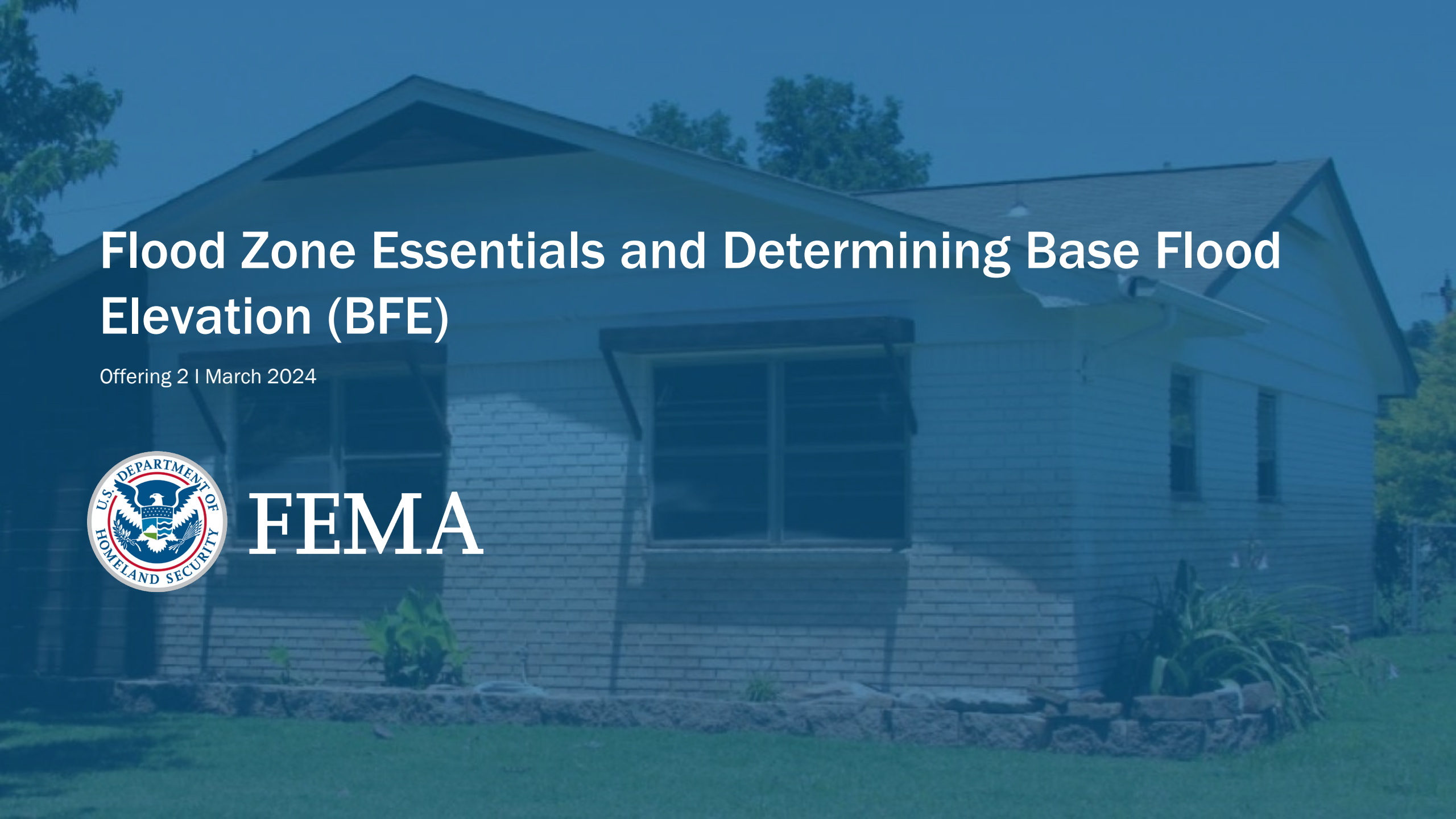


Flood Zone Essentials and Determining Base Flood Elevation (BFE)

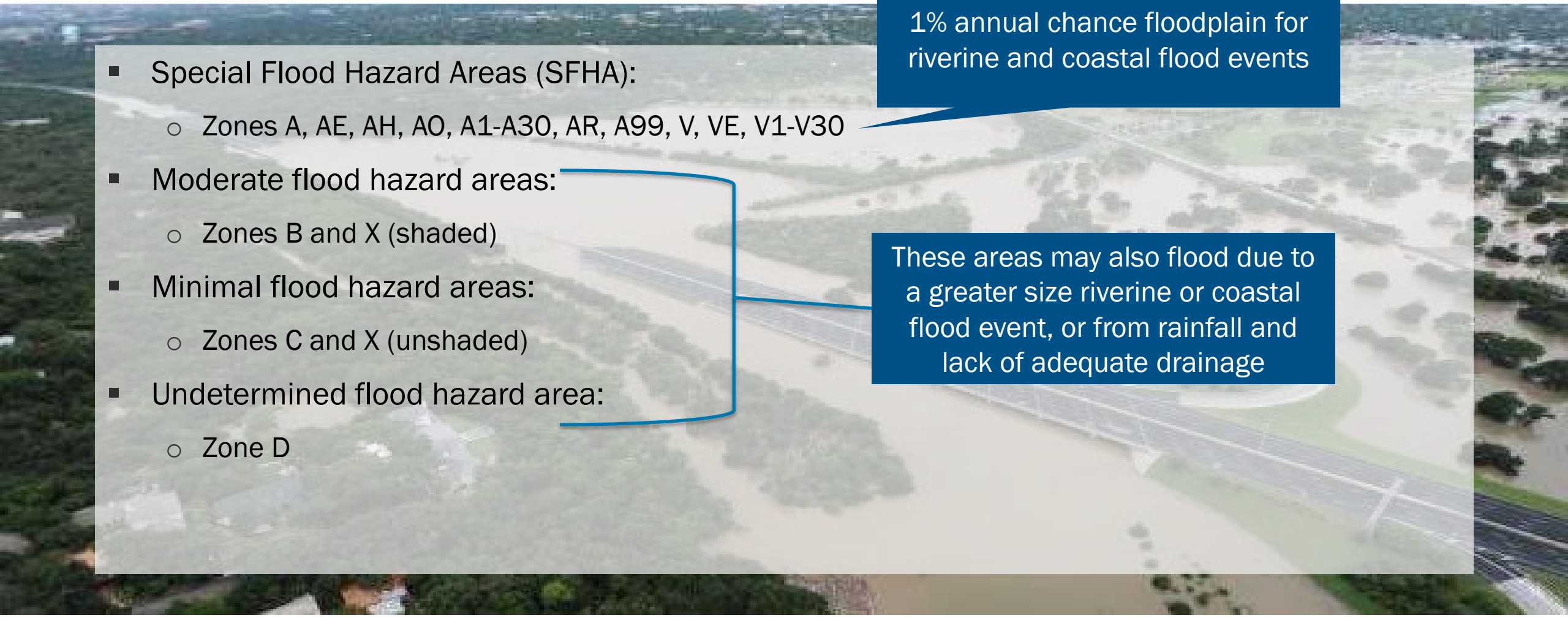
Offering 2 I March 2024

FEMA

Learning objectives

- Learn about FEMA's flood maps and flood zones.
- Determine if a structure is in/out of the special flood hazard area (SFHA).
- Determine sources of BFE for structures based on location.
- View follow up resources.

