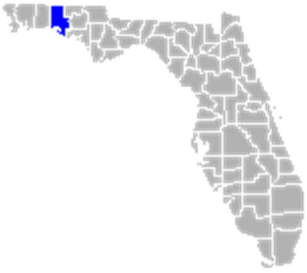
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 1



WALTON COUNTY, FLORIDA

AND INCORPORATED AREAS

COMMUNITY NAME	NUMBER
DEFUNIAK SPRINGS, CITY OF	120318
FREEPORT, CITY OF	120319
PAXTON, TOWN OF	120423
WALTON COUNTY, UNINCORPORATED AREAS	120317

FEMA

PRELIMINARY

3/16/2016

FLOOD INSURANCE STUDY NUMBER
12131CV000B

Version Number 1.3.3.2

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Exhibits

Flood Profiles	Panel
Alaqua Creek	01-02 P
Bay Branch	03-04 P
Bear Creek Tributary 1	05-06 P
Bear Creek Tributary 2	07 P
Bear Creek Tributary 3	08 P
Black Creek	09 P
Bruce Creek	10-16 P
Camp Creek	17 P
Choctawhatchee River	18-22 P
Draper Lake Unnamed Tributary	23 P
Draper Lake Unnamed Tributary – Tributary No. 1	24 P
Fourmile Creek North Tributary	25-26 P
Fourmile Creek North Tributary 1	27 P
Fourmile Creek North Tributary 2	28 P
Fourmile Creek North Tributary 3	29 P
Fourmile Creek North Tributary 4	30 P
Fourmile Creek North Tributary 5	31 P
Fourmile Creek North Tributary 6	32 P
Fourmile Creek South Tributary	33 P
Gum Creek	34-35 P
Lafayette Creek	36-43 P
Mill Creek	44-47 P
Mill Creek Unnamed Tributary	48-49 P
Pate Branch	50 P
Shoal River	51-56 P

FLOOD INSURANCE STUDY REPORT
WALTON COUNTY, FLORIDA

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after

the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as "Post-FIRM" buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community's regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Walton County, Florida.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 1. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Jurisdictions that have no identified SFHAs as of the effective date of this study are indicated in the table. Changed conditions in these communities (such as urbanization or annexation) or the availability of new scientific or technical data about flood hazards could make it necessary to determine SFHAs in these jurisdictions in the future.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
DeFuniak Springs, City of	120318	03140102, 03140103, 03140203	12131C0170G,12131C0190G, 12131C0260G,12131C0270G, 12131C0280G,12131C0286G, 12131C0287G	
Freeport, City of	120319	03140102	12131C0415H,12131C0420H, 12131C0436G,12131C0437G, 12131C0438G,12131C0439G, 12131C0552H,12131C0554H, 12131C0556H,12131C0557H, 12131C0558H,12131C0559H, 12131C0576H	
Paxton, Town of	120423	03140103	12131C0030G,12131C0035G	
Walton County, Unincorporated Areas	120317	03140101, 03140102, 03140103, 03140202, 03140203	12131C0010G,12131C0020G, 12131C0030G,12131C0035G, 12131C0040G,12131C0045G, 12131C0055G,12131C0060G, 12131C0065G,12131C0070G, 12131C0080G,12131C0085G, 12131C0090G,12131C0095G, 12131C0110G,12131C0120G, 12131C0130G,12131C0135G, 12131C0136G,12131C0137G, 12131C0140G,12131C0141G, 12131C0142G,12131C0145G, 12131C0155G,12131C0160G, 12131C0161G,12131C0162G, 12131C0163G,12131C0164G, 12131C0170G,12131C0180G, 12131C0185G,12131C0190G, 12131C0195G,12131C0210G, 12131C0220G,12131C0230G, 12131C0235G,12131C0240G, 12131C0245G,12131C0255G, 12131C0260G,12131C0265G, 12131C0270G,12131C0280G, 12131C0285G,12131C0286G, 12131C0287G,12131C0288G,	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Walton County, Unincorporated Areas (continued)	120317	03140101, 03140102, 03140103, 03140202, 03140203	12131C0289G,12131C0295G, 12131C0305G,12131C0310G, 12131C0315G,12131C0320G, 12131C0330G,12131C0340G, 12131C0360G,12131C0370G, 12131C0380G,12131C0385G, 12131C0390G,12131C0395H, 12131C0405G,12131C0410G, 12131C0415H,12131C0420H, 12131C0426G,12131C0427G, 12131C0428G,12131C0429G, 12131C0435G,12131C0436G, 12131C0437G,12131C0438G, 12131C0439G,12131C0441G, 12131C0442G,12131C0443G, 12131C0444G,12131C0455G, 12131C0460G,12131C0465G, 12131C0470G,12131C0490G, 12131C0507H,12131C0509H, 12131C0517G[1],12131C0519H, 12131C0526H,12131C0527H, 12131C0528H,12131C0529H[1], 12131C0531H,12131C0532H, 12131C0533G[1],12131C0534G[1], 12131C0536G[1],12131C0537H, 12131C0538H,12131C0539H, 12131C0541H,12131C0542H, 12131C0543H,12131C0544H, 12131C0551H,12131C0552H, 12131C0553G[1],12131C0554H, 12131C0556H,12131C0557H, 12131C0558H,12131C0559H, 12131C0561H,12131C0562H, 12131C0563H,12131C0564H, 12131C0566H,12131C0567H, 12131C0568H,12131C0569H, 12131C0576H,12131C0577H, 12131C0578H,12131C0579H, 12131C0585H,12131C0590H, 12131C0595G,12131C0605G,	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Walton County, Unincorporated Areas (continued)	120317	03140101, 03140102, 03140103, 03140202, 03140203	12131C0610G,12131C0615G, 12131C0630G,12131C0651H, 12131C0652H,12131C0656H, 12131C0657H,12131C0676H, 12131C0677H,12131C0678H, 12131C0679H,12131C0681H, 12131C0682H,12131C0683H, 12131C0684H,12131C0701H, 12131C0703H,12131C0705H, 12131C0710H,12131C0711H, 12131C0712H,12131C0716H, 12131C0717H,12131C0719H, 12131C0730H,12131C0736H, 12131C0738H	

[1]Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 31, "Map Repositories," within this FIS Report.

- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Walton County became effective on March 7, 2000 . Refer to Table 28 for information about subsequent revisions to the FIRMs.

- FEMA does not impose floodplain management requirements or special insurance ratings based on Limit of Moderate Wave Action (LiMWA) delineations at this time. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. If the LiMWA is shown on the FIRM, it is being provided by FEMA as information only. For communities that do adopt Zone VE building standards in the area defined by the LiMWA, additional Community Rating System (CRS) credits are available. Refer to Section 2.5.4 for additional information about the LiMWA.

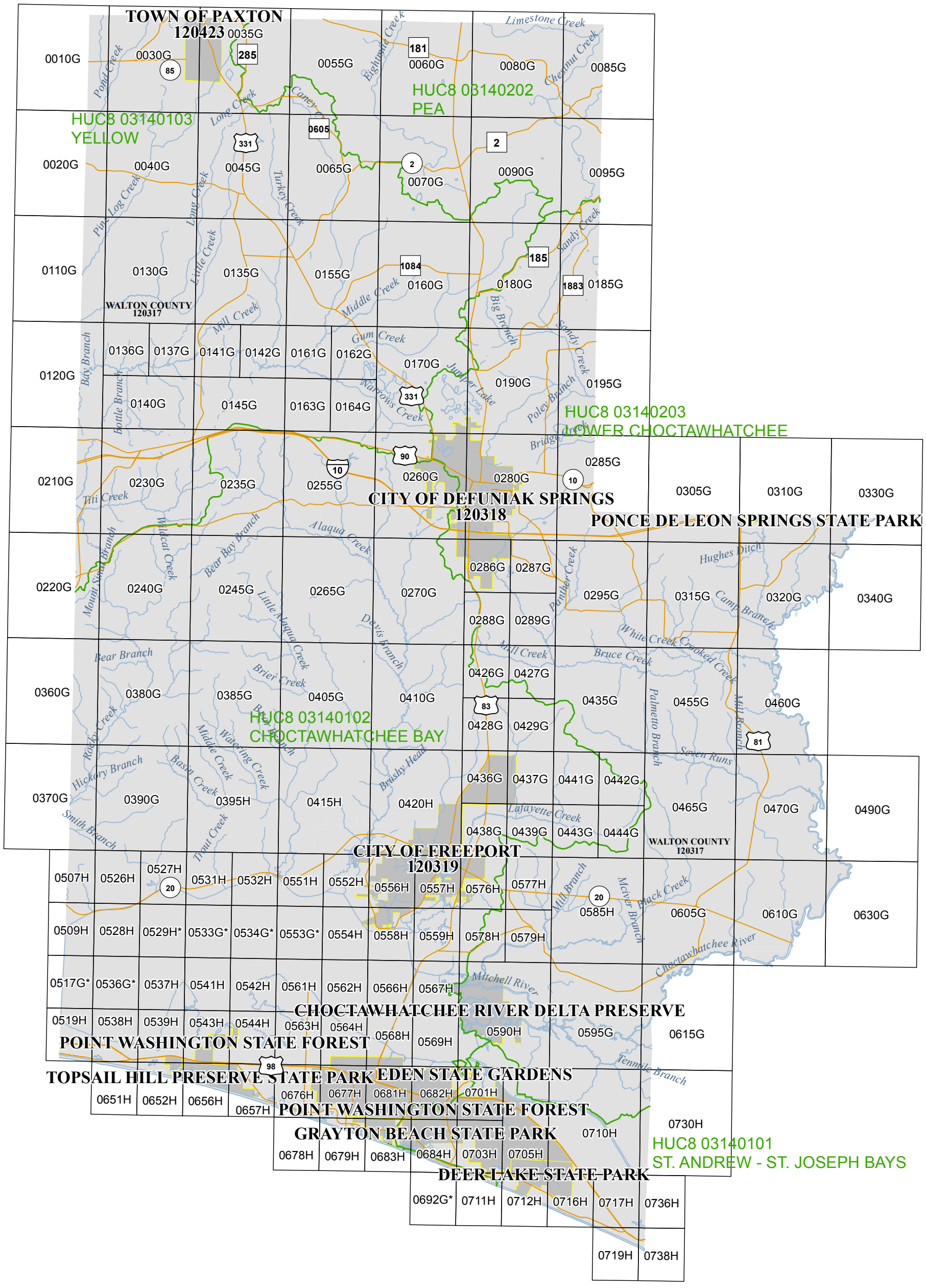
  The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at http://www.fema.gov or contact your appropriate FEMA Regional Office for more information about this program.

- Previous FIS Reports and FIRMs may have included levees that were accredited as reducing the risk associated with the 1% annual chance flood based on the information available and the mapping standards of the NFIP at that time. For FEMA to continue to accredit the identified levees, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee Systems."

  Since the status of levees is subject to change at any time, the user should contact the appropriate agency for the latest information regarding levees presented in Table 9 of this FIS Report. For levees owned or operated by the U.S. Army Corps of Engineers (USACE), information may be obtained from the USACE National Levee Database. For all other levees, the user is encouraged to contact the appropriate local community.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at http://www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Walton County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and United States Geological Survey (USGS) Hydrologic Unit Code – 8 (HUC-8) codes.


TOWN OF PAXTON
120423
HUC8 03140103
YELLOW
HUC8 03140202
PEA
HUC8 03140203
LOWER CHOCTAWHATCHEE
HUC8 03140102
CHOCTAWHATCHEE BAY
HUC8 03140101
ST. ANDREW - ST. JOSEPH BAYS
WALTON COUNTY
120317
CITY OF DEFUNIAK SPRINGS
120318
CITY OF FREEPORT
120319
PONCE DE LEON SPRINGS STATE PARK
CHOCTAWHATCHEE RIVER DELTA PRESERVE
POINT WASHINGTON STATE FOREST
TOPSAIL HILL PRESERVE STATE PARK
EDEN STATE GARDENS
POINT WASHINGTON STATE FOREST
GRAYTON BEACH STATE PARK
DEER LAKE STATE PARK
0010G
0020G
0030G
0035G
0040G
0045G
0055G
0060G
0065G
0070G
0080G
0085G
0090G
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0437G
0438G
0439G
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0442G
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0444G
0455G
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0470G
0490G
0507H
0509H
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0528H
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0533G*
0534G*
0536G*
0537H
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0569H
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0578H
0579H
0585H
0590H
0595G
0605G
0610G
0615G
0630G
0651H
0652H
0656H
0657H
0676H
0677H
0678H
0679H
0681H
0682H
0683H
0684H
0692G*
0701H
0703H
0705H
0710H
0711H
0712H
0716H
0717H
0719H
0730H
0736H
0738H
Limestone Creek
Eighmile Creek
Chestnut Creek
Pond Creek
Long Creek
Caney Creek
Pine Log Creek
Turkey Creek
Sandy Creek
Little Creek
Mill Creek
Middle Creek
Big Branch
Gum Creek
Bay Branch
Bottle Branch
Narrows Creek
Juniper Lake
Poley Branch
Bridge Creek
Titi Creek
Alaqua Creek
Mount Stark Branch
Wildcat Creek
Bear Bay Branch
Little Alaqua Creek
Davis Branch
Panther Creek
Hughes Ditch
Camp Branch
White Creek
Crooked Creek
Bruce Creek
Palmetto Branch
Seven Runs
Bear Branch
Brier Creek
Rocky Creek
Hickory Branch
Basket Creek
Watering Creek
Brushy Head
Lafayette Creek
Smith Branch
Trout Creek
Mill Branch
Mclver Branch
Black Creek
Choctawhatchee River
Mitchell River
Tennile Branch
1 in = 4 miles
Miles
0 1 2 4 6 8
N
Map Projection:
Florida State Plane North Zone (FIPS Zone 0903)
North American Datum 1983 HARN
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
HTTP://MSC.FEMA.GOV
SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION
*PANEL NOT PRINTED - OPEN WATER AREA
COUNTY LOCATOR
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP INDEX
WALTON COUNTY, FLORIDA And Incorporated Areas
PANELS PRINTED:
0010, 0020, 0030, 0035, 0040, 0045, 0055, 0060, 0065, 0070, 0080, 0085, 0090, 0095, 0110, 0120, 0130, 0135, 0136, 0137, 0140, 0141, 0142, 0145, 0155, 0160, 0161, 0162, 0163, 0164, 0170, 0180, 0185, 0190, 0195, 0210, 0220, 0230, 0235, 0240, 0245, 0255, 0260, 0265, 0270, 0280, 0285, 0286, 0287, 0288, 0289, 0295, 0305, 0310, 0315, 0320, 0330, 0340, 0360, 0370, 0380, 0385, 0390, 0395, 0405, 0410, 0415, 0420, 0426, 0427, 0428, 0429, 0435, 0436, 0437, 0438, 0439, 0441, 0442, 0443, 0444, 0455, 0460, 0465, 0470, 0490, 0507, 0509, 0519, 0526, 0527, 0528, 0531, 0532, 0537, 0538, 0539, 0541, 0542, 0543, 0544, 0551, 0552, 0554, 0556, 0557, 0558, 0559, 0561, 0562, 0563, 0564, 0566, 0567, 0568, 0569, 0576, 0577, 0578, 0579, 0585, 0590, 0595, 0605, 0610, 0615, 0630, 0651, 0652, 0656, 0657, 0676, 0677, 0678, 0679, 0681, 0682, 0683, 0684, 0701, 0703, 0705, 0710, 0711, 0712, 0716, 0717, 0719, 0730, 0736, 0738
FEMA
MAP NUMBER
12131CIND0B
PRELIMINARY
MARCH 16, 2016

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 28 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

Coastal Base Flood Elevations shown on the map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the FIS Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRM.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

Figure 2. FIRM Notes to Users

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was Florida State Plane North Zone 0903**.** The horizontal datum was North American Datum 1983 HARN**.** Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988 (NAVD 88)**.** These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988 (NAVD 88)**,** visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 31 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided by the Florida Department of Transportation (FDOT). This information was derived from digital orthophotography at a 0.9-foot resolution from photography dated 2013. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Figure 2. FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Walton County, Florida, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 28 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Walton County, Florida, effective .

COASTAL BARRIER RESOURCES (CBRS) NOTE: This map includes approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see http://www.fws.gov/habitatconservation/coastal_barrier.html, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-WILD.

LIMIT OF MODERATE WAVE ACTION: Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in Zone VE.

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone, either at cross section locations or as static whole-foot elevations that apply throughout the zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.
	Regulatory Floodway determined in Zone AE.

Figure 3: Map Legend for FIRM

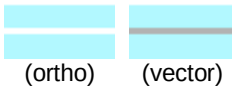
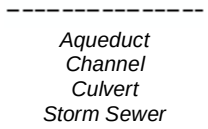
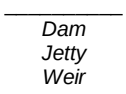
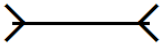
OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.
OTHER AREAS	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible
	Unshaded Zone X: Areas determined to be outside the 0.2% annual chance flood hazard
FLOOD HAZARD AND OTHER BOUNDARY LINES	
	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
GENERAL STRUCTURES	
	Channel, Culvert, Aqueduct, or Storm Sewer
	Dam, Jetty, Weir

Figure 3: Map Legend for FIRM

Levee, Dike, or Floodwall accredited or provisionally accredited to reduce the flood risk from the 1% annual chance flood.

Levee, Dike or Floodwall not accredited to reduce the flood risk from the 1% annual chance flood.



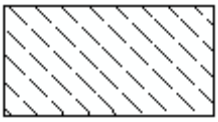
Bridge

Bridge

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): *CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas. See Notes to Users for important information.*

CBRS AREA
09/30/2009

Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.



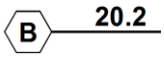
OTHERWISE PROTECTED AREA
09/30/2009

Otherwise Protected Area

REFERENCE MARKERS

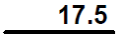
River mile Markers

CROSS SECTION & TRANSECT INFORMATION

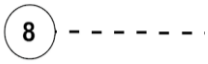


Lettered Cross Section with Regulatory Water Surface Elevation (BFE)

Numbered Cross Section with Regulatory Water Surface Elevation (BFE)



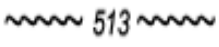
Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)



Coastal Transect

Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.

Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.



Base Flood Elevation Line (shown for flooding sources for which no cross sections or profile are available)

ZONE AE
(EL 16)

Static Base Flood Elevation value (shown under zone label)

Figure 3: Map Legend for FIRM

ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity
BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
$^{42}76^{000m}$E	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Walton County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, "Map Legend for FIRM", describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Walton County, Florida, respectively.

Table 2, "Flooding Sources Included in this FIS Report," lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 13. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

2.2 Floodways

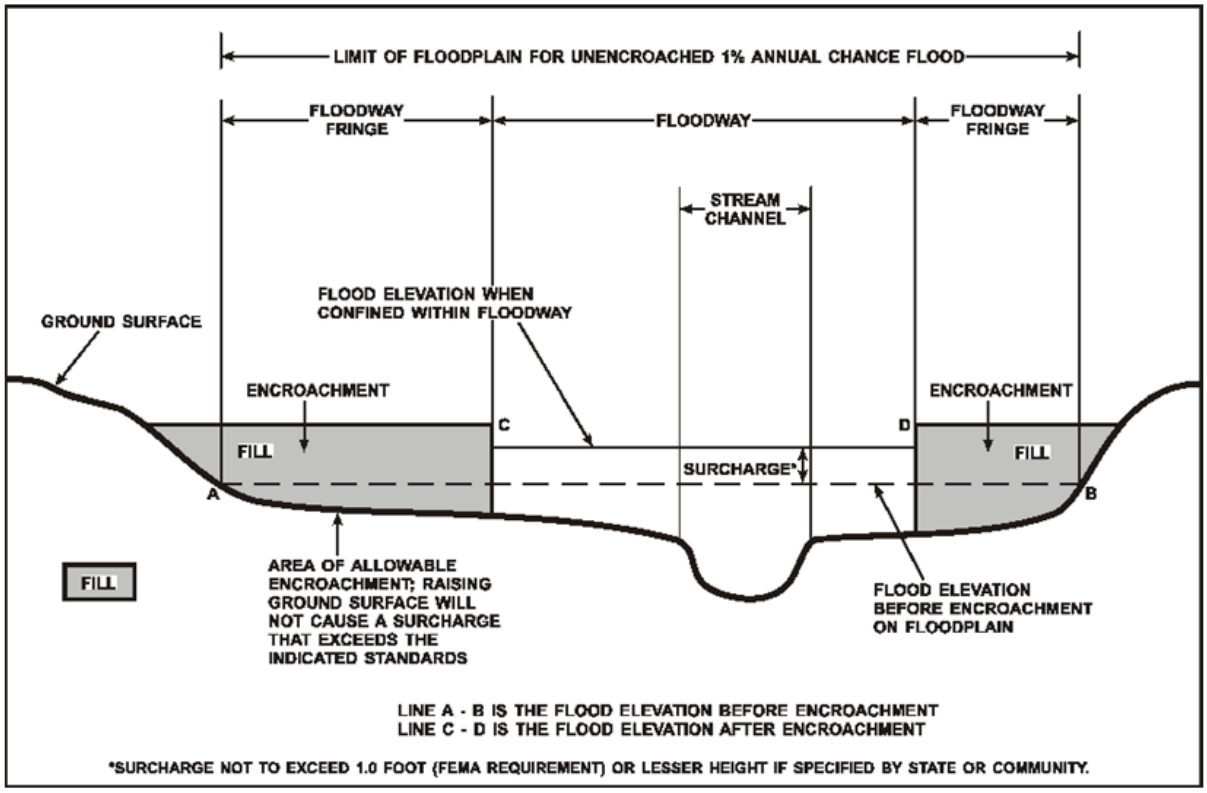
Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the

encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. Regulations for Florida require communities in Walton County to limit increases caused by encroachment to 0.5 foot and several communities have adopted additional restrictions. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections.

Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Alaqua Creek	City of Freeport, Walton County, Unincorporated Areas	Mouth at Choctawhatchee Bay	Approximately 12,150 feet upstream of mouth at Choctawhatchee Bay	03140102	2.3		Y	AE	1986
Bay Branch	City of DeFuniak Springs, Walton County, Unincorporated Areas	Confluence with Bruce Creek	Approximately 8,750 feet upstream of confluence with Bruce Creek	03140103, 03140203	1.7		Y	AE	2010
Bear Creek Tributary 1	City of Freeport	Confluence with Bear Creek	Approximately 5,600 feet upstream of confluence with Bear Creek	03140102	1.1		N	AE	2007
Bear Creek Tributary 2	City of Freeport	Confluence with Bear Creek Tributary 1	Approximately 3,750 feet upstream of confluence with Bear Creek Tributary 1	03140102	0.7		N	AE	2007
Bear Creek Tributary 3	City of Freeport	Confluence with Bear Creek Tributary 2	Approximately 1,630 feet upstream of confluence with Bear Creek Tributary 2	03140102	0.3		N	AE	2007

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Black Creek	Walton County, Unincorporated Areas	County Highway 3280	Approximately 1,580 feet above County Highway 3280	03140203	0.3		Y	AE	2010
Bruce Creek	City of DeFuniak Springs, Walton County, Unincorporated Areas	Approximately 11,425 feet above McKinnon Bridge Road	Approximately 50,725 feet above McKinnon Bridge Road	03140203	7.5		Y	AE	2010
Camp Creek	Walton County, Unincorporated Areas	Confluence with Black Creek	Approximately 5,375 feet upstream of confluence with Black Creek	03140203	1.0		Y	AE	2010
Choctawhatchee River	Walton County, Unincorporated Areas	Approximately 1 mile above mouth	Approximately 54.9 miles upstream of mouth	03140203	54.9		N	AE	2000
Draper Lake Unnamed Tributary	Walton County, Unincorporated Areas	State Highway 30A	Approximately 1,700 feet above State Highway 30A	03140102	0.3		N	AE	2004
Draper Lake Unnamed Tributary - Tributary No. 1	Walton County, Unincorporated Areas	Confluence with Draper Lake Unnamed Tributary	Approximately 390 feet upstream of confluence with Draper Lake Unnamed Tributary	03140102	0.1		N	AE	2004

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Fourmile Creek North Tributary	City of Freeport	Confluence with Fourmile Creek	Approximately 9,100 feet upstream of confluence with Fourmile Creek	03140102	1.2		N	AE	2006
Fourmile Creek North Tributary 1	City of Freeport, Walton County, Unincorporated Areas	Confluence with Fourmile Creek North Tributary	Approximately 2,800 feet upstream of confluence with Fourmile Creek North Tributary	03140102	0.5		N	AE	2006
Fourmile Creek North Tributary 2	City of Freeport	Confluence with Fourmile Creek North Tributary 1	Approximately 870 feet upstream of confluence with Fourmile Creek North Tributary 1	03140102	0.2		N	AE	2006
Fourmile Creek North Tributary 3	City of Freeport	Confluence with Fourmile Creek North Tributary	Approximately 1,620 feet upstream of confluence with Fourmile Creek North Tributary	03140102	0.3		N	AE	2006
Fourmile Creek North Tributary 4	City of Freeport	Confluence with Fourmile Creek North Tributary	Approximately 2,850 feet upstream of confluence with Fourmile Creek North Tributary	03140102	0.5		N	AE	2006

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Fourmile Creek North Tributary 5	City of Freeport	Confluence with Fourmile Creek North Tributary	Approximately 635 feet upstream of confluence with Fourmile Creek North Tributary 6	03140102	0.1		N	AE	2006
Fourmile Creek North Tributary 6	City of Freeport	Confluence with Fourmile Creek North Tributary	Approximately 1,400 feet upstream of confluence with Fourmile Creek North Tributary	03140102	0.3		N	AE	2006
Fourmile Creek South Tributary	City of Freeport	Confluence with Fourmile Creek	Approximately 6,175 feet upstream of confluence with Fourmile Creek	03140102	1.2		N	AE	2006
Gum Creek	Walton County, Unincorporated Areas	Confluence with Shoal River	Approximately 12,725 feet upstream of confluence with Shoal River	03140103	2.4		Y	AE	2010
Lafayette Creek	City of Freeport, Walton County, Unincorporated Areas	Confluence with Fourmile Creek	Approximately 51,450 feet upstream of confluence with Fourmile Creek	03140102	8.7		Y	AE	2010
Man Made Lake No. 79	Walton County, Unincorporated Areas	N/A	N/A	03140103	N/A	3.6	N	AE	2013

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Mill Creek	Walton County, Unincorporated Areas	Confluence with Bruce Creek	Approximately 18,280 feet upstream of confluence with Bruce Creek	03140203	3.5		Y	AE	2010
Mill Creek Unnamed Tributary	Walton County, Unincorporated Areas	Confluence with Mill Creek	Approximately 4,770 feet upstream of confluence with Mill Creek	03140203	0.9		Y	AE	2010
Multiple streams in Walton County	City of DeFuniak Springs, City of Freeport, Town of Paxton, Walton County, Unincorporated Areas	Varies	Varies	03140101, 03140102, 03140103, 03140202, 03140203	Varies		N	A	2010
Pate Branch	Walton County, Unincorporated Areas	Confluence with Camp Creek	Approximately 3,915 feet upstream of confluence with Camp Creek	03140203	0.7		Y	AE	2010
Shoal River	Walton County, Unincorporated Areas	County boundary	Approximately 75,550 feet above county boundary	03140103	14.3		Y	AE	2010

All floodways that were developed for this FIS project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and l% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

Some States and communities use non-encroachment zones to manage floodplain development. For flooding sources with medium flood risk, field surveys are often not collected and surveyed bridge and culvert geometry is not developed. Standard hydrologic and hydraulic analyses are still performed to determine BFEs in these areas. However, floodways are not typically determined, since specific channel profiles are not developed. To assist communities with managing floodplain development in these areas, a "non-encroachment zone" may be provided. While not a FEMA designated floodway, the non-encroachment zone represents that area around the stream that should be reserved to convey the 1% annual chance flood event. As with a floodway, all surcharges must fall within the acceptable range in the non-encroachment zone.

General setbacks can be used in areas of lower risk (e.g. unnumbered Zone A), but these are not considered sufficient where unnumbered Zone A is replaced by Zone AE. The NFIP requires communities to ensure that any development in a non-encroachment area causes no increase in BFEs. Communities must generally prohibit development within the area defined by the non-encroachment width to meet the NFIP requirement. Regulations for Florida require communities in Walton County to limit increases caused by encroachment to 0.5 foot and several communities have adopted additional restrictions for non-encroachment areas.

Non-encroachment determinations may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this FIS project have been tabulated for selected cross sections and are shown in Table 25, "Flood Hazard and Non-Encroachment Data for Selected Streams." Areas for which non-encroachment zones are provided show BFEs and the 1% annual chance floodplain boundaries mapped as zone AE on the FIRM but no floodways.

2.5 Coastal Flood Hazard Areas

For most areas along rivers, streams, and small lakes, BFEs and floodplain boundaries are based on the amount of water expected to enter the area during a 1% annual chance flood and the geometry of the floodplain. Floods in these areas are typically caused by storm events. However, for areas on or near ocean coasts, large rivers, or large bodies of water, BFE and floodplain boundaries may need to be based on additional components, including storm surges and waves. Communities on or near ocean coasts face flood hazards caused by offshore seismic events as well as storm events.

Coastal flooding sources that are included in this FIS project are shown in Table 2.

2.5.1 Water Elevations and the Effects of Waves

Specific terminology is used in coastal analyses to indicate which components have been included in evaluating flood hazards.

The stillwater elevation (SWEL or still water level) is the surface of the water resulting from astronomical tides, storm surge, and freshwater inputs, but excluding wave setup contribution or the effects of waves.

- *Astronomical tides* are periodic rises and falls in large bodies of water caused by the rotation of the earth and by the gravitational forces exerted by the earth, moon and sun.
- *Storm surge* is the additional water depth that occurs during large storm events. These events can bring air pressure changes and strong winds that force water up against the shore.
- *Freshwater inputs* include rainfall that falls directly on the body of water, runoff from surfaces and overland flow, and inputs from rivers.

The 1% annual chance stillwater elevation is the stillwater elevation that has been calculated for a storm surge from a 1% annual chance storm. The 1% annual chance storm surge can be determined from analyses of tidal gage records, statistical study of regional historical storms, or other modeling approaches. Stillwater elevations for storms of other frequencies can be developed using similar approaches.

The total stillwater elevation (also referred to as the mean water level) is the stillwater elevation plus wave setup contribution but excluding the effects of waves.

- *Wave setup* is the increase in stillwater elevation at the shoreline caused by the reduction of waves in shallow water. It occurs as breaking wave momentum is transferred to the water column.

Like the stillwater elevation, the total stillwater elevation is based on a storm of a particular frequency, such as the 1% annual chance storm. Wave setup is typically estimated using standard engineering practices or calculated using models, since tidal gages are often sited in areas sheltered from wave action and do not capture this information.

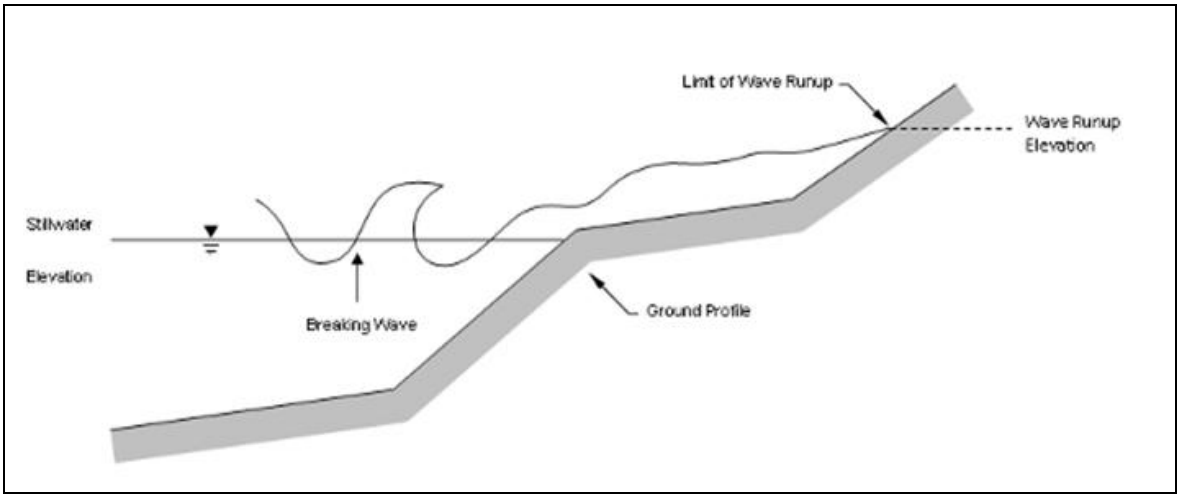
Coastal analyses may examine the effects of overland waves by analyzing storm-induced erosion, overland wave propagation, wave runup, and/or wave overtopping.

- *Storm-induced erosion* is the modification of existing topography by erosion caused by a specific storm event, as opposed to general erosion that occurs at a more constant rate.
- *Overland wave propagation* describes the combined effects of variation in ground

elevation, vegetation, and physical features on wave characteristics as waves move onshore.

- *Wave runup* is the uprush of water from wave action on a shore barrier. It is a function of the roughness and geometry of the shoreline at the point where the stillwater elevation intersects the land.
- *Wave overtopping* refers to wave runup that occurs when waves pass over the crest of a barrier.

Figure 5: Wave Runup Transect Schematic



2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

For coastal communities along the Atlantic and Pacific Oceans, the Gulf of Mexico, the Great Lakes, and the Caribbean Sea, flood hazards must take into account how storm surges, waves, and extreme tides interact with factors such as topography and vegetation. Storm surge and waves must also be considered in assessing flood risk for certain communities on rivers or large inland bodies of water.

Beyond areas that are affected by waves and tides, coastal communities can also have riverine floodplains with designated floodways, as described in previous sections.

Floodplain Boundaries

In many coastal areas, storm surge is the principle component of flooding. The extent of the 1% annual chance floodplain in these areas is derived from the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm. The methods that were used for calculation of total stillwater elevations for coastal areas are described in Section 5.3 of this FIS Report. Location of total stillwater elevations for coastal areas are shown in Figure 8, "1% Annual Chance Total Stillwater Levels for Coastal Areas."

In some areas, the 1% annual chance floodplain is determined based on the limit of wave runup or wave overtopping for the 1% annual chance storm surge. The methods that were used for calculation of wave hazards are described in Section 5.3 of this FIS Report.

Table 26 presents the types of coastal analyses that were used in mapping the 1% annual chance floodplain in coastal areas.

Coastal BFEs

Coastal BFEs are calculated as the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm plus the additional flood hazard from overland wave effects (storm-induced erosion, overland wave propagation, wave runup and wave overtopping).

Where they apply, coastal BFEs are calculated along transects extending from offshore to the limit of coastal flooding onshore. Results of these analyses are accurate until local topography, vegetation, or development type and density within the community undergoes major changes.

Parameters that were included in calculating coastal BFEs for each transect included in this FIS Report are presented in Table 17, "Coastal Transect Parameters." The locations of transects are shown in Figure 9, "Transect Location Map." More detailed information about the methods used in coastal analyses and the results of intermediate steps in the coastal analyses are presented in Section 5.3 of this FIS Report. Additional information on specific mapping methods is provided in Section 6.4 of this FIS Report.

2.5.3 Coastal High Hazard Areas

Certain areas along the open coast and other areas may have higher risk of experiencing structural damage caused by wave action and/or high-velocity water during the 1% annual chance flood. These areas will be identified on the FIRM as Coastal High Hazard Areas.

- *Coastal High Hazard Area (CHHA)* is a SFHA extending from offshore to the inland limit of the primary frontal dune (PFD) or any other area subject to damages caused by wave action and/or high-velocity water during the 1% annual chance flood.
- *Primary Frontal Dune (PFD)* is a continuous or nearly continuous mound or ridge of sand with relatively steep slopes immediately landward and adjacent to the beach. The PFD is subject to erosion and overtopping from high tides and waves during major coastal storms.

CHHAs are designated as "V" zones (for "velocity wave zones") and are subject to more stringent regulatory requirements and a different flood insurance rate structure. The areas of greatest risk are shown as VE on the FIRM. Zone VE is further subdivided into elevation zones and shown with BFEs on the FIRM.

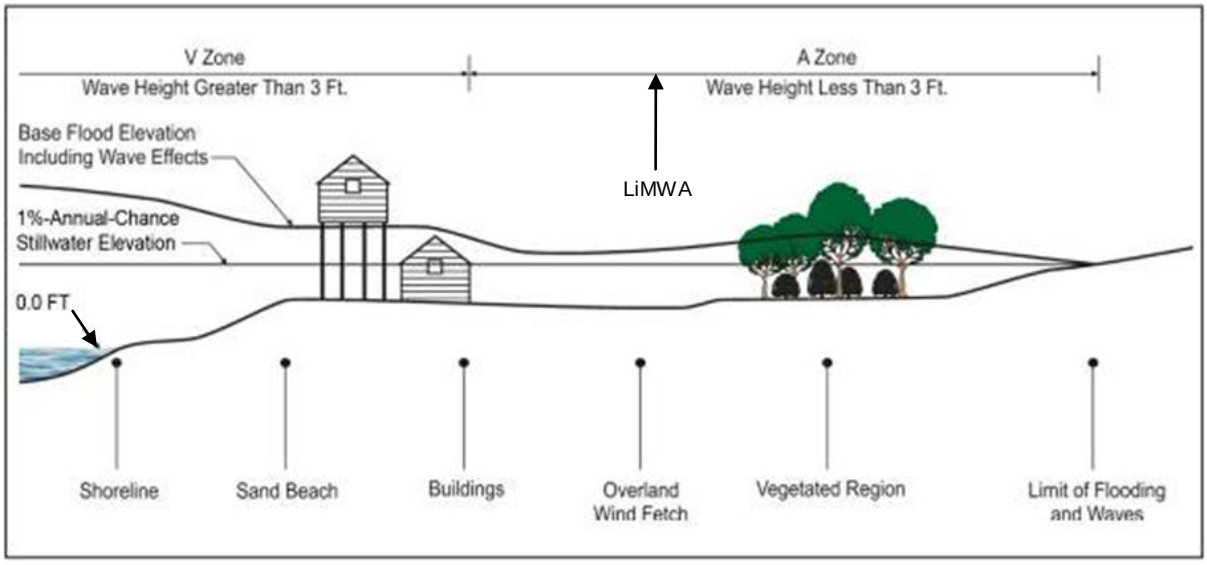
The landward limit of the PFD occurs at a point where there is a distinct change from a relatively steep slope to a relatively mild slope; this point represents the landward extension of Zone VE. Areas of lower risk in the CHHA are designated with Zone V on the FIRM. More detailed information about the identification and designation of Zone VE is presented in Section 6.4 of this FIS Report.

