

# TAYLOR COUNTY, FLORIDA AND INCORPORATED AREAS



COMMUNITY NAME PERRY, CITY OF TAYLOR COUNTY (UNINCORPORATED AREAS) COMMUNITY NUMBER 120303 120302

MAY 4, 2009



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER 12123CV000A

#### NOTICE TO FLOOD INSURANCE STUDY USERS

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

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

Initial Countywide FIS Effective Date: May 4, 2009

Revised Countywide FIS Date:

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#### FLOOD INSURANCE STUDY TAYLOR COUNTY, FLORIDA AND INCORPORATED AREAS

#### 1.0 <u>INTRODUCTION</u>

#### 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 Taylor County, Florida, including: the City of Perry and the unincorporated areas of Taylor County (hereinafter referred to collectively as Taylor 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 Taylor 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, and incorporated communities within, Taylor County in a countywide format. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

Perry, City of:

The hydrologic and hydraulic analyses from the FIS report dated November 17, 1981, were performed by Gee & Jenson Engineers-Architects-Planners, Inc., for the Federal Emergency Management Agency (FEMA), under Contract No. H-4779. That study was completed in August 1980.

Taylor County (Unincorporated Areas): The hydrologic and hydraulic analyses for the entire shoreline of Taylor County, the Fenholloway River, the Steinhatchee River, and Spring Creek from the original FIS report were prepared by Gee & Jenson Engineers-Architects-Planners, Inc., for FEMA, under Contract No. H-4779. That work was completed in February 1981.

The hydrologic and hydraulic analyses for Woods Creek, from the FIS report dated August 16, 1995, were prepared by Neel-Schaffer, Inc., for FEMA, under Contract No. EMW-90-C-3129.

On selected FIRM panels, planimetric base map information was provided in digital format. Files included the 2004 U.S. Geological Survey (USGS) DOQQs in MrSID format at 1-meter resolution. Additional information was derived from USGS Digital Line Graphs, and USGS 5-foot contours. Additional information was also obtained from other sources, such as photogrammetry-derived data. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features.

The coordinate system used for the production of this FIRM is Florida State Plane North, North American Datum of 1983 (NAD 83), in units of feet. The State Plane tics were shown on the FIRM panels. Corner coordinates shown on the FIRM are in latitude and longitude. Differences in the datum and spheroid used in the production of FIRMs for adjacent counties may result in slight positional differences in map features at the county boundaries. These differences do not affect the accuracy of information shown on the FIRM.

1.3 Coordination

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

For the Taylor County original study, an initial CCO meeting was held on May 5, 1978, and a final CCO meeting was held on December 8, 1982. Both of these meetings were attended by representatives of the county, the study contractor, and FEMA.

The following organizations were also contacted in an attempt to explore all possible sources of data: Buckeye Cellulose Corporation; U.S. Army Corps of Engineers (USACE), Jacksonville District; USGS; Suwannee River Water Management District; National Oceanic and Atmospheric Administration (NOAA); Florida Department of Transportation; Florida Department of Environmental

Regulation; Florida Department of Natural Resources; and the Bureau of Beaches and Shores.

For the study dated August 16, 1995, FEMA sent a letter to the community informing them of the revision on April 4, 1992. A final CCO meeting was held on May 27, 1993, and was attended by representatives of the county and FEMA.

In the City of Perry, streams requiring detailed study were identified at a meeting attended by representatives of the City of Perry, FEMA, and the study contractor on May 5, 1978. A legal notice announcing the beginning of the study and stating objectives was placed in the <u>Perry News-Herald</u>, the local newspaper, on January 4, 1979.

During the course of the study, contacts were maintained with the City of Perry for general community information and for historical flood data. Contacts were also made with the following agencies in an attempt to explore all possible sources of data: The Suwannee River Water Management District; Florida Geological Survey; USGS; Florida Department of Transportation; Florida Department of Natural Resources; Southern Railway System; Seaboard Coastline Railroad; U.S. Department of Agriculture, and the Soil Conservation Service; Buckeye Cellulose Corporation.

On May 13, 1981, the results of the study were reviewed at the final meeting attended by community officials, representatives of FEMA and the study contractor. The study was acceptable to the community.

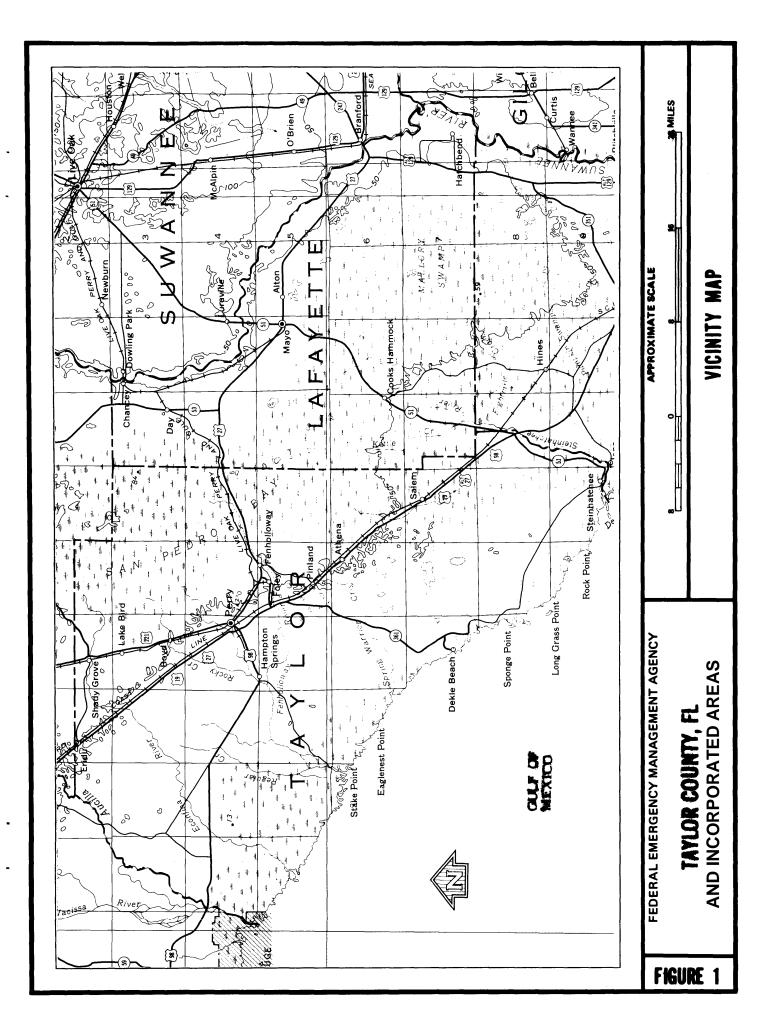
For this revision, an initial CCO meeting was held on November 30, 2006, and attended by representatives from the county and the City of Perry, officials from the Suwannee River Water Management District (SRWMD) and the SRWMD's engineering contractor, as well as FEMA. The meeting highlighted areas that needed to be studied or updated, and the availability of data. A final CCO meeting was held on November 8, 2007, and was attended by representatives from the county, the City of Perry, the SRWMD, the SRWMD's engineering contractor, and FEMA.

#### 2.0 <u>AREA STUDIED</u>

#### 2.1 Scope of Study

This FIS covers the geographic area of Taylor County, Florida (Figure 1).

The original study included a detailed storm surge and wave height analysis of the entire shoreline of Taylor County. Both the open coast surge and its inland propagation were studied. In addition, the added effects of wave heights were also considered.



All or portions of the flooding sources listed in the following tabulation were studied by detailed methods. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

Aucilla River	Rocky Creek
Fenholloway River	Spring Creek
Pimple Creek	Steinhatchee River
Pimple Creek East Branch	Woods Creek

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.

All or portions of numerous flooding sources in the county were studied by approximate methods. 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 Taylor County.

The effective information found on the previous FIRMs was generated based on the National Geodetic Vertical Datum of 1929 (NGVD29). For this revision, the effective zones were updated to the North American Vertical Datum of 1988 (NAVD88). The change in vertical datum required that the coastal gutter line locations be re-delineated. In addition, Rocky Creek was studied in detail using updated photogrammetry and ground survey data. Pimple Creek was also restudied utilizing updated photogrammetry and ground survey data. Special Flood Hazard Areas (SFHAs) and floodways were delineated for both studies. SFHAs were added for the Aucilla River based on the detailed study performed for the adjacent Jefferson County. In addition, floodways were added for the Aucilla River, Spring Creek, and Steinhatchee River. Profiles and floodway data tables were updated for all the studied reaches within Taylor County.

#### 2.2 Community Description

Taylor County is located on the Gulf Coast of north Florida and lies 40 miles southeast of Tallahassee and 60 miles west of Lake City, Florida. It is bounded on the southeast by Dixie County, on the east by Lafayette County, on the northwest by Jefferson County, on the north by Madison County and on the southwest by the Gulf of Mexico. The county had a 2006 population estimate of 19,842 (U.S. Census Bureau, http://www.census.gov, 2007).

The climate in Taylor County is relatively mild with mean annual temperatures in the upper 60s and an average winter temperature range from about 51 to 63 degrees Fahrenheit (°F). Temperatures in the summer months average in the low 80s, being moderated by sea breezes and frequent thunderstorms. Rainfall averages about 61 inches annually with the majority of accumulation in July through September. Winds are generally southerly in the summer months and northerly in the winter months (Reference 1).

Coastal areas are subject to flooding and wave action resulting from hurricanes and tropical storms. Other low-lying areas in the county are subject to rainfall ponding. The City of Perry is located in the center of Taylor County in the Big Bend area of the state in the coastal lowlands. It is situated about 50 miles southeast of Tallahassee and 70 miles west of Lake City. The incorporated area of the city encompasses nine and one-quarter square miles.

Major arteries serving the city are U.S. Highways 19, 98, and 27. Railway, motor freight and inter-continental bus transportation also serve the city. The Perry-Foley Airport is located just south of the city.

The majority of the work force within the Perry area is primarily employed in forest product industries. The Buckeye Cellulose Corporation, Division of Proctor and Gamble, is the major employer. Industrial development in the area is encouraged by the county and future economic development will probably center around manufacturing industries. Present development is concentrated in the north-central portion of the city.

The major flooding sources within the city are Spring and Pimple Creeks and the East Branch. These streams have their headwaters in San Pedro Bay which is a heavily wooded flat basin northeast of Perry. The streams flow through the northern part of the city, joining near the western boundary.

The topography of the city is undulating and elevations range from approximately 30 feet NGVD in the lower reaches of the streams to approximately 50 feet NGVD at the highest points. The area is also characterized by the existence of many basin shaped depressions. The majority of these are undrained and are subject to rainfall ponding.

#### 2.3 Principal Flood Problems

Flooding in the county primarily results from periods of high rainfall or from coastal storm surges associated with hurricanes and tropical storms.

Runoff from the San Pedro Bay area in the northeast portion of the county generally flows in a southwesterly direction by way of Spring and Pimple Creeks. Both of these creeks have flooded portions of the City of Perry in the past. Significant flood stages on the Fenholloway River have not been recorded.

After Hurricane Dora passed to the north of Taylor County in 1964, significant riverine flooding occurred on the floodplains of the Steinhatchee River. Records taken from the USGS gage at the Town of Steinhatchee on the coast indicate this flood event had a magnitude greater than that which would occur once, on the average, every 200 years.

Because of undeveloped shoreline areas and a sparse coastal population, high water marks and tide gage data for storm surge flooding are limited. Historical hurricane tracks do show that the county has experienced a number of hurricanes and tropical storms. These and other storms, which have affected Florida since

1852 are shown in Figure 2. Recent hurricanes that did not have direct paths through Taylor County, but have affected the County nevertheless include Hurricanes Frances (2004), Ivan (2004), Jeanne (2004), and Dennis (2005).

In the City of Perry, according to local residents, notable flooding occurred in 1934 and 1948, although no records of these floods are available. Extensive flooding occurred on June 9, 1957, when Spring and Pimple Creeks overflowed their banks causing several million dollars in damages. According to the report on this flood prepared by the USGS (Reference 2), 11.7 inches of rainfall was recorded in Perry for a two-day period, which is estimated to be about a 50-year (2-percent annual chance) storm (one that would occur on the average once every 50 years). The rainfall in the headwaters of Spring Creek, Pimple Creek, and East Branch averaged about 14 inches for this same period which is estimated to be in excess of a 100-year (1-percent annual chance) rainfall event. Flooding occurred along the full length of Spring and Pimple Creeks and East Branch inundating several streets and causing damage to many homes and commercial establishments. According to the above report, flooding was aggravated by the heavy growth of vegetation which occurred in sections of the streams. In addition, there are over 30 crossings of the streams which restrict the flow.

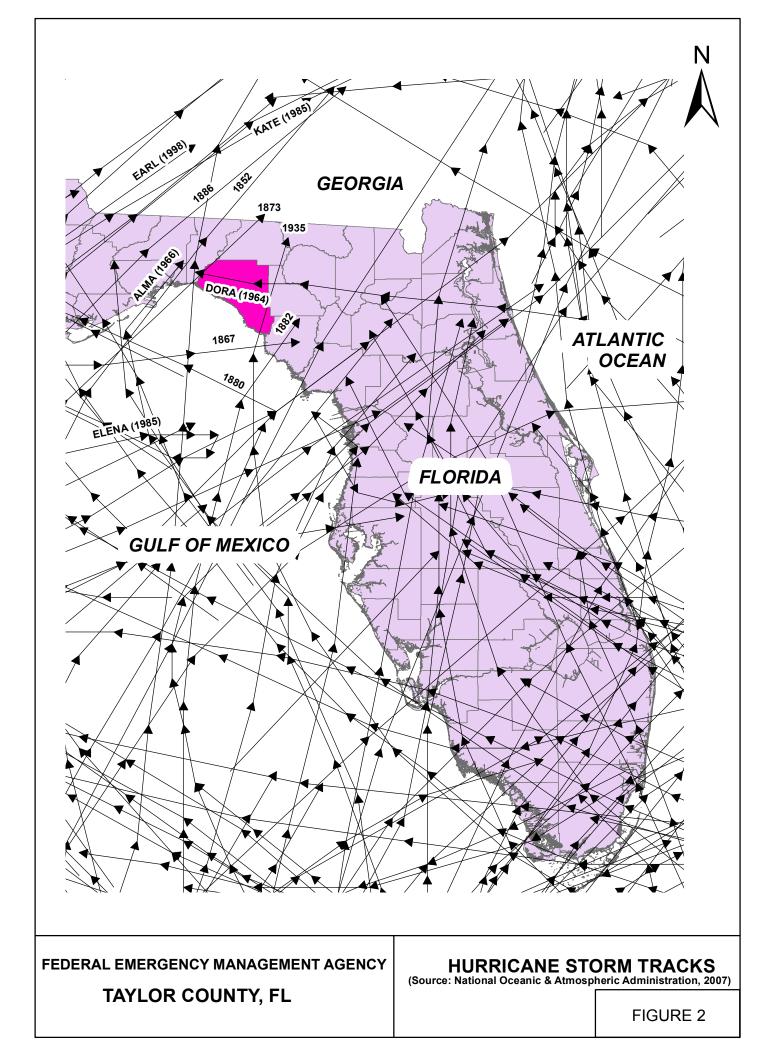
On September 11 and 12, 1964, Hurricane Dora dropped 11.37 inches of rain in Perry, and from August 8 through 14, 1970, 13.59 inches of rain was recorded (Reference 3).

Local newspaper reports of the above storms also indicated that severe flooding occurred in the many undrained depressions in the city.

#### 2.4 Flood Protection Measures

The county does not have any flood protection works designed and constructed specifically for that purpose. State Highway 361 and some of the more substantial logging trails do offer some resistance to storm surge flooding and wave action.

In the City of Perry, flooding conditions along Spring and Pimple Creeks have been alleviated somewhat by the construction of a north-south diversion canal by Buckeye Cellulose Corporation in San Pedro Bay. The canal directs runoff to the Fenholloway River, bypassing Spring and Pimple Creeks and the East Branch.



#### 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**

Each incorporated community within, and the unincorporated areas of, Taylor County has a previously printed FIS report. The unincorporated areas of Jefferson County also has a printed FIS report from which data for the Aucilla River has been derived. The hydrologic analyses described in those reports have been compiled and are summarized below.

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. The frequency rating curve was developed following the standard log-Pearson Type III distribution function.

Along the Aucilla River, between U.S. Route 98 and the confluence of Jones Mill Creek, is a series of sinks. 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 determine surface discharge rates. Because of the sinks throughout the region, the underground discharges were subtracted to determine the surface discharges.

The discharge-frequency relationships for the Fenholloway and Steinhatchee Rivers were developed from log-Pearson Type II analyses (Reference 4) of 32 years of record (1947-1978) from USGS gage near Foley, Florida, were also used for the Fenholloway River, and 27 years of record (1951-1977) from the USGS gage near Cross City, Florida, were used for the Steinhatchee River. The results from these gage stations were further used in establishing the discharge-frequency relationships as a function of drainage area along the Fenholloway and Steinhatchee Rivers using techniques presented in an unpublished USACE regional frequency analysis.

Spring Creek is a smaller stream located within the Fenholloway River Watershed. Spring Creek and the Fenholloway River share a common headwater in San Pedro Bay, with similar basin characteristics such as stream slope, soil cover, vegetation, and land use. Consequently, the drainage area-discharge relationships developed for the Fenholloway River were used in establishing peak flows along Spring Creek.

The hydrologic analysis for Woods Creek was performed by estimating the magnitude and frequency of floods with recurrence intervals of 10-, 2-, 1-, and 0.2-percent annual chance using regression equations developed by the USGS. The regression equations estimate peak discharges for natural flow streams in Florida (Reference 5). The equations used in the analysis for natural streams applicable to the Woods Creek basin are listed below.

=	182 DA .592 (LK + 0.6)580
=	410 DA .556 (LK + 0.6)589
=	584 DA .543 (LK + 0.6)591
=	936 DA .521 (LK + 0.6)594
	=

Where:

-  $Q_t$  is the discharge for a recurrence interval of t-years, in cubic feet per second (cfs);

- DA is the contributing drainage area, in square miles; and

- LK is lake area percent.

