

Development of Port Infrastructure with Contaminated Sediments:

**Marine Commerce Terminal
in New Bedford, MA**



Marine Commerce Terminal – New Bedford

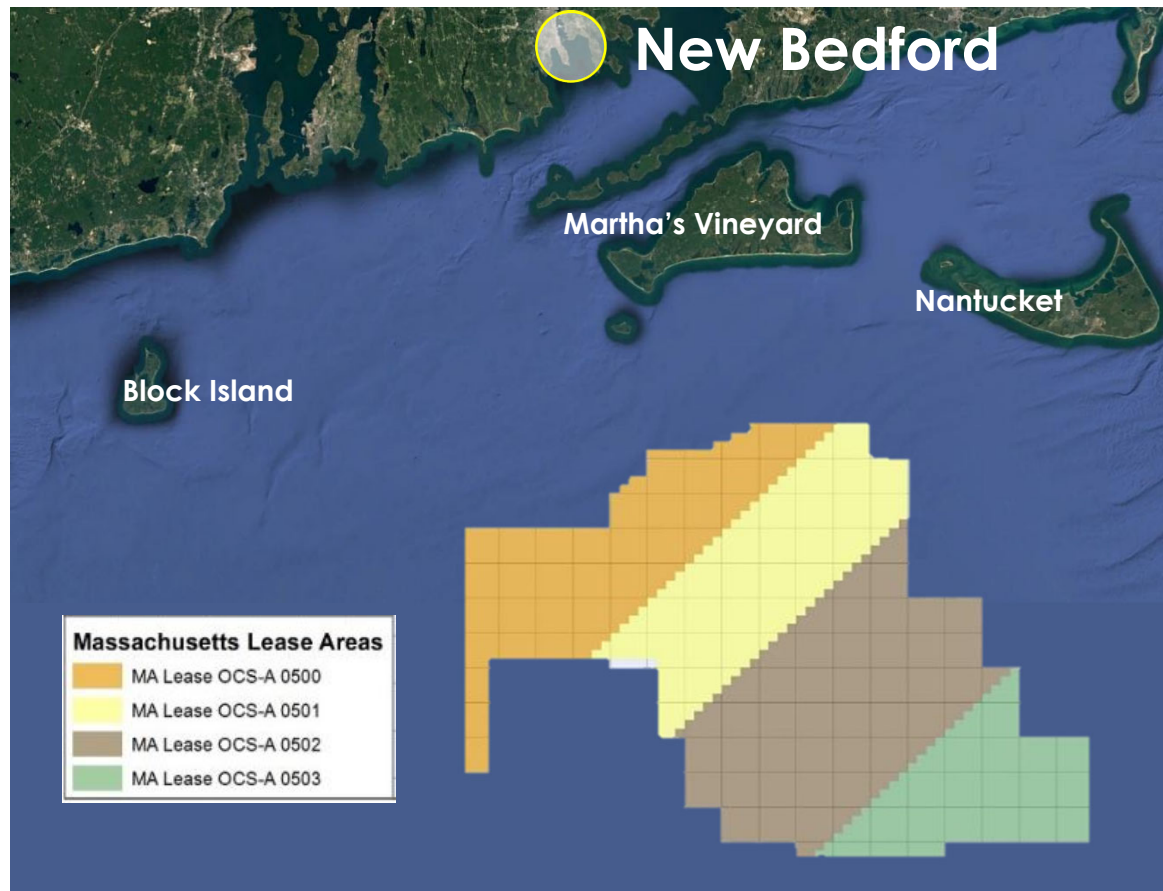


- ◆ New Bedford Harbor
- ◆ Site Considerations
- ◆ Design Criteria:
Dredging & Terminal
- ◆ Challenges and Solutions
- ◆ Future Port Infrastructure

