

SEDIMENT REMEDIATION & SHORELINE REHABILITATION

Environmental Services Association of Alberta (ESAA)
Remediation Technologies Symposium



Envirocon Overview

| | | | | | |
|------------------------|--------------------------------------|---|--|---|---|
| AT A GLANCE | Founded: 1988 | Markets: Canada & United States | Largest Project Size: \$75,000,000 | Bonding Capacity: \$100,000,000 | A Washington Company: www.washcorp.com |
| | Projects Completed: 2,800+ | | | | |



**Environmental
Remediation**

Soil excavation and hazardous materials handling

Contaminated soil and sludge treatment

Repository construction, capping, and containment

Radiological impacted soil remediation

Mine reclamation

Soil and groundwater remediation systems



**Decontamination,
Decommissioning & Demolition**

Total/partial facility decommissioning and decontamination

Facility dismantling, and demolition

In plant select demolition

Structure and foundation removal

Above-ground & below-ground tank and piping removal

Asset recovery and salvage material management

Waste stream characterization & disposal



**Dredging & Sediment
Remediation**

Water bypass and diversion systems

Sediment removal, dewatering, and treatment

Hydraulic and mechanical dredging

Contaminated sediment transportation and disposal

Wetlands and stream restoration

Subaqueous cap construction



Geotechnical Construction

Slurry wall seepage barriers

Permeable reactive barriers

In-situ stabilization

Soil mixing foundation systems and containment walls

Jet grouting and other grouting techniques

Sheetpile containment and excavation support walls

Innovative combined systems

Vibrated beam slurry walls



Nuclear Services

Radiological remediation

Hazardous and radiological waste management

Contaminated soil excavation

Repository construction, operation, and capping

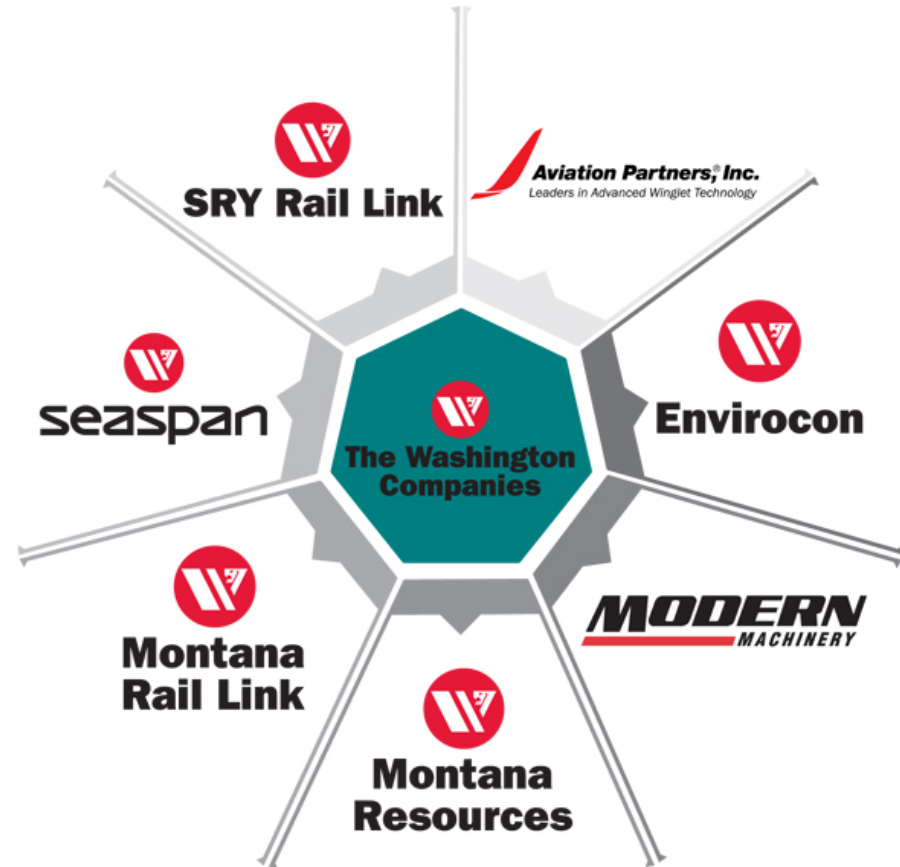
Hazardous and chemical constituent abatement

Radiological facility, structure, concrete, and steel demolition

Subgrade utility removal and relocation

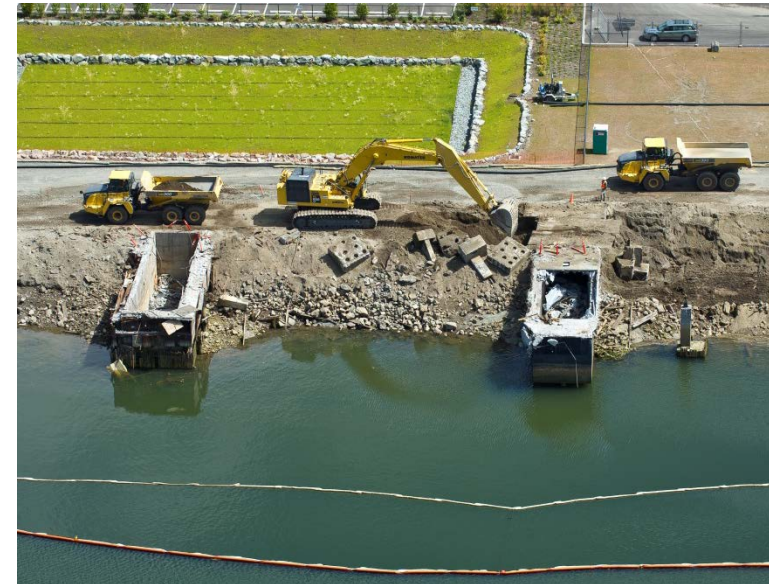
Envirocon Overview

- Over 25 years of experience
- Member of privately held Washington group of companies
- Mature corporate infrastructure
- Significant long-term invested assets in Canada and the United States
- Excellent and stable financial position
- Experience with private and public sector clients



