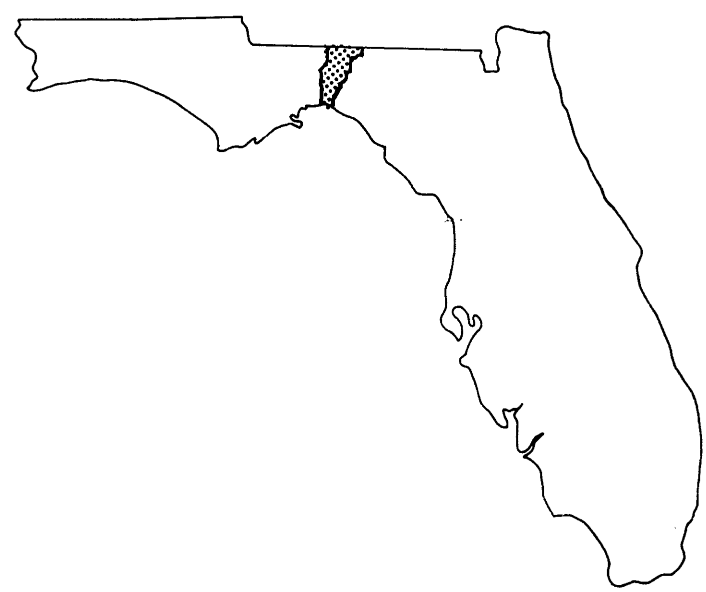
FLOOD INSURANCE STUDY

JEFFERSON COUNTY, FLORIDA

UNINCORPORATED AREAS



JULY 16, 1991

Federal Emergency Management Agency

COMMUNITY NUMBER - 120331

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 may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

Page

FIGURES

TABLES

EXHIBITS

FLOOD INSURANCE STUDY

JEFFERSON COUNTY,
UNINCORPORATED AREAS,
FLORIDA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the unincorporated areas of Jefferson County, Florida, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program 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 Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by Gee & Jenson Engineers - Architects - Planners, Inc. (the Study Contractor) for the Federal Emergency Management Agency (FEMA), under Contract No. EMW-86-C-0112. This study was completed in August 1987.

The hydrologic and hydraulic analyses for the Aucilla River were obtained from a study titled, Flood Insurance Study, Aucilla River, Jefferson, Madison, and Taylor Counties, Florida (Reference 1).

The hydrologic and hydraulic analyses for the Gulf of Mexico coastline were performed by FEMA in November 1988.

1.3 Coordination

On February 7, 1986, at an initial coordination meeting, representatives of FEMA, the community, and the Study Contractor determined which streams were to be studied in detail.

On August 22, 1990, 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.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the unincorporated areas of Jefferson County, Florida. The area of study is shown on Figure 1, Vicinity Map. The incorporated areas within the county were excluded from this study.

Flooding caused by overflow of Ward, Wolf, Raysor, and Beasley Creeks, and the Aucilla River were studied in detail.

A detailed coastal flooding analysis was performed on the complete coastline of Jefferson County, where the flooding source is the Gulf of Mexico.

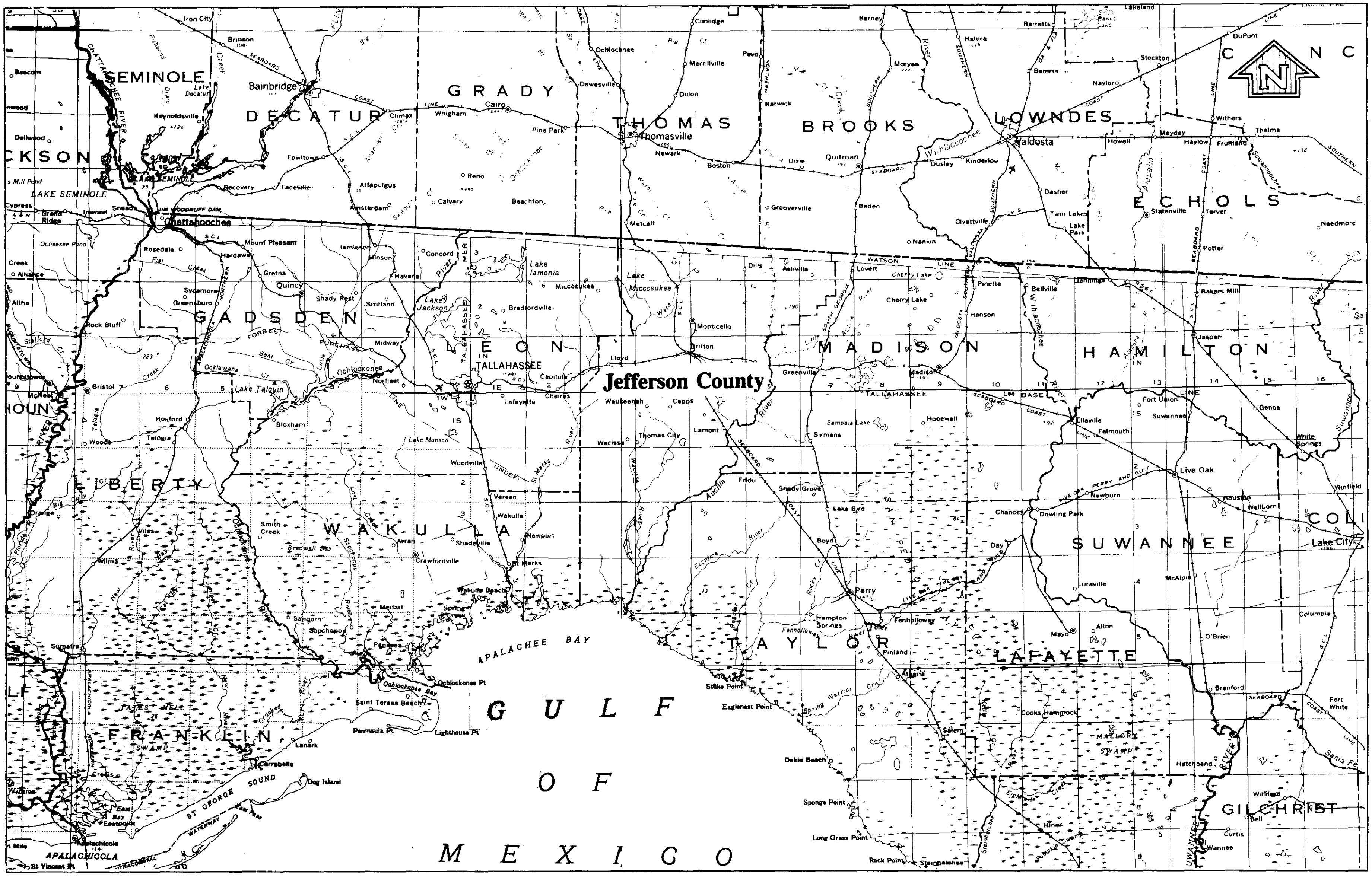
Areas having low development potential or minimal flood hazards were previously studied using approximate analyses. The results were shown on the Flood Hazard Boundary Map for the Unincorporated Areas of Jefferson County, Florida (Reference 2), and are incorporated into this Flood Insurance Study.

The areas studied were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction through August 1992. The scope and methods of study were proposed to and agreed upon by FEMA and Jefferson County.

2.2 Community Description

Jefferson County, in Florida's northwest Panhandle region, encompasses an area of 609 square miles. It is bordered on the north by Thomas and Brooks Counties, Georgia; on the south by the Gulf of Mexico; on the west by Leon and Wakulla Counties, Florida; and on the east by Madison and Taylor Counties, Florida. Jefferson County is served by Interstate 10; U.S. Routes 19, 27, 90, 98; and CSX railroad. The 1980 population was reported to be 10,703 (Reference 3).

The topography is generally between 70 and 200 feet National Geodetic Vertical Datum of 1929 (NGVD) with uplands that are generally level to strongly sloping. Stream valleys are narrow in Jefferson County, and heavily wooded areas exist along the broad, flat floodplains of the Aucilla River, with other swampy lowlands scattered throughout the county (Reference 4). The climate of Jefferson County is mild year-round, although the seasonal changes are distinct. Average temperatures range from about 54 degrees Fahrenheit ($^{\circ}F$) in January to about $81^{\circ}F$ in



FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

APPROXIMATE SCALE

16 0 16 32 48 MILES

VICINITY MAP

FIGURE 1

August. Average annual rainfall is about 57 inches (Reference 5).

2.3 Principal Flood Problems

General flooding in Jefferson County stems from two sources: periods of intense rainfall causing ponding and sheet runoff in the low, poorly-drained areas and coastal storm surge associated with hurricanes and tropical storms. The floodplain of the Aucilla River is also subject to flooding during high river stages.

In recent years, both hurricanes Alma (1966) and Agnes (1972) have affected Jefferson County. Because of undeveloped shoreline areas and a sparse coastal population, highwater marks and tide gage data are limited.

2.4 Flood Protection Measures

The various levees, dikes, and dams located throughout Jefferson County are not known to protect areas against the 100-year flood.

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 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

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

Peak discharge frequency relationships for Ward, Wolf, Raysor, and Beasley Creeks were calculated using regression equations (Reference 6). Topographic maps were used in delineating drainage boundaries and in computating hydrologic parameters used in regression equations such as slopes, lake, and drainage areas (Reference 7).

Peak discharge frequency relationships for the Aucilla River were based on stream gage records taken from the Lamont gage from 1951 to 1979, a period of 29 years. Additionally, stream gage records for the Aucilla gage (no. 02326250) for the period 1965-1984 and for the Scanlon gage (no. 02326512) exist for the years 1957, 1973, and 1977-1982. The discharge data for the Lamont gage was used to determine peak discharges (Reference 6). The frequency rating curve was developed following the standard log-Pearson Type III distribution function (Reference 8).

Along the Aucilla River, between U.S. Route 98 and the confluence of Jones Mill Creek, is a series of sinks. This area, where the Aucilla River goes underground, is described in an 1981 document (Reference 9). The HEC-2 backwater curves were computed using the 1957, 1973, 1977, and 1979 flood stages to their respective discharge values at the Scanlon gage. A statistical plot of these values was used to determined surface discharge rates. Because of the sinks throughout the region, the underground discharges were subtracted to determine the surface discharges.

