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Experimental Coastal Erosion Control

Application Guidance Document

What experimental methods may be acceptable and how may they be used?

Structural shoreline protection methods, such as seawalls, rock revetments, groins, etc., are prohibited along CRMC-designated Type 1 shorelines pursuant to Section 300.7.D.1 of the Coastal Resources Management Program (CRMP). Structural shoreline protection structures have been shown to cause beach erosion and eventual beach loss along with impacts to intertidal habitats and recreational resources that are held in the public trust. Structural shoreline protection structures also cause physical impacts to adjacent unprotected properties. These structures may help protect the property where they are installed, but they often harm adjacent properties by accelerating beach erosion and in some cases by actually causing a reduction in property values.

The southern Rhode Island coastline from Watch Hill in Westerly to Point Judith in Narragansett is a **Type 1 shoreline**, and therefore new structural shoreline protection methods are prohibited along this shoreline segment. See CRMC Maps of Water Use Categories online here: http://www.crmc.ri.gov/maps/maps_wateruse.html. Along these Type 1 shorelines the CRMC has authorized sand bags and sand-filled tubes (aka "burritos") made with bio-degradable natural materials such as burlap or coconut fiber. These so-called soft methods may be used with CRMC approval to stabilize eroding coastal bluffs and dunes/overwash where structural methods are not permissible. In accordance with CRMP Section 300.7 these erosion control practices must be installed "as close as practicable to the shoreline feature it is designed to protect." In most cases where the Experimental Coastal Erosion Control rules may be applied in Matunuck and Misquamicut the shoreline feature is an eroding headland bluff adjacent to the beach. Following Super-storm Sandy in October 2012 and other storms last winter, the coastal beach is now located closer to roads and in some cases abutting or underneath existing building foundations.

As provided in newly adopted Section 980 of the Salt Pond Region Special Area Management Plan (effective October 7, 2013), the CRMC may authorize alternative experimental erosion control methods as a temporary experimental use. Such methods or practices may include **marine mattresses**, as detailed in the Army Corps of Engineers circular ERDC/CHL CHETN-III-72 (See: http://chl.erdc.usace.army.mil/library/publications/chetn/pdf/chetn-iii-72.pdf), or **sand-filled geo-textile bags**, among other methods. Several manufacturers market these practices under proprietary names. The use of non-biodegradable materials for marine mattresses and geo-textile bags may be considered by the CRMC under these regulations.

Marine mattresses are often filled with cobble rock while geo-textile bags are filled with sand. No wet or dry cement or concrete may be added to the fill material. Angular stone may not be used for fill material in any practice because it is incompatible with sand or cobble beaches

typical of Matunuck and Misquamicut. Therefore, only rounded cobble rock may be used in marine mattress or other geo-textile bags on cobble beaches. In any case, these cobble or sand fill materials must be imported to the project site from an upland source. The extraction and use of cobble or sand from the shoreline to fill these erosion control practices is prohibited because such activity reduces the volume of these materials on the beach and can deleteriously change the protective wave-dissipating profile. The consequence is that such removal activity reduces the wave breaking capacity of the existing beach and increases the likelihood of breaking waves reaching farther inland, thus increasing the risk to nearby properties, public facilities and infrastructure. Although the above mentioned products appear to have some potential for coastal erosion control or mitigation, these erosion control practices have not been rigorously tested in the high wave energy marine environment of Rhode Island's south shore. Consequently monitoring for effectiveness and adverse impacts will be required of the applicant after permit approval and installation.

It is expected that given the current pace of the technology, there will be other coastal erosion control products available in the future that may be appropriate for use along our shoreline. Accordingly, the CRMC will determine whether any proposed technology may be used by property owners on a case-by-case basis through the CRMC Preliminary Determination process. Site specific design and installation guidance for the erosion control practice within eligible areas should be provided by the manufacturer of the technology or the technical representative and submitted to the CRMC as part of the Preliminary Determination process. **The CRMC does not endorse any proprietary practices or technologies regardless of manufacturer claims.** Experimental coastal erosion control practices must be placed as close as practicable to the eroding shoreline feature and may not be used to regain property lost through historical erosion or storm events. In addition, the use of armoring stone in combination with experimental erosion control practices is prohibited.

What segments of the coastline are eligible?

