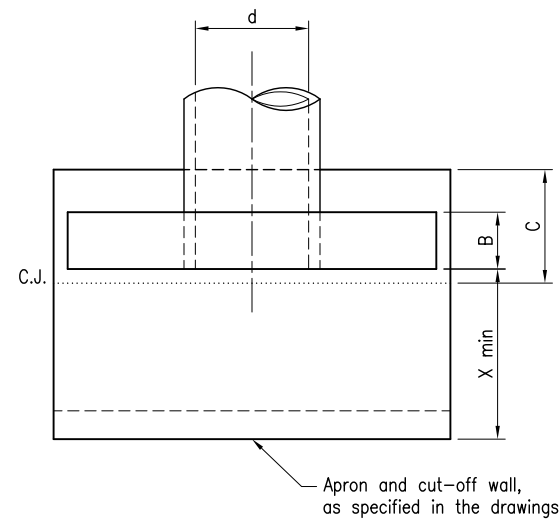
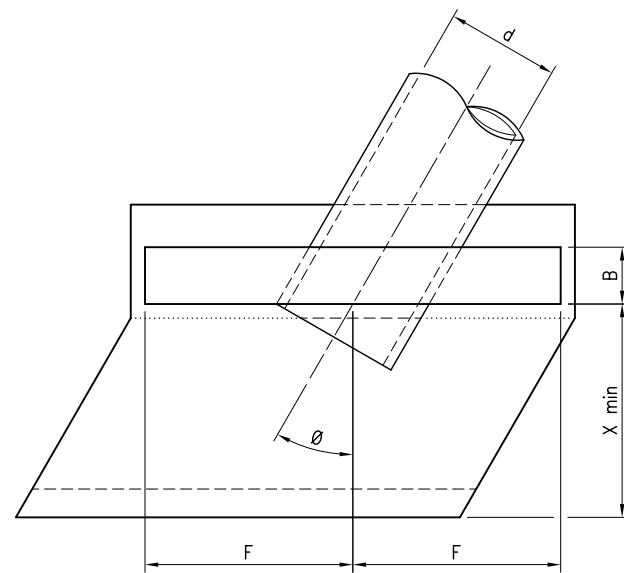


The purpose of This Standard Drawing is to provide typical standard details. The fitness for purpose of these details for a specific project shall be designed and certified by an RPEQ. The details specific to the project shall be shown on the project specific drawings.

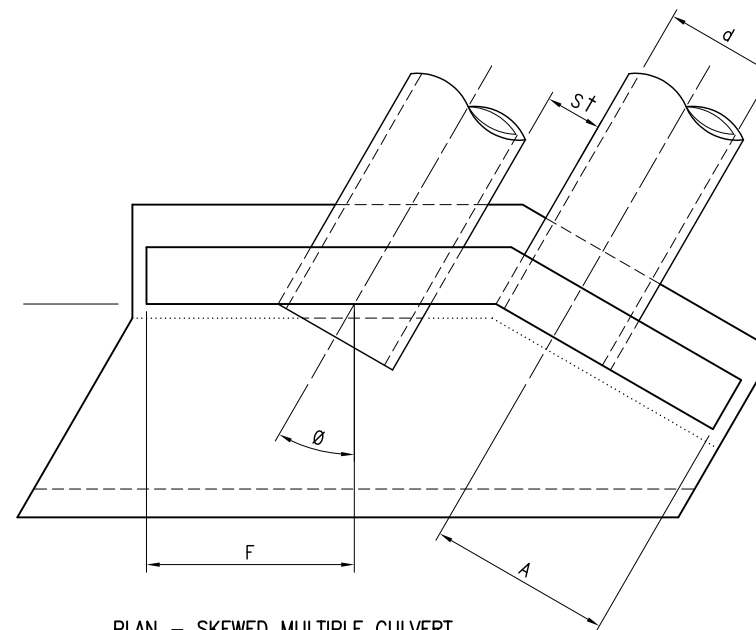
† Spacing for multiple pipes "S" is as specified on Standard Drawing 1359.



