



Conybeare Morrison

Berry Bypass Urban Design Strategy

Kangaroo Valley Road Interchange & Victoria Street Precinct
Concept Design Summary Report - 80% Issue

July 2012

Conybeare Morrison International
52 - 58 William Street
East Sydney, NSW 2011
T. +612 8244 8888 F. +612 8244 8877
E. mail@cmplus.com.au
www.cmplus.com.au
12001



DRAFT

3.12.2 Interchange overbridge design options

Two options were explored for the design of the cross section of the interchange overpass bridge. Option 1 located the vehicular safety barrier on the outside edge of the bridge deck, provided a more or less standard local street cross section of kerb and gutter and landscaped verge, and explored the possibility of introducing a sculptural profile to the throw screen: to offer a sense of protection from the inherent exposed nature of such elevated bridges, and to introduce a sense of delight and lightness for those crossing the bridge. Two landscaped strips approximately 1.5m were proposed to soften the

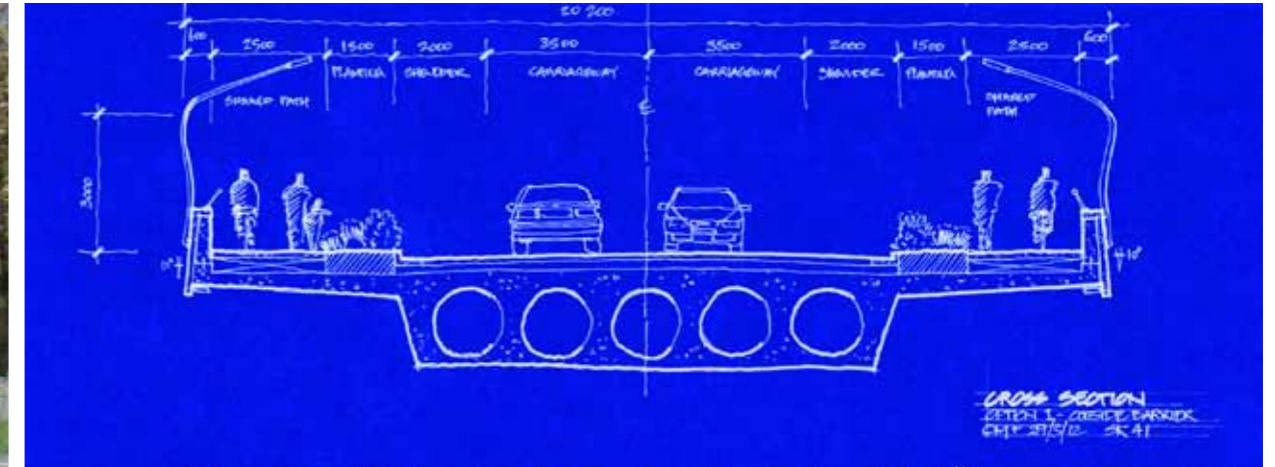
otherwise hard paved surfaces and to introduce some attractive landscaping along the shared use pathway. This was the preferred design option at the Community Working Group (CWG) meeting held in Berry on the 29th March 2012.

Option 2 looked at locating the vehicle safety barrier at the street kerb location. This allowed the throw screen to be full height providing a more open crossing experience. The CWG preferred Option 1 as it was seen to provide a better sense of protection from the elements when crossing the bridge (this was seen as particularly important for children).

DRAFT



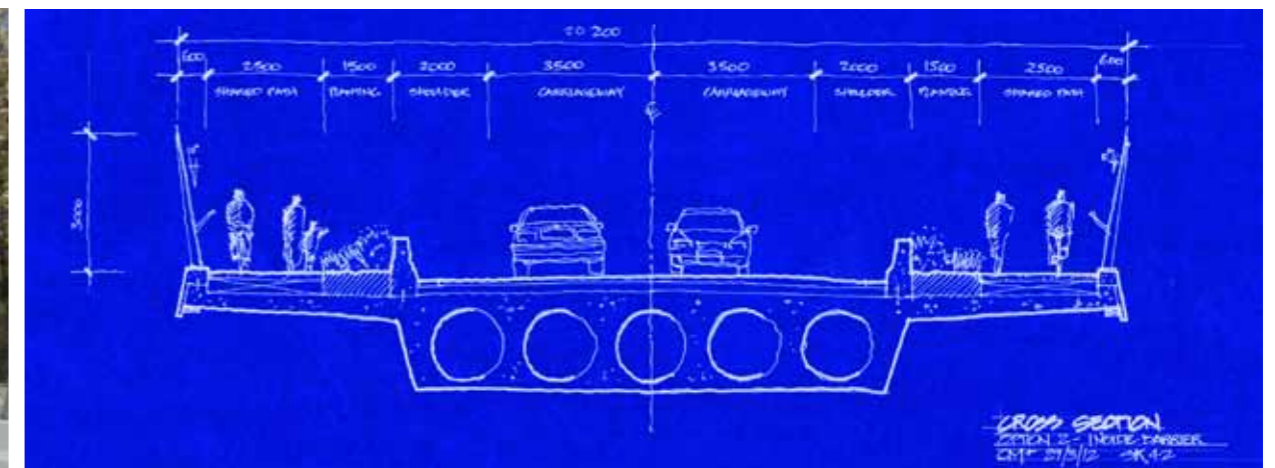
Figure 14: Option 1 - Outside barrier photomontage.



Option 1 - Outside barrier indicative cross section.



Figure 15: Option 2 - Inside barrier photomontage.



Option 2 - Inside barrier indicative cross section.

3.12.3 Preferred interchange overbridge design

The preferred overbridge design is a concrete structure of a post tensioned cast in situ voided slab construction that would achieve a single clear span of approximately 48.6m. The abutments consist of Reinforced Soil Walls incorporating precast concrete facing panels with emphasized horizontal joints in a 2.0m wide by 1.0m high grid. Alternate bridge structural types that utilise spill-through abutments would also be assessed to see whether the view corridor beneath the bridge can be opened up further.

