

*“Integrating Sustainable
Dredge Management into
Brownfield Development”*



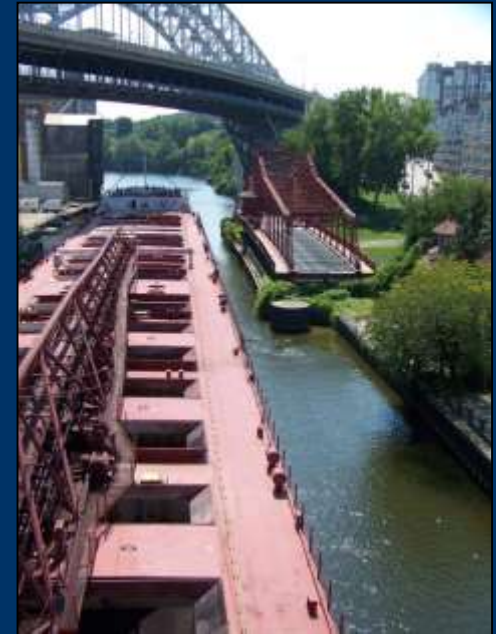
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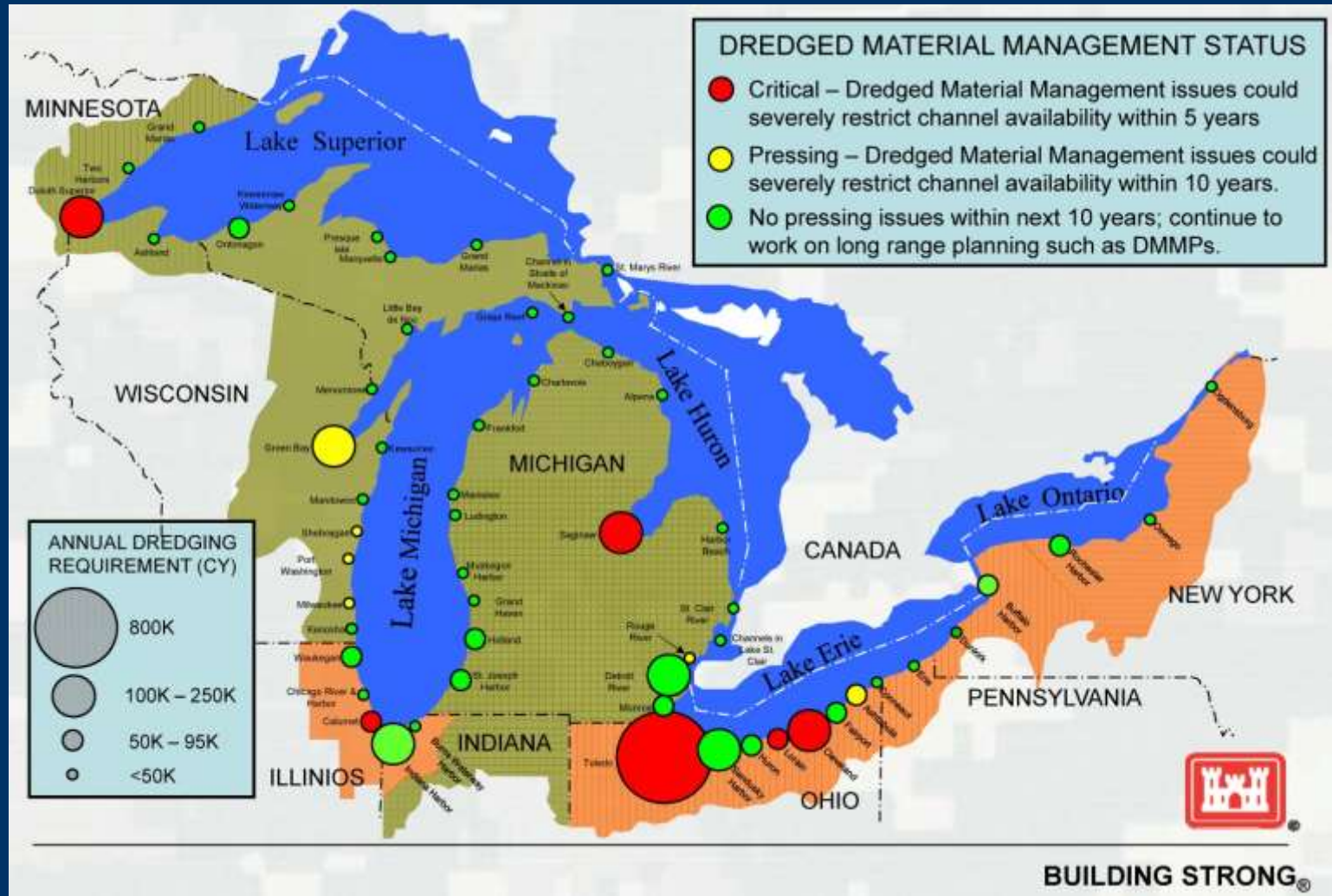
**Beneficial Use of Cleveland Harbor
Dredged Material for Brownfield
Redevelopment: Cuyahoga Valley
Industrial Center**

