

Presentation for

COASTAL ENGINEERING AND DESIGN SERVICES

May 2020

THE TOWN OF NAGS HEAD
NORTH CAROLINA



moffatt & nichol

Introductions



Johnny Martin, PE (M&N)
Project Manager



Nicole VanderBeke, PE (M&N)
Project Engineer



Sam Morrison (M&N)
Bidding & Construction



Brian Joyner, PE (M&N)
Assistant Project Manager



Doug Huggett (M&N)
Permitting

About Moffatt & Nichol

Firm History and Capacity

- Founded in 1945 to provide coastal engineering services
- More than 800 employees, including 700 marine and civil engineers and scientists
- Our Team Offers:
 - Pioneering Level of Expertise
 - Flexibility and Availability
 - Proven Track Record

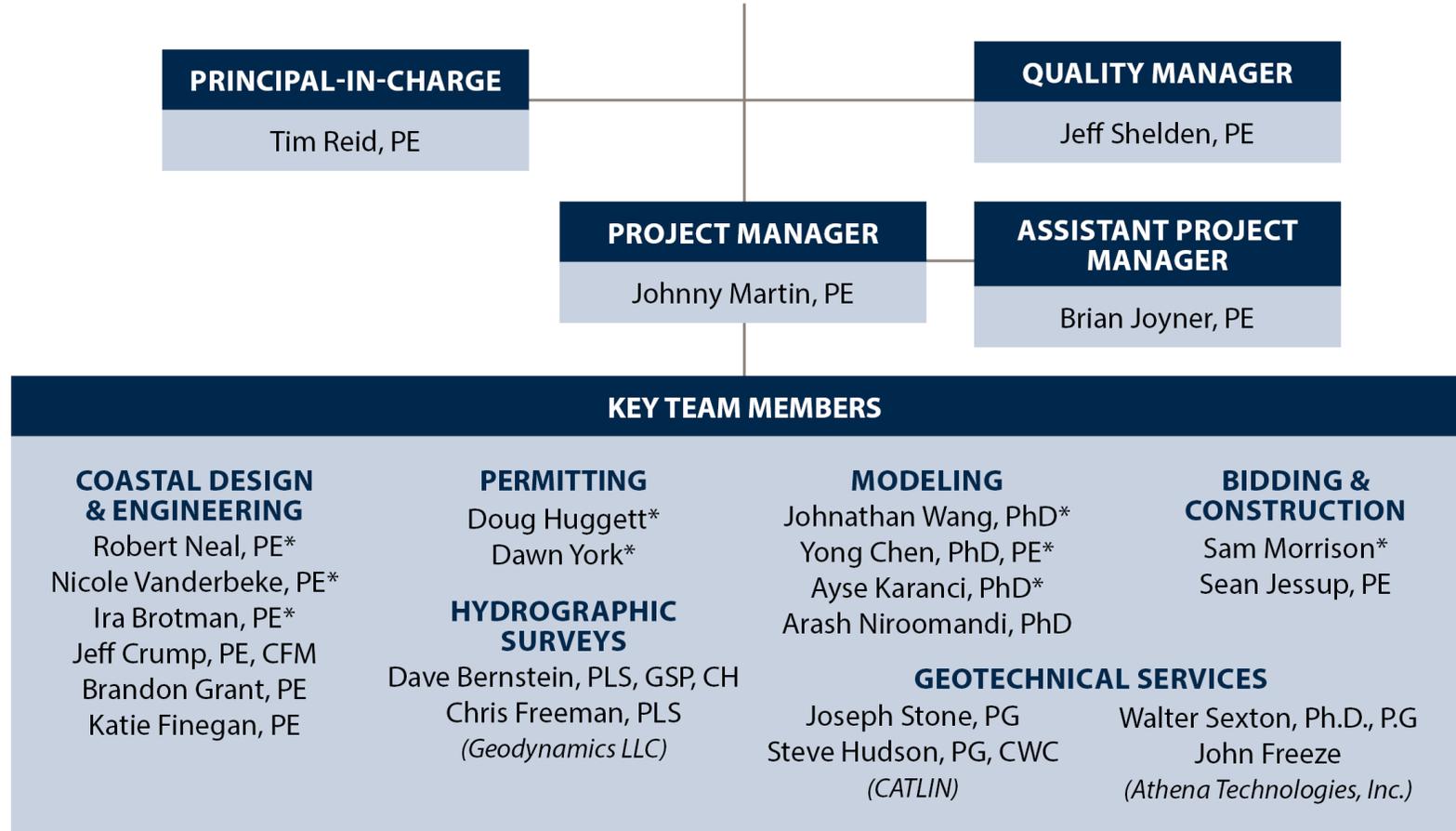


moffatt & nichol

Creative People, Practical Solutions.®

Project Team

THE TOWN OF NAGS HEAD NORTH CAROLINA



*Denotes key personnel; resume provided in the Appendix.
All personnel M&N unless otherwise noted.

