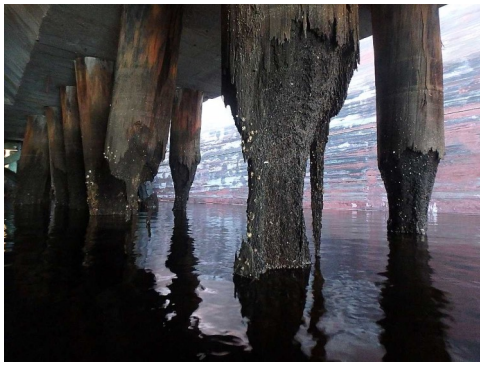
PROJECT
OVERVIEW

Timber Pile Restoration Under Concrete Dock

Chesapeake, VA

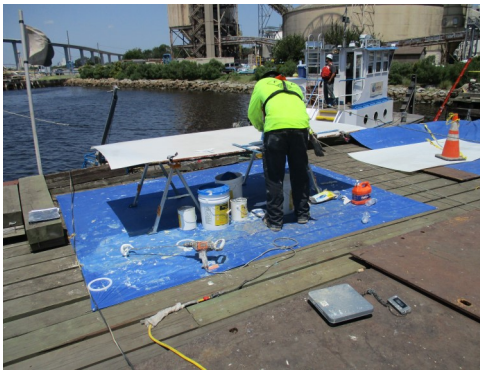
PROBLEM

The largest agricultural port in the US has a concrete and timber dock with 500+ timber piles exhibiting extreme deterioration. The 12” timber piles had an average of 50% section loss with some piles completely detached. Those under the concrete cap could not have new piles driven. Pile heights ranged from 15’ to 30’. The goal of the project was to restore all piles to original capacity for both axial and bending capacity while the dock remained open.



SOLUTION

QuakeWrap engineers designed a solution utilizing the PileMedic® pile restoration system. Six #4 GFRP rebar were held in place with the PileMedic® spacer system for quick assembly. Underwater cementitious grout was utilized for filling the annulus between pile and jacket. To simplify installation, a single design was developed that could be applied to many different pile conditions.



TECHNICAL HIGHLIGHTS

This project required crews to accommodate ship traffic during construction and seasonal shutdown requirements. Due to the confining pressure provided by PileMedic®, axial loading was greatly increased. In order to meet increased bending capacity, rebar was incorporated into the 1.5” annulus of cementitious UW Grout with PileMedic® spacers. Cross bracing was removed from the timber sections of the dock to enable wrapping, then reattached through the pile reinforcement. Due to the time-saving process utilized for the rebar cage and pile wrap, significant diving labor reductions allowed for an economical repair for the owner.

Owner: Perdue Agribusiness **Engineer of Record: QuakeWrap, Inc.** **Installer: FRP Construction, LLC**