LIVING SHORELINES

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Planning Department

What is a Living Shoreline?

- Refers to the practice of shoreline stabilization using natural elements (e.g., vegetation, oysters, logs, etc.) in a way that maintains continuity and connectivity between terrestrial and aquatic habitats (US Army Corps of Engineers)

- A catch-all phrase that describes a riparian area managed with restoration techniques that use natural material such as oyster reef, mangroves, and marsh grasses to stabilize the area, prevent erosion, and protect property (Florida Department of Environmental Protection (FDEP))

- A shoreline management practice that provides erosion control and water quality benefits; protects, restores, or enhances natural shoreline habitat; and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other structural and organic materials (Code of Virginia)

- A term used to define a number of shoreline protection options that allow for natural coastal processes to remain (Restore America's Estuaries)

A Living Shoreline is…

…a nature-based method for stabilizing a shoreline and protecting it from erosion (NOAA)

Native vegetation is the primary component of a living shoreline

Limited use of rip-rap rock or other grey infrastructure designed in a manner to dissipate wave action and encourage sediment accumulation

Grey infrastructure options ever growing:

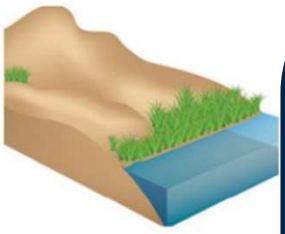
- Oyster Bags
- Grids
- Reef Balls
- Culverts

Objectives of Living Shoreline Stabilization Project Standards in the Sanibel Code

- Improve resiliency through living shoreline stabilization projects
- Ensure appropriate design for site specific conditions
- Allow adaptive management of permitted projects to provide long-term resiliency under changing site conditions

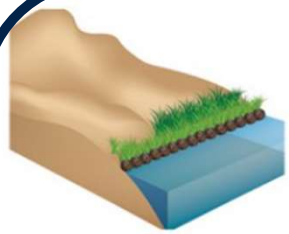
Living Shorelines

Coastal Structures



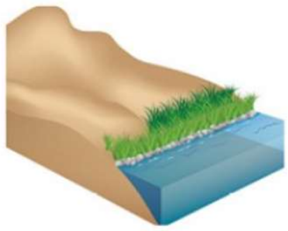
VEGETATION ONLY

Provides a buffer to upland areas and breaks small waves. Suitable for low wave energy environments



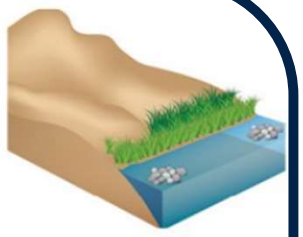
EDGING

Added structure holds the toe of existing or vegetated slope in place. Suitable for most areas except high wave energy environments



SILLS

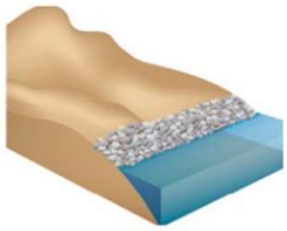
Parallel to vegetated shoreline, reduces wave energy, and prevents erosion. Suitable for most areas except high wave energy environments



BREAKWATER

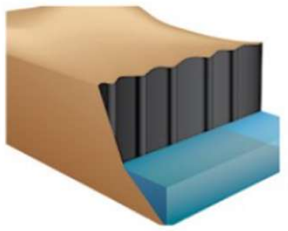
Parallel to vegetated shoreline, reduces wave energy, and prevents erosion. Suitable for most areas except high wave energy environments

Sec. 126-99. Living Shoreline Stabilization Project



REVETMENT

Lays over the slope of the shoreline and protects it from erosion and waves. Suitable for sites with existing hardened shoreline structures

