EBC Ocean and Coastal Resources Management Program: Coastal Construction Case Studies
Welcome

Payson Whitney, P.E.

Program Co-Chair and Moderator
Chair, EBC Ocean and Coastal Resources Committee

Vice President, ESS Group, Inc.
Heavy Marine Construction Projects

Allen Waller

President
Aspera Associates, Inc.
Permits and Construction

Avalon Seawall –ACOE
- Best value-bid twice, $25M to $18M
- Toe details
- Access permits
- Temporary Structure permits

Newport Waterfront Improvements-NAVFAC
- Temporary Structure permits
- Dredging permits

New England Aquarium IMAX Theater
- Filling permits
- Dredging permits
Revetment/Groin
Access?
Mattress Setting
Whoops
NAVSTA Newport-Before
New England Aquarium IMAX Theater
Platform Construction
Steel Raising
Summary

- Access
- Temporary Structures
- Administration
Ninigret Marsh Restoration and Beneficial Reuse Project – Lessons Learned

Dan Goulet and Andrew Timmis

RI CRMC and JF Brennan
Ninigret Marsh Restoration and Beneficial Reuse Project Lessons Learned

May 17, 2017

Danni Goulet, RI Coastal Resources Management Council

Andrew A. Timmis, J.F. Brennan Company, Inc.
Scope of the CRMC Lessons Learned Portion

• Project Need, Why There and Why Now
• Project Design – Concept, Modifications and Lessons Learned
• Permitting – Approach, Cautions and how close we got to the permitted project
• Bidding
• Concept, Feedback and Lessons Learned
Project Area and Site History

- Areas had a USACE Habitat Restoration Project in 2007 that included dredging of 40 acres of tidal shoals for eel grass restoration and two sedimentation basins to catch sediment and protect new eel grass areas.

- Sedimentation basins had maintenance dredging in 2010.

- Marsh area had been evaluated since 2010 and known to have low elevation and be very degraded.

- The South Coast marshes were determined to be the most vulnerable in the state are part of the Statewide Assessment.
Sea Level Affecting Marshes Model Results
RI Salt Marsh Assessment (2011-2012)

The lesson we want to share is that we have been looking at the marshes for a while, we knew we had a problem here and had the data to prove it allowed us to go after Hurricane Sandy restoration / resilience funding.

Having all the other dredge permits, public land and multiple benefits also helped focus on this area. We didn’t get money and look for a project – we wanted to try something like this. We had talked to partners at the USFWS about similar projects in the mid-Atlantic and we had been testing marsh elevation methods for New England.

This was a marsh restoration project that had some navigation benefits – it was not a dredge project looking for a disposal location – this technique can have multiple benefits but it must be a marsh project first.
Project Design

• Need to elevate the marsh – how high and how to determine that
• How and where to put sediment on the marsh
• Planting
  – Do we need to?
  – What type – plugs or broadcast
  – Do we think the plants will come up through the sediment?
Vegetation Elevation Ranges

Note: Shaded boxes represent 2014 data
Unshaded boxes represent 2015 data (points)
Cross-hatched boxes represent 2015 data (polygons)
Dredging and Stockpiling

- Basin volumes determined using bathymetric survey and target elevations
- Established segments of basin for specific marsh restoration units
Fill Elevations and Grading

- Set max target elevation at elevation 1.2 ft NAVD88 which includes – compaction – some Sea Level Rise – and 20% Contingency Volume
- Grading/ Runnels for drainage
- Historic creeks and pools to remain

LESSON LEARNED

- We didn’t want to be prescriptive in the bid so the contractor has two dredges working 24/6 – a lot of material fast which required “on the fly adjustment” of this layout – need to add material at a rate that allows for decisions to be made for marsh restoration not dredge production.
- The basin we set up in sections for each marsh unit but the survey was 6 months old – we tried to limit the amount of survey needed – I know better- volumes change and material runs from side slopes - make sure you have survey capacity
- Go high on the elevation – wind, tide marsh settlement and material compaction are hard to predict – but not too high.
- So far the water elevations on the marsh are spot on for the intended planting.
Permitting and Regulatory Compliance

- NEPA EA /Section 106 (USFWS lead federal agency)
- USACE Section 404 Permit (includes sign-off by EPA, NOAA Nat. Marine Fisheries Service)
- State Section 401 Water Quality Certification
- CRMC Assent
The Bid

Public Tender
Price and Score: Experience & Staff  70 Points
Price  30 Points

Pricing
2 Options provided for Pricing
1) Dredging
2) Spreading of Stockpiled Material
Complicated due to crossover and control
May not win both
The Bid

3rd Option Requested
Combining Options 1 & 2
Full Control
Saved Money

Reasonable Bidding Time Frame

Proposal & Qualifications
3 Dredging Projects in Last 5 Years w/ Pipe Transport
Production Dredging w/ Beach Nourishment or Creation
3 Wetland Projects in Last 5 Years

Announcement Delay
Construction Design

- Production Dredging with 1’ over dredge allowance
- November 15 dredging Start
- Dredging Materials to be pumped to stockpiles
- Stock Piles to be spread to grade
- Material Placement to minimize disturbance
- Low Ground Pressure Equipment
- Open specifications
- April 30 2017 Completion
Challenges Encountered

- Winter weather in Rhode Island
- Strong wind during the project
- A strong current and tidal changes
- Shallow areas on the project site that required attention
- Active recreational public access location
- Material didn’t flow
Construction

- Dredging straightforward, uniform sand
- Dredging for sediment basin and channel relief
- Provided daily reports
- Material placed in required location hydraulically
- Amphibious Excavator used and Low Pressure Dozer
- Limited bulk material movement
- Final grading
Project Statistics

- 74,000 cubic yards of material removed/moved
- Crews operated on a 24 hour/ 6 day a week schedule
- Completed in less then 3 months
- Maximized Funding
Project Permit Lessons Learned

- RI is a direct permit state for CZM – we work closely with our sister agencies in a typical regulatory role so when we are a project proponent we already have an open and honest dialogue/relationship. This is a big deal.

