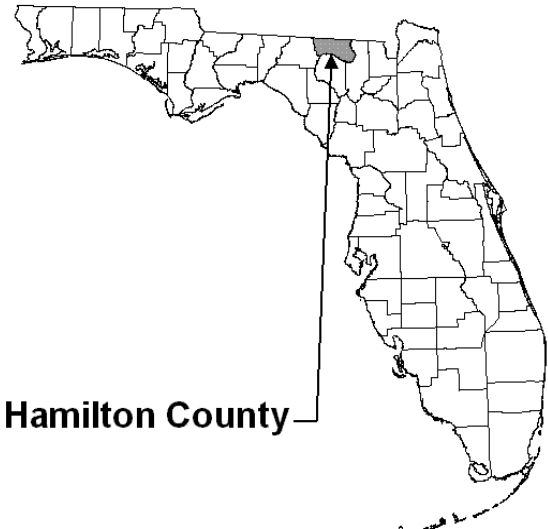


# FLOOD INSURANCE STUDY



## HAMILTON COUNTY, FLORIDA AND INCORPORATED AREAS



Hamilton County

| COMMUNITY NAME                            | COMMUNITY NUMBER |
|---|------------------|
| JASPER, CITY OF                           | 120587           |
| JENNINGS, TOWN OF                         | 120588           |
| HAMILTON COUNTY<br>(UNINCORPORATED AREAS) | 120101           |
| WHITE SPRINGS, TOWN OF                    | 120102           |

Revised:  
**JUNE 4, 2010**



## Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER  
12047CV000A

NOTICE TO  
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Countywide FIS Effective Date: June 4, 1987

Revised Countywide FIS Date(s): June 4, 2010

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FLOOD INSURANCE STUDY  
HAMILTON COUNTY, FLORIDA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) revises and updates a previous FIS/Flood Insurance Rate Map (FIRM) for the geographic area of Hamilton County, Florida, including the including the Town of White Springs, City of Jasper and the Town of Jennings (hereinafter referred to collectively as Hamilton County). This information will be used by Hamilton County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP). The information will also be used by local and regional planners to further promote sound land use and floodplain development.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This FIS was prepared to include the unincorporated areas of Hamilton County and the incorporated communities within Hamilton County into a countywide format. Information on the authority and acknowledgments for this countywide FIS, as compiled from their previously printed FIS reports, is shown below. No previously printed FIS reports are available for the City of Jasper and the City of Jennings.

Hamilton County

(Unincorporated Areas):

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers (USACE), Jacksonville District (the Study Contractor) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-E-1153, Project Order No. 1. This study was completed in September 1985.

White Springs, Town of:

The hydrologic and hydraulic analyses for the June 4, 1987, FIS report were obtained from the FIS for the unincorporated areas of Hamilton County.

For this countywide FIS, revised hydrologic and hydraulic analyses were prepared for FEMA by URS Corporation under contract with the Suwannee River Water Management District (SRWMD), a FEMA Cooperating Technical Partner (CTP).

The digital base map files were derived from Florida Department of Transportation aeriels, produced at a scale of 1:200 from photography dated April 20, 2007.

The coordinate system used for the production of the digital FIRM is State Plane in the Florida North projection zone, referenced to the North American Datum of 1983.

### 1.3 Coordination

Consultation Coordination Officer's (CCO) meetings may be held for each jurisdiction in this countywide FIS. An initial CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to explain the nature and purpose of a FIS, and to identify the streams to be studied by detailed methods. A final CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to review the results of the study.

For the unincorporated areas of Hamilton County and the Town of White Springs, an initial CCO meeting was held in Jacksonville, Florida, on May 6, 1983. Representatives of FEMA, the USACE, and the SRWMD were in attendance. A meeting with SRWMD was held in the City of Live Oak, Florida, on October 18, 1985, to discuss the results of this study. On July 24, 1986, the results of this Flood Insurance Study were reviewed and accepted at a final coordination meeting attended by representatives of the Study Contractor, FEMA, and the community.

For this countywide FIS, an initial CCO meeting was held on November 7, 2007. A final CCO meeting was held on November 17, 2008. These meetings were attended by representatives of the study contractors, SRWMD, Hamilton County, Town of White Springs, City of Jasper and FEMA.

## 2.0 AREA STUDIED

### 2.1 Scope of Study

This FIS covers the geographic area of Hamilton County, Florida.

Flooding caused by overflow of the Alapaha River, the Suwannee River and the Withlacoochee River was studied in detail within the county. Additionally, the Little Alapaha River, Little Alapaha River Unnamed Tributary, Suwannee River Unnamed Tributary, Turket Creek and a closed basin (Timber Lake) with reported flooding problems were studied in detail as part of this revised countywide FIS. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The areas studied were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction. The scope and methods of study were proposed to and agreed upon by FEMA, SRWMD and Hamilton County.

### 2.2 Community Description

Hamilton County is located in northern Florida on the Florida-Georgia border. The county is bordered by Echols and Lowndes Counties, Georgia, on the north, Suwannee County on the south, Columbia County on the south and east, and Madison County on the west. Hamilton County is served by State Roads 25, 93, 100, 136; U.S. Routes 41, 75, 129; and the Norfolk Southern Railway. The 2008 population estimate for Hamilton County was 14,348, an increase of 31 percent over the 1990 population of 10,930 (U.S. Census Bureau, 2009). The 1980 population of Hamilton County was reported to be 8,761 (USDOC, February 1982), an increase of 12.5 percent from the 1970 population of 7,787. Census counts for the incorporated areas are as follows.

| <u>Community</u>      | <u>2008 Population Estimate</u> |
|-----------------------|---------------------------------|
| City of Jasper        | 2,044                           |
| Town of Jennings      | 843                             |
| Town of White Springs | 829                             |

Hamilton County was established December 26, 1827, and named for Alexander Hamilton. The City of Jasper is the county seat. Eighty-two (82) percent of Hamilton County consists of commercial timberland.

Hamilton County is in the Gulf Coastal lowlands physiographic area with topography ranging from 20 feet to about 150 feet above National Geodetic Vertical Datum of 1929 (NGVD). There are four main soil associations located in Hamilton County. The first is the Chipley-Blanton-Swamp Association, which consists of moderately well-drained sandy soils, very thick sandy layers over

loamy subsoil, and very poorly drained soils. The second is the Alphin-Blanton-Eustis Association. This consists of excessively drained soils with very thick sandy layers over thin loamy sand, and moderately well-drained soils with very thick sandy layers over loamy subsoil. The Surrency-Portsmouth Association consists of very poorly drained sandy soils with loamy subsoil, and very poorly drained loamy soils over sand. Finally, the Chipley-Albany-Plummer Association consists of moderately well-drained sandy soils, and poorly drained soils with very thick sandy layers over loamy subsoil (FBCP, July 1975).

The climate of Hamilton County is semi-tropical and is characterized by long, hot summers and mild winters. The average annual rainfall is 49.51 inches, while the average temperatures vary from 53.7 degrees Fahrenheit (°F) in January to 81.1°F in August.

### 2.3 Principal Flood Problems

The most severe floods in the Suwannee River basin are associated with storms, or sequences of storms, which produce widespread distribution of rainfall for several days' duration. Flooding occurs in all seasons, but maximum annual stages occur most frequently from February through April as a result of a series of frontal-type rainfall events over the basin. The area is also subject to summer and fall tropical disturbances, occasionally of hurricane intensity. Thunderstorms caused by summer air mass activity produce intense rainfall, but the duration is usually short and distribution is not widespread.

A number of major floods have occurred on the Suwannee River during the 20th century. The largest flood at Ellaville occurred in April 1948 with a discharge of 95,300 cubic feet per second (cfs). During peak stages of this flood, the Suwannee River was out of its banks from the Gulf of Mexico to north of the Georgia-Florida state line. Its width varied from 0.5 to 6 miles and the flooded area comprised almost 500 square miles along the major rivers. The April 1948 flood was also the largest on the Withlacoochee River and had a discharge at the gage near Pinetta of 79,400 cfs. As a result of the April 1948 flood in Hamilton County, many people were forced to evacuate their homes, and Hamilton County was included in the "major disaster area" declared by the President.

### 2.4 Flood Protection Measures

Flood protection measures are not known to exist within the study area.

## 3.0 ENGINEERING METHODS

For the flooding sources studied in detail 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 once on the average during any 10-, 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-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1- and 0.2-percent 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 exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, 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.

### 3.1 Hydrologic Analyses

#### **Pre-Countywide Analyses**

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each riverine flooding source studied in detail affecting the community.

Regression analyses were performed on the Suwannee River gage data from 1928 through 1984. Analyses of discharge records of all gaged locations on the Suwannee River were used to establish a peak discharge-frequency relationship throughout the river. The peak discharge-frequency relationship on the Withlacoochee River was established by log-Pearson Type III frequency analysis of the discharge records from the Pinetta gage. Annual peak discharges for water years 1929, 1930, and 1931 were determined by regression analyses on the upstream gage near the City of Quitman, Georgia. Flood frequencies were determined by log-Pearson Type III statistical analysis in accordance with procedures recommended by the Water Resources Council (USDOI, September 1981 and March 1982). Similar procedures were used to determine peak discharge-frequency relationships on the Alapaha River using data from the Statenville, Georgia, gage.

Areas of induced storage cause some decreases in discharge along the Suwannee River. This attenuation of flow is common along the river.

Peak discharge-drainage area relationships for the 10-, 2-, 1-, and 0.2-percent annual chance floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

| <u>FLOODING SOURCE<br/>AND LOCATION</u>                      | <u>DRAINAGE AREA<br/>(SQ MILES)</u> | <u>PEAK DISCHARGE (CFS)</u> |                  |                  |                    |
|--|-------------------------------------|-----------------------------|------------------|------------------|--------------------|
|  |                                     | <u>10-PERCENT</u>           | <u>2-PERCENT</u> | <u>1-PERCENT</u> | <u>0.2-PERCENT</u> |
| SUWANNEE RIVER   |                                     |                             |                  |                  |                    |
| At Ellaville   | 6,970                               | 41,000                      | 65,300           | 76,500           | 104,000            |
| Just upstream of the<br>confluence of<br>Withlacoochee River | 4,610                               | 26,200                      | 40,500           | 46,700           | 63,100             |
| ALAPAHA RIVER  |                                     |                             |                  |                  |                    |
| Near Statenville,<br>Georgia                                 | 1,400                               | 12,600                      | 19,300           | 22,200           | 28,900             |
| WITHLACOOCHEE<br>RIVER                                       |                                     |                             |                  |                  |                    |
| At mouth   | 2,360                               | 22,900                      | 38,600           | 46,000           | 65,900             |
| Near Pinetta   | 2,120                               | 25,600                      | 45,100           | 54,900           | 81,400             |
| At northern state<br>boundary                                | 2,090                               | 26,600                      | 47,600           | 58,400           | 87,400             |
| LITTLE ALAPAHA<br>RIVER                                      |                                     |                             |                  |                  |                    |
| At Unnamed Tributary   | 58.82                               | 1,234                       | 2,468            | 3,372            | 5,063              |
| LITTLE ALAPAHA<br>RIVER UNNAMED<br>TRIBUTARY                 |                                     |                             |                  |                  |                    |
| At confluence with<br>Little Alapaha River                   | 5.65                                | 146                         | 302              | 419              | 643                |
| SUWANNEE RIVER<br>UNNAMED<br>TRIBUTARY                       |                                     |                             |                  |                  |                    |
| At confluence of<br>Suwannee River                           | 1.48                                | 223                         | 495              | 702              | 1,120              |
| TURKET CREEK   |                                     |                             |                  |                  |                    |
| At Confluence<br>Alapahoochee River                          | 3.73                                | 164                         | 347              | 484              | 751                |
| At US-41   | 2.65                                | 117                         | 247              | 344              | 534                |
| At Hamilton Avenue<br>CR-143)                                | 1.55                                | 68                          | 144              | 201              | 311                |

**Revised Analyses**

For this revised countywide FIS, five areas were analyzed in detail. The five study areas are described below.

The Little Alapaha River Unnamed Tributary / Little Alapaha River study area is located on the northern portion of Hamilton County and consists of Little Alapaha River Unnamed Tributary from the confluence with Little Alapaha River to approximately 0.19 miles (982.01 ft) upstream of U.S. Highway 129, and Little Alapaha River from the confluence with an unnamed tributary to approximately

0.43 miles (2290.65 ft) upstream. The Little Alapaha River Unnamed Tributary generally flows to the west to the confluence with Little Alapaha River. Little Alapaha River generally flows to the south to the confluence with the Alapaha River. The total contributing drainage area is approximately 58.82 square miles for the main branch and 5.65 square miles for the tributary. Land use in this area is predominately forested and pasture.

The Suwannee River Unnamed Tributary is located near the Town of White Springs, Hamilton County, Florida east of U.S. Highway 41 and west of State Road 135. The confluence of the Suwannee River Unnamed Tributary with the Suwannee River is located approximately 750 feet downstream of State Road 135. The limits of the detailed study extend from the confluence with Suwannee River to approximately 1.36 miles upstream. The total contributing drainage area at the outfall for the reach located at the confluence with Suwannee River is approximately 1.48 square miles with a channel slope for the main channel averaging about 50 feet per mile (fpm) within the detailed study area.

The detailed study area of Timber Lake is located south of the Town of Jennings, Hamilton County, Florida near the southwest intersection of State Road 141 and State Road 152. The total contributing drainage area for this basin associated with Timber Lake is approximately 288.5 acres. The total contributing drainage area associated with the drainage ditch located south of the lake outfall is approximately 13 acres. Land use for the study area is mainly forested, agricultural, and pasture.