Peak discharge-drainage area relationships for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
WARD CREEK					
about 0.85 mile upstream of mouth	137.00	4,650	7,800	9,400	13,650
about 2.18 miles upstream of mouth	128.00	4,600	7,650	9,250	13,550
at State Road 259	108.00	4,100	6,950	8,400	12,400
about 1.14 miles upstream of State Road 259	6.4	600	1,100	1,350	2,000

TABLE 1 - SUMMARY OF DISCHARGES (Continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
WARD CREEK (cont'd)					
about 700 feet downstream of U.S. Route 19	5.5	550	1,050	1,300	1,900
RAYSOR CREEK					
about 1.33 miles upstream of mouth	56.10	2,300	4,000	4,850	7,200
about 0.63 mile downstream of State Road 257	54.20	2,250	3,900	4,750	7,000
at State Road 257	52.90	2,200	3,850	4,650	6,900
about 1.7 miles upstream of State Road 257	48.40	2,050	3,600	4,350	6,400
WOLF CREEK					
at Interstate 10	46.10	1,950	3,400	4,150	6,100
at State Road 158	39.60	1,750	3,050	3,700	5,450
about 1.8 miles downstream of U.S. Route 90	35.70	1,600	2,800	3,400	5,050
at U.S. Route 90	23.50	1,200	2,100	2,550	3,750
BEASLEY CREEK					
about 0.57 mile upstream of mouth	42.50	1,100	2,100	2,800	4,150
at State Road 257	41.60	1,050	2,050	2,800	4,100
about 2,600 feet upstream of CSX railroad	22.00	750	1,500	2,050	3,000
AUCILLA RIVER					
at U.S. Route 98	926	7,600	14,600	18,700	28,800
about 9 miles upstream of U.S. Route 98	805	4,500	7,000	8,200	11,000
at U.S. Route 19	747	6,090	11,800	15,000	23,200
at U.S. Route 90	345	2,250	4,350	5,400	8,650

Inundation from the Gulf of Mexico caused by passage of storms (storm surge) was determined by the joint probability method (Reference 10). The storm populations were described by probability distributions of five parameters that influence surge heights. These parameters were central pressure depression (which measures the intensity of the storm), radius to maximum winds, forward speed of the storm, shoreline crossing point, and crossing angle. These characteristics were described statistically based on an analysis of observed storms in the vicinity of Jefferson County. Primary sources of data for this analysis were Tropical Cyclone Data Deck; Tropical Cyclones of the North Atlantic; Some Climatological Characteristics of Hurricanes and Tropical Storms, Gulf and East Coasts of the United States; Meteorological Criteria for Standard Project Hurricane and Probable Maximum Hurricane Windfields, Gulf and East Coasts of the United States; Survey of Meteorological Factors Pertinent to Reduction of Loss of Life and Property in Hurricane Situations; and Meteorological Considerations Pertinent to Standard Project Hurricane, Atlantic and Gulf Coast of the United States (References 11-16). A summary of the parameters used for the area is presented in Table 2, Parameter Values for Surge Elevations.

For areas subject to flooding directly from the Gulf of Mexico, the FEMA standard storm surge model was used to simulate the coastal surge generated by any chosen storm (that is, any combination of the five storm parameters defined previously). By performing such simulations for a large number of storms, each of known total probability, the frequency distribution of surge height can be established as a function of coastal location. These distributions incorporate the large-scale surge behavior, but do not include an analysis of the added effects associated with much finer scale wave phenomena, such as wave height or runup. As the final step in the calculations, the astronomic tide for the region is then statistically combined with the computed storm surge to yield recurrence intervals of total water level (Reference 17).

The storm-surge elevations for the 10-, 50-, 100-, and 500-year floods have been determined for the Gulf of Mexico and are shown in Table 3, Summary of Stillwater Elevations. The analyses reported herein reflect the stillwater elevations due to tidal and wind setup effects and include the contributions from wave action effects.

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the riverine sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

CENTRAL PRESSURE DEPRESSION (MILLIBARS)	997.85	988.71	979.91	970.77	961.96	952.82	944.02	934.87
AVERAGE ASSIGNED PROBABILITIES	0.31	0.31	0.12	0.07	0.07	0.05	0.02	0.05

STORM RADIUS TO MAXIMUM WINDS (NAUTICAL MILES)	15.0	22.5	30.0
PROBABILITY	0.37	0.43	0.20
FORWARD SPEED (KNOTS)	6.0	11.5	17.0
PROBABILITIES	0.24	0.36	0.40

DIRECTION OF STORM PATH (DEGREES FROM TRUE NORTH)	20	60	260	300	340
PROBABILITY	0.23	0.23	0.06	0.24	0.24

FREQUENCY OF STORM OCCURRENCE (STORM/NAUTICAL MILE/YEAR)	0.0035

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

PARAMETER VALUES FOR SURGE ELEVATIONS
ENTERING

TABLE 2

CENTRAL PRESSURE DEPRESSION (MILLIBARS)	997.85	988.71	979.91	970.77	961.96	952.82	944.02	934.87
AVERAGE ASSIGNED PROBABILITIES	0.26	0.26	0.07	0.12	0.11	0.10	0.04	0.04
STORM RADIUS TO MAXIMUM WINDS (NAUTICAL MILES)	15.0		22.5		30.0			
PROBABILITY	0.37		0.43		0.20			
FORWARD SPEED (KNOTS)	6.0		11.5		17.0			
PROBABILITIES	0.41		0.40		0.19			
DIRECTION OF STORM PATH (DEGREES FROM TRUE NORTH)	20	60	260	300	340			
PROBABILITY	0.23	0.23	0.06	0.24	0.24			
FREQUENCY OF STORM OCCURRENCE (STORM/NAUTICAL MILE/YEAR)	0.0011							

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL

(UNINCORPORATED AREAS)

PARAMETER VALUES FOR SURGE ELEVATIONS

ALONG SHORE

TABLE 2

CENTRAL PRESSURE DEPRESSION (MILLIBARS)	997.85	988.71	979.91	970.77	961.96	952.82	944.02	934.87
AVERAGE ASSIGNED PROBABILITIES	0.32	0.32	0.07	0.07	0.11	0.07	0.04	0
STORM RADIUS TO MAXIMUM WINDS (NAUTICAL MILES)	15.0	22.5	30.0					
PROBABILITY	0.37	0.43	0.20					
FORWARD SPEED (KNOTS)	6.0	11.5	17.0					
PROBABILITIES	0.55	0.32	0.13					
DIRECTION OF STORM PATH (DEGREES FROM TRUE NORTH)	20	60	260	300	340			
PROBABILITY	0.23	0.23	0.06	0.24	0.24			
FREQUENCY OF STORM OCCURRENCE (STORM/NAUTICAL MILE/YEAR)	0.0035							

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

PARAMETER VALUES FOR SURGE ELEVATIONS
EXITING

TABLE 2

FLOODING SOURCE AND TRANSECT	FLOOD INSURANCE RATE MAP PANEL	STILLWATER ELEVATION (FEET NGVD)				ZONE	BASE FLOOD ELEVATION[1] (FEET NGVD)
		10-YEAR	50-YEAR	100-YEAR	500-YEAR		
GULF OF MEXICO							
1	0325,0275	8.3	13.3	15.0	18.1	VE	17-23
		___	___	13.0	___	VE	16-17
						AE	13-15
		___	___	12.0	___	AE	12-13

[1]ROUNDED TO NEAREST FOOT AND MAY INCLUDE EFFECT OF WAVE ACTION. BASE FLOOD ELEVATIONS SHOWN ON MAP MAY REPRESENT AVERAGE ELEVATIONS FOR ZONES DEPICTED

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

SUMMARY OF STILLWATER ELEVATIONS

GULF OF MEXICO

Cross sections for Ward, Wolf, Raysor, and Beasley Creeks were obtained from field surveys and topographic maps (References 7 and 8).

Cross sections for the Aucilla River were obtained photogrammetrically from aerial photographs (Reference 19).

All bridges, dams, and culverts were field surveyed to obtain elevation and structural geometry data.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles and on the Flood Insurance Rate Map.

Roughness coefficients (Manning's "n") used in the hydraulic computations for Ward, Wolf, Raysor, and Beasley Creeks were based on field observations and established procedures (References 20-22).

Roughness coefficients for the Aucilla River were determined by computer modeling of the backwater curves to match the historical flood marks of the September 1957 and April 1973 floods.

	MANNING's "N"	
STREAM	CHANNEL	OVERBANK
Ward Creek	0.05	0.13
Wolf/Raysor Creek	0.04-0.07	0.09-0.15
Beasley Creek	0.06	0.12
Aucilla River	0.07	0.12

For areas subjected to stream overflow flooding, water-surface elevations were computed using the HEC-2 water-surface computer program (Reference 23). Starting water-surface elevations for all streams studied in detail were based on slope-area computations.

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals. In cases where the 50- and 100-year flood elevations are close together, due to limitations of the profile scale, only the 100-year profile has been shown.

The hydraulic analyses for this study are based 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.

Hydraulic analyses, considering storm characteristics and the shoreline and bathymetric characteristics of the flooding sources studied, were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of the shorelines.

The FEMA storm surge model was utilized to simulate the hydrodynamic behavior of the surge generated by the various synthetic storms. This model utilizes a grid pattern approximating the geographical features of the study area and the adjoining areas. Surges were computed utilizing grids of 5 by 5 nautical miles, depending on the resolution required.

Underwater depths and land heights for the model grid systems were obtained from bathymetric maps and other source maps (References 7 and 24-26).

The methodology for analyzing the effects of wave heights associated with coastal storm surge flooding is described in a report prepared by the National Academy of Sciences (NAS) (Reference 27). This method is based on the following major concepts. First, depth-limited waves in shallow water reach a maximum breaking height that is equal to 0.78 times the stillwater depth. The wave crest is 70-percent of the total wave height above the stillwater level. The second major concept is that wave height may be diminished by dissipation of energy due to the presence of obstructions, such as sand dunes, dikes and seawalls, buildings, and vegetation. The amount of energy dissipation is a function of the physical characteristics of the obstruction and is determined by NAS procedures (Reference 26). The third major concept is that wave height can be regenerated in open fetch areas due to the transfer of wind energy to the water. This added energy is related to fetch length and depth.

Wave heights were computed along transects (cross-section lines) that located along the coastal areas, as illustrated in Figure 2, Transect Location Map. The transects were located with consideration given to the physical and cultural characteristics of the land so that they would closely represent conditions in their locality. Transects were spaced close together in areas of complex topography and dense development. In areas having more uniform characteristics, they were spaced at large intervals. It was also necessary to locate transects in areas where unique flooding existed and in areas where computed wave heights varied significantly between adjacent transects (References 28 and 29).

Each transect was taken perpendicular to the shoreline and extended inland to a point where wave action ceased. Along each transect, wave heights and elevations were computed considering the combined effects of changes in ground elevation, vegetation, and physical features. The stillwater elevations for the 100-year flood were used as the starting elevations for these computations. Wave heights were calculated to the nearest 0.1 foot, and wave elevations were determined at whole-foot increments along the transects. The location of the 3-foot

FIGURE 2	FEDERAL EMERGENCY MANAGEMENT AGENCY	APPROXIMATE SCALE 12 0 12 24 36 MILES
	JEFFERSON COUNTY, FL **(UNINCORPORATED AREAS)**	**TRANSECT LOCATION MAP**

breaking wave for determining the terminus of the V zone (area with velocity wave action) was computed at each transect. Also, along the open coast, the V zone designation applies to all areas seaward of the heel of the primary dune system. Table 4 provides a listing of the transect locations and stillwater starting elevations, as well as initial wave crest elevations.

TABLE 4 - TRANSECT LOCATIONS, STILLWATER STARTING ELEVATIONS, AND INITIAL WAVE CREST ELEVATIONS

	ELEVATION (FEET NGVD)	
TRANSECT LOCATION	STILLWATER	WAVE CREST
about 1.5 miles east of western county boundary from the Gulf of Mexico extending north	15.0	23.2

Dune erosion was taken into account along the Gulf of Mexico coastline. The amount of dune erosion was calculated using the methodology established by FEMA (Reference 29).

In addition to the wave height analysis, wave runup was examined along the Gulf of Mexico coastline and computed using the FEMA Runup Model (Reference 30).

