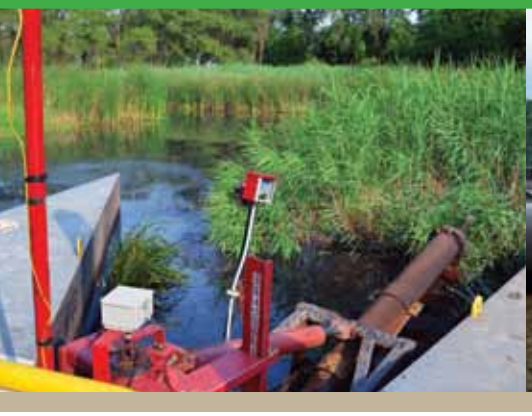
ENVIRONMENTAL REMEDIATION
PROJECT OVERVIEW

SEDIMENT REMEDIATION AND HABITAT RESTORATION

West Branch Grand Calumet River Reaches 1 & 2 and Roxana Marsh

Completed 2012 // Hammond, IN

BRENNAN
Marine Professionals Since 1919



West Branch Grand Calumet River Reaches 1 & 2 and Roxana Marsh

Methods Used

- **Hydraulic Dredging**
- **Hydraulic Pipeline Transport**
- **High Speed Sediment Dewatering**
- **Continuous Bag Field Load-out**
- **Sand Capping of Subaqueous and Marshland Sediments**
- **Mechanical Debris Removal and Disposal**
- **Invasive Species Control**
- **Native Seeding and Planting**
- **Hydrographic Survey**
- **Turbidity Monitoring**
- **Water Level Control Structure Installation**

General Description of the Project

The West Branch of the Grand Calumet River between Columbia Ave. and Indianapolis Blvd is roughly a 1.3 mile stretch of river included in the Grand Calumet River Area of Concern (AOC). J.F. Brennan Company (Brennan) was retained as the prime subcontractor under SulTRAC to carry out remedial work on the river and the bordering Roxana Marsh. Brennan successfully performed all dredging and capping activities, while overseeing major subcontractors who carried out the Roxana Marsh excavation, sediment dewatering, water treatment, and invasive species control.

A total of 122,765 cubic yards of sediment was removed using two 8-inch hydraulic dredges with surgical dredging capabilities. High-accuracy cutter head tracking systems were used to remove the contaminated sediment down to a specified design elevation. All dredged materials were transported hydraulically to a material separation and dewatering area where they were loaded out for disposal.

Once the designated elevation was confirmed through hydrographic survey, Brennan subsequently brought in the patented Broadcast Spreader (BCS™) system to place a clean sand cap over newly exposed sediments. Brennan spread a total of 75,751 cubic yards of clean sand mixed with Organo-clay while achieving minimal impact on the underlying sediments. This reactive cap was placed in thicknesses of 18 to 36 inches to maintain design requirements that avoided any changes in the hydrodynamics of the river.



Simultaneously to dredge operations, the Roxana Marsh area was mechanically excavated to a design elevation, and then backfilled using clean sand. Once the excavation and sand placement was completed, all of the areas that were disturbed during the remediation process were restored. This included planting native trees and shrubs to replace the vegetation that was removed during excavation.

Project Statistics

- **122,765 cubic yards hydraulically dredged from river**
- **117,114 cubic yards mechanically excavated from Roxana Marsh**
- **2 hydraulic dredges, several excavators**
- **27.4 acres of river and wetlands excavated**
- **183,383 cubic yards of clean sand cap placed**
- **140 trees and 70 shrubs planted**
- **32+ acres of wetlands and shoreline areas reseeded**

Challenges Encountered

- **Low water levels and shallow utility crossings required installation of temporary dam structures**
- **Heavy marshland vegetation required cutter head modifications**
- **Confined contractor area required sediment to be dewatered in 7 days**
- **Cap thickness of 18-36” had to be applied carefully to soft underlying sediments to avoid mud waves**
- **Communications were key between marsh and dredge operations for water level requirements**
- **Mild winter conditions increased difficulty of clearing and grubbing**

BRENNAN

Marine Professionals Since 1919

www.jfbrennan.com