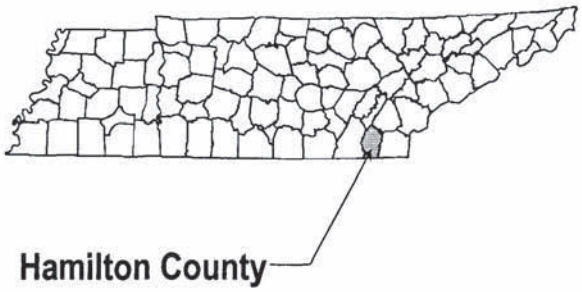
FLOOD INSURANCE STUDY

HAMILTON COUNTY, TENNESSEE
AND INCORPORATED AREAS



COMMUNITY NAME	COMMUNITY NUMBER
CHATTANOOGA, CITY OF	470072
COLLEGEDALE, CITY OF	475422
EAST RIDGE, CITY OF	475424
HAMILTON COUNTY (UNINCORPORATED AREAS)	470071
LAKESITE, CITY OF	470413
LOOKOUT MOUNTAIN, TOWN OF	470075
RED BANK, CITY OF	470076
RIDGESIDE, CITY OF*	470319
SIGNAL MOUNTAIN, TOWN OF	470078
SODDY-DAISY, CITY OF	475445
WALDEN, TOWN OF*	470414

* No Special Flood Hazard Areas Identified

REVISED: February 3, 2016

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
47065CV000B

NOTICE TO
FLOOD INSURANCE STUDY USERS

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

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

Initial Countywide FIS Effective Date: November 7, 2002

Revised Countywide FIS Dates: February 3, 2016

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FLOOD INSURANCE STUDY
HAMILTON COUNTY, TENNESSEE AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs) for the geographic area of Hamilton County, Tennessee, including: the Cities of Chattanooga, Collegedale, East Ridge, Lakesite, Red Bank, and Soddy-Daisy; the Towns of Lookout Mountain and Signal Mountain; and the unincorporated areas of Hamilton County (hereinafter referred to collectively as Hamilton County). The City of Ridgeside and the Town of Walden are non-floodprone.

This 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 county that will be used to establish actuarial flood insurance rates. This information will also be used by Hamilton 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 are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This FIS was prepared to include all jurisdictions within Hamilton County into a countywide FIS.

Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

Chattanooga, City of: the hydrologic and hydraulic analyses for the FIS report dated March 1980, were performed by the Tennessee Valley Authority (TVA), for the Federal Insurance Administration (FIA), under Inter-Agency Agreement Nos. IAA-H-22-74, Project Order No. 2, and IAA-H-20-75, Project Order No. 2. This work was completed in January 1975. For the FIS report

dated November 1, 1985, the hydraulic analysis was obtained from the TVA in conjunction with the work completed by the TVA for the City of East Ridge FIS (Federal Emergency Management Agency [FEMA], August 1983, FIS, City of East Ridge). For the FIS report dated September 6, 1989, the hydrologic and hydraulic analyses were prepared by the TVA for FEMA, under Inter-Agency Agreement No. EMW-85-E-1824, Project Order No. 2. That work was completed in January 1987. For the FIS report dated October 16, 1992, the hydrologic and hydraulic analyses were prepared by the TVA. For the FIS report dated May 18, 1998, the hydrologic and hydraulic analyses were prepared by the TVA, for FEMA, under Inter-Agency Agreement No. EMW-93-E-4118. This work was completed in May 1994.

Collegedale, City of: the hydrologic and hydraulic analyses for the FIS report dated March 19, 1990, were performed by the TVA as part of the restudy of the FIS for Hamilton County, Tennessee (FEMA, September 6, 1989, FIS, Hamilton County [unincorporated areas]).

Hamilton County (Unincorporated Areas): the hydrologic and hydraulic analyses for the FIS report dated September 6, 1989, were performed by the TVA for FEMA under Inter-Agency Agreement No. EMW-85-E-1824, Project Order No. 2. This study was completed in February 1987.

Red Bank, City of: the hydrologic and hydraulic analyses for the FIS report dated March 15, 1979, were performed by the TVA for the FIA, under Inter-Agency Agreement No. IAA-H-6-73 (42 U.S.C. 4001-4127). This work covers all the significant flooding sources in the City of Red Bank. For the FIS report dated September 5, 1990, the hydrologic and hydraulic analyses were performed by the TVA. FEMA reviewed and accepted these data for purposes of this revision.

The authority and acknowledgments for the Cities of Lakesite and Soddy-Daisy, and the Towns of Lookout Mountain and Signal Mountain are not included because there are no previously printed FIS reports for those communities.

The previously printed FIS report for the City of East Ridge is not available; therefore, it is not included in this countywide FIS.

For this countywide FIS, the updated hydrologic and hydraulic analyses were prepared for FEMA by Arcadis Geraghty & Miller, Inc., under Contract No. EMW-96-CO-0333. This work was completed in November 1999. Detailed hydrologic and hydraulic analyses for Stringers Branch and a detailed hydraulic analysis for Rogers Branch from the confluence with Wolftever Creek to approximately 1.07 miles upstream of Snow Hill Road were prepared for FEMA by Map Engineers, LLC. Detailed hydrologic and hydraulic analyses for the Tennessee River were prepared for FEMA by the TVA.

The digital base map files were provided by the Hamilton County GIS Department, 117 East 7th Street, Suite 300, Chattanooga, TN 37402. These files were compiled at a scale of 1:1,200 from aerial photography, dated March 1997.

The coordinate system used for the production of the digital FIRM is Universal Transverse Mercator referenced to the North American Datum of 1927 and the Clarke 1866 spheroid.

1.3 Coordination

An initial Consultation Coordination Officer's (CCO) meeting is held typically with representatives of FEMA, the communities, and the study contractors to explain the nature and purpose of the FIS, and to identify the streams to be studied by detailed methods. A final CCO meeting is held typically with representatives of FEMA, the communities, and the study contractors to review the results of the study.

The dates of the initial and final CCO meetings held for Hamilton County and the incorporated communities within its boundaries prior to this countywide FIS are shown in the following tabulation.

Community Name	Initial CCO Date	Final CCO Date
Chattanooga, City of	May 12, 1994[1]	*
Collegedale, City of	*	*
Hamilton County (Unincorporated Areas)	December 1984	October 12, 1988
Red Bank, City of	*	*

*Data not available
[1]FEMA notified community by letter

For this countywide FIS, an initial CCO meeting was held on September 27, 1995, and a final CCO meeting was held on April 18, 2001. Both of these meetings were attended by representatives of the communities and the county; Arcadis Geraghty & Miller, Inc.; TVA; Map Engineers, LLC; and FEMA.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Hamilton County, Tennessee. The area of study is shown on the Vicinity Map (Figure 1).

All or portions of the flooding sources listed in Table 1, "Flooding Sources Studied by Detailed Methods," were studied by detailed methods. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

TABLE 1 - FLOODING SOURCES STUDIED BY DETAILED METHODS

Black Creek	Little Wolftever Creek	Ryall Springs Branch
Chattanooga Creek	Lookout Creek	Sale Creek
Chesnutt Creek	Mackey Branch	Savannah Creek
Falling Water Creek	Middle Creek	Soddy Creek
Friar Branch	Mountain Creek	South Chickamauga Creek
Fruedenberg Creek	Nine Mile Branch	Spring Creek
Hurricane Creek	North Chickamauga Creek	Stringers Branch
Hurricane Creek Tributary	Pitts Branch	Tennessee River
Johnson Branch	Poe Branch	West Chickamauga Creek
Lick Branch	Possum Creek	Wilkerson Branch
Lick Branch Tributary 1	Rock Creek	Wolftever Creek
Lick Branch Tributary 2	Rogers Branch	Wolftever Creek Tributary
Lick Branch Tributary 3	Rogers Branch Tributary	
Little Soddy Creek		

As part of this countywide FIS, updated analyses were included for the flooding sources shown in Table 2, "Scope of Revision."

TABLE 2 - SCOPE OF REVISION

Stream	Limits of Revised or New Detailed Study
Fruedenberg Creek	From the confluence with Middle Creek to a point approximately 1 mile upstream of the confluence with Middle Creek
Lick Branch	From the confluence with North Chickamauga Creek to a point approximately 2,500 feet upstream of the confluence of Lick Branch Tributary 3

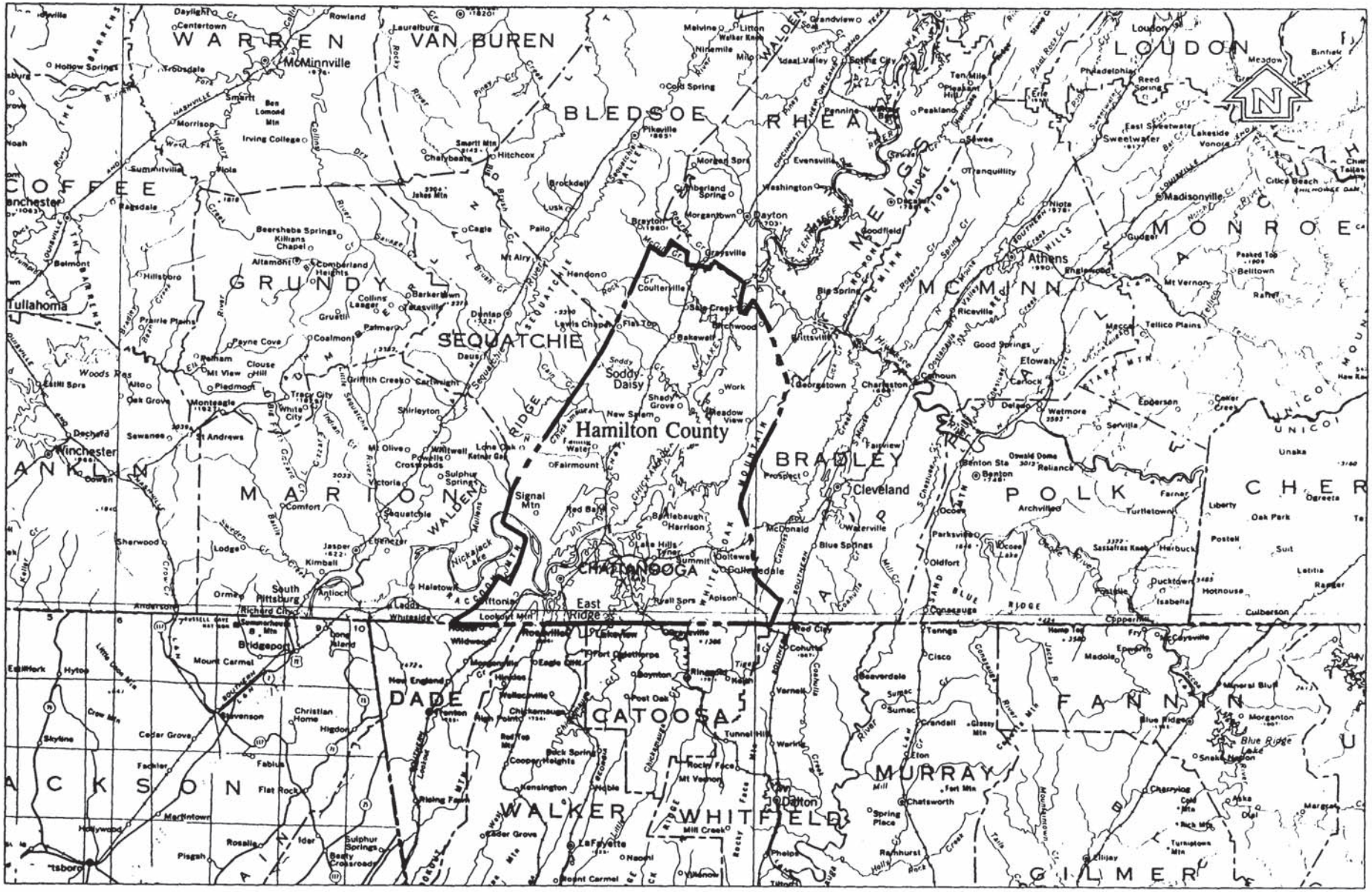


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

APPROXIMATE SCALE

13 0 13 26 39 MILES

VICINITY MAP

TABLE 2 - SCOPE OF REVISION - continued

Stream	Limits of Revised or New Detailed Study
Lick Branch Tributary 1	From the confluence with Lick Branch to a point approximately 1.2 miles upstream of the confluence with Lick Branch
Lick Branch Tributary 2	From the confluence with Lick Branch to a point approximately 0.5 mile upstream of the confluence with Lick Branch
Lick Branch Tributary 3	From the confluence with Lick Branch to a point approximately 0.5 mile upstream of the confluence with Lick Branch
Middle Creek	From a point approximately 1,100 feet downstream of Edwards Point Road to a point approximately 0.7 mile upstream of Middle Creek Road
North Chickamauga Creek	From the confluence with Tennessee River to a point approximately 1 mile upstream of Dayton Pike
Poe Branch	From the confluence with North Chickamauga Creek to a point approximately 1,500 feet upstream of Card Road
Possum Creek	From a point approximately 1,600 feet downstream of U.S. Route 27 to a point approximately 1.8 miles upstream of U.S. Route 27
Rogers Branch	From the confluence with Wolftever Creek to a point approximately 1.7 miles upstream of confluence of Rogers Branch Tributary
Rogers Branch Tributary	From the confluence with Rogers Branch to a point approximately 500 feet upstream of Interstate 75
Stringers Branch	From confluence with Mountain Creek to a point approximately 250 feet upstream of Poulmar Drive
Tennessee River	From the county boundary to the Lake Chickamauga dam located approximately 19.4 miles upstream
Wolftever Creek	From Hunter Road to McDonald Road
Wolftever Creek Tributary	From the confluence with Wolftever Creek to a point approximately 2,200 feet upstream of Bill Reed Road

Flooding on Black Creek, Chattanooga Creek, Lookout Creek, Mountain Creek, Sale Creek, and South Chickamauga Creek is influenced by backwater effects from the Tennessee River. Flooding on Chesnutt Creek, Little Wolftever Creek, Savannah Creek, and Wilkerson Branch is influenced by backwater effects from Wolftever Creek. Therefore, the flood profiles for those streams were adjusted to reflect the revised analyses performed on the Tennessee River and Wolftever Creek.

This countywide FIS also incorporated the determination of letters issued by FEMA resulting in map changes (Letter of Map Revision [LOMR], Letter of Map Revision – based on Fill [LOMR-F], and Letter of Map Amendment [LOMA]) as shown in the following tabulation.

Community Name	Flooding Source and Project Identifier	Date Issued	Type
East Ridge, City of	Spring Creek - Hide Away Storage	September 2, 1999	LOMR
Hamilton County (Unincorporated Areas)	Little Wolftever Creek – Ooltewah-Georgetown Road	September 30, 1995	LOMR
	Little Wolftever Creek – Ooltewah-Georgetown Road	September 15, 1994	LOMR

Annexations or deannexations by the Cities of Collegedale, Chattanooga, Soddy-Daisy, and the unincorporated areas of Hamilton County have been incorporated in this countywide FIS.

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.

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 Hamilton County.

2.2 Community Description

Hamilton County is in southeastern Tennessee and is bordered on the north by Rhea and Meigs Counties, Tennessee; on the east by Bradley County, Tennessee; on the west by Bledsoe, Marion, and Sequatchie Counties, Tennessee; and on the south by Dade, Walker, and Catoosa Counties, Georgia, and the City of Rossville, Georgia. The major city in the county is Chattanooga, one of the largest trade and industrial centers in the southeast. Hamilton County is served by Interstates 24

and 75; U.S. Routes 11, 27, 41, 64, 72, and 127; State Routes 27, 29, and 58; the CSX Transportation; and the Norfolk Southern Railway. The population of Hamilton County has been increasing steadily over the past several decades. The 2000 population was reported to be 307,896.

The climate of the county is mild. The average annual temperature is 59.7 degrees Fahrenheit and the average annual precipitation is 52.6 inches.

Because the topography of Hamilton County is rough and mountainous, streams are prone to flooding as a result of heavy, short-duration, spring and summer storms. Many of the streams studied in detail pose a considerable flood hazard to the primary residential development in the floodplain.

2.3 Principal Flood Problems

Since 1936, regulation of the Tennessee River by TVA projects upstream of Chattanooga has substantially reduced the height and frequency of the Tennessee River floods and backwater flooding of its tributaries. The largest flood to occur since regulation was that of March 17, 1973. The flood reached an elevation of 658.0 feet National Geodetic Vertical Datum of 1929 (NGVD) at the Walnut Street stream gage near Chattanooga and had a recurrence interval of approximately 150 years. The largest flood on the Tennessee River in the 160-year period of record occurred on March 11, 1867. Other large floods on the Tennessee River occurred in 1875, 1886, and 1917. Those floods were about 4, 6, and 10.5 feet lower, respectively, than the 1867 flood (TVA, ongoing).

The greatest headwater flood on North Chickamauga Creek in more than 100 years occurred near Mile Straight on June 29, 1928. There was little development at that time and the flood only affected cropland. Other large headwater floods occurred in 1949, 1946, and 1942. Those floods were about 18 feet above banktops near Hixson Pike, in the northeastern region of Chattanooga. More recently, large floods occurred on March 12, 1963, and August 17, 1982. The U.S. Geological Survey (USGS) estimated a discharge of 25,000 cubic feet per second (cfs) for the 1963 flood and 26,800 cfs for the 1982 flood near Mile Straight. The 1963 and 1982 floods have approximate recurrence intervals of 50 years and 60 years, respectively. The 1867 flood, which occurred before TVA flood control measures were created, was the highest backwater flood known to have occurred in the past 160 years. Backwater covered the floodplain of the creek almost to Mile Straight and was higher than the 1928 headwater flood up to about mile 16.5. It exceeded any other known backwater flood by more than 4 feet.

Wolftever Creek, a tributary to the Tennessee River, flows into the Chickamauga Reservoir from the southeast. Above its mouth in Harrison Bay State Park, the creek flows through rural areas where only roads, bridges, and one community are affected by flooding. The potential for extensive damage due to flooding is not great until the stream nears the City of Collegedale, Tennessee, where floodplain development is heavier. Information about past flooding on Wolftever Creek is available from historical records (TVA, July 1972; TVA, June 1974) and from

stream gage records collected from 1964 to the present at the USGS gage station (no. 03566420) near the City of Ooltewah, Tennessee. Those stream gage records, supplemented by prerecord flood investigations, are indicative of past Wolftever Creek flooding in Hamilton County.

The largest known flood on Wolftever Creek occurred on March 16, 1973 (TVA, June 1974). At the gage station near Ooltewah, the flood reached an elevation of 764.8 feet NGVD with a discharge of 7,300 cfs and had an estimated recurrence interval of approximately 100 years.

The second largest known flood at the gage station occurred on September 23, 1975. It reached an elevation of 763.6 feet NGVD and had an estimated recurrence interval of 10 years. No information about flood damage is available for that event.

Information about past flooding on Possum Creek and Black Creek includes historical reports (TVA, June 1972; TVA, February 1983) and high-water marks collected following the March 12, 1963, and August 17, 1982, floods. Those marks show that the 1963 flood reached an elevation of 696.8 feet NGVD downstream of the McGill Road bridge and had a recurrence interval of approximately 50 years. The 1982 flood was the result of an intense storm that deposited approximately 9 inches of rain over the Possum Creek watershed. Much of the rain fell within a 2-hour period and caused floodwaters to reach an elevation of 698.5 feet NGVD just upstream of the McGill Road bridge. That flood has a recurrence interval of approximately 200 years. Along the creek, there was slight damage to the Norfolk Southern Railway bridge, two houses, and a business.

Sale Creek is subject to backwater flooding from the Tennessee River up to the mouth of Rock Creek. Much of the development in the Sale Creek community is in the Rock Creek floodplain. Little development has taken place in the Tennessee River floodplain.

A 100-year flood on Rock and Sale Creeks would cause damage to the Sale Creek community, and a maximum probable flood would increase the levels to about 8 feet above a 100-year flood. Such flooding would cause considerable damage to residential areas in the Rock and Sale Creek floodplains.

Minor floods occur about twice a year in the area of Sale, Rock, and Possum Creeks as those streams exceed bankfull stage. Major floods have occurred in 1875, 1886, 1942, 1946, 1948, 1949, 1963, 1969, 1972, and 1982. The 1972 flood produced discharges of 5,400 cfs on Rock Creek and 3,200 cfs on Sale Creek (TVA, June 1972).

There is little development in the floodplain of Chesnutt Creek, a tributary of Wolftever Creek. A 100-year flood would be about 3 feet higher than the record 1971 flood and would affect a few homes in the vicinity of East Brainerd Road.

The March 1867 flood produced the highest backwater flooding for Lookout Creek and Mountain Creek in the valley (TVA, May 1966). The water level exceeded banktops by more than 15 feet, more than any known headwater flood. Maximum probable backwater flooding from the Tennessee River would result in flood levels about 2.5 feet higher than the 1867 flood and about 20.5 feet higher than what would result from the recurrence of the regulated 1867 flood. More recent backwater floods on Lookout Creek occurred in January 1946, February 1957, March 1973, and May 1984.

Backwater from a maximum probable flood would affect numerous businesses and residences in the City of Tiftonia along Lee Highway, the CSX Transportation freight yard, and several miles of railroad track near the lower end of Lookout Creek.

Flood information for Wilkerson Branch is limited to high-water marks recorded following the March 16, 1973, flood and a minor flood in May 1972. The March 1973 flood has an estimated recurrence interval of approximately 20 years.

Information about past floods on Falling Water Creek consists of high-water marks and flood information recorded after the floods of March 12, 1963, and August 17, 1982 (TVA, February 1983). The 1982 flood was produced by an intense storm that deposited an estimated 14 inches of rain on the Falling Water Creek watershed. The flood of March 1963 reached an elevation of 684.5 feet NGVD at Levi Road and was estimated to have a recurrence interval of 20 years. No other information is available for that flood.

Historic flood information for Savannah Creek consists of high-water marks recorded following the March 16, 1973, flood and a minor flood in 1974. Those marks do not reflect the effect of subsequent channelizing of the stream and placement of fill in the floodplain on flood elevations. No other information is available for Savannah Creek.

Mountain Creek is subject to headwater flooding. Because of the rural character of the watershed and the small amount of damage caused by past floods, little or no information on high waters on Mountain Creek has been published.

Since 1928, the banks of South Chickamauga Creek just below State Route 58 have overflowed an average of approximately five times per year. The highest known flood occurred on March 17, 1973, and approximated a 100-year flood (TVA, June 1958).

The greatest flood known to have occurred in the past 57 years along Stringers Branch was the May 15, 1946, flood which had a discharge of 2,460 cubic feet per second (cfs) or 465 cfs/mi^2 (U.S. Department of the Interior, Geological Survey, 1964). This flood caused considerable damage to residential, commercial, and industrial development along both Stringers Branch and the drainage ditch. Other floods of similar magnitude occurred on April 1, 1920, and July 17, 1949. Since 1916, sizeable floods occurred in 1918, 1920, 1921, 1939, 1942, 1946, 1947, 1949, 1951, and 1963 (TVA, June 1959; TVA, January 1964).

There is no information available on past floods on Friar Branch, Mackey Branch, Johnson Branch, Pitts Branch, Ryall Springs Branch, Little Wolftever Creek, Hurricane Creek, or Hurricane Creek Tributary. Information on past floods on Ninemile Branch is limited to two high-water marks from a minor flood of an unknown date.

2.4 Flood Protection Measures

The TVA Act of 1933 provides for development of the Tennessee River for flood control, navigation, and power production. River discharges were altered progressively by construction of upstream dams until the Tellico Dam was completed in 1979. Those flood control storage dams and other TVA-instituted regulatory projects have substantially reduced the height and frequency of Tennessee River floods and resultant backwater flooding of tributaries. Flood control storage dams constructed on the Tennessee River since 1936 would reduce the elevation of a recurrence of the 1867 flood by about 18 feet. The storm of 1957, which would have produced a natural flood crest only 4 feet below the 1867 flood, was lowered about 22 feet by the regulation. The March 1973 flood would have been almost as great as the 1957 flood and was regulated to a crest about 16 feet lower than the estimated unregulated crest stage. Records from the Walnut Street gage show the regulated flood crest elevation of the 973 flood to be 658.0 feet NGVD; the normal pool elevation is 634.0 feet NGVD. The estimated flood crest for the same 1973 flood, without TVA regulation, would be 673.5 feet NGVD.

In 1964, a channel improvement from the downstream corporate limits to mile 2.13 substantially reduced the flooding potential of Stringers Branch. It also allowed for the flood proofing of structures adjacent to the branch. During 1973, the City of Red Bank passed a zoning ordinance for a floodway and a minimum habitable floor elevation for structures within the corporate limits.

A levee has been constructed along South Chickamauga Creek between miles 9.0 and 12.0 that provides flood protection at a level above 100 years and below 500 years.

FEMA specifies that all levees must have a minimum of 3-foot freeboard against 100-year flooding to be considered a safe flood protection structure.

Levees exist in the study area that provide the community with some degree of protection against flooding. The criteria used to evaluate protection against the 100-year flood are 1) adequate design, including freeboard, 2) structural stability, and 3) proper operation and maintenance. Levees that do not protect against the 100-year flood are not considered in the hydraulic analysis of the 100-year floodplain.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this FIS. Flood

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

3.1 Hydrologic Analyses

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

Precountywide Analyses

Each community within Hamilton County, with the exception of the Towns of Lookout Mountain and Signal Mountain, and the Cities of Lakesite and Soddy-Daisy, has a previously printed FIS report. The hydrologic analyses described in those reports have been compiled and are summarized below.

For Friar, Johnson, Mackey, Ninemile, Pitts, Ryall Springs, and Wilkerson Branches; Falling Water, Hurricane, Little Wolftever, and Savannah Creeks; and Hurricane Creek Tributary, discharge-frequency determinations were based on updated drainage area-peak discharge relationships developed from regional analyses using recent stream gage records. Flood-frequency curves for these stations were computed using procedures outlined in Bulletin No. 17B (U.S. Department of the Interior, March 1982), including the skew map of Plate 1 and adjustments for historic flood information, where available.

Peak discharge-frequency estimates for Little Wolftever Creek were adjusted to account for the effects of floodwater storage behind Norfolk Southern Railway embankments at their respective crossings. Channel storage was also considered for segments of North Chickamauga Creek.

For Wolftever Creek, the USGS gaging station near Ooltewah, Tennessee (No. 03566420) was the principal sources of data defining peak discharge-frequency relationships. Upstream and downstream estimates were made by transfer using a flow-drainage area relationship through the gage point and parallel to the updated regional relationship described earlier. The frequency curve for the gaging station was computed using procedures outlined in Bulletin 17B (U.S. Department of the Interior, March 1982).

The hydrologic analysis for Chesnutt Creek came from the original TVA study for the City of Collegedale (TVA, October 1972).

Discharges from the adopted relationships are about 35 to 60 percent higher than those from the USGS relationships for Tennessee Hydrologic Region 1 (USGS, 1976). The differences between the relationships are the result of different gaged watersheds being used in each analysis and the use of additional gage records now available. The adopted relationships were determined from gaged watersheds in the Hamilton County region, while the USGS relationships were based on gaged watersheds over a much larger geographic area.

There are no stream gages on Mountain Creek from which flood-frequency relationships can be developed. Flood-frequency curves for this stream was determined by comparison with curves developed from gage records in the region north of the Tennessee River. Those curves were further supported by the available historical data. Drainage area-peak discharge curves for Chattanooga, South Chickamauga, North Chickamauga, and West Chickamauga Creeks were developed from available gage records of those streams. Curves for Spring and Lookout Creeks were developed by comparison with records at the gage sites in the region south of the Tennessee River.

Discharge-frequency curves for gaged locations were determined using the log-Pearson Type III analysis with modifications according to historic flooding information and computed maximum flood flows (U.S. Water Resources Council, March 1976). Extrapolation of the frequency curves to the 500-year flood was guided by historic flood data, maximum precipitation estimates determined by the National Weather Service (NWS), and unit hydrographs and rainfall-runoff relationships. Peak discharge drainage area relationships with watersheds that are partially urbanized were modified as outlined in Bulletin No. 17 (U.S. Water Resources Council, March 1976). Flood frequency curves at ungaged locations were developed by comparison with records at gage locations on nearby streams and other similar watersheds in the region.

Where sufficient information has occurred to alter flood peaks, peak discharge rates were estimated using the relationship

$$Q_{pu} = I^{x} Q_{pn}$$

Where:

Q_{pu}	=	discharge for selected probability, p, for urban conditions
I	=	percent imperviousness of urban area
x	=	a factor which varies with flood probability
Q_{pn}	=	discharge for selected probability, p, for natural conditions

The relationships and values of x were developed from equations contained in a report, "Urban Flood Frequency Characteristics," which relate discharge at selected frequencies to watershed and climatic factors and percent imperviousness (Espey and Winslow). Percent imperviousness was estimated using topographic maps and

aerial photographs (U.S. Department of the Interior, March 1982). The relationships and x values were compared and found to be consistent with studies by others.

Discharges for the Tennessee River at mile 464.2 were developed based on records for the period 1945 through 1973, which represents the present level of Tennessee River regulation. Because of the regulation, Bulletin No. 17B procedures (U.S. Department of the Interior, March 1982) are not applicable. A discharge-frequency curve was determined from observed annual maximum peak discharges plotted using the Weibull Formula, RI=(n + 1)/M, where RI is the recurrence interval in years, n is the number of years in record, and M is the magnitude of flood, with the highest being equal to 1. Extrapolation of the discharge to the 500-year flood level was guided by estimates of the regulated 1867 flood peak and estimated maximum floodflows developed using NWS probable maximum precipitation figures and a hydrologic model developed specifically for maximum flood studies.

The principal source of data for determining discharge-frequency relationships for the study reach was the USGS recording stream gaging station No. 03567500 near Chickamauga, Tennessee. Values of the 10-, 50-, 100-, and 500-year peak discharges were computed using records from 1929-1978 and 1981-1990, and the log-Pearson Type III flood frequency analysis as described in Water Resources Council Bulletin 17B (U.S. Department of the Interior, September 1986). The discharge-frequency relationships previously developed and adopted in 1979 were again adopted because the updated relationship fell within the 90-percent confidence interval of the previously developed relationships. Upstream and downstream discharge-frequency estimates were made by using peak discharge-drainage area relationships through the gage points and parallel to regional peak discharge-drainage area relationships currently applicable for this area.

The discharge at the gage for the February 1990 flood was approximately the same as the 100-year peak discharge, and the discharge for the recent March 1994 flood was approximately that of the 50-year flood. Both of these floods were used to calibrate the 50- and 500-year flood profiles.

Revised Analyses

For streams in urbanized watersheds, USGS regression equations were used to develop peak flows. The USGS regression equations utilized are based on drainage area, a basin development factor, and the rural peak flow. The basin development factor is based on the amount of channelization and impervious area present in the watershed.

For streams in rural watersheds, TVA regression equations were used to develop peak flows. The TVA regression equations were based on drainage area-peak discharge relationships based on a statistical analysis of gaged watersheds in the Hamilton County region.

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

TABLE 3 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
BLACK CREEK					
At mouth	6.75	1,650	2,600	3,000	4,000
Below Dry Branch	3.77	1,100	1,750	2,000	2,700
CHATTANOOGA CREEK					
At mouth	74.7	6,800	9,600	11,500	13,200
CHESNUTT CREEK					
Approximately 0.5 mile upstream of mouth	4.95	1,180	1,830	2,180	5,400
At East Brainerd Road	1.60	630	900	1,100	3,050
FALLING WATER CREEK					
At mouth	13.7	2,700	4,200	4,800	6,400
Just upstream of Levi Road	10.9	2,300	3,600	4,100	5,500
Approximately 0.4 mile upstream of unnamed road	9.01	2,000	3,100	3,600	4,800
FRIAR BRANCH					
At mouth	19.90	4,700	6,800	7,600	9,700
Just above Poe Branch	7.35	1,750	2,700	3,100	4,200
At Lee Highway	1.71	620	1,000	1,200	1,600
FRUEDENBURG CREEK					
At confluence with Middle Creek	1.96	750	1,170	1,360	1,880
Above confluence with Middle Creek	0.86	400	650	750	1,020
At Timesville Road	0.71	355	580	670	910
Approximately 0.2 mile upstream of Timesville Road	0.52	280	460	530	720
Approximately 0.775 mile upstream of confluence with Middle Creek	0.48	270	410	475	645
Approximately 0.914 mile upstream of confluence with Middle Creek	0.38	220	360	420	570

TABLE 3 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
HURRICANE CREEK					
Approximatley 0.7 mile downstream of Fountain Gate Road	14.3	2,800	4,300	4,900	6,550
At Ringgold Road	7.89	1,850	2,850	3,300	4,400
At confluence of Johnson Branch	5.81	1,500	2,300	2,700	3,600
HURRICANE CREEK TRIBUTARY					
At mouth	5.32	1,400	2,200	2,500	3,400
Approximately 700 feet downstream of Ringgold Ooltewah Road	1.84	600	1,050	1,250	1,700
Just downstream of Ringgold Road	0.47	250	420	500	680
JOHNSON BRANCH					
At mouth	2.33	770	1,250	1,450	1,950
Approximately 400 feet downstream of East Brainerd Road	1.71	620	1,000	1,200	1,600
Just upstream of East Brainerd Road	1.12	460	760	890	1,200
LICK BRANCH					
Upstream of Middle Valley Road	5.58	1,650	2,510	2,920	3,860
At Lick Branch Tributary 1 confluence	4.83	1,480	2,270	2,640	3,480
Above Lick Branch Tributary 1 confluence	2.11	820	1,270	1,480	1,940
At Lick Branch Tributary 2 confluence	1.42	620	960	1,120	1,470
Above Lick Branch Tributary 2 confluence	0.85	420	670	780	1,020
Upstream of Lick Branch Tributary 3	0.39	240	390	450	590
At Thrasher Pike	0.32	210	340	390	520

TABLE 3 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
LICK BRANCH TRIBUTARY 1					
At confluence with Lick Branch	2.72	980	1,520	1,760	2,330
Approximately 0.9 mile upstream of mouth	2.4	900	1,390	1,620	2,130
At Thrasher Pike	1.8	730	1,140	1,320	1,740
LICK BRANCH TRIBUTARY 2					
At confluence with Lick Branch	0.58	310	500	580	760
At Thrasher Pike	0.49	280	440	520	680
LICK BRANCH TRIBUTARY 3					
At confluence with Lick Branch	0.46	240	410	490	670
At Thrasher Pike	0.23	150	260	310	420
LITTLE WOLFTEVER CREEK					
At mouth	11.0	2,300	3,600	4,100	5,500
Approximately 0.2 mile upstream of Norfolk Southern Railway	6.83	1,650	2,600	3,000	4,000
Approximately 0.7 mile upstream of Norfolk Southern Railway	1.96	680	1,100	1,300	1,750
LOOKOUT CREEK					
At mouth	187.0	15,000	18,000	20,500	30,700
Approximately 3.8 miles upstream of Norfolk Southern Railway	172.0	14,200	17,200	19,400	29,100
MACKEY BRANCH					
At mouth	11.10	2,300	3,600	4,100	5,500
Just above Ryall Springs Branch	3.59	1,050	1,650	1,950	2,600
Approximately 0.3 mile upstream of Hickory Ridge Drive	1.92	680	1,100	1,250	1,750
Approximately 0.4 mile upstream of Hickory Ridge Drive	1.60	590	970	1,150	1,550

TABLE 3 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
MIDDLE CREEK					
At Edwards Point Road	3.27	1,090	1,670	1,980	2,730
Approximately 0.2 mile upstream of Edwards Point Road	2.31	850	1,320	1,530	2,110
At Middle Creek Road	1.96	750	1,170	1,360	1,880
Approximately 4.1 miles upstream of mouth	1.00	445	700	810	1,120
Above Timesville Road	0.59	310	490	560	780
MOUNTAIN CREEK					
At mouth	6.4	2,250	3,000	3,800	5,600
At upstream corporate limits	3.96	1,700	2,200	2,800	4,200
NORTH CHICKAMAUGA CREEK*					
At Lower Mill Road	108.0	13,500	20,400	23,400	29,300
Approximately 2.6 miles upstream of confluence of Falling Water Creek	74.0	15,500	22,800	27,000	34,000
Approximately 4.6 miles upstream of confluence of Falling Water Creek	61.9	18,000	25,000	28,000	36,400
PITTS BRANCH					
At mouth	6.64	1,650	2,550	2,900	3,950
Just downstream of Boy Scout Road	6.46	1,600	2,500	2,850	3,850
NINEMILE BRANCH					
At mouth	4.72	1,300	2,000	2,300	3,100
Just downstream of Old Dayton Pike	4.33	1,200	1,900	2,200	3,000
At Old Dayton Pike	2.87	900	1,450	1,650	2,300
Just above Private Drive	0.62	300	510	600	820
POE BRANCH					
At confluence with North Chickamauga Creek	**	3,000	4,100	5,100	7,800
Approximately 0.65 mile upstream of confluence	**	2,790	3,830	4,750	7,260

*Downstream decreases in peak discharges owing to channel storage
**Data not available

TABLE 3 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
POE BRANCH (continued)					
Approximately 1.26 miles upstream of confluence	*	2,620	3,610	4,450	6,810
Approximately 1.45 miles upstream of confluence	*	2,570	3,550	4,360	6,700
Approximately 1.74 miles upstream of confluence	*	2,490	3,450	4,220	6,460
Approximately 1.98 miles upstream of confluence	*	2,380	3,300	4,050	6,190
Upstream of Harrison Lane	*	2,310	3,210	3,950	6,000
Approximately 2.54 miles upstream of confluence	*	2,290	3,180	3,860	5,900
Downstream of Daisy-Dallas Road	*	2,220	3,100	3,800	5,800
Upstream of Norfolk Southern Railroad	*	2,200	3,100	3,750	5,710
Upstream of State Route 27 Overpass	*	2,150	3,000	3,620	5,550
Approximately 3.13 miles upstream of confluence	*	2,070	2,910	3,510	5,380
Upstream of State Route 27 culvert	*	2,010	2,850	3,450	5,260
Downstream of Coke Oven Road	*	1,990	2,800	3,380	5,150
Downstream of Access Road	*	1,950	2,750	3,300	5,030
Downstream of North Bound Off-Ramp	*	1,920	2,700	3,280	5,000
Approximately 3.84 miles upstream of confluence	*	1,680	2,290	2,730	4,220
Downstream of State Route 27	*	1,610	2,200	2,610	4,080
Downstream of Card Road	*	1,450	2,000	2,380	3,780
Upstream of Card Road	*	990	1,290	1,590	2,460
POSSUM CREEK					
Approximately 4.0 miles above mouth	25.6	4,200	6,400	7,200	9,600
Approximately 0.1 mile upstream of McGill Road	20.9	3,700	5,500	6,300	8,400
Approximately 1.3 miles upstream of Back Valley Road	15.6	3,000	4,550	5,200	6,900

*Data not available

TABLE 3 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
ROCK CREEK					
At mouth	38.3	7,400	9,800	12,300	18,800
Approximately 1.5 miles downstream of U.S. Route 27	37.4	7,300	9,670	12,000	18,450
ROGERS BRANCH					
At confluence with Wolftever Creek	5.56	1,600	2,440	2,840	3,750
Upstream of Snow Hill Road	5.14	1,510	2,310	2,690	3,550
Approximately 2.4 miles upstream of mouth	4.74	1,420	2,180	2,540	3,350
Approximately 3.3 miles upstream of mouth	4.18	1,300	2,000	2,320	3,070
At tributary confluence	3.59	1,160	1,800	2,090	2,760
Upstream tributary confluence	1.98	760	1,180	1,380	1,810
Approximately 4.2 miles upstream of mouth	1.68	670	1,050	1,230	1,620
Approximately 5.1 miles upstream of mouth	1.37	580	910	1,060	1,400
At I-75	0.66	340	550	640	840
ROGERS BRANCH TRIBUTARY					
At confluence with Rogers Branch	1.61	600	970	1,130	1,540
Approximately 0.6 mile upstream of mouth	1.41	540	880	1,030	1,410
At Ooltewah Georgetown Pike	1.01	430	700	830	1,130
RYALL SPRINGS BRANCH					
At mouth	4.86	1,300	2,100	2,400	3,200
Approximately 0.34 mile downstream of Morin Road	2.18	740	1,200	1,400	1,900
At Morris Hill Road	1.70	620	1,000	1,170	1,590
Approximately 740 feet upstream of Royal Shadows Drive	0.63	310	510	600	830

TABLE 3 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
SALE CREEK					
Approximately 0.8 mile downstream of confluence of Rock Creek	64.1	10,300	13,800	17,500	25,350
Approximately 0.6 mile upstream of Coultersville Road	57.0	9,600	12,800	16,000	23,700
SAVANNAH CREEK					
At mouth	39.7	5,800	8,600	9,700	12,900
Approximately 0.3 mile upstream of Mahan Gap Road	22.4	3,900	5,800	6,600	8,800
Just upstream of Smith Road	8.02	1,900	2,900	3,300	4,500
SOUTH CHICKAMAUGA CREEK					
At mouth	464.0	24,100	31,400	34,600	46,700
At Shallowford Road (mile 7.97)	453.0	23,600	30,900	34,100	45,200
At stream gage (mile 11.31)	428.0	22,500	29,600	32,700	44,100
SPRING CREEK					
At mouth	19.50	7,250	9,600	10,450	12,450
STRINGERS BRANCH					
At mouth	6.2	2,300	3,250	3,800	5,400
Approximately 800 feet northeast of southernmost Dayton Boulevard bridge	4.73	2,451	3,497	3,842	4,687
Dayton Boulevard (U.S. Highway 27) near culvert street	2.82	1,749	2,521	2,777	3,387
At Leawood Street bridge	1.54	1,121	1,648	1,827	2,245
TENNESSEE RIVER					
At Nickajack Reservoir (mile 453.5)	21,690	225,000	245,000	257,000	330,000
At Chickamauga Dam	20,790	185,000	225,000	245,000	305,000

TABLE 3 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
WEST CHICKAMAUGA CREEK					
At mouth	180.00	13,500	17,600	19,500	24,500
WILKERSON BRANCH					
Approximately 0.8 mile upstream of mouth	2.57	830	1,350	1,550	2,100
WOLFTEVER CREEK					
At Old Lee Highway	35.6	5,300	8,800	10,800	16,500
At Ringgold-Ooltewah Road	18.8	3,400	5,700	7,100	10,800
Approximately 0.8 mile downstream of McDonald Road	7.61	1,800	3,100	3,800	5,900
WOLFTEVER CREEK TRIBUTARY					
At confluence with Wolftever Creek	2.21	840	1,300	1,510	2,080
At Korean Church Drive	1.38	520	810	940	1,290
Approximately 1.7 miles upstream of mouth	0.62	340	530	610	830

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

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

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

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

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29). Elevation reference marks (ERMs) used in this FIS, and their descriptions, are shown on the FIRM. ERMs shown on the FIRM represent those used during the preparation of this and previous FISs. The elevations associated with each ERM were obtained and/or developed during FIS production to establish vertical control for determination of flood elevations and floodplain boundaries shown on the FIRM. Users should be aware that these ERM elevations may have changed since the publication of this FIS. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Precountywide Analyses

Each community within Hamilton County, with the exception of the Towns of Lakesite, Lookout Mountain, and Signal Mountain, and the City of Soddy-Daisy, has a previously printed FIS report. The hydraulic analyses described in those reports have been compiled and are summarized below.

The hydraulic analyses for Chesnutt Creek came from the original TVA study, which were performed using a TVA step-backwater program (TVA, 1974) were not revised. However, the flood profiles for Chesnutt Creek were revised to reflect higher backwater elevations from Wolftever Creek.

Cross sections for the flooding sources studied by detailed methods other than the Tennessee River, where no cross sections were taken or computerized backwater analysis made, were obtained from a statistical analysis of elevation data drawn from TVA flood records, field observations, and high-water marks or previous floods (TVA, June 1959). All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Cross sections for Chattanooga Creek were obtained from the September 6, 1989, FIS for the City of Chattanooga, modified and supplemented to reflect modifications to the stream channel and overbanks, channel improvements, and bridge modifications (FEMA, September 6, 1989). Data to modify the cross sections were field surveyed. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Flooding along Seaboard Tributary is controlled by overflow from South Chickamauga Creek both within the community and from a point along the creek in Catoosa County, Georgia, approximately 1.2 miles upstream of the state border.

Shallow flooding on several small tributaries of the Tennessee River was determined from historical data provided by the City of Chattanooga.
When main stream and tributary flooding potentials are interdependent, tributary frequency profiles are to be determined by summation of flood probabilities. Consequently, the flood elevations for Chattanooga Creek, North Chickamauga Creek, Black Creek, Friar Branch, and Mackey Branch were calculated using an effective joint probability determination.

Water-surface elevations of floods of the selected recurrence intervals on all streams except the Tennessee River and Soddy Creek were computed using a modified version of the HEC-2 step-backwater program (U.S. Army Corps of Engineers [USACE], April 1980; USACE, May 1991; TVA, January 1974). Cross sections for the backwater analysis for all streams other than the Tennessee River were field surveyed at bridges and other strategic locations and were supplemented by valley cross sections obtained by photogrammetric methods (TVA, 1985).

Water-surface elevations for floods of the 10-, 50-, 100-, and 500-year recurrence intervals on the Tennessee River where no cross sections were taken nor computerized backwater analysis made were obtained from a statistical analysis of elevation data drawn from TVA flood records, field observation, and high-water marks of previous floods (TVA, ongoing). The segment of Soddy Creek studied in detail for this study lies completely in the backwater area of the Tennessee River (Chickamauga Lake).

Starting water-surface elevations for South Chickamauga Creek were calculated by taking an average of the slopes of the high-water marks for the 1951 and 1973 floods.

Starting water-surface elevations for Lookout Creek, North Chickamauga Creek, Wolftever Creek, and Sale Creek were based on assumed coincidence of flow with the Tennessee River. Starting water-surface elevations for Rock Creek, Chesnutt Creek, and Wilkerson Branch were taken as the calculated flood elevations at the mouth of each stream. Starting water-surface elevations for Possum, Savannah, Hurricane, Little Wolftever, and Falling Water Creeks, and Mackey and Ryall Springs Branches were calculated by the slope/area method. For Ninemile Branch, starting elevations were assumed to be coincident with Pitts Branch; for Johnson Branch and Hurricane Creek Tributary, the starting elevations were assumed to be coincident with Hurricane Creek.

The downstream segments of small tributaries, near their confluence with large rivers or reservoirs, are generally subject to two types of flooding: flooding from the headwaters of the tributary itself and backwater flooding from the river or reservoir. The flood profiles for those tributary segments should therefore be based on the combined probabilities of both types of flooding. For the flood profiles of tributaries in this study, the probability of flooding above a certain elevation on the tributary was calculated as the sum of that probability and the probability of the same elevation being exceeded on the river or reservoir, minus the product of those probabilities. This combined probability method is based on

the assumption that the flood events on the tributary and the river or reservoir are independent but not mutually exclusive.

Independence is assumed because flooding on a large river or reservoir usually results from a storm that is centered outside the tributary drainage area and that generally does not produce significant flooding on the tributary. Similarly, flooding on the tributary usually results from a storm that is centered over the tributary drainage area and that does not generally produce significant flooding on the large river or reservoir. However, floods, not necessarily of the same frequency, can occur on both the tributary and the large river or reservoir as the result of the same storm; therefore, the flood events are not mutually exclusive.

The method described produces profiles that are higher than flat profiles representing backwater from the large river or reservoir and lower than those that would result from an analysis in which concurrent floods of equal frequency are assumed to occur on both sources of flooding.

The TVA used a flood storage routing program to determine headwater elevations just upstream of Signal Mountain Road and at the State Route 29, Signal Mountain Road interchange. The culvert under the State Route 29, Signal Mountain Road interchange cannot handle the 100-year flood; therefore, floodwaters would back up, flow over the stream banks, and flow down Signal Mountain Road. This area is shown as Zone AO, shallow flooding, on the FIRM.

Revised Analyses

For streams in this study, water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater program (USACE, 1991). Starting water-surface elevations were calculated using the slope/area method or were known water-surface elevations. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

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.

Roughness coefficients (Manning's "n") were assigned on the basis of field inspection and TVA records of floodplain and streambed surfaces.

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the streams and floodplain areas. Roughness factors for all streams studied by detailed methods, with the exception of Little Soddy Creek and Soddy Creek because they did not have a previously printed FIS, are shown in Table 4, "Manning's "n" Values."

TABLE 4 - MANNING'S "n" VALUES

Stream	Channel "n"	Overbank "n"
Black Creek	0.035-0.045	0.090-0.150
Chattanooga Creek	0.025-0.068	0.059-0.210
Chesnutt Creek	0.038-0.067	0.090-0.150
Falling Water Creek	0.045-0.050	0.080-0.150
Friar Branch	0.030-0.050	0.060-0.150
Fruedenberg Creek	0.060	0.140
Hurricane Creek Tributary	0.030-0.050	0.070-0.120
Hurricane Creek	0.035-0.040	0.060-0.150
Johnson Branch	0.035-0.045	0.060-0.120
Lick Branch	0.055-0.080	0.070-0.110
Lick Branch Tributary 1	0.060	0.080-0.110
Lick Branch Tributary 2	0.070-0.080	0.080-0.110
Lick Branch Tributary 3	0.070-0.080	0.075-0.080
Little Wolftever Creek	0.030-0.045	0.070-0.150
Lookout Creek	0.040-0.071	0.065-0.150
Mackey Branch	0.035-0.045	0.060-0.150
Middle Creek	0.070-0.080	0.120-0.140
Mountain Creek	0.055-0.160	0.050-0.085
Ninemile Branch	0.035-0.045	0.060-0.140
North Chickamauga Creek	0.020-0.066	0.060-0.200
Pitts Creek	0.035-0.045	0.060-0.140
Poe Branch	0.030-0.060	0.060-0.170
Possum Creek	0.030-0.055	0.060-0.166
Rock Creek	0.037-0.068	0.083-0.200
Rogers Branch	0.050-0.080	0.040-0.120
Rogers Branch Tributary	0.060-0.075	0.070-0.100
Ryall Spring Branch	0.035-0.047	0.080-0.150
Sale Creek	0.011-0.061	0.060-0.172
Savannah Creek	0.030-0.045	0.080-0.130
South Chickamauga Creek	0.025-0.060	0.050-0.160
Spring Creek	0.023-0.075	0.069-0.225
Stringers Branch	0.015-0.050	0.025-0.120
Tennessee River	0.020-0.038	0.060-0.150
West Chickamauga Creek	0.027	0.130
Wilkerson Branch	0.025-0.033	0.046-0.065
Wolftever Creek Tributary	0.070-0.090	0.060-0.130
Wolftever Creek	0.025-0.094	0.100-0.150

3.3 Vertical Datum

All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National

Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

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

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June 1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 100-year floodplain data, which may include a combination of the following: 10-, 50-, 100-, and 500-year flood elevations; delineations of the 100-year and 500-year floodplains; and 100-year floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the county. For the streams studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were delineated using topographic maps at scales of 1:1,200 and 1:2,400 with a contour interval of 2 feet (Continental Aerial Surveys, Inc., April 1975; TVA, March 1969, respectively), topographic maps at a scale of 1:4,800 with a contour interval of 4 feet (TVA, 1985), topographic maps at a scale of 1:24,000 with a contour interval of 5 meters and 20 feet (U.S. Department of the Interior, Geological Survey, 1982; U.S. Department of the Interior, Geological Survey, 1976, and USGS maps, respectively) and orthophotos prepared by Photo Science, Inc. (Photo Science, Inc., March 1994).

For this countywide, between cross sections, the boundaries were delineated using orthophoto topographic mapping prepared by PhotoScience, Inc., dated September

1994, and supplemented by field surveys in April 1997, at a scale of 1"=100', with a contour interval of 2 feet.

For the streams studied by approximate methods, the 100-year floodplain boundaries were taken from the previously printed FISs for the Cities of Chattanooga (FEMA, 1998), Collegedale (FEMA, March 19, 1990), and Red Bank (FEMA, September 5, 1990); and the FIS for the Unincorporated Areas of Hamilton County, Tennessee (FEMA, September 6, 1989).

The 100- and 500-year floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AO, and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the FIRM (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this FIS were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 5, "Floodway Data"). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

Portions of the floodways for Chattanooga Creek, Hurricane Creek, and Johnson Branch extend beyond the county/state boundary.

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 Creek								
A	0.06[1]	86	957	3.1	654.2[4]	642.6[5]	642.8	0.2
B	0.42[1]	97	635	4.4	654.2[4]	643.9[5]	644.2	0.3
C	0.65[1]	22	293	9.3	654.4[4]	649.0[5]	649.0	0.0
D	0.67[1]	20	265	10.2	654.9[4]	649.6[5]	649.7	0.1
E	0.70[1]	55	643	4.2	655.7[4]	652.6[5]	652.8	0.2
F	0.94[1]	47	311	8.3	656.2[4]	655.1[5]	655.3	0.2
G	1.19[1]	54	309	7.4	662.4[4]	662.3[5]	662.5	0.2
H	1.31[1]	57	448	5.0	664.0	664.0	664.5	0.5
I	1.45[1]	46	394	5.6	670.8	670.8	671.4	0.6
J	1.50[1]	46	274	7.9	673.7	673.7	674.0	0.3
K	1.85[1]	38	270	7.5	680.7	680.7	681.4	0.7
L	1.95[1]	40	211	9.5	683.9	683.9	684.8	0.9
Chattanooga Creek								
A	0.07[2]	65	770	14.9	654.8	640.0[5]	640.9	0.9
B	0.63[2]	120	1,929	5.9	654.8	649.3[5]	649.6	0.3
C	0.92[2]	70	1,410	8.0	654.8	651.3[5]	651.5	0.2
D	1.19[2]	120	2,254	5.0	654.8	652.9[5]	653.2	0.3
E	1.49[2]	125	2,276	4.9	654.8	653.4[5]	653.7	0.3
F	1.94[2]	130	2,422	4.6	654.8	654.1[5]	654.5	0.4
G	2.78[2]	700	9,835	1.1	656.3	655.1[6]	655.6	0.5
H	3.83[2]	1,000	16,384	0.6	656.7	655.5[6]	656.3	0.8
I	4.10[2]	1,280	21,153	0.5	657.3	656.7[6]	657.5	0.8
J	5.00[2]	910	13,022	0.8	657.8	657.0[6]	657.8	0.8
K	5.42[2]	550	7,255	1.4	658.0	657.5[6]	658.4	0.9
L	5.52[2]	1,050	13,365	0.8	659.0	658.2[6]	659.1	0.9
M	5.89[2]	1,400	14,886	0.7	659.2	658.4[6]	659.3	0.9
N	6.36[2]	1,400[3]	17,120	0.6	659.3	658.8[6]	659.7	0.9

[1]Miles above confluence of Lookout Creek
[2]Miles above confluence with Tennessee River
[3]Floodway extends beyond State boundary
[4]Elevation computed without using combined probability analysis with the Tennessee River
[5]Elevation computed without consideration of backwater effects from the Tennessee River
[6]Elevation computed without considering effective joint probability determination

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

BLACK CREEK – CHATTANOOGA 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
Chattanooga Creek (continued)								
O	6.68 [1]	1000 [5]	6,949	1.4	660.0	659.4 [6]	660.3	0.9
P	6.90 [1]	930 [5]	10,304	0.9	660.4	659.9 [6]	660.8	0.9
Q	7.18 [1]	405 [5]	4,558	2.1	660.7	660.4 [6]	661.2	0.8
R	7.79 [1]	410 [5]	4,338	2.1	662.7	662.5 [6]	663.4	0.9
Chesnutt Creek								
A	0.32 [2]	105	475	4.5	797.0	797.0	797.4	0.4
B	0.55 [2]	150	775	3.0	801.4	801.4	801.4	0.0
C	0.80 [2]	195	765	3.0	802.7	802.7	802.8	0.1
D	1.23 [2]	350	1,215	1.5	807.6	807.6	808.0	0.4
E	1.54 [2]	170	505	4.0	810.6	810.6	811.5	0.9
F	2.01 [2]	425	1,100	1.5	816.9	816.9	817.5	0.6
G	2.40 [2]	400	785	1.7	823.3	823.3	823.5	0.2
H	2.80 [2]	295	720	1.5	830.8	830.8	831.8	1.0
Falling Water Creek								
A	0.48 [3]	150	1,071	4.4	677.0	672.9 [7]	673.5	0.6
B	0.97 [3]	230	1,367	3.4	681.4	681.4	681.5	0.1
C	1.07 [3]	380	1,272	3.2	682.5	682.5	683.5	1.0
D	1.16 [3]	180	723	5.6	685.9	685.9	685.9	0.0
E	1.44 [3]	120	768	5.2	693.0	693.0	693.3	0.3
F	2.02 [3]	75	442	8.6	725.7	725.7	725.8	0.1
G	2.41 [3]	60	474	7.8	761.4	761.4	761.5	0.1
H	2.80 [3]	35	353	10.2	804.7	804.7	805.6	0.9
Friar Branch								
A	649 [4]	153	1,457	5.2	672.5	661.2 [8]	662.2	1.0
B	1725 [4]	94	1,294	5.8	672.5	663.6 [8]	664.4	0.8
C	2607 [4]	70	1,020	8.0	672.5	664.9 [8]	665.9	1.0
D	4374 [4]	102	1,127	6.5	672.5	667.4 [8]	668.1	0.7

[1]Miles above confluence with Tennessee River

[2]Miles above confluence with Wolftever Creek

[3]Miles above confluence with North Chickamauga Creek

[4]Stream distance in feet above confluence with South Chickamauga Creek

[5]Floodway extends beyond State Boundary

[6]Elevation computed without considering effective joint probablity determination

[7]Elevation computed without considering overflow effects from North Chickamauga Creek

[8]Elevation computed without consideration of backwater effects from South Chickamauga Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

FLOODWAY DATA

CHATTANOOGA CREEK-CHESNUTT CREEK-
FALLING WATER CREEK-FRIAR BRANCH

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
Friar Branch (continued)								
E	6,131	99	858	8.4	672.5	670.8 [2]	671.5	0.7
F	8,241	118	1,389	5.1	676.0	676.0	676.0	0.0
G	10,435	355	2,928	2.4	677.0	677.0	677.3	0.3
H	13,260	357	1,897	2.4	678.0	678.0	679.0	1.0
I	14,476	79	728	6.4	680.7	680.7	681.5	0.8
J	16,390	501	3,120	1.4	682.4	682.4	683.3	0.9
K	19,071	63	291	8.5	683.0	683.0	683.8	0.8
L	20,196	39	192	12.7	687.4	687.4	687.4	0.0
M	21,571	253	811	3.0	693.0	693.0	693.9	0.9
N	22,787	125	436	4.0	698.7	698.7	699.6	0.9
O	23,948	136	348	4.9	704.4	704.4	704.6	0.2
P	26,176	90	245	6.6	717.6	717.6	717.9	0.3
Q	27,447	50	226	9.3	723.4	723.4	724.3	0.9
R	28,152	137	417	3.7	728.9	728.9	729.8	0.9
S	28,787	100	280	5.5	733.9	733.9	734.5	0.6
T	30,145	21	111	13.3	742.8	742.8	742.8	0.0
U	30,745	182	877	1.7	748.7	748.7	748.9	0.2
V	32,186	65	158	8.9	756.0	756.0	756.1	0.1
W	32,380	165	348	4.0	758.4	758.4	759.1	0.7
X	32,777	45	211	6.6	761.2	761.2	761.3	0.1
Y	34,459	95	352	3.8	774.3	774.3	775.1	0.8
Z	35,217	105	258	5.0	779.6	779.6	780.2	0.6
AA	36,117	107	344	3.8	788.3	788.3	789.2	0.9
AB	36,501	66	246	5.1	792.9	792.9	793.2	0.3
AC	36,711	71	232	5.3	794.9	794.9	795.8	0.9
AD	36,920	30	234	5.3	799.4	799.4	800.1	0.7
AE	37,550	30	109	11.0	806.0	806.0	806.1	0.1

[1]Stream distance in feet above confluence with South Chickamauga Creek

[2] Elevation Computed without consideration of backwater effects from South Chickamauga Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

FRIAR 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
Fruedenberg Creek								
A	2,333[1]	38	166	4.0	1,702.7	1,702.7	1,703.0	0.3
B	3,450[1]	19	87	6.2	1,712.7	1,712.7	1,713.7	1.0
C	4,917[1]	28	54	8.0	1,776.7	1,776.7	1,776.7	0.0
Hurricane Creek								
A	2.76[2]	120	766	6.3	736.6	736.6	736.9	0.3
B	3.26[2]	470	2,457	1.4	741.8	741.8	742.7	0.9
C	3.50[2]	200	1,204	2.7	748.4	748.4	748.4	0.0
D	3.98[2]	155	475	6.7	756.0	756.0	756.0	0.0
E	4.52[2]	75	404	7.5	777.6	777.6	778.5	0.9
F	5.08[2]	75	321	8.9	806.0	806.0	806.2	0.2
G	5.38[2]	100	650	4.3	819.4	819.4	820.0	0.6
H	5.46[2]	50	485	5.7	822.7	822.7	822.8	0.1
I	5.69[2]	125[4]	846	3.2	824.7	824.7	825.6	0.9
Hurricane Creek Tributary								
A	0.33[3]	220	649	3.7	742.5	742.5	743.3	0.8
B	0.93[3]	120	915	2.4	759.0	759.0	759.0	0.0
C	1.20[3]	160	606	3.4	760.2	760.2	761.1	0.9
D	1.63[3]	200	331	3.6	770.8	770.8	771.3	0.5
E	2.02[3]	70	337	3.0	781.7	781.7	782.4	0.7
F	2.28[3]	50	226	3.8	788.8	788.8	789.4	0.6
G	2.48[3]	60	267	2.9	794.9	794.9	795.9	1.0
H	2.52[3]	25	138	5.5	796.7	796.7	797.2	0.5
I	2.55[3]	60	374	2.0	797.9	797.9	798.8	0.9
J	2.72[3]	55	227	2.9	803.2	803.2	804.2	1.0
K	2.79[3]	45	249	2.5	805.5	805.5	806.4	0.9