Flooding can happen & does happen in all flood zones



- Special Flood Hazard Areas (SFHA):
  - Zones A, AE, AH, AO, A1-A30, AR, A99, V, VE, V1-V30
- Moderate flood hazard areas:
  - Zones B and X (shaded)
- Minimal flood hazard areas:
  - Zones C and X (unshaded)
- Undetermined flood hazard area:
  - Zone D

1% annual chance floodplain for riverine and coastal flood events

These areas may also flood due to a greater size riverine or coastal flood event, or from rainfall and lack of adequate drainage

Special Flood Hazard Areas (SFHAs): All Zones A & V

- **Minimum Federal Floodplain Management Regulations**
  - *Require permits for all proposed construction and other developments.*
  - *Require that all new construction and substantial improvements of residential structures… have the lowest floor or lowest horizontal structural member…elevated to or above the base flood level.*
  - *Find additional requirements at 44 CFR 60.3 and in your local floodplain ordinance.*
- **Mandatory Purchase of Flood Insurance**
  - *Flood insurance is mandatory for all federally-backed mortgages in the SFHA. Federal agencies are prohibited from providing loans and grants to any property located in a special flood hazard area unless the property is covered by flood insurance.*

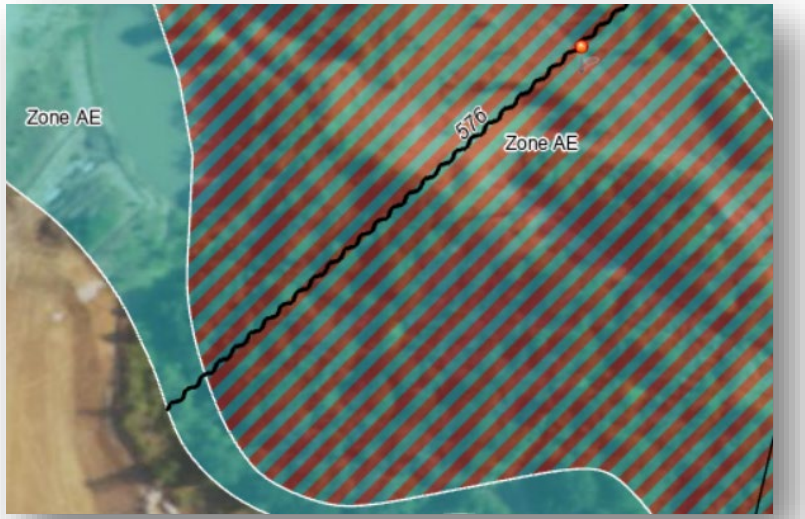
FEMA

Zones A, and AE with and without Floodway

Zone A

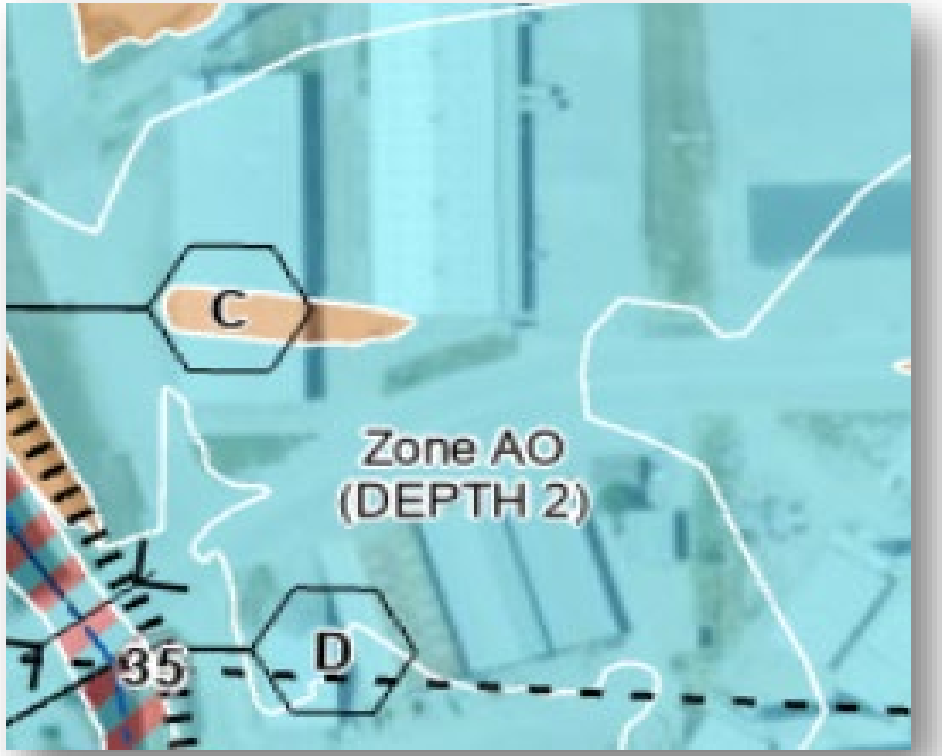
Zone AE without Floodway

Zone AE with Floodway



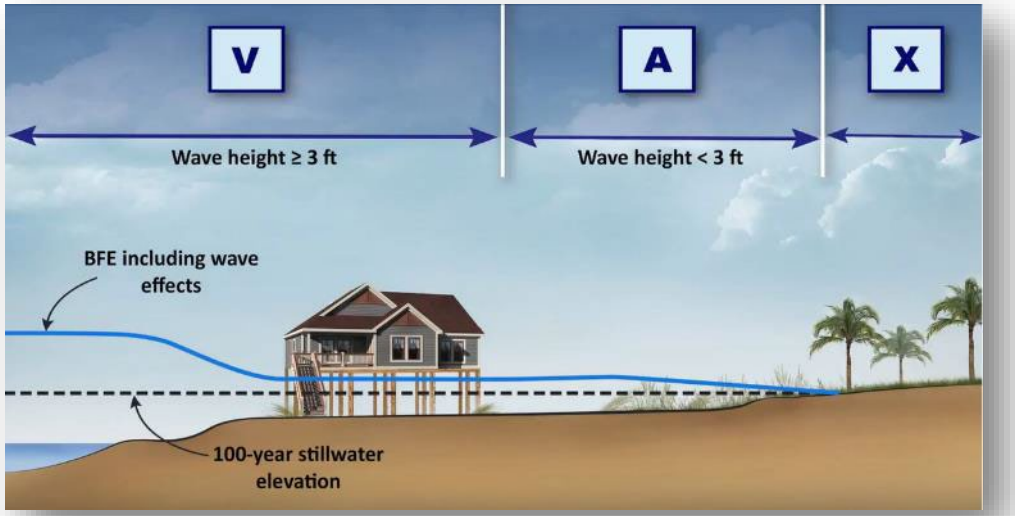
Zones AO and AH

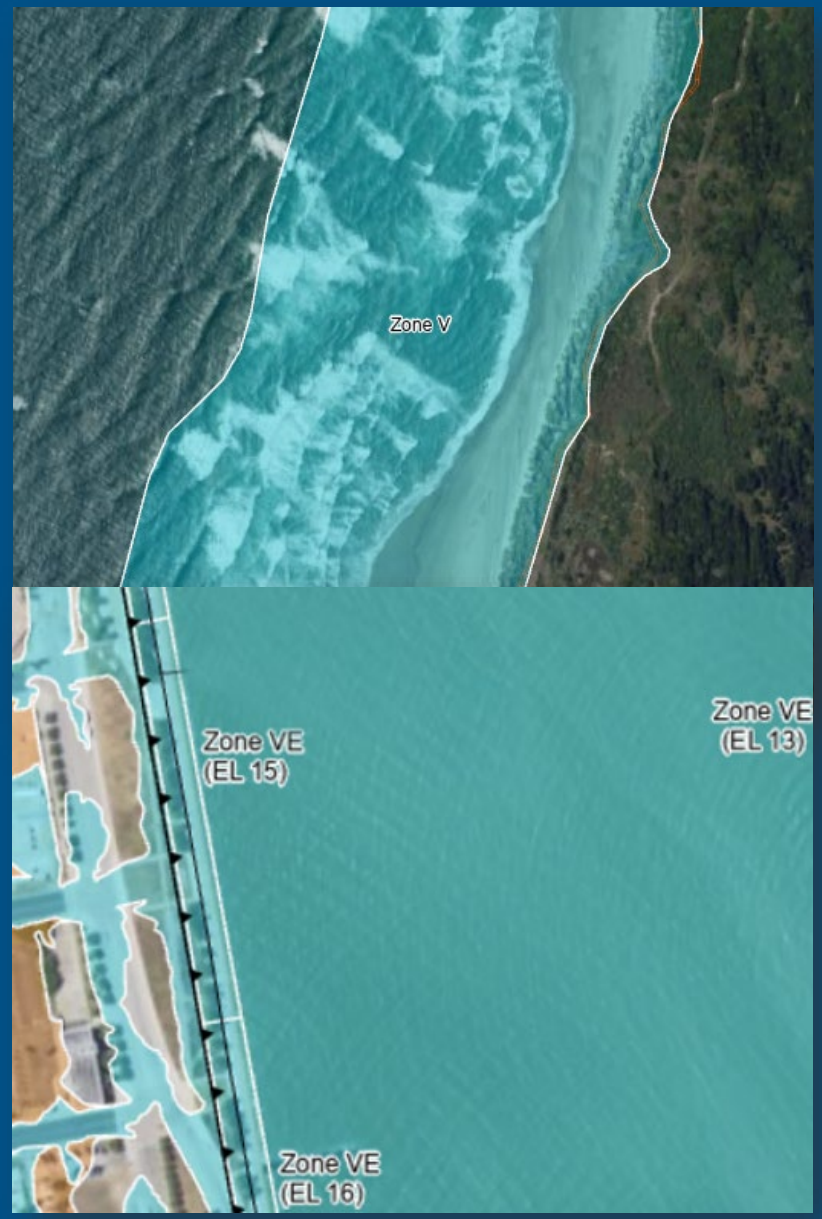
Zone AO



Zone AH

Coastal areas





FEMA

When structures cross flood zones or BFE boundaries

If a structure is partially in two or more zones, choose the more restrictive zone and BFE.

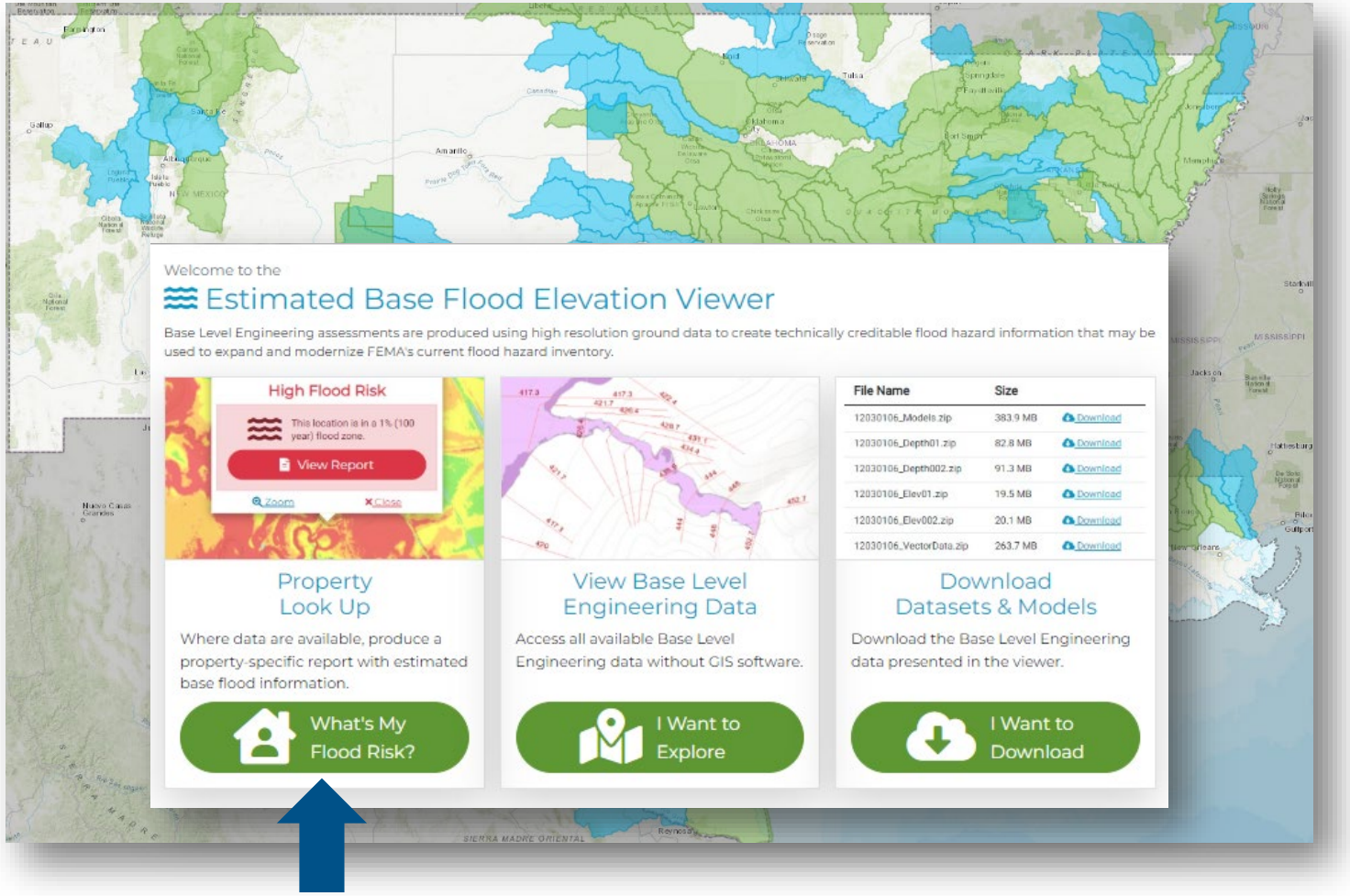
Where To Find BFE

Zone A - potential data sources for BFE (community's responsibility)

- Utilize Best Data Available
  - Base Level Engineering (BLE)
  - US Army Corps Engineers (USACE)
  - Historical Flooding High Water Marks
  - Infrastructure Pre-Existing Engineering
- Require New Data
  - 50 lots/ 5 acres
  - Require Engineering Analysis

  - FEMA Publication 265 – Managing Floodplain Development in Approximate Zone A Areas

Estimated Base Flood Elevation (estBFE) Viewer



Click HERE for the estBFE Viewer.

