



# FEMA

## **National Flood Insurance Program (NFIP) MT-1 Presentation**

Shona Gibson  
FEMA Region 6  
August 2016

# Presentation Outline

- Objectives
- Definitions
- Flood Insurance Study Text
- MT-1 Letters of Map Change
- MT-1 processing issues
- Base Flood Elevation development

# Objectives

- Increase your knowledge and understanding of MT-1 processing
- Help you become more efficient in serving your respective clients, which will in turn allow the RISK Map Team to better serve it's clients
- Increase efficiency for all

# ***Definitions***

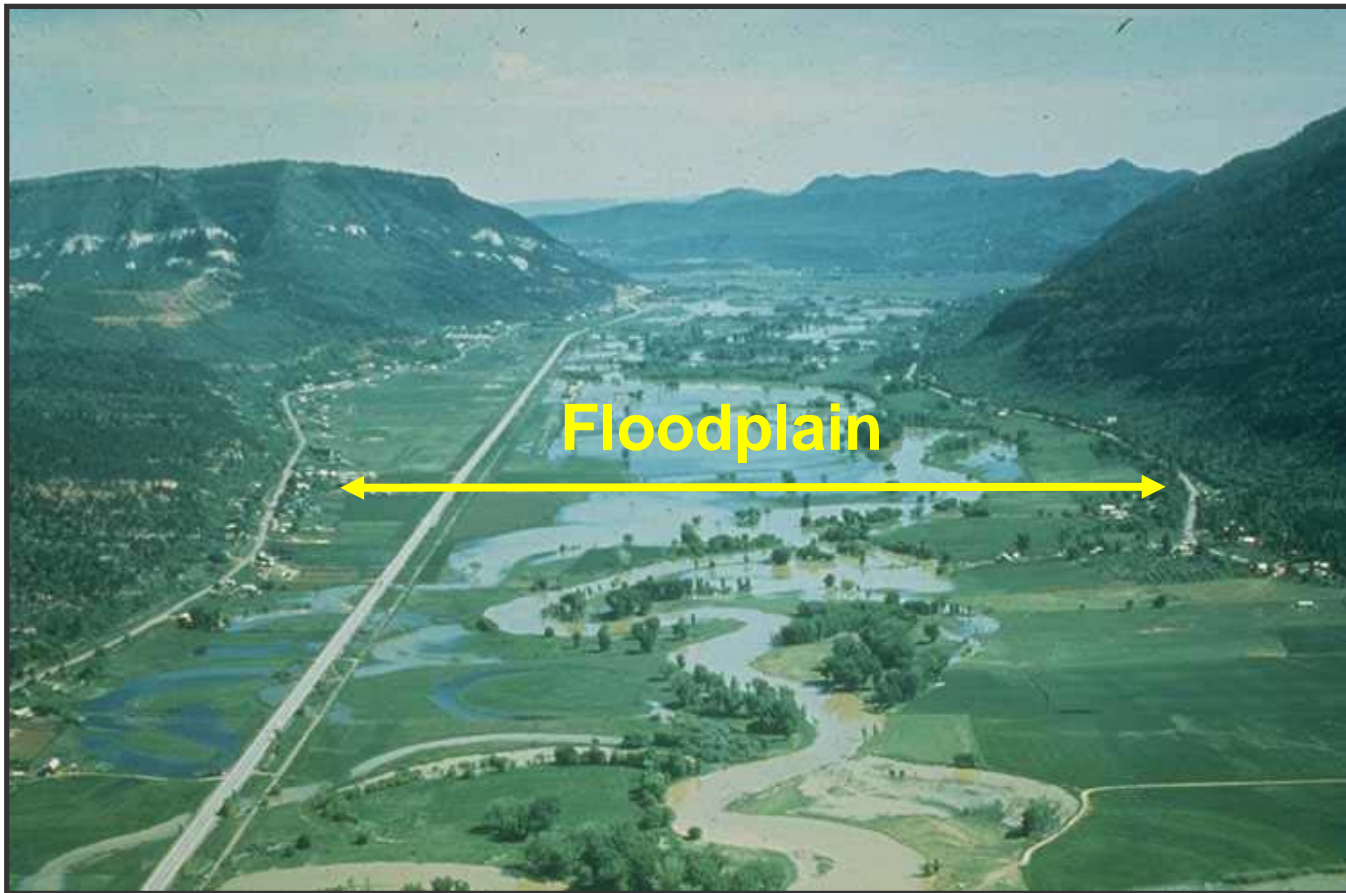


# Definitions Flood

- A “flood” - “a general and temporary condition of partial or complete inundation of 2 or more acres/properties from:
  - Overflow of inland or tidal waters or
  - Unusual rapid accumulation or runoff of surface waters from any source and or mudflow”



# Definitions Floodplain

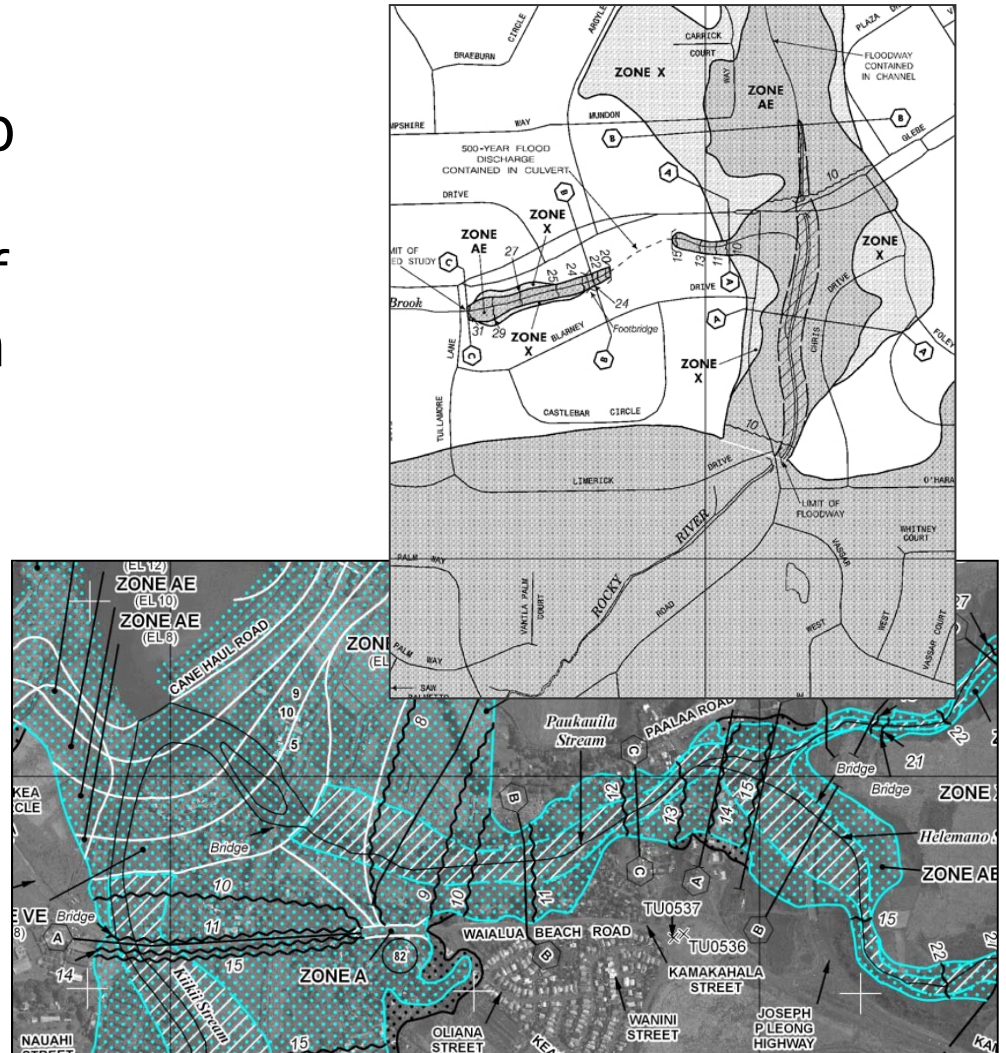


*Any land area susceptible to inundation by water from any source*

# Definitions

## Special Flood Hazard Area (SFHA)

- Darkly shaded area on a Flood Insurance Rate Map (FIRM) identifies the area has a 1-percent-chance of being flooded in any given year.
  - The FIRM identifies these shaded areas as flood zones A, AO, AH, A1-30, AE, A99, V, V1-30, and VE.”





# Definitions

## Base Flood

- A flood that has a 1% chance of being equaled or exceeded in any given year
- Formerly referred to as the “100-year” flood



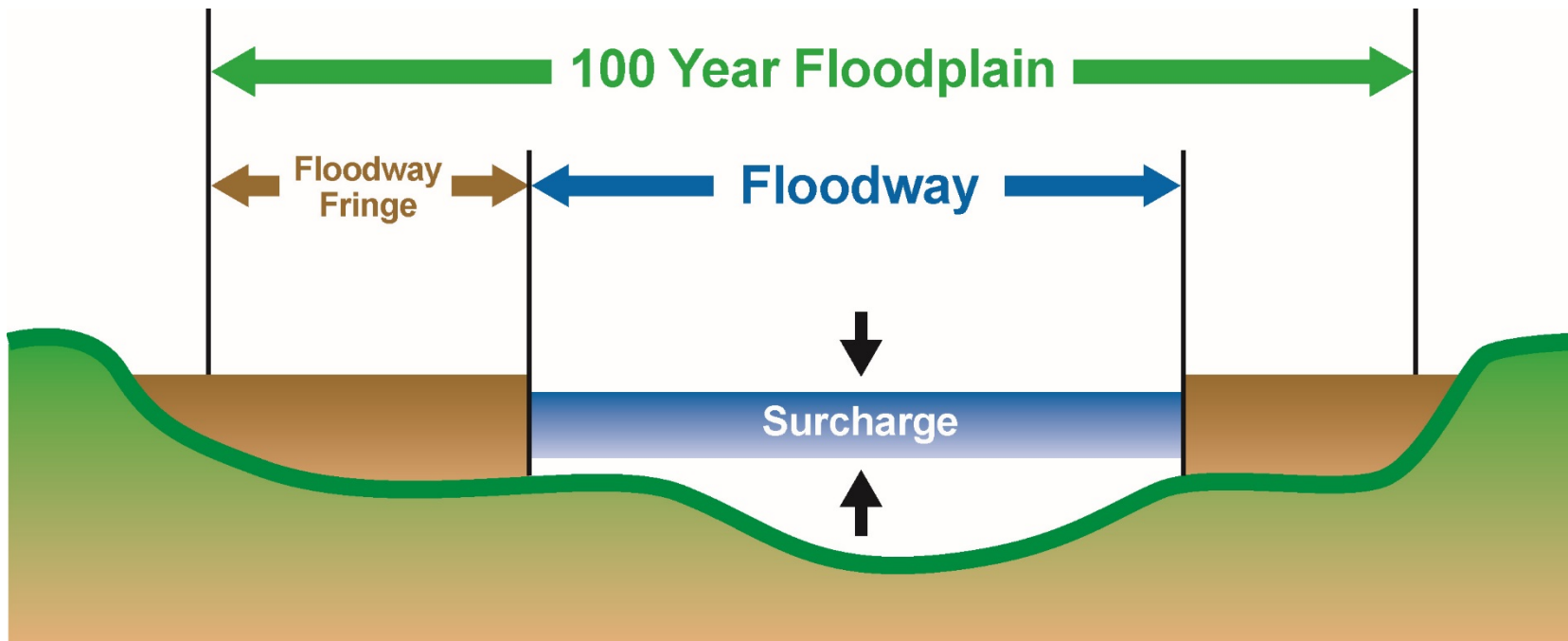
# Definitions

## Floodway

- Channel of stream plus any adjacent floodplain areas that must be kept free of encroachments so that 1% annual chance flood discharge can be conveyed without increasing elevation of 1% annual chance flood by more than specified amount (1 foot in most States)



# Definitions Floodway Schematic

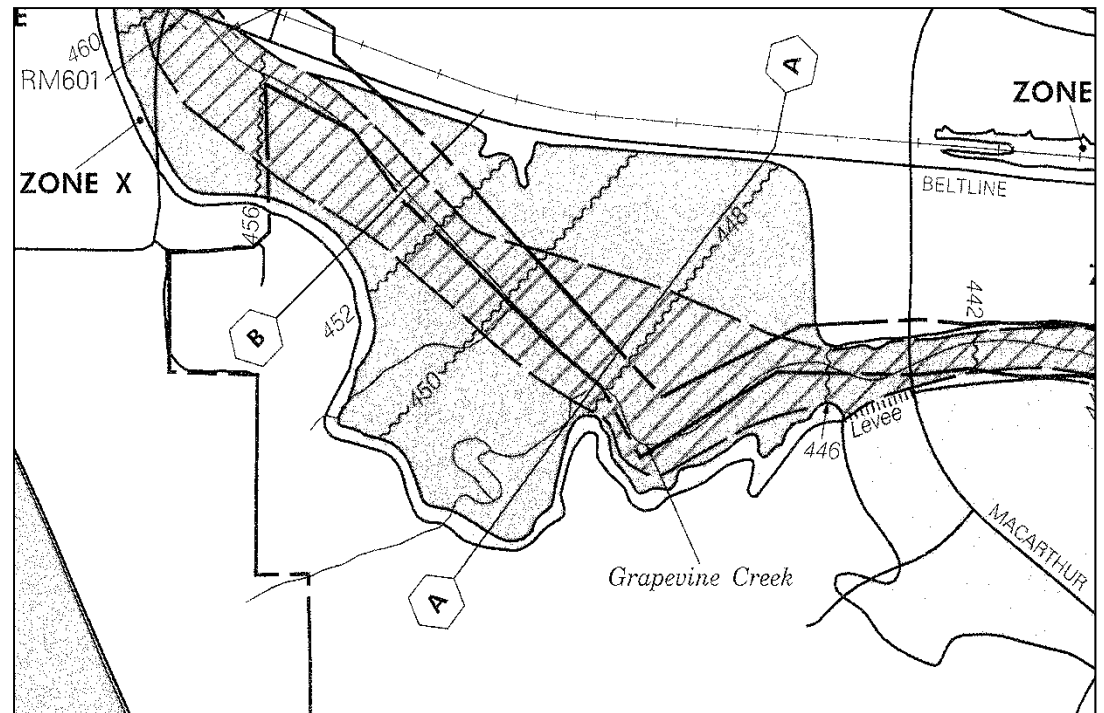


**Floodway + Floodway Fringe = 100-Year Floodplain**  
**Surcharge Not to Exceed 1.0 Foot**

# Floodway on Flood Insurance Rate Map (FIRM)

## ■ FIRMs Contain a Variety of Information

- SFHAs
- Common physical features (highways, railroads, streams, other waterways)
- BFEs
- Areas subject to inundation by 0.2% annual chance flood
- Areas designated as regulatory floodways



# Definitions

## Base Map, Effective Map, FBFM

- **Base Map:**
  - Depicts cultural features (roads, bridges, dams, etc.), drainage features, and corporate limits
- **Effective Map:**
  - Current NFIP map issued by FEMA that is official as of “Effective Date” or “Map Revised” date shown on map

**Community FIRM**

**COMMUNITY-PANEL NUMBER**  
**150003 0155F**

Community #

Panel #

**Community FIRM**

NFIP  
PANEL 0155F

**FIRM**  
FLOOD INSURANCE RATE MAP  
MAUI COUNTY,  
HAWAII

PANEL 155 OF 825  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MAUI COUNTY	150003	0155	F

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
**1500030155F**

**MAP REVISED**  
**NOVEMBER 4, 2015**  
Federal Emergency Management Agency



# Definitions

## FHBM, FIRM, Map Initiatives, Preliminary

- **Flood Insurance Rate Map (FIRM)**

- Delineates 1% and 0.2% chance floodplains, BFEs, and floodways and enables insurance agents to issue accurate flood insurance policies to communities participating in the NFIP

- **Map Initiatives**

- FIRM format developed in 1985 that incorporated information formerly shown on separately printed FBFM and FIRM

- **Preliminary**

- FIS and FIRM issued to community for review and comment prior to becoming effective

# Definitions

## Zone Designations

<b>A</b>	Areas of 1% annual chance flood determined by approximate methods; base flood elevations not determined
<b>AO</b>	Areas of 1% annual chance shallow flooding where average depths are between 1 and 3 feet (usually sheet flow on sloping terrain); average whole-foot depths are shown
<b>AH</b>	Areas of 1% annual chance shallow flooding (usually ponding) where average depths are between 1 and 3 feet; whole-foot base flood elevations are shown
<b>AE</b>	SFHAs inundated by 1% annual chance flood; base flood elevations are shown
<b>VE</b>	SFHAs inundated by 1% annual chance flood; coastal floods with velocity hazards (wave action); base flood elevations are shown
<b>X (shaded)</b>	Areas of 0.2% annual chance flood; areas subject to 1% annual chance flood with average depths less than 1 foot or with contributing drainage area less than 1 square mile; and areas protected by levees from base flood
<b>X (unshaded)</b>	Areas determined to be outside the 0.2% annual chance floodplain

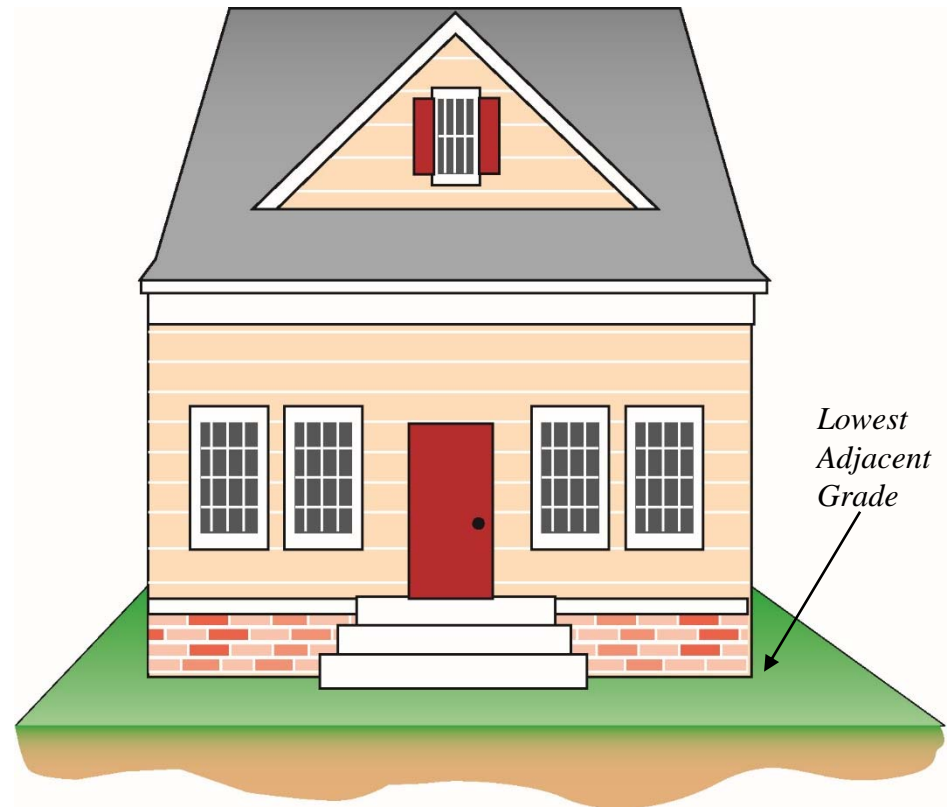
# Definitions

- **Base Flood Elevation (BFE)**
  - Elevation associated with base flood, shown on FIRM, and rounded to nearest whole foot
- **Cross Section**
  - Line developed from topographic information, across floodplain, at which computation of flood flow has been made to establish potential flood elevation
- **Encroachment**
  - Construction, placement of fill, or similar alteration of topography in floodplain that reduces area available to convey flood waters
- **Community Identification Number (CID)**
  - Unique 6-digit identification number assigned to each community by FEMA; shown on Flood Insurance Study (FIS), FIRM, and Flood Boundary and Floodway Map (FBFM)

# Definitions

## Lowest Adjacent Grade (LAG)

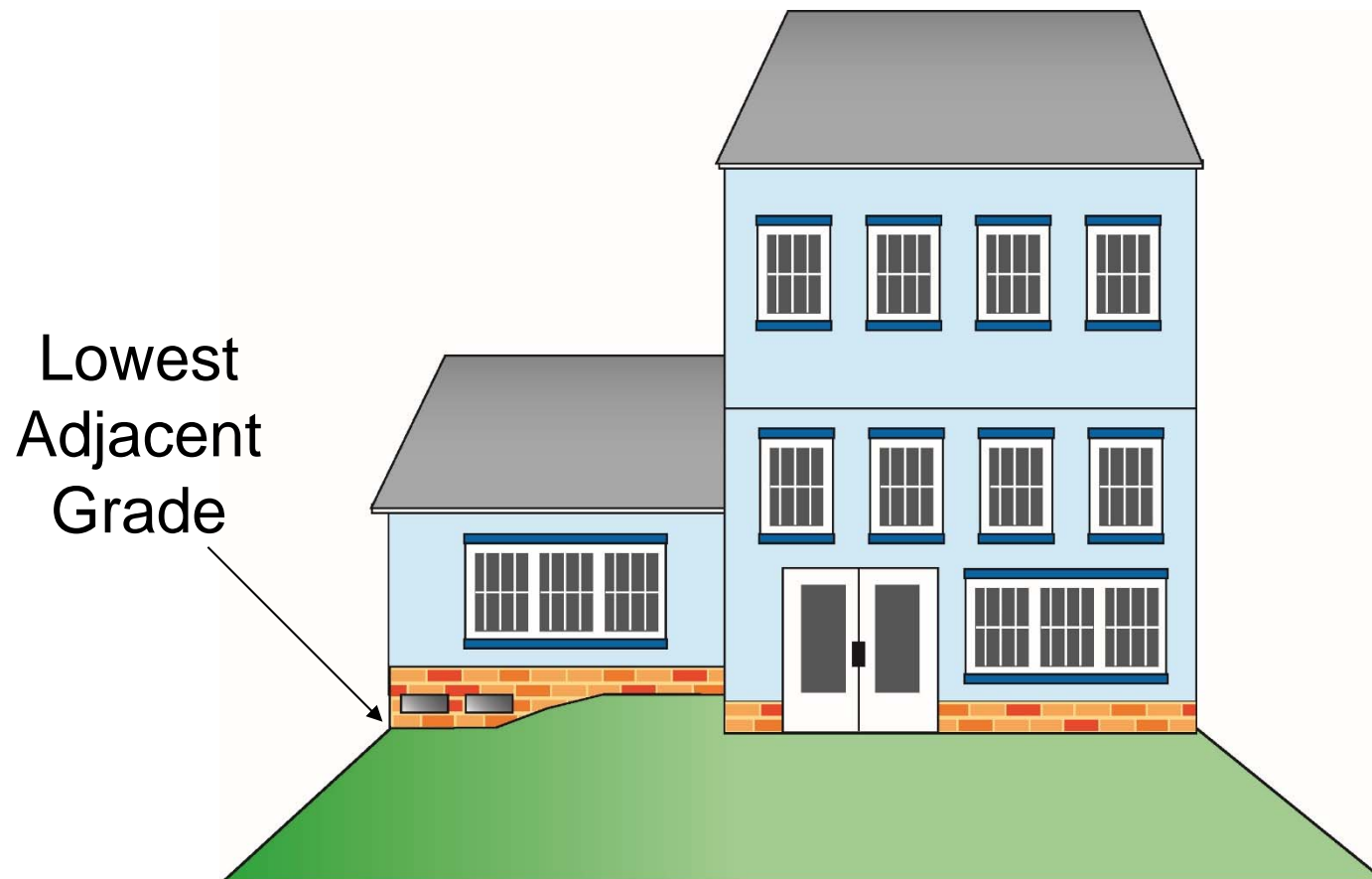
- Elevation of ground, sidewalk, patio, or deck support immediately next to building
- Lowest ground elevation touching structure or supporting members of structure
- For LOMC submittals, must be certified to nearest tenth of a foot