Figure 3 represents a sample transect that illustrates the relationship between the stillwater elevation, the wave crest elevation, the ground elevation profile, and the location of the V/A zone boundary.

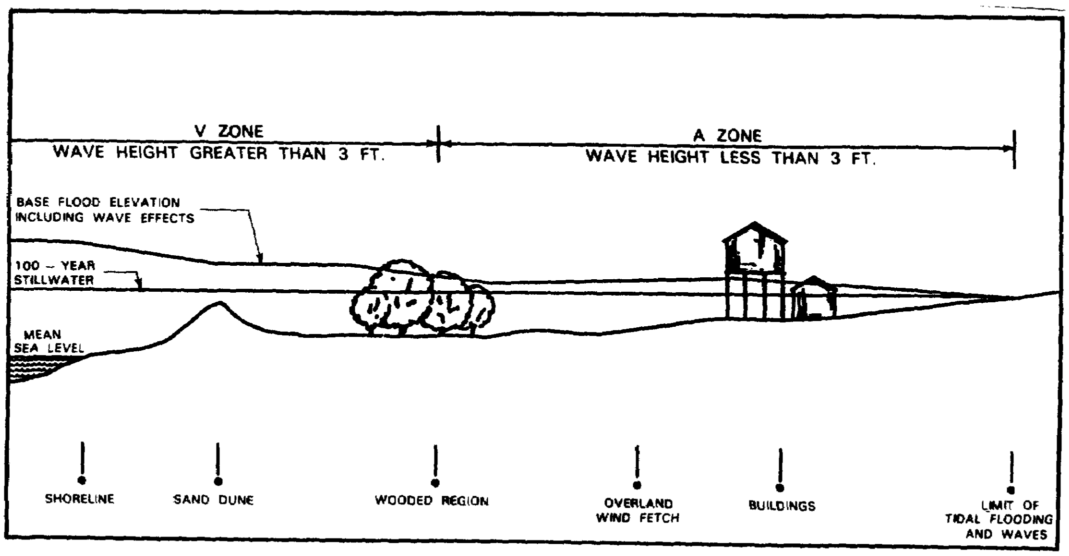


FIGURE 3 - Transect Schematic

After analyzing wave heights along each transect, wave elevations were interpolated between transects. Various source data were used in the interpolation, including topographic maps (Reference 7) and engineering judgment. Controlling features affecting the elevations were identified and considered in relation to their positions at a particular transect and their variation between transects.

All elevations are referenced to NGVD. Elevation reference marks used in this study are shown on the map.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections and transects for the Gulf of Mexico and Wolf, Raysor, Beasley, and Ward Creeks, the boundaries were interpolated using topographic maps at a scale of 1:24000 with a contour intervals of 5 and 10 feet (Reference 7).

Between cross sections for the Aucilla River, the boundaries were interpolated using aerial compiled work maps at a scale of 1:4800 with a contour interval of 4 feet (Reference 31).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map. On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, AO, A99, V, and VE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year 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.

For the flooding sources studied by approximate methods, only the 100-year floodplain boundary was delineated using Flood Hazard Boundary Map for Jefferson County (Reference 2).

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 100-year 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 100-year 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 minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways for this study were computed on the basis of equal conveyance 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 5, Floodway Data. The computed floodways are shown on the Flood Insurance Rate Map. In cases where the floodway and the 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway for the Aucilla River lie outside the county boundary.

Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplain will not cause more than a 1.0-foot increase in the base flood elevations at any point within the community.

The area between the floodway and the 100-year 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 100-year 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 4.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
AUCILLA RIVER								
A	5.18	3513	24,114	0.8	11.0	9.4[3]	10.4	1.0
B	5.42	4752	26,960	0.7	11.0	9.6[3]	10.6	1.0
C	5.73	4954	26,411	0.7	11.0	9.9[3]	10.9	1.0
D	5.95	4119	21,768	0.9	11.0	10.1[3]	11.1	1.0
E	6.34	4632	23,812	0.2	11.0	10.2[3]	11.2	1.0
F	8.60	4500	7991	0.5	11.0	10.6[3]	11.5	0.9
G	12.63	974	4395	0.9	18.4	18.4	19.4	1.0
H	13.19	1999	2905	2.1	21.4	21.4	22.3	0.9
I	14.23	1863	8810	0.9	24.3	24.3	25.2	0.9
J	14.35	1436	8828	0.9	24.4	24.4	25.3	0.9
K	14.62	764	5746	1.5	24.8	24.8	25.7	0.9
L	15.03	2296	10,842	0.9	25.4	25.4	26.3	0.9
M	15.25	2106	11,072	0.9	25.7	25.7	26.6	0.9
N	15.52	2115	9719	1.1	26.1	26.1	27.0	0.9
O	16.43	2141	10,773	1.1	28.0	28.0	28.9	0.9
P	16.97	1960	11,164	1.2	29.2	29.2	30.2	1.0
Q	17.39	3318	15,799	0.9	30.1	30.1	31.1	1.0
R	17.95	4850	23,239	0.6	30.8	30.8	31.8	1.0
S	18.35	3721	15,095	1.0	31.6	31.6	32.6	1.0
T	18.74	2106	11,326	1.3	32.9	32.9	33.9	1.0
U	19.38	3037	16,587	0.9	34.3	34.3	35.3	1.0
V	19.77	3999	16,495	0.9	35.0	35.0	36.0	1.0
W	20.08	2740	13,514	1.1	35.6	35.6	36.6	1.0
X	20.32	2707	14,351	1.0	36.1	36.1	37.1	1.0
Y	20.59	2192	12,159	1.2	36.7	36.7	37.7	1.0
Z	21.88	3069	15,093	1.0	39.9	39.9	40.9	1.0

[1]MILES ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY
[3]ELEVATIONS WITHOUT CONSIDERING STORM SURGE EFFECT FROM GULF OF MEXICO

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

FLOODWAY DATA

AUCILLA RIVER

TABLE 5

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
AUCILLA RIVER								
CA	49.32	619[2]	4959	1.1	81.9	81.9	82.8	0.9
CB	49.53	1382[2]	8659	0.6	82.1	82.1	83.0	0.9
CC	49.63	1514[2]	11,647	0.5	82.1	82.1	83.0	0.9
CD	49.77	2540[2]	19,754	0.3	82.2	82.2	83.1	0.9
CE	50.05	1873[2]	14,645	0.4	82.3	82.3	82.2	0.9
CF	50.43	2581[2]	18,858	0.3	82.3	82.3	82.2	0.9
CG	50.78	2823[2]	19,341	0.3	82.4	82.4	83.3	0.9
CH	51.20	2715[2]	15,288	0.4	82.5	82.5	83.4	0.9
CI	51.56	1901[2]	12,403	0.4	82.6	82.6	83.5	0.9
CJ	51.88	1421	9774	0.6	82.7	82.7	83.6	0.9
CK	52.24	779	5622	1.0	83.1	83.1	84.0	0.9
CL	52.59	1182	8417	0.6	83.4	83.4	84.4	1.0
CM	53.29	1508	10,977	0.5	83.8	83.8	84.8	1.0
CN	53.75	2781	15,097	0.4	84.0	84.0	85.0	1.0
CO	54.07	2802	16,407	0.3	84.1	84.1	85.1	1.0
CP	54.45	1612	10,079	0.5	84.3	84.3	85.3	1.0
CQ	54.98	1920	9701	0.6	84.7	84.7	85.7	1.0
CR	55.49	2597	12,272	0.4	85.2	85.2	86.2	1.0
CS	55.88	2437	14,248	0.4	85.4	85.4	86.4	1.0
CT	56.07	2399	12,184	0.4	85.4	85.4	86.4	1.0
CU	56.29	2536	13,019	0.4	85.5	85.5	86.5	1.0
CV	56.90	2415	13,517	0.4	85.7	85.7	86.7	1.0

[1]MILES ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

FLOODWAY DATA

AUCILLA RIVER

TABLE 5

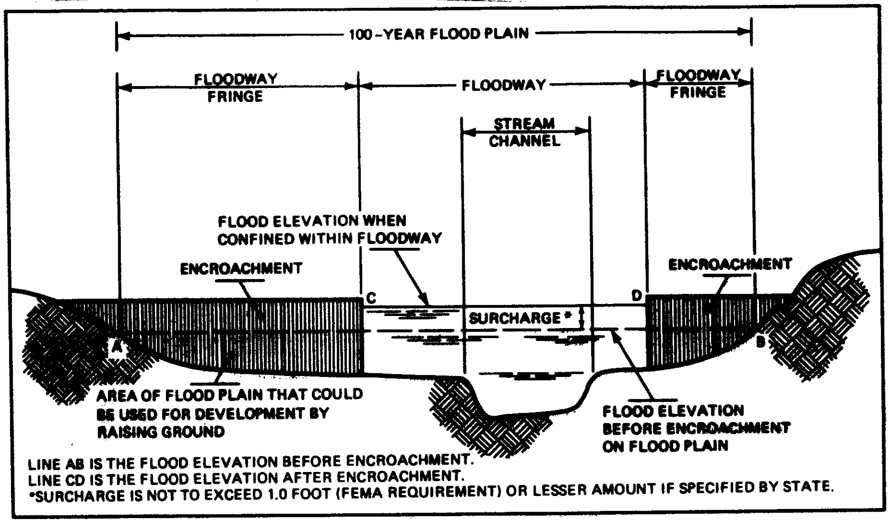


FIGURE 4 - Floodway Schematic

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 100-year floodplains that are determined in the Flood Insurance Study 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 Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals 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.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
AUCILLA RIVER								
AA	22.46	3715	14,319	1.0	41.1	41.1	42.1	1.0
AB	23.23	4076	23,880	0.6	42.0	42.0	43.0	1.0
AC	25.20	2610	20,436	0.7	45.4	45.4	46.3	0.9
AD	25.81	2117	14,651	1.0	46.1	46.1	47.0	0.9
AE	26.80	2006	12,333	1.2	48.1	48.1	49.1	1.0
AF	27.47	1755	13,359	1.1	49.8	49.8	50.8	1.0
AG	28.11	3800	23,711	0.6	50.4	50.4	51.4	1.0
AH	28.48	3305	19,630	0.8	50.6	50.6	51.6	1.0
AI	29.36	2773	17,020	0.9	51.1	51.1	52.1	1.0
AJ	29.95	1517	11,135	1.3	52.0	52.0	53.0	1.0
AK	30.48	829	7075	2.1	53.5	53.5	54.5	1.0
AL	30.75	1767	14,857	1.0	54.3	54.3	55.3	1.0
AM	31.42	1644	13,292	1.1	55.5	55.5	56.5	1.0
AN	31.70	767	6810	2.2	56.5	56.5	57.5	1.0
AO	32.34	1177	11,883	1.3	58.7	58.7	59.7	1.0
AP	32.57	751	8245	1.8	59.2	59.2	60.2	1.0
AQ	32.81	1108	12,898	1.2	59.7	59.7	60.7	1.0
AR	33.33	1362	14,022	1.1	60.2	60.2	61.2	1.0
AS	33.61	1948	20,240	0.7	60.5	60.5	61.5	1.0
AT	33.97	2028	18,179	0.8	61.9	61.9	62.9	1.0
AU	34.81	1955	19,530	0.8	62.7	62.7	63.7	1.0
AV	36.18	1504	13,292	1.1	64.0	64.0	65.0	1.0
AW	37.21	1098	10,218	1.5	65.7	65.7	66.7	1.0
AX	37.73	960	10,405	1.4	67.2	67.2	68.2	1.0
AY	38.53	3726	31,686	0.5	67.6	67.6	68.6	1.0
AZ	39.15	2905	27,146	0.6	67.8	67.8	68.8	1.0

