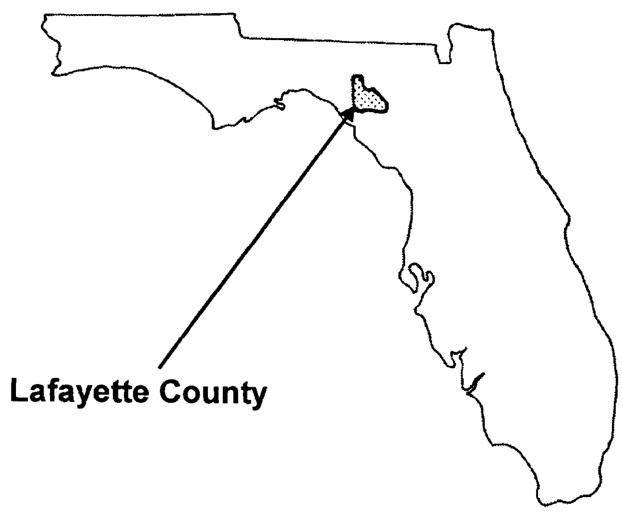
# FLOOD INSURANCE STUDY

# LAFAYETTE COUNTY, FLORIDA
## AND INCORPORATED AREAS




| COMMUNITY NAME | COMMUNITY NUMBER |
|---|---|
| LAFAYETTE COUNTY (UNINCORPORATED AREAS) | 120131 |
| MAYO, TOWN OF | 120132 |

SEPTEMBER 29, 2006

Federal Emergency Management Agency

**FLOOD INSURANCE STUDY NUMBER**

**12067CV000A**

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 Date: September 29, 2006

TABLE OF CONTENTS

## TABLE OF CONTENTS – continued

FLOOD INSURANCE STUDY
LAFAYETTE COUNTY, FLORIDA AND INCORPORATED AREAS

# 1.0 INTRODUCTION

## 1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) investigates the existence and severity of flood hazards in, or revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs) for the geographic area of Lafayette County, Florida including the Town of Mayo (hereinafter referred to collectively as Lafayette County).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This FIS has developed flood risk data for various areas of the county that will be used to establish actuarial flood insurance rates. This information will also be used by Lafayette County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and will also be used by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

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 FIS 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 Lafayette County and the Town of Mayo in a countywide format. Information on the authority and acknowledgments for this countywide FIS, as compiled from their previously printed FIS report, is shown below.

The hydrologic and hydraulic analyses for the FIS report dated January 16, 1987, were performed by the U.S. Army Corps of Engineers (USACE), Jacksonville District 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 1984.

No authority and acknowledgments were available for the Town of Mayo because no FIS report was published.

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 U.S. Geological Survey (USGS) Digital Orthophoto Quadrangles, produced at a scale of 1:12,000 from photography dated 2004.

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.

The dates of the initial and final CCO meetings held for Lafayette County are shown in Table 1, "Initial and Final CCO Meetings."

TABLE 1 - INITIAL AND FINAL CCO MEETINGS

| Community Name | Initial CCO Date | Final CCO Date |
|---|---|---|
| Lafayette County (Unincorporated Areas) | May 6, 1983 | February 26, 1986 |

For this countywide FIS, final CCO meetings were held November 16, 2005. These meetings were attended by representatives of the study contractors, the communities, the State of Florida, and FEMA.

## 2.0 AREA STUDIED

### 2.1 Scope of Study

This FIS covers the geographic areas of Lafayette County, Florida.

All or portions of the Suwannee River within Lafayette County from the Dixie/Gilchrist County boundaries to the Madison/Suwannee County boundaries were studied by detailed methods. Limits of the detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

The eastern boundary of Lafayette County is formed by the Suwannee River. The Suwannee River coincident with Lafayette County is flanked to the east by Suwannee and Gilchrist Counties. The FIS and FIRM for Lafayette County only provides flood hazard information for the portion of the Suwannee River and those communities located in Lafayette County.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the county.

### 2.2 Community Description

Lafayette County occupies 549 square miles in the northern part of Florida. The Suwannee River forms the entire eastern boundary of Lafayette County. The county is adjacent to Suwannee and Gilchrist Counties along the Suwannee River. In addition, Lafayette County is bordered by Dixie County on the south, Taylor County on the west, and Madison County on the north. In 2000, the population of the county was reported to be 7,022 (U.S. Department of Commerce Bureau of the Census, 2004), an increase of nearly 74 percent from the 1980 population of 4,035.

Lafayette County was established on December 23, 1856, and named for Marquis de Lafayette. The county is in the Gulf Coastal Lowlands physiographic area. The topography ranges from 10 feet North American Vertical Datum of 1988 (NAVD88) to about 100 feet NAVD88. Economic activities in Lafayette County are primarily agricultural. Principal commodities are lumber and wood products, corn, cotton, peanuts, tobacco, fruits, vegetables, and livestock. Hunting and fishing also are important to the county. In addition, there has been a trend toward development of vacation homes and summer cottages, especially in the lower reaches of the Suwannee River.

Lafayette County along the Suwannee River is composed chiefly of two soil associations, the Chipley-Albany-Plummer Association and the Chipley-Blanton-Swamp Association. The Chipley-Albany-Plummer Association consists of nearly level to gently sloping, moderately well drained soils, sandy throughout and somewhat poorly drained soils with very thick sandy layers over loamy subsoil. This association is found both landward and riverward of State Roads 349 and 53 and U.S. Route 27. The Chipley-Blanton-Swamp Association consists of nearly level to gently sloping, moderately well drained soils, sandy throughout; moderately well drained soils with very thick sandy layers over loamy subsoil; and very poorly drained soils. This association is found adjacent to the Suwannee River throughout Lafayette County (Florida Bureau of Comprehensive Planning, 2004).

The climate of Lafayette County is semi-tropical, characterized by long, hot summers and mild winters. In January, the average temperature is 55 degrees Fahrenheit (°F). In August the average temperature is 81 degrees °F. Average annual rainfall is about 58 inches, most of which occurs from April through September.

There are two stream gages within the county on the Suwanee River. One is at river mile 76.0 at the Town of Branford. The drainage area there is 7,880 square miles. The other gage is at river mile 95.7 at Luraville. The drainage area there is 7,330 square miles. In addition, there is a gage at Ellaville just north of the Lafayette County line at river mile 126.9. The drainage area at the Ellaville gage is 6,970 square miles. Two additional gages downstream of Lafayette County are located at the Town of Bell at river mile 54.6 and at Wilcox at river mile 32.3. The drainage area of the Suwannee River at the mouth is 9,950 square miles. About 5,720 square miles of the drainage area are in south central Georgia with the remaining 4,230 square miles being in north central Florida. Principal tributaries of the Suwannee River are the Withlacoochee and Alapaha Rivers, both of which enter the Suwannee upstream of Lafayette County. The Suwannee River experiences greater stage variations than any other river in Florida and has great flooding potential.

## 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. 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 areal distribution is relatively small. The coastal reach of the Suwannee River is susceptible to tidal flooding from hurricanes and other low-pressure systems that produce sustained, strong, westerly component winds.

The largest flood known to have occurred on the Suwannee River in Lafayette County was the flood of March-April 1948. The peak discharges for the 1948 flood at Ellaville and Branford were 95,300 and 83,900 cubic feet per second (cfs), respectively. Antecedent conditions were conducive to high surface runoff; groundwater levels were high, sinks and depressions were saturated, and most river reaches were experiencing overbank flow. The most intense storm occurred in the 3-day period from March 31 through April 2. A number of residences and commercial establishments were flooded in small towns that border the Suwannee River in Lafayette County. Water was 8-feet deep in parts of Dowling Park and 2- to 4-feet deep in Branford and Luraville. Major damage was sustained by railroads, highways, bridges, culverts, drainage ditches, and from loss of fills.

Three weeks of emergency work were required to restore minimum transportation and drainage facilities. Rail and highway traffic was detoured around the area for 2 to 3 weeks, and some rail service was suspended for 6 weeks.

Another large flood occurred on the Suwannee River in Lafayette County in April 1973. Antecedent conditions were conducive to high surface runoff. The 1973 flood was about 3 feet lower than the 1948 flood at the southern end of Lafayette County near the confluence of the Suwannee and Santa Fe Rivers and about 4 feet lower at the northern end of Lafayette County near Dowling Park. The peak discharges for the 1973 flood at Branford and Ellaville were 54,700 and 77,000 cfs, respectively. Floodwaters remained over the lowlands in Lafayette County for about 30 days. Many people evacuated their homes and Lafayette County was included in the "major disaster area" declared by the President.