Areas that are not within the CHHA but are SFHAs may still be impacted by coastal flooding and damaging waves; these areas are shown as "A" zones on the FIRM.

Figure 6, "Coastal Transect Schematic," illustrates the relationship between the base flood

elevation, the 1% annual chance stillwater elevation, and the ground profile as well as the location of the Zone VE and Zone AE areas in an area without a PFD subject to overland wave propagation. This figure also illustrates energy dissipation and regeneration of a wave as it moves inland.

Figure 6: Coastal Transect Schematic



Methods used in coastal analyses in this FIS project are presented in Section 5.3 and mapping methods are provided in Section 6.4 of this FIS Report.

Coastal floodplains are shown on the FIRM using the symbology described in Figure 3, "Map Legend for FIRM." In many cases, the BFE on the FIRM is higher than the stillwater elevations shown in Table 17 due to the presence of wave effects. The higher elevation should be used for construction and/or floodplain management purposes.

2.5.4 Limit of Moderate Wave Action

Laboratory tests and field investigations have shown that wave heights as little as 1.5 feet can cause damage to and failure of typical Zone AE building construction. Wood-frame, light gage steel, or masonry walls on shallow footings or slabs are subject to damage when exposed to waves less than 3 feet in height. Other flood hazards associated with coastal waves (floating debris, high velocity flow, erosion, and scour) can also damage Zone AE construction.

Therefore, a LiMWA boundary may be shown on the FIRM as an informational layer to assist coastal communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The location of the LiMWA relative to Zone VE and Zone AE is shown in Figure 6.

The effects of wave hazards in Zone AE between Zone VE (or the shoreline where Zone VE is not identified) and the limit of the LiMWA boundary are similar to, but less severe than, those in Zone VE where 3-foot or greater breaking waves are projected to occur during the 1% annual chance flooding event. Communities are therefore encouraged to adopt and enforce more

stringent floodplain management requirements than the minimum NFIP requirements in the LiMWA. The NFIP Community Rating System provides credits for these actions.

Where wave runup elevations dominate over wave heights, there is no evidence to date of significant damage to residential structures by runup depths less than 3 feet. Examples of these areas include areas with steeply sloped beaches, bluffs, or flood protection structures that lie parallel to the shore. In these areas, the FIRM shows the LiMWA immediately landward of the VE/AE boundary. Similarly, in areas where the zone VE designation is based on the presence of a primary frontal dune or wave overtopping, the LiMWA is delineated immediately landward of the Zone VE/AE boundary.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, "Map Legend for FIRM." Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in Walton County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
DeFuniak Springs, City of	A, AE, X
Freeport, City of	A, AE, VE, X
Paxton, Town of	A
Walton County, Unincorporated Areas	A, AE, AO, VE, X

3.2 Coastal Barrier Resources System

The Coastal Barrier Resources Act (CBRA) of 1982 was established by Congress to create areas along the Atlantic and Gulf coasts and the Great Lakes, where restrictions for Federal financial assistance including flood insurance are prohibited. In 1990, Congress passed the Coastal Barrier Improvement Act (CBIA), which increased the extent of areas established by the CBRA and added "Otherwise Protected Areas" (OPA) to the system. These areas are collectively referred to as the John. H Chafee Coastal Barrier Resources System (CBRS). The CBRS boundaries that have been identified in the project area are in Table 4, "Coastal Barrier Resource System Information."

Table 4: Coastal Barrier Resources System Information

Primary Flooding Source	CBRS/OPA Type	Date CBRS Area Established	FIRM Panel Number(s)
Gulf of Mexico	CBRS	11/16/1990	0712, 0716
Gulf of Mexico	OPA	10/16/2006	0683
Gulf of Mexico	OPA	10/16/2006	0677, 0679, 0681, 0683
Gulf of Mexico	OPA	11/16/1991	0683
Gulf of Mexico	OPA	11/16/1991	0683, 0684
Gulf of Mexico	OPA	10/16/2006	0681, 0682, 0683, 0684
Gulf of Mexico	CBRS	11/16/1990	0677, 0678, 0679
Gulf of Mexico	CBRS	11/16/1990	0657
Gulf of Mexico	CBRS	10/1/1983	0539, 0543, 0544, 0652, 0656, 0657
Gulf of Mexico	CBRS	11/16/1990	0539, 0652
Gulf of Mexico	CBRS	10/21/1998	0519
Gulf of Mexico	OPA	10/16/2006	0683
Gulf of Mexico	CBRS	10/1/1983	0519
Gulf of Mexico	CBRS	10/1/1983	0517, 0519

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 5 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Choctawhatchee Bay	03140102	Choctawhatchee River	The Choctawhatchee River and Bay watershed covers approximately 3,422,154 acres. About 42 percent of this is within Florida, with the remainder in Alabama.	450
Lower Choctawhatchee	03140203	Choctawhatchee River	The Lower Choctawhatchee River subbasin comprises approximately 134 square miles in the extreme southeastern portion of the watershed and is comprised of tributaries to the Choctawhatchee River.	322
Pea	03140202	Pea River	The Pea River begins near Midway, in Bullock County, Alabama, then flows southerly through Elba, where there is a dam, and then south through Ino, Samson, and on to Geneva, where it joins the Choctawhatchee River.	87
St. Andrew-St. Joseph Bay	03140101	Intracoastal Waterway	The St. Andrew Bay watershed covers about 750,000 acres in Walton, Washington, Jackson, Calhoun, Gulf, and Bay Counties, with 61 percent in Bay County alone. It is the only major watershed in the Florida Panhandle that lies entirely in Florida.	41

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Yellow	03140103	Yellow River	The Yellow River is a 92-mile-long river of which 61 miles occur in Florida's Okaloosa, Santa Rosa and Walton counties. The Yellow River flows in a southwesterly direction into Blackwater Bay, an arm of Pensacola Bay.	250

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Walton County by flooding source.

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
Choctawhatchee River	The Choctawhatchee River, a major river in the county, accounts for much of the flooding in the area. The Choctawhatchee River is characterized by wide, flat flood plains varying from several thousand feet to several miles wide. The flat slopes and wide, heavily vegetated flood plains enhance the flood problems by preventing the rapid drainage of floodwaters.
Alaqua Creek	Alaqua Creek, though not as large as the Choctawhatchee River, experiences flooding from both extensive rainfall and high storm surges. Even though no severe flooding problems have been recorded, Alaqua Creek poses a threat to the area's residential housing and also to future development along the stream.
Gulf of Mexico	The coastal areas of Walton County are subject to flooding from tidal surges associated with hurricanes both along the Gulf of Mexico and inside Choctawhatchee Bay. Generally, the terrain inland along Choctawhatchee Bay rises fairly rapidly and flooding from surges is restricted to only short distances inland of the bay shoreline.

Table 7 contains information about historic flood elevations in the communities within Walton County.

Table 7: Historic Flooding Elevations

[Not Applicable to this FIS Project]

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Walton County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 8: Non-Levee Flood Protection Measures

[Not Applicable to this FIS Project]

4.4 Levees

This section is not applicable to this FIS Project

Table 9: Levees

[Not Applicable to this FIS Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 27, "Incorporated Letters of Map Change", which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, "FIRM Revisions."

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 17.) Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (CFS)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1% Annual Chance Future	0.2% Annual Chance
Alaqua Creek	At mouth	124	6,690	*	11,305	13,700	*	20,560
Bay Branch	At confluence with Bruce Creek	4.5	1,082	*	1,428	1,579	*	1,908
Bear Creek Tributary 1	Approximately 175 feet downstream of the confluence with Bear Creek Tributary 2	1.542	*	*	*	1,000	*	*
Bear Creek Tributary 1	Approximately 50 feet downstream of the confluence with Bear Creek Tributary 3	0.459	*	*	*	596	*	*
Bear Creek Tributary 1	At Unnamed Road	0.184	*	*	*	308	*	*
Bear Creek Tributary 1	Approximately 140 feet upstream of Unnamed Road	0.160	*	*	*	272	*	*
Bear Creek Tributary 2	Just downstream unnamed tributary	1.024	*	*	*	644	*	*
Bear Creek Tributary 2	Approximately 300 feet upstream of Unnamed Road	0.588	*	*	*	371	*	*
Bear Creek Tributary 3	At Unnamed Road	0.211	*	*	*	253	*	*
Bear Creek Tributary 3	Approximately 1,000 feet upstream of Unnamed Road	0.184	*	*	*	233	*	*
Black Creek	At County Highway 3280	42	5,000	*	10,500	14,000	*	23,000
Bruce Creek	At confluence with Bay Branch	12.9	2,846	*	3,808	4,227	*	5,144
Bruce Creek	At West Indian Creek Ranch Road	23.1	4,953	*	6,595	7,308	*	8,872
Bruce Creek	At confluence with Mill Creek	35.4	7,202	*	9,656	10,721	*	13,057
Camp Creek	At confluence with Black Creek	12.8	3,273	*	4,244	4,821	*	5,854
Choctawhatchee River	Just upstream of mouth	4,384	64,800	*	106,000	127,000	*	187,000

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (CFS)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1% Annual Chance Future	0.2% Annual Chance
Draper Lake Unnamed Tributary	Just upstream of State Highway 30A	0.48	*	*	*	136	*	*
Draper Lake Unnamed Tributary	Approximately 1,200 feet upstream of State Highway 30A	0.12	*	*	*	113	*	*
Draper Lake Unnamed Tributary - Tributary No. 1	Approximately 390 feet upstream of the confluence with Draper Lake Unnamed Tributary	0.27	*	*	*	114	*	*
Fourmile Creek North Tributary	Above Fourmile Creek North Tributary 1 confluence	1.19	*	*	*	714	*	*
Fourmile Creek North Tributary	Above Fourmile Creek North Tributary 4 confluence	0.70	*	*	*	323	*	*
Fourmile Creek North Tributary	Above Fourmile Creek North Tributary 6 confluence	0.36	*	*	*	156	*	*
Fourmile Creek North Tributary 1	At mouth	0.34	*	*	*	328	*	*
Fourmile Creek North Tributary 1	Above Fourmile Creek North Tributary 2 confluence	0.15	*	*	*	118	*	*
Fourmile Creek North Tributary 2	At mouth	0.08	*	*	*	119	*	*
Fourmile Creek North Tributary 3	At mouth	0.13	*	*	*	120	*	*
Fourmile Creek North Tributary 4	At mouth	0.23	*	*	*	183	*	*
Fourmile Creek North Tributary 5	At mouth	0.20	*	*	*	119	*	*
Fourmile Creek North Tributary 6	At mouth	0.26	*	*	*	140	*	*
Fourmile Creek South Tributary	At mouth	0.47	*	*	*	463	*	*
Fourmile Creek South Tributary	Approximately 3,500 feet upstream of mouth	0.19	*	*	*	177	*	*

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (CFS)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1% Annual Chance Future	0.2% Annual Chance
Gum Creek	At confluence with Shoal River	40.7	3,107	*	5,790	7,149	*	11,023
Lafayette Creek	At J.W. Hollington Road	6.2	746	*	1,382	1,701	*	2,580
Lafayette Creek	At State Road 20	36.2	2,530	*	4,520	5,500	*	8,230
Mill Creek	At confluence with Bruce Creek	6.7	1,566	*	2,175	2,441	*	3,028
Mill Creek Unnamed Tributary	At confluence with Mill Creek	0.7	156	*	220	249	*	312
Pate Branch	At Camp Creek	7.36	1,970	*	2,502	2,892	*	3,504
Shoal River	At confluence with Gum Creek	87.6	6,112	*	11,399	14,176	*	22,207
Shoal River	At County Road 1087	123	8,140	*	14,988	18,633	*	29,141
Shoal River	At Okaloosa County line	147.1	9,038	*	16,890	21,085	*	33,333

*Not calculated for this Flood Risk Project

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this FIS Project]

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Man Made Lake No. 79	Walton County, Unincorporated Areas	*	*	*	7.6	*

*Not calculated for this Flood Risk Project

Table 12: Stream Gage Information used to Determine Discharges

[Not Applicable to this FIS Project]

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 24, "Floodway Data."

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13. Roughness coefficients are provided in Table 14. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Alaqua Creek	Mouth at Choctawhatchee Bay	Approximately 12,150 feet upstream of mouth at Choctawhatchee Bay	N/A	N/A	10/1/1984	AE	
Bay Branch	Confluence with Bruce Creek	Approximately 8,750 feet upstream of confluence with Bruce Creek	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	
Bear Creek Tributary 1	Confluence with Bear Creek	Approximately 5,600 feet upstream of confluence with Bear Creek	N/A	N/A	3/30/2007	AE	LOMR
Bear Creek Tributary 2	Confluence with Bear Creek Tributary 1	Approximately 3,750 feet upstream of confluence with Bear Creek Tributary 1	N/A	N/A	3/30/2007	AE	LOMR
Bear Creek Tributary 3	Confluence with Bear Creek Tributary 2	Approximately 1,630 feet upstream of confluence with Bear Creek Tributary 2	N/A	N/A	3/30/2007	AE	LOMR

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Black Creek	County Highway 3280	Approximately 1,580 feet above County Highway 3280	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	
Bruce Creek	Approximately 11,425 feet above McKinnon Bridge Road	Approximately 50,725 feet above McKinnon Bridge Road	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	
Camp Creek	Confluence with Black Creek	Approximately 5,375 feet upstream of confluence with Black Creek	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	
Choctawhatchee River	Approximately 1 mile above mouth	Approximately 54.9 miles upstream of mouth	PeakFQ	HEC-RAS	3/7/2000	AE	
Draper Lake Unnamed Tributary	State Highway 30A	Approximately 1,700 feet above State Highway 30A	N/A	N/A	4/5/2004	AE	LOMR
Draper Lake Unnamed Tributary - Tributary No. 1	Confluence with Draper Lake Unnamed Tributary	Approximately 390 feet upstream of confluence with Draper Lake Unnamed Tributary	N/A	N/A	4/5/2004	AE	LOMR
Fourmile Creek North Tributary	Confluence with Fourmile Creek	Approximately 9,100 feet upstream of confluence with Fourmile Creek	N/A	N/A	12/20/2006	AE	LOMR

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Fourmile Creek North Tributary 1	Confluence with Fourmile Creek North Tributary	Approximately 2,800 feet upstream of confluence with Fourmile Creek North Tributary	N/A	N/A	12/20/2006	AE	LOMR
Fourmile Creek North Tributary 2	Confluence with Fourmile Creek North Tributary 1	Approximately 870 feet upstream of confluence with Fourmile Creek North Tributary 1	N/A	N/A	12/20/2006	AE	LOMR
Fourmile Creek North Tributary 3	Confluence with Fourmile Creek North Tributary	Approximately 1,620 feet upstream of confluence with Fourmile Creek North Tributary	N/A	N/A	12/20/2006	AE	LOMR
Fourmile Creek North Tributary 4	Confluence with Fourmile Creek North Tributary	Approximately 2,850 feet upstream of confluence with Fourmile Creek North Tributary	N/A	N/A	12/20/2006	AE	LOMR
Fourmile Creek North Tributary 5	Confluence with Fourmile Creek North Tributary	Approximately 635 feet upstream of confluence with Fourmile Creek North Tributary 6	N/A	N/A	12/20/2006	AE	LOMR

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Fourmile Creek North Tributary 6	Confluence with Fourmile Creek North Tributary	Approximately 1,400 feet upstream of confluence with Fourmile Creek North Tributary	N/A	N/A	12/20/2006	AE	LOMR
Fourmile Creek South Tributary	Confluence with Fourmile Creek	Approximately 6,175 feet upstream of confluence with Fourmile Creek	N/A	N/A	12/20/2006	AE	LOMR
Gum Creek	Confluence with Shoal River	Approximately 12,725 feet upstream of confluence with Shoal River	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	
Lafayette Creek	Confluence with Fourmile Creek	Approximately 51,450 feet upstream of confluence with Fourmile Creek	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	
Mill Creek	Confluence with Bruce Creek	Approximately 18,280 feet upstream of confluence with Bruce Creek	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	
Mill Creek Unnamed Tributary	Confluence with Mill Creek	Approximately 4,770 feet upstream of confluence with Mill Creek	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Multiple streams in Walton County	Varies	Varies	Regression Equations	HEC-RAS	9/29/2010	A	
Pate Branch	Confluence with Camp Creek	Approximately 3,915 feet upstream of confluence with Camp Creek	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	
Shoal River	County boundary	Approximately 75,550 feet above county boundary	HEC-HMS	HEC-RAS 3.1.3	9/29/2010	AE	

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Alaqua Creek	0.026 - 0.058	0.094 - 0.268
Bay Branch	0.026 - 0.058	0.094 - 0.268
Bear Creek Tributary 1	N/A	N/A
Bear Creek Tributary 2	N/A	N/A
Bear Creek Tributary 3	N/A	N/A
Black Creek	0.026 - 0.058	0.094 - 0.268
Bruce Creek	0.026 - 0.058	0.094 - 0.268
Camp Creek	0.026 - 0.058	0.094 - 0.268
Choctawhatchee River	N/A	N/A
Draper Lake Unnamed Tributary	N/A	N/A
Draper Lake Unnamed Tributary - Tributary No. 1	N/A	N/A
Fourmile Creek North Tributary	N/A	N/A
Fourmile Creek North Tributary 1	N/A	N/A
Fourmile Creek North Tributary 2	N/A	N/A
Fourmile Creek North Tributary 3	N/A	N/A
Fourmile Creek North Tributary 4	N/A	N/A
Fourmile Creek North Tributary 5	N/A	N/A
Fourmile Creek North Tributary 6	N/A	N/A
Fourmile Creek South Tributary	N/A	N/A
Gum Creek	0.026 - 0.058	0.094 - 0.268
Lafayette Creek	0.026 - 0.058	0.094 - 0.268
Mill Creek	0.026 - 0.058	0.094 - 0.268
Mill Creek Unnamed Tributary	0.026 - 0.058	0.094 - 0.268
Pate Branch	0.026 - 0.058	0.094 - 0.268
Shoal River	0.026 - 0.058	0.094 - 0.268

5.3 Coastal Analyses

For the areas of Walton County that are impacted by coastal flooding processes, coastal flood hazard analyses were performed to provide estimates of coastal BFEs. Coastal BFEs reflect the increase in water levels during a flood event due to extreme tides and storm surge as well as overland wave effects.

The following subsections provide summaries of how each coastal process was considered for this FIS Report. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation. Table 15 summarizes the methods and/or models used for the coastal analyses. Refer to Section 2.5.1 for descriptions of the terms used in this section.

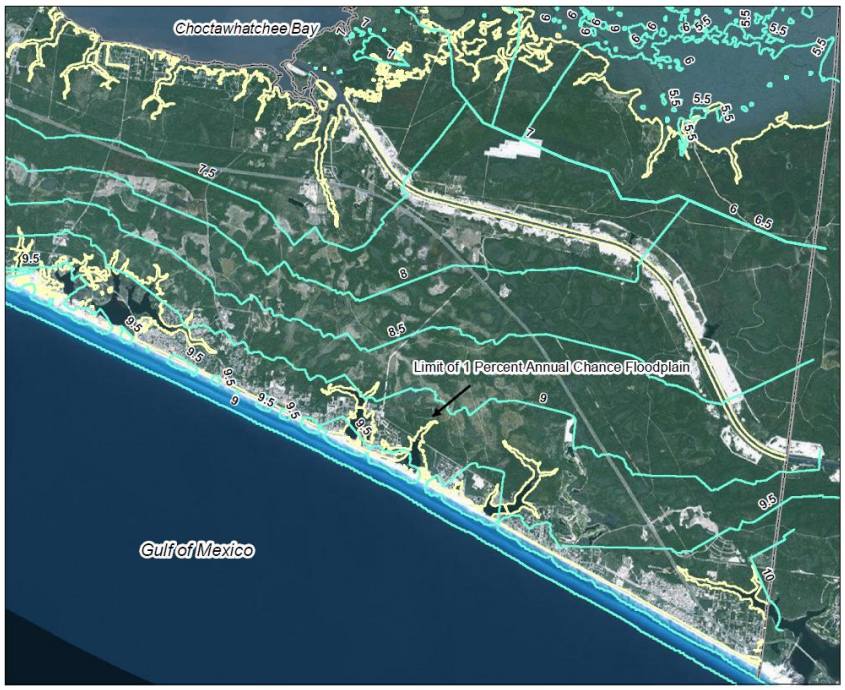
Table 15: Summary of Coastal Analyses

Flooding Source	Study Limits From	Study Limits To	Hazard Evaluated	Model or Method Used	Date Analysis was Completed
Gulf of Mexico	Entire Shoreline	Entire Shoreline	Storm Surge, Wave Runup, Wave Height Analysis, Erosion	ADCIRC, CHAMP, TAW, CSHORE, RUNUP 2.0	2014
Choctawhatchee Bay	Entire Shoreline	Entire Shoreline	Storm Surge, Wave Runup, Wave Height Analysis, Erosion	ADCIRC, CHAMP, TAW, CSHORE, RUNUP 2.0	2014

5.3.1 Total Stillwater Elevations

The total stillwater elevations (stillwater including storm surge plus wave setup) for the 1% annual chance flood were determined for areas subject to coastal flooding. The models and methods that were used to determine storm surge and wave setup are listed in Table 15. The stillwater elevation that was used for each transect in coastal analyses is shown in Table 17, "Coastal Transect Parameters." Figure 8 shows the total stillwater elevations for the 1% annual chance flood that was determined for this coastal analysis.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas



Eastern Portion of Walton County

Middle Portion of Walton County

Northeast Portion of Walton County

Northern Middle Portion of Walton County

Western Portion of Walton County

Astronomical Tide

Astronomical tidal statistics were generated directly from local tidal constituents by sampling the predicted tide at random times throughout the tidal epoch.

Storm Surge Statistics

Storm surge is modeled based on characteristics of actual storms responsible for significant coastal flooding. The characteristics of these storms are typically determined by statistical study of the regional historical record of storms or by statistical study of tidal gages.

When historic records are used to calculate storm surge, characteristics such as the strength, size, track, etc., of storms are identified by site. Storm data was used in conjunction with numerical hydrodynamic models to determine the corresponding storm surge levels. An extreme value analysis was performed on the storm surge modeling results to determine the total stillwater (including wave setup) elevation for the 1% annual chance event.

The region wide storm surge modeling system includes the Advanced Circulation Model for Oceanic, Coastal and Estuarine Waters (ADCIRC) for simulation of 2-dimensional hydrodynamics. ADCIRC was dynamically coupled to the unstructured numerical wave model Simulating Waves Nearshore (unSWAN) to calculate the contribution of waves to total storm surge (FEMA, 2010). The resulting model system is typically referred to as SWAN+ADCIRC. A seamless modeling grid was developed to support the storm surge modeling efforts. The modeling system validation consisted of a comprehensive tidal calibration followed by a validation using carefully reconstructed wind and pressure fields for five major flood events affecting the region: Hurricane Opal, Hurricane Georges, Hurricane Ivan, Hurricane Dennis and Hurricane Katrina.

Tidal gages can be used instead of historic records of storms when the available tidal gage record for the area represents both the astronomical tide component and the storm surge component. Table 16 provides the gage name, managing agency, gage type, gage identifier, start date, end date, and statistical methodology applied to each gage used to determine the stillwater elevations.

Table 16: Tide Gage Analysis Specifics

[Not Applicable to this FIS Project]

Combined Riverine and Tidal Effects

This section is not applicable to this FIS Project

Wave Setup Analysis

Wave setup was computed during the storm surge modeling through the methods and models listed in Table 15 and included in the frequency analysis for the determination of the total stillwater elevations. The oscillating component of wave setup, *dynamic wave setup*, was calculated for areas subject to wave runup hazards.

5.3.2 Waves

The region wide storm surge modeling system includes the Advanced Circulation Model for Oceanic, Coastal and Estuarine Waters (ADCIRC) for simulation of 2-dimensional hydrodynamics. ADCIRC was "loosely" coupled to the unstructured numerical wave model Simulating Waves Nearshore (unSWAN) to calculate the contribution of waves to total storm surge (FEMA, 2010). The resulting model system is typically referred to as SWAN+ADCIRC. A seamless modeling grid was developed to support the storm surge modeling efforts. The modeling system validation consisted of a comprehensive tidal calibration followed by a validation using carefully reconstructed wind and pressure fields for five major flood events affecting the region: Hurricane Opal, Hurricane Georges, Hurricane Ivan, Hurricane Dennis and Hurricane Katrina

Model skill was assessed by quantitative comparison of model output to wind, wave, and high water mark observations. The model was then used to re-create 295 synthetic hurricanes to create a synthetic water elevation record from which the 10-, 2-, 1-, and 0.2- percent annual chance of exceedance elevations were determined.

Wave setup results in an increased water level at the shoreline due to the breaking of waves and transfer of momentum to the water column during hurricanes and severe storms. For the Florida Panhandle and Alabama surge study, wave setup was determined directly from the coupled wave and storm surge model. The total stillwater elevation with wave setup was then used for the erosion and overland wave modeling.

5.3.3 Coastal Erosion

A single storm episode can cause extensive erosion in coastal areas. Storm-induced erosion was evaluated to determine the modification to existing topography that is expected to be associated with flooding events. Erosion was evaluated using the methods listed in Table 15. The post-event eroded profile was used for the subsequent transect-based onshore wave hazard analyses.

5.3.4 Wave Hazard Analyses

Overland wave hazards were evaluated to determine the combined effects of ground elevation, vegetation, and physical features on overland wave propagation and wave runup. These analyses were performed at representative transects along all shorelines for which waves were expected to be present during the floods of the selected recurrence intervals. The results of these analyses were used to determine elevations for the 1% annual chance flood.

Transect locations were chosen with consideration given to the physical land characteristics as well as development type and density so that they would closely represent conditions in their locality. Additional consideration was given to changes in the total stillwater elevation. Transects were spaced close together in areas of complex topography and dense development or where total stillwater elevations varied. In areas having more uniform characteristics, transects were spaced at larger intervals. Transect shown in Figure 9, "Transect Location Map," are also depicted on the FIRM. Table 17 provides the location, stillwater elevations, and starting wave conditions for each transect evaluated for overland wave hazards. In this table, "starting" indicates the parameter value at the beginning of the transect.

Wave Height Analysis

Wave height analyses were performed to determine wave heights and corresponding wave crest elevations for the areas inundated by coastal flooding and subject to overland wave propagation hazards. Refer to Figure 6 for a schematic of a coastal transect evaluated for overland wave propagation hazards.

Wave heights and wave crest elevations were modeled using the methods and models listed in Table 15, "Summary of Coastal Analyses".

Wave Runup Analysis

Wave runup analyses were performed to determine the height and extent of runup beyond the limit of stillwater inundation for the 1% annual chance flood. Wave runup is defined as the maximum vertical extent of wave uprush on a beach or structure. FEMA's 2007 Guidelines and Specifications require the 2-percent wave runup level be computed for the coastal feature being evaluated (cliff, coastal bluff, dune, or structure) (FEMA, February 2007). The 2-percent runup level is the highest 2 percent of wave runup affecting the shoreline during the 1-percent-annual-chance flood event. Each transect defined within the study area was evaluated for the applicability of wave runup, and if necessary, the appropriate runup methodology was selected and applied to each transect. Runup elevations were then compared to WHAFIS results to determine the dominant process affecting BFEs and associated flood hazard levels. Based on

wave runup rates, wave overtopping was computed following the FEMA 2007 Guidelines and Specifications. Wave runup elevations were modeled using the methods and models listed in Table 15.

Table 17: Coastal Transect Parameters

Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD 88) Range of Stillwater Elevations (ft NAVD 88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	1	21.54	13.95	4.97 4.72-4.95	6.85 6.85-6.87	8.21 7.77-8.21	9.06 9.06-9.31	12.92 12.26-12.95
Gulf of Mexico	2	22.22	14.00	4.93 4.7-5.05	6.31 6.31-6.44	7.96 7.73-8.04	9.00 9.00-9.51	12.86 12.16-12.86
Gulf of Mexico	3	22.08	13.86	4.97 3.78-5.05	6.27 5.13-6.27	8.07 7.70-8.18	8.98 6.71-9.60	12.99 8.23-13.01
Gulf of Mexico	4	22.02	13.89	4.96 3.77-5.11	6.99 4.95-6.99	8.33 5.50-8.33	8.95 6.72-9.67	12.94 7.46-12.96
Gulf of Mexico	5	21.91	14.59	4.95 3.83-4.95	6.81 4.22-6.81	8.13 5.91-8.13	8.91 7.46-9.46	12.69 7.75-12.69
Gulf of Mexico	6	21.66	14.88	4.96 3.5-4.96	6.86 4.97-6.86	8.13 8.57-8.13	8.89 7.41-9.54	12.62 8.30-12.72
Gulf of Mexico	7	21.39	15.01	4.98 3.84-5.09	6.36 5.22-6.36	8.13 6.08-8.13	8.86 7.45-9.49	12.69 7.96-12.83
Gulf of Mexico	8	21.57	15.04	4.99 3.84-5.03	6.68 3.62-6.68	8.15 6.08-8.15	8.86 7.00-9.48	12.66 7.41-12.73

Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD 88) Range of Stillwater Elevations (ft NAVD 88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	9	20.25	15.51	4.94 3.81-4.97	6.80 5.25-6.80	8.04 6.16-8.04	8.86 7.02-9.46	12.49 8.18-12.65
Gulf of Mexico	10	20.49	15.82	4.94 3.95-4.95	6.79 5.38-6.79	8.06 6.29-8.06	8.88 7.42-9.49	12.55 11.98-12.65
Gulf of Mexico	11	20.65	15.87	5.05 4.66-5.05	6.94 5.91-6.94	8.23 2.22-8.23	8.88 8.64-9.60	12.55 11.96-12.63
Gulf of Mexico	15	20.00	15.42	4.99 4.69-5.01	6.88 6.88-6.88	8.18 7.68-8.23	8.95 8.93-9.56	12.57 12.05-12.60
Gulf of Mexico	16	20.68	15.80	5.07 4.69-5.07	7.00 6.96-7.00	8.29 7.71-8.31	8.96 8.96-9.67	12.66 12.03-12.79
Gulf of Mexico	17	20.87	15.69	5.05 4.70-5.05	6.92 6.55-6.92	8.25 7.78-8.31	8.97 8.95-10.02	12.72 11.65-13.93
Choctawhatchee Bay	18	5.93	4.43	3.93 3.88-3.94	5.33 5.33-5.34	6.20 6.20-6.22	6.90 6.90-7.02	8.68 8.53-8.73
Choctawhatchee Bay	19	5.35	4.36	3.91 3.87-3.91	5.30 5.30-5.31	6.18 6.12-6.18	6.91 6.91-6.99	8.69 8.57-8.70

Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD 88) Range of Stillwater Elevations (ft NAVD 88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Choctawhatchee Bay	20	5.16	4.16	3.93 3.87-3.93	5.33 5.33-5.34	6.11 5.89-6.15	6.97 6.96-7.05	8.81 8.67-8.81
Choctawhatchee Bay	21	4.80	4.19	3.93 3.90-3.93	5.33 5.13-5.33	6.21 6.08-6.21	7.24 6.97-7.03	8.78 8.67-8.80
Choctawhatchee Bay	22	4.09	4.16	4.02 3.98-4.02	5.46 5.46-5.46	6.39 6.32-6.39	7.07 7.07-7.26	9.19 8.57-9.19
Choctawhatchee Bay	23	3.75	3.93	4.00 3.97-4.02	5.44 5.14-5.44	6.36 6.31-6.39	7.15 7.15-7.27	9.10 9.04-9.23
Choctawhatchee Bay	24	2.67	3.24	4.15 4.11-4.18	5.64 5.14-5.64	6.61 6.10-6.61	7.46 7.46-7.68	9.72 9.57-10.06
Choctawhatchee Bay	25	2.49	2.82	4.21 4.17-4.25	5.73 5.21-5.73	6.74 6.50-6.74	7.63 7.62-7.73	10.01 9.91-10.22
Choctawhatchee Bay	26	3.83	3.89	4.02 3.99-4.13	5.48 5.47-5.48	6.43 6.22-6.43	7.23 7.23-7.63	9.30 8.45-9.40
Choctawhatchee Bay	27	3.47	3.68	4.05 4.01-4.05	5.47 4.66-5.47	6.45 6.23-6.45	7.28 7.28-7.29	9.38 8.89-9.38

Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD 88) Range of Stillwater Elevations (ft NAVD 88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Choctawhatchee Bay	28	3.14	3.48	4.03 3.85-4.08	5.58 5.42-5.58	6.53 5.90-5.63	7.40 7.40-7.63	9.63 9.25-9.68
Choctawhatchee Bay	29	2.15	2.46	4.22 4.01-4.22	5.52 5.11-5.52	6.71 6.59-6.71	7.75 7.75-7.90	10.25 10.23-10.31
Choctawhatchee Bay	30	2.14	2.44	4.27 3.37-4.27	5.83 5.25-5.83	6.91 6.63-6.91	7.94 7.90-7.96	10.58 10.42-10.58
Choctawhatchee Bay	31	2.35	2.46	4.16 4.16-4.22	5.70 5.70-5.71	6.76 6.73-6.78	7.79 7.73-7.79	10.20 9.71-10.21
Choctawhatchee Bay	32	3.39	3.57	4.05 2.23-4.18	5.53 3.89-5.53	6.48 5.73-6.78	7.34 6.41-7.62	9.48 8.46-9.95
Choctawhatchee Bay	33	3.54	3.56	4.01 2.23-4.11	5.48 2.42-5.48	6.42 3.83-6.42	7.27 6.41-7.46	9.36 8.49-9.36
Choctawhatchee Bay	34	2.11	3.06	4.12 4.10-4.12	5.34 4.66-5.34	6.51 6.48-6.52	7.51 7.47-7.51	9.75 8.73-9.75
Choctawhatchee Bay	35	2.41	3.20	4.05 2.04-4.05	5.42 2.48-5.42	6.47 3.86-6.47	7.37 5.34-7.37	9.41 6.71-9.44

Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD 88) Range of Stillwater Elevations (ft NAVD 88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Choctawhatchee Bay	36	2.37	3.14	3.98 2.92-4.05	5.50 5.50-5.56	6.51 6.18-6.51	7.40 7.20-7.46	9.50 8.79-9.50
Choctawhatchee Bay	37	2.50	3.10	4.02 4.02-4.03	5.48 5.48-5.06	6.42 6.16-6.42	7.31 7.17-7.31	9.23 9.15-9.27
Choctawhatchee Bay	38	2.82	3.28	3.96 3.96-3.96	5.39 5.39-5.39	6.31 6.31-6.32	7.17 7.15-7.17	9.00 8.98-9.02
Choctawhatchee Bay	39	2.34	3.46	3.90 3.90-5.00	5.31 5.31-6.64	6.20 6.20-8.18	7.03 7.03-8.37	8.76 8.76-12.51
Choctawhatchee Bay	40	3.55	3.60	3.87 3.67-3.87	5.27 5.08-5.27	6.15 5.99-6.17	6.98 6.46-6.98	8.71 7.89-8.71
Choctawhatchee Bay	41	3.62	4.02	3.81 2.75-3.81	5.16 3.98-5.16	6.05 5.15-6.05	6.81 6.55-6.81	8.43 7.94-8.43
Choctawhatchee Bay	42	3.10	2.78	3.83 3.55-3.89	5.16 5.16-5.31	6.08 5.82-9.19	6.84 6.41-6.84	8.48 7.39-8.48
Choctawhatchee Bay	43	3.14	2.84	3.81 3.50-3.81	5.15 4.97-5.15	6.03 5.87-6.03	6.80 6.79-7.23	8.36 7.80-8.36

Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD 88) Range of Stillwater Elevations (ft NAVD 88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Choctawhatchee Bay	44	3.76	3.10	3.78 3.77-3.84	5.14 5.14-6.90	5.97 5.96-8.23	6.72 6.71-7.44	8.25 8.01-12.02
Choctawhatchee Bay	45	3.58	3.89	3.78 3.78-3.78	5.13 5.13-5.14	5.97 5.95-5.98	6.73 6.73-6.75	8.08 8.08-8.31
Choctawhatchee Bay	46	3.27	3.98	3.78 3.78-3.84	5.14 5.14-5.19	5.98 5.98-6.02	6.73 6.73-6.77	8.29 8.06-8.29
Choctawhatchee Bay	47	2.50	3.95	3.77 3.77-3.85	5.10 4.80-5.10	5.97 5.86-5.97	6.71 6.71-6.79	8.27 8.00-8.34
Choctawhatchee Bay	48	2.58	3.60	3.78 3.66-3.78	5.12 4.73-5.12	5.96 5.67-5.96	6.70 6.70-6.94	8.23 8.22-12.91
Choctawhatchee Bay	49	3.00	3.74	3.81 3.78-3.81	5.16 5.16-5.16	5.99 5.97-5.99	6.71 6.71-6.73	8.24 8.22-8.24
Choctawhatchee Bay	50	2.82	4.25	3.85 3.82-5.16	5.21 5.21-6.56	6.05 6.01-8.18	6.74 6.74-7.66	8.30 8.26-12.96

CITY OF DEFUNIAK SPRINGS

WALTON COUNTY

CITY OF FREEPORT

WALTON COUNTY

Mount Sinai Creek
Bear Creek
Little Alaqua Creek
Davis Branch
Panther Creek
White Creek
Crooked Creek
Bear Branch
Brier Creek
Mill Creek
Bruce Creek
Rocky Creek
Middle Creek
Watering Creek
Bear Branch
Palmetto Branch
Seven Run
Hickory Branch
Basin Creek
Brushy Head
Lafayette Creek
Smith Branch
Trout Creek
Mill Branch
Mciver Branch
Black Creek
Choctawhatchee
Mitchell River
Tenmile Branch

1 in = 3 miles

N

0 0.5 1 2 3 4 Miles

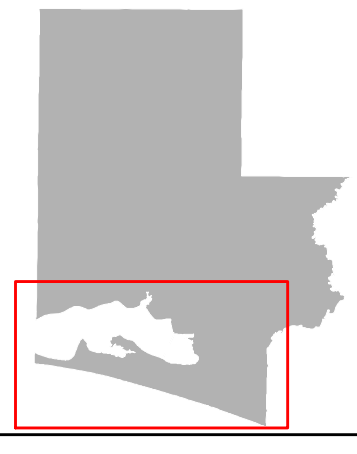
Map Projection:
Florida State Plane North Zone (FIPS Zone 0903)
North American Datum 1983 HARN

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

COUNTY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM

TRANSECT LOCATION MAP

WALTON COUNTY, FLORIDA And Incorporated Areas

PANELS WITH TRANSECTS:
0395, 0415, 0509, 0519, 0526, 0527, 0531, 0532, 0537, 0538, 0539, 0541, 0542, 0543, 0544, 0551, 0552, 0554, 0556, 0557, 0558, 0559, 0561, 0562, 0563, 0564, 0566, 0567, 0568, 0569, 0576, 0578, 0579, 0585, 0590, 0651, 0652, 0656, 0657, 0676, 0677, 0679, 0681, 0682, 0683, 0684, 0701, 0703, 0705, 0711, 0712, 0716, 0717, 0719, 0736, 0738

FEMA

5.4 Alluvial Fan Analyses

This section is not applicable to this FIS Project

Table 18: Summary of Alluvial Fan Analyses

[Not Applicable to this FIS Project]

Table 19: Results of Alluvial Fan Analyses

[Not Applicable to this FIS Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

The datum conversion factor from NGVD29 to NAVD88 for Walton County is -0.31 feet.