[1]MILES ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

FLOODWAY DATA

AUCILLA RIVER

TABLE 5

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
AUCILLA RIVER								
BA	39.50	4434	29,047	0.5	67.9	67.9	68.9	1.0
BB	40.27	1027	8548	1.8	68.7	68.7	69.7	1.0
BC	40.51	2179	16,096	0.9	69.4	69.4	70.4	1.0
BD	40.98	1531	11,102	1.1	70.1	70.1	71.1	1.0
BE	41.24	1623	12,071	1.0	70.8	70.8	71.8	1.0
BF	41.54	2223	17,488	0.7	71.2	71.2	72.2	1.0
BG	41.99	2165	15,936	0.8	71.8	71.8	72.8	1.0
BH	42.45	1599	12,035	1.0	72.7	72.7	73.7	1.0
BI	42.88	1640	13,638	0.9	73.3	73.3	74.3	1.0
BJ	43.19	1453	12,706	1.0	73.8	73.8	74.8	1.0
BK	43.67	1141	9424	1.1	74.5	74.5	75.5	1.0
BL	44.43	2162	16,140	0.6	75.4	75.4	76.4	1.0
BM	44.76	1510	11,639	0.9	75.8	75.8	76.8	1.0
BN	45.35	1213	9490	1.1	76.7	76.7	77.6	0.9
BO	45.71	1067	8525	1.2	77.4	77.4	78.4	1.0
BP	45.89	1219	9067	1.1	77.7	77.7	78.7	1.0
BQ	46.25	1018	8419	1.2	78.5	78.5	79.5	1.0
BR	46.58	1252	11,451	0.9	78.9	78.9	79.9	1.0
BS	46.84	1495	12,458	0.8	79.1	79.1	80.1	1.0
BT	47.13	1368	11,926	0.9	79.4	79.4	80.4	1.0
BU	47.44	1174	10,295	1.0	79.8	79.8	80.8	1.0
BV	47.77	1135	10,936	0.9	80.1	80.1	81.1	1.0
BW	47.87	1552	13,529	0.8	80.3	80.3	81.3	1.0
BX	48.03	950	8875	1.1	80.5	80.5	81.5	1.0
BY	48.47	1602	11,408	0.5	80.9	80.9	81.9	1.0
BZ	48.86	896	7444	0.7	81.1	81.1	82.1	1.0

[1]MILES ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

FLOODWAY DATA

AUCILLA RIVER

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain, 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.

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 100-year 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 100- and 500-year floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

7.0 OTHER STUDIES

The Flood Insurance Studies published for Wakulla, Taylor, Madison, and Leon Counties, Florida, and Brooks and Thomas Counties, Georgia (References 32-37), agree with this study.

The Flood Insurance Rate Map printed for the City of Monticello, Florida (Reference 38), agrees with this study.

This Flood Insurance Study supersedes the previously printed Flood Hazard Boundary Map for Jefferson County, Florida (Reference 2).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 1371 Peachtree Street, NE., Suite 736, Atlanta, Georgia 30309.

Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To ensure that any user is aware of all revisions, it is advisable to contact the map repository of flood hazard data located in the community.

9.0 REFERENCES AND BIBLIOGRAPHY

1. Suwanee River Water Management District, Flood Insurance Study, Aucilla River, Jefferson, Madison and Taylor Counties, Florida, prepared by Woolpert Consultants, Dayton, Ohio, December 1984.

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

3. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Florida, Washington, D.C., February 1982.

4. U.S. Department of Agriculture, Soil Conservation Service, Aucilla River Watershed Pre-authorization Report (Revised), Jefferson County, Florida, Brooks and Thomas Counties, Georgia.

5. University of Florida, Bureau of Economic and Business Research, Florida Statistical Abstract, 1986.

6. U.S. Geological Survey, Water Resources Investigation Report 82-4012, Techniques for Estimating Magnitude and Frequency of Floods on Natural-Flow Streams in Florida, Wayne C. Bridges, 1982.

7. ----------, 7.5 Minute Series Topographic Maps, Scale 1:24000, contour intervals of 5 and 10 feet: Ashville, Florida, 1962; Grooverville, Georgia-Florida, 1956; Baden, Georgia-Florida, 1956, photorevised 1974; Hamburg, Florida, 1962; Monticello NE, Georgia-Florida, 1956; Metcalf, Georgia-Florida, 1956; Waukeenan Florida, 1955; Lake Miccosukee, Florida, 1963; Miccosukee NE, Florida-Georgia, 1982; Lloyd, Florida, 1982; Cody, Florida, 1981; Wacissa, Florida, 1955; Monticello, Florida, 1963; Lamont, Florida, 1955; Greenville, Florida, 1954; Lamont SE, Florida, 1955; St. Marks NE, Florida, 1954; Nutall Rise, Florida, 1955; Cobb Rocks, Florida, 1954; Snipe Island, Florida, 1955.

8. 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.

9. Suwannee River Water Management District, "Interviews with Residents and Department of Transportation Officials," Terry Burnson, 1981.

10. U.S. Department of Commerce, Environmental Science Services Administration, Technical Memorandum WBTM Hydro II, Joint Probability Method of Tide Frequency Analysis Applied to Atlantic City and Long Beach Island, New Jersey, Vance A. Meyers, April 1970.

11. ----------, National Oceanic and Atmospheric Administration, Tropical Cyclone Data Deck; Volume 1, Volume 11, Data Processing Division, USAFETAC Card Deck Reference Manual, Revised May 1973.

12. ----------, National Oceanic and Atmospheric Administration, Tropical Cyclones of the North Atlantic, 1871 to 1977, June 1978.

13. ----------, National Oceanic and Atmospheric Administration, Technical Report NWS 15, Some Climatological Characteristics of Hurricanes and Tropical Storms, Gulf and East Coasts of the United States, France P. Ho, Richard W. Schwerdt, and Hugo V. Goodyear, May 1975.

14. ----------, National Oceanic and Atmospheric Administration, Technical Report NWS23, Meteorological Criteria for Standard Project Hurricane and Probable Maximum Hurricane Windfields, Gulf and East Coasts of the United States, September 1979.

15. ----------, U.S. Weather Bureau, National Hurricane Research Project No. 5, Survey of Meteorological Factors Pertinent to Reduction of Loss of Life and Property in Hurricane Situations, Washington, D.C., March 1957.

16. ----------, U.S. Weather Bureau, National Research Project Report No. 33, Meteorological Considerations Pertinent to Standard Project Hurricane, Atlantic and Gulf Coast of the United States, Howard E. Graham and Dwight E. Nunn, November 1959.

17. Federal Emergency Management Agency, Coastal Flooding Hurricane Storm Surge Model, Methodology Volume 1, August 1988, User's Manual, Volume 2, August 1988.

18. Baskerville-Donovan Engineers, Inc., Ground Surveys, Panama City, Florida, 1986.

19. Woolpert Consultants, Aerial Photographs, Scale 1:9600, February 1984.

20. Chow, Ven Te, Open Channel Hydraulics, New York: McGraw-Hill Book Company, Inc., 1959.

21. U.S. Department of Transportation, Federal Highway Administration, Guide for Selecting Manning's Roughness Coefficients for Nature Channels and Flood Plains, April 1984.

22. U.S. Geological Survey, Water Supply Paper 1849, Roughness Characteristics of Natural Channels, 1967.

23. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Computer Program 723-X6-L202A, Davis, California, April 1984.

24. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Survey Bathymetric Maps, Scale 1:250000, Contour Interval 10 meters.

25. ----------, National Oceanic and Atmospheric Administration, National Ocean Survey, Selected NOS Hydrographic Surveys, various dates and scales.

26. U.S. Geological Survey, 2 degree series topographic quadrangles, scale 1:250000, contour interval 50 feet with supplementary contours at five-foot intervals.

27. National Academy of Science, Methodology for Calculating Wave Action Effects Associated with Storm Surges, 1977.

28. Federal Emergency Management Agency, Federal Insurance Administration, Wave Height Analysis for Flood Insurance Studies, September 1988.

29. ----------, Federal Insurance Administration, Guidelines and Specifications for Wave Elevation Determination and V Zone Mapping, October 1987.

30. ----------, Federal Insurance Administration, Users Manual for Wave Runup Analysis, Coastal Flood Insurance Studies, November 1981.

31. Woolpert Consultants, Work Maps, Scale 1:4800, Contour Interval 4 feet: December 1984.

32. Federal Emergency Management Agency, Flood Insurance Study, Wakulla County, Unincorporated Areas, Florida, June 1986.

33. ----------, Flood Insurance Study, Taylor County, Unincorporated Areas, Florida, November 1983.

34. ----------, Flood Insurance Study, Madison County, Unincorporated Areas, Florida, June 1987.

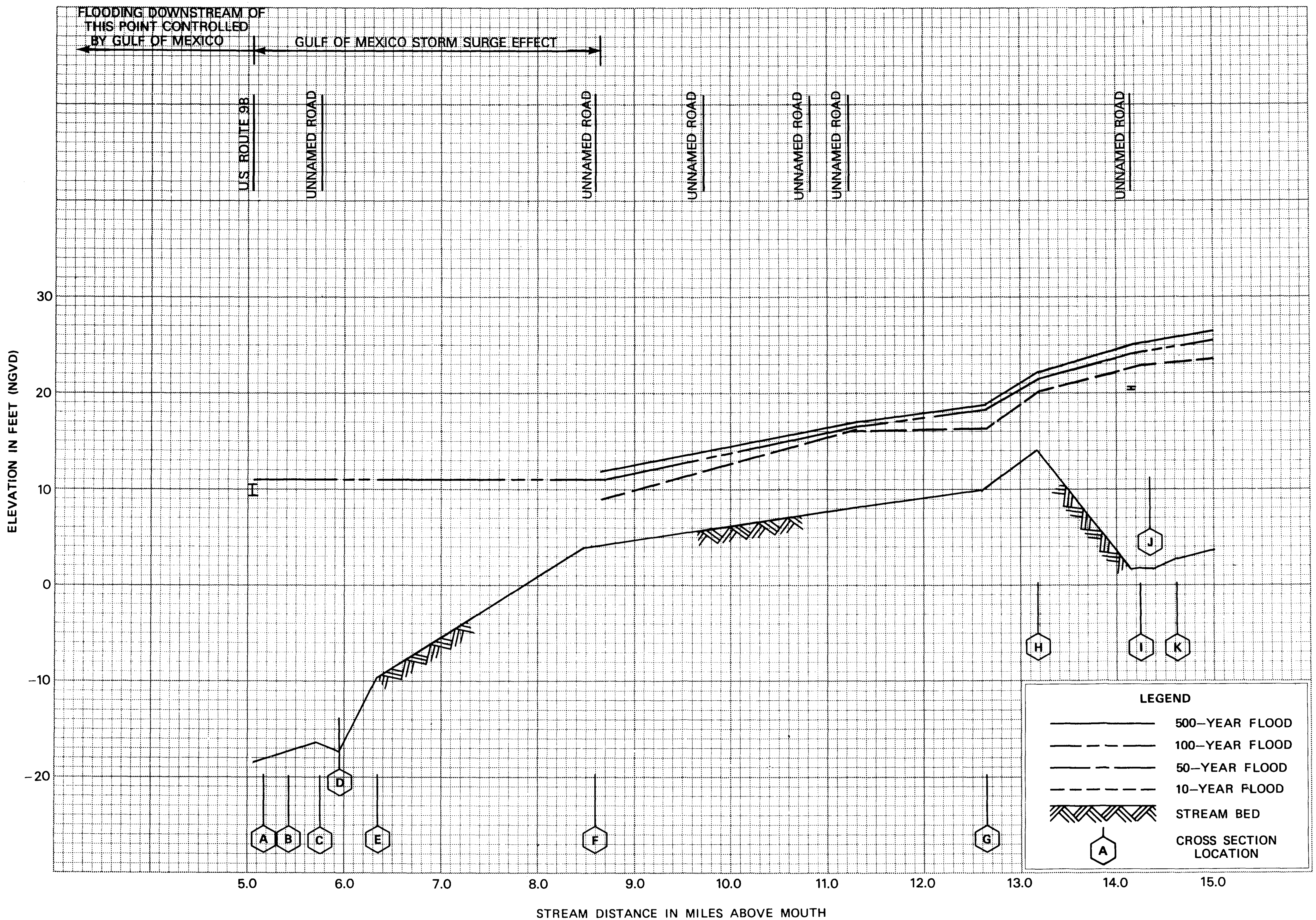
35. ----------, Flood Insurance Study, Leon County, Unincorporated Areas, Florida, December 1982.

