

# Engineering Design Specification D13 Sewerage Systems – Reticulation and Pumping Station (Design)

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This document is a modified version of AUS-SPEC 0076 & 0077  
Sewerage Systems - Reticulation & Pumping Station (Design)

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# 1 General

## 1.1 Responsibilities

### 1.1.1 General

Requirement: Provide design and documentation for a sewerage system to transport sewage from properties to the treatment plant or to a defined discharge point on an existing sewerage reticulation system, conforming to the requirements of WSA codes and the Water Agency, as documented.

The Specification contains procedures for the design of the following elements of the sewerage system:

- Gravity sewers including junctions and property connection sewers.
- Common effluent sewers both gravity and pressurised.
- Maintenance holes and other structures.
- Rising mains.
- Pump stations

## 1.2 Cross references

### 1.2.1 General

Requirement: This is not a self-contained design document, conform to the following worksection(s): *D02 Quality requirements for design.*

## 1.3 Standards

### 1.3.1 General

Gravity sewerage system: To WSA 02 Part 1.

Pressure sewerage system: To WSA 07 Part 1.

Vacuum sewerage system: To WSA 06 Part 1.

Planning and design of sewage pump stations: To WSA 04 Part 1.

Planning and design of vacuum pump stations: To WSA 06 Part 1.

Pumping Station civil & mechanical specifications: To WSA 04 Part 1

Pumping Station electrical specifications: Contact Council's Water and Sewerage Engineers for details

WSC standards take precedence over WSA requirements. In the situation where WSC standards do not cover the requirements, WSA requirements will apply.

### Standard Drawings

Refer to Council's website for current list of standard drawings, and copies of those drawings.

WSC standard drawings are to be used in preference to SEWERAGE CODE OF AUSTRALIA (WSA 02 Part 3), where available.

## 1.4 Interpretation

### 1.4.1 Abbreviations

General: For the purposes of this work section the following abbreviations apply:

MH: Maintenance hole.

CT: Current transformers.  
LV: Low voltage.  
MH: Maintenance hole.  
HV: High voltage.  
PVC: Polyvinyl chloride.  
SPD: Surge protection device.  
XLPE: Cross-linked polyethylene (or vulcanized polyethylene).  
HDPE: High density polyethylene

## **2 Pre design planning**

### **2.1 General**

The following factors are to be taken into account in the pre-design planning phase:

- Environmental impact assessment
- System planning
- Concept plan
- Flow estimation
- Concept design for pressure sewers (where gravity is not achievable as per Council policy).
- Critical infrastructure protection
- Commissioning plan for pumping stations

### **2.2 System planning**

Refer to WSC modelling design standards for flow estimation

Design flow verification: Design flow limits for pressure sewers for certification by the system supplier.

### **2.3 Consultation**

#### **2.3.1 Council and other authorities**

Requirements: Consult with the Council and other relevant authorities during the preparation of design. In addition to the requirements of this work section, identify the specific design requirements of these authorities.

**Authorities:**

Water NSW for On-site systems review.

#### **2.3.2 Public consultation**

Requirements: Undertake public consultation on design in conformance with Council policy.

#### **2.3.3 Utilities services plans**

Existing services: Obtain service plans from all relevant utilities and other organisations whose services exist within the area of the proposed development. Plot these services on the relevant drawings including the plan and cross-sectional views.

## **3 Design criteria**

### **3.1 General**

- The design shall be in accordance with Council's standard specifications and the current version of WSA Gravity sewer / pumping station code (Refer Section 1.3)
- Except where specified otherwise, the division of responsibilities between the Sewerage Authority and the Designer shall be in accordance with the SEWERAGE CODE OF AUSTRALIA (WSA 02 Part 1, section 1.3).
- The Designer shall confirm the design criteria with the Sewerage Authority and shall design a sewerage distribution system with pump stations and rising mains, where necessary to comply with the requirements of this Specification, to transport fresh sewage, or common effluent, for treatment. A Gravity sewerage system is the preferred option.
- Council may permit the use of Pressure Sewerage Systems where they are fully justified. Pressure Sewerage Systems will only be considered after consultation with Council, in accordance with Council's Pressure Sewer System Policy, which can be downloaded from Council's website.
- The Designer shall not provide for common effluent or vacuum discharges to gravity sewers or conventional wastewater treatment plants without the concurrence of the Sewerage Authority.

