

Balancing Future Navigation Channel Maintenance and Remedial Design Goals: Rivers and Harbors Act “Section 408” Considerations

Prepared for:

Proceedings of the Western
Dredging Association Summit &
Expo 2018

Prepared by:

EA[®] EA Engineering,
Science, and
Technology, Inc., PBC
Kaitlin McCormick,
Mike Ciarlo, and Jamie Beaver

June 2018

Contents

- **Introduction**
 - ◆ **Regulatory Overview**
 - ◆ **Project Overview**
- **LRROC Section 408 Process**
 - ◆ **Initial Request**
 - ◆ **1st Comments**
 - ◆ **2nd Comments – Navigation Channel and Future Maintenance**
 - ◆ **3rd Comments – Armoring and Strike Hazards**
 - ◆ **Section 408 Approval**
- **Lessons Learned**

Section 408 Overview

- **Section 14 of the Rivers and Harbors Act of 1899**
 - ◆ **Grant permission for the temporary or permanent alteration of existing facilities or infrastructure:**
 - **owned by the federal government**
 - **for the improvement of harbors or protection from flood**
- **Commonly called “Section 408 approval”**
 - ◆ **Area of the United States Code (USC) where this authority has been codified: 33 USC 408**

33 USC 408

It shall not be lawful for any person or persons to take possession of or make use of for any purpose, or build upon, alter, deface, destroy, move, injure, obstruct by fastening vessels thereto or otherwise, or in any manner whatever impair the usefulness of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States, or any piece of plant, floating or otherwise, used in the construction of such work under the control of the United States, in whole or in part, for the preservation and improvement of any of its navigable waters or to prevent floods, or as boundary marks, tide gauges, surveying stations, buoys, or other established marks, nor remove for ballast or other purposes any stone or other material composing such works...

33 USC 408

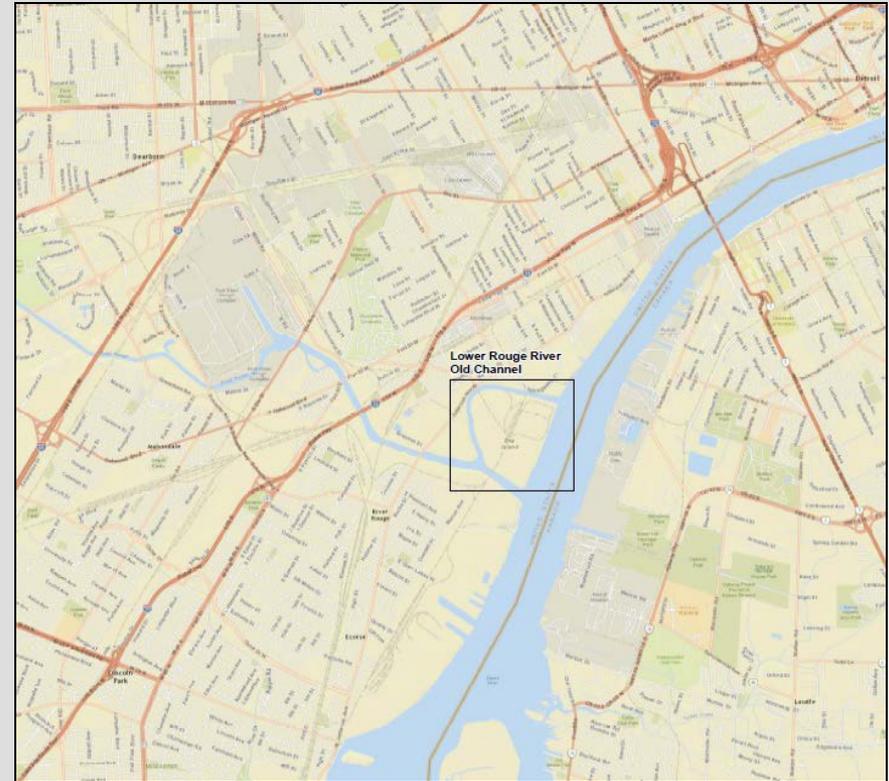
... Provided, That the Secretary of the Army may, on the recommendation of the Chief of Engineers, grant permission for the temporary occupation or use of any of the aforementioned public works when in his judgment such occupation or use will not be injurious to the public interest: Provided further, That the Secretary may, on the recommendation of the Chief of Engineers, grant permission for the alteration or permanent occupation or use of any of the aforementioned public works when in the judgment of the Secretary such occupation or use will not be injurious to the public interest and will not impair the usefulness of such work