Table 20: Countywide Vertical Datum Conversion

[Not Applicable to this FIS Project]

Table 21: Stream-Based Vertical Datum Conversion

[Not Applicable to this FIS Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, http://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping.

Base map information shown on the FIRM was derived from the sources described in Table 22.

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
TIGER roads	US Census Bureau	20140101	24000	Road centerline data
FDOT Imagery	Florida Department of Transportation	20130424	12000	Aerial imagery
National Wetlands Inventory	US Fish and Wildlife Service	20040401	40000	Wetland data
Coastal Barrier Resource System (CBRS) Boundaries.	US Fish and Wildlife Service	20150101	24000	CBRS boundary data

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23. For each coastal flooding source studied as part of this FIS Report, the mapped floodplain boundaries on

the FIRM have been delineated using the flood and wave elevations determined at each transect; between transects, boundaries were delineated using land use and land cover data, the topographic elevation data described in Table 23, and knowledge of coastal flood processes. In ponding areas, flood elevations were determined at each junction of the model; between junctions, boundaries were interpolated using the topographic elevation data described in Table 23.

In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data					
		Description	Scale	Contour Interval	$RMSE_z$	$Accuracy_z$	Citation
Walton County (all communities)	All within HUC basins 03140101, 03140102, 03140103, 03140202, 03140203	Light Detection and Ranging data (LiDAR)	N/A	NA	N/A	0.18 cm	FEMA 2011
Walton County (all communities)	All within HUC basins 03140101, 03140102, 03140103, 03140202, 03140203	Light Detection and Ranging data (LiDAR)	N/A	N/A	N/A	N/A	FEMA 2010

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY[2]**	**WITH FLOODWAY**	**INCREASE**
Alaqua Creek								
A	450	1,487	7,672	1.8	10.0	1.9	2.9	1.0
B	1,450	1,050	5,095	2.7	10.0	2.5	3.5	1.0
C	2,350	1,183	5,740	2.4	10.0	3.1	4.1	1.0
D	3,950	628	5,168	2.7	10.0	3.6	4.6	1.0
E	5,150	1,339	8,036	1.7	9.0	3.9	4.9	1.0
F	6,650	734	4,808	2.8	9.0	4.1	5.1	1.0
G	8,650	1,171	7,806	1.8	9.0	5.0	6.0	1.0
H	11,140	1,426	10,398	1.3	8.0	6.3	7.3	1.0
I	12,140	1,327	8,938	1.5	8.0	6.6	7.6	1.0

[1]Feet above mouth

[2]Elevations computed without consideration of storm surge effects from Choctawhatchee Bay

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

ALAQUA CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY**	**WITH FLOODWAY**	**INCREASE**
Bay Branch								
A	2,340	137	380	4.3	108.3	108.3	109.3	1.0
B	4,858	170	372	3.5	114.3	114.3	115.0	0.7
C	7,879	149	149	1.6	121.6	121.6	121.7	0.1
D	8,747	507	584	0.3	124.5	124.5	124.5	0

[1]Feet above confluence with Bruce Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

BAY BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY**	**WITH FLOODWAY**	**INCREASE**
Black Creek								
A	0	293	4,079	3.7	6.9	6.9	7.8	0.9
B	1,570	228	3,678	3.8	7.1	7.1	8.0	0.9

[1]Feet above County Highway 3280

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

BLACK CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY**	**WITH FLOODWAY**	**INCREASE**
Bruce Creek								
A	13,098	1233	12,908	2.3	73.0	73.0	73.9	0.9
B	15,773	276	1,689	8.0	74.9	74.9	75.8	0.9
C	18,732	802	7,857	3.7	78.1	78.1	79.1	1.0
D	23,549	417	3,174	5.2	80.7	80.7	81.7	1.0
E	27,022	440	3,235	4.4	84.1	84.1	85.0	0.9
F	29,541	359	2,348	6.0	87.5	87.5	88.4	0.9
G	30,668	601	3,459	5.3	88.6	88.6	89.6	1.0
H	36,003	553	2,718	4.7	95.3	95.3	96.3	1.0
I	39,334	386	2,404	4.9	101.2	101.2	102.2	1.0
J	43,872	708	3,911	4.5	105.8	105.8	106.8	1.0
K	46,804	365	1,290	4.8	108.5	108.5	109.5	1.0
L	50,766	591	2,050	3.0	113.8	113.8	114.8	1.0

[1]Feet above McKinnon Bridge Road

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

BRUCE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY[2]**	**WITH FLOODWAY**	**INCREASE**
Camp Creek								
A	506	317	2,662	1.7	7.2	5.0	6.0	1.0
B	1,211	99	1,395	3.3	7.2	5.0	6.0	1.0
C	1,951	138	1,936	2.4	7.2	5.3	6.3	1.0
D	2,785	128	1,877	2.5	7.2	5.4	6.4	1.0
E	4,149	102	1,635	2.8	7.2	5.6	6.5	0.9
F	5,388	248	2,529	1.8	7.2	5.8	6.8	1.0

[1]Feet above confluence with Black Creek

[2]Elevations computed without consideration of backwater effects from Black Creek

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

CAMP CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY**	**WITH FLOODWAY**	**INCREASE**
Gum Creek								
A	385	1,543	18,745	0.8	149.8	149.8	150.8	1.0
B	2,476	999	6,916	1.0	150.4	150.4	151.4	1.0
C	4,303	744	5,319	1.3	152.0	152.0	152.8	0.8
D	7,052	383	2,845	2.5	152.3	152.3	153.1	0.8
E	8,941	771	5,292	1.4	154.9	154.9	155.8	0.9
F	12,696	1,221	4,846	1.5	156.2	156.2	157.0	0.8

[1]Feet above confluence with Shoal River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

GUM CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY**	**WITH FLOODWAY**	**INCREASE**
Lafayette Creek								
A	5,422	636	5,742	1.0	9.7	9.7	10.5	0.8
B	7,885	750	6,669	0.7	10.5	10.5	11.4	0.9
C	11,094	398	3,282	1.5	12.3	12.3	13.3	1.0
D	14,684	450	4,147	1.1	14.7	14.7	15.7	1.0
E	18,274	529	4,108	1.1	17.0	17.0	18.0	1.0
F	21,773	367	2,632	1.7	19.3	19.3	20.3	1.0
G	23,570	247	1,793	2.5	23.0	23.0	23.5	0.5
H	26,848	420	4,706	0.9	24.2	24.2	25.2	1.0
I	30,340	600	5,049	0.8	25.4	25.4	26.3	0.9
J	32,971	325	2,679	1.5	26.4	26.4	27.3	0.9
K	37,342	235	1,739	1.0	33.5	33.5	34.3	0.8
L	40,120	210	1,071	1.6	35.6	35.6	36.5	0.9
M	42,793	255	1,288	1.3	39.1	39.1	40.0	0.9
N	45,917	131	811	2.1	45.9	45.9	46.7	0.8
O	47,506	350	1,120	1.5	50.2	50.2	50.5	0.3
P	49,359	97	494	3.4	53.5	53.5	54.0	0.5
Q	51,443	585	2,743	0.6	57.9	57.9	58.2	0.3

[1]Feet above confluence with Fourmile Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

LAFAYETTE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY**	**WITH FLOODWAY**	**INCREASE**
Mill Creek								
A	2,388	208	1258	3.2	74.6	74.6	75.6	1.0
B	5,481	136	559	5.7	83.9	83.9	84.8	0.9
C	11,467	141	447	5.4	104.6	104.6	105.6	1.0
D	18,205	30	52	1.0	145.7	145.7	145.7	0.0

[1]Feet above confluence with Bruce Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

MILL CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY**	**WITH FLOODWAY**	**INCREASE**
Mill Creek Unnamed Tributary								
A	701	44	49	6.8	129.5	129.5	129.5	0.0
B	1,558	33	46	5.7	138.6	138.6	139.1	0.5
C	2,399	21	32	4.1	148.3	148.3	148.9	0.6
D	3,590	130	42	2.7	161.1	161.1	161.1	0.0
E	4,709	19	43	0.9	174.8	174.8	174.8	0.0

[1]Feet above confluence with Mill Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

MILL CREEK UNNAMED TRIBUTARY

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY[2]**	**WITH FLOODWAY**	**INCREASE**
Pate Branch								
A	749	375	2,202	1.3	7.2	5.9	6.9	1.0
B	1,316	280	1,853	1.4	7.2	6.0	7.0	1.0
C	2,694	207	1,427	1.9	7.2	6.5	7.5	1.0
D	3,549	211	1,517	1.8	7.2	6.9	7.9	1.0
E	3,916	201	1,412	1.9	7.2	7.1	8.1	1.0

[1]Feet above confluence with Camp Creek

[2]Elevations computed without consideration of backwater effects from Camp Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

PATE BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY[2]**	**WITH FLOODWAY**	**INCREASE**
Shoal River								
A	169	1,152	14,645	1.4	111.1	111.1	112.0	0.9
B	1,720	1,503	18,691	1.1	111.7	111.7	112.7	1.0
C	4,478	1,802	24,957	0.8	112.5	112.5	113.5	1.0
D	5,689	1,650	19,144	1.1	112.8	112.8	113.8	1.0
E	7,717	1,036	14,412	1.5	113.6	113.6	114.6	1.0
F	9,080	1,388	16,240	1.3	114.3	114.3	115.3	1.0
G	12,343	951	13,668	1.5	116.5	116.5	117.4	0.9
H	15,351	1,921	15,360	1.4	118.5	118.5	119.5	1.0
I	17,293	1,504	15,591	1.2	119.7	119.7	120.7	1.0
J	21,398	1,938	18,303	1.1	122.1	122.1	123.0	0.9
K	24,285	2,911	27,988	0.7	123.1	123.1	124.1	1.0
L	25,944	1,743	15,637	1.2	123.7	123.7	124.6	0.9
M	28,859	1,293	13,961	1.3	125.6	125.6	126.5	0.9
N	31,465	1,358	23,167	0.8	126.7	126.7	127.6	0.9
O	33,253	1,042	16,375	1.1	127.1	127.1	128.1	1.0
P	36,986	1,506	15,350	1.2	128.5	128.5	129.5	1.0
Q	38,718	1,224	18,834	1.0	129.1	129.1	130.1	1.0
R	41,478	790	10,321	1.8	131.3	131.3	132.2	0.9
S	44,778	1,141	16,323	1.1	132.9	132.9	133.9	1.0
T	48,064	1,341	15,087	1.2	134.0	134.0	134.9	0.9
U	50,158	860	13,048	1.4	134.6	134.6	135.6	1.0

[1]Feet above county boundary

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

SHOAL RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	**DISTANCE[1]**	**WIDTH (FEET)**	**SECTION AREA (SQUARE FEET)**	**MEAN VELOCITY (FEET PER SECOND)**	**REGULATORY**	**WITHOUT FLOODWAY**	**WITH FLOODWAY**	**INCREASE**
Shoal River								
V	52,932	876	12,090	1.4	135.9	135.9	136.9	1.0
W	56,367	543	7,642	2.3	138.1	138.1	139.1	1.0
X	59,452	1,180	9,343	1.9	140.6	140.6	141.6	1.0
Y	61,499	649	7,834	2.2	142.6	142.6	143.5	0.9
Z	65,799	1,226	15,610	0.9	145.3	145.3	146.3	1.0
AA	68,763	1,140	13,476	1.1	146.3	146.3	147.3	1.0
AB	71,353	1,226	11,333	1.3	147.5	147.5	148.5	1.0
AC	73,607	1,138	12,245	1.2	148.9	148.9	149.9	1.0

[1]Feet above county boundary

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

SHOAL RIVER

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

[Not Applicable to this FIS Project]

6.4 Coastal Flood Hazard Mapping

Flood insurance zones and BFEs including the wave effects were identified on each transect based on the results from the onshore wave hazard analyses. Between transects, elevations were interpolated using topographic maps, land-use and land-cover data, and knowledge of coastal flood processes to determine the aerial extent of flooding. Sources for topographic data are shown in Table 23.

Zone VE is subdivided into elevation zones and BFEs are provided on the FIRM.

The limit of Zone VE shown on the FIRM is defined as the farthest inland extent of any of these criteria (determined for the 1% annual chance flood condition):

- The *primary frontal dune zone* is defined in 44 CFR Section 59.1 of the NFIP regulations. The primary frontal dune represents a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes that occur immediately landward and adjacent to the beach. The primary frontal dune zone is subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune zone occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.

- The *wave runup zone* occurs where the (eroded) ground profile is 3.0 feet or more below the 2-percent wave runup elevation.

- The *wave overtopping splash zone* is the area landward of the crest of an overtopped barrier, in cases where the potential 2-percent wave runup exceeds the barrier crest elevation by 3.0 feet or more.

- The *breaking wave height zone* occurs where 3-foot or greater wave heights could occur (this is the area where the wave crest profile is 2.1 feet or more above the total stillwater elevation).

- The *high-velocity flow zone* is landward of the overtopping splash zone (or area on a sloping beach or other shore type), where the product of depth of flow times the flow velocity squared (hv^2) is greater than or equal to 200 ft^3/sec^2. This zone may only be used on the Pacific Coast.

The SFHA boundary indicates the limit of SFHAs shown on the FIRM as either "V" zones or "A" zones.

Table 26 indicates the coastal analyses used for floodplain mapping and the criteria used to determine the inland limit of the open-coast Zone VE and the SFHA boundary at each transect.

Table 26: Summary of Coastal Transect Mapping Considerations

Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis	Wave Height Analysis	Zone VE Limit	SFHA Boundary
		Zone Designation and BFE (ft NAVD88)	Zone Designation and BFE (ft NAVD88)		
1	Yes	VE 11	VE 11-15	PFD	PFD
2	Yes	VE 11	VE 11-15	PFD	PFD
3	Yes	VE 11	VE 11-15	PFD	Runup overtopped
4	Yes	VE 11	VE 14 - 18 AE 13	PFD	PFD
5	Yes	VE 11	VE 10-15 AE 8	PFD	PFD
6	Yes	VE 11	VE 10-15	PFD	PFD
7	Yes	N/A	VE 11 - 15 AE 9-10	PFD	SWEL
8	Yes	VE 11	VE 11-15	PFD	PFD
9	Yes	VE 11	VE 11-15	PFD	PFD
10	Yes	VE 11	VE 11-15	PFD	PFD
11	Yes	VE 11	VE 11-15 AE 10-11	PFD	Runup Overtopped
12	Yes	VE 11	VE 11-15	PFD	PFD
13	Yes	VE 11	VE 11-15	PFD	PFD
14	Yes	VE 11	VE 11-15	PFD	PFD
15	Yes	VE 11	VE 11-15	PFD	Runup
16	Yes	VE 11	VE 11-15	PFD	PFD
17	Yes	VE 11	VE 11-15	PFD	PFD
18	Yes	VE 15	VE 15	PFD	Runup
19	Yes	VE 14	VE 14	PFD	Runup
20	Yes	VE 14	VE 10 AE 8	PFD	SWEL
21	No	VE 8	VE10 AE 8	Runup	Runup
22	No	N/A	VE 11 AE 7-9	Wave Height	SWEL
23	No	N/A	VE 11 AE 7-8	Wave Height	SWEL
24	No	N/A	VE 11 AE 8-9	Wave Height	SWEL
25	No	VE 9	VE 10 AE 9	Runup	Runup
26	No	N/A	VE 10 AE 7-8	Wave Height	SWEL
27	No	VE 7	VE 11 AE 8-9	Wave Height	SWEL

Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis	Wave Height Analysis	Zone VE Limit	SFHA Boundary
28	No	N/A	VE 11 AE 8-10	Wave Height	SWEL
29	No	N/A	VE 10 AE 8-10	Wave Height	SWEL
30	No	N/A	VE 10 AE 8-10	Wave Height	SWEL
31	No	N/A	VE 10 AE 8-9	Wave Height	SWEL
32	No	N/A	VE 11 AE 7-9	Wave Height	SWEL
33	No	N/A	VE 11 AE 7-9	Wave Height	SWEL
34	No	VE 8	VE 11 AE 7-9	Runup	Runup
35	No	N/A	VE 10 AE 5-9	Wave Height	SWEL
36	No	N/A	VE 10 AE 7-9	Wave Height	SWEL
37	No	N/A	VE 10 AE 7-9	Wave Height	SWEL
38	No	VE 9	VE 10 AE 7-9	Runup	Runup
39	No	N/A	VE 10 AE 7-8	Wave Height	SWEL
40	No	N/A	VE 10 AE 7-8	Wave Height	SWEL
41	No	N/A	VE 10 AE 7-9	Wave Height	SWEL
42	No	N/A	VE 10 AE 6-9	Wave Height	SWEL
43	No	N/A	VE 10 AE 7-9	Wave Height	SWEL
44	No	N/A	VE 10 AE 7-8	Wave Height	SWEL
45	No	N/A	VE 10 AE 7-9	Wave Height	SWEL
46	No	N/A	VE 9-10 AE 7-8	Wave Height	SWEL
47	No	N/A	VE 10 AE 7-9	Wave Height	SWEL
48	No	N/A	VE 10 AE 7-8	Wave Height	SWEL
49	No	N/A	VE 10 AE 7-8	Wave Height	SWEL
50	No	VE11	VE 11	Runup	Overtopped

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions to FIS projects may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 31, "Map Repositories").

6.5.1 Letters of Map Amendment

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA. A LOMA cannot be issued for properties located on the PFD (primary frontal dune).

To obtain an application for a LOMA, visit http://www.fema.gov/floodplain-management/letter-map-amendment-loma and download the form "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill". Visit the "Flood Map-Related Fees" section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at http://www.fema.gov/online-tutorials.

For more information about how to apply for a LOMA, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA's determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting https://www.fema.gov/floodplain-management/letter-map-amendment-loma for the "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill" or by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the "Flood Map-Related Fees" section.

A tutorial for LOMR-F is available at http://www.fema.gov/online-tutorials.

6.5.3 Letters of Map Revision

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit https://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/mt-2-application-forms-and-instructions and download the form "MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision". Visit the "Flood Map-Related Fees" section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Walton County FIRM are listed in Table 27.

Table 27: Incorporated Letters of Map Change

Case Number	Effective Date	Flooding Source	FIRM Panel(s)
15-04-4766P	12/26/2015	Local Flooding	12131C0543H 12131C0544H
14-04-1147P	10/10/2014	Unnamed Wetland 1 & 2	12131C0420H 12131C0556H
12-04-6405P	4/5/2013	Man Made Lake No. 79	12131C0539H

6.5.4 Physical Map Revisions

PMRs are an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit http://www.fema.gov and visit the "Flood Map Revision Processes" section.

6.5.5 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards within a given community. FEMA accomplishes this through a national watershed-based mapping needs assessment strategy, known as the Coordinated Needs Management Strategy (CNMS). The CNMS is used by FEMA to assign priorities and allocate funding for new flood hazard analyses used to update the FIS Report and FIRM. The goal of CNMS is to define the validity of the engineering study data within a mapped inventory. The CNMS is used to track the assessment process, document engineering gaps and their resolution, and aid in prioritization for using flood risk as a key factor for areas identified for flood map updates. Visit www.fema.gov to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Walton County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 28, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.

- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or "pending" (for Preliminary FIS Reports) is shown. If the community is listed in Table 28 but not identified on the map, the community is treated as if it were unmapped.

- *Initial FHBM Effective Date* is the effective date of the first Flood Hazard Boundary Map (FHBM). This date may be the same date as the Initial NFIP Map Date.

- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.

- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community. This is the first effective date that is shown on the FIRM panel.

- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in countywide format, as Physical Map Revisions (PMR) of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the Walton County FIRMs in countywide format was March 7, 2000.

Table 28: Community Map History

Community Name	Initial Identification Date (First NFIP Map Published)	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
DeFuniak Springs, City of	11/22/1974	1/9/1976	N/A	12/21/1984	9/29/2010 3/7/2000
Freeport, City of	10/29/1976	10/29/1976	N/A	4/30/1986	9/29/2010 3/7/2000 4/30/1986
Paxton, Town of[1]	3/7/2000	N/A	N/A	3/7/2000	9/29/2010
Walton County, Unincorporated Areas	2/21/1975	2/21/1975	N/A	11/16/1977	9/29/2010 3/7/2000 8/18/1997 8/3/1992 4/30/1986

[1]This community did not have a FIRM prior to the first countywide FIRM for Walton County

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 29 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 29: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Gulf of Mexico	N/A	Dewberry	50060317	1/1/2014	City of Freeport, Walton County
Various streams within Walton County	9/29/2010	URS	N/A	N/A	Walton County (all communities)
Various streams within Walton County	3/7/2000	Woodward-Clyde Consultants	EMW-95-C-4678/TO043	4/1/1998	Walton County (all communities)

7.2 Community Meetings

The dates of the community meetings held for this FIS project and any previous FIS projects are shown in Table 30. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 30: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Walton County, Unincorporated Areas, City of Freeport	N/A	9/17/2015	FRR Meeting	FEMA, the community, the study contractor, and NWFWMD

SECTION 8.0 – ADDITIONAL INFORMATION

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see http://www.fema.gov.

Table 31 is a list of the locations where FIRMs for Walton County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 31: Map Repositories

Community	Address	City	State	Zip Code
DeFuniak Springs, City of	DeFuniak Springs City Hall 71 West U.S. Highway 90	DeFuniak Springs	FL	32433
Freeport, City of	Freeport City Hall 112 State Highway 20 West	Freeport	FL	32439
Paxton, Town of	Paxton Town Hall 21872 U.S. Highway 331	Paxton	FL	32538
Walton County, Unincorporated Areas	Walton County Courthouse Annex 47 North 6th Street	DeFuniak Springs	FL	32435

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 32.

Table 32 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the state NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of state and local GIS data in their state.

Table 32: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	https://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/engineering-library
NFIP website	http://www.fema.gov/national-flood-insurance-program
NFHL Dataset	http://msc.fema.gov/
FEMA Region IV	Federal Emergency Management Agency 3003 Chamblee Tucker Road Atlanta, GA 30341 770-220-5200
Other Federal Agencies	
USGS website	http://www.usgs.gov
Hydraulic Engineering Center website	http://www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Steve Martin, CFM, State NFIP Coordinator and Floodplain Manager Florida Division of Emergency Management 2555 Shumard Oak Boulevard Tallahassee, FL 32399-2100 (850) 922-5269 steve.martin@em.myflorida.com
State GIS Coordinator	Richard Butgereit, GIS Administrator Florida Division of Emergency Management 2555 Shumard Oak Boulevard Tallahassee, FL 32399-2100 (850) 413-9907 richard.butgereit@em.myflorida.com

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

Table 33 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 33: Bibliography and References

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
TIGER Roads	US Census Bureau	*TIGER roads*	US Census Bureau	Washington, D.C.	20140101	census.gov
FEMA 2010	Federal Emergency Management Agency	*Walton County, Florida and Incorporated Areas Flood Insurance Rate Map*	Federal Emergency Management Agency	Washington, D.C.	20100929	msc.fema.gov
FDOT Imagery	Florida Department of Transportation	*FDOT Imagery*	Florida Department of Transportation	Tallahassee, FL	20130424	https://fdotewp1.dot.state.fl.us/AerialPhotoLookUpSystem/
USFWS	US Fish and Wildlife Service	*National Wetlands Inventory*	US Fish and Wildlife Service	Falls Church, VA	20040401	https://www.fws.gov
USFWS	US Fish and Wildlife Service	*Coastal Barrier Resource System (CBRS) Boundaries.*	US Fish and Wildlife Service	Falls Church, VA	20150101	https://www.fws.gov
FEMA 2014	Federal Emergency Management Agency	*Detailed coastal analysis using ADCIRC, CHAMP, TAW, CSHORE, and RUNUP 2.0*	Federal Emergency Management Agency	Washington, D.C.	20140101	hazards.fema.gov
NWFWMD	Northwest Florida Water Management District	*Topographic Data (LiDAR) for Walton County, Florida*	NWFWMD	Havana, FL	20111128	http://www.nwfwmd.state.fl.us/

CHOCTAWHATCHEE BAY STORM SURGE EFFECT
STORM SURGE COMPLETELY OVERTAKES FLOOD PROFILES

ELEVATION IN FEET (NAVD)

15
10
5
-5
-10
-15
-20
-25
-30

MOUTH AT CHOCTAWHATCHEE BAY

500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500

STREAM DISTANCE IN IN FEET ABOVE MOUTH

A B C D E

LEGEND
- 0.2% ANNUAL CHANCE FLOOD*
- "1%+" ANNUAL CHANCE FLOOD*
- 1% ANNUAL CHANCE FLOOD*
- 2% ANNUAL CHANCE FLOOD*
- 4% ANNUAL CHANCE FLOOD*
- 10% ANNUAL CHANCE FLOOD*
- STREAM BED
- A CROSS SECTION LOCATION

* DATA NOT AVAILABLE

FLOOD PROFILES

ALAQUA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
WALTON COUNTY, FL
AND INCORPORATED AREAS

01P

CHOCTAWHATCHEE BAY STORM SURGE EFFECT
STORM SURGE COMPLETELY OVERTAKES FLOOD PROFILES

ELEVATION IN FEET (NAVD)

STREAM DISTANCE IN IN FEET ABOVE MOUTH

STATE ROAD 20

LIMIT OF DETAILED STUDY

F G H I A

LEGEND
- 0.2% ANNUAL CHANCE FLOOD*
- "1%+" ANNUAL CHANCE FLOOD*
- 1% ANNUAL CHANCE FLOOD*
- 2% ANNUAL CHANCE FLOOD*
- 4% ANNUAL CHANCE FLOOD*
- 10% ANNUAL CHANCE FLOOD*
- STREAM BED
- CROSS SECTION LOCATION

* DATA NOT AVAILABLE

FLOOD PROFILES

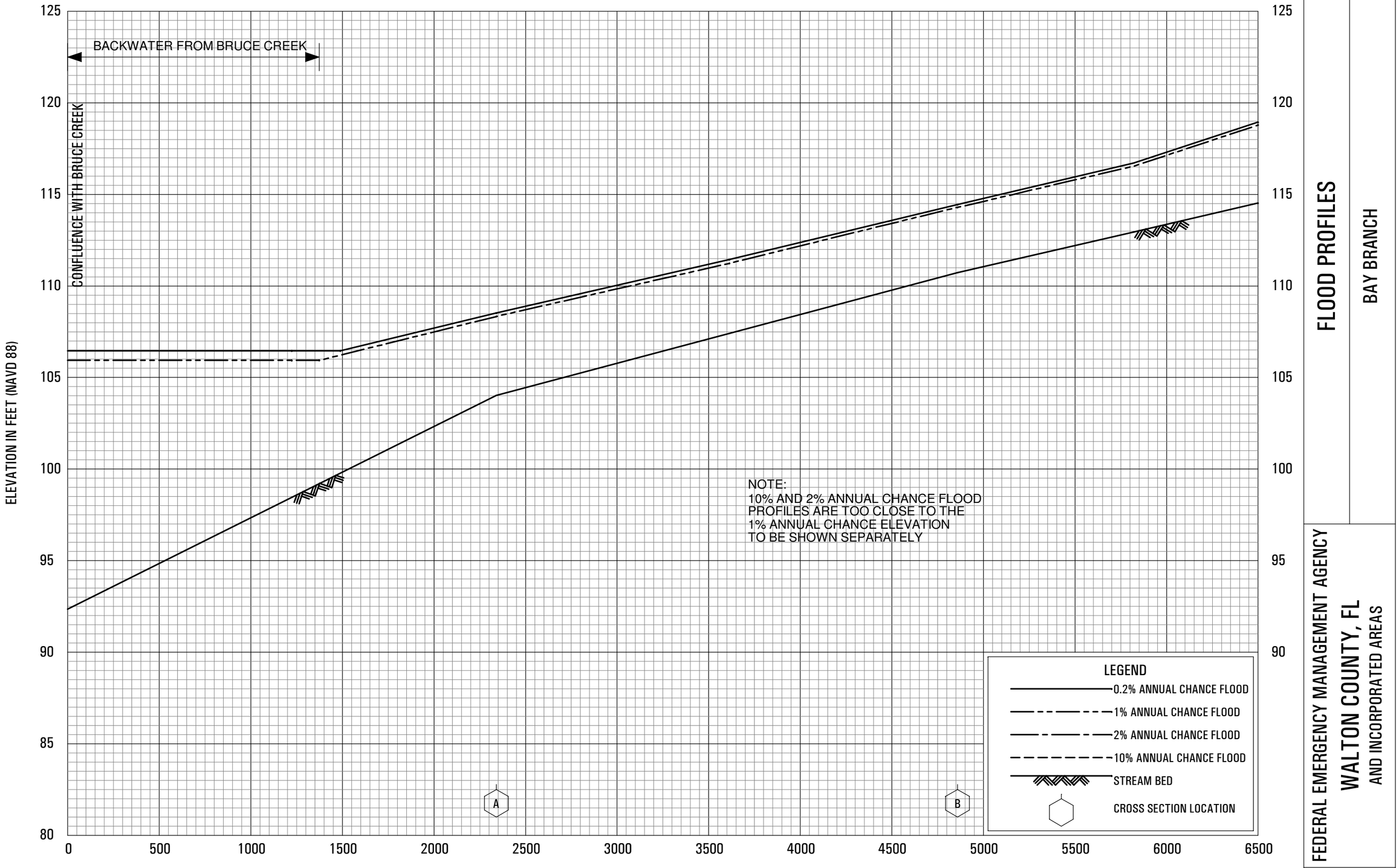
ALAQUA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

02P



FLOOD PROFILES

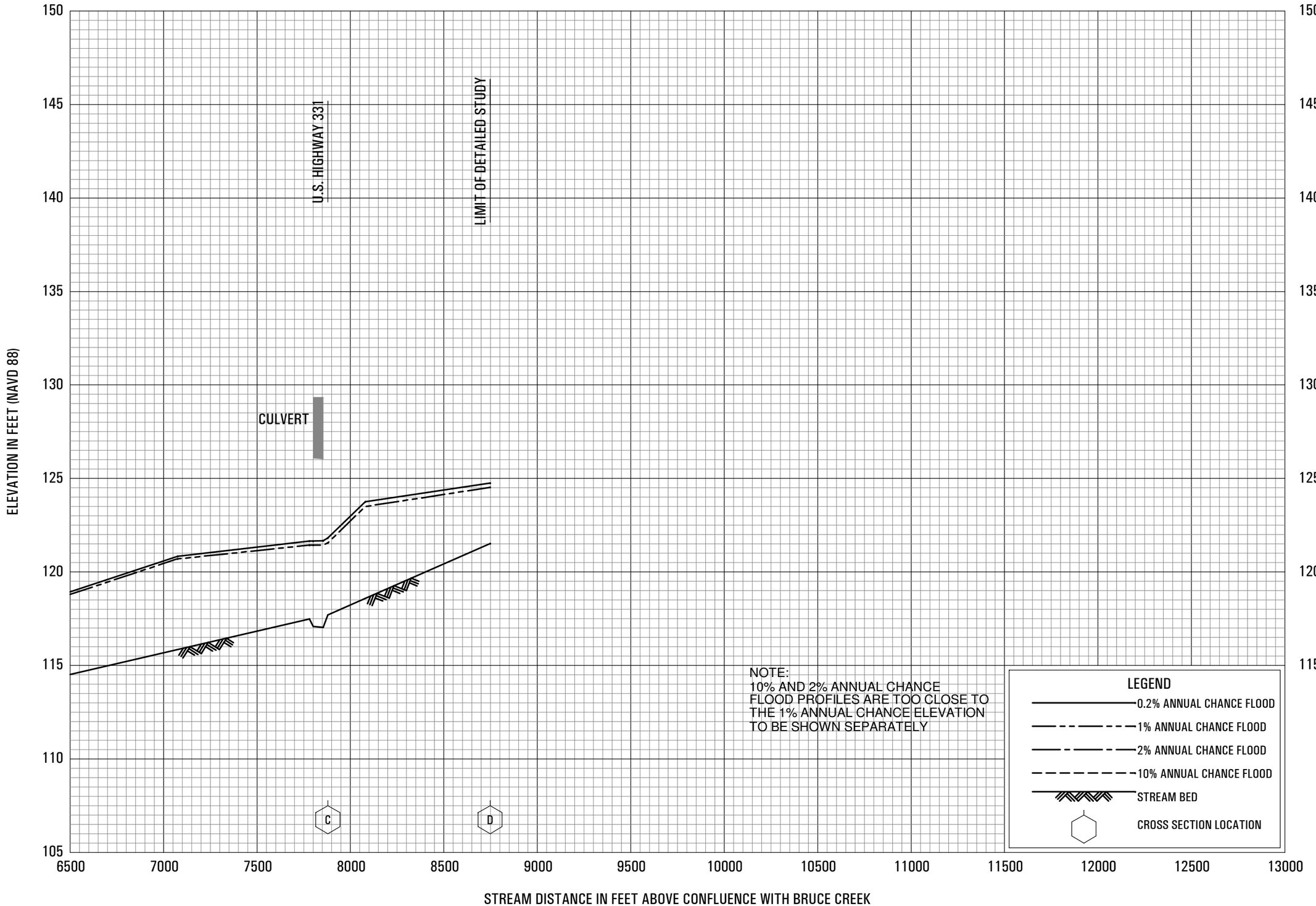
BAY BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

03P



FLOOD PROFILES

BAY BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

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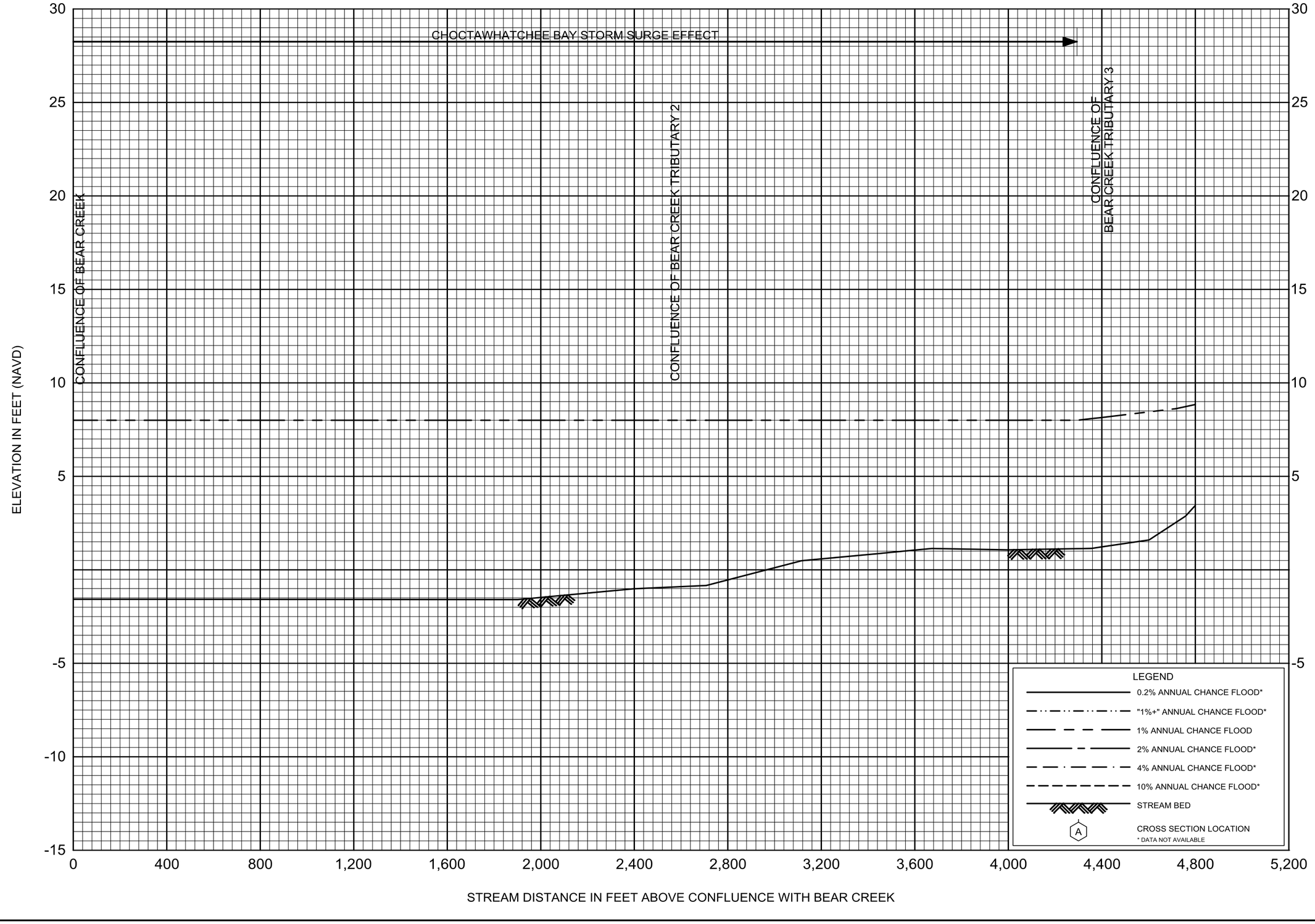


