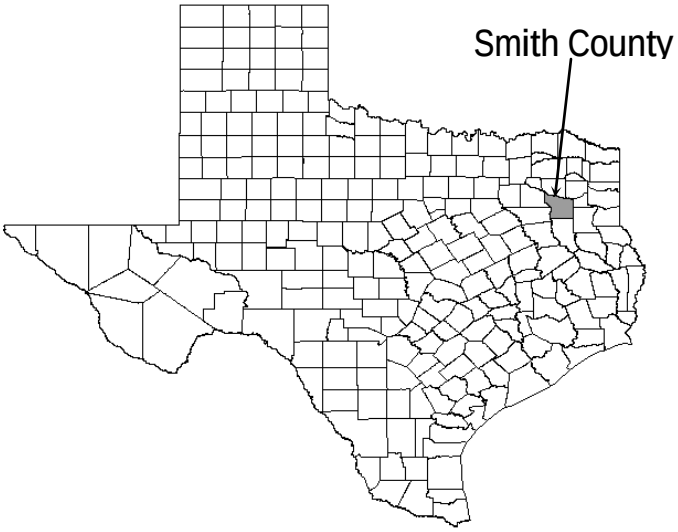
FLOOD INSURANCE STUDY

VOLUME 1 OF 2

SMITH COUNTY, TEXAS
AND INCORPORATED AREAS

Community Name	Community Number
ARP, CITY OF	480567
BULLARD, CITY OF	480568
HIDEAWAY, CITY OF	480200
LINDALE, CITY OF	480569
NEW HAPEL HILL, CITY OF	480157
NOONDAY, CITY OF	480183
OVERTON, CITY OF	480994
SMITH COUNTY (UNINCORPORATED AREAS)	481185
TROUP, CITY OF	480570
TYLER, CITY OF	480571
WHITEHOUSE, CITY OF	480572
WINONA, CITY OF	480573



REVISED:
April 16, 2014

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
48423CV001B

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 Community Map Repository. Please contact the Community Map 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 (LOMR) 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: September 26, 2008

Revised Countywide FIS Report Dates: April 16, 2014

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FLOOD INSURANCE STUDY
SMITH COUNTY, TEXAS AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of Smith County, Texas, including the Cities of Arp, Bullard, Hideaway, Lindale, New Chapel Hill, Noonday, Overton, Troup, Tyler, Whitehouse, and Winona; and the unincorporated areas of Smith County (referred to collectively herein as Smith County).

The cities of Bullard and Troup are geographically located in both Smith and Cherokee Counties. Flood hazard information for the portions of these communities located in Smith County is included in the Smith County, Texas and Incorporated Areas FIS. The flood hazard information for the portions located in Cherokee County is shown in the FIS for Cherokee County, Texas and Incorporated Areas.

The City of Overton is geographically located in Smith and Rusk Counties. Flood hazard information for the portion of Overton located in Smith County is included in the Smith County, Texas and Incorporated Areas FIS. The flood hazard information for the portions located in Rusk County is shown in the FIS for Rusk County, Texas and Incorporated Areas.

The FIS 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. This information will also be used by Smith County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and 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 report 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, Smith County in a countywide format. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their pre-countywide FIS reports, is shown below.

Tyler, City of:	the hydrologic and hydraulic analyses for the original FIS were prepared by Turner, Collie & Braden, Inc., for the Federal Emergency

Management Agency (FEMA), under Contract No. H-4568 (FEMA, 1986). In the 1992 revision, the hydrologic and hydraulic analyses for West Mud Creek and its tributaries, Black Fork Creek and its tributaries, and Willow Creek were prepared by the Brannon Corporation for the City of Tyler (FEMA, 1992).

Smith County (Unincorporated Areas): the hydrologic and hydraulic analyses for the July 2, 1981 FIS report were prepared by Turner, Collie & Braden, Inc., for the Federal Insurance Administration under Contract No. H-4568. This study was completed in December 1979, and covered all significant flooding sources affecting the residents of the unincorporated areas of Smith County (HUD, 1978).

The Cities of Arp, Bullard, Hideaway, Lindale, New Chapel Hill, Noonday, Overton, Troup, Whitehouse and Winona had no pre-countywide FIS reports.

For the initial 2008 countywide FIS, the hydrologic and hydraulic analyses for streams studied by detailed, enhanced approximate and approximate methods were performed by the Watershed VI Alliance, for FEMA, under Contract No. EMA-2002-CO-0048. This work was completed in October 2006. Floodplain boundaries were delineated based on more detailed and up-to-date topography provided by the City of Tyler and Smith County.

For this revision, the hydrologic and hydraulic analyses for the detailed streams were provided by the City of Tyler Master Drainage Study. Information from this drainage study was incorporated with only minor adjustments to meet FEMA requirements. This work was performed by Risk Assessment, Mapping, and Planning Partners (RAMPP) for FEMA under Task Order HSFE06-09J-0001. This work was completed in early 2011.

Base map information shown on this Flood Insurance Rate Map (FIRM) was derived from multiple sources. Base map information for Smith County and all incorporated communities within Smith County was provided in digital format by the City of Tyler and Smith County. This information was compiled from aerial photography.

For this revision, base map transportation information was provided in digital format from the City of Tyler GIS Department and the Texas Department of Transportation. Road centerline files were created in 2006, and railroad line files were created in 1997.

The digital FIRM was produced in the Texas State Plane Central North Federal Information Processing Standard (FIPS) Zone 4202 (feet) coordinate system referenced to the North American Datum of 1983 (NAD 83) and the GRS 1980 spheroid. Differences in the datum and spheroid used in the production of the 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

An initial Consultation Coordination Officer's (CCO) meeting is held with representatives from FEMA, the community, and the study contractor to discuss the nature and purpose of a FIS, and to identify the flooding sources to be studied by detailed methods. A final CCO meeting is held with representatives from FEMA, the community, and the study contractor to review the results of the study.

The dates of pre-countywide initial and final CCO meetings held for the communities within Smith County are shown in Table 1, "CCO Meeting Dates."

TABLE 1 - CCO MEETING DATES

Community Name	Initial CCO Date	Final CCO Date
Tyler, City of	May 23, 1977	August 15, 1979
Smith County (Unincorporated Areas)	October 19, 1978	September 3, 1980

For the initial countywide FIS, an initial CCO meeting was held with representatives of the impacted communities on June 30, 2005. A final CCO meeting was held on April 26, 2007 to review the results of this study. Community officials, FEMA Region VI representatives, and Watershed VI Alliance representatives attended the meeting.

For this current revision, an initial CCO meeting was held with representatives of the impacted communities on October 30, 2009. A final CCO meeting was held on June 21, 2011 to review the results of this study. Community officials, FEMA Region VI representatives, and RAMPP representatives attended the meeting.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Smith County, Texas, including incorporated communities listed in Section 1.1.

Pre-countywide FIS

For the Smith County Unincorporated Areas FIS dated July 2, 1981, streams studied by detailed methods were: Black Fork, Black Fork Tributary D, Henshaw, Saline, Shackleford, West Mud Creek, West Mud Tributaries A, B, and C, and Willow Creeks.

For the City of Tyler FIS dated August 1, 1980, streams studied by detailed methods were: West Mud Creek, West Mud Creek Tributaries A, B, and C, Black Fork Creek Tributary D, and Willow Creek.

For the City of Tyler FIS dated February 19, 1992, streams restudied by detailed methods were: West Mud Creek, West Mud Creek Tributaries A, B, and C, Black Fork Creek Tributary D, and Willow Creek. Black Fork Creek was restudied from

a point approximately 1,300 feet downstream of U.S. Route 271 to a point approximately 0.7 mile upstream of East Fifth Street. In addition, the following streams were newly studied by detailed methods: West Mud Creek Diversion Channel, West Mud Creek Tributaries A-1, C-1, M-1, M-2, and Black Fork Creek Tributaries D-3 and M-1.

Initial Countywide FIS

For the countywide FIS dated September 26, 2008, limits of detailed and enhanced approximate studies for studied or revised streams are shown in Table 2, "Scope of Study for September 26, 2008 Countywide FIS.

TABLE 2 – SCOPE OF STUDY FOR SEPTEMBER 26, 2008 COUNTYWIDE FIS

Stream	Limits of Revised or New Detailed Study
Blackhawk Creek	From confluence with Mud Creek to 500 feet upstream of corporate boundary of City of Whitehouse.
Blackhawk Creek Tributary 1	From confluence with Blackhawk Creek to 200 feet upstream of Hagan Road.
Blackhawk Creek Tributary 2	From confluence with Blackhawk Creek to 0.6 mile upstream of confluence with Blackhawk Creek.
Hill Creek	From confluence with Gilley Creek to 0.4 mile upstream of Barbee Road.
Horsepen Branch	From corporate boundary of City of Troup to 2,000 feet upstream of corporate boundary of City of Troup.
Mud Creek	From corporate boundary of Smith County to 200 feet upstream of State Highway 110.
Prairie Creek S	From 1600 feet downstream of Old Omen Road to 0.6 mile upstream of Old Henderson Highway.
Prairie Creek S Tributary 1	From confluence with Prairie Creek (South) to 1,900 feet upstream of White Tail Drive.
Beaver Run Mud Creek	From confluence with Mud Creek to 0.5 mile upstream of Jamestown Road.
Caney Creek	From confluence with Mud Creek to 1,500 feet downstream of County Road 251.
Everett Branch Creek	From confluence with Mud Creek to 1.7 miles upstream of confluence with Mud Creek.
Gilley Creek	From 200 feet downstream of Bascom Road to 400 feet upstream of County Road 2120.
Lawrence Branch Creek	From confluence with Beaver Run Mud Creek to 2.4 miles upstream of confluence with Beaver Run Mud Creek.
Lowry Creek	From confluence with Mud Creek to 1.4 miles upstream of Big Oak Bay Road.
Mud Creek Tributary 1	From confluence with Mud Creek to 0.4 mile upstream of Clarence Cobb Road.
Mud Creek Tributary 2	From confluence with Mud Creek to 650 feet upstream of Farm to Market Road 850.

Floodplain boundaries of streams that have been previously studied by detailed methods were redelineated based on more detailed and up-to-date topographic mapping for the September 26, 2008 countywide FIS.

The 2008 countywide FIS also reflects a vertical datum conversion from the National Geodetic Vertical Datum of 1929 (NGVD 29) to the North American Vertical Datum of 1988 (NAVD 88) which is reflected in this revision as well.

April 16, 2014 Countywide Revision

For this countywide FIS revision, the streams that were newly studied or revised by detailed methods are shown in Table 3, "Scope of Study for April 16, 2014 Countywide Revision."

TABLE 3 – SCOPE OF STUDY FOR APRIL 16, 2014 COUNTYWIDE REVISION

Stream:	Limits of Revised or New Detailed Study:
Black Fork Creek	From confluence with Prairie Creek W to 0.7 mile upstream of E. 5th St.
Black Fork Creek Tributary BF-1	From confluence with Black Fork Creek to 80 feet downstream of W. Martin Luther King Boulevard
Black Fork Creek Tributary BF-M-1	From confluence with Black Fork Creek to 0.11 mile downstream of E. 5th St.
Black Fork Creek Tributary D	From confluence with Black Fork Creek to 65 feet downstream of Houston Street
Black Fork Creek Tributary D-1	From confluence with Black Fork Creek Tributary D to 60 feet downstream of Gentry Parkway
Black Fork Creek Tributary D-2	From confluence with Black Fork Creek Tributary D to 20 feet downstream of Beverly Ave.
Black Fork Creek Tributary D-3	From confluence with Black Fork Creek Tributary D to E. Elm Street
Butler Creek	From 340 feet upstream of FM 2661 to 590 feet upstream of State Highway 155
Gilley Creek	From 750 upstream of Lake Tyler to 150 feet upstream of University Blvd.
Gilley Creek Tributary G-1	From confluence with Gilley Creek to 0.3 mile downstream of Lake Forest Dr.
Harris Creek	From 350 feet upstream with confluence of Ray Creek to 0.53 miles downstream of State Highway 31
Henshaw Creek	From confluence with West Mud Creek to 0.7 mile upstream of C.R. 165
Indian Creek	From 500 feet upstream of the confluence with Lake Palestine to 1,950 feet upstream of Loop 323 SSW
Ray Creek	From 1,950 feet upstream of the confluence with Harris Creek to State Highway 271

TABLE 3 – SCOPE OF STUDY FOR APRIL 16, 2014 COUNTYWIDE REVISION – continued

Stream:	Limits of Revised or New Detailed Study:
Shackleford Creek	From confluence with West Mud Creek to 620 feet upstream of Paluxy Dr.
West Mud Creek	From 8,500 feet upstream of mouth to 180 feet downstream of Loop 323 ESE
West Mud Creek Tributary 11	From confluence with West Mud Creek to 50 feet downstream of Pinehurst Street
West Mud Creek Tributary B	From confluence with West Mud Creek to 125 feet upstream of Paluxy Dr
West Mud Creek Tributary M-1	From confluence with West Mud Tributary M-A to 50 feet downstream of Old Jacksonville Highway
West Mud Creek Tributary M-2	From confluence with West Mud Creek to 640 feet downstream of Beth Dr.
West Mud Creek Tributary M-3	From confluence with West Mud Creek to 20 feet upstream of E. Rieck Rd
West Mud Creek Tributary M-A	From confluence with West Mud Creek to 70 feet upstream of Woodland Hills Dr
West Mud Creek Tributary M-A.1	From confluence with West Mud Creek Tributary M-A to 1,050 feet downstream of Charleston Dr.
West Mud Creek Tributary M-A.2	From confluence with West Mud Creek Tributary M-A to 700 feet downstream of Old Jacksonville Highway
West Mud Creek Tributary M-C	From confluence with West Mud Creek to 50 feet upstream of Old Jacksonville Highway
West Mud Creek Tributary M-C.1	From confluence with West Mud Creek Tributary M-C to 315 feet downstream of Shepherd Lane
West Mud Creek Tributary M-C.2	From confluence with West Mud Creek Tributary M-C to 340 feet downstream of Fair Lane
Wiggins Creek	From 3,440 feet upstream of the confluence of Harris Creek to 45 feet downstream of FM 2015
Willow Creek	From confluence with Black Fork Creek to 80 feet downstream of Parkdale Drive

For this countywide revision, stream names within the City of Tyler were changed in order to match the data provided by the City of Tyler Master Drainage Study. These changes are listed in Table 4, "Stream Name Changes."

TABLE 4 – STREAM NAME CHANGES

Old Name	New Name
Black Fork Creek Tributary M-1	Black Fork Creek Tributary BF-M-1
West Mud Creek Tributary A	West Mud Creek Tributary M-A
West Mud Creek Tributary A-1	West Mud Creek Tributary M-A.1
West Mud Creek Tributary C	West Mud Creek Tributary M-C
West Mud Creek Tributary C-1	West Mud Creek Tributary M-C.1

This revision also incorporated the determinations of letters issued by FEMA resulting in map changes, as shown in Table 5, "Letters of Map Revision."

TABLE 5 - LETTERS OF MAP REVISION

Community	Flooding Source(s)/Project Identifier	Date Issued	Type
City of Tyler	Unnamed Tributary to West Mud Creek Tributary M-1	October 3, 2011	LOMR

Limits of detailed studies are shown on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

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 the Watershed VI Alliance.

2.2 Community Description

Smith County is located in northeast Texas, approximately 100 miles east of Dallas. In 2010, the population of Smith County was estimated to be 209,714, with about 46 percent of the population residing in the City of Tyler (Census, 2010). The economy of the area is based on the oil industry, agribusiness, manufacturing, and education. Smith County is drained by the Sabine River to the north, Neches River to the west and Angelina River to the south.

The county is in the Pine Belt of Texas Gulf Coastal Plains, a region covered with dense forests consisting largely of pine, mixed with oak, gum, elm, and hickory. The topography ranges from hilly to gently rolling with elevations varying from 350 to 600 feet North American Vertical Datum of 1988 (NAVD 88). Predominant topsoils are red and gray sandy loams, under which lie the Sparta Sand geologic strata.

The average daily minimum temperature in January is 38 degrees Fahrenheit and the average daily maximum temperature in July is 94 degrees Fahrenheit. The average annual precipitation is 45 inches (NOAA, 2006).

The City of Tyler is the county seat of Smith County. The city is in the south central part of Smith County in Northeast Texas. In 2010, the population of the city was 96,900 (Census, 2010). The city is located on a drainage divide separating the basins of the Sabine River to the north, the Neches River to the west, and the Angelina River to the south. The city is drained by Black Fork Creek to the north and West Mud Creek to the south. The floodplains of both of these streams contain residential and commercial development (HUD, 1978).

2.3 Principal Flood Problems

There are no stream gaging stations on any of the streams studied. Accounts of past floods from local residents and newspapers indicate that flooding occurred in 1945, 1957, 1966, 1968, 1973, and 1976 (FEMA, 1992).

Flooding problems on Black Fork, West Mud, and Willow Creeks have been intensified from the effects of urbanization. Typically, runoff from a rapidly developing community increases faster than channel and culvert capacities can be improved. In some channels, flood flows are restricted due to thick brush and depositions.

2.4 Flood Protection Measures

Smith County has adopted a flood hazard prevention ordinance to control development within flood hazard areas.

Lake Tyler and Lake Tyler East are primarily water supply reservoirs. The drainage areas of Mud Creek Dam and Whitehouse Dam are approximately 68 and 45 square miles, respectively.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by detailed methods affecting the community.

Pre-countywide Analyses

Only the City of Tyler and Smith County Unincorporated Areas had FIS reports. The hydraulic analyses described in those reports have been compiled and are summarized below.

For the City of Tyler FIS dated August 1, 1980, the peak discharges for the streams studied by detailed methods were estimated by applying unit hydrograph methodology to a rainfall-runoff mathematical model developed by the U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center (HEC) (USACE, January 1973).

Rainfall data developed by the National Weather Service (NWS) were used in development of the 10-, 2-, and 1-percent-annual-chance storm events (NWS, 1961). Rainfall loss values and unit hydrography parameters were adopted from a previous study of Black Fork Creek conducted by the USACE Fort Worth District in 1973 (USACE, September 1973). Flood discharges for Black Fork Creek developed in this previous study were also adopted. The 0.2-percent-annual-chance discharges were determined by a straight-line extrapolation of log-probability plots of the computed 10-, 2-, and 1-percent-annual-chance flood discharges.

In the unincorporated areas of Smith County FIS dated July 2, 1981, the hydrologic analyses for all streams studied by detailed methods were developed using the HEC-1 computer model (USACE, 1988). Information for West Mud Creek Diversion Channel was developed from the analyses for West Mud Creek.

Initial Countywide Analysis

In the initial countywide analysis, discharges were estimated by applying unit hydrograph methodology to a rainfall-runoff mathematical model developed by the U.S. Army Corps of Engineers' Hydrologic Engineering Center (USACE, January 1973), as in the pre-countywide analysis. The unit hydrograph computations considered rainfall depth-duration-frequency data, rainfall losses, percentage of watershed development, and other pertinent watershed characteristics as determined from published documents and field and office investigation.

Discharges for the 10-, 2-, 1-, and 0.2-percent-annual chance recurrence intervals for each stream reach studied by detail methods, and the 1-percent-annual-chance recurrence interval for each stream reach studied by enhanced approximate methods, were determined using the rainfall-runoff model developed by the USACE HEC, HEC-HMS (hydraulic modeling system) (USACE, 2001). The HEC-HMS computer model was used to compute flood hydrographs and peak discharges. Rainfall data were taken from USGS Scientific Investigations Report 2004-5041 (Asquith and Roussel, 2004), and the NRCS methodology described in Technical Release 55 was used for determining the model input (NRCS, 1986). The simulation considered rainfall depth-duration-frequency data, rainfall losses, percentage of watershed development, and other pertinent watershed characteristics, as determined from published documents and field and office investigations.

The hydrologic analysis for stream reaches studied by approximate methods within the study area was performed as part of the HEC-HMS model. Discharges for the 1-percent-annual-chance recurrence interval for each stream reach studied by approximate methods not within the study area were determined using USGS Scientific Investigations Report 2004-5041. The USGS rural regression equations for Hydrologic Region 10 of Texas were used.

April 16, 2014 Countywide Revision

For this revision, the discharges for the 10-, 2-, 1-, and 0.2-percent-annual chance recurrence intervals for the following streams were determined in the City of Tyler Master Drainage Plan using the HEC-1 rainfall-runoff model (City of Tyler, 2008) :

Black Fork Creek
Black Fork Creek Tributary BF-1
Black Fork Creek Tributary BF-M-1
Black Fork Creek Tributary D
Black Fork Creek Tributary D-1
West Mud Creek
West Mud Creek Tributary 11
West Mud Creek Tributary B
West Mud Creek Tributary M-1
West Mud Creek Tributary M-2

Black Fork Creek Tributary D-2
Black Fork Creek Tributary D-3
Butler Creek
Gilley Creek
Gilley Creek Tributary G-1
Harris Creek
Henshaw Creek
Indian Creek
Ray Creek
Shackleford Creek
West Mud Creek Tributary M-3
West Mud Creek Tributary M-A
West Mud Creek Tributary M-A.1
West Mud Creek Tributary M-A.2
West Mud Creek Tributary M-C
West Mud Creek Tributary M-C.1
West Mud Creek Tributary M-C.2
Wiggins Creek
Willow Creek

A summary of discharge area-peak drainage relationships for streams studied in past revisions and this current revision is shown below in Table 6, "Summary of Discharges."

TABLE 6 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (CFS) 10% ANNUAL CHANCE	2% ANNUAL CHANCE	1% ANNUAL CHANCE	0.2% ANNUAL CHANCE
BLACK FORK CREEK					
Approximately 1,400 feet downstream of CR1150/Baron Verner Road	50.31	16,088*	25,267*	30,763*	42,547
At Confluence with Tributary BF-42, BF-43, BF-44	47.83	16,406*	25,681	31,557	42,241
At SH 110/Van Highway	37.57	17,090	25,770	29,843	38,753
Approximately 3,000 feet downstream of CR 427/Lake Park Drive	27.78	13,557*	20,693*	23,880*	30,313
At CR 427/Lake Park Drive	26.68	15,635	21,129	24,027	30,269
Approximately 800 Feet downstream of West NW Loop 323	19.80	11,992	16,851	19,148	24,168
Approximately 800 Feet upstream of Broadway Road	13.82	10,729	14,522	16,170	19,733
At FM 14/State Park Highway	13.34	10,713	14,519	16,154	19,693
Approximately 300 Feet downstream of East Erwin Street	3.95	6,466	9,742	10,919	12,759
Approximately 1,200 Feet upstream of Front Street	3.71	6,193	9,303	10,330	12,039
BLACK FORK CREEK TRIBUTARY BF-1					
At confluence with Black Fork Creek	1.17	1,880*	2,635*	2,981	3,775
Approximately 3,100 feet upstream of West NW Loop 323	0.83	1,994	2,648	2,913	3,513
At M.L. King Jr. Boulevard	0.23	647	830	908	1,088

* Flows have decreased to account for stream alleviations due to floodplain storage

TABLE 6 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (CFS) 10% ANNUAL CHANCE	2% ANNUAL CHANCE	1% ANNUAL CHANCE	0.2% ANNUAL CHANCE
BLACK FORK CREEK TRIBUTARY BF-M-1					
At confluence with Black Fork Creek	0.79	1,776	2,240	2,471	3,286
BLACK FORK CREEK TRIBUTARY D					
At confluence with Black Fork Creek	4.4	7,303	9,612	10,433	12,204
At East Oakwood Street	2.68	4,961	6,397	6,955	7,844
BLACK FORK CREEK TRIBUTARY D-1					
At confluence with Black Fork Creek Tributary D	1.45	2,726	3,896	4,329	5,379
BLACK FORK CREEK TRIBUTARY D-2					
At confluence with Black Fork Creek Tributary D	0.67	1,469	1,852	2,010	2,340
BLACK FORK CREEK TRIBUTARY D-3					
At confluence with Black Fork Creek Tributary D	0.66	1,814	2,367	2,593	3,108
BLACKHAWK CREEK					
Approximately 1.0 mile upstream of confluence with Mud Creek	9.0	1,828	3,965	5,513	10,467
Approximately 1,100 feet upstream of Blackjack Road	8.7	1,819	3,936	5,478	10,382
Approximately 0.8 mile upstream of Blackjack Road	8.1	1,797	3,863	5,386	10,186
Approximately 0.5 mile downstream of Fowler Road	6.3	1,598	3,188	4,806	8,737
Approximately 450 feet upstream of Fowler Road	4.1	1,457	2,925	3,831	5,825
Approximately 870 feet downstream of Woodland Hills Drive	2.9	1,126	2,199	2,878	4,429
Approximately 600 feet upstream of Troup Highway	2.0	672	1,335	1,764	3,048
Approximately 1,260 feet downstream of Willingham Road	1.7	541	1,100	1,544	2,686
Approximately 330 feet upstream of Willingham Road	0.8	253	582	832	1,374
Approximately 700 feet downstream of West Main Street	0.5	226	492	693	1,109
BLACKHAWK CREEK TRIBUTARY 1					
At confluence with Blackhawk Creek	0.7	265*	457*	586*	833*
Approximately 100 feet upstream of Shande Street	0.7	379	654	838	1,191
Approximately 280 feet upstream of Gardenview Street	0.6	359	622	799	1,117
At Stacy Street	0.5	324	566	726	1,023

* Flows have decreased to account for stream alleviations due to floodplain storage

TABLE 6 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (CFS) 10% ANNUAL CHANCE	2% ANNUAL CHANCE	1% ANNUAL CHANCE	0.2% ANNUAL CHANCE
BLACKHAWK CREEK TRIBUTARY 2					
At confluence with Blackhawk Creek	0.6	245	543	758	1,179
Approximately 1,400 feet upstream of confluence with Blackhawk Creek	0.5	223	496	696	1,083
Approximately 0.9 mile upstream of confluence with Blackhawk Creek	0.3	132	299	423	681
BUTLER CREEK					
At Study Limits	12.22	10,742	15,679	18,099	23,650
Approximately 500 feet upstream of CR1131/ Galilee Road	10.10	9,773	14,608	16,887	22,154
Approximately 2,500 feet downstream of CR1141 Dean Road	7.12	8,135	11,932	13,716	17,788
Approximately 5,300 feet downstream of CR1113 Lake Placid Road	4.57	6,337	9,022	10,278	12,991
Approximately 2600 feet downstream of CR1113 Lake Placid Road	3.92	6,047	8,448	9,531	11,995
Approximately 700 feet upstream of CR1113 Lake Placid Road	3.07	5,372	7,395	8,323	10,373
Approximately 3,500 feet upstream of CR1113 Lake Placid Road	2.38	4,818	6,488	7,184	8,839
Approximately 5,200 feet downstream of Highway 155	1.88	3,950	5,275	5,834	7,125
Approximately 2,200 feet downstream of Highway 155	1.05	2,393	3,201	3,530	4,353
Approximately 500 feet downstream of Highway 155	0.70	1,769	2,319	2,548	3,060
GILLEY CREEK					
At Lake Tyler/Study Limits	12.50	10,079	15,840	18,561	24,682
At FM 848	11.93	9,904	15,486	18,114	23,970
Approximately 5,100 feet downstream of CR 262/Old Omen Rd	8.09	10,519	15,540	17,517	22,083
GILLEY CREEK TRIBUTARY G-1					
At Confluence with Gilley Creek	3.62	5,221	7,812	8,487	10,616
Approximately 4,400 feet upstream of CR2120	2.02	4,328	5,778	6,390	7,811
HARRIS CREEK					
Approximately 4,000 feet downstream of CR 384/Old Longview Rd	30.49	18,701*	28,395*	33,706	46,921*
Approximately 2,500 feet downstream of CR 384/Old Longview Rd	30.06	18,846	28,432	33,673	47,011
Approximately 4,500 feet downstream of SH31	8.49	8,724	12,998	14,391	17,585

* Flows have decreased to account for stream alleviations due to floodplain storage

TABLE 6 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (CFS) 10% ANNUAL CHANCE	2% ANNUAL CHANCE	1% ANNUAL CHANCE	0.2% ANNUAL CHANCE
HARRIS CREEK - continued					
Approximately 1,600 feet downstream of FM 850	6.00	7,568	10,391	11,429	14,106
Approximately at FM 850	5.52	7,171	10,027	11,134	13,825
Approximately 1,800 feet downstream of Confluence of Tributary H-1	3.06	4,677	6,453	7,250	9,062
HENSHAW CREEK					
At confluence with West Mud Creek	7.57	4,188	7,429	8,981	12,483
At FM 346	6.57	3,998*	6,896	8,257	11,350
At CR 137	5.82	4,184	6,528	7,785	10,657
Approximately 3,000 feet downstream of CR 132/Cox Rd	5.36	4,245	6,458	7,684	10,554
At CR 132/Cox Rd	4.33	3,633	5,818	6,841	9,170
HILL CREEK					
At confluence with Gilley Creek	11.1	1,978	4,655	6,532	12,732
Approximately 0.6 mile downstream of Bascom Road	10.0	1,887	4,378	6,285	12,129
Approximately 1,500 upstream of Bascom Road	9.2	1,843	4,145	6,240	11,238
At Old Tyler Road	7.9	1,668	3,702	5,637	9,880
Approximately 0.5 mile upstream of Old Tyler Road	4.2	1,050	2,223	3,270	5,363
Approximately 850 feet downstream of Moser Lane	3.8	1,017	2,209	3,121	5,165
Approximately 150 feet upstream of Moser Lane	3.4	967	2,048	2,871	4,732
Approximately 100 feet downstream of Troup Highway	2.0	577	1,195	1,681	2,807
HORSEPEN BRANCH					
Approximately 1.5 miles upstream of confluence with Kickapoo Creek	0.7	477	871	1,145	1,743
Approximately 1.6 miles upstream of confluence with Kickapoo Creek	0.4	311	589	773	1,157
INDIAN CREEK					
At 2004 ETJ/Study Limits	23.77	7,894	11,625	13,256	18,074
At confluence with Tributary I-17	20.82	7,319	10,673	12,829	17,074
At Dean Road	16.26	5,805	9,610	10,592	15,277
Upstream of Greenbriar Lake/State Fish Hatcheries	7.39	2,173	3,664	4,408	7,231
Upstream of Bellwood Lake	4.04	6,203	8,192	9,226	11,985
Approximately 1900 feet upstream of South SW Loop 323	1.18	2,069	2,633	3,107	4,160

* Flows have decreased to account for stream alleviations due to floodplain storage

TABLE 6 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (CFS) 10% ANNUAL CHANCE	2% ANNUAL CHANCE	1% ANNUAL CHANCE	0.2% ANNUAL CHANCE
MUD CREEK					
Approximately 600 feet downstream of Smith /Cherokee County boundary	168.5	8,029	16,864	22,584	37,986
Approximately 0.8 mile downstream of Old Tyler Road	164.2	7,987	16,745	22,376	37,500
Approximately 1,700 feet downstream of Old Tyler Road	162.8	7,975	16,718	22,297	37,366
PRAIRIE CREEK S					
Approximately 0.4 mile downstream of Old Omen Road	10.7	2,145	4,055	5,843	10,946
At Old Omen Road	9.9	2,041	3,855	5,602	10,664
At confluence with Prairie Creek S Tributary 1	3.9	1,197	2,163	2,960	4,842
Approximately 0.5 mile downstream of Henderson Highway	2.9	801	1,490	1,968	3,058
Approximately 300 feet upstream of Henderson Highway	2.4	661	1,968	1,639	2,709
At Old Henderson Highway	2.0	548	3,058	1,458	2,514
PRAIRIE CREEK S TRIBUTARY 1					
At confluence with Prairie Creek S	5.7	1,114	2,206	3,236	5,088
Approximately 900 feet upstream of Wolfe Lane	4.8	1,079	2,079	2,757	4,100
Approximately 0.5 mile downstream of Henderson Highway	3.8	793	1,604	2,430	3,596*
Approximately 1,200 downstream of Henderson Highway	3.1	753*	1,481	2,272	3,193*
At Henderson Highway	3.0	742*	1,461	2,248*	3,126*
At Pleasure Acres Lake Dam	2.9	776	1,774	2,335	3,611
Approximately 1,800 feet downstream of White Tail Drive	0.5	142	284	384	591
Approximately 200 feet downstream of White Tail Drive	0.2	49	131	198	337
RAY CREEK					
At confluence with Tributary R-14	18.03	12,508	18,841	22,083	30,865
At confluence with Tributary R-13	16.87	12,227	18,245	21,421	29,857
At confluence with Tributary R-12	15.64	11,866	17,540	20,823	29,392*
At confluence with Walsh Creek	15.47	11,861	17,521	21,117	29,703
At confluence with Walsh Creek	12.49	10,320*	15,010*	17,563*	23,857
At confluence with R-10	12.04	10,547*	15,726*	18,105*	23,414
At confluence with Five Mile Branch	11.59	11,063	16,163	18,405	23,155
Between Lovers Branch and Five Mile Branch	10.05	9,758	13,963	15,848	20,049
At confluence with Lovers Branch	6.66	6,942*	9,635*	10,819*	13,789*
At confluence with R-6	5.79	7,066	9,982	11,253	14,097
At confluence with R-1	4.98	7,053	9,705	10,823	13,338
At confluence with R-2	4.70	6,865	9,388	10,410	12,795
At confluence with Tributary R-3	4.17	6,238	8,471	9,386	11,489
Downstream of Gladewater Hwy US 271	2.80	3,972	5,411	6,008	7,370

* Flows have decreased to account for stream alleviations due to floodplain storage

TABLE 6 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (CFS) 10% ANNUAL CHANCE	2% ANNUAL CHANCE	1% ANNUAL CHANCE	0.2% ANNUAL CHANCE
SALINE CREEK					
At bridge of Unnamed Road at Mile 5.31	23.65	6,670	9,650	11,190	14,400
SHACKLEFORD CREEK					
At confluence with West Mud Creek	10.40	6,874	12,190	13,955	19,171
Approximately 700 feet downstream of FM 756/Paluxy	1.86	3,238	4,335	4,714	6,418
WEST MUD CREEK					
Approximately 4,600 feet downstream of FM 2813/Skidmore	18.7	15,125	21,259	23,727	30,280
Approximately 1,600 feet upstream of Broadway	7.91	10,056*	12,949	14,416*	18,216*
At Rieck Road	7.2	10,119	12,886	14,456	18,700
At Shiloh Road	5.06	7,836	9,961	10,996	13,367
Approximately 600 ft upstream of Easy Street	0.92	2,494	3,162	3,469	4,184
WEST MUD CREEK TRIBUTARY 11					
At confluence with West Mud Creek	1.95	2,678	3,708	4,186	5,218
At Holly Creek Drive	0.66	1,149	1,526	1,691	2,063
WEST MUD CREEK TRIBUTARY B					
At confluence with West Mud Creek	1.93	2,471	3,251	3,620	4,709
WEST MUD CREEK TRIBUTARY M-1					
At confluence with West Mud Creek	1.83	4,140	4,656	5,581	5,948
WEST MUD CREEK TRIBUTARY M-2					
At confluence with West Mud Creek	0.35	469	610	840	1,421
WEST MUD CREEK TRIBUTARY M-3					
At Barbee Drive	0.64	1,195	1,650	1,875	2,350
WEST MUD CREEK TRIBUTARY M-A					
At confluence with West Mud Creek	2.76	3,798	4,969	5,343	6,384
At Creekside Circle	2.4	3,449	4,413	5,005	6,161
WEST MUD CREEK TRIBUTARY M-A.1					
At confluence with Tributary M-A	0.42	890	1,189	1,332	1,669
WEST MUD CREEK TRIBUTARY M-A.2					
At confluence with Tributary M-A	0.65	1,112	1,545	1,747	2,083
WEST MUD CREEK TRIBUTARY M-C					
At confluence with West Mud Creek	3.25	5,493	6,948	7,604	9,116
Approximately 500 feet upstream of East SE Loop 323	3.14	5,445	6,859	7,483	9,001
Approximately 1000 feet upstream of Old Bullard Road	2.14	3,998	5,256	5,777	6,914
At Green Lane	1.17	2,473	3,243	3,548	4,325

* Flows have decreased to account for stream alleviations due to floodplain storage

TABLE 6 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (CFS) 10% ANNUAL CHANCE	2% ANNUAL CHANCE	1% ANNUAL CHANCE	0.2% ANNUAL CHANCE
WEST MUD CREEK TRIBUTARY M-C.1					
At confluence with Tributary M-C	0.68	1,553	1,974	2,111	2,643
Approximately 500 feet upstream of New Copeland Road	0.23	774	995	1,086	1,291
WEST MUD CREEK TRIBUTARY M-C.2					
At confluence with Tributary M-C	0.59	1,295	1,709	1,879	2,243
WIGGINS CREEK					
At SH 155	13.93	6,917*	11,712*	13,372*	20,987*
At confluence with Tributary W-2	13.56	7,796*	13,119*	16,112*	22,253*
At confluence with Tributary W-2	12.64	7,734*	12,929*	15,840*	21,781*
At confluence with Tributary W-3	12.16	8,537*	14,470*	17,059	22,379
At confluence with Tributary W-5 & Tributary W-3	11.41	8,737	14,630*	16,976	22,129
At confluence with Tributary W-5	10.96	11,243	14,808	16,880	21,999
At Unnamed Road	9.75	10,702	13,533	15,443	20,053
At confluence with Tributary W-6 & Tributary W-7	8.87	9,079	13,268	15,220	19,693
WILLOW CREEK					
At Confluence with Black Fork	6.34	4,437	6,659	7,833	10,434
At Outfall of Lake Park	5.85	4,448	6,452	7,596	10,086
At SH 110/Van Highway	4.87	4,133	5,887	6,911	8,846

* Flows have decreased to account for stream alleviations due to floodplain storage

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the floodway data tables in the FIS report. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. 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.

Cross sections for the flooding sources studied by detailed methods were obtained from field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in hydraulic analysis 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 revised 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 the hydraulic structures remain unobstructed, operate properly, and do not fail.

Along certain portions of the detailed study streams a profile base line is shown on the maps to represent channel distances as indicated on the Flood Profiles and Floodway Data tables.

Pre-Countywide Analysis

Channel and valley cross sections of streams studied in detail were obtained by either field surveys or from available data from the USACE-Fort Worth District and Wisenbaker, Fix, & Associates. In addition, cross sections at some bridges were obtained from the City of Tyler.

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (USACE, 2002). The profiles are considered to have an accuracy of 0.5 foot. Flood profiles for Black Fork Creek were adopted from a previous study by the USACE-Fort Worth District (USACE, September 1973).

Coefficients of roughness (Manning's "n") were assigned to elements of the valley on the basis of field inspections, aerial photos, and topographical maps depicting the channels and flood plains of the streams.

For the City of Tyler FIS dated February 19, 1992, cross sections were developed from field survey information. Plan and profile sheets, at a scale of 1"=200', with a contour interval of 2 feet, were utilized (FEMA, 1992). Information for the West Mud Creek Diversion Channel was developed from the analyses for West Mud Creek. All starting water surface elevations were based on known water surface elevations.

Initial Countywide Analysis

In the countywide FIS dated September 26, 2008, water-surface elevations for the 10-percent, 2 percent, 1-percent, and 0.2-percent-annual-chance floods were computed using a computer program developed by the USACE HEC (USACE, October 1973). Channel and valley cross sections of streams studied in detail were obtained by either field surveys or from available data from the USACE-Fort Worth District.

Coefficients of roughness (Manning's "n") were assigned to elements of the valley on the basis of field inspections, aerial photos, and topographical maps depicting the channels and flood plains of the streams. The selected coefficients varied from 0.04 to 0.07 for the channels and from 0.06 to 0.14 for the overbank areas.

Starting water-surface elevations were determined at a location downstream of the study limit by using normal depth calculations and assuming a slope for the energy grade line equal to the slope of the channel bottom.

The hydraulic analyses were based on existing conditions. Calculated flood elevations are valid only if the waterway structures and the channel and overbank characteristics remain in essentially the same conditions as when ascertained.

The flood profiles are considered to have an accuracy of 0.5 foot. Flood profiles for Black Fork Creek were adopted from a previous study by the USACE-Fort Worth District (City of Tyler, 2008).

The starting conditions for the hydraulics model were set to normal depth using a starting slope calculated from values taken from topographic data or, where applicable, derived from the water surface elevations of existing effective flood elevations. Water surface profiles were computed through the use of the U.S. Army Corps of Engineers HEC-RAS Version 3.1.2 program (USACE, 2002).

All elevations are referenced to NAVD 88. Roughness factors used in the hydraulic computations were chosen based on aerial photography.

April 16, 2014 Countywide Revision

In this revision, water-surface elevations for the 10-percent, 2 percent, 1-percent, and 0.2-percent-annual-chance floods were determined in the City of Tyler Master Drainage Plan (City of Tyler, 2008) using the HEC-RAS hydraulic model (City of Tyler, 2008).

Cross section and valley cross sections of studied streams were obtained from the City of Tyler 2 foot contour topographic information (City of Tyler, 2008). The cross sections were coded on average every 400 ft and at any obstruction or major changes in the flooding source. In addition to the contour topographic information, survey information at various locations throughout each reach was obtained. This survey information was used modify the cross section data inside the channel banks. The City of Tyler Master Drainage Plan identified 161 culvert and bridge structures for analysis in the study. These 161 structures were verified with survey information, and the survey information was used in the hydraulic models.

Along certain portions of Indian Creek, specifically through Bellwood Lake, a profile base line is shown on the maps to represent channel distances as indicated in the Flood Profiles and Floodway Data tables.

Coefficients of roughness (Manning's "n") were assigned to elements of the valley on the basis of field inspections, aerial photos, and topographical maps depicting the channels and flood plains of the streams. The selected coefficients varied from 0.013 for concrete lined channels to 0.10 for thick vegetation growth in the floodplain overbanks.

Starting water surface elevations for the respective stream segments was computed at critical depth. For tributaries of West Mud, Black Fork, Gilley, and Harris Creeks the starting water-surface elevations were based on the ratio of drainage areas. If the ratio of the drainage area for the main channel to the tributary channel was 15:1 or less, then the water-surface elevation from the 25-yr storm was used as the starting water-surface elevations for the 100-yr event. If the ratio of drainage areas was over 15:1 then coincident water-surface elevations were used.

Channel and overbank "n" values for the streams studied in past revisions and the current revision are shown in Table 7. The values for Saline Creek are not available.

TABLE 7 – MANNING'S "N" VALUES

Flooding Source	Channel "n"	Overbank "n"
Black Fork Creek	0.002-0.075	0.02-0.09
Black Fork Creek Tributary BF-1	0.05-0.065	0.07-0.085
Black Fork Creek Tributary BF-M-1	0.04-0.055	0.065-0.085

TABLE 7 – MANNING'S "N" VALUES – continued

Flooding Source	Channel "n"	Overbank "n"
Black Fork Creek Tributary D	0.025-0.055	0.035-0.09
Black Fork Creek Tributary D-1	0.045-0.06	0.05-0.085
Black Fork Creek Tributary D-2	0.025-0.055	0.035-0.085
Black Fork Creek Tributary D-3	0.035-0.055	0.035-0.095
Blackhawk Creek	0.040-0.070	0.035-0.140
Blackhawk Creek Tributary 1	0.050	0.060-0.140
Blackhawk Creek Tributary 2	0.050-0.060	0.060-0140
Butler Creek	0.04-0.075	0.045-0.085
Gilley Creek	0.04-0.085	0.04-0.085
Gilley Creek Tributary G-1	0.04-0.055	0.05-0.085
Harris Creek	0.04-0.06	0.02-0.085
Henshaw Creek	0.045-0.08	0.045-0.1
Hill Creek	0.040-0.045	0.035-0.130
Horsepen Branch	0.048	0.080-0.140
Indian Creek	0.02-0.08	0.02-0.09
Mud Creek	0.040	0.040-0.150
Prairie Creek S	0.040-0.050	0.060-0.120
Prairie Creek S Tributary 1	0.035-0.050	0.035-0.150
Ray Creek	0.04-0.07	0.02-0.08
Shackelford Creek	0.035-0.055	0.02-0.1
West Mud Creek	0.02-0.06	0.02-0.075
West Mud Creek Tributary 11	0.025-0.065	0.04-0.08
West Mud Creek Tributary B	0.025-0.05	0.035-0.07
West Mud Creek Tributary M-1	0.035-0.055	0.035-0.065
West Mud Creek Tributary M-2	0.035-0.06	0.035-0.06
West Mud Creek Tributary M-3	0.035-0.055	0.035-0.065
West Mud Creek Tributary M-A	0.025-0.05	0.025-0.07
West Mud Creek Tributary M-A.1	0.03-0.045	0.03-0.06
West Mud Creek Tributary M-A.2	0.025-0.045	0.035-0.05
West Mud Creek Tributary M-C	0.02-0.055	0.02-0.065
West Mud Creek Tributary M-C.1	0.025-0.05	0.035-0.06
West Mud Creek Tributary M-C.2	0.035-0.055	0.035-0.075
Wiggins Creek	0.05-0.065	0.065-0.085
Willow Creek	0.025-0.075	0.02-0.095

The hydraulic analyses for this study 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.

All elevations are referenced to NAVD 88. Qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order

Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)
- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)
- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or location information for bench marks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their web site at www.ngs.noaa.gov.

It is important to note that temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook (TSDN) associated with this FIS and FIRM. Interested individuals may contact FEMA to access this data.

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (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 (BFEs) across the corporate limits between the communities.

The elevations shown in the FIS report and on the FIRM can be converted to NGVD 29 by applying a standard conversion factor. The conversion factor to NGVD 29 is +0.087, where NGVD29 = NAVD88 + 0.087. The BFEs shown on the FIRM represent whole-

foot rounded values. For example, a BFE of 102.4 will appear as 102 on the FIRM and 102.6 will appear as 103. Therefore, users that wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor 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 regarding conversion between the NGVD 29 and NAVD 88, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

NGS Information Services Branch
NOAA, N/NGS12
National Geodetic Survey
SSMC3 #9202
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

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

4.1 Floodplain Boundaries

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

The 1- and 0.2-percent-annual-chance floodplain boundaries are shown on the FIRM (Exhibit 2). On these FIRMs, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE); and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. For the streams studied by approximate methods, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM (Exhibit 2).

Pre-countywide FIS

In the Smith County (Unincorporated Areas) FIS dated January 3, 1978, for each stream studied by detailed methods, the 1- and 0.2-percent-annual-chance floodplain boundaries

have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24,000, with a contour interval of 10 feet (HUD, 1978) and the Black Fork Creek flood boundaries were taken from the "Flood Plain Information – Black Fork Creek – Tyler, Texas" document from the USACE - Fort Worth District.

In the City of Tyler FIS dated August 1, 1980, for the streams studied in detail, the 1- and 0.2-percent-annual chance floodplain boundaries were delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries in the original study were interpolated using topographic maps at a scale of 1:4,800 with a contour interval of five feet. In the City of Tyler FIS revision dated February 19, 1992, the 1-percent-annual-chance floodplain boundaries for the restudied streams were interpolated using plan and profile sheets at a scale of 1"=200', with a contour interval of two feet (FEMA, 1992).

Initial Countywide FIS

For the countywide FIS dated September 26, 2008, floodplain boundaries were delineated using topographic data and photogrammetric methods.

The Black Fork Creek flood boundaries were taken from a study conducted by the USACE – Fort Worth District (USACE, 1973).

For the streams studied by approximate methods, only the 1-percent-annual-chance floodplain boundaries are shown on the FIRM (Exhibit 2)

April 16, 2014 Countywide Revision

In this countywide revision, for the streams studied in detail, the 1- and 0.2-percent-annual chance floodplain boundaries were delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries in the original study were delineated using the City of Tyler Master Drainage Study 2-foot contour topographic information (City of Tyler, 2008).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as 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 report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain.

Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations have been tabulated for selected cross sections (Table 8, "Floodway Data"). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either too close together or collinear, only the floodway boundary has been shown.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, “Without Floodway” elevations presented in Table 8 for certain downstream cross sections of Black Fork Creek Tributary D-1, Prairie Creek S Tributary 1, West Mud Creek Tributary M-C, and Willow Creek are lower than the regulatory flood elevations in that area, which must take into account the 1-percent annual chance flooding due to backwater from other sources.

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 8. In order to reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict the 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 more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1, "Floodway Schematic".

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACK FORK CREEK								
A	4,204	1,037*	14,298	2.2	382.8	382.8	383.2	0.4
B	6,287	607	4,527	6.8	390.9	390.9	391.8	0.9
C	7,685	1,217	16,329	1.9	392.6	392.6	393.5	0.9
D	10,754	1,444	13,058	2.4	394.7	394.7	395.4	0.7
E	14,106	608	5,624	5.6	398.5	398.5	399.0	0.5
F	15,566	875	8,586	3.7	401.9	401.9	402.4	0.5
G	18,338	809	8,536	3.5	405.1	405.1	405.7	0.6
H	20,040	480	4,210	7.2	409.2	409.2	409.2	0.0
I	22,613	974	15,008	2.0	412.0	412.0	412.4	0.4
J	27,068	976	9,429	3.2	413.5	413.5	414.0	0.5
K	29,128	942	10182	2.9	415.8	415.8	416.2	0.4
L	31,110	735	3,964	7.5	419.0	419.0	419.6	0.6
M	33,648	1,423	17,369	1.7	424.3	424.3	424.6	0.3
N	36,296	1,000	6,263	3.8	425.7	425.7	425.9	0.2
O	37,989	950	8,281	2.9	426.6	426.6	426.8	0.2
P	40,217	975	4,596	5.2	431.2	431.2	431.3	0.1
Q	42,604	1,209	11,293	2.0	432.8	432.8	433.1	0.3
R	46,137	960	6,105	3.1	434.9	434.9	435.6	0.7
S	47,767	666	3,221	5.8	439.6	439.6	440.6	1.0
T	50,552	765	6,195	3.0	444.7	444.7	445.5	0.8
U	53,639	635	4,878	3.8	448.7	448.7	449.4	0.7
V	56,620	273	2,118	7.6	457.3	457.3	457.3	0.0
W	57,125	181	2,485	6.5	458.8	458.8	459.6	0.8
X	59,769	738	5,312	3.0	467.7	467.7	468.2	0.5
Y	62,607	43	2,195	10.1	481.2	481.2	481.2	0.0
Z	65,308	295	5,127	1.5	483.0	483.0	483.1	0.1

[1] Feet above confluence with Prairie Creek W

* Partial floodway width due to model

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

BLACK FORK CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACK FORK CREEK (CONTINUED)								
AA	68,291[1]	305	1,421	7.7	483.2	483.2	483.2	0.0
AB	69,977[1]	372	2,751	3.8	490.1	490.1	491.0	0.9
AC	71,885[1]	416	2,667	3.9	495.5	495.5	496.1	0.6
AD	73,605[1]	236	1,163	6.0	497.5	497.5	498.5	1.0
AE	76,713[1]	163	1,336	4.2	509.1	509.1	509.1	0.0
AF	78,275[1]	250	1,048	5.4	518.0	518.0	518.8	0.8
AG	80,163[1]	79	422	7.2	521.7	521.7	522.0	0.3
AH	81,892[1]	53	179	8.9	529.5	529.5	529.5	0.0
BLACK FORK CREEK TRIBUTARY BF-1								
A	483[2]	216	556	5.5	435.9	435.9	436.4	0.5
B	1,465[2]	318	1001	3.6	441.8	441.8	442.0	0.2
C	4,000[2]	155	795	3.8	455.7	455.7	456.6	0.9
D	6,000[2]	324	662	2.3	462.6	462.6	463.3	0.7
E	7,400[2]	54	191	4.8	475.2	475.2	475.9	0.7

[1] Feet above confluence with Prairie Creek W
[2] Feet above confluence with Black Fork Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

BLACK FORK CREEK –
BLACK FORK CREEK TRIBUTARY BF-1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACK FORK CREEK TRIBUTARY BF-M-1								
A	900	61	369	6.7	496.9	496.9	497.3	0.4
B	2,118	104	509	4.9	509.3	509.3	509.9	0.6
C	3,410	110	606	4.1	519.8	519.8	520.8	1.0
BLACK FORK CREEK TRIBUTARY D								
A	1,476	220	1,593	6.6	471.5	471.5	471.7	0.2
B	3,127	26	840	10.7	483.4	483.4	484.2	0.8
C	5,462	225	1,650	4.2	486.0	486.0	486.7	0.7
D	7,641	105	673	3.2	491.9	491.9	492.8	0.9
E	9,784	32	591	6.1	503.0	503.0	503.0	0.0
F	10,805	116	665	4.5	507.9	507.9	508.5	0.6

[1] Feet above confluence with Black Fork Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

BLACK FORK CREEK TRIBUTARY BF-M-1 – BLACK FORK CREEK TRIBUTARY D

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACK FORK CREEK TRIBUTARY D-1								
A	295	272	713	6.3	473.0	468.9[2]	468.9	0.0
B	1,108	172	814	3.4	475.0	475.0	475.1	0.1
C	1,749	66	683	4.6	479.0	479.0	479.0	0.0
BLACK FORK CREEK TRIBUTARY D-2								
A	221	345	1,711	1.1	487.0	487.0	487.5	0.5
B	605	171	1,004	2.0	487.2	487.2	487.6	0.4
C	1,219	59	391	5.1	489.7	489.7	490.2	0.5
BLACK FORK CREEK TRIBUTARY D-3								
A	275	140	340	7.6	488.8	488.8	489.0	0.2
B	612	160	677	3.8	490.5	490.5	490.9	0.4

[1] Feet above confluence with Black Fork Creek Tributary D

[2] Elevation computed without consideration of backwater effects from Black Fork Creek Tributary D

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

BLACK FORK CREEK TRIBUTARY D-1
– BLACK FORK CREEK TRIBUTARY D-2
– BLACK FORK CREEK TRIBUTARY D-3

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACKHAWK CREEK								
A	5,468	384	2,991	1.8	332.2	332.2	333.1	0.9
B	6,648	265	1,636	3.4	334.1	334.1	334.8	0.7
C	9,081	305	2,392	2.3	343.6	343.6	344.2	0.6
D	12,307	497	2,381	2.3	349.7	349.7	350.5	0.9
E	14,851	367	2,744	2.0	353.6	353.6	354.6	1.0
F	17,726	330	3,417	1.4	366.6	366.6	367.5	0.9
G	20,386	260	1,513	2.5	372.5	372.5	373.4	0.9
H	22,467	230	905	4.2	379.9	379.9	380.6	0.7
I	24,207	178	1,364	2.1	389.2	389.2	389.7	0.5
J	25,987	181	1,392	2.1	397.5	397.5	397.6	0.1
K	27,719	86	516	3.4	404.5	404.5	405.4	0.9
L	29,103	135	692	2.2	410.6	410.6	411.4	0.8
M	30,613	95	449	3.4	419.7	419.7	420.7	1.0
N	31,363	91	335	2.5	423.9	423.9	424.6	0.7
O	32,292	84	231	3.6	434.8	434.8	435.7	0.9
P	33,446	99	299	2.8	446.7	446.7	447.7	1.0
Q	34,729	90	346	2.0	462.3	462.3	462.9	0.6
R	35,701	74	362	1.9	474.2	474.2	474.9	0.7
S	36,634	38	128	5.4	483.4	483.4	484.2	0.8

[1] Feet above mouth

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

BLACKHAWK CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACKHAWK CREEK TRIBUTARY 1								
A	1,609	55	282	3.0	396.6	396.6	397.2	0.6
B	2,104	42	266	3.2	400.5	400.5	401.1	0.5
C	2,710	43	288	2.8	406.3	406.3	406.4	0.1
D	3,539	23	141	5.7	408.3	408.3	408.6	0.3
E	4,371	45	238	3.1	416.5	416.5	416.5	0.0
F	4,758	52	198	3.7	418.9	418.9	418.9	0.0
BLACKHAWK CREEK TRIBUTARY 2								
A	1,492	27	126	5.5	430.6	430.6	430.8	0.2
B	2,482	41	191	3.7	441.1	441.1	441.8	0.7
C	3,223	33	66	6.4	459.6	459.6	459.6	0.0

[1] Feet above mouth

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

BLACKHAWK CREEK TRIBUTARY 1 – BLACKHAWK CREEK TRIBUTARY 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BUTLER CREEK								
A	764	489	4,850	3.7	365.2	365.2	365.6	0.4
B	3,180	443	3,173	5.7	370.4	370.4	370.6	0.2
C	5,063	435	4,861	3.5	374.7	374.7	375.4	0.7
D	8,730	504	3,732	4.5	381.8	381.8	382.5	0.7
E	11,407	433	2,530	5.4	390.1	390.1	391.1	1.0
F	14,269	438	3,741	3.7	394.8	394.8	395.5	0.7
G	16,827	497	3,938	2.6	402.0	402.0	402.5	0.5
H	19,397	533	4,927	2.1	402.8	402.8	403.3	0.5
I	21,059	440	1,893	5.0	406.3	406.3	407.2	0.9
J	22,052	555	2,989	3.2	410.3	410.3	411.1	0.8
K	25,262	355	3,109	2.7	419.7	419.7	420.3	0.6
L	27,133	353	2,225	3.2	423.8	423.8	424.5	0.7
M	30,213	299	1,335	2.6	437.5	437.5	438.3	0.8
N	31,136	325	1,049	3.4	439.4	439.4	440.1	0.7
O	32,462	203	1,136	2.2	456.5	456.5	456.8	0.3

[1] Feet above FM 2661

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

BUTLER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
GILLEY CREEK								
A	1,110[1]	685	4,061	4.6	383.9	383.9	384.8	0.9
B	3,200[1]	260	2,873	6.2	389.7	389.7	390.3	0.6
C	5,233[1]	670	6,118	2.9	393.5	393.5	394.0	0.5
D	8,228[1]	405	2,664	6.8	399.3	399.3	399.7	0.4
E	10,147[1]	620	6,742	2.7	405.6	405.6	406.0	0.4
F	11,315[1]	625	5,067	3.4	407.9	407.9	408.4	0.5
G	15,638[1]	484	3,981	4.4	421.9	421.9	422.4	0.5
H	16,645[1]	680	6,338	2.7	424.3	424.3	424.7	0.4
I	18,330[1]	489	3,566	4.9	428.1	428.1	428.8	0.7
J	19,735[1]	300	2,573	3.4	438.9	438.9	439.6	0.7
K	23,323[1]	298	1,762	4.2	448.3	448.3	448.7	0.4
L	24,440[1]	286	2,141	3.5	454.7	454.7	455.0	0.3
M	27,511[1]	240	1,224	3.8	468.1	468.1	468.5	0.4
N	28,471[1]	97	838	4.3	473.4	473.4	473.5	0.1
GILLEY CREEK TRIBUTARY G-1								
A	1,166[2]	345	1,635	5.2	430.3	430.3	431.2	0.9
B	2,500[2]	265	1,896	3.9	437.0	437.0	437.7	0.7
C	5,155[2]	410	1,600	4.6	450.0	450.0	450.1	0.1

[1] Feet above confluence with Lake Tyler
[2] Feet above confluence with Gilley Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

GILLEY CREEK – GILLEY CREEK TRIBUTARY G-1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
HARRIS CREEK								
A	616	1,631	9,665	3.5	332.2	332.2	333.0	0.8
B	3,013	1,556	11,364	3.0	335.1	335.1	335.6	0.5
C	5,394	671	7,298	4.6	341.4	341.4	342.0	0.6
D	7,987	1,272	13,240	2.6	343.1	343.1	343.7	0.6
E	11,643	790	7,290	4.7	348.4	348.4	349.1	0.7
F	13,989	1,616	15,667	2.2	350.5	350.5	351.2	0.7
G	16,384	1,173	9,263	3.7	353.3	353.3	353.8	0.5
H	18,460	625	4,874	6.3	354.9	354.9	355.4	0.5
I	21,314	1,011	9,370	3.7	361.4	361.4	361.9	0.5
J	22,786	821	6,451	5.4	362.3	362.3	362.8	0.5
K	25,156	910	8,927	3.9	365.5	365.5	366.0	0.5
L	26,572	902	6,148	5.7	371.7	371.7	372.3	0.6
M	29,721	620	4,365	3.4	378.8	378.8	379.7	0.9
N	31,884	577	7,249	2.0	380.2	380.2	381.0	0.8
O	34,969	420	3,737	3.9	384.5	384.5	385.1	0.6
P	37,470	762	4,138	3.5	388.0	388.0	388.4	0.4
Q	40,159	775	5,443	2.6	400.9	400.9	401.6	0.7
R	41,894	578	4,124	3.5	403.3	403.3	404.0	0.7
S	44,305	320	2,025	5.6	409.1	409.1	409.7	0.6
T	45,614	180	1,435	8.0	416.8	416.8	416.8	0.0
U	48,636	525	2,662	2.9	422.2	422.2	422.9	0.7
V	51,523	383	1,451	5.0	432.4	432.4	432.8	0.4
W	53,496	412	1,636	3.7	443.2	443.2	443.9	0.7
X	56,993	96	525	6.9	462.9	462.9	463.2	0.3

[1] Feet above confluence of Ray Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

HARRIS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
HENSHAW CREEK								
A	2,512	299	1,815	5.0	383.3	383.3	383.5	0.2
B	4,969	475	4,627	1.9	392.5	392.5	393.2	0.7
C	8,416	570	1,435	5.8	396.5	396.5	397.4	0.9
D	8,989	387	2,481	3.1	404.1	404.1	404.8	0.7
E	11,957	712	2,143	3.6	410.1	410.1	411.0	0.9
F	13,900	263	1,744	4.0	421.2	421.2	421.6	0.4
G	16,835	300	2,047	3.3	432.3	432.3	432.9	0.6
H	18,504	215	1,504	4.4	439.5	439.5	439.9	0.4
I	21,353	297	2,013	2.8	449.2	449.2	450.0	0.8
J	22,031	310	2,116	2.7	454.2	454.2	454.8	0.6
K	24,496	250	1,437	3.5	459.8	459.8	460.5	0.7
L	26,461	200	1,301	3.5	469.9	469.9	470.8	0.9

[1] Feet above confluence with West Mud Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

HENSHAW CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
HILL CREEK								
A	191	425	1,939	3.4	379.4	379.4	379.7	0.3
B	2,761	430	3,570	1.8	386.4	386.4	387.2	0.8
C	4,346	194	1,538	4.1	390.2	390.2	391.2	1.0
D	6,689	400	1,972	3.2	398.8	398.8	399.5	0.7
E	8,369	475	3,255	1.7	403.5	403.5	404.0	0.5
F	9,900	410	2,662	1.2	407.6	407.6	408.5	0.9
G	12,062	190	716	4.6	411.8	411.8	412.8	1.0
H	13,223	197	809	4.0	418.7	418.7	419.7	1.0
I	14,771	180	1,029	3.0	427.8	427.8	428.7	0.9
J	16,076	263	1,061	2.7	432.6	432.6	433.6	1.0
K	17,421	180	625	4.6	440.7	440.7	441.6	0.9
L	18,561	139	609	4.7	445.1	445.1	445.6	0.5
M	19,649	121	516	3.3	449.4	449.4	450.4	1.0
N	21,098	45	253	6.6	458.5	458.5	458.6	0.1
O	22,435	100	520	3.2	465.4	465.4	466.0	0.6
HORSEPEN BRANCH								
A	7,688	114	631	1.8	391.7	391.7	392.7	1.0
B	8,808	90	628	1.2	396.4	396.4	397.2	0.8
C	9,673	19	130	5.9	399.5	399.5	400.0	0.5
D	10,199	38	118	6.5	408.7	408.7	409.4	0.7
E	10,533	37	191	4.0	411.4	411.4	412.4	1.0

[1] Feet above mouth

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

HILL CREEK – HORSEPEN BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
INDIAN CREEK								
A	2,185[1]	945	4,965	4.3	356.8	356.8	357.2	0.4
B	4,257[1]	420	2,607	9.3	363.5	363.5	363.6	0.1
C	8,507[1]	587	5,657	3.3	366.6	366.6	367.2	0.6
D	10,351[1]	586	4,133	7.2	369.3	369.3	369.9	0.6
E	12,556[1]	165	1,713	9.1	376.1	376.1	376.6	0.5
F	15,301[1]	547	3,423	6.1	380.1	380.1	381.1	1.0
G	17,856[1]	355	1,799	11.1	384.8	384.8	385.2	0.4
H	21,301[1]	303	1,827	9.6	388.0	388.0	388.6	0.6
I	23,688[1]	120	1,295	9.7	399.5	399.5	399.7	0.2
J	26,970[1]	290	2,148	6.4	408.8	408.8	409.0	0.2
K	29,231[1]	126	1,222	5.2	409.5	409.5	410.0	0.5
L	32,168[1]	106	397	11.2	431.2	431.2	431.2	0.0
M	33,341[1]	1,441	17,798	0.2	433.3	433.3	433.3	0.0
N	38,225[1]	451	2,575	8.3	433.6	433.6	433.6	0.0
O	40,332[1]	653	2,122	3.1	441.5	441.5	442.2	0.7
P	41,909[1]	63	610	5.4	465.1	465.1	465.1	0.0
Q	42,885[1]	271	1,089	5.6	465.7	465.7	466.2	0.5
MUD CREEK								
A	287[2]	2,280	9,857	2.3	314.6	314.6	315.6	1.0
B	4,000[2]	1,200	8,677	2.6	323.2	323.2	324.1	0.9
C	9,501[2]	2,500	26,805	0.8	331.6	331.6	332.5	0.9
D	12,394[2]	2,800	33,934	0.7	332.3	332.3	333.2	0.9

[1] Feet above confluence with Lake Palestine
[2] Feet above mouth

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

INDIAN CREEK – MUD CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
PRAIRIE CREEK S								
A	41,937	490	3,879	1.5	381.5	381.5	382.5	1.0
B	43,221	340	2,449	2.4	382.9	382.9	383.9	1.0
C	44,915	650	6,193	0.9	390.2	390.2	390.7	0.5
D	47,449	265	1,380	2.2	393.2	393.2	393.8	0.6
E	50,158	101	391	5.0	400.8	400.8	401.3	0.5
F	51,868	145	1,235	1.2	411.6	411.6	412.2	0.6
G	53,498	139	454	3.2	415.2	415.2	415.9	0.7
H	54,559	200	838	1.7	421.5	421.5	422.5	1.0
PRAIRIE CREEK S TRIBUTARY 1								
A	1,008	205	852	3.8	390.3	388.0[2]	389.0	1.0
B	2,193	345	1,477	2.2	392.8	392.8	393.8	1.0
C	3,776	240	1,811	1.8	400.5	400.5	401.4	0.9
D	5,198	135	538	5.1	402.5	402.5	403.4	0.9
E	5,965	155	864	3.2	407.1	407.1	408.0	0.9
F	7,414	175	974	2.8	410.5	410.5	411.5	1.0
G	8,378	200	923	2.6	412.6	412.6	413.5	0.9
H	9,882	155	820	2.8	418.1	418.1	419.1	1.0
I	11,474	80	509	4.4	427.6	427.6	428.6	1.0
J	12,459	1,272	14,251	0.2	435.0	435.0	435.0	0.0
K	14,613	1,471	15,037	0.0	435.0	435.0	435.0	0.0
L	15,587	35	60	3.3	436.6	436.6	436.6	0.0
M	17,170	30	38	5.2	450.7	450.7	450.7	0.0

[1] Feet above mouth

[2] Elevation computed without consideration of backwater effects from Prairie Creek S

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

PRAIRIE CREEK S – PRAIRIE CREEK S TRIBUTARY 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
RAY CREEK								
A	2,556[1]	1,338	7,121	3.1	335.1	335.1	335.6	0.5
B	3,950[1]	1,189	8,306	2.6	341.8	341.8	342.4	0.6
C	5,566[1]	518	3,574	6.0	345.8	345.8	346.3	0.5
D	7,487[1]	334	4,335	4.8	353.2	353.2	354.0	0.8
E	10,980[1]	669	6,019	3.5	361.8	361.8	362.5	0.7
F	14,205[1]	542	6,598	3.2	370.9	370.9	371.9	1.0
G	18,796[1]	533	4,754	3.9	376.2	376.2	376.8	0.6
H	20,638[1]	492	2,568	6.2	379.9	379.9	380.4	0.5
I	22,294[1]	915	7,578	2.1	382.2	382.2	382.8	0.6
J	25,320[1]	831	2,998	3.6	388.0	388.0	388.5	0.5
K	26,599[1]	1,268	3,267	3.3	392.6	392.6	393.3	0.7
L	29,841[1]	315	2,104	5.4	405.5	405.5	406.1	0.6
M	31,286[1]	226	1,611	6.5	411.5	411.5	412.2	0.7
N	34,245[1]	113	1,191	7.9	426.0	426.0	426.0	0.0
O	35,783[1]	288	1,328	4.5	435.5	435.5	435.5	0.0
SALINE CREEK								
A	5.31[2]	409	2,966	3.8	357.2	357.2	358.0	0.8
B	5.85[2]	1,009	6,202	1.6	361.0	361.0	361.8	0.8
C	8.11[2]	621	3,473	1.7	378.0	378.0	378.8	0.8
D	8.37[2]	1,130	3,880	1.5	382.1	382.1	382.1	0.0
E	9.02[2]	475	1,800	2.5	390.1	390.1	390.9	0.8
F	9.96[2]	153	965	3.3	404.6	404.6	405.4	0.8
G	10.82[2]	180	604	2.5	418.2	418.2	419.1	0.9
H	11.29[2]	91	381	3.9	431.2	431.2	432.1	0.9
I	11.71[2]	80	318	3.0	442.4	442.4	443.2	0.8

[1] Feet above confluence with Harris Creek
[2] Miles above mouth

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

RAY CREEK – SALINE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
SHACKLEFORD CREEK								
A	2,697	438	2,847	4.9	388.6	388.6	388.6	0.0
B	5,396	453	3,564	3.9	393.0	393.0	393.6	0.6
C	6,888	455	3,085	4.5	397.1	397.1	398.1	1.0
D	9,908	525	3,134	4.4	400.6	400.6	401.1	0.5
E	12,400	559	3,497	3.9	410.1	410.1	410.4	0.3
F	14,009	409	3,131	4.4	413.6	413.6	414.1	0.5
G	16,784	448	2,970	4.7	419.8	419.8	420.6	0.8
H	18,986	483	3,544	3.9	424.1	424.1	425.0	0.9
I	20,506	385	3,184	4.4	428.7	428.7	429.6	0.9
J	23,271	295	2,982	4.0	442.3	442.3	443.1	0.8
K	25,317	235	2,386	5.0	444.8	444.8	445.7	0.9
L	26,587	310	2,699	3.9	448.3	448.3	449.1	0.8
M	28,154	310	2,651	4.0	453.9	453.9	454.6	0.7
N	31,987	194	1,140	6.2	463.3	463.3	464.2	0.9
O	33,195	185	1,354	3.5	470.4	470.4	471.3	0.9
P	34,211	204	1,341	3.5	479.6	479.6	480.5	0.9

[1] Feet above confluence with West Mud Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

SHACKLEFORD CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WEST MUD CREEK								
A	10,720	2,655	19,738	2.3	362.4	362.4	363.3	0.9
B	13,240	1,585	19,247	2.3	363.6	363.6	364.4	0.8
C	16,112	1,426	12,199	3.6	367.7	367.7	368.4	0.7
D	17,252	1,760	12,209	3.6	370.0	370.0	370.4	0.4
E	21,547	1,000	8,440	5.3	372.3	372.3	373.1	0.8
F	22,604	1,191	11,088	4.0	376.5	376.5	376.9	0.4
G	24,521	1,429	13,559	3.3	379.7	379.7	380.2	0.5
H	25,526	1,375	13,282	3.3	380.9	380.9	381.4	0.5
I	29,238	1,306	13,857	3.1	382.3	382.3	382.8	0.5
J	30,903	1,569	16,249	2.6	382.8	382.8	383.4	0.6
K	34,760	1,096	9,284	2.7	383.7	383.7	384.3	0.6
L	37,218	515	4,995	5.0	390.0	390.0	390.7	0.7
M	39,101	964	11,419	2.2	390.8	390.8	391.7	0.9
N	40,469	645	5,125	4.8	393.9	393.9	394.4	0.5
O	43,202	991	7,963	3.1	394.8	394.8	395.6	0.8
P	47,611	980	6,728	3.6	396.7	396.7	397.5	0.8
Q	49,990	1,070	6,369	3.8	399.3	399.3	400.0	0.7
R	51,995	707	5,702	4.2	403.8	403.8	404.6	0.8
S	54,689	652	4,472	5.3	408.0	408.0	408.6	0.6
T	55,787	677	4,138	5.7	415.2	415.2	415.9	0.7
U	58,920	1,142	10,958	2.2	416.5	416.5	417.3	0.8
V	61,195	882	7,029	3.4	418.2	418.2	418.9	0.7
W	62,795	1,012[2]	7,465	3.2	419.9	419.9	420.7	0.8
X	65,095	1,020	6,088	3.7	423.2	423.2	424.0	0.8
Y	67,192	590	4,630	4.8	427.8	427.8	428.5	0.7
Z	69,302	555	6,038	3.7	433.0	433.0	433.7	0.7

[1] Feet above mouth

[2] Combined West Mud Creek/West Mud Creek Tributary 11 floodway

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

WEST MUD CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WEST MUD CREEK (CONTINUED)								
AA	72,303[1]	703	5,575	4.0	436.2	436.2	436.9	0.7
AB	74,603[1]	660	3,935	5.7	438.2	438.2	438.9	0.7
AC	75,307[1]	675[3]	4,074	5.5	443.1	443.1	443.6	0.5
AD	77,962[1]	213	2,312	6.6	449.6	449.6	450.5	0.9
AE	79,106[1]	395	2,988	5.0	462.6	462.6	463.5	0.9
AF	82,015[1]	475	4,626	3.1	465.5	465.5	465.9	0.4
AG	83,580[1]	493	2,701	4.1	470.7	470.7	471.3	0.6
AH	86,460[1]	117	1,246	8.9	473.9	473.9	474.3	0.4
AI	89,535[1]	65	637	5.2	480.2	480.2	480.5	0.3
AJ	92,215[1]	76	602	5.8	492.3	492.3	493.2	0.9
AK	93,006[1]	36	280	6.7	493.8	493.8	494.7	0.9
WEST MUD CREEK TRIBUTARY 11								
A	2,695[2]	205	1,053	4.0	428.2	428.2	429.0	0.8
B	5,199[2]	142	703	4.3	439.8	439.8	440.1	0.3
C	7,198[2]	188	881	3.4	450.0	450.0	450.4	0.4
D	8,465[2]	165	944	3.2	461.6	461.6	462.4	0.8

[1] Feet above mouth
[2] Feet above confluence with West Mud Creek
[3] Combined West Mud Creek/West Mud Creek Tributary M-1 floodway

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

WEST MUD CREEK –
WEST MUD CREEK TRIBUTARY 11

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WEST MUD CREEK TRIBUTARY B								
A	485[1]	80	1,396	4.6	471.6	471.6	471.7	0.1
B	3,165[1]	141	651	4.8	481.6	481.6	482.0	0.4
C	4,950[1]	181	470	6.6	488.2	488.2	488.2	0.0
D	5,800[1]	133	575	5.4	493.4	493.4	493.8	0.4
E	7,000[1]	143	795	3.7	504.4	504.4	505.1	0.7
WEST MUD CREEK TRIBUTARY M-1								
A	2,080[2]	372	2,937	1.9	447.7	447.7	448.7	1.0
B	3,676[2]	37	682	8.3	458.4	458.4	458.4	0.0
C	6,807[2]	134	759	4.2	465.6	465.6	466.5	0.9
D	7,680[2]	107	438	7.2	471.8	471.8	471.8	0.0
E	8,984[2]	115	533	6.0	480.0	480.0	480.2	0.2

[1] Feet above confluence with West Mud Creek
[2] Feet above confluence with West Mud Creek Tributary M-A

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

WEST MUD CREEK TRIBUTARY B –
WEST MUD CREEK TRIBUTARY M-1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WEST MUD CREEK TRIBUTARY M-2								
A	586	144	968	0.9	463.1	463.1	463.1	0.0
B	1,759	65	183	4.6	467.4	467.4	467.4	0.0
WEST MUD CREEK TRIBUTARY M-3								
A	780	21	474	3.3	464.6	464.6	465.1	0.5
B	2,647	36	174	5.5	475.3	475.3	475.3	0.0
C	3,400	79	207	2.9	479.3	479.3	479.3	0.0
WEST MUD CREEK TRIBUTARY M-A								
A	1,441	73	730	7.3	450.2	450.2	451.1	0.9
B	4,851	147	1,013	4.9	468.4	468.4	468.9	0.5
C	6,188	99	718	7.0	469.9	469.9	470.3	0.4
D	7,324	110	759	5.4	479.9	479.9	480.3	0.4
E	10,287	151	478	3.9	489.0	489.0	490.0	1.0
F	12,157	40	375	5.4	499.2	499.2	499.4	0.2
G	13,675	44	219	4.2	508.8	508.8	509.2	0.4

[1] Feet above confluence with West Mud Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

WEST MUD CREEK TRIBUTARY M-2
– WEST MUD CREEK TRIBUTARY M-3
– WEST MUD CREEK TRIBUTARY M-A

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WEST MUD CREEK TRIBUTARY M-A.1								
A	600	45	279	4.8	478.6	478.6	479.1	0.5
B	1,200	66	170	7.8	480.4	480.4	481.1	0.7
C	1,833	110	345	3.9	483.8	483.8	484.7	0.9
WEST MUD CREEK TRIBUTARY M-A.2								
A	400	45	161	10.8	489.9	489.9	489.9	0.0
B	833	21	298	12.0	493.4	493.4	493.4	0.0

[1] Feet above confluence with West Mud Creek Tributary M-A

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

WEST MUD CREEK TRIBUTARY M-A.1 – WEST MUD CREEK TRIBUTARY M-A.2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WEST MUD CREEK TRIBUTARY M-C								
A	900	94	759	10.0	477.1	476.6[2]	477.2	0.6
B	2,455	133	1174	6.4	487.7	487.7	487.8	0.1
C	3,655	227	1628	3.7	488.9	488.9	489.4	0.5
D	5,400	176	1132	5.3	498.1	498.1	498.4	0.3
E	8,120	109	685	5.5	503.2	503.2	503.7	0.5
F	9,065	55	411	8.2	509.0	509.0	509.1	0.1
G	10,260	168	839	4.2	513.6	513.6	514.1	0.5
H	11,440	46	1124	3.6	529.8	529.8	529.8	0.0

[1] Feet above confluence with West Mud Creek
[2] Elevation computed without consideration flooding controlled by West Mud Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX AND INCORPORATED AREAS

FLOODWAY DATA

WEST MUD CREEK TRIBUTARY M-C

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WEST MUD CREEK TRIBUTARY M-C.1								
A	430	50	539	4.7	490.6	490.6	490.9	0.3
B	700	221	1123	1.9	491.0	491.0	491.3	0.3
C	1400	31	104	10.4	491.0	491.0	491.0	0.0
WEST MUD CREEK TRIBUTARY M-C.2								
A	485	52	417	4.5	505.9	505.9	506.9	1.0
B	1,000	33	173	10.8	507.0	507.0	507.1	0.1
C	1,400	39	305	6.2	510.8	510.8	511.5	0.7

[1] Feet above confluence with West Mud Creek Tributary M-C

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

WEST MUD CREEK TRIBUTARY M-C.1 – WEST MUD CREEK TRIBUTARY M-C.2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WIGGINS CREEK								
A	3,491	451	2,096	6.4	331.3	331.3	331.3	0.0
B	5,361	888	6,982	1.9	333.3	333.3	333.8	0.5
C	6,088	534	3,224	4.2	334.1	334.1	334.8	0.7
D	10,202	749	5,784	2.7	339.6	339.6	340.2	0.6
E	13,149	374	3,401	5.0	349.5	349.5	350.1	0.6
F	15,391	298	2,906	5.8	356.7	356.7	357.3	0.6
G	17,604	600	4,842	3.5	367.0	367.0	367.5	0.5
H	21,002	813	5,281	2.9	371.7	371.7	372.3	0.6

[1] Feet above confluence with Harris Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

WIGGINS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WILLOW CREEK								
A	2,042	1,286	15,128	0.5	424.0	423.2[2]	423.7	0.5
B	5,594	270	1,784	4.3	428.8	428.8	429.4	0.6
C	7,526	265	1,358	5.1	447.9	447.9	448.2	0.3
D	9,698	539	4,928	1.4	451.4	451.4	451.9	0.5
E	12,762	137	1,434	3.9	461.0	461.0	461.7	0.7
F	15,005	308	2,103	2.7	462.3	462.3	463.1	0.8
G	18,808	192	1,179	3.6	473.1	473.1	473.5	0.4
H	20,315	183	893	4.7	479.2	479.2	479.4	0.2

[1] Feet above confluence with Black Fork Creek
[2] Elevation computed without consideration of flooding controlled by Black Fork Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

FLOODWAY DATA

WILLOW CREEK

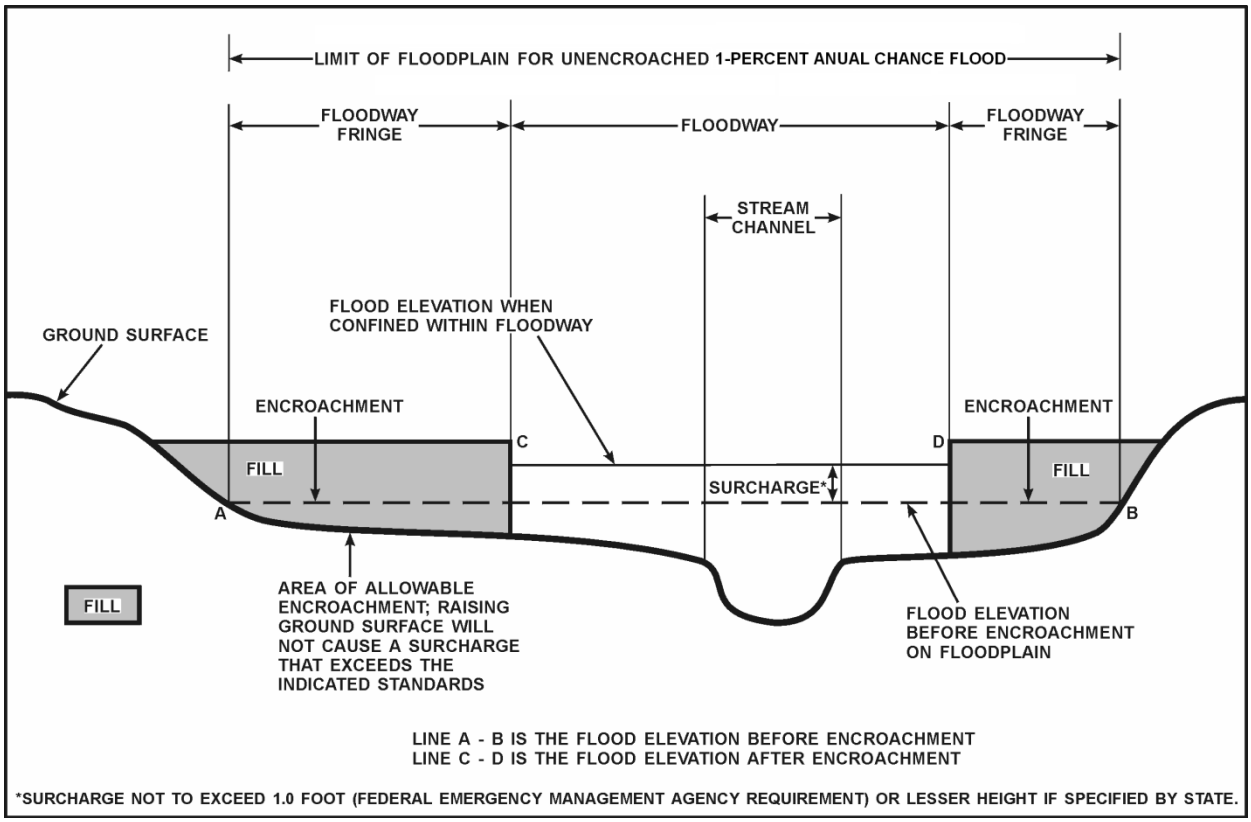

Figure 1 - Floodway Schematic

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

Zone AE

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

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually areas of ponding) where average depths

are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

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

Zone AR

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

Zone A99

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

Zone V

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

Zone VE

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

Zone X

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

Zone D

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

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance risk 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 BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

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

The current FIRM presents flooding information for the entire geographic area of Smith County. Prior to the initial countywide FIRM, separate FIRMs were prepared for each identified flood prone incorporated community and for the unincorporated areas of the county. Historical data relating to the pre-countywide maps prepared for each community are presented in Table 9, "Community Map History."