Available

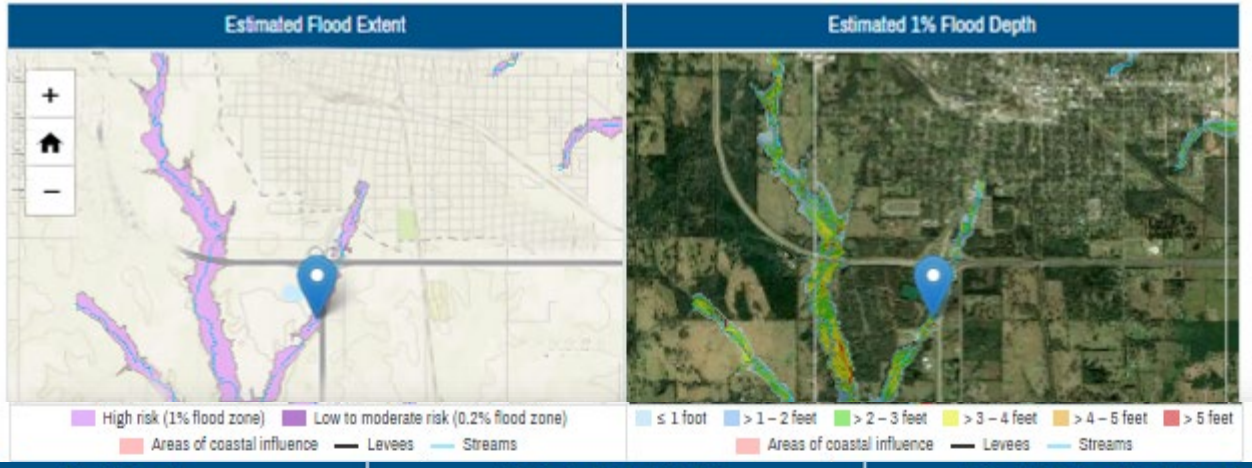
In Progress

Estimated Base Flood Elevation (estBFE)

FEMA

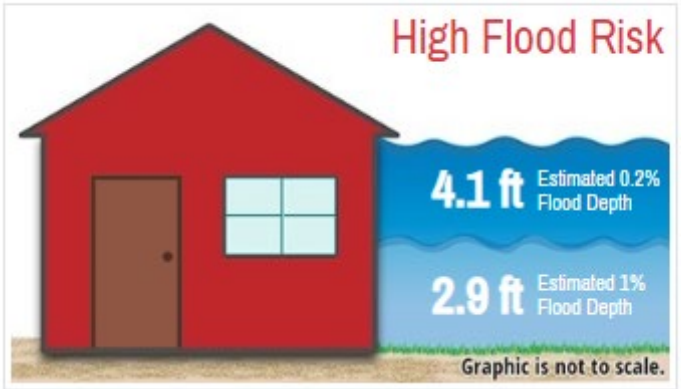
Flood Risk Information Report

FEMA is providing a look at flood data availability and relative Base Level Engineering analysis through the Estimated Base Flood Elevation Viewer (Estimated BFE Viewer). Base Level Engineering uses high resolution ground elevation data, flood flow calculations, and fundamental engineering modeling techniques to define flood extents for streams. The viewer is an effective tool for property owners, community officials, and land developers to identify flood risk, estimated flood elevations, and flood depths for watersheds where Base Level Engineering has been prepared.



Flood Event	Estimated Flood Depth*	Estimated Base Flood Elevation*
1 Percent (100 Year)	2.9 feet above land surface	496.1 feet NAVD 1988
0.2 Percent (500 Year)	4.1 feet above land surface	497.2 feet NAVD 1988

* The information included in this report is based on the location marker shown in the map. Results are not considered an official determination.



Documenting estimated BFE on the Elevation Certificate (EC)

SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

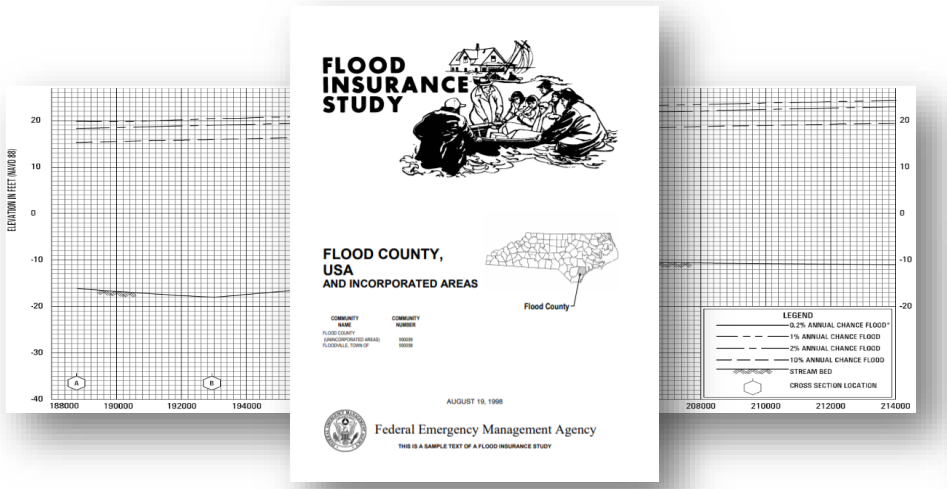
B8. Flood Zone(s): A

B9. Base Flood Elevation(s) (BFE) (Zone AO, use Base Flood Depth): 496.1

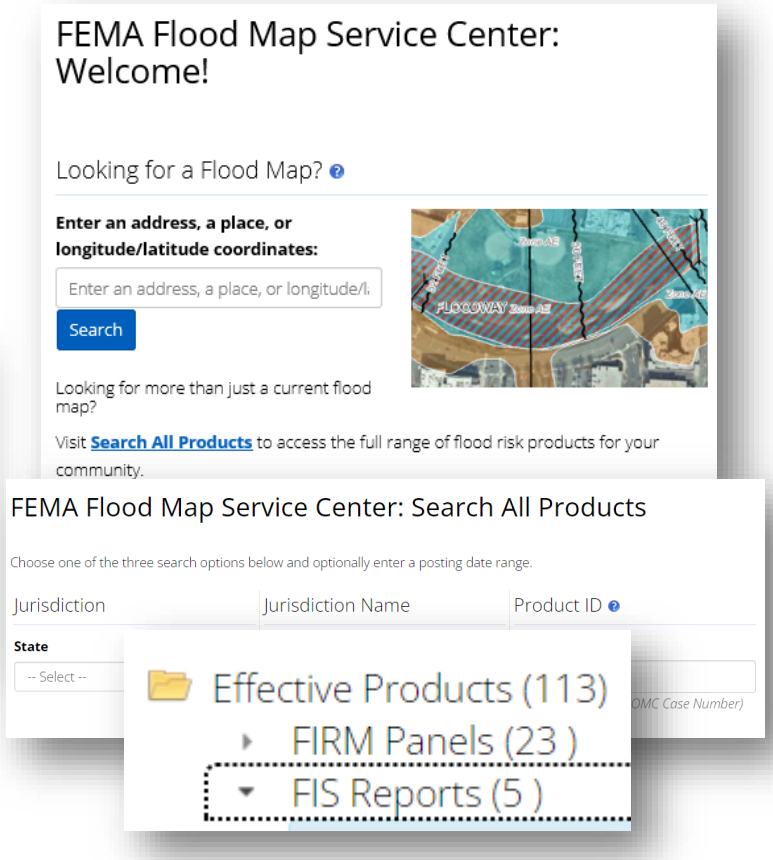
B10. Indicate the source of the BFE data or Base Flood Depth entered in Item B9:
☐ FIS ☐ FIRM ☐ Community Determined ☒ Other: FEMA Base Level Engineering, {Date of Study}

B11. Indicate elevation datum used for BFE in Item B9: ☐ NGVD 1929 ☒ NAVD 1988 ☐ Other/Source: _____

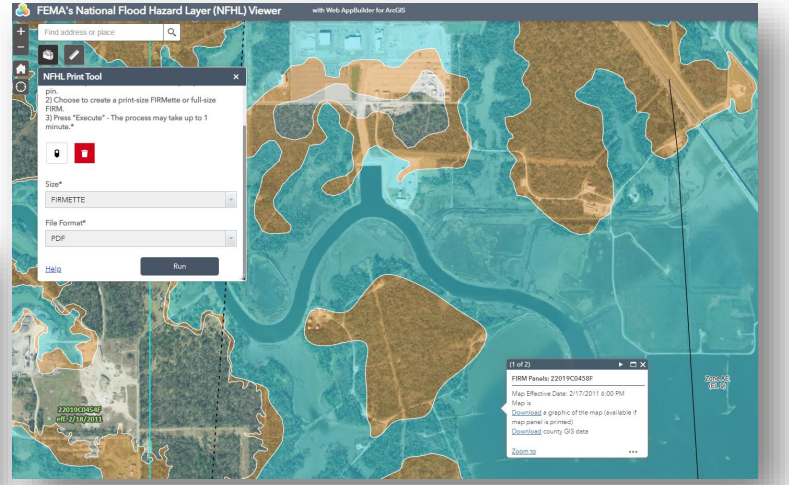
Data sources for BFE in areas of detailed studies



FIRM and FIS

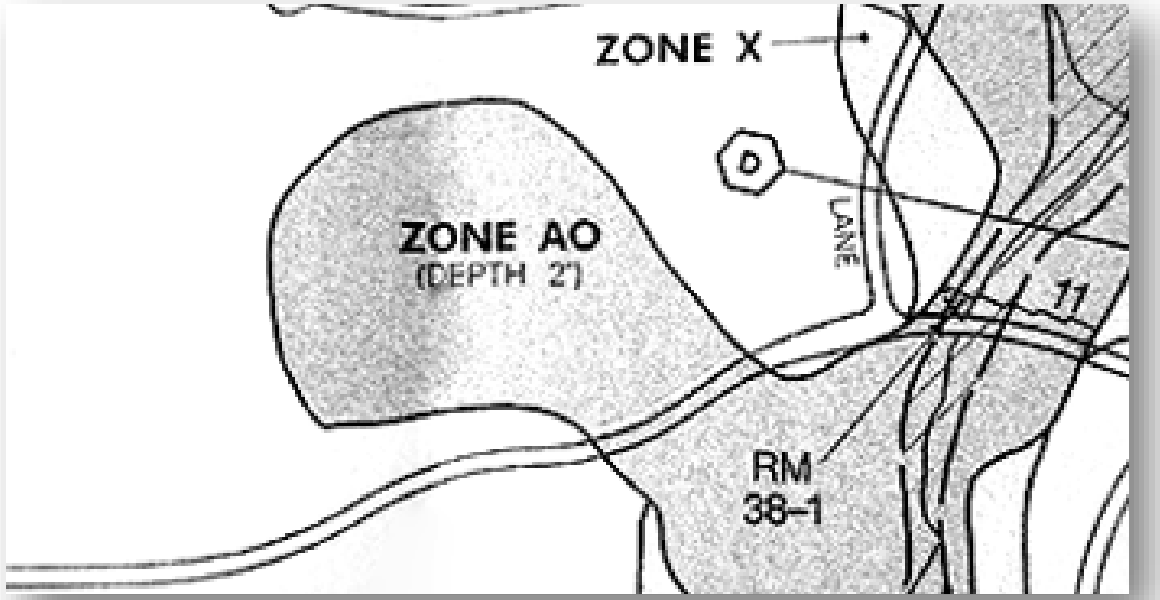


Map Service Center



National Flood Hazard Layer

Zone AO BFE



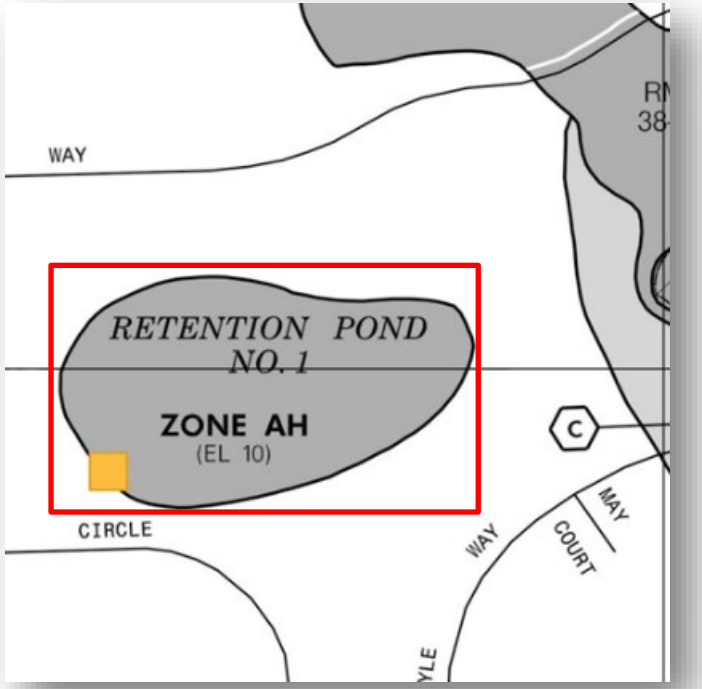
Documenting Zone AO BFE on the Elevation Certificate (EC)