The 1928 flood was higher than the 1973 flood at Branford in the southern part of the county and nearly as high at Ellaville and in the northern end of Lafayette County. The peak discharges for the 1928 flood at Branford and Ellaville were 65,000 and 73,000 cfs, respectively.

Flooding in the spring of 1984 along the Suwannee River was about 5.2 feet lower than the 1948 flood at Branford in the southern part of Lafayette County and about 7.4 feet lower at Ellaville and in the northern part of the county. Stages were about 1.5 feet higher than the 1959 stages at both Branford and Ellaville. The peak discharges for the 1984 flood at Branford and Ellaville were 42,200 and 46,000 cfs, respectively.

1998 Hurricane Earl (August 31 – September 3, 1998)

After briefly reaching category 2 status in the Gulf of Mexico, Hurricane Earl made landfall near Panama City, Florida as a Category 1 hurricane on September 3rd with sustained winds approximately 73 mph. The hurricane weakened immediately after making landfall being downgraded to a tropical storm with wind speeds between 34 to 39 mph while moving in a northwestward direction through Georgia. The impact of Earl resulted in severe storm surge flooding in the "Big Bend" area of Florida. Storm surge was estimated to be approximately 8 feet in Franklin, Wakulla, Jefferson, and Taylor Counties and between 6 to 7 feet in Dixie County. Escambia County reported an estimated storm surge between 2 to 3 feet. Rainfall totals of 3 to 6 inches were generally common with higher amounts occurring such as the reported 16.83 inches near Panama City, Florida. The insured property loss within Florida caused by Earl is estimated by the Property Claim Services Division of the American Insurance Services Group to have been $15 million. This cost estimate does not include damage relating to storm surge. The National Flood Insurance Program reported

$21.5 million of insured property damage, which includes storm surge related losses.

2004 Hurricane Francis (August 25 – September 8, 2004)

After reaching Category 4 and 3 intensities in the Caribbean, Hurricane Francis made landfall as a Category 2 system that moved in a west-northwest direction across the Florida Panhandle. The system was downgraded to a tropical storm with sustained winds exceeding 47 mph upon emerging in the Gulf of Mexico near New Port Richey on September 6th. Francis continued as a tropical storm that moved in a northwest over the Gulf with the final landfall occurring near the mouth of the Aucilla River in the Florida Big Bend Region on September 6th. Storm tides of 3-5 feet were estimated in the Florida Big Bend area. Francis caused severe heavy rains and associated freshwater flooding over much of the eastern United States. Rainfalls in excess of 10 inches were reported in central and northern Florida Peninsula counties. A total of 101 tornadoes have been reported in association with Frances, which 23 of them occurred in Florida. The American Insurance Services Groups reports that the insured property damage caused by Francis is estimated to be approximately $4.43 billion, with $4.11 billion occurring in Florida. The estimate for total property damage, including uninsured property as well as damage to space and military facilities, is about $9 billion dollars, thus making Francis the fourth most costly hurricane in United States history behind Andrew (1992), Charley (2004), and Ivan (2004). The estimated total does not include the associated agricultural or economic losses.

2004 Hurricane Jeanne (September 13 – 28, 2004)

Hurricane Jeanne made landfall as a Category 3 hurricane near Stuart, Florida on September 26th with sustaining winds over 91 mph. Jeanne moved west over Central Florida and the system was downgraded to a tropical storm near the vicinity of Tampa, Florida later that same day. The system was downgraded further to a tropical depression on September 27th while moving in a northward direction across central and northern Florida with severe associated rainfall up to 8 inches. The Florida west coast experienced a negative storm surge of about 4.5 feet below normal tides which was measured at Cedar Key, Levy County, Florida when winds were blowing offshore. The American Insurance Services group has reported that the total U.S. damage estimate is over $6 billion dollars, with insured property losses totally over $3 billion.

Table 2 lists historical floods in a descending order of magnitude at three U.S. Geological Survey (USGS) gage locations on the Suwannee River. Two of the locations, Wilcox and Bell, are downstream of Lafayette County.

TABLE 2 – HISTORICAL FLOODS

| Location | Annual Peak Discharge (cfs) 1948 | 1928 | 1973 | 1984 | 1959 |
|---|---|---|---|---|---|
| Near Wilcox at USGS gage No. 02323500 | 84,700 | *71,500 | 55,100 | 48,100 | 40,700 |
| Near Bell at USGS gage No. 02323000 | 82,300 | *70,000 | *54,200 | *47,600 | *40,200 |
| Near Branford at USGS gage No. 02320500 | 83,900 | *65,000 | 54,700 | 42,200 | 34,100 |

* Estimated values

### 2.4 Flood Protection Measures

There are no existing or proposed flood protection projects located in Lafayette County in the Suwannee River Basin.

## 3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this FIS. Flood events of a magnitude which 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 which 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 county at the time of completion of this FIS. Maps and flood elevations will be amended periodically to reflect future changes.

## 3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for the flooding sources studied in detail affecting the county.

**Precountywide Analyses**

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

The USGS has been monitoring flows on the lower Suwannee River since the flood of 1928. Each year, the USGS publishes the water resources data collected, and periodically reports on the magnitude and frequency of floods. The hydrologic data analyses for this study utilized these publications and the results were coordinated with the USGS.

Regression analyses were used to complete missing data and to extend records at each gauged location to the 57-year period 1928 through 1984. Analyses of discharge records of all gauged locations on the Suwannee River were used to establish a peak discharge-frequency relationship throughout the river. Flood recurrence frequencies were determined by log-Pearson Type III statistical analyses in accordance with procedures recommended by the Interagency Advisory Committee on Water Data (Interagency Advisory Committee on Water Data, 1981).

**Revised Analyses**

Information on the methods used to determine peak discharge-frequency relationships for the streams restudied as part of this countywide FIS is shown below.

Regression analyses were used to complete missing data and to extend records at each gauged location to the 76-year period 1928 through 2004. Analyses of discharge records of all gauged locations on the Suwannee River were used to establish a peak discharge-frequency relationship throughout the river. Flood recurrence frequencies were determined by log-Pearson Type III statistical analyses in accordance with procedures recommended by the Interagency Advisory Committee on Water Data (Interagency Advisory Committee on Water Data, 1981).

A summary of the drainage area-peak discharge relationships for all the streams studied by detailed methods are shown in Table 3, "Summary of Discharges."

TABLE 3 - SUMMARY OF DISCHARGES

| Flooding Source and Location | Drainage Area (square miles) | Peak Discharge (cfs) 10-PERCENT | 2-PERCENT | 1-PERCENT | 0.2-PERCENT |
|---|---|---|---|---|---|
| Suwannee River | | | | | |
| Near Bell at USGS gage No. 02323000 | 9,390 | 37,900 | 57,900 | 67,300 | 91,900 |
| Below Santa Fe Junction | 9,200 | 37,900 | 57,900 | 67,300 | 91,900 |
| Above Santa Fe Junction | 7,920 | 34,800 | 54,000 | 62,900 | 85,300 |
| Near Branford at USGS gage No. 02320500 | 7,880 | 34,800 | 54,000 | 62,900 | 85,300 |

## 3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the source 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.

**Precountywide Analyses**

Cross-section data were obtained by aerial survey methods from photography flown for the flood plain areas and by field measurements for the main channel and immediate overbanks (USACE, 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.

Water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1976). Roughness coefficients (Manning's "n") used in the hydraulic computation were determined by analyzing known flood events in the Lafayette County reach of the Suwannee River.

Analysis of known flood events resulted in the development of two separate computational models to determine water-surface levels for the selected recurrence intervals. The only difference between these models is in the designation of the overbank roughness coefficients. Within the Lafayette County reach of the river, the overbank area has sandy soils and low relief with considerable vegetation. In addition, limestone formations are located near the surface of the ground. There are numerous depressions and sinkholes that affect the flow characteristics in the overbank. One computational model was used for floods on the 10- to 100-year recurrence interval. Flood events within this range were greatly influenced by the overbank depressions. Various flood magnitudes and depression sizes and locations create conditions where floodwaters enter, but do not necessarily exit these depressions as surface flow. Therefore, the overbank depressions provide storage but the conveyance is restricted. Roughness coefficients for this model ranged from 0.035 to 0.042 for the main channel and 0.20 to 0.48 for the overbank. The second computational model was used for the 500-year flood only. At this level of flooding, the effects of the overbank depression were less significant and a constant roughness coefficient of 0.20 was used. Observed data from the 1948 flood, which is the greatest flood of record and exceeds the 100-year recurrence interval, were used to verify the 0.20 roughness coefficient. Calibration and verification of both computational models were based on the ability of the model to reproduce the known flood elevation with an accuracy of 0.5 foot.