### **3.2 Determination of area to be served**

- The area to be served shall be determined in consultation with the Sewerage Authority. The design of the sewer is to allow for anticipated flows from a fully developed upstream catchment. Details of anticipated flows allowed for in the design are to be provided to the Sewerage Authority with submitted plans.
- The depth of sewer shall be sufficient to allow a minimum of 90 per cent of each lot to be serviced. Council will consider a lower minimum of 90 per cent of developable land in exceptional circumstances.
- All lots shall be able to be served by gravity sewers wherever possible.

### **3.3 Design loading**

- The Designer shall obtain the concurrence of the Sewerage Authority for the flow to be used for the design of sewers serving industrial areas and developments not specifically listed in the SEWERAGE CODE OF AUSTRALIA. (WSA 02 Part 1).
- Design ETs shall be adopted unless otherwise advised by the Sewerage Authority. Refer to information on Council's water and sewer modelling services, which can be obtained from council's website.
- The design shall take account of AS 2200, AS/NZS 2566.1, AS 3500, AS 3735, the SEWERAGE CODE OF AUSTRALIA and, where design elements are not covered elsewhere in these codes.

### **3.4 Sewer alignment**

- Where it is necessary for sewers to be located outside the development, the Designer shall obtain written approval from the affected property owner.
- Sewers shall normally be located 1.5m inside the property boundary.
- Where sewers are proposed to be located within existing road reserves, the Designer shall check that the sewers do not conflict with other utility services and locate the sewers in

accordance with established protocols (WSA 02 Part 1,). Location of sewers within road reserves will require the approval of the Sewerage Authority as well as the Roads Authority.

- All Sewers located on private property must be located in an easement of minimum width three (3) metres. Narrower easements may be permitted in some circumstances, in consultation with Council. Unless there are compelling reasons to the contrary the sewer shall be located in the centre of the easement. A Registered Surveyor shall survey easements and pipelines (WSA 02 Part 1). Only in unique situations will Council permit a sewer main without an easement.
- Where control of the trench width is practical or effective, the design may be based on wide trench condition. The Designer shall call up the need, in the Construction Specification, for the Contractor to supply special construction control with a method statement when there is economic justification to design to narrow trench condition.
- Horizontal and vertical curves are not permitted.
- The Applicant / Consultant is not to assume that Council will approve construction over sewerage system.

Approval is generally limited to single dwellings on existing parcels of land, where an easement has not been provided over the sewer. Subdividers should ensure a building envelope is available clear of the sewerage main.

Erection of a structure will not be permitted over a sewer rising main, a trunk sewer main or a maintenance structure of any kind. Approval will not normally be given to the construction of buildings of greater than single storey (including dwellings with a habitable area within the roof space) over sewer mains. The Applicant /Consultant should regard the presence of the sewer main as a constraint and design the proposed development to either avoid the sewer main or relocate the sewer main clear of the proposed development. It should be noted that approval will not normally be given to developments such as cluster houses or flats unless it can be proved that redirection of the sewer main is technically not feasible.

Should approval to construct over a sewer main be granted, the maximum length of the sewer main to be built over by an un-elevated structure (i.e. less than 1.7metres clearance above the pipe) shall not exceed 12 metres unless otherwise advised by Council. Note in the case of multiple buildings on the one site the maximum length shall be cumulative and shall include adjacent paved surfaces. In addition conditions which may be required include, but are not limited to:

- A registered easement over the main and deed of indemnity being granted at the owners expense
- Replacement of existing sewer main
- Piering of structure in vicinity of sewer main.