Turket Creek is located in the northwest corner of Hamilton County near the town of Jennings, Florida. This system, which is part of the Suwannee River Basin, discharges to the Alapahoochee River approximately 0.2 miles upstream of the Alapaha River confluence. The Turket Creek watershed is 3.73 square-miles in area and has an average channel slope of 0.5-percent (26.6 fpm). The Turket Creek basin is characterized as having sandy soils; approximately 4 percent lake area; land use consisting of urban, agricultural and silviculture areas; and cover types consisting primarily of forest (upland and wetland) with grassland areas associated with the agricultural areas.

Streamflows for the Little Alapaha River, Little Alapaha Unnamed Tributary, Suwannee River Unnamed Tributary and Turket Creek were estimated using USGS Regional Regression Equations for a series of flood frequencies. The methodologies and equations used in that analysis are presented in detail in USGS, Water Resources Investigations 82-4012, Technique for Estimating Magnitude and Frequency of Floods on Natural-Flow Streams in Florida, 1982. The National Flood Frequency Program (NFF), Version 3, was used to compute streamflow estimates for this analysis.

Drainage basin maps for the study area were prepared using GIS. Input data required for the regression equation estimates, including Drainage Area, Channel Slope and Lake Area, were all determined using GIS based data.

A flood frequency analysis was conducted to estimate streamflows at six USGS gages within and adjacent to Union County on streams with characteristics similar to those of the study reaches. The methodologies used in this analysis are documented in Bulletin #17B, Guidelines for Determining Flood Flow Frequency, March 1982. The USGS computer program PEAKFQ - Annual Flood Frequency Analysis Using Bulletin 17B Guidelines, Version 4.1, February 25, 2002 was used to estimate streamflows and associated flood frequencies.

For the Timber Lake closed basin area, Streamline Technologies ICPR v.3 unsteady flow model was used to estimate flood discharges and elevations for a series of flood frequencies including the 10-, 2-, 1- and 0.2-percent annual chance events.

The rainfall amounts for the 24-hour 10-, 2-, 1- and 0.2-percent storm events were obtained from Appendix B of Drainage Manual published by State of Florida Department of Transportation. A synthetic (Type II Florida Modified) rainfall time distribution was used to develop the ICPR models. Watershed boundaries were delineated using contours derived from the USGS digital elevation model (DEM) of the study area. The SCS Curve Number Method is used in this study to compute the direct runoff resulting from each of the analyzed frequencies. Basin time of concentration was determined using the procedures outlined in the NRCS TR-55 publication. The SCS Unit Hydrograph method is used to generate the hydrographs resulting from the analyzed storms. A unit hydrograph peak factor of 484 was selected.

### 3.2 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. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

#### **Pre-Countywide Analyses**

Cross-section data were obtained by aerial survey methods from photographs of the floodplain areas and by field measurements of the main channel and overbank areas (USACE, January 1982). All bridges were field surveyed to obtain elevation data and structural geometry. Cross sections were located at close intervals upstream and downstream of bridges in order to compute hydraulic effects of these structures.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles. For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the Flood Insurance Rate Map.

Roughness coefficients (Manning's "n") used in the hydraulic computation were determined by analyzing known flood events in the Hamilton County reaches of the Suwannee, Alapaha, and Withlacoochee Rivers. The following roughness coefficients were used.

| <u>River</u>  | <u>Main Channel</u> | <u>Overbank</u> |
|---------------|---------------------|-----------------|
| Suwannee      | 0.045               | 0.20            |
| Alapaha       | 0.050               | 0.30            |
| Withlacoochee | 0.045               | 0.25            |

Starting water-surface elevations for the Hamilton County reach of the Suwannee River were based on results of backwater studies performed earlier for Lafayette County, Florida. Starting water-surface elevations for the Alapaha and Withlacoochee Rivers were based on the computed water-surface elevations for the Suwannee River.

Water-surface elevations of floods of the selected recurrence intervals were computed through use of the COE HEC-2 step-backwater computer program (USACE, April 1984).

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals. In cases where the 2- and 1-percent annual chance flood elevations are close together, due to limitations of the profile scale, only the 1-percent annual chance profile has been shown.

The hydraulic analyses for this study are based only on the effects of 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.

### **Revised Analyses**

For this revised countywide FIS, the areas presented below were studied in detail to estimate flood elevations for the selected recurrence intervals.

The total channel length for Little Alapaha River Unnamed Tributary is approximately 2.31 miles; the total length of the Little Alapaha River is approximately 0.43 miles. The main channel and tributary generally have a sandy bottom with heavily vegetated banks, some local obstructions and minor meander. The overbank areas are generally heavily vegetated with trees and underbrush causing a high degree of roughness. Within the study area, channel slope for the main channel and tributary averages 17.4 and 22.2 fpm, respectively. There is

one culvert structure located on the Little Alapaha River Unnamed Tributary at U.S. Highway 129.

The limits of the detailed study for the Suwannee River Unnamed Tributary extends from the confluence with Suwannee River to approximately 1.36 miles upstream. The main channel has a sandy bottom with minor vegetated banks, some local obstructions and moderate meander. The overbank areas are generally heavily vegetated with trees causing a high degree of roughness. The land use is characterized as being predominately forested with a few areas identified as low to medium residential. The soil type for the main channel and floodplain is mainly Wampee-Blanton complex fine sand.

The study includes conveyance of the stream through culvert structures located at the following: U.S. Highway 41, Suwannee Street, Jewett Street, a railroad, and First Street. The structure located at U.S. Highway 41 is concrete box culvert with dimensions of 10.1 feet by 10.1 feet and approximately 116 feet in length. The structure located at Suwannee Street is concrete box culvert with dimensions of 8 feet span by 9 feet rise and approximately 193 feet in length. There are 4 culvert structures located at Jewett Street, which include two 4 feet corrugated metal pipes and two concrete elliptical pipes with a 5-foot span and a 3-foot rise. The structure located at the rail road is a 2 feet concrete pipe and approximately 75 feet in length. The structure located at First Street is a 3-foot concrete pipe and approximately 59.5 feet in length.

Turket Creek is part of the Suwannee River system and has its outlet on the Alapahoochee River approximately 0.2 miles upstream of the Alapaha River confluence. The Turket Creek study reach consists of a 2.64 mile long segment from its confluence with the Alapahoochee River upstream to a point located 1000 feet north of Hamilton Avenue (CR-143). Main channel slopes vary from 3 to 45 fpm with a weighted average slope of 23.8 fpm. The channel consists primarily of a sandy bottom and some areas of muck with moderate to heavily vegetated banks and some local obstructions and meander. The overbank areas consist primarily of sandy soil and some areas of loam with moderate to heavy wooded vegetation and underbrush causing relatively high degree of roughness. The study reach includes five culverted channel crossings. The segment upstream of CR-141 contains a lake about 2,000 feet in length with no apparent embankment or control facilities. The study reach contains no obvious channelization or other improvements.

HEC-RAS models were developed for the Little Alapaha River, Little Alapaha River Unnamed Tributary, Suwannee River Unnamed Tributary and Turket Creek to simulate flood elevations. Each model included details of natural channel geometry and considered all structures which potentially impact flood levels such as bridges and culverts. Channel cross-sections were obtained primarily from field surveys with supplemented cross-sections being developed from USGS Hamilton County topographic data. Bridge and culvert structures were surveyed

to obtain elevation data and structural geometry. All field survey was established with horizontal control in Florida North Zone (903) State Plane coordinates, and vertical control in NAVD 1988 datum. Bridge and culvert structure surveys included the top of road profile and upstream regular cross section.

Channel and floodplain roughness coefficients (Manning’s “n”) were estimated based upon the methodology documented in USGS Water Supply Paper 2339. A combination of field observation, surveyor photographs, and aerial photography (USGS DOQQ) was used to establish the parameters used in the methodology. All of the areas studied as part of this revision have channels composed of sandy material and generally have bare bottoms. The channels have a relatively high roughness factor due to overhanging vegetation that persists year round. Similarly, the overbank areas are quite rough due to surface irregularities and heavy vegetation. Roughness values for the main channels ranged from 0.031 to 0.13, and overbank values ranged from 0.090 to 0.150 for the streams studied in detail in this revised analysis.

The starting water-surface elevations for the HEC-RAS models were determined using either normal depth or known water surface elevations for areas that were a continuation of the previous FIS. Floodways were determined for the streams in this study using method 4 and 5 in HEC-RAS initially, then method 1 to refine the floodway and fix the encroachment stations. All surcharge values are between 0.0 and 1.0, and the floodway contains the channel and is within the 1-percent annual chance floodplain at all cross sections.

For the Timber Lake closed basin area, the Streamline Technologies ICPR v.3 unsteady flow model was used to estimate flood levels. The development of the model schematic was performed using ArcGIS. Various sources were utilized in developing the schematic including GIS shapefiles of the transportation network, ortho-aerial photography of Hamilton County, Digital Elevation Model (DEM) of Hamilton County and contours derived from the DEM. An ArcGIS automated subroutine was used to determine the stage-area relationships for each subbasin. Overtopping weirs are used in ICPR to transfer water between the storage areas. The cross sections for the overtopping weirs were derived using the DEM for Hamilton County. Starting water surface elevations for each subbasin were determined from the DEM. An ICPR model for each of the study areas was developed based on the information described above. Stillwater elevations for the 10-, 2-, 1-, and 0.2-percent annual chance floods for the closed basin area are summarized in Table 2, “Summary of Stillwater Elevations.”

TABLE 2 - SUMMARY OF STILLWATER ELEVATIONS

| FLOODING SOURCE | ELEVATION (feet NAVD) |           |           |             |
|-----------------|-----------------------|-----------|-----------|-------------|
|                 | 10-PERCENT            | 2-PERCENT | 1-PERCENT | 0.2-PERCENT |
| TIMBER LAKE     | 134.8                 | 135.2     | 135.4     | 135.7       |

### 3.3 Vertical Datum

All FISs 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 in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NAVD 88. Structure and ground elevations in the community must, therefore, be referenced to NAVD 88. It is important to note that adjacent communities may be referenced to NGVD 29. This may result in differences in base flood elevations across the corporate limits between the communities.

Prior versions of the FIS report and FIRM were referenced to NGVD 29. When a datum conversion is effected for an FIS report and FIRM, the Flood Profiles and Base Flood Elevations (BFEs) reflect the new datum values. To compare structure and ground elevations to 1-percent annual chance flood elevations shown in the FIS and on the FIRM, the subject structure and ground elevations must be referenced to the new datum values.

As noted above, the elevations shown in the FIS report and on the FIRM for Hamilton County, Florida and Incorporated Areas, are referenced to NAVD 88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor from NGVD 29 to NAVD 88 is -0.76 foot.

The BFEs shown on the FIRM represent whole-foot rounded values. For example, a BFE of 102.4 will appear as 102 on the FIRM and 102.6 will appear as 103. Therefore, users that wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor(s) to elevations shown on the Flood Profiles and supporting data tables in the FIS report, which are shown at a minimum to the nearest 0.1-foot.

For more information on NAVD 88, see [Converting the National Flood Insurance Program to the North American Vertical Datum of 1988](#), FEMA Publication FIA-20/June 1992, or contact NGS Information Services, NOAA, N/NGS12, National Geodetic Survey, SSMC-3, #9202, 1315 East-West Highway, Silver Spring, Maryland 20910-3282 (Internet address <http://www.ngs.noaa.gov>).



## 4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each FIS provides 1-percent-annual-chance flood elevations and delineations of the 1- and 0.2-percent-annual-chance floodplain boundaries and 1-percent-annual-chance floodway to assist communities in developing floodplain management measures. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

### 4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 1- and 0.2-percent annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:12000 with a contour interval of 2 feet for the Suwannee River, and at a scale of 1:24000 with contour intervals of 5 and 10 feet for the Alapaha and Withlacoochee Rivers (USACE January 1982 and USGS 1955-1974).

The 1- and 0.2-percent annual chance floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 1-percent annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 0.2-percent annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent annual chance floodplain boundaries are close together, only the 1-percent 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.

Areas studied by approximate methods were updated using a data layer known as 'wetcomp' provided by the Suwannee River Water Management District. 'Wetcomp' combines National Wetlands Inventory (NWI) data, land use and cover, as well as hydrography features.

### 4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces the flood-carrying capacity, increases the 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 National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent annual chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1-percent chance annual flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways 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. The results of the floodway computations are tabulated for selected cross sections and are shown in Table 3 – Floodway Data. The computed floodways are shown on the FIRM. In cases where the floodway and the 1-percent annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

Portions of the floodways for the Suwannee and Withlacoochee Rivers lie outside the county boundary. The area between the floodway and the 1-percent annual chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent annual chance flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.

