VORTEX services

CASE STUDY

PROJECT SNAPSHOT

PROJECT OWNER
NHDOT

GENERAL CONTRACTOR
Northeast Earth Mechanics

SUB-CONTRACTOR
Vortex Services – Northeast Division

PROBLEM
Twin corrugated metal pipe arch culverts under a state road were presenting signs of failure.

SOLUTION
Lining the culverts using UV CIPP to restore their structural integrity

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Repairing NHDOT Culverts With UV CIPP Lining

DOT SEARCHING FOR A STRUCTURAL REHABILITATION SOLUTION FOR FAILING CULVERTS

THE CHALLENGE

In 2020, the New Hampshire Department of Transportation (NHDOT) noticed that the two corrugated metal pipe arch culverts beneath a state road in Stoddard, NH were starting to show signs of failure. NHDOT reached out to Vortex Services' Isaiah Bean to discuss repair feasibility and the approximate cost. Vortex's relationship with NHDOT dates back to 2014 and includes a history of multiple successful UV-cured Cured-in-Place Pipe (CIPP) installations.

NHDOT put the project out to bid in November 2020, and eventually awarded it to Northeast Earth Mechanics, a New Hampshire-based construction company. NHDOT also selected Vortex Services to perform the UV CIPP lining portion of the project. UV CIPP was chosen as the rehabilitation method of choice because of its encapsulated design (which prevents styrene release), strength characteristics, and the quality assurance associated with its installation. Plus, its installation causes only a minimal reduction of a structure's inner diameter.

CASE STUDY

THE SOLUTION

The Vortex Services team started the UV CIPP lining process in September 2021. Northeast Earth Mechanics assisted in the effort by using cofferdams to manage the significant flow moving through the pipe segments and helping in the placement of equipment.

This lining job was unique from the get-go because the culverts were an uncommon shape, and the liner was on the thicker side at 14 millimeters. The crew's years of UV CIPP lining expertise came in handy as they had to ensure that they used the correct light train and cure speed throughout the installation process.

THE RESULTS

This lining project was completed on time and within budget in late September 2021. NHDOT has been pleased with the final product and feels that the Vortex Services squad exceeded its original expectations.

IMPACT

1 Utilized UV-cured CIPP because of its strength characteristics and its installation only causes a minimal reduction in the culverts' diameter.

2 Repaired the culverts successfully despite the structures' unique shape and the thick liners required for the job (14 mm)

3 NHDOT felt that Vortex Services' results exceeded project expectations.