7.0 OTHER STUDIES

FISs have been prepared for the following adjacent communities of: Anderson County, TX and Incorporated Areas (FEMA, 02/03/2010); Henderson County, TX and Incorporated Areas (FEMA, 04/05/2010); Wood County, TX and Incorporated Areas (FEMA, 9/03/2010); Rusk County, TX and Incorporated Areas (FEMA, 9/29/2010); Upshur County, TX and Incorporated Areas (FEMA, 10/19/2010); Van Zandt County, TX and Incorporated Areas (FEMA, 12/17/2010); and Cherokee County, TX and Incorporated Areas (FEMA, 1/06/2011). A FIS is currently being prepared for Gregg County, TX and Incorporated Areas (unpublished).

The USACE-Fort Worth District performed a detailed flood plain analysis of the Black Fork Creek in 1973. The resulting flood discharge and water-surface profiles for this stream have been adopted for this FIS.

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Smith County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, Flood Hazard Boundary Maps (FHBMs), Flood Boundary and Floodway Maps (FBFMs), and FIRMs for all of the incorporated and unincorporated jurisdictions within Smith County.

COMMUNITY NAME	INITIAL IDENTIFICATION DATE	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	INITIAL FIRM DATE	FIRM REVISIONS DATE
Arp, City of[1]				
Bullard, City of	November 12, 1976	None	April 24, 1979	None
Hideaway, City of[2]	January 3, 1978	None	July 2, 1981	None
Lindale, City of[1]				
New Chapel Hill, City of[2]	January 3, 1978	None	July 2, 1981	None
Noonday, City of[2]	January 3, 1978	None	July 2, 1981	None
Overton, City of	August 13, 1976	None	September 26, 2008	None
Smith County (Unincorporated Areas)	January 3, 1978	None	July 2, 1981	None
Troup, City of	April 12, 1974	None	January 23, 1979	None
Tyler, City of	January 10, 1975	None	August 1, 1980	February 19, 1992
Whitehouse, City of	May 17, 1974	May 7, 1976	February 13, 1979	None
Winona, City of	November 1, 1974	January 23, 1976	September 26, 2008	None

[1] This community did not have a FIRM prior to the first countywide FIRM for Smith County
[2] Dates Taken from Smith County (Unincorporated Areas)

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

This FIS report either supersedes or is compatible with all previous studies on streams studied in this report and should be considered authoritative for purposes of the NFIP.

This is a multi-volume FIS. Each volume may be revised separately, in which case it supersedes the previously printed volume. Users should refer to the Table of Contents in Volume 1 for the current effective date of each volume; volumes bearing these dates contain the most up-to-date flood hazard data.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting FEMA Region VI, Federal Insurance Mitigation Division, 800 North Loop 288, Denton, Texas 76209.

9.0 BIBLIOGRAPHY AND REFERENCES

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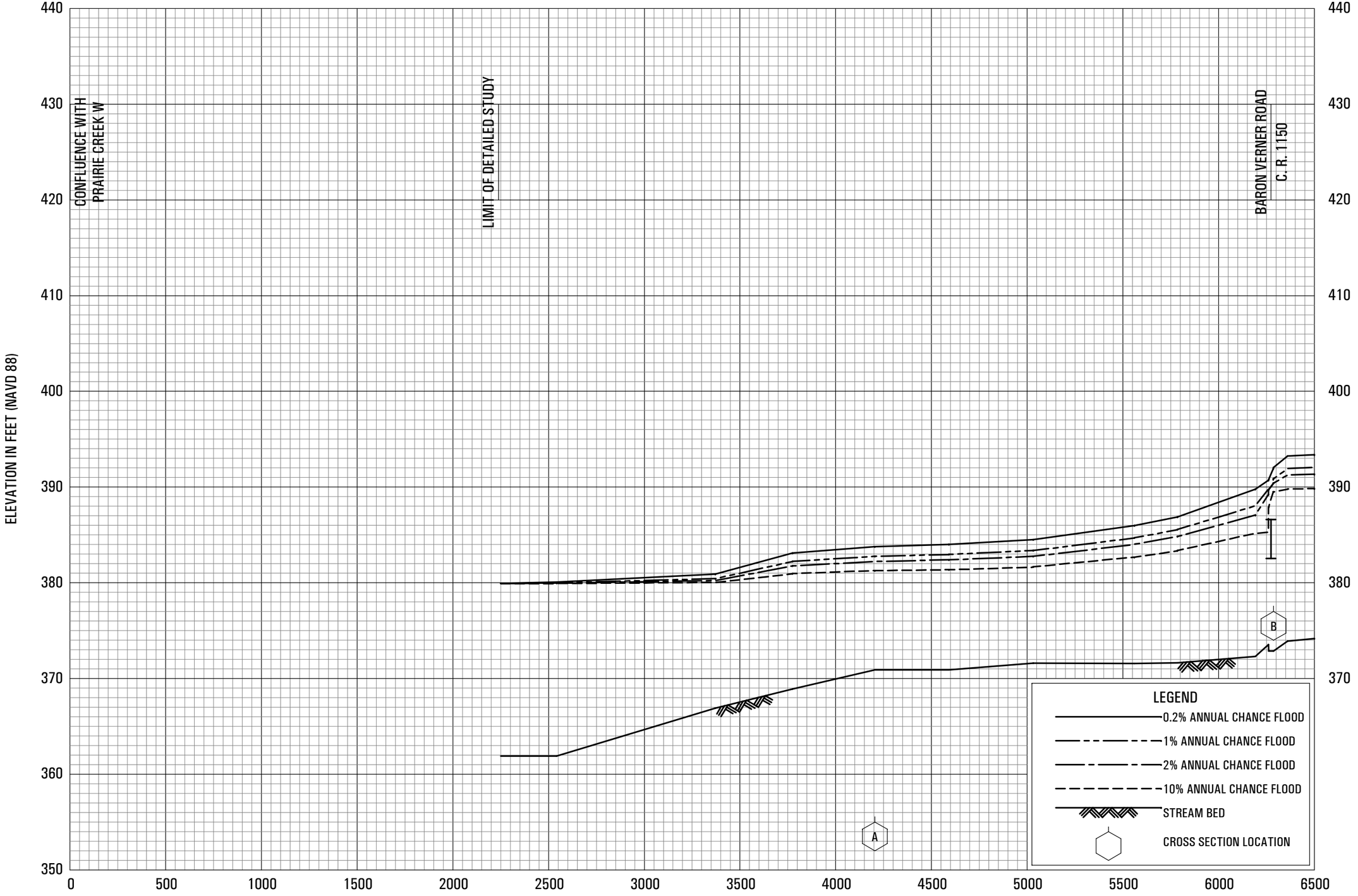


FLOOD PROFILES

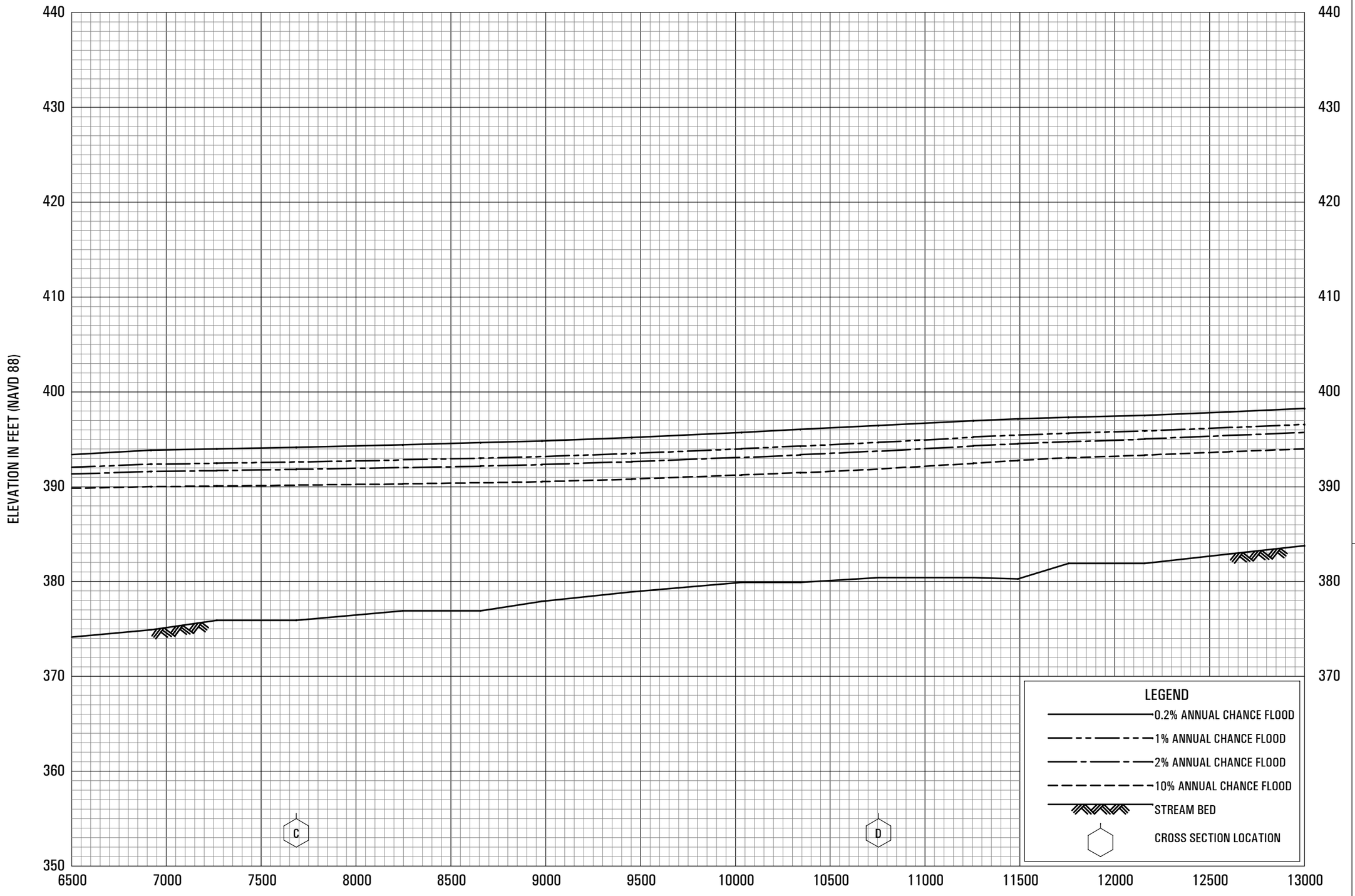
BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

01P



FLOOD PROFILES

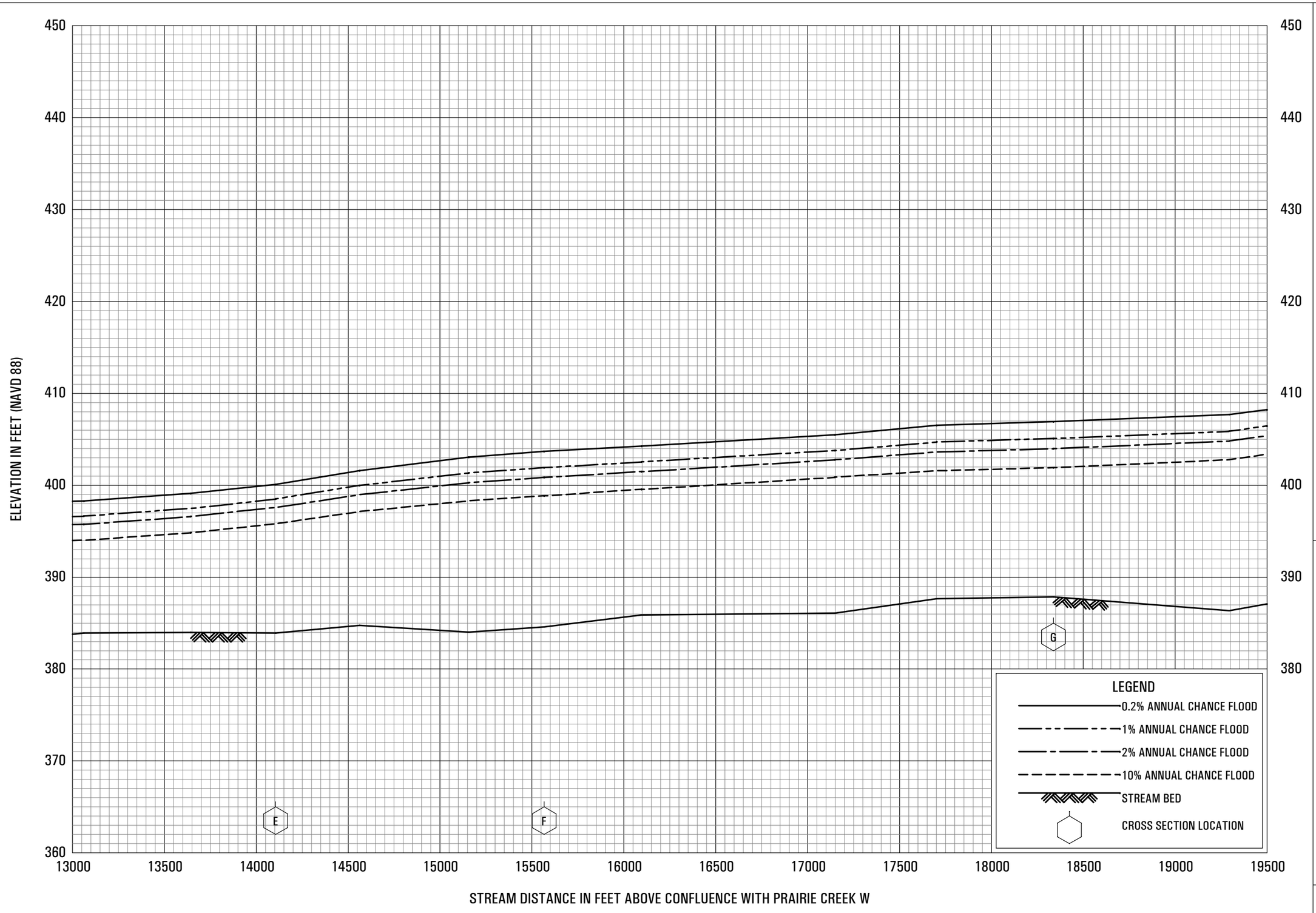
BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

02P



FLOOD PROFILES

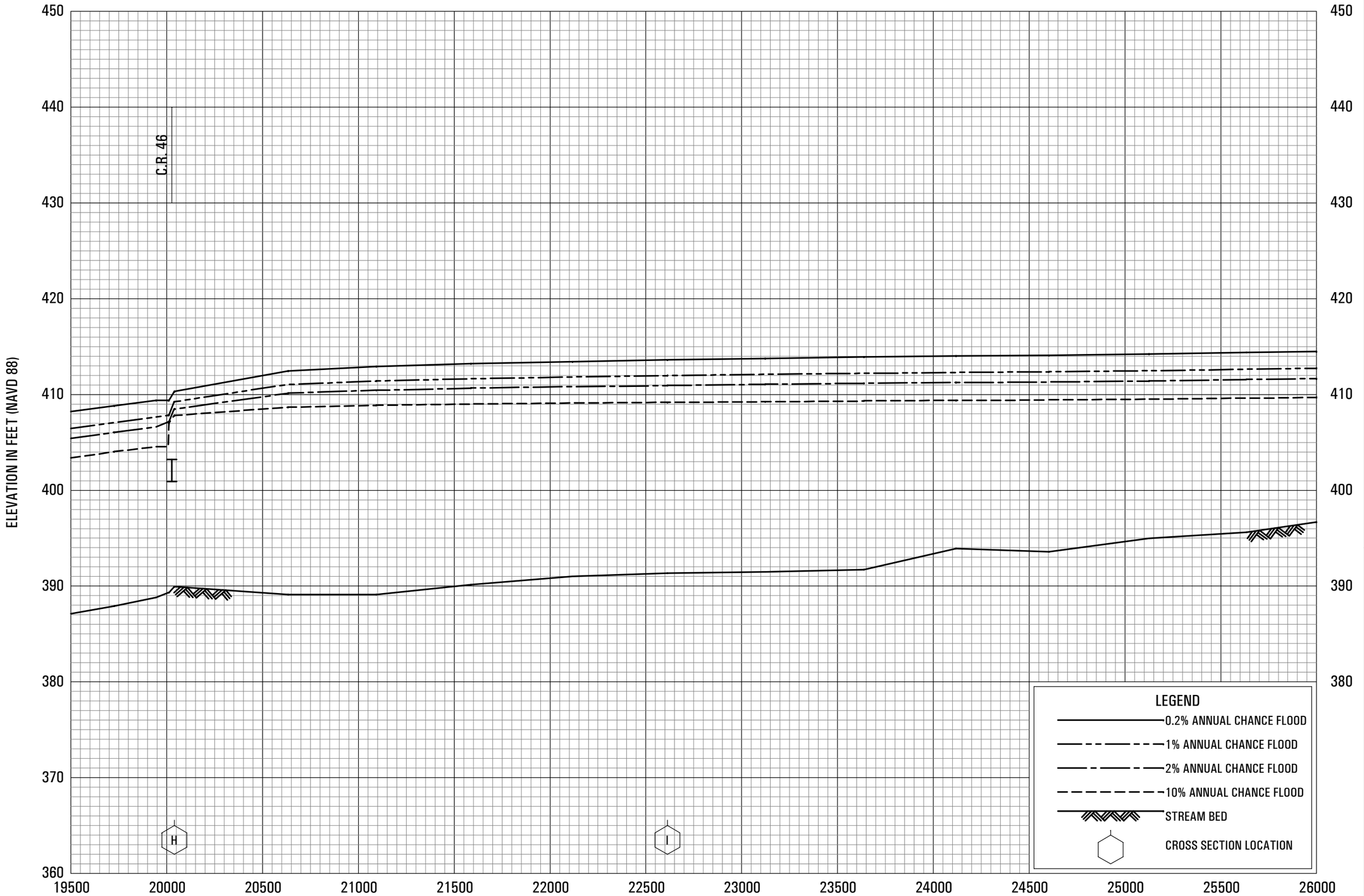
BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

03P



FLOOD PROFILES

BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

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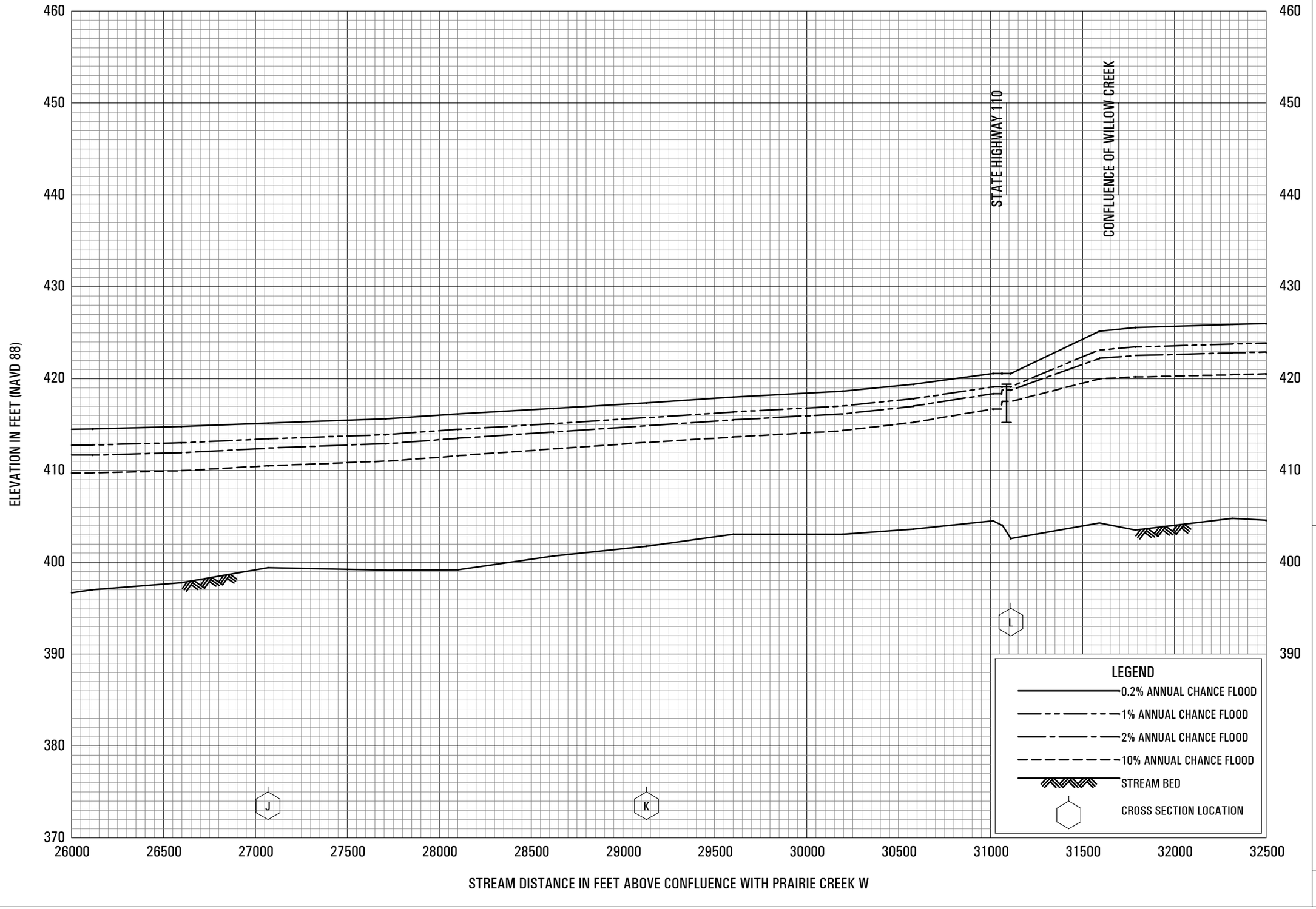

FLOOD PROFILES

BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

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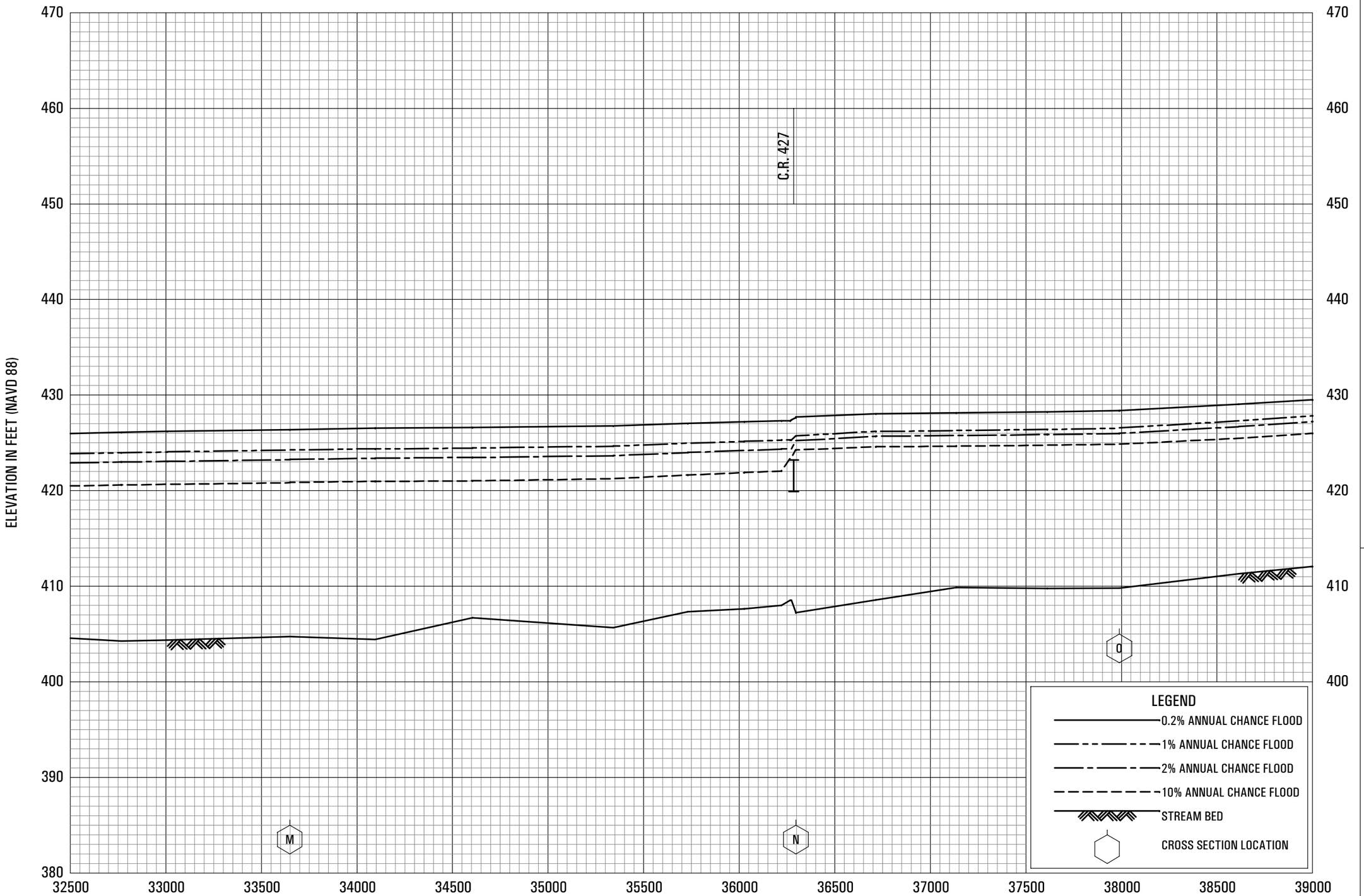

FLOOD PROFILES

BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

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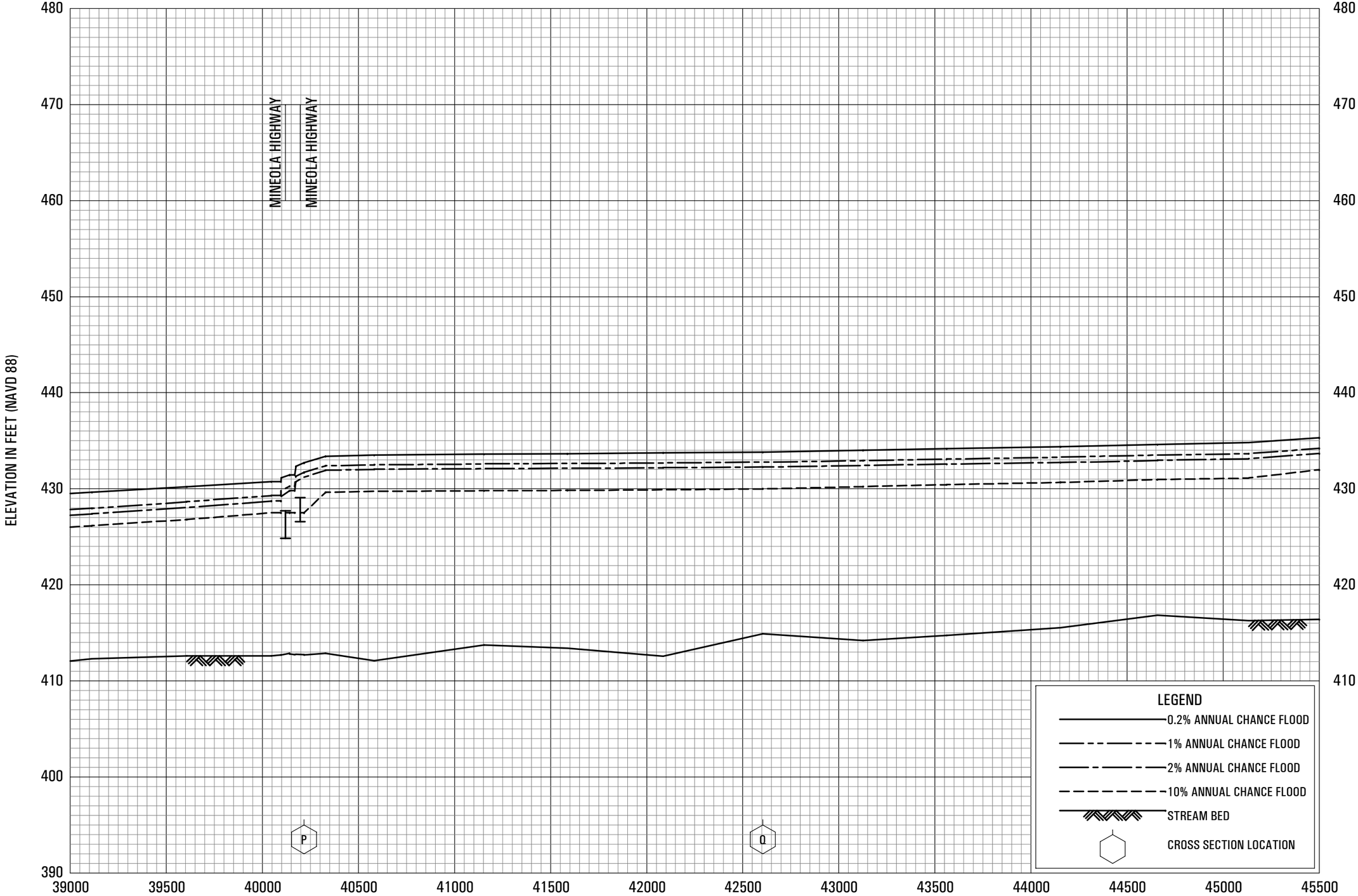


FLOOD PROFILES

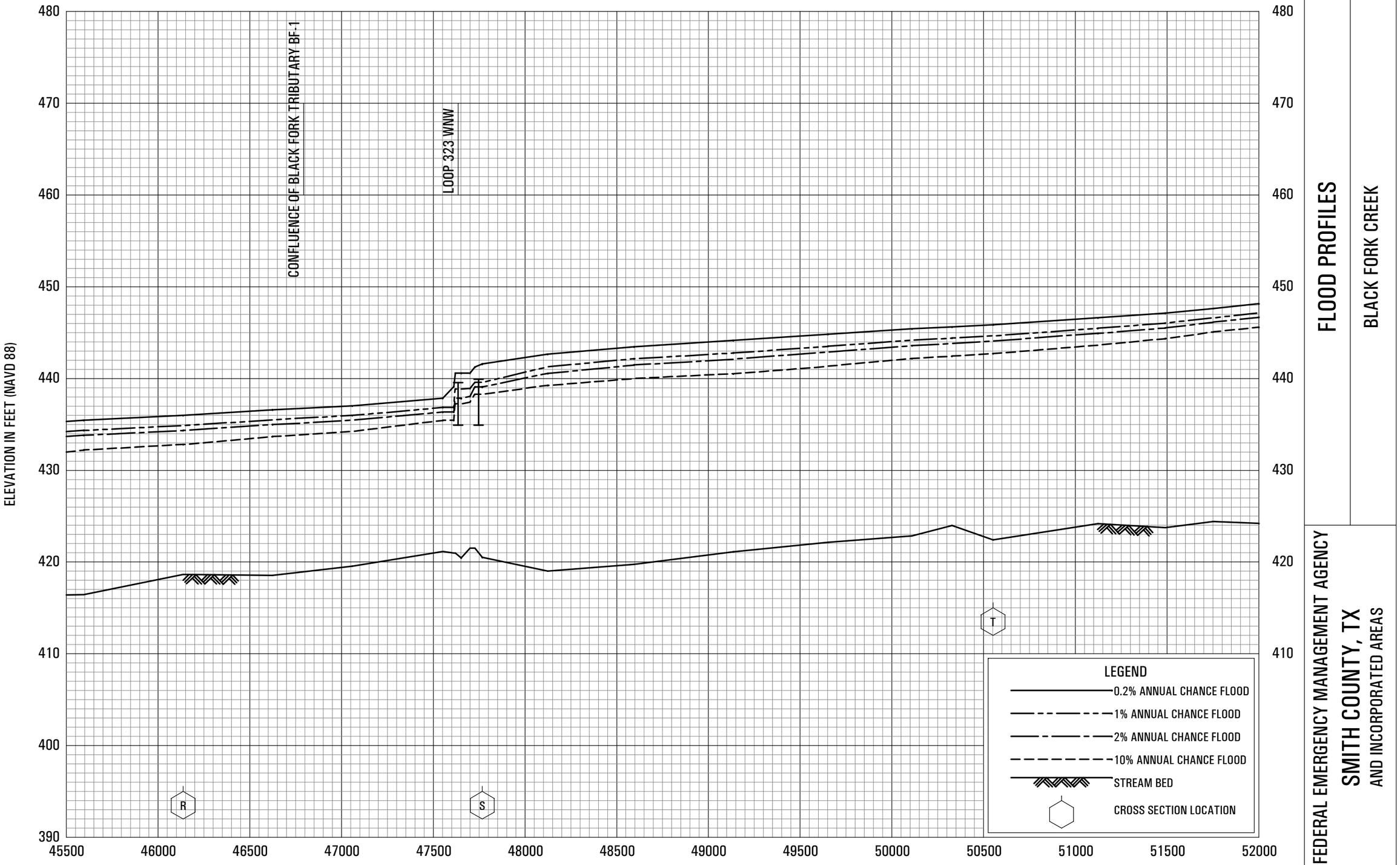
BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

07P



FLOOD PROFILES

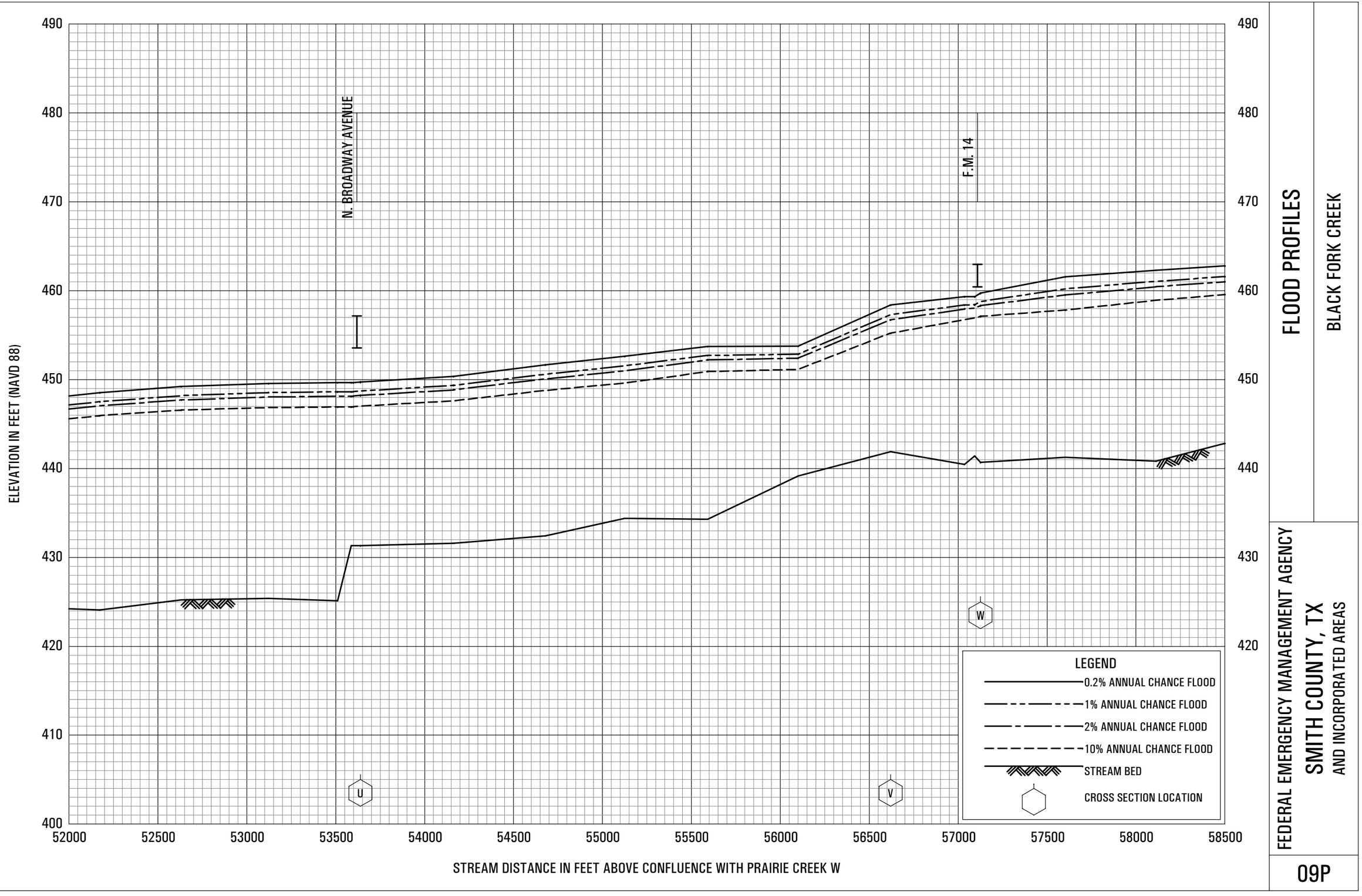
BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

08P



FLOOD PROFILES

BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

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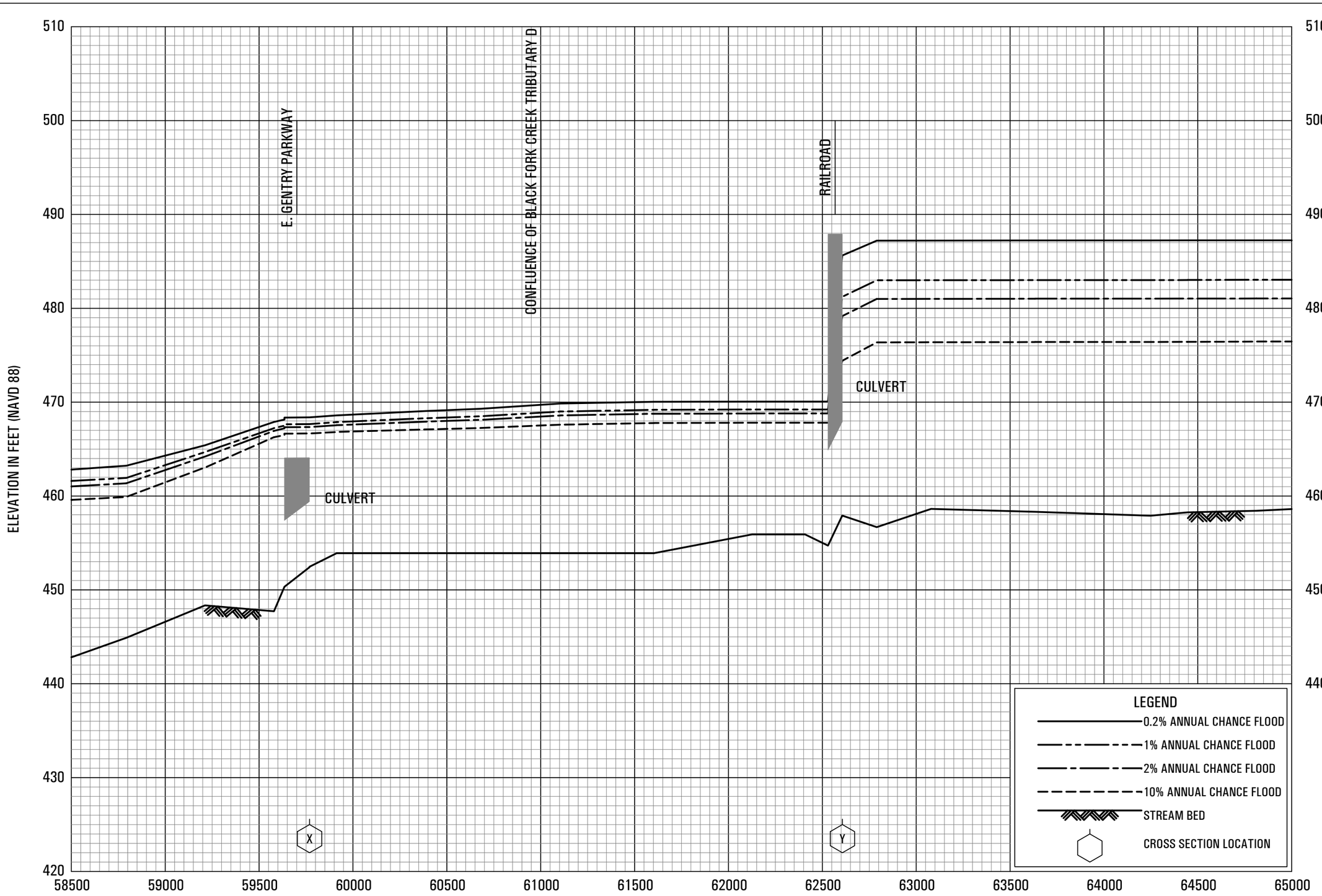


FLOOD PROFILES

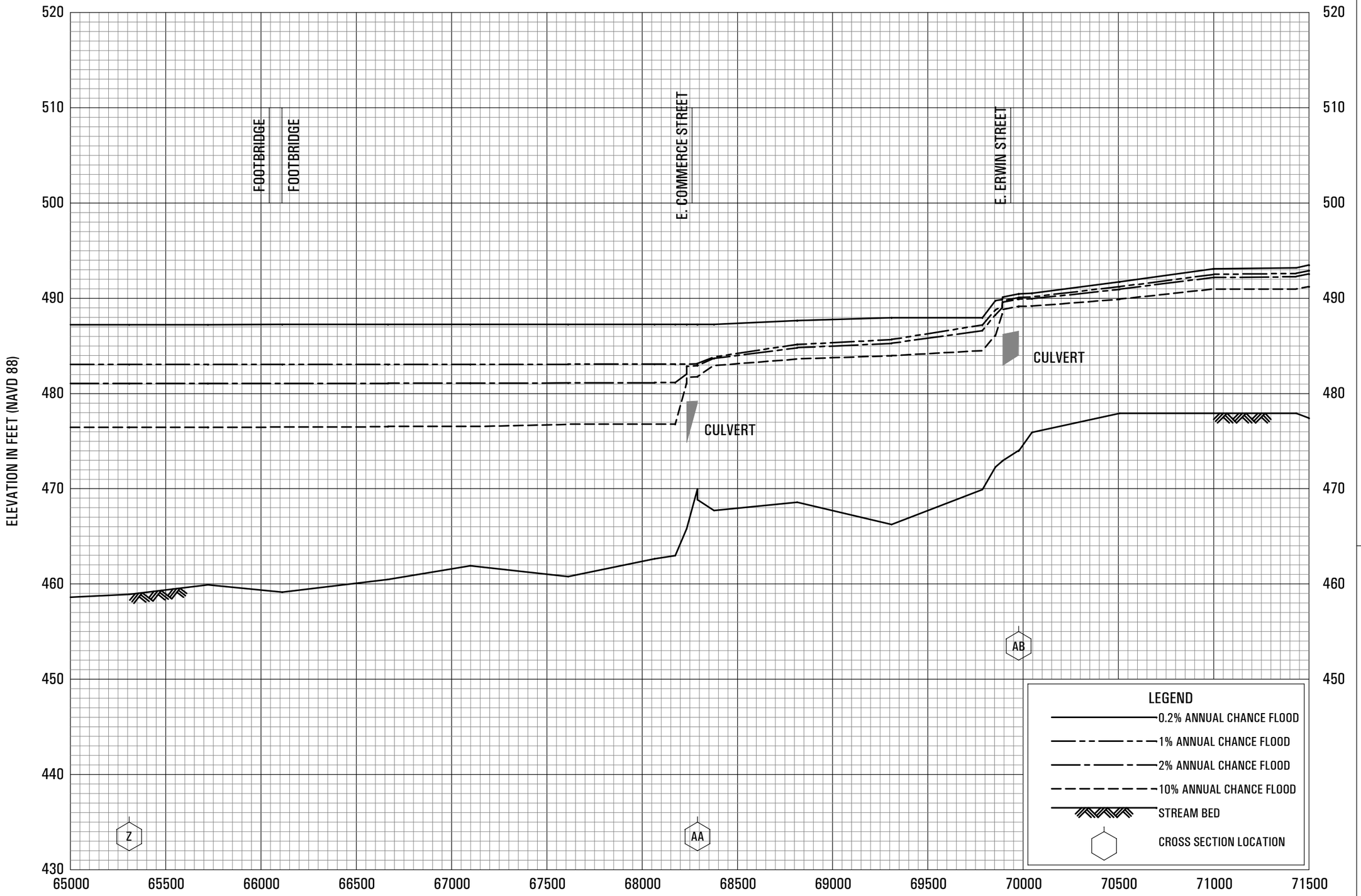
BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

10P



FLOOD PROFILES

BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

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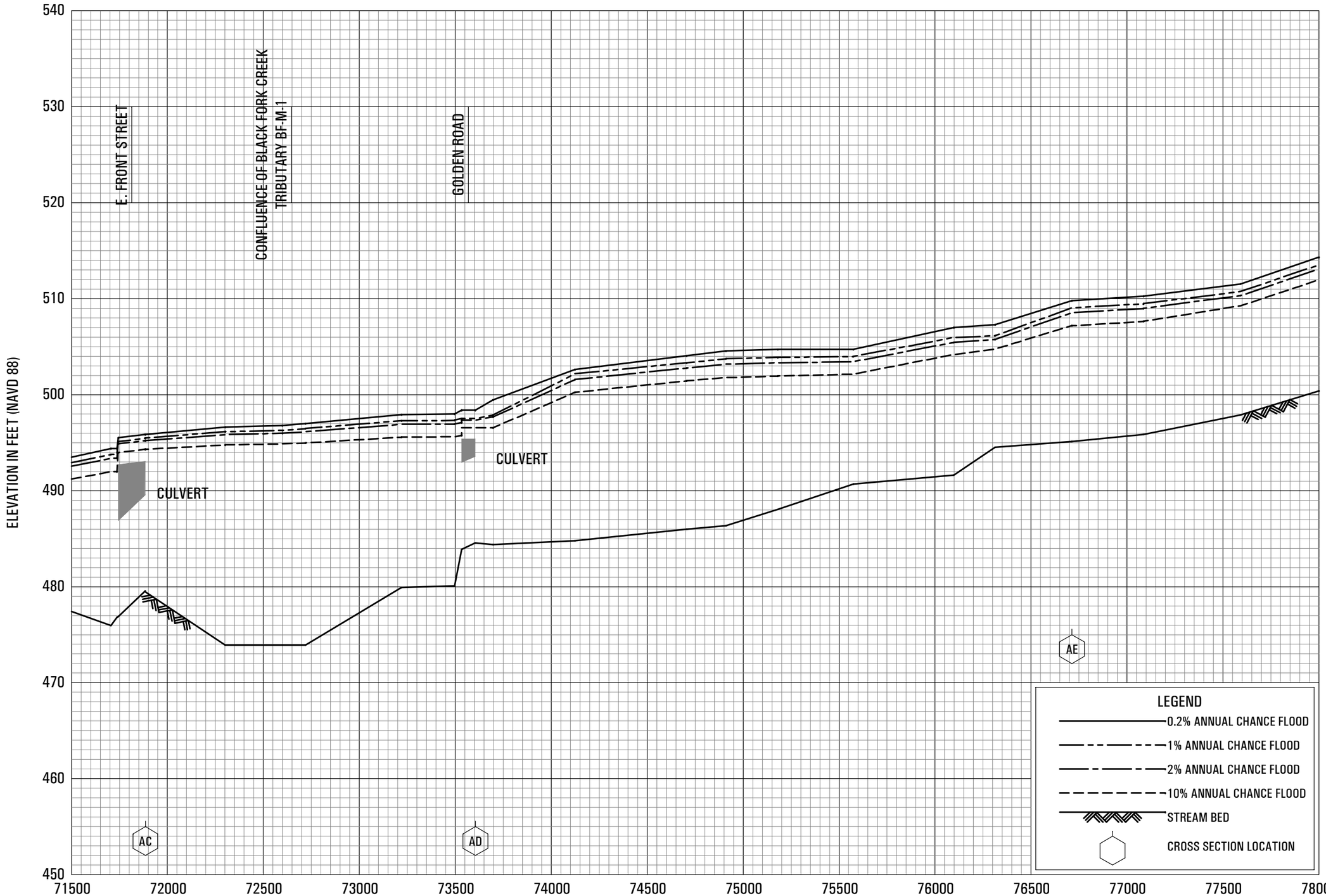


FLOOD PROFILES

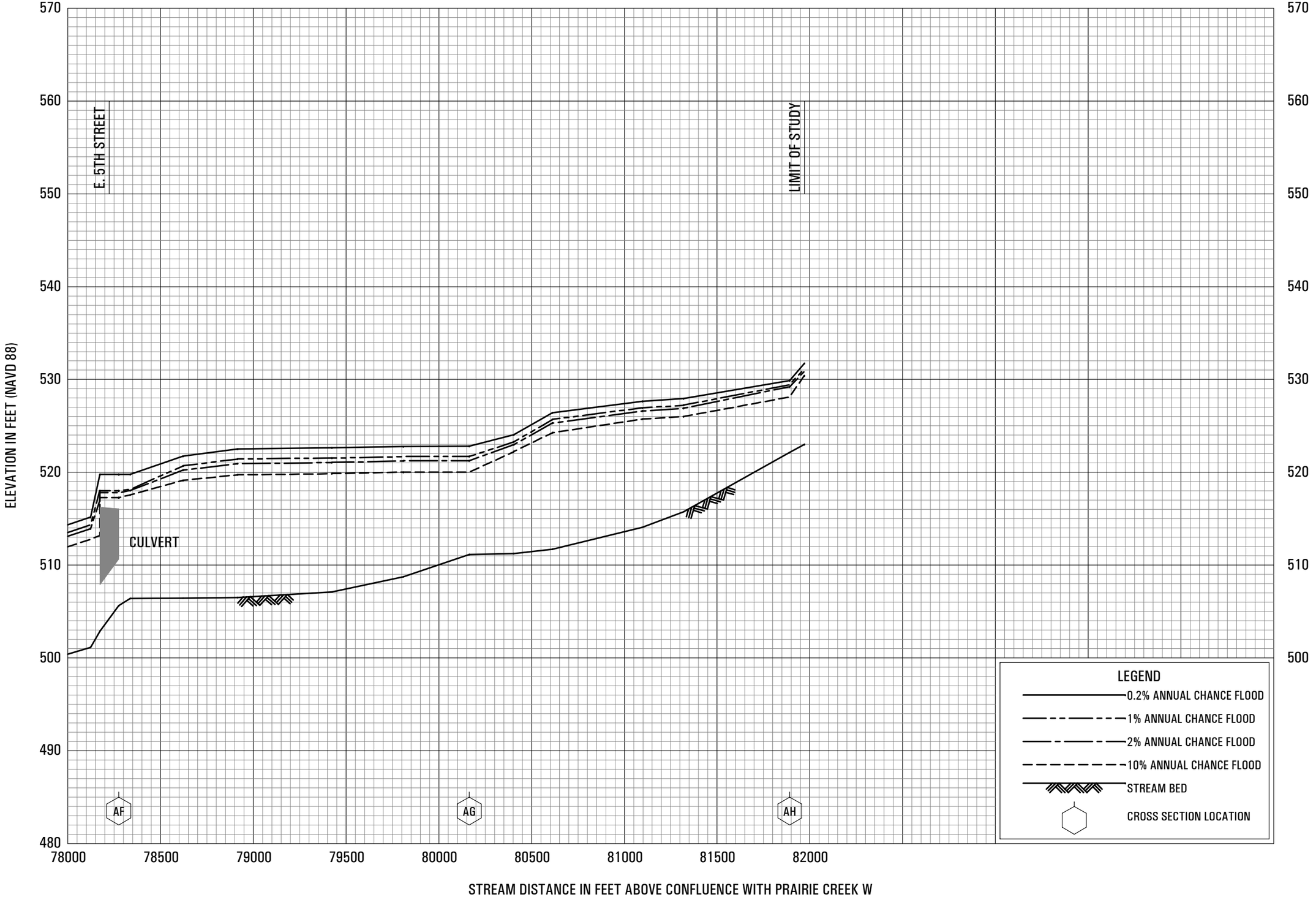
BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

12P



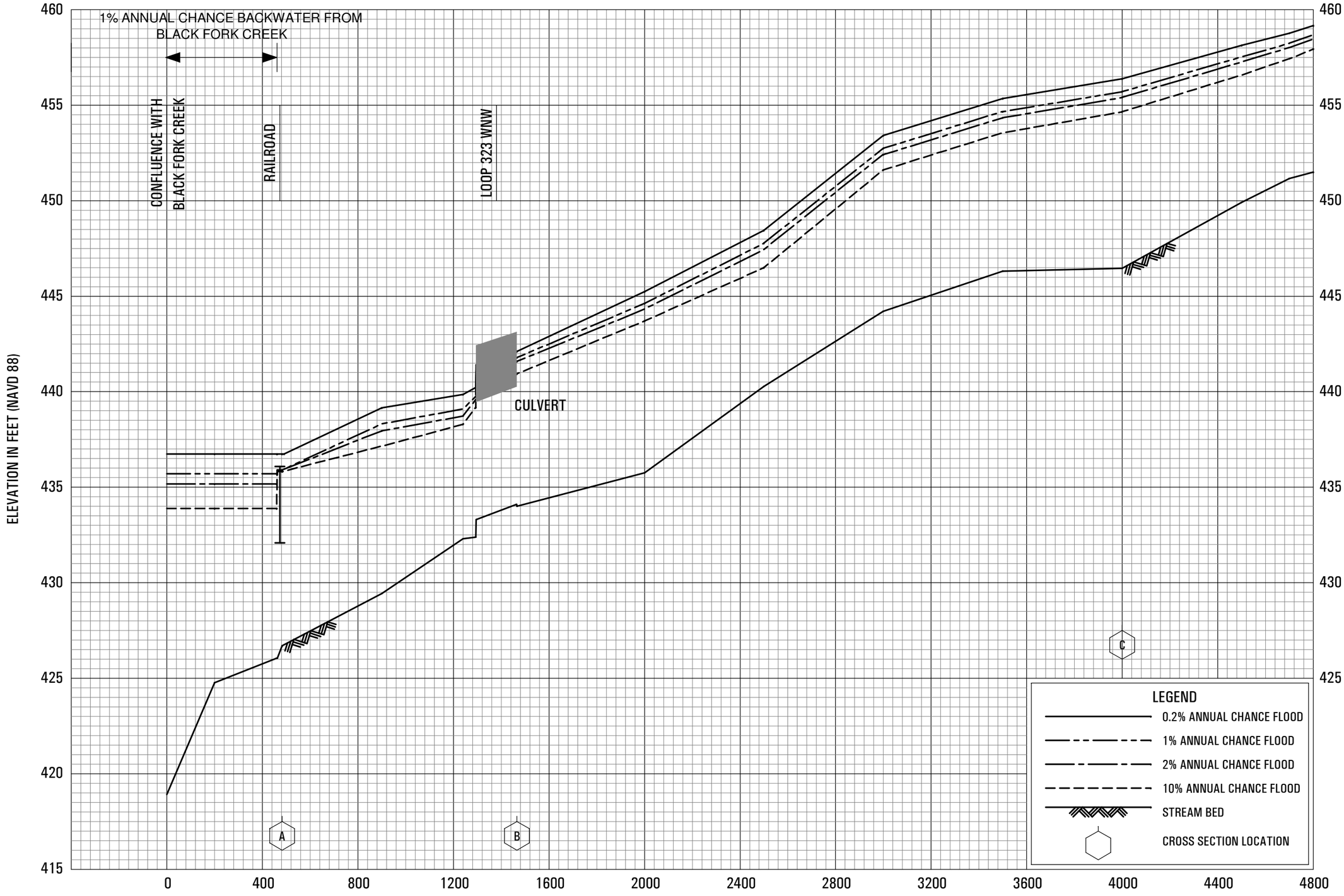
FLOOD PROFILES

BLACK FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



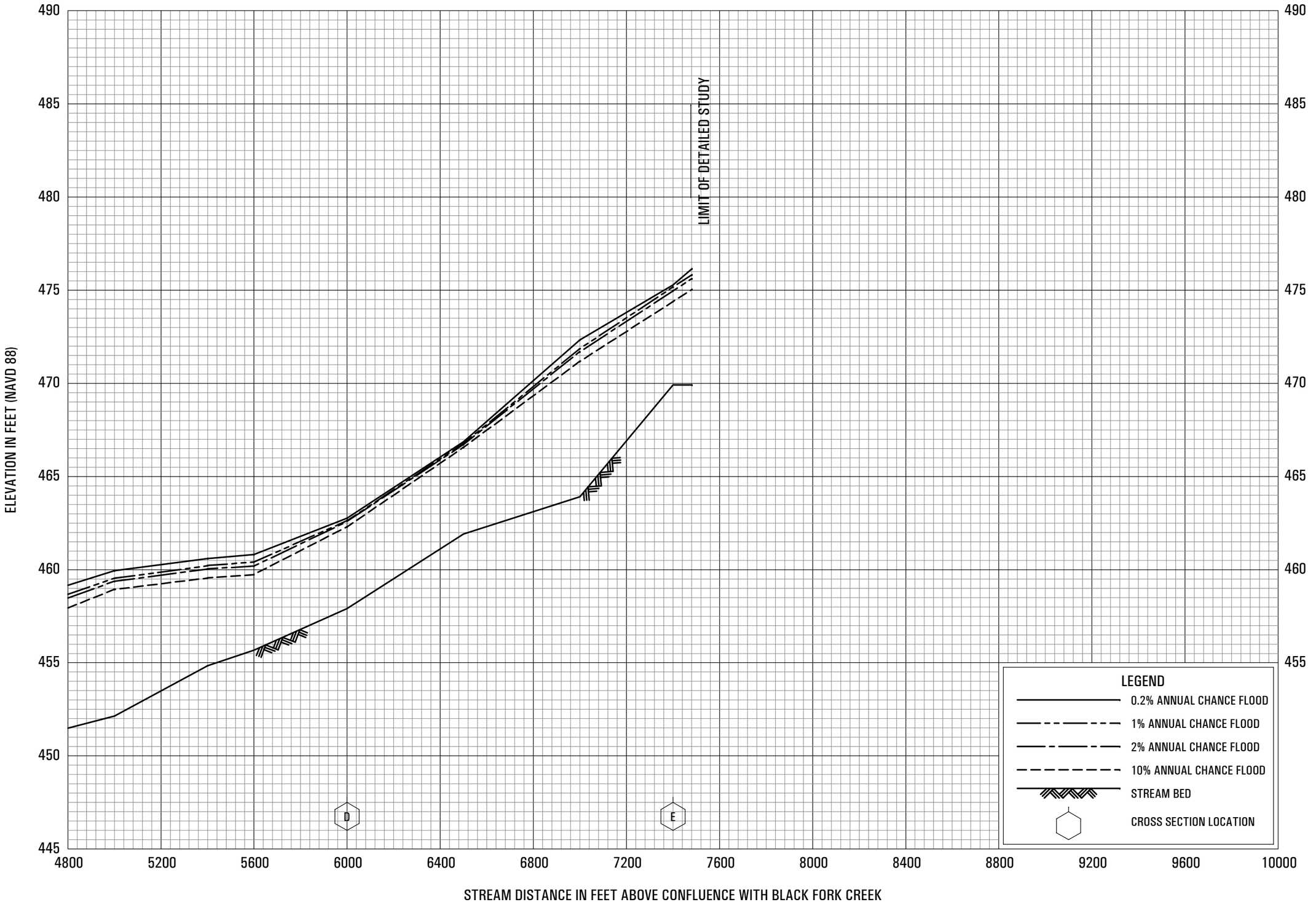
FLOOD PROFILES

BLACK FORK CREEK TRIBUTARY BF-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



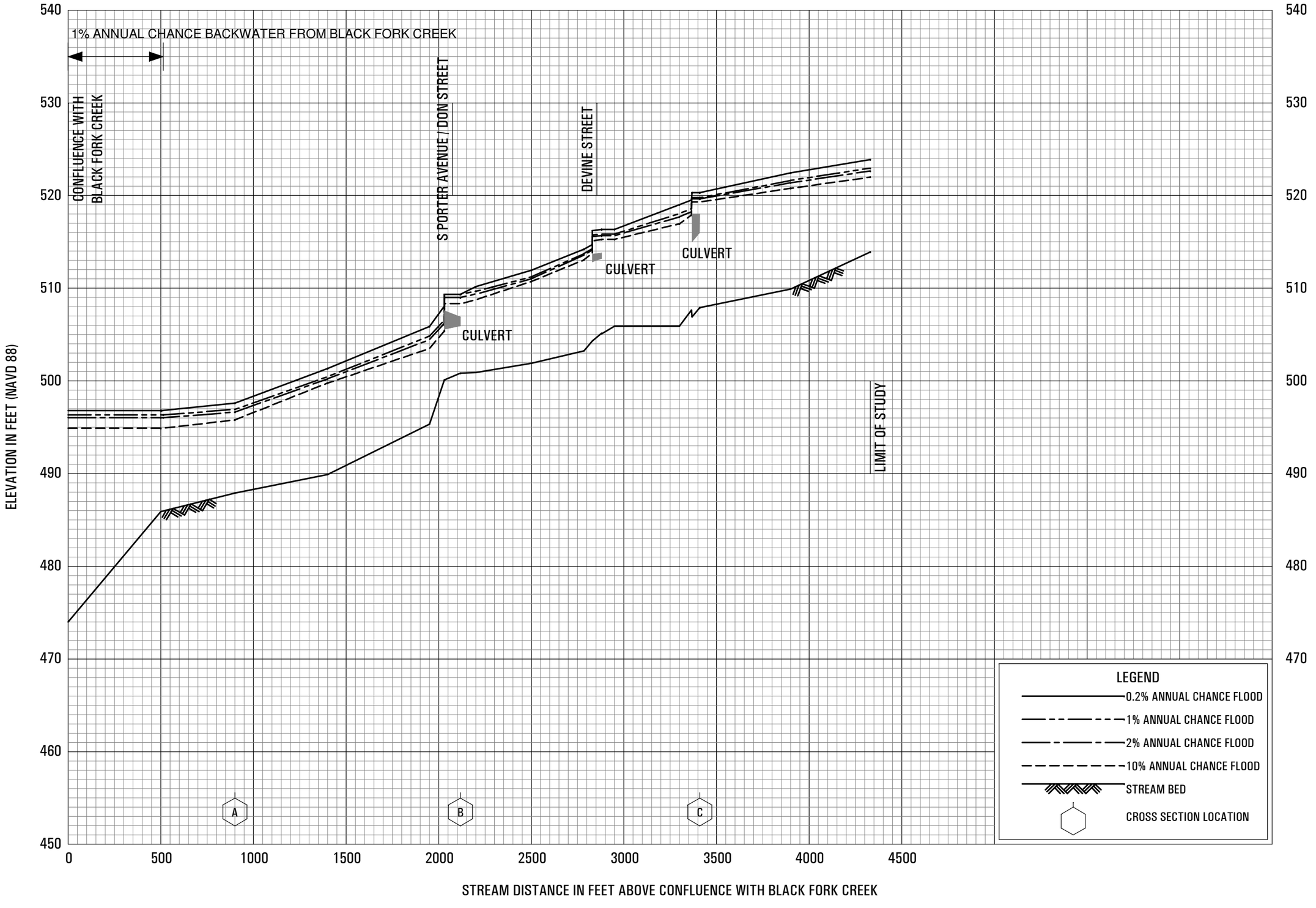
FLOOD PROFILES

BLACK FORK CREEK TRIBUTARY BF-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



