

## CASE STUDY



## PROJECT SNAPSHOT

### SCOPE

Manhole – 20 vertical feet deep, 3-4 feet in varying diameter

### MATERIAL

Brick

### TYPE

Sanitary sewer

### PROBLEM

Severely deteriorated and corroded manhole located 6 inches from gas main. Collapse was imminent without repair.

### SOLUTION

- AluminaLiner® Advanced Cementitious Mortar for structural reinforcement
- Structure Guard® 100% Solids Epoxy for corrosion resistance

### CONTACT

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# Successful Pilot Project in Denver, CO Convinces Asset Owner that Rehab Solution Delivers Better Performance and Cost Savings Over Traditional Dig and Replace

## COMBINING STRUCTURAL PROPERTIES OF ALUMINALINER® WITH CORROSION PREVENTION OF STRUCTURE GUARD® FOR ULTIMATE MANHOLE REHABILITATION SOLUTION

### VORTEX PRODUCTS USED



Structure Guard®



AluminaLiner®

### THE SOLUTION

After nearly two years of research and debate over the best solution, the asset owner ultimately chose a fully structurally rehabilitation solution using Quadex® Repair Materials over manhole inserts (which were costly and would reduce overall diameter too much) and the more invasive and expensive dig and replace method. Prior to the decision of rehabilitate rather than replace the crumbling manhole, a few alternative repair methods were considered. This decision was made easier since the failing manhole was located less than 6" away to a major gas line. The non-invasive rehabilitation solution was also more economical.



*Deteriorating and exposed brick manhole with actively flowing service line.*

### Quadex Advanced Repair Materials Provide Long-Term Structural and Corrosion Protection

Quadex, LLC has been long known to deliver exceptional manhole rehabilitation products. During the approval and design phase of this project, a third-party structural engineer stamped/sealed design calling for a combination of Quadex AluminaLiner® (for structural reinforcement) and Structure Guard® (for extreme corrosion protection) was required and obtained verifying the expected results.



*Rehabilitated manhole after being lined with underlayment of AluminaLiner and topcoated with Structure Guard.*



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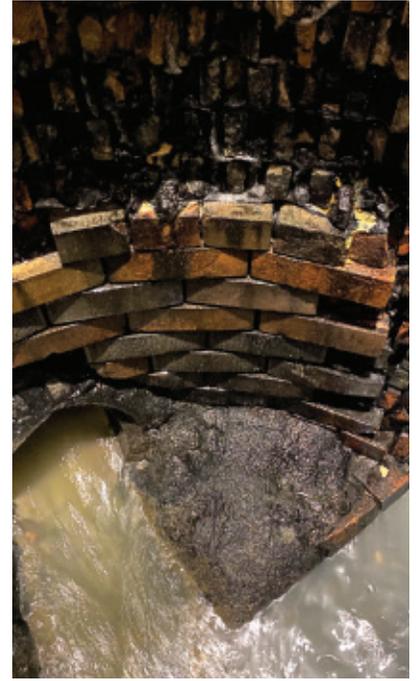


### THE PROCESS

After cleaning and preparing the manhole surface, the contractor needed to address the constant flow coming from the 10-inch mid-drop service line. By installing a flow-thru plug, the contractor avoided the cost of a complete bypass, to allow the entire structure to be completely lined and coated. For full structural support, a 1-inch layer AluminaLiner, a factory blended, single component, fiber reinforced, 100% calcium aluminate cement was first applied as an underlayment, then allowed to cure for 24 hours. The following day, Structure Guard, a 100% solids epoxy was spray applied at 125 mils. AluminaLiner provides both structural integrity and corrosion resistance while stopping groundwater infiltration. Structure Guard provides extreme corrosion protection and exceptional abrasion resistance for long-term protection.

### THE RESULTS

Completed ahead of schedule and under budget, this project proved the exceptional performance capabilities of infrastructure rehabilitation utilizing Quadex Repair Materials for sanitary sewer repairs. Pleased with the results, the asset owner will now be designing projects using this rehabilitation specification moving forward.



*The old manhole had deteriorated to the point where many bricks were missing, corroded and falling apart. A collapse was imminent.*



*Prior to the application of Structure Guard, a 1-inch layer of AluminaLiner was applied for structure reinforcement.*