The Coastal Resources Management Council has identified two specific shoreline areas along the Misquamicut (Westerly) and Matunuck (South Kingstown) headlands for the use of experimental coastal erosion control. Eligible parcels for these two areas are listed at the back of this guidance document.

Is a Federal Army Corps of Engineers permit necessary?

In those cases where an applicant will be installing an experimental coastal erosion control practice, in whole or in part, or any fill material that will be located below the **mean high water line** will require a federal agency review. Additionally, adding fill material on a beach area below the **high tide line** may also trigger a federal review. The Army Corps of Engineers will require a Section 10 and 404 permits, respectively, under these circumstances. The term **high tide line** is defined in the federal statute at 33 CFR § 328.4(d) to mean "the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that

delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm."

Accordingly, it is important to have a registered land surveyor or professional engineer prepare your site plans to ensure the accurate location of both the mean high water line and the high tide line as well as your property boundary lines. Be certain to have your registered land surveyor or professional engineer certify the location of the mean high water (MHW) line and the high tide line (as defined above) along with the proposed location of the experimental coastal erosion control practice and any proposed beach sand material to supplement the existing beach on your formal CRMC Assent application site plan.

How to apply to the CRMC - application materials and necessary information

The first step in applying for authorization to use an experimental coastal erosion control method is to file a Preliminary Determination (PD) Request with the CRMC. **There is no filing fee for experimental coastal erosion control PD applications**. This process provides an opportunity for CRMC staff to review a conceptual plan and review the proposed erosion control method in consultation with the Technical Review Panel (TRP). Additionally, CRMC staff will be available to provide technical and procedural assistance to applicants in the preparation of individual PD applications. The TRP will review the proposed coastal erosion control practice and make a recommendation to CRMC staff as to whether the proposed method may be feasible for use in the CRMC-designated areas and if a performance bond may be necessary should the proposal be approved by the CRMC. Upon receiving guidance from the TRP, CRMC staff will write their report and issue same to the applicant.

A CRMC Preliminary Determination (PD) Request Application form is available online at the following link: http://www.crmc.ri.gov/applicationforms/Prelimdet.pdf. **There is no application fee for filing this Preliminary Determination for experimental costal erosion control.**

The applicant must provide the following information with the Preliminary Determination application form:

1. Proof of property ownership – letter from the local tax assessor;
2. Pictures of the area on the property where the proposed experimental erosion control practice will be located; and
3. Manufacturer specifications, including a design sheet if available and installation techniques, for the proposed experimental coastal erosion control practice.

During the Preliminary Determination review process, a consultation meeting between CRMC staff and the applicant and their agent may be scheduled. A Preliminary Determination report will be issued to the applicant following the CRMC staff review of the application and consultation with the Technical Review Panel. The PD report will state whether the proposed experimental coastal erosion control practice may be acceptable for use, whether a performance

bond will be required, and any other guidance deemed necessary by CRMC. Performance bonds, when required, are necessary to cover the cost of removal of a failed or abandoned experimental coastal erosion control practice and restoration of the beach without shifting the expense to taxpayers. The performance bond would be collapsed upon in the event that a property owner refused to comply with a CRMC order to remove a failed experimental coastal erosion control practice and restore the beach. If the CRMC determines during the initial project review that a performance bond will be required, then the applicant would have to provide proof of bond from a bonding authority upon issuance of the CRMC Assent. Generally, the minimum performance bond will be $5000 with the CRMC as the bond Obligee. All bonds shall have an effective time frame of no less than 18 months (3 years recommended) and the Permittee must provide bond renewal notification to the CRMC.

Once the PD report has been issued, the property owner may file a formal CRMC Assent Application seeking approval of the proposed experimental coastal erosion control practice. The CRMC Assent Application form is available online here: http://www.crmc.ri.gov/applicationforms/Assentapp.pdf.

The Assent application fee is based on the projected project cost and is specified in the CRMC Management Procedures and online here: http://www.crmc.ri.gov/applicationforms.html

The following items are required when filing a CRMC Assent Application

Formal Application Checklist

☐ Proof of ownership in the form of a current certified copy of the deed of the subject property or a letter from the local tax assessor certifying ownership.

