	77.592
EXISTING SURFACE	77.26	77.71	78.14	78.52	78.83	78.95	78.95	78.97	78.76	78.17	77.64	77.42
CHAINAGE	1780.000	1790.000	1800.000	1810.000	1820.000	1830.000	1830.925	1840.000	1850.000	1860.000	1866.649	1870.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

NOTES:

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PAVEMENT

NTS

LEGEND

SCALE
HORIZ 1:250 0 10 15 20 25
VERT 1:50 0 5

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		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
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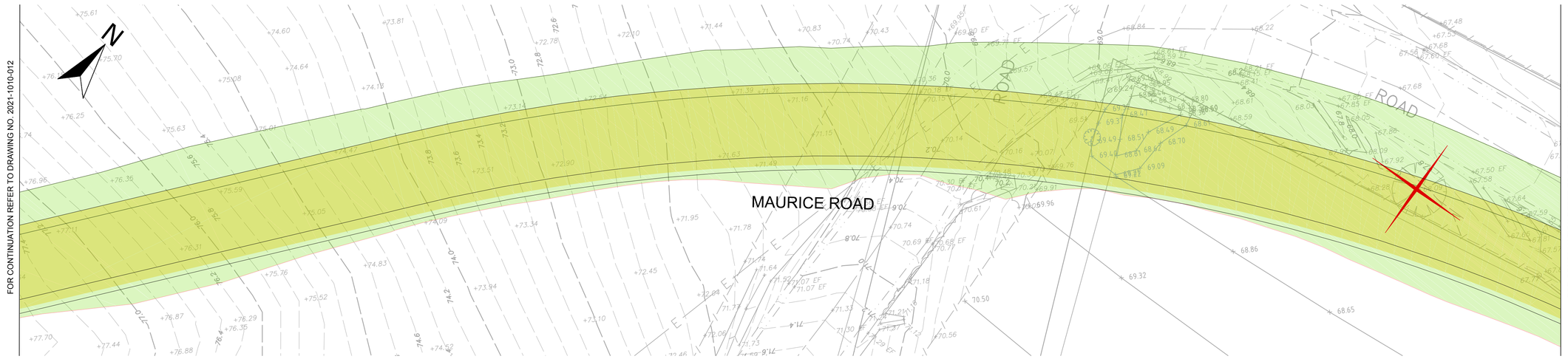
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD
RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-012
REV: A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250

NOTES:

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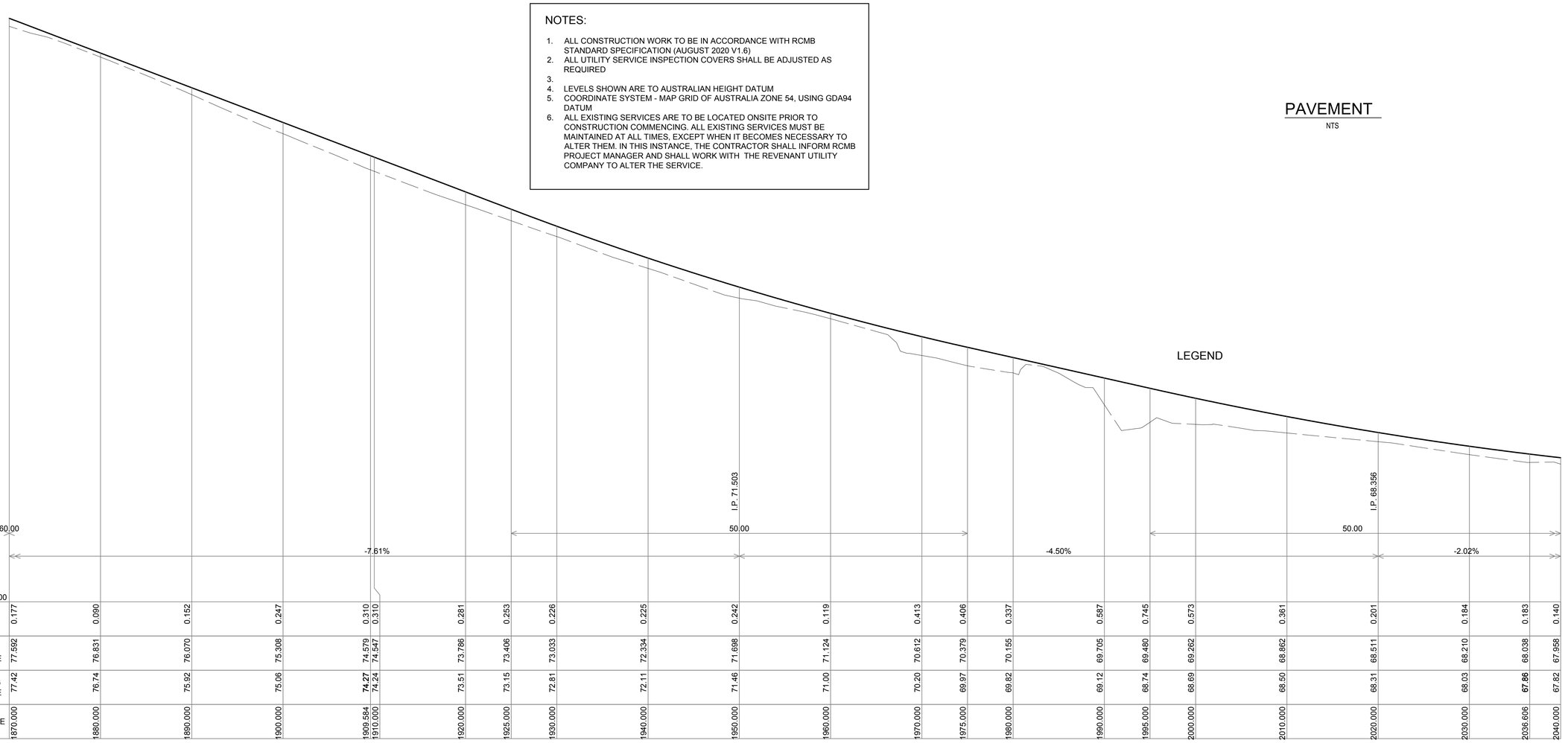

R.L. 64.800

CUT/FILL	0.177	0.090	0.152	0.247	0.310	0.310	0.281	0.253	0.226	0.225	0.242	0.119	0.413	0.406	0.337	0.587	0.745	0.573	0.361	0.201	0.184	0.183	0.140
DESIGN SURFACE	77.592	76.831	76.070	75.308	74.579	74.547	73.786	73.406	73.033	72.334	71.698	71.124	70.612	70.379	70.155	69.705	69.480	69.262	68.862	68.511	68.210	68.038	67.958
EXISTING SURFACE	77.42	76.74	75.92	75.06	**74.27**	74.24	73.51	73.15	72.81	72.11	71.46	71.00	70.20	69.97	69.82	69.12	68.74	68.69	68.50	68.31	68.03	**67.86**	67.82
CHAINAGE	1870.000	1880.000	1890.000	1900.000	1909.584	1910.000	1920.000	1925.000	1930.000	1940.000	1950.000	1960.000	1970.000	1975.000	1980.000	1990.000	1995.000	2000.000	2010.000	2020.000	2030.000	2036.606	2040.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

HORIZ 1:250 0 10 15 20 25

SCALE

VERT 1:50 0 5

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FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road reconID\C\dwg\Rev_A\Maurice_D_2021-1003.dwg

		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

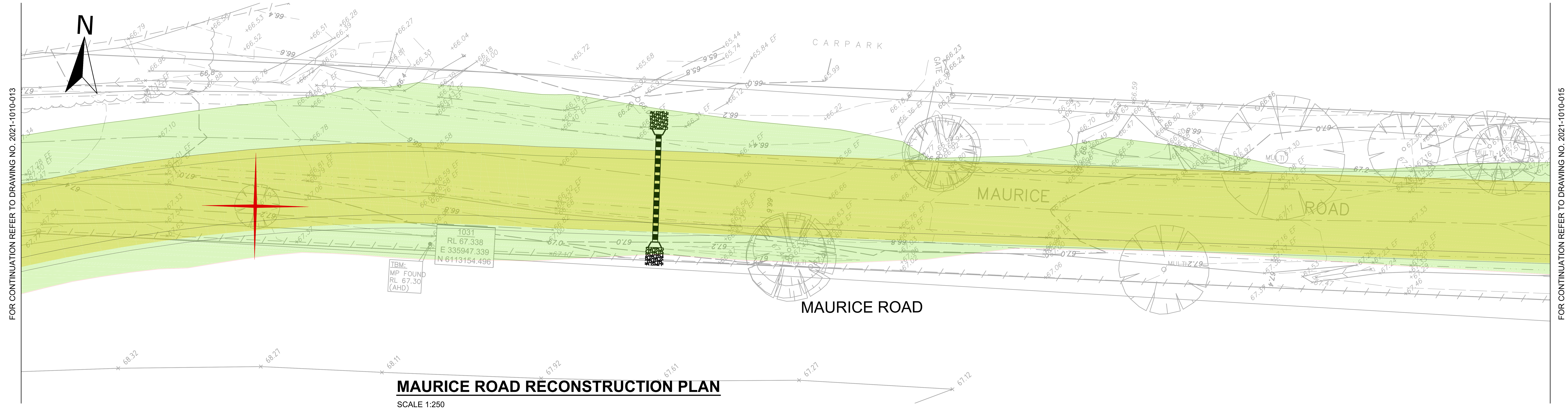
The Rural City of MURRAY BRIDGE

Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION

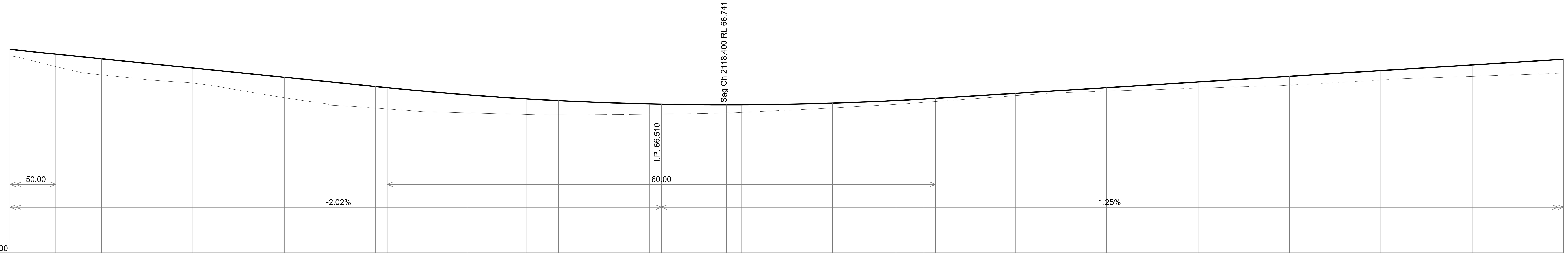
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1	AS SHOWN
PROJECT NUMBER	PR-
DATE COMMENCED	17-MARCH-2021
DRAWING NUMBER	2021-1010-013
REV	A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



CHAINAGE	EXISTING SURFACE	DESIGN SURFACE	CUT/FILL
2040.000	67.82	67.958	0.140
2045.000	67.58	67.851	0.273
2050.000	67.40	67.750	0.352
2060.000	67.22	67.547	0.327
2070.000	66.90	67.345	0.448
2080.000	66.67	67.143	0.473
2081.264	66.65	67.117	0.466
2090.000	66.57	66.961	0.395
2096.455	66.53	66.872	0.341
2100.000	66.52	66.834	0.315
2110.000	66.54	66.761	0.225
2111.264	66.54	66.755	0.215
2118.400	66.56	66.741	0.180
2120.000	66.58	66.742	0.166
2130.000	66.67	66.778	0.105
2136.946	66.75	66.835	0.085
2140.000	66.80	66.868	0.073
2141.264	66.81	66.884	0.070
2150.000	66.94	66.993	0.052
2160.000	67.04	67.117	0.077
2170.000	67.11	67.242	0.136
2180.000	67.17	67.366	0.193
2190.000	67.29	67.491	0.206
2200.000	67.37	67.615	0.250
2210.000	67.44	67.740	0.304

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

NOTES:

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HORIZ 1:250 0 10 15 20 25
VERT 1:50 0 5

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DESIGN VERIFICATION			

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A1

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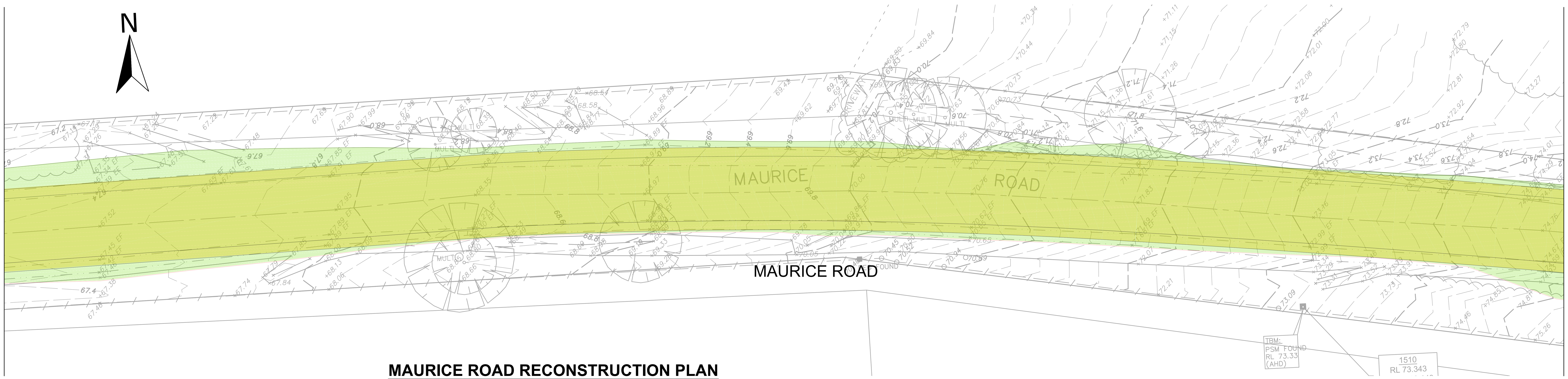
		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD
RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-014
REV: A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250

NOTES:

1. ALL CONSTRUCTION WORK TO BE IN ACCORDANCE WITH RCMB STANDARD SPECIFICATION (AUGUST 2020 V1.6)
2. ALL UTILITY SERVICE INSPECTION COVERS SHALL BE ADJUSTED AS REQUIRED
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4. LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM
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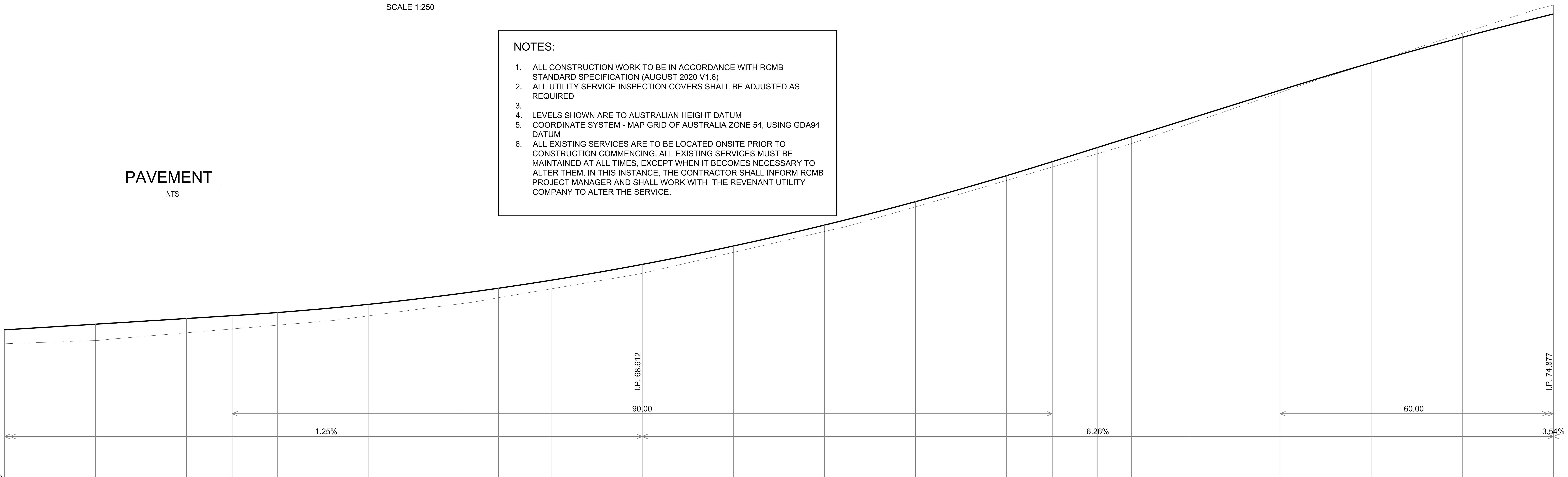
PAVEMENT

NTS



CUT/FILL	0.304	0.358	0.313	0.292	0.278	0.253	0.226	0.208	0.189	0.196	0.140
DESIGN SURFACE	67.740	67.864	67.989	68.051	68.121	68.301	68.537	68.654	68.829	69.177	69.580
EXISTING SURFACE	67.44	67.51	67.68	67.76	67.84	68.05	68.31	68.45	68.64	68.98	69.44
CHAINAGE	2210.000	2220.000	2230.000	2235.000	2240.000	2250.000	2260.000	2264.241	2270.000	2280.000	2290.000

CUT/FILL	0.140	0.114	0.105	0.117	0.136	0.149	0.111	0.049	0.000	-0.090	-0.195
DESIGN SURFACE	70.039	70.554	71.125	71.431	71.744	71.975	72.371	72.997	73.601	74.159	74.672
EXISTING SURFACE	69.90	70.44	71.02	71.31	71.61	71.83	72.26	72.95	73.60	74.25	74.87
CHAINAGE	2300.000	2310.000	2320.000	2325.000	2330.000	2333.678	2340.000	2350.000	2360.000	2370.000	2380.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

LEGEND

SCALE
HORIZ 1:250 0 10 15 20 25
VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

DISTRIBUTION	NAME	SIGNATURE	DATE
DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

THIS DRAWING HAS NOT BEEN CHECKED/VERIFIED AND MUST NOT BE RELIED UPON. - PLOT DATE Jun 24, 2021 - 2:06pm

CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.
A	18.3.21	ISSUED FOR COMMENT				

A1

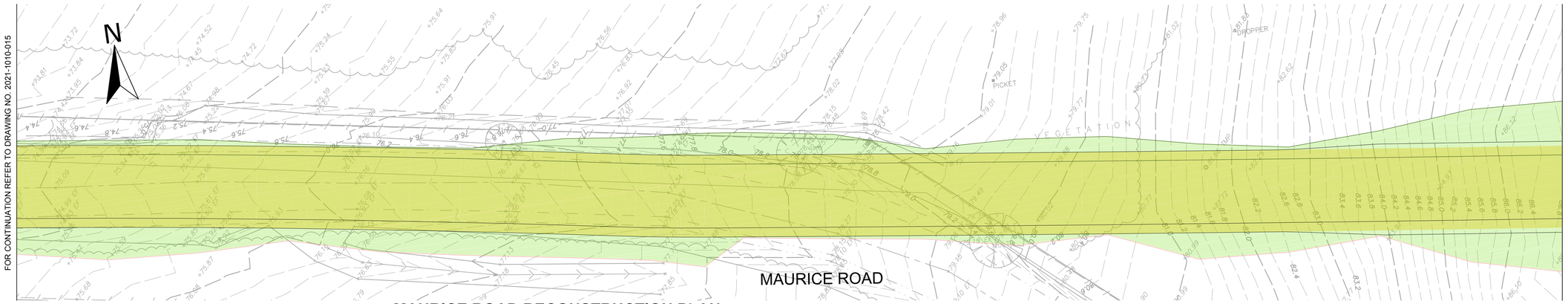
FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\D\C\dwg\Rev_A\Maurice_D_2021-1003.dwg

		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD
RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-015
REV: A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250

LEGEND

NOTES:

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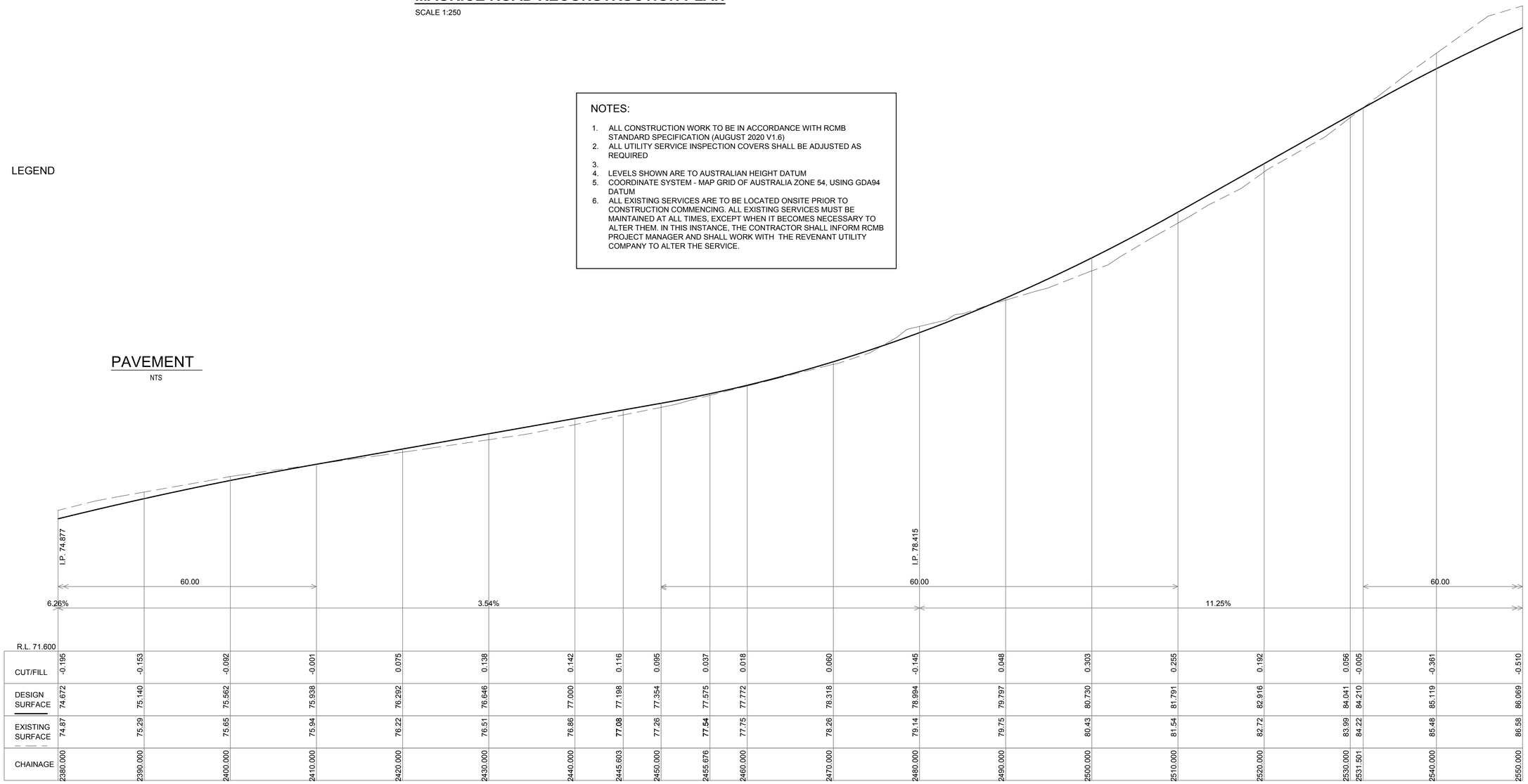

R.L. 71.600																								
CUT/FILL	-0.195	-0.153	-0.092	-0.001	0.075	0.138	0.142	0.116	0.095	0.037	0.018	0.060	-0.145	0.048	0.303	0.255	0.192	0.056	-0.005	-0.361	-0.510			
DESIGN SURFACE	74.672	75.140	75.562	75.938	76.292	76.646	77.000	77.198	77.354	77.575	77.772	78.318	78.994	79.797	80.730	81.791	82.916	84.041	84.210	85.119	86.069			
EXISTING SURFACE	74.87	75.29	75.65	75.94	76.22	76.51	76.86	77.08	77.26	77.54	77.75	78.26	79.14	79.75	80.43	81.54	82.72	83.99	84.22	85.48	86.58			
CHAINAGE	2380.000	2390.000	2400.000	2410.000	2420.000	2430.000	2440.000	2445.603	2450.000	2455.676	2460.000	2470.000	2480.000	2490.000	2500.000	2510.000	2520.000	2530.000	2531.501	2540.000	2550.000			

_MAURICE ROAD MC-01 Ch 2380.000 to Ch 2550.000
SCALES: HORIZONTAL 1:250 VERTICAL 1:50

HORIZ 1:250 0 10 15 20 25
SCALE
VERT 1:50 0 5

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

CHECK PRINT - INCOMPLETE REVISION

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DESIGN VERIFICATION			

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FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\DrCr\dwg\Rev_A\Maurice_D_2021-1003.dwg

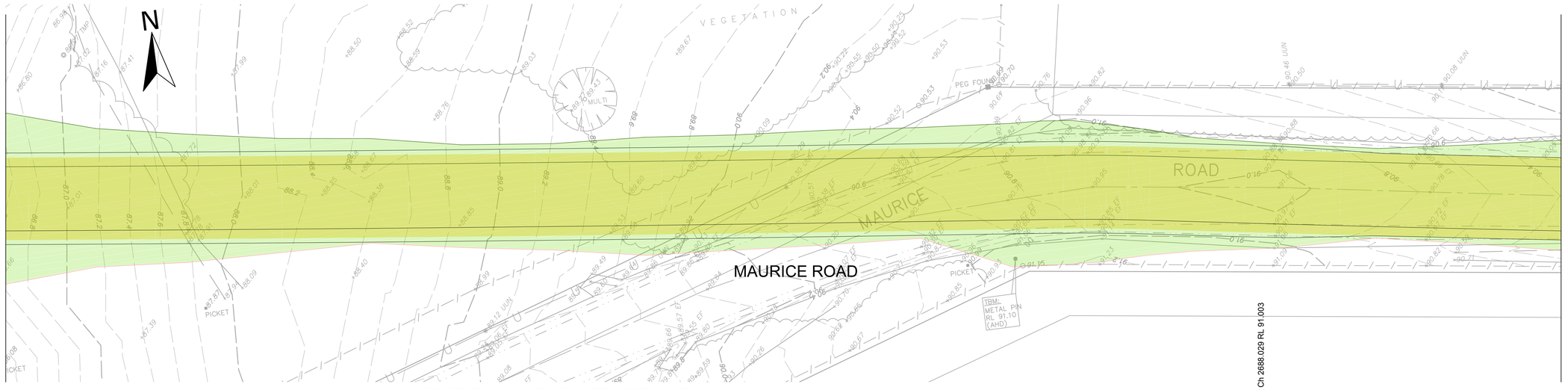
		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1	AS SHOWN
PROJECT NUMBER	PR-
DATE COMMENCED	17-MARCH-2021
DRAWING NUMBER	2021-1010-016
REV	A

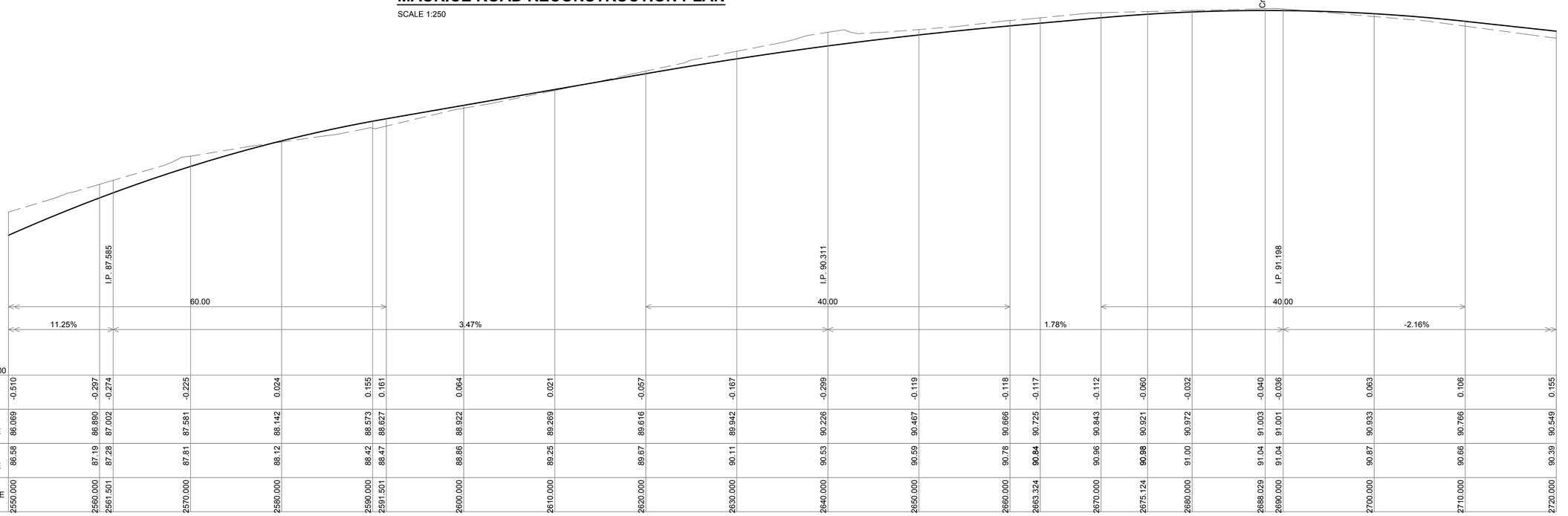
FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-016



FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-018

MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



R.L. 83.000

CUT/FILL	-0.510	-0.297	-0.274	-0.225	0.024	0.155	0.161	0.064	0.021	-0.057	-0.167	-0.299	-0.119	-0.118	-0.117	-0.112	-0.060	-0.032	-0.040	-0.036	0.063	0.106	0.155
DESIGN SURFACE	86.069	86.890	87.002	87.581	88.142	88.573	88.627	88.922	89.269	89.616	89.942	90.226	90.467	90.666	90.725	90.843	90.921	90.972	91.003	91.001	90.933	90.766	90.549
EXISTING SURFACE	86.58	87.19	87.28	87.81	88.12	88.42	88.47	88.86	89.25	89.67	90.11	90.53	90.59	90.78	**90.84**	90.96	**90.98**	91.00	91.04	91.04	90.87	90.66	90.39
CHAINAGE	2550.000	2560.000	2561.501	2570.000	2580.000	2590.000	2591.501	2600.000	2610.000	2620.000	2630.000	2640.000	2650.000	2660.000	2663.324	2670.000	2675.124	2680.000	2688.029	2690.000	2700.000	2710.000	2720.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

NOTES:

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PAVEMENT

NTS

LEGEND

HORIZ 1:250 0 10 15 20 25

SCALE

VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION			
DISTRIBUTION	NAME	SIGNATURE	DATE
DRAFTING	A.CATANZARITI		
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DESIGN VERIFICATION			
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								MANAGER	MJ
								DESIGN	AC
								DRAWN	AC
A	18.3.21	ISSUED FOR COMMENT						CHECKED	
CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.		SIGNATURES	DATE

A1

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road reconD\Civil\dwg\Rev_A\Maurice_D_2021-1003.dwg

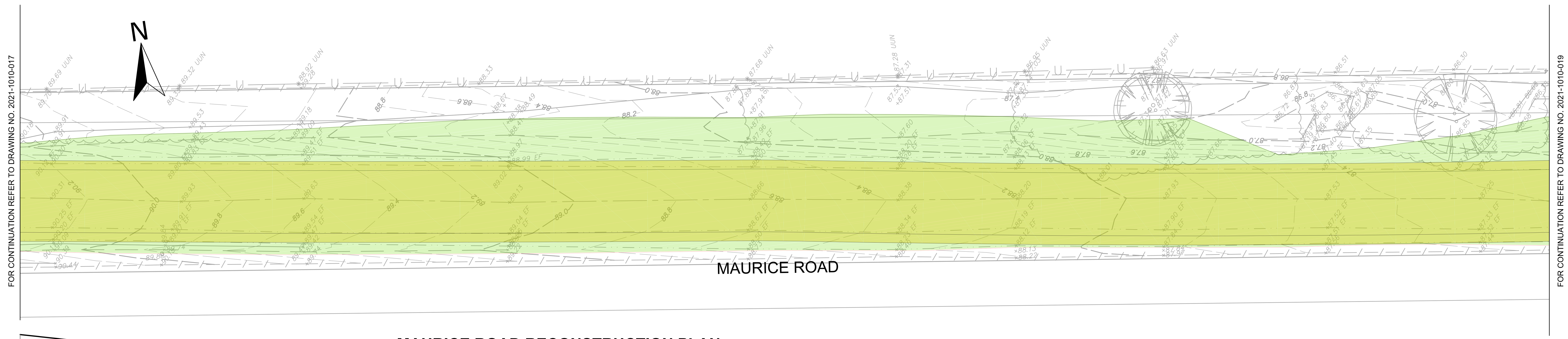
The Rural City of MURRAY BRIDGE

Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION

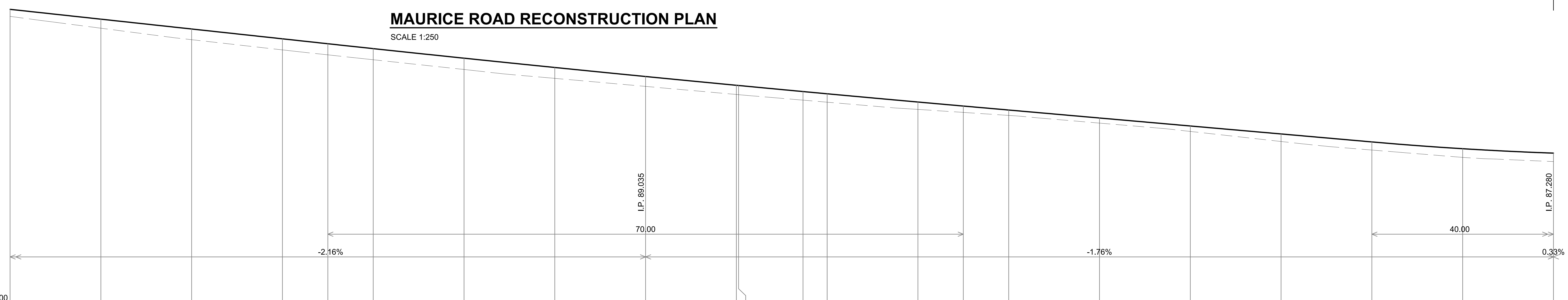
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1	AS SHOWN
PROJECT NUMBER	PR-
DATE COMMENCED	17-MARCH-2021
DRAWING NUMBER	2021-1010-017
REV	A



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



CUT/FILL	0.155	0.199	0.236	0.244	0.245	0.245	0.248	0.240	0.218	0.202	0.202
DESIGN SURFACE	90.549	90.333	90.117	89.900	89.792	89.685	89.474	89.270	89.071	88.878	88.873
EXISTING SURFACE	90.39	90.13	89.88	89.66	89.55	89.44	89.23	89.03	88.85	88.68	88.67
CHAINAGE	2720.000	2730.000	2740.000	2750.000	2755.000	2760.000	2770.000	2780.000	2790.000	2800.000	2800.245

CUT/FILL	0.189	0.185	0.162	0.140	0.118	0.113	0.120	0.165	0.179	0.191	0.186
DESIGN SURFACE	88.740	88.691	88.509	88.421	88.333	88.158	87.982	87.807	87.631	87.482	87.384
EXISTING SURFACE	88.55	88.51	88.35	88.28	88.21	88.05	87.86	87.64	87.45	87.29	87.20
CHAINAGE	2807.341	2810.000	2820.000	2825.000	2830.000	2840.000	2850.000	2860.000	2870.000	2880.000	2890.000

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

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LEGEND

PAVEMENT

NTS

SCALE
HORIZ 1:250 0 10 15 20 25
VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

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A1

CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.
A	18.3.21	ISSUED FOR COMMENT				

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\D\C\dwg\Rev_A\Maurice_D_2021-1003.dwg

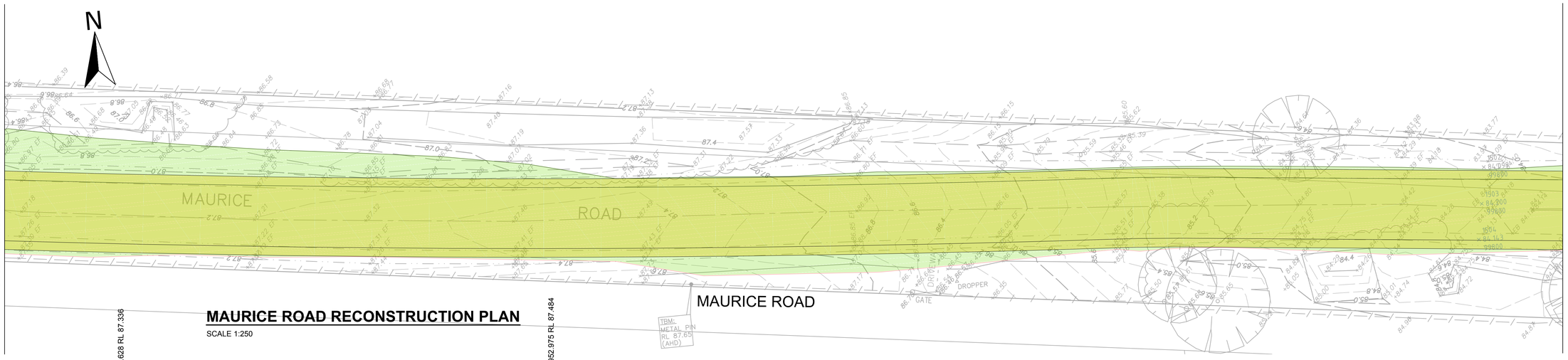
		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD
RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

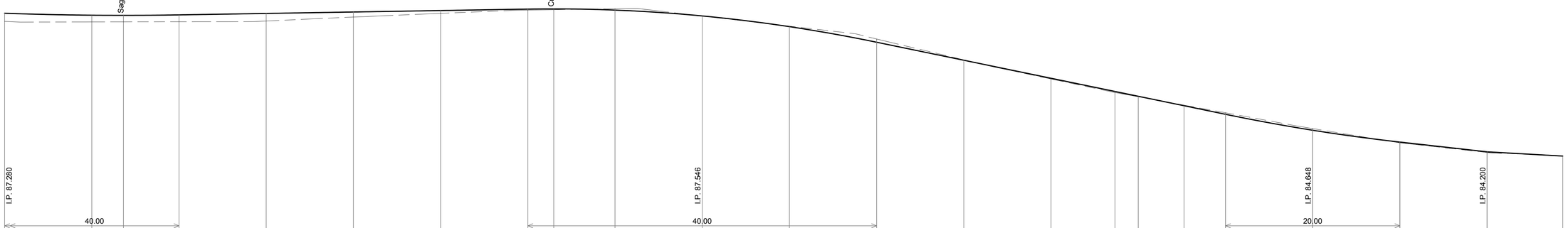
SCALE AT A1: AS SHOWN
PROJECT NUMBER: PR-
DATE COMMENCED: 17-MARCH-2021
DRAWING NUMBER: 2021-1010-018
REV: A

FOR CONTINUATION REFER TO DRAWING NO. 2021-1010-018



MAURICE ROAD RECONSTRUCTION PLAN

SCALE 1:250



CHAINAGE	2890.000	2900.000	2903.628	2910.000	2920.000	2930.000	2940.000	2950.000	2952.975	2960.000	2970.000	2980.000	2990.000	3000.000	3010.000	3017.338	3020.000	3025.262	3030.000	3030.008	3040.000	3040.008	3050.000	3050.008	3060.000	3060.008	3068.686
EXISTING SURFACE	87.20	87.19	87.19	87.19	87.21	87.30	87.38	87.46	87.47	87.49	87.32	87.09	86.79	86.31	85.87	**85.56**	85.47	**85.27**	85.10	85.10	84.73	84.73	84.41	84.41	84.18	84.18	**84.10**
DESIGN SURFACE	87.384	87.339	87.336	87.347	87.380	87.413	87.446	87.480	87.484	87.457	87.322	87.076	86.718	86.304	85.890	85.587	85.477	85.259	85.063	85.062	84.696	84.696	84.424	84.424	84.200	84.200	84.102
CUT/FILL	0.186	0.154	0.149	0.158	0.174	0.115	0.064	0.025	0.019	-0.032	0.002	-0.011	-0.074	-0.010	0.017	0.025	0.011	-0.014	-0.034	-0.035	-0.038	-0.037	0.019	0.019	0.016	0.017	0.005

MAURICE ROAD RECONSTRUCTION LONGITUDINAL

SCALE H 1:250 V 1:50

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PAVEMENT

NTS

LEGEND

HORIZ 1:250 0 10 15 20 25

SCALE

VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

DISTRIBUTION	NAME	SIGNATURE	DATE
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FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\DVC\dwg\Rev_A\Maurice_D_2021-1003.dwg

		SIGNATURES	DATE
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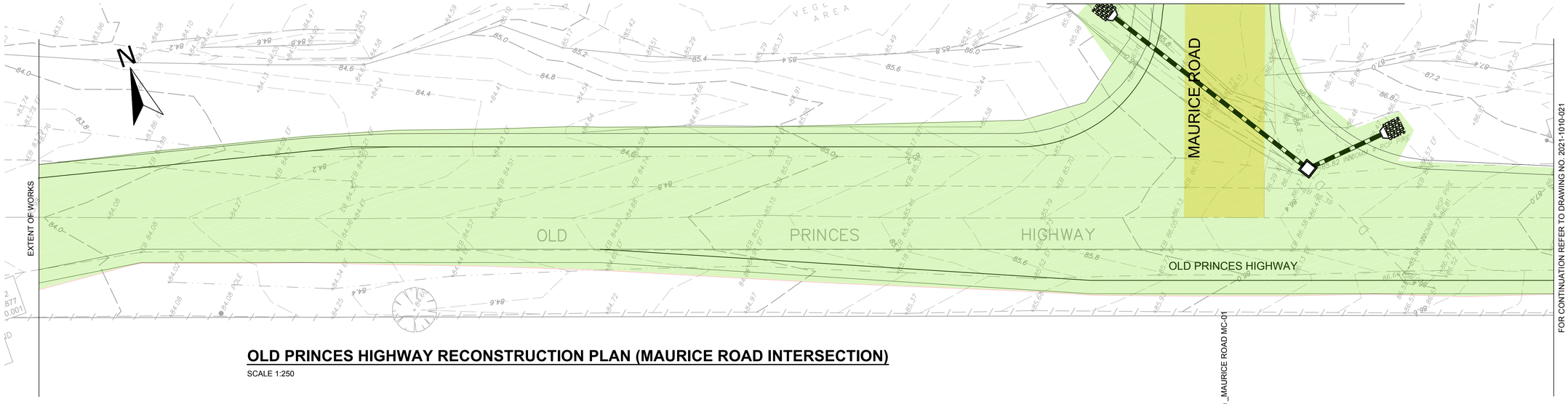
The Rural City of MURRAY BRIDGE
Bridge to Opportunity

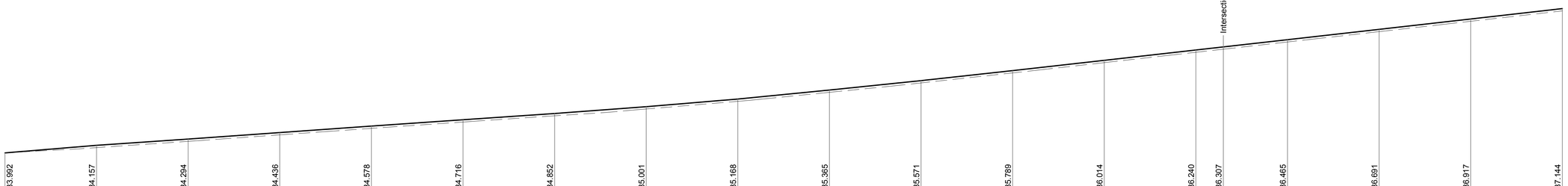
MAURICE ROAD RECONSTRUCTION
GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1	AS SHOWN
PROJECT NUMBER	PR-
DATE COMMENCED	17-MARCH-2021
DRAWING NUMBER	2021-1010-019
REV	A



OLD PRINCES HIGHWAY RECONSTRUCTION PLAN (MAURICE ROAD INTERSECTION)

SCALE 1:250



R.L. 80.900	I.P. 83.992	I.P. 84.157	I.P. 84.294	I.P. 84.436	I.P. 84.578	I.P. 84.716	I.P. 84.852	I.P. 85.001	I.P. 85.168	I.P. 85.365	I.P. 85.571	I.P. 85.789	I.P. 86.014	I.P. 86.240	I.P. 86.307	I.P. 86.465	I.P. 86.691	I.P. 86.917	I.P. 87.144			
	1.65%		1.37%		1.42%		1.42%		1.38%		1.36%		1.49%		1.67%		1.96%		2.06%		2.19%	
	2.24%		2.26%		2.25%		2.25%		2.26%		2.26%		2.27%		2.51%							
CUT/FILL	-0.001	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050			
DESIGN SURFACE	83.992	84.157	84.294	84.436	84.578	84.716	84.852	85.001	85.168	85.365	85.571	85.789	86.014	86.240	86.307	86.465	86.691	86.917	87.144			
EXISTING SURFACE	83.99	84.11	84.24	84.39	84.53	84.67	84.80	84.95	85.12	85.31	85.52	85.74	85.96	86.19	86.26	86.41	86.64	86.87	87.09			
CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	133.002	140.000	150.000	160.000	170.000			

OLD PRINCES HIGHWAY RECONSTRUCTION LONGITUDINAL (MAURICE ROAD INTERSECTION)

SCALE H 1:250 V 1:50

NOTES:

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PAVEMENT

NTS

LEGEND

HORIZ 1:250 0 10 15 20 25

SCALE

VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

DISTRIBUTION	NAME	SIGNATURE	DATE
DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

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		SIGNATURES	DATE
MANAGER	MJ		
DESIGN	AC		
DRAWN	AC		
CHECKED			

The Royal City of MURRAY BRIDGE Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION

GENERAL ARRANGEMENT AND LONGITUDINAL

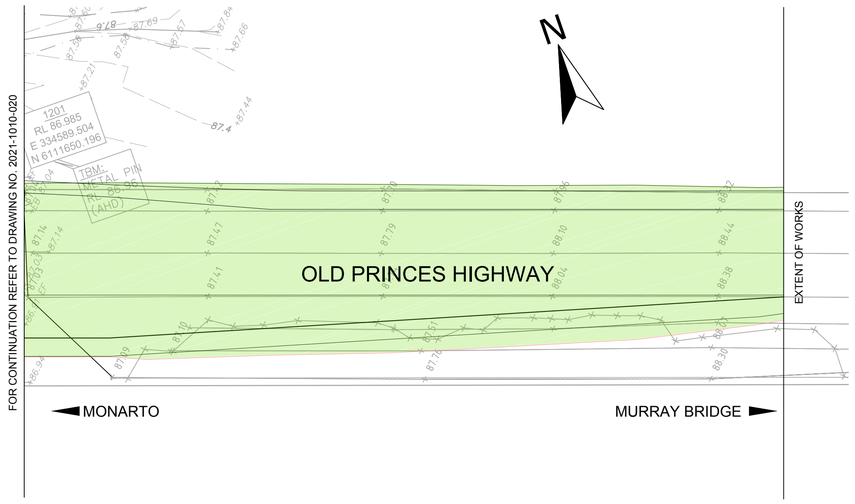
SCALE AT A1: AS SHOWN

PROJECT NUMBER: PR-

DATE COMMENCED: 17-MARCH-2021

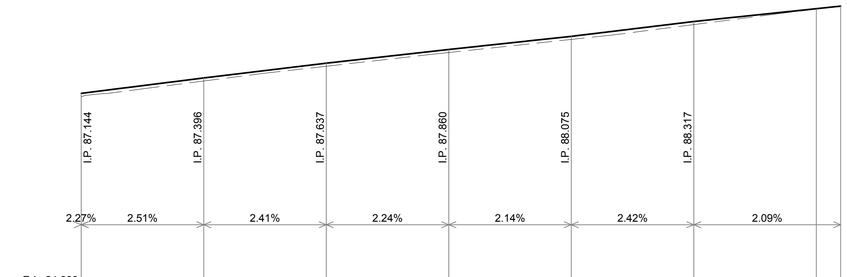
DRAWING NUMBER: 2021-1010-020

REV: A



OLD PRINCES HIGHWAY RECONSTRUCTION PLAN (MAURICE ROAD INTERSECTION)

SCALE 1:250



R.L. 84.000								
CUT/FILL	0.050	0.050	0.050	0.050	0.050	0.050	0.006	-0.001
DESIGN SURFACE	87.144	87.396	87.637	87.860	88.075	88.317	88.526	88.568
EXISTING SURFACE	87.09	87.35	87.59	87.81	88.02	88.27	88.52	**88.57**
CHAINAGE	170.000	180.000	190.000	200.000	210.000	220.000	230.000	231.984

OLD PRINCES HIGHWAY RECONSTRUCTION LONGITUDINAL (MAURICE ROAD INTERSECTION)

SCALE H 1:250 V 1:50

NOTES:

1. ALL CONSTRUCTION WORK TO BE IN ACCORDANCE WITH RCMB STANDARD SPECIFICATION (AUGUST 2020 V1.6)
2. ALL UTILITY SERVICE INSPECTION COVERS SHALL BE ADJUSTED AS REQUIRED
3.
4. LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM
5. COORDINATE SYSTEM - MAP GRID OF AUSTRALIA ZONE 54, USING GDA94 DATUM
6. ALL EXISTING SERVICES ARE TO BE LOCATED ONSITE PRIOR TO CONSTRUCTION COMMENCING. ALL EXISTING SERVICES MUST BE MAINTAINED AT ALL TIMES, EXCEPT WHEN IT BECOMES NECESSARY TO ALTER THEM. IN THIS INSTANCE, THE CONTRACTOR SHALL INFORM RCMB PROJECT MANAGER AND SHALL WORK WITH THE REVENANT UTILITY COMPANY TO ALTER THE SERVICE.