36. ----------, Flood Insurance Study, Brooks County, Unincorporated Areas, Georgia, March 1982.

37. ----------, Flood Insurance Study, Thomas County, Unincorporated Areas, Georgia, March 1990.

38. ----------, Flood Insurance Rate Map, City of Monticello, Jefferson County, Florida, June 1986.

Northwest Florida Water Management District, Water Resources Report 84-4, Statistical Summary and Inventory of Streams and Lakes in Northwest Florida, July 1984.



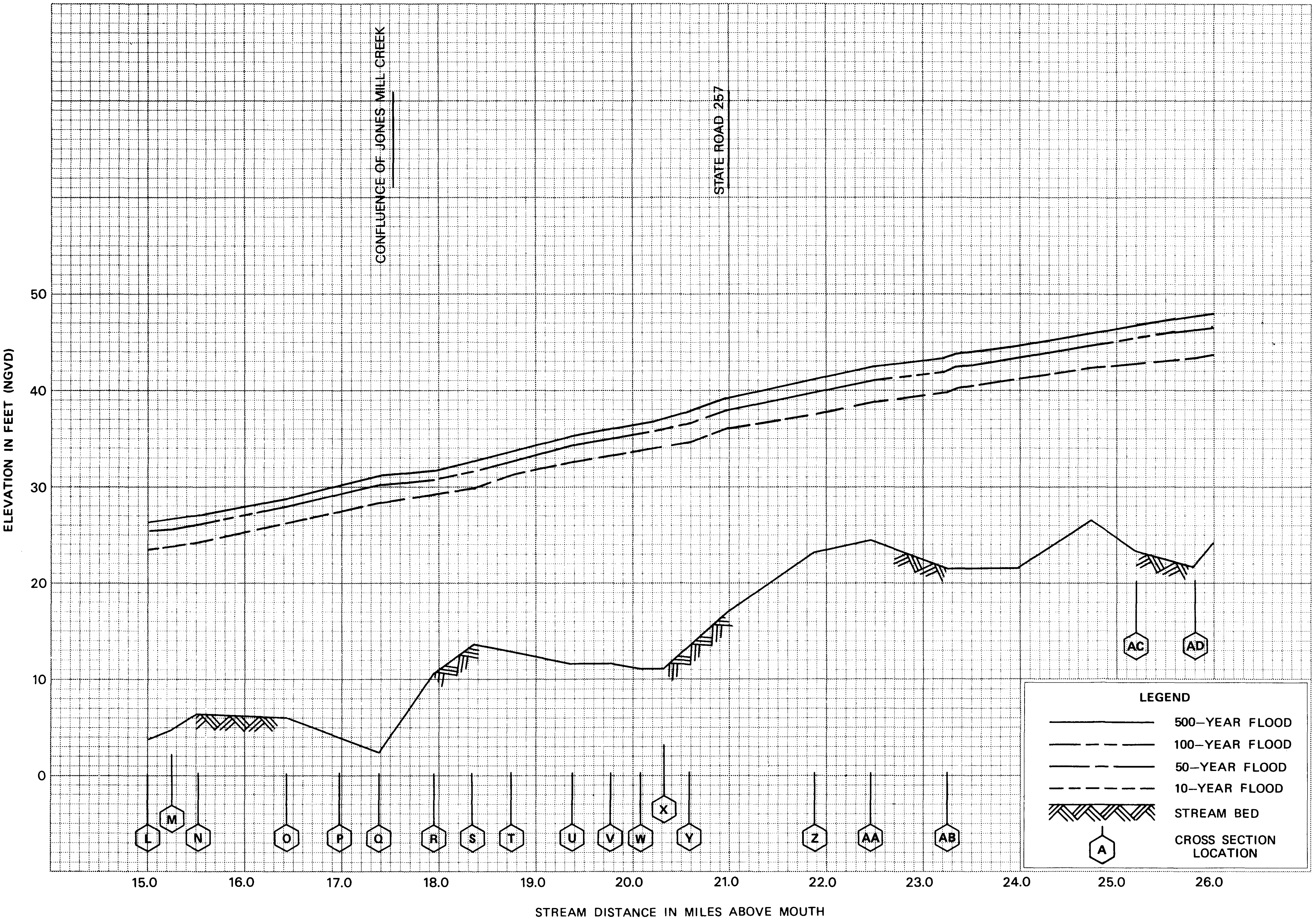
FLOOD PROFILES

AUCILLA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

01P



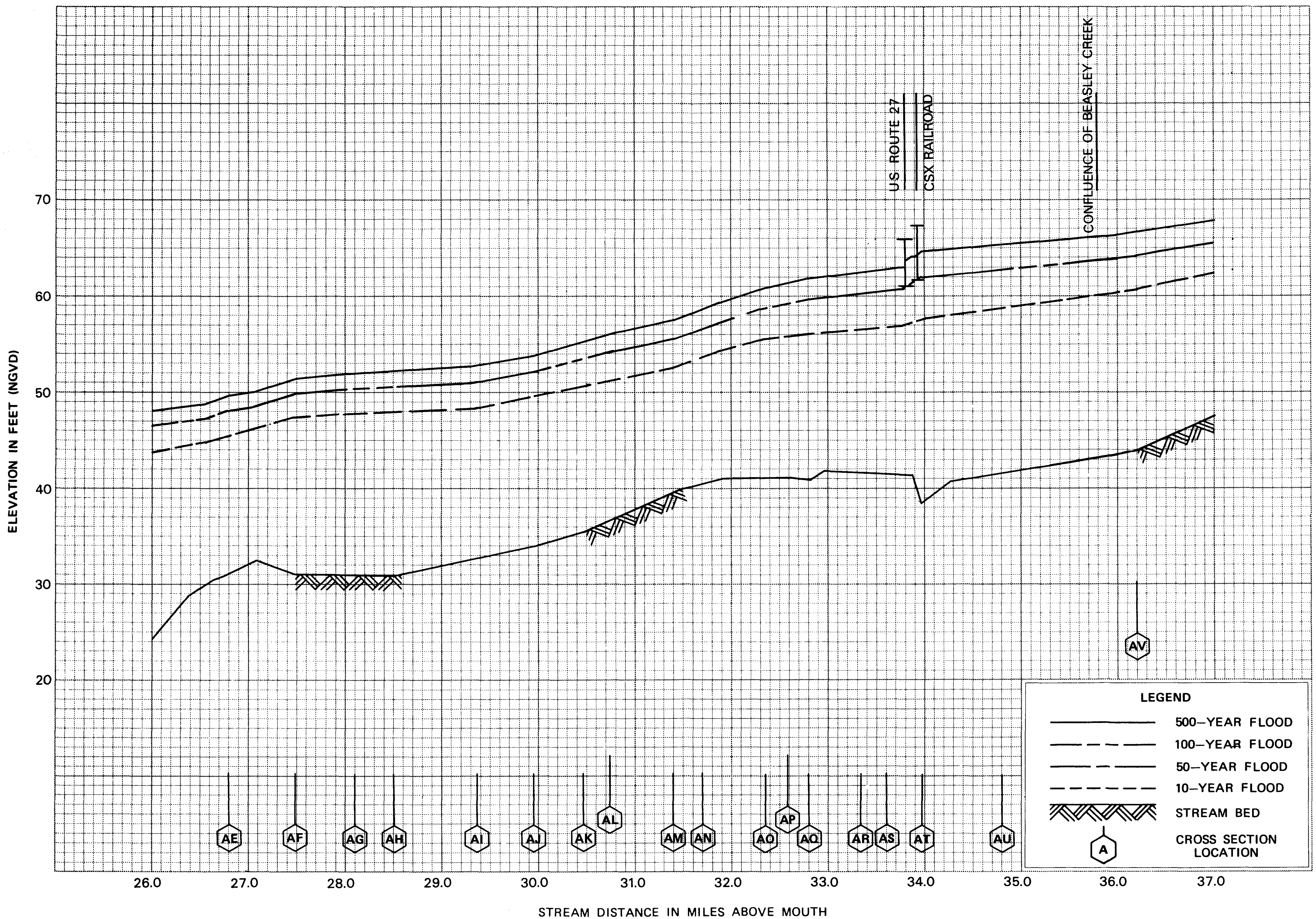
FLOOD PROFILES

AUCILLA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

02P

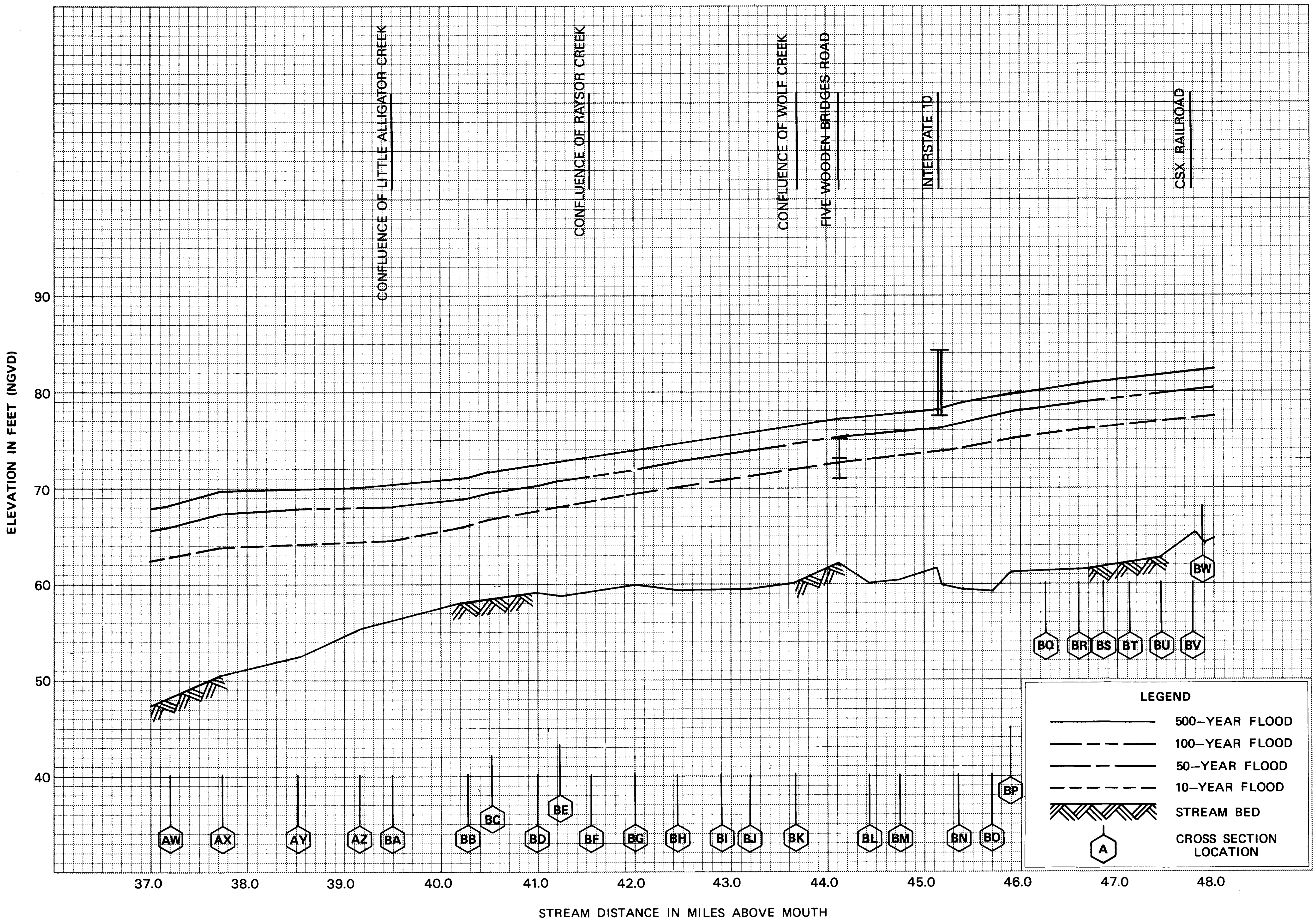


FLOOD PROFILES

AUCILLA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)



