FYFE®

PROJECT PROFILE: PIPELINE REHABILITATION TYFO® SYSTEM

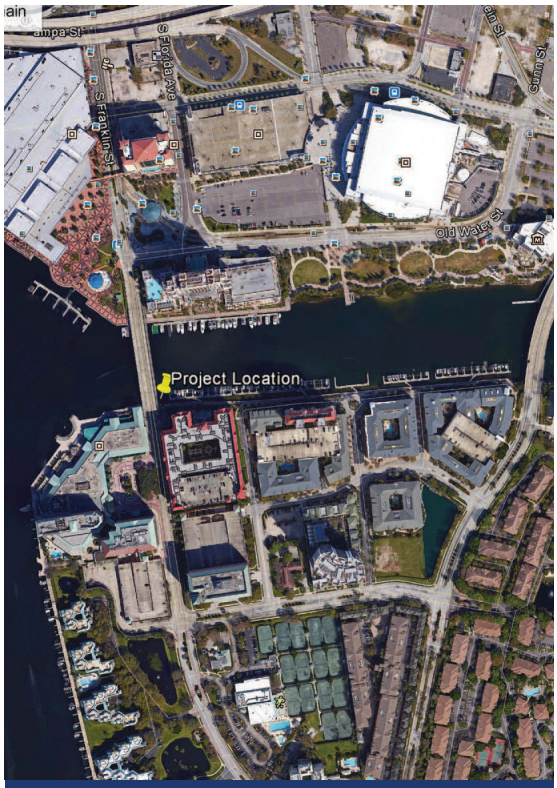
IMPROVING AN ISLAND: TAMPA USES THE TYFO® FIBRWRAP® SYSTEM TO REHABILITATE PRESSURE PIPELINE

OVERVIEW

Tampa's Harbour Island, located near downtown Tampa, Florida, is an affluent area with waterfront access across the street from the city's convention center. When Tampa recently upsized a large force main, it required a unique solution to fix nearly 400 feet of pressurized pipeline running alongside the Seddon Channel. A high water table, waterfront walkways, brick paver sidewalks and adjacent luxury condos made excavation on the island unfeasible, so Fibrwrap Construction was chosen to use its Tyfo® fiber-reinforced polymer (FRP) system to rehabilitate the pipeline.

The pipe started as a 48-inch steel pipeline connected to a 54-inch pre-stressed concrete cylinder pipe (PCCP) using a concrete-lined steel reducer. Originally a simple tie-in, the PCCP was found to be in much worse shape than the client realized and had to be resurfaced and strengthened in some areas. The decision was made to wrap all the way down the 54-inch pipeline, around the 90-degree bend at the far end and up to the line stop around the corner resulting in about 350 linear feet. Wrapping the 54-inch pipeline also allowed the general contractor to avoid having to crane an excavator off the bridge onto the property adjacent to the existing condominiums and paved walkway, resulting in minimal disruption to high-end residential and waterfront property.

"The Fibrwrap construction team did an impressive job on the Harbour Island repair. Every team member was professional, courteous and worked tirelessly, safely and efficiently to achieve and deliver a quality end product within the timeline promised. I look forward to the opportunity to team up on other projects."
Ron Queen, Sr. Projects Manager
Kimmins Contracting Corp



Aerial view of project location

Project Overview	
Project	Harbour Island Bridge 54" PCCP Force Main Rehabilitation
Location	Tampa, Florida
Length and Pipe Size	350 LF 42-inch steel; 54-inch PCCP
Installation	Hand applied carbon fiber
Owner	City of Tampa
Contractor	Kimmins Contracting

