February 26,2025

CLOMR and LOMR Processing

Review Partner Responsibilities and Timeline

Indiana Department of Natural Resources

Danielle Bowman, Paul Brayton
Hydraulic Engineer
Division of Water

DNR
Indiana Department of Natural Resources

DIVISION OF WATER

Indiana DNR LOMR Review Partners Team

Paul Brayton - Hydraulic Engineer
Danielle Bowman – Hydraulic Engineer
Morgan Lucas – Hydraulic Engineer
Aung Htut – Hydraulic Engineer

Adam Bales – Program Manager
Deidre Hansen – Project Manager

DNR Indiana Department of Natural Resources

DIVISION OF WATER

Overview

- References and Regulations Review
- Inventory and Inventory Checklist
  - MT-2 Form 1
  - MT-2 Form 2
  - MT-2 Form 3
  - CLOMR Regulatory Items
- Technical Review
- Submitted Questions
- HEC-2 RAS Import

- In 2019, FEMA opened the LOMR Review Partners Program to new partners.
- In 2022, DNR began processing LOMRs and CLOMRs as part of this program.

We do not review:

- LOMAs/MT-1 Requests
- MT-2 Requests with levees, floodwalls, or multi-state cases.

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Regulations

Statute	Title	Concern
44 CFR 60.3(c) and (d)	Floodplain Management	Zone AE and Floodways
44 CFR 65.3	Requirements to submit Data	Within 6 months of project completion
44 CFR 65.4	Community Right to New Data	Updating data that does not change risk delineations
44 CFR 65.6	Revising the BFE	Requires Public Notice from Community*
44 CFR 65.7	Revising the Floodway	Requires Individual Property Owner Notification*

Statute	Title	Concern
44 CFR 65.8	Review of Proposed Projects	Allows for Conditional LOMR (CLOMR)
44 CFR 65.9	Review & Response by FEMA	Sets the 90 Day Response Window
44 CFR 65.12	Revision by Proposed Projects	Provides the CLOMR Requirements
44 CFR 72	Fee for Processing Map Changes	Makes the Fee Schedule for C/LOMRs

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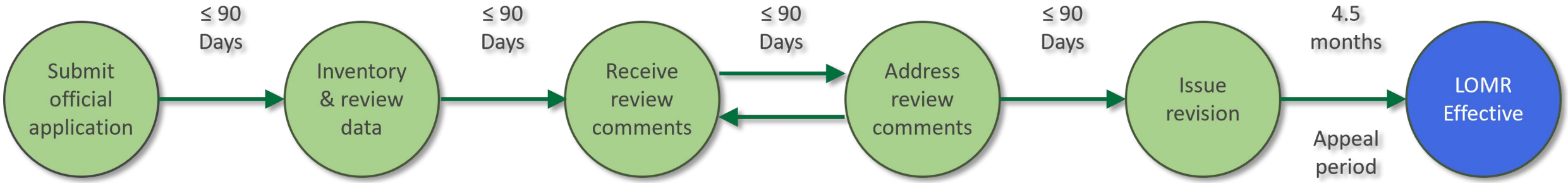
References

- MT-2 Application Forms and Instructions
- MT-2 Requests, Guidance Document No. 106
- General Hydrologic Considerations, Guidance Document No. 71
- General Hydraulics Considerations, Guidance Document No. 52
- Floodway Analysis and Mapping, Guidance Document No. 79
- FEMA Flood Map Service Center (MSC)
- Guidance for FEMA's Risk Mapping, Assessment and Planning
- Documentation of Endangered Species Act Compliance for CLOMRs, Guidance Document No. 48

General Timeline

Overview of MT-2 Processing



- Two additional data requests. (Target)
- Applicant receives an automatically generated email from FEMA.
- The case reviewer will send another acknowledgement to establish a point of contact.

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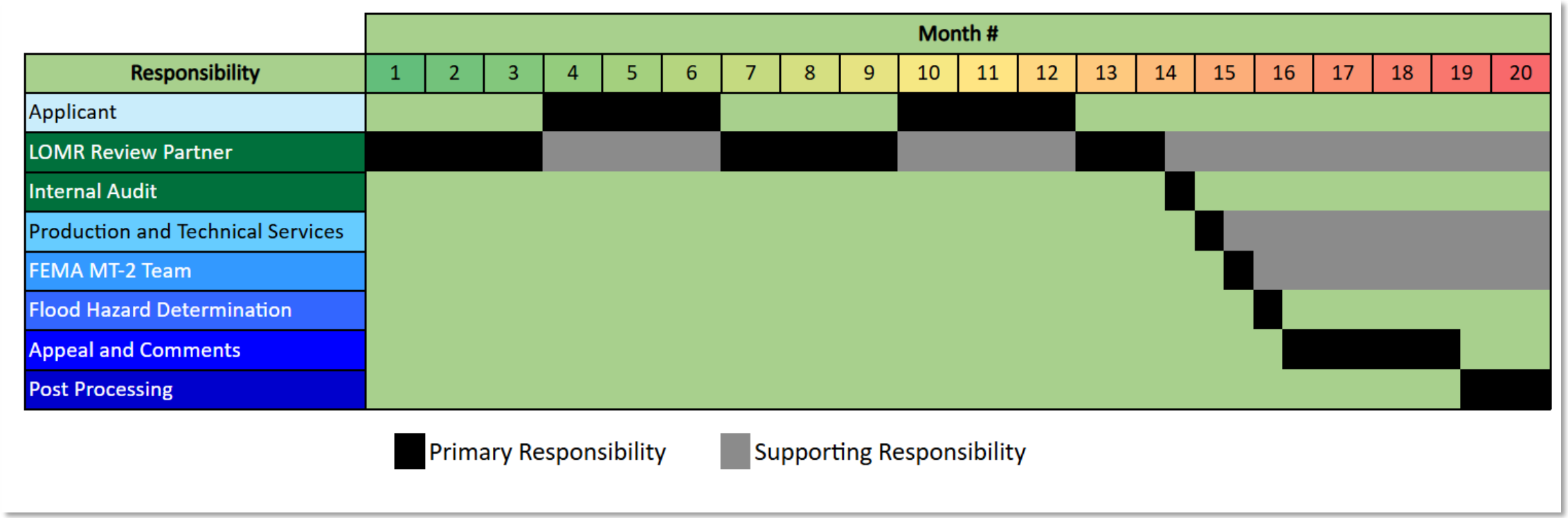
General Timeline



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Inventory Checklist

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 on their website.		
HYDRAULIC ANALYSIS: Please provide a FEMA-acceptable hydraulic analysis in digital format. Information on FEMA-acceptable models can be accessed on their website.		
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 is 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-maps/change-your-flood-zone/status/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

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.		
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.		

2023

MT-2 REVISION REQUEST SUBMITTAL CHECKLIST

Notes:

- 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://hazards.fema.gov/femaportal/onlinelomc/signin.
- The MT-2 Guidance Document has been developed to supplement the information provided in these instructions. The MT-2 Guidance Document explains how the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) implements the review and processing of requests to revise Flood Insurance Rate Maps (FIRMs) and Flood Insurance Study (FIS) reports (MT-2 requests).

2023

DNR Indiana Department of Natural Resources | DIVISION OF WATER

Project Background: Narrative

- Methods used to analyze project's impact.
  - Hydrologic Modeling
    - For each stream reach being studied, the Applicant must document the model to be applied and the source and method of determining model parameters.
    - As part of the analysis submission, the Applicant performing hydrologic analyses must document the development of the parameters used.
    - Before the Applicant applies the new hydrologic analysis, a determination of the significance of the proposed discharges should be made.
    - The Reviewer must evaluate the reasonableness of the proposed base flood discharges to develop quality control of the modeling.
  - Hydraulic Modeling
    - Supporting data includes, but is not limited to, source of input data, datum, model version, and changes made from plan to plan.

- Describe the reason for the request.
  - Changes in area since effective date.
  - Whether project(s) associated with request are completed or proposed.

- The scope of the proposed or as-built project(s).

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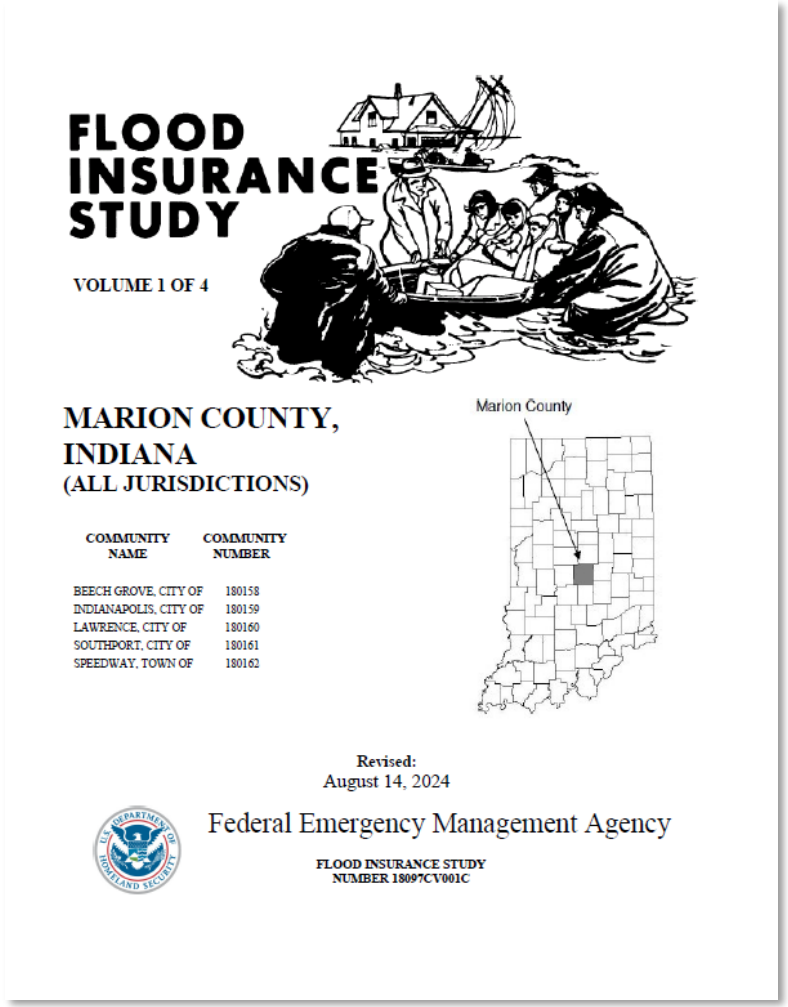
Project Background



FLOOD INSURANCE STUDY

VOLUME 1 OF 4

MARION COUNTY, INDIANA
(ALL JURISDICTIONS)

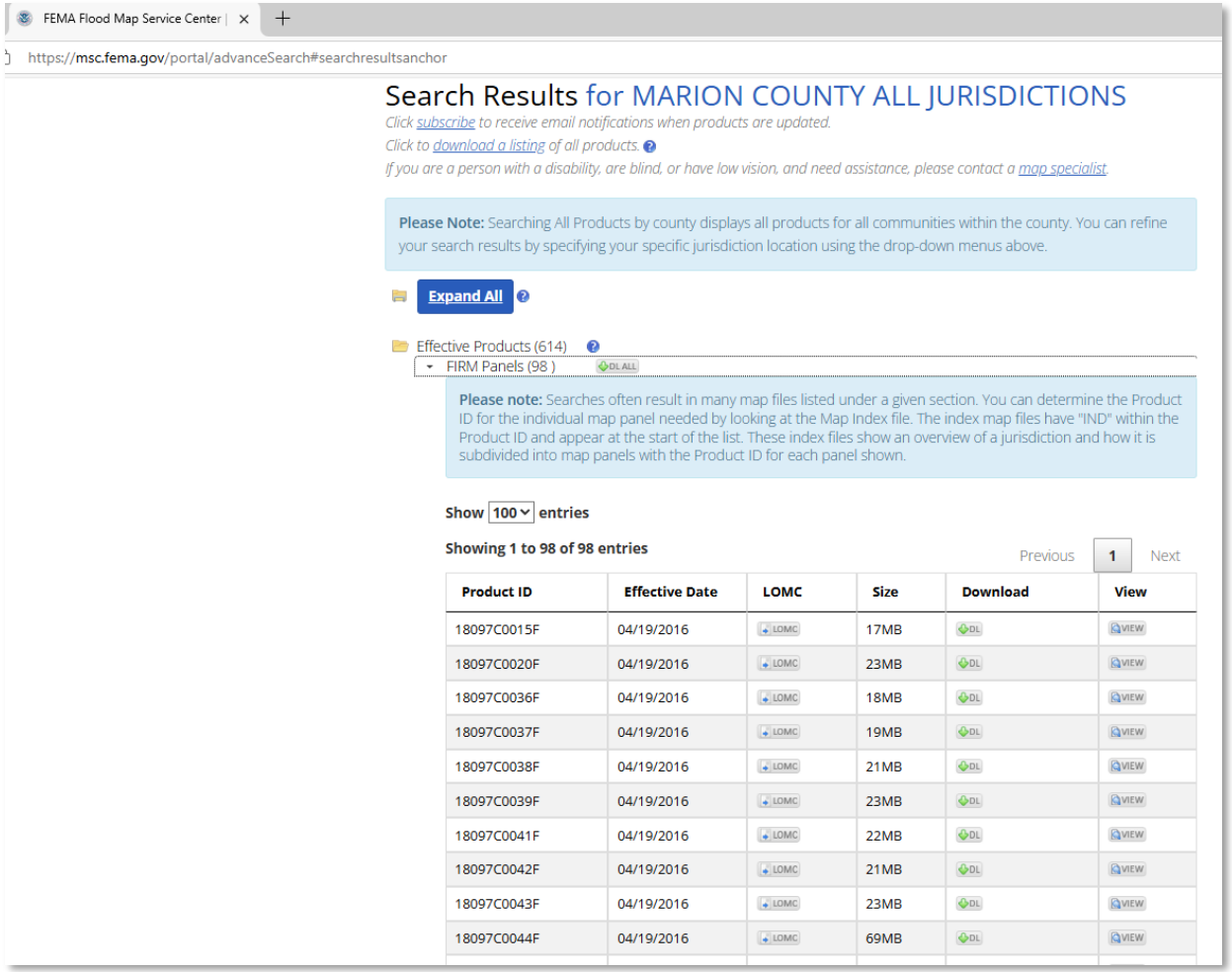
COMMUNITY NAME	COMMUNITY NUMBER
BEECH GROVE, CITY OF	180158
INDIANAPOLIS, CITY OF	180159
LAWRENCE, CITY OF	180160
SOUTHPORT, CITY OF	180161
SPEEDWAY, TOWN OF	180162

Revised:
August 14, 2024

Federal Emergency Management Agency

FLOOD INSURANCE STUDY
NUMBER 18097CV001C

Effective FIS Cover

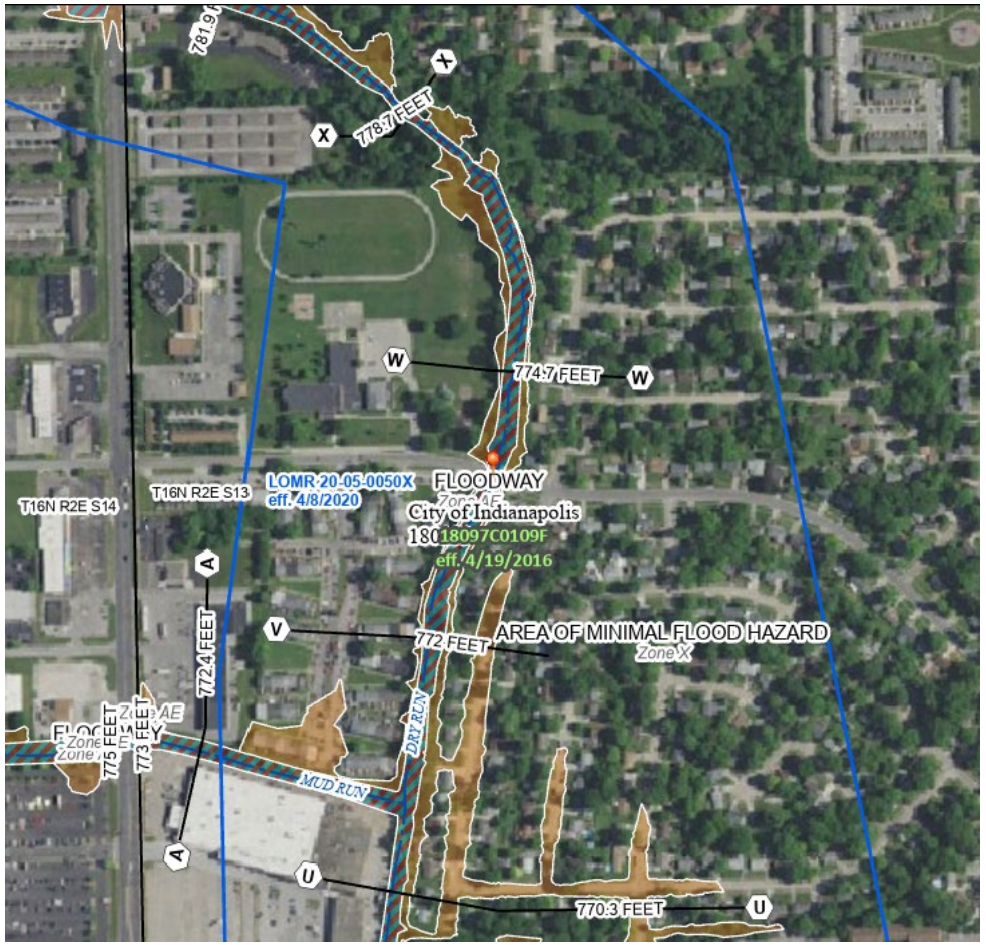


Product ID	Effective Date	LOMC	Size	Download	View
18097C0015F	04/19/2016	LOMC	17MB	DL	VIEW
18097C0020F	04/19/2016	LOMC	23MB	DL	VIEW
18097C0036F	04/19/2016	LOMC	18MB	DL	VIEW
18097C0037F	04/19/2016	LOMC	19MB	DL	VIEW
18097C0038F	04/19/2016	LOMC	21MB	DL	VIEW
18097C0039F	04/19/2016	LOMC	23MB	DL	VIEW
18097C0041F	04/19/2016	LOMC	22MB	DL	VIEW
18097C0042F	04/19/2016	LOMC	21MB	DL	VIEW
18097C0043F	04/19/2016	LOMC	23MB	DL	VIEW
18097C0044F	04/19/2016	LOMC	69MB	DL	VIEW

Effective FIRM

DNR Indiana Department of Natural Resources | DIVISION OF WATER

Project Background



Adjacent Activity

Adjacent Impacts

DNR Indiana Department of Natural Resources | DIVISION OF WATER

Project Background

Applicable Regulations

- Effective Floodway 60.3.d
- BFE Increases 65.6 (Public Notice)
- Change in the Floodway Delineation 65.7 (PON Letters)
- Proposed Project 65.12 (ESA Compliance)

DNR Indiana Department of Natural Resources | DIVISION OF WATER

Project Background

Applicable Fees

Fill	Bridge	Channel
No Fees	Data Update	Clearing House

Checks are to be sent to FEMA.

LOMC Clearinghouse
3601 Eisenhower Ave, Ste 500
Alexandria, VA 22304-6426

Requests for Map Changes Requiring Special Technical Review	Paper Form Fee	Online LOMC Fee
CLOMR Based on New Hydrology, Bridge, Culvert, Channel or Combination Thereof	$6,750	$6,500
CLOMR Based on Levee, Berm or Other Structural Measures	$7,250 (plus $60/hr)	$7,000 (plus $60/hr)
LOMR Based on Bridge, Culvert, Channel, Hydrology, or Combination Thereof	$8,250	$8,000
LOMR Based on Levee, Berm or Other Structural Measures	$9,250 (plus $60/hr)	$9,000 (plus $60/hr)
LOMR Based on As-Built Information Submitted as a Follow-up to a CLOMR	$8,250	$8,000
LOMR Based Solely on Submission of More Detailed Data	Free	Free
LOMR/CLOMR Based on Structural Measures on Alluvial Fans	$7,250 (plus $60/hr)	$7,000 (plus $60/hr)

If DNR receives the check, we will forward it on to the LOMC Clearinghouse however, this will delay the process.

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Forms

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: _____

FEMA FORM FF-206-FY-21-100 (formerly 086-0-27) (01/21) MT-2 FORM 1 Page 1 of 3

Form 1 Overview and Concurrence

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.**

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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[14]:

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.

FEMA FORM FF-206-FY-21-101 (formerly 086-0-27A) (01/21) Page 1 of 3

Form 2 Riverine Hydrology and Hydraulics

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.**

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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.

FEMA FORM FF-206-FY-21-102 (formerly 086-0-27B) (01/21) Page 1 of 9

Form 3 Riverine Structures

MT-2 Form 1

- Section A. Requested Response from FEMA
  - LOMR or CLOMR
  - Check the box

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).

