

INSTRUCTIONS FOR COMPLETING THE APPLICATION FORMS FOR CONDITIONAL LETTERS OF MAP REVISION AND LETTERS OF MAP REVISION

CONTENTS

MT-2 Revision Request Submittal Checklist	2
General.....	4
When to Use These Forms.....	5
When Not to Use These Forms.....	5
Summary of Forms	6
Fees	7
What to Submit.....	7
Where to Submit.....	8
Where to mail your request and fees.....	8
Instructions for Completing the Overview & Concurrence Form (Form 1).....	10
Instructions for Completing the Riverine Hydrology & Hydraulics Form (Form 2)	14
Instructions for Completing the Riverine Structures Form (Form 3)	24
Instructions for Completing the Coastal Analysis Form (Form 4)	31
Instructions for Completing the Coastal Structures Form (Form 5).....	33
Instructions for Completing the Alluvial Fan Flooding Form (Form 6).....	35
Instructions for Completing the Payment Information Form	37
Instructions for Completing ESA Compliance Documentation.....	38
Appendix A - Commonly Used Acronyms.....	40
Appendix B - Useful Internet Sites.....	42
Appendix C - FEMA Offices.....	46

Online Letter of Map Change Tool

The Federal Emergency Management Agency (FEMA) has developed the Online Letter of Map Change (LOMC) Tool to allow applicants to submit their requests electronically. This tool is a convenient way for applicants to upload all information and supporting documentation and check the status of their request online. Users can submit requests through this tool instead of filing the paper form via mail. You can find additional information about FEMA's Online LOMC Tool at <https://www.fema.gov/change-flood-zone-designation-online-letter-map-change>.

MT-2 REVISION REQUEST SUBMITTAL CHECKLIST

PART A: GENERAL REQUIREMENTS

ELEMENTS	Yes	N/A
NARRATIVE: Please provide a written description of the purpose of the request, the scope of the proposed/as-built project, and the methodology used to analyze the project effects.		
MT-2 APPLICATION FORMS: Please provide completed forms applicable to your request. Ensure that MT-2 Form 1 was signed by the requester, certifying engineer, and each community affected by the revision.		
HYDROLOGIC ANALYSIS: If applicable, please provide a FEMA-acceptable hydrologic analysis in digital format, a drainage area map, and associated backup information (e.g., calculations used to determine lag time, CN, and loss values, as well as land use and soil maps). FEMA-acceptable models can be accessed at https://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/numerical-models-meeting-minimum-requirements .		
HYDRAULIC ANALYSIS: Please provide a FEMA-acceptable hydraulic analysis in digital format. Information on FEMA-acceptable models can be accessed at https://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/numerical-models-meeting-minimum-requirements .		
CERTIFIED TOPOGRAPHIC WORK MAP: Please provide a certified topographic work map that meets the mapping requirements outlined in MT-2 Form 2. If available, please provide spatially referenced Geographic Information System (GIS) data. If GIS data are not available, you may submit digital Computer-Aided Design (CAD) data.		
ANNOTATED FIRM: Please submit a revised Flood Insurance Rate Map (FIRM), at the scale of the effective FIRM, which shows the revised boundary delineation of the base (1-percent-annual-chance) floodplain, 0.2-percent-annual-chance floodplain, and regulatory floodway and how it ties into the boundary delineation shown on the effective FIRM at the downstream and upstream ends of the revised reach.		
REVIEW FEE PAYMENT: Please include the appropriate review fee payment. The current fee schedule is available on the FEMA website at https://www.fema.gov/flood-map-related-fees .		
MEET 65.10 REQUIREMENT: If you intend to show that a berm/levee/floodwall reduces the flood hazard, please submit all the NFIP data requirements outlined in Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations (44 CFR §65.10).		
OPERATION AND MAINTENANCE PLAN: If the request involves a berm, levee, floodwall, dam, and/or detention basin project, please submit an officially adopted operation and maintenance plan.		
PROPOSED/AS-BUILT PLANS: Please submit proposed/as-built plans, certified by a registered Professional Engineer, for all project elements for which this applies.		
FLOODWAY NOTICE: If the revision results in changing or establishing regulatory floodway boundaries, please provide a floodway public notice or a statement by your community that it has notified all affected property owners, in compliance with the National Flood Insurance Program (NFIP) regulations at 44 CFR §65.7(b)(1).		
PROPERTY OWNER NOTIFICATION: If the revision results in any widening/shifting/establishing of a base floodplain and/or any increasing/establishing of Base Flood Elevations (BFEs), please provide copies of the individual legal notices sent to all property owners affected by increased flood hazards.		

PART B: CONDITIONAL LETTER OF MAP REVISION (CLOMR) - SPECIFIC REQUIREMENTS

<p>ENDANGERED SPECIES ACT (ESA) COMPLIANCE: Please submit documentation of compliance with the ESA requirements. To learn more about ESA compliance, please see page 28 of the MT-2 instructions.</p>		
<p>REGULATORY REQUIREMENTS OF 44 CFR §65.12: If the proposed project results in BFE increases between the pre-project (existing) conditions and the proposed conditions, and they are more than 0.00 foot as a result of encroachment within a regulatory floodway, or more than 1.0 foot in a Zone AE area that has no regulatory floodway, please submit: (a) certification that no structures are affected by the increased BFE; (b) documentation of individual legal notices sent to all affected property owners, explaining the impact of the proposed action on their property; and (c) an evaluation of alternatives that would not result in a BFE increase.</p>		

Note: Applicants are encouraged to submit their Letter of Map Change (LOMC) revision request using the Online LOMC tool. To learn more about the Online LOMC tool, please visit the FEMA website at <https://www.fema.gov/online-lomc>.

GENERAL

In 1968, the U.S. Congress passed the National Flood Insurance Act, which created the National Flood Insurance Program (NFIP). The NFIP was designed to reduce future flood losses through local floodplain management and to provide financial protection for property owners against potential losses through flood insurance.

As part of the agreement for making flood insurance available in a community, the NFIP requires the participating community to adopt floodplain management ordinances containing certain minimum requirements intended to reduce future flood losses. The NFIP regulations for floodplain management are the minimum criteria a community must adopt for participation in the NFIP. The community is responsible for approving all proposed floodplain development and for ensuring that permits required by federal or state law have been received. State and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If the state or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

The community is also responsible for submitting data reflecting revised flood hazard information to the FEMA, so that NFIP maps can be revised as appropriate. This will allow risk premium rates and floodplain management requirements to be based on current data.

Submissions to FEMA for revisions to effective Flood Insurance Studies (FISs), Flood Insurance Rate Maps (FIRMs), or Flood Boundary and Floodway Maps (FBFMs) by individual and community requesters will require signed application forms. These forms will provide FEMA with the assurance that all pertinent data relating to the revision are included in the submittal. They will also ensure that: (a) the data and methodology are based on current conditions; (b) qualified professionals have assembled the data and performed all necessary computations; and (c) all individuals and organizations affected by proposed revisions are aware of the revisions and will have an opportunity to comment on them.

If the submission involves revisions to multiple flooding sources, separate forms should be completed for each flooding source.

NFIP regulations can be accessed through the U.S. Government Printing Office website at <https://www.gpo.gov/fdsys/pkg/CFR-2016-title44-vol1/pdf/CFR-2016-title44-vol1-chapI.pdf>. The regulations can also be obtained by calling the FEMA Map Information eXchange (FMIX), toll free, at 1-877-FEMA MAP (1-877-336-2627). Information on the forms, current review and processing fees, and revision procedures can be accessed through the FEMA website at <https://www.fema.gov/flood-map-revision-processes>. FEMA has prepared online tutorials to assist map revision requesters and other users; the tutorials are available on the FEMA website at <https://www.fema.gov/online-tutorials>.

WHEN TO USE THESE FORMS

This package is applicable for requests of the following:

Conditional Letter of Map Revision (CLOMR)	A letter from FEMA commenting on whether a proposed project, if built as proposed, or proposed hydrology changes would meet minimum NFIP standards (see Title 44, Chapter 1, Code of Federal Regulations [CFR], Parts 60, 65, and 72).
Letter of Map Revision (LOMR)	A letter from FEMA officially revising the current NFIP map to show changes to floodplains, regulatory floodways, or flood elevations (see 44 CFR Parts 60, 65, and 72).

WHEN NOT TO USE THESE FORMS

This package is not applicable for requests of the following:

Letter of Map Amendment (LOMA)	A letter from FEMA stating that an existing structure or parcel of land that has not been elevated by fill (natural ground) would not be inundated by the base flood (see 44 CFR Part 70).
Conditional Letter of Map Amendment (CLOMA)	A letter from FEMA stating that a proposed structure that is not to be elevated by fill (natural ground) would not be inundated by the base flood if built as proposed (see 44 CFR Parts 70 and 72).
Letter of Map Revision Based on Fill (LOMR-F)	A letter from FEMA stating that an existing structure or parcel of land that has been elevated by fill would not be inundated by the base flood (see 44 CFR Parts 65 and 72).
Conditional Letter of Map Revision Based on Fill (LOMR-F)	A letter from FEMA stating that a parcel of land or proposed structure that will be elevated by fill would not be inundated by the base flood if fill is placed on the parcel as proposed or the structure is built as proposed (see 44 CFR Parts 65 and 72).

For these requests, either the MT-EZ form package titled *Amendments to National Flood Insurance Program Maps, Application Form for Single Residential Lot or Structures*, or the MT-1 form package titled *Amendments and Revisions to National Flood Insurance Program Maps, Application Forms and Instructions for Letters of Map Amendment, Conditional Letters of Map Amendment, Letters of Map Revision Based on Fill, and Conditional Letters of Map Revision Based on Fill* are appropriate. The MT-EZ forms are used for single-structure or single-lot requests that do not involve the placement of fill. The MT-1 forms are used for requests involving multiple structures or lots. These forms may be completed online at <https://hazards.fema.gov/femaportal/onlinelomc/signin>, using the Online LOMC Tool. The

MT-EZ form package may be downloaded from the FEMA website at <https://www.fema.gov/mt-ez-form-instructions>, and the MT-1 form package may be downloaded from the FEMA website at <https://www.fema.gov/mt-1-application-forms-instructions>. Either form package may also be obtained by calling the FMIX, toll free, at 1-877-FEMA MAP (1-877-336-2627).

SUMMARY OF FORMS

Application forms for requesting a map revision from FEMA are included at the back of this package. In this package are six forms that cover various situations for revisions, a payment form, plus information about Endangered Species Act (ESA) compliance documentation. When submitting a request, only the forms applicable to the request need to be submitted. The following is a list of the forms and a summary of when each applies.

Form 1 - Overview & Concurrence Form provides basic information regarding the revision request and requires the signatures of the requester, community official, and engineer. This form is required for all revision requests.

Form 2 - Riverine Hydrology & Hydraulics Form provides basic information on the scope and methodology of hydrologic and/or hydraulic analyses that are prepared in support of the revision request. This form should be used for revision requests that involve new or revised hydrologic and/or hydraulic analyses of rivers, streams, ponds, or small lakes.

Form 3 - Riverine Structures Form provides basic information regarding hydraulic structures constructed in the stream channel or floodplain. This form should be used for revision requests that involve new or proposed channelization, bridges/culverts, dams/basins, and/or levee/floodwall systems. For levee/floodwall systems, the form requires the signature of the registered Professional Engineer in charge of completing the submittal.

Form 4 - Coastal Analysis Form provides basic information on the scope and methodology of any coastal analyses prepared in support of the revision request. This form should be used for revision requests that involve new or revised coastal analyses.

Form 5 - Coastal Structures Form provides basic information regarding hydraulic structures constructed along the coast. This form should be used for revision requests that involve new or proposed levees/dikes, breakwaters, bulkheads, seawalls, and/or revetments along the coast.

Form 6 - Alluvial Fan Flooding Form provides basic information for analyses of alluvial fans. This form should be used for revision requests involving alluvial fans.

Payment Information Form provides information regarding any fees required for a CLOMR, LOMR, or External Data Request.

ESA Compliance Documentation describes the documentation that must be submitted for CLOMRs. Before FEMA reviews a CLOMR application, CLOMR applicants are responsible for documenting to FEMA that they have complied with ESA requirements. Information outlining these requirements is available on page 38 of these instructions.

FEES

FEMA's fees are designed to recover costs associated with reviewing and processing requests for modifications to published flood information and maps. Information on the current review and processing fees for CLOMR and LOMR requests can be obtained from the FEMA website at <https://www.fema.gov/flood-map-related-fees> or by calling the FMIX, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Some requests for revisions may be exempt from fees. The NFIP regulations (44 CFR §72.5) describe the circumstances for fee-exempt requests. If requesters believe their online case submittals are fee exempt and the system will not set up cases without fees, requesters should choose any fee exemption type and correct it later. The link for setting up an online case is provided on page 8.

Payment must be made by credit card, check, or money order. Checks and money orders should be made payable in U.S. funds to the National Flood Insurance Program. Send the fee to the same address as the request package. See Pages 8 and 7 for information on where to submit the request package and fee.

WHAT TO SUBMIT

A CLOMR or LOMR request should include the appropriate application forms along with the required supporting information. The submittal should include at least the applicable items listed below. A checklist with more details is provided on page 2 of this instructions package.

1. Completed application forms.
2. Narrative on project and submittal (optional but very helpful). Knowing the project and purpose of the request better ensures that the requester's needs are met.
3. Hydrologic computations (if applicable), along with digital files of computer models used.
4. Hydraulic computations (if applicable), along with digital files of computer models used.
5. Certified topographic map with floodplain and regulatory floodway (if applicable) boundary delineations.
6. Annotated FIRM and/or FBFM to reflect changes due to the project (FIRMs and /or FBFMs can be accessed online at <https://msc.fema.gov/portal>).
7. As-built plans or survey (for LOMRs) or design plans (for CLOMRs) for all hydraulic structures or grading within the floodplain along the revised reach.
8. Items required to satisfy any NFIP regulatory requirements.
9. Review and processing fee payment, if applicable.
10. ESA compliance documentation (required for CLOMRs only).

Before FEMA will replace the effective FIS information with the revised information, the requester must: (a) provide all data used in determining the revised floodplain boundaries, flood profiles, regulatory floodway boundaries, etc.; (b) provide all data necessary to demonstrate that

the physical modifications to the floodplain meet NFIP regulations, as well as ESA regulations (for CLOMRs only), have been adequately designed to withstand the impacts of the 1-percent-annual-chance flood event, and will be adequately maintained; and (c) demonstrate that the revised information (e.g., hydrologic and hydraulic analyses and the resulting floodplain and regulatory floodway boundaries) is consistent with the effective FIS information.

WHERE TO SUBMIT

Applicants are encouraged to submit their revision request using the Online LOMC tool. To learn more about the Online LOMC tool, please visit the FEMA website at <https://www.fema.gov/online-lomc>. For hardcopy (paper) submittals, the completed package should be submitted to the appropriate address indicated below.

WHERE TO MAIL YOUR REQUEST AND FEES

All requests for CLOMRs and LOMRs for locations in most of the United States, except for areas within Alabama, Colorado, Illinois, North Carolina, and Texas, as discussed below, should be mailed to:

**LOMC CLEARINGHOUSE
3601 EISENHOWER AVENUE, SUITE 500
ALEXANDRIA, VA 22304-6426**

Under Cooperating Technical Partner (CTP) agreements with FEMA, the following counties or states will review and process CLOMRs and LOMRs for the jurisdictions defined below.

