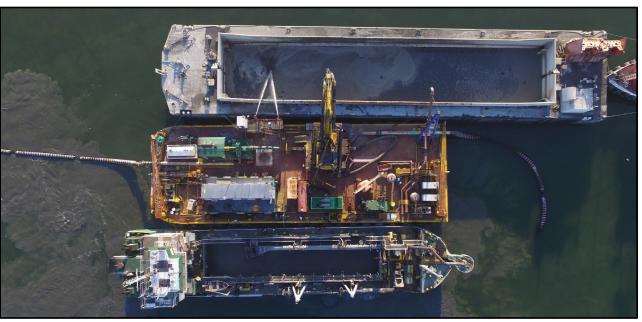




OUTLINE:

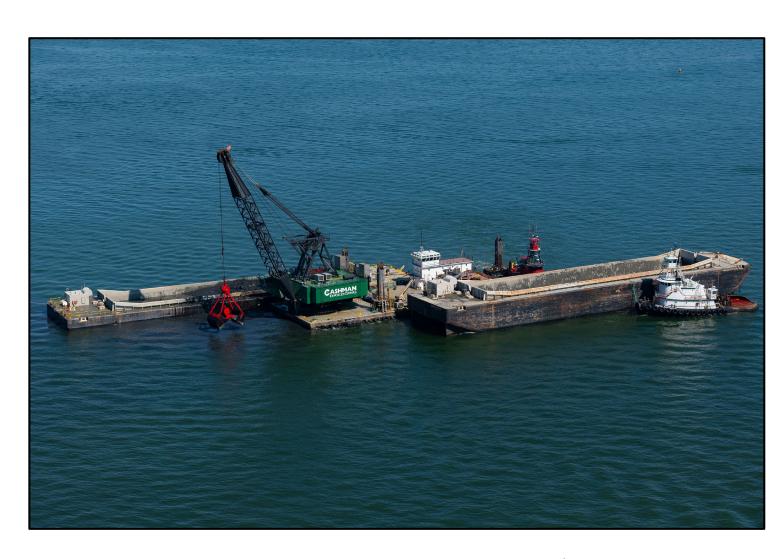
- Background
- Problem Statement
- Approach
- Solution
- Review



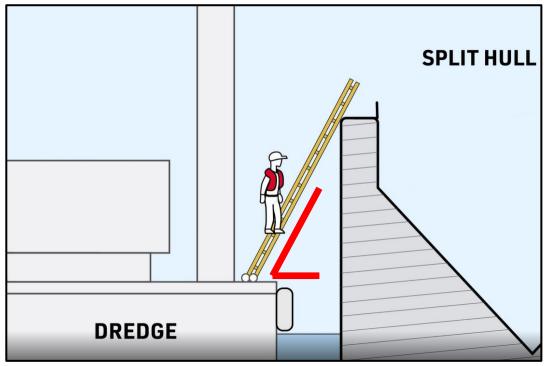


BACKGROUND:

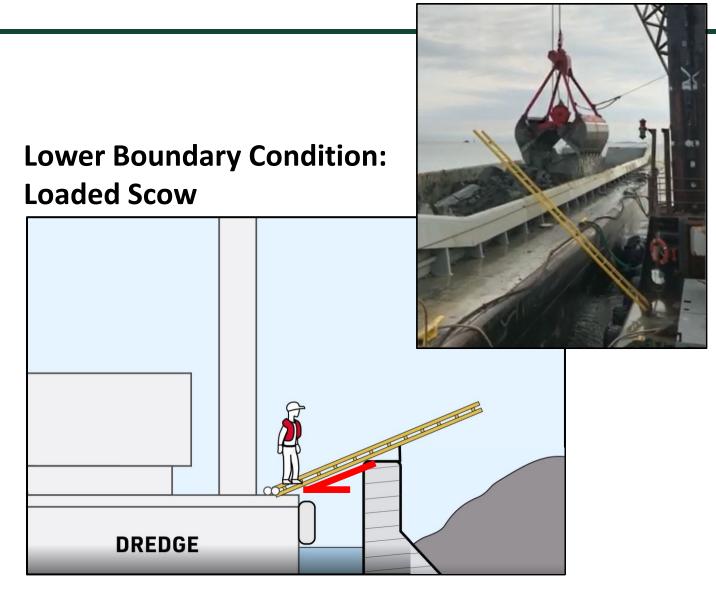
- Boston Harbor Deepening
- 12 million yd³ (~9.2 MM m³)
- Challenge: Find Operational improvements/innovations
 - Safety
 - Efficiency
 - Quality
- Gangways just one example



PROBLEM STATEMENT:



