Creating the future of water

Interflow

Is your Specification “specific, certain and enforceable”?

John Weaver

Why have a Specification?

1. Manage risks (both known and unknown) to deliver a desired outcome; and
2. Ensure the Work Under Contract performs as expected in the long term.

Why does it matter whether your Specification “specific, certain and enforceable”?

A tender is an “Invitation to Treat”, not a Contract.

Ad Idiem or “a meeting of the minds”

What does a good Specification look like?

1. Manage risks by either:
    a) Defining each risk and then prescribing how the tenderer must manage each risk ("Prescriptive Specification"); or
    b) Require the tenderer to identify each risk and how they have allowed to manage each risk ("Performance based Specification"); or
    c) A combination of both a) & b) ("Hybrid Specification").
2. Uses words which are "specific, certain and enforceable".

Which form of Specification do I prefer?

A Specification that:

1. Defines why the work is being done (the objective). For example, the objective is to "renew" the network asset.
2. Defines how you want to achieve the objective (delivery model). For example, what do you mean by "renew".
3. Defines what you want as the desired outcome. For example, management of community, safety, environment and quality.
4. Defines the how the work should perform in the long term. For example, a liner installed to "renew" a stormwater main should be support all soil, traffic and hydrostatic loads, maintain improve the hydraulic performance and be root-tight and water-tight like a new asset.
    - Do you require all tenderers to design to the method given in AS2566, or can tenderers use their own design method?
    - What values should all tenderers use for soil modulus and traffic loads in applying AS2566, or can they use their own values?
5. Hybrid Specification which:
    a) Identifies the risks that the client has identified and require the tenderer to state in their tender submission (offer) how they will manage each risk;
    b) Requires the tenderer to identify other risks in their tender submission (offer) and how they will manage each risk;
6. Uses simple words which are "specific, certain and enforceable".

Why does some work perform as expected in the long term, while other work does not?

For Example: "Renewal" of Concrete Structure by coating

Specification issues:

1. Design for existing soil, traffic and hydrostatic loads;
2. Step irons and / or ladders;
3. Removal of loose concrete (use high pressure >5,000 psi air, water and abrasive material combined as one);
4. Scrape test;
5. Control of infiltration (injection of hydrophylic resin);
6. Voids (structural requirement of filler);
7. Remove & replace deteriorated steel reinforcement (weld or tie);
8. Depth of carbonation (phenolphthalein test);
9. Remove additional concrete to find sound, pH neutral material (25,000 psi water pressure);
10. Pull off test.

The Specification must manage risk and long-term performance.

Why does some work perform as expected in the long term, while other work does not?

For Example: "Renewal" of Wastewater Main by lining

Specification issues:

1. Design of the liner to support all existing soil, traffic and hydrostatic loads using the method given in AS2566 using a soil modulus of 2Mpa or 4Mpa;
2. Hydraulic performance of the lined sewer;
3. Making the sewer "renewed" by lining root tight and watertight in the long term;
4. Preventing roots (and infiltration) travelling between liner and pipe and back into the sewer main in the long term;
5. Secondary seal (separate to the liner installation process) applied where the liner is cut at the MH and junctions.
6. Specify the service life of the sewer main "renewed" by lining.
7. Provide a Standard Operating Procedure for:
    a) Making a new connection to the lined sewer;
    b) Repairing damage to the lined sewer.
8. Recommended maintenance procedures.

CITY OF SANTA MONICA LINING INVESTIGATION

CIPP lining 6" to 10"

Source: International Society for Trenchless Technology, 21st No-Dig International Conference and Exhibition 2003, March 31 – April 2, 2003, Las Vegas, Nevada, USA: Paper "City Of Santa Monica-Rehabilitation And Sealing of Lateral Connections" by E. Chusid.