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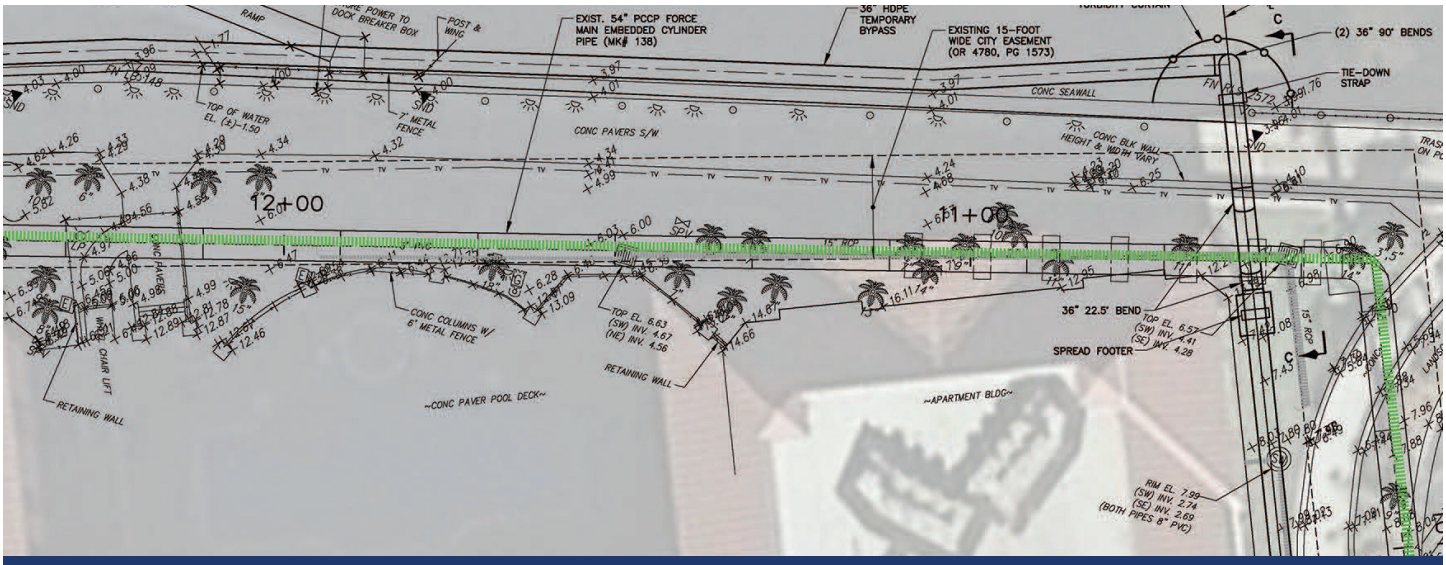
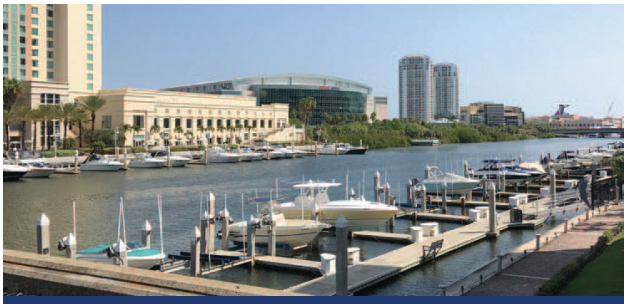


Aerial plans - project overview

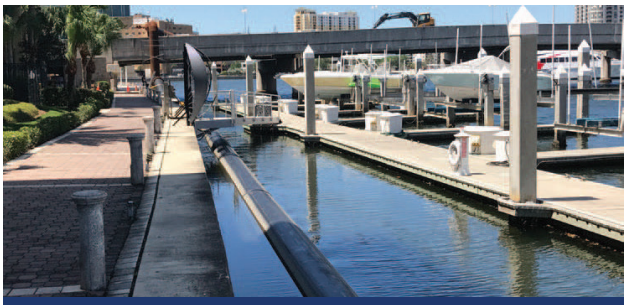
OVERVIEW

The Tyfo® system was laid up by hand in both longitudinal and hoop layers using various layers of the FRP product. This provided a fully structural solution with diameter loss of less than ½-inch. Connecting down through a vault, the only entrance to the pipeline started aboveground near the bridge and water's edge, turned 90 degrees and then continued for several hundred feet, wrapping around condos and boat slips along the outskirts of the island. This single point of accessibility made safety paramount and required special ventilation for not only breathable air, but also temperature to ensure proper cure of the FRP system.

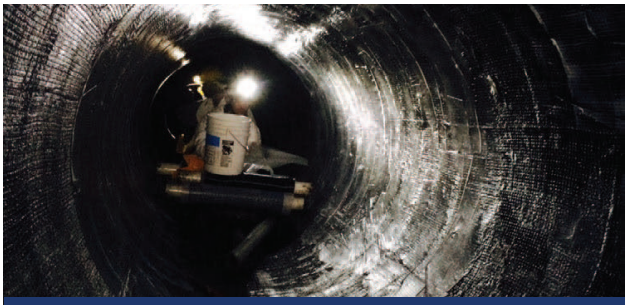
The project was successfully completed to the satisfaction of all parties in April 2017. Thomas Wilson, Greeley and Hansen engineer said, "Under an emergency authorization, Aegion was prompt, efficient and provided a high-quality solution from shop drawing phase to installation of CFRP to final QA/QC. Great work."



Marina view from start of project



Waterfront walkway along project route



Hand application of Tyfo® Fibrwrap®

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