The hydraulic analyses 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.

**Revised Analyses**

Information on the methods used to determine peak discharge-frequency relationships for the streams restudied as part of this countywide FIS is shown below.

The Suwannee River HEC-2 step-backwater model was converted to HEC-RAS by the Suwannee River Water Management District (SRWMD).

For this revised analysis the SRWMD HEC-RAS files incorporated new field survey at the eight road crossings and the HEC-RAS files were upgraded to version 3.1.3. Field survey was conducted by BSI, Inc.

The new bridge surveys above were conducted to verify the structure geometry and update the adjacent cross sections for any physical changes that have occurred since the effective study. The setup of the bridges in the model was also updated to conform with the recommended bridge modeling approaches presented in the HEC-RAS Users Manual.

All of the above field surveys were established with vertical control in NAVD 1988 datum. Also all of the NGVD 1929 elevation data in the input HEC-RAS files from the SRWMD were converted to NAVD 88. Therefore, the input and output of the revised HEC-RAS files now reflect elevations in NAVD 88.

Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the streams and floodplain areas.

## 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, base flood elevations (BFEs) and ERMs reflect the new datum values. To compare structure and ground elevations to 1% 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 Lafayette County 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 to NGVD 29 is -0.68 feet. 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 the Spatial Reference System Division, National Geodetic Survey, NOAA, Silver Spring Metro Center, 1315 East-West Highway, Silver Spring, Maryland 20910 (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 the stream studied in detail, the 1- and 0.2-percent annual chance floodplains 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 1:2,000 with a contour interval of 5 to10 feet (USGS, 1968, et cetera).

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.

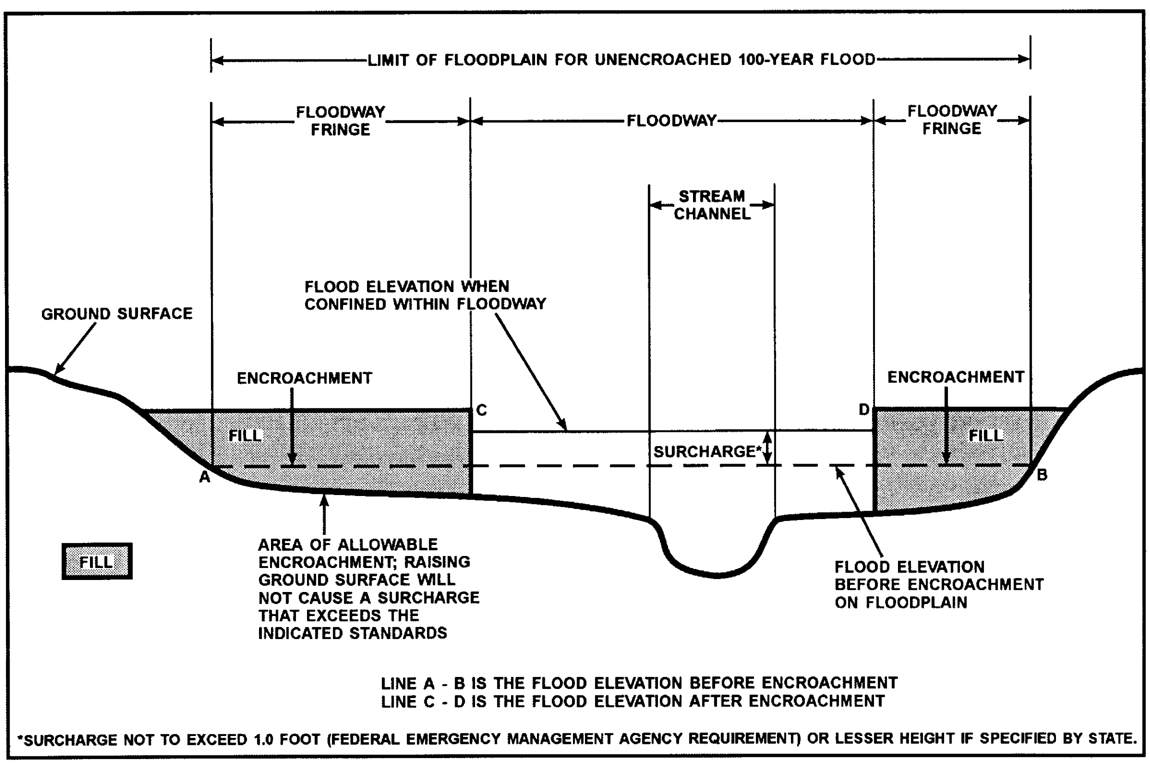
### 4.2 Floodways

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 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-annual-chance 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 floodway 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 (Table 4). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 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 River extend beyond the county boundary.

The area between the floodway and 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 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.




**Floodway Schematic** **Figure 1**

| FLOODING SOURCE | | FLOODWAY | | | 1-PERCENT ANNUAL CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88) | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH[2] (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| SUWANNEE RIVER | | | | | | | | |
| A | 59.56 | 5,934 | 65,330 | 1.0 | 28.1 | 28.1 | 29.0 | 0.9 |
| B | 62.24 | 9,365 | 91,800 | 0.7 | 29.0 | 29.0 | 30.0 | 1.0 |
| C | 62.67 | 7,371 | 77,868 | 0.9 | 29.2 | 29.2 | 30.1 | 0.9 |
| D | 63.27 | 6,583 | 40,855 | 1.7 | 29.4 | 29.4 | 30.3 | 0.9 |
| E | 65.66 | 7,019 | 84,707 | 0.8 | 30.9 | 30.9 | 31.7 | 0.8 |
| F | 68.53 | 5,719 | 86,831 | 0.7 | 31.6 | 31.6 | 32.5 | 0.8 |
| G | 69.16 | 7,184 | 63,571 | 1.0 | 31.7 | 31.7 | 32.6 | 0.8 |
| H | 71.96 | 6,076 | 65,426 | 1.0 | 33.0 | 33.0 | 33.9 | 0.9 |
| I | 73.09 | 5,074 | 70,948 | 0.9 | 33.9 | 33.9 | 34.8 | 0.9 |
| J | 74.71 | 3,732 | 43,416 | 1.4 | 34.8 | 34.8 | 35.6 | 0.8 |
| K | 75.58 | 4,624 | 58,020 | 1.1 | 35.4 | 35.4 | 36.2 | 0.8 |
| L | 76.06 | 3,672 | 40,843 | 1.5 | 35.6 | 35.6 | 36.4 | 0.8 |
| M | 76.15 | 3,583 | 59,255 | 1.1 | 35.9 | 35.9 | 36.8 | 0.9 |
| N | 77.99 | 2,983 | 52,449 | 1.2 | 37.1 | 37.1 | 37.9 | 0.8 |
| O | 79.01 | 4,553 | 59,388 | 1.1 | 37.6 | 37.6 | 38.5 | 0.8 |
| P | 79.52 | 4,686 | 60,406 | 1.0 | 37.9 | 37.9 | 38.7 | 0.9 |
| Q | 81.59 | 4,220 | 54,121 | 1.2 | 39.0 | 39.0 | 39.9 | 0.8 |
| R | 83.08 | 4,359 | 67,031 | 0.9 | 39.8 | 39.8 | 40.7 | 0.9 |
| S | 84.85 | 3,534 | 41,941 | 1.5 | 40.6 | 40.6 | 41.6 | 0.9 |
| T | 85.95 | 4,170 | 46,122 | 1.4 | 41.4 | 41.4 | 42.3 | 0.9 |
| U | 86.73 | 3,426 | 57,456 | 1.1 | 42.0 | 42.0 | 42.9 | 0.9 |
| V | 88.24 | 2,724 | 35,138 | 1.8 | 43.1 | 43.1 | 43.9 | 0.8 |
| W | 90.11 | 2,828 | 27,142 | 2.4 | 44.3 | 44.3 | 45.2 | 0.9 |
| X | 91.48 | 2,320 | 31,276 | 2.0 | 45.5 | 45.5 | 46.4 | 0.9 |
| Y | 93.85 | 2,015 | 24,335 | 2.7 | 47.5 | 47.5 | 48.3 | 0.8 |
| Z | 95.91 | 4,290 | 61,893 | 1.1 | 49.3 | 49.3 | 50.2 | 0.9 |

[1] Miles above mouth.