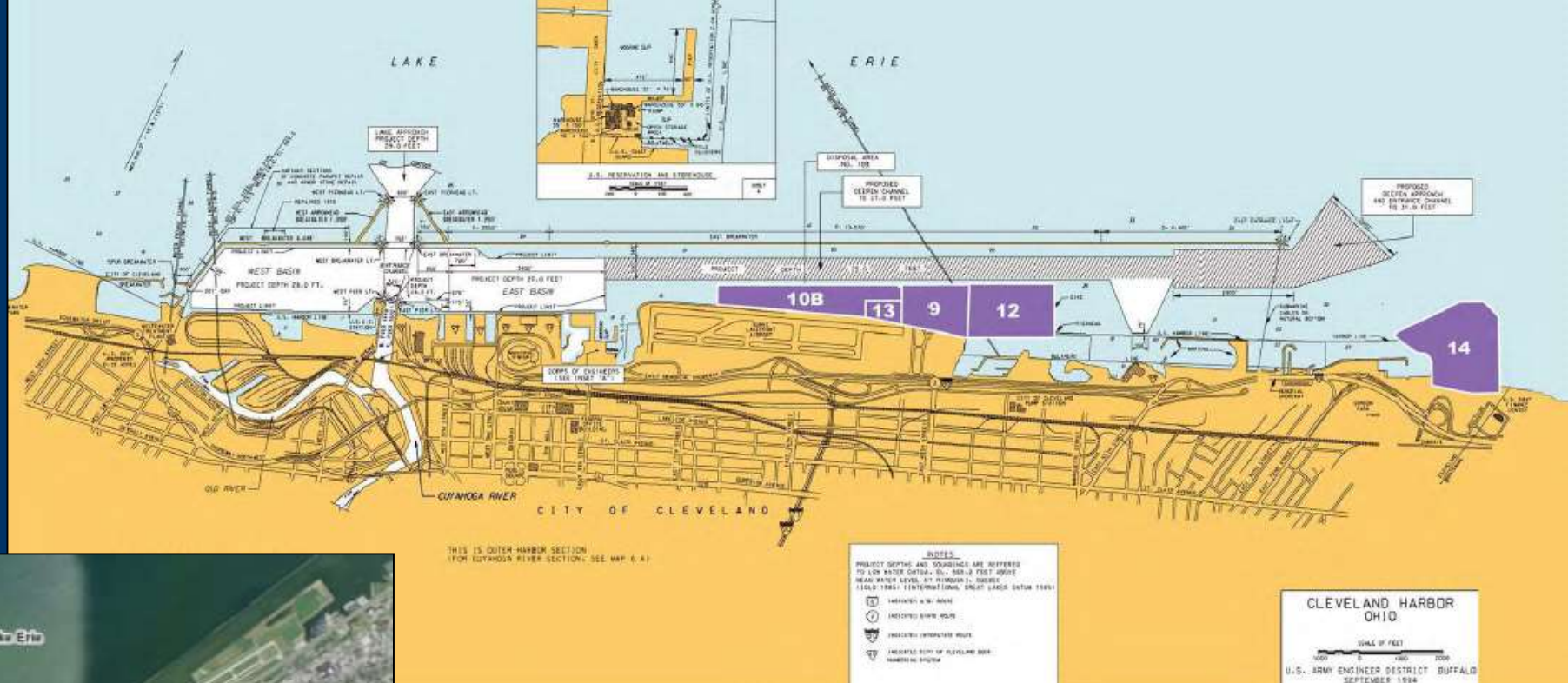
Port of Cleveland, Ohio

- 5th busiest port on Great Lakes
- 12.5 million tons of cargo delivered
- Dredged depth of 23 feet allows 20,000-23,000 tons per delivery
- 1 foot of loss of depth = 110 tons of cargo



Critical Dredged Management Status





Port of Cleveland, Ohio

Current Dredged Material Management

- Evaluation of dredged material in accordance with Clean Water Act
- Since the 1960s, material placed into confined disposal facilities (CDFs)
- Target suitable material for beneficial uses (e.g. upland)
 - Must comply with federal and state standards (e.g. Ohio Voluntary Action Program)



Background

As Cleveland Harbor CDFs approach original design capacity, alternative dredged material management opportunities must be pursued that comply with CWA and other regulations.



Background

- Project must comply with federal regulations (CWA)
 - Move material from CDF to CDF – no permit
 - Harvest material from CDF – permit, coordination needed
