Trenchless Technology Road Show a Huge Success!

In June, CATT was proud to welcome a record crowd to the Trenchless Technology Road Show in Niagara Falls, Ontario. Dr. Sam Ariaratnam, Chairman of the International Society for Trenchless Technology, kicked off the show with some laughs and news from the trenchless industry around the world. With the international theme of “Uniting the Trenchless World”, experiences and research from Austria, Canada, Holland, New Zealand, the United Kingdom, and the USA were shared over the course of two days. The exhibit hall literally spilled into the hallway this year, with 50 exhibitors displaying the latest technologies. Live demonstrations allowed attendees to see some of these technologies at work. In addition to the technical sessions, the 14th International Trenchless Technology Research Colloquium was held, with research and industry experts from across North America and Europe attending. The focus of the group was to identify the research needs in pressure and gravity pipeline assessment, rehabilitation, and installation. From start to finish the show was a huge success and CATT looks forward to hosting the next Trenchless Technology Road Show in 2014!

Ashley Rammeloo, Conference's Chair

Cliff Jones – OCWA’s New VP of Sales and Marketing—The Ontario Clean Water Agency (OCWA) is pleased to announce that Cliff Jones has recently joined the Agency as the Vice President of Sales and Marketing. Cliff comes to the Agency with a wealth of experience in water and will be a welcome addition to OCWA’s Executive Management Team. Prior to joining OCWA, Cliff was the Vice President of Sales, Marketing and Pipeline Services for Wachs Water Services, a leader in the assessment of pipelines and underground assets in North America.

Trenchless Survey Announced—The Centre for Advancement of Trenchless Technologies is pleased to announce the launch of the first Canadian Municipal Buried Infrastructure Survey in October/November 2012. The objective of the survey is to establish a broad-based summary of market conditions in Canada’s water and wastewater sector. The survey will ask questions about current practices related to the construction and management of water and wastewater buried infrastructure. Your response will help to assess the outlook of market activity in water and wastewater buried infrastructure field. The collected data will be used in aggregate and no individual responses will be disclosed. The information will be useful for a variety of stakeholders – city engineers/managers, contractors, consultants, manufacturers and political decision makers – for market analysis and assessment of challenges and opportunities in the water/wastewater buried infrastructure field.
Project Highlight: HDPE Watermain Sliplining in No. 3 Road
Anthony Fu, P.Eng., City of Richmond, BC

Background—Each year, the City of Richmond embarks on a program whereby ageing and failing watermains are replaced through the annual City Capital Program. Replacement of the infrastructure prior to breakage, reduces maintenance and repairs costs, and provides an opportunity to upgrade the service to accommodate existing and future water demands due to development. The existing large diameter steel watermain along No. 3 Road was identified for replacement in order to avoid potential failures that could severely disrupt businesses, high-density residences, and traffic in the City’s most busy corridor. With the size and length of the steel watermain needing to be replaced (763mm in diameter and approximately 955 meters in length), and the disruption the traditional open-cut method would have caused, trenchless installation was strongly considered.

Scope of Work—Assessment of the water demands along the corridor determined that the new watermain could be less than 762mm in diameter and still be able to accommodate the current and future needs of all the businesses and residents in the serviced area. Therefore the new main was sized to 550mm in diameter. Because of the size difference, sliplining of the new watermain became the preferred trenchless installation method, with fusible high-density polyethylene (HDPE) as the chosen material for the carrier pipe allowing for a continuous slipline. In addition to sliplining 955 meters of new HDPE watermain, the scope of work included installation of line valves, hydrant connections to the new watermain, and tie-ins to the existing watermain.

Location and Challenges—The main challenge of this project was its location. The sliplining work was located along No. 3 Road between Firbridge Road and Granville Avenue, a major arterial and the busiest roadway in Richmond. Within the sliplining construction zone are many commercial, high-density residential and business buildings including Richmond City Hall. Being the main business and commercial corridor in the City, traffic volumes reach high levels as early as 10am in the morning and do not slow down till as late as 8pm in the evening. In addition to high vehicular traffic, No. 3 Road is also home to the Canada Line sky train with one of its stations located within the construction zone of the sliplining work, and therefore experiences high pedestrian traffic regularly.