- **Alabama:** All requests within the state (www.adeca.alabama.gov/floods)
- **Colorado:** All requests within the jurisdiction of the Urban Drainage and Flood Control District, in the Denver, CO metropolitan area (<http://udfcd.org/>)
- **Illinois:** All requests within the state (<http://www.isws.illinois.edu/>)
- **North Carolina:** All requests within the state
- **Texas:**
 - Harris County: All requests within Harris County
 - Bexar, Wilson, Karnes, and Goliad Counties: All requests within the jurisdiction of the San Antonio River Authority River Authority (<http://www.sara-tx.org/>)

Mail all requests for CLOMRs and LOMRs in **Alabama** to:

**ALABAMA OFFICE OF WATER RESOURCES
ATTN: MT-2 LOMC COORDINATOR
401 ADAMS AVENUE
MONTGOMERY, AL 36104**

Mail all requests for CLOMRs and LOMRs within the jurisdiction of the **Urban Drainage and Flood Control District in Colorado** to:

**URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
2480 WEST 26TH AVENUE, SUITE 156-B**

**DENVER, CO 80211
ATTN: FLOODPLAIN MANAGER**

Mail all requests for CLOMRs and LOMRs in **Illinois** to:

**ILLINOIS STATE WATER SURVEY
2204 GRIFFITH DRIVE
CHAMPAIGN, IL 61820-7463
ATTN: CHRIS HANSTAD
MT2@ISWS.ILLINOIS.EDU**

Mail all requests for CLOMRs and LOMRs in the **City of Charlotte and Mecklenburg County, North Carolina** (<http://charmeck.org/stormwater/Pages/default.aspx>) to:

**CHARLOTTE-MECKLENBURG COUNTY STORM WATER SERVICES
700 NORTH TRYON STREET
CHARLOTTE, NC 28202
ATTN: DAVID LOVE, P.E., CFM, PROJECT MANAGER**

Mail **all other** requests for CLOMRs and LOMRs in **North Carolina** (http://www.ncfloodmaps.com/top_about.htm) to:

**MAILING ADDRESS
NC MT-2 LOMC DEPOT
4218 MAIL SERVICE CENTER
RALEIGH, NC 27699-4218**

**PHYSICAL ADDRESS (OVERNIGHT DELIVERIES)
NC MT-2 LOMC DEPOT
CLAUDE T. BOWERS MILITARY CENTER
4105 REEDY CREEK ROAD
RALEIGH, NC 27607-6410**

Mail all requests for CLOMRs and LOMRs in **Harris County, Texas** (www.hcfc.org) to:

**HARRIS COUNTY FLOOD CONTROL DISTRICT
ATTN: MT-2 LOMC COORDINATOR
9900 NORTHWEST FREEWAY
HOUSTON, TX 77092**

Mail all requests for CLOMRs and LOMRs within the jurisdiction of the **San Antonio River Authority** (Bexar, Wilson, Karnes, and Goliad Counties, Texas), (<http://www.sara-tx.org/>), to:

**SAN ANTONIO RIVER AUTHORITY
ATTN: WATERSHED ENGINEERING DEPT. LOMC ADMINISTRATOR
P.O. BOX 839980
SAN ANTONIO, TX 78283-9980**

INSTRUCTIONS FOR COMPLETING THE OVERVIEW & CONCURRENCE FORM (FORM 1)

This form, which provides the basic information regarding revision requests, must be submitted with each request. It contains much of the material needed for the U.S. Department of Homeland Security, FEMA to assess the nature and complexity of the proposed revision. It will identify: (a) the type of response expected from FEMA; (b) elements that will require supporting data and analyses; and (c) items that need the concurrence of others. This form will also ensure that the community is aware of the impacts of the request and has notified affected property owners, if required. All items must be completed accurately. If the revision request is being submitted by an individual, firm, or other non-community official, they should contact the appropriate community officials. The National Flood Insurance Program (NFIP) regulation cited at Title 44, Chapter 1, Section 65.4 of the Code of Federal Regulations (44 CFR §65.4) requires that revisions based on new technical data be submitted through the Chief Executive Officer (CEO) of the community or an official designated by the CEO. Should the CEO refuse to submit such a request on behalf of another party, FEMA will agree to review it only if written evidence is provided indicating that the CEO or designee has been requested to do so.

SECTION A: REQUESTED RESPONSE FROM FEMA

Indicate the type of response being requested. Brief descriptions of possible responses are provided in the introduction; more detail regarding these responses and the data required to obtain each response are provided in the NFIP regulations.

SECTION B: OVERVIEW

1. Provide the Community Number, Community Name, State, Map Number, Panel Number, and Effective Date using the title block of the effective Flood Insurance Rate Map (FIRM). The sample FIRM panels in Figures 1 and 2 on page 11 show where to find the information to complete Item 1. The effective FIRMs can be obtained from the community's map repository or from FEMA's Flood Map Service Center website at <https://msc.fema.gov/portal>.
2.
 - a. Indicate the name of the flooding source (which refers to a specific lake, stream, ocean, etc.) associated with the revision request. This should match the flooding source name shown on the effective FIRM, if it has been labeled. (Examples: Lake Michigan, Duck Pond, and Big Hollow Creek).
 - b. Indicate the type(s) of flooding associated with the revision request (e.g., riverine, coastal, alluvial fan, lacustrine, other).
3. Provide the Project Name/Identifier, which can be the name of a flood control project or other pertinent structure having an impact on the effective flood hazard information, the name of a subdivision or area, or some other identifying phrase.
4. Indicate the effective zone designation(s) affected, which can be obtained from the FIRM.
5. Enter the coordinates at approximately the center of the area to be revised.
6.
 - a. Indicate the basis for the revision request by checking one or more of the boxes provided.

- Physical Change includes watershed development, flood-control structures, etc. Note that fees will be assessed for FEMA’s review of proposed and as-built projects, as outlined in the NFIP regulations at 44 CFR Part 72.
- Improved Methodology/Data may be a different technique (model) or adjustments to models used in the effective FIS.
- Regulatory Floodway Revision involves any shift in the FEMA-designated regulatory floodway boundaries, regardless of whether the shift is mappable.
- Other involves any basis for the request not included in the items listed on the form.

b. Indicate the types of structure(s) associated with the revision request.

7. Submit documents relating to Endangered Species Act of 1973 (ESA) compliance for CLOMR requests. Please note that FEMA will not review CLOMR requests until it receives ESA compliance documents. Please refer to page 38 of this instructions package for more details.

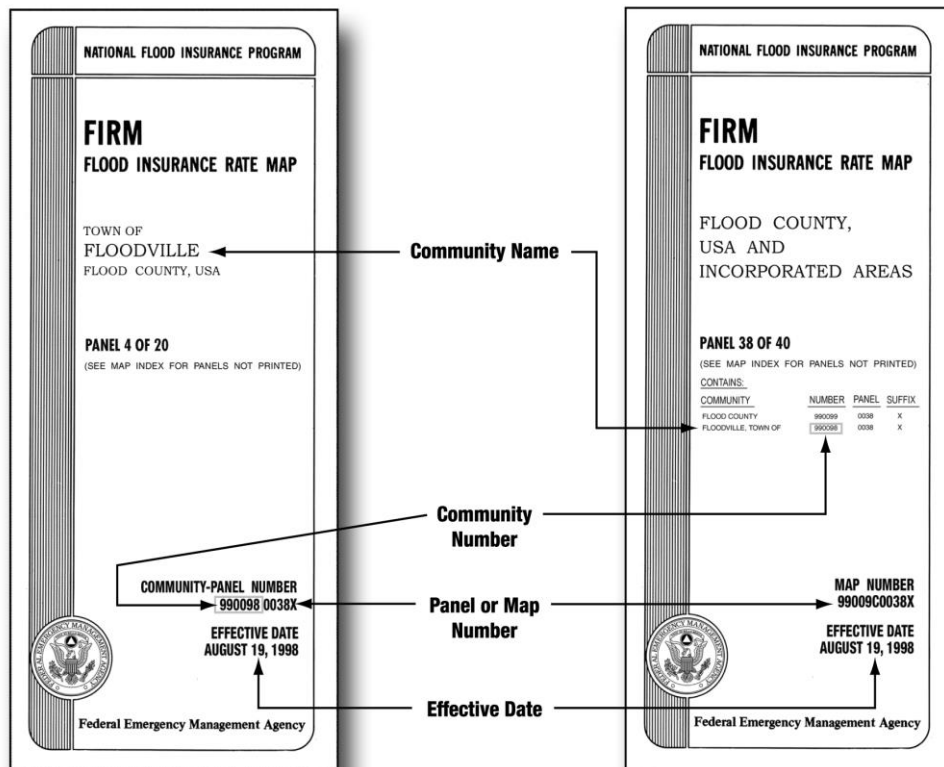


Figure 1. Sample FIRM Panel (Single Community)

Figure 2. Sample FIRM Panel (Countywide)

SECTION C: REVIEW FEE

Enter the fee amount associated with the request, or attach an explanation as to why the revision meets the requirements for a fee exemption. The current fees for review and processing of CLOMR and LOMR requests may be obtained from the FEMA website at <https://www.fema.gov/flood-map-related-fees>.

SECTION D: SIGNATURES

Requester’s Signature

Include the name, company/community represented, mailing address, telephone number, fax number, and email address of the revision requester. The person signing this certification should

own the property involved in the request or have legal authority to represent a group/firm/organization or other entity in legal actions pertaining to the NFIP.

The requester is responsible for obtaining all necessary federal, state, and local permits as a condition of obtaining a LOMR or CLOMR. The community is required to make sure that all necessary permits have been obtained prior to issuing a floodplain development permit. The most commonly required federal permits are wetlands permits under Section 404 of the Clean Water Act of 1972 and incidental take permits under Section 10 of the ESA. Necessary State permits vary depending on the State. Requesters who need a wetlands permit or who are not sure if one is required should contact the appropriate U.S. Army Corps of Engineers (USACE) District Office (<https://www.usace.army.mil/Locations.aspx>). If the proposed development affects threatened or endangered species or if the requester is not sure if it does, the requester should consult the nearest U.S. Fish and Wildlife Service (USFWS) field office (<https://www.fws.gov/offices/>).

Community Concurrence

Include the name and title of the community officials, community name, mailing address, telephone number, fax number, and email address of the community official that signs the form. The person signing this certification should be the CEO for the community involved in this revision request or an official legally designated by the CEO. Non-community agencies, such as flood control districts and reclamation districts, should not sign this form unless the community provides legal documentation demonstrating that the non-community agency has authority to implement and administer laws, ordinances, and regulations for that community. If more than one community is affected by the change, the community official from the community that is most affected by the revision should sign the form, and letters from the other affected communities should be enclosed. If the community or communities disagree with the proposed revision, a signed statement should be attached to the request explaining the reasons or basis for disagreement.

In accordance with the NFIP regulations at 44 CFR §60.3(a)(2), the community is required to ensure, prior to issuing a floodplain development permit, that an applicant has obtained all necessary federal and state permits related to development. The most commonly required federal permits are wetlands permits under Section 404 of the Clean Water Act of 1972 and incidental take permits under Section 10 of the ESA. Necessary state permits vary depending on the State. If the community is not sure if a wetlands permit is required, the community should refer the applicant to the appropriate USACE District Office. If the proposed development affects threatened or endangered species or if the community is not sure if it does, the community should have the applicant consult the nearest USFWS field office.

Certification by Registered Professional Engineer and/or Land Surveyor

The person certifying this submittal must provide a valid license number and the expiration date for their license. If this information is provided, affixing a seal is optional. If a seal is available, however, it may be affixed in the seal box provided on this form. The registered Professional Engineer and/or licensed land surveyor should have a current license in the State where the affected communities are located. While the individual signing this form is not required to have obtained the supporting data or performed the analyses, he or she must have supervised and reviewed the work.

As indicated in the NFIP regulations at 44 CFR §65.2(b):

- A certification by a registered Professional Engineer or other party does not constitute a warranty or guarantee of performance, expressed or implied.
- Certification of data is a statement that the data is accurate to the best of the certifier's knowledge.
- Certification of analyses is a statement that the analyses have been performed correctly and in accordance with sound engineering practices.
- Certification of structural works is a statement that the works are designed in accordance with sound engineering practices to provide flood risk reduction from the base (1-percent-annual-chance) flood.
- Certification of "as-built" conditions is a statement that the structure(s) has been built according to the plans being certified, is in place, and is fully functioning.

If the requester is a federal agency responsible for the design and construction of flood-control facilities, a letter stating that "...the analyses submitted have been performed correctly and in accordance with sound engineering practices" may be submitted in lieu of certification by a registered Professional Engineer. Regarding the certification of completion of flood-control facilities, a letter from the federal agency certifying the project's completion and the flood frequency event for which the project provides flood hazard reduction may be submitted in lieu of this form.

SECTION E. FORMS SUBMITTED

Indicate which forms are submitted with the revision request.

**INSTRUCTIONS FOR COMPLETING
THE RIVERINE HYDROLOGY & HYDRAULICS FORM
(FORM 2)**

This form should be used for revision requests that involve new or revised hydrologic and/or hydraulic analyses of rivers, streams, ponds, or small lakes. A separate form should be used for each flooding source.

SECTION A: HYDROLOGY

This section is to be completed when discharges other than those used in the effective Flood Insurance Study (FIS) are proposed.

1. Indicate the reason for the new or revised hydrologic analysis. For revisions based on alternative methodologies or improved data, please explain why the alternative methodology or improved data provides better results over the FIS and support that explanation throughout the form. The discharges resulting from the new or revised hydrologic analysis should result in a statistically significant difference when compared to the effective flood discharges. Statistical significance is defined in Section 6.0 of the May 2016 version of Guidance for Flood Risk Analysis and Mapping: General Hydrologic Considerations, which may be downloaded from the “Guidance” page on the FEMA website at <https://www.fema.gov/media-library/assets/documents/34953>.
2. Compare the effective 1-percent-annual-chance discharges to the revised 1-percent-annual-chance discharges at three representative locations.
3. In accordance with National Flood Insurance Program (NFIP) regulations, if only a portion of a detailed-study stream is revised, a transition to the unrevised portion must be ensured to maintain the continuity of the study. Please attach an explanation of how the proposed discharge in the revised portion of the stream transitions to the effective discharge in the unrevised portion of the stream, and vice versa.
4. Specify the method used for the new hydrologic analysis.
5. a. Precipitation/Runoff Model: Please attach any additional backup computations and supporting data, such as a drainage area map, soils map, soil group names, time of concentration computations, curve numbers, source of rainfall data, storm duration, or node-link diagram (if applicable). CDs with the digital models should also be included. Models submitted in support of a revision request must meet the requirements of the NFIP regulations at Title 44, Chapter 1, Subparagraph 65.6(a)(6) (44 CFR §65.6(a)(6)). A list of hydrologic models accepted by FEMA can be found at <https://www.fema.gov/hydrologic-models-meeting-minimum-requirement-national-flood-insurance-program>.
- b. Statistical Analyses of Gage Records: Please indicate the gaging record location and identification number and the methodology used for the analysis. Bulletin 17C, “Guidelines for Determining Flood Frequency,” is the recommended approach for analyzing gage records. Bulletin 17C can be downloaded from the Subcommittee on Hydrology of the Advisory Committee on Water Information website at <https://acwi.gov/hydrology/Frequency/b17c/>. If Bulletin 17C was not used in the gage analysis, please provide the reasons it was not applicable. Please submit the historical records of the flow data for the gaged data and statistical model results.

- c. Regional Regression Equations: Please indicate the source of the most recent regional regression equation and provide the description and justification of the parameters used in the regression equation. U.S. Geological Survey (USGS) regression equations are available nationwide and recommended for use. If the most recent USGS regression equations were not used, please provide the reasons these equations are not applicable.
- d. Other: Please attach a description of any hydrologic analysis method used that is different from above.
- e. If approval of the new or revised hydrologic analysis is required by a local, state, or federal agency, indicate if the analysis and resulting peak discharge value(s) have been approved by the appropriate agency and attach evidence of the approval.
- f. In locations where sediment transport affects hydrology, the effects of sediment transport should be considered in the hydrology and Section F of Form 3 should be submitted. Note: FEMA does not map Base Flood Elevations (BFEs) based on bulked flows, as stated in Section F of Form 3.

SECTION B: HYDRAULICS

This section is to be completed when the request involves a hydraulic analysis for riverine flooding that differs from that used to develop the Flood Insurance Rate Map (FIRM).