FLOOD PROFILES

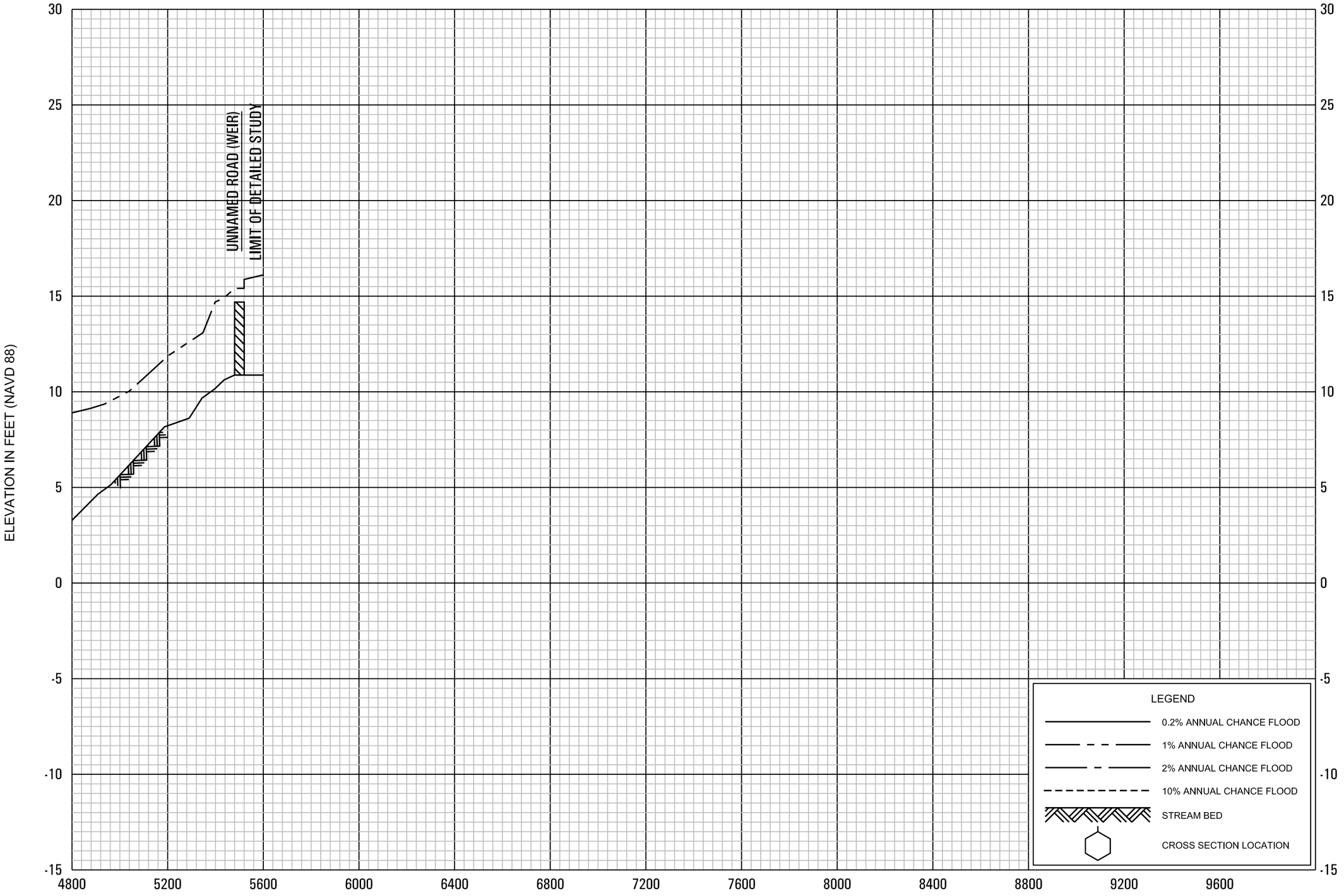
BEAR CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

05P



FLOOD PROFILES

BEAR CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

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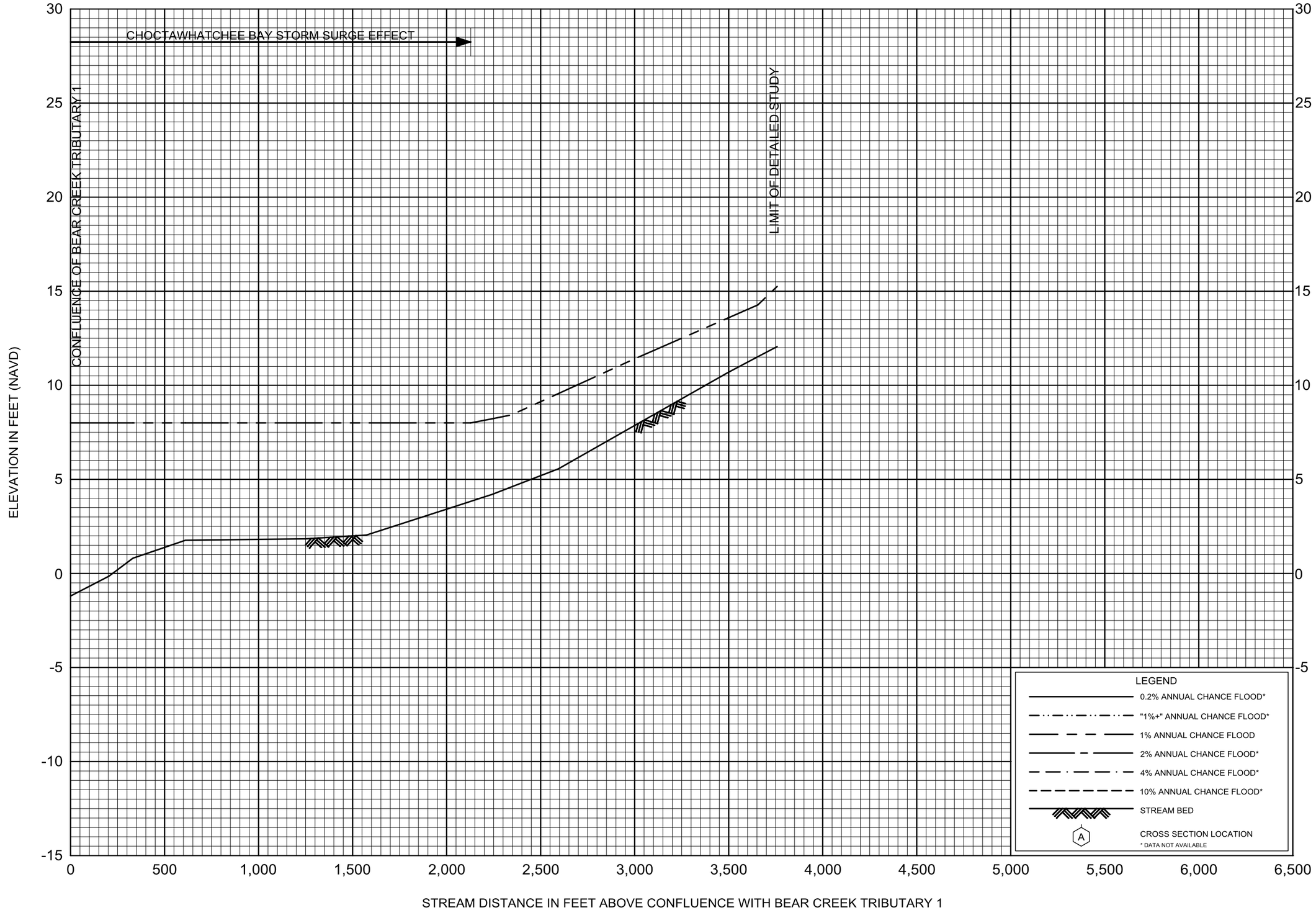

FLOOD PROFILES

BEAR CREEK TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

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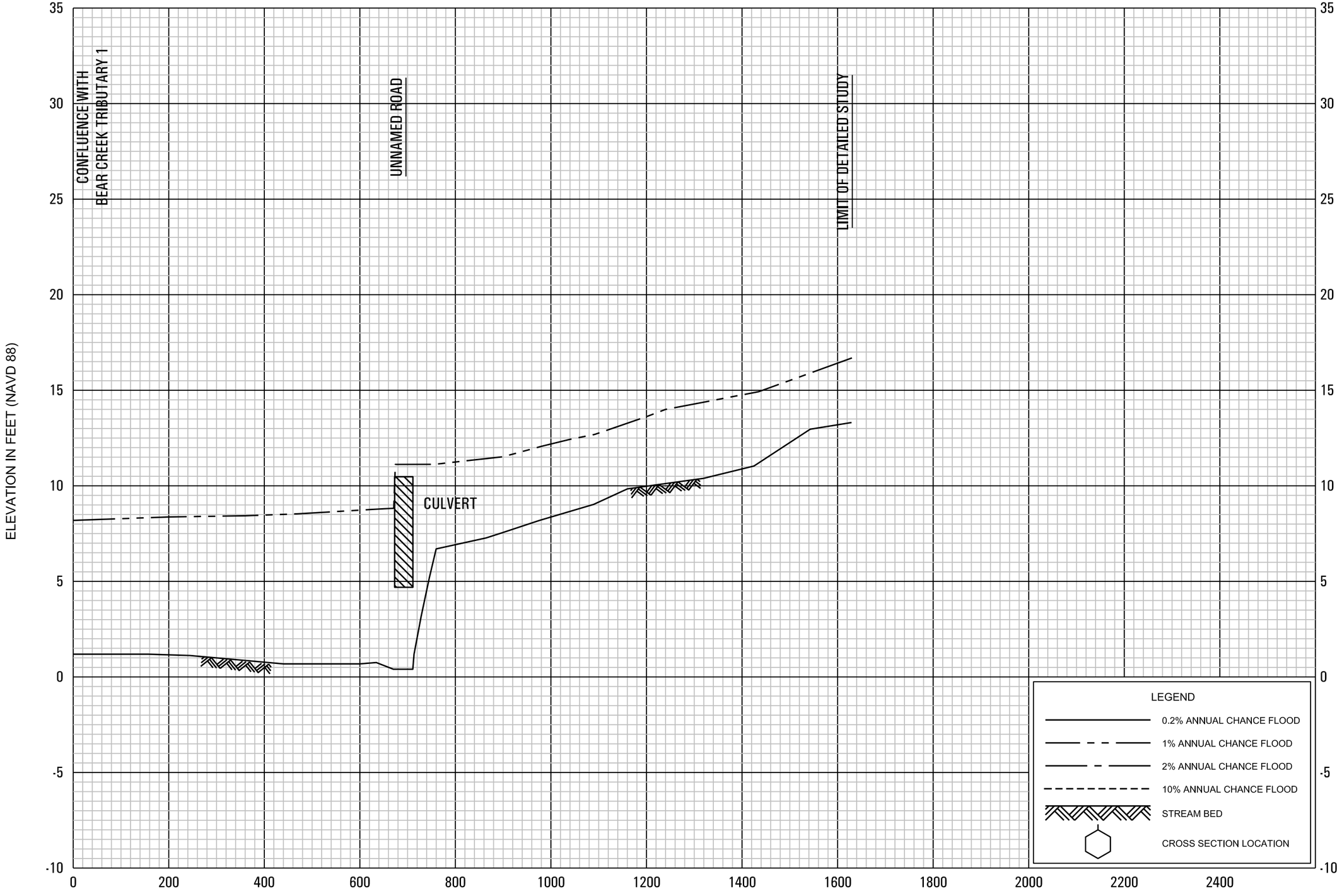

FLOOD PROFILES

BEAR CREEK TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

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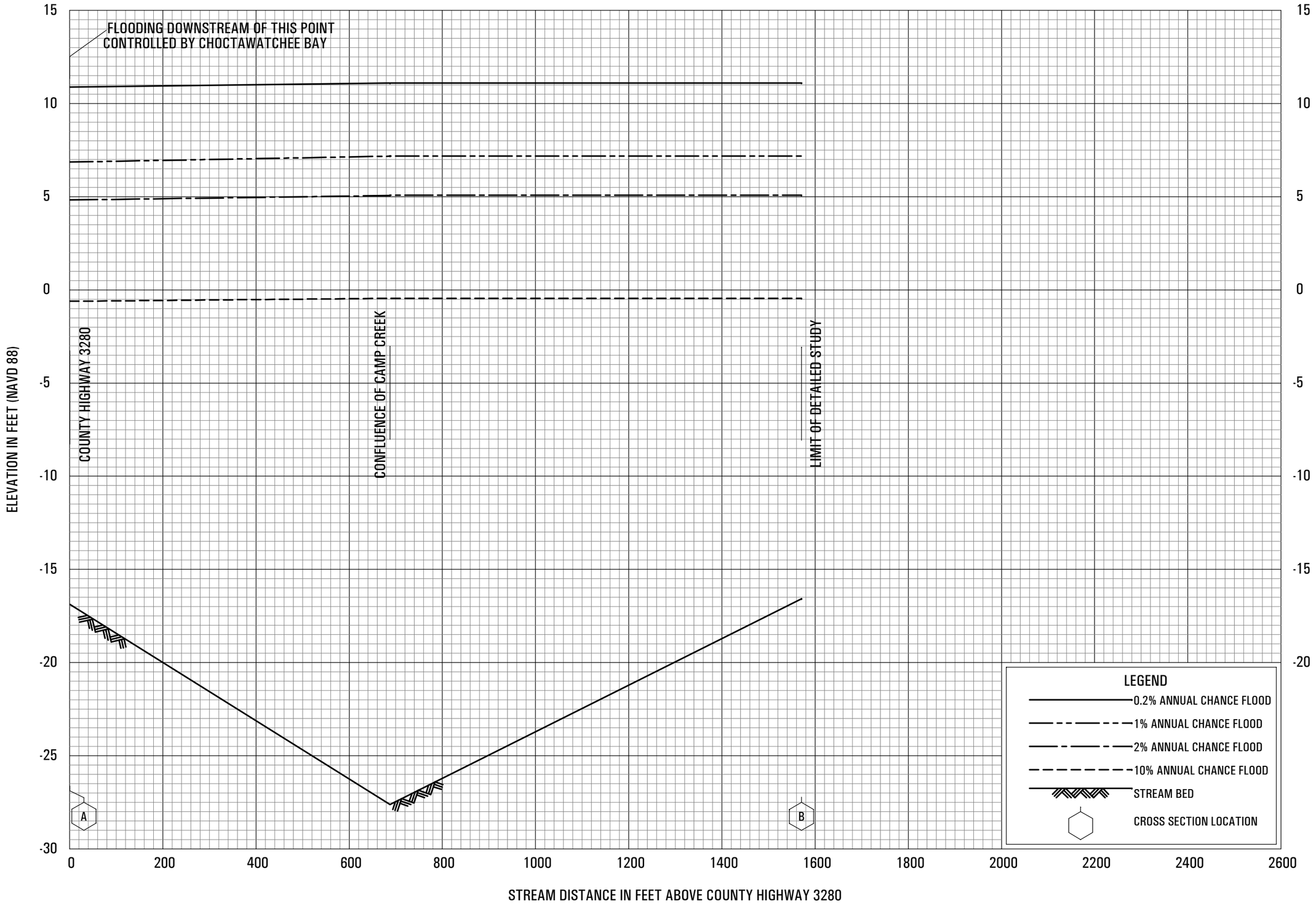


FLOOD PROFILES

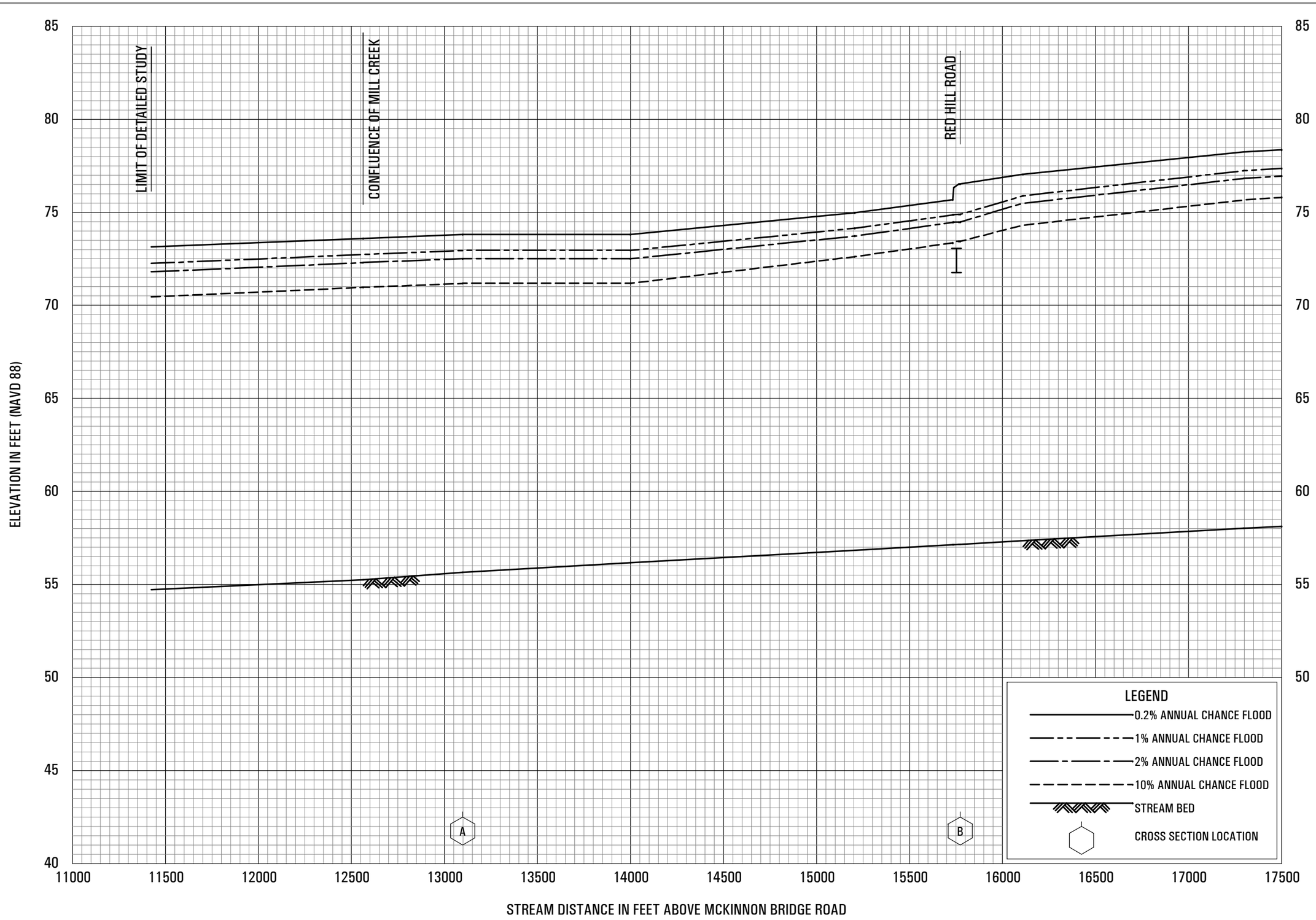
BLACK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

09P



FLOOD PROFILES

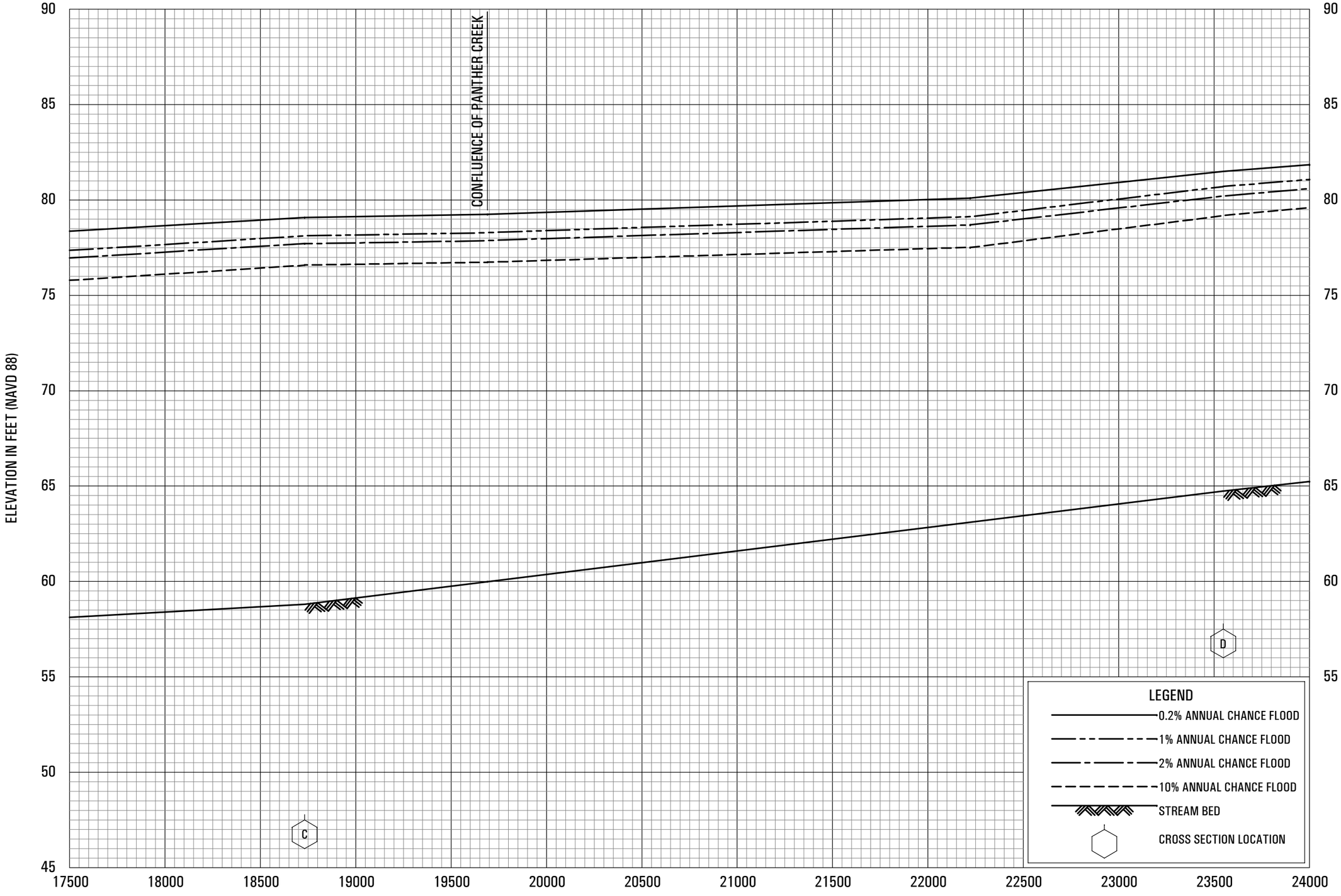
BRUCE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

10P



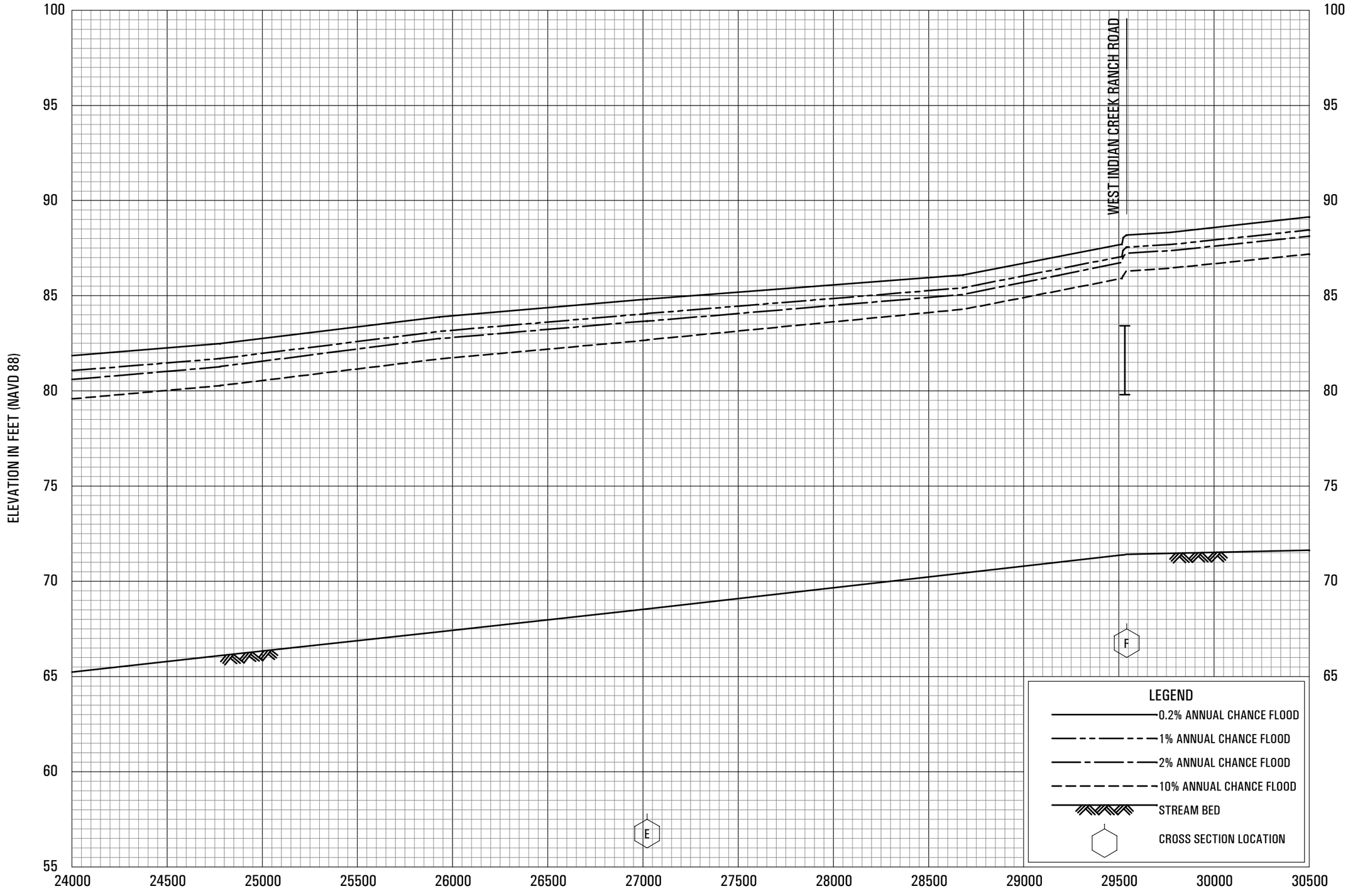
FLOOD PROFILES

BRUCE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

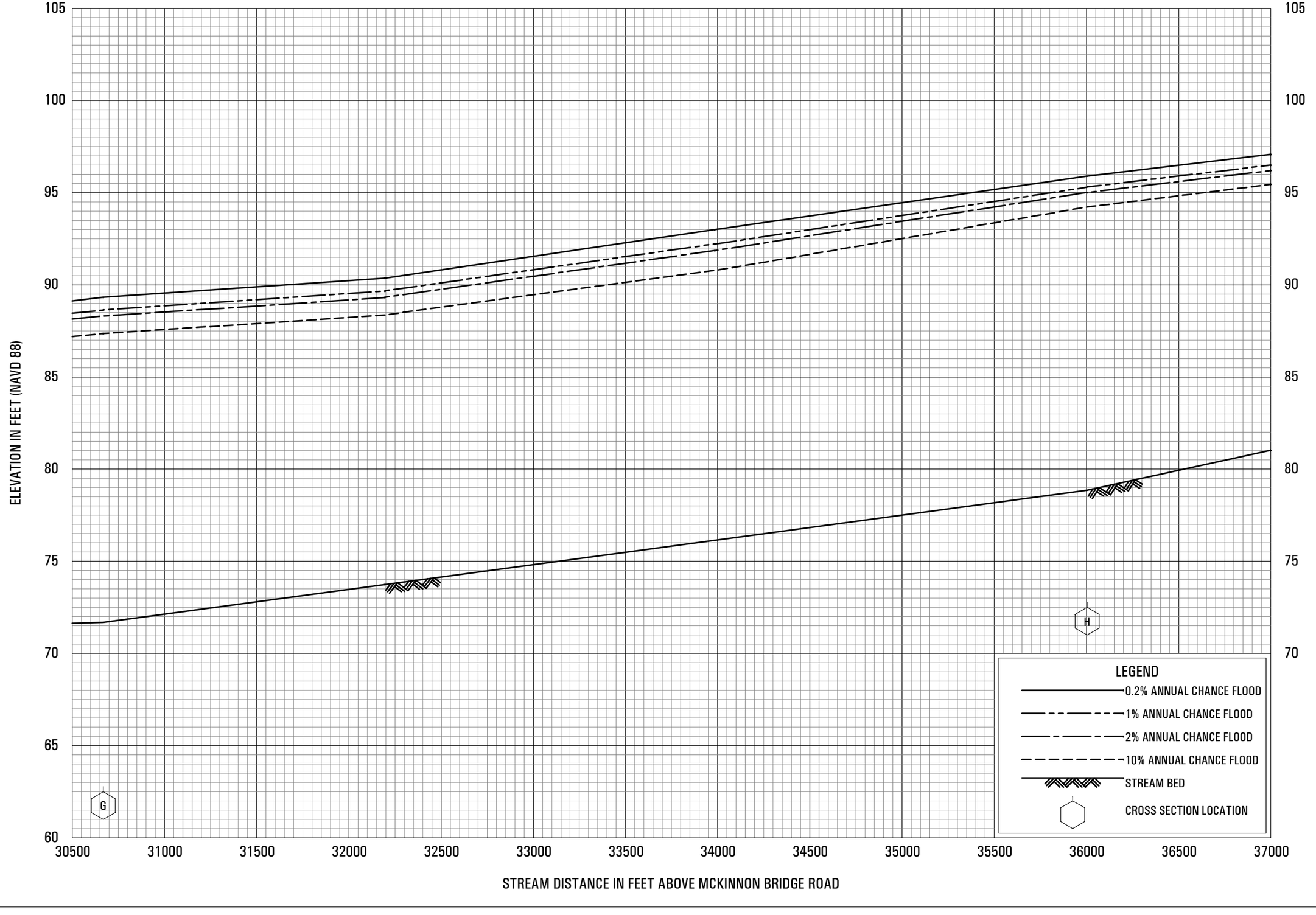
BRUCE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

12P



FLOOD PROFILES

BRUCE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

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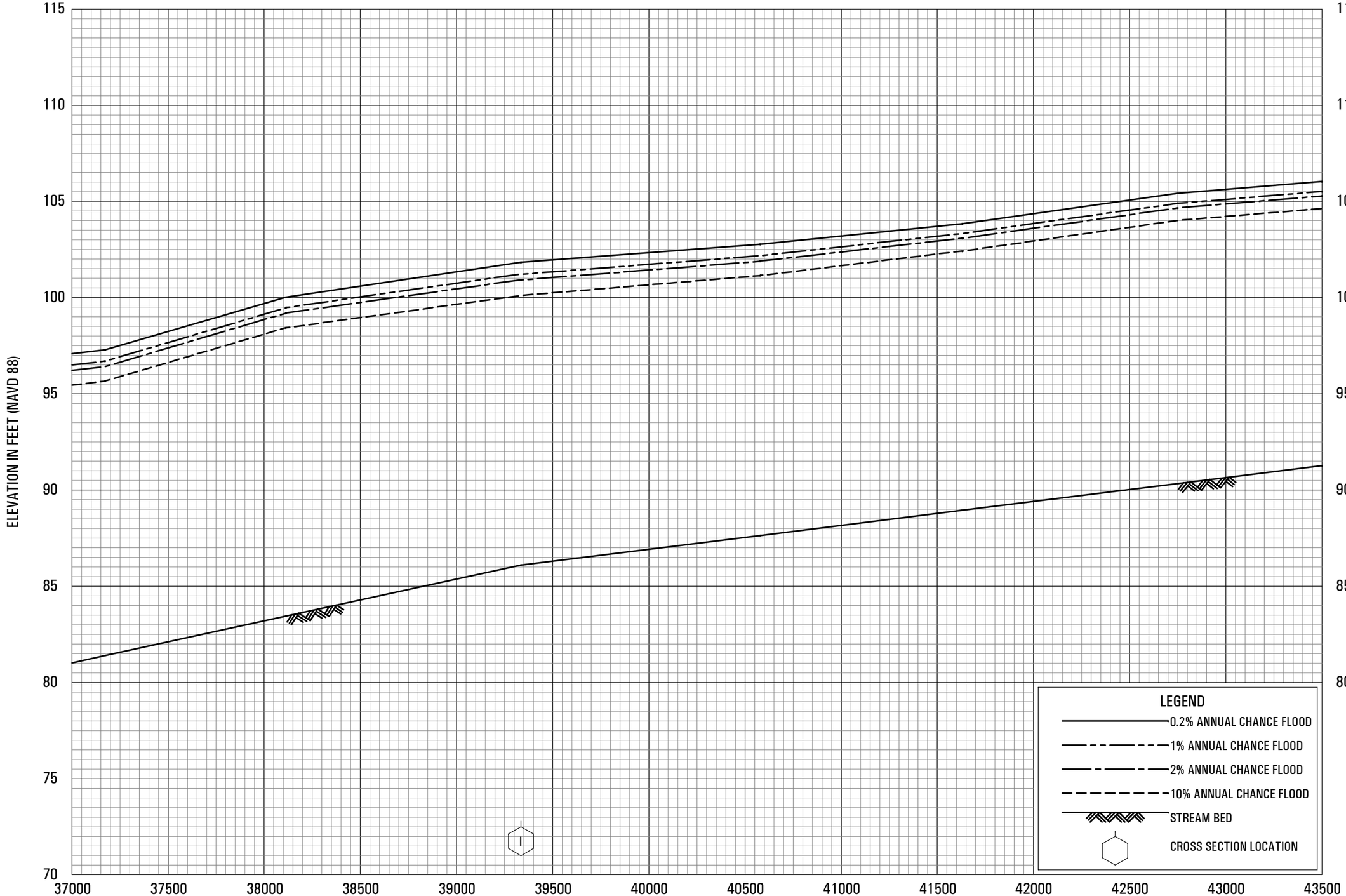


FLOOD PROFILES

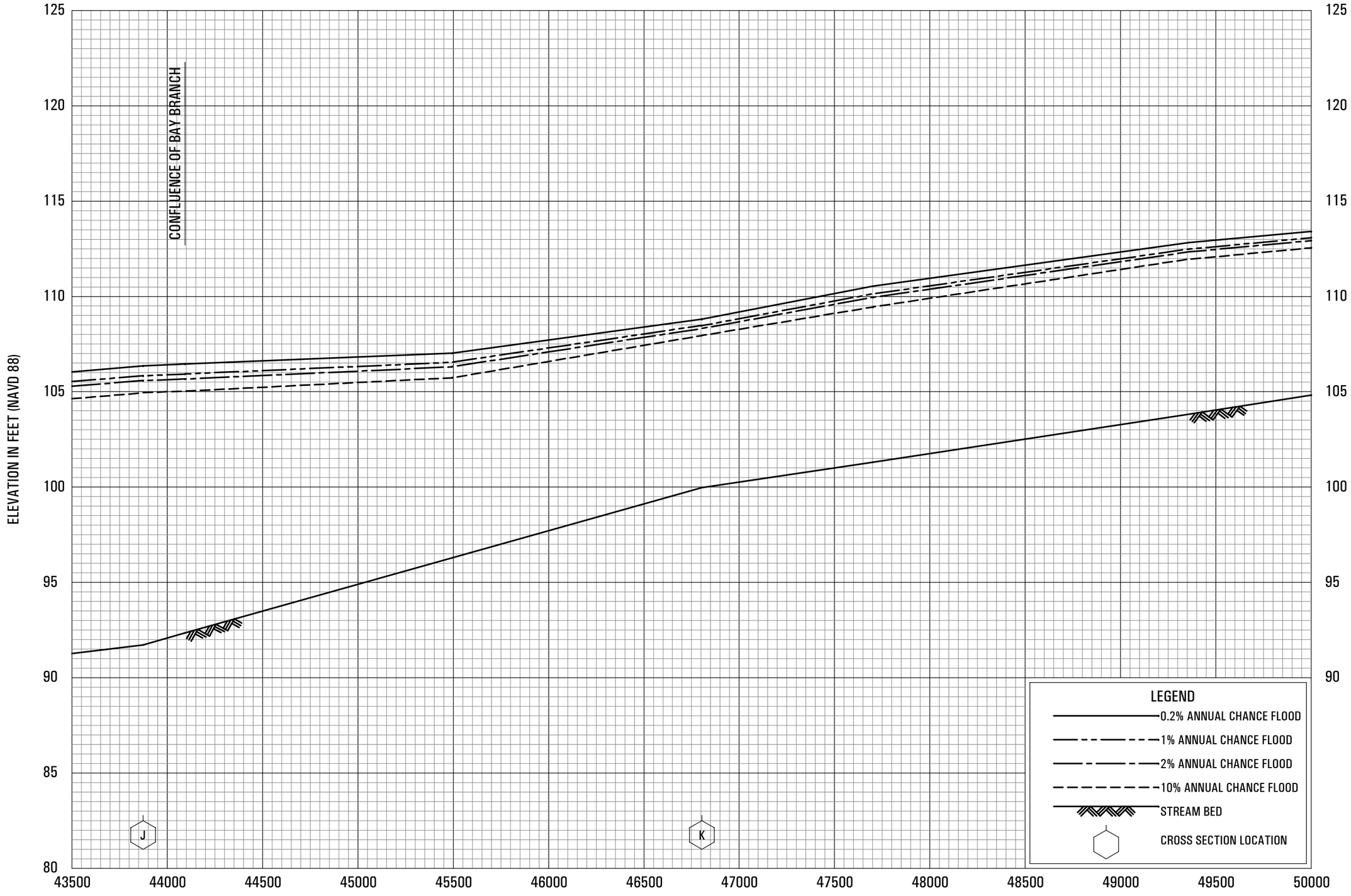
BRUCE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

