

94-0163-02

ISSUED 6 Jan 97

DB 94-0163 Plot 05a

1. EARTHWORKS AND PAVING REQUIREMENTS FOR PUMPING STATION SITES AND ACCESS ROADS

1.1 CLEARING AND STRIPPING

Pumping station sites, access roadways and vehicle turn-around areas (as defined in the design drawings) shall be cleared of all trees, vegetation, roots and debris.

The cleared areas shall then be stripped of organic topsoil.

1.2 EXCAVATION

General excavations shall be to the lines and levels shown on the design drawings.

All areas to be paved shall be excavated to a minimum depth of 150 below the design pavement surface level.

Where the initial stripping (or general excavation) of areas to be paved exposes soils of low bearing capacity (eg highly organic soils, silt or lime-rich soils), such areas shall be excavated to a minimum depth of 300 below the design pavement level.

1.3 FILLING

Material to be used as general fill shall be classifiable as low or medium plasticity clay, sand or rubble. It shall be free from vegetation or debris and shall not contain more than 20% by mass of stone with a size between 75 and 150, and none larger than 150.

Soils classifiable as 'high plasticity clay', 'silt' or 'organic' shall not be used as fill.

Fill shall be placed in layers of appropriate thickness for the compaction equipment employed, and each layer shall be compacted to not less than 95% of its Standard Maximum Dry Density (AS 1289.5.1.1).

1.4 CUT/FILL BATTERS

Fill batters shall be no steeper than 1:3 and cut batters shall be no steeper than 1:2, except in rock.

Topsoil shall be placed to a minimum thickness of 150 on all cut and fill batters (except on steep batters in rock), and the batters grassed in accordance with good horticultural practice, including the provision of erosion control measures where necessary.

1.5 PAVING

Unless otherwise shown on the design drawings, pumping station sites, access roadways and vehicle turn-around areas shall be paved to the following minimum requirements.

The stripped or excavated surfaces beneath the areas to be paved shall be prepared by compacting those surfaces to not less than 95% of the Standard Maximum Dry Density (AS 1289.5.1.1) of the material.

Paving shall comprise a 150 thick layer (OR, where additional excavation is called for under 'EXCAVATION', a 300 thick layer) of 20 quarry rubble in accordance with RTA Specification PM 21, compacted to not less than 98% of its Modified Maximum Dry Density (AS 1289.5.2.1).

2. EXCAVATION FOR SUMP, VALVE CHAMBER AND CONTROL MANHOLE

2.1 GENERAL

Specialist geotechnical requirements may apply depending on site and soil conditions, and ground water level.

2.2 EXCAVATION CONDITIONS SURVEY

Excavation conditions shall be determined prior to the commencement of excavation. The excavation conditions survey (which may include pitting or drilling) shall be designed to determine the nature of the materials (eg rock, sand, soft or stiff clay, etc) and also the groundwater conditions at the site of the sump, to a depth not less than 1.5m below the base of the proposed excavation.

2.3 GROUNDWATER CONTROL

Where the 'EXCAVATION CONDITIONS SURVEY' indicates that the excavation will penetrate through or into sands below the watertable, then measures shall be taken (eg by wellpointing) to lower the watertable to below the proposed base of the excavation before beginning to excavate.

The watertable shall be held below the base of the excavation until the structure is backfilled.

Observation bores shall be installed to enable verification that the required depth to watertable is reached and maintained.

2.4 EXCAVATION SUPPORT

The walls of all excavations shall be stabilised by a shoring system, sloping of the excavation, or some other acceptable method, to prevent any movement of the walls or surrounding ground.

In addition, the requirements of the Occupational Safety Health and Welfare Act, 1986, shall be strictly adhered to.

2.5 PREPARATION OF FLOOR OF EXCAVATIONS

The floor of all excavations shall be trimmed to horizontal and compacted to not less than 95% of the Standard Maximum Dry Density of the material (AS 1289.5.1.1) for a minimum depth of 150.

For structures with pre-cast concrete base slabs, a 150 thick layer of 10-7 screenings (in accordance with RTA Specification PM43), compacted to a minimum Density Index of 70%, shall be placed on the compacted base of the excavation in readiness for installation of the structure.

Note: Where the floor of the excavation is in loose sand or very soft clay, and where screenings are used, an approved geotextile (Ref. SCM Drg. G1) shall be placed beneath the screenings.

3. INSTALLATION OF PUMPING STATION SUMP

The station sump shall be installed in such a manner as to not damage the sump or the excavation.

All wall sections shall be vertical. Precast Wall sections are to be jointed to the height required with the top segment diamond saw cut to suit the finished design levels as shown on the Pumping Station Design Drawings.

The cover slab shall be placed on a 20 thick layer of sand/cement mortar to bed the cover slab and also to seal the cut top segment.

4. BACKFILL

4.1 BACKFILL AROUND THE SUMP AND VALVE CHAMBER

Backfilling shall not commence around the sump chamber until the placement of the sump has been completed and approved by the Site Engineer.

Backfill material around the sump chamber shall be sand in accordance with RTA Specification PM64, Sand Type 'D'.

The sand shall be compacted to not less than 95% of its Standard Maximum Dry Density (AS 1289.5.1.1). An alternative to the sand is 10-7 screenings in accordance with RTA Specification PM43, compacted to a minimum Density Index of 70%.

4.2 EMBEDMENT AND TRENCH FILL FOR SEWERS AND PUMPING MAINS

Embedment and trench fill for sewers and pumping mains shall be in accordance with SCM Section 'G'.

4.3 EMBEDMENT AND TRENCH FILL FOR ETSA SERVICE

Embedment and trench fill for ETSA Service and all electrical conduits shall be as detailed on SCM page M7.

5. FLOTATION

The structures shall be designed and installed to ensure that flotation due to high ground water does not occur.

Chg		Amendment - UPDATED 12-6-96	Des	JIS		R.M.Jones Executive Manager 14 / 6 / 96 ENGINEERING GROUP	SOUTH AUSTRALIAN WATER CORPORATION 	SEWER CONSTRUCTION MANUAL PAGE M2 STANDARD SUBMERSIBLE SEWAGE PUMPING STATION - STANDARD NOTES	(1 of 3)	94-0163-02
Drn			Drn	CLS						
Ckd			Exm							
Unit Ldr.			Unit Ldr.							
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