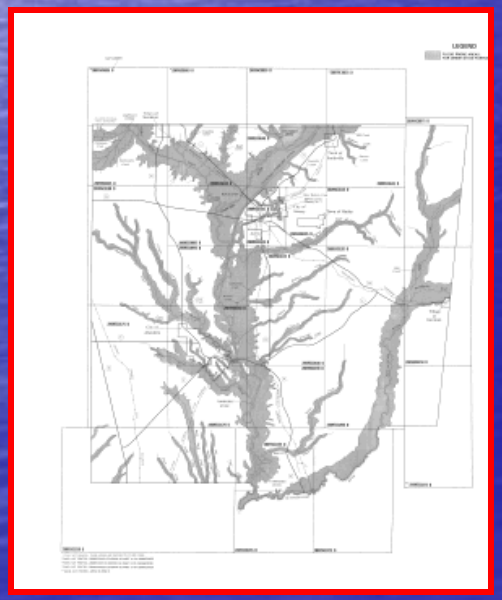
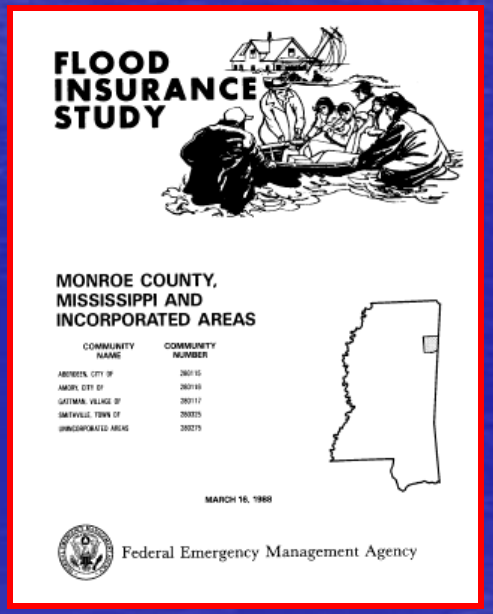
CHAPTER 4
MAPS AND MAP CHANGES

Flood Maps: It's Your Job to Understand Them

- Read and understand the FIRM, and;
- Interpret the Flood Insurance Study.





Riverine Floodplains

Definitions.....

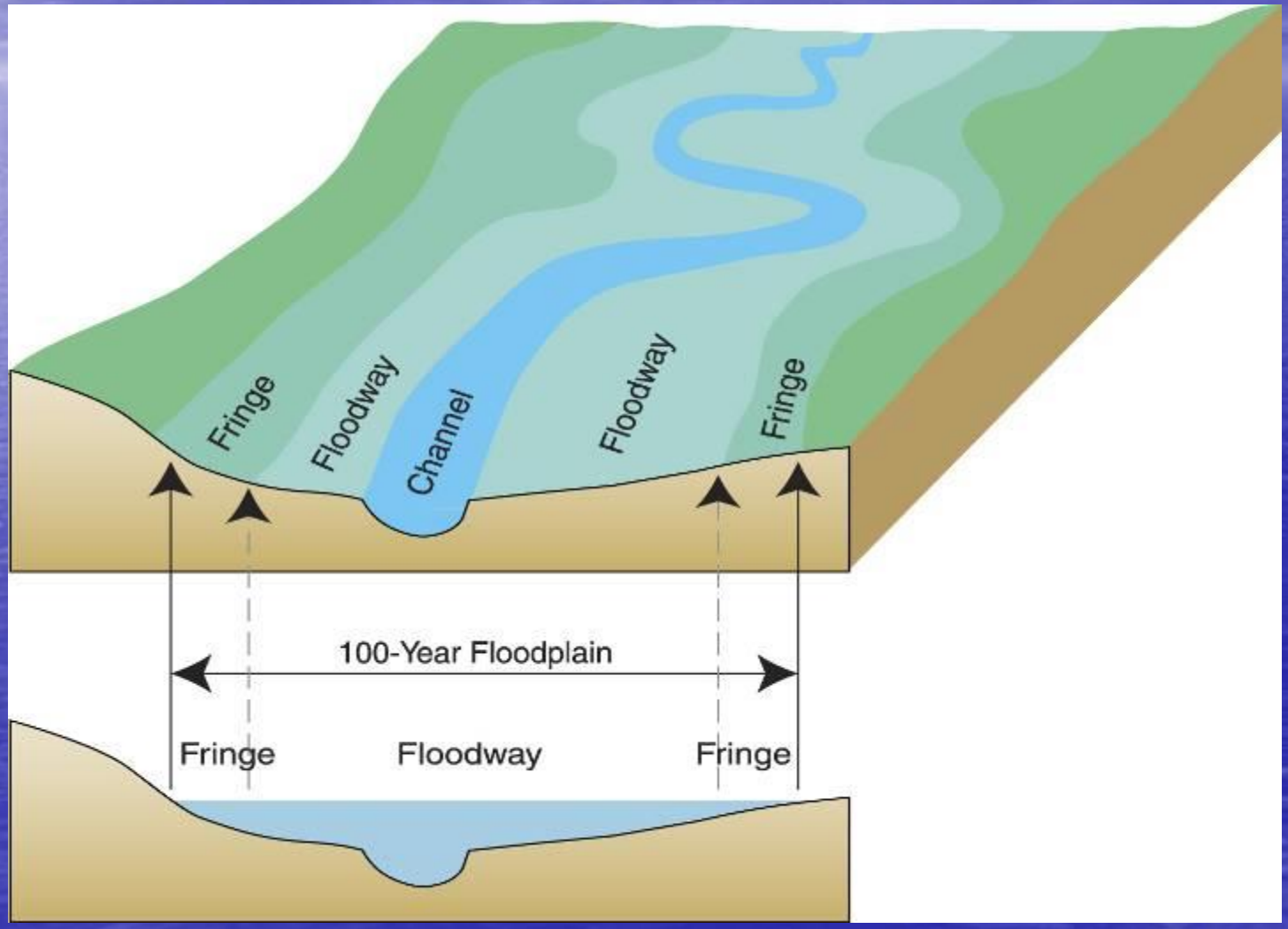
- Floodway: the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Riverine Floodplains

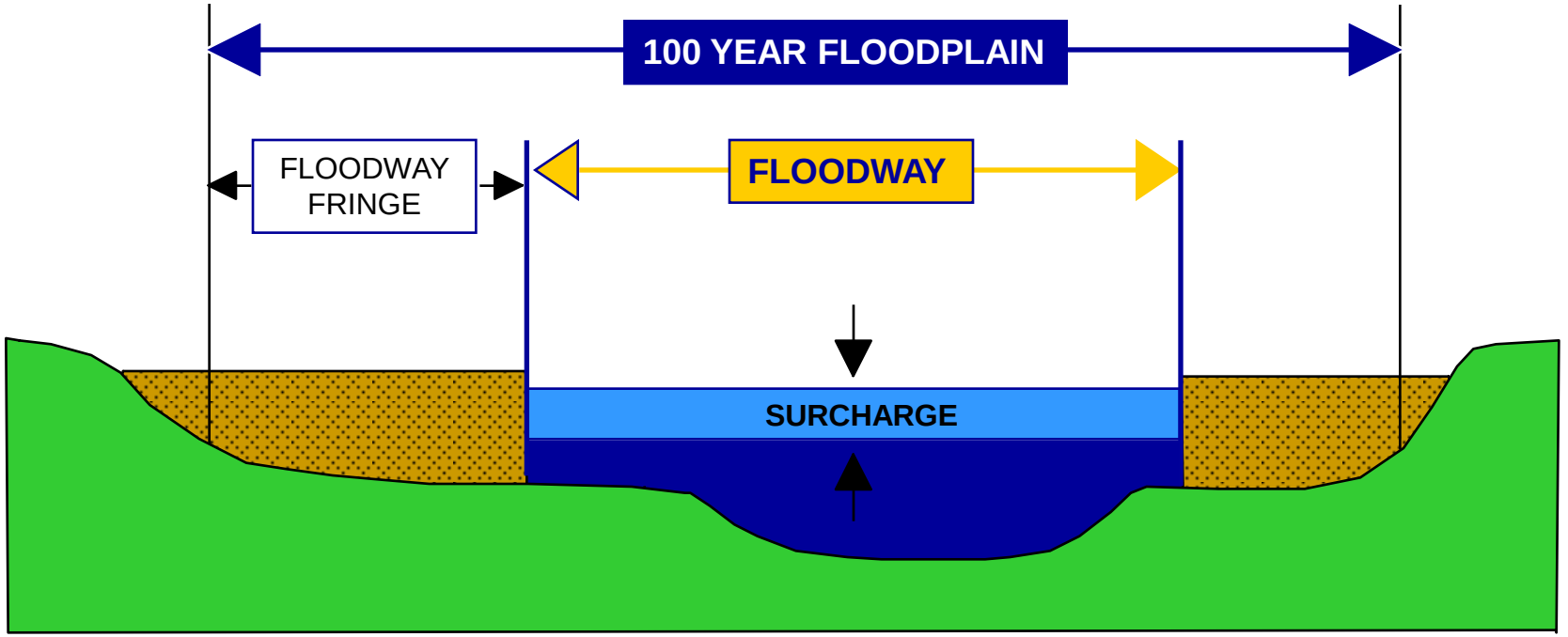
Definitions……

- Floodway fringe: that area of the floodplain on either side of the regulatory floodway where encroachment may be permitted without additional hydraulic and/or hydrologic analysis.

Riverine Floodplains



Floodway Schematic



FLOODWAY + FLOODWAY FRINGE = 100 YEAR FLOODPLAIN
SURCHARGE NOT TO EXCEED 1.0 FOOT

In the floodway - Before a local floodplain permit can be issued, a "no rise' certification form must be submitted. You may need a qualified engineer to make sure your proposed project won't increase flooding on other properties.

Coastal Floodplains

Definitions.....

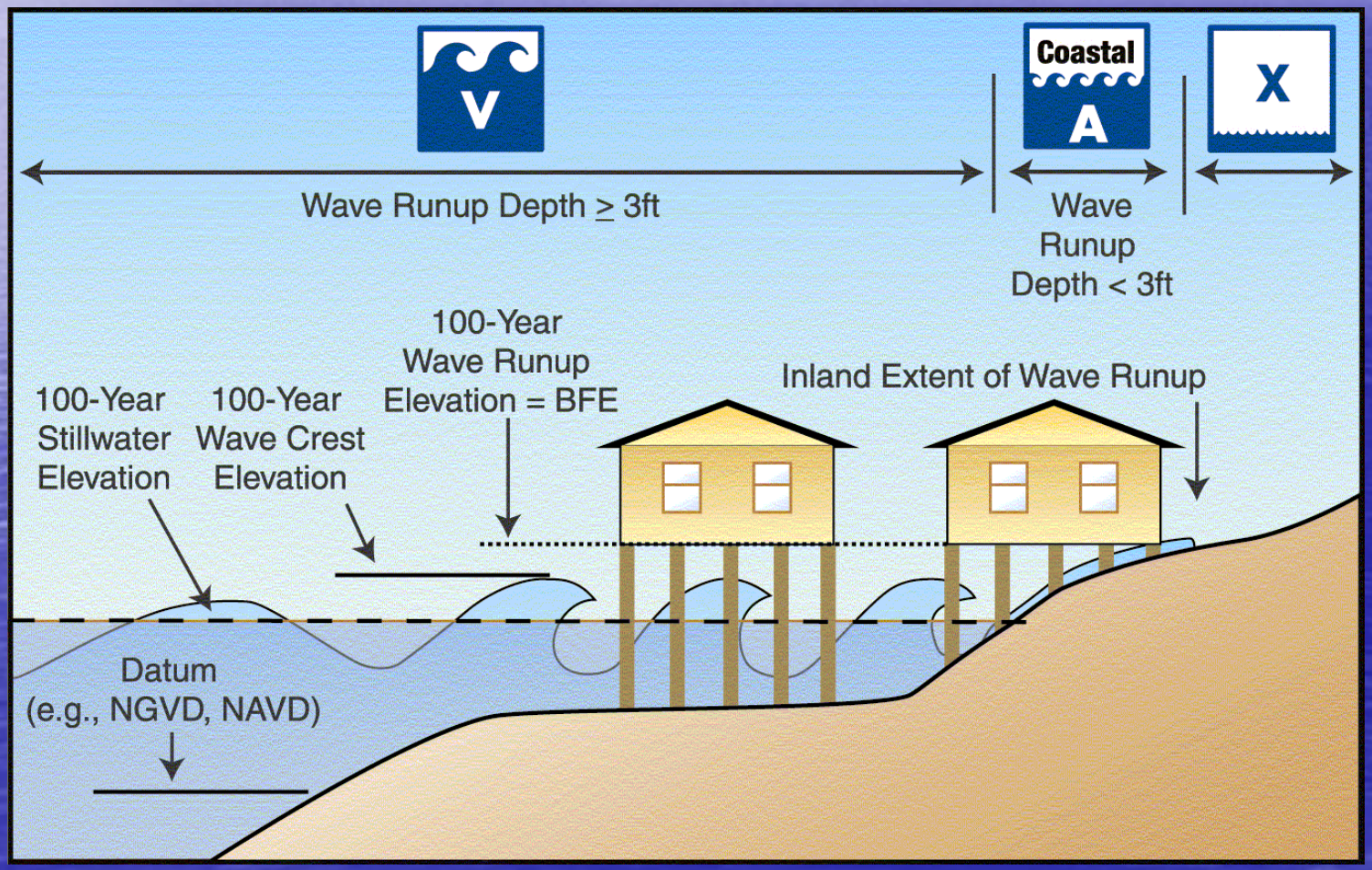
- Coastal High Hazard Area: an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM as Zone V1 – V30, or VE or V.

Coastal Floodplains

Definitions……

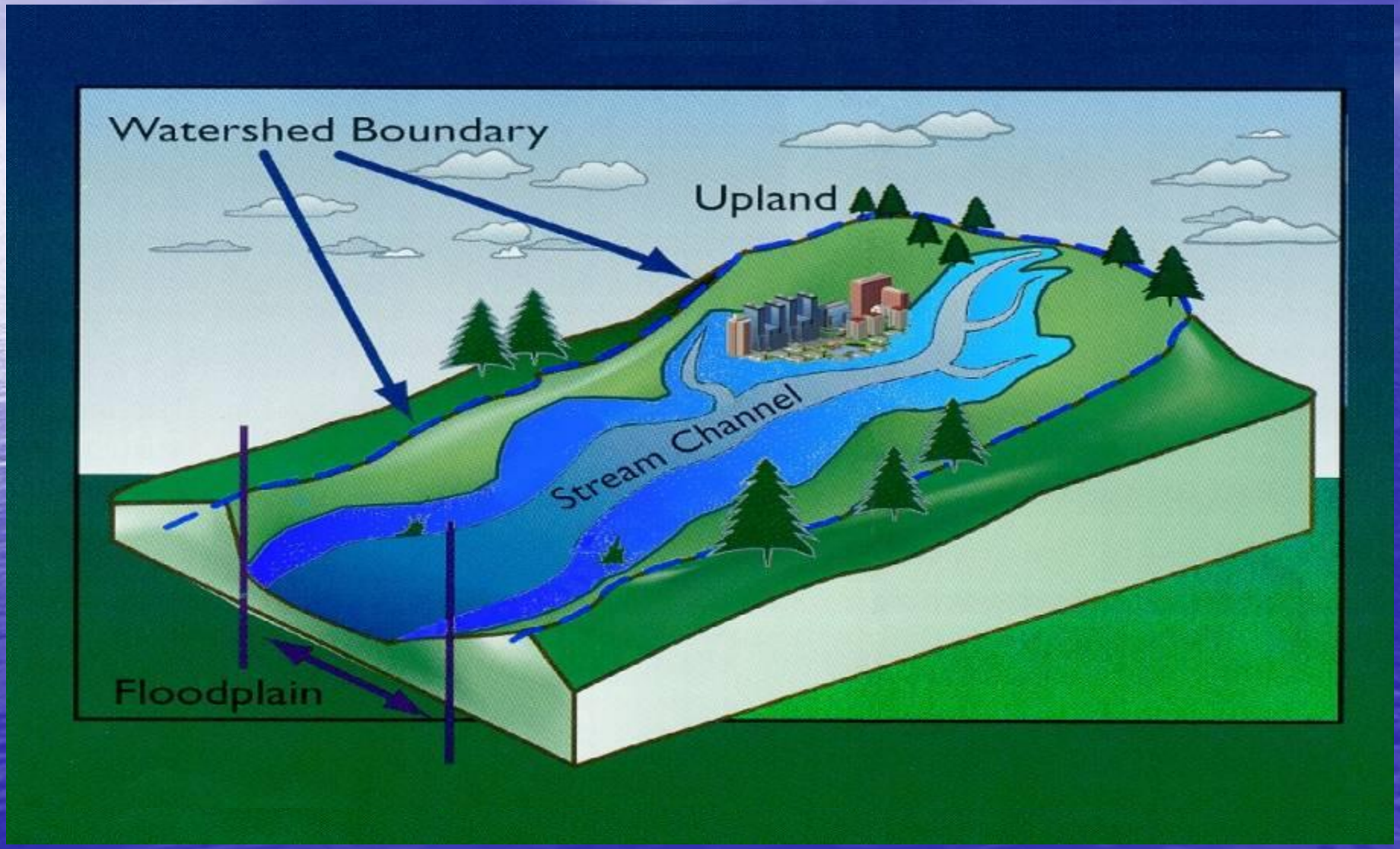
- Coastal A Zone: the portion of the SFHA landward of a V zone…which may be subject to wave effects, velocity flows, erosion, scour, or combinations of these forces and are treated as V zones.

Coastal Floodplain



TYPES OF NFIP MAPS

How Do They Make Those EXCELLENT Floodplain Maps?



