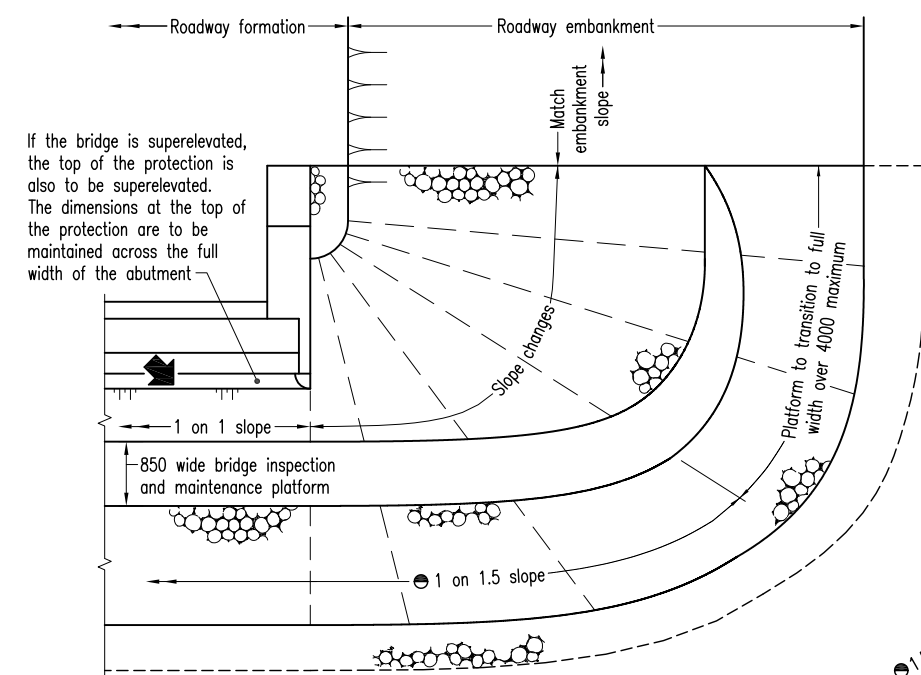


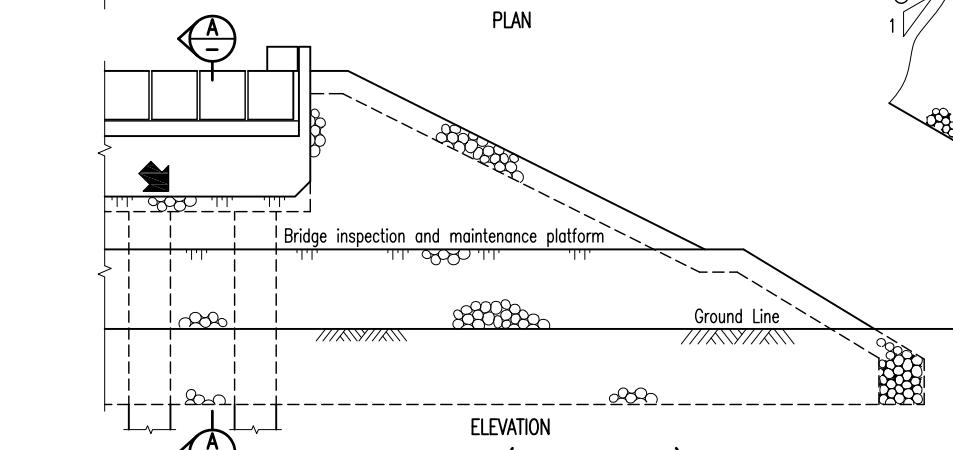
PLAN
GENERAL LAYOUT (SKEWED BRIDGE)

If the bridge is superelevated, the top of the protection is also to be superelevated. The dimensions at the top of the protection are to be maintained across the full width of the abutment

