

Bulk reactive media utilized in sediment cap remedy for large-scale remediation project

In 2011, clean up began on Reach 1 and Roxana Marsh in the West Branch of the Grand Calumet River. This project involved mechanical and hydraulic dredging and removal of 222,000 cubic yards of sediments and soils impacted with PAH, PCB, and various heavy metals. The estimated \$50 million project was funded under the Great Lakes Legacy Act (GLLA), with the GLLA contributing to 65% of the overall project cost.



PROJECT DETAILS

West Branch Grand Calumet River
Reach 1-2, Roxana Marsh Legacy
Construction Manager: Sultrac, LLC
Contractor: JF Brennan

LOCATION

East Chicago, Indiana, USA

PRODUCTS USED

ORGANOCLAY™ PM-199

CHALLENGE:

As with Reach 3, there were still some geo-mechanical challenges for the design engineer due to the fact that the organic laden sediments being capped were unstable in some areas. Furthermore, this stretch of the river begins to widen out considerably and is subject to more water flow from nearby municipal sewage treatment plant (POTW) discharge.

SOLUTION:

The solution included a six inch bulk reactive cap, utilizing a minimum of 2.49 lbs. per ft³ active loading of ORGANOCLAY PM-199, to be placed in the river channel where contaminant concentrations were the highest. The ORGANOCLAY bulk reactive cap would then be topped with one foot of sand for armoring. The capping material was mixed in a slurry with water and pumped for placement with BCSTM system. This reactive capping system should provide a 420 year design life.

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Additional sources: www.epa.gov/ginpo/aoc

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RESULT:

Placement of the engineered cap was completed successfully and on schedule. No issues of separation occurred within the ORGANOCLAY/sand slurry during transportation or placement. The ORGANOCLAY/sand cap was placed in thin lifts and there were no subsequent issues with cap stability or product displacement prior to the installation of the armoring layer. In total, 345,000 cubic yards of contaminated sediment were effectively isolated by the ORGANOCLAY PM-199 reactive cap.