

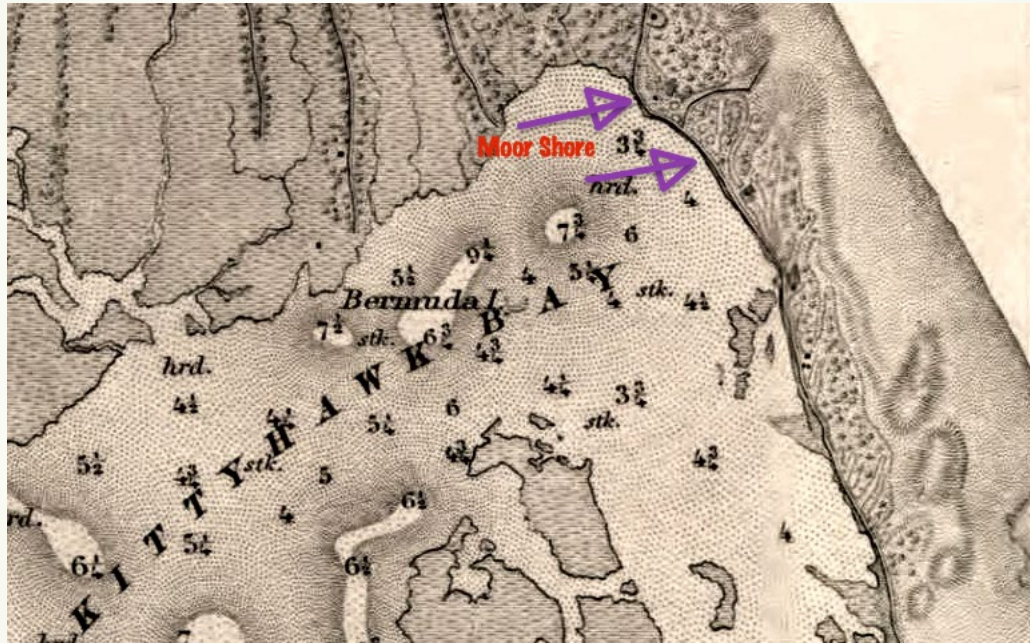
Moor Shore Living Shoreline Project

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



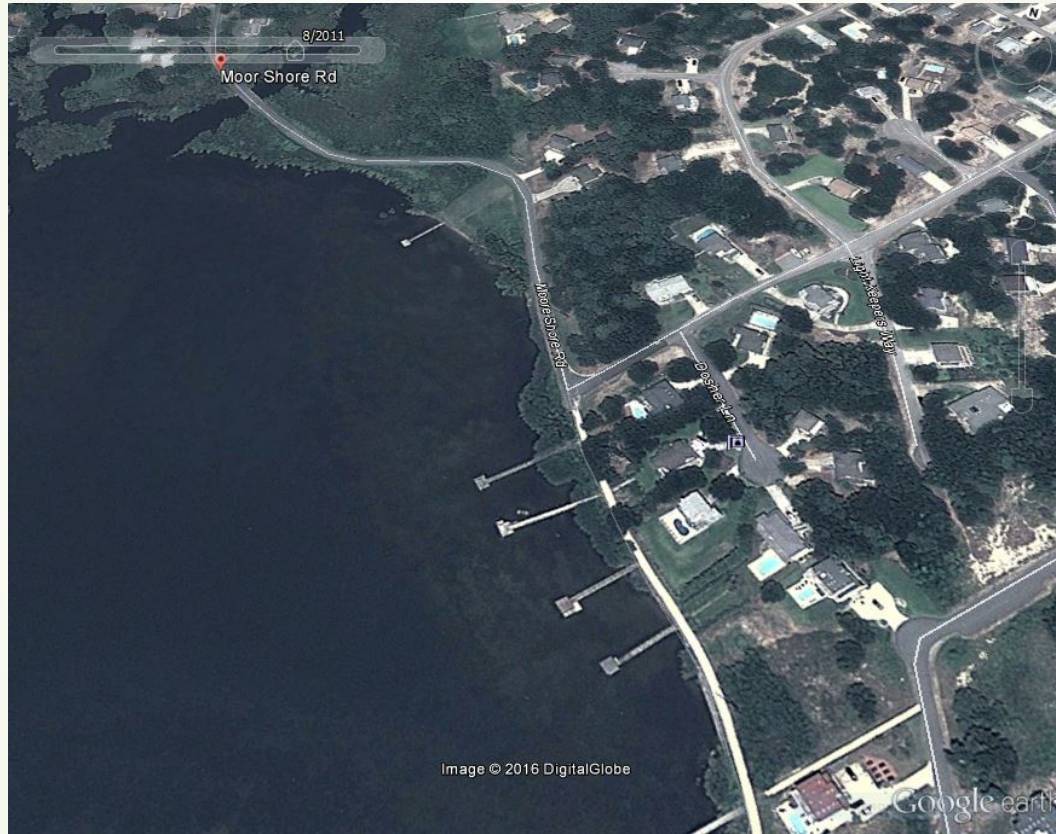
Early to Mid 1970's

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**



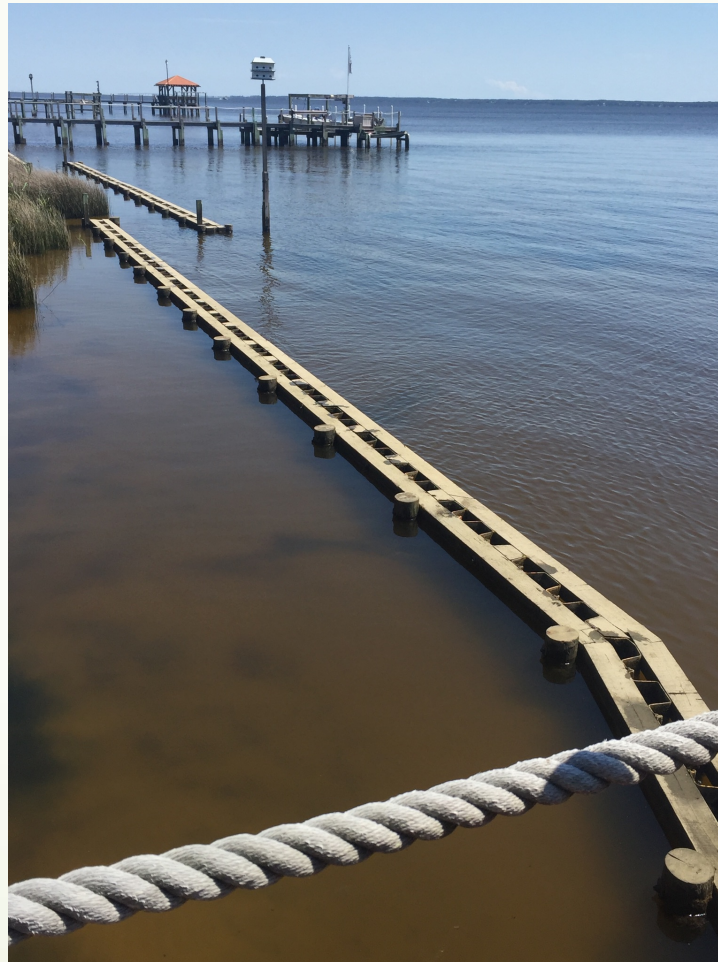
Moor Shore Living Shoreline Project

Precedence – Baycliff Trail, Colington



Moor Shore Living Shoreline Project

Precedence – Baycliff Trail, Colington



Moor Shore Living Shoreline Project

Precedence – Corolla Bay, Corolla



Moor Shore Living Shoreline Project

Precedence – Corolla Bay, Corolla



Moor Shore Living Shoreline Project

CAMA Major

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