Upper Boundary Condition: Empty Scow

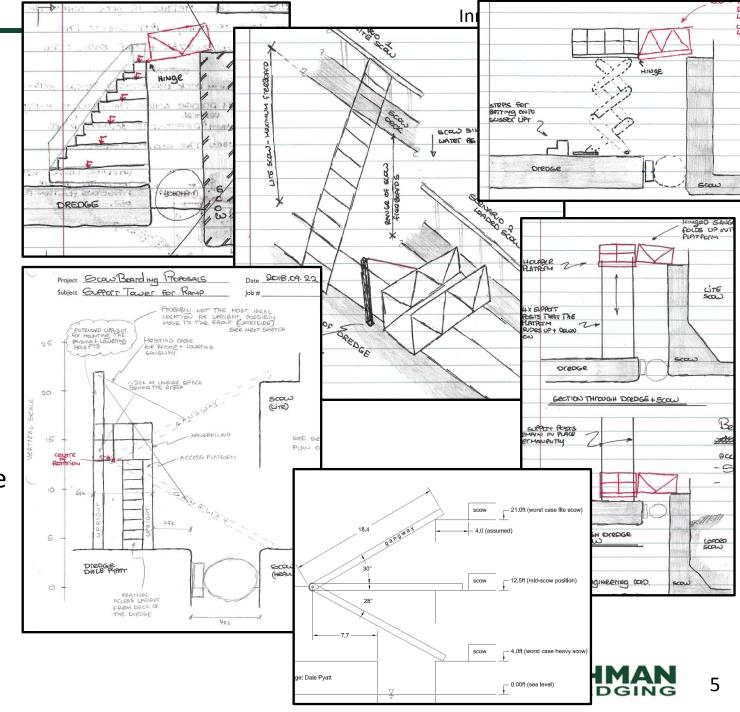


"Develop a scow boarding system that can provide safe and continual access when required to scows at various drafts when alongside a dredge"

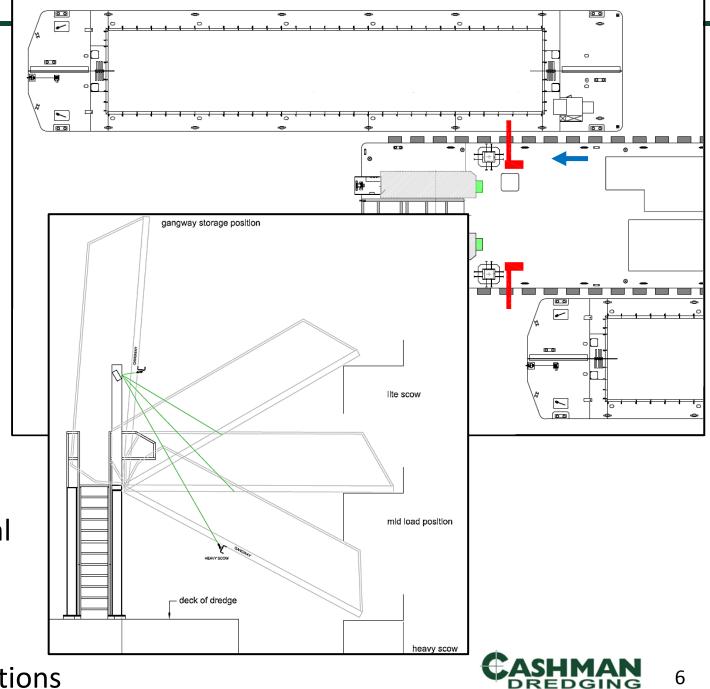


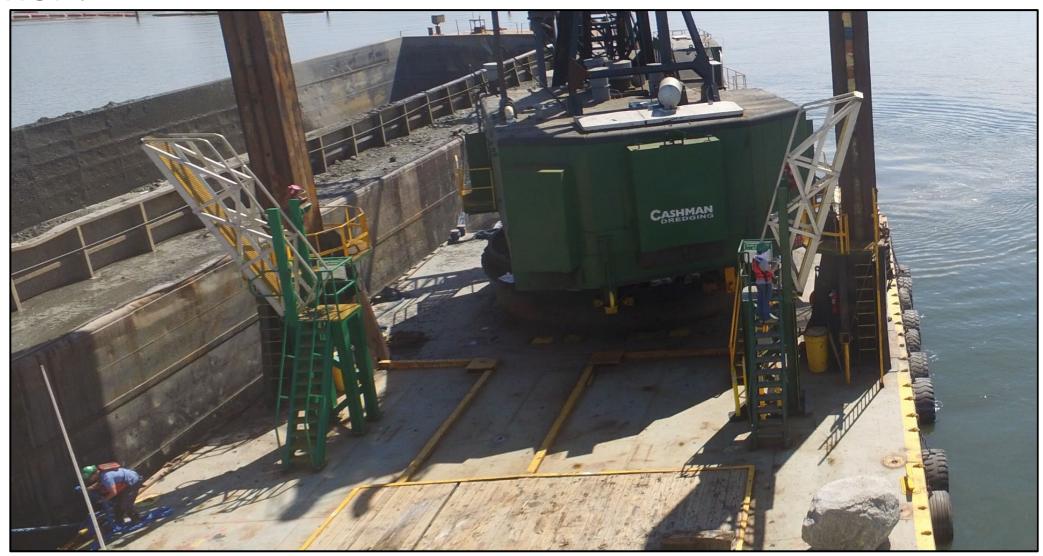
APPROACH:

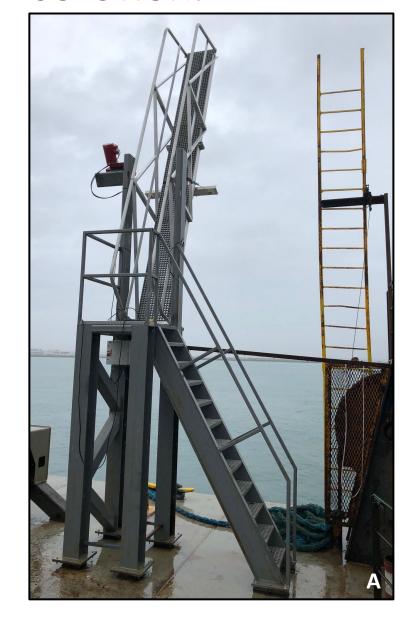
- Re-examine with fresh perspective
- Any existing solutions
- Develop several proposals
- Review with internal group
 - Input from all levels companywide
 - Advantages & disadvantages
- Proceed with most viable solution

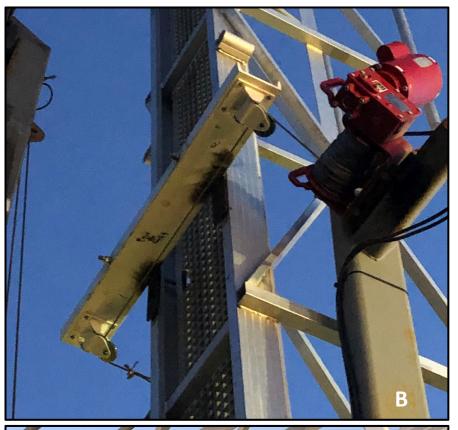


- Requirements:-
 - 1. Safety of personnel
 - 2. Simple construction
 - 3. Work in corrosive marine environment
 - 4. Safe in inclement weather
 - 5. Safe in various sea states
 - 6. Standardize across our mechanical dredging fleet
 - 7. Minimize deck space used
 - 8. Not affect normal dredging operations



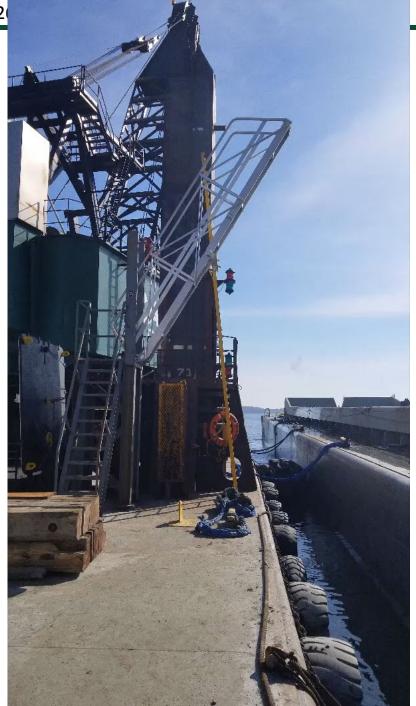










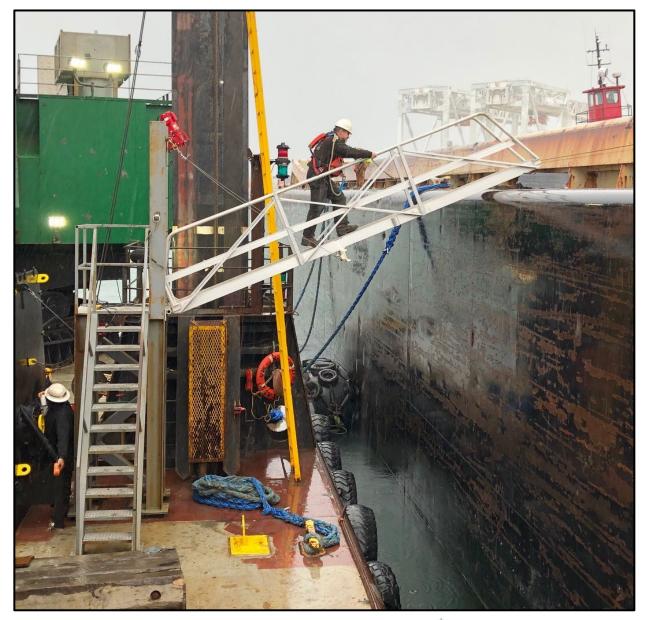




REVIEW:

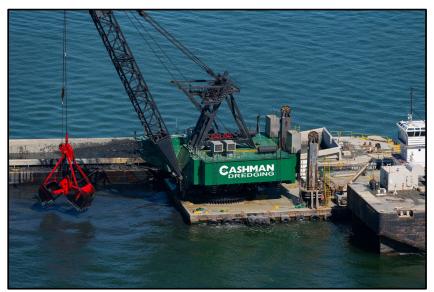
- Initialized safe system of work
- Initial functionality refinements
- Reinforcing high stress locations
- Understanding maintenance requirements
- Successful adoption in field

"These gangways have extended my dredging career by 15 years"



THANK YOU!

- Questions







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