Components of Flood Maps

Title box

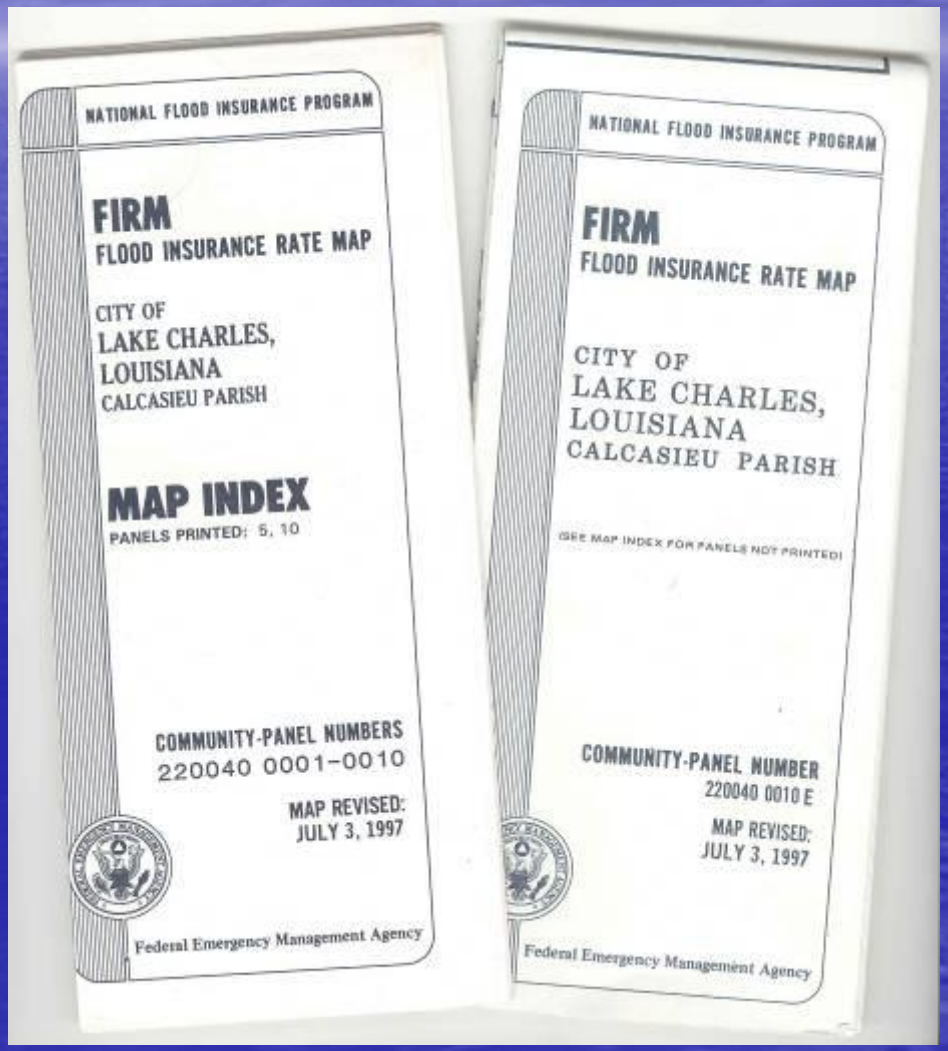
Community name

Panel number

Community number

Panel suffix

Effective/revision date



Components of Flood Maps

Map Index

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MONROE COUNTY
MISSISSIPPI AND
INCORPORATED AREAS

(SEE TABLE SHOWN ABOVE FOR LISTING OF COMMUNITIES)

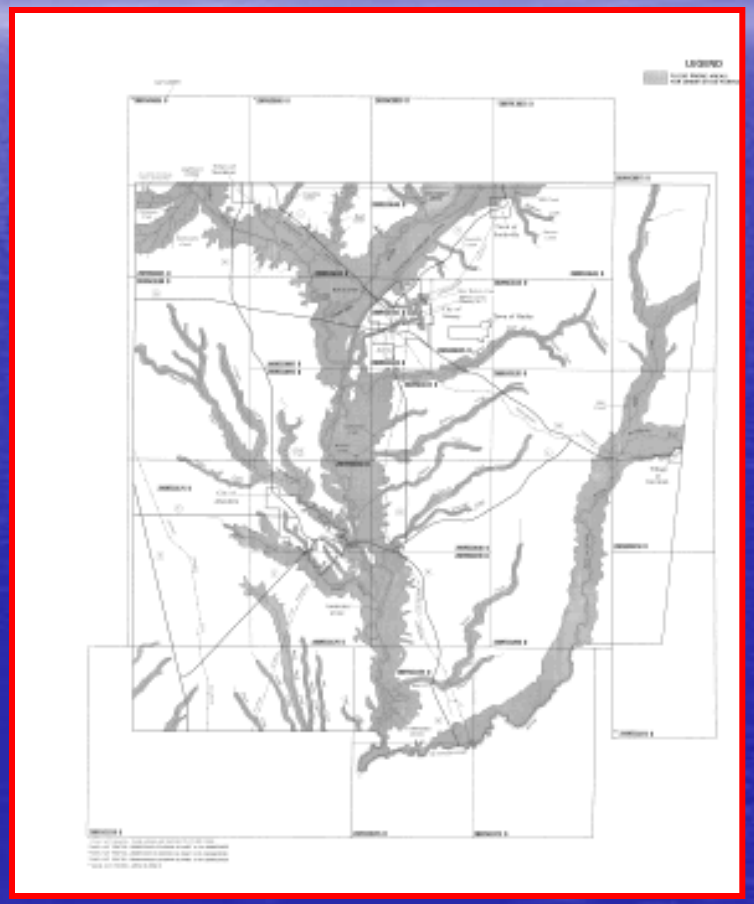
MAP INDEX

PANELS PRINTED: 15, 20, 30, 40, 45, 75, 85, 95, 100, 101, 103, 105, 110, 115, 120, 150, 160, 170, 175, 180, 190, 200, 250, 255, 265, 275

MAP NUMBER:
28095C0000

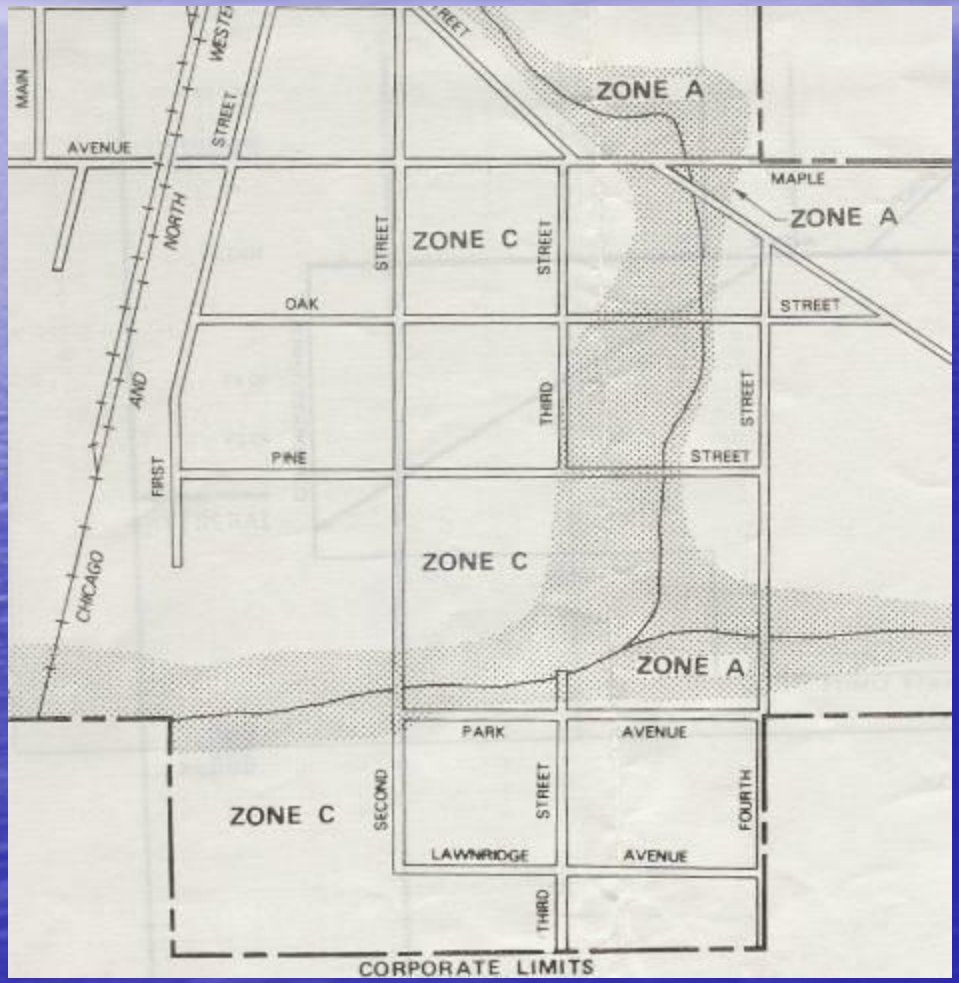
EFFECTIVE DATE:
MARCH 16, 1988

Federal Emergency Management Agency



Approximate Floodplain Map

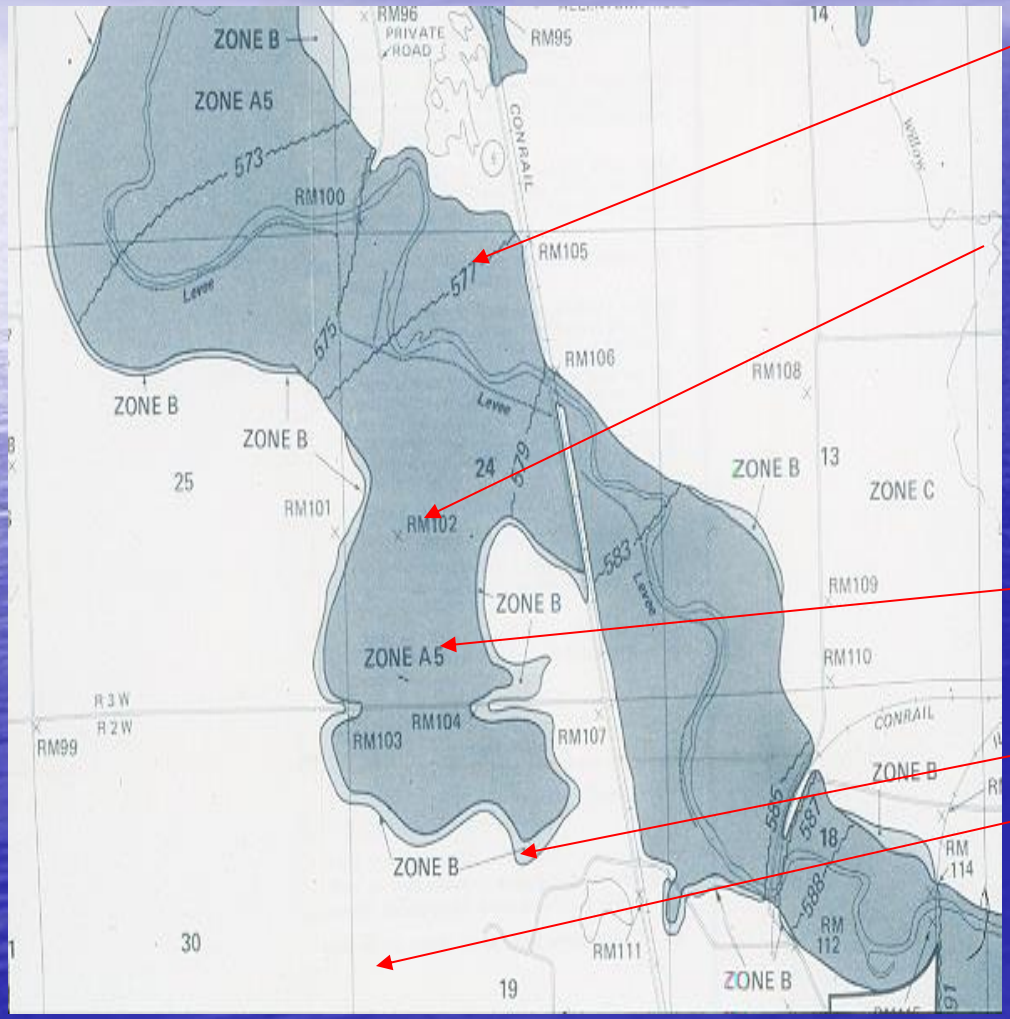
(Flood Hazard Boundary Map)



Shows approximate location of flood risk.

Detailed information (ground elevation and flood height) are required to make accurate determinations

Flood Insurance Rate Map (FIRM)



Base Flood Elevation (BFE)

Water Surface elevation (in feet) of the base flood at specific locations

Elevation Reference Marks (RM)

Points for which ground elevation data have been established and recorded on the FIRM

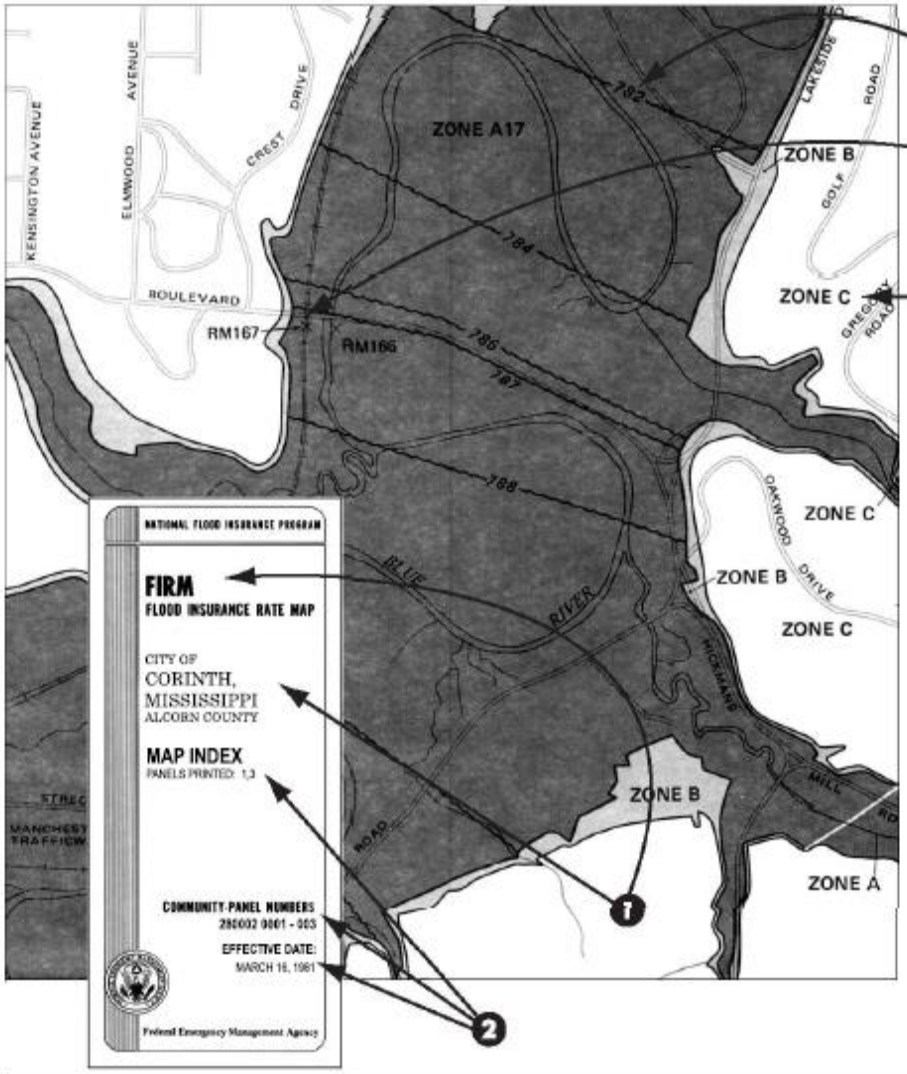
Flood Hazard Zones.

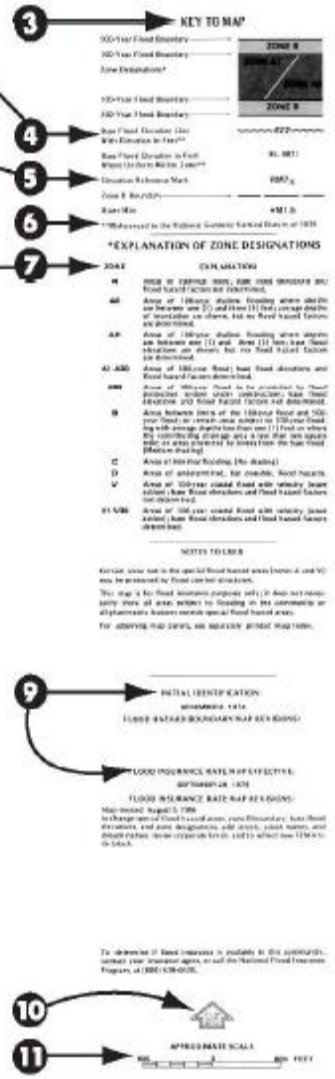
Zone A, Zone A1–A30, and Zone AE – 100-year or base flood

Zone B - 500 – year flood.

Zone C or X – All other areas

Elements of a Flood Insurance Rate Map (Old Format)





1 TITLE BLOCK.
Includes map type, community name, county, and state.

2 IDENTIFICATION.
Community and panel numbers, effective date of panel; revisions are noted by a letter after the panel number. The first revision is A, the second is B, and so on.

3 KEY TO MAP.
Legend describing lines, markings, and zones.

4 BASE FLOOD ELEVATION (BFE).
Water surface elevation (in feet above datum) of the base flood at specific locations (cross-sections).

5 ELEVATION REFERENCE MARKS (RM).
Points for which ground elevation data have been established and recorded on the FIRM or in the Flood Insurance Study.

6 DATUM.
Most older FIRMs are referenced to the National Geodetic Vertical Datum of 1929, but conversions are being made to the North American Vertical Datum of 1988. Occasionally, a community may have its own datum.

7 FLOOD HAZARD ZONES. Description of flood risk zone designations. Shading and letters/ numbers are used to designate different zones.

8 CORPORATE BOUNDARY.
Outlines the community's boundary, as last provided to FEMA.

9 MAP DATES.
Initial Identification: When flood-prone areas were first identified.

Effective Date: When panel was adopted (became effective).

Revised Date: When a change or addition, if any, took effect.

10 NORTH ARROW.
Shows direction to orient map users.

11 MAP SCALE.
NOTE that the scale can change from panel to panel.

Flood Insurance Rate Map (old format)