Project Team

Responsive Team

- On-call coastal engineering consultant to the cities of Norfolk and Virginia Beach for more than 15 years
- Personnel from our Norfolk, Raleigh, Morehead City and Wilmington offices will support the Town of Nags Head
- 82 miles, 1.5 hours by car



Map courtesy of www.visitob.com

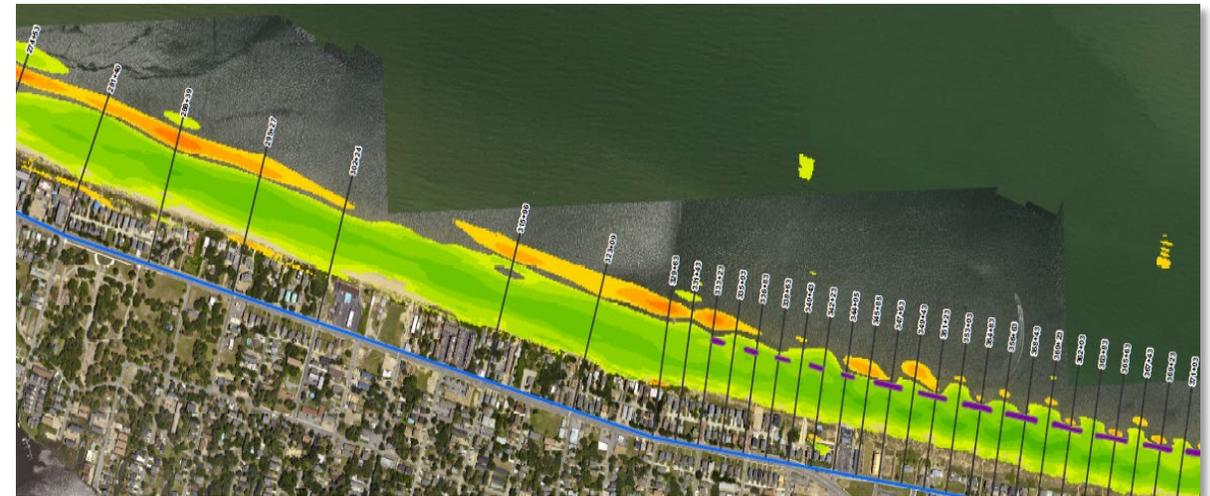
Specialized Experience

State Level Studies and Funding

- NC Shallow Draft Inlet Study
- NC Beach and Inlet Management Plan
- NC Terminal Groin Study