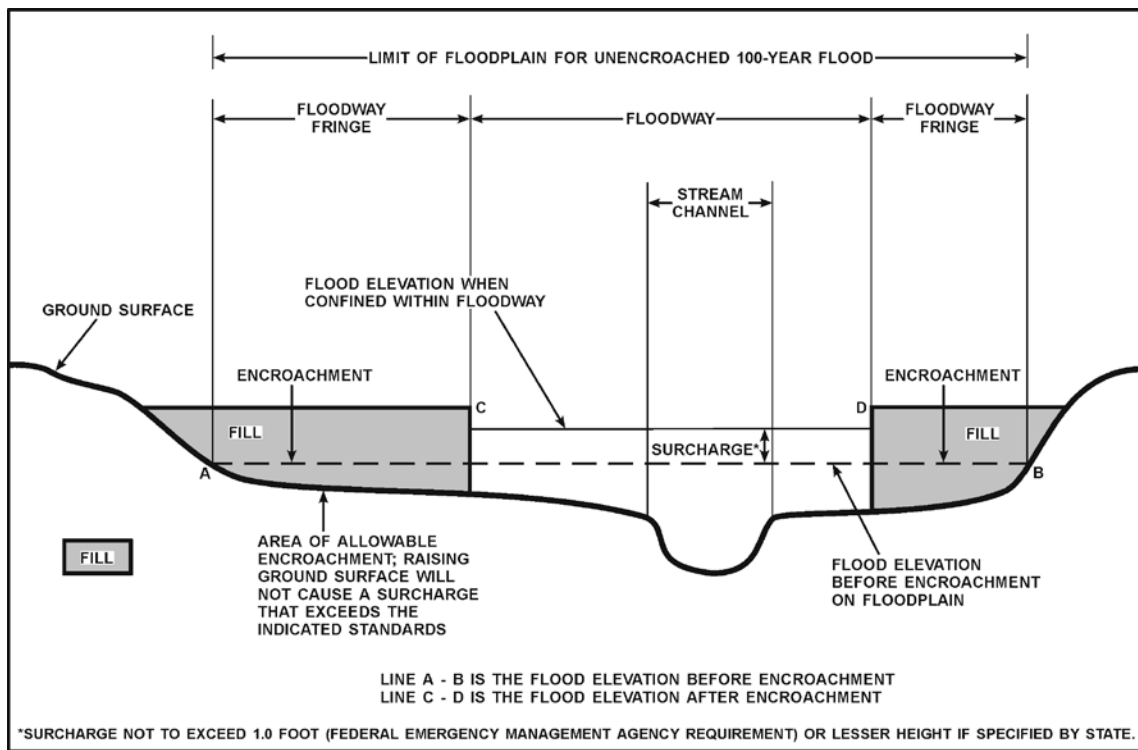


Figure 1 - Floodway Schematic

| FLOODING SOURCE |                       | FLOODWAY     |                            |                                 | BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD) |                                 |                              |                 |
|-----------------|-----------------------|--------------|----------------------------|---------------------------------|--|---------------------------------|------------------------------|-----------------|
| CROSS SECTION   | DISTANCE <sup>1</sup> | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY (FEET NAVD 88)                      | WITHOUT FLOODWAY (FEET NAVD 88) | WITH FLOODWAY (FEET NAVD 88) | INCREASE (FEET) |
| Alapaha River   |                       |              |                            |                                 |  |                                 |                              |                 |
| A               | 1.66                  | 4275         | 54,633                     | 0.4                             | 69.2   | 68.8 <sup>2</sup>               | 69.8                         | 1.0             |
| B               | 2.06                  | 3914         | 36,519                     | 0.6                             | 69.2   | 69.0 <sup>2</sup>               | 70.0                         | 1.0             |
| C               | 2.76                  | 3725         | 46,185                     | 0.4                             | 69.3   | 69.3                            | 70.2                         | 0.9             |
| D               | 4.15                  | 3729         | 57,591                     | 0.4                             | 69.6   | 69.6                            | 70.5                         | 0.9             |
| E               | 5.26                  | 2891         | 27,512                     | 0.7                             | 70.0   | 70.0                            | 71.0                         | 1.0             |
| F               | 6.62                  | 1959         | 19,545                     | 1.0                             | 71.7   | 71.7                            | 72.6                         | 0.9             |
| G               | 7.51                  | 1700         | 23,195                     | 0.9                             | 72.8   | 72.8                            | 73.7                         | 0.9             |
| H               | 9.10                  | 2932         | 27,557                     | 0.8                             | 74.1   | 74.1                            | 75.0                         | 0.9             |
| I               | 10.01                 | 3450         | 31,089                     | 0.7                             | 74.8   | 74.8                            | 75.7                         | 0.9             |
| J               | 11.10                 | 3931         | 32,363                     | 0.7                             | 75.7   | 75.7                            | 76.6                         | 0.9             |
| K               | 11.92                 | 4035         | 32,211                     | 0.7                             | 76.8   | 76.8                            | 77.8                         | 1.0             |
| L               | 13.27                 | 3542         | 31,377                     | 0.7                             | 78.5   | 78.5                            | 79.4                         | 0.9             |
| M               | 15.52                 | 1830         | 26,676                     | 0.9                             | 80.5   | 80.5                            | 81.5                         | 1.0             |
| N               | 16.55                 | 1143         | 5266                       | 4.5                             | 82.4   | 82.4                            | 83.3                         | 0.9             |
| O               | 17.50                 | 789          | 9148                       | 2.6                             | 87.1   | 87.1                            | 88.0                         | 0.9             |
| P               | 19.93                 | 2107         | 23,077                     | 1.0                             | 89.9   | 89.9                            | 90.9                         | 1.0             |
| Q               | 20.59                 | 1063         | 13,860                     | 1.8                             | 91.0   | 91.0                            | 91.9                         | 0.9             |
| R               | 21.48                 | 1376         | 16,053                     | 1.3                             | 92.7   | 92.7                            | 93.6                         | 0.9             |
| S               | 22.63                 | 892          | 10,757                     | 2.0                             | 94.3   | 94.3                            | 95.3                         | 1.0             |

<sup>1</sup> Miles above mouth

<sup>2</sup> Elevation computed without consideration of backwater effects from Suwannee River

**TABLE 3**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**ALAPAHA RIVER**

| FLOODING SOURCE                           |                     | FLOODWAY     |                            |                                 | BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88) |                  |               |          |
|---|---------------------|--------------|----------------------------|---------------------------------|---|------------------|---------------|----------|
| CROSS SECTION                             | DISTANCE            | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY  | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| Little Alapaha River                      |                     |              |                            |                                 |   |                  |               |          |
| A   | 0 <sup>1</sup>      | 139          | 836                        | 4.0                             | 80.6  | 80.6             | 81.6          | 1.0      |
| B   | 2,291 <sup>1</sup>  | 116          | 969                        | 2.8                             | 85.3  | 85.3             | 86.3          | 1.0      |
| Little Alapaha River<br>Unnamed Tributary |                     |              |                            |                                 |   |                  |               |          |
| A   | 1,313 <sup>2</sup>  | 78           | 200                        | 2.1                             | 87.7  | 87.7             | 88.3          | 0.6      |
| B   | 3,269 <sup>2</sup>  | 488          | 336                        | 1.1                             | 93.8  | 93.8             | 93.8          | 0.0      |
| C   | 6,241 <sup>2</sup>  | 46           | 90                         | 3.4                             | 108.7   | 108.7            | 109.7         | 1.0      |
| D   | 8,435 <sup>2</sup>  | 50           | 119                        | 1.7                             | 118.2   | 118.2            | 118.3         | 0.1      |
| E   | 10,640 <sup>2</sup> | 30           | 45                         | 2.9                             | 123.2   | 123.2            | 123.5         | 0.3      |
| F   | 11,197 <sup>2</sup> | 30           | 69                         | 0.8                             | 124.2   | 124.2            | 124.3         | 0.1      |
| G   | 11,370 <sup>2</sup> | 30           | 70                         | 0.5                             | 124.3   | 124.3            | 124.3         | 0.0      |
| H   | 12,179 <sup>2</sup> | 124          | 20                         | 1.7                             | 124.6   | 124.6            | 124.7         | 0.1      |

<sup>1</sup> Feet above confluence with Unnamed Tributary

<sup>2</sup> Feet above confluence with Little Alapaha Creek

**TABLE 3**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**LITTLE ALAPAHA RIVER - LITTLE ALAPAHA RIVER  
UNNAMED TRIBUTARY**

| FLOODING SOURCE |                       | FLOODWAY                     |                                     |  | BASE FLOOD<br>WATER-SURFACE ELEVATION<br>(FEET NAVD 88) |                     |                  |          |
|-----------------|-----------------------|------------------------------|-------------------------------------|--|---|---------------------|------------------|----------|
| CROSS SECTION   | DISTANCE <sup>1</sup> | WIDTH <sup>2</sup><br>(FEET) | SECTION<br>AREA<br>(SQUARE<br>FEET) | MEAN<br>VELOCITY<br>(FEET PER<br>SECOND) | REGULATORY  | WITHOUT<br>FLOODWAY | WITH<br>FLOODWAY | INCREASE |
| Suwannee River  |                       |                              |                                     |  |   |                     |                  |          |
| A               | 128.83                | 4434                         | 80,874                              | 0.6                                      | 66.1  | 66.1                | 67.1             | 1.0      |
| B               | 132.59                | 5469                         | 86,497                              | 0.5                                      | 67.3  | 67.3                | 68.2             | 0.9      |
| C               | 134.39                | 2585                         | 38,489                              | 1.3                                      | 68.2  | 68.2                | 69.2             | 1.0      |
| D               | 135.59                | 2440                         | 36,040                              | 0.8                                      | 69.2  | 69.2                | 70.2             | 1.0      |
| E               | 136.66                | 2108                         | 23,584                              | 1.2                                      | 69.8  | 69.8                | 70.8             | 1.0      |
| F               | 138.01                | 2166                         | 38,004                              | 0.8                                      | 70.5  | 70.5                | 71.5             | 1.0      |
| G               | 140.18                | 3662                         | 56,511                              | 0.5                                      | 71.1  | 71.1                | 72.1             | 1.0      |
| H               | 141.82                | 3184                         | 35,772                              | 0.8                                      | 71.7  | 71.7                | 72.7             | 1.0      |
| I               | 142.79                | 2862                         | 43,619                              | 0.7                                      | 72.4  | 72.4                | 73.3             | 0.9      |
| J               | 144.26                | 2642                         | 67,333                              | 0.4                                      | 73.0  | 73.0                | 74.0             | 1.0      |
| K               | 146.08                | 1939                         | 34,348                              | 0.8                                      | 73.6  | 73.6                | 74.6             | 1.0      |
| L               | 147.53                | 1811                         | 30,647                              | 0.9                                      | 74.7  | 74.7                | 75.7             | 1.0      |
| M               | 148.55                | 1915                         | 29,339                              | 1.0                                      | 75.8  | 75.8                | 76.8             | 1.0      |
| N               | 149.47                | 2224                         | 37,318                              | 0.8                                      | 76.5  | 76.5                | 77.5             | 1.0      |
| O               | 151.40                | 2274                         | 32,653                              | 0.9                                      | 77.9  | 77.9                | 78.9             | 1.0      |
| P               | 152.76                | 3378                         | 43,862                              | 0.7                                      | 78.6  | 78.6                | 79.6             | 1.0      |
| Q               | 154.03                | 1108                         | 16,449                              | 1.9                                      | 79.2  | 79.2                | 80.2             | 1.0      |
| R               | 155.59                | 2277                         | 36,505                              | 0.8                                      | 80.7  | 80.7                | 81.6             | 0.9      |
| S               | 156.49                | 2152                         | 40,370                              | 0.8                                      | 81.2  | 81.2                | 82.1             | 0.9      |
| T               | 157.20                | 3007                         | 43,503                              | 0.7                                      | 81.4  | 81.4                | 82.3             | 0.9      |
| U               | 158.87                | 2497                         | 40,711                              | 0.8                                      | 82.0  | 82.0                | 83.0             | 1.0      |
| V               | 160.29                | 2829                         | 42,589                              | 0.7                                      | 82.5  | 82.5                | 83.5             | 1.0      |
| W               | 161.55                | 5074                         | 68,732                              | 0.4                                      | 82.9  | 82.9                | 83.9             | 1.0      |
| X               | 163.05                | 4317                         | 67,374                              | 0.5                                      | 83.6  | 83.6                | 84.6             | 1.0      |
| Y               | 164.96                | 3479                         | 45,881                              | 0.7                                      | 84.2  | 84.2                | 85.2             | 1.0      |
| Z               | 166.34                | 4173                         | 58,902                              | 0.6                                      | 85.0  | 85.0                | 86.0             | 1.0      |

<sup>1</sup> Miles above mouth

<sup>2</sup> This width extends beyond the county limits

**TABLE 3**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SUWANNEE RIVER**

| FLOODING SOURCE            |                       | FLOODWAY                     |                                     |  | BASE FLOOD<br>WATER-SURFACE ELEVATION<br>(FEET NAVD 88) |                     |                  |          |
|----------------------------|-----------------------|------------------------------|-------------------------------------|--|---|---------------------|------------------|----------|
| CROSS SECTION              | DISTANCE <sup>1</sup> | WIDTH <sup>2</sup><br>(FEET) | SECTION<br>AREA<br>(SQUARE<br>FEET) | MEAN<br>VELOCITY<br>(FEET PER<br>SECOND) | REGULATORY  | WITHOUT<br>FLOODWAY | WITH<br>FLOODWAY | INCREASE |
| Suwannee River (continued) |                       |                              |                                     |  |   |                     |                  |          |
| AA                         | 166.93                | 4916                         | 82,272                              | 0.4                                      | 85.2  | 85.2                | 86.2             | 1.0      |
| AB                         | 168.15                | 7174                         | 118,621                             | 0.3                                      | 85.4  | 85.4                | 86.4             | 1.0      |
| AC                         | 169.35                | 4392                         | 65,101                              | 0.5                                      | 85.8  | 85.8                | 86.8             | 1.0      |
| AD                         | 169.80                | 2528                         | 34,603                              | 1.0                                      | 86.0  | 86.0                | 87.0             | 1.0      |
| AE                         | 170.11                | 3334                         | 40,196                              | 0.8                                      | 86.4  | 86.4                | 87.4             | 1.0      |
| AF                         | 171.09                | 3463                         | 45,834                              | 0.7                                      | 87.2  | 87.2                | 88.2             | 1.0      |
| AG                         | 172.42                | 4596                         | 52,773                              | 0.6                                      | 88.2  | 88.2                | 89.1             | 0.9      |
| AH                         | 173.89                | 3379                         | 53,982                              | 0.6                                      | 89.1  | 89.1                | 90.1             | 1.0      |
| AI                         | 174.74                | 2274                         | 31,981                              | 1.0                                      | 89.7  | 89.7                | 90.7             | 1.0      |
| AJ                         | 176.17                | 3098                         | 36,929                              | 0.9                                      | 90.5  | 90.5                | 91.5             | 1.0      |
| AK                         | 177.71                | 1540                         | 27,258                              | 1.2                                      | 91.9  | 91.9                | 92.9             | 1.0      |
| AL                         | 178.85                | 3313                         | 47,537                              | 0.7                                      | 92.7  | 92.7                | 93.7             | 1.0      |
| AM                         | 180.47                | 2934                         | 39,890                              | 0.8                                      | 93.4  | 93.4                | 94.4             | 1.0      |
| AN                         | 182.10                | 3259                         | 39,912                              | 0.8                                      | 94.5  | 94.5                | 95.5             | 1.0      |
| AO                         | 183.61                | 2314                         | 33,602                              | 0.9                                      | 95.4  | 95.4                | 96.4             | 1.0      |
| AP                         | 184.53                | 3732                         | 50,181                              | 0.6                                      | 95.9  | 95.9                | 96.9             | 1.0      |
| AQ                         | 186.50                | 3853                         | 47,863                              | 0.6                                      | 97.1  | 97.1                | 98.1             | 1.0      |
| AR                         | 188.25                | 4555                         | 53,300                              | 0.6                                      | 97.6  | 97.6                | 98.6             | 1.0      |
| AS                         | 190.41                | 3335                         | 41,215                              | 0.7                                      | 99.0  | 99.0                | 100.0            | 1.0      |
| AT                         | 192.44                | 3755                         | 48,854                              | 0.6                                      | 100.1   | 100.1               | 101.1            | 1.0      |
| AU                         | 193.92                | 4176                         | 53,317                              | 0.5                                      | 100.8   | 100.8               | 101.8            | 1.0      |
| AV                         | 195.67                | 2932                         | 36,170                              | 0.8                                      | 101.6   | 101.6               | 102.6            | 1.0      |