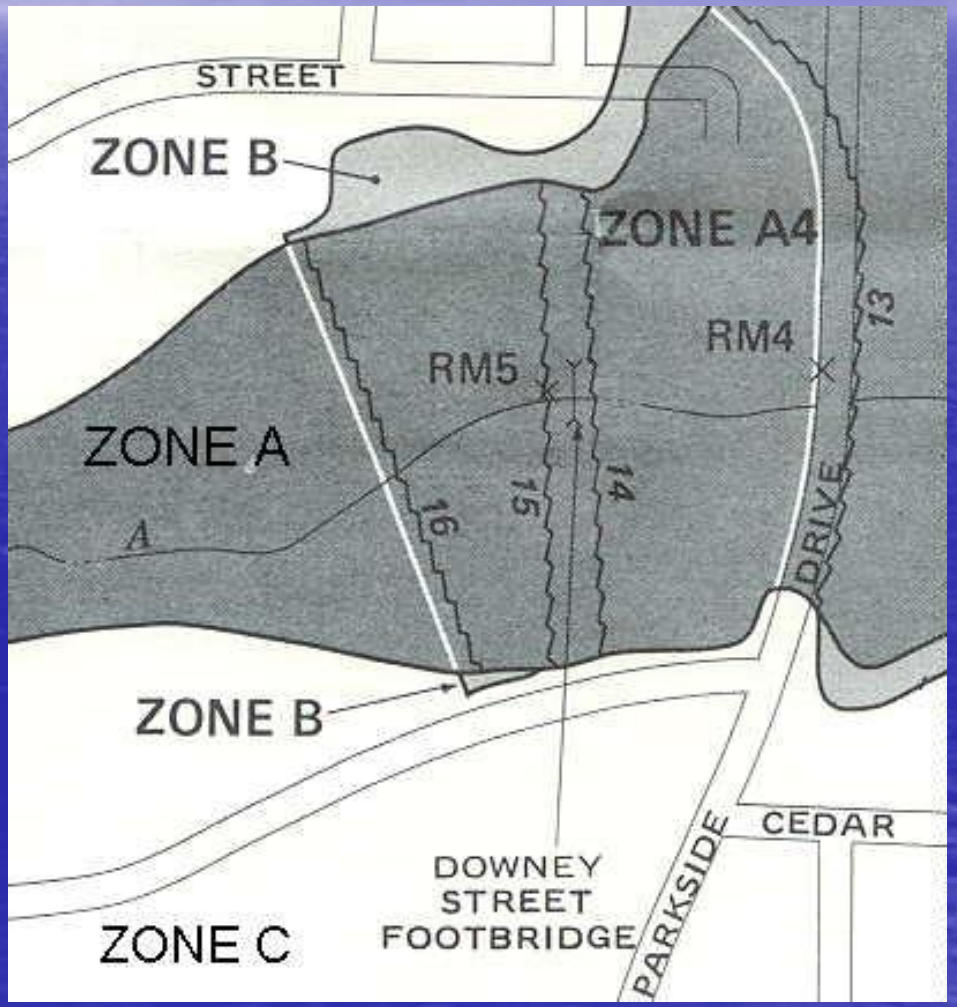
Base Flood Elevations

Reference Marks

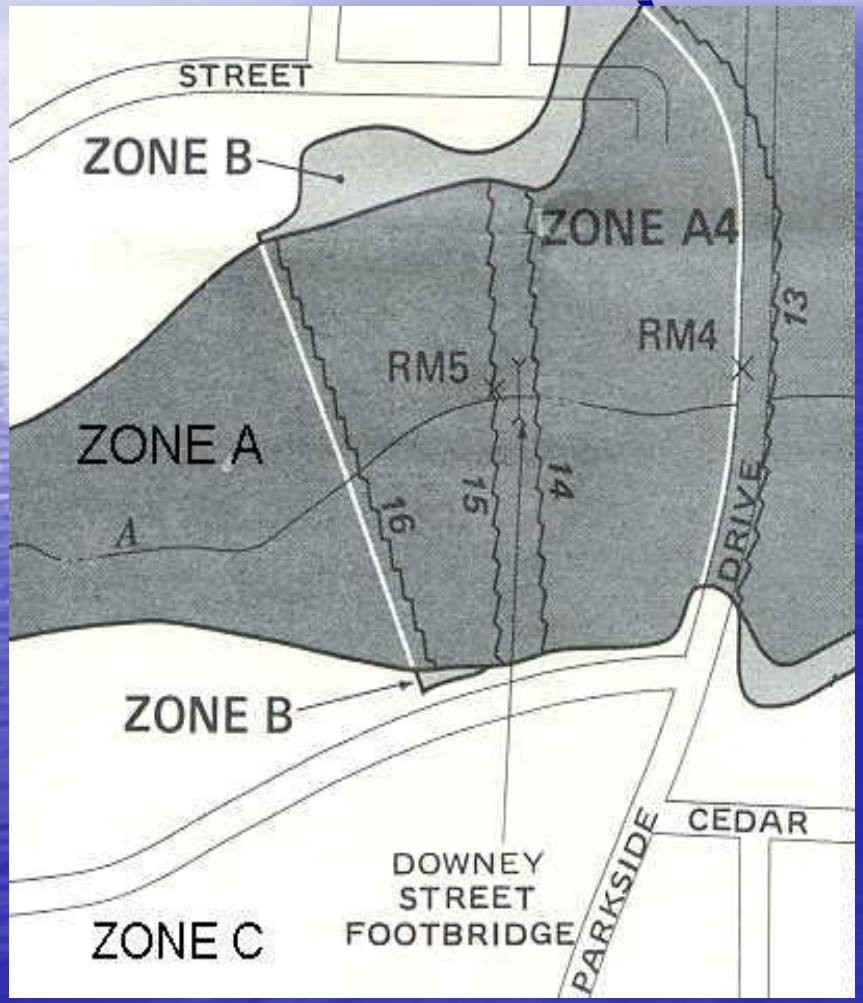
Zone A

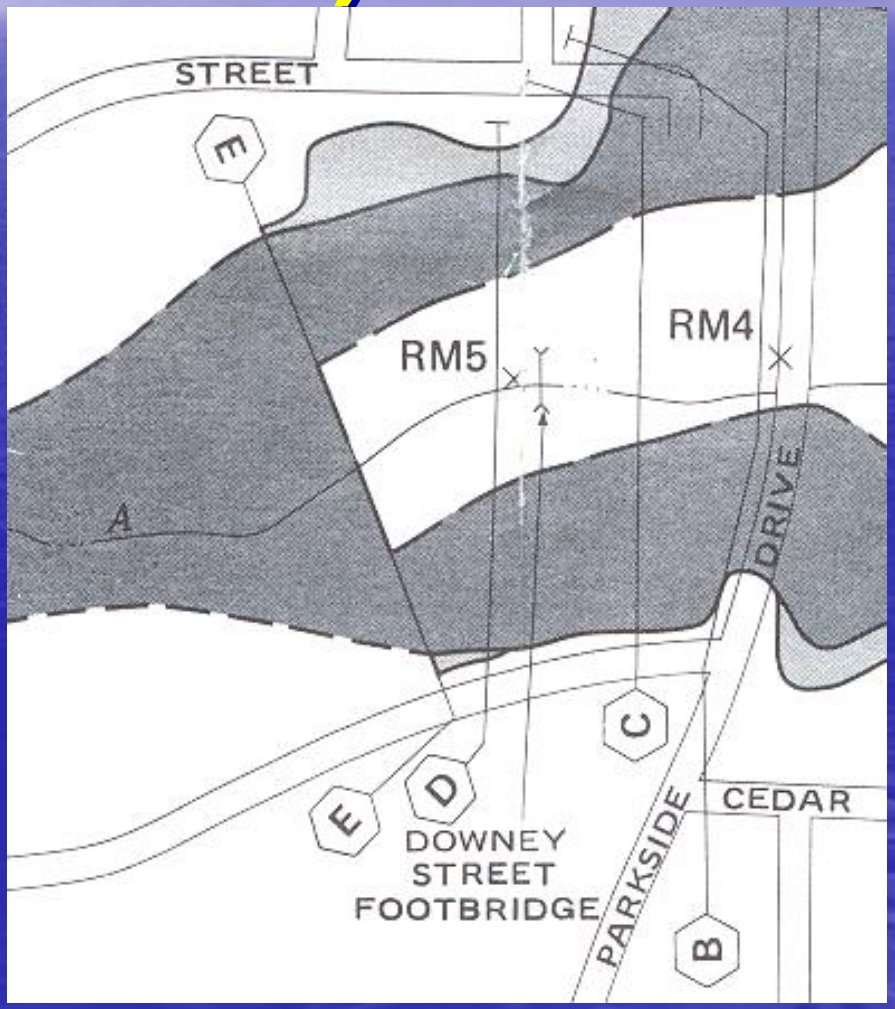
Zone B

Zone C



Flood Boundary and Floodway Map (old format)





Flood Insurance Rate Map (New Format)

Unshaded X Zone

Zone AE

Floodway

Floodway fringe

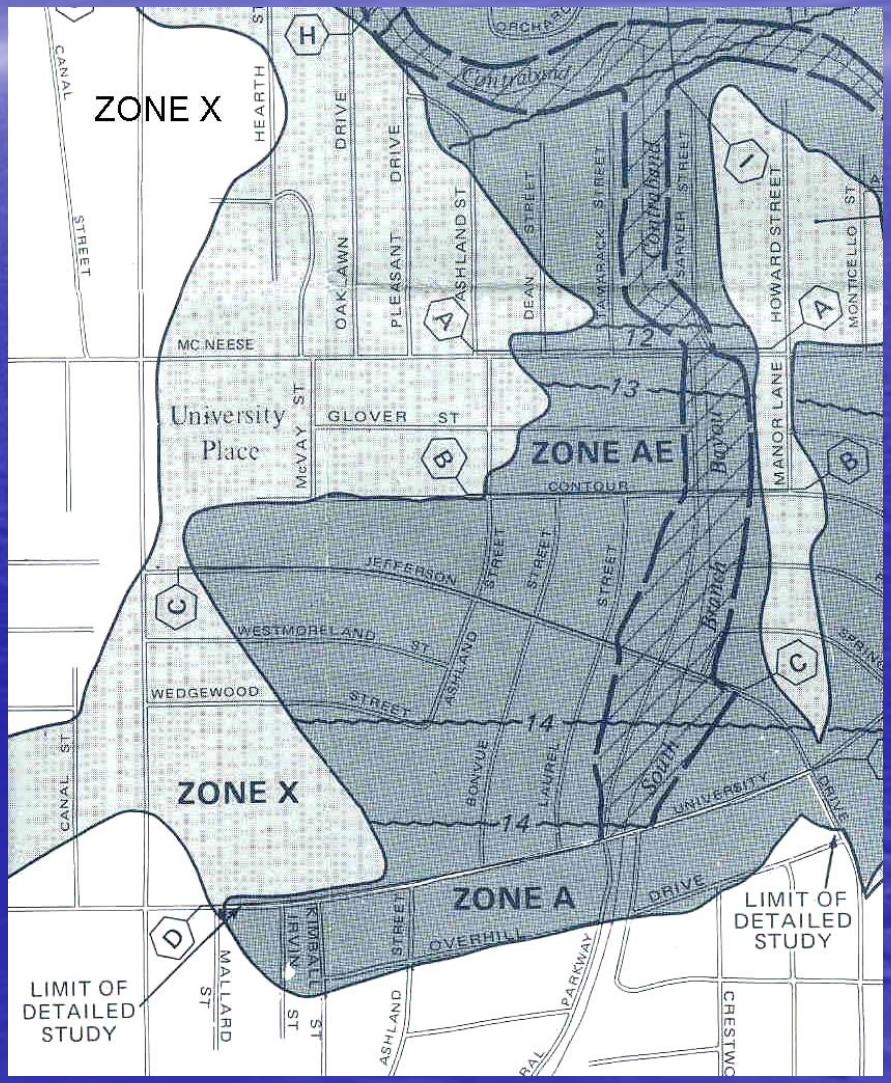
Cross section

Base flood elevation

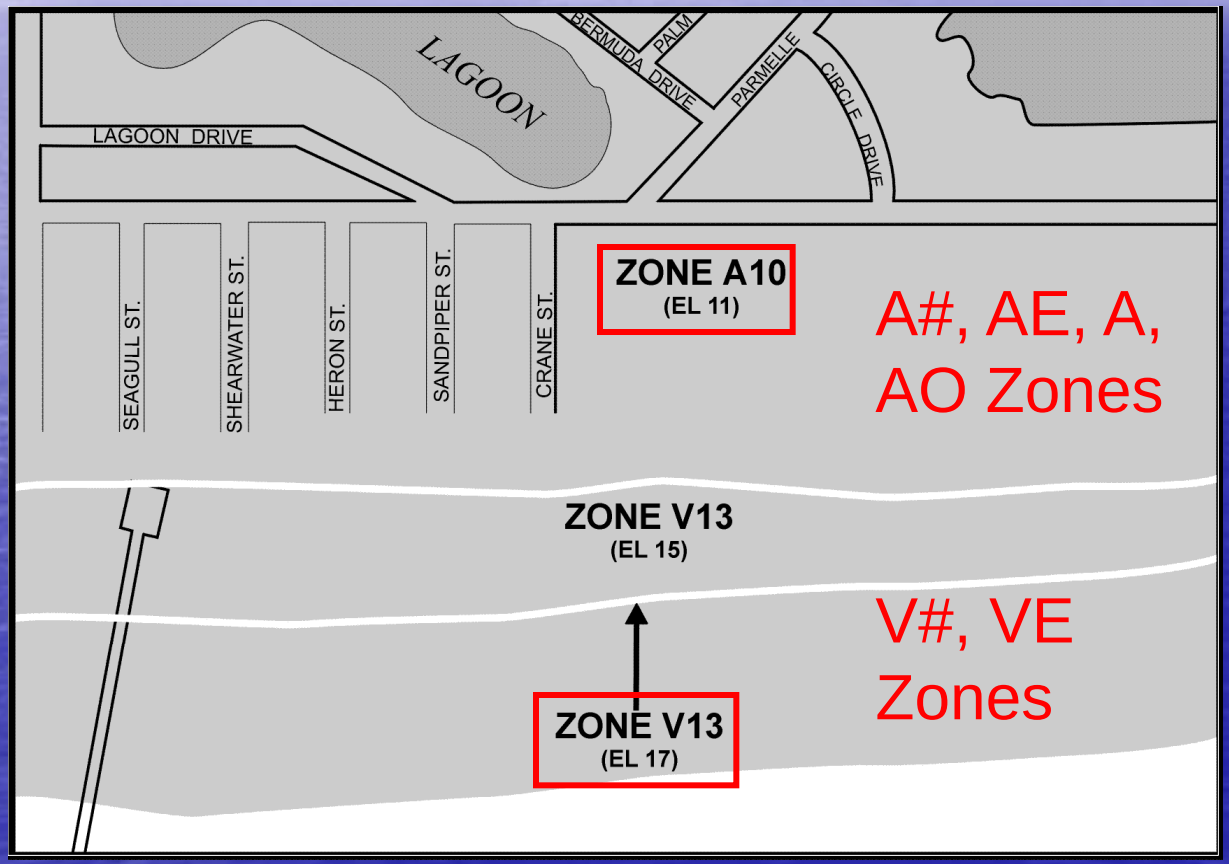
Shaded X Zone

Zone boundary

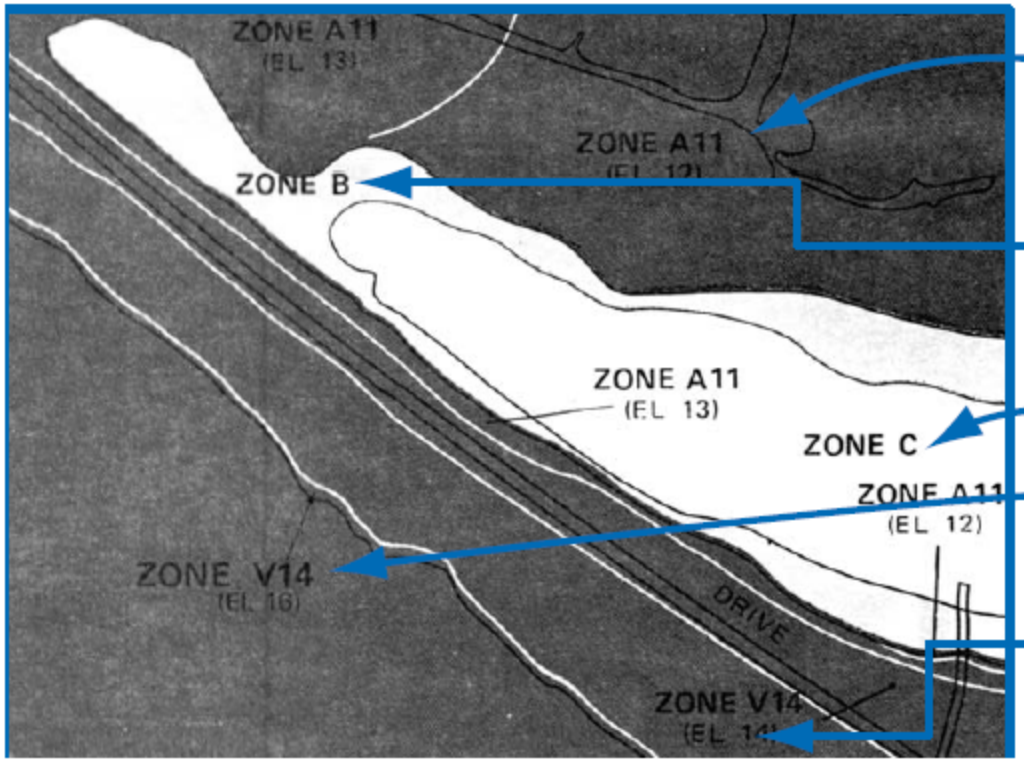
Approximate A Zone



Coastal Floodplain Map



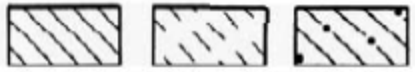
Levels of Detail in Floodplain Delineations



COASTAL FLOOD HAZARD ZONES.

1. **Zone A**, **Zones A1-A30**, and **Zone AE** are subject to flooding by the base or 100-year flood (1% annual chance), and waves less than 3 feet.
2. **Zone B** (or shaded Zone X) is subject to flooding by the 500-year flood (0.2% annual chance).
3. **Zone C** (or Zone X) is all other areas.
4. **Zone V**, **Zones V1-V30**, and **Zone VE** are where waves are expected to be 3 feet or more.
5. **BASE FLOOD ELEVATION (BFE).** Water surface elevation (in feet above datum).

UNDEVELOPED COASTAL BARRIERS



Identified 1983 | Identified 1990 | Otherwise Protected Areas

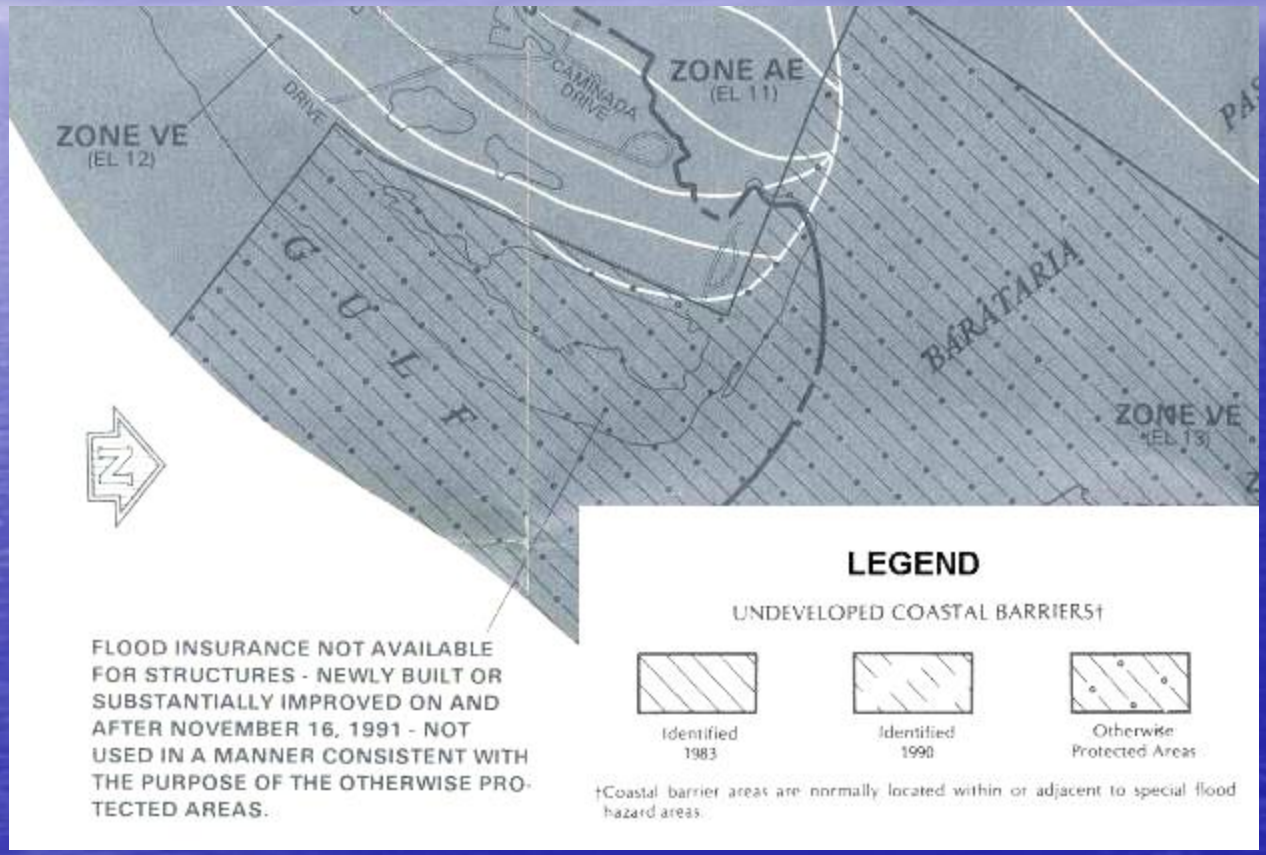
In undeveloped Coastal Barrier Resource Areas (COBRA), NFIP insurance is not available for new or substantially improved structures built after November 16, 1990.

Coastal Floodplain Map

Coastal Barrier Resource Act (CoBRA) of 1982
Coastal Barrier Improvement Act of 1990

- Areas subject to certain flood coverage restrictions. The NFIP is prohibited from writing flood insurance policies on new or substantially improved buildings in these areas.

