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# Pr9770 - Specification for Sewer CCTV Inspection and Laser Profiling



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## Documents Details

This document is only valid on the day it was printed.

Document Sponsor	Infrastructure Standard and Products Approval Committee
Document Author (Owner)	Head of Asset Management
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## Version Review

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7.0	Y Skinner	K Goraya	15/12/2023	Periodic review, no changes



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## 1. Purpose

The purpose of this Specification is to detail the minimum requirements for CCTV inspection and laser profiling of existing Unitywater sewers, and the inspection of existing sewer maintenance structures to enable full condition assessment.

## 2. Scope

The services described in this Specification are referred to as the Works in this Specification.

- Unless specifically amended by this Specification the requirements of WSA 05 Conduit Inspection Reporting Code of Australia shall apply.
- This Specification includes the requirements for;
  - Performing CCTV inspection;
  - Conducting laser profiling of existing sewer pipelines (where requested);
  - Inspection of existing sewer maintenance structures and;
  - Provision of reports (including electronic data such as video) of these inspections.
- Particular requirements for individual sections of pipelines to be investigated will be provided in the Purchasing Documents.
- For the purposes of this Specification the Contractor is the person or organisation contracted to carry out the Works.

## 3. Technical Details

### 3.1. Scope

The Works comprise the provision of all material, plant and labour and the performance of all operations necessary for the cleaning, CCTV inspection and/or laser profiling of existing Unitywater gravity sewers, and the inspection of existing sewer maintenance structures, including the following:

- a. Locating and accessing all required maintenance structures, traps, inspection openings, pipes and dead ends;
- b. Initial cleaning and de-rooting of sewers including debris removal and disposal;
- c. CCTV survey and reporting (where requested);
- d. Laser profiling and reporting;
- e. Sewer maintenance structure inspection and reporting;
- f. Re-sealing of maintenance structures including covers;
- g. Liaison with the public and authorities;
- h. Management of sewage, water and existing site conditions;
- i. Traffic control; and
- j. Restoration of the site.



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### 3.2. Order of Works

For each length of pipeline between maintenance structures, Contractors will be required to undertake the following activities:

- a. Communication with affected customers and authorities both pre and post works;
- b. Site preparation including locating and accessing assets;
- c. Control and diversion of sewer flows;
- d. Cleaning of the nominated sewer including removal and disposal of debris;
- e. CCTV inspection and laser profiling as required;
- f. Video and hard copy analysis of CCTV findings;
- g. Maintenance structure condition assessment and reporting;
- h. Restoration of the sewage flow;
- i. Resealing of maintenance structures; and
- j. Site restoration.

### 3.3. Sewer Cleaning and Disposal of Debris

#### Sewer Cleaning

All sewers shall be cleaned prior to CCTV inspection and/or Laser Profiling.

Cleaning shall be completed by water jetting or other approved method, to remove all silts, grease, roots and loose material, to the satisfaction of Unitywater. (refer [POP205 Water Jet Cleaning of Plastic Pipes](#) for maximum recommended pressure at nozzle for pipes in good condition)

All material dislodged during cleaning shall be removed from the sewer and disposed of in an approved manner.

Attention is drawn to the fact that the subject sewers may be in an advanced state of deterioration.

The Contractor shall use techniques that do not compromise the integrity of the existing sewers. If the method used for cleaning sewers is having a deleterious effect on the sewer, work shall cease immediately. No further cleaning of sewers by the initial method shall be undertaken by the Contractor or their Subcontractor.

The Contractor shall submit a proven alternative method of cleaning sewers that ensures the integrity of the sewer is sustained during the progress of works.

If it is necessary that additional cleaning is required due to build-up of material in the sewer main to ensure a satisfactory level of cleanliness can be achieved, then this is to be undertaken at the approval of Unitywater.

The Contractor is to consider that some sites can present difficult site conditions that impede accessibility to maintenance structures and may require a remote setup to enable the completion of cleaning to be achieved.



