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Application of Subsurface Utility Engineering to Assist with Tunnelled WM Design and Construction

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A municipality in the GTA required the design and construction of approximately 6km of new transmission and sub-transmission water mains between two active pumping stations. These water mains were to be routed through a highly congested and populous area via both trenchless and direct buried installations. A full Subsurface Utility Engineering study was commissioned to identify the existing underground utilities and document measurements of existing underground structures to permit optimization of route selections, pit locations and utility relocation requirements. During this presentation, the author will outline the process, challenges and successes of this comprehensive SUE investigation which identified over 107km of underground utilities and the inspection of over 400 water and sewer structures, which included the application of LIDAR for measuring internal valve chamber dimensions. The result of this comprehensive SUE investigation provided the design engineers with valuable data regarding the position and size of underground utilities and structures.