

# CASE STUDY

## SERIES

### REPAIRING AND LINING VERSUS REPLACING PIPE

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#### The Problem

Located along the Thames River in Connecticut, the Town of Ledyard faced aging infrastructure that needed to be addressed before the winter months of 2019 rolled in. A drain culvert with two steel corrugated pipes and concrete headwalls positioned on either side of a road were deteriorating. One horseshoe-shaped steel corrugated pipe, 42" in diameter, and one 15"-diameter round pipe were rotting out, while the concrete bulkhead block walls on each side were severely deteriorating. The town needed a solution that was efficient, cost-effective, could hold up for years to come, and could be installed without shutting down and digging up the road.

Savy & Sons, a three-generation family-owned and operated business based in Amston, CT, had the expertise and portfolio of solutions to trenchlessly address these issues. Savy & Sons provides services in waterproofing solutions, water and wastewater rehabilitation, epoxy coatings and linings, infrastructure restoration, pipe lining services, and media blasting for commercial, municipal, and educational customers. Savy & Sons proposed using Epoxytec's CPP Sprayliner for the headwall repairs and horseshoe-shaped pipe. Due to the small dimensions of the round pipe, a Perma-Liner cured-in-place-pipe (CIPP) lining system was used for the 15" pipe.

#### Advantages of Trenchless Rehabilitation

Hidden from view, underground pipes often do not receive the attention they deserve until they reach their breaking point, wreaking havoc on the general public and environment. Assessment, repair, and possible replacement of this underground infrastructure are imperative to the sustainability of our nation's overall water and wastewater infrastructure.

When possible, using trenchless solutions to rehabilitate rather than replace offers numerous advantages, including cost savings, and limits city disruption, often protecting the current infrastructure in place on the street that might otherwise be compromised.

Using a sprayed-in-place pipe (SIPP) solution, such as Epoxytec's CPP structural spray-lining system, further benefits these projects because in addition to providing the necessary rehabilitation to preserve and extend the life of the current infrastructure in place without compromising its integrity, these liners also protect

against corrosion, reinforce the structure, protect against future deterioration, and provide long term sealing to mitigate inflow and infiltration (I&I).

### **The Application**

For Savy & Sons to perform this project, the river flow had to be bypass-pumped and diverted across the roadway while the pipes were rehabbed and lined. Once the flow was diverted, Savy & Sons was ready to fully assess the damage and determine whether sprayed-in-place pipe (SIPP) was the appropriate solution.

Sprayed-in-place trenchless technology pipe repair consists of two primary steps. First, the damaged pipe is inspected, using a closed-circuit television (CCTV) camera system to determine the extent of the repairs that are needed. This specialized video camera provides data that can be used to assess the extent of the damage and determine whether the pipe has the correct features for a SIPP application. The pipe is then cleaned and the surface prepared to receive the certified pipe coating. Second, a designed spray equipment is used and then an applied fiber-reinforced polymer (FRP), like Epoxytec's CPP Sprayliner structural coating is sprayed on the inside surface. The product is sprayed using a plural-component heated spray rig. The pipe coating process allows for hundreds of feet of old pipe to be rehabilitated in one continuous run, thus bridging every crack, break, and seam where leaks and root infiltration occur. In most cases, this type of pipe rehabilitation can be completed in just one day, saving municipalities valuable time and money.

In the case of this drain culvert, the CCTV cameras identified the pipes as good candidates for a SIPP repair. Therefore, after the initial inspection, the Savy team moved forward with surface preparation by jetting and descaling the pipes. This integral step of surface preparation involved high-pressure water blasting at 4,000 psi with oscillating nozzles to provide the necessary surface profile for proper bonding of the applied Epoxytec CPP system.

Savy & Sons then made all large structural repairs to the headwalls using Epoxytec's Mortartec Silicate, following a complete topcoat of Mortartec Ceramico (an epoxy-modified-cement). This process allowed for adequate rehabilitation in preparation for Epoxytec's CPP Sprayliner protective system. The CPP Sprayliner was then spray-applied at 125 mils thick over the masonry to reinforce its structural integrity and protect against future deterioration.

### **A Final Look**

Both pipes saw active flow 24/7, as they provided a river thruway under the road. This project required bypass pumping of the river flow throughout the project, which necessitated short term traffic control. However, the roadway never had to be completely shut down, nor was any excavation necessary. One of the many perks of using Epoxytec's products is a fast cure time and a quick return to service for the customer and the public. The entire project was executed in less than three days and showcased a phenomenal alternative solution of trenchless repair versus complete replacement. Additionally, these repairs came with a Savy & Sons standard 10-year warranty.



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“Savy & Sons came and looked at the job, it was done in a timely manner and my expectations were exceeded. All repairs worked out and the overall project came out beautiful,” remarked Joseph Tillman, Public Works Superintendent Town of Ledyard.

For more information, contact Epoxytec Intl, Inc. at 1.877.GO.EPOXY or Savy & Sons at 860.500.6929

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