

Barham-Koondrook Bridge

Urban Design Strategy

Incorporating Natural and Cultural Heritage Interpretation

Roads and Maritime Services | July 2018



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FOR:



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URBAN DESIGN STRATEGY

1.0 INTRODUCTION

KI Studio has developed an Urban Design Strategy to provide opportunities to enhance the understanding and appreciation of the heritage items, values and themes associated with the Barham - Koondrook Bridge.

The urban design strategy has been developed in consultation with Roads and Maritime Services, Murray River Council, Gannawarra Shire Council and the Barham - Koondrook Historical Society.

The ideas presented in this strategy will be further refined during the detailed design process, as new information may become available. The strategy highlights the main sites and features within the landscape in a manner that respectfully enhances and protects their aesthetic, cultural and historic values.

1.1 Site context

Barham and Koondrook are twin towns situated on the banks of the Murray River defining the border between New South Wales and Victoria. The towns are located 820 kilometres south-west of Sydney and 300 kilometres north-west of Melbourne.

The Murray River provides a critical water source for the Riverina region, where the main industry is agriculture, including dairy, horticulture and forestry. Within the towns, the river banks are flanked by River Red Gums with picturesque public reserves and parklands.

The topography of the area is mostly flat except for the steep river banks.

The Barham - Koondrook Bridge provides a critical economic link for the region, allowing road access between the Riverina and Victorian markets, and acting as a gateway between New South Wales and Victoria. About 10 percent of traffic volumes using the bridge are heavy vehicles.



Figure 1: Existing Barham-Koondrook Bridge

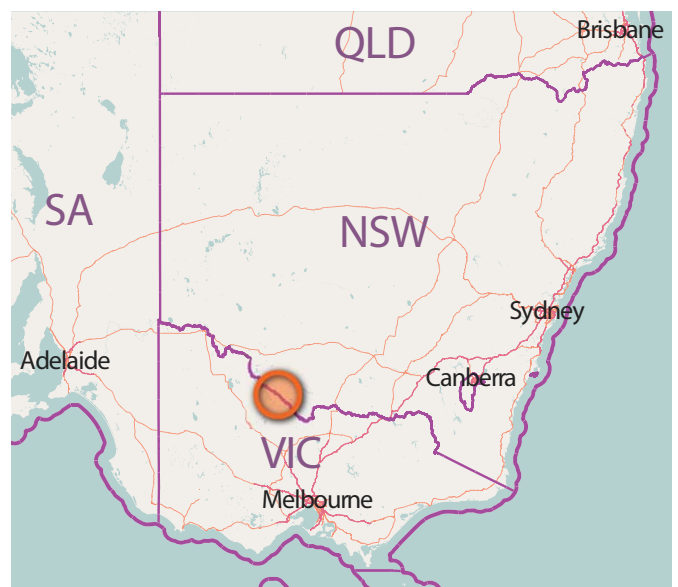


Figure 2: Regional context map of Barham and Koondrook along the New South Wales and Victorian border (NTS)

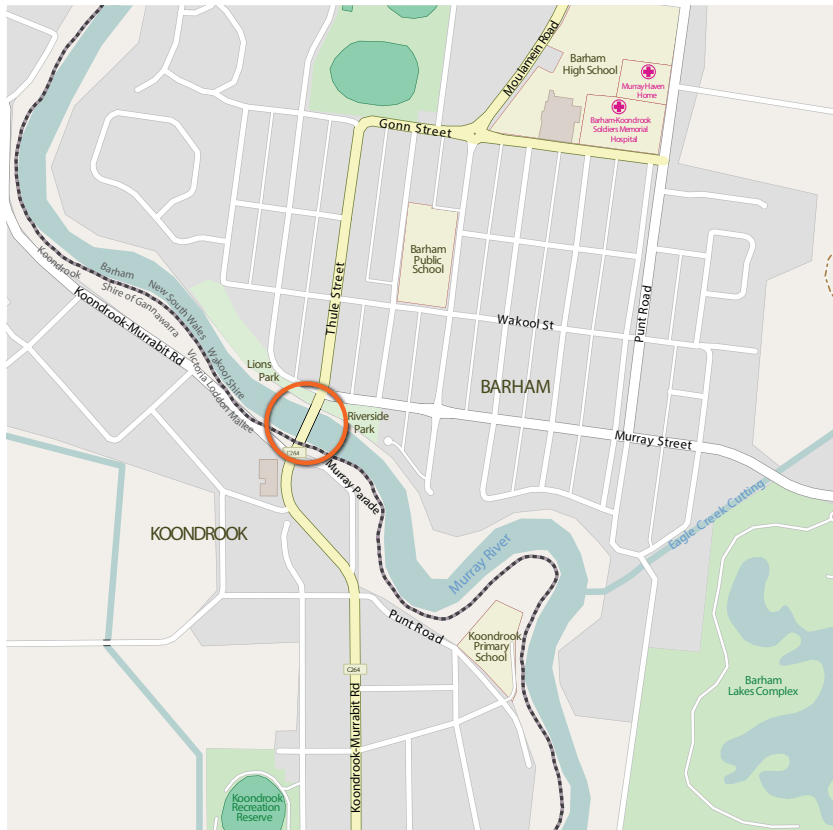


Figure 3: Detailed locality map illustrating the main roads and local streets of the townships (NTS)

The existing bridge also caters for local urban traffic and is a pedestrian link between the two towns. The bridge is about eight metres wide, with a single vehicle traffic lane and a give way sign. A new walkway will be provided on the eastern side of the bridge as part of the refurbishment of the structure.

The two towns have a combined population of 3000 people and function day-to-day as a single town. The bridge is a critical link between the cultural and economic fabric of the two towns, with Barham providing the commercial hub. Regional traffic also contributes to the local economy, further emphasising the importance of the structure.

1.2 Acknowledgements

This Urban Design Strategy has been prepared by KI Studio based on information as described in the Review of Environmental Factors (REF) for the project prepared by NGH Environmental on behalf of Roads and Maritime Services South West Region. The information in the REF includes both Aboriginal and Non-Aboriginal Heritage.

2.0 OBJECTIVES AND METHODOLOGY

2.1 Objectives

The Urban Design Strategy has been developed around the following objectives:

- Assist in sustaining the values of the historic bridge and landscape, informing and educating the community on the history of the locality
- Ensure the heritage interpretation is integrated holistically within the overall urban and landscape design for the project
- Ensure the design concepts are simple, easy to maintain and robust
- Apply a contemporary design with an uncluttered visual effect and simple language, sympathetic to the rural setting.

2.2 Methodology

A summary of the methodology is as follows:

2.2.1 Project initiation

- Team meeting with Roads and Maritime to discuss priorities, key tasks and program, and consultation with councils and other groups.
- Review Background studies:
 - REF, Barham - Koondrook Bridge
 - REF Appendix E, Aboriginal Cultural Heritage Management Plan.

2.2.2 Site visit and community heritage interpretation consultation

- Liaison (Roads and Maritime) with Murray River Council and Gannawarra Shire Council, including local Aboriginal representation and historic groups
- Receive input from Roads and Maritime, and respond.

2.2.3 Prepare Urban Design Strategy Report

The approach

Historical elements within the study area

- Themes identified in urban design, landscape character and visual impact assessment specialist report as part of the REF
 - Aboriginal Heritage
 - Non - Aboriginal Heritage
- Links to the Barham - Koondrook Bridge
- Summarise key audience, risks, safety in design issues etc.

The site and urban design strategy

- Location
- The urban design to inform the art and heritage strategy on potential devices and their locations.

Interpretative themes, storylines and strategies

- Identify heritage interpretation themes – chart location/theme/strategy.

Concentrate on those items already identified in the REF for the Urban Design Strategy consideration, as noted below:

- Barham - Koondrook Bridge Barham, NSW
- Barham - Koondrook Bridge Koondrook, VIC.

Outputs:

- A written description of the proposed heritage interpretation elements
- Precedent images of other projects to convey the design intent
- Plan to show where and how the elements would be integrated.



Figure 4: View of the bridge from the Barham side of the river. The shoreline vegetation strongly frames the bridge structure



Figure 5: Looking upstream from the bridge to the shoreline terraces on the left that are part of the Riverside Park in Barham



Figure 6: View looking towards the tower of the lifting span that forms an important element of the bridge



Figure 7: View looking towards Barham town centre



Figure 8: The shoreline is flanked by stands of Red Gum trees that create a high quality setting



Figure 9: View of James Park with the bridge in the distance, behind the trees



3.0 THE APPROACH

The Urban Design Strategy has been prepared based on a desktop study of the published information in other specialist reports as part of the REF:

- Appendix E: *Barham - Koondrook Bridge Aboriginal Cultural Heritage Management Plan* 2015
- Appendix J: *Statement of the Heritage Impact*, 2014.

"The Barham-Koondrook Bridge," 1904-2004 has also been used for background information.

While the above-mentioned studies provide detail on impacts, the number of items and their relevance to local and state heritage significance; the Urban Design Strategy focuses on identifying key aspects to 'tell a story' that is engaging to the local and wider community. In this context, the Urban Design Strategy focuses on reinforcing the heritage values of the existing bridge and using the extensive open space surrounding the structure.



Figure 10: Barham-Koondrook LEP map illustrating the heritage items in the vicinity of the bridge (NTS)

4.0 HISTORICAL ELEMENTS WITHIN THE STUDY AREA

4.1 Themes identified in the REF

Councils' Local Environmental Plan identified two items of heritage significance in Barham and three in Koondrook, including the bridge itself, which has been recognised as state significant by both Councils (see table 1).

The elements identified for the Urban Design Strategy are:

- The existing Barham - Koondrook Bridge
- The Murray River foreshore.

These elements reflect the site's Aboriginal and non-Aboriginal heritage which developed the Urban Design Strategy's two main themes: transport and environment.

4.2 Non-Aboriginal Heritage

Within the study area, the heritage items identified were the existing Barham - Koondrook Bridge and the Murray River foreshore at the Koondrook site interfacing the bridge. None of the other items are in close proximity to the bridge and would not be impacted by the works (refer table 1 for more information).

4.2.1 Barham/Koondrook Bridge

The area associated with the existing bridge contains heritage items which have been identified by Roads and Maritime for the Urban Design Strategy.

The Barham - Koondrook Bridge has historical significance as a rare example of the De Burgh truss. This type of truss was only built for a brief period between 1899 and 1904 and is illustrative of the evolution of truss designs in Australia.