No adjustments in peak discharges due to urbanization were considered necessary.

Coastal storm frequencies (number of occurrences per year) were determined using the Joint Probability Method as developed by Vance Meyers (Reference 6). The Joint Probability Method enables one to create a number of simulated storms based on an analysis of historical storm records. Characteristics analyzed included the frequency at which storms enter the study area and probabilities associated with the size and intensity of a given storm.

A statistical analysis was performed to derive the probability distributions (range of parameter values versus their associated probabilities) for the principal parameters,

which describe a hurricane or tropical storm. These are the central barometric pressure (measures intensity of storm), the radius to maximum winds (measures the lateral extent of the storm), the forward speed, and the direction of travel.

An analysis was also performed to determine the frequency with which hurricanes and tropical storms penetrate the northwest Florida coast or pass offshore if parallel to the coast.

Publications utilized in the above included "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," and "Meteorological Criteria for Standard Project Hurricane and Probable Maximum Hurricane Windshields, Gulf and East Coasts of the United States," all prepared by the National Oceanic and Atmospheric Administration (References 3, 7, 8, and 9). The National Hurricane Research Project Report, Nos. 5 and 33 were also utilized in this analysis (References 10 and 11).

By combination of all parameters each with its associated probability, a large number of simulated storms can be numerically modeled, each with its own unique probability (Joint Probability). The probability of each storm surge is then combined with the storm recurrence rate (frequency at which storms strike the coast) and corresponding frequency (events of this surge height per year) for each storm surge determined. This procedure permits the simulation of many years of record from which reliable estimates of flood recurrence intervals can be made. As a final step in the calculations, the astronomic tide of the study area was combined with the computed storm surge to yield recurrence intervals of total water level. Where the potential for generation of storm waves greater than one foot existed, an analysis of wave heights was also performed and the computed wave heights were combined with the total water level. Where the potential for generation of storm waves greater than 1 foot existed, an analysis of wave heights was also performed and the computed wave heights were combined with the total water level to yield base flood elevations. Reduction in stillwater surge level inland from the coast was also calculated taking into account topography and vegetation characteristics.

For Spring Creek, Pimple Creek, and Pimple Creek East Branch in the City of Perry, discharge values were obtained from a set of drainage area-discharge curves developed for the desired frequencies for the Fenholloway River drainage basin. A standard log-Pearson Type III frequency analysis, as recommended by the Water Resources Council (Reference 4), for the 32 year record (1947-1978) for the USGS gage at Foley, Florida (No. 02324500), and the 23 year record (1956-1978) for the USGS gage near Foley, Florida (No. 02324400) was used as the basis for the curve development. Discharge values for a range of drainage areas were computed using an unpublished USACE regional frequency analysis. It was determined that the drainage area-discharge curves developed for the Fenholloway River were applicable to Spring and Pimple Creeks and East Branch based on the fact that all have a common origin, San Pedro Bay, and similar basin characteristics such as stream slope, soil cover, vegetation and land use.

It has been shown in the USGS Report by Rufus H. Musgrove (Reference 2), that floods on Spring and Pimple Creeks and East Branch are noncoincidental events with Pimple Creek reaching flood stage earlier than Spring Creek.

#### **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.

For Rocky Creek and Pimple Creek, a Log-Pearson Type III distribution was applied for the United States Geological Survey (USGS) stations 02324400 and 02324500 for the period of record 1964-2005. The PeakFQ version 5 program from the USGS was used to calculate the distribution. The gage analyses were further refined by weighting the results with the regional regression equations as described in the USGS Bulletin 17B. Drainage areas and percentages of lakes/ponds for Rocky Creek were obtained from the report entitled "*Magnitude and Frequency of Floods in the Suwannee River Water Management District, Florida*" (Reference 12). A drainage area-discharge curve for the Fenholloway River was developed using the two stations and peak flows resulting from the weighted gage analyses. Resulting curves were linear for each of the recurrence intervals. Assuming similar watershed characteristics, the peak discharges for each recurrence interval was determined given the drainage areas calculated from the GIS for Rocky Creek and Pimple Creek.

Since the change in peak discharges for Pimple Creek did not exceed 10% from existing values, existing peak discharges were used in the detailed study for Pimple Creek.

A summary of the drainage area-peak discharge relationships for all the streams studied by detailed methods is shown in Table 1, "Summary of Discharges."

FLOODING SOURCE	DRAINAGE AREA		PEAK DISCH	ARGES (cfs)	
AND LOCATION	(sq. miles)	10-PERCENT	2-PERCENT	<u>1-PERCENT</u>	0.2-PERCENT
AUCILLA RIVER		- (00		10.500	•••
At U.S. Route 98	926	7,600	14,600	18,700	28,800
about 9 miles upstream of	805	4,500	7,000	8,200	11,000
U.S. Rout 98					
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

#### TABLE 1 - SUMMARY OF DISCHARGES

#### TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE	DRAINAGE AREA		PEAK DISCH	IARGES (cfs)	
AND LOCATION	(sq. miles)	10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
FENHOLLOWAY RIVER					
At Gulf of Mexico	320	3,600	7,400	9,500	15,700
At USGS Gage at Foley	120	2,200	4,400	5,600	9,400
At upper limit of study	102	1,900	3,800	4,900	8,300
PIMPLE CREEK					
U.S. Highway 19	11.8	555	1,135	1,460	2,440
Jefferson Street	10.9	530	1,085	1,400	2,330
PIMPLE CREEK EAST					
BRANCH					
Confluence with Pimple					
Creek	4.5	530	1,085	1,400	2,330
SPRING CREEK					
At mouth	90	1,765	3,600	4,630	7,700
Downstream of confluence					
of Pimple Creek	24.2	835	1,710	2,200	3,660
U.S. Highway 19	12.4	570	1,170	1,505	2,510
STEINHATCHEE RIVER					
At Deadman's Bay	590	7,600	13,950	17,270	26,620
At U.S. Route 19, 98, and					
Alternate 27	380	5,960	11,230	14,045	22,090
At USGS gaging station	250		10.020	10 500	21 400
near Cross City	350	5,700	10,830	13,580	21,490
WOODS CREEK					
At mouth	4.80	440	930	1,290	2,000
At U.S. Route 27 and 19	3.70	370	800	1,120	1,750
At U.S. Route 221	2.51	300	650	910	1,430
ROCKY CREEK					
At confluence with Spring Creek	47.5	990	2,160	2,890	5,010
At Woods Creek Road (CR 361B)	29	780	1,660	2,180	3,560
At Slaughter Road	24.6	730	1,540	2,010	3,210
At Highway 221	20.3	680	1,420	1,850	2,880

The values representing the parameters and their assigned probabilities are shown in Table 2, "Parameter Values for Surge Elevations."

· · · · · · · · · · · · · · · · · · ·								
CENTRAL PRESSURE DEPRESSION								
(MILLIBARS)	997.85	988.71	979.91	970.77	961.96	952.82	944.02	934.87
PROBABILITY:								
ENTERING	31%	31%	12%	7%	7%	5%	2%	5%
EXITING	32%	32%	7%	7%	11%	7%	4%	0%
PARALLEL	26%	26%	7%	12%	11%	10%	4%	4%
STORM RADIUS TO MAXIMUM WINDS	15.0		2	2.5			30	
(NAUTICAL MILES)								
PROBABILITY	37%		43	3%			20%	
PROBABILITY <sup>1</sup>								
FORWARD SPEED (KNOTS)	6.0		1	1.5			17.0	
PROBABILITY:				-			-	
ENTERING	24%		36	8%			40%	
EXITING	55%		32	2%			13%	
PARALLEL	41%		40	)%			19%	
CROSSING ANGLE <sup>3</sup>								
	20	60	2	60		300	340	
PROBABILILTY	23%	23%	6	%		24%	24%	
DIRECTION OF STORM PATH <sup>1</sup> (DEGREES FROM TRUE NORTH)								
FREQUENCY OF STORM OCCURRENCE <sup>4</sup> (STORM/NAUTICAL MILE/YEAR)	0.00	)35 <sup>1</sup>	0.0	011 <sup>2</sup>				
<sup>1</sup> Landfalling/Exiting Storms <sup>2</sup> Alongshore Storms <sup>3</sup> Degrees clockwise from North <sup>4</sup> Storms per nautical mile per year								
FEDERAL EMERGENCY MANAGEMENT AGENC	Y							
TAYLOR COUNTY, FL AND INCORPORATED AREA		ARAM	ETER	VALU	ES FO	R SUR	GE EL	EVATION

#### 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.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the FIRM (Exhibit 2).

The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

#### **Precountywide Analyses**

Each incorporated community within, and the unincorporated areas of, Taylor County has a previously printed FIS report. The hydraulic analyses described in those reports have been compiled and are summarized below.

Cross sections were determined from aerial photographs flown in April 1979 and field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry. All topographic mapping used to determine cross sections is referenced in Section 4.1.

For the City of Perry, cross sections for the backwater analyses of Spring and Pimple Creeks and East Branch were obtained from aerial photographs flown in March 1979 (References 13,14,15 and 16) and survey cross sections obtained by the Soil Conservation Service (SCS) in 1973 (Reference 17).

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (Reference 18). Starting water-surface elevations were calculated using the slope/area method. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

For the City of Perry, starting water-surface elevations for Spring and Pimple Creeks and East Branch were calculated using the slope/area method.

For Aucilla River, cross sections were obtained photogrammetrically from aerial photographs obtained through Woolpert Consultants in 1984 at a scale of 1:9600. All bridges, dams, and culverts were field surveyed to obtain elevation and structural geometry data. The roughness coefficients for 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.

Located on the Gulf of Mexico, the shoreline areas of Taylor County are primarily subject to coastal storm surge flooding from hurricanes and tropical storms. Detailed hydraulic analyses of the shoreline characteristics were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. The U.S. Department of Housing and Urban Development's Standard Coastal Storm Surge Model was utilized to determine these flood levels (References 19 and 20). This model is a numerical hydrodynamic computer model, which calculates the coastal storm surge previously described in Section 3.1. Before applying the numerical model to the study area, several recent hurricanes, which have affected the west coast of Florida were simulated for verification purposes. Surge elevations computed by the numerical model were compared to recorded tide gage heights at St. Marks and Cedar Key, Florida. The results are shown in the following tabulation:

Location	<u>Storm</u>	Computed by Numerical Model Plus Predicted Tide	Observed
St. Marks	Hurricane Alma 1966	5.4	5.0(a)
	Hurricane Agnes 1972	7.8	7.9(a)
Cedar Key	Hurricane Alma 1966	6.6	6.1(b)
	Hurricane Agnes 1972	6.3	6.4(b)

Source: (a) – Data from tide gaging station, USACE. (b) – Data from tide gaging station, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Oceanic Survey

The numerical model for this region consisted of five nautical mile square grids extending 200 nautical miles in the north-south direction, and 200 nautical miles in the east-west direction. Water depths for the offshore regions were taken from the National Oceanic Survey (NOS) hydrographic surveys with various dates and scales, and NOS bathymetric maps at a scale of 1 to 250,000 with a bathymetric contour intervals of 2, 10, and 50 meters depending on depth (References 21 and 22). Additional topographic sources were utilized in conjunction with the storm surge model (References 23 and 24).

Because of the coarse grid resolution, an additional analysis of inland surge reduction was performed utilizing a finer grid and varying both duration and storm direction. The inland reductions for Taylor County varied from 0.0 to 1.1 feet per mile, depending on ground slope, vegetation, and development characteristics.

The computed stillwater flood elevations for Taylor County are shown in Coastal Flood Insurance Zone Data Tables. The 1-percent annual chance stillwater elevation for the region as determined using the Joint Probability Method are shown

in Figure 3. These elevations reflect the combination of storm parameters, bathymetric, and other features that produce the storm surge elevation with a recurrence interval of 100-years at specific locations along the coast. The variation of the stillwater elevations along the coast is mainly attributable to the offshore bathymetry and the orientation of the shoreline. Other features such as constrictive bays, passes, and shoals have localized effects on the surge elevations.

#### **Revised Analyses**

Rocky Creek and Pimple Creek were restudied using topographic information obtained from photogrammetry and survey data. The topographic mapping was compiled in 2007 utilizing aerial photography flown with a low distortion 6" precision aerial mapping camera. Using the photography and field survey data, topographic maps were compiled at a scale of 1 inch = 200 feet (Reference 25).

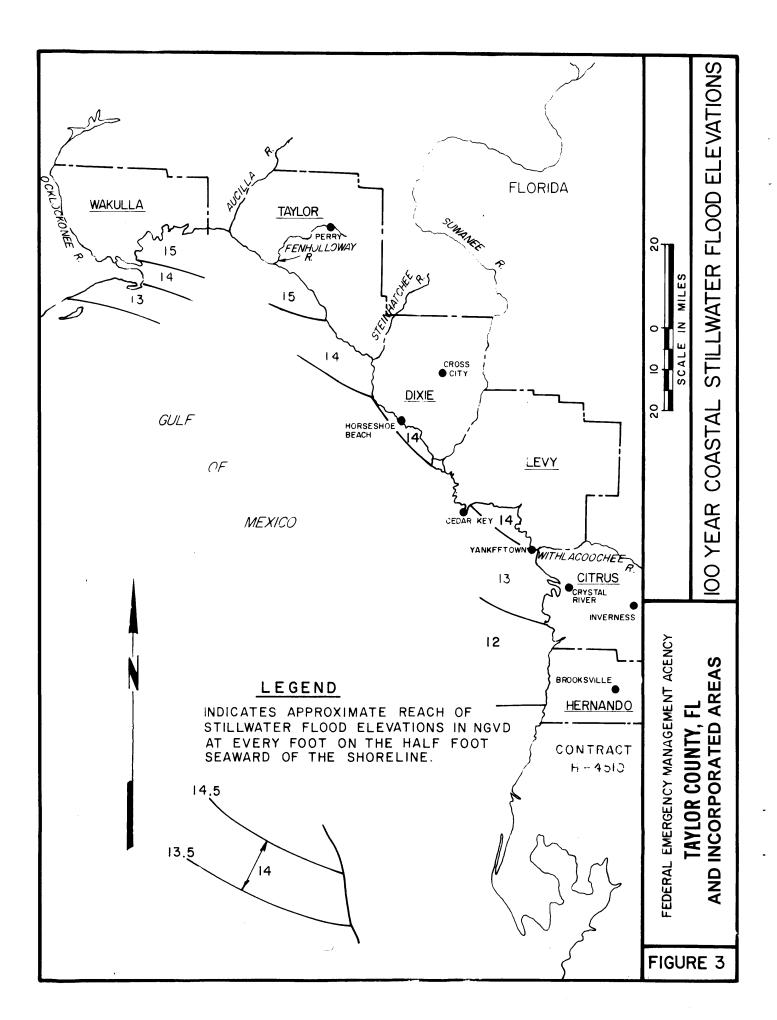
Flood elevations and floodway widths were computed using the US Army Corp of Engineer's HEC-RAS version 3.1.3 program (Reference 26). Starting water surface elevations (i.e., tailwater elevations) at the confluences with Spring Creek were obtained from the previous study for Spring Creek.

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. Roughness factors for all streams studied by detailed methods are shown in Table 3, "Manning's "n" Values."

#### TABLE 3 - MANNING'S "n" VALUES

<u>Stream</u> Fenholloway River Pimple Creek Pimple Creek East Branch Spring Creek Steinhatchee River Woods Creek	$\frac{\text{Channel "n"}}{0.030 - 0.060} \\ 0.035 - 0.060 \\ 0.012 - 0.065 \\ 0.012 - 0.065 \\ 0.030 - 0.060 \\ 0.040 - 0.060 \\ \end{array}$	$\frac{\text{Overbank "n"}}{0.080 - 0.170} \\ 0.060 - 0.160 \\ 0.050 - 0.100 \\ 0.060 - 0.120 \\ 0.080 - 0.132 \\ 0.060 - 0.120$
Aucilla River	0.07	0.12



#### 3.3 Wave Height Analyses

The methodology for analyzing the effects of wave heights associated with coastal storm surge flooding is described in the National Academy of Sciences report (Reference 23). This method is based on the following major concepts.

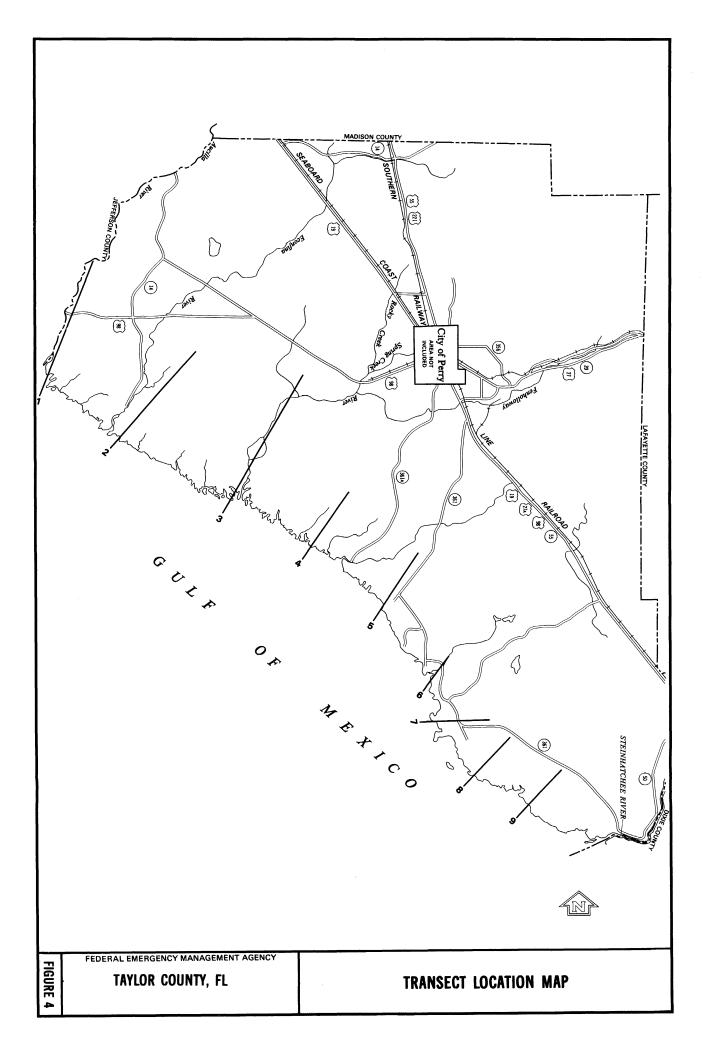
First, depth-limited waves in shallow water reach a maximum breaking height that is equal to 0.78 times the stillwater depth. The wave crest elevation is 70 percent of the total wave height plus the stillwater elevation. The second major concept is that wave height may be diminished due to the presence 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 procedures described in the <u>Methodology for Calculating Wave Action Effects Associated with Storm Surges</u> (Reference 27). 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.