14P



FLOOD PROFILES

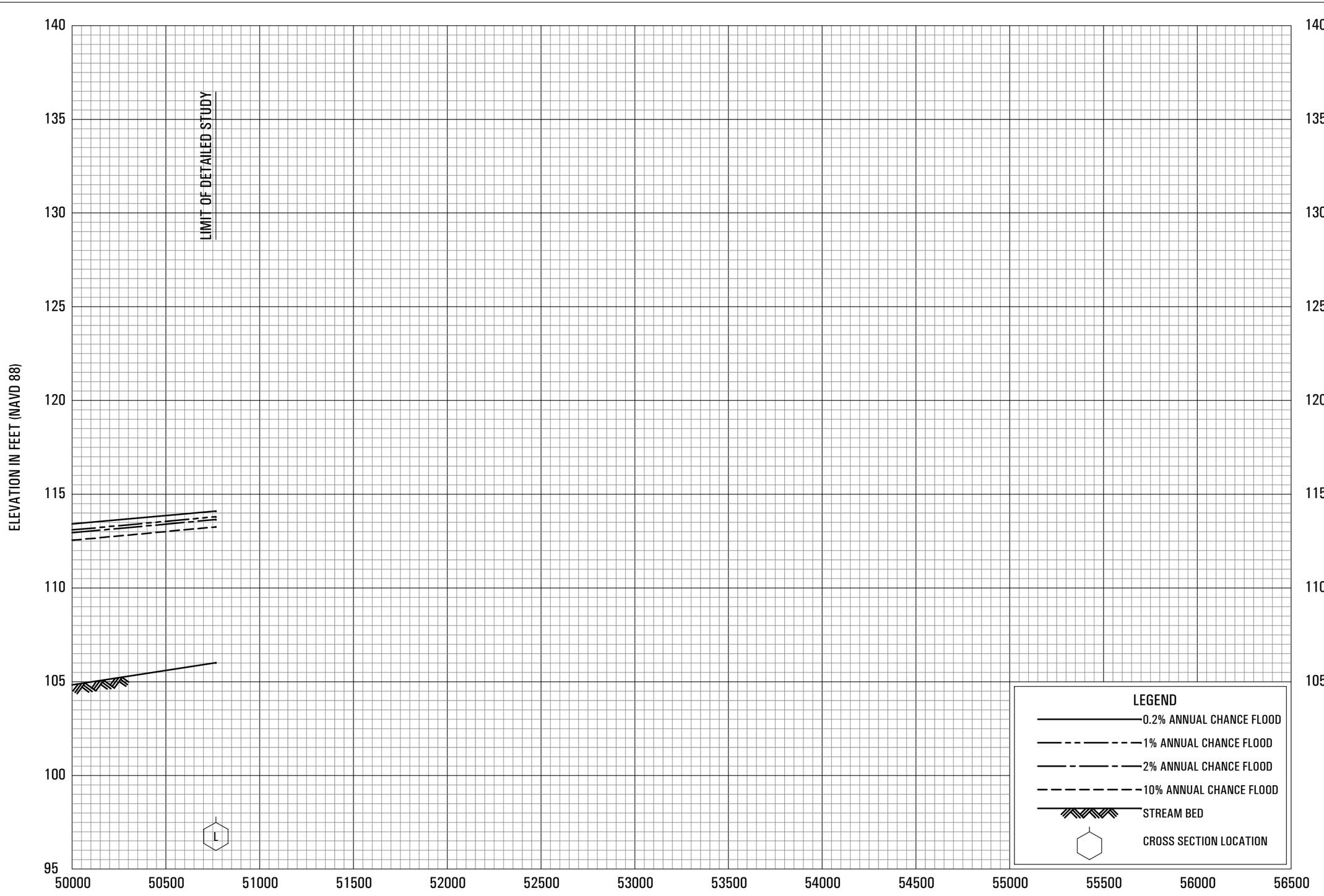
BRUCE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

15P



FLOOD PROFILES

BRUCE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

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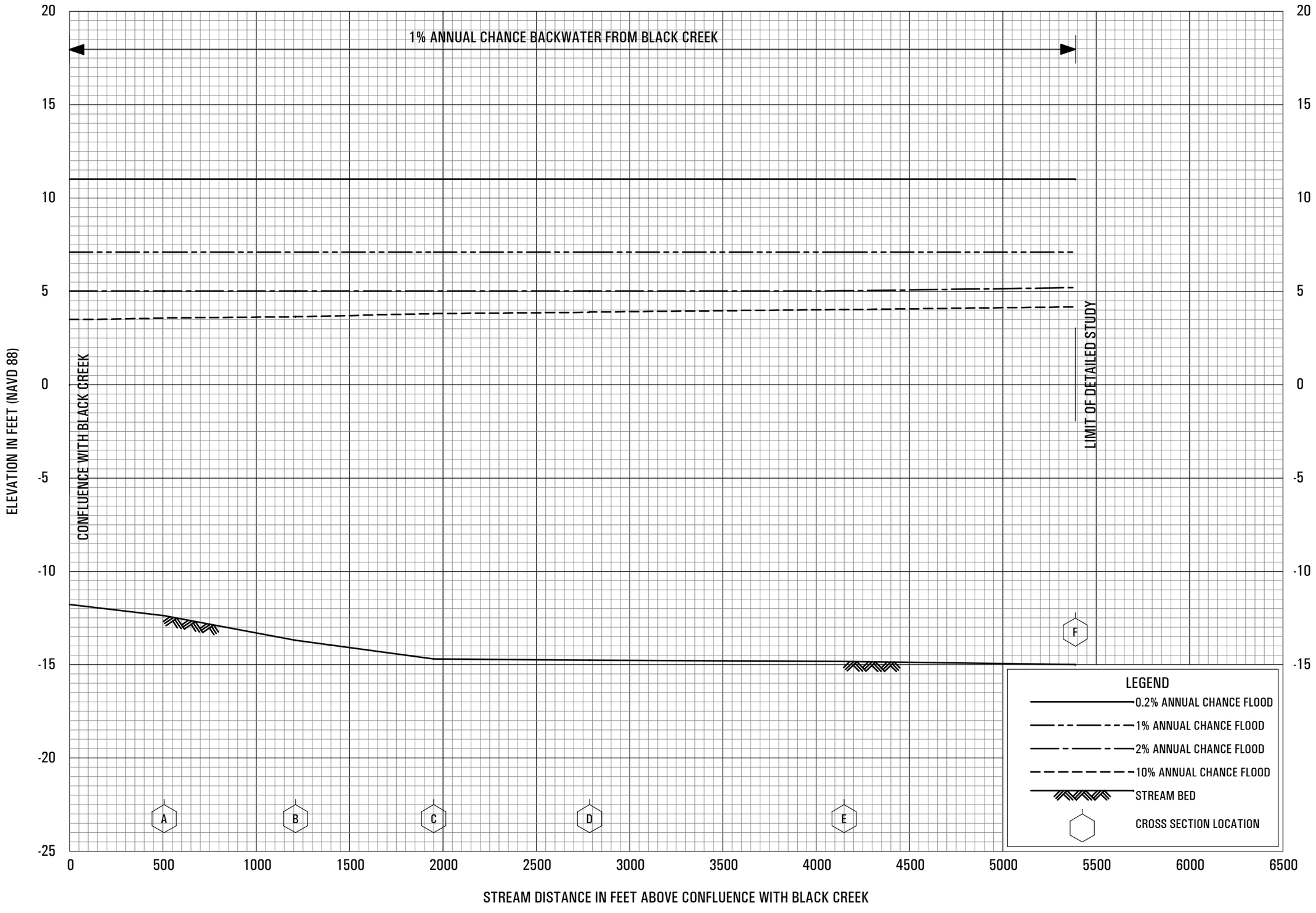


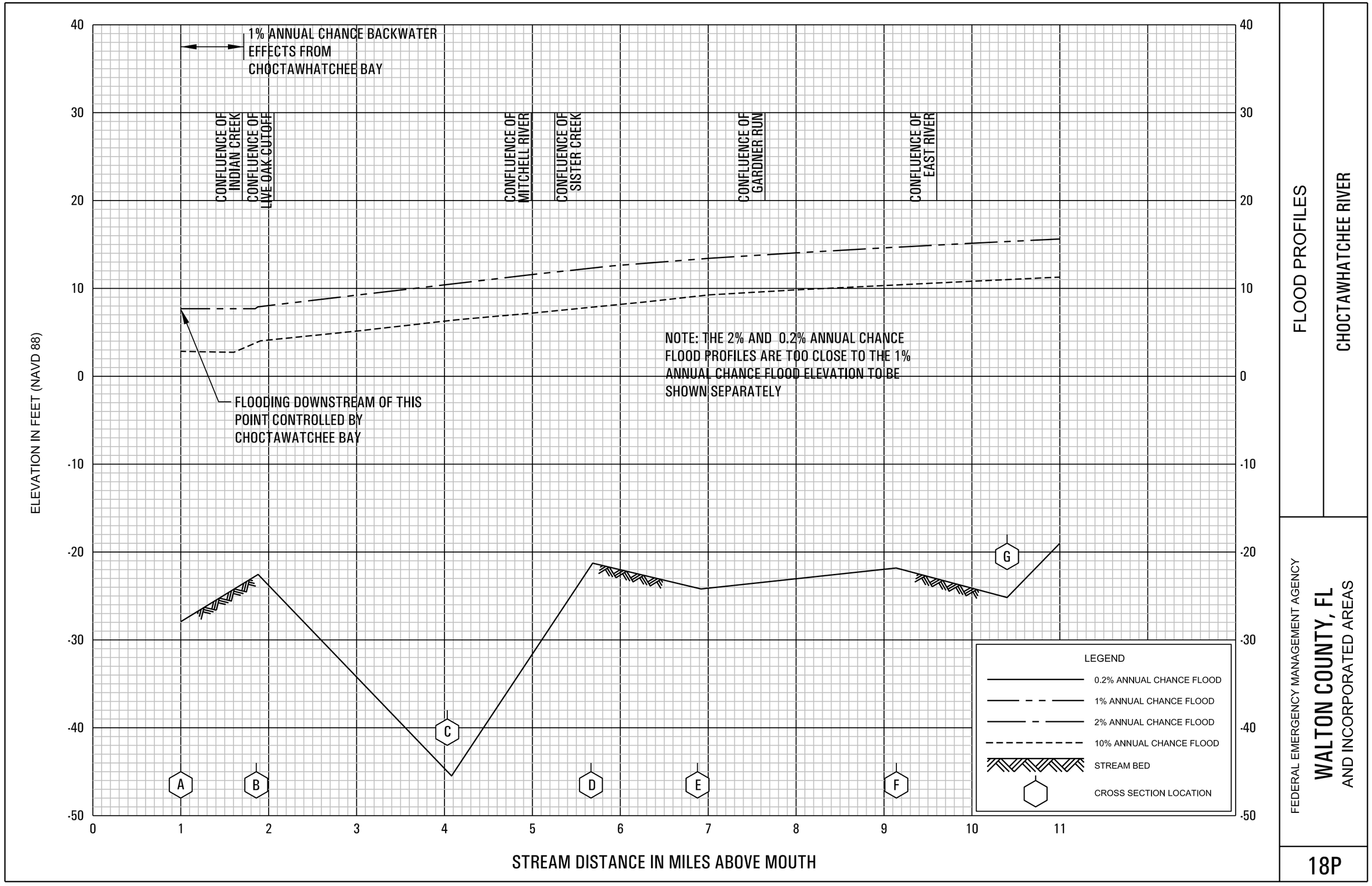
FLOOD PROFILES

CAMP CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

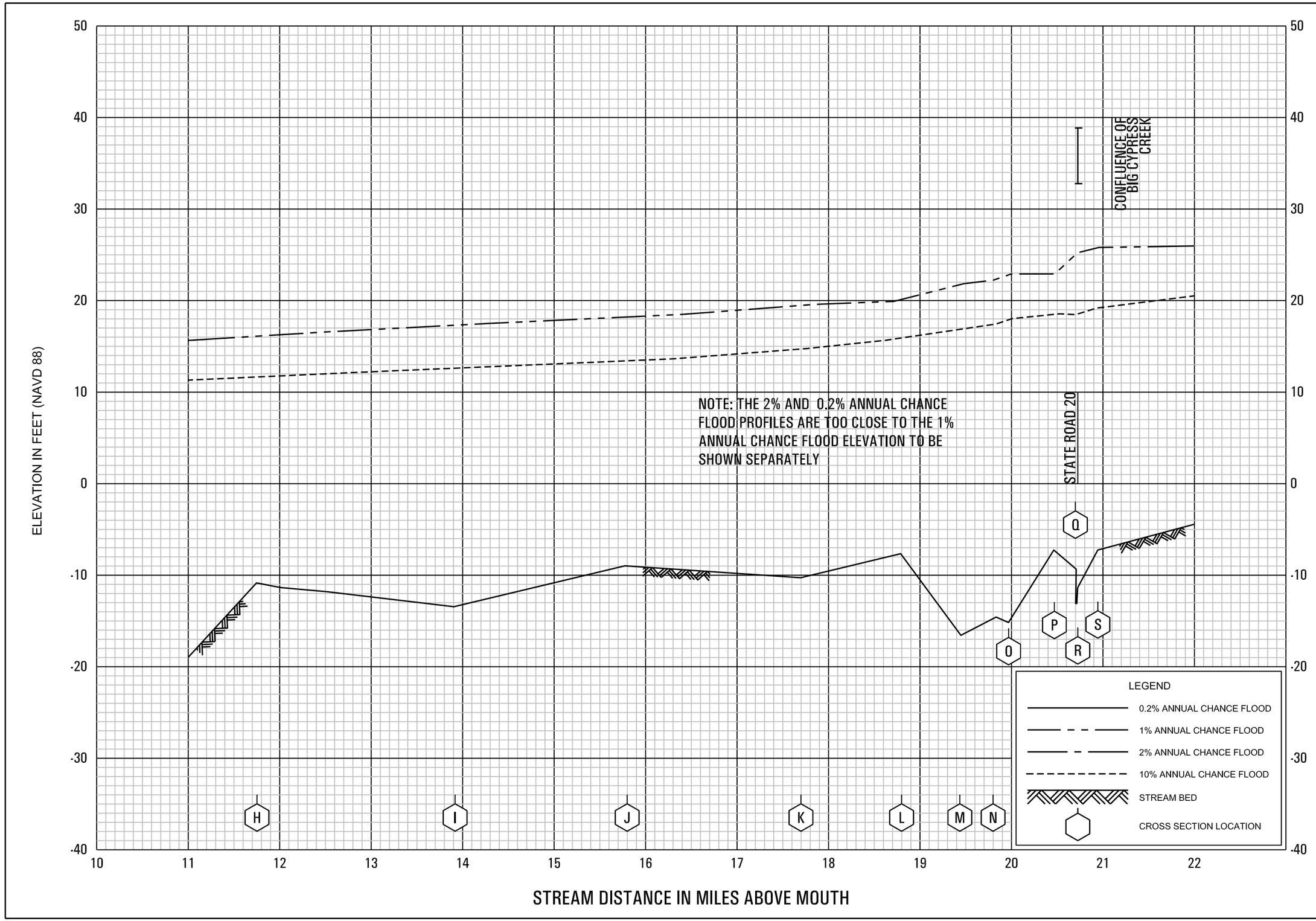
CHOCTAWHATCHEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

18P



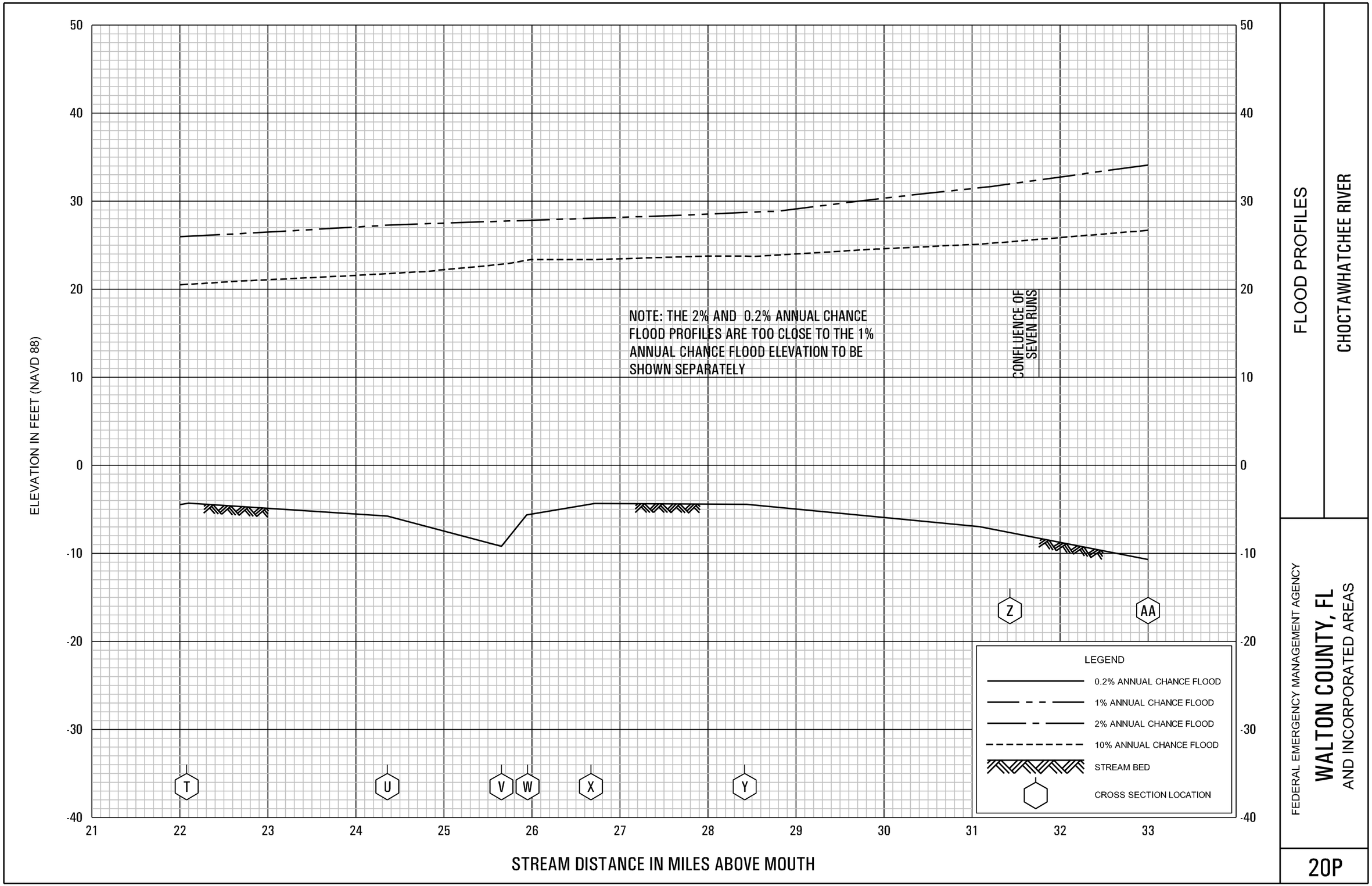
FLOOD PROFILES

CHOCTAWHATCHEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL
AND INCORPORATED AREAS

19P



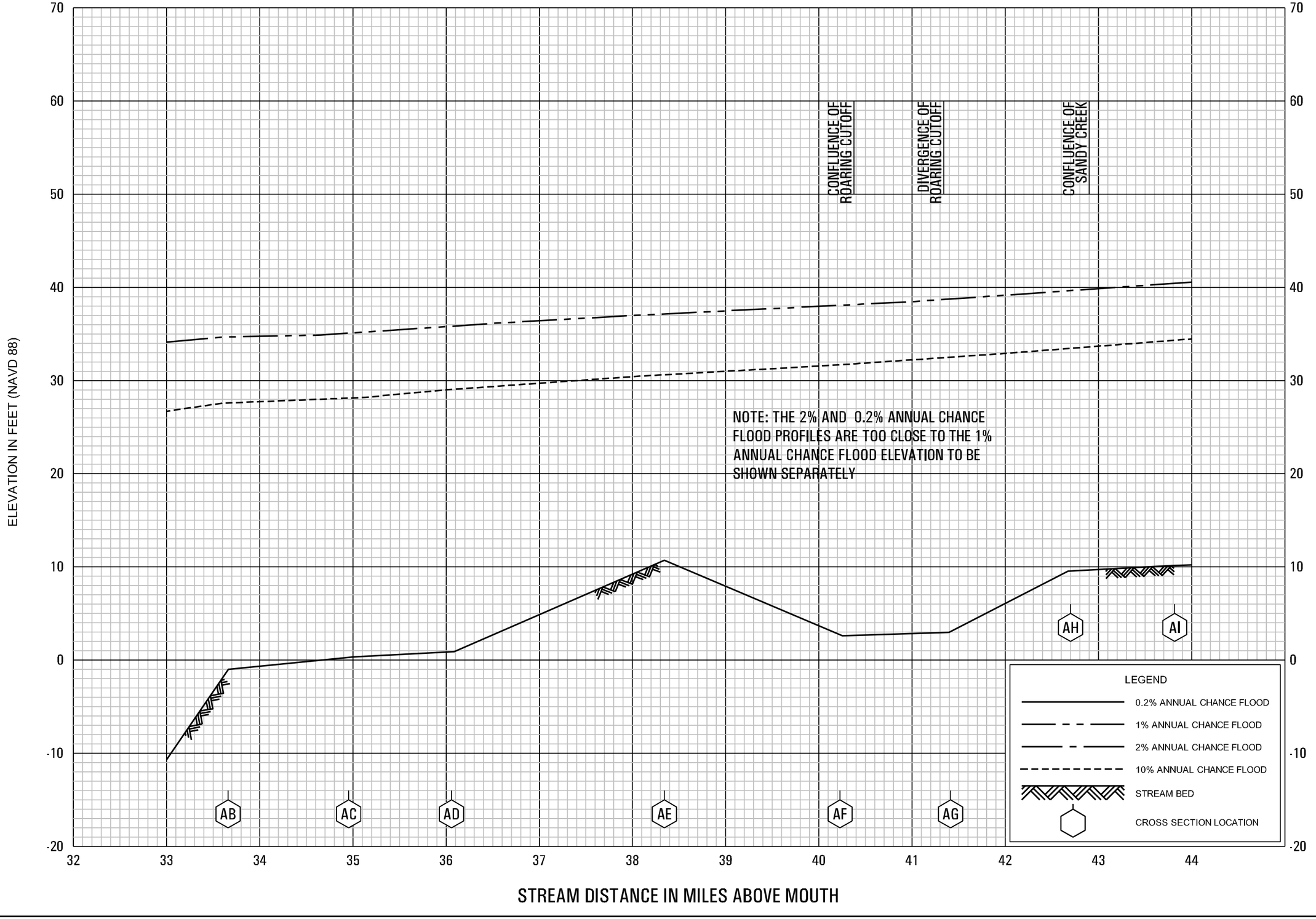
FLOOD PROFILES

CHOCTAWHATCHEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



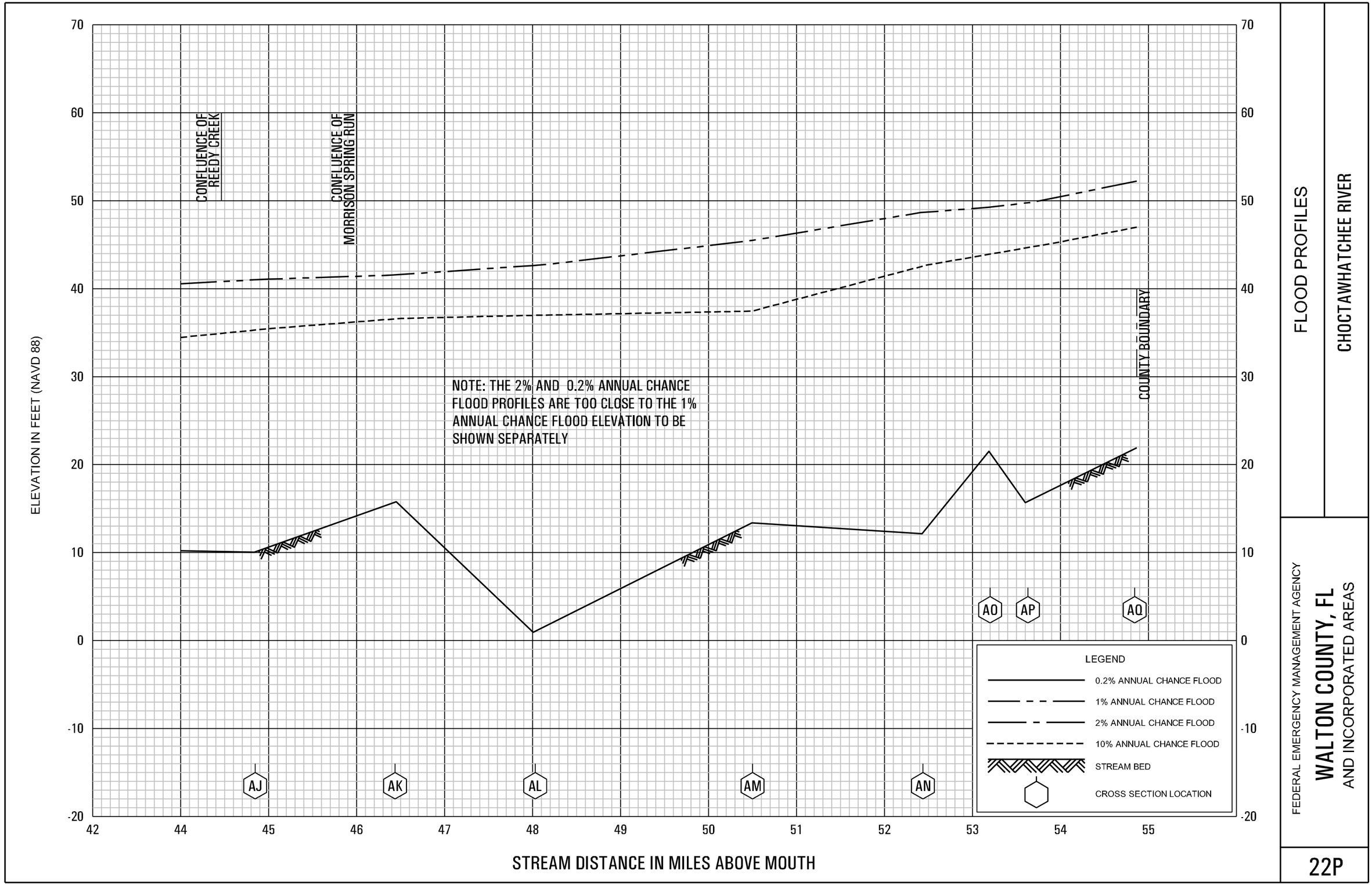
FLOOD PROFILES

CHOCTAWHATCHEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



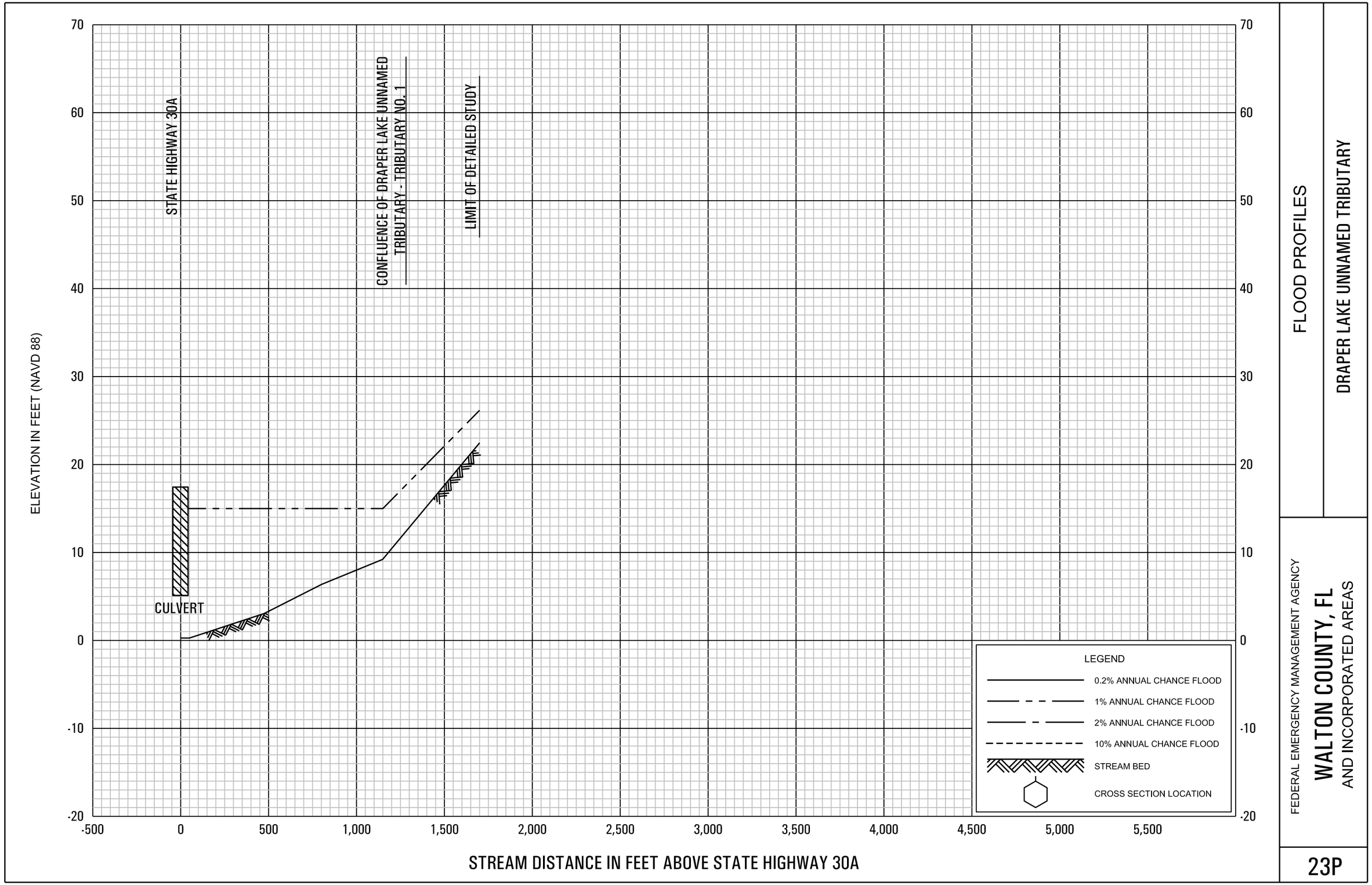
FLOOD PROFILES

CHOCTAWHATCHEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL
AND INCORPORATED AREAS

22P



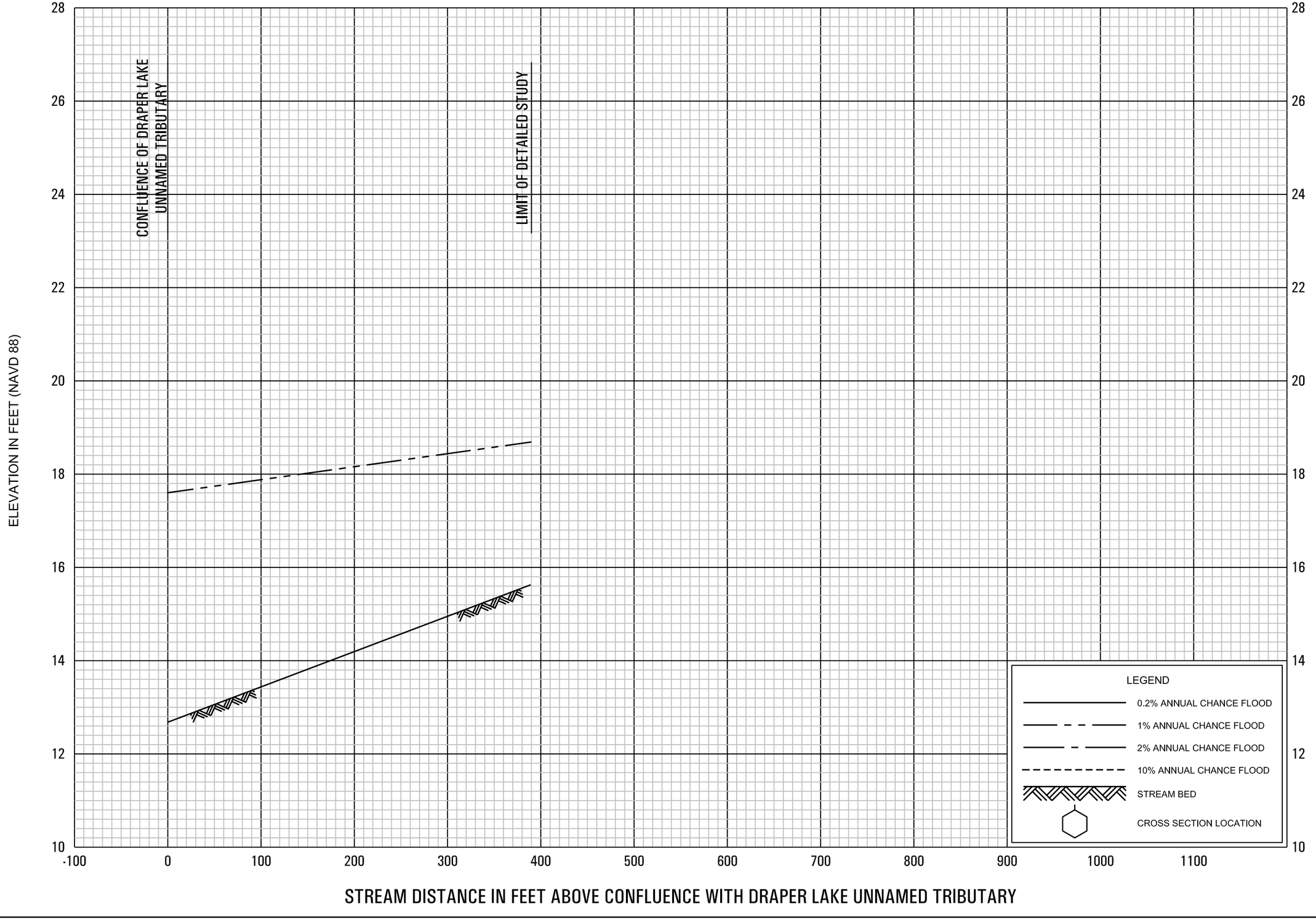
FLOOD PROFILES

DRAPER LAKE UNNAMED TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



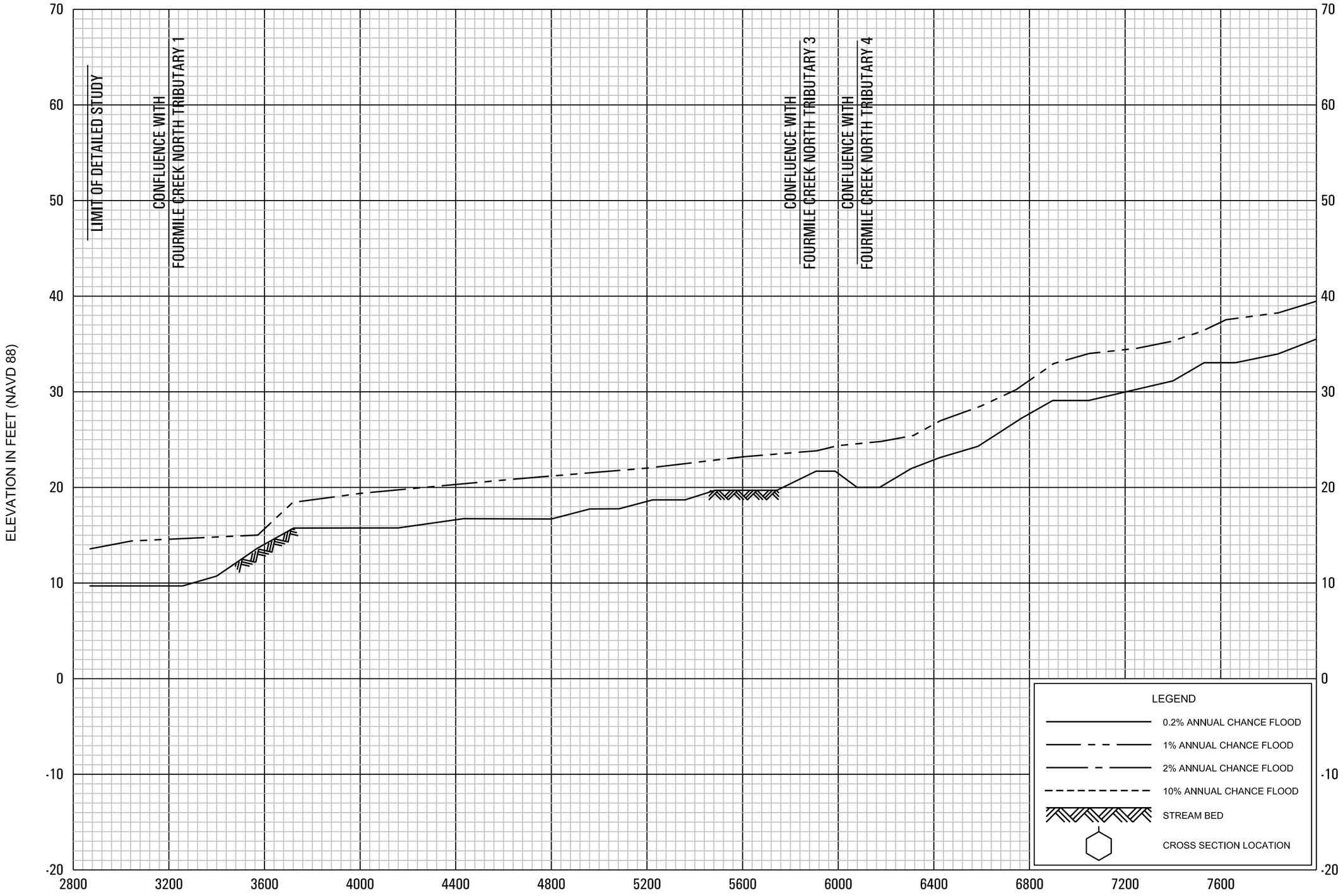
FLOOD PROFILES

DRAPER LAKE UNNAMED TRIBUTARY - TRIBUTARY NO. 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



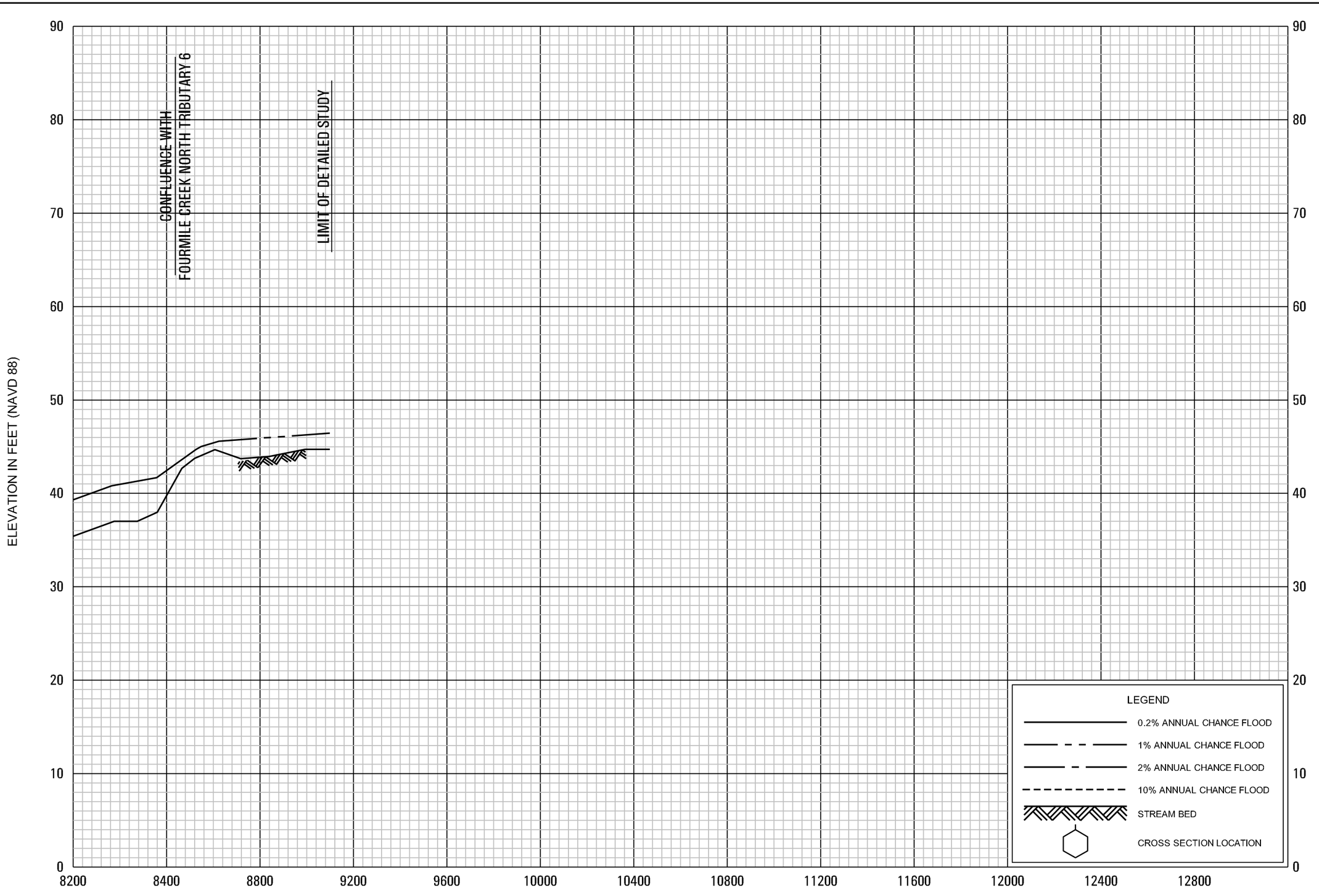
FLOOD PROFILES

FOURMILE CREEK NORTH TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL
AND INCORPORATED AREAS

25P



FLOOD PROFILES

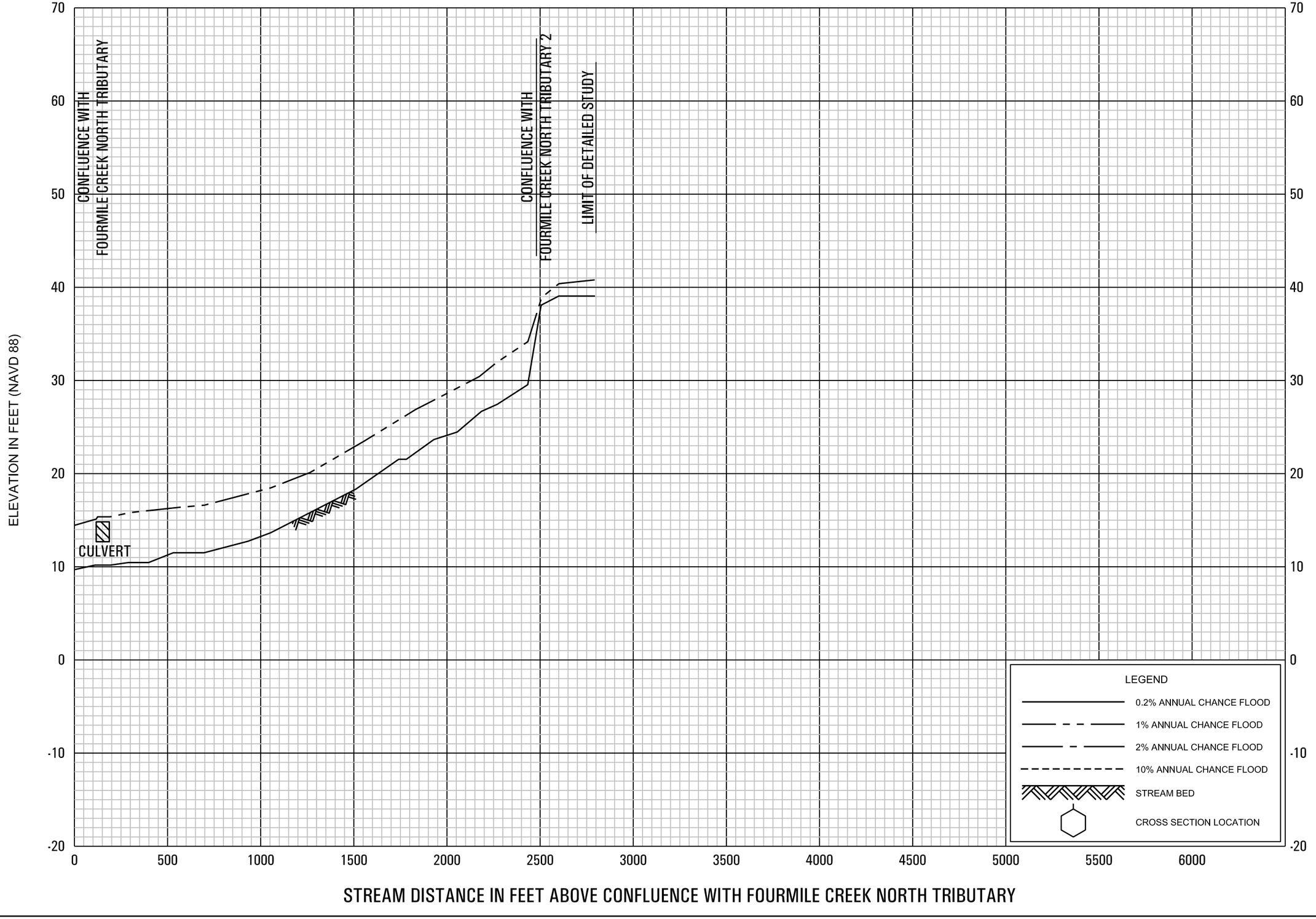
FOURMILE CREEK NORTH TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