Location

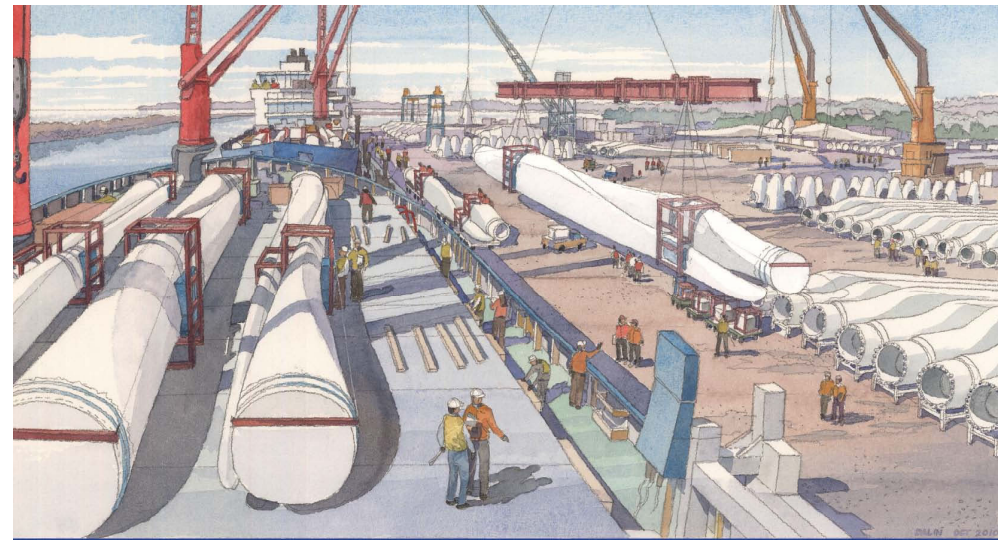


Location



Offshore Wind and the Marine Commerce Terminal

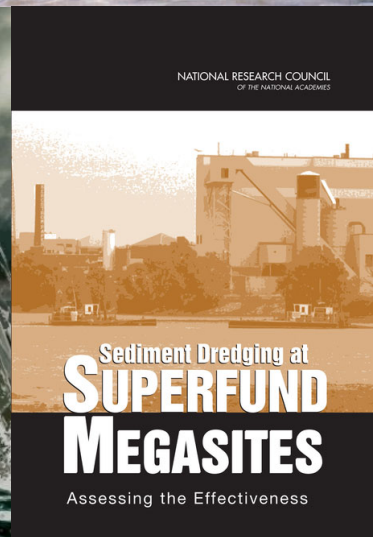
- ◆ In 2009, the Massachusetts Clean Energy Center (MassCEC) was tasked with integrating offshore wind into MA energy landscape
- ◆ An appropriately designed port facility was identified as critical infrastructure
 - ▶ Determine Location
 - ▶ Establish Design Criteria



New Bedford Marine Commerce Terminal

New Bedford Harbor: Terminal site to support offshore wind energy development

- ◆ Protected harbor
- ◆ Channel depths
- ◆ Absence of physical restrictions on overhead clearance
- ◆ Potential berth areas
- ◆ Available upland areas
- ◆ Proximity to federal wind energy areas
- ◆ City of New Bedford support for terminal
- ◆ Harbor designated as a Superfund site



Superfund and State-Enhanced Remedy

- ◆ 1983: EPA declared more than 18,000 acres of New Bedford Harbor and Buzzards Bay a Superfund site
- ◆ 1998: A Record of Decision (ROD) was issued
- ◆ State-Enhanced Remedy (SER) Provision of ROD
- ◆ Terminal project used SER provision as a guide with the appropriate federal and state agencies to develop the regulatory process for the terminal project

