EPOXYTEC™

Eliminating the Nuisance of Root Invasion in Manhole Rehabilitation

Maintenance and rehabilitation of city manholes are a constant for public works departments across the United States. Deterioration of aging infrastructure due to acid attack and inflow and infiltration creates a continuous need to evaluate, rehabilitate, and protect these structures.

The Problem: The historic New England city of Brunswick, Maine, is no exception to these problems. The Sewer District of Brunswick identified two badly deteriorated manholes during routine inspections in early 2017. The manholes were constructed of poured concrete, cinder blocks, and precast barrels and they measured approximately four feet wide and five to six feet deep. Both structures demonstrated signs of severe deterioration in the cinder blocks and had extreme root intrusion. In search of solutions to restore these manholes rather than replace them, a costly, time-consuming endeavor, Brunswick's Sewer District set out to find a solution that would eliminate the root invasion and restore the structural integrity of the manholes.

Product Selection: Selection of the right product is key to the successful completion of any manhole restoration project, especially when trying to factor in the challenges of meeting budgetary requirements. After careful consideration of the conditions of both Brunswick manholes, Mortartec Cladliner was chosen. The product combines the simplicity and affordability of a cementitious liner with the performance of a high-build epoxy liner – a true hybrid epoxy solution.

Surface Preparation: As is necessary to avoid product failure in any rehabilitation project, the Brunswick Sewer District's crew carefully began surface preparation. They used the jetter off a vac truck to initiate the process, then they manually removed the roots and loose material/debris, including dirt and grit attached to the bottom and walls of the manhole. To ensure

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Project Information

Location
Brunswick, ME

Completion Date
2017

Structure
Sanitary Sewer Manhole

Owner
Sewer District of Brunswick, ME

Featured Products

Mortartec Cladliner

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adequate adhesion for the products, the crew finished the preparation by pressure washing to remove remaining oil, dust, grease, dirt, loose rust, and other foreign material.

Product Application: To begin the application process, Mortartec Cladliner was mixed using a variable-speed drill with a paddle mixer. Mortartec Cladliner comes conveniently packaged in a 5 gallon pail that can be used to mix all three components. First, Parts A and B are mixed until a consistent blue color is achieved. Then, Part C is slowly added, and the product is ready for application. The crew noticed that when Mortartec Cladliner is first mixed, it has a relatively low viscosity. If it is allowed additional time after mixing, it thickens and can be more easily applied to a higher build for areas such as the cone. If the hybrid-epoxy becomes too thick, it can be re-agitated with the mixer to lower the viscosity to the desired thickness.

Once the product was properly mixed, the Brunswick crew applied it to the manholes using a masonry brush.

In only three to four hours, the product reaches its early cure state, and the manhole can be covered and returned to service.

A Final Look: The Brunswick crew was impressed with the simplicity of this hybrid-epoxy system. They noted that the product has the ease of use of any traditional mortar. It was also forgiving, making the application process easy.

This hybrid-epoxy system was an economical solution that allowed the manholes to be rehabilitated and protected from chemical attack and the nuisance of root invasion. The simplicity of the application allowed the crew to complete the job in a timely manner, without any complications. The repair and protection of these two manholes proved to be a successful enhancement for the city of Brunswick, where the Sewer District prides itself on serving its community.

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