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## Disposal of Debris

All solid material dislodged from the sewer during cleaning shall be prevented from passing to the downstream sewer and shall be collected, removed and disposed of by the Contractor.

The Contractor is responsible for disposal of all waste material removed from the sewers during cleaning operations including payment of all associated fees.

Disposal of this waste material shall comply with the requirements of the Environmental Protection Act and all other relevant legislation.

## Blowback Prevention

The Contractor is responsible to include and demonstrate measures in their work method procedures to address prevention of blowback and pressure surges in house connection branches.

## 3.4. CCTV Inspection of sewers and reporting

### CCTV Inspections

A CCTV inspection of the sewer shall be completed following cleaning of the sewer.

The CCTV inspection shall verify the cleanliness of the line and confirm the location of any defects.

The CCTV inspection of the sewer shall be undertaken in accordance with WSA 05. The CCTV surveys will reference Unitywater asset numbers.

Each package of the CCTV sewer survey shall be provided to Unitywater on a digital hard drive as MPEG files in Unitywater approved reporting format.

### CCTV Report & Report Summary

An inspection report shall be provided in accordance with WSA 05.

The report shall include both a structural and service grading of individual lengths of sewer in accordance with Appendix C of WSA 05.

## 3.5. Laser Profiling of Pipelines

The laser profiling of the pipeline shall be carried out in accordance with WSA 05.

All conduits shall be cleaned to remove all silts, roots, loose material, grease/fats, deposits, encrustations and corrosion before the laser profiling is carried out.

The results of the laser profiling shall be submitted in a report that includes but is not limited to:

- Ovality profile along the length of the sewer;
- Details of corrosion along the length of the sewer.



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### 3.6. Inspection of Sewer Maintenance Structure

A CCTV survey shall be completed at each maintenance structure within the package of work in accordance with WSA 05. The CCTV survey shall verify the condition of the maintenance structure and confirm the location of any defects.

The CCTV survey shall incorporate a condition assessment in accordance with WSA05 Section 4 Inspection of Maintenance Structures. The condition assessment will reference Unitywater asset numbers.

Each package of CCTV access chamber surveys shall be provided to Unitywater on a digital hard drive as MPEG files. The MPEG files shall be named with the Asset number.

### 3.7. Resealing of Maintenance Structure Covers

Where maintenance structure covers are found to be sealed prior to CCTV inspection, following the CCTV assessment the cover must be resealed using the following procedure:

- a. With a stiff brush, clean the surfaces by removing any excess compound, debris, encrustation, loose corrosion from the cover and frame contact surfaces.
- b. Liberally coat the cleaned surfaces of the frame with a sealing compound that is approved by cover manufacturer. (The sealing compound is formulated with a high melting point to withstand high temperature. The compound also contains rust inhibitors to give maximum protection to the sealing surfaces)
- c. Replace the cover.
- d. Once the cover is in place, a ring of non-adhesive Seal 'N' Flex Polyurethane Sealant (Bostik Sealant or similar as approved) shall be applied around the outer edge of the maintenance structure cover so that any gap between the edge of the concrete surround and the cast iron cover frame is sealed.

The sealant is NOT to be applied to the interior of the ring or neck nor to the underside of the sewer access chamber cover.

All maintenance structures that were sealed prior to the CCTV inspection work being undertaken shall be re-sealed by the Contractor after completion of the CCTV inspections.

### 3.8. Restoration

All surfaces and fixtures (including buildings, fences, gardens, walls, paved surfaces, paths and other structures, grass and trees and other property) affected by the Work shall be reinstated to a condition at least equal to that existing prior to the commencement of the Works.

All restoration work shall be to the satisfaction of the Unitywater, the property owner and occupier, the road/park authority and be carried out as soon as works are completed.

## 4. Appendices

Refer to the following pages.



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## Appendix A – Definitions/Acronyms

Definitions and abbreviations contained in WSA 05 Conduit Inspection Reporting Code of Australia shall be considered relevant to this Specification and are not replicated below.