PAVEMENT

NTS

LEGEND

HORIZ 1:250 0 10 15 20 25

SCALE

VERT 1:50 0 5

CHECK PRINT - INCOMPLETE REVISION

DISTRIBUTION	NAME	SIGNATURE	DATE
DRAFTING	A.CATANZARITI		
DESIGN			
DESIGN VERIFICATION			

THIS DRAWING HAS NOT BEEN CHECKED/VERIFIED AND MUST NOT BE RELIED UPON. - PLOT DATE Jun 24, 2021 - 2:07pm

CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.
A	18.3.21	ISSUED FOR COMMENT				

A1

FILE NAME T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\DrC\dwg\Rev_A\Maurice_D_2021-1003.dwg

MANAGER	MJ	
DESIGN	AC	
DRAWN	AC	
CHECKED		
SIGNATURES		DATE

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD RECONSTRUCTION

GENERAL ARRANGEMENT AND LONGITUDINAL

SCALE AT A1: AS SHOWN

PROJECT NUMBER: PR-

DATE COMMENCED: 17-MARCH-2021

DRAWING NUMBER: 2021-1010-021

REV: A

Appendix 3: EPBC Variations 2021

Letter to Dept of Agriculture, Water and Environment

The Rural City of MURRAY BRIDGE
Bridge to Opportunity

Local Government Centre
2 Seventh Street (PO Box 421)
Murray Bridge SA 5253

T 08 8539 1100
F 08 8532 2766

council@murraybridge.sa.gov.au
www.murraybridge.sa.gov.au

ABN 90 501 266 817

In response please quote; [redacted]

20 August 2021

[redacted]
Assessment Officer | SA & NT Section |
Department of Agriculture, Water and the Environment
Environment Assessments West (WA, SA, NT) Branch

Dear [redacted]

Re: EPBC 2010 5713 - Variations 2021

As per regulation 5.08:

I write in reference to the proposed upgrade to Maurice Road within the Rural City of Murray Bridge Council area.

Council chose to redesign the road in-house to reduce the impacts on native vegetation. In house design is proposed to be 8 – 9m along all sections of road that are existing roadways. New sections or road going through bought private lands and roadside shoulders will be as designed within the road design plans. The varying impact on the vegetation is more to do with the alignment changes (improvements) to curve safety and stormwater.

Details of the variation between the 2010 design and current 2021 design are outlined below;

A1- E1 represent segments of clearance in hectares from TS Environmental Data Report

1 – 6 represent segments of clearance in hectares from Rural Solutions Vegetation Data Report

Rural Solutions 2010	TS Environmental 2021
4,5,6 = 0.07	A1 = 0.14
2,3 = 0.03	B1 = 0.094
1 = 0.02	C1 = 0.025
Not included in the 2010 proposal, it is new	D1 & E1 = 0.095
0.12ha	0.354ha

A1 - increases significantly due to risk aversion of clearance required. (Council does not have to return to the NVC for extra clearance if required). Clearance at this site will be lower than 0.14ha as we are overestimating the level of clearance required. The clearance of vegetation batter is estimated at 1:6 both sides of the road (1 = 1m high and 6 = 6m wide). Where there is rock, the batter will be 1:1(1m high by 1m wide), and where there is loam the batters will vary from 1:2 to 1:6 depending on steepness and soil types. Due to the steepness of this section, an extra 1m width is included for stormwater runoff.

B1 - is increasing significantly due to risk with the direction of the curve altering; the new design reduces the sharpness of the curve from 2010, reducing risk of the sharper bend.

C1 - is similar to the previous level of clearance

D1 & E1 - additional areas of clearance are at the Old Princes Highway/ Maurice Road 'T' Junction and where the proposed road cuts through the roadside vegetation on Maurice Road. The existing intersection is a 'Y' Junction creating visibility issues when entering the busy Old Princes Highway. Moving the intersection 240m to the east has increased the safety of the site by giving more visibility to the west reducing the risk of a rear end collision with slower moving vehicles using the intersection on the 100km/hr Old Princes Highway.

The new design creates little difference in impacts on matters of national environmental significance compared with impacts of the original proposal. Dust on the Monarto Mint-bush will be remediated during road construction and prevented after sealing. Visibility of Mallee fowl will be better in stages A1 to E1.

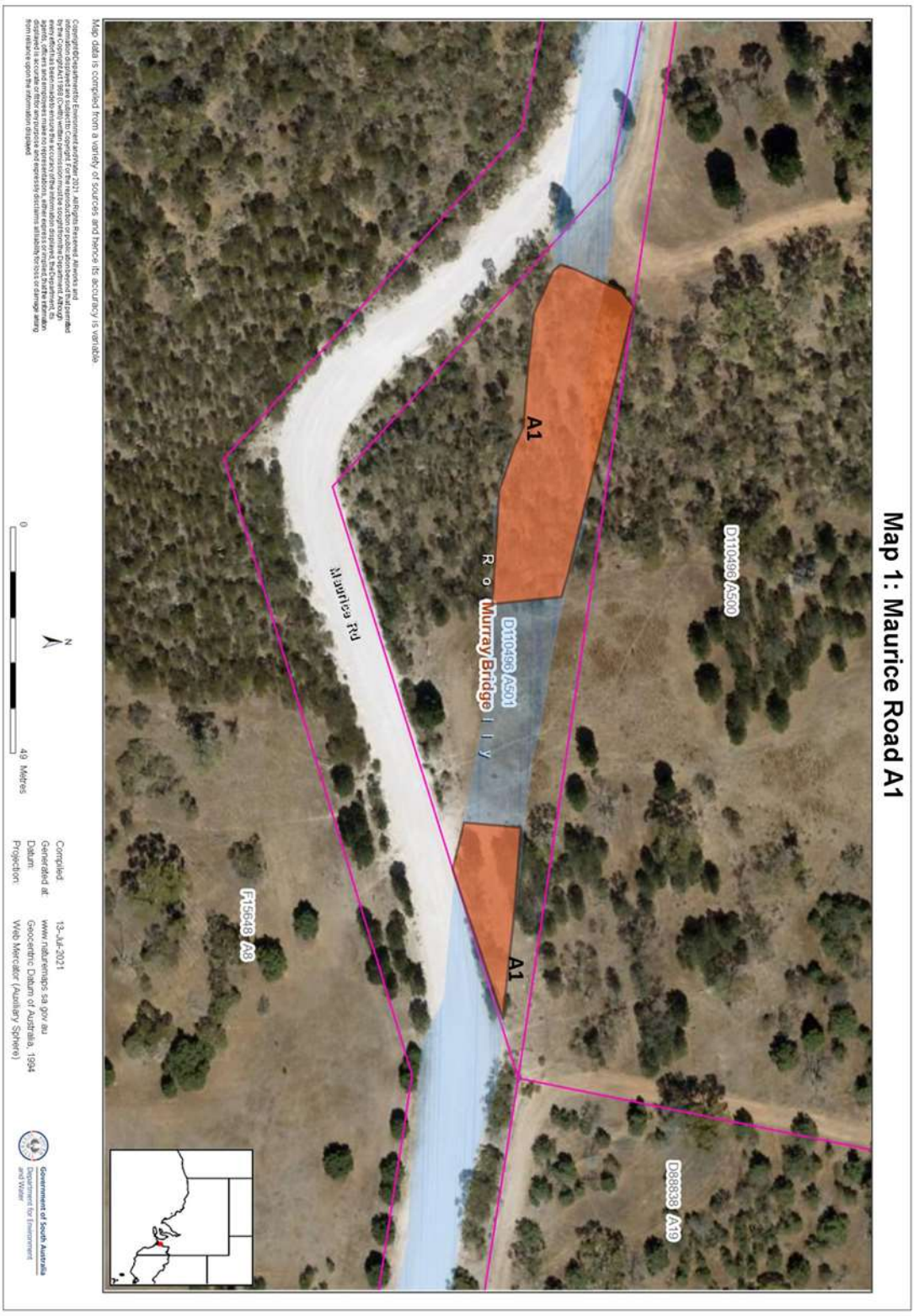
The Rural City of Murray Bridge will compensate the Native Vegetation Council through SEB's and plans to plant 2,000 seedlings and 1.1km of direct seeding within the old road reserves and excess open paddocks bought as part of the road design.

In the meanwhile, should you wish to discuss this matter, please do not hesitate to contact [redacted] directly [redacted]

Sincerely,

[redacted]
Manager City Infrastructure

Map 1– Proposed clearance area

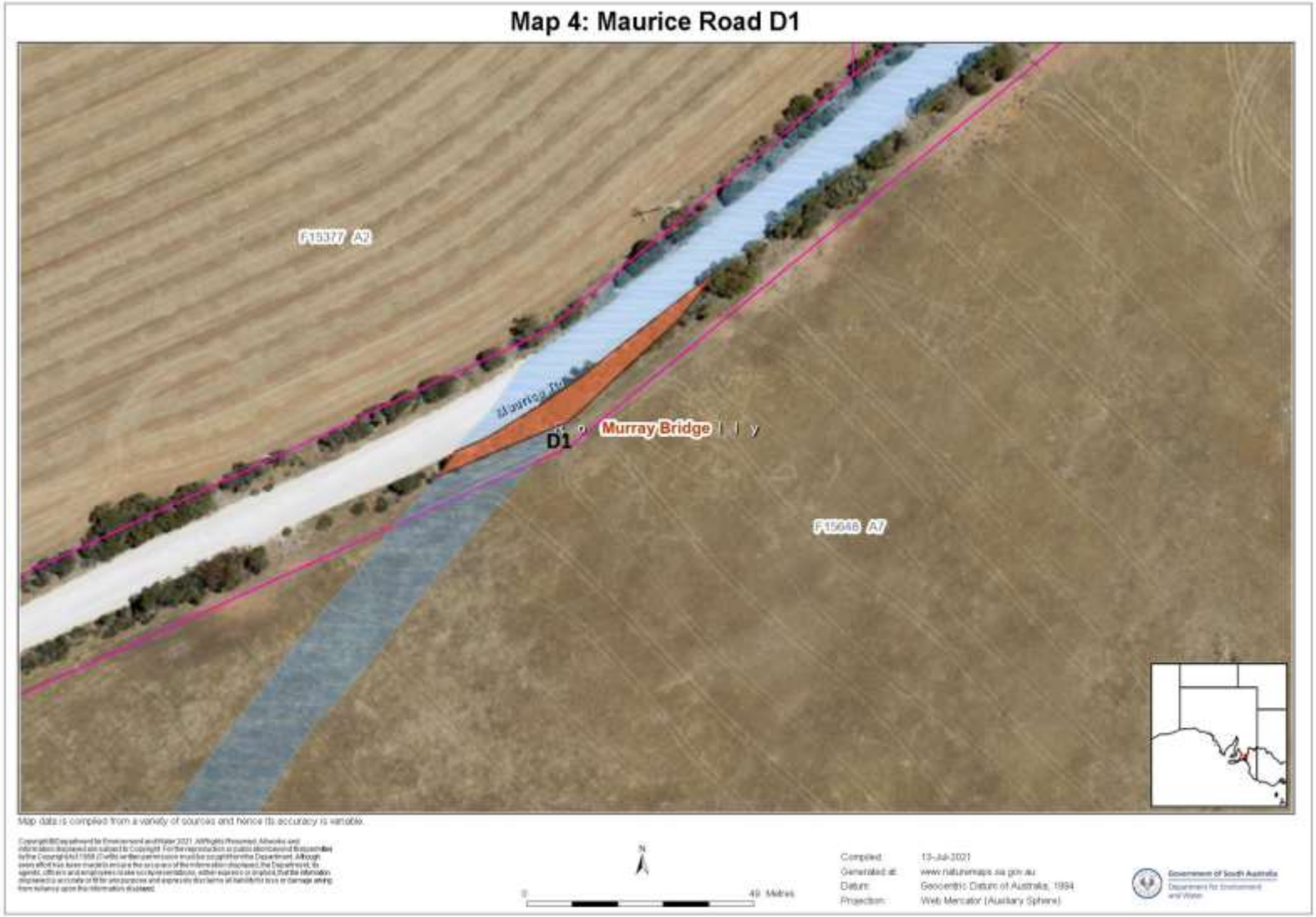


Map 2 – Proposed clearance area

Map 3 – Proposed clearance area

Map 3: Maurice Road C1

Map 4– Proposed clearance area



Map 5 – Proposed clearance area

Map 5: Maurice Road E1

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

N

0 49 Metres

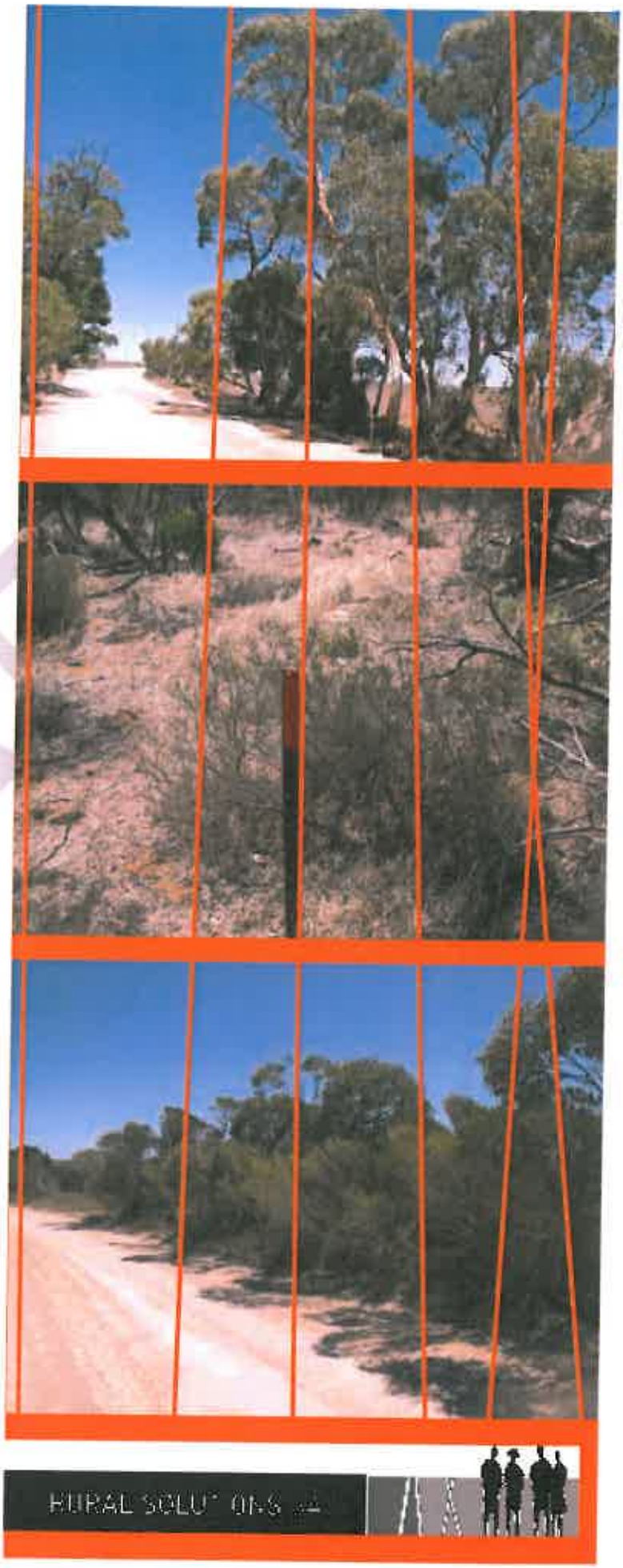
Compiled: 13-Jul-2021
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 1994
Projection: Web Mercator (Auxiliary Sphere)

Government of South Australia
Department for Environment and Water

Rural City of Murray Bridge

Maurice Road
Vegetation Data Report

(Native Vegetation Act SA 1991)



INSPECTING / REPORTING OFFICER:

Jeff Edwards
Rural Solutions SA
GPO Box 1671
Adelaide SA 5001
Ph: 0427883415

INSPECTION DATE:

Thursday 25th February 2010

Version 1: Thursday, 18 March 2010

Disclaimer

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1 PROJECT SUMMARY

1.1 PROJECT STATEMENT

The Rural City of Murray Bridge (RCMB) propose to straighten a short section of Maurice Road, Murray Bridge in order to increase safe passage of all vehicles types by modifying two sharp bends in the current road layout.

The road re-alignment proposes to remove 0.12 hectares of native vegetation and three scattered trees. Refer attached advisory plan *1 of 5* for more detail.

1.2 EXAMPLE OF VEGETATION UNDER APPLICATION

Photo 1
Roadside vegetation under proposal to be cleared. Mallee (*Eucalyptus socialis*, Red Mallee over *Rhagodia crassifolia* (Fleshy Saltbush).

Photo 2
Scattered tree.

Example, *Eucalyptus leucoxylon* (SA Blue Gum) situated along the roadside.

1.3 REGULATION 5 (1) (D)

Following discussion with the Native Vegetation Group[1] the realignment of a small section of Maurice Road will require native vegetation clearance consent under the Native Vegetation Act 1991, regulation 5 1 (d) *Building or provision of infrastructure, including infrastructure in the Public Interest.* Refer attachment 1.

This regulation permits clearance of vegetation considered to be in the public interest, or provision of infrastructure or services to an existing or approved building or site that may not be located in native vegetation. Relevant authorisation must also be obtained as required by the Development Act 1993.

Approval for vegetation clearance for such developments is conditional on the achievement of a significant environmental benefit (SEB) elsewhere on the property or region to compensate for the vegetation to be cleared.

[1] Pers. Comm. February 2010: Peter Farmer Biodiversity Officer Native Vegetation Group. DWLBC.

1.4 SEB SUMMARY

Patch	Area of vegetation to be cleared (hectares).	SEB ratio.	Option 1: Vegetation Offset. Hectares	Option 2: $ Payment into NVC fund.
Patch 1:	0.02	6:1	0.12	$ 1336.80
Patch 2:	0.01	6:1	0.06	
Patch 3	0.02	4:1	0.08	
Patch 4:	0.02	8:1	0.16	
Patch 5:	0.04	8:1	0.32	
Patch 6:	0.01	6:1	0.06	
		Tree Score		
Tree 1:		38.2	1.12	$ 2784.78
Tree 2:		52.7		
Tree 3:		24.0		
TOTALS			**1.92 hectares**	**$ 4121.58**

The required offset to compensate for clearance associated with the Maurice Road realignment is 1.92 hectares. The Rural City of Murray Bridge propose and would prefer to provide an area for vegetation off-set (option 1) by permanently setting aside an area permanently protected for native vegetation (1.58ha as detailed on *advisory plan 4 of 5).*

The proposed set-aside area is slightly less than that required under regulation. To accommodate for this shortfall the Rural City of Murray Bridge in combination with the local community, will commit to;

- funding the upgrade of the fence along the realigned roadside, and
- assisting in the establishment and 12 month maintenance of 50 *Prostanthera eurybioides* (Monarto Mintbush) seedlings placed into the nearby reserve area, appropriately guarded and regularly watered during dry conditions to aid establishment.

Payment Option is included as advisory only.

1.5 ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

It was noted that a population of *Prostanthera eurybioides* (Monarto Mintbush) is located in the close proximity of the road realignment (individual plants observed adjacent to vegetation patch 4 and 5 under application – *refer attached Advisory plans 3 of 5 and 5 of 5*).

Monarto Mintbush is a nationally *Endangered* species under the Commonwealths EPBC Act 1999 due to only two known isolated populations in the state of South Australia. No live Monarto Mintbush specimens were recorded by the inspecting consultant within the propose clearance zone associated with the road realignment.

However it is recommended that a referral of the proposed development be sent to the Commonwealth under the EPBC Act to ensure the threat to the existing population is

managed appropriately and any likely impact is minimised as a result of the road realignment and ongoing site management.

2 PROJECT LOCATION

The project site is located approximately 6 km northwest of the Rural City of Murray Bridge, South Australia. Hundred of Mobilong.

The Road reserve is adjacent to land parcels:

- Lot 9 CT Vol 5714 Fol 490
- Sec 530 CT Vol 5322 Fol 455
- Sec 529 CT Vol 5824Fol 624

Figure 1 – Location of project site.

3 ADVISORY PLANS

A total of five Advisory Plans are included in this report.

Advisory Plan 1	Represents an overview of the clearance areas (patches of vegetation and scattered trees) under regulation 5 1(d) *Building or provision of infrastructure, including infrastructure in the Public Interest.*
Advisory Plan 2	A close up of scattered trees 1 and 2.
Advisory Plan 3	A close up of scattered tree 3, and vegetation patches 1-6 proposed for clearance.
Advisory Plan 4	Proposed on-site SEB option (revegetation and natural regeneration areas).
Advisory Plan 5	Proximity of Monarto Mintbush to proposed re-alignment. (historical data)

3.1 MAP 1 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
1 of 5

TO FORM PART OF THE ADVICE TO THE
NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG
Lot 9 CT Vol 5714 Fol 490
Sec 530 CT Vol 5322 Fol 455
Sec 529 CT Vol 5824 Fol 624

- Scattered Tree Removal
- Vegetation Clearance Patches
- Proposed Road Alignment

0 130 260 390 520 650 Metres

Scale: 1:7500

Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.2 MAP 2 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
2 of 5

TO FORM PART OF THE ADVICE TO THE NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Scattered Tree Removal

N

0 10 20 30 40 50 Metres

Scale: 1:500

Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.3 MAP 3 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
3 of 5

TO FORM PART OF THE ADVICE TO THE
NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Lot 9 CT Vol 5714 Fol 490
Sec 530 CT Vol 5322 Fol 455
Sec 529 CT Vol 5824 Fol 624

Scattered Tree Removal
Vegetation Clearance Patches
Proposed Road Alignment

0 90 180 270 360 450 Metres

Scale: 1:6000

Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.4 MAP 4 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
4 of 5

TO FORM PART OF THE ADVICE TO THE NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Lot 9 CT Vol 5714 Fol 490
Sec 530 CT Vol 5322 Fol 455
Sec 529 CT Vol 5824 Fol 624

- Scattered Tree Removal
- Vegetation Clearance Patches
- Proposed Road Alignment
- SEB Proposed Revegetation/Bush Care

0 90 180 270 360 450 Metres

Scale: 1:5000

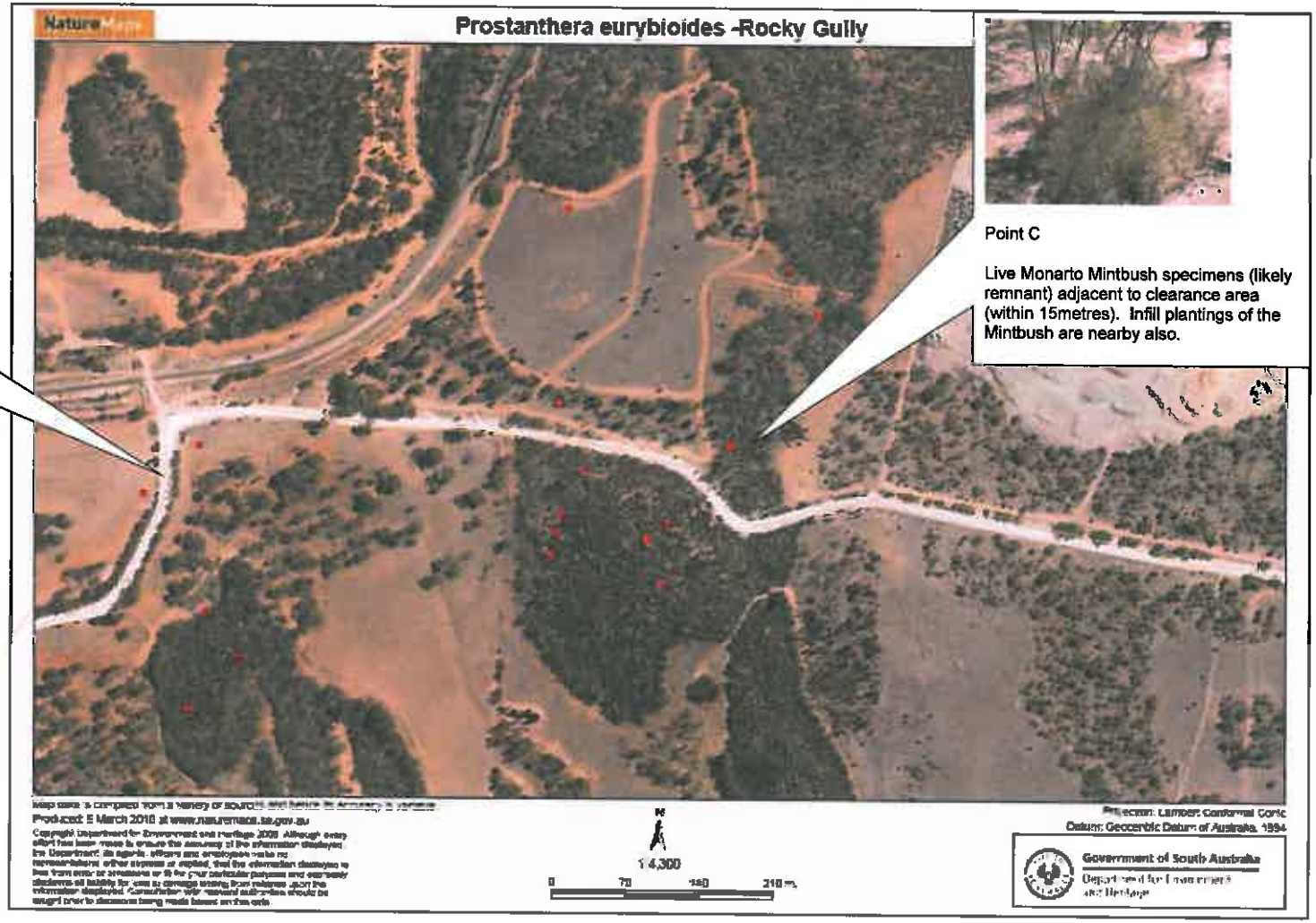
Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.5 MAP 5 OF 5[2]

Point A & B

Both these areas were investigated thoroughly and no live presence of the endangered Monarto Mintbush could be observed in the impact area- despite historical data suggesting otherwise.



[2] Map forwarded to RSSA from the Murray Darling NRM body, via DEH threatened Species Unit March 2010.

4 BACKGROUND INFORMATION

4.1 DISCUSSIONS WITH THE LANDOWNER

As detailed in *Advisory Plan 1 of 5*, the Rural City of Murray Bridge (RCMB) proposes to straighten a short section of Maurice Road, Murray Bridge in order to increase safe passage of all vehicles. Through discussion with Glenn Dean (Parks and Gardens Supervisor, RCMB), it was noted this section of road was becoming notably busier with heavy vehicle traffic as a result of increased industrial activity in the region. In addition many young drivers have come unstuck on the sharp bends, and the local community is concerned for lives.

Following re-alignment RCMB propose to rehabilitate the existing section of road, through a combination of fencing, vermin control, soil ripping and revegetation with local indigenous species. Negotiations with the adjacent landowner are likely to result in a realignment of property boundaries, with some areas merged into existing heritage agreements for permanent conservation.

Maurice Road is an unsealed road, and currently no plans exist to seal the road in the near future. This section of road is currently being re-graded and repaired at the time of inspection.

4.2 ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

4.2.1 Monarto Mintbush

A population of *Prostanthera eurybioides* (Monarto Mintbush) is located in the close proximity of the road realignment (adjacent vegetation patch 4 and 5, with an additional two recordings adjacent vegetation patch 2) – *refer attached Advisory plan 5 of 5*).

Monarto Mintbush is a nationally *Endangered* species under the Commonwealths EPBC Act 1999 due to only two known isolated populations in the state of South Australia.

In accordance with the EPBC Act 1999, any activity that is likely to have a significant impact on the population of remnant Monarto Mintbush will need to be referred to the Commonwealth for consultation.

For more information regarding the management of the Monarto Mintbush refer the Draft Recovery Plan for additional details on impacts and future management opportunity for this species (DEH Threatened Species Unit)[3].

4.2.2 Site Assessment

A complete walk through was conducted during Rural Solutions SA assessment of the area to be cleared in association with the re-alignment of the road.

Refer Advisory plan 5 of 5	
Point A & B	Inspected no live individuals found
Point C	Inspected A combination of planted and a handful of naturally occurring specimens present. The naturally occurring plants were located within 15metres of the impact area.

- No individuals of the Endangered Monarto Mintbush were located during the site inspection within the clearance zone.
- A handful of mature specimens (likely remnant) were located approximately 15 metres from the newly proposed road verge (near clearance patch 4 and 5).
- However please note, previous recordings of this plant as identified at points A and B (as identified on the attached *Advisory plan 5 of 5*) were inspected, but no live individual were observed at these locations (or within the close vicinity).

[3] Pound, L., Obst C. & How T., Environmental and Biodiversity Services, '2009 Recovery Plan for *Prostanthera eurybioides* (Monarto Mintbush)'.

4.2.3 Referral to the Commonwealth (EPBC)

Following consultation with the SA Murray Darling NRM Board, they are very concerned about every known plant as there are so few of this particular species left. Given the close proximity of the clearance site to the endangered remnant population of Monarto Mintbush, it s a recommendation of this report that a referral of the proposed development be sent to the Commonwealth under the EPBC Act. This action will further ensure the threat to the existing population is managed appropriately and any likely impact is minimised as a result of the road realignment and ongoing site management.

Summary of issues (there may be others)

Development Stage	Issues and potential impacts
During Development	Physical disturbance to road side vegetation (i.e. inappropriate stockpiling, parking or grading). [Environmental development guidelines will assist to minimise this risk].
Post Development	There is a risk of an increase in weed distribution as a result of the road verge being brought closer to the remnant population. There is a risk of an increased level of dust that may impact on vegetation (including threatened plants) in the close proximity of a newly aligned road verge. ▪ In the immediate vicinity of the source, dust can stress vegetation through blocking stomata (adversely affecting gas exchange), reducing light availability (reducing photosynthetic ability and limiting plant growth and cumulative effects, e.g. drought stress on already stressed species[4])]. ▪ There is information suggesting dust can impact vegetation up to 20metres from the road verge depending on vegetation type, however local information regarding this matter in mallee environments is not readily available[4]. ▪ Advice from a leading authority on the subject (Dr. David Dooly from the University of Queensland) suggested that plants would be affected adversely only if dust loads were high, which would require a considerable number of large trucks using the road during the dry season[4].

[4] Pers. comm. Dr. David Dooly Centre for Mined Land Rehabilitation, University of Queensland St. Lucia Qld 4072, March 2010

Photo 3: Example of airborne dust generation following the passing of a utility vehicle adjacent to clearance site. Maurice Road, Murray Bridge.

NATIVE VEGETATION UNDER APPLICATION

4.3 VEGETATION PATCHES (1-6)

4.3.1 Patch 1

Photo 4: Patch 1.

Native Species Present
Eucalyptus calycagona (Square Fruited Mallee) + *E. Phenax* (White Mallee), Mallee over *Rhagodia crassifolia* (Fleshy Saltbush), *Maireana brevifolia* (Bluebush), *Dianella revoluta ssp. revoluta* (Black-anther Flax Lily), *Enchylaena tomentosa* (Ruby Saltbush) and *Lomandra effusa* (Scented Iron Grass).

Also refer weed list below.

Area	0.02ha
Disturbances and other comments	Road verge ▪ Dust impact. Damage to understorey vegetation from grading on road verge. Narrow strip of vegetation (exposed to edge effect). Good mulch layer. Farming ▪ Backs onto farming property. Degraded fences. Weeds ▪ *Lycium ferocissimum* (African Boxthorn) *Asparagus asparagoides* (Bridal Creeper), Brassica sp., and introduced grasses. Vermin ▪ Rabbits (observed at time of inspection). Scats and digging also present.
SEB Ratio	6:1 [This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate to severe weed impact. Clearance of this small section of roadside vegetation is not likely to be considered by the NVC to be significantly at variance to the principals, subject to a suitable offset].

4.3.2 Patch 2

Photo 5: Patch 2

Native Species Present
Eucalyptus socialis (Red Mallee) + *E. Phenax* (White Mallee) Mallee, over *Pittosporum angustifolium* (Native Apricot), *Melaleuca lanceolata* (Dry-land Tea Tree), *Enchylaena tomentosa* (Ruby Saltbush), and *Clematis microphyllla (*Old Mans Beard).

Also refer weed list below.

Area	0.01ha
Disturbances and other comments	Road verge ▪ Dust impact. Damage to understorey vegetation from grading on road verge and a minor culvert. Narrow strip of vegetation (exposed to edge effect). Good mulch layer. Farming ▪ Backs onto farming property. Weeds ▪ *Asparagus asparagoides* (Bridal Creeper), Brassica sp., and introduced grasses. Vermin ▪ Rabbit scats and digging present directly adjacent site.
SEB Ratio	6:1 [This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate to severe weed impact. There is significant disturbance from road maintenance activities. Clearance of this small section of roadside vegetation is not likely to be considered by the NVC to be significantly at variance to the principals, subject to a suitable offset].

4.3.3 Patch 3

Photo 6: Patch 3.

Native Species Present
Lomandra effusa (Scented Iron Grass), Grassland over *Austrodanthonia caespitosa* (Wallaby Grass), *Austrostipa sp.* (Spear Grass) and a few *Enchylaena tomentosa* (Ruby Saltbush).

[Refer rear of photo – left of road sign] Two plants (*Allocasuarina verticillata* and *Acacia calamifolia*) (that appear to have been planted), fall on the edge of this patch – clearance required.

Also refer weed list below.

Area	0 02ha
Disturbances and other comments	Road verge ▪ Cleared highly disturbed vegetation. ▪ All canopy has likely been removed. ▪ Damage to understorey vegetation from grading on road verge clearly visible in the attached photo 6. ▪ Narrow strip of vegetation (exposed to edge effect). Farming ▪ Backs onto farming property and is exposed to general farming practices. Weeds ▪ Few weeds Avena (Wild oats) and other exotic grasses. Vermin ▪ Rabbits scats and digging present.
SEB Ratio	4:1 [This patch has considerable disturbance as vegetation is largely reduced to scattered understorey vegetation with a reasonable native grassy layer. Weed diversity is low during summer, but still notable and throughout the entire area. Some exposed soil due to disturbance, subject to a suitable offset].

4.3.4 Patch 4

Photo 7: Patch 4

Native Species Present
Eucalyptus porosa (Mallee Box), Open Mallee over *Pittosporum angustifolium* (Native Apricot) *Rhagodia crassifolia* (Fleshy Saltbush), *Dianella revoluta var. revoluta* (Black-anther Flax Lily), *Lomandra effusa* (Scented Iron Grass), *Enchylaena tomentosa* (Ruby Saltbush), Moss.

Also refer weed list below.

Area	0.02ha
Disturbances and other comments	Road verge ▪ Buffered from the near by road verge. Weeds ▪ *Ehrharta calycina* (Veldt Grass), *Avena sp.* (Wild Oats). *(Bridal Creeper near by).* Grazing ▪ Kangaroo scats throughout. Grazing impact was noted. Vermin ▪ Rabbits (observed at time of inspection). Scats and digging also present. Threatened Plants ▪ Directly adjacent known population of *Prostanthera eurybioides* (Monarto Mintbush).
SEB Ratio	8:1 [This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate but not severe weed impact. Clearance of this small section of vegetation is likely to be considered by the NVC to be at variance to the principals based on near by threatened plant association as this habitat type may provide potential habitat and buffering for the Monarto Mintbush. Under regulation clearance will be assessed subject to suitable off-set].

4.3.5 Patch 5

Photo 8: Patch 5

Native Species Present
Melaleuca uncinata (Broombush) Tall Open Shrubland over *Lomandra effusa* (Scented Iron Grass), *Dianella revoluta var. revoluta* (Black-anther Flax Lily), *Rhagodia crassifolia* (Fleshy Saltbush).

[Grazed samples]? possibly *Lomandra dura* (Mat Rush), *Austrostipa sp.* (Spear grass)

Rocky.

Also refer weed list below.

Area	0.04ha
Disturbances and other comments	Weeds ▪ *Asparagus asparagoides* (Bridal Creeper) *Ehrharta calycina* (Veldt Grass), *Avena sp.* (Wild Oats). Vermin ▪ Rabbits (observed at time of inspection). Scats and diggings also present. Grazing ▪ Kangaroo scats throughout. There was considerable grazing impact, likely associated with high Kangaroo numbers in the area. ▪ Minimal germination and regeneration of native vegetation observed. Threatened Plants ▪ Directly adjacent known population of *Prostanthera eurybioides* (Monarto Mintbush).
SEB Ratio	8:1 [This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate to severe weed impact. Clearance of this small section of vegetation is likely to be considered by the NVC to be at variance to the principals based on near by threatened plant association as this habitat type may provide potential habitat and buffering for the Monarto Mintbush. Under regulation clearance will be assessed subject to suitable off-set].

4.3.6 Patch 6

Photo 9: Patch 6

Native Species Present
Eucalyptus Phenax (White Mallee) Open Mallee over *Melaleuca uncinata* (Broombush), *Lomandra effusa* (Scented Iron Grass), *Rhagodia crassifolia* (Fleshy Saltbush), *Maireana brevifolia* (Bluebush), *Enchylaena tomentosa* (Ruby Saltbush), Moss.

One young *Callitris gracilis* (Native Pine) – likely seeded from near by planted specimens.

Rocky. Good cover of leaf litter.

Also refer weed list below.

Area	0.01ha
Disturbances and other comments	Road verge ▪ Dust impact. Damage to understorey vegetation from grading on road verge. Narrow strip of vegetation (exposed to edge effect). Site is adjacent to a revegetation area and near by ploughed paddock. Weeds ▪ *Asparagus asparagoides* (Bridal Creeper) *Ehrharta calycina* (Veldt Grass), *Avena sp.* (Wild Oats). Water Pipe ▪ Water pipe adjacent. Take care during excavation to relocate.
SEB Ratio	6:1 [This patch is considered to be mostly intact overstorey and moderately intact understorey, with moderate to severe weed impact. There is significant disturbance from road maintenance activities. Clearance of this small section of roadside vegetation is not likely to be considered by the NVC to be significantly at variance to the principals, subject to suitable off-set].

4.4 SCATTERED TREES

There are two trees that pose a risk to larger vehicle travelling along Maurice Road. Council have requested removal of these trees to improve site safety and safe movement of larger vehicles as part of the total Maurice Road upgrade program. Tree 3 is located in direct line of the proposed new road section.

4.4.1 Tree 1

Photo 10: *Eucalyptus leucoxylon ssp. leucoxylon* (SA Blue Gum) over *Melaleuca acuminata* (Honey Myrtle), *Enchylaena tomentosa* (Ruby Saltbush).

Tree Score	38.2
Species	*Eucalyptus leucoxylon ssp. leucoxylon* (SA Blue Gum)
Disturbances and other comments	Road verge ▪ Disturbed vegetation site, grading occurs to the base of the tree. Weeds ▪ *Lycium ferocissimum* (African Boxthorn) *Asparagus asparagoides* (Bridal Creeper), Brassica sp., *Sonchus sp.* (Sow Thistle) and introduced grasses. Rare Plant *Eucalyptus leucoxylon ssp. leucoxylon* is considered Rare in the Murray Mallee region

Photo 11: Tree 1 rationale for clearance.

The clearance envelope is 5metres in height from the edge of the road formation (road edge).

- As identified in the area marked with a red X, removal of this section of tree from the clearance envelope would result in total canopy removal. The tree requires total removal based on Transport SA guidelines.

4.4.2 Tree 2

Photo 12
Eucalyptus leucoxylon ssp. leucoxylon (SA Blue Gum) over *Enchylaena tomentosa* (Ruby Saltbush).