The bridge deck is approximately 20.0m wide and 2.3m deep, and accommodates at two way carriageway with paved shoulders. The bridge cross section is kept as close as possible in appearance to a regular local street: with generous width, pathways, and a standard kerb and gutter and 'nature strip'.

Shared use paths of 2.5m width are provided on both sides of the bridge. Between the shared use path and the carriageways is a landscaped strip of 1.5m width. To prevent seepage into the bridge structure below, completely separate planter boxes, constructed of Glass Reinforced Concrete (GRC) sit atop the deck and house the minimum 450mm depth to accommodate the necessary mulch, soil and drainage course. Hardy plants would be selected, such as Lomandra and the like to ensure a long term low maintenance landscape. Irrigation would be necessary during the initial plant establishment period.

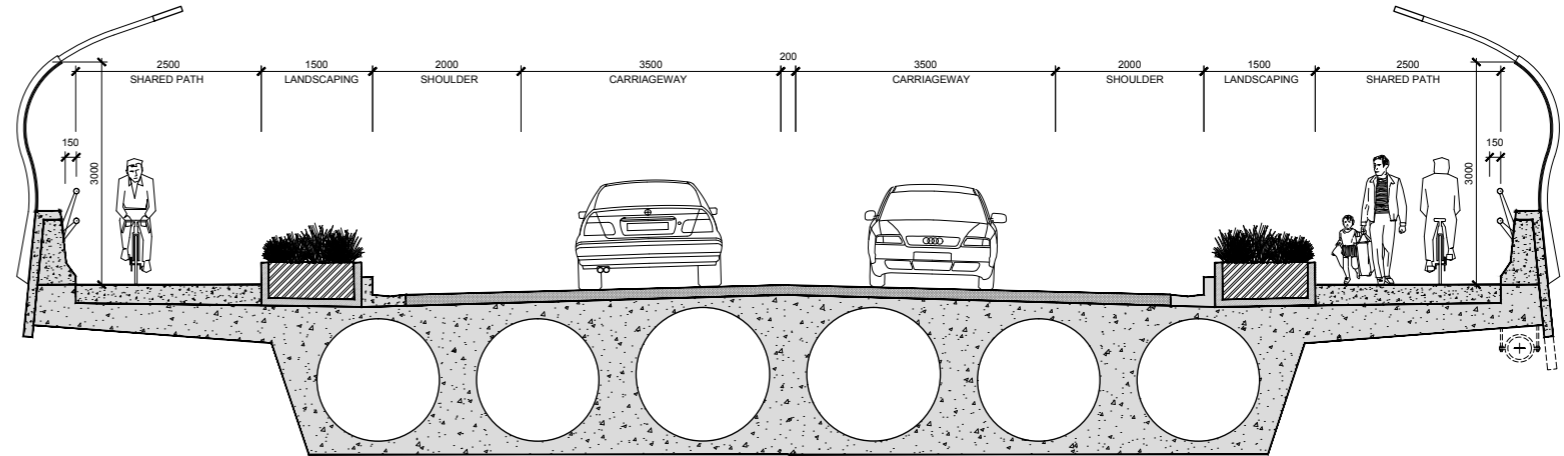


The bridge parapet top and outside face would consist of high quality precast concrete units (visible from the main carriageways) and would be integrated in design with the throw screen structure above. Additional precast concrete 'skirt' length would be provided to screen any services that are required to be hung from beneath the bridge.

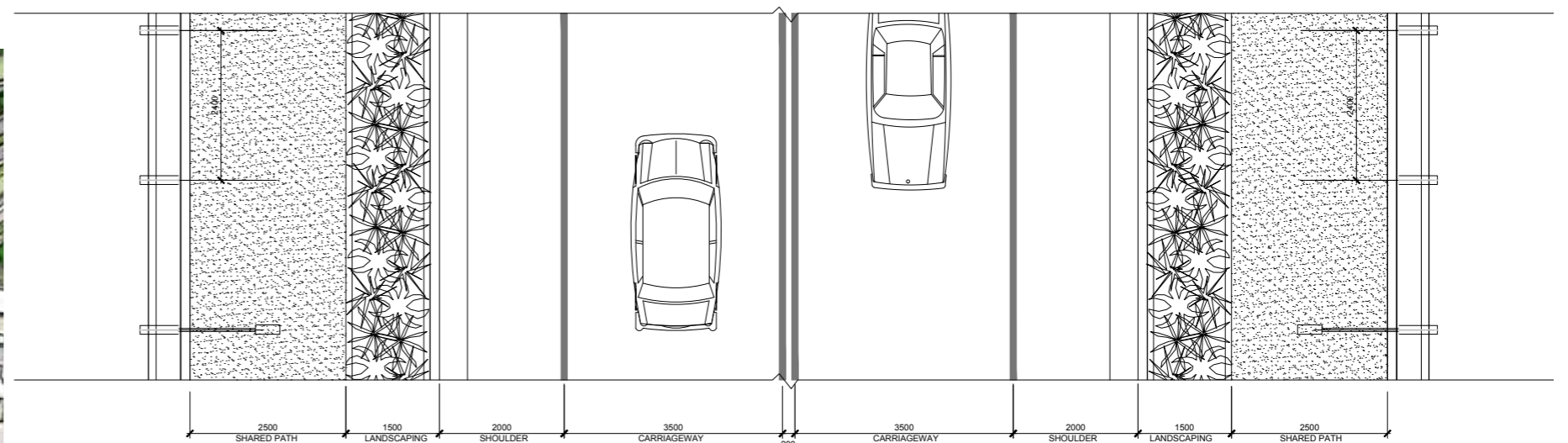
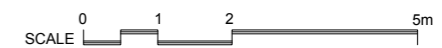
The shared use pathways would be lit at night for pedestrian safety (it is recommended that the faces of pedestrians using the paths be illuminated) with efficient long life light fittings integrated within the throw screen structure. A bicycle rail and pedestrian height handrail would be provided along the outside edge of the shared use path.

