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CHALLENGES TO MICROTUNNELING DURING THE IMPLEMENTATION OF WESS STAGE W1 PROJECT

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ABSTRACT: The West Edmonton Sanitary Sewer (WESS) project has been developed to provide a long term approach for servicing the west region of the City of Edmonton, Alberta, Canada. For three new developments at the west end of the City, the WESS Stage W1 was started as the uppermost leg of the staged WESS project.

A 1200 mm diameter gravity sewer trunk will be built to convey the sanitary sewerage from 199 Street to the existing double-barrel at 170 Street along 100 Avenue. Through the existing system, the sanitary will be finally transported to Gold Bar Waste Water Treatment Plant which is one of the two operational treatment plants within the City. This 3500-meter long trunk is buried mainly in sand, silt and clay till at a depth of about 12 meters below ground level.

During the design period, six different construction methods were considered, which includes pipe jacking, open cut, microtunnel, spider mole, HDD and EPBM. Microtunnel was selected over other construction methods due to its availability and its quality to be accommodable to the geotechnical conditions with high underground water level. But even with microtunnel technology, the complex subsurface conditions still presented a lot of challenges to this project and the contractor.

This paper discusses the challenges which are encountered by the contractor during the construction. Capabilities and limitations of microtunnel are outlined relative to different subsurface conditions. Lessons learned in this project are documented in this paper as a reference for the successes of future microtunnel projects.