

D.2.3 Bridge over Highway No.10 at Ballards Road – Station 72km440

This bridge comprises two equal spans over the main carriageways of 32.7m each. Each span comprises five 1500mm deep Super-T girders. The bridge is perpendicular to the main carriageways (skew of zero degrees). The vehicular carriageway is 11.0m wide. The pier design comprises a single 'trouser leg' pier arrangement in the median with spill through abutments at 1.5H:1V slope.

The parapets are medium performance level barriers comprising a 650mm high precast concrete barrier / parapet surmounted by twin steel rails, providing an overall height of 1300mm above road surface level. A single conduit is located in each barrier. A longitudinal drainage pipe is located on each side of the bridge, between the parapet skirt and outermost Super-T. Safety screens are also provided in accordance with the SWTC.

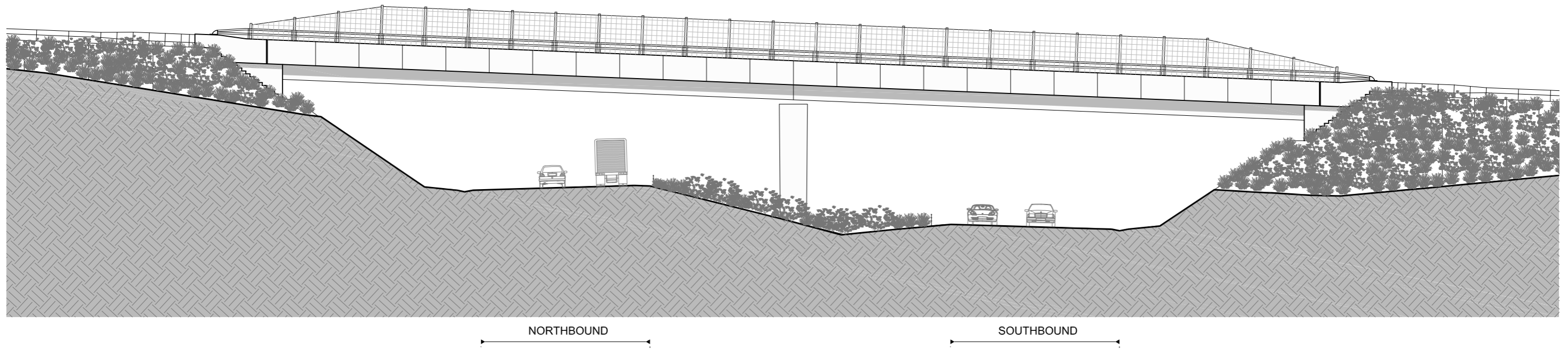
The Ballards Road Interchange overbridge is located in a shallow cutting with approaches on fill embankments which are approximately 2.0m tall at abutment A and 5.0m at abutment B.

Changes since 15% DCD

- Bridge spans reduced from 37.75m to 32.7m.
- Number of Super-T girders reduced from six to five and depth reduced from 1800mm to 1500mm.
- Abutment slope increased from 2H:1V to 1.5H:1V.
- Two longitudinal drainage pipes added.
- Maintenance access stair moved to opposite side of bridge.

Urban Design Comments on 85% PDD to be incorporated in 100% SDD

- None.