Experience with Coastal Structures and Nearby Beaches

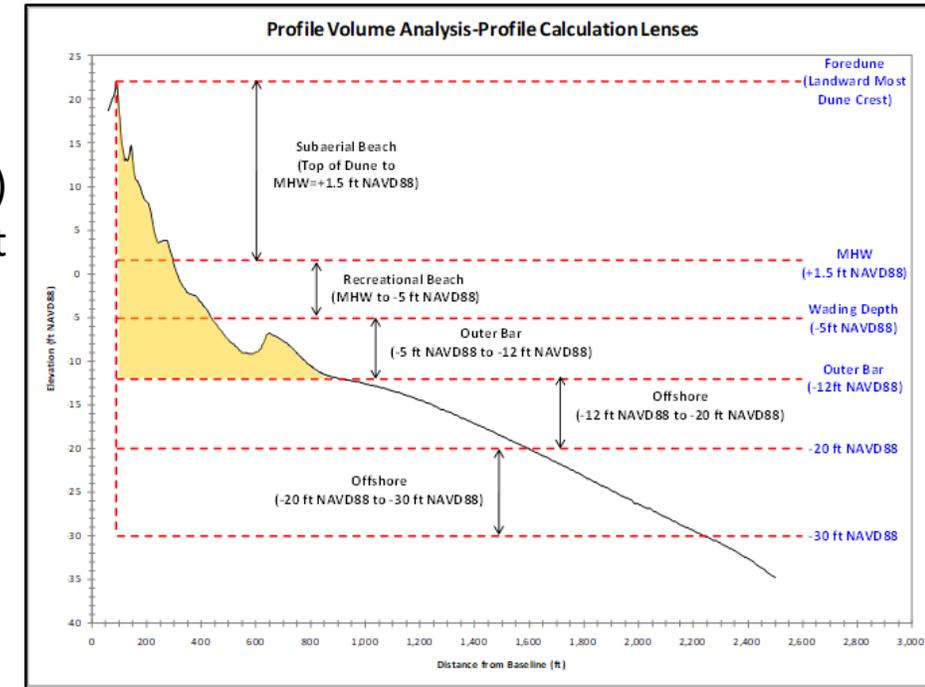
- On-call coastal engineering consultant to the cities of Norfolk and Virginia Beach for more than 15 years
- Chesapeake Bay Shorelines Have Allowed Use of Groins and Breakwaters



Coastal Engineering Scope of Work

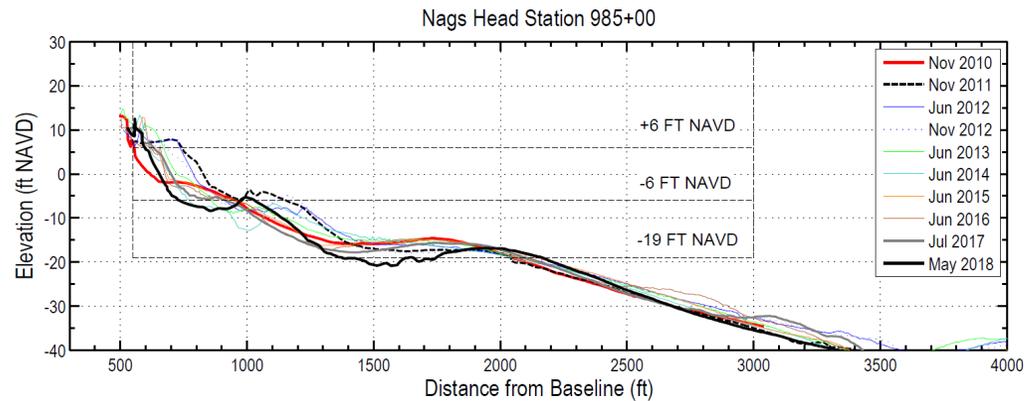
Anticipated Tasks

1. Oversee & Submit Monitoring Plan and Surveys (McKim & Creed Contracted Directly with the Town) – Year 1
2. Begin to Develop Beach Nourishment Master Plan
 - Data Collection and Review (Year 1)
 - Review Existing Monitoring/Maintenance Plan for Engineered Beach (Year 1)
 - Conduct Initial Modeling and Develop Preliminary Estimates of Nourishment Triggers and Hotspot Management (Year 1)
 - Finalize Modeling to Develop Profile Based Volumetric Triggers for Engineered Beach (Future)
 - Finalize Modeling and Plan for Managing Hotspots for Engineered Beach (Future)
 - Field Investigations/Environmental Studies/Alternatives Development/EIS/Permitting (Future)
 - Financing Plan (Future)
3. Coordinate Regional Partnerships with the County and other communities (Future)
 - Maximize resources and collaborate on funding strategies
4. Design and Implement Nourishment Events (Future)
 - Expected nourishment intervals based on modeling and working with nature



1. Oversee Monitoring Plan and Surveys

- Coordinate Transect Spacing and Locations
 - Provide Town with Options and Select Final Plan
- Review Monitoring Data
- Evaluate Trends (Shoreline and Volume Change)
- Prepare Monitoring Annual Reports



Unit Volume from the Face of Dune to Indicated Depth Contour (CY/FT)

Date	To +6 FT	To -6 FT	To to -19 FT
Nov 2010	0.1	59.1	440.8
Nov 2011	9.4	143.7	550.9
Jun 2012	11.4	122.5	534.5
Nov 2012	6.4	110.8	505.8
Jun 2013	16.1	104.0	500.4
Jun 2014	11.0	73.9	458.7
Jun 2015	10.8	91.4	479.2
Jun 2016	1.4	73.6	438.8
Jul 2017	6.6	78.6	420.2
May 2018	5.4	53.4	372.7