1. Indicate the reach of stream to be revised. The area of the revision is defined by an effective tie-in at the upstream and downstream limits. For streams that have a detailed study, an effective tie-in is obtained when the revised BFEs are within 0.5 foot of the effective elevations, and the revised floodway encroachment stations match the effective floodway stations at both the upstream and downstream limits. For streams that do not have a detailed study, an effective tie-in is obtained when the revised BFEs are within 0.5 foot of the pre-project conditions model at both the upstream and downstream limits. Please note that the area of revision and the project area are not necessarily the same. If the revised model does not tie into the effective study at the project limits, the model must be extended upstream and downstream until it ties into the effective study.
2. Indicate the hydraulic method/model used for the revision. A list of hydraulic models accepted by FEMA can be found on the FEMA website at <https://www.fema.gov/hydraulic-numerical-models-meeting-minimum-requirement-national-flood-insurance-program>. If using a hydraulic model that does not appear on the list of accepted models, please provide documentation showing that the model meets the requirements of the NFIP regulations at 44 CFR §65.6(a)(6). For unsteady state hydraulic models, please ensure that the hydrology section of this form is also filled out and relevant hydrologic backup data are provided. For two-dimensional models, please indicate the grid size used and provide documentation of pre-approval from FEMA in accordance with the current FEMA standard (referred to as Standard ID #73 at <https://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping>).
3. Indicate if the CHECK-2 or CHECK-RAS programs were used to verify that the hydraulic estimates and assumptions in the model are comparable to the assumptions and limitations of HEC-2 or HEC-RAS. CHECK-2 and CHECK-RAS are review tools that identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from the FEMA website at <https://www.fema.gov/software>. We recommend that you review your HEC-2 and HEC-RAS

models with CHECK-2 and CHECK-RAS, respectively. If you disagree with the comment messages provided by CHECK-2 or CHECK-RAS, please attach an explanation of why the messages are not valid in each case. To reduce processing time, please review your hydraulic model and resolve valid modeling discrepancies before submitting it for review.

4. Indicate the hydraulic model(s) submitted. Provide the name(s) of the plans used, if HEC-RAS models are submitted. Also, please indicate the vertical datum used for each of the submitted hydraulic models.

Duplicate Effective Model

The Duplicate Effective Model is a copy of the hydraulic analysis used in the effective FIS, referred to as the Current Effective Model. The Current Effective Model should be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective Model. This is required to ensure that the Current Effective Model's input data have been transferred correctly to the requester's equipment and to ensure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach. For information on how to obtain copies of the effective FIS models, please visit the FEMA website at <https://www.fema.gov/engineering-library>.

Corrected Effective Model

The Corrected Effective Model is the model that corrects any errors that occur in the Duplicate Effective Model, adds any additional cross sections to the Duplicate Effective Model, or incorporates more detailed topographic information than that used in the Current Effective Model. The Corrected Effective Model must not reflect any manmade physical changes since the date of the effective model. An error could be a technical error in the modeling procedures or it could be any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the Current Effective model.

Existing or Pre-Project Conditions Model

The Duplicate Effective Model or Corrected Effective Model is modified to produce the Existing or Pre-Project Conditions Model to reflect any modifications that have occurred within the floodplain since the date of the Current Effective Model, but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the Current Effective Model, then this model would be identical to the Corrected Effective Model or Duplicate Effective Model. The Existing or Pre-Project Conditions Model may be required to support conclusions about the actual impacts of the project associated with the Revised or Post-Project Conditions model or to establish more up-to-date models on which to base the Revised or Post-Project Conditions Model.

Revised or Post-Project Conditions Model

The Existing or Pre-Project Conditions Model (or Duplicate Effective Model or Corrected Effective Model, as appropriate) is modified to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the Current Effective Model was produced, as well as the effects of the project. When the

request is for a proposed project (i.e., a CLOMR), this model must reflect proposed conditions.

The information requested on this form is intended to document the steps the requester took while preparing the Revised or Post-Project Conditions hydraulic model and the resulting revised FIS information. The following guidelines should be followed when completing the form:

- All changes to the Duplicate Effective Model and subsequent models must be supported by certified topographic information, bridge plans, construction plans, survey notes, etc.
- Changes to the hydraulic models should be limited to the stream reach for which the revision is being requested. Cross sections upstream and downstream of the revised reach should be identical to those in the Effective Model. If this is done, water-surface elevations and topwidths computed by the revised models should match those in the effective models upstream and downstream of the revised reach, as required.
- There must be consistency between the revised hydraulic models, revised floodplain and regulatory floodway boundary delineations, revised flood profiles, topographic work map, annotated FIRM panel(s) and/or Flood Boundary Floodway Map (FBFM) panel(s), construction plans, bridge plans, etc.

Submittal Requirements for Hydraulic Analyses: Digital copies of all hydraulic analyses must be submitted, along with all supporting data (e.g., description of vegetation and land use map) for the source of input parameters used in the models listed above. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective Model to Corrected Effective Model). At a minimum, the Duplicate Effective Model (if available) and the Revised or Post-Project Conditions Model must be submitted for LOMRs. For CLOMRs, a Pre-Project Conditions Model must also be provided. Hydraulic analyses must be performed for all flood frequencies published in the effective FIS report. If an effective regulatory floodway exists, revised floodway analyses must also be submitted.

SECTION C: MAPPING REQUIREMENTS

A certified topographic map of suitable scale, contour interval, and planimetric definition must be submitted, showing the applicable items indicated on the form. If available, a digital version of the map may be submitted so that the FIRM can be more easily revised. The vertical datum used to reference the topographic elevations must be specified and should be consistent with the datum used to reference the elevations in the hydraulic analysis.

Please attach an annotated FIRM panel (and FBFM panel, if required) showing the revised 1-percent-annual-chance floodplain boundaries (for approximate Zone A revisions) or the revised 1-percent-annual-chance floodplain, 0.2-percent-annual-chance floodplain, and regulatory floodway boundaries (for detailed Zone AE, AO, and AH revisions). The revised boundaries must tie into the effective boundaries at the upstream and downstream limits of the area of revision. The annotated FIRM (and FBFM, when appropriate) panel(s) ensures that FEMA is aware of how the requester anticipates the FIRM (and FBFM, when appropriate) will be revised.

Please indicate if annotated FIRM and/or FBFM panels and digital mapping data (Geographic Information System or Computer Aided Drafting and Design) are submitted. If digital data are submitted, please include any supporting documentation or metadata with the data submission, including relevant projection information. Current mapping standards use the Universal

Transverse Mercator (UTM) projection and State Plane Coordinate System, in accordance with FEMA mapping standards. Data not submitted in ESRI mapping format can be submitted in any supported data format, which includes AutoCAD, MicroStation, and MapInfo.

SECTION D: COMMON REGULATORY REQUIREMENTS

1. Indicate if the CLOMR/LOMR request causes the flood hazards to increase, compared with the information shown on the effective FIRM, due to a project or updated modeling, including BFEs and/or base flood depths, Special Flood Hazard Area (SFHA) boundaries, zone designations, and/or regulatory floodway boundaries. If the proposed revision or revision causes increases in the flood hazards, the affected property owners must be notified; the acceptance of these changes is not required. This notification may be done via individual letters or a newspaper notice. Please refer to the templates (Figures 3 through 6) on pages 20-23.
 - For CLOMR requests, determine if the following situations will occur:
 - Projects that will have construction within the regulatory floodway that causes the BFEs to increase (more than 0.00 feet), or
 - Projects that will have construction within the floodplain of streams that have a detailed effective study, but for which a regulatory floodway has not been established, which causes the BFEs to increase more than 1.0 foot (or any other more stringent requirement set by the community or State).
 - If either of these two situations occurs, then the conditions in the NFIP regulations at 44 CFR §65.12 must be met. The conditions of 44 CFR §65.12 include:
 - An evaluation of alternatives that would not result in a BFE increase above that permitted, demonstrating why these alternatives are not feasible;
 - Documentation of individual legal notice to all affected property owners within and outside of the community, explaining the impact of the proposed action on their property (refer to template on page 22);
 - Concurrence of the Chief Executive Officers of any communities affected by the proposed actions; and
 - Certification that no structures are in areas that would be affected by the increased BFE.
2. Indicate if the placement of fill is involved with the revision request. Fill is defined as material from any source placed to raise the ground to or above the BFE. In accordance with the NFIP regulations at 44 CFR §65.2(c), if fill has been placed to remove an area or structure from the SFHA, the community must sign the appropriate section of Form 1 certifying that the area to be removed from the SFHA, to include any structures or proposed structures, meets (or will meet) all the standards of the local floodplain ordinances, and is reasonably safe from flooding. “Reasonably safe from flooding” means that the base floodwaters will not inundate the land or damage the structures to be removed from the SFHA and that any subsurface waters related to the base flood will not damage existing or proposed buildings. Information on ensuring that structures built on fill in or near the SFHA are reasonably safe from flooding may be obtained from FEMA Technical Bulletin 10-01, “Ensuring That Structures Built on Fill In or Near Special Flood Hazard Areas Are Reasonably Safe from Flooding,” which can be downloaded from the FEMA website at <https://www.fema.gov/nfip-technical-bulletins>.

3. Indicate if the request involves a floodway revision. If the regulatory floodway is being revised, the requirements of the NFIP regulations at 44 CFR §65.7 must be met. These requirements include submitting a copy of a public notice distributed by the community stating the community's intent to revise the regulatory floodway, or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions. Templates for notification of a regulatory floodway revision are shown in Figures 3 through 6 on pages 15-19.
4. For CLOMR requests, indicate if the revision request has the potential to impact endangered species. Section 9 of the Endangered Species Act of 1973 (ESA) prohibits anyone from "taking" or harming endangered species. If an action might harm an endangered species, please provide necessary documentation for compliance with Section 9 and/or Section 7(a)(2) of the ESA. Please refer to page 38 of these instructions for more details.

Sample notification templates for various changes to SFHAs, BFEs, and regulatory floodways are shown in Figures 3 through 6. All LOMRs that result in a BFE and/or SFHA increase and/or that will result in a revision to the regulatory floodway require either public notification of the revision (Figure 3) or individual legal notices to affected property owners (Figure 4). If individual letters are used to notify property owners of the regulatory floodway revision, they must either be sent on community letterhead or the community must provide certification to FEMA that "all affected property owners have been notified of the floodway revision." CLOMRs require property owner notifications (Figure 5) if they would result in increases as described in Item 2 above. CLOMRs also require notification if the follow-up LOMR would result in BFE or SFHA increases, or a revision to the regulatory floodway (Figures 5 and 6).

The {insert community name} {insert appropriate community department for floodplain management}, <add the following if the floodway is to be revised> [in accordance with National Flood Insurance Program regulation 65.7(b)(1),] hereby gives notice of the {insert community designation Township's / Village's/ Borough's / County's} intent to revise the flood hazard information, generally located between {insert general location of flood hazard revision}. Specifically, the flood hazard information will be revised along {insert name of flooding source} from a point approximately {describe downstream limit of revision} to a point approximately {describe upstream limit of revision}.

<Include the flood hazards in the following sentence that apply>

As a result of the revision, [the floodway will {widen and/or narrow or be established}], [the 1-percent-annual-chance water-surface elevations shall {increase and/or decrease or be established}], and [the 1-percent-annual-chance floodplain will {widen and/or narrow or be established}] within the area of revision.

Maps and detailed analysis of the revision can be reviewed at the {insert location} at {insert location address}. Interested persons may call {insert community contact name or position} at {insert contact phone number} for additional information from ... to ...

Figure 3. Sample Public Notification for LOMRs
(to be used by community when placing a notice in a newspaper)

{Date}
{Affected property owner name}
{Affected property owner mailing address}

Re: Notification of Flood Hazard Revisions

Dear Mr./Ms./Mr. and Mrs. {Affected property owner}

The Flood Insurance Rate Map (FIRM) for a community depicts the floodplain, the area that has been determined to be subject to a 1-percent or greater chance of flooding in any given year. The regulatory floodway is the portion of the floodplain that includes the channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the base (1-percent-annual-chance) flood without cumulatively increasing the water-surface elevation by more than a designated height. The FIRM is used to determine flood insurance rates and to help the community with floodplain management.

{Revision Requester} is applying for a Letter of Map Revision (LOMR) from the Federal Emergency Management Agency (FEMA) on behalf of {Revision requester's client} to revise FIRM {insert FIRM #, panel #, suffix} for {insert community name, state} along {insert name of flooding source}. {Revision requester} is proposing to revise the FIRM to reflect {describe project or updated information}.

<If the revision results in a floodway change, please include the following paragraph>

The {insert community name} {insert appropriate community department for floodplain management}, in accordance with National Flood Insurance Program regulation at 44 CFR §65.7(b)(1), hereby gives notice of the {insert community designation: Township's / Village's/ Borough's / County's} intent to {revise\establish\revise and establish} the 1-percent-annual-chance floodway, generally located between {insert general location of floodway revision}. Specifically, the floodway shall be

<please choose the following that apply>

1. revised from a point {describe downstream limit of regulatory floodway revision} to a point {describe upstream limit of regulatory floodway revision}.
2. [and] established from a point {describe downstream limit of regulatory floodway establishment} to a point {describe upstream limit of regulatory floodway establishment}.

As a result of the LOMR, the regulatory floodway wall {widen\narrow\be established} within the area of revision.

<Please choose the following that apply>

The LOMR will [also] result in:

1. [Establishment of Base (1-percent-annual-chance) Flood Elevations (BFEs)]
2. [Establishment of the 1-percent-annual-chance floodplain]
3. [Increases {and decreases} in the 1-percent-annual-chance water-surface elevations]
4. [Widening {and narrowing} of the 1-percent-annual-chance floodplain]

This letter is to inform you of flood hazard revisions on your property at {insert physical address}.

Maps and a detailed analysis of the flood hazard revision can be reviewed at the {insert location} at {insert location address}. If you have any questions or concerns about the proposed project or its effect on your property, you may contact {name of appropriate community official} of {name of community} at {community official contact information} from ... to ... {insert dates during which community contact person can be contacted}.

Sincerely,

{Revision requester or community representative name}
{Revision requester or community representative position}
{Revision requester or community representative contact information}

Figure 4. Sample Notification Letter for LOMRs
(to be used when sending individual legal notices to affected property owners)

Note: If individual letters are used to notify property owners of the revision to the regulatory floodway, they must either be sent on community letterhead or the community must certify to FEMA that all affected property owners have been notified of the floodway revision.

{Date}

{Affected property owner name}

{Affected property owner mailing address}

Re: Notification of increases in 1-percent-annual-chance water-surface elevations and/or future flood hazard revisions

Dear Mr./Ms./Mr. and Mrs. {Affected property owner}

The Flood Insurance Rate Map (FIRM) for a community depicts the Special Flood Hazard Area (SFHA), the area that has been determined to be subject to a 1-percent or greater chance of flooding in any given year. <add the following if the floodway is to be revised> [The floodway is the portion of the floodplain that includes the channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the 1-percent-annual-chance (base) flood without cumulatively increasing the water-surface elevation by more than a designated height.] The FIRM is used to determine flood insurance rates and to help the community with floodplain management.

{Revision Requester} is applying for a Conditional Letter of Map Revision (CLOMR) from the Federal Emergency Management Agency (FEMA) on behalf of {Revision requester's client} to revise FIRM {insert FIRM #, panel #, suffix} for {insert community name, state} along {insert name of flooding source}. {Revision requester' client} is proposing to {describe project} as part of {explain project purpose}.

USE THE FOLLOWING PARAGRAPH WHEN THE PROJECT WILL RESULT IN INCREASES IN BFEs RELATIVE TO EXISTING CONDITIONS

The proposed project will result in increases in the 1-percent-annual-chance (base) water-surface elevations for a portion of {insert flooding source(s)}.

USE THE FOLLOWING PARAGRAPH WHEN THE AS-BUILT LOMR WOULD RESULT IN A REVISION TO THE FLOODWAY, BFEs, OR SFHA (COMPARED TO THE EFFECTIVE FLOOD HAZARDS)

Once the project has been completed, a Letter of Map Revision (LOMR) request should be submitted that will, in part, revise the following flood hazards along {insert name of flooding source(s)}.

USE THE FOLLOWING STATEMENTS AS APPLICABLE. REPEAT THEM AS NECESSARY IF MULTIPLE FLOODING SOURCES ARE AFFECTED.

