

PROJECTS

Replacement Of Critical Link On River Torrens Linear Trail



“ this Project was extremely challenging in terms of site access ”

Design Consultant Tonkin Consulting, led by Senior Civil Engineer Mal Wilkinson and Civil and Structural Engineer Tim Ennis fully developed Beltrame Civil's mass shotcrete footing design and fabricated galvanised steel structure to achieve signoff by all stakeholders including CCS, DPTI, DEWNR and the NMRB. Extensive 3D modelling of the designed structure was undertaken by Beltrame Civil to ensure that once underway the structure would definitely fit within the

construction envelope which had in two locations less than 10mm tolerance to pass whilst meeting the technical requirements of the design brief.

Constructed between May and October 2014 the project was effected by a number of high flow events within the River Torrens during June and July which impacted the temporary access scaffold, halting works for a period of time until safe access to the site could be re-established. The Beltrame

Awarded a lump sum design and construct contract by the City of Charles Sturt in November 2013, the Beltrame Civil team were both excited and undaunted by the challenge that lay ahead replacing the 30year old permapine timber underpass structure at Holbrooks Road Underdale.

Beltrame Civil's client, The City of Charles Sturt had identified the existing Holbrooks Road Underpass as a significant safety concern for the users of the River Torrens Linear Park (RTLTP). The existing timber structure, constructed in the 1980's, was in poor condition and failing to meet the needs of the increasing number of users along the RTLTP trail.

Beltrame Civil's brief was to demolish the existing structure and replace it with a new 60m shared use footbridge passing underneath the DPTI Holbrooks Road Bridge. Requiring a minimum of 3.0m width, smooth transitional geometry both vertically and horizontally, capable of accepting a 5.0kPa live load, 1:100 flood load and tolerant of log impact forces. All whilst maintaining a minimum 2.7m head clearance under the road bridge and without impacting the function of the

existing DPTI road bridge or DEWNR weir and delivering a 100 year structural life. With the design parameters confirmed, Beltrame Civil's team including Design Consultant Tonkin Consulting and Design Manager Bell Rock Engineering set about planning to deliver the structure in the most cost effective manner possible.

Geotechnical advice provided during the tender phase had proposed numerous 14m deep piles along the section of the underpass between the existing DEWNR weir and the western abutment. Beltrame Civil's team including Design Manager, Phil Cornish of Bell Rock Engineering knew that this solution would never stack-up financially. During the tender phase Beltrame Civil proposed substituting the 14m deep piles with a double toed, shotcrete mass footing, modifying the extremely tight existing embankment envelope beneath the road bridge to accommodate the wider horizontal and lower vertical alignment of the new structure.



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Civil crew worked feverishly during May to ensure that all demolition, earthworks and in situ concrete works would be completed prior to the onset of winter and having achieved that, the structural and decking crews were able to continue works as the river levels permitted to ensure timely completion of the project.

The City of Charles Sturt's Manager of Engineering Strategy & Assets, Phil Hewitt said "this is the second bridge along the River Torrens which the Council has replaced using the Design and Construct method for scope of contract works. The Council has found this to be fast, practical and cost effective. Working with Beltrame Civil on the Holbrooks Road Underpass Project has clearly demonstrated these benefits and we are hopeful they will tender for similar projects in the coming year."

Beltrame Civil Project Manager, Steve Atherton said "the Holbrooks Road Underpass Project was extremely challenging in terms of site access,



stakeholder management, design parameters and construction tolerances but the final product is one we are all extremely proud of."



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