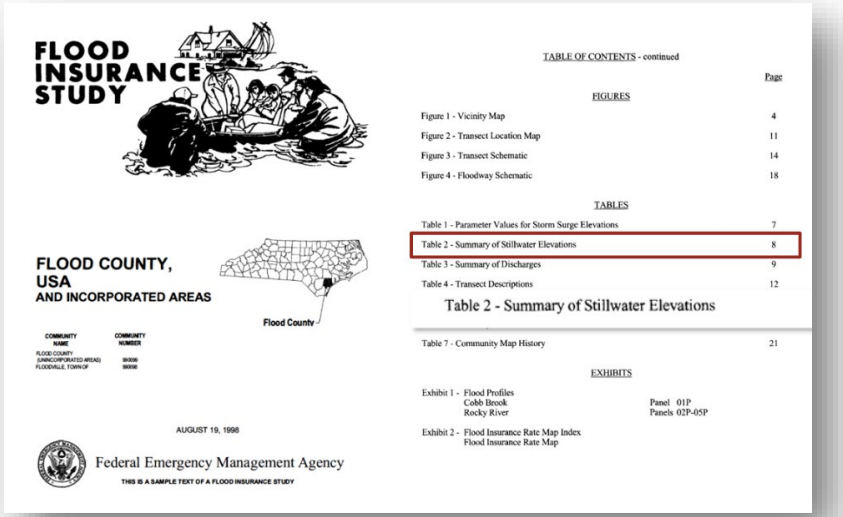
B8. Flood Zone(s): AO B9. Base Flood Elevation(s) (BFE) (Zone AO, use Base Flood Depth): 2 ft

B10. Indicate the source of the BFE data or Base Flood Depth entered in Item B9:

☐ FIS ☒ FIRM ☐ Community Determined ☐ Other: _____

Zone AH BFE





FLOOD INSURANCE STUDY

FLOOD COUNTY, USA
AND INCORPORATED AREAS

Flood County

AUGUST 19, 1998

Federal Emergency Management Agency

THIS IS A SAMPLE TEXT OF A FLOOD INSURANCE STUDY

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Table 2 - Summary of Stillwater Elevations

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EXHIBITS

Exhibit 1 - Flood Profiles
Cobb Brook Panel 01P
Rocky River Panels 02P-05P

Exhibit 2 - Flood Insurance Rate Map Index
Flood Insurance Rate Map

TABLE 2 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet NGVD) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
ATLANTIC OCEAN Entire open coast shoreline within Flood County	6.7	8.7	10.0[1]	12.6
JESCO LAKE Entire shoreline within Flood County	6.9	8.9	10.3	12.8
SILVER LAKES Entire shoreline within Flood County	8.6	9.6	10.4	13.5
SOUTH LAKE Entire shoreline within Flood County	6.9	8.9	10.3	12.8
STONE LAKE Entire shoreline within Flood County	7.0	9.0	10.2	12.8
RETENTION POND NO. 1 Entire shoreline within Flood County	N/A	N/A	10.0	N/A

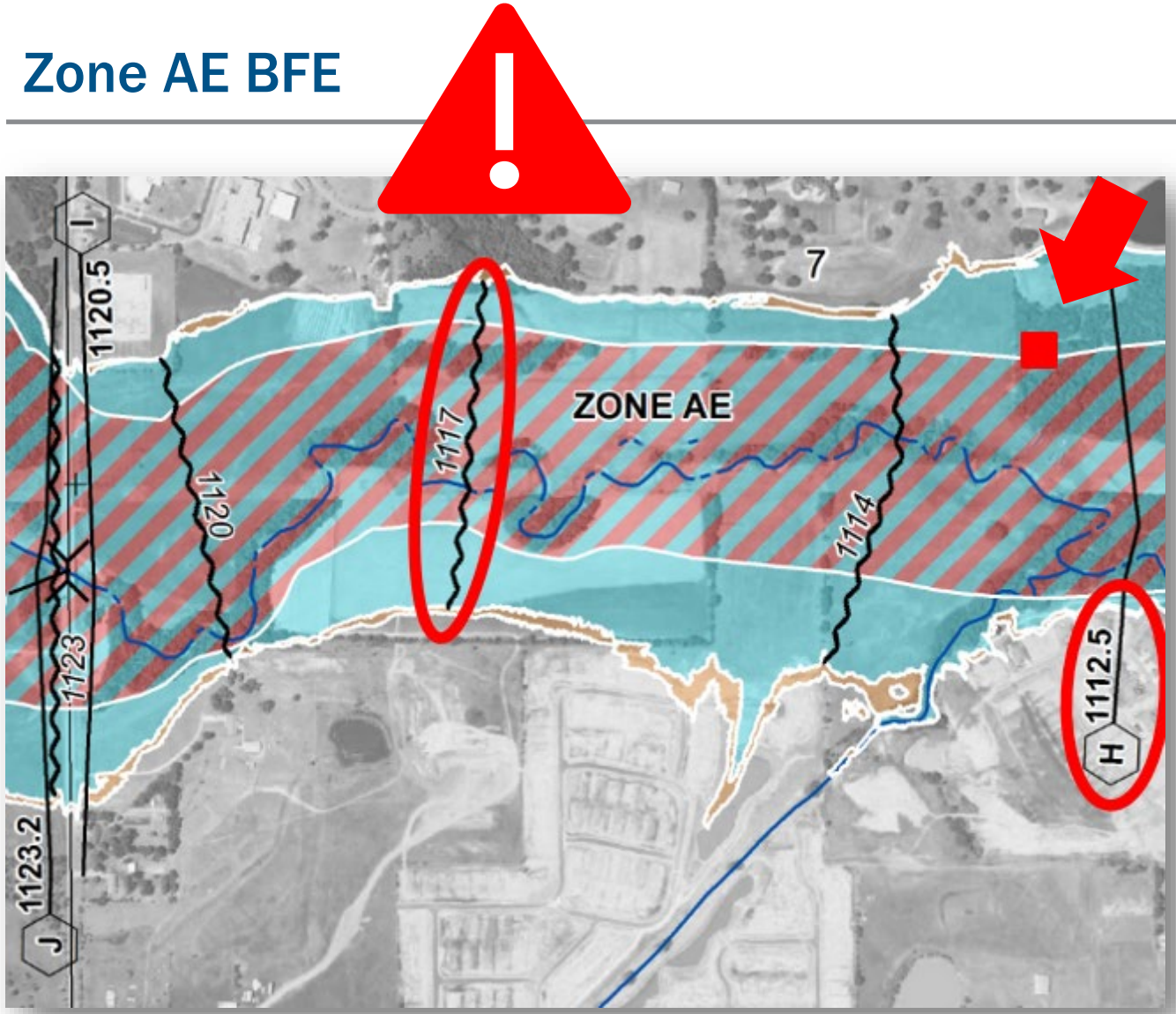
[1] Includes wave set-up of 0.5 foot

B8. Flood Zone(s): AH B9. Base Flood Elevation(s) (BFE) (Zone AO, use Base Flood Depth): 10.0