1. The floodway will be revised from {describe downstream limit of floodway revision} to {describe upstream limit of floodway revision} along {insert name of flooding source}.
2. A floodway will be established from {describe downstream limit of floodway revision} to a point {describe upstream limit of floodway revision} along {insert name of flooding source}.
3. Base Flood Elevations (BFEs) will [increase / decrease / be established] along {insert name of flooding source}.
4. The SFHA will [increase / decrease / be established] along {insert name of flooding source}.

This letter is to inform you of the proposed project that may affect flood elevations on your property at {insert physical address}. This letter is also to inform you of the potential changes to the effective flood hazard information that would result after the project is completed and a LOMR request is submitted to FEMA.

Maps and a detailed analysis of the proposed flood hazard revisions can be reviewed at the {insert location} at {insert location address}. If you have any questions or concerns about the proposed project or its effect on your property, you may contact {name of appropriate community official} of {name of community} at {community official contact information} from ... to ... {insert dates during which community contact person can be contacted}.

Sincerely,

{Revision requester or community representative name}

{Revision requester or community representative position}

{Revision requester or community representative contact information}

Figure 5. Sample Letter for CLOMR Notification

Note: Letters with a regulatory floodway notification must be on community letterhead or the community must provide a letter to FEMA stating that “all affected property owners have been notified of the proposed floodway revision.”

The {insert community name} {insert appropriate community department for floodplain management}, <add the following if the floodway is to be revised> [in accordance with National Flood Insurance Program regulation 65.7(b)(1),] hereby gives notice of the {insert community designation Township's / Village's/ Borough's / County's} intent to revise the flood hazard information, generally located between {insert general location of flood hazard revision}. The flood hazard revisions are being proposed as part of Conditional Letter of Map Revision (CLOMR) Case No. {insert Case No.} for a proposed project along {insert name of flooding source(s)}. {Revision requestor's client} is proposing to {describe project} as part of {explain project purpose}.

Once the project has been completed, a Letter of Map Revision (LOMR) request should be submitted that will, in part, revise the following flood hazards along {insert name of flooding source(s)}.

USE THE FOLLOWING STATEMENTS AS APPLICABLE. REPEAT THEM AS NECESSARY IF MULTIPLE FLOODING SOURCES ARE AFFECTED.

1. The floodway will be revised from {describe downstream limit of floodway revision} to {describe upstream limit of floodway revision} along {insert name of flooding source}.
2. A floodway will be established from {describe downstream limit of floodway revision} to a point {describe upstream limit of floodway revision} along {insert name of flooding source}.
3. Base Flood Elevations will [increase / decrease / be established] along {insert name of flooding source}.
4. The Special Flood Hazard Area will [increase / decrease / be established] along {insert name of flooding source}.

Maps and detailed analysis of the revision can be reviewed at the {insert location} at {insert location address}. Interested persons may call {insert community contact name or position} at {insert contact phone number} for additional information from ... to ... {insert dates during which community contact person can be contacted}.

Figure 6. Sample Public Notification for CLOMRs
 (to be used by community when placing a notice in a newspaper)

Note: A newspaper notice may not be used to fulfill the notification requirement of the NFIP regulation at 44 CFR §65.12.

INSTRUCTIONS FOR COMPLETING THE RIVERINE STRUCTURES FORM (FORM 3)

This form should be used for revision requests that involve new or proposed channelization, bridges/culverts, dams/detention basins, and/or levee/floodwall systems (both accredited and, where applicable, non-accredited). The requester should only complete the sections of this form that apply to the revision request. A separate form should be used for each flooding source that has structures involved in the revision request.

SECTION A: GENERAL

Provide the name of the structure (e.g., Main Street Bridge, Flood Creek channelization), the type of structure, the location of the structure (e.g., 1,000 feet upstream of Main Street, River Mile 10.4), and the appropriate cross-section labels for all structures that are part of the revision request. Please attach additional pages if the revision request involves more than three structures. This form is not required for existing structures that are included in the hydraulic model for the effective Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM).

SECTION B: CHANNELIZATION

This section is to be completed when any portion of the stream channel is altered or relocated. The purpose of the Channelization section and the information to be submitted is to ensure that the channel will function properly as designed and convey the 1-percent-annual-chance flood as determined by the hydraulic analysis. When the completed Channelization section is submitted, a Riverine Hydrologic & Hydraulic Form (Form 2) must also be submitted.

1. Indicate the hydraulic considerations for the design of the channel, such as flow-carrying capacity of the channel and the flow regime over which channel elevation was designed. Also indicate if there is potential for a hydraulic jump.
2. Attach engineering drawings of the channelization, certified by a registered Professional Engineer (P.E.). The drawings should include a plan view of the channelization that shows pre-construction topography and post-construction grading, channel cross section, channel lining, channel inlet and outlet, and details for any accessory structures included with the channelization.

Typically, channelization increases the channel velocity above the natural channel velocity. Please provide information that supports the conclusion that the channel lining will withstand the velocities associated with the 1-percent-annual-chance flood. The type of channel lining should be indicated on the design plans.

3. Indicate all accessory structures included with the channelization. The accessory structures should be shown on the submitted plans.
4. In locations where sediment transport will affect the Base Flood Elevations (BFEs), the effects of sediment transport should be considered in the design of the channel and Section F of Form 3 should be submitted. Please provide justifications if sediment transport analysis is not considered for the channel design.

SECTION C: BRIDGE/CULVERT

This section is to be completed when the request involves a new bridge or culvert or a new or revised analysis of an existing bridge or culvert. Please provide the flooding source and structure name and continue with the form as instructed below.

1. Indicate the reason for the new or revised bridge/culvert modeling.
2. Indicate the model used to analyze the hydraulics at the bridge/culvert. If this model is different than the model used to analyze the flooding on the stream, please include an explanation of why a different model was used to analyze the bridge/culvert.
3. Attach plans of the structure, certified by a registered P.E. The bridge/culvert plans should include the information listed on the form. Please indicate the items included on the plans and attach an explanation of why any information is not included.
4. In locations where sediment transport will affect the BFEs, the effects of sediment transport should be considered in the design of the bridge/culvert and Section F of Form 3 should be submitted. Please provide justifications if sediment transport analysis is not considered for the bridge/culvert design.

SECTION D: DAM/BASIN

This section is to be filled out when there is an existing, proposed, or modified dam or detention basin along a detailed-study stream. This includes existing or new road embankments that are designed or modified to serve as flood detention structures. Please provide a complete engineering analysis and engineering drawings of the dam/basin. The drawings should indicate the dam dimensions (height, topwidth, side slopes), the crest elevation of the top of the dam/basin, the type of spillway, the spillway dimensions, the crest elevation of the spillway, the type of outlet, the outlet dimensions, and the invert elevation of the outlet.

1. Indicate the reason for the revision request involving a dam/basin.
2. Indicate the agency or organization that designed the dam/basin.
3.
 - a. Indicate the name of the agency or organization responsible for permitting the dam, along with the appropriate permit or identification number for the dam.
 - b. For a local dam or a private dam, provide related “as-built” or “proposed” drawings, specifications, and supporting design information.
4. Indicate if the hydrologic analysis is revised as a result of the dam/basin. Any storage upstream of the dam/basin, considered in the hydrologic analysis to reduce the peak base flood discharge, should be totally dedicated to flood control. If the outflow of the dam is regulated, please submit an explanation of the flow regulation plan. Please provide this documentation as part of the Operation and Maintenance information required per Item 7 below. Please complete Form 2, Riverine Hydrology & Hydraulics Form, if the hydrology changes. Provide documentation showing that the dam/basin was designed using the critical storm duration that would yield the maximum reservoir stage or maximum volume of runoff during the design storm.

5. In locations where sediment transport will affect the BFEs, the effects of sediment transport should be considered in the design of the dam/basin and Section F of Form 3 should be submitted. Please provide justifications if sediment transport analysis is not considered for the dam/basin design.
6. Indicate if the BFEs change as a result of the dam/basin. If impacted, please list the stillwater elevations behind the dam/basin in the table provided.
7. Include a copy of the formal Operation and Maintenance Plan for the dam/basin.

SECTION E: LEVEE/FLOODWALL

This section is to be completed, for both accredited and non-accredited levee systems, when the revision request involves a new, modified, and/or existing levee and/or floodwall. The National Flood Insurance Program (NFIP) regulations describe a levee as a manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water to provide flood hazard reduction from temporary flooding.

Accredited Levee Systems: The purpose of this section is to ensure that the levee or floodwall system is designed and/or constructed to exclude the 1-percent-annual-chance flood from the leveed area, in full compliance with the NFIP regulations at 44 CFR §65.10, before reflecting its effects on an NFIP map. For more information on the FEMA requirements, please refer to the February 2018 version of Guidance for Flood Risk Analysis and Mapping: Levees, which can be downloaded from the “Guidance” page on the FEMA website at <https://www.fema.gov/media-library/assets/documents/34953>.

In addition, a vicinity map, along with a complete set of flood profile sheets, plan sheets, and layout detail sheets, must be submitted. These sheets must be numbered, and an index must be provided that clearly identifies those sheets specifically relating to the levee or floodwall in question.

While the overall submittal for levee accreditation must be certified by a registered P.E. who submits the completed package, the submittal may include several subsets of engineering data, dealing with separate portions of the NFIP regulations at 44 CFR §65.10, certified by different P.E.s or engineering firms. Certifications are subject to the definition provided in the NFIP regulations at 44 CFR §65.2. In such cases, the P.E. who certifies the completed package will be considered the engineer responsible for the accreditation submittal and will be contacted if additional information is needed. The Form 3 signature block should also be signed by the P. E. who signs the complete package.

1. Indicate all the applicable levee/floodwall system elements, including their locations and types, and provide engineering drawings certified by a registered P.E. The drawings should show the items indicated.
2. Indicate the levee’s amount of freeboard above the BFE. Riverine levees must provide a minimum freeboard of 3 feet above the BFE. An additional 0.5 foot above the minimum must be provided at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee. An additional 1 foot above the minimum freeboard is required on both sides of the river or stream for a distance of 100 feet upstream of structures (such as bridges) riverward of the levee or wherever the flow is constricted. If exceptions to the minimum freeboard requirements are requested, please attach documentation addressing

the NFIP regulations at 44 CFR §65.10(b)(1)(ii). Please provide a discussion of how the top of levee ties into high ground at both the upstream and downstream terminus locations and supporting documentation, including topographic information, drawings, etc.

Ice jams can increase the flood elevations on a stream. Please indicate if the stream has a history of ice jams; if so, please provide evidence that the minimum freeboard still exists with the ice jam effects.

3. List the closure devices for all openings through the levee system. All openings must be provided with closure devices that are structural parts of the system during operation and design.
4. Complete the information that shows where embankment protection is required and submit supporting embankment protection analysis. The embankment protection analysis must demonstrate that no appreciable erosion of the levee embankment can be expected during the 1-percent-annual-chance flood, as a result of either current or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation, directly or indirectly through reduction of the seepage path and subsequent instability. Factors to be addressed include, but are not limited to: expected flow velocities, expected wind and wave action, ice loading, impact of debris, slope protection techniques, duration of flooding at various stages and velocities, embankment and foundation materials, levee alignment, bends, transitions, and levee side slopes. The table provided in the form is for riprap protection. If another method of embankment protection is used, prepare and submit a table with similar information.
5. Complete the information to summarize the analysis of the levee embankment and foundation. This analysis must evaluate both stability and seepage during the loading conditions associated with the base flood. The seepage analysis must demonstrate that seepage into or through the levee embankment and foundation will not result in seepage and piping that will jeopardize the embankment and foundation stability. The slope stability analysis must demonstrate that the levee cross section is stable under all loading and unloading conditions for the base flood. The analysis should include the river or channel slopes. Guidance on seepage and stability analyses is outlined in the U.S. Army Corps of Engineers (USACE) Engineer Manual (EM) 1110-2-1913, "Design and Construction of Levees." EM 1110-2-1913 may be downloaded from the USACE website at http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1913.pdf.

Engineering Technical Letters (ETLs), EMs, and other USACE documents may be viewed on, or downloaded from, the USACE website through the following link:

<http://www.publications.usace.army.mil/>. The factors that must be addressed in these analyses include depth of flooding, duration of flooding, foundation conditions at the site, embankment and cut slope geometry and length of seepage path at the critical locations, internal drainage in the levee, seepage and/or stability berms, and management of trees and vegetation. All backup material for these analyses should be submitted.

6. Complete the information to summarize the analysis of the floodwall and foundation. Factors to be addressed include methods used, stability analyses submitted, loading conditions, and results. In addition, waterstops and joint materials should be incorporated into the floodwall design as outlined in USACE Engineer Manual EM 1110-2-2102, "Waterstops and Other Prefabricated Joint Materials for Civil Works Structures," to prevent

passage of water through the wall. EM 1110-2-2102 may be downloaded from the USACE website at: http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-2102.pdf.

7. Complete the information to summarize the results from an analysis of potential settling of the levee. The settlement analysis must assess the potential and magnitude of future losses of freeboard and must demonstrate that the minimum freeboard requirements will be maintained. The analysis must address embankment loads, compressibility of embankment soils, compressibility of foundation soils, age of the levee system, and construction compaction methods. In addition, a detailed settlement analysis and determination of the appropriate amount of overbuild must be submitted, using procedures such as those described in USACE EM 1110-1-1904, "Settlement Analysis," and USACE EM 1110-2-1913, "Design and Construction of Levees," Chapter 6. Please submit all backup information used in the analysis.
8. Complete the information to summarize an analysis of potential flooding from interior drainage. In accordance with the NFIP regulations at 44 CFR §65.10(b)(6), the interior drainage analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities for evacuating interior floodwaters. The analysis must identify the extent of the flooded area and the water-surface elevation(s) of the 1-percent-annual-chance flood if the average depth is greater than 1 foot. This information is to be shown on a certified topographic work map. Please submit the calculation and backup information for the analysis of flooding potential from interior drainage. If a hydraulic model is used, it must be a FEMA-accepted model described on the FEMA website at: <https://www.fema.gov/hydraulic-numerical-models-meeting-minimum-requirement-national-flood-insurance-program>.
9. Complete the information and attach any supporting documentation regarding the other design criteria indicated. In locations where sediment transport will affect the design of the levee, the effects of sediment transport should be considered, and Section F of Form 3 should be submitted. Please provide justifications if sediment transport analysis is not considered for the levee design.
10. Complete the information to summarize the operational plan and criteria. For a levee system to be recognized by FEMA, the operational criteria must be as described in the NFIP regulations at 44 CFR §65.10(c).

As noted in the NFIP regulations at 44 CFR §65.10(c)(3), FEMA may require other operation plans and criteria. The current FEMA standards (referred to as Standard ID 444 at <https://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping>) require that the submittal for levee accreditation include a current emergency preparedness plan that must, at a minimum, be adopted by the community, include the area impacted by the levee system, and have procedures for emergency operations and public evacuation. Although this plan may be included in the official operation plan, it may also be submitted as a separate document. The size and detail for this plan should be scaled as appropriate for the levee system. Many communities may already be familiar with similar planning efforts and have the relevant information available in other forms. If the information is appropriate to meet these requirements, the document is not required to have the title "emergency preparedness plan." Please refer to the following documents for more information on preparing these plans and sample content and formats for the plans:

- “Emergency Preparedness Guidelines for Levees, A Guide for Owners and Operators,” dated July 2012. This FEMA document may be downloaded from <https://www.fema.gov/media-library/assets/documents/131081> or by calling the FEMA Map Information eXchange (FMIX), toll free, at 1-877-FEMA MAP (1-877-336-2627), and requesting a copy.
 - The Silver Jackets “Emergency Action Plan, Guidebook, Version 2.0,” dated August 2016. The Guidebook may be downloaded from the USACE website at: http://www.mvp.usace.army.mil/Portals/57/docs/Operations%20Center/EM/EAP%20Guidebook/EAP_Combined_Ver2.0_including_appendices_Aug16.pdf?ver=2016-09-16-120924-387.
 - USACE Engineer Circular (EC) 1110-2-6074, “Guidance for Emergency Action Plans, Incident Management and Reporting, and Inundation Maps for Dams and Levee Systems,” dated January 31, 2018. The circular may be downloaded from the USACE website at: https://www.publications.usace.army.mil/Portals/76/Publications/EngineerCirculars/EC_1110-2-6074.pdf?ver=2018-01-22-100438-250.
11. Indicate if the maintenance plan for the levee complies with the NFIP regulations at 44 CFR §65.10(d). This plan should address maintenance standards, intervals, and procedures. It should also include requirements for management of vegetation similar to those outlined in USACE EM 1110-2-583, “Landscape Planting and Vegetation Management for Floodwalls, Levees and Embankment Dams.” (EM 1110-2-583 can be obtained from the USACE website at https://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1110-2-583.pdf.) This plan should also include the design and construction requirements and inspection procedures for future utility crossings.
12. Submit a copy of the Operation and Maintenance (O&M) Plan with the revision request. A draft version of the O&M Plan should be submitted when requesting a Conditional Letter of Map Revision for a proposed levee. However, a final copy will be required after the levee is constructed and a revision to the FIRM is requested. In addition, the final copy of the O&M Plan must be formally adopted by the community or agency responsible for carrying out the specified activities. The O&M Plan must also record the person in charge of the maintenance activities.

