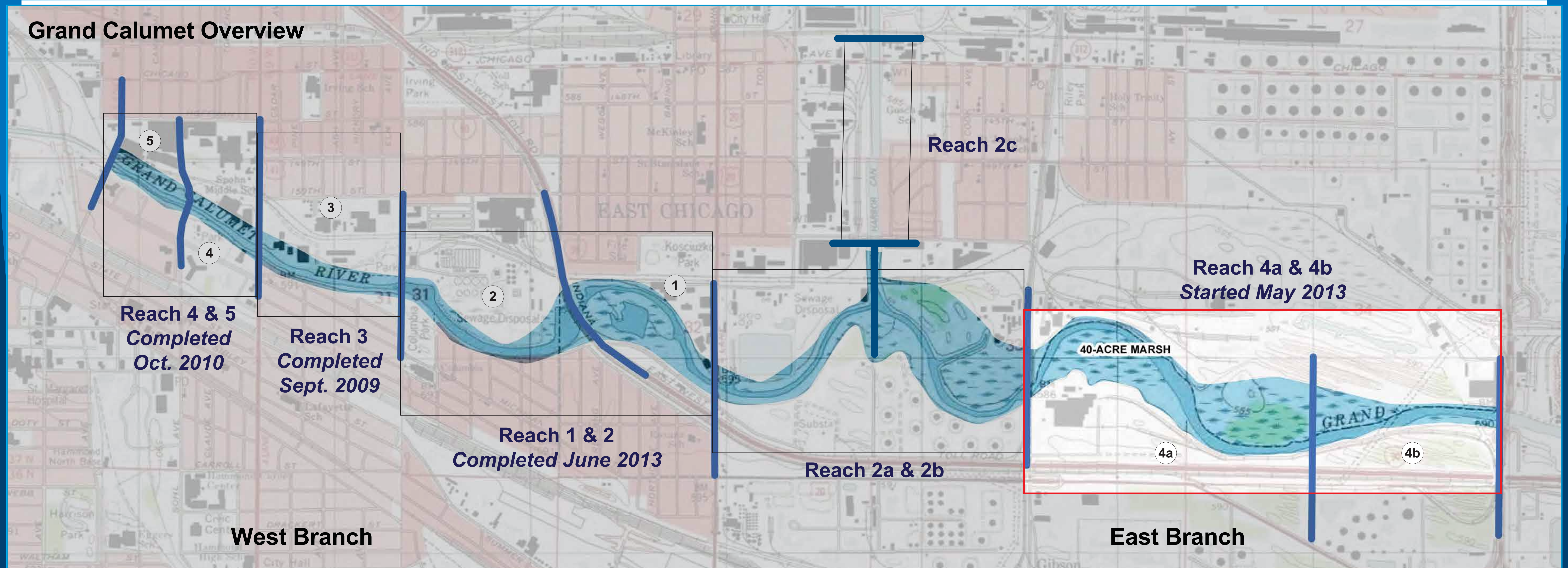




East Branch Grand Calumet River, Hammond and East Chicago, Indiana

# East Branch Grand Calumet River Great Lakes Legacy Act Sediment Remediation and Restoration Project

Jointly funded by the U.S. EPA Great Lakes Legacy Act, Indiana Department of Environmental Management (IDEM), and Indiana Department of Natural Resources (IDNR). This cleanup is the result of a partnership between the U.S. EPA, IDEM, IDNR, U.S. Fish and Wildlife Service, Du Pont, Save the Dunes, Shirley Heinze Land Trust, and the Nature Conservancy







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# The Great Lakes Legacy Act

## Goal:

Accelerate the pace of sediment remediation in U.S. Areas of Concern (AOCs)

