

5.7.6 St Peters Interchange Portal

Design intent

At St Peters interchange the design approach to the tunnel portals differs from that adopted for the western portals at Kingsgrove. An entirely different set of circumstances occurs at the interchange. Here, a former landfill would be transformed into a vibrant new interchange parkland, significantly increasing vegetation coverage with new passive recreation areas for the local community. The new infrastructure elements within the interchange need to 'sit within' and be integrated with the parklands as opposed to being imposed upon them.

The design provides a simple and elegant solution that unifies a range of geological issues by wrapping the portal and approaches in a giant 'sculptural veil' form. The veil provides a light and lyrical element that would read as a sculpture within the overall interchange parkland. This approach could be adopted for the future M4-M5 Link portals adjacent to Campbell Street.

Materials, colours and finishes

The 'sculptural veil' is a series of coloured rectangular aluminium sections laid in a curvilinear series at varying angles to establish a seemingly continuous, but transparent, sinuous form. It presents a unique and memorable experience for drivers entering and exiting the tunnel and also for the local community and park users who would be able to view the portals from various elevated viewpoints.

The veil would also include LED feature lighting using a programmable system to provide a range of lighting effects adding to the night-time experience. Variable message signs (VMS), lane signals and the like would be integrated in the design with service and maintenance access via a gantry behind the veil. Above the portal would be a series of retaining walls and terraces to support the installation of new soil profiles in the order of one metre deep, capable of supporting new parkland vegetation.

The following pages provide preliminary plans, perspectives and sections of the portal. These would be further developed during detailed design.