There are only nine remaining in New South Wales, and only two of those remaining include a lift span, those at



Figure 11: Barham Bridge Construction (Source: Kerang New Times, 1904, The Barham-Koondrook Historical Society)

Barham and Cobram. The Barham - Koondrook Bridge was built by Monash and Anderson. John Monash was one of Australia's most celebrated engineers, as well as one of the country's most famous soldiers. These associations with the bridge contribute to its historical significance.

Gannawarra Council, Victoria

Suburb	Item name	Address	Property description	Significance	Item no
Koondrook	Barham Koondrook Bridge	Kerang-Koondrook Road, Koondrook		State	H025
Koondrook,	Koondrook Heritage Area			Local	H013
Koondrook,	Koondrook Butter Factory	View St., Cnr. Penglase St		Local	H015

Wakool Council, New South Wales

Suburb	Item name	Address	Property description	Significance	Item no
Barham,	Barham War Memorial Hall	15 Murray Street	Part Lots 5 and 6, Section 4, DP 758053: Part Lot 157, DP 1049554	Local	I1
Barham,	Barham Koondrook Bridge over Murray River	Main Road 319		State	I2

Table 1 : Council's list of non-Aboriginal heritage items in Barham and Koondrook



Figure 12: Barham-Koondrook Bridge

4.2.2 Koondrook river bank

The Koondrook river bank is historically important as it contributes to the history of the Murray River townships and their development in relation to the Riverina timber industry and resources.

4.3 Aboriginal heritage

As mentioned in Appendix E-*Aboriginal cultural heritage management plan*, according to Clark, (A.M Campbell-Bride 1983.350 in Clark 1990.391) the proposal area is situated within the region belonging to the Baraba Baraba people, which forms part of the Western Kulin cultural area. It is understood the Western Kulin consisted of eight clans situated across both Victoria and New South Wales. The Mially Water clan was situated around Barham and Koondrook.

As identified in the REF search of the Aboriginal Heritage Information Management System (AHIMS) conducted in December 2014, there are no Aboriginal heritage sites found in close proximity to the bridge, or within the five-kilometre radius of the proposal area. Although there is archaeological potential, due to the site's proximity to the waterway, any future discoveries are unlikely as the area has already been disturbed by the construction of roads and agricultural activities since European settlement.

However, the Murray River banks are historically significant as meeting and gathering places for local Aboriginal people and this is an important aspect picked up in the design.



Figure 13: View of James Park, Koondrook



Figure 14: View of the Murray River bank, Koondrook

4.4 Key heritage elements

Table 2 shows key elements identified for the Urban Design Strategy.

Transport related historical elements	Opportunities
<p>Punt: Prior to the construction of the bridge a punt served as the only local crossing over the Murray River. Its service was considered unreliable leading to the construction of the bridge.</p> <p>Bridge: On 8 October 1904, the Barham - Koondrook Bridge was officially opened as the major link between the two towns and, in a broader sense, between New South Wales and Victoria.</p> <p>Boats: Farmers in the area were dependent on paddle steamers to transport their wheat crops. Barges were also used to haul timber, railway sleepers and logs for the local sawmill in the River Red Gum forests of the Koondrook area.</p> <p>Stock route: The river port was linked to other inland areas by rail, sending livestock and timber to Victoria.</p> <p>Silo / Agriculture/ Livestock: The first European settlers in the area, that is today's Barham township, primarily used the land for wool production. After the gold rush era, this was replaced by cattle farming until the end of the 19th century when wheat production increased in the area.</p> <p>Timber / Sawmill: South of the Murray River, Koondrook became an important location for timber production with the port heavily reliant on the local sawmill.</p>	<ul style="list-style-type: none"> • Reference ways of transport before construction of the bridge • Reference history of the bridge and its importance • An entry statement to both towns • Reference to the early history of the area's agriculture and timber industry • Reuse the existing bridge materials
River environment related historical elements	Opportunities
<p>Riverscape: The vegetation within the proposed activity area is Riverine Grassy Woodland, consisting of River Red Gum and Black Box overlay, a grassy and sometimes lightly shrubby groundcover.</p> <p>Timber industry: The forests of the area have been heavily harvested for timber since the 1870s. River Red Gum forests were used extensively for fence posts, housing, paddle steamers and railways. Koondrook, on the Victorian side, developed more quickly than Barham.</p> <p>Relationship to river / fishing: The proposed activity area lies within the Baraba Baraba language group which forms part of the West Kulin language area. This group consisted of eight clans ranging across the larger language group area, which was situated across both Victoria and NSW. The Mially Water clan was situated around Barham - Koondrook.</p> <p>Flora / Fauna: The area is located in the NSW Riverina bioregion. Most of the surrounding land has been cleared or modified, rendering native vegetation in the proposal area extremely fragmented and isolated. The aquatic environments of the Murray River contain potential habitat for a number of threatened species such as the Eel Tailed-Catfish, Silver Perch and Murray Cod.</p>	<ul style="list-style-type: none"> • Close proximity to water level and raising awareness about river flooding • Reference Aboriginal cultural stories • Link the boardwalk underpass to the ground level passage • Make use of the temporary bridge abutment • Make the most out of vegetation clearing for the temporary bridge construction • Entry statement to Koondrook • Attractive views of the Murray River • Raise awareness of the Murray River environment and its ecology

Table 2 : Key heritage elements in Barham and Koondrook and their associated opportunities

5.0 OTHER ELEMENTS WITHIN STUDY AREA

5.1 Temporary bridge crossing

A temporary bridge has been installed to be used during restoration of the existing bridge. The temporary bridge is located to the east and next to the existing bridge.

The temporary bridge will be removed after the restoration work is completed.

Impacts to the river bank have been minimised, however, a number of River Red Gums have been removed to allow the bridge approaches to be built.

Concrete abutments have been built as part of the construction of the temporary bridge crossing. The abutment on the Barham side will be buried when the temporary bridge is removed. The abutment on the Koondrook side will remain partially visible.

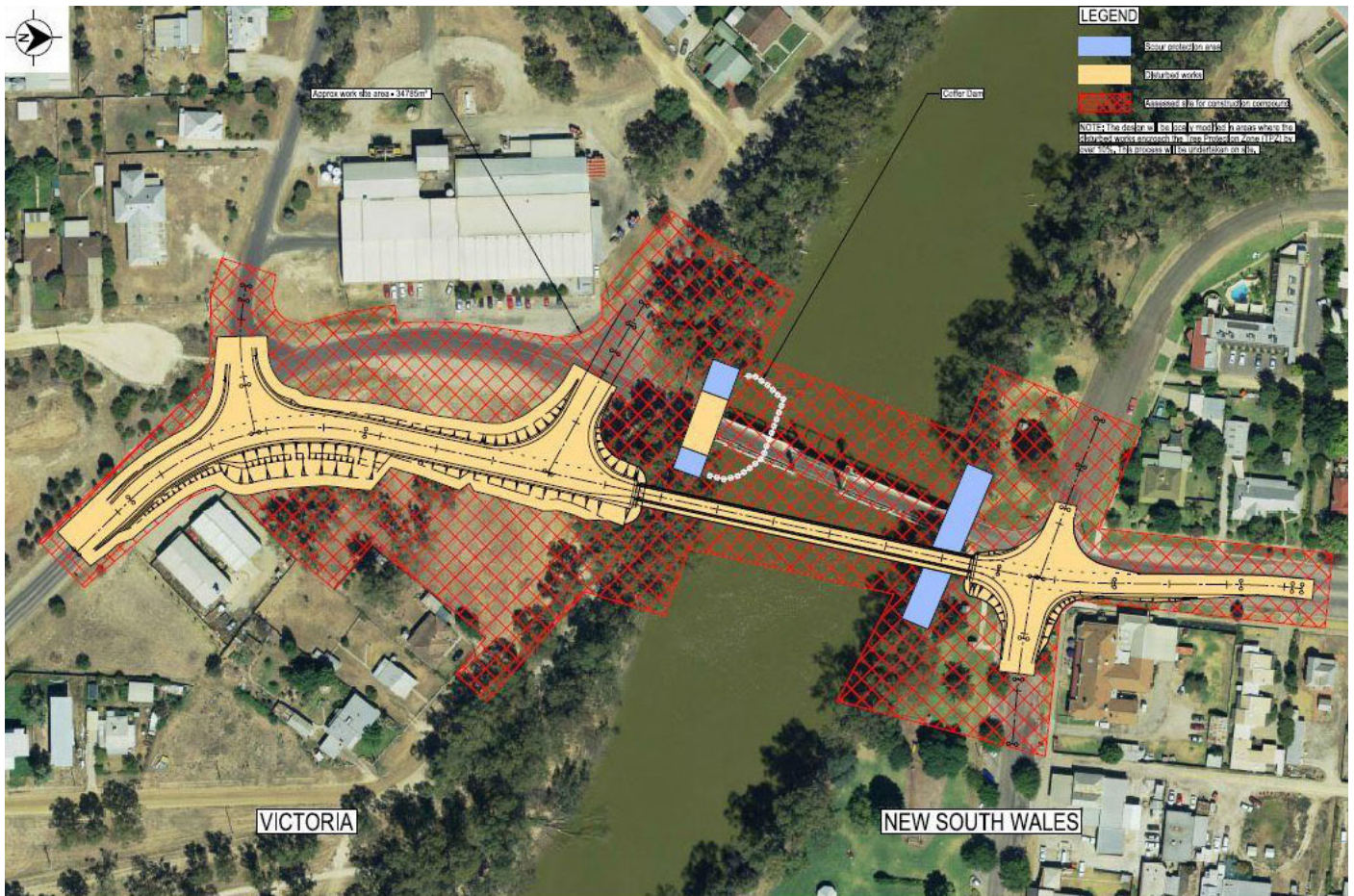


Figure 15: Barham-Koondrook Temporary Bridge plan (Source: Roads and Maritime, Barham-Koondrook Bridge-Truss and Victorian approach span restoration, 2016, Proposed Work Site, P. 30)

6.0 IMPLEMENTATION STRATEGY

6.1 Implementation strategy




The implementation strategy draws upon two overriding themes:

- **Transport** - based on traffic both across and along the river, with the bridge being the focal point
- **Murray river environment** - inspired by the ecology of the Murray River and its surrounds and its significance to local Aboriginal people.







There is scope for councils to develop a heritage trail that traverses this area and areas beyond. The adjacent plan illustrates opportunities to highlight the heritage interpretation along a journey from Barham, across the bridge to Koondrook.