DNR Indiana Department of Natural Resources | DIVISION OF WATER

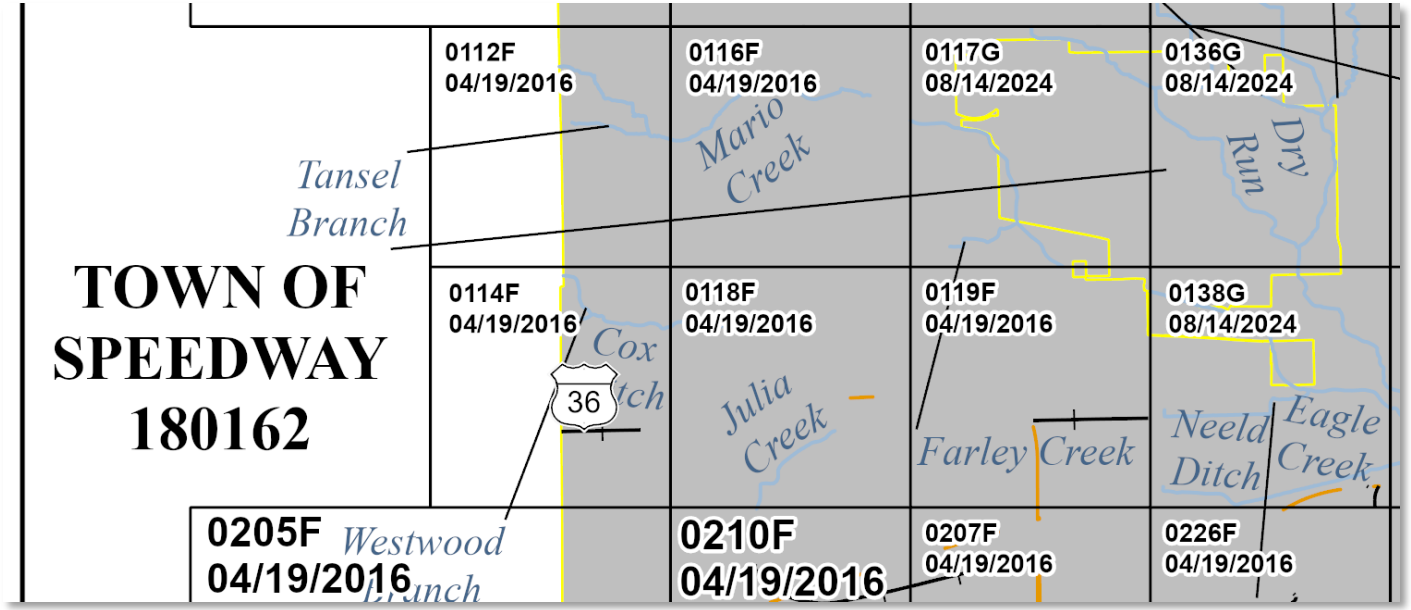
MT-2 Form 1

- Section B. Overview
  - FIRM Panels affected by revision
  - FIRM Title Block

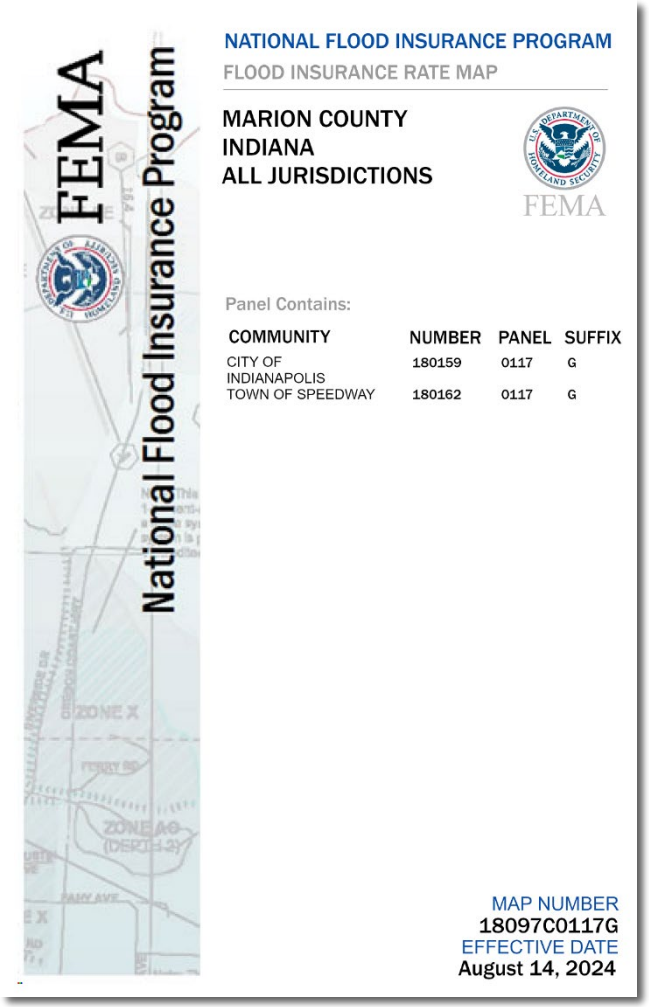
B. OVERVIEW					
1. The NFIP map panel(s) affected for all impacted communities is (are):					
Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301; 480287	City of Katy; Harris County	TX; TX	48473C; 48201C	0005D; 0220G	02/08/83; 09/28/90

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 1



FIRM Panels affected by revision

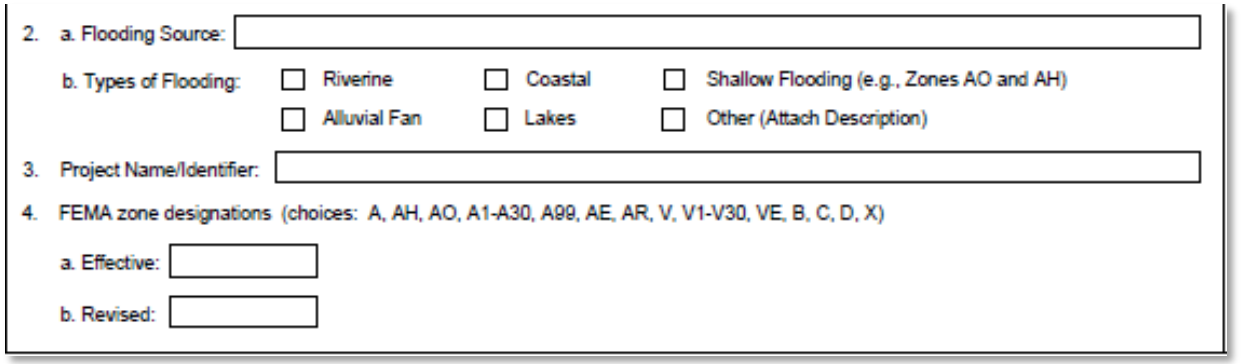


FIRM Title Block

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 1

- Section B. Overview, continued
  - Effective Flooding Source Name
    - CNMS
  - Special Project Identifier
    - Deer Creek Subdivision
    - Broadway Avenue Extension
  - List the SFHA Zones being revised



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:

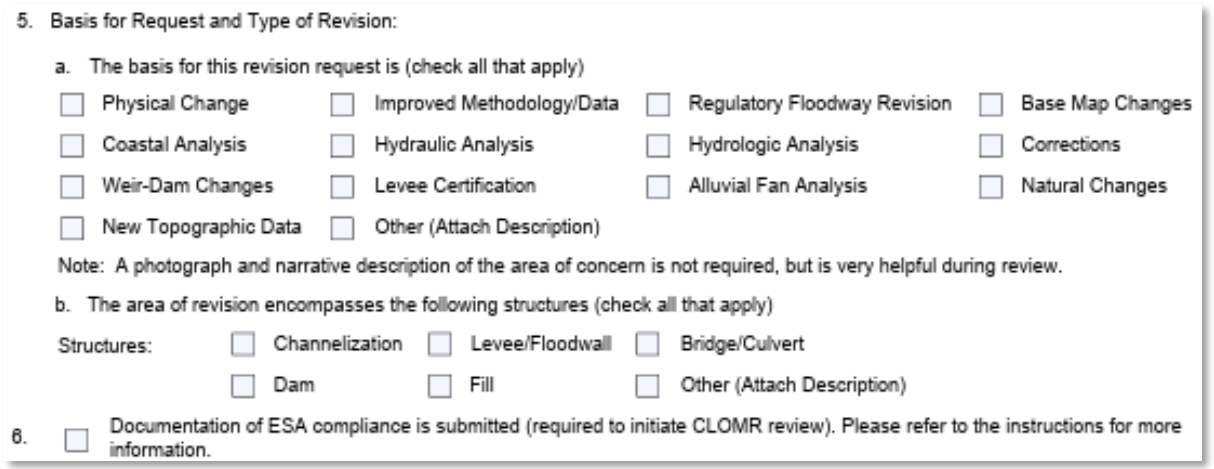
4. FEMA zone designations (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

a. Effective:

b. Revised:

MT-2 Form 1

- Section B. Overview, continued
  - Revision Basis
    - Does it match narrative and plans?
    - Full Description
  - Hydraulic structures
    - Channel, Levee, Bridge/Culvert, Dam, Fill, Other
  - If the request is a CLOMR, was the ESA compliance submitted?



5. Basis for Request and Type of Revision:

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

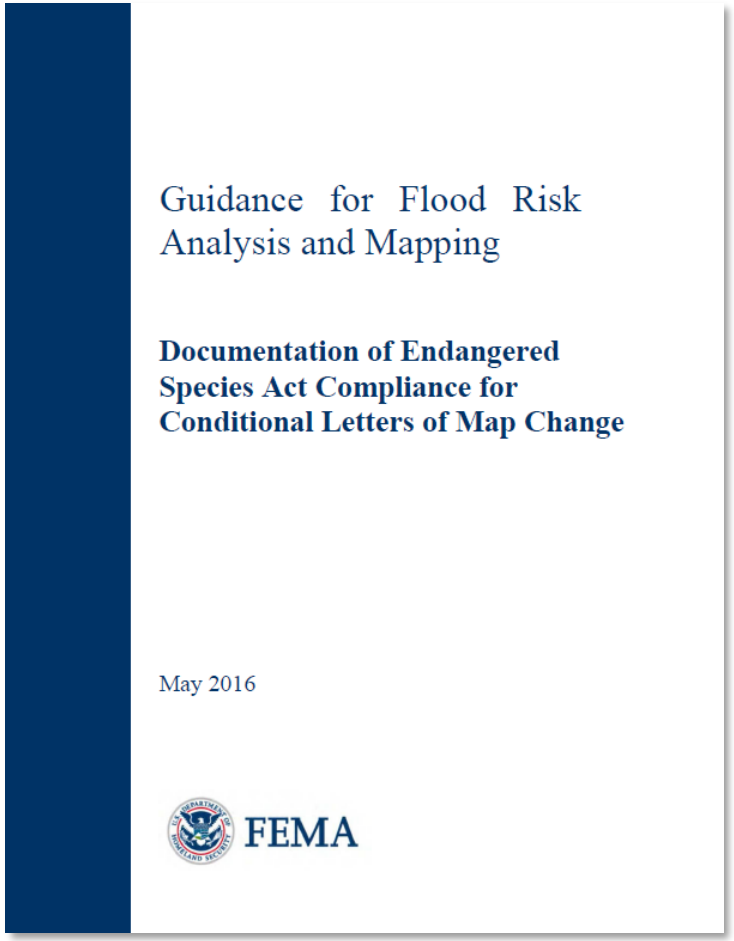
☐ Physical Change	☐ Improved Methodology/Data	☐ Regulatory Floodway Revision	☐ Base Map Changes
☐ Coastal Analysis	☐ Hydraulic Analysis	☐ Hydrologic Analysis	☐ Corrections
☐ Weir-Dam Changes	☐ Levee Certification	☐ Alluvial Fan Analysis	☐ Natural Changes
☐ New Topographic Data	☐ Other (Attach Description)		

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:	☐ Channelization	☐ Levee/Floodwall	☐ Bridge/Culvert
	☐ Dam	☐ Fill	☐ Other (Attach Description)

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



Guidance for Flood Risk Analysis and Mapping

Documentation of Endangered Species Act Compliance for Conditional Letters of Map Change

May 2016

FEMA

MT-2 Form 1

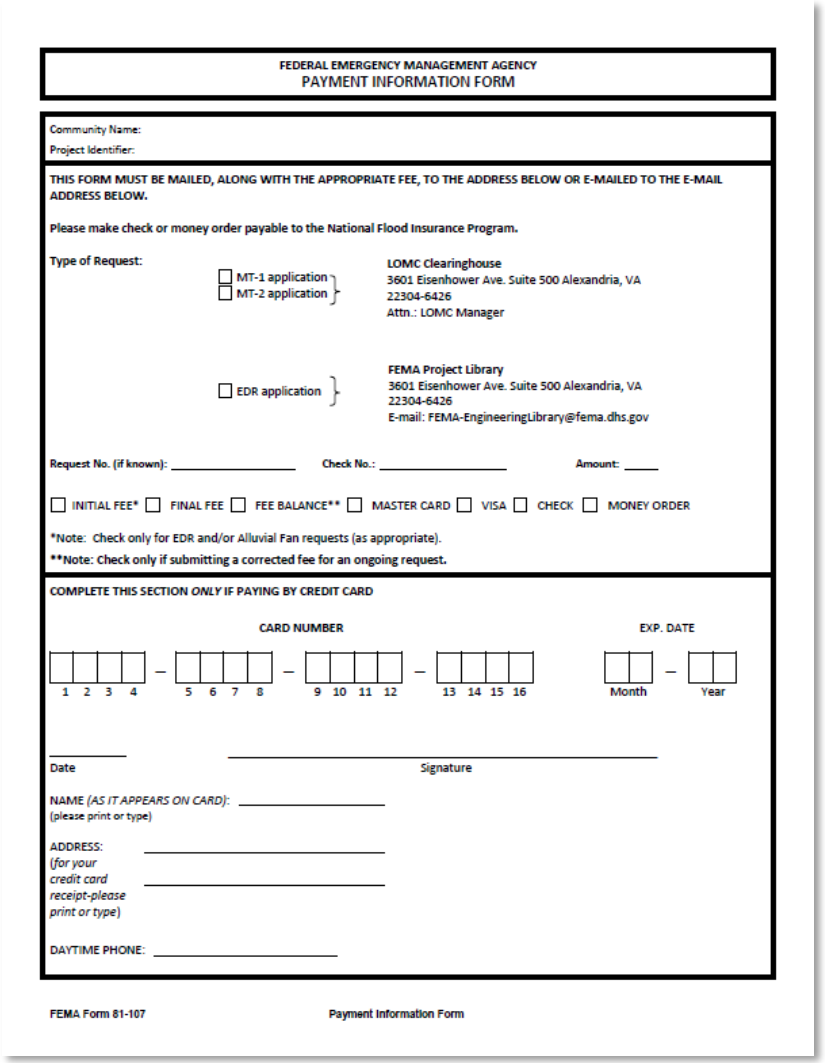
- Section C. Fee
  - Review Fee

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.



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 (1 2 3 4 – 5 6 7 8 – 9 10 11 12 – 13 14 15 16) EXP. DATE (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: _____

FEMA Form 81-107 Payment Information Form

MT-2 Form 1

- Section D. Signatures
  - Applicant
  - Community Representative
    - In the know, Agree with changes, Project meets flood Ordinance, Reasonably safe from flooding

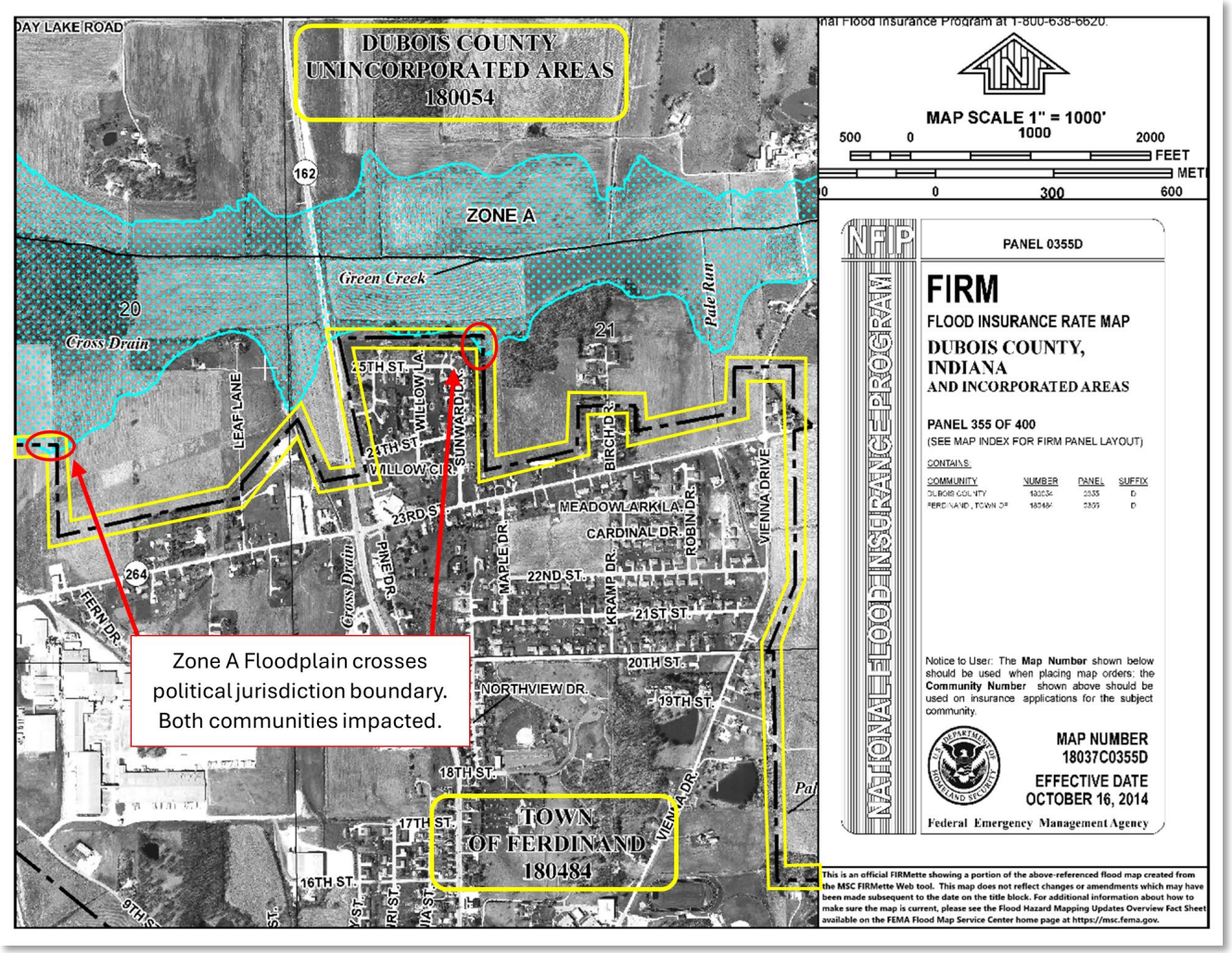
D. SIGNATURES		
1. REQUESTOR'S SIGNATURE		
All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.		
Name:	Company:	
Mailing Address:	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:	

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 1

- Community concurrence by the Chief Executive Officer (CEO) or the legally designated CEO active at the time of the request of all affected communities must be received, per 44 CFR 65.4.
  - Can be Board of Commissioners President, Mayor, FPA
  - Not City Planner, County Surveyor, City Engineer
- Impacted communities determined by the corporate limits shown on the effected FIRM panel(s), unless those boundaries are determined to be incorrect.
  - An official corporate limits map and annexation agreement and/or map must be submitted with request.



DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 1

- Section D. PE Applicant Certification
  - Proper and Active license to certify application
  - PE or PS
  - All necessary forms are indicated

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

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 2

- Section A. Hydrology
  - Reason for New Hydrologic Analysis
    - Using the Effective
    - Needs a new Model
  - Comparison of Discharges
    - Hydrology Points and Effective Values
      - ❑ One Standard Deviation
      - ❑ Significant Changes in Watershed
      - ❑ BFE changes by more than 0.5 feet

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

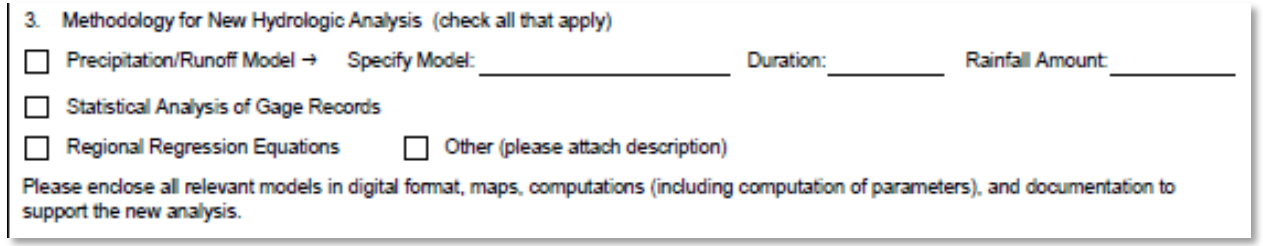
2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)
Upstream of I-465	0.92	460	N/A
Above Dry Run Diversion Ditch	4.45	2040	N/A
Confluence with Little Eagle Creek	5.94	990	N/A

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 2

- Section A. Hydrology, continued
  - New Hydrologic Analysis Method
    - Important for Reviewer and Case File Documentation
    - Include all supporting documentation
      - ❑ Your report dictates the Technical Guidance
  - Hydrology Review
    - State or Local Concurrence
    - Indiana required
      - ❑ Reviewer complies
  - Sediment Transport
    - Form 3 Section F. required



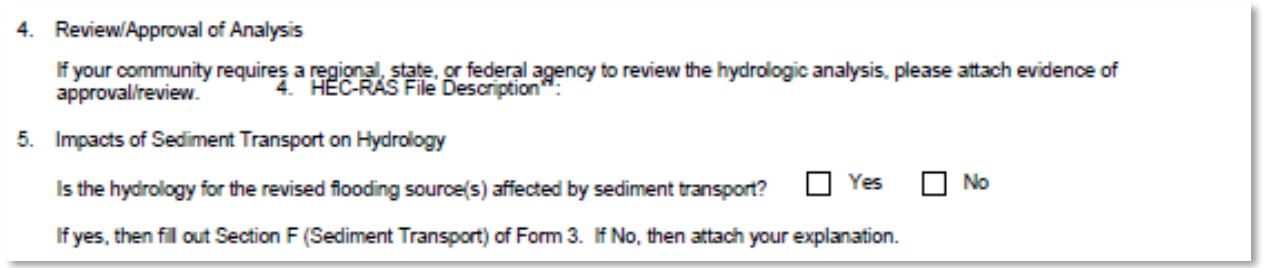
3. Methodology for New Hydrologic Analysis (check all that apply)

☐ 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

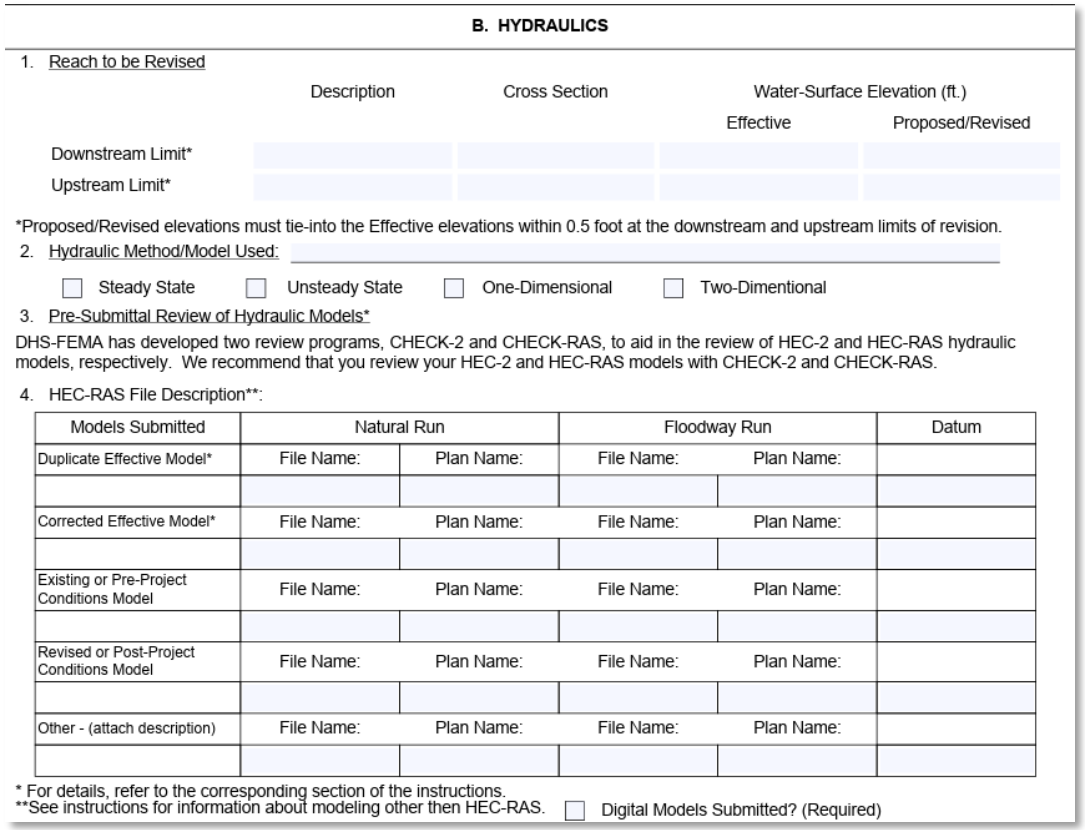
Is the hydrology for the revised flooding source(s) affected by sediment transport? ☐ Yes ☐ No

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

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 2

- Section B. Hydraulics
  - Reach to be Revised
    - Revised elevations must tie-in within 0.1’ at revision limits to effective elevations
  - Method/Model Used
    - HEC-RAS version
    - 1D Steady only
  - cHECk_RAS report with comments
  - HEC-RAS File Description
    - Helpful for Reviewer to have plans listed



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-Dimentional

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 then HEC-RAS. ☐ Digital Models Submitted? (Required)

MT-2 Form 2

- Section C. Mapping Requirements
  - Certified Topographic Map
  - Annotated FIRM
    - Accuracy for effective visual and BFE tie-ins, reach lengths, and map to model tolerance.
  - GIS shapefiles preferred but can also accept CAD

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)

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 2

- Section D. Common Regulatory Requirements
  - Property Owner Notifications
  - CLOMR 65.12 regulations

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

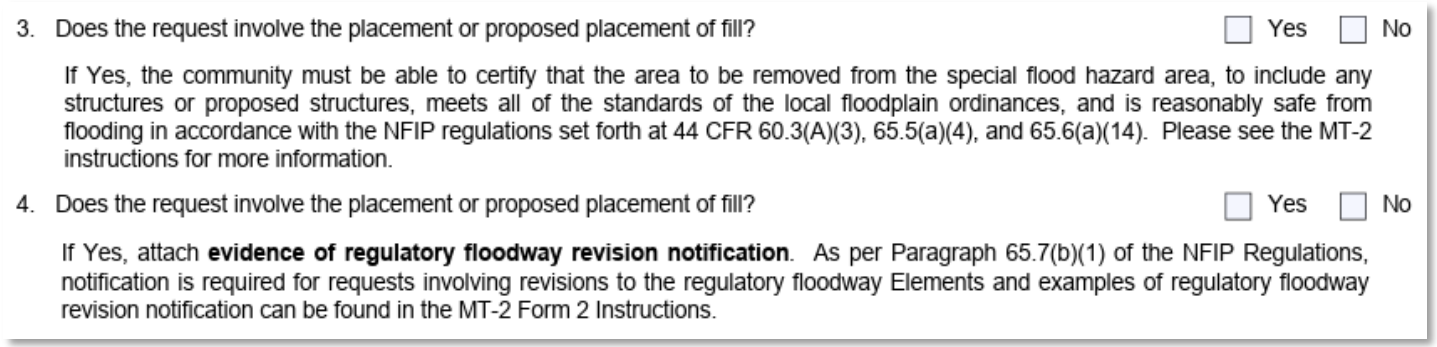
   If Yes, please attach **proof of property owner notification**. Examples of property owner notifications can be found in the MT-2 Form 2 Instructions.