### **3.5 Maintenance holes (MHs)**

- Maintenance holes shall generally be placed on gravity sewers as specified in WSA-02 Part 7, except that the maximum spacing shall be 100m
- All upstream ends of sewers shall terminate in a maintenance hole if the upstream end is more than 80 m from the downstream maintenance hole.
- Step irons are not required in maintenance holes.
- The Designer shall provide for the venting of maintenance holes that accept pumped discharges to be approved by Sewerage Authority.
- Connections to existing maintenance holes or sewers of the existing sewerage system are to be based on modelling which has been accepted by Council if required.

- Metal access covers shall be manufactured in accordance with AS 3996. No concrete access covers shall be used. Council standard maintenance hole access covers must be used.
- Internal drops require approval from the Sewerage Authority.

### **3.6 Maintenance shafts (MSs) and terminal maintenance shafts (TMSs)**

- Maintenance shafts and terminal maintenance shafts shall be provided only as required or permitted by the Sewerage Authority.
- The provision of maintenance shafts and terminal maintenance shafts shall not affect the layout of maintenance holes or terminal maintenance holes unless directed by the Sewerage Authority.
- Where used, a terminal maintenance shaft shall be no further than 80m from the nearest maintenance hole. A terminal maintenance shaft shall not be used if the adjacent maintenance structure is a maintenance shaft. In this situation, a maintenance hole is to be provided at the end of the main.
- The allocation of maintenance shafts to maintenance holes shall be in accordance with WSA or in agreement with Council.
- The maximum total deflection at a maintenance shaft shall be 45o
- There shall be a maximum of one inlet pipe only at maintenance shafts.
- Lamp holes may be used in lieu of terminal maintenance shafts.
- The maximum length of sideline without a maintenance structure is 10 meters.
- The Designer shall take account of conditions limiting the use of maintenance shafts (WSA 02 Part 1)

### **3.7 Pipeline**

- Pipes and fittings for sewerage systems shall be of unplasticised PVC, modified PVC, ductile iron, steel or high density polyethylene. The material specifications for each pipe type are provided in Section 4.
- The choice of pipe type constitutes a HOLD POINT.
- Asbestos cement pipe and fittings are not approved for use.
- Concrete pipes are not approved for use.
- Vitrified Clay pipes and fittings are not approved for use.
- Glass filament reinforced thermosetting plastics (GRP) pipes are not approved for use.
- Pipelines shall be buried. Above ground sewers may be designed in a gravity system only where other options are less practical (WSA 02 Part 1). The action to provide for above ground sewers constitutes a HOLD POINT.
- The Designer shall show on the Drawings the extent of external protection required to be undertaken by the Contractor.
- Where sewer pipes or rising mains are to be located in close proximity to other services pipes or where there is the likelihood of the pipes not being recognised as sewerage pipes, the Designer shall provide for the pipes to be colour coded and shown on the Drawings accordingly.
- Piers for any above ground sewer pipeline shall be in accordance with the SEWERAGE CODE OF AUSTRALIA.
- The pipeline alignment shall be such that no property connection sewer is to be more than 10m in length.



- The Designer shall ensure that connections to the pipeline shall be not more than 1500mm in depth below the finished surface.
- The Designer shall allow for adequate working area, waste removal and transport arrangements where scouring points or inspection pipe locations are nominated.
- The Designer shall design thrust blocks to resist maximum pressure of the pipe, not the estimated surge pressure.
- The Designer shall provide for surge control by specifying an appropriate rising main material and class selection.

### **3.8 Joints**

- Gravity sewers and rising mains shall generally be spigot and socket joints with rubber rings (elastomeric) complying with AS 1646, or butt welded/electro fusion in the case of polyethylene pipe.
- Flanged joints connecting pipes, fittings, valves and pumps shall comply with AS 2129 (Flanges shall be Table C) or AS 4087, Class 16, as appropriate.
- The concurrence of the Sewerage Authority shall be obtained for the type of joint to be used (WSA 02).

