



# Environmental Notification Form

*For Office Use Only*  
 Executive Office of Environmental Affairs

EOEA No.: 12846  
 MEPA Analyst: Bill Gagne  
 Phone: 617-626-1025

The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: Repair and stabilization of a coastal bank		
Street: 424 Cockle Cove Road		
Municipality: South Chatham	Watershed: Cape Cod	
Universal Transverse Mercator Coordinates:	Latitude: 4613700	Longitude: 415700
Estimated commencement date: 10/01/02	Estimated completion date: 10/30/02	
Approximate cost: \$75,000	Status of project design: 100% complete	
Proponent: Francis and Gloria Ouellette		
Street: 19 Gold Nugget Road		
Municipality: Spencer	State: MA	Zip Code: 01562
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Oskar H. Klenert, P.E.		
Firm/Agency: ERM Design Co.	Street: 448 Turnpike Street, Suite L-C	
Municipality: South Easton	State: MA	Zip Code: 02375
Phone: 508.230.1700	Fax: 508.238.3906	E-mail: pklenert@msn.com

- Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?  
 Yes  No
- Has this project been filed with MEPA before?  
 Yes (EOEA No. \_\_\_\_\_)  No
- Has any project on this site been filed with MEPA before?  
 Yes (EOEA No. \_\_\_\_\_)  No
- Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting:
- a Single EIR? (see 301 CMR 11.06(8))  Yes  No
  - a Special Review Procedure? (see 301CMR 11.09)  Yes  No
  - a Waiver of mandatory EIR? (see 301 CMR 11.11)  Yes  No
  - a Phase I Waiver? (see 301 CMR 11.11)  Yes  No

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres): None

Are you requesting coordinated review with any other federal, state, regional, or local agency?  
 Yes (Specify – Chatham Conservation Commission)  No

List Local or Federal Permits and Approvals:

Order of Conditions, Certificate of Compliance

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):

- |                                 |                                       |  |
|---------------------------------|---------------------------------------|--|
| <input type="checkbox"/> Land   | <input type="checkbox"/> Rare Species | <input checked="" type="checkbox"/> Wetlands, Waterways, & Tidelands |
| <input type="checkbox"/> Water  | <input type="checkbox"/> Wastewater   | <input type="checkbox"/> Transportation                              |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Air          | <input type="checkbox"/> Solid & Hazardous Waste                     |
| <input type="checkbox"/> ACEC   | <input type="checkbox"/> Regulations  | <input type="checkbox"/> Historical & Archaeological Resources       |

Summary of Project Size & Environmental Impacts	Existing	Change	Total	State Permits & Approvals
<b>LAND</b>				<input type="checkbox"/> Order of Conditions <input checked="" type="checkbox"/> Superseding Order of Conditions <input type="checkbox"/> Chapter 91 License <input type="checkbox"/> 401 Water Quality Certification <input type="checkbox"/> MHD or MDC Access Permit <input type="checkbox"/> Water Management Act Permit <input type="checkbox"/> New Source Approval <input type="checkbox"/> DEP or MWRA Sewer Connection/ Extension Permit <input type="checkbox"/> Other Permits <i>(including Legislative Approvals) – Specify:</i>
Total site acreage	1.7			
New acres of land altered		None		
Acres of impervious area				
Square feet of new bordering vegetated wetlands alteration		None		
Square feet of new other wetland alteration		None		
Acres of new non-water dependent use of tidelands or waterways		None		
<b>STRUCTURES</b>				
Gross square footage	1,934			
Number of housing units	One			
Maximum height (in feet)	20			
<b>TRANSPORTATION</b>				
Vehicle trips per day	N/A			
Parking spaces	N/A			
<b>WATER/WASTEWATER</b>				
Gallons/day (GPD) of water use	N/A			
GPD water withdrawal	N/A			
GPD wastewater generation/ treatment	N/A			
Length of water/sewer mains (in miles)	N/A			

**CONSERVATION LAND:** Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

Yes (Specify \_\_\_\_\_ )  No

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?