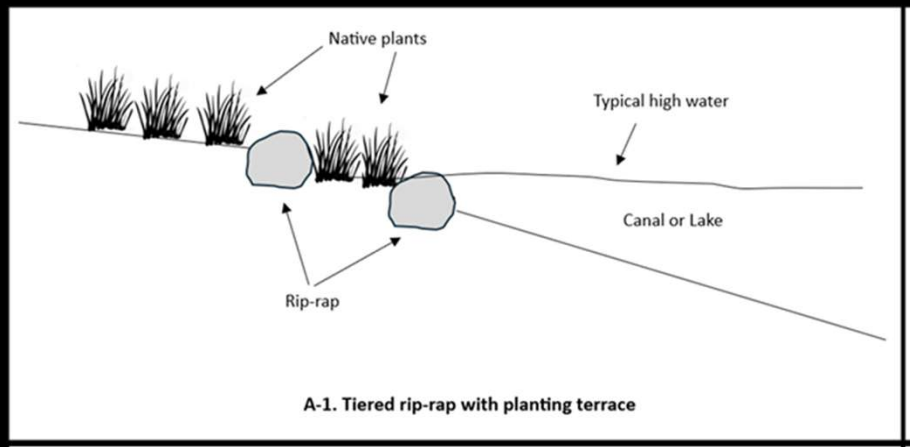


BULKHEAD

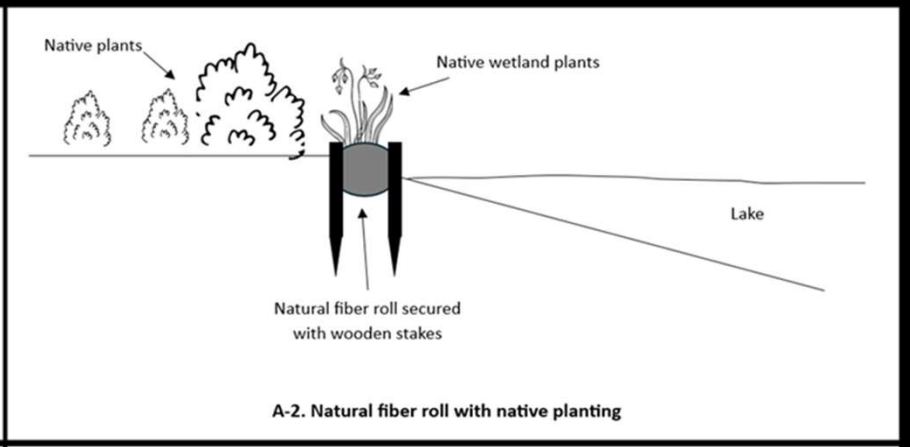
Vertical wall parallel to the shoreline intended to hold soil in place. Suitable for high energy settings and sites with existing hard shoreline structures

Softer Techniques ← → Harder Techniques

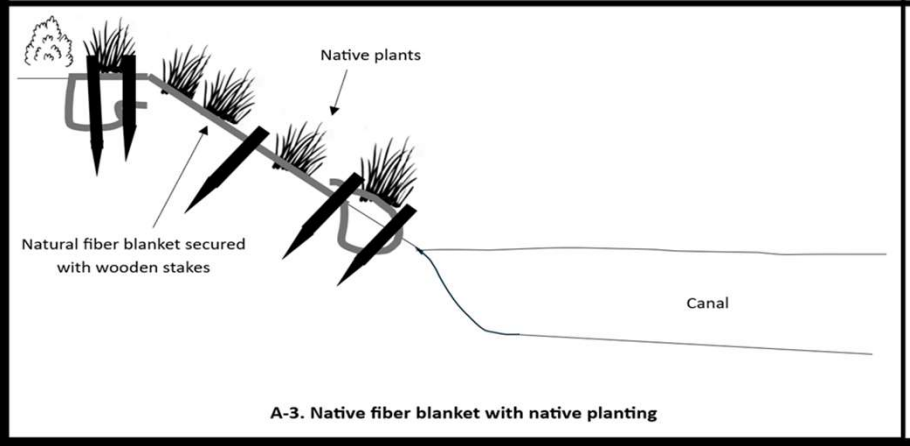
Sanibel Code Example Designs



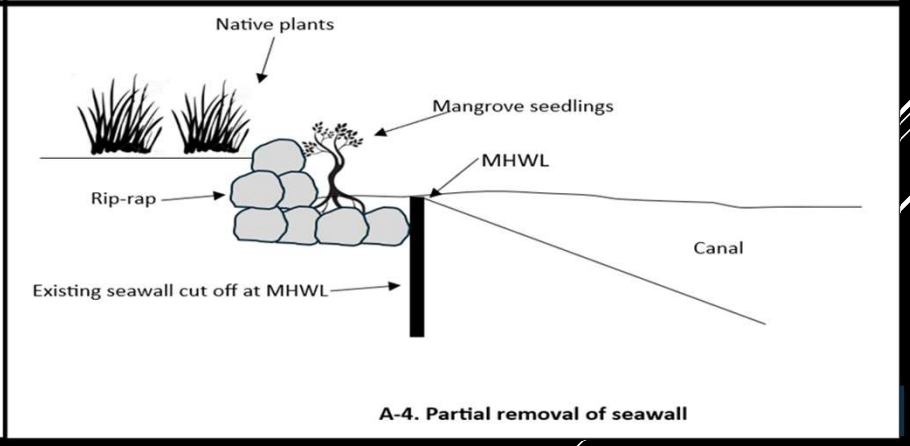
A-1. Tiered rip-rap with planting terrace