### **3.9 Mine subsidence areas and areas of slippage**

- The Designer shall accommodate the movement associated with the ground strain for the area, as advised by the Subsidence Advisory NSW for sewerage jointing systems in proclaimed Mine Subsidence Areas, or in a known or expected area of subsidence or slippage. The design ground strain for the development shall be detailed on the Drawings.
- The pipe jointing system selected shall be capable of accepting ground movements, without impairing the water tightness of the joint, for the ground strain as advised by the Subsidence Advisory NSW. For areas with high ground strains a pipe jointing system using shorter effective length pipes and/or deep socket fittings shall be used. Requirements for construction in Mines Subsidence Areas shall be shown on the Drawings.
- Where the Subsidence Advisory NSW does not cover an area of known, or suspected, subsidence or slippage, the above requirements shall still apply.

## **4 Materials**

### **4.1 Unplasticised PVC (uPVC) gravity pipe**

- Unplasticised PVC (uPVC) pipe shall be specified for manufacture in accordance with AS/NZS 1260, designed in accordance with AS/NZS 2566.1 and with rubber ring (elastomeric) spigot and socket joints (WSA 02 Part 2, section 3). The pipe shall not be less than Class 8.
- The Designer shall ensure that PVC pipe is compatible with ductile iron (DI) pipe where necessary.
- Fittings for use with PVC pipe shall be elastomeric seal jointed.

## 4.2 Unplasticised and modified PVC (uPVC and PVC-M) pressure pipe

- Unplasticised PVC (uPVC) pressure pipe shall be specified for manufacture in accordance with AS/NZS 1477 and AS/NZS 4765, designed in accordance with AS/NZS 2566.1, and with rubber ring (elastomeric) spigot and socket joints. Modified PVC (PVC-M) pipes and fittings shall be specified for manufacture in accordance with AS/NZS 4765, designed in accordance with AS/NZS 2566.1, and with rubber ring (elastomeric) spigot and socket joints (WSA 02 Part 2). The pipe class shall be selected based on pumping design and site conditions.
- The Designer shall ensure that PVC pressure pipe is compatible with ductile iron pipe where necessary.
- Fittings for use with PVC pressure pipe shall be elastomeric seal jointed.

## 4.3 Ductile iron (DI) pipe and fittings

- Ductile iron pipes and fittings shall be specified for manufacture and cement mortar lined in accordance with AS/NZS 2280 minimum Class K9 for rubber ring (elastomeric) joints. Where pipes are flanged, Class K12 shall be specified (WSA 02 Part 2).
- The Designer shall specify cement mortar lining in accordance with AS 1281, or fusion-bonded medium density polyethylene to AS/NZS 4321. External protection shall be epoxy coating to AS 3862 where not otherwise specified as sleeved or wrapped, taking into account the type of corrosion protection required.
- Generally, pipe and fitting joints shall be specified to be spigot and socket type using a rubber ring (elastomeric) push in seal made of natural rubber, or ethylene propylene rubber with compounds complying with AS 1646. The seal shall be a single jointing component shaped to provide both groove lock and seal mechanisms.
- Flanges shall be specified for manufacture in accordance with AS 2129 Table C. Bolts and nuts for flanged joints shall be in accordance with AS 2129 and galvanised in accordance with AS 1214 or stainless steel in accordance with AS 2837 as for pumps specified in the specification C402 – Sewerage System.

## 4.4 Steel pipe and fittings

- Steel pipes and fittings shall be specified for manufacture in accordance with AS 1579 and AS/NZS 1594 and designed to AS/NZS 2566.1 (WSA 02 Part 2).
- The Designer shall specify the jointing system where long-term corrosion resistance, ease of construction or special circumstances dictate the need. The pipe jointing shall be either:
  - Rubber ring (elastomeric) jointed to conform to AS 1646, or
  - Welded with butt welding or by using a welding collar with the application of a polyethylene heat shrunk sleeve over the weld, or wrapped, or
  - Flanged to comply with AS 4087 table C. Bolts and nuts for flanged joints shall be in accordance with AS 2129 and galvanised in accordance with AS 1214, or stainless steel in accordance with AS 1444 as for pumps specified in C242 - SEWERAGE SYSTEM.