Term	Meaning
AIS	Asset Information Specification, specifies the quality, type, format and completeness of information to be submitted by project proponents and their agents
AS	Australian Standard
BS	British Standard
CCTV	Closed Circuit Television
IPAM	SEQ WS&S D&C Infrastructure Products and Materials
ISO	International Organisation for Standardisation
Maintenance Structure	Any structure with a removable cover constructed on a conduit (pipeline) that provides access to personnel and/or equipment. <i>(Includes maintenance holes, maintenance chambers, maintenance shafts, terminal maintenance shafts, inspection shafts, inspection openings)</i> . Also known as access structures.
SEQ WS&S D&C	South-East Queensland Water Supply and Sewerage Design and Construction Code
WSAA	Water Services Association of Australia



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## Appendix B – References

### General

- All work carried out under this Specification shall comply in all aspects (i.e. in design, construction, testing and performance) with the latest relevant Australian Standards (AS), British Standards (BS) and IEC Standards and standards in the following sections.
- Reference to specific clauses of the various codes is intended to highlight those points and shall not be taken to imply a lesser importance for all other applicable clauses.
- All the works shall conform to the Rules and Regulations of the Statutory Authorities having jurisdiction over the Site.
- If the requirements of this Specification do not comply with the minimum requirements of the statutory regulations and standards, the latter shall apply. If the requirements of this Specification are more exacting than the minimum requirements of the statutory regulations and standards, the former shall apply.
- All materials, fittings, accessories and equipment supplied by the Contractor shall be new and the best obtainable of their kind and shall comply in all respects with the requirements of the relevant Standards Australia specifications.

The following legislation, related Regulation and Codes apply to this specification:

- *Work Health and Safety Act 2011 (Qld)*
- *Work Health and Safety Regulation 2011 (Qld)*
- *Water Supply (Safety and Reliability) Act 2008 (Qld)*
- *Plumbing and Drainage Act 2018 (Qld)*
- *Plumbing and Drainage Regulation 2019 (Qld)*
- *Environmental Protection Act 1994 (Qld)*
- *Queensland Building and Construction Commission Act 1991 (Qld)*
- The following Work Health and Safety Queensland Codes of Practice apply:
  - Confined Spaces Code of Practice 2021
  - Excavation Work Code of Practice 2021
  - First aid in the Workplace Code of Practice 2021
  - How to Manage and Control Asbestos in the Workplace Code of Practice 2021
  - How to Manage Work Health and Safety Risks Code of Practice 2021
  - Managing Noise and Preventing Hearing Loss at Work 2021
  - Managing Risks of Falls at Workplaces Code of Practice 2021
  - Scaffolding Code of Practice 2021
  - Traffic Management for Construction or Maintenance Work Code of Practice 2008
  - Work Health and Safety consultation, cooperation and coordination Code of Practice 2021



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- SEQ Water Supply and Sewerage Design and Construction Code (SEQ WS & S D & C Code).
- WSA 01 Polyethylene Pipeline Code
- WSA 02 Gravity Sewerage Code of Australia
- WSA 05 Conduit Inspection Reporting Code of Australia
- POP205 Water Jet Cleaning of Plastic Pipes.

### Relevant Unitywater documents that relate to this specification

Document No.	Title
Nil	

### International and Australian Standards referenced within this specification

Standard	Title
Quality Systems	
AS 2990	Quality Systems for Engineering and Construction Projects
AS 3901	Quality Systems for Design/Development, Production, Installation and Servicing
AS 3902	Quality Systems for Production and Installation
AS 3903	Quality Systems for Final Inspection and Test
AS 1319	Safety signs for the occupational environment
AS 1554	Structural steel welding
AS 1627	Metal finishing - Preparation and pre-treatment of surfaces - Method selection guide
AS 1657	Fixed platforms, walkways, stairways and ladders — Design, construction and installation
AS 2032	Installation of UPVC pipe systems
AS 2312	Guide to the protection of iron and steel against exterior atmospheric corrosion
AS 2638	Resilient Seated Gate Valve
AS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles