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Curved Microtunnel Sewer in the City of Brantford to serve new Laurier YMCA Athletic Complex

by

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The City of Brantford is constructing a curved microtunnel in challenging soil conditions to upgrade the existing Greenwich Sanitary Trunk Sewer (STS). The new sewer will provide additional capacity for future growth in the downtown core and for a new recreational facility jointly developed by the City, the YMCA and Laurier University. The 160,000+-square-foot athletics and recreation building will include gyms, a pool, fitness spaces, classrooms, offices, and meeting rooms, and it will have a “green roof” accessible to the public. The trunk sewer upgrades were required to accommodate the demands of the new facility, including pool draining events.

Identified in the 2014 City of Brantford Master Servicing Plan for sanitary sewers, and subsequently confirmed with the City’s sewer modelling consultant, this project includes upgrades to the existing sanitary trunk sewer between Clarence Street South and the Greenwich Street sewage pumping station. The existing sewer is about 400 meters in length and will be increased in size from 300mm and 350mm to 600mm diameter. Trenchless methods for construction of the new trunk sewer were preferred due to the proposed sewer depth, to avoid interruption of existing sewer and water infrastructure, and to mitigate disruption to traffic and local businesses. Robinson Consultants Inc., together with Aldea Engineering Services Ltd., was retained by the City to prepare the design for microtunnel construction of the new trunk sewer. The microtunnel design includes a 1200 mm diameter casing and a 600 mm diameter carrier, curvature of 1270 m radius, at least one interjack station, mixed-face soil conditions and high groundwater levels. Additionally, the alignment crosses an active railway and is located entirely in area regulated by the Grand River Conservation Authority.

This presentation explores the challenges faced by the City and the Project Team during planning, design and construction and will include time-lapse imagery of the microtunnel setup and operation.