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.

MT-2 Form 2

- Section D. Common Regulatory Requirements, continued
  - If there is fill, then 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14) in effect
    - Reasonably safe from flooding community statement
  - If there is fill, then: 65.7(b)(1) in effect
    - Regulatory Floodway Revision notification



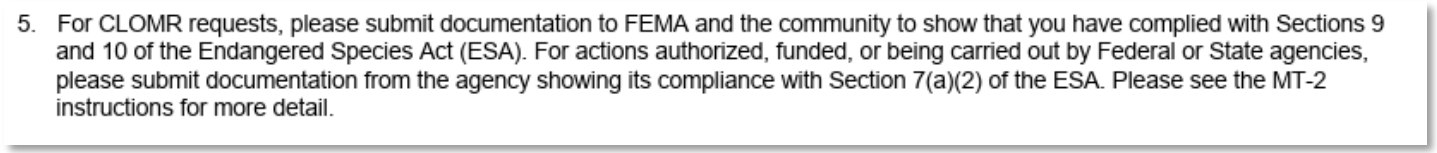
3. Does the request involve the placement or proposed placement of fill? ☐ Yes ☐ No

   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.

  - CLOMR only ESA package



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.

MT-2 Form 3

- Section A. General
  - Description of Modeled Structure
    - Proposed structures
    - As-built structures not in effective FIS
    - Structures in effective FIS that are being updated

Description Of Modeled Structure

1. Name of Structure: _____

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

Location of Structure: _____

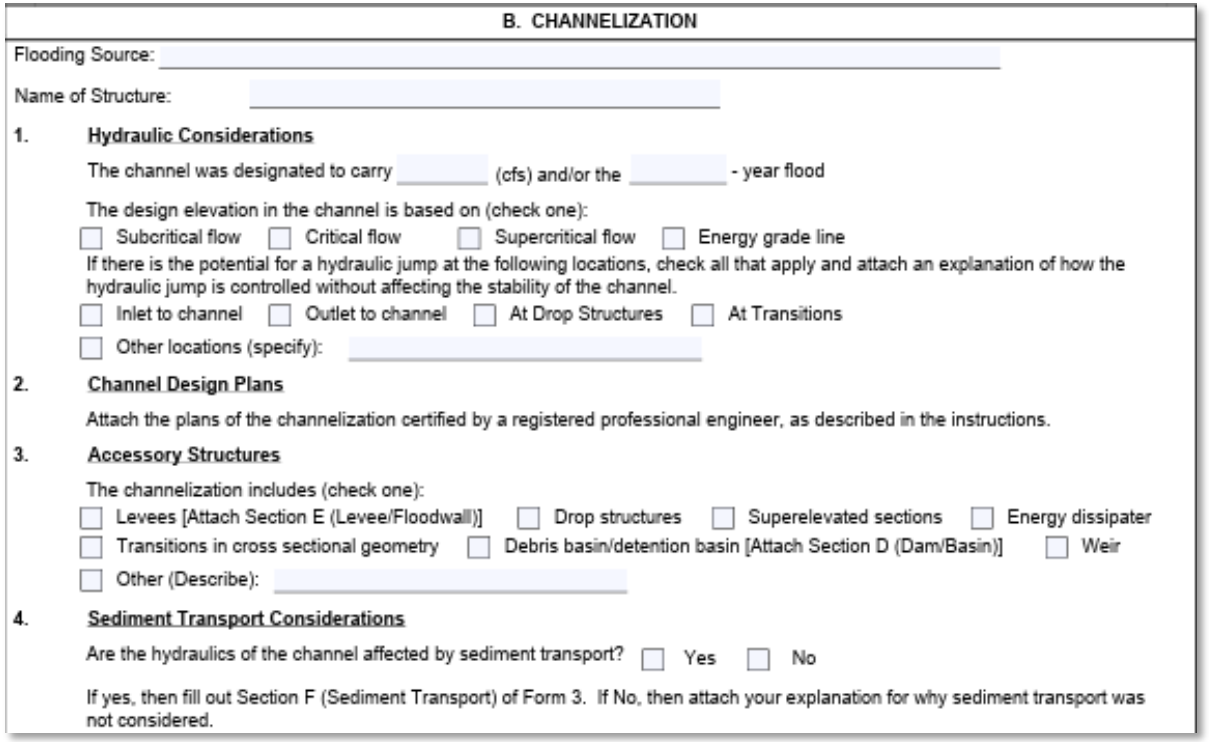
Downstream Limit/Cross Section: _____

Upstream Limit/Cross Section: _____

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Form 3

- Section B. Channelization
  - Used for stream channels where the proposed or as-built channel is altered from the effective conditions.



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): _____

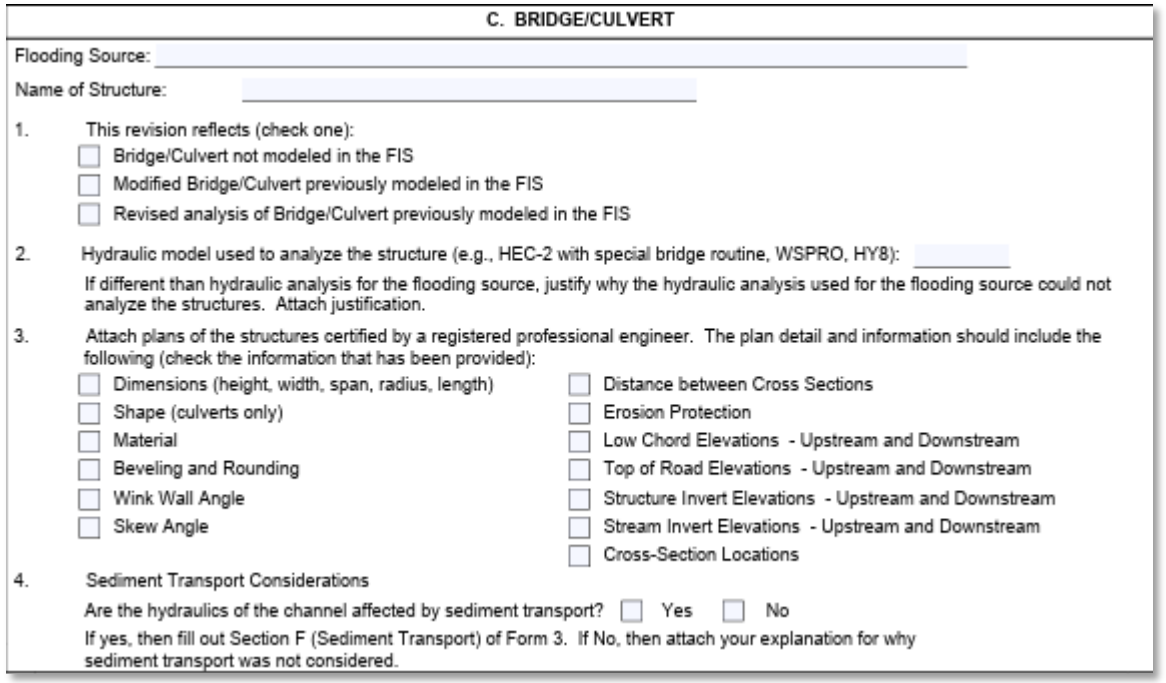
4. **Sediment Transport Considerations**

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.

MT-2 Form 3

- Section C. Bridge/Culvert
  - Reflects more detail of the structures listed in Section A.
    - Submit all proposed, surveyed, as-built data used to model and support revision.



C. BRIDGE/CULVERT

Flooding Source: _____

Name of Structure: _____

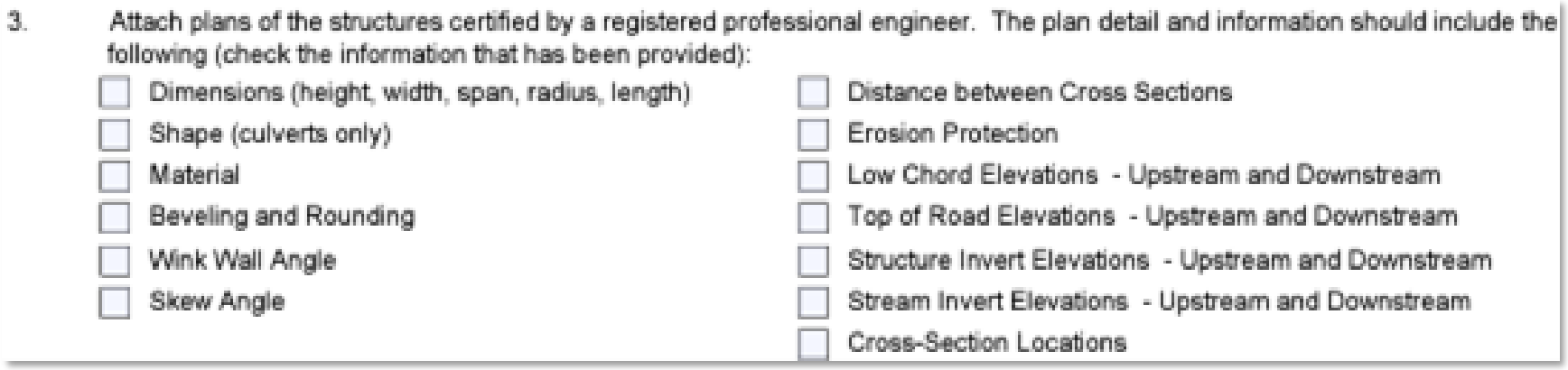
1. This revision reflects (check one):
   - ☐ Bridge/Culvert not modeled in the FIS
   - ☐ Modified Bridge/Culvert previously modeled in the FIS
   - ☐ Revised analysis of Bridge/Culvert previously modeled in the FIS
2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, 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):
   - ☐ Dimensions (height, width, span, radius, length)
   - ☐ Shape (culverts only)
   - ☐ Material
   - ☐ Beveling and Rounding
   - ☐ Wink Wall Angle
   - ☐ Skew Angle
   - ☐ Distance between Cross Sections
   - ☐ Erosion Protection
   - ☐ Low Chord Elevations - Upstream and Downstream
   - ☐ Top of Road Elevations - Upstream and Downstream
   - ☐ Structure Invert Elevations - Upstream and Downstream
   - ☐ Stream Invert Elevations - Upstream and Downstream
   - ☐ 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.

  - Sections D & E are not included in MT-2 reviews by DNR

DNR Indiana Department of Natural Resources | DIVISION OF WATER

Proposed & As-Built Plans

- Required for all existing (as-built) structures that are not in the effective FIS or are being updated from the effective model geometry.
  - Must be signed, sealed, and dated by a registered PE or surveyor.
  - Must include details to verify geometry used in the modeling including vertical datum.



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):

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

MT-2 Form 3, Section C. Bridge/Culvert

- CLOMR proposed plans don't need certified but must be submitted by a PE.

DNR Indiana Department of Natural Resources | DIVISION OF WATER

CLOMR Requirements

44 CFR 65.12 in effect when:

- Proposed project in Floodway increases elevations more than 0.00’ from pre-project to post-project, OR
- Proposed project in SFHA (with or without effective floodway or BFEs) increases BFEs more than 1.0’ pre to post project.
  - DNR allows only 0.14’ rise.

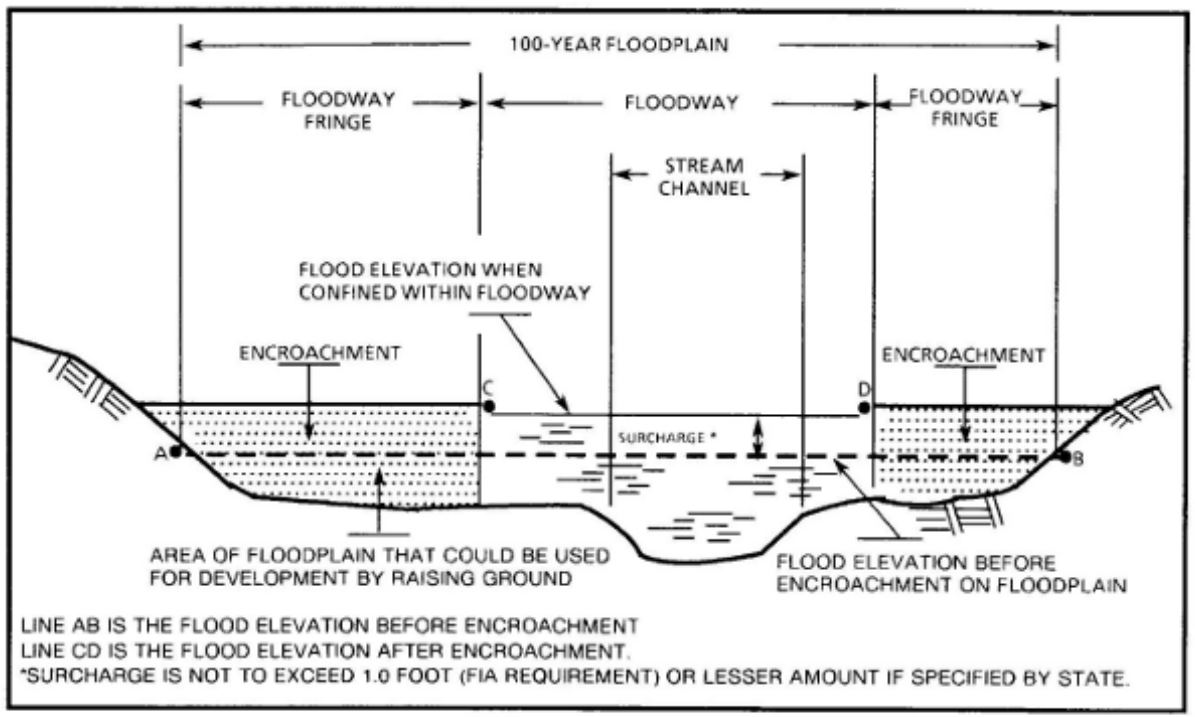


Figure 7. Cross section of the floodplain showing the floodway, floodway fringe and surcharge. The model assumes that the entire floodplain outside of the floodway is filled or otherwise obstructed.

CLOMR Requirements

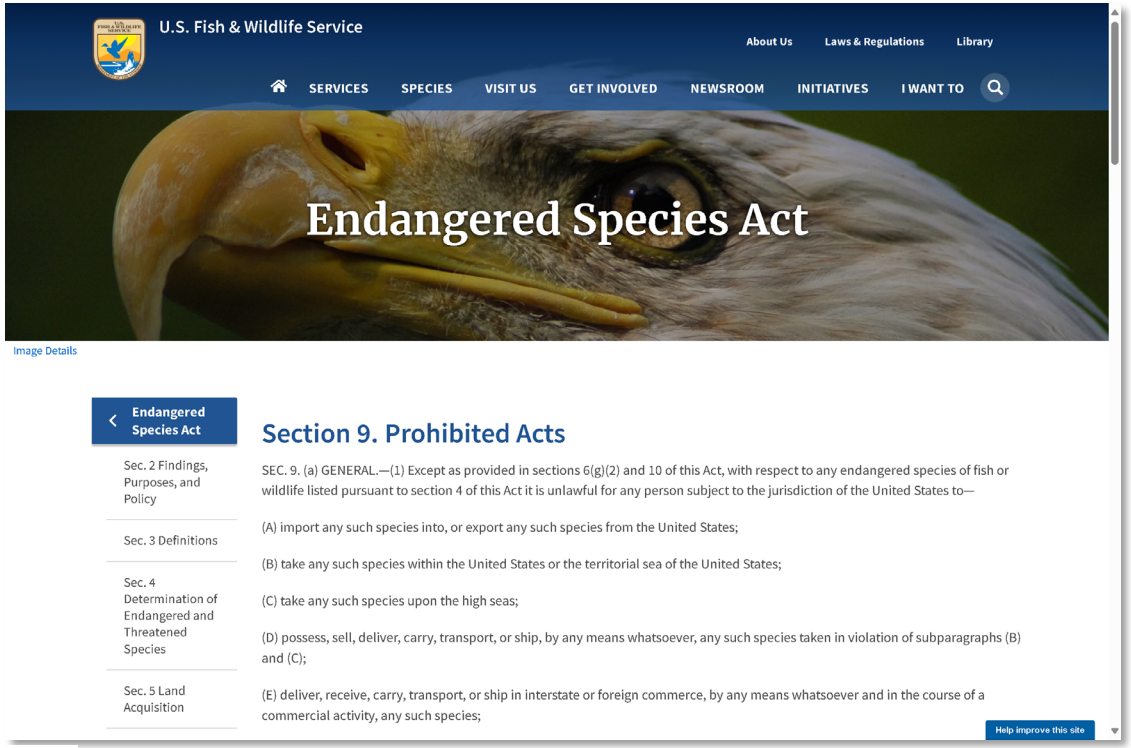
44 CFR 65.12 Requirements

- Certification no structures are in areas that would be affected by the BFE increase.
  - Structures that are already in the effective floodplain are affected if the BFE at the structure would increase as a result of the proposed project.
  - Structures are affected if their lowest adjacent grade is below the proposed conditions BFE, even if the first-floor elevation is above the BFE.
  - This refers to any BFE increase greater than 0.00 feet. It may be possible for a project to result in small BFE increases in areas outside the revised reach. Therefore, this certification is not limited to areas within the revised reach.
- Documentation of the individual legal notice sent to all affected property owners, explaining the impact of the proposed action on their property.
- An evaluation of alternatives that would not result in an increase in BFE.
- Concurrence of the CEO, or their designated representative, of any communities affected by the proposed actions.

DNR Indiana Department of Natural Resources | DIVISION OF WATER

Endangered Species Act

- CLOMR applicants are responsible for providing FEMA with documentation from the services that shows the project has complied with the Endangered Species Act of 1973 (ESA).
  - While FEMA doesn't play a role in ESA compliance, projects are required to comply independently.



- Non-Federal Projects
  - The requester must document the "Take" that exists in the project area.
    - No potential for "Take" exists to threatened and endangered species.
      - ❑ 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, the species or its habitat.
      - ❑ The requester will be responsible for the potential for "Take" determination.
    - 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."
    - If 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.

DNR Indiana Department of Natural Resources | DIVISION OF WATER

MT-2 Notices

Notices noted in MT-2 Form 2, Section D

- Property Owner Notification (PON) is required when BFEs increase or are created and/or SFHAs increase, shift, or are created from effective to revised.
  - Must be in community letterhead, or
  - Statement from community verifying all property owners have been properly notified, if letters sent by requester.
- Public Notice or PON for 65.7(b)(1) compliance is required when the floodway is being revised/created.
  - Public notice distributed by community, or
  - Statement from community (as noted previously)

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 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."

Templates found in MT-2 Instructions.

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Certified Work Map

- Must be of suitable scale and topographic definition to provide reasonable accuracy of boundaries.
- Must include (as noted on MT-2 Form 2 Section C):
  - all flood frequencies effective boundary delineations,
  - all revised boundary delineations related to the requests,
  - a visual tie-in (of all boundaries) that is consistent with the output from the hydraulic analysis,
  - topographic contour information including reasonable elevation labeling,
  - vertical datum,
  - all cross sections of the revised reach used in the revised modeling,
  - flowline used in the revised modeling,
  - legend or clearly labeled features,
  - and certified (sealed, signed, dated) by a registered PE.
- Spatially referenced GIS shapefiles of all revised boundaries, flow line(s), and cross sections is extremely helpful.
- As-built or proposed fill and/or excavation must be reflected in the submitted topographic mapping.

