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PERFORMANCE
OF UNDERGROUND INFRASTRUCTURES

REHABILITATION OF A BRICK MANHOLE BY SPRAYED EPOXY APPLICATION IN DOWNTOWN VICTORIANVILLE

An economic and no-excavation solution to prolong the lifespan of infrastructures.

Outdated, the brick manhole located under rue de la Gare, a commercial pedestrian street in downtown Victoriaville, was showing signs of failure and its replacement was becoming inevitable. Interested by the many benefits offered by underground infrastructures rehabilitation by epoxy spraying, the Director of Public Works of the city, Michel Lachapelle, selected this manhole to put to the test this new solution offered by Soleno Service.

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THE CONTEXT

In order to stimulate the economic vitality and revitalization of its downtown district, the city of Victoriaville implemented an important urban planning program that was executed in 2016 and 2017. The Rue de la Gare, formerly a one-way street, was completely transformed; interlocking paving stones, exclusively pedestrian, ecological and sustainable landscape, high-quality urban furniture integration and a facades renovation program. The replacement of the aging brick manhole in this newly paved street was therefore a serious problem.

THE SOLUTION

The brick manhole to rehabilitate, measuring 900 mm (36 in) diameter, had several failures: presence of smelly stagnant water, absence benching and drainage at the bottom, eroded lower brick walls and concrete restored upper walls now degraded and decayed. The infrastructure rehabilitation service by epoxy spraying was selected as the best solution for the rehabilitation of this brick manhole.

Soleno Service's team prepared the surface to rehabilitate by first cleaning it, to ensure it was free of any contaminant. Then, cracks were sealed, and surface unevenness was corrected with Solhydroc brand cementing products. The technicians of Soleno Service also created a benching in order to address its absence and rebuilt the crowns who were heavily eroded and degraded. Once the profiles were restored, a layer of SSR-175 primer and epoxy sealant was applied, to ensure good adhesion of the SSR-405 epoxy coating. This volatile organic compound (VOC) free is composed of 100% solids (no shrinkage). The application of 3.05 mm (120 mils) of SSR-405 epoxy, with a Graco XP50 multi-component airless spraying system, completed this rehabilitation carried out in November 2018.

THE BENEFITS

The epoxy spraying solution for underground infrastructure rehabilitation was the ideal solution to meet the needs of the City of Victoriaville. Indeed, in addition to ensuring a second life to this newly revitalized manhole and to restore its structural capacity, the solution offered by Soleno Service helped preserve the newly paved pedestrian crossing. Unlike a conventional replacement, rehabilitation by sprayed epoxy application requires no excavation or connection to the existing lines, which can be a complex task in an aging network. In addition, rehabilitation by sprayed epoxy application is an economical solution offered at a fraction of the cost of replacement and reduces the need for repairs usually necessary after a complete replacement of manhole. Completed in less than three days, this solution significantly reduces the impacts associated with traffic management and allows the restitution of the site outside execution hours, thus reducing the impact on the citizens and merchants of this revitalized neighborhood.



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