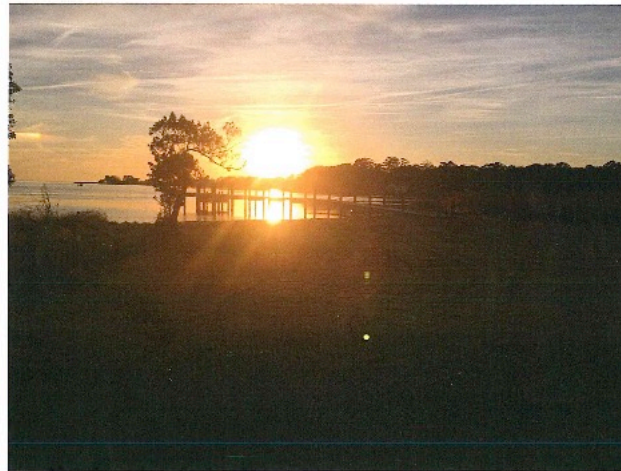
Moor Shore Living Shoreline Project

CAMA Major



MOOR SHORE DRIVE SHORELINE STUDY

Project Report



Submitted to: Coastal Engineering and Surveying, Inc.
Submitted by: Jeff Hanson, PhD., WaveForce Technologies LLC
Date: June 1, 2017

Moor Shore Living Shoreline Project

CAMA Major

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

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

n/a

n/a

@Coastales.com
CF = Michelle@nccoast.org

PO BOX 1129

PLS#L-3241 & PE 014071

, Natalie@Coastales.com

Application for Major
Development Permit

Moor Shore Living Shoreline Project

CAMA Major