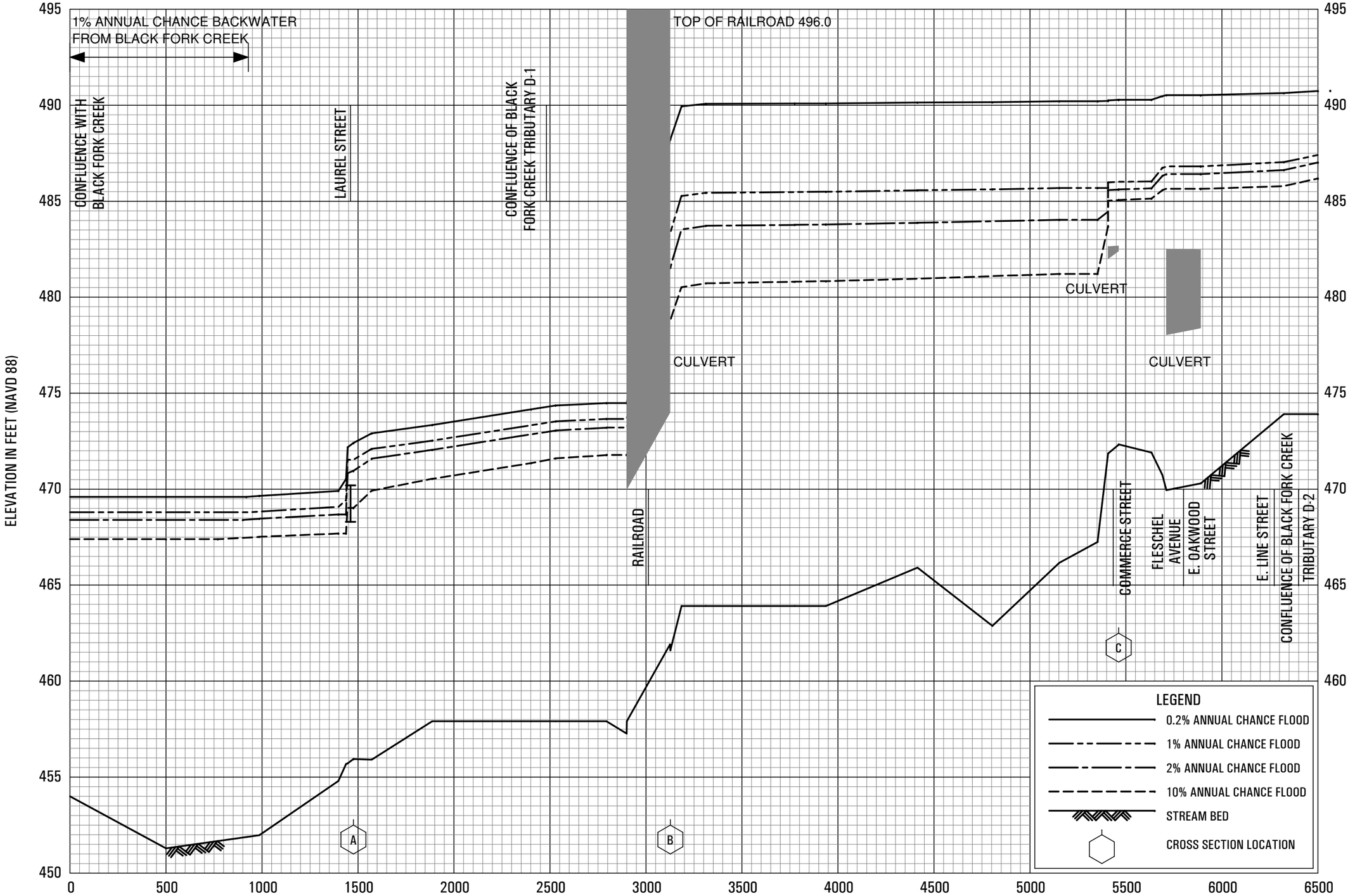
FLOOD PROFILES

BLACK FORK CREEK TRIBUTARY BF-M-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

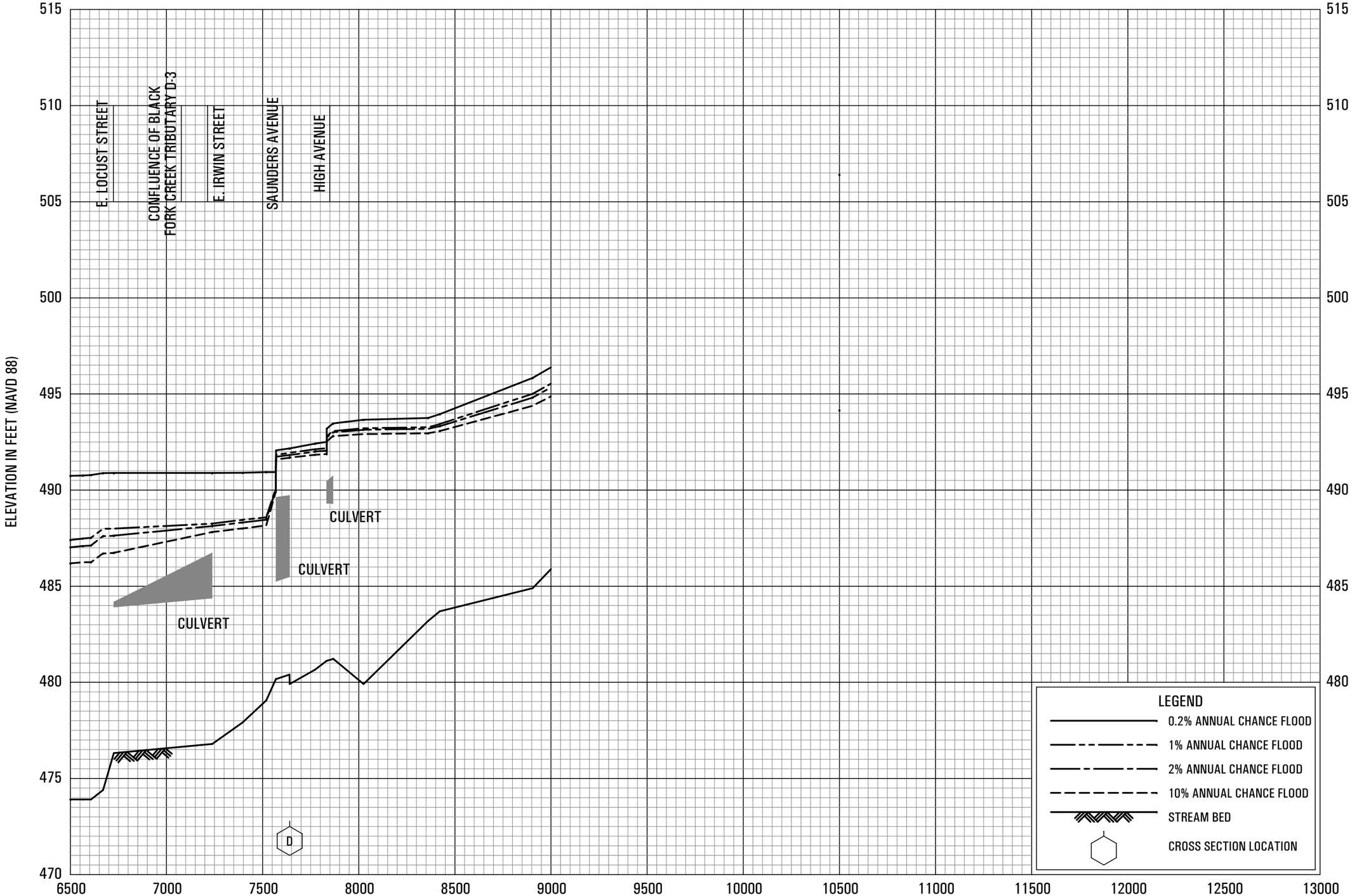
AND INCORPORATED AREAS



FLOOD PROFILES

BLACK FORK CREEK TRIBUTARY D

FEDERAL EMERGENCY MANAGEMENT AGENCY
SMITH COUNTY, TX
AND INCORPORATED AREAS



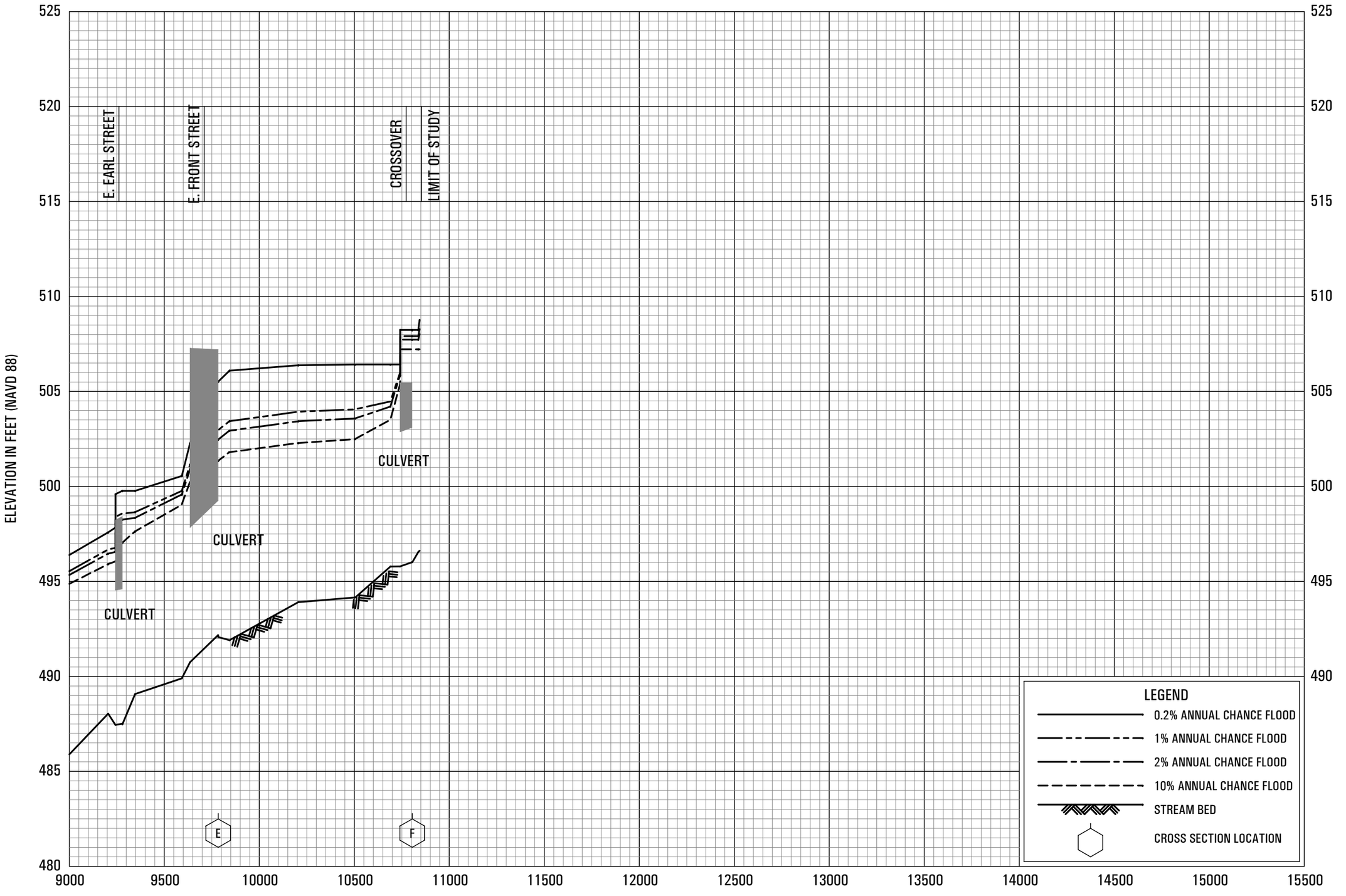
FLOOD PROFILES

BLACK FORK CREEK TRIBUTARY D

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



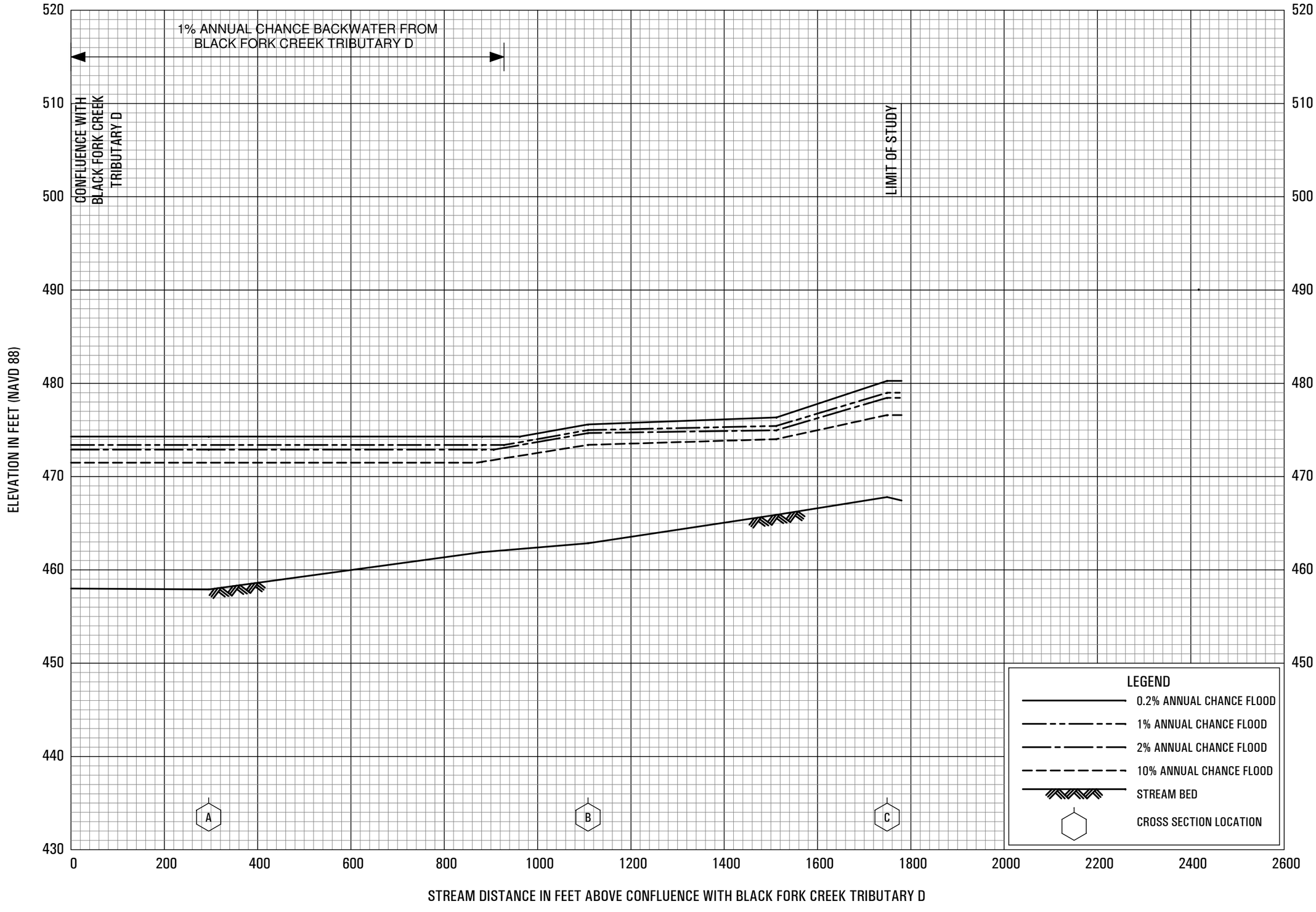
FLOOD PROFILES

BLACK FORK CREEK TRIBUTARY D

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



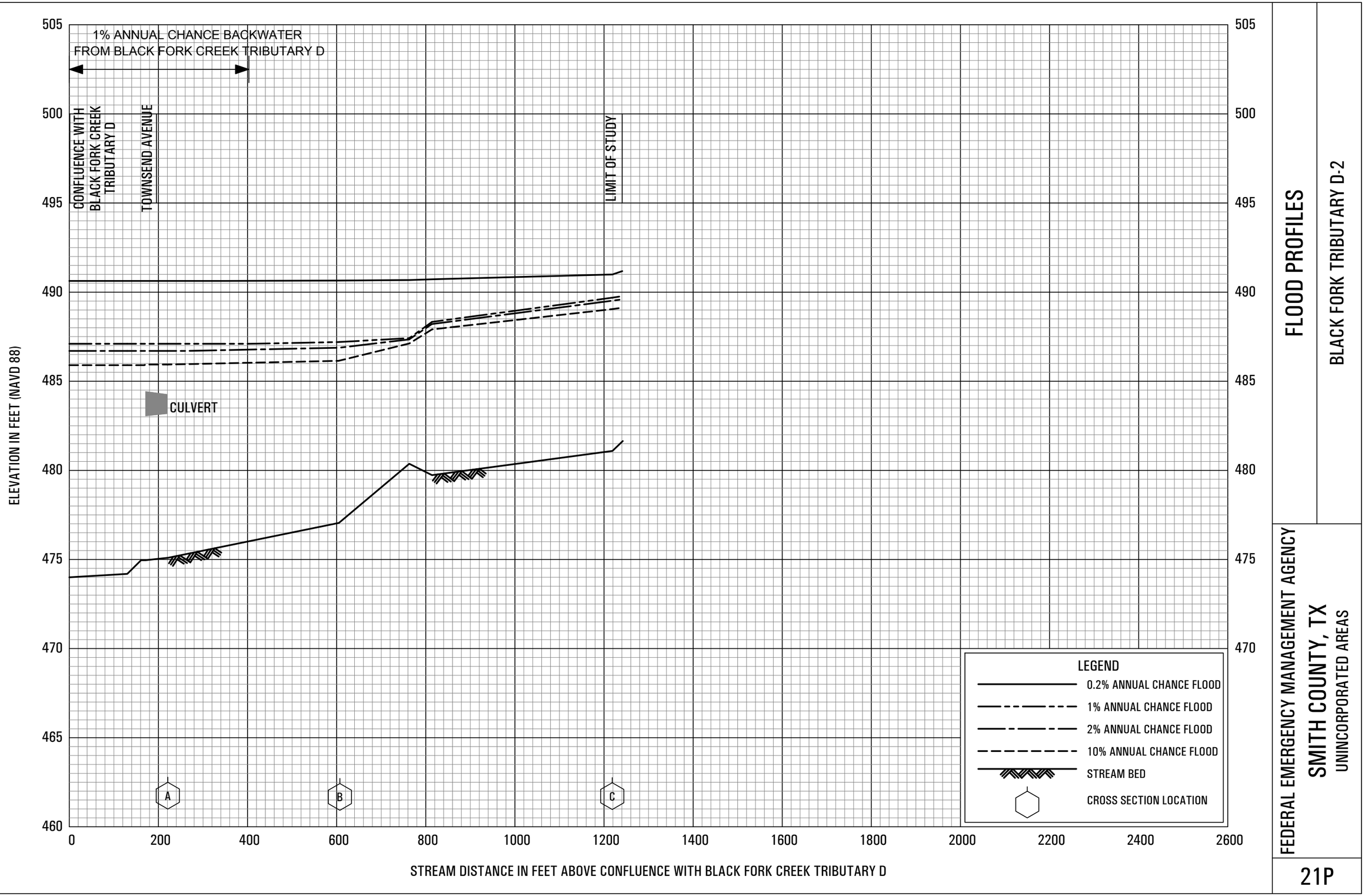
FLOOD PROFILES

BLACK FORK TRIBUTARY D-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



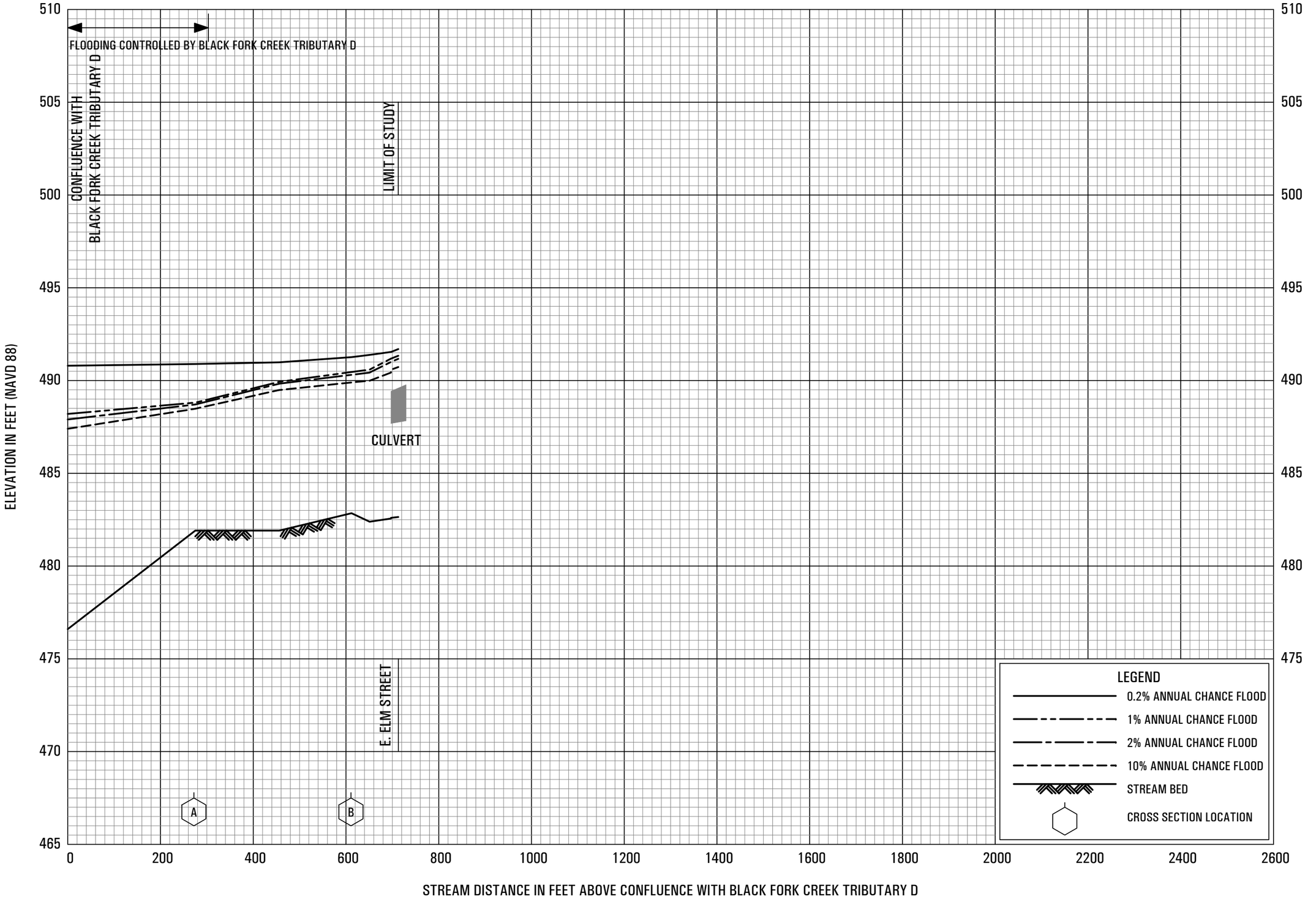
FLOOD PROFILES

BLACK FORK TRIBUTARY D-2

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

UNINCORPORATED AREAS



FLOOD PROFILES

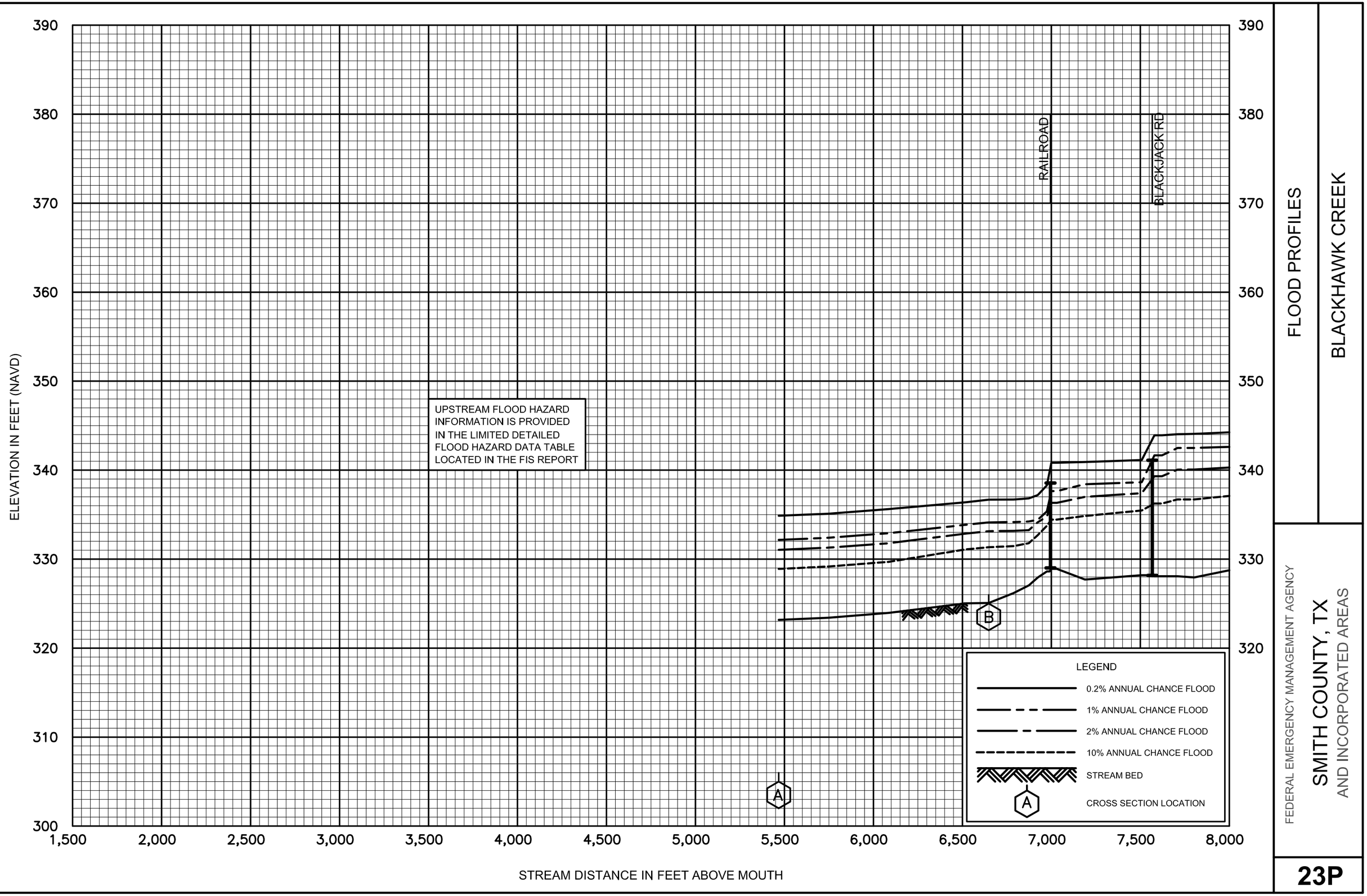
BLACK FORK CREEK TRIBUTARY D-3

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

22P



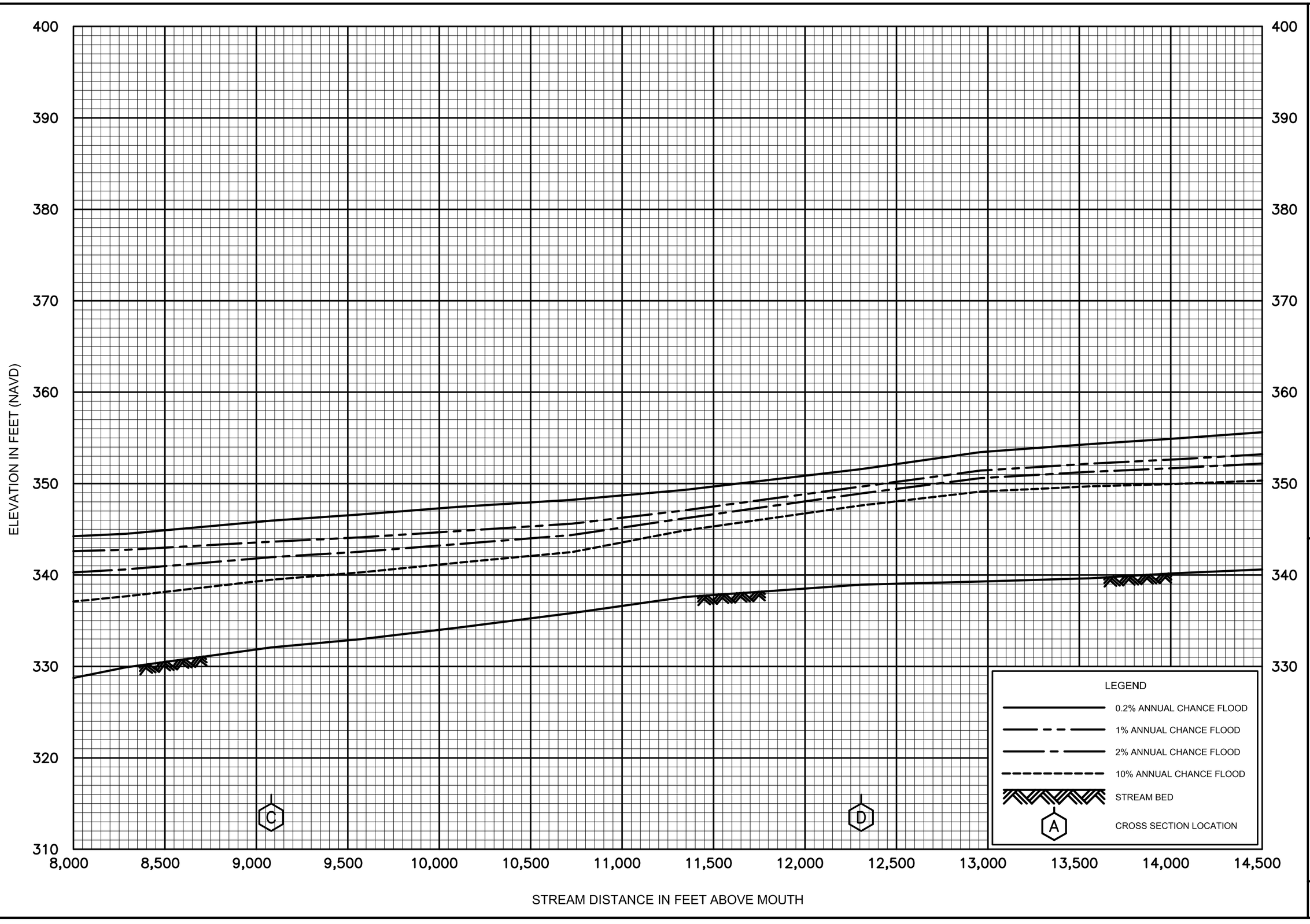
FLOOD PROFILES

BLACKHAWK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

23P



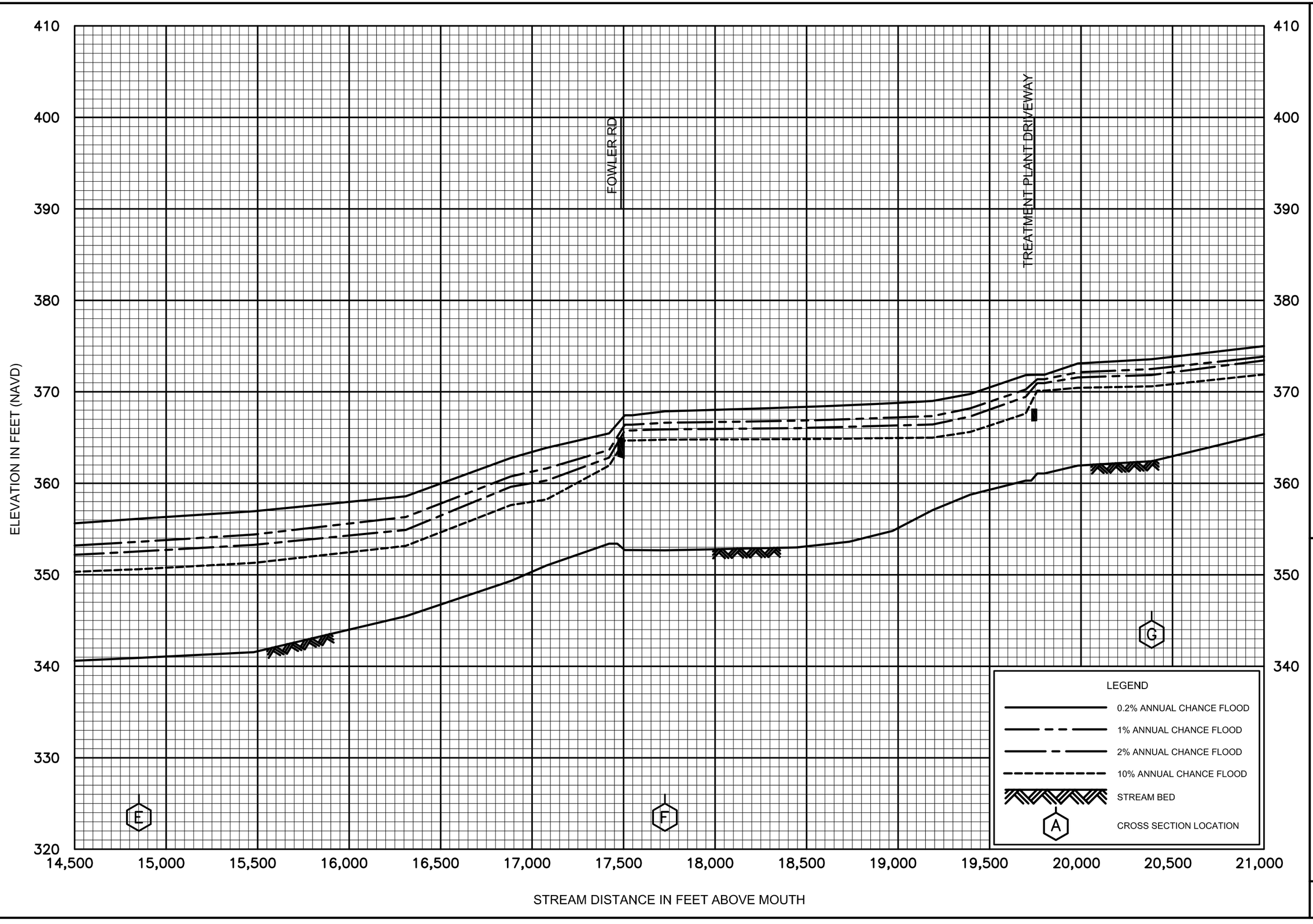
FLOOD PROFILES

BLACKHAWK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

24P



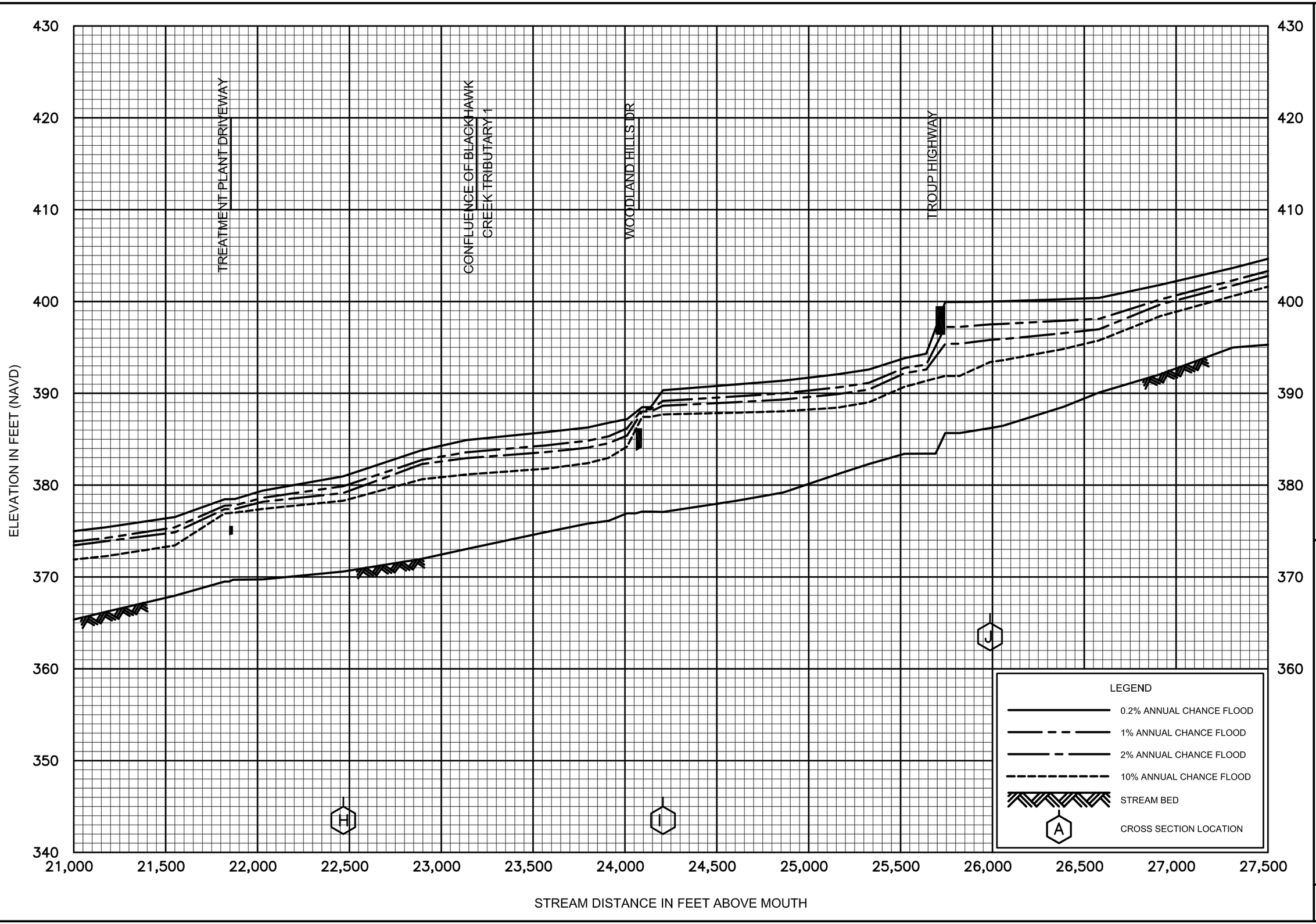
FLOOD PROFILES

BLACKHAWK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

25P



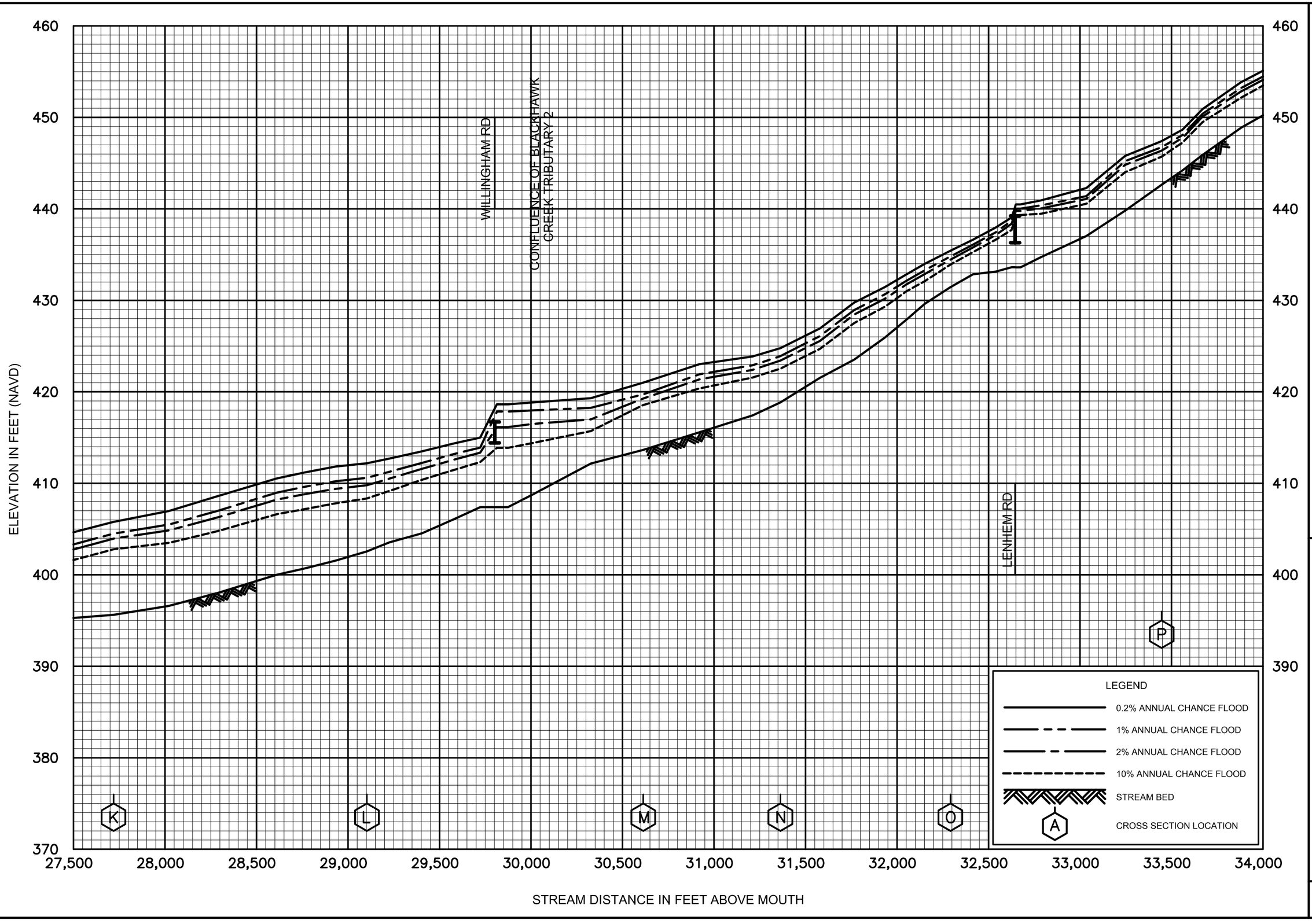
FLOOD PROFILES

BLACKHAWK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

26P



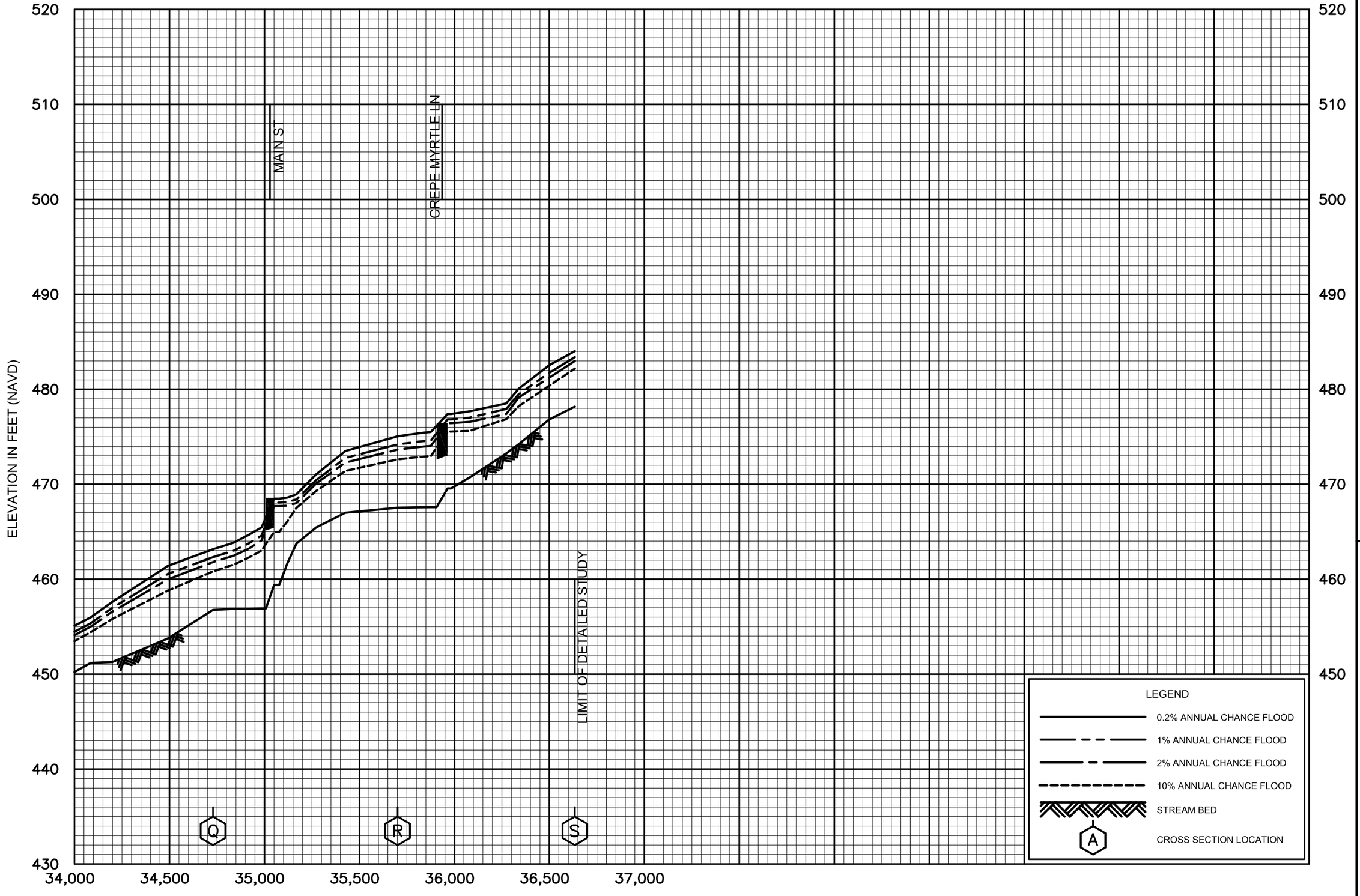
FLOOD PROFILES

BLACKHAWK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

27P



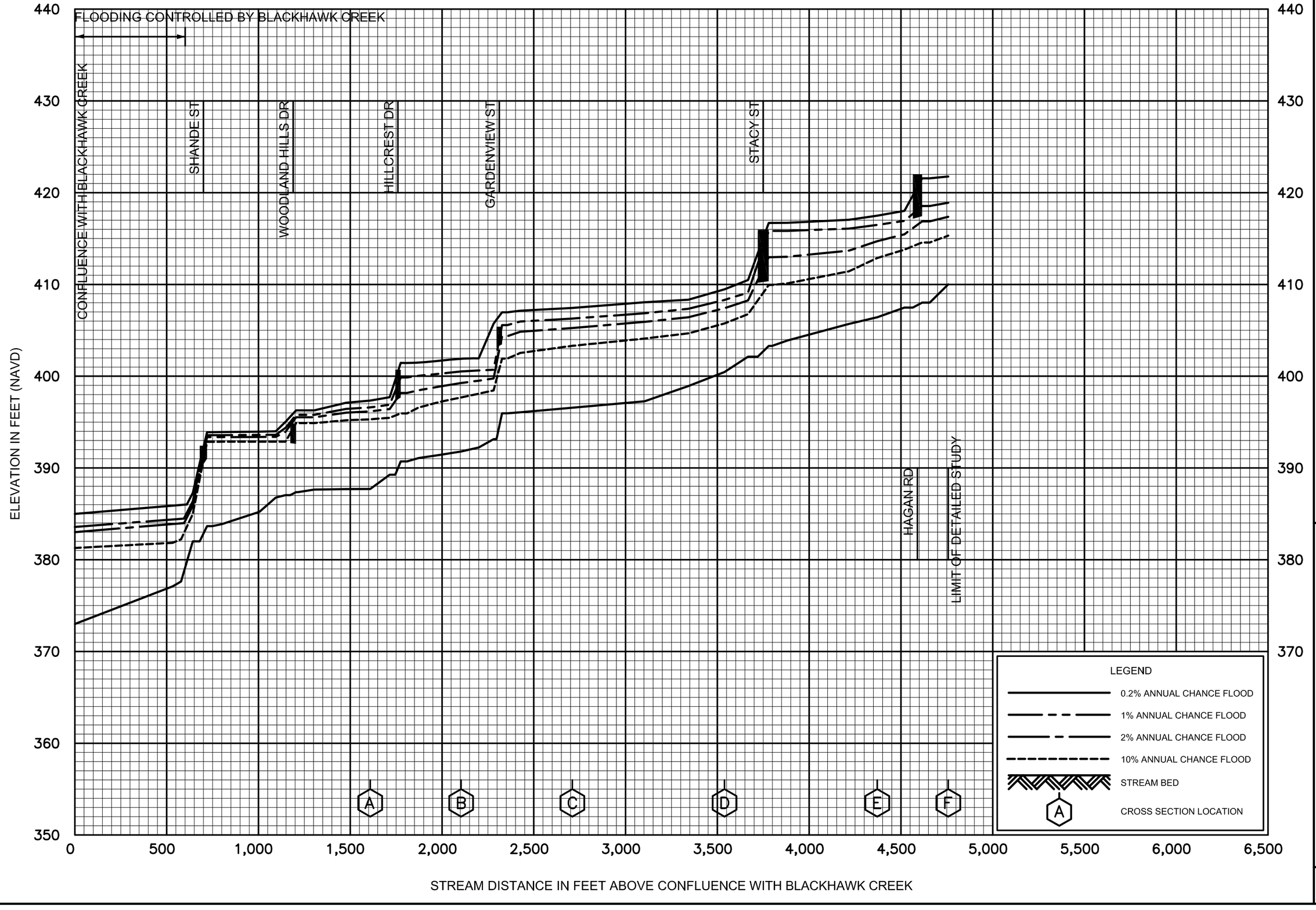
FLOOD PROFILES

BLACKHAWK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

28P



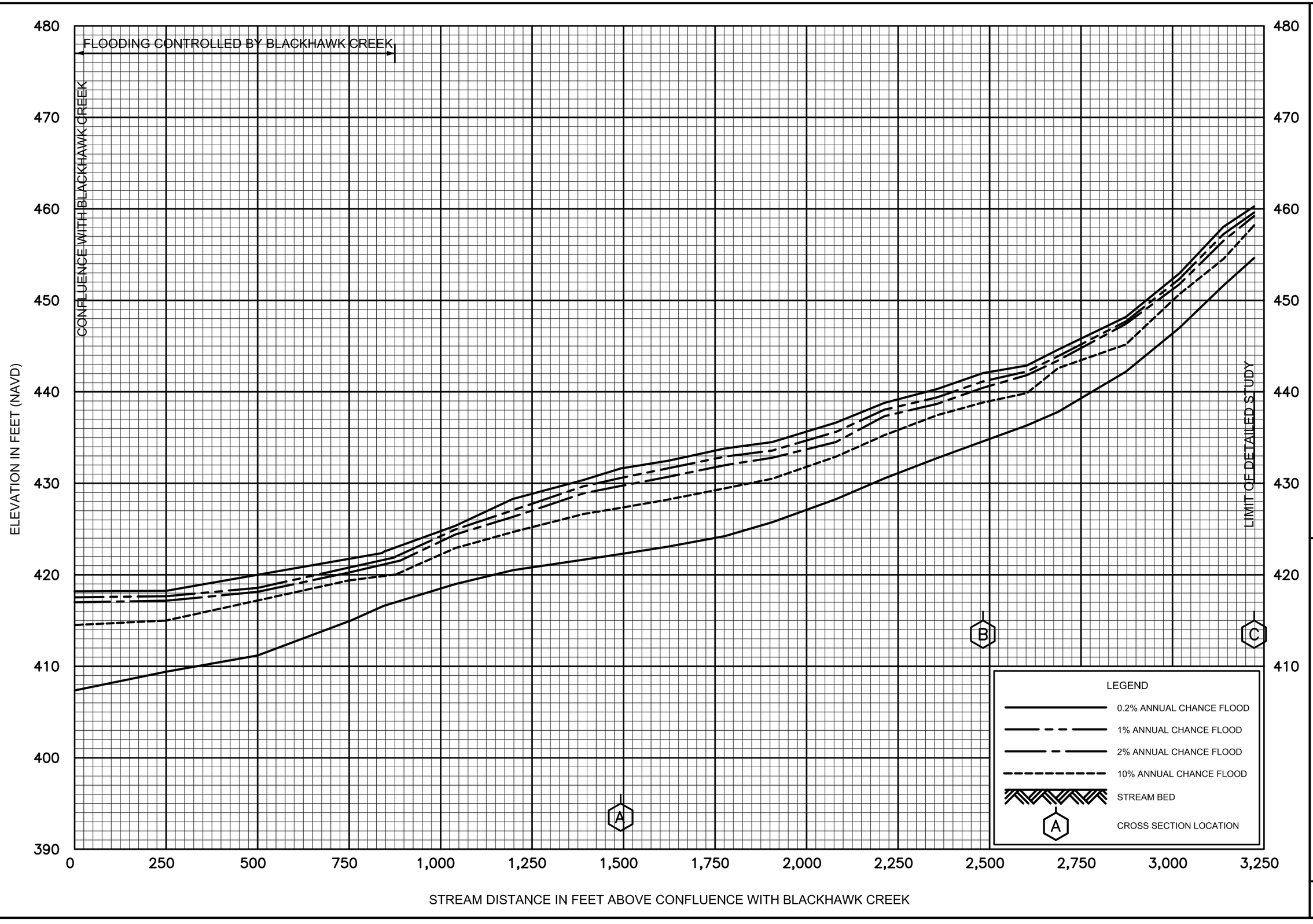
FLOOD PROFILES

BLACKHAWK CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

29P



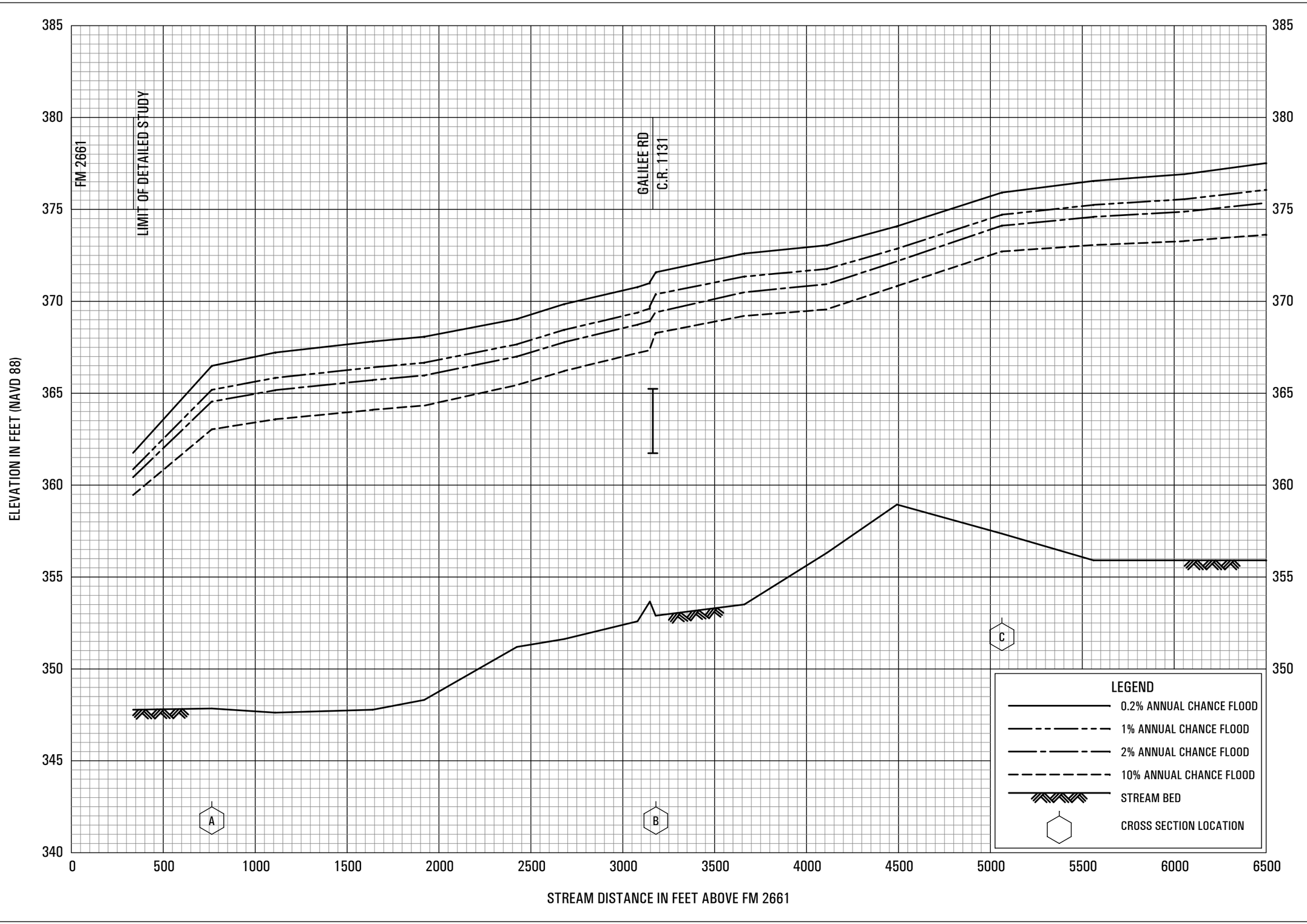
FLOOD PROFILES

BLACKHAWK CREEK TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

30P



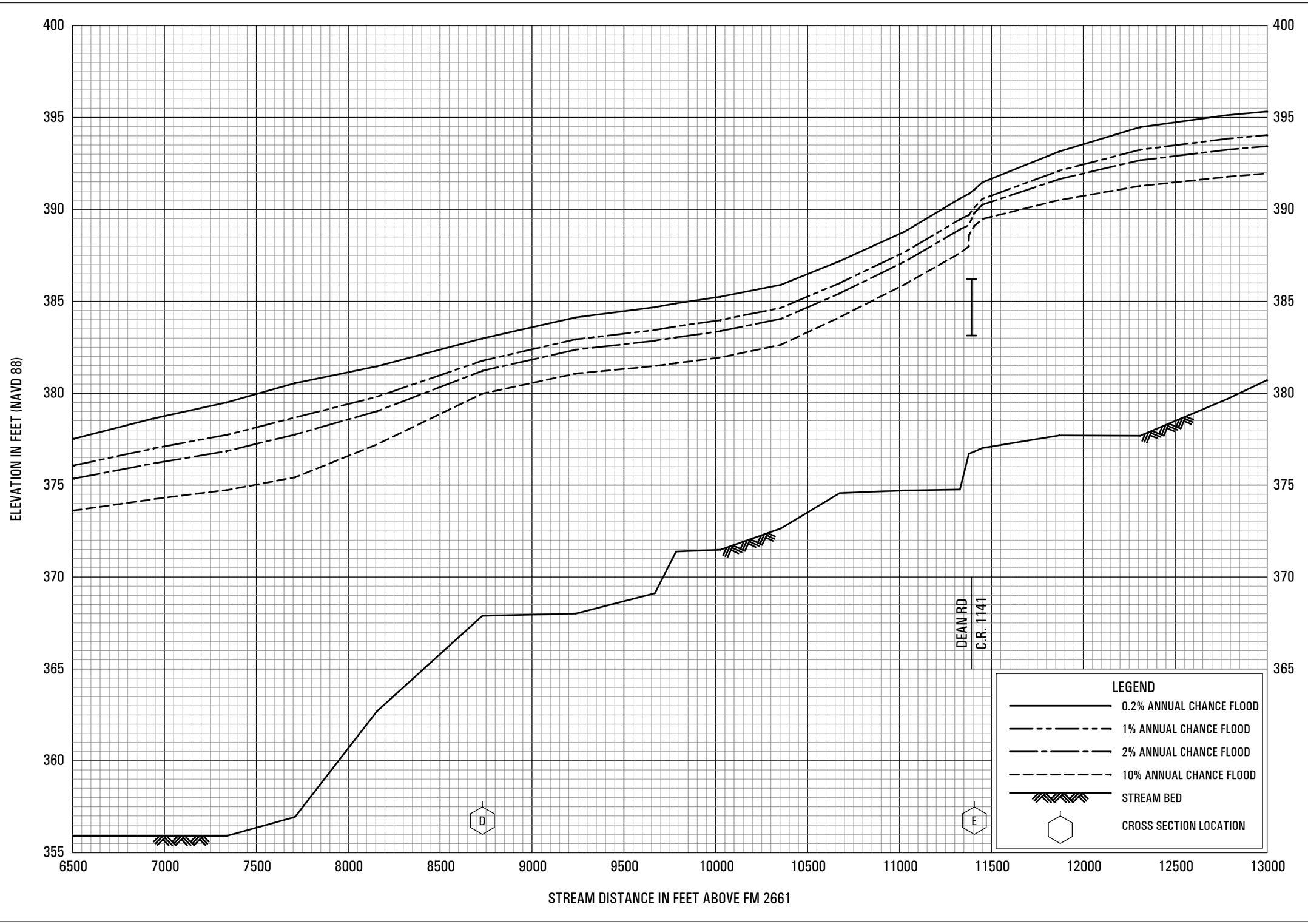
FLOOD PROFILES

BUTLER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



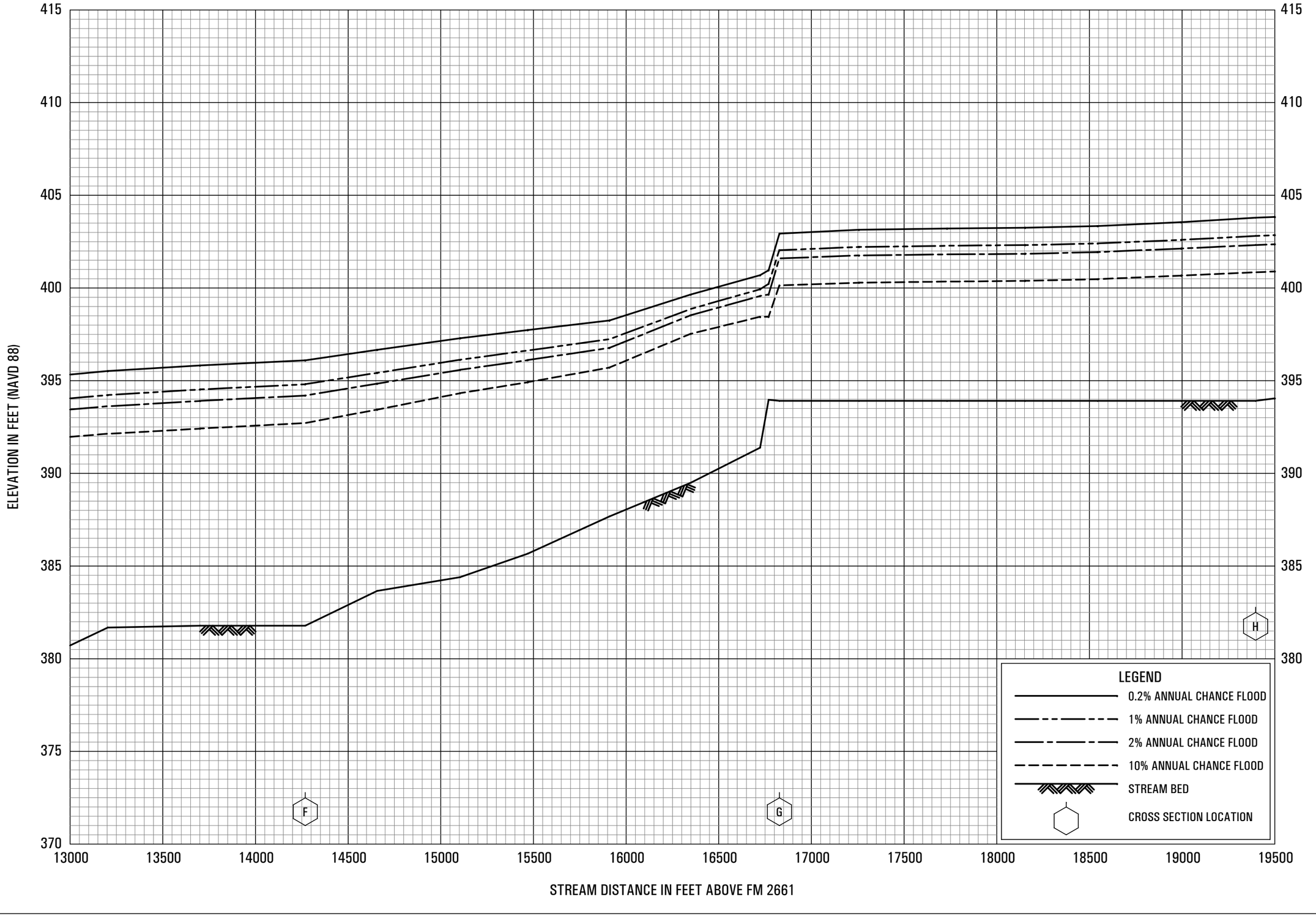
FLOOD PROFILES

BUTLER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

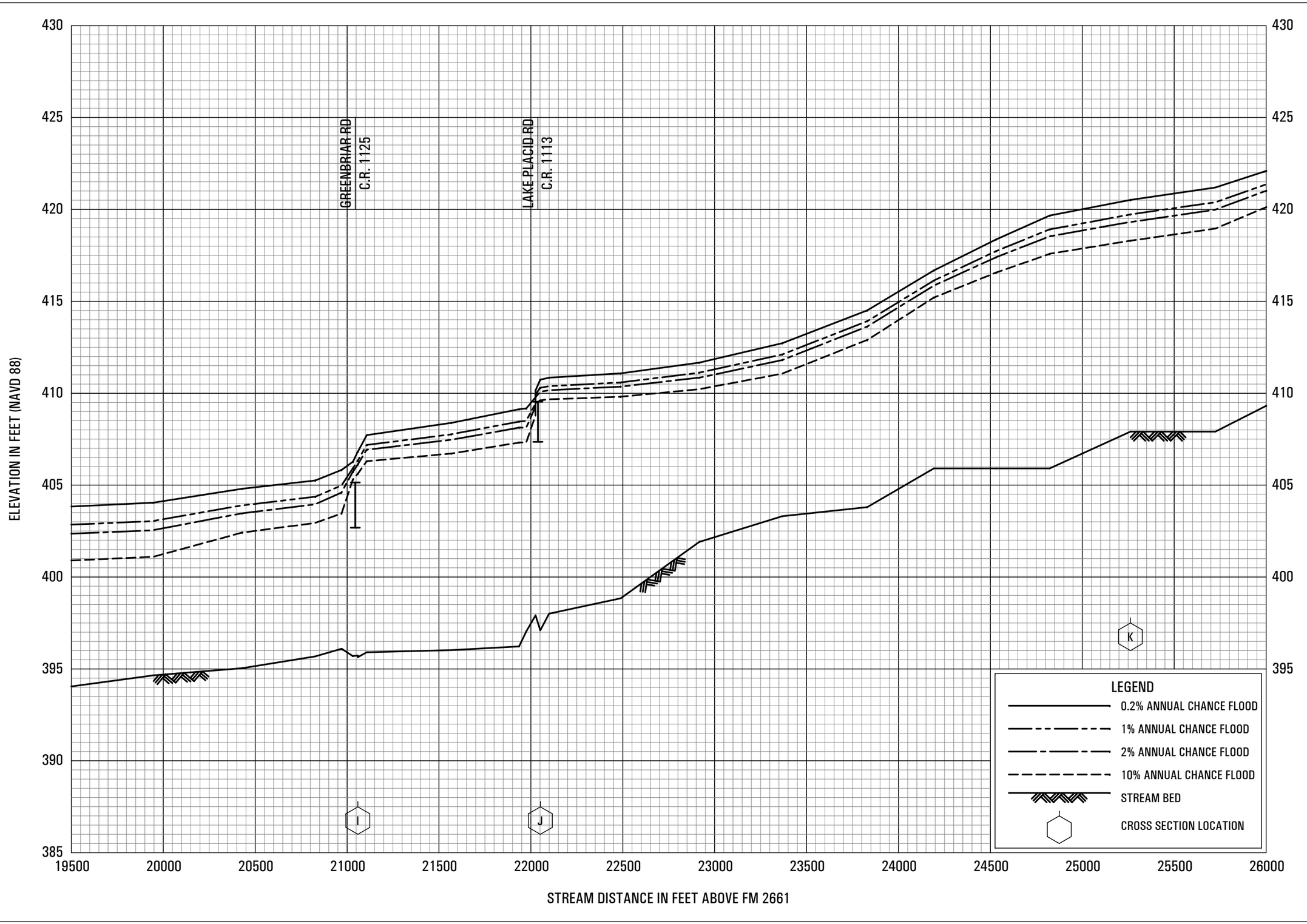
BUTLER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

33P



FLOOD PROFILES

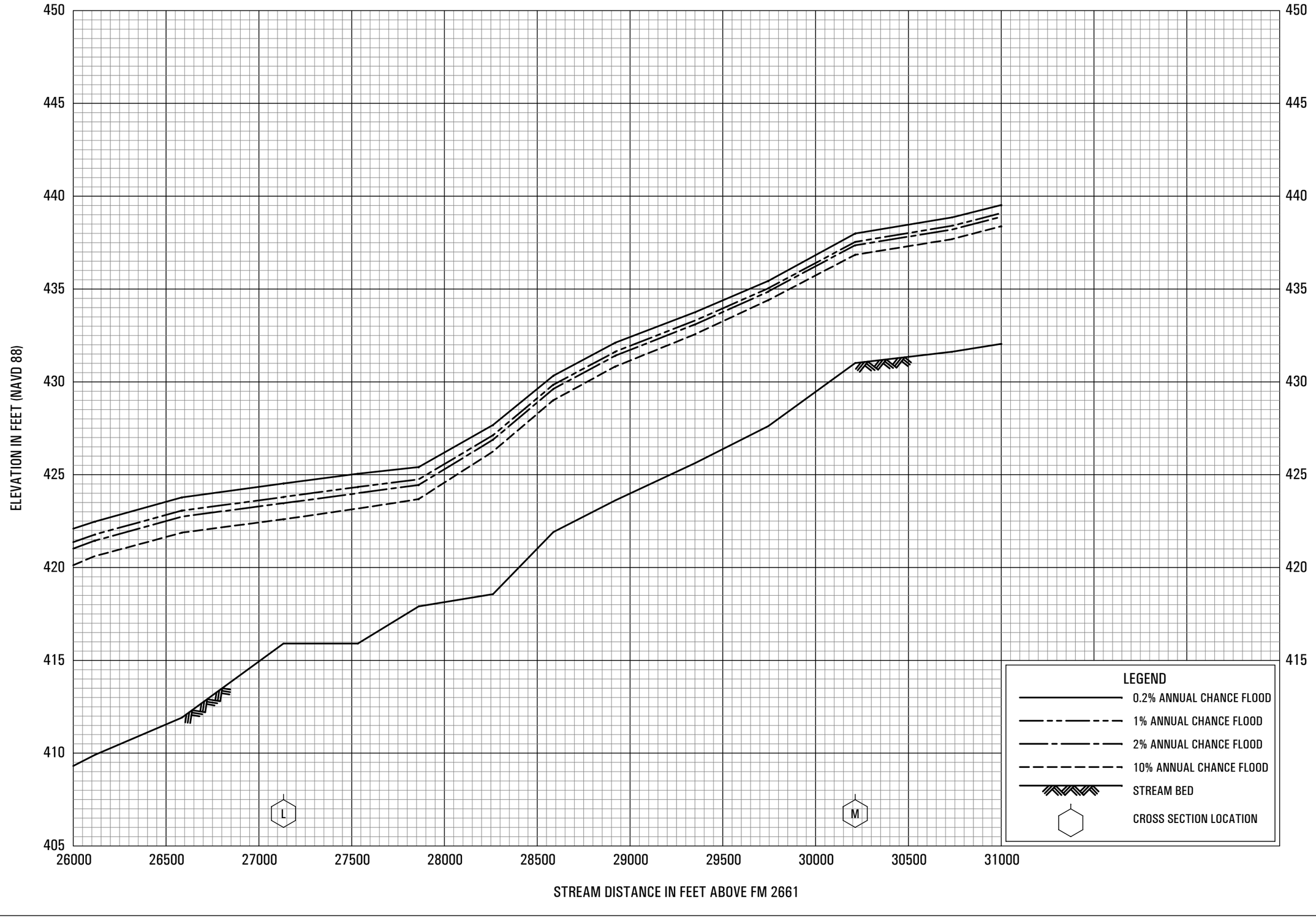
BUTLER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