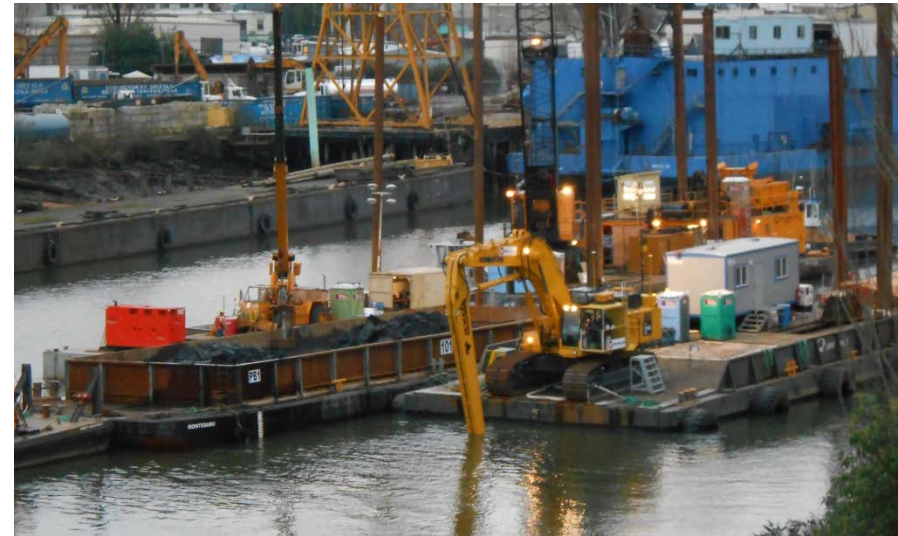
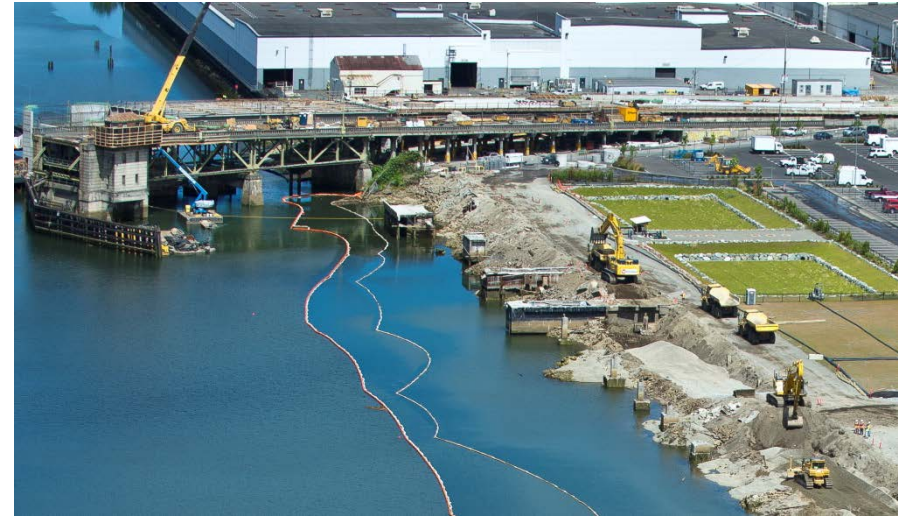
SAFETY

- Public Safety
 - Project-Public Interface
 - Public Perception
- Worker Safety
 - Established BBS system