LEGEND

EXISTING ELEMENTS

-  EXISTING PARK FURNITURE
-  EXISTING INTERPRETATION ELEMENT
-  EXISTING BOLLARDS

NEW INTERPRETATION ELEMENTS

-  PICNIC TABLE
-  VIEWING PLATFORM
-  BENCH SEAT
-  BOARDWALK SIGNAGE
-  INFORMATION SHELTER
-  TOWN MARKER

THEMES

-  TRANSPORT
- A CROSSING HISTORY
- B RIVER TRANSPORT / BOATS
- C LOCAL ECONOMY
- D TECHNOLOGY
-  RIVER ENVIRONMENT
- A RIVER GUMS
- B ABORIGINAL CULTURAL HERITAGE
- C ECOLOGY

VIEWS

-  CONTEXTUAL VIEWS

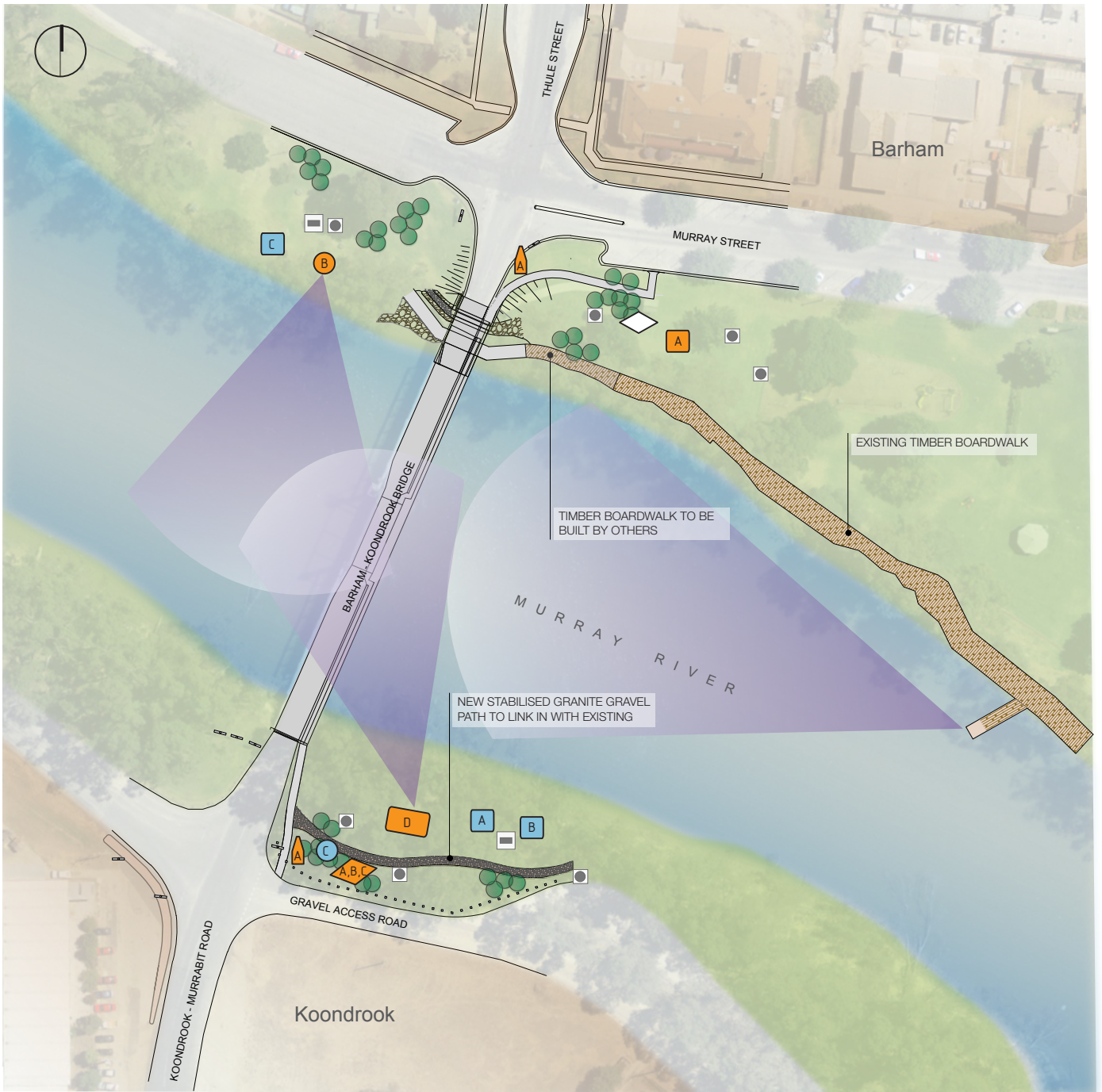


Figure 16: Proposed Urban Design Strategy

6.2 Transport theme

Timber truss bridges along the Murray River play a significant role in the rural and regional transport between New South Wales and Victoria. The proximity of Barham to Melbourne, compared to Sydney, illustrates the significance of this crossing point to the economy of these rural communities by providing access to external markets.

This vital link promoted trade and with few crossings along the river, the Barham - Koondrook Bridge was, and still is, an important piece of infrastructure servicing the region. Before the construction of the bridge in 1904, locals used punts and barges to transport their goods and livestock across the river.

Location

Various locations have been identified as interpretation sites along both sides of the river and near the bridge. In Barham, the eastern side open space and western side near the bridge; in Koondrook, near the bridge, and along the footpath.

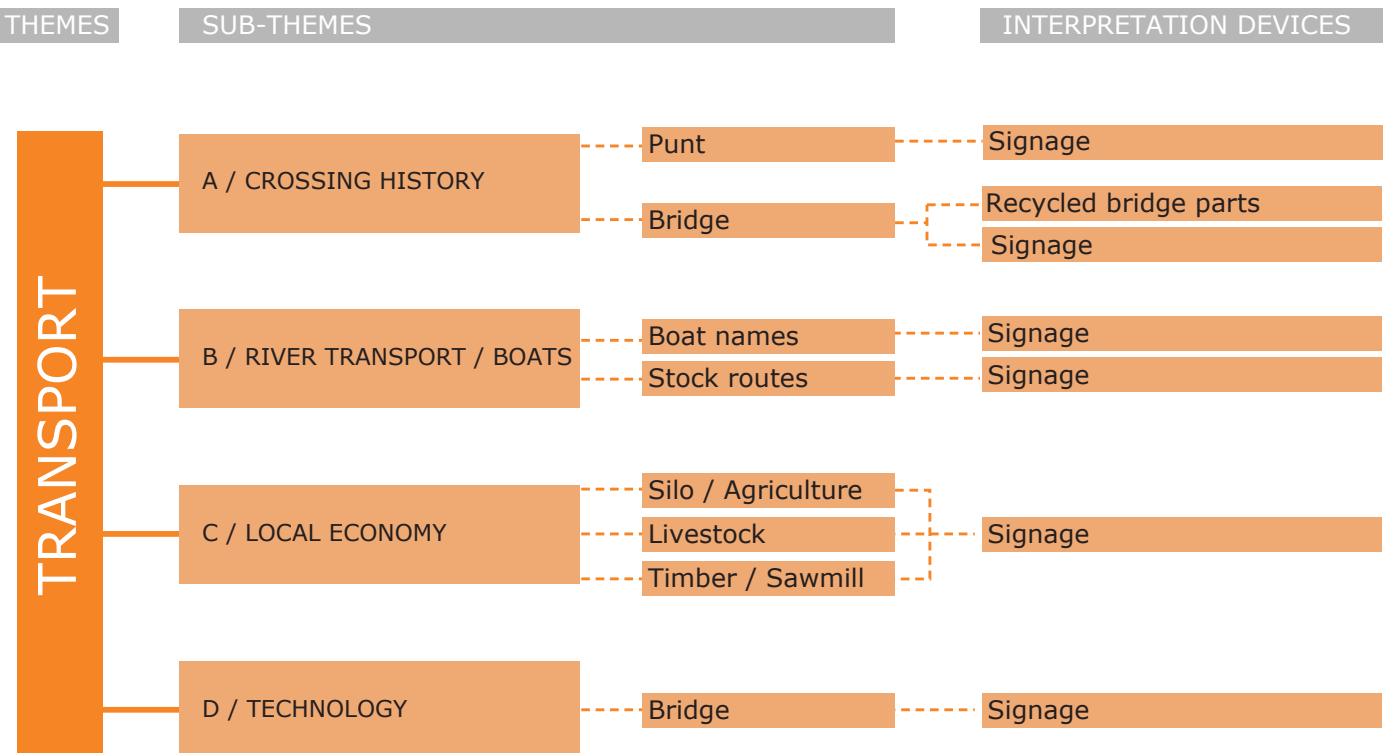
Audience

General public using the parks and trails along both banks of the Murray River. Visitors using the information shelter.

Sub-themes/ storyline

The transport theme includes three sub-themes:

- Crossing history - describing pre and post-bridge history
- River transport - describing the history of boats using the river
- Local economy - explaining the history of trade and economic development in relation to the bridge
- Technology - describing key elements of the bridge and how they work.



Interpretation strategy

Crossing history

The following elements are considered suitable for the strategy:

- Heritage interpretation signage illustrating the pre-bridge crossing. Describe the history of the old punt and the importance of Koondrook in the timber production industry
- Interpretative signage that illustrates old construction drawings of the bridge and its design, including the De Burgh truss, the lift span and how it operates
- Interpretive signage that illustrates key moments in the history of the bridge such as during construction, it's opening, its reconstruction etc
- Recycling parts of the old bridge by creating new outdoor furniture such as benches and picnic tables
- Recycling elements of the timber truss and steel components to create a new information shelter to express the rich history of the two towns.

Interesting facts:

- Refer to Figure 17- the punt served as the only local crossing over the river and was considered to be inconvenient and unreliable due to its age. The punt was previously used at Echuca for 30 years before being moved to Barham and was a catalyst for the construction of the new bridge
- Refer to figure 19- the lift span raised during the official opening of Barham Bridge in September 1904.