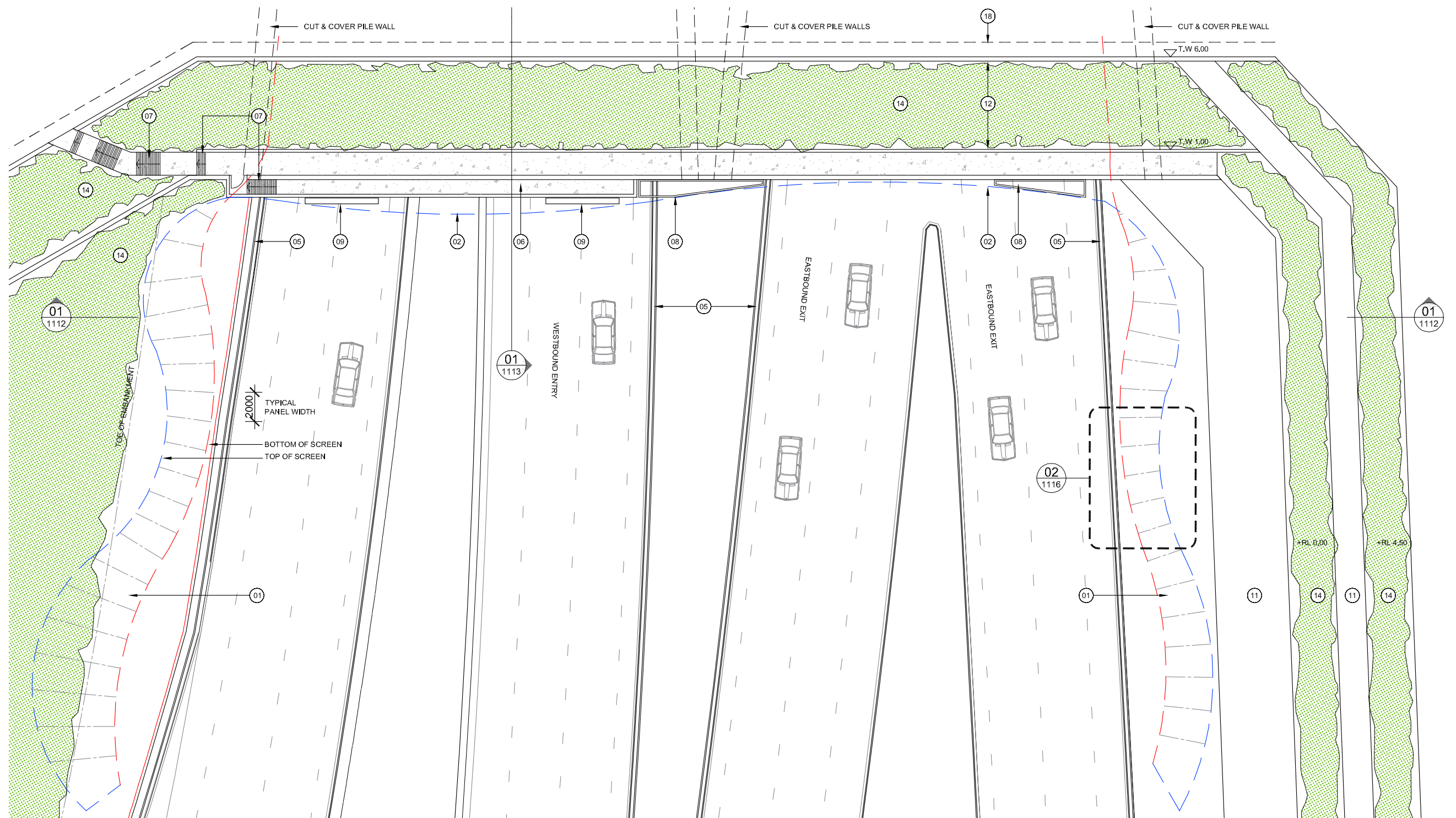


ARTISTS IMPRESSION - ST PETERS TUNNEL PORTAL



ARTISTS IMPRESSION - ST PETERS TUNNEL PORTAL

Figure 69 Artist's impression - St Peters Tunnel Portal



LEGEND

- (01) CANTILEVERED SCREEN PANELS
- (02) NOT USED
- (03) NOT USED

- (04) NOT USED
- (05) EDGE BARRIER
- (06) G.M.S GANTRY STRUCTURE FOR VMS SUPPORT & MAINTENANCE ACCESS

- (07) MAINTENANCE ACCESS STAIR
- (08) NOT USED
- (09) VMS

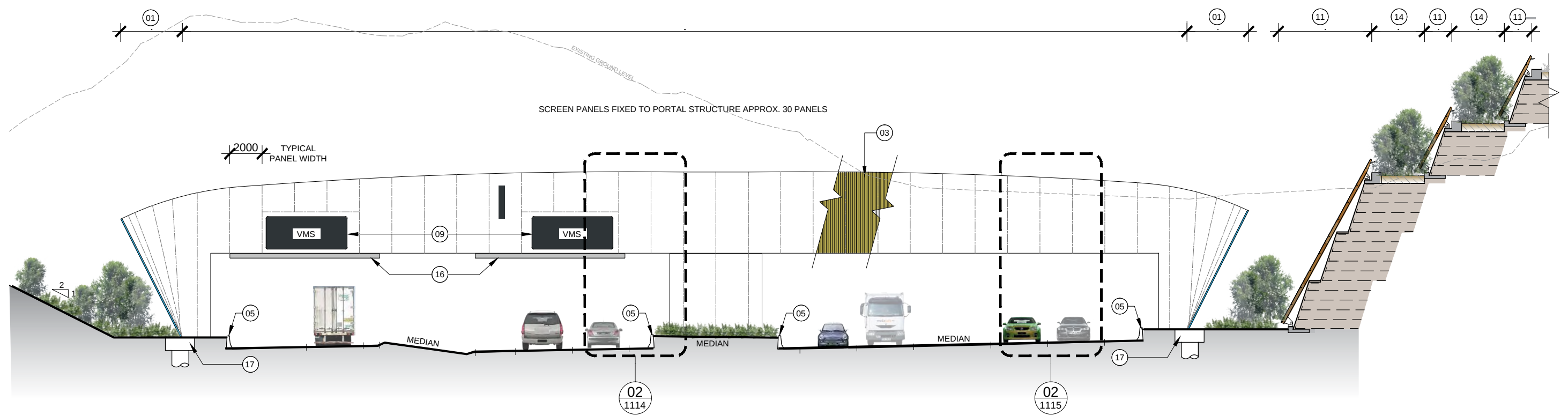
- (10) NOT USED
- (11) TERRAMESH RETAINING WALLS WITH 'CORTEN' STEEL FACING PANEL
- (12) NOT USED