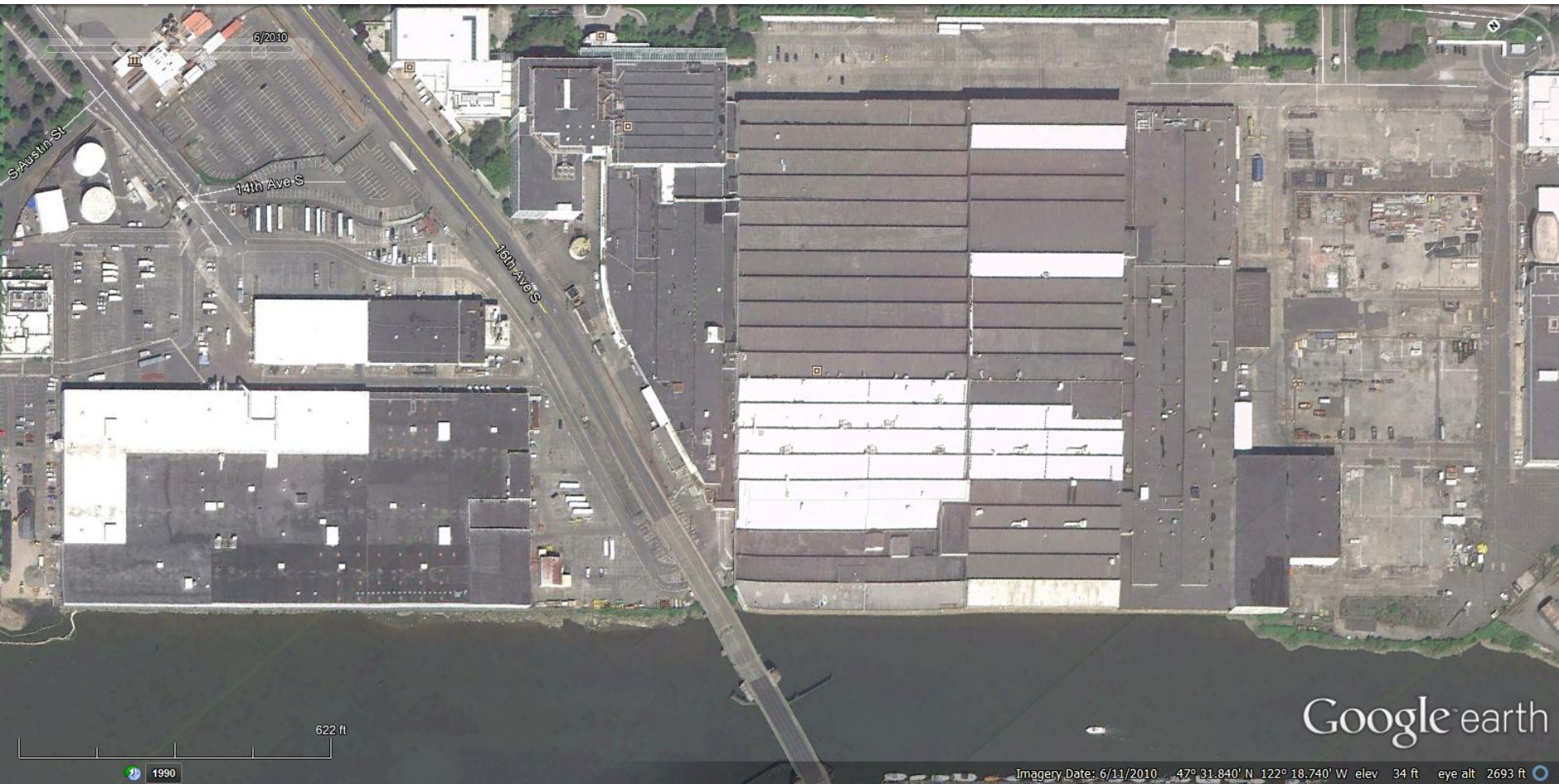


Two Major Components:

- Shoreline
 - Infrastructure
 - Tasks/Constraints
- In Water Work
 - Infrastructure
 - Tasks/Constraints