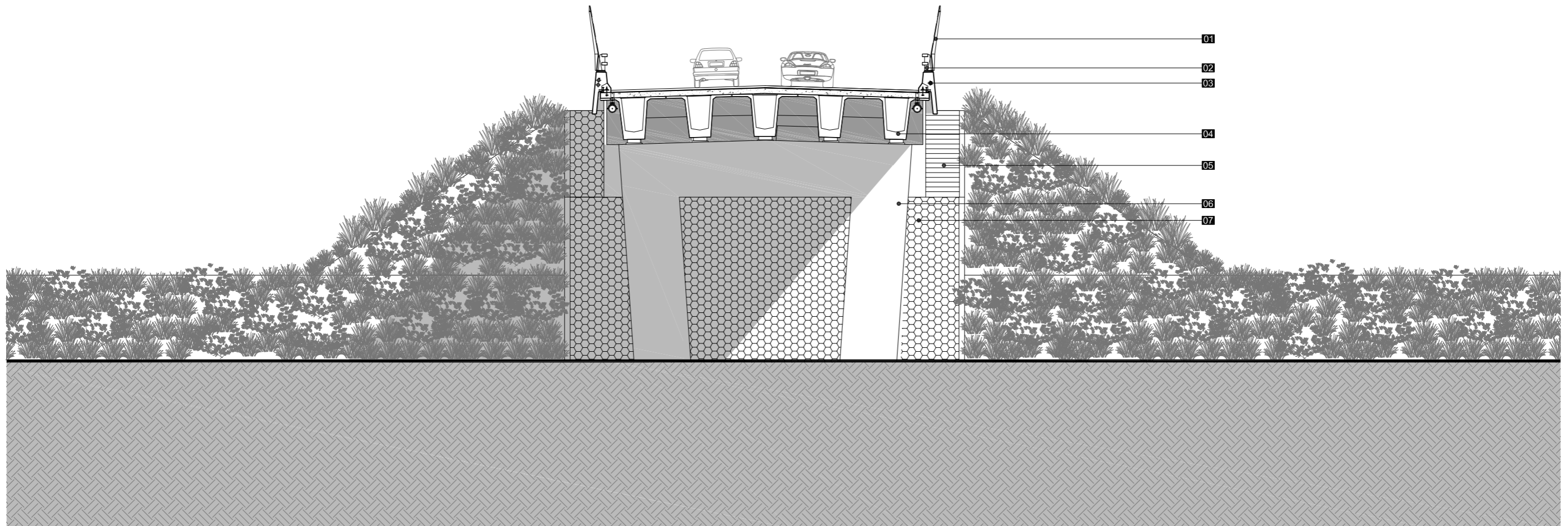


Drawings are for illustrative purposes only.
For dimensions and extent of works refer to Engineers Drawings.
For Landscape types and extents refer to Landscape Drawings.

E 2.3.2

0 10 20m

Figure D.2.3.1 Bridge over Highway No.10 at Ballards Road: Elevation



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- 01 GALVANISED SAFETY SCREEN
- 02 TWIN METAL RAIL BARRIER
- 03 CONCRETE PARAPET
- 04 SUPER-T GIRDERS
- 05 MAINTENANCE ACCESS STAIRS, DARK TINTED CONCRETE
- 06 CONCRETE PIER
- 07 CONCRETE PAVER ABUTMENT TREATMENT

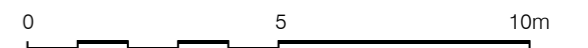


Figure D.2.3.2 Bridge over Highway No.10 at Ballards Road: Cross Sectional Elevation

D.2.4 Bridge over Highway No.10 at Martells Road – Station 75km470

This bridge comprises two spans over the main carriageways of 33.915m and 29.80m. Each span comprises five 1500mm deep Super-T girders. The bridge is skewed 20 degrees to the main carriageways. The vehicular carriageway is 9.0m wide. The pier design comprises a single 'trouser leg' pier arrangement in the median with spill through abutments at 1.5H:1V slope.

The parapets are medium performance level barriers comprising a 650mm high precast concrete barrier / parapet surmounted by twin steel rails, providing an overall height of 1300mm above road surface level. A single conduit is located in each barrier. A longitudinal drainage pipe is located on the south side of the bridge, between the parapet skirt and outermost Super-T. The skirt extends downwards sufficiently to conceal the drainage pipe when the bridge is viewed in elevation. Safety screens are also provided in accordance with the SWTC.