The bridge has a 4.0% slope from the west to the east. It is envisaged that this slope would facilitate drainage of the deck along its length, avoiding the need for scuppers or drain pipes to be fixed to the underside of the bridge.

Utility services to be accommodated in conduit cast in the concrete shared use path slab and in the Type F edge safety barrier.



CROSS SECTION



PLAN







KANGAROO VALLEY ROAD INTERCHANGE
PEDESTRIAN VIEW LOOKING NORTH WEST FROM KANGAROO VALLEY ROAD BRIDGE

Dwg No 12001-SK-062
Issued 13 July 2012



3.12.4 Noise barrier

Noise modelling studies undertaken by Aecom have established that two 4.0m high noise barriers would be required in the vicinity of the interchange. The first noise barrier would be required along the outer edge of the southbound off ramp. This barrier is a continuation of the planted reinforced soil 'green wall' that runs along the south edge of the corridor in the North Street precinct. To realise the expression of an uninterrupted, streamlined barrier when seen from the bypass corridor, it is envisaged that the 'green wall' face would continue up to Queen Street following the grade of the off-ramp.

The width available to the south of the noise barrier is limited in the North Street to Queen Street link. This has necessitated a vertical face to the rear of the barrier through this section. A galvanised steel mesh gabion wall structure is envisaged that would be filled with local stone sourced from project excavation.

A second noise barrier is required along the northbound off-ramp leading up to the overbridge. It is approximately 140m long and 4.0m high (above the level of the main carriageways). Noise modelling has only recently become available, and work is now progressing on the design of this noise barrier.

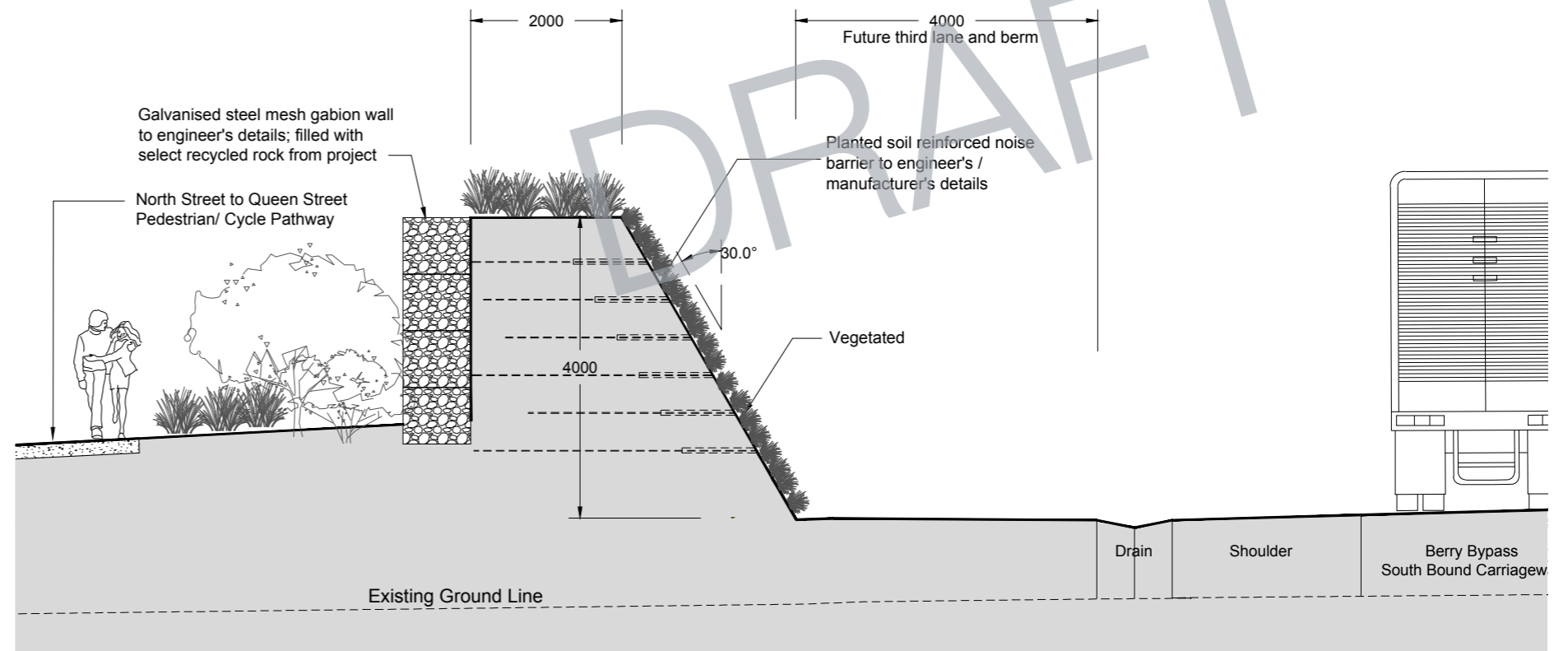
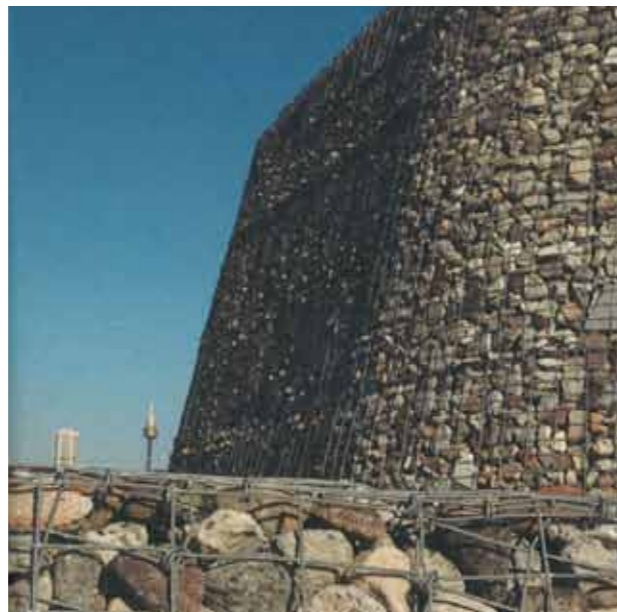


Figure 16: Noise barrier - planted soil reinforced typical cross section.