Manufacturing sited on an industrial waterway



Google earth

Imagery Date: 6/11/2010 47° 31.840' N 122° 18.740' W elev 34 ft eye alt 2693 ft

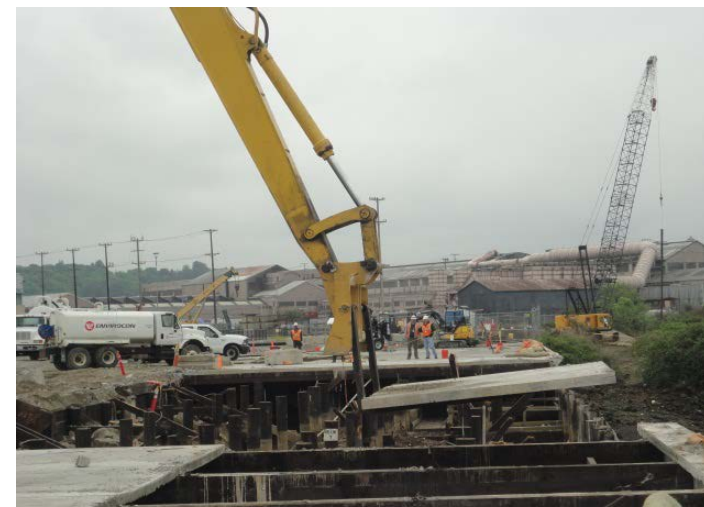
Shoreline Work



Shoreline Work



Shoreline Work



Shoreline Work



Shoreline Work

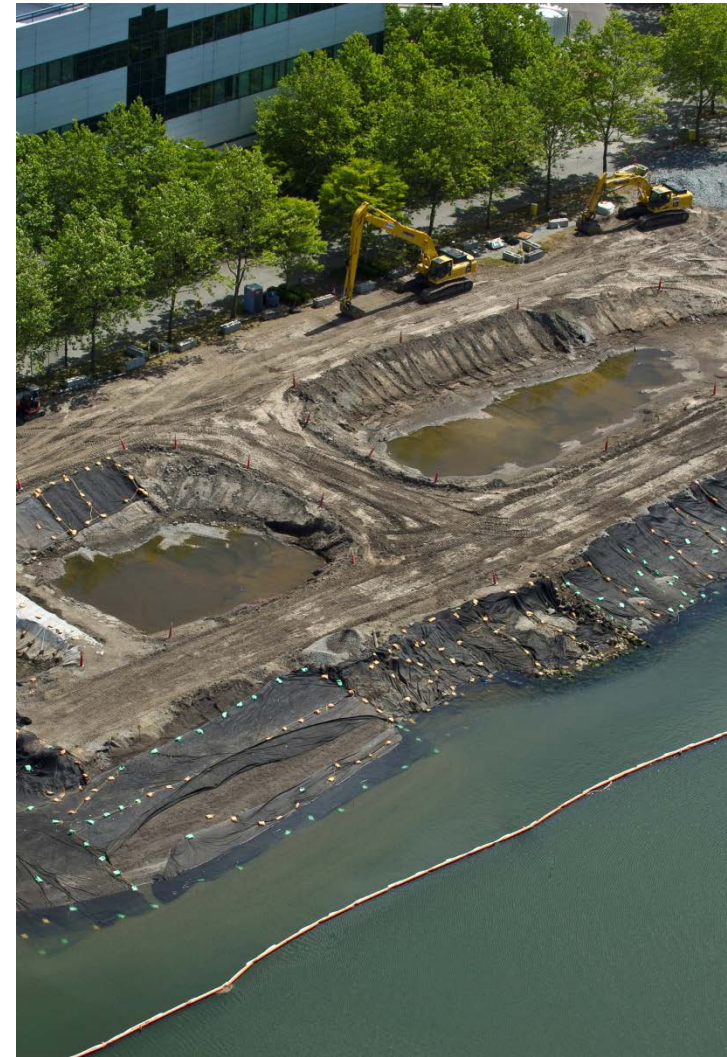


Shoreline Work



CONSTRAINTS

- Work 'in the dry'
 - Mean Tide Range = 11 feet
 - Cover Exposed Soil
- Water Treatment
 - Treat water for discharge into local sanitary sewer



MECHANICAL PRECISION DREDGING

- Enclosed-Double Arc Bucket
- Best Management Practices
- Accurate Bucket Placement
- Water Treatment



Young Hydraulic Clamshell

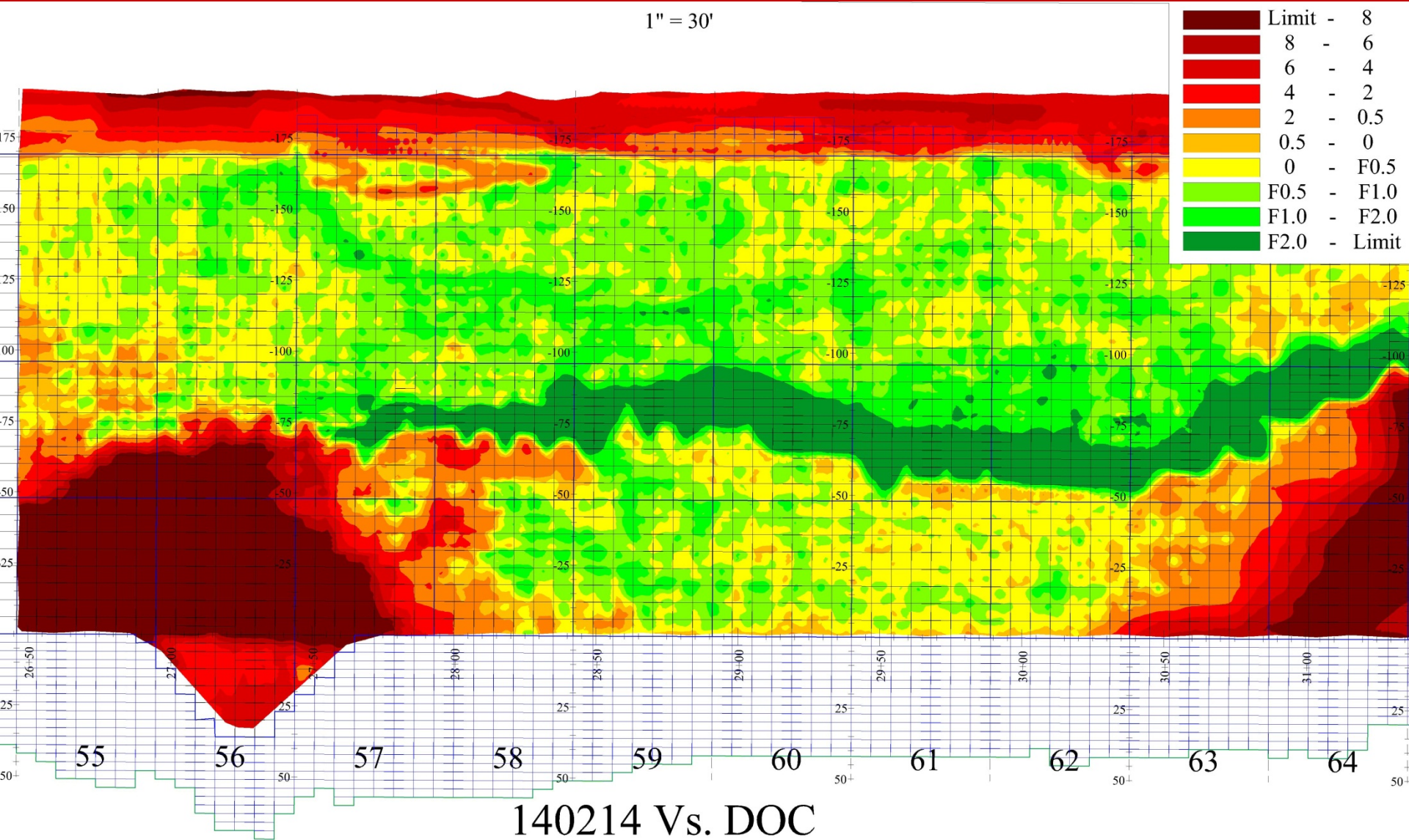


MECHANICAL PRECISION DREDGING

- BMPs (partial list)
 - Dredge up stream to down stream
 - Dredge from up slope down gradient
 - Dredge layers to daylight-no 'glory holes'
 - Dredge side slopes (steps)
 - No multiple grabs on debris
 - Backfill as soon as practicable