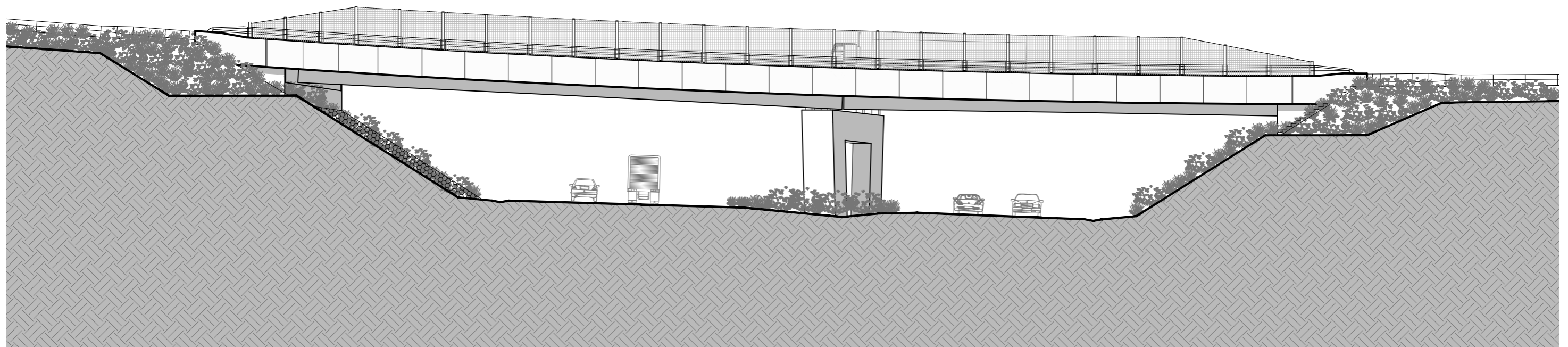
The Martells Road overbridge is located within a cutting approximately 9.0m deep.

Changes since 15% DCD

- Spans increased from 31.60m to 33.915m; and decreased from 35.60m to 29.80m.