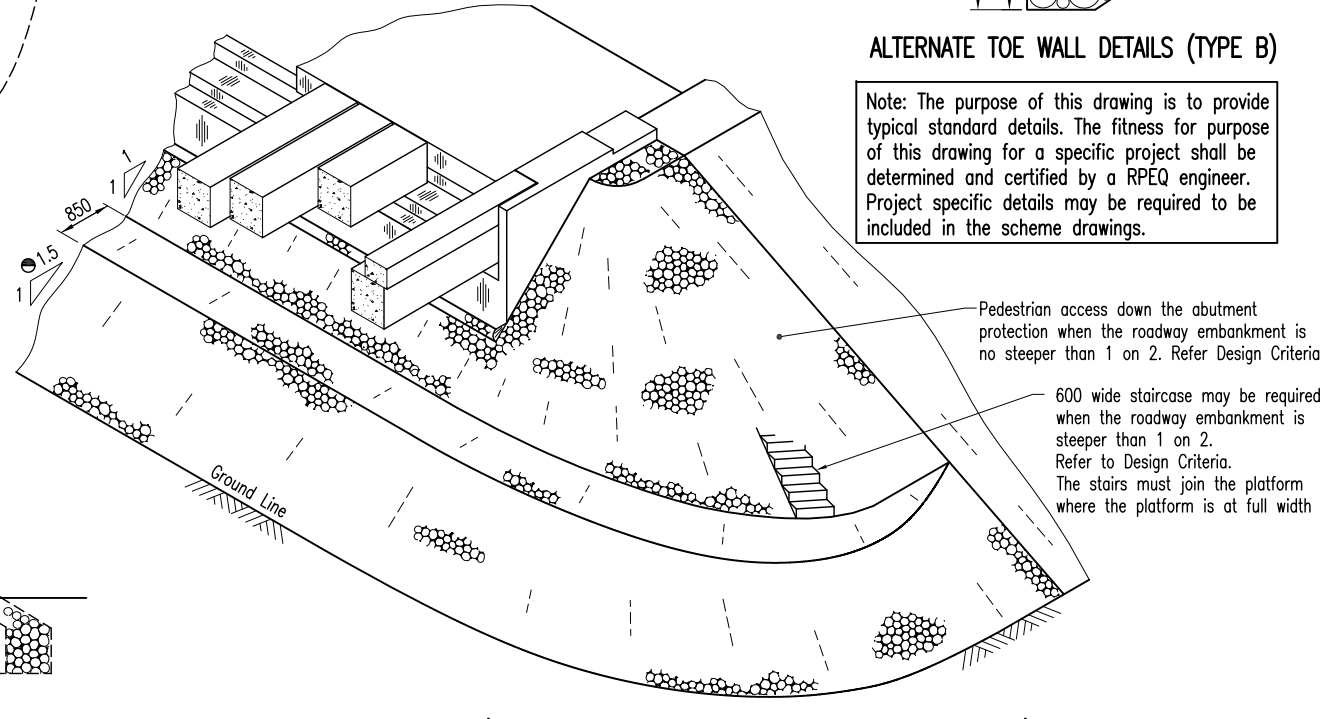


PLAN

If the bridge is superelevated, the top of the protection is also to be superelevated. The dimensions at the top of the protection are to be maintained across the full width of the abutment



ELEVATION
GENERAL LAYOUT (SQUARE BRIDGE)

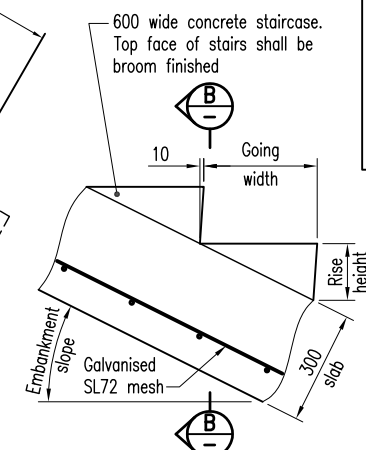


ROCKWORK PROTECTION (SQUARE BRIDGE SHOWN - SKEWED BRIDGE SIMILAR)

STAIR DIMENSIONS

| Embankment slope | Going width | Rise height |
|------------------|-------------|-------------|
| ★ 1 on 1 (45°) | 215 | 215 |
| 1 on 1.5 (33.7°) | 263 | 175 |
| 1 on 2 (26.6°) | 300 | 150 |