Non-Accredited Levee Systems – FEMA has developed an updated process to analyze and map areas on the landward side of non-accredited levee systems that are shown on NFIP maps. Information on this updated process is provided in two FEMA publications available on the FEMA website: “Analysis and Mapping Procedures for Non-Accredited Levee Systems, New Approach”, dated July 2013 (accessible at <https://www.fema.gov/media-library/assets/documents/33587>); and Guidance for Flood Risk Analysis and Mapping: Levees dated February 2018 (available at <https://www.fema.gov/media-library/assets/documents/34953>). Data requirements for this updated process in many cases will require certified data and analyses of the levees and/or floodwalls as part of the non-accredited levee system. As such, the same information described above for accredited levee systems may be required. These forms and requirements above should be used, as appropriate, for non-accredited levee system submittals.

SECTION F: SEDIMENT TRANSPORT

Complete the information to summarize an analysis of sediment transport (including scour and deposition) if there is any indication from historical records that sediment transport can affect the BFE, or if based on the stream morphology, vegetative cover, development of the watershed, and

bank conditions, there is a potential for debris and sediment transport to affect the BFE or a structure. If sediment transport will not affect the BFE or a structure, please indicate that this section is not applicable and explain why a sediment analysis was not performed. Bulk flows are used to evaluate the performance of a structure during the 1-percent-annual-chance flood; however, FEMA does not map BFEs based on bulk flows.

INSTRUCTIONS FOR COMPLETING THE COASTAL ANALYSIS FORM (FORM 4)

The information requested on this form is intended to document the steps taken by the requester in the process of preparing the revised models or analyses and the resulting revised Flood Insurance Study (FIS) information. For the wave height analyses and mapping procedures used by the Federal Emergency Management Agency (FEMA) for coastal areas, please refer to the [Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update](#), dated February 2007; [Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States](#), dated January 2005; and any relevant issue-specific guidance documents that can be downloaded from the “Guidance” page on the FEMA website at <https://www.fema.gov/media-library/assets/documents/34953>.

Wave height, wave runup, and storm-induced erosion may be analyzed using the Coastal Hazard Analysis Modeling Program (CHAMP) 2.0 computer program, which was developed for FEMA. CHAMP 2.0 may be downloaded from the FEMA website at <https://www.fema.gov/coastal-hazard-analysis-modeling-program-version-20>. A list of accepted FEMA coastal models can be found on the FEMA website at <https://www.fema.gov/coastal-numerical-models-meeting-minimum-requirement-national-flood-insurance-program>. The guidelines below should be followed when completing this form.

SECTION A: COASTLINE TO BE REVISED

Describe the limits of the restudied area. Road names and/or landmarks near the restudied area or transects used in the effective FIS may be used as reference points.

SECTION B: EFFECTIVE FIS

Provide the type of analyses (approximate or detailed wave parameter computations) used for the effective FIS for the community being restudied. This information is available in the hydrologic and hydraulic sections of the FIS report.

SECTION C: REVISED ANALYSIS

All changes to effective models must be supported by certified topographic information, structure plans, survey notes, storm surge data, meteorological data, etc. All equations or models used must be referenced. Please attach descriptions and/or sketches of transect profiles for revised erosion, wave height, wave runup, wave setup, and wave overtopping analyses. Wave runup and wave overtopping should be considered when the wave heights approach the crest of the shore protection structure or natural land forms. Special care should be taken when addressing wave setup, as newer model configurations may implicitly consider setup in the reported stillwater elevations. (Please refer to the relevant effective FIS report for this information.) If FEMA procedures are not used in the revised analyses, please provide an explanation.

SECTION D: RESULTS

Information must be provided to determine the impact of the analysis on the mapping of the coastal high hazard areas (VE zones), including the location of the coastal high hazard area boundaries, maximum wave height elevation, Limit of Moderate Wave Action placement (where applicable), and maximum wave runup elevation. Mapping resulting from the restudy must tie in with the mapping of areas that were not restudied. The mapped inland limit of the coastal high

hazard areas from the restudy must comply with National Flood Insurance Program regulations at 44 CFR §65.11 in areas where primary frontal dunes are present.

SECTION E: MAPPING REQUIREMENTS

With the revision request, please submit a certified topographic map showing the information indicated in the Mapping Requirements Section of the Coastal Analysis Form. Please also submit a copy of the current Flood Insurance Rate Map annotated to show the revised 1-percent-annual-chance floodplain boundaries that tie into the effective 1-percent-annual-chance floodplain boundaries.

INSTRUCTIONS FOR COMPLETING THE COASTAL STRUCTURES FORM (FORM 5)

This form is to be completed when a revision to coastal flood hazard elevations and/or areas is requested based on coastal structures being credited as providing flood hazard reduction from the base (1-percent-annual-chance) flood. The purpose of this form is to ensure that the structure is designed and constructed to reduce the flood hazards from the base flood without failing or causing increased flood hazards in adjacent areas. Please refer to [Guidance for Flood Risk Analysis and Mapping: Coastal Structures](#), which can be downloaded from the “Guidance” page on the Federal Emergency Management Agency (FEMA) website at <https://www.fema.gov/media-library/assets/documents/34953>, for the criteria for evaluating structures that reduce flood hazards.

If the coastal structure is a levee/floodwall, complete the Levee/Floodwall System section of the Riverine Structure Form (Form 3), in addition to this form. When this form is submitted, the Coastal Analysis Form (Form 4) should also be submitted.

SECTION A: BACKGROUND

Information about the type of structure, the location, the material being used, and the age of the structure must be provided. Certified “as built” plans must also be provided. If these plans are not available, an explanation must be given with sketches of the general structure dimensions as described. If the structure design has been certified by a federal agency to provide flood protection and withstand forces from the 1-percent-annual-chance (base) flood, the dates of the project completion and certification of the structure should be provided, and the remainder of the form does not need to be completed.

SECTION B: DESIGN CRITERIA

Documentation must be provided that ensures a coastal structure is designed and constructed to withstand the wind and wave forces associated with the base flood. The minimum freeboard of the structure must comply with the National Flood Insurance Program (NFIP) regulations at 44 CFR §65.10. Additional concerns include the impact on areas directly landward of the structure that may be subjected to overtopping and erosion, along with possible failure of the structure due to undermining from the backside and the possible increase in erosion to unprotected properties at the ends of the structure. The evaluation of protection provided by sand dunes must follow the criteria outlined in the NFIP regulations at 44 CFR §65.11. Guidance listed in Appendix B should be referenced as appropriate for each specific structure.

SECTION C: ADVERSE IMPACT EVALUATION

If the structure is new, proposed, or modified, and will impact flooding and erosion for the areas adjacent to the structure, attach an explanation and documentation to support these conclusions.

SECTION D: COMMUNITY AND/OR STATE REVIEW

Provide documentation of the agencies that have reviewed and approved the revision.

SECTION E: CERTIFICATION

The registered Professional Engineer (P.E.) and/or licensed land surveyor should have a current license in the State where the affected communities are located. While the individual signing

this form is not required to have obtained the supporting data or performed the analyses, he or she must have supervised and reviewed the work.

If the requester is a federal agency that is responsible for the design and construction of flood-control facilities, a letter stating that “the analyses submitted have been performed correctly and in accordance with sound engineering practices” may be submitted in lieu of certification by a registered P.E. Regarding the certification of completion of flood-control facilities, a letter from the federal agency certifying the project’s completion and the flood frequency event to which the project protects may be submitted in lieu of this form.

INSTRUCTIONS FOR COMPLETING THE ALLUVIAL FAN FLOODING FORM (FORM 6)

This form should be used for revision requests involving alluvial fans. The purpose of this form is to ensure that a structural flood control measure in areas subject to alluvial fan flooding is designed and/or constructed to provide 1-percent-annual-chance or greater flood hazard reduction, in compliance with the National Flood Insurance Program (NFIP) regulations at 44 CFR §65.13, before the Federal Emergency Management Agency (FEMA) will recognize it on an NFIP map. Elevating a parcel of land or a structure by fill or other means will not serve as a basis for removing areas subject to alluvial fan flooding from an area of special flood hazards. Complete engineering analyses must be submitted in support of each section of this form. In addition, it may be necessary to complete other forms relating to specific flood control measures, such as levees/floodwalls, channelization, or dams.

SECTION A: THREE-STAGE ANALYSIS

The three-stage analysis of alluvial fans is described in the November 2016 version of Guidance for Flood Risk Analysis and Mapping: Alluvial Fans, which can be downloaded from the “Guidance” page on the FEMA website at <https://www.fema.gov/media-library/assets/documents/34953>.

1. Complete the information regarding the characterization of the alluvial fan landform. This should include the material of which the landform is generally composed. Sources of data should also be submitted. To help the reviewer analyze the landform, the submittal should include, but not be limited to, soil surveys, geologic mapping, and historic aerial photography.
2. Complete the information regarding the definition of active and inactive areas. This section should be filled out to help correctly determine the age of the alluvial fan, whether the fan is active and inactive, the types of flooding, and the methods used to support this analysis.
3. Complete the information regarding the determination of the 1-percent-annual-chance floodplain boundaries. This section should identify the method or modeling that was used to delineate these floodplain boundaries. To help select the correct method for calculating the 1-percent-annual-chance floodplain boundary, the active alluvial fan characteristics should be checked. In addition, the flooding source(s) should be evaluated so that additional flooding above or below the hydrological apex is not ignored.

SECTION B: STRUCTURAL FLOOD CONTROL MEASURES

Complete the information regarding any structural flood control measures. Please submit Form 3, Riverine Structure Form, and an Operation and Maintenance Plan with the revision request. The Operation and Maintenance Plan may be submitted when requesting a Conditional Letter of Map Revision, but it is not required. However, it will be required after construction is complete and a revision to the Flood Insurance Rate Map (FIRM) is requested.

SECTION C: MAPPING REQUIREMENTS

Submit a certified topographic map showing the information indicated in the Mapping Requirements section of the form, including the boundaries of the alluvial fan landform, a delineation of the active and inactive portions of the alluvial fan landform, the revised 1-percent-annual-chance floodplain boundaries, and the correct alignment of all structural features. Please

also submit a copy of the effective FIRM, annotated to show the revised 1-percent-annual-chance floodplain boundaries.

INSTRUCTIONS FOR COMPLETING THE PAYMENT INFORMATION FORM

The Payment Information Form must be completed for all requests requiring a review and processing fee. The current fee schedule for reviewing and processing Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) requests may be obtained from the Federal Emergency Management Agency (FEMA) website at <https://www.fema.gov/flood-map-related-fees>. The fee schedule may also be obtained by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Indicate the name of the community and a project identifier (e.g., Floodville Estates Subdivision, Small Creek Channel Improvements). It is important to have the name of the community and a project identifier on the fee form, so that fees can be matched to the revision request.

Indicate whether the fee is being submitted for an MT-1 application, an MT-2 application, or an External Data Request. This form is used for several types of requests. The type of request should be indicated so that the fees can be matched to the requests.

Indicate the request or case number if it is known. Generally, this number is not known when a revision is initially requested. However, the case number should be indicated in any subsequent correspondence with FEMA.

Indicate the fee amount and type, and the method being used to pay the fee.

Provide the credit card information requested, including signature, if the fee is paid by credit card.

INSTRUCTIONS FOR COMPLETING ESA COMPLIANCE DOCUMENTATION

For Conditional Letter of Map Revision (CLOMR) Requests

CLOMR applicants are responsible for documenting to the Federal Emergency Management Agency (FEMA) that the project has complied with the Endangered Species Act of 1973 (ESA) before FEMA reviews the CLOMR application.

While FEMA does not play a role in ESA compliance for proposed private development, these projects are required to comply with the ESA independently of FEMA's CLOMR process. For non-federal projects, the requester must document that:

1. No potential for “Take” exists (meaning that the project has no potential to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) to threatened and endangered species. The requester will be responsible for the potential for take determination and the determination is not required to come from, or be concurred by, the Services.
2. If the requester determines a “Take” will or has a potential to occur, they can consider contacting the Services to discuss potential project revisions to eliminate the “Take.”
3. If neither 1 or 2 are possible and the project has the potential to “Take” listed species, an Incidental Take Permit may be submitted showing that the project is the subject, or is covered by the subject, of the permit.

If federal construction, funding or permitting is involved in a project for which a CLOMR or CLOMR-F has been requested, then the applicant may use that agency’s Section 7 consultation to document to FEMA that ESA compliance has been achieved.

The ESA documentation may be:

1. A “No Effect” determination made by, or concurred by, the federal agency;
2. A “Not Likely to Adversely Affect” determination with concurrence from the Services;
3. A biological opinion with a “no jeopardy” determination or with accepted reasonable and prudent alternatives; or
4. A copy of a federally issued permit with justification that the proposed development for which a CLOMR or CLOMR-F is sought is covered by the permit.

For Letter of Map Revision (LOMR) Requests

For LOMR requests involving floodplain activities that have occurred already, private individuals and local and State jurisdictions are required to comply with the ESA independently of FEMA’s process. The community needs to ensure that permits are obtained per the National Flood Insurance Program regulations at 44 CFR §60.3(a)(2).

Additional Information about ESA Requirements

Additional information about the ESA and these requirements is available from the May 2016 version of Guidance for Flood Risk Analysis and Mapping: Documentation of Endangered Species Act Compliance for Conditional Letters of Map Change, which can be downloaded from

the “Guidance” page on the FEMA website at <https://www.fema.gov/media-library/assets/documents/34953>. A copy may also be requested from the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627).