- Super-T girders reduced in depth from 1800mm to 1500mm.
- Abutment slope increased from 2H:1V to 1.5H:1V.

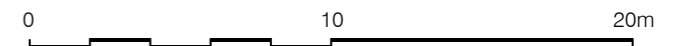
Urban Design Comments on 85% PDD to be incorporated in 100% SDD

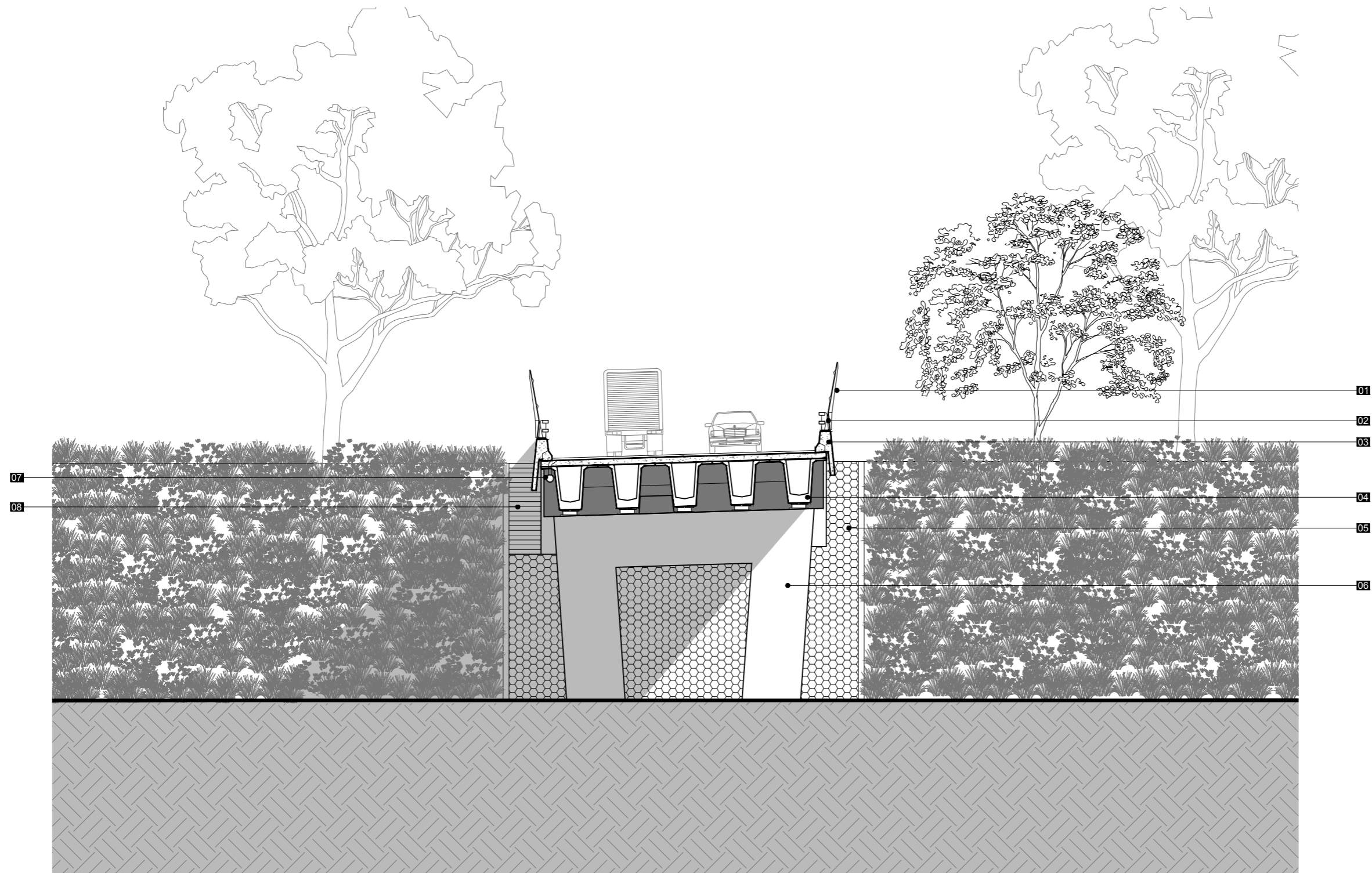
- None.