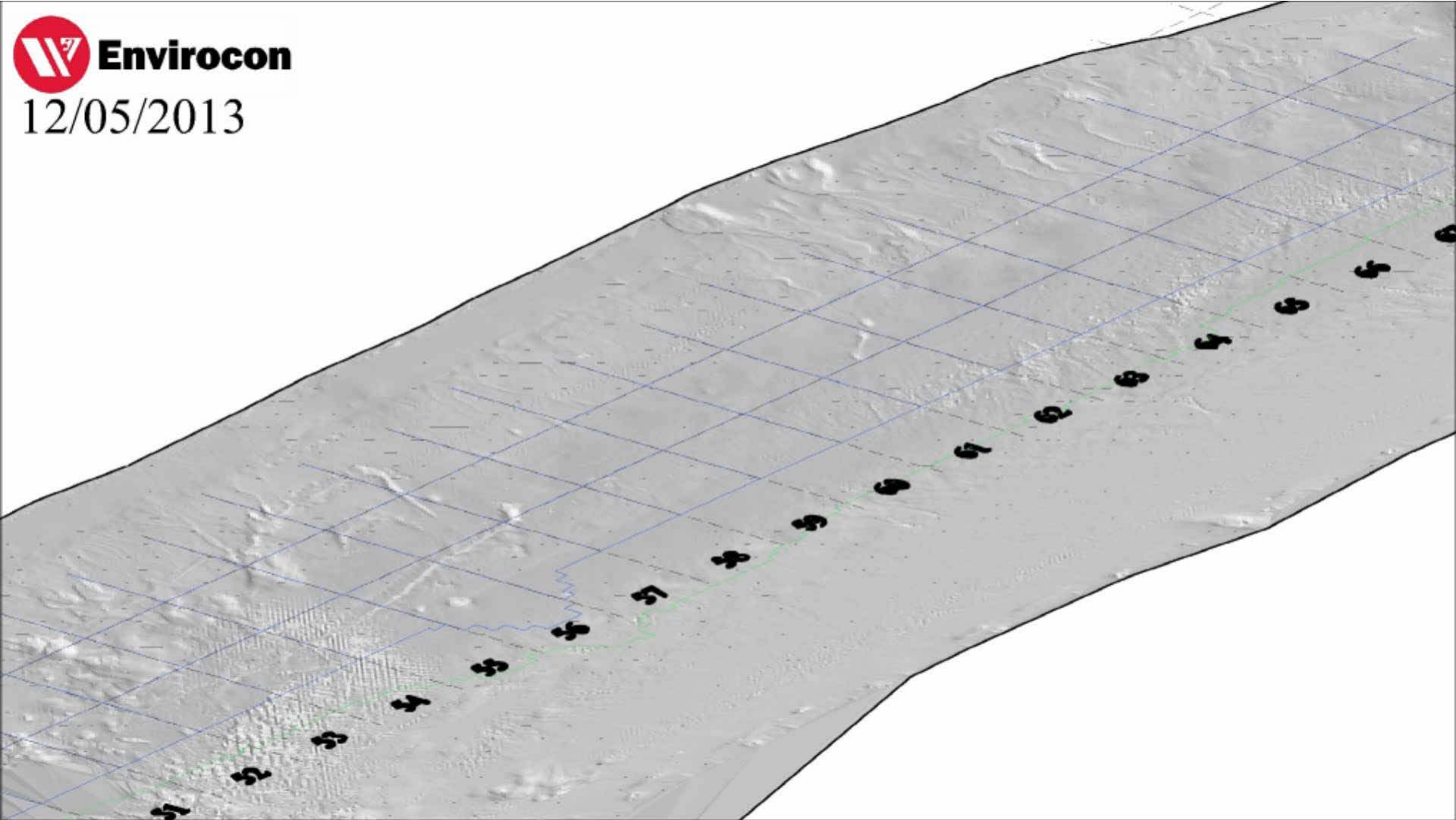
Multibeam Survey, AUs, Bucket Cells

1" = 30'

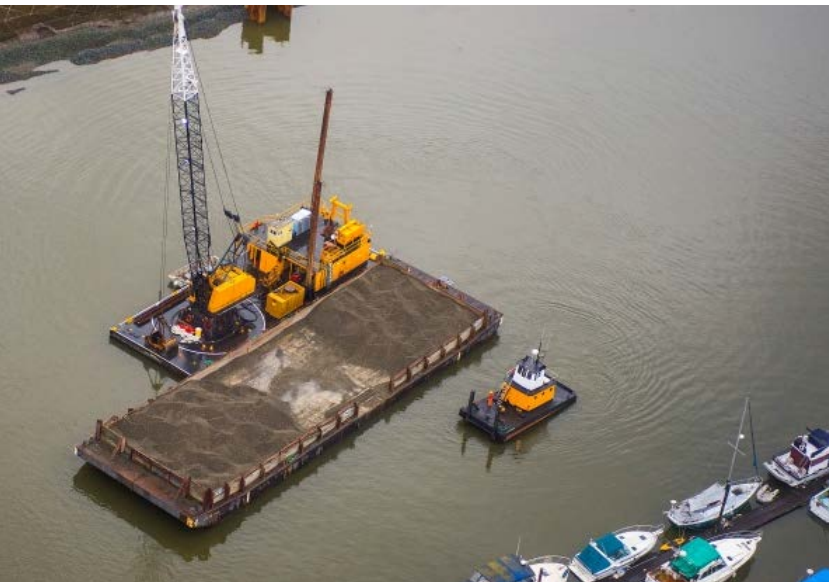
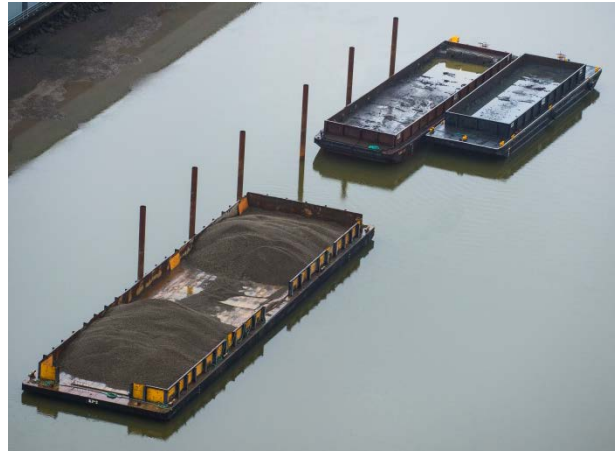