Section 408 Overview

- **Codified regulation does not specifically identify navigation channels**
- **Navigation channels serve to maintain safe passage of navigable waters and therefore fall under Section 408**
- **Alterations subject to approval of the Secretary of the Army as recommended by the Chief of Engineers**
- **Delegated to individual USACE districts**
- **Issued by District Engineer**

LRROC Sediment Remediation Project

- USEPA Great Lakes National Program Office Project under the Great Lakes Legacy Act
- Focus on addressing beneficial use impairments at Areas of Concern
- Non-federal sponsor is Honeywell
- Located adjacent to Zug Island, Detroit, Michigan
- Constituents of concern are PAHs and non-aqueous phase liquid (NAPL)



Lower Rouge River – Old Channel

- Maintained as an active channel
- 1.5 miles long, width varies from 150-200 feet
- Authorized width ranges from 100-150 feet
- Channel is authorized at a 2:1 slope



Sediment Characterizations



- Limited maintenance dredging has occurred
- No remedial actions in water
- RI and FS undertaken to define the nature and extent of contamination and identify alternatives
- Remedial alternative was selected that includes:
 - ◆ Shoreline stabilization
 - ◆ Dredging
 - ◆ Capping

Remedial Design



\\lovetopas\GIS\Draw\Federal\Midwest\Michigan\Lower River Rouge\Map\DrawFact Sheet Map3_McCormick_well.mxd