34P



FLOOD PROFILES

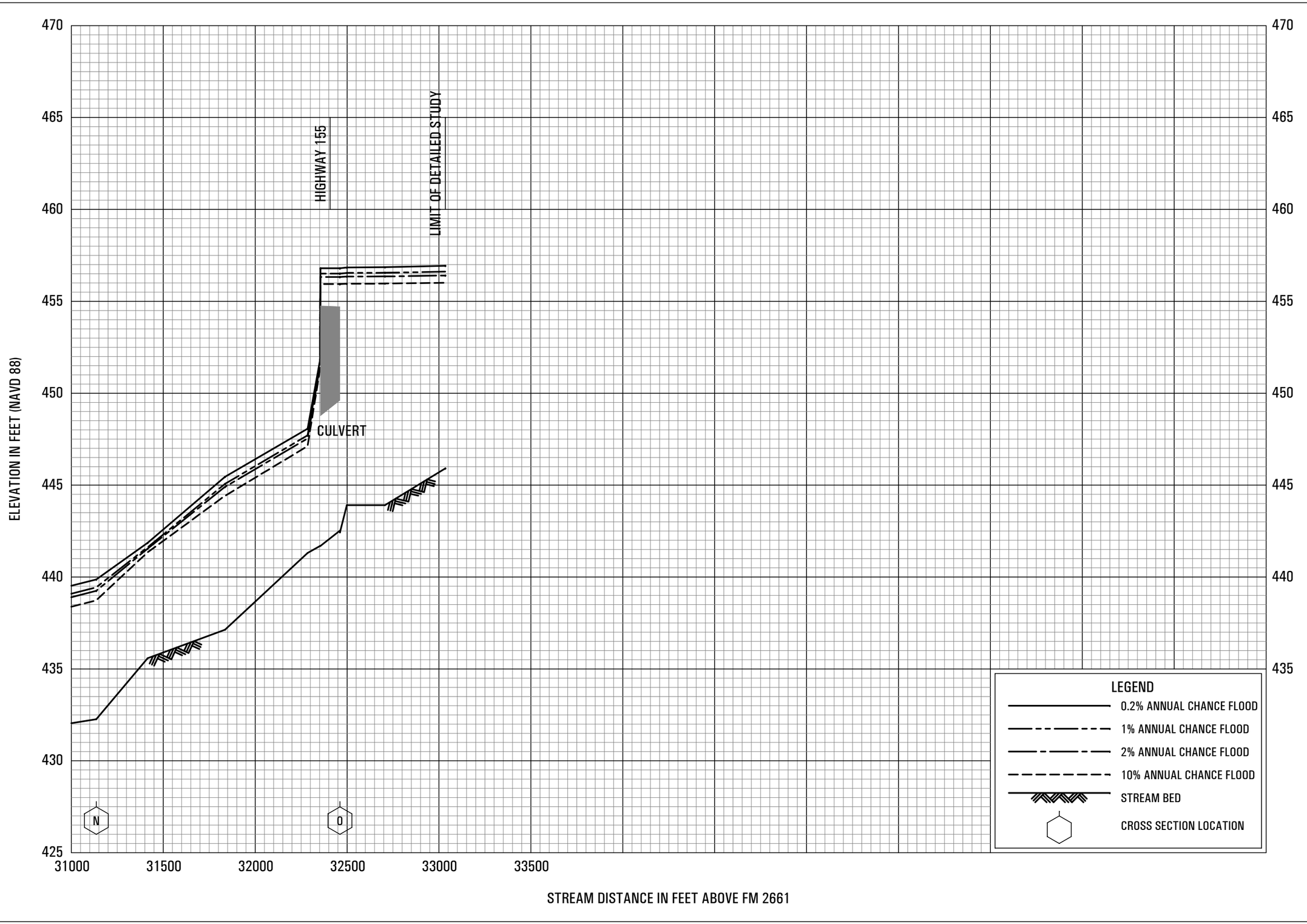
BUTLER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

35P



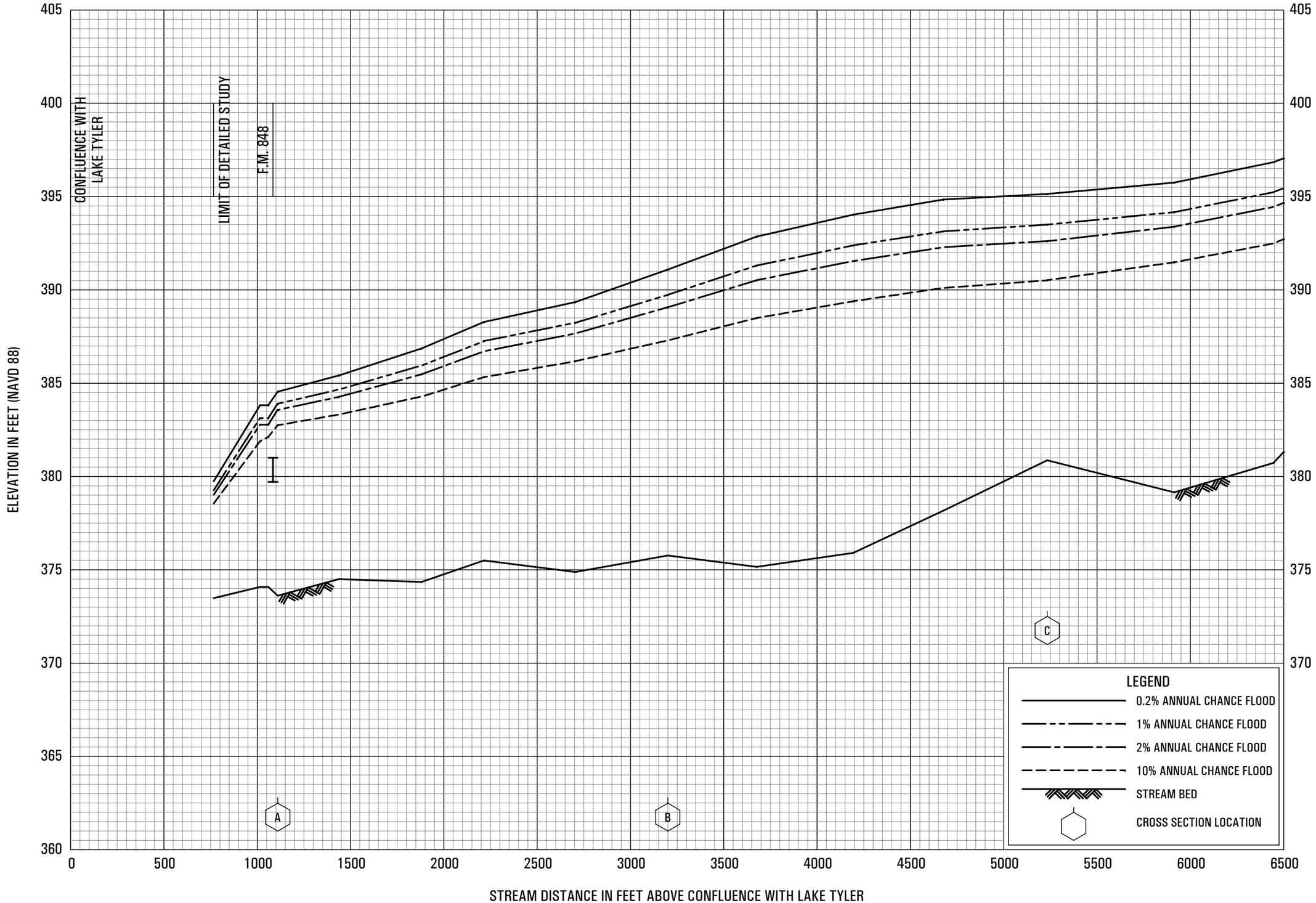
FLOOD PROFILES

BUTLER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

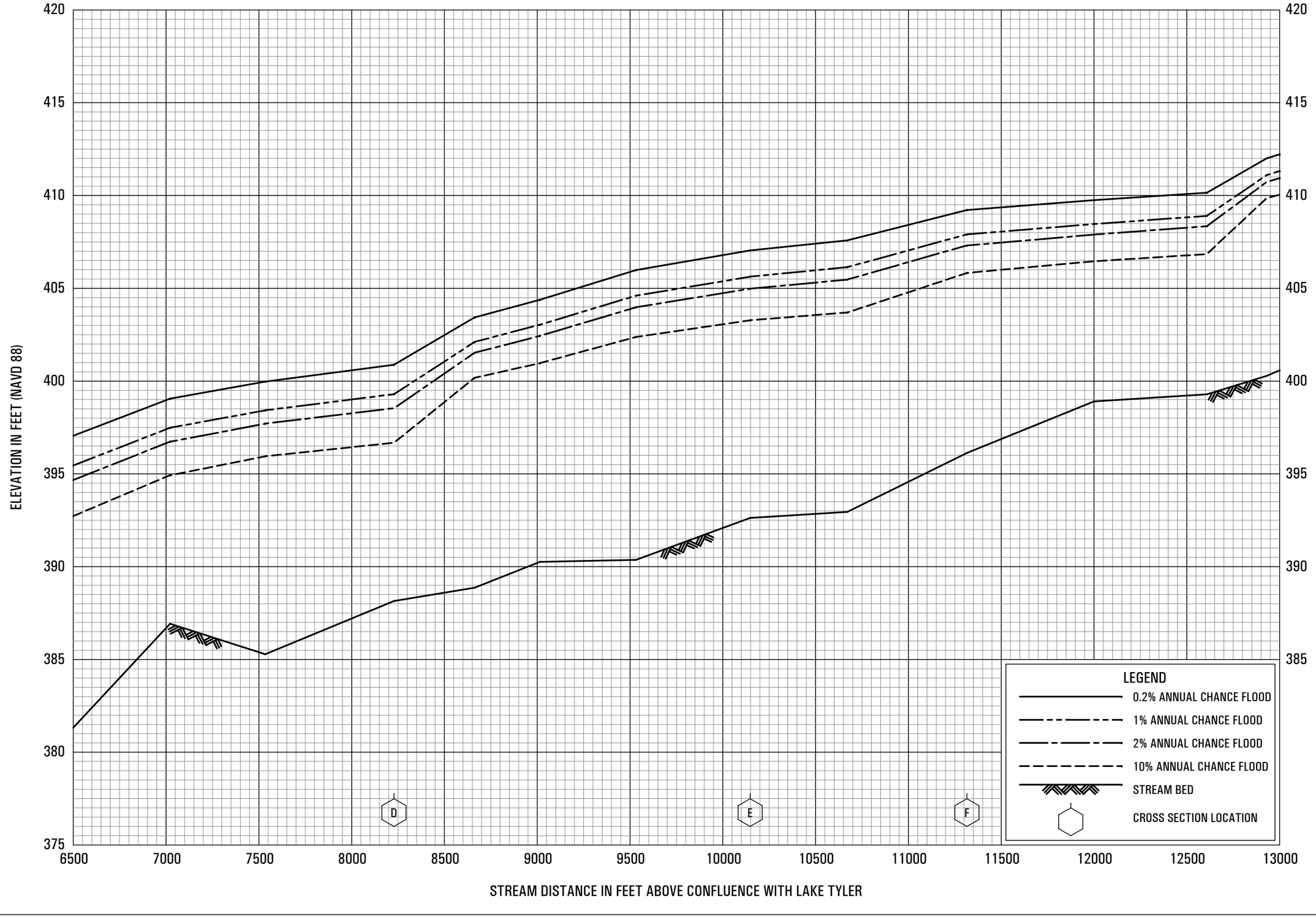
GILLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

37P



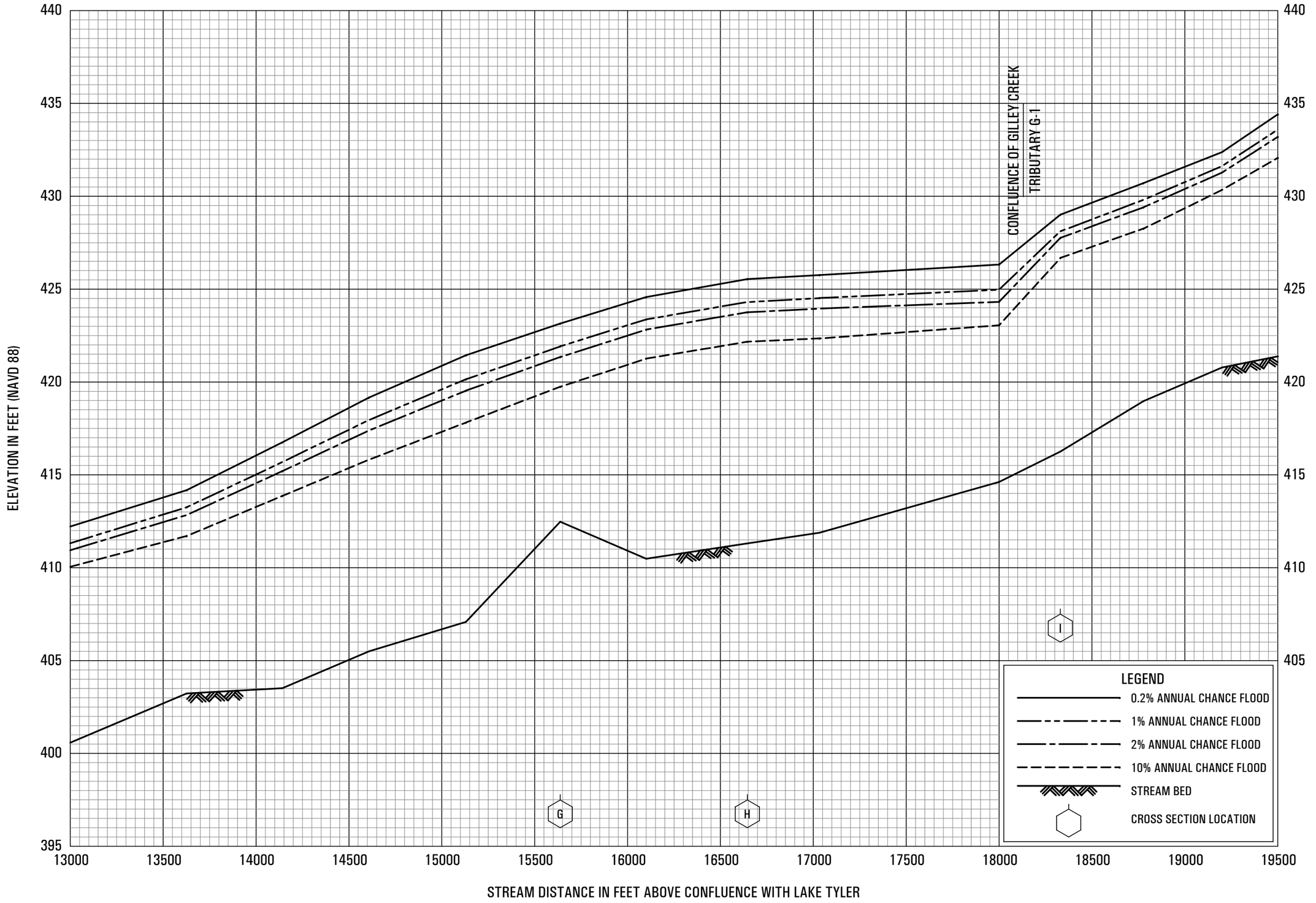
FLOOD PROFILES

GILLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



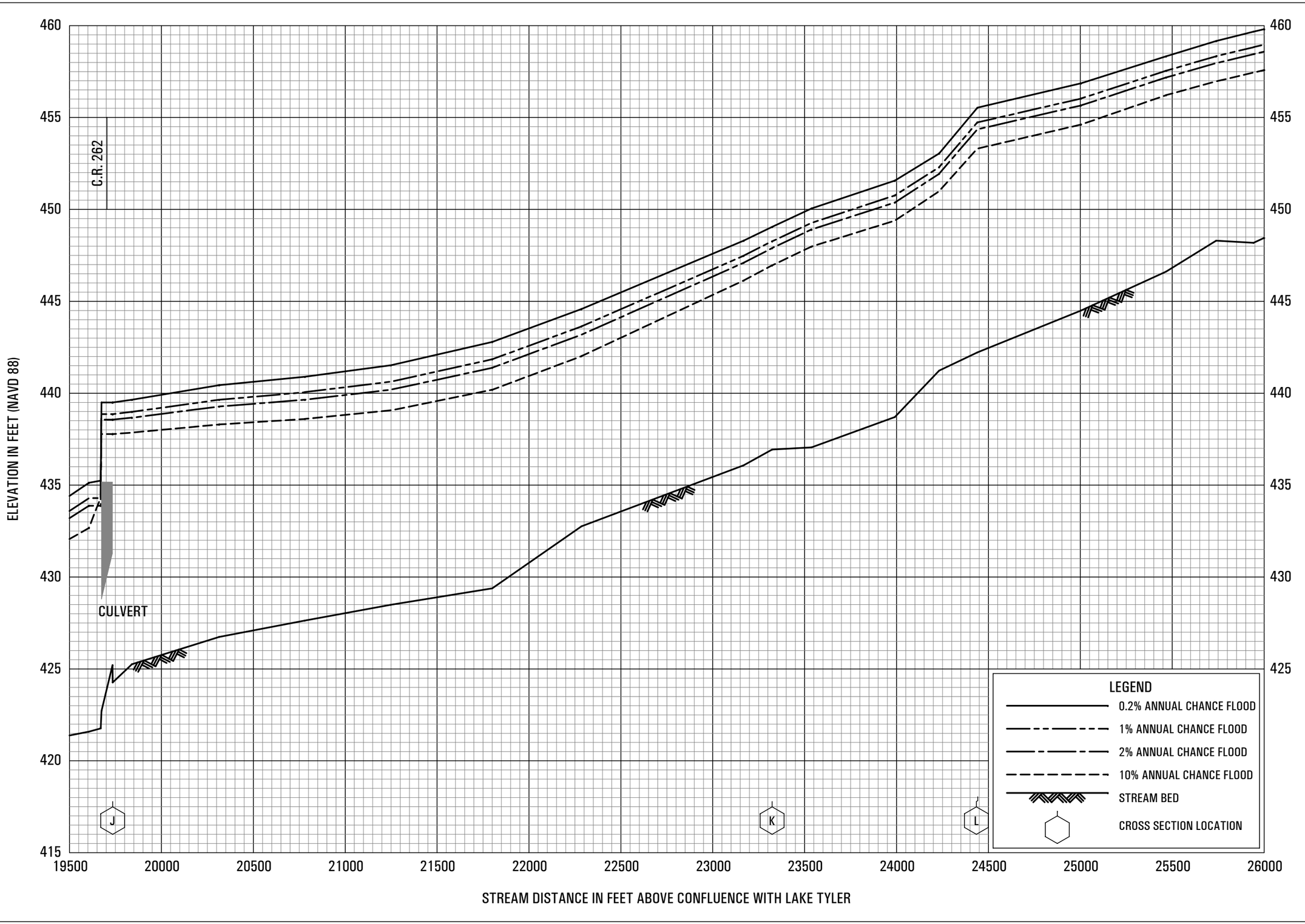
FLOOD PROFILES

GILLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



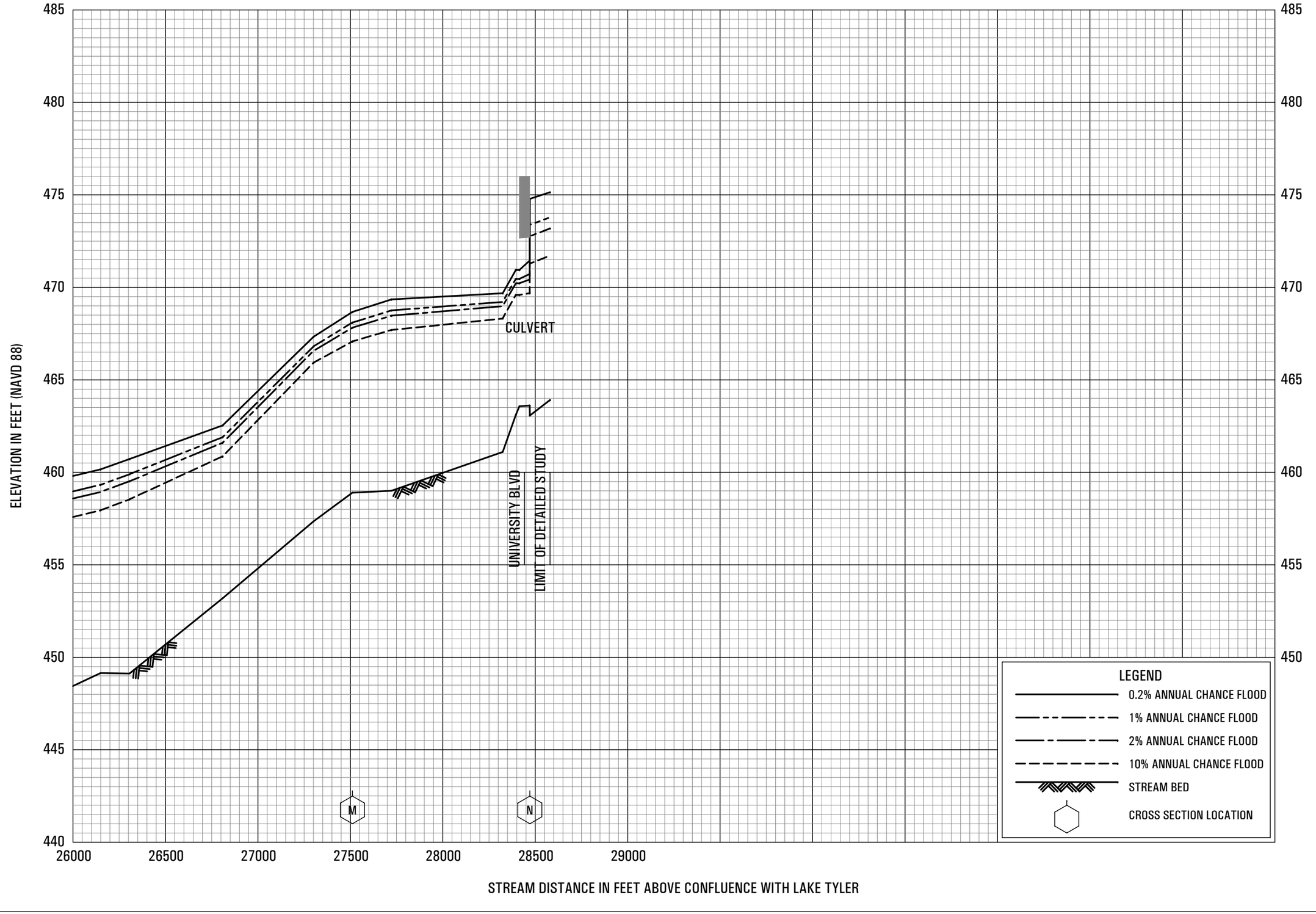
FLOOD PROFILES

GILLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

GILLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

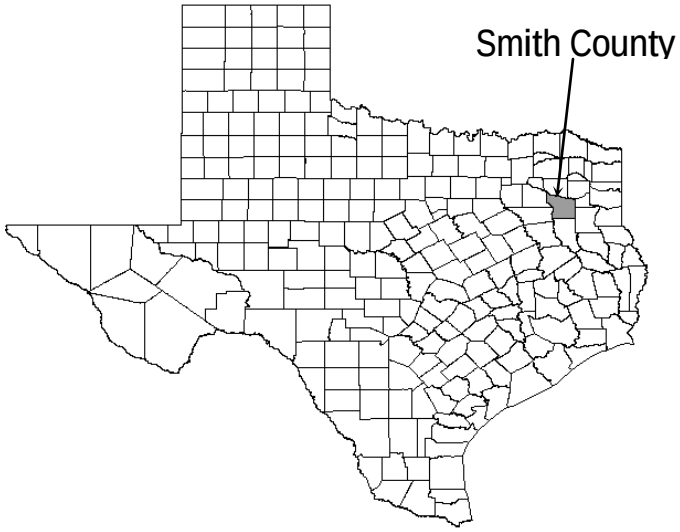
41P

FLOOD INSURANCE STUDY

VOLUME 2 OF 2

SMITH COUNTY, TEXAS
AND INCORPORATED AREAS

Community Name	Community Number
ARP, CITY OF	480567
BULLARD, CITY OF	480568
HIDEAWAY, CITY OF	480200
LINDALE, CITY OF	480569
NEW HAPEL HILL, CITY OF	480157
NOONDAY, CITY OF	480183
OVERTON, CITY OF	480994
SMITH COUNTY (UNINCORPORATED AREAS)	481185
TROUP, CITY OF	480570
TYLER, CITY OF	480571
WHITEHOUSE, CITY OF	480572
WINONA, CITY OF	480573



REVISED:
April 16, 2014

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
48423CV002B

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 Community Map Repository. Please contact the Community Map 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 (LOMR) 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: September 26, 2008

Revised Countywide FIS Report Dates: April 16, 2014

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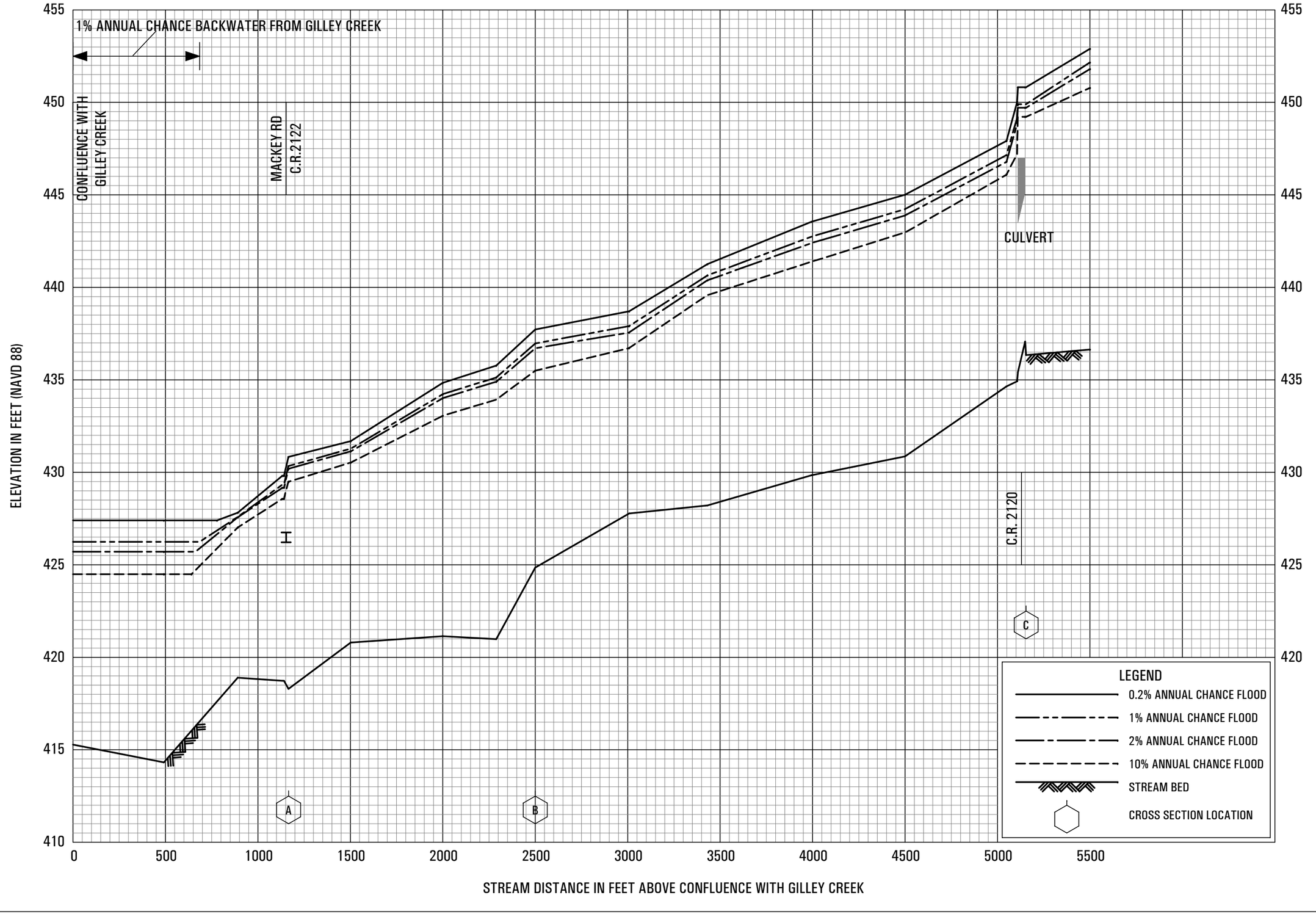
EXHIBITS – continued

Exhibit 1 - Flood Profiles - continued



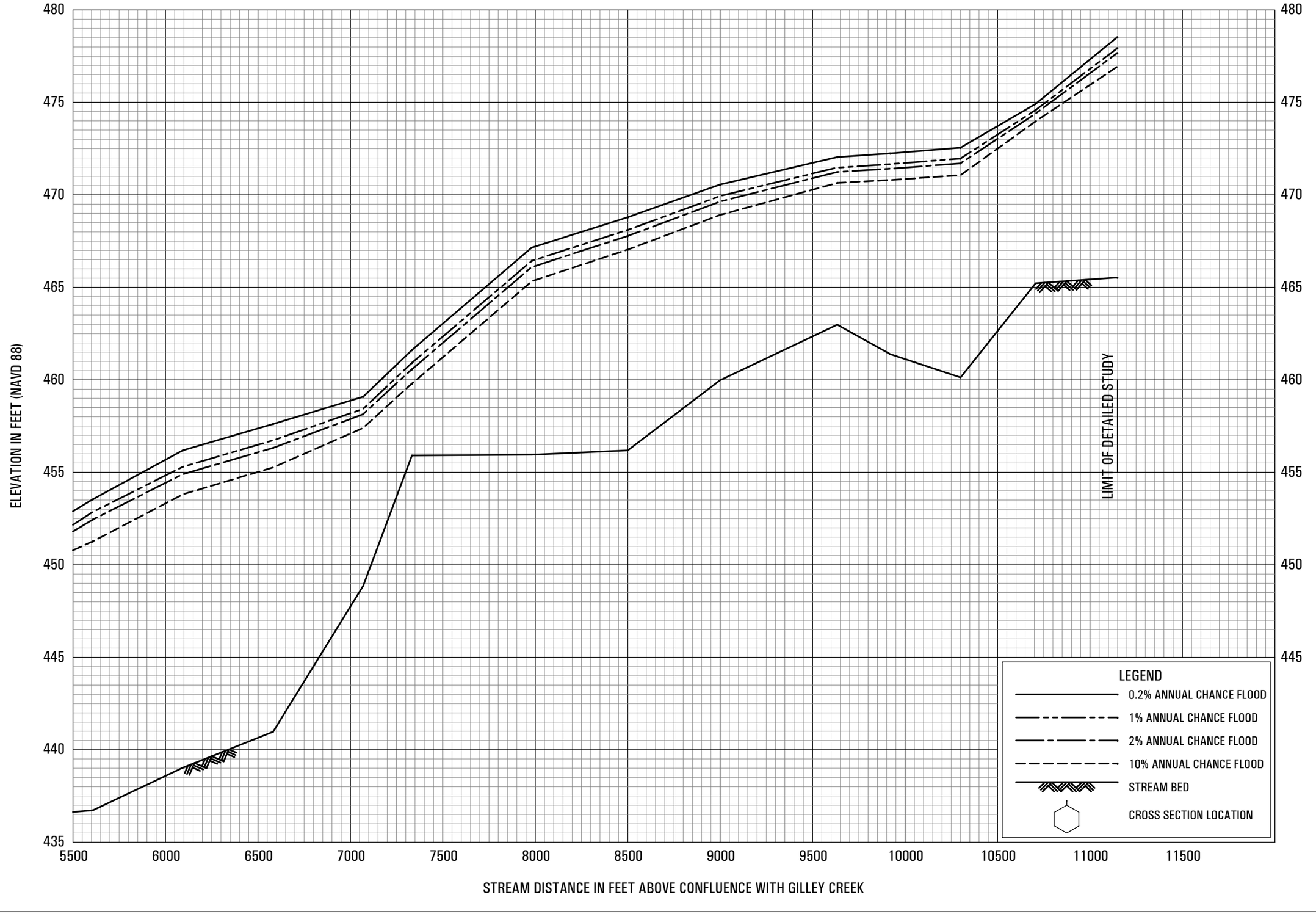
FLOOD PROFILES

GILLEY CREEK TRIBUTARY G-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



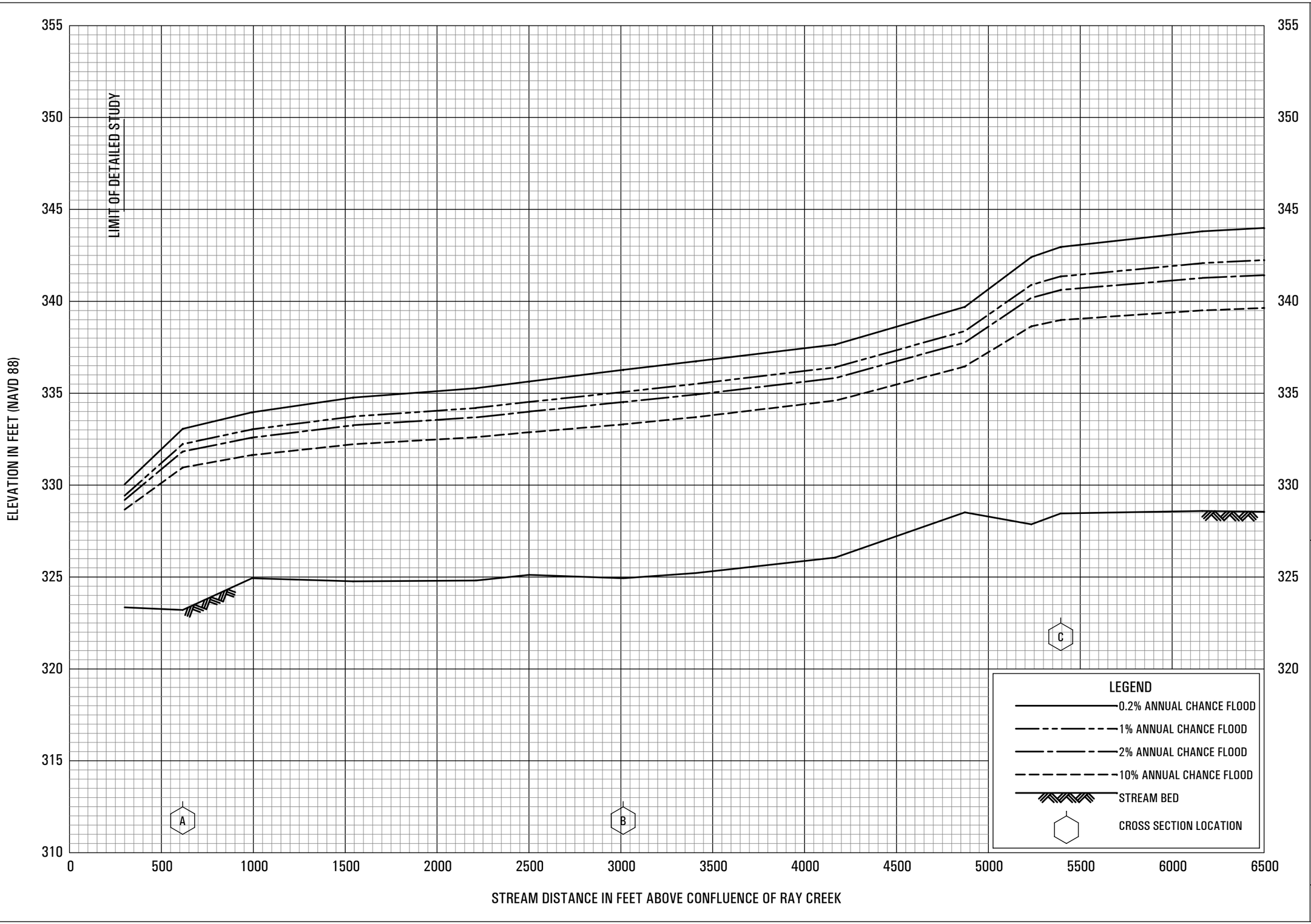
FLOOD PROFILES

GILLEY CREEK TRIBUTARY G-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

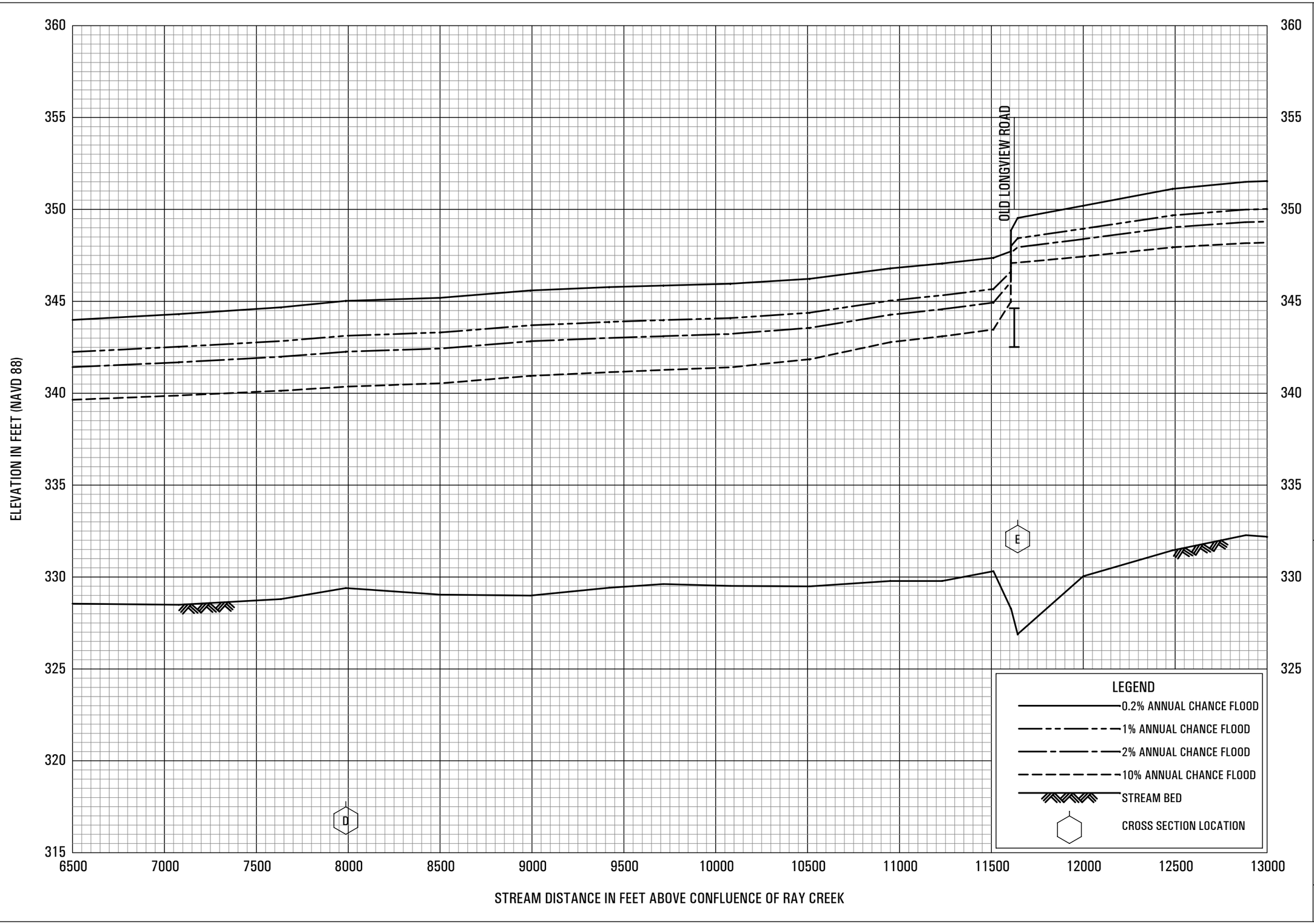
HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

44P



FLOOD PROFILES

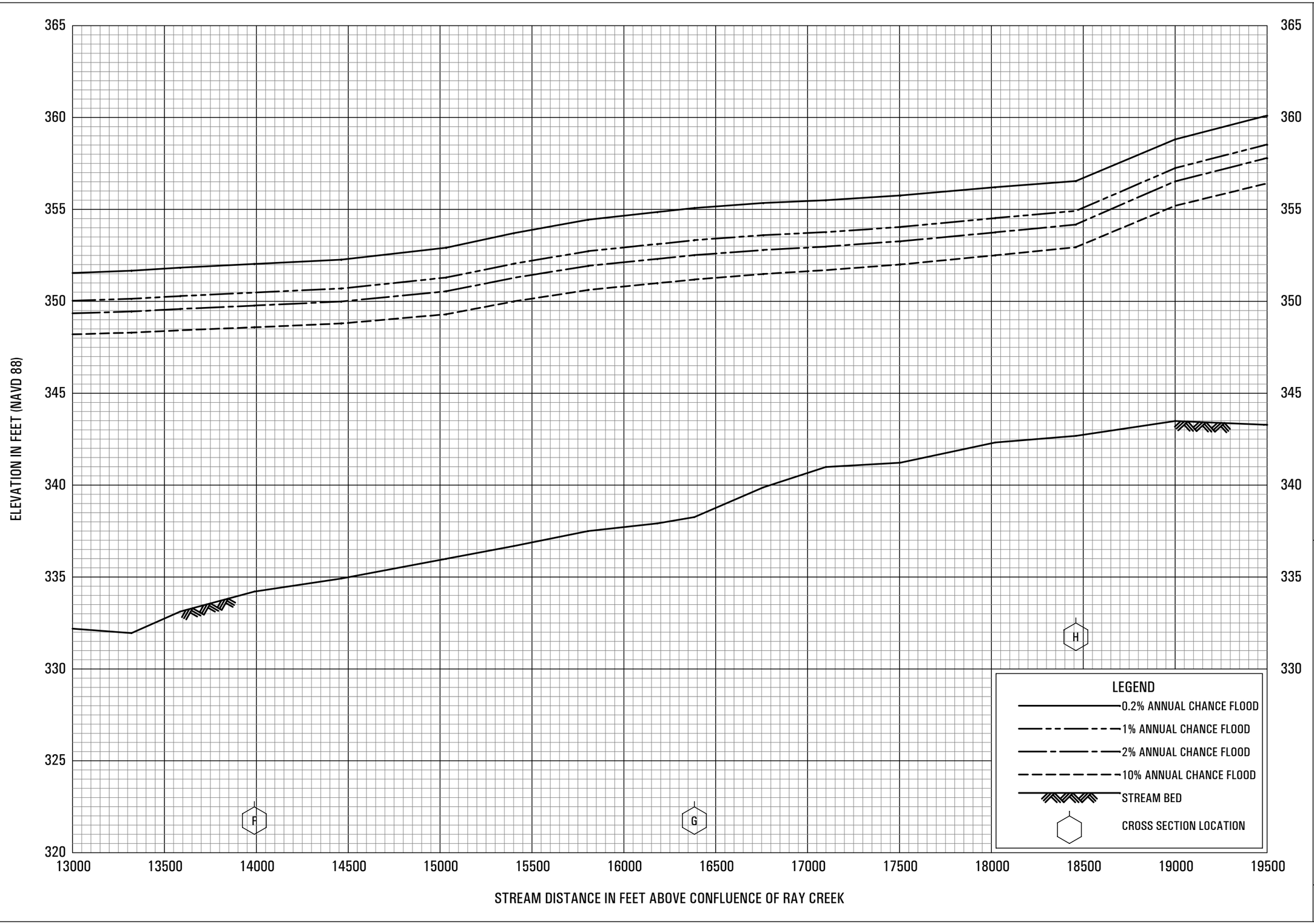
HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

45P



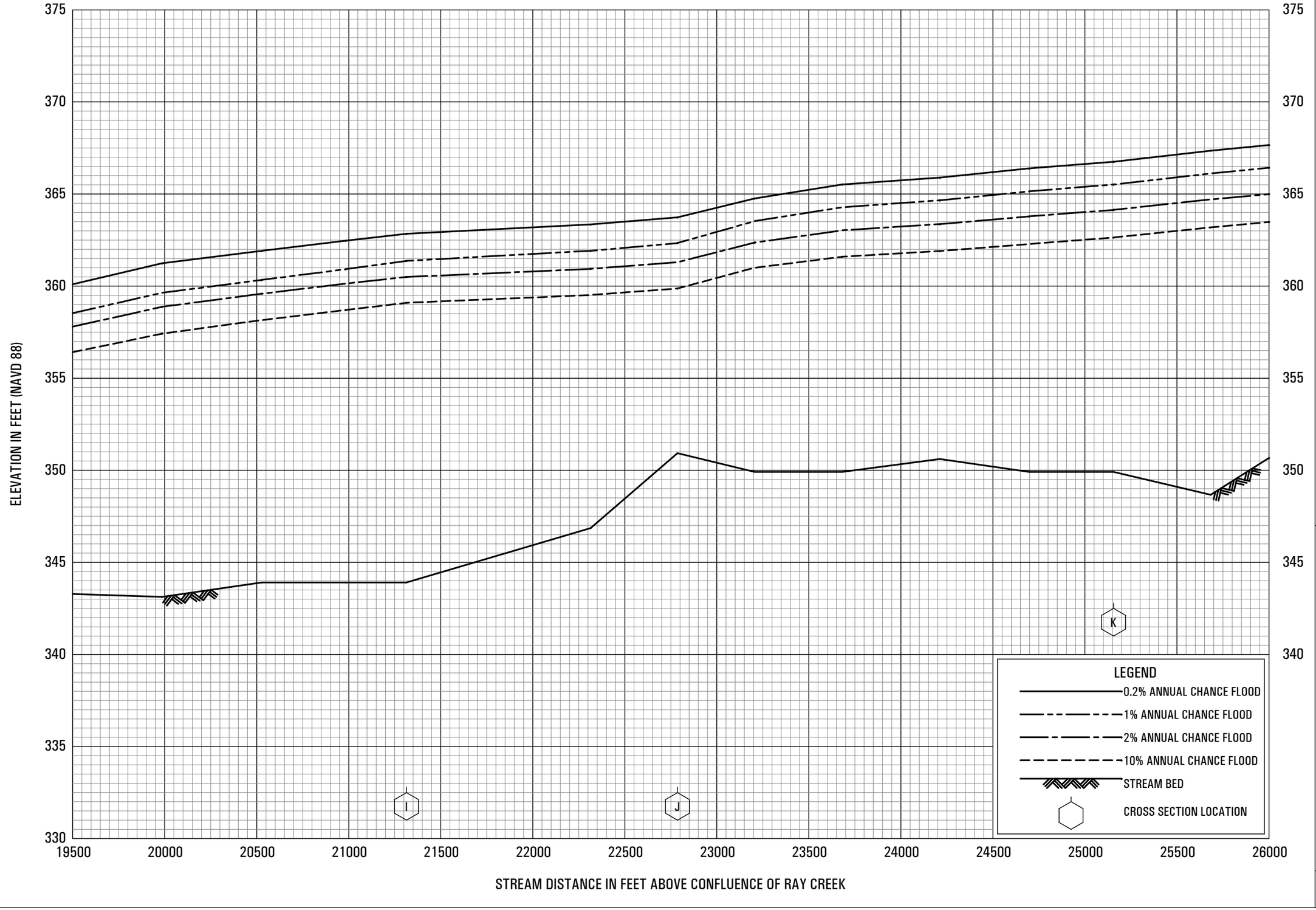
FLOOD PROFILES

HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

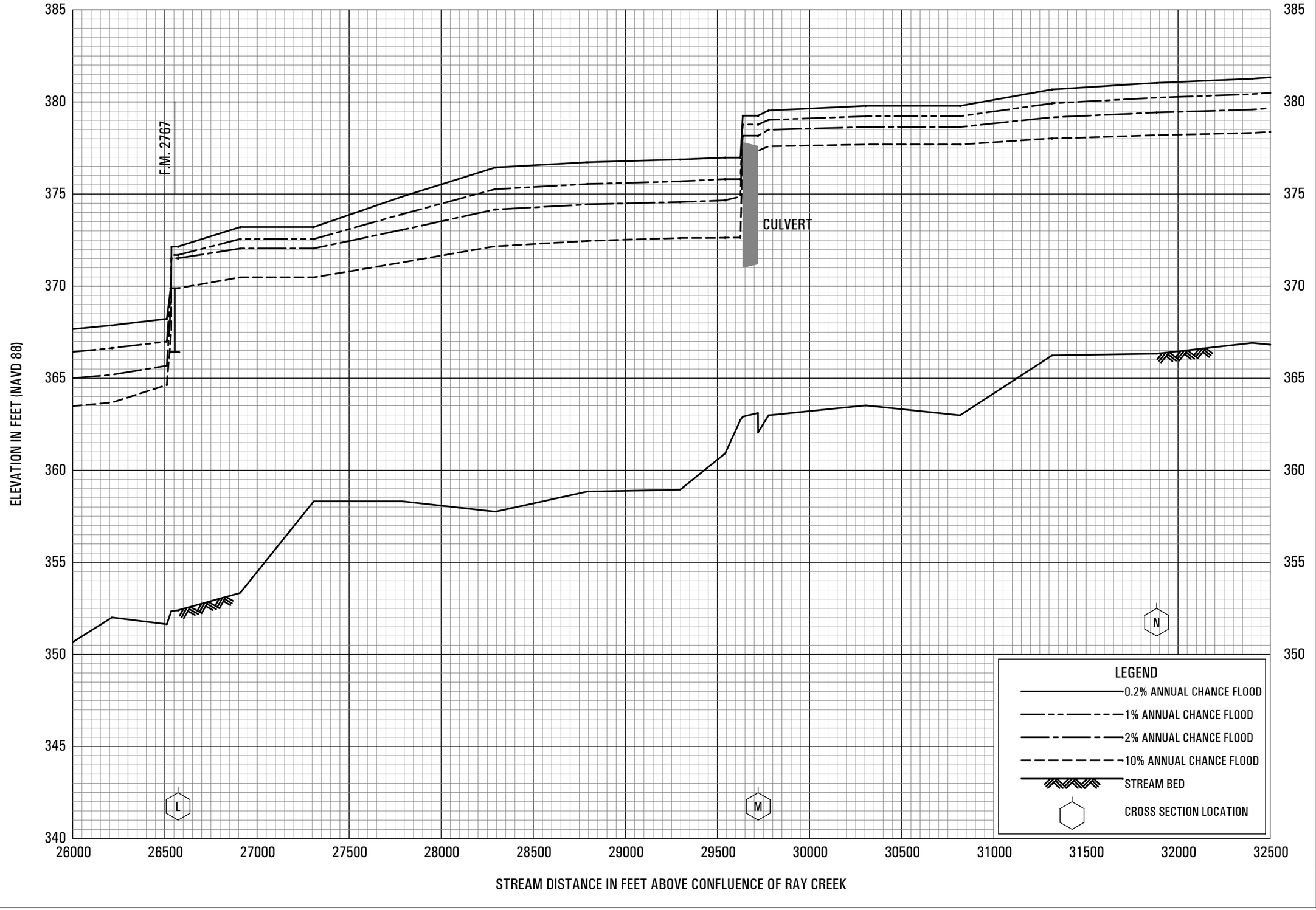
HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

47P



FLOOD PROFILES

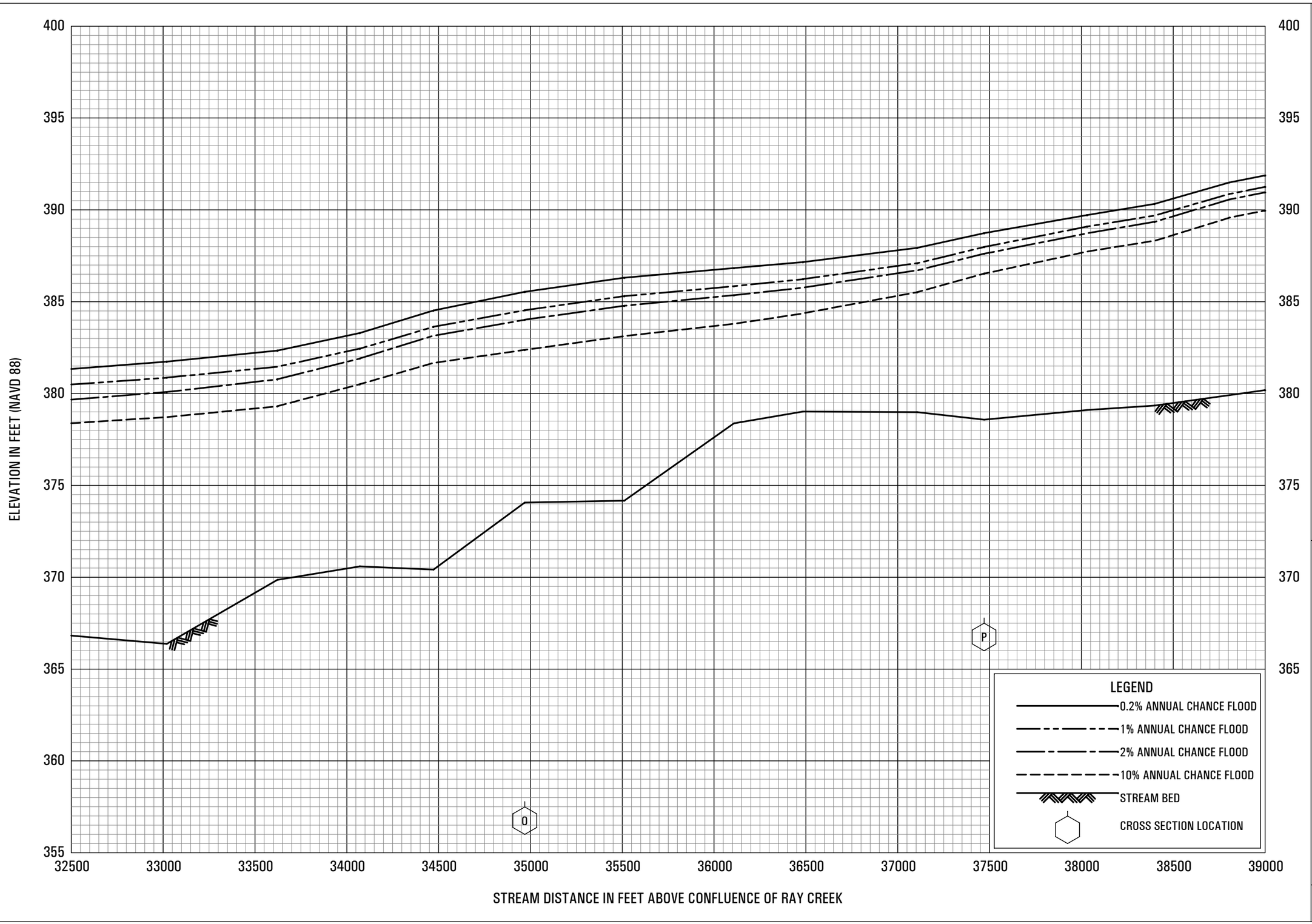
HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

48P



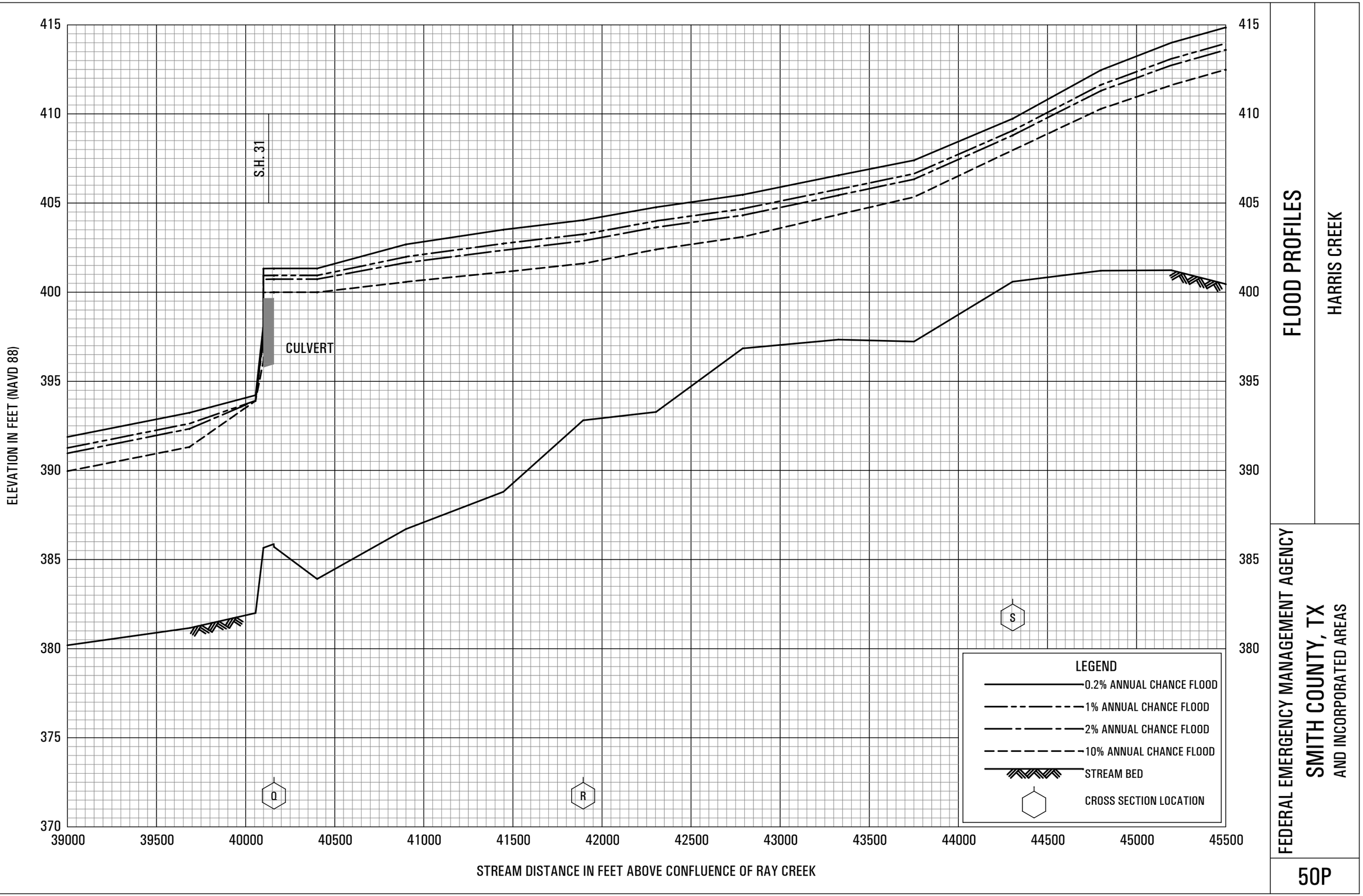
FLOOD PROFILES

HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

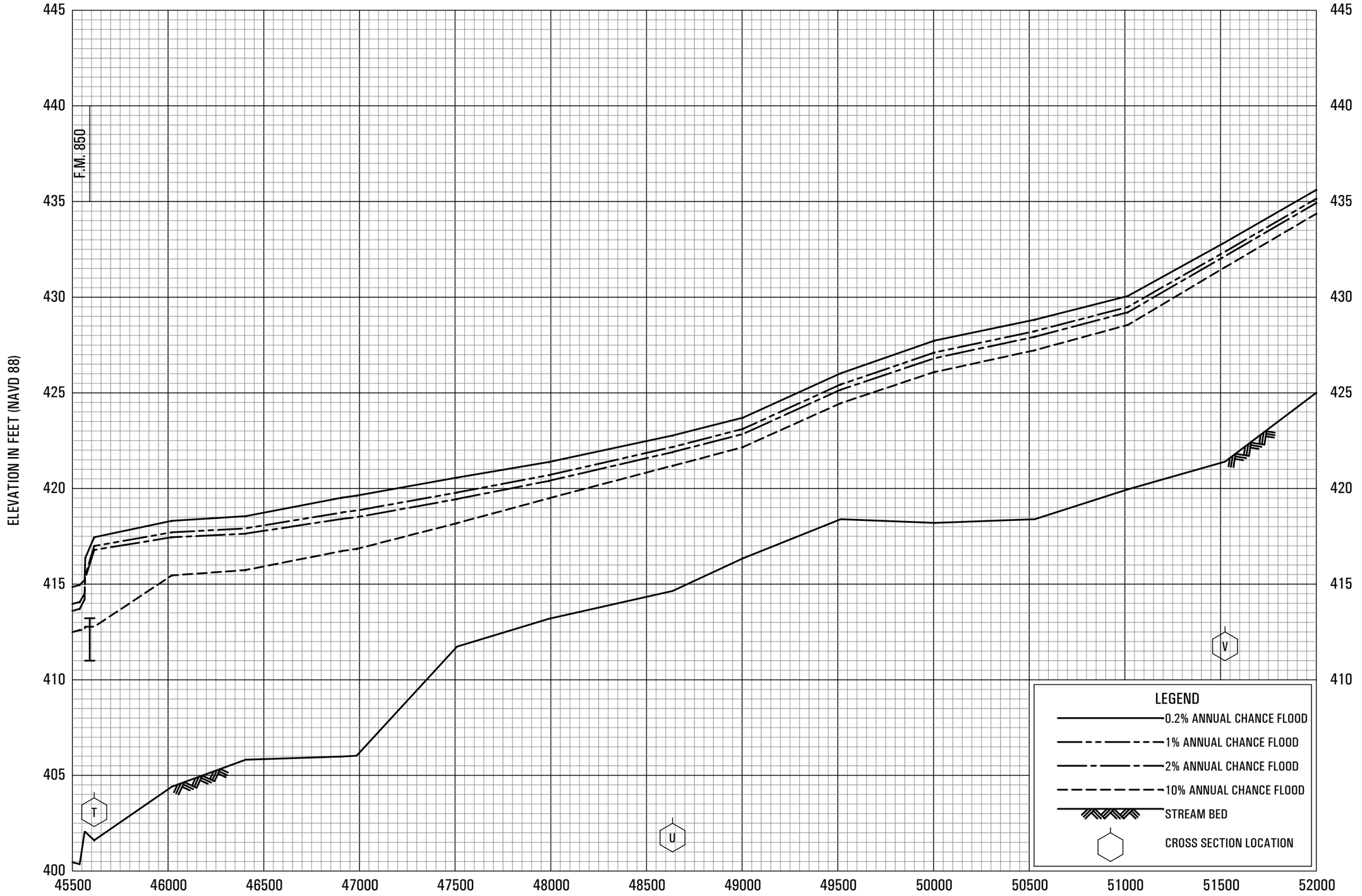
HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

50P



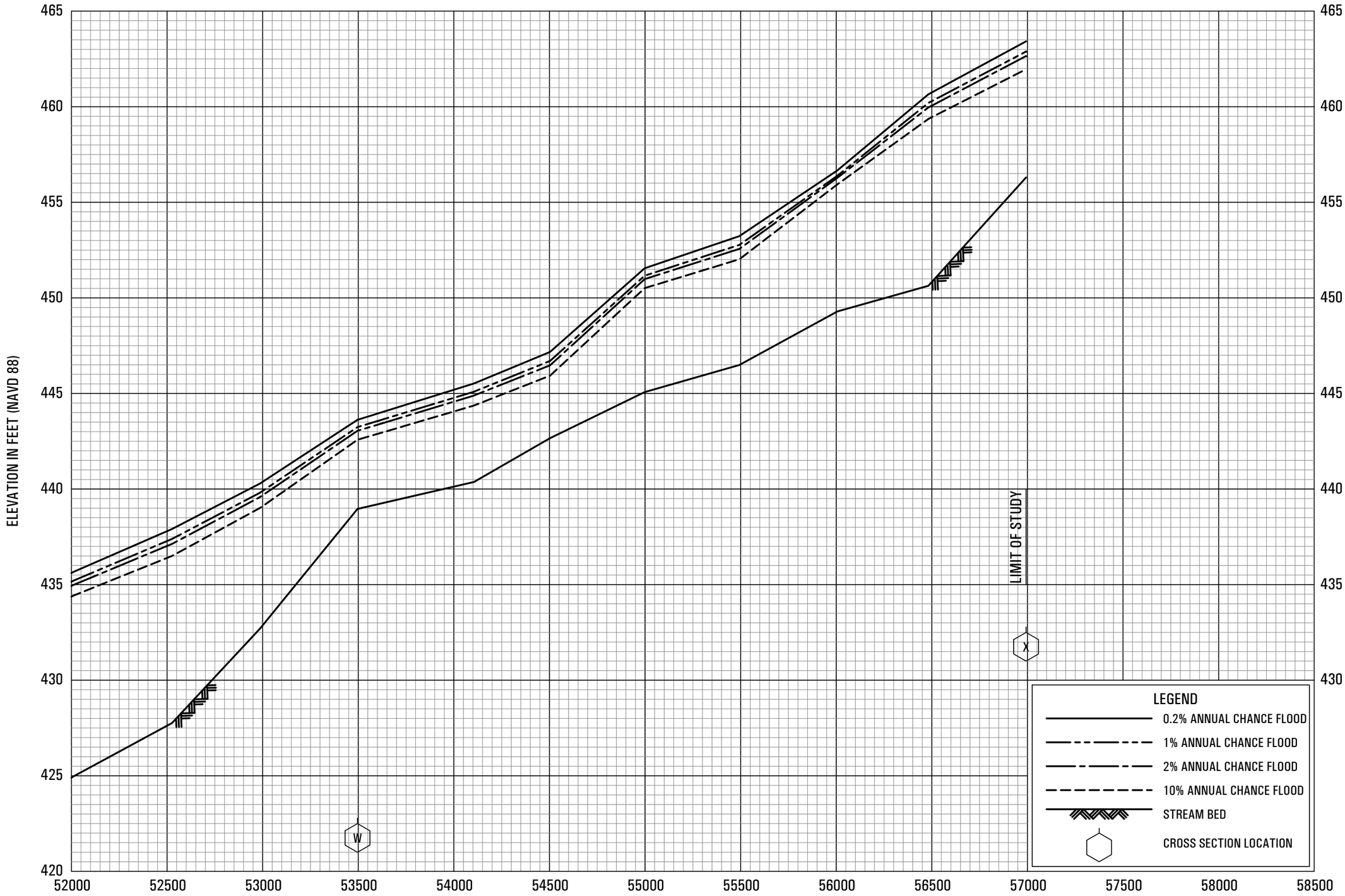
FLOOD PROFILES

HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

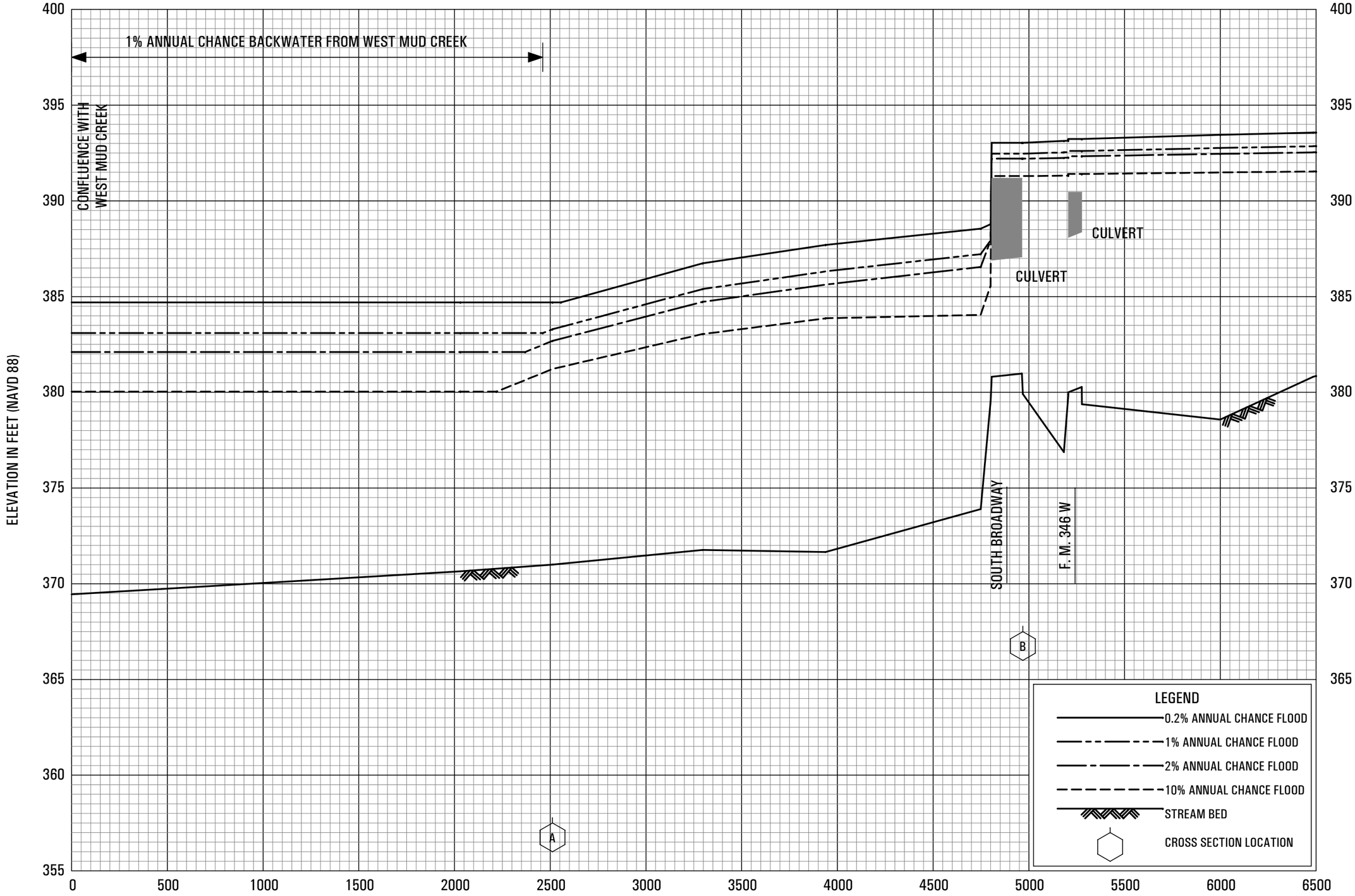
HARRIS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

52P



FLOOD PROFILES

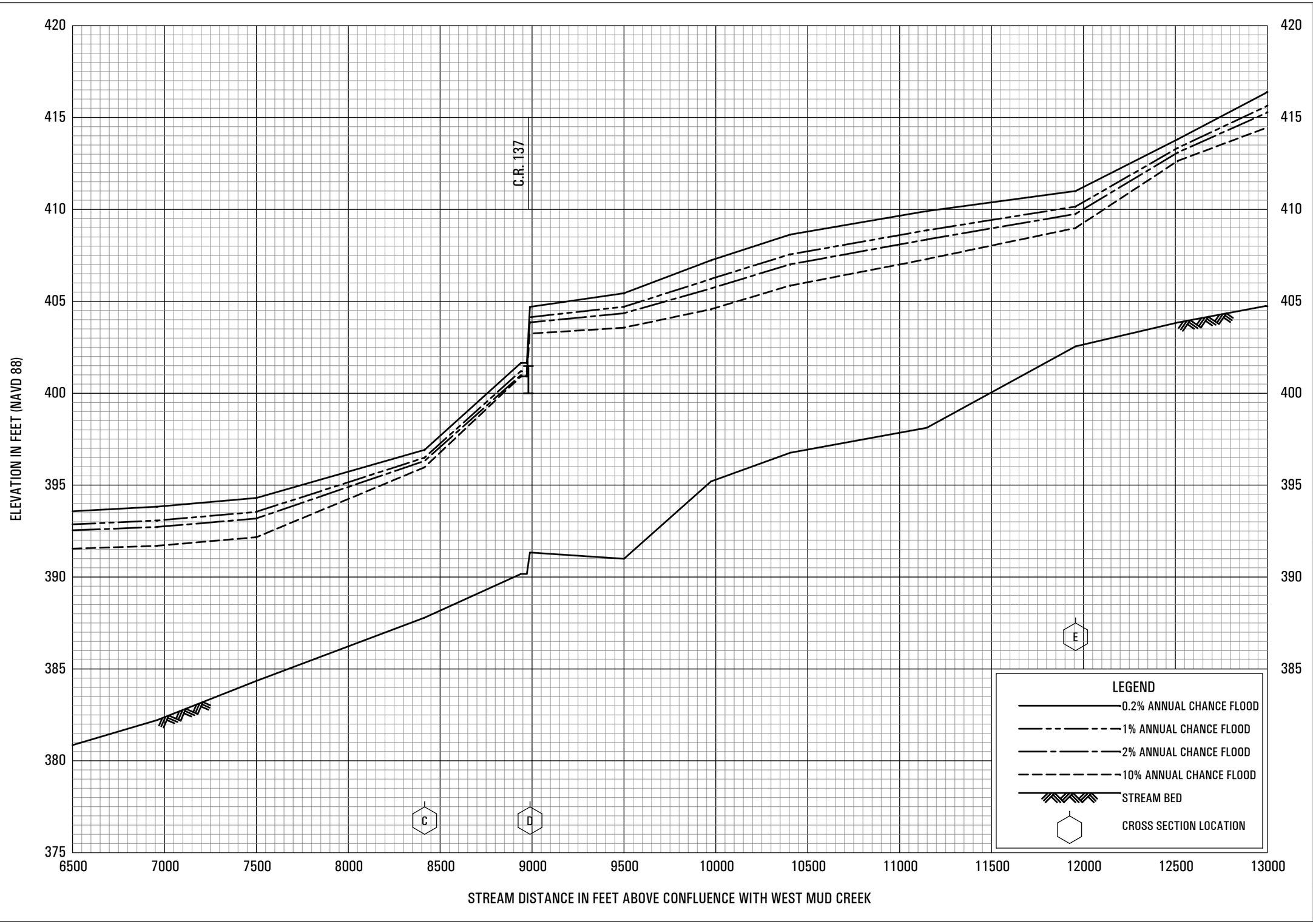
HENSHAW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