- Project must comply with state regulations (Ohio VAP)
 - Material must meet standards – commercial soil screening levels
 - Storm Water Pollution Prevention Plan (SWP3)

Cuyahoga Valley Industrial Center (CVIC)

- 60-acre brownfield
- In need of cover soil, site grading, and site improvements



Hull's Role on the Project

- Hull's activities included:
 - Asset management
 - JRS grant preparation and implementation
 - Environmental site assessments
 - Risk assessment
 - Remedial plan
 - Civil design
 - Material Management Plan preparation
 - Stormwater permitting
 - Construction observation
 - Geotechnical/geoenvironmental services

CVIC Project Team

Public Project Partners and Team Members

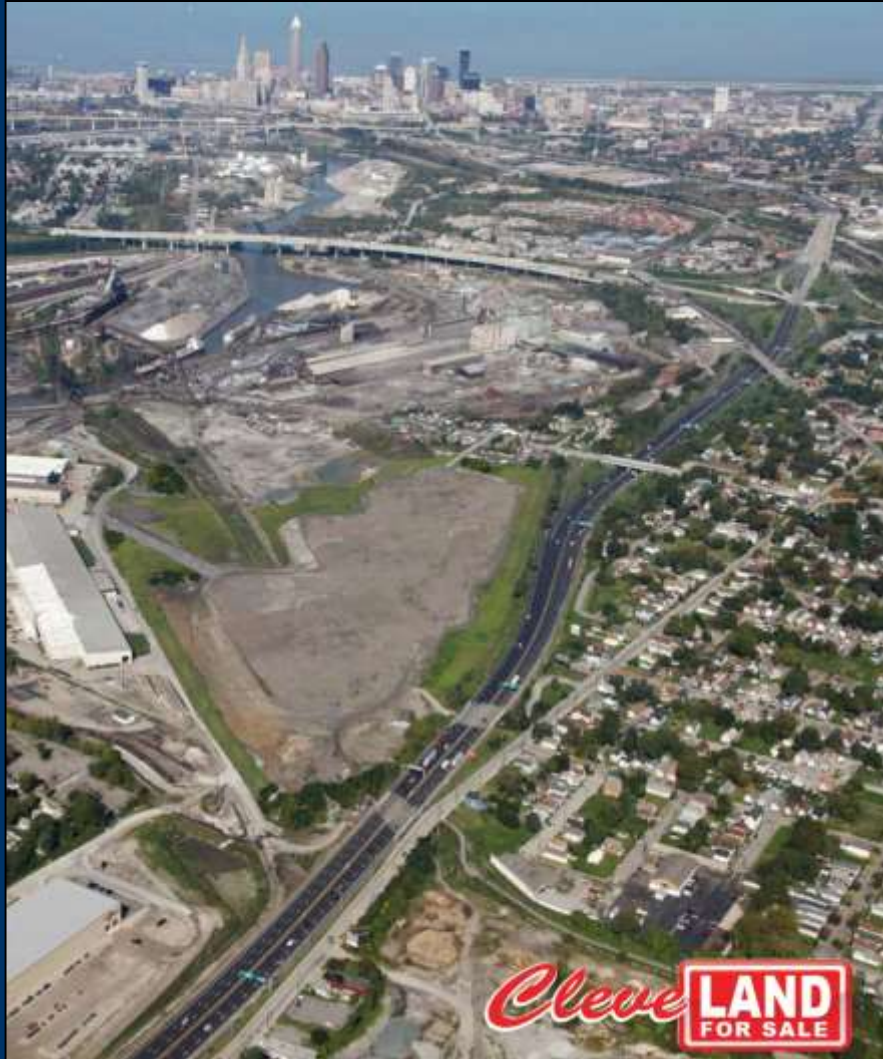
- City of Cleveland
- Cleveland-Cuyahoga County Port Authority
- Greater Cleveland Community Improvement Corporation
- U.S. Army Corps of Engineers
- Ohio EPA
- Northeast Ohio Regional Sewer District
- ODOD (Ohio Job Ready Sites Grant)