Section 408 Request and Initial Comments

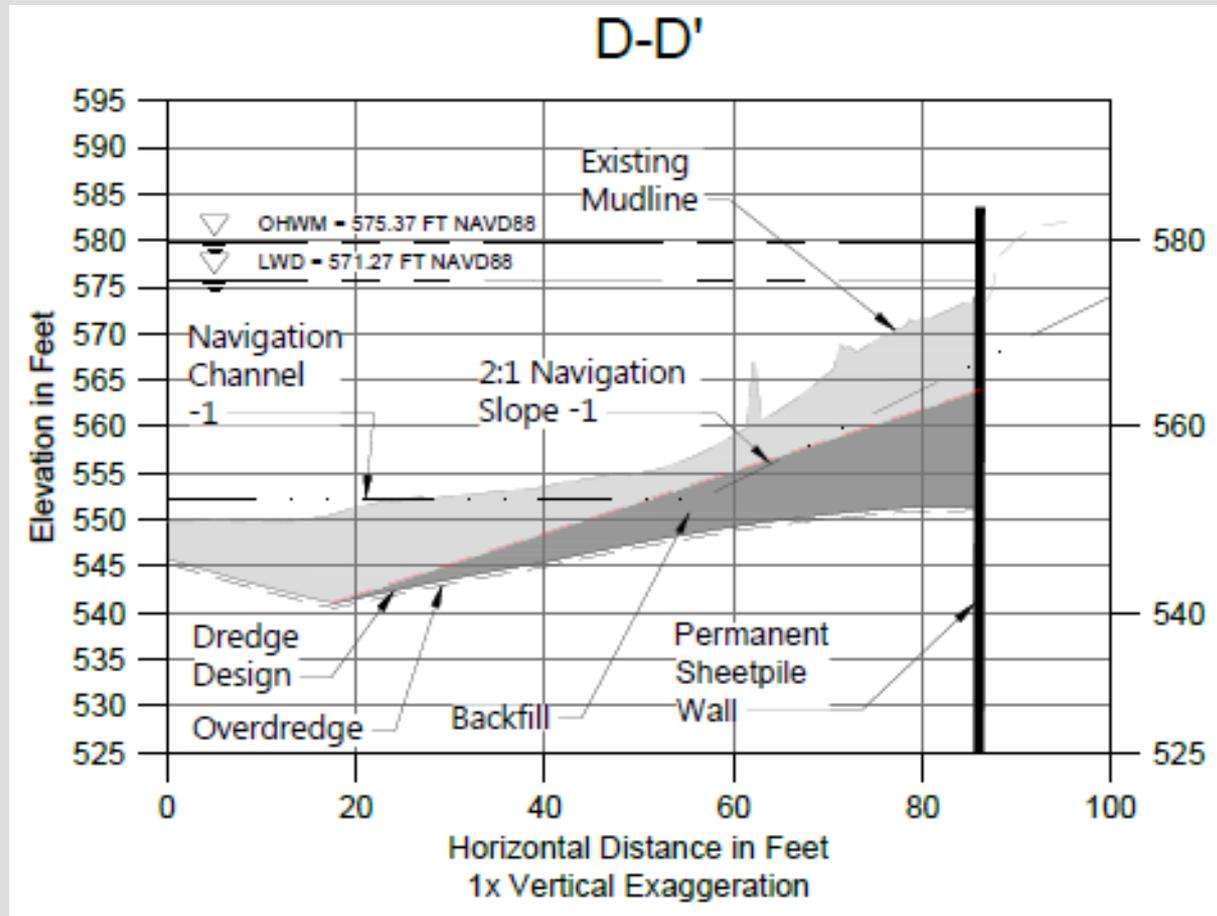
- **Primary regulatory coordination had been part of the Section 404/Section 10 Permitting Process (initiated May 2016)**
- **Previous coordination for Value Engineering Process**
- **Section 408 Request submitted in July 2016**
- **Initial comments received in September 2016**
 - ◆ **Resulted in no substantial changes as a result of comments**
 - ◆ **Some required consideration of hydraulic and sediment transport modeling**
 - ◆ **Minor change for safety – incorporation of ladders on the permanent sheet pile wall for emergency egress**

Navigation Channel and Future Maintenance

- **Second set of comments**
- **Focus on impacts to the federal navigation channel/ future maintenance**
- **Key concerns related to placement of material (stabilization/capping) within the navigation channel**
- **Evaluation of:**
 - ◆ **Size of material placed as backfill/stabilization**
 - ◆ **Placement of any material with the channel, its sides slopes, or 1-ft of over depth**
 - ◆ **Shoreline stability if stabilization material is removed during maintenance dredging**

Agency Discussion

- Overriding concern – ability to complete future maintenance dredging activities



- **Backfill material initially proposed 4 to 8 inch diameter, reduced 2 to 4 inch size class**
 - ◆ Concerns about strike damage and future dredging impacts
 - ◆ Smaller material considered based on modeling analysis related to velocity and shear stress
 - ◆ 2 to 4 inch smallest size stone to provide adequate scour protection

- **Concern about slope stability**
 - ◆ Will slopes remain stable if maintenance dredging removes stabilization/scour protection
 - ◆ No previous maintenance since early 1980s
 - ◆ Remedial action improves slope stability over existing conditions
 - ◆ Prohibitively expensive to stabilize full area

Agency Discussions - Continued

- **Third set of comments building on previous feedback**
- **Placement of hardened erosion control material within authorized limits of the navigation channel**
 - ◆ **Alternatives dismissed**
 - ◆ **Reduction of strike hazards**
 - ◆ **Stabilization material necessary because material is not maintained to depth, placed only at or below existing grade**
 - ◆ **Use of 1-inch diameter stone within remedial areas is consistent with or smaller than existing material and debris placed**

Reduction in Future Dredging Costs

- **Placing material consistent in size with the existing substrate**
- **Stabilizing the northern shore of the LRROC**
- **Removal of 13,500 cubic yards (10,320 cubic meters) of material within the navigation channel**
- **Removal of the extensive debris (including 14 cars)**
- **Eliminating the need to maintenance dredge in front of a water intake**