Coastal Barrier Zones



Floodplain Maps

Special FIRM Formats

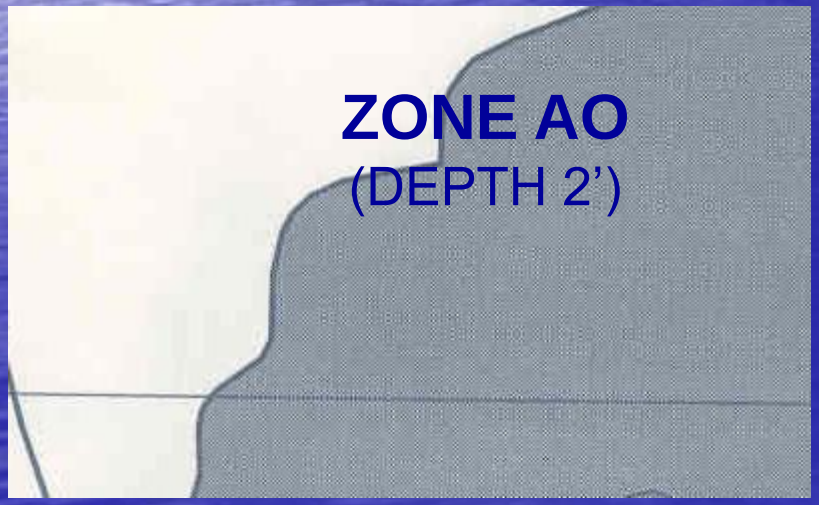
Lakes

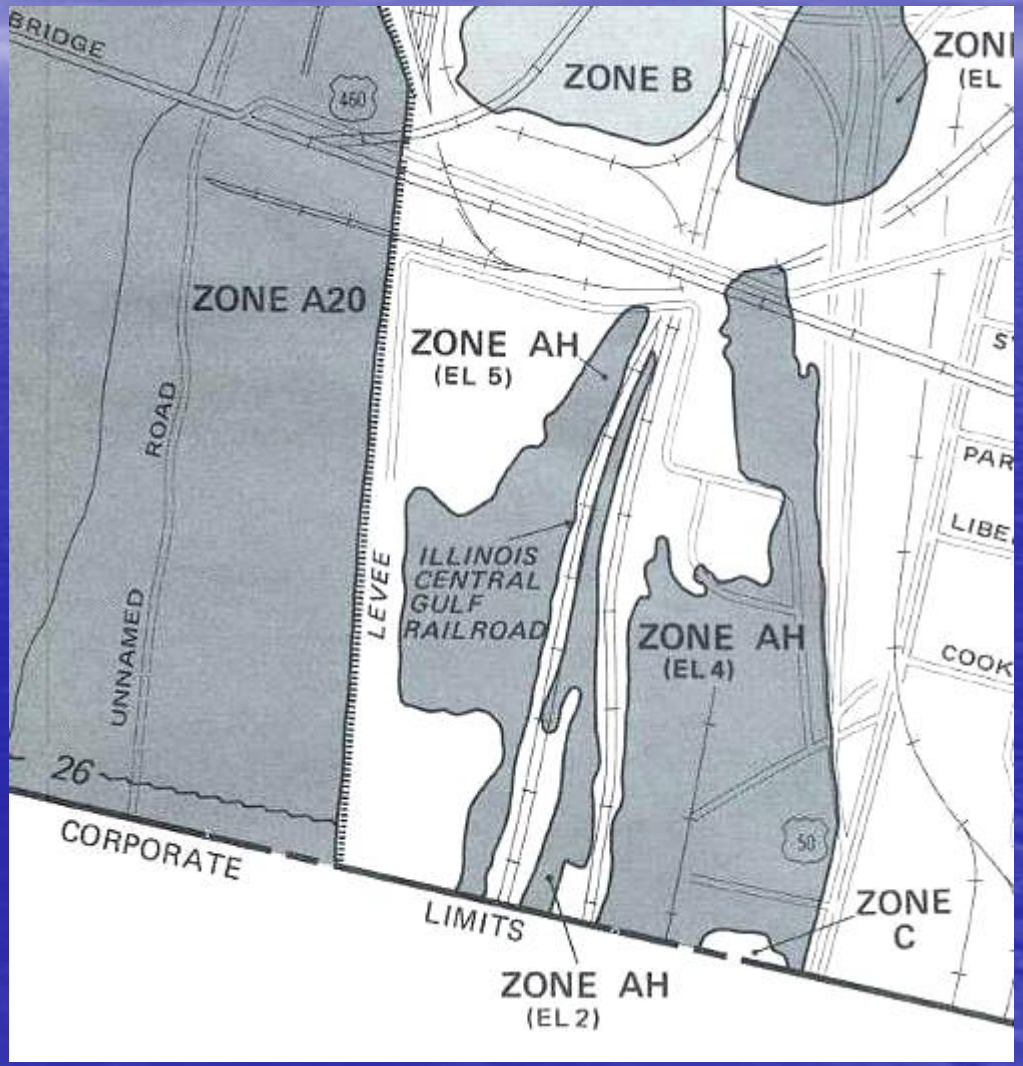
Floodplain Maps

Shallow flooding

AO -ponding

AH – sheet flow



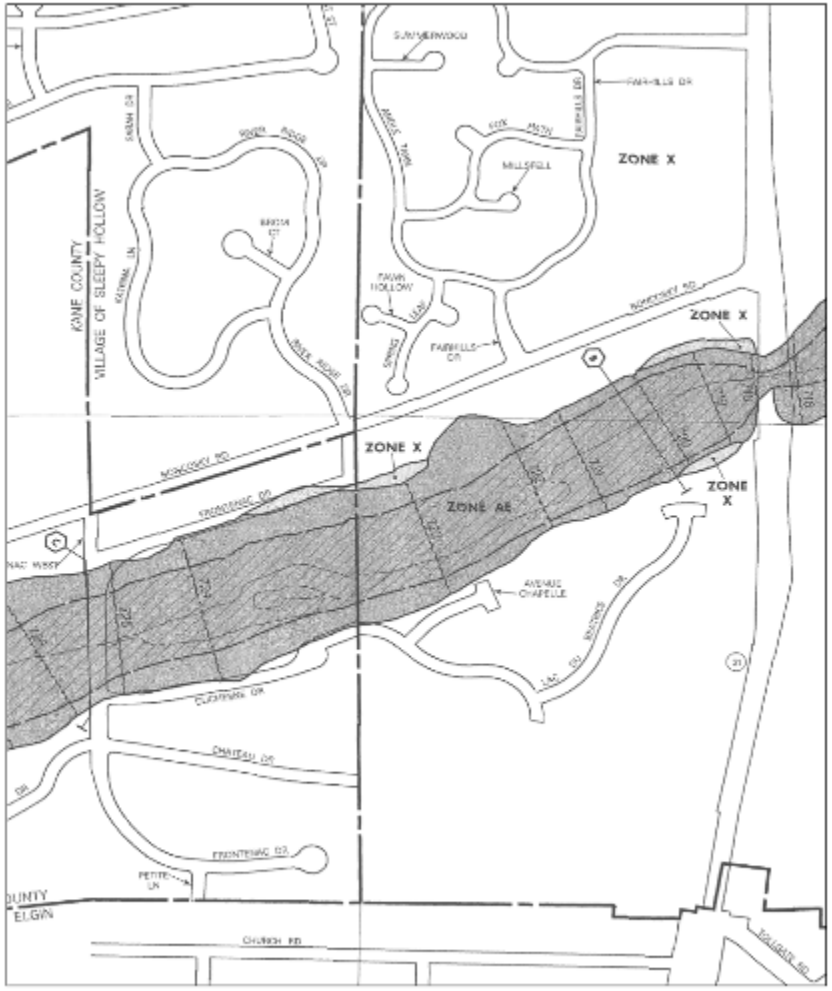


Digital Flood Insurance Rate Maps

The Next Generation

Original FIRM (Flood Insurance Rate Map)

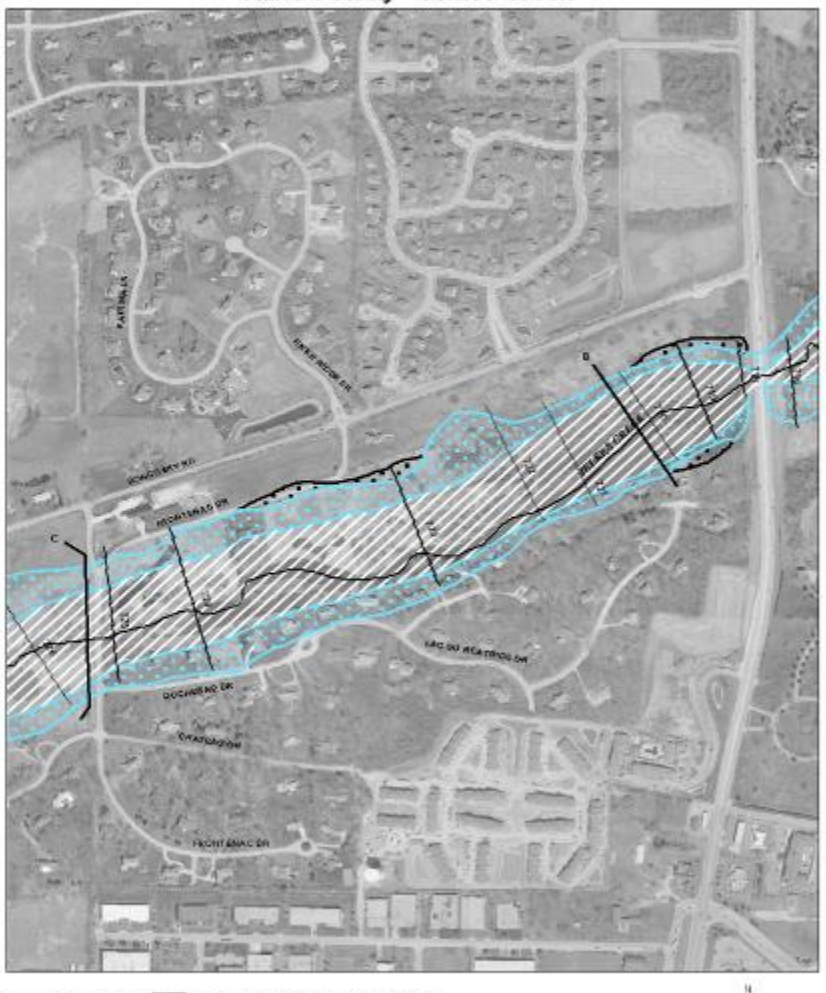
Kane County - Jelkes Creek



KANE COUNTY, ILLINOIS AND INCORPORATED AREAS
PANEL 158 OF 410

DFIRM (Digital Flood Insurance Rate Map)

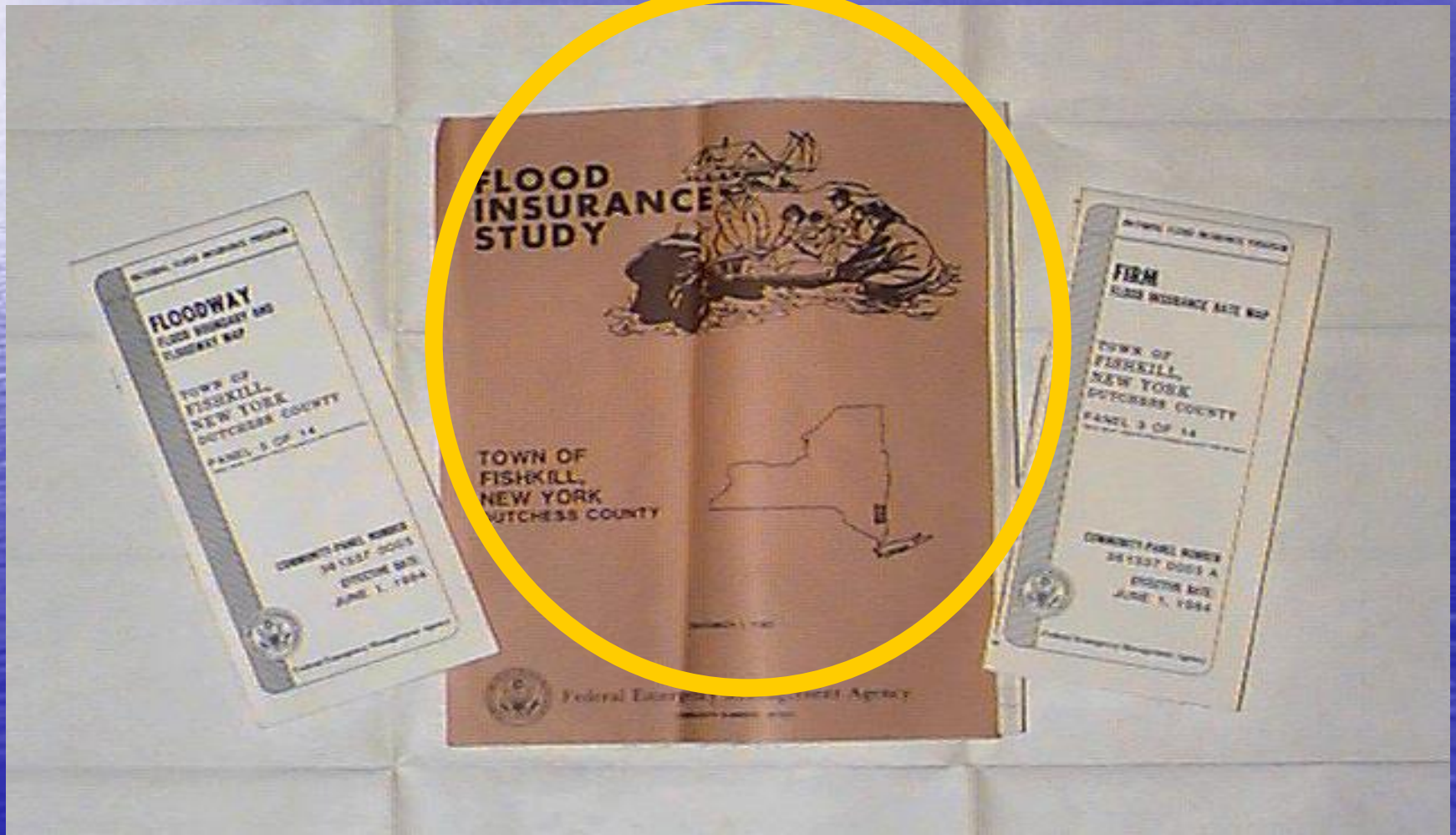
Kane County - Jelkes Creek



The "FIRMette"

- Available online
- Scaled to use as regulatory map
- Printable
- www.FEMA.gov
  - Click "Map Store"
  - Click "Map Search"
  - Type in address
  - Click "view" map

Components of a Flood Insurance Study (FIS)

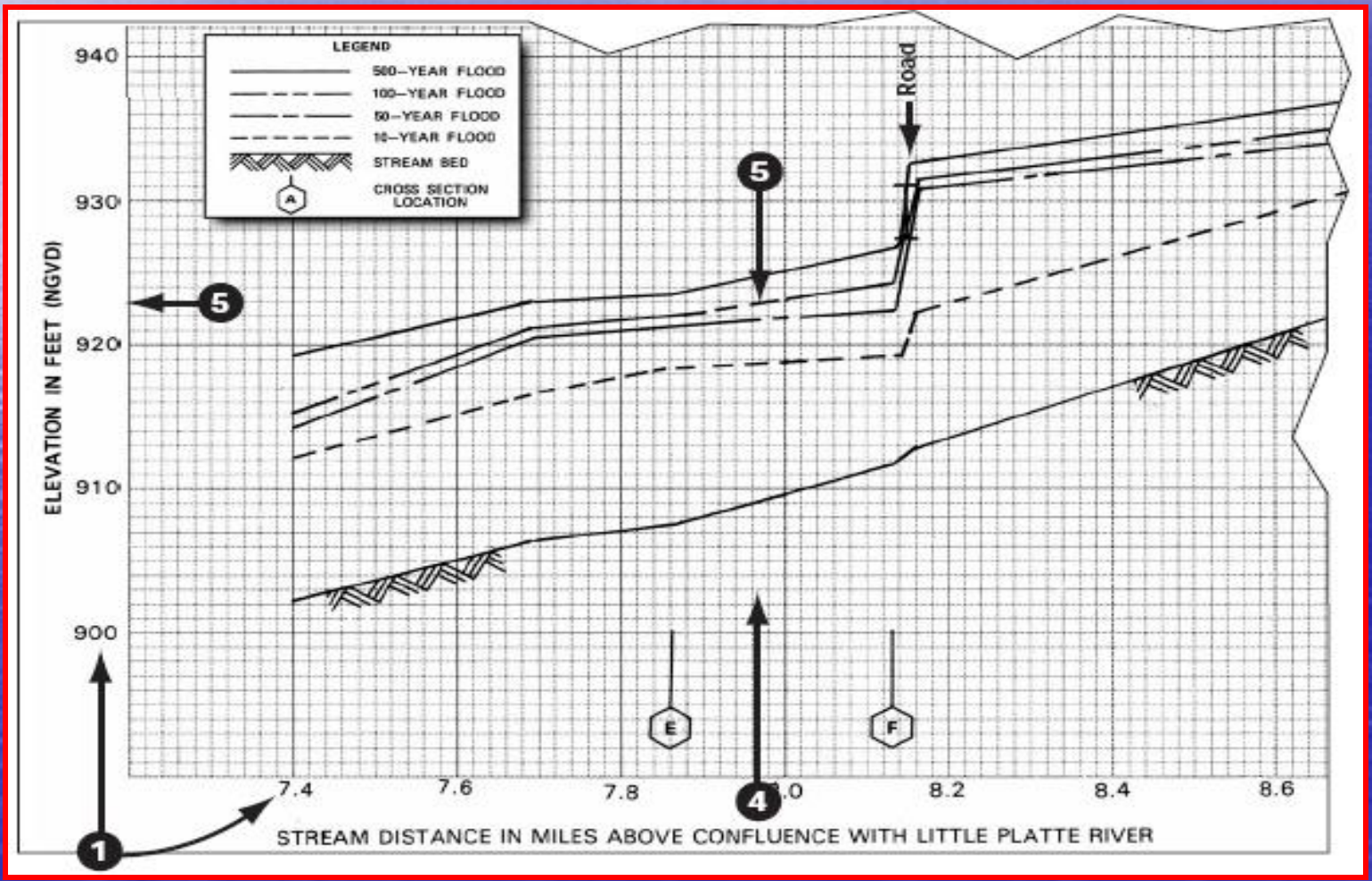


Components of a Flood Insurance Study (FIS)

- Appraises a community's flood problems
- Establishes flood elevation profiles
- Establishes insurance risk zones
- Plots floodplain boundaries
- Provides data to delineate floodways in some communities

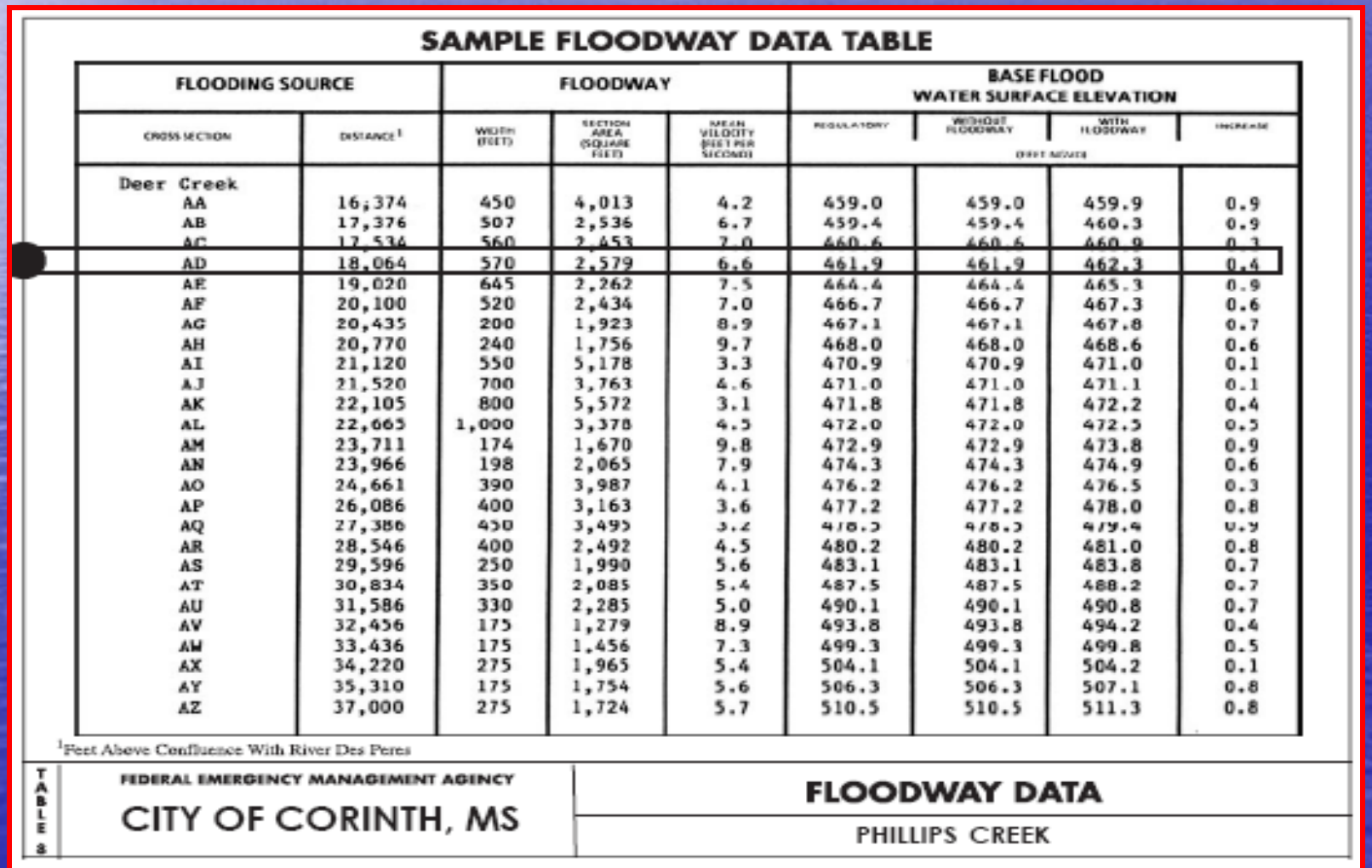
Components of a Flood Insurance Study (FIS)

Flood Profile



Components of a Flood Insurance Study (FIS)

Floodway Data Table



SAMPLE FLOODWAY DATA TABLE

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Deer Creek								
AA	16,374	450	4,013	4.2	459.0	459.0	459.9	0.9
AB	17,376	507	2,536	6.7	459.4	459.4	460.3	0.9
AC	17,536	560	2,453	7.0	460.6	460.6	460.9	0.3
AD	18,064	570	2,579	6.6	461.9	461.9	462.3	0.4
AE	19,020	645	2,262	7.5	464.4	464.4	465.3	0.9
AF	20,100	520	2,434	7.0	466.7	466.7	467.3	0.6
AG	20,435	200	1,923	8.9	467.1	467.1	467.8	0.7
AH	20,770	240	1,756	9.7	468.0	468.0	468.6	0.6
AI	21,120	550	5,178	3.3	470.9	470.9	471.0	0.1
AJ	21,520	700	3,763	4.6	471.0	471.0	471.1	0.1
AK	22,105	800	5,572	3.1	471.8	471.8	472.2	0.4
AL	22,665	1,000	3,378	4.5	472.0	472.0	472.5	0.5
AM	23,711	174	1,670	9.8	472.9	472.9	473.8	0.9
AN	23,966	198	2,065	7.9	474.3	474.3	474.9	0.6
AO	24,661	390	3,987	4.1	476.2	476.2	476.5	0.3
AP	26,086	400	3,163	3.6	477.2	477.2	478.0	0.8
AQ	27,386	450	3,495	3.2	478.5	478.5	479.4	0.9
AR	28,546	400	2,492	4.5	480.2	480.2	481.0	0.8
AS	29,596	250	1,990	5.6	483.1	483.1	483.8	0.7
AT	30,834	350	2,085	5.4	487.5	487.5	488.2	0.7
AU	31,586	330	2,285	5.0	490.1	490.1	490.8	0.7
AV	32,456	175	1,279	8.9	493.8	493.8	494.2	0.4
AW	33,436	175	1,456	7.3	499.3	499.3	499.8	0.5
AX	34,220	275	1,965	5.4	504.1	504.1	504.2	0.1
AY	35,310	175	1,754	5.6	506.3	506.3	507.1	0.8
AZ	37,000	275	1,724	5.7	510.5	510.5	511.3	0.8