Tree Score	52.7
Species	*Eucalyptus leucoxylon* (SA Blue Gum)
Disturbances and other comments	Road verge ▪ Disturbed vegetation site, grading occurs to the base of the tree. Weeds ▪ *Asparagus asparagoides* (Bridal Creeper), Brassica sp., *Sonchus sp.* (Sow Thistle) and introduced grasses. Hollow ▪ Small crack in the main trunk approximately 2-3metres off the ground. Rare Plant *Eucalyptus leucoxylon ssp. leucoxylon* is considered Rare in the Murray Mallee region

Photo 13: Tree 2 rationale for clearance.

The clearance envelope is 5metres in height from the edge of the road formation (road edge).

- As identified in the area marked with a red X, removal of this section of tree from the clearance envelope would result in total canopy removal. The tree requires total removal based on Transport SA guidelines.

4.4.3 Tree 3

Photo 14: *Callitris gracilis* (Native Pine) present over bare ground.

In direct line of proposed new road alignment.

Road verge

- Disturbed vegetation site, grading occurs to the base of the tree.

Tree Score: 24

5 SIGNIFICANT ENVIRONMENTAL BENEFIT (SEB)

5.1 REGULATION 5 (1) (D)

Following discussion with the Native Vegetation Group[5] the realignment of a small section of Maurice Road will require native vegetation clearance consent under the Native Vegetation Act 1991, regulation 5 1 (d) *Building or provision of infrastructure, including infrastructure in the Public Interest.* Refer attachment 1.

This regulation permits clearance of vegetation considered to be in the public interest, or provision of infrastructure or services to an existing or approved building or site that may not be located in native vegetation. Relevant authorisation must also be obtained as required by the Development Act 1993.

Approval for vegetation clearance for such developments is conditional on the achievement of a significant environmental benefit (SEB) elsewhere on the property or region to compensate for the vegetation to be cleared.

5.2 SEB SUMMARY

Patch	Area of vegetation to be cleared (hectares).	SEB ratio.	Option 1: Vegetation Offset. Hectares	Option 2: $ Payment into NVC fund.
Patch 1:	0.02	6:1	0.12	$ 1336.80
Patch 2:	0.01	6:1	0.06	
Patch 3	0.02	4:1	0.08	
Patch 4:	0.02	8:1	0.16	
Patch 5:	0.04	8:1	0.32	
Patch 6:	0.01	6:1	0.06	
		Tree Score		
Tree 1:		38.2	1.12	$ 2784.78
Tree 2		52.7		
Tree 3		24.0		
TOTALS			**1.92 hectares**	**$ 4121.58**

[5] Pers. Comm. February 2010: Peter Farmer Biodiversity Officer Native Vegetation Group. DWLBC.

5.3 PROPOSAL

- Required set-aside 1.92hectares.

The Rural City of Murray Bridge propose and would prefer to provide an area for vegetation off-set (option 1) by permanently setting aside an area for native vegetation (1.58ha as detailed on *advisory plan 4 of 5)*. Revegetation of the old section of road and paddock would be required as part of the permanent set-aside option 1.

The proposed set-aside area is less than that required under regulation. To accommodate for this shortfall the Rural City of Murray Bridge in combination with the local community, will commit to;

- funding the upgrade of the fence along the realigned roadside, and
- assist in the establishment and 12 month maintenance of 50 *Prostanthera eurybioides* (Monarto Mintbush) seedlings placed into the nearby reserve area. These seedlings must be appropriately guarded and regularly watered during dry conditions to aid establishment.

Payment SEB Option is included as advisory only.

5.4 EXAMPLE OF VEGETATION WITHIN THE SEB

The total area of the proposed set-aside is a total of 1.58 hectares.

Photo 15:

This photo represents proposed SEB adjacent clearance patch 6.

Native Species Present
Eucalyptus Phenax (White Mallee) +/- *Eucalyptus calycagona* (Square fruited Mallee) Very Open Mallee over *Melaleuca uncinata* (Broombush), *Lomandra effusa* (Scented Iron Grass), *Pittosporum angustifolium* (Native Apricot), *Acacia calamifolia* (Wallowa wattle), *Lasiopetalum behrii (*Velvet Bush), *Hibbertia sp.* (Guinea Flower), *Rhagodia crassifolia* (Fleshy Saltbush). *Maireana brevifolia* (Bluebush), *Enchylaena tomentosa* (Ruby Saltbush), Moss.

Rocky. Good cover of leaf litter.

Decommissioned road would require soil ripping and revegetation using direct seeding following adequate rabbit control.

Adjacent existing Heritage Agreement.

Photo 16:

This photo represents proposed SEB near by clearance patch 4.

Native Species Present
Eucalyptus porosa (Mallee Box) Open Mallee over *Acacia rhigiophylla* (Dagger-leaf Wattle), *Bursaria spinosa* (SA Christmas Bush), *Pittosporum angustifolium* (Native Apricot) *Rhagodia crassifolia* (Fleshy Saltbush), *Dianella revoluta var. revoluta* (Black-anther Flax Lily), *Lomandra effusa* (Scented Iron Grass), *Enchylaena tomentosa* (Ruby Saltbush), Moss.

Rocky. Good cover of leaf litter.

Decommissioned road would require soil ripping and revegetation using direct seeding following adequate rabbit control.

Adjacent existing Heritage Agreement.

Photo 17:

This photo represents proposed SEB between clearance patches 1-2.

Native Species Present
E. Phenax (White Mallee) + *Eucalyptus socialis* (Red mallee) +/-*Eucalyptus calycagona* (Square Fruited Mallee) Mallee over *Rhagodia crassifolia* (Fleshy Saltbush), *Maireana brevifolia* (Bluebush), *Dianella revoluta ssp. revoluta* (Black-anther Flax Lily), *Enchylaena tomentosa* (Ruby Saltbush), *Clematis microphylla* (Old Mans Beard), *Acacia wilhelmiana* (Nealie Wattle) and *Lomandra effusa* (Scented Iron Grass).

Photo 18:
Paddock areas as shown and decommissioned road (photo 16) would require soil ripping and revegetation using direct seeding following adequate weed and rabbit control.

5.5 SEB CALCULATIONS

5.5.1 Vegetation Patch 1-6 Calculations

Patch	Clearance Area	SEB ratio	SEB Requirement (ha)
Patch 1:	0.02	6:1	0.12
Patch 2:	0.01	6:1	0.06
Patch 3	0.02	4:1	0.08
Patch 4:	0.02	8:1	0.16
Patch 5:	0.04	8:1	0.32
Patch 6:	0.01	6:1	0.06
Totals	0.12		0.80ha

Calculations	**Area SEB**	0.80ha
	Payment SEB	Payment $ = Land value (1551) X set-aside area (0.80ha) + management costs (800/ha) X clearance area (0.12ha) (2357.52 + 96)
		Sub total = $ 1336.80

5.5.2 Scattered Trees Calculations

Wildlife Habitat Value Categories (labelled from 1 to 6)

Tree No.	Species	Height (m)	Dieback %	Hollows (no. & size)	1. Height Weighted 1,2 or 3pts x 1.05	2. Health (weighted) 6pts max relative to % dieback	Hollows 1,2 or 3pts.	3. Hollows (weighted) 1,2 or 3pts. x 1.45	Suitability for threatened species 1.2 or 3pts.	4.Threatened species (weighted) 1,2 0r 3pts. x 0.65	Density 1,2 or 3pts	5. Density (weighted) 1,2 or 3pts x 0.4	Proximity to other veg. 1,2 or 3pts	6. Proximity to other veg. (weighted) 1,2 or 3pts. x 0.35	Total Score [sum of categories cubed, and then divided by 55.5] 0 - 100
1	***Eucalyptus leucoxylon***	14.0	5	0	**2.1**	**5.8**	1	**1.45**	3	**1.95**	3	**1.2**	1	**0.35**	**38.2**
2	***Eucalyptus leucoxylon***	12.0	5	1s	**2.1**	**5.8**	2	**2.9**	3	**1.95**	3	**1.2**	1	**0.35**	**52.7**
3	***Callitris gracilis***	3.5	0	0	**1.05**	**6**	1	**1.45**	1	**0.65**	2	**0.8**	3	**1.05**	**24.0**

Description	Species	Set-Aside Requirement (ha)	For Payment Option (ha)
Trees 1,2,3	*2 Euc. leucoxylon* *1 Callitris gracilis* *HSC: SEB has a combination of intact vegetation with moderate to high species diversity, variable weed invasion and cleared land - average HSC taken.* *LCR: within 100m of core vegetation area.*	Total SEB points required **976.6** HSR= c **350** LCR= g **2.5** **Offset required (ha)** **1.12**	Total SEB points required **976.6** HSR= f **275** LCR= m **2** Offset required (ha) **1.78** *Using Minimum HSR/LCR score as SEB unknown*

Clearance (canopy) area
Tree 1
Tree 2
Tree 3
0 03ha

Calculations Scattered trees	• SEB offset 1.12
Calculations for payment Scattered trees	• SEB offset (due to low HSR and LCR scores required) = 1.78ha • Total Clearance (canopy area) = 0.03ha • Land value = 1551/ha[6] Payment into the Native Vegetation Fund • Set-aside area multiplied by land value (1.78 X $1551/ha) = $2760.78; plus management costs multiplied by vegetation clearance area ($800 x 0.03) $24 **Sub total $2784.78**

[6] NVC policy document reference.

5.6 REVEGETATION AND MANAGEMENT GUIDELINES – SEB

5.6.1 Management issues and objectives

Environmental Weeds and Vermin
Environmental weeds pose a threat to the biodiversity and visual amenity value of the area, by out-competing native plants for light, space and nutrients, and potentially displacing local fauna by reducing natural food resources and suitable habitat.
Bridal Creeper (*Asparagus asparagoides*) is a significant threat to the road reserve as it has the ability to smother native vegetation and reduces its ability to photosynthesise, grow and regenerate.

Rabbits were active and appear to be in high numbers.

Management objectives and key actions

During revegetation process implement an environmental pest plant and animal control/monitoring program to encourage natural regeneration of native vegetation and improve regeneration success.

- Engage the local animal and plant control officer (NRM) to plan works.
- Liaise with neighbouring landowners to assist management of vermin adopting a holistic approach to fox and rabbit management.
- Seek assistance to release biological control for Bridal Creeper.
- Adequately prepare site for revegetation, controlling broad leaf weeds as a priority on old paddock areas.
- Monitor weed control implementation / techniques.

Native Vegetation and Native Fauna
This site contains a good variety of native vegetation (in patches) and these areas are to be retained and enhanced

Native vegetation and habitat

It is a priority management initiative to protect and maintain the diversity of native vegetation types for wildlife habitat and conservation across the total property.

- Protect and maintain native vegetation and the diversity of habitat types for wildlife conservation.
- Fence road verge.
- Control environmental threats (weeds & vermin) to encourage natural regeneration of native vegetation and reduce risks to wildlife.
- Protect and maintain habitat features including dead vegetation. Do not be tempted to 'tidy up' or remove habitat features such as fallen timber, logs, bark and leaf litter.
- Long term take care when pruning vegetation along road verge or upgrading road surface.

Revegetation
Sections of the SEB will contain decommission roads and paddock areas. These areas will require active revegetation (long term objective to encourage the site to be self sustaining).

To add value to the proposed SEB (in lieu of falling short of required offset) the Rural City of Murray Bridge will assist the local community to establishment and maintain for a minimum 12 months, 50 *Prostanthera eurybioides* (Monarto Mintbush) seedlings. These shall be placed into nearby reserve areas, appropriately guarded and regularly watered during dry conditions to aid establishment.

Revegetation

Decommissioned Roads

- Collect local native seed 9-12 months prior to revegetation activities and store.
- Deep rip soil in late summer. Cross rip to allow for good root development.
- Sow site down to a cover crop (sterile rye) early autumn.
- Direct seed a suite of local native plants in autumn. Focus on the establishment of colonising species to encourage a rapid cover of site and control erosion. Monitor for mites.
- Control germinating weeds and rabbits as a priority.

Paddocks

- Sow paddock to a cover crop and mange weeds using non-residual herbicide for minimum 12 months. Broad leaf selective.
- Burn site in autumn and immediately control germinating weeds.
- Direct seed a suite of local native plants mid autumn. Focus on the establishment of colonising species. Monitor for mites.
- Once suitable microclimates develop increase plant diversity (Tubestock planting)
- Control germinating weeds and rabbits as a priority.

Monarto Mintbush

- Consult Threatened species officer and NRM.
- With a permit, collect local cutting material and supply to state flora nursery.
- Prepare site for planting (spot spray weeds)
- Plant seedlings and water in.
- Guard seedlings, use hardwood stakes to prevent them being knocked over.
- Control germinating weeds around plants and rabbits as a priority.
- Follow up watering during extended dry periods in the first summer.

5.6.2 Revegetation Mix

Direct seeding

Trees
Callitris gracilis
Pittosporum angustifolium
Eucalyptus porosa
Eucalyptus socialis
Eucalyptus calycagona
Eucalyptus phenax
Allocasuarina verticillata

Shrubs
Acacia calamifolia
Acacia wilhelmiana
Acacia rhigiophylla
Acacia brachybotrya
Dodonaea viscosa ssp. cuneata
Bursaria spinosa
Melaleuca uncinata

Understorey
Enchylaena tomentosa
Rhagodia crassifolia
Austrodanthonia caespitosa and local *Austrostipa* (brush cut and lay seed on site)

Tubestock mix

Infill understorey
Dianella revoluta
Lasiopetalum behrii
Clematis microphylla
Lomandra dura
Lomandra effusa

Threatened Plant
Prostanthera eurybioides
(Permission to collect will need to be sought from DEH, consistent with recovery plan).

6 GUIDELINES DURING DEVELOPMENT

To minimise negative environmental impact associated with the proposed road realignment; all works must be constructed within strict environmental guidelines to avoid damage to native vegetation and threatened plant communities.

Decommission road sections will be rehabilitated following site works.

6.1.1 Potential environmental risk

Potential environmental risks are listed below (but other may be present):

Potential Impacting Activity	Environmental Risk	Likely Impact[7]
Community Consultation	Failure to consult the community on environmental and social impacts can lead to project delays and implications.	Moderate
Equipment and Material usage and storage	The project will remove ground features, native vegetation and native fauna habitat as part of the road upgrade. ▪ There is an associated risk from vehicles, people and equipment damaging native vegetation (including threatened plant habitat) outside the clearance envelope from parking, grading, turn around areas, and soil/rubble storage.	Moderate to High
	The movement of vehicles within the site has the potential to spread weeds and soil pathogens.	Moderate
Construction Activities.	Waste generated from staff and operational activities have the ability to cause environmental harm to soil, vegetation, fauna and water bodies.	Low

[7] Low - Minor risk of occurring
Moderate – Possible risk of occurring (greater than 50% chance)
High – Likely risk of occurring

6.1.2 General construction considerations for Rural City of Murray Bridge

Issue	Suggested action
Community Consultation	Prior to construction and implementation of works RCMB must have suitably consulted the community to ensure that: ▪ The Department for Environment and Heritage, Natural Resource Management Board, Neighbouring Landowners, EPBC Act representative and other key stakeholders have been suitably consulted on the project process and design; and that any outstanding environmental issues have been identified for protection. ▪ The local community are suitability informed as to the works being undertaken. ▪ All indigenous cultural and heritage assessment and consultation has been completed and that any such area has been identified for protection.
Construction activities	▪ Conduct an induction of construction personnel before they commence work at the site to inform them of the identified environmental and heritage values of the site. ▪ Flag off all 'no go' areas prior to commencement of works to avoid accidental damage. These will include clearly identifying Monarto Mintbush protection areas, where all construction related activities are to be excluded. ▪ Clearly mark out the native vegetation clearance envelope prior to removal. ▪ Do not stock pile cleared vegetation on other vegetation. ▪ Clearly define vehicle turn around areas, stockpiling points (if required) and rest areas to avoid environmental harm. ▪ Regularly wet down road to minimise dust during works. ▪ To avoid the spread of weeds and soil pathogens ensure all vehicles and equipment is clean and free of weeds and dirt each time before working on site. ▪ All site action areas need to be monitored on a daily basis to observe environmental impact and compliance. Any damage to vegetation outside the clearance envelope is to be reported to the site supervisor immediately.
Post works	Rehabilitate degraded sites and decommissioned roads ▪ Control vermin and weeds ▪ Condition soils ▪ Revegetate cleared areas with local native vegetation.

7 ATTACHMENT 1 - REGULATION

7.1 REGULATION 5(1)(D)

Building or provision of infrastructure, including infrastructure in the Public Interest

Pursuant to Section 27(1)(b) of the Act, native vegetation may, subject to any other Act or law to the contrary, be cleared if—

(i) —

- (a) the clearance is incidental to the construction or expansion of a building or infrastructure and the Minister has, by instrument in writing, declared that he or she is satisfied that the clearance is in the public interest; or
- (b) the clearance is required in connection with the provision of infrastructure or services to a building or proposed building, or to any place; and

(ii) any development authorisation required by or under the *Development Act 1993* has been obtained; and

(iii) the Council is satisfied (on the basis of information provided to the Council by the person seeking the benefit of this paragraph and such other information as the Council thinks fit) that, after taking into account the need to preserve biological diversity and the nature and purposes of any proposed building or infrastructure that is yet to be constructed, the proposed site of the building or infrastructure is the most suitable that is available; and

(iv) the Council is satisfied (on the basis of information provided to the Council by the person seeking the benefit of this paragraph and such other information as the Council thinks fit) that, there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared; and

(v) the clearance is undertaken in accordance with a standard operating procedure determined or approved by the Council for the purposes of this provision or a management plan that has been approved by the Council, and either—

- (a) there will be a significant environmental benefit on the property where the clearance is being undertaken or within the same region of the State; or
- (b) either—
  - the owner of the land (or a person acting on his or her behalf);
  - or a person connected with the construction or expansion of the building or infrastructure, or the provision of the infrastructure or services (as the case requires),

  has, on application to the Council to proceed with clearing the vegetation in accordance with this provision, made a payment into the Fund of an amount considered by the Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) of the Act.

8 ATTACHMENT 2 – SUMMARY SPECIES LIST

8.1 CLEARANCE AREAS

		MU
CHENOPODIACEAE		
Enchylaena tomentosa var.	Ruby Saltbush	
Maireana brevifolia	Short-leaf Bluebush	
Rhagodia crassifolia	Fleshy Saltbush	
COMPOSITAE		
*Sonchus sp.	Sow-thistle	
CRUCIFERAE		
*Brassica sp.		
CUPRESSACEAE		
Callitris gracilis syn. preissii	Southern Cypress Pine	
FAMILY NOT ASSIGNED		
Moss sp.		
GRAMINEAE		
*Avena barbata/fatua	Wild Oat	
Austrodanthonia caespitosa	Common Wallaby-grass	
*Ehrharta calycina	Perennial Veldt Grass	
Austrostipa sp.	Spear-grass	
LILIACEAE		
Dianella revoluta var revoluta	Black-anther Flax-lily	
Lomandra effusa	Scented Mat-rush	
Lomandra multiflora ssp. dura	Hard Mat-rush	
*Asparagus asparagoides	Bridal Creeper	
MYRTACEAE		
Eucalyptus phenax	White Box	
Eucalyptus calycogona var. calycogona	Square-fruit Mallee	
Eucalyptus leucoxylon ssp. leucoxylon	South Australian Blue Gum	R
Melaleuca lanceolata ssp. lanceolata	Dryland Tea-tree	
Melaleuca uncinata	Broombush	
PITTOSPORACEAE		

Pittosporum angustifolium	Native Apricot	
RANUNCULACEAE		
Clematis microphylla	Old mans Beard	
SOLANACEAE		
*Lycium ferocissimum	African Boxthorn	

8.2 SEB AREAS

		EPBC	NPWSA	MU
CASUARINACEAE				
Allocasuarina verticillata	Drooping Sheoak			
CHENOPODIACEAE				
Enchylaena tomentosa var.	Ruby Saltbush			
Maireana brevifolia	Short-leaf Bluebush			
Rhagodia crassifolia	Fleshy Saltbush			
COMPOSITAE				
*Sonchus sp.	Sow-thistle			
CRUCIFERAE				
*Brassica sp.				
CUPRESSACEAE				
Callitris gracilis syn. preissii	Southern Cypress Pine			
DILLENIACEAE				
Hibbertia sp.	Guinea-flower			
FAMILY NOT ASSIGNED				
Moss sp.				
GRAMINEAE				
*Avena barbata/fatua	Wild Oat			
Austrodanthonia caespitosa	Common Wallaby-grass			
*Ehrharta calycina	Perennial Veldt Grass			
Austrostipa sp.	Spear-grass			
LABIATAE				
Prostanthera eurybioides	Monarto Mintbush	E	E	E
LEGUMINOSAE				
Acacia brachybotrya	Grey Mulga-bush			
Acacia rhigiophylla	Dagger-leaf Wattle		R	V
Acacia wilhelmiana	Dwarf Nealie			
LILIACEAE				
Dianella revoluta var. revoluta	Black-anther Flax-lily			
Lomandra effusa	Scented Mat-rush			
Lomandra multiflora ssp. dura	Hard Mat-rush			
*Asparagus asparagoides	Bridal Creeper			
MYRTACEAE				
Eucalyptus phenax	White Box			

Eucalyptus calycogona var. calycogona	Square-fruit Mallee			
Melaleuca lanceolata ssp. lanceolata	Dryland Tea-tree			
Melaleuca uncinata	Broombush			
Bursaria spinosa	Sweet Bursaria			
PITTOSPORACEAE				
Pittosporum angustifolium	Native Apricot			
Clematis microphylla	Old Man's Beard			
RANUNCULACEAE				
Dodonaea viscosa	Hop-bush			
SAPINDACEAE				
*Lycium ferocissimum	African Boxthorn			
SOLANACEAE				
Lasiopetalum behrii	Pink Velvet-bush			

Legend

EPBC Conservation Status	
X	Extinct: no reasonable doubt that the last member of the species has died
EW	Species is known only to survive in cultivation, in captivity or as a naturalised population outside its past range
CE	Critically endangered: species is facing an extremely high risk of extinction in the wild
E	Endangered: species is facing a very high risk of extinction in the wild in the near future
V	Vulnerable species is facing a high risk of extinction in the wild in the near future
CD	Species is the focus of a conservation program, without which it would become vulnerable within 5 years
NPWSA Conservation Status	
E	Endangered: rare and in danger of becoming extinct
V	Vulnerable: rare and at risk from potential threats in the long term
R	Rare: having a low overall frequency, confined to a restricted range or scattered sparsely over a wider area
SA Regional Conservation Status	
X	Presumed extinct: not recorded for more than 50 years
E	Endangered: rare and in danger of becoming extinct
V	Vulnerable: rare and at risk from potential threats in the long term
T	Threatened: rare and likely to become either endangered or vulnerable
R	Rare: having a low overall frequency, confined to a restricted range or scattered sparsely over a wider area
K	Uncertain: either threatened or rare but insufficient data for a more precise assessment
U	Uncommon: less common species but not rare
N	Not of particular significance

SF915

Native Vegetation Council

- 9 JUL 2010

Reference: NVAP Mtg 27 Item 2.1; 10WLB02080
File: 2010/3030/415

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22 June 2010

Mr Glen Dean
Rural City of Murray Bridge
PO Box 421,
MURRAY BRIDGE SA 5253

cc: NRM Boerd

REGULATION ADVICE NOTIFICATION

Regulation 5(1)(d) – Clearance for building or provision of infrastructure

Dear Mr Dean,

At its meeting on 22 June 2010 the Native Vegetation Assessment Panel (NVAP) considered the matter of clearance, based on information provided by the Native Vegetation Management and Biodiversity Unit (NVMBU) and yourself, the vegetation proposed as per the consultant's report.

The NVAP would like to thank you and Mr Waddington for attending the meeting. The native vegetation clearance associated with establishing the road re-alignment of Maurice Road (as shown on the *Regulation Advice Plan*) for safety was assessed in accordance with Regulation 5(1)(d) – clearance for provision of infrastructure (Attachment 1).

Assessment Advice – Maurice Road

The NVAP is satisfied that clearance is required for the road re-alignment (in accordance with part (i) of the Regulation) and that clearance has been minimised in the planning stage (part (iv)).

Clearance of 0.12 hectares of vegetation plus 3 scattered trees as described in the consultant report being established for road realignment is exempt under Regulation 5(1)(d) ***subject to meeting the SEB requirements:***

- Clearance is minimised as shown on Regulation Advice Plan
- Any vegetation cleared is not stockpiled in areas with native vegetation
- machinery used in the establishment of the track is confined to the track
- Protection of both remnant and planted specimens of Monarto Mintbush during the construction of the road
- Payment of the **$1,080,** or the initiation of Bridal Creeper Control program to the cost of $1,080 in the vicinity of the clearance, must occur within one month of this letter, to achieve the significant environmental benefit required under part (v) of Regulation 5(1)(d).
- An area a minimum of **1.58 hectares** is setaside as shown on Regulation Advice Plan
- The onground SEB is to include:

- rehabilitate / revegetate an area of 0.92 hectares of existing road surface to the satisfaction of the SAMDBNRMB Biodiversity Unit;
- 50 Monarto Mintbush to be planted in nearby Council Reserve and maintained for atleast 5 years; and
- *Acacia menzelii* (Menzel's Wattle) be added to the revegetation mix (as per 5.6.2 in the report)

- Erect signs to warn drivers where Malleefowl may be on the road ahead.
- **Prior** to works occurring:
  - An aerial plan is provided showing the locations of the Monarto Mintbush to be planted before clearance occurs
  - Top soil be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised.

Please complete the attached form, "*Understanding of Regulation Advice*" (including signature and date) within one month of receiving it, to confirm with the Native Vegetation Council Secretariat that you fully understand the Advice and Conditions detailed in this letter.

Therefore, clearance for road realignment is exempt under *Regulation 5(1)(d) - building or infrastructure in the public interest*.

Please contact Melissa McCallum on the telephone number provided above if you have any questions.

Yours sincerely

7/7/2000

Mike Hodder
Delegate
Native Vegetation Council

Attachment 1

Note: Please refer to the full wording of the Regulation in the "*Guide to the Native Vegetation Regulations 2003*" which is available from the following web site link:
http://www.nvc.sa.gov.au/assets/files/NV_REGS_GUIDE_SEP_09.pdf

5(1)(d) Building or provision of infrastructure, including infrastructure in the Public Interest

Pursuant to Section 27(1)(b) of the Act, native vegetation may, subject to any other Act or law to the contrary, be cleared if—

(i) —

(A) the clearance is incidental to the construction or expansion of a building or infrastructure and the Minister has, by instrument in writing, declared that he or she is satisfied that the clearance is in the public interest; or

(B) the clearance is required in connection with the provision of infrastructure or services to a building or proposed building, or to any place; and

(ii) any development authorisation required by or under the *Development Act 1993* has been obtained; and

(iii) the Council is satisfied (on the basis of information provided to the Council by the person seeking the benefit of this paragraph and such other information as the Council thinks fit) that, after taking into account the need to preserve biological diversity and the nature and purposes of any proposed building or infrastructure that is yet to be constructed, the proposed site of the building or infrastructure is the most suitable that is available, and

(iv) the Council is satisfied (on the basis of information provided to the Council by the person seeking the benefit of this paragraph and such other information as the Council thinks fit) that, there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared; and

(v) the clearance is undertaken in accordance with a standard operating procedure determined or approved by the Council for the purposes of this provision or a management plan that has been approved by the Council, and either—

(A) there will be a significant environmental benefit on the property where the clearance is being undertaken or within the same region of the State; or

(B) either—

- the owner of the land (or a person acting on his or her behalf); or
- a person connected with the construction or expansion of the building or infrastructure, or the provision of the infrastructure or services (as the case requires),

has, on application to the Council to proceed with clearing the vegetation in accordance with this provision, made a payment into the Fund of an amount considered by the Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) of the Act.

Definition of intact stratum

A substantially intact stratum of native vegetation is defined by sn 3A of the Native Vegetation Act 1991 as an area that, in the opinion of the Native Vegetation Council, has not been seriously degraded by human activity (but not degradation that has been caused by fire) during the immediately preceding period of 20 years.

A 'stratum' of native vegetation means a layer of a plant community consisting of plants that comprise native vegetation that have a similar growth habit. An area may be considered to have an intact stratum, even if another stratum is degraded.

Note: *Please read the Regulation Advice Notification and sign the form underneath to acknowledge that you have understood the Advice made by the Native Vegetation Council, and return by fax or post to:*

Send to: Secretary, Native Vegetation Council
GPO Box 2834
Adelaide SA 5001

Fax to: 8303 9780

UNDERSTANDING OF REGULATION ADVICE

File: **2010/3030/415 Rural City of Murray Bridge**
Document No.: **10WLB02080**

I clearly understand the Native Vegetation Council's Regulation Advice Notification, the conditions associated with clearance and the Regulation Advice Plan(s).

I have read and fully understand the:

☐ ***Regulation Advice Notification and the Conditions attached to the Advice***

(and)

☐ ***The Regulation Advice Plan***

Name of Landowner(s) or Company: .....

Signature of Landowner(s) or seal of Company and authorised signatory:
(Please note that the landowner [not agent] must sign here

.....

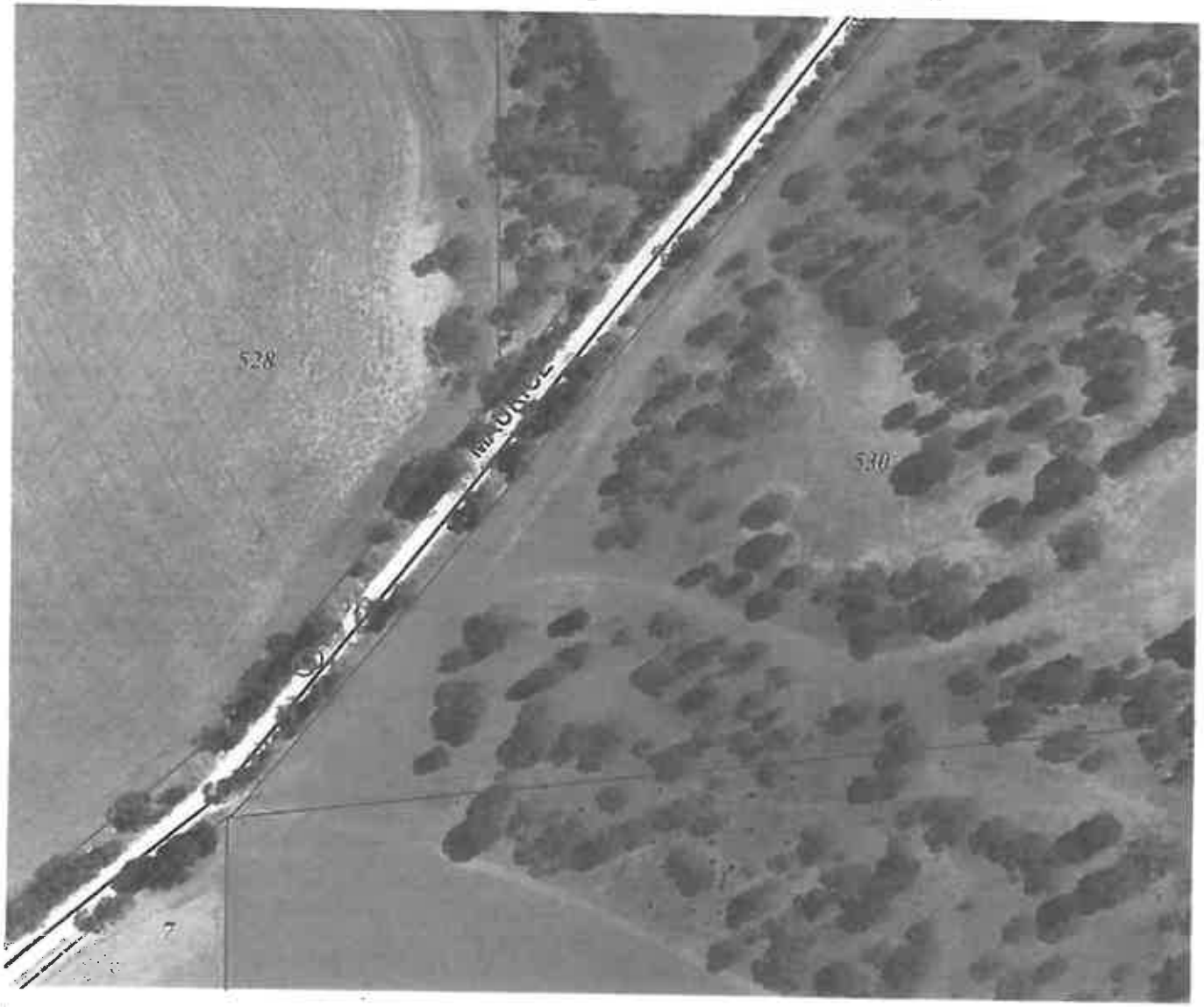
.....

.....

.....

Date : .....

Regulation 5(1)(d) - Building or provision of infrastructure
Rural City of Murray Bridge - Realignment of Maurice Rd



REGULATION ADVICE PLAN 1 of 2

TO FORM PART OF THE DECISION OF THE NATIVE VEGETATION COUNCIL

APPLICATION NO. 2010/3030/415

HUNDRED of MOBILONG

Adjacent Section 530
Certificate of Title Vol 5322 Fol 455

- Scattered trees_clearance exempt
- Heritage Agreements
- Property / Section Boundary
- Roads

Produced for: Native Vegetation Council
By: Native Vegetation & Biodiversity Management Unit
Dept. for Water, Land & Biodiversity Conservation

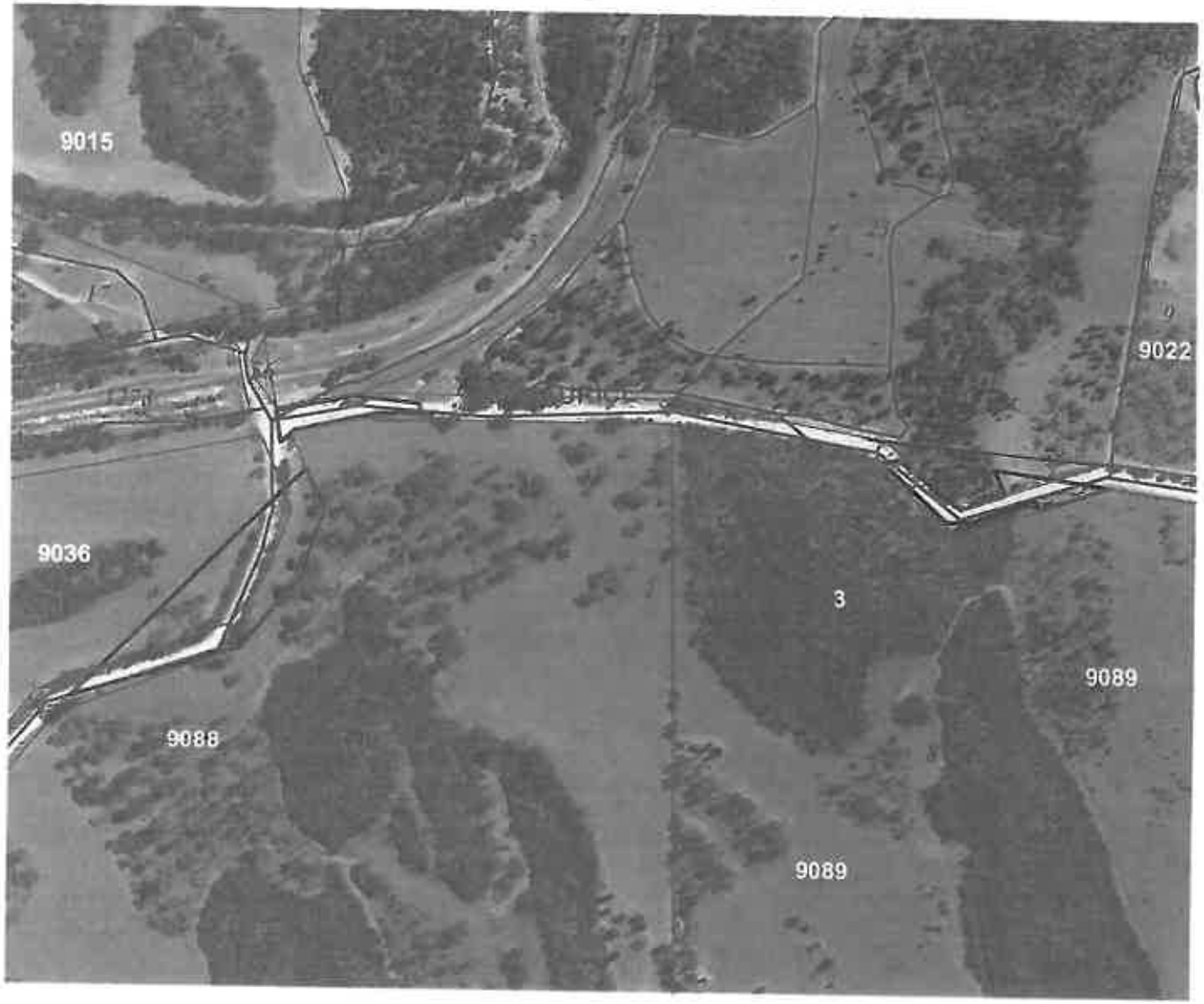
Date of Imagery: 2008

Date:
Version: 01
Datum: GDA94

Government of South Australia

Regulation 5(1)(d) - Building or provision of infrastructure

Rural City of Murray Bridge - Realignment of Maurice Rd



Meters
0 30 60 90 120 150
Scale 1:5000

N

REGULATION ADVICE PLAN 2 of 2

TO FORM PART OF THE DECISION OF THE NATIVE VEGETATION COUNCIL

APPLICATION NO. 2010/3030/415

HUNDRED of MOBILONG

Adjacent Allotment 23 DP 12046
Certificate of Title Vol 5714 Fol 490

Adjacent Section 530
Certificate of Title Vol 5322 Fol 455

Adjacent Section 529
Certificate of Title Vol 5824 Fol 624

- **Tree 3 - clearance exempt**
- **Clearance exempt 5(1)(d)**
- **'significant environmental benefit' (SEB) area**
- **Property / Section Boundary**
- **Heritage Agreements**
- **Roads**

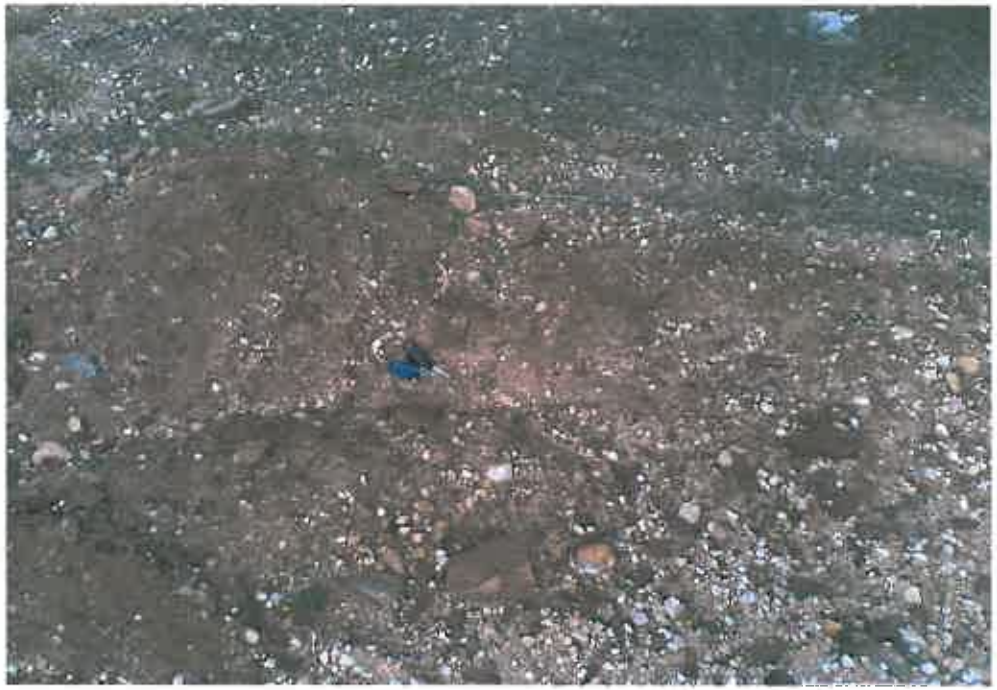
Produced for: Native Vegetation Council
By: Native Vegetation & Biodiversity Management Unit
Dept. for Water, Land & Biodiversity Conservation

Date of Imagery: 2008

Datum: GDA94

Government of South Australia
Department of Water, Land and Biodiversity Conservation

Accidents within proposed realignment



Government of South Australia
Department of the Premier and Cabinet

Physical Id. DPC10D07861
File No. DPC10/0166

GPO Box 2343
Adelaide SA 5001
DX 56201
Tel 08 8226 3500
Fax 08 8226 3535
www.premcab.sa.gov.au

Glenn Dean
Parks and Gardens Supervisor
Rural City of Murray Bridge
PO Box 421
MURRAY BRIDGE SA 5253

Dear Glenn

Thank you for your correspondence (email) dated 29 September 2010, regarding the road alignment of Maurice Road, Murray Bridge.

I advise that the Central Archive, which includes the Register of Aboriginal Sites and Objects (the Register), administered by the Department of the Premier and Cabinet-Aboriginal Affairs and Reconciliation Division (DPC-AARD), has no entry for Aboriginal sites in the area of your project location.

The Register is not a comprehensive record of all Aboriginal sites and objects in South Australia. The applicant is advised that sites or objects may exist in the proposed development area, even though the Register does not identify them. All Aboriginal sites and objects are protected under the *Aboriginal Heritage Act 1988* (the Act), whether they are listed in the Register or not. Land within 200 metres of a watercourse (particularly the River Murray and its overflow areas) in particular, may contain Aboriginal sites and objects.

It is an offence to damage, disturb or interfere with any Aboriginal site or damage any Aboriginal object (registered or not) without the authority of the Minister for Aboriginal Affairs and Reconciliation (the Minister). If the planned activity is likely to damage, disturb or interfere with a site or object, authorisation of the activity must be first obtained from the Minister under Section 23 of the Act. Section 20 of the Act requires that any Aboriginal sites, objects or remains, discovered on the land, need to be reported to the Minister. Penalties apply for failure to comply with the Act.

For further information please contact the Aboriginal Heritage Branch on telephone (08) 8226 8900.

Yours sincerely

Justin Wearne
SENIOR HERITAGE INFORMATION OFFICER
ABORIGINAL AFFAIRS & RECONCILIATION DIVISION

30 September 2010

MINUTE *forming* ENCLOSURE *to* 2010/3030/415

TO: **NATIVE VEGETATION ASSESSMENT PANEL**

RE: **AUDIT REPORT FOR APPLICATION BY THE RURAL CITY OF MURRAY BRIDGE TO STRAIGHTEN 2 SHARP BENDS IN MAURICE ROAD, ROCKY GULLY. REGULATION 5(1)(d)**

THROUGH: **LEADER ASSESSMENTS, NATIVE VEGETATION & BIODIVERSITY MANAGEMENT UNIT**

PURPOSE

To seek your consideration of clearance as outlined in the consultant report against *Regulation 5(1)(d) – infrastructure*. The Rural City of Murray Bridge is proposing to re-align two bends in Maurice Road to improve safety for road users. See detailed maps in the consultant report for locations.

Clearance is summarised here;

Patch Number	Native Vegetation summary	Clearance Area	SEB ratio	SEB requirement
1	*Eucalyptus calycogona* + *E. phenax* mallee over *Rhagodia crassifolia*, *Maireana brevifolia*, *Dianella revoluta* ssp. *revoluta*, *Enchylaena tomentosa* & *Lomandra effusa*.	0.02	6:1	0.12
2	*Eucalyptus socialis* + *E. phenax* mallee, over *Pittosporum angustifolium*, *Melaleuca lanceolata*, *Enchylaena tomentosa* & *Clematis microphyllla*.	0.01	6:1	0.06
3	*Lomandra effusa* grassland over *Austrodanthonia caespitosa*, *Austrostipa* sp. & a few *Enchylaena tomentosa*.	0.02	4:1	0.08
4	*Eucalyptus porosa* open mallee over *Pittosporum angustifolium*, *Rhagodia crassifolia*, *Dianella revoluta* var. *revoluta*, *Lomandra effusa*, *Enchylaena tomentosa*, Moss.	0.02	8:1	0.16
5	*Melaleuca uncinata* tall open shrubland over *Lomandra effusa*, *Dianella revoluta* var. *revoluta*, *Rhagodia crassifolia*.	0.04	8:1	0.32
6	*Eucalyptus phenax* open mallee over *Melaleuca uncinata*, *Lomandra effusa*, *Rhagodia crassifolia*, *Maireana brevifolia*, *Enchylaena tomentosa*, Moss.	0.01	6:1	0.06
TOTALS		0.12		0.8

Plus 3 scattered trees;

Tree 1 – SA Blue Gum, score 38.2
Tree 2 – SA Blue Gum, score 52.7
Tree 3 – Native Pine, score 24

BACKGROUND

The NV&BMU has reviewed the consultant's data report and supports the information provided. The native vegetation is an important remnant and provides habitat for species of conservation significance. The following points may be considered when assessing the application;

- *Leipoa ocellata* (Malleefowl) has been sighted in the area (see SA Murray Darling Basin NRM comment).