# Lowest Adjacent Grade Crawl-Space Foundation



# Lowest Adjacent Grade Split Level



# Lowest Floor

- Lowest floor of lowest enclosed area, including basement
- Unfinished or flood-resistant enclosures, used solely for parking of vehicles, building access, or storage in areas other than basements not considered lowest floors
  - PROVIDED that such enclosures are not built to render the structure in violation of applicable non-elevation design requirements of a community's ordinance

# Lowest Floor Elevation Basement Foundation

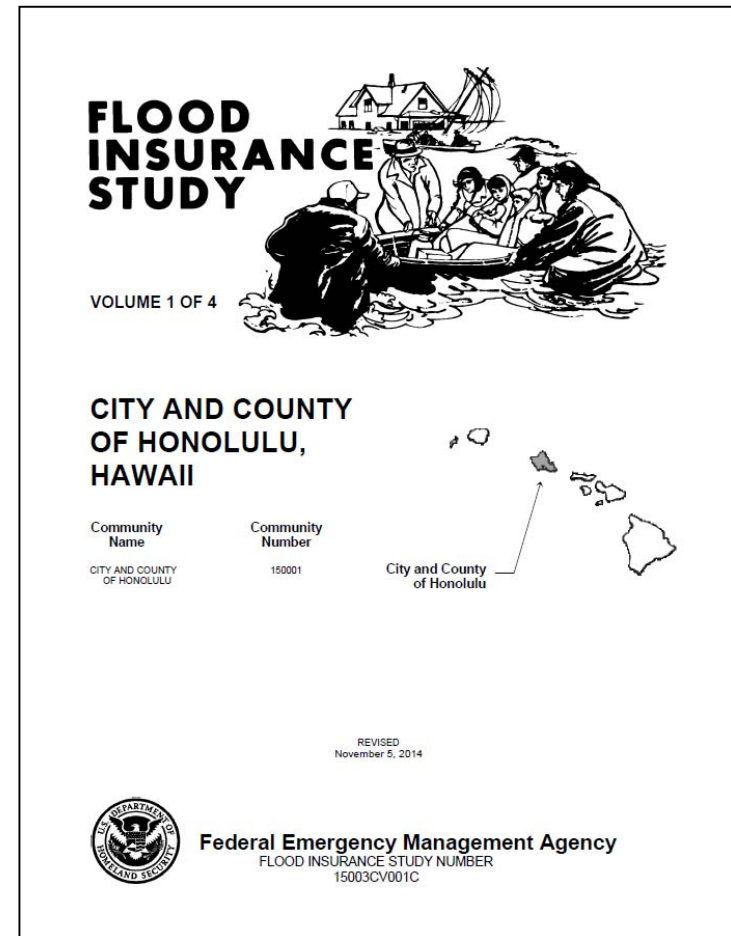




***Flood Insurance  
Study (FIS)***

# FIS Purposes

- Identify location of specific property
- Estimate BFE at specific site
- Determine flood insurance zone at specific site
- Determine location of regulatory floodway
- Estimate flood flow frequency
- Establish flood elevation profiles



Copies of FIS can be download from the  
FEMA Map Service Center  
([www.msc.fema.gov](http://www.msc.fema.gov)) or [www.hawaiiinfip.org](http://www.hawaiiinfip.org)

# FIS Components

- Report
  - Written text, profiles, figures, and tables
- FIRM
  - Graphic representation and spatial distribution of flood hazard areas, flood insurance risk zone, BFEs, floodways, and other flood related data

# Floodway Data Table

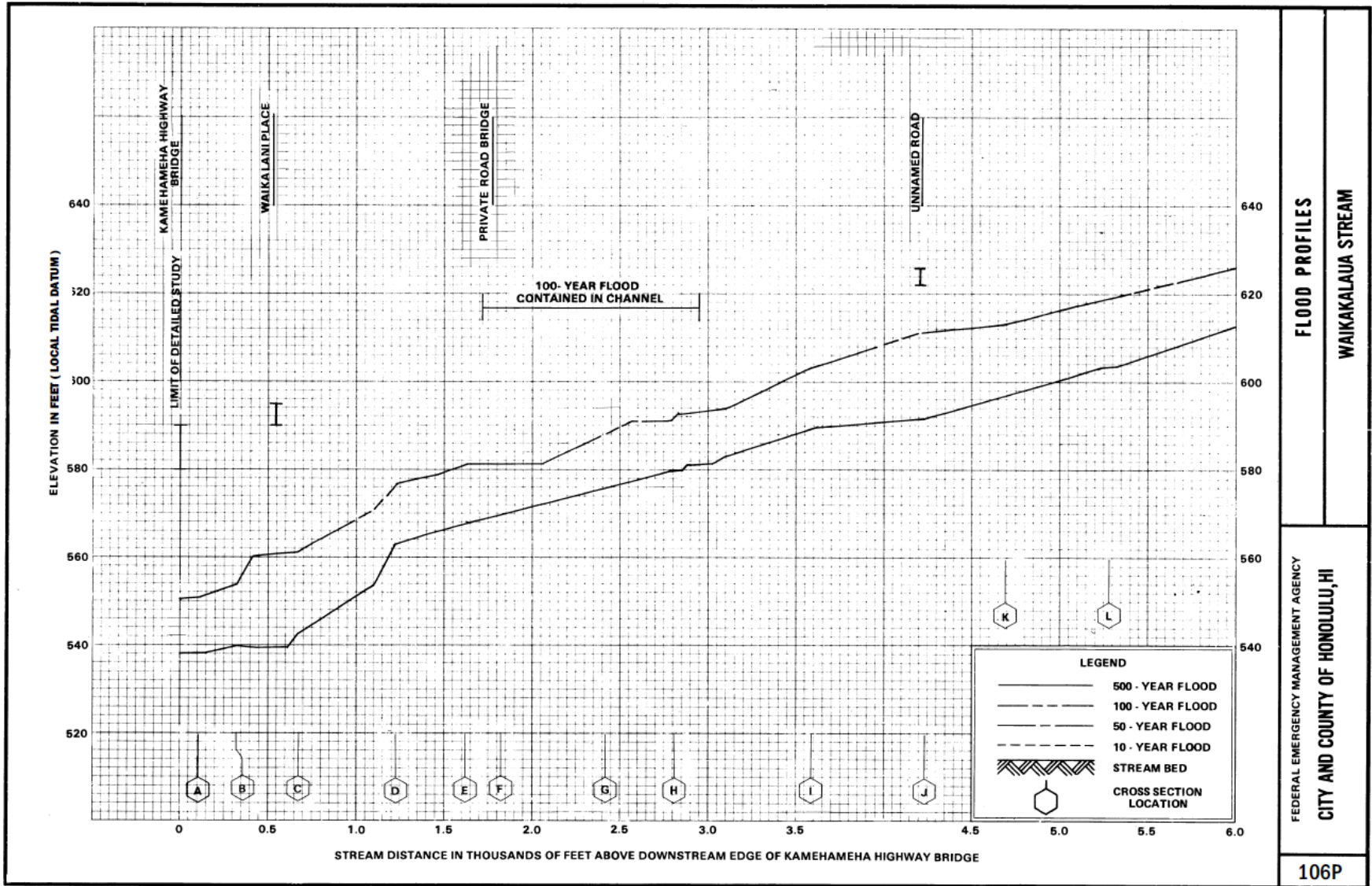
- Provides data from hydraulic model for each stream studied by detailed H&H methods
- Includes cross-section ID, distance from start of model, floodway width, section area, mean velocity, and base flood water-surface elevations
- Included in most FIS reports

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (LOCAL TIDAL DATUM)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
<b>Kaaawa Stream</b>								
A	650	192	687	11.2	9.9	9.9	10.9	1.0
B	1,650	164	411	14.2	20.5	20.5	21.1	0.6
C	2,200	135	720	8.1	28.1	28.1	29.1	1.0
D	2,600	143	550	10.6	30.5	30.5	31.3	0.8
E	2,900	121	635	9.2	33.7	33.7	34.7	1.0
<b>Waikane Stream</b>								
A	2,200	460	1,807	5.7	25.0	25.0	26.0	1.0
B	2,400	417	2,455	4.2	27.2	27.2	27.7	0.5
C	2,900	349	1,651	6.2	32.6	32.6	33.4	0.8
D	3,500	216	1,604	6.4	36.2	36.2	39.2	1.0
E	4,400	206	1,343	7.7	50.4	50.4	51.4	1.0
<b>Waiahole Stream</b>								
A	1,500	289	1,343	8.2	17.4	17.4	18.2	0.8
B	1,800	205	1,395	8.4	20.2	20.2	21.2	1.0
C	2,300	320	1,207	9.1	23.3	23.3	23.6	0.3
D	2,900	238	1,460	7.5	30.7	30.7	31.7	1.0
E	3,600	264	1,589	6.9	35.6	35.6	36.6	1.0
<b>Heeia Stream</b>								
A	150	764	3,119	3.0	4.2	4.2	5.2	1.0
B	550	611	2,719	3.5	5.4	5.4	6.1	0.7
C	1,290	973	5,476	1.7	6.3	6.3	7.2	0.9
D	1,950	719	1,834	5.2	7.0	7.0	7.6	0.6
E	2,700	1,834	6,693	1.3	8.3	8.3	9.3	1.0

<sup>1</sup>Feet above mouth

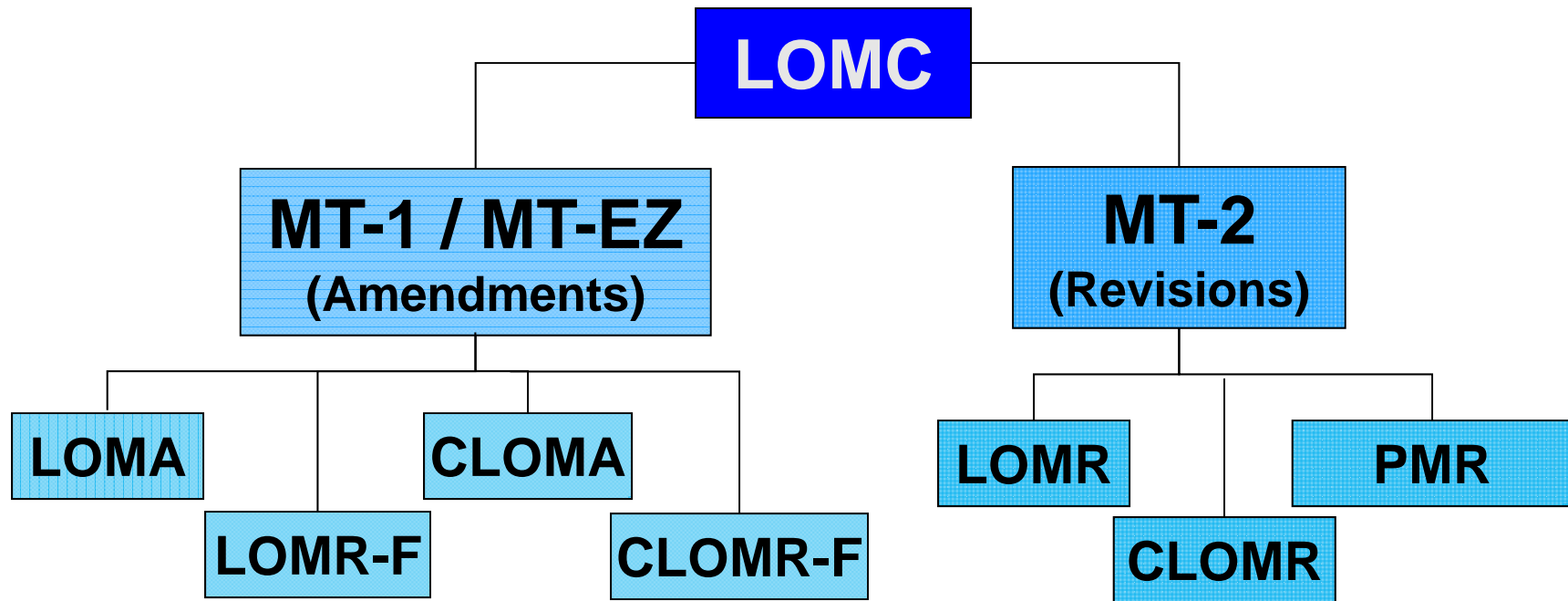
TABLE 8	FEDERAL EMERGENCY MANAGEMENT AGENCY	FLOODWAY DATA
	CITY AND COUNTY OF HONOLULU, HI	KAAAWA STREAM – WAIKANE STREAM - WAIHAOLE STREAM – HEEIA STREAM

# Flood Profile



***MT-1 Letters  
of Map  
Change (LOMCs)***

# Letters of Map Change



LOMA – Letter of Map Amendment  
LOMR-F – Letter of Map Revision based on Fill  
LOMR – Letter of Map Revision  
PMR – Physical Map Revision

CLOMA – Conditional Letter of Map Amendment  
CLOMR-F – Conditional Letter of Map Revision based on Fill  
CLOMR – Conditional Letter of Map Revision

# Types of LOMCs

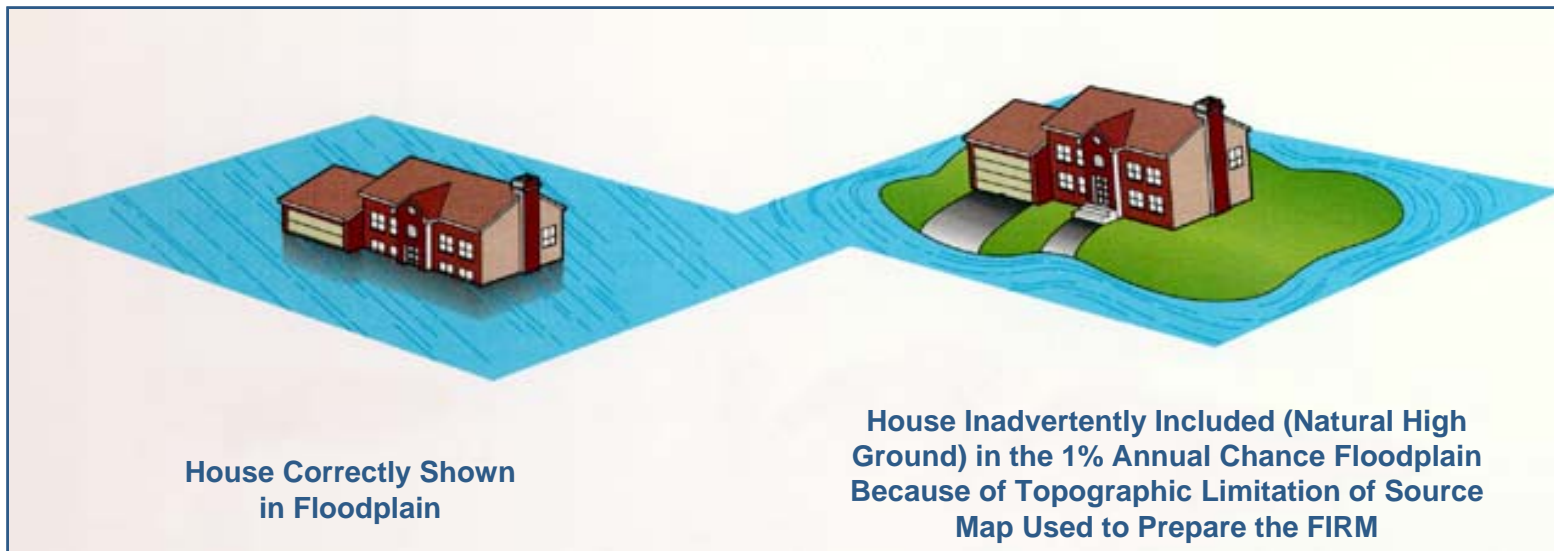
- Letter of Map Amendment (LOMA)
- Letter of Map Revision Based on Fill (LOMR-F)
- Conditional Letter of Map Amendment (CLOMA)
- Conditional Letter of Map Revision Based on Fill (CLOMR-F)
- Inadvertent inclusion in floodway (LOMR-FW)
- Out as Shown (LOMA-OAS)



# What Is a LOMA?

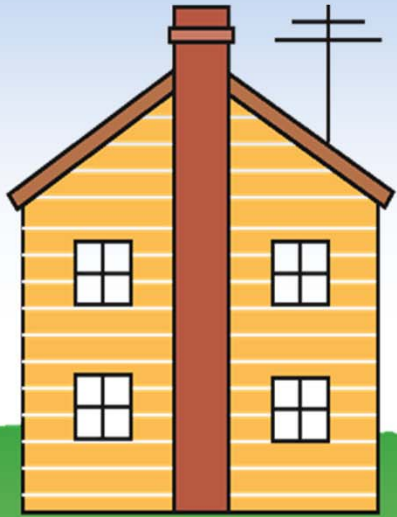
- Letter of Map Amendment
- Request for exclusion of existing structure(s) or legally defined parcel(s) of land
- Inadvertent inclusion (no fill)
- Removes mandatory Federal flood insurance purchase requirement
- Processed under Part 70 of NFIP regulations
- Does not change BFEs

# LOMA

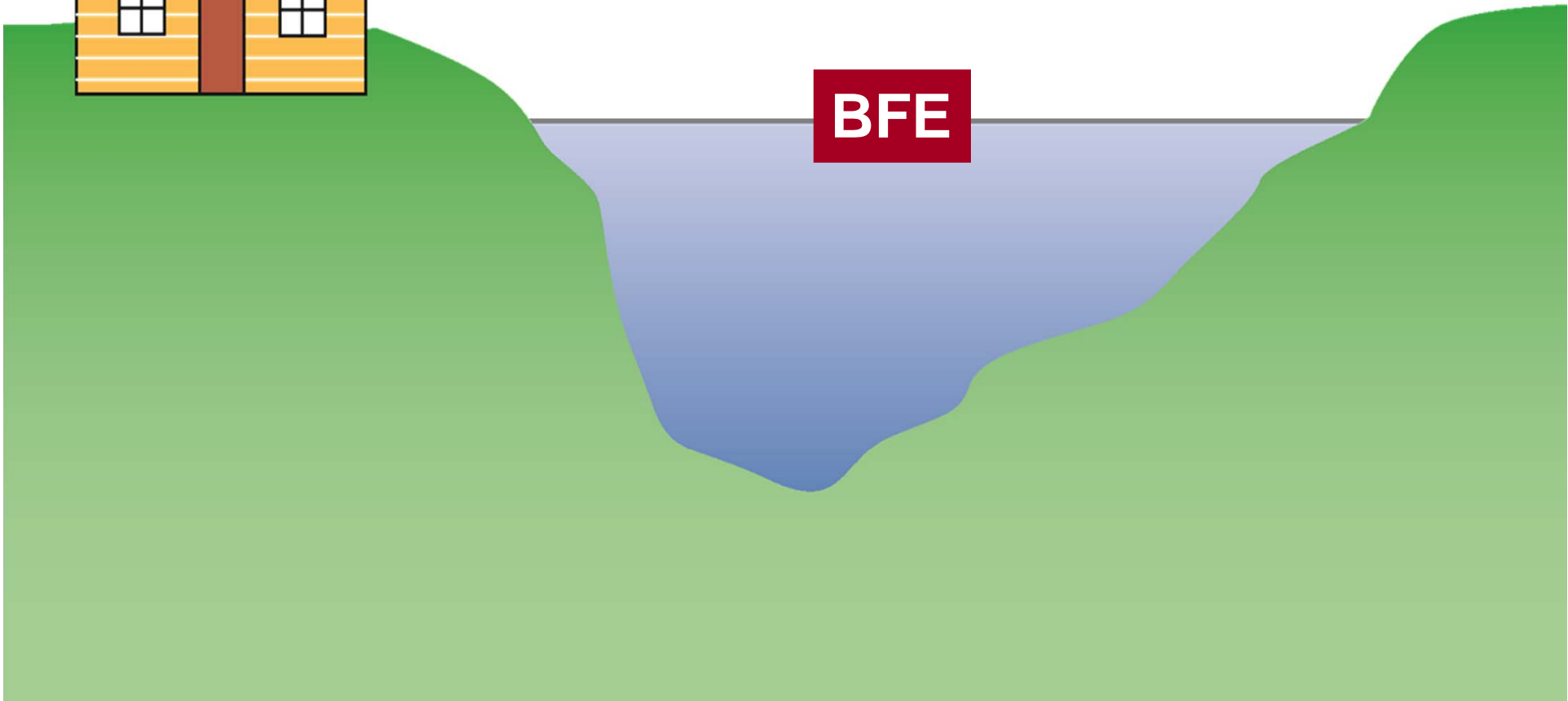


**Part 70 of the NFIP Regulations requires that the lowest ground touching the structure be equal to or higher than the BFE.**

LOMA

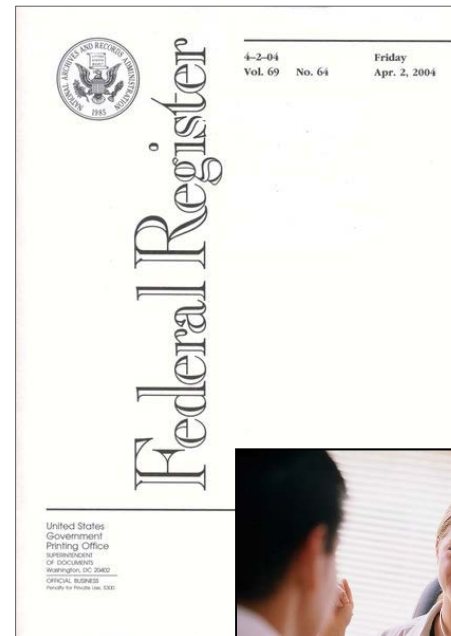


BFE



# LOMA Distribution

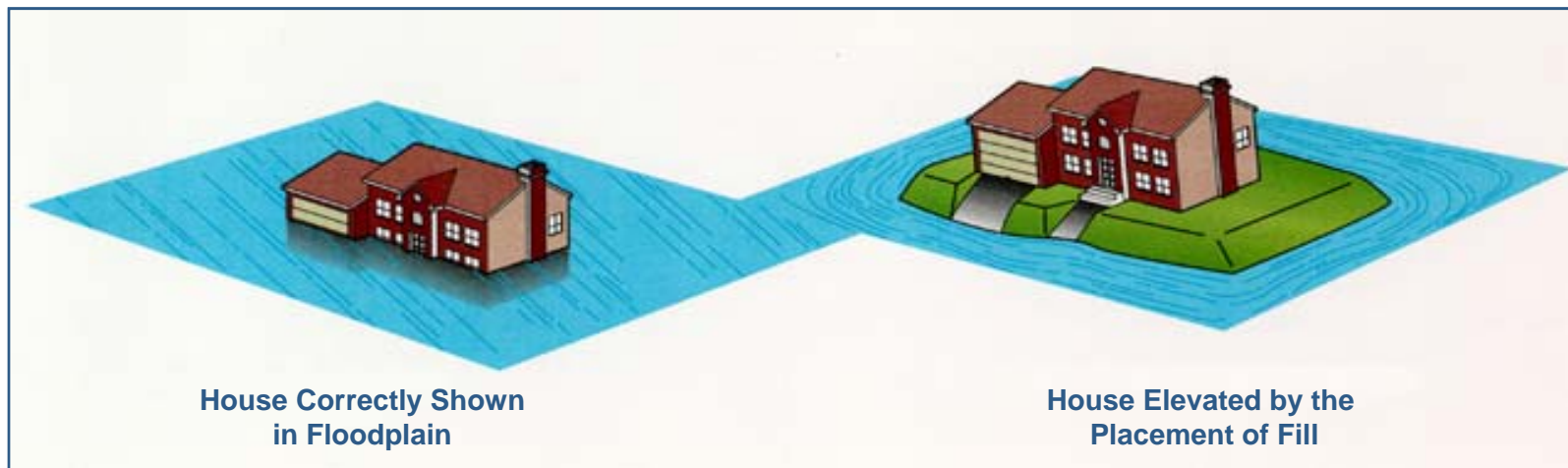
- Applicant
- Community's map repository
- Community or governmental unit that requested the LOMA
- FEMA's community file
- State NFIP Coordinator
- FEMA Regional Office
- Federal Register