Figure 17: Punt operating to move cattle across the river (Source: The Barham-Koondrook Historical Society)



Figure 18: Bridge opening ceremony (Source: University of Melbourne Archives, BWP/23844)

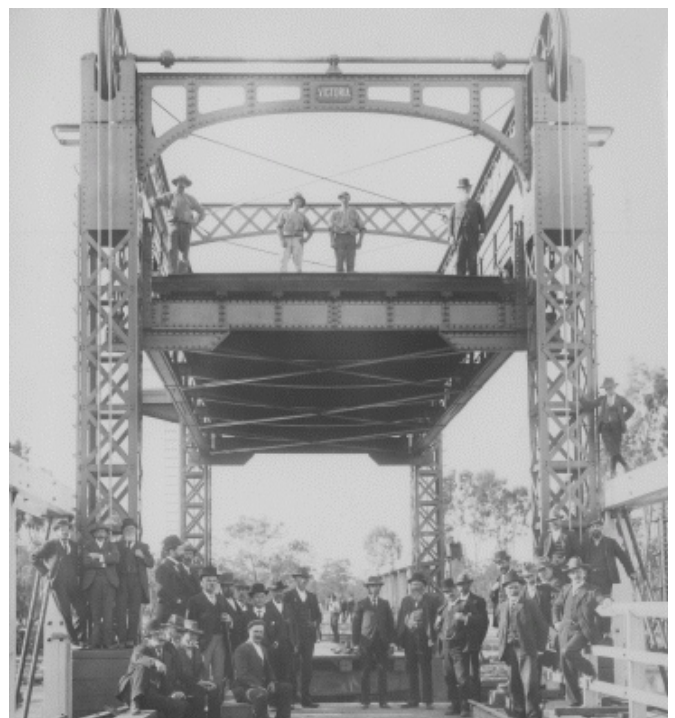


Figure 19: Bridge opening ceremony (Source: University of Melbourne Archives, BWP/23843)

River transport

- Consider interpretive signage that describes the history of river transport including vessel names and routes. Integrate this with other interpretation elements such as the information shelter or picnic table.

Before the bridge was built, paddle steamers and barges were built in Koondrook to assist with the transport along the river.

Various wrecks, including the punt, are visible when the river is low.

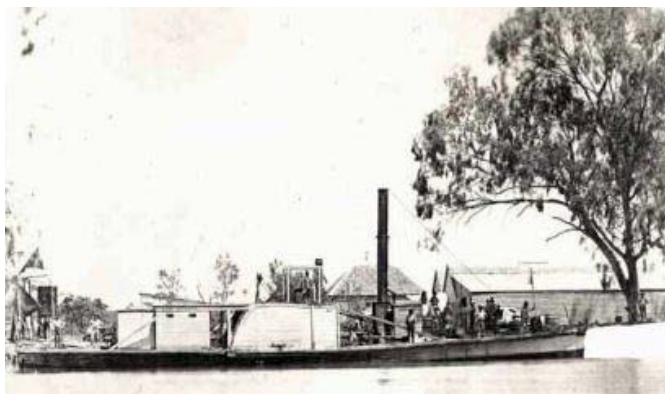


Figure 20: Paddle Steamer boats transporting along the river (Source: University of Melbourne Archives, BWP/23836)



Figure 22: Koondrook Barge on river bank by the sawmill (Source: State Library of South Australia [PRG 1258/2/1945])



Figure 21: Alexander Arbuthnot, the last paddle steamer on the Murray River



Figure 23: River Transport (Source: Roads and Maritime, Moveable Span Bridge Study Vol.1)

Local economy

- Consider interpretive signage that describes the history of the forestry and livestock industries and their inter-relationship with the bridge crossing.

River Red Gum trees were used as railway sleepers which increased the connectivity of the towns to both states and their larger markets. In 1889 a tramway was built that linked Koondrook to the Victorian railway network. The tramway was closed in 1978. *Source: www.koondrook.com.au*

The Barham and Koondrook economies are supported by the cattle, fat lamb, dairy, horticulture, forestry and tourism industries.



Figure 24: Kerang and Koondrook Tram (Source: <http://www.koondrook.com.au/history.html>)



Figure 25: Silos in Barham

Technology

- Display part of the truss components and describe their function. Describe the uniqueness of the De Burgh truss design.



Figure 26: The De Burgh truss was built in a short period of time between 1899 and 1905

6.3 River environment theme

The Murray River is the major feature of both towns, with native Riverina flora and fauna living in and around it. The history of the area’s Aboriginal people and European settlement is deeply connected to the Murray River.

Location

Various locations have been identified for interpretive elements; in Barham, the eastern side along the boardwalk and viewing deck, while in Koondrook, the open space near the bridge.

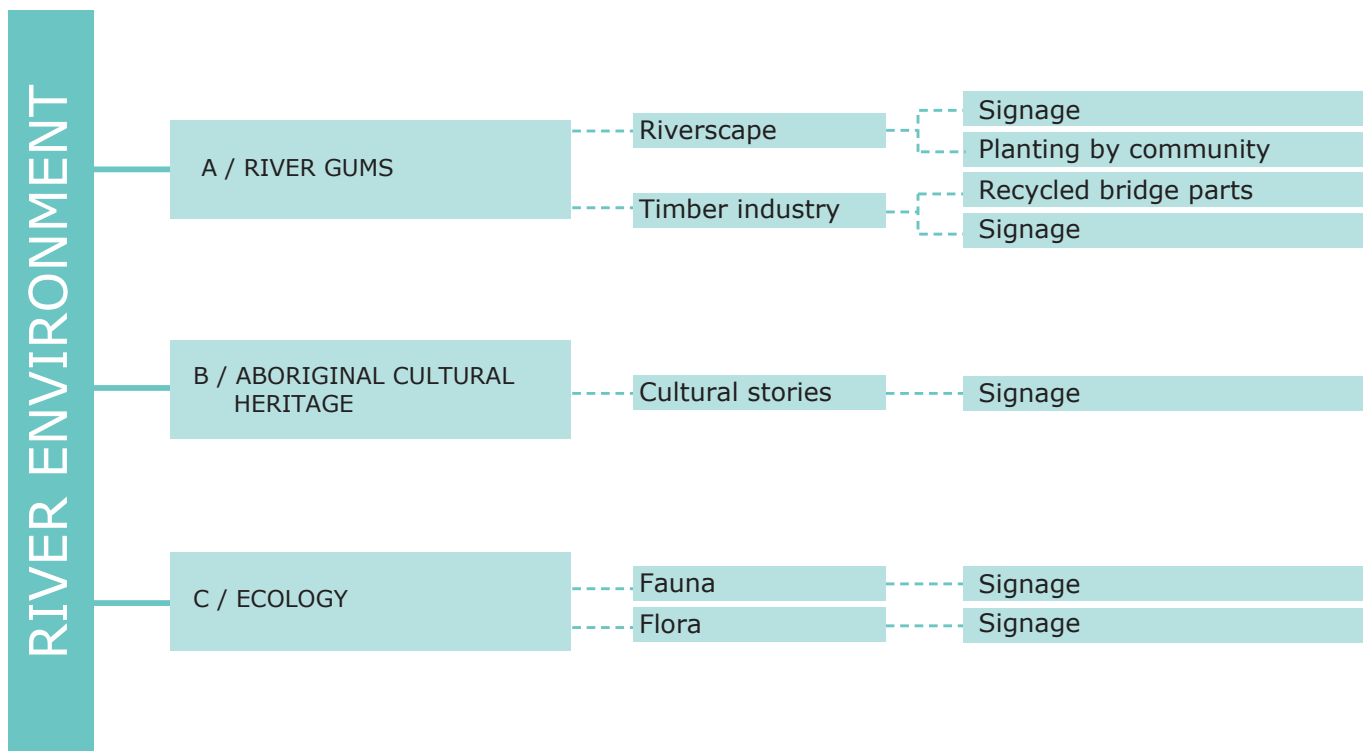
Audience

The general public, walking along the bridge, boardwalks and in nearby open spaces.

Sub-themes/storyline

The river environment theme includes four sub-themes:

- **River gums** - describing the beauty of the natural environment and the importance of the species to the forestry industry and the local economy
- **Aboriginal cultural heritage** - describing the relationship local Aboriginal people have with the river and its cultural significance
- **Ecology** - describing the native flora and fauna



Interpretation strategy

Aboriginal Cultural Heritage

The following elements are considered suitable for the strategy:

- Interpretive signage on picnic tables on the Koondrook riverbank, describing aspects of Aboriginal heritage and cultural significance of the Murray River to local Aboriginal people.

River Red Gums

The following elements are considered suitable for the strategy:

- Interpretive signage on the bench and picnic tables on both river banks to describe aspects of the flora
- Construct new picnic tables using the recycled timber from trees felled to construct the temporary crossing.



Figure 27: River Red Gums (Source: https://www.tripadvisor.com.au/Attraction_Review-g1648020-d3602899-Reviews-Arbuthnot_Sawmills [accessed on 25/01/17])



Figure 28: Arbuthnot Sawmill

The Arbuthnot Sawmill at Koondrook, opened by Alexander (Sandy) Arbuthnot in 1889, is still operating today. It provides timber to commercial building and trade centres across Australia, as well as supplying the local River Red Gum furniture industry. Source: (Ballinger R, Gannawarra Shire Heritage Study Stage One, 2008, Vol.1 Thematic Environmental History)

Ecology

The Murray River ecology includes New South Wales, Victorian and federally listed threatened species and endangered ecological communities.

The vegetation within the activity area comprises *Riverine Grassy Woodland* (EVC 295). *River Red Gum* and *Black Box Woodland* overlays a grassy and sometimes lightly shrubby groundcover.

- Consider signage to describe the flora and fauna of the riverside.



Figure 29: Woodland along the river at Koondrook



Figure 30: Boardwalk and viewing deck at Barham



Figure 31: Boat ramp at Barham

7.0 INTERPRETATION DEVICES

A number of interpretation devices are proposed, most in the form of outdoor furniture with integrated signage. Key elements include:

- Picnic table and bench
- Bench seat
- Information shelter
- Town entry marker
- Viewing platform
- Truss components
- Boardwalk signage

Note that these elements are still subject to RMS review and may not accurately represent the final product.

Picnic table and bench

The picnic tables would use timber and be built in a similar way to the bridge deck by laminating the various pieces together, to demonstrate the construction method used for the bridge deck.

Interpretive signage would be integrated to describe a number of aspects relating to the bridge.