<sup>1</sup> Miles above mouth

<sup>2</sup> This width extends beyond the county limits

**TABLE 3**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SUWANNEE RIVER**

| FLOODING SOURCE            |                       | FLOODWAY                     |                                     |  | BASE FLOOD<br>WATER-SURFACE ELEVATION<br>(FEET NAVD 88) |                     |                  |          |
|----------------------------|-----------------------|------------------------------|-------------------------------------|--|---|---------------------|------------------|----------|
| CROSS SECTION              | DISTANCE <sup>1</sup> | WIDTH <sup>2</sup><br>(FEET) | SECTION<br>AREA<br>(SQUARE<br>FEET) | MEAN<br>VELOCITY<br>(FEET PER<br>SECOND) | REGULATORY  | WITHOUT<br>FLOODWAY | WITH<br>FLOODWAY | INCREASE |
| Suwannee River (continued) |                       |                              |                                     |  |   |                     |                  |          |
| AW                         | 196.44                | 2384                         | 31,375                              | 0.9                                      | 102.2   | 102.2               | 103.2            | 1.0      |
| AX                         | 198.11                | 3239                         | 31,117                              | 0.9                                      | 103.1   | 103.1               | 104.1            | 1.0      |
| AY                         | 199.45                | 2175                         | 26,476                              | 1.0                                      | 104.2   | 104.2               | 105.1            | 0.9      |
| AZ                         | 200.74                | 2966                         | 47,223                              | 0.6                                      | 104.7   | 104.7               | 105.6            | 0.9      |
| BA                         | 202.58                | 3077                         | 41,632                              | 0.6                                      | 105.3   | 105.3               | 106.3            | 1.0      |
| BB                         | 203.96                | 4020                         | 46,730                              | 0.6                                      | 105.9   | 105.9               | 106.9            | 1.0      |
| BC                         | 205.26                | 2339                         | 33,875                              | 0.8                                      | 106.9   | 106.9               | 107.8            | 0.9      |
| BD                         | 206.35                | 2667                         | 40,568                              | 0.7                                      | 107.4   | 107.4               | 108.3            | 0.9      |

<sup>1</sup> Miles above mouth

<sup>2</sup> This width extends beyond the county limits

**TABLE 3**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SUWANNEE RIVER**



| FLOODING SOURCE                     |                       | FLOODWAY        |                                     |  | BASE FLOOD<br>WATER-SURFACE ELEVATION<br>(FEET NAVD 88) |                     |                  |          |
|-------------------------------------|-----------------------|-----------------|-------------------------------------|--|---|---------------------|------------------|----------|
| CROSS SECTION                       | DISTANCE <sup>1</sup> | WIDTH<br>(FEET) | SECTION<br>AREA<br>(SQUARE<br>FEET) | MEAN<br>VELOCITY<br>(FEET PER<br>SECOND) | REGULATORY  | WITHOUT<br>FLOODWAY | WITH<br>FLOODWAY | INCREASE |
| Suwannee River<br>Unnamed Tributary |                       |                 |                                     |  |   |                     |                  |          |
| A                                   | 86                    | 26              | 97                                  | 7.2                                      | 86.0  | 57.5 <sup>2</sup>   | 57.5             | 0.0      |
| B                                   | 241                   | 46              | 267                                 | 2.6                                      | 86.0  | 67.1 <sup>2</sup>   | 67.1             | 0.0      |
| C                                   | 743                   | 28              | 83                                  | 8.2                                      | 86.0  | 67.5 <sup>2</sup>   | 67.5             | 0.0      |
| D                                   | 1,251                 | 49              | 297                                 | 2.3                                      | 86.0  | 78.6 <sup>2</sup>   | 78.6             | 0.0      |
| E                                   | 2,221                 | 69              | 183                                 | 3.9                                      | 86.0  | 79.3 <sup>2</sup>   | 79.3             | 0.0      |
| F                                   | 2,930                 | 37              | 255                                 | 2.2                                      | 88.1  | 88.1                | 88.1             | 0.0      |
| G                                   | 3,432                 | 60              | 254                                 | 3.4                                      | 88.4  | 88.4                | 88.4             | 0.0      |
| H                                   | 4,061                 | 63              | 483                                 | 1.2                                      | 100.3   | 100.3               | 100.3            | 0.0      |
| I                                   | 4,733                 | 43              | 837                                 | 1.0                                      | 109.0   | 109.0               | 109.0            | 0.0      |
| J                                   | 5,330                 | 31              | 168                                 | 2.3                                      | 109.1   | 109.1               | 109.1            | 0.0      |

<sup>1</sup> Feet above confluence with Suwannee River

<sup>2</sup> Elevation computed without consideration of backwater effects from Suwannee River

**TABLE 3**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SUWANNEE RIVER UNNAMED TRIBUTARY**

| FLOODING SOURCE |                       | FLOODWAY     |                            |                                 | BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88) |                   |               |          |
|-----------------|-----------------------|--------------|----------------------------|---------------------------------|---|-------------------|---------------|----------|
| CROSS SECTION   | DISTANCE <sup>1</sup> | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY  | WITHOUT FLOODWAY  | WITH FLOODWAY | INCREASE |
| Turket Creek    |                       |              |                            |                                 |   |                   |               |          |
| A               | 0                     | 60           | 50                         | 9.7                             | 92.0  | 79.3 <sup>2</sup> | 79.3          | 0.0      |
| B               | 4,045                 | 68           | 157                        | 2.7                             | 101.8   | 101.8             | 102.1         | 0.3      |
| C               | 5,960                 | 113          | 228                        | 1.5                             | 111.0   | 111.0             | 111.4         | 0.4      |
| D               | 6,285                 | 75           | 219                        | 2.3                             | 115.5   | 115.5             | 115.5         | 0.0      |
| E               | 6,400                 | 48           | 174                        | 2.2                             | 116.9   | 116.9             | 116.9         | 0.0      |
| F               | 7,000                 | 110          | 271                        | 1.3                             | 117.9   | 117.9             | 118.5         | 0.6      |
| G               | 7,460                 | 33           | 124                        | 2.3                             | 120.1   | 120.1             | 120.3         | 0.2      |
| H               | 7,890                 | 80           | 222                        | 1.2                             | 121.6   | 121.6             | 122.0         | 0.4      |
| I               | 8,390                 | 35           | 202                        | 1.7                             | 123.5   | 123.5             | 123.6         | 0.1      |
| J               | 10,220                | 150          | 280                        | 1.0                             | 125.6   | 125.6             | 125.6         | 0.0      |
| K               | 12,475                | 38           | 37                         | 5.5                             | 131.0   | 131.0             | 131.0         | 0.0      |
| L               | 12,945                | 33           | 177                        | 1.1                             | 137.1   | 137.1             | 137.1         | 0.0      |
| M               | 13,945                | 208          | 20                         | 3.0                             | 138.0   | 138.0             | 138.0         | 0.0      |

<sup>1</sup> Feet above confluence with Alapahoochee River

<sup>2</sup> Elevation computed without consideration of backwater effects from Alapaha River

**TABLE 3**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**TURKET CREEK**

| FLOODING SOURCE     |                       | FLOODWAY                  |                            |                                 | BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88) |                   |               |          |
|---------------------|-----------------------|---------------------------|----------------------------|---------------------------------|---|-------------------|---------------|----------|
| CROSS SECTION       | DISTANCE <sup>1</sup> | WIDTH <sup>2</sup> (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY  | WITHOUT FLOODWAY  | WITH FLOODWAY | INCREASE |
| Withlacoochee River |                       |                           |                            |                                 |   |                   |               |          |
| A                   | 2.05                  | 4731                      | 47,521                     | 1.0                             | 66.1  | 65.6 <sup>3</sup> | 66.5          | 0.9      |
| B                   | 4.03                  | 5180                      | 62,467                     | 0.7                             | 67.0  | 67.0              | 67.9          | 0.9      |
| C                   | 5.42                  | 6014                      | 68,444                     | 0.7                             | 67.7  | 67.7              | 68.6          | 0.9      |
| D                   | 7.05                  | 5775                      | 55,354                     | 0.8                             | 68.7  | 68.7              | 69.6          | 0.9      |
| E                   | 8.27                  | 4469                      | 48,779                     | 1.0                             | 69.7  | 69.7              | 70.6          | 0.9      |
| F                   | 9.06                  | 3399                      | 27,922                     | 1.7                             | 70.7  | 70.7              | 71.7          | 1.0      |
| G                   | 10.19                 | 2848                      | 24,910                     | 1.9                             | 72.7  | 72.7              | 73.6          | 0.9      |
| H                   | 11.15                 | 4663                      | 33,853                     | 1.4                             | 73.9  | 73.9              | 74.8          | 0.9      |
| I                   | 11.68                 | 4500                      | 60,721                     | 0.8                             | 74.5  | 74.5              | 75.5          | 1.0      |
| J                   | 12.82                 | 3840                      | 58,971                     | 0.9                             | 75.6  | 75.6              | 76.5          | 0.9      |
| K                   | 13.62                 | 3227                      | 39,215                     | 1.3                             | 76.4  | 76.4              | 77.3          | 0.9      |
| L                   | 14.24                 | 3123                      | 43,979                     | 1.2                             | 77.3  | 77.3              | 78.2          | 0.9      |
| M                   | 15.25                 | 3163                      | 45,815                     | 1.1                             | 78.4  | 78.4              | 79.4          | 1.0      |
| N                   | 16.45                 | 3545                      | 50,352                     | 1.0                             | 79.4  | 79.4              | 80.4          | 1.0      |
| O                   | 17.53                 | 3937                      | 50,921                     | 1.0                             | 80.3  | 80.3              | 81.3          | 1.0      |
| P                   | 18.34                 | 4097                      | 59,849                     | 0.8                             | 80.8  | 80.8              | 81.7          | 0.9      |
| Q                   | 19.66                 | 4369                      | 45,731                     | 1.1                             | 81.3  | 81.3              | 82.2          | 0.9      |
| R                   | 20.48                 | 3652                      | 38,294                     | 1.3                             | 81.8  | 81.8              | 82.7          | 0.9      |
| S                   | 21.98                 | 2533                      | 22,085                     | 2.5                             | 84.1  | 84.1              | 85.0          | 0.9      |
| T                   | 23.00                 | 3657                      | 35,464                     | 1.5                             | 85.8  | 85.8              | 86.7          | 0.9      |
| U                   | 24.09                 | 3524                      | 36,611                     | 1.5                             | 87.5  | 87.5              | 88.5          | 1.0      |
| V                   | 25.61                 | 2469                      | 29,260                     | 1.9                             | 90.2  | 90.2              | 91.1          | 0.9      |
| W                   | 26.81                 | 2416                      | 37,290                     | 1.5                             | 92.1  | 92.1              | 93.0          | 0.9      |

<sup>1</sup> Miles above mouth

<sup>2</sup> This width extends beyond the county limits

<sup>3</sup> Elevation without considering overflow effect from Suwannee River

**TABLE 3**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**WITHLACOOCHEE RIVER**

## 5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

### Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

### Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

### Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

### Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 1-percent 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 detailed hydraulic analyses are shown within this zone.

### Zone AR

Area of special flood hazard formerly protected from the 1-percent annual chance flood event 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-percent annual chance or greater flood event.

### Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 1-percent 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 depths are shown within this zone.

### Zone V

Zone V is the flood insurance rate zone that corresponds to the 1-percent annual chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

### Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 1-percent annual chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

### Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent annual chance floodplain, areas within the 0.2-percent annual chance floodplain, and to areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1-percent annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent annual chance flood by levees. No base flood elevations or depths are shown within this zone.

### Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

## 6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent annual chance floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols the 1- and 0.2-percent annual chance floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The countywide FIRM presents flooding information for the entire geographic area of Hamilton County. Previously, separate Flood Hazard Boundary Maps and/or FIRMs were

prepared for each identified flood-prone incorporated community and the unincorporated areas of the county. This countywide FIRM also includes flood hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community are presented in Table 4 – Community Map History.

## 7.0 OTHER STUDIES

Flood Insurance Studies for Suwannee County, Florida (FEMA, 2007), Columbia County, Florida (FEMA, 2009), Madison County, Florida (FEMA, 2010), and Lowndes County, Georgia (FEMA, 2008) have been published. Those studies and this FIS are in agreement.

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Hamilton County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, FHBMs, FBFMs, and FIRMs for all of the incorporated and unincorporated jurisdictions within Hamilton County.