# What Is a LOMR-F?

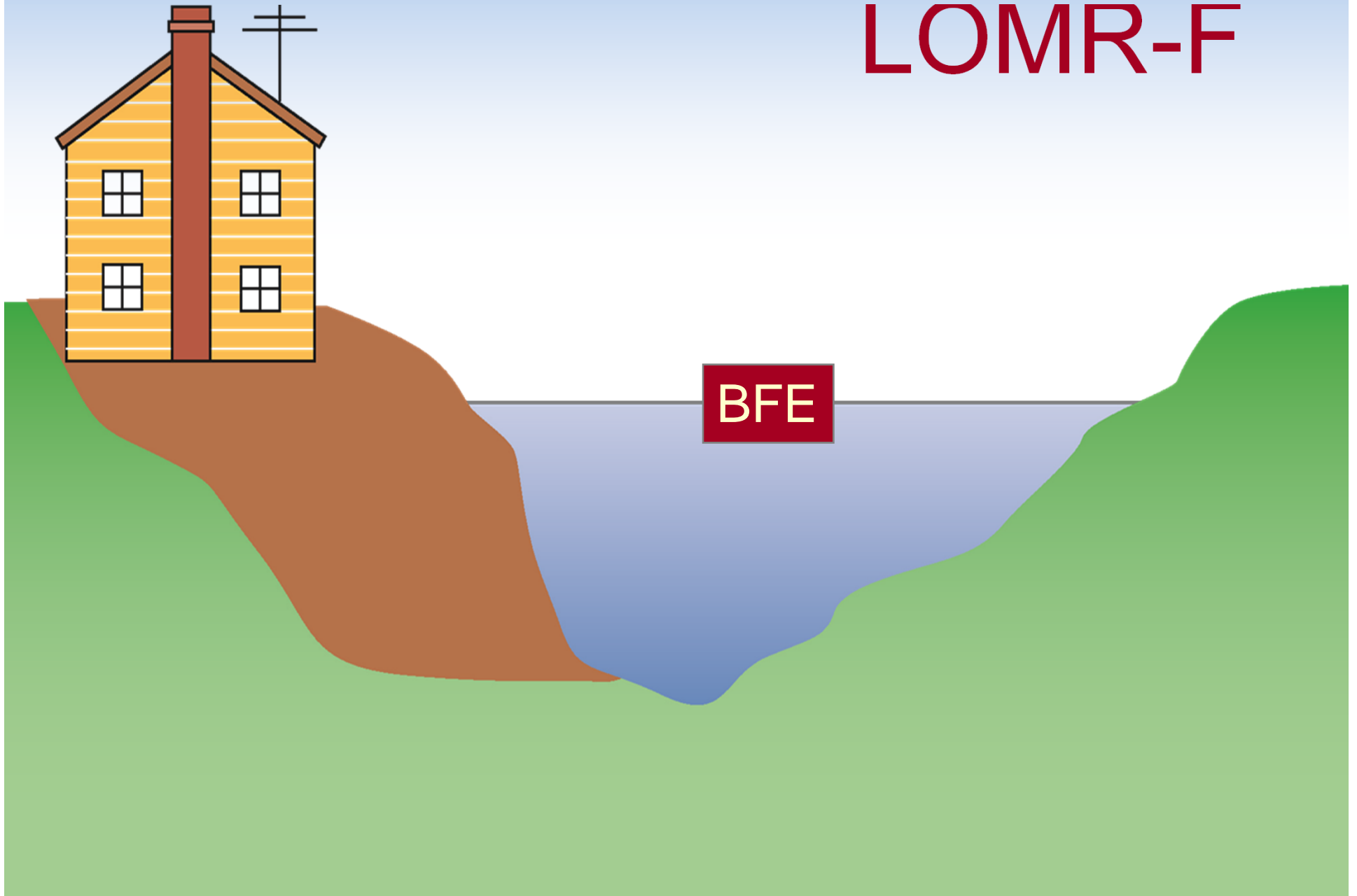
- Letter of Map Revision based on Fill
- Property and/or structure elevated by earthen fill
- Existing structure or parcel is removed from SFHA
- Removes mandatory Federal flood insurance purchase requirement
- Processed under Section 65.5 of NFIP regulations
- Does **NOT** change BFEs or revise the FIRMs

# LOMR-F



**Parts 60 and 65 of the NFIP regulations require that the lowest ground touching structure be equal to or higher than the BFE.**

# LOMR-F



# LOMR-F Distribution

- Community's CEO
- Applicant
- Community's map repository
- Community or governmental unit that requested the LOMR-F
- FEMA's community file
- State NFIP Coordinator
- FEMA Regional Office
- Federal Register





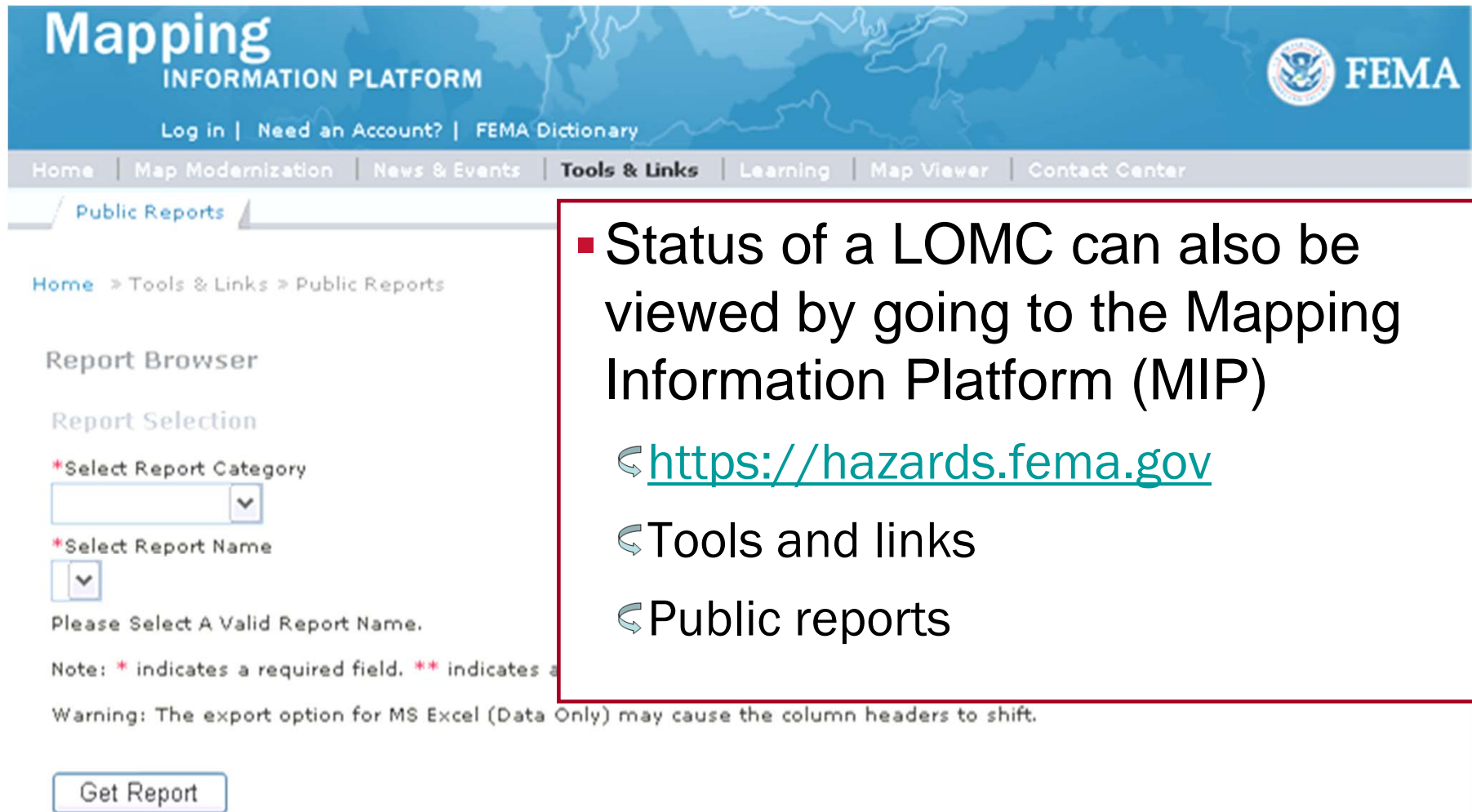
## Conditional LOMA or LOMR-F

- Referred to as CLOMA and CLOMR-F
- For an applicant proposing to build on property that is inadvertently included in SFHA (CLOMA) or proposing to raise property above BFE using fill (CLOMR-F)
- Same data requirements as LOMA and LOMR-F, but with proposed elevations
- Do **NOT** amend a Flood Map
- Does not waive mandatory flood insurance purchase requirement
- Typically followed by LOMA and LOMR-F upon completion of work

## LOMC Review By FEMA

- FEMA is required to notify the applicant in writing within 60 days from the receipt date of all data
- Requesters are able to check status of all LOMC requests by contacting the FEMA Map Information Exchange toll-free at 877-FEMA MAP (336-2627)

# LOMC Review By FEMA



The screenshot shows the FEMA Mapping Information Platform (MIP) website. The header includes the title "Mapping INFORMATION PLATFORM" and the FEMA logo. Navigation links include "Home", "Map Modernization", "News & Events", "Tools & Links", "Learning", "Map Viewer", and "Contact Center". The "Public Reports" section is highlighted, and the breadcrumb trail shows "Home > Tools & Links > Public Reports". The "Report Browser" section contains two dropdown menus: "\*Select Report Category" and "\*Select Report Name". A message below the dropdowns reads "Please Select A Valid Report Name." and a note explains that "\*" indicates a required field. A "Get Report" button is located at the bottom of the form.

- Status of a LOMC can also be viewed by going to the Mapping Information Platform (MIP)
  - ↳ <https://hazards.fema.gov>
  - ↳ Tools and links
  - ↳ Public reports

# Sample LOMC Cover Letter



Federal Emergency Management Agency  
Washington, D.C. 20472

March 12, 2015

MR. THEODORE NESHEIM  
602A KAWAINUI STREET  
KAILUA, HI 96734

CASE NO.: 15-09-1043A  
COMMUNITY: CITY AND COUNTY\* OF HONOLULU,  
HONOLULU COUNTY, HAWAII  
COMMUNITY NO.: 150001

DEAR MR. NESHEIM:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Letter of Map Amendment (LOMA) Determination Document. This determination document provides additional information regarding the effective NFIP map, the legal description of the property and our determination.

Additional documents are enclosed which provide information regarding the subject property and LOMAs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.

Sincerely,

A handwritten signature in black ink, appearing to read "Luis Rodriguez", is positioned above the typed name.



Luis Rodriguez, P.E., Chief  
Engineering Management Branch  
Federal Insurance and Mitigation Administration



**LIST OF ENCLOSURES:**

LOMA DETERMINATION DOCUMENT (REMOVAL)

cc: State/Commonwealth NFIP Coordinator  
Community Map Repository  
Region

# Sample Determination Document

Page 1 of 2		Date: March 12, 2015	Case No.: 15-09-1043A	LOMA					
 <b>Federal Emergency Management Agency</b> Washington, D.C. 20472									
<b>LETTER OF MAP AMENDMENT          DETERMINATION DOCUMENT (REMOVAL)</b>									
COMMUNITY AND MAP PANEL INFORMATION			LEGAL PROPERTY DESCRIPTION						
COMMUNITY	CITY AND COUNTY OF HONOLULU, HONOLULU COUNTY, HAWAII		Lots 427, 428, and 429, Map 108, Land Court Application No. 495, as described in the Warranty Deed, recorded as Document No. T-8861125, in the Office of the Bureau of Conveyances, Honolulu County, Hawaii						
	COMMUNITY NO.: 150001								
	NUMBER: 15003C0290H								
AFFECTED MAP PANEL	DATE: 11/6/2014								
FLOODING SOURCE: PONDING			APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 21.396, -157.748 SOURCE OF LAT & LONG: GOOGLE EARTH PRO DATUM: NAD 83						
<b>DETERMINATION</b>									
LOT	BLOCK/SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANGE FLOOD ELEVATION (LTD)	LOWEST ADJACENT GRADE ELEVATION (LTD)	LOWEST LOT ELEVATION (LTD)	
427 - 429	--	Land Court Application 495	602A Kawaiui Street	Structure (Residence)	X (shaded)	6.0 feet	6.7 feet	--	
Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).									
ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)									
PORTIONS REMAIN IN THE SFHA									
LEVEE PROTECTED									
STUDY UNDERWAY									
<p>This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.</p> <p>This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.</p>									
 Luis Rodriguez, P.E., Chief Engineering Management Branch Federal Insurance and Mitigation Administration									

Page 2 of 2		Date: March 12, 2015	Case No.: 15-09-1043A	LOMA
 <b>Federal Emergency Management Agency</b> Washington, D.C. 20472				
<b>LETTER OF MAP AMENDMENT          DETERMINATION DOCUMENT (REMOVAL)</b>				
ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)				
<p><b>PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)</b>          Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.</p> <p><b>LEVEE PROTECTED (This Additional Consideration applies to the preceding 1 Property.)</b>          The subject property is located in an area protected from the 1-percent annual chance flood (base flood) by a levee or other structure subject to possible failure or overtopping by a flood larger than the base flood.</p> <p><b>STUDY UNDERWAY (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))</b>          This determination is based on the flood data presently available. However, the Federal Emergency Management Agency is currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. When the new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.</p>				
<p>This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.</p>				
 Luis Rodriguez, P.E., Chief Engineering Management Branch Federal Insurance and Mitigation Administration				

# Data Requirements

	LOMA	LOMR-F	CLOMA	CLOMR-F
Property Information Form	X	X	X	X
Recorded Deed/Plat	X	X		
Tax Map or Other Suitable Map	X <sub>1</sub>	X <sub>1</sub>	X <sub>1</sub>	X <sub>1</sub>
Effective FIRM	X	X	X	X
Elevation Certificate or Form	X	X	X	X
Community Acknowledgment Form	X <sub>2</sub>	X		X
Metes and Bounds Map/Description	X <sub>3</sub>	X <sub>3</sub>		X <sub>3</sub>
ESA Documentation			X	X
Fees		X	X	X

- 1 Not required if a plat has been submitted
- 2 Section B required if structure has been inadvertently included in the floodway
- 3 If portion of property is requested to be removed

# Property Information Form

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY <b>PROPERTY INFORMATION FORM</b>	O.M.B. NO. 1660-0015 Expires August 31, 2007
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**PAPERWORK BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 1.63 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 a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0015). 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.**

This form may be completed by the property owner, property owner's agent, licensed land surveyor, or registered professional engineer to support a request for a Letter of Map Amendment (LOMA), Conditional Letter of Map Amendment (CLOMA), Letter of Map Revision Based on Fill (LOMR-F), or Conditional Letter of Map Revision Based on Fill (CLOMR-F) for existing or proposed, single or multiple lots/structures. Please check the item below that describes your request:

<input type="checkbox"/> LOMA	A letter from DHS-FEMA stating that an existing structure or parcel of land that has not been elevated by fill (natural grade) would not be inundated by the base flood.
<input type="checkbox"/> CLOMA	A letter from DHS-FEMA stating that a proposed structure that is not to be elevated by fill (natural grade) would not be inundated by the base flood if built as proposed.
<input type="checkbox"/> LOMR-F	A letter from DHS-FEMA stating that an existing structure or parcel of land that has been elevated by fill would not be inundated by the base flood.
<input type="checkbox"/> CLOMR-F	A letter from DHS-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.

Fill is defined as material from any source placed to raise the ground to or above the Base Flood Elevation (BFE). The common construction practice of removing unsuitable existing material (topsoil) and backfilling with select structural material is not considered the placement of fill if the practice does not alter the existing (natural grade) elevation, which is at or above the BFE. Fill that is placed before the date of the first National Flood Insurance Program (NFIP) map showing the area in a Special Flood Hazard Area (SFHA) is considered natural grade.

Has fill been placed on your property?  Yes  No      If yes, when was fill placed?      /      /  
month/year

Will fill be placed on your property?  Yes  No      If yes, when will fill be placed?      /      /  
month/year

- Street Address of the Property (if request is for multiple structures, please attach additional sheet):
- Legal description of Property (Lot, Block, Subdivision) (if a street address cannot be provided):
- Are you requesting that the SFHA designation be removed from (check one):
  - the entire legally recorded property?
  - a portion of land within the bounds of the property (a certified metes and bounds description and map of the area to be removed, certified by a licensed land surveyor or registered professional engineer, are required)?
  - structures on the property? What are the dates of construction?
- Is this request for a (check one):
  - single structure
  - single lot
  - multiple structures (How many structures are involved in your request? List the number:      )
  - multiple lots (How many lots are involved in your request? List the number:      )

DHS - FEMA Form 81-87, FEB 06

Property Information Form

MT-1 Form 1 Page 1 of 2

In addition to this form (MT-1 Form 1), ALL requests must include the following:

- Copy of the Plat Map for the property (with recordation data and stamp of the Recorder's Office) OR
- Copy of the property Deed (with recordation data and stamp of the Recorder's Office), accompanied by a tax assessor's map or other certified map showing the surveyed location of the property relative to local streets and watercourses
- Copy of the effective FIRM panel and/or Flood Boundary and Floodway Map (FBFM) (if applicable) on which the property location has been accurately plotted (property inadvertently located in the NFIP regulatory floodway will require Section B of MT-1 Form 3)
- Form 2 - Elevation Form. If an Elevation Certificate has already been completed for this property, it may be submitted in addition to Form 2.

Please include a map scale and North arrow on all maps submitted.

For LOMR-Fs and CLOMR-Fs, the following must be submitted in addition to the items listed above:

- Form 3 - Community Acknowledgment Form

Processing Fee (see instructions for appropriate mailing address; or, visit [http://www.fema.gov/nfip/frm\\_fees.shtml](http://www.fema.gov/nfip/frm_fees.shtml) for the most current fee schedule)

Revised fee schedules are published periodically, but no more than once annually, as noted in the Federal Register. Please note: single/multiple lot(s)/structure(s) LOMAs are fee exempt. The current review and processing fees are listed below:

Check the fee that applies to your request:

- \$325 (single lot/structure LOMR-F following a CLOMR-F)
- \$425 (single lot/structure LOMR-F)
- \$500 (single lot/structure CLOMA or CLOMR-F)
- \$700 (multiple lot/structure LOMR-F following a CLOMR-F, or multiple lot/structure CLOMA)
- \$800 (multiple lot/structure LOMR-F or CLOMR-F)

Please submit the Payment Information Form for remittance of applicable fees. Please make your check or money order payable to: National Flood Insurance Program.

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.

Applicant's Name: \_\_\_\_\_ Please Print or Type      Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_      Daytime Telephone No.: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_ (optional)      Fax No.: \_\_\_\_\_

Date: \_\_\_\_\_      Signature of Applicant (required) \_\_\_\_\_

If you have any questions concerning DHS-FEMA policy, or the NFIP in general, please contact the FEMA Map Assistance Center toll free at 1-877-FEMA MAP (1-877-336-2627), or visit the Flood Hazard Mapping website at <http://www.fema.gov/nfip/>.

DHS - FEMA Form 81-87, FEB 06

Property Information Form

MT-1 Form 1 Page 2 of 2





# Recorded Deed

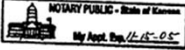
Lot 7, Block 15, Waterfront Place, a fictitious addition to the City of Nickerson, Reno County, Kansas, according to the duly recorded Plat thereof.

Entered in Transfer Record in my Office the 1st Day of March County Clerk

STATE OF KANSAS  
RENO COUNTY

This instrument was filed for record on the 1 day of MAR A.D. 2000 at 2:00 o'clock P.M. and was recorded in Book 000 on Page 000 Fee \$ 12.00

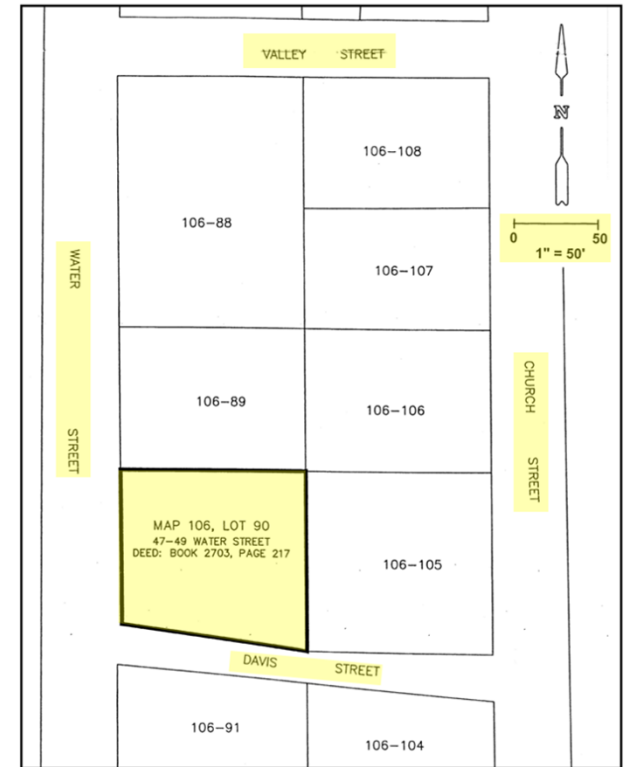
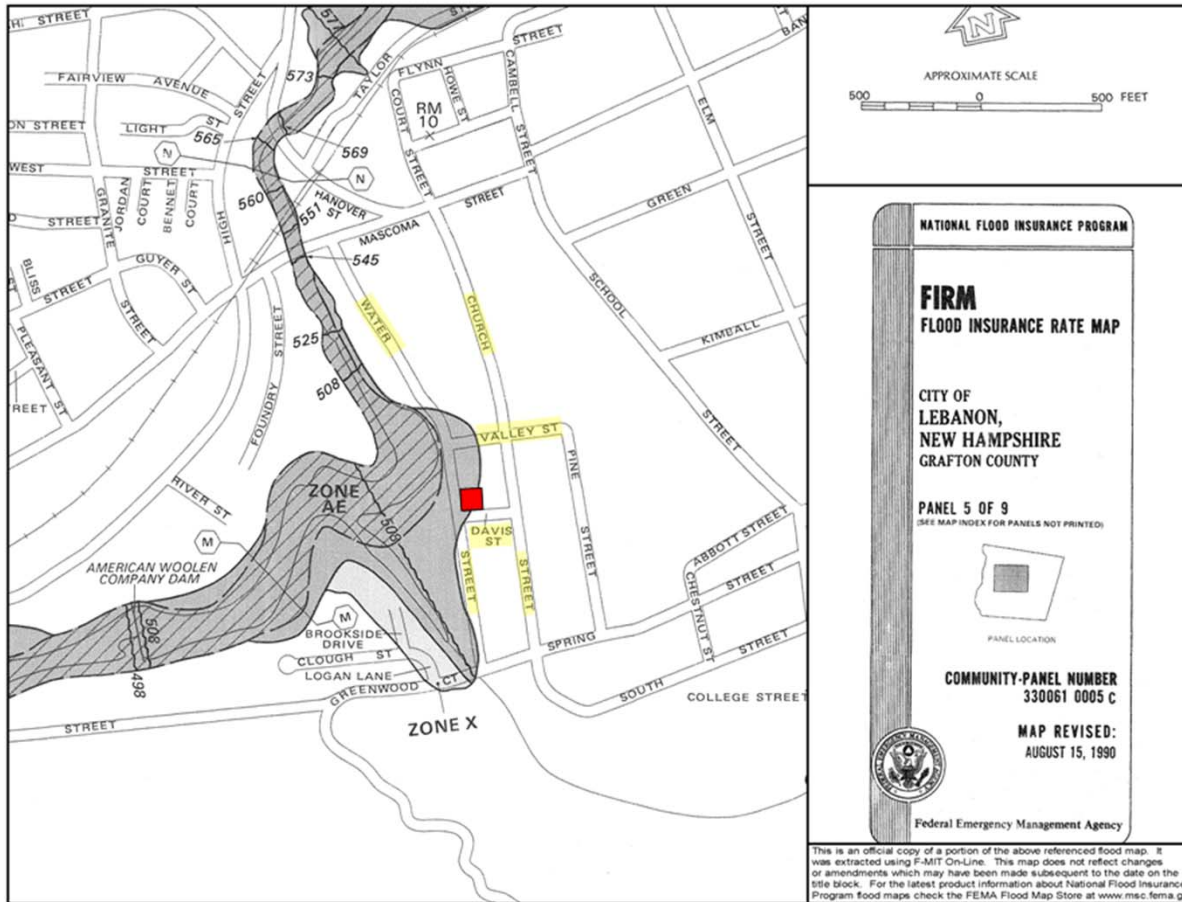
**EXAMPLE WARRANTY DEED**

Grant A. Loma and Fema E. Loma  
CONVEYS AND WARRANTS TO:  
Grant A. Loma, Jr.  
all of the following described REAL ESTATE in the County of Reno and State of Kansas, to wit:  
**Lot 7, Block 15, Waterfront Place, a fictitious addition to the City of Nickerson, Reno County, Kansas, according to the duly recorded Plat thereof.**  
for the sum of One Dollar (\$1.00) and other valuable consideration.  
EXCEPT AND SUBJECT TO: Easements and restrictions of record, if any.  
Dated: 02/01/0000  
State of Kansas  
County of Reno  
BE IT REMEMBERED, That on this 1st day of February, A.D., 0000, before me, the undersigned a Notary Public, in and for the County and State aforesaid came  
Grant A. Loma  
Grant A. Loma  
Fema E. Loma  
Fema E. Loma  
who are personally known to me to be the same persons who executed the within instrument of writing and such persons duly acknowledged the execution of the same.  
IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year last above mentioned.  
N. E. Notary  
Notary Public  
My Term Expires:   
**Entered in Transfer Record in my Office the 1st Day of March County Clerk**  
STATE OF KANSAS  
RENO COUNTY  
This instrument was filed for record on the 1 day of MAR A.D. 2000 at 2:00 o'clock P.M. and was recorded in Book 000 on Page 000 Fee \$ 12.00  
RCAT, Inc.

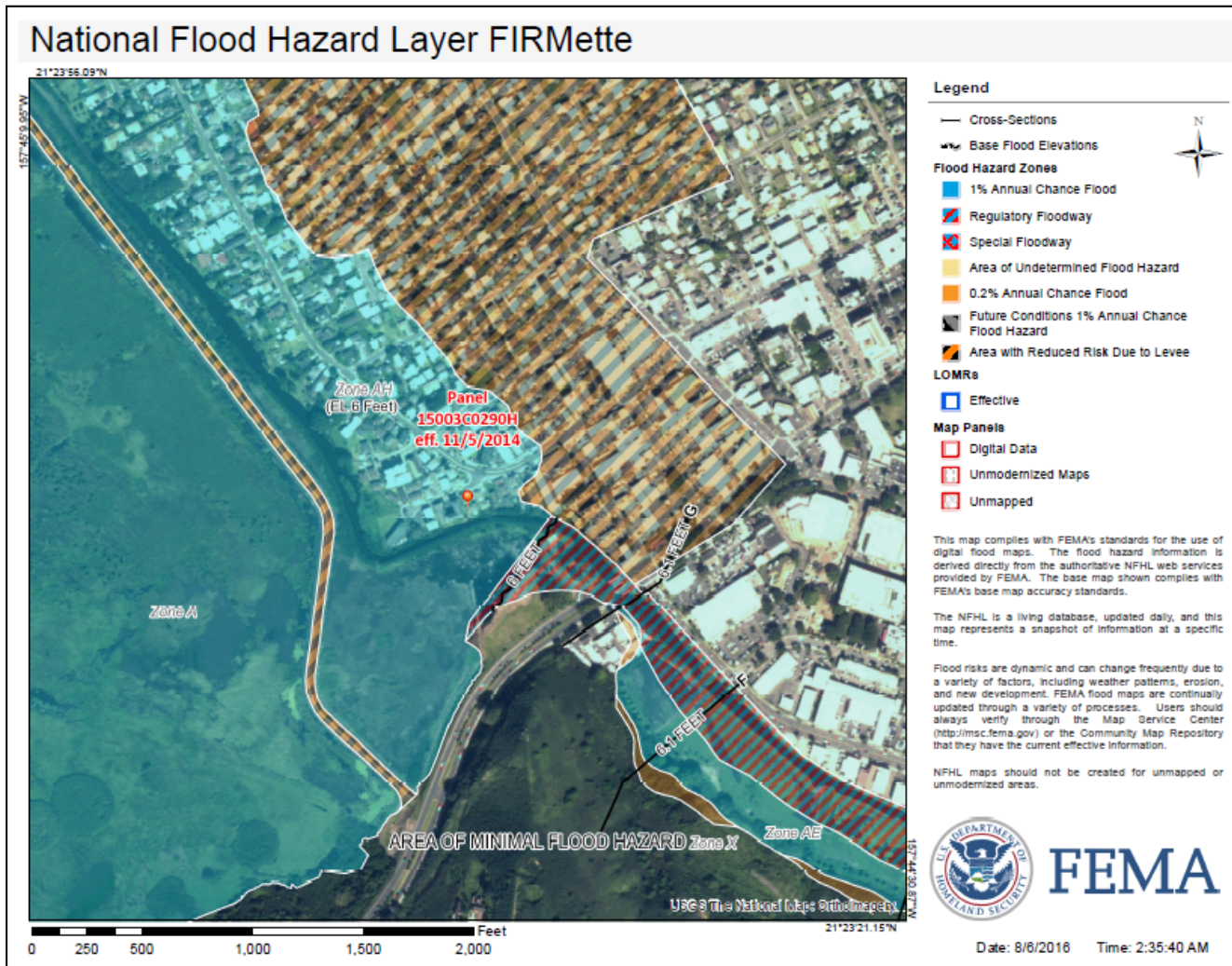




# Effective FIRM/Tax Map

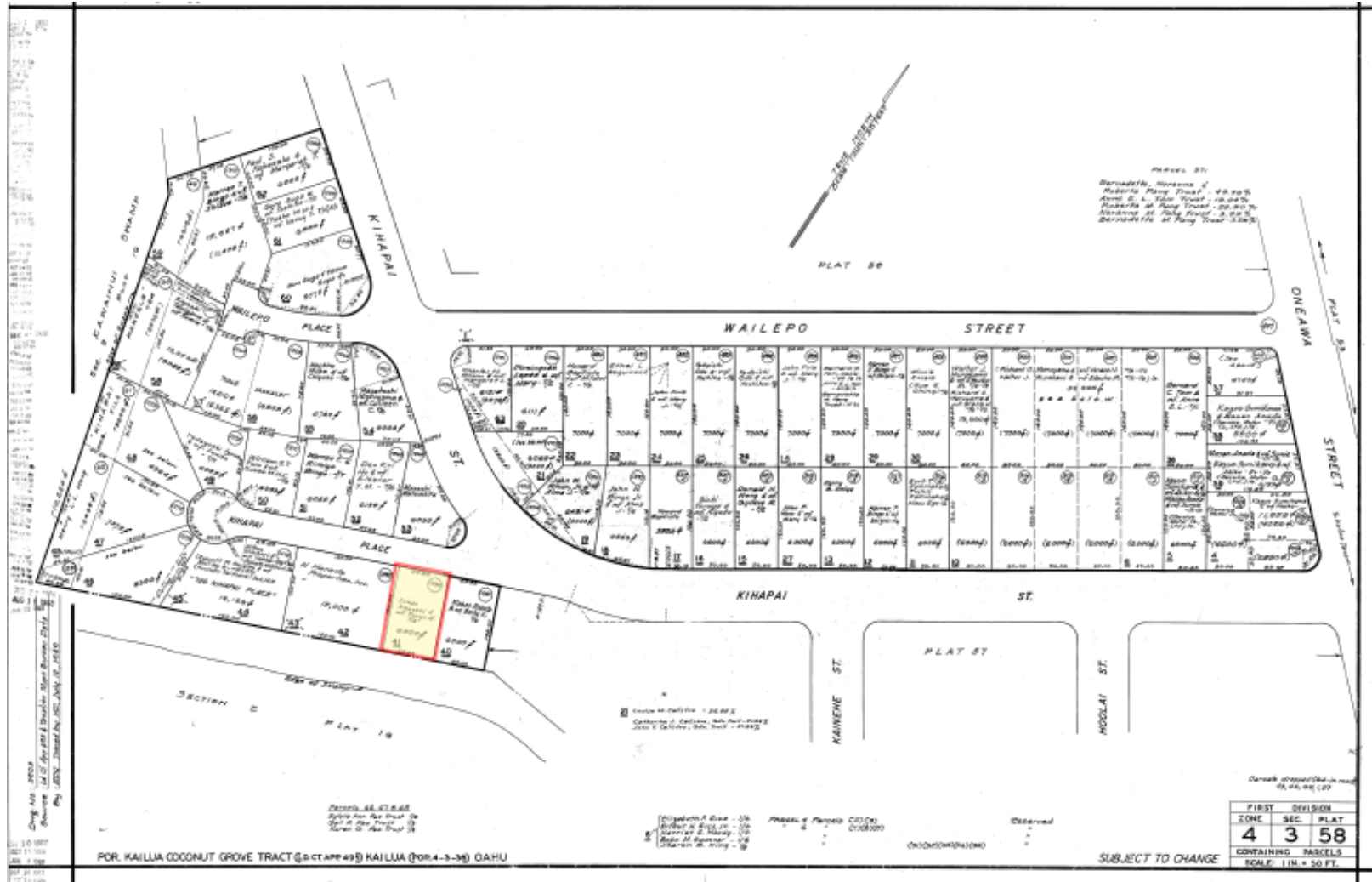


# Effective FIRM/Tax Map





# Effective FIRM/Tax Map



# Elevation Form/Certificate

<b>FEDERAL EMERGENCY MANAGEMENT AGENCY ELEVATION FORM</b>		<i>O.M.B. NO. 3067-0147 Expires September 30, 2005</i>			
<b>PAPERWORK BURDEN DISCLOSURE NOTICE</b>					
Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0147). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. <b>Please do not send your completed survey to the above address.</b>					
This form must be completed for requests and must be completed and signed by a registered professional engineer or licensed land surveyor. <b>A FEMA National Flood Insurance Program (NFIP) Elevation Certificate may be submitted in addition to this form for single structure requests.</b>					
For requests to remove a structure on natural grade OR on engineered fill from the Special Flood Hazard Area (SFHA), submit the lowest adjacent grade (the lowest ground touching the structure), including an attached deck or garage. For requests to remove an entire parcel of land from the SFHA, provide the lowest lot elevation, or, if the request involves an area described by metes and bounds, provide the lowest elevation within the metes and bounds description.					
1. NFIP Community Number: _____ Property Name or Address: _____					
2. Are the elevations listed below based on <input type="checkbox"/> existing or <input type="checkbox"/> proposed conditions? (Check one)					
3. What is the elevation datum? _____ If any of the elevations listed below were computed using a datum different than the datum used for the effective Flood Insurance Rate Map (FIRM) (e.g., NGVD 29 or NAVD 88), what was the conversion factor? _____					
<b>Local Elevation +/- ft. = FIRM Datum</b>					
4. For the existing or proposed structures listed below, what are the types of construction? (check all that apply) <input type="checkbox"/> crawl space <input type="checkbox"/> slab on grade <input type="checkbox"/> basement/enclosure <input type="checkbox"/> other (explain) _____					
5. Has FEMA identified this area as subject to land subsidence or uplift? (see instructions) <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, what is the date of the current relieving? _____ / _____ (month/year)					
Lot Number	Block Number	Lowest Lot Elevation	Lowest Adjacent Grade To Structure	Base Flood Elevation	For FEMA Use Only
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. 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 _____			
Seal (optional)					
FEMA Form 81-87A, SEP 02 <span style="float: right;">Elevation Form <span style="margin-left: 100px;">MT-1 Form 2 Page 1 of 2</span></span>					

<b>U.S. DEPARTMENT OF HOMELAND SECURITY National Flood Insurance Program</b>		<b>ELEVATION CERTIFICATE</b>	OMB No. 1660-0008 Expires February 28, 2009
Important: Read the instructions on pages 1-8.			
<b>SECTION A - PROPERTY INFORMATION</b>			For Insurance Company Use:
A1. Building Owner's Name _____			Policy Number _____
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. _____			Company NAIC Number _____
City _____	State _____	ZIP Code _____	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) _____			
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) _____			
A5. Latitude/Longitude: Lat _____ Long _____		Horizontal Datum: <input type="checkbox"/> NAD 1927 <input type="checkbox"/> NAD 1983	
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.			
A7. Building Diagram Number _____			
A8. For a building with a crawl space or enclosure(s), provide:		A9. For a building with an attached garage, provide:	
a) Square footage of crawl space or enclosure(s) _____ sq ft	b) No. of permanent flood openings in the crawl space or enclosure(s) walls within 1.0 foot above adjacent grade _____ sq in	a) Square footage of attached garage _____ sq ft	b) No. of permanent flood openings in the attached garage walls within 1.0 foot above adjacent grade _____ sq in
c) Total net area of flood openings in A8.b _____ sq in	c) Total net area of flood openings in A9.b _____ sq in		
<b>SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION</b>			
B1. NFIP Community Name & Community Number _____		B3. State _____	
B2. County Name _____			
B4. Map/Panel Number _____	B5. Suffix _____	B6. FIRM Index Date _____	B7. FIRM Panel Effective/Revised Date _____
B8. Flood Zone(s) _____		B9. Base Flood Elevation(s) (Zone AO, use base flood depth) _____	
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in item B9: <input type="checkbox"/> FIS Profile <input type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other (Describe) _____			
B11. Indicate elevation datum used for BFE in item B9: <input type="checkbox"/> NGVD 1929 <input type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other (Describe) _____			
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? Designation Date _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)</b>			
C1. Building elevations are based on: <input type="checkbox"/> Construction Drawings* <input type="checkbox"/> Building Under Construction* <input type="checkbox"/> Finished Construction			
*A new Elevation Certificate will be required when construction of the building is complete.			
C2. Elevations - Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, ARA, ARAE, ARIA1-A30, ARIA/A, ARIA/O. Complete Items C2-a-g below according to the building diagram specified in item A7.			
Benchmark Utilized _____		Vertical Datum _____	
Conversion/Comments _____			
Check the measurement used.			
a) Top of bottom floor (including basement, crawl space, or enclosure floor) _____	_____ feet	_____ meters	(Puerto Rico only)
b) Top of the next higher floor _____	_____ feet	_____ meters	(Puerto Rico only)
c) Bottom of the lowest horizontal structural member (V Zones only) _____	_____ feet	_____ meters	(Puerto Rico only)
d) Attached garage (top of slab) _____	_____ feet	_____ meters	(Puerto Rico only)
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment in Comments) _____	_____ feet	_____ meters	(Puerto Rico only)
f) Lowest adjacent (finished) grade (LAG) _____	_____ feet	_____ meters	(Puerto Rico only)
g) Highest adjacent (finished) grade (HAG) _____	_____ feet	_____ meters	(Puerto Rico only)
<b>SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION</b>			
This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.			
<input type="checkbox"/> Check here if comments are provided on back of form.			
Certifier's Name _____		License Number _____	
Title _____		Company Name _____	
Address _____		City _____ State _____ ZIP Code _____	
Signature _____		Date _____ Telephone _____	
PLACE SEAL HERE			
FEMA Form 81-31, February 2006 <span style="float: right;">See reverse side for continuation. <span style="margin-left: 100px;">Replaces all previous editions</span></span>			

# Community Acknowledgment Form

<b>FEDERAL EMERGENCY MANAGEMENT AGENCY COMMUNITY ACKNOWLEDGMENT FORM</b>		<small>O.M.B. NO. 3067-0147 Expires September 30, 2005</small>
<b>PAPERWORK BURDEN DISCLOSURE NOTICE</b>		
<p>Public reporting burden for this form is estimated to average 0.88 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0147). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. <b>Please do not send your completed survey to the above address.</b></p>		
<p>This form must be completed for requests involving the existing or proposed placement of fill (complete Section A) OR to provide acknowledgment of this request to remove a property from the SFHA which was previously located within the regulatory floodway (complete Section B).</p> <p>This form must be completed and signed by the official responsible for floodplain management in the community. The community number and the subject property address must appear in the spaces provided below.</p>		
Community Number:	Property Name or Address:	
<b>A. REQUESTS INVOLVING THE PLACEMENT OF FILL</b>		
<p>As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision Based on Fill (LOMR-F) or Conditional LOMR-F 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 requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a Conditional LOMR-F, will be obtained. 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. For LOMR-F requests, we understand that this request is being forwarded to FEMA for a possible map revision.</p>		
Community Comments:		
Community Official's Name and Title: <i>(Please Print or Type)</i>		Telephone No.:
Community Name:	Community Official's Signature: <i>(required)</i>	Date:
<b>B. PROPERTY LOCATED WITHIN THE REGULATORY FLOODWAY</b>		
<p>As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this request for a LOMA. We understand that this request is being forwarded to FEMA to determine if this property has been inadvertently included in the regulatory floodway. We acknowledge that no fill on this property has been or will be placed within the designated regulatory floodway. We find that the completed or proposed project meets or is designed to meet all of the community floodplain management requirements.</p>		
Community Comments:		
Community Official's Name and Title: <i>(Please Print or Type)</i>		Telephone No.:
Community Name:	Community Official's Signature: <i>(required)</i>	Date:
<small>FEMA Form 81-87B, SEP 02      Community Acknowledgment Form      MT-1 Form 3 Page 1 of 1</small>		

# *Endangered Species Act (ESA)*

## ESA Compliance Documentation for Projects with Federal Actions:

- A “No Effect” determination made by the federal agency
- A “Not Likely to Adversely Affect” determination from the Services;
- A biological opinion with a “no jeopardy” determination; or
- 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.

# *Endangered Species Act (ESA)*

## **ESA Compliance Documentation for Non-Federal Projects:**

- For requests without a Federal action, compliance with Sections 9, and if appropriate 10, of the ESA must be achieved independently of FEMA's process
- Documentation that the project is compliant with the ESA may be submitted in the form of a written and signed statement from the community official responsible for floodplain permitting will suffice.
- The Community Acknowledgement Form of the MT-1 Form for CLOMR-F requests can be used
- Potential for adverse effects will require coordination with the Services The Community Acknowledgement Form of the MT-1 Form can be used for CLOMR-F requests



# Fees

<b>Requests for Single-Lot, Single-Structure Map Change</b>	<b>Paper Form Fee</b>	<b>Online LOMC Fee</b>
Single-Lot or Single-Structure LOMA	Free	Free
Single-Lot/Single-Structure CLOMA and CLOMR-F	\$600	\$500
Single-Lot/Single-Structure LOMR-F	\$525	\$425
Single-Lot/Single-Structure LOMR-F Based on As-Built Information (CLOMR-F previously issued by FEMA)	\$425	\$325
<b>Requests for Multiple-Lot/Multiple-Structure Map Changes</b>	<b>Paper Form Fee</b>	<b>Online LOMC Fee</b>
Multiple-Lot/Multiple-Structure LOMA	Free	Free
Multiple-Lot/Multiple-Structure CLOMA	\$800	\$700
Multiple-Lot/Multiple-Structure CLOMR-F and LOMR-F	\$900	\$800
Multiple-Lot/Multiple-Structure LOMR-F Based on As-Built Information (CLOMR-F previously issued by FEMA)	\$800	\$700

# Metes and Bounds Description

- Used to remove a portion of property from the SFHA when the entire property cannot be removed
- Must be tied into a point found on a legally recorded deed or plat
- Requestor to submit all recorded plats and deeds for properties located in the described area
- All portions of described area to be at or above the BFE
- Cannot contain any areas of water such as streams, lakes, or detention ponds

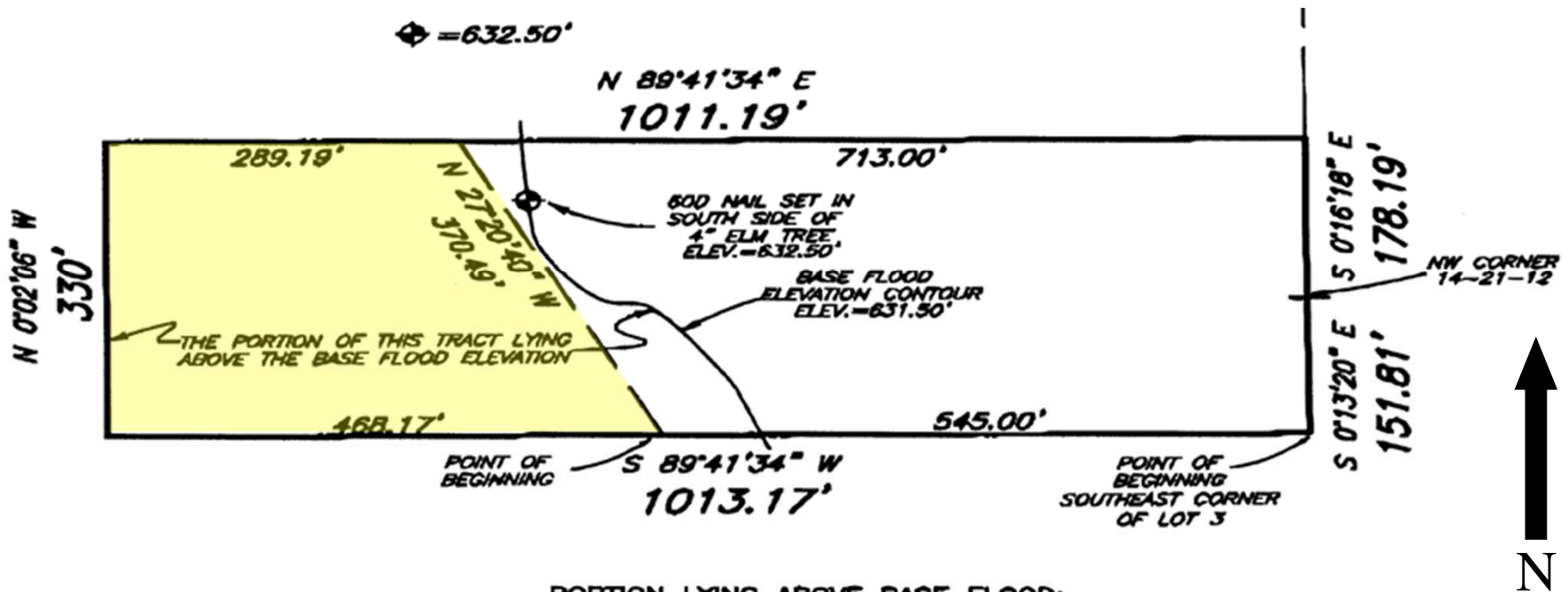
# Metes and Bounds Description

- Can describe a portion of one lot, portions of multiple lots, or entire proposed lots that have not yet been recorded on a plat
- Should always have a beginning and end (closed description, no lines)
- Must be in the form of bearings and distances (i.e. “thence N00°00’00”W, 328.00 feet”)
- Cannot follow a contour without also containing bearings and distances (i.e. “thence 200 feet along the 730 foot contour” is unacceptable)

# Metes and Bounds Description

- Must be signed and sealed by a licensed land surveyor or professional engineer
- Description to be sent to FEMA in Microsoft Word format
- Must contain spot elevations along the perimeter when a range of BFEs will be used

# Metes and Bounds Map



## PORTION LYING ABOVE BASE FLOOD:

A PART OF LOT THREE (3) IN THE SOUTHEAST QUARTER (SE/4) OF SECTION TEN (10), TOWNSHIP TWENTY-ONE (21) NORTH, RANGE TWELVE (12) EAST OF THE INDIAN BASE AND MERIDIAN, OSAGE COUNTY, STATE OF OKLAHOMA, ACCORDING TO THE UNITED STATES GOVERNMENT SURVEY THEREOF, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

**COMMENCING** AT THE SOUTHEAST CORNER OF SAID LOT 3, THENCE SOUTH 89°41'34" WEST ALONG THE SOUTH LINE A DISTANCE OF 545.00 FEET TO THE **POINT OF BEGINNING**; THENCE CONTINUING S 89°41'34" W ALONG SAID SOUTH LINE A DISTANCE OF 468.17 TO THE SOUTHWEST CORNER THEREOF; THENCE N 00°02'08" W ALONG THE WEST LINE OF SAID LOT 3 A DISTANCE OF 330.00 FEET; THENCE N 89°41'34" E A DISTANCE OF 289.19 FEET; THENCE S 27°20'40" E A DISTANCE OF 370.49 FEET TO THE **POINT OF BEGINNING**.