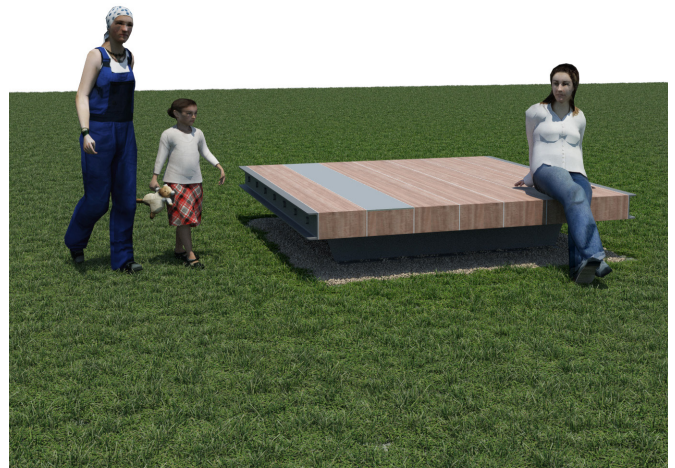


Figure 32: 3D study of the picnic table



Figure 33: Bridge timber deck construction. The picnic table would use a similar construction approach to illustrate this methodology



Figure 34: Detail of the tension rod

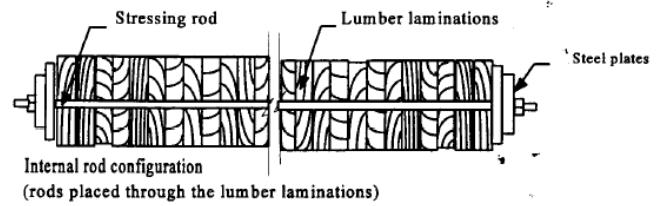
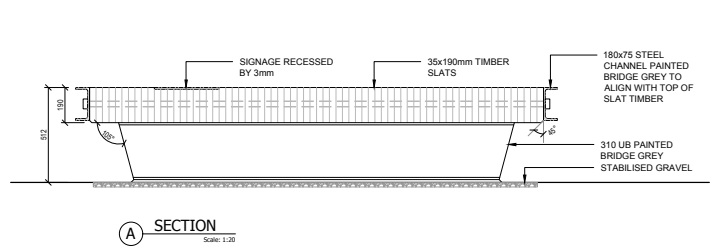
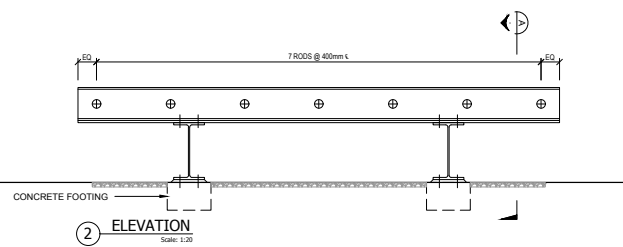
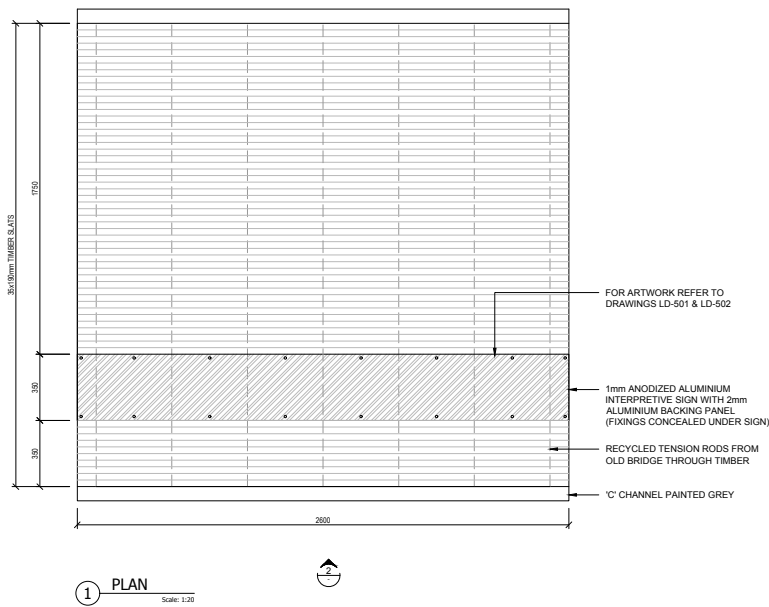


Figure 35: Section showing the deck lamination



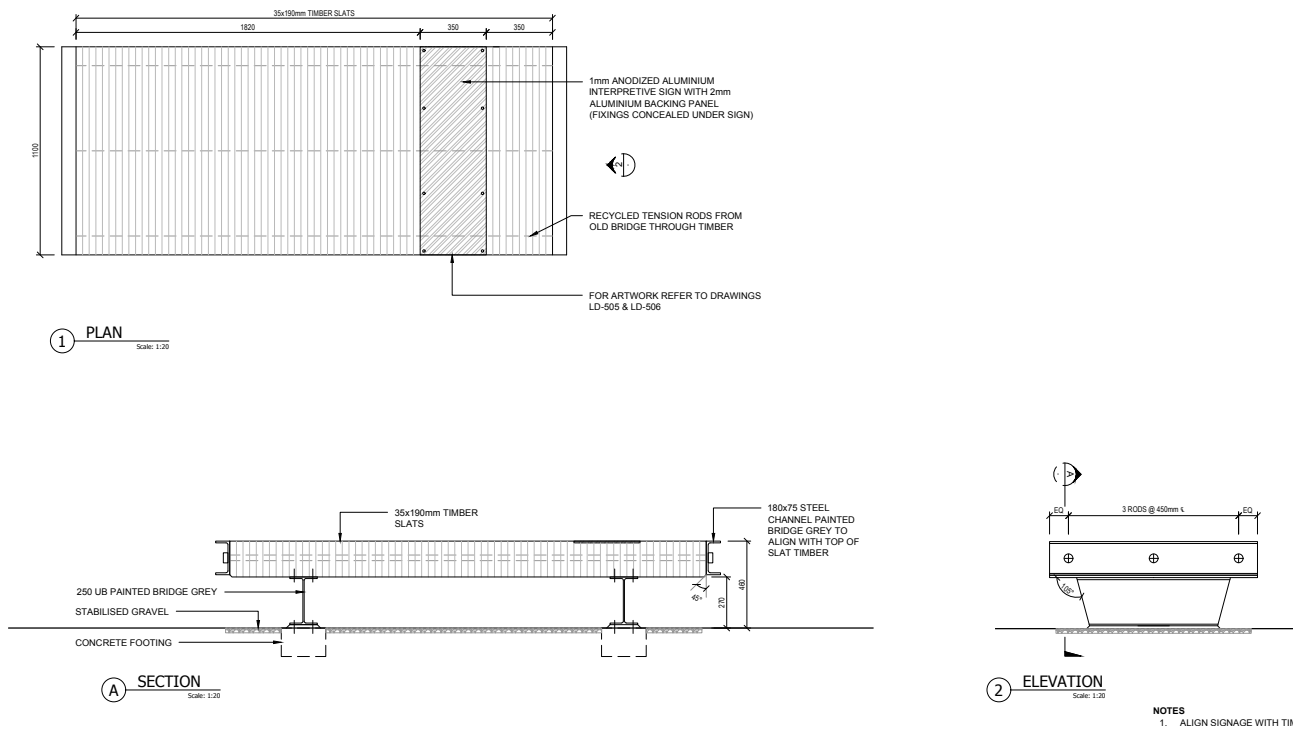
NOTES

Bench seat

The bench seats would use timber and be built in a similar way to the picnic tables.



Figure 36: 3D study of the bench seat



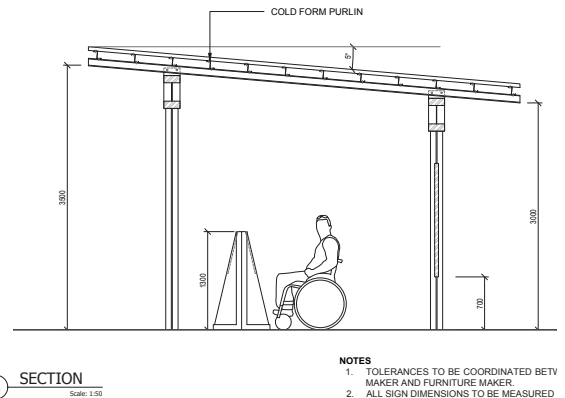
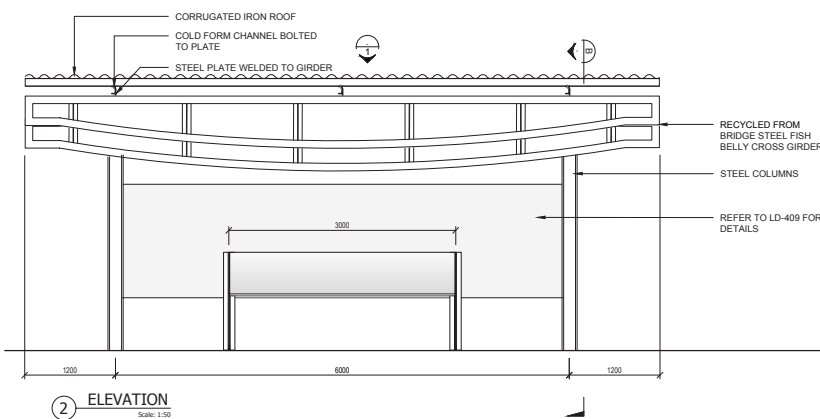
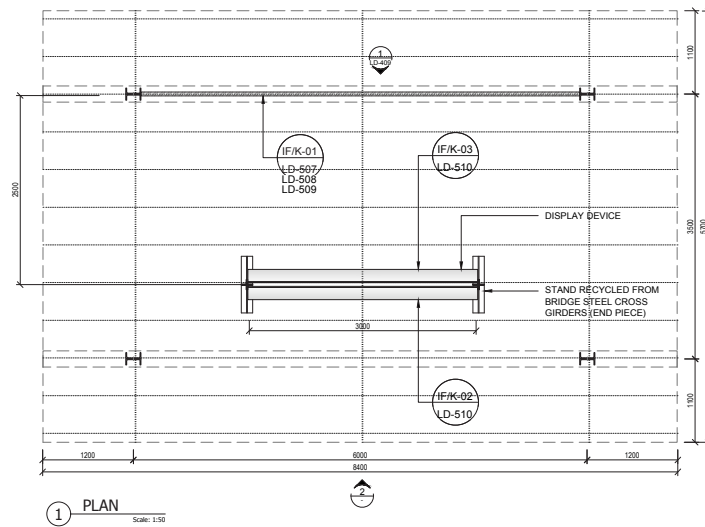
Information shelter - Koondrook

This element would be located along the river foreshore in Koondrook and would recycle a number of bridge components. In particular, the fish belly cross girders would be used as roof girders and the cantilevered sections of the fish belly cross girder would be used as part of the display furniture.