  Nationally, the Malleefowl is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation* (EPBC) *Act 1999.* In South Australia, Malleefowl is listed as Vulnerable under the *National Parks and Wildlife Act 1972 – Schedule 8.*

  Clearance of habitat has been a major cause of the marked decline in the distribution of the Malleefowl.

  From the Recovery Plan; '*corridors of native vegetation that link remnants may greatly benefit Malleefowl and enable populations to persist much longer by facilitating movement of animals between habitat patches. There is evidence that Malleefowl use even narrow roadside strips of native vegetation in preference to crossing open ground*'.

  Objective 7 from the Recovery Plan is reducing Malleefowl mortality on roads.

- *Eucalyptus leucoxylon* ssp. *leucoxylon* (SA Blue Gum) has a rare rating for the Murray Herbarium region. Trees 1 & 2 score more than 30 points and are proposed for removal on the roadside surrounded by farmland.

- The proximity of the new sections of road to individual plants of *Prosanthera eurybioides* (Monarto Mintbush) listed as Endangered under the EPBC Act is of concern as highlighted in the consultant report.

- *Acacia menzelii* (Menzel's Wattle) rated as Vulnerable under the EPBC Act is also in the area but not directly proposed for removal.

- There are no plant species proposed for clearance listed under the NP&W Act 1972 or the EPBC Act 1999.

- *Lomandra effusa* tussock grassland in Patch 3 would not meet the criteria for the Iron-grass Natural Temperate Grassland listed as 'critically endangered' under the EPBC Act.

- The clearance is located in a region where about 10% native vegetation remains. Relatively intact roadside vegetation in this area is considered to have high value as a remnant.

DISCUSSION

Regulation 5(1)(d)

Part (iv) requires that clearance is minimised;

> '*that there is no other practicable alternative that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared*'

Therefore Regulation 5(1)(d) does not apply unless the Native Vegetation Assessment Panel is satisfied that the proposed road realignment cannot be established without the need to clear native vegetation, and that the route chosen contains the least amount of vegetation and the least significant vegetation.

From information in the consultant report it is suggested that the proposed route is the most practical available; it utilises cleared areas, effort will be put in to acquiring cleared land and it avoids the direct removal of Monarto Mintbush and Menzel's Wattle.

Trees 1 and 2 are to be removed to achieve the vertical height clearance of 5 metres required for larger vehicles.

Significant Environmental Benefit (SEB)

Part (v) of Regulation 5(1)(d) requires that an appropriate offset be achieved for native vegetation that is cleared.

If clearance of patch 1-6 and the 3 single trees was approved then the following SEB figures would apply;

- a payment into the Native Vegetation Fund of $4114, or
- revegetation of 1.92 hectares in accordance with an approved management plan

The SA Murray Darling Basin NRM Board Biodiversity Unit (SAMDBNRMB) has commented (see below) that the area is critical habitat for Malleefowl and therefore the SEB requirement should be increased. NVBMU consider that a 20% increase is appropriate. This results in SEB requirements of;

- a payment into the Native Vegetation Fund of $4938, or
- 2.3 hectares put aside for the protection of native vegetation only with an approved management plan

RC Murray Bridge has proposed 3 SEB areas over a total area of 1.58 hectares. The SEB area proposed falls short of the requirements by 0.72. The RC Murray Bridge proposes to fulfil the shortfall by propagating 50 Monarto Mintbush and planting in nearby reserve areas. NVBMU considers that this should attract a discount of 0.1 hectares.

SAMDBNRMB considers that the proposed site is unsuitable because the existing sections of road surface in the area proposed as the off-set is highly altered and even with ripping and preparation works will not be suitable for establishing vegetation of equal or better condition than that which is proposed to be removed. It is recommended that the road surface be revegetated, but not be included in the vegetation off-set, unless it can be revegetated to a standard that satisfies SAMDBNRMB.

The SEB fulfils the 'like species for like species' guideline adopted by the Native Vegetation Council for the establishment of a SEB except for the SA Blue Gum which will not be present in the SEB areas.

Comment from other agencies

Comment has been sought and provided by the SA Murray Darling Basin Natural Resources Management Board Biodiversity Unit. See attached comments for consideration. The main points are;

- The road should be bitumised if possible to reduce the potential dust hazard to Monarto Mintbush
- The clearance area is considered to be 'critical habitat' for the Monarto Mintbush and Menzel's Wattle and this should be reflected in the SEB requirements.

- Top soil should be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised.

The RC Murray Bridge has decided not to submit a referral under the EPBC Act. I discussed this with the Commonwealth Department and here is the response;

> *As discussed, each person proposing to take an action determines whether or not they need to send a referral to this Department based on whether they believe the proposal will have an impact on any matters protected under the* Environment Protection and Biodiversity Conservation Act 1999 *(EPBC ACT). In this case Mr Dean was forwarded links to the Department's website for referrals, including a link to the significance guidelines.*
>
> *If a person determines not to refer a proposal and the proposal does impact on a matter protected under the Act, then the action is likely to be investigated and if found to breach the Act, compliance action may be taken. Many people choose to refer their proposal for surety.*

It is difficult to determine if this application would lead in the long term to the death of more Malleefowl by allowing increased traffic speeds on the road.

ADVICE

It is advised that NVAP endorses the proposal subject to;

- Establishment of an on ground SEB of 2.2 hectares
  - accept the management actions in the consultant report Section 5.6 through to section 6.1.2
  - ensure planting and maintenance of 50 Monarto Mintbush
  - accept the 0.92 hectares of existing road surface as satisfying part of the SEB requirement only if RC Murray Bridge is prepared to rehabilitate / revegetate to the satisfaction of the SAMDBNRMB Biodiversity Unit.
- *Acacia menzelii* (Menzel's Wattle) be added to the revegetation mix (5.6.2 in the report)
- An aerial plan is provided showing the locations of the Monarto Mintbush to be planted before clearance occurs
- Erect signs to warn drivers where Malleefowl may be on the road ahead
- Top soil should be collected prior to road works or the RC Murray Bridge notifies the Threatened Flora Recovery Program so that potential soil seed bank is utilised
- The protection of both remnant and planted specimens of Monarto Mintbush during the construction of the road

Melissa McCallum
ASSESSMENT OFFICER
NATIVE VEGETATION & BIODIVERSITY MANAGEMENT UNIT

Date:

Attachments:

Comment from SA Murray Darling Basin Natural Resources Management Board
Advisory Plans from consultant report

Application for Clearance of Native Vegetation

South Australian Murray-Darling Basin Natural Resources Management Board Biodiversity Unit

Comments provided by: **Kylie Moritz / Sarah Lance**

Date: **27/05/10**

Re: Application for clearance of native vegetation to straighten a section of Maurice Road at Rocky Gully, Murray Bridge.

Based on the information provided the application has been assessed for its potential impacts on the biodiversity and conservation of the site and surrounding area.

The SA MDB NRM Board has concerns about the proximity of the proposed road realignment to existing naturally occurring and planted plants of the nationally endangered *Prostanthera eurybioides.* The proposed clearance works will occur within 15 meters from existing *Prostanthera eurybioides.* Concerns include:

- The protection of both remnant and planted specimens of *Prostanthera eurybioides* during the construction of the road.
- The loss of a buffer that currently exists between the road and the *Prostanthera eurybioides.*
- The impact that dust will have on the *Prostanthera eurybioides* following realignment. The report states that "*There is information suggesting dust can impact vegetation up to 20 meters from the road verge depending on vegetation type, however local information regarding this matter in mallee environments is not readily available".* The dust load on plants along the existing road is currently very high and easily observed. With increased truck traffic and increased speed, which is predicted to occur once the road is straightened, dust loads will only increase and potentially negatively affect *Prostanthera eurybioides* and other vegetation close to the road. Is there a likelihood of bitumen to reduce dust impact?
- The report does not specify the number of *Prostanthera eurybioides* near the proposed works only that "A handful of mature specimens (likely remnant) were located approximately 15 meters...". Suggest that the number of plants needs to be specified.
- *Prostanthera eurybioides* seedlings were planted into the Rocky Gully area adjacent the proposed road realignment as part of a Threatened Flora Recovery program. It is felt that these specimens should be afforded equal protection as the naturally occurring plants given the extremely low number of *Prostanthera eurybioides* that occur in the area.
- Emphasis should be placed on the areas importance in terms of it being critical habitat for the nationally endangered *Prostanthera eurybioides* and the nationally vulnerable *Acacia menzelii.* Is this included in the SEB calculations?
- There is potentially viable seed in the soil seed bank of both *Prostanthera eurybioides* and *Acacia menzelii.* It is recommended that the Council provide collection of top soil from around mature plants prior to road works or notify the SA MDB NRM Board Threatened Flora Recovery program prior to road works to enable this.

General comments include:

- The SEB score appears low given the proximity to remnant *Prostanthera eurybioides* and the fact that the proposed road will be going through critical habitat of this nationally endangered species and *Acacia menzelii*, a nationally vulnerable species.
- We would encourage the use of seed of *Prostanthera eurybioides* rather than cuttings for the revegetation works. This will help to increase the genetic diversity of plants in the area. Work has been undertaken by staff at the Botanic Gardens, Adelaide, to improve the success of seed germination in this species. The SA MDB can assist the Council in this area.
- It is felt that including the existing sections of road surface in the area proposed as the vegetation off-set is not acceptable. The existing road is highly altered and even with ripping and preparation works will not be suitable for establishing vegetation of equal or better condition than that which is proposed to be removed. It is recommended that the road surface be revegetated, but not be included in the vegetation off-set.
- The report states that fencing be upgraded along sections of the realigned roadside. Will this be all sections or just adjacent the public land? If the latter, it is recommended that the fence at the property owned by Boland/Bryant, which is adjacent the western proposed realignment, be included in the Council funded fencing. This property contains the largest population of *Prostanthera eurybioides* in the area (currently 123 plants) and has been damaged by cars running off the road.
- Correction: the southern dot near section 1 on map 3 is not a *Prostanthera eurybioides*, but *Acacia menzelii* (historical data). The data search called up all threatened plants in the area including this *Acacia*.
- The realignment has been suggested for road safety reasons, however there are concerns that the traffic speed will increase through this area due to the removal of sharp bends. A small population of Malleefowl occurs in the area, with a Malleefowl mound located at Boland's property adjacent the proposed road realignment. A Malleefowl chick was also observed in this area in 2009. Increased traffic speed is a concern for the safely of this species.

3.1 MAP 1 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
1 of 5

TO FORM PART OF THE ADVICE TO THE NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG
Lot 9 CT Vol 5714 Fol 490
Sec 530 CT Vol 5322 Fol 455
Sec 529 CT Vol 5824 Fol 624

- Scattered Tree Removal
- Vegetation Clearance Patches
- Proposed Road Alignment

N

Metres
0 130 260 390 520 650

Scale: 1:7500

Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.2 MAP 2 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
2 of 5

TO FORM PART OF THE ADVICE TO THE NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Scattered Tree Removal

N

0 10 20 30 40 50 Metres

Scale: 1:500

Date of Photography 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.3 MAP 3 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
3 of 5

TO FORM PART OF THE ADVICE TO THE NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Lot 9 CT Vol 5714 Fol 490
Sec 530 CT Vol 5322 Fol 455
Sec 529 CT Vol 5824 Fol 624

Scattered Tree Removal
Vegetation Clearance Patches
Proposed Road Alignment

N

0 90 180 270 360 450 Metres

Scale: 1:5000

Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.4 MAP 4 OF 5

Native Vegetation Clearance Application

ADVISORY PLAN
4 of 5

TO FORM PART OF THE ADVICE TO THE NATIVE VEGETATION COUNCIL

HUNDRED of MOBILONG

Lot 9 CT Vol 5714 Fol 490
Sec 530 CT Vol 5322 Fol 455
Sec 529 CT Vol 5824 Fol 624

- Scattered Tree Removal
- Vegetation Clearance Patches
- Proposed Road Alignment
- SEB Proposed Revegetation/Bush Care

Metres: 0, 90, 180, 270, 360, 450

Scale: 1:5000

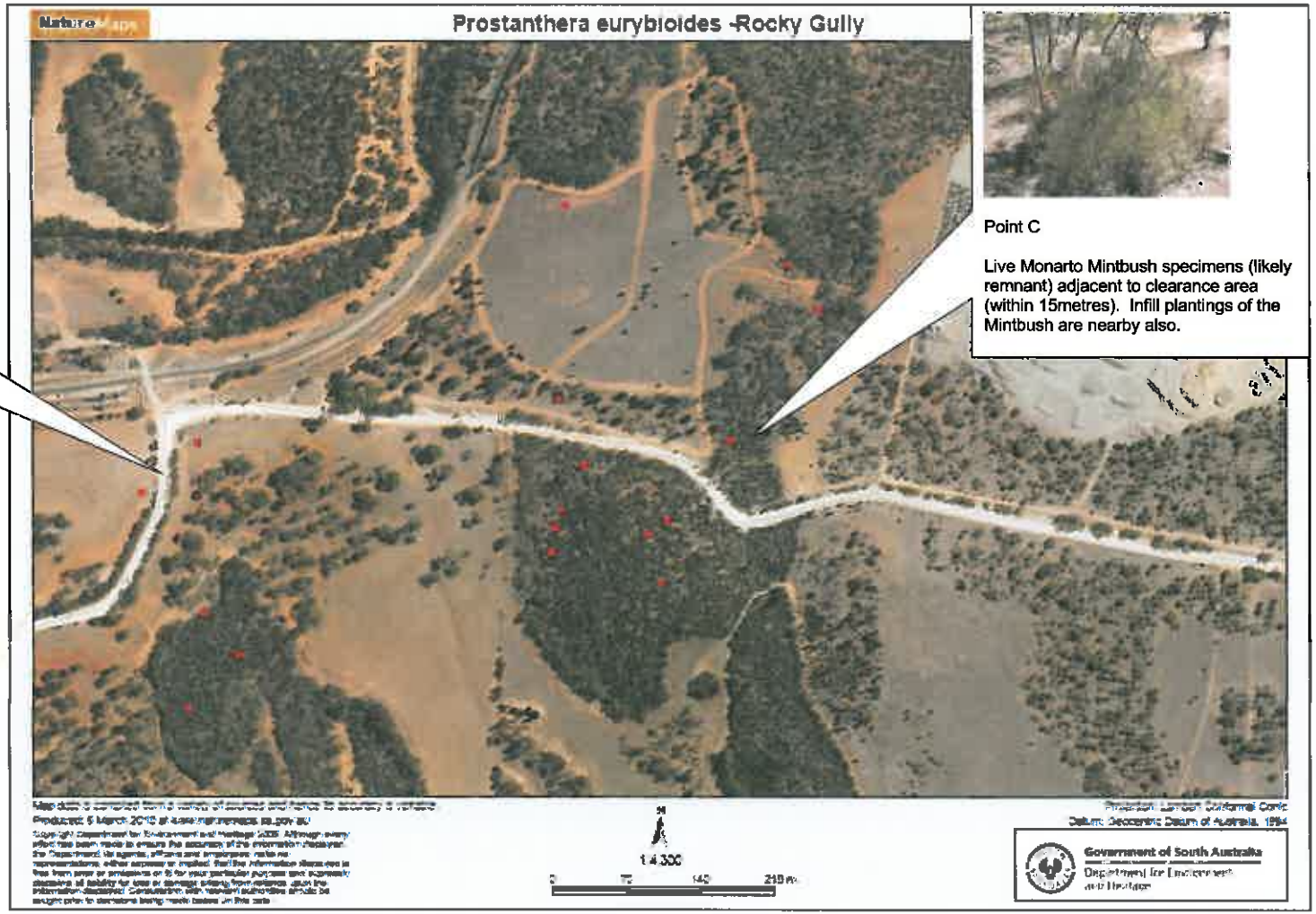
Date of Photography: 2008

Cadastral boundaries and aerial photography supplied by Department for Environment and Heritage (DEH)
The cadastral boundaries vary with the positional accuracy of the photography and are a guide only

3.5 MAP 5 OF 5[2]

Point A & B

Both these areas were investigated thoroughly and no live presence of the endangered Monarto Mintbush could be observed in the impact area- despite historical data suggesting otherwise.



Point C

Live Monarto Mintbush specimens (likely remnant) adjacent to clearance area (within 15metres). Infill plantings of the Mintbush are nearby also.

[2] Map forwarded to RSSA from the Murray Darling NRM body, via DEH threatened Species Unit March 2010.

Comments on the impact to biodiversity values by the proposed Maurice road upgrade at Rocky Gully near Murray Bridge

Overview:

The proposed Development Application by Rural City of Murray Bridge for Road realignment at Maurice road, Rocky Gully (see attached location map) will position the road very closely to a population of *Prostanthera eurybioides*, Monarto mintbush (Nationally Endangered plant, EPBC Act 1999). The proposed upgrade addresses the improvement of road safety.

At this site the mintbush is a naturally occurring remnant. There has been some conservation effort[1] over many years to re-establish mintbush in cleared areas and volunteer[2] effort has been used to assist with management. A brief site visit confirms the presence of mintbush within about 20m of the proposed new road edge.

There are many best practice methods to minimise environmental damage during road construction activities for which advice can be sought through consultancy services. It is the intention here to advise Council on the need to ensure that specific biodiversity management tasks are included in the planning and operational phase.

Site map:

Map showing current and on going community mintbush revegetation project and location of some known plants close to the road. There are 691 individual plants known in the Rocky Gully area.

[1] Willoughby, N. (2009) **Error! Reference source not found.**, Department for Environment and Heritage, South Australia.
[2] Green Corps (Mission Australia, 2009 and others), Greening Australia, Eastern Hills and Murray Plains Catchment group (2004 and ongoing), State Flora,

Conservation value:

Prostanthera eurybioides, Monarto mintbush is a Nationally Endangered plant under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999)[3]. Meaning that any activities that are likely to have a significant impact will need to be reoffered to the Federal Minister for the Environment (DEWHA). It is endemic to South Australia, meaning that it is only known to occur in a defined geographical area in this state.

Monarto Mintbush is at particular risk from grazing by rabbits and kangaroos which may be reducing seed set and survival of seedlings. Small population size and a lack of recruitment are also major threats. General weed invasion of habitats is inhibiting seedling germination and survival. Trail bike riding is a concern, along with the possibility that individual plants are being removed by collectors.

Ecology:

Monarto mintbush is found in tall shrublands or open woodlands, usually associated with rocky granite outcrops. When present in tall shrublands there are very few overstorey species present. The dominant species that is found in this habitat type is; Broombush (*Melaleuca uncinata*) Understorey plants are typically dominated by scattered shrubs over native grasses, lilies and herbs. When present in an open woodland the dominant overstorey species present include; Mallee Box (*Eucalyptus porosa*) Blue Gum (*Eucalyptus leucoxylon ssp. leucoxylon*) Beaked Red Mallee (*Eucalyptus socialis*) Narrow-leaf Red Mallee (*Eucalyptus leptophylla*) Understorey plants are typically dominated by scattered shrubs over native grasses, lilies and herbs.

- Spreading shrub <1m high.
- Branches covered in short, curled hairs.
- Leaves are clustered, thick and hairless.
- The base of the flowers is mid-green with a red or maroon tinge
- The petals are light purple, partly fused together, 10-12 mm long, with orange and dark-purple dots on the inner side of the flower.
- Flowering occurs from September to November
- Grows on sandy loam and loam soils

Project History:

Monarto mintbush is included in the National Recovery Plan for Nine threatened Flora in the MDB NRM region (Obst, 2004). The Threatened Flora project of the SA MDB Natural Resource Management Board continues to oversee the ongoing actions documented in this plan.

Suggested actions and advice:

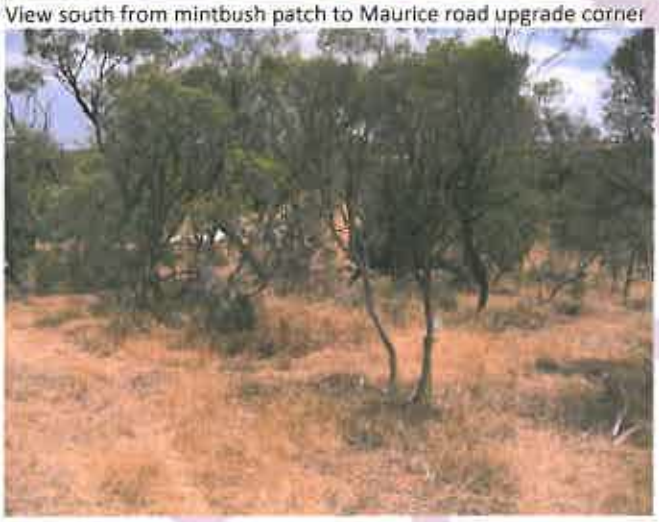
- Seek a professional environmental assessment to ensure compliance with the EPBC Act and the Native Vegetation Act 2003 (South Australia) including Significant Environmental Benefit for vegetation clearance.
- Avoid disturbance to individual plants
- Minimise vegetation clearance within and close to the patch
- Promote reestablishment of local mintbush plants using locally collected seed
- Mark individual plants during construction
- Look at further resourcing to continue the revegetation project
- Expand the native vegetation that adjoins the known population
- Ideally the Rocky Gully Conservation Area should be formally protected as a Conservation Park under the National Parks and Wildlife 1972.
- Translocations of individual plants that may need to be removed is not considered ideal due to the risks of survivorship.

[3] Department of the Environment, Water, Heritage and the Arts (2009). *Prostanthera eurybioides* in Species Profile and Threats Database, Department of the Environment, Water, Heritage and the Arts, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed 2009-12-17T17:05:04.

Green Corps team working on the planted mintbush

View south from mintbush patch to Maurice road upgrade corner

View east through scrub on the alignment of the proposed upgrade



View west through scrub along road alignment

Mintbush flowers

Jo Spencer Landscape Restoration Officer SA MDB NRM M 0427181585

Location map

Town Centre soon


Maurice Rd
70
Maurice Rd
100
90

Glenn Dean

From: Glenn Dean
Sent: Wednesday, 25 November 2009 12:50 PM
To: Glenn Dean

Spoke with Mrs C J Bryant about proposed road realignment on Maurice Road. This was to ascetain what endangered species were in the area as I was aware her block was under a Heritage Agreement. She objected to any improvement and suggested the road be closed. I said the realignment would make the road safer by removing the dangerous bends and it was not practicable to close the road.

Glenn Dean
Parks and Gardens Supervisor
Rural City of Murray Bridge

Phone: 08 8539 1167
Mobile: 0438 545 747
Fax: 08 8531 0170

Website: www.murraybridge.sa.gov.au
Disclaimer: http://www.murraybridge.sa.gov.au/site/page.cfm?u=398

Appendix 4: Native Vegetation Clearance Report

T & S Environmental

TS
Environmental Consulting

Native Vegetation Clearance

Rural City of Murray Bridge – Maurice Road Upgrade

Data Report

Clearance under the *Native Vegetation Regulations 2017*

23rd July 2021

Prepared by Sheree Bowman

Table of contents

1. Application information

Application Details

Applicant:	Rural City of Murray Bridge		
Key contact:	Glenn Dean, Community Biodiversity Officer P: 0438 545 747 E: g.dean@murraybridge.sa.gov.au		
Landowner:	Rural City of Murray Bridge. Property purchase(s) in process		
Site Address:	Maurice Road, Murray Bridge		
Local Government Area:	Murray Bridge	Hundred:	Mobilong
Title ID:	CT6161/335 Roadside Areas – no title details	Parcel ID	D110496 A501

Summary of proposed clearance

Purpose of clearance	Clearance required for the upgrade and realignment of a public road. This application is related to a previous clearance approval 2010/3030, which was not actioned. Also relating to the on-ground SEB Offset 2010/3030.
Native Vegetation Regulation	Regulation 12, Schedule 1; clause 34, Infrastructure
Description of the vegetation under application	A1 – 0.14 Ha *Eucalyptus socialis*, *Eucalyptus porosa* open woodland B1 – 0.094 Ha Degraded *Eucalyptus socialis*, *Allocasuarina verticillata* very open woodland C1 – 0.025 Ha *Eucalyptus incrassata*, *Eucalyptus leucoxylon* woodland D1 – 0.025 Ha *Melaleuca uncinata*, *Melaleuca lanceolata* tall shrubland with emergent mixed mallee Eucalypt upperstorey E1 – 0.07 Ha *Eucalyptus leptophylla* open woodland with *Melaleuca uncinata* understorey
Total proposed clearance - area (ha) and number of trees	0.35 ha native vegetation proposed to be cleared.
Level of clearance	Level 3
Overlay (Planning and Design Code)	N/A – no Development Approval required.

Map of proposed clearance area 	
Mitigation hierarchy	The clearance of native vegetation could not be avoided as part of this development. The road winds amongst cleared cropping land with adjoining roadside native vegetation. The clearance predominantly occurs when the road is re-aligned through the road reserve and onto adjoining cleared cropping land. This is with the exception of A1. The Rural City of Murray Bridge has sought to minimize impacts to native vegetation where possible. The alignment capitalises on existing areas of unsealed road which can be utilized safely into the future. The realigned section has been designed and will be constructed to meet safety specifications and to avoid clearance where-ever possible. Road realignment design has been in-conjunction with the council biodiversity staff where known sites of flora significance have been successfully avoided, including known *Prostanthera eurybioides* and *Acacia menzellii* locations.
SEB Offset proposal	Payment into the Native Vegetation Fund: $7,466.84 (No GST) PLUS ADMIN FEE $410.67 (GST Incl) = $7,877.51

2. Purpose of clearance

2.1 Description and Background

0.29 Hectares are proposed to be cleared incidental to the realignment and upgrade of Maurice Road, Murray Bridge. The realignment and upgrade is pertinent to the council addressing safety issues and is part of the long term plan to improve safety across the council district. Maurice Road winds through cleared cropping land with adjoining roadside native vegetation. The clearance predominantly occurs when the road is re-aligned through the road reserve and onto adjoining cleared cropping land. This is with the exception of A1.

Maurice Road is currently unsealed and winds through areas of roadside native vegetation and cleared cropping land. The upgrade is expected to be undertaken in one stage.

Minor trimming will be undertaken which will be consistent with Regulation 11(23) and the Guidelines for the Management of Roadside Native Vegetation and Regrowth Vegetation Under Native Vegetation Regulation 11(23).

2.2 General location maps

2.3 Details of the proposal

Refer design plans – Appendix 4.

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

- Native Vegetation Act 1991 (application here-in)
- Environment Protection and Biodiversity Conservation Act – current referral

2.5 Native Vegetation Regulation

Regulation 12 and the associated clause 34 in Schedule 1 in Division 5 of the Native Vegetation Regulations: Infrastructure.

3. Method

3.1 Flora assessment

The flora assessment was undertaken by Sheree Bowman (Native Vegetation Accredited Consultant) on the 5th of July 2021, with 2.5 hours spent on site . The Bushland Assessment Methodology was undertaken as detailed in the Native Vegetation Council Bushland Assessment Manual (July 2019) approved by the Native Vegetation Management Group of the Department for Environment and Water. 0.29 hectares of native vegetation was assessed. A Level 3 assessment was completed due to the size of the proposed native vegetation clearance footprint and the total biodiversity score.

Calibrated field assessment techniques were used to undertake the assessment. Plant specimens were collected where required for further identification. A GPS with +/- 5m accuracy, ContextCam® and field maps were used to record photo point locations. Both 50m and 100m tapes are employed to measure assessment site quadrats where possible.

A pre-field desktop assessment was undertaken utilizing searches for the presence of species listed under the National Parks and Wildlife Act 1972 (SA) and the Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth). The following databases were queried for fauna records within the last 20 years and within 5km's of the proposed clearance site - EPBC Act Protected Matters Search Tool, Biological Database of South Australia and Atlas of Living Australia.

Active searches were undertaken of several threatened flora species which are expected to be found in this area, in these vegetation communities. Including but not limited to *Prostanthera eurybioides* (Monarto Mintbush), *Acacia menzelii* (Menzel's Wattle), *Olearia pannosa* ssp. *pannosa* (Silver Daisy-bush) and *Acacia retinocarpa* (Resin Wattle).

3.2 Fauna assessment

A fauna assessment was completed by Phil Barron from Barron Environmental on the 23rd of May 2021. This focused on the presence of Malleefowl (*Leipoa ocellata*), but also took stock of other fauna in the area. Refer to the threatened species assessment for details.

4. Assessment Outcomes

4.1 Vegetation Assessment

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

The sites are contained within the Kinchina Land System. The land system is a landscape of gently undulating rises characterized by a variety of soils reflecting the complexity of the underlying geology. The most common are shallow to moderately deep gritty loamy sands formed on granites, sand over clay soils, deep sands, loamy soils with well-structured clayey subsoils, and shallow stony sands over calcrete. Most of the land, except for depressions with heavier soils, is infertile and prone to wind erosion if exposed. Low water holding capacity is a limitation on shallow soils on granite or calcrete. Boron toxicity and subsoil salinity is limiting in soils formed on Blanchetown Clay.

The proposed clearance footprint is in close proximity to the Kinchina Conservation Park and within the Monarto Conservation Complex. The vegetation in the northern part of the development, forms part of the Kinchina complex, which has large tracts of land (both revegetated and remnant vegetation – relatively speaking), including the newly proclaimed Kinchina Conservation Park. The vegetation proposing to the cleared to allow for the road upgrade and realignment is fragmented and is predominately on roadsides adjoining cropping land, with a section traversing cropping land and aligning along existing unmade road.

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

Vegetation Association	A1: *Eucalyptus socialis*, *Eucalyptus porosa* open woodland				
Representative photos:  				
General description	*Eucalyptus socialis*, *Eucalyptus porosa* open woodland in good condition. Senescence of understory shrub species observed. Some weeds observed were Bridal Creeper* (Asparagus asparagoides), Horehound* (*Marrubium vulgare*), Rough Sow-thistle (*Sonchus asper*), Yorkshire Fog (*Holcus lanatus*), Wards Weed (*Carrichtera annua*) and Romulea minutiflora (Small-flower Onion-grass). NB. * Declared under the Landscape SA Act.				
Threatened species or community	No threatened flora under the NP&W Act or EPBC Act listed species or community were present at the time of survey. Several *Prostanthera eurybioides* (Monarto Mintbush) were located close to the clearance footprint, these have since been confirmed as planted approximately 10 years ago and will not be impacted by the road construction activities. The following threatened fauna species were observed during the field assessment across <u>all sites:</u> White-winged Cough (*Corcorax melanorhamphos*) R in SA Purple-gaped Honeyeater (*Lichenostomus cratitius*) R in SA Hooded Robin (*Melanodryas cucullata cucullata*) R in SA Black-chinned Honeyeater (*Melithreptus gularis*) R in SA Elegant Parrot (*Neophema elegans*) R in SA Diamond Firetail (*Stagonopleura guttata*) V in SA Shy Heathwren (*Hylacola cauta*) R in SA. Several other records listed in Table 1.				
Landscape context score	1.12	Vegetation Condition Score	41.44	Conservation significance score	1.08
Unit biodiversity Score	50.13	Area (ha)	0.14	Total biodiversity Score	7.02

Vegetation Association	B1: Degraded *Eucalyptus socialis*, *Allocasuarina verticillata* sparse woodland

Representative photos:

General description	Degraded *Eucalyptus socialis*, *Allocasuarina verticillata* sparse woodland. Without the degraded understorey, this would be assessed as three scattered trees. The native ground-cover is estimated at well over 5% of what would be expected in a pre-European vegetation state, so was assessed using the bushland methodology. Weed species were observed and consistent with a degraded site such as this, including pasture type weeds and annuals and Bridal Creeper* (*Asparagus asparagoides*) and Horehound* (*Marrubium vulgare*). NB. * Declared under the Landscape SA Act.
Threatened species or community	No threatened flora under the NP&W Act or EPBC Act listed species or community were present at the time of survey. The following threatened fauna species were observed during the field assessment across all sites: White-winged Cough (*Corcorax melanorhamphos*) R in SA Purple-gaped Honeyeater (*Lichenostomus cratitius*) R in SA Hooded Robin (*Melanodryas cucullata cucullata*) R in SA Black-chinned Honeyeater (*Melithreptus gularis*) R in SA Elegant Parrot (*Neophema elegans*) R in SA Diamond Firetail (*Stagonopleura guttata*) V in SA Shy Heathwren (*Hylacola cauta*) R in SA. Several other records listed in Table 1.

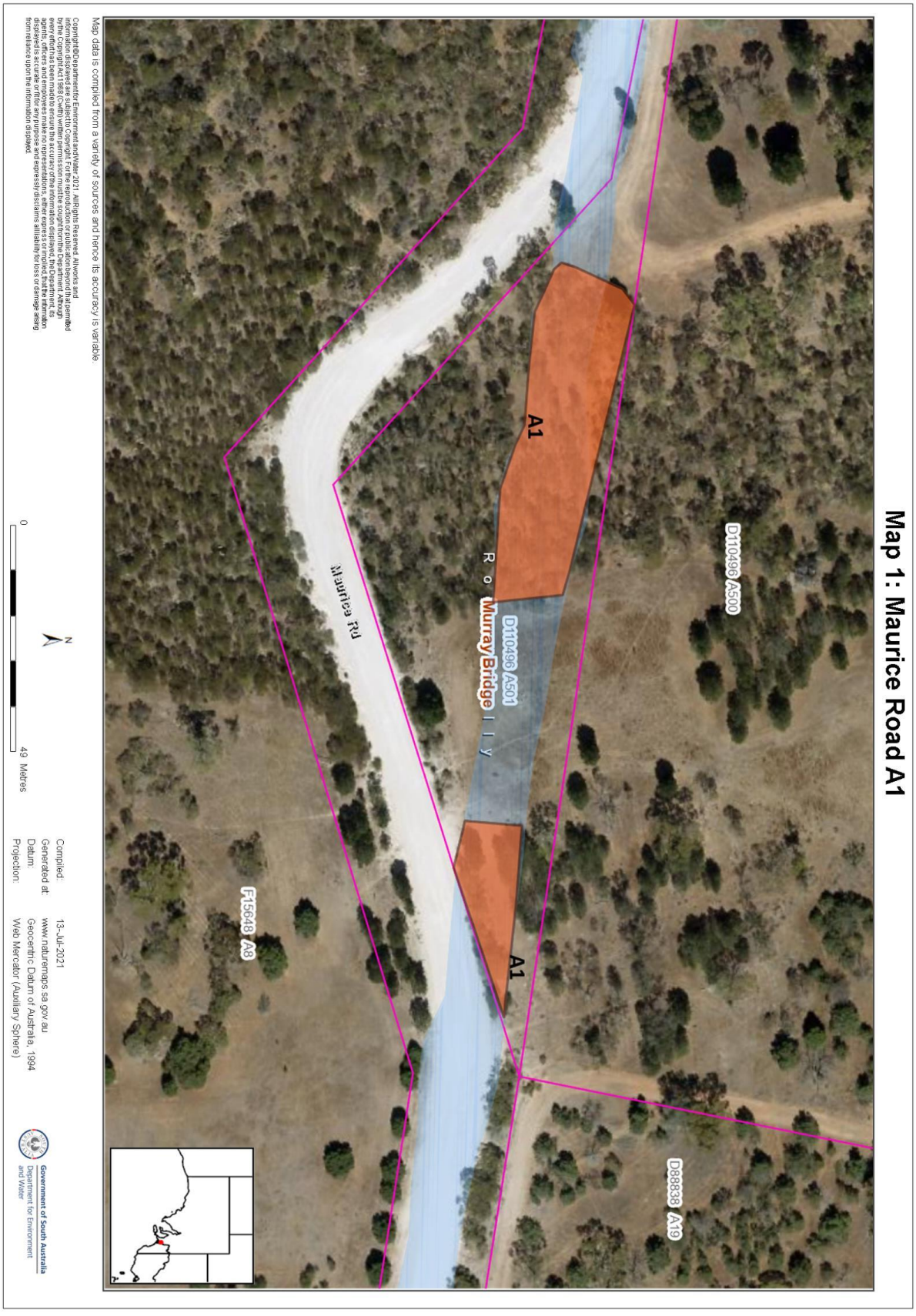
Landscape context score	1.12	Vegetation Condition Score	13.89	Conservation significance score	1.08
Unit biodiversity Score	16.81	Area (ha)	.094	Total biodiversity Score	1.58

Vegetation Association	C1: *Eucalyptus incrassata, Eucalyptus leucoxylon* woodland				
Representative photos:  					
General description	*Eucalyptus incrassata*, *Eucalyptus leucoxylon* woodland in good condition. Weeds observed were Bridal Creeper* (*Asparagus asparagoides*), Sour-sob *(Oxalis pes-caprae*) and Oats (*Avena* sp.). NB. * Declared under the Landscape SA Act.				
Threatened species or community	No threatened flora under the NP&W Act or EPBC Act listed species or community were present at the time of survey. A White-wing Chough nest, with several birds nesting and calling were observed at the time of survey in this patch. The following threatened fauna species were observed during the field assessment across all sites: White-winged Cough (*Corcorax melanorhamphos*) R in SA Purple-gaped Honeyeater (*Lichenostomus cratitius*) R in SA Hooded Robin (*Melanodryas cucullata cucullata*) R in SA Black-chinned Honeyeater (*Melithreptus gularis*) R in SA Elegant Parrot (*Neophema elegans*) R in SA Diamond Firetail (*Stagonopleura guttata*) V in SA Shy Heathwren (*Hylacola cauta*) R in SA. Several other records listed in Table 1.				
Landscape context score	1.12	Vegetation Condition Score	31.76	Conservation significance score	1.08
Unit biodiversity Score	38.42	Area (ha)	0.025	Total biodiversity Score	0.96

Vegetation Association	D1: *Melaleuca uncinata*, *Melaleuca lanceolata* tall shrubland with emergent mixed mallee Eucalypt upperstorey				
Representative photo: 					
General description	*Melaleuca uncinata*, *Melaleuca lanceolata* tall shrubland with emergent mixed mallee Eucalypt upperstorey in good condition. Some weeds observed were Bridal Creeper* (*Asparagus asparagoides*), Sour-sob (*Oxalis pes-caprae*), Horehound* (*Marribrium vulgare*) and Oats (Avena sp.). NB. * Declared under the Landscape SA Act.				
Threatened species or community	*Acacia rhigiophylla* (Dagger-leaf Wattle) was recorded in this site, this is rated Rare in SA under the NP&W Act. Threatened Flora score of 0.4. No EPBC Act listed species or community were present at the time of survey. The following threatened fauna species were observed during the field assessment across all sites: White-winged Cough (*Corcorax melanorhamphos*) R in SA Purple-gaped Honeyeater (*Lichenostomus cratitius*) R in SA Hooded Robin (*Melanodryas cucullata cucullata*) R in SA Black-chinned Honeyeater (*Melithreptus gularis*) R in SA Elegant Parrot (*Neophema elegans*) R in SA Diamond Firetail (*Stagonopleura guttata*) V in SA Shy Heathwren (*Hylacola cauta*) R in SA. Several other records listed in Table 1.				
Landscape context score	1.12	Vegetation Condition Score	32.56	Conservation significance score	1.08
Unit biodiversity Score	40.84	Area (ha)	0.025	Total biodiversity Score	1.02

Vegetation Association	E1: *Eucalyptus leptophylla* open woodland with *Melaleuca uncinata* understorey				
Representative photos: 					
General description	*Eucalyptus leptophylla* open woodland with *Melaleuca uncinata* understorey in good condition. Both Bridal Creeper (*Asparagus asparagoides*) and Sour-sob (*Oxalis pes-caprae*) were both recorded in E1. Bridal Creeper is declared under the Landscape SA Act. There was a distinct motorbike track through the site, which I anticipate may have started as a spill drain in some sections.				
Threatened species or community	No threatened flora under the NP&W Act or EPBC Act listed species or community were present at the time of survey. The following threatened fauna species were observed during the field assessment across all sites: White-winged Cough (*Corcorax melanorhamphos*) R in SA Purple-gaped Honeyeater (*Lichenostomus cratitius*) R in SA Hooded Robin (*Melanodryas cucullata cucullata*) R in SA Black-chinned Honeyeater (*Melithreptus gularis*) R in SA Elegant Parrot (*Neophema elegans*) R in SA Diamond Firetail (*Stagonopleura guttata*) V in SA Shy Heathwren (*Hylacola cauta*) R in SA. Several other records listed in Table 1.				
Landscape context score	1.12	Vegetation Condition Score	49.08	Conservation significance score	1.08
Unit biodiversity Score	59.36	Area (ha)	0.07	Total biodiversity Score	4.16

Site map showing areas of proposed impact



Map 2: Maurice Road B1

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

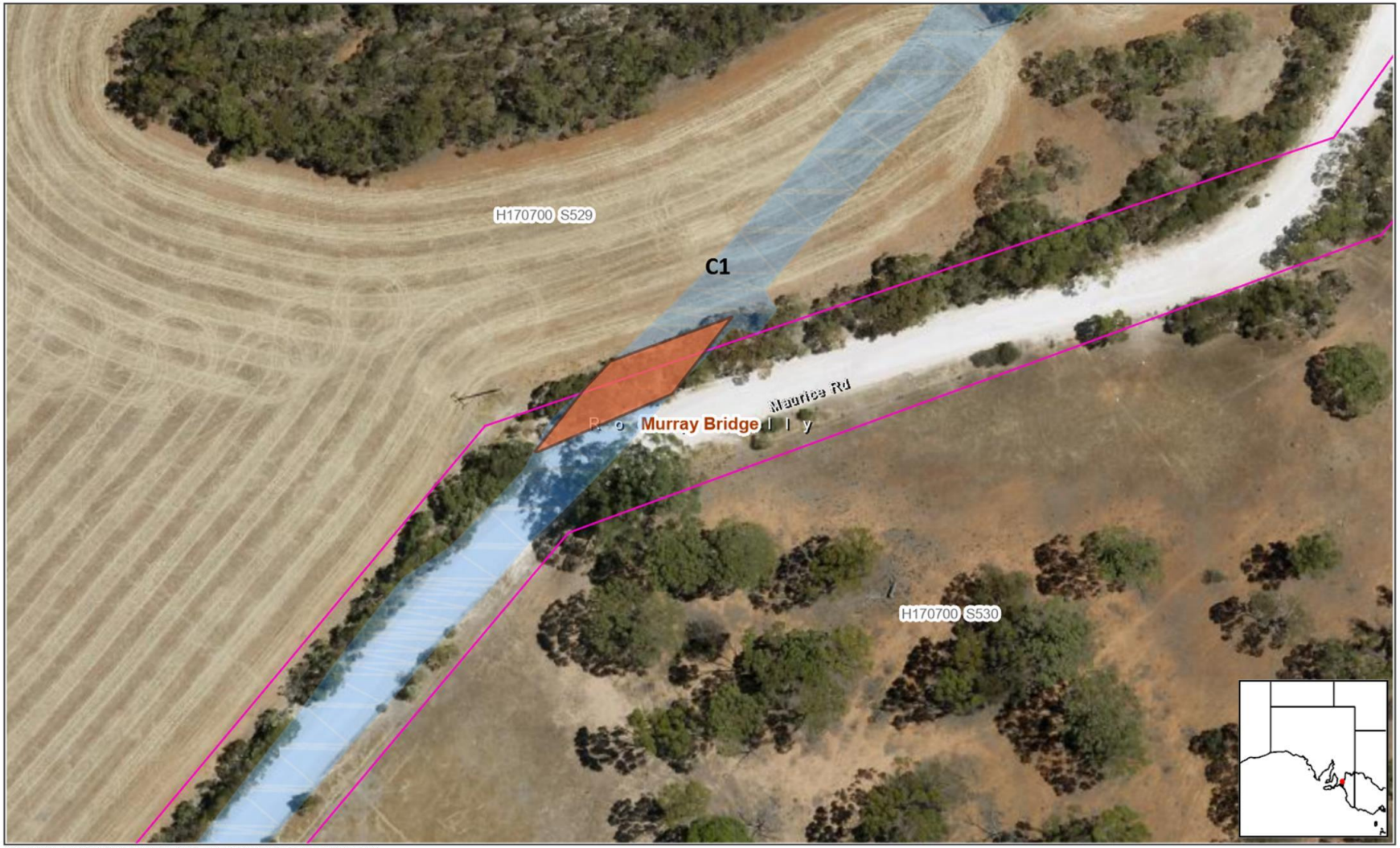
N

0 49 Metres

Compiled: 13-Jul-2021
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 1994
Projection: Web Mercator (Auxiliary Sphere)

Government of South Australia
Department for Environment and Water

Map 3: Maurice Road C1



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

N

0 49 Metres

Compiled: 13-Jul-2021
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 1994
Projection: Web Mercator (Auxiliary Sphere)

Government of South Australia
Department for Environment and Water

Map 4: Maurice Road D1

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

N

0 49 Metres

Compiled: 13-Jul-2021
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 1994
Projection: Web Mercator (Auxiliary Sphere)

Government of South Australia
Department for Environment and Water

Map 5: Maurice Road E1

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

N

0 49 Metres

Compiled: 13-Jul-2021
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 1994
Projection: Web Mercator (Auxiliary Sphere)

Government of South Australia
Department for Environment and Water

4.2 Threatened Species assessment

A thorough threatened species assessment was completed as part of this project, including a report pertaining to the presence of EPBC Listed matters and species. Refer below the report from Phil Barron , Barron Environmental.