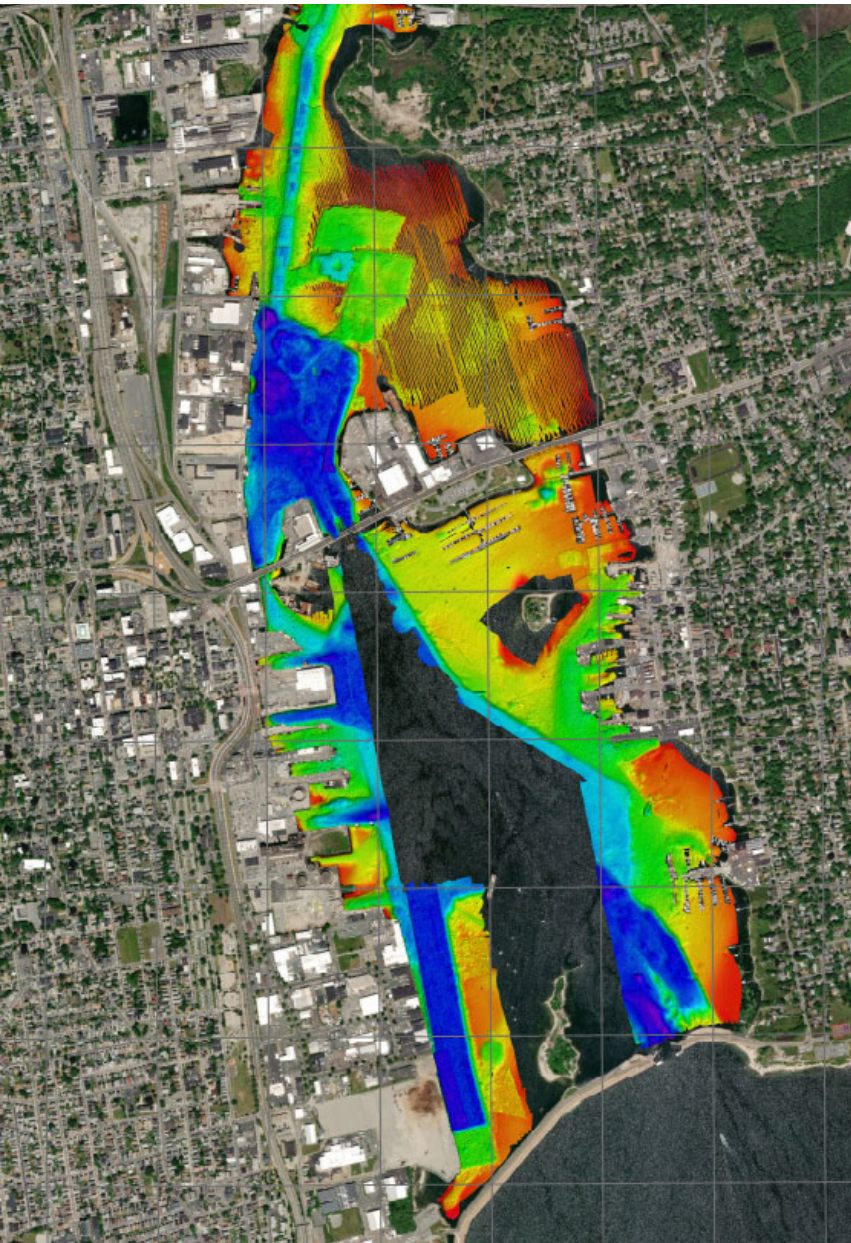
Overview of New Bedford Harbor and Marine Commerce Terminal



Governing Conditions

- ◆ Heavy Landside Lift Capacity
- ◆ Contaminated Sediments
- ◆ Glacial Geology
- ◆ Project Schedule