In keeping with the rural setting, the roof would be finished with corrugated iron. Columns would be built of either a standard UB steel section or a pair of steel channels.



Figure 37: 3D study of the information shelter



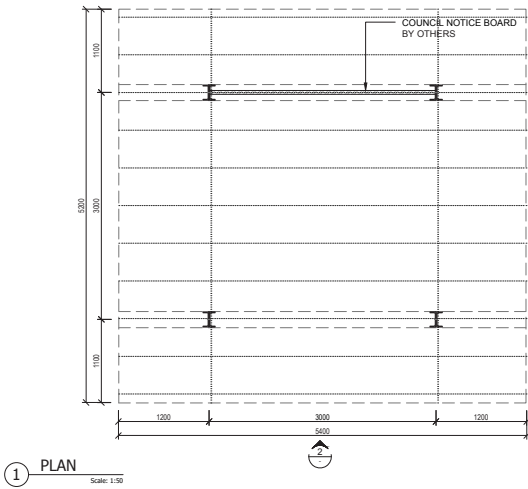
- NOTES**
1. TOLERANCES TO BE COORDINATED BETWEEN MAKER AND FURNITURE MAKER.
 2. ALL SIGN DIMENSIONS TO BE MEASURED TO MANUFACTURE AND INSTALL.

Information shelter - Barham

This element would be built to match the Koondrook shelter, but with a smaller footprint.

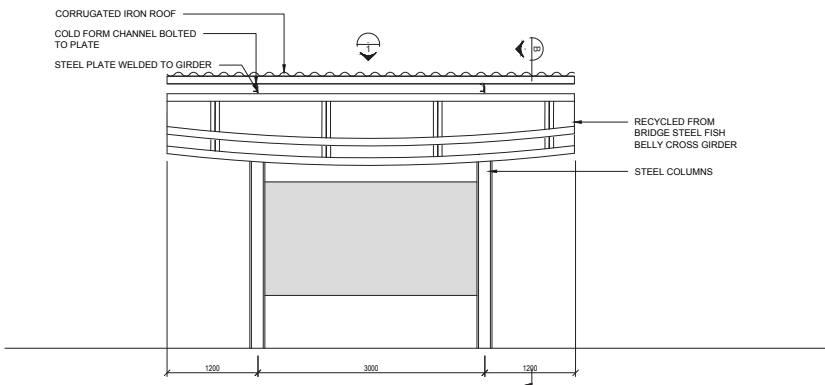


Figure 38: 3D study of the information shelter

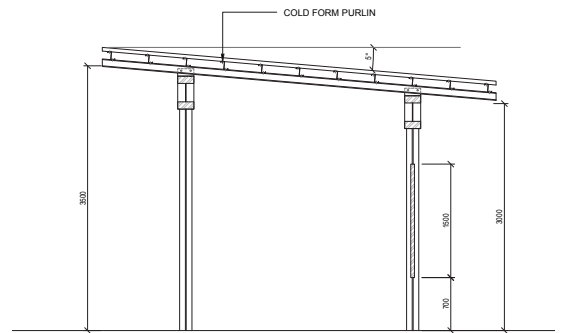


- NOTES**
1. ALL MEMBER SIZ CHECKED BY ENGIN
 2. FOOTING SIZE TO £ BY ENGINEER

① PLAN Scale: 1:50



② ELEVATION Scale: 1:50



③ SECTION Scale: 1:50

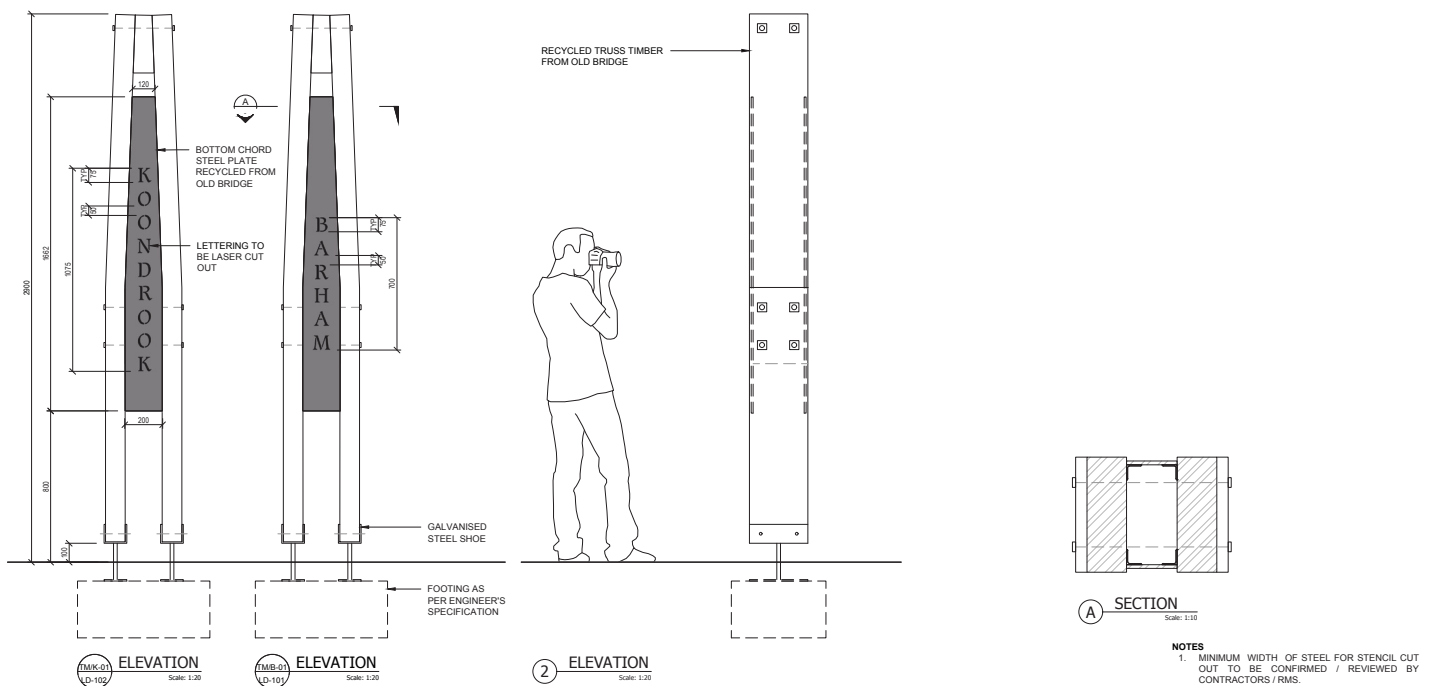
Town entry marker

The vertical elements of the timber truss would be recycled to create a town entry marker on both sides of the river. The signage would consist of an edged steel panel 'wedged' between the two vertical members of the truss. The steel panel would be recycled from the bottom chord steel plate and cut to suit.

The Barham sign would be situated on the New South Wales side and the Koondrook sign would be located in the Victoria side on the approach to the bridge.



Figure 39: 3D study of the town marker, recycling elements of the truss



Viewing platform

This element would be located on the existing abutment of the temporary bridge in Koondrook. It is based on a concrete platform with a series of seating elements similar to the picnic tables. The seating elements would face the river, allowing for panoramic views of the riverscape and bridge.

The viewing platform would also incorporate components of the bridge such as the truss shoe and sections of the bottom chord pin and node detail.

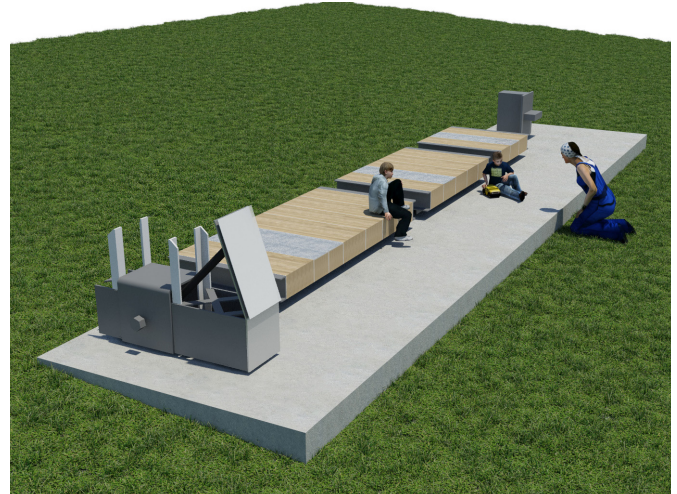
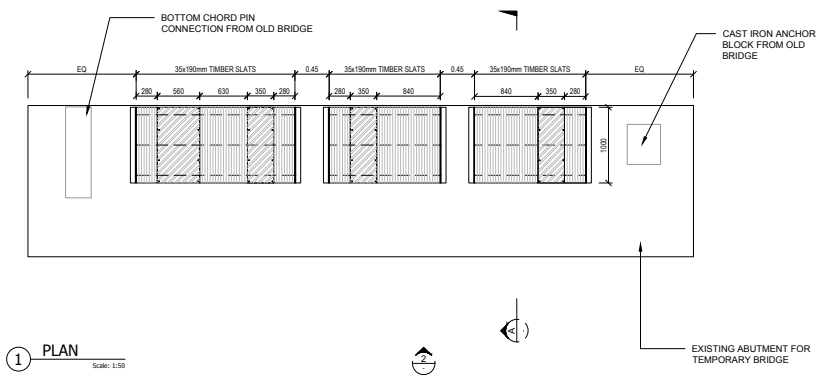
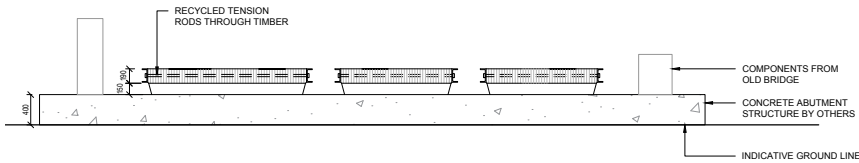


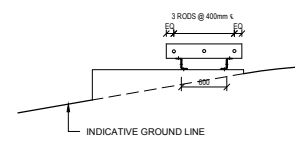
Figure 40: 3D study of the viewing platform



1 PLAN Scale: 1:50



2 ELEVATION Scale: 1:50



A SECTION Scale: 1:50

Truss components

Using the existing abutment of the temporary bridge in Koondrook as a plinth, components of the bridge would be displayed. One component would consist of the bottom chord pin and node detail as it appears in the existing bridge. The other component would display the salvaged truss shoe.

