

TOWN OF SUNSET BEACH
2016 SHORELINE MANAGEMENT AND PRE-DREDGE ANALYSIS
PHASE 2 - DESIGN

PROGRESS REPORT DATE
JULY 06, 2017

Report Period: June 01 thru June 30, 2017

The items below provide a description of key elements related to the current progress, including outstanding items and anticipated resolutions, for completing the work known as Town of Sunset Beach, 2016 Shoreline Management and Pre-Dredge Analysis, Phase 2 - Design.

Acronyms: M&N – Moffatt & Nichol
DCM – North Carolina Division of Coastal Management
DMF – North Carolina Division of Marine Fisheries
NMFS – National Marine Fisheries Service
USACE – US Army Corps of Engineers (Wilmington District)

Phase 1 – Feasibility Analysis (100% complete)

Items Previously Completed: (100%)

The Town of Sunset Beach (Town) and M&N initiated a contract on February 19th to study the feasibility of conducting approximately 3.5 miles of navigation dredging within the Town limits. The work areas include Mary's Creek, Turtle Creek, Jinks Creek, the Feeder Canal and adjoining finger canals, and the Bay area. The results of the analysis were positive and the Town elected to move forward with the design and modeling of the proposed work on June 7th. The design work was authorized to begin July 1, 2016.

Phase 2 –Design (97.43% complete)

Items Previously Completed (95.89%)

1.0 Project Coordination

- The Town of Sunset Beach authorized M&N to begin the design work on July 1, 2016. The first priority was to secure a Water Resource Development Grant through the State's Shallow Draft Navigation Fund. The grant was secured on August 1 and reimburses the Town 2/3's of the project cost up to \$2,779,327.
- The Town is considering available alternatives for beneficial reuse of any dredge material. This includes beach placement for cost share potential with Ocean Isle or dune restoration adjacent to Bird Island for storm protection and habitat restoration. The Town is also considering a living shoreline project to improve the project benefits. The Town has submitted for grant funding to complete a project with assistance from the NC Coastal Federation. The Town should be able to complete the demonstration project separate from the dredging analysis.
- The Town held a Public Meeting on Saturday, November 12th for M&N to present the channel design details to the property owners and interested parties of Sunset Beach. Information was provided regarding the dredge depth's and dimensions for each project area.

2.0 Refined Design

- M&N provided a proposed channel alignment for each work area within the project along with a dredge volume estimate on October 24th. The alignments concentrate on providing adequate navigation access for the residents of Sunset Beach while also minimizing potential impacts to environmentally sensitive lands. The alignments also focus on maintaining a 5 ~ 10 ft clearance from any existing piling or seawall. The clearance will help the Town establish a pier head alignment for future development (where applicable) and also help avoid any potential damage to the structures as a result of the construction process.
- The modeling analysis for Jinks Creek was completed on June 7th. The analysis help provide a reduced alignment for Jinks Creek to help minimize potential environmental impacts. The modeling indicated no significant change should occur in the tidal velocities, or sediment transport as a result of the reduced or preferred alignment. The modeling included a storm analysis evaluating the alignments performance in extreme weather conditions (Hurricane Hugo). The results suggested the preferred alignment would not produce significant changes compared to the 2016 existing conditions in extreme storms.

3.0 Sediment Testing

- Catlin Engineers provided an initial report on the sediment analysis required to help define ‘compatible’ and ‘non-compatible’ material on October 3rd. Review of the report suggested that additional sediment samples would be necessary to complete the analysis. As a result, Catlin reinitiated efforts to collect the samples and completed the additional field work on October 26th. Based on initial review of the sediment data approximately half of the dredge material classifies as non-compatible material.
- M&N provided an estimate of the sediment compatibility for each dredge area based on data collected by Catlin Engineers. The project design will need to consider the volume of compatible and non-compatible material for proper placement of the dredge spoil. Compatible material may be placed on the beach. However, non-compatible material will need to be placed in an alternate (upland) site. The table below provides a summary of the analysis results.

Dredge Area	Compatible (CY)	Non-Compatible (CY)	Total (CY)
Jinks Creek	100,982	13,246	114,228
Bay Area	645	17,555	18,200
Feeder Channel & Finger Canals	3,585	29,275	32,860
Mary’s Creek	-	8,066	8,066
Turtle Creek	-	7,830	7,830

4.0 USACE Disposal Location

- M&N verified all of the potential disposal islands are available and the USACE will not need to make a site visit to inspect the islands. The USACE will only review the project plans during the permitting process to ensure their concerns are addressed. Figure 2 shows the potential disposal islands being considered for the project as site 308, 310, & 311. The designations were provided by the USACE as a labeling system for each disposal island.