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Figure D.2.4.1 Bridge over Highway No.10 at Martells Road: Elevation

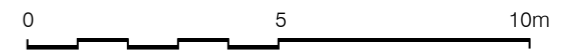


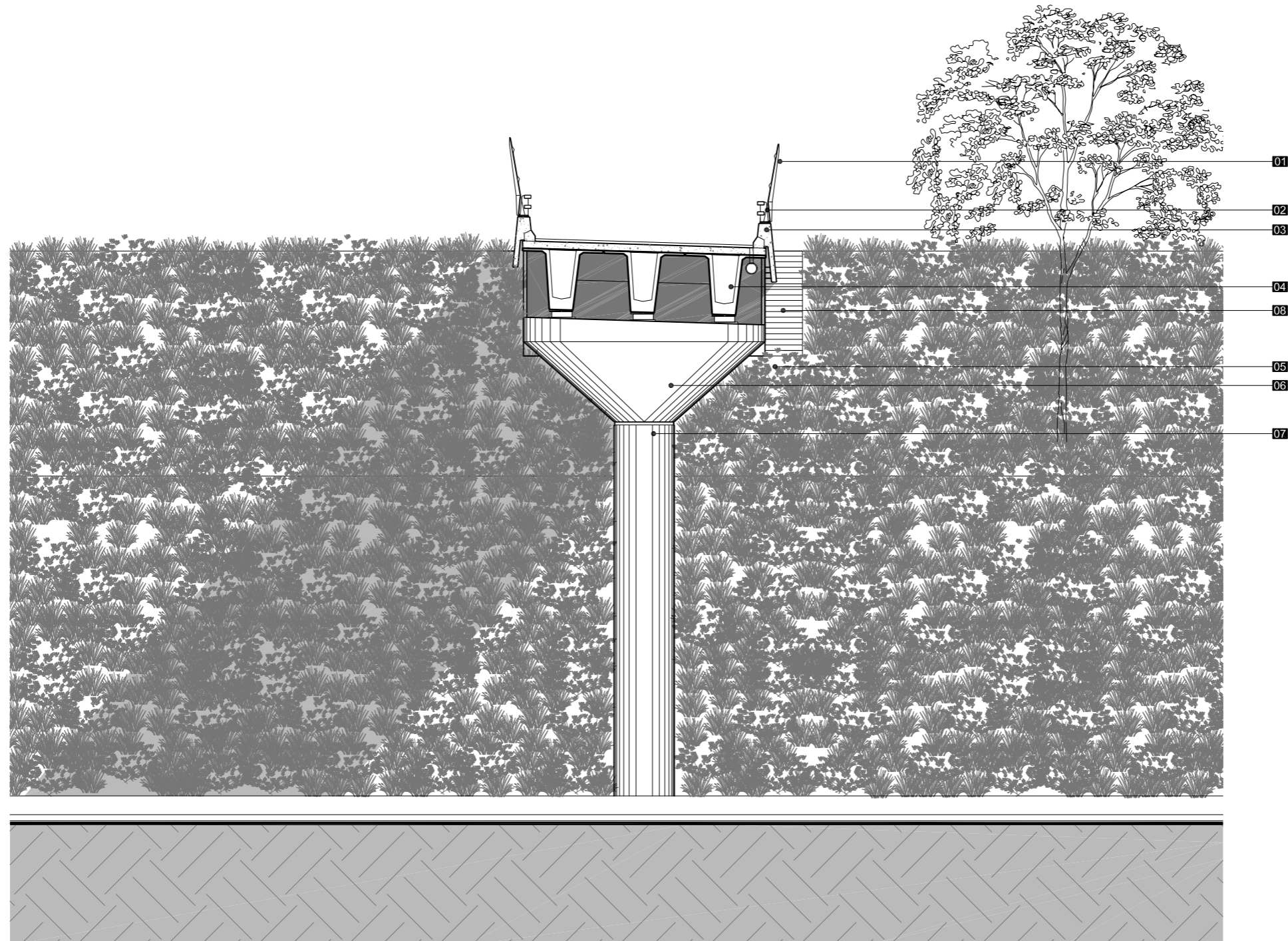


- 01 GALVANISED STEEL SAFETY SCREEN
- 02 TWIN METAL RAIL BARRIER
- 03 CONCRETE PARAPET
- 04 SUPER-T GIRDERS
- 05 CONCRETE PAVER ABUTMENT TREATMENT
- 06 CONCRETE PIER
- 07 DRAINAGE PIPE
- 08 MAINTENANCE ACCESS STAIRS, DARK TINTED CONCRETE

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Figure D.2.4.2 Bridge over Highway No.10 at Martells Road: Cross Sectional Elevation

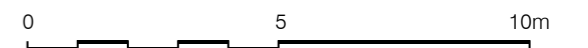




- 01 GALVANISED STEEL SAFETY SCREEN
- 02 TWIN METAL RAIL BARRIER
- 03 CONCRETE PARAPET
- 04 SUPER-T GIRDERS
- 05 CONCRETE PAVER ABUTMENT TREATMENT
- 06 PIER CAPITAL WITH SEMI-CIRCULAR ENDS
- 07 CIRCULAR CONCRETE PIER
- 08 MAINTENANCE ACCESS STAIRS, DARK TINTED CONCRETE

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Figure D.2.5.2 Bridge over Highway No.10 at Local Access Road G: Cross Sectional Elevation



D.2.6 Bridge over Highway No.10 at Short Cut Road – Station 81km530

This bridge comprises two equal spans over the main carriageways of 28.50m each. Each span comprises five 1200mm deep Super-T girders. The bridge is perpendicular to the main carriageways (skew of zero degrees). The vehicular carriageway is 11.0m wide. The pier design comprises a single 'trouser leg' pier arrangement in the median with spill through abutments at 1.5H:1V slope.

The parapets are medium performance level barriers comprising a 650mm high precast concrete barrier / parapet surmounted by twin steel rails, providing an overall height of 1300mm above road surface level. A single conduit is located in each barrier. A longitudinal drainage pipe is located on each side of the bridge, between the parapet skirt and outermost Super-T. Safety screens are also provided in accordance with the SWTC.

