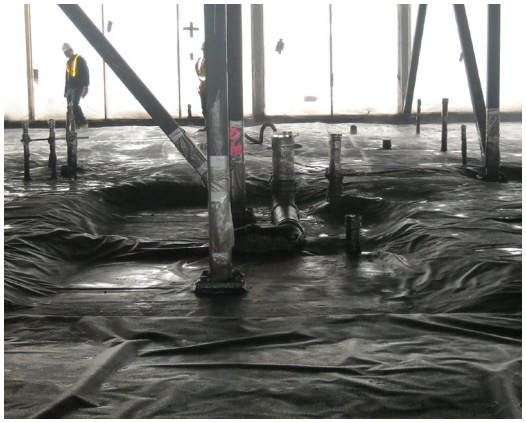
Gabion mattress deployment at former manufactured gas plant site

The sediment cap project is situated on a former manufactured gas plant (MGP) site located adjacent to the Boston Harbor. Previous remedial work included dredge and disposal in CAD cell and cap. Persistent sheen resulting from gas ebullition was apparent.



PROJECT DETAILS

Island End River Sediment Cap

Design Engineer: Arcadis

General Contractor:
Sevenson Environmental Services

General Contractor:
Maxymillian Technologies, Inc.

LOCATION

Boston, Massachusetts, USA

PRODUCTS USED

ORGANOCLAY™

REACTIVE CORE MAT®

In the top left image, mattress sections are filled with stone (stone size varies) and the geogrid is seamed shut. In the top right image, REACTIVE CORE MAT® is attached to the bottom of the mattress. The REACTIVE CORE MAT is filled with ORGANOCLAY, which is used to adsorb contaminants. The mattress system's subaqueous installation is aided by divers to ensure proper positioning of the mattress sections.

CHALLENGE:

Treating contaminated sediments in a subaqueous environment presents a set of unique challenge. In these types of applications, a mechanism is needed to aid in placement of the underlying geotextile treatment layer with minimal displacement of sediment. For this application, the underlying geotextile was REACTIVE CORE MAT, which is designed to sequester and treat contaminants within the soil.

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SOLUTION:

The remediation strategy included the placement of a modular reactive capping system, including Triton® Marine Mattresses used in conjunction with 135,000 lbs. of ORGANOCLAY™ bulk capping material and 35,000 square feet of REACTIVE CORE MAT®, in order to prevent non-aqueous phase liquid (NAPL) contamination from reaching the surface waters. The modified mattress system utilizes ORGANOCLAY filled within the REACTIVE CORE MAT to adsorb contaminants.

With the help of underwater divers, the Triton Marine Mattresses and REACTIVE CORE MAT sediment treatment layer was installed with ease and is performing as expected. The system allowed for minimal displacement of sediments and eliminated the need for a thick sand cap.

RESULT:

The 600 Triton Marine Mattresses performed as expected, and the revetment and underlying 25,000 square feet of REACTIVE CORE MAT sediment treatment layer remained intact, with no damage.

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