Example of gabion wall with select local stone.



Figure 17: Noise barrier - planted soil reinforced mound photomontage.

3.12.5 Overbridge throw screen

Throw screens are required on both sides of the overbridge, extending 6.0m beyond the bridge abutments and extending to 3.0m height above the finished level of the bridge deck. A sculptural 'S' shaped profile is proposed with galvanised steel mesh and integrated pedestrian safety lighting.

3.12.6 Shared path

A shared pathway is a generous width concrete pathway that can accommodate both pedestrians and cyclists. Shared paths often incorporate line markings and signage identifying their intended use. A strict speed limit allows cyclists and pedestrians to share the same pathway safely. Shared paths cater for recreational cyclists, prams, motorised mobility scooters, children on bikes, joggers and walkers, and often become a focus for community interaction and socialising.

Shared use paths of 2.5m clear width are proposed on both sides of the interchange overbridge.

3.12.7 Furniture

The proposed Town Creek Park shared pathway would incorporate at intervals along its length comfortable bench seating to provide opportunities to rest and to enhance the enjoyment and amenity of these local green spaces.

3.12.8 Lighting

Queen Street, Kangaroo Valley Road and the Princes Highway currently have overhead power supply and street lights along the south side of the street.

With the construction of the new interchange the electrical supply would need to be rationalised in the vicinity. A lighting design would be prepared at detail design stage to ensure appropriate lighting levels are achieved for driver and pedestrian safety.

The proposed Town Creek Park and landscaped pedestrian link from North Street through to Queen Street, would require pedestrian scaled lighting to supplement adjoining street lighting and to provide a safe passage in the evening. The proposed type of pole top light is illustrated opposite.



Pathways - a catalyst for community.



Proposed park seating.



Proposed park lighting

Murase Plaza Memorial Park, Wilsonville, OR, USA

Source: Louis Poulsen Projects & Products 2011-1012.



Example of recreational pathway.

3.13 Landscape design strategy

The “ arrival” landscape into Berry is designed to highlight the Kangaroo Valley Road Interchange and reinforce the rural Berry township character.

The landscape design would enhance the indigenous tree canopy and habitat corridors, mitigate the visual impact of the road engineering and create a memorable, signature gateway into the Berry township.

3.13.1 Kangaroo Valley Road Interchange

Southern approach

The roadway from the south is gradually lowered into a cut, densely planted on both sides with indigenous Eucalypts on embankments seeded with native grasses and shrubs. The plantings are designed to create pleasant “ walls of green” along the roadway and to screen out views of the freeway from the township and adjacent residential estates. As the road rises up to the Berry turn off, groves of Claret Ash (*Fraxinus oxycarpa*) and Birches (*Betula pendula*) would provide colour and contrast against the backdrop of indigenous Eucalypt trees. The exotic trees are grouped in groves with generous gaps in between to retain views of the surrounding hills and rural landscape. The roundabouts would be planted with robust and colourful native and exotic groundcovers and incorporate opportunities for public art and signage.

Proposed native tree species:

Eucalyptus punctata (Grey gum)
Eucalyptus globoidea (White stringybark)
Eucalyptus eugenoides (Thin leaved Stringybark)
Hakea dactyloides
Melaleuca linarifolia

Proposed exotic tree species:

Fraxinus oxycarpa (Claret ash)
Betula pendula (Silver Birch)

Proposed groundcover:

Native pasture grass

Northern approach

The northern approach ramp into Berry is defined by a generously planted median complementing the structure of the overhead bridge that connects Kangaroo Valley Road and Queen Street.

The left embankment is a continuation of the southern acoustic mound, and is densely planted with native grasses and tall Eucalypts as a backdrop.

An avenue of Claret Ash is proposed at the roundabout into Queen Street, reinforcing the species and colour proposed for the southern approach .

The groundcovers in this roundabout would include exotic shrubs to highlight the 19th and 20th century garden traditions of the heritage township

Similar robust and colourful groundcovers would also be planted on both sides of the overhead bridge, to create a welcoming and seamless entry statement into the Town’s main street.

Proposed native tree species:

Eucalyptus punctata (Grey gum)
Eucalyptus globoidea (White stringybark)
Eucalyptus eugenoides (Thin leaved Stringybark)
Melaleuca linarifolia

Proposed exotic tree species:

Fraxinus oxycarpa (Claret ash)

Proposed groundcover:

Lomandra longifolia (Spiny-head Mat-rush)
Native pasture grass



Figure 18: Landscape concept - Kangaroo Valley Road Interchange.

3.13.2 Town Creek Park and Queen Street link

New open space incorporating the upper reaches of the former Town Creek, and shared path link to Queen Street.

Character:

Informal parkland with central open grass area, native trees defining the perimeter and new road embankment. New gateway into park to be created at the corner of George Street and Albert Street. Clear sightlines into the park are maintained for safety and security.

Activities:

Passive recreation, seating areas. Running and jogging trail. Shared path from the Berry sports precinct to Mark Radium Park traverses the precinct.