[1]Feet Above Confluence With River Des Peres

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF CORINTH, MS

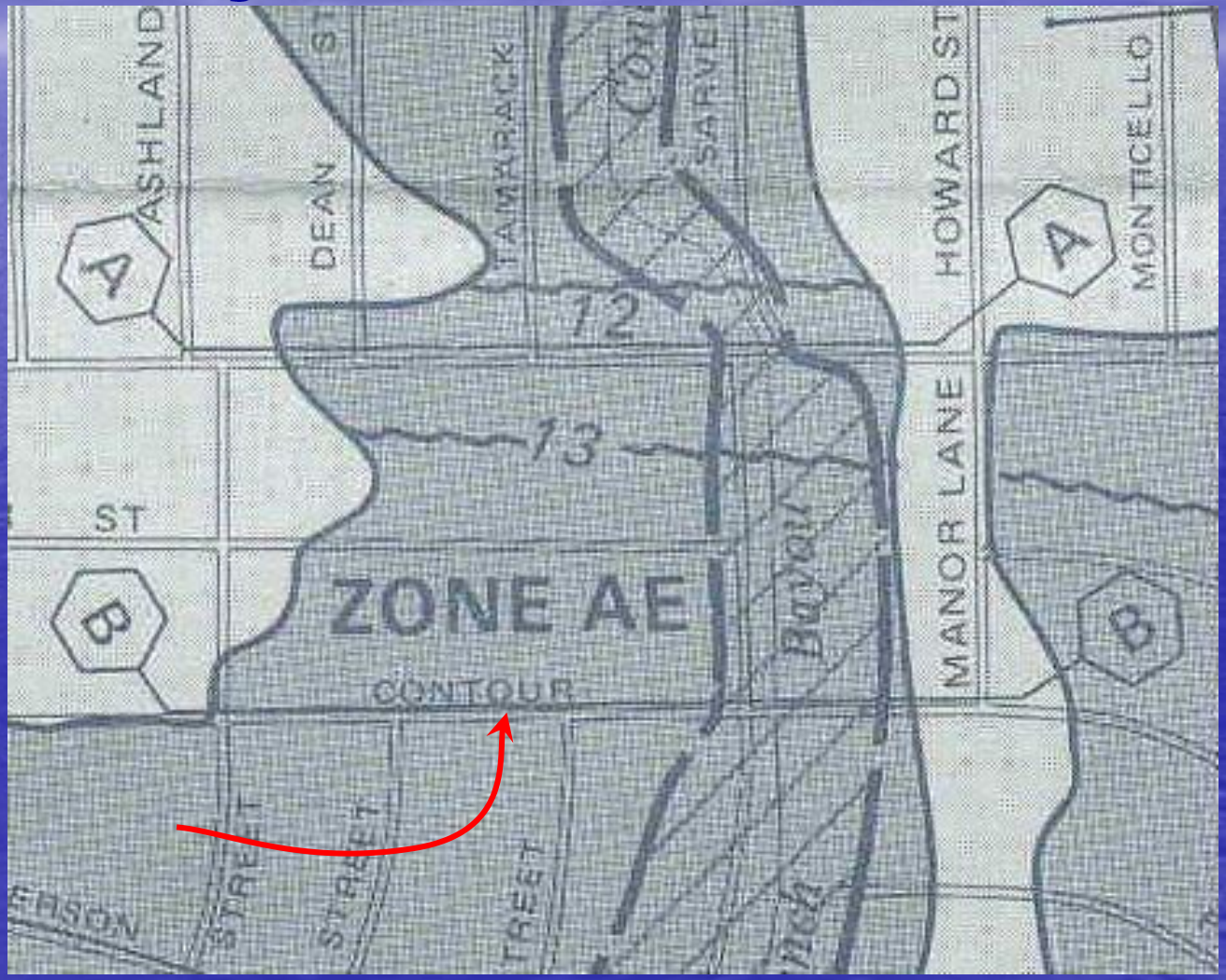
FLOODWAY DATA

PHILLIPS CREEK

Flood Insurance Studies (cont.)

Using the Floodway Data Table

1. Locate site on the FIRM or Floodway Map



Flood Insurance Studies (cont.)

Using the Floodway Data Table

If at a cross section, use the 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	WITH FLOODWAY	INCREASE
						(FEET NGVD)		
South Branch Bayou Contraband								
A	1,584[1]	100	300	7.1	11.9	11.9	12.5	0.6
B	2,217[1]	300	1,060	2.0	13.1	13.1	14.1	1.0
C	3,062[1]	450	1,190	1.5	13.6	13.6	14.6	1.0
D	3,960[1]	300	750	1.9	13.9	13.9	14.9	1.0
	158[2]	120	1,450	2.0	9.1	8.1[3]	9.1	1.0
	1,108[2]	50	440	6.7	9.1	8.1[3]	9.1	1.0
	2,851[2]	500	2,670	0.9	10.0	10.0	11.0	1.0
	1,056[1]	200	2,040	1.5	9.4	7.9[3]	8.9	1.0
	2,798[1]	150	970	3.2	9.4	8.1[3]	9.1	1.0
	2,904[1]	400	1,930	1.6	9.4	8.5[3]	9.5	1.0
	4,382[1]	400	1,030	3.0	9.4	8.8[3]	9.8	1.0

[1]Feet above confluence with Bayou Contraband
[2]Feet above confluence with Calcasieu River (Lake Charles)
[3]Elevation computed without consideration of backwater effects from Calcasieu River (Lake Charles)

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF LAKE CHARLES, LA

(CALCASIEU PARISH)

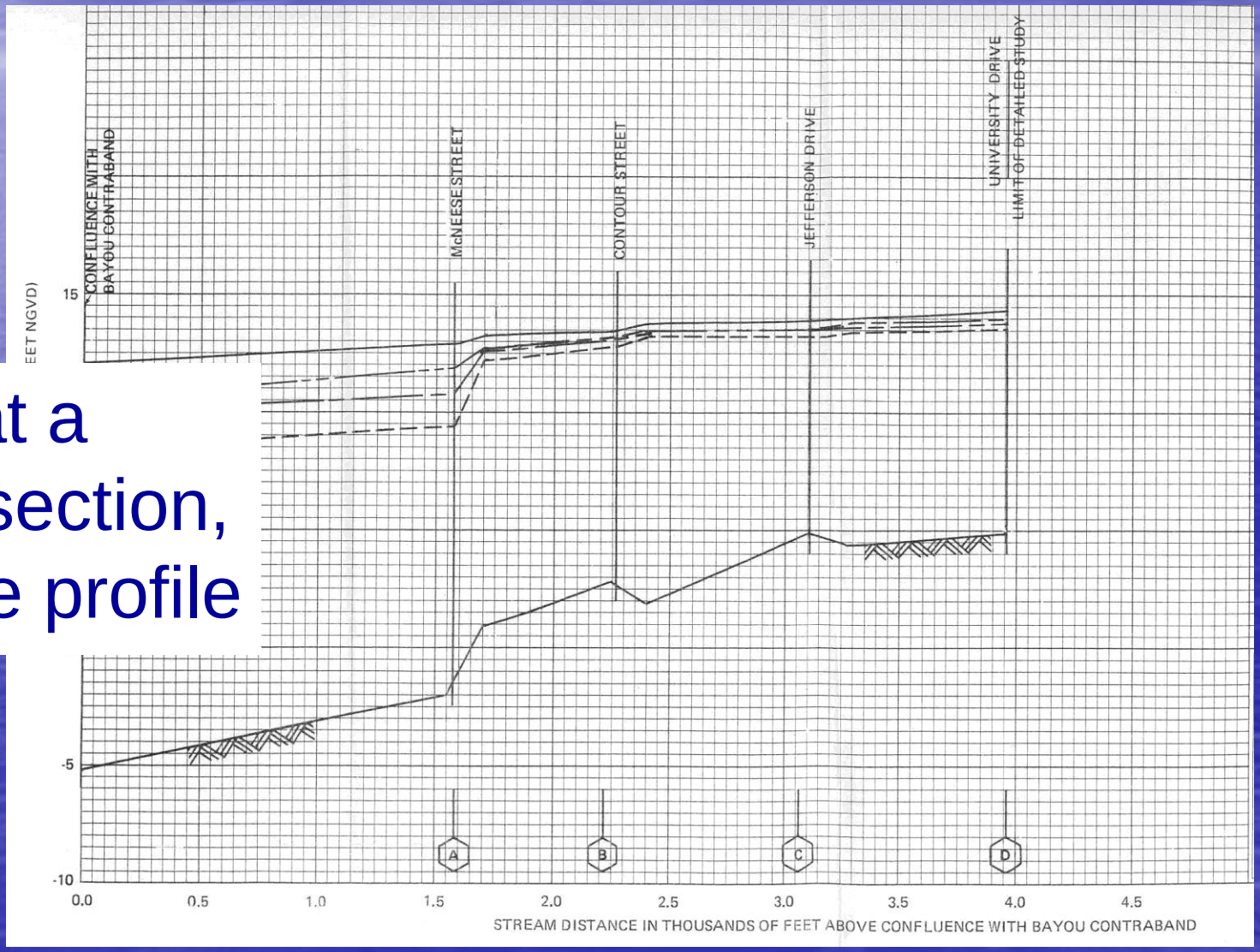
FLOODWAY DATA

SOUTH BRANCH BAYOU CONTRABAND, PITHON COULEE AND LITTLE BAYOU

Flood Insurance Studies (cont.)

Using the Profile

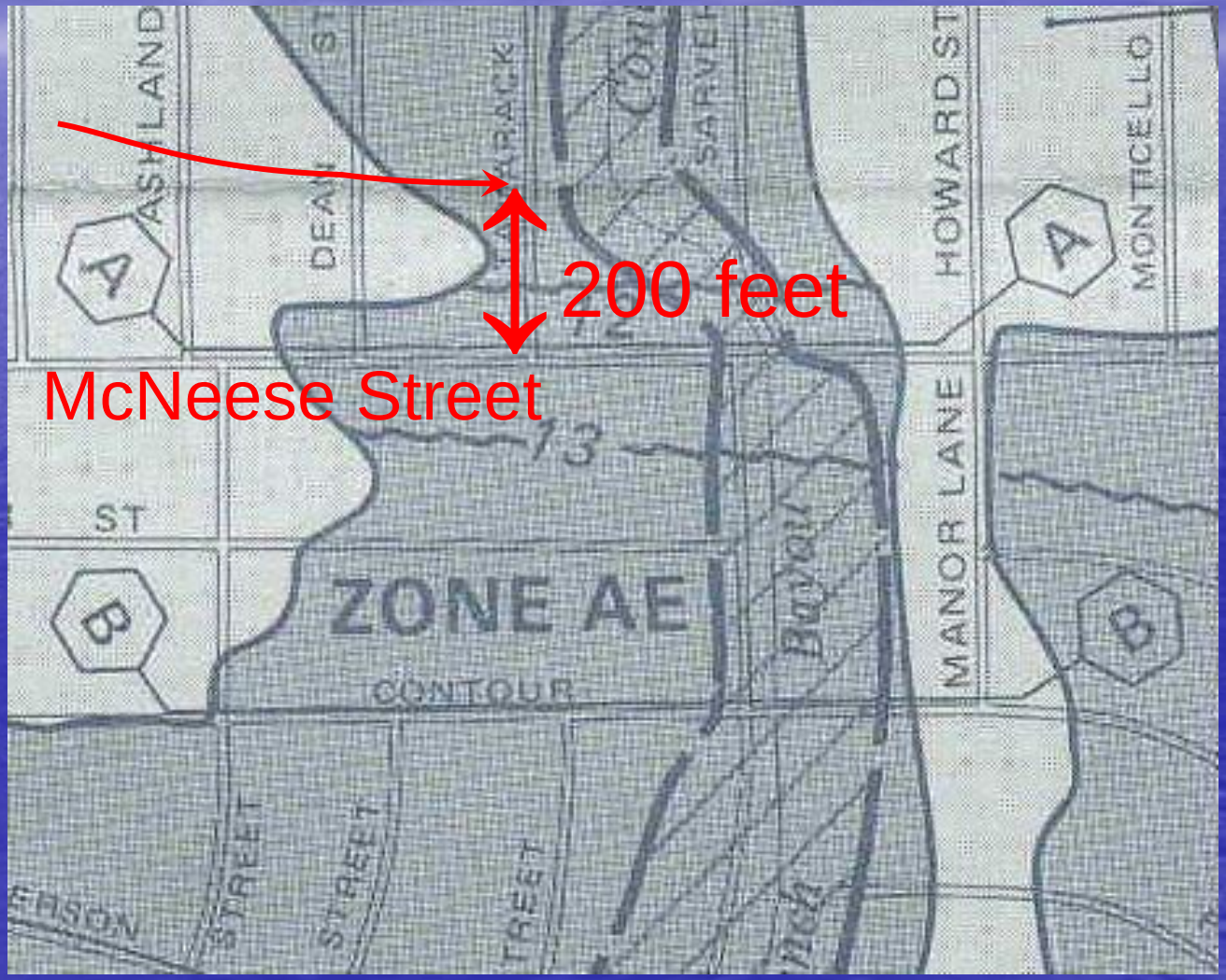
If not at a cross section, use the profile



Flood Insurance Studies (cont.)
Using the Profile

1. Locate site on the FIRM or Floodway Map

2. Measure the distance to a feature

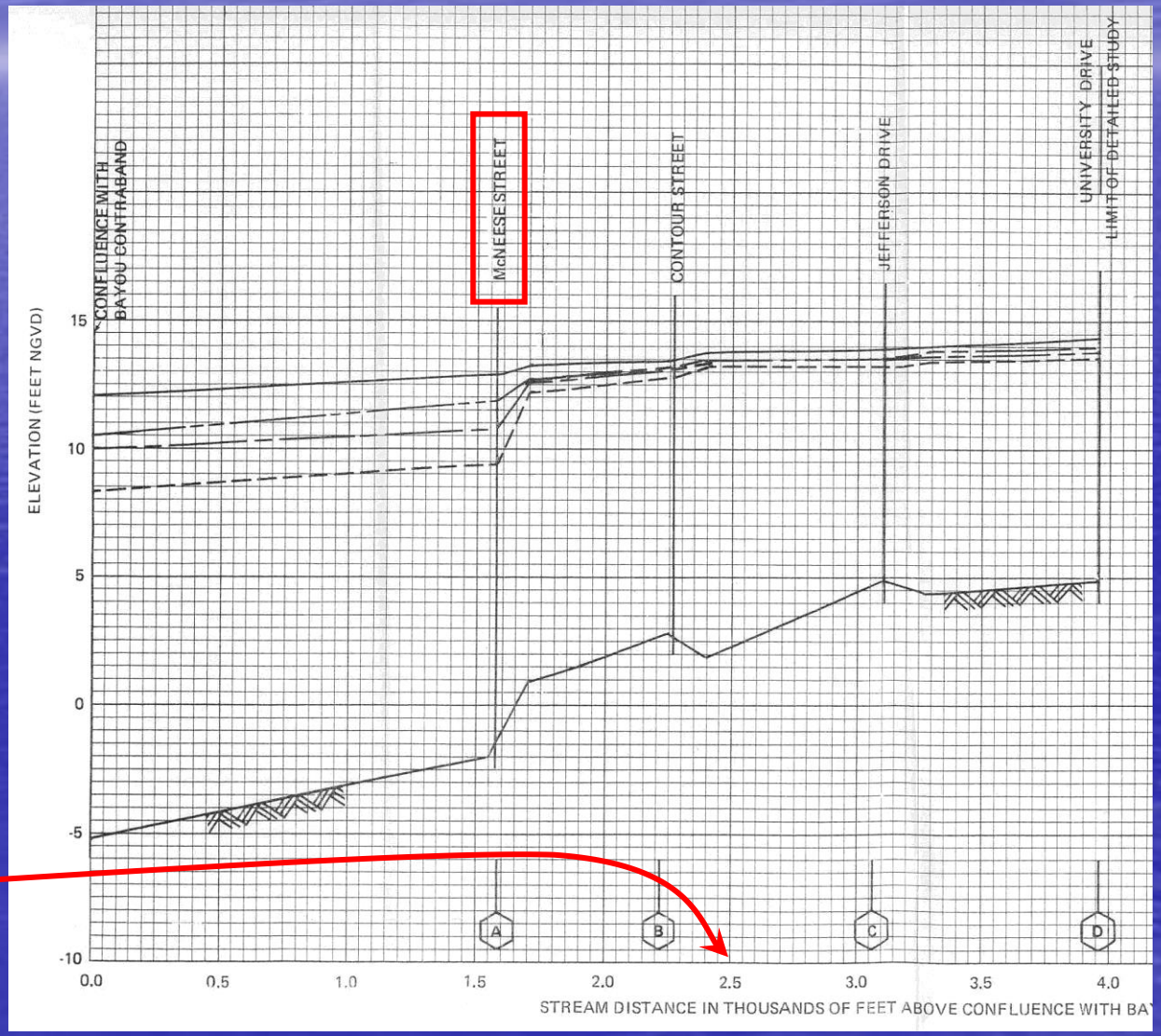


Flood Insurance Studies (cont.)