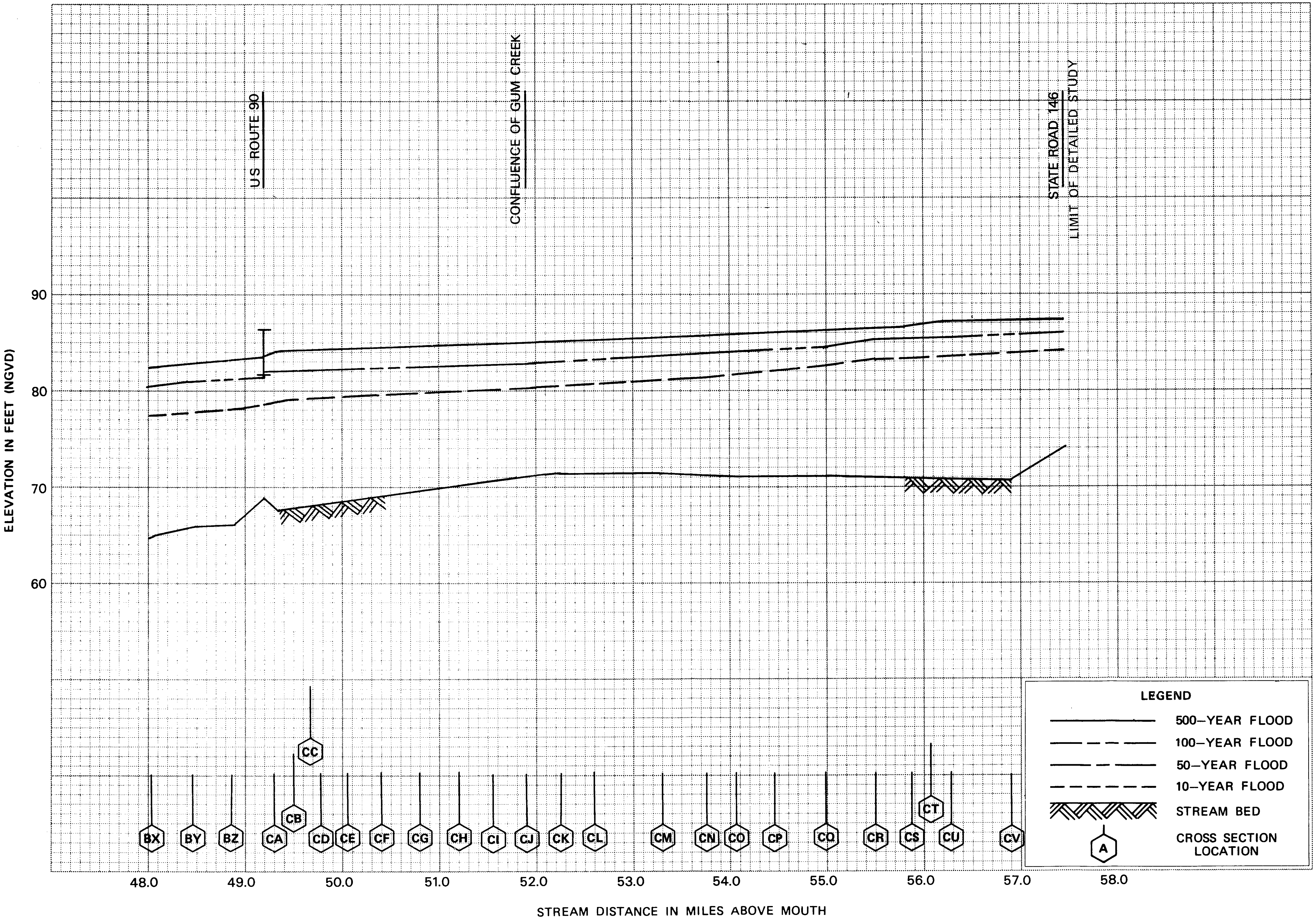
FLOOD PROFILES

AUCILLA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

04P



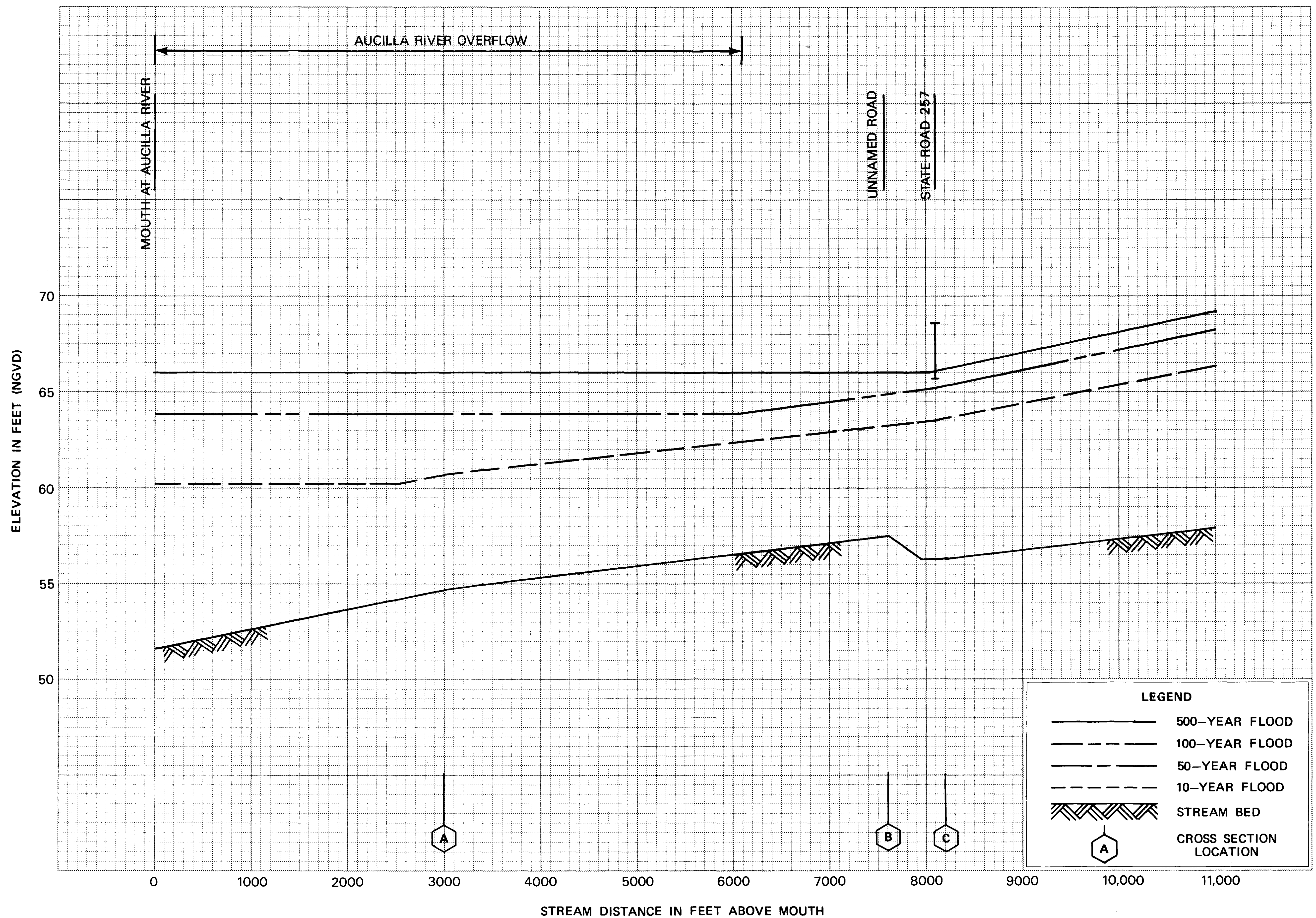
FLOOD PROFILES

AUCILLA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

05P



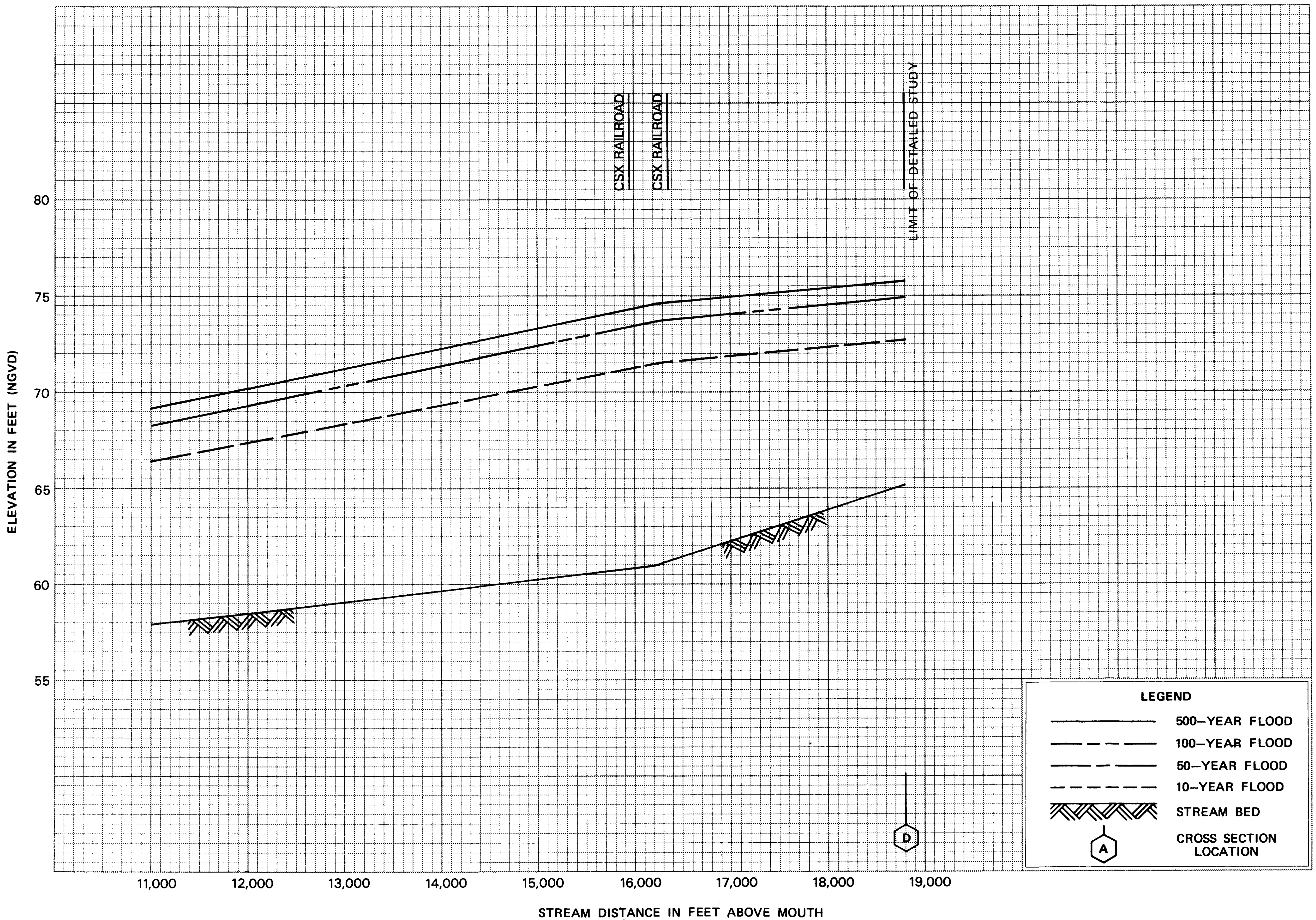
FLOOD PROFILES

BEASLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

06P



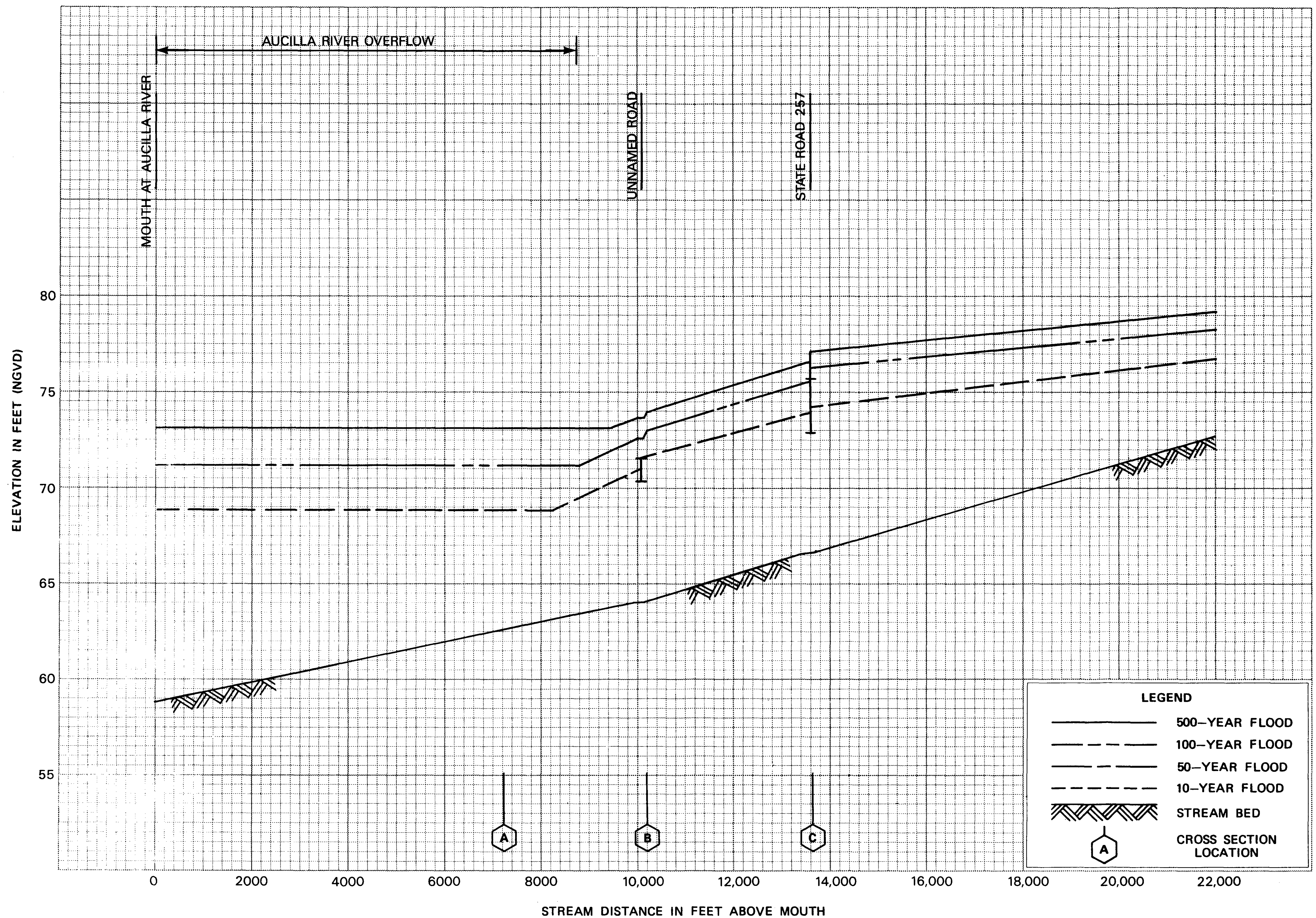
FLOOD PROFILES

BEASLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

07P

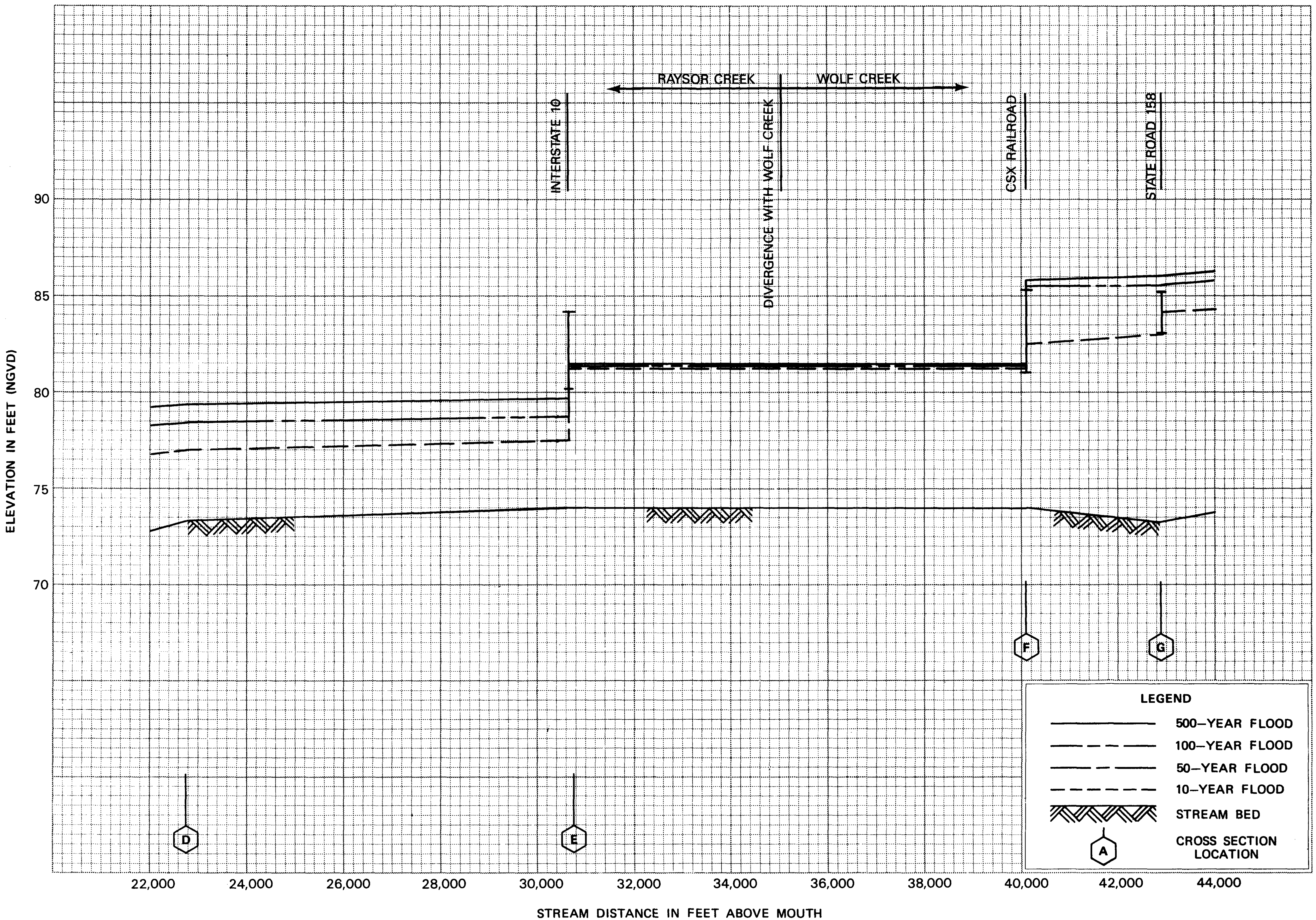


FLOOD PROFILES

RAYSOR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)