26P



FLOOD PROFILES

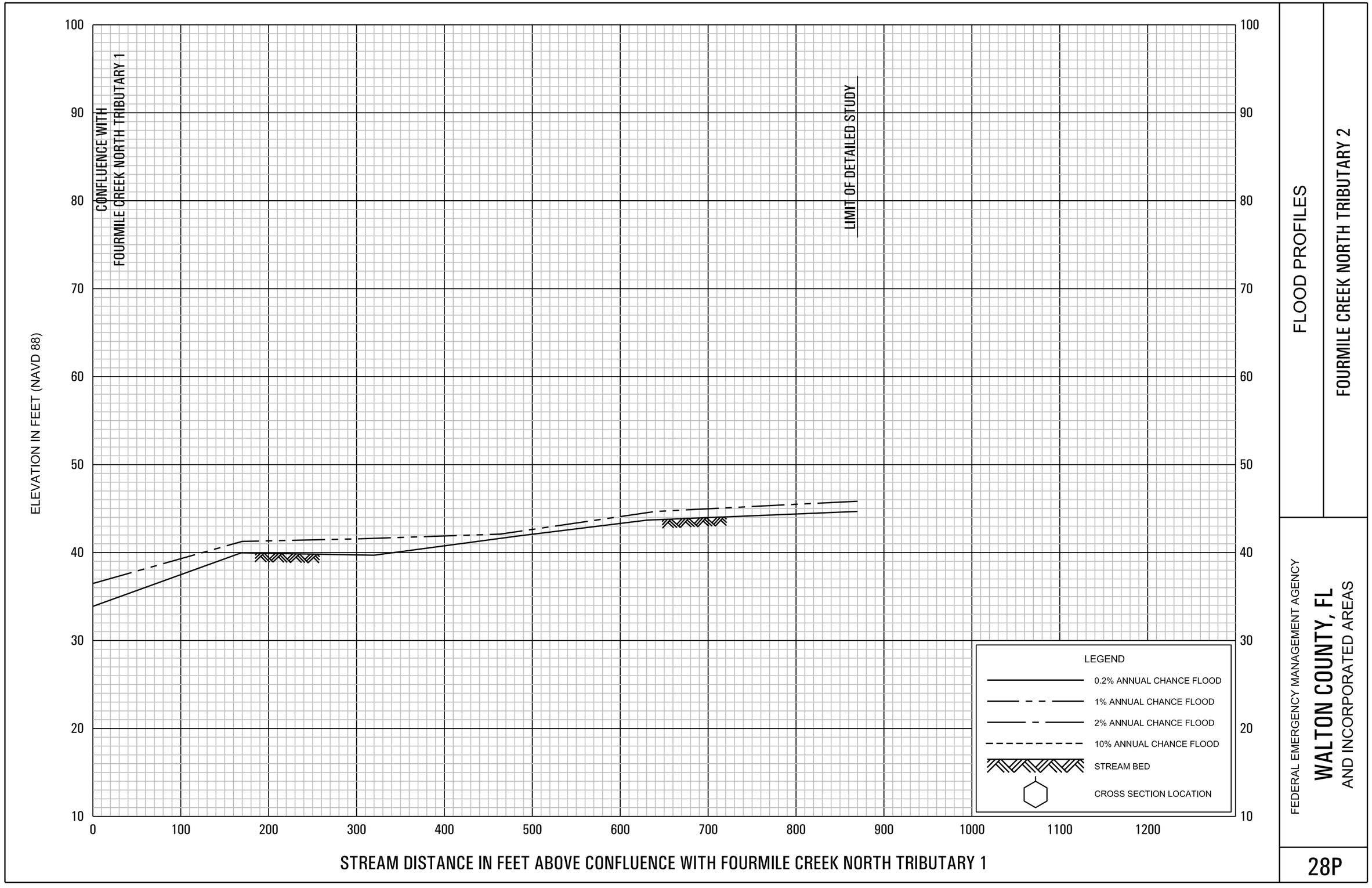
FOURMILE CREEK NORTH TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

27P

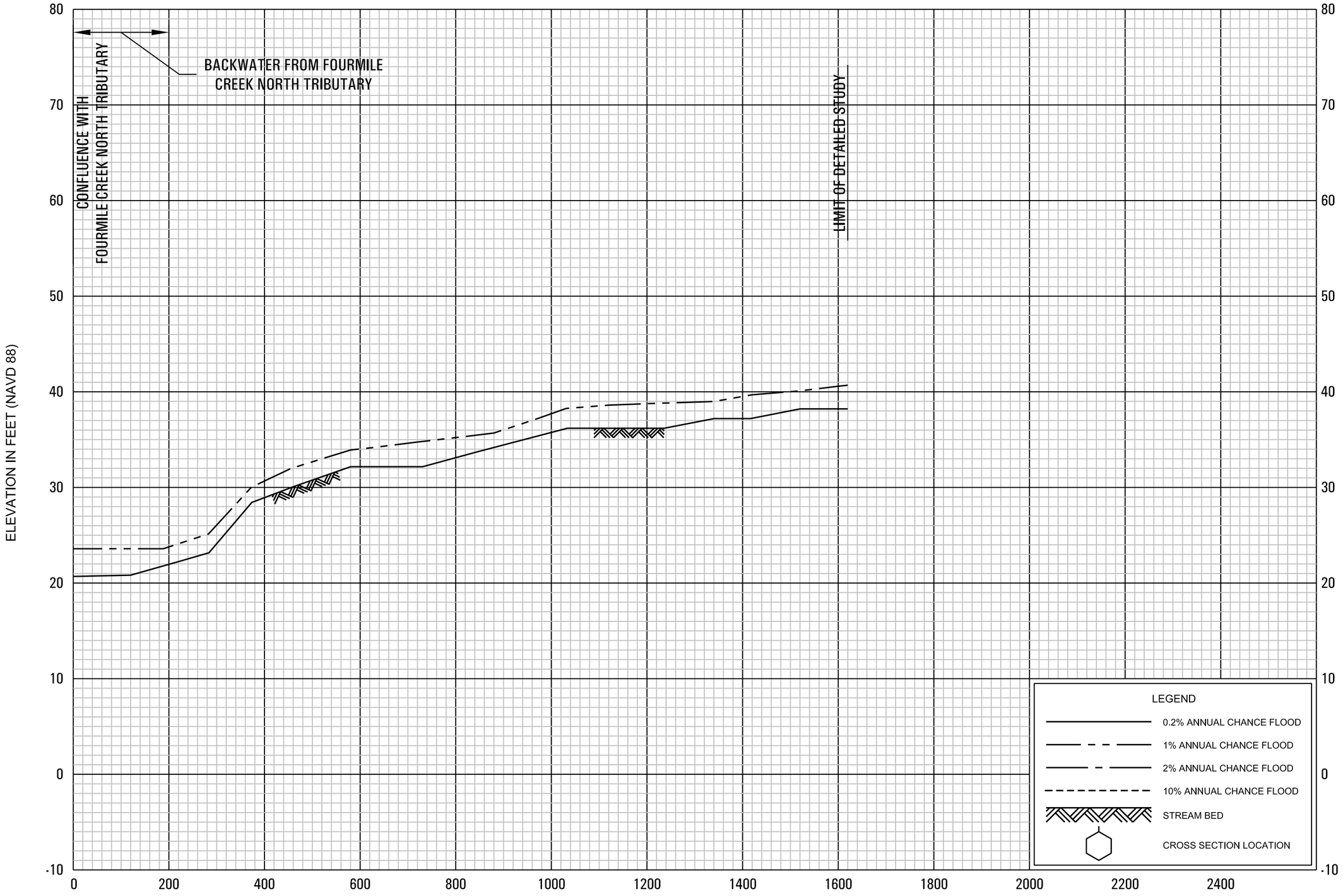


FLOOD PROFILES

FOURMILE CREEK NORTH TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL
AND INCORPORATED AREAS



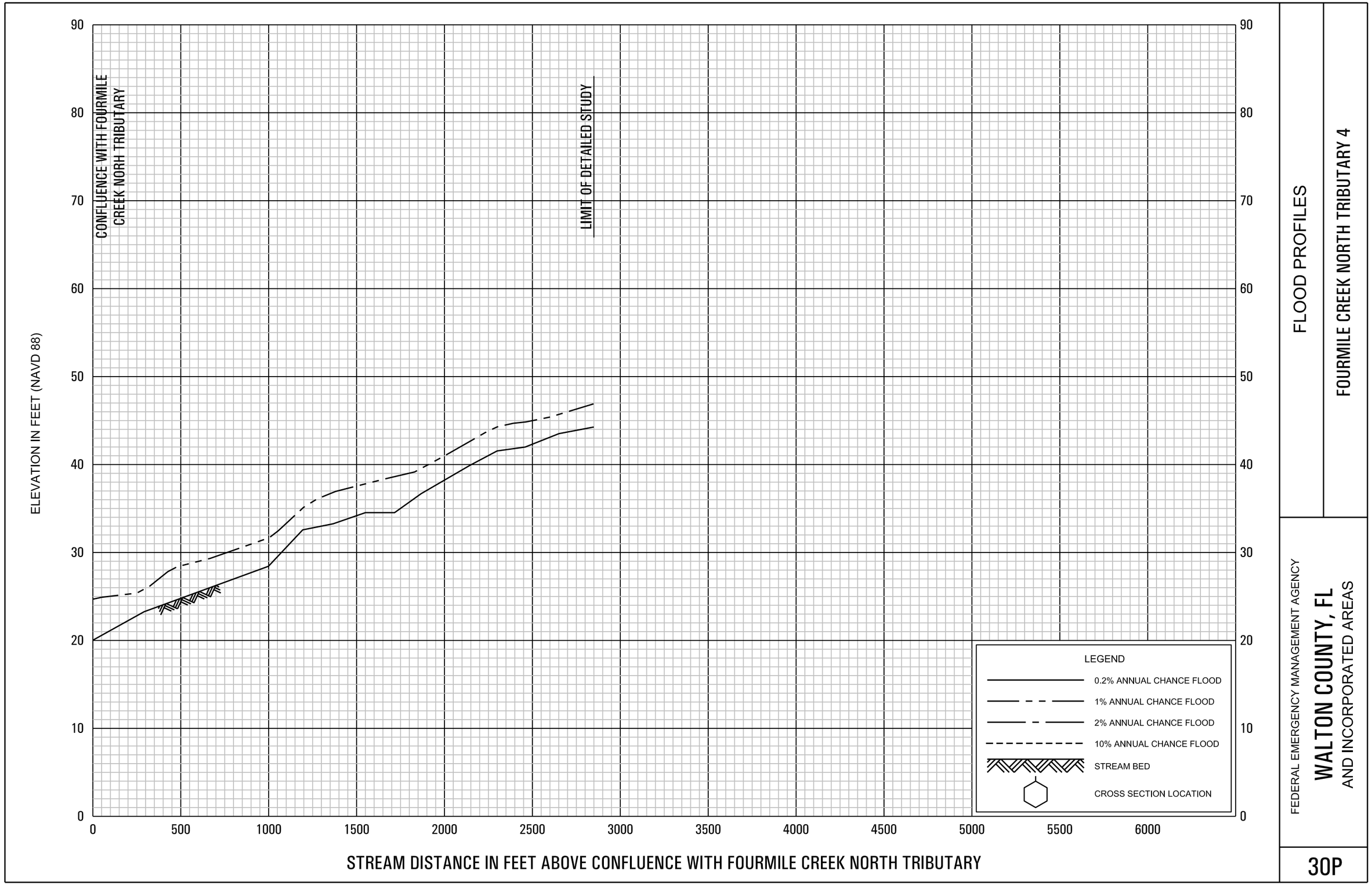
FLOOD PROFILES

FOURMILE CREEK NORTH TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

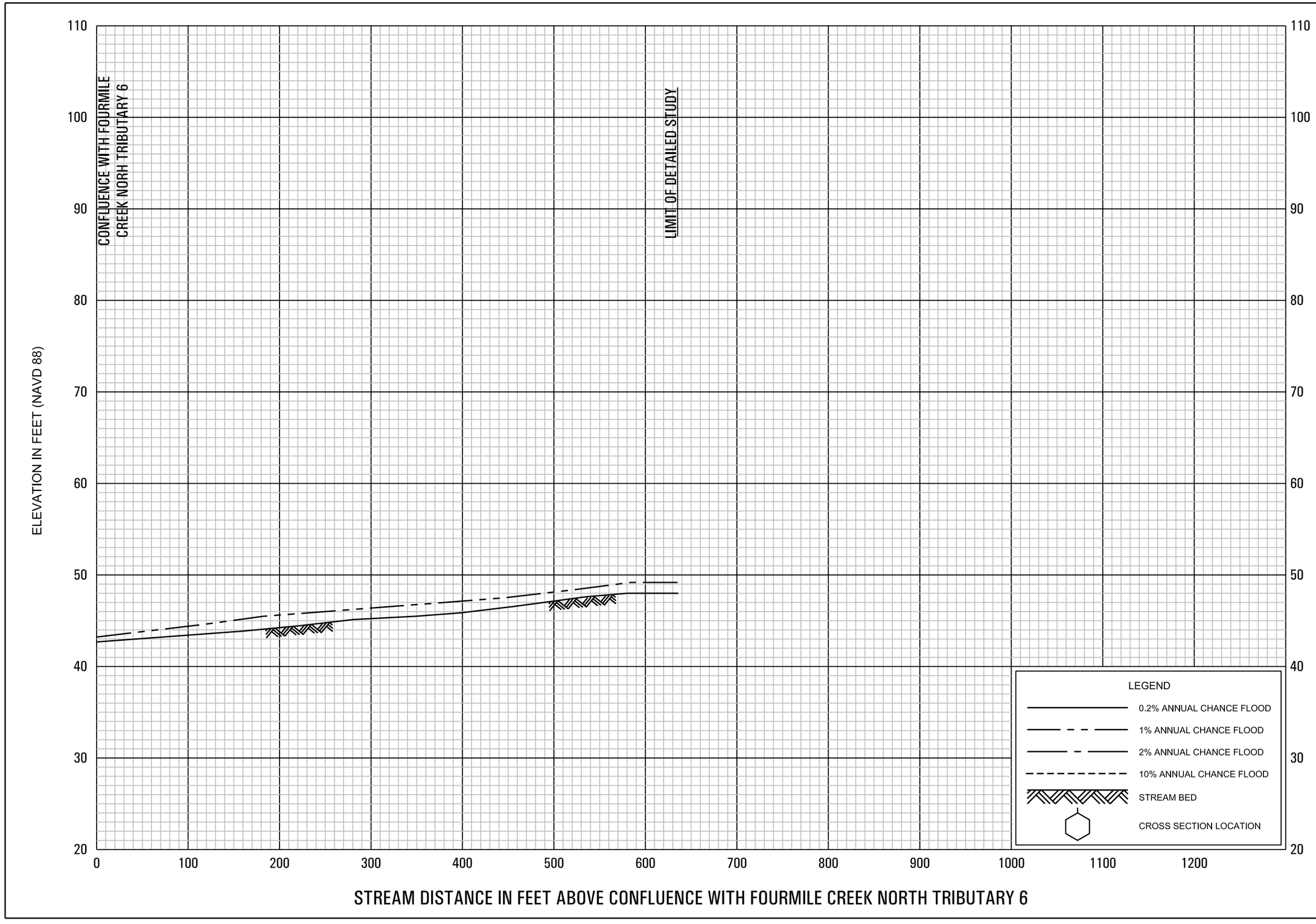
FOURMILE CREEK NORTH TRIBUTARY 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

30P



FLOOD PROFILES

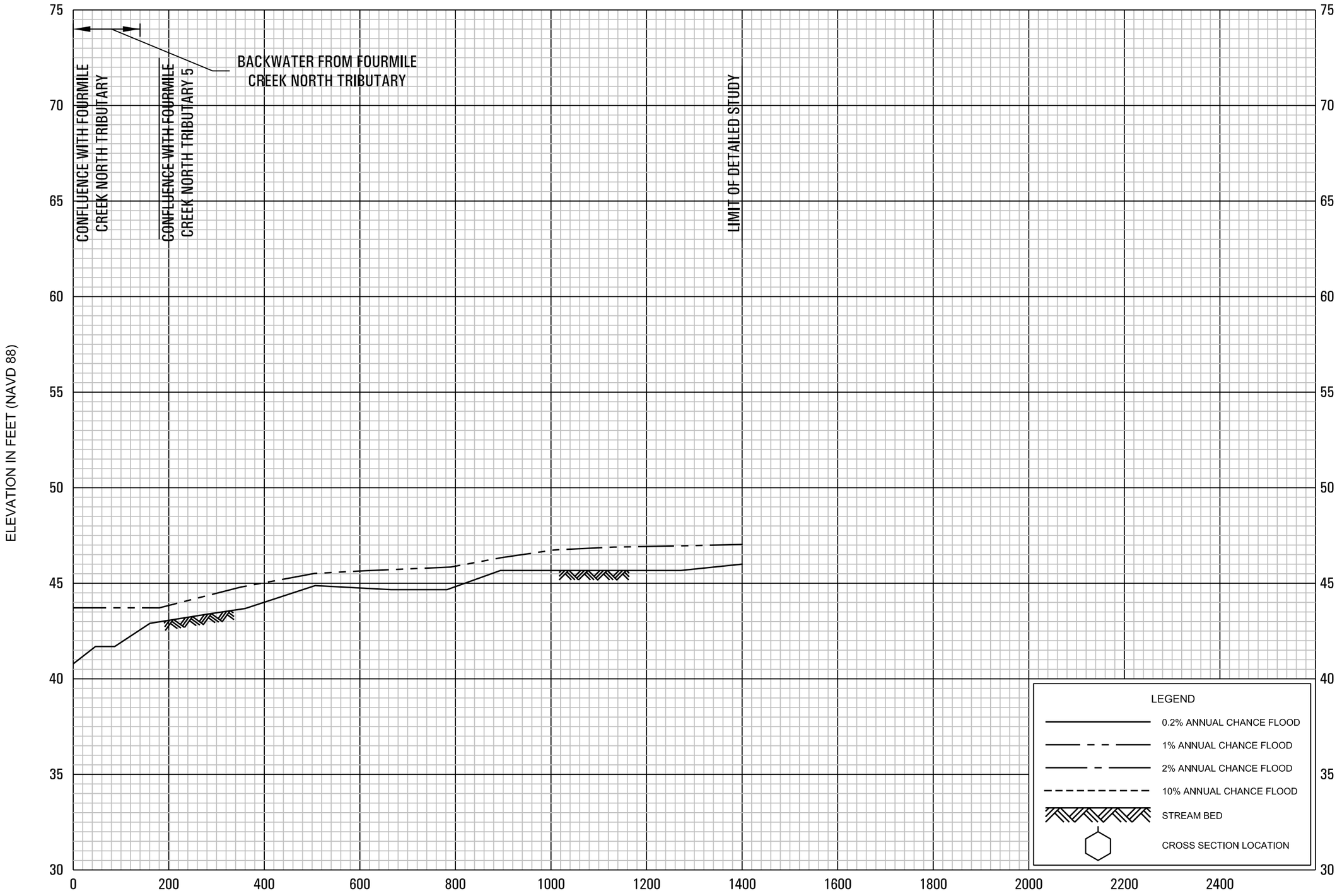
FOURMILE CREEK NORTH TRIBUTARY 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

31P



FLOOD PROFILES

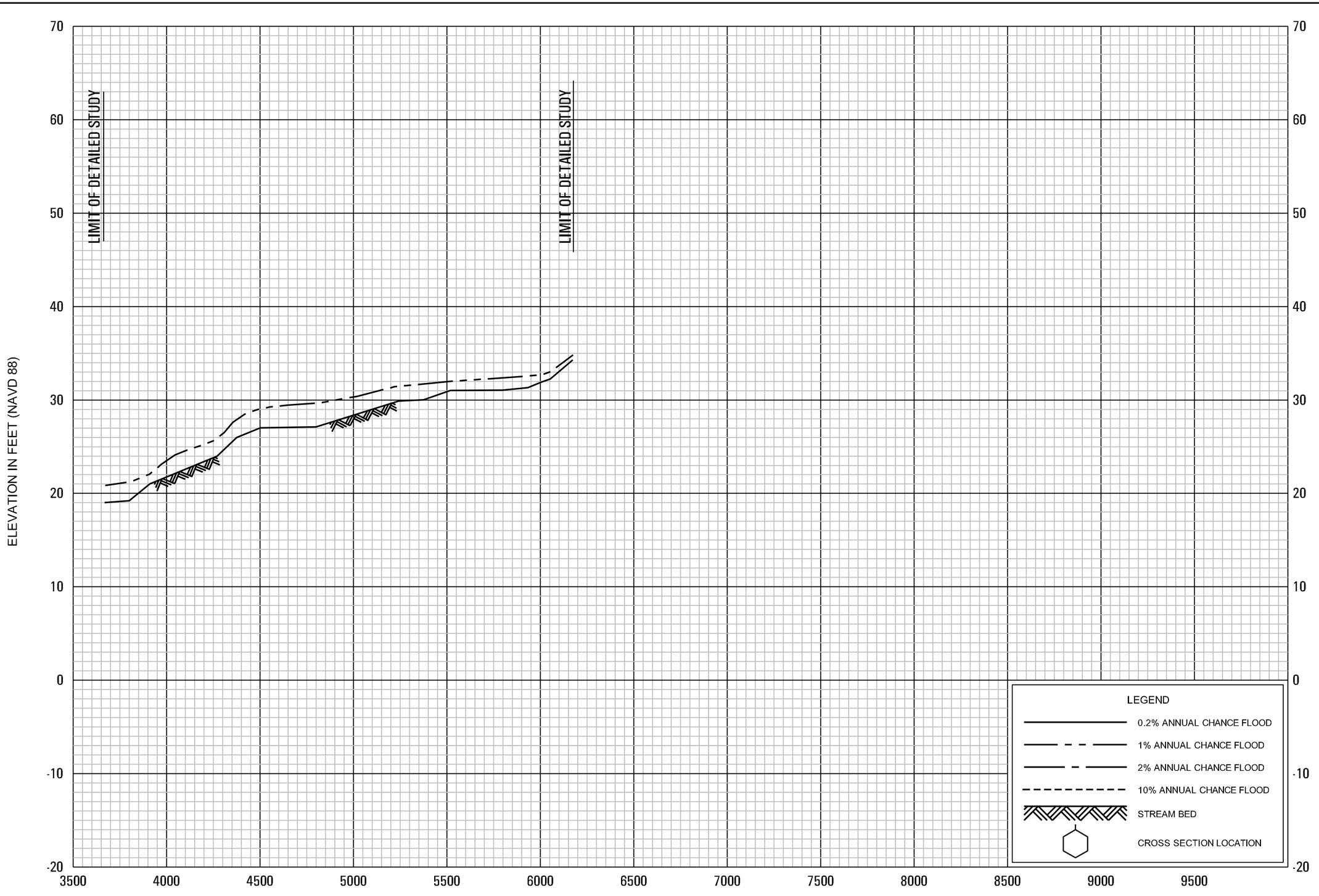
FOURMILE CREEK NORTH TRIBUTARY 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

32P



FLOOD PROFILES

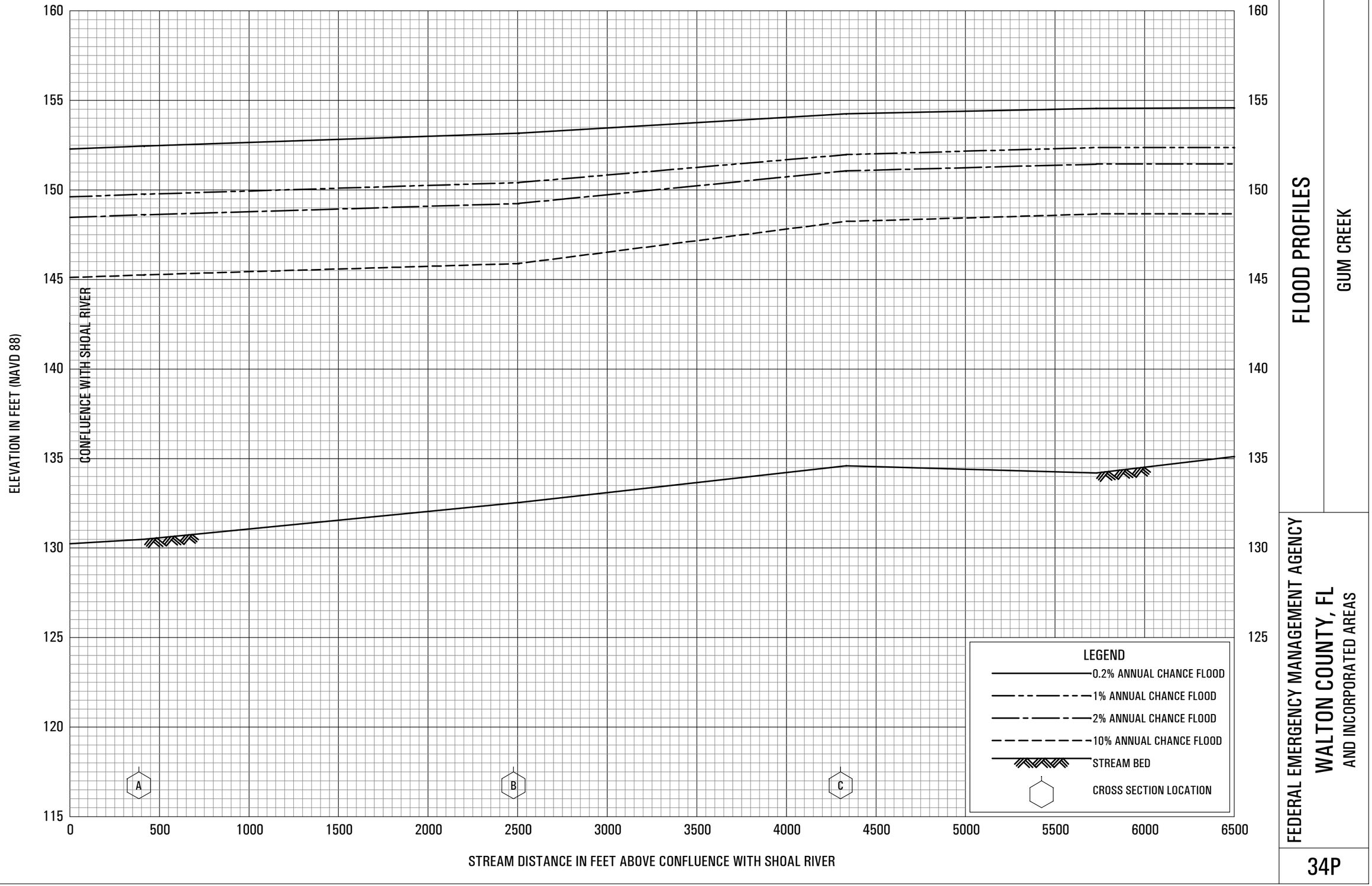
FOURMILE CREEK SOUTH TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