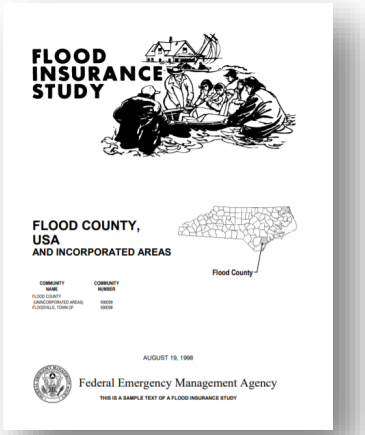
B10. Indicate the source of the BFE data or Base Flood Depth entered in Item B9:

☒ FIS ☐ FIRM ☐ Community Determined ☐ Other: _____

Zone AE BFE



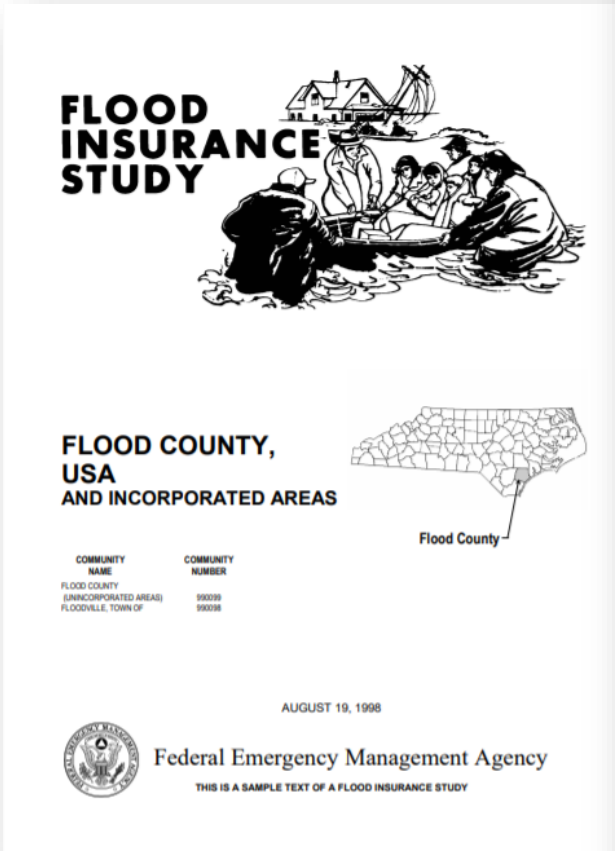
- Do not use the BFEs shown here on the FIRM.
- Measure the distance from the nearest cross-section, along the thalweg, to the upstream corner of the structure.
- Then, go to the Flood Insurance Study (FIS) and find the Flood Profile for this flooding source.

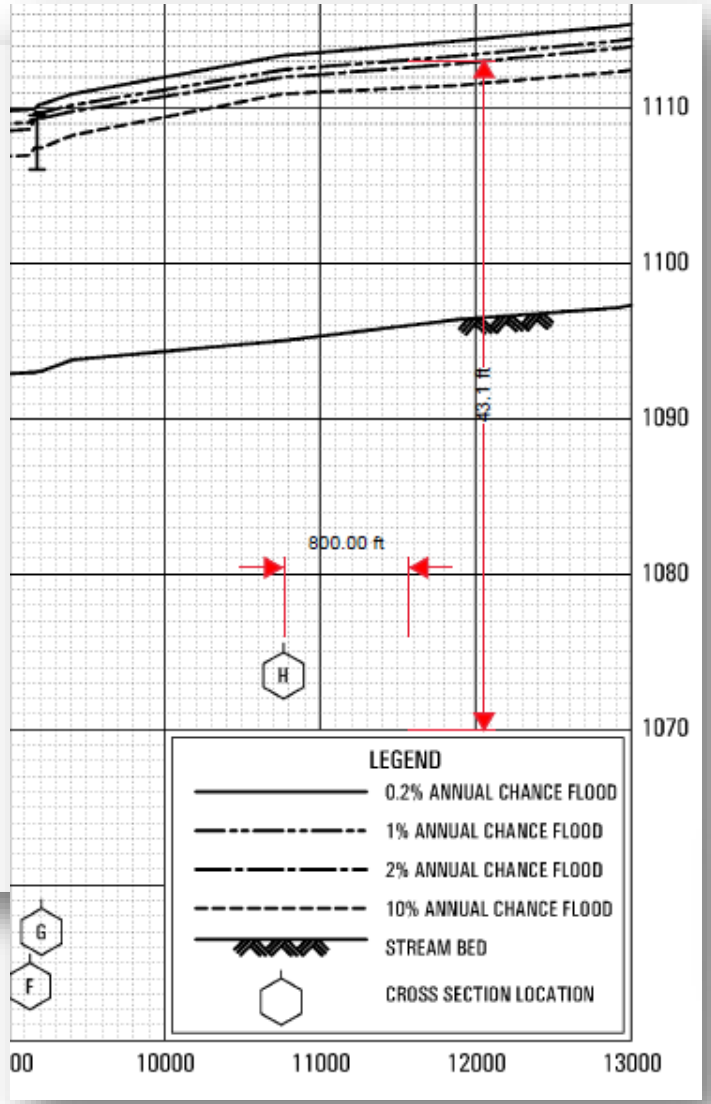


For in-depth training, take these on-demand courses:

- NFIP 101, Unit 3
- How to Read a FIRM
- How to Use a FIS

Using a Flood Insurance Study (FIS)





- At the Flood Profile for the flooding source, in the FIS, measure the same distance from the cross section.
- Use the 1% annual chance flood line, shown in the legend to determine the BFE. 1113.1 shown here.
- B10 in the EC should be marked FIS and your BFE will rarely be a whole number.