☐ A list of the abutting property owners. This list must contain the current mailing address of each abutting property owner and must be accompanied by a radius map drawn to scale of not less than one inch to one hundred feet (1"=100') showing the properties, lot numbers, and corresponding owners of abutting property to the proposed experimental erosion control parcel.

☐ A description of the experimental erosion control practice, including materials (sand, cobble, gravel, etc.) to be used as fill and the source of those materials; the method of installation; and project site access for construction equipment and vehicles.

☐ An impact avoidance and minimization statement – essentially detailing what installation methods will be used and their timing to avoid and minimize impacts to the beach, public access along the beach and to any endangered wildlife species (e.g., Piping Plovers, Least Terns).

☐ A site access plan. If access to coastal feature requires the transport of equipment or materials across property other than the applicant's, then a notarized letter of consent is required from each property owner who will provide this access.

☐ A site plan prepared by a Rhode Island-licensed land surveyor or professional engineer showing beach profile locations that are perpendicular to the shoreline and located along the ocean-side property boundary and every twenty-five feet within the property bounds. In those cases where a parcel is only 50-feet wide, a minimum of 3 beach profiles are required; one at each end of the property and one in the center. Beach profiles shall be marked with a physical datum point on the landward end of each profile. The top of each datum shall be surveyed and referenced to NAVD88. Profiles should extend seaward to MLLW, where possible. Datums should be placed deep enough so as to not erode and high enough so as not to be buried by storm overwash. These site plan requirements apply to both experimental erosion control practices installed **landward** of the mean high water (MHW) line or on public lands **seaward** of the mean high water (MHW) line.

☐ The site plan must show the accurate location of the mean high water line and the high tide line (as defined above) as well as your property boundary lines. Additionally, the site plan must show the location of the proposed experimental coastal erosion control practice and any proposed beach sand material to supplement the existing beach.

☐ Building official letter for projects located above the mean high water line, if required by the municipality. The local building official form letter is available online here: http://www.crmc.ri.gov/applicationforms/BuildingOForm.pdf;

Experimental Coastal Erosion Control - Eligible Parcels

Westerly - Misquamicut	
Parcel ID	**Address**
165-282	149 Atlantic Avenue
165-283	145 Atlantic Avenue
165-285	141 Atlantic Avenue
165-286	139 Atlantic Avenue
176-17	137 Atlantic Avenue
176-18	133 Atlantic Avenue
176-19	129 Atlantic Avenue
176-20	127 Atlantic Avenue
176-21	121 Atlantic Avenue
176-22	119 Atlantic Avenue
176-23	117 Atlantic Avenue
176-24	115 Atlantic Avenue
176-25	111 Atlantic Avenue
176-26	111 Atlantic Avenue
176-27	109 Atlantic Avenue
176-28	103 Atlantic Avenue
176-29	89 Atlantic Avenue
176-30	85 Atlantic Avenue
176-31	83 Atlantic Avenue
175-1A	75 Atlantic Avenue
175-1	69 Atlantic Avenue
175-2	65 Atlantic Avenue
175-2A	57 Atlantic Avenue
175-4	55 Atlantic Avenue
175-5	53 1/2 Atlantic Avenue
175-6	53 Atlantic Avenue
175-7	51 Atlantic Avenue
175-8	48 Atlantic Avenue
175-9	49 Atlantic Avenue
175-10	47 Atlantic Avenue
175-11	45 Atlantic Avenue
175-12B	45 Atlantic Avenue
175-12	41 Atlantic Avenue
175-12A	Atlantic Ave. Right-of-Way
175-13	37 Atlantic Avenue
175-14	35 Atlantic Avenue
175-15	33 Atlantic Avenue
175-16	31 Atlantic Avenue

South Kingstown - Matunuck	
Parcel ID	**Address**
92-2:46	811 Matunuck Beach Road
92-2:47	855 Matunuck Beach Road
92-3:1	883 Matunuck Beach Road
92-3:2	895A & B Matunuck Beach Road
92-3:3	907A & B Matunuck Beach Road
92-3:4	911A & B Matunuck Beach Road
92-3:5	915 Matunuck Beach Road
92-3:6	919 Matunuck Beach Road
92-3:7	921A & B Matunuck Beach Road
92-3:8	929 Matunuck Beach Road
92-3:9	933 Matunuck Beach Road
92-2:43	719 Matunuck Beach Road