A-2. Natural fiber roll with native planting

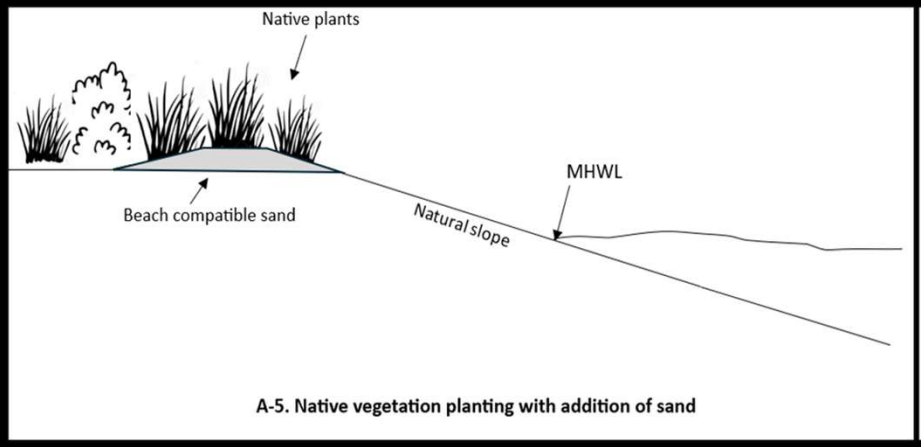


A-3. Native fiber blanket with native planting

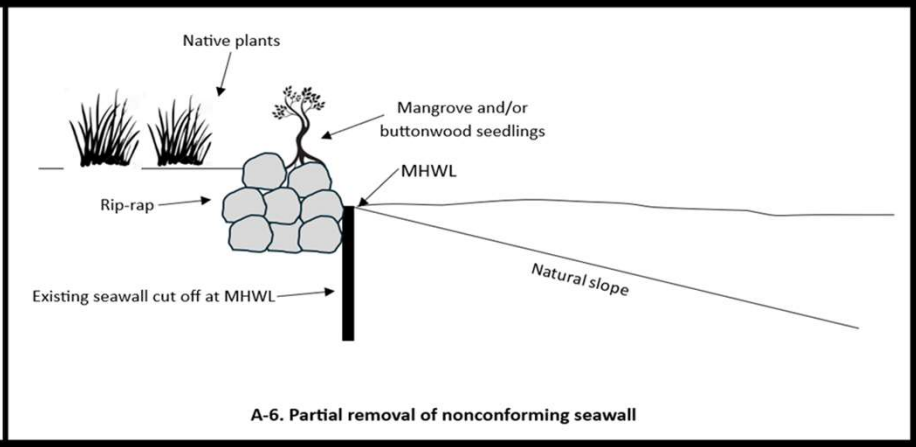


A-4. Partial removal of seawall

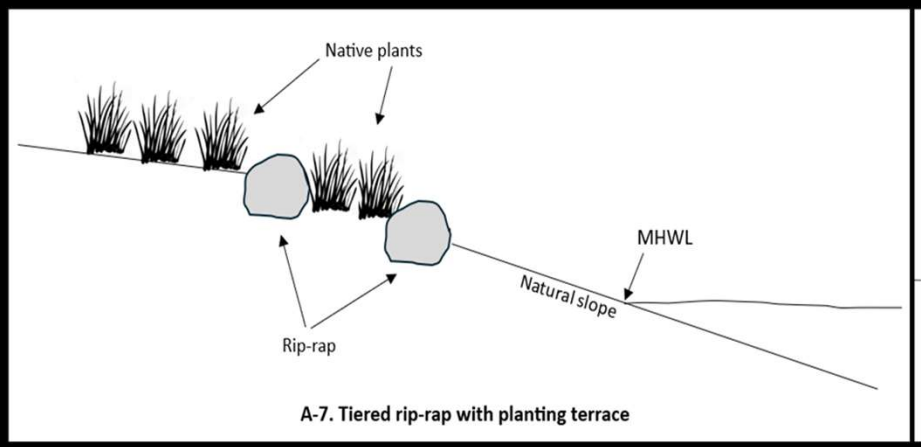
Sanibel Code Example Designs



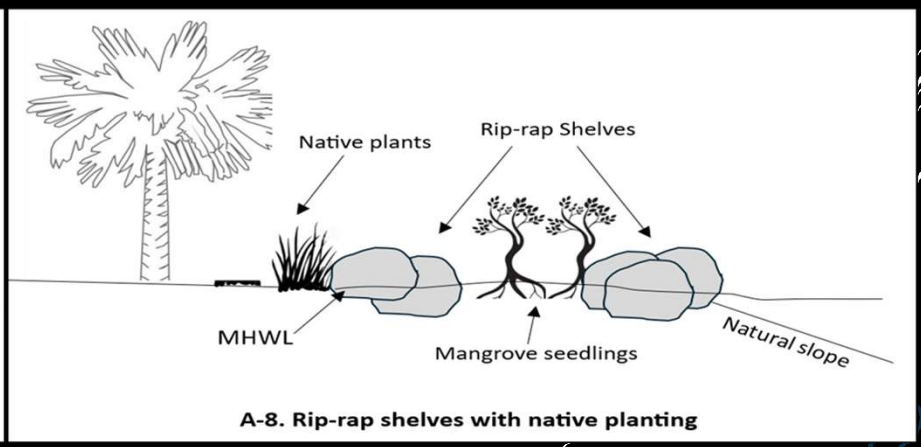
A-5. Native vegetation planting with addition of sand



A-6. Partial removal of nonconforming seawall



A-7. Tiered rip-rap with planting terrace



A-8. Rip-rap shelves with native planting

Why create Living Shorelines?

- Dissipate wave impacts
- Encourage sedimentation
- Enhance wildlife habitat
- Prevent erosion
- Protect property
- Stabilize the shore

Soften hardened shorelines

- Increase wildlife habitat
- Dissipate wave impacts

Lake shoreline stabilization

- Increase wildlife habitat
- Prevent undermining of sodded lake shoreline

Protect Homes

Jupiter Inlet Colony

Martin County

Sanibel Island – Gulf Beach Zone

Sanibel Island – Bay Beach Zone

Protect Infrastructure

Sanibel Island – Wulfert Road

Site Specific Design

Key Factors

- Wave climate
- Water depth
- Salinity
- Erosion rates
- Shoreline slope
- Tidal ranges
- Proximity to structures

Steps to Connecting Floridians to Living Shorelines

https://edis.ifas.ufl.edu/publication/EP657

- ✓ Experienced coastal ecologist
- ✓ Experienced coastal engineer

Where may living shorelines be created on Sanibel?

GULF BEACH ZONE

Area seaward of the 1974 Coastal Construction Control Line (CCCL)

BAY BEACH ZONE

Extends from the city's boundary landward to a setback line of 50-feet landward of the Mean High Water Line

City of Sanibel Permit

Sanibel Code

- Section 126-99. – Living shoreline stabilization project.

Conditional Use Permit (CUP)

- Preapplication meeting with Planning, Natural Resources and Public Works Departments recommended
- Submit online through city permitting portal
- Planning Commission Public Hearing

Development Permit

- Submit concurrently with CUP application

Know Your Mean High Water Line!

Request for Tidal Datum

Please complete this form and email to mhwrequest@floridadep.gov prior to obtain the Mean High-Water or the Mean Low-Water elevation at your project site.

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Please provide the following information about the site being surveyed.