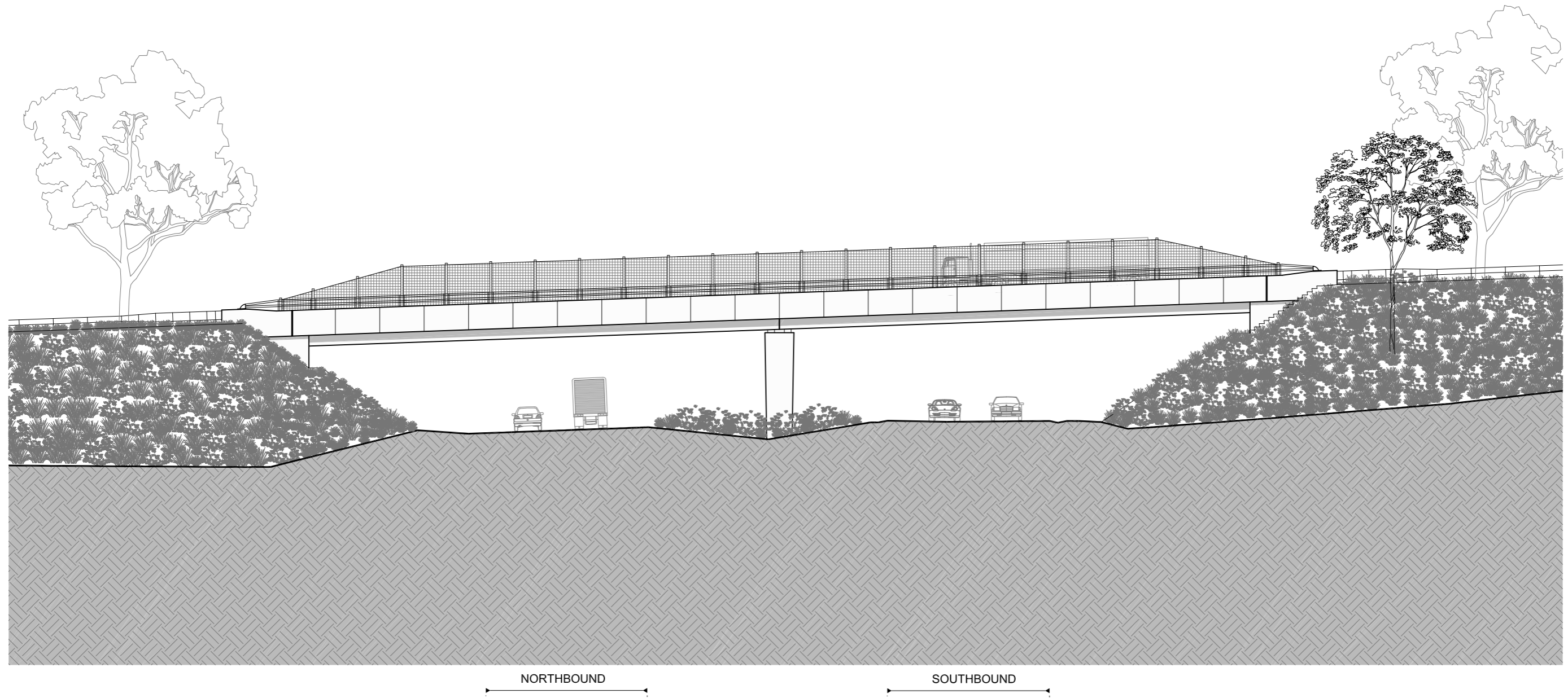
The approaches to the Short Cut Road overbridge are located on fill embankments which are approximately 8.0m tall.

Changes since 15% DCD

- Two longitudinal drainage pipes added.

Urban Design Comments on 85% PDD to be incorporated in 100% SDD

- None.