## 4.5 Polyethylene pipe and fittings

- Polyethylene pressure pipe shall be specified for manufacture in accordance with AS/NZS 4129 and AS/NZS 4130 and designed to AS/NZS 2566.1 (WSA 02 Part 2).

- Fittings shall comply with AS/NZS 4129 with compounds to AS/NZS 4131.

## 5 Pump Stations

### 5.1 General

- Design of Sewage Pumping Stations shall be in accordance with the Sewage Pumping Station Code of Australia unless specified otherwise herein. The design shall be in accordance with WSA and Council's electrical specification.
- The Designer shall take into account access, site maintenance and restoration, easements power supply and working area when locating pump stations in road reserves or on private property. This action constitutes a HOLD POINT.
- Where not provided as a Vacuum Sewerage System, the Designer shall provide for all pump stations to be of the single wet well submersible pump style with self-contained freestanding switchboards suitable for external use.
- The Designer shall provide for the construction of the pump well after taking into consideration the ground and site conditions.
- Preformed components or systems complying with the Drawings, may be used in lieu of in-situ construction provided:
  - Preformed concrete wall units are to be manufactured to AS4058. The Designer shall take into account the cover requirements for reinforcing steel and cement types.
  - Joints shall be internal flush
  - The Designer shall ensure selected components make a watertight system and have a satisfactory surface finish.
- Where the pump station site is exposed to possible flooding, the Designer shall provide for the top of pump well to be the higher of one (1) metre above the 1 in 100 year flood level or such other level as provided by Council's planning instruments.
- The Designer shall provide for the design of pump wells against flotation both during the construction/installation stage and whilst operating under flood conditions.
- Package pump station units may be designed, with the prior concurrence of the Sewerage Authority, where the area being serviced is small and/or their inclusion contributes to an overall lesser depth of excavation in the system.
- The Designer shall provide for internal surfaces of wet wells and 3 manholes downstream of sewer rising mains discharge point to be prepared and coated with an epoxy paint system. All bolted connections within wet wells shall be stainless steel complying with AS 1449 grade 316.
- The Designer shall size pipes and pump station capacity to avoid surcharges under design flow conditions. The Designer shall provide for overflows in strict accordance with the conditions of the licence permitting sewage overflow, if any.
- Emergency storage equivalent to 8 hours of average dry weather flow shall be provided in the pump station and system.
- The Designer shall provide for alarms and signals systems with the concurrence of the Sewerage Authority in accordance with Council's electrical specification

### 5.2 Pump

- The Designer shall specify special requirements, if any, for materials to be used in the pump station, taking into consideration the nature and composition of the sewage to be pumped. Each pump shall be fitted with a flushing valve installed in accordance with the manufacturer's recommendations.

- The Designer shall provide for pump stations to be fitted with suitably sized pumps, consistent with other pumps in service, in conventional duty pump/standby pump arrangement.
- Each pump shall be capable of passing solids of not less than 75mm diameter unless grinding equipment is incorporated.
- Each pump shall be capable of being removed with the aid of fixed guide rails.
- Pump sets are to be interchangeable within each pump station.
- The Designer shall design structural steelwork in accordance with HB 48.

### 5.3 Electrical

- Notwithstanding other clauses mentioned herein, the Designer shall be responsible for the design of the equipment as suitable for the purpose. Equipment design shall comply with the requirements of the relevant standard specification.
- The Designer shall provide for Switchgear Control Assembly (SCA), SCA housing and electrical requirements as detailed in Council's Electrical Specification.
- Where more than one (1) item of equipment is designed to form a particular function, all such items of equipment shall be identical and completely interchangeable (eg pilot lights, pushbuttons, relays, etc).
- The switchboard shall be installed visibly and physically accessible above areas at risk of flooding.
- Ambient conditions shall be within the normally accepted limits of -5°C to 45°C.
- The switchboard shall be connected to the local electricity supply system.