B8. Flood Zone(s): AE B9. Base Flood Elevation(s) (BFE) (Zone AO, use Base Flood Depth): 1113.1

B10. Indicate the source of the BFE data or Base Flood Depth entered in Item B9:

☒ FIS ☐ FIRM ☐ Community Determined ☐ Other: _____

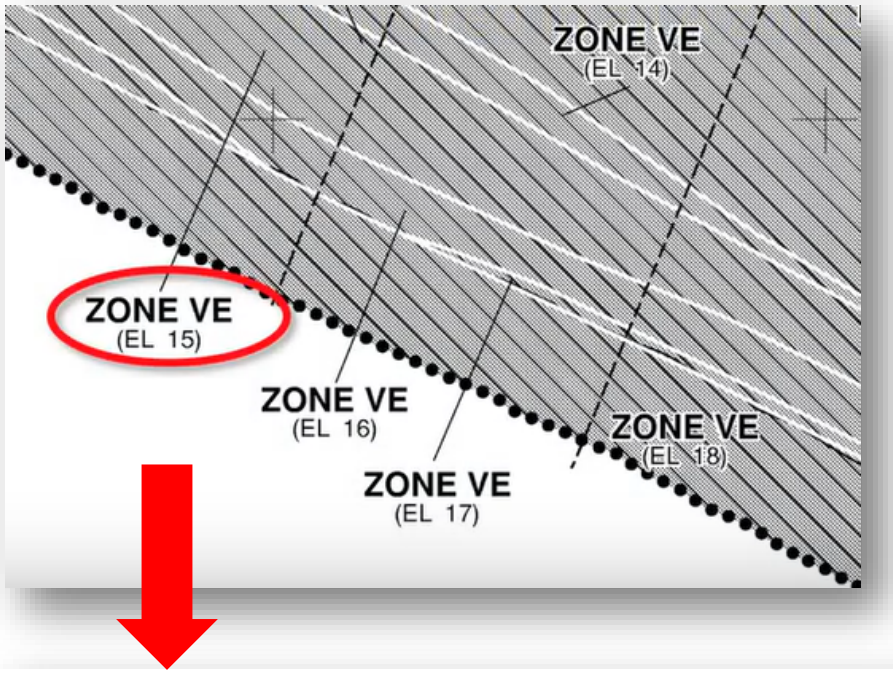
FEMA

Zone AE w/ static elevations and Flood Profile data in the FIS

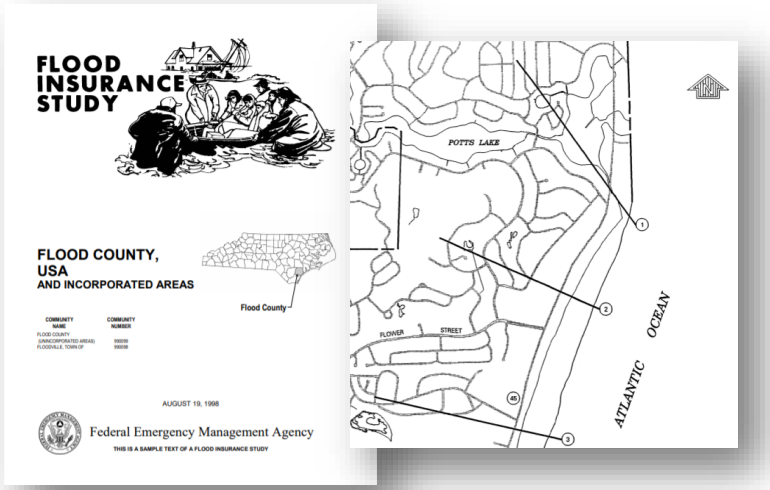
What data source is required to be used in this situation?

Zone VE BFE

FIRM



The FIS can give you more information about coastal areas, but you can pull the BFE directly from the FIRM.



B8. Flood Zone(s): VE B9. Base Flood Elevation(s) (BFE) (Zone AO, use Base Flood Depth): 15

B10. Indicate the source of the BFE data or Base Flood Depth entered in Item B9:

☐ FIS ☒ FIRM ☐ Community Determined ☐ Other: _____

Resources

- FEMA Flood Maps
- Guide: Flood Zones, Flood Maps
- Zone A Manual
- Est BFE Viewer
- BLE Resources
- Guidance for Floodway Analysis
- Elevation Certificate and Dry Floodproofing Certificate
- FEMA IS courses *How to Read a FIRM* and *How to Use a FIS*
- FEMA NFIP 101, Unit 3-Mapping

Who are your FEMA and state contacts?

Arkansas

- State NFIP contact: Shawn Jackson, shawn.jackson@agriculture.arkansas.gov, (501) 582-3959
- FEMA contact: Pedro Perez, pedro.perez@fema.dhs.gov, (940) 383-7365

Louisiana

- State NFIP contact: Susan Veillon, susan.veillon@la.gov, (225) 379-3017
- FEMA Contacts: Justin McBride, justin.mcbride@fema.dhs.gov, (202) 664-9962;
  Braydon Williams, braydon.williams@fema.dhs.gov, (202) 615-6352

Oklahoma

- State NFIP contact: Jon Phillips, jon.phillips@owrb.ok.gov, (405) 530-8902
- FEMA Contact: Darrin Dutton, darrin.dutton@fema.dhs.gov, (940) 383-7398

New Mexico

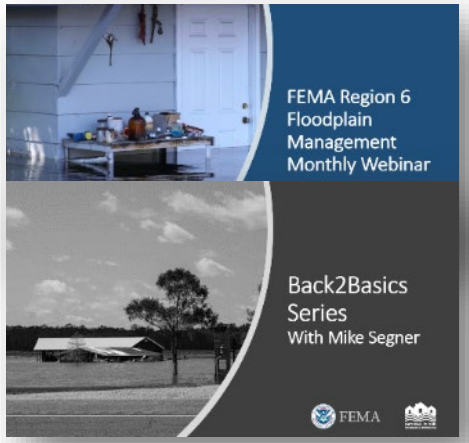
- State NFIP contact: TBD
- FEMA Contact: Tyler Thompson, tyler.thompson@fema.dhs.gov, (771) 208-9698

Texas

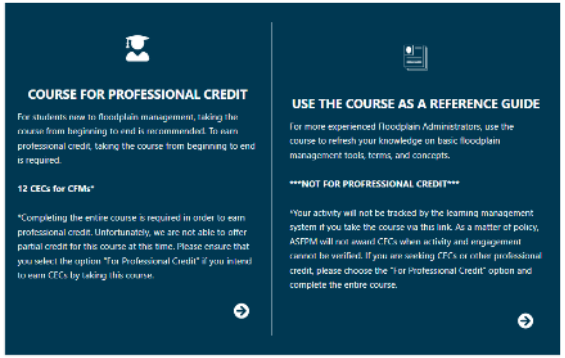
- State NFIP contact: Richie Hernandez, richie.hernandez@twdb.texas.gov, (512) 656-6081
- FEMA contacts: Brian Bartley, brian.bartley@fema.dhs.gov, (940) 383-7207
  Bradford Case, bradford.case@fema.dhs.gov, (202) 769-6745
  Keoka Jenkins, keoka.Jenkins@fema.dhs.gov,

Training

- Register for future R6 floodplain trainings
- View past R6 recorded floodplain trainings
- Register for future R6 Virtual Brown Bag mapping trainings
- Take free, online training from FEMA's Emergency Management Institute
- Take the free, online FEMA NFIP 101 hosted by ASFPM: Use the Course as a Refresher or for 12 hours of CFM credit



IS-273	How to Read a Flood Insurance Rate Map (FIRM)
IS-274	How to Use a Flood Insurance Study (FIS)
IS-279.a	Introduction to Retrofitting Flood-Prone Residential Buildings
IS-280	Overview of: Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures, FEMA Publication 259, 3rd Edition
IS-285	Substantial Damage Estimation for Floodplain Administrators



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