## Mechanism:

Use partnerships as an innovative approach to conducting sediment remediation

## Great Lakes Areas of Concern





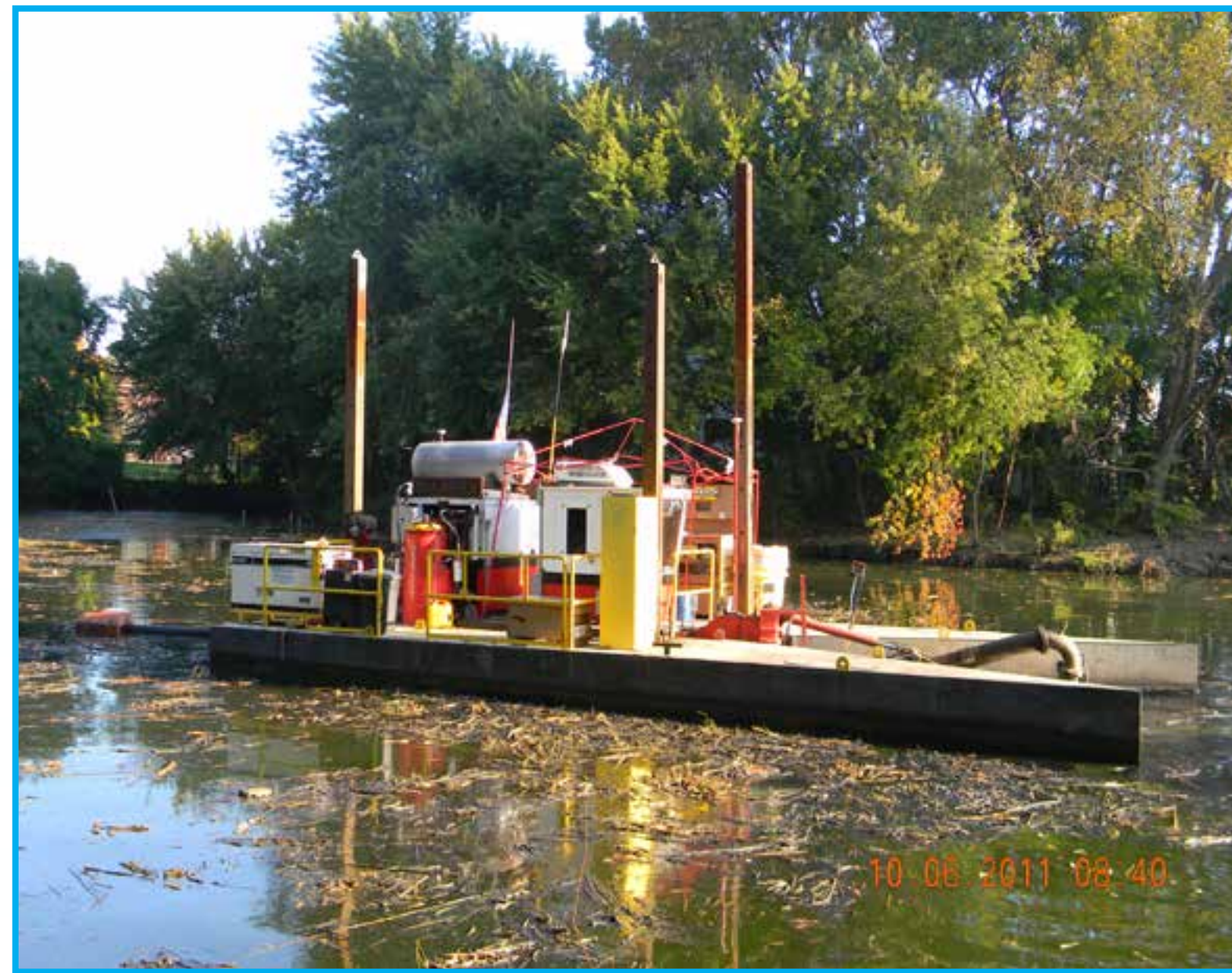


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# Future Activities

## Dredging

Hydraulic Dredging



## Dewatering

Sediment Dewatering



Sediment in Geotextile Tubes



## Capping

Placing Sand Cap



Placing Sand Cap Detail



## Excavation

Excavating Marsh Sediment



Loading Marsh Sediment



## Restoration

Roxana Marsh



Restored area with upland seed mix one year after dredging. An island planted with wetland plants is visible on the background.



Upland area of Roxana Marsh planted with upland seed mix, shrubs and trees.