APPENDIX A - COMMONLY USED ACRONYMS

BEF	Base (1-percent-annual-chance) Flood Elevation. The height of the base flood, usually in feet in relation to the datum used, or the depth of the base flood, usually in feet above the ground surface. The base flood is the flood that has a 1-percent probability of being equaled or exceeded in any given year (also referred to as the 100-year flood or the 1-percent-annual-chance flood).
CFR	Code of Federal Regulations
CHHA	Coastal High Hazard Area. An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast, and any other area subject to high-velocity wave action from storms or seismic sources. CHHAs are indicated as Zone V or VE on Flood Insurance Rate Maps.
CLOMR	Conditional Letter of Map Revision. A letter from FEMA commenting on whether a proposed project, if built as proposed, would meet the minimum standards of the National Flood Insurance Program.
ETL	Engineering Technical Letter
EM	Engineer Manual (U.S. Army Corps of Engineers).
ESA	Endangered Species Act of 1973
FBFM	Flood Boundary and Floodway Map. The floodplain management map issued by FEMA that depicts, on the basis of detailed analyses, the boundaries of the 1-percent-annual-chance and 0.2-percent-annual-chance floodplains and the regulatory floodway.
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map. The initial flood insurance map issued by FEMA that identified, on the basis of approximate analyses, the areas of 1-percent-annual-chance flood hazard in a community.
FIRM	Flood Insurance Rate Map. An official map of a community, on which FEMA has delineated the special hazard areas and flood insurance rate zones applicable to those communities.
FIS	Flood Insurance Study. An engineering study performed to identify floodprone areas and to determine BEFs, flood insurance rate zones, and other flood risk data for a community.
LOMR	Letter of Map Revision. A letter from FEMA officially revising the effective National Flood Insurance Program map to show changes to floodplains, regulatory floodways, or flood elevations.
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service

PMR	Physical Map Revision. A reprinted NFIP map incorporating changes to floodplains, regulatory floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects large-scope changes.
SFHA	Special Flood Hazard Area. An area subject to inundation by a flood having a 1% probability of being equaled or exceeded in any given year (also referred to as the base, or 100-year, flood).
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WSEL	Water-Surface Elevation

APPENDIX B - USEFUL INTERNET SITES

RESOURCES:

<https://www.fema.gov/> - FEMA website

<https://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping> - FEMA flood hazard mapping information

<https://www.fema.gov/floodplain-management> - FEMA floodplain management information

<https://www.fema.gov/engineers-surveyors-and-architects-frequently-asked-questions> - FEMA information for engineers, surveyors, and architects

<https://www.fema.gov/online-tutorials> - FEMA online tutorials

<https://www.fema.gov/national-flood-insurance-program-community-status-book> - FEMA's National Flood Insurance Program Community Status Book

<https://msc.fema.gov/portal/> - Flood Map Service Center for ordering NFIP maps

<https://www.gpo.gov/fdsys/pkg/CFR-2016-title44-vol1/pdf/CFR-2016-title44-vol1-chapI.pdf> – U.S. Government Printing Office site for 2016 version of NFIP regulations

MAP AMENDMENT/REVISION FORMS AND INFORMATION:

<https://www.fema.gov/mt-ez-form-instructions> - MT-EZ form package, *Amendments to National Flood Insurance Program Maps, Application Form for Single Residential Lot or Structure*

<https://www.fema.gov/mt-1-application-forms-instructions> - MT-1 forms package, *Revisions to National Flood Insurance Program Maps, Application Forms for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill*

<https://www.fema.gov/mt-2-application-forms-and-instructions> - MT-2 forms package, *Revisions to National Flood Insurance Program Maps, Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision*

<https://www.fema.gov/flood-map-related-fees> - FEMA fee schedule for reviewing and processing of CLOMR and LOMR requests

<https://www.fema.gov/how-order-technical-administrative-support-data> - to order backup information and data for FEMA-contracted Flood Insurance Studies, community-initiated Physical Map Revisions, and Letters of Map Change

<https://www.fema.gov/flood-map-revision-processes> - Flood Map Revision process information

GUIDANCE DOCUMENTS, MANUALS, AND KEY PUBLICATIONS:

<https://acwi.gov/hydrology/Frequency/b17c/> - Subcommittee on Hydrology of the Advisory Committee on Water Information download website for Bulletin 17C, “Guidelines for Determining Flood Flow Frequency”

<https://www.fema.gov/media-library/assets/documents/34953> - current guidance (updated as new, revised, or updated guidance documents become available) for riverine and coastal flood risk projects (all geographies)

<https://www.fema.gov/media-library/assets/documents/3522> - Technical Bulletin 10-01, “Ensuring That Structures Built on Fill in or Near Special Flood Hazard Areas Are Reasonably Safe from Flooding”

<https://www.fema.gov/zone-manual-managing-floodplain-development-approximate-zone-areas> - FEMA 265, “Managing Floodplain Development in Approximate Zone A Areas, A Guide for obtaining and developing Base (100-year) Flood Elevations”

[https://www.fema.gov/media-library-data/1388780453134-c5e577ea3d1da878b40e20b776804736/Atlantic+Ocean+and+Gulf+of+Mexico+Coastal+Guidelines+Update+\(Feb+2007\).pdf](https://www.fema.gov/media-library-data/1388780453134-c5e577ea3d1da878b40e20b776804736/Atlantic+Ocean+and+Gulf+of+Mexico+Coastal+Guidelines+Update+(Feb+2007).pdf) - Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update

[https://www.fema.gov/media-library-data/1389126436477-5bd6d5959718cf3f5a4b6e919f0c3b42/Guidelines_for_Coastal_Flood_Hazard_Analysis_and_Mapping_for_the_Pacific_Coast_of_the_United_States_\(Jan_2005\).pdf](https://www.fema.gov/media-library-data/1389126436477-5bd6d5959718cf3f5a4b6e919f0c3b42/Guidelines_for_Coastal_Flood_Hazard_Analysis_and_Mapping_for_the_Pacific_Coast_of_the_United_States_(Jan_2005).pdf) - Guidelines for Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States

https://www.fema.gov/media-library-data/1484862928640-86ccb3511877121f6aa69bbc81deaa67/Alluvial_Fans_Guidance_Nov_2016.pdf - Guidance for Flood Risk Analysis and Mapping: Alluvial Fans

https://www.fema.gov/media-library-data/1520964037790-7c49e1753d0b2634e0c5fb4999459374/Coastal_Floodplain_Mapping_Guidance_Feb_2018.pdf - Guidance for Flood Risk Analysis and Mapping: Coastal Floodplain Mapping

https://www.fema.gov/media-library-data/1450469577871-7157f87107be5ce99eb71689c7a64c99/Coastal_Structures_Guidance_Nov_2015.pdf - Guidance for Flood Risk Analysis and Mapping: Coastal Structures

https://www.fema.gov/media-library-data/1469794774232-705f8b159be8be8752d7db3123afdae1/ESA_Guidance_May_2016.pdf - Guidance for Flood Risk Analysis and Mapping: Documentation of Endangered Species Act Compliance for Conditional Letters of Map Change

https://www.fema.gov/media-library-data/1524085432002-e9d771ca450758832f64f8e4f1ff2779/Levee_Guidance_Feb_2018.pdf - Guidance for Flood Risk Analysis and Mapping: Levees

https://www.fema.gov/media-library-data/1484864685333-42d21ccf2d87c2aac95ea1d7ab6798eb/General_Hydraulics_Guidance_Nov_2016.pdf - Guidance for Flood Risk Analysis and Mapping: General Hydraulics Considerations

https://www.fema.gov/media-library-data/1525201756728-390e667d3d0958347b8374f6321bd488/General_Hydrologic_Guidance_Feb_2018.pdf - Guidance for Flood Risk Analysis and Mapping: General Hydrologic Considerations

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerCirculars/EC_1110-2-6074.pdf?ver=2018-01-22-100438-250 - USACE Engineer Circular 1110-2-6074, “Guidance for Emergency Action Plans, Incident Management and Reporting, and Inundation Maps for Dams and Levee Systems”

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-1-1904.pdf?ver=2013-09-04-070854-997 - USACE Engineer Manual EM 1110-1-1904, “Settlement Analysis”

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1110-2-583.pdf - USACE Engineer Manual EM 1110-2-583, “Landscape Planting and Vegetation Management for Floodwalls, Levees and Embankment Dams”

<https://www.publications.usace.army.mil/USACE-Publications/Engineer-Manuals/u43544q/636F617374616C20656E67696E656572696E67206D616E75616C/> - USACE Engineer Manual EM 1110-2-1100, “Coastal Engineering Manual” (in six volumes)

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1906.pdf?ver=2013-09-04-161123-567 - USACE Engineer Manual EM 1110-2-1906, “Laboratory Soils Testing”

http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1913.pdf - USACE Engineer Manual EM 1110-2-1913, “Design and Construction of Levees”

http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-2102.pdf - USACE Engineer Manual EM 1110-2-2102, “Waterstops and Other Prefomed Joint Materials for Civil Works Structures”

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-2502.pdf?ver=2013-09-04-072933-120 - USACE Engineer Manual EM 1110-2-2502, “Retaining and Flood Walls”

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-3102.pdf?ver=2013-09-04-070829-123 - USACE Engineer Manual EM 1110-2-3102, “General Principles of Pumping Station Design and Layout”

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-3104.pdf?ver=2013-09-04-070829-700 - USACE Engineer Manual EM 1110-2-3104, “Structural and Architectural Design of Pumping Stations”

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-3105.pdf?ver=2013-09-04-070830-590 - USACE Engineer Manual EM 1110-2-3105, “Mechanical and Electrical Design of Pumping Stations, Changes 1 and 2”

https://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1110-2-583.pdf - USACE Engineer Technical Letter ETL 1110-2-583, “Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures”

<https://usace.contentdm.oclc.org/digital/collection/p16021coll11/id/1932> - USACE “Shore Protection Manual,” Volumes 1-2

SOFTWARE/WEB APPLICATIONS:

<https://www.fema.gov/numerical-models-meeting-minimum-requirements-national-flood-insurance-program> - list of numerical models accepted by FEMA for NFIP use

<https://www.fema.gov/coastal-hazard-analysis-modeling-program-version-20> - Coastal Hazard Analysis Modeling Program (CHAMP), Version 2.0

<https://www.fema.gov/change-flood-zone-designation-online-letter-map-change> - Online Letter of Map Change Tool

<https://www.fema.gov/software> - Engineering software developed by FEMA, tutorials, user manuals, and guidance documentation for certain programs

FEDERAL AGENCIES:

<http://www.epa.gov/> - U.S. Environmental Protection Agency

<http://www.nasa.gov/> - National Aeronautics and Space Administration (NASA)

<http://www.noaa.gov/> - National Oceanic and Atmospheric Administration (NOAA)

<http://www.nws.noaa.gov/> - National Weather Service (NWS)

<http://www.nrcs.usda.gov/> - Natural Resources Conservation Service (NRCS)

<http://www.usace.army.mil/> - U.S. Army Corps of Engineers (USACE)

<http://www.hec.usace.army.mil/> - USACE Hydrologic Engineering Center (HEC)

<http://www.usda.gov/> - U.S. Department of Agriculture (USDA)

<http://www.fws.gov/index.html> - U.S. Fish & Wildlife Service (USFWS)

<http://www.nmfs.noaa.gov/> - National Marine Fisheries Service (NMFS)

APPENDIX C - FEMA OFFICES

REGION I

(Connecticut, Maine, Massachusetts,
New Hampshire, Rhode Island, Vermont)

FEMA, Federal Insurance and Mitigation
Division
99 High Street, Sixth Floor
Boston, MA 02110
(617) 832-4761

REGION II

(New York, Puerto Rico, New Jersey)

FEMA, Federal Insurance and Mitigation
Division
26 Federal Plaza, Room 1337
New York, New York 10278-0001
(212) 680-3620

REGION III

(Delaware, D.C., Maryland,
Pennsylvania, Virginia, West Virginia)

FEMA, Federal Insurance and Mitigation
Division
One Independence Mall, Sixth Floor
615 Chestnut Street
Philadelphia, Pennsylvania 19106-4404
(215) 931-5508

REGION IV

(Alabama, Florida, Georgia, Kentucky,
Mississippi, N. Carolina, S. Carolina,
Tenn.)

FEMA, Federal Insurance and Mitigation
Division
Koger Center - Rutgers Building
3003 Chamblee Tucker Road
Atlanta, Georgia 30341-4112
(770) 220-5400

REGION V

(Illinois, Indiana, Michigan
Minnesota, Ohio, Wisconsin)

FEMA, Federal Insurance and Mitigation
Division
536 South Clark Street, Sixth Floor
Chicago, Illinois 60605-1509
(312) 408-5500

REGION VI

(Arkansas, Louisiana, New Mexico,
Oklahoma, Texas)

FEMA, Federal Insurance and Mitigation
Division
Federal Regional Center
800 North Loop 288
Denton, Texas 76209-3698
(940) 898-5399

REGION VII

(Iowa, Kansas, Missouri, Nebraska)

FEMA, Federal Insurance and Mitigation
Division
9221 Ward Parkway, Suite 300
Kansas City, MO 64114-3372
(816) 283-7002

REGION VIII

(Colorado, Montana, N. Dakota, S. Dakota,
Utah,
Wyoming)

FEMA, Federal Insurance and Mitigation
Division
Denver Federal Center
Building 710, Box 25267
Denver, Colorado 80225-0267
(303) 235-4800

REGION IX

(Arizona, California, Hawaii, Nevada)

FEMA, Federal Insurance and Mitigation
Division
1111 Broadway, Suite 1200
Oakland, California 94607-4052
(510) 627-7100

HEADQUARTERS

U.S. Department of Homeland Security
Federal Emergency Management Agency
Risk Management Directorate
400 C Street, SW
Washington, DC 20472
1-877-FEMA MAP (1-877-336-2627)

REGION X

(Alaska, Idaho, Oregon, Washington)

FEMA, Federal Insurance and Mitigation
Division
Federal Regional Center
130 228th Street, S.W.
Bothell, Washington, 98021-8627
(206) 487-4600

FEDERAL EMERGENCY MANAGEMENT AGENCY
PAYMENT INFORMATION FORM

Community Name: _____

Project Identifier: _____

THIS FORM MUST BE MAILED, ALONG WITH THE APPROPRIATE FEE, TO THE ADDRESS BELOW OR E-MAILED TO THE E-MAIL ADDRESS BELOW.

Please make check or money order payable to the National Flood Insurance Program.

Type of Request:

- MT-1 application }
 MT-2 application }

LOMC Clearinghouse

3601 Eisenhower Ave. Suite 500 Alexandria, VA

22304-6426

Attn.: LOMC Manager

- EDR application }

FEMA Project Library

3601 Eisenhower Ave. Suite 500 Alexandria, VA

22304-6426

E-mail: FEMA-EngineeringLibrary@fema.dhs.gov

Request No. (if known): _____ Check No.: _____ Amount: _____

INITIAL FEE* FINAL FEE FEE BALANCE** MASTER CARD VISA CHECK MONEY ORDER

*Note: Check only for EDR and/or Alluvial Fan requests (as appropriate).

**Note: Check only if submitting a corrected fee for an ongoing request.

COMPLETE THIS SECTION ONLY IF PAYING BY CREDIT CARD

CARD NUMBER

EXP. DATE

1	2	3	4	—	5	6	7	8	—	9	10	11	12	—	13	14	15	16
---	---	---	---	---	---	---	---	---	---	---	----	----	----	---	----	----	----	----

Month	—	Year
-------	---	------

_____ Date

_____ Signature

NAME (AS IT APPEARS ON CARD): _____
(please print or type)

ADDRESS: _____
(for your credit card receipt—please print or type)

DAYTIME PHONE: _____

DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
OVERVIEW & CONCURRENCE FORM

OMB Control Number: 1660-0016
Expiration: 1/31/2024

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours 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 it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472 , Paperwork Reduction Project (1660-0016). 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.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72). All CLOMRs require documentation of compliance with the Endangered Species Act. Refer to the Instructions for details.

LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72).

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301; 480287	City of Katy; Harris County	TX; TX	48473C; 48201C	0005D; 0220G	02/08/83; 09/28/90

2. a. Flooding Source:

b. Types of Flooding: Riverine Coastal Shallow Flooding (e.g., Zones AO and AH)
 Alluvial Fan Lakes Other (Attach Description)

3. Project Name/Identifier:

4. FEMA zone designations (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

a. Effective:

b. Revised:

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

- | | | | |
|---|---|---|---|
| <input type="checkbox"/> Physical Change | <input type="checkbox"/> Improved Methodology/Data | <input type="checkbox"/> Regulatory Floodway Revision | <input type="checkbox"/> Base Map Changes |
| <input type="checkbox"/> Coastal Analysis | <input type="checkbox"/> Hydraulic Analysis | <input type="checkbox"/> Hydrologic Analysis | <input type="checkbox"/> Corrections |
| <input type="checkbox"/> Weir-Dam Changes | <input type="checkbox"/> Levee Certification | <input type="checkbox"/> Alluvial Fan Analysis | <input type="checkbox"/> Natural Changes |
| <input type="checkbox"/> New Topographic Data | <input type="checkbox"/> Other (Attach Description) | | |

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

- Structures:
- | | | |
|---|--|---|
| <input type="checkbox"/> Channelization | <input type="checkbox"/> Levee/Floodwall | <input type="checkbox"/> Bridge/Culvert |
| <input type="checkbox"/> Dam | <input type="checkbox"/> Fill | <input type="checkbox"/> Other (Attach Description) |

6. Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

C. REVIEW FEE

Has the review fee for the appropriate request category been included? Yes Fee amount: \$ _____
 No, Attach Explanation

- Please see the DHS-FEMA Web site at <http://www.fema.gov/forms-documents-and-software/flood-map-related-fees> for Fee Amounts and Exemptions.

