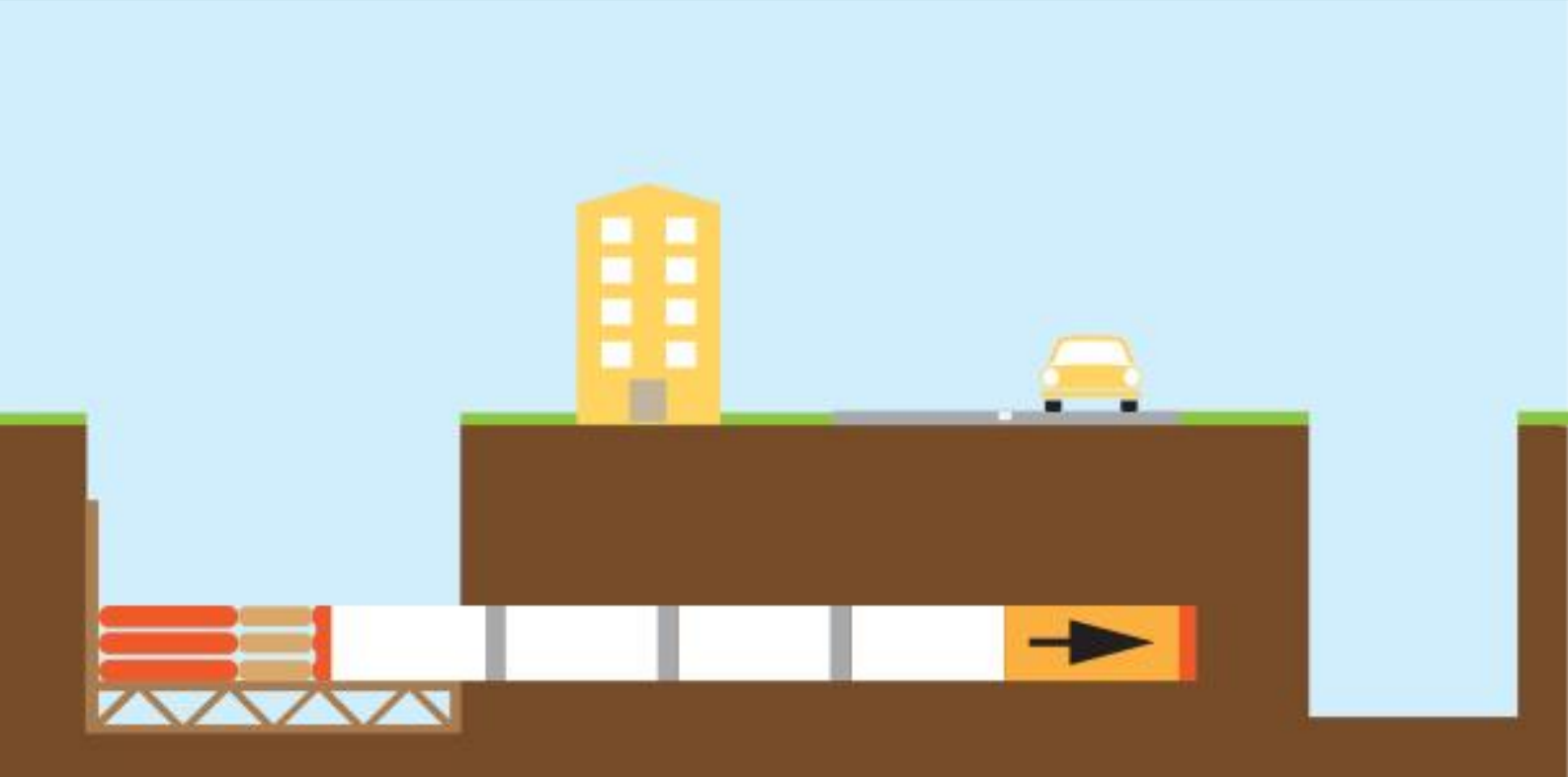




AUSTRALASIAN SOCIETY FOR
TRENCHLESS TECHNOLOGY (ASTT)

MICROTUNNELLING DESIGN GUIDELINES
FOR SEWERS (MDG-S)



TECHNICAL NOTES



PREFACE

The trenchless industry has grown over recent decades as technologies improve and trenchless techniques prove their value, particularly in urban areas. Along with this demand has come the need for designers, particularly in the water industry, to produce designs that achieve the intent and are constructible, cost effective, and of good quality. Currently only a small number of professionals have a thorough understanding of capabilities and risks associated with various trenchless techniques. Due diligence requires the designer to keep informed of current best practice.

In response, a set of design guidelines has been created by engineers, specialist contractors, pipe suppliers, and drilling equipment suppliers. The purpose and aims of the guidelines are to:

- Present current best practice trenchless methodology available for the installation of sewers up to 900mm in diameter and up to 10m in depth.
- Increase the understanding of designers of the various microtunnelling techniques.
- Provide a framework for designers to design a microtunnelled sewer.
- Assist designers to fulfil due diligence requirements for their design.

The basis of this document is on the premise that the Designer has suitable knowledge, capability and experience in buried pipeline design and the appropriate standards and codes of practice governing this.

The primary competitor of a microtunnelling contractor is the open cut contractor. If microtunnelling could win an additional 1% of the sewers to be laid, there would be plenty of work for all microtunnelling contractors. To achieve this the following is required:

1. Microtunnelling must meet or exceed the benefits of open cut – including cost.
2. The planners and designers must be aware of and be able to prepare concept plans and designs which satisfy the ever increasing project requirements.

Advances in microtunnelling capability often outstrip the industry's clients to keep abreast of the latest developments. Prescriptive drawings, useful for so many years, have become a hindrance to economy and best practice.

An opportunity to initiate a project to update microtunnelling design best practice resulted in late 2015 when the former ASTT President, Steve Appledorn, announced the commencement of Special Interest Groups (SIG) to be run by members. After the approval of a submission to the ASTT Council, a SIG was formed with industry representatives to prepare a document entitled Microtunnelling Design Guidelines for Sewers (MDG-S).

A decision was made to limit the guideline to microtunnelling for small diameter sewers. Microtunnelling is used for large diameter sewers, watermains and stormwater pipes. The principles detailed in the MDG-S can be applied for the design of these other applications with the caution that other loadings may be applicable (e.g. internal loadings for pressure mains), and other materials may be used (e.g. concrete pipes for stormwater but not preferred for sewers).

This document provides a framework for a designer to inform themselves of the issues regarding microtunnelling and to prepare a sound, engineered design to achieve the project's purpose.

Special thanks to the members of the SIG, Robert Loncar, John Bower and Shaun Nadin (technical design), Justin Kabat, John Braybrooke (geotechnical) and Dennis Shaw (pipe materials).

Jim Shooter
SIG Chair



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