

TRENCHLESS TECHNOLOGY PROTECTS TIDAL MARSHLANDS

Sea Street Epoxy CIPP Project in Town of Wareham MA Proves Beneficial

Trenchless technology has proven to be beneficial for the beautiful seaside community of Wareham MA, used in repair projects that protect the sensitive coastal habitat while also improving the resiliency of the sanitary sewer system for future generations. With 54 miles of sandy beach coastline, maintaining the wastewater collection system in a state of good repair is crucial because any exfiltration damages the delicate ecology of the estuarine marshland, impacting the shellfish beds, cranberry bogs, and the commercial/recreational fishery.

The Town of Wareham retained the BETA Group to design and oversee construction on a recent project to line 1900LF of 8- to 10-inch ductile-iron pipe along the Sea Street beachfront. The project is a prime example of the benefits that can accrue to smaller coastal communities from the use of trenchless technology in infrastructure rehabilitation projects. It also demonstrates how the twin challenges of tidal influence and a high water table can be successfully overcome. Through this, and previous projects, the Town has developed a good working knowledge of the efficacy and cost savings that arise from using an epoxy CIPP liner to provide structural rehabilitation of gravity sewer pipe.



Trenchless Technology is essential in reducing the impact of underground construction work on local residents and minimizing disruption to their daily lives. Wareham is a densely populated beachfront community with narrow streets, and the population doubles to 44,000 residents in the summer. Any underground construction work performed requires a very compact site footprint.



Much of Wareham's sewer network is 15-16 feet deep with a tidally influenced 6- to 8-foot groundwater level and soil with a high hydraulic conductivity. This makes dewatering necessary, and open excavation sewer replacement work more difficult and cost prohibitive.



Tidal influence and high water table levels presented big challenges during construction. Installations were limited to a 6-hour low-tide window, lining approximately 300LF segments of pipe per day, in a tightly choreographed process.



Rollers and mud mats were used to protect sensitive beachfront environment during installation of the CIPP liner below Sea Street, threading between the narrowly-spaced beachfront homes. Vehicles and equipment were located in the roadway approximately 100 – 300 feet away from each manhole.



Due to the tidal influence bringing the liner into contact with colder seawater, steam curing times were increased to compensate. Curing time for most segments took nearly two hours.



To finish the monolithic system and make it resistant to I&I, all 12 manholes were spray coated with 350mm epoxy spray using the same low toxicity aquatic safe epoxy that was used for the liner. Curing of the epoxy was assisted using a heater mounted at the top of the manhole. The complete CIPP system guaranteed the protection of the local ecology, with the pipe completely submerged in the ocean. The Town has acquired valuable experience in using epoxy CIPP to re-establish a pipe's structural integrity when situated below a tidally fluctuating water table.



The Sea Street CIPP rehabilitation effectively created an ecologically benign monolithic lining host-bonded structural system that will protect the Wareham sanitary sewer system and town's oceanfront for many years to come. Manufactured by Warren Environmental, the low-toxicity zero-VOC epoxy CIPP products used are rated as aquatic-safe and presented no residual odor on or near the site.



Vitality important that the marshlands and waterways of the Town are protected. The wildlife, estuarine habitat, and the commercial and recreational fishing opportunities, are all worth preserving for the continued enjoyment of Wareham residents and guests for generations to come. This project highlights the importance of local municipalities being aware of the impact rehabilitation methods have on the surrounding environment and the necessity to find solutions which will eliminate those impacts.

Losing sleep over aging sewer infrastructure?



We're here to help.

With over 35 years of experience, we offer practical and sustainable solutions from project inception to construction oversight and start-up.



Guy Campinha Sr. is Director of Water Pollution Control for the Town of Wareham, and a longtime proponent of

the benefits of Trenchless Technology methods. A currently serving member of the NASTT-NE Board of Directors Guy is a tireless advocate for preserving Wareham's beautiful natural environment, and for using trenchless methods to achieve this goal. Thank you Guy for your care, positive proactive thinking, and hard work on behalf of your local community!