53P



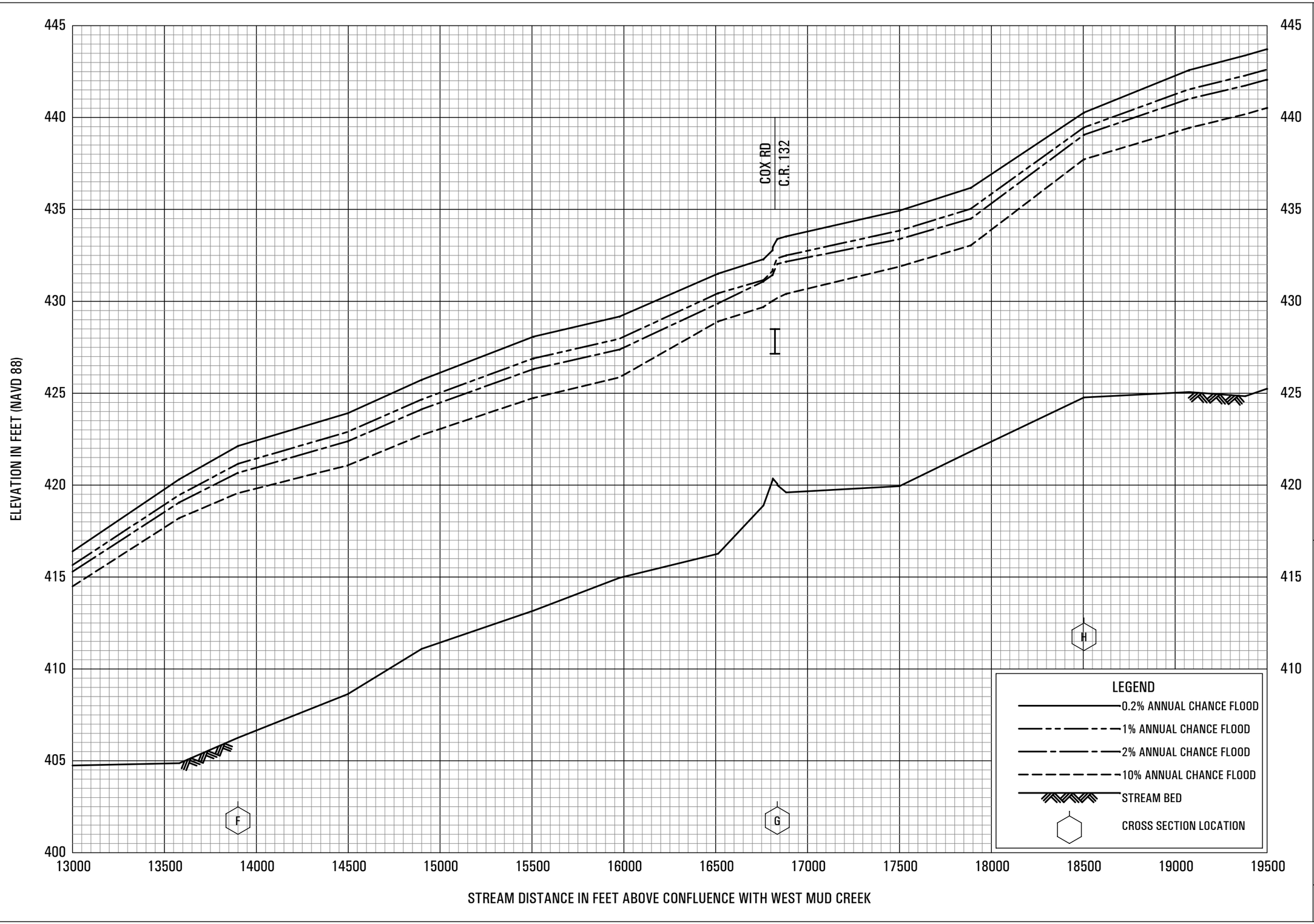
FLOOD PROFILES

HENSHAW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

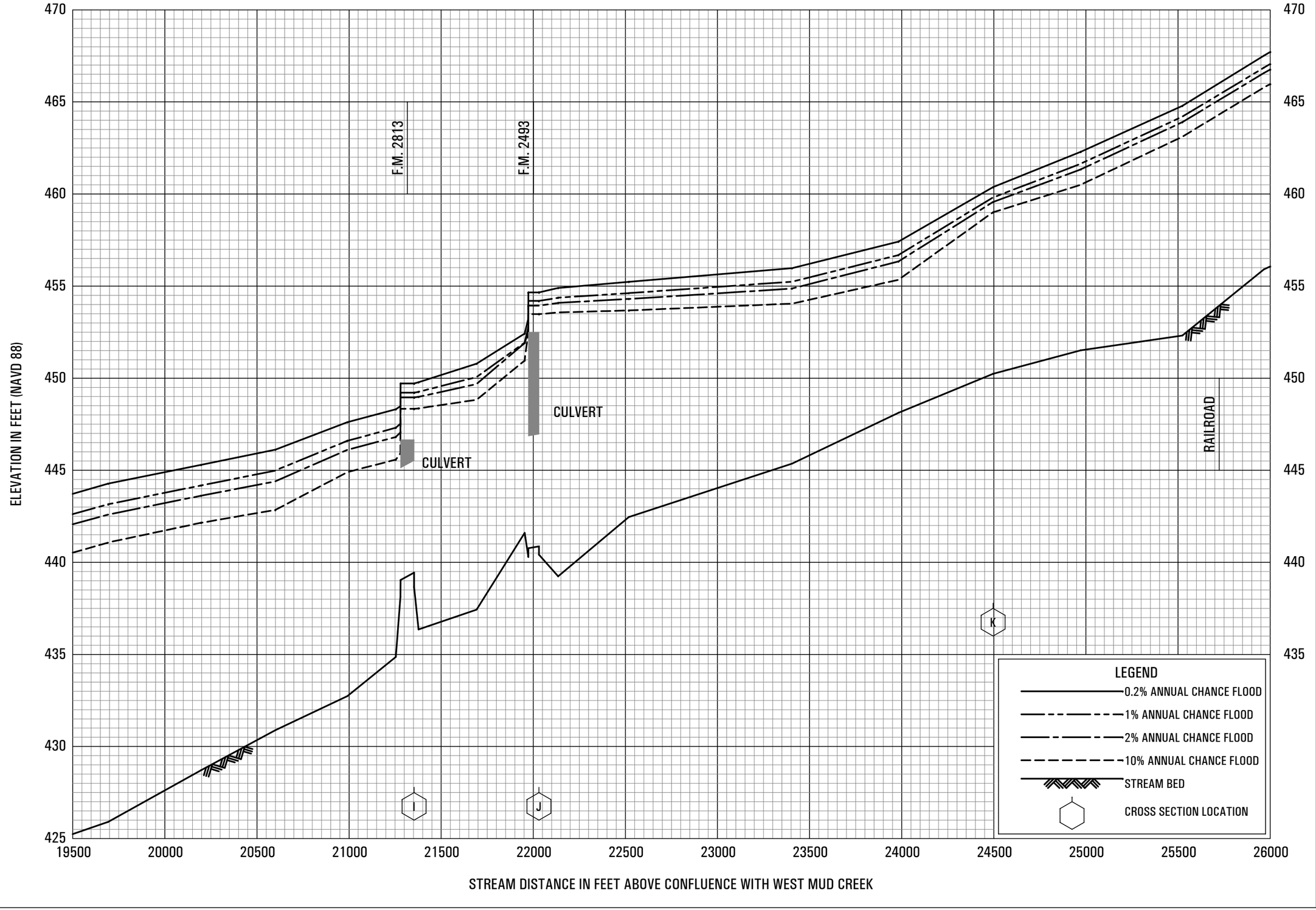
HENSHAW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

55P



FLOOD PROFILES

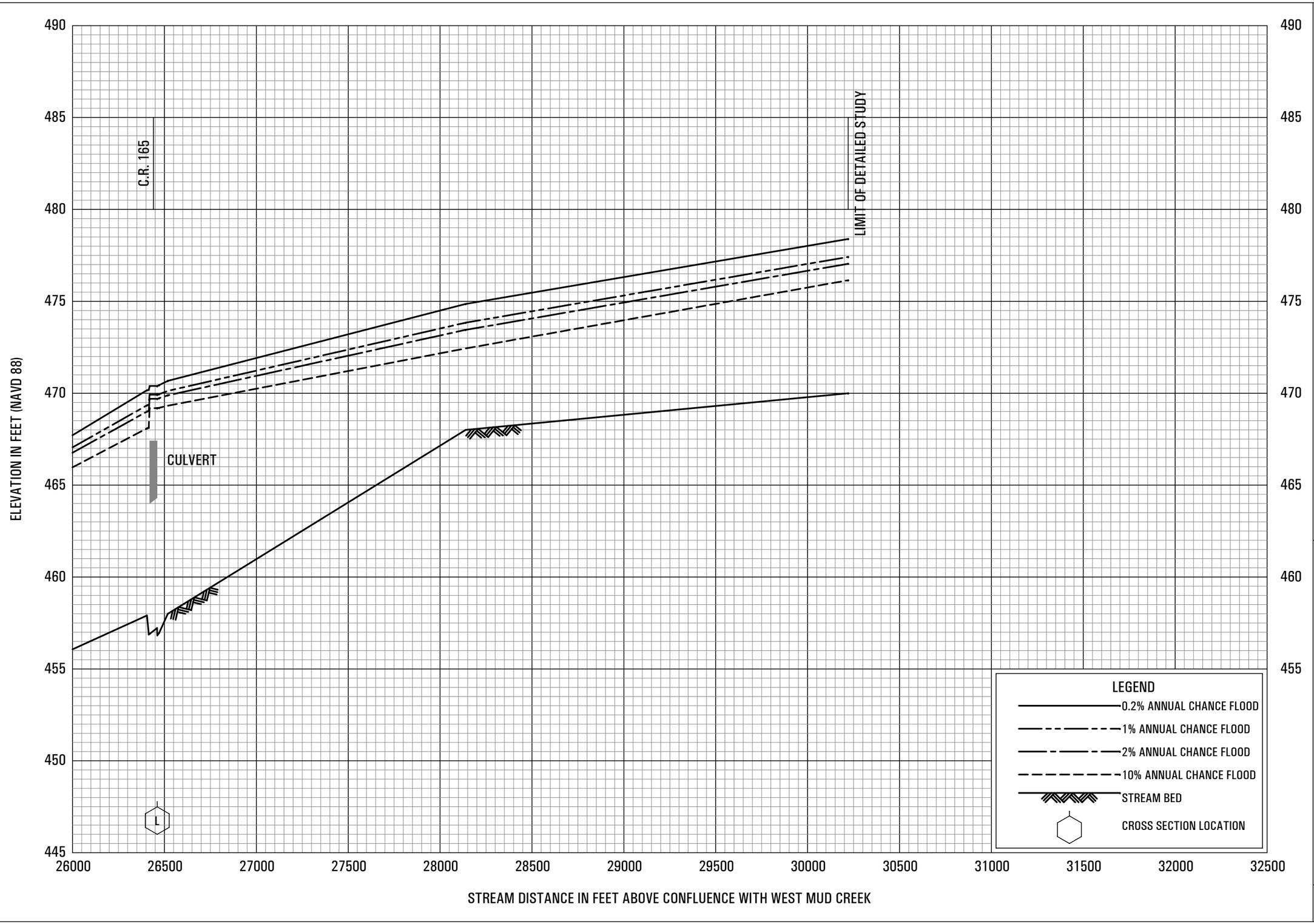
HENSHAW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

56P



FLOOD PROFILES

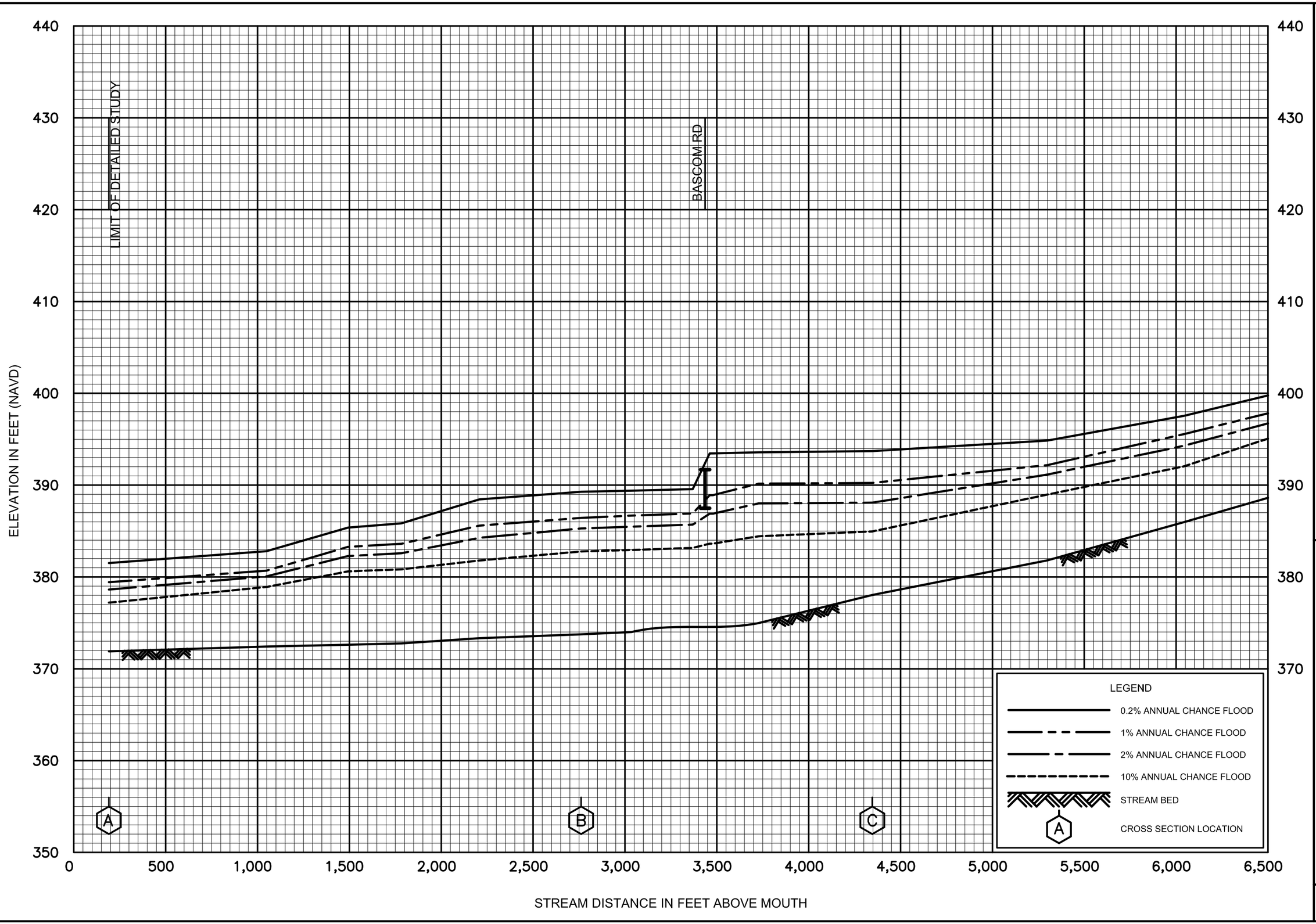
HENSHAW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

57P



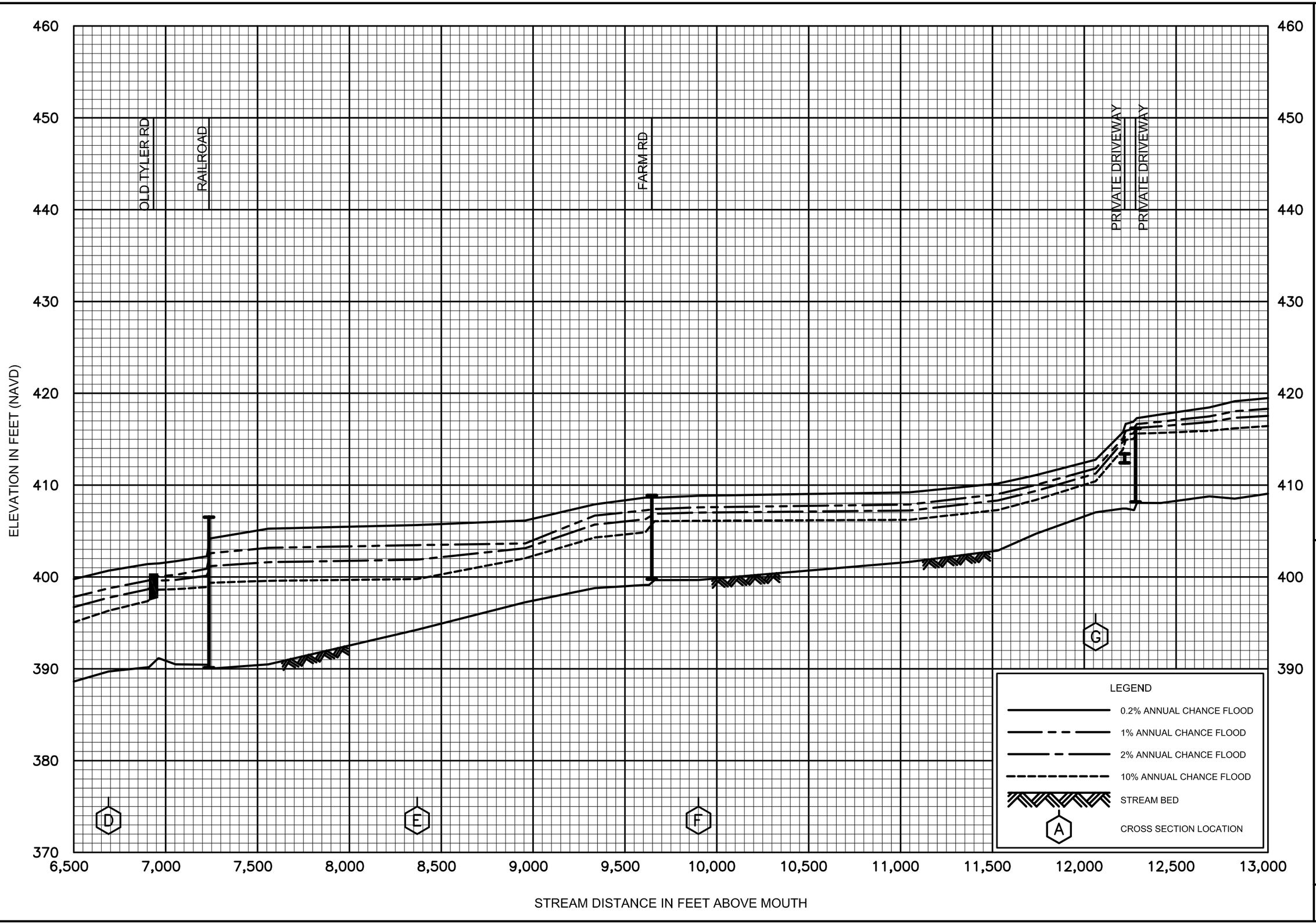
FLOOD PROFILES

HILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

58P



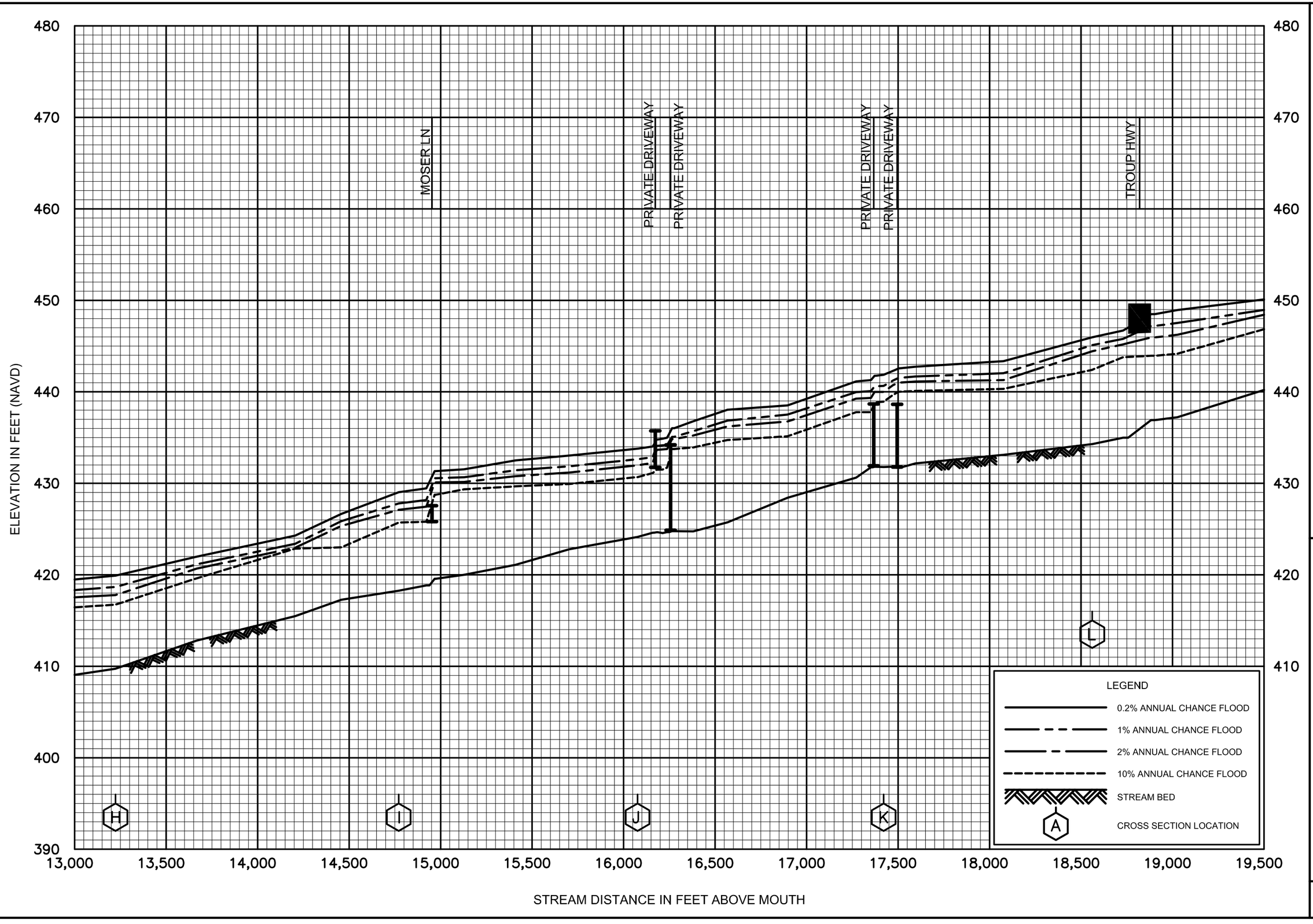
FLOOD PROFILES

HILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

59P



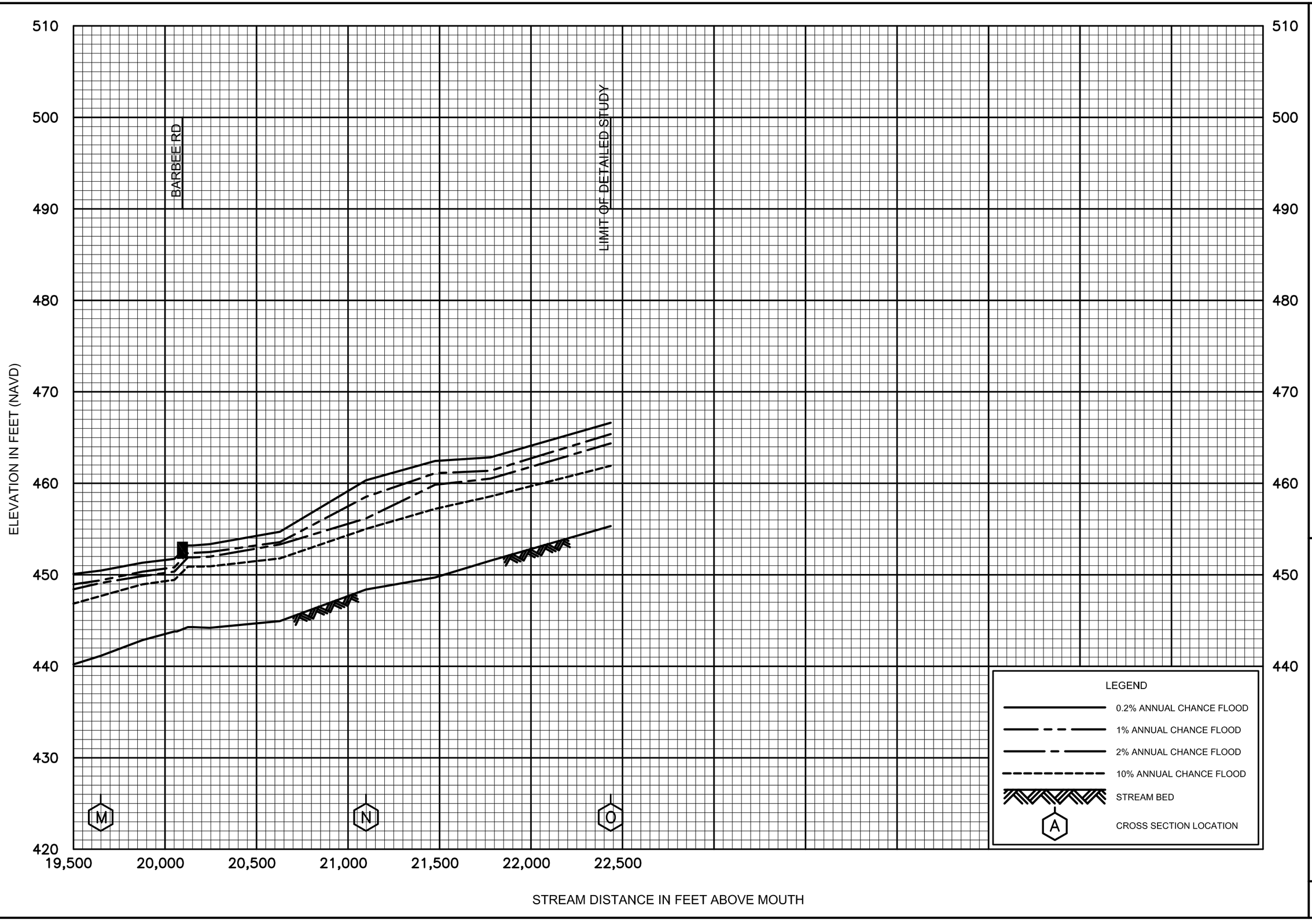
FLOOD PROFILES

HILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

60P



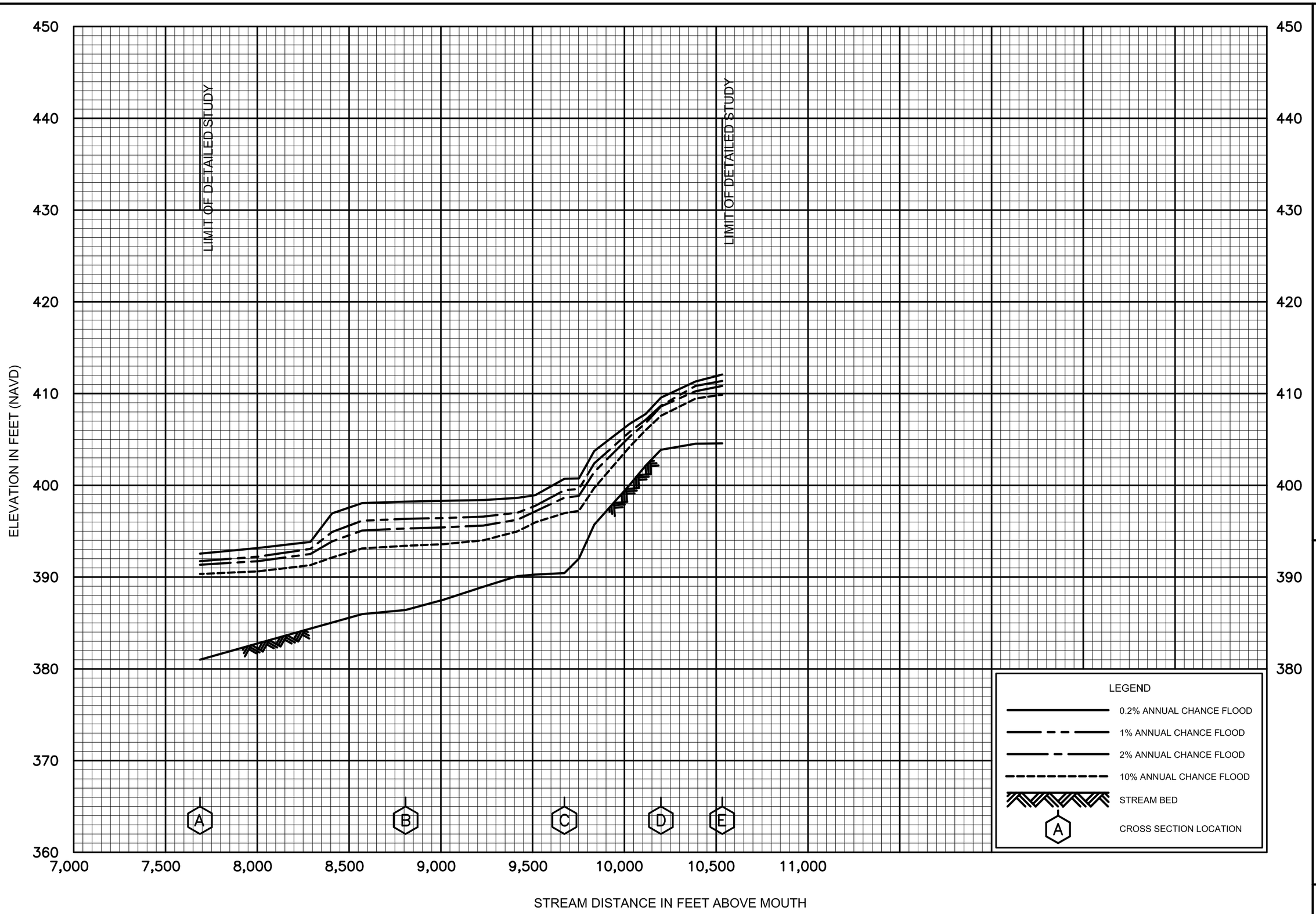
FLOOD PROFILES

HILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

61P



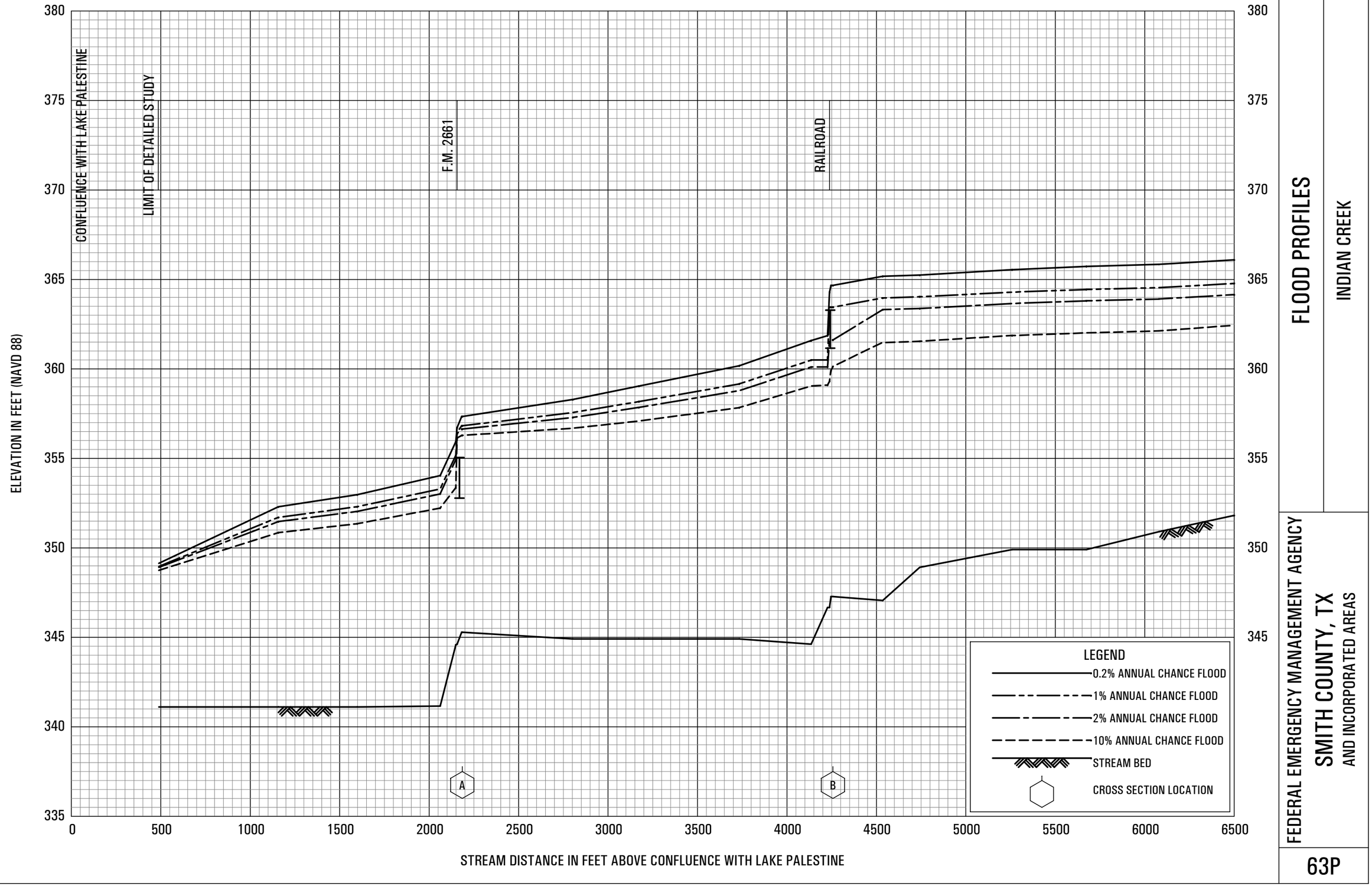
FLOOD PROFILES

HORSEPEN BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

62P



FLOOD PROFILES

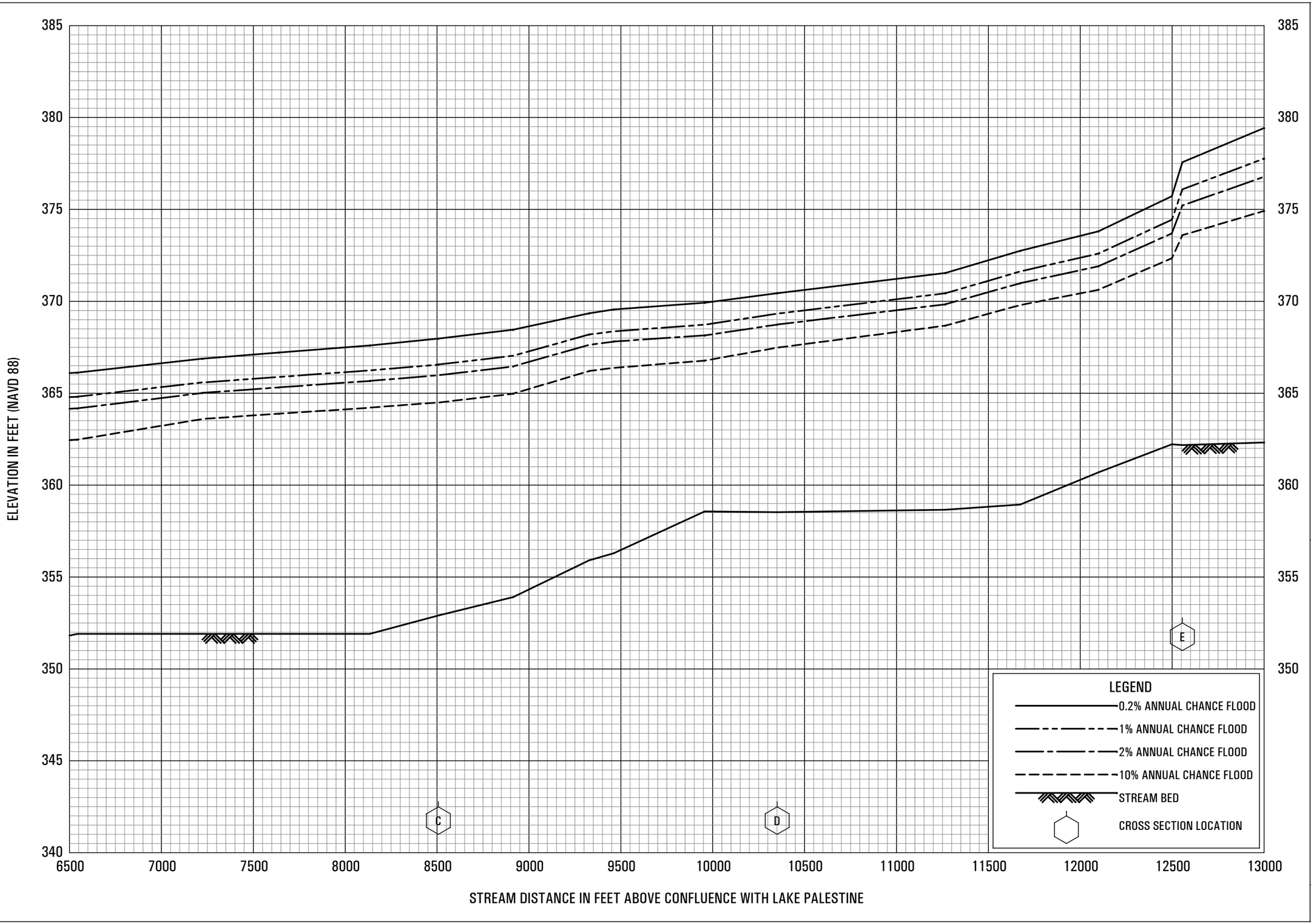
INDIAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

63P



FLOOD PROFILES

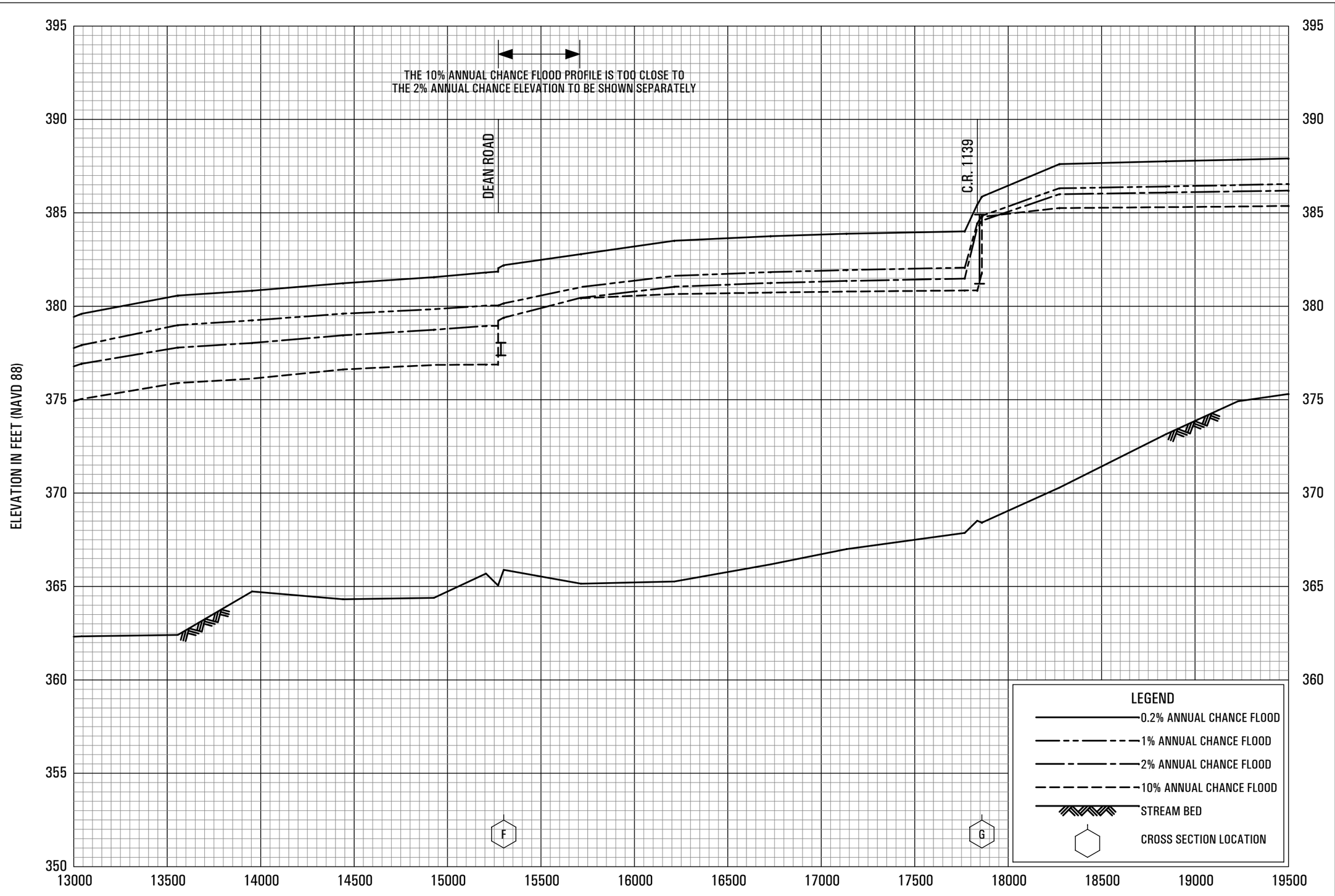
INDIAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

64P



FLOOD PROFILES

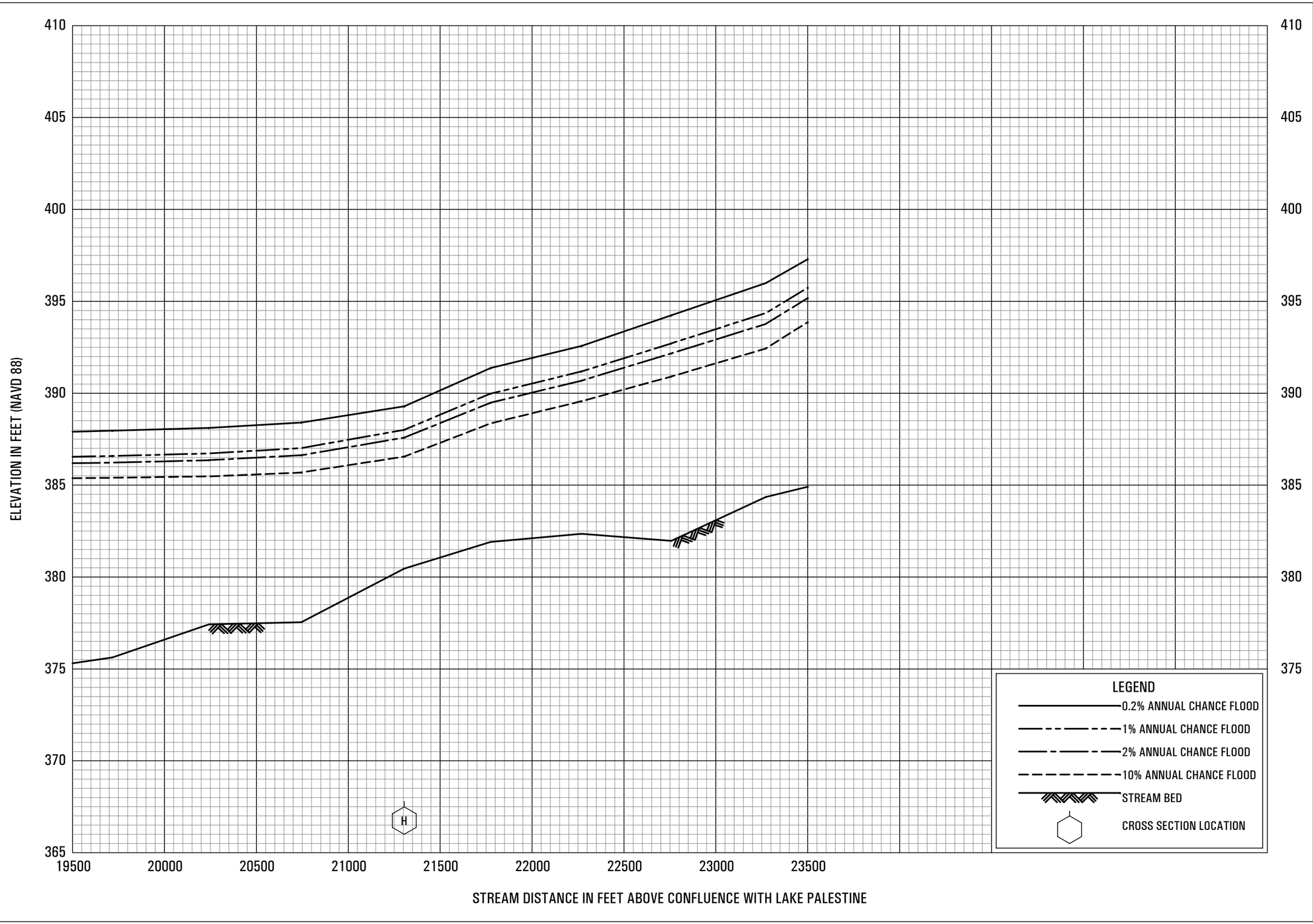
INDIAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

65P



FLOOD PROFILES

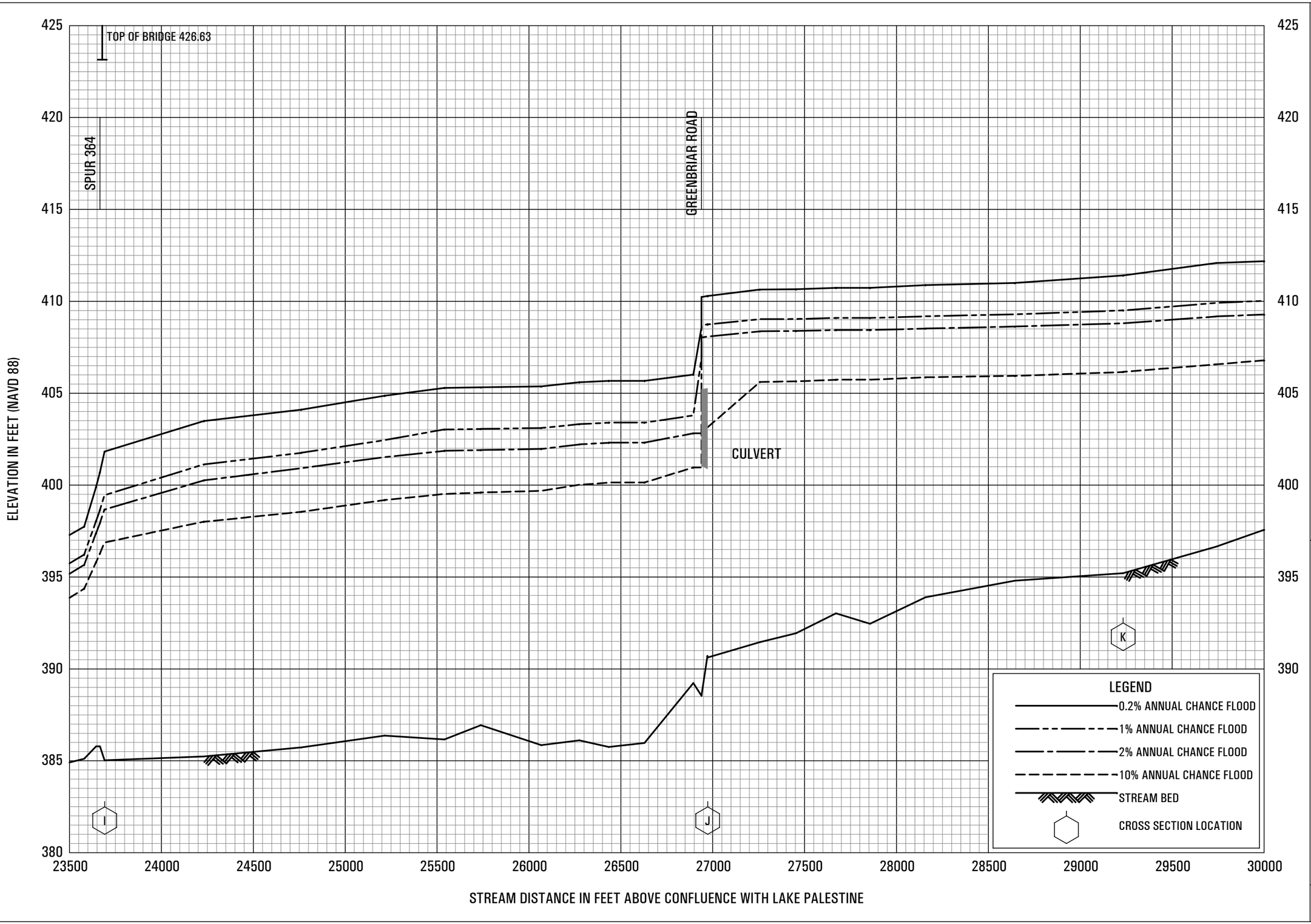
INDIAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

66P



FLOOD PROFILES

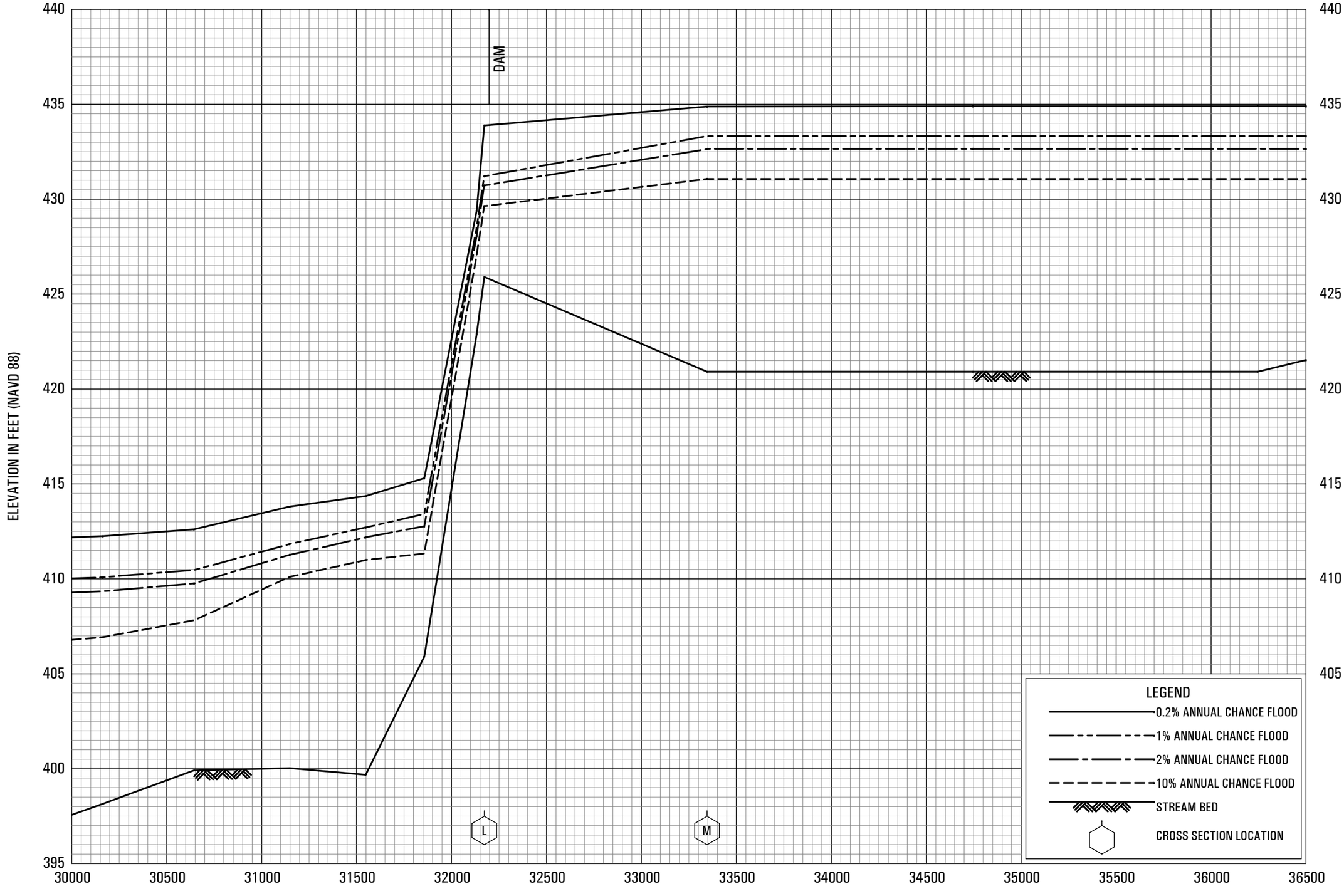
INDIAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

67P



FLOOD PROFILES

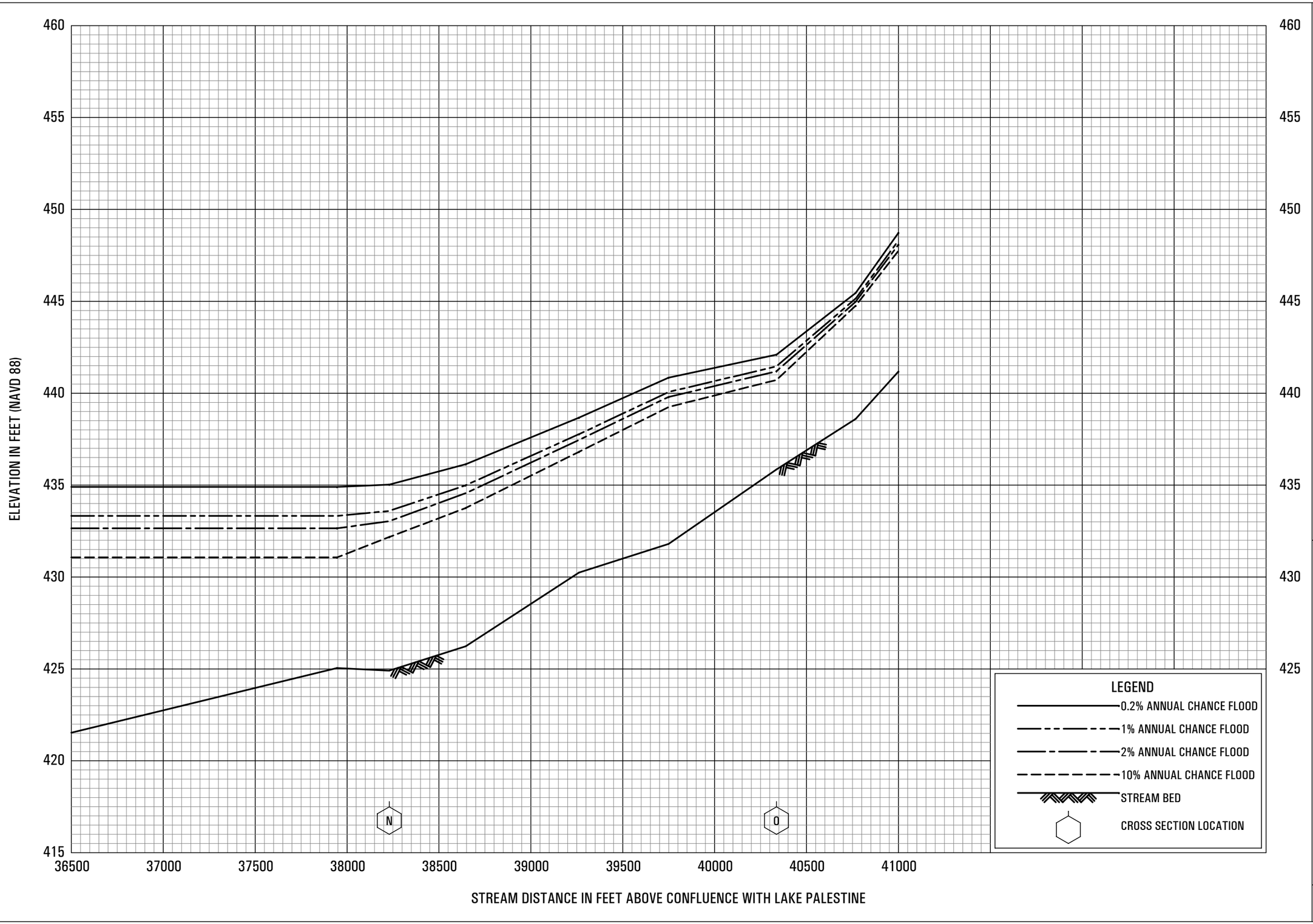
INDIAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

68P



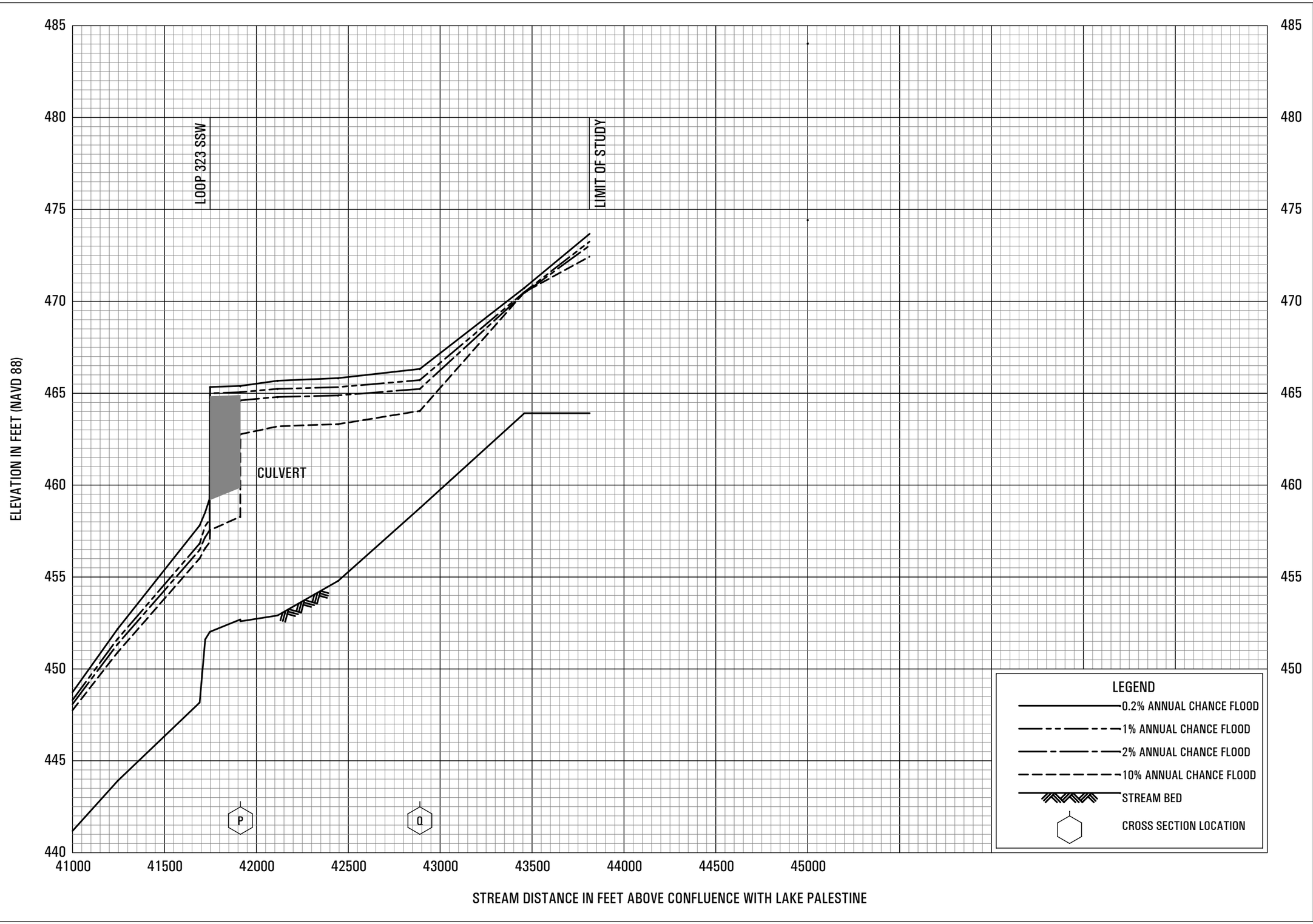
FLOOD PROFILES

INDIAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

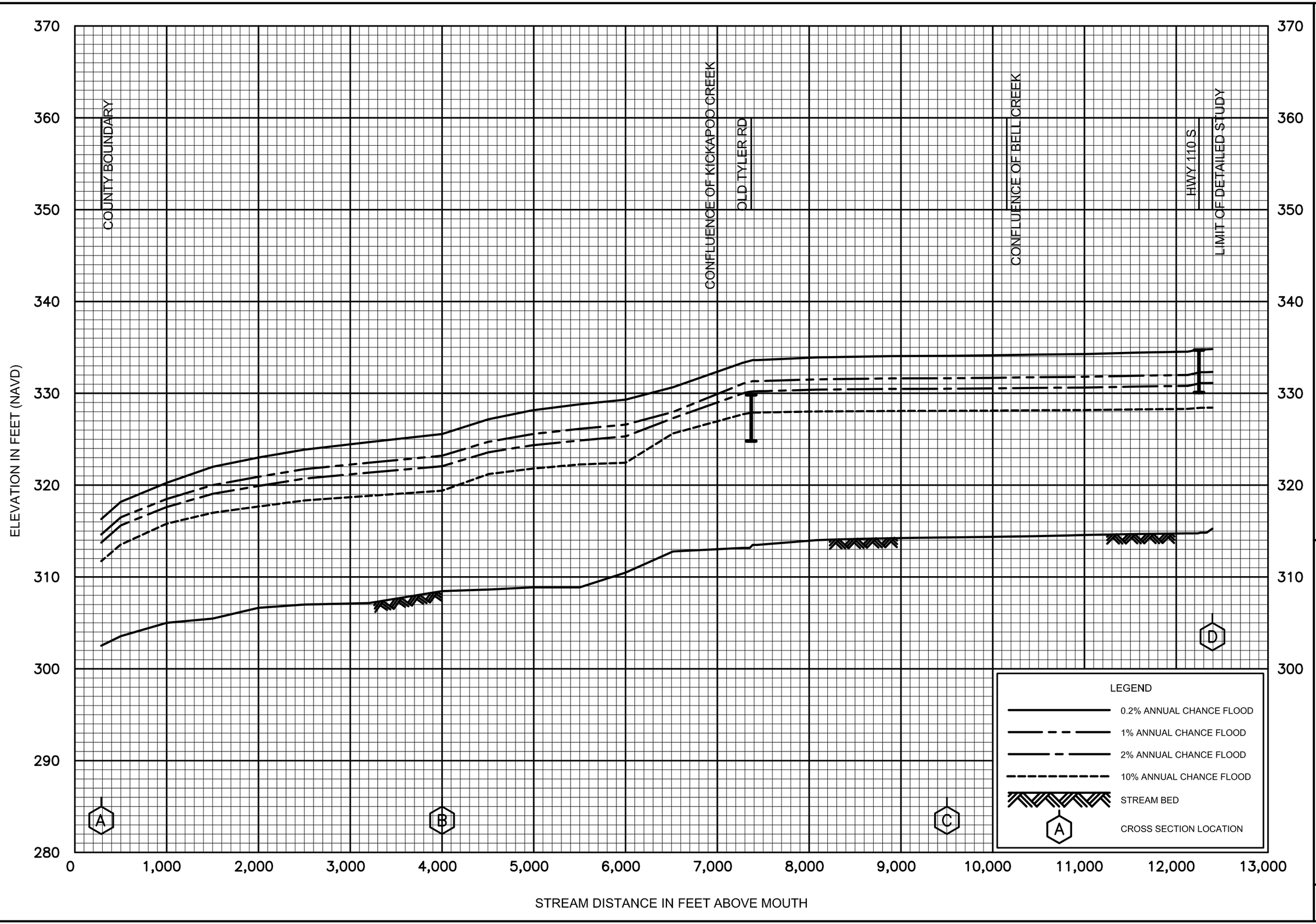
INDIAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

70P



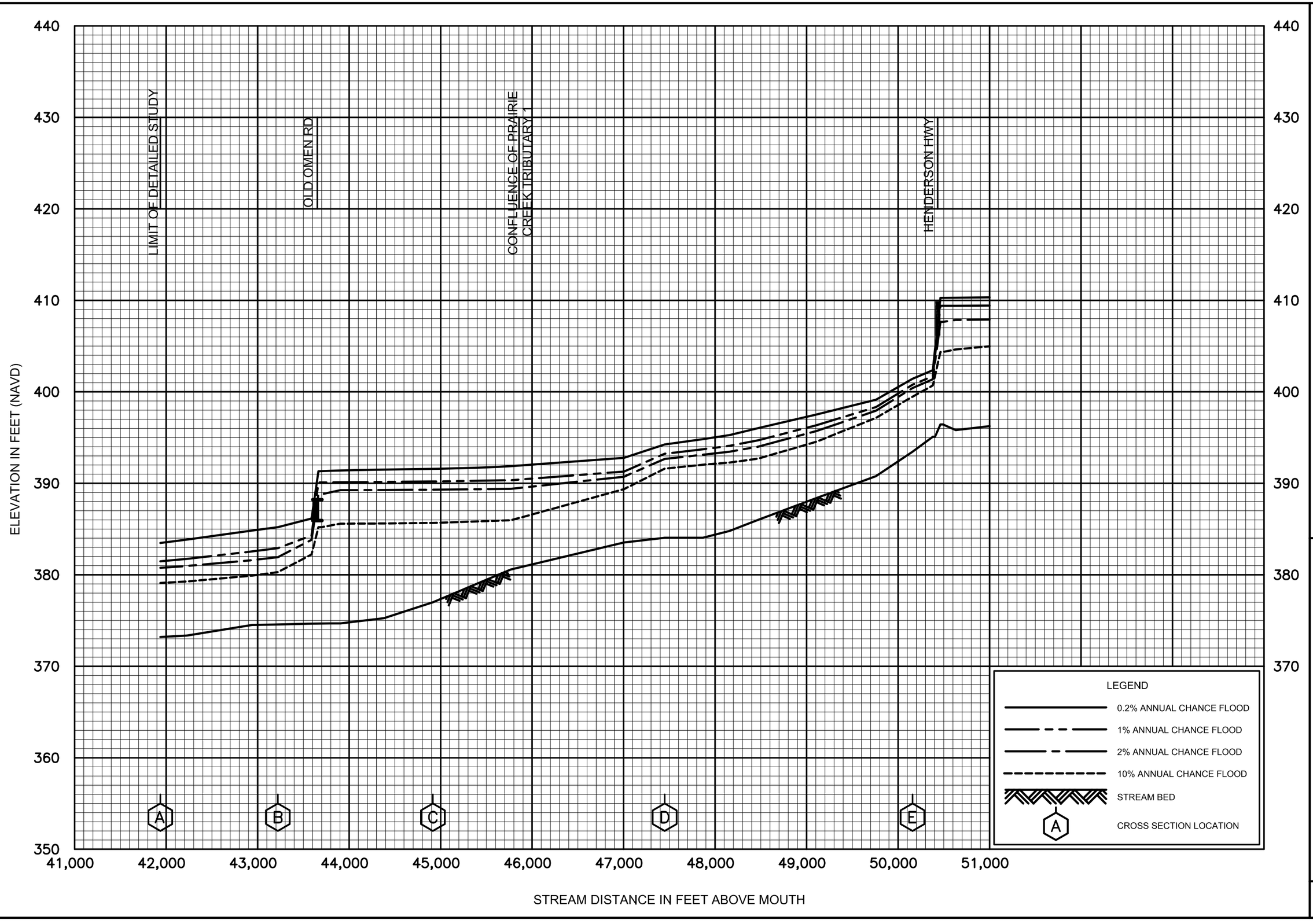
FLOOD PROFILES

MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

71P



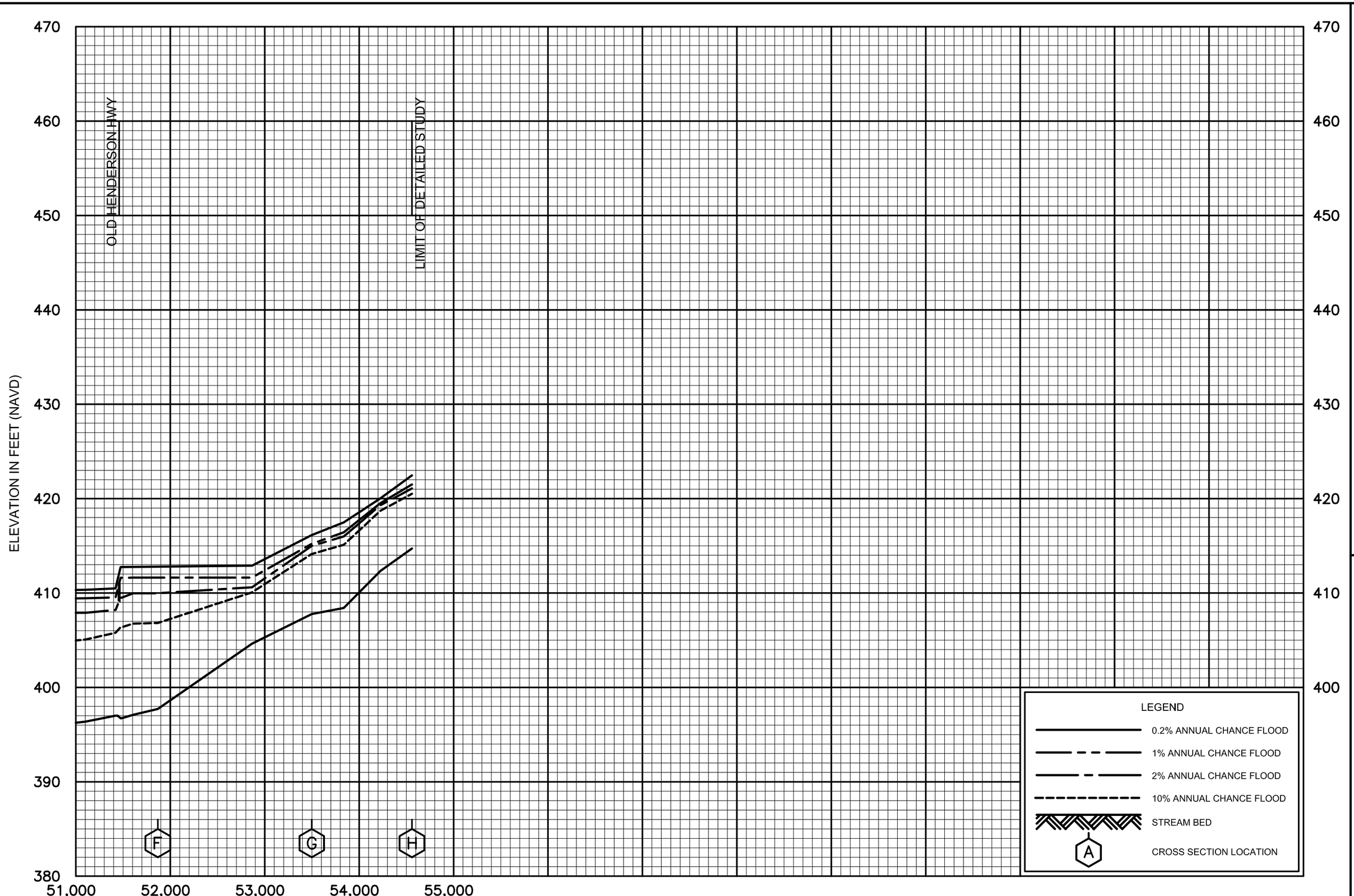
FLOOD PROFILES

PRAIRIE CREEK S

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

72P



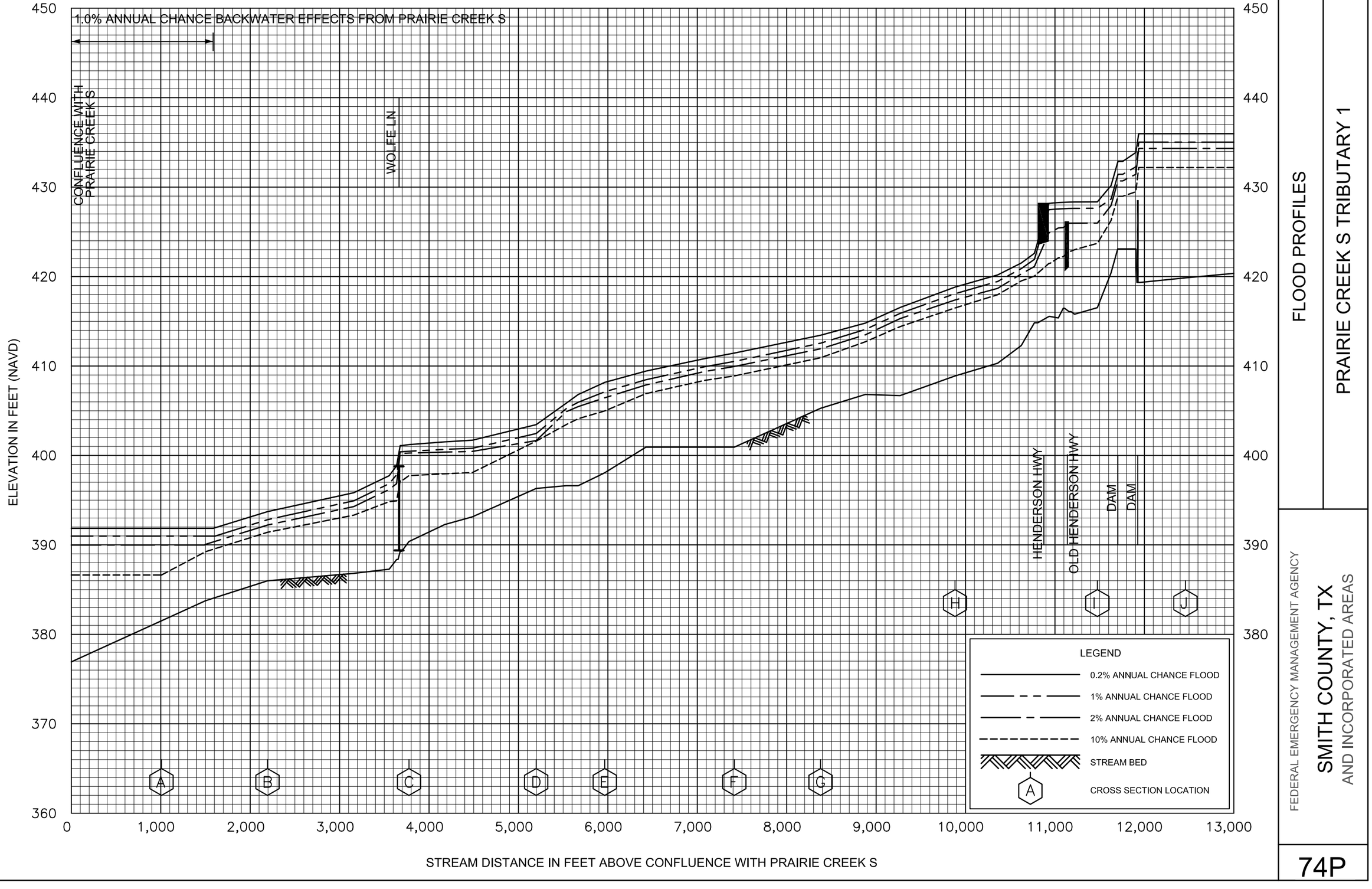
FLOOD PROFILES

PRAIRIE CREEK S

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

73P



FLOOD PROFILES

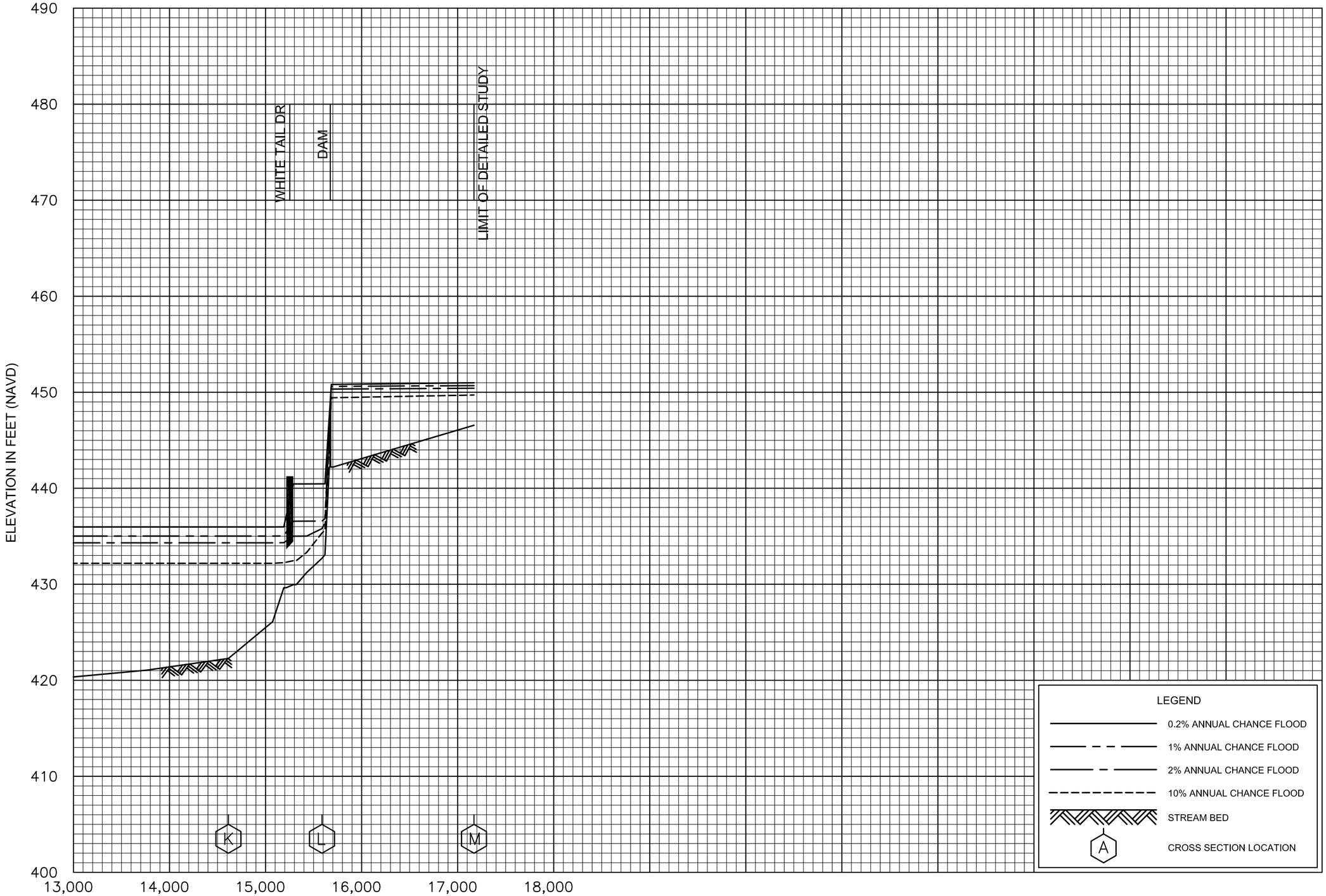
PRAIRIE CREEK S TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