Dredge-Backfill-Progress

 **Envirocon**
12/05/2013



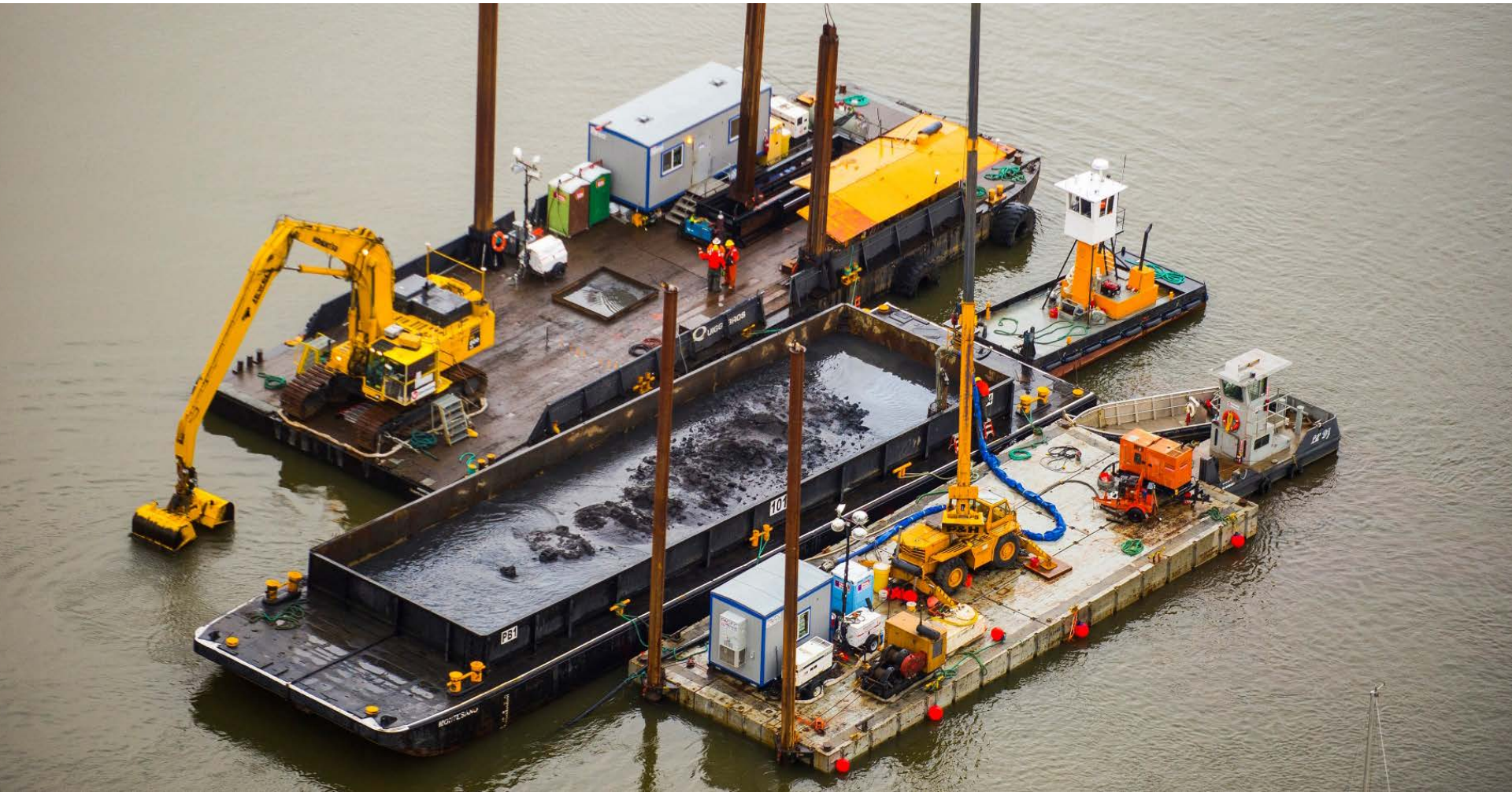
Backfill



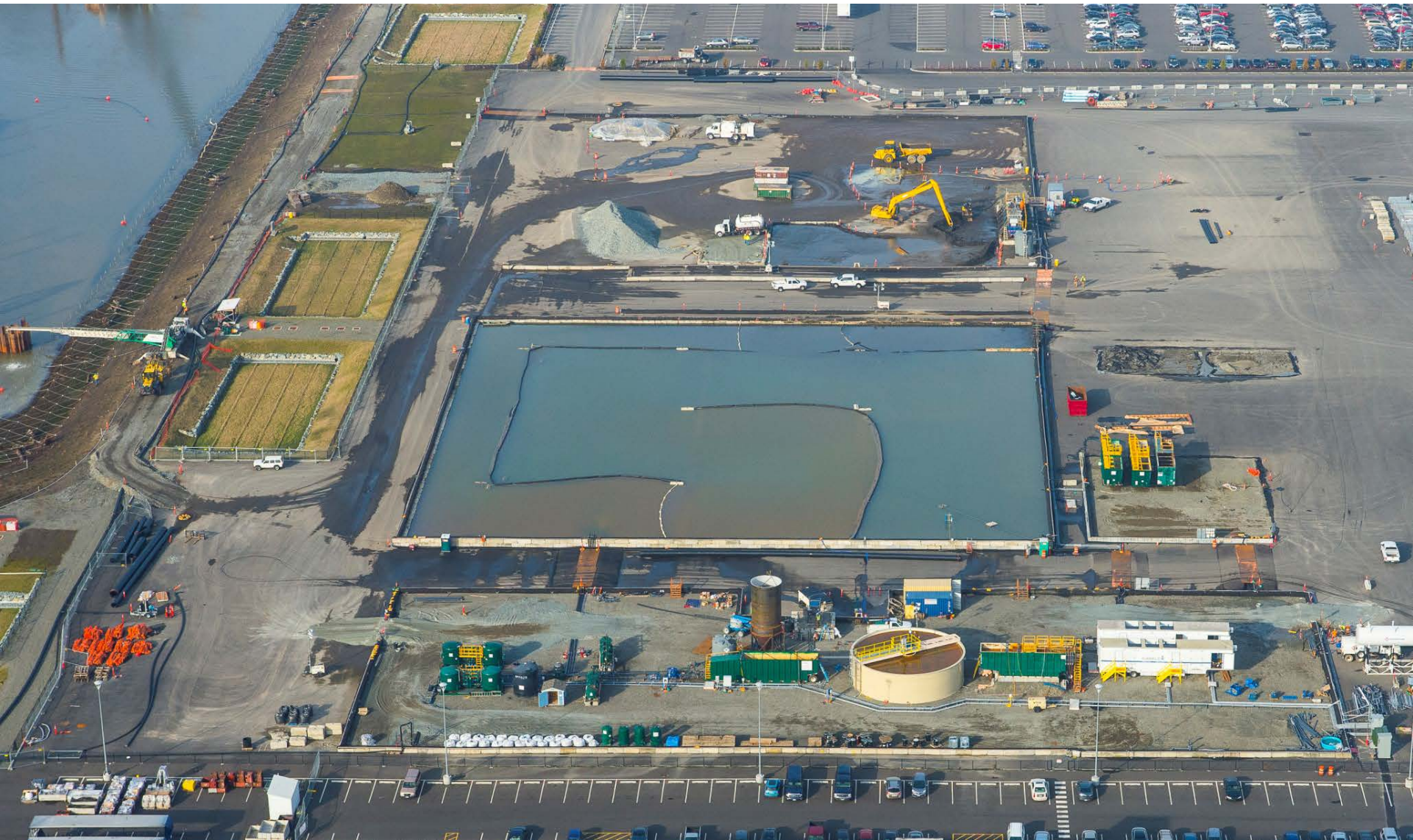
- Collect Free Water from Mud Barge