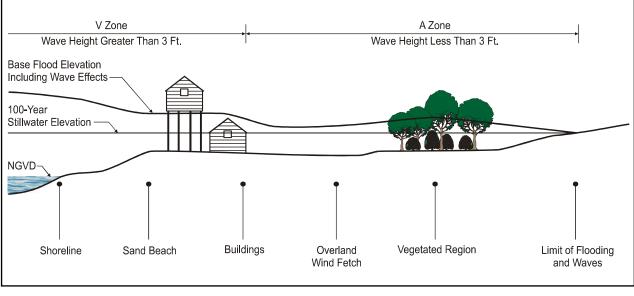
Wave heights were computed along transects (cross-section lines) that were located along the coastal areas, as illustrated in Figure 4, "Transect Location Map," in accordance with the Users Manual for Wave Height Analysis (Reference 28). The transects were located with consideration given to the physical and cultural characteristics of the land so that they would closely represent conditions in their locality. Transects were spaced at larger 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.

Figure 5 is a profile for a hypothetical transect showing the effects of energy dissipation on a wave as it moves inland. This figure shows the wave elevations being diminished by obstructions such as buildings, vegetation, and rising ground elevations and being increased by open unobstructed wind fetches. Actual wave conditions in Taylor County may not necessarily include all the situations illustrated in Figure 5. Table 4 provides a listing of the transect locations and stillwater elevations, as initial wave crest elevations.

Ground elevations for wave calculations were taken from aerial transects flown in 1979 at a scale of one inch equals 800 feet, with spot elevations for transects 1, 2, 5, 6, 7, and 9 (Reference 14). Topographic data were utilized from USGS quadrangles for transects 3, 4, and 8.

Coefficients for inland wave height reduction (transmission coefficients) were determined from aerial photography (1979) and by field inspection (1981). Fetch factors for wave build-up in unobstructed wind fetches were determined from the above sources and from standard tables and figures.





TRANSECT SCHEMATIC

Figure 5

Wave elevations between transects were interpolated using the cited sources. Factors affecting wave elevations between transects were identified and considered in relation to their effect upon wave elevations. The computations showed a minor reduction in wave heights across the tidal marsh areas typical of the area. Because of dense vegetation encountered in the wooded swamp areas, wave heights diminished rapidly with the limit of the velocity zone generally occurring within one to two miles of the original shoreline.

Computed wave elevations are based on existing topography, vegetation, and current development patterns and will require recomputation if significant changes occur in any of the above factors.

### <u>TABLE 4 – TRANSECT LOCATIONS, STILLWATER STARTING ELEVATIONS, AND</u> <u>MAXIMUM WAVE CREST ELEVATIONS</u>

		Elevation (feet NAVD	
<b>Transect</b>	Location	Stillwater	Wave Crest
1	Approximately 0.5 mile northwest of Gamble Point, Gulf of Mexico	14.4	22.6
2	Approximately 0.3 mile northwest of Peary Island Creek, Gulf of Mexico	14.4	22.6
3	Approximately 0.5 mile west of the Fenholloway River, Gulf of Mexico	14.3	22.5
4	Approximately 1 mile southwest of Eaglenest Point, Gulf of Mexico	14.0	22.0
5	At Adams Beach, Gulf of Mexico	14.4	22.6
6	At Cedar Island, Gulf of Mexico	13.6	21.4
7	At Sponge Point, Gulf of Mexico	13.6	21.4
8	Approximately 0.5 mile east of Long Grass Point, Gulf of Mexico	13.3	20.9
9	0.75 mile southeast of Dallus Creek, Gulf of Mexico	13.3	20.9

#### 3.4 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 NGVD 29. With the finalization of the 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 a FIS report and FIRM, the Flood Profiles, Base Flood Elevations (BFEs) and ERMs reflect 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 elevation must be referenced to the new datum values.

As noted above, the elevations shown in the FIS report and on the FIRM for Taylor County, Florida and Incorporated Areas are referenced to NAVD 88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor to NGVD 29 is +0.66 foot. For example, an elevation of 50.0 feet NAVD 88 is equal to 50.7 feet NGVD 29. 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 the FIS to NGVD 29 should apply the stated conversion factor 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 <u>Converting the National Flood Insurance</u> <u>Program to the North American Vertical Datum of 1988</u>, FEMA Publication FIA-20/June 1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, 1315 East-West Highway, Silver Spring, Maryland 20910-3282 (Internet address http://www.ngs.noaa.gov).

#### 4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 1-percent annual chance floodplain data, and may also include a combination of the following: 10-, 2-, and 0.2-percent annual chance flood elevations; delineations of the 1- and 0.2-percent annual chance floodplains; and 1-percent annual chance floodway. 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 county. For the streams studied in detail, the 1and 0.2-percent annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. For the original study, the boundaries were interpolated between cross sections, using topographic maps at scales of 1"=400' and 1:24,000 with a contour interval of 5 feet (References 15 and 23). For the August 16, 1995, revision, the boundaries for Woods Creek were interpolated between cross sections using topographic maps at a scale of 1:24,000, enlarged to a scale of 1:6,000, with a contour interval of 5 feet (Reference 23). In the City of Perry, boundaries were interpolated using topographic maps at a scale of 1"=500' with a contour interval of one foot prepared for FEMA (References 13 and 16). For this revision, the Aucilla River floodplain was delineated based on the USGS 5-foot contours, utilizing the flood elevations from the detailed model performed for Jefferson County. Floodplains for Rocky Creek and Pimple Creek were delineated based on topographic information obtained from photogrammetry.

For the flooding sources studied by approximate methods, the boundaries of the 1-percent annual chance floodplains were delineated using topographic maps taken from the previously printed FIS reports, FHBMs, and/or FIRMs for all of the incorporated and unincorporated jurisdictions within Taylor County.

In addition to the approximate methods mentioned above, approximate A Zone boundaries were supplemented with wetland location data from the Suwannee River Water Management District (SRWMD). SRWMD refers to this wetland location dataset as WETCOMP. WETCOMP features were incorporated into the Zone A information. In areas where WETCOMP features coincide with existing areas studied by detailed methods, the detailed floodplain boundaries superseded WETCOMP.

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 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 streams studied by approximate methods, only the 1-percent annual chance floodplain boundary is shown on the FIRM (Exhibit 2).

#### 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 FIS 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 presented in this FIS 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 5). 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.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 5, "Floodway Data." In order to reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

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 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 6.

						· · · · · · · · · · · · · · · · · · ·			·			
	FLOODING SOURCE			FLOODWA	.Y	v N	BASE FI VATER-SURFAC (FEET N	CE ELEVATION				
	CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE			
Au	cilla River	1	1	· · · · · · · · · · · · · · · · · · ·	·	1		·				
	А	27,350	3,513	24,114	0.8	10.3	8.7 <sup>3</sup>	9.7	1.0			
	В	28,618	4,752	26,960	0.7	10.3	8.7 <sup>3</sup> 8.9 <sup>3</sup>	9.9	1.0			
	С	30,254	4,954	26,411	0.7	10.3	9.2 <sup>3</sup>	10.2	1.0			
	D	31,416	4,119	21,768	0.9	10.3	9.2 <sup>3</sup> 9.4 <sup>3</sup>	10.4	1.0			
	E	33,475	4,632	23,812	0.2	10.3	9.5 <sup>3</sup>	10.5	1.0			
	F	45,408	4,500	7,991	0.5	10.3	9.9 <sup>3</sup>	10.8	0.9			
	G	66,686	974	4,395	0.9	17.7	17.7	18.7	1.0			
	Н	69,643	1,999	2,905	2.1	20.7	20.7	21.6	0.9			
	I	75,134	1,863	8,810	0.9	23.6	23.6	24.5	0.9			
	J	75,768	1,436	8,828	0.9	23.7	23.7	24.6	0.9			
	К	77,194	764	5,746	1.0	24.1	24.1	25.0	0.9			
	L	79,358	2,296	10,842	0.9	24.7	24.7	25.6	0.9			
	Μ	80,520	2,106	11,072	0.9	25.0	25.0	25.9	0.9			
	Ν	81,946	2,115	9,719	1.1	25.4	25.4	26.3	0.9			
	0	86,750	2,141	10,773	1.1	27.3	27.3	28.2	0.9			
	Р	89,602	1,960	11,164	1.2	28.5	28.5	29.5	1.0			
	Q	91,819	3,318	15,799	0.9	29.4	29.4	30.4	1.0			
	R	94,776	4,850	23,239	0.6	30.1	30.1	31.1	1.0			
	S	96,888	3,721	15,095	1.0	30.9	30.9	31.9	1.0			
	Т	98,947	2,106	11,326	1.3	32.2	32.2	33.2	1.0			
	U	102,326	3,037	16,587	0.9	33.6	33.6	34.6	1.0			
	V	104,386	3,999	16,495	0.9	34.3	34.3	35.3	1.0			
	W	106,022	2,740	13,514	1.1	34.9	34.9	35.9	1.0			
	Х	107,290	2,707	14,351	1.0	35.4	35.4	36.4	1.0			
	Y	108,715	2,192	12,159	1.2	36.0	36.0	37.0	1.0			
	Z	115,526	3,069	15,093	1.0	39.2	39.2	40.2	1.0			
<sup>1</sup> F(	eet above mouth	· ·		· · ·								
	his width extends beyond coun	atu boundary										
	-											
Ĕ	levations without considering s	storm surge effect	from Gult of M									
· · · ·	FEDERAL EMERGEN	CY MANAGEMEN	<b>JT AGENCY</b>									
·												
TABL	1					FLOO		<b>ATA</b>				
Ū		COUNTY,	СІ			•		•••				
Ē'												
Ē	AND INCORP	ORATED	AREAS									

S

# **AUCILLA RIVER**

			ſ			Γ					
	FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)					
	CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE		
	AA AB AC AC	118,588 122,654 133,056	3,715 4,076 2,610	14,319 23,880 20,436	1.0 0.6 0.7	40.4 41.3 44.7	40.4 41.3 44.7	41.4 42.3 45.6	1.0 1.0 0.9		
	width extends beyond count	y boundary									
TABLE	FEDERAL EMERGENCY MANAGEMENT AGENCY TAYLOR COUNTY, FL				FLOODWAY DATA						
́П IJ	AND INCORPORATED AREAS			5	AUCILLA RIVER						

	I	<b></b>				BASE F				
FLOODING SOUF	RCE	1	FLOODWA	.Y	N N	WATER-SURFACE ELEVATION				
	·	<b></b>			<u> </u>	(FEET N	JAVD)			
	'	1	SECTION	MEAN		1	'	1		
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH	AREA	VELOCITY	REGULATORY	WITHOUT	WITH	INCREASE		
	DIGITARGE	(FEET)	(SQUARE	(FEET PER		FLOODWAY	FLOODWAY			
	<u> </u>	1	FEET)	SECOND)	<u> </u>		<u> </u> '	1		
Pimple Creek	Τ '	ſ	<b>_</b> '	ſ			· ۲	1		
A	449	500	2.407	0.6	36.4	36.4	36.5	0.1		
В	569	471	2,140	0.7	36.7	36.7	36.7	0.0		
C	1.245	258	561	2.6	37.1	37.1	37.4	0.3		
D E F	1.282	261	626	2.3	37.5	37.5	37.7	0.2		
	2.247	44	308	4.7	37.7	37.7	38.2	0.5		
	2.375	124	507	2.9	38.7	38.7	38.7	0.0		
G H	2.414	69	458	3.1	39.0	39.0	39.0	0.0		
	2.459	49	353	4.0	39.3	39.3	39.3	0.0		
	2.480	690	1.326	1.1	39.5	39.5	39.5	0.0		
K J	2.548	789	1.987	0.7	39.7	39.7	39.7	0.0		
	3.585	336	1.770	0.8	39.9	39.9	40.0	0.1		
L M	3.628 4,448	336 33	1.665	0.8 4.8	39.9 40.0	39.9 40.0	40.0 40.1	0.1		
N	4,448 4,464	33	290 326	4.8	40.0 40.9	40.0	40.1 41.4	0.1 0.5		
Ö	4,464 4,882	70	326 840	4.3	40.9	40.9	41.4	0.5		
P	4.882 4.926	70	840 736	1.7	41.4	41.4	41.8 42.0	0.4		
Q	5.810	51	521	2.7	41.4	41.5	42.0	0.6		
R	5.871	51	546	2.6	41.5	41.5	42.4	0.9		
S	6.517	32	384	3.6	41.6	41.6	42.5	0.9		
Т	6.591	35	429	3.3	41.9	41.9	42.8	0.9		
U	6.980	50	580	2.4	42.2	42.2	43.0	0.8		
V	7.023	50	574	2.4	42.7	42.7	43.5	0.8		
W	7.806	158	970	1.4	43.0	43.0	43.8	0.8		
X	7.860	158	1.068	1.3	43.0	43.0	43.8	0.8		
<u>Y</u>	8.631	406	2,225	0.6	43.1	43.1	44.0	0.9		
Z	8.675	406	1.871	0.7	43.1	43.1	44.0	0.9		
<sup>1</sup> Feet above mouth										

<sup>1</sup>Feet above mouth

	FEDERAL EMERGENCY MANAGEMENT AGENCY	
TABL	TAYLOR COUNTY, FL	FLOODWAY DATA
Ш П	AND INCORPORATED AREAS	PIMPLE CREEK

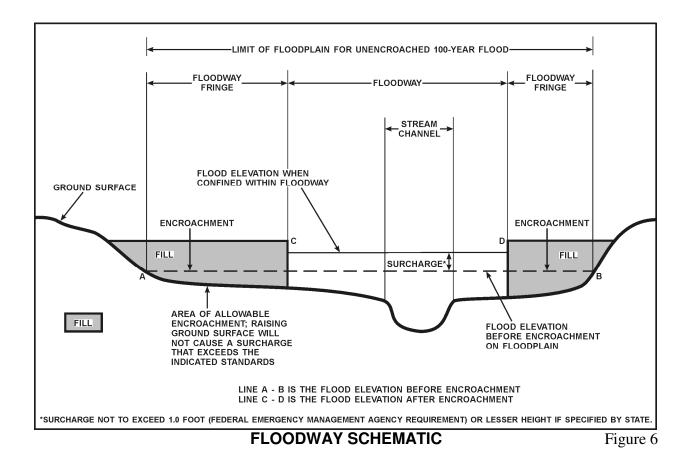
	FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)				
	CROSS SECTION	DISTANCE1	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
Pin	nple Creek East Branch A B	703 750	17 150	141 678	9.9 2.1	43.3 44.2	42.5 44.2	43.5 44.9	1.0 0.7	
1 50	eet above confluence with Pim	ala Craak								
1.6										
	FEDERAL EMERGEN	CY MANAGEMEN	T AGENCY							
TABLE	TAYLOR		FLOODWAY DATA							
.Е 5					PIMPLE CREEK EAST BRANCH					

	FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION					
	CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	(FEET N WITHOUT FLOODWAY	JAVD) WITH FLOODWAY	INCREASE		
	ky Creek A B C D E F G H I J J	16,982 17,011 48,658 48,700 50,466 50,552 50,671 50,696 51,955 51,995	379 378 215 114 336 182 97 130 199 167	1.852 1.490 808 348 2.506 712 500 751 1,299 885	1.2 1.4 2.3 5.3 0.7 2.6 3.7 2.5 1.4 2.1	31.7 31.8 51.2 52.1 53.9 54.2 54.6 55.0 55.4 55.5	31.7 31.8 51.2 52.1 53.9 54.2 54.6 55.0 55.4 55.5	32.2 32.5 51.5 52.6 54.3 54.7 55.1 55.4 55.8 55.9	$\begin{array}{c} 0.5 \\ 0.7 \\ 0.3 \\ 0.5 \\ 0.4 \\ 0.5 \\ 0.5 \\ 0.4 \\ 0.4 \\ 0.4 \\ 0.4 \end{array}$		
Т	FEDERAL EMERGENCY MANAGEMENT AGENCY										
TABLE 5					FLOODWAY DATA ROCKY CREEK						

	FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)				
	CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
	ing Creek A B C D E F G H I J K L L	400 3,280 3,460 4,790 4,937 10,234 14,000 19,775 22,900 23,190 26,085 29,285	624 862 160 104 128 304 268 518 457 54 494 800	2.322 4.179 1.104 1.180 1.312 1.622 2.006 2.736 2.971 527 1.643 3.014	2.0 1.1 4.2 3.9 3.5 2.9 1.2 0.9 0.8 4.7 1.5 0.8	22.2 23.0 24.0 24.0 24.9 26.7 27.8 29.3 29.4 30.8 33.0	22.2 23.0 24.0 24.0 24.9 26.7 27.8 29.3 29.4 30.8 33.0	23.0 23.7 24.8 24.9 25.6 27.7 28.7 29.8 29.9 31.4 33.6	0.8 0.7 0.7 0.8 0.9 0.7 1.0 0.9 0.5 0.5 0.5 0.6 0.6	
ч	FEDERAL EMERGENO	CY MANAGEMEN	T AGENCY							
TABL	TAYLOR COUNTY, FL					FLOOI	OWAY DA	ТА		
Е 5	$\square$ AND INCORPORATED AREAS				SPRING CREEK					

	FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)				
	CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
	et above mouth	36,156 44,436 50,982 57,296 62,591 65,245 67,852 68,045 72,148 78,868 78,986 82,692 87,557	3.599 3.004 2.387 1.699 2.783 2.694 2.943 251 2.704 9.002 570 5.285 9.367	14.643 19.352 15.873 14,400 18.582 17.144 17.008 2.153 22,038 29.518 2.705 23.268 40.197	1.2 0.9 1.1 1.2 0.9 1.0 0.8 6.6 0.6 0.5 5.0 0.6 0.3	12.0 15.0 16.7 19.1 20.6 21.3 21.5 24.3 24.7 24.7 27.5 27.8	12.0 15.0 16.7 19.1 20.6 21.3 21.5 24.3 24.7 24.7 27.5 27.8	12.7 15.9 17.6 20.1 21.5 22.2 22.4 22.5 25.1 25.5 25.7 28.3 28.6	$\begin{array}{c} 0.7 \\ 0.9 \\ 0.9 \\ 1.0 \\ 0.9 \\ 0.9 \\ 1.0 \\ 0.8 \\ 0.8 \\ 1.0 \\ 0.8 \\ 0.8 \\ 0.8 \end{array}$	
FEDERAL EMERGENCY MANAGEMENT AGENCY TAYLOR COUNTY, FL AND INCORPORATED AREAS					FLOODWAY DATA					
.E 5					STEINHATCHEE RIVER					

	FLOODING SOURCE			FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)						
	CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE				
	oods Creek A B C D E F G H I J K L M N N	1,050 4,275 6,260 8,370 10,550 12,830 14,970 15,980 18,960 21,120 22,780 23,800 25,190 26,150	500 637 326 918 828 200 125 200 268 214 209 381 433 532	1,452 1,395 1,114 2,192 2,501 720 629 1,138 1,311 864 804 2,209 1,811 1,428	0.9 0.9 1.2 0.6 0.5 1.8 1.8 1.0 0.9 1.3 1.4 0.5 0.6 0.6 0.6	30.0 32.8 35.2 36.9 37.7 40.2 41.6 44.5 45.0 45.8 46.3 49.1 49.1 49.3	30.0 32.8 35.2 36.9 37.7 40.2 41.6 44.5 45.0 45.8 46.3 49.1 49.1 49.3	31.0 33.1 35.8 37.6 38.3 40.7 41.9 45.0 45.9 46.8 47.3 49.7 49.8 50.0	$ \begin{array}{c} 1.0\\ 0.3\\ 0.6\\ 0.7\\ 0.6\\ 0.5\\ 0.3\\ 0.5\\ 0.9\\ 1.0\\ 1.0\\ 0.6\\ 0.7\\ 0.7\\ \end{array} $				
TABLE	FEDERAL EMERGENCY MANAGEMENT AGENCY TAYLOR COUNTY, FL				FLOODWAY DATA								
LE 5	AND INCORPORATED AREAS			;	WOODS CREEK								



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

Zone AE

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

#### Zone AH

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

#### Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone AR

Area of special flood hazard formerly protected from the 1-percent annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1-percent annual chance or greater flood event.

#### Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 1-percent annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

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

Zone VE

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

## Zone X

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

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

## 6.0 FLOOD INSURANCE RATE MAP

The 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 are shown where applicable.

The current FIRM presents flooding information for the entire geographic area of Taylor 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, up to and including this countywide FIS, are presented in Table 6, "Community Map History."

## 7.0 <u>OTHER STUDIES</u>

An FIS has been prepared for Dixie County, Florida and Incorporated Areas (Reference 29).

NOAA has published a report entitled, "Storm Tide Frequency Analysis for the Gulf Coast of Florida, from Cape San Blas to St. Petersburg Beach" (Reference 30).

The USGS prepared an analysis report of the flood of June 9, 1957, which referenced high water marks, flooded areas and discharges along Spring and Pimple Creeks and East Branch (Reference 2).

A Flood Hazard Boundary Map was prepared by the U.S. Department of Housing and Urban Development, Federal Insurance Administration in March 1977, based on approximate analysis (Reference 31).

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Taylor 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 Taylor County.

## 8.0 LOCATION OF DATA

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

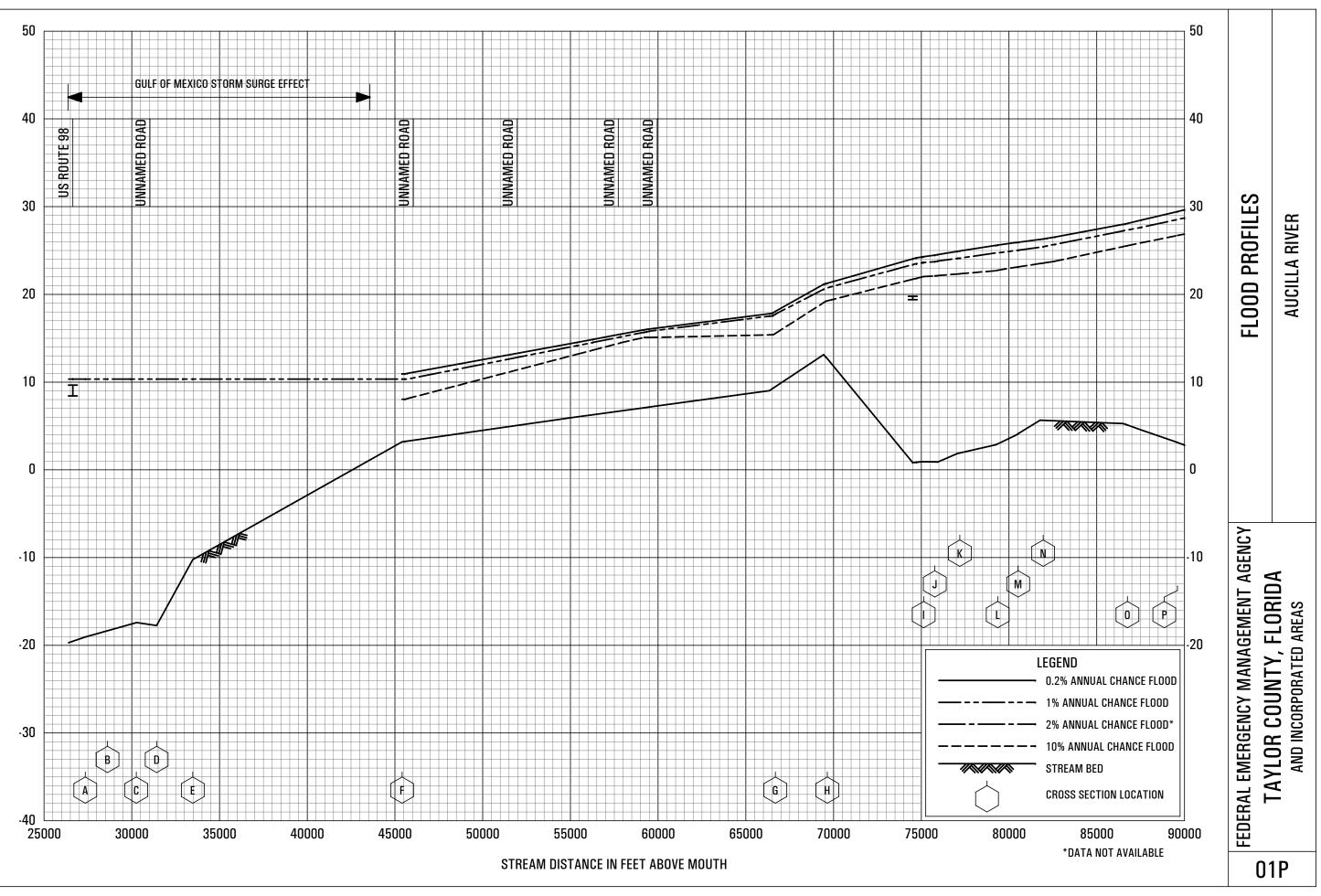
COMMUNITY	INITIAL	FLOOD HAZARD BOUNDARY MAP	FIRM	FIRM			
NAME	IDENTIFICATION	<b>REVISIONS DATE</b>	EFFECTIVE DATE	REVISIONS DATE			
Taylor County							
(Unincorporated Areas)	January 10, 1975	January 13, 1978	November 16, 1983	August 16, 1995 May 4, 2009			
Perry, City of	March 15, 1974	June 4, 1976 March 11,1977	May 17, 1982	May 4, 2009			
FEDERAL EMERGENCY MANAG	EMENT AGENCY						
TAYLOR COUN							
AND INCORPORAT		COMMUNITY MAP HISTORY					

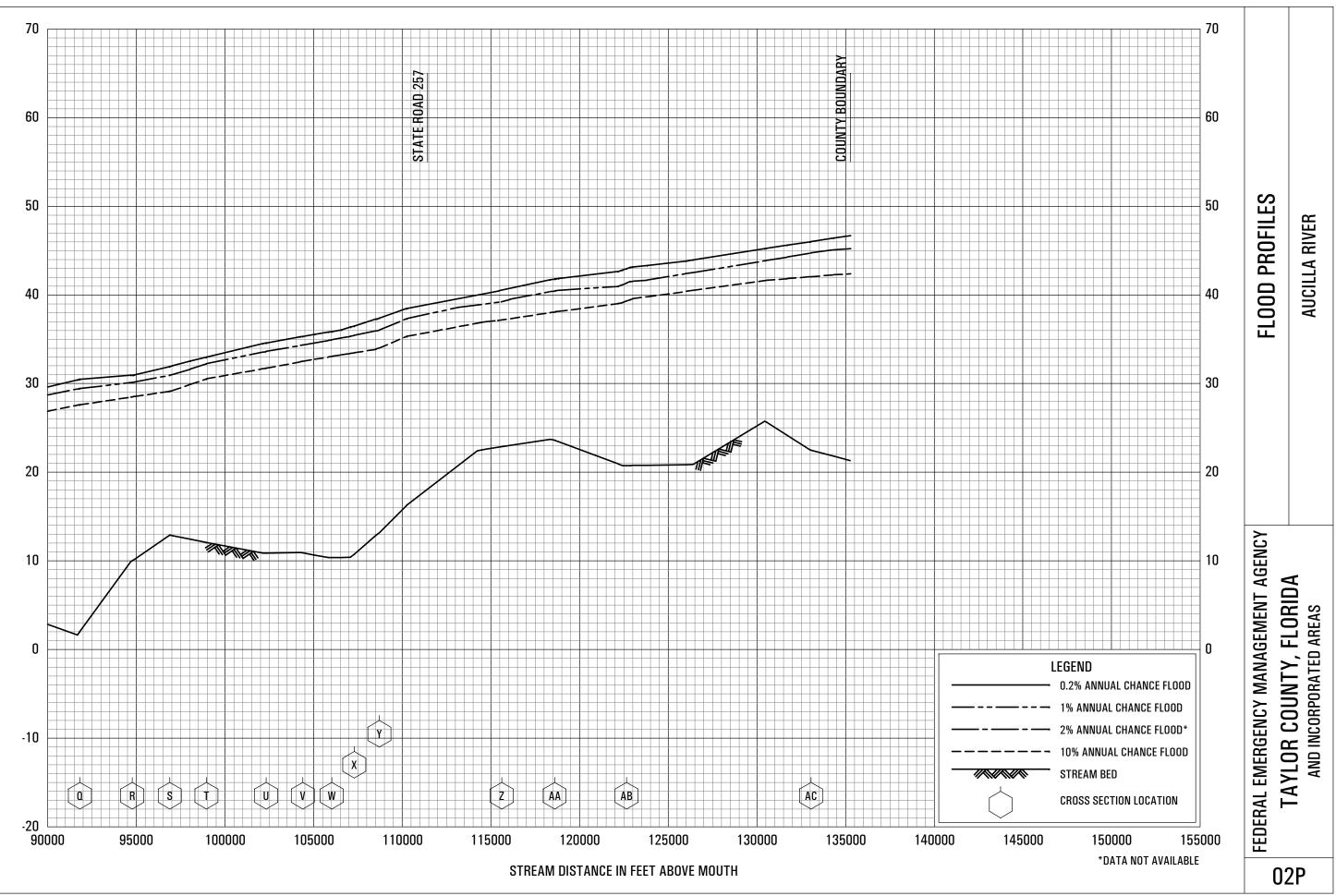
## 9.0 BIBLIOGRAPHY AND REFERENCES

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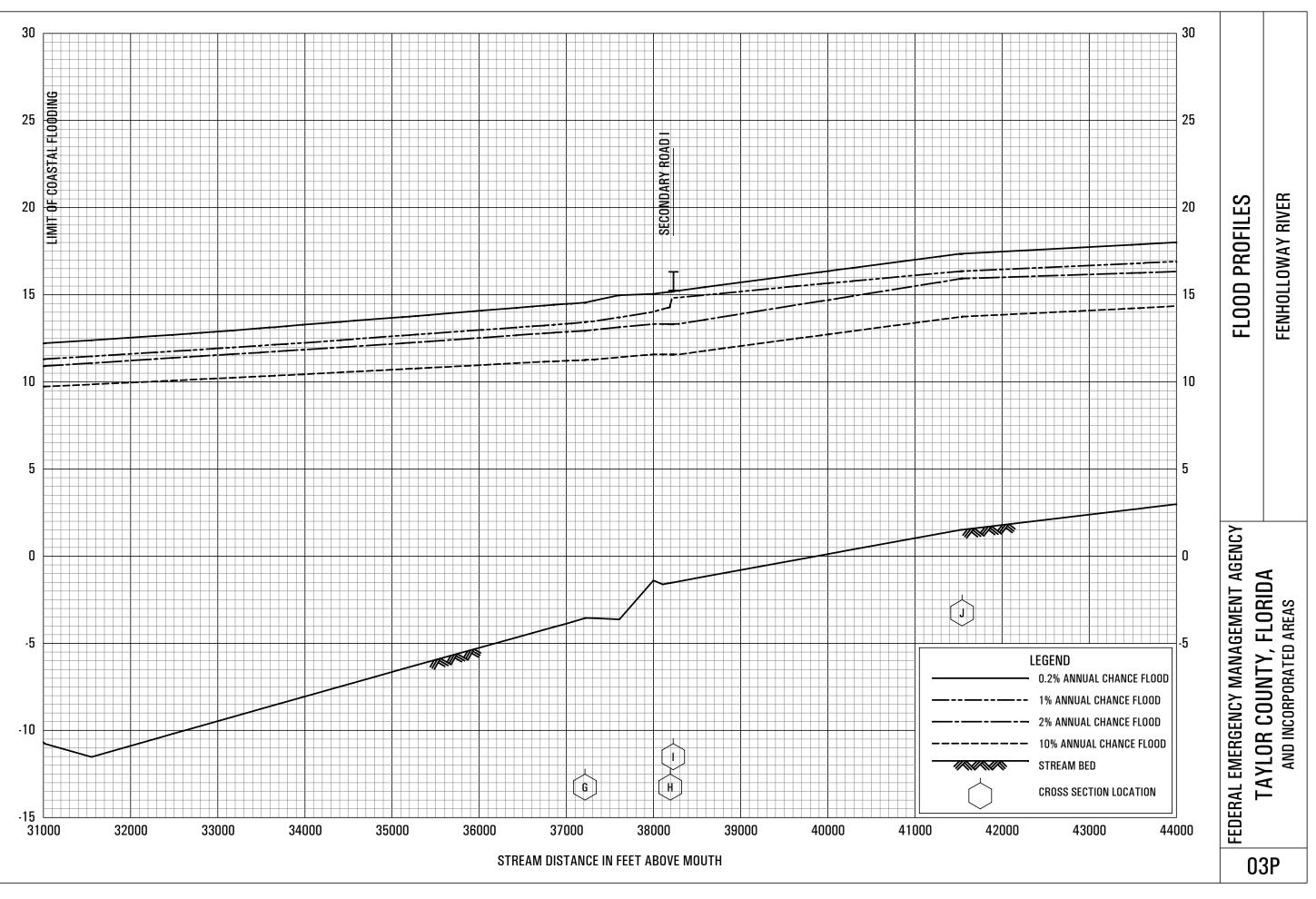
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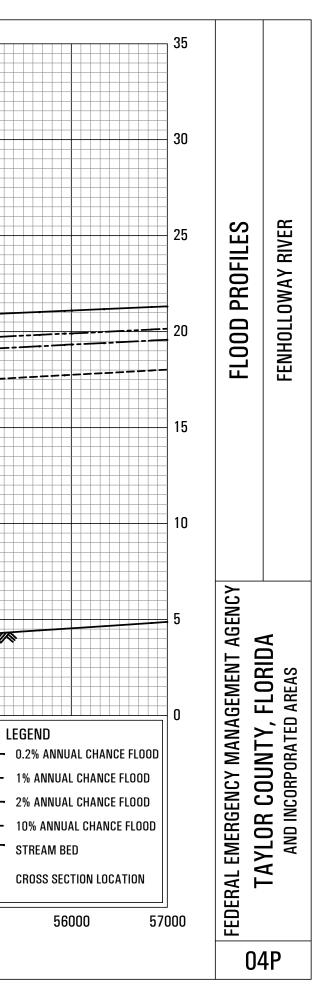






 $// \langle / \rangle$ -5 K -10 44000 

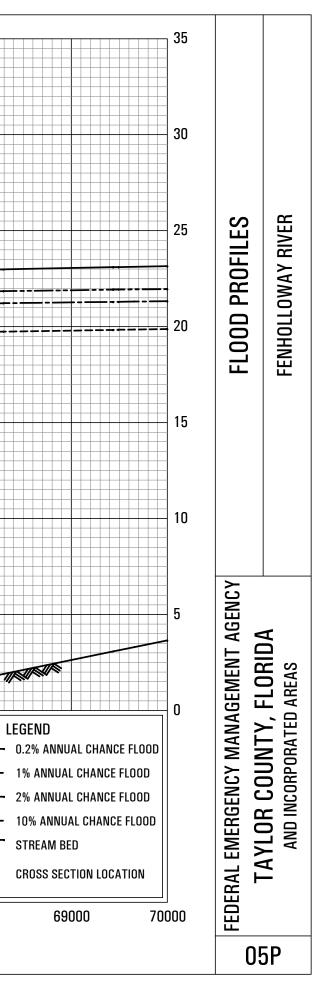
STREAM DISTANCE IN FEET ABOVE MOUTH



-5 M -10 57000 

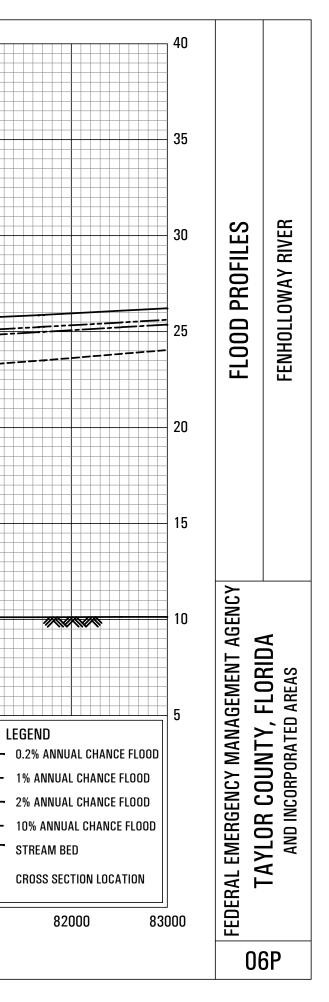
ELEVATION IN FEET (NAVD 88)

