Moor Shore Living Shoreline Project

A LIVING SHORELINE EXPERIENCE

February, 2019
Moor Shore Living Shoreline Project

1876 USGS
Moor Shore Living Shoreline Project

Early to Mid 1970’s
Moor Shore Living Shoreline Project

Early to Mid 1970’s
Moor Shore Living Shoreline Project

1993
Moor Shore Living Shoreline Project

2011
Moor Shore Living Shoreline Project

2012
Moor Shore Living Shoreline Project

Coastal Federation secured funding from:
  Town of Kitty Hawk
  The Coastal Federation
  Dare County Soil and Water
  NOAA
  NCDOT
Moor Shore Living Shoreline Project

CAMA Major

was required at the time of the Project
Moor Shore Living Shoreline Project

Precedence – Baycliff Trail, Colington
Moor Shore Living Shoreline Project
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Moor Shore Living Shoreline Project
Precedence – Corolla Bay, Corolla
Moor Shore Living Shoreline Project
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Moor Shore Living Shoreline Project

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Required Scoping Meeting

US Fish and Wildlife (USFWS)

National Marine Fisheries / (NOAA)

Department of Water Resources (NCDEQ DWR)

US Army Corp of Engineers (UCACOE)

Coastal Federation

Coastal Engineering & Surveying
Moor Shore Living Shoreline Project

CAMA Major

MOOR SHORE DRIVE SHORELINE STUDY

Project Report

Submitted to: Coastal Engineering and Surveying Inc.
Submitted by: Jeff Hanson, P.E., WaveForce Technologies LLC
Date: June 1, 2017
Moor Shore Living Shoreline Project

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Required Narrative and Drawings

Moor Shore Road Kitty Hawk, NC
Living Shoreline
Dare County, North Carolina

Project Narrative

Applicant:
North Carolina Coastal Federation
In partnership with
local residents, the town of Kitty Hawk, N.C. Department of Transportation and Coastal Engineering

Prepared By:
The North Carolina Coastal Federation
637 Harbor Rd.
Wanchese, NC 27981

&

Coastal Engineering & Surveying, Inc.
4425 North Croatan Hwy.
Kitty Hawk, NC 27949

January, 2017
Moor Shore Living Shoreline Project

CAMA Major

Required Narrative and Drawings

APPLICATION for Major Development Permit

North Carolina DIVISION OF COASTAL MANAGEMENT

application@coastalnc.com
OF = Michele@ncsoscare.org

P.O. BOX 1109
PLM: 0461 & PE 014677

MoorShoreLivingShorelineProject

252-508-2808 | 1-866-4COAST | www.nccoastalmanagement.net
Moor Shore Living Shoreline Project

CAMA Major

Required Narrative and Drawings

Form DCM MP-2

**EXCAVATION and FILL**

(Except for berms and culverts)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that pertain to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. All values should be given in feet.

<table>
<thead>
<tr>
<th>Access Channel (MLW or TWL)</th>
<th>Canal</th>
<th>Boat Basin</th>
<th>Boat Ramp</th>
<th>Rock groin</th>
<th>Rock Breakwater</th>
<th>Other (excluding shore stabilization)</th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
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<tr>
<td>Avg. Existing Depth</td>
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</table>

DCM MP-2

Excavation & Fill
Moor Shore Living Shoreline Project

CAMA Major

Required Narrative and Drawings

Form DCM MP-4

STRUCTURES

(Construction within Public Trust Areas)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to the proposed project. Please include all supplemental information.

DCM MP-4
Structures
Moor Shore Living Shoreline Project
CAMA Major
Required Narrative and Drawings

Option Drawing
Rock Sill
Moor Shore Living Shoreline Project
CAMA Major
Required Narrative and Drawings

Option
Drawing
Wood Sill
Moor Shore Living Shoreline Project
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Required Narrative and Drawings

Option
Drawing
Vinyl Sill
Moor Shore Living Shoreline Project

CAMA Major

Required Narrative and Drawings

CAMA Original Submittal
Moor Shore Living Shoreline Project

CAMA Major

Required Narrative and Drawings

CAMA Re-Submittal
Moor Shore Living Shoreline Project

CAMA Major

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

Permit
for
X Major Development in an Area of Environmental Concern
pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to The Town of Kitty Hawk et. al., PO Box 549, Kitty Hawk, NC 27949

Authorizing development in Dare County at adj. to Kitty Hawk Bay, at 2789, 3793, 3797, 3801, & 3809 Moor Shore Rd., in Kitty Hawk, as requested in the permittee’s application dated 4/30/18, including attached workplan drawing (1), dated “Revised 4/23/18 and Received DCM EC 5/7/18”.

This permit, issued on July 31, 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.

Shoreline Stabilization - Offshore Sills
1) The offshore sills shall be constructed in accordance with the alignment depicted in the workplan drawings.
2) The alignment of each of the authorized offshore sills shall be staked by the permittee and verified by a representative of the Division of Coastal Management within a maximum of 30 days prior to the start of construction.
3) If the crossing of wetlands with mechanized construction equipment is necessary, temporary construction mats shall be utilized for the areas to be crossed. The temporary mats shall be removed immediately upon completion of construction.

(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.

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

Any maintenance 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.

Signed by the authority of the Secretary of DEQ and the Chairman of the Coastal Resources Commission.

[Signature]

Best, C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

[Signature of Permittee]
Moor Shore Living Shoreline Project

CAMA Major

Drawings and Specifications

NCDOT Requirements

NCDOT Specifications

Buy American
Moor Shore Living Shoreline Project

CAMA Major

Drawings and Specifications

THE LIVING PORTION: BLACK NEEDLE RUSH
(Juncus roemarianus)

*Planted between Mean High Tide and Spring Tide*

USDA Hardiness Zone: 7-10
Height: 1-5 feet
Moor Shore Living Shoreline Project

CAMA Major

Drawings and Specifications

THE LIVING PORTION: SALTGRASS
Distichlis spicata

*Planted between Mean High Tide and Spring Tide*
USDA Hardiness Zone: 2-10
Height: 4-24"
Moor Shore Living Shoreline Project

CAMA Major

Drawings and Specifications

THE LIVING PORTION: BUSHY SEASIDE TANSY
Borrichia frutescens

Planted at Mean High Tide and above
USDA Hardiness Zone: 6-11
Spread: 2-4 feet
Height: 2-3 feet
THE LIVING PORTION: CRIMSON EYED ROSEMALOW

*Hibiscus moscheutos*

*Planted at water line or above*
USDA Hardiness Zone: 6-9
Spread: 2-3 feet
Height: 5+ feet
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CAMA Major

Drawings and Specifications

THE LIVING PORTION: Saltmarsh Mallow
Kosteletzkya virginica

*Planted at waterline or above*
USDA Hardiness Zone: 6-9
Spread: 2-3 feet
Height: 3-4 feet
Moor Shore Living Shoreline Project

CAMA Major

Drawings and Specifications

THE LIVING PORTION:

HARLIQUIN BLUEFLAG

Iris versicolor

Planted at waterline or above
USDA Hardiness Zone: 6-9
Spread: 2-3 feet
Height: 3-4 feet
Moor Shore Living Shoreline Project

OSPREY POLES AND STANDS
Moor Shore Living Shoreline Project
Moor Shore Living Shoreline Project
Moor Shore Living Shoreline Project
Moor Shore Living Shoreline Project
Coastal Engineering & Surveying, Inc.
4425 N. Croatan Highway
Kitty Hawk, NC 27949
Phone: (252) 261-4151
Email: info@coastales.com