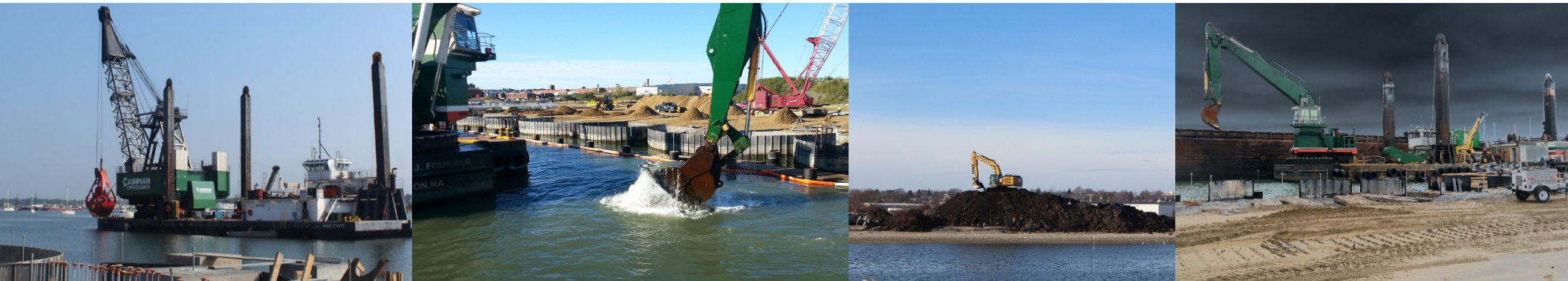


Berth and Dredge Design

- ◆ USACE hurricane barrier
- ◆ Federal Channel and Turning Basin
- ◆ Access Channel to Terminal
- ◆ 600 LF to -32' mllw
- ◆ 400 LF to -14' mllw
- ◆ Blasting Required

Dredging and Re-Use of Suitable Materials

- ◆ Dredging of 900,000 cy
- ◆ Dredging and placement of 280,000 cy of PCB-contaminated sediments in CAD cell
- ◆ Reuse of dredged materials in terminal
- ◆ Creation of new spawning habitat for the winter flounder
- ◆ Offshore Disposal



Marine Commerce Terminal: Purpose built for high load capacities

- ◆ Uniform live load of 4,100 psf
- ◆ Support “super lift” crawler cranes (1,350 metric ton)
- ◆ 1,200-linear-foot bulkhead / cellular cofferdams
- ◆ Pile supported concrete relieving platform
- ◆ Deep-water access: 32’ mllw
- ◆ 20 acres of port terminal



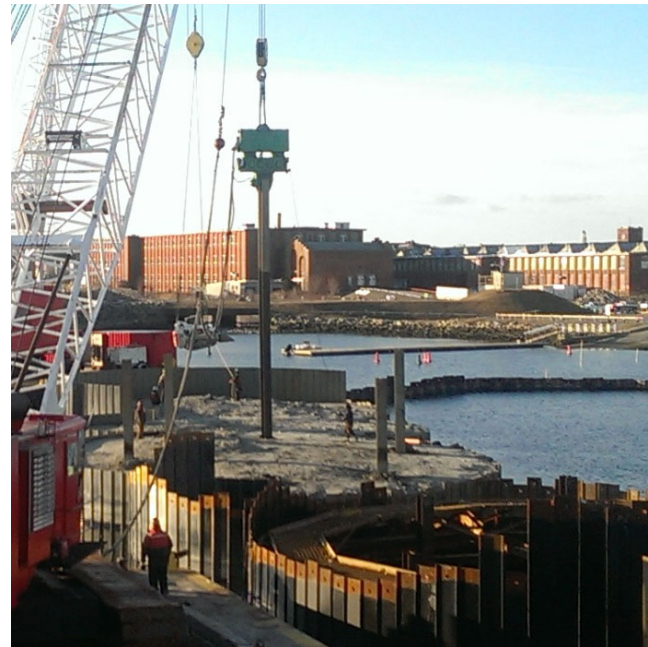
Marine Commerce Terminal:

Purpose built for high load capacities

- ◆ Geotechnical Criteria for Upland Facility: Cranes and specialized transport vehicles