74P



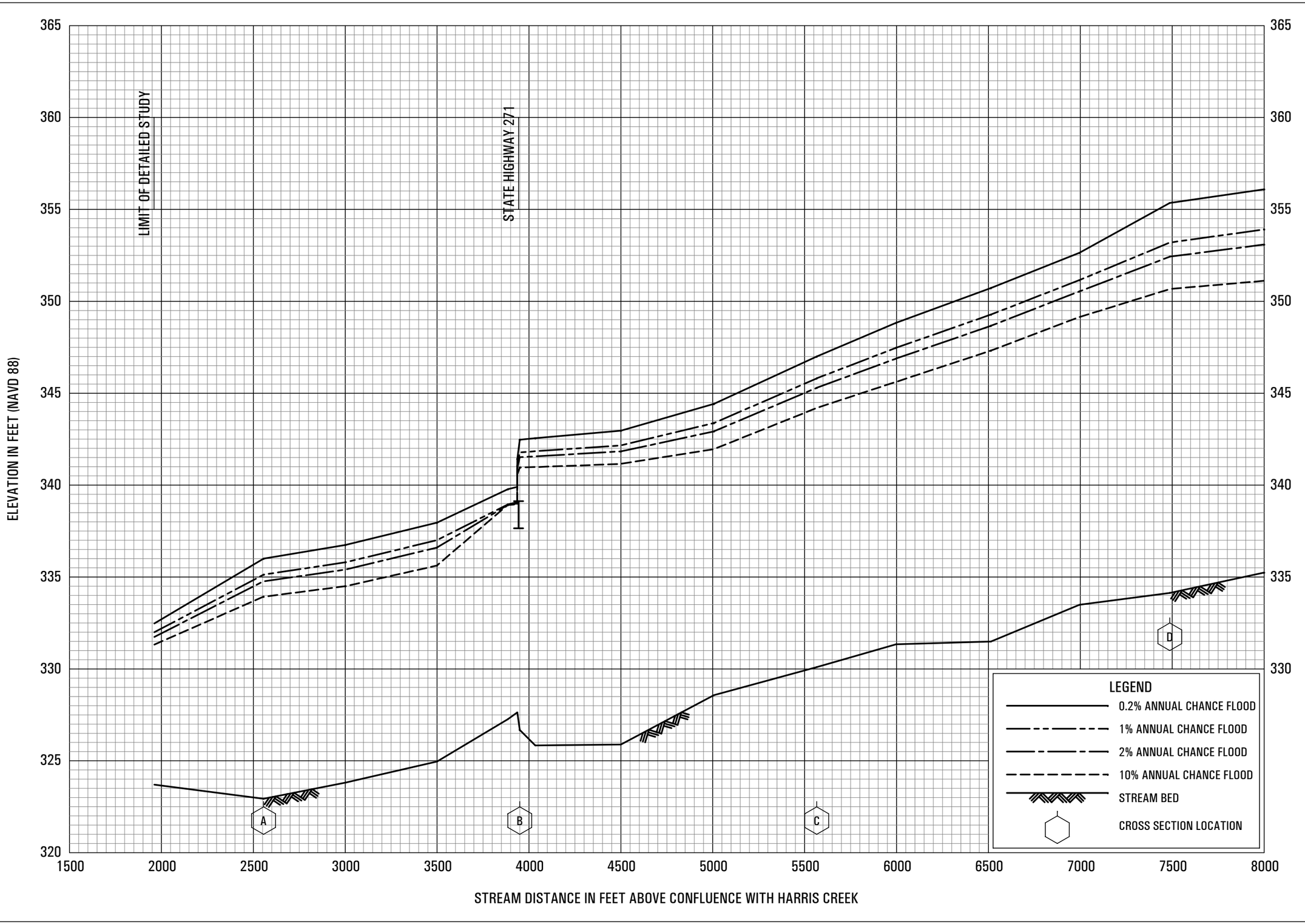
FLOOD PROFILES

PRAIRIE CREEK S TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

75P



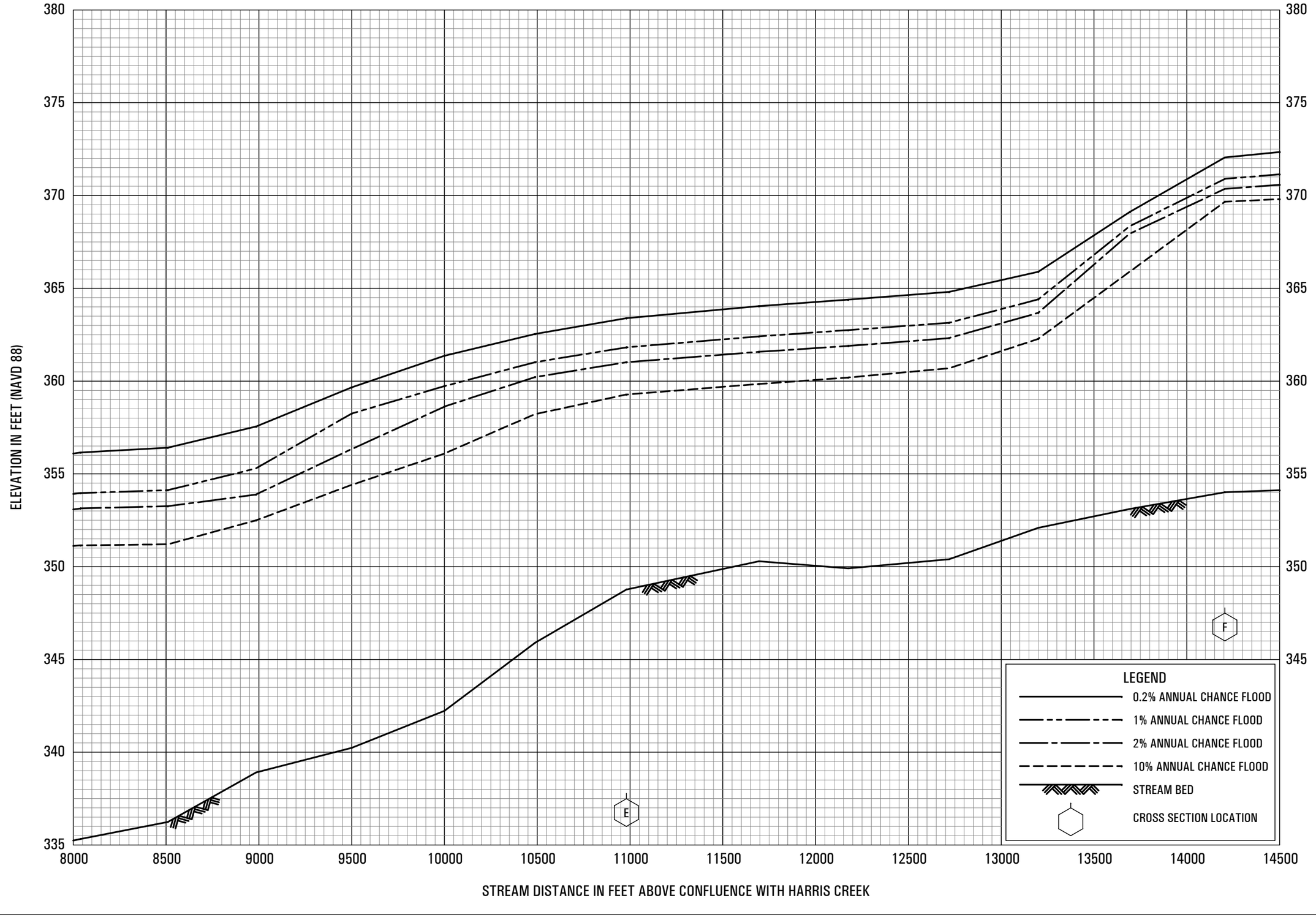
FLOOD PROFILES

RAY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

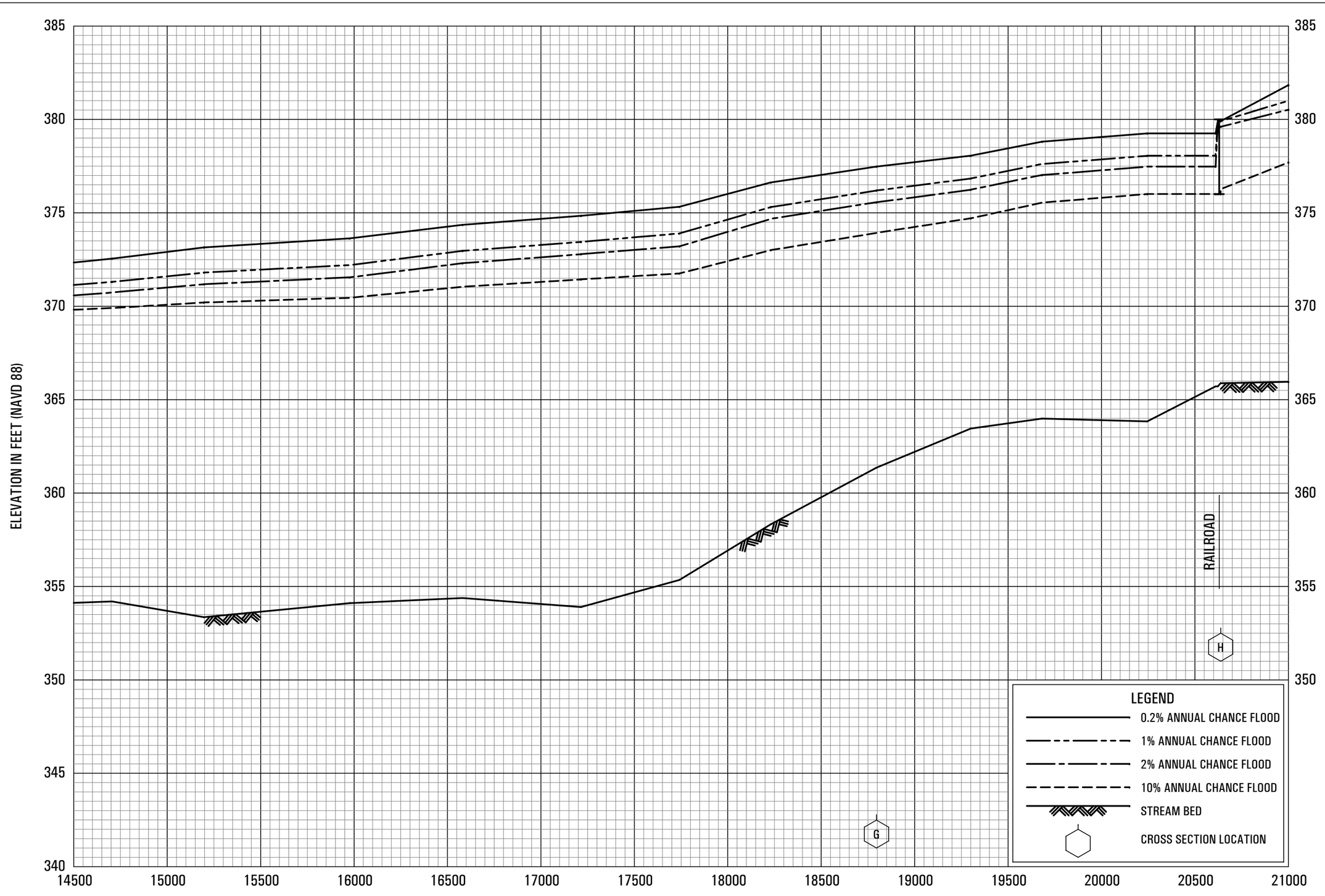
RAY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

77P



FLOOD PROFILES

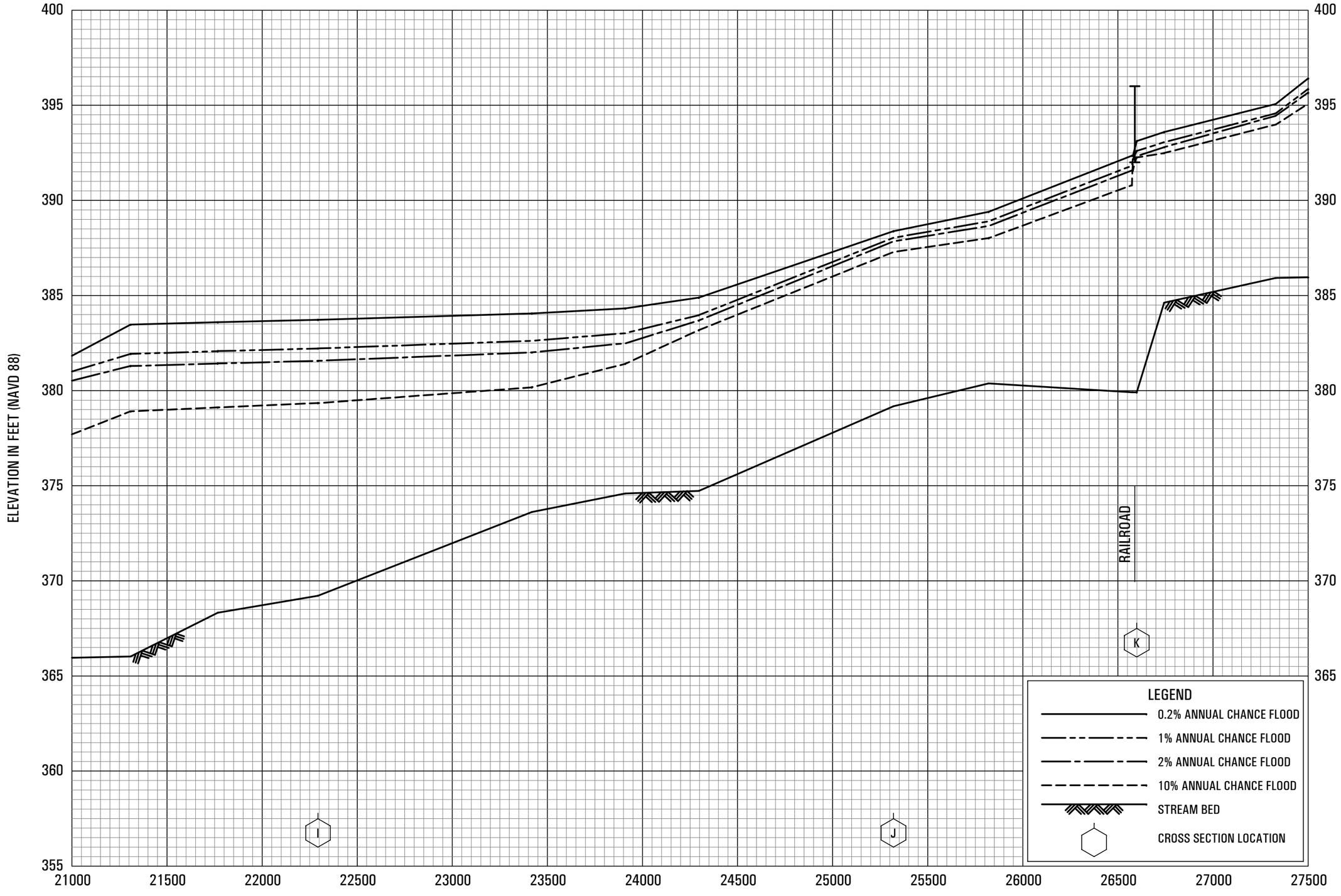
RAY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

78P



FLOOD PROFILES

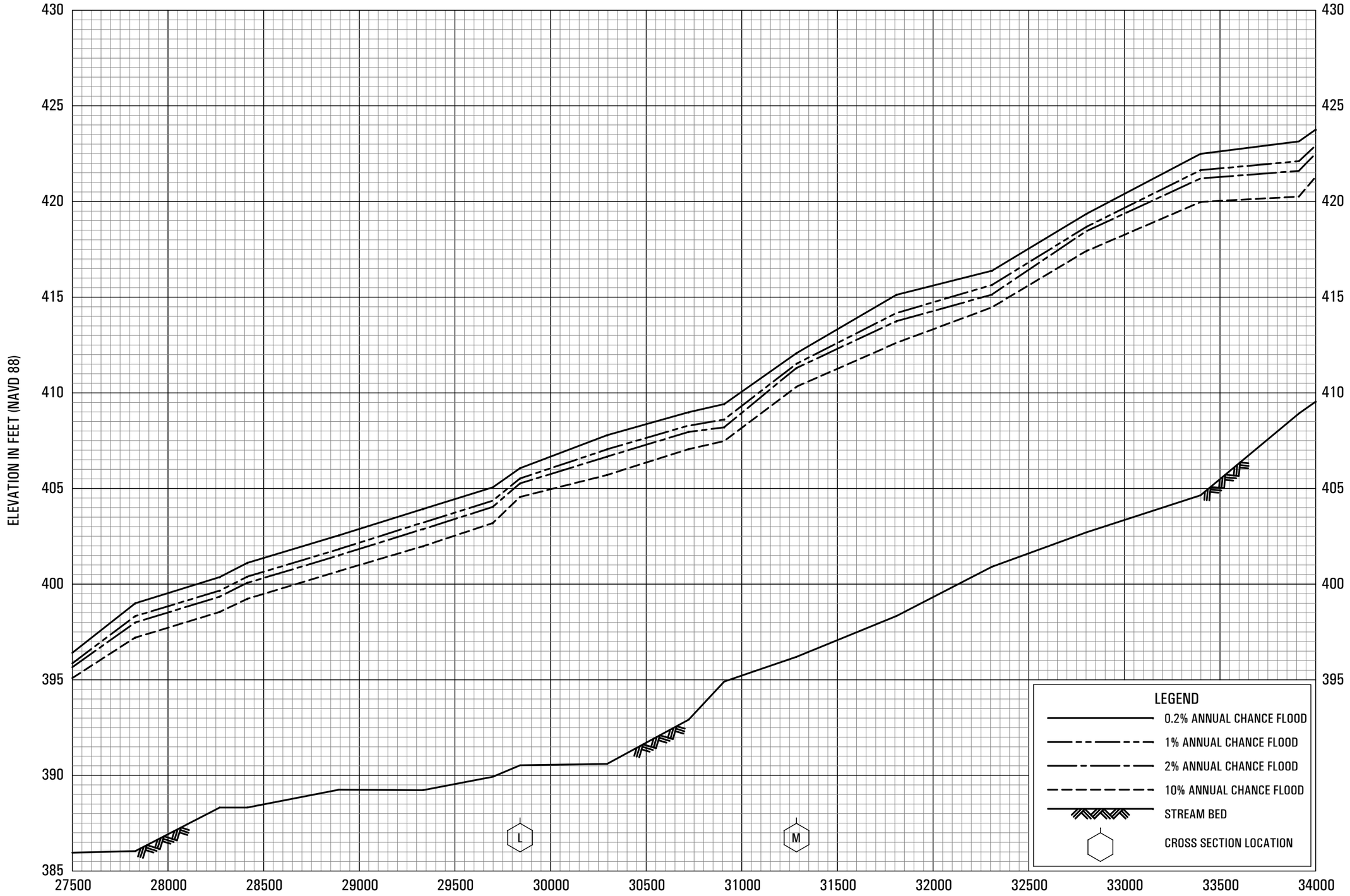
RAY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

79P



FLOOD PROFILES

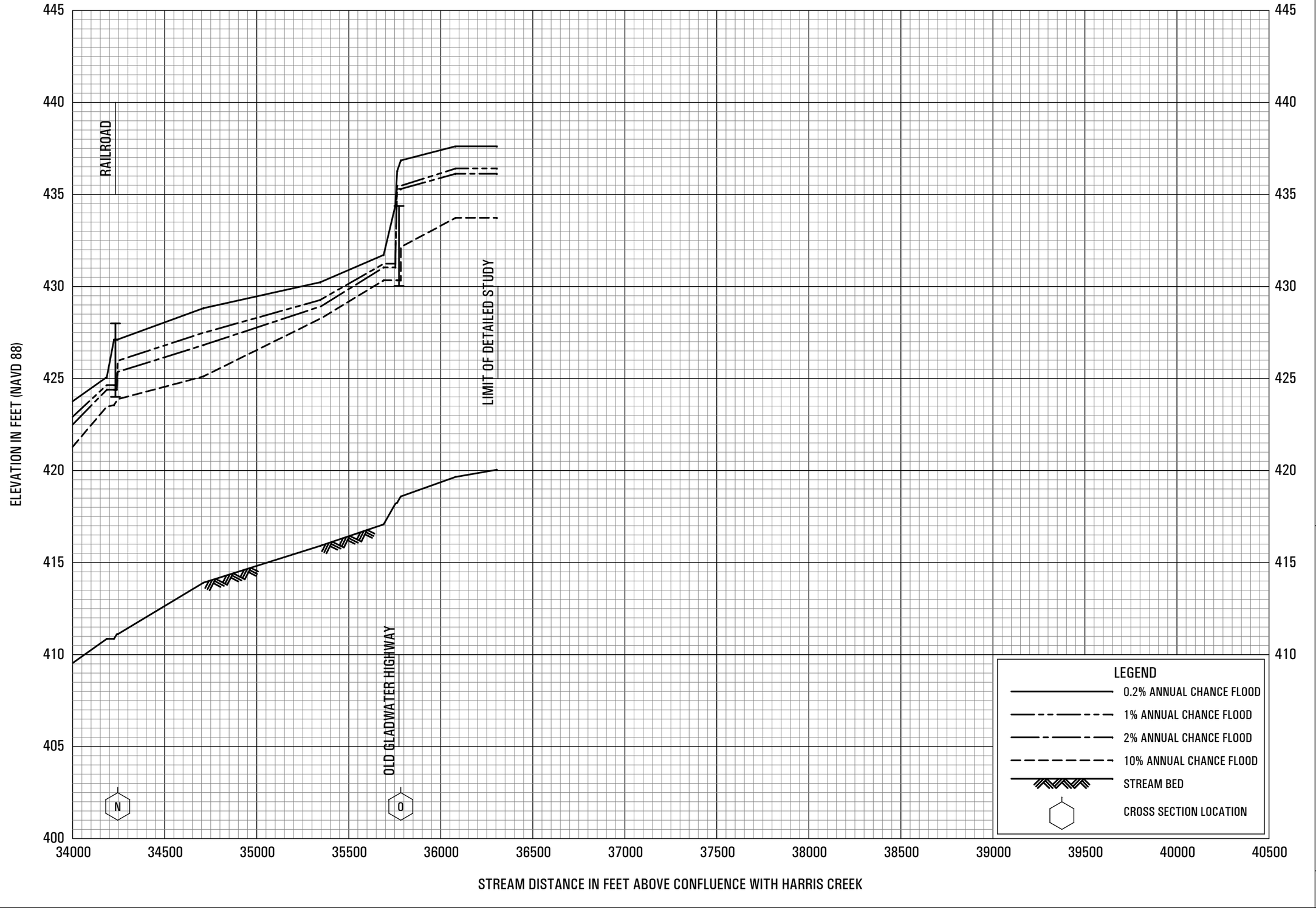
RAY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

80P



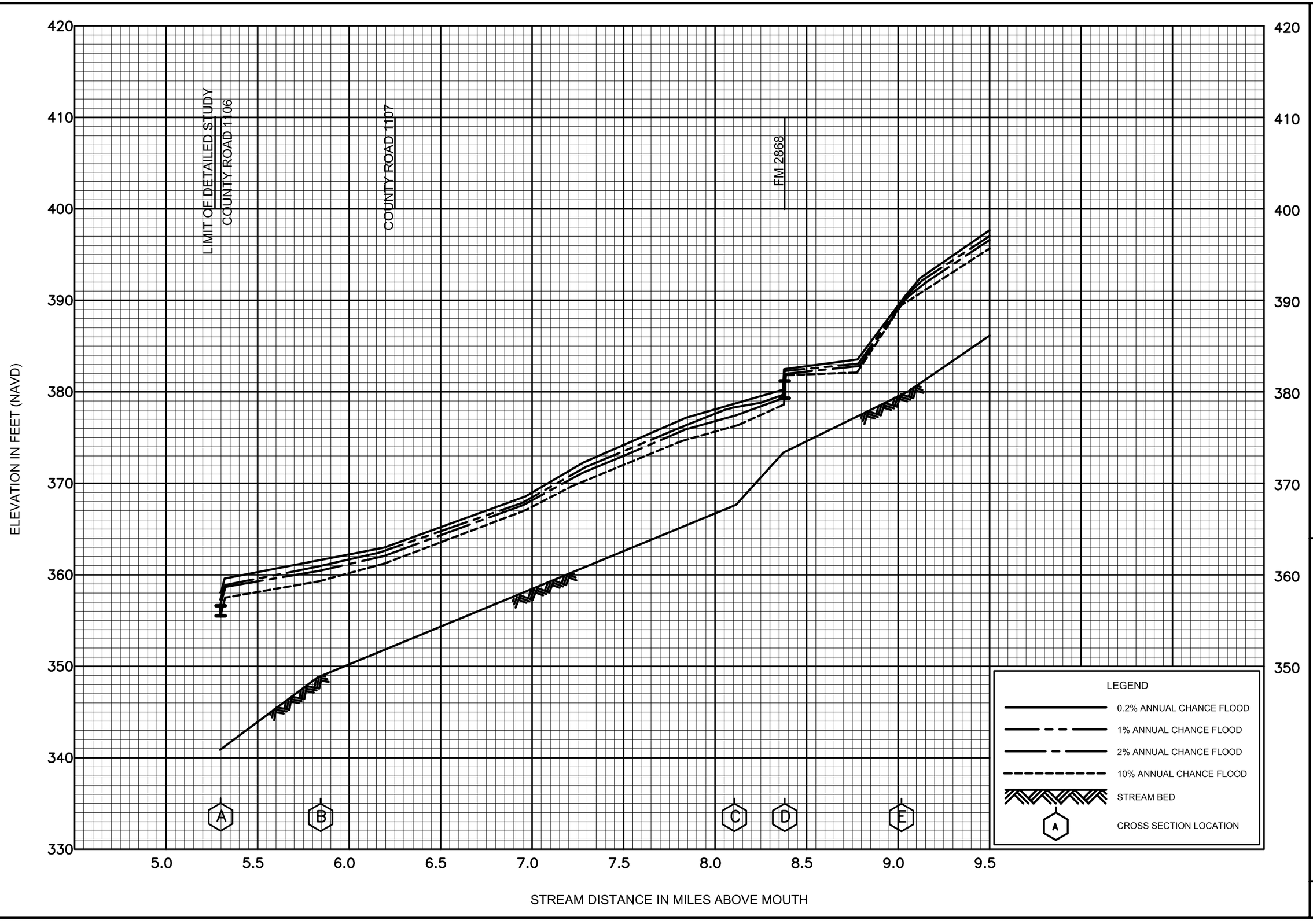
FLOOD PROFILES

RAY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



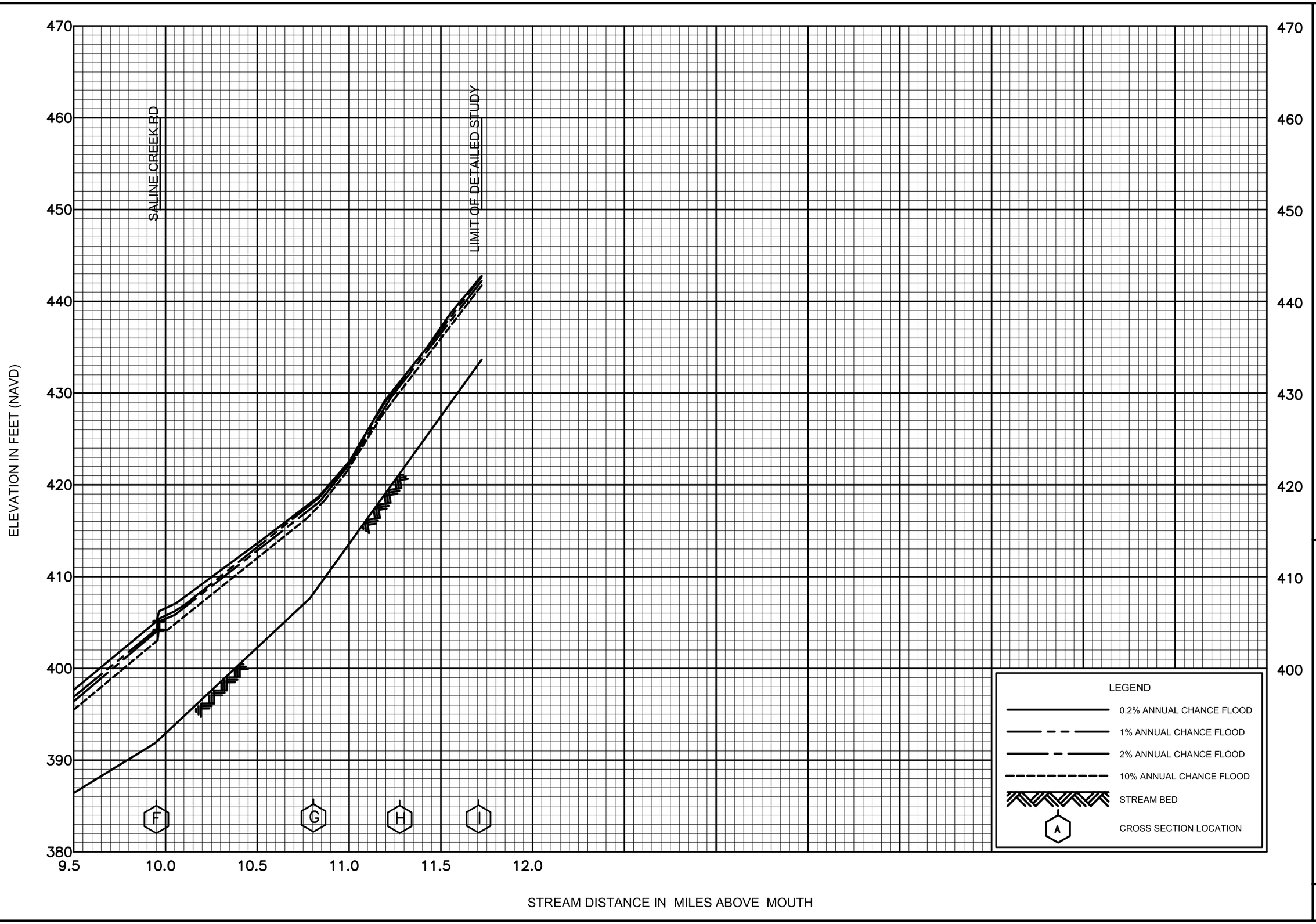
FLOOD PROFILES

SALINE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

82P



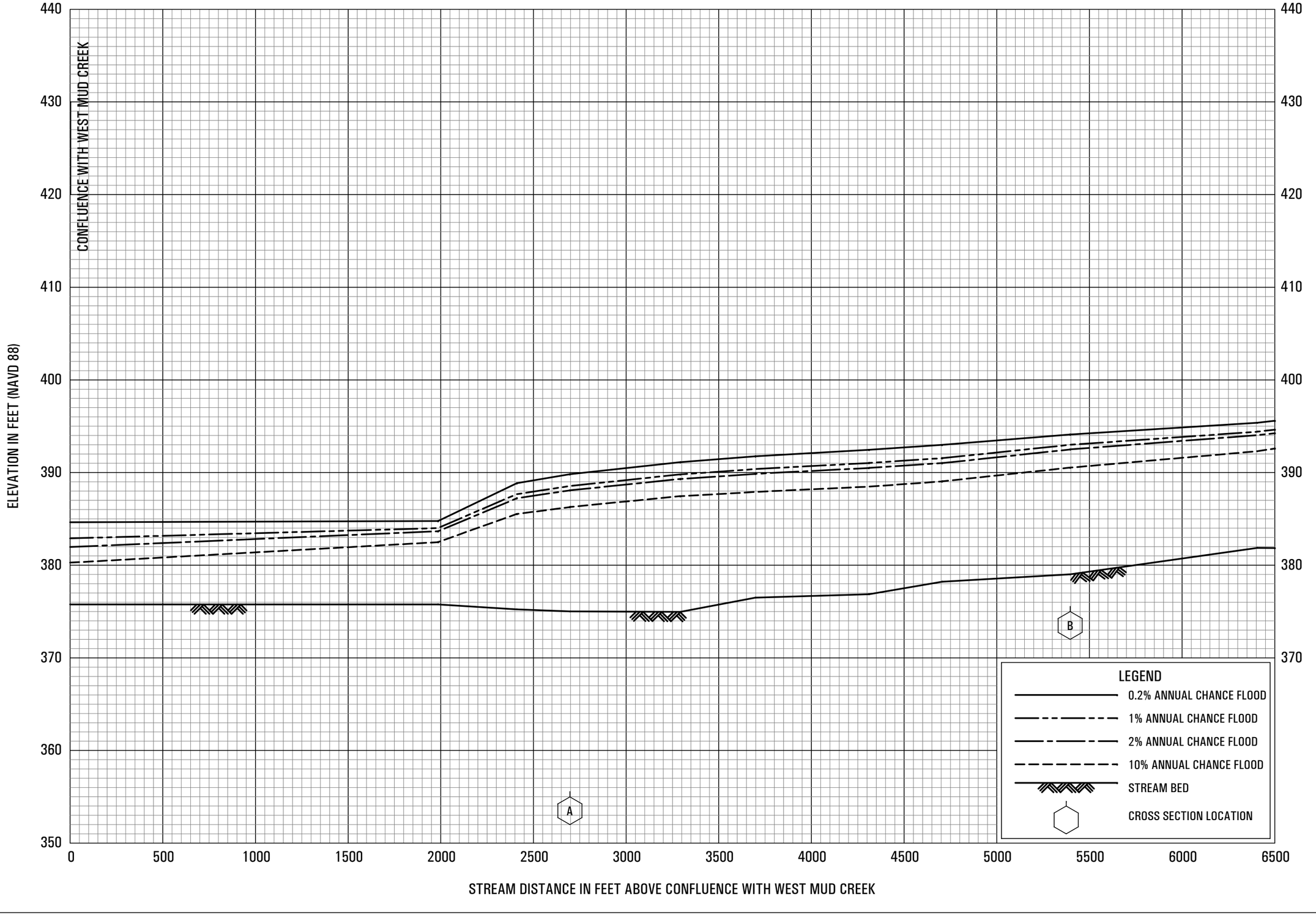
FLOOD PROFILES

SALINE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX
AND INCORPORATED AREAS

83P



FLOOD PROFILES

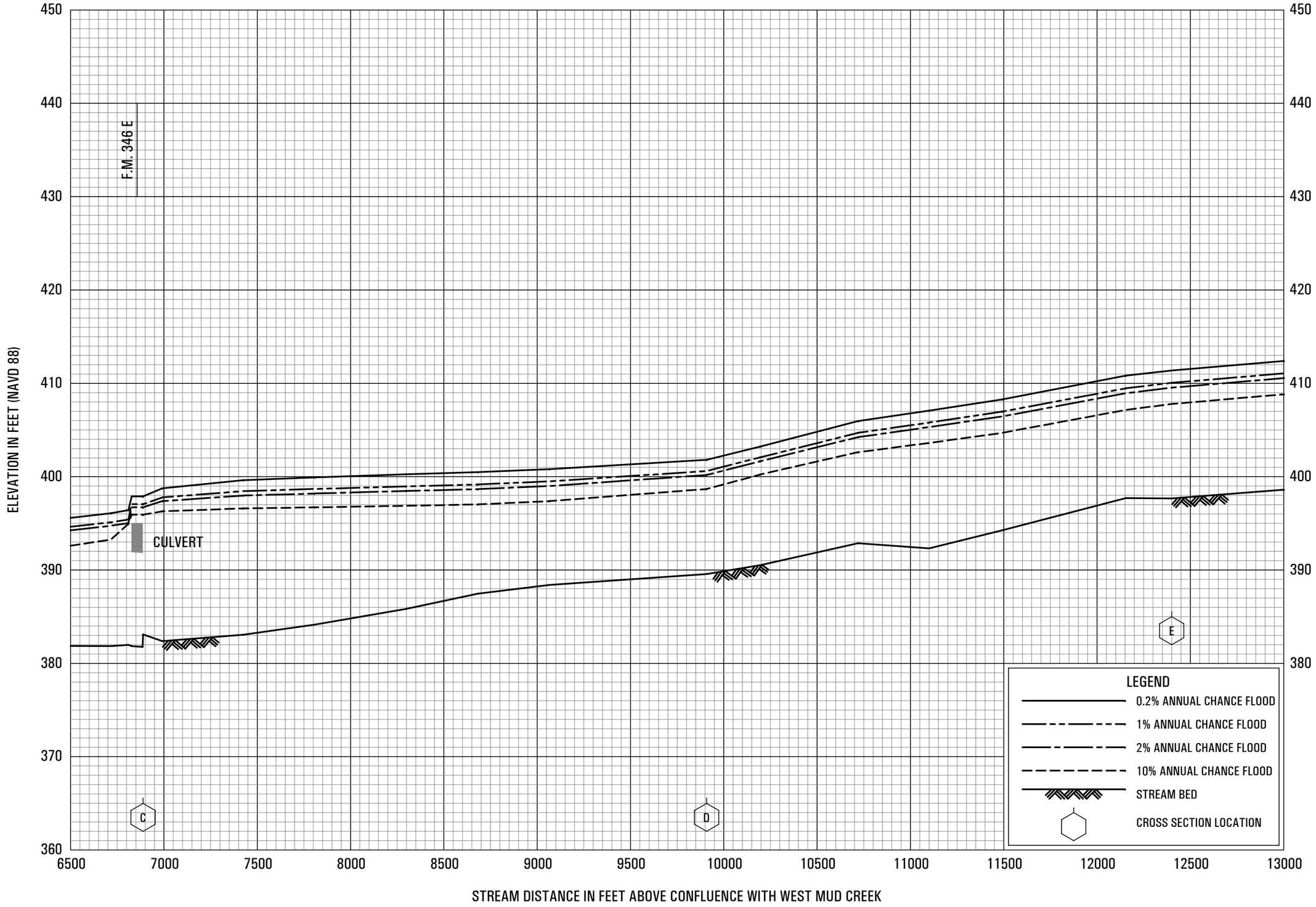
SHACKLEFORD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

84P



FLOOD PROFILES

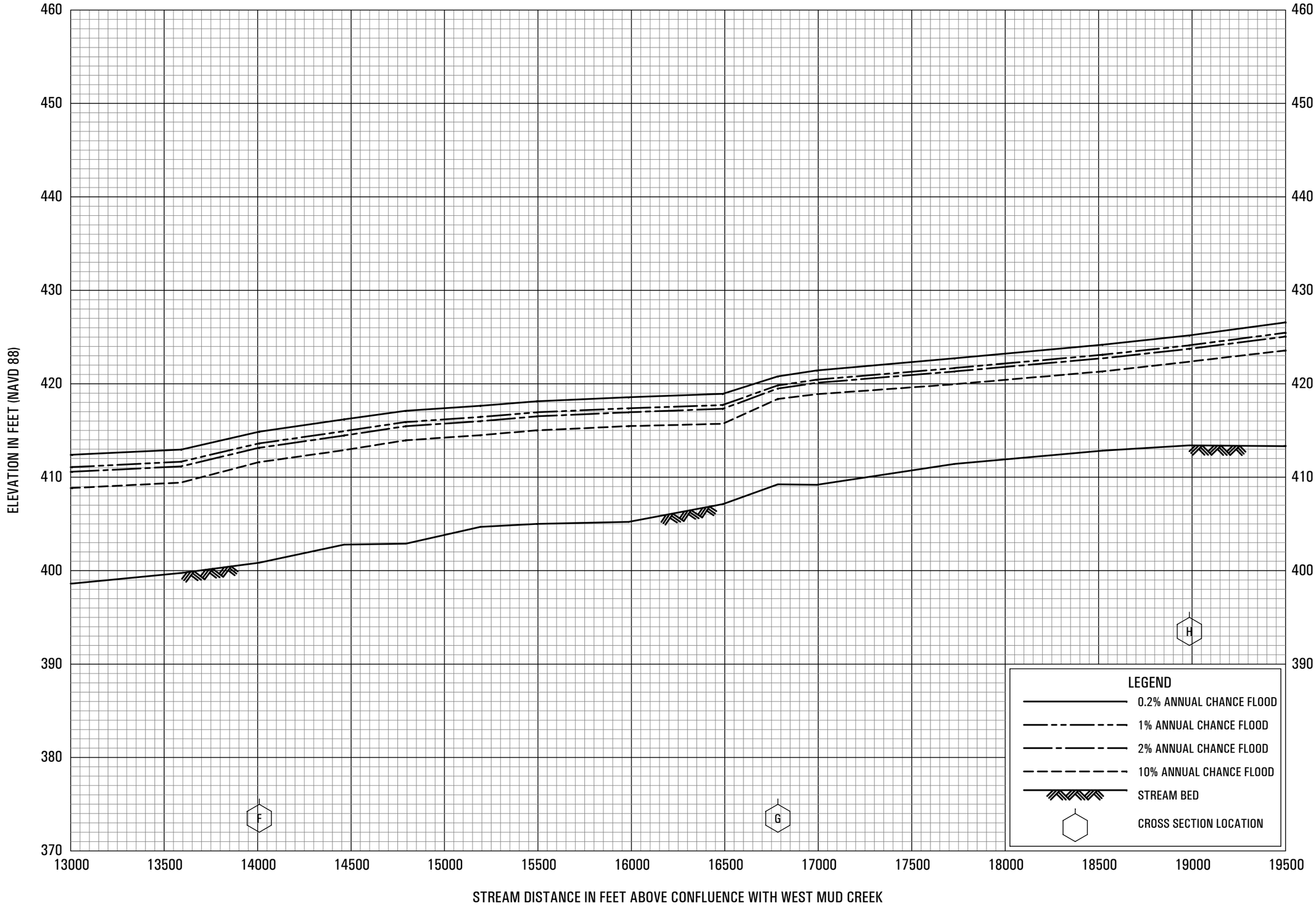
SHACKLEFORD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

85P



FLOOD PROFILES

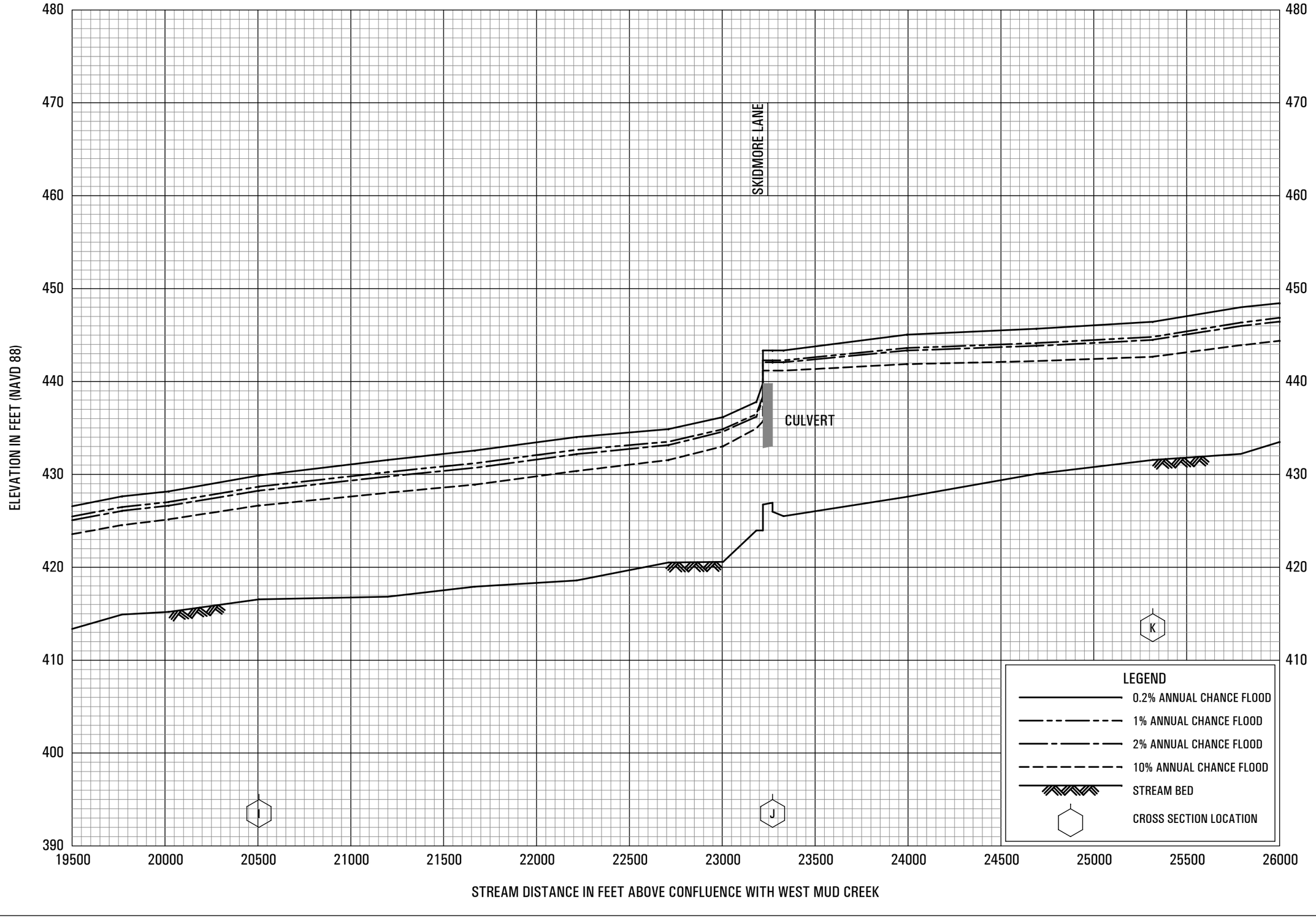
SHACKLEFORD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

86P



FLOOD PROFILES

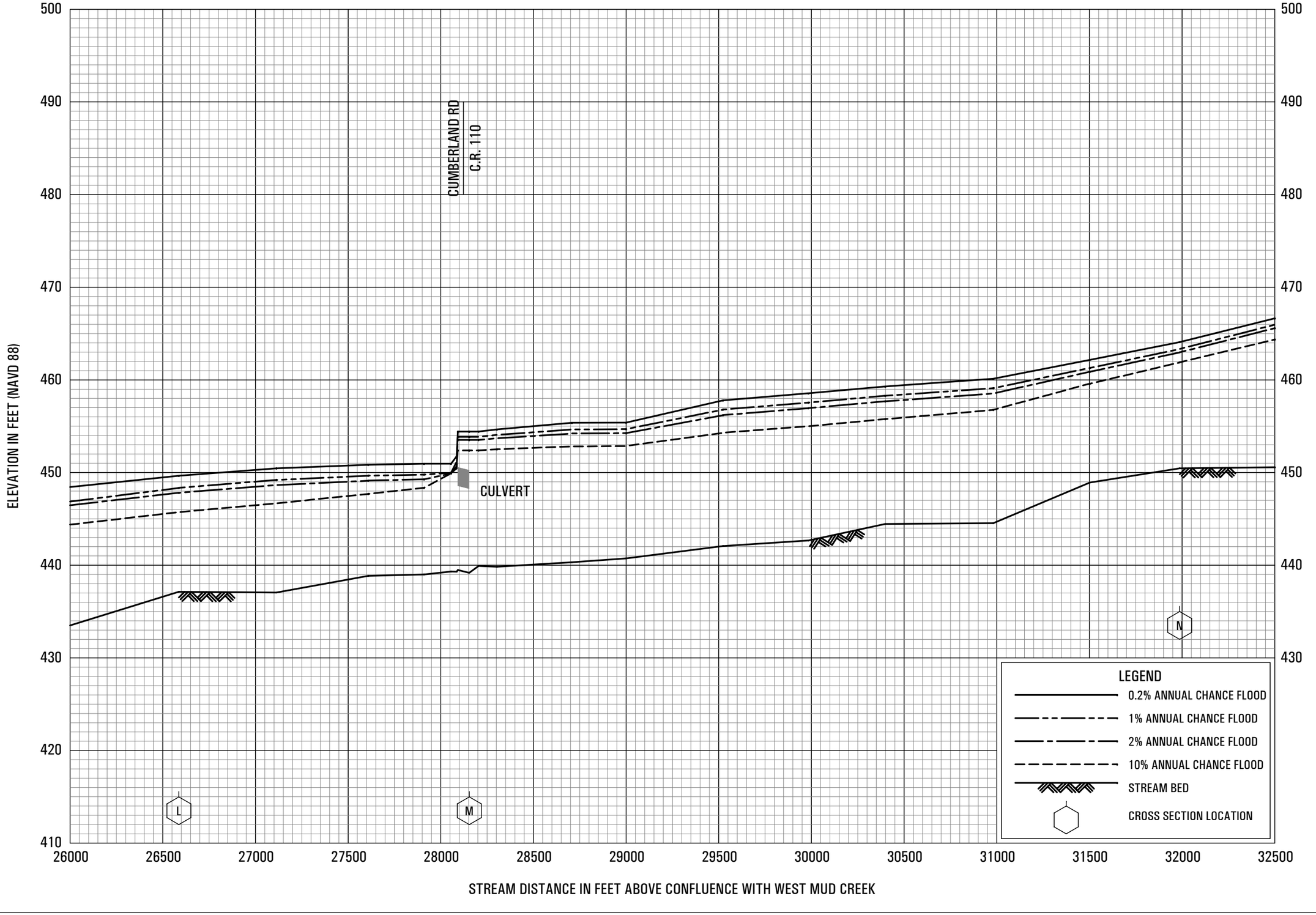
SHACKLEFORD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

87P



FLOOD PROFILES

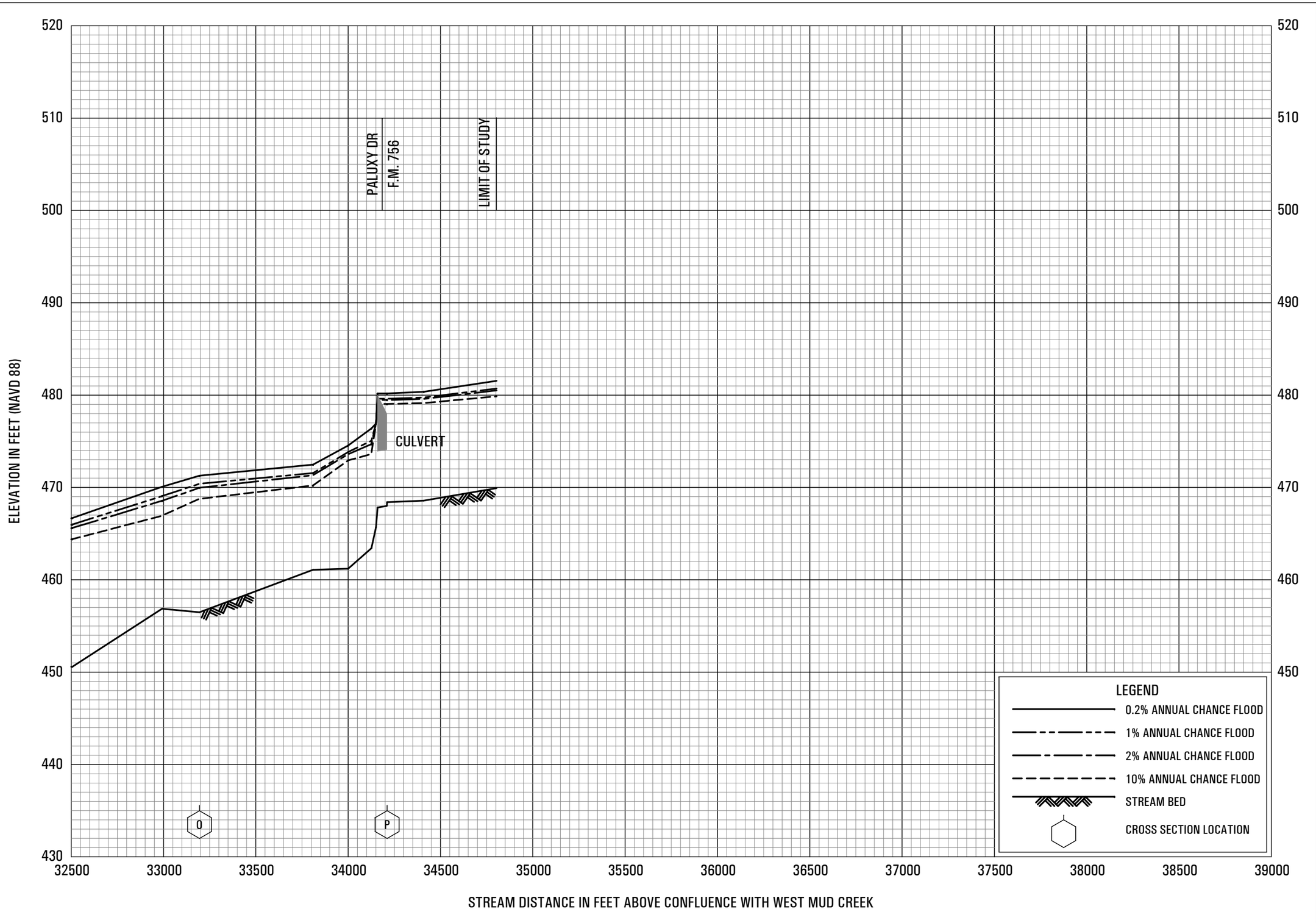
SHACKLEFORD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

88P



FLOOD PROFILES

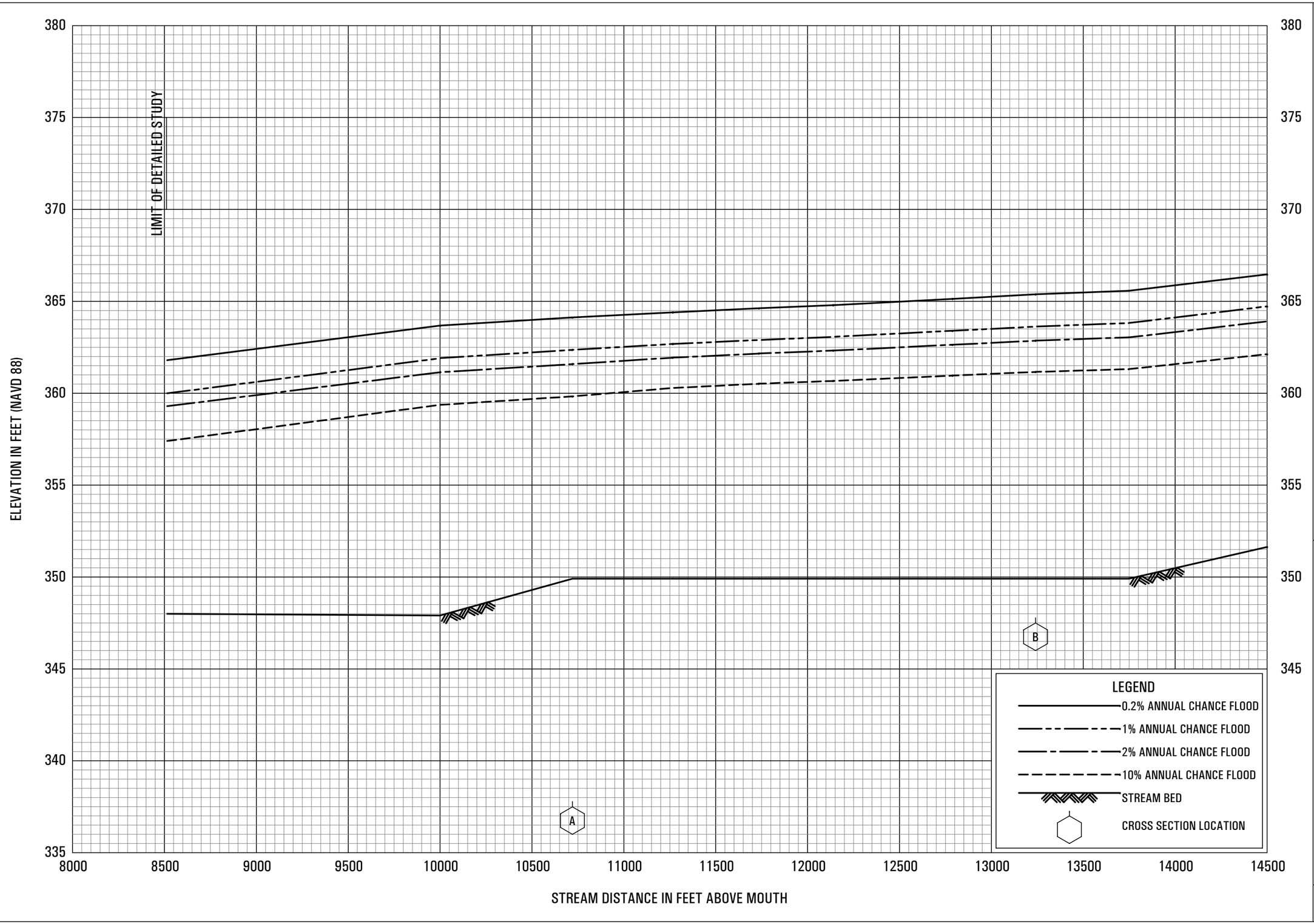
SHACKLEFORD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

89P



FLOOD PROFILES

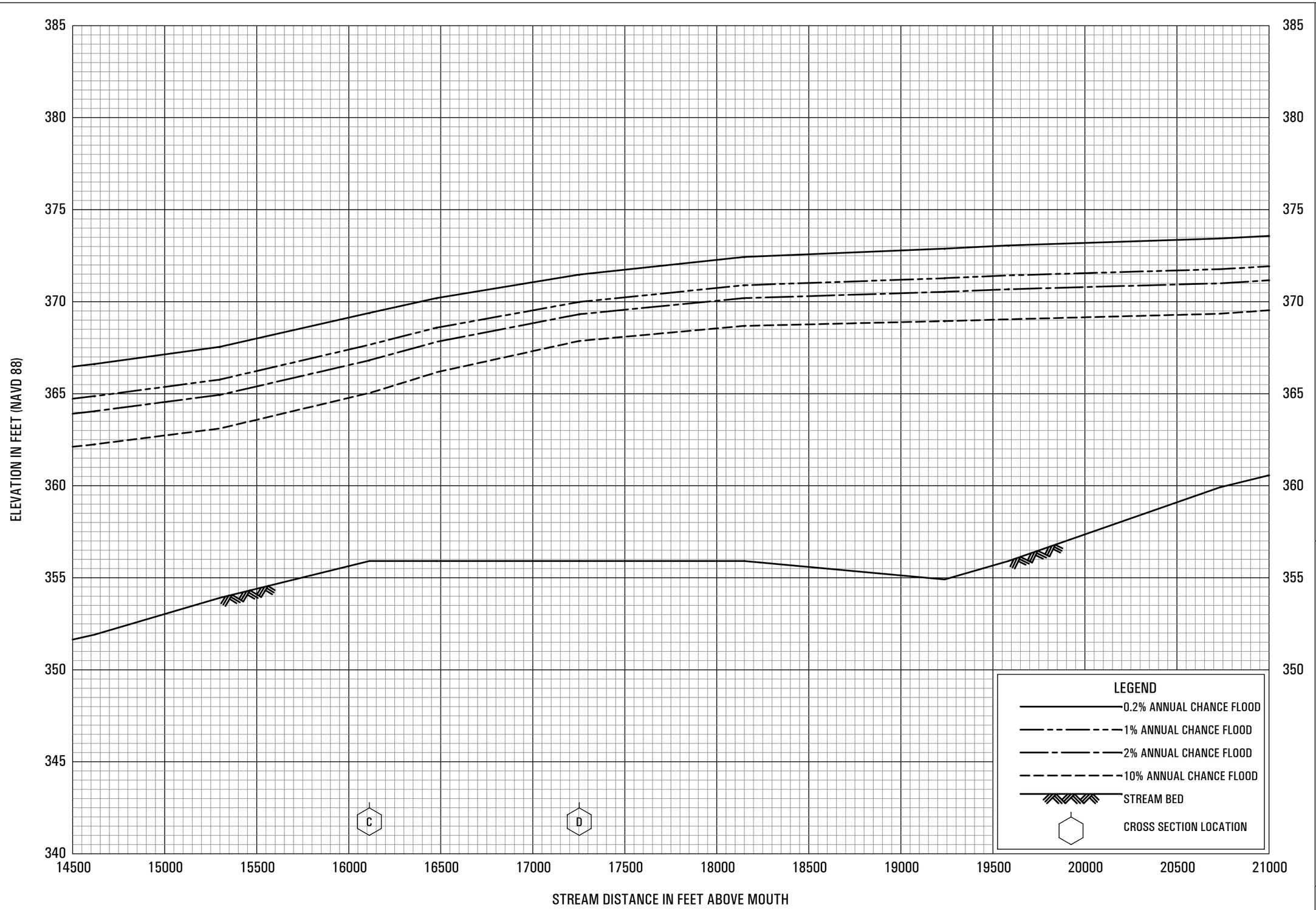
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

90P



FLOOD PROFILES

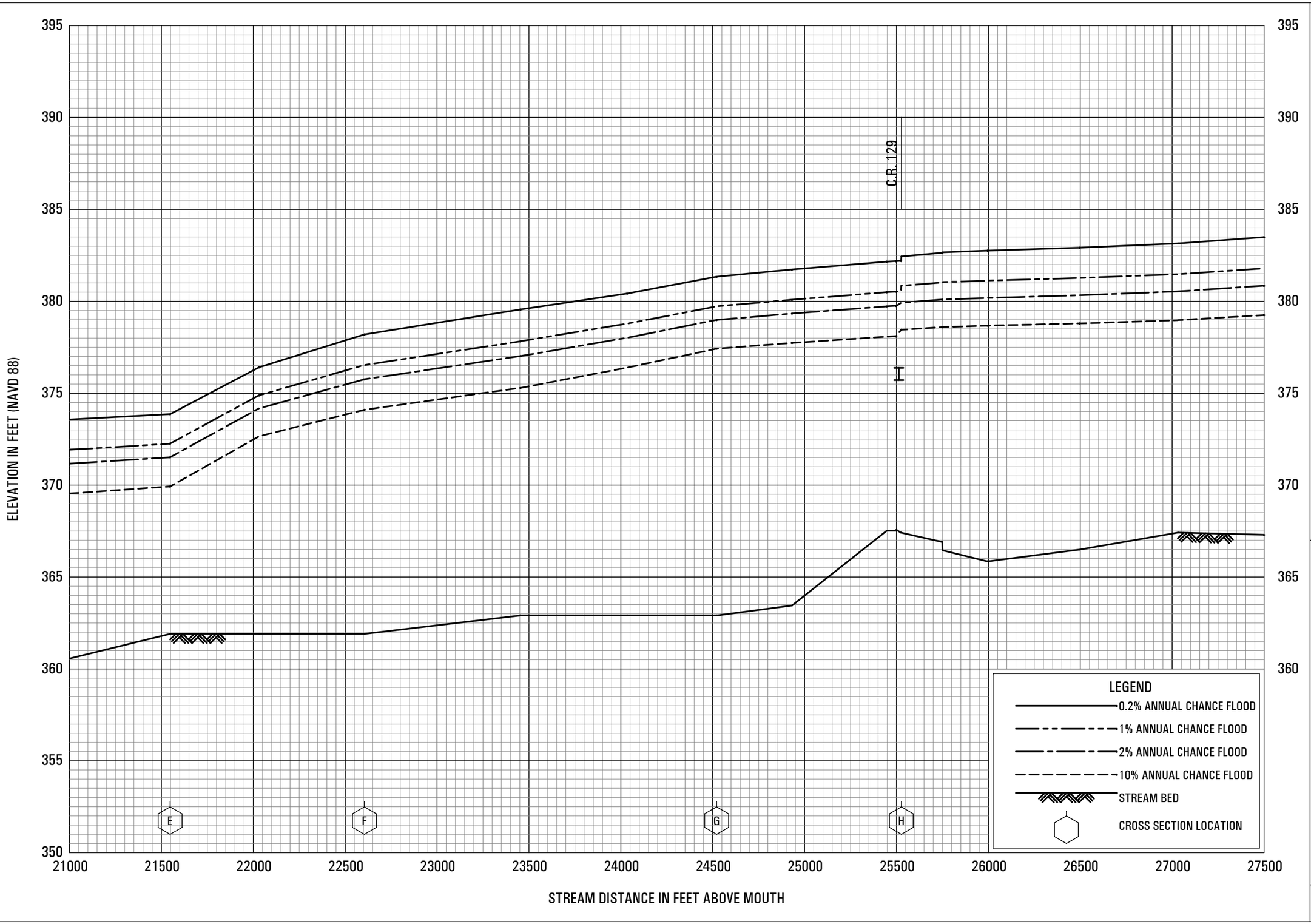
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

91P



FLOOD PROFILES

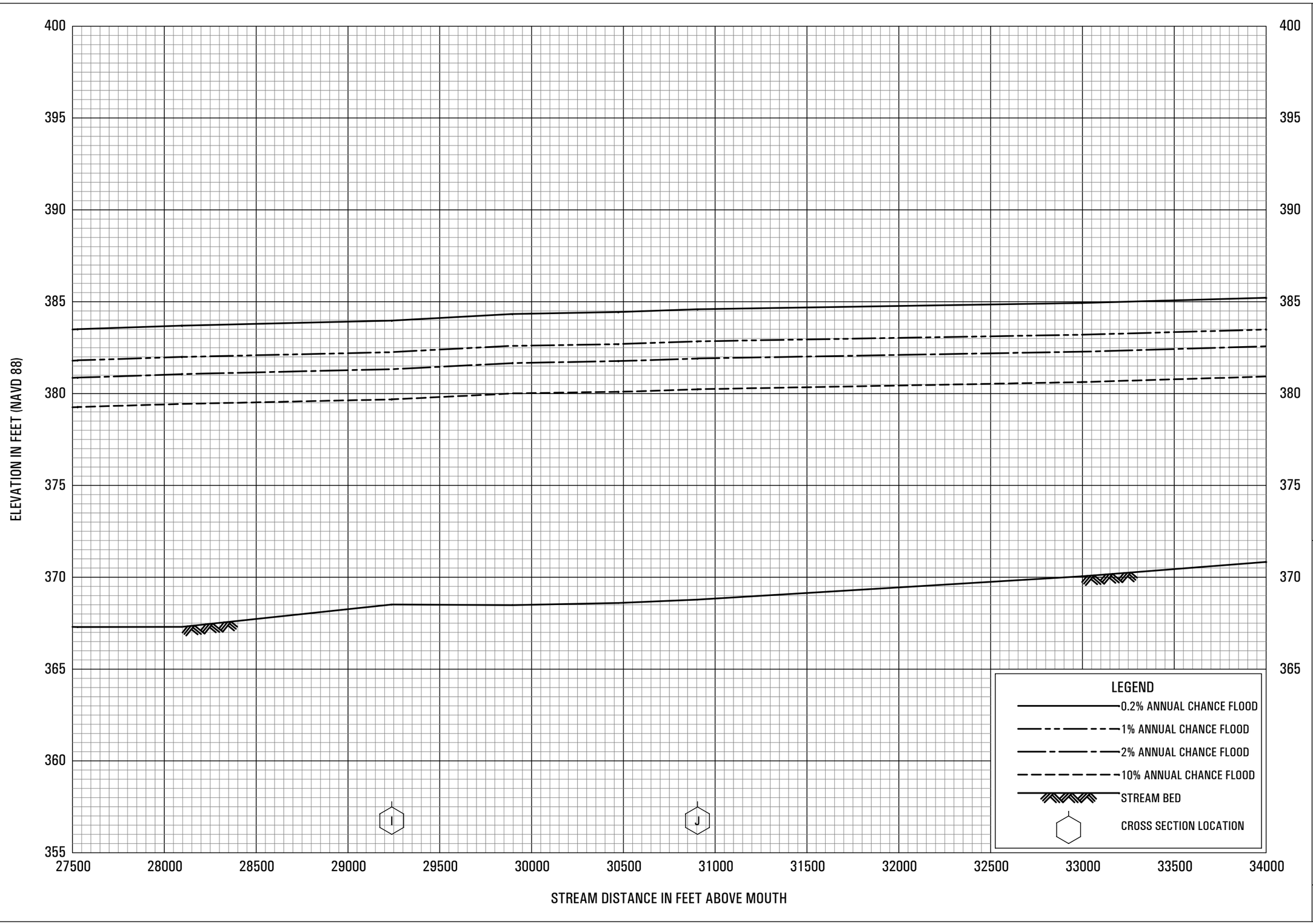
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

