

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES
SHORELINE CONSERVATION SERVICE
(410) 260-8786

ENGINEER'S SCOPE OF WORK
LIVING SHORELINES PROJECT DESIGN

DATE:

IDENTIFICATION:

Project Name:

Project Number:

County:

PURPOSE: To provide basic protection to an eroding shoreline through the design and eventual construction of a complete, functional, and economic nonstructural-living shoreline project. Other incidental work is included as described below.

DESCRIPTION:

Duties & Responsibilities: Design of the project, attainment of all necessary permits and approvals, preparation of Project Drawings and Specifications and related bid documents.

Supervision and Acceptance of Work: The work shall be accomplished under contract with and the supervision of the owners or their assigns. The work shall be complete in all its parts and ready for use in the time specified and in strict accordance with the terms and conditions of the Contract. Any deviation shall be subject to approval of the Association.

Project Funding: This project is being funded by the Maryland Department of Natural Resources, Watershed Services, Shoreline Conservation and Management Service and is being sponsored by _____County.

Location:

Suggested Type: Stone sill and Stone marsh edging, with sand fill and marsh grass plantings.

Approximate Lengths:

Estimated Construction Cost:

TIMING: Time schedule for the Design Phase of the project shall not exceed a total of ____ calendar days and shall be in accordance with the attached General Work Schedule. Construction of this project is expected to start in _____.

PROJECT SPECIFICS:

The following conditions shall be considered in addition to the ""Specifications For Consulting Engineering Services Relating To Nonstructural Living Shoreline Projects". In case of conflicting provisions, the Scope of Work shall prevail. These conditions may be modified as part of the contract for the purpose of providing a complete and functional project.

1. A thorough investigation of the site for possible surface and subsurface drainage problems shall be made for this project. Direct coordination with the local Soil Conservation District may be necessary for this investigation. The solution to any drainage problems found shall be made part of this project. Any recommendations from Soil Conservation should be obtained in writing, considered in the project, and a copy submitted to the _____ (owner).
2. Topography and bathymetry shall be obtained as necessary and in accordance with the "Specifications For Consulting Engineering Services Relating To Nonstructural Living Shoreline Projects". Soundings should be taken to -3.0' MLW or 100-ft offshore, whichever comes first. Existing structures, utilities, wetlands, ponds, trees and other vegetation found along the shoreline shall be delineated on the Project Drawings.
3. Soil Borings will be required for this project in accordance with the "Specifications for Consulting Engineering Services Relating to Nonstructural Living Shoreline Projects".
4. The proposed stone sill and marsh edging shall be aligned to generally follow the line of the existing bank. Bends shall be minimized. Provisions shall be made on the project drawings for windows or vents in the sill as required.

ENGINEER'S SCOPE OF WORK – Continued

5. The Engineer shall determine the required outboard orientation, alignment, elevation, slopes, top crest width and range of stone sizes, etc. for the proposed stone sill and marsh edging. Supporting design computations shall be submitted for review.
6. All stone to ground interfaces shall be lined with filter fabric.
7. The sand material for this project shall conform to the following minimum specification:
Sand material shall contain less than 10% passing the number 100 sieve, not more than 10% by weight retained on a number 4 sieve, with no stone having a diameter greater than one-half inch. The material shall consist of rounded or semi-rounded grains with a median diameter of 0.6 mm (+/- 0.25 mm). No frozen material, trash, roots or other organic material will be permitted in the fill.
8. The Engineer shall determine the finished grade elevations and appropriate slope for the sand fill placement. In general, sand fill should be placed on a gentle slope, such as 10-ft. horizontal to 1-ft. vertical slope (10:1), and no slope shall be steeper than 8-ft. horizontal to 1-ft. vertical (8:1).
9. The graded sand fill placed behind the proposed stone sill and marsh edging shall be planted with marsh grasses *Spartina alterniflora* (smooth cordgrass) and *spartina patens* (saltmeadow cordgrass). Plants shall be spaced 1½ feet on center.
10. The Engineer shall investigate the project area for construction access and staging and stockpile areas, which will minimize the need for disturbance of paved areas, existing trees, vegetation, utilities and other improvements and show this information on the Project Drawings.
11. Property lines shall be shown on the Project Drawings for orientation only. A full property line survey is not required for this project.
12. Provisions shall be made on the project drawings and in the specifications for trimming and/or removal of trees to allow proper sunlight for the proposed marsh grass planting, in accordance with county critical areas regulations. A buffer management or mitigation plan may be required.
13. The Engineer shall provide a detailed construction cost estimate, which quantitatively breaks-out labor and material costs (unit price) for the individual items of work being proposed.
14. The engineer shall coordinate all phases of this project with the owners or their assigns.
15. Prior to submitting the Joint Federal/State Permit Application, a pre-application meeting shall be held on-site with the MDE, Tidal Wetlands Division Agent, the DNR, SCMS Project Manager and the Association Representatives to discuss the proposed project. This meeting can be conducted in conjunction with the required Preliminary Plan Meeting, as per the "Specifications for Consulting Engineering Services Relating to Nonstructural Living Shoreline Projects".
16. All other conditions that may become evident during the course of the work shall also be considered.

ENDORSEMENTS: Approvals and concurrence must be obtained as follows:

___ U.S. Army Corps of Engineers	___ Local Critical Area Certification
___ MDE-WMA-Wetlands Division	___ State Critical Area Comm. Approval
___ DNR-WRA-Watershed Permits	___ Soil Conservation District
___ DNR-OC Beach Erosion Control District	___ Worcester Shoreline Commission
___ MDE-Water Quality Certification	___ City/Town Permit Division
___ MDE-Sediment & Stormwater Admin.	___ Community Association
___ DE&CD-Maryland Historical Trust	___ Community Developer
___ DOT-Maryland Port Administration	___ Project Property Owner
___ DNR-Watershed Services-SCMS	___ Adjacent Property Owners
___ County Permit Division	___ Other:

SUPPORTING DOCUMENTS:

1. Vicinity & Location Map
2. Historical Shorelines Map
3. Property Deeds
4. Record Plat
5. DNR, SCS Inspection Forms I & II
6. Aerial Showing Site Locations
7. Typical Cross Section – Stone Sill with Sand Fill & Marsh Plants