Sanitary sewer infiltration stopped

One hour and 30 liters of Prime Flex 920 is what it took to stop a gushing water infiltration into a sanitary sewer system.

Client: City of Kingston, Ont.
Broker/distributor: strataWORKS Canada Ltd.
Contractor: Dynamite Contractors

Problem:A major leak in a manhole of a sanitary sewer line of Kingston, Ontario, had been active for years. Kingston sits at the mouth of the Cataraqui River where the St. Lawrence River flows out of Lake Ontario. Much of the city sits on limestone bedrock that must be channeled to install water, sewer and service lines. The leaking manhole was located on a sanitary sewer mainline that crosses a swamp, and the manhole was acting as a drain. How major was the problem? The leak was in the manhole of a sanitary sewer line where a 25-cm (10-inch) pipe came into the manhole at the bottom of the bench. Water was flowing around a pipe union at the rate of about 23 liters (6 gal) per minute, according to estimates from Utilities Kingston. That translates into some 12 million liters (3.2 M gal) of infiltration a year, and the leak was active for seven or eight years.

Solution: Chemical grouting stopped the infiltration.

“Since chemical grouting is still relatively new in Canada, the client was a bit reluctant to try something they were not familiar with,” says Jim Hill of strataWORKS Canada Ltd., a public works distributor of infrastructure repair solutions. In fact, he made an irresistible offer: no leak seal, no pay. “So we hired a contractor who had been to Prime Resins for training. There was no risk; I knew it would work.”

Dynamite Contractors injected the resin in the manhole about three meters below grade. The work entailed drilling a series of holes and injecting**Prime Flex 920**and**Kick Fast kat**activator into the holes. Prime Flex 920 is a single-component, water-activated polyurethane resin that is ideal for gushing infiltration problems like this.

Outcome: The job was finished in a morning and cost $4,000. The infiltration was completely stopped.

“The Kingston officials were in disbelief at the results. They had tried several other options before that hadn’t worked, so they did not expect this to succeed,” says Hill. Infiltration water was mixing with sewage, so additional handling and operation costs included pumping the volume of extra water to the treatment facility, extracting clear water from the sewage and then discharging the water. The cost recovery of the project can be measured in weeks.

“Chemical grouting is definitely a method I would recommend to other municipalities dealing with infiltration,” says Hill. “The awareness and use of chemical grouts for infrastructure repair is still small here in Canada but growing. We always show the municipal public works departments we work with how they can make small, highly effective repairs on their own with easy, ‘crew ready’ cartridges. These make it easy to use and don’t require the investment in pumping equipment.”