Required Narrative and Drawings

Form DCM MP-2

EXCAVATION and FILL

(Except for bridges 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 relate 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.

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length							
Width							
Avg. Existing Depth							

DCM MP-2
Excavation & Fill

x

x

d?

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 this proposed project. Please include all supplemental information.

x

DCM MP-4
Structures

gth: _____

m. (i) Will the facility have tie pilings?

yes no

(ii) If yes number of tie pilings?

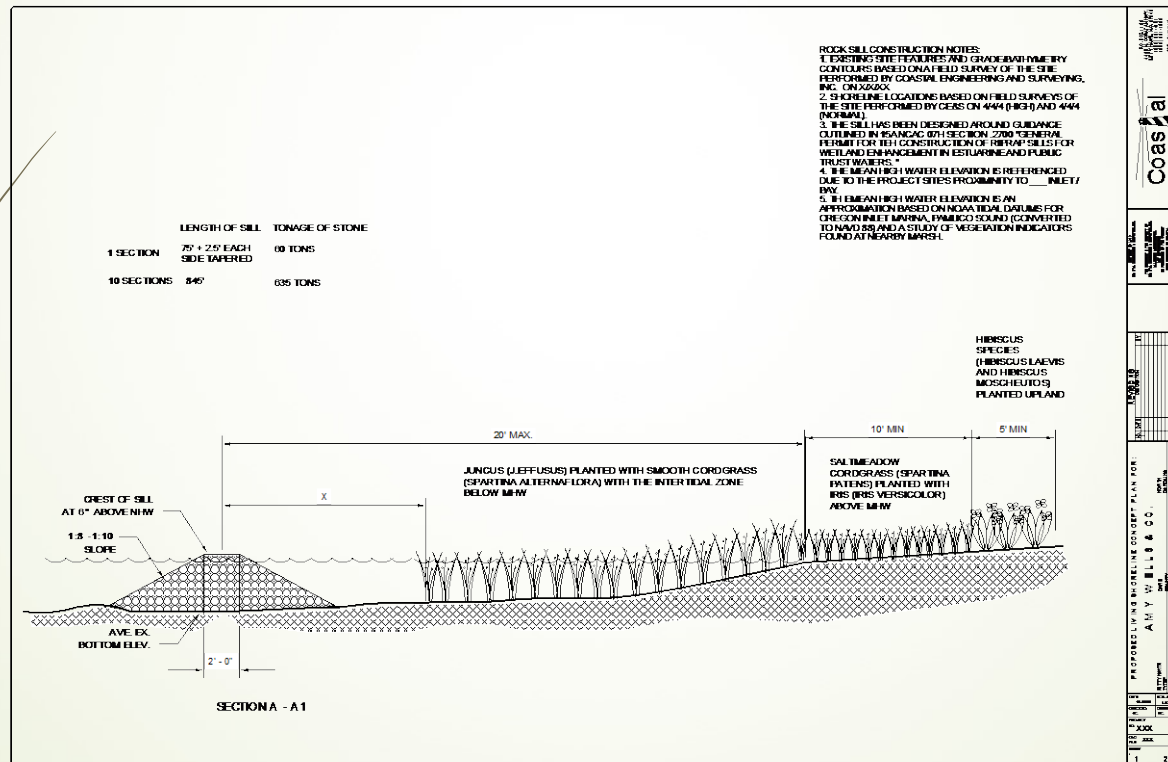
l. (i) Will the facility be open to the general public?