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E 2.6.2

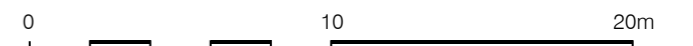
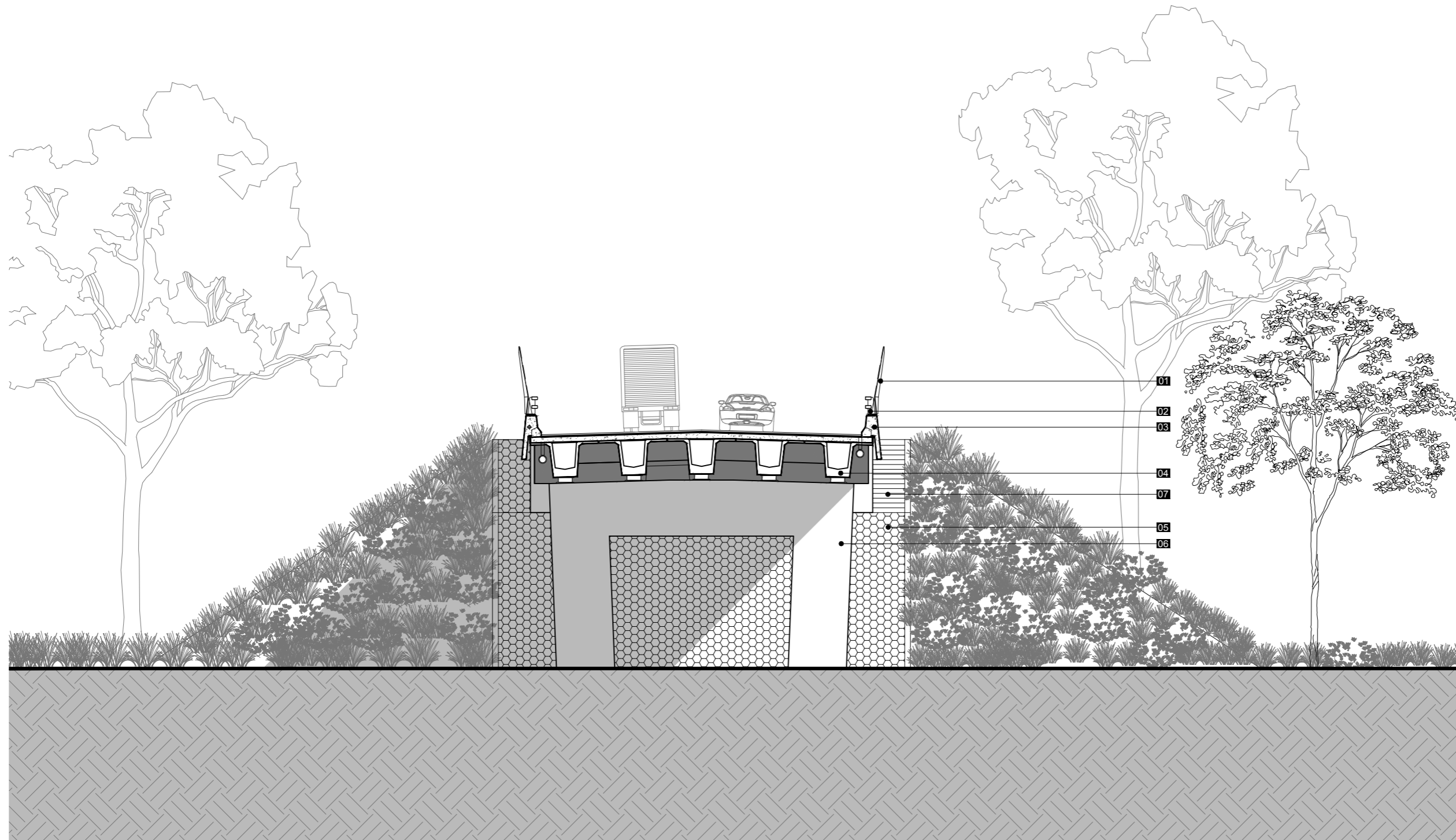


Figure D.2.6.1 Bridge over Highway No.10 at Short Cut Road: Elevation



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- 01 GALVANISED STEEL SAFETY SCREEN
- 02 TWIN METAL RAIL BARRIER
- 03 CONCRETE PARAPET
- 04 SUPER-T GIRDERS
- 05 CONCRETE PAVER ABUTMENT TREATMENT
- 06 CONCRETE PIER
- 07 MAINTENANCE ACCESS STAIRS, DARK TINTED CONCRETE

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Figure D.2.6.2 Bridge over Highway No.10 at Short Cut Road: Cross Sectional Elevation