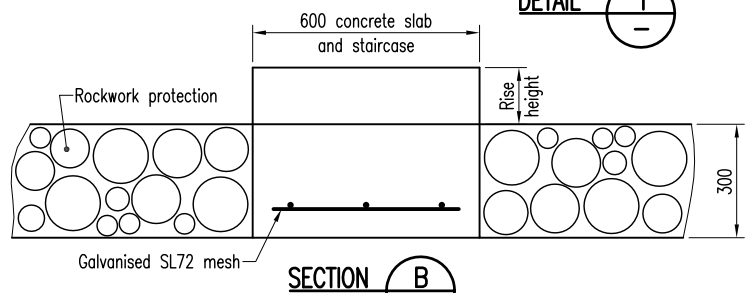
★ Refer to AS 1657 for step details for alternate slopes



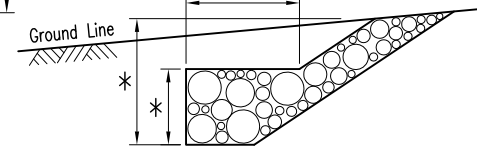
SECTION
STEP DETAILS

Stainless steel insert 'Ramset FE16070SS' or approved equivalent with R10 x 400 long cross bar bent at 45° behind the reinforcing cage. Inserts to be at 1500 crs maximum. For location details refer to the project specific bridge drawings

M16 collared eyebolts shall be attached to support a safety harness for inspection and maintenance



SECTION B



ALTERNATE TOE WALL DETAILS (TYPE B)

Note: The purpose of this drawing is to provide typical standard details. The fitness for purpose of this drawing for a specific project shall be determined and certified by a RPEQ engineer. Project specific details may be required to be included in the scheme drawings.

Pedestrian access down the abutment protection when the roadway embankment is no steeper than 1 on 2. Refer Design Criteria

600 wide staircase may be required when the roadway embankment is steeper than 1 on 2. Refer to Design Criteria. The stairs must join the platform where the platform is at full width

