

North Carolina Living Shorelines



North Carolina
Coastal Federation
Working Together for a Healthy Coast

Accomplishments

- ✓ Increased #s of living shoreline projects
- ✓ Increased # of trained professionals
- ✓ Improved regulatory process
- ✓ Increased scientific literature
- ✓ Increased state/national promotion
- ✓ Increased grant funding



North Carolina
Coastal Federation
Working Together for a Healthy Coast

Lessons Learned

- ❖ Permits equity matters
- ❖ Proper designs are site specific, but follow sound design principles
- ❖ Various materials are viable for LS project success
- ❖ Technical training critical to widescale adoption of LS measures
- ❖ Adaptive management improves design, success
- ❖ LS projects perform well in higher energy



North Carolina
Coastal Federation
Working Together for a Healthy Coast

Shoreline Stabilization Permitting

Categories:

- General Permits (GPs): issued by DCM field staff and are streamlined major permits for routine projects (permit issuance averages 5-14 days)
- Major permits: reviewed by 10 state & 4 federal agencies and are issued at the Division headquarters (permit issuance averages 75-90 days)
- Minor permits/Exemptions: Special circumstances such as maintenance/post- storm repairs, etc.

Credit: N.C. Division of Coastal Management



North Carolina
Coastal Federation
Working Together for a Healthy Coast

Living Shorelines General Permits

SECTION .2700 – GENERAL PERMIT FOR THE CONSTRUCTION OF RIPRAP SILLS FOR WETLAND ENHANCEMENT IN ESTUARINE AND PUBLIC TRUST WATERS

15A NCAC 07H .2701 PURPOSE

A general permit pursuant to this Section shall allow for the construction of riprap sills for wetland enhancement in estuarine and public trust waters as set out in Subchapter 7J .1100 and according to the rules in this Section.

History Note: Authority G.S. 113A-107; 113A-118.1;
Temporary Eff. June 15, 2004;
Eff. April 1, 2005.

15A NCAC 07H .2702 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management and request approval for development. The applicant shall provide information on site location, dimensions of the project area, and applicant name and address.

(b) The applicant shall provide:

- (1) confirmation that a written statement has been obtained signed by the adjacent riparian property owners indicating that they have no objections to the proposed work; or
- (2) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing for consideration by permitting officials to the Division of Coastal Management within 10 days of receipt of the notice, and, indicate that no response will be interpreted as no objection.

(c) DCM staff shall review the proposed project, if

SECTION .2400 – GENERAL PERMIT FOR PLACEMENT OF RIPRAP REVETMENTS FOR WETLAND PROTECTION IN ESTUARINE AND PUBLIC TRUST WATERS

15A NCAC 07H .2401 PURPOSE

The general permit for placement of riprap revetments for wetland protection in estuarine and public trust waters shall allow the placement of riprap revetments immediately adjacent to and waterward of the wetland toe. This permit shall only be applicable in public trust areas and estuarine waters according to authority provided in 15A NCAC 07J .1100 and according to the rules in this Section. This permit shall not apply to oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those portions of shoreline that feature characteristics of Estuarine Shorelines. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area.

History Note: Authority G.S. 113A-107; 113A-118.1;
Eff. August 1, 2000;
Amended Eff. February 1, 2009; April 1, 2003.

15A NCAC 07H .2402 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management and request approval for development. The applicant shall provide information on site location, dimensions of the project area, and the applicant's name and address.

SECTION .2100 - GENERAL PERMIT FOR CONSTRUCTION OF SHEETPILE SILL FOR SHORELINE PROTECTION IN ESTUARINE AND PUBLIC TRUST WATERS AND OCEAN HAZARD AREAS

15A NCAC 07H .2101 PURPOSE

A general permit pursuant to this Section shall allow the construction of offshore parallel sheetpile sills, constructed from timber, vinyl, or steel sheetpiles for shoreline protection in conjunction with existing or created coastal wetlands. This permit shall only be applicable in public trust areas and estuarine waters according to authority provided in 15A NCAC 07J .1100 and according to the procedures and conditions outlined in this subchapter. This permit shall not apply to oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those shorelines that feature characteristics of Estuarine Shorelines. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in adjoining Ocean Erodible Area.

History Note: Authority G.S. 113A-107; 113A-118.1;
Eff. June 1, 1994;
Amended Eff. February 1, 2009; April 1, 2003; August 1, 2000.