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For Example: "Renewal" of Wastewater Main by lining

Example of “lazy” Specification

"Works shall comply with the relevant Australian Standards including:

- AS/NZS ISO 9001:2008 Quality management systems
- ISO 11296-3:2011 - Lining with cured-in-place pipes.
- AS/NS Z 2566.1-1998 - Buried flexible pipelines - Structural design
- AS/NS Z 2566.2-2002 Buried flexible pipelines - Installation
- WSA 05-2013-3.1 - Conduit inspection reporting code of Australia
- 1101 Traffic Management (NATSPEC)
- ISO/IEC 17025-2005 (NATA)
- WSA 02-2002-2.33 Clause 22.4 - Air Pressure and Vacuum Testing Of Sewers
- ISO 178:2010 - Plastics Determination of flexural properties
- AS/NS Z 2566.2-2002 Buried flexible pipelines – Installation"

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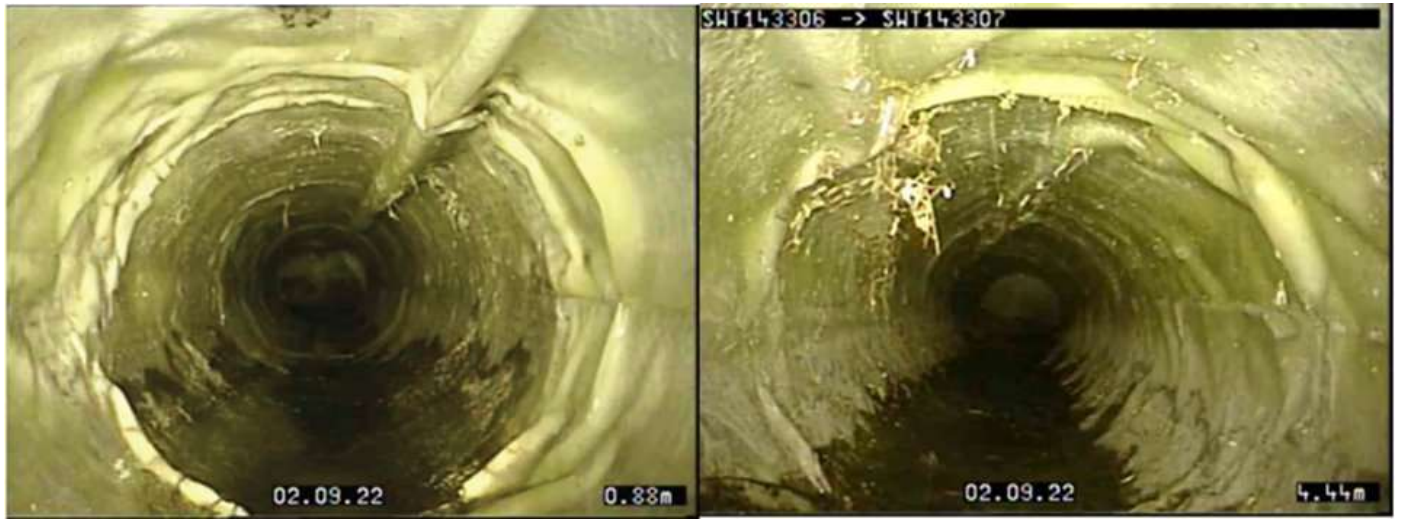
Why does some work perform as expected in the long term, while other work does not?

For Example: "Renewal" of Wastewater Main by lining

Specification issue

Variation in the tolerance of gravity pipe diameter (above and below "as constructed" diameter) permitted by historical Australian Standards.

1. Is this a risk on this project?
2. If so, how has the tenderer allowed to manage this risk in their tender (offer)?
3. Define unacceptable defects?
4. Define how do you deal with an unacceptable defects in construction?



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Why does some work perform as expected in the long term, while other work does not?

For Example: "Renewal" of Wastewater Main by lining

Specification issue

Changes in grade and direction, ponding, displaced joints, reductions in existing pipe diameter.

1. If this a risk on this project?
2. If so, how has the tenderer allowed to manage this risk in their tender (offer)?
3. Define unacceptable defects?
4. How will you respond when the requirement of the Specification is not reasonably practicable?

The Specification must manage risk and long-term performance.

A good Specification will only be effective if it is:

1. **Included** in the tender;
2. **Understood** by those assessing tenders to ensure they are comparing "apples with apples";
3. **Enforced:**
    a) During the tender period;
    b) During tender evaluation;
    c) During construction; and
    d) After construction to ensure the works perform as expected in the long-term, pursuant to the Contract.

Don’t rely on the Contractor…

Don’t rely on the Manufacturer…

…In the Specification state your needs and then ask the tenderer to state how they will meet your needs, in writing, as part of their tender (offer)

Identify each risk at each stage of the works

Write a Specification that requires the tenderer to allow to manage each risk (known and unknown)

Write a Specification that states how the work is to perform as expected in the long term

Write a Specification in simple words that are "specific, certain and enforceable"

Interflow®

Then enforce the Specification at every stage

Questions?