- (13) NOT USED
- (14) SCREEN PLANTING
- (15) NOT USED

- (16) NOT USED
- (17) NOT USED
- (18) 1.8M HIGH SECURITY FENCE

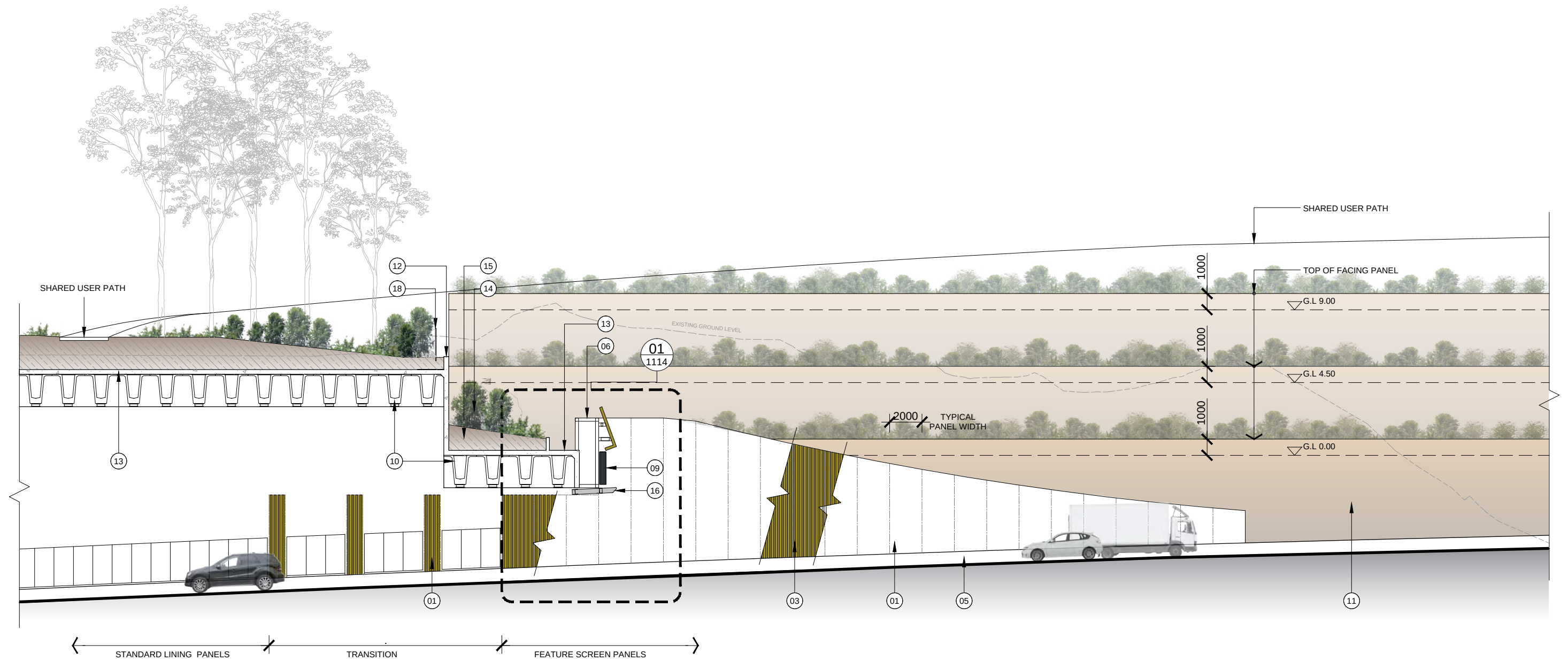
01
DETAIL PLAN - EASTERN PORTAL FEATURE SCREEN
1:250

Figure 70 St Peters eastern portal plan



01 ELEVATION - EASTERN PORTAL FEATURE SCREEN
1:250

Figure 71 Indicative St Peters Eastern Portal elevation



01 SECTION ELEVATION - EASTERN PORTAL FEATURE SCREEN
1:250

Figure 72 Indicative St Peters Eastern Portal elevation

5.7.7 Bridges

The interchange includes a total of six road bridges and these would form a notable feature within the interchange landscape. Attention has been paid to the design detailing of these road bridges to ensure an elegant and minimalist form. Within the interchange itself the bridges would be stacked, providing connectivity between the St Peters portal, future M4-M5 Link portal, future Sydney Gateway, the New M5 ramps to Euston and Campbell Roads and Gardeners Road. To accommodate these connections the bridges would be layered in 4 levels. With mass planting in the interchange the scale of the road bridges would be tempered.

Design intent

The design approach to bridges in the interchange must carefully consider their forms, spans, profile, finishes and pier rhythm in conjunction with well-coordinated detailing. The architectural treatment of the bridges is considered paramount with clean lines and incorporating piers and abutments sympathetic to the structural form.

The bridges would have architecturally profiled deck soffits and barrier edges to ensure an elegant finish befitting the critical importance of the iconic interchange. Feature lighting would also be included to highlight key elements of the structures.

Within the interchange there are a number of feature bridges that would provide new connections:

1. Campbell Road bridge over Alexandra Canal

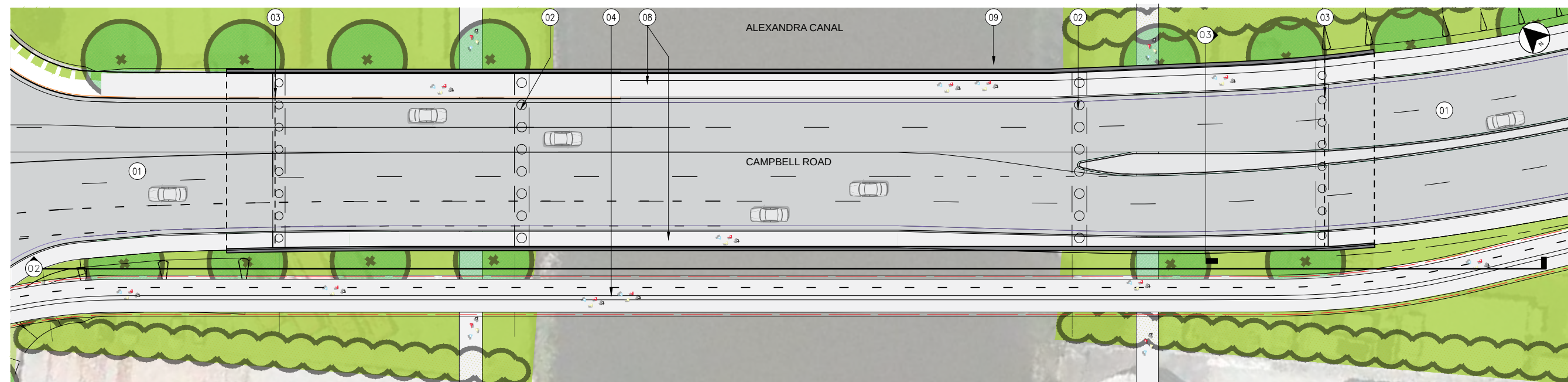
A dedicated road bridge would be constructed, continuing the alignment of Campbell Road east over the Alexandra Canal connecting to Bourke Road (the Campbell Road bridge). The bridge would span the entire canal and allow for two eastbound and two west bound traffic lanes. In addition a shared cycle and pedestrian path would be included on the northern side of the bridge and a footpath on the southern side.

The Alexandra Canal is a state heritage listed item owing to its rarity as one of only two artificial canals constructed in NSW. The design of the bridge respects the value of the canal by ensuring a clear span over the waterway.

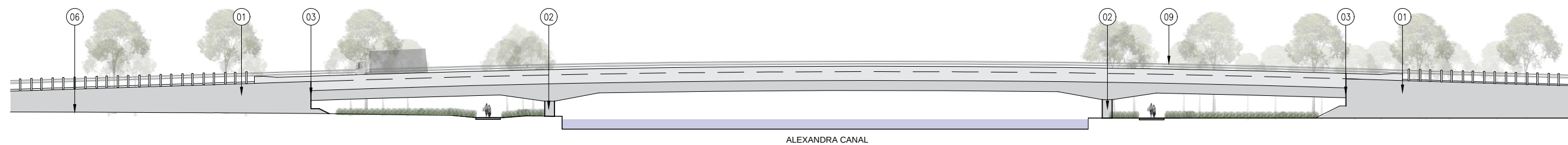
The clear span is designed to avoid disturbing the highly contaminated Alexandra Canal bed sediments. The bridge superstructure span is made up of six steel trough girders with a cast in-situ concrete deck. The continuous spans are designed to reduce the depth of the superstructure to minimise embankment height.



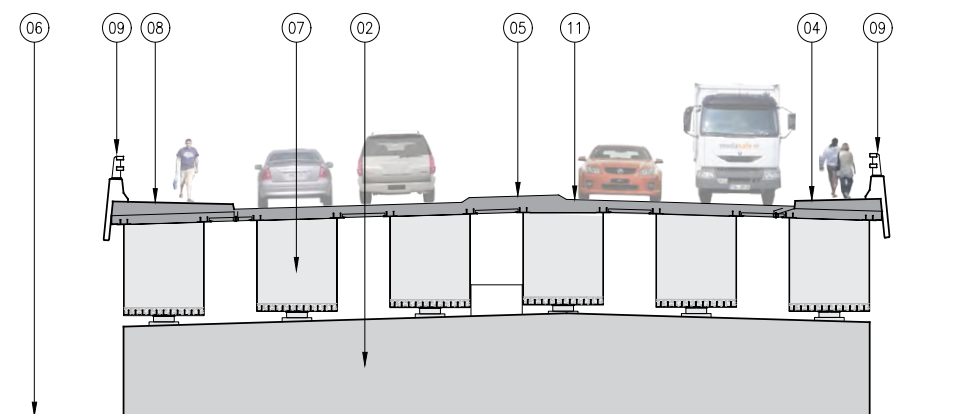
Figure 73 Artist impression of Campbell Road bridge



01 CAMPBELL ROAD BRIDGE OVER ALEXANDRA CANAL - PLAN
1:500



02 CAMPBELL ROAD BRIDGE OVER ALEXANDRA CANAL - ELEVATION
1:500



03 CAMPBELL ROAD BRIDGE OVER ALEXANDRA CANAL - SECTION
1:200

LEGEND

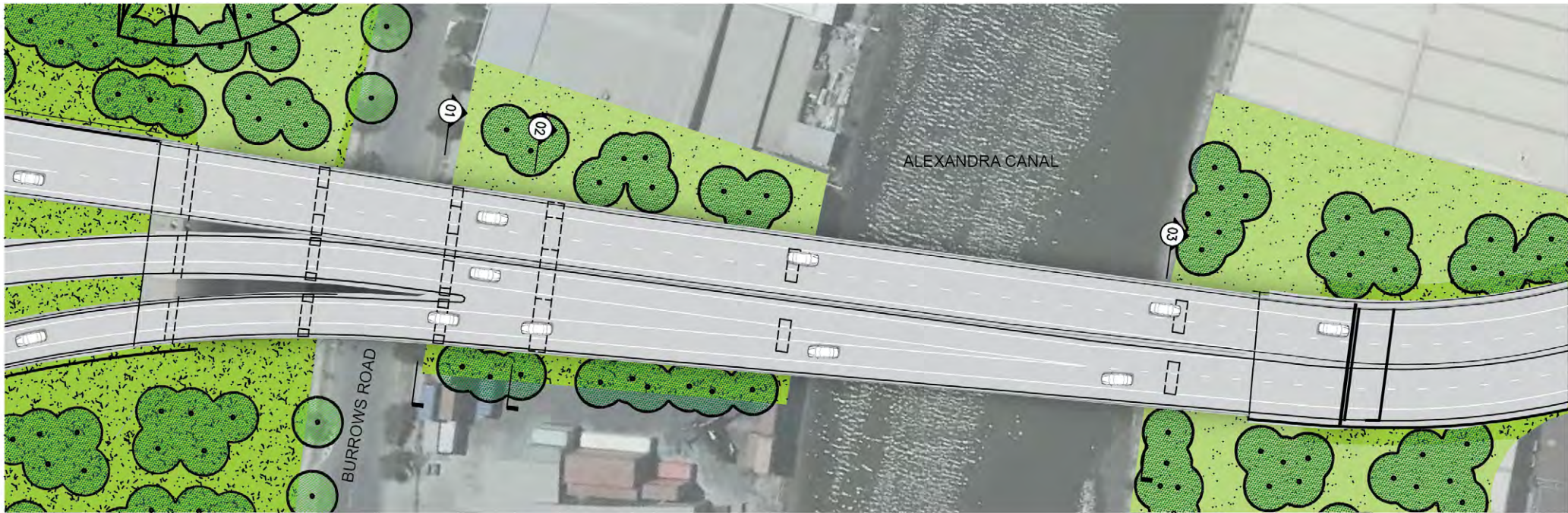
- 01 APPROACH SLAB
- 02 REINFORCED CONCRETE PIER
- 03 BRIDGE ABUTMENT
- 04 SHARED PATH
- 05 MEDIAN
- 06 APPROXIMATE EXISTING SURFACE LEVEL
- 07 2650 DEEP STEEL TROUGH GIRDER
- 08 FOOTPATH
- 09 TWIN RAIL SAFETY BARRIER
- 10 PEDESTRIAN SAFETY FENCE
- 11 BRIDGE DECK

Figure 74 Indicative plan Campbell Road bridge over Alexandra Canal

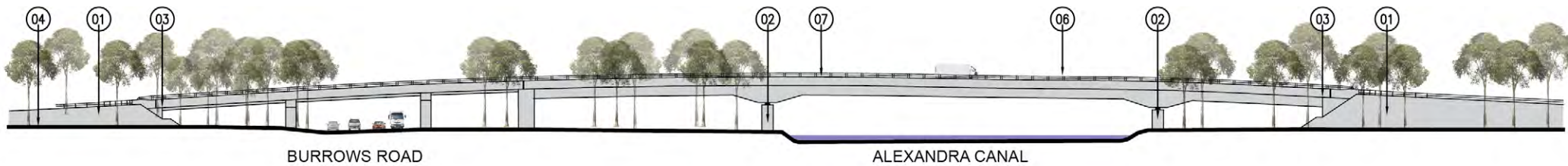
2. Gardeners Road Bridge over Alexandra Canal

The Gardeners Road bridge would provide an easterly connection for vehicles travelling north on the New M5. Gardeners Road bridge would provide the main eastbound route from the interchange.

The design of Gardeners Road bridge would feature a clear span over water and would be similar in overall appearance to the Campbell Road bridge. It would have a similar pier shape, span, barrier/edge details and abutments so that the two bridges read as a suite.



01 GARDENERS ROAD BRIDGE OVER ALEXANDRA CANAL - PLAN
1:1000



02 GARDENERS ROAD BRIDGE OVER ALEXANDRA CANAL - ELEVATION
1:1000

Figure 75 Indicative Gardeners Road bridge over Alexandra Canal