- Treat Water <5 NTU above background
- Return to River



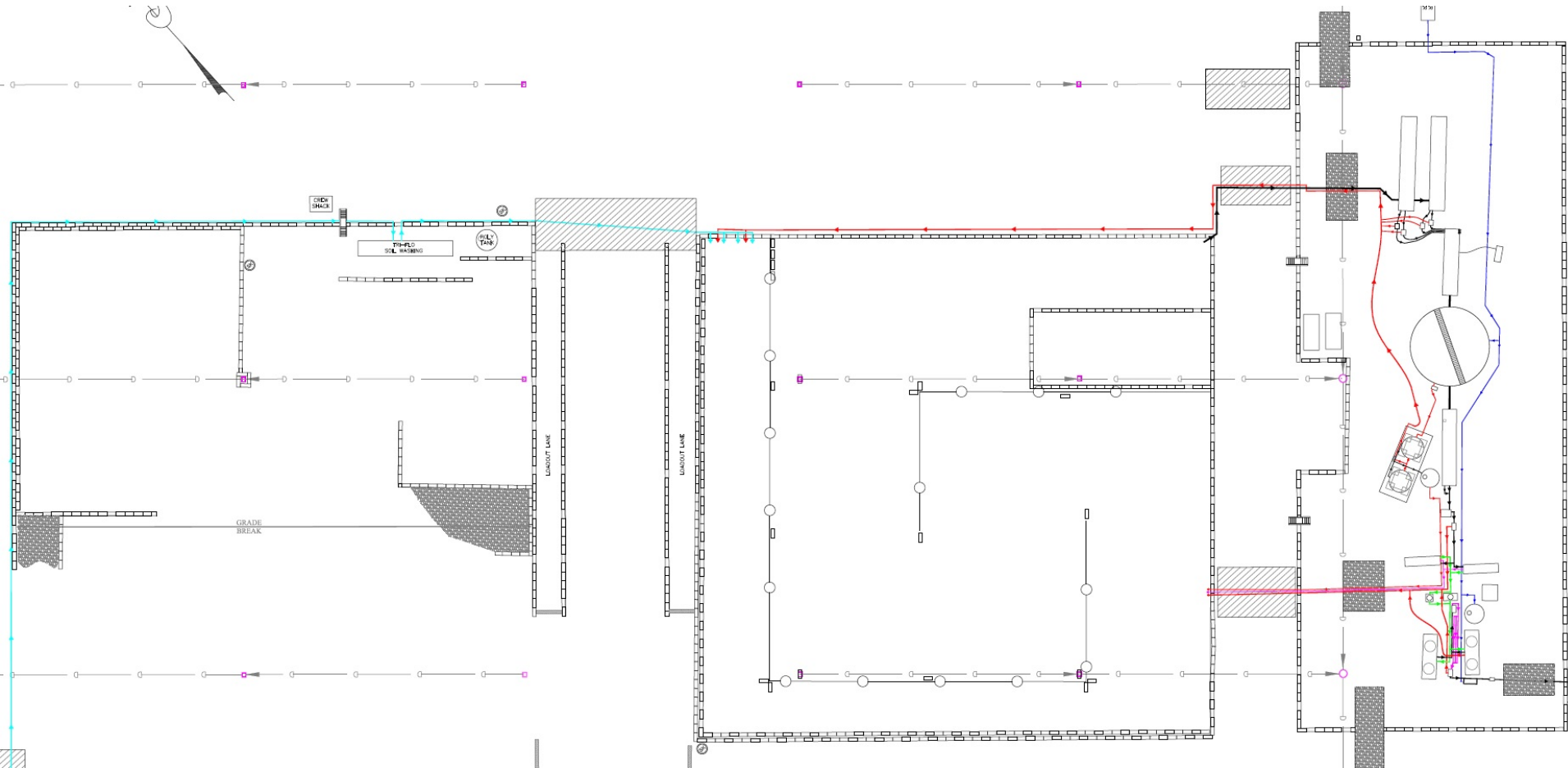
Hydraulic Driven Submersible Pump/Crane/Floating Pipeline