West Branch of Grand Calumet River



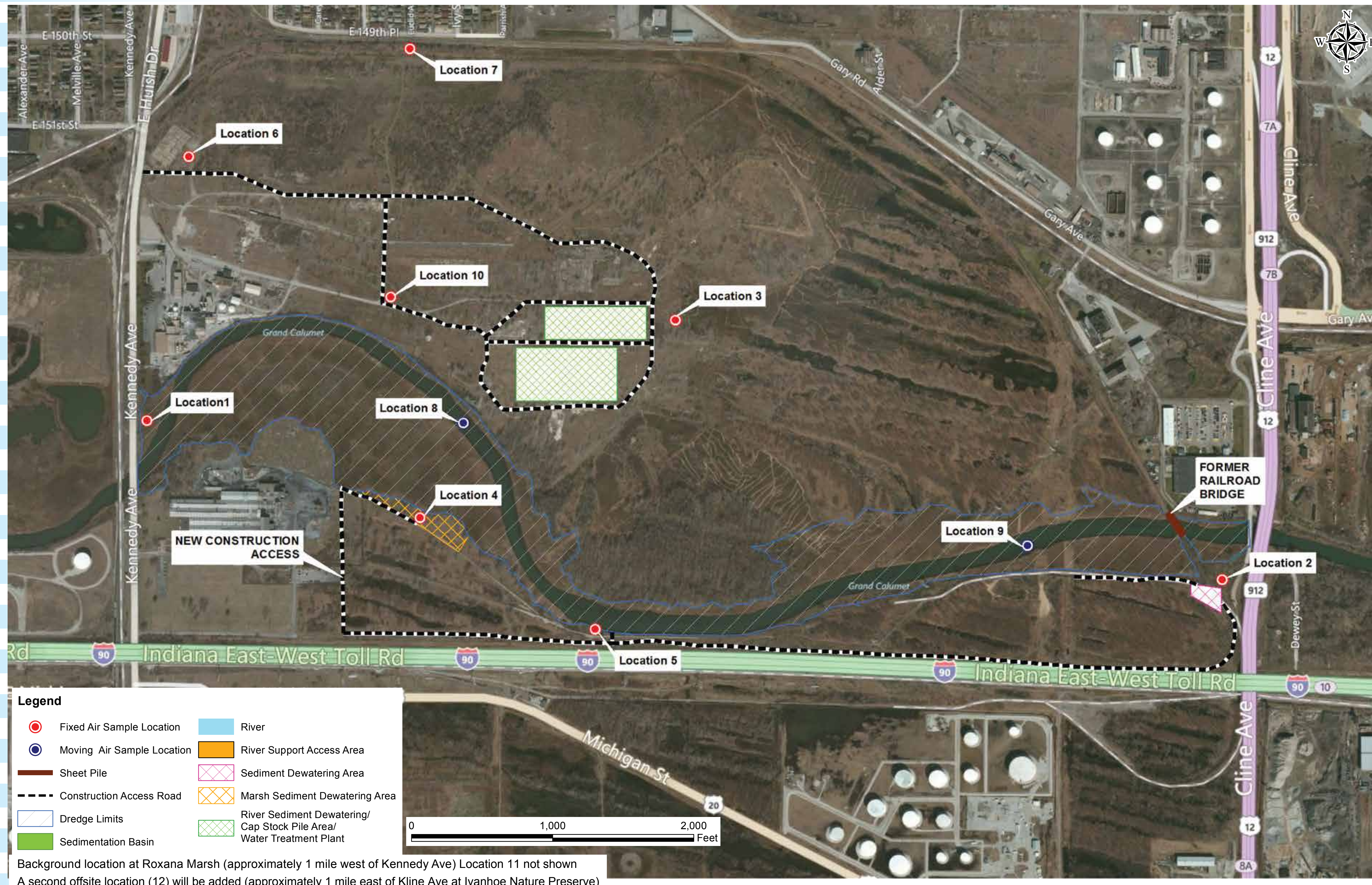
Subcontractors (Pizzo) replanting wetland vegetation during second growing season along the bank.





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# Air Monitoring



## Real-time monitoring

- Performed around active work areas
- Provides instantaneous readings of dust and organic vapor levels
- Construction activities adjusted or changed if readings exceed acceptable levels

## Fixed location monitoring

- Collect air samples over daily work shift
- Reported air concentrations for individual chemicals
- Results provide a more complete picture of longer-term air impacts from construction

## Odor control system

- Implemented as needed based on odor levels at the site and surrounding community.



The air sampling locations shown on the map above have been selected to measure air concentrations at the project perimeter, in areas where contaminated sediment is handled and processed, and at background locations distant from the site.

## Results from cleanups completed up to 2012

- Over 2000 samples collected
- Samples analyzed for VOCs, PAHs, metals, mercury, PCBs, and pesticides
- No difference in concentrations measured near work areas vs. background location away from site





