



MATTABASSETT DISTRICT OUTFALL CROMWELL, CONNECTICUT

Application: The Mattabassett District's Water Pollution Control Facility processes wastewater from seven communities in Central Connecticut. The facility typically treats 15 to 20 million gallons per day, discharging clean water into the Connecticut River. In 2007, the District's new outfall – a 140 ft extension, with an additional 160 ft of 16 diffusers, at depths exceeding 20 ft – came online. Those sections of the outfall pipeline installed over sand are supported by the Triton® Marine Mattress System.

The Challenge: According to Nick Tanionos, head of Specialty Diving Services, the pipeline project

was initially designed for installation over bedrock. However, sections of the pipeline's footprint traversed course, fluid sand. As confirmed by a trial installation, the sandy river bottom could not support the weight of the 60 in. prestressed concrete cylinder pipe (PCCP). The challenge thus became the deployment of a scour-resistant bedding layer under continuously flowing water.

Site Conditions: The installation occurred 25 ft to 40 ft below surface. Flooding events continued to alter the river bottom profile with scour and deposits in areas excavated and prepared for installation of the mattresses.

Alternative Solutions: Engineers at Camp Dresser & McKee, Inc. (CDM) initially considered piles and various types of gabions; however, excavation and infill would have required a "massive" undertaking, according to Tanionos, adding, "So I suggested the Triton System to solve the problem." In discussions with representatives from Specialty Diving and Tensar International, engineers evaluated and redesigned the project incorporating the Triton Marine Mattress System as the optimum solution.

The Solution: Onshore, Triton Marine Mattresses measuring 5 ft x 35 ft were filled with a 12 in. thickness of 3 in. and 4 in. stone, and a geotextile



The Triton® System provided a sound foundation to support heavy piping.

PROJECT HIGHLIGHTS

Project:
Outfall Pipeline Scour Protection

Location:
Cromwell, Connecticut

Installation:
January – February 2007

Product/System:
Triton® Marine Mattress System

Quantity:
8,800 sq ft (50 mattresses)

Owner/Developer:
Mattabassett District
(Water Pollution Control Facility)

Design Engineer:
Camp Dresser & McKee, Inc.

General Contractor:
Manafort Brothers, Inc.

Installation Contractor:
Specialty Diving Services, Inc.



filter fabric was attached to the bottom. The mattresses were then loaded onto a material barge and towed to the installation site. There, a crane operator lowered mattress sections into position for the five-member dive crew. Mattresses were placed to conform to the trench bottom and sides as 20 ft sections of pipe were installed. The trench was then filled with a layer of no. 67 stone and topped with riprap. A mattress layer was next installed atop the riprap. To date, there have been no settlement issues with the pipeline, and the mattresses are performing to expectation.

The Triton System Advantage: CDM's Paul Gilbert, P.E., Project Manager, stated that the Triton Marine Mattresses were readily available, capable of being filled and barged in a confined environment and, most importantly, able to provide a sound foundation for the support of the heavy piping. "Any significant settlement," he added, "would have reduced the efficiency of the large pipe diffusers."

The solution required sufficient mass and flexibility to properly conform to the site and resist movement, the stability to resist settlement, an adaptability to dynamic conditions and the capability for rapid installation. With each of these, the Triton Marine Mattress System excelled. With the strength of Tensar® Uniaxial (UX) Geogrids, Triton Marine

Mattresses resist degradation to provide rigorous scour protection in the most demanding climatic and underwater conditions. They conform readily to irregular or soft subgrades, steep slopes, banks and more. And with the use of readily available, natural fill materials, Triton Marine Mattresses can be significantly less expensive than conventional solutions such as riprap. Other applications include shoreline revetment, dune stabilization, foundations, channel lining and riverbank protection.

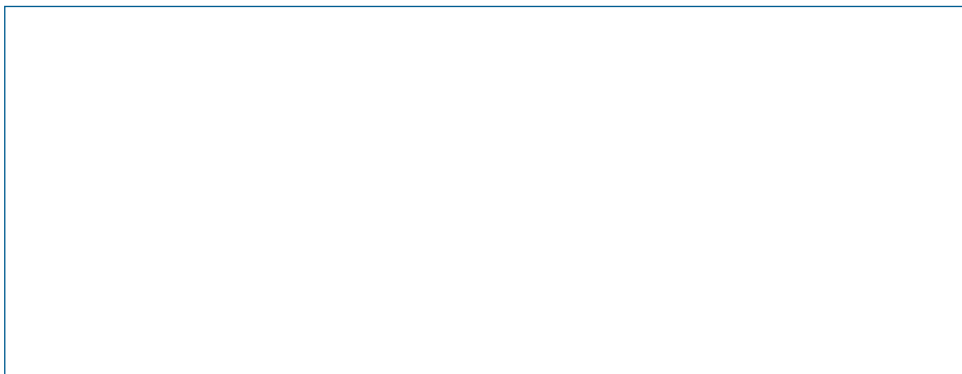
Additional Information and Services:

Tensar International Corporation, the leader in geosynthetic soil reinforcement, offers a number of innovative, integrated marine systems. Our products and technologies, backed by the most thorough quality assurance practices, are at the forefront of the industry. Highly adaptable, cost-effective and installation-friendly, they provide exceptional, long-term performance under the most demanding conditions. Our support services include site evaluation, design consulting and site construction assistance.

For innovative solutions to your engineering challenges, rely on the experience, resources and expertise that have set the industry standard for more than two decades.

For more information on the Triton Coastal & Waterway Systems or other Tensar Systems, call **800-TENSAR-1**, e-mail info@tensarcorp.com or visit www.tensar-international.com.

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