Using the Profile

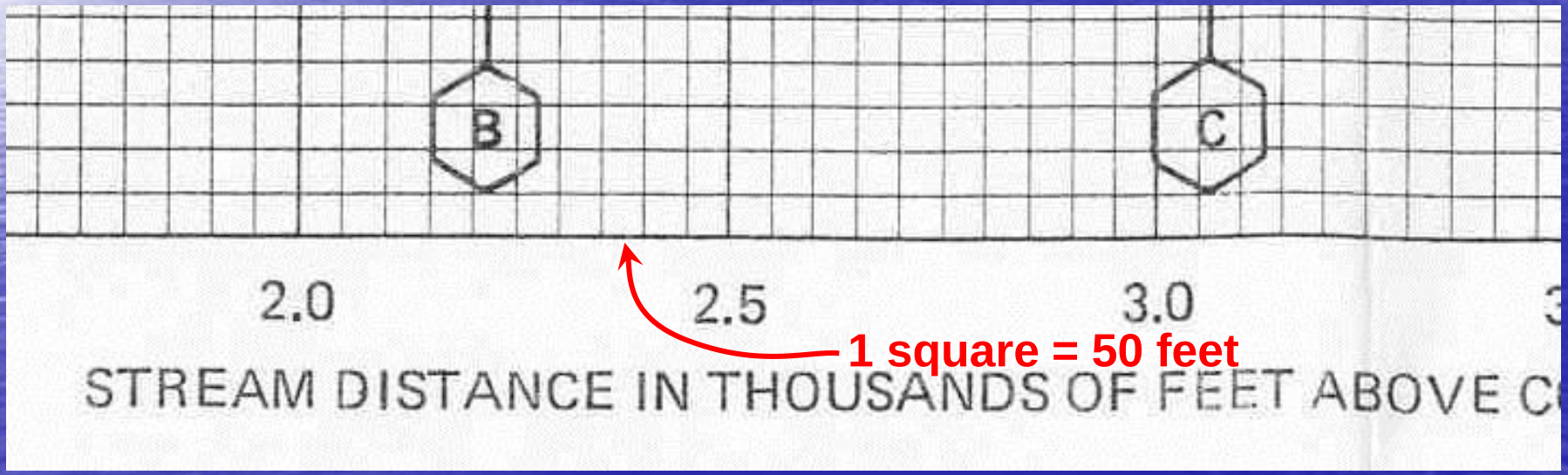
3. Find the feature on the profile

4. Check the horizontal scale on the profile



Flood Insurance Studies (cont.)
Using the Profile

Check the horizontal scale on the profile



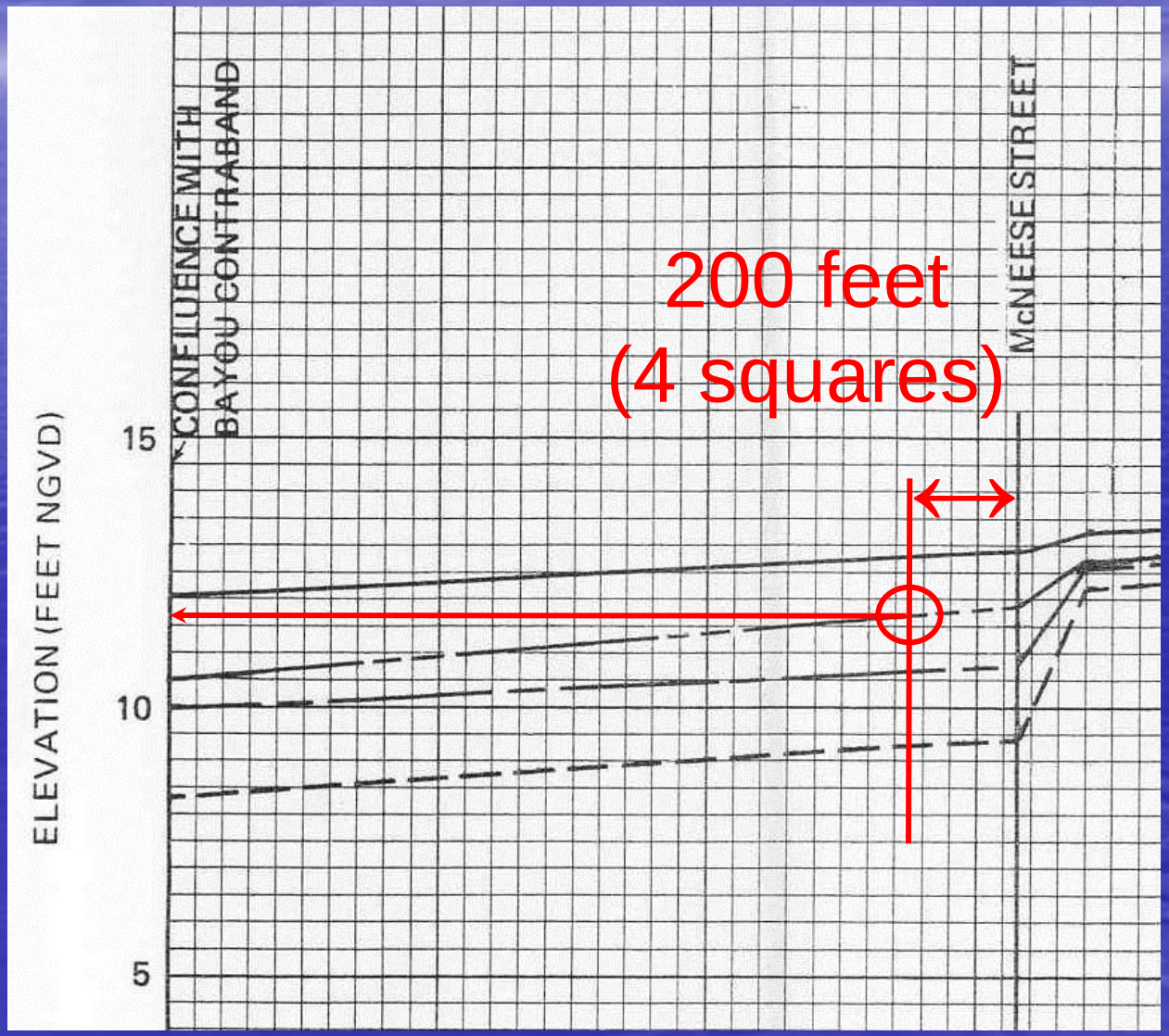
200 feet = 4 squares

Flood Insurance Studies (cont.)

Using the Profile

4. Measure the distance to the site

5. Find the 100-year flood line and read the elevation on the left edge.

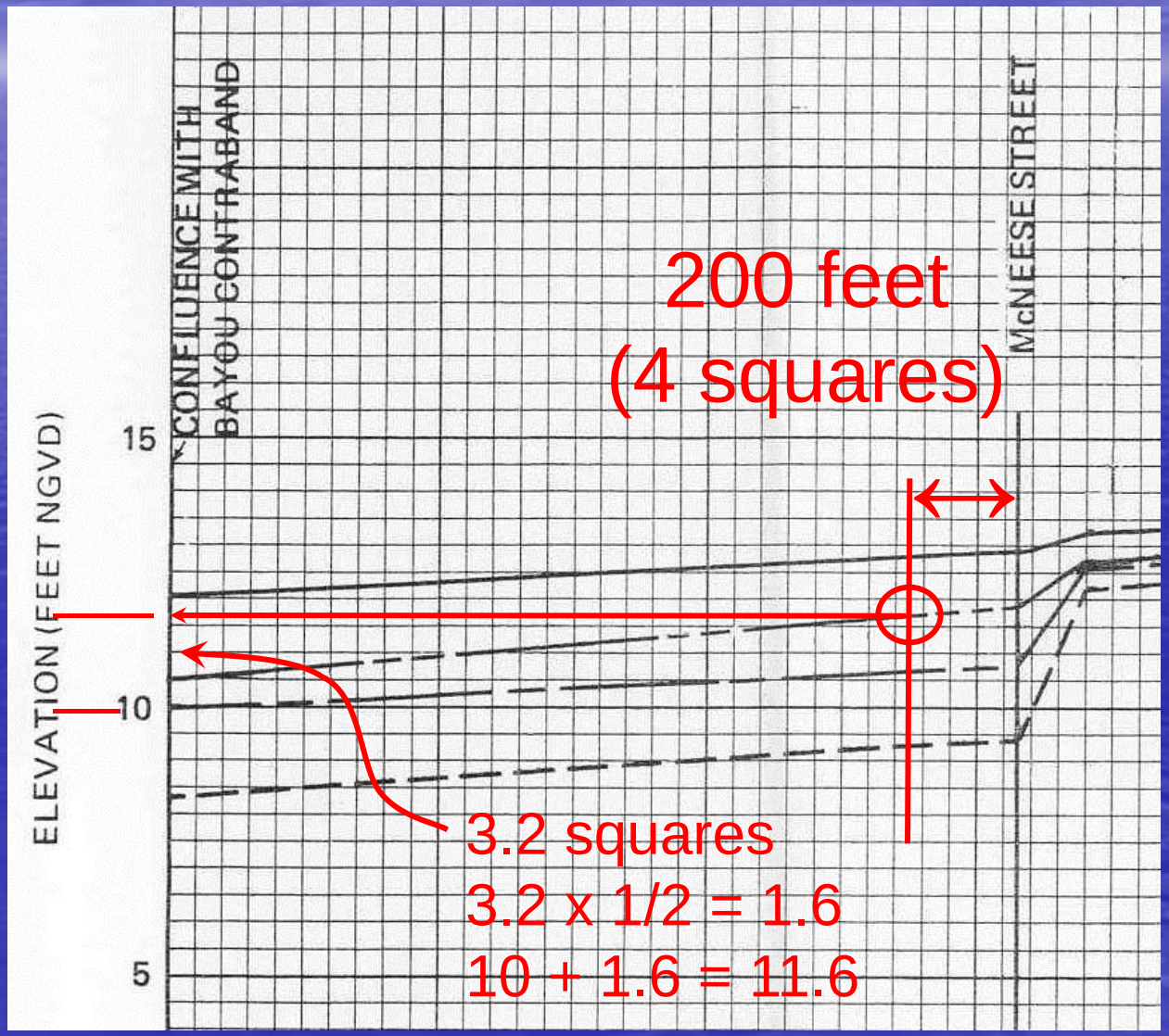


Flood Insurance Studies (cont.)

Using the Profile

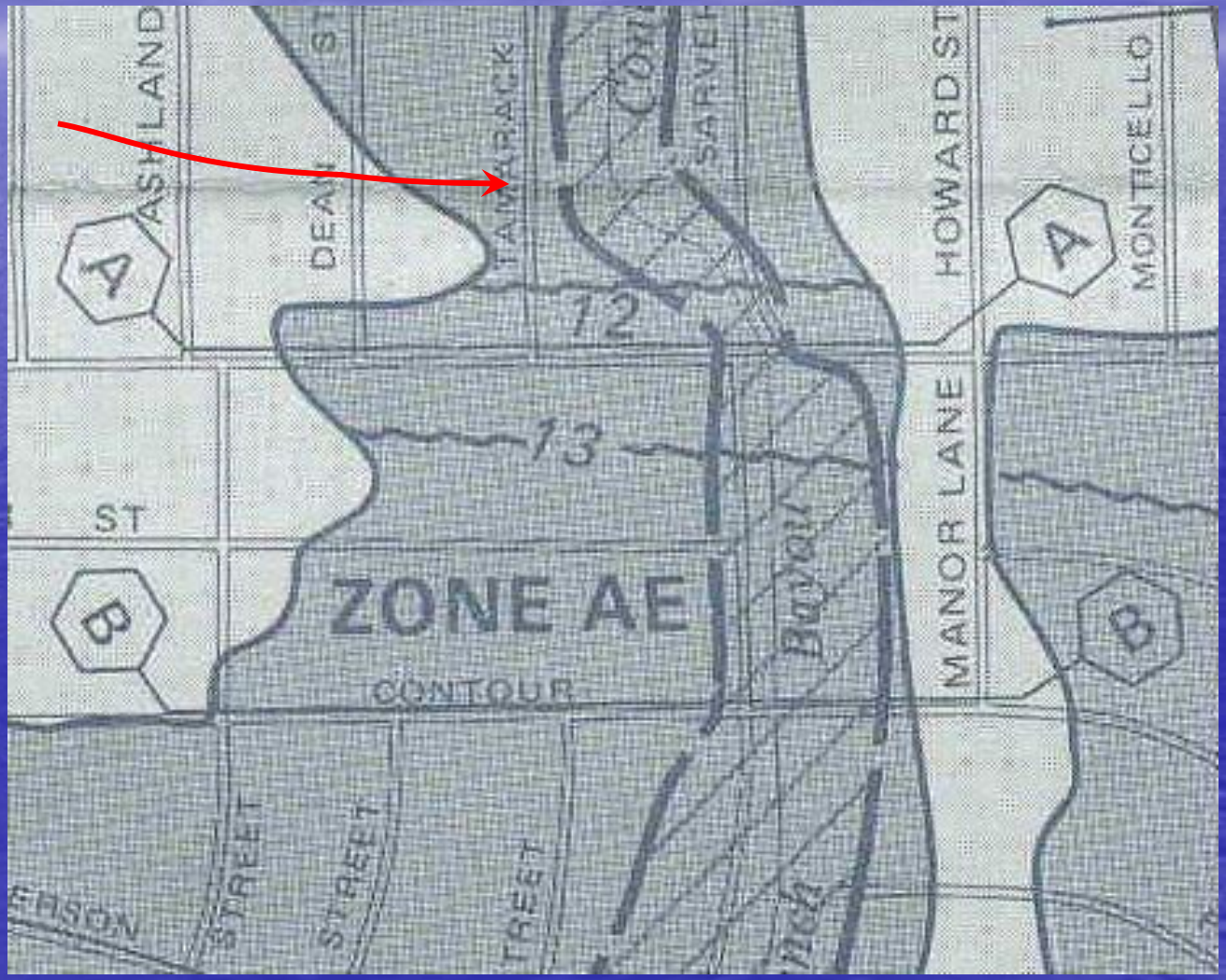
5. Check the scale of the left edge

10 squares = 5 feet, 1 square = ½ foot



Flood Insurance Studies (cont.)
Using the Profile

Double check that the elevation, does it makes sense?



Map Changes

Sometimes the maps are just plain wrong!

Sometimes the floodplains are modified.

There is a process to correct them

Effect of Map Revisions

Map revisions can change SFHA boundaries and Base Flood Elevations in a community.

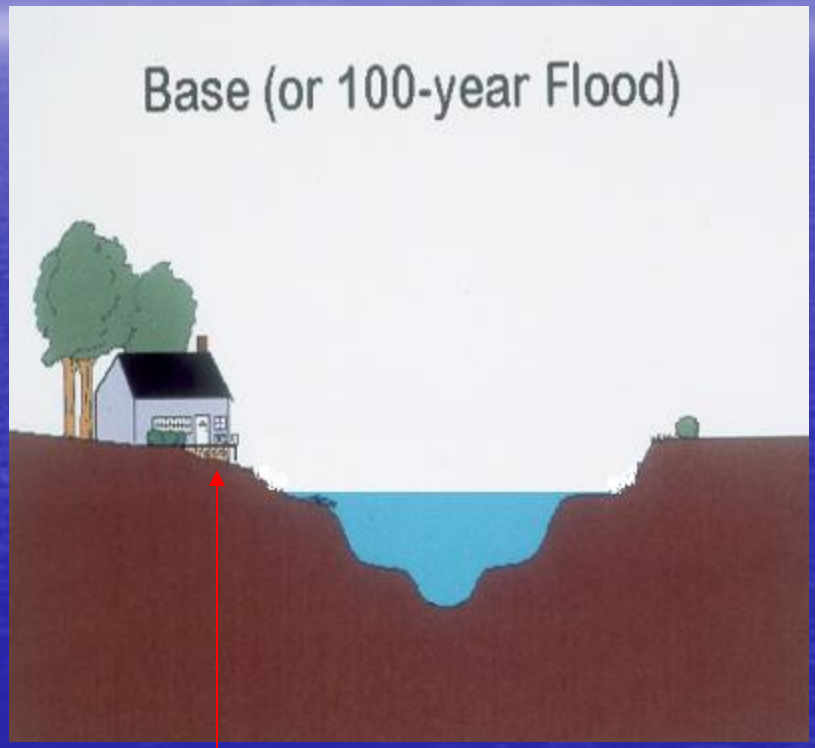
Letter of Map Amendment (LOMA)

A letter from FEMA stating that an existing structure or parcel of land that has not been elevated by fill would not be inundated by the 1% chance flood.

(Fill is defined as material placed to raise the ground to or above the BFE.)

Letter of Map Amendment (LOMA)

House is shown in the floodplain



But NATURAL ground elevations prove it to be higher than the flood elevation

Letter of Map Amendment (LOMA)

Situation:

Structure is located on NATURALLY high ground

Information needed by FEMA:

Completed MT-1 Form 1 (or MT-EZ)

Cost: "free"

MT-EZ

Insurance Program (NFIP) map showing the area in an SFHA is considered natural grade.

LOMA:	A letter from FEMA stating that an existing structure or parcel of land that has not been elevated by fill would not be inundated by the base flood.

A – This section may be completed by the property owner or by the property owner's agent.

1. Has fill been placed on your property?

☐ No ☐ Yes – If Yes, STOP!! – You must complete the MT-1 application forms; visit http://www.fema.gov/fhm/dl_mt-1.shtm or call the FEMA Map Assistance Center toll free: (877-FEMA MAP) (877-336-2627)

2. Legal description of Property (Lot, Block, Subdivision) and street address of the Property (if different from mailing address):

3. Are you requesting that the flood zone designation be removed from (check one):

☐ Your entire legally recorded property?

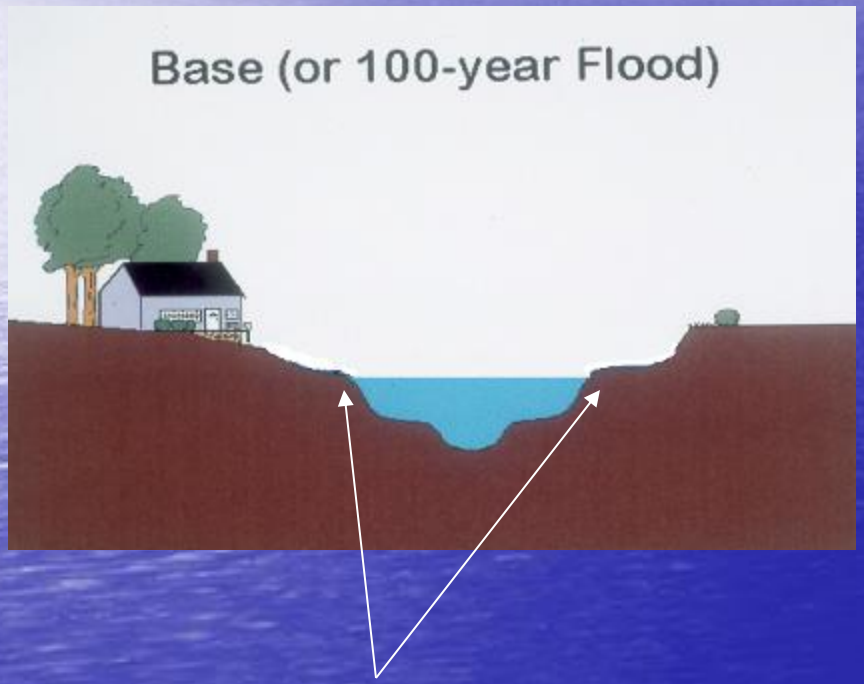
☐ A portion of your legally recorded property? (a metes and bounds description and map of the area to be removed, certified by a registered professional engineer or licensed land surveyor are required)

☐ A structure on your property? What is the date of construction?

Conditional Letter of Map Amendment (CLOMA)

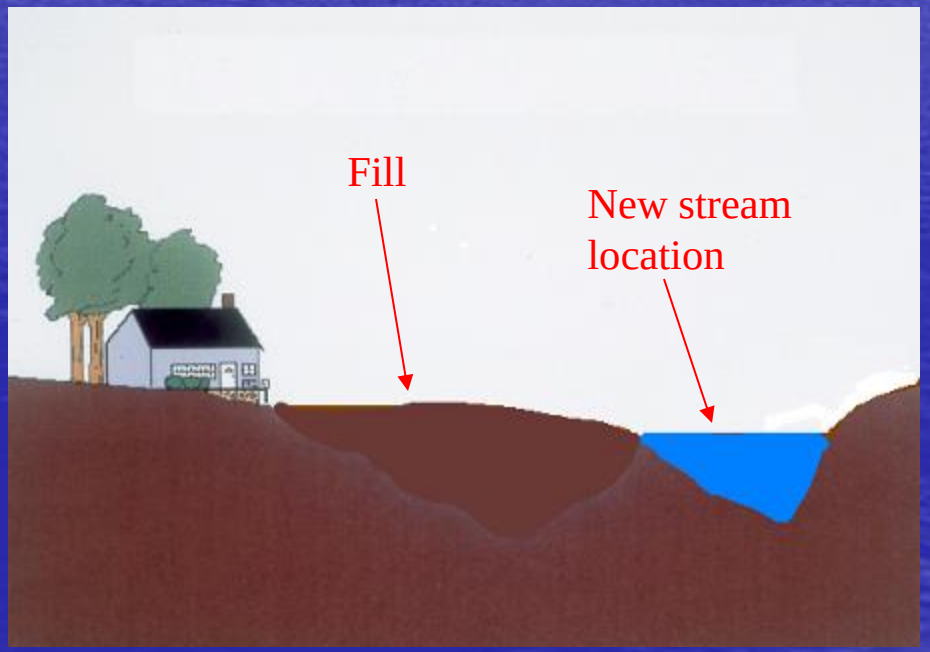
A letter from FEMA stating that a proposed structure that is not to be elevated by fill would not be inundated by the 1% chance flood if built as proposed.

Letter of Map Revision (LOMR)



Floodplain as shown on the floodplain map

New floodplain based on PHYSICAL modification



Letter of Map Revision (LOMR)

Situation:

Physical changes to the floodplain, the floodway, or flood elevations.

Information needed by FEMA:

Detailed engineering and MT-2 Form

Cost: not cheap

Map Change Processes

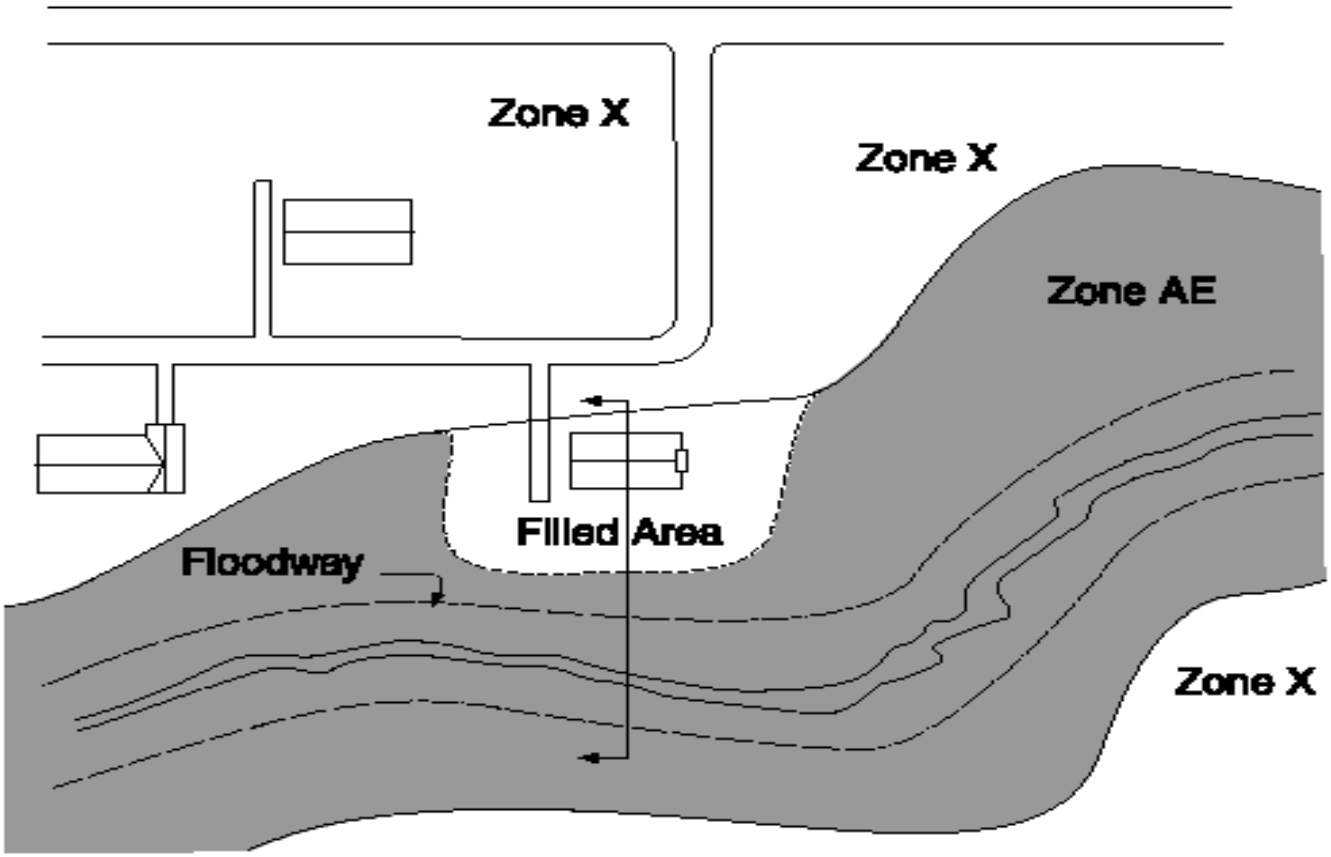
- Fees are charged for proposals to change the FIRM by grading or filling.

- www.fema.gov/fhm.frm_fees.shtm

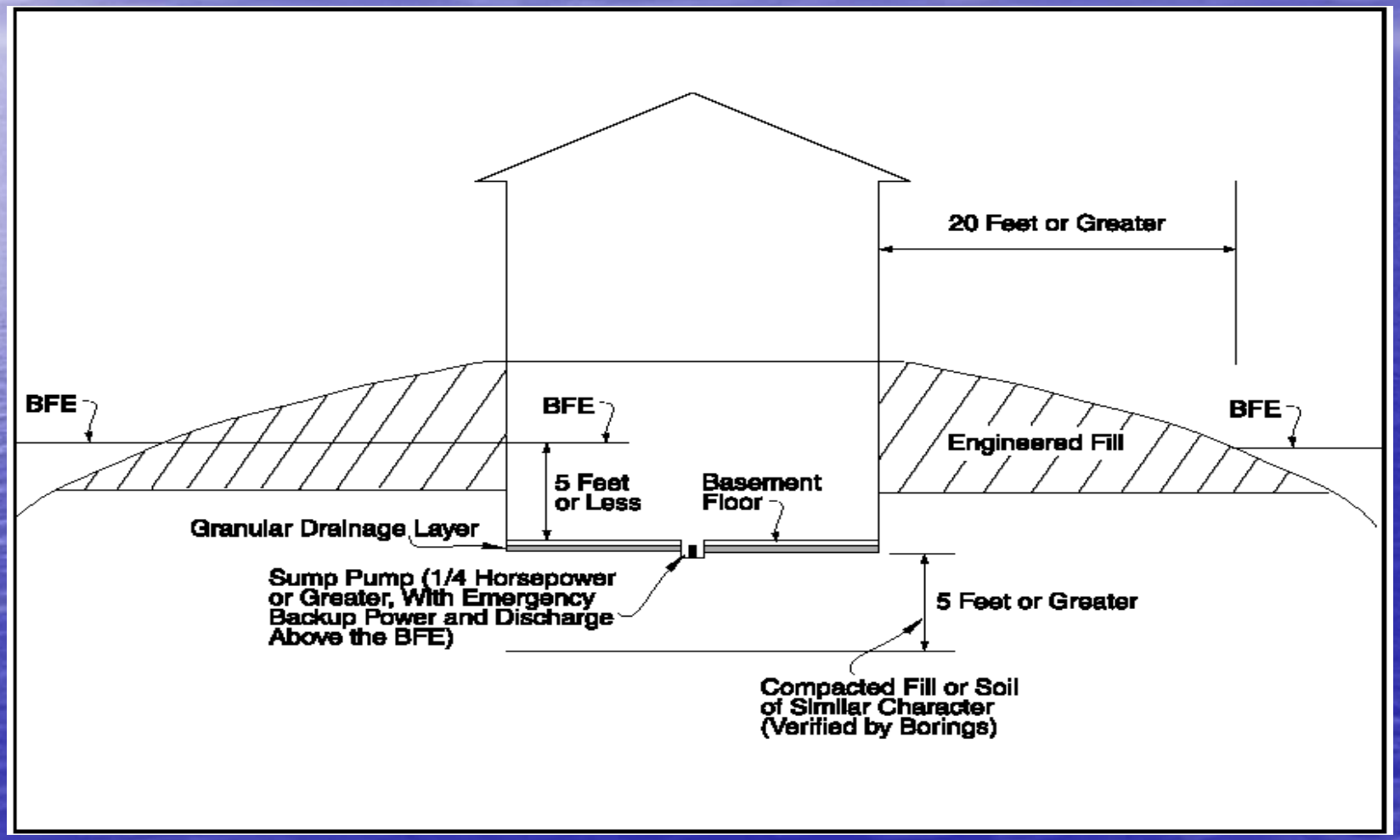
Conditional Letter of Map Revision (Based on Fill) CLOMR-F

A letter from FEMA stating that a parcel of land or proposed structure that is to be elevated fill would not be inundated by the 1% chance flood if fill is placed on the parcel as proposed and the structure is built as proposed.

LOMR-F



Technical Bulletin 10-01



LOMR-F?

Letter of Map Amendment Based on Fill

Effect of Map Revisions

- You must retain all versions of your FIRMs.
- It is a good idea to file a 'FIRMette' with every permit.

Effect of Map Revisions (cont.)

- LOMAs and LOMRs could be invalidated by a map revision.
- Contact your State NFIP Coordinator for the procedures to pass on to the affected citizens.

Effect of Map Revisions (cont.)

- SFHA increases…new areas are subject to your ordinance.
- Buildings in new SFHA are now subject to the mandatory purchase of flood insurance.

Letter of Determination Review

- When a borrower and lender disagree on a floodplain determination during the loan process, FEMA can review the determination.
- FEMA has 45-days to respond, and, by law, FEMA's determination is final.

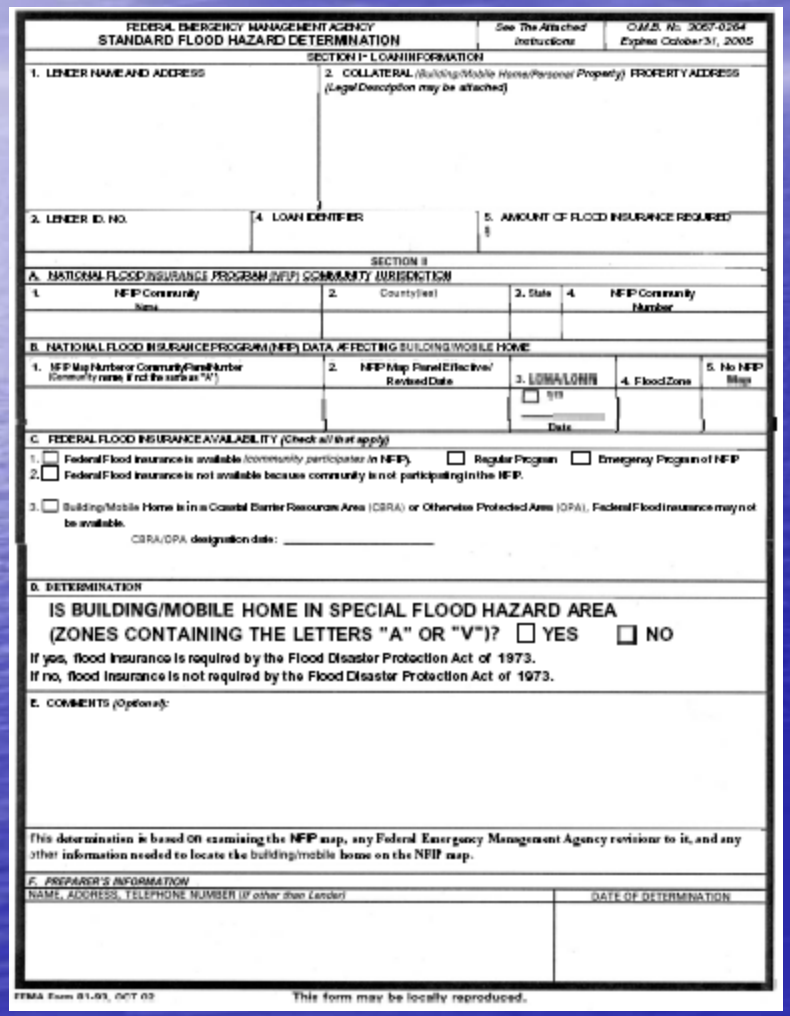
My lending institution said I'm in the floodplain and they require flood insurance on my loan/mortgage. I don't believe I'm in a flood zone. What can I do?

All federally regulated lending institutions must review the community Flood Insurance Rate Map (FIRM) to determine if your structure is located in a Special Flood Hazard Area (SFHA). If such a determination is made, it must require the borrower to purchase flood insurance. These determinations are based on in/out (horizontal) and do not involve the vertical elevation of the structure.

If you disagree, you may request that FEMA review the lender's determination. FEMA will review the information that the institution used and issue a letter of findings. Your request (FEMA Standard Flood Hazard Determination) must be postmarked no later than 45 days after the lender notifies you of its determination. FEMA's responses to these requests are called LODRs and offer two basic dispositions: (1) the lender's determination stands or (2) it is overturned. FEMA's response does not amend or revise the NFIP map for your community.

Occasionally, a lending institution may require insurance if it determines that a part of your lot is in the SFHA. The NFIP does not insure land. However, even if you submit evidence that your building is out of the floodplain, the lender may still decide to require flood insurance on your building.

Letter of Determination Review (cont.)



FEDERAL EMERGENCY MANAGEMENT AGENCY
STANDARD FLOOD HAZARD DETERMINATION

See The Attached Instructions

O.M.B. No. 3067-0264
Expires October 31, 2005

SECTION I - LOAN INFORMATION

1. LENDER NAME AND ADDRESS

2. COLLATERAL (Building/Mobile Home/Personal Property) PROPERTY ADDRESS (Legal Description may be attached)

3. LENDER ID. NO.

4. LOAN IDENTIFIER

5. AMOUNT OF FLOOD INSURANCE REQUIRED $

SECTION II

A. NATIONAL FLOOD INSURANCE PROGRAM (NFIP) COMMUNITY JURISDICTION

1. NFIP Community Name	2. County(ies)	3. State	4. NFIP Community Number

B. NATIONAL FLOOD INSURANCE PROGRAM (NFIP) DATA AFFECTING BUILDING/MOBILE HOME

1. NFIP Map Number or Community Panel Number (Community name, if not the same as "A")	2. NFIP Map Panel Effective/ Revised Date	3. LOMA/LOMR ☐ Yes Date	4. Flood Zone	5. No NFIP Maps

C. FEDERAL FLOOD INSURANCE AVAILABILITY (Check all that apply)

1. ☐ Federal Flood insurance is available (community participates in NFIP). ☐ Regular Program ☐ Emergency Program of NFIP
2. ☐ Federal Flood insurance is not available because community is not participating in the NFIP.
3. ☐ Building/Mobile Home is in a Coastal Barrier Resources Area (CBRA) or Otherwise Protected Area (OPA). Federal Flood insurance may not be available.
CBRA/OPA designation date: _____

D. DETERMINATION

IS BUILDING/MOBILE HOME IN SPECIAL FLOOD HAZARD AREA (ZONES CONTAINING THE LETTERS "A" OR "V")? ☐ YES ☐ NO

If yes, flood insurance is required by the Flood Disaster Protection Act of 1973.
If no, flood insurance is not required by the Flood Disaster Protection Act of 1973.

E. COMMENTS (Optional):

This determination is based on examining the NFIP map, any Federal Emergency Management Agency revisions to it, and any other information needed to locate the building/mobile home on the NFIP map.

F. PREPARER'S INFORMATION

NAME, ADDRESS, TELEPHONE NUMBER (If other than Lender)	DATE OF DETERMINATION

FEMA Form 81-93, OCT 02 This form may be locally reproduced.

Flood Map Modernization

- FEMA 5-year, $1 billion national program
- FEMA sets the schedule and the funding -- annually updated in the Multi-Year Flood Hazard Identification Plan

Map Mod Objectives

- More accurate floodplain management
- Up-to-date, standardized digital flood maps throughout the country
- ArcGIS geo-database format
- Seamless, nationwide flood layer
- Internet-accessible through FEMA's Multihazard Information Platform (MIP)

Advantages of DFIRMs

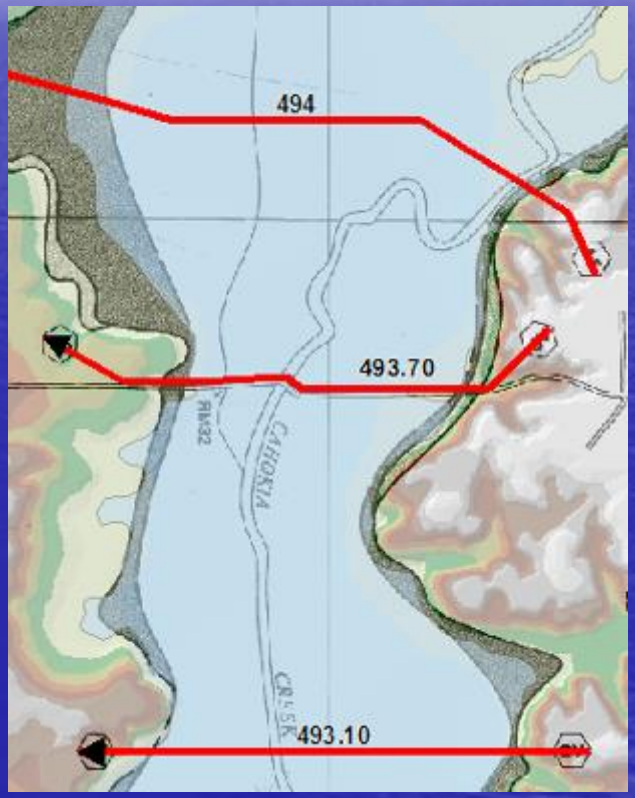
- Map revisions will be faster and easier – months instead of years
- Communities will be able to use the digital flood map data with their local data, such as parcel data
- The new flood risk maps will cover entire counties
- If a community is located in more than one county, it will be mapped only to the county border

Local Participation

- Share base map data
- Review current maps for errors
- Provide information on new studies or floodplain changes that may affect BFEs
- Document future mapping needs
- Review preliminary maps
- Collect and submit appeals & protests
- Adopt final maps and update local floodplain ordinance

Mapping Process Convert FIRM

- Register (align) existing FIRM to the community base map
- Digitize flood data (floodplain boundaries, cross sections, BFEs, etc.)
- Convert to NAVD 1988 vertical datum
- Incorporate LOMCs

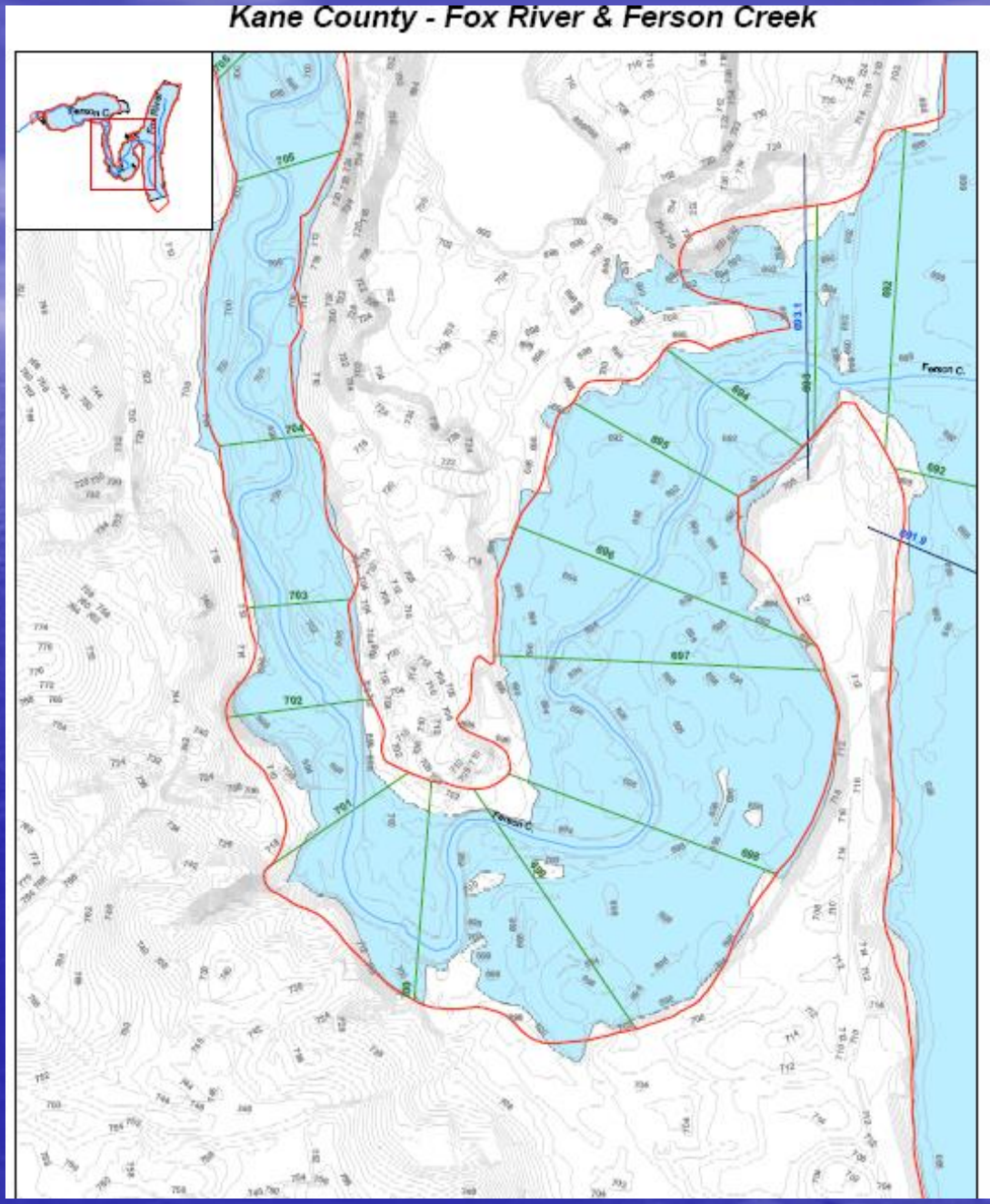


Mapping Process
Correct and Update

- Validate cross section locations using FIS profile data
- Align floodplains with stream locations on base map (Zone A)
- Correct and update municipal boundaries and road, stream and lake names

Example

Redelineation



Redelineated SFHA

Original FIRM SFHA

Cross section

Base flood elevation

LIDAR-contour lines

What About Areas That Need Study?

