

AquaBlok® Installation Profiles



Site Location: *US EPA Region 2*

Kearny Marsh, Kearny, NJ

Project Status: Completed August 2005

Setting / Purpose:

Freshwater marsh –
Encapsulation of contaminated sediments to demonstrate AquaBlok in a marsh setting and to support a range of restoration related research projects.

Contaminant(s) of Concern:

Sediments in the marsh are impacted by range of petroleum hydrocarbon contaminants - PAHs (polynuclear aromatic hydrocarbons) and heavy metals.



AquaBlok Cap Design / Site Area: The New Jersey Meadowlands Commission Environmental Research Institute (MERI) conducted a field-scale investigation using AquaBlok within an impacted area of the Kearny Marsh to evaluate the establishment of an improved habitat for macro invertebrate species, in addition to encapsulating the impacted sediments. Design variations comprised three blends of AquaBlok each with an approximate hydrated thickness of 6-inches or 15 cm. The site area was comprised of six test plots of 3,600 SF each, for a total of 21,600 SF. SubmerSeed™ - a clay-based composite technology amended with various species of emergent wetland plant seeds was used as a method for seed placement. Field activities for the Project - including material placement, surveys and environmental monitoring, and project management - were conducted by MERI, along with assistance from Fairleigh Dickinson and Seton Hall Universities, and the contractor retained for material placement, CS Materials Placement Corporation (CS Materials Placement), along with a representative of AquaBlok, Ltd.

Key Results:

- AquaBlok can serve as an alternative plant substrate when restoring contaminated sites. AquaBlok does reduce the amount of contaminants that becomes available to the plant but does not provide the plant with adequate amounts of nutrients necessary for a healthy marsh growth.
- Metal concentrations in AquaBlok treated plots declined significantly after capping. The concentrations of metals in the cap itself were much lower than in the sediments they covered. Comparison of collection dates showed no significant increase in heavy metals in the cap between 2005 and 2007. This indicated that the heavy metals below the cap were not breaking through it.

- Concentrations of PCBs and OCPs in AquaBlok substrate were significantly lower than in sediments left uncapped. Total PCB and OCP concentrations were 10x and 8x lower, respectively. Substrate concentrations of both organics in AquaBlok were similar in 2005, 2006 and 2007 post capping.

Placement: AquaBlok material was delivered to the project site in approximately 2,500lb bulk bags (supersacks) and stored prior to installation. Supersacks were loaded into a land-based stone slinger and the material was broadcast from shore into the marsh.



Customer: New Jersey Meadowlands Commission