Proposed tree species:

- Indigenous Eucalypts such as
- Euc.microcorys* (Tallowwod)
- Euc.botryoides* (Bangalay)
- Euc.pilularis* (Blackbutt)
- Eucalyptus robusta* (Swamp mahogany) highlighted with
- Ficus coronata* (Sandpaper fig)
- Melaleuca quinquenervia* (Wide leaved Paperpark)



Euc. microcorys



Euc. botryoides



Euc. pilularis



Euc. robusta



Ficus coronata



Melaleuca quinquenervia

Figure 19: Town Creek Park.

3.12.3 Victoria Street

Victoria Street would be closed at its western end to create a cul de sac adjacent to Mark Radium Park.

The former road would be turfed over and Eucalypts would be planted on the edges, visually extending the size of the park.

Proposed native tree species:

- Eucalyptus punctata* (Grey gum)
- Eucalyptus globoidea* (White stringybark)
- Eucalyptus eugenoides* (Thin leaved Stringybark)
- Hakea dactyloides*
- Melaleuca linarifolia*



Figure 20: Victoria Street - landscape design concept.

DRAFT

4.0 Materials, finishes and colour strategy

4.1 Philosophy

The following urban design philosophy has guided the selection of the project materials and finishes palette:

- Taking a low-key approach.
- Complementing the natural environment.
- 'Natural' finishes preferred rather than applied.
- Utilising locally sourced stone and timber.
- Selecting finishes that weather and age well.
- Detailing that minimises staining and is self-cleaning.

4.2 Finishes selections

The adjoining sample photos illustrate the proposed approach - including utilising local stone and timber when appropriate, and in the selection of materials and finishes that are generally low-key, robust and that weather well.

4.3 Graffiti strategy

The approach to deterring graffiti is to wherever possible 'design-out' situations where the potential for walls or surfaces that could be defaced are removed. Maximising the opportunity for passive surveillance through creating places that are attractive to people, are easily accessible and well lit at night would deter and minimise the occurrence of graffiti.



Local stone.



Destination signage.



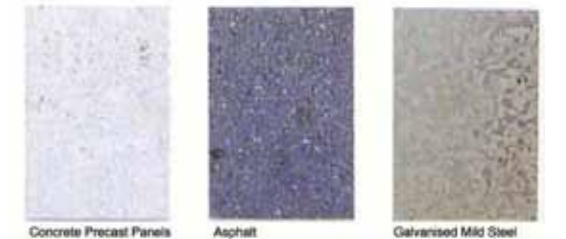
Berry memorial.



Estate signage.



Local timber.



Stone faced retaining wall.



Complementing the natural contours of the region.





This page has been left blank intentionally.