Nominal system parameters:

- 415 volt, 3-phase, 4-wire, 50 Hz, solidly earthed neutral system.
- Prospective Fault Current: As specified by the Local Supply Authority.
- The works shall be designed in accordance with and subject to the provisions of MEW E101, except where modified by this Specification.
- The pump station shall be designed for fully automatic operation in the unmanned condition.

### 5.4 Water supply

- The Designer shall provide for automatic well washers and flush valves to be installed at each pump station and controlled so that they operate when the duty pump is operating.
- The Designer shall provide at all pump stations for an adequate water supply for cleaning purposes. This supply shall be protected from contamination due to backflow by the installation of a registered break tank or reduced pressure zone device in accordance with AS 3500.

### 5.5 Ladders

- Ladders shall comply with AS 1657 and applicable Occupational Health and Safety legislation. (WSA 04 )
- Ladders shall only be provided with the concurrence of the Sewerage Authority. The decision to provide ladders shall constitute a HOLD POINT
- If required, the Designer shall set intermediate landings in wells to achieve the minimum headroom clearance. Wherever possible, the landing shall be located adjacent to fittings and machinery requiring maintenance.

- Ladder cages shall not be used on ladders in pump station wet wells.

## 5.6 Telemetry

- The Designer shall provide for telemetry requirements in accordance with the schedule supplied by the Sewerage Authority.
- The telemetry system is to be compatible with the existing system, if any, in use.

## 5.7 Other appurtenances

- The Designer shall provide for venting of each pump station, rising main discharge points, and in built up areas shall consult with the Sewerage Authority to determine the appropriate location.
- The Designer shall provide for machinery lifting equipment including pump chains.
- The Designer shall provide pressure tapping and gauges for all valves, including isolation and non-return valves.
- The Designer shall take account of the possibility of site flooding ingress and overflow, and Occupational Health and Safety requirements in providing for access and inspection covers.

# 6 documentation

## 6.1 Sewerage system

- The Developer shall submit, to the Water Authority for approval, 1 x A3 and 1 x electronic PDF copy the proposed sewerage system design, including calculations, prior to issue of a construction certificate. This action constitutes a HOLD POINT.
- The Drawings shall show to scale:
  - Plan showing:
    - Lot boundaries and lot numbers
    - Location and chainage of all maintenance holes, junctions and dead ends
    - Maintenance hole types
    - Location and size of all gravity and rising mains and pump stations
    - Location of vents
    - Sewer main number and maintenance hole number
    - Existing sewer mains, junctions and maintenance holes
    - For level lots, spot levels at the lot extremities to show that at least 90 per cent of the area of the lot can be connected to the sewer by gravity.
    - Hatching shall show the area of any lot not serviced.
    - Site contours
    - Existing and proposed features and services
    - North point and scale bar
    - Easement location
    - Arrangement of other utilities
  - Longitudinal section showing:
    - Reduced levels for natural surface and design surfaces at all changes in grade
    - Maintenance hole locations and type
    - Maintenance holes numbered in accordance with the Sewerage Authority's Asset Register
    - Invert levels for maintenance holes inlet and outlet

- Size, type, class and grade of pipe
- Location, invert level and size of all drainage lines, water mains, and other utility services crossing the main
- Notation regarding all joining lines
- Property ownership
- (j) Note "In road" trench conditions
- General arrangement of pump stations with site plan; concrete outlines; number, make, model and details of pumps; inlet and outlet pipework details and levels; pump cut in; cut out and alarm levels; switchboard location; pump station access details; design starts per hour.
- Details of corrosion protection required for pipes and fittings.
- Areas designated for trenchless pipe installation.
- Detail plans including longitudinal sections shall be drawn to a legible scale for easy interpretation.
- Drawings shall be "A3" size and/or 'A1' after consultation with the Sewerage Authority.
- Drawings shall also be provided in electronic form after consultation with the Sewerage Authority and in a programme format convenient to the Sewerage Authority.