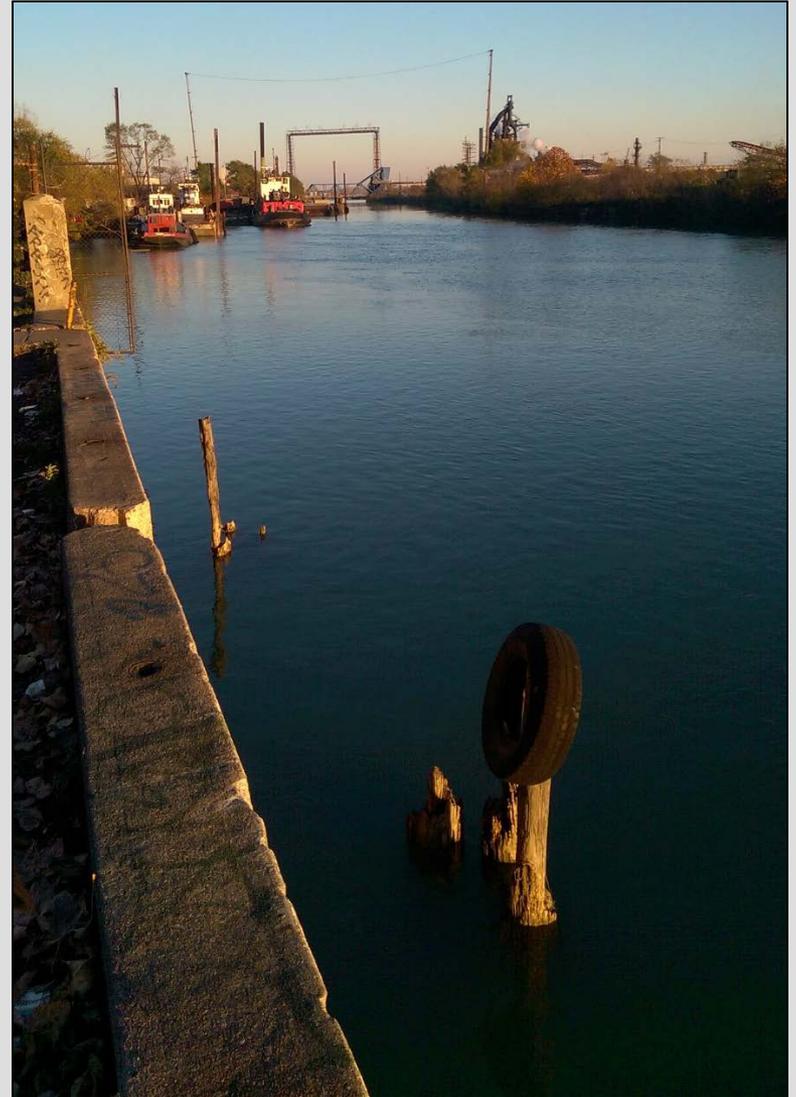
Project Viability

- Further adjustments would reduce either the scale of remediation or drive up additional costs precluding the advancement of the Project
- Overarching goal to address beneficial use impairments in the Rouge River and delisting of the AOC



Approval Issued

- **Section 408 Authorization Issued in August 2017**
 - ◆ 16 month review process
- **Design changes:**
 - ◆ Smaller backfill
 - ◆ Removed some backfill/stabilization areas
 - ◆ Recognition of cost savings associated with debris and sediment removal



Lessons Learned

- ✓ **Ensure that USACE operations team is involved early in the process**
- ✓ **Quantify upfront financial benefits to infrastructure maintenance**
- ✓ **Initiate the review process early**
- ✓ **Identify best pathway to work through design challenges – meetings, webinars, written comments**
- ✓ **Critical include both the policy/process leads and engineers in the discussions**

Thank You!

**Kaitlin McCormick, CEP
Senior Scientist
716-289-2409**