Maurice Road Upgrade Threatened Fauna Search (esp Malleefowl), Kinchina-White Hill area. **Prepared by Phil Barron from Barron Environmental.** * Requested by the Department for Agriculture, Water and the Environment RE: EPBC Matters Referral.

Phil Barron, 23/5/21 (Surveyor and Author)
Search Dates: 6 & 14/5/21 (10 hours total search time, as per EPBC Act Guidelines)

Based on historical records, on the 6 & 14/5/21 and area in the vicinity of the proposed western Maurice Rd upgrade in the vicinity of Kinchina (approximately 5-10km west of Murray Bridge, SA) was searched for the presence of Malleefowl (Leipoa ocellata, rated as Vulnerable to extinction (V) Nationally and in SA) and other potential threatened species that may be in the area.

The habitat requirements of Malleefowl anywhere in Australia are poorly understood but a sandy substrate and abundance of leaf litter are clear requirements for the construction of the birds' incubator-nests, as well as dense canopy cover and fire history also seen as important in some studies, with birds preferring old growth (i.e., long unburnt) mallee (Benshemesh 2007 – the National Recovery Plan for Malleefowl).

The search area stratified or prioritised according to predicted most likely suitable habitat for Malleefowl in the area. This was initially done via a review of aerial imagery, reconnaissance/ground-truthing and previous experience and knowledge of the area. Larger, less fragmented areas of vegetation were favoured for searching over smaller, isolated and degraded vegetation patches on private property (often with livestock access) or obviously cleared cropping paddocks and areas close to dwellings or a mine/quarry. Based on EPBC Act Guidelines and referring to Figure 1, the most viable areas based on habitat were searched on foot, involving looking and listening for threatened species, including Malleefowl, as well as for tracks and other signs (such as active or inactive nesting mounds).

No Malleefowl, or signs thereof, were observed during the search and the area and habitat within it is now not considered suitable or viable for a sustaining a pair or population of this species.

Degrading factors encountered for Malleefowl include the presence of the following:

- Excessive grazing pressure (rabbits, livestock).
- Expected excessive levels feral or domestic predators (cats, dogs and foxes). Several foxes were also observed during the search.
- Excessive disturbance (human, including residential, recreation and mining activities, as well as fire (prescribed burns or wildfires) and livestock and/or other farming activities).
- Much of the remnant vegetation was on rocky outcrops or generally rocky terrain and otherwise 'heavy' soils and was considered unsuitable vegetation, including older open "Monarto woodland" style revegetation (40-50 years old), dense Broombush shrubland and other vegetation with low leaf-litter.
- High weed density, especially bridal creeper, in some areas.

Although no Malleefowl or viable habitat was observed a total of 48 fauna species were observed, including 44 bird species, of which 5 are rated as Rare and 1 Vulnerable in SA (NP&W Act) (Table 1): Elegant Parrot, Hooded Robin, Purple-gaped Honeyeater, Shy Heathwren and White-winged Chough – Rare; Diamond Firetail – Vulnerable. With the exception of White-winged Choughs, all these threatened species were observed more than 200m from the proposed road development and not expected to be adversely affected by it, including the mobile and adaptable Choughs.

Refer to Appendix 2 – Complete Fauna List

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

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

Species (common name)	NP&W Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Leipoa ocellata (Malleefowl)	V	VU	6, 5	Unknown	Mallee vegetation with a thick layer of leaf litter	Unlikely. Inappropriate habitat. Active searches undertaken in the area – refer fauna assessment.
Corcorax melanorhamphos (White-winged Cough)	R		3, 4	2018	Found in open forests and woodlands. They tend to prefer the wetter areas, with lots of leaf-litter, for feeding, and available mud for nest building.	Highly likely. Habitat suitable. Recorded on site and record within 5km's in the last 10 years.
Lichenostomus cratitius (Purple-gaped Honeyeater)	R		3, 4	2019	Found mostly in open shrublands and low woodlands, especially dominated by acacias. It is also be found in swamplands, along creeks and drainage channels. It is also found in partly cleared lands with remnant woodlands.	Highly likely. Habitat suitable. Recorded during site assessment and records within 5km's in the last 10 years.
*Melanodryas cucullata cucullata (H*ooded Robin)	R		3, 4	2017	Hooded Robins are found in lightly timbered woodland, mainly dominated by acacia and/or eucalypts.	Highly likely. Habitat suitable. Recorded on site and record within 5km's in 2018.
Melithreptus gularis (Black-chinned Honeyeater)	R		3,4	2016	The Black-chinned Honeyeater is found in the upper levels of open eucalypt forests and woodlands dominated by box	Highly likely. Habitat suitable. Recorded on site and record within 5km's in the last 10 years.

					and ironback eucalypts. It is often found along waterways, especially in arid and semi-arid areas and in northern Australia. It is occasionally seen in gardens and street trees.	
*Neophema elegans (*Elegant Parrot)	R		3, 4	2018	Inhabiting open habitats, the Elegant Parrot can be found in a wide variety of habitats, including grasslands, shrublands, mallee, woodlands and thickets, bluebush plains, heathlands, saltmarsh and farmland.	Highly likely. Habitat suitable. Recorded on site and record within 5km's in the last 10 years.
*Stagonopleura guttata (*Diamond Firetail)	V		3, 4	2018	Diamond Firetails are found in open grassy woodland, heath and farmland or grassland with scattered trees.	Highly likely. Habitat suitable. Recorded on site and record within 5km's in the last 10 years.
Hylacola cauta (Shy Heathwren)	R		3, 4	Unknown	They inhabit mostly mallee woodland that has relatively dense shrub and heath understorey.	Highly likely. Habitat suitable. Recorded on site and record within 5km's in the last 10 years.
Falco peregrinus (Peregrine Falcon)	R		3	2010	found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water, and may even be found	Likely. Habitat suitable. Recorded within 5km's in the last 20 years.

					nesting on high city buildings.	
Hieraaetus morphnoides (Little Eagle)	V		3	2017	The Little Eagle is seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest.	Highly likely. Habitat suitable. Recorded within 5km's in the last 10 years.
Microeca fascinans (Jacky Winter)	Ssp.		3	2018	Jacky Winters prefer open woodland with an open shrub layer and a lot of bare ground. They are often seen in farmland and parks.	Highly likely. Habitat suitable. Recorded within 5km's in the last 10 years.
Petroica boodang boodang (Scarlet Robin)	R		3	2012	The Scarlet Robin lives in open forests and woodlands in Australia. During winter, it will visit more open habitats such as grasslands and will be seen in farmland and urban parks and gardens at this time.	Highly likely. Habitat suitable. Recorded within 5km's in the last 10 years.
Stagonopleura bella (Beautiful Firetail)	R		3	2012	The Beautiful Firetail lives in swampy grassy spots in coastal belts of dry forest, shrubby heath, tea-tree scrub, casuarinas and never far from water.	Highly likely. Habitat suitable. Recorded within 5km's in the last 10 years.
Trichosurus vulpecula (Common Brushtail Possum)	R		3	2019	Common brushtail possums occur in a wide variety of habitats such as rainforest, woodland, dry eucalypt forest, pine plantations,	Highly likely. Habitat suitable. Recorded within 5km's in the last 10 years.

					semiarid areas, urban gardens/parks and, sometimes, treeless areas.	
Burhinus grallarius (Bush Stonecurlew)	R		3	2013	The bush stone-curlew has a broad habitat preference but is rarely seen at rainforest or arid desert and in urbanised or agricultural regions. The species is found in open forest, eucalyptus woodland, rainforest edges, grassy plains, arid scrubland and along inland watercourses.	Possible.
Source; 1- BDBSA, 2 - AoLA, 3 – NatueMaps 4 – Observed/recorded in the field, 5 - Protected matters search tool, 6 – others NP&W Act; E= Endangered, V = Vulnerable, R= Rare EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable						

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

Likelihood	**Criteria**
Highly Likely/Known	Recorded in the last 10 years, the species does not have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution or; The species was recorded as part of field surveys.
Likely	Recorded within the previous 20 years, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.
Possible	Recorded within the previous 20 years, the area falls inside the known distribution of the species, but the area provide limited habitat or feeding resources for the species. Recorded within 20 -40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.
Unlikely	Recorded within the previous 20 years, but the area provide no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter. Recorded within 20 -40 years; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area. No records despite adequate survey effort.

4.3 Cumulative impact

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

Other than the immediate clearance impacts detailed in this data report, the cumulative impacts of this development are minimal. As part of this project, The sections of unsealed road will be sealed, and dust smothering will be reduced.

4.4 Address the Mitigation Hierarchy

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

a) Avoidance – outline measures taken to avoid clearance of native vegetation
The clearance of native vegetation could not be avoided as part of this development. The road winds amongst cleared cropping land with adjoining roadside native vegetation. The clearance predominantly occurs when the road is re-aligned through the road reserve and onto adjoining cleared cropping land. This is with the exception of A1.

b) Minimization – if clearance cannot be avoided, outline measures taken to minimize the extent, duration and intensity of impacts of the clearance on biodiversity to the fullest possible extent (whether the impact is direct, indirect or cumulative).
The Rural City of Murray Bridge has sought to minimize impacts to native vegetation where possible. The alignment capitalises on existing areas of unsealed road which can be utilized safely into the future. The realigned section has been designed and will be constructed to meet safety specifications and to avoid clearance where-ever possible.

Road realignment design has been in-conjunction with the council biodiversity staff where known sites of flora significance have been successfully avoided, including known Prostanthera eurybioides and Acacia menzellii locations.

c) Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimized, such as allowing for the re-establishment of the vegetation.
The areas of existing unsealed road which will no longer be utilized, will be revegetated by the Rural City of Murray Bridge with local indigenous plant species using appropriate field techniques.

d) Offset – any adverse impact on native vegetation that cannot be avoided or further minimized should be offset by the achievement of a significant environmental benefit that outweighs that impact.
The Rural City of Murray Bridge will opt to pay into the Native Vegetation Fund. Refer Section 6.

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

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

Principle of clearance	Relevant information	Assessment against the principles	Moderating factors that may be considered by the NVC
Principle 1b - significance as a habitat for wildlife	Threatened fauna species which have been recorded or may utilise the vegetation proposed to be cleared: *Corcorax melanorhamphos* (White-winged Cough) *Lichenostomus cratitius* (Purple-gaped Honeyeater) *Melanodryas cucullata cucullata* (Hooded Robin) *Melithreptus gularis* (Black-chinned Honeyeater) *Stagonopleura guttata* (Diamond Firetail) *Hylacola cauta* (Shy Heathwren) *Falco peregrinus* (Peregrine Falcon) *Hieraaetus morphnoides* (Little Eagle) *Microeca fascinans* (Jacky Winter) *Petroica boodang boodang* (Scarlet Robin) *Stagonopleura bella* (Beautiful Firetail) *Trichosurus vulpecula* (Common Brushtail Possum) *Burhinus grallarius* (Bush Stonecurlew)	Seriously at Variance - A1, B1, C1, D1, E1.	Patch: A1 Threatened Fauna Score 0.08 Unit biodiversity Score 50.13 Patch: B1 Threatened Fauna Score 0.08 Unit biodiversity Score 16.81 Patch: C1 Threatened Fauna Score 0.08 Unit biodiversity Score 38.42 Patch: D1 Threatened Fauna Score 0.08 Unit biodiversity Score 40.84 Patch: E1 Threatened Fauna Score 0.08 Unit biodiversity Score 59.36
Principle 1c - plants of a rare, vulnerable or endangered species	Several *Acacia rhigiophylla* (Dagger-leaf Wattle) plants were recorded in this site, this is rated Rare in SA under the NP&W Act. No EPBC Act listed species or community were present at the time of survey. Threatened Flora Score(s) – 0.4 (D1 ONLY).	At Variance - D1	
Principle 1d - the vegetation	No threatened communities under the EPBC Act or threatened ecosystems under the DEW	Not at Variance - A1-E1	

***comprises the whole or part of a plant community that is Rare, Vulnerable or endangered*:**	Provisional list of threatened ecosystems present. Threatened Community Score - 1		

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

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	-
	Area (ha)	0.35
	Total biodiversity Score	14.73
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b)
Risk assessment outcome		Level 3

5. Clearance summary

Clearance Area(s) Summary table

Block	Site	Species diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
A	1	21	1	0	.08	50.13	.14		1	-	-	7.37	$3,518.35	$193.51
B	2	9	1	0	.08	16.81	.094		1	-	-	1.66	$792.01	$43.56
C	3	21	1	0	.08	38.42	.025		1	-	-	1.01	$488.20	$26.85
D	4	15	1	.04	.08	40.84	.025		1	-	-	1.07	$527.47	$29.01
E	5	27	1	0	.08	59.34	.07		1	-	-	4.36	$2,140.81	$117.74
						Total	**.35**	**.354**				**15.47**	**$7,466.84**	**$410.67**

Total's summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	0.354	15.47	$7,466.84	$410.67	$7,877.51

Economies of Scale Factor	0.5
Rainfall (mm)	373

6. Significant Environmental Benefit

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

ACHIEVING AN SEB

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

☒ Pay into the Native Vegetation Fund.

PAYMENT SEB

If a proponent proposes to achieve the SEB by paying into the Native Vegetation Fund, summary information must be provided on the amount required to be paid and the manner of payment:

- $7,466.84 (No GST) PLUS ADMIN FEE $410.67 (GST Incl) = $7,877.51

7. Appendices

Appendix 1. Flora Species List

Appendix 2. Fauna Species List

Appendix 3. Bushland Assessment Scoresheets associated with the proposed clearance area (Excel format)

Appendix 4. Design Plans

Appendix 1: Flora Species List

Site A1

Scientific Name	Common Name	Introduced
Eucalyptus porosa	Mallee Box	
Melaleuca uncinata	Broombush	
Maireana brevifolia	Short-leaf Bluebush	
Enchylaena tomentosa var. tomentosa	Ruby Saltbush	
Eucalyptus incrassata	Ridge-fruited Mallee	
Eucalyptus socialis -- Eucalyptus yumbarrana		
Lomandra effusa	Scented Mat-rush	
Pittosporum angustifolium	Native Apricot	
Rhagodia candolleana ssp.	Sea-berry Saltbush	
Bursaria spinosa ssp.	Bursaria	
Arthropodium sp.	Vanilla-lily	
Helichrysum leucopsideum	Satin Everlasting	
Sonchus asper	Rough Sow-thistle	*
Holcus lanatus	Yorkshire Fog	*
Brassica sp.		
Aira sp.	Hair-grass	*
Avena sp.	Oat	*
Trifolium angustifolium	Narrow-leaf Clover	*
Romulea minutiflora	Small-flower Onion-grass	*
Marrubium vulgare	Horehound	*
Carrichtera annua	Ward's Weed	*
Asparagus asparagoides f.	Bridal Creeper	*

Site B1

Scientific Name	Common Name	Introduced
Dianella revoluta var.		
Lomandra effusa	Scented Mat-rush	
Senna artemisioides ssp. petiolaris		
Enchylaena tomentosa var. tomentosa	Ruby Saltbush	
Allocasuarina verticillata	Drooping Sheoak	
Eucalyptus socialis -- Eucalyptus yumbarrana		
Maireana brevifolia	Short-leaf Bluebush	
Clematis microphylla	Old Man's Beard	
Rhagodia candolleana ssp.	Sea-berry Saltbush	
Scabiosa atropurpurea	Pincushion	
Austrostipa sp.	Spear-grass	
Acacia argyrophylla	Silver Mulga-bush	
Acacia rigens	Nealie	
Acacia calamifolia	Wallowa	
Pittosporum angustifolium	Native Apricot	
Asparagus asparagoides f.	Bridal Creeper	
Avena sp.	Oat	
Rytidosperma caespitosum	Common Wallaby-grass	
Marrubium vulgare	Horehound	
Salvia verbenaca var.	Wild Sage	
Asphodelus fistulosus	Onion Weed	

Threlkeldia diffusa	Coast Bonefruit
Melaleuca acuminata ssp. acuminata	Mallee Honey-myrtle

Site C1

Scientific Name	Common Name	Introduced
Pittosporum angustifolium	Native Apricot	
Lomandra effusa	Scented Mat-rush	
Melaleuca uncinata	Broombush	
Enchylaena tomentosa var. tomentosa	Ruby Saltbush	
Rhagodia candolleana ssp.	Sea-berry Saltbush	
Eucalyptus incrassata	Ridge-fruited Mallee	
Oxalis pes-caprae	Soursob	*
Asparagus asparagoides f.	Bridal Creeper	*
Avena sp.	Oat	*
Eucalyptus leucoxylon ssp.	South Australian Blue Gum	

Site D1

Scientific Name	Common Name	Introduced
Melaleuca lanceolata	Dryland Tea-tree	
Melaleuca uncinata	Broombush	
Eucalyptus incrassata	Ridge-fruited Mallee	
Enchylaena tomentosa var. tomentosa	Ruby Saltbush	
Rhagodia candolleana ssp.	Sea-berry Saltbush	
Maireana brevifolia	Short-leaf Bluebush	
Austrostipa elegantissima	Feather Spear-grass	
Eucalyptus leptophylla	Narrow-leaf Red Mallee	
Brassica sp.		
Acacia rhigiophylla	Dagger-leaf Wattle	
Eucalyptus calycogona ssp.	Square-fruit Mallee	
Avena sp.	Oat	*
Dianella revoluta var.		
Asparagus asparagoides f.	Bridal Creeper	*
Oxalis pes-caprae	Soursob	*
Scabiosa atropurpurea	Pincushion	*
Marrubium vulgare	Horehound	*
Elytrigia repens	Twitch Grass	*

NB. *Acacia rhigiophylla* is rated Rare in SA.

Site E1

Scientific Name	Common Name	Introduced
Trifolium angustifolium	Narrow-leaf Clover	
Melaleuca uncinata	Broombush	
Enchylaena tomentosa var. tomentosa	Ruby Saltbush	
Rhagodia candolleana ssp.	Sea-berry Saltbush	
Helichrysum leucopsideum	Satin Everlasting	
Austrostipa sp.	Spear-grass	
Eucalyptus leptophylla	Narrow-leaf Red Mallee	
Exocarpos aphyllus	Leafless Cherry	

Boronia coerulescens ssp. coerulescens	Blue Boronia	
Clematis microphylla	Old Man's Beard	
Pittosporum angustifolium	Native Apricot	
Dianella brevicaulis	Short-stem Flax-lily	
Asparagus asparagoides f.	Bridal Creeper	
Oxalis pes-caprae	Soursob	*
Bursaria spinosa ssp.	Bursaria	*
Correa reflexa var.		
Billardiera cymosa ssp.	Sweet Apple-berry	
Lomandra multiflora ssp. dura	Hard Mat-rush	
Rytidosperma sp.	Wallaby-grass	
Lomandra effusa	Scented Mat-rush	

Appendix 2: Fauna Species List

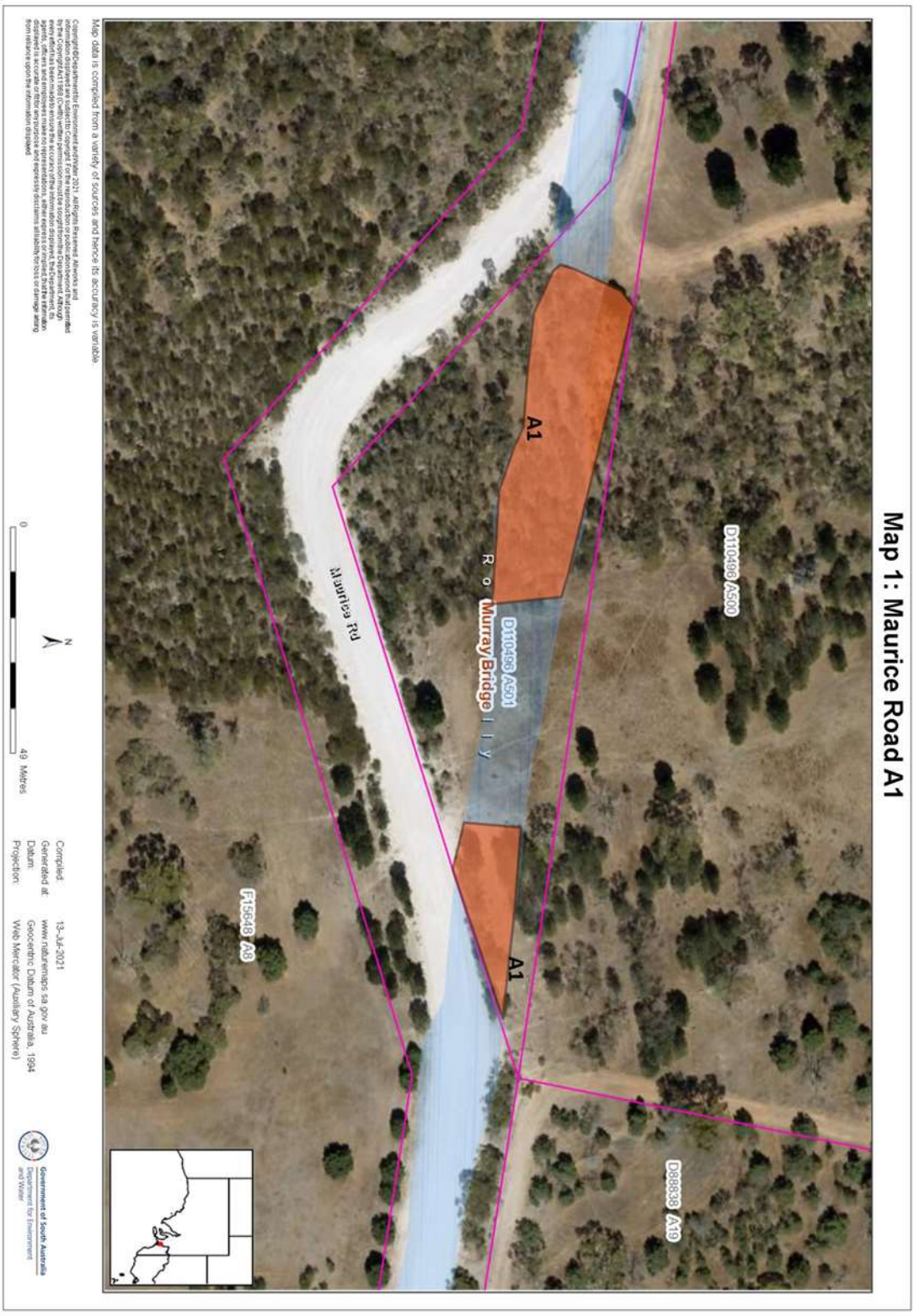
		Threatened Sp			
Scientific Name	Common Name	EPBC	SA	Past Record	Observed
Falco peregrinus	Peregrine Falcon		R	y	
Hieraaetus morphnoides	Little Eagle		V	y	
Lichenostomus cratitius occidentalis	Purple-gaped Honeyeater (mainland SA)		R	y	y
Melanodryas cucullata	Hooded Robin (YP, MN, AP, MLR, MM, SE)		R	y	y
Melithreptus gularis	Black-chinned Honeyeater		ssp	y	y
Microeca fascinans	Jacky Winter		ssp	y	
Neophema elegans	Elegant Parrot		R	y	y
Petroica boodang	Scarlet Robin		R	y	
Stagonopleura guttata	Diamond Firetail		V	y	y
Stagonopleura bella	Beautiful Firetail		R	y	
Strepera versicolor melanoptera	Black-winged Currawong (SE, MLR, MM)			y	y
Trichosurus vulpecula	Common Brushtail Possum		R	y	
Burhinus grallarius	Bush Stonecurlew		R	y	
Myiagra inquieta	Restless Flycatcher		R	y	
Acanthiza chrysorrhoa	Yellow-rumped Thornbill				y
Acanthiza nana	Yellow Thornbill				y
Acanthiza uropygialis	Chestnut-rumped Thornbill				y
Aegotheles cristatus cristatus	Australian Owlet-nightjar				y
Anthochaera carunculata	Red Wattlebird				y
Aphelocephala leucopsis	Southern Whiteface				y
Barnardius zonarius barnardi	Mallee Ringneck				y
Colluricincla harmonica	Grey Shrikethrush				y
Corvus mellori	Little Raven				y
Cracticus torquatus	Grey Butcherbird				y
Dicaeum hirundinaceum	Mistletoebird				y
Drymodes brunneopygia	Southern Scrub Robin				y
Eolophus roseicapilla	Galah				y
Falco berigora	Brown Falcon				y
Falco cenchroides	Nankeen Kestrel				y
Gavicalis virescens	Singing Honeyeater				y
Geopelia placida	Peaceful Dove				y
Gymnorhina tibicen	Australian Magpie				y
Hirundo neoxena	Welcome Swallow				y
Hylacola cauta	Shy Heathwren		R		y
Malurus lamberti	Variegated Fairywren				y
Melithreptus brevirostris	Brown-headed Honeyeater				y
Milvus migrans	Black Kite				y
Northiella haematogaster					y
Ocyphaps lophotes	Crested Pigeon				y
Pachycephala rufiventris rufiventris	Rufous Whistler				y
Pardalotus punctatus	Spotted Pardalote				y
Pardalotus striatus	Striated Pardalote				y
Petroica goodenovii	Red-capped Robin				y
Phaps chalcoptera	Common Bronzewing				y

Phylidonyris novaehollandiae	New Holland Honeyeater	y
Pomatostomus superciliosus superciliosus	White-browed Babbler (southern SA)	y
Psephotus haematonotus	Red-rumped Parrot	y
Ptilotula penicillata	White-plumed Honeyeater	y
Rhipidura albiscapa	Grey Fantail	y
Rhipidura leucophrys	Willie Wagtail	y
Smicrornis brevirostris	Weebill	y
*Sturnus vulgaris**	Common Starling	y
*Lepus europaeus**	European Brown Hare	y
Macropus fuliginosus	Western Grey Kangaroo	y
*Oryctolagus cuniculus**	Rabbit (European Rabbit)	y
*Vulpes vulpes**	Fox (Red Fox)	y

NB. * Introduced species.

Appendix 5: Maps of Proposed Vegetation Clearance 2021

Map 1– Proposed clearance area

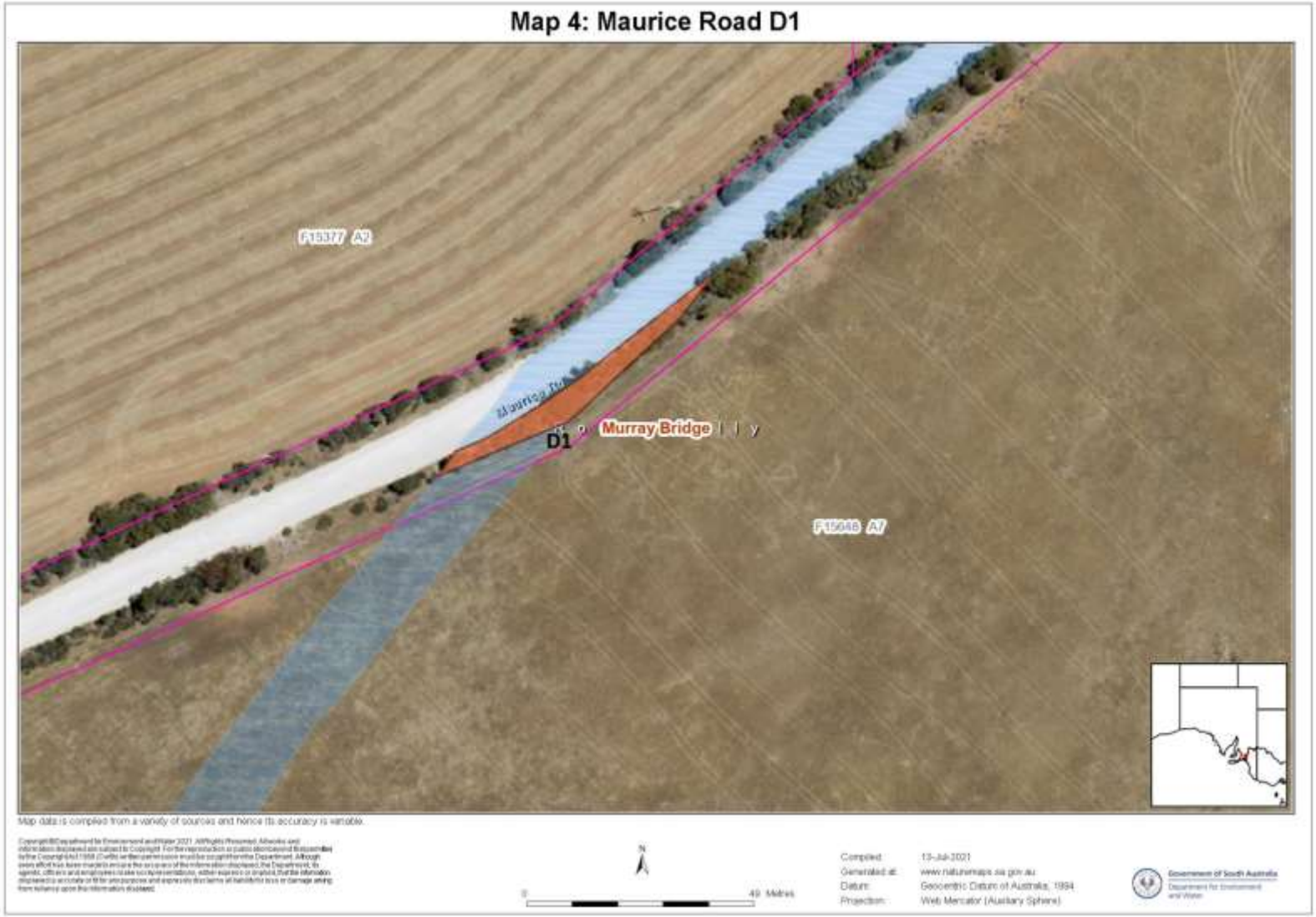


Map 2 – Proposed clearance area

Map 3 – Proposed clearance area

Map 3: Maurice Road C1

Map 4– Proposed clearance area



Map 5 – Proposed clearance area

Map 5: Maurice Road E1

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

N

0 49 Metres

Compiled: 13-Jul-2021
Generated at: www.naturemaps.sa.gov.au
Datum: Geocentric Datum of Australia, 1994
Projection: Web Mercator (Auxiliary Sphere)

Government of South Australia
Department for Environment and Water

Appendix 6: 2021 – Native Vegetation Council Decision Notification

Native Vegetation Council

81-95 Waymouth St, ADELAIDE SA 5000 | GPO Box 1047, ADELAIDE SA 5001
Ph| 08 8303 9777; Email| nvc@sa.gov.au

DECISION NOTIFICATION

Native Vegetation Regulations 2017

Application Number: 2021/3184/415

To: Rural City of Murray Bridge
c/- Glenn Dean
Via: g.dean@murraybridge.sa.gov.au

Date Received: 23/7/2021
Date Registered: 23/7/2021

Applicant	Rural City of Murray Bridge
Landholder	Rural City of Murray Bridge (pending land sale)
Purpose of application	Upgrade and realignment of Maurice Road, Rocky Gully
Description of native vegetation under application	Clearance totals 0.35ha, comprised of 0.14 Ha *Eucalyptus socialis*, *Eucalyptus porosa* open woodland, 0.094 Ha degraded *Eucalyptus socialis*, *Allocasuarina verticillata* very open woodland, 0.025 Ha *Eucalyptus incrassata*, *Eucalyptus leucoxylon* woodland, 0.025 Ha *Melaleuca uncinata*, *Melaleuca lanceolata* tall shrubland with emergent mixed mallee Eucalypt upperstorey and 0.07 Ha *Eucalyptus leptophylla* open woodland with *Melaleuca uncina*ta understorey
Location of the application	D110496 A501, Hundred of Mobilong, CT 6161/335 H17077 S530, Hundred of Mobilong, CT 5322/455 H170700 S529, Hundred of Mobilong, CT 5824/624 Road Reserve adjoining F15648 A7, Hundred of Mobilong, adjoining CT 5322/454

Decision

The Native Vegetation Council has considered your application in accordance with the requirements of Regulation 12, Schedule 1; Clause 34 of the *Native Vegetation Regulations 2017*.

In respect of the application you are informed that the Native Vegetation Council:

1. **Grants consent** to the clearance of 0.35 ha of native vegetation in the area shown on the attached Decision Plans 2021/3184/415 for the purpose of upgrading and realigning Maurice Road.

Reason for Decision:

The clearance of native vegetation meets the requirements of Native Vegetation Regulation 12, Schedule 1; Clause 34.

Conditions of approval

This approval is subject to the conditions specified below. These conditions have been imposed to ensure that the impacts on native vegetation and biodiversity from approved clearance is adequately minimised and mitigated;

Government of South Australia

1. The applicant must ensure that only native vegetation approved for removal in accordance with this decision is removed. Prior to clearance commencing, the applicant must advise all persons undertaking the vegetation removal or working on site, of all relevant conditions of approval and associated statutory requirements.
2. Prior to clearance commencing, the applicant must define the area or trees approved for clearance with markings, barriers, pegs, flags or temporary fencing. The markings, barriers, pegs, flags or temporary fencing must remain in place, in good condition and clearly visible, for the period in which clearance is occurring.
3. A pre-clearance survey is to be undertaken by a suitably qualified ecologist to determine the presence of fauna species immediately prior to commencement of vegetation clearance. The surveys should focus on the following species and must include checking hollows or burrows to determine the presences of native fauna:
    - White-winged Chough (*Corcorax melanorhamphos*)
4. Where fauna are identified with the inability to independently relocate easily or a likely to be harmed should clearance proceed, the impacted individuals are to be relocated to suitable habitat nearby under supervision of a suitably qualified ecologist. If relocation is not possible or the relocation individuals are unlikely to survive or may experience significant harm, then clearance is to be delayed until a suitable date when relocation is not required or can occur without harming the relocated individuals.
5. A report is to be provided to the Native Vegetation Council within two months post completion of clearance to detail who undertook the pre-clearance survey, the dates of the survey, the location of any individuals of the relevant species that were observed and if any individuals where relocated or if clearance was halted to allow the individual to independently relocate.
6. The Significant Environmental Benefit requirement (equivalent to 15.47 SEB points) is to be achieved by making a payment into the Native Vegetation Fund of $7,877.51 ($7,466.84 for clearance GST exclusive and $410.67 for the administration fee GST inclusive) prior to any clearance occurring.

    Note: An invoice will be sent once the attached form 'Decision Notification acknowledgement' form is signed and returned.
7. Members of the NVC or a person who is an authorised officer under the Act may at a reasonable time enter the property of the landowner for the purpose of assessing and recording any matter relevant to this consent. A person undertaking such an assessment may be assisted by other suitable persons. Any such inspection will only be taken after there has been an attempt to contact the landowner.
8. Non-compliance with any of the conditions of this approval must be reported to the Native Vegetation Council as soon as practical after the non-compliance being detected, but must be within a maximum of seven days. The report must include details of the nature of the breach, the location and extent of the breach and the actions taken and associated timing for completion of those actions, to address the breach.
9. No clearance is to occur until the attached form, "Decision Notification Acknowledgement", is signed and returned to confirm that the applicant and anyone else who is a party to the agreement, understand and will comply with the decision, including all the associated conditions.
10. The applicant must adequately inform any prospective purchaser, lessee or occupier of the land affected by conditions in this consent, of the relevant conditions.

Expiry date of approval

The approval to clear native vegetation in accordance with this decision ceases after 2 years from the decision date.

Signature	
Name	Adam Schutz
Position	**DELEGATE TO NATIVE VEGETATION COUNCIL**
Date	28/9/2021 (Decision Date)

Notes

1. **Effect of Consent**
   This Decision Notification grants consent under the *Native Vegetation Act 1991* only and does not imply approval under any other legislation. It is the responsibility of the landowner to obtain all relevant approvals for any proposed development. This includes any approval that might be required in relation to the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*.

2. **Conditions**
   Please note that these conditions are an integral part of the consent and are legally binding under the *Native Vegetation Act 1991* and *Native Vegetation Regulations 2017*. Should **any** clearance occur in accordance with this decision, the conditions are enforceable in full.

   Any conditions of consent are binding on and enforceable against the person granted the approval, any current and future owners of the land, any occupier of the land and any person who acquires the benefit of the clearance.

3. **Amended decisions**

   Where a decision is amended, all previous versions of the decision are null and void.

   If an application to amend a decision will substantially alter the nature of the original application or conditions of approval, the Native Vegetation Council may require a new application be submitted.

4. **SEB Areas**
   All areas established as a condition of consent to provide a significant environmental benefit, whether through revegetation, management or protection of an area of native vegetation, are protected in perpetuity under the *Native Vegetation Act 1991*. No clearance of native vegetation within these areas can occur without the consent of the Native Vegetation Council.

5. **Monitoring**
   The Native Vegetation Council undertakes a program of monitoring of conditions attached to any clearance consent. As part of this program, the landowner may be contacted by an officer of Department to arrange inspections. Should it be evident that the conditions have not be applied with in full, the landholder will be informed in writing of the nature of breach of the conditions and given an opportunity to comply with the conditions. However, if the breach of the conditions is substantial, ongoing or irreversibly, then the Council may take compliance actions under Section 31 of the *Native Vegetation Act 1991*.

6. **Use of cleared vegetation**
   Native vegetation authorised for clearance under a Decision Notification may be a useful resource, as a source of seed for local revegetation projects, for woodcraft purposes or providing hollows for relocation. Please consider notifying any local seed collection groups to offer them the opportunity of collecting seed at the time of clearance, and making any timber from the cleared trees available for woodcraft or hollow relocation.

DECISION NOTIFICATION ACKNOWLEDGEMENT

Application Number: **2021/3184/415**

The applicant, and all parties to the decision, have received a copy of the Decision Notification (decision date 28/9/2021) are fully aware and will comply with the decision and all the attached conditions.

Name of applicant: .....

Signature of applicant or seal of Company and authorised signatory, including the signature of any other parties to the decision:

.....

.....

.....

.....

Date : .....….

Note: *Sign and return this form by post or email to:*

Send to: **Native Vegetation Branch**
C/o
Department for Environment and Water
GPO Box 1047 Adelaide SA 5001

Email: **brianna.fyffe2@sa.gov.au**

Appendix 7: Fauna Survey May 2021 – Barron Environmental

Maurice Road Upgrade Threatened Fauna Search (esp Malleefowl), Kinchina-White Hill area

Phil Barron, 23/5/21 (Surveyor and author)

Search Dates: 6 & 14/5/21 (10 hours total search time, as per EPBC Act Guidelines)

Based on historical records, on the 6 & 14/5/21 and area in the vicinity of the proposed western Maurice Rd upgrade in the vicinity of Kinchina (approximately 5-10km west of Murray Bridge, SA) was searched for the presence of Malleefowl (*Leipoa ocellata*, rated as Vulnerable to extinction (V) Nationally and in SA) and other potential threatened species that may be in the area (Figure 1).

The habitat requirements of Malleefowl anywhere in Australia are poorly understood but a sandy substrate and abundance of leaf litter are clear requirements for the construction of the birds' incubator-nests, as well as dense canopy cover and fire history also seen as important in some studies, with birds preferring old growth (i.e. long unburnt) mallee (Benshemesh 2007 – the National Recovery Plan for Malleefowl).

The search area stratified or prioritised according to predicted most likely suitable habitat for Malleefowl in the area. This was initially done via a review of aerial imagery, reconnaissance/ground-truthing and previous experience and knowledge of the area. Larger, less fragmented areas of vegetation were favoured for searching over smaller, isolated and degraded vegetation patches on private property (often with livestock access) or obviously cleared cropping paddocks and areas close to dwellings or a mine/quarry. Based on EPBC Act Guidelines and referring to Figure 1, the most viable areas based on habitat were searched on foot, involving looking and listening for threatened species, including Malleefowl, as well as for tracks and other signs (such as active or inactive nesting mounds).

No Malleefowl, or signs thereof, were observed during the search and the area and habitat within it is now not considered suitable or viable for a sustaining a pair or population of this species. Degrading factors encountered for Malleefowl include the presence of the following:

- Excessive grazing pressure (rabbits, livestock).
- Expected excessive levels feral or domestic predators (cats, dogs and foxes). Several foxes were also observed during the search.
- Excessive disturbance (human, including residential, recreation and mining activities, as well as fire (prescribed burns or wildfires) and livestock and/or other farming activities).
- Much of the remnant vegetation was on rocky outcrops or generally rocky terrain and otherwise 'heavy' soils and was considered unsuitable vegetation, including older open "Monarto woodland" style revegetation (40-50 years old), dense Broombush shrubland and other vegetation with low leaf-litter.
- High weed density, especially bridal creeper, in some areas.

Although no Malleefowl or viable habitat was observed a total of 48 fauna species were observed, including 44 bird species, of which 5 are rated as Rare and 1 Vulnerable in SA (NP&W Act) (Table 1): Elegant Parrot, Hooded Robin, Purple-gaped Honeyeater, Shy Heathwren and White-winged Chough – Rare; Diamond Firetail – Vulnerable. With the exception of White-winged Choughs, all these threatened species were observed more than 200m from the proposed road development and not expected to be adversely affected by it, including the mobile and adaptable Choughs.

Reference

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

Table 1. Search area and species list for species observed on the 6th & 14th of May 2021.

Threatened or Introduced Animal Species Recorded or Observed (Native and Introduced)		**Threatened Species - Rating**				
Species	**Common Name**	**EPBC**	**SA**	**Past Record**	**Observed**	**Introduced Species**
Acanthiza chrysorrhoa	Yellow-rumped Thornbill				Y	
Acanthiza nana	Yellow Thornbill				Y	
Acanthiza uropygialis	Chestnut-rumped Thornbill				Y	
Aegotheles cristatus cristatus	Australian Owlet-nightjar				Y	
Anthochaera carunculata	Red Wattlebird				Y	
Aphelocephala leucopsis	Southern Whiteface				Y	
Barnardius zonarius barnardi	Mallee Ringneck				Y	
Colluricincla harmonica	Grey Shrikethrush				Y	
Corcorax melanorhamphos	White-winged Chough		R		Y	
Corvus mellori	Little Raven				Y	
Cracticus torquatus	Grey Butcherbird				Y	
Dicaeum hirundinaceum	Mistletoebird				Y	
Drymodes brunneopygia	Southern Scrub Robin				Y	
Eolophus roseicapilla	Galah				Y	
Falco berigora	Brown Falcon				Y	
Falco cenchroides	Nankeen Kestrel				Y	
Gavicalis virescens	Singing Honeyeater				Y	
Geopelia placida	Peaceful Dove				Y	
Gymnorhina tibicen	Australian Magpie				Y	
Hirundo neoxena	Welcome Swallow				Y	
Hylacola cauta	Shy Heathwren		R		Y	
Lichenostomus cratitius occidentalis	Purple-gaped Honeyeater		R		Y	
Malurus lamberti	Variegated Fairywren				Y	
Melanodryas cucullata cucullata	Hooded Robin		R		Y	
Melithreptus brevirostris	Brown-headed Honeyeater				Y	
Milvus migrans	Black Kite				Y	
Neophema elegans	Elegant Parrot		R		Y	
Northiella haematogaster haematogaster	Eastern Bluebonnet				Y	
Ocyphaps lophotes	Crested Pigeon				Y	
Pachycephala rufiventris rufiventris	Rufous Whistler				Y	
Pardalotus punctatus	Spotted Pardalote				Y	
Pardalotus striatus	Striated Pardalote				Y	
Petroica goodenovii	Red-capped Robin				Y	
Phaps chalcoptera	Common Bronzewing				Y	
Phylidonyris novaehollandiae	New Holland Honeyeater				Y	
Pomatostomus superciliosus superciliosus	White-browed Babbler				Y	
Psephotus haematonotus	Red-rumped Parrot				Y	
Ptilotula penicillata	White-plumed Honeyeater				Y	
Rhipidura albiscapa	Grey Fantail				Y	
Rhipidura leucophrys	Willie Wagtail				Y	
Smicrornis brevirostris	Weebill				Y	
Stagonopleura guttata	Diamond Firetail		V		Y	
Strepera versicolor melanoptera	Black-winged Currawong				Y	
Sturnus vulgaris	European Starling				Y	*
Mammals						
Lepus europaeus	European Brown Hare				Y	*
Macropus fuliginosus	Western Grey Kangaroo				Y	
Oryctolagus cuniculus	Rabbit (European Rabbit)				Y	*
Vulpes vulpes	Fox (Red Fox)				Y	*
Total = 48 Species: 5 Rare & 1 Vulnerale (SA) & 4 Introduced						

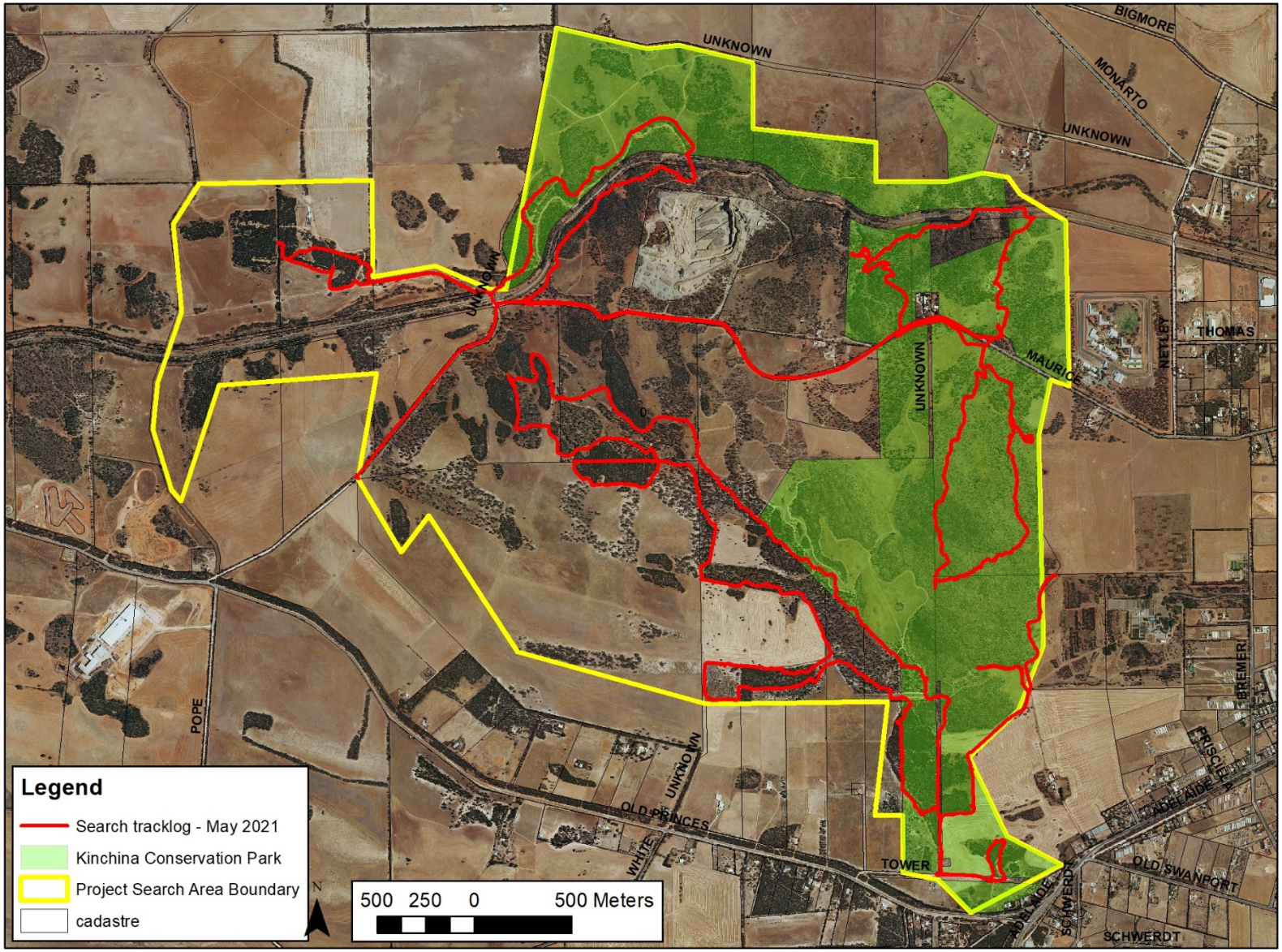


Figure 1. Search area for Malleefowl and other threatened fauna, May 2021.