Property Timeline

- **1898 – 1920:** Ice House/Brick Company
- **1920 – 1992:** Coke Plant
 - Coke Plant structures demolished within a few years thereafter
- **1992 – 2010:** Steel fine slag stockpiled by ArcelorMittal
- **2004 – Present:** Environmental site assessments and geotech explorations completed
- **2010:** Property purchased by GCCIC
- **2010:** CDF import
- **2011:** Site-wide grading and stormwater controls
- **Present:** Utilities (sewer, water, etc.) complete; shovel-ready site

CVIC Project Overview



- Complies with federal and state regulations
 - Completed under CWA authorization
- Work completed July 2010 – September 2010
- Harvested approximately 300,000 CY from CDF 10B
- Managed material through Ohio EPA-approved Materials Management Plan (MMP)

CVIC Materials Management Plan (MMP)

- Site-specific ecological and human health risk analysis
 - Comparison of analytical data to EPA Regional Screening Levels (RSLs) and Ohio Voluntary Action Program (VAP) standards
- Quality control procedures
 - Characterize and screen materials at CDF and CVIC beneficial use site
 - Process to identify anomalous materials
- Process to track each load of material from CDF 10B to the CVIC site

CDF Material Import - Screening

- Material Acceptance Questionnaire
- Fill Testing and Material Documentation Plan
 - Hull on-site full-time to screen import material (July 2010 thru Sept. 2010)



CDF Material Import – Delivery and Processing



Site is for sale, “shovel ready”



Dike 14



- 1999 - Placement activities ceased
- 2005 - Master plan to create a nature park
- 2006 - Grant to evaluate sediment
 - 5 acres in need of remediation
- 2013 – Placement of CDF 10B material to address Ohio VAP

Sustainable Sediment Management Strategy



Identify and implement a sustainable sediment management and use strategy for the material dredged from the federal channel.

Next Steps



CDF Expansion

- Site Development at CDF
- Geotechnical Improvements



Upland Beneficial Use

- Offloading Facility
- Demonstration Projects



Sediment Characterization

- Open-lake Placement
- Unrestricted Beneficial Use

Summary

- The CVIC project demonstrates the feasibility of using dredged material in a beneficial manner in accordance with regulations
- MMP was the first of its kind in Ohio
- Additional opportunities should be pursued through incorporating hydrodynamic model and sediment evaluations
- A sustainable sediment management strategy will assist the Cleveland-Cuyahoga County Port Authority implement a program to address the management and beneficial use of dredged material

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Thank you!

Acknowledgements:

- CVIC Project Team
- City of Cleveland
- Cleveland-Cuyahoga County Port Authority
- USACE
- Ohio EPA

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