33P



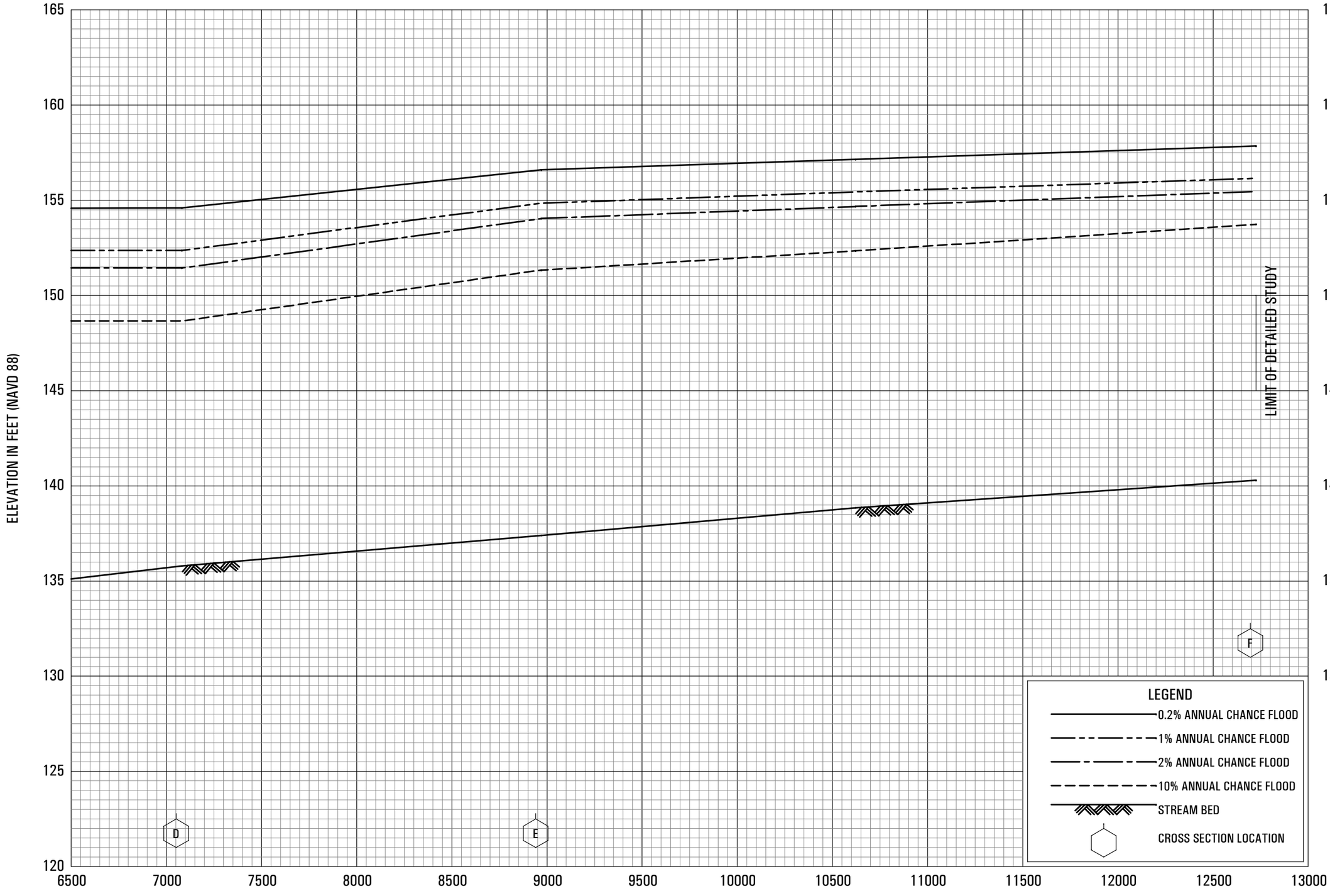
FLOOD PROFILES

GUM CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



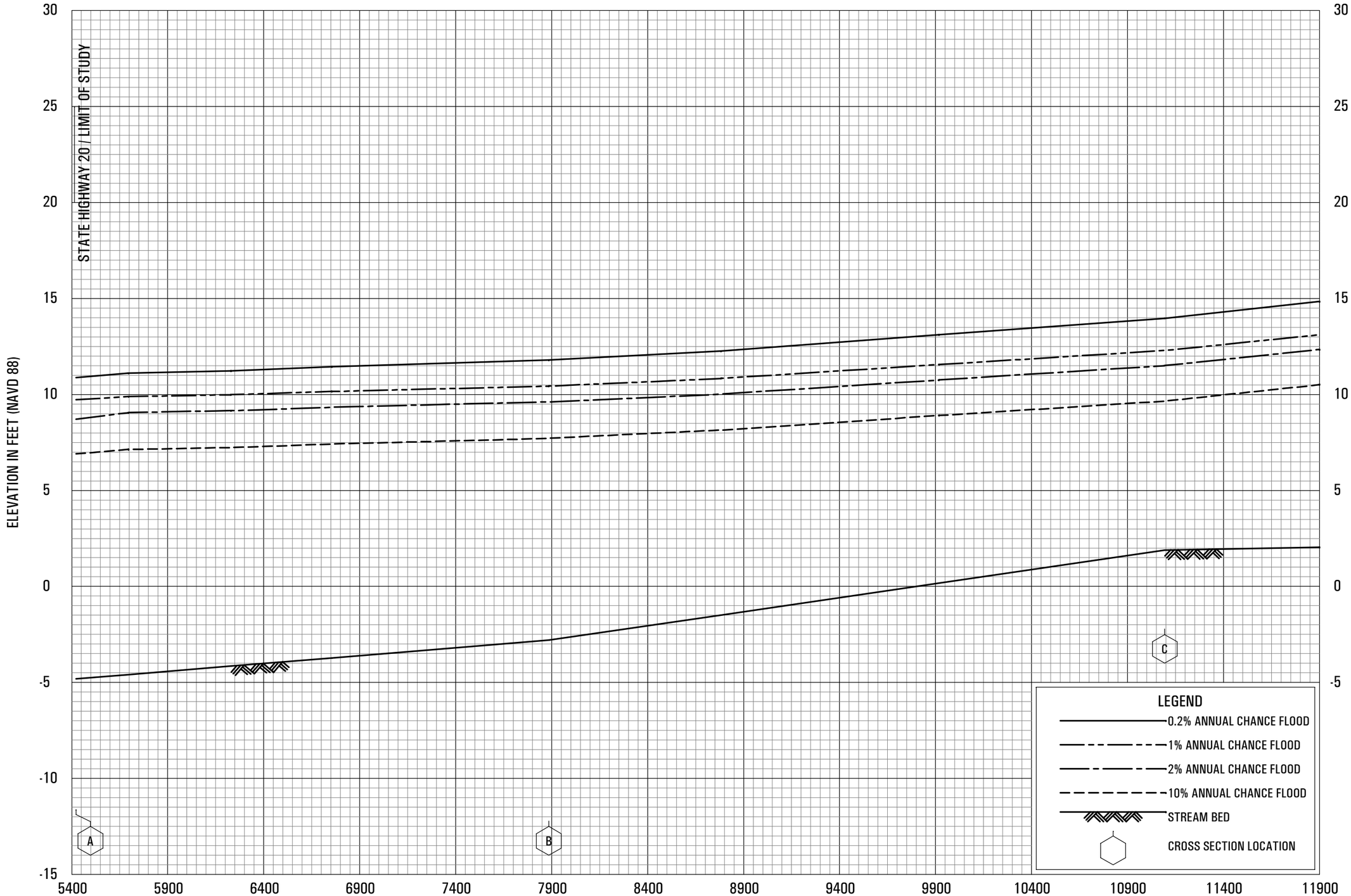
FLOOD PROFILES

GUM CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



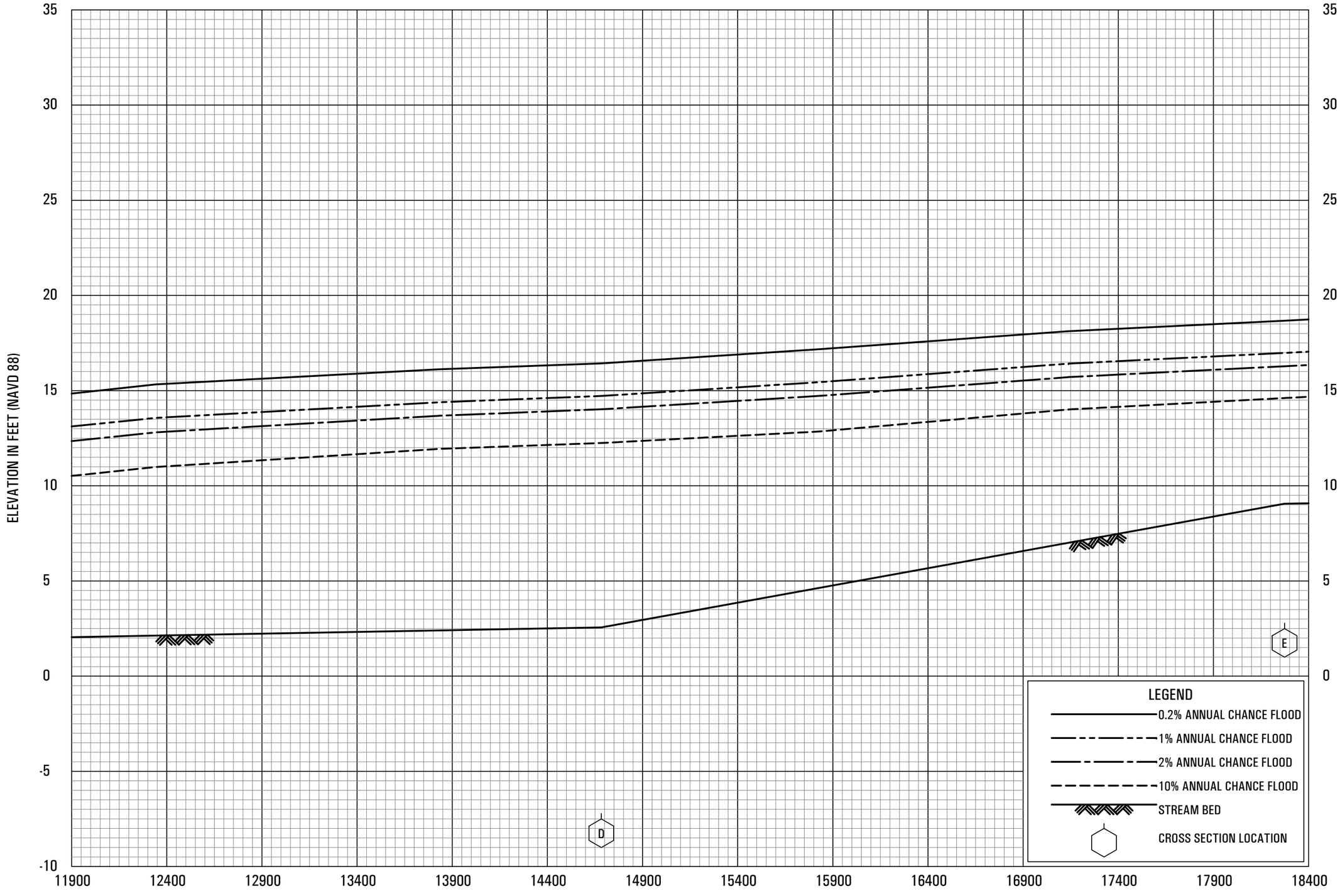
FLOOD PROFILES

LAFAYETTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

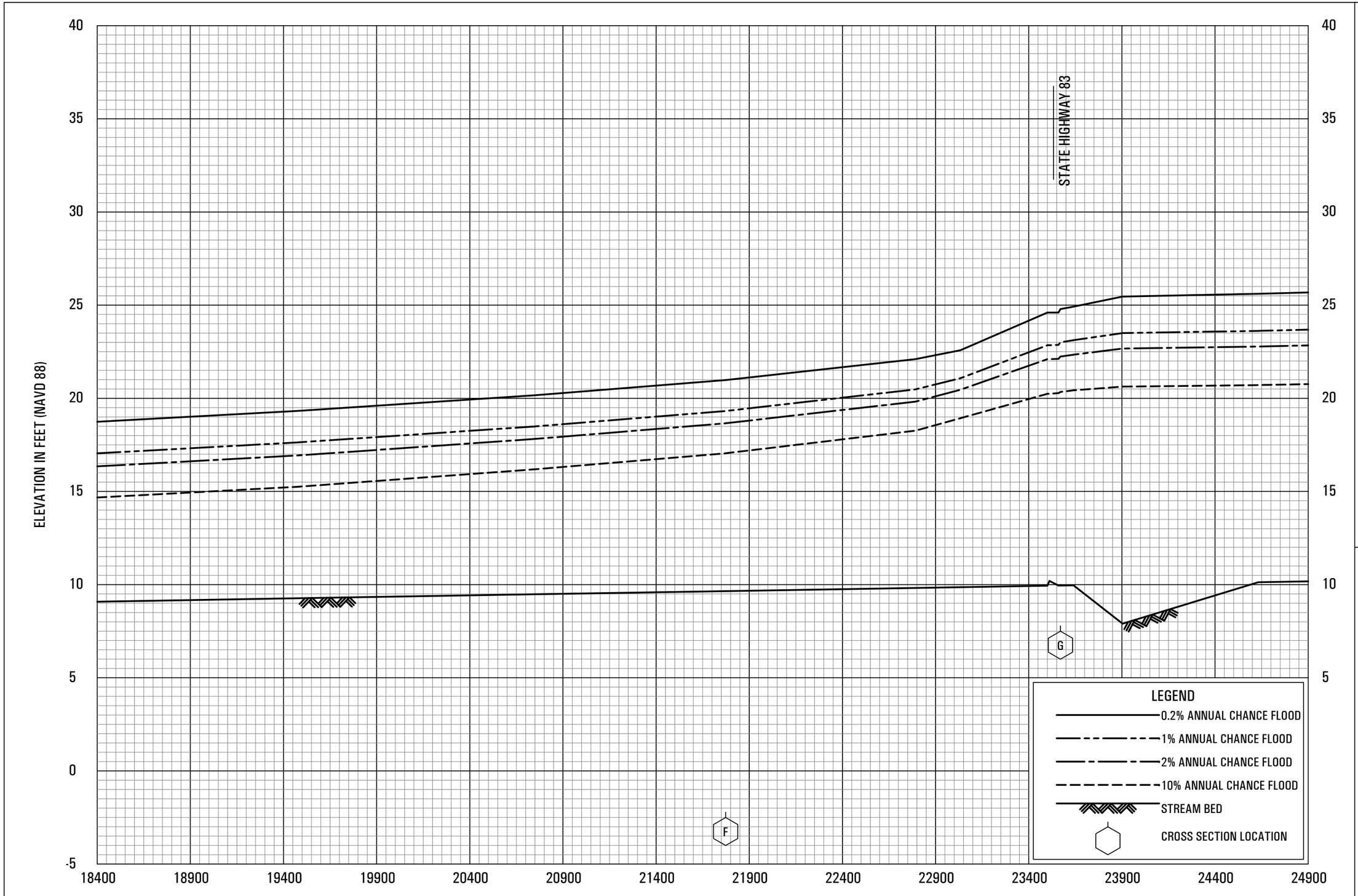
LAFAYETTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

37P



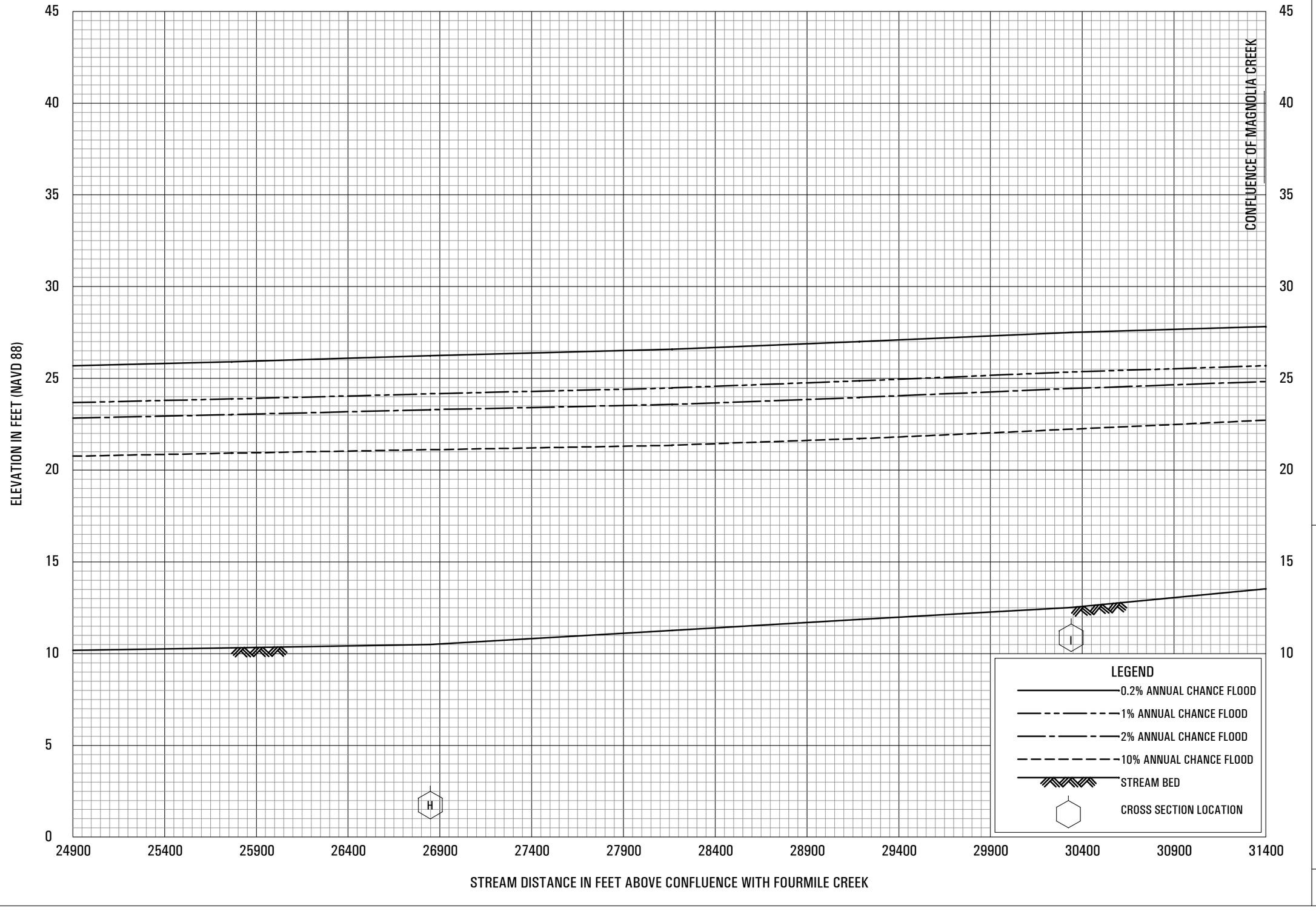
FLOOD PROFILES

LAFAYETTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

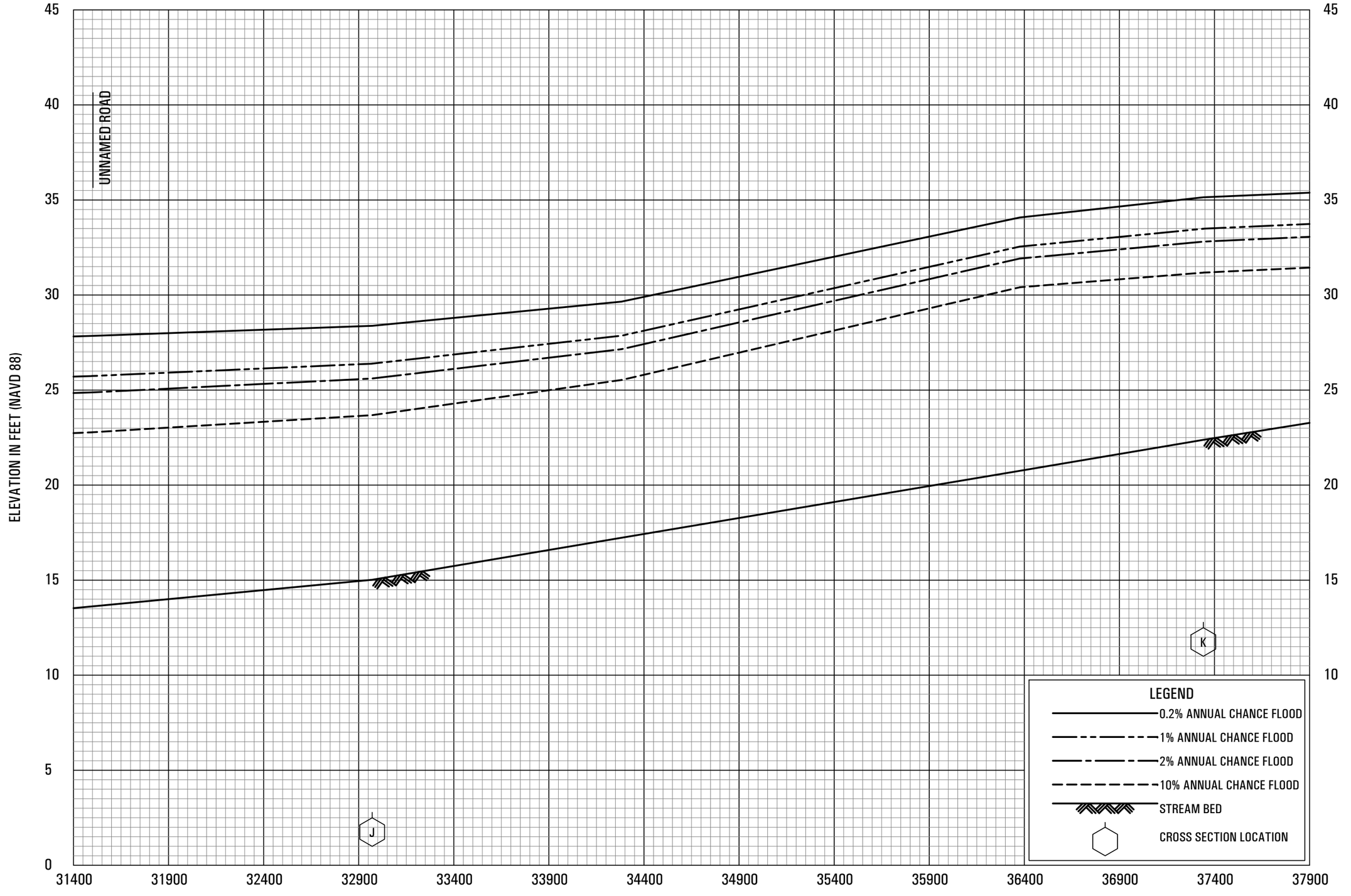
LAFAYETTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

39P



FLOOD PROFILES

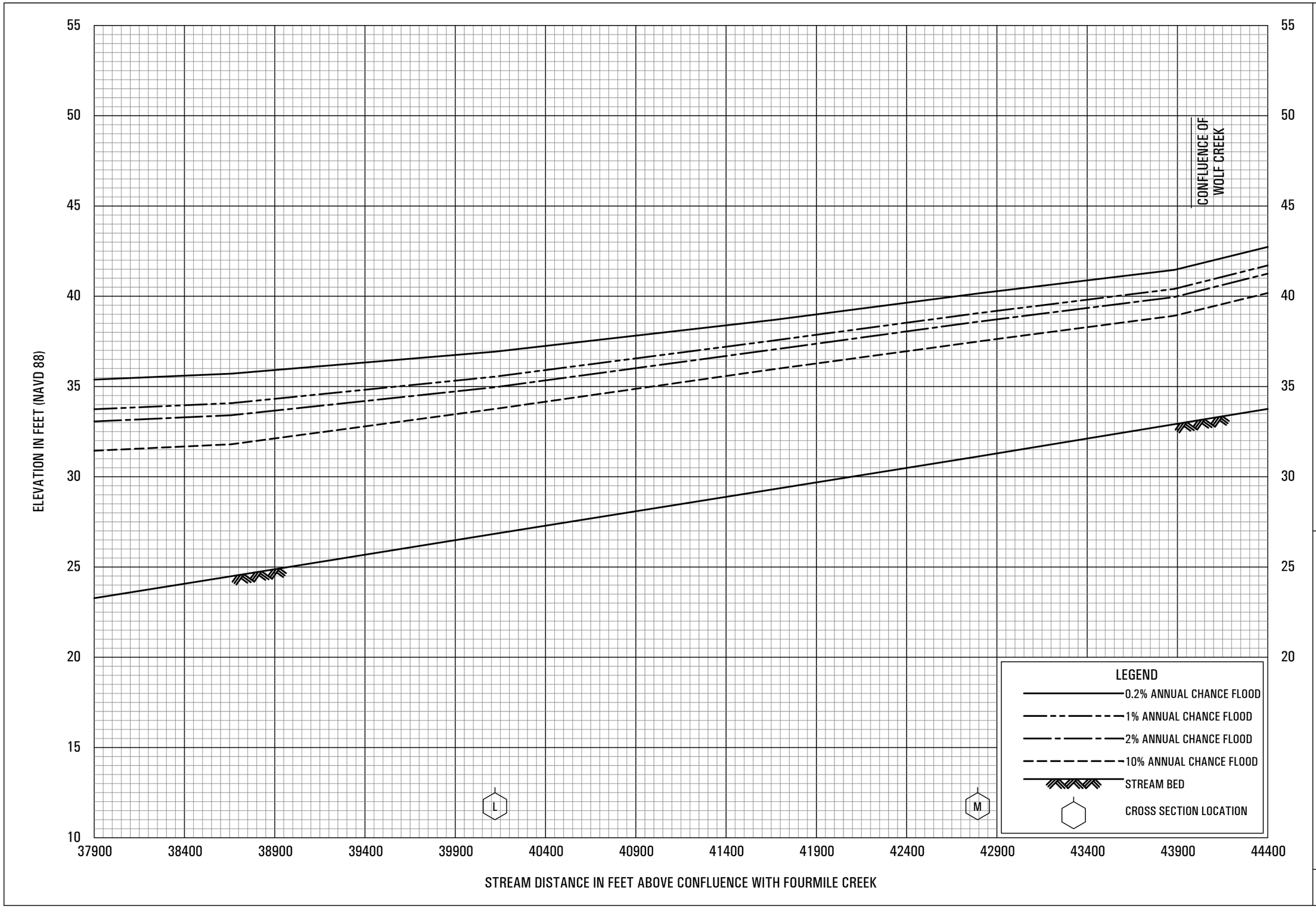
LAFAYETTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

40P



FLOOD PROFILES

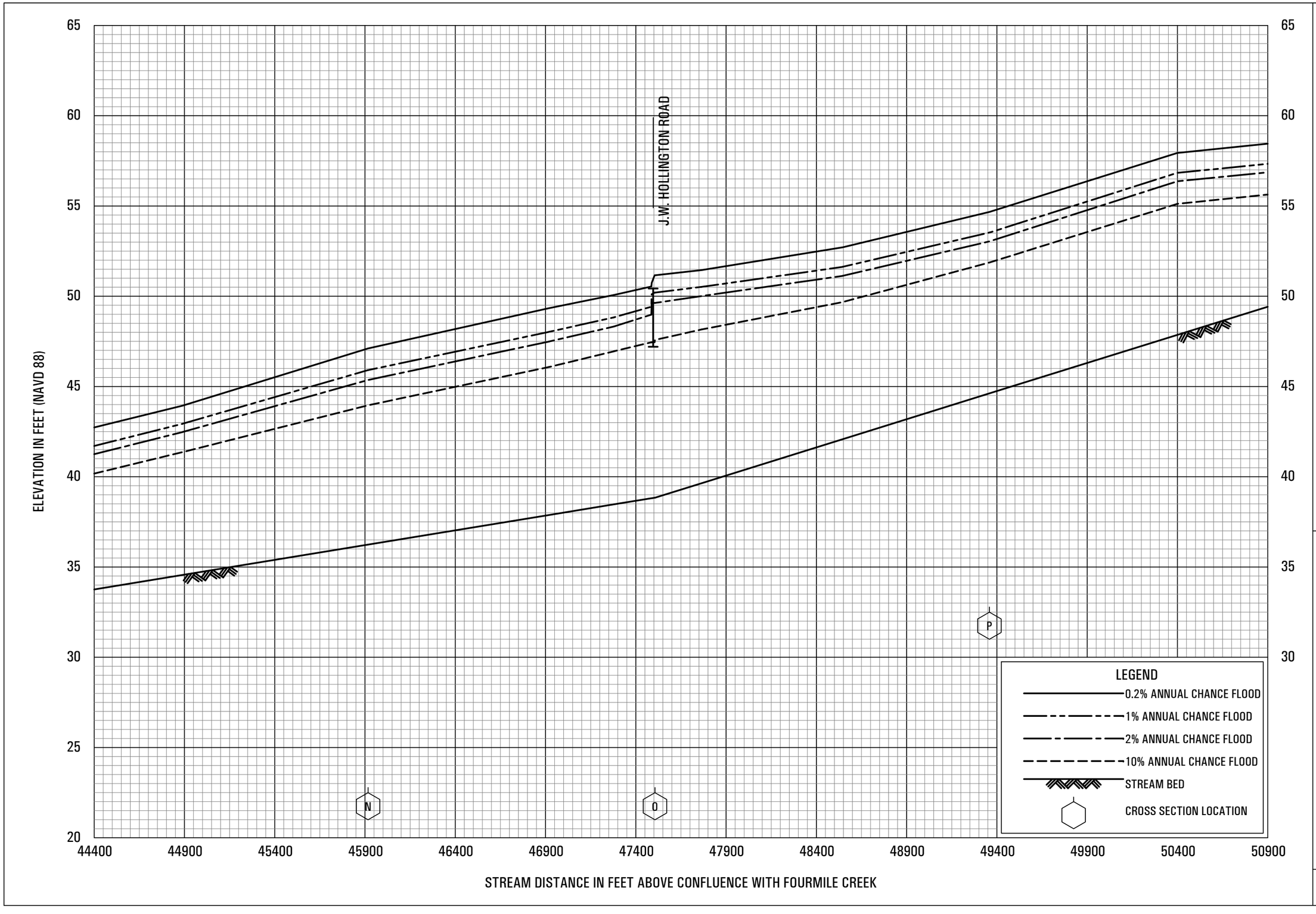
LAFAYETTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

41P



FLOOD PROFILES

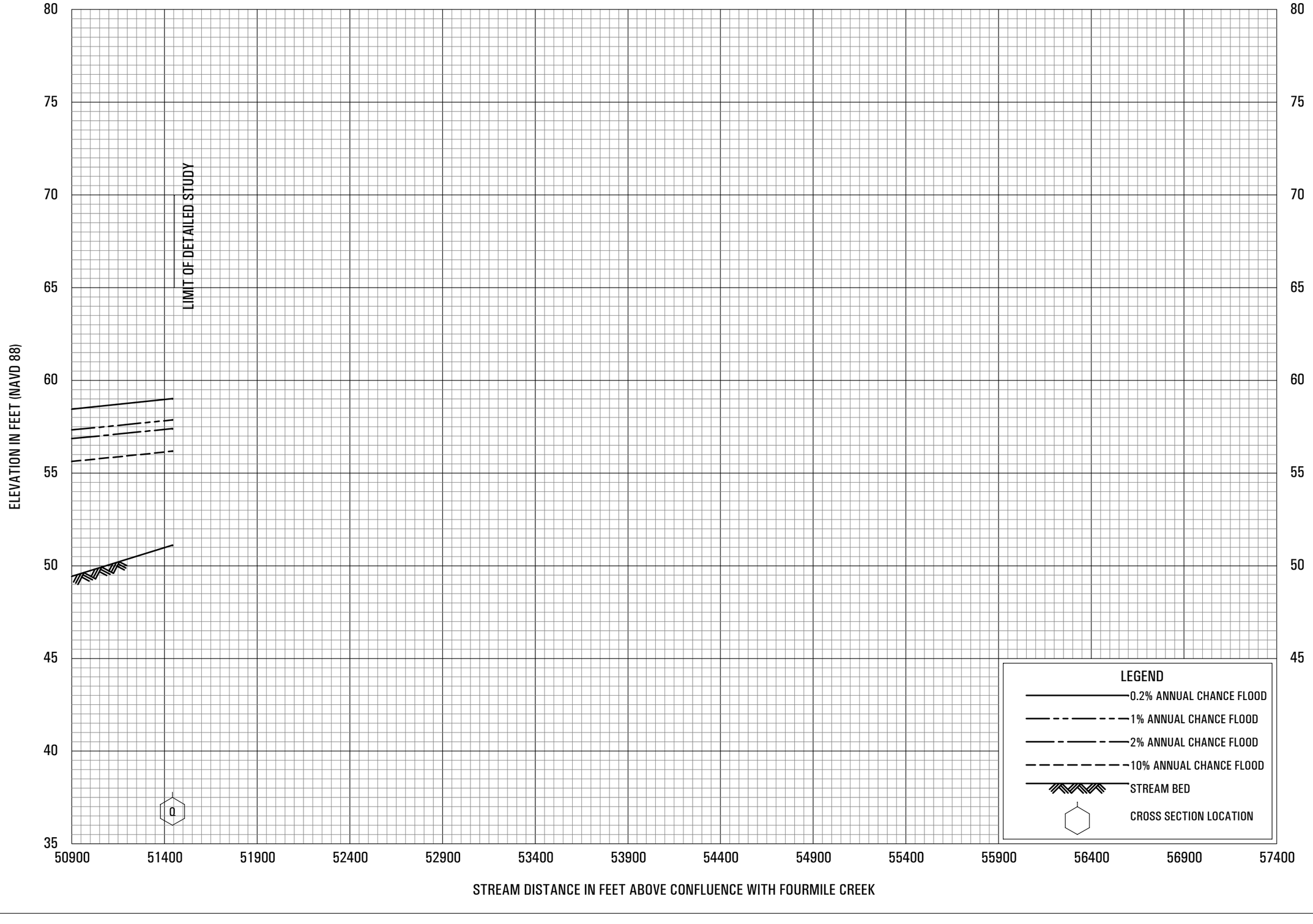
LAFAYETTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

42P



FLOOD PROFILES

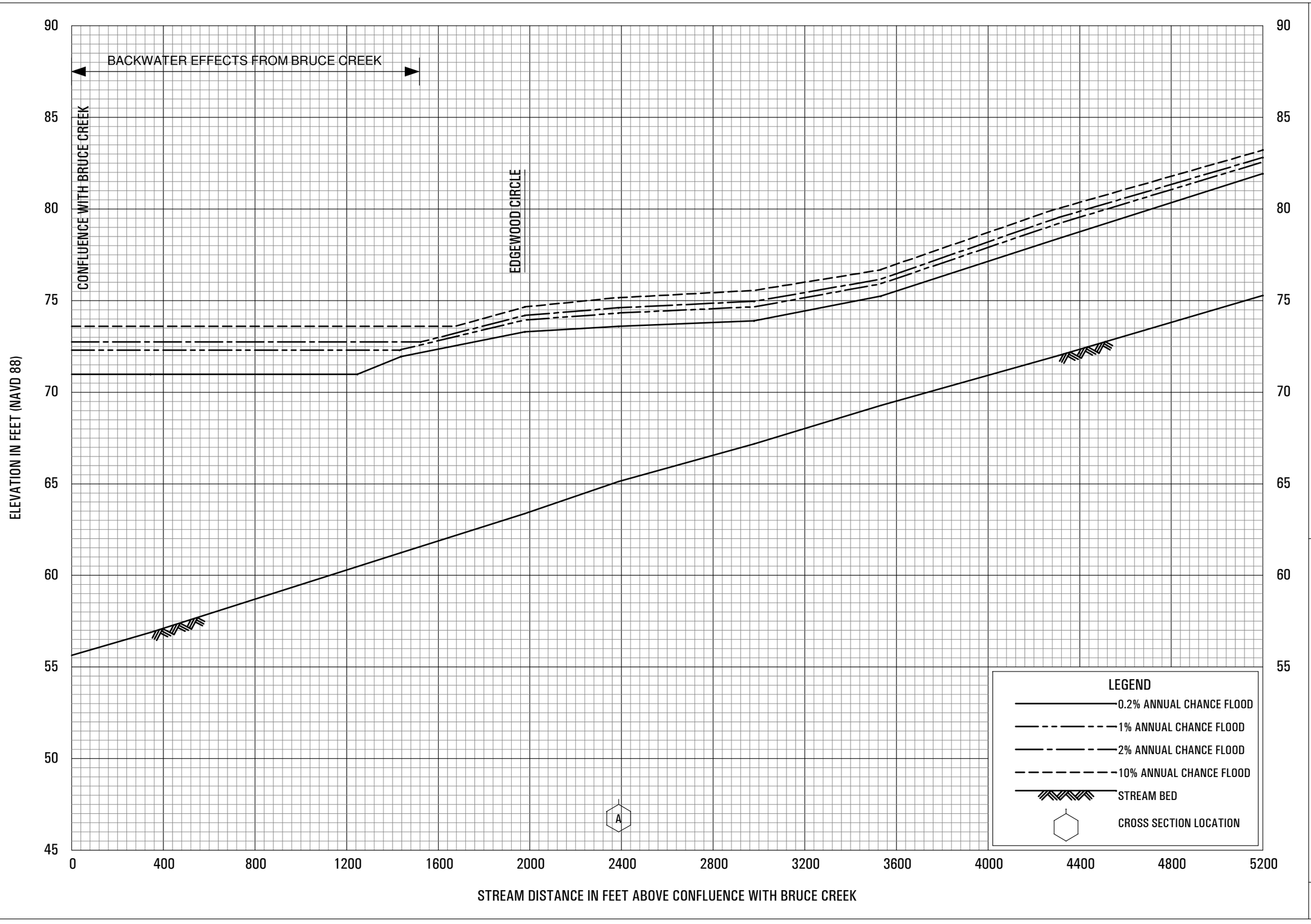
LAFAYETTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

43P



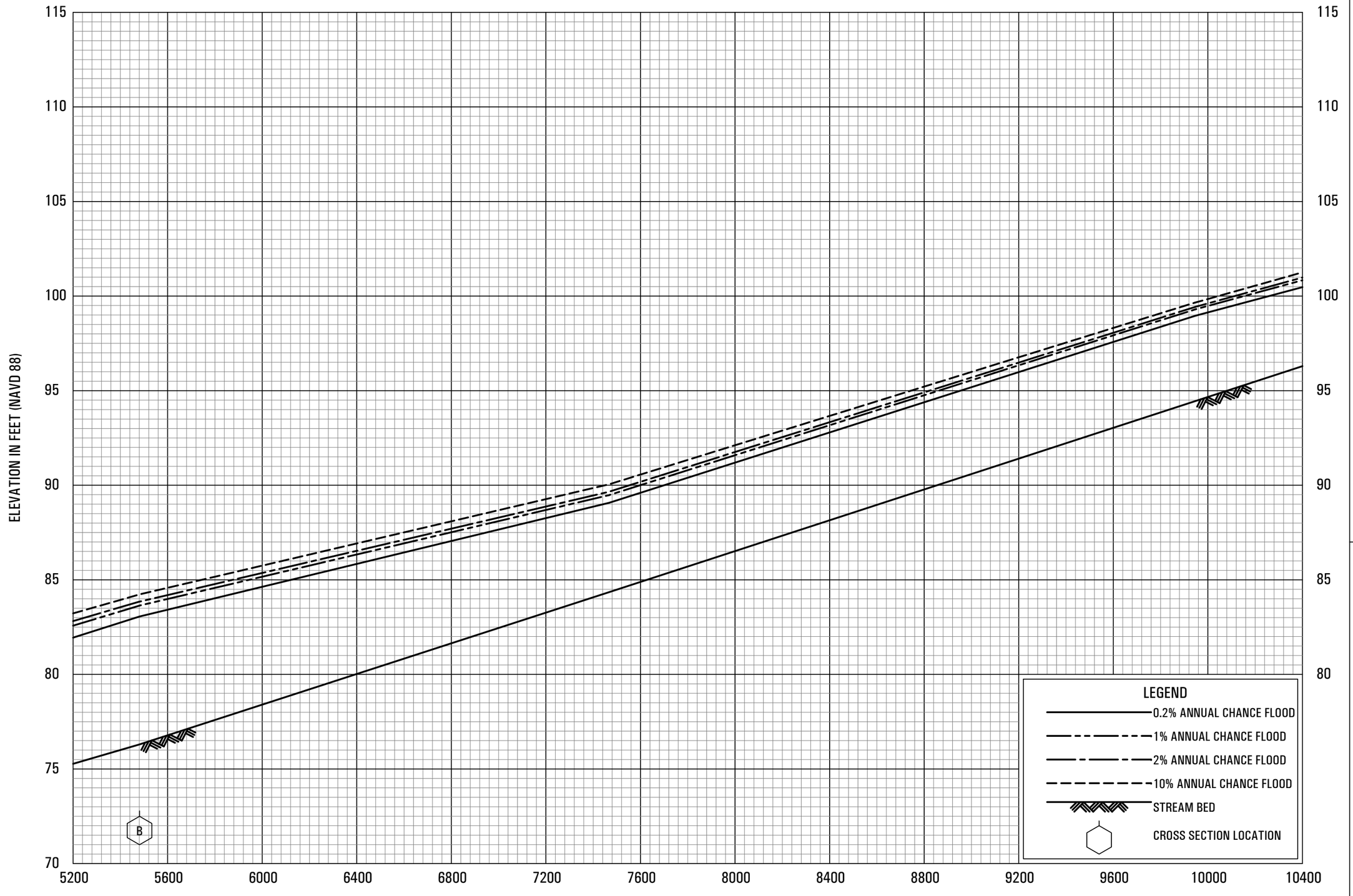
FLOOD PROFILES

MILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

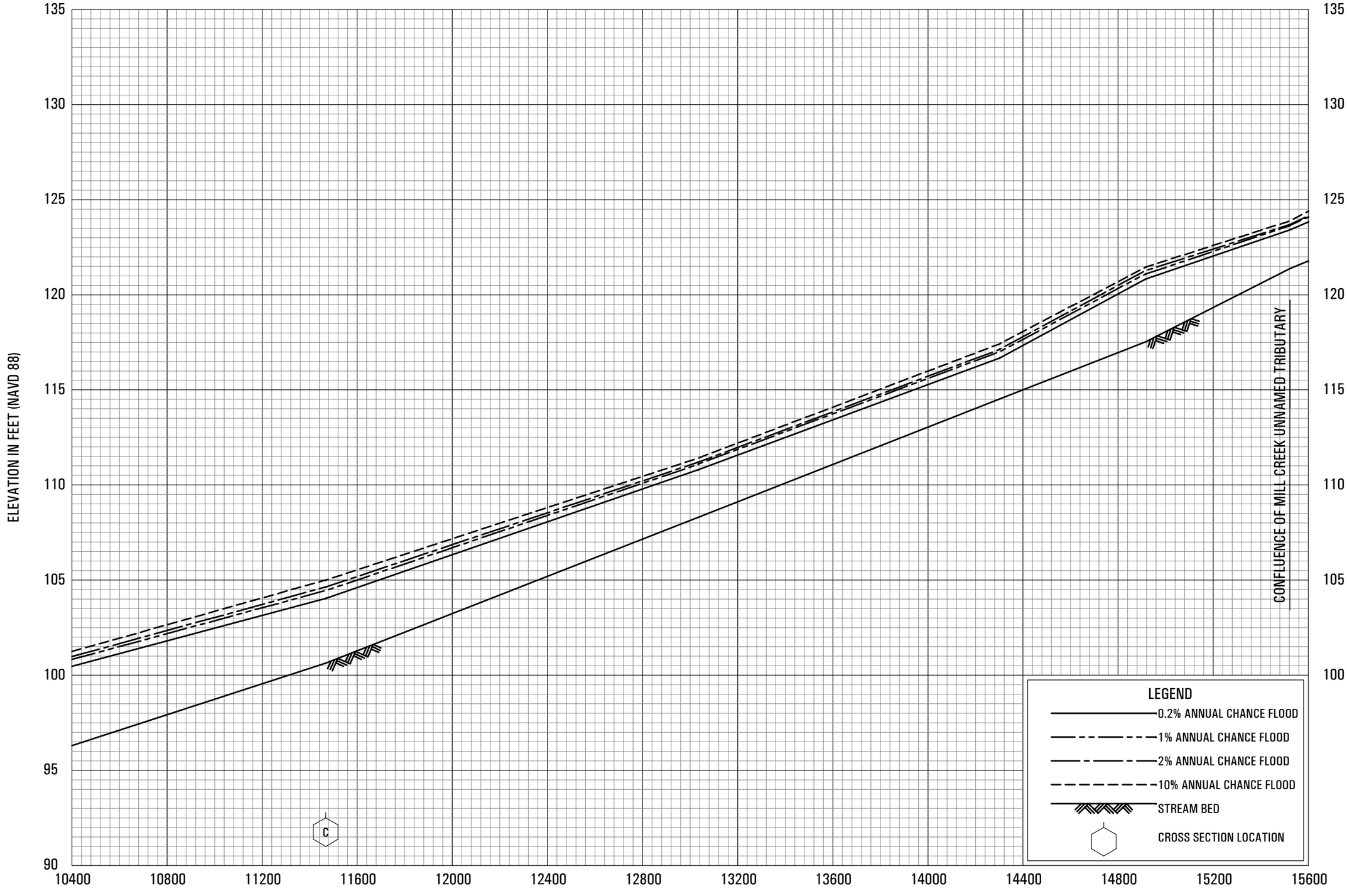
MILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