## 8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, Koger Center - Rutgers Building, 3003 Chamblee Tucker Road, Atlanta, Georgia 30341.

## 9.0 REFERENCES AND BIBLIOGRAPHY

1. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Florida, Washington, D.C., February 1982.
2. Florida Bureau of Comprehensive Planning, Florida General Soils, Atlas, July 1975.
3. U.S. Department of the Interior, Geological Survey, Interagency Advisory Committee on Water Data, Office of Water Data Coordination, Hydrology Subcommittee, Bulletin No. 17B, Guidelines for Determining Flood Flow Frequency, September 1981, revised March 1982.
4. U.S. Army Corps of Engineers, Jacksonville District, Stream Cross Section, Aerial Photogrammetric Maps, Woolpert Consultants, Dayton, Ohio, compiled by photogrammetric methods from aerial photography, Scale 1:12000, Contour Interval 2 feet, January 1982.
5. -----, Jacksonville District, Stream Cross Sections, Southern Resource Mapping, Ormond Beach, Florida, ,compiled by photogrammetric methods from aerial photographs.

6. Federal Emergency Management Agency, Flood Insurance-Study, Lafayette County, Unincorporated Areas, Florida, in progress.
7. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water-Surface Profiles, Generalized Computer Program, Davis, California, April 1984.
8. U.S. Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24000, Contour Interval 5 feet: Benton, Florida, 1969; Cypress Creek, Florida-Georgia, 1955; Fargo SW, Florida-Georgia, 1955; Genoa, Florida, 1962; Hillcoat, Florida, 1961; Jasper, Florida-Georgia, 1974; Jennings, Florida-Georgia; 1974; White Springs East, Florida, 1961; White Springs West, Florida, 1961; Contour Interval 10 feet: Clyattville,. Georgia-Florida, 1973; Ellaville, Florida, 1959; Fort Union, Florida, 1959; Octchatchee, Florida-Georgia, 1974; Pinnetta, Florida, 1960.
9. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Hamilton County, Unincorporated Areas, Florida, October 1977.
10. Federal Emergency Management Agency, Flood Insurance Study, Lowndes County, Georgia and Incorporated Areas, September 2008.
11. U.S. Army Corps of Engineers, Jacksonville District, Special Flood Hazard Information, Suwannee River Floods, Florida and Georgia, December 1974.
12. Federal Emergency Management Agency, Flood Insurance Study, Suwannee County, Florida and Incorporated Areas, September 2007.
13. -----, Flood Insurance Study, Columbia County, Florida and Incorporated Areas, February 2009.
14. -----, Flood Insurance Study, Madison County, Florida and Incorporated Areas, May 2010.
15. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Town of White Springs, Hamilton County, Florida, April 30, 1974.

| COMMUNITY NAME                            | INITIAL IDENTIFICATION | FLOOD HAZARD BOUNDARY MAP REVISIONS DATE | FIRM EFFECTIVE DATE | FIRM REVISIONS DATE |
|---|------------------------|--|---------------------|---------------------|
| Hamilton County<br>(Unincorporated Areas) | October 21, 1977       | None                                     | June 4, 1987        |                     |
| Jasper, City of                           | Lyng'6.'3; : 9         | None                                     | June 4, 1987        |                     |
| Jennings, Town of                         | June 4, 1987           | None                                     | June 4, 1987        |                     |
| White Springs, Town of                    | January 16, 1974       | April 30, 1976                           | June 4, 1987        |                     |

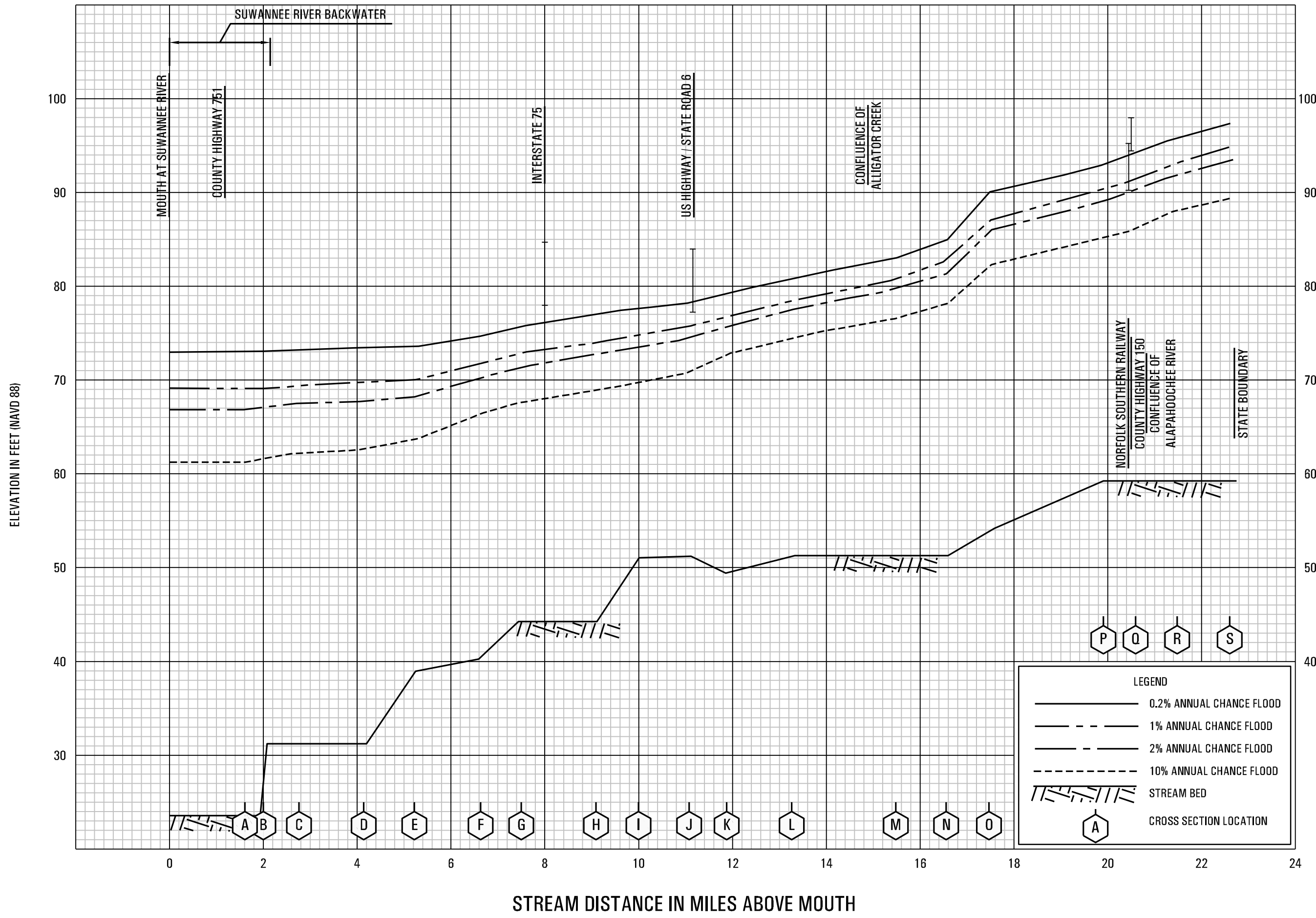
**TABLE 4**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**HAMILTON COUNTY, FL  
AND INCORPORATED AREAS**

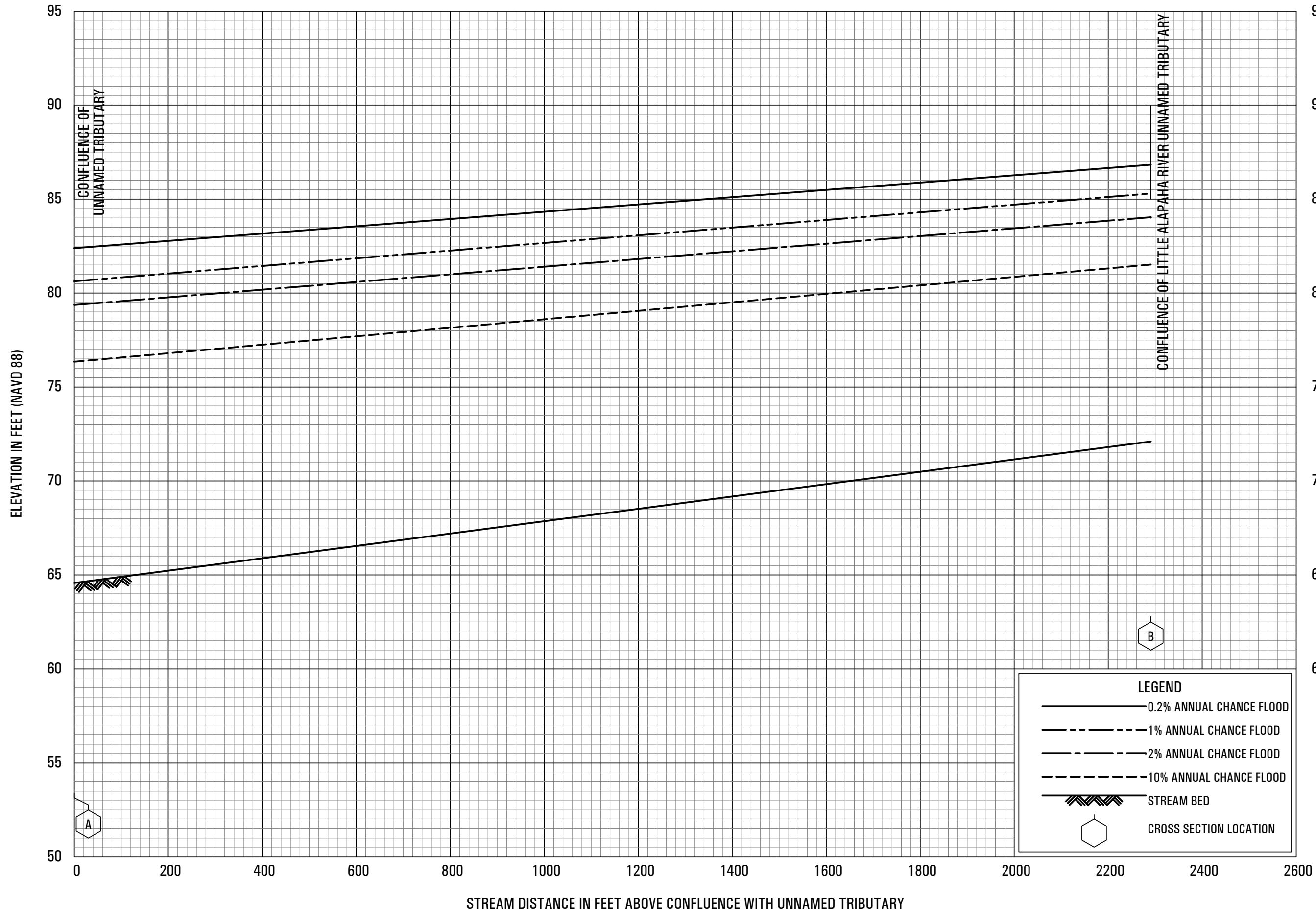
**COMMUNITY MAP HISTORY**





**FLOOD PROFILES**  
ALAPAHA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMILTON COUNTY, FL  
AND INCORPORATED AREAS



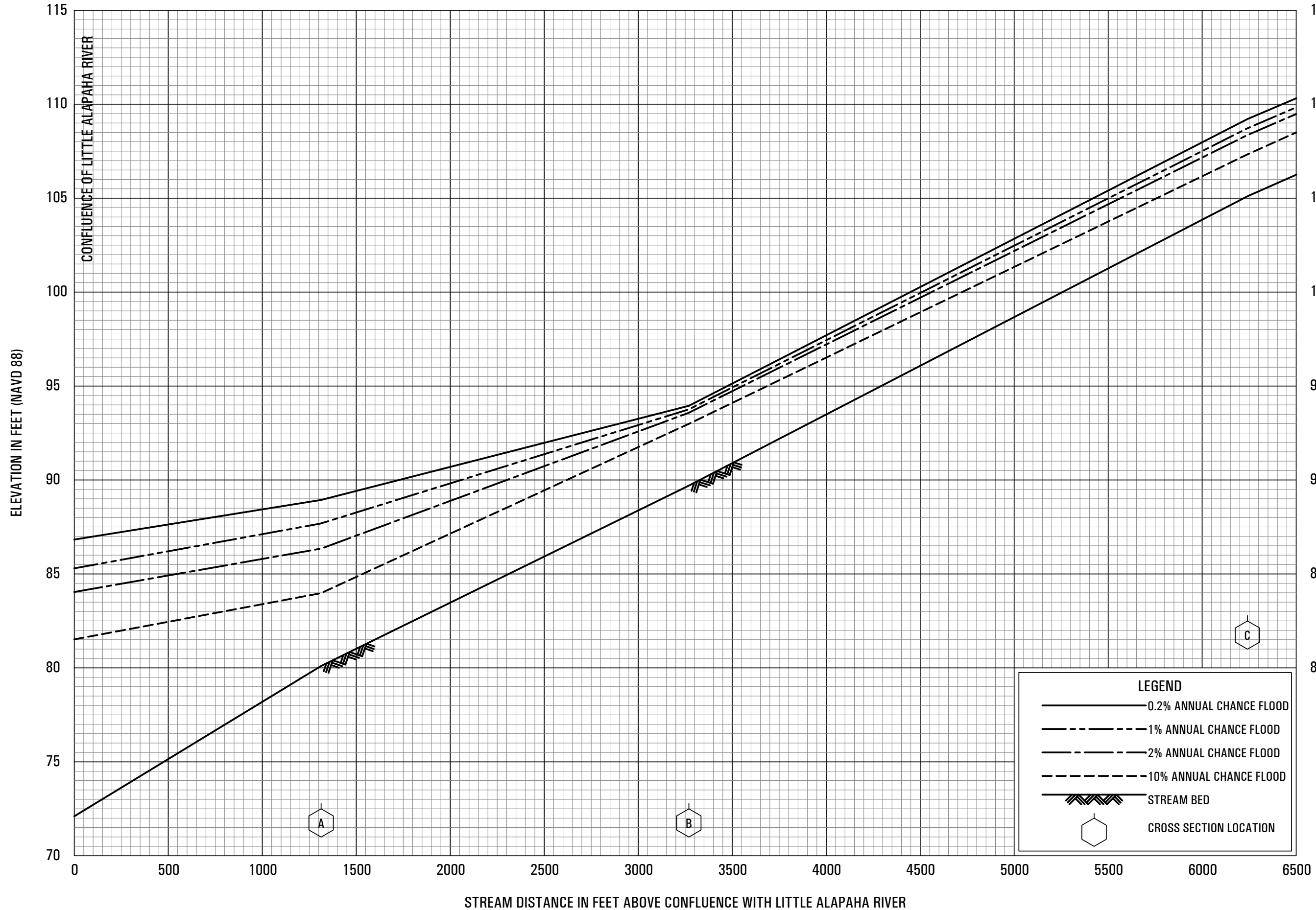
**FLOOD PROFILES**

LITTLE ALAPAHA RIVER

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FEDERAL EMERGENCY MANAGEMENT AGENCY  
**HAMILTON COUNTY, FL**  
 AND INCORPORATED AREAS