Signage would be integrated to describe key features of the De Burgh Truss and how it works.

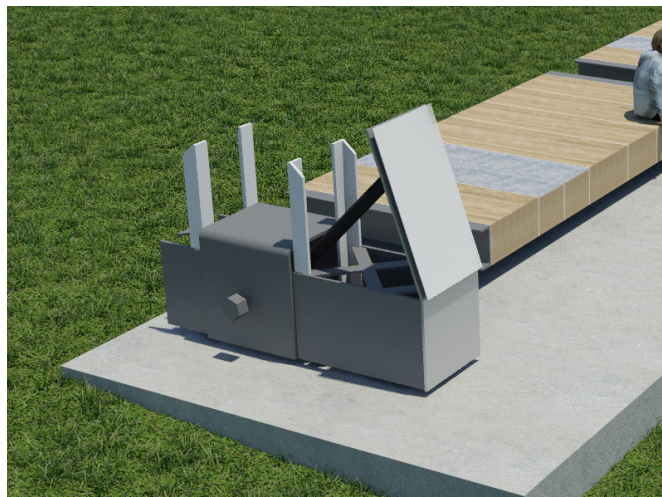


Figure 41: 3D study of steel bottom chord pin

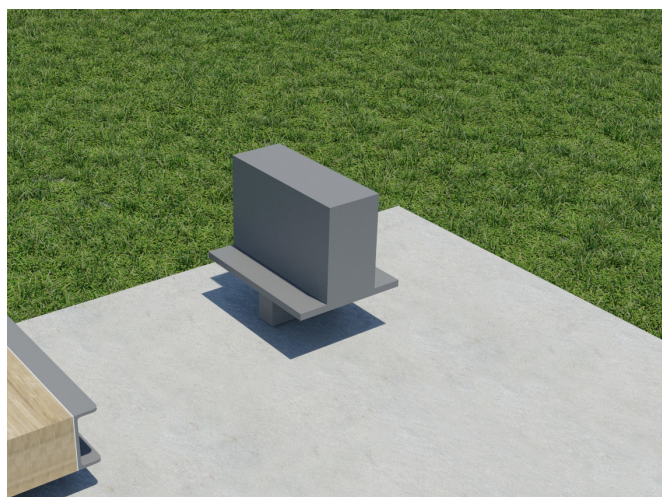


Figure 42: 3D study of the truss shoe

Boardwalk Signage

Signage could be integrated with the boardwalk railing, by council in the future, as it is beyond the scope of this project.



Figure 43: Full width signage at the end of the viewing deck could be integrated with the boardwalk structure in the future

LANDSCAPE DESIGN

1.0 SITE CONTEXT

1.1 Barham

The areas proposed for landscape restoration/amelioration are on either side of the bridge in different parkland settings, between Murray Street and the Murray River.



Figure 44: Riverside Park

Riverside Park, on the eastern side of the bridge, provides more formal and active recreation facilities. There is an information shelter, irrigated grass with children's playground, open and sheltered seating areas, public facilities, lighting, scattered trees (exotic and native), formal footpaths and a boardwalk along the river bank.

This park is often used for local markets and seasonal festivals.

The River Red Gums line the Murray River and provide a strong indigenous context.



Figure 45: River Red Gums within the park, along the western side of the bridge

Park space on the western side of the bridge is more informal, with a dryland woodland character with no organised or irrigated grassed areas.

The River Red Gums from the Riverina woodlands create a natural setting along the riverbank with an informal landscape with pedestrian trails.

1.2 Koondrook

On the Koondrook side of the river, the landscape includes two separate parts on both sides of the bridge that reflect a similar character.



Figure 46: James Park

James Park, on the eastern site at Koondrook, is the area north of Murray Parade. This site has a woodland character similar to the western section on the Barham side, with River Red Gums flanking the areas along the river bank.

The informal walking trail marks the end of the Red Gum Statue River Walk at Koondrook.



Figure 47: Park space on the western side of the bridge

Similarly, the western side is dominated by the informal, natural landscape with stands of River Red Gums in the Riverina landscape with an understory of grasses.

2.0 DESIGN PRINCIPLES

2.1 Barham

The landscape design integrates the Urban Design Strategy elements and is sensitive to the existing woodland character with the following:

- Plantings of native grasses at the entrance to the bridge to create a low-scale textural contrast
- Dryland grassing to disturbed areas
- Small areas of low shrubs on each side of the bridge and in one area adjacent the existing boardwalk
- Introduction of a concrete pathway to link the boardwalk with the path near the existing information shelter.

2.2 Koondrook

The landscape design integrates the Urban Design Strategy elements and is sensitive to the existing woodland character with the following:

- Plantings of native grasses at the entrance to the bridge to create a low-scale textural contrast
- Dryland grassing to disturbed areas
- Small areas of low shrubs on each side of the bridge and in one area adjacent within the park setting
- Slight filling to integrate the new viewing platform area with the parkland setting
- Extension of the shared path on the east to connect with the road crossing
- Introduction of a stabilised granite gravel path through the park on the east.

3.0 RE-VEGETATION

3.1 Planting design

The River Red Gum vegetation association characteristically has an underlay of grassy and sometimes slightly shrubby ground layer. The planting design is simple, of low scale and attempts to reflect the original vegetation of the areas to complement the existing informal landscape character. Swathes of native grasses dominate, with areas of low shrubs that will provide some spatial definition and bird recluse.

Key species proposed are:

Small shrubs

<i>Atriplex semibaccata</i>	Berry Saltbush
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush
<i>Eremophila glabra compact</i>	Grey Compact Emu Bush
<i>Eremophila maculata</i>	Spotted Emu Bush
<i>Westringia fruticosa</i> "Zena"	Dwarf Compact White

Native grasses & ground covers

<i>Atriplex eardleyae</i>	Small Saltbush
<i>Austrodanthonia setacea</i>	Bristly Wallaby-grass
<i>Dianella revoluta</i> ssp <i>admixta</i>	Black Anther Flax Lily
<i>Maireana decalvans</i>	Black Cotton-bush
<i>Themeda australis</i>	Kangaroo Grass
<i>Themeda triandra</i> "Quokka"	Dwarf Kangaroo Grass



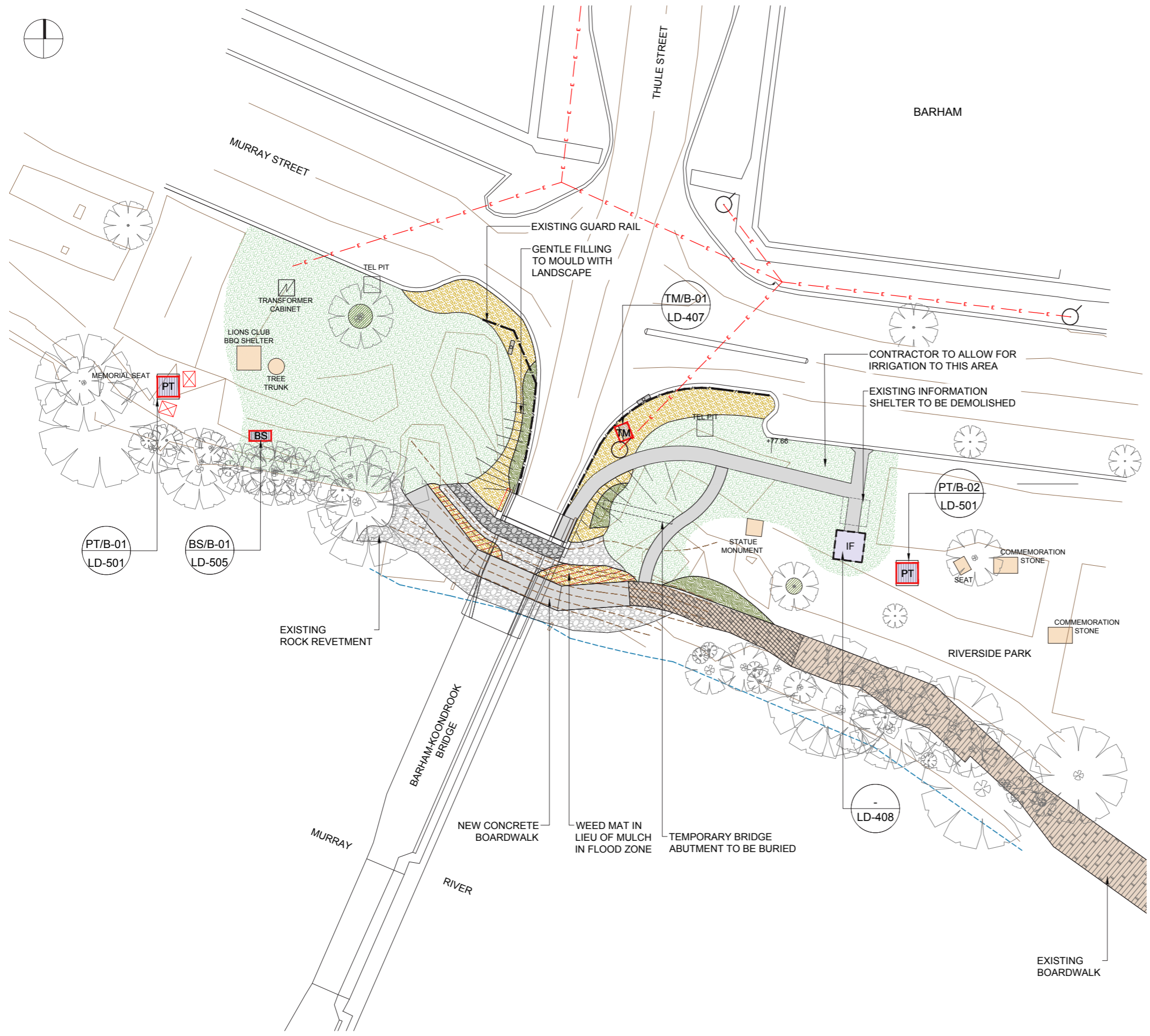
Austrodanthonia setacea

Atriplex semibaccata

Eremophila maculata

Maireana decalvans

Enchylaena tomentosa
var. *tomentosa*



LEGEND

EXISTING ELEMENTS

- EXISTING TREES PROTECTED & RETAINED
- EXISTING PARK FURNITURE TO BE RETAINED
- SPOT LEVELS
- HIGH / LOW TIDE LEVEL
- GUARD RAIL
- EXISTING AERIAL POWER CABLE
- EXISTING SIGNAGE
- EXISTING BOLLARDS RETAINED
- ROCK REVETMENT
- EXISTING FURNITURE REMOVED