Appendix 8: Consultant CV – Barron Environmental

Curriculum Vitae – Phil Barron

Phil Barron

8 Burnbank Way, MT BARKER, 5251
Postal: PO Box 1122, MT BARKER, SA, 5251
Phone : 0435 546 069
email: phil.barron7@gmail.com

Summary of qualifications

1987 - 1989

University of SA (formerly SACAE),
Salisbury, SA

Bachelor of Applied Science, Wildlife and Park Management

Other RTO's

1992 Certificate in Weed Control (TAFE SA)
2010 Certificate 3 Conservation & Land Management (Vertebrate Pests) (Qualified Pest Management Technician) (TAFE SA)
2013 Certificate 4 Training & Assessment (DOME)

1990 - 2007

First Aid - St John / Red Cross / ANFAS

Senior First Aid/CPR - latest update: Sept 2018 (expires Sept 2021)

Education

1982- 1986

Unley High School
Adelaide, SA

Year 12 Certificate of Achievement

Other training undertaken

2005 - 2006

Flinders University,
Bedford Park, SA

Graduate Diploma in Biodiversity (incomplete); Completed units:

- Australian Birds and;
- Advanced Skills in Field Ecology

1992- present

- Wildfire and emergency response, inc First Aid (various to 2018)
- EPBC Act Workshop for Peppermint Box Grassy Woodland and Iron-grass Natural Temperate Grassland of SA
- Practical environmental monitoring for mining industries (various)
- Seed collection (various)
- Soil & Property Management Planning (various)
- Native Vegetation Act update (latest 2020) (currently Accredited)
- Short GIS courses (various)
- Works in Watercourses (2006).
- Defensive driving & 4WD – updated 2018
- Bushland Condition Monitoring / Bushland Assessment (2005 - 2020)
- Training small groups and working in Groups
- Farm forestry (various)
- Carbon Yield Measurement (Canberra, 2008)
- Facilitating community groups
- Revegetation techniques (various)
- Advanced MS Office suite training (Excel in 2020)

Curriculum Vitae – Phil Barron

Work experience

July 2020 – present

Time2Talk Allied Health for Children, *Mt Barker, SA*

Business Manager (Part-time)

The position is responsible for managing, planning, budgeting and coordinating the business side of this private allied health service.

May 2019 – July 2020

City of Onkaparinga, *Noarlunga, SA*

Technical Officer, Watercourses

The position is responsible for managing, planning, scheduling, budgeting, coordinating and reporting of major watercourse and wetland vegetation/habitat and fire management contracts, projects and programs within the Natural Area Conservation Team, Parks and Natural Resources. This includes the following:

- Engagement, coordination and management of contractors and internal field teams to deliver on-ground works for site management.
- Providing a high level of customer service, including responding to "Customer requests" from residents, elected members and MP's, where appropriate.
- Contributing to site condition monitoring, biological auditing, planning and GIS mapping.
- Ecological technical support for other projects and teams in Council.

Oct 2009 – present (part-time since May 2020)

Barron Environmental, *Nairne/Mt Barker, SA*

Principal Consultant

Selected Primary projects to date:

- Environmental and vegetation impact assessment. Includes recognition as an Accredited Consultant for the Native Vegetation Branch of DEW SA and completing associated assessments and management plans for various large and small-scale clients. Recent clients include:
    - Alexandrina Council (SA);
    - Solar River Project, via Kleinfielder;
    - BHP, Olympic Dam.
- Habitat restoration (weed & pest control) & revegetation activities for Alexandrina Council;
- Biological survey support for the City of Adelaide (sub-contractor);
- Habitat restoration & revegetation technical support for Ngarrindjeri and other Indigenous communities;
- Wildlife monitoring and risk assessment for Adelaide and Parafield Airports (sub-contractor);
- Department for Environment Water and Natural Resources (All regions of SA): various projects/tasks, including: Site survey for regional prescribed burns; Vegetation and Wetland Condition Monitoring; Bird surveying; Habitat reconstruction/Revegetation planning, implementation and auditing; Weed and pest surveying; Threat abatement and seed collection, including for Threatened Flora Recovery Projects; Habitat restoration training workshops and technical support;
- Goolwa to Wellington & Murray Mallee LAP's: various projects/tasks including Revegetation implementation & auditing; Bird monitoring; Bore/water-table monitoring; Targeted Threat Abatement Pest and Weed Control; Environmental Management Plans for priority properties with threatened ecological communities;
- Biodiversity and Bird ID workshops for landholders in the Adelaide & Mt

Lofty Ranges and SA Murray Darling Basin NRM regions and regional environment centres;
- Delivering Nationally Accredited training on Seed Collection and Storage units for SATC, as part of the Certificate for Conservation & Land Management.

Feb 2009 – Oct 2009

Primary Industries and Resources SA, Rural Solutions SA

Adelaide, SA

Senior Environmental Consultant
Primary projects:
- South East Natural Resources Management Board: Blueprint for the Revegetation of Drainage Corridors – assessment and planning
- Department for Environment and Heritage: Arid Lands Threatened Flora – assessment and planning for 6 priority species.
- Murray Mallee Local Action Planning Group. Woorinen Mallee Restoration Group & Revegetation of Hamilton Block - Habitat restoration planning and implementation.
- Department for Water, Land and Biodiversity Conservation: Assistance with Habitat Restoration and "Glove Box Guide" projects.

Oct 2007 – Jan 2009

Greening Australia (SA)

Port Augusta/Adelaide/Murray Bridge, SA

Senior Vegetation Consultant
Primary projects:
- Arid Lands Threatened Flora (DEH/ SA Arid Lands NRM Board;
- Landscape Restoration (SA Murray Darling Basin NRM Board)

Responsibilities :
- Supporting the delivery of a 'Recovery of Threatened Flora and Ecological Communities' and a 'Landscape Restoration' Projects, including the provision of appropriate technical rehabilitation and restoration support and advice.
- Community and organisation consultation, collaboration and education.
- Safe outback and remote area travel and compliance with responsibilities under all relevant employment legislation & GASA Policy eg. OHS&W, EEO & Privacy Acts, GASA HR Policy Manual.
- Represent Greening Australia at industry forums & program launches as required.
- Establishment of regional business contacts network with an aim of leveraging new business opportunities.

Jan 2007 – Sept 2007

BHP Billiton

Olympic Dam, SA

Environmental Scientist – Ecology (Flora)

Responsibilities :
- Management of flora monitoring and reporting on-site and within the wellfields, including threatened species and emission impacts. This included a review of monitoring methods, including Ecological Function Analysis (EFA);
- Coordinate the development and maintenance of all flora databases;
- Rehabilitation review and management, including revision of the

Rehabilitation Strategy;
- Weed management, monitoring and control, including revision of the Weed Management Strategy for the region;
- Assistance to the Senior Environmental Scientist – Ecology, on other environmental impact assessment and flora/fauna related projects/tasks as required. This included other bird and terrestrial fauna monitoring;
- Ensure a sound relationship is maintained with the local and regional community and stakeholders on flora related issues.

Feb 2001 – Jan 2007

Creation Care Pty Ltd

Strathalbyn, SA

1. On-ground Works Manager/Project Officer & Consultant

Works Management for large and small-scale NRM and Sustainable Farming projects. Highlights include Regreen the Range/Willunga Hillsface Landcare Group (inc 1000ha+ of habitat/local species revegetation & other OGW since 2001), Meadows Creek Rehabilitation Project (2001-2005), Cape Jervis NRM project (2005) and the Bungala River Restoration Project (2002- present).

Major Responsibilities:
- Planning, coordination and facilitation of on-ground works, including native vegetation management, revegetation, fencing and other sustainable farming activities. Managed the implementation of over 1500 ha of revegetation in this time.
- Site survey & assessment, including GIS mapping;
- Risk assessment and prioritisation;
- Education, publicity and promotion;
- Client recruitment, liaison, negotiation and support – including the provision of technical and legislative advice;
- Engagement and supervision of contractors and labour;
- Reporting and liaison with Management Committees, Funding bodies and other stakeholders;
- Monitoring results;
- Project work with community groups;
- Budget management and funding applications.

2. Consultant for Biodiversity Enhancement (with Greg Dalton)

Other major contracts & consultancies include:
- Fosters Wine Group: sub-consultant to Fosters' Footprint Program: EMS & Biodiversity Risk Assessment and Enhancement for 15 vineyards in 5 regions in SA & NSW.
- Urban Forest Biodiversity Program/DEH: Site specific vegetation/revegetation management plans + On-ground work delivery (weed control & revegetation);
- Catchment Plan for the Bungala River, Yankalilla – including Environmental Risk Assessment and prioritisation;
- NABCWMB: Site specific vegetation/revegetation management plans;
- DEH: General analysis of revegetation for biodiversity (for Niel Collins);
- Delivery of landholder training workshops on Vegetation Mgt & Revegetation in southern MLR area, mainly for the Land Management Program.

Other roles include:
- Creation of Education & promotional material, including fact-sheets;
- Presentations on NRM topics to regional workshops and other forums;

- Contract revegetation and weed control for a wide range of clients;
- Seed Collection.

Greening Australia (SA)

Port Lincoln, SA

July 2000 – Feb 2001

1. State Bushcare Support Coordinator, SA (Joint position filled on top of following role since July 2000)

Responsibilities :

- Jointly responsible for ensuring contracted Bushcare Support Outcomes are met for SA;
- Joint supervision of 7 GA(SA) regional Officers;
- Collection of & Submission of Quarterly progress reports from regional Officers to Environment Australia, via Greening Australia Ltd (Canberra);
- Joint responsibility for GA(SA)'s annual operating budget for Bushcare Support;
- Liaison with relevant State & Commonwealth officers or bodies, including the State Bushcare Coordinator (DEH).
- Assisting the development of Monitoring & Evaluation methods for Bushcare Program & funded projects.

Jan 1999 – Feb 2001

2. Regional Bushcare Support Officer (Eyre Peninsula)

Responsibilities:

- Delivering Bushcare Outcomes for Environment Australia including: assisting community groups with Bushcare funded projects; publicity and promotion; educational activities; setting up and maintaining a seedbank, specialist equipment and Bushcare base (Pt Lincoln) for community use; revegetation consistent with Bushcare principles;
- Assisting development of funding applications through various sources, including the NHT;
- Provision of technical and legislative advice to various organisations and individuals;
- Site survey, including conducting site visits and assisting groups and individual with planning and implementing "on-ground" revegetation and vegetation management works;
- Assisting the delivery of community training activities (workshops) through Trees for Life & Nature Conservation Society staff;
- Project work with and presentations to local community groups, including schools, clubs, Landcare & other environmental groups;
- Working as a team with relevant staff in other organizations (e.g. Regional NHT Coordinator, Community Landcare Officers, DEH, PIRSA, Councils, Private contractors etc);
- Supervision of one part-time employee & various volunteers;

Jul 1997 - Jan 1999

Dept. for Environment, Heritage and Aboriginal Affairs

Port Lincoln, SA

Regional Scientific Officer, Eyre Peninsula

Responsibilities:

- Consulting on Biodiversity issues to various forums on EP, including the NHT (member of Technical & Regional Assessment Panels) and Eyre Region Water Resources Committee;

- Responsible for assessments relating to Native Vegetation Clearance, Heritage Agreement and Development applications. This included site survey and GIS mapping;
- Assisting regional Biological surveys, including remote locations;
- Assisting development of community funding applications through various sources, including the NHT;
- Provision of technical and statutory advice to land managers, including mining companies. This included conducting site visits with local land managers to record species lists (flora & fauna) & assess native vegetation health, conservation value and management options;
- Biodiversity project work with community groups;
- Supervision of two Bush Management Advisers (EP based);
- Budget management and funding applications.

Primary Industries and Resources (SA), Revegetation Program (formerly of Forestry SA and Woods & Forests)

Murray Bridge, SA

Nov 1992 - Jul 1997

1. Revegetation Scientist

Responsibilities:

- Research trial management, including design, implementation, analysis and the publication of results;
- Assist in the development & delivery of revegetation training programs, including in the Murray-Darling Basin (NSW, VIC & SA).
- Revegetation contracts and consultancies, including, site assessment, quoting, planning, implementation, client liaison / negotiation, invoicing, planning of all operations, ensuring availability of equipment, preparing and monitoring budgets;
- Project work with community groups;
- Supervision of two technical officers and occasional casual labor;
- Budget management and funding applications.

Dec 1989 - Nov 1992

2. Technical Officer, Revegetation **and casual labour**

Responsibilities:
Assist research implementation and data collection + revegetation labour

Dec 1988- Feb 1989

SA National Parks and Wildlife Service

Coorong National Park, SA

Seasonal Ranger

Current Licenses

- Class MR Driver's licence
- Full Pest Management Technician's Licence (#55307, since 1992)

Awards

Rotary Youth Leadership Award (RYLA), 1989

Relevent Organisation memberships

- Nature Conservation Society (SA), since 2005.
- Ecological Society of Australia, since 2015
- Birds SA/ SA Ornithological Association since June 1986
- Society for Ecological Restoration International (2009+).

- Friends of Arid Recovery (2007+).
- Birds Australia (2010+)

Community activities

- CFS – Member Nairne & Mt Barker Brigades (from 2013)
- Volunteer Bird surveyor for various programs (ongoing);
- Netball umpire, Mid-Hills Netball Association & clubs (2009 - 2016)
- Leader in various youth groups and camps since 1985.
- Committee member and volunteer of Friends of Arid Recovery (2007/8)
- Committee member of the Roxby Downs Environment Forum (2007)

Publications

1995 DALTON, G. & BARRON, P., 1995. Rainfall Harvesting to Establish Trees and Shrubs on Flat, Sandy Soil in the Arid Zone. Journal of the Adelaide Botanic Gardens, Vol. 16, pp 83-93.

1996 BARRON, P. 1996. The status of native tree dieback and lerp insect outbreaks in the north east Mount Lofty Ranges in 1996. Primary Industries (SA), Adelaide.

1996 BARRON, P., BISHOP G., & DALTON, G., 1996. Regeneration of Degraded Mallee Vegetation Using Direct Seeding. Australian Journal of Soil and Water Conservation, Vol. 9, No. 2, pp 40-44.

1996 BARRON, P. & DALTON, G., 1996. Direct Seeding of Native Trees and Shrubs in Coastal Environments. Journal of Coastal Research, Vol. 12, No. 4, pp 1006-1008.

1998 BARRON, P., DALTON, G, & MILLER L. 1998. Second-year weed control for direct seeding of Eucalyptus porosa in a low rainfall environment. Australian Forestry, Vol. 61, No. 2, pp 155-158.

Factsheets:

- Arid Zone Tree Planting Techniques (1995).
- Alternatives to Invasive garden plants for Roxby Downs (for BHP Billiton, 2007)
- Joint authorship of various factsheet for Murray Mallee Local Action Plan (2001/2002): Protecting Native Veg, Local native Species Block Reveg, Shelter, Fodder;
- Joint authorship of various factsheet for Willunga Hills Face Landcare Group (2002): Revegetation with Local native Species for various site types in the Willunga Hills Face (Stringybark sites, Blue Gum sites, Watercourses/Gullies, Blue Gum sites and Pink Gum sites).
- The status of native tree dieback and lerp insect outbreaks in the north east Mount Lofty Ranges in 1996.
- Red Legged Earth Mites (RLEM) and direct seeded native plants.
- Old Man Saltbush Herbicide Tolerance Trials (1996)
- Alternative Garden Plants for Roxby Downs (2007)
- Various draft SA Arid Lands Threatened Flora series (2008)

Referees

Joe Tilley
Senior Fire Management Officer
Dept for Environment and Water, N&Y Region

Curriculum Vitae – Phil Barron

M: 0419 803 918
E:joe.tilley@sa.gov.au

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M: 0448 130256
P: 08 8555 7000
E:Lisa.Kirwan@alexandrina.sa.gov.au

Greg Dalton
Principal, Creation Care Pty Ltd
PO Box 2 STRATHALBYN SA 5255
M: 0408 890416
E: gregdalton@creationcare.com.au

Others can be supplied on request

Appendix 9: Consultant Capability – Barron Environmental

Barron Environmental

Habitat Restoration* - *Ecological and Environmental Survey and Impact Assessment* - *Training

Phil Barron
PO Box 1122 MT BARKER SA 5251
Mobile: 0435 546 069
Email: pbarron@internode.on.net
ABN: 67 763 442 142

CAPABILITY SUMMARY

I have over 25 years of experience in planning, managing and implementing environmental projects of various types in most regions of SA and SE Australia, with specific expertise in the following areas:

- Environmental and biological (esp. birds & vegetation) survey/audit, risk & impact assessment.
  - Accredited Consultant for the SA Native Vegetation Council (DEWNR).
  - Recent arid-area mining company experience (BHP).
  - Experience with arid-lands threatened flora species.
- Environmental monitoring, including LFA/EFA and Bushland Condition Monitoring.
- Vegetation / Habitat Management and Restoration.
  - Threat abatement (inc weeds and pests) assessment, planning and implementation.
  - Revegetation, specialising in various methods establishing a diverse range of local species.
  - Carbon-offset revegetation planning and implementation.
- Capacity building, mentoring and technical support for a wide range of audiences and issues. Tailored formal/accredited or informal training can be developed for the following or related topics:
  - Vegetation or habitat management, restoration & revegetation (inc seed collection);
  - Bird & other fauna identification & observation skills;
  - Flora identification in most regions;
- Significant experience with Indigenous communities.

Comprehensively networked with a wide range of other practitioners and service providers to increase capacity and achieve excellent, tailored skill sets for larger projects.

Qualifications

- Bachelor of Applied Science (Wildlife and Park Management), University of SA (formerly SACAE), 1989
- Certificate 3 Conservation & Land Management (Weed Control & Vertebrate Pests units), TAFE, 1992-2010;
- Certificate 4 in Training & Assessment, DOME SA, 2013
- Accredited consultant with the Native Vegetation Branch of DEWNR (annual renewal due June 2018)
- Current 1st Aid & 4WD certification.

Licences

- Drivers License (SA, Class MR);
- Pest Management Controller & Technician, Licence # 73124 (Vertebrate pests & weeds)

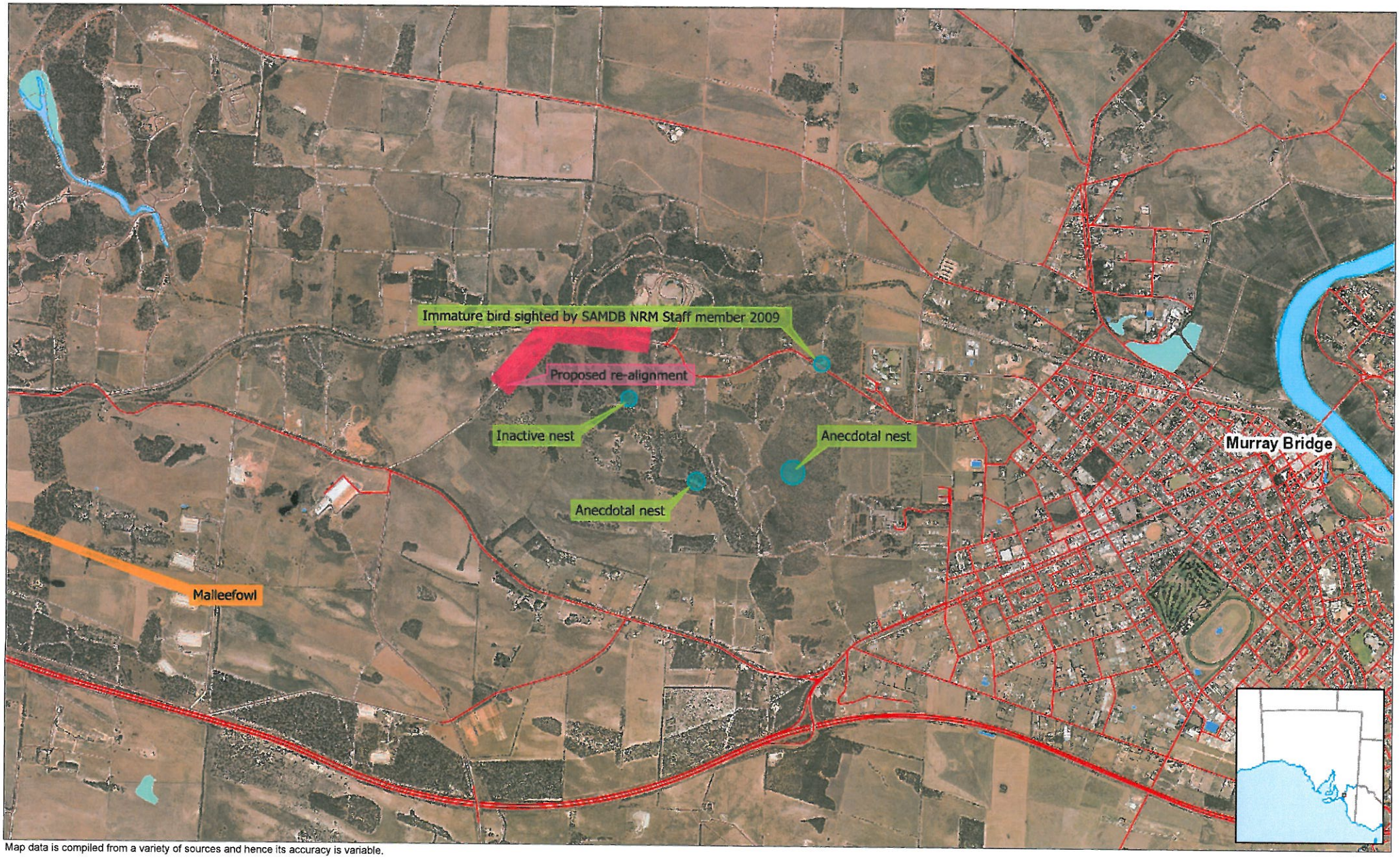
Insurance

- Public Liability: $20 million; Professional Indemnity: $2 million

The Green Barron

Appendix 10: Regional Anecdotal Evidence of Malleefowl

Known Malleefowl at site - Feb 2013



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

Alinytjara Wilurara 250cm - 2007 and Arid Lands 250cm - 2007 Imagery Copyright © JAXA

N

0 2.3 Kms

Compiled:	25-Feb-2013
Generated at:	http://maps.env.sa.gov.au
Datum:	Geocentric Datum of Australia, 1994
Projection:	Lambert Conformal Conic

Government of South Australia
Department of Environment, Water and Natural Resources

Appendix 11: Malleefowl Management Plan

Rural City of Murray Bridge Malleefowl Management Plan December 2021

The upgrading of Council Roads occurs from time to time. This report was compiled for Ferries McDonald Road 2008 and amended for future upgrades of Council roads where Malleefowl are known to occur.

This Malleefowl Management Plan *("Report"):*

The report is drawn from work conducted by GHD through a consultancy undertaken for the RCMB for Ferries McDonald Road but any opinions, conclusions and recommendations in this Report are solely the responsibility of the RCMB;

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Site Location Plan

EPBC Act Referral 2008/4211 Determination 30th November 2010

Ferries McDonald Road Inspection Checklist

Injured and Killed Animals Protocol

Exert of Key Malleefowl Recovery Actions from National Recovery Plan for Malleefowl 2007

Acknowledgements

The following individuals or groups have assisted in the preparation of this report. However, it is acknowledged that the contents and views expressed within this report are those of GHD Pty Ltd and do not necessarily reflect the views of the parties acknowledged below.

Jill Brooks, Department of Environment, Water and Natural Resources.

Angela Crimes, Department of Environment, Water and Natural Resources.

Donna Haslam, Department of Environment, Water and Natural Resources

Peter Copley Senior Ecologist, Department of Environment, Water and Natural Resources

The Rural City of Murray Bridge; and

Con Voutas, DSEWP&C for helpful discussions regarding the Traffic Management Plan and Malleefowl Management Plan.

Abbreviations

BDBSA	Biodiversity Database of South Australia
RVMP	Roadside Vegetation Management Plan
DSEWP&C	Commonwealth Department of Sustainability, Water, Population and Communities
DEWNR	South Australian Department of Environment, Water and Natural Resources
EBS	Environmental Biodiversity Services
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
FMCP	Ferries McDonald Conservation Park
GHD	GHD Pty Ltd
NPW Act	South Australian National Parks and Wildlife Act 1972
MCP	Monarto Conservation Park
MMP	Malleefowl Management Plan
NRM	Natural Resource Management
RCMB	Rural City of Murray Bridge
SA	South Australia

Introduction

This Malleefowl Management Plan (MMP) outlines the actions and management strategies to protect local populations of Malleefowl (*Leipoa ocellata*) from impacts associated with the upgrade of roads within the Rural City of Murray Bridge Council area in South Australia.

The Malleefowl has also been referred to commonly as the native pheasant, Gnow, Lowan and Mallee Hen. It is also referred to by its aboriginal name Nganmara. It is listed as a vulnerable species in South Australia under the *National Parks and Wildlife Act 1972* (NPW Act) and nationally under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This MMP is developed in accordance with the conditions attached to the decision of the Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities with respect to the Ferries McDonald Road Project 2008. It has also been developed from discussions with representatives of the South Australian Department of Environment, Water and Natural Resources (DEWNR) and Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities. This report should be read in conjunction with the Traffic Management Plan prepared concurrently with this MMP to protect and increase the population viability of Malleefowl

Background to Plan

The upgrading of Council Roads occurs from time to time. Where there are known populations of Malleefowl and the road is being altered from it current state it is recommended that this plan be utilised in conjunction with Councils Roadside Vegetation Management Plan.

The period of impact during the construction phase is expected to be over a six month period. Road sealing will be undertaken from October to April at the latest. Following the construction phase, the work site will be rehabilitated to as close as practicable to its original state.

This MMP details measures to minimise potential impacts upon Malleefowl from the construction and ongoing operations.

Management Plan Objectives

The objective of this MMP is to provide measures by which potentially adverse impacts of the upgrade of Council roads are minimised.

In particular, the items to be addressed within this MMP are:

Review of literature pertaining to the biology and ecology of Malleefowl (including habitat requirements, nesting and foraging activity and current threats), which will provide the context and known aspects of Malleefowl breeding ecology leading to the development of the mitigation measures and monitoring protocols outlined within the plan.

Information related to Malleefowl including habitat and breeding requirements and known habitat within the project area.

Identification of potential threats/impacts arising from this project.

Outline of relevant legislation and its legislative context.

Detailed methods for identifying and measuring Malleefowl mortality associated with the upgrade of Council roads.

The approved plan must be implemented. To ensure implementation of the plan responsibilities for the implementation of measures are identified.

Limitations

A number of limitations exist that this MMP has attempted to address. In particular, there is an incomplete knowledge of the Malleefowl population of the area and its population dynamics, dispersal regimes and methods/timing for dispersal. As such, a precautionary approach has been adopted in order to reduce impacts such that they are not significant.

Exclusions

This MMP does not address any requirements with regard to native vegetation clearance approvals under the *Native Vegetation Act 1991*. Where requirements of this plan potentially overlap with requirements of native vegetation clearance approvals this is indicated.

Biology of Malleefowl

Description

Malleefowl (Leipoa ocellata) are large ground-dwelling birds, well known for constructing large mounds of soil and vegetation in which they incubate their eggs. The species is a member of the Megapodes[1] bird group (Johnstone and Storr, 1998). Whilst the species is a good flyer, individuals prefer to run quickly rather than fly, particularly if startled.

Individuals can grow to 55 – 60 cm height with an approximate weight of 2.5 kg for adult birds. The head and neck are grey with the body having a mottled brown, black and white plumage (Figure 1). The distinct colouration provides camouflage, thus allowing this species to blend in with surrounding habitat, thereby evading danger and/or predators. In addition to a well camouflaged plumage, Malleefowl have good eyesight enabling individuals to detect danger well in advance. Therefore, if threatened, individuals use their camouflage to move away and avoid detection.

Figure 1 Malleefowl Near Roadworks On Chaunceys Line Road

Distribution

Once common and widespread across semi-arid southern Australia, Malleefowl have declined severely in the last century, with a 20% decrease in abundance and 50% decrease in area of occupancy (Garnett and Crowley, 2000; Benshemesh, 2005). Malleefowl distribution extended throughout much of the southern half of Australia from the west coast to the Great Dividing Range, being widespread in every state except Queensland. Their current distribution is highly fragmented throughout dry inland southern Australia, from central New South Wales, north western Victoria, South Australia and southern Western Australia (excluding forested areas) enhancing the risk of extinction due to the presence of small isolated non-viable populations (Benshemesh, 2000). There have been no recorded sightings of Malleefowl in the Northern Territory for the past three decades. Unconfirmed reports suggest they may be present in the

[1] Megapodes – Large-footed, ground-dwelling birds of the Megapodiidae, found in Australia and many South Pacific islands, that build mounds or burrows of earth and compost in which to incubate their eggs

south-west region (Australian Government information sheet, 2010). The decline is mainly due to loss and fragmentation of habitat due to agricultural clearing, degradation of remnant patches by grazing and predation by foxes (Johnstone and Storr, 1998, Garnett and Crowley, 2000).

Habitat Ecology

The habitat requirements of Malleefowl anywhere in Australia are poorly understood and have as yet received limited study due to the difficulties in accessing remote locations.

The available literature suggests Malleefowl prefer habitat consisting of thickets of mallee, mulga, acacia or other dense litter-forming shrublands (Johnstone and Storr, 1998) with foraging occurring in open vegetation. Breeding densities are highest in vegetation that is at least 40 years post fire (Benshemesh, 1990, Benshemesh, 1992), and they rarely breed in vegetation that has been burnt within the last 15 years (Tarr, 1965, Crowley *et al*., 1969). Additionally, successful breeding and nest building is associated with adequate leaf litter coverage therefore dense vegetative cover is required.

As reported in Benshemesh (2007), Malleefowl distribution was associated with landscapes that had lower rainfall, greater amounts of mallee and Shrubland that occur as large remnants and a lighter soil surface texture. Further, Malleefowl occurrence was associated with mallee Shrubland and thicket vegetation with woodland representing poor habitat for the species. Benshemesh (2007) also reported that Parsons (2008) found that remnants occupied by Malleefowl in the Wheat belt region of WA typically possessed a greater amount of vegetative matter, greater cover of tall shrubs, greater abundance of food shrubs and a greater soil gravel content than those that were not occupied.

Periods of rainfall are important in assisting in the decomposition and to promote fermentation and decay of leaf litter within mounds giving heat to the inside of the mound facilitating incubation of eggs. Consequently periods of drought can prevent Malleefowl nest establishment and breeding.

Feeding

Malleefowl are opportunistic feeders with a diet including species such as insects, seeds (including cultivated grains), berries, native herbs and flowers. Malleefowl are well adapted to arid environments and a limited water supply with individuals obtaining the majority of their moisture through their dietary components.

Malleefowl are known to modify feeding habits according to seasonally available food sources. During mid-summer and autumn, Malleefowl feed mostly on ants and the seeds of wattle and Senna plants. With the onset of the cooler weather and the winter rains their diet becomes more varied and they can eat flower blossoms and herbs as well as beetles, cockroaches, other invertebrates and lerp (the crystallized sugary caps produced by larvae of psyllid[2] insects as a protective cover).

[2]Psyllid – Small active cicada-like insect with hind legs adapted for leaping; feeds on plant juices.

Malleefowl Life History

Nesting and Breeding

Malleefowl are known to mate for life, although if one partner dies the remaining individual will pair relatively quickly. Pairs occupy a territory but usually roost and feed apart. However, their social behaviour is sufficient to allow nesting and mating.

The male bird is responsible for nest site selection and building which is known to be an involved and careful process. In winter, the male will select an area of clear open ground (approximately 3 m diameter) typically located amongst thickets of Acacia, Mallee or Mulga. He will then scrape a depression of approximately 1 m into the centre of this area creating a characteristic ring mound (**Figure 2**~~**Figure 2**~~).

Figure 2 Active Malleefowl Breeding Mound Near Chaunceys Line Road

In late winter and early spring the male will collect a variety of organic matter including sticks, leaves, sandy soil and bark with which to fill the depression. Vegetation is scraped into the depression from the area immediately surrounding the mound and up to 50 m away. After periods of rainfall, the male will turn the vegetation to promote fermentation and decay giving heat to the inside of the mound. If mound conditions are suitable, the male will excavate an egg chamber typically during August (end of winter). Once a chamber has been excavated the male will cover this with a sand insulation layer. If the male has paired, the female may assist with excavation of the egg chamber however this will only occur if chamber conditions are suitable for egg laying.

Figure 3 Malleefowl Habitat on Glenbur Road

The female will usually lay her eggs between September and February provided sufficient decay has occurred within the egg chamber. If mound conditions are suitable the female will lay on average 15-20 large thin shelled eggs each weighing about 10% of the female's body weight. Eggs are laid approximately five-seven days apart and it is the role of the male to maintain the temperature between 33 ^{o}C – 34 ^{o}C within the egg chamber. Eggs are incubated for a period of 49 - 60 days during which time the temperature within the chamber is constantly regulated. The male does this by burrowing his head into the mound sensing the temperature and removing or adding soil to let heat escape or trap heat.

When the eggs hatch, the chick must dig its way out of the egg chamber and is immediately self-sufficient, requiring no parental care and is able to feed itself and avoid predators. Reaching the surface can take anywhere between 2 – 15 hrs with emergence occurring rapidly and unexpectedly. Shortly after having reached the surface, the chick makes its way to the base of the mound and quickly disappears into the scrub. Individuals are known to take no notice of other birds until ready to breed or when their territory is challenged. Within approximately 24 hrs of hatching, the chick is able to run and fly, however mortality rates of young Malleefowl are still high.

At the end of each breeding season, the adult birds repair the mound adding more material so the mound continues to increase in size each year.

Life Expectancy

Life expectancy varies according to the environmental conditions imposed on the individual. However under optimal conditions Malleefowl are known to reach breeding age at 3 – 4 years. The available literature suggests an average life expectancy of approximately 15 years but this is associated with no predation. Therefore, an increase in predation rates is directly associated with a decrease in Malleefowl numbers and a reduction in life expectancy.

Recruitment

As stated in Benshemesh (2007) there is little information on recruitment of young Malleefowl into adult populations. This may be because young birds are difficult to see due to excellent camouflage with their natural surroundings and the difficulty of tracking young birds using traditional methods including banding. Additionally, the high mortality of chicks reduces the number of individuals that can recruit back into the adult breeding population.

Benshemesh (2007) further noted that for a Malleefowl population to remain stable, recruitment of juvenile Malleefowl into the breeding population must occur within the life of the adults. Recruitment can be variable across years with higher rates occurring when habitat and food is plentiful and subsequent lower rates occurring during dry years.

Known and Potential Threats to Malleefowl

Fire

Mallee habitat is known to be a critical habitat for Malleefowl, however it is also one of the most flammable vegetation types. Active fire suppression management strategies are employed in many states but in most cases fires in mallee are large and highly destructive.

The effects of fire on Malleefowl populations can occur either via total loss of life or through the fragmentation of habitat resulting from wildfires. As Malleefowl are not strong fliers rather relying on running quickly, they tend to succumb to the effects of approaching wildfires. The speed at which most fires overcome an area leaves little time for Malleefowl to escape therefore in many cases total loss of life occurs. Habitat fragmentation can accelerate due to wildfires and where fire burns entire areas of shrubland, localised extinction of Malleefowl populations may occur. These impacts may be long lasting and in some cases breeding within populations may not occur for up to 17 years (Benshemesh, 2007).

Clearing and Habitat Fragmentation

Clearing of land for agriculture and horticulture has been a major factor in the decline of Malleefowl. This is predominantly because Malleefowl habitat is located in fertile growing areas and therefore of prime importance to growing horticultural crops and land for grazing. Habitat fragmentation is a further consequence of land clearing which impacts on an individual's ability to move between areas in search of food, habitat and prospective mates.

As Malleefowl are protected in every state where they occur, clearing permits are unlikely to be granted for areas where Malleefowl are present. However, as Malleefowl are known to be cryptic in their behaviour, robust surveys must be undertaken to ensure the presence/absence of individuals in the affected area are accurately reported.

Grazing

In areas where grazing of feral animals and cattle is high, Malleefowl breeding may be reduced due to competition for scarce food resources, particularly during dry years. Grazing may cause an immediate reduction in the availability of food but it may also cause a long-term change in the structure of vegetative cover. The wider impact of such a floristic change is an associated change in the fauna composition.

Predation

Predation of Malleefowl by introduced species such as foxes and to a lesser extent cats and raptors are a major concern to the long term survival of Malleefowl. Foxes are known to prey upon all age groups of Malleefowl and therefore can cause a significant impact on population numbers. Foxes are also the only documented predator of Malleefowl eggs although dingoes, dogs and large varanids might also be expected to raid nests. Raptors also account for juvenile mortality. Benshemesh (2007) notes that predation in the wild is difficult to measure as newly hatched chicks undergo heavy mortality due to the harsh environmental conditions and lack of parental care. Predation by exotic fauna is an important impact as combined with other impacts such as habitat fragmentation, population isolation and grazing may lead to the extinction of small populations.

Control of introduced species such as foxes and cats through targeted measures would be expected to improve the survivorship of Malleefowl however this is required on a continued basis to maintain stable population numbers.

Climate Change

Current climate change predictions for Australia including projected changes in rainfall across the entire range of Malleefowl and anticipated associated changes in biota would suggest an impact on Malleefowl populations. Periods of drought can prevent Malleefowl nest establishment and breeding as outlined in section 2.3 above.

Disease, In-breeding and Chemical Exposure

No information currently exists on disease threat to wild Malleefowl populations although captive individuals are susceptible to common diseases. This can pose a threat to wild Malleefowl when individuals are released into the wild from captivity and also where domestic fowl are located adjoining wild Malleefowl populations.

No information currently exists on the threat of genetic deterioration of Malleefowl although genetic issues associated with small isolated populations would theoretically be expected.

No information currently exists which suggest use of agrochemicals are currently a threat to Malleefowl populations although the increasing exposure of Malleefowl to agrochemicals in fragmented landscapes adjoining agricultural lands could pose a future threat to the species.

Ecological Values of the Project Area

The following chapter describe the ecological values of the project area specific to Malleefowl. Information presented in this chapter has been collated from the following sources:

Benshemesh (2008).Advice to Regional Natural Resources Management Bodies Regarding Management and Monitoring of Malleefowl. Mallee CMA and Multi-regional National Malleefowl monitoring, population assessment and conservation action project steering committee.

Cutten, J.L., (1998) Distribution and abundance of Malleefowl (*Leipoa ocellata*) in the Murray Mallee and South East Regions of South Australia. Nature Conservation Society of South Australia Inc., Adelaide.

Department of the Environment and Heritage, South Australia (2006). South Australian Fauna and Flora database.

South Australian Museum (2005). South Australian Museum fauna database.

Department of Environment and Natural Resources.

Occurrence of Malleefowl with in the Project Area

Reproductive Activity

Benshemesh (2008) monitored and recorded active breeding mounds at site S10 within the FMCP since 1990 although a negative trend was recorded between 2006 and 2007. This trend was also recorded at five additional monitoring sites within the south west to north east boundaries of the South Australian Murray Darling Basin Natural Resource Management (NRM) region and suggests a region wide decline in Malleefowl numbers. However, as mentioned above breeding activity recorded in December 2010 revealed that there were 6 active mounds found which was up on the previous season when 4 active mounds were recorded.

Discussion

It has been reported that the dispersal between suitable habitats by Malleefowl is an important feature of their life history (Benshemesh, 2007) and as such Malleefowl are listed as migratory under the EPBC Act. Any population may be of importance in the regional dispersal of Malleefowl as the local populations may disperse to other areas of suitable habitat within the region. It has been suggested that Malleefowl may disperse along strategic corridors, such as roadside strips, connecting remnant patches of suitable habitat (Benshemesh, 2007). Employing the precautionary principle, it should be assumed that any strategic corridors connecting remnant patches of suitable habitat within the region could potentially be utilised for dispersal by Malleefowl and therefore any disturbance of such corridors could interrupt the dispersal of this species across the landscape.

It has been suggested that a viable population of Malleefowl exists in locations adjoining the project area. It is also possible that individuals from within this population utilise strategic corridors within the region to disperse between suitable habitat patches.

Legislative Context

The status of Malleefowl (*Leipoa ocellata*) across its range within Australia is provided in Table 1 which shows that it is considered threatened across all of its known range. However, of the listed legislation and policies, only the national EPBC Act and the South Australian NPW Act are directly relevant to the proposed upgrade of Council roads.

Table 1 The Status of Malleefowl (*Leipoa ocellata*) Under Various State, Commonwealth and International Legislation and Policy

LOCATION	STATUS
National	
Environment Protection and Biodiversity Conservation (EPBC) Act 1999	Vulnerable, Migratory
National Recovery Plan for Malleefowl (*Leipoa ocellata*)	Vulnerable
International	
IUCN Red List of Threatened Species 2004	Vulnerable
Japan- Australia Migratory Bird Agreement	Listed Migratory
Northern Territory	
Territory Parks and Wildlife Conservation 2000	Critically Endangered
NSW	
Threatened Species Conservation Act 1995	Endangered
Victoria	
Flora and Fauna Guarantee Act (FFG) 1988	Threatened
Advisory list of threatened fauna in Victoria (DSE 2003)	Endangered
South Australia	
National Parks and Wildlife Act 1972	Vulnerable
Western Australia	
Wildlife Conservation Act 1950	'Rare' or 'likely to become extinct'

Commonwealth Legislation

Environment Protection and Biodiversity Conservation (EPBC) Act 1999

Assessment identified that Malleefowl were 'likely to occur within the study area.' It was recommended that the proposed redevelopment of Council roadsides be referred to Commonwealth Minister for Environment and Heritage to determine whether the project would be considered a 'controlled' action within respect to the EPBC Act 1999.

