

FEDERAL EMERGENCY MANAGEMENT AGENCY  
COASTAL STRUCTURES FORM

O.M.B. No. 3067-0148  
Expires September 30, 2005

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

Flooding Source:

**Note:** Fill out one form for each flooding source studied

A. BACKGROUND

1. Name of structure (if applicable):

2. Structure location:

3. Type of structure (check one):

- Levee/Floodwall\*       Anchored Bulkhead       Revetment       Gravity Seawall  
 Breakwater       Pile supported seawall       Other:

**\*Note:** If the coastal structure is a levee/floodwall, complete Section E of Form 3 (Riverine Structures Form).  
The remainder of this form does not need to be completed.

4. Material structure is composed of (check all that apply):

- Stone       Earthen fill       Concrete       Steel  
 Sand       Other

5. The structure is (check one):

- New or proposed       Existing       Modification of existing structure  
 Replacement structure of the same size and design as what was previously at the site

Describe in detail the existing structure and/or modifications being made to the structure and the purpose of the modifications:

If existing, please include date of construction:

6. Copies of certified "as-built" plans  are  are not attached. Attach all design analyses that apply.

If "as-built" plans are not available for submittal, please explain why and attach a sketch with general structure dimensions including: face slope, height, length, depth, and toe elevation referenced to the appropriate datum (e.g. NGVD 1929, NAVD 1988, etc.).

7. Has a Federal agency with responsibility for the design of coastal flood protection structures designed or certified that the structures have been adequately designed and constructed to provide protection against the 1%-annual-chance event?

- Yes     No

If Yes, specify the name of the agency and dates of project completion and certification.

**If Yes, then no other sections of this form need to be completed.**

## B. DESIGN CRITERIA

### 1. Design Parameters

- a. Were physical parameters representing the 1%-annual-chance event or greater used to design the coastal flood protection structure?
- Yes  No
- b. The number of design water levels that were evaluated \_\_\_\_\_ (number) range from the mean low water elevation of \_\_\_\_\_ feet to the 1%-annual-chance stillwater surge elevation of \_\_\_\_\_ feet. The critical water level is \_\_\_\_\_ feet. The datum that these elevations are referenced to is \_\_\_\_\_ (e.g.: NGVD 1929, NAVD 1988, etc.).
- Attach an explanation specifying which water levels and associated wave heights and periods were analyzed.
- c. Were breaking wave forces used to design the structure?
- Yes  No If No, attach an explanation why they were not used for design.

### 2. Settlement

- a. What is the expected settlement rate at the site of the structure?
- Please attach a settlement analysis.

### 3. Freeboard

- a. Does the structure have 1 foot of freeboard above the height of the 1%-annual-chance wave-height elevation or maximum wave runup (whichever is greater)?
- Yes  No
- b. Does the structure have freeboard of at least 2 feet above the 1% annual chance stillwater surge elevation?
- Yes  No

### 4. Toe Protection

Specify the type of toe protection:

If no toe protection is provided, provide analysis of scour potential and attach an evaluation of structural stability performed with potential scour at the toe.

### 5. Backfill Protection

Will the structure be overtopped during the 1%-annual-chance event?  Yes  No

If the structure will be overtopped, attach an explanation of what measures are used to prevent the loss of backfill from rundown over the structure, drainage landward, under or laterally around the ends of the structure, or through seams and drainage openings in the structure.

### 6. Structural Stability - Minimum Water Level

- a. For coastal revetments, was a geotechnical analysis of potential failure in the landward direction by rotational gravity slip performed for maximum loads associated with minimum seaward water level, no wave action, saturated soil conditions behind the structure, and maximum toe scour?
- Yes  No
- b. For gravity and pile-supported seawalls, were engineering analyses of landward sliding, landward overturning, and of foundation adequacy using maximum pressures developed in the sliding and overturning calculations performed?
- Yes  No
- c. For anchored bulkheads, were engineering analyses performed for shear failure, moment failure, and adequacy of tiebacks and deadmen to resist loading under low-water conditions?
- Yes  No

**B. DESIGN CRITERIA (CONTINUED)**

7. Structural Stability - Critical Water Level (Note: All structures must be designed to resist the maximum loads associated with the critical water level to be credited as providing protection from the 1% annual chance event.)

- a. For coastal revetments were geotechnical analyses performed investigating the potential failure in the seaward direction by rotational gravity slip or foundation failure due to inadequate bearing strength?  
 Yes    No
- b. For revetments, were engineering analyses of rock, riprap, or armor blocks' stability under wave action or uplift forces on the rock, riprap, or armor blocks performed?  
 Yes    No
- c. Are the rocks graded?  
 Yes    No
- d. Are soil or geotextile filters being used in the design?  
 Yes    No
- e. For gravity and pile supported seawalls, were engineering analyses of landward sliding, landward overturning, and foundation adequacy performed?  
 Yes    No
- f. For anchored bulkheads, were engineering analyses of shear and moment failure performed using "shock" pressures?  
 Yes    No

For all analyses marked "No" above for the appropriate type of structure, please attach an explanation why the analyses were not performed.

8. Material Adequacy

The design life of the structure given the existing conditions at the structure site is \_\_\_\_\_ years.

9. Ice and Impact Alignment

a. Will the structure be subjected to ice forces?

Yes    No

If Yes, attach impact analysis and design details for such forces.

b. Will the structure be subjected to impact forces from boats, ships, or large debris?

Yes    No

If Yes, attach impact analysis.

10. Structure Plan Alignment

The structure is (check one):

Isolated                       Part of a continuous structure with redundant return walls at frequent intervals.

Please provide a map showing the location of the structure and any natural land features that shelter the structure from wave actions.

**C. ADVERSE IMPACT EVALUATION**

If the structure is new, proposed, or modified, will the structure impact flooding and erosion for areas adjacent to the structure?

Yes  No

If Yes, attach an explanation.

**D. COMMUNITY AND/OR STATE REVIEW**

Has the design, maintenance, and impact of the structure been reviewed and approved by the community, and any Federal, State, or local agencies having jurisdiction over flood control and coastal construction activities in the area the structure impacts?

Yes  No

If Yes, attach a list of agencies who have reviewed and approved the project.

If No, attach an explanation why review and approval by the appropriate community or agency has not been obtained.

**E. CERTIFICATION**

As a Professional Engineer, I certify that the above structures will withstand all hydraulic and wave forces associated with the 1% annual chance flood without significant structural degradation. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name:

License No.:

Exp. Date:

Company Name:

Telephone No.:

Fax. No.:

Signature: \_\_\_\_\_ Date:

