

## Abstract: Buttertubs Drive Sanitary Sewer Pipe Bursting Project

Trenchless Technology Roadshow

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The Buttertubs Drive Sanitary Sewer Improvement Project, completed for the City of Nanaimo, British Columbia, Canada featured a range of pipe installation procedures and challenges, including a significant trenchless pipe burst. In addition to a portion of the project through a protected wetlands area, a river crossing and pipe installation below a busy residential area, pipe bursting was chosen for a particular 107 LM section, due to the depth, over 6 VM, and very restricted access between buildings on either side. General contractor Knappett Industries, Nanaimo, BC, sub-contracted with PW Trenchless, Surrey, BC, to complete the difficult pipe bursting section.

The original 24-inch diameter Asbestos Cement (AC) sewer main was installed in the 1970's. At that time there were only buildings one side of the project. In 2016, however, the area is now a narrow lane between two rows of housing in an assisted-living complex for senior citizens. To further complicate matters, there are now shallow utilities including a water main and sanitary collector, sharing the same laneway.

Geotechnical information at time of tender suggested that the AC main was installed in "hardpan" glaciated soils, within a narrow trench width. Expanding the pipe from 24 inches to 30 inches and remaining on the minimal existing gradient, was anticipated to be difficult.

PW Trenchless replaced and upsized the 24-inch AC sewer main with 30-inch IPS High Density Polyethylene Pipe (HDPE) DR 21 using a 2500G Grundoburst static pipe bursting system from trenchless equipment manufacturer TT Technologies, Aurora, Illinois, USA. Approximately 400 feet of rod stem was used along with a roller cutter and 30-inch pull expander. With over 300 tons of pulling power, the unit is the world's most powerful static pipe bursting system, capable of bursting steel and ductile iron pipes in the range of 24 to 48 inches in diameter and even larger.

Once launch and exits were established and shored, and the equipment staged, PW Trenchless was able to complete the entire burst in approximately 4 hours.

For this presentation, the experienced trenchless contractor will offer insight into the various aspects of the project. The presentation will focus on the specific challenges faced during the bursting and replacement the 24-inch diameter sewer main, as well as equipment/method selection process and overall lessons learned. The project demonstrates the social and economical value of trenchless pipe bursting, as well as the expanding capability of the static pipe bursting process itself.

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