

# South Surrey Interceptor

Significant amounts of concrete pipe have been used to develop the main sanitary sewer system throughout the Lower Mainland, since the formation of the Greater Vancouver Sewerage and Drainage District in 1914. (The sewerage and drainage district is one of the four separate corporate entities that operate under the name Metro Vancouver). Some of the larger interceptors, which service significant areas of the



surrounding municipalities, were cast-in-place in the late 1960s and early 70s to move sewage to newly constructed treatment plants. Continued rapid growth over the past twenty-five years of the municipalities that make up Metro Vancouver has placed substantial demand on the existing sewer infrastructure. Because of its longevity, ease of installation and local availability, concrete pipe remains the backbone of Metro Vancouver's sanitary sewerage system.

The topography, climate, organics and volume of warm effluent in the sewers of the Lower Mainland combine to provide an environment that is conducive to the propagation of *Thiobacillus* – the bacterium that converts H<sub>2</sub>S gas found in sewers to H<sub>2</sub>SO<sub>4</sub> (sulphuric acid). Over the past 20 years, Vancouver area concrete pipe producers worked with Metro Vancouver staff to significantly reduce the risk of sulphuric acid corrosion of concrete pipe sanitary sewers by supplying concrete pipe with cast-in plastic liners. Metro Vancouver specifications include the use of either PVC or HDPE liners for pipe and manholes.

In the mid 1990s, The Langley Concrete Group elected to use T-Lock PVC liners supplied by Ameron. One of the largest initial projects was tendered in 1999 for approximately 2.5km of 2400mm (96-inch) diameter lined pipe installed on piles along the Hwy 91 corridor from Hwy 10 to 64th Ave. This was the first significant improvement project to increase the capacity of the main South Surrey Interceptor, a major link in the sewers that convey sanitary sewage to the Annacis Island Secondary Treatment plant. In 2009, the Township of Langley rerouted its sewers to the Metro Vancouver system triggering an upgrade of municipal sewers that connect with the South Surrey Interceptor (SSI). In the same year, Metro Vancouver released the tender for twinning the SSI for over three kilometres with lined concrete pipe.

Additional equipment was required to produce ten 3050mm (120-inch) diameter pipes per day following ASTM C655-11, when The Langley Concrete Group was awarded the contract to supply pipe and manholes. Langley Concrete used American Concrete Pipe Association pipe design software and the direct design method to accommodate the installation parameters of the project.



To meet tough design requirements, a higher than normal concrete strength, higher tensile strength of the reinforcing steel, and strict attention to quality assurance was paid to the entire production process. The contractor used the bedding surface for an access road, saving the cost of a temporary road for supplying pipe and equipment.

The new line parallels the old sewer which will be left in place and maintained to accommodate sewage, if the new line requires maintenance. Over 500,000 people will benefit from the lined precast concrete South Surrey Interceptor, which is designed for more than 100 years of service.



[www.ccpa.ca](http://www.ccpa.ca)

[admin@ccppa.ca](mailto:admin@ccppa.ca)  
Tel: 905-877-5369

Location: Vancouver, B.C.  
Owner: Metro Vancouver  
Producer: Langley Concrete Group of Companies  
Contractor: JJM Construction  
Design: AECOM  
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