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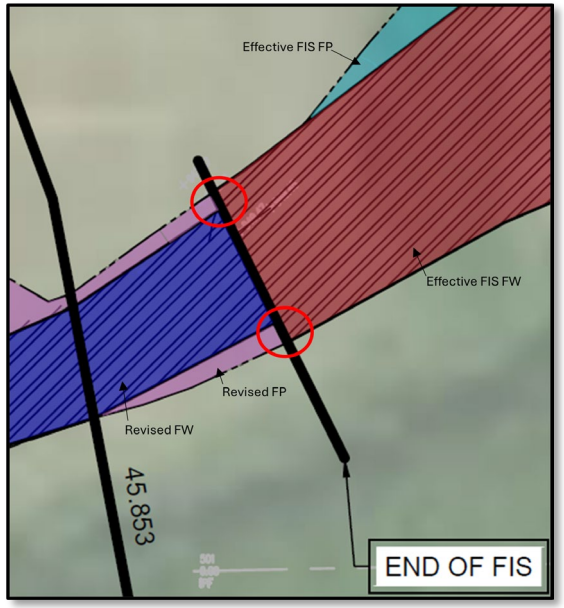
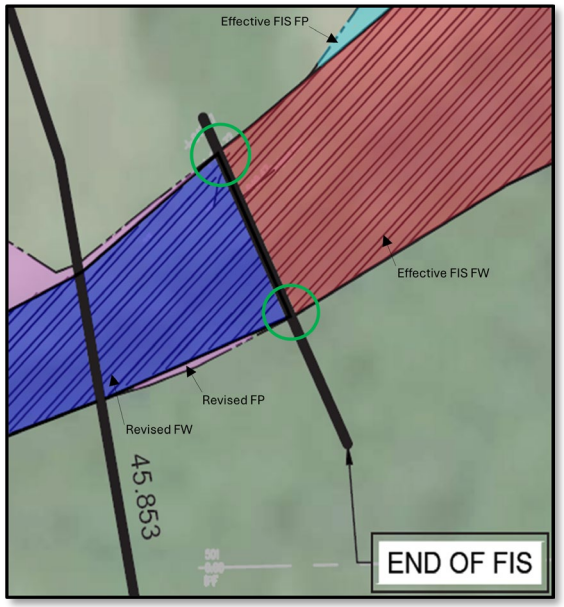
Annotated FIRM

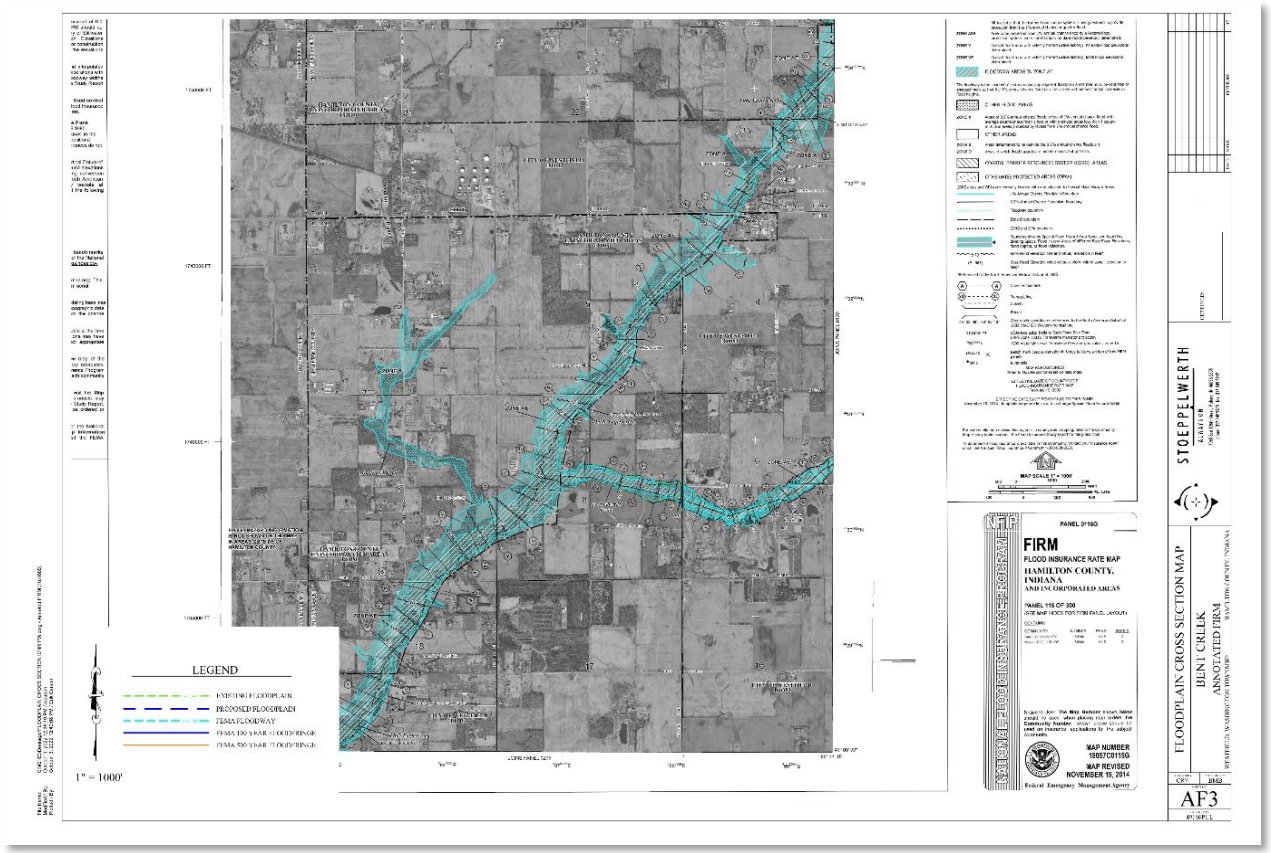
- Make sure to include <u>all</u> impacted FIRM panels.
- Must show the revised boundaries (as shown on the topographic workmap) at the same scale of the effective FIRM.
  - Clearly label features.
  - Include revised cross sections and flow line.
  - Tie-ins from revised to effective boundaries.



Bad Tie In



Good Tie In



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Annotated Documents

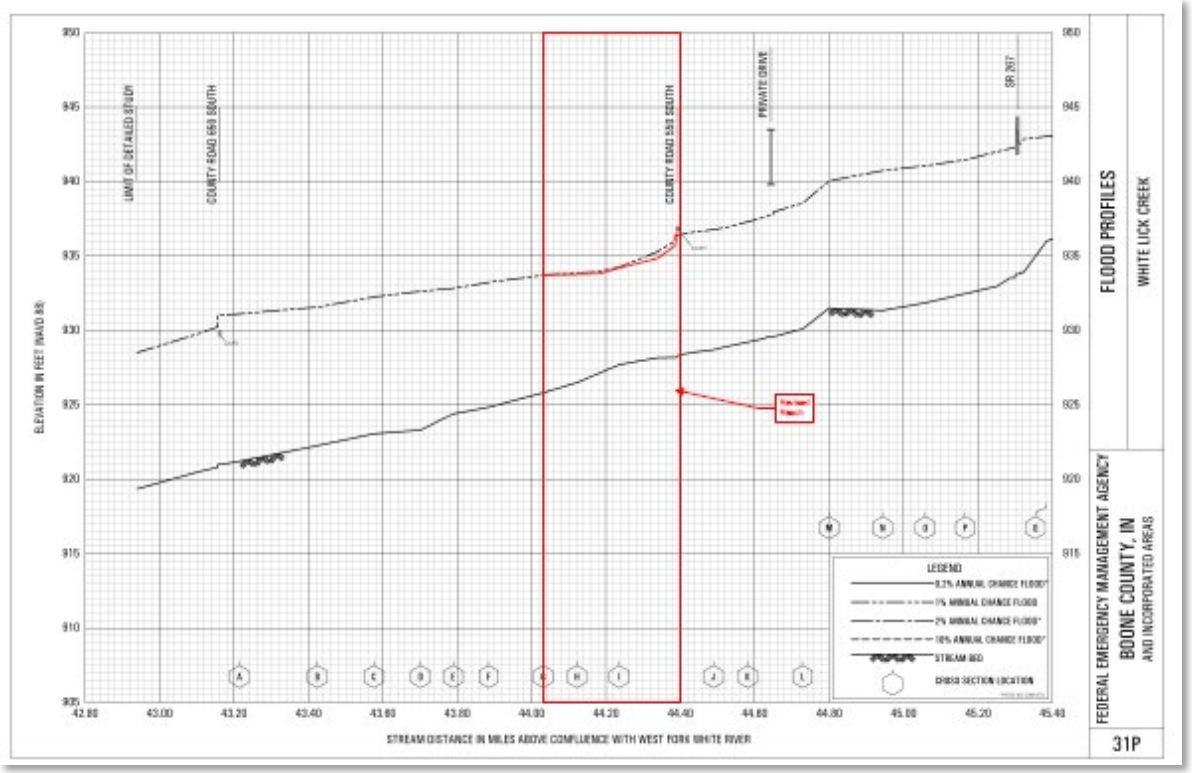
FIS documents with markups are helpful to the MT-2 review process

- Floodway Data Table
- Profiles
- Summery of Discharge Table

FLOODING SOURCE		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
White Lick Creek								
A	43.22	315	1277	1.2	931.1	931.1	931.2	0.1
B	43.42	307	912	1.7	931.6	931.6	931.7	0.1
C	43.58	290	914	1.6	932.3	932.3	932.3	0.0
D	43.70	438	1482	1.0	932.7	932.7	932.7	0.0
E	43.79	411	1145	1.3	932.9	932.9	932.9	0.0
F	43.89	570	1124	1.3	933.2	933.2	933.3	0.1
G	44.03	850	1891	0.8	933.7	933.7	933.8	0.1
H	44.12	~~920~~ 1197	~~2149~~ 3246	~~0.7~~ 0.8	~~933.9~~ 933.8	~~933.9~~ 933.8	~~934.0~~ 933.9	0.1
I	44.24	~~880~~ 877	~~1249~~ 1354	~~1.2~~ 2.3	~~934.2~~ 934.2	~~934.2~~ 934.2	~~934.4~~ 934.3	0.1
J	44.49	614	1063	1.2	936.8	936.8	936.8	0.0
K	44.58	193	451	2.9	937.3	937.3	937.3	0.0
L	44.73	103	227	5.7	938.6	938.6	938.6	0.0
M	44.80	195	619	2.1	940.0	940.0	940.1	0.1
N	44.94	314	967	1.3	940.7	940.7	940.8	0.1
O	45.06	351	814	1.6	941.1	941.1	941.1	0.0
P	45.17	85	421	3.1	941.5	941.5	941.6	0.1
Q	45.38	660	1804	0.6	943.0	943.0	943.1	0.1
R	45.48	475	782	1.4	943.1	943.1	943.2	0.1
S	45.56	235	345	3.2	943.9	943.9	944.0	0.1
T	45.62	121	302	3.7	945.1	945.1	945.2	0.1
U	45.69	74	339	3.3	945.9	945.9	946.0	0.1
V	45.76	107	408	2.7	946.6	946.6	946.6	0.0

[1]Miles above confluence with West Fork White River

TABLE 10 | FEDERAL EMERGENCY MANAGEMENT AGENCY | BOONE COUNTY, IN AND INCORPORATED AREAS | FLOODWAY DATA | WHITE LICK CREEK



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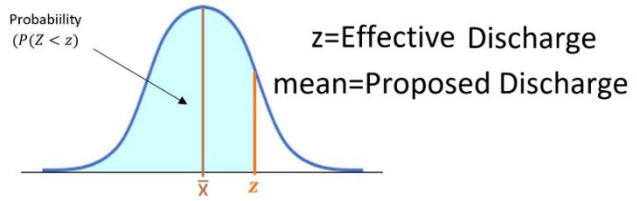
Hydrologic Analysis

- Consider Effective Discharges
  - Revised hydrologic analysis should be statistically significantly different than effective
    - More than one standard deviation
  - BFEs change more than 0.5’
  - Substantial changes in hydraulic conditions
  - Errors in effective model or better methods available
- Revised Study
  - Consider a more detailed approach
  - Based on existing ground
  - Use discharge data from a reliable sources
    - USGS stream gages
    - Data collected by Federal, State, or Local agencies



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5754
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7258	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7518	0.7549
0.7	0.7580	0.7612	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7996	0.8023	0.8051	0.8079	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9430	0.9441
1.6	0.9452	0.9463	0.9474	0.9485	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9700	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9762	0.9767
2.0	0.9773	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9865	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9980	0.9980	0.9981
2.9	0.9981	0.9982	0.9983	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998	0.9998

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Hydrologic Analysis

Appropriate Methods

Rainfall-Runoff
Simulates the transformation of rainfall into runoff within a watershed.

Gauge Frequency Analysis
Historical data from a stream gauge (10 years or longer)

Regional Regression
Uses time of concentration (Tc) and storage coefficient (R) for a specific area by utilizing readily available data like basin area, slope, and land use.

Verify flow for a location with estimates in nearby watersheds having similar characteristics.

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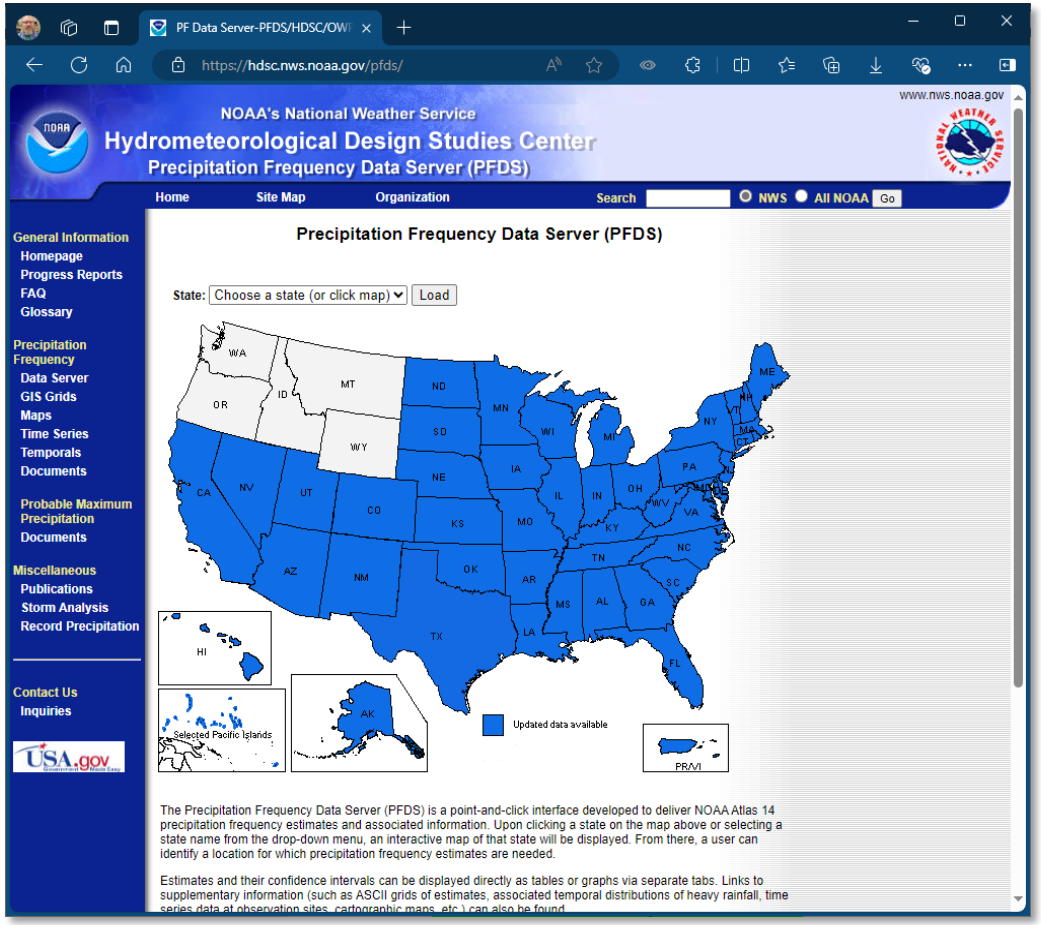
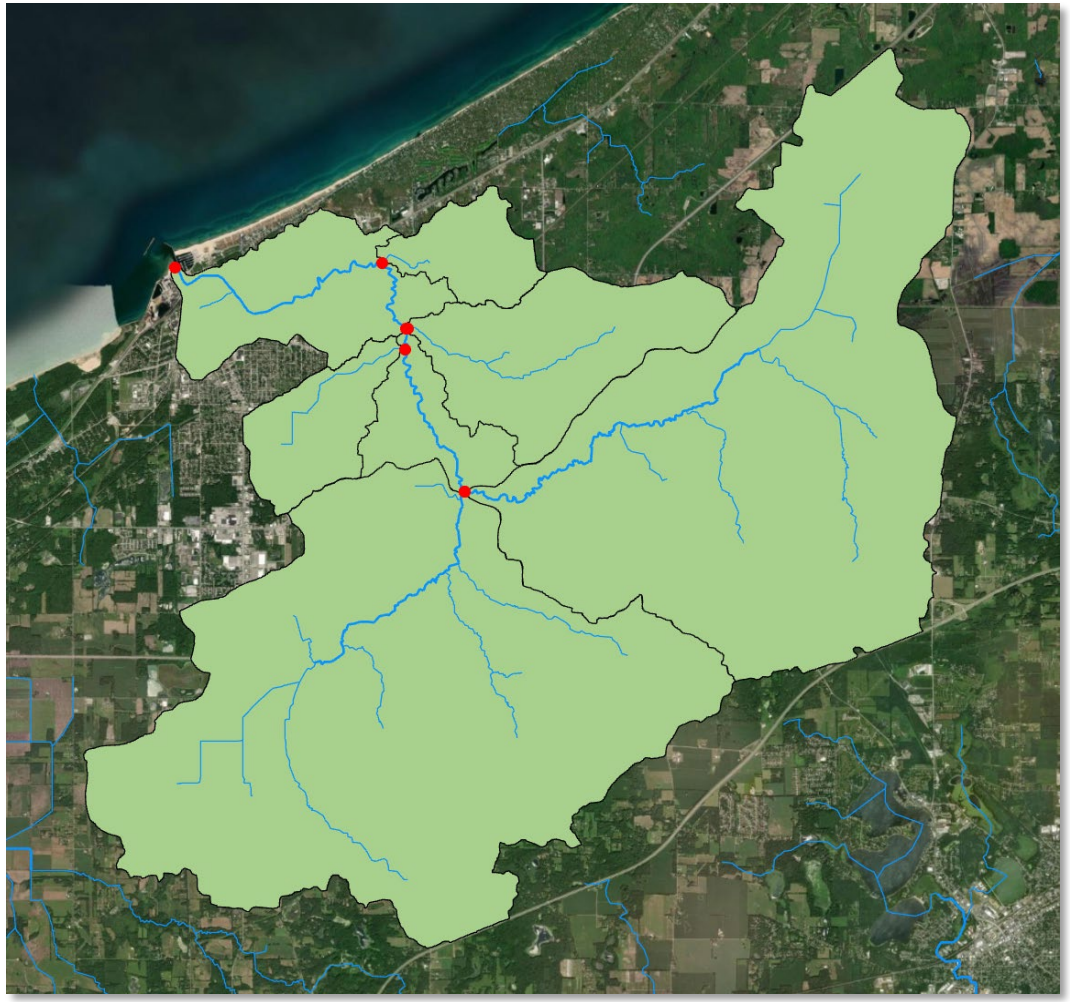
Hydrologic Analysis

- Reasonability
  - Watershed Delineation
    - Define subbasins and stream network
  - Rainfall Depth depends on the specific location and storm event
    - Generally, it should align with historical data from the area
  - Storm Duration typically falls under 24 hours
    - Data from sources like NOAA Atlas 14
  - Temporal Distribution (DNR)
    - SCS Type B (6 hr)
    - SCS Type II (24 hr)



Hydrologic Analysis

- Reasonability, continued
  - Runoff Transformation
    - SCS: uses a more simplified curve number-based system
    - Clark: utilizes a conceptual model based on linear storage
  - Other considerations
    - Loss Rate
    - Time of Concentration/Lag Time Computations
    - Flow Routing Method
    - Storage



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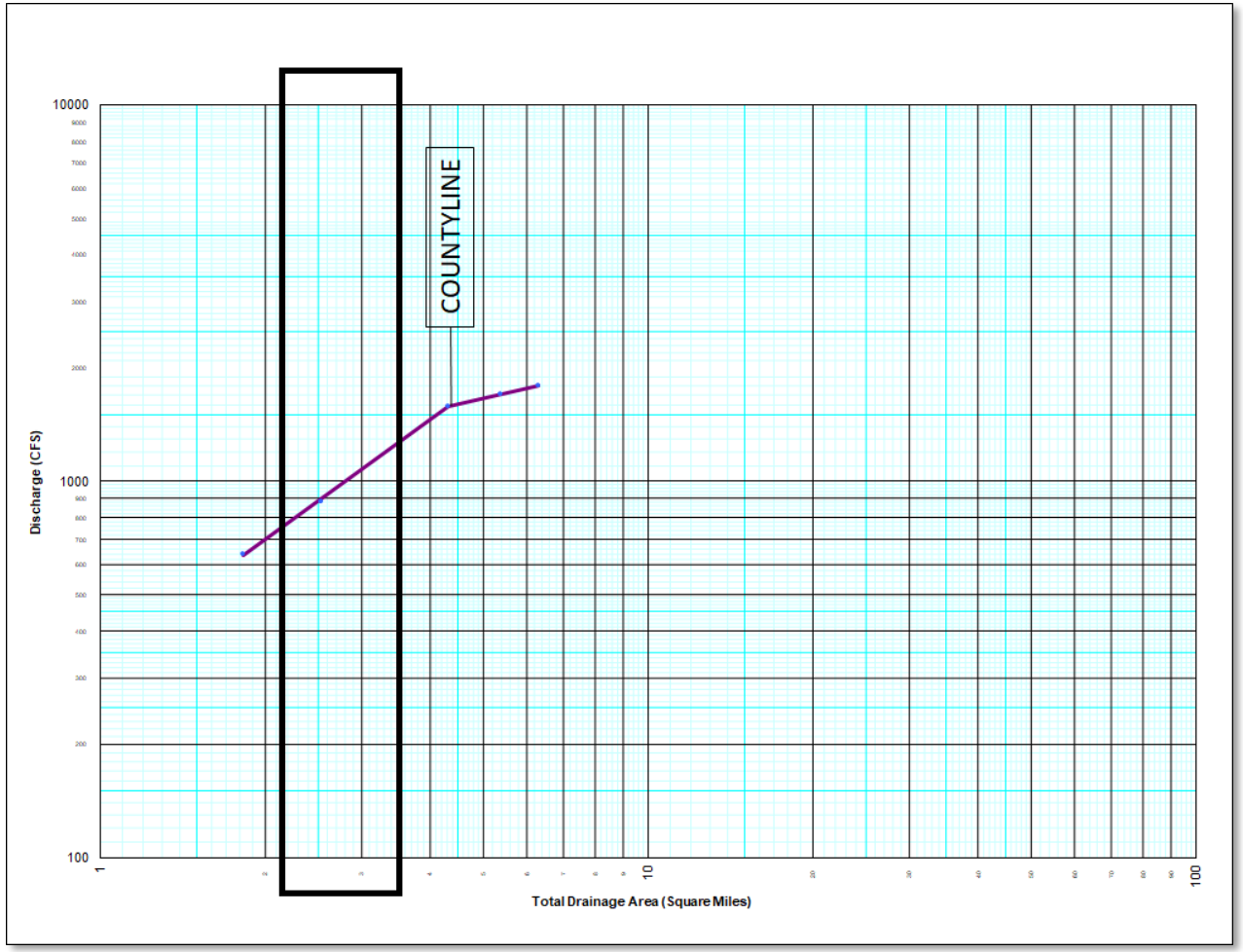
Hydrologic Analysis

- Calibration
  - Within one standard error of the regression and of gaging station estimates
  - In range of flood frequency curve
  - Consistency must be maintained for contiguous community matching.
    - Full stream analysis from most downstream point of watershed
- Steady flow data points must be submitted to support the new curve
  - Hydrology Narrative
  - GIS data
  - Discharge hydrograph



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Hydraulic Analysis

FEMA has approved HEC RAS (Latest Versions)

- But may accept previous versions if they are documented in the narrative (not older than the effective model version).