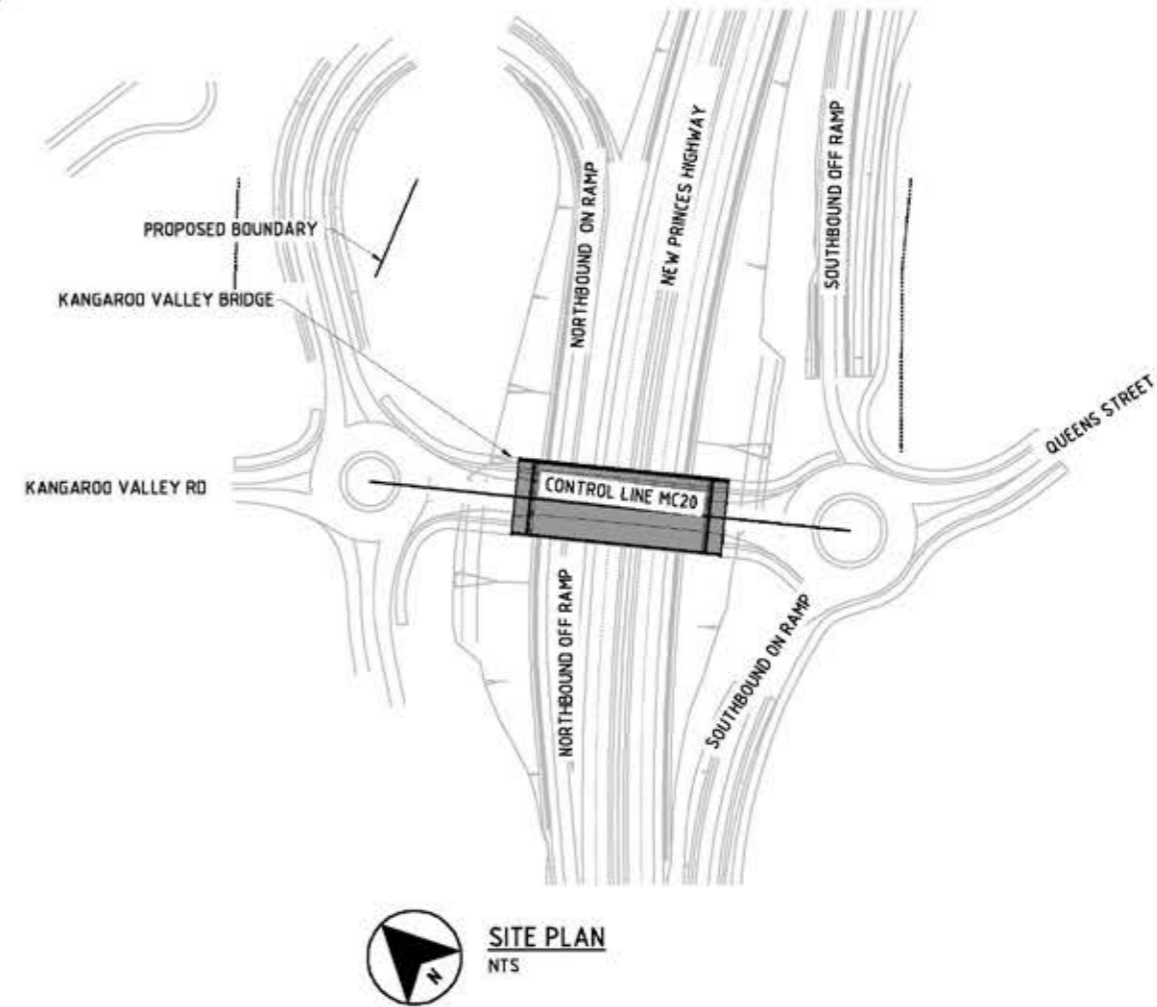
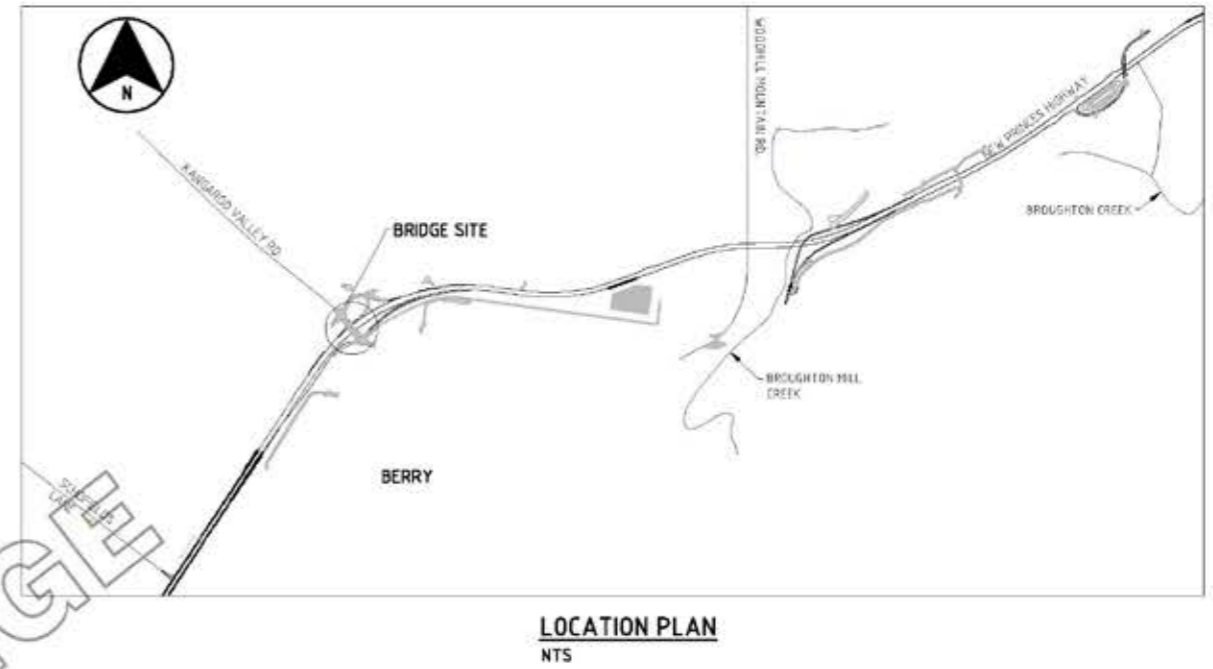
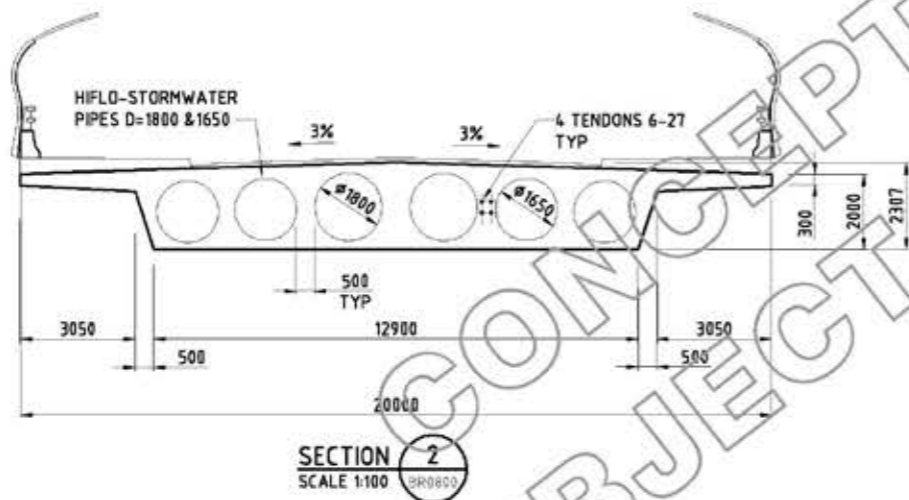
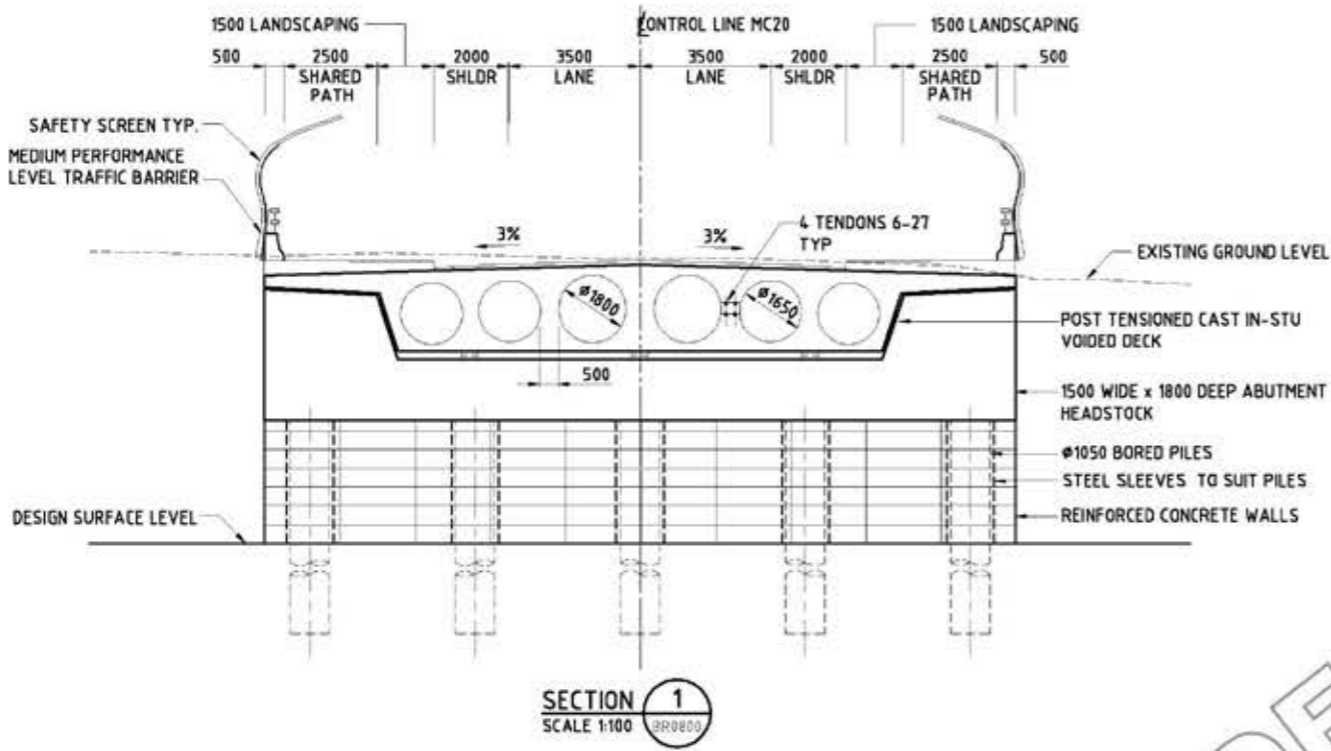


