

CASE STUDY

STORMWATER REHABILITATION IN THE CITY OF BEAUMONT, TEXAS

City searching for stormwater drain rehabilitation solutions.

THE CHALLENGE

The City of Beaumont is situated in Southeast Texas, just 85 miles outside of Houston. In early 2022, Beaumont ran a CCTV inspection of one of its stormwater drains and found that the reinforced concrete pipe was failing, with one section that had already collapsed. Additionally, part of this 72" diameter pipe ran onto the property of ExxonMobil's Beaumont refinery facility, meaning that any pipe rehabilitation efforts would require extra caution. Beaumont also had multiple manholes in the area that were in need of restoration. The city tapped Vortex Lining Services (VLS) for the job due to the team's proposed timeframe and price and for the small work footprint they would require. From the beginning of this project, the VLS team had to coordinate closely with the ExxonMobil refinery to avoid impacting the facility's day-to-day operations.

THE SOLUTION

To kick off the job, the VLS crew began work by putting a bypass system in place. Once it was operational, the team cleaned the 3,128 LF stormwater drain section and performed a point repair on the collapsed area (174 LF).



VORTEX
services



PROJECT SNAPSHOT

PROJECT OWNER

City of Beaumont

CONTRACTOR

Vortex Lining Services

PROBLEM

A 3,128 LF section of a city stormwater drain was failing, with one small area of the pipe already collapsed, and needed rehabilitation. Most of this section cut through an ExxonMobil refinery facility, necessitating extra caution for this work. Multiple surrounding manholes also required rehabilitation.

SOLUTION

The VLS crew performed a point repair on the collapsed area (174 LF) and then spray-applied the entire section using GeoKrete® geopolymer. They then lined another 6,528 VF of manholes with GeoKrete® and used GPR equipment to locate voids in the pipe. Next, they utilized a combination of Quad-Plug® leak stoppage material and Hyperform® rapid-set patching material to further secure the drain. They finished by injecting I & I Guard®-MSF (Soil Stabilization Foam) polyurethane resin to stabilize the surrounding soil.

CONTACT

Jacob Nix
Vortex Lining Services
jnix@vortexcompanies.com

VORTEX PRODUCTS USED



- GeoKrete®
- Quad-Plug®
- Hyperform®
- I & I Guard®-MSF

CASE STUDY

Next, the crew spray-applied the piping using Quadex® GeoKrete® structural geopolymer, which structurally restored the asset, returning it to its full strength and capacity. The team went on to line another 6,528 VF of manhole structures with GeoKrete. Next, the squad utilized ground penetrating radar (GPR) equipment to locate voids along this run of piping. They then used a combination of Quad-Plug® leak stoppage material and Hyperform® rapid-set patching material to further secure the drain and restore the pipe's invert. The crew finished work by injecting I&I Guard®-MSF (Soil Stabilization Foam) polyurethane resin to stabilize the surrounding soil and completely fill any remaining voids.



IMPACT

1

Helped Beaumont address the faulty storm drain head-on, avoiding the consequences that can occur because of pipe failure.

2

Used trenchless rehabilitation technologies to avoid digging and disturbing the surrounding area for the entire pipe section, which was the initial plan before the VLS team was brought on board.

3

The city has continued to work with VLS on similar projects.

THE RESULTS

The VLS team finished this job in July 2022, staying within the City of Beaumont's set budget. The city has been pleased with the work completed, and the VLS squad has continued to work with Beaumont on similar projects following this job. By addressing the faulty storm drain head-on, the city avoided the disastrous consequences that can occur due to pipe failure, such as road collapses.