The Entrance Structure

Presented by:
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Presentation Outline

• My Background

• Project Background
  • Portsmouth Naval Shipyard
  • Super Flood Basin Overview

• The Entrance Structure
  • Design Alternatives
  • Precast Design
  • Construction

• Project Update

• Questions
My Background

Professional

• BSCE – Civil Engineering (UNH)
• MCE – Structural Engineering (Norwich U.)
• Civil PE (5 States)
• Structural SE (2 States)
• ADCI Commercial Dive Supervisor
• Board Certified Port & Ocean Engineer

Personal

• Raising family in the Seacoast
• Native New Englander
• Enjoy skiing, woodworking, golfing, boating
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Project Background

- MILCON P-310: Dry Dock 1 Super Flood Basin

- One part of a larger Navy-wide program:
  - Shipyard Infrastructure Optimization Program (SIOP)

“mission is to execute the Navy’s once-in-a-century investment to reconfigure, modernize and optimize our four aging Naval Shipyards into new modern facilities that will serve this Nation into the future.”
Portsmouth Naval Shipyard

History:
• Established in 1800
• Historic missions included building and repairing surface vessels
• 1917 completed the first Government-produced submarine
• Produced over 70 submarines during WWII
• 1969 completed the last Government-produced submarine
Portsmouth Naval Shipyard

Today:

• Current mission is to overhaul, repair, and modernize nuclear-powered fast-attack submarines
Dry Dock 1

• **General Stats:**
  • Constructed 1942
  • Graving type dry dock
  • 445 ft x 98 ft x 31 ft
Dry Dock 1
Super Flood Basin
Super Flood Basin
Project Constraints

- Site Location
- Existing Operations
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Design:
• Reinforced concrete
• Drilled Foundation
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Drilled Shaft:
- 8-ft diameter
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Drilled Shaft:

- Casing
- Soil
- Bedrock
- Concrete
- Rebar

3,150 TON

1,750 TON
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Design Alternatives:

Traditional Cofferdam
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Design Alternatives:

Multiple Small Precast Units
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Design Alternatives:

One Large Precast Unit
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• Construction began March 2020
• Departed off-site yard June 2021
• 37 total concrete placements (2,330 CY)
  • ~5,000 tons
• Lowered into position July 2021
• Additional 5,470 CY concrete backfill placed
Project Update

• Entrance Structure work completed Dec 2021
• P-310 Super Flood Basin construction nearing completion
  • Construction began January 2020
  • Complete Spring 2022
• Next phase as part of SIOP
• Super Flood Basin → 2 new dry docks
Questions