Appendices

Appendix A - Kangaroo Valley Road
Interchange Overbridge GA Set

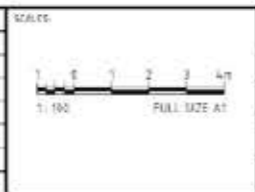
DRAFT

Cat ref: P146021933_02B.V5_CADD.V3_Working/03/18_Bridges/146021933-DRG-10-02-080801.dwg
 Last modified: 23 Jul 12 - 15:34



REVISION IN PROGRESS

NO.	BY	DATE	DESCRIPTION	APPRO.
01	EN	14.02.11	80% DESIGN ISSUE	
02	EN	08.07.11	100% DESIGN ISSUE	
03	EN		FINAL ISSUE	



DESIGNED	NS	CHECKED	
DRAWN	EN	CHECKED	
APPROVED		SATE	

THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAWING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE AECOM QUALITY ASSURANCE SYSTEM TO ISO 9001:2000

DESIGNER:

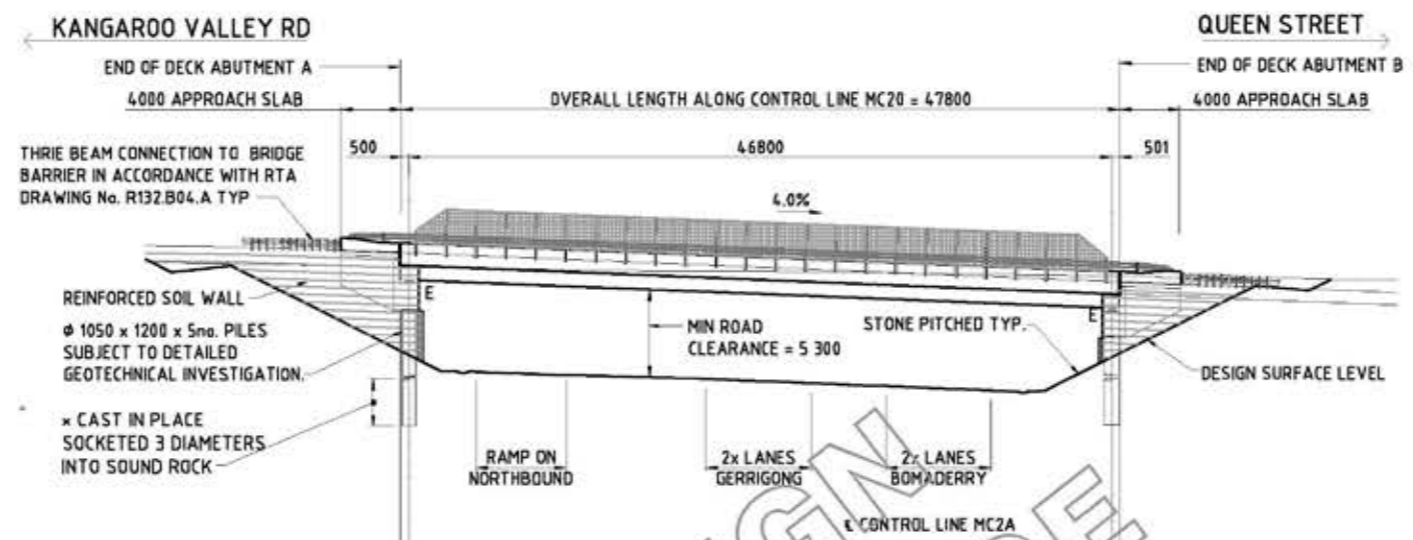
AECOM Australia Pty Ltd A.B.N. 20 093 846 925