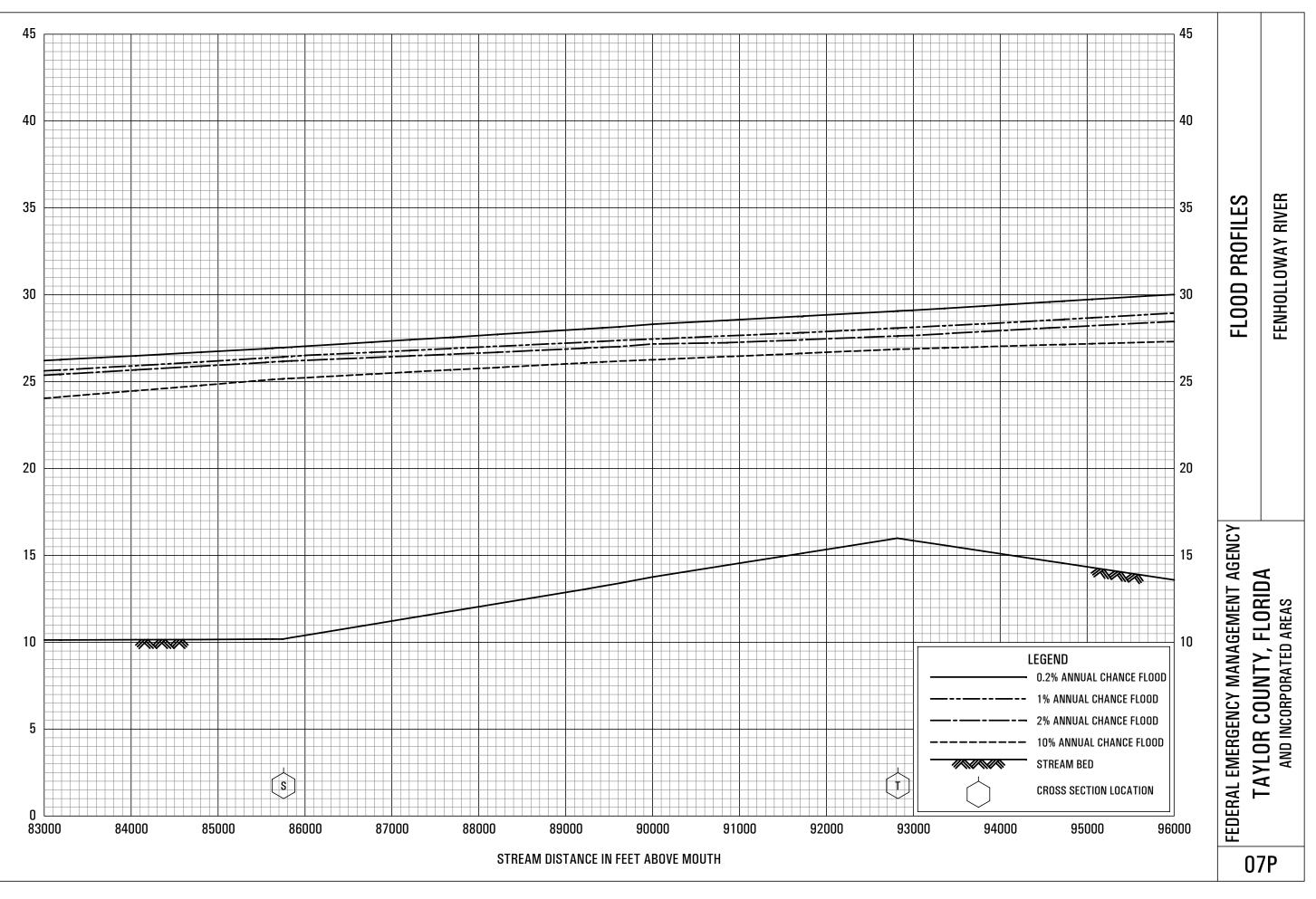
STREAM DISTANCE IN FEET ABOVE MOUTH



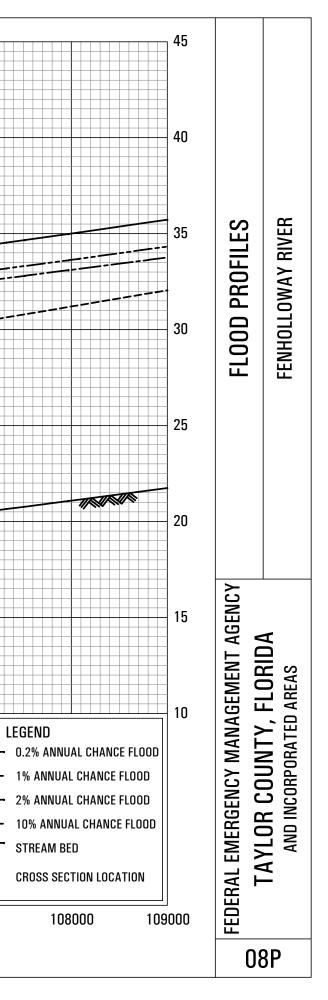
CONFLUENCE OF SPRING CREEK STATE HIGHWAY Ρ R -5 70000 

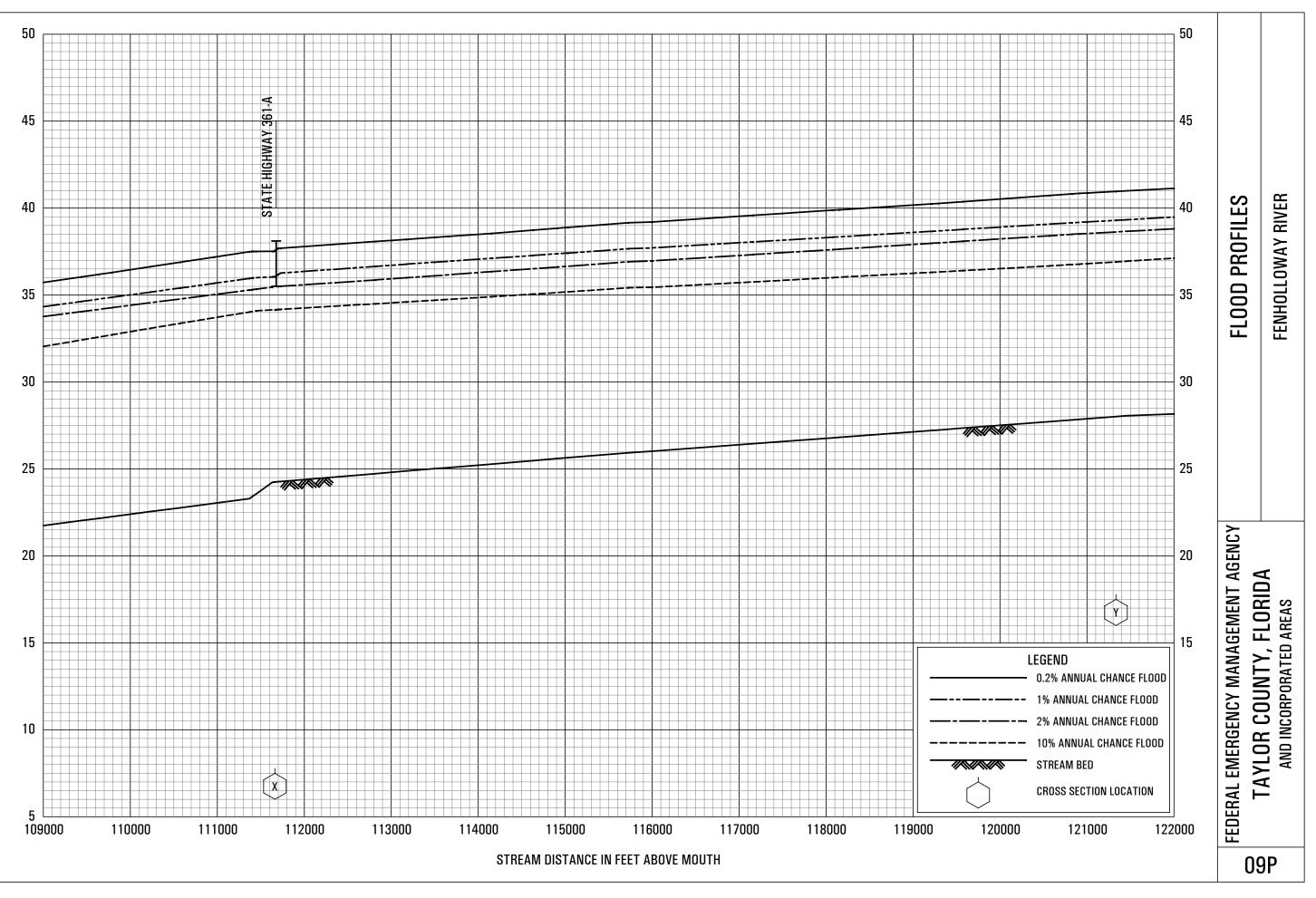
STREAM DISTANCE IN FEET ABOVE MOUTH



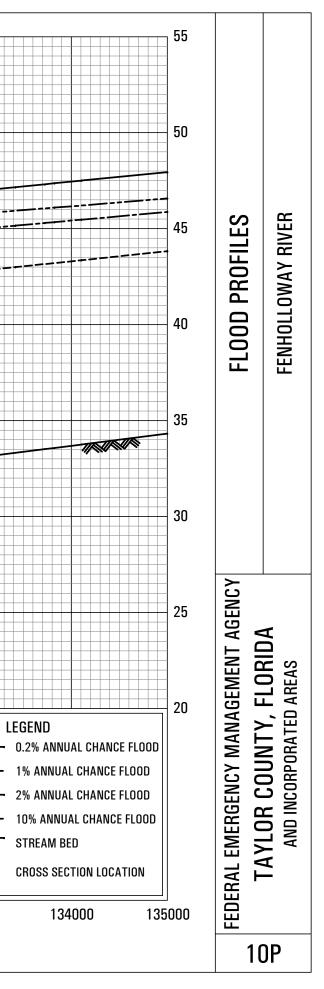


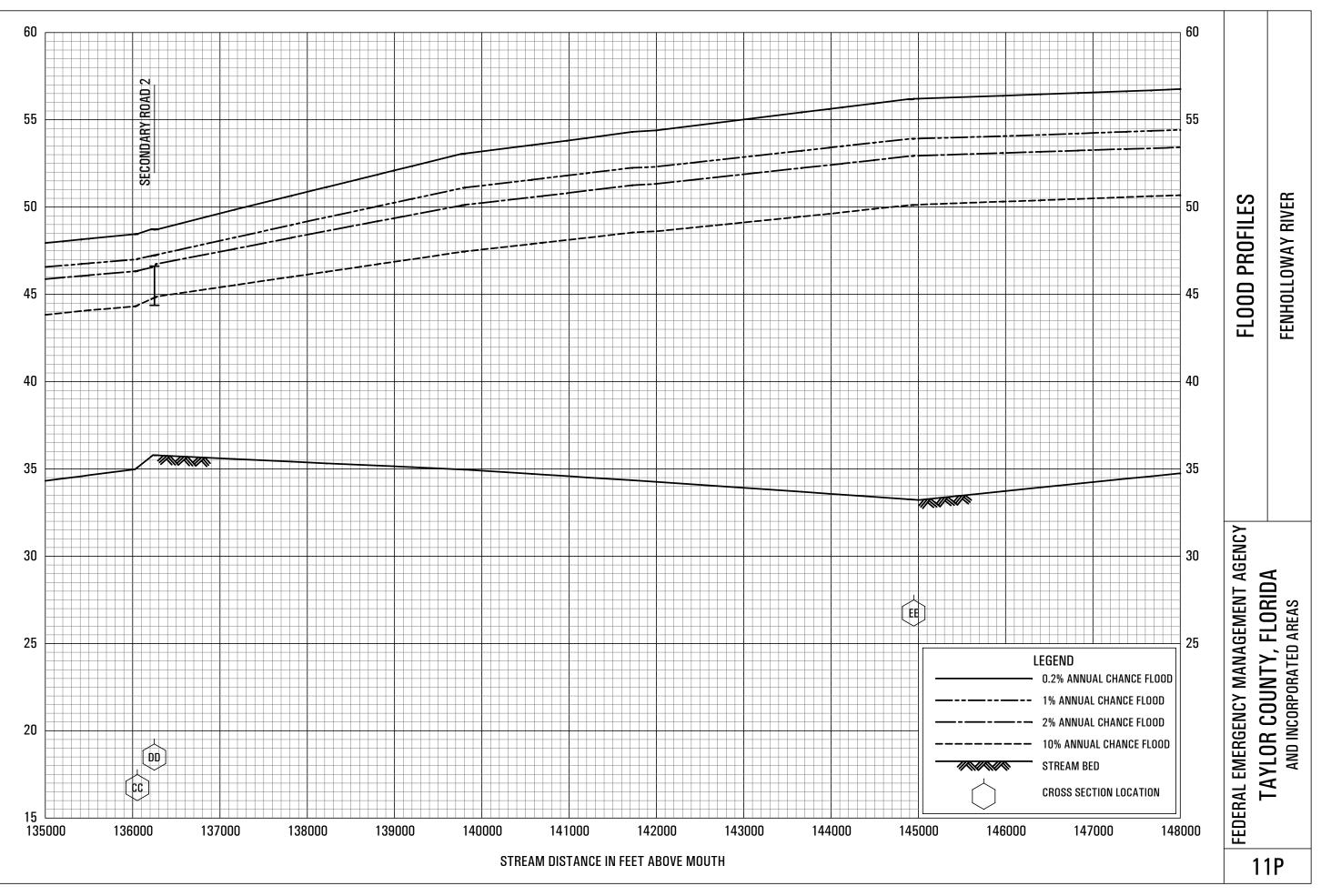
STATE HIGHWAY W V U STREAM DISTANCE IN FEET ABOVE MOUTH



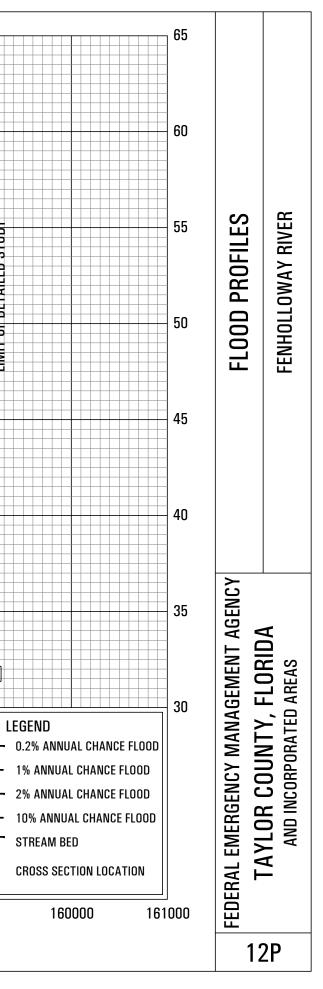


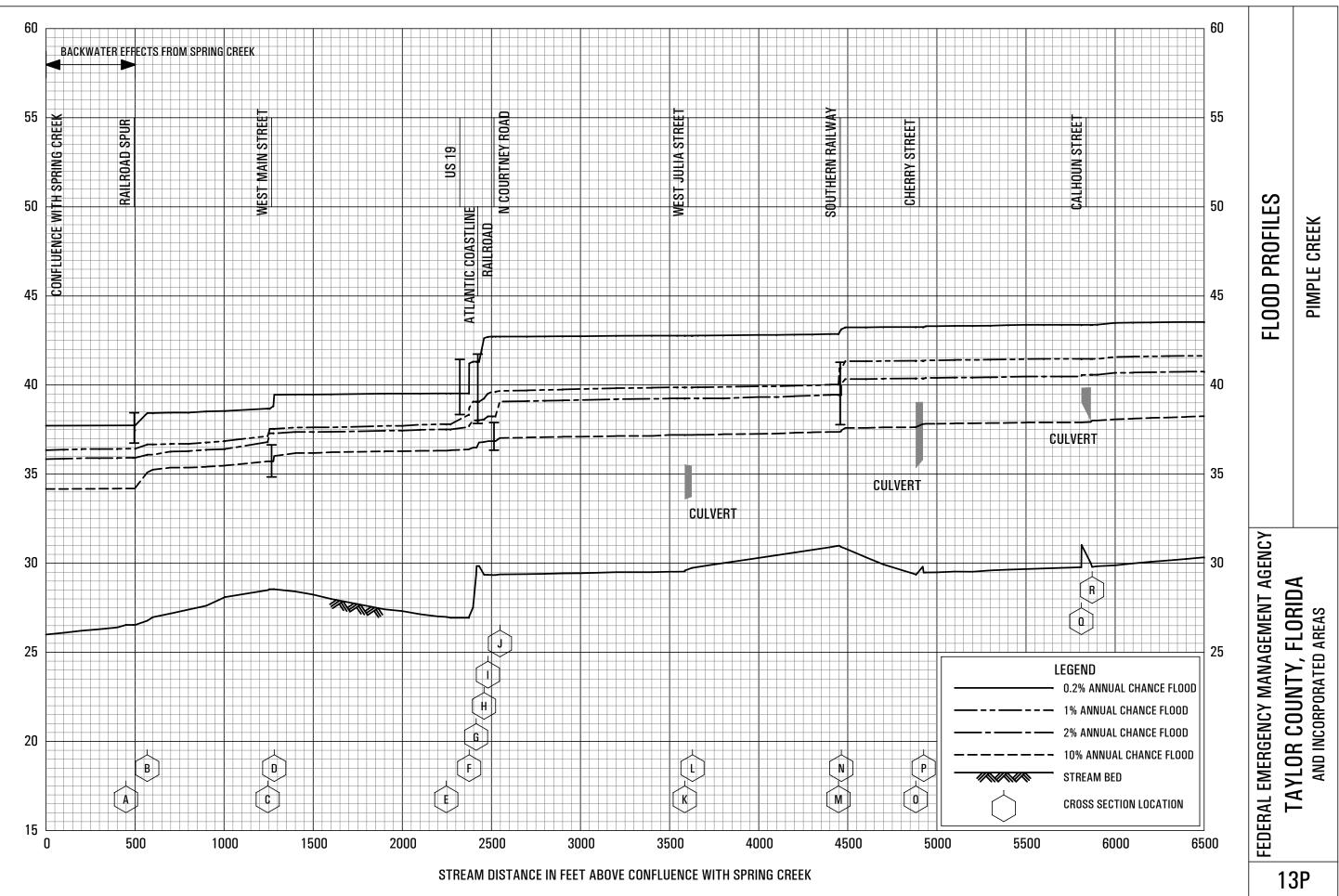
SEABOARD COAST LINE RAILROAD U.S. HIGHWAY 19 AA BB Z STREAM DISTANCE IN FEET ABOVE MOUTH