yes no

Moor Shore Living Shoreline Project

CAMA Major

Required Narrative and Drawings

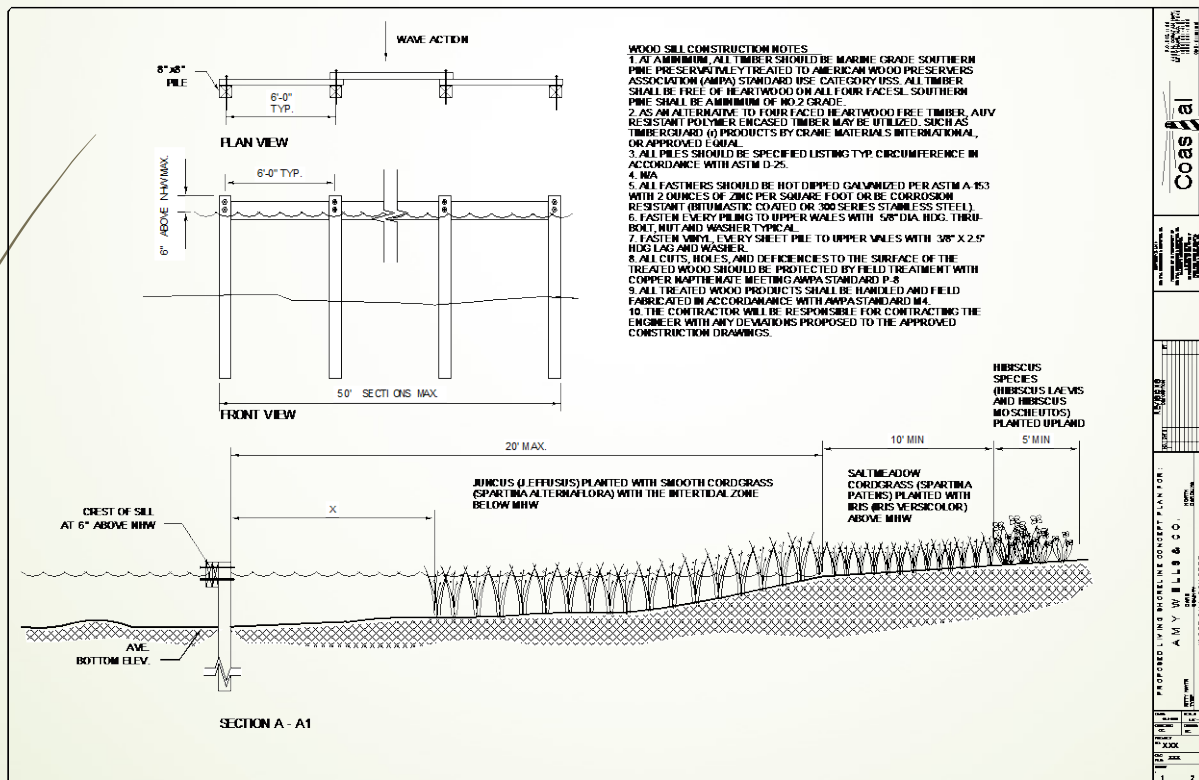


Option
Drawing
Rock Sill

Moor Shore Living Shoreline Project

CAMA Major

Required Narrative and Drawings

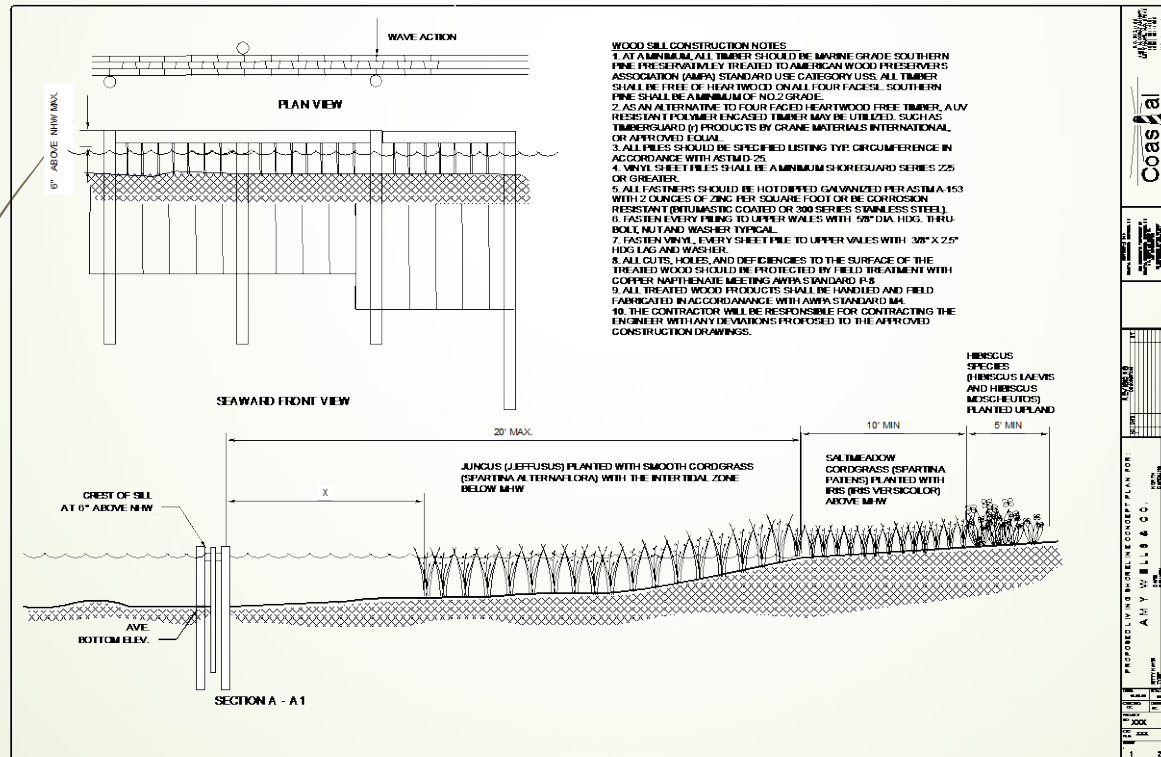


Option
Drawing
Wood Sill

Moor Shore Living Shoreline Project

CAMA Major


Required Narrative and Drawings



Option
Drawing
Vinyl Sill

Moor Shore Living Shoreline Project

CAMA Major

Permit Class <u>NEW</u>	Permit Number <u>79-18</u>
STATE OF NORTH CAROLINA Department of Environmental Quality and Coastal Resources Commission Permit for <input checked="" type="checkbox"/> Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118 <input checked="" type="checkbox"/> Excavation and/or filling pursuant to NCGS 113-229	
Issued to <u>The Town of Kitty Hawk et. al., PO Box 549, Kitty Hawk, NC 27949</u>	
Authorizing development in <u>Dare</u> County at <u>adj. to Kitty Hawk Bay, at 3789, 3793, 3797, 3801, & 3809 Moor Shore Rd., in Kitty Hawk</u> , 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 <u>July 31, 2018</u> , 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	
<ol style="list-style-type: none">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.	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.	 Braxton C. Davis, Director Division of Coastal Management
Any maintenance work or project modification not covered hereunder requires further Division approval.	
All work must cease when the permit expires on	This permit and its conditions are hereby accepted.
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.	_____ 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