[2] This width extends beyond county boundary.

FEDERAL EMERGENCY MANAGEMENT AGENCY

**LAFAYETTE COUNTY, FL AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SUWANNEE RIVER**

**TABLE 4**

| FLOODING SOURCE | | FLOODWAY | | | 1-PERCENT ANNUAL CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88) | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH[2] (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| SUWANNEE RIVER (continued) | | | | | | | | |
| AA | 96.60 | 5,300 | 77,900 | 0.8 | 49.6 | 49.6 | 50.5 | 0.9 |
| AB | 98.23 | 6,784 | 85,263 | 0.8 | 50.6 | 50.6 | 51.5 | 1.0 |
| AC | 99.18 | 6,112 | 72,336 | 0.9 | 50.8 | 50.8 | 51.8 | 1.0 |
| AD | 100.51 | 3,522 | 51,359 | 1.3 | 51.4 | 51.4 | 52.4 | 1.0 |
| AE | 101.82 | 4,308 | 60,708 | 1.1 | 52.2 | 52.2 | 53.2 | 1.0 |
| AF | 102.89 | 3,403 | 65,530 | 1.0 | 52.8 | 52.8 | 53.7 | 0.9 |
| AG | 104.03 | 3,568 | 60,044 | 1.1 | 53.3 | 53.3 | 54.2 | 0.9 |
| AH | 105.36 | 3,458 | 58,386 | 1.2 | 53.7 | 53.7 | 54.7 | 1.0 |
| AI | 106.69 | 4,349 | 68,197 | 1.0 | 54.3 | 54.3 | 55.3 | 1.0 |
| AJ | 107.88 | 2,589 | 41,911 | 1.7 | 54.9 | 54.9 | 55.9 | 0.9 |
| AK | 108.57 | 2,735 | 47,512 | 1.5 | 55.4 | 55.4 | 56.3 | 0.9 |
| AL | 109.87 | 3,163 | 70,207 | 1.0 | 56.0 | 56.0 | 57.0 | 0.9 |
| AM | 111.18 | 2,971 | 44,634 | 1.6 | 56.8 | 56.8 | 57.7 | 0.9 |
| AN | 112.46 | 2,266 | 32,720 | 2.1 | 57.6 | 57.6 | 58.5 | 0.9 |
| AO | 112.83 | 3,047 | 61,580 | 1.1 | 58.1 | 58.1 | 59.0 | 0.9 |
| AP | 113.29 | 3,693 | 52,250 | 1.4 | 58.4 | 58.4 | 59.2 | 0.9 |
| AQ | 114.94 | 2,627 | 44,594 | 1.6 | 59.3 | 59.3 | 60.2 | 0.9 |

[1] Miles above mouth.

[2] This width extends beyond county boundary.

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

**LAFAYETTE COUNTY, FL AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SUWANNEE RIVER**

## 5.0 INSURANCE APPLICATIONS

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

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year 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 100-year 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 100-year 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 100-year 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% 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% annual chance or greater flood event.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year 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 100-year 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 100-year 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 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year 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 FIRM 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, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The current FIRM presents flooding information for the entire geographic area of Lafayette 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 5.

| COMMUNITY NAME | INITIAL IDENTIFICATION | FLOOD HAZARD BOUNDARY MAP REVISIONS DATE | FIRM DATE EFFECTIVE | FIRM REVISIONS DATE |
|---|---|---|---|---|
| Mayo, Town of | May 28, 1974 | None | May 1, 1987 | September 29, 2006 |
| Lafayette County (Unincorporated Areas) | May 27, 1977 | None | January 16, 1987 | September 29, 2006 |

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**LAFAYETTE COUNTY, FL AND INCORPORATED AREAS**

**COMMUNITY MAP HISTORY**

## 7.0 OTHER STUDIES

A Special Flood Hazard Information Report was prepared by the USACE, Jacksonville District, in December 1974 (USACE, 1974). This report was reprinted twice, the last time in February 1983. Any disagreement between that report and this Flood Insurance Study is due to more recent information used in this Flood Insurance Study.

Flood Insurance Studies for the Unincorporated Areas of Taylor County (FEMA, 1983), and Madison and Suwannee Counties (FEMA, 1983; FEMA, 1984) have been published. Those studies and this Flood Insurance Study are in agreement. A Flood Insurance Study has been prepared for Dixie County and Incorporated Areas (FEMA, 2006).

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Lafayette 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 Lafayette 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 Administration, Koger Center-Rutgers Building, 3003 Chamblee Tucker Road, Atlanta, Georgia 30341.

## 9.0 BIBLIOGRAPHY AND REFERENCES

Federal Emergency Management Agency, Flood Insurance Study, Dixie County, Unincorporated Areas, Florida, September 2006.

Federal Emergency Management Agency, Flood Insurance Study, Madison County, Unincorporated Areas, Florida, 1984.

Federal Emergency Management Agency, Flood Insurance Study, Suwannee County, Unincorporated Areas, Florida, January 1988.

Federal Emergency Management Agency, Flood Insurance Study, Taylor County, Unincorporated Areas, Florida, November 1983.

Florida Bureau of Comprehensive Planning, Florida General Soils, Atlas, July 1975.

Interagency Advisory Committee on Water Data, Bulletin No. 17B, Guidelines for Determining Flood Flow Frequency, 1981.

U.S. Army Corps of Engineers, HEC-2 Water-Surface Profiles Generalized Computer Program, Davis, California, November 1976.

U.S. Army Corps of Engineers, Jacksonville District, Stream Cross Sections, Woolpert Consultants, Dayton, Ohio, compiled by photogrammetric methods from aerial photography, Scale 1:7200 and 1:28500, February 1982.

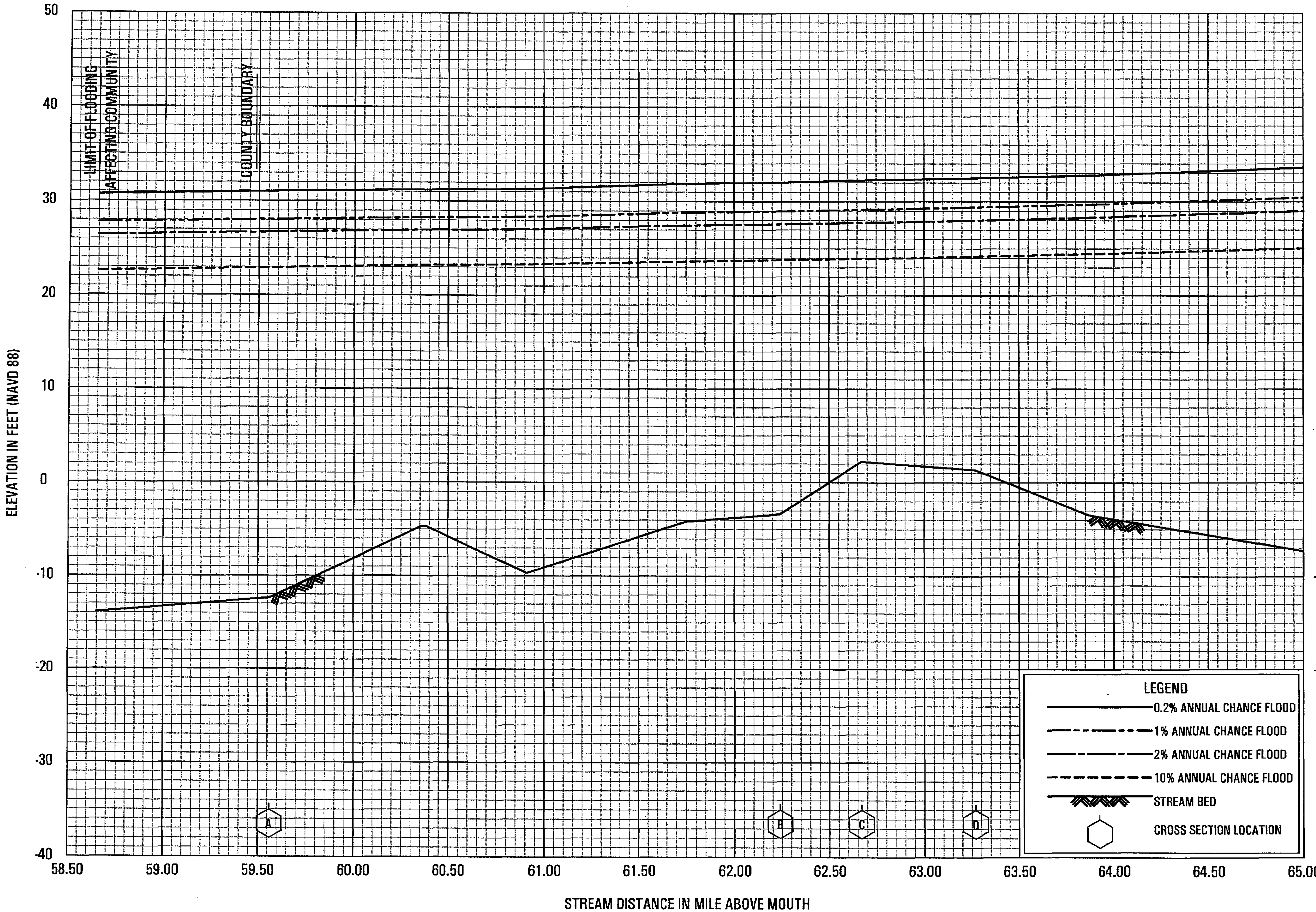
U.S. Army Corps of Engineers, Jacksonville District, Special Flood Hazard Information, Suwannee River Floods, Florida and Georgia, December 1974.