D. SIGNATURES

1. REQUESTOR'S SIGNATURE

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.

Name:	Company:	
Mailing Address:	Daytime Telephone:	Fax No.:
	E-mail Address:	
	Date:	

Signature of Requestor (required):

2. COMMUNITY CONCURRENCE

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title:		
Mailing Address:	Community Name:	
	Daytime Telephone:	Fax No.:
	E-mail Address:	
Community Official's Signature (required):		Date:

3. CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. 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.

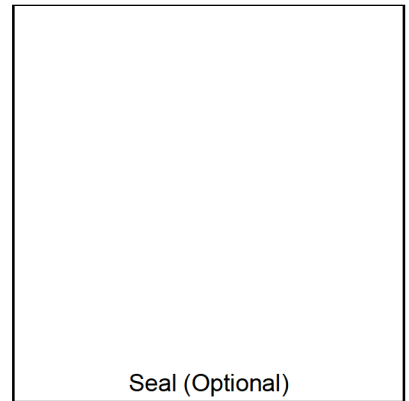
Certifier's Name:		License No.:	Expiration Date:
Company Name:		Mailing Address:	
Telephone No.:	Fax No.:		
E-mail Address:			
Signature:			Date:

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)

Required if ...

- Riverine Hydrology and Hydraulics Form (Form 2) New or revised discharges or water-surface elevations
- Riverine Structures Form (Form 3) Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
- Coastal Analysis Form (Form 4) New or revised coastal elevations
- Coastal Structures Form (Form 5) Addition/revision of coastal structure
- Alluvial Fan Flooding Form (Form 6) Flood control measures on alluvial fans



DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
RIVERINE HYDROLOGY & HYDRAULICS FORM (FORM 2)

OMB Control Number: 1660-0016
Expiration: 1/31/2024

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 hours 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 it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660-0016). 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.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: _____

Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply):

- Not revised (skip to section B)
 No existing analysis
 Improved data
 Alternative methodology
 Proposed Conditions (CLOMR)
 Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)
----------	-------------------------	---------------------	---------------

3. Methodology for New Hydrologic Analysis (check all that apply)

- Precipitation/Runoff Model → Specify Model: _____ Duration: _____ Rainfall Amount: _____
 Statistical Analysis of Gage Records
 Regional Regression Equations
 Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review. 4. HEC-RAS File Description**:

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport? Yes No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation.

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevation (ft.)	
			Effective	Proposed/Revised
Downstream Limit*				
Upstream Limit*				

*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

2. Hydraulic Method/Model Used: _____

- Steady State
 Unsteady State
 One-Dimensional
 Two-Dimensional

3. Pre-Submittal Review of Hydraulic Models*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

4. HEC-RAS File Description**:

Models Submitted	Natural Run		Floodway Run		Datum
Duplicate Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Corrected Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Existing or Pre-Project Conditions Model	File Name:	Plan Name:	File Name:	Plan Name:	
Revised or Post-Project Conditions Model	File Name:	Plan Name:	File Name:	Plan Name:	
Other - (attach description)	File Name:	Plan Name:	File Name:	Plan Name:	

* For details, refer to the corresponding section of the instructions.

**See instructions for information about modeling other than HEC-RAS. Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A **certified topographic work map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

Topographic Information:

Digital Mapping (GIS/CADD) Data Submitted (preferred)

Source:

Date:

Vertical Datum:

Spatial Projection:

Accuracy:

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach a **copy of the effective FIRM and/or FBFM**, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) or Special Flood Hazard Areas (SFHAs) increase compared to the effective BFEs? Yes No
- If Yes, please attach **proof of property owner notification**. Examples of property owner notifications can be found in the MT-2 Form 2 Instructions.
2. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:
- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
 - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.
3. Does the request involve the placement or proposed placement of fill? Yes No
- If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.
4. Does the request involve the placement or proposed placement of fill? Yes No
- If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.
5. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA). For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
RIVERINE STRUCTURES FORM (FORM 3)

OMB Control Number: 1660-0016
Expiration: 1/31/2024

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 hours 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 it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660-0016). 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.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: _____

Note: Fill out one form for each flooding source studied

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

Channelization: complete Section B
Bridge/Culvert: complete Section C
Dam: complete Section D
Levee/Floodwall: complete Section E
Sediment Transport: complete Section F (if required)

Description Of Modeled Structure

1. Name of Structure: _____

Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: _____

Downstream Limit/Cross Section: _____

Upstream Limit/Cross Section: _____

2. Name of Structure: _____

Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: _____

Downstream Limit/Cross Section: _____

Upstream Limit/Cross Section: _____

3. Name of Structure: _____

Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam

Location of Structure: _____

Downstream Limit/Cross Section: _____

Upstream Limit/Cross Section: _____

NOTE: FOR MORE STRUCTURES, ATTACH ADDITIONAL PAGES AS NEEDED.

B. CHANNELIZATION

Flooding Source: _____

Name of Structure: _____

1. Hydraulic Considerations

The channel was designated to carry _____ (cfs) and/or the _____ - year flood

The design elevation in the channel is based on (check one):

- Subcritical flow Critical flow Supercritical flow Energy grade line

If there is the potential for a hydraulic jump at the following locations, check all that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.

- Inlet to channel Outlet to channel At Drop Structures At Transitions

Other locations (specify): _____

2. Channel Design Plans

Attach the plans of the channelization certified by a registered professional engineer, as described in the instructions.

3. Accessory Structures

The channelization includes (check one):

- Levees [Attach Section E (Levee/Floodwall)] Drop structures Superelevated sections Energy dissipater
 Transitions in cross sectional geometry Debris basin/detention basin [Attach Section D (Dam/Basin)] Weir
 Other (Describe): _____

4. Sediment Transport Considerations

Are the hydraulics of the channel affected by sediment transport? Yes No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

C. BRIDGE/CULVERT

Flooding Source: _____

Name of Structure: _____

1. This revision reflects (check one):

- Bridge/Culvert not modeled in the FIS
 Modified Bridge/Culvert previously modeled in the FIS
 Revised analysis of Bridge/Culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, WSPRO, HY8): _____

If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structures. Attach justification.

3. Attach plans of the structures certified by a registered professional engineer. The plan detail and information should include the following (check the information that has been provided):

- | | |
|---|--|
| <input type="checkbox"/> Dimensions (height, width, span, radius, length) | <input type="checkbox"/> Distance between Cross Sections |
| <input type="checkbox"/> Shape (culverts only) | <input type="checkbox"/> Erosion Protection |
| <input type="checkbox"/> Material | <input type="checkbox"/> Low Chord Elevations - Upstream and Downstream |
| <input type="checkbox"/> Beveling and Rounding | <input type="checkbox"/> Top of Road Elevations - Upstream and Downstream |
| <input type="checkbox"/> Wink Wall Angle | <input type="checkbox"/> Structure Invert Elevations - Upstream and Downstream |
| <input type="checkbox"/> Skew Angle | <input type="checkbox"/> Stream Invert Elevations - Upstream and Downstream |
| | <input type="checkbox"/> Cross-Section Locations |

4. Sediment Transport Considerations

Are the hydraulics of the channel affected by sediment transport? Yes No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

D. DAM/BASIN

Flooding Source: _____

Name of Structure: _____

1. This request is for (check one): Existing Dam/Basin New Dam/Basin Modification of existing Dam/Basin

2. The Dam/Basin was designed by (check one): Federal Agency State Agency Private Organization

Local Government Agency Name of the Agency or Organization: _____

3. The Dam was permitted as (check one): Federal Dam State Dam

Provide the permit or identification number (ID) for the dam and the appropriate permitting agency or organization

Permit or ID number _____ Permitting Agency or Organization _____

a. Local Government Dam Private Dam

Provided related drawings, specification and supporting design information.

4. Does the project involve revised hydrology? Yes No

If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

Was the dam/basin designed using critical duration storm? (must account for the maximum volume of runoff)

Yes, provide supporting documentation with your completed Form 2.

No, provide a written explanation and justification for not using the critical duration storm.

5. Does the submittal include debris/sediment yield analysis? Yes No

If Yes, then fill out Section F (Sediment Transport). If No, then attach your explanation for why debris/sediment analysis was not considered?

6. Does the Base Flood Elevation behind the dam/basin or downstream of the dam/basin change? Yes No

If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

Stillwater Elevation Behind the Dam/Basin

FREQUENCY (% annual chance)	FIS	REVISED
-----------------------------	-----	---------

10-year (10%)

50-year (2%)

100-year (1%)

500-year (0.2%)

Normal Pool Elevation

7. Please attach a copy of the formal Operation and Maintenance Plan

E. LEVEE/FLOODWALL

1. System Elements

a. This Levee/Floodwall analysis is based on (check one):

<input type="checkbox"/> Upgrading of an existing levee/floodwall system	<input type="checkbox"/> A newly constructed levee/floodwall system	<input type="checkbox"/> Reanalysis of an existing levee/floodwall system
--	---	---

b. Levee elements and locations are (check one):

Earthen embankment, dike, berm, etc Stationed _____ to _____

Structured floodwall Stationed _____ to _____

Other (describe): _____ Stationed _____ to _____

E. LEVEE/FLOODWALL (CONTINUED)

c. Structural Type (check one): Monolithic cast-in place reinforced concrete Reinforced concrete masonry block
 Sheet piling Other (describe): _____

d. Has this levee/floodwall system been certified by a Federal agency to provide protection from the base flood?
 Yes No

If Yes, by which agency? _____

e. Attach certified drawings containing the following information (indicate drawing sheet numbers):

- | | |
|--|----------------------|
| 1. Plan of the levee embankment and floodwall structures. | Sheet Numbers: _____ |
| 2. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. | Sheet Numbers: _____ |
| 3. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. | Sheet Numbers: _____ |
| 4. A layout detail for the embankment protection measures. | Sheet Numbers: _____ |
| 5. Location, layout, and size and shape of the levee embankment features, foundation treatment, Floodwall structure, closure structures, and pump stations. | Sheet Numbers: _____ |

2. Freeboard

a. The minimum freeboard provided above the BFE is:

Riverine

- | | | |
|--|------------------------------|-----------------------------|
| 3.0 feet or more at the downstream end and throughout | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3.5 feet or more at the upstream end | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4.0 feet within 100 feet upstream of all structures and/or constrictions | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Coastal

- | | | |
|---|------------------------------|-----------------------------|
| 1.0 foot above the height of the one percent wave associated with the 1%-annual-chance stillwater surge elevation or maximum wave runup (whichever is greater). | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2.0 feet above the 1%-annual-chance stillwater surge elevation | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Paragraph 65.10(b)(1)(ii) of the NFIP Regulations.

If No is answered to any of the above, please attach an explanation.

b. Is there an indication from historical records that ice-jamming can affect the BFE? Yes No

3. Closures

a. Openings through the levee system (check one): Exists Does not exist

If opening exists, list all closures:

Channel Station	Left or Right Bank	Opening Type	Highest Elevation for Opening Invert	Type of Closure Device

(Extend table on an added sheet as needed and reference)

Note: Geotechnical and geologic data

In addition to the required detailed analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers [USACE] EM-1110-2-1906 Form 2086.)

E. LEVEE/FLOODWALL (CONTINUED)

4. Embarkment Protection

- a. The maximum levee slope land side is: _____
 - b. The maximum levee slope flood side is: _____
 - c. The range of velocities along the levee during the base flood is: _____ (min) to _____ (max)
 - d. Embankment material is protected by (describe what kind): _____
 - e. Riprap Design Parameters (check one): Velocity Tractive Stress
- Attach references

Reach	Sideslope	Flow Depth	Velocity	Curve or Straight	Stone Riprap			Depth of Toedown
					D ₁₀₀	D ₅₀	Thickness	
Sta _____ to _____	_____	_____	_____	_____	_____	_____	_____	_____
Sta _____ to _____	_____	_____	_____	_____	_____	_____	_____	_____
Sta _____ to _____	_____	_____	_____	_____	_____	_____	_____	_____
Sta _____ to _____	_____	_____	_____	_____	_____	_____	_____	_____
Sta _____ to _____	_____	_____	_____	_____	_____	_____	_____	_____
Sta _____ to _____	_____	_____	_____	_____	_____	_____	_____	_____

(Extend table on an added sheet as needed and reference each entry)

- f. Is a bedding/filter analysis and design attached? Yes No
- g. Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Attach engineering analysis to support construction plans.

5. Embarkment and Foundation Stability

- a. Identify locations and describe the basis for selection of critical location for analysis:

Overall height: STA: _____ , height _____ ft.

Limiting foundation soil strength:

Strength ϕ = _____ degrees, c = _____ psf

Slope: SS = _____ (h) to _____ (v)

(Repeat as needed on an added sheet for additional locations)

- b. Specify the embankment stability analysis methodology used (e.g., circular arc, sliding block, infinite slope, etc.):

- c. Summary of stability analysis results: _____

E. LEVEE/FLOODWALL (CONTINUED)

5. Embankment and Foundation Stability (continued)

Case	Loading Conditions	Critical Safety Factor	Criteria (Min.)
I	End of construction		1.3
II	Sudden drawdown		1.0
III	Critical flood stage		1.4
IV	Steady seepage at flood stage		1.4
VI	Earthquake (Case I)		1.0

(Reference: USACE EM-1110-2-1913 Table 6-1)

d. Was a seepage analysis for the embankment performed? Yes No
 If Yes, describe methodology used:

e. Was a seepage analysis for the embankment performed? Yes No

f. Were uplift pressures at the embankment landside toe checked? Yes No

g. Were seepage exit gradients checked for piping potential? Yes No

h. The duration of the base flood hydrograph against the embankment is _____ hours.

Attach engineering analysis to support construction plans.

6. Floodwall and Foundation Stability

a. Describe analysis submittal based on Code (check one): UBC (1988) Other (specify): _____

b. Stability analysis submitted provides for: Overturning Sliding If not, explain: _____

c. Loading included in the analyses were: Lateral earth @ $P_A =$ _____ psf; $P_p =$ _____ psf

Surcharge-Slope @ _____, surface _____ psf

Wind @ $P_w =$ _____ psf

Seepage (Uplift); _____ Earthquake @ $P_{eq} =$ _____ %g

1%-annual-chance significant wave height: _____ ft.

1%-annual-chance significant wave period: _____ sec.

d. Summary of Stability Analysis Results: Factors of Safety.
 Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

Loading Condition	Criteria (Min)		Sta	To	Sta	To
	Overturn	Sliding	Overturn	Sliding	Overturn	Sliding
Dead & Wind	1.5	1.5				
Dead & Soil	1.5	1.5				
Dead, Soil, Flood, & Impact	1.5	1.5				
Dead, Soil, & Seismic	1.3	1.3				

(Ref: FEMA 114 Sept 1986; USACE EM 1110-2-2502)
 Note: (Extend table on an added sheet as needed and reference)

E. LEVEE/FLOODWALL (CONTINUED)

e. Foundation bearing strength for each soil type:

Bearing Pressure	Sustained Load (psf)	Short Term Load (psf)
Computed design maximum		
Maximum allowable		

f. Foundation scour protection is, is not provided. If provided, attach explanation and supporting documentation:
 Attach engineering analysis to support construction plans.

7. Settlement

- a. Has anticipated potential settlement been determined and incorporated into the specified construction elevations to maintain the established freeboard margin?
- b. The computed settlement range is _____ ft. to _____ ft.
- c. Settlement of the levee crest is determined to be primarily from : Foundation consolidation
 Embankment compression Other (Describe): _____
- d. Differential settlement of floodwalls has has not been accommodated in the structural design and construction
 Attach engineering analysis to support construction plans.