CLIENT:

Transport Roads & Maritime Services

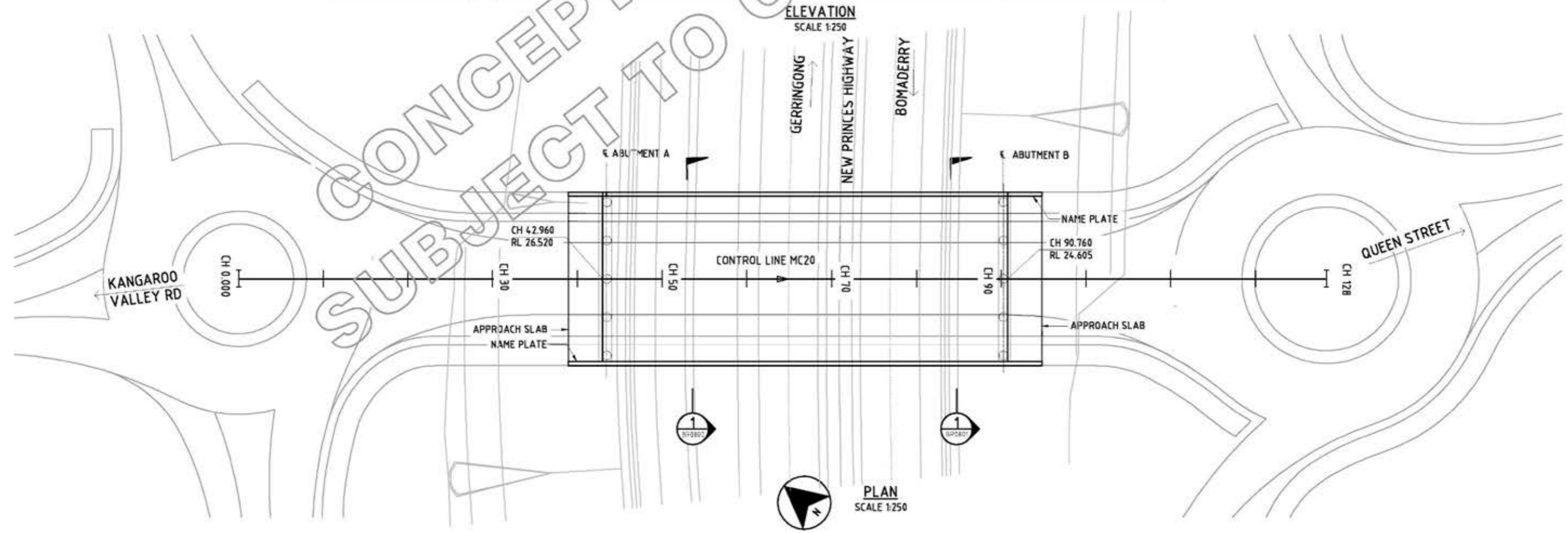
FOXGROUND & BERRY BYPASS	
BRIDGE - CH 17650 KANGAROO VALLEY ROAD OVERPASS GENERAL ARRANGEMENT	
STATUS: CONCEPT	REV. 03
DRAWING NO: 60021933-DRG-10-02-BR08012	

Cad: rev: P:\6021933_02B15_CAD\3.5_Working\02\17_Concept\102_PBR\008_Bridge\6021933-02-02-02-02-02.dwg
 Last modified: 21 Jul 12 - 11:45



- GENERAL NOTES**
1. REFER TO DRAWING NO. 60021933-DRG-10-02-RD1021 FOR HIGHWAY ALIGNMENT AND TOPOGRAPHY AT THE BRIDGE LOCATION
 2. DIMENSIONS ARE IN MILLIMETRES
 3. CHAINAGES AND REDUCED LEVELS ARE IN METRES
 4. REDUCED LEVELS ARE RELATED TO AUSTRALIAN HEIGHT DATUM
 5. GRID REFERENCES RELATE TO GDE SURVEY CONTROL DRAWINGS
 6. DO NOT OBTAIN DIMENSIONS BY SCALING FROM DRAWING
 7. E - DENOTES ELASTOMERIC BEARING

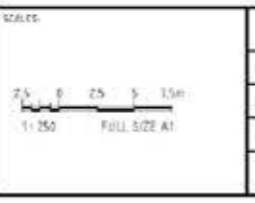
DATUM RL 2.000									
DESIGN ROAD SURFACE LEVEL ON CONTROL LINE	27.017	26.520	26.496	25.500	24.624	24.605	23.900		
EXISTING SURFACE LEVEL ON CONTROL LINE MC20	25.885	25.577	25.331	24.970	24.624	24.605	24.755		
CHAINAGE ALONG CONTROL LINE MC20	30.000	42.960	43.572	70.000	90.258	90.760	110.000		



REVISION IN PROGRESS

The drawing is confidential and shall only be used for the purposes of this project.

REV	EN	DATE	DESCRIPTION	APPD
01	EN	06/02/11	80% DESIGN ISSUE	
02	EN	08/07/11	100% DESIGN ISSUE	
03	EN	07/20/12	CONCEPT	



THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE AECOM QUALITY ASSURANCE SYSTEM TO ISO 9001:2000

DESIGNED	NR	CHECKED	
DRAWN	EN	CHECKED	
APPROVED		DATE	

DESIGNER:

AECOM Australia Pty Ltd A.B.N. 20 093 844 925

CLIENT:

Transport Roads & Maritime Services

PROJECT: FOXGROUND & BERRY BYPASS

BRIDGE - CH 17650
KANGAROO VALLEY ROAD OVERPASS
GENERAL ARRANGEMENT

STATUS: CONCEPT

DRAWING NO: 60021933-DRG-10-02-BR0800

REV: 03

1 OF 2