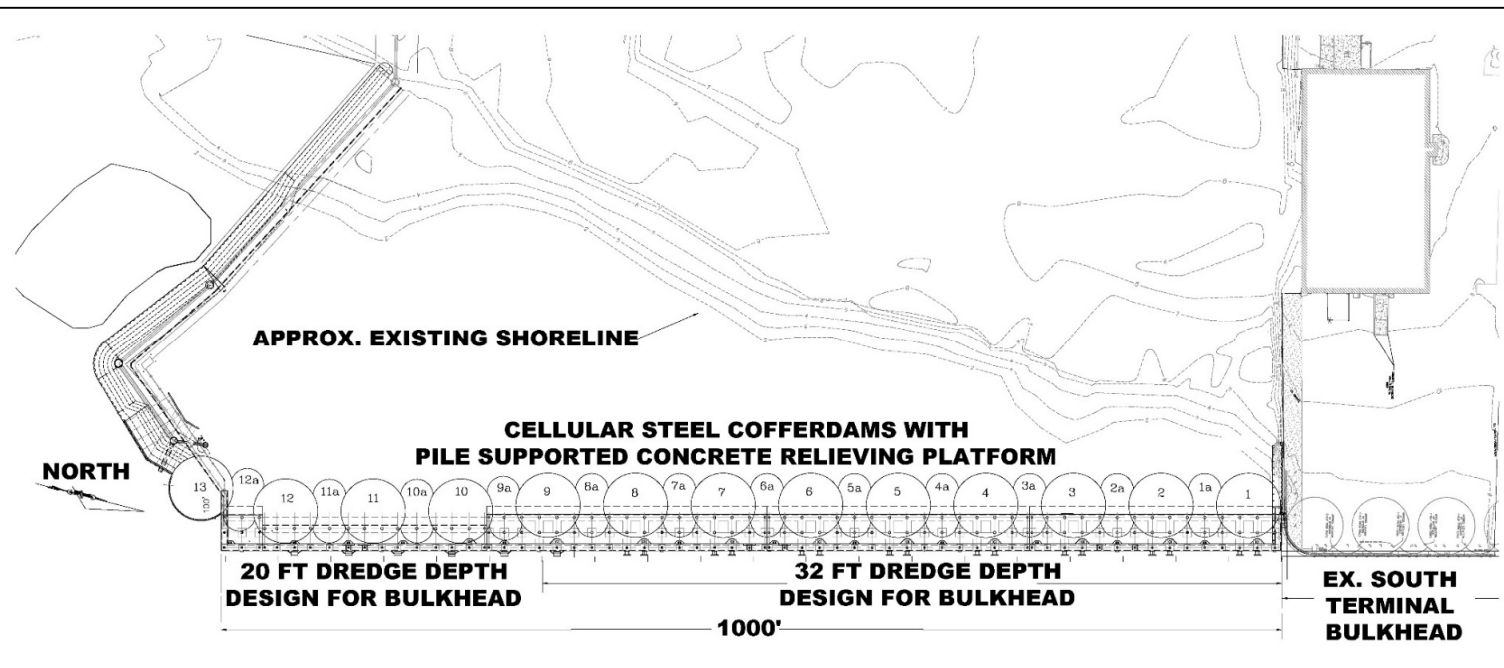
Point Load Bearing Pressures:

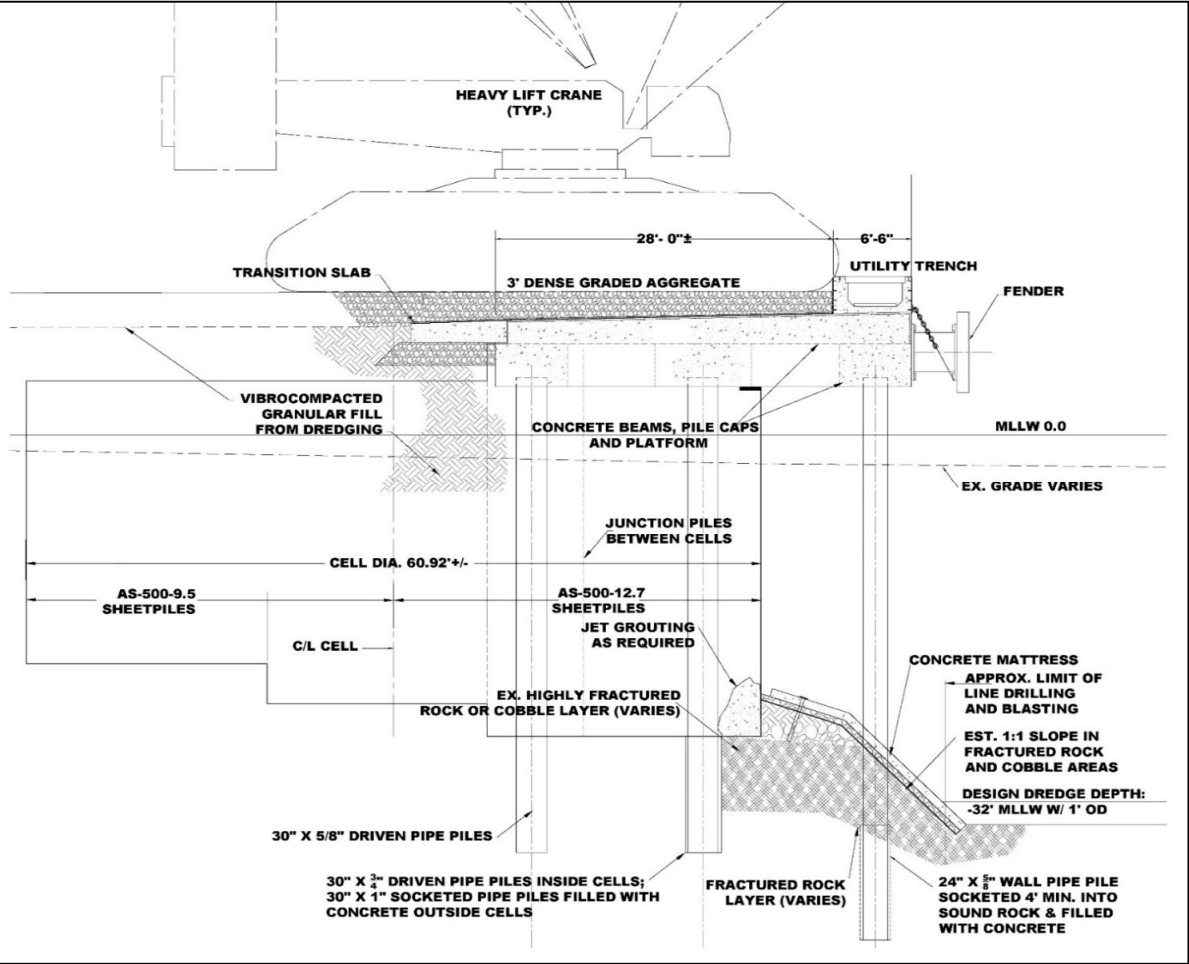
- ◆ 20,000 psf - Crawler Cranes
- ◆ 9,500 psf for SPMT
- ◆ Reuse of dredged material as backfill where suitable
- ◆ Crushed stone and DGA



Marine Commerce Terminal

Hybrid of Cellular Steel Cofferdams with an extended pile supported relieving platform, similar to a narrow marginal wharf