15A NCAC 07H .2102 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management and request

at riparian property owners

rtified mail of the proposed
omments on the proposed
on of Coastal Management
shall be interpreted as no

Federal Permit 2019- 2024 RGP for Marsh Sills

DEPARTMENT OF THE ARMY
Wilmington District, Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403-1343

<http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx>

General Permit No. 201801536
Name of Permittee: General Public
Effective Date: March 22, 2019
Expiration Date: March 21, 2024

DEPARTMENT OF THE ARMY GENERAL (REGIONAL) PERMIT

A general permit to perform work in or affecting navigable waters of the United States and waters of the United States, upon recommendation of the Chief of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403), and Section 404 of the Clean Water Act (33 U.S.C. 1344), is hereby issued by authority of the Secretary of the Army by the

District Engineer
U.S. Army Engineer District, Wilmington
Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403-1343

TO MAINTAIN, REPAIR AND CONSTRUCT MARSH SILLS FOR SHORELINE STABILIZATION ALONG ERODING SHORELINES IN NAVIGABLE WATERS AND WATERS OF THE UNITED STATES WITHIN THE 20 COASTAL COUNTIES IN THE STATE OF NORTH CAROLINA.

The following definitions should be used for purposes of this regional general permit (RGP):

- a. Marsh Sill: Marsh sills are low-profile structures that are generally constructed parallel to shorelines with the objective of reducing wave action and providing protection for existing coastal marshes and shorelines. Marsh sills can maintain the natural continuity of the land-water interface and retain or enhance shoreline ecological processes.

Credit: U.S. Army Corps of Engineers, Wilmington District



North Carolina
Coastal Federation
Working Together for a Healthy Coast

CAMA General Permit for Living Shorelines

- Limited to 30' past normal high water or 5' past existing wetlands, whichever is greater
- Cannot exceed 1' above normal high water
- Slope cannot exceed 1.5' horizontal distance over a 1' vertical rise
- Max length 500' with a 5' openings every 100', max base width of 12'
- Must be marked for navigational purposes
- Cannot construct over existing SAV or oyster beds
- No associated backfill

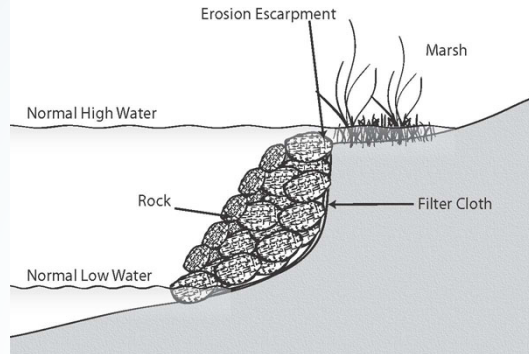
Credit: N.C. Division of Coastal Management



North Carolina
Coastal Federation
Working Together for a Healthy Coast

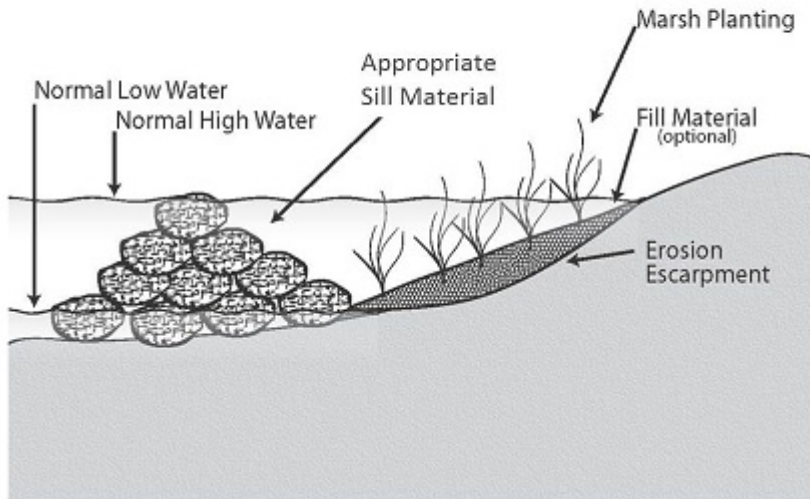
Wetland Riprap Revetment

VIEW FROM SIDE



Sill

VIEW FROM SIDE



General Permits for Oyster Projects

Riprap revetment for
Wetland Protection GP
(.2400)