92P



FLOOD PROFILES

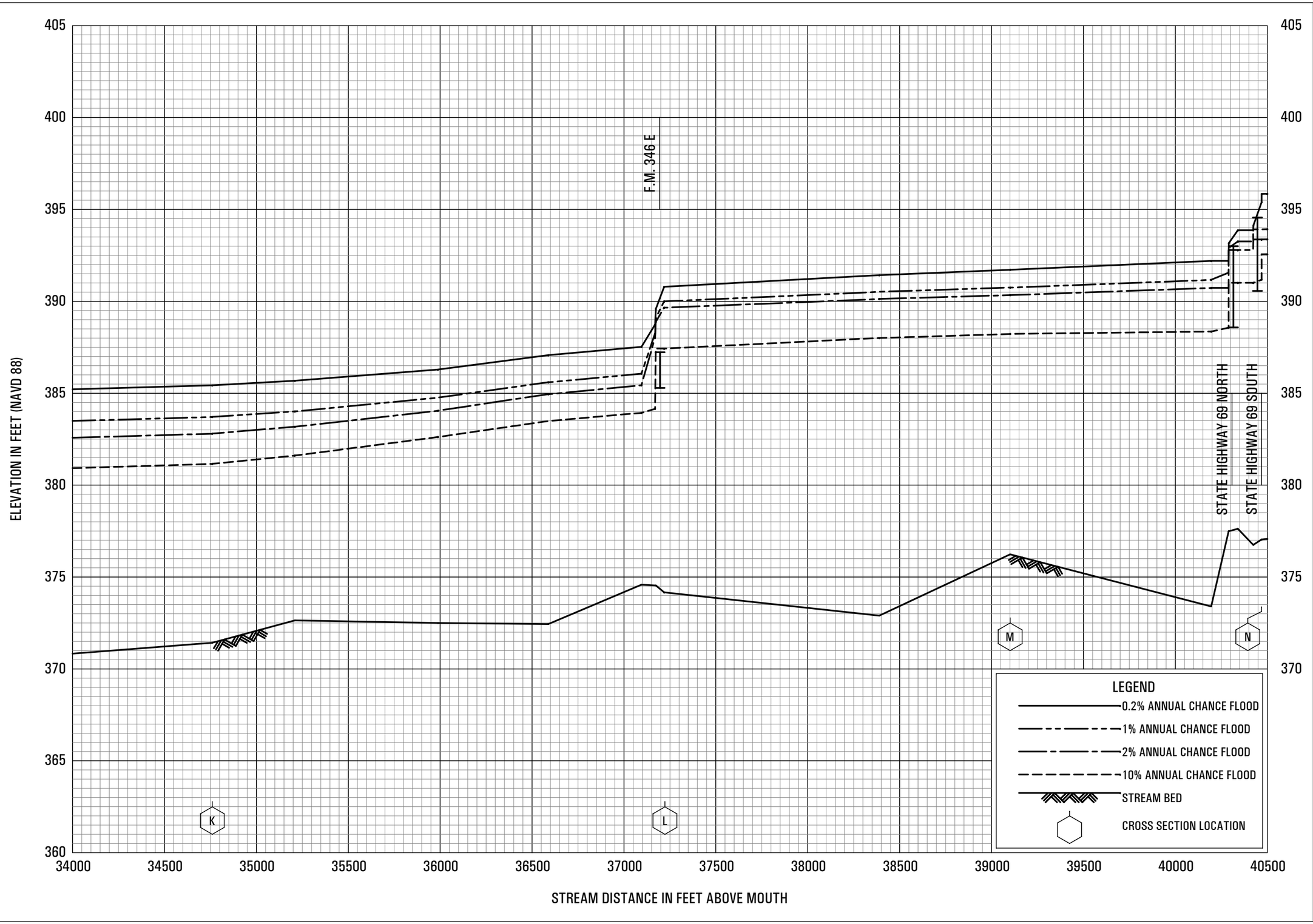
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

93P



FLOOD PROFILES

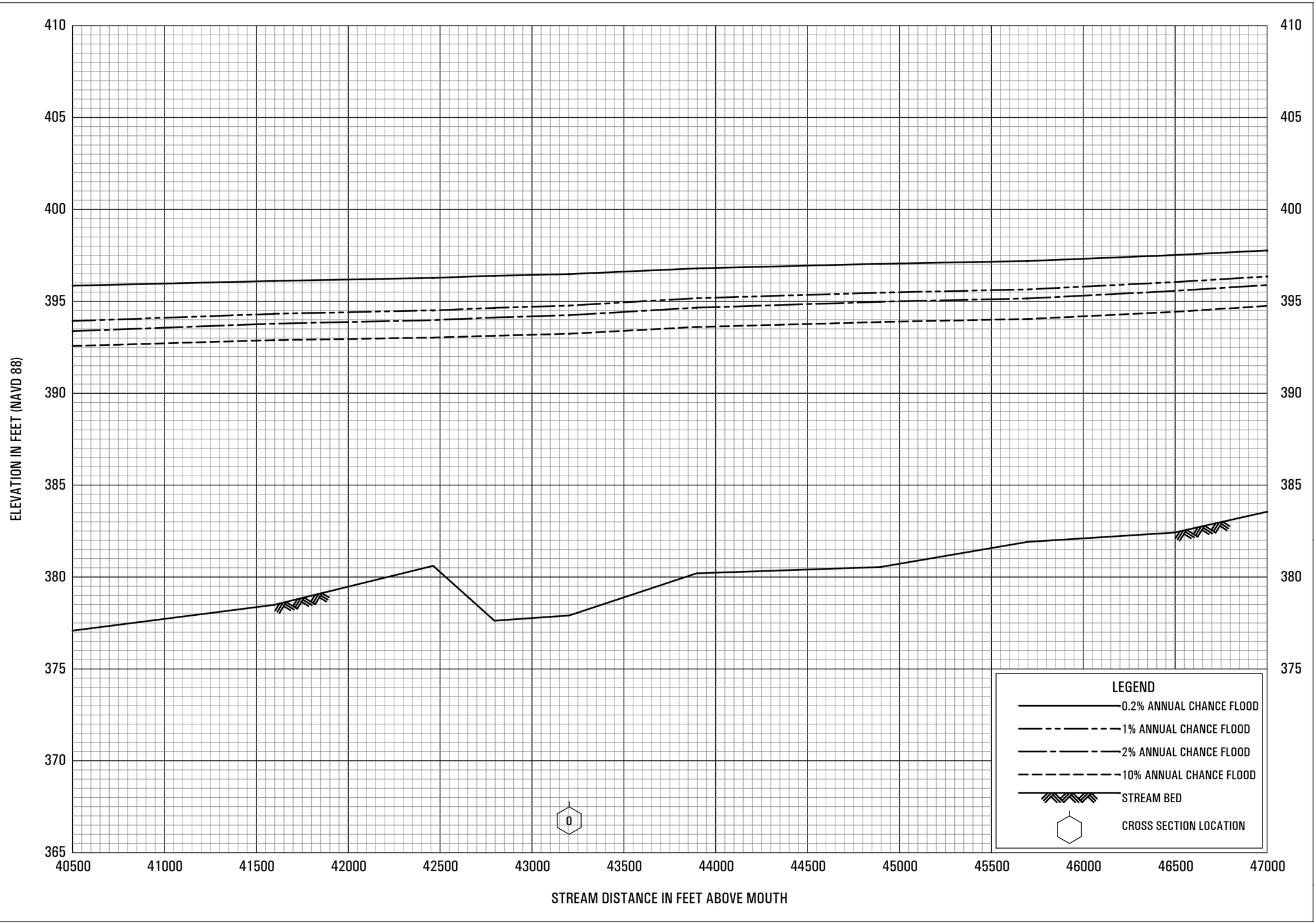
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

94P



FLOOD PROFILES

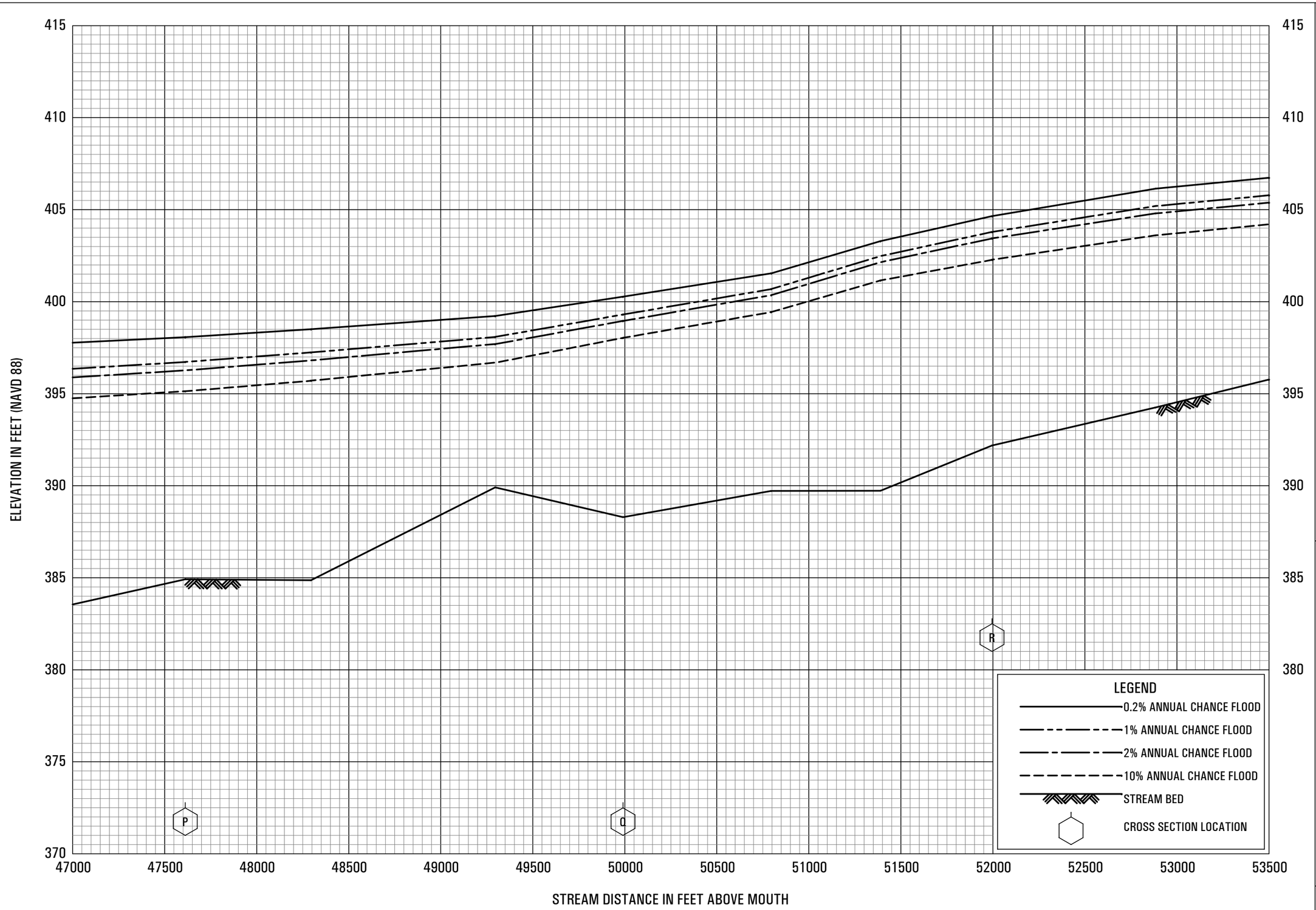
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

95P



FLOOD PROFILES

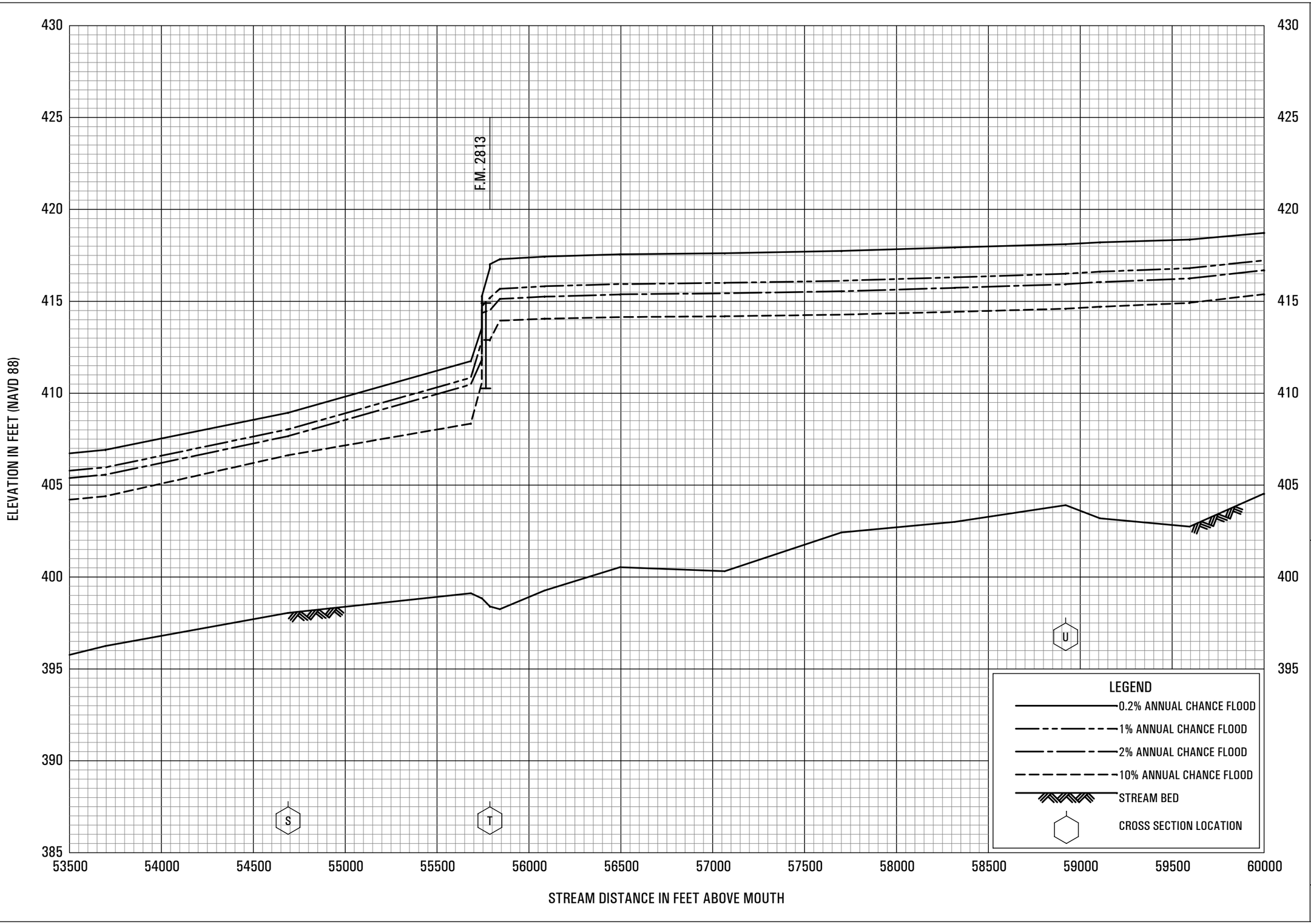
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

96P



FLOOD PROFILES

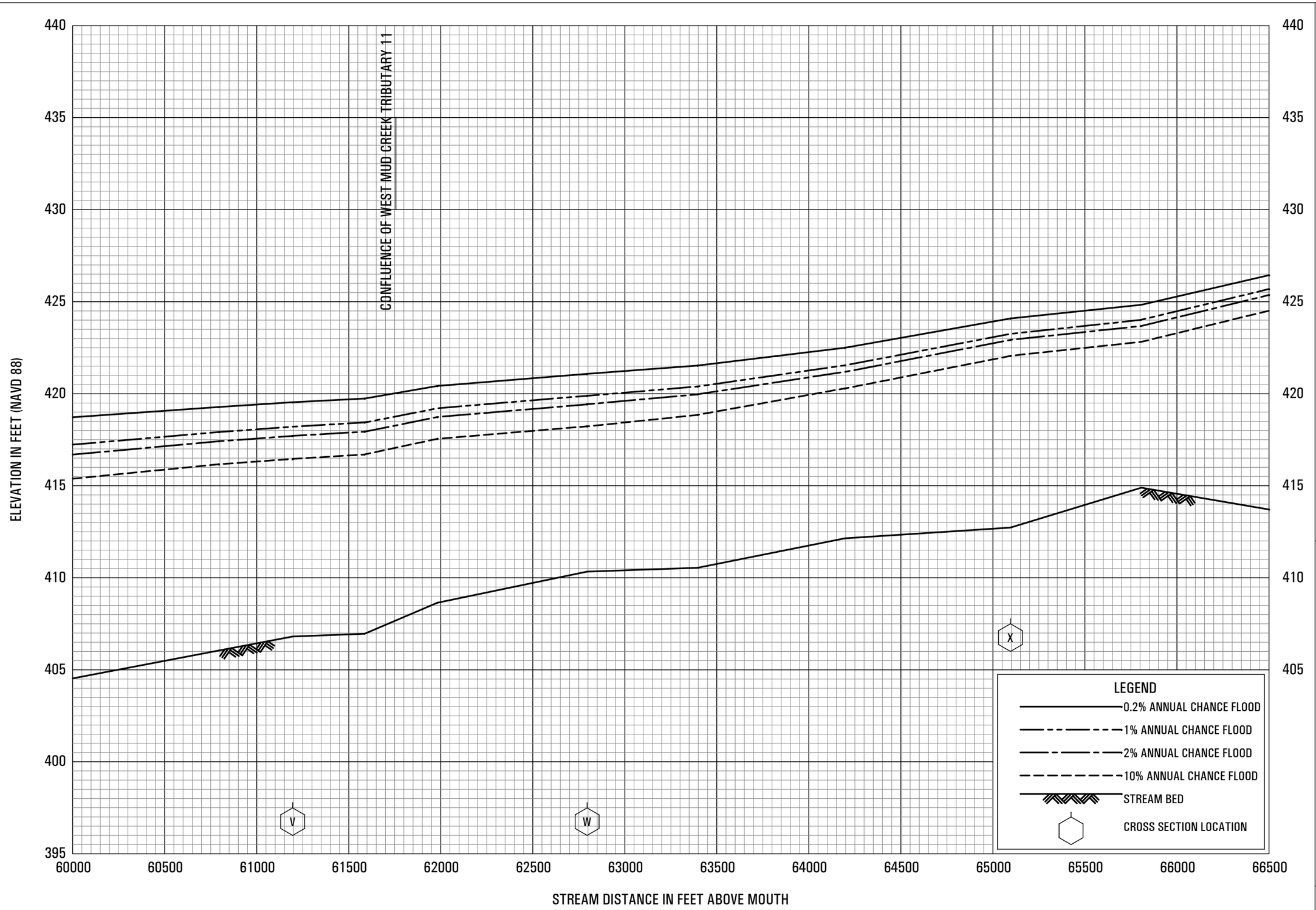
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

97P



FLOOD PROFILES

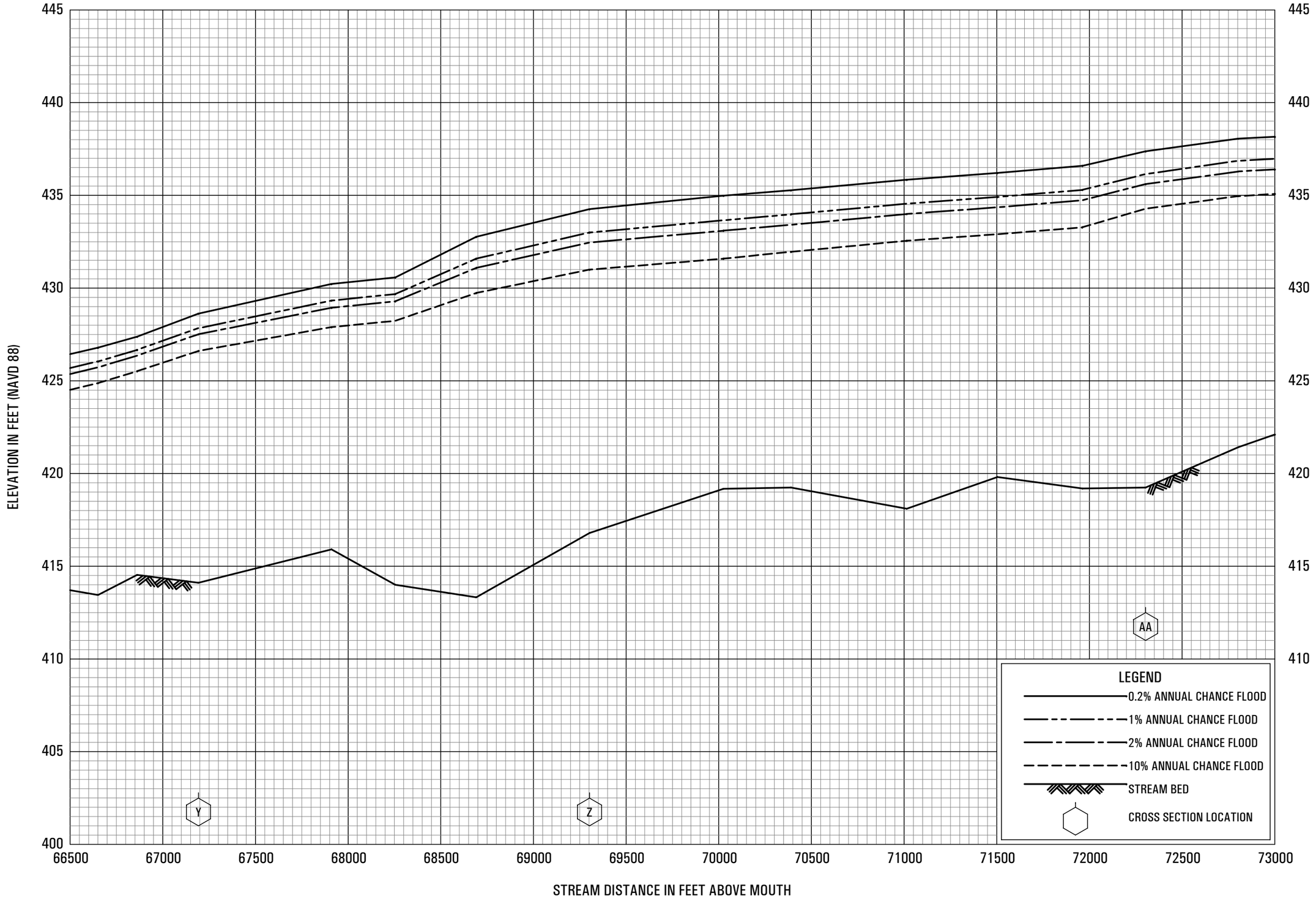
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

98P



FLOOD PROFILES

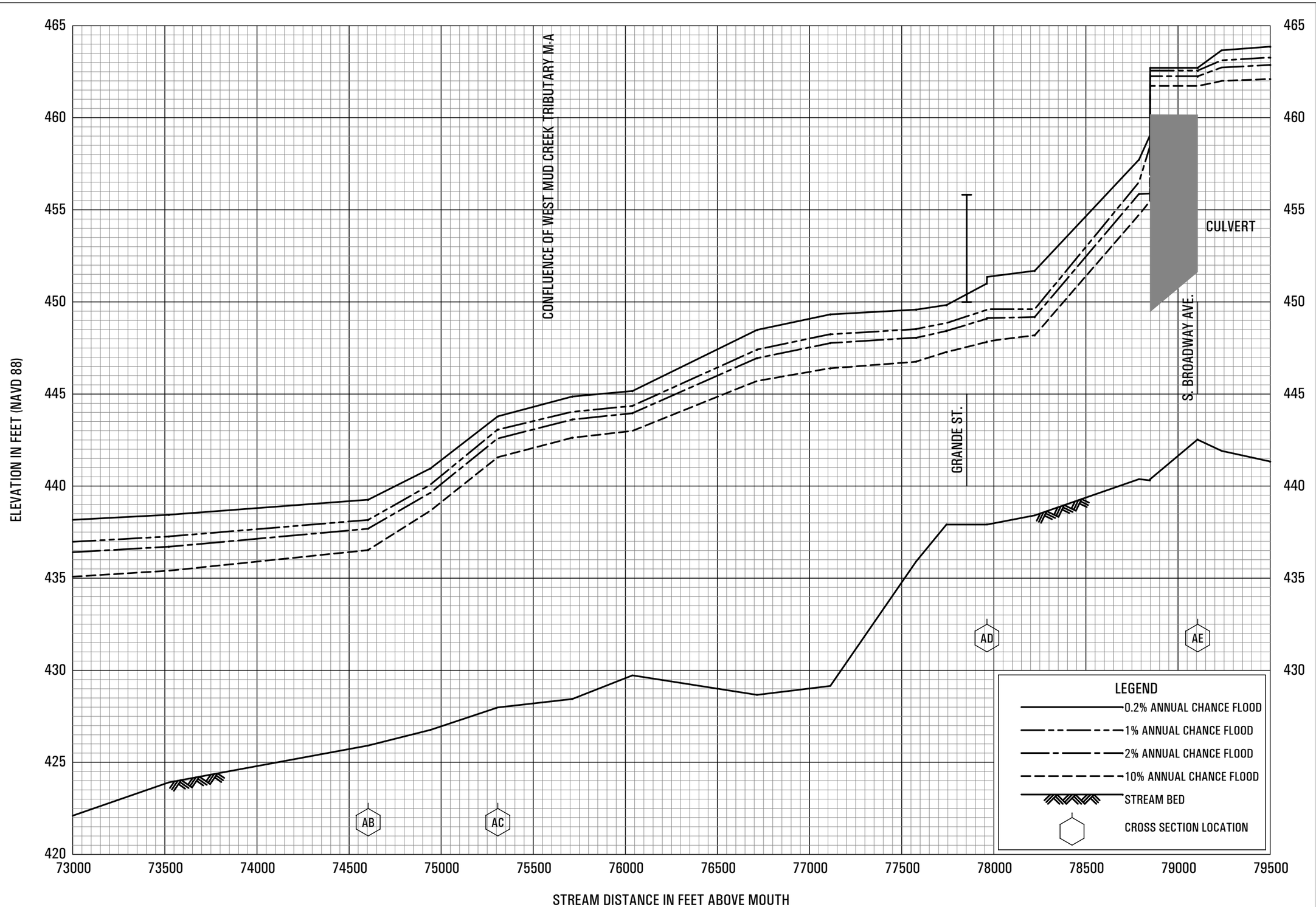
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

99P



FLOOD PROFILES

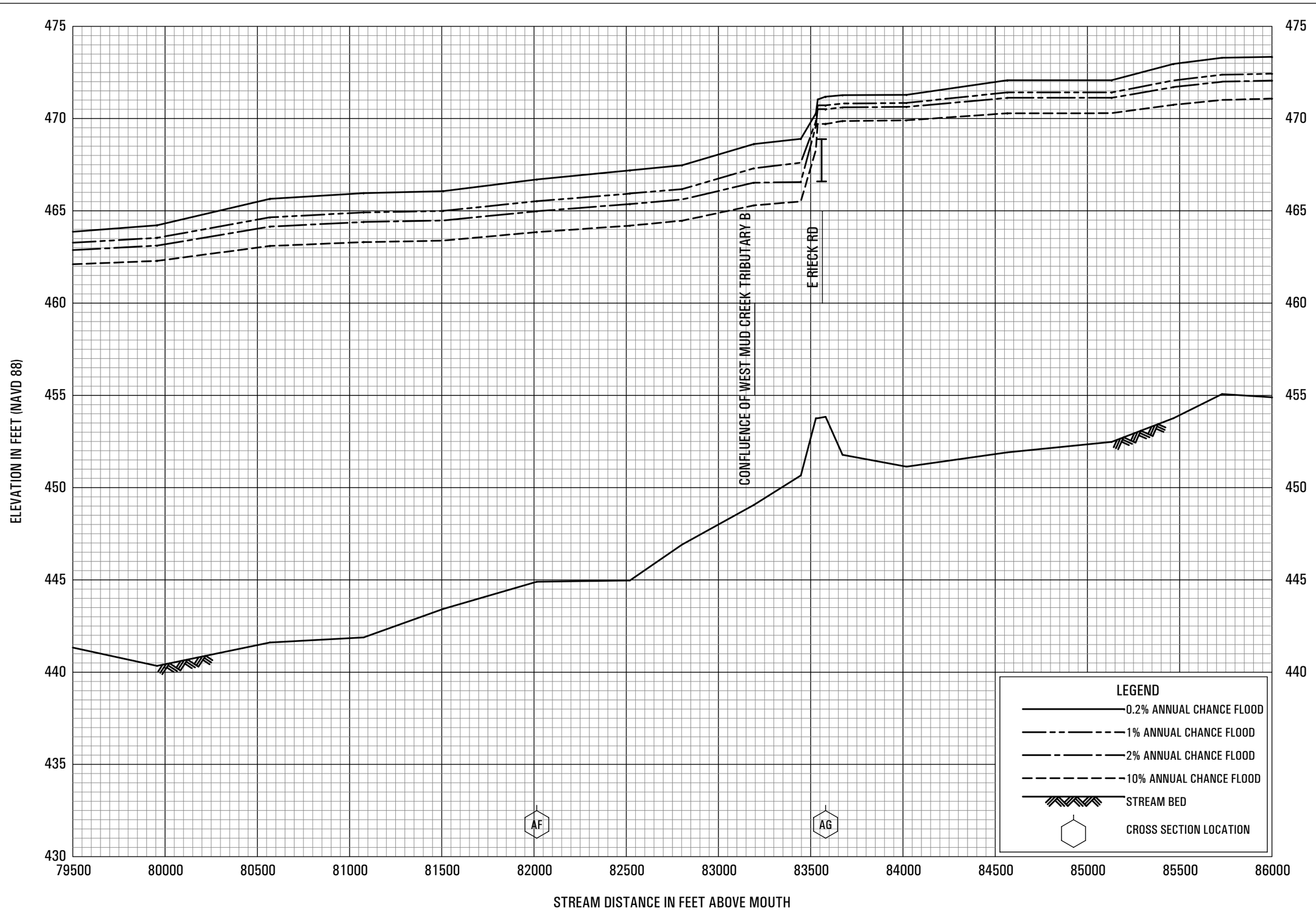
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

100P



FLOOD PROFILES

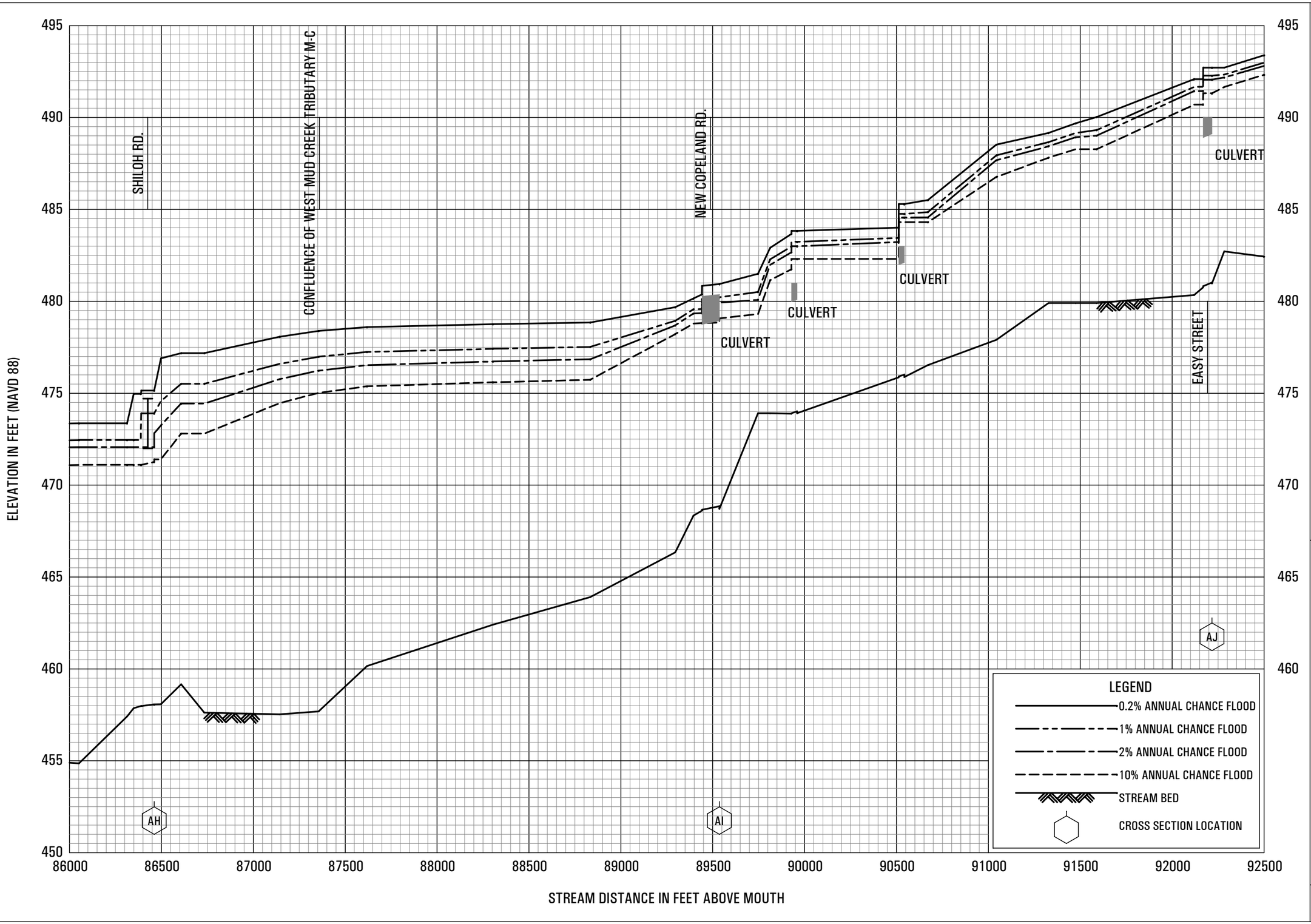
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

101P



FLOOD PROFILES

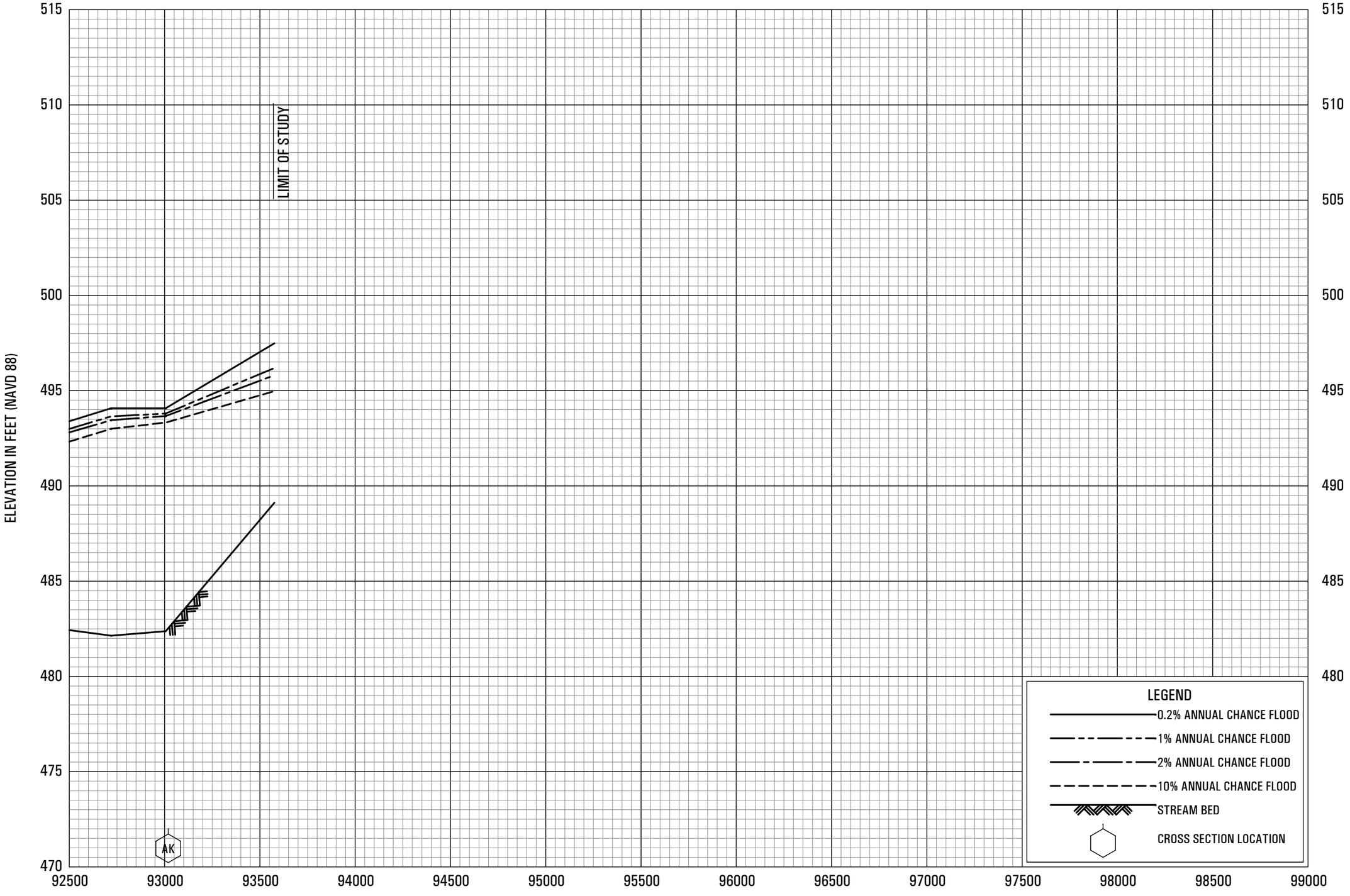
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

102P



FLOOD PROFILES

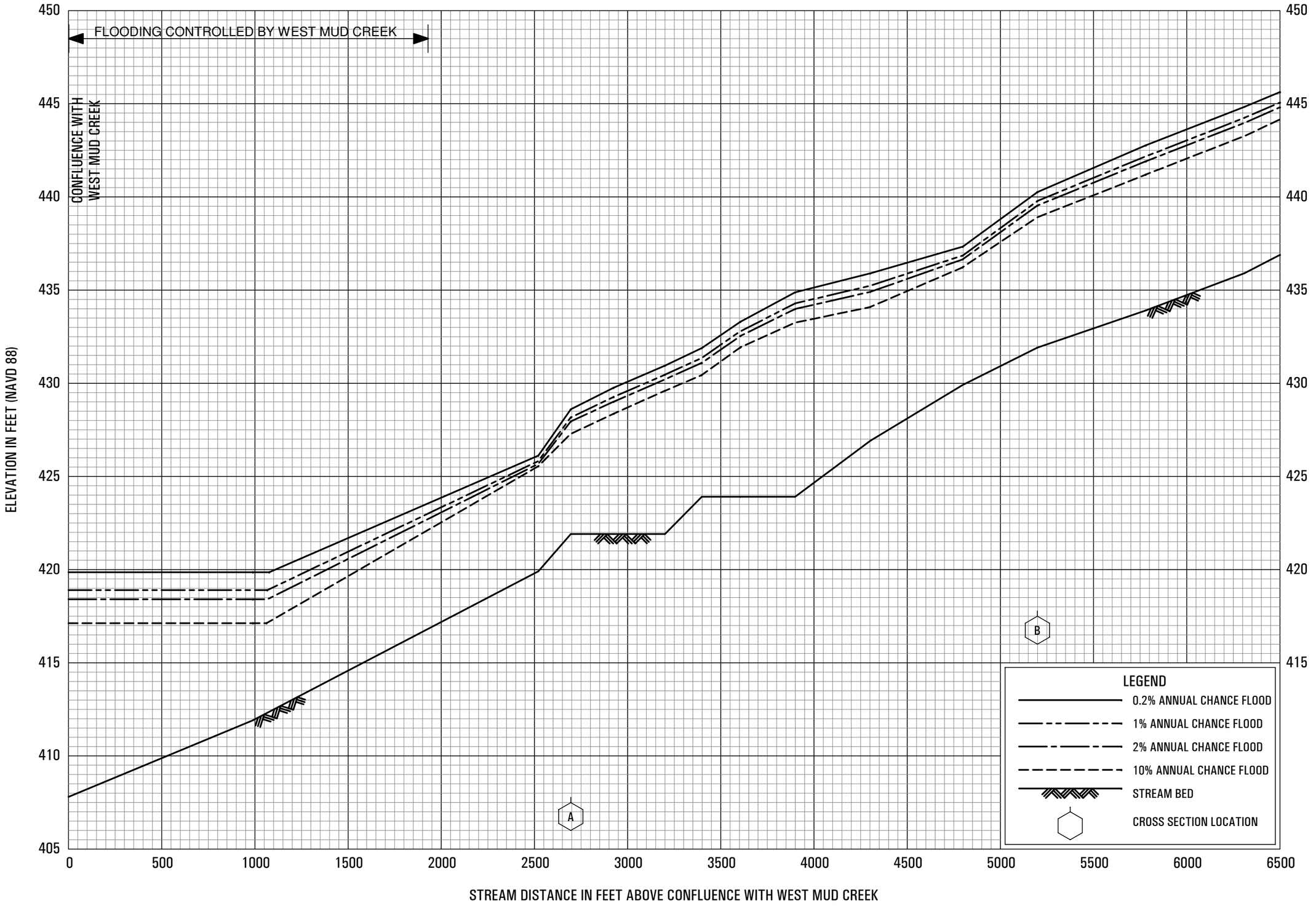
WEST MUD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

103P



FLOOD PROFILES

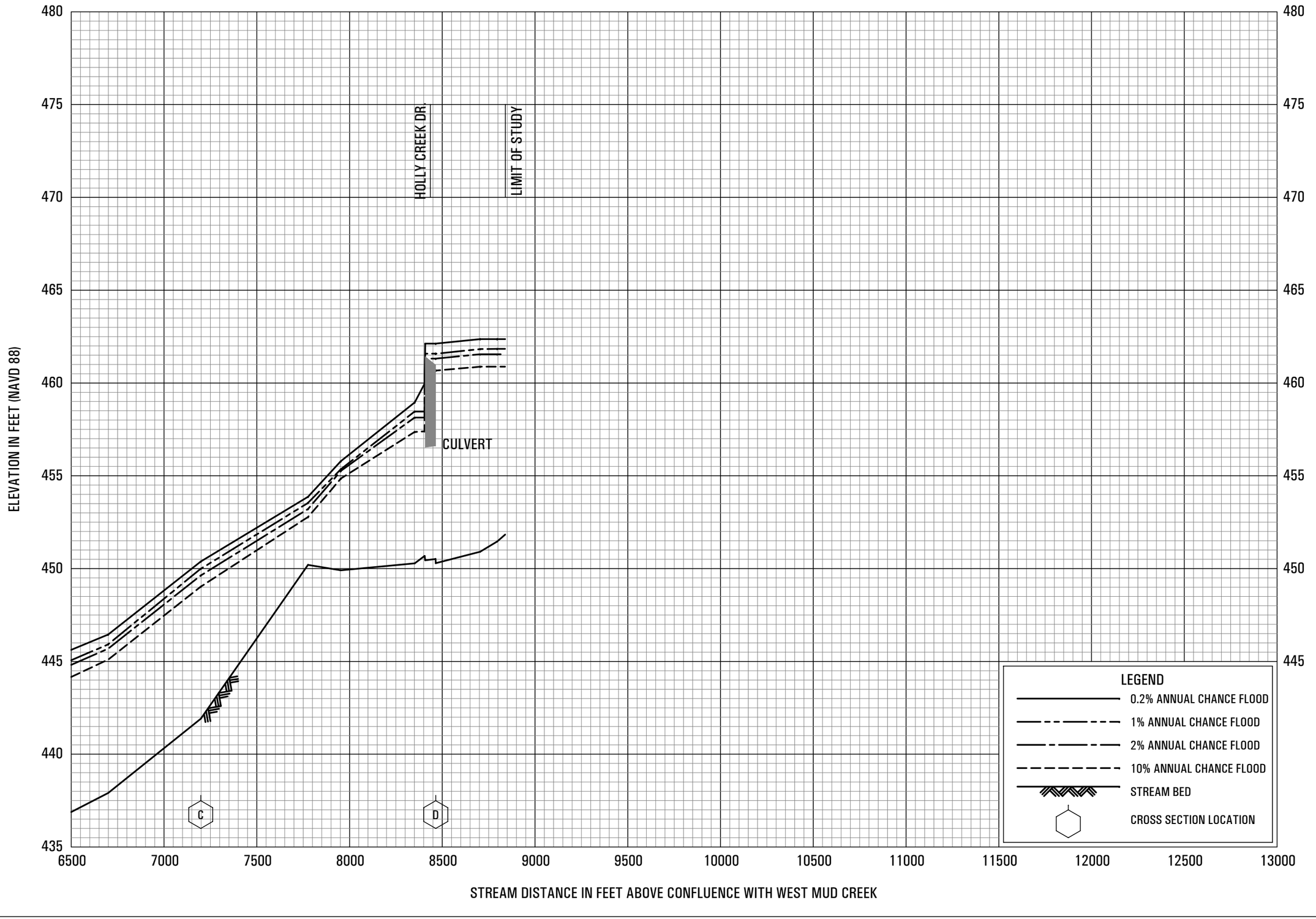
WEST MUD CREEK TRIBUTARY 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

104P



FLOOD PROFILES

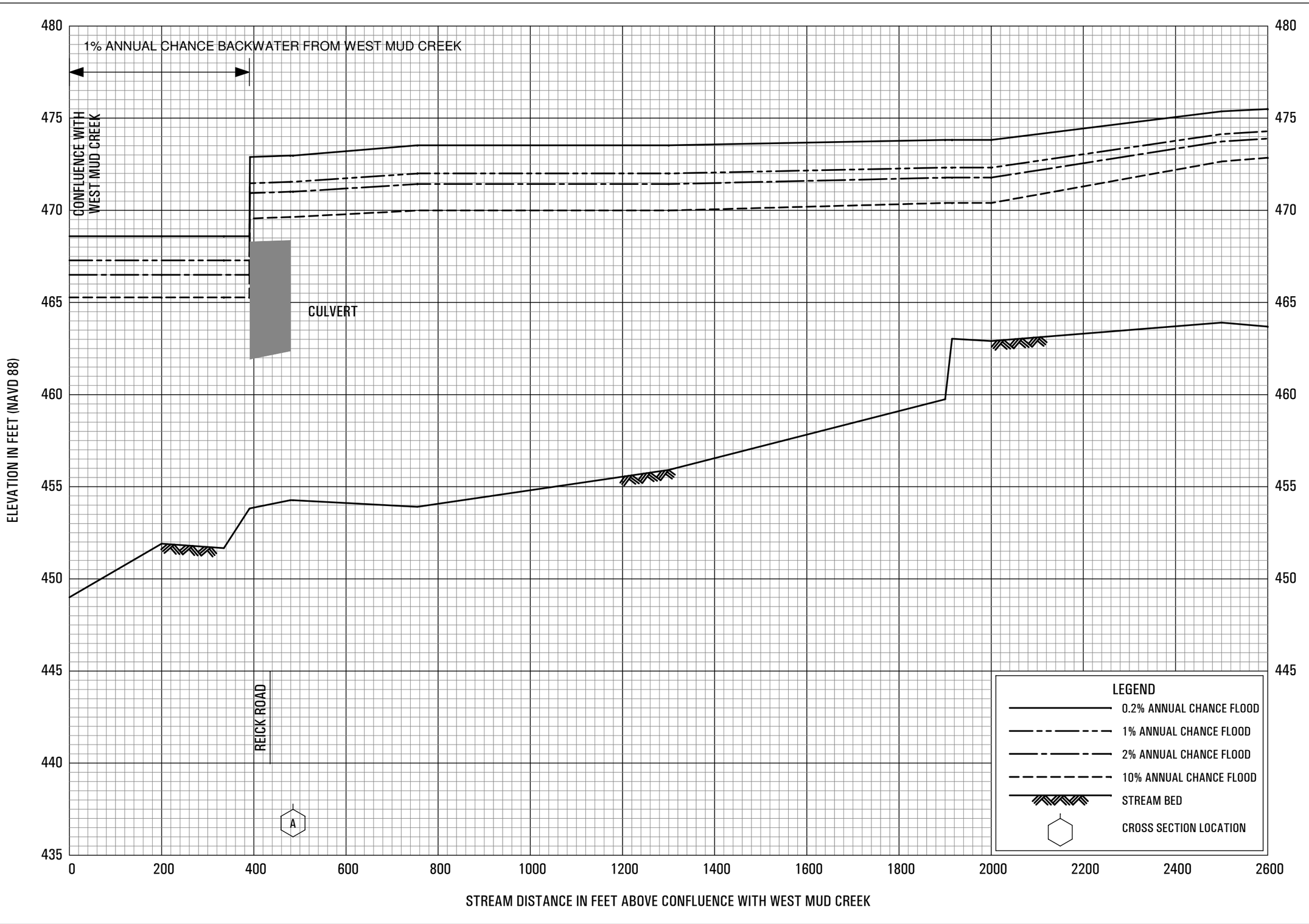
WEST MUD CREEK TRIBUTARY 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

105P



FLOOD PROFILES

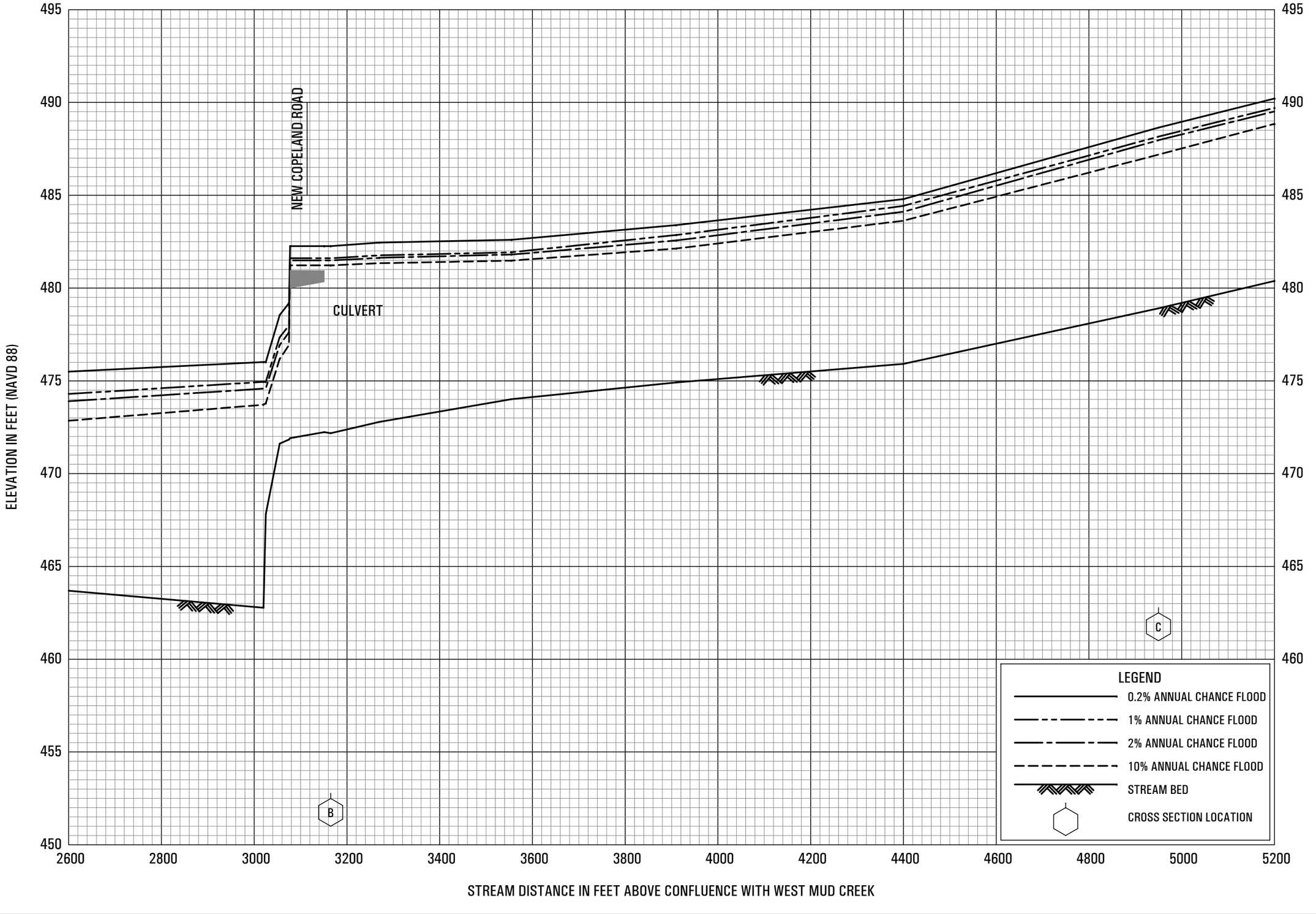
WEST MUD CREEK TRIBUTARY B

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

106P



FLOOD PROFILES

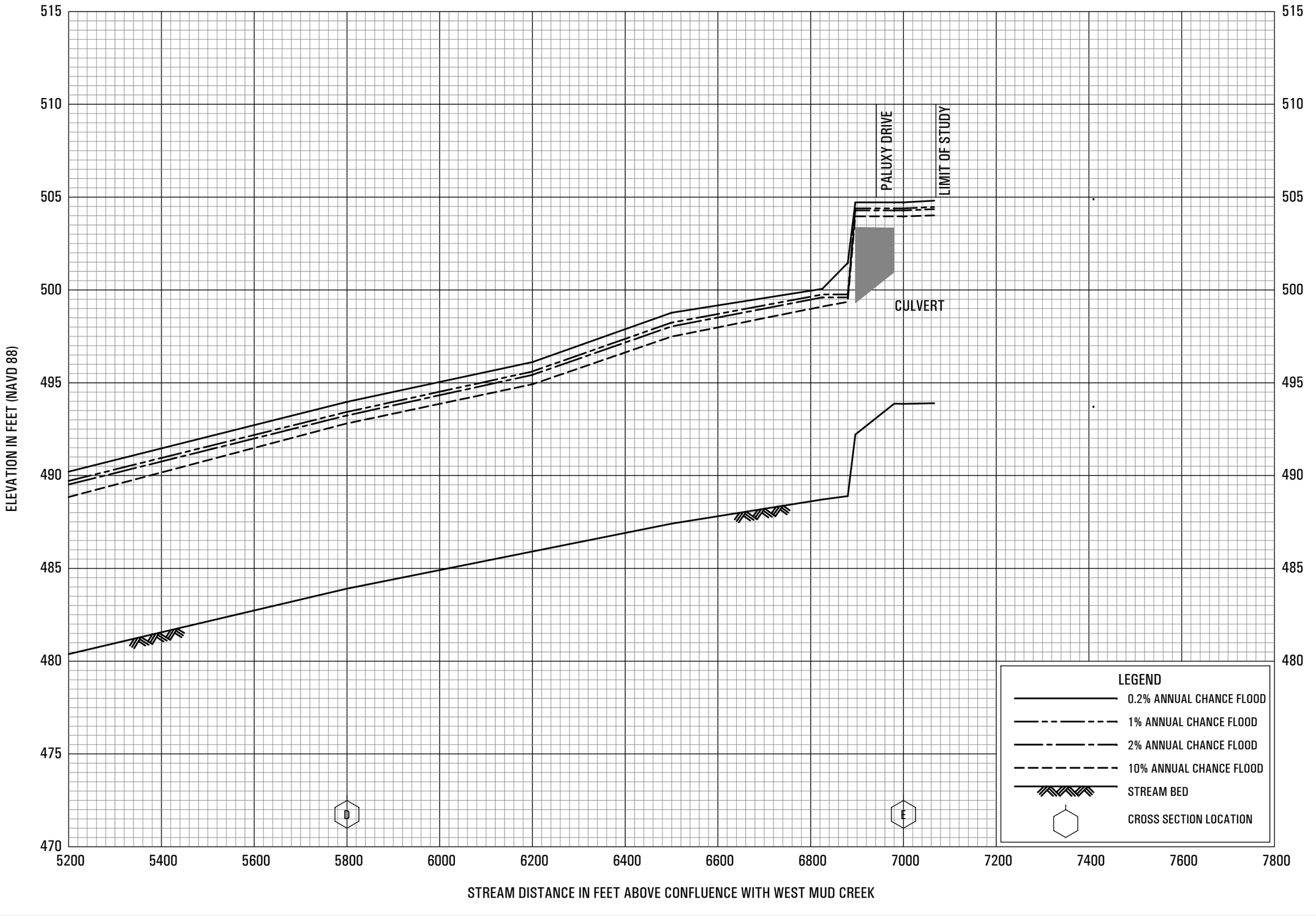
WEST MUD CREEK TRIBUTARY B

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

107P



FLOOD PROFILES

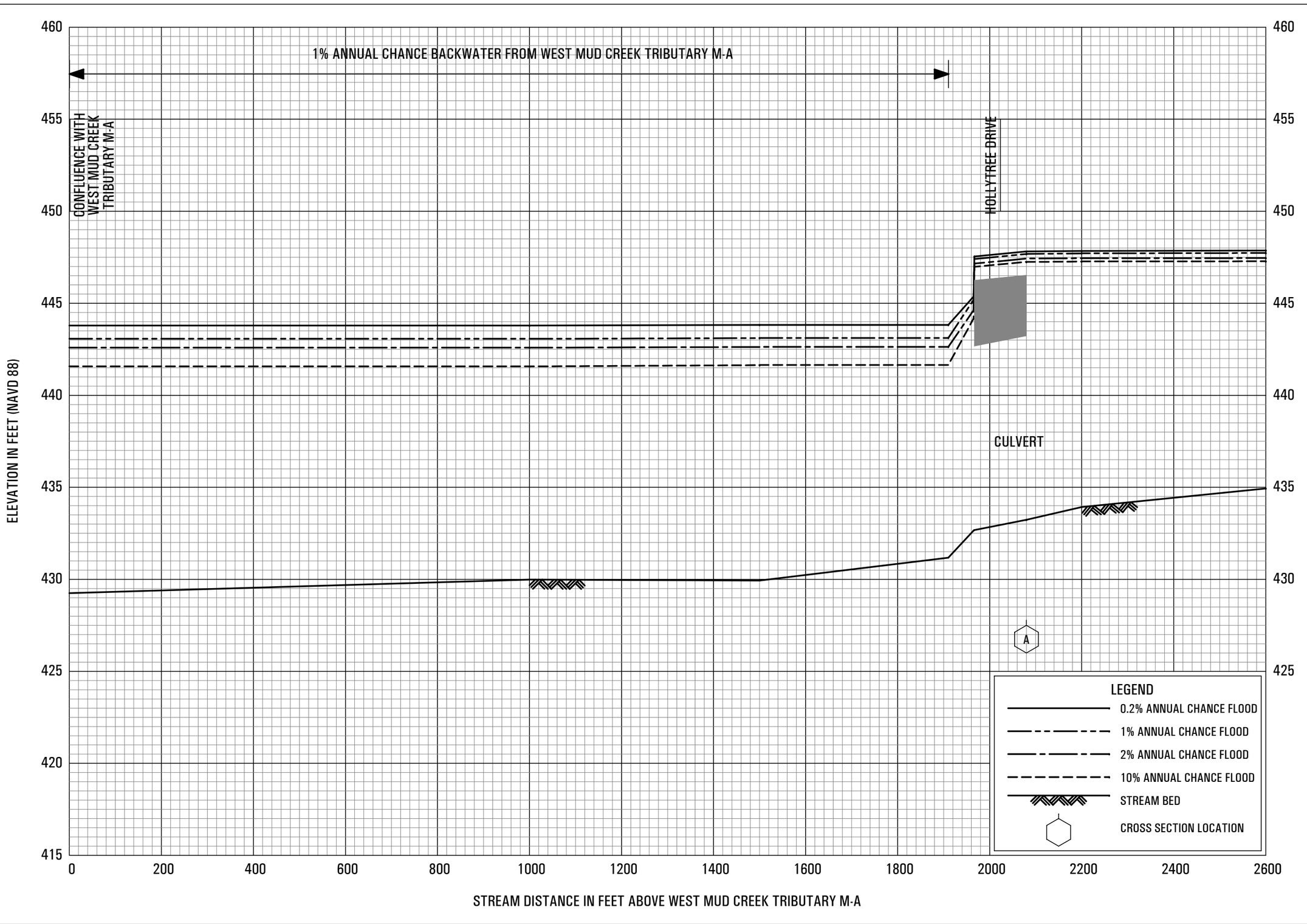
WEST MUD CREEK TRIBUTARY B

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

108P



FLOOD PROFILES

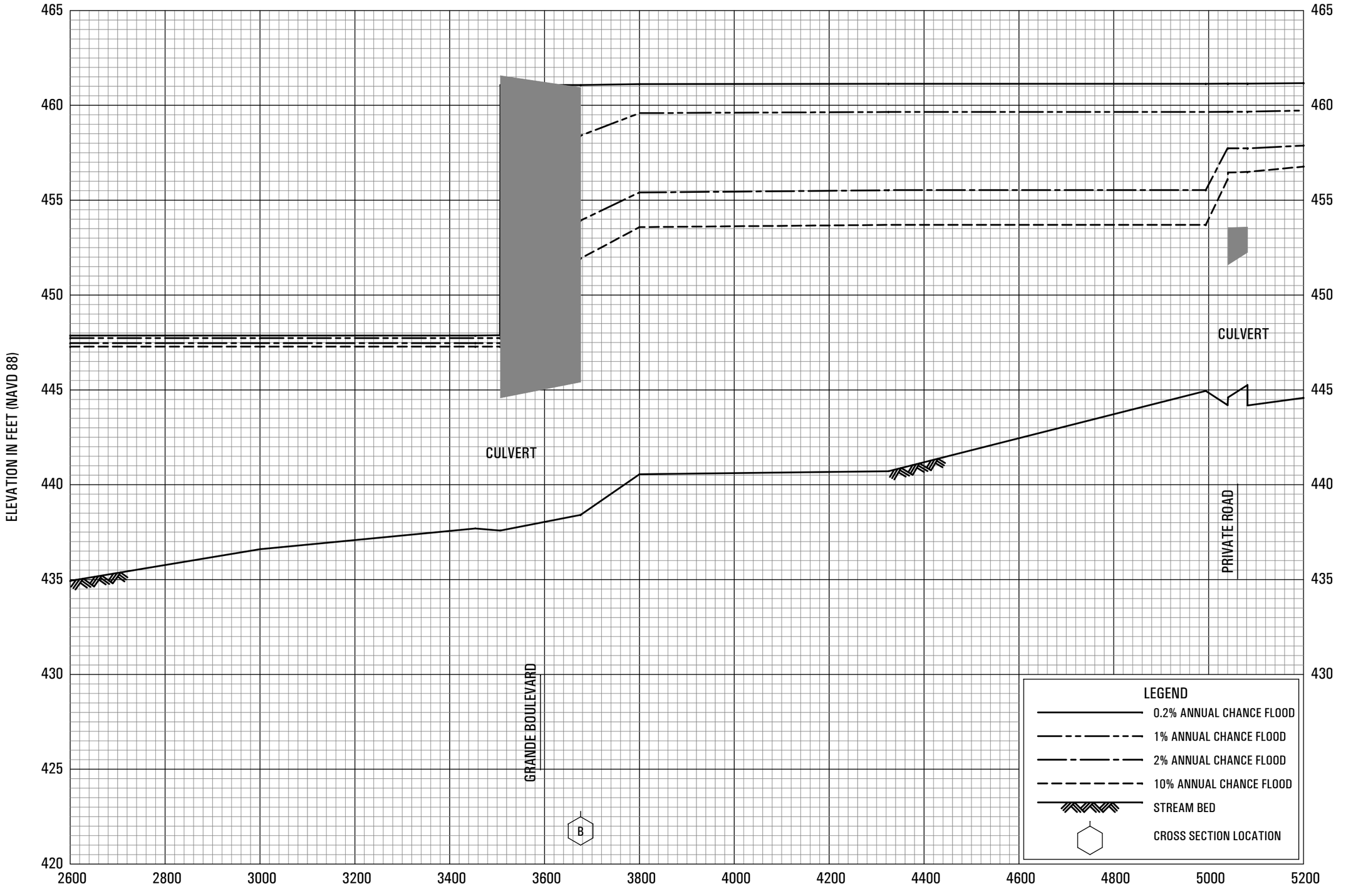
WEST MUD CREEK TRIBUTARY M-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

109P



FLOOD PROFILES

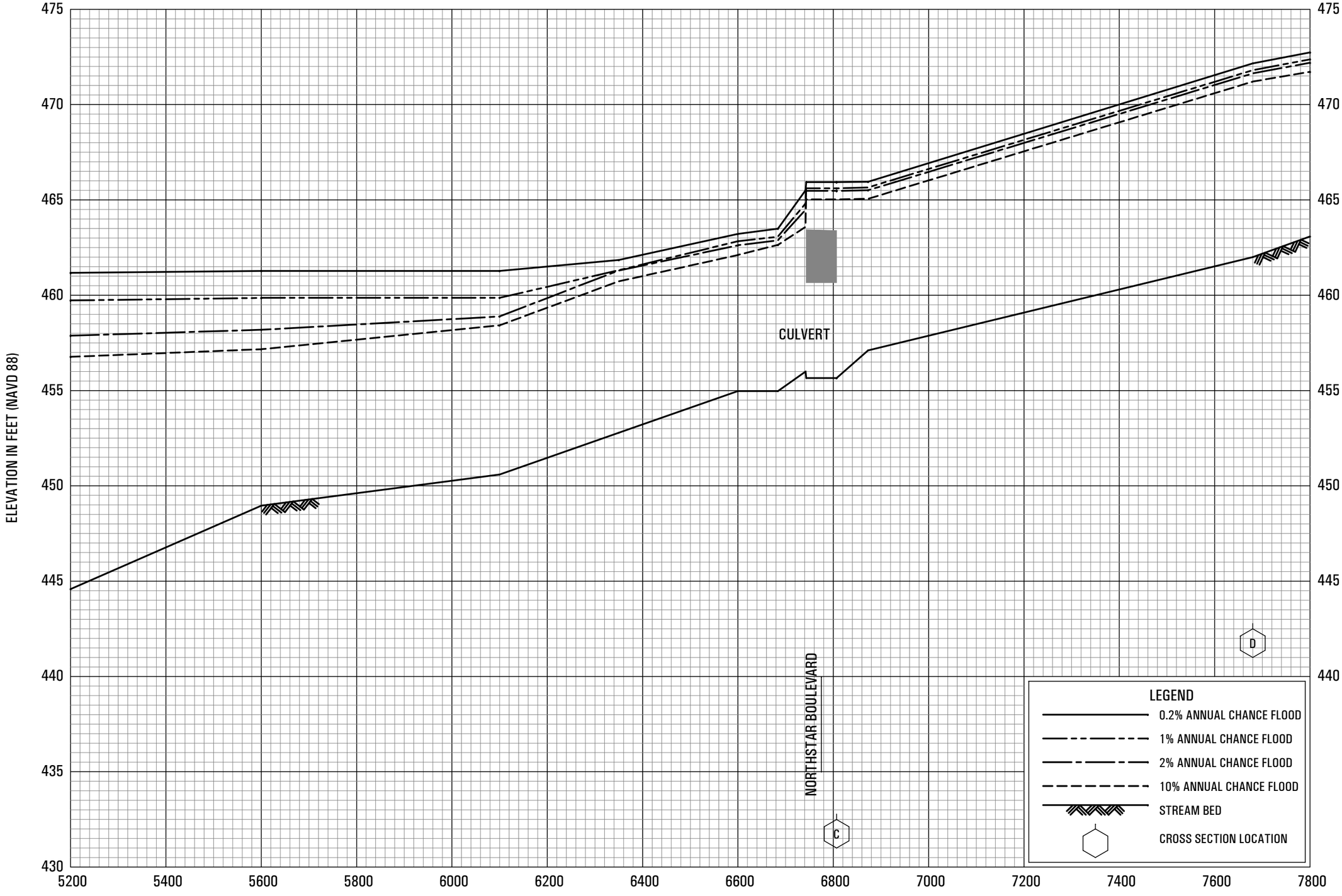
WEST MUD CREEK TRIBUTARY M-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

110P



FLOOD PROFILES

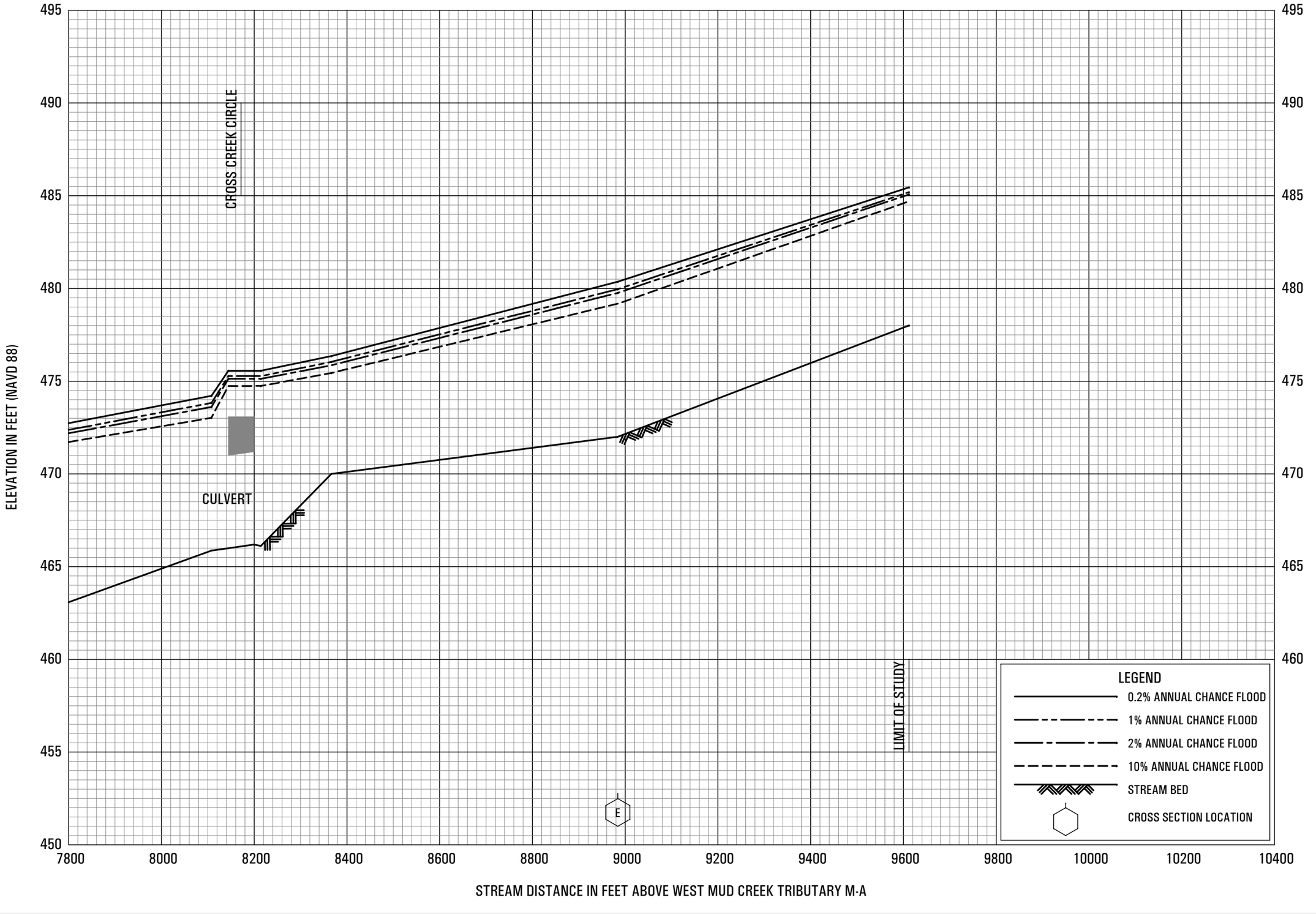
WEST MUD CREEK TRIBUTARY M-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

111P



FLOOD PROFILES

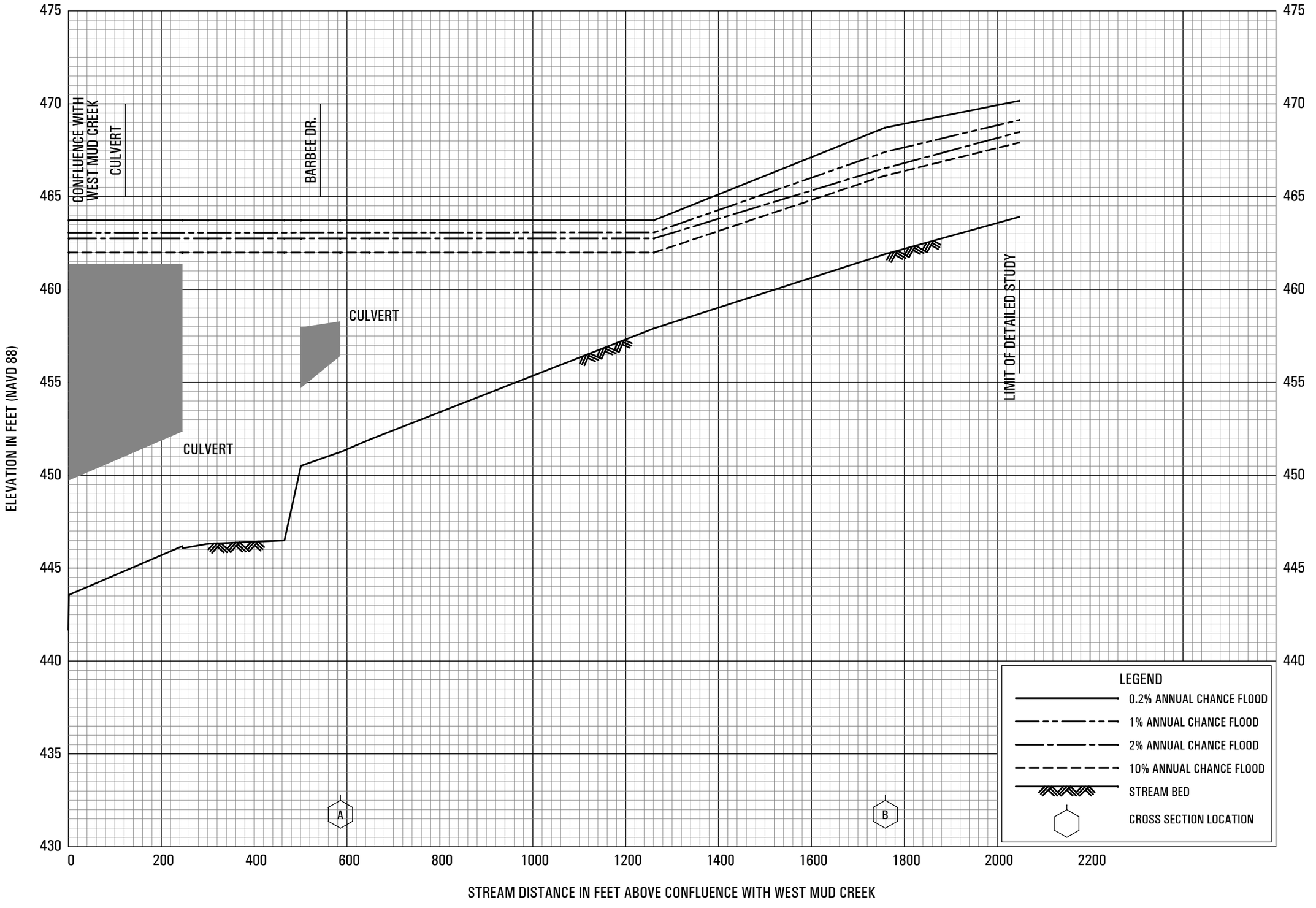
WEST MUD CREEK TRIBUTARY M-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