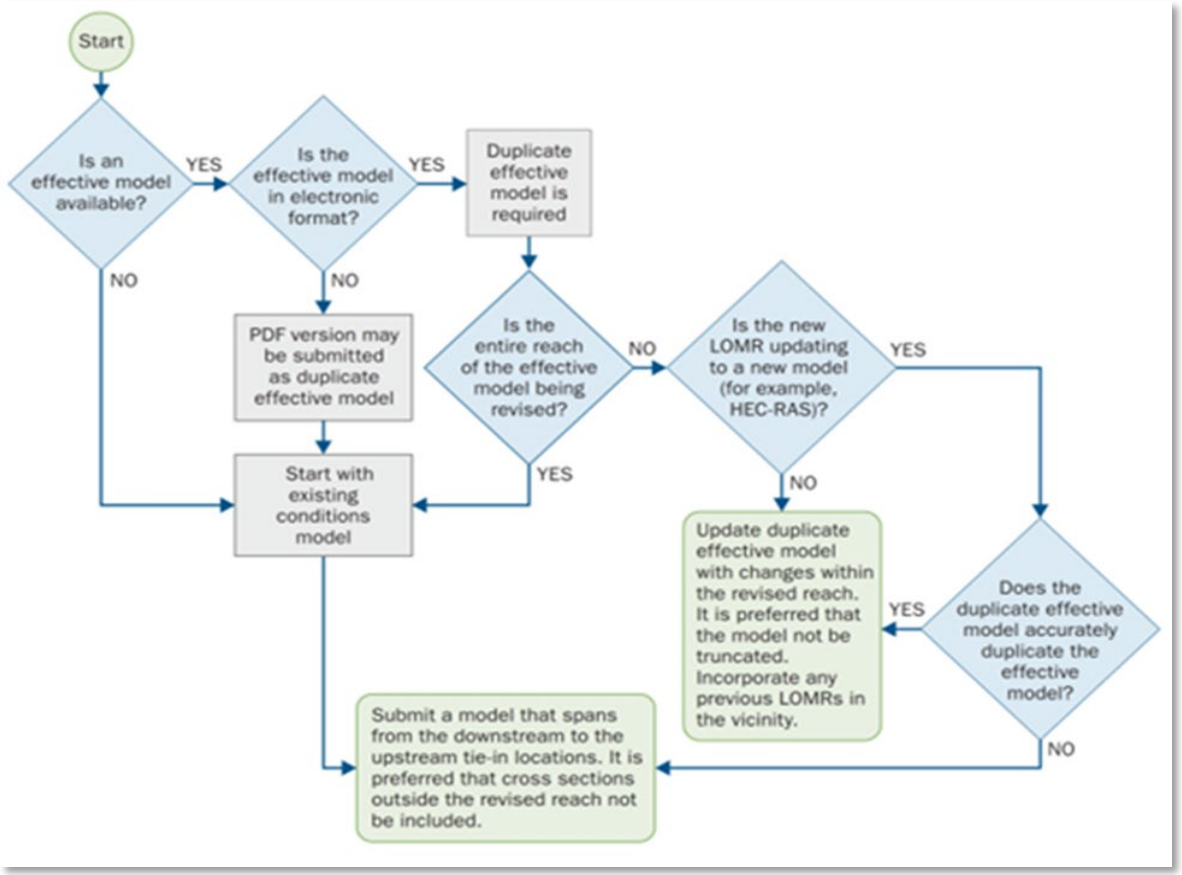
- If Effective is HEC-2:
  - ✓ Convert to HEC-RAS and make minimal edits to run model without errors

- If Effective is HEC-RAS:
  - ✓ Run on equipment & calibrated to within 0.1' of the effective BFEs.

- If no Effective, new model calibrated within +/-0.5'.

Per 44 CFR 65.6(a)(8): Must use the same hydraulic modeling unless the original is unavailable, or its use is inappropriate. Revised analysis for established BFEs must include the same recurrence intervals as the effective FIS.

Per 44 CFR 65.6(a)(9), if no established BFEs, only the 1% flood interval is required.



Flow Chart for Determining the Need for Duplicate Effective Model

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Hydraulic Analysis

Corrected Effective Plan

- Corrects errors in the DE
- Adds cross sections for evaluation of projects
- Incorporates more detailed topography of effective conditions
  - Natural changes only

Existing/Pre-Project Plan

- Incorporates changes within the revised reach since the effective date and prior to any proposed projects
- If no changes, will be the same as the Corrected Effective
- Must also be provided for CLOMR.

Revised/Proposed/Post-Project Plan

- Reflects the man-made changes to the revised reach on which the revised BFEs are based on
- Proposed plan incorporates any proposed projects in the revised reach for CLOMR
- Post-Project BFEs must be +/-0.1’ to the Pre-Project BFEs at transition points to verify that all impacts of projects are properly reflected in revised reach
- BFE Tie-in at the point where unrevised reaches met revised reaches should be within 0.1’, per 44 CFR 65.6(a)(2)
  - Determined by comparing revised BFEs to the effective FIS BFEs at the transition area

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Hydraulic Analysis

What are we looking for?

- Are discharges consistent between multiple profiles and the floodway analysis?
- Flow critical or subcritical
  - cHECk-RAS errors addressed?
- Boundary Condition
- Geometric data
  - Vertical Datum
- Cross Sections
  - Placement
  - Full valley
- Are the bridges reasonably modeled?
  - Match plans
  - HEC-RAS User's Manual
- Are the channels reasonably modeled?
- Input Parameters Reasonable?
  - Manning's n
  - Ineffective & Blocked Areas
  - Expansion/Contraction
- Floodway Analysis Check
  - Encroachments
  - Surcharge
- Is split flow reasonably modeled?
- Does the WSEL tie-in to the Effective Data Reasonably?
- How do the WSEL Compare?
  - DE vs CE
  - EX vs Proposed/As-Built
  - Effective vs Proposed/As-Built

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Revised Mapping

What are we looking for?

- Does the floodplain agree with the contours on the workmap?
- Is backwater flooding reasonable?
- What are the differences in Floodway and Floodplain Delineation?
  - More narrow than Effective?
  - More wide than Effective?
- Top-width Model vs Mapping
  - 5% Tolerance
- Can the BFE be reasonably plotted on the workmap from the Profiles?
  - And vice versa
- Reach lengths, cross sections, other geometric data, and Floodway encroachments match modeling?

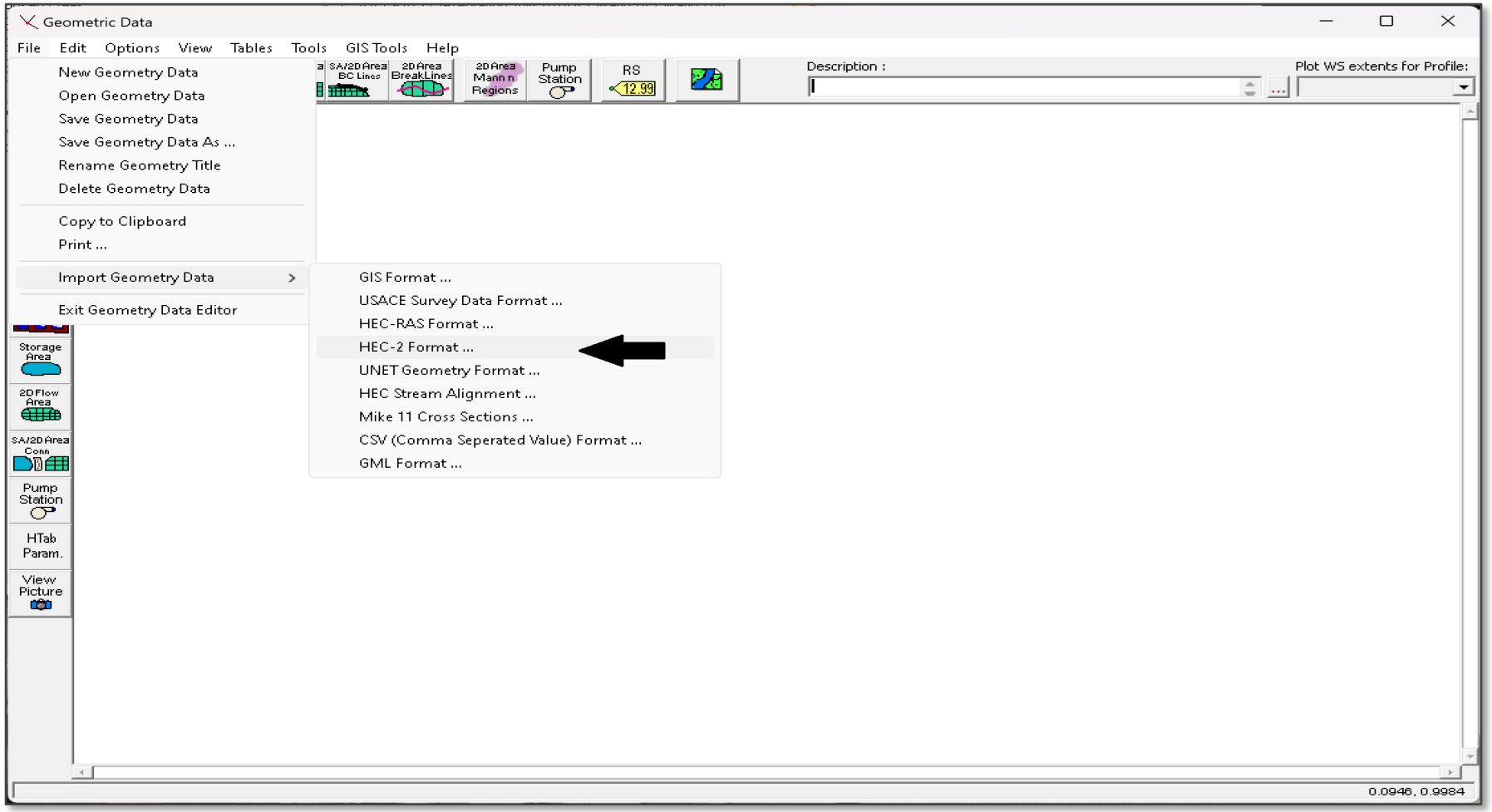
Questions

HEC-2 to RAS Example

- Duplicate Effective Model (Effective Model)
  - Acceptable Software Version
    - "The effective HEC-2 model should be rerun on the requestor's computer in HEC-RAS to create the duplicate effective model."
  - Make it run
  - Does it calibrate with the FIS?
    - 0.5' at the upstream and downstream of revision area.
    - 0.0' if possible
    - ASK

Example

Create the Duplicate Effective Model



Example

Create the Duplicate Effective Model

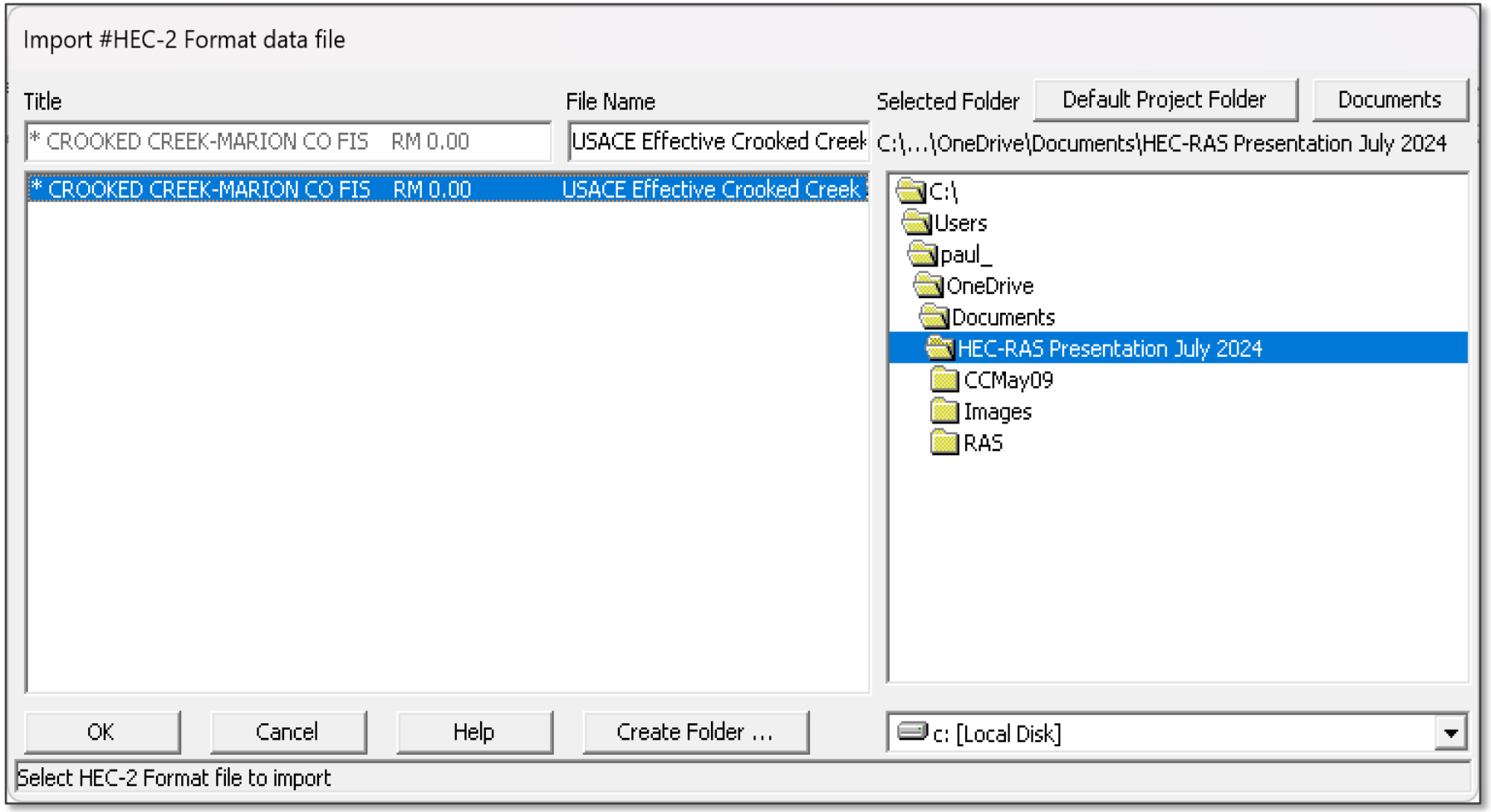
- **"The effective HEC-2 model should be rerun on the requestor's computer in HEC-RAS to create the duplicate effective model."**

Acceptable Software Versions

- HEC-RAS v3.1.1 and up
- HEC-RAS v4 and up
- HEC-RAS v5 and up
- HEC-RAS v6 and up
- **HEC-2**

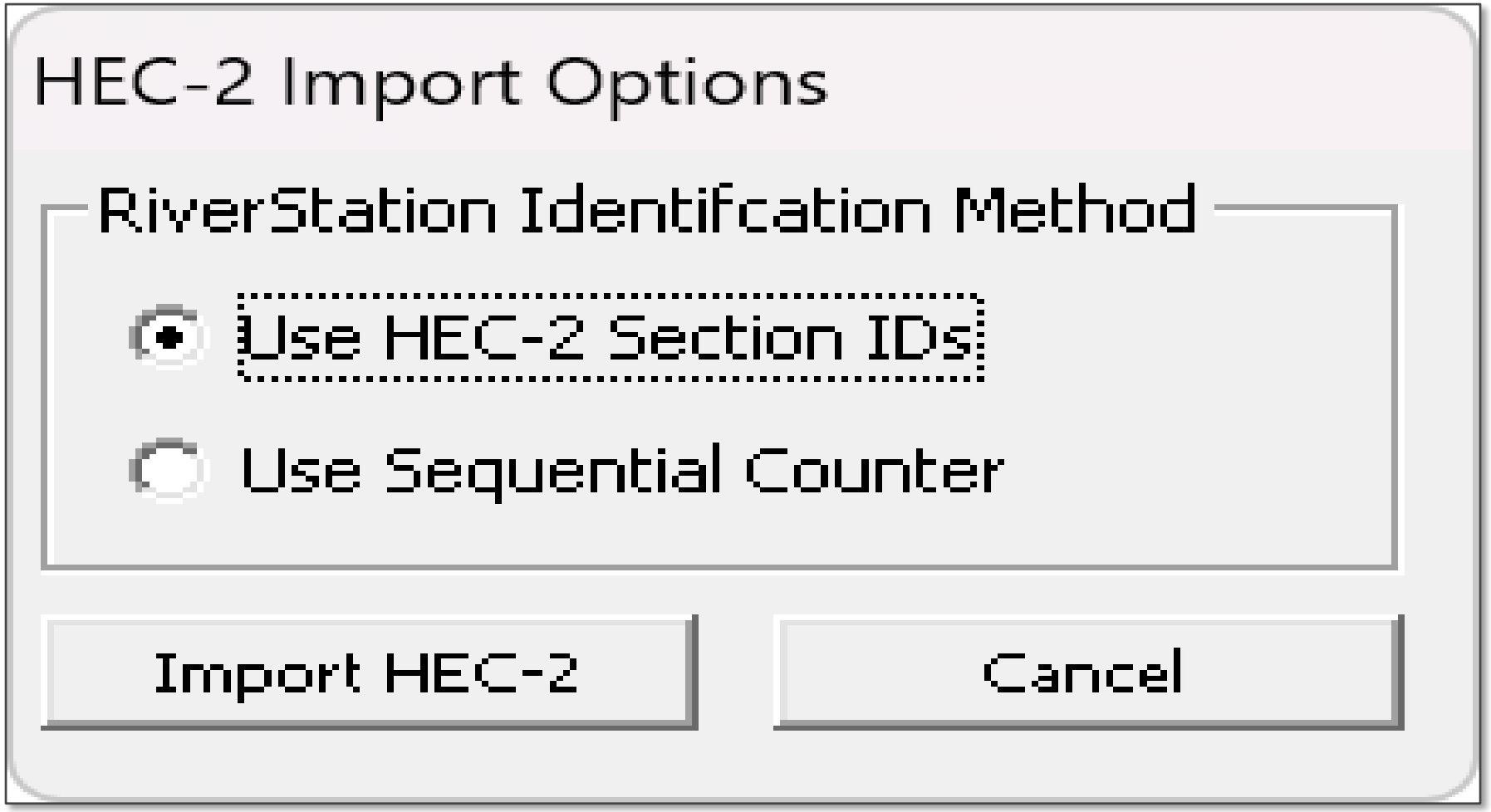
Example

Create the Duplicate Effective Model



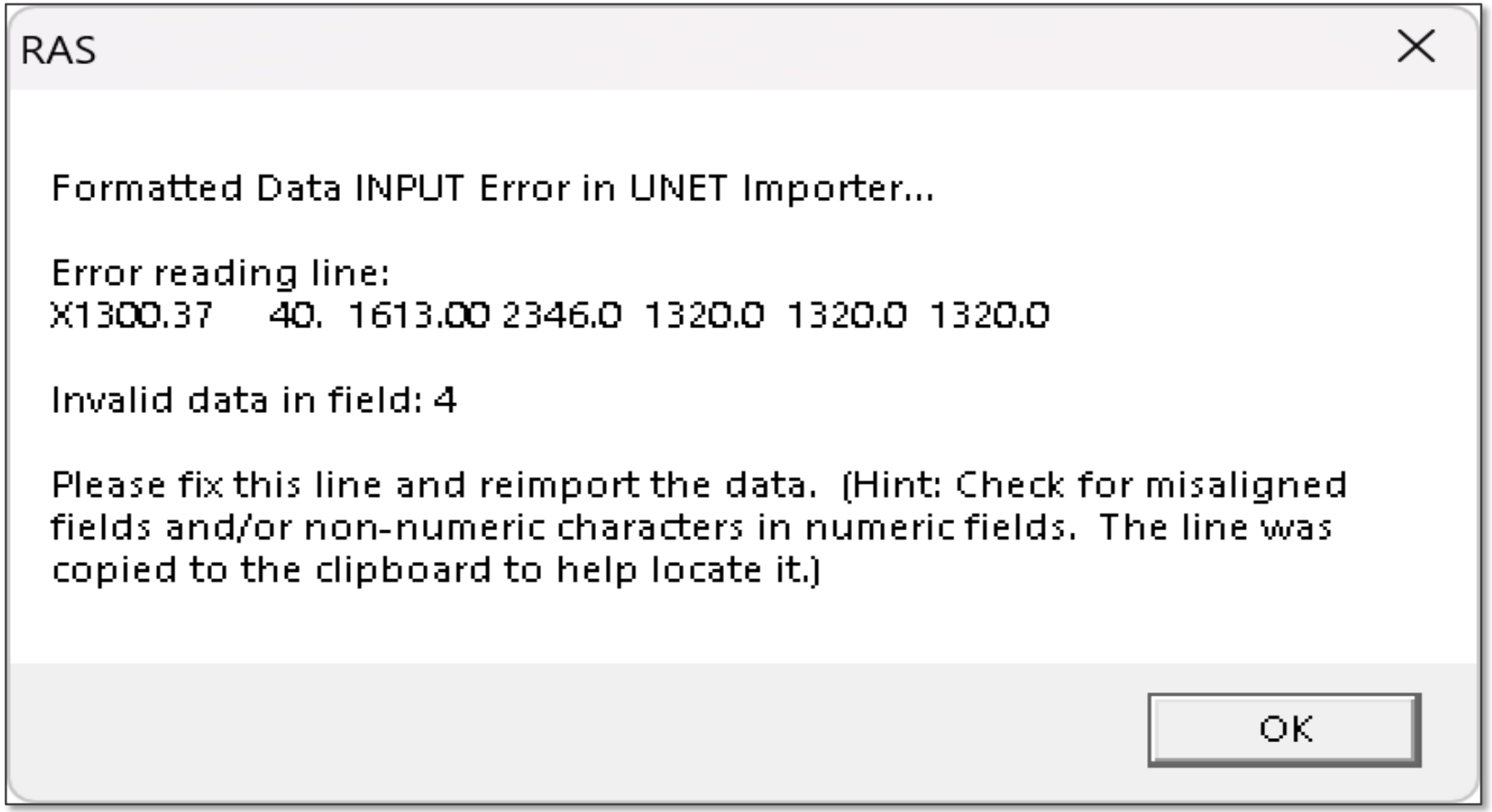
Example

Create the Duplicate Effective Model



Example

Create the Duplicate Effective Model



Example

Create the Duplicate Effective Model

C:\Users\paul_\OneDrive\Documents\HEC-RAS Presentation July 2024\USACE Effective Crooked Creek 2001.dat - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