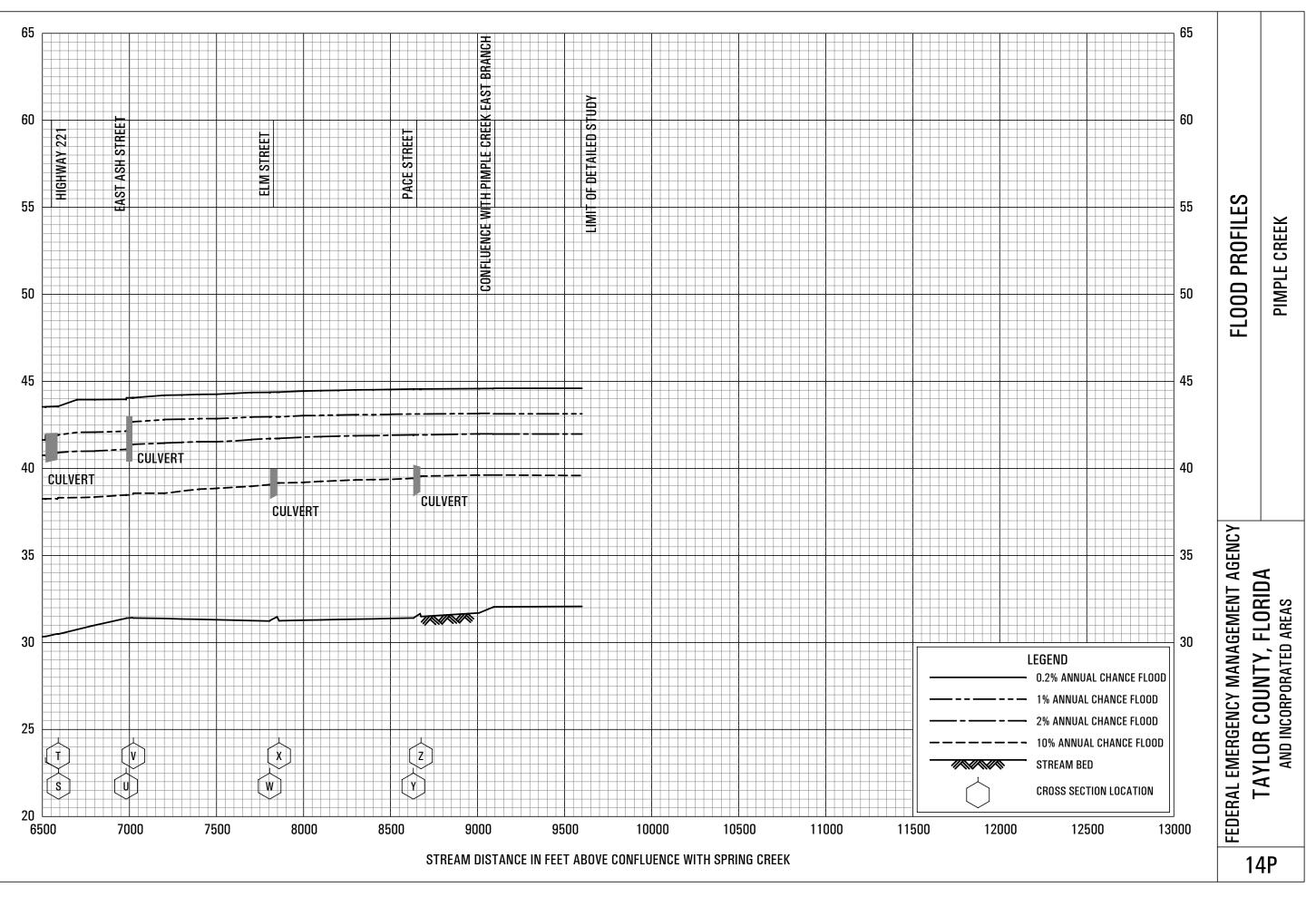




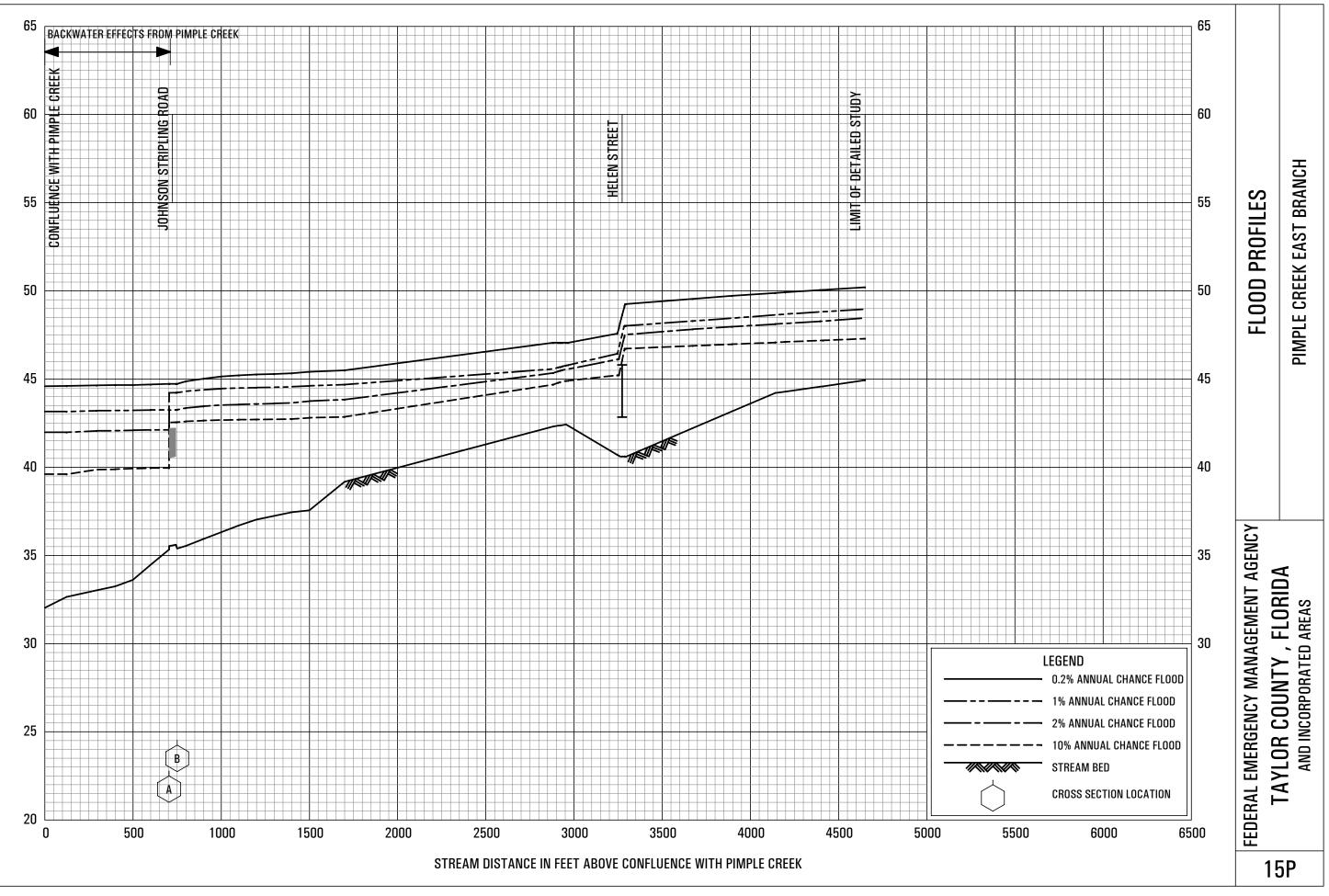
LIMIT OF DETAILED STUD STATE HIGHWAY 356 Ш HH FF GG 148000 STREAM DISTANCE IN FEET ABOVE MOUTH

