
SECTION 705 - DRAINAGE PITS

705.01 GENERAL

This section specifies the requirements for the supply of materials and construction of drainage pits including the associated excavation, backfilling, culvert connections and supply and fitting of covers and associated components.

The placing, compaction, finishing and curing of concrete and construction of the items covered by this section shall comply with the relevant requirements of Section 610.

705.02 STANDARDS

Australian Standards are referenced in an abbreviated form (e.g. AS 1379).

AS 1379	Specification and supply of concrete
AS 1627	Metal finishing – Preparation and pre-treatment of surfaces
AS/NZS 3679.1	Structural steel – Hot rolled bars and sections
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
AS/NZS 4791	Hot-dip galvanized (zinc) coatings on ferrous open sections, applied by an in-line process
AS/NZS 4792	Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process

705.03 DEFINITIONS

Culvert: An underground stormwater drain consisting of pipes, arch or box sections.

705.04 MATERIALS

Concrete shall be N32 standard strength grade complying with the requirements of AS 1379 and Section 610.

Covers, grates, lids and lintels shall be as shown on the drawings.

Step irons shall be manufactured from steel AS/NZS 3679.1 grade 250 and after fabrication shall be prepared and pre-treated for hot dip galvanizing in accordance with the requirements of AS 1627, galvanized in accordance with the requirements of AS/NZS 4680, AS/NZS 4791 or AS/NZS 4792 as appropriate, **or manufactured from 13 mm steel bar covered with polypropylene plastic to a design and sample approved by the Superintendent.**

705.05 EXCAVATION

(a) General

Excavation shall be to the depth indicated on the drawings or as necessary to secure a satisfactory foundation. Backfill material conforming with the requirements of Section 701 shall be supplied, placed and compacted in accordance with Clause 705.12.

(b) Pre-cast Pits

For pre-cast pits the excavation shall provide a clearance from all external faces of the pit to each face of the excavation of not less than 400 mm. Bedding conforming with the requirements of Section 701 shall be supplied, placed and compacted to a thickness not less than 80 mm on a clay foundation or 150 mm on a rock foundation.

705.06 CAST-IN-PLACE PITS

Cast-in-place pits shall be constructed at the locations and to the dimensions shown on the drawings.

Cast-in-place pits shall be constructed in accordance with the requirements of Section 610 and as specified.

705.07 PRE-CAST PITS

Where the Contractor proposes to use pre-cast pits, they shall be manufactured, supplied and installed in accordance with the requirements of Section 610 and as specified.

(a) General

Precast pits shall be installed at the locations and to the dimensions shown on the drawings except that pit wall thicknesses may be reduced as specified.

(b) Provision for Stormwater Drainage Connections

Provision shall be made for the connection of all stormwater drainage, culverts and subsurface drains as shown on the drawings.

Holes for subsurface drains shall be 150 mm diameter, unless otherwise specified or shown on the drawings.

Weepholes of 50 mm diameter shall be provided in all precast pits and shall be placed between the midpoint and top of the stormwater drain in those walls which have openings for drains.

(c) Segments

If a precast pit is cast in segments, each section of the pit shall be rebated to ensure correct alignment and to prevent horizontal movement. A minimum rebate of 15 mm shall be used.

(d) Completion on Site

Where pre-cast pits are to be completed on-site, the provision of cut outs and protruding reinforcement shall be as specified or in accordance with the drawings.

705.08 STORMWATER DRAINAGE CONNECTIONS

All stormwater drainage connections to pits shall be neatly made, and where necessary the ends of all drains shall be trimmed off and finished with cement mortar.

705.09 STEP IRONS

Pits greater than 1.0 m deep shall be fitted with step irons as shown on the drawings. Steps shall be located so that they do not obstruct openings other than subsurface drainage openings and that water does not discharge onto them. Steps shall be set into a wall which has no openings, or beside an opening, or across a corner of the pit.

Step irons of an approved proprietary type shall be installed in accordance with the manufacturer's instructions.

705.10 SHAPING OF FLOOR

Pit floors shall be smoothly shaped from the inlets to the outlet for a height of one-third of the diameter of the outlet pipe.

705.11 FITTING OF COVERS

Frames for pit covers shall be cast into the top of the pit or bedded on fresh mortar, 5 mm thick, consisting of two parts of sand, one part of cement and sufficient water to produce a mix of suitable consistency.

The level at every point of the perimeter shall be within 10 mm of the design level for that point, and the line of the cover shall be within 10 mm of the design kerb line.

705.12 BACKFILLING AROUND PITS

Backfilling around pits shall be placed in layers not exceeding 300 mm loose thickness and compacted to refusal using hand held mechanical equipment.