112P



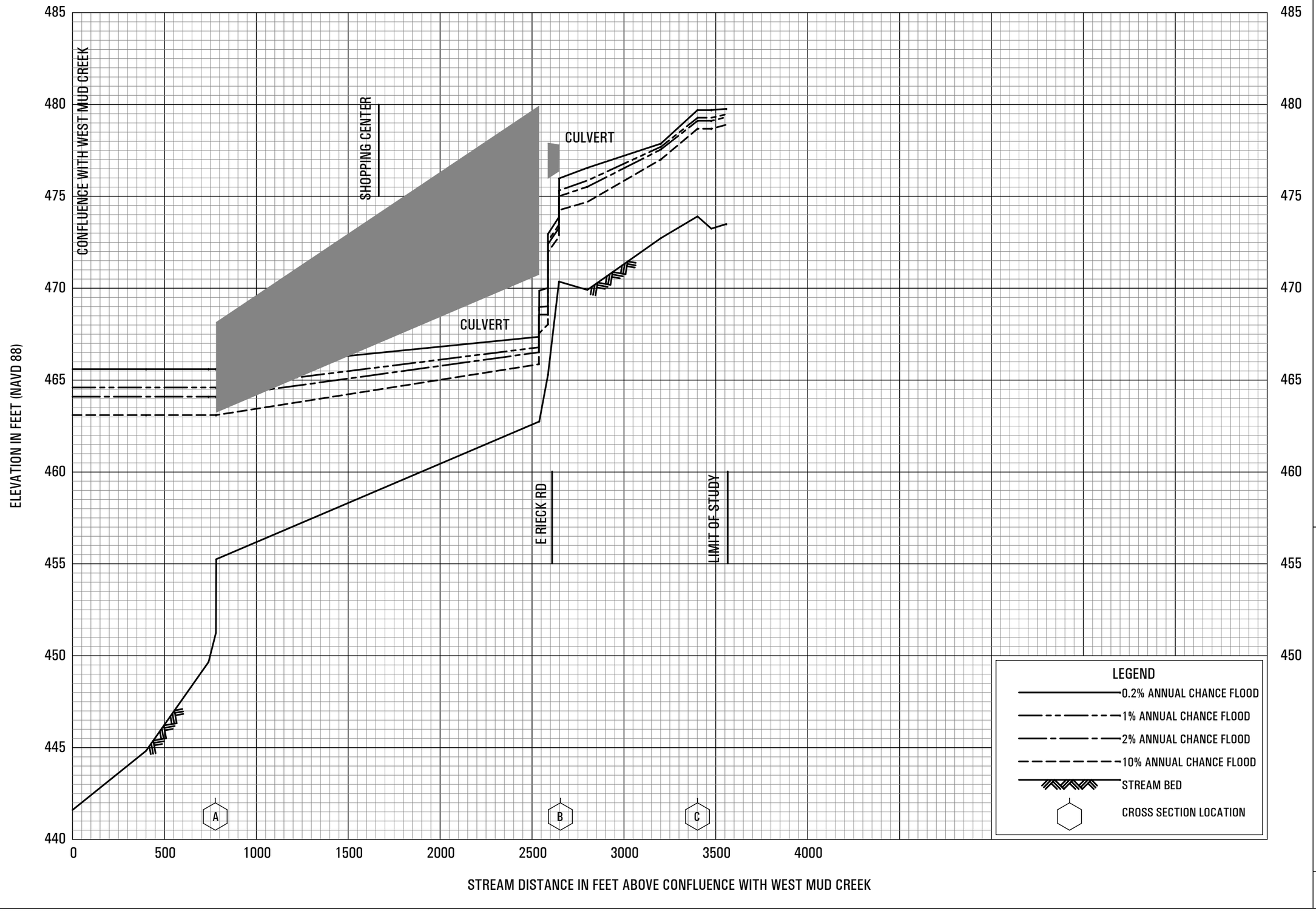
FLOOD PROFILES

WEST MUD CREEK TRIBUTARY M-2

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

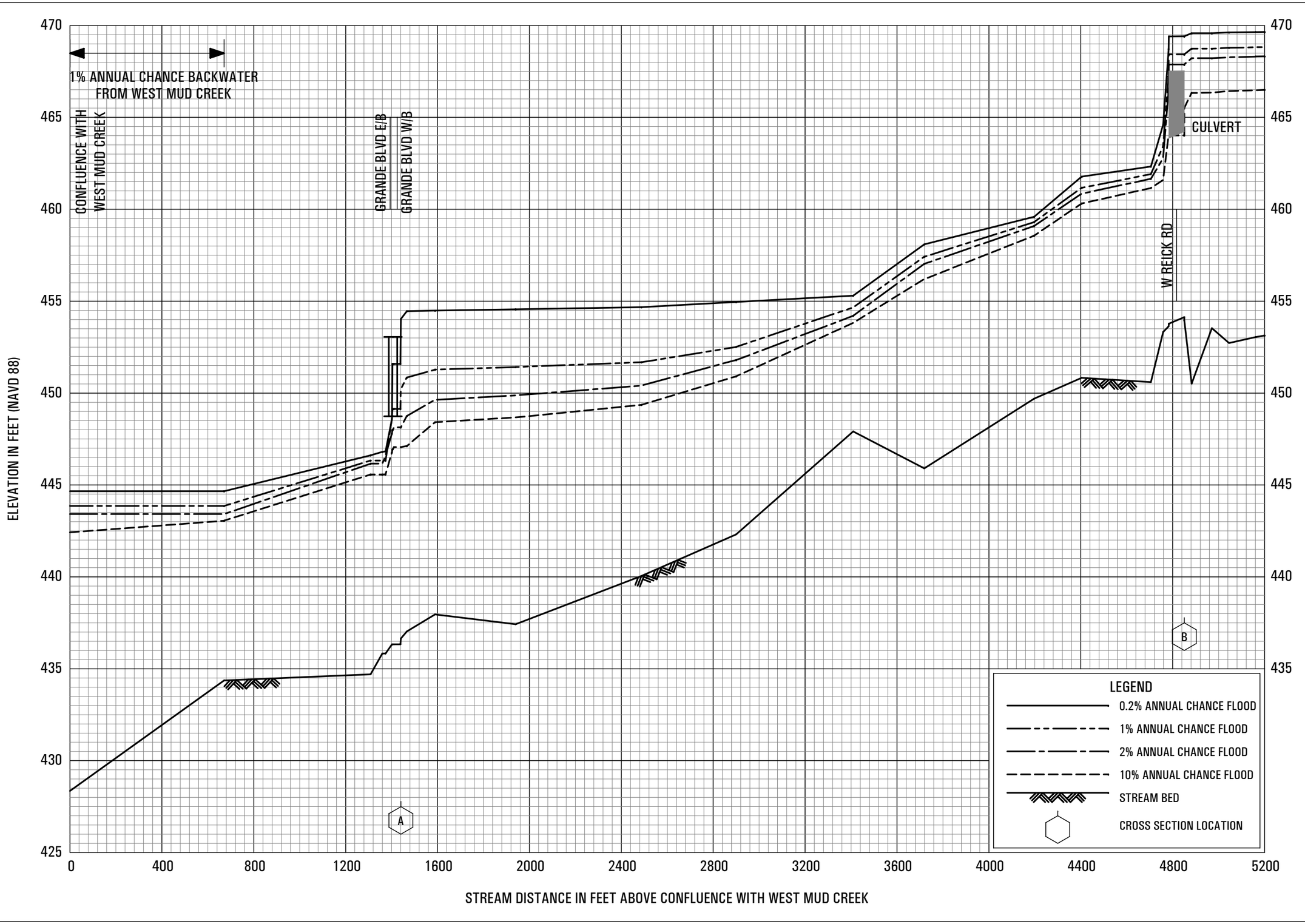
WEST MUD CREEK TRIBUTARY M-3

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

114P



FLOOD PROFILES

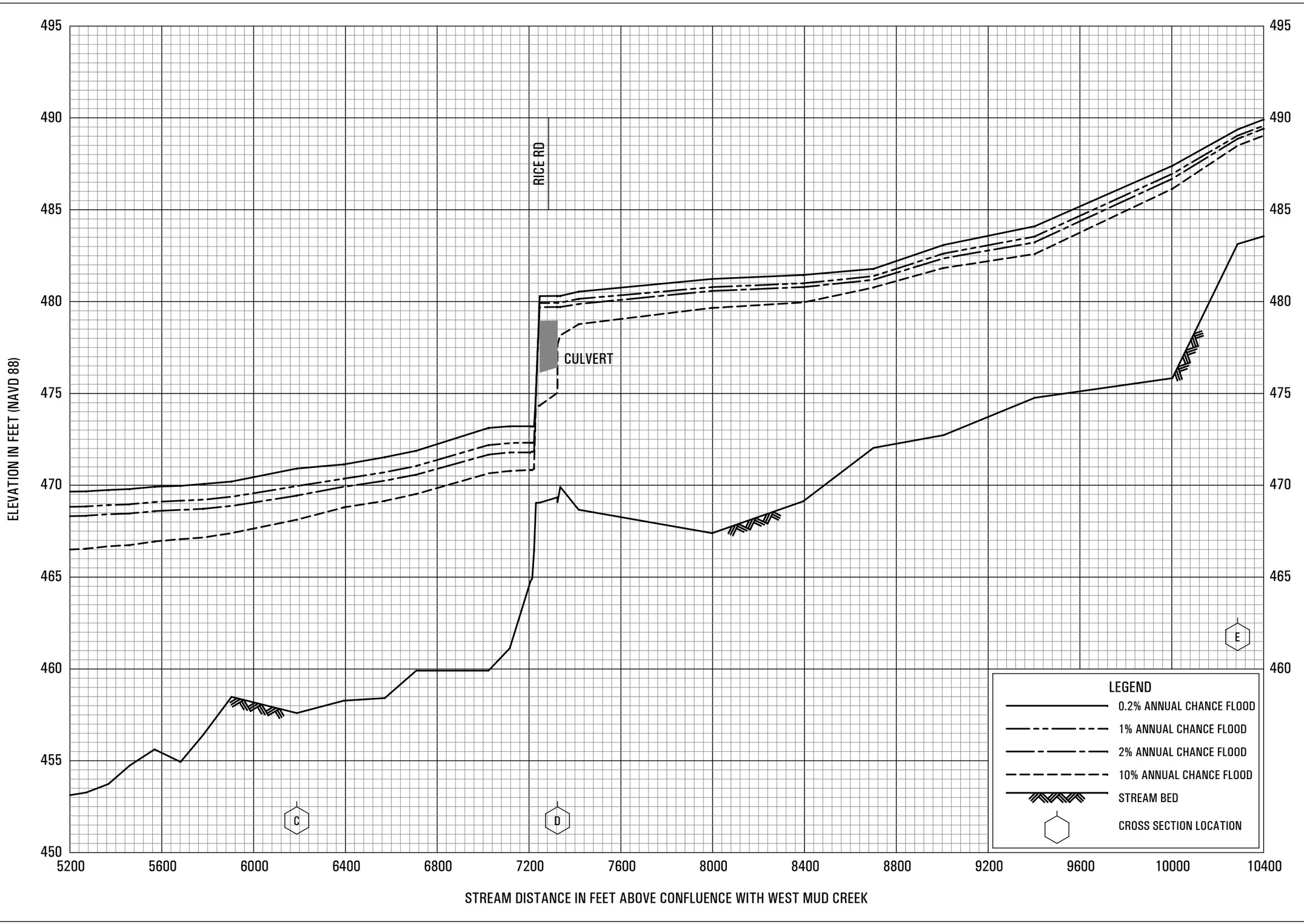
WEST MUD CREEK TRIBUTARY M-A

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

115P



FLOOD PROFILES

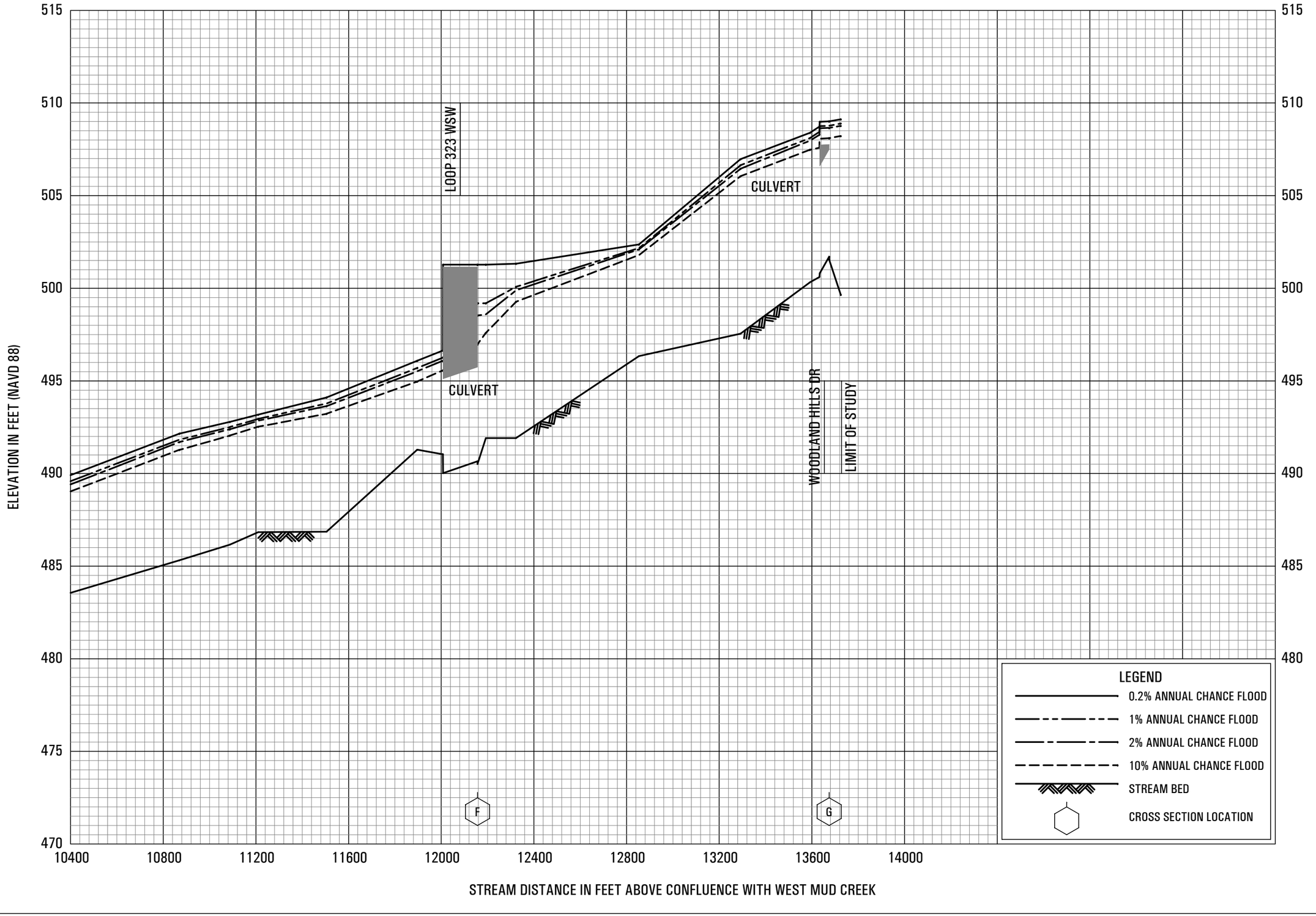
WEST MUD CREEK TRIBUTARY M-A

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

116P



FLOOD PROFILES

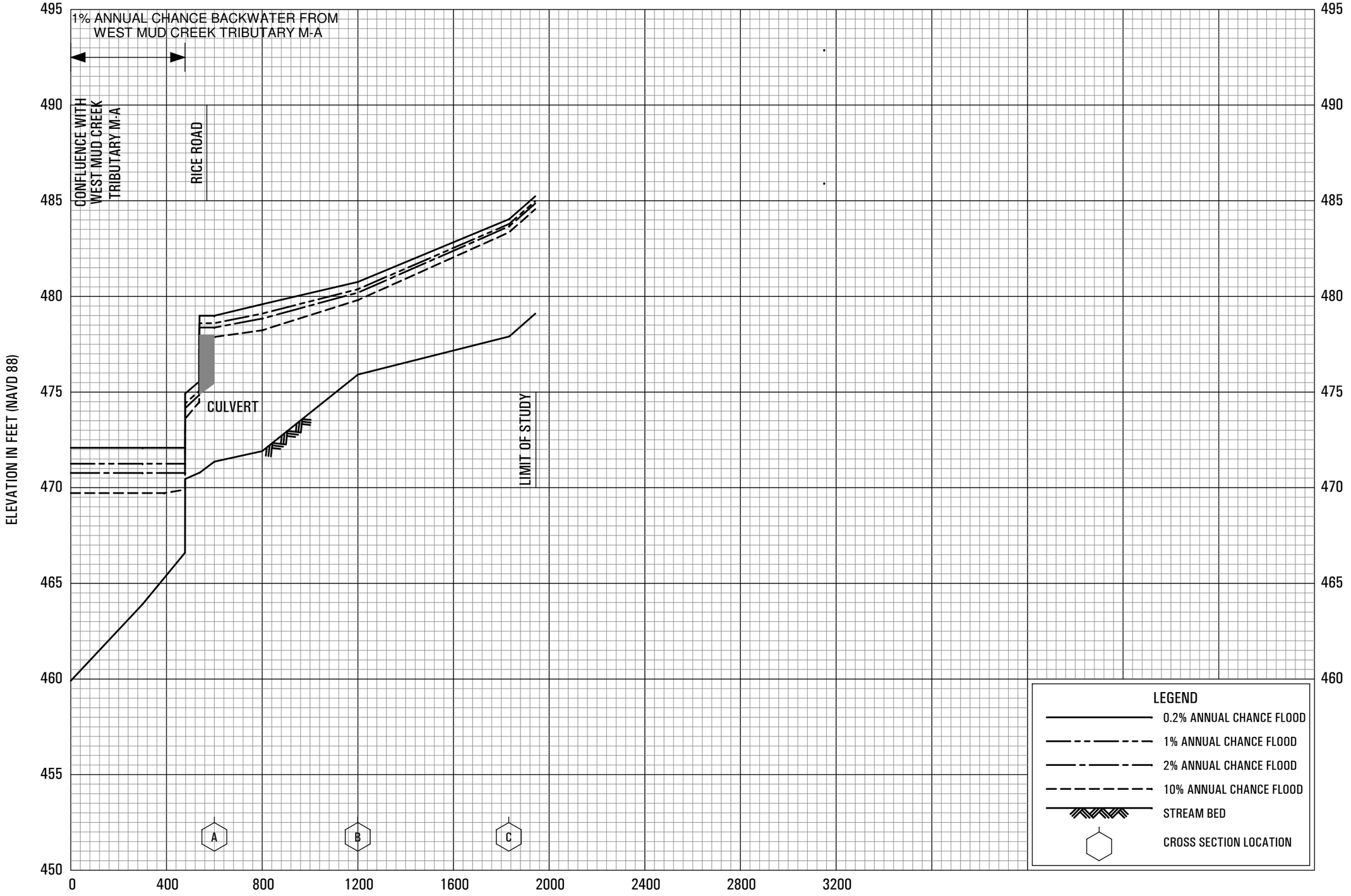
WEST MUD CREEK TRIBUTARY M-A

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

117P



FLOOD PROFILES

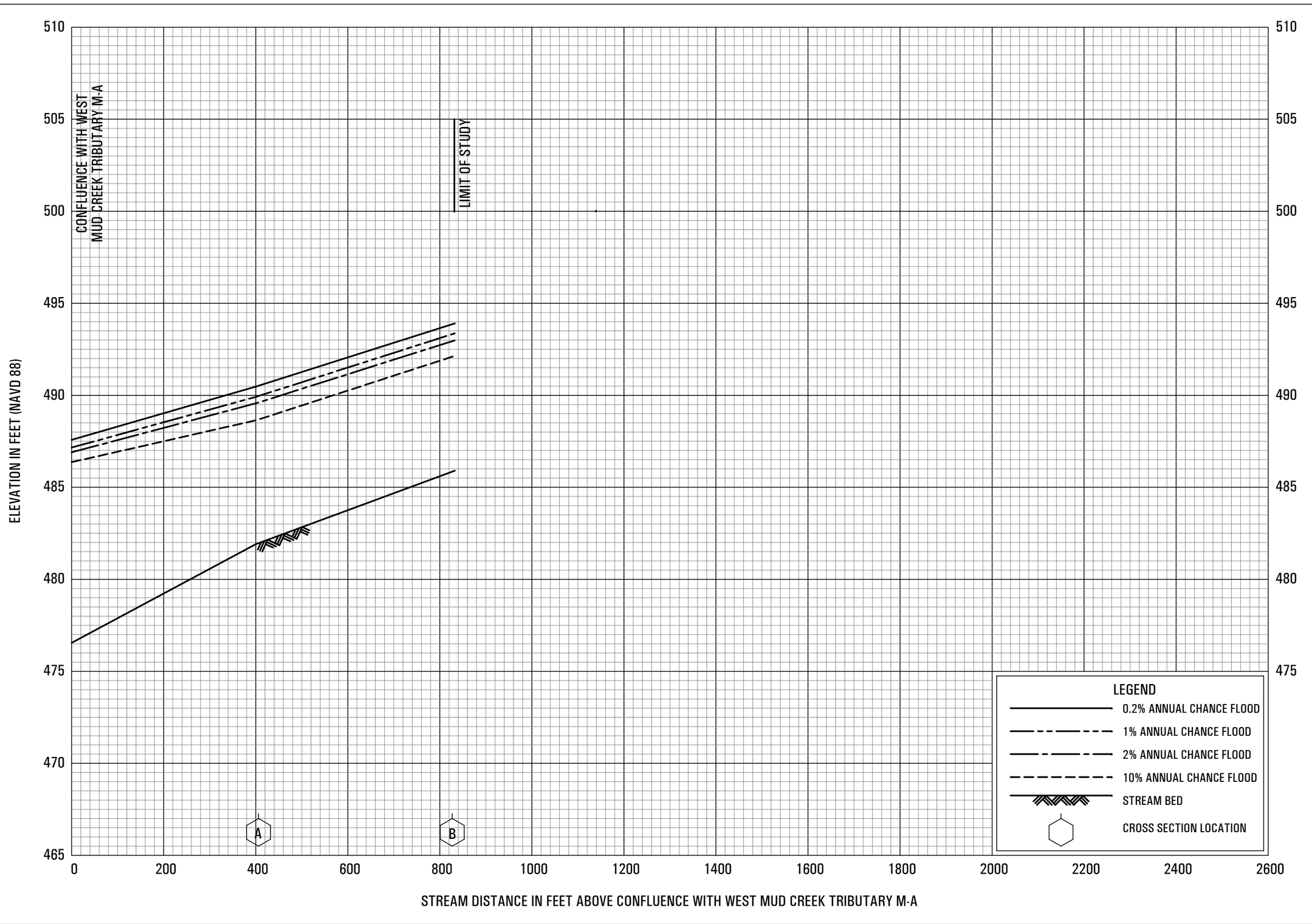
WEST MUD CREEK TRIBUTARY M-A.1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

118P



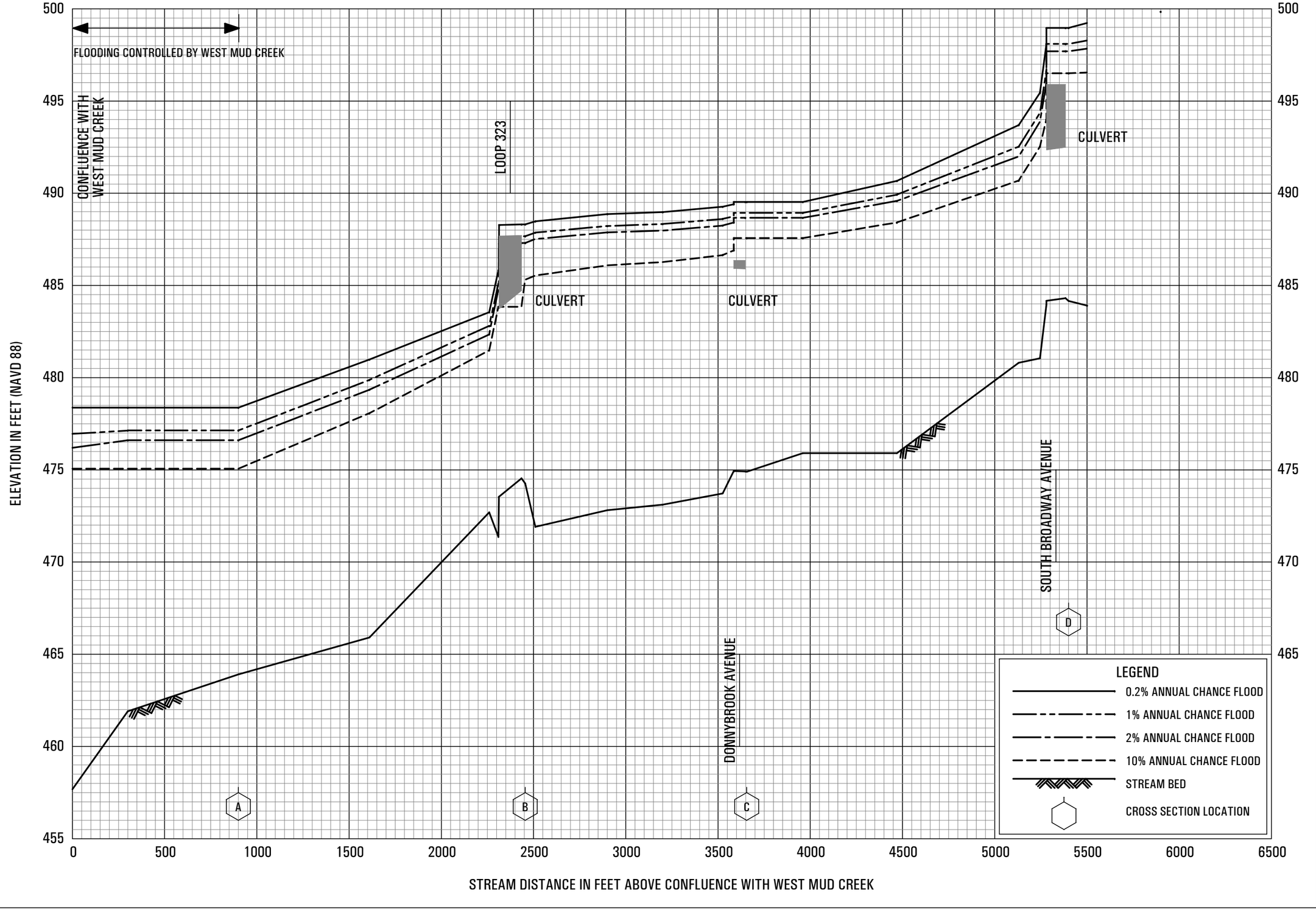
FLOOD PROFILES

WEST MUD CREEK TRIBUTARY M-A.2

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

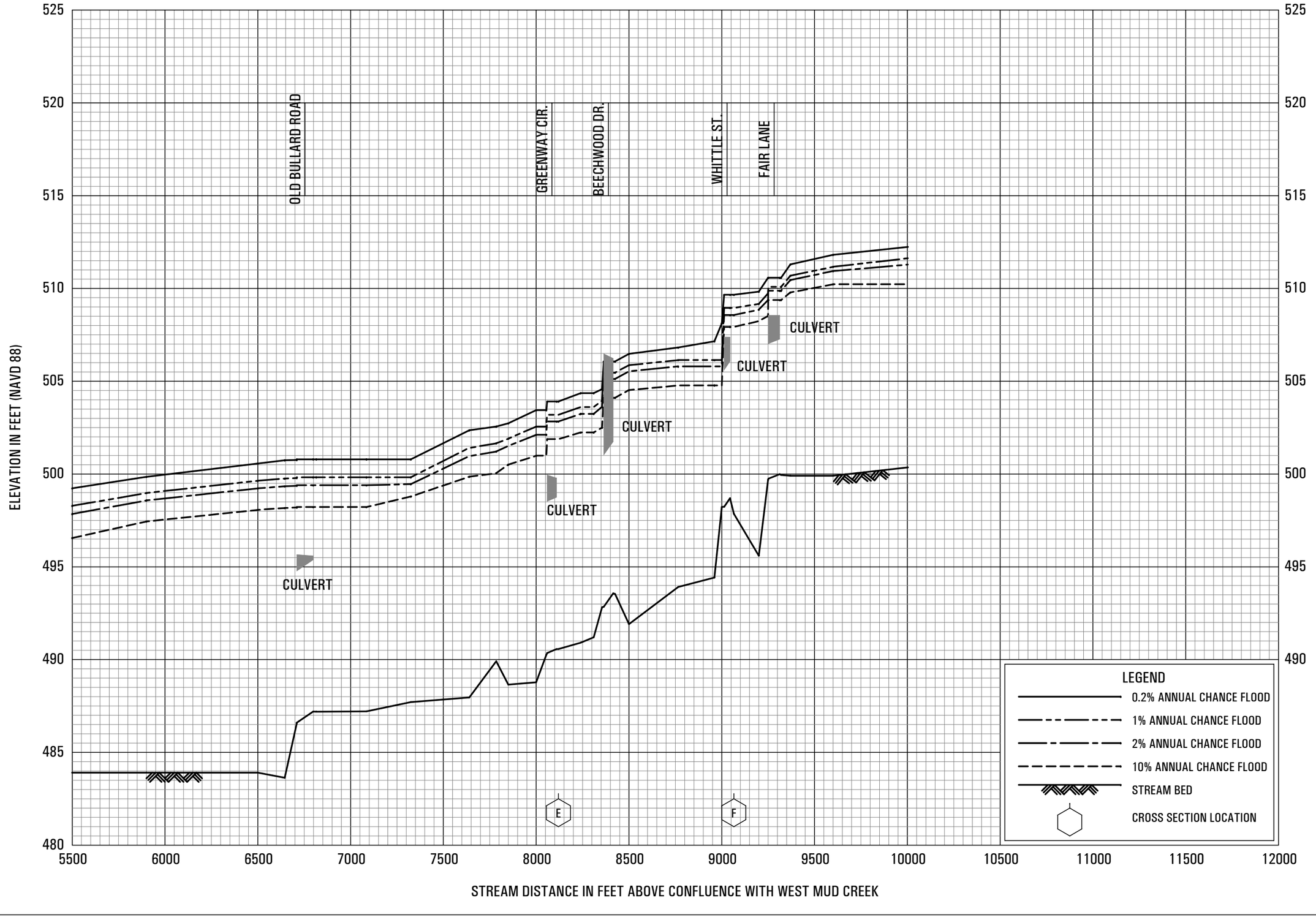
WEST MUD CREEK TRIBUTARY M-C

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

120P



FLOOD PROFILES

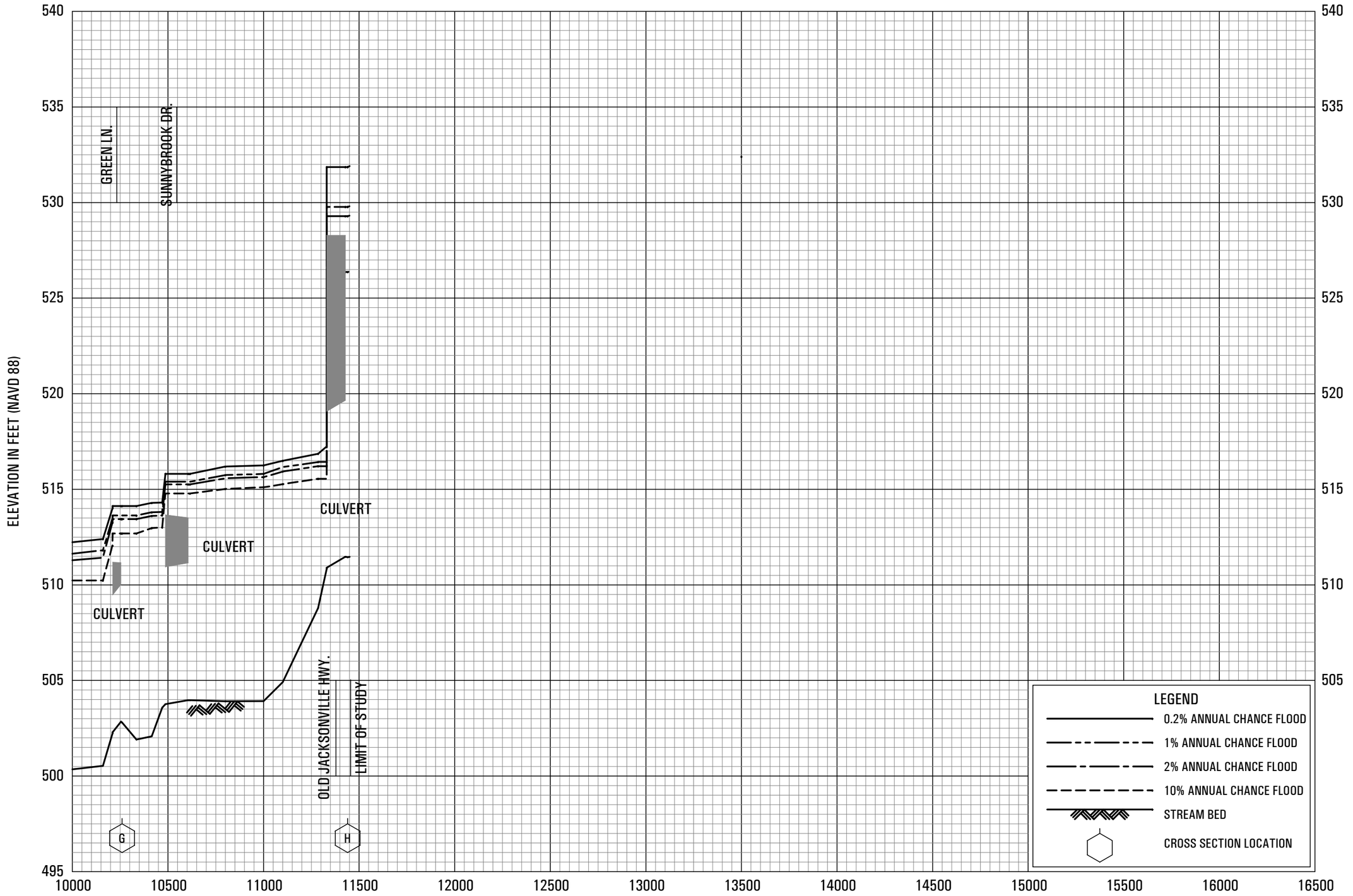
WEST MUD CREEK TRIBUTARY M-C

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

121P



FLOOD PROFILES

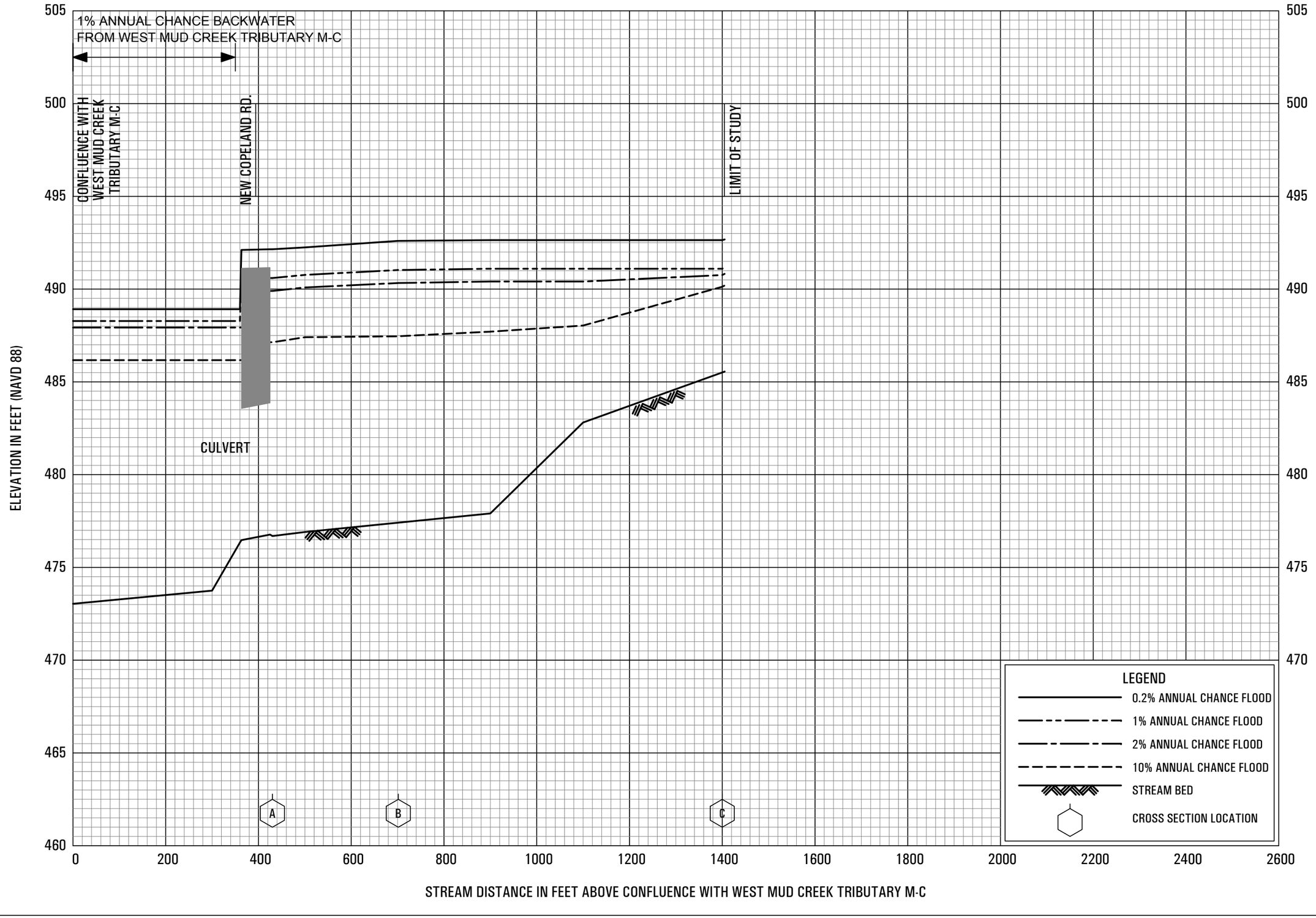
WEST MUD CREEK TRIBUTARY M-C

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

122P



FLOOD PROFILES

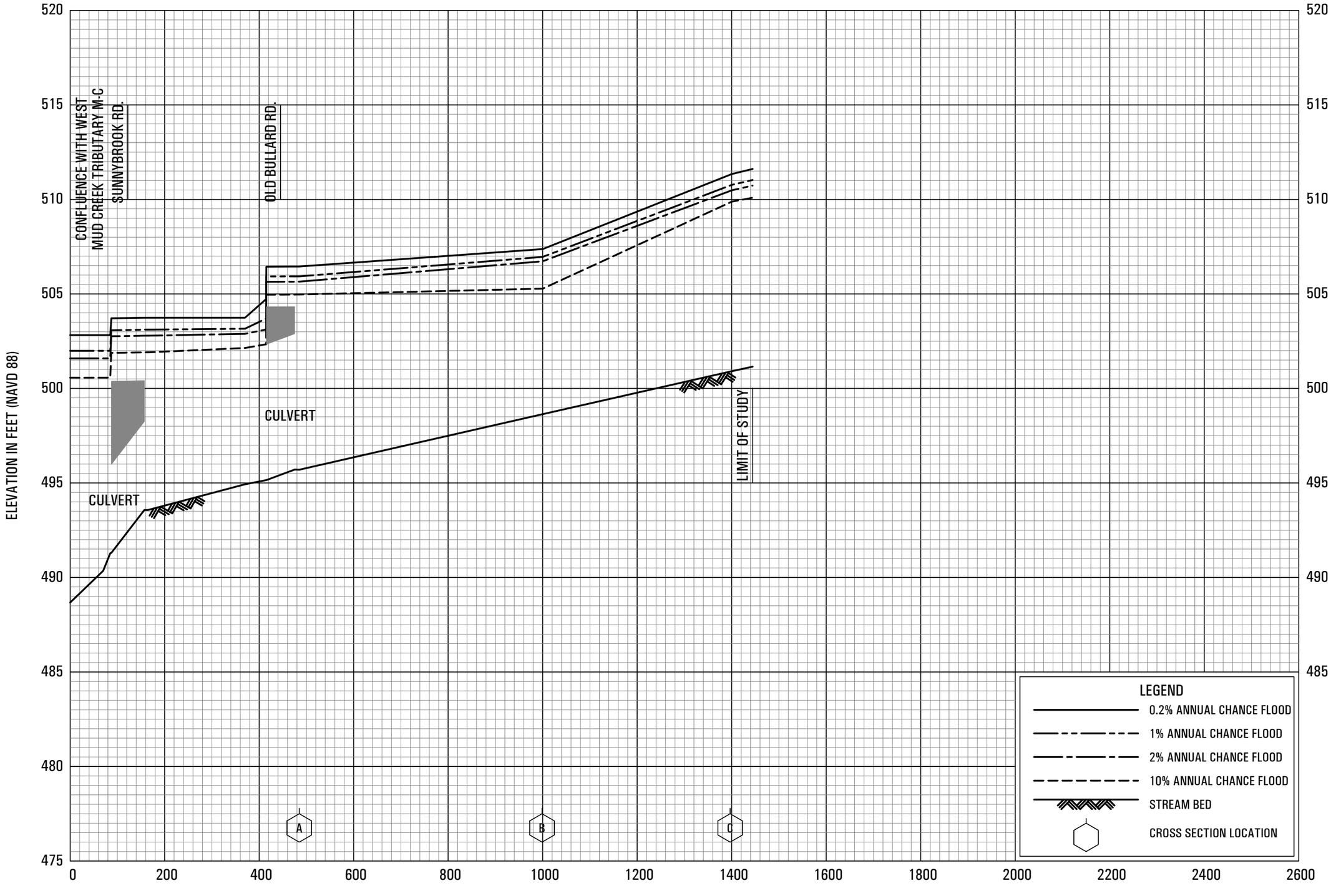
WEST MUD CREEK TRIBUTARY M-C.1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

123P



FLOOD PROFILES

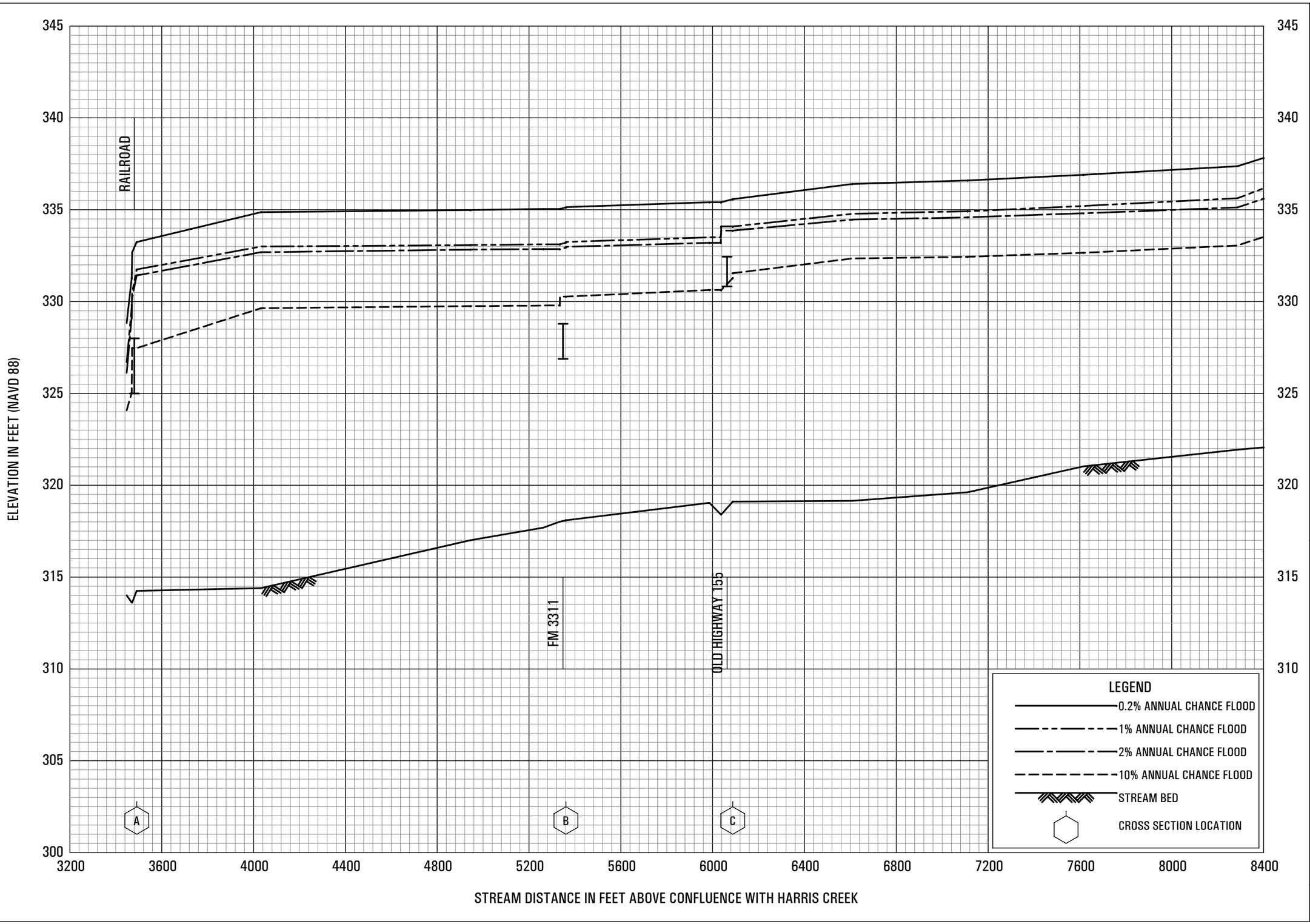
WEST MUD CREEK TRIBUTARY M-C.2

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

124P



FLOOD PROFILES

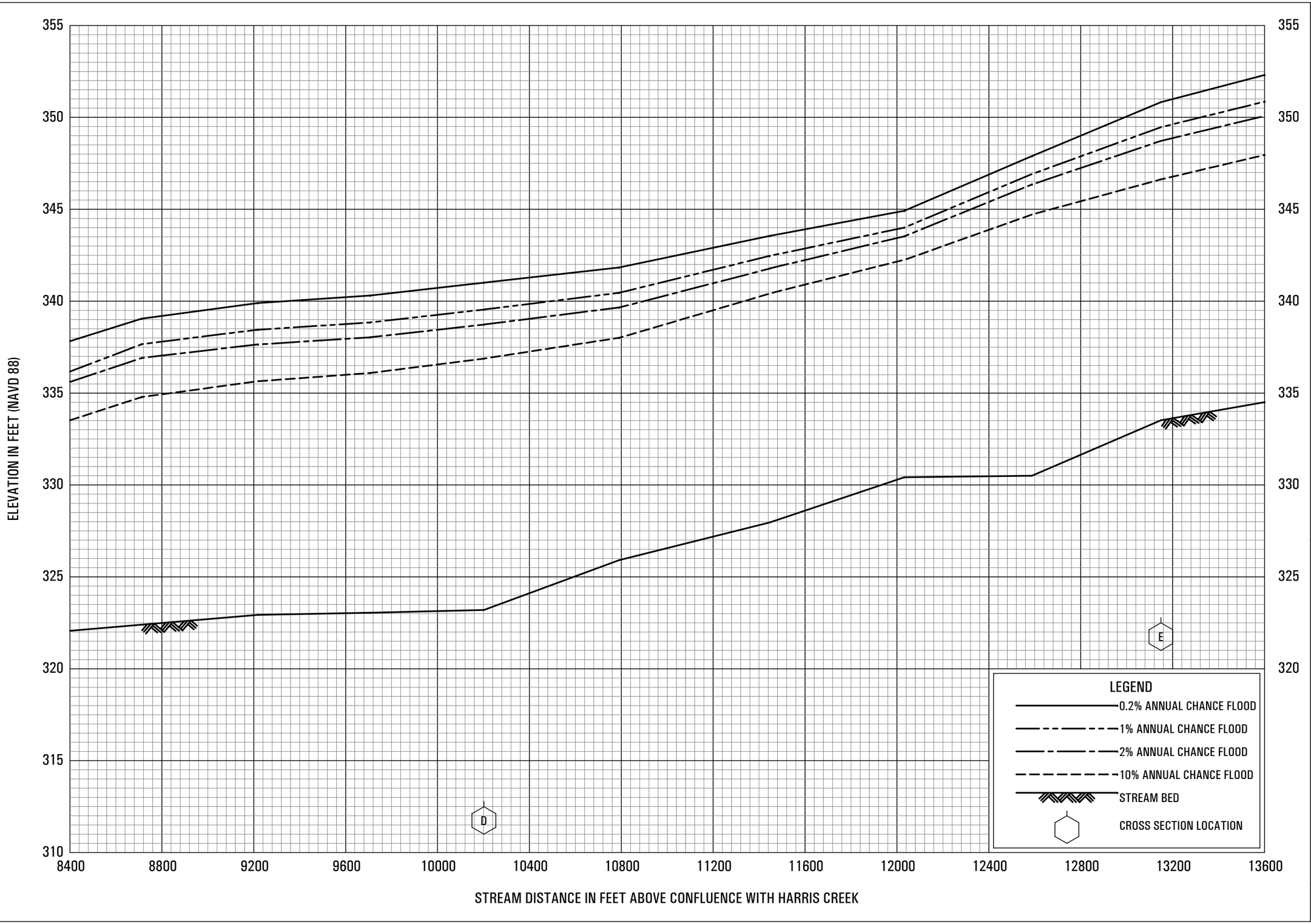
WIGGINS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

125P



FLOOD PROFILES

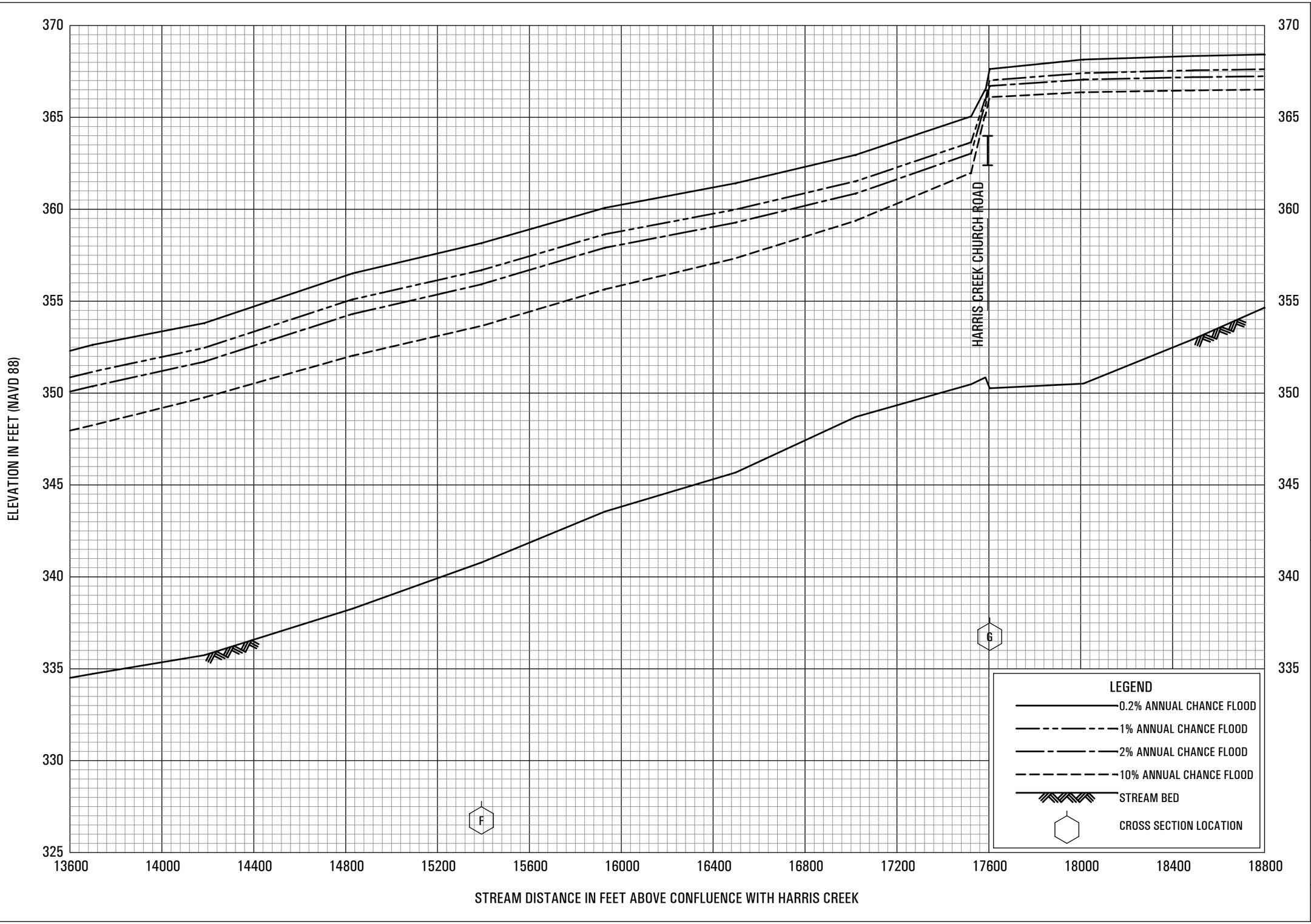
WIGGINS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

126P



FLOOD PROFILES

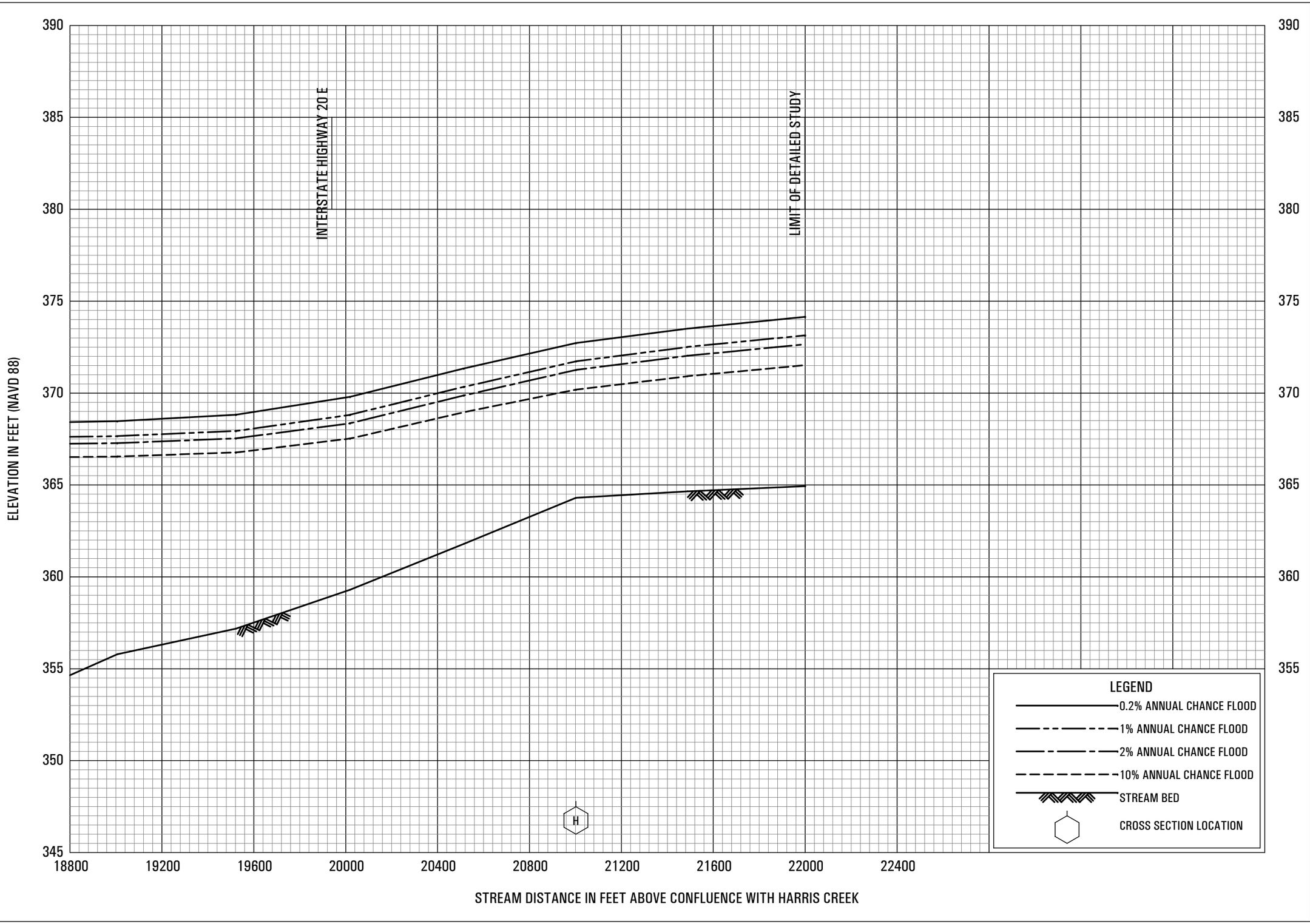
WIGGINS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

127P



FLOOD PROFILES

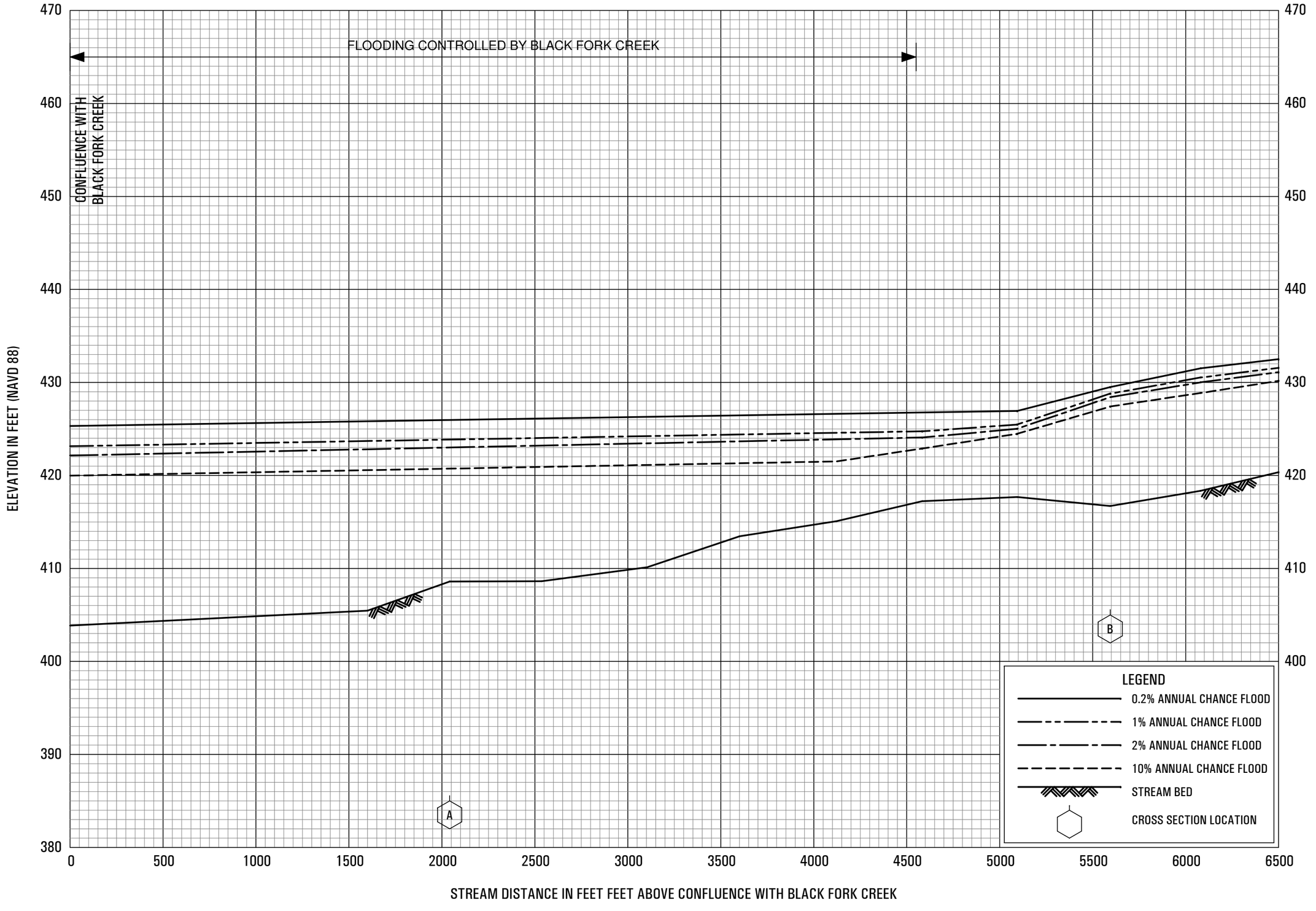
WIGGINS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

128P



FLOOD PROFILES

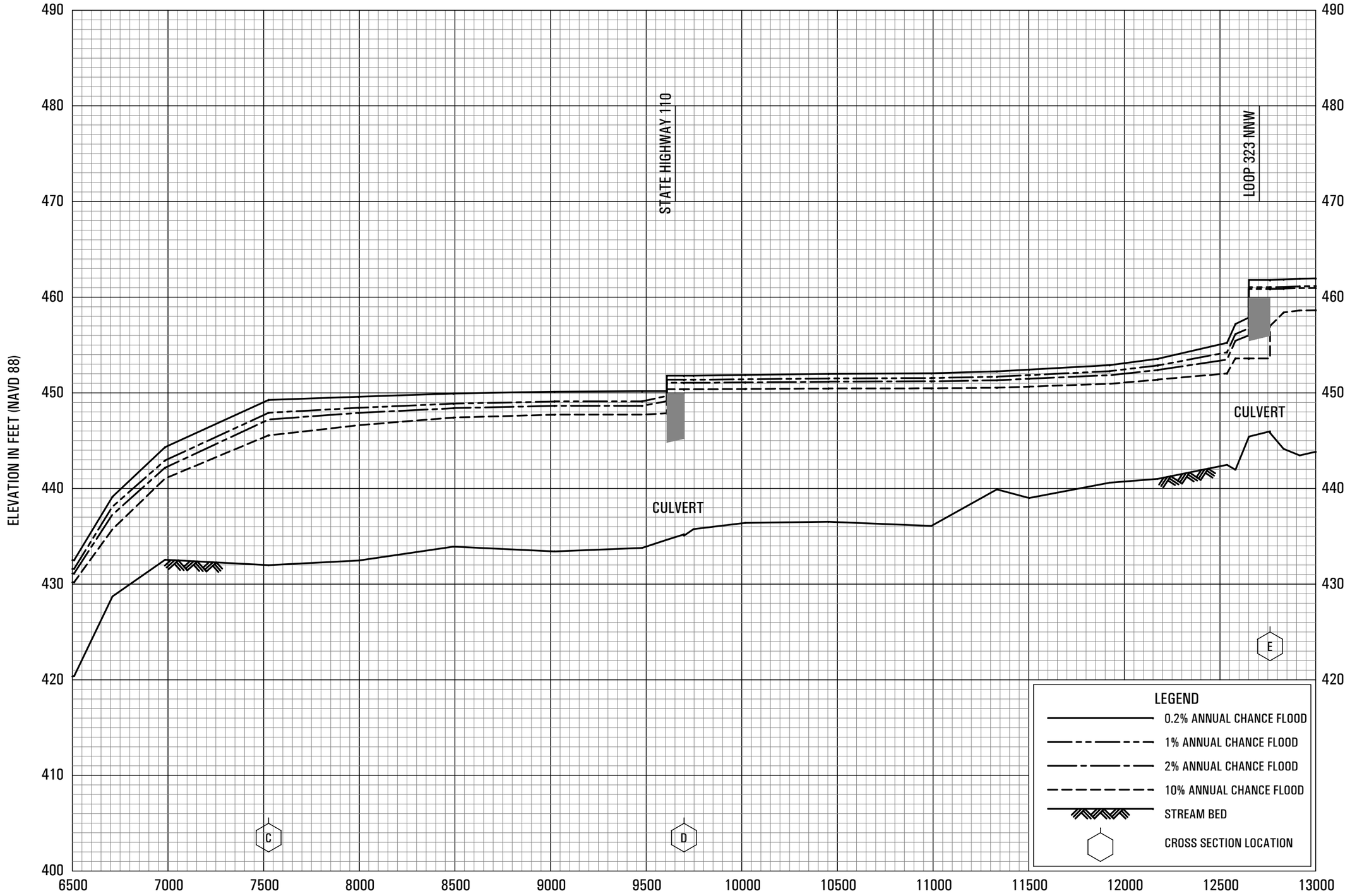
WILLOW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

129P



FLOOD PROFILES

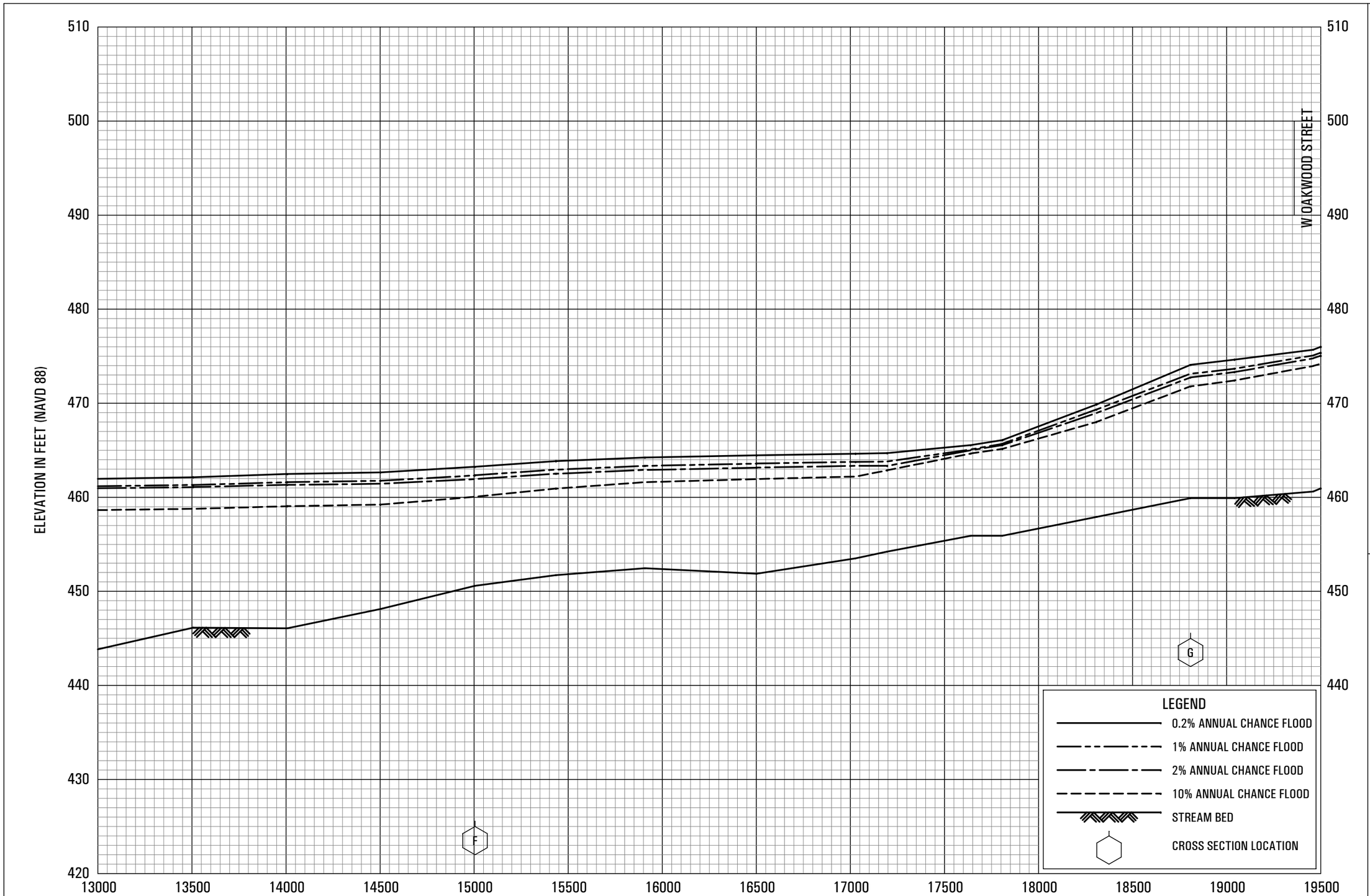
WILLOW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

130P



FLOOD PROFILES

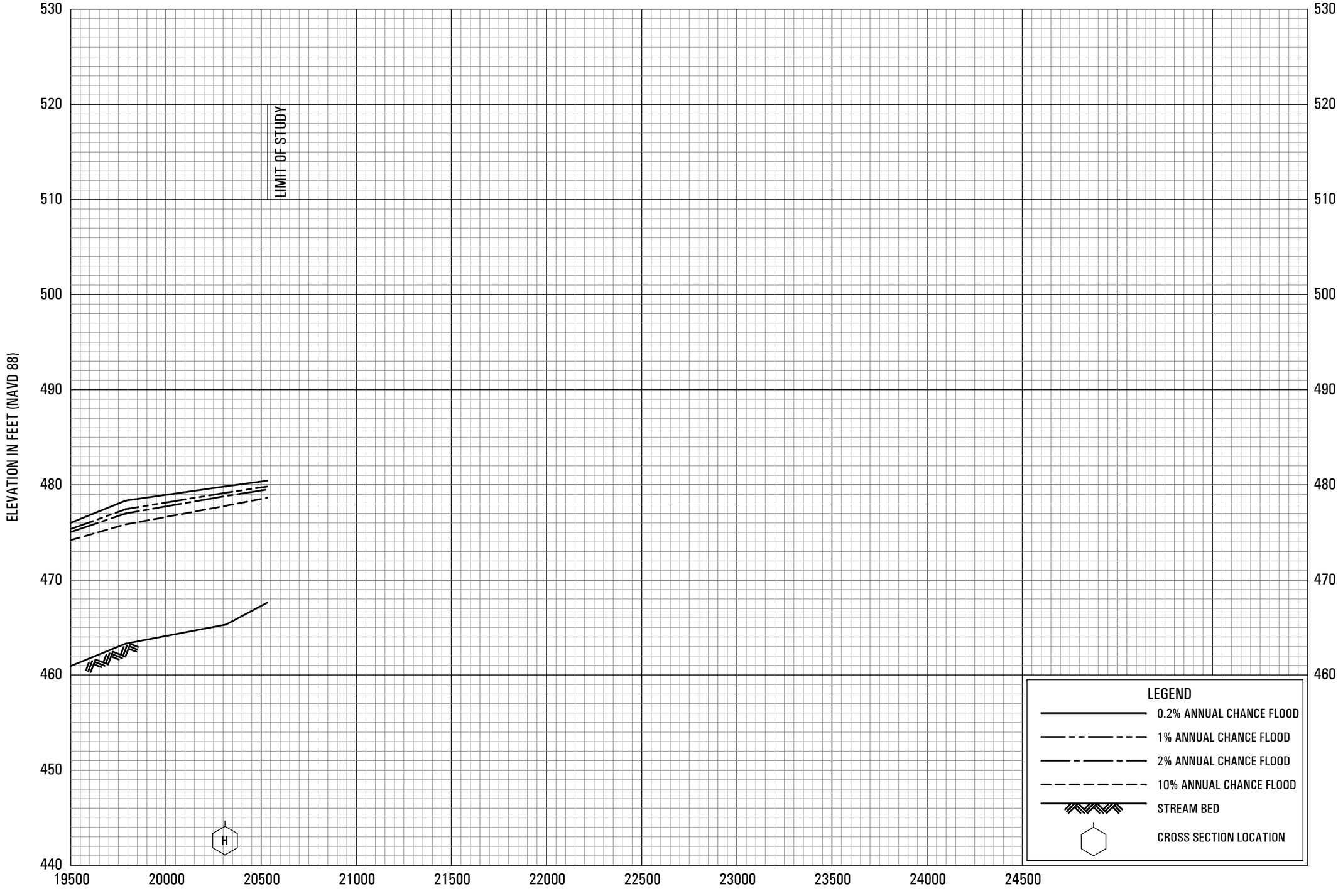
WILLOW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

131P



FLOOD PROFILES

WILLOW CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TX

AND INCORPORATED AREAS

132P