Conditions of this approval include the preparation of a Traffic Management Plan and Malleefowl Management Plan for the Upgrade of a Council roadside.

It should be noted that with respect to the EPBC Act 1999 and *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations 2000), a permit may be required to implement the recommendations of this management plan. In particular, a permit may be required under the EPBC Act 1999 and EPBC Regulations 2000 to undertake the salvage and translocation of any EPBC listed native fauna located within the construction zone of the project.

South Australian Legislation

National Parks and Wildlife Act 1972

The Department of Environment, Water and Natural Resources (DEWNR) is the government authority that regulates the National Parks and Wildlife (NPW) Act. *The National Parks and Wildlife Act, 1972* protects and conserves flora and fauna located within conservation parks, conservation reserves and any flora and fauna species listed under Schedules 7, 8, and 9 of the Act. There are a number of species listed under Schedules 7, 8 and 9 of the NPW Act which were found to occur within the project area and others that although not recorded are considered likely to.

The RCMB is also bound to undertake activities in accordance with the NPW and Native Vegetation Act and any applicable Management Plans for the upgrade of Council roads.

If the Rural City of Murray Bridge implements the management actions recommended within this MMP, then the project should meet the objectives of the Act with respect to Malleefowl listed under Schedule 8 of the NPW Act. It should be noted that with respect to the National Parks and Wildlife Act 1972, a permit may be required to implement the recommendations of this MMP. In particular, a permit may be required under the NPW Act and National Parks and Wildlife (Wildlife) Regulations 2011 to undertake the salvage and translocation of any native fauna located within the construction zone of the project.

Mitigation measures to minimise and/or avoid risks to other flora and fauna species listed under the NPW Act known or thought to occur within the project area have not been considered in this MMP.

Impacts and Management Strategy

Background

The proposed development includes the construction and operation of an upgraded Council Road. (See Figure 4 below). A small population of breeding Malleefowl have previously been reported near the proposed roadworks although a flora and fauna assessment undertaken in 2010 by Rural Solutions SA did not identify Malleefowl within the project area.

Figure 4 Locality Map

This section of the management plan identifies the risks to Malleefowl from the upgrade of Council Roads. This section also identifies suitable management strategies by which these impacts can be minimised or avoided. The potential impacts upon Malleefowl and mitigation measures for the construction of the road upgrade are described in section 0. The ongoing use of the upgraded road also presents potential impacts on Malleefowl and will be discussed in section 00 along with recommended mitigation strategies.

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This section also presents Malleefowl recovery actions that can be implemented during the construction and/or the ongoing operation of the Road in accordance with the requirements of EPBC approval

(Appendix B) Section 2b which states '*identify Malleefowl recovery actions that will be undertaken to increase the population viability of Malleefowl in the region*'.

Wherever possible, the timing of the implementation of the management measures/recovery actions has been provided as has identified responsibilities and a measure of the success of implementation. This is in accordance with the requirements of EPBC approval Section 2c which requires the '*development of measures to determine the effectiveness of all management measures and recovery actions for Malleefowl described within the management plan*' and Section 2d which states '*the approved plan must be implemented*'.

A detailed methodology for identifying and measuring Malleefowl mortality both during the construction of the Road as required by EPBC approval Section 2a is presented in Section 0 of this MMP.

Upgrade Road Construction Projects

Potential impacts on Malleefowl of the road upgrade construction are provided based upon a scenario where no mitigation measures are undertaken. Mitigation measures are then provided based upon these identified potential impacts. Importantly, the general behaviour of Malleefowl described as generally shy and wary of humans (Marchant and Higgins, 1993) should be considered when assessing the likelihood of potential impacts to Malleefowl identified during construction outline below.

Potential Impacts of Road Construction

Assuming that no mitigation measures are implemented, the proposed construction of the upgraded Council Roads could result in the following impacts upon Malleefowl:

- Removal or damage to Malleefowl habitat.
- Risk of fire outbreak due to construction activity (e.g. sparks from grading and construction personnel working).
- Risk of direct mortality or injury to both adult and/or juvenile Malleefowl by machinery, plant and construction vehicles.
- Risk that both adult and/or juvenile Malleefowl may move into the construction zone during work activities. Once within the construction zone, individuals would be at a high risk of mortality or injury by machinery and being run over.
- Human habituation of Malleefowl given presence of construction personnel.
- Construction activity could disturb Malleefowl (e.g. noise, ground vibrations). Malleefowl using habitat in the vicinity of the study area may move elsewhere or otherwise alter their usual behaviour during the construction works (e.g. adults may abandon nests).
- Introduction of new or spread of existing weeds during the construction process. There is a possibility that more invasive or otherwise damaging environmental weeds are introduced to the site. The construction process may also facilitate the spread of existing weeds into new areas, both within and beyond the study area.
- Introduction of disease/pathogens to local Malleefowl population.

1.1.1 Mitigation Actions for Construction

The mitigation measures outlined in table 2 are generic to all construction works proposed as part of the Road Upgrade Project and are recommended to minimise and if possible avoid the potential impacts specific to Malleefowl as identified above.

This section also outlines Malleefowl Recovery Actions, developed from the National Recovery Plan for Malleefowl 2007 'General Management of Populations' that shall be undertaken during the construction of Council Roads and identifies responsibilities for the implementation of these actions. The following section also outlines measures of the effectiveness of mitigation and management strategies and recovery actions identified during the construction of Council Roads.

Table 2 Mitigation Measures to Minimise and If Possible Avoid Impacts on Malleefowl during Construction of Council Roads

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Pre-Construction Phase					
Minimise Loss of Malleefowl Habitat From Within Roadside Strips					
Plan road design and all construction works to minimise damage or the loss of Malleefowl habitat within road reserve	Action 1.1	Areas of native vegetation including entirety of road reserve	During road design Works planning stages	RCMB Native Vegetation Assessment	Existing Malleefowl habitat in roadside strips identified and retained to the greatest extent possible (i.e. design of the road widening undertaken with habitat retention as a key focus)

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Identification of Active and Non-active Malleefowl Nest Mounds					
An assessment of the presence of active and non-active Malleefowl nest mounds within 100 m of the project area should be undertaken. To identify active mounds this survey should be undertaken prior to construction. (the optimum time for this survey is during early breeding season October/November although it is recognised that this may not be possible given construction timeframes).		Within 100 m of project Area	Prior to construction	RCMB	All active and non-active Malleefowl nest mounds within 100 m of the project area identified
Avoid and/or minimise impacts on Active Malleefowl Nest Mounds					
Plan all construction works to avoid and/or minimise impacts on active nest mounds identified within 100 m of project area during the pre-construction assessment.		Within 100 m of project area where active Malleefowl nests are identified	Following assessment of project area for Malleefowl nest mounds	RCMB / contractor	All active Malleefowl mounds within 100 m of project area avoided and/or impacts minimised

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Reduce Fire Threat					
A reduction in fire threat will be achieved by removal of ignition sources including smoking in the area and planning for the use of diesel engine vehicles and machinery only during construction. The requirement for the positioning of fire suppression equipment on site during construction will be incorporated into a CEMP for construction works.	Action 3.2	Boundary of project area.	During road design	RCMB / Contractor	No reports of fire in project area.

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Preparation of Malleefowl Awareness Information for Contractor Personnel					
RCMB should develop awareness posters and flyers highlighting (to the contractor personnel) the potential presence of Malleefowl within the project area. This material should include photographs of the species, along with size and appearance descriptions and step-by-step instructions to follow if Malleefowl are located within the project area.		Preparation of Malleefowl awareness information will be included for construction purposes	During site preparation activities for the commencement of construction	RCMB / Contractor engaged by RCMB	Suitable information material available to ensure all personnel aware of potential for Malleefowl to occur in project area and steps to follow if Malleefowl identified Documentation prepared prior to inductions commencing
Avoid and/or Minimise Potential Artificial Sources of Water					
Avoid and/or minimise creation of artificial sources of water accessible by predators or grazing competitors to Malleefowl such as goats.	Action 2.1 and 2.2	Throughout project area	During road design	Design consultant and RCMB/contractor	No artificial sources of water created through road upgrade
Timing for construction Preferably avoid construction during the nesting season for Malleefowl[2], which typically extends from September to February when the female may lay within the nest mound. Preferably use machinery and plant during construction with the lowest possible noise and vibration emissions to minimise disturbance on Malleefowl.		Throughout the project area	During site preparation activities for the commencement of construction	RCMB / Contractor	Minimise as much as possible significant construction during the Malleefowl breeding season.

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Construction Phase					
Monitoring for Malleefowl Nest Sites					
If construction is undertaken during the Malleefowl breeding season[2] undertake an additional search for active Malleefowl nest, to that undertaken during pre-construction, within 100 m of the project area during the months of December/January. In the event that a Malleefowl nest not previously identified during assessment in the pre-construction phase is identified during the additional search, the Project Ecologist and DSEWP&C and DEWNR are to be notified immediately. Unless otherwise agreed with DEWNR, DSEWP&C and appropriate permits obtained Malleefowl are not to be translocated to sites away from the project area or nest mounds removed.		Project Area	December/January	RCMB/Contractor	Any previously unidentified active nest mounds found in project area during construction works notified to DSEWP&C

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Implementation of a Construction Environmental Management Plan					
A Site-specific Construction Environmental Management Plan (CEMP) should be developed for the road upgrade project[1]. This CEMP should: Provide appropriate measures to avoid direct impacts on Malleefowl such as nest mound disturbance/ abandonment. Provide appropriate measures to avoid or minimise indirect impacts such as noise, vibration on Malleefowl. Provide a protocol for minimising impacts to Malleefowl habitat including road reserve remnant native vegetation. Provide a plan for managing pest/weed and pathogens issues both during and after the construction phase. Provide a plan for minimising fire risk during construction. Provide a plan for undertaking vegetation clearance- this may require provision for pre-clearance fauna inspections[3]. The CEMP should also be audited during and following the construction process to ensure works have been conducted in accordance with requirements of the plan.		Project Area	CEMP to be developed and approved by RCMB prior to commencement of construction	RCMB/Contractor to prepare CEMP. CEMP to be provided to DEWNR for review and comment.	An appropriate CEMP implemented, audited and documented
Induction of all Personnel (including Malleefowl Awareness)					

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
All site personnel should also be inducted in the requirements of the CEMP prior to commencing work on site. Importantly, this should include all personnel working on the project including haulage truck drivers. The induction should place particular emphasis on requirements of personnel to avoid and minimise both direct and indirect impacts on Malleefowl. All inductees should also be provided with information handouts on Malleefowl developed prior to the construction period (outlined above). Records of personnel having undertaken inductions shall be maintained.			Prior to personnel commencing work on the project	RCMB/Contractor	During induction all personnel made aware of potential (and sign a form stating that they have read and understood the CEMP requirements) for Malleefowl to occur in project area and steps to follow to avoid direct or indirect impacts to Malleefowl. A lower speed limit is to be installed in accordance with Australian Standards requirements during construction.

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Fencing of any Open Excavations or Trenches					
The requirement to have excavations/trenches open during construction should be minimised to the greatest extent possible. Should excavations/trenches be left open for extended periods, fauna proof fencing should be erected to prevent inadvertent capture of fauna moving through the area?		Project area	Throughout construction	Contractor	No Malleefowl deaths due to entrapment in open excavation/trench during works.
Post-Construction Phase					

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Remove Artificial Sources of Water					
Limestone quarry material for road construction will be excavated, crushed, stockpiled and hauled from a Quarry situated the near roadworks .The Quarry will be reshaped and rehabilitated by RCMB following completion of works so as not to collect surface water and provide an artificial source of water for predators or grazing competitors to Malleefowl such as rabbits.	Actions 2.1 and 2.2	Quarry situated within nearby farmland.	Post- construction	RCMB/contractor	Quarry reinstated to a stable state.
Removal of any other identified potential artificial sources of water during construction.		Throughout project area	During construction	RCMB/Contractor	No artificial sources of water in project area

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Reporting					
During construction, in accordance with the requirements of the CEMP and any commonwealth and state permit requirements regular reports will be prepared outlining recorded actions undertaken during construction to avoid and/or minimise impacts on Malleefowl. Reports will be distributed to the project stakeholders and will be available to DSEWP&C.		All	All	RCMB/Contractor	All requirements for reporting in CEMP and any other state and commonwealth permits met

* Developed from the National Recovery Plan for Malleefowl 2007 Section A: 'General Management of Populations' (Appendix E)

[1] This CEMP may be developed from an existing Environmental Management Plan developed for the Upgrade of Council Roads prepared by RCMB.

[2] Malleefowl breeding season can extend up to 11 months beginning with the pre-nesting period of male nest preparation in late winter/spring, female egg laying between September-February through to hatchling emergence after a period of 49-60 days.

[3] Vegetation clearance plan requirements, including for pre-clearance fauna inspections are likely to be a condition of vegetation clearance approval from the Native Vegetation Council.

Operation of Upgraded of Council Roads

Potential impacts on Malleefowl due to the ongoing operation of the upgraded of Council Roads are provided here based upon a scenario where no mitigation measures at all are undertaken. Mitigation measures are then provided based upon these identified potential impacts. Importantly the general behaviour of Malleefowl is described as generally shy and wary of humans (Marchant and Higgins, 1993), which should be considered when assessing the likelihood of potential impacts to Malleefowl identified during the ongoing operation of Roadworks outlined below.

Potential Impacts of Upgraded Council Road Operations

Assuming that no mitigation measures are implemented, the operation of the upgraded Council Roads could result in the following impacts to Malleefowl:

Risk of injury or mortality to adults and juvenile Malleefowl through road strike.

Increase in road spill resources for Malleefowl (i.e. spilt grain may lead to increased road strike. Although it is a legal requirement to cover food supply like grain, this is not always adhered).

Adult Malleefowl may abandon active nests within close proximity of the upgraded road due to increased levels of disturbance.

Introduction of disease/pathogens to local Malleefowl population.

Mitigation Actions for the Operation of Upgraded Road

The mitigation strategies and recovery actions outlined in Table 3~~Table 3~~ are recommended to be implemented during the ongoing operation of the upgraded Council Roads to avoid and/or minimise potential impacts specific to Malleefowl as identified above.

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This section also outlines Malleefowl Recovery Actions, developed from the National Recovery Plan for Malleefowl 2007 'General Management of Populations' that could be undertaken as part of the ongoing management of the Council Roads and responsibilities for the implementation of these actions. The following section also outline measures of the effectiveness of mitigation and management strategies and recovery actions identified during the ongoing operation of Roadworks.

Table 3 Mitigation Measures to Minimise and/or Avoid Impacts on Malleefowl during Operation of Council Roads (Post Construction)

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Minimise Loss of Malleefowl Habitat from Within Roadside Strips					
Plan and undertaken roadside vegetation maintenance works to minimise removal or damage to Malleefowl habitat. Any roadside vegetation maintenance to be undertaken in accordance with DTEI requirements (DTEI Specification Part 815: Roadside Vegetation Maintenance. Dated September 2010).	Action 1.1	All project Area	Prior to undertaking roadside vegetation maintenance works Throughout operational life of the upgraded road	RCMB	Roadside vegetation maintenance undertaken minimising removal or damage to Malleefowl habitat
Minimise Mortality and/or Injury to Malleefowl from Road Strike					
Minimise grain spilt onto upgraded road. Include information on reducing load spillage in public information to increase awareness of road users to protect Malleefowl.	Action 7.1	Council Roads	Throughout operational life of upgrade road	RCMB	

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Removal of any Identified Artificial Sources of Water					
Removal of any identified artificial sources of water associated with upgraded road i.e. collection in roadside areas.	Actions 2.1 and 2.2	All project Area	Throughout operational life of upgraded road	RCMB	No artificial sources of water in project area

Requirement	Malleefowl Recovery Action*	Location	Timing and Frequency	Responsibility	Measure
Reduce Exotic Predator (Fox / Cat)					
Fox control should be conducted as an integrated approach and be conducted on a scale, intensity and frequency that increase the prospects of Malleefowl numbers.	Action 4.2	Council Road Reserves	To be determined based on DEWNR operational restraints and resources	To be implemented and managed by DEWNR	Integrated fox/cat control undertaken that is effective for roadsides

* Developed from the National Recovery Plan for Malleefowl 2007 Section A 'General Management of Populations" and Section B Planning, Research and Monitoring (Appendix E)

Monitoring and Reporting

The following sections outline detailed methods for identifying and measuring Malleefowl mortality associated with the overall upgrade of the Council Roads including both during construction and the ongoing operation of the road. "*Detailed methods for identifying and measuring Malleefowl mortality associated with the upgrade of Council Roads [Section 2a]*".

Identifying and Measuring Malleefowl Mortality

During Construction of Council Roads

A robust recording procedure for all reports of vehicle strike or mortality of Malleefowl during the project should also be implemented. Additionally, as a minimum, a daily inspection (undertaken during daily travel to the site) of Council Roads and road verge should be undertaken by RCMB/Contractor throughout the duration of the project to record any incidents of Malleefowl mortality. To ensure a consistent approach to inspection of the road and road verge areas and to maintain records of inspections undertaken, a Council Road Malleefowl Mortality Inspection checklist (Appendix C) should be completed and collated by RCMB.

Any injured or deceased Malleefowl reported during construction should be collected immediately, frozen and taken to the SA museum..

Ongoing Operation of Roadworks

The Traffic Management Plan prepared for the upgrade of Council Roads outlines provisions for the comprehensive reporting of Malleefowl mortalities on the Road in accordance with the requirements of the EPBC Approvals.

Identification and measuring of Malleefowl mortality on Council Roads should be undertaken through regular inspection of the verge areas by SA Landscapes regional staff upon visiting Roadworks. Opportunistic inspections of the road should also be undertaken by RCMB staff undertaking maintenance works on the road or when traversing the road. To ensure a consistent approach to inspection of the road and road verge areas and to maintain records of inspections undertaken. **Reporting**

During Construction of Council Roads

Reporting on compliance with requirements of a Construction Environmental Management Plan (CEMP) should be undertaken during construction works. This should include the following:

- Inspections/monitoring/measuring of mitigation measures and recovery actions identified in this Malleefowl Management Plan.
- Inspections/monitoring/measuring of mitigation measures identified in any vegetation clearance management plan.
- Compliance audits to be undertaken regularly during the construction works.

- Non-conformances to be formally recorded and remedial action and corrective action to be identified and implemented.
- Non-conformance reports must be prepared within 24 hrs of the issue being identified (to be reported by the superintendent or project supervisor).

The contractor (road builder which may be Council) may be required to consult with DSEWP&C and Landscapes SA when developing suitable remedial action and corrective action and

Fortnightly reports to full details of all site inspections, non-conformances, remedial/corrective actions and compliance audits. Reports will be distributed to the project stakeholders and will be available to DSEWP&C.

Additional Approval Requirements

Upon commencement of construction and ongoing reporting requirements – responsibility: RCMB

The EPBC Approval also incorporates numerous reporting requirements associated with the commencement of construction and operation of the upgraded Council Roads. A summary of these requirements is provided below with relevant requirements of the EPBC approval indicated in parentheses.

- A copy of this MMP must be made available and published on Council's website [Section 2(e)].

Within 30 days of commencement of construction the person taking the action must advise DSEWP&C and Landscapes SA in writing the actual date of commencement [Section 3].

The person taking the action must maintain accurate records of all activities associated with or relevant to all conditions of the EPBC Approval and must make them available on request by the Department [Section 8].

Conclusion

This Malleefowl Management Plan has been developed in reference to the National Recovery Plan for Malleefowl, *Leipoa ocellata* 2007, Traffic Management Plan and the requirements of an EPBC referral approval. Measures to avoid and/or minimise potential impacts to Malleefowl during both construction and ongoing operation of Council Roadworks have been identified. To ensure these measures are implemented responsibilities for implementation have been assigned and measures to determine the effectiveness of all management measures have been described.

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Site Location Plan

EPBC Act Referral 2010/5713

Maurice Road Inspection Checklist

Road and Roadside Inspection
For Dead or Injured Malleefowl

Section of Road Inspected: _____

Road Verge Observed: **(5 m either side of Road)** ☐ **Yes** ☐ **No**

Name(s) of Person(s) Observing: _____

Contact: _____

Organisation: **(e.g. RCMB)** _____

Date of Observation: _____

Start Time of Observation: _____

End Time of Observation: _____

Speed Maintained **(<25 km/h)** **while Observing:**

☐ **Yes** ☐ **No** ☐ **Other Specify:** _____

☐ **Malleefowl Observed: Location:** _____

☐ **Injured Malleefowl Observed: Location:** _____

- ☐ **Collected immediately and transported to appropriate care (refer to Injured and Killed Animals protocol)**
- ☐ **Reported to DEWNR**

☐ **Deceased Malleefowl Observed: Location:** _____

- ☐ **Collected Immediately**
- ☐ **Preserved Specify:** _____
- ☐ **Submitted to South Australian Museum (SAM)**

Injured and Killed Animals Protocol

Injured Animals

Any injured Malleefowl will be taken to a suitable veterinary expert for treatment, preferably at Monarto Zoological Park.

1. Landscapes SA will be contacted immediately
2. If considered by the Vet to be uninjured or immediately treatable, Landscape SA will arrange for the subsequent translocation of such animals.
3. If considered by the Vet to be treatable with some long-term care required, Malleefowl will be placed into the care of a specialist avian wildlife care facility, and
4. If the injuries are considered by the Vet to be untreatable, the Vet will humanely euthanase the bird, and the animal will be offered to the South Australian Museum[3] for collection lodgement.

Local vets able to treat injured native wildlife should be investigated prior to the commencement of construction. Other relevant groups (e.g. wildlife carers, specialist avian wildlife care facility) should also be contacted and an agreement sought regarding injured wildlife prior to the commencement of construction.

Landscape SA will be informed immediately of any injured animals that are transported to veterinary care. A permit for the removal of Malleefowl will be required from DEWNR.

Deceased Animals

For any Malleefowl that are found deceased DEWNR will be informed as soon as practicable. The animals will be offered to the South Australian Museum Collection.

Landscapes SA Contact: Paul Gillen: District Manager Murrayland and Riverland (08) 8532 9125

RCMB Contact: Manager of Infrastructure, Environment: (08) 8539 1440

S.A Museum Contact: (08) 8207 7500

[3] Advice will be sought from the museum regarding the most appropriate method to preserve animals prior to lodgement.

Appendix 12: CEMP – Construction Environmental Management Plan (Guide Only)

The Rural City of MURRAY BRIDGE

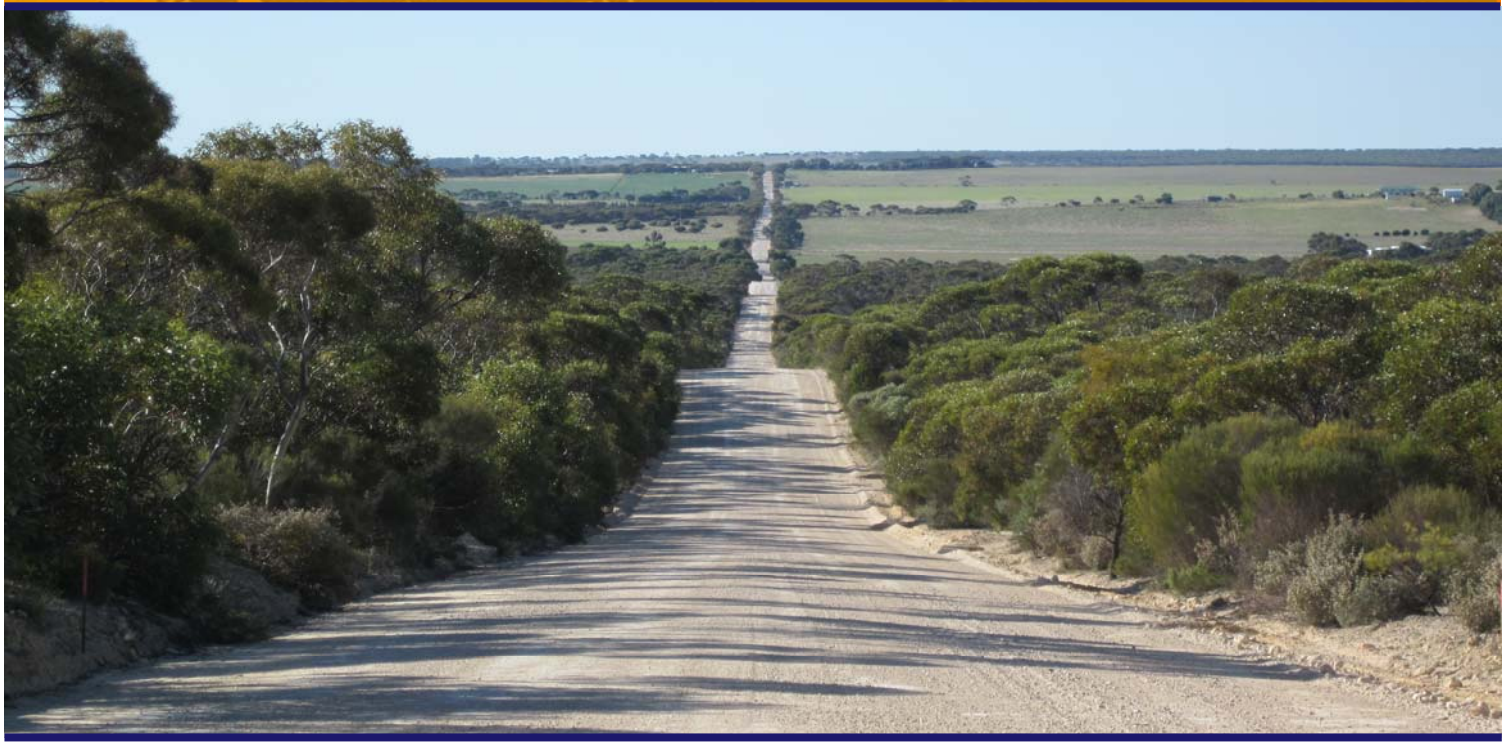
Bridge to Opportunity

Ferries McDonald Road Redevelopment

PR-1103

Construction Environmental Management Plan

MARCH 2012



CONTENTS

1. PROJECT DESCRIPTION

The Rural City of Murray Bridge (Council) is undertaking the reconstruction and sealing of Ferries McDonald Road which is approximately 10 kms South West of Murray Bridge in South Australia. The upgraded road will form part of a major transit route from Langhorne Creek to the Barossa Valley.

The construction works will be on Ferries McDonald Road between the intersection of Bremer Range Road (just south of the South Eastern Freeway Bridge), to and including, the intersection of Chauncey's Line Road at the southern end of Ferries McDonald Conservation Park. The location of the project is shown in Figure 2.

The works will entail the construction of two 'T' intersections adjacent to the Ferries McDonald Conservation Park, the realignment of an existing 'S' bend, 'cut and fill' to improve sight lines and the sealing of 11.7 kms of the existing road.

2. OBJECTIVE OF THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

The Construction Environmental Management Plan (CEMP) will address and manage the construction environmental aspects and impacts relating to the Ferries McDonald Road redevelopment by The Rural City of Murray Bridge. The purpose of the CEMP is to:

- Ensure The Rural City of Murray Bridge manages all construction and environmental aspects and issues related to this project – specifically those identified and required by the Malleefowl Management Plan and Traffic Management Plan;
- Provide a management structure to control and report on the construction and environmental aspects during the course of the project;
- Ensure The Rural City of Murray Bridge Council complies with all statutory requirements;
- Reduce risks to The Rural City of Murray Bridge Council and its sub contractors (if applicable), the public, assets and the environment arising from activities associated with the project;
- Document and manage all construction and environmental activities, procedures, work methods and forms associated with the project; and
- Ensure the Rural City of Murray Bridge adheres to all formal approvals.

3. NATIVE VEGETATION CLEARANCE

The Rural City of Murray Bridge has gained permission from the Native Vegetation Council to clear Native Vegetation for the redevelopment of Ferries McDonald Road within the existing road corridor to a width of 10 metres, and a section of roadside reserve on Chauncey's Line Road for the construction of the Southern T intersection. The existing road

passes through Ferries McDonald Conservation Park and adjacent to Monarto Conservation Park. Rare and endangered plant species have been identified amongst the roadside vegetation. This includes examples of Resin Wattle *(Acacia rhetinocarpa)*, a nationally endangered plant species; these plants will be protected by clearly bunting them off as marking designated 'no go zones'. All plant material resulting from clearing will be stockpiled and later spread over the redundant road reserves to add organic matter which will encourage plant regrowth from direct seeding. All roadside vegetation clearance will be conducted in accordance with Section 1.1 of the 'Draft' Rural City of Murray Bridge Roadside Vegetation Management Plan – Operations Plan (Attachment 6).

Figure 1: Nationally endangered roadside vegetation: Resin Wattle (*Acacia rhetinocarpa)*

Figure 2: Plan showing location of Project – Approx 10 km south-west of Murray Bridge, SA.

4. MALLEEFOWL

A Malleefowl Management Plan has been prepared by the Rural City of Murray Bridge and consultants GHD. This plan will be referred to by all stakeholders during all the construction phases of Ferries McDonald Road.

The Malleefowl Management Plan highlights certain conditions to be followed during construction phase;

- Remove artificial water sources.
- All construction personnel will be informed of the Malleefowl population and the mitigation measures during the induction process.
- Provide warning signs of Malleefowl population.
- Survey, monitor and peg mounds / nest as 'no go' zones, adjacent to the construction zone (refer Malleefowl Management Plan Attachment 9).
- Reduce speed limit.
- Prepare information sheet for Rural City of Murray Bridge Customer Support Officers and construction crew.
- Monitor activities and record death / injury of Malleefowl.
- Undertake a survey of Malleefowl mound within 500m of the construction zone, prior to construction works (refer Malleefowl Management Plan Attachment 9).

Once constructed, signs will provide motorist awareness of the Malleefowl population and prescribe an advisory speed while travelling through the conservation parks – a 1800 913 613 number is also be available to report any Malleefowl incidents to be recorded in log book located at the Rural City of Murray Bridge Local Government Centre, Customer Support.

Refer to Attachment 9 - Malleefowl Management Plan.

Refer also to Section 13, herein – which describes how Council will monitor compliance of the Malleefowl Management Plan.

5. TRAFFIC MANAGEMENT PLAN

The Traffic Management Plan (TMP) outlines the action and management strategies to protect local population of Malleefowl and provide safe passage for road users.

The actions contained in the TMP are:

- Place wildlife warning signs on road leading to Ferries McDonald Conservation Park.
- Place 80km/h signs on the section through Ferries McDonald Conservation Park.
- Place 60km/h advisory signs through Ferries McDonald Conservation Park.

- Place variable message signs (VMS) each end of Ferries McDonald Conservation Park for a period of 12 months.
- Set up a 1800 phone number and place signs for reporting death or injured Malleefowl at each end of the Ferries McDonald Road Conservation Park.
- Construct two 'T' intersections at each end of Ferries McDonald Conservation Park to slow traffic through Ferries McDonald Conservation Park.

Refer to Attachment 10 Traffic Management Plan.

6. COMMUNICATION

During the project communication will be of the highest importance to provide up to date reporting on the progress of the project.

In the course of the project there will be;

- Letters sent to residents on regular basis to inform of the projects progress.
- Status report will be posted on Councils website.
- Status report via media releases.
- Status report / memo to Council and other any interested stakeholders.
- Door knocks, letter drops and phone calls to inform residents on any issues eg – service location.
- Progress reports to the Council.

All customer request or incident reports relating to Ferries McDonald Road Project will be directed to the Project Manager or via the 1800 913 613 number to customer Support.

7. CONSTRUCTION CREW COMPLIANCE

The construction crew will comply with the Department of Planning, Transport and Infrastructure (DPRI) *Environmental Code of Practice for Construction – Road, Bridge and Marine Facilities* for all contract specifications (Attachment 12).

To ensure the construction crew complies with the condition set out in the Federal Government Approval Documents, there will be daily team meetings, site inspections and weekly audits (discussed in further detail in Section 13) held to discuss any OHS&W, compliance, risk management and construction issues that arise during the project. The following attachments will be adhered to.

- **Attachment 1:** ACHM Procedure
- **Attachment 2:** Fuel handling safe work procedure
- **Attachment 3:** Induction register
- **Attachment 4:** Daily checklist
- **Attachment 5:** Weekly Construction and Environmental checklist
- **Attachment 6:** RCMB Roadside Vegetation Management Plan – Operations Plan
- **Attachment 7:** Specifications Ferries McDonald Road Upgrade V1.2
- **Attachment 8:** Construction Drawings
- **Attachment 9:** Malleefowl Management Plan
- **Attachment 10:** Traffic Management Plan
- **Attachment 11:** Construction Program
- **Attachment 12:** DPTI Environmental Code of Practice for Construction – Road, Bridge and Marine Facilities
- **Attachment 13:** Work Zone Traffic Management Plans
- **Attachment 14:** Induction Presentation
- **Attachment 15:** FMR Construction Delivery Team Meeting Agenda
- **Attachment 16:** Variation to Contract
- **Attachment 17:** Request for Information

All staff/officers and others associated with the works and required to operate on-site, will be formally inducted – the induction Presentation (PPT) is included in Attachment 14.

8. CONSTRUCTION AND ENVIRONMENTAL RESPONSIBILITIES

Project Manager

- Review, refine and endorse the construction, environmental and OHS&W controls contained in the CEMP.
- Ensure that the works are carried out in accordance with the requirements of the CEMP and procedures including the implementation of all construction, environmental and OHS&W controls.
- Ensuring that complaints are investigated and effectively resolved.
- Ensure daily inspections are undertaken and records are completed.
- Maintaining all necessary monitoring records and reports.
- Reporting any activity that has resulted, or has the potential to result in a reportable incident eg – construction incident, environmental incident, OHS&W incident.

Site Supervisor

- Attending to any construction and environmental incidents that may occur on site.
- Reporting any activity that has resulted, or has the potential to result in a reportable incident eg – construction incident, environmental incident, OHS&W incident.
- Ensure daily inspections are undertaken and records are completed.
- Maintaining all necessary monitoring records and reports.
- Reporting any activity that has resulted, or has the potential to result in a reportable incident eg – construction incident, environmental incident, OHS&W incident.

9. CONSTRUCTION AND ENVIRONMENTAL INDUCTIONS, TRAINING AND TOOLBOX MEETINGS

Prior to commencement of works on site, all personnel will be inducted on the Construction Environmental Management Plan and associated procedures. Furthermore, site personnel will be required to undergo Cultural Heritage Awareness training to be delivered by elders of the local Aboriginal Heritage Group and OHS&W awareness. A site induction register (attachment 3) will be maintained. Toolbox meetings will be held on a daily basis to provide a short information/training re-enforcement process for site personnel. The intention of the meetings is to provide amongst other things the opportunity to discuss OHS&W, construction and environmental issues arising from construction activities.

10. CONSTRUCTION AND ENVIRONMENTAL INSPECTIONS

Construction and environmental inspections will be completed on a daily basis. Construction and environmental aspects will be visually assessed and recorded (Attachment 4). Weekly construction and environmental inspections will be completed by either the site supervisor or project manager to assess the effectiveness of environmental protection measures and to facilitate the identification and early resolution of problems (Attachment 5).

11. INCIDENT MANAGEMENT

All site personnel are required to report all incidents, near misses, dangerous occurrences involving personal injury, environmental impact, or plant and equipment damage directly following the occurrence.

Any environmental incidents shall be reported to the Site Supervisor or Project Manager immediately. An incident report form shall be completed and forwarded to the Project Manager / Risk Manager.

If the incident is reportable, the relevant authority will be notified eg: Environment Protection Authority (EPA), WorkSafe SA, Native Vegetation Council by the Project Manager.

The Project Manager shall agree on recommended preventative action; assign responsibility, by whom and by when it shall be completed.

A Register of Incidents shall be maintained with any incidents discussed at daily toolbox meetings.

The Council's Safe Operating Procedures (SOP) and OHS&W manuals must be complied with and read in conjunction to all other documents, refer to OHS&W manual attachment and SOP register attachment.

12. EMERGENCY CONTACT LIST

Bridge Clinic	Standen Street	8539 3232
Police		000
Ambulance		000
Fire		000
EPA		8204 2004
RSPCA		8231 6931
Ngarrindjeri - Tom Trevorrow		8575 1557
Environmental Officers	RCMB	8539 1160
Project Owner	RCMB	8539 1160
Project Manager	RCMB	8539 1160
Site Supervisor	RCMB	8539 1160

13. CONSTRUCTION WORKS

Stage one of the construction comprises the T-intersection at either end of Ferries McDonald Road Conservation Park, and the 2km section of road that goes through the park. Stage one will be split into three phases:

1. The southern T intersection at Chauncey's Line Road.
2. The two km section through Ferries McDonald Conservation Park.
3. The northern T intersection at Garwood Road.

The Construction Program is included in Attachment 11.

Construction will start at the southern T intersection and will progress through the park to the northern T intersection.

The construction envelope will be surveyed and pegged in accordance with the approved construction drawings and the Specifications Ferries McDonald Road Upgrade V1.2.

The construction envelope consists of a 10 metre wide approved corridor within the existing 20 metre wide council road reserve; trees and vegetation will be trimmed to a clearance height of 5 metres (refer to attachment 6). Any further trimming or vegetation removal will require additional approval from the Native Vegetation Council.

During the construction phase the native vegetation is to be cleared in accordance to the approvals received from the Native Vegetation Council. All vegetation to be cleared shall be cut, chipped and stockpiled in a weed free area. Topsoil from any cleared areas will also be stockpiled in a weed free area. These materials will be used to revegetate the redundant road reserves.

The subgrade and earthworks will be trimmed, compacted, proof rolled and compaction tested in accordance with Section 2, 3, 7 and 8 of the Specifications Ferries McDonald Road Upgrade V1.2.

Construction of the pavement will consist of two layers. The first layer will be PM2/40 quarry grade rubble which will be trimmed, compacted, proof rolled and compaction tested in accordance with Section 7 and 8 of the Specifications Ferries McDonald Road Upgrade V1.2.

The second layer will be PM1/20 quarry grade rubble which will be trimmed, compacted, proof rolled and compaction tested in accordance with section 7 and 8 of the Specifications Ferries McDonald Road Upgrade V1.2.

The entire length of the road will be primer sealed prior to the final seal.

The southern T intersection will be sealed in accordance with the Specifications Ferries McDonald Road Upgrade V1.2 and construction drawings.

The two kilometre section through Ferries McDonald Conservation Park will be sealed using a 14/7mm C170 grade chip spray seal with a 20/10mm C170 grade chip spray seal on the shoulders in accordance with the Specifications Ferries McDonald Road Upgrade V1.2 and construction drawings.

The northern T intersection at Garwood Road will be sealed using an AC10 60mm overlay in accordance with the Specifications Ferries McDonald Road Upgrade V1.2 and construction drawings.

Construction envelope will be sign posted and line marked as per the Specifications Ferries McDonald Road Upgrade V1.2, construction drawings and Traffic Management Plan including speed restrictions and variable message sign put in place during the construction phase for the duration of the project.

Work zone traffic management will be put in place during the construction of Ferries McDonald Road in accordance with the Australian Standard AS1742.3 – 2009 Traffic control for works on roads. Refer to attachment 13 Work Zone Traffic Management Plans.

During the construction phase there will be daily team meetings, site inspections and weekly audits held to discuss any OHS&W, compliance, risk management and construction issues that arise during the project.

In particular, weekly site Meetings (will be held on Tuesdays at 8:00am) of the Construction Delivery Team (Management) with the Superintendent to (amongst other operational

matters) monitor compliance with MMP, TMP, Design & Specification – the template agenda for the Construction Delivery Team Weekly Meeting is included in Attachment 15.

The Construction Delivery Team will formally review and acknowledge receipt of the "Daily Checklist" refer Attachment 4 and the "Weekly Construction & Environmental, checklist" both which must also have Items for *MMP Compliance, TMP Compliance, Malleefowl Strike Record, Malleefowl Incidents, Native Vegetation Approval Compliance.*

Template Forms for Variations (VO's) and Requests for Information (RFI's), for use by the Construction Delivery Team are included in Attachment 16 & 17.

The Project Superintendent (with the Councils Environmental Officer/s) will undertake planned and ad-hoc Audits to ensure compliance with the MMP, TMP, Project Specification & Drawings and Native Vegetation Approvals – these will be documented and referred to the FMAC – Project Management Team (PMT) for review and formal receipt.

The Minutes from the weekly Construction Delivery Team Meetings (CDTM) will be referred to FMAC – Project Management Team (PMT) for reference and consideration weekly – and to monitor compliance with MMP, TMP & Native Vegetation Requirements. The Minutes must be formally received by the PMT.

In addition, to ensure the construction crew complies with the condition set out in the Federal Government Approval Documents, the following forms will be adhered to and completed to enable a concise reporting process refer to the following attachments;

- **Attachment 1:** ACHM Procedure
- **Attachment 2:** Fuel handling safe work procedure
- **Attachment 3:** Induction register
- **Attachment 4:** Daily checklist
- **Attachment 5:** Weekly Construction and Environmental checklist
- **Attachment 6:** RCMB Roadside Vegetation Management Plan – Operations Plan
- **Attachment 7:** Specifications Ferries McDonald Road Upgrade V1.2
- **Attachment 8:** Construction Drawings
- **Attachment 9:** Malleefowl Management Plan
- **Attachment 10:** Traffic Management Plan
- **Attachment 11:** Construction Program
- **Attachment 12:** DPTI Environmental Code of Practice for Construction – Road, Bridge and Marine Facilities
- **Attachment 13:** Work Zone Traffic Management Plans
- **Attachment 14:** Induction Presentation

- **Attachment 15:** FMR Construction Delivery Team Meeting Agenda
- **Attachment 16:** Variation to Contract
- **Attachment 17:** Request for Information

14. SPECIFIC CONSTRUCTION AND ENVIRONMENTAL CONTROL MEASURES

A risk analysis of construction and environmental impacts associated with construction activities was undertaken by The Rural City of Murray Bridge.

Table 1 outlines the key aspects and impacts that have been identified for the Ferries McDonald Road Redevelopment.

The table identifies management measures aimed at reducing the identified impacts.

Table 1. Road Construction Environmental Impact and safety measures

Prepared By:	Dave Allen		Signature:			Review by Safety Officer:		Yes	No	Name:				
Approved By:			Signature:			Review by Safety Officer:		Yes	No	Name:				
Type of Permit / Licence Required: (please indicate by ticking yes/no box)														
	Yes	**No**		**Yes**	**No**		**Yes**	**No**		**Yes**	**No**		**Yes**	**No**
Gov Authority	✓		Lock Out		✓	Disp or Trans Solid / Liquid Waste		✓	Gas Test		✓			
Hot Work		✓	Excavation Asset ID		✓	Radiation		✓	Explosives		✓			
			Traffic Control	✓		Confined Space		✓	Air /Water Emissions		✓			
PPE Requirements: (please indicate by ticking yes/no box)														
	Yes	**No**		**Yes**	**No**		**Yes**	**No**		**Yes**	**No**		**Yes**	**No**
Goggles/ Glasses	✓		Dust Mask		✓	Signage	✓		Safety Harness		✓	Long Pants & Sleeves	✓	
Face Shield	✓		Gloves	✓		Fire Blanket		✓						
Hearing Protection	✓		Safety Boots	✓		Fire Extinguisher	✓							
Respirator		✓	Helmet	✓		Hi-Vis Clothing	✓							

<table>
<tr><td>Training / Qualification
Eg- Hiab, first aid, traffic control, confined spaced, crane operator, dogman etc</td><td colspan="2">Training details are located at the Project / Site Office in the:</td><td colspan="2">Weather Conditions</td><td colspan="2">Code of Practice, Legislation, Standards that apply to this activity
The documents listed are located or able to be accessed from the internet at the Depot Office: (list relevant regulations and standards in space provided.)</td></tr>
<tr><td rowspan="3">Demonstrate competency for relevant plant</td><td rowspan="3">Site / Project Training records</td><td rowspan="3">YES</td><td>Temperature (C)</td><td></td><td rowspan="3">OHS and Env Regulations and Acts</td><td rowspan="3">• OHS Act (1986) & OHS Regs (1995)</td></tr>
<tr><td>Wind Chill (Table 4)</td><td></td></tr>
<tr><td>Relative Humidity (%)</td><td></td></tr>
<tr><td>Level 2 First Aid</td><td colspan="2">Other (specify): On site personnel to have tickets on site</td><td>Heat Index (Table 5)</td><td></td><td>Australian Standards</td><td>• See SOP for Plant</td></tr>
<tr><td rowspan="7"></td><td colspan="2" rowspan="7"></td><td>Conditions</td><td>UV Rating</td><td rowspan="6">Codes of Practice and Guidelines</td><td rowspan="6">• SOP For Plant
• SOP for Manual Handling
• SOP for Safety precautions in Trenching Operations
• Working in Isolation</td></tr>
<tr><td>Sunny</td><td>Extreme</td></tr>
<tr><td>Overcast</td><td>Very High</td></tr>
<tr><td>Rain</td><td>High</td></tr>
<tr><td>Wind</td><td>Moderate</td></tr>
<tr><td>Foggy</td><td>Low</td></tr>
<tr><td>Site Specific OHS & W & E Plans</td><td>• Project/Site specific safety plan</td></tr>
<tr><td colspan="3"></td><td>The Rural City of Murray Bridge</td><td>• Work Procedure
• Occupational Health and Safety Procedure / JSEAS / SWMS Procedure
• Malleefowl Management Plan
• Traffic Management Plan
• Environmental Management Plan</td></tr>
</table>

Prepared By:	Dave Allen	Signature:	Review by Safety Officer:	Yes	No	Name:
Approved By:		Signature:	Review by Safety Officer:	Yes	No	Name:

Plant, Equipment and Tools required for this activity e.g. ladders, excavator etc	**Equipment Maintenance Checks required for this activity** Have the listed basic required checks/ inspections been completed where applicable:			**Potential Environmental Hazards** This is a prompt list only. If an environmental risk is identified a risk assessment must be completed and risk controls implemented (expert advice from Council's Environment Officer on site or other may be required)		**Hazardous Substances / Dangerous Goods** List any hazardous substances / dangerous goods to be used or that may affect operations	**Emergency Response** Consider fire extinguishers, rescue gear, evacuation procedure, muster locations etc)
Excavator/Backhoe/Bobcat	Daily plant/equip inspections	YES		Noise/Vibration			Follow Site Emergency Procedure
Grader/ Rollers / Scrapers	Daily site inspections	YES		Air emissions (incl dust)			Fire extinguishers are available
Tandem Tipper/Truck and Dog	Electrical equip inspections	YES		Soil erosion/ sedimentation			Muster/Evacuation point located:
Street Sweeper	Tool inspections (ladders, power tools etc)	YES		Resource use & waste			
Surveying levels				Heritage disturbance			
Shovels/brooms				Hazard to flora or fauna etc... More enviro. risks may exist, seek advice if required			
Sub-contractors plant							

NOTE: 1) The above checklist is a guide only and does not seek to identify all potential hazards. A specific risk assessment of the above activity shall be carried out by the responsible supervisor and the employees doing the work. A control measure must be determined on the following worksheet for all potential hazards identified. Any revision or special precautions that are required to be taken shall also be included on this JSEA/SWMS. On completion of the risk assessment the supervisor responsible shall approve the JSEA/SWMS for use, and then submit it to the Manager of Operations or Safety representative for review.