**02P**



**FLOOD PROFILES**

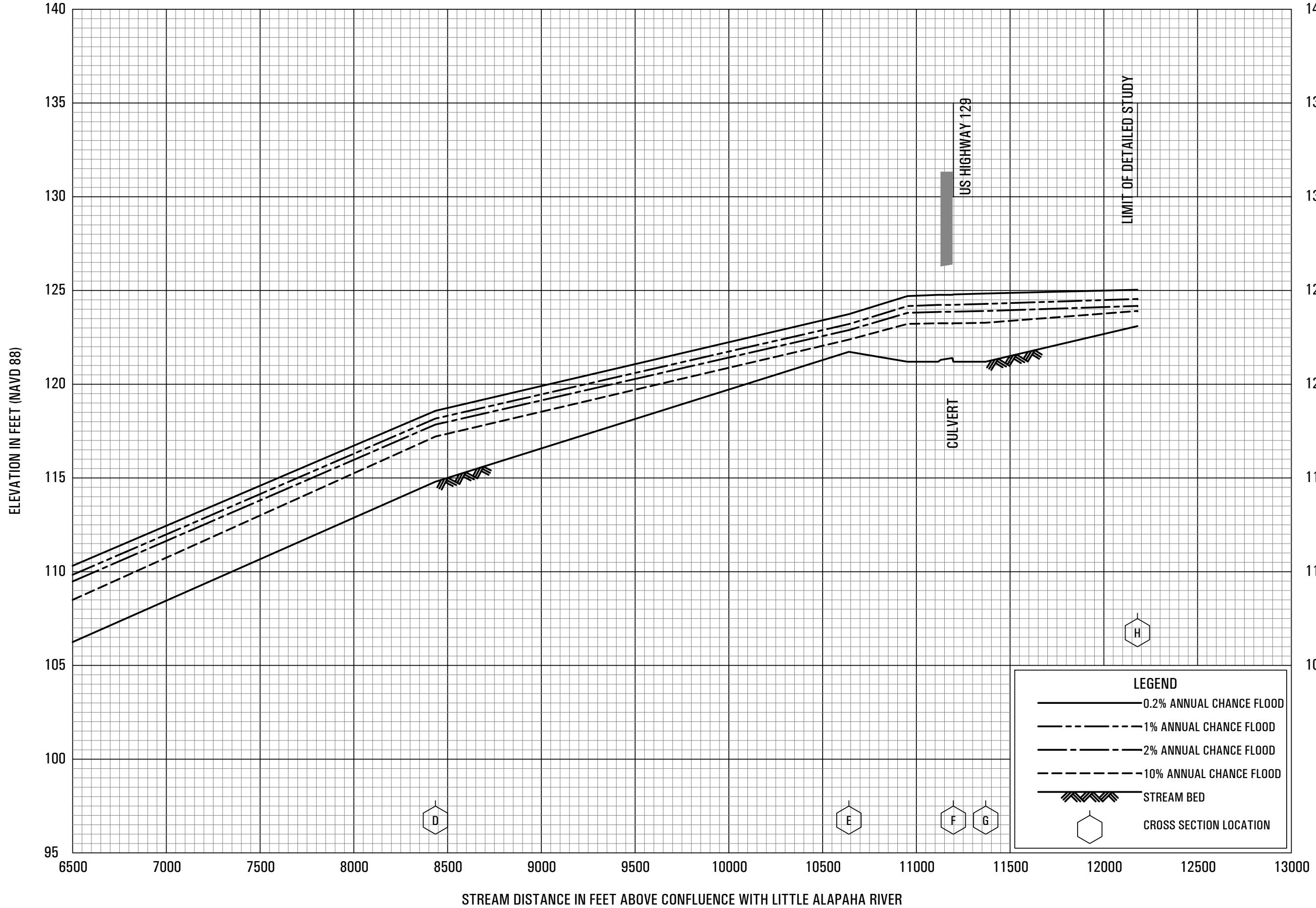
LITTLE ALAPAHA RIVER UNNAMED TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, FL

AND INCORPORATED AREAS

03P

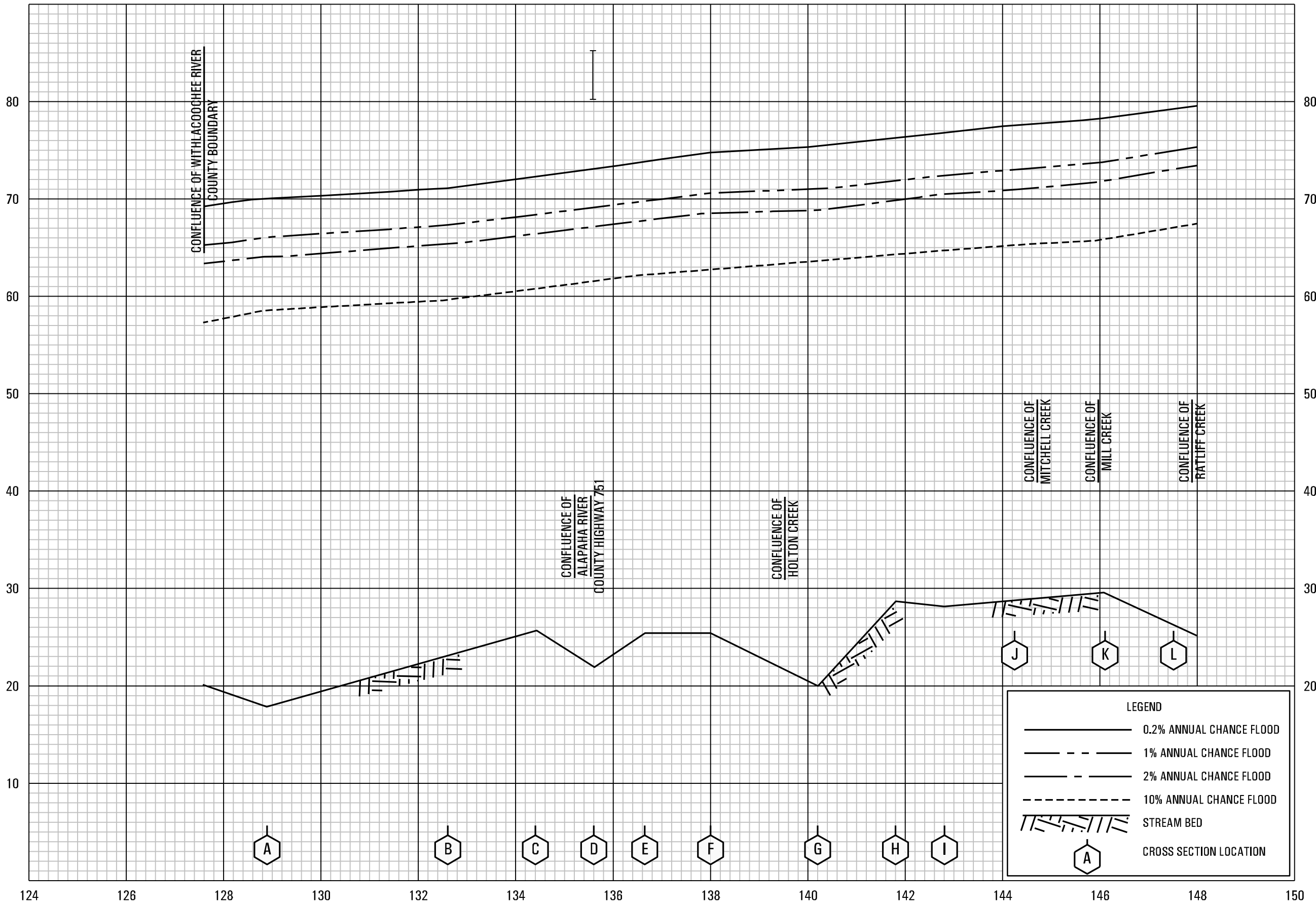


**FLOOD PROFILES**

LITTLE ALAPAHA RIVER UNNAMED TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**HAMILTON COUNTY, FL**  
 AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD 88)



STREAM DISTANCE IN MILES ABOVE MOUTH

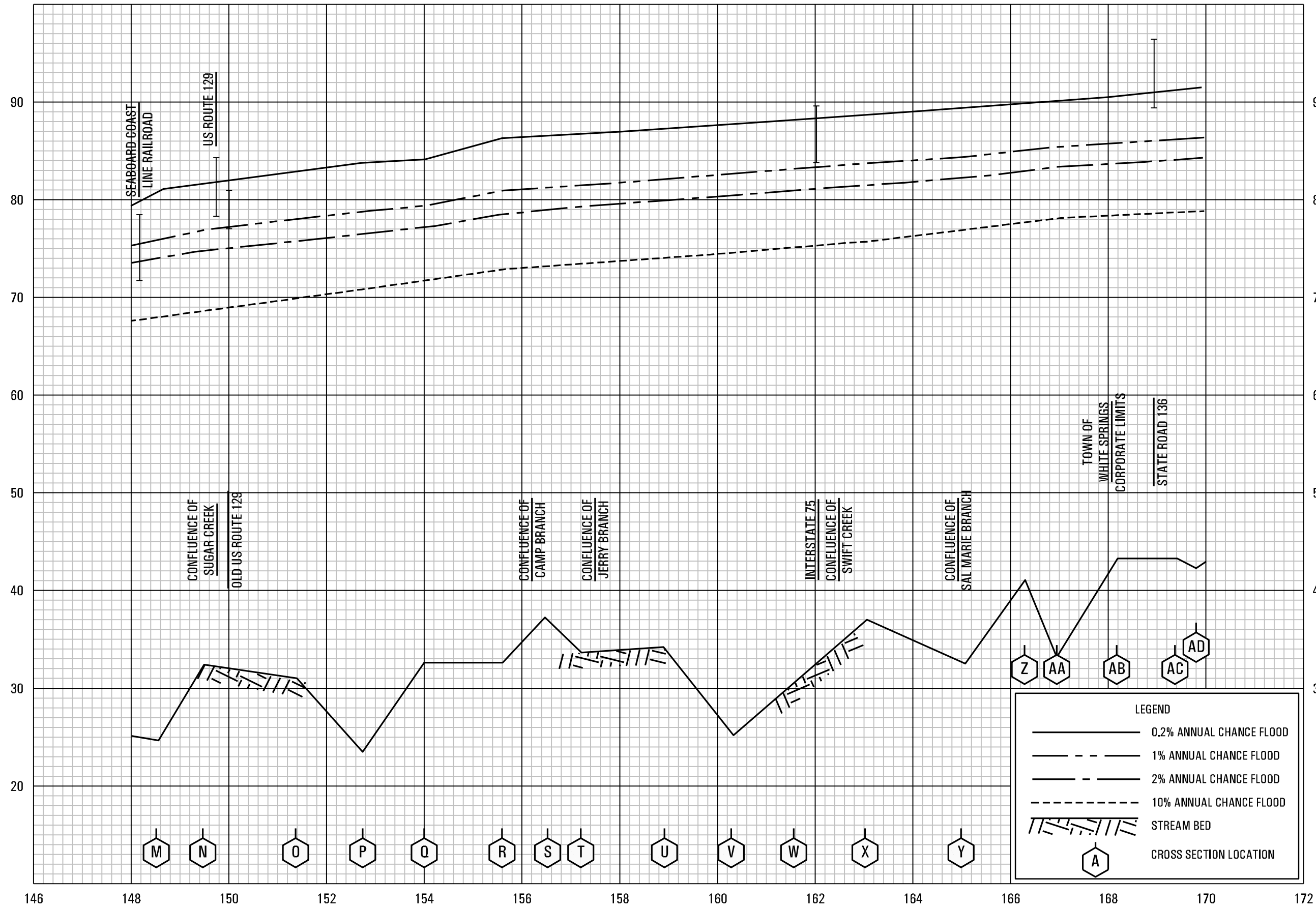
FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMILTON COUNTY, FL  
AND INCORPORATED AREAS

05P

ELEVATION IN FEET (NAVD 88)



STREAM DISTANCE IN MILES ABOVE MOUTH

**LEGEND**

- 0.2% ANNUAL CHANCE FLOOD
- - - 1% ANNUAL CHANCE FLOOD
- · - · 2% ANNUAL CHANCE FLOOD
- · - · 10% ANNUAL CHANCE FLOOD
- /// STREAM BED
- ⬡ GROSS SECTION LOCATION