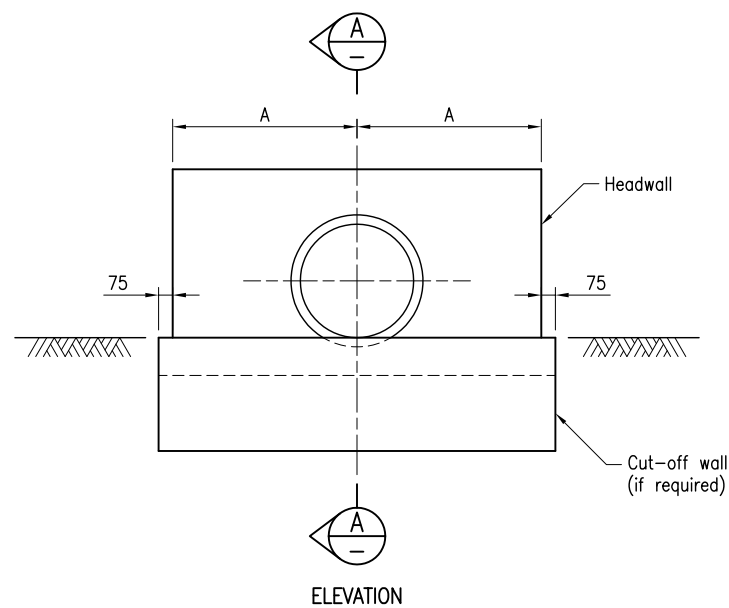
PLAN



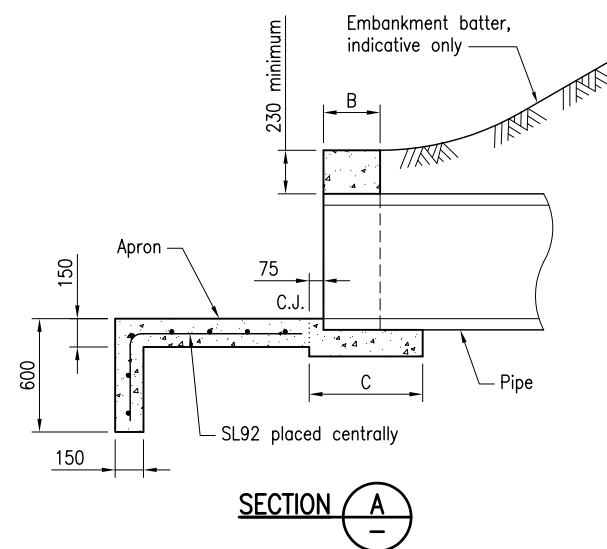
PLAN - SKEWED SINGLE CULVERT



PLAN - SKEWED MULTIPLE CULVERT



ELEVATION



SECTION A

TABLE OF DIMENSIONS

Dim	Nominal internal diameter, d				
	375	450	525	600	675
A	600	725	850	975	1100
B	250	250	300	300	300
C	450	450	600	600	600
F	700	825	950	1100	1250
X	565	675	790	900	1015

**NOTES:**

- PIPE CULVERT END STRUCTURES shall be constructed in accordance with MRTS03. The purpose of this drawing is to detail headwalls and aprons for culverts with pipe diameter 375 to 675. Maximum 2-pipe arrangement is shown. If more than 2 pipes are to be used, project specific design shall be developed. The unreinforced headwall detailed here may not be suitable for long headwalls. For construction details of end structures for pipe culverts with diameter 750 to 2400 refer to Standard Drawing 1304. Refer Standard Drawing 1359 for details of culvert installation and earthworks.
- CONCRETE to be in accordance with MRTS70. Headwall mass concrete shall be N20/20. Apron and cut off wall reinforced concrete shall be S32/20.
- REINFORCING STEEL shall be read in conjunction with Standard Drawing 1044. Reinforcing steel to be in accordance with AS/NZS 4671 and MRTS71. Reinforcing mesh Grade D500L. All reinforcing steel shall be ACRS certified.
- TACK WELDING to reinforcement for location purposes to AS/NZS 1554.3. Welding consumables shall be controlled hydrogen type: G49X to AS/NZS ISO 14341-B or T49X to AS/NZS ISO 17632-B.
- PROJECT-SPECIFIC INFORMATION TO BE SHOWN ON THE DRAWINGS:
  - Skew angle  $\theta$
  - Steel schedule
- DIMENSIONS are in millimetres.

ASSOCIATED DEPARTMENTAL DOCUMENTS:  
NDRRA Design Guidelines

REFERENCED DOCUMENTS:  
Departmental Standard Drawings:  
1044 Reinforcing Steel - Lap Lengths  
1304 Pipe Culverts - Wingwalls, Headwall and Apron for Pipe Diameter 750 to 2400  
1359 Culverts - Installation, Bedding and Filling/backfilling against/over Culverts

Departmental Specifications:  
MRTS03 Drainage, Retaining Structures and Protective Treatments  
MRTS70 Concrete  
MRTS71 Reinforcing Steel

Department of Transport and Main Roads			
PIPE CULVERTS			
HEADWALL AND APRON FOR PIPE DIAMETER 375 to 675		A3	Standard Drawing No
		Not to Scale	1305
			Date 7/18
A	B	C	D