Figure 2. Potential USACE Material Placement Islands

- M&N conducted an initial inspection of islands 308, 309, 310, & 311 on May 22nd. The inspection results helped identify the three most probable sites for placement of the projects non-compatible material (308, 310, & 311). M&N will conduct additional analysis to evaluate the most suitable site based on the potential project volumes and estimated costs to improve the sites for use.

5.0 Oyster Survey

- The report detailing the oyster survey in Mary's & Turtle Creek was provided for Town review on January 5th. Due to the presence of significant resources outside the dredge alignment, within the intertidal areas of each creek, some type of oyster relocation or mitigation may be required. Discussion from the May 5th agency coordination meeting did not yield a final resolution regarding the need for mitigation or relocation of the resources outside the dredge footprint. DCM indicated the information would be reviewed further during the permitting process.

6.0 Agency Coordination Meeting

- The 2nd Agency Coordination was held on May 5, 2017 to discuss the dredge alignments, modeling results, and any potential mitigation requirements with the state and federal agencies. Based on the May 5th meeting outcome the Town will consider moving forward with a path to prepare the environmental documentation for the project. A critical piece of the next phase will be an oyster survey of Jinks Creek requested by DMF. The Town may also consider moving forward with the 'maintenance' segments of the project separate from the Jinks Creek segment. A resolution is anticipated in mid-June. Key points from the meeting are as follows:

- The USACE will most likely require an individual permit (IP) for the dredging of Jinks Creek.
- A shellfish survey of Jinks Creek will be required to evaluate potential impacts of the dredging project.
- Sediment testing of the recipient beach will be required to verify compatible material volumes as well as carbonate testing of the Jinks Creek samples.

7.0 Conceptual Cost Estimate

- M&N has contacted multiple dredge contractors to discuss the project and to confirm construction techniques / assumptions in an attempt to develop a more accurate cost estimate for the project. A more definitive estimate will be provided once all of the design details have been resolved. This is not expected until after the 3rd agency coordination meeting.

Progress this Period: (1.54% of total task)

1.0 Project Coordination

- M&N discussed the results of the 2nd agency coordination meeting with the Town at the June 26th council meeting. Based on the comments received at the coordination meeting, the permitting of northern Jinks Creek presents a significant challenge based on the public interest and concern already expressed towards the dredging of any potential shellfish. As a result the Town approved a path forward of permitting the project exclusive of northern Jinks Creek. (The permit will include the dredging of Mary's Creek, Turtle Creek, the Bay Area, southern Jinks Creek, and the Feeder Canal with the adjoining finger canals A-D.)

The Town also approved moving forward with a shellfish survey of northern Jinks Creek in an effort to identify the shellfish coverage and gauge the potential impacts likely as a result of dredging. M&N will conduct the shellfish survey in a two-step process where an initial survey of the dredge footprint will be conducted and the results presented to the resource agencies during a site visit. Completing the survey will be contingent on the initial results and comments received from the agencies.

Outstanding Items and Anticipated Completion Dates:

3.0 Sediment Testing

- The Jinks Creek sediment samples must be analyzed for carbonate calcium (shell) content prior to determining if the material is beach compatible. Resolution is anticipated in July.

4.0 USACE Disposal Locations

- M&N will provide the estimated cost for developing the three (3) selected disposal islands along with a unit cost difference for placing material in each. This will allow a decision to be made regarding which island to use as soon as the project volume is determined. Resolution is anticipated in July.

7.0 Conceptual Cost Estimate

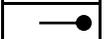
- M&N will provide an updated cost estimate for constructing the project based on the design phase work and the Jinks Creek shellfish survey. Resolution is anticipated after the 3rd agency coordination meeting.

**TOWN OF SUNSET BEACH
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Progress Schedule

Tasks	2016						2017												2018									
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	
Pre-Dredge Analysis Design Phase																												
Project Coordination																												
Public Meeting																												
Refined Design																												
Modeling Analysis																												
Sediment Testing																												
Hydrographic Survey																												
USACE Disposal Locations																												
Oyster Survey																												
Agency Coordination Meeting																												
Conceptual Cost Estimate																												

	Primary Task		Sub-Task
	Anticipated timeframe to complete task.		Work in progress (WIP) for task.
	Anticipated overrun in task.		Actual timeframe to complete task.