USACE Effective Crooked Creek 2001.dat

```
* CROOKED CREEK-MARION CO FIS     RM 0.00-11.15
T1       MARION CO. (ALL SECTIONS ARE EFFECTIVE FLOW SECTIONS)
T2       10 YEAR FLOOD
T3       CROOKED CREEK
J1    -1        5                                      -1          705.45
J2     1                -1
J3   200       38       27       21       22       28       16       18       17
NC  .060      .06     .045       .1       .3
QT     6     4500     3500     6000     7500    10050     7500
ET                                                     1.4
X1300.12      28.   1619.1   2214.    528.2    528.2    528.2
GR 713.0    500.0    699.8    500.1    701.5   1515.7    699.2   1536.5    723.9   1619.1
GR 724.2   1742.9    707.2   1812.9    708.4   1842.9    705.9   1860.0    693.5   1945.0
GR 692.3   1952.0    691.9   1986.0    692.1   2020.0    693.6   2073.0    694.0   2095.0
GR 698.4   2123.0    698.3   2132.0    694.8   2144.0    693.8   2156.0    693.1   2172.0
GR 693.9   2185.0    699.1   2214.0    700.5   2317.0    701.1   2388.0    703.7   2476.0
GR 702.3   2600.0    703.5   3062.0    713.0   3062.1
X1300.37      40.   1613.00 2346.0   1320.0   1320.0   1320.0
GR 717.0    500.0    704.0    500.1    704.0    517.6    694.3    591.7    694.4   1013.5
GR 699.3   1039.9    699.7   1114.4    694.5   1174.3    695.6   1222.6    696.5   1263.3
GR 697.3   1313.7    698.3   1426.0    699.3   1446.0    699.0   1456.0    691.2   1522.9
GR 691.2   1523.0    691.0   1538.0    690.9   1553.0    691.2   1569.0    691.2   1569.1
GR 696.2   1613.0    699.0   1637.5    698.9   1659.0    696.8   1702.3    696.7   1829.1
GR 696.5   2165.7    699.5   2196.6    699.4   2219.0    692.8   2238.0    692.6   2256.3
GR 692.6   2256.4    692.5   2272.0    691.4   2304.0    690.9   2310.0    691.4   2316.0
GR 701.6   2346.0    698.9   2426.0    702.0   2483.9    702.5   2859.7    717.0   2859.8
X1999.02                                 51.0     51.0     51.0
X3  10.0                                                    698.3    698.9
X1300.38                                  3.0      3.0      3.0
X3  10.0                                                    698.3    698.9
BT  34.0    500.0    717.0    717.0    500.1    704.0    704.0    517.6    704.0    704.0
BT 591.7    694.3    694.3   1013.5    694.4    694.4   1039.9    701.2    699.3   1114.4
BT 700.3    699.7   1174.3    694.5    694.5   1222.6    700.5    695.6   1263.3    700.6
BT 696.5   1313.7    697.3    697.3   1426.0    698.3    698.3   1446.0    702.0    699.3
BT1456.0    699.0    699.0   1522.9    702.7    691.2   1523.0    702.7    699.1   1553.0
BT 702.7    699.1   1569.0    702.7    699.1   1569.1    702.7    691.2   1613.0    702.0
BT 696.2   1637.5    699.0    699.0   1659.0    698.9    698.9   1702.3    699.1    696.8
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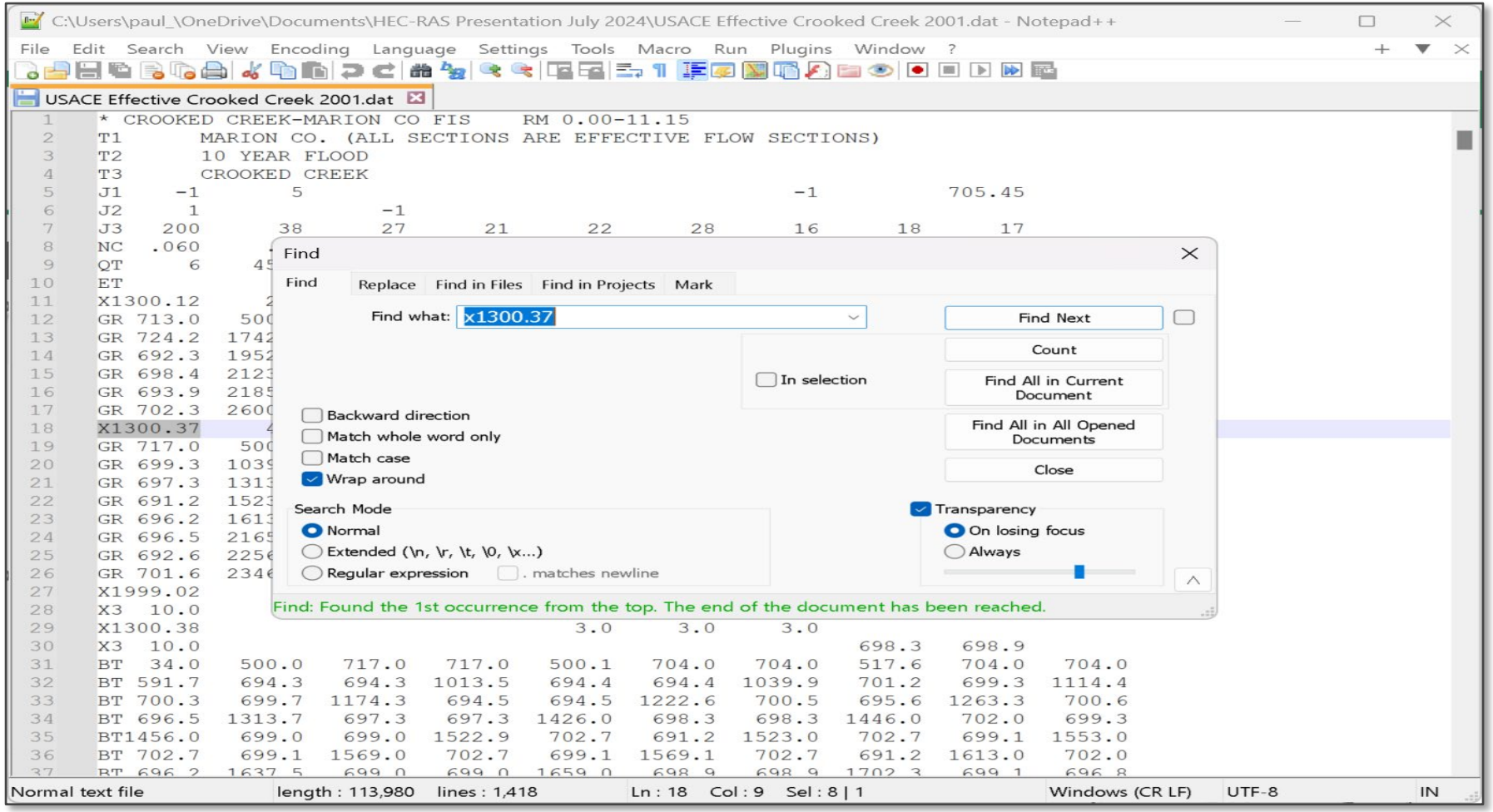
Normal text file | length : 113,980 | lines : 1,418 | Ln : 52 | Col : 57 | Pos : 3,635 | Windows (CR LF) | UTF-8 | IN

DNR Indiana Department of Natural Resources | DIVISION OF WATER

Example

Create the Duplicate Effective Model



Example

Create the Duplicate Effective Model

C:\Users\paul_\OneDrive\Documents\HEC-RAS Presentation July 2024\USACE Effective Crooked Creek 2001.dat - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

USACE Effective Crooked Creek 2001.dat

```
* CROOKED CREEK-MARION CO FIS     RM 0.00-11.15
T1       MARION CO. (ALL SECTIONS ARE EFFECTIVE FLOW SECTIONS)
T2       10 YEAR FLOOD
T3       CROOKED CREEK
J1    -1        5                                        -1          705.45
J2     1                -1
J3   200       38       27       21       22       28       16       18       17
NC  .060      .06     .045       .1       .3
QT     6     4500     3500     6000     7500    10050     7500
ET                                                    1.4
X1300.12      28.   1619.1    2214.    528.2    528.2    528.2
GR 713.0    500.0    699.8    500.1    701.5   1515.7    699.2   1536.5    723.9   1619.1
GR 724.2   1742.9    707.2   1812.9    708.4   1842.9    705.9   1860.0    693.5   1945.0
GR 692.3   1952.0    691.9   1986.0    692.1   2020.0    693.6   2073.0    694.0   2095.0
GR 698.4   2123.0    698.3   2132.0    694.8   2144.0    693.8   2156.0    693.1   2172.0
GR 693.9   2185.0    699.1   2214.0    700.5   2317.0    701.1   2388.0    703.7   2476.0
GR 702.3   2600.0    703.5   3062.0    713.0   3062.1
X1300.37      40.   1613.00  2346.0   1320.0   1320.0   1320.0
GR 717.0    500.0    704.0    500.1    704.0    517.6    694.3    591.7    694.4   1013.5
GR 699.3   1039.9    699.7   1114.4    694.5   1174.3    695.6   1222.6    696.5   1263.3
GR 697.3   1313.7    698.3   1426.0    699.3   1446.0    699.0   1456.0    691.2   1522.9
GR 691.2   1523.0    691.0   1538.0    690.9   1553.0    691.2   1569.0    691.2   1569.1
GR 696.2   1613.0    699.0   1637.5    698.9   1659.0    696.8   1702.3    696.7   1829.1
GR 696.5   2165.7    699.5   2196.6    699.4   2219.0    692.8   2238.0    692.6   2256.3
GR 692.6   2256.4    692.5   2272.0    691.4   2304.0    690.9   2310.0    691.4   2316.0
GR 701.6   2346.0    698.9   2426.0    702.0   2483.9    702.5   2859.7    717.0   2859.8
X1999.02                                 51.0     51.0     51.0
X3  10.0                                                    698.3    698.9
X1300.38                                  3.0      3.0      3.0
X3  10.0                                                    698.3    698.9
BT  34.0    500.0    717.0    717.0    500.1    704.0    704.0    517.6    704.0    704.0
BT 591.7    694.3    694.3   1013.5    694.4    694.4   1039.9    701.2    699.3   1114.4
BT 700.3    699.7   1174.3    694.5    694.5   1222.6    700.5    695.6   1263.3    700.6
BT 696.5   1313.7    697.3    697.3   1426.0    698.3    698.3   1446.0    702.0    699.3
BT1456.0    699.0    699.0   1522.9    702.7    691.2   1523.0    702.7    699.1   1553.0
BT 702.7    699.1   1569.0    702.7    699.1   1569.1    702.7    691.2   1613.0    702.0
BT 696.2   1637.5    699.0    699.0   1659.0    698.9    698.9   1702.3    699.1    696.8
```

Normal text file | length : 113,980 | lines : 1,418 | Ln : 18 | Col : 9 | Sel : 8 | 1 | Windows (CR LF) | UTF-8 | IN

Example

Create the Duplicate Effective Model

C:\Users\paul_\OneDrive\Documents\HEC-RAS Presentation July 2024\USACE Effective Crooked Creek 2001.dat - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

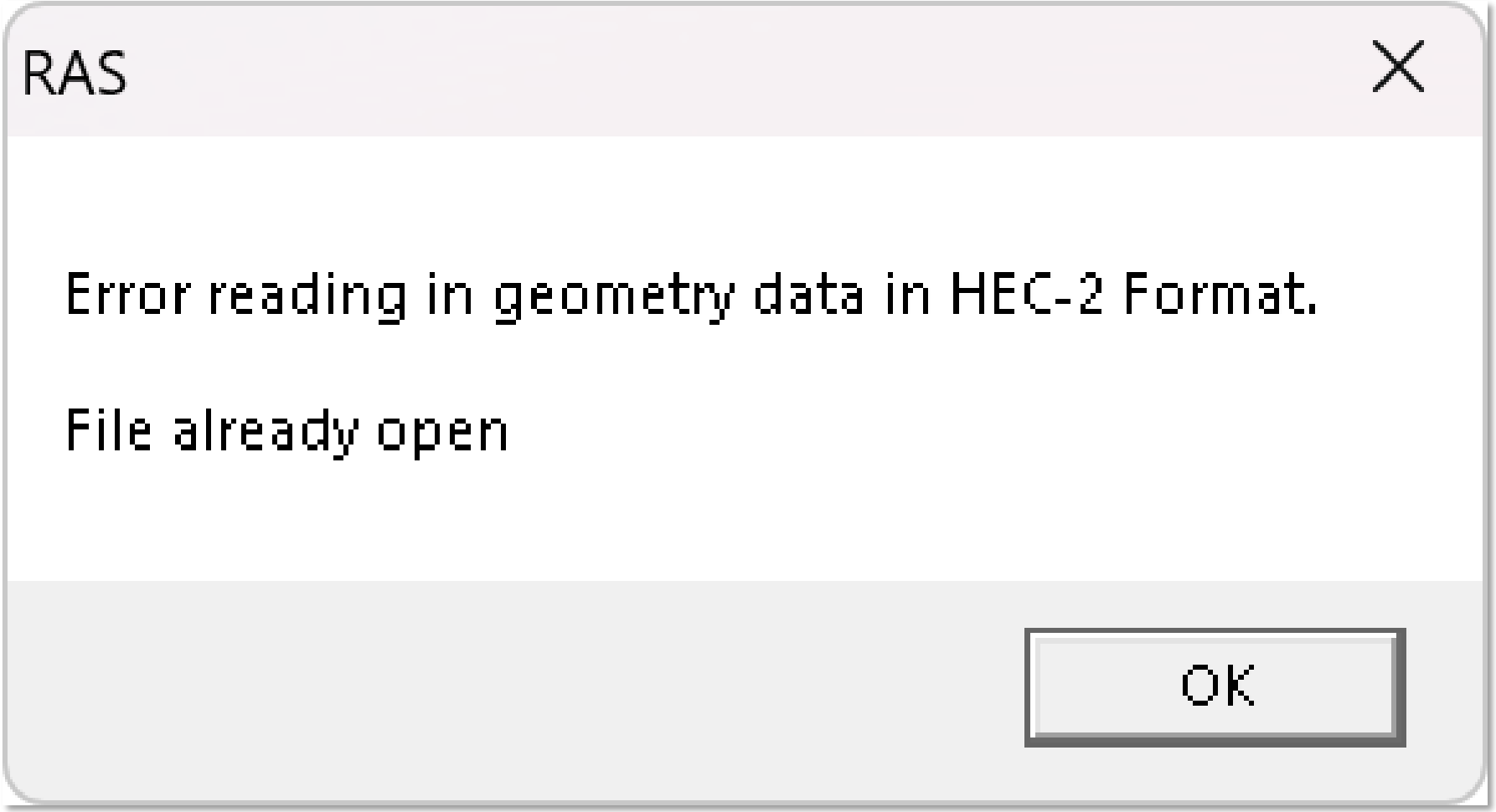
USACE Effective Crooked Creek 2001.dat