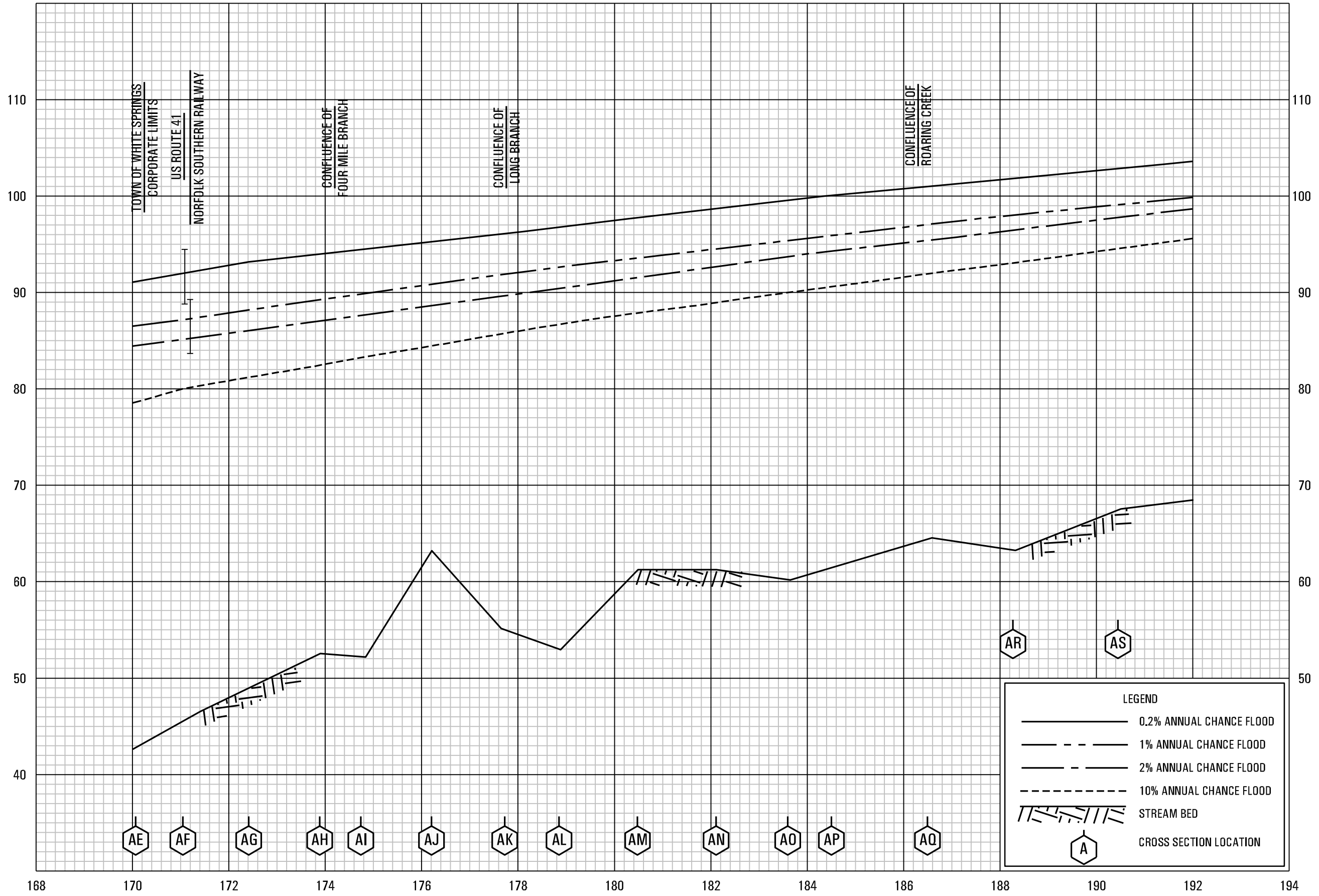
**FLOOD PROFILES**

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMILTON COUNTY, FL  
AND INCORPORATED AREAS

06P

ELEVATION IN FEET (NAVD 88)



STREAM DISTANCE IN MILES ABOVE MOUTH

FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMILTON COUNTY, FL  
AND INCORPORATED AREAS

07P

ELEVATION IN FEET (NAVD 88)



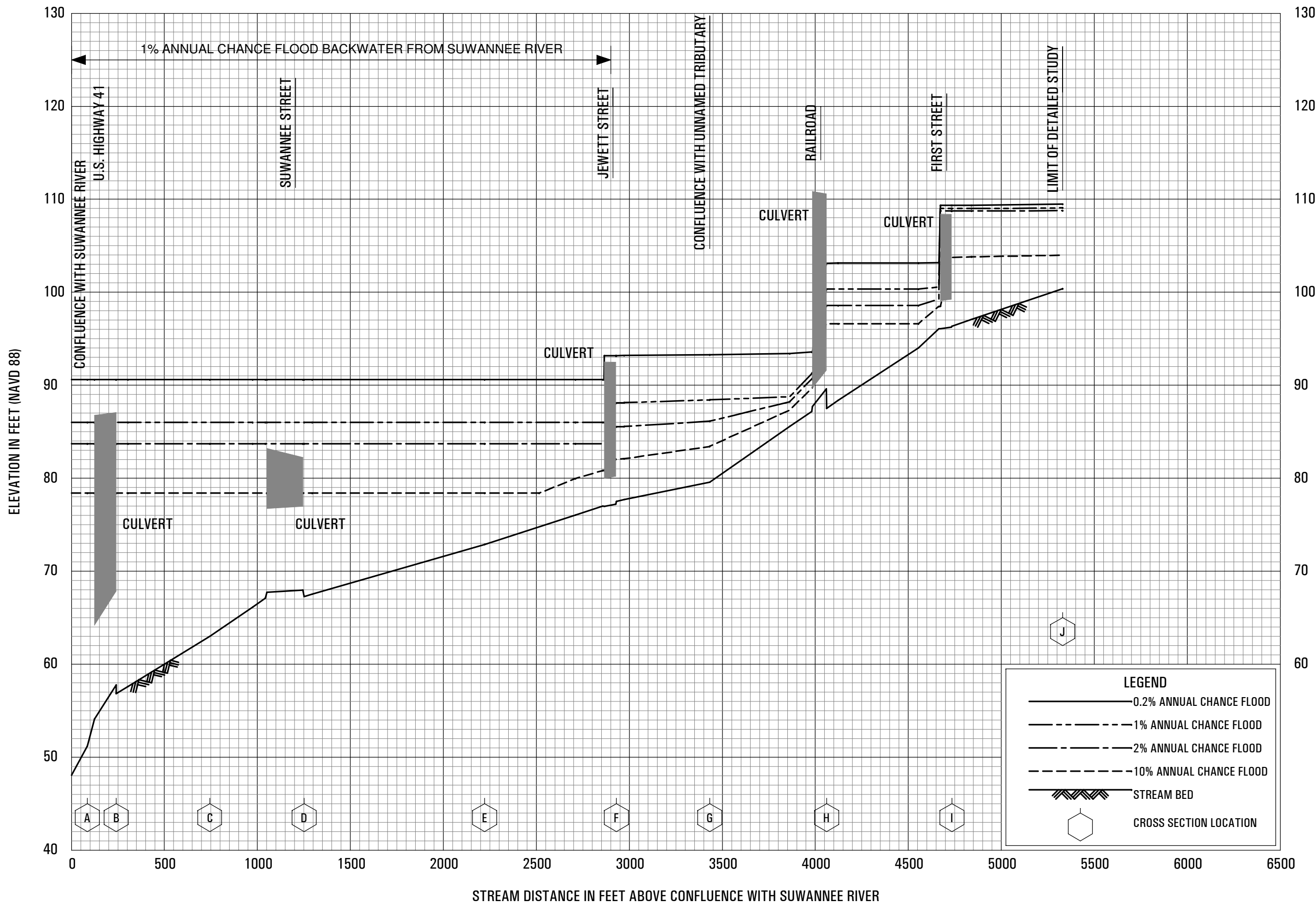
**FLOOD PROFILES**

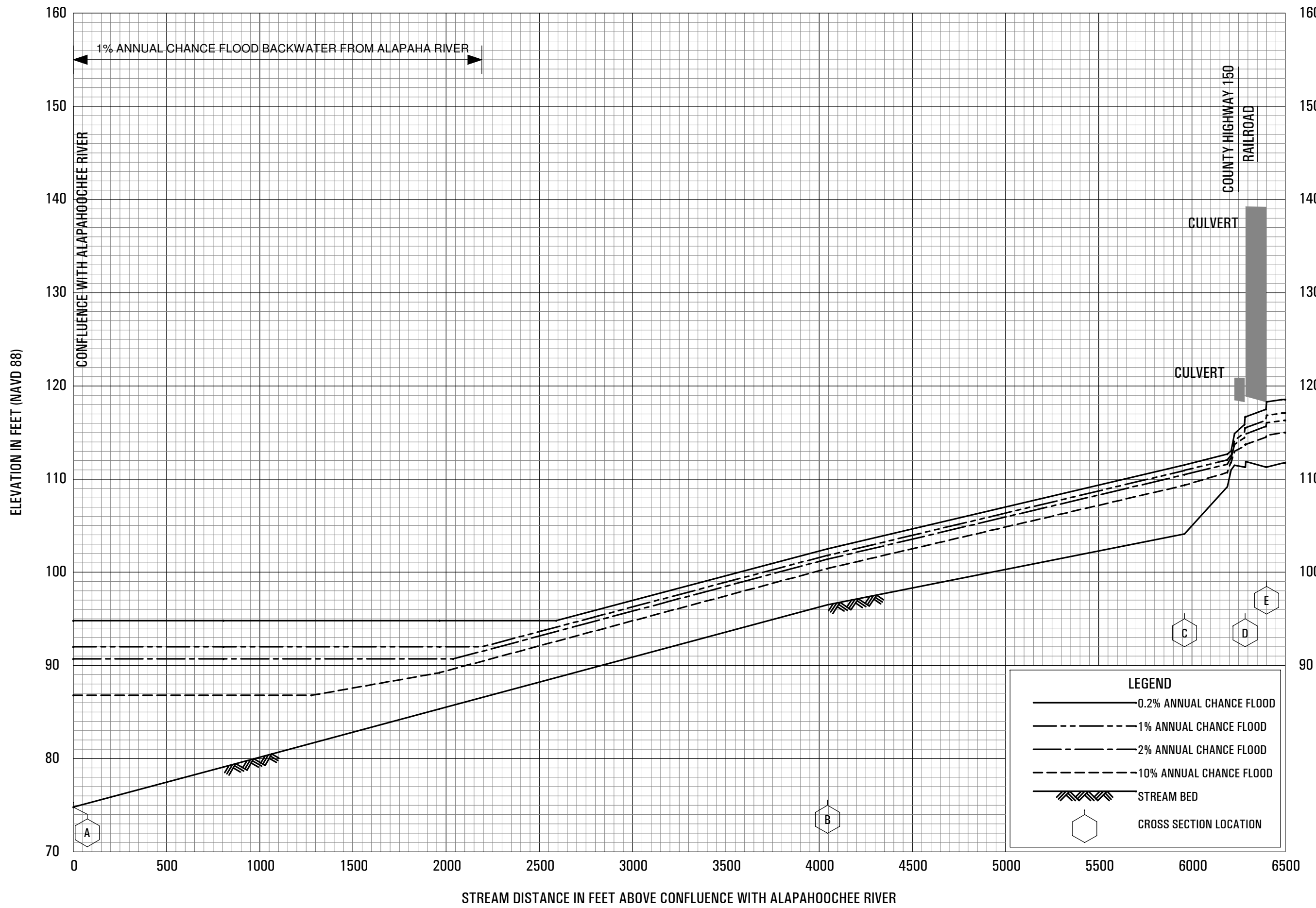
SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMILTON COUNTY, FL  
AND INCORPORATED AREAS