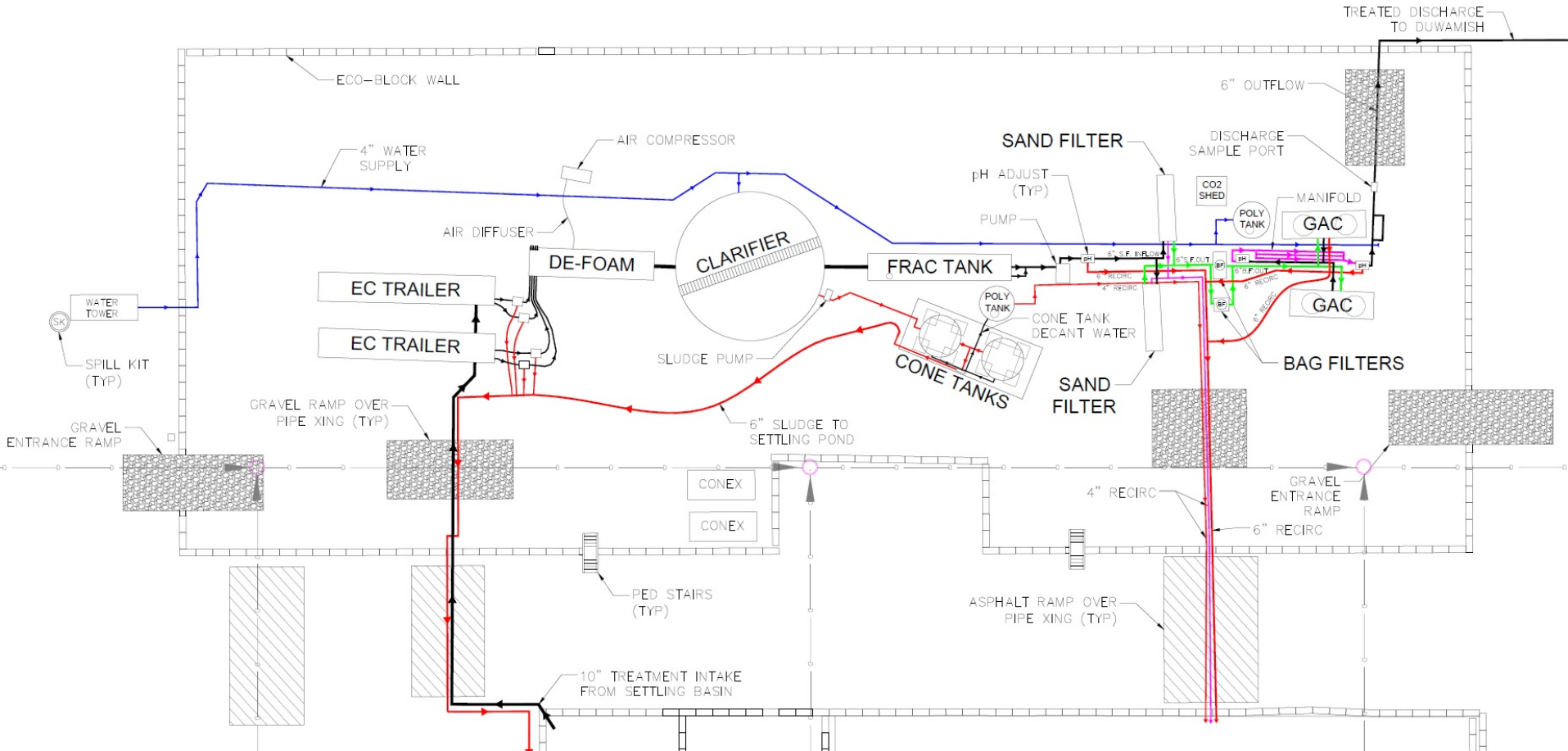
Water Treatment



Water Treatment



Water Treatment



Thank You – Questions?

Visit us at our booth in the exhibit hall!

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