Photo: 12 Dec 2017 IMC



2. Begin Master Plan Development



- Complete Task 1 & Portion of Task 2 During First Year
- Vulnerability Analysis Consists of Redevelopment of Engineered Beach (Triggers and Hotspot Management) – Determine Sand Volume Need for 50 Years (Background and Storm Erosion)
- Total Master Plan Timeline May Be 4 – 6 Years Depending on Level of Field Investigations Needed & Permit/EIS Coordination
- Some Tasks/Coordination with Environmental Agencies Are In Parallel

2. Master Plan Philosophy - Engineering

- Manage Hot Spots
- Equal Level of Protection Provided (Not Necessarily Equal Sand)
- Design Projects Based on Modeling, Available Funding, Response to Storm Events, and Nourishment Triggers
- Example Below from Bogue Banks



2. Master Plan Philosophy - Permitting

Permitting

- USACE 50-Year Permit
 - Operate under FWS Statewide Programmatic Biological Opinion
- USACE project specific permit (to be updated for each individual nourishment event upon event notification)
- NCDCM CAMA Major Permit (to be updated for each individual nourishment event upon event notification)
- NC DWQ 401 Certification (must apply for new permit for each event)
- BOEM Lease Authorization (If Needed)
- 50-Year NMFS Biological Opinion (Now Likely Falls Underneath New SARBO)

Permit Class: **MODIFICATION/MAJOR** Permit Number: **45-10**

STATE OF NORTH CAROLINA
Department of Environmental Quality
and
Coastal Resources Commission

Permit

for
 Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118
 Excavation and/or filling pursuant to NCGS 113-229

Issued to: **Town of Nags Head, PO Box 99, Nags Head, NC 27959**

Authorizing development in Dare County at Atlantic Ocean, Bonnet St. beach access to the Nags Head southern town limit, as requested in the permittee's application dated 9/15/17, incl. attached work plan drawings (23), referenced in Condition No. 1 of this permit, & Ocean Hazard ABC Notice dated "Rec DCM MHD City 12/13/17".

This permit, issued on **February 12, 2018**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

1) Unless specifically altered herein, all work shall be done in accordance with the permittee's application and work plan drawings (23), dated 9/15/17 (Sheets 1, 3-14, 18, 21-23), dated Revised 11/17/17 (Sheets 2, 15-17, 19), and dated Received DCM MHD City 1/11/18 (Sheet 20).

Excavation

2) Unless specifically altered herein, all excavation activities shall take place entirely within borrow sites 3A (Sheet 19) and borrow site 4 (Sheet 20) and in accordance with Condition No. 3 of this permit.

(See attached sheets for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. Signed by the authority of the Secretary of DEQ and the Chairman of the Coastal Resources Commission.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on **December 31, 2021**.

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Douglas V. Huggott
for **Braxton C. Davis, Director**
Division of Coastal Management

This permit and its conditions are hereby accepted.

Signature of Permittee

3. Partnerships and Funding Strategies (Future)

Partnerships and Funding

- Market Forces and Costs Promote Regional Approaches
 - Shared Costs (Mob/Demob)
 - Larger Projects to Encourage Economies of Scale
 - Inter-local Agreements Needed – County Sponsor?
- “The Times They Are A-Changin’”
 - Local Cost Sharing
 - State Funding (Post-Storm and CSDR Funding)
 - Federal (USACE and FEMA)
 - Others (NFWF, NOAA, etc.)



4. Design and Implement Nourishment Projects (Future)

Procurement & Contracting Strategy

- Master Plan Flexibility
 - Timing from event notification to bidding
 - Preparedness for emergency needs
 - Allows for quick changes
 - Quick reaction to market conditions
 - Provide projections on long term nourishment costs
- Methods to Reduce Project Costs
 - Maintain relationship with dredging industry
 - Follow contractor schedules and availability (market conditions)
 - Can reduce cost by developing Plans & Specifications that reduce risk
NC General Statute 143-132. Minimum number of bids for public contracts
 - Design projects of economical scale to leverage high mobilization cost but not place unnecessary sand



Questions & Answers