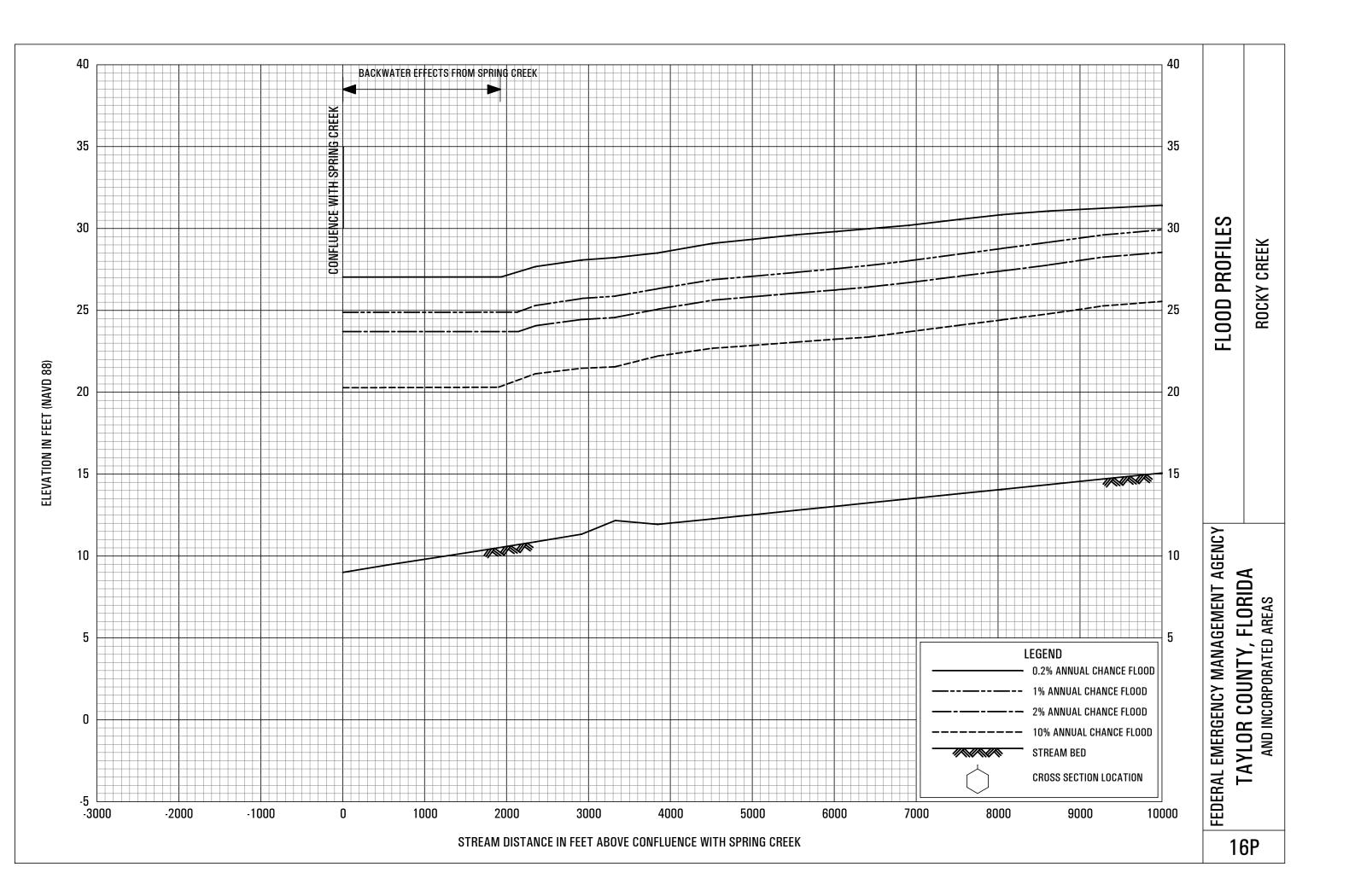


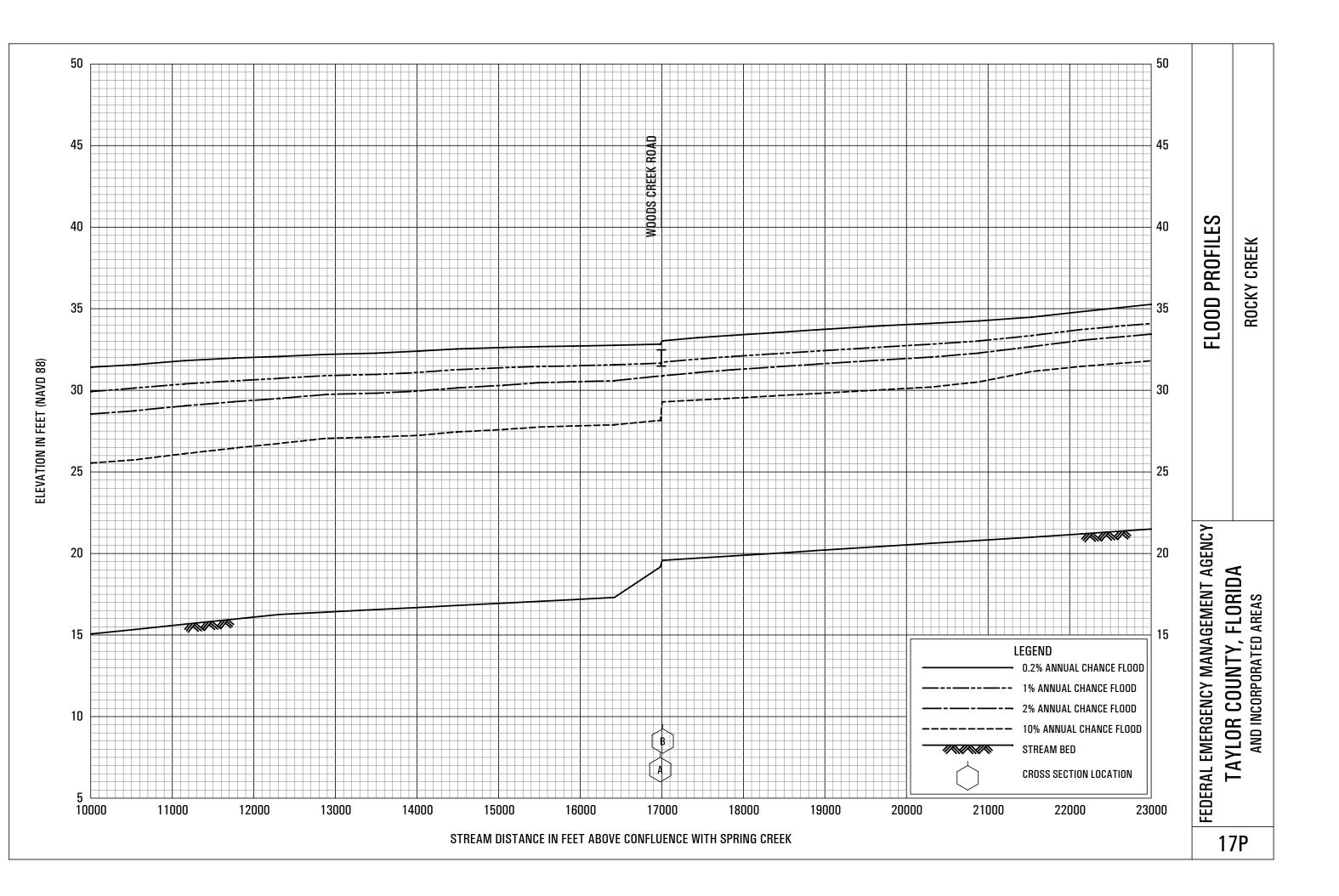


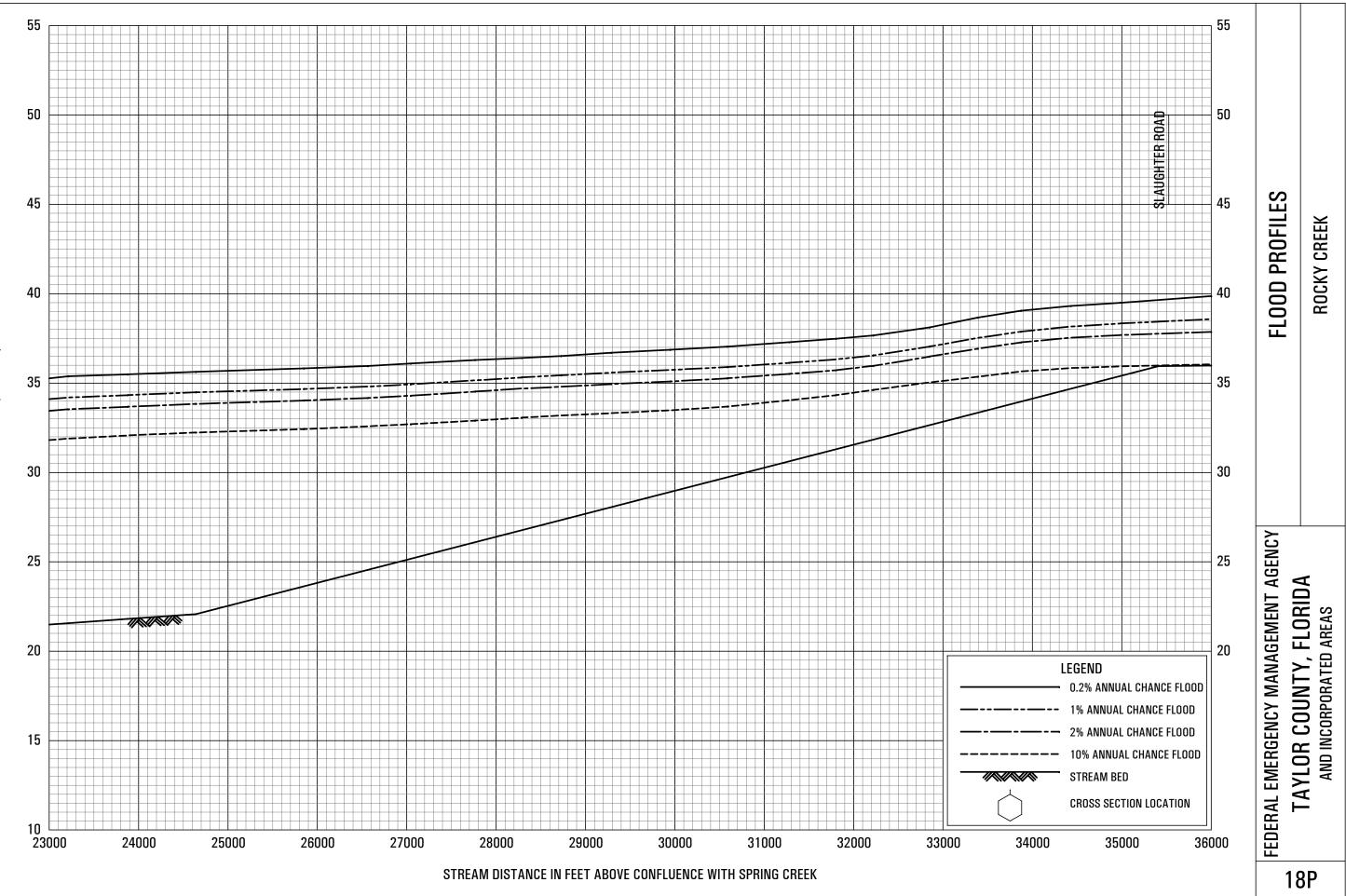


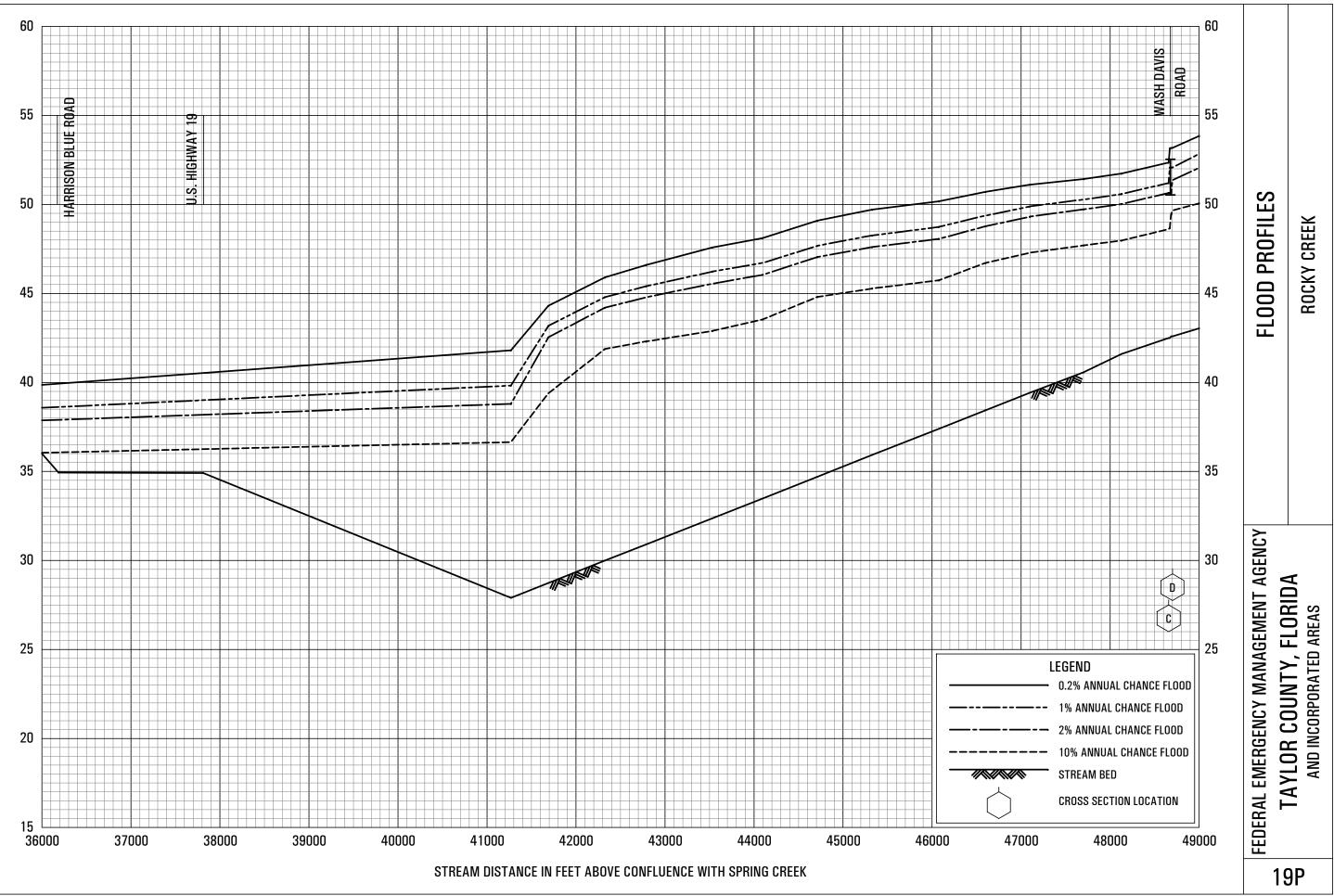
ELEVATION IN FEET (NGVD 29)

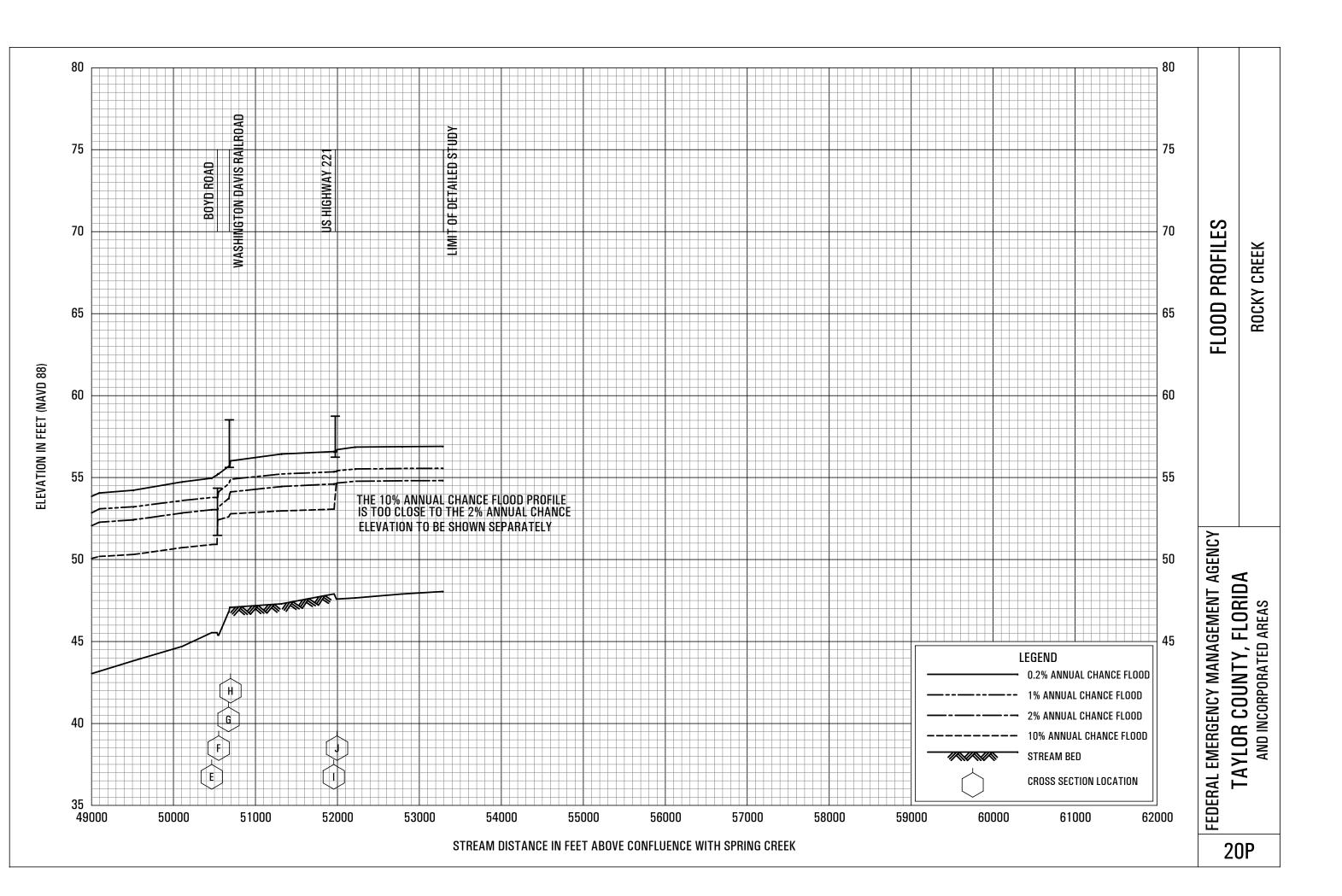




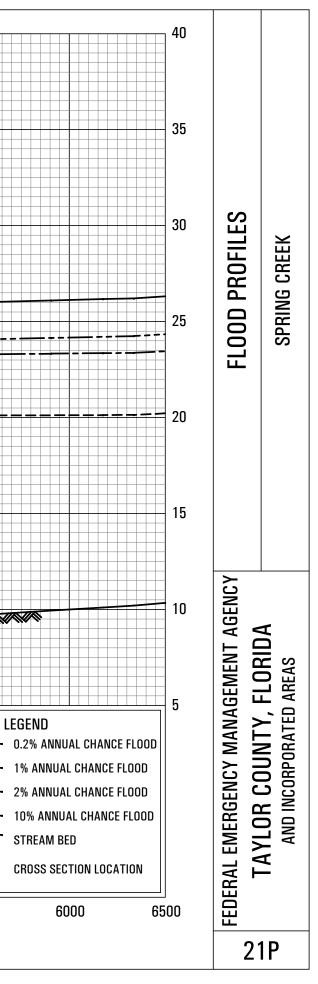




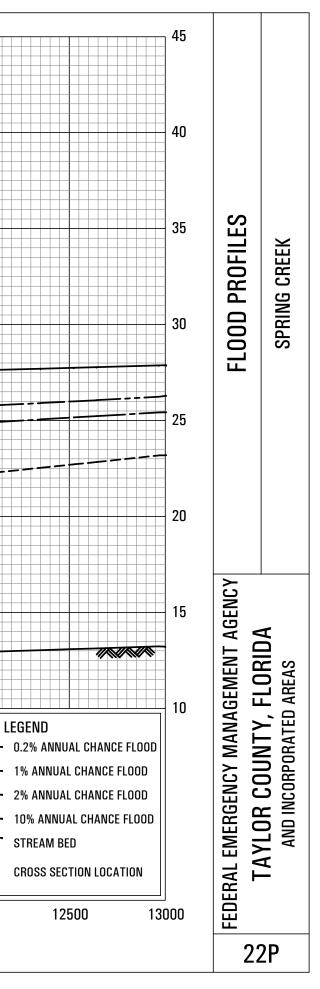




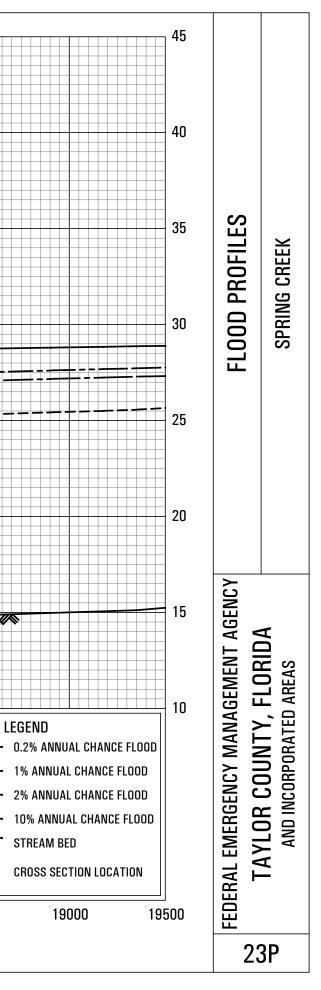
BACKWATER EFFECTS FROM FENHOLLOWAY RIVER HIGHWAY 98 **STATE HIGHWAY 356** U.S. CONFLUENCE WITH Fenholloway River Ω E BC A -5 STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH FENHOLLOWAY RIVER