- We had large amounts of baseline data, we had done experimental TLD and we were honest about this project being an experiment since it had not been done the way we proposed in New England.

- We were pragmatic and could show that we would lose the marsh in time if we did nothing so even if we blew it all we did was beat mother nature. We did have plans for adaptive management to fix things but who knew what might go wrong.

- We had existing permits for the dredging and beach work so much of the heavy lifting was done – starting from scratch would have added a lot of time at the federal level. We were able to keep the permit modification to only placing material on the marsh.

- While 20 acres seems large, compared to the marshes in the area it’s a small portion available for habitat.
Public Bidding Challenges and Lessons Learned

- RI State purchasing is centralized, has a one size fits all approach, they don’t provide feedback quickly or consistently and they are very slow.
- These realities made it difficult to put a bid that was attractive and fair to bidders, insured that we had enough control for this sort of sensitive habitat project and was not prescriptive so we could get the benefits of contractor experience.
- We originally had the project put out so that you could bid on the dredging or on the spreading of the material but they were stand alone. We wanted to make sure we got bidders and the feedback we got early on was there are marsh guys and dredge guys who were good but not many contractors who did both.
- We got great questions during the pre-bid meeting and these allowed us to modify the RFP with purchasing – Listen to questions! We allowed for someone to bid both without the two stand alone requirements – saved us money and was a better project.
- Going forward we would only put the project out to have one contract – could be two contractors but we would have gotten killed if we had two separate contractors and one did not work the same shifts as the other. – Let them work that out!
Public Bidding Challenges and Lessons Learned

• Paying by the marsh area filled to the proper elevation required versus a CY rate allows for a much simpler measurement and payment from the owners standpoint.

• I will have a work plan requirement in future bids, this project worked fine as our contractor was very good and reasonable. We had the ability to work with them and nobody was interested in playing gotcha – it’s not always like this.

• While we did have our bid material reviewed by contractors before it was out to bid publicly I will send it to more contractors to get different perspectives – access and site logistics are a big deal and very different for each contractor. You need to have that varied input.
Coastal Bank Projection Projects

David Lager

President

NETCO Construction Project Managers, Inc.
Lessons Learned from the Coastal Bank

NETCO CONSTRUCTION PROJECT MANAGERS, INC.
DAVID LAGER
Topics

- Intro and Overview
- Client Communications . . . From All Directions and Perspectives
- Constructability
- Emerging Trends/Issues . . . As We See Them
Intro and Overview – Who We Area

- NETCO – Coastal Construction Contractors Since 1998, In Business Since 1991 (Metal Plating EH&S Consultants in Early Days)

- Area – Massachusetts, Cape, the Islands and Rhode Island

- Primarily “Soft” Erosion Control Solutions . . . But Also Rock, Gabions and Sheet Piling

- Dozens of Clients . . . But We Do Not Do Permitting/Provide Support if Requested

- Web Site – [www.netcomanage.com](http://www.netcomanage.com) and join our newsletter group
Better Client Communications During Permitting

- Client Education of the Ins/Outs of Permitting Process and Citizen Conservation Commissions
- Home Rule and the Impact of a Local Bylaw (190 of 351 cities and towns in MA have a Home Rule Wetland Bylaw)
- Pre-Permitting Estimates vs. Post O.O.C. Costs (Surprise, Surprise) + Clients Usually Want More
- Spring Crazy Season . . . Why We Love It . . . And Yet Really Hate It
- Nature Does Not Respect Property Lines but Conservation Commissions and Money Do . . .
- Post Storm Sand Nourishment Requirements, Frequency and Amount
- Annual Maintenance and Reporting
Constructability

- Usually My First Question is Access
  - Town Landing vs. Property Owner Access
  - Issue – L.B.F. but D.N.C.M.Y. with Your Equipment or Sediment
  - Contractors Facing Legal Notification Requirements to Bring Equipment/Material Down the Beach

- Sediment Source – Color, Sieve Analysis, Amount
  - Sediment Requirements at Time of Original Installation vs. Future Years

- End Affects

- Equipment on the Beach

- Level of Detail Articulated In Order of Conditions

- Schedule/Removal of Equipment At Night/Weekends/High Tide and Storm Periods
Emerging Issues

- Soft Structures
  - What is the definition of a Soft Structure

- Living Shorelines
  - USACE Living Shoreline “... to stabilize banks and shores in coastal waters ...”

- Private Property Rights – Pacific Legal Foundation and Plum Island
  - Letter to MDEP by Pacific Legal Foundation on Right of Property Owners to Protect Their Property (May 29, 2013)
Questions

- Dave Lager, NETCO

- [www.netcomanage.com](http://www.netcomanage.com) or dlager@netcomanage.com
Panel Discussion

Moderator: Payson Whitney, ESS Group, Inc.

Panelists:

• Dan Goulet, RI Coastal Resources Management Council
• Dave Lager, NETCO Construction Project Managers, Inc.
• Andrew Timmis, J.F. Brennan Company, Inc.
• Allen Waller, Aspera Associates, Inc.