- Part of the scoping process is to identify the mapping needs of a county
  - Areas where flood risk needs to be identified (never studied)
  - Areas where flood risk needs to be refined because of changes in hydrology or hydraulics—new bridges, culverts, etc.
  - Any other community mapping issue
- These will be prioritized for future flood studies

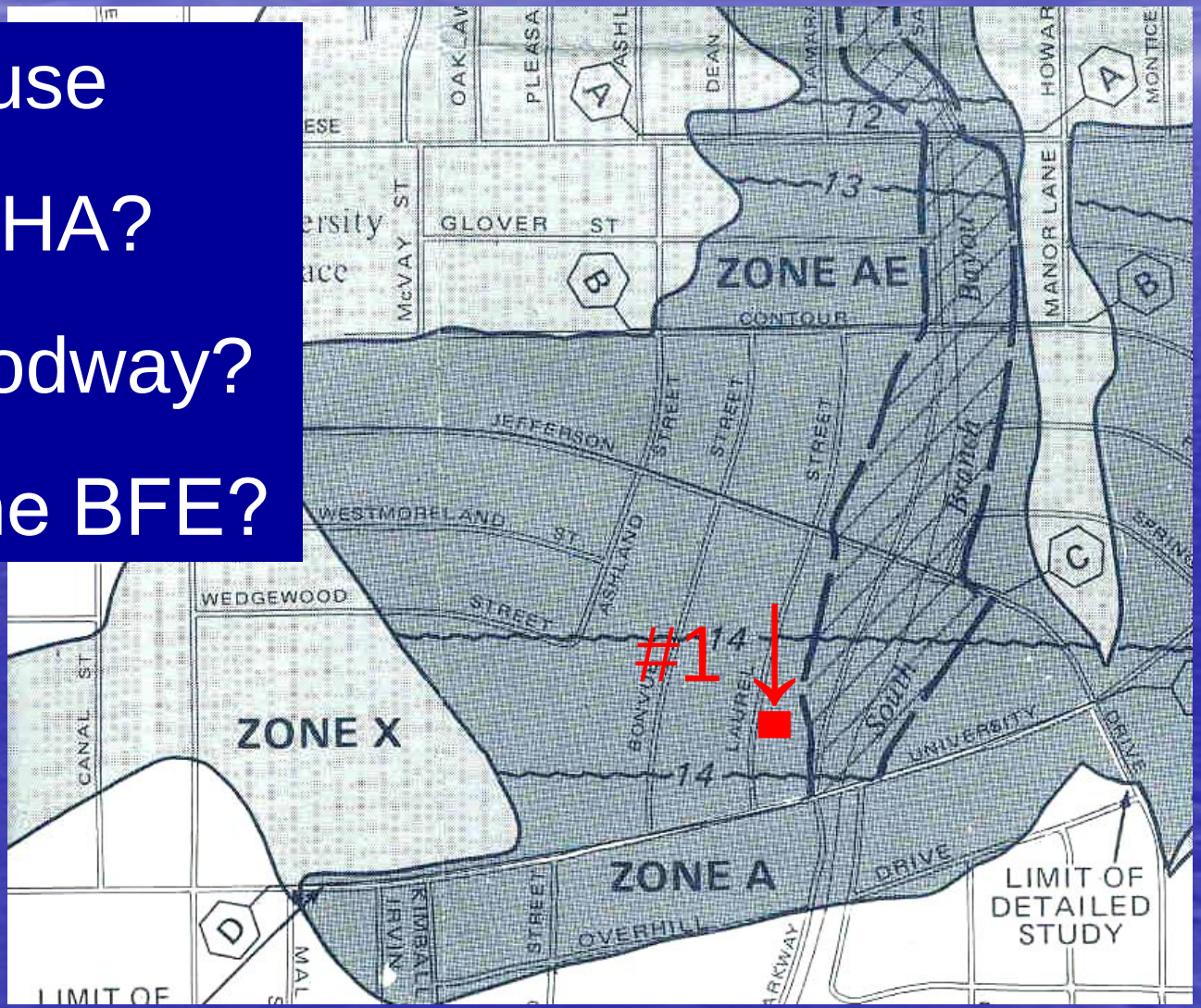
To Do Now

- Review current maps and note
  - Corrections
  - Changes that could affect BFEs on studied streams
  - New flood studies
  - Mapping needs
- Identify and complete any study needs.
- Have base maps ready for use.

Using Maps and Data

Site #1. House

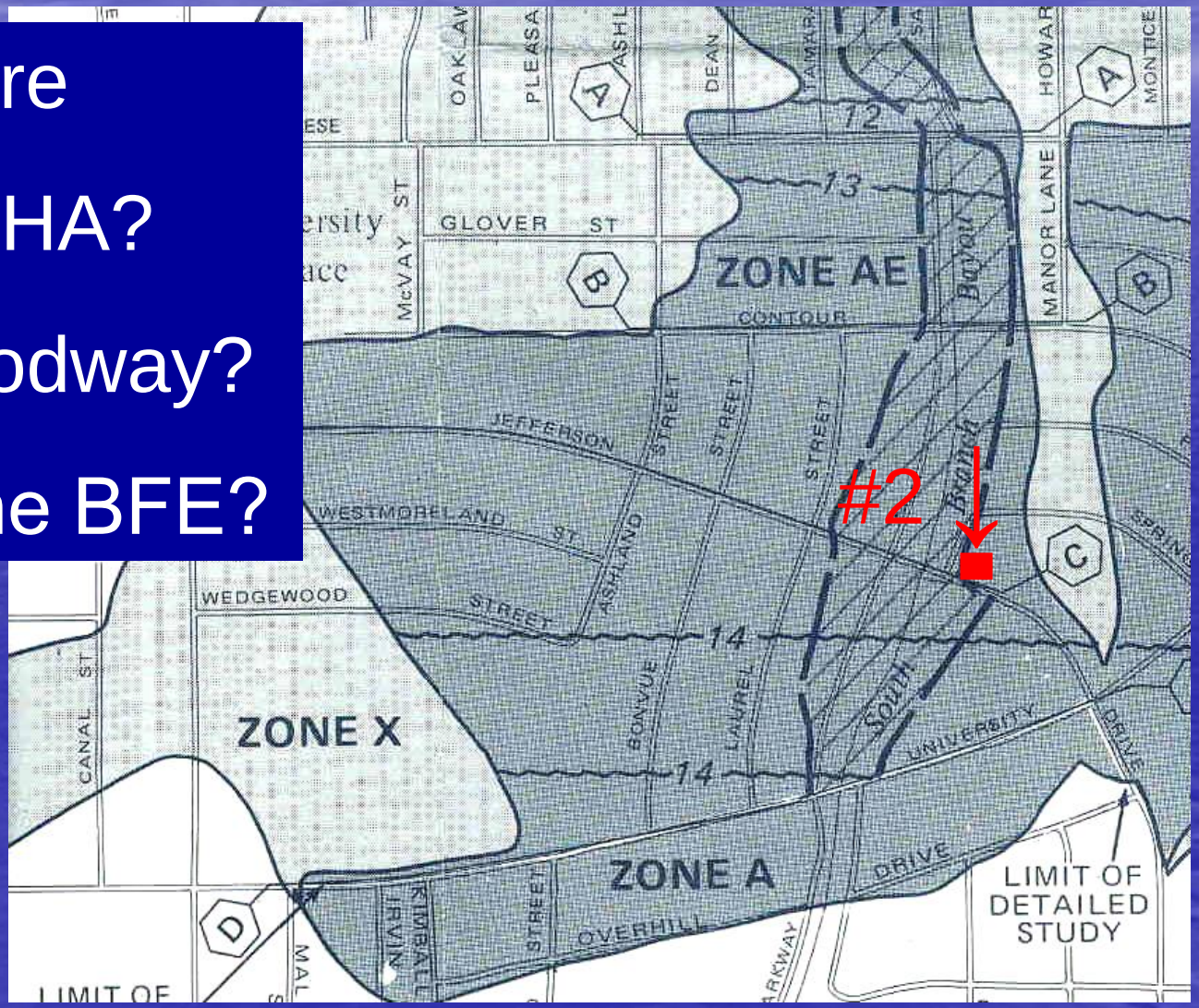
1. In the SFHA?
2. In the floodway?
3. What's the BFE?



Using Maps and Data

Site #2. Store

1. In the SFHA?
2. In the floodway?
3. What's the BFE?



Using Maps and Data

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
South Branch Bayou Contraband								
A	1,584[1]	100	300	7.1	11.9	11.9	12.5	0.6
B	2,217[1]	300	1,060	2.0	13.1	13.1	14.1	1.0
C	3,062[1]	450	1,190	1.5	13.6	13.6	14.6	1.0
D	3,960[1]	300	750	1.9	13.9	13.9	14.9	1.0
Pithon Coulee								
A	158[2]	120	1,450	2.0	9.1	8.1[3]	9.1	1.0
B	1,108[2]	50	440	6.7	9.1	8.1[3]	9.1	1.0
C	2,851[2]	500	2,670	0.9	10.0	10.0	11.0	1.0
Little Bayou								
A	1,056[1]	200	2,040	1.5	9.4	7.9[3]	8.9	1.0
B	2,798[1]	150	970	3.2	9.4	8.1[3]	9.1	1.0
C	2,904[1]	400	1,930	1.6	9.4	8.5[3]	9.5	1.0
D	4,382[1]	400	1,030	3.0	9.4	8.8[3]	9.8	1.0

[1]Feet above confluence with Bayou Contraband
[2]Feet above confluence with Calcasieu River (Lake Charles)
[3]Elevation computed without consideration of backwater effects from Calcasieu River (Lake Charles)

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF LAKE CHARLES, LA

(CALCASIEU PARISH)

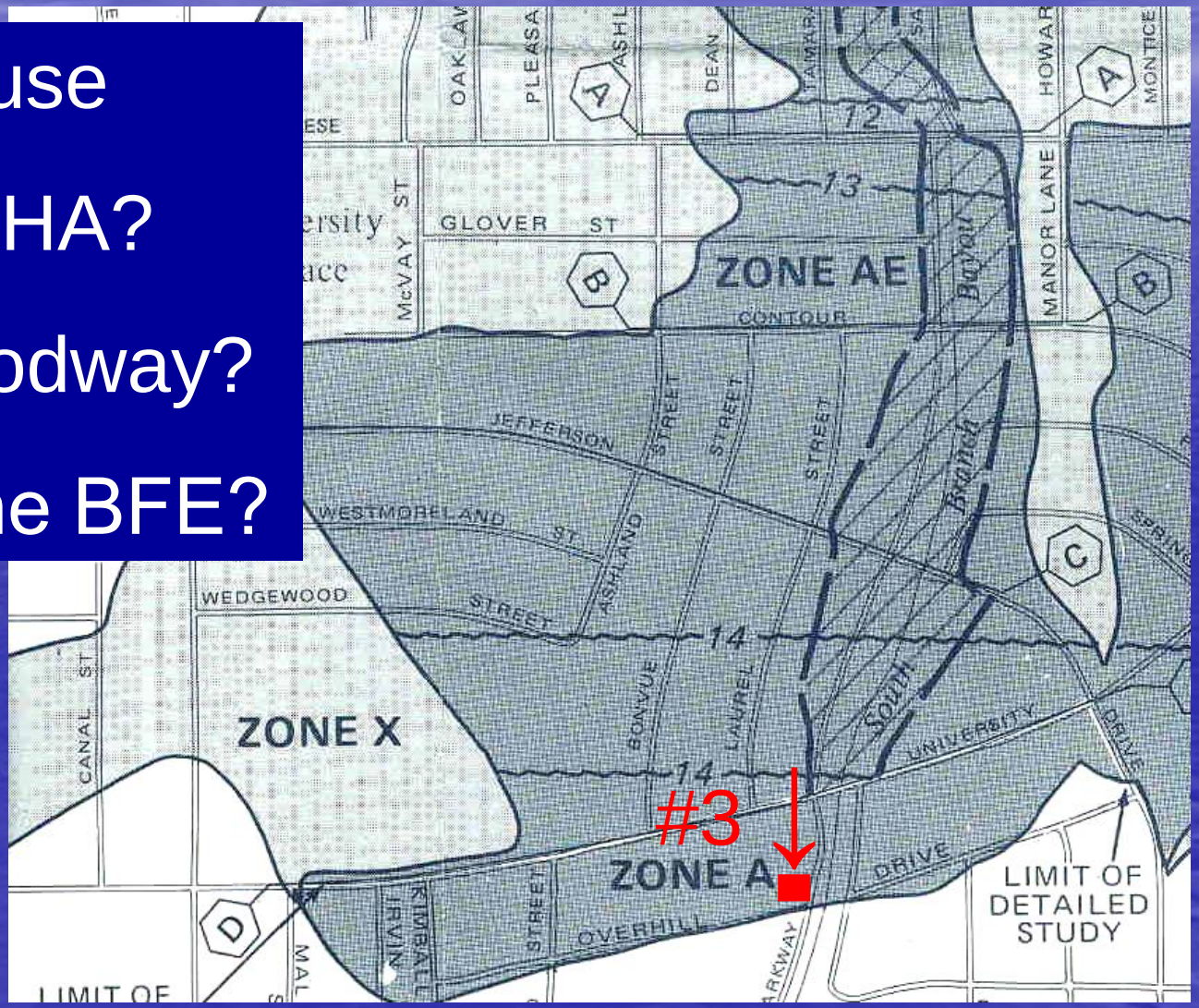
FLOODWAY DATA

SOUTH BRANCH BAYOU CONTRABAND, PITHON COULEE AND LITTLE BAYOU

Using Maps and Data

Site #3. House

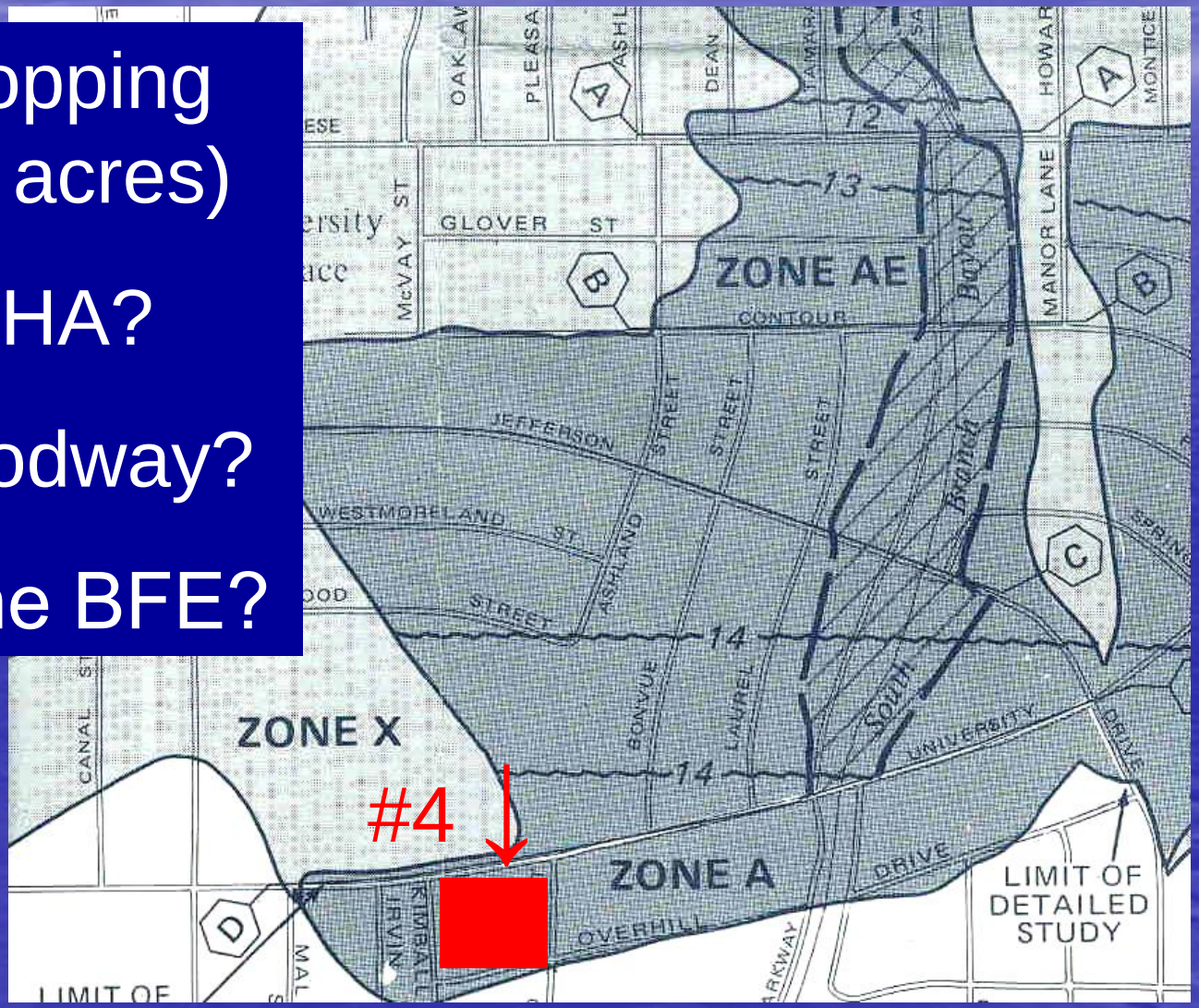
1. In the SFHA?
2. In the floodway?
3. What's the BFE?



Using Maps and Data

Site #4. Shopping center (7 acres)

1. In the SFHA?
2. In the floodway?
3. What's the BFE?



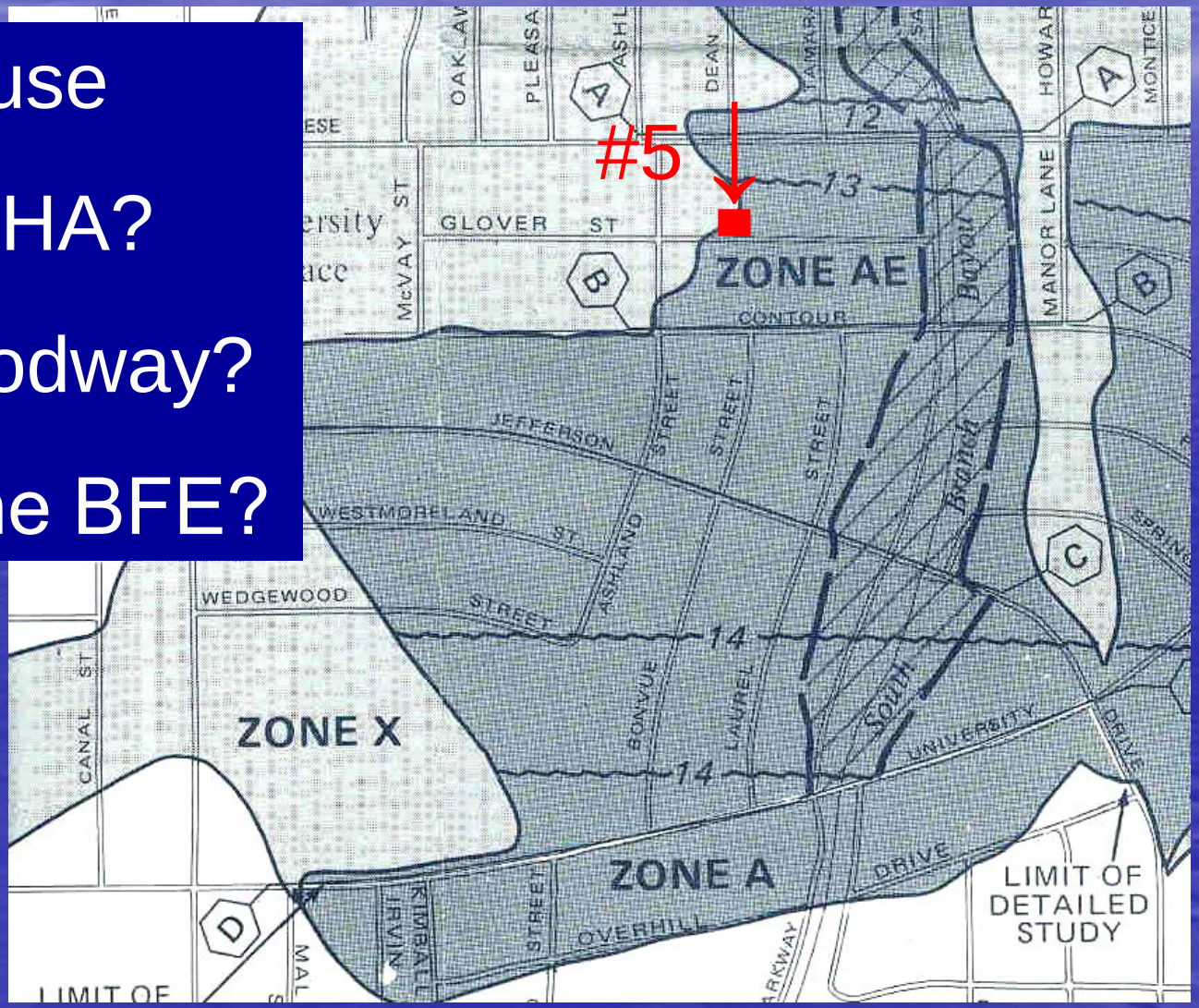
Using Maps and Data

Site #5. House

1. In the SFHA?

2. In the floodway?

3. What's the BFE?



Using Maps and Data

New flood studies

Managing Floodplain Development in Approximate Zone A Areas