45P



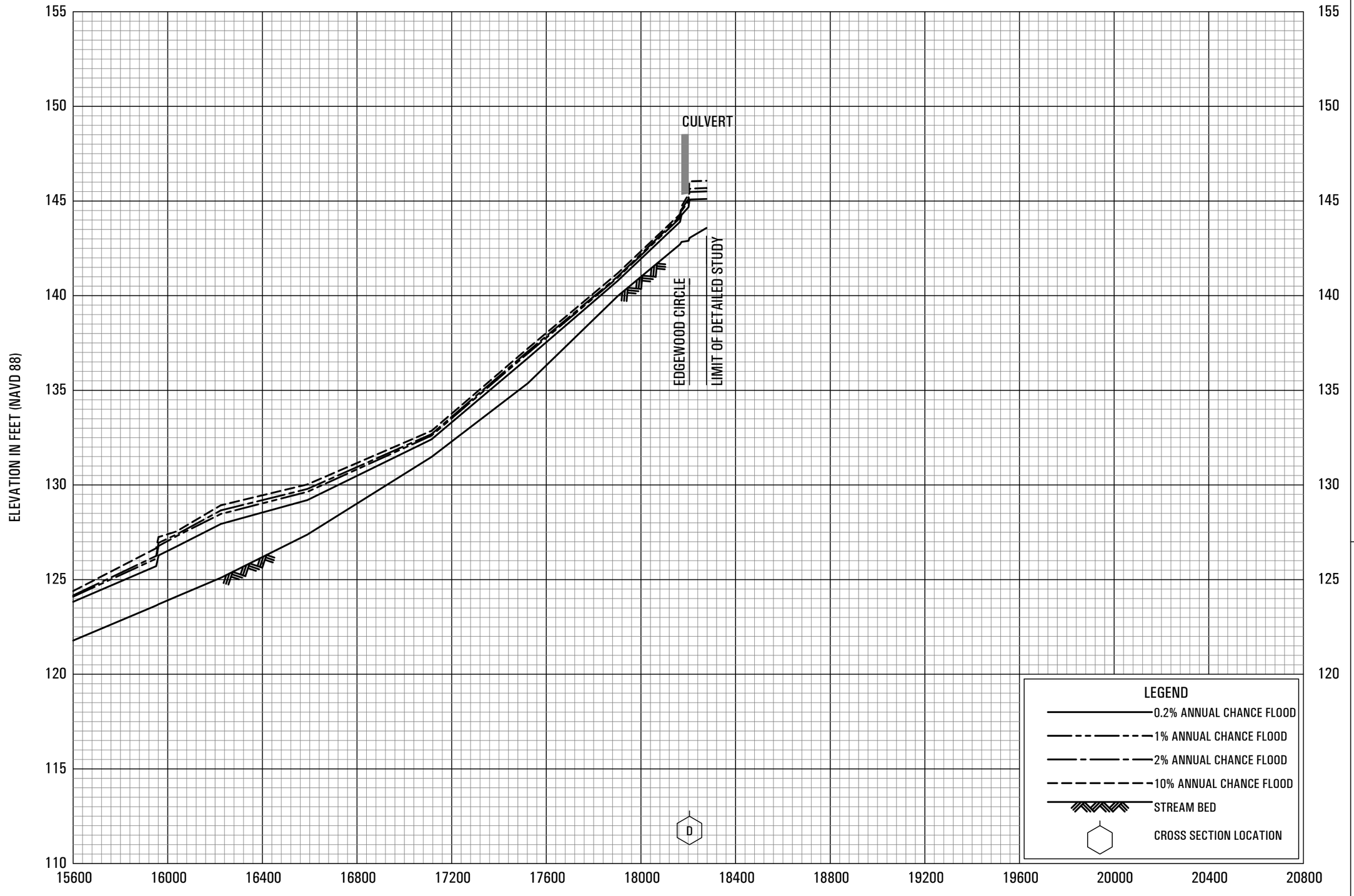
FLOOD PROFILES

MILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

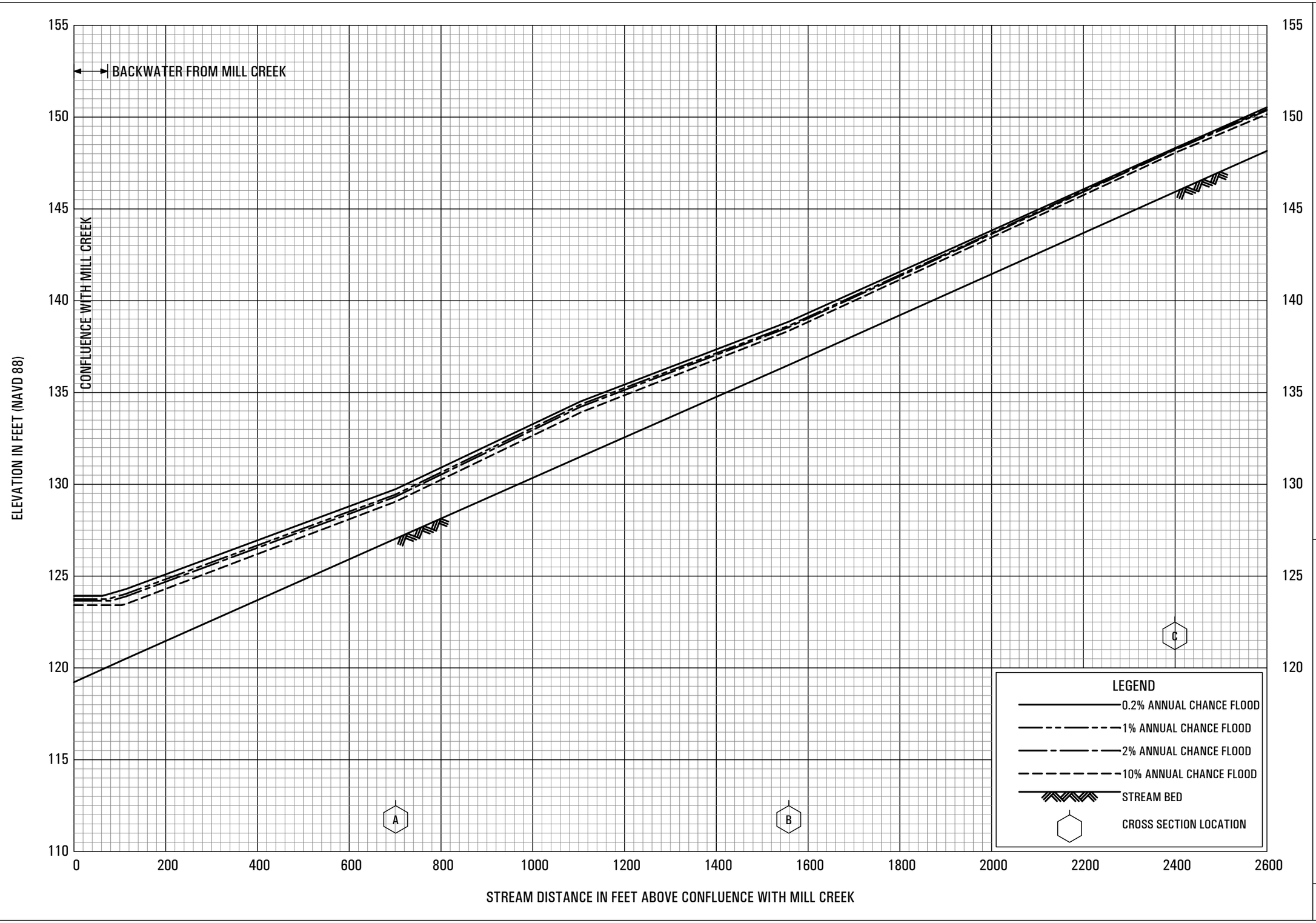
MILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

47P



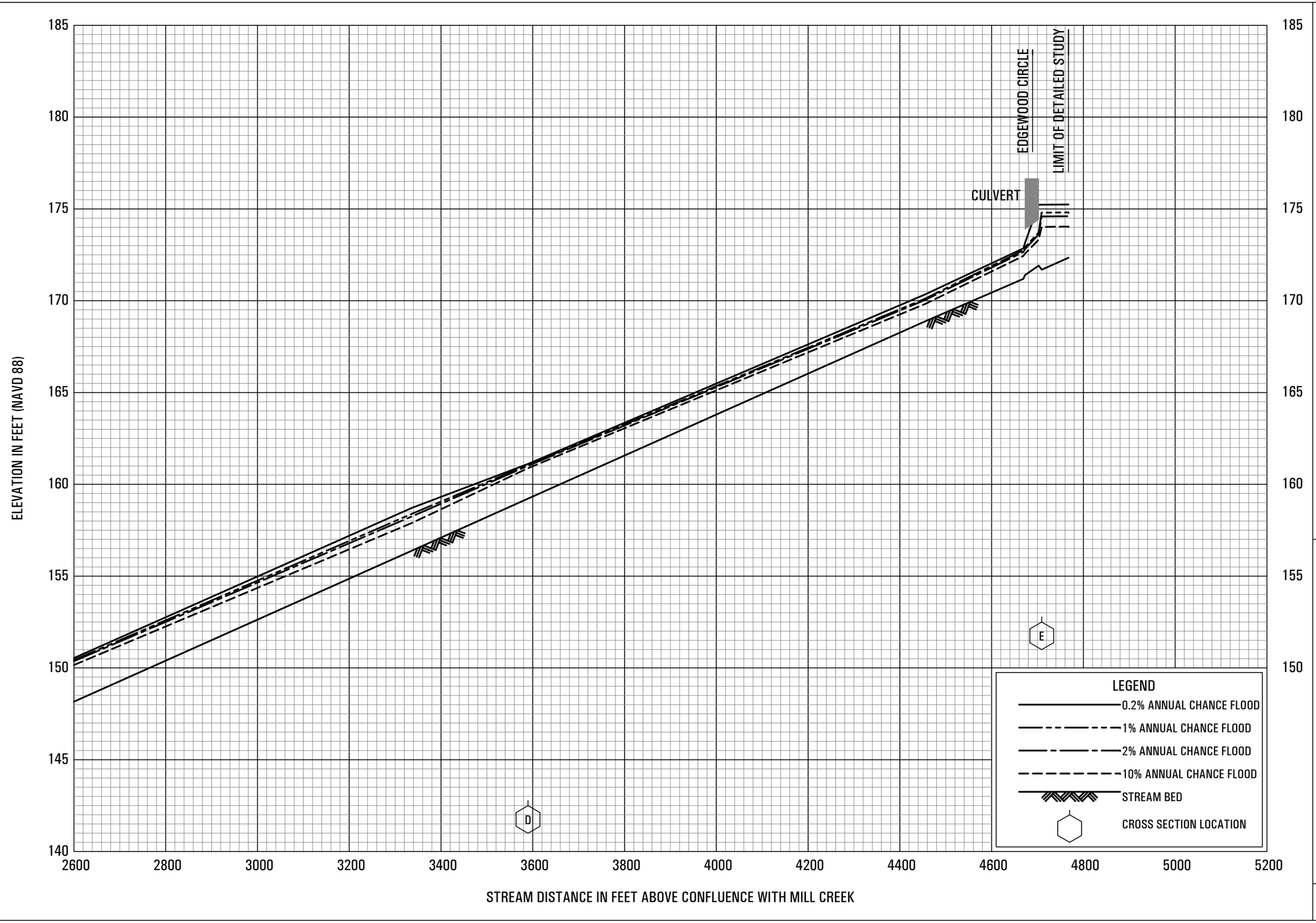
FLOOD PROFILES

MILL CREEK UNNAMED TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



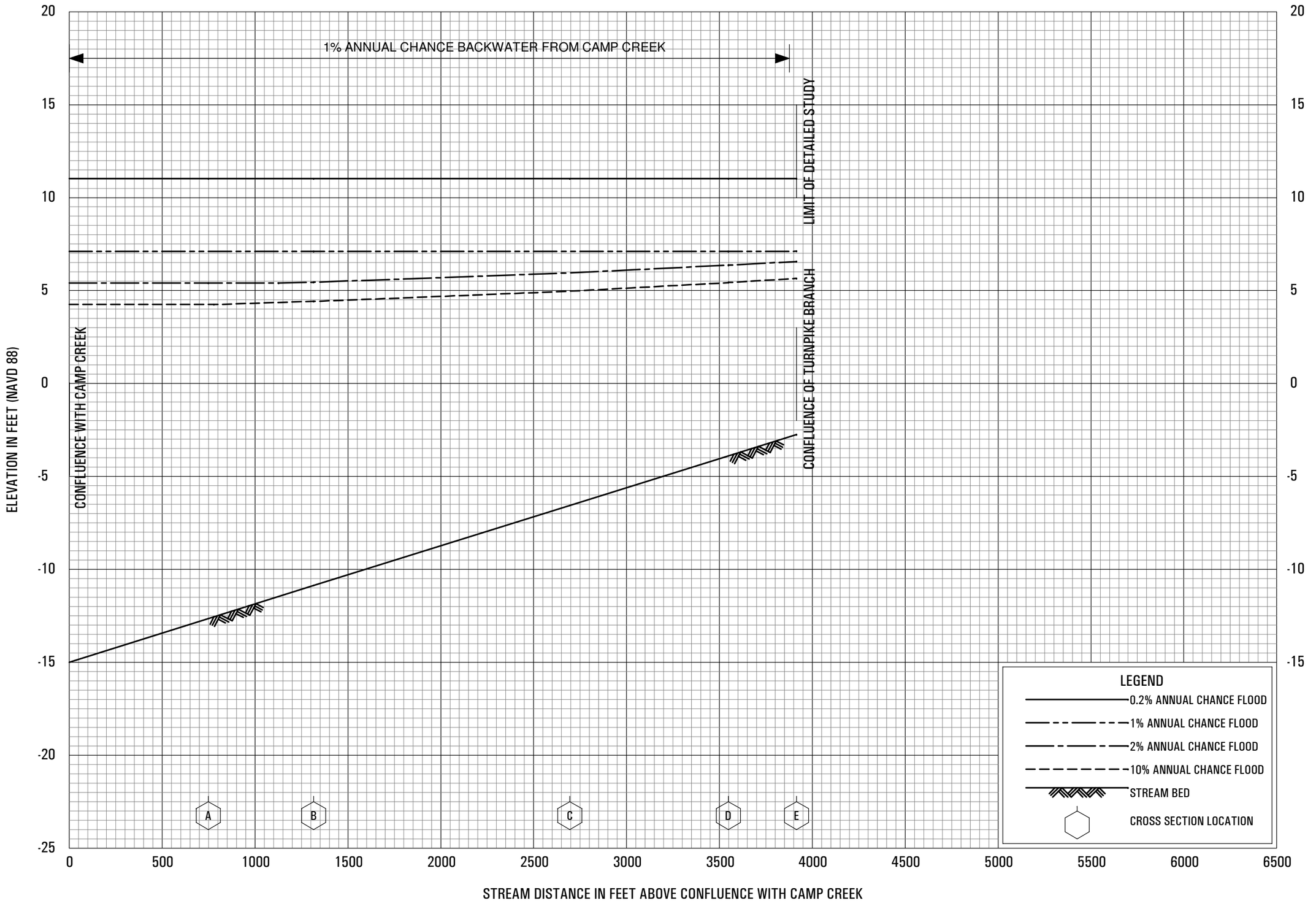
FLOOD PROFILES

MILL CREEK UNNAMED TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



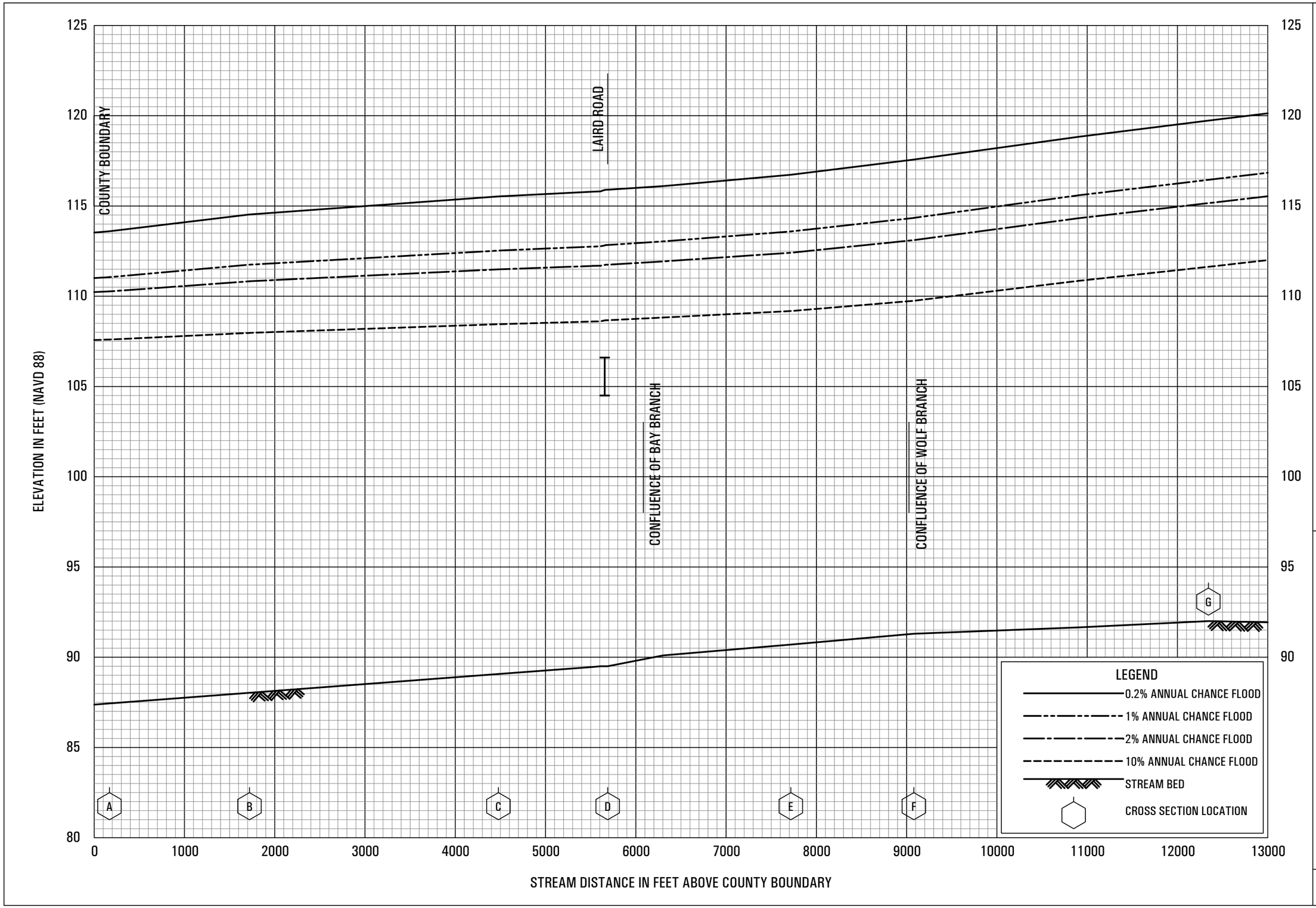
FLOOD PROFILES

PATE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

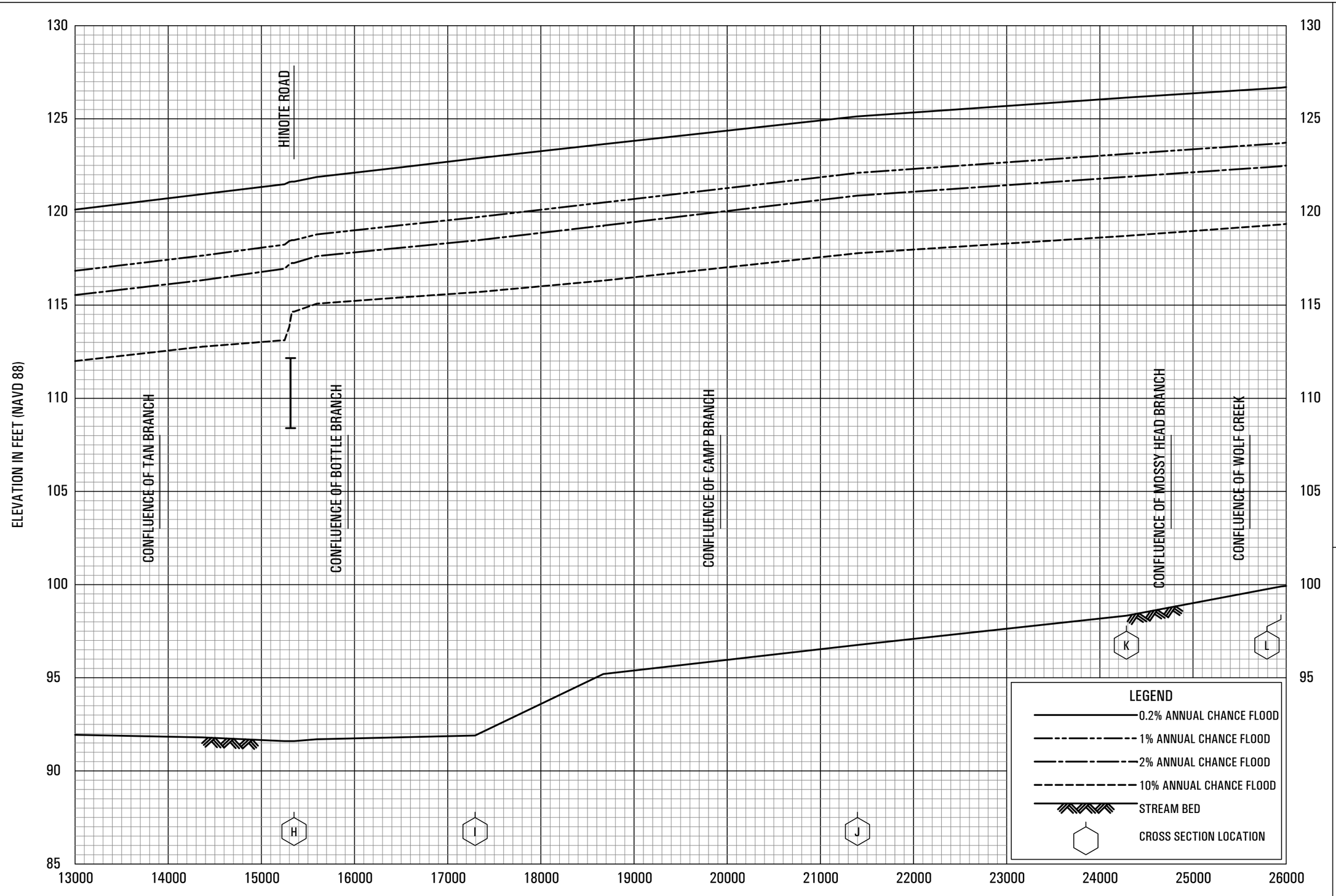
SHOAL RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

51P



FLOOD PROFILES

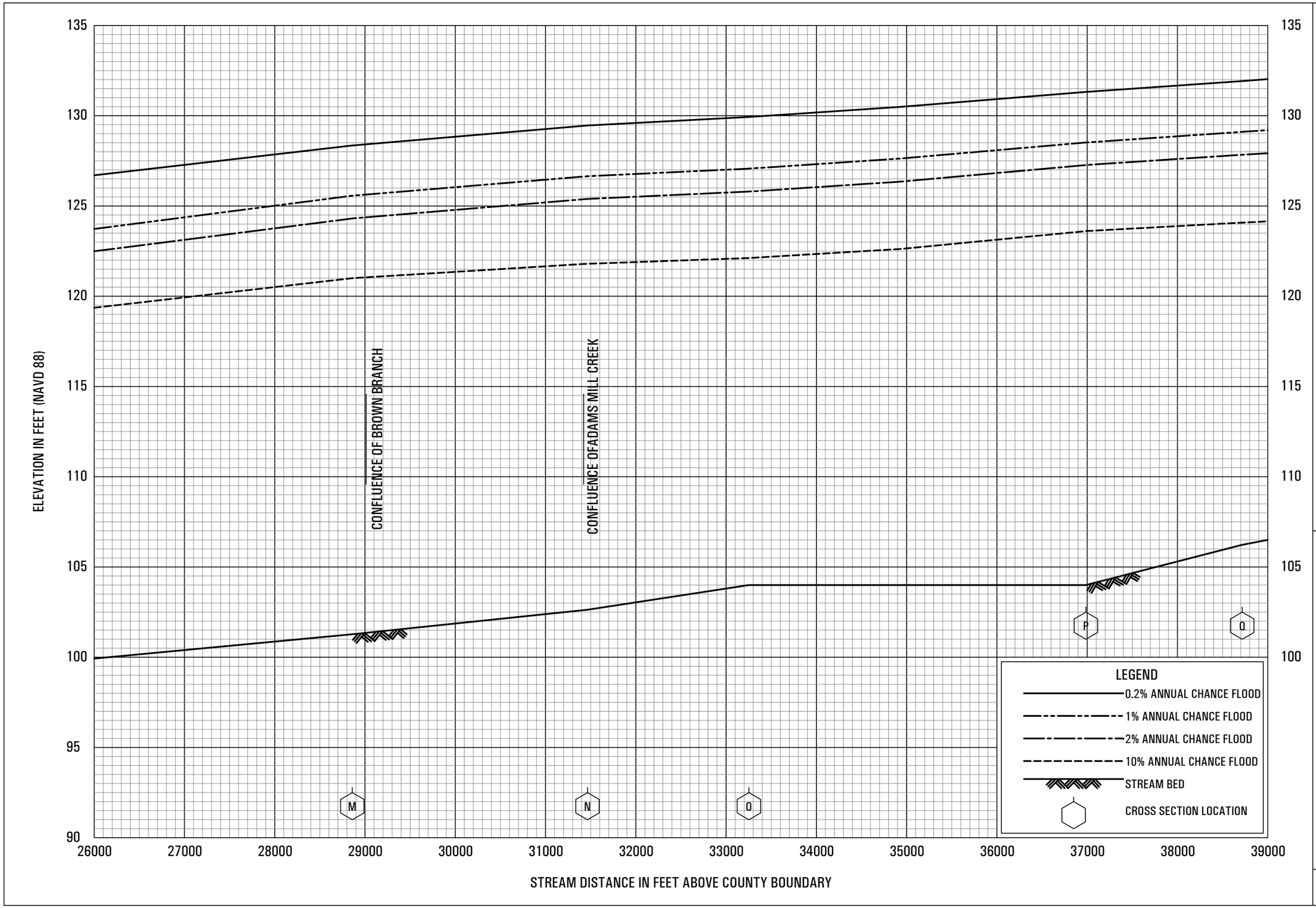
SHOAL RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

52P



FLOOD PROFILES

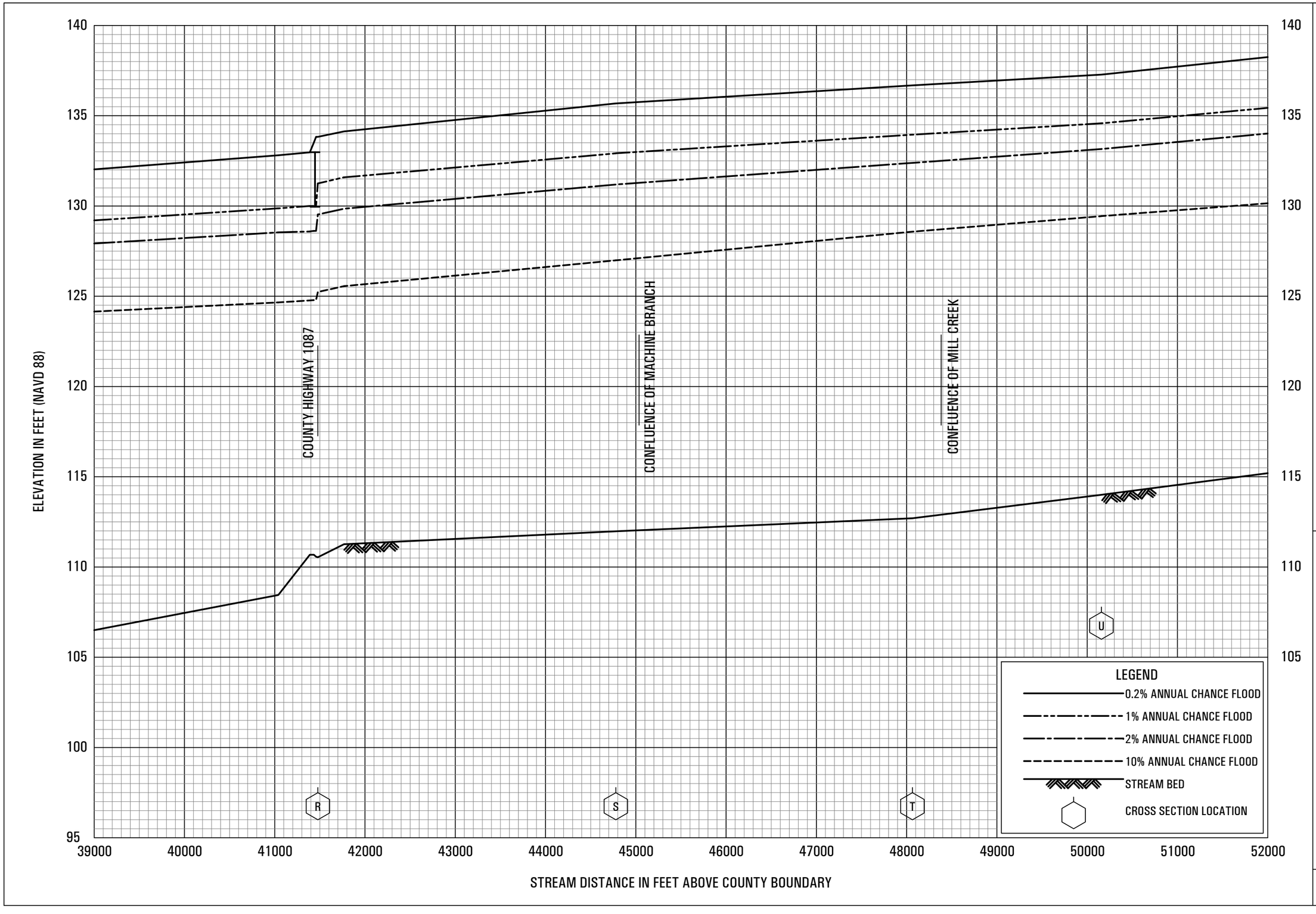
SHOAL RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

53P



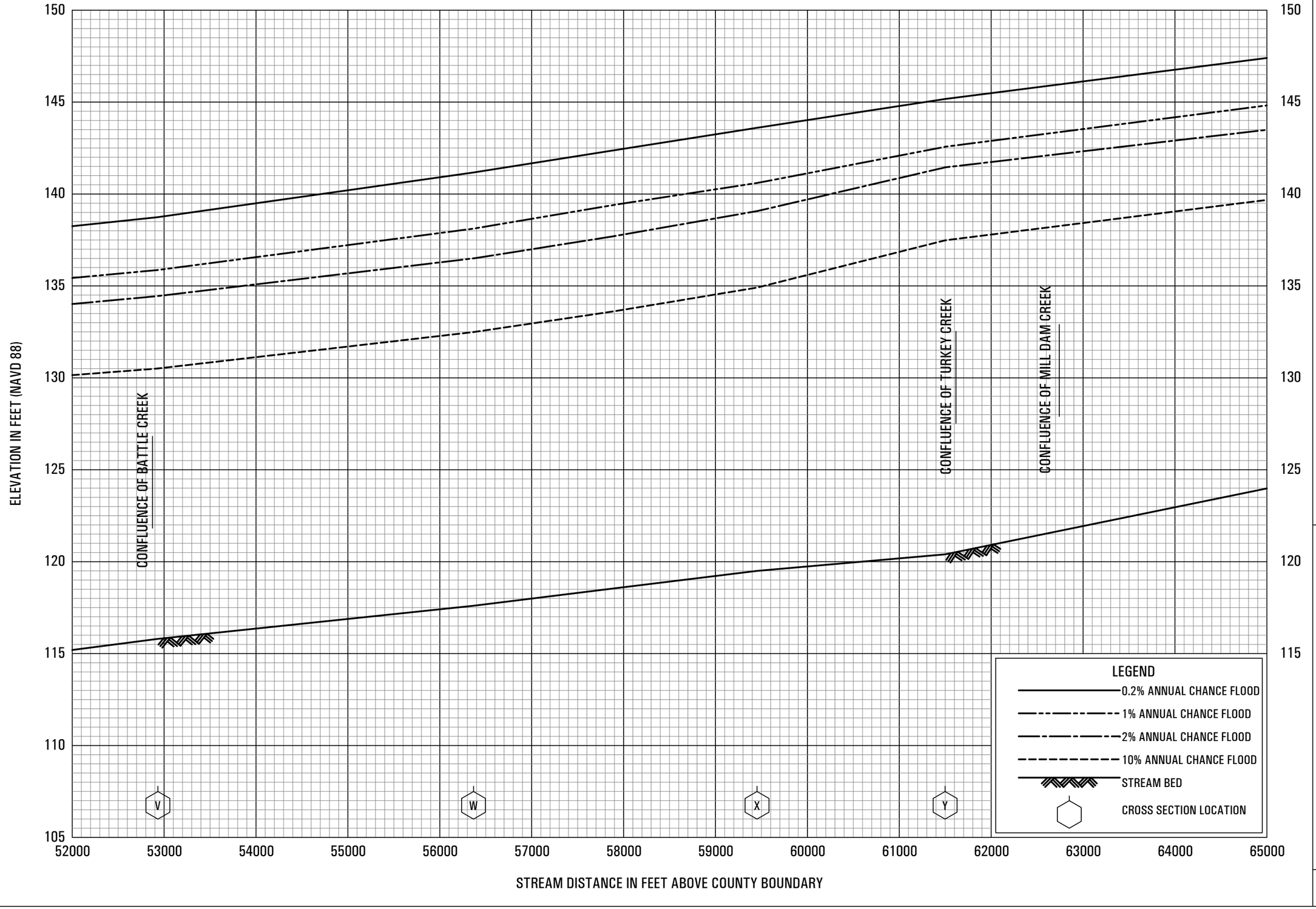
FLOOD PROFILES

SHOAL RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS



FLOOD PROFILES

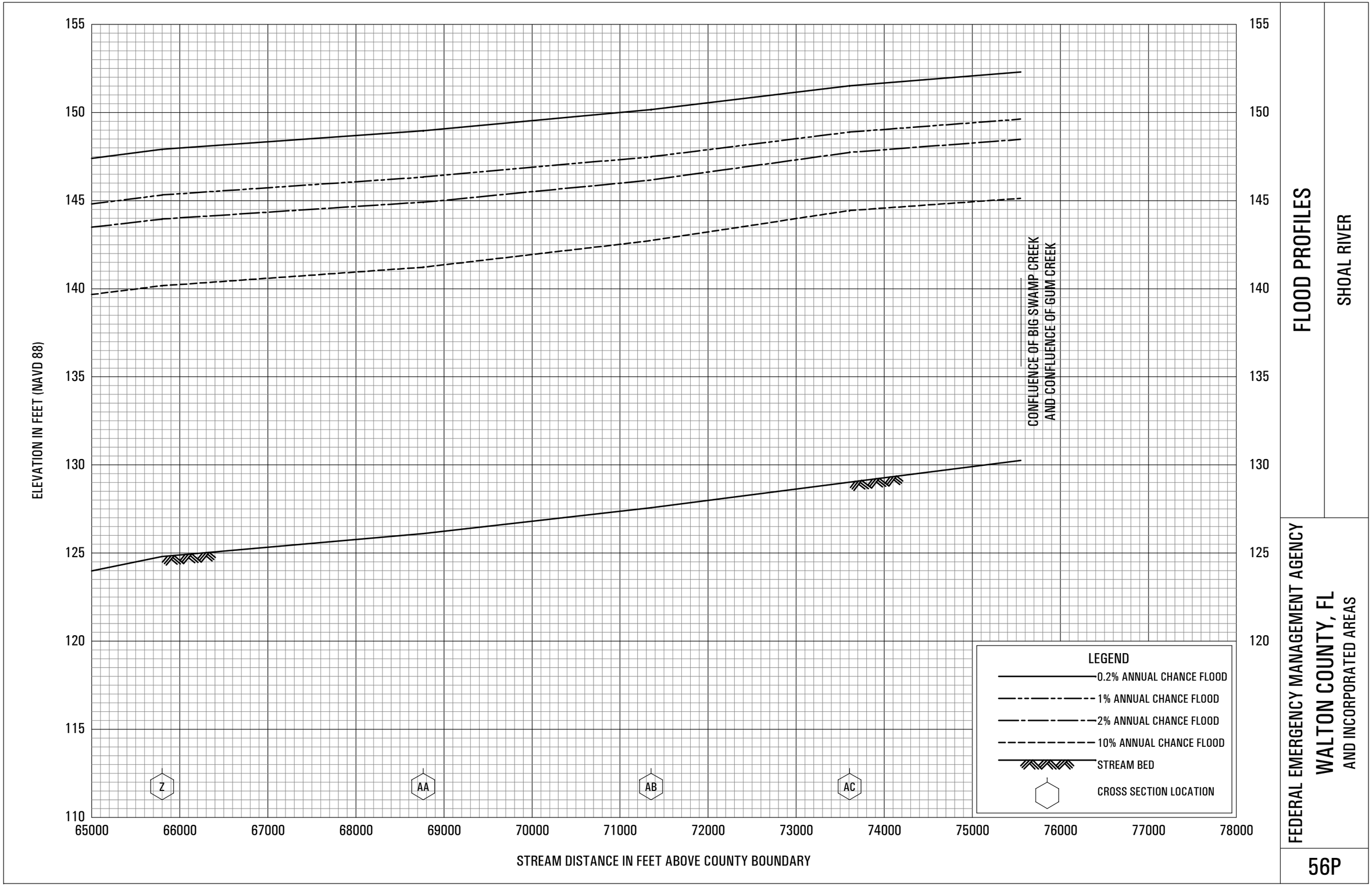
SHOAL RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS

55P



FLOOD PROFILES

SHOAL RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALTON COUNTY, FL

AND INCORPORATED AREAS