Moor Shore Living Shoreline Project

CAMA Major

Drawings and Specifications

THE LIVING PORTION : CRIMSONEYED ROSEMALLOW
Hibiscus moscheutos

Planted at water line
or above

USDA Hardiness Zone : 6-9

Spread : 2-3 feet

Height : 5+ feet



Moor Shore Living Shoreline Project

CAMA Major

Drawings and Specifications

THE LIVING PORTION : SALTMARSH MALLOW
Kosteletzkyia 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

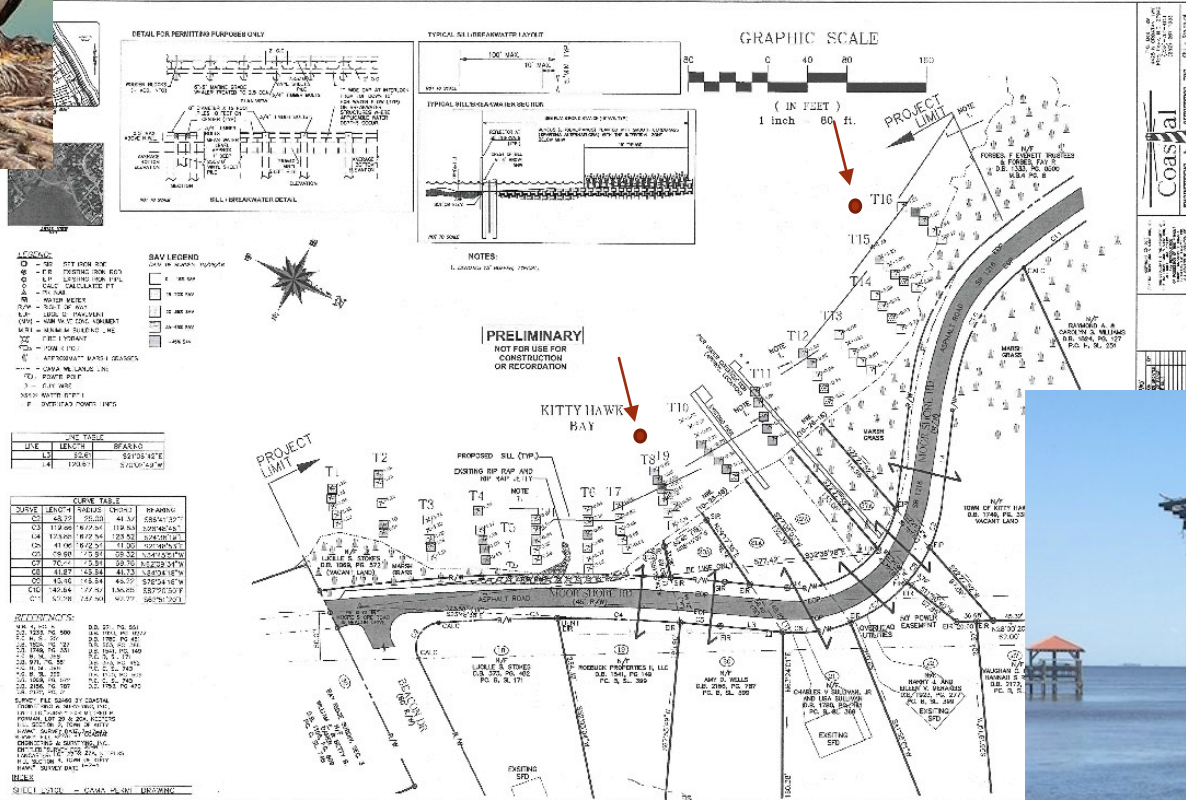
Spread : 2-3 feet

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