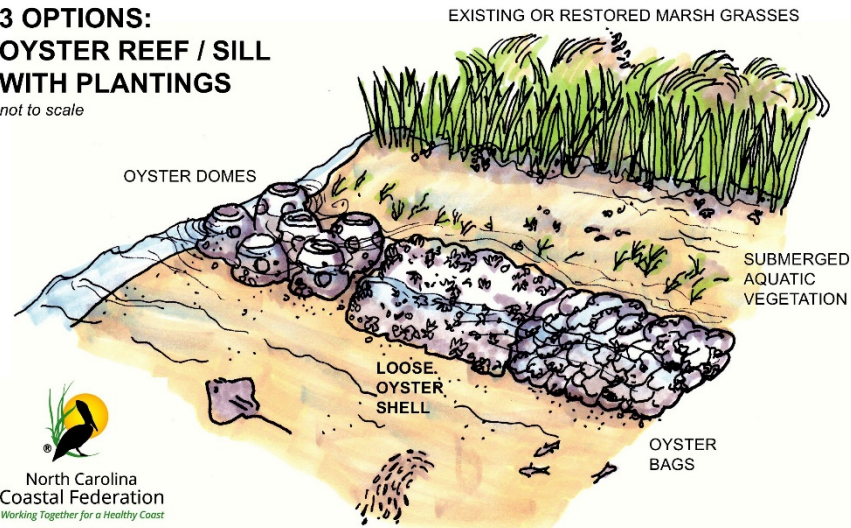
Riprap Sill for Wetland
Enhancement GP (.2700) –

AKA Living Shoreline GP

Oyster Shell Patch Reefs/ Sills

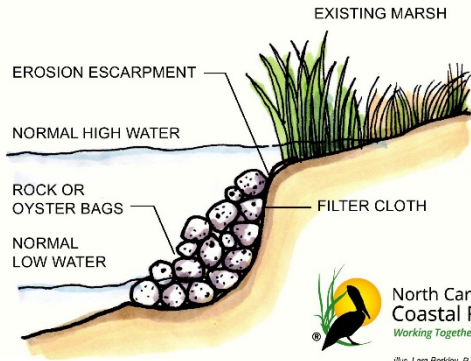
3 OPTIONS: OYSTER REEF / SILL WITH PLANTINGS

not to scale



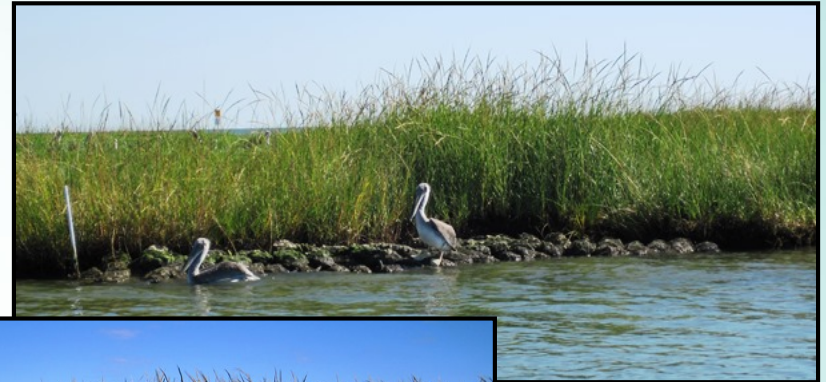
North Carolina
Coastal Federation
Working Together for a Healthy Coast

Rip-Rap (Marsh Toe) Revetments With Oysters/Stone



MARSH TOE REVETMENT
not to scale

 North Carolina
Coastal Federation
Working Together for a Healthy Coast
illus. Lara Borkley, B + O design studio, PLLC



Living Shorelines By the Numbers

	Major Permits (Living Shorelines)	GP .2400 (Marsh Toe Revetment)	GP .2700 (SILL)
2018	10	5	
2019	4	19	11
2020	2	1 (Jan-Feb)	4 (Jan-Feb)

Credit: N.C. Division of Coastal Management

General Permit for Living Shorelines

Where Do I Submit My Application?

Contact the DCM district office that serves your area with the requested information. A list of district offices is available on DCM's Web site located at the following link:

<http://deq.nc.gov/about/divisions/coastal-management/about-coastal-management/staff-listing>.

