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A PRACTICAL APPROACH TO INSPECTING THE CEMENT MORTAR LINING OF A LARGE DIAMETER TRANSMISSION MAIN

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ABSTRACT: Large diameter transmission watermains carry water under streets of most cities throughout North America. New transmission mains continue to be designed and constructed to keep up with increasing water demands as cities become more populated.

Cement mortar lining is an efficient and economical trenchless method used for lining new large diameter steel watermains.

This paper will provide a brief history of the trenchless practices used to install cement mortar lining in large diameter steel watermains in Toronto, Ontario. A case study will present the unique challenges experienced during a recent successful cement mortar lining of a new 1800 mm diameter steel water transmission main.

A detailed review of the pre and post inspection practices will be discussed. In addition, several construction challenges will be reviewed, including:

- Confined space entry procedures;
- Problems associated with limited access through deep chambers and butterfly valves;
- Cement mortar lining inspection procedures required for steep vertical bends-up to 28 degrees.

Finally, this paper will detail the lessons learned during this installation.