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Pre-commencement details	• Injury to personnel and public. • Flora and Fauna. • Damage to plant and equipment.	7L	• Documentation for the job eg notification to residents • Dial Before You Dig • Site / Design Plans • Traffic management scheme • Approval for Native veg etc where required • Resident notification • Ensure pre op check list is completed • Tool box meeting with operation / staff	2L	Project rep Group Leader Team Leader Workers
	Site Induction	• Injury to personnel due to site unfamiliarity • Injury to fauna and damage to flora	21H	• Ensure all personnel, including subcontractors on site are inducted prior to commencement along with the identification on all identified hazards, flora and fauna including the Malleefowl Management Plan, Traffic Management Plan, Environmental Management plan.	7L	Group Leader Team Leader
	Check site environment prior to commencement	• Injury to personnel and public	12M	• Make an assessment of the nature of the ground, soil type, etc. • Check services (Electricity etc) locations etc • Reinstate traffic management / fencing • Tool box meeting with operation / staff	2L	Group Leader Team Leader Workers
	Check site environment prior to commencement	• Injury to personnel and public	12M	• Inspect job prior to starting each day to identify new hazards resulting from any change in / to environment, eg overnight rain increasing the likelihood of personnel slipping over, machinery sliding. eg - Signage	2L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Tree Trimming	• Cutting branches / falling Tree • Injury to self from falling branch	17M	• Wear all PPE, read and understand SOP • Chainsaw operation only by qualified person • Access material to be trimmed safely if not possible engage tree climber/ contractor • Injury to public vehicle entering site	9M	Group Leader Team Leader Workers
	Earth works/ Pavement Construction	• Injury to personnel and public • Machine striking workers or members of the public	21H	• Ensure the general public is separated from the work site by clearly defining work areas. Use Para webbing, fencing, signage, etc • Plant to have flashing lights & reversing alarm fitted and working • Plant to have clean windows & mirror • Ensure that all job information is available on site • Traffic management scheme to be put in place prior to work starting • Ensure that PPE is worn • PPE to be worn includes: - Safety vest/ long sleeved shirt and pants , - Steel capped boots - Ear & eye protection where required - Safety gloves where required - Waterproof clothing where required • Follow manual handling work instructions – Ensure that personnel do not stand in the operator's blind spot. Make sure that you are visible to the operator at all times – Operator to be competent or on log book and supervised – Plant pre start check sheets to be completed prior to starting – Seat belts to be worn at all times	4L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Earth works/ Pavement Construction	• Machine hitting services and / or structures (Electricity, Gas, Water, Sewer, Telstra, Railway Communication Lines etc)	12H 12H	• Services located via “Dial Before you Dig” and marked or signed • Area to be hand dug when in the vicinity of identified services • Spotter to be assigned when working near overhead power lines and / or communication lines • Look for signs such as previously excavated ground, warning tape, sand, etc. • Services to be marked or signed eg electric fencing • Look for signs such as previously excavated ground, warning tape, sand, etc. • Provide line of communication between all parties involved eg property or asset owners	4L 4L	Group Leader Team Leader Workers
	Earth works/ Pavement Construction	• Servicing of equipment (including refuelling). o Contamination of soil or stormwater from oil/grease/fuel. • Faulty or hazardous plant • Wash down of equipment. •	22H	• Spill kits to be available and used if necessary • Refuelling is to take place at a designated refuelling site • There will be NO fuel or lubricants stored on site. • Refuelling on site will be carried out using “self-contained” service vehicles, these vehicles will carry spill kits as required. • Refuelling on site will be done within the site amenities area. The refuelling area will have a clay base with a compacted limestone raised bund.	5L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Earth works/ Pavement Construction	• Machinery fuel and oil spills o Pollution of stormwater or watercourse and spread of weeds • Unclean machinery. o Introduction and spreading of weed propagates or plant pathogens. • Use of machinery near dry vegetation. o Fire hazard. • Increased noise. • Environmental nuisance from increased noise in local area.	21H 16M 24H	• Spill kits/equipment to respond to fuels/lubricant incidents will be available on site. • In the event of a fuel spill, refer to the fuel handling safe work procedure (attachment 2). • Ensure no discharges of hazardous substances or fuel/lubricants into stormwater or watercourses. • Machinery will be maintained in good working order to reduce emissions. • An MSDS register will be maintained for hazardous substances stored on site. • Waste oil will be collected and disposed of to an EPA licensed recycling depot. • Unsafe plant to be tagged out of service • Vehicle wash down waters are not to be discharged into stormwater or watercourses.	4L 4L	Group Leader Team Leader Workers
	Earth works/ Pavement Construction	• Machinery fuel and oil spills o Pollution of stormwater or watercourse and spread of weeds o • Unclean machinery. o Introduction and spreading of weed propagates or plant pathogens. • Use of machinery near dry vegetation. o Fire hazard. • Increased noise. • Environmental nuisance from increased noise in local area.		• A site wash down bay will be located within the site amenities area for wash down of vehicles/machinery at the completion of the project. A disturbed location will be chosen within the designated amenities area and flagged off. • Only approved rock sources that are designated weed free will be used as approved by the Project Manager/Construction crew. • Vehicles transporting materials must have loads covered at all times to prevent escape of material to surrounding environment.		Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Earth works/ Pavement Construction	• Machinery fuel and oil spills o Pollution of stormwater or watercourse and spread of weeds • Unclean machinery. o Introduction and spreading of weed propagates or plant pathogens. • Use of machinery near dry vegetation. o Fire hazard. • Increased noise. • Environmental nuisance from increased noise in local area.	19H	• Where plant, vehicles, clothing and footwear travel other than on the made site roads, these items must be cleaned/swept down and inspected for weed presence and loose soil/sand material prior to entering or leaving worksite (which might become dislodged during transport). • Soil (e.g. topsoil and excavated material) from works to remain on worksite (stockpiled) and reused if possible on site rather than moved to another location e.g. local replacement of topsoil. • All significant movement of soil and its location to be logged. • Construction crew aware/able to identify relevant weeds and appropriate control measures-i.e. contact Project Manager (or delegate) who will liaise with the Environmental Officer for advice if unknown weeds found.	5L	Group Leader Team Leader Workers
	Earth works/ Pavement Construction	• Use of machinery near dry vegetation. o Fire hazard. • Increased noise. • Environmental nuisance from increased noise in local area.	19H	• Works will be undertaken in accordance with the South Australian Fire and Emergency Services Act and Regulations 2005. This will include, but is not limited to: • A person must not, during the fire danger season, drive a vehicle (driven by an internal combustion engine) within 2 m of any flammable bush or grass unless fitted with a spark arrester in good working order.		Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Earth works/ Pavement Construction	• Use of machinery near dry vegetation. o Fire hazard. • Increased noise. • Environmental nuisance from increased noise in local area.	19H	• No smoking on site within 2 metres of flammable bush or grass. • Vehicles to be parked away from bush and grass. Vehicles should be parked in a bare earth area. • All vehicles will be fitted with fire extinguishers. • A water cart (approx. 10 000 litre capacity) with an attached hose reel will be on site at all times. • If hot works are proposed for total fire ban days, a permit application will be submitted to the CFS. • All fires will be reported as per the emergency management plan. • Use of machinery outside of normal working hours will be minimised and all complaints received will be addressed. • Local residents will be advised of works and any likely inconveniences prior to works commencing.	5L	Group Leader Team Leader Workers
	Earth works/ Pavement Construction	• Machinery striking fauna (Malleefowl)	6L	• Identify and avoid active Malleefowl nests during breeding times (Oct/Nov) • Identify and fence off active Malleefowl nests within the construction zone as ‘no go’ zones during construction • Prepare Malleefowl awareness information sheets for construction staff • Minimise food source during the construction phase by regular patrol grading • Report any death or injury of Malleefowl by completing the appropriate form • Install Malleefowl awareness signs within Ferries McDonald Conservation Park • Put 40km/h speed reduction in place during construction phase	1L	Group Leader Team Leader Workers
STEP NO.	JOB STEP List the steps required to	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that	Initial Risk	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required	Residual Risk	PERSON RESPONSIBLE

	perform the task in the sequence they are carried out.	could cause injury / damage when the task step is performed.	**Score**	to eliminate or minimise the risk of the hazard	**Score**	Nominate the person who will action the controls
	Earth works/ Pavement Construction	• Generation of waste (construction waste). o Inappropriate disposal leading to environmental nuisance and community complaints. • General community concern regarding the project. o Community complaints, customer dissatisfaction, damage to corporate image.	16M	• Waste generated will be minimised wherever possible. • Work area will be maintained in a clean state. • Ensure adequate liaison with local community potentially affected by the works and advise of any disruptions to services or access prior to commencement.	2L	Group Leader Team Leader Workers
	Earth works/ Pavement Construction	• Damage to vegetation • Erosion and contamination o Potential pollution of stormwater and deposition on road and in surrounding paddocks. • Flow of water o Potential physical damage to site and site surrounds (including adjacent crops). • Erosion of exposed surfaces and stockpiles o Loss of topsoil. o Windblown dust to surrounding environment (potential traffic hazard and nuisance). o Smothering of vegetation.	19H	• Fence off identified 'no go' zones • Identify turn around areas • Mark out construction area with pickets • Avoid any discharges to watercourses or stormwater systems. • Flow rate and flow velocity will be controlled to minimise erosion • Manage flow velocity and ensure discharges do not enter areas at risk of damage • Undertaking works in accordance with the EPA's Stormwater Pollution Prevention Code of Practice for the Building Construction Industry. This will include, but not be limited to: o Implementing measures to minimise erosion and disturbance.	4L	Group Leader Team Leader Workers
STEP NO.	**JOB STEP** List the steps required to perform the task in the sequence they are carried out.	**POTENTIAL HAZARDS/RISKS** Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	**Initial Risk Score**	**REQUIRED HAZARD CONTROL** For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	**Residual Risk Score**	**PERSON RESPONSIBLE** Nominate the person who will action the controls
	Earth works/ Pavement Construction	• Flow of water o Potential physical damage to site and site surrounds (including adjacent crops).	19H	o Bunding of disturbed areas and excavations to prevent sediment reaching waterways, stormwater and ditches. o Wetting down of dusty areas and stockpiles to prevent windblown dust.	4L	Group Leader Team Leader Workers

		• Erosion of exposed surfaces and stockpiles o Loss of topsoil. o Windblown dust to surrounding environment (potential traffic hazard and nuisance). o Smothering of vegetation. • Inappropriate location of stockpiles and prefabricated materials o Smothering of / damage to vegetation. o Increased risk of erosion.		o Providing sediment control structures (silt fencing) to prevent sediment entering drainage systems or watercourses (particularly where soil is stockpiled for extended periods). • Promoting growth of vegetation on disturbed topsoils via avoiding soil compaction or reseeding. • Locate stockpiles and prefabricated materials away from vegetation and drainage lines, but only in approved stockpile areas. • Avoid placing stockpiles under the drip lines of trees (compaction of root zone).		
	Earth works/ Pavement Construction	• Inappropriate location of stockpiles and prefabricated materials o Smothering of / damage to vegetation. o Increased risk of erosion. • Import of contaminated fill materials o Introduction of contaminated fill or of weed propagates.	19H	• Only approved rock sources that are designated weed free will be used as approved by the Project Manager/Construction crew. • No topsoil will be imported o Works will be undertaken in accordance with approval granted by the Native Vegetation Council.	4L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Earth works/ Pavement Construction	• Damage to or removal of Native Vegetation o Loss of endangered and rare plant species o Loss of visual amenity. o Loss of habitat. • Vibrations o Damage to local structures (e.g. power lines towers and optical fibre cables). • Aboriginal Heritage. o Damage to Aboriginal sites or artefacts, legal non-compliance with Aboriginal Heritage Act 1988.	19H	• The disturbance corridor for re-sheeting, widening and construction of the road works will not exceed a footprint of 10.0m unless further approval sought from NVC. • Clearance and/or trimming of rare and endangered native vegetation is to be avoided and/or minimised. • The turnaround areas (to be pegged) will be within areas of poor native vegetation. Construction and/or activity will not extend beyond the designated (and approved) areas. • Work areas are to be clearly defined, with no disturbance beyond the defined zones. • Select methods of compaction using lowest possible levels of vibration and monitor for excessive vibrations. • All site personnel will take part in Cultural Heritage Awareness Training during the induction period. • Site personnel will follow a procedure/flow chart developed by the Ngarrindjeri (via ACHM) (refer to Attachment 1) on the management on the potential identification, management and reporting of archaeological materials encountered during construction activities. This details specific requirements when to stop work and contains a notification protocol.	4L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Entering/exiting excavation	• Personnel falling into trenches	21H	• Keep area directly alongside excavation dry and free from tripping hazards • Use ladders to enter and exit excavations at all times. Do not climb up shield struts • Ensure ladder is tied off to shield • Always remove ladder from excavation at the end of the shift and store in shed or remove from site.	2L	Group Leader Team Leader Workers
	Barricading excavation	• Injury to site personnel and the general public • Vehicle drive into excavated area • Fauna becoming trapped in excavation	21H	• Ensure trenches are properly barricaded or covered at the end of each shift, using temporary fencing or steel cover sheets • Assistance for injured or dead animals should be sought from the National Parks and Wildlife SA Office or RSPCA • Compaction of material must be in accordance with DPTI trench reinstatement specifications • Ensure all appropriate signage is in place • Backfilling of excavations should be performed both as the work progresses and at the end of the day's work. • Quality of material for backfill should be as per DPTI trench reinstatement specifications	2L	Group Leader Team Leader Workers
	Check Electrical Equipment	• Insect - Spider bites • Snake bites	16M	• Ensure all personnel are aware of dangers. • Ensure visual inspection of equipment before commencing work for signs of potential harmful animal. • Ensure area is sprayed with appropriate insect repellent and appropriate time is waited before commencing work on equipment.	2L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Pipe Laying & Backfilling	• OHS (pipe-falling, chain breaking)	21H	• Only tagged equipment to be used • Use the right plant for what it is designed for • Ladder to be provided and checked daily	9M	Group Leader Team Leader Workers
	Pipe Laying & Backfilling	• Falling objects (adverse weather conditions)	21H	• All visitors to be inducted on the dangers on site	9M	Group Leader Team Leader Workers
	Pipe Cutting	• Noise & Dust	9M	• PPE's to be worn at all times (goggles, masks, gloves, hearing protection and non flammable clothing.) • Equipment checked to be checked prior to use – if faulty DO NOT use	1L	Group Leader Team Leader Workers
	Pipe Cutting	• Severing a limb	21H	• Only competent personnel to use cutting equipment • All tools to be used for what they are designed for (right type of blades etc) • Safety guards to be used at all times	4L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Trench	• Injury to personnel and public	21H	• Ensure that MOCS information is available on site and that existing services have been proven by hand excavation. • Employ cable tracer to locate services where necessary. • Look for signs such as previously excavated ground, warning tape, sand, etc. • Follow manual handling work instructions	9M	Group Leader Team Leader Workers
	Trench	• Machine striking workers or members of the public	21H	• Ensure the general public is separated from the work site by clearly defining work areas. Use Para webbing, fencing, signage, etc • Ensure that personnel do not stand in the operator's blind spot. Make sure that you are visible to the operator at all times. • Qualified/competent operators used • Maintenance check sheets completed • Always use quick hitch pin where fitted	9M	Group Leader Team Leader Workers
	Trenching	• Trench Collapse	25H	• Qualified/competent operators used • Ensure all personnel are aware of dangers • No worker is to enter an unshielded or unsupported trench deeper than 1.5 metres to check levels or retrieve materials • Carry out regular checks on all shields to ensure they are in a safe working condition, i e. free of cracks, spreaders in place, no missing pins and clips • Keep stock pile and spoils a safe distance from trench	9M	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Trenching	• Labour/Public coming into contact with plant/machinery	21H 21H	• All personnel to be inducted site specifically • PPE's worn (high visibility clothing, hardhats, steel capped boots and gloves when required) • Labour/ public to be well away from drivers blind spot. • Spotters where required • Reverse only when safe check & check again • All machines to be fitted with flashing beacon & a reversing beeper • Helmets to be worn at all times • All operators to be qualified and licensed • Warning signs to be erected • Always have quick hitch safety pin or wedge in place while operating where fitted • Stock pile of spoils to be at a safe distance from trench to eliminate slip collapse & trip hazard • Stock piles to be controlled for water runoff and dust	4L 4L	Group Leader Team Leader Workers
	Trenching	• Falling from height greater than 2 Metres	21H	• Implement NO GO AREAS – no one to be within close proximity of a potential fall greater than 2 metres • Use trench shield covers over open trenches	9M	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Trenching	• Deep trenches collapsing	25H	• Where practical trenches will be battered back or stepped back to ensure that the trench has an effective depth of 1m. or less (if the trench is going to be greater than 1.5m). This depth is a minimum standard and the depth should be considered on a case by case basis considering the activities and the material • Where a trench is to be greater than 1.5 m in depth a risk assessment (which may be included in the JSEA) is to be conducted to review soil type, water etc and identify controls such as shields to be utilised.	9M	Technical Officer Group Leader Team leader Workers
	Trenching	• Deep trenches collapsing	25H	• All trenching operations and excavations greater than 1.5m in depth require that a Notice to excavate is to be submitted to Work Safe SA at least 5 days prior to commencing any excavation • Ensure the excavated material is placed as far as possible • Install shields • Batter trench • Shoring up • Ensure an observer is appointed • Ladder to be provided	9M	Technical Officer Group Leader Team leader Workers
	Trenching	• Falling into open trenches/pits	21H	• Barricaded at the end of the working day • Erect signs • Backfill by the end of the working day	9M	Group Leader Team Leader Workers
	Trenching	• Rolling of plant	21H	• Qualified Operators used • Seat-belts to be worn • Roll-Over Protection (ROP) installed • Keep eye contact with crew while swinging boom	4L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Trenching	• Falling objects	19H	• Use correct lifting technique follow manual handling work instruction • Safe working load observed • Keep swing area clear • Reverse only when safe • Nobody or nothing to be within 1 metre of the trench • All chains to be tagged and tested • Always use covers over shield to prevent falls into trench	4L	Group Leader Team Leader Workers
	Trenching	• Services	19H	• Obtain MOCS plans (Dial Before You Dig) • Use GPR operator to locate all services and mark	4L	Group Leader Team Leader Workers
	Trenching	• Quality	4L	• Check depth line level against design • Check back fill for right material used and compaction of trench on completion	1L	Group Leader Team Leader Workers
	Form-Works	• Stepping on nails	4L	• All nails to be extracted or buried	1L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Lifting/Lowering and removing trench shield	• Loads falling on site personnel	21H	• Ensure all site personnel do not stand under loads being lifted • Make sure that workers are clear of the area where the shield is being moved • Ensure all machines to be fitted with flashing beacon & a reversing beeper. • Seat belts to be worn • PPE worn at all times • Only suitably tagged chains and slings are to be used. Do not use damaged chains • Safe working load to be adhered to • Keep swing area clear • Reverse only when safe Check & Check again use the buddy system keep eye contact with the crew around machine before moving	9M	Group Leader Team Leader Workers
	Lifting/Lowering and removing trench shield	• OHS (pipe-falling, chain breaking)	21H	• Only tagged equipment to be used • Qualified/competent operators used	9M	Group Leader Team Leader Workers
	Lifting/Lowering and removing trench shield	• Jamming fingers when using chains	21H	• Make sure that the excavator operator does not attempt lifting the shield before the hooks have finished being engaged • Qualified/competent operators used	4L	Group Leader Team Leader Workers
	Lifting/Lowering and removing trench shield	• Shields striking workers, the general public, property and other machinery when being moved	21H	• Qualified/competent operators used • Ensure work area is clearly defined and general public is isolated from the work zone. • Maintenance Check sheets completed	4L	Group Leader Team Leader Workers
	Lifting/Lowering and removing trench shield	• Excavator tipping over causing damage to people and property	24H	• Ensure that the excavator or item of machinery used for shield installation/removal is of sufficient capacity • Qualified/competent operators used	4L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
	Lifting/Lowering and removing trench shield	• Personnel falling into excavation	21H	• Ensure that the worker unhooking shield chains has given the signal to the excavator operator before lifting out shields • Ensure that the person hooking up the shields for removal can access the shield lifting points in a safe manner.	4L	Group Leader Team Leader Workers

STEP NO.	JOB STEP List the steps required to perform the task in the sequence they are carried out.	POTENTIAL HAZARDS/RISKS Against each step list the potential / risk hazards that could cause injury / damage when the task step is performed.	Initial Risk Score	REQUIRED HAZARD CONTROL For each hazard identified, list the control measures required to eliminate or minimise the risk of the hazard	Residual Risk Score	PERSON RESPONSIBLE Nominate the person who will action the controls
ADDITIONAL SITE SPECIFIC RISKS						

I certify by my signature below that I have understood and been given the opportunity to comment on the content of JSEA/SWMS and I am aware of:
* the risks involved in the work and the control measures required to control those risks. I agree to implement those control measures as I perform the work.
* my obligation to perform tasks in a safe and appropriate manner
* my duty and responsibility to maintain a safe work environment as detailed in this JSEA/SWMS

NAME	SIGNATURE	COMPANY / DEPARTMENT	DATE

Step 3 – Determine the level of risk: LOW 1 – 8 MEDIUM 9 -18 HIGH 19 - 25					
PROBABILITY	CONSEQUENCE				
	INSIGNIFICANT	MINOR	SIGNIFICANT	MAJOR	CATASTROPHIC
VERY LIKELY	8 LOW	13 MED	18 MED	23 HIGH	25 HIGH
LIKELY	7 LOW	12 MED	17 MED	21 HIGH	24 HIGH
POSSIBLE	4 LOW	9 MED	16 MED	19 HIGH	22 HIGH
UNLIKEY	2 LOW	5 LOW	10 MED	15 MED	20 HIGH
EXTREMELY UNLIKELY	1 LOW	3 LOW	6 LOW	11 MED	14 MED

15. ABBREVIATIONS

CEMP	Contractors Environment Management Plan
RCMB	Rural City of Murray Bridge
DPTI	Department Planning Transport and Infrastructure
EPA	Environmental Protection Authority
SOP	Safe Operating Procedure
TMP	Traffic Management Plan
MMP	Malleefowl Management Plan

16. ATTACHMENTS

Attachment 1: ACHM procedure

Attachment 2: Fuel handling safe work procedure

Attachment 3: Induction register

Attachment 4: Daily checklist

Attachment 5: Weekly Construction and Environmental checklist

Attachment 6: RCMB Roadside Vegetation Management Plan – Operations Plan

Attachment 7: Specifications Ferries McDonald Road Upgrade V1.2

Attachment 8: Construction drawings

Attachment 9: Malleefowl Management Plan

Attachment 10: Traffic Management Plan

Attachment 11: Construction Program

Attachment 12: DPTI Environmental Code of Practice for Construction – Road, Bridge and Marine Facilities

Attachment 13: Work Zone Traffic Management Plans

Attachment 14: Introduction Presentation

Attachment 15: Agenda for FMR Construction Delivery Team Meeting

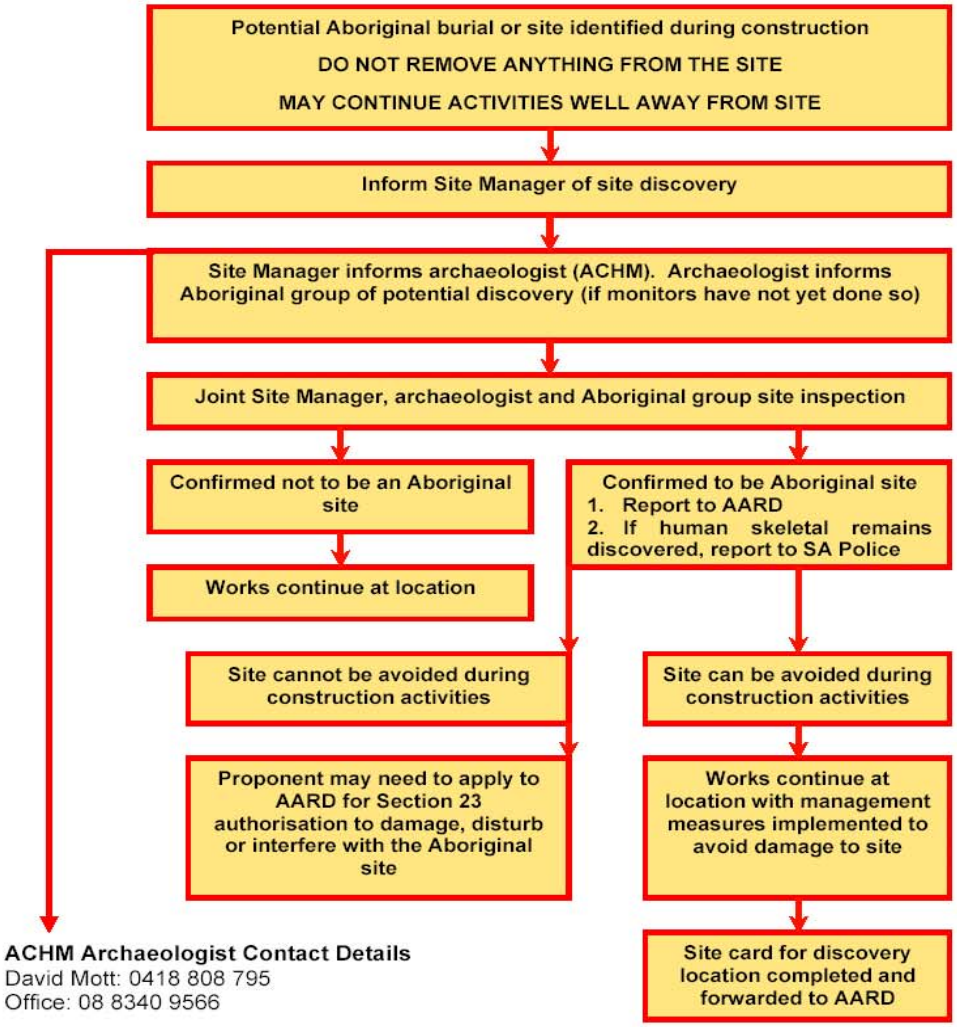
Attachment 16: Variation to Contract

Attachment 17: Request for Information

Attachment 1

ACHM
AUSTRALIAN CULTURAL HERITAGE MANAGEMENT

Procedure to follow if potential Aboriginal skeletal remains and/or an archaeological site are found



ACHM Archaeologist Contact Details
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ABN 76 093 128 226 • 320 Port Road, Hindmarsh South Australia • PO Box 451, Hindmarsh, SA 5007
P: +61 8 8340 9566 • F: +61 8 8340 9577 • E: info@achm.com.au • W: www.achm.com.au

Attachment 2

Job/Task: **FUEL – HANDLING OF**

HIGH RISK

This procedure is to be used in conjunction with any operating manuals and training relevant to the task.

Special Comments:

WHAT TO DO	HAZARDS	HOW TO DO IT	PPE
Steps in order of performance	**Applicable to each step**	**Identify Equipment, Safety, Quality and Performance Requirements**	
Daily Checks	• Fire • Strains • Slipping • Burns	• Check fire extinguishers location, access and state of charge. • Check dispensing units and fittings. • Check warning signs location and visibility. • Check emergency cut off switch. • Check condition of area.	
Filling Vehicle Fuel Tanks	• Spillage • Fire • Slipping • Skin Irritation • Vapours • Burns • Lung Damage • Explosion	• Do not attempt to use faulty equipment. • Before removing fuel cap: - Ensure engine and auxiliary engines are turned off. - Ensure all vehicle lights are off. - No smoking in the area. • Place nozzle in fuel filter pipe before activating the pump. • Keep nozzle in firm contact with filler pipe. • Stay within reach of the pump. • Do not inhale the vapours.	
Filling Containers		• Refer to SOP – Use of Jerry Cans	
Minor Spills (less than 20 litres)	• Fire • Explosion • Slipping • Skin Irritation • Vapour	• Shut down all pumps immediately. • Advise people in the area of spill and request that no motors be started. • Cover spill area with absorbent material. • Collect contaminated material. • Dispose of contaminated material correctly. • Wash area gently with water and allow to dry. • Investigate the circumstances and take appropriate action.	

Attachment 3

PROJECT INDUCTIONS

I acknowledge that the Ferries McDonald Road Project induction included the following items and I understand my responsibilities in terms of the items discussed;

1. Construction Environmental Management Plan
2. Traffic Management Plan
3. Malleefowl Management Plan
4. Risk Management Plan
5. OHS&W
6. Safe Work Procedures
7. Cultural issues
8. Emergency Plan
9. Quality Plan and documentation required
10. Summary of project

And I acknowledge I have received a copy of the CEMP and Induction Presentation for my record and reference throughout the project.

Induction Date	Name	Company	Signature

Attachment 4

DAILY CHECKSHEET **Date:**

Checklist Item	Complies Y/N/NA	Comment
Occupation Health and Safety		
Appropriate PPE being used.		
Fire extinguishers operational.		
Traffic control plan implemented.		
Plant and machinery checked for safe operation.		
Additional training required.		
Toolbox talks prior to commencement of work on site.		
Delays due to weather or other factors.		
Cultural and Natural Heritage Significance		
Aboriginal observers present as required.		
Fuels & Waste Management		
Site compound clean and tidy.		
Work site clean and tidy.		
Bins on site as required.		
Waste materials disposed of appropriately.		
On site refuelling undertaken within the designated area with spill kits on site whilst refuelling is conducted.		
Sediment Control		
Sediment control devices installed and operating effectively.		
Weeds Control		
Plant clean\ weed free before entering \ leaving site.		
Visual inspection for outbreak of weeds.		
Bushfire Prevention		
Appropriate fire prevention measures implemented.		
Flora and Fauna		
No disturbance to vegetation outside activity zone.		
Activity zone clearly defined (bunted/flagged).		
Parking & manoeuvring of vehicle, plant and equipment restricted to designated tracks, storage and turning areas.		
Stockpiles contained within approved locations and away from drainage lines.		
Checks made for Malleefowl in work zone.		

Malleefowl Management Compliance		
Traffic Management Compliance		
Malleefowl Strike / Incident		
Native Vegetation Clearance Compliance		

Please list all persons on site including visitors

Persons on site	Purpose	Comment

Attachment 5

WEEKLY CONSTRUCTION AND ENVIRONMENTAL CHECKSHEET **DATE:**

Checklist Item	Complies Y/N or NA	Comment
Cultural and Natural Heritage Significance		
Aboriginal observers present as required.		
Fuels & Waste Management		
Site compound clean and tidy.		
Work site clean and tidy.		
Bins on site as required.		
Waste materials disposed of appropriately.		
On site refuelling undertaken within the designated area with spill kits on site whilst refuelling is conducted.		
Sediment Control		
Sediment control devices installed and operating effectively.		
Weeds Control		
Plant clean\ weed free before entering \ leaving site.		
Visual inspection for outbreak of weeds.		
Bushfire Prevention		
Appropriate fire prevention measures implemented.		
Flora and Fauna		
No disturbance to vegetation outside activity zone.		
Activity zone clearly defined (bunted/flagged).		
Parking & manoeuvring of vehicle, plant and equipment restricted to designated tracks, storage and turning areas.		
Stockpiles contained within approved locations and away from drainage lines.		
Checks made for Malleefowl in work zone.		
Malleefowl Management Compliance		
Traffic Management Compliance		
Malleefowl Strike / Incident		
Native Vegetation Clearance Compliance		

Person carrying out inspection

Name . . . . . **Sign** . . . . . .

Title . . . . . **Date** . . . . . .

Refer to separate documentation for the following Attachments:

Attachment 6: RCMB Roadside Vegetation Management Plan – Operations Plan

Attachment 7: Specifications Ferries McDonald Road Upgrade V1.2

Attachment 8: Construction Drawings

Attachment 9: Malleefowl Management Plan

Attachment 10: Traffic Management Plan

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Appendix 13: Historic Mintbush Locations


A57
A23
A18
A8
A55
dead or missing
A19
A17
A188
A56
dead or missing
S1273
Maurice Rd
dead or missing
dead or missing
Historic locations
10 + year old plantings
50 + new Council Plantings
S529
S530
Maurice Rd
A8
695
A20

Appendix 14: Current Photo Monarto Mintbush Nearest to Roadworks

Plant has senesced 12m from roadworks

Plant senescing 18m from proposed roadworks in the foreground, old road 50m in the background (white rubble road) - Plant in flower 8/07/2021

Plant senescing Plant 23m senescing from roadworks – Plant not flowering 8/07/2021

Appendix 15: Detailed Plan of Monarto Mintbush Locations and the Proposed Construction Area

PLEASE NOTE THAT ROAD ALIGNMENT IS INDICATIVE ONLY - SUBJECT TO DETAILED ENGINEERING DESIGN

MONARTO MINT BUSH
23m FROM PROPOSED BATTER
SENESCING (DETERIORATING)

MONARTO MINT BUSH
18m FROM PROPOSED BATTER
SENESCING (DETERIORATING)

DROPPER
11m FROM PROPOSED BATTER
SENESCED (DEAD)

PROPOSED MAURICE ROAD ALIGNMENT (INDICATIVE ONLY)

MAURICE ROAD

MAURICE ROAD - MONARTO MINT BUSH LOCATIONS

N.T.S.

LEGEND

PROPOSED LAND ACQUISITION

PRELIMINARY

								MANAGER	
								DESIGN	AC
								DRAWN	AC
	A	27.5.21	ISSUED FOR COMMENT					CHECKED	
A1	CODE	DATE	DESCRIPTION	CHK.	DRN.	DES.	MAN.		
	FILE NAME	T:\Infrastructure and Technical\1CAD\Maurice Road\20_Maurice Road recon\Dc\dwg\Rev_A\Maurice_D_2021-1003.dwg						SIGNATURES	DATE

The Power to Grow
MURRAY BRIDGE
Bridge to Opportunity

MAURICE ROAD
MONARTO MINT BUSH
LOCATIONS

SCALE AT A1	AS SHOWN
PROJECT NUMBER	PR-
DATE COMMENCED	27-MAY-2021
DRAWING NUMBER	2021-1009-001
REV	A

Appendix 16: Council Endorsement of Funding (LRCI)

167.3 SECONDARY FREIGHT ROUTE EXPANSION

Author Matt James

Legislative () **Corporate ()** **Other ()**

Purpose

To provide Council with information regarding the strategic expansion of Councils Unsealed Secondary Freight Network and seek approval to allocate funds received through the Local Roads and Community Infrastructure Program (LRCI) to continue expansion works on priority roads.

Background

At its meeting of 9 December 2019 (item 204.1) Council received a report that provided detail regarding a strategic approach to the expansion of the Secondary Freight Network within the Rural City of Murray Bridge.

The report detailed that approximately $11.3M would be required over time to deliver a comprehensive Secondary Freight Networks throughout the Rural City of Murray Bridge.

Council resolved to (in part):

> *Adopt in principle the use of the 2019-24 Roads to Recovery Allocation to expand Councils Secondary Freight Road in order to provide expanded farm gate access for the movement of agricultural freight, and*

In line with the above resolution, Council endorsed that as part of the Secondary Freight Networks the following list of road segments be identified as high priorities (number 1) for future funding and implementation.

Road Name	Segment Description	Status
Jarvis Rd	90 - 1945m east Hoadville Rd to Hoadville Rd	COMPLETE
Jarvis Rd	100 - Hoadville Rd to driveway 2050m east Flagstaff Rd	COMPLETE
Jarvis Rd	110 - driveway 2050m east Flagstaff Rd to Flagstaff Rd	future
Hoadville Rd	10 - Jarvis Rd to 1875m north Jarvis Rd	Under Construction
Hoadville Rd	20 - 1875m north Jarvis Rd to Flagstaff Rd	Under Construction
Pope Rd (Nth White Rd)	20 - end of seal 600m south Old Princes Hwy to White Rd	Under Construction
Pope Rd (Sth White Rd)	30 - White Rd to start of seal 650m south White Rd	Under Construction
Pope Rd	50 - end of seal 960m south White Rd to Brushleigh La	Under Construction
Pope Rd	60 - Brushleigh La to Usher Rd	Under Construction
Maurice Rd	260 - 1920m north Old Princes Hwy to Old Princes Hwy	
Maurice Rd	250 - 2760m west Netley Rd to 1920m north Old Princes Hwy	
Pfeiffer Rd	10 - 2144m east Baker Rd to Flagstaff Rd	future
Pfeiffer Rd	20 -Baker Rd to 2144m east Baker Rd	future
Pfeiffer Rd	30 - Brinkley Rd to Baker Rd	future

At the time of writing this report, of the above listed projects;

- Jarvis Road, from the end of the existing seal through to a point 2050m east of Flagstaff Road was completed as part of the 2019-20 Capital Works Program. This works was jointly funded by Council 2019-24 Roads to Recover Allocations and the Federal Government Drought Relief Stimulus Package.
- Pope Road, between Usher Road and Old Princes Highway, is currently under construction in accordance with the 2020-21 Capital Works Program. Pope Road is

being constructed by Council Staff and is due for completion by mid-November 2020. This project is being funded in full through Council 2019-24 Roads to Recovery allocations.

- Hoadville Road, between Flagstaff Road and Jarvis Road is also under construction and is being funded through Round 2 of the Federal Government Drought Relief Stimulus Package. Works commenced in mid-October with a completion date of mid-December.
- In line with the above list of priority project, Councils next priority is to undertake the construction of Maurice Road, between Old Princess Highway and the existing sealed section, which currently terminates at the Boral Quarry entrance.

This section of Maurice Road attracts a significant level of operational maintenance due to high traffic loads generated by both the Boral Quarry and Mobilong Prison. Construction and Sealing this section of Councils Secondary Freight Route will provide significant benefit in providing an alternative access route to the northern part of Murray Bridge from the Monarto area and links directly to the existing over dimensional/B-Double bypass route at Cypress Tce. (See attached)

On 7 October 2020, Federal Member for Barker, Mr Tony Pasin MP provided Council, through Mayor Lewis, notification that the Rural City of Murray Bridge will receive will $972,614 in additional stimulus funding through the Local Road and Community Infrastructure Program.

Consistent with Council approach to utilise additional stimulus funding to continue the expansion of its Secondary Freight Route, administration recommends that Council allocate these funds to the construction of Maurice Road in lieu of using Councils Roads to Recovery allocation.

Maurice Road, between Old Princess Highway and the Boral Quarry entrance is a complex project that will require both horizontal and vertical realignment, land acquisition, consultation with the Native Vegetation Council and detailed discussions with the Department for Environmental and Water regarding Kinchina Conservation Park and protection of Mallee Fowl.

As such, it is estimated that the overall delivery of Maurice Road will exceed the $972,614 available; however, the balance can be funded through Councils Roads to Recovery allocations.

Proposal
That in accordance with its resolution of 9 December 2019, Council resolve to expand the Secondary Freight Network in order to provide expanded farm gate access for the movement of agricultural freight.

It is proposed, that Council allocate $972,614, received through the Federal Government Stimulus Package – Local Roads and Community Infrastructure Program, to expand Councils Secondary Freight Road, specifically, the funds be used for the construction of Maurice Road between Old Princess Highway and the Boral Quarry entrance.

Legislative Requirements
Local Government Act 1999, Road Traffic Act 1961

Council Policy
Asset Management Policy,
Civil and Transport Infrastructure Asset Management Plan 2019-2024

Financial Implications
The project will be fully funded by external sources, specifically

- Federal Government Stimulus Package – Local Roads and Community Infrastructure Program
- Council 2019-2024 Roads to Recovery allocation.

The delivery of Maurice Road will occur as part of the 2021-22 Annual Business Plan and Budget, pending approval.

Risk

- The ability to realign unsatisfactory road alignment through land acquisition may delay delivery.
- Native vegetarian clearance approvals.
- Management of Mallee Fowl

WHS
All works will be undertaken in accordance with Council WHS policies and procedures and be subject to all monitoring and audit processes.

Asset Management
The expansion of Councils sealed road network will significantly decrease ongoing unsealed road maintenance expenses however, will increase Council Sealed Road Capital Value and therefore depreciation expense.
Notwithstanding these changes to cost allocation, the increase is not considered material.

Implementation Strategy
Planning, design and approvals will occur as council normal operation process during the remainder of 2020-21 ready for implementation (pending approvals) during the first half of 2021-22.

Communication Strategy
Communication with all stakeholders will be undertaken in line with Councils capital delivery program and communication protocols.

Strategic Plan
Goal 3 - Dynamic Economy
3.4 - Effective Economic Infrastructure

Recommendation

1. *That item number 167.3 on the Council agenda of 9 November 2020 be received and noted.*
2. *That Council continues, in accordance its resolution of 9 December 2019, to use 2019-24 Roads to Recovery Allocation to expand Councils Secondary Freight Road in order to provide expanded farm gate access for the movement of agricultural freight.*
3. *That Council allocates the most recent Local Roads and Community Infrastructure Federal Stimulus Package funding of $972,614 to expand Councils Secondary Freight Road, specifically, the construction and sealing of Maurice Road between Old Princess Highway and the Boral Quarry entrance.*

Attachments

1.	Secondary Freight Route Map	Attachment

Council Resolution

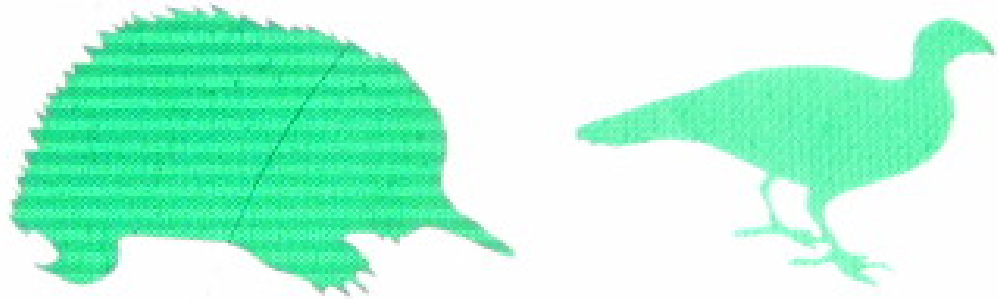
Cr Keen moved

1. *That item number 167.3 on the Council agenda of 9 November 2020 be received and noted.*
2. *That Council continues, in accordance its resolution of 9 December 2019, to use 2019-24 Roads to Recovery Allocation to expand Councils Secondary Freight Road in order to provide expanded farm gate access for the movement of agricultural freight.*
3. *That Council allocates the most recent Local Roads and Community Infrastructure Federal Stimulus Package funding of $972,614 to expand Councils Secondary Freight Road, specifically, the construction and sealing of Maurice Road between Old Princess Highway and the Boral Quarry entrance.*

Seconded by Cr Baltensperger and CARRIED

Appendix 17: Proposed Signs Highlighting Wildlife in the Area

CARE FOR OUR WILDLIFE



DRIVE CAREFULLY

MURRAY BRIDGE
THRIVING COMMUNITIES

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