FEMA

*MT-1*

# *Processing Issues*

**RiskMAP**

Increasing Resilience Together



# *Common Issues*

- Missing community Concurrence Form
- Missing or incorrect fees
- Lowest Adjacent Grade above BFE, Lowest Floor below BFE, (non removal)
- No datum on the elevation certificate/form
- Missing ESA documentation (For CLOMR-Fs only)
- Proposed instead of existing conditions
- Deed or plat is not recorded
- Deed is missing legal description of property
- Tax map does not contain an intersection of streets that also appears on the FIRM (can't plot)

## Common Issues

- The request is for a LOMA, but all previous properties in subdivision have been processed as LOMR-Fs
- Major changes have been made to the flooding source; e.g., stream has been contained in culvert, channel grading, etc. (should be LOMR)
- The Lowest Adjacent Grade (LAG) is lower than the Lowest Lot Elevation (LLE). (not possible)
- Fill has been placed in the regulatory floodway. (potential violation)

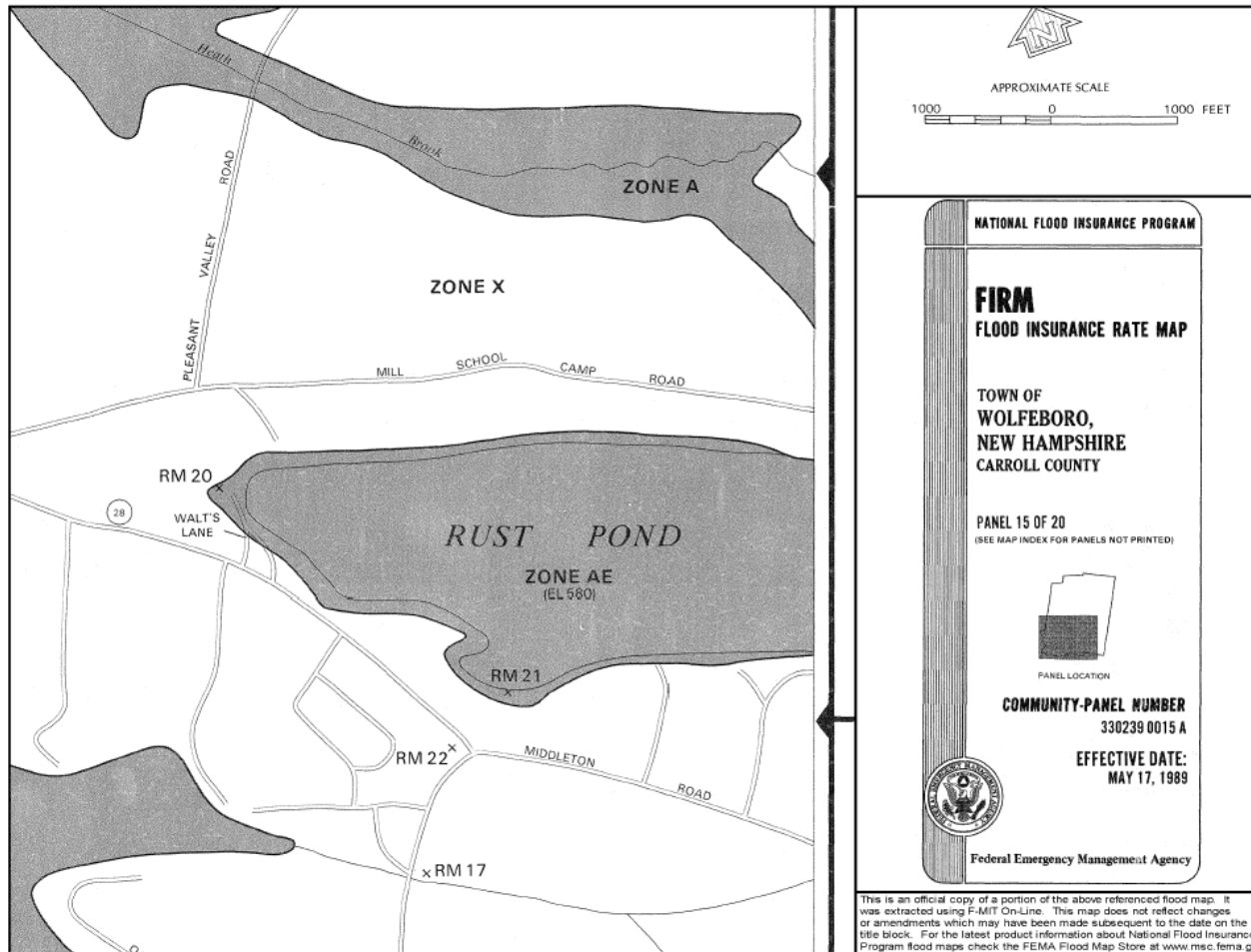


***BFE***

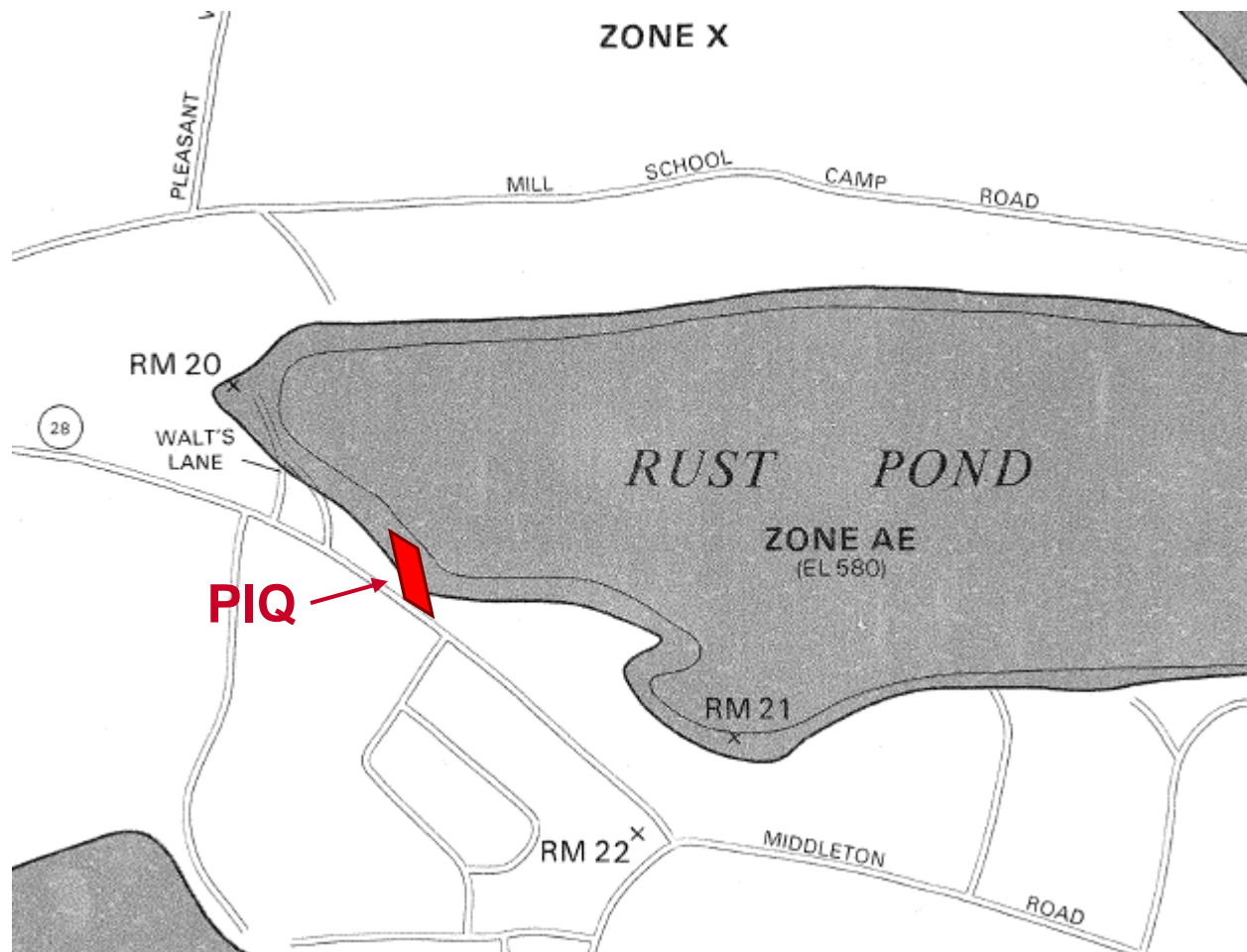
***Development***

***Stillwater***  
***Elevations***

# Stillwater Elevations



# Stillwater Elevations



# Stillwater Elevations

- Consult the FIS report for the community in which the property is located.
- Locate the Summary of Stillwater Elevations (SOE) table.
  - The flooding source will be listed by name.
  - Use the BFE listed in the table.
  - The BFE is normally shown to the nearest one-tenth of a foot.
- If the flooding source is not listed in the SOE table, use the BFE as shown on the FIRM.

# Stillwater Elevations

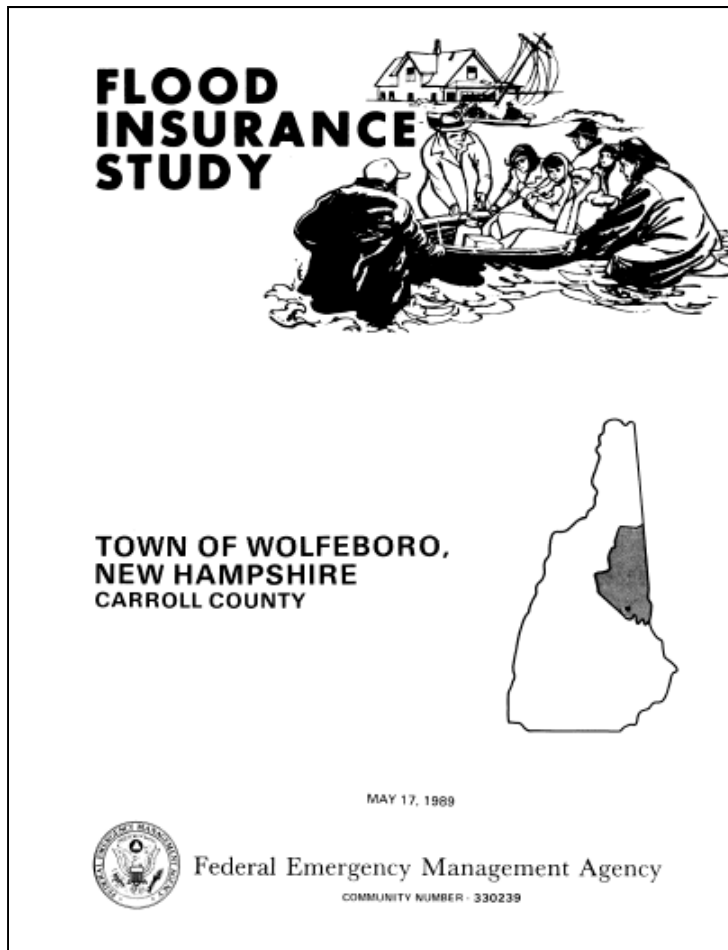


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Exhibit 1 - Flood Insurance Rate Map Index and Street Index Flood Insurance Rate Map	
Exhibit 2 - Elevation Reference Marks	

<u>TABLES</u>
Table 1 - Summary of Stillwater Elevations <span style="float: right;">6</span>

# Stillwater Elevations

### 3.1 Hydrologic and Hydraulic Analyses

Analyses were carried out to establish the peak elevation-frequency relationships for the flooding sources studied in detail affecting the community.

Peak elevation-frequency relationships for Lake Winnepesaukee were determined from a Log-Pearson Type III analysis obtained from USGS gage No. 01080000 (Reference 4).

Peak elevation-frequency relationships for Lake Wentworth-Crescent Lake and Rust Pond were determined by hydrologic models (TR-20 and TR-48) which subjected the structures to two different types of flood events (References 6 and 7). The first situation generates floods, due to rainfall alone, with the lakes at normal summer pool level. No openings of gates or removal of stop-logs is assumed. The second situation assumes floods due to runoff from snowmelt/rainfall events occurring when the lakes are drawn down to their winter levels and all gates are open. The higher elevation created by the two tests was chosen for each of the four frequency floods studied.

The stillwater elevations for the 10-, 50-, 100-, and 500-year floods have been determined for each flooding source studied in detail and are summarized in Table 1, "Summary of Stillwater Elevations."

TABLE 1 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet)			
	10-YEAR	50-YEAR	100-YEAR	500-YEAR
LAKE WINNIPESAUKEE Entire shoreline within community	505.4	505.9	506.2	506.7
LAKE WENTWORTH-CRESCENT LAKE Entire shoreline	535.7	536.2	536.4	536.9
RUST POND Entire shoreline	579.9	580.2	580.4	580.7

Analysis of the hydraulic characteristics of Lake Winnepesaukee was not necessary as elevation records are available at USGS gage No. 01080000. The hydraulics of the outlets for Crescent Lake and Rust Pond were based on standard weir and orifice equations.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the Flood Insurance Rate Maps (Exhibit 1); the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 2).

TABLE 1 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet)			
	10-YEAR	50-YEAR	100-YEAR	500-YEAR
LAKE WINNIPESAUKEE Entire shoreline within community	505.4	505.9	506.2	506.7
LAKE WENTWORTH-CRESCENT LAKE Entire shoreline	535.7	536.2	536.4	536.9
RUST POND Entire shoreline	579.9	580.2	580.4	580.7

# ***Using the Profile***

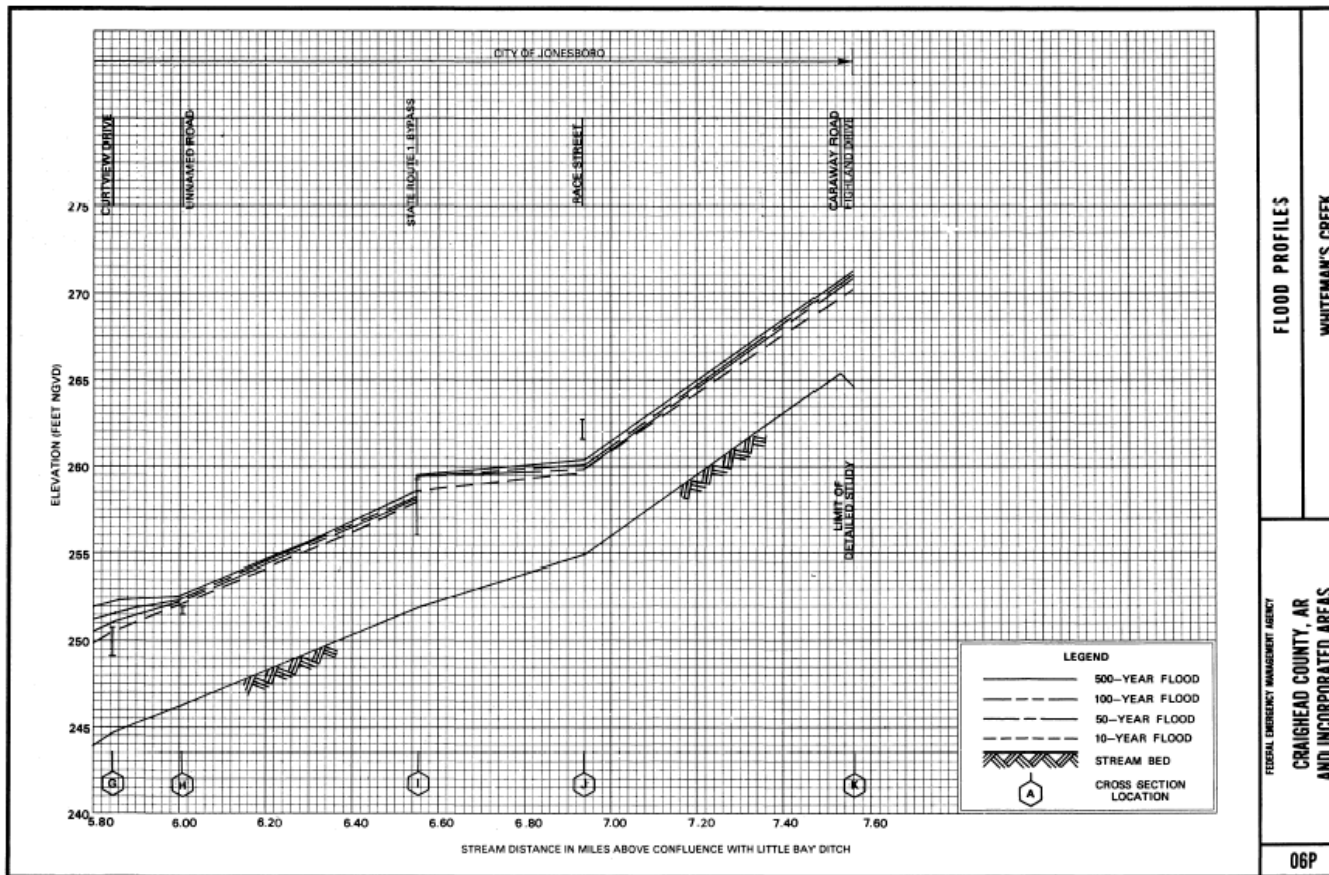


# Using the Profile

- Profiles are located in the communities FIS text.
- A flood profile is a plot, on a graph, of computed flood elevations at and between the floodplain cross sections.
- They contain bridge, streambed, stream crossing, and cross section location data.
- The bottom or X-axis shows the distance along the river or stream.
- The left side or Y-axis shows elevation and datum.

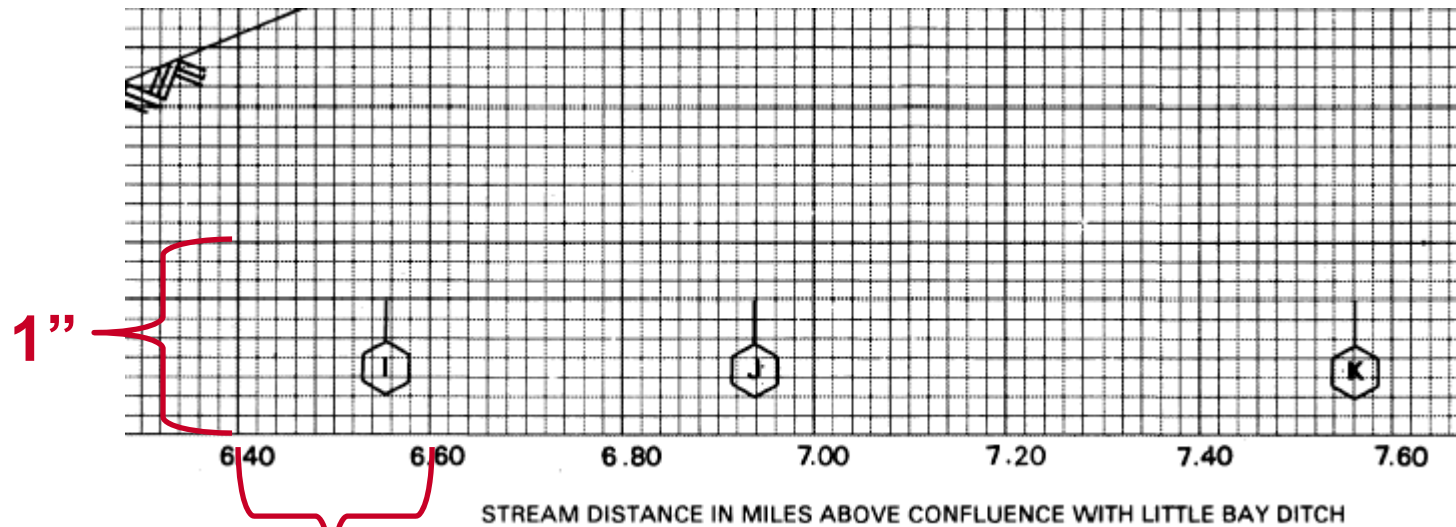
# Using the Profile

*Y axis = elevation*



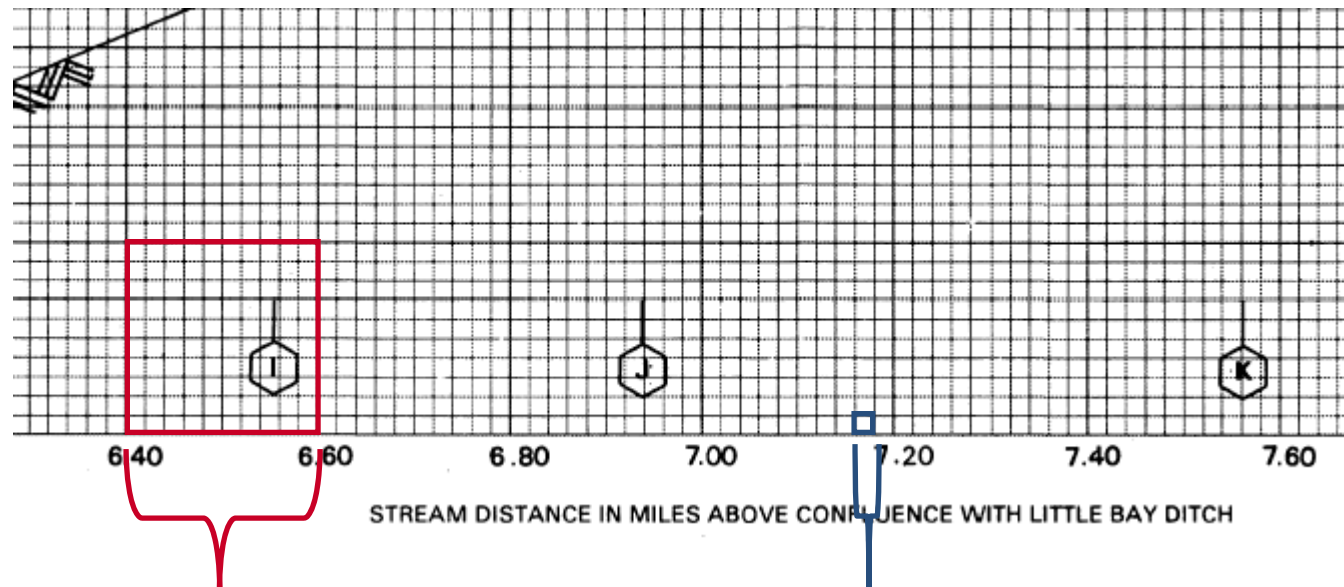
*X axis = distance*

# Using the Profile



The grid on the profile has **1" by 1"** squares broken into smaller squares.

