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 RPEO. The details specific to the project shall be shown on the project specific drawings.

**NOTES:**

1. PIPE CULVERT END STRUCTURES shall be constructed in accordance with WRTSSC.
   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 assumed headwall detail may not be suitable for long headwalls.
   For construction details of end structures for pipe culverts with diameter 250 to 375 refer to Standard Drawing 1304.
   Refer Standard Drawing 1309 for details of culvert installation and backfill.

2. CONCRETE to be in accordance with WRTSSC.
   Headwall mass concrete shall be BS2/20.
   Apron and cut-off wall reinforced concrete shall be BS3/20.

3. REINFORCING STEEL shall be used in conjunction with Standard Drawing 1044.
   Reinforcing steel to be in accordance with AS/NZS 4871 and WRTSSC.
   Reinforcing mesh Grade B500.
   All reinforcing steel shall be AWS certified.

4. TCOV-MELTS to be maintained for location purposes to AS/NZS 1554.3. Welding consumables shall be controlled and identified under: OERK to AS/NZS ISO 14175-8 or TAH to AS/NZS ISO 17630-8.

5. PROJECT-SPECIFIC INFORMATION TO BE SHOWN ON THE DRAWINGS:
   - TCOV angle B
   - Steel schedule

6. DIMENSIONS are in millimeters.

**ASSOCIATED DEPARTMENTAL DOCUMENTS:**

NERRA Design Guidelines

**REFERENCE DOCUMENTS:**

- Departmental Standard Drawings:
  - 1044 Rebar Detail - Long Legs
  - 1304 Pipe Culverts – Headwall, Base/short and Apron for Pipe Diameter 250 to 375
  - 1306 Culverts – Installation, bedding and filling/flushing against/over Culverts

- Departmental Specifications:
  - WRTSSC Chainage, Retaining Structures and Protective Treatments
  - WRTSSC Concrete
  - WRTSSC Reinforcing Steel

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**PIPE CULVERTS**

**HEADWALL AND APRON**

**FOR PIPE DIAMETER 375 to 675**