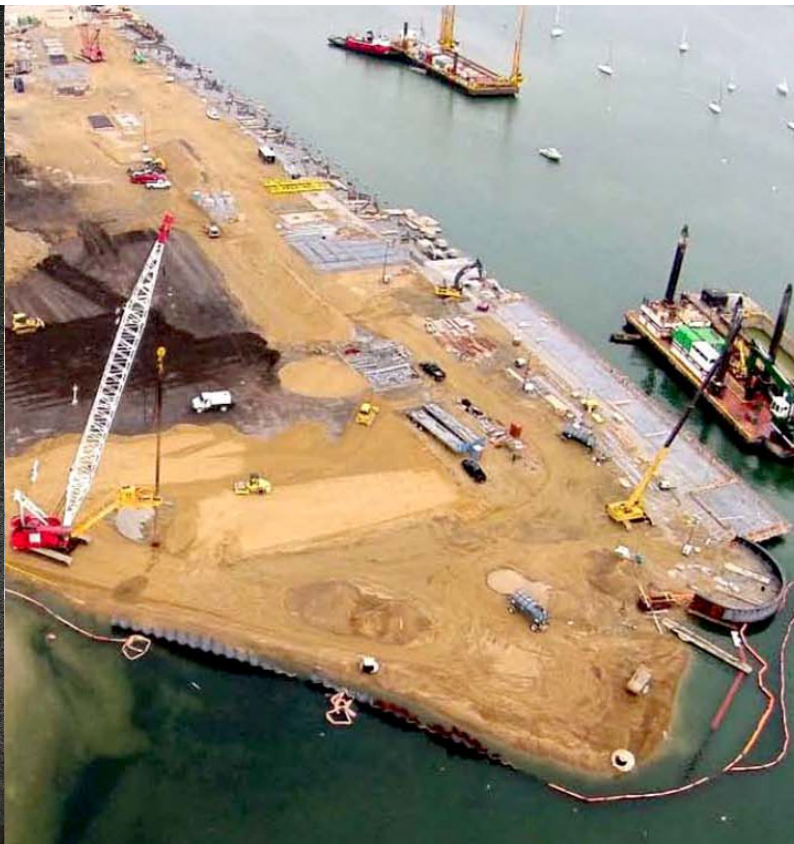


Terminal Construction



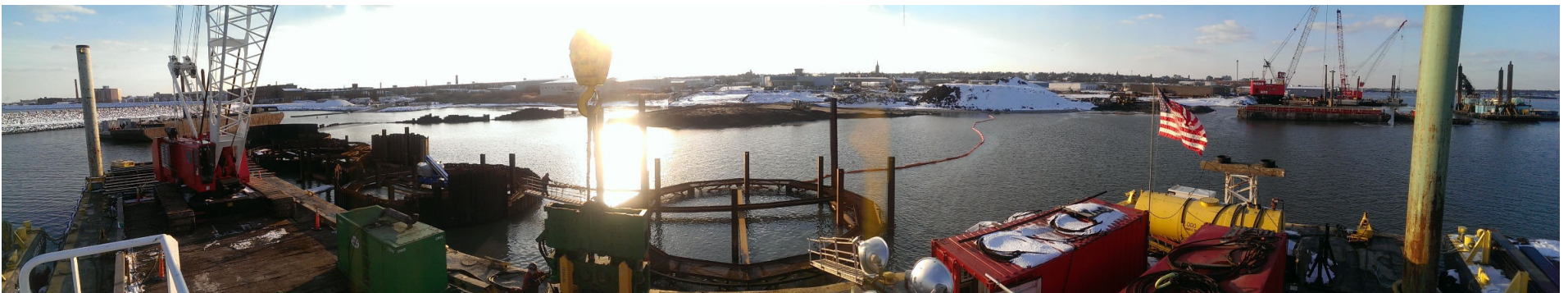


Marine Commerce Terminal



Challenges and How Successfully Addressed

- ◆ Environmental / regulatory approvals
- ◆ Material handling and management
- ◆ Pile driving difficult and challenging for the flat sheet piles
- ◆ Owner's schedule



Future Port Infrastructure in New Bedford

- ◆ Phase V
Dredging with
CAD Cell
- ◆ BUILD Grant
Award
- ◆ **Successfully
Combining
Remedies**