Yes (Specify \_\_\_\_\_ )  No



**RARE SPECIES:** Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

Yes (Specify \_\_\_\_\_ )  No

**HISTORICAL /ARCHAEOLOGICAL RESOURCES:** Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

Yes (Specify \_\_\_\_\_ )  No

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

Yes (Specify \_\_\_\_\_ )  No

**AREAS OF CRITICAL ENVIRONMENTAL CONCERN:** Is the project in or adjacent to an Area of Critical Environmental Concern?

Yes (Specify \_\_\_\_\_ )  No

**PROJECT DESCRIPTION:** The project description should include (a) a description of the project site, (b) a description of both on-site and off-site alternatives and the impacts associated with each alternative, and (c) potential on-site and off-site mitigation measures for each alternative (*You may attach one additional page, if necessary.*)

The proposed project is designed to protect the beach at 424 Cackle Cove Road from further erosion due to storm damage over the years. The pre-1978 single-family dwelling is threatened by extremely high rates of shore retreat due to a highly-structured shoreline that prevents longshore flow of sediment into the area. An innovative bank protection system, the Earth Rib Module (ERM) System, will be installed so that it is partially buried in the Coastal Bank (see attached Plan No. SP-1A). Due to its slope and structure, this system will impact shore processes less than conventional seawalls. A dune will be constructed over the structure to the FEMA 100-year flood elevation. The dune will be nourished annually, if required, to keep the structure covered. A proposed regional shore nourishment program, when implemented, will further prevent the structure from exposure over the longer term.

The proposed project will involve work and minimal alterations to the resource areas. All material, equipment, labor and construction work will be performed from the upland side of the coastal bank. An alternative to the proposed coastal bank protection is to construct an ERM System in the trench approximately 10 to 15 feet landward of the coastal bank (see attached Plan No. SP-1A) thereby the proposed project will involve no work in or alterations to any resource areas. However, it is not the intent of the applicant to lose an additional 10 to 15 feet of upland area. It is estimated based on observed rates of erosion that the frontal face of the buried ERM System will be exposed within a period of approximately one year.

The pre-1978 dwelling at 424 Cackle Cove Road will be protected from extreme rates of shore retreat by a combination of methods. The Town is proposing to nourish the beach in Cackle Cove that will extend the shoreline up to 100 feet seaward. It is not certain when or if this project will proceed. The proponents plan to ensure the safety of their dwelling by a combination of an innovative bank stabilization technology, the ERM system, in conjunction with construction of a Coastal Dune over the structure. While the structure will form a last-line-of-defense for this dwelling, the plan includes ongoing dune nourishment. In the event that the ERM system is exposed on the beach, the proponents will nourish the dune annually to ensure that it is fully covered with sand and planted with American Beach Grass. This will also ensure that the structure will not be undercut, and that end-effects, which are also minimized by the design, can be mitigated.

The ERM system is a structure made of reinforced concrete modules that are stacked and interlocked with an offset to form sand-filled terraces. These offset terraces result in small vertical lifts. The overall landward slope of the module system will dissipate wave energy more effectively and reduce potential wave reflection compared to a vertical structure. Some component of eroding or suspended sediment will be trapped inside these terraces. The relatively small (2.0 feet) exposed vertical surfaces in each lift should minimize potential undercutting effects and wave reflection associated with conventional seawalls. The ERM also will support dune vegetation in each of its terraces to both stabilize sand that it does trap and to further accumulate sand.

A number of alternatives were considered including:

Sand Fence: Compared to a sand fence barrier, which provides for open spaces between the vertical slats, the ERM system provides open spaces filled with sand in the horizontal planes created by the step up and set back configuration of subsequent rows of modules. As well, in order for sand fencing to be effective, there must be an ongoing supply of sand from the beach, which does not exist.

Bulk Sand Beach Nourishment: Sand transport and placement is by mechanical process. In order to compensate for the erosion of the sand nourishment, the quantity of sand placed by this unnatural process is substantially increased. Thus, this method of beach nourishment can be very expensive and temporary in nature.

Geotubes: The Geotube provides effective stabilization of the shoreline, but has inherent flaws, including (1) The seams are sewn, which has proven to be a weakness in the system, (2) The fabric is susceptible to vandalism by cutting, and (3) Erosion of the seaward beach creates a large vertical face on the Geotube, which then responds like a traditional vertical seawall to wave impacts.

Stone revetment: A stone revetment, if properly constructed and with an irregular surface texture, can be effective at dissipating wave energy and protecting a coastal bank from erosion during storms. These structures tend to be most effective in non-ocean-facing shores such as the project area. Revetments do not incorporate the natural trapping of sand or the use of vegetation in its function.

Concrete Walls, Bulkheads: Vertical structures can be effective at stabilizing a shoreline. However, they do not effectively dissipate wave energy, and do tend to reflect wave energy, which induces scour or erosion on the beach seaward of the structure.

More details regarding the project setting, description and alternatives analysis can be found in Attachment A.