Name of Surveyor: _____

Firm Name: _____

Address: _____

_____

Phone: _____ Email: _____

Street Address of Site: _____

City or Town: _____

Or

Latitude: _____

Longitude: _____

Comments: _____

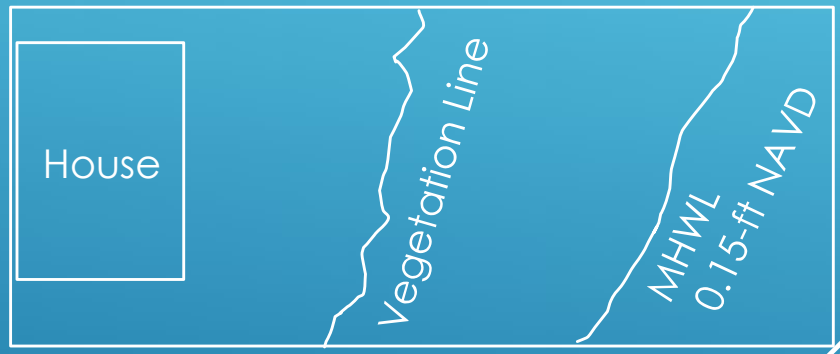
_____

_____

_____

MHW Request Form

Tarpon Bay MHW elevation = 0.15-feet NAVD



Smooth cordgrass (*Spartina alterniflora)*

Common Native Plants installed near and waterward of mean highwater line

Red mangrove
(*Rhizophora mangle)*

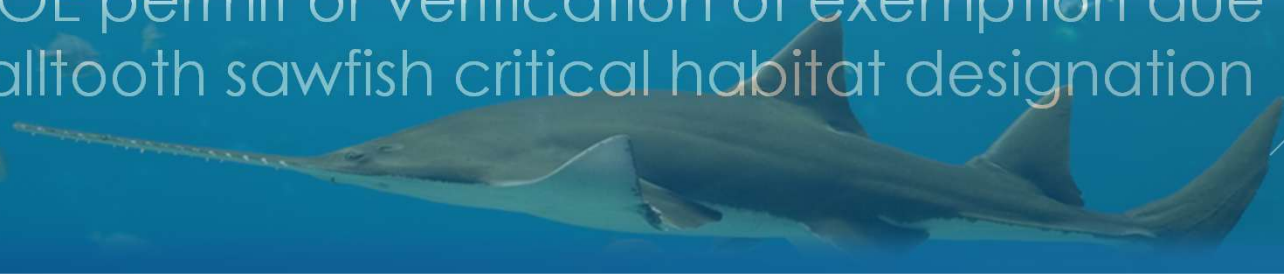
Other government agencies permits

State Permit:
Florida Department of Environmental Protection (FDEP)

- Most living shoreline projects are exempt
  - Submit a Verification of Exemption

Federal Permit: US Army Corps of Engineers (ACOE)

- FDEP permit will identify if you need a separate permit from ACOE
  - Living shoreline projects in tidal areas will require ACOE permit or verification of exemption due to smalltooth sawfish critical habitat designation



State Permit:
Florida Department of Environmental Protection

A Homeowner's Guide to the Living Shoreline Permit Exemption, Part 1: Florida Department of Environmental Protection
https://edis.ifas.ufl.edu/publications/SG187

Submit Verification of Exemption Request through online portal

Typically, 30 days to receive approval

Federal Permit: US Army Corps of Engineers

Similar process to FDEP Verification of Exemption

A Homeowner's Guide to the Living Shoreline Permit Exemption, Part 2: United States Army Corps of Engineers https://edis.ifas.ufl.edu/publication/SG189

Permit Application Form (ENG FORM 6082) "Nationwide Permit Pre-Construction Notification"

No fee to submit a permit application

Typically, 60 days to receive approval

One design does not fit all!


LIVING SHORELINES SUPPORT RESILIENT COMMUNITIES
Living shorelines use plants or other natural elements—sometimes in combination with harder shoreline structures—to stabilize estuarine coasts, bays, and tributaries.
One square mile of salt marsh stores the carbon equivalent of 76,000 gal of gas annually.
Marshes trap sediments from tidal waters, allowing them to grow in elevation as sea level rises.
Living shorelines improve water quality, provide fisheries habitat, increase biodiversity, and promote recreation.
Marshes and oyster reefs act as natural barriers to waves. 15 ft of marsh can absorb 50% of incoming wave energy.
Living shorelines are more resilient against storms than bulkheads.
33% of shorelines in the U.S. will be hardened by 2100, decreasing fisheries habitat and biodiversity.
Hard shoreline structures like bulkheads prevent natural marsh migration and may create seaward erosion.
The National Centers for Coastal Ocean Science | coastalscience.noaa.gov
Some graphics courtesy of the Integration and Application Network, University of Maryland Center for Environmental Science (ian.umces.edu/symbols/)

Questions?