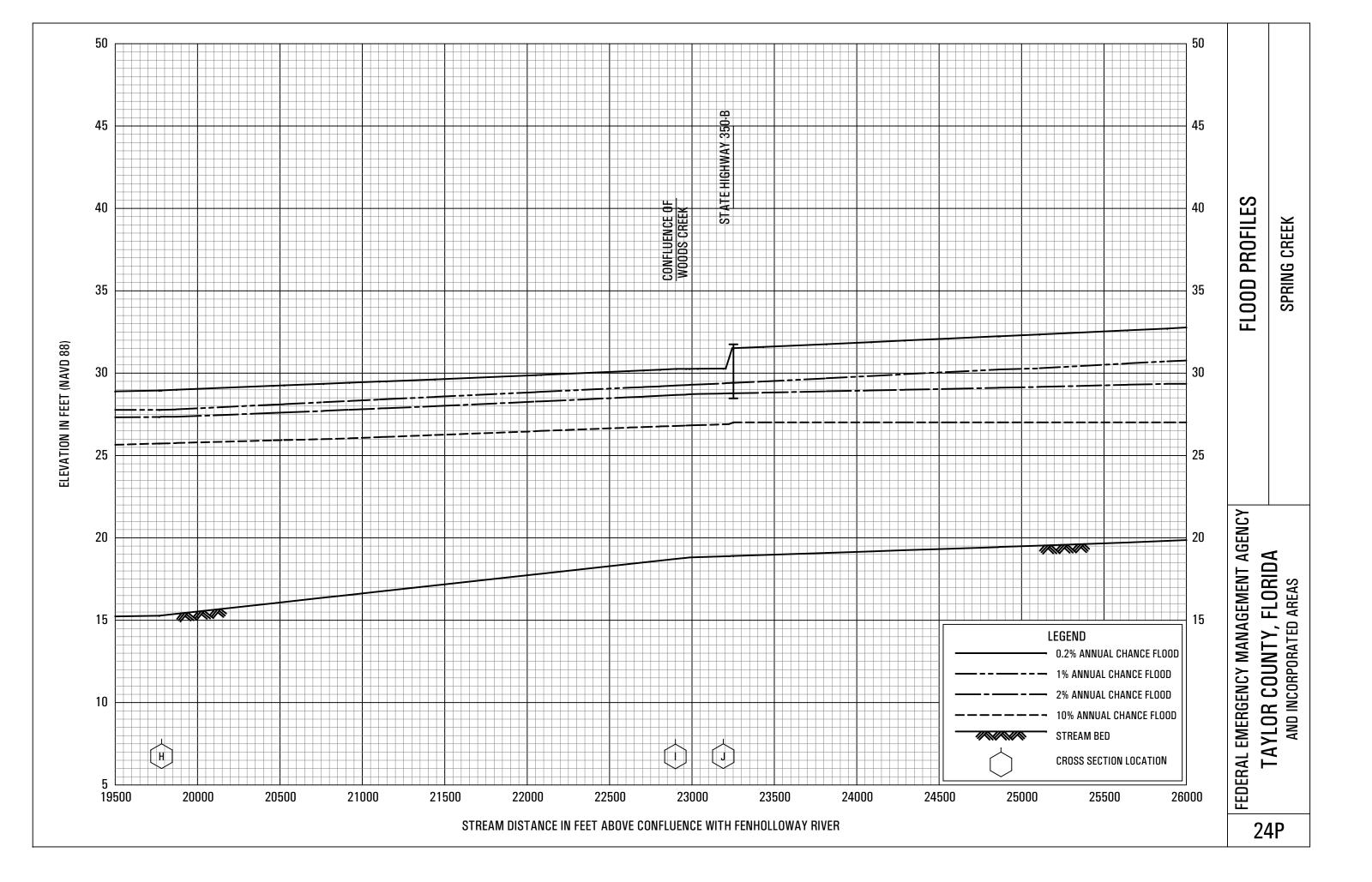


**CREEK** CONFLUENCE WITH ROCKY F STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH FENHOLLOWAY RIVER

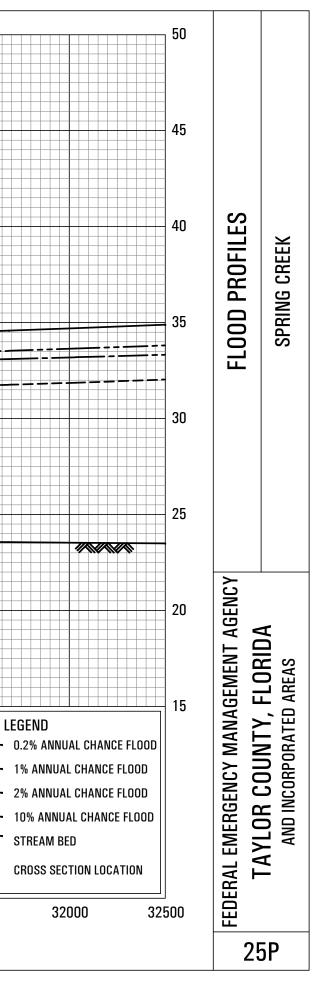


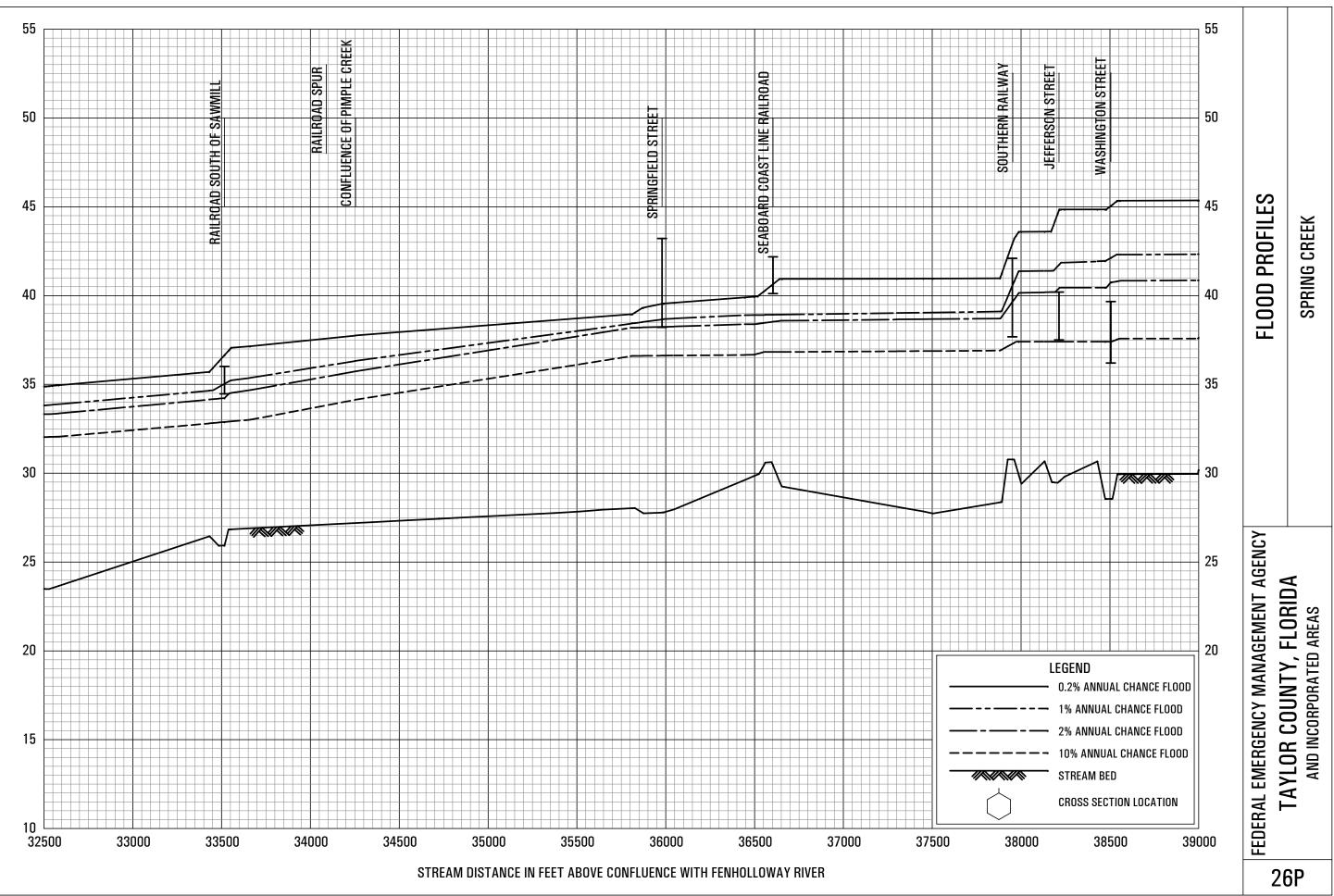
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH FENHOLLOWAY RIVER



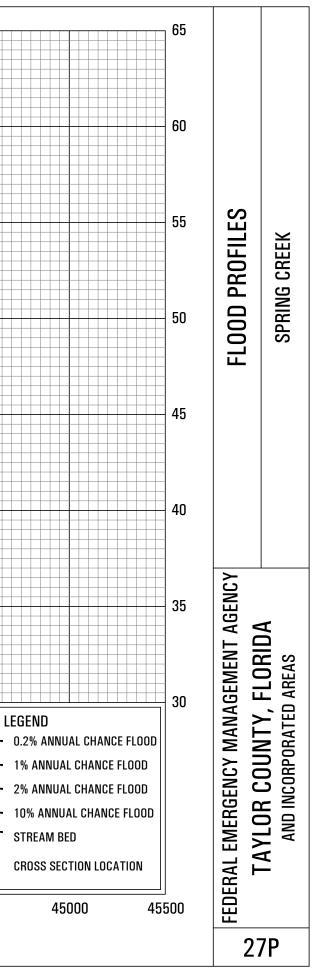


CORPORATE LIMITS STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH FENHOLLOWAY RIVER

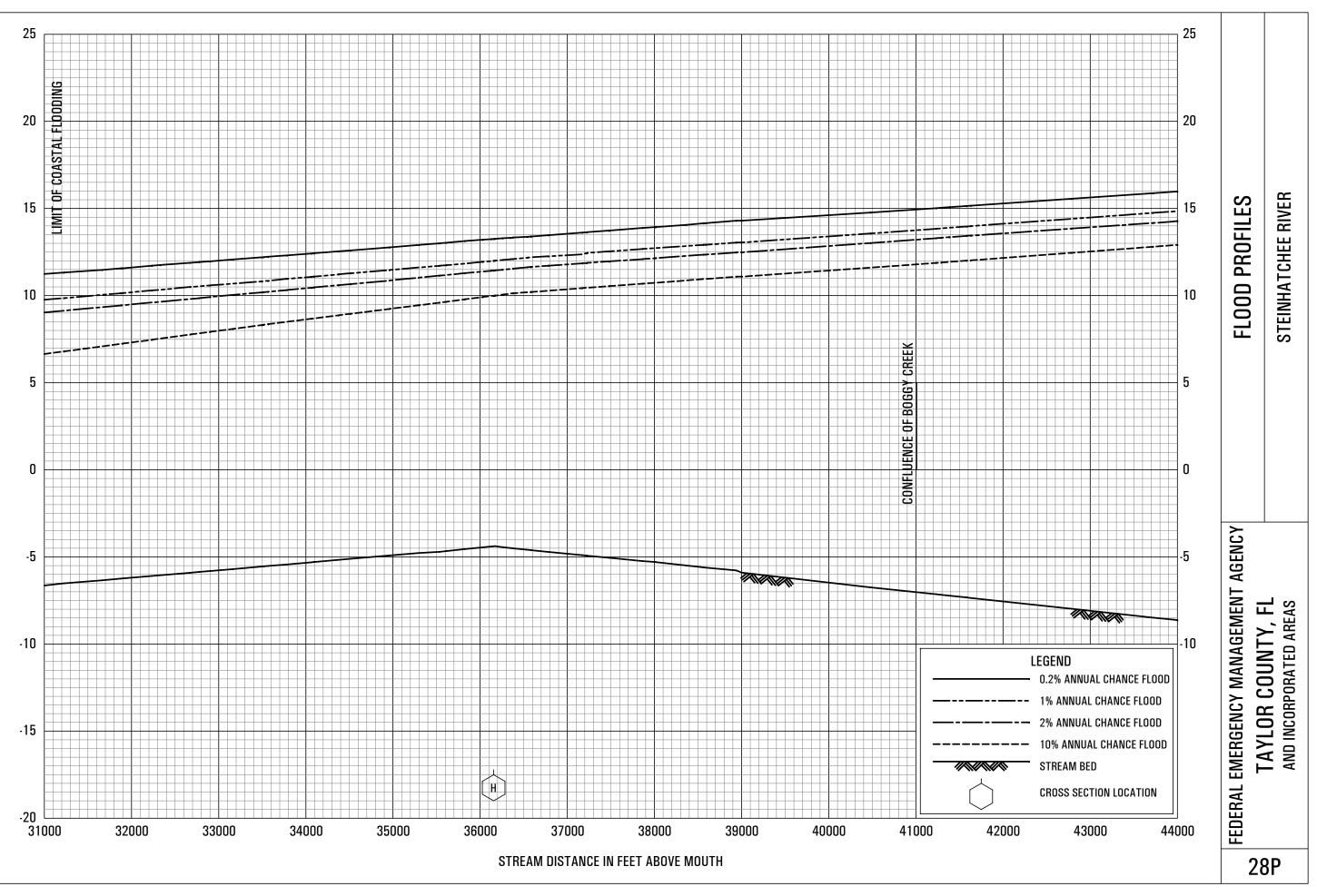




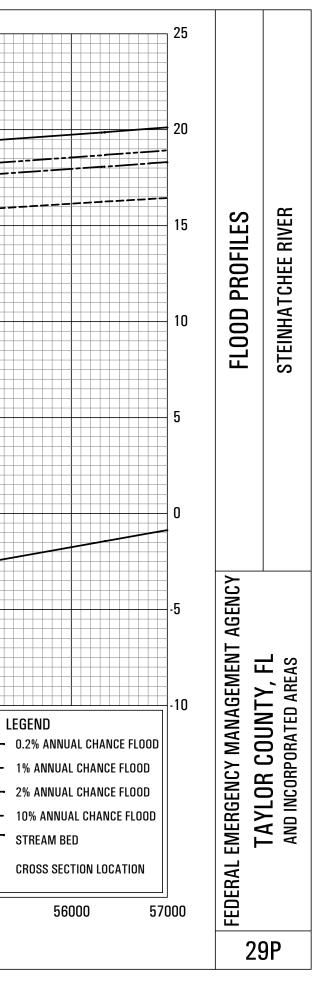
65 **FLOODING** 60 SOUTHERN RAILWAY RIVERIN CENTER STREET STREET SCHOOL ROAD 2 SPRING PLACE **MORGAN AVENU MAIN STREET CLARK ROAD** SCHOOL ROAD **GREEN** : 55 50 45 40 35 30 25 20 39000 43500 39500 40000 40500 41000 44000 41500 42000 42500 43000 44500 STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH FENHOLLOWAY RIVER



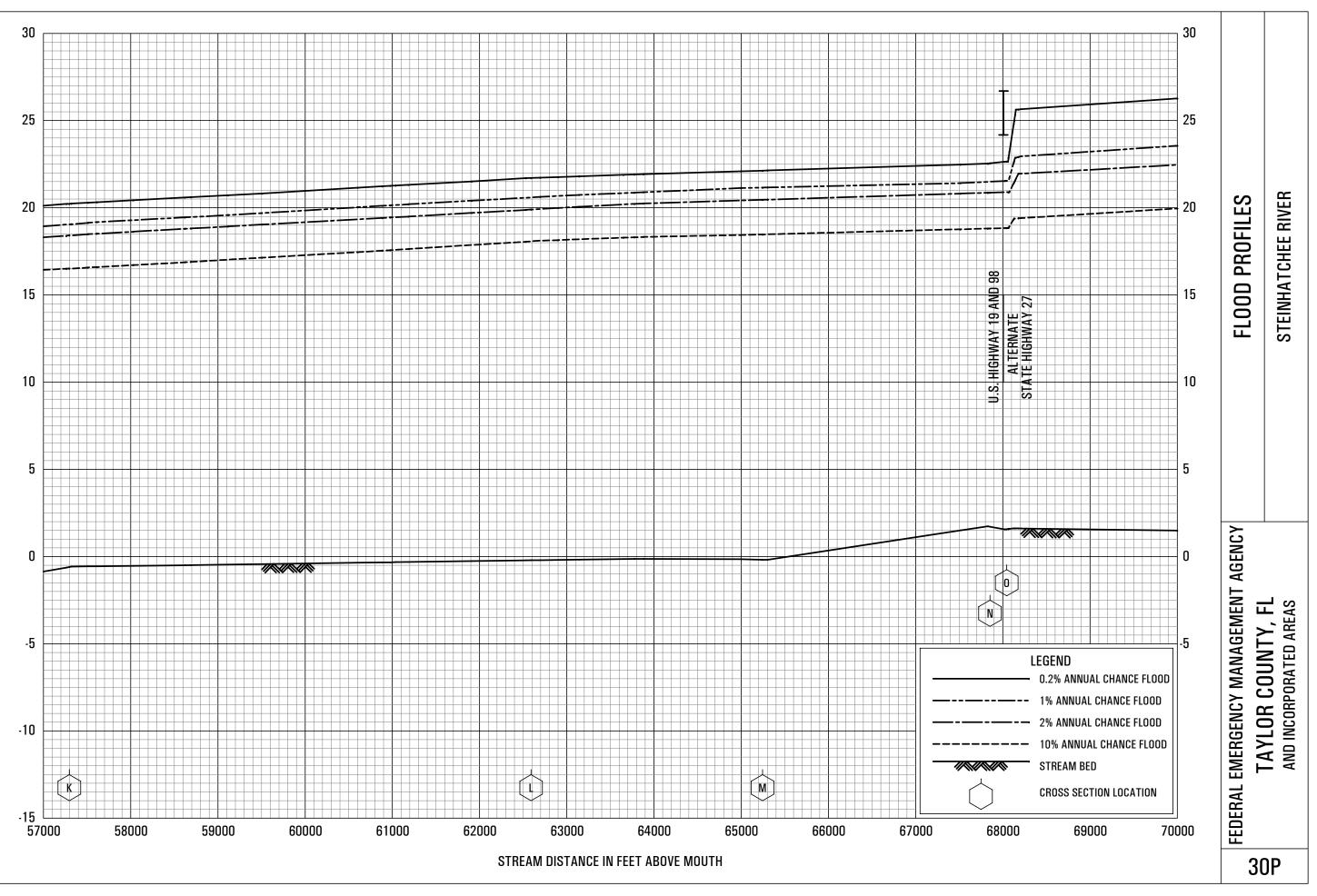


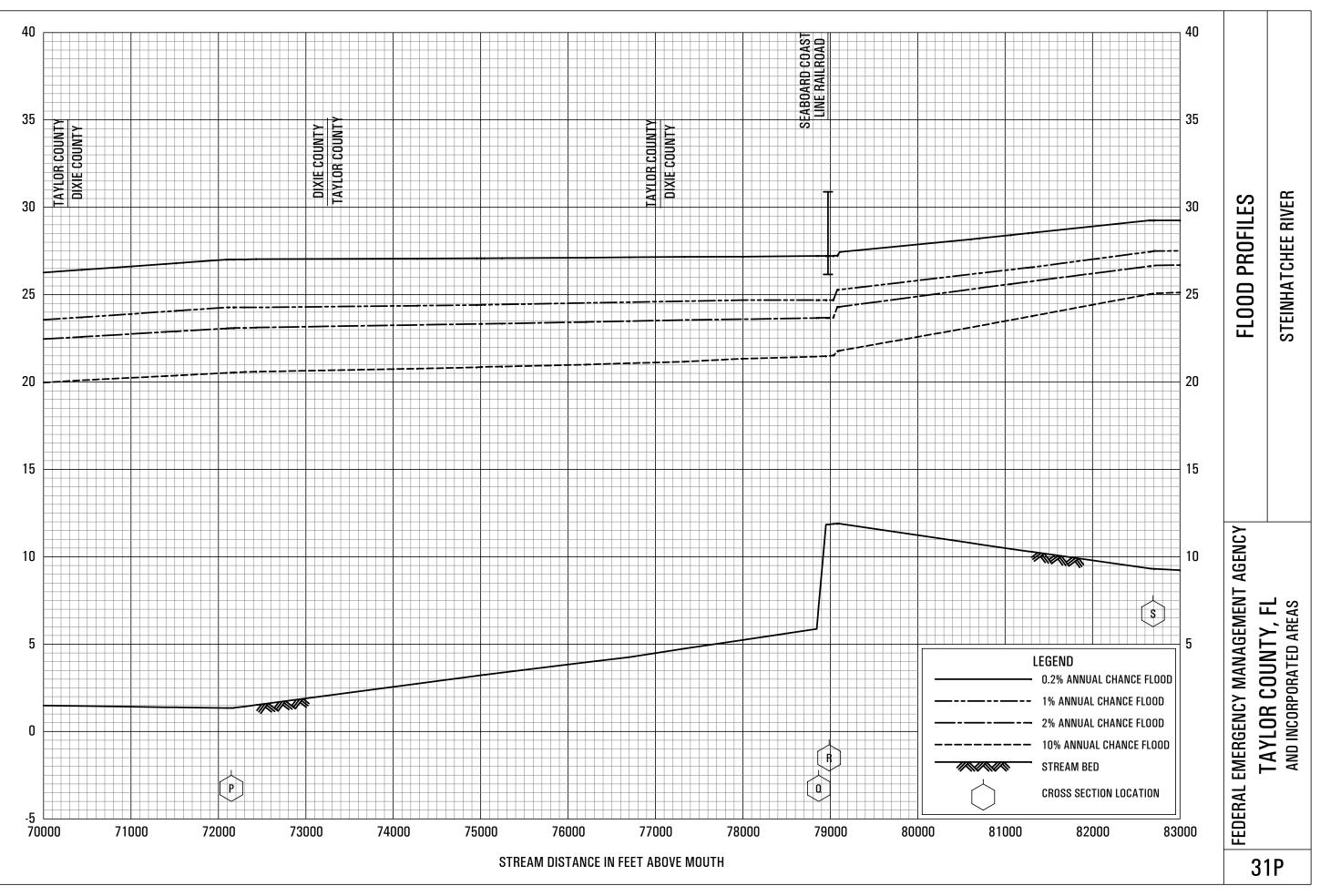


OF ROCKY CREEK CONFLUENCE -5 -10 -15  $\left|\right\rangle$ -20 44000 STREAM DISTANCE IN FEET ABOVE MOUTH









CONFLUENCE OF EIGHT MILE CREEK COUNT **VG AFFECTING T** FLOODI Ф (1)

STREAM DISTANCE IN FEET ABOVE MOUTH