# Using the Profile – X axis



The distance is in miles so each square is  $5,280' \times 0.2 = 1056'$

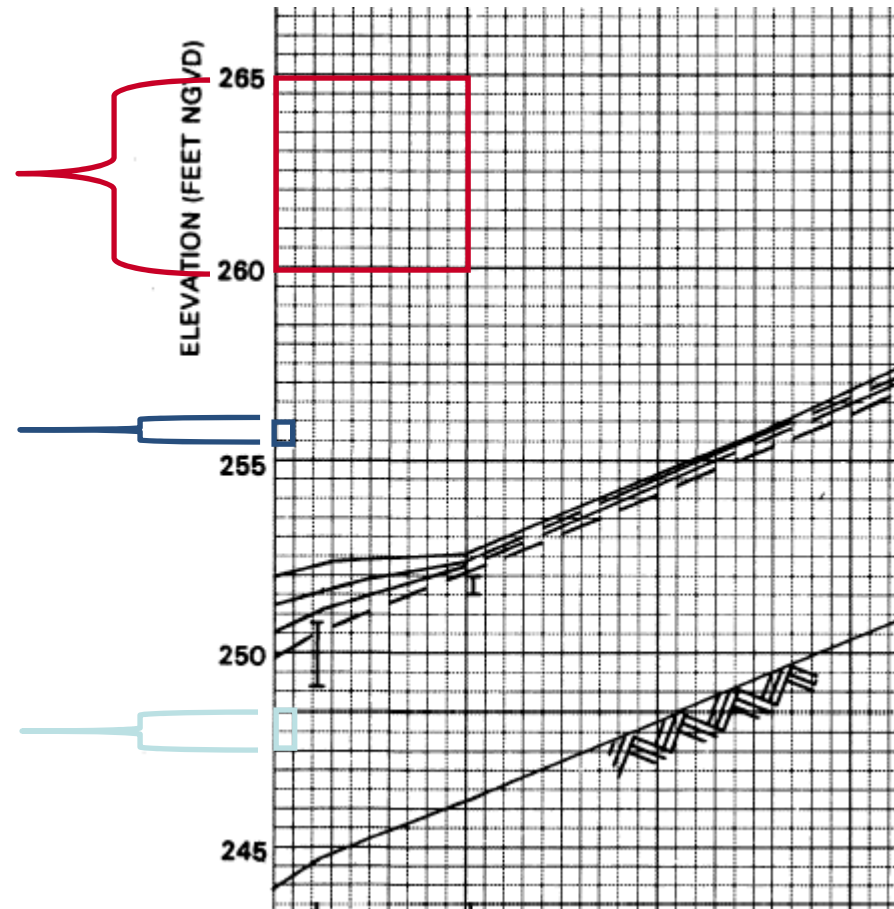
Each smaller square is  $1056' \div 10 = 105.6'$

# Using the Profile – Y axis

In this instance the elevation increases **5 feet** every inch.

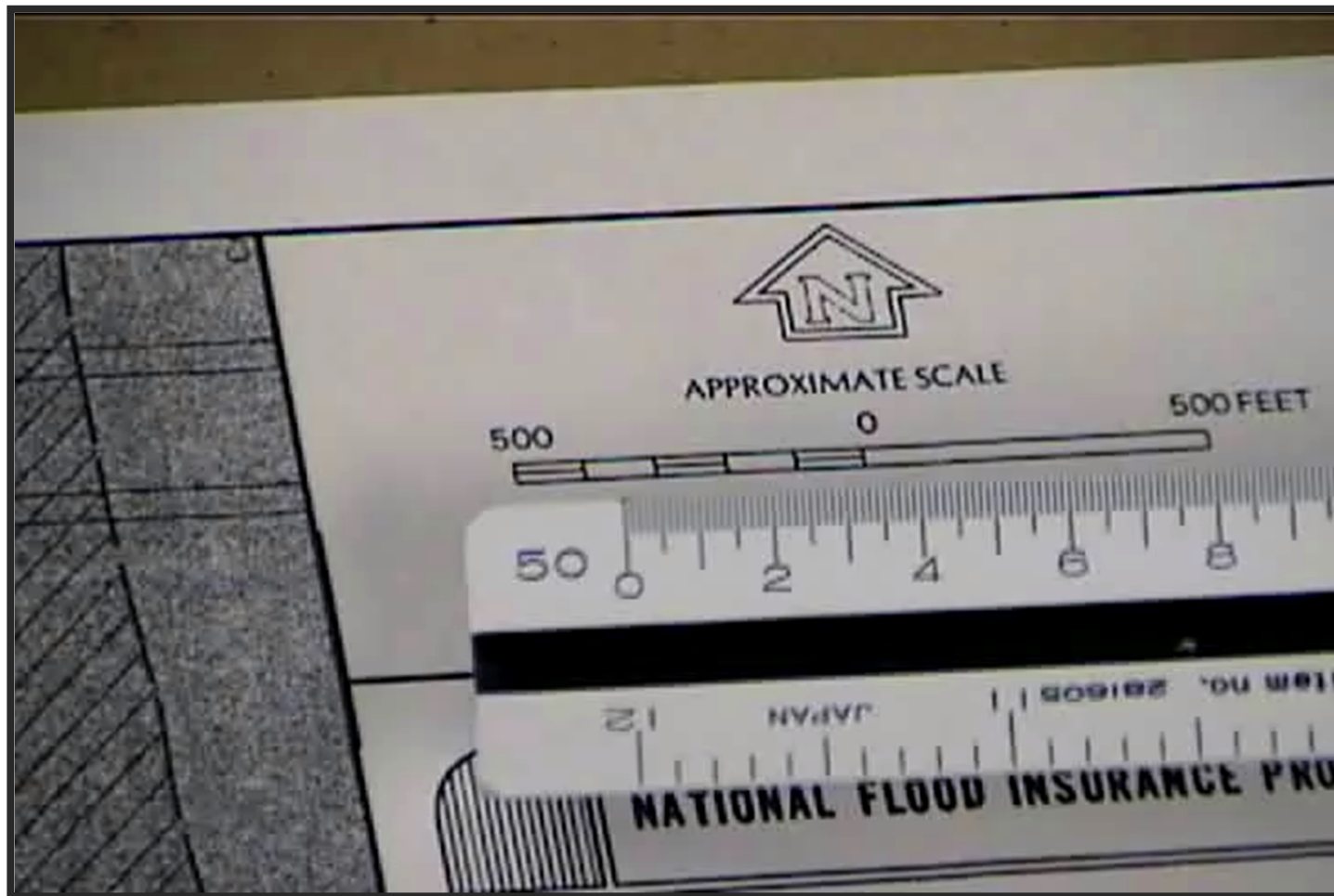
So each smaller square is  $\frac{1}{2}$  a foot.

And every **2 squares** is equal to **1 foot**.

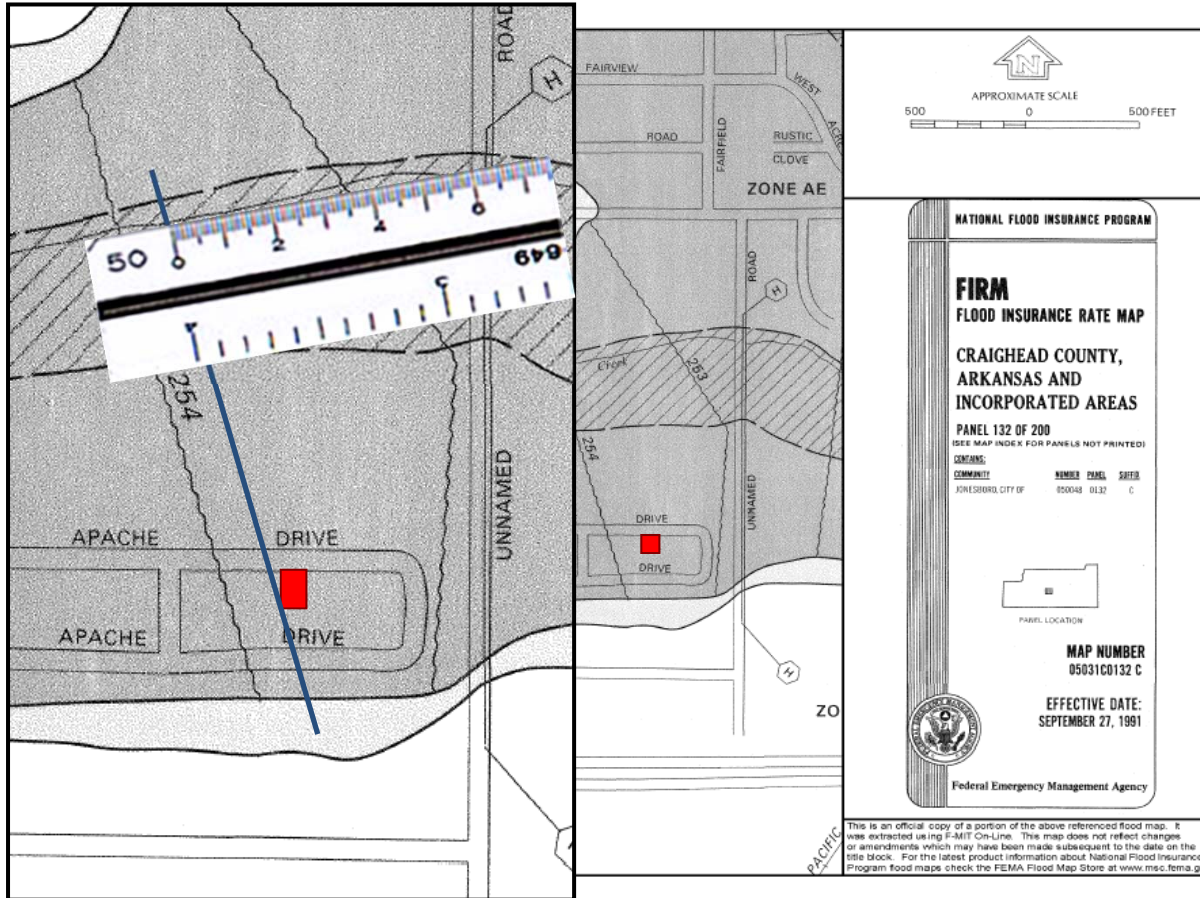




# Using the Profile

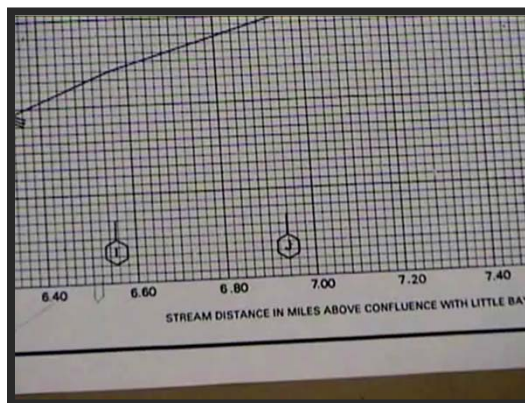


# Using the Profile

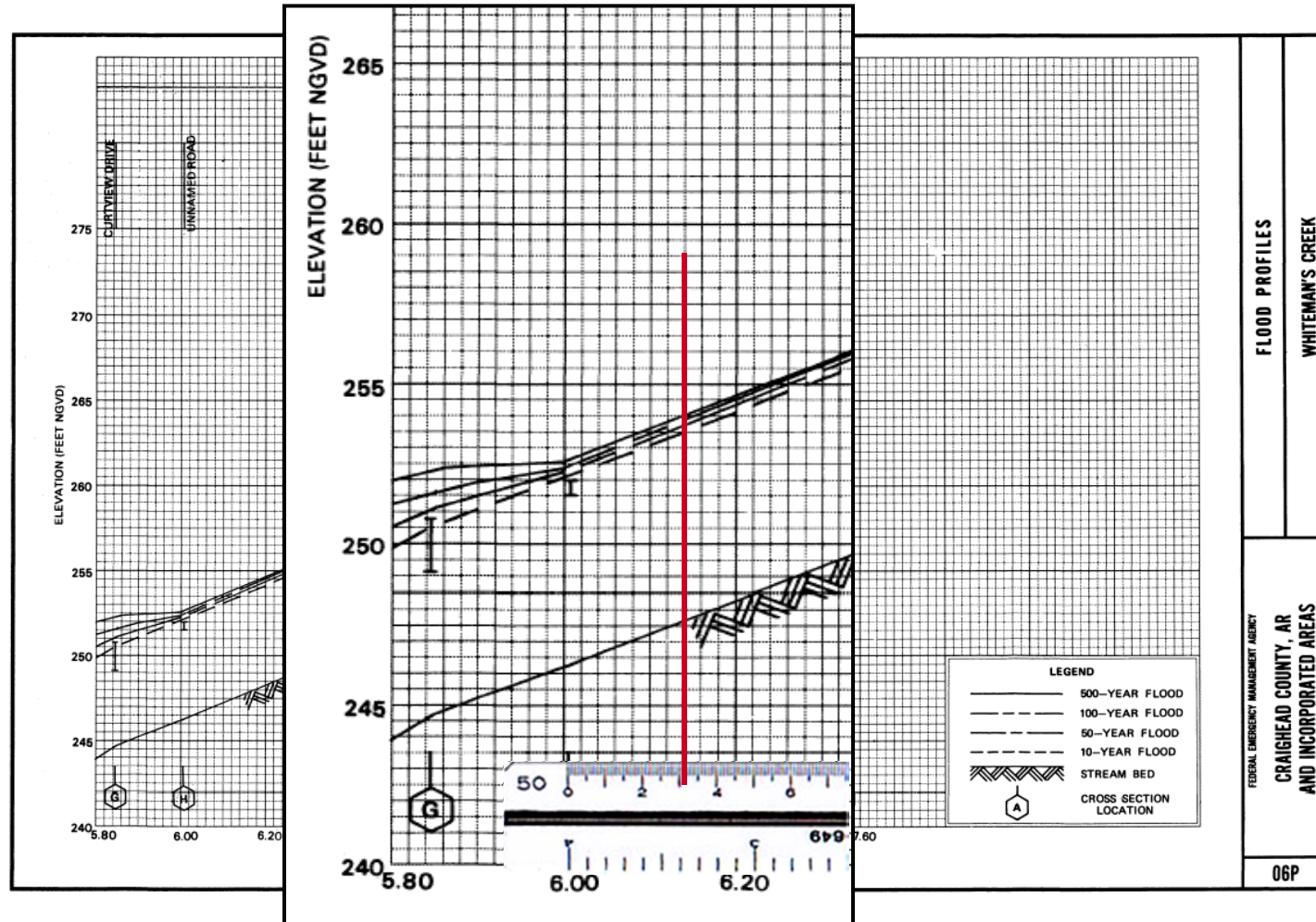




# Using the Profile



# Using the Profile



# Using the Profile Floodway Data Table

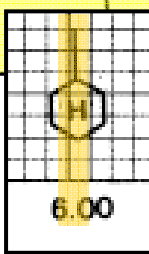
- It is important to use the Floodway Data Table (FWDT) in conjunction with the profile to determine an accurate BFE
  - Cross section distances should match
  - BFE should be equal to or in between the elevations referenced on the FWDT
    - For example, if PIQ is between cross sections H and I, (252.3 and 259.5), PIQ's BFE can not be less than 252.3 or greater than 259.5

# Using the Profile Floodway Data Table

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY	INCREASE
<b>Whiteman's Creek</b>								
A	3.50 <sup>1</sup>	1,790	4,915	1.04	235.9	235.9	236.9	1.0
B	4.33 <sup>1</sup>	1,120	3,989	1.24	238.9	238.9	239.9	1.0
C	4.72 <sup>1</sup>	110	673	6.97	242.2	242.2	243.2	1.0
D	4.84 <sup>1</sup>	140	933	5.03	244.4	244.4	245.2	0.8
E	5.39 <sup>1</sup>	300	1,358	3.56	248.0	248.0	248.5	0.5
F	5.67 <sup>1</sup>	30	180	4.57	250.2	250.2	250.4	0.2
H	6.01 <sup>1</sup>	380	985	1.24	252.3	252.3	253.3	1.0
I	6.55 <sup>1</sup>	450	1,247	0.98	259.5	259.5	259.6	0.1
<b>Christian Creek</b>								
A	0.42 <sup>2</sup>	447	1,470	3.12	287.5	287.5	288.5	1.0
B	0.51 <sup>2</sup>	275	1,216	3.77	288.3	288.3	289.3	1.0
C	0.52 <sup>2</sup>	270	933	4.48	288.3	288.3	289.3	1.0
D	0.73 <sup>2</sup>	136	776	5.68	291.8	291.8	292.6	0.8
E	0.84 <sup>2</sup>	73	796	5.53	294.0	294.0	294.9	0.9
F	0.91 <sup>2</sup>	92	731	5.64	295.2	295.2	295.6	0.4
G	1.11 <sup>2</sup>	367	1,542	2.86	296.8	296.8	297.7	0.9
H	1.27 <sup>2</sup>	46	558	7.90	298.4	298.4	299.4	1.0
I	1.55 <sup>2</sup>	399	1,540	2.57	303.3	303.3	304.3	1.0
J	1.85 <sup>2</sup>	55	632	6.26	306.2	306.2	306.3	0.1
K	2.02 <sup>2</sup>	58	647	5.07	308.6	308.6	308.7	0.1
L	2.10 <sup>2</sup>	62	643	5.10	309.3	309.3	309.4	0.1
M	2.44 <sup>2</sup>	45	498	6.60	314.3	314.3	315.1	0.8

<sup>1</sup>Miles above confluence with Little Bay Ditch  
<sup>2</sup>Miles above confluence with Lost Creek



H	6.01	380	985	1.24	252.3	252.3	253.3	1.0
I	6.55	450	1,247	0.98	259.5	259.5	259.6	0.1

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

**CRAIGHEAD COUNTY, AR  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

WHITEMAN'S CREEK - CHRISTIAN CREEK

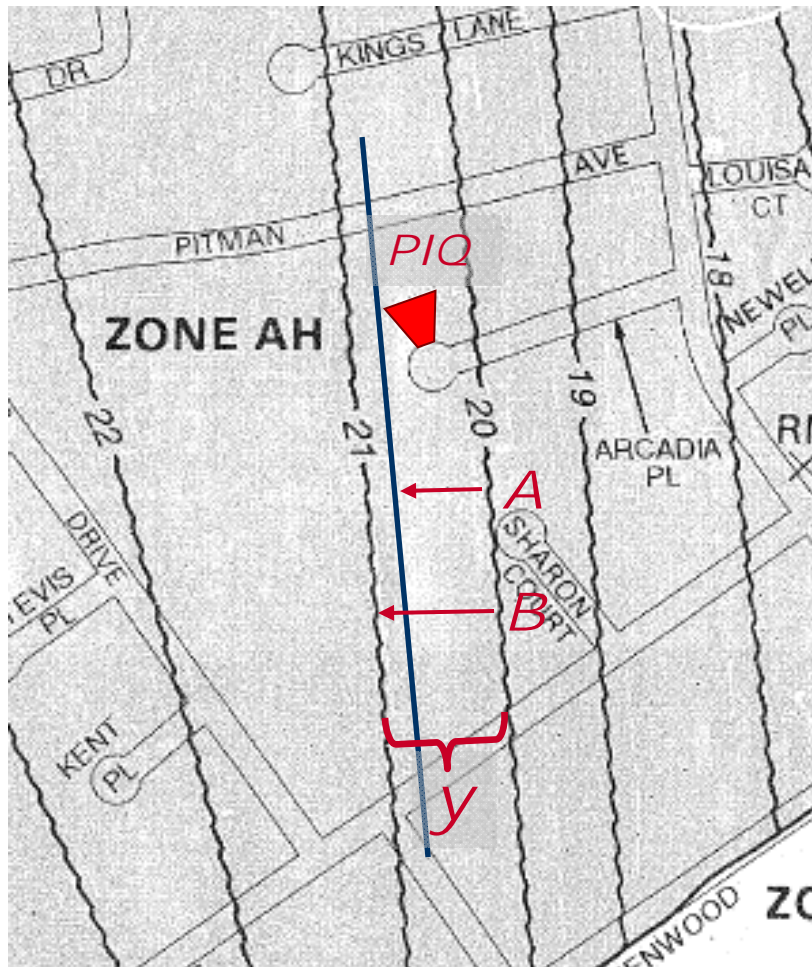
# *Interpolation*

# Interpolation

- Taking known data points (BFE lines) to develop a new BFE at the Property in Question (PIQ).
  - Draw a cross section at the upstream end of the PIQ.
    - Cross section is drawn parallel to the BFE lines.
  - Measure the distance from the downstream (d/s) BFE line to the PIQ (A)
  - Measure the distance from the d/s BFE line to the upstream (u/s) BFE line (B)
  - Find the elevation difference between the d/s BFE and the u/s BFE (y)



# Interpolation



$$(A \div B)y = X$$

$$X + \text{d/s elev.} = \text{new BFE}$$

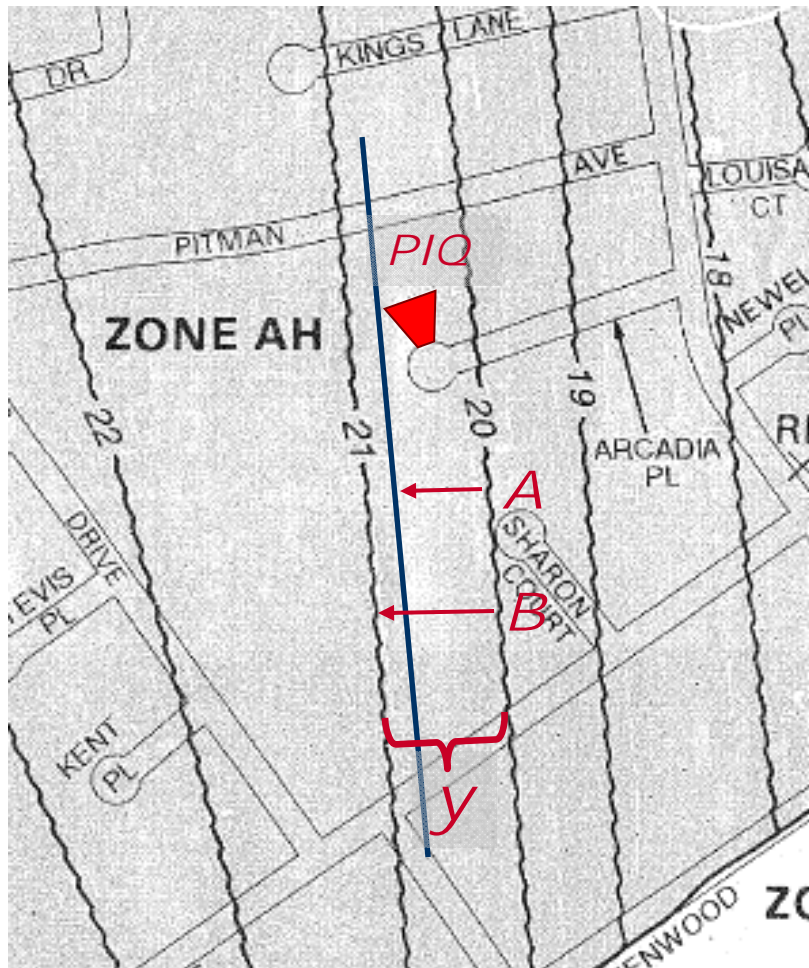
*A* = distance from the downstream (d/s) BFE line to the cross section of the upstream (u/s) end of the PIQ.