```
* CROOKED CREEK-MARION CO FIS     RM 0.00-11.15
T1       MARION CO. (ALL SECTIONS ARE EFFECTIVE FLOW SECTIONS)
T2       10 YEAR FLOOD
T3       CROOKED CREEK
J1    -1        5                                      -1          705.45
J2     1                -1
J3   200       38       27       21       22       28       16       18       17
NC  .060      .06     .045       .1       .3
QT     6     4500     3500     6000     7500    10050     7500
ET                                                     1.4
X1300.12      28.   1619.1    2214.    528.2    528.2    528.2
GR 713.0    500.0    699.8    500.1    701.5   1515.7    699.2   1536.5    723.9   1619.1
GR 724.2   1742.9    707.2   1812.9    708.4   1842.9    705.9   1860.0    693.5   1945.0
GR 692.3   1952.0    691.9   1986.0    692.1   2020.0    693.6   2073.0    694.0   2095.0
GR 698.4   2123.0    698.3   2132.0    694.8   2144.0    693.8   2156.0    693.1   2172.0
GR 693.9   2185.0    699.1   2214.0    700.5   2317.0    701.1   2388.0    703.7   2476.0
GR 702.3   2600.0    703.5   3062.0    713.0   3062.1
X1300.37      40.   1613.0   2346.0   1320.0   1320.0   1320.0
GR 717.0    500.0    704.0    500.1    704.0    517.6    694.3    591.7    694.4   1013.5
GR 699.3   1039.9    699.7   1114.4    694.5   1174.3    695.6   1222.6    696.5   1263.3
GR 697.3   1313.7    698.3   1426.0    699.3   1446.0    699.0   1456.0    691.2   1522.9
GR 691.2   1523.0    691.0   1538.0    690.9   1553.0    691.2   1569.0    691.2   1569.1
GR 696.2   1613.0    699.0   1637.5    698.9   1659.0    696.8   1702.3    696.7   1829.1
GR 696.5   2165.7    699.5   2196.6    699.4   2219.0    692.8   2238.0    692.6   2256.3
GR 692.6   2256.4    692.5   2272.0    691.4   2304.0    690.9   2310.0    691.4   2316.0
GR 701.6   2346.0    698.9   2426.0    702.0   2483.9    702.5   2859.7    717.0   2859.8
X1999.02                                 51.0     51.0     51.0
X3  10.0                                                    698.3    698.9
X1300.38                                  3.0      3.0      3.0
X3  10.0                                                    698.3    698.9
BT  34.0    500.0    717.0    717.0    500.1    704.0    704.0    517.6    704.0    704.0
BT 591.7    694.3    694.3   1013.5    694.4    694.4   1039.9    701.2    699.3   1114.4
BT 700.3    699.7   1174.3    694.5    694.5   1222.6    700.5    695.6   1263.3    700.6
BT 696.5   1313.7    697.3    697.3   1426.0    698.3    698.3   1446.0    702.0    699.3
BT1456.0    699.0    699.0   1522.9    702.7    691.2   1523.0    702.7    699.1   1553.0
BT 702.7    699.1   1569.0    702.7    699.1   1569.1    702.7    691.2   1613.0    702.0
BT 696.2   1637.5    699.0    699.0   1659.0    698.9    698.9   1702.3    699.1    696.8
```

Normal text file | length : 113,980 | lines : 1,418 | Ln : 18 | Col : 26 | Pos : 1,033 | Windows (CR LF) | UTF-8 | IN

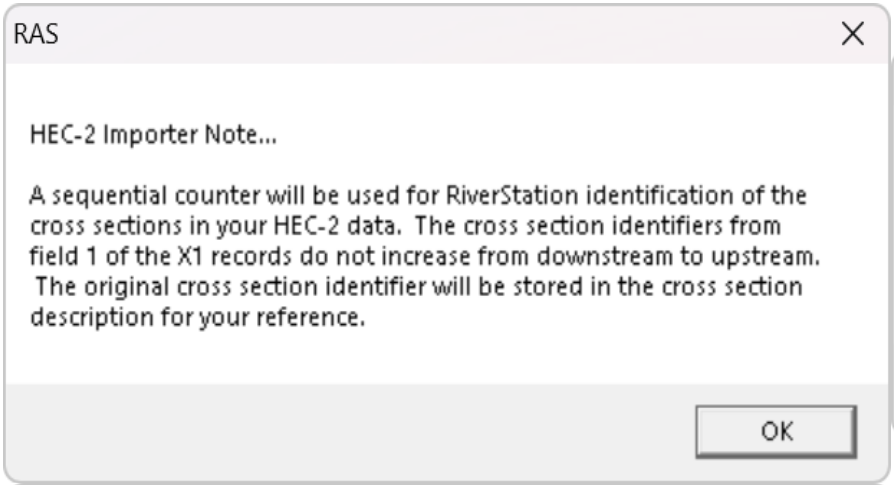
Example

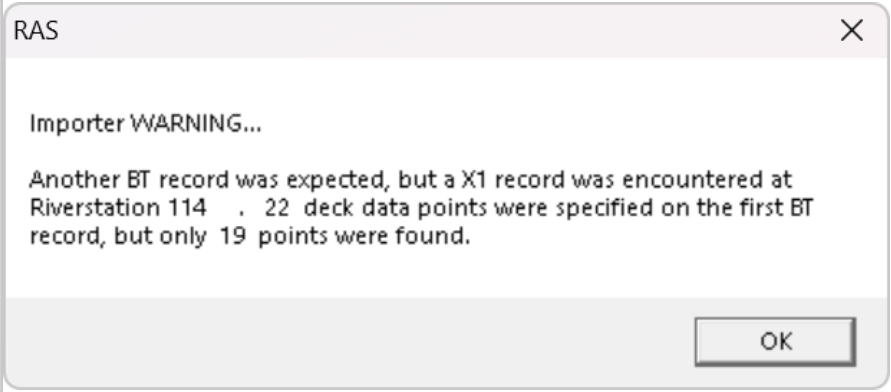
Create the Duplicate Effective Model

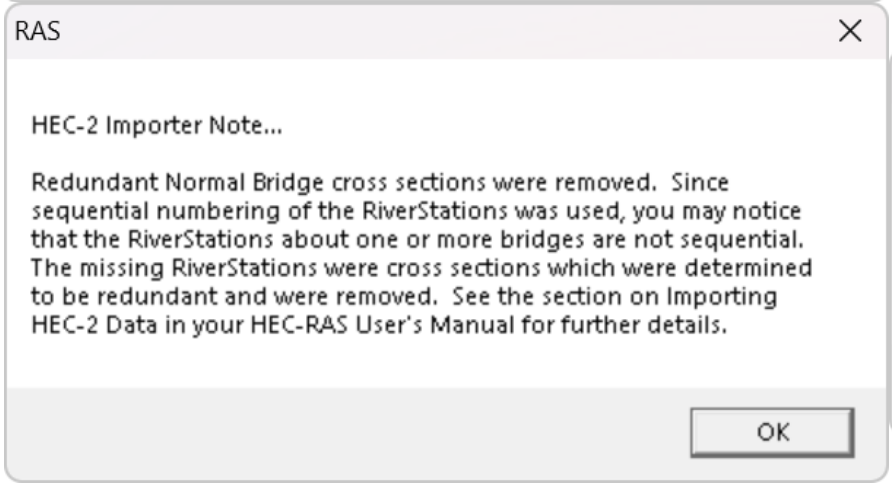


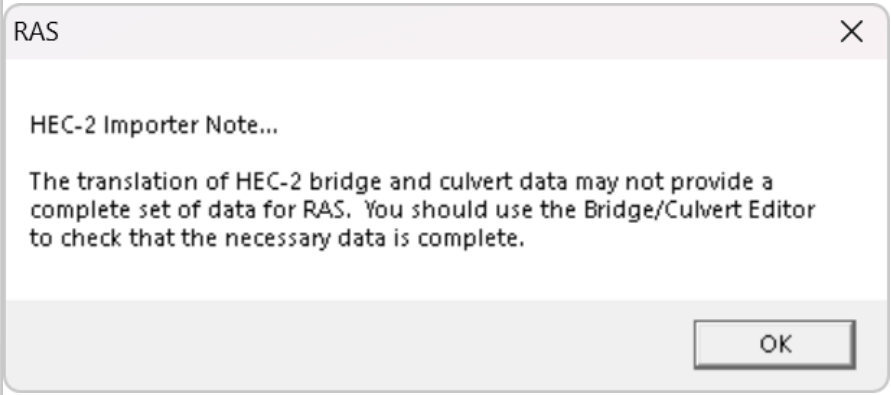
Example

Create the Duplicate Effective Model



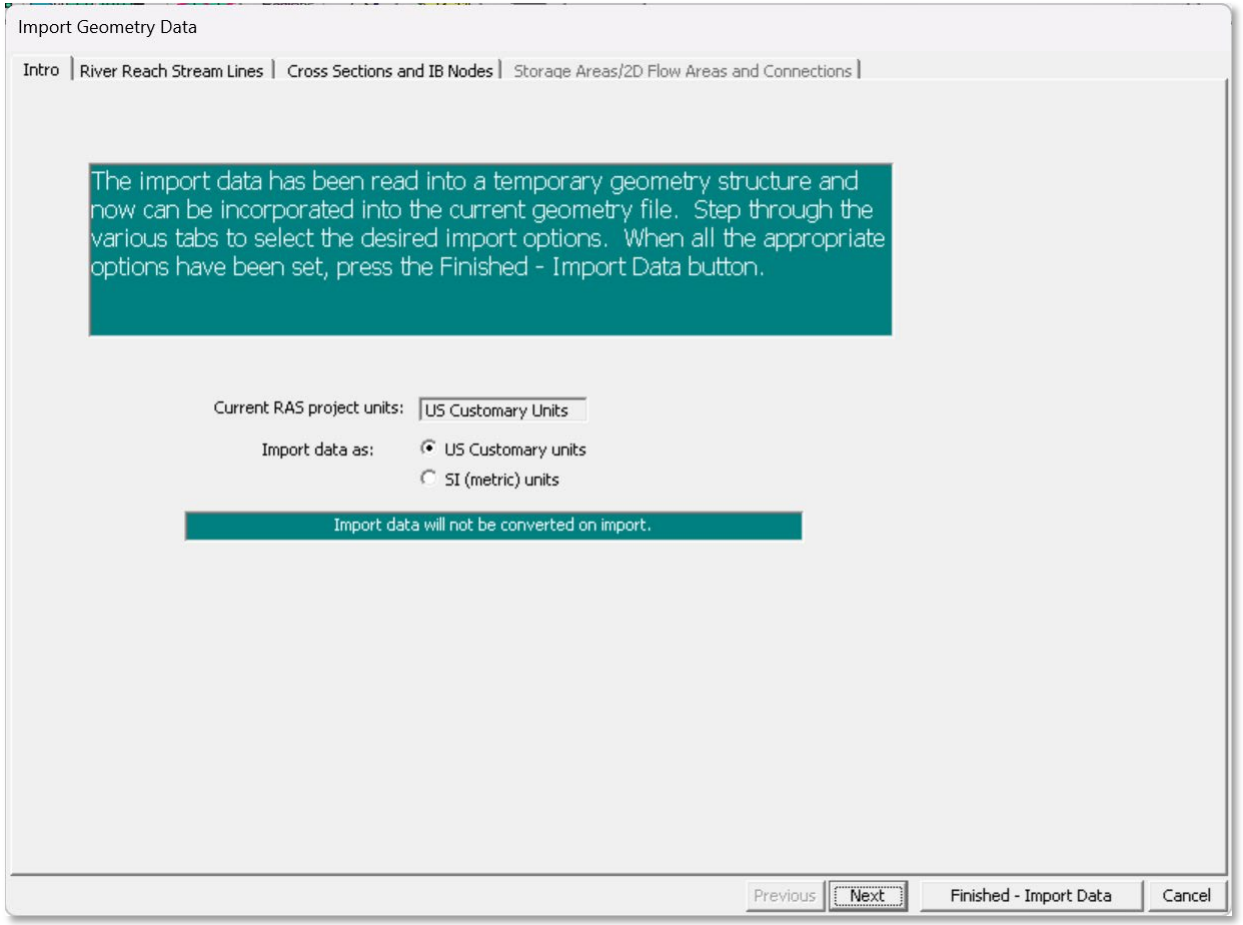






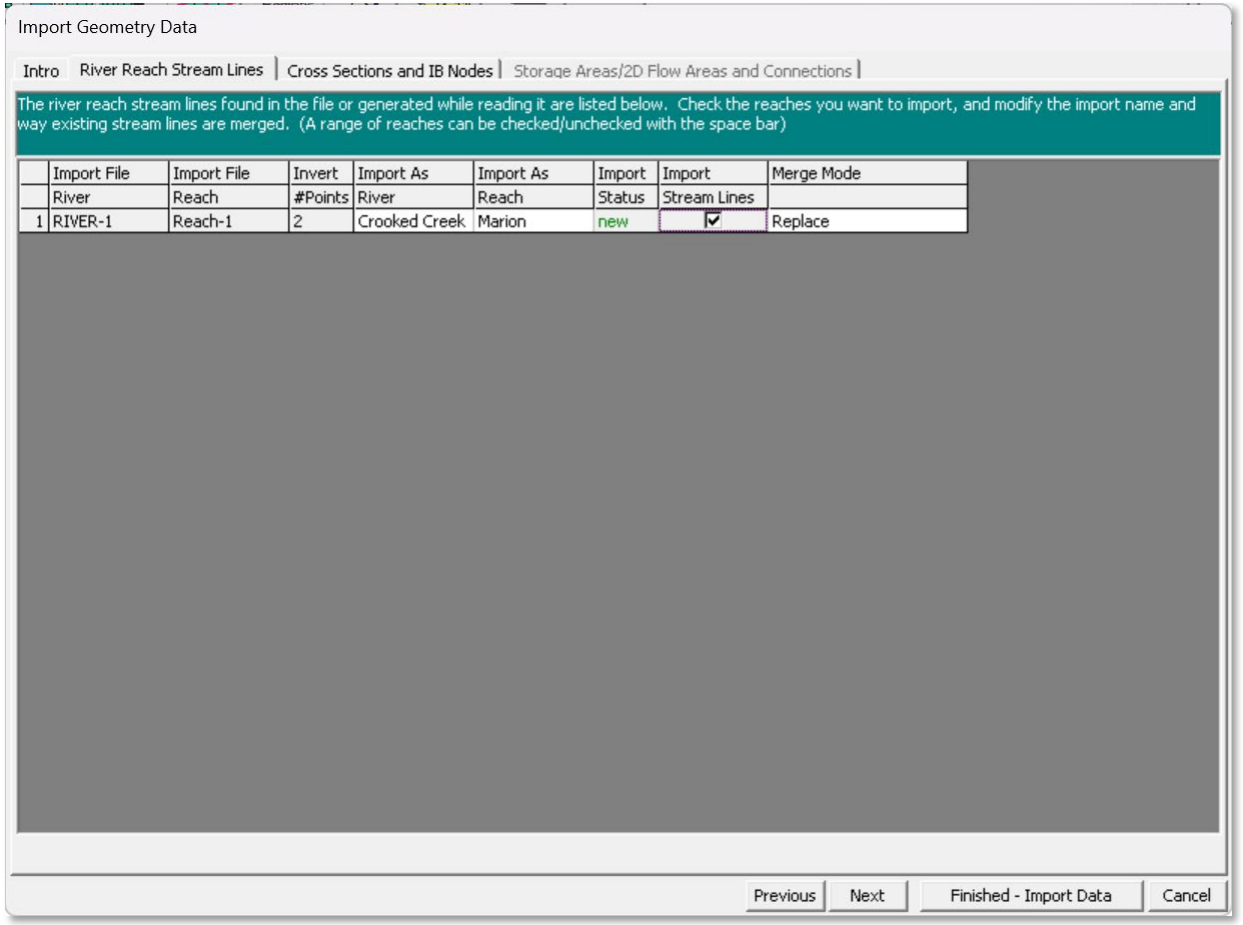
Example

Create the Duplicate Effective Model



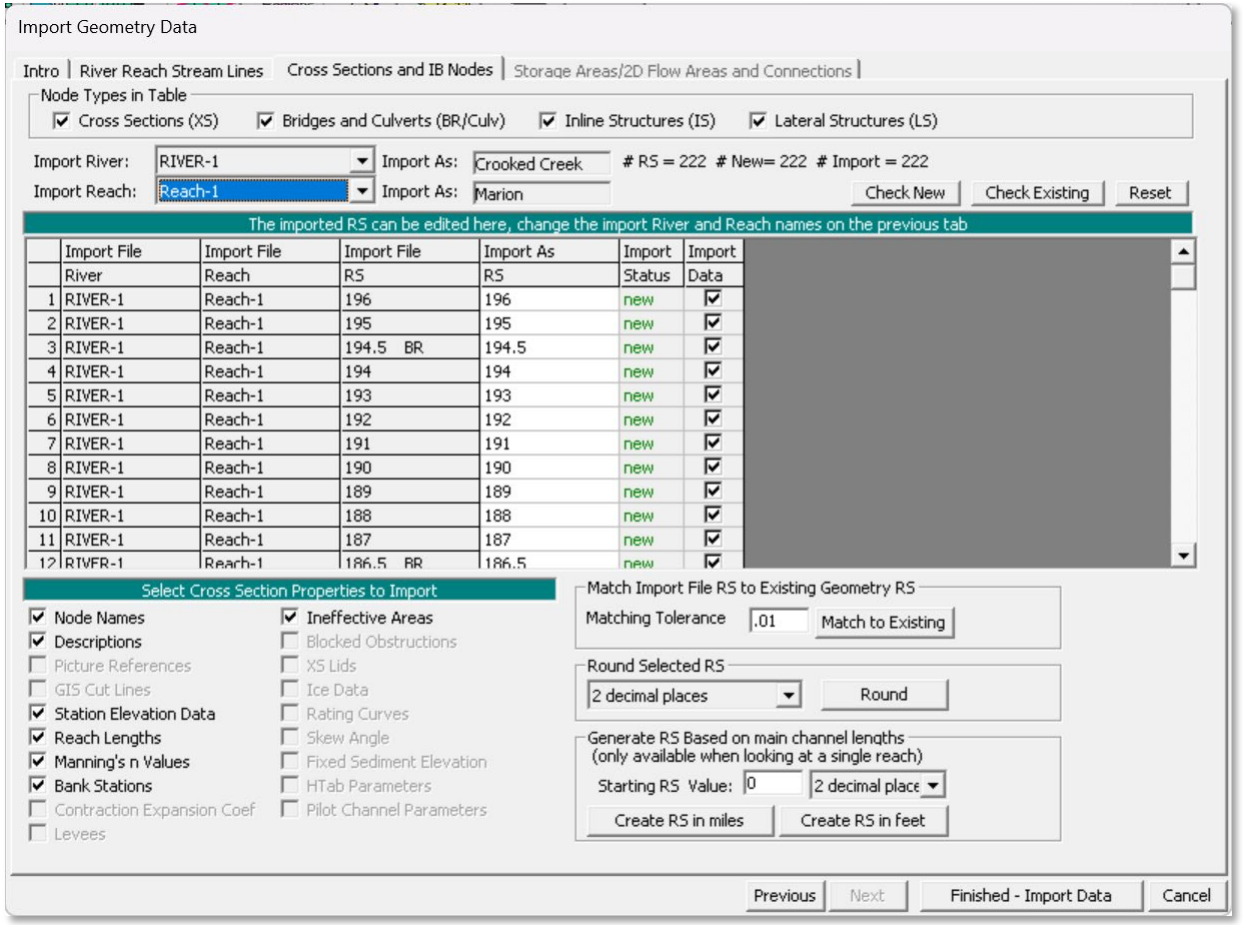
Example

Create the Duplicate Effective Model



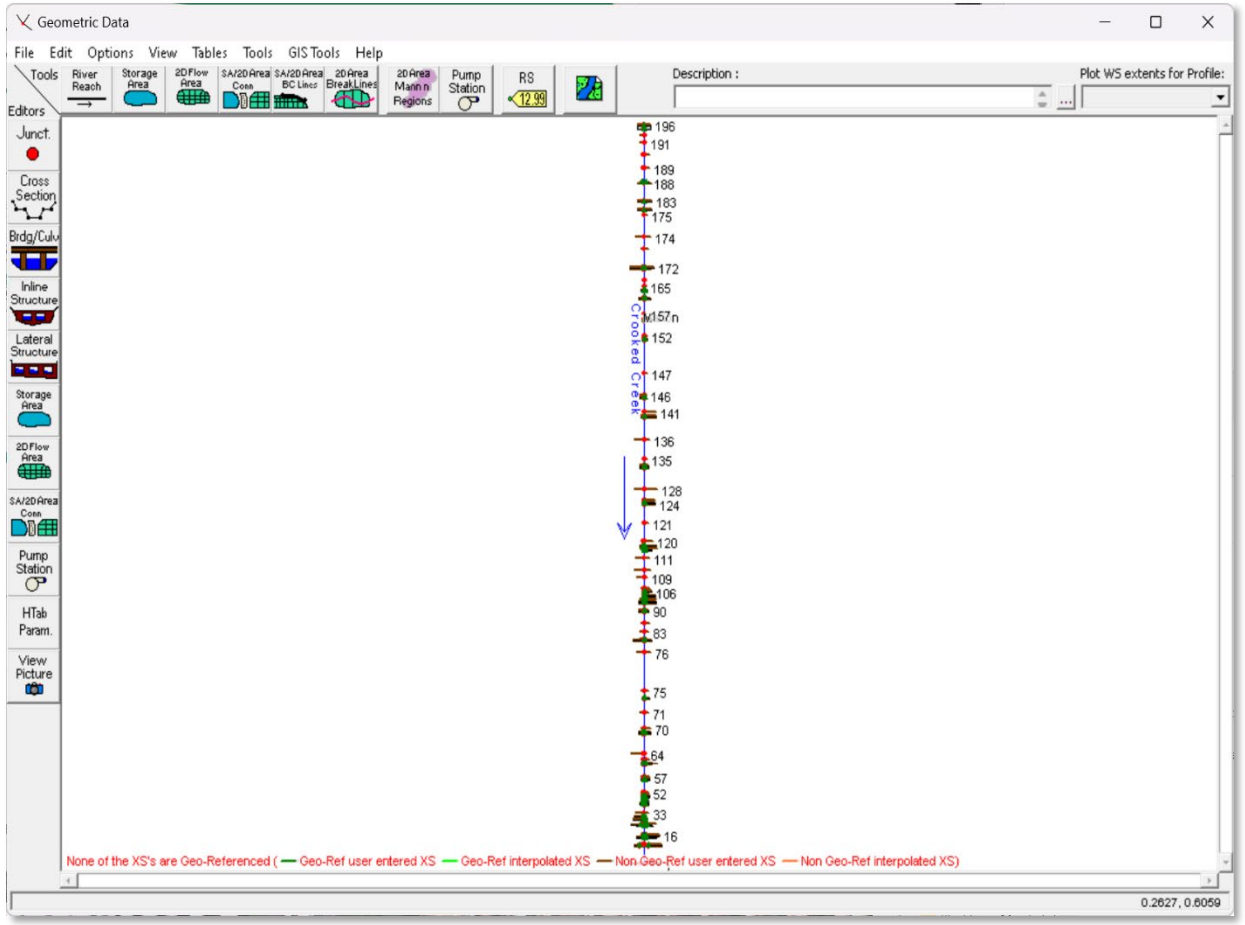
Example

Create the Duplicate Effective Model



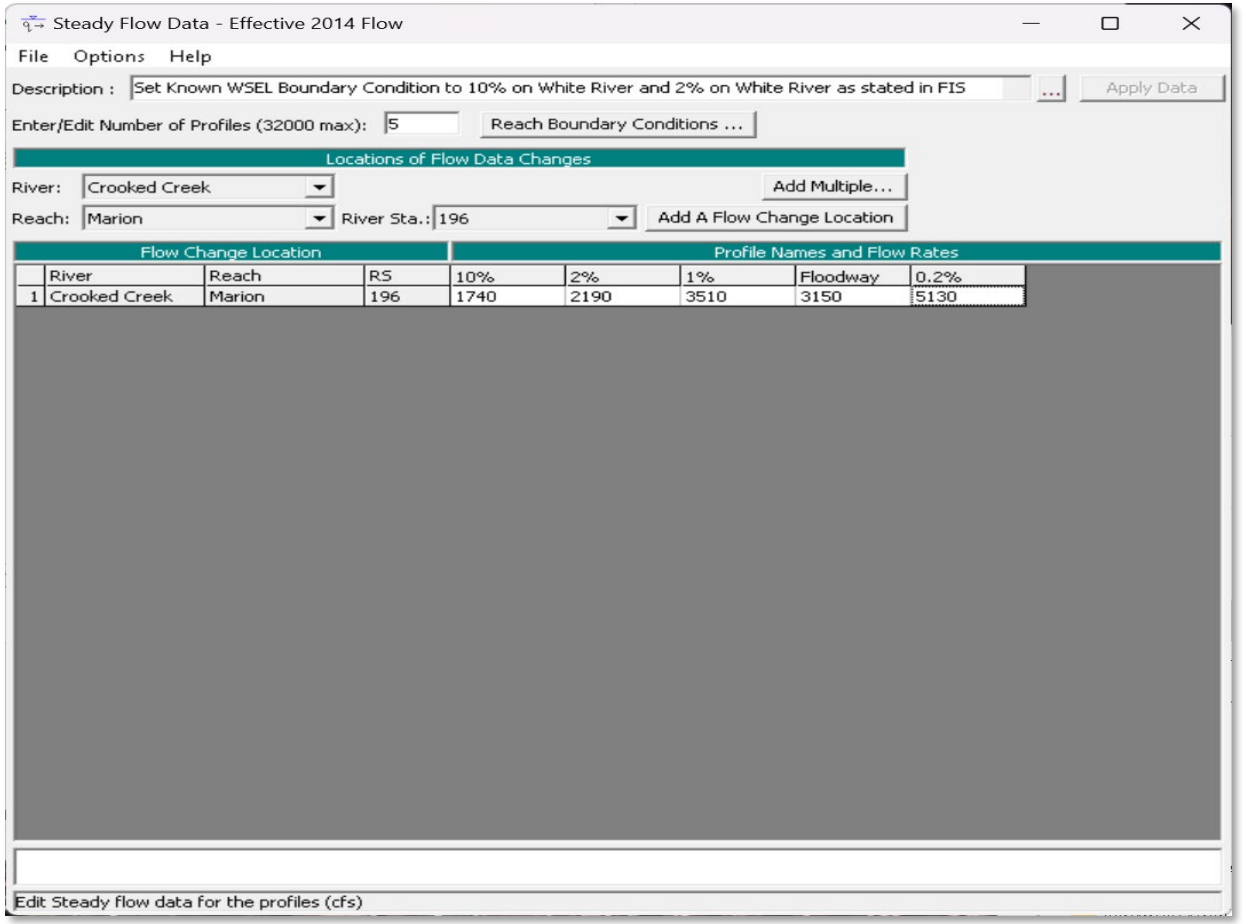
Example

Create the Duplicate Effective Model



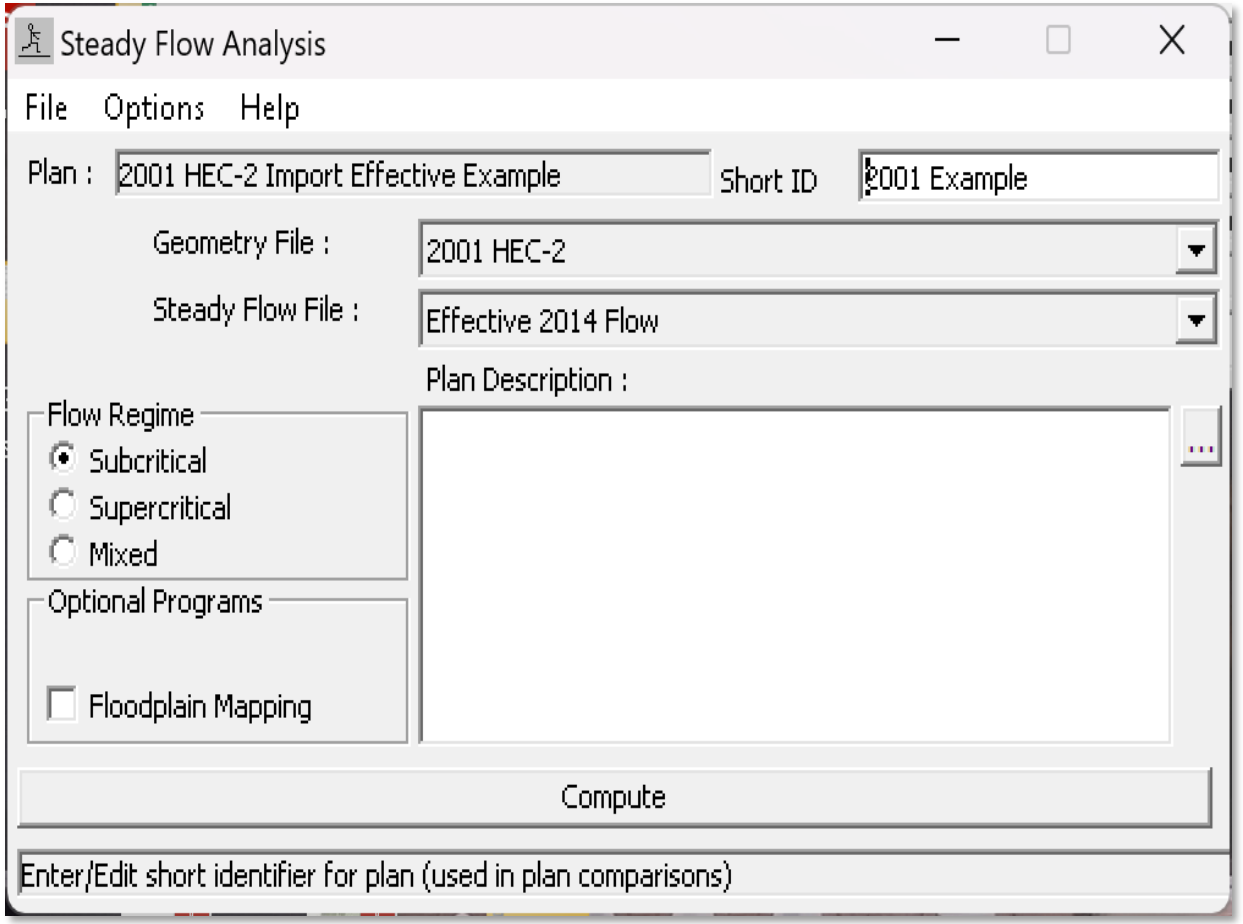
Example

Create the Duplicate Effective Model



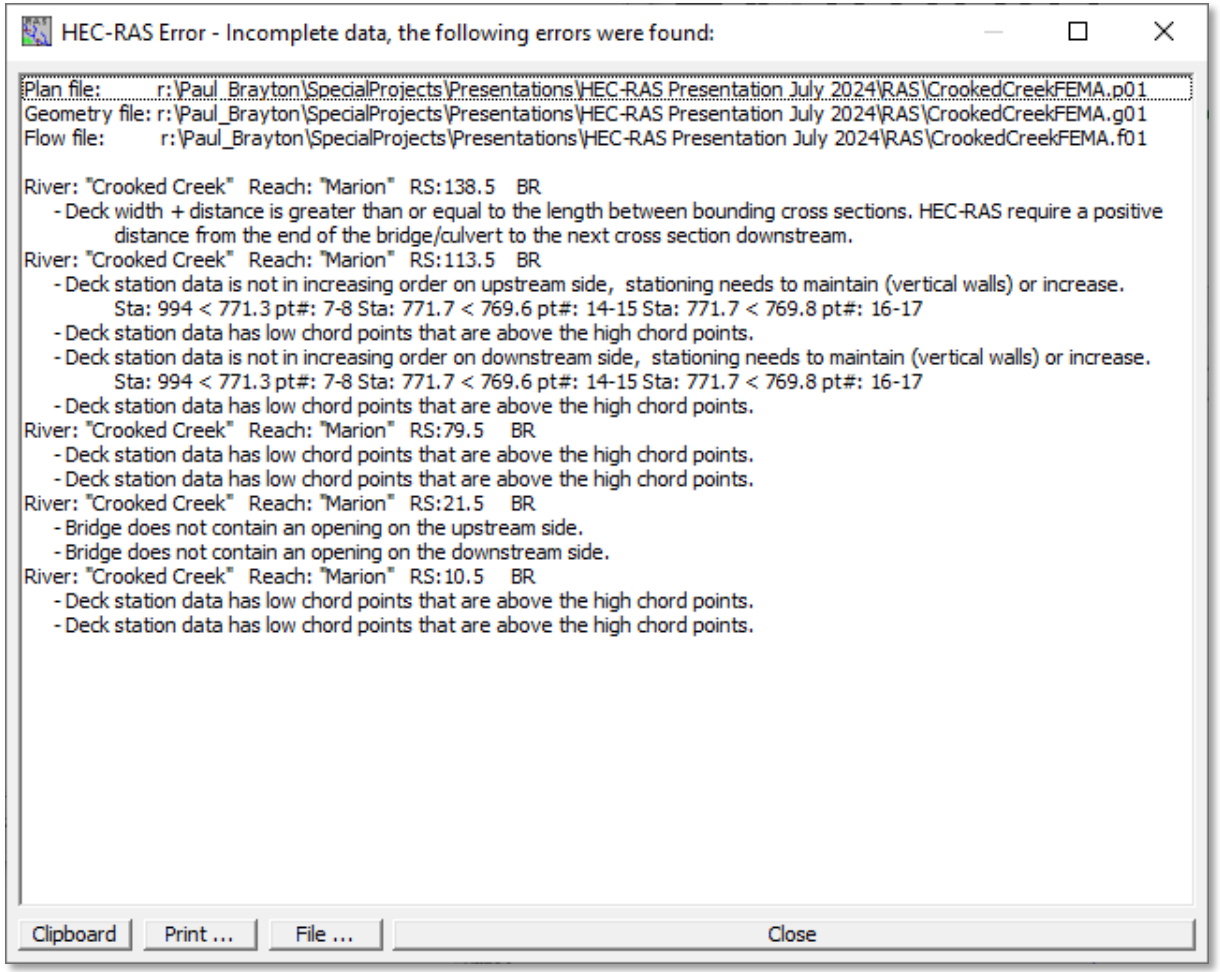
Example

Create the Duplicate Effective Model



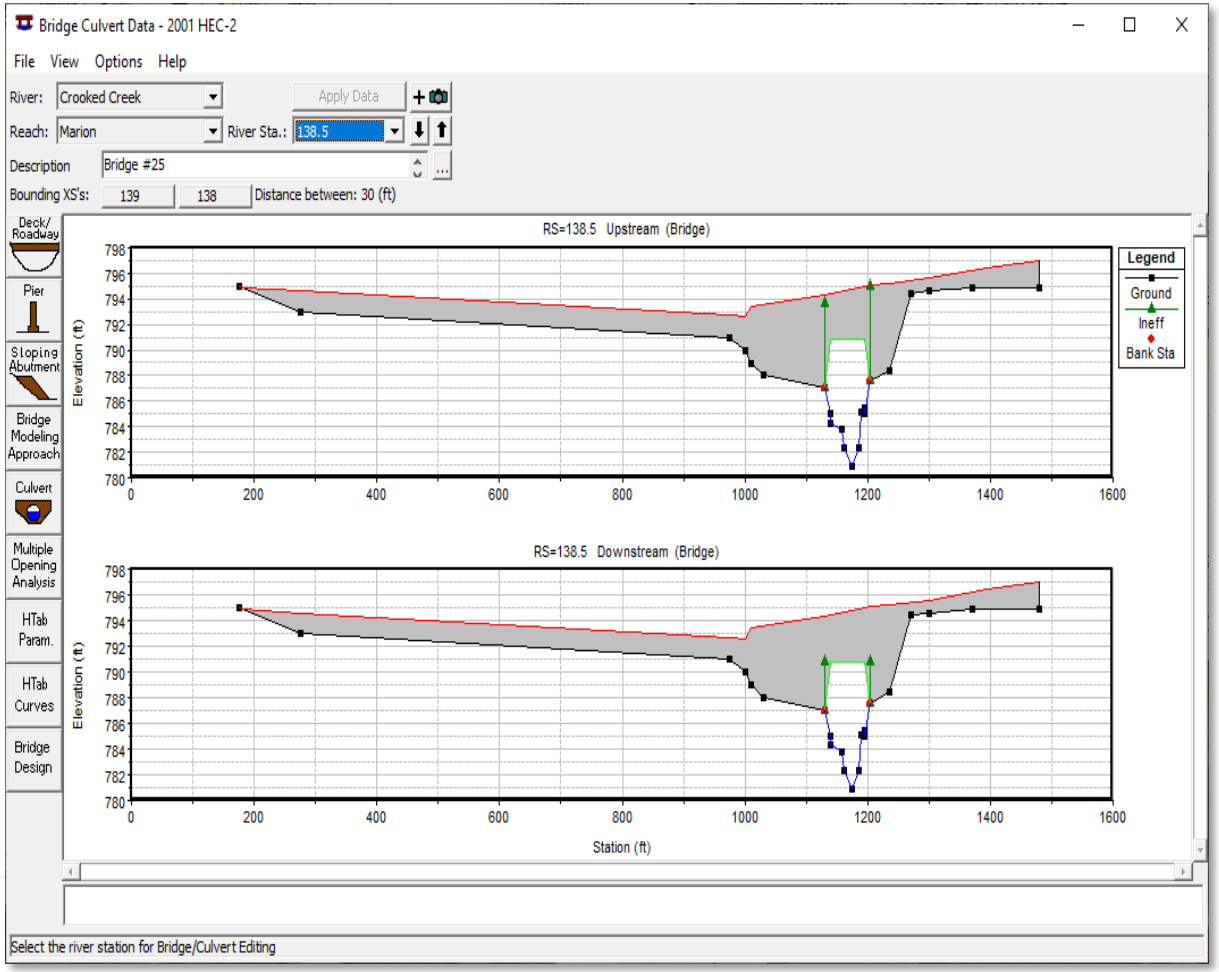
Example

Create the Duplicate Effective Model



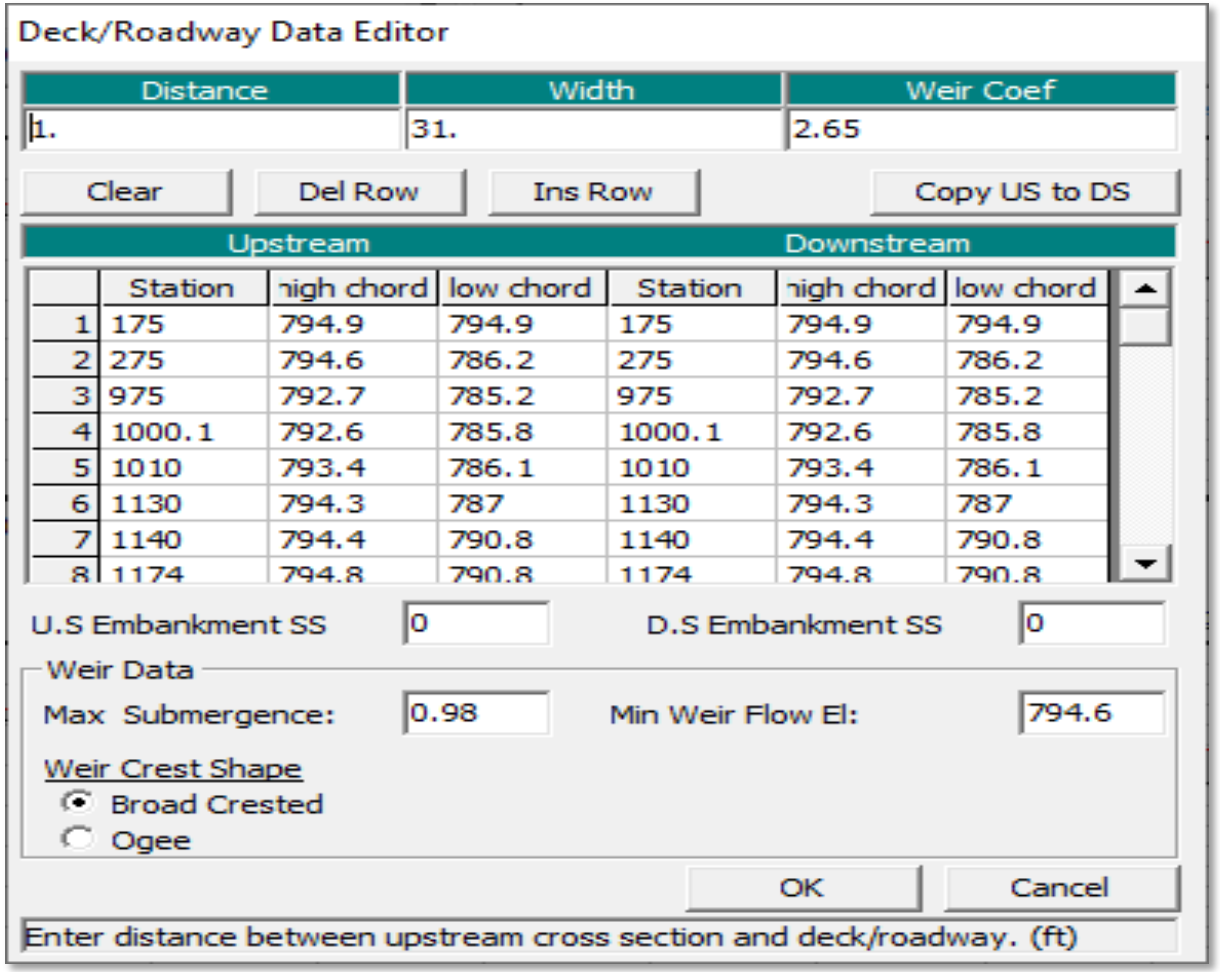
Example

Create the Duplicate Effective Model



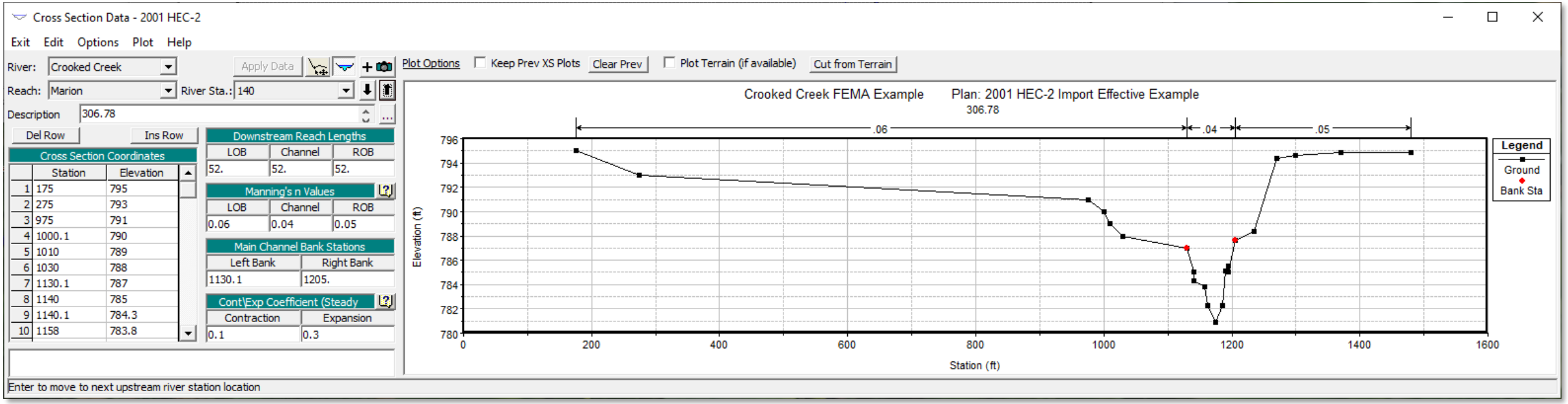
Example

Create the Duplicate Effective Model



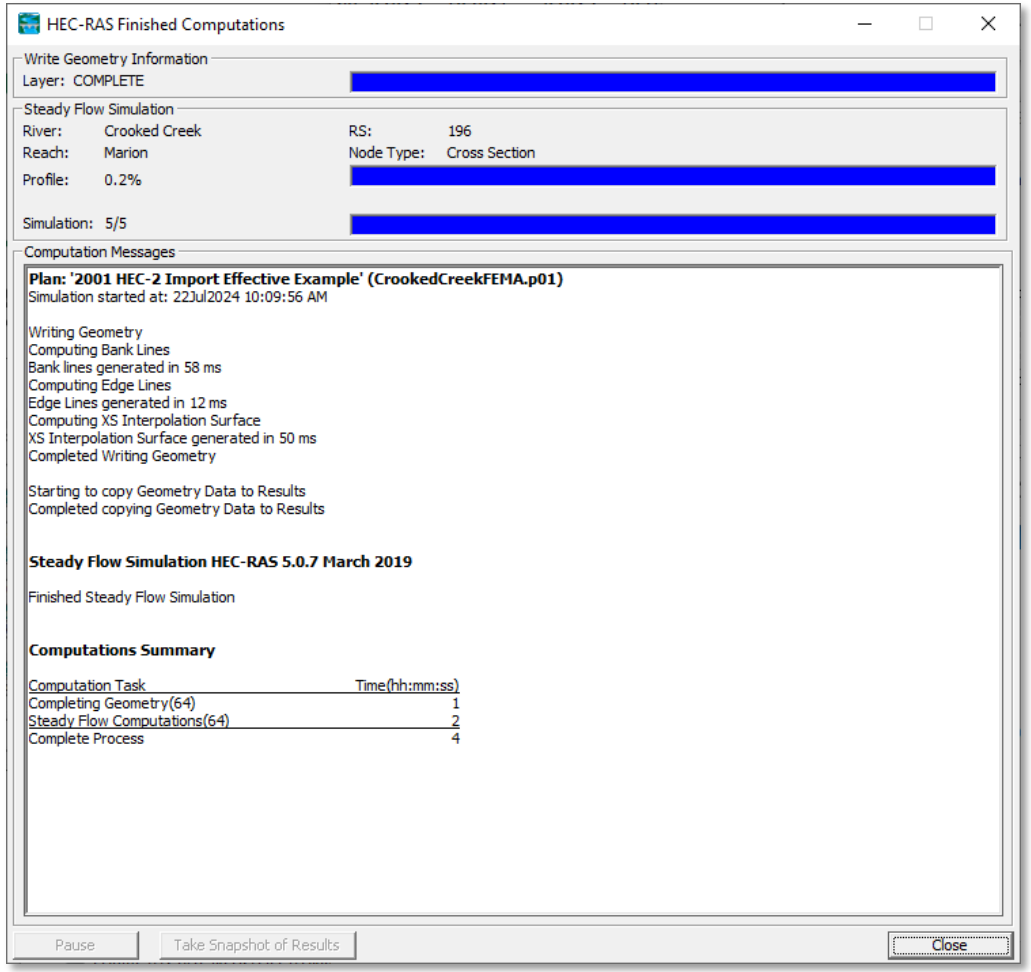
Example

Create the Duplicate Effective Model



Example

Create the Duplicate Effective Model



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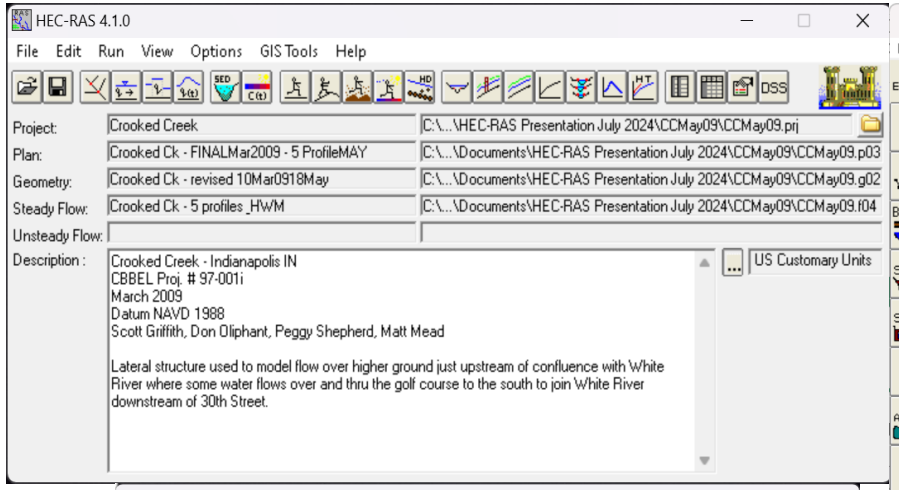
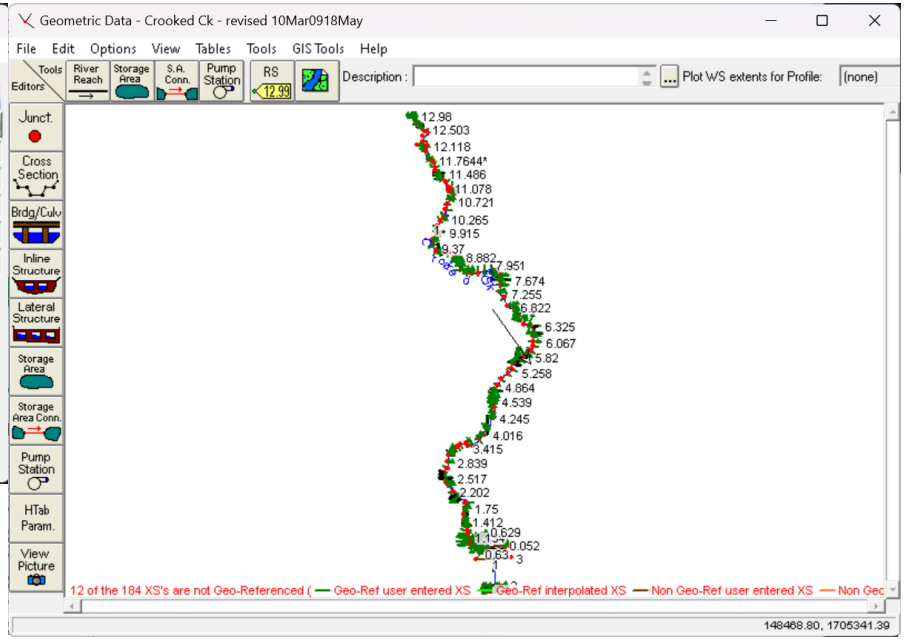
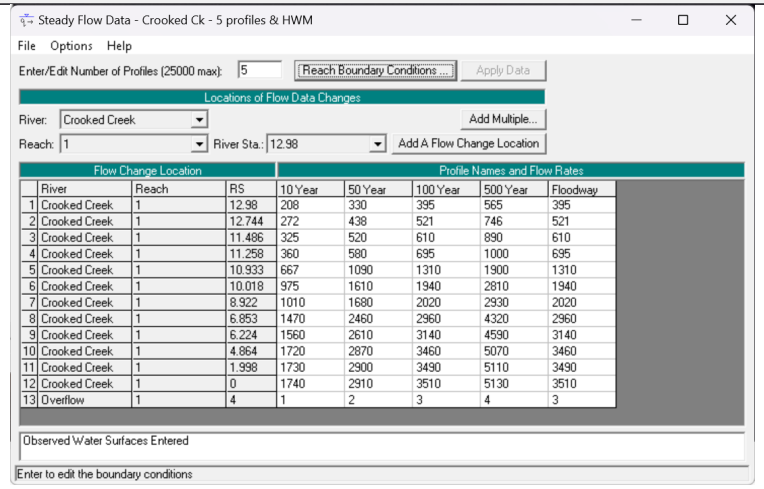
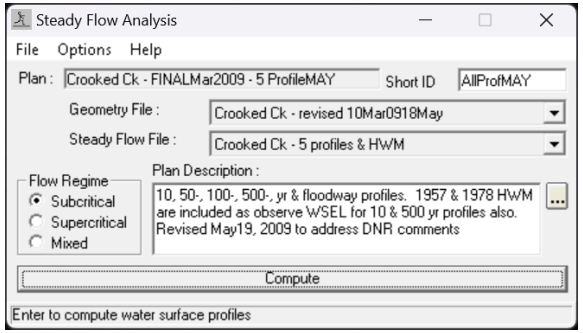
Example

Create the Duplicate Effective Model



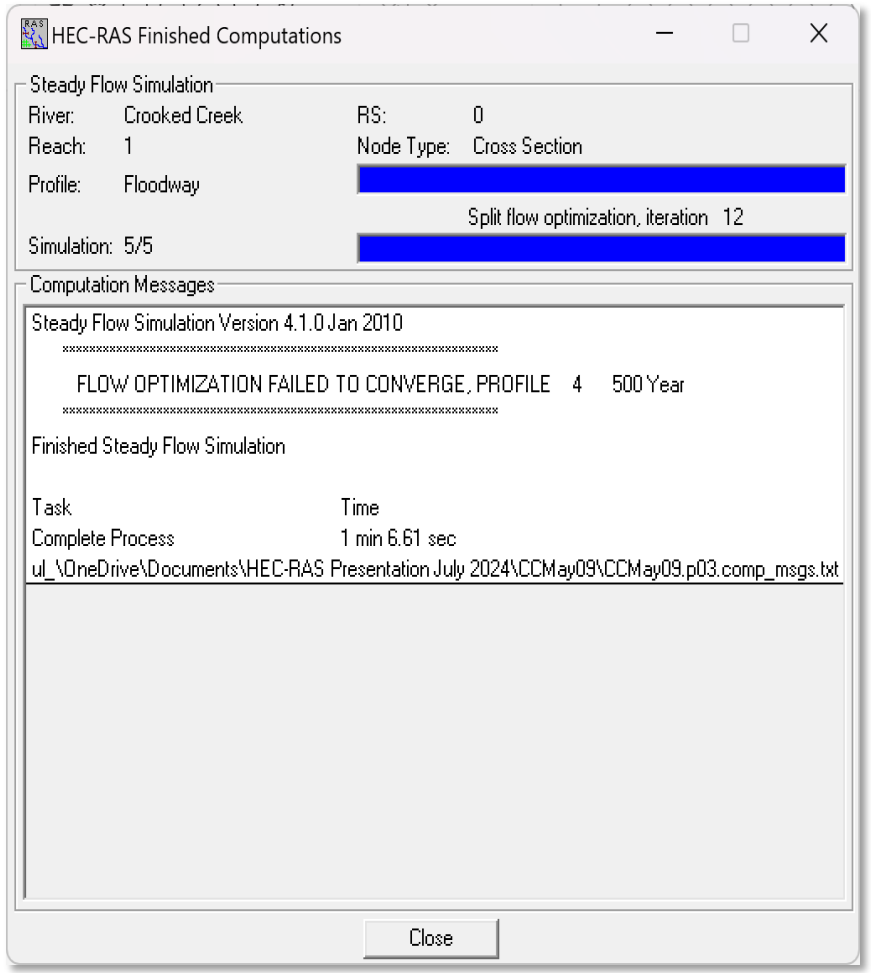






Example

Create the Duplicate Effective Model



Example

Create the Duplicate Effective Model

Model		FWDT			
Station	WS 100 Year	Letter	Section	BFE	Delta
3878	703.0	A	3878	703.0	0.0
4345	706.3	B	4345	706.3	0.0
5331	708.7	C	5331	708.7	0.0
6143	711.3	D	6143	711.3	0.0
9561	720.7	E	9561	720.7	0.0
11102	724.9	F	11102	725.0	0.1
12440	727.8	G	12440	727.8	0.0
14188	732.1	H	14188	732.1	0.0
16792	739.1	I	16792	739.1	0.0
17927	741.9	J	17927	741.9	0.0
19956	746.8	K	19956	746.8	0.0
22244	751.7	L	22244	751.7	0.0
22688	753.4	M	22688	753.4	0.0
23684	756.0	N	23684	756.0	0.0
26281	760.6	O	26281	760.6	0.0
28197	763.5	P	28197	763.5	0.0
29655	767.1	Q	29655	767.1	0.0
31932	771.8	R	31932	771.8	0.0
33816	775.8	S	33816	775.8	0.0
35431	779.2	T	35431	779.2	0.0
38155	783.2	U	38155	783.2	0.0
39699	786.5	V	39699	786.5	0.0
40627	788.8	W	40627	788.8	0.0
43298	796.6	X	43298	796.7	0.1
44915	799.8	Y	44915	799.8	0.0
46276	803.7	Z	46276	803.7	0.0

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Contact Information

For questions about open LOMR/CLOMR cases, contact the specific case engineer

For additional questions about the presentation or general MT-2 requirements contact:

Deidre Hansen, Project Manager

Dahansen@dnr.IN.gov