



**DUBBO
REGIONAL
COUNCIL**

TECHNICAL SCHEDULE

DRC-W308

SEWER BYPASS PUMPING

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DRC-W308: SEWER BYPASS PUMPING

DRC-W308.1 SCOPE

This Specification applies to the use of bypass pumping to divert and manage live sewer flows during works on existing sewers for the purposes of rehabilitation or connection.

The requirements for performing the specific operation, maintenance or construction activity are set out in the relevant Technical Schedule for the activity. This Technical Schedule should be used in conjunction with the activity Technical Schedule.

The work required to be performed under this Contract shall comply with the referenced documents in Clause DRC-W308.2, unless specified otherwise herein.

DRC-W308.2 REFERENCED DOCUMENTS

The following documents are referred to in this Specification. The latest version of the document, including any published amendments, shall apply unless noted otherwise. Where the drawings or a project specific specification are in conflict, or inconsistent with these referenced documents, or this Specification, then the details on the drawings or project specific specification shall apply.

Australian Standards

Works shall also comply with the current versions all relevant Australian Standards.

Water Services Association of Australia Standards

WSA02 Sewerage Code of Australia

DRC-W308.3 GENERAL REQUIREMENTS

The Contractor shall comply with the general requirements for sewer maintenance activities and accessing sewer maintenance holes as detailed in Technical Schedule DRC-W301.

DRC-W308.4 CONTROL OF SEWAGE FLOWS

It is the full responsibility of the Contractor to control sewage flows as necessary to enable the Work Under Contract to be successfully carried out. No spilling of sewage in any situation is acceptable and the Contractor will be held fully responsible and accountable. The Contractor shall be responsible for the full cost of clean-up and associated activities that may be required to rectify the effects of any spillage as well as any fines by Environment Protection Authority or other authorities.

The design, installation, and operation of the temporary bypass pumping system shall be the Contractor's responsibility.

DRC-W308.5 FLOW MANAGEMENT PLAN

The Contractor shall prepare a detailed Flow Management Plan where flows exceed 15L/s or the existing sewer is 300 mm diameter or larger. The Flow Management Plan shall be submitted to the Superintendent and approved prior to the commencement and mobilisation of bypass pumping.

The Flow Management Plan shall outline all provisions and precautions to be taken by the Contractor regarding handling of existing sewage flows. This Flow Management Plan shall be specific, including such items as schedules, locations, elevations, capacities of equipment, materials, and all other incidental items necessary and/or required to ensure the proper management of sewage flows during the Work Under Contract. The Flow Management Plan shall include:

- Sewer plugging method and types of plugs to be used.
- Location of maintenance holes for suction and discharge hose/pipework.
- Suction and discharge hose/pipework details including size, material, location and installation method. Where relevant, thrust block details, temporary pipe supports or anchoring.
- Bypass pump details including location, sizes, capacities and number of each size.
- Hydraulic calculations of pump duties including static lift, friction losses, velocities and pump curves.
- Downstream discharge details and method of protecting downstream maintenance holes.
- Noise details for proposed pumping arrangements and details of any noise control required.
- Emergency plan for adverse weather and flooding.
- Plan for providing continuous monitoring of the bypass pumping operation.

DRC-W308.6 PLUGGING OF SEWERS

The Contractor is responsible for the plugging off of lines and diversion of flows as required. The Contractor must monitor the lines that have been plugged to ensure surcharging does not occur. The Contractor shall remove the plugs at the earliest possible time and ensure that all material has been removed from the downstream maintenance hole.

Plugging sewers shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance of work, it is to be removed in a manner that permits flows to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.

Flow from property service lines are not required to be pumped if there is sufficient storage capacity in the lines for the duration of the isolation.

Sewage shall not be allowed to enter excavations or seep into the surrounding soil.

If the Contractor requires the Principal to shut down upstream pumping stations then a written request must be received by the Superintendent at least 24 hours prior to the intended commencement of the work.

DRC-W308.7 PUMPING REQUIREMENTS

All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be capable of accommodating the cyclical nature of sewage flows, including an ability to run dry. The necessary stop and start controls for each pump shall be provided.

The Contractor shall maintain at least one stand-by pump of each size used onsite.

The bypass pumping systems shall have sufficient capacity to pump the peak wet weather flow for the sewer being bypassed. Bypass capacities less than peak wet weather flows are subject to prior approval by the Superintendent and may be considered providing contingencies for wet weather can be adequately demonstrated by the Contractor. At no stage shall the bypass capacity be any less than the peak dry weather flow for the sewer being bypassed, including the full flow of any upstream pumping stations.

The bypass pumping system shall be operated 24 hours a day or for the duration of the works requiring bypass.

The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilised shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

DRC-W308.8 BYPASS PIPEWORK

The Contractor is responsible for locating any existing utilities in the area of the proposed bypass equipment and pipework. The Contractor shall select locations for bypass pipework to minimise any disturbance to existing utilities.

The Contractor must take care to prevent damage to existing structures. Discharge pipework to gravity sewer systems shall be designed in such a manner as to prevent discharge from being directed onto maintenance hole walls or benching, with the full discharge going into the downstream pipe with as minimal turbulence as possible.

The Contractor is responsible for any damage to maintenance holes. It may be necessary to remove the maintenance hole cone to provide sufficient space for the bypass pipework. If this is required, the Contractor shall be responsible for any damage to existing maintenance hole components.

The installation of the bypass pipework is not permitted in waterway areas. Pipework shall be located off roadways, footpaths and road shoulders. Where pipework is required to cross roads or driveways, the Contractor shall locate the pipework in trenches with temporary pavement or alternatively provide suitable above ground protection as approved by the relevant road authority and/or landowner.

Upon completion of the bypass pumping operations, the Contractor shall remove all the pipework and restore the site to pre-existing conditions.

DRC-W308.9 PERFORMANCE REQUIREMENTS

There shall be no interruption in the flow of sewage throughout the duration of the Work Under Contract. The Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labour and equipment necessary to intercept flows before they reach a location where they would interfere with the works. The intercepted flows shall then be diverted past the works and then return to the existing sewer downstream of the works.

The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and relevant agencies.

The Contractor shall provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstances.

The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.

The Contractor shall protect water resources, waterways, wetlands and other natural resources.

DRC-W308.10 MONITORING

The Contractor shall be required to repair, at their own expense, any damage to public or private property caused by their operations. Should damage occur to the existing sewerage system, the Contractor shall, at their own expense, make repairs to the satisfaction the Principal.

The Contractor shall monitor the lines that have been plugged and ensure surcharging does not occur. If the bypass system equipment fails bring the sewer pipeline back into normal operation as quickly as possible.

The Contractor shall ensure that the temporary pumping system is properly maintained and a responsible operator shall be onsite at all times when bypass pumps are operating. The operator shall be properly trained, experienced, and mechanically qualified such that they can quickly and effectively address any potential emergency and non-emergency situations associated with the pumps and bypass pumping system that must remain in operation for an extended period.

The Contractor shall immediately notify the Principal should a sewage spill occur and take the necessary action to clean up and disinfect the spillage to the satisfaction of the Principal and/or other relevant authority. If sewage is spilled onto public or private property, the Contractor shall wash down, clean up, and disinfect the spillage to the satisfaction of the property owner, Authority, and/or other governmental agency.

DRC-W308.11 WORK NOTIFICATION

The Principal shall be aware at all times during which their existing sewerage system is operating under bypass arrangements.

Prior to the commencement of bypass pumping, the Contractor shall notify the Principal's operational representative. The Contractor shall also notify the Principal's operational representative at the conclusion of bypass pumping.