*B* = the distance from the d/s BFE line to the u/s BFE line

*y* = the difference in elevation between the two BFE lines.



# Interpolation



$$(140 \div 210) 1 = .67$$
$$.67 + 20 = 20.7$$

**A = 140 feet**

**B = 210 feet**

**y = 1 foot**

# LOMA's and Zone D

## Zone D

- The Zone D designation is used for areas where there are possible but undetermined flood hazards, as **no analysis of flood hazards has been conducted**. The designation of Zone D is also used when a community incorporates portions of another community's area where no map has been prepared.
- Since there is not analysis there are no BFE's established
- Mandatory flood insurance nor required.
- Flood insurance is available.
- **LOMA's cannot remove a property or structure from a Zone D.**
- To change designation from a Zone D to a Zone X (or any other Zone) a full flood hazard analysis would need to be performed and the maps revised.

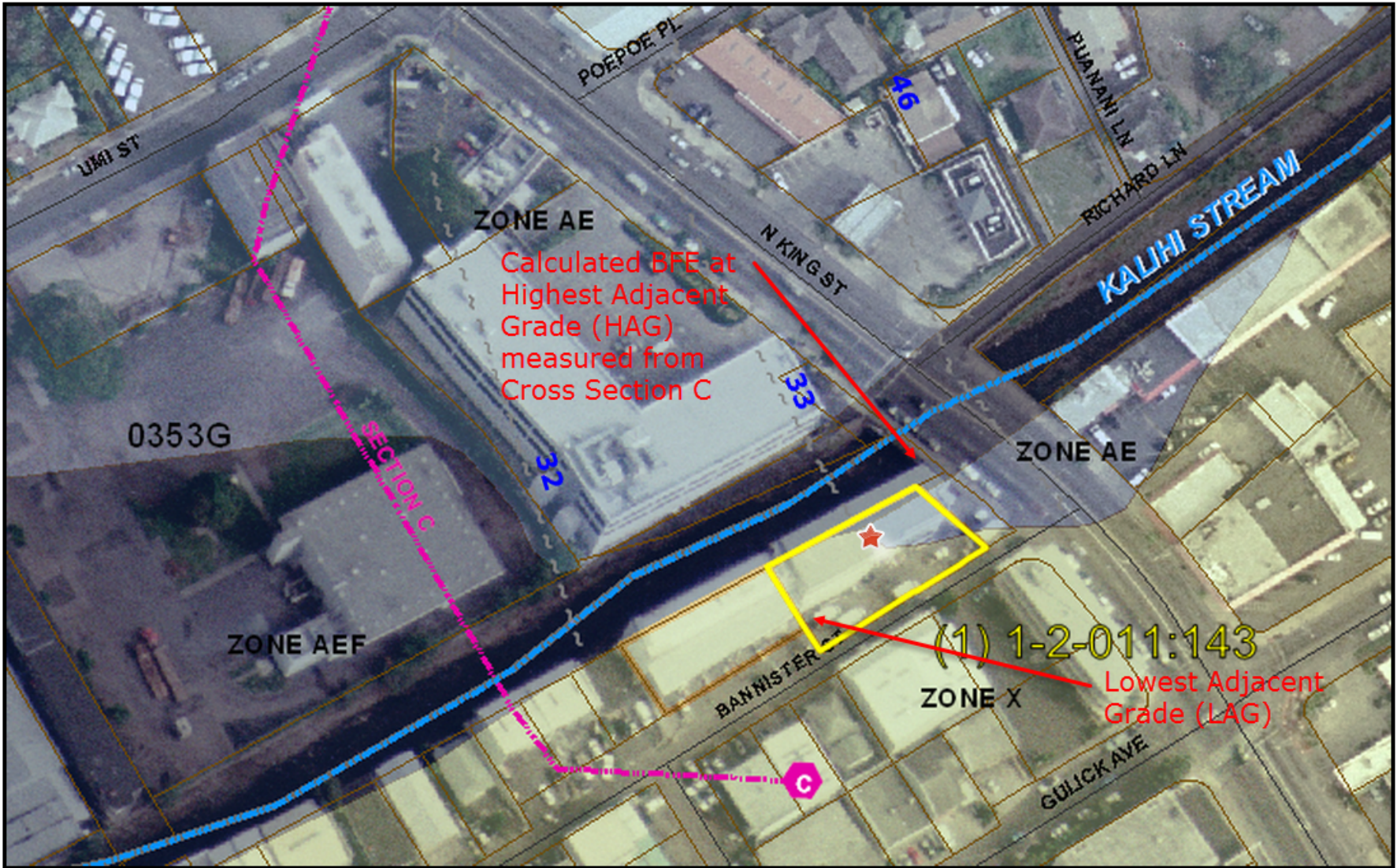
# LAG & LFE

## LOMA Determination Requirements

---

- **LOMA Requests Involving One or More Structures:** For a LOMA to be issued by FEMA to remove one or more structures from the SFHA, the NFIP regulations require that the lowest adjacent grade (the lowest ground touching the structure) be at or above the BFE.
- **LOMA Requests Involving One or More Lots:** For a LOMA to be issued by FEMA to remove one or more entire lots from the SFHA, the NFIP regulations require that the lowest point on the lot(s) must be at or above the BFE.





County: HONOLULU TMK: (1) 1-2-011-143 Address: 918 BANNISTER ST


LOMC: 13-09-2276A

[Clear Map](#)



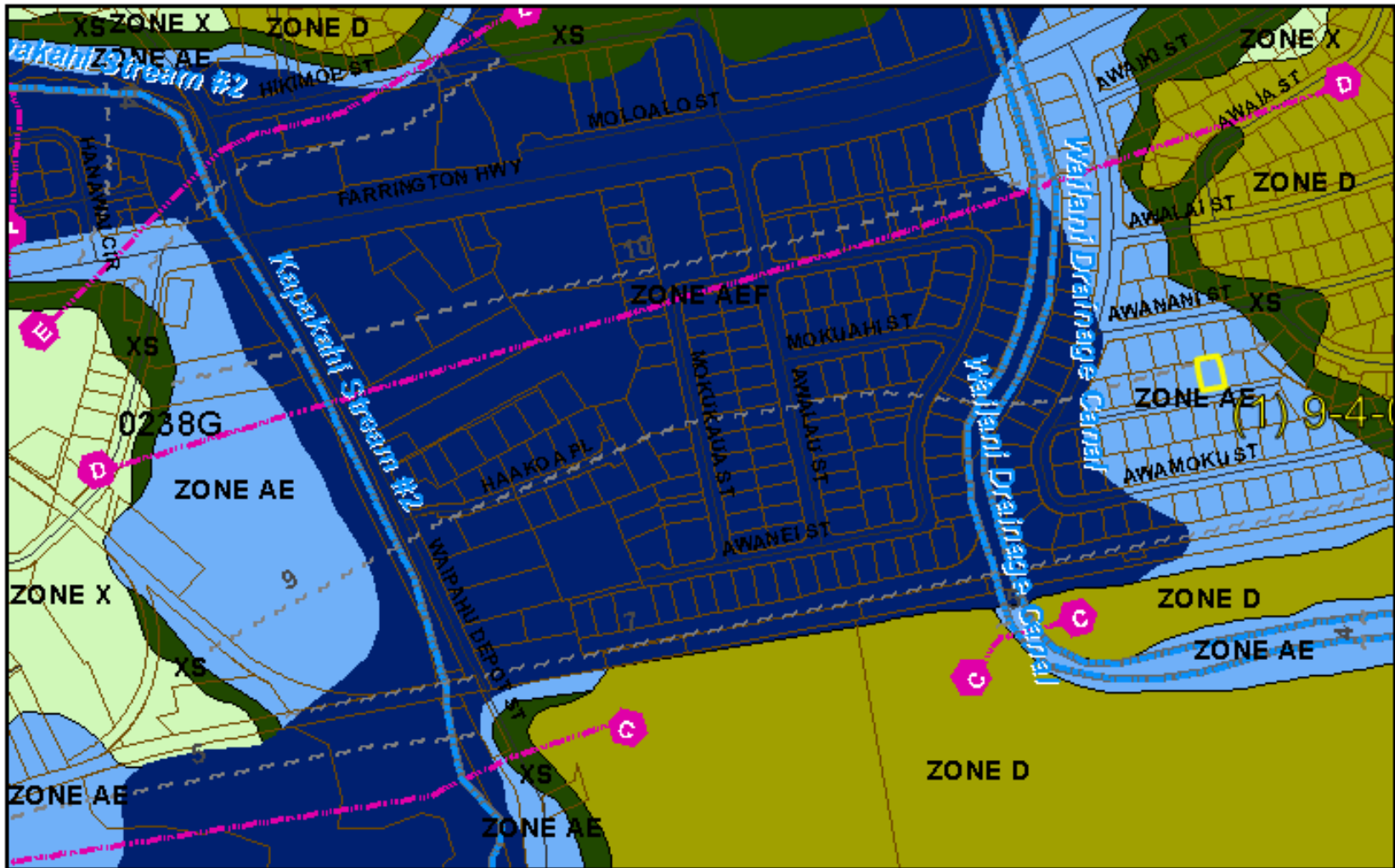
Federal Emergency Management Agency  
Washington, D.C. 20472

**LETTER OF MAP REVISION FLOODWAY  
DETERMINATION DOCUMENT (REMOVAL)**

COMMUNITY AND MAP PANEL INFORMATION				LEGAL PROPERTY DESCRIPTION				
COMMUNITY	CITY AND COUNTY OF HONOLULU, HAWAII			Lots 90, 91, 92, and a portion of Lot 89, Waterhouse Tract, as described in the Warranty Deed recorded as Document No. 43741142, in the Office of the Bureau of Conveyances, Honolulu County, Hawaii				
	COMMUNITY NO.: 150001							
AFFECTED MAP PANEL	NUMBER: 15003C0353G							
	DATE: 1/19/2011							
FLOODING SOURCE: KALIHI STREAM				APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 21.334, -157.880 SOURCE OF LAT & LONG: GOOGLE EARTH PRO DATUM: NAD 83				
DETERMINATION								
LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (LTD)	LOWEST ADJACENT GRADE ELEVATION (LTD)	LOWEST LOT ELEVATION (LTD)
89 - 92	--	Waterhouse Tract	918 Bannister Street	Structure	X (shaded)	33.4 feet	35.7 feet	--
<b>Special Flood Hazard Area (SFHA)</b> - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).								
ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)								
INADVERTENT INCLUSION FLOODWAY 1 PORTIONS REMAIN IN THE SFHA STUDY UNDERWAY								
<p>This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Revision for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the NFIP regulatory floodway or the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document revises the effective NFIP map to remove the subject property from the NFIP regulatory floodway and the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.</p> <p>This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.</p>								
 Luis Rodriguez, P.E., Chief Engineering Management Branch Federal Insurance and Mitigation Administration								



# Special Case-Split Flow



County: HONOLULU TMK: (1) 9-4-016-069 Address: 94-980 AWAMOKU PL

LOMC: NONE

[Clear Map](#)



# Special Case-Split Flow



County: HONOLULU TMK: (1) 9-4-016-014 Address: 94-76 AWAMOKU ST

LOMC: NONE

[Clear Map](#)



# Special Case-Split Flow



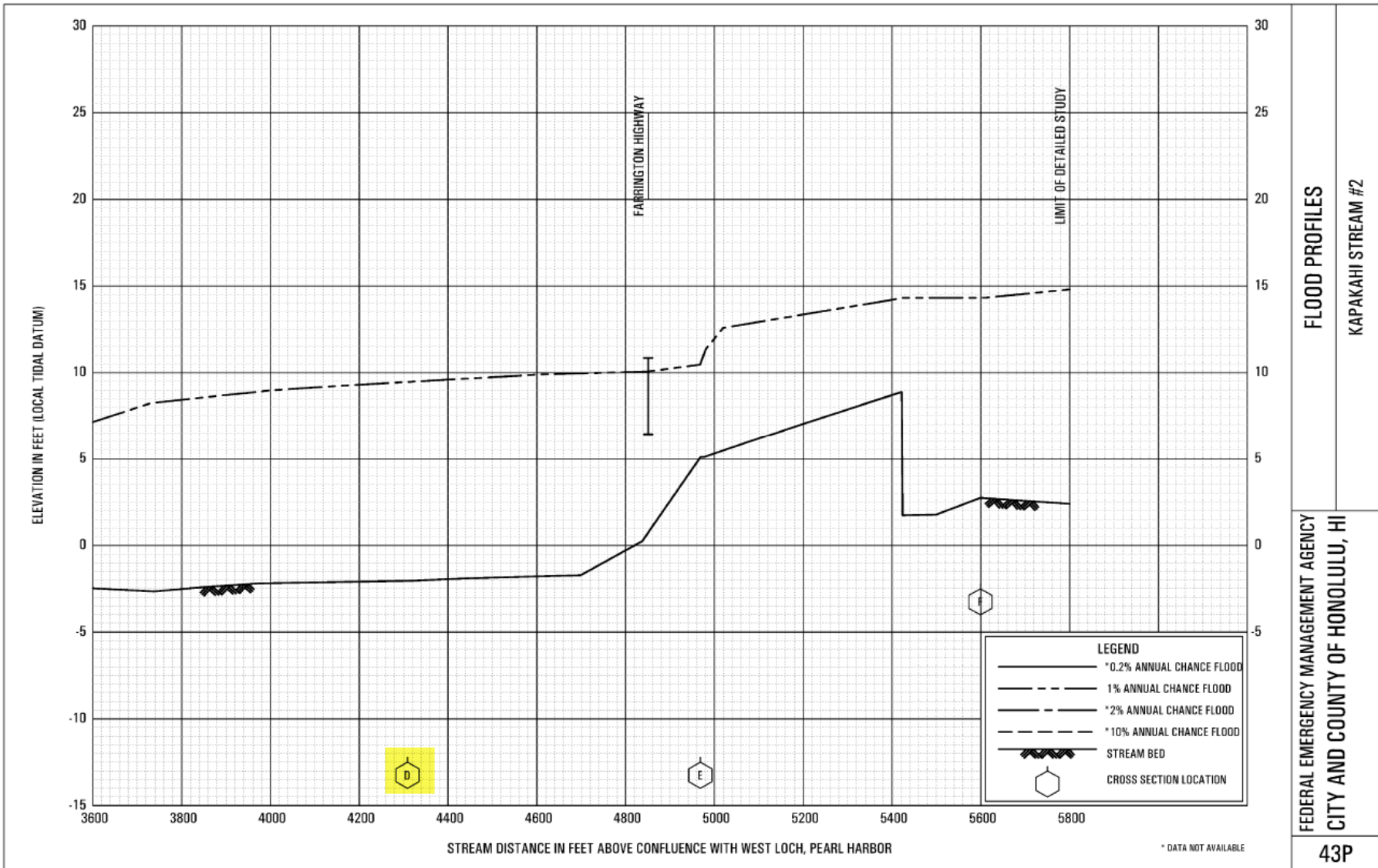
FLOOD PROFILES

WAILANI DRAINAGE CANAL

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY AND COUNTY OF HONOLULU, HI