Construction plan—In general, the stages of construction were as follows:
- Excavations of entry and exit pits for the HDPE pipe sliplining;
- Exposing and cutting of host pipe;
- Fusion and sliplining of carrier pipe through host pipe;
- Cap ends of carrier pipe;
- Installation of line valves, hydrant connections and tie-in fittings;
• Pressure testing;
• Grout filling of void space between host pipe and carrier pipe; and
• Tie-in to existing live watermains.

Innovative solutions to minimize construction impact—Even though the watermain replacement implemented a trenchless installation approach, other measures were also taken to further reduce the disruption to the public. Firstly, the contractor was able to achieve the sliplining in one 955-meter length pull instead the original plan of three section pulls, reducing the number of entry/exit pits on the roadway from four to two. Additionally, the drilling/pulling rig, which is responsible for sliplining the carrier pipe through the host pipe, was strategically placed at a park adjacent to the roadway intersection where the exit pit was located. A line was drilled from the park to the exit pit to allow the drilling/pulling rig to complete the sliplining without affecting traffic at the exit pit location, which was excavated but remained covered with a steel plate.

Conclusion/Lessons Learned—Success of this project relied heavily on proper traffic control coordination during times of construction. Without the proper redirection of traffic at the excavation spots, work could not have been completed safely during regular business hours, and would have been prolonged with delays and extra costs due to the project being completed as nighttime work instead.

Completion of the project was achieved within a span of four months and cost approximately $1.5 million, whereas the traditional open-cut method would have cost an estimated $2.5 million. This project provides a clear example of the financial, social and environmental benefits in successfully utilizing trenchless technology, and applying innovative approaches to project specific challenges and constraints.

Anthony Fu
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Upcoming Events - Visit www.catt.ca for more details

Engineering Successful Trenchless Projects - October 11, Mississauga Grand
CATT Annual Dinner and General Meeting - October 25, Mississauga Grand
CIPP Design & Construction - November 14, Mississauga Grand
Design of Steel and Plastic Pipelines using a Directional Drill - November 27, Mississauga Grand
Pilot Projects: Lessons Learned - January 24, Mississauga Grand
Trenchless Technologies 101 - February 4-5. Check www.ogra.org for details
Microtunneling/Geotechnical Baseline Reports - February 19, Mississauga Grand
CATT welcomes Inversa Systems as a new Platinum member. Inversa Systems, out of Fredericton New Brunswick, has developed “INSIGHT” the first commercial Backscatter Computed Tomography (BCT) system for inspection of underground infrastructure. Just like in medicine, “INSIGHT” using BCT can now provide essential information on the health (condition) of underground pipelines, says Stephen McCormick (Business Development and Sales Manager) of Inversa Systems. INSIGHT is a non-destructive testing (NDT) that is employed on the inside of the pipe that can determine the pipe wall thickness and image voids located on the backside of the pipe.

The Inversa System’s portable scanner, set up adjacent to the area of interest, sends out a beam of radiation, which penetrates the pipe wall and the earth behind up to a depth of about one-foot. The scanner measures the backscatter radiation as it returns to the unit and uses the information to form a low-resolution image that is used to guide the inspection. After the scan is finished, the data is transmitted back to Inversa System’s offices in Fredericton, New Brunswick where it is converted into high quality images that are used for the final engineering report. The position of each scan is precisely mapped and recorded so that subsequent inspections can be made at exactly the same spot so deterioration in areas of concern can be monitored.

This new inspection technology has been successfully deployed to inspect steel culverts for the New Brunswick Department of Transportation in 2010 and the City of Toronto in 2011. In 2010, Inversa Systems inspected six culverts scheduled for replacement by the New Brunswick Department of Transportation. The inspection showed that the culverts were still serviceable and that only one culvert needed minor local repairs. In 2011, City of Toronto inspections, sponsored by the Ministry of Transportation of Ontario, found hidden pipe defects and that the culvert could be renovated locally resulting in significant cost savings. This new technology is now being applied to inspect gas and oil pipelines and in the near future water pipelines says Steve McCormick. CATT is excited to work with Inversa Systems to develop and complete a third party evaluation study on the inspection of culverts using the INSIGHT System.

If you have culverts that need to be inspected and are interested in being part of a third party technology evaluation program please contact CATT to get more information. More information on Inversa can be found at [http://www.inversasystems.com/](http://www.inversasystems.com/)