GP application

- ✓ Drawing
- ✓ Adjacent Neighbor notifications
- ✓ Permit fee (\$200)

Credit: N.C. Division of Coastal Management



North Carolina
Coastal Federation
Working Together for a Healthy Coast

SAMPLE SITE PLAN: Oyster Shell Bag Marsh Sill

Applicant:

Address:

Work Plat Drawing 1 of 2: Design - Plan View

Date:

The location of the proposed oyster shell bag marsh sill is shown (yellow line). The structure will span approximately __ linear feet of shoreline with a 5 ft. gap every 100 ft. to allow water circulation and fish passage.



Garteret County GIS Property Line
Proposed Oyster Shell Bag Marsh Sill

SAMPLE PLAN: Oyster Shell Bag Marsh Sill

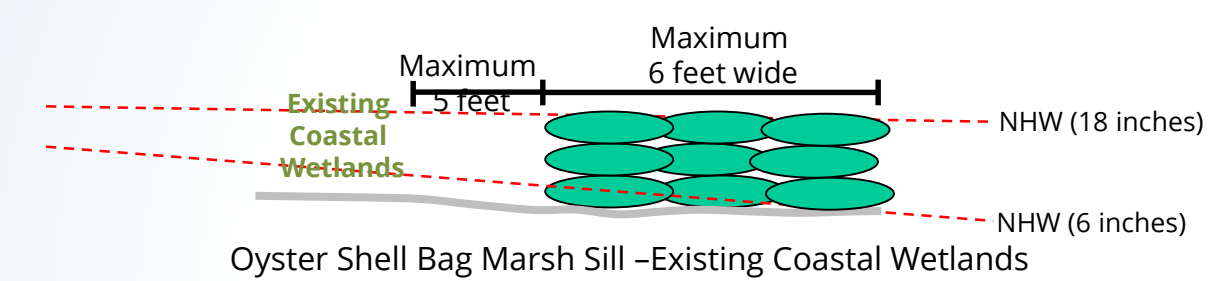
Applicant:

Address:

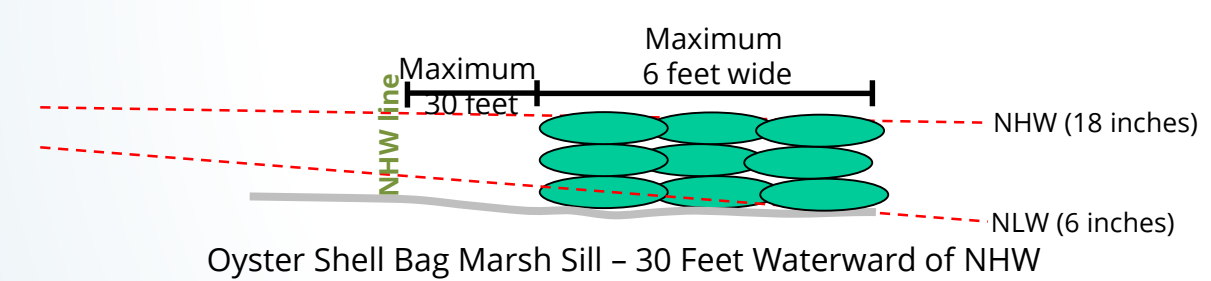
Work Plat Drawing 2 of 2: Design - Cross-Section View

Date:

The oyster shell bag marsh sill will consist of layers of oyster shell bags placed parallel to the shoreline no higher than 12 inches above normal high water (NHW) or the elevation of the existing marsh substrate, whichever is higher. The landward edge of the marsh sill will be constructed no more than 30 feet waterward of NHW or five feet waterward of existing coastal wetlands, whichever distance is greater. The width of the sill will extend no more than 6 feet. Each oyster shell bag is approximately 2 feet long, 6 inches wide and 6 inches high.



Example of Oyster Shell Bag Marsh Sill – Existing Coastal Wetlands



Example of Oyster Shell Bag Marsh Sill – 30 Feet Waterward of NHW

Maximum 6 feet wide			
Oyster Shell Bag	Oyster Shell Bag	Oyster Shell Bag	NHW (18 inches)
Oyster Shell Bag	Oyster Shell Bag	Oyster Shell Bag	
Oyster Shell Bag	Oyster Shell Bag	Oyster Shell Bag	
			NLW (6 inches)
			Bottom Substrate

Cross-Section/Profile of Oyster Shell Bag Marsh Sill