8. Interior Drainage

- a. Specify size of each interior watershed:
 Drainage to pressure conduit: _____ acres
 Drainage to ponding area: _____ acres
- b. Relationship Established:

Ponding elevation vs. storage	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Ponding elevation vs. gravity flow	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Differential head vs. gravity flow	<input type="checkbox"/> Yes	<input type="checkbox"/> No
- c. The river flow duration curve is enclosed: Yes No
- d. Specify the discharge capacity of the head pressure conduit: _____ cfs
- e. Which flooding conditions were analyzed?

Gravity flow (Interior Watershed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Common storm (River Watershed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Historical ponding probability	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Coastal wave overtopping	<input type="checkbox"/> Yes	<input type="checkbox"/> No

If No for any of the above, attach explanation.

- f. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection.
 Yes No If No, attach explanation.
- g. The rate of seepage through the levee system for the base flood is : _____ cfs
- h. The length of levee system used to drive this seepage rate in item g: _____ ft.

E. LEVEE/FLOODWALL (CONTINUED)

8. Interior Drainage (continued)

i. Will pumping plants be used for interior drainage? Yes No

If Yes, include the number of pumping plants: _____ For each pumping plant, list:

	Plant #1	Plant #2
The number of pumps		
The ponding storage capacity		
The maximum pumping rate		
The maximum pumping head		
The pumping starting elevation		
The pumping stopping elevation		
Is the discharge facility protected?		
Is there a flood warning plan?		
How much time is available between warning and flooding?		

Will the operation be automatic? Yes No

If the pumps are electric; are there backup power sources? Yes No

(Reference: USACE EM-1110-2-3101, 3102, 3103, 3104, and 3105)

Include a copy of supporting documentation of data and analysis. Provide a map showing the flooded area and maximum ponding elevations for all interior watersheds that result in flooding.

9. Other Design Criteria

a. The following items have been addressed as stated:

Liquefaction is is not a problem

Hydrocompaction is is not a problem

Heave differential movement due to soils of high shrink/swell is is not a problem

b. For each of these problems, state the basic facts and corrective action taken:

Attach supporting documentation

c. If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure? Yes No

d. Sediment Transport Considerations:

Was sediment transport considered? Yes No

If Yes, then fill out Section F (Sediment Transport). If No, then attach your explanation for why sediment transport was not considered.

10. Operational Plan and Criteria

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? Yes No

b. Does the operation plan incorporate all the provisions for closure devices as required in Paragraph 65.10(c)(1) of the NFIP regulations? Yes No

c. Does the operation plan incorporate all the provisions for interior drainage as required in Paragraph 65.10(c)(2) of the NFIP regulations? Yes No

If the answer is No to any of the above, please attach supporting documentation.

E. LEVEE/FLOODWALL (CONTINUED)

11. Maintenance Plan

Please attach a copy of the formal maintenance plan for the levee/floodwall

12. Operational and Maintenance Plan

Please attach a copy of the formal Operations and Maintenance Plan for the levee/floodwall.

CERTIFICATION OF THE LEVEE DOCUMENTATION

This certification is to be signed and sealed by a licensed registered professional engineer authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.10(e) and as described in the MT-2 Forms Instructions. 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.: _____ Expiration Date: _____

Company Name: _____ Telephone No.: _____ Fax No.: _____

Signature: _____ Date: _____ E-mail Address: _____

CERTIFICATION OF THE LEVEE DOCUMENTATION

Flooding Source: _____

Name of Structure: _____

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the Base Flood Elevation (BFE); and/or based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including scour and deposition) to affect the BFEs, then provide the following information along with the supporting documentation:

Sediment load associated with the base flood discharge: Volume _____ acres-feet

Debris load associated with the base flood discharge: Volume _____ acres-feet

Sediment transport rate _____ (percent concentration by volume)

Method used to estimate sediment transport: _____

Most sediment transport formulas are intended for a range of hydraulic conditions and sediment sizes; attach a detailed explanation for using the selected method.

Method used to estimate scour and/or deposition: _____

Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport: _____

Please note that bulked flows are used to evaluate the performance of a structure during the base flood; however, FEMA does not map BFEs based on bulked flows.

If a sediment analysis has not been performed, an explanation as to why sediment transport (including scour and deposition) will not affect the BFEs or structures must be provided.

DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
COASTAL ANALYSIS FORM (FORM 4)

OMB Control Number: 1660-0016
Expiration: 1/31/2024

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours 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 it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660-0016). 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.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: _____

Note: Fill out one form for each flooding source studied

A. COASTLINE TO BE REVISED

Describe limits of study area: _____

B. EFFECTIVE FIS

The area being revised in the effective FIS was studied by detailed methods using (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> Storm surge modeling | <input type="checkbox"/> Wave setup computations |
| <input type="checkbox"/> Wave height computations | <input type="checkbox"/> Wave runup computations |
| <input type="checkbox"/> Wave overtopping computations | <input type="checkbox"/> Dune erosion computations |
| <input type="checkbox"/> Primary Frontal Dune Assessment | <input type="checkbox"/> N/A (area not studied by detailed methods) |

C. REVISED ANALYSIS

1. Number of transects in revised analysis: _____

2. Information used to prepare the revision (check all that apply):

- | | |
|---|--|
| <input type="checkbox"/> Wave setup analysis (complete Items 3, 4, and 5 below) | <input type="checkbox"/> Wave overtopping assessment (complete Items 4 and 5) |
| <input type="checkbox"/> Stillwater elevation determinations (complete Items 3) | <input type="checkbox"/> More detailed topographic information (complete Section E) |
| <input type="checkbox"/> Erosion considerations (complete Items 4) | <input type="checkbox"/> Accredited shore protection structure (attach completed Coastal Structures Form - Form 5) |
| <input type="checkbox"/> Non-accredited shore protection structure (complete Items 4) | |
| <input type="checkbox"/> Wave runup analysis (complete Items 4 and 5) | <input type="checkbox"/> Primary Frontal Dune Assessment (complete Items 5) |
| <input type="checkbox"/> Wave height analysis (complete Items 4 and 5) | <input type="checkbox"/> Other, attach basis of request with explanation |

3. Stillwater Elevation Determination

a. How were stillwater elevations determined?

- Effective FIS Report Date of FIS Report _____ Transect Number _____
- Gage analysis (If revised gage analysis was used, provide copies of gage data and revised analysis.)
- Storm surge analysis
- Other (Describe): _____

b. Specify what datum was used in the calculations: _____

If not the FIS datum, have the calculations been adjusted to the FIS datum? Yes No Conversion Factor _____

C. REVISED ANALYSIS (continued)

c. Was wave setup included in wave height analysis and removed for wave runup analyses?: Yes No

d. Was an overtopping analysis performed for any coastal shore protection structures or natural land forms that may be overtopped?: Yes No

Attach an explanation of the methodology utilized and describe in detail the results of the analysis.

e. Is wave setup included? Yes No

Source: Effective FIS Report New Analysis

If wave setup was computed, attach a description of methodology used.

4. Revised Analysis (i.e., erosion, wave height, wave runup, primary frontal dune, and wave overtopping)

If DHS-FEMA procedures were utilized to perform the revision, attach a detailed description of differences between the current and the revised analyses, and why the revised analysis should replace the current analysis.

If DHS-FEMA procedures were not utilized to perform the revision, provide full documentation on methodology and/or models used; including operational program, detailed differences between methodology and/or models utilized and DHS-FEMA's methodology and/or models. Also, attach an explanation of why new methodology and/or models should replace current methodology and/or models.

If revision reflects more detailed topographic information and fill has been/will be placed in a V Zone, and is not protected from erosion by an accredited shore protection structure, provide a detailed description of how the fill has been treated in the revised analysis.

5. Wave Runup, Wave Height, And Wave Overtopping Analysis

Wave height analyses along a transect are greatly affected by starting wave conditions that propagate inland. Wave runup and overtopping analyses are typically considered when the stillwater elevation including wave setup is less than the crest of shore protection structures or natural land forms.

a. Was an analysis performed to determine starting wave height and period for input into WHAFIS?

If Yes, attach an explanation of the method utilized. If No, explain why these analyses were not performed. Yes No

b. Was wave setup included in the reference water level used to calculate the dune reservoir volume? Yes No

c. Was wave setup included in wave height analysis and removed for wave runup analyses? Yes No

d. Was an overtopping analysis performed for any coastal shore protection structures or natural land forms that may be overtopped?
 Yes No

Attach an explanation of the methodology utilized and describe in detail the results of the analysis.

D. RESULTS

1. Stillwater storm surge elevation: _____ feet _____ Datum

2. Wave setup: _____ feet

3. Starting deep-water significant wave condition: height: _____
period: _____

4. Maximum wave height elevation: _____ feet

5. Wave runup elevation: _____ feet

6. Estimated amount of overtopping: _____ cfs/feet

7. Has this revision changed the Limit Moderate Wave Action (LiMWA)? Yes No N/A

8. The areas designated as coastal high hazard areas (Vzones) have: Yes No N/A

Attach a description where they have increased and/or decreased.

9. As a result of the revised analyses, the V zone location has shifted a maximum of _____ feet seaward and _____ feet landward of its existing position.

10. Does the revision reflect the location of the primary frontal dune?
 Yes No

11. The Base Flood Elevations have:

Increased Decreased

a. What was the greatest increase? _____ feet

b. What was the greatest decrease? _____ feet

12. The special flood hazard area has:

Increased Decreased Both

Attach a description where it has increased or decreased.

E. MAPPING REQUIREMENTS

A certified topographic map must be submitted showing the following information (where applicable): effective, existing conditions, and proposed conditions 1%-annual-chance floodplain boundaries, revised shoreline due to either erosion or accretion, location and alignment of all transects, correct location and alignment of any structures, current community easements and boundaries, boundary of the requester's property, certification of a professional engineer registered in the subject State, location and description of reference marks, and the referenced vertical datum (NGVD, NAVD, etc.).

Note that the existing or proposed conditions floodplain boundaries to be shown on the revised FIRM must tie-in with the effective floodplain boundaries. Please attach a copy of the current FIRM annotated to show the revised 1%-annual-chance floodplain boundaries that tie-in with effective 1%-annual-chance floodplain boundaries along the entire extent of the area of revision.

DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
COASTAL STRUCTURES FORM (FORM 5)

OMB Control Number: 1660-0016
Expiration: 1/31/2024

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 hours 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 it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660-0016). 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.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: _____

Note: Fill out one form for each flooding source studied

A. BACKGROUND

1. Name of Structure: _____

2. Location of Structure: _____

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 the 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.).

A. BACKGROUND (continued)

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.

8. An Operation & Maintenance Plan has been provided.(required for all coastal structures) Yes No

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)

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, was a geotechnical analysis of 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:

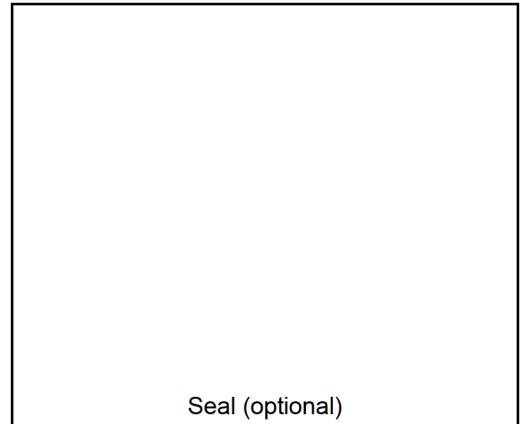
Company Name:

Telephone No.:

Fax No.:

Signature: _____

Date:



Seal (optional)

DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
ALLUVIAL FAN FLOODING FORM (FORM 6)

OMB Control Number: 1660-0016
Expiration: 1/31/2024

PAPERWORK BURDEN DISCLOSURE NOTICE

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 it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660-0016). 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.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: _____

Note: Fill out one form for each flooding source studied

A. THREE STAGE ANALYSIS (Based on DHS-FEMA Guidelines dated February 23, 2000)

1. Stage 1 Analysis

a. The landform is composed of alluvium derived primarily from (check one) Fluvial Debris flow Combination deposits

b. Source(s) of data used to determine composition, morphology, and location of the landform: _____

c. Is there an NRCS soils survey and soil survey map available? Yes No

If Yes, please include a copy of the map and any pertinent sections of the soil survey.

d. Is there geologic mapping available? Yes No

If Yes, please include a copy of the map and any pertinent geologic map unit descriptions.

e. Is there historic aerial photography available? Yes No

If Yes, please include any copies of the site-specific photography.

2. Stage 2 Analysis

a. The alluvial fan landform exhibits Active Inactive A combination of active and inactive alluvial fan flooding

b. Approximate age of inactive fan surfaces (thousand of years): _____ yrs. Source of age estimate: _____

c. Is there an opportunity for avulsions that could lead to channelized or sheet flooding across the older fan surfaces?

Yes No

Basis: _____ (Hydraulic modeling Geographic analysis Other (describe) _____

d. Is there geomorphic evidence of past avulsions during Holocene epoch? Yes No

e. Approximate age of past avulsions: _____ yrs. Source of avulsion age estimate: _____

f. The active portion of the alluvial fan landform exhibits the following types of flooding (check one):

Flooding along stable alluvial channels

Sheet Flooding

Debris Flow

Unstable flow path flooding

A. THREE STAGE ANALYSIS (Based on DHS-FEMA Guidelines dated February 23, 2000) (continued)

g. The active portion of the alluvial fan landform exhibits the following types of flood processes (check one):

- Recently active sediment deposition
- Recently active channel or floodplain erosion
- Recent channel avulsions
- High velocity flood flows
- Shallow sheet flooding

h. Methods used to support Stage 2 Analysis (check all that apply):

- Geomorphic analysis
- Field studies
- Historical evidence
- Hydraulic modeling

3. Stage 3 Analysis

The boundaries of the 1%-annual-chance floodplain have been determined using (check all that apply):

- Risk-Based Analysis
- FEMA FAN Program (if discharge at the apex is different than that given in the effective FIS, then attach MT-2, Form 2 along with a plot of the flood frequency curve on log-normal probability paper and include the drainage area above the hydrographic apex, and the mean, standard deviation, and skew coefficient of the Pearson Type III frequency curve)

List basis for avulsion coefficient used: _____

FAN used in Single Multiple channel mode

- Sheet Flooding Methods
- Hydraulic Analytical Methods

List models & versions used: _____

- Geomorphic Data, Post-Flood Hazard Verification, and Historical Information
- Composite Methods (indicate which methods by checking above)

The active alluvial fan area has the following characteristics:

- Highly active
- Conical shape
- Unstable flow paths
- Entrench stable channel networks
- Constructed channels
- Debris flow flooding
- Undulating terrain
- Urbanization (homes, roads, embankments, levees, railroads, canals, etc. that would alter natural flow conditions)

Flooding sources evaluated:

- Flow from watershed above hydrographic apex
Method: _____
- Flow from rainfall on fan surface
Method: _____
- Flow from tributaries joining active fan area below hydrographic apex
Method: _____

B. STRUCTURAL FLOOD CONTROL MEASURES

- 1. The following structural flood control measures are proposed or built (check all that apply):
 Channelization Levee/Floodwall Dam Sedimentation Basin Other _____
- 2. Do the constructed or proposed structural measures affect flood hazards (including velocity, scour, and sediment deposition) on other areas of the fan?: Yes No
- 3. Attach completed Form 3 (Riverine Structures Form) for each structure.
- 4. Sediment Transport Considerations:
Was sediment transport considered? Yes No

If Yes, then fill out Form 3, Section F (Sediment Transport). If No, then attach your explanation for why sediment transport was not considered.
- 5. Please attach a copy of the formal Operations and Maintenance Plan.

C. MAPPING REQUIREMENTS

Attach a certified topographic work map showing the following:

- The boundaries of the alluvial fan landform including: toe, topographic and hydrologic apexes, and lateral boundaries
- The delineation of the active and inactive portions of the alluvial fan landform as determined by the Stage 2 analysis
- The revised 1%-annual-chance floodplain boundaries, as determined by the Stage 3 Analysis, that tie into the effective floodplain boundaries. Indicate where each delineation methodology used was applied if more than one methodology was used
- The correct alignment of all structural features
- The map scale and a north arrow