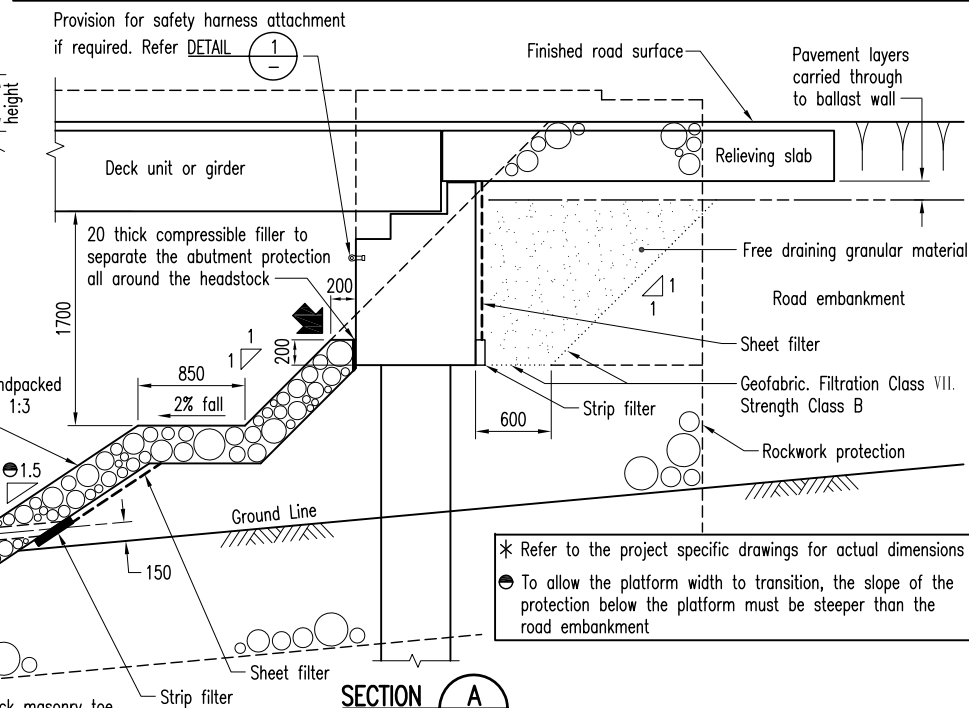
DESIGN CRITERIA

The purpose of this drawing is to provide standard details only and fitness for purpose shall conform to AS 5100. The details shall be determined and certified by the bridge design engineer. Because every abutment protection is designed to suit its specific location, this drawing shall be read in conjunction with the project specific drawings.

In accordance with Workplace Health and Safety requirements, abutment headstocks must be easily accessible to allow them to be inspected and maintained. Where the clearance is no greater than 1700 high, this can be done by walking around the base of the protection (refer to Standard Drawing 2236). If the clearance is greater than 1700, a platform shall be provided 1700 from the underside of the bridge.

Provided that the roadway embankment is no steeper than 1 on 2, access to the platform shall be by walking down the side of the protection. If the embankment is steeper than 1 on 2, a risk assessment shall determine the best method of accessing the platform. This may be by constructing a staircase in the protection and/or by casting inserts into the headstock to attach a safety harness (refer DETAIL 1). Roadway embankments steeper than 1 on 2 must be protected.

When designing abutment protection, consideration must be given to the strength of the subgrade material. The rockwork shall be placed to profile before the deck units/girders are erected on the end span. Toe walls (Type A and B) are only suitable for low scour situations. The protection may need to be modified in high scour situations.



SECTION A

* Refer to the project specific drawings for actual dimensions
 ● To allow the platform width to transition, the slope of the protection below the platform must be steeper than the road embankment

NOTES:

- This drawing was previously Std Drg 1545.
- Refer Design Criteria for Bridges and Other Structures for the abutment protection type selection criteria.
- CONCRETE class to be N25/20. Exposure classification B2.
- STEEL REINFORCEMENT to be read in conjunction with Std Drg 1044. Reinforcing steel to be in accordance with AS/NZS 4671. Round bars Grade R250N. All reinforcing steel to be ACRS certified. Cover to be 75 minimum to the embankment face and 55 minimum to the sides of the slab and the weepholes. Reinforcement to be hot dip galvanised to AS/NZS 4680 where shown.
- TACK WELDING for location purposes to AS/NZS 1554.3 Clauses 3.3.1 and 3.3.2. Welding consumables to be E4916, E4918 and W50X.
- DIMENSIONS are in millimetres unless shown otherwise.
- SETTING OUT POINTS shown thus

ASSOCIATED DEPARTMENTAL DOCUMENTS:

Standard Drawings; Specifications; Bridge Scour Manual; Design Criteria for Bridges and Other Structures

REFERENCED DOCUMENTS:

- Departmental Standard Drawings:
 1044 Reinforcing Steel - Standard Hook, Lap and Bend Details & General Steel Reinforcement Information
 2236 Abutment Protection - Type 4 - Rockwork Over Spillthrough - Up to 1700 Clearance
- Australian Standards:
 AS/NZS 1554.3 Welding of Reinforcing Steel
 AS 1657 Fixed Platforms, Walkways, Stairways and Ladders-Design, Construction and Installation
 AS 2317 Collared Eyebolts
 AS 4671 Steel Reinforcing Materials
 AS/NZS 4680 Hot-dip Galvanised (Zinc) Coatings on Fabricated Ferrous Articles
 AS 5100 Set Bridge Design
- Legislation:
 Work Health and Safety Act 2011; Work Health and Safety Regulations 2011

| | | | |
|---|--|--------------|---------------------|
| Department of Transport and Main Roads | | | |
| ABUTMENT PROTECTION | | | |
| TYPE 4 - ROCKWORK OVER SPILLTHROUGH - GREATER THAN 1700 CLEARANCE | | A3 | Standard Drawing No |
| | | Not to Scale | 2237 |
| | | A | Date 4/15 |