Cured-In-Place Pipe Watermain Rehabilitation: What's It All About

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Over the past 40 years, the trenchless application for Cast-In-Place Pipe (CIPP) lining extended predominantly to sanitary sewers and storm drains. In the last 10 years, CIPP technology has started to emerge as an alternative for watermain rehabilitation, extending the service life of existing water distribution systems. This paper will examine a case study on a project completed for Kitchener Utilities and will outline the preparation of tender/contract documents for trenchless rehabilitation, discussing the reasoning behind the selection of CIPP watermain lining over traditional open cut installation method.

The paper will examine the process involved in generating the contract documentation “Special Provisions” which include submission requirements; provisions for dealing with less traffic and pedestrian disruption; education and coordination with residents and property owners about the new trenchless construction method; the importance in locating existing services, gate valves, and curb stops; provisions for watermain cleaning and drying; lining design parameters; closed-circuit television (CCTV) inspection; the complexities encountered to reinstate existing service connections; the removal and replacement of existing watermain valves and tees; quality assurance/quality control (QA/QC) procedures introduced to govern the quality of the lining work; dealing with unforeseen circumstances; and, finally, preparing the formulation of a comprehensive bid form document. The paper will summarize the outcome for the CIPP watermain lining project, offer lessons learned, provide a summary on the effect the CIPP trenchless technology has on the feasibility or watermain rehabilitation, performance, complexity, cost and environmental impact.