# Special Case-Split Flow

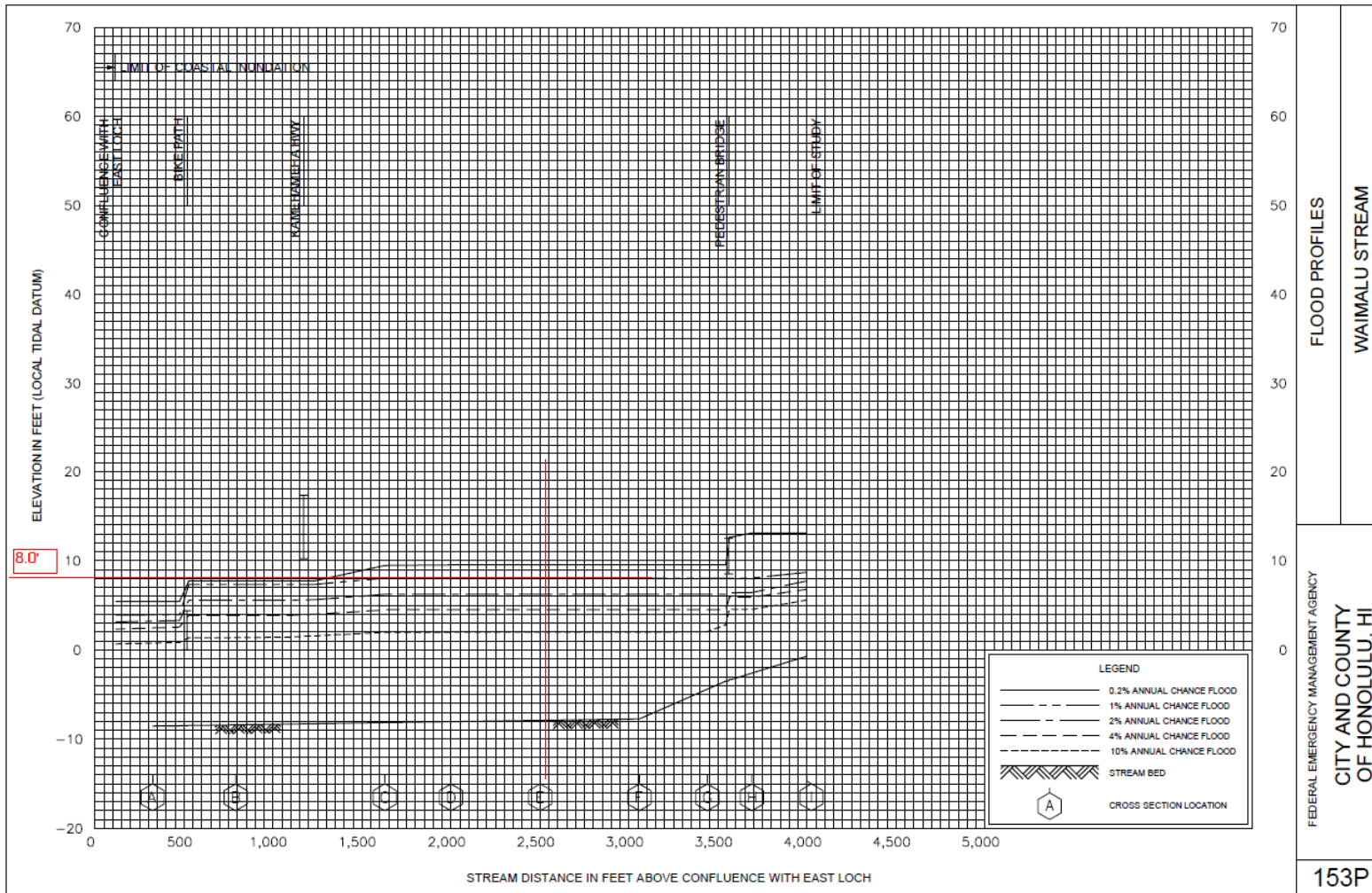




# Cross Sections Perpendicular to Flow

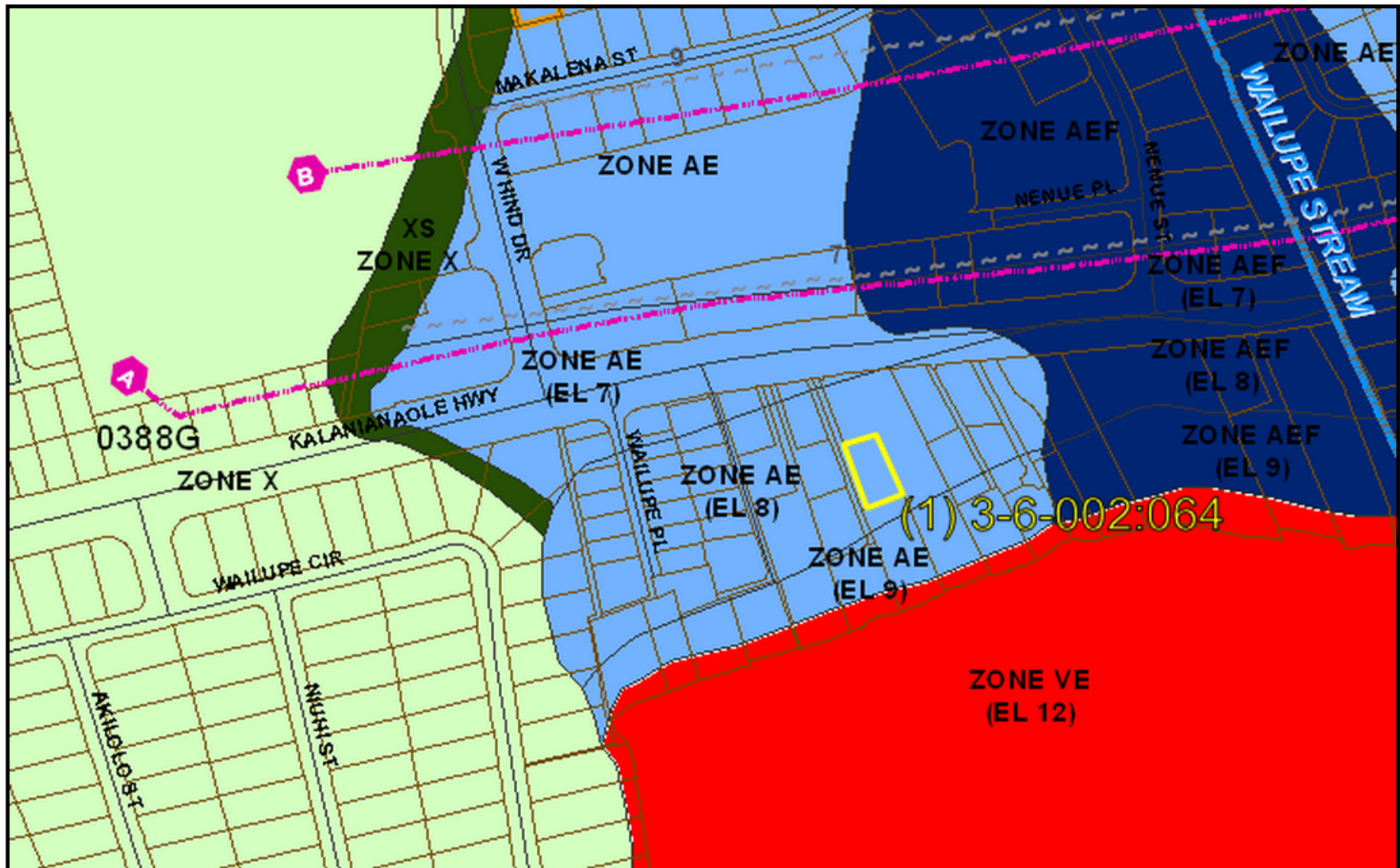


# Cross Sections Perpendicular to Flow





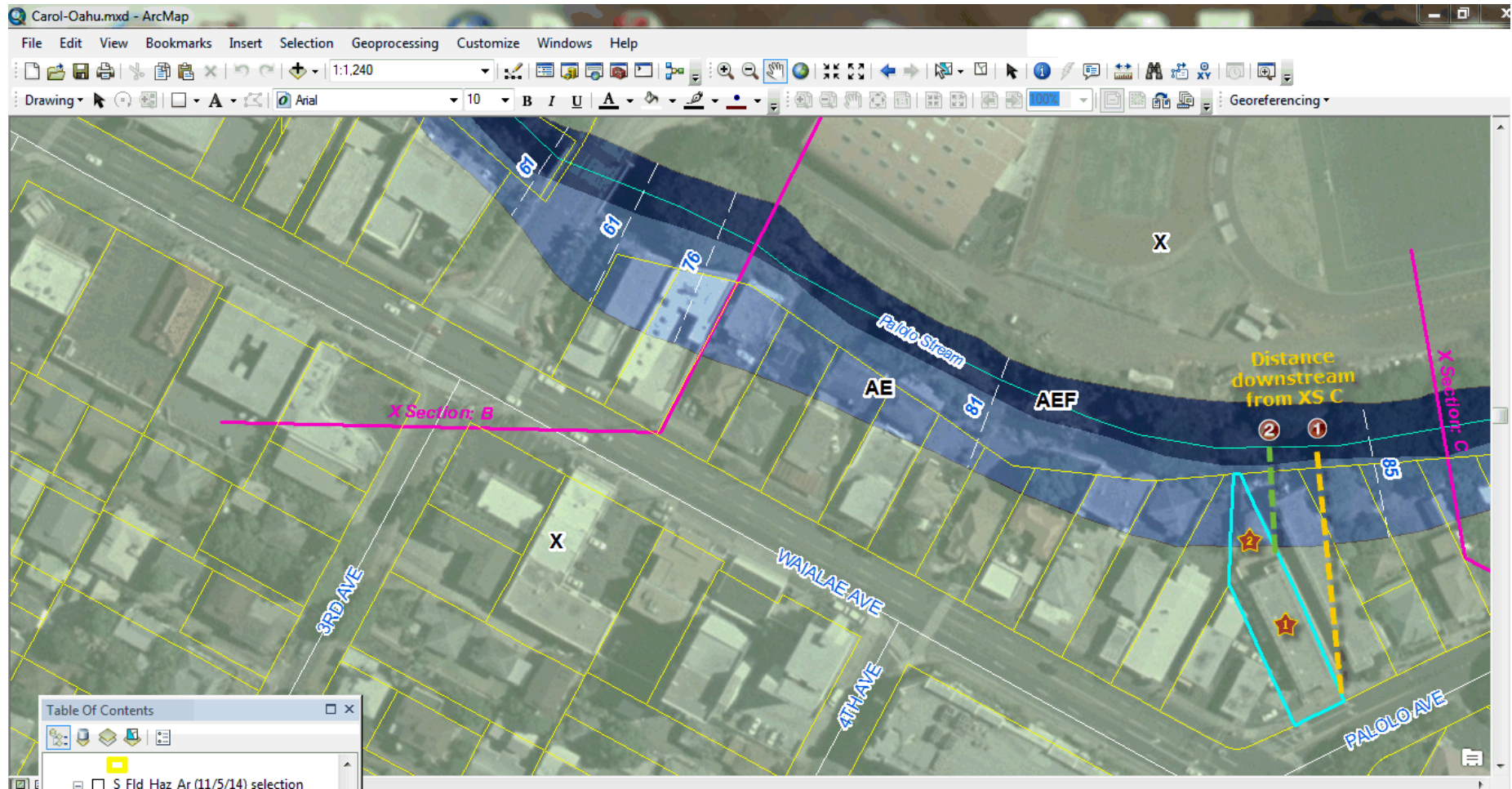
# BFE Discrepancies



County: **HONOLULU** TMK: **(1) 3-6-002-064** Address: **5229A KALANIANA'OLE HWY** LOMC: **NONE**

[Clear Map](#)

# Attached Vs. Detached Structures

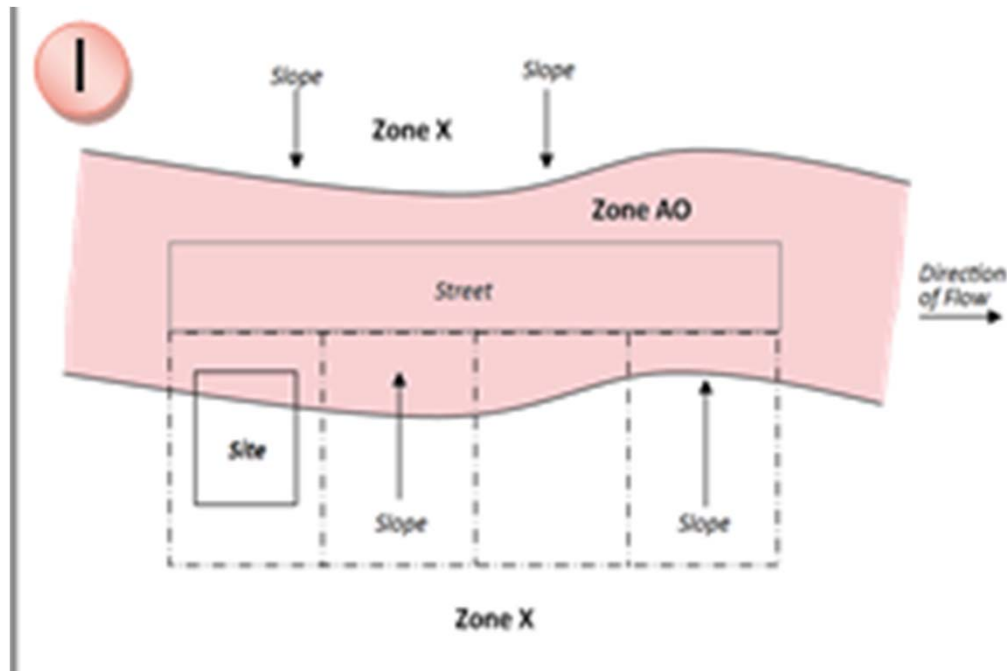


# LOMA: Zone AO Guidance



# Zone AO – Scenario 1

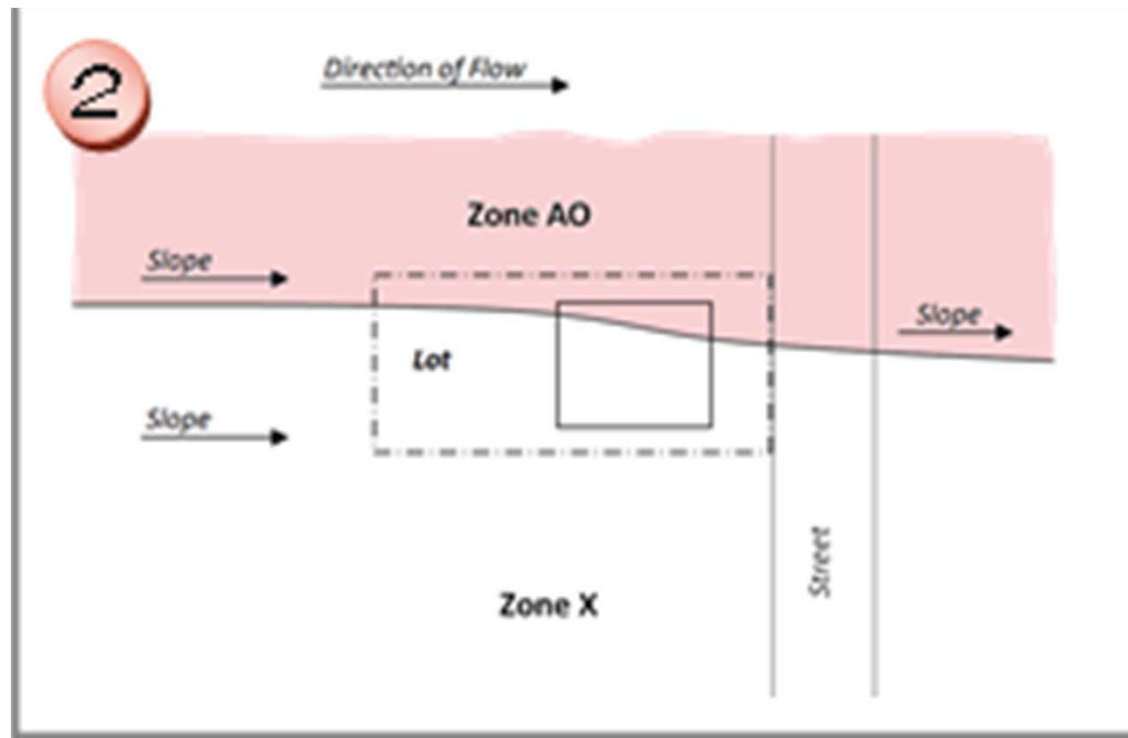
Lot Partially Inundated by AO Zone and Flow is Street Conveyed



$\text{BFE} = \text{Depth Number} + \text{Highest Top of Curb or Crown of Street Elevation (whichever is higher)}$

# Zone AO – Scenario 2

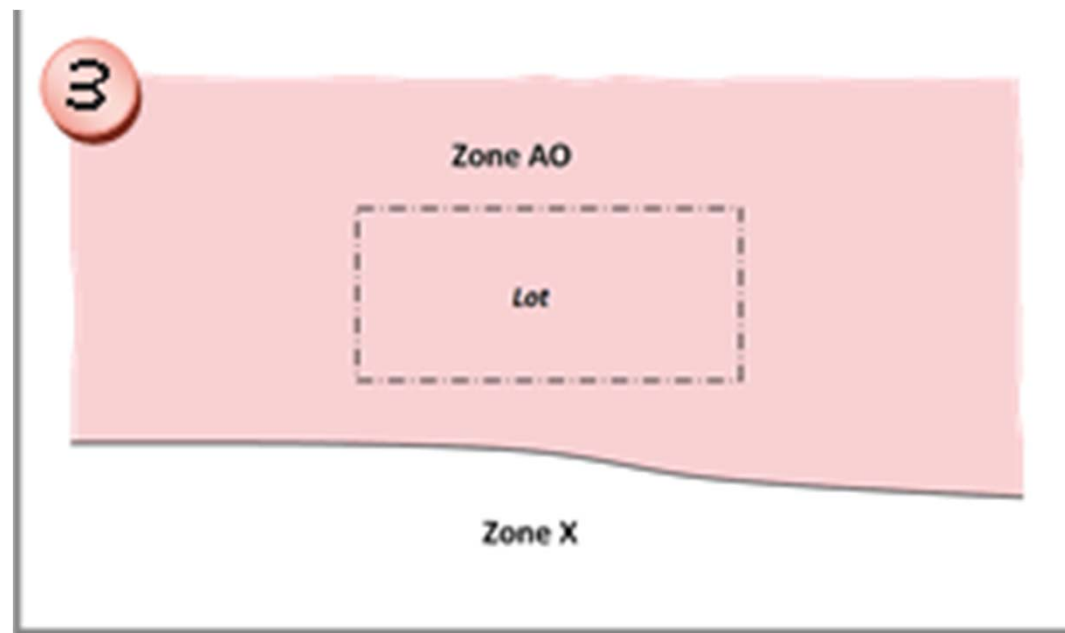
Scenario 2 - Lot Partially Inundated and Flow is not Street Conveyed



$BFE = \text{Depth Number} + \text{Lowest Lot Elevation}$

# Zone AO – Scenario 3

Scenario 3 – Entire Lot Inundated and Flow is not Street Conveyed



$BFE = \text{Depth Number} + \text{Average Surrounding Grade}$

# Data Requirements for AO Zone

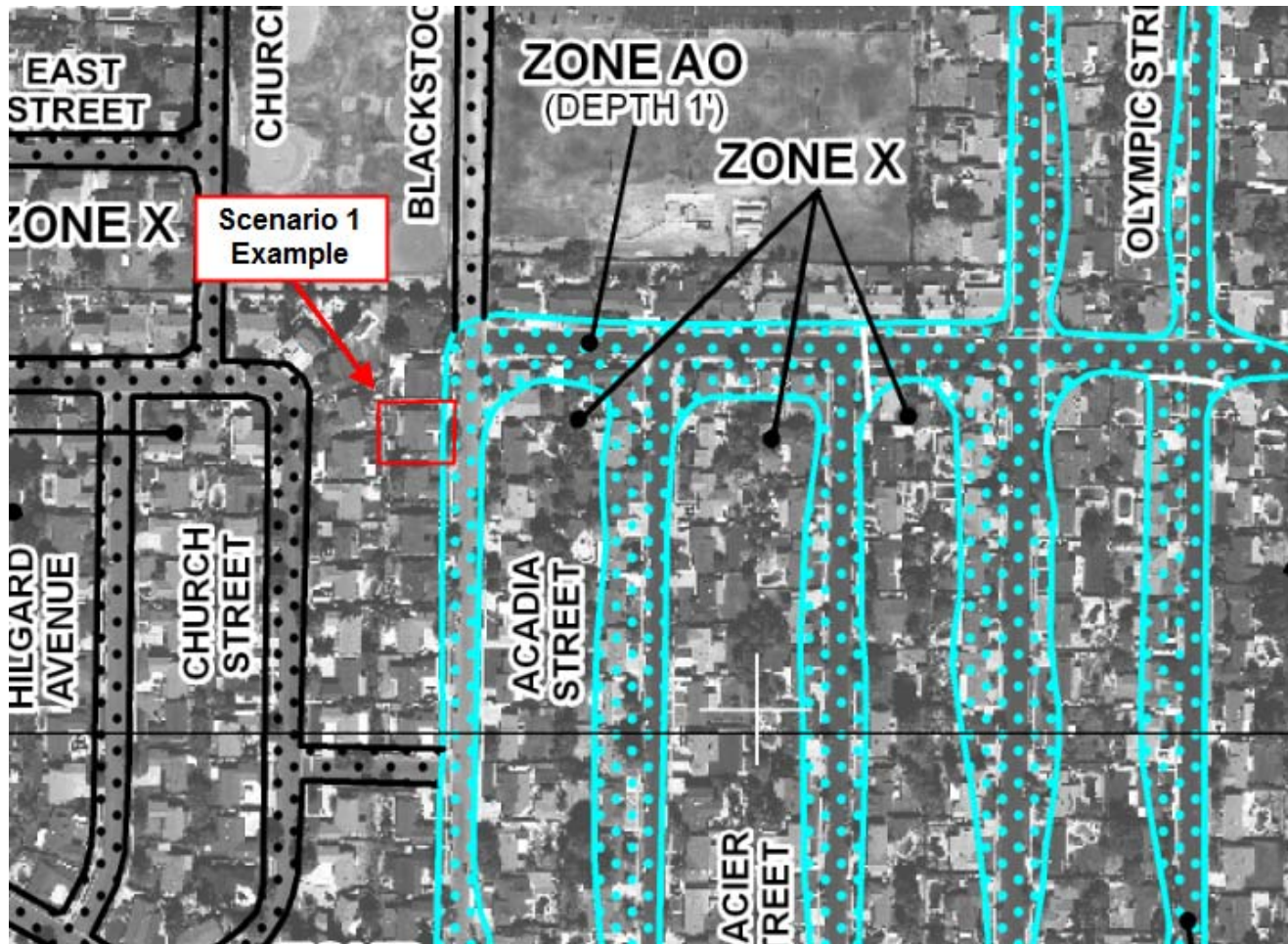
In addition to the standard data requirements, following data is required:

- ❖ Adequate drainage paths are required to guide floodwaters around and away from the structure(s)
- ❖ A certified map showing the topographic data of the property and the immediate surrounding area
- ❖ Highest Top of Curb elevation

Please note that in addition to the above requirements, for the structure to be compliant and to qualify for removal  $LFE = \text{or} > HAG + \text{Depth Number}$

# LOMA: Zone AO Guidance (contd.)

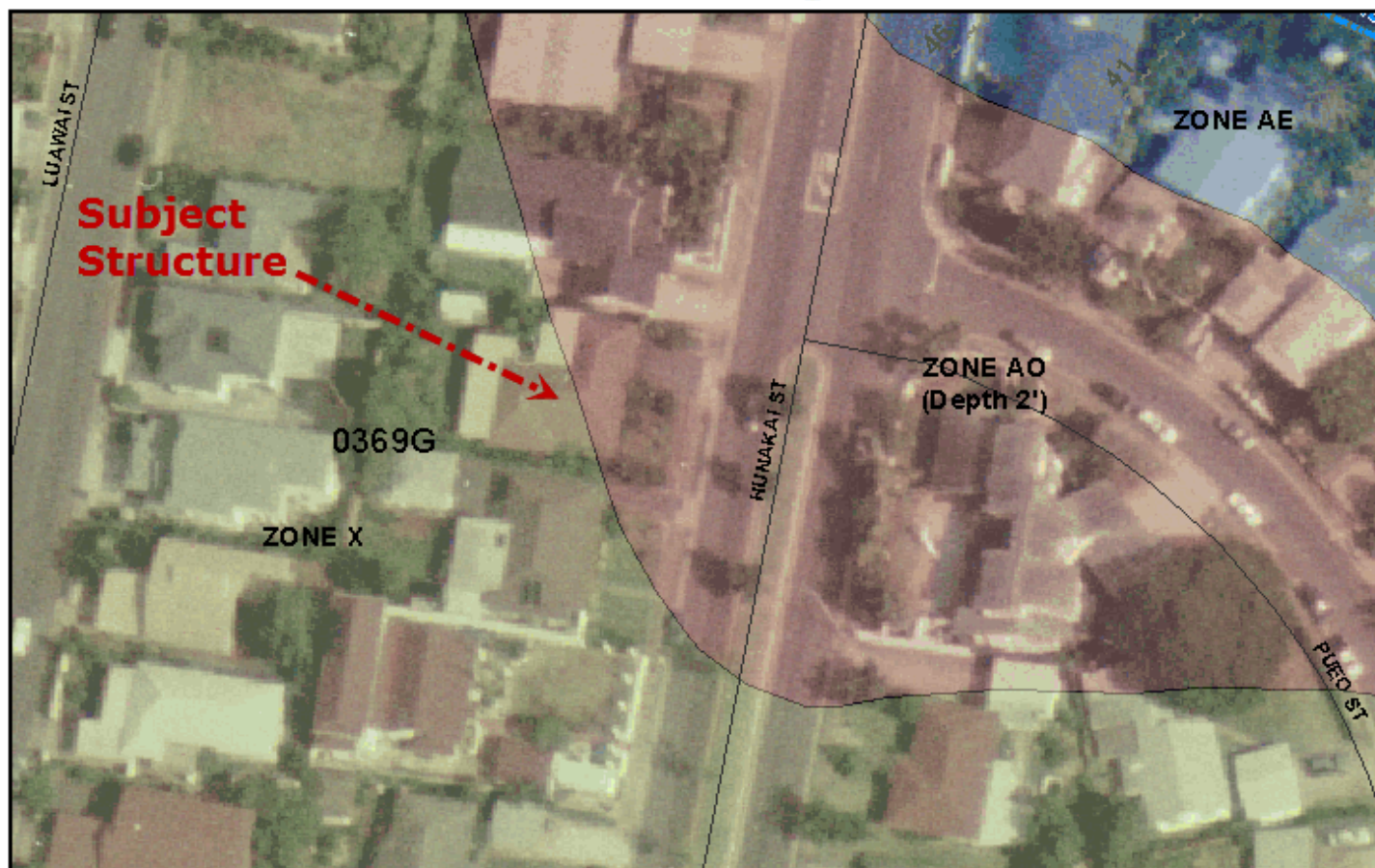
Scenario 1 Example: Partial Lot Inundation & Flow Conveyed by Street





# LOMA: Zone AO Guidance (contd.)

Scenario 2 Example: Partial Lot Inundation & Flow Not Conveyed by Street/Road



County:

TMK:

Address:

LOMC:

[Clear Map](#)




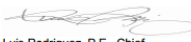
# LOMA: Zone AO Guidance (contd.)

## Scenario 2 Example: Partial Lot Inundation & Flow Not Conveyed by Street/Road



# LOMA: Zone AO Guidance (contd.)

## Scenario 2 Example: Partial Lot Inundation & Flow Not Conveyed by Street/Road

Page 1 of 2		Date: November 06, 2014		Case No.: 14-09-4243A		LOMA		
 Federal Emergency Management Agency Washington, D.C. 20472								
<b>LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL)</b>								
<b>COMMUNITY AND MAP PANEL INFORMATION</b>				<b>LEGAL PROPERTY DESCRIPTION</b>				
<b>COMMUNITY</b>	CITY AND COUNTY OF HONOLULU, HAWAII			Lot 11, Block 2, Waialae Neighborhood Subdivision Tract A, as shown on the Plat recorded as File No. 478, in the Office of the Bureau of Conveyances, Honolulu County, Hawaii				
	COMMUNITY NO.: 150001							
<b>AFFECTED MAP PANEL</b>	NUMBER: 15003C0369H							
	DATE: 11/5/2014							
<b>FLOODING SOURCE: SHEET FLOW</b>				<b>APPROXIMATE LATITUDE &amp; LONGITUDE OF PROPERTY: 21.276, -157.789</b> <b>SOURCE OF LAT &amp; LONG: GOOGLE EARTH PRO</b> <b>DATUM: NAD 83</b>				
<b>DETERMINATION</b>								
LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (LTD)	LOWEST ADJACENT GRADE ELEVATION (LTD)	LOWEST LOT ELEVATION (LTD)
11	2	Waialae Neighborhood Tract A	1178 Hunakai Street	Structure	X (shaded)	47.5 feet	49.0 feet	--
<p><b>Special Flood Hazard Area (SFHA)</b> - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).</p>								
<p><b>ADDITIONAL CONSIDERATIONS</b> (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)</p>								
<p>PORTIONS REMAIN IN THE SFHA STUDY UNDERWAY</p>								
<p>This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.</p>								
<p>This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.</p>								
 Luis Rodriguez, P.E., Chief Engineering Management Branch Federal Insurance and Mitigation Administration								



**FEMA**