## 6.2 Pump station

- The Applicant shall submit to the Sewerage Authority for approval and prior to commencement of the manufacture of any pumps and control equipment, five(5) copies of the following:
  - Switch and Control Gear Assemblies - Proposed fully dimensioned manufacturing details, general arrangement (showing internal/external details) and foundation/gland plate details.
  - Common Control - Complete circuit diagram and description of operation.
  - Schedule of Equipment - Completed as to the equipment to be provided.
  - Other Engineering drawings as required to fully describe the proposed equipment.

The submission of the documents constitutes a **HOLD POINT**.


- The Designer shall take into consideration the technical requirements to minimise all risks associated with entry into confined space.
- Drawings shall be on "A3" size. All symbols used shall conform to AS 1102 and all wires and terminals shall be numbered.
- Drawings shall also be provided in electronic form after consultation with the Sewerage Authority and in a programme format convenient to the Sewerage Authority.

## 6.3 Asset register

- The Designer shall provide asset schedules and Drawings in a form consistent with the existing or proposed Asset Register after consultation with the Sewerage Authority.

### 6.3.1 Work-as-executed documents

Work-as-executed drawings: Provide an additional set of final construction drawings for the purpose of recording the work completed by the Contractor.



Provide all required data and electronic files as outlined in WSC “Work as Executed plans specification and attribute requirements” located on Council’s website.

### **6.3.2 Final certification of completed works**

Requirement: Council requires the designer or its representative to carry out sufficient site inspections to validate the final certification of the proposed works.

Completed works: The designer to provide evidence of the inspections undertaken during construction works and a copy of the final certification that the completed works is consistent with the approved design.

## 7 Annexure

### 7.1 Annexure - Referenced documents

The following documents are incorporated into this work section by reference:

AS 2200	2006	Design charts for water supply and sewerage
WSA 02	2014	Gravity Sewerage Code of Australia
WSA 06	2008	Vacuum Sewerage Code of Australia
WSA 07	2007	Pressure Sewerage Code of Australia
AS 1657	2018	Fixed platforms, walkways, stairways and ladders - Design, construction and installation
AS/NZS 3000	2018	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3439		Low-voltage switchgear and controlgear assemblies
AS/NZS 3439.1	2002	Type-tested and partially type-tested assemblies
AS 4883	2017	Air valves for sewerage
AS/NZS IEC 60947		Low voltage switchgear and controlgear
AS/NZS IEC 60947.4.2	2015	Contactors and motor-starters - A.C. semiconductor motor controllers and starters
AS/NZS 61439		Low-voltage switchgear and controlgear assemblies
AS/NZS 61439.1	2016	General rules (IEC 61439-1, Ed.2.0(2011),MOD)
WSA 04	2005	Sewage Pumping Station Code of Australia
WSA 06	2008	Vacuum Sewerage Code of Australia

#### Other

Institute of Public Works Engineering Australia (IPWEA)

- Streets Opening Conference Information Bulletin on Codes and Practices (Sections 3 and 4 detailing locations and depths of other services).

NSW Department of Public Works and Services (DPWS)

- MEW E101 - Electrical Services Minimum Requirements
- PWD - Safety Guidelines for fixed ladders, stairways, platforms and walkways for use in sewage treatment Works, pumping stations and maintenance holes.
- PWD-SD - Public Works Department Manual of Practice – Sewage Design.
- PWD-PSD - Public Works Department Manual of Practice – Sewage Pumping Station Design (May 1986).
- WS-SPEC - Technical Requirements (TRs) and Strategic products Specifications (WSAA)

Water Services Association of Australia (WSAA)

- WSA 02 - Sewerage Code of Australia
- WSA-04- Sewage Pumping Station Code of Australia

Building Codes Board of Australia - Building Code of Australia - PART E1, Fire Fighting Equipment.

European Standard BS EN 1091 - Vacuum Sewerage Systems.