

“Three Years of Electric Current Leak Detection Scanning: What Have We Learned?”

Presenters

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Key Words

Infiltration and Inflow, Prioritization, Sewer Rehabilitation

Abstract

Reducing Infiltration and Inflow (I&I) is an increasing priority for government and private entities with a stake in sewage treatment. Given the increasing costs for power and the increasing emphasis on conservation combined with some recent Provincial government mandated reduction requirements, I&I reduction is more and more becoming the prime driver for repairing sewer systems in Ontario.

Achieving significant I&I reduction is easy with unlimited funds – the problem lies in optimizing its reduction for any given budget available. This inevitably means identifying and then prioritizing sources and then selecting repair methods to get the maximum reduction for a minimum investment.

While advances in software and intelligent asset management systems using PACP codes have assisted in prioritizing sewer rehabilitation for NON I&I related works for some time now, these systems are challenged when it comes to I&I reduction. The reason for the difficulty is the inability to directly measure and quantify individual sources - what is really needed is a more direct way to find and measure potential I&I.

A new approach using a low voltage electric current is being used by some municipalities to provide another layer of data. The electric current data can identify and quantify I&I in sewers that is undetectable even to an expert eye looking at sewer CCTV recordings. The electric current variation method measures electric current leakage from non-metallic sewer pipes - through special algorithms this scanning technology can simultaneously identify and quantify potential water infiltration for each metre of sewer scanned.

Electric current leak detection entered the Canadian market in December 2014, in the City of Surrey, BC, when Superior City Services Ltd. assessed a total of 27 sewer mains between 150mm to 400mm diameter. The City has one of the largest sanitary sewer networks in BC with over 1,500 km of sewers pipes ranging in diameter from 150mm to 1200mm. Robichaud has been using this technology with the City of Kingston, ON for the past 3 years.

This presentation will show the results of this new technology in several municipalities in Ontario with an emphasis on ground truthing and directly comparing the Electric current data to CCTV PACP data, expert visual analysis and with other non-destructive pipe testing methods. Ground proofing in 2016 has confirmed electric current findings, and further testing and reporting is ongoing well into 2017 including excavations for visual confirmations. The results to date indicate that it is an excellent tool that provides unbiased, quantifiable and reliable data that excels in the prioritization of rehab work, specifically as it relates to I&I reduction.

CATT will be completing their technical recommendation for an OPS standard and we hope to present this standard in Vancouver for all Canadian municipalities to consult.