U.S. Department of Commerce Bureau of the Census, 2000 Census of Population, Number of Inhabitants, Florida, Washington, D.C., February 2004.

U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Lafayette County, Unincorporated Areas, Florida, May 1977.

U.S. Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24000, Contour Interval 20 feet: Branford, Florida, 1968; Day S.E., Florida, 1954; Dowling Park, Florida, 1954; Hatch Bend, Florida, 1968; Madison S.E., Florida, 1958; Mallory Swamp S.E., Florida, 1954; Mallory Swamp S.W., Florida, 1954; Mallory Swamp N.E., Florida, 1954; Mallory Swamp N.W., Florida, 1954; Mayo, Florida, 1955; Mayo S.E., Florida, 1955; O'Brien, Florida, 1969; and Cooks Hammock, Florida, 1954.

Woolpert Consultants, Suwannee River, Lafayette County, Florida, Topographic Maps, Scale 1:12000, Contour Interval 2 feet: Dayton, Ohio, February 1982.




FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL

AND INCORPORATED AREAS

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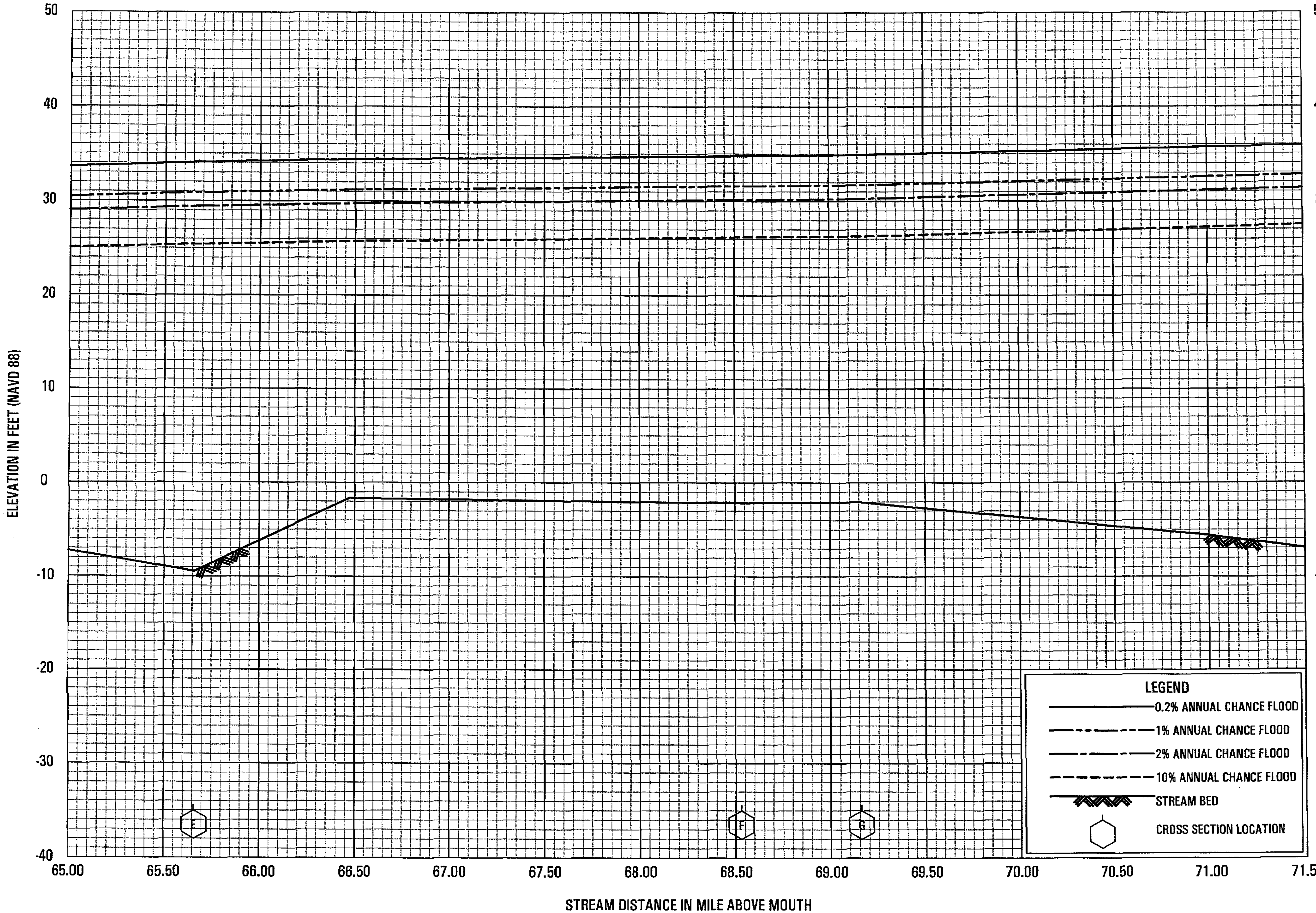


FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL

AND INCORPORATED AREAS

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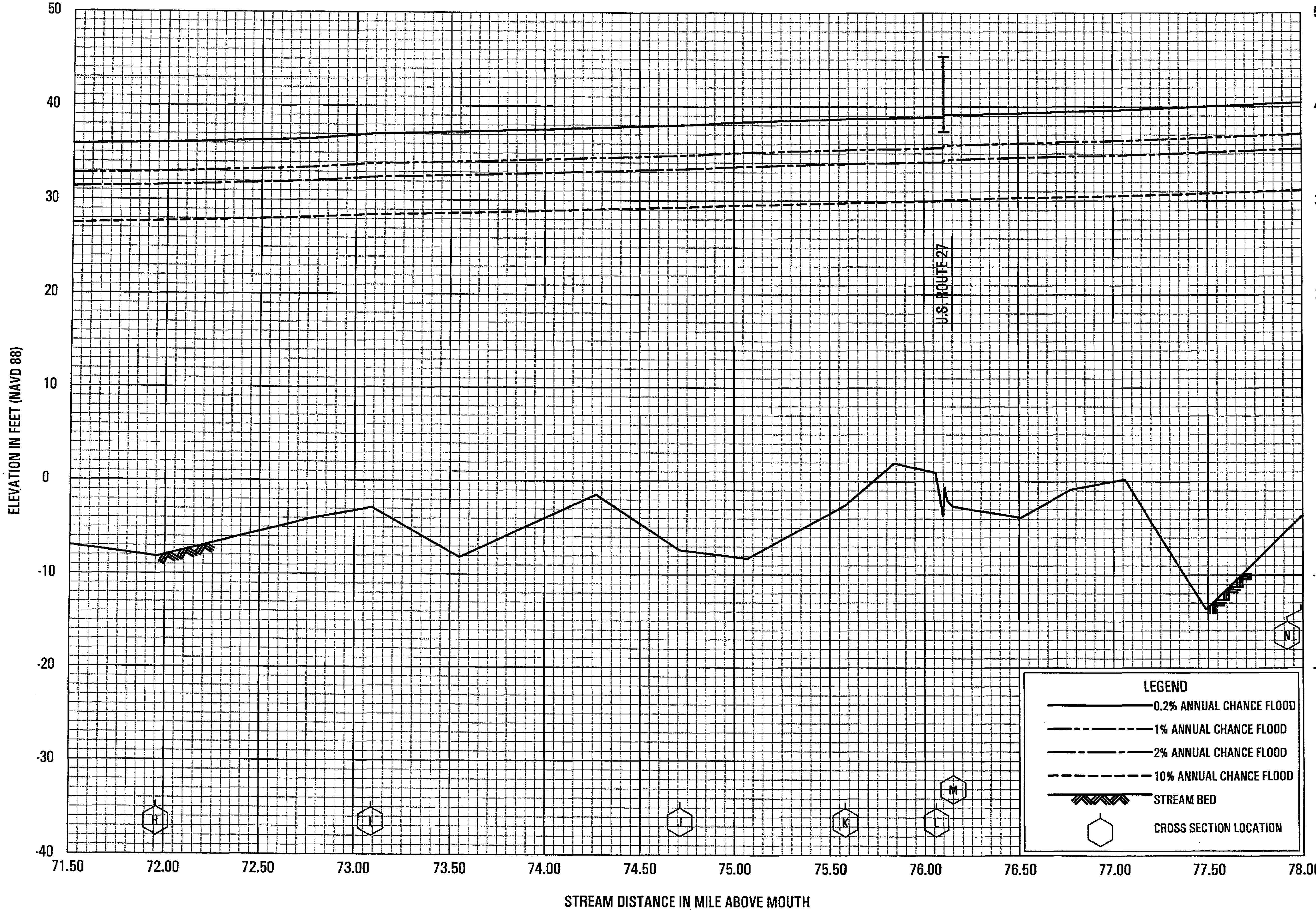


FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL

AND INCORPORATED AREAS

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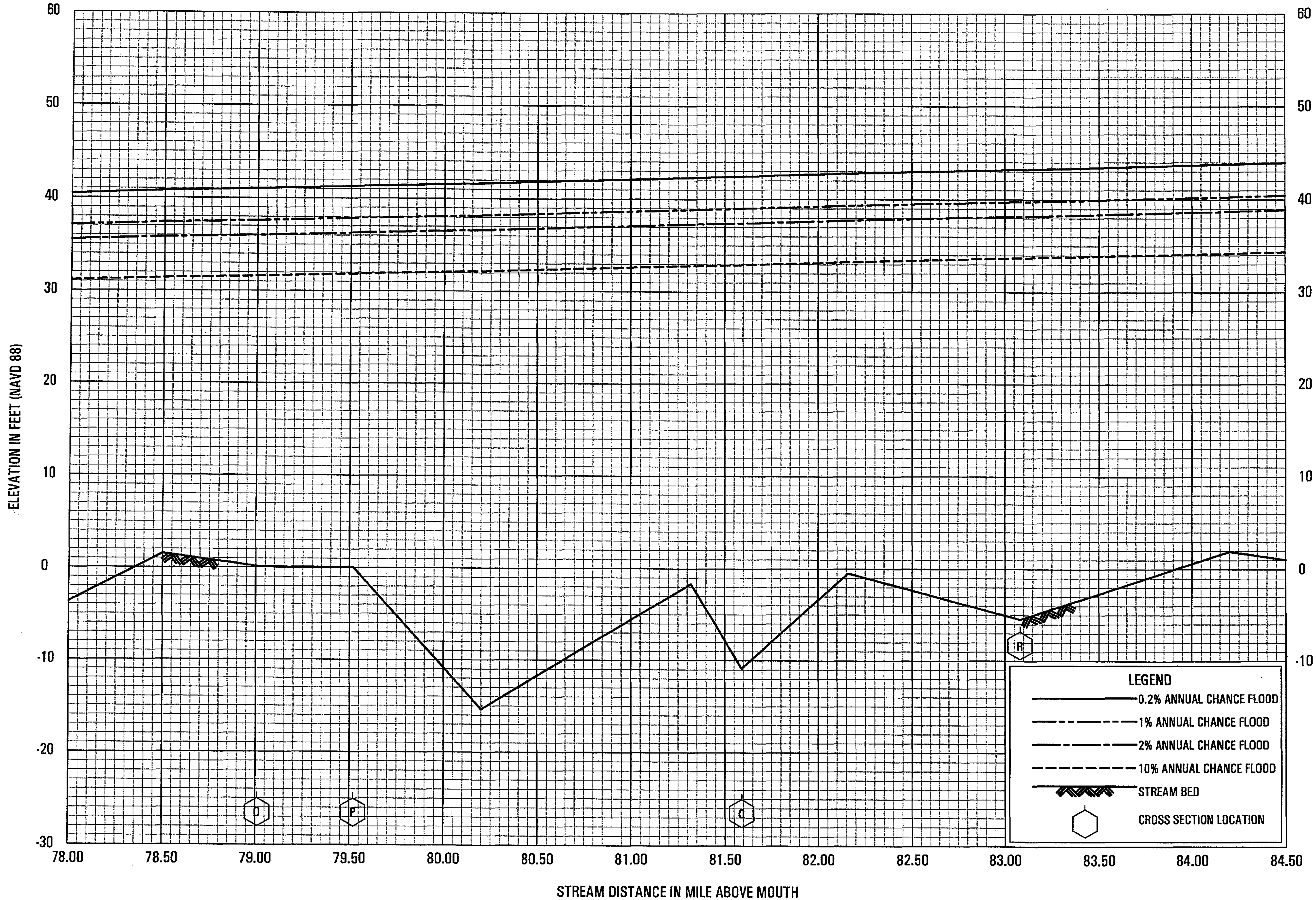


FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL

AND INCORPORATED AREAS

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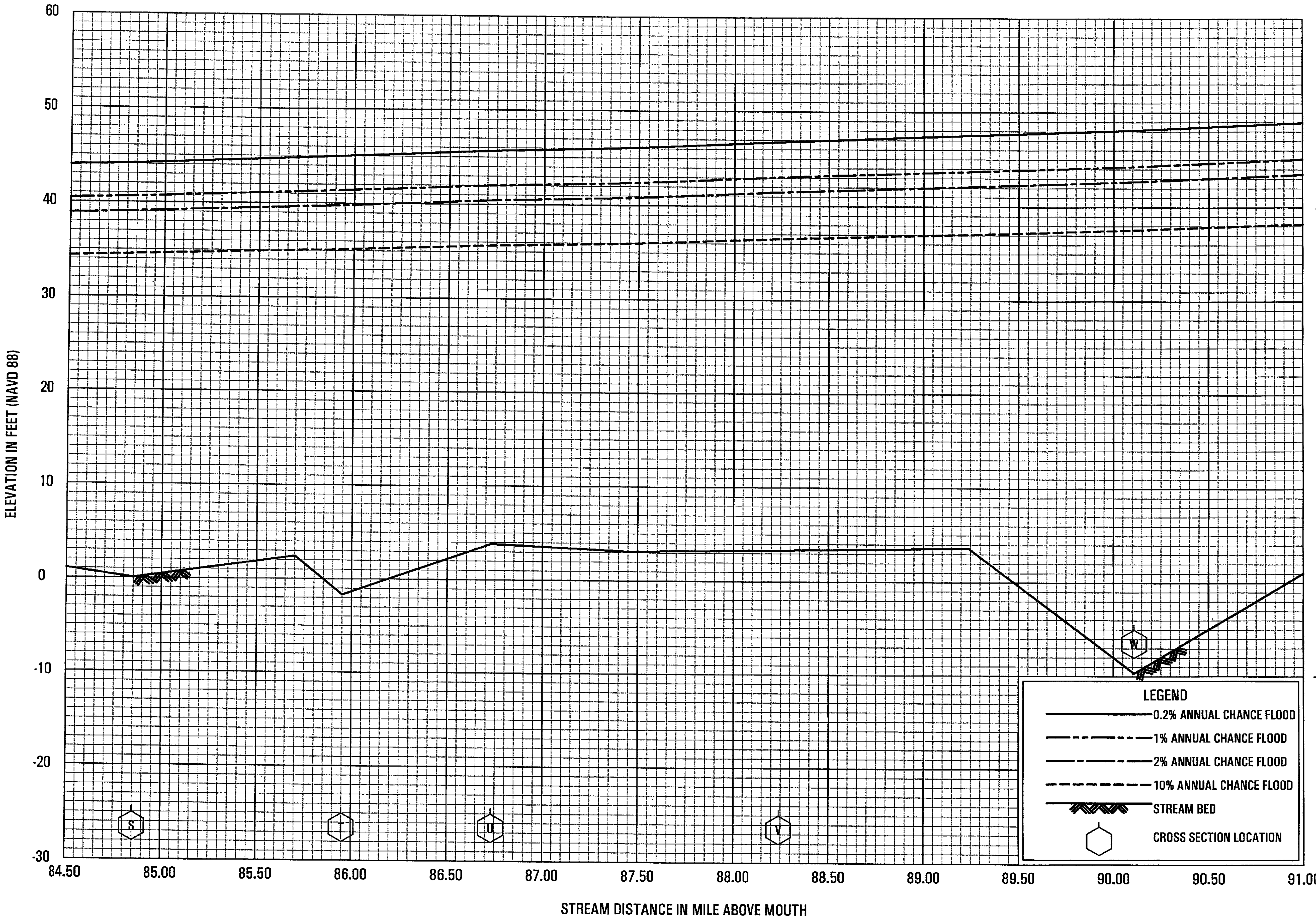


FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL

AND INCORPORATED AREAS

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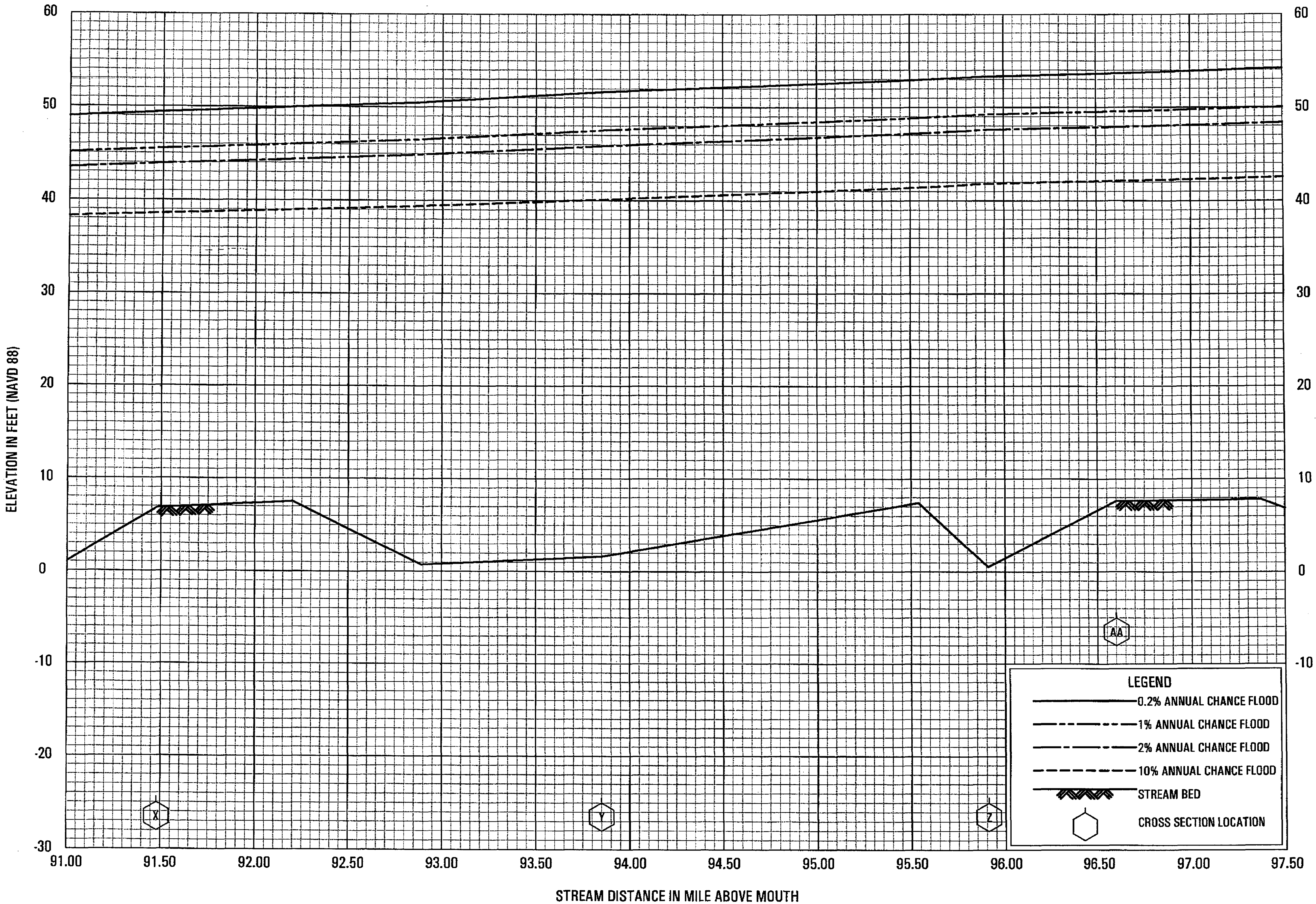


FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL

AND INCORPORATED AREAS

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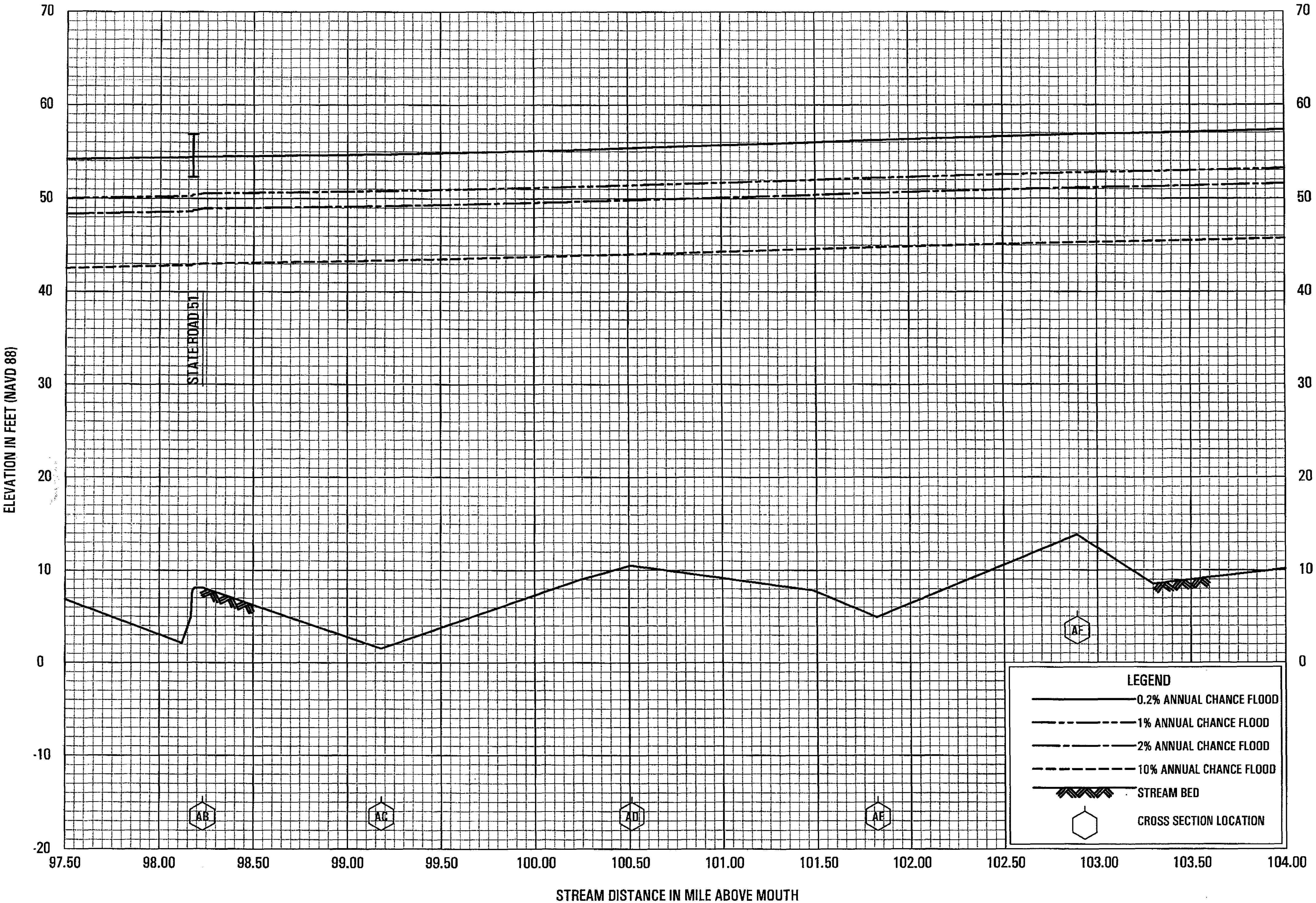
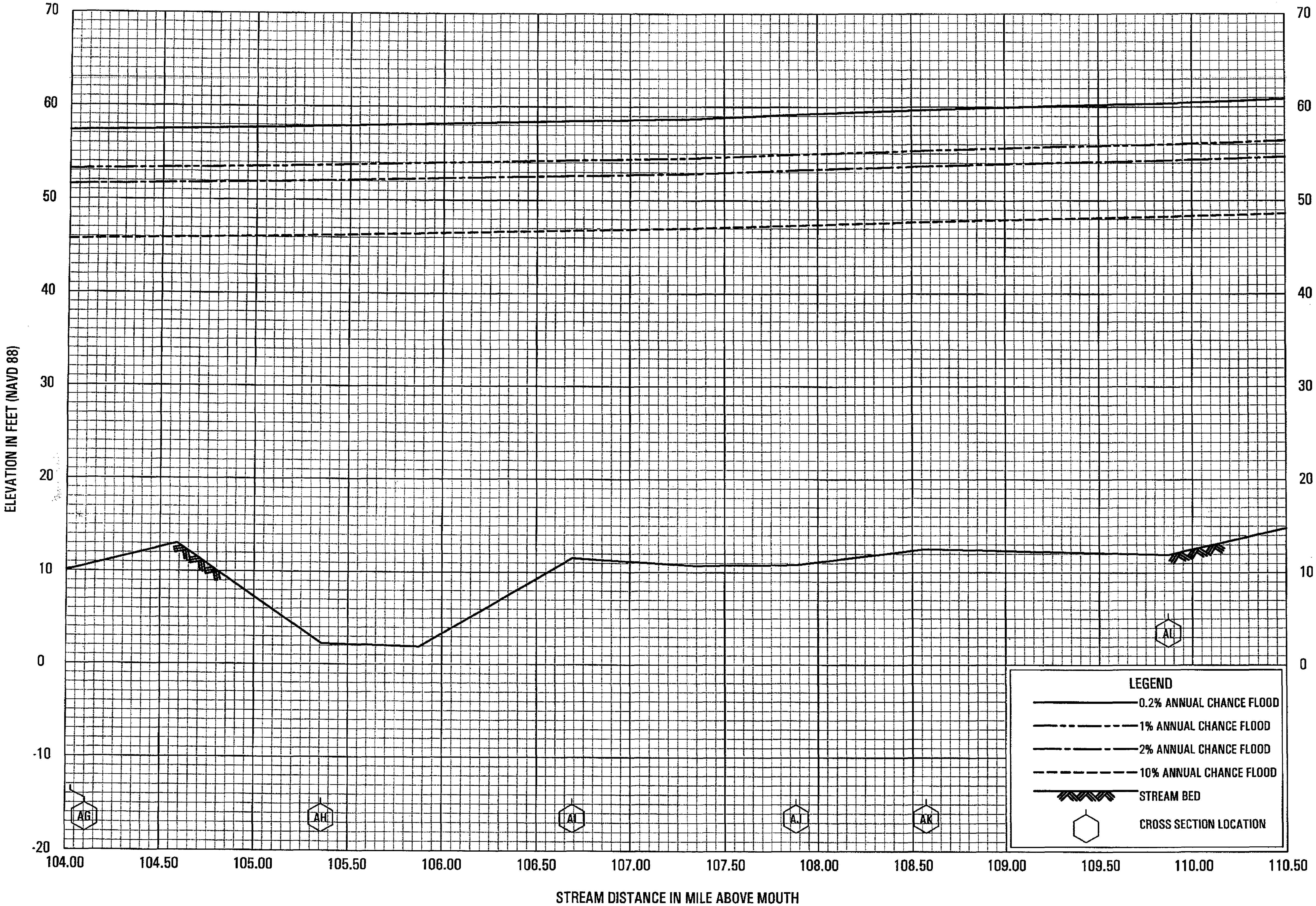



FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL
AND INCORPORATED AREAS




FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL

AND INCORPORATED AREAS

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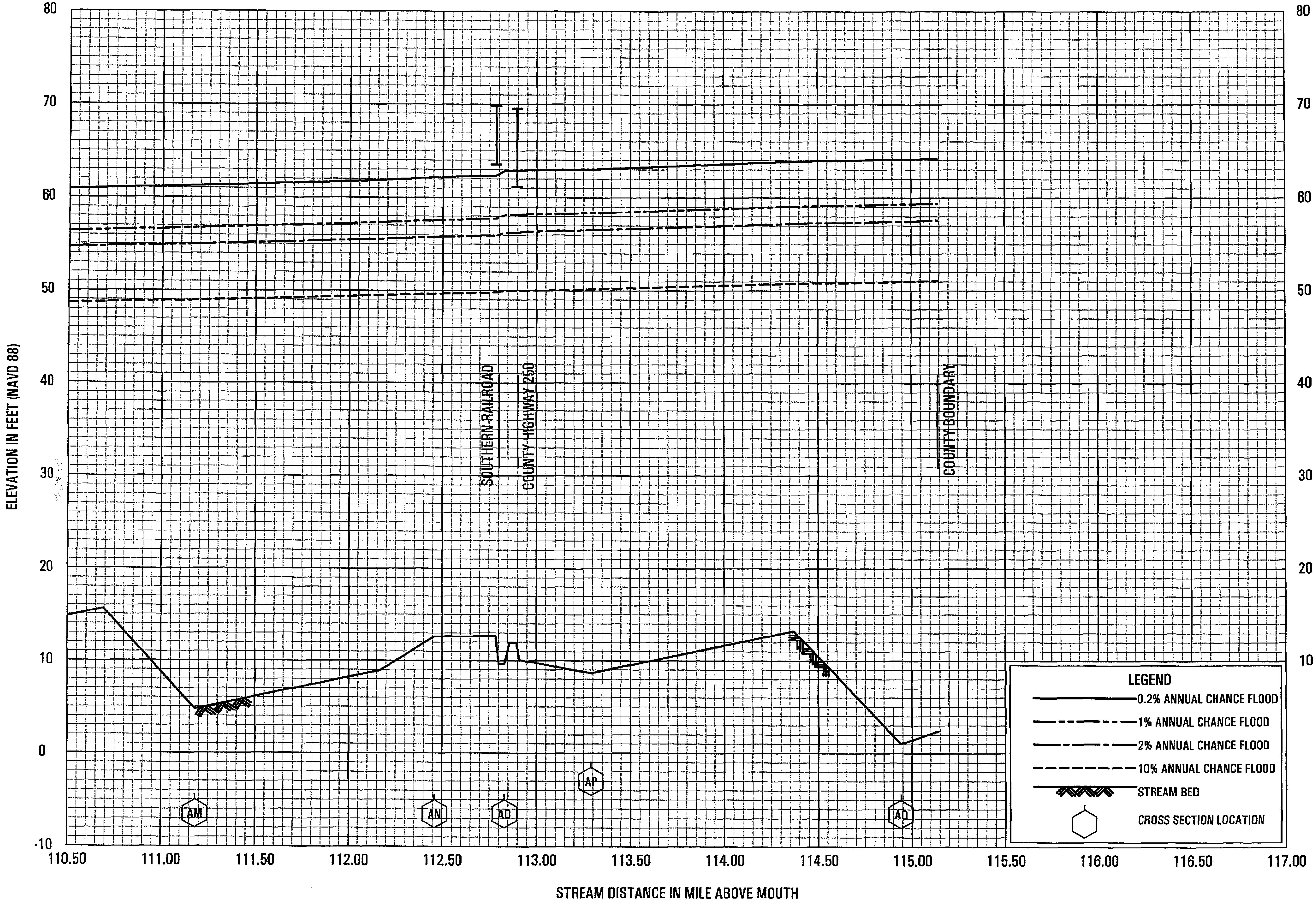


FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LAFAYETTE COUNTY, FL

AND INCORPORATED AREAS

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