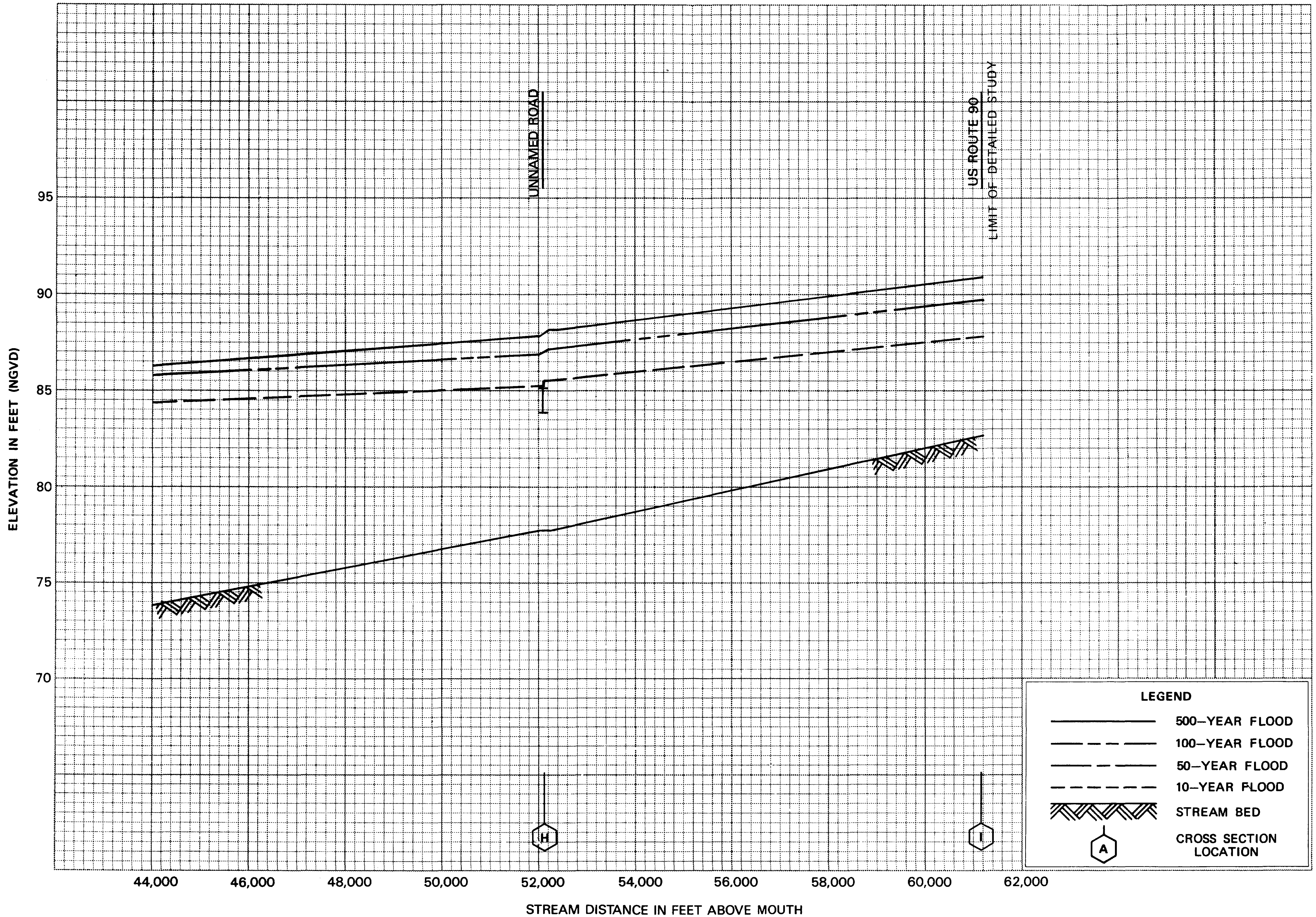
FLOOD PROFILES

RAYSOR CREEK/WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)

09P



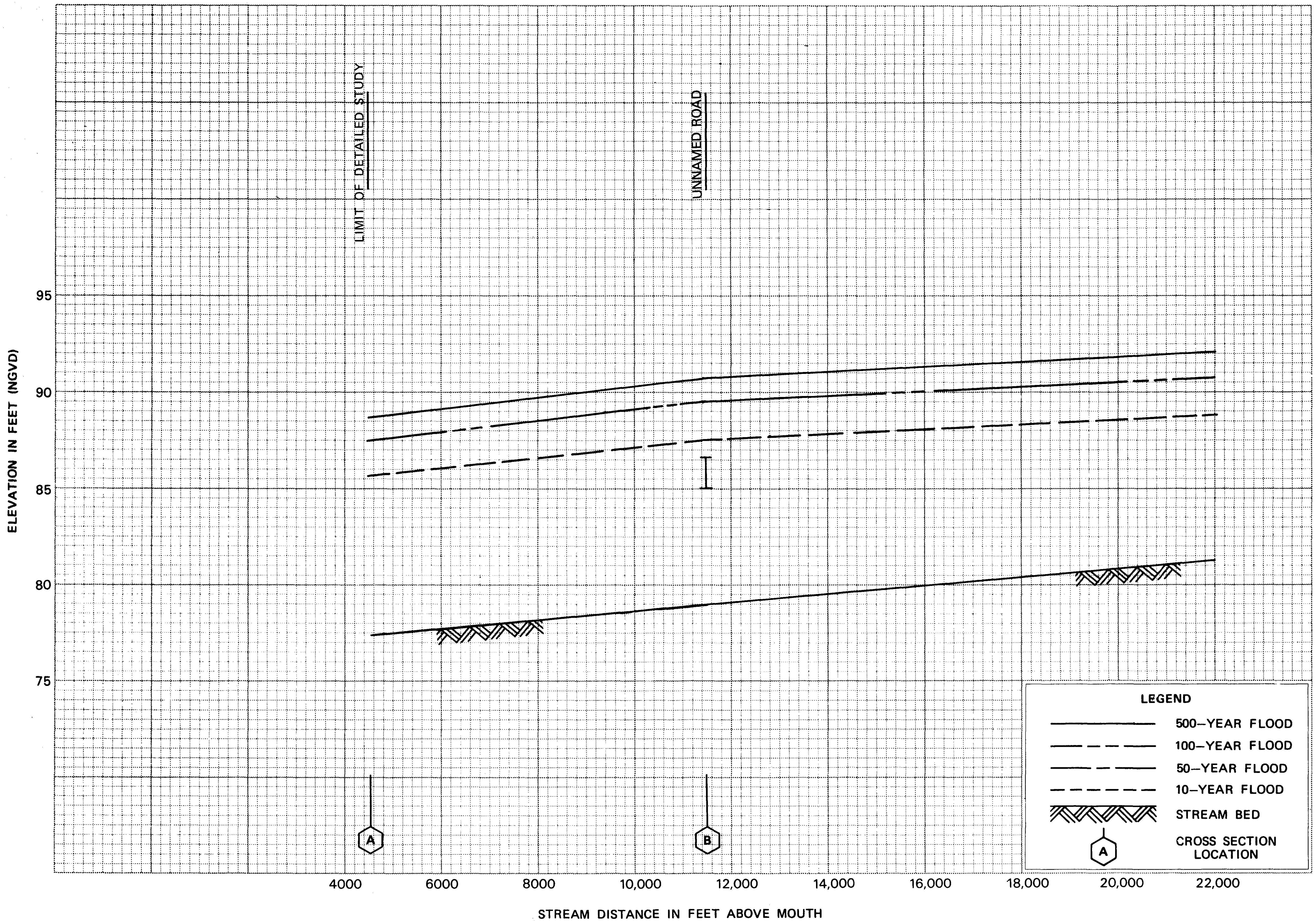
FLOOD PROFILES

WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL

(UNINCORPORATED AREAS)

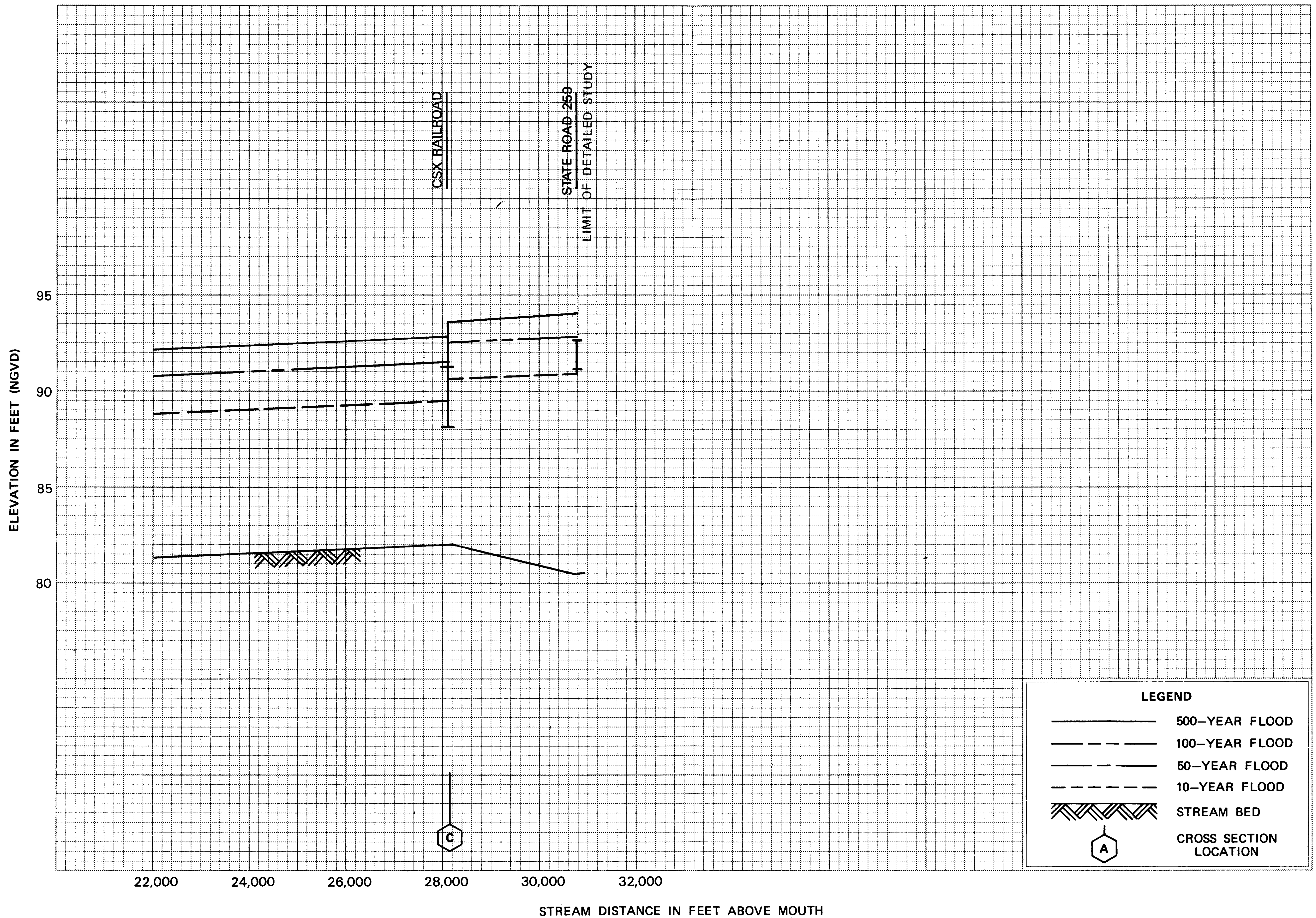


FLOOD PROFILES

WARD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)



FLOOD PROFILES

WARD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JEFFERSON COUNTY, FL
(UNINCORPORATED AREAS)