08P



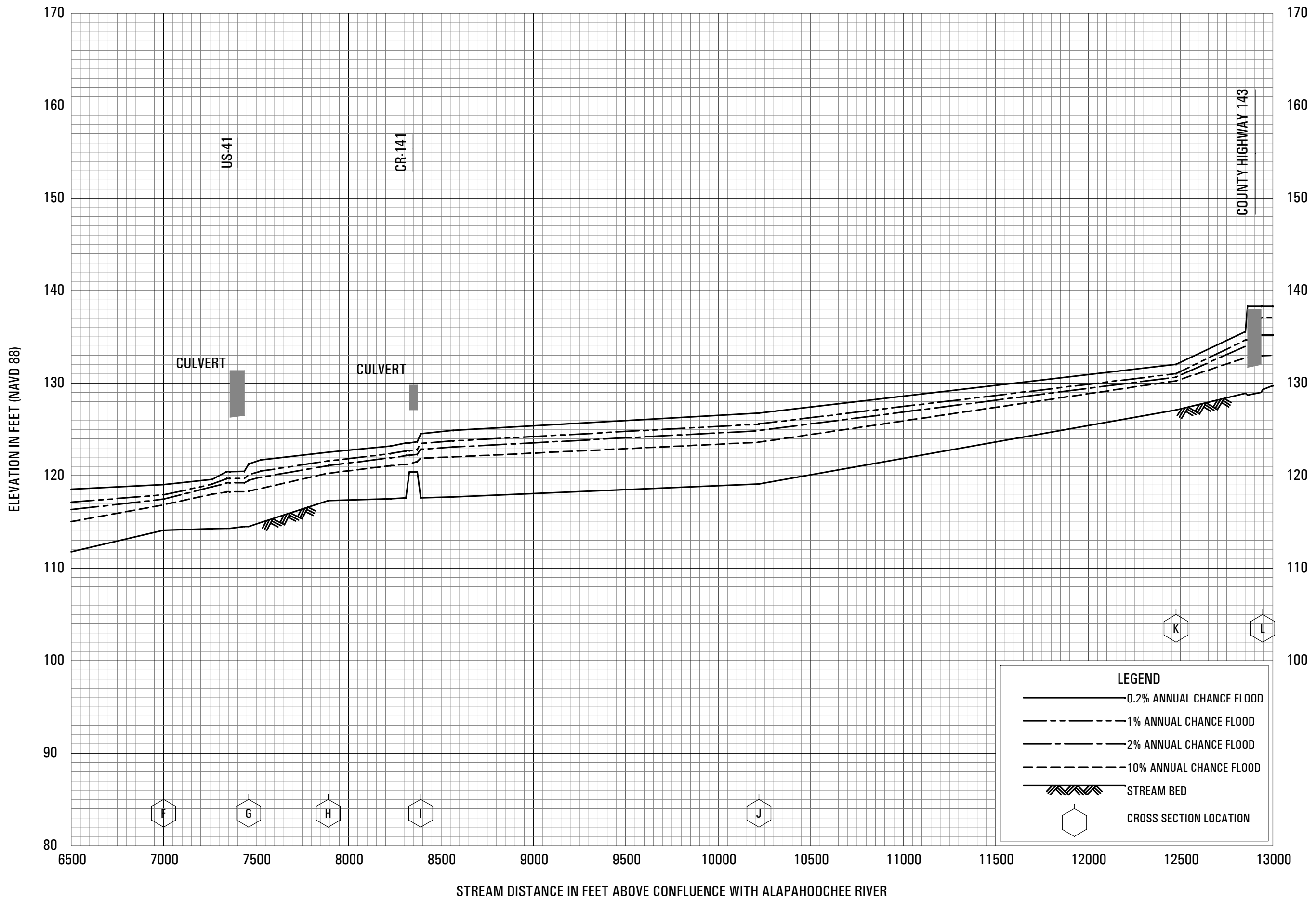




**FLOOD PROFILES**

**TURKET CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**HAMILTON COUNTY, FL**  
 AND INCORPORATE AREAS

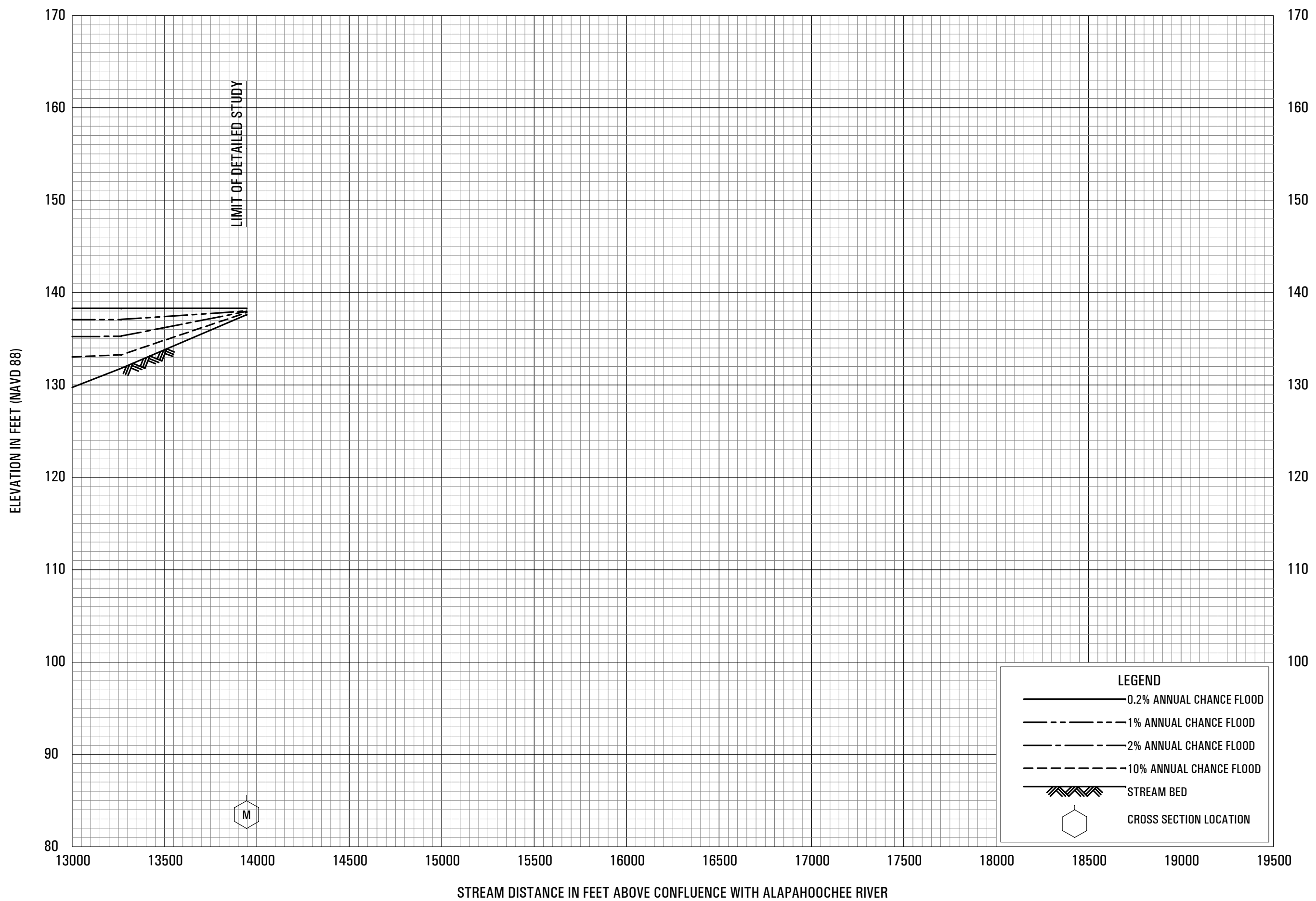


FLOOD PROFILES

TURKET CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMILTON COUNTY, FL  
AND INCORPORATE AREAS

11P



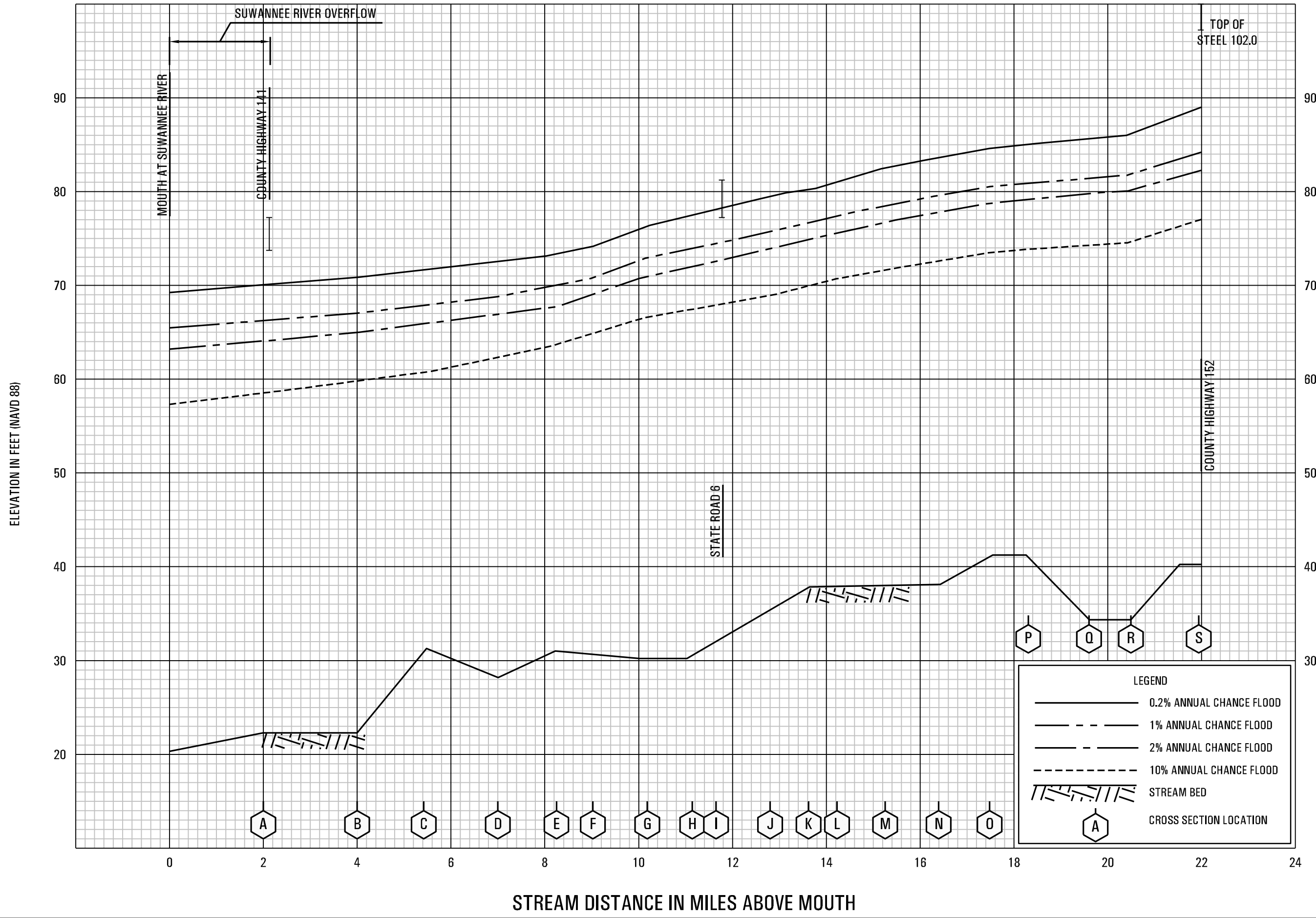
**FLOOD PROFILES**

TURKET CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, FL

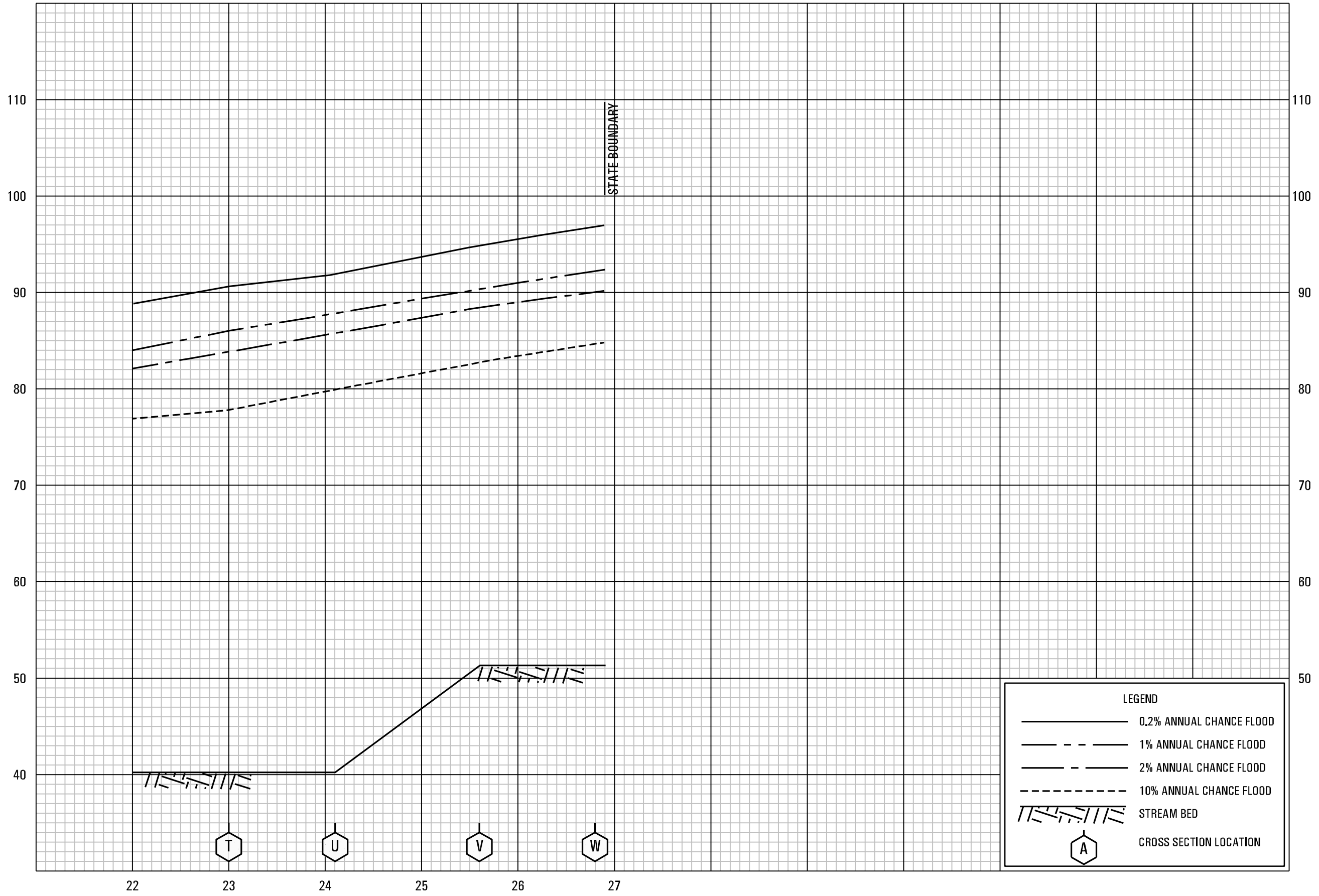
AND INCORPORATE AREAS



**FLOOD PROFILES**  
WITHLACOOCHEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMILTON COUNTY, FL  
AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD 88)



**LEGEND**

- 0.2% ANNUAL CHANCE FLOOD
- - - 1% ANNUAL CHANCE FLOOD
- · - 2% ANNUAL CHANCE FLOOD
- - - 10% ANNUAL CHANCE FLOOD
- ▨ STREAM BED
- ⬡ A CROSS SECTION LOCATION

**FLOOD PROFILES**  
WITHLACOOCHEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMILTON COUNTY, FL  
AND INCORPORATED AREAS