SURFACES & INCIDENTAL WORKS

- CONCRETE PATH
- NEW BOARDWALK, BY OTHERS

NEW FURNITURE INCLUDING INTERPRETATION ELEMENTS

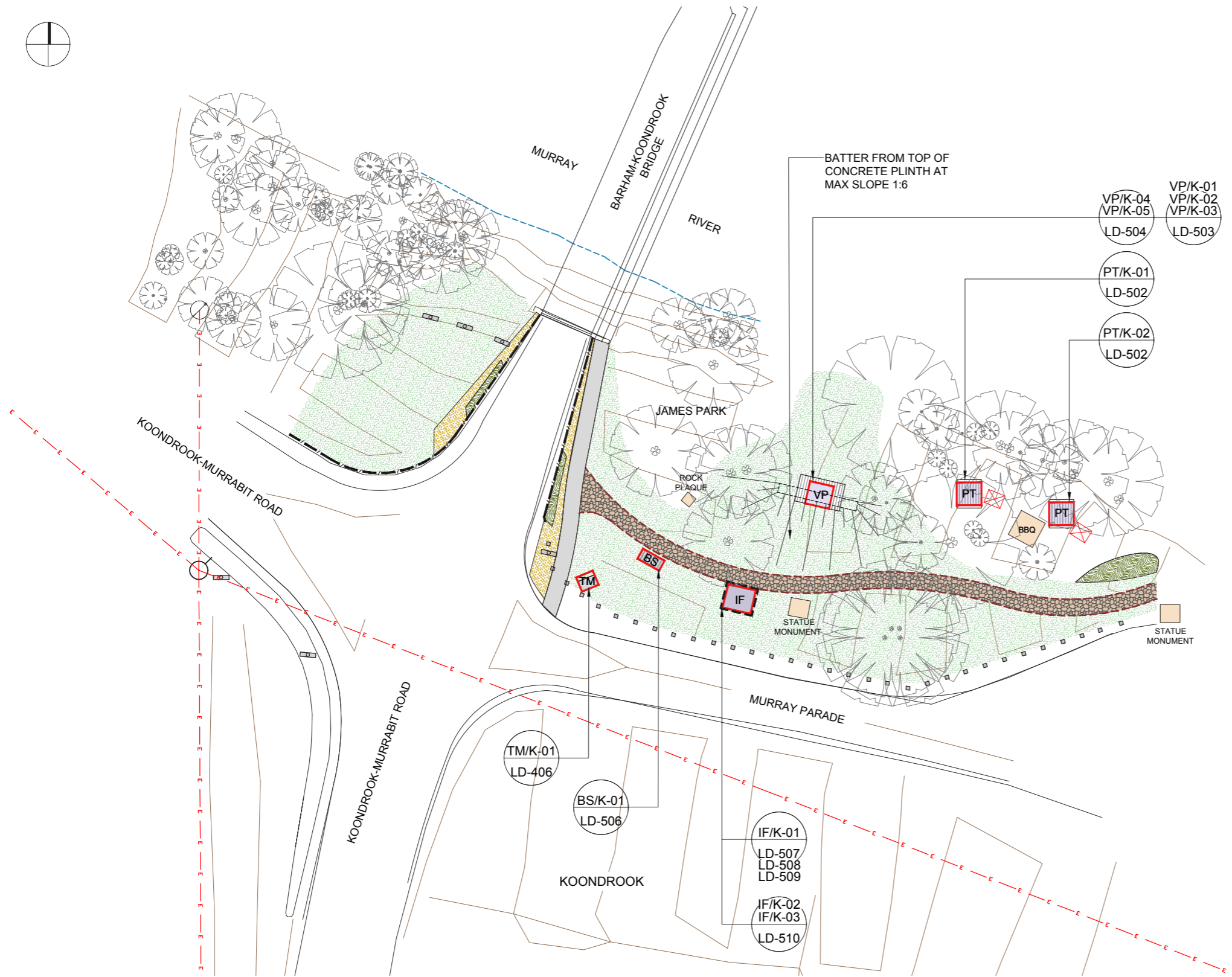
- PICNIC TABLE (PT)**
REFER DETAIL LD-401
- BENCH SEAT (BS)**
REFER DETAIL LD-403
- INFORMATION SHELTER (IF)**
REFER DETAIL LD-408
- TOWN MARKER (TM/B)**
REFER DETAIL LD-407
- INTERPRETATION**

PLANTING

- MASS PLANTING BED - NATIVE GRASSES & GROUND COVERS
- MASS PLANTING BED - LOW SHRUBS
- TURF
- MULCH ONLY
- WEED MAT USED IN LIEU OF MULCH










LOCATION OF INTERPRETIVE ARTWORK

-






LEGEND







EXISTING ELEMENTS

-  EXISTING TREES PROTECTED & RETAINED
-  EXISTING PARK FURNITURE TO BE RETAINED
-  +78.0 SPOT LEVELS
-  HIGH / LOW TIDE LEVEL
-  GUARD RAIL
-  EXISTING AERIAL POWER CABLE
-  EXISTING SIGNAGE
-  EXISTING BOLLARDS RETAINED
-  EXISTING FURNITURE REMOVED




SURFACES & INCIDENTAL WORKS

-  CONCRETE PATH
-  STABILISED GRANITE GRAVEL
-  HARDWOOD EDGING

NEW FURNITURE INCLUDING INTERPRETATION ELEMENTS

-  **PICNIC TABLE (PT)**
REFER DETAIL LD-401
-  **VIEWING PLATFORM (VP)**
REFER DETAIL LD-402
-  **BENCH SEAT (BS)**
REFER DETAIL LD-403
-  **INFORMATION SHELTER (IF)**
REFER DETAIL LD-404
-  **TOWN MARKER (TM/K)**
REFER DETAIL LD-406
-  **INTERPRETATION**

PLANTING

-  MASS PLANTING BED - NATIVE GRASSES & GROUND COVERS
-  MASS PLANTING BED - LOW SHRUBS
-  TURF

LOCATION OF INTERPRETIVE ARTWORK

-  PT/B-02
LD-XXX



REFERENCES

- A Centenary History, 2004, The Barham - Koondrook Historical Society, Koondrook VIC.
- Ballinger R., 2008, Gannawarra Shire Heritage Study Stage One, Vol.1 Thematic Environmental History
- Roads and Maritime, 2015, Movable Span Bridge Study Vol.1: Vertical Lift Span Bridges, GHD
- Roads and Maritime, 2014, Timber Truss Bridges - Draft: Heritage Interpretation Strategy, NSW
- Roads and Maritime, 2016, Heritage Interpretation Guideline, NSW
- Roads and Maritime, 2016, Review of Environmental Factors, Barham - Koondrook Bridge -Truss and Victorian Approach Span Restoration

APPENDIX 1

Changes to urban design strategy as a result of public display feedback

ITEM	COMMENT	REASON	RESPONSE
1	Delete Black Box and River Red Gum tree plantings	<ul style="list-style-type: none"> • Future maintenance costs for councils • Potential future hazard for the riverside area • Councils advised they don't require new trees for visual amenity • Keeps area clear for future temporary bridge crossing reinstatement if required • Reduces leaf debris on the bridge and associated timber deterioration • Vegetation offsets already completed in Victoria 	Agreed
2	Ensure bench seats and picnic tables do not have grass under them; build on gravel with steel edging	Request from Murray River Council and community to make lawn mowing and maintenance easier	Agreed, stabilised granite gravel will be applied under bench seats and picnic tables
3	Add new information shelter in Barham - same shape and design as in Koondrook with old steel cross girders, but smaller footprint (3 metres x 3 metres), aligned with John Monash timber carving statue monument, with no interpretative signage, but with a blank sign panel for council use as a noticeboard, and remove old existing information shelter	Murray River Council requested to remove flood markers from plans and replace with new information shelter	Agreed, new shelter proposed
4	Amend town markers - Barham side sign to be double-sided and titled 'Barham' on both sides of sign. Koondrook side sign to be double-sided and titled 'Koondrook' on both sides of sign	Murray River Council request to ensure clarity of location indicator, ie. Barham town marker is in Barham, and Koondrook town marker is in Koondrook	Agreed

ITEM	COMMENT	REASON	RESPONSE
5	Remove flood markers in Barham and Koondrook from the plan	Murray River Council requested to remove flood markers and asked for new information shelter as offset; flood markers suggest Barham floods but this is generally not the case	Agreed
6	Remove reference to 'Access Path' under Barham end bridge span, and remove any indication that this is a public pathway; consider design rock to block this path to public	This is for Roads and Maritime inspections and maintenance only, not public access	Agreed
7	Delete bench seat on Barham boardwalk (signage B-02) and remove artwork for this bench seat	Not part of scope	Agreed
8	Bench seat artwork II, drawing KIS-1607-DWG-LD-506 Sheet 20 – Roads and Maritime environmental staff to review fauna references to make more site appropriate	Community feedback	Agreed
9	Delete reference to 'light pole' and 'relocated light pole' on Barham NSW plan	Roads and Maritime is currently preparing a lighting plan separate to the urban design strategy	Agreed
10	Delete Barham NSW downstream concrete path	Not part of scope; leave as future council initiative	Agreed
11	Add to Barham NSW plan a new concrete pathway leading from the pathway that crosses the bridge, to link with the boardwalk access path under the bridge	Request by Murray River Council	Agreed

APPENDIX 2

Community feedback outside scope of urban design strategy

ITEM	COMMENT	RESPONSE
1	Old Wakool Shire sign on Victorian side to be replaced with Murray River Council sign	To be organised when road approaches to the existing bridge are reinstated
2	Include basic irrigation of new plantings	Irrigation of new plantings to be considered with further discussion with councils; no need to show on plan
3	Solar light in information shelter	Not part of RMS scope
4	Request for lighting at pedestrian underpass under Span 1, Barham end bridge span	Agreed; no need to show on plan.
5	Provision of electrical power to park area in Barham	Not part of RMS scope
6	Consideration be given to the installation of barriers at kerbs on both sides of the Barham road approach to bridge at Thule Street/Murray Street intersection to improve pedestrian safety	Roads and Maritime to discuss further with Murray River Council their expectations for a higher 900mm barrier to prevent pedestrians stepping over guardrail
7	Pedestrian crossings be constructed on Murray Street in Barham to improve pedestrian safety	Not part of scope