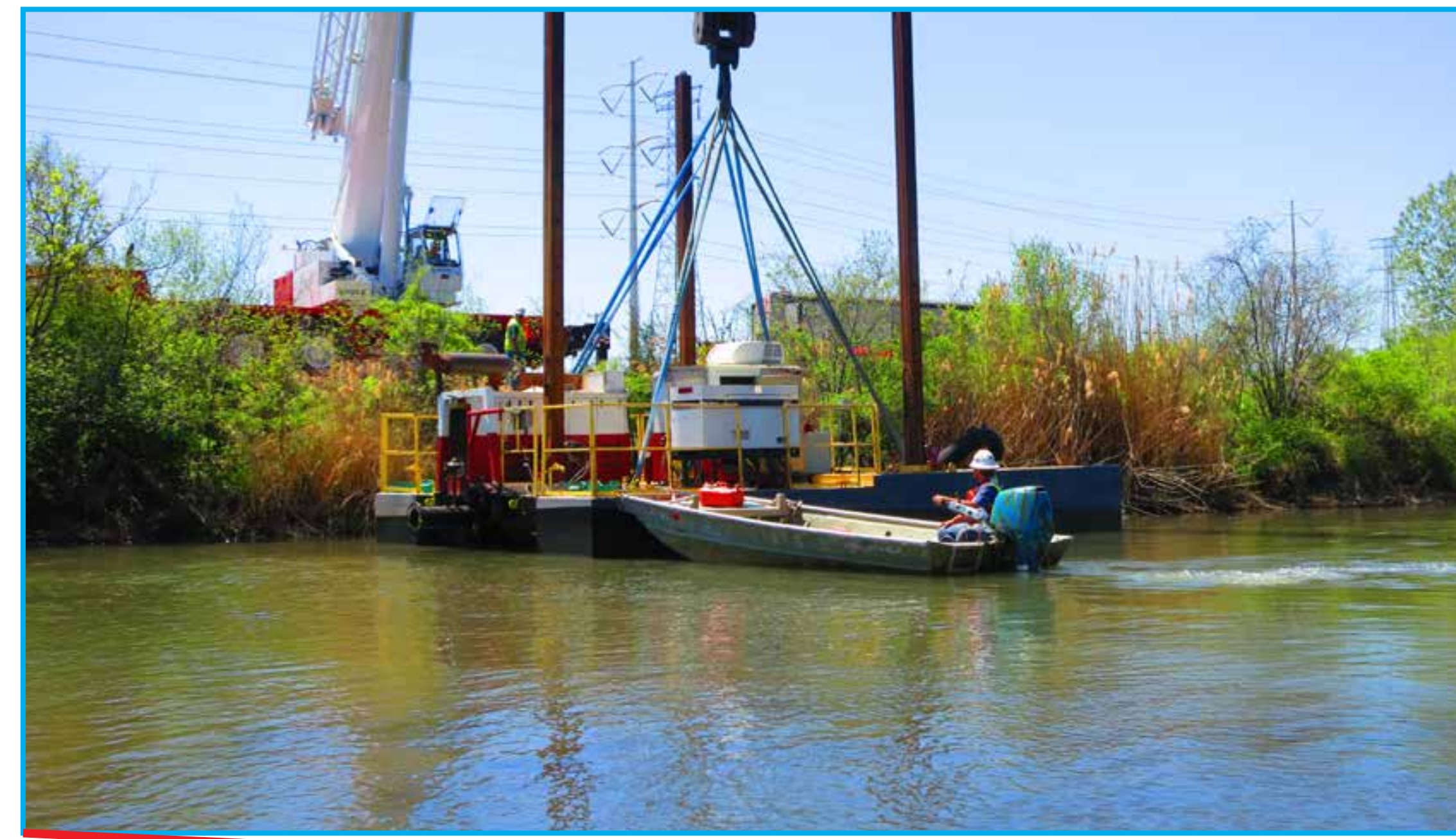
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# Current Activities

## Sediment Dewatering Pad Construction



## Mobilization of Hydraulic Dredge



## Removal of Abandoned Railroad Bridge and Natural Gas Pipeline



## Installation of Temporary Sheetpile Wall to Protect Downstream Area







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# Where Does the Sediment Go?

## Dredging



Sediment dredged by hydraulic means is pumped to large geotextile tubes. The solid sediment stays inside the tube while the water flows through the fabric. The water is collected, treated and then eventually returned to the river.



After a few weeks the formerly wet sediment is a dry soil-like material.

Contaminated sediment is removed from the Grand Calumet River by either dredging or excavation. When the sediment is removed from the river or surrounding wetlands, it is too wet to send to a landfill. The wet material needs to be dried out and the excess water removed.

## Excavation



Sediment that is excavated is transported to a dewatering pad. Drying agents are then mixed into the sediment to absorb excess moisture.



Once the sediment is suitable for the landfill, it is loaded into trucks. A plastic liner is placed inside the truck to retain any liquid that might be come out of the sediment during transport.



At the landfill, the sediment is placed with other waste.