[1]Feet above confluence with Middle Creek
[2]Miles above mouth
[3]Miles above confluence with Hurricane Creek
[4]Width extends beyond county boundary

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

FRUEDENBERG CREEK – HURRICANE CREEK – HURRICANE CREEK TRIBUTARY

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
Hurricane Creek Tributary (continued)								
L	2.93[1]	25	166	3.3	814.0	814.0	814.8	0.8
M	3.04[1]	20	70	7.2	814.8	814.8	815.7	0.9
Johnson Branch								
A	0.00[1]	125[4]	845	3.2	824.7	824.7	825.6	0.9
B	0.17[1]	115	269	5.2	828.8	828.8	828.8	0.0
C	0.52[1]	260	534	2.4	838.5	838.5	839.5	1.0
D	0.75[1]	165	427	2.9	846.9	846.9	847.3	0.4
E	0.82[1]	105	362	3.3	848.8	848.8	849.7	0.9
Lick Branch								
A	3,717[2]	410	3,575	0.8	670.4	664.6[5]	664.6	0.0
B	8,807[2]	530	207	7.2	670.4	665.7[5]	666.7	1.0
C	12,355[2]	65	238	1.9	670.5	670.5	671.4	0.9
D	13,380[2]	40	141	3.2	673.5	673.5	674.2	0.7
E	14,156[2]	30	118	3.3	676.0	676.0	677.0	1.0
Lick Branch Tributary 1								
A	723[3]	375	1,218	1.4	670.4	667.0[6]	667.1	0.1
B	2783[3]	410	1,045	1.7	670.4	670.2[6]	670.2	0.0
C	3,580[3]	220	566	3.1	671.2	671.2	671.8	0.6
D	3,717[3]	210	663	2.7	671.8	671.8	672.5	0.7
E	5,021[3]	195	526	3.1	675.9	675.9	676.6	0.7
F	5,533[3]	155	507	3.2	678.7	678.7	679.1	0.4
G	6,141[3]	165	675	2.4	683.1	683.1	683.1	0.0
H	6,521[3]	45	260	5.1	683.3	683.3	684.0	0.7

[1]Miles above confluence with Hurricane Creek
[2]Feet above confluence with North Chickamauga Creek
[3]Feet above confluence with Lick Branch
[4]This width extends beyond county boundary
[5]Elevation computed without consideration of backwater effects from North Chickamauga Creek
[6]Elevation computed without consideration of backwater effects from Lick Branch

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

HURRICANE CREEK TRIBUTARY – JOHNSON BRANCH – LICK BRANCH – LICK BRANCH TRIBUTARY 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
Lick Branch Tributary 2								
A	433 [1]	170	550	1.1	670.4	668.7 [2]	669.5	0.8
B	1,547 [1]	100	222	2.6	671.2	671.2	671.7	0.5
C	2,677 [1]	50	211	2.5	674.9	674.9	675.4	0.5
Lick Branch Tributary 3								
A	100 [1]	110	255	1.9	670.4	669.7 [2]	670.7	1.0
B	935 [1]	43	179	2.7	677.5	677.5	678.3	0.8
C	1,885 [1]	85	285	1.7	678.9	678.9	679.6	0.7
D	2,376 [1]	40	95	3.3	679.9	679.9	680.8	0.9
Little Soddy Creek								
A	670 [2]	210	570	4.4	687.8	687.8	687.9	0.1
B	1,727 [2]	95	250	9.6	701.7	701.7	701.8	0.1
C	2,783 [2]	150	305	7.5	727.2	727.2	727.8	0.6
D	3,736 [2]	100	370	6.0	756.1	756.1	756.2	0.1
E	4,213 [2]	45	180	11.9	768.9	768.9	768.9	0.0
F	4,953 [2]	45	175	11.8	805.1	805.1	805.8	0.7
Little Wolftever Creek								
A	0.12 [3]	260	708	5.3	753.0	744.5 [5]	744.8	0.3
B	0.25 [3]	340	1,778	2.1	753.0	749.2 [5]	750.2	1.0
C	0.45 [3]	578	3,439	1.1	753.0	752.2 [5]	752.9	0.7
D	0.55 [3]	75	694	5.3	753.0	752.7 [5]	753.4	0.7
E	0.70 [3]	70	527	6.9	754.1	754.1	754.9	0.8
F	0.87 [3]	70	380	9.5	758.3	758.3	758.7	0.4
G	1.08 [3]	235	1,169	3.1	764.3	764.3	765.3	1.0
H	1.44 [3]	110	1,582	2.4	784.9	784.9	785.9	1.0
I	1.62 [3]	120	1,260	3.4	785.6	785.6	786.6	1.0

[1]Feet above confluence with Lick Branch [2]Feet above confluence with Soddy Lake [3]Miles above mouth

[4]Elevation computed without consideration of backwater effects from North Chickamauga Creek [5]Elevation computed without considering backwater effects from Wolftever Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

FLOODWAY DATA

LICK BRANCH TRIBUTARY 2 - LICK BRANCH TRIBUTARY 3 - LITTLE SODDY CREEK - LITTLE WOLFTEVER 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
Little Wolftever Creek (Cont.)								
J	1.73 [1]	60	461	8.2	788.2	788.2	789.1	0.9
K	2.03 [1]	70	945	3.9	797.4	797.4	797.9	0.5
L	2.28 [1]	500	3,245	1.1	798.1	798.1	799.0	0.9
M	2.62 [1]	430	1,943	1.8	801.1	801.1	801.4	0.3
N	3.03 [1]	380	2,013	1.6	805.4	805.4	805.9	0.5
O	3.66 [1]	110	551	2.4	812.6	812.6	813.5	0.9
P	4.03 [1]	130	461	2.8	818.9	818.9	819.8	0.9
Lookout Creek								
A	0.67 [2]	400	6,112	3.3	654.0	651.0 [5]	651.5	0.5
B	1.24 [2]	500	9,558	2.1	654.0	652.6 [5]	653.0	0.4
C	1.87 [2]	450	7,842	2.6	654.0	653.4 [5]	653.9	0.5
D	2.48 [2]	450	7,078	2.9	654.4	654.4	655.0	0.6
E	3.50 [2]	500	8,661	2.3	656.5	656.5	657.3	0.8
F	4.50 [2]	875	14,065	1.4	658.1	658.1	659.1	1.0
G	5.02 [2]	760	12,470	1.5	658.4	658.4	659.4	1.0
Mackey Branch								
A	0.42 [3]	380	2,672	1.5	686.5 [4]	675.8 [6]	676.7	0.9
B	0.60 [3]	370	2,036	1.9	686.5 [4]	676.3 [6]	677.3	1.0
C	1.10 [3]	470	1,628	2.3	686.9 [4]	679.5 [6]	680.5	1.0
D	1.56 [3]	210	1,021	3.4	686.9 [4]	685.0 [6]	685.9	0.9
E	1.69 [3]	220	665	5.2	687.5 [4]	686.9 [6]	687.3	0.4
F	1.79 [3]	220	1,495	2.3	689.8 [4]	689.7	690.2	0.5
G	1.86 [3]	170	986	2.0	690.1 [4]	689.9	690.5	0.6
H	1.97 [3]	160	608	3.2	690.8 [4]	690.7	691.7	1.0
I	2.02 [3]	170	700	2.7	692.6	692.6	693.4	0.8

[1]Miles above confluence with Wolftever Creek

[2]Miles above mouth

[3]Miles above confluence with South Chickamauga Creek

[4]Elevation computed using combined probability analysis with South Chickamauga Creek

[5]Elevation computed without consideration of backwater effects from Tennessee River

[6]Elevations computed without consideration of backwater effects from South Chickamauga Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

FLOODWAY DATA

LITTLE WOLFTEVER CREEK - LOOKOUT CREEK - MACKEY 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
Mackey Branch (cont.)								
J	2.11[1]	240	872	2.2	694.3	694.3	695.3	1.0
K	2.22[1]	180	848	2.2	696.8	696.8	697.6	0.8
L	2.81[1]	140	591	3.0	708.6	708.6	709.5	0.9
M	3.26[1]	50	279	6.0	724.8	724.8	725.7	0.9
N	3.40[1]	120	541	3.0	729.8	729.8	730.2	0.4
O	3.74[1]	190	741	2.1	739.0	739.0	739.9	0.9
P	4.07[1]	140	561	2.7	745.7	745.7	746.7	1.0
Q	4.21[1]	200	680	2.2	751.5	751.5	752.3	0.8
R	4.46[1]	80	446	3.2	758.7	758.7	759.6	0.9
S	4.73[1]	150	292	4.8	768.2	768.2	768.4	0.2
T	4.88[1]	220	600	2.3	773.8	773.8	774.8	1.0
U	5.21[1]	40	241	5.4	789.2	789.2	790.1	0.9
V	5.60[1]	40	154	7.4	810.6	810.6	810.9	0.3
Middle Creek								
A	17,662[2]	96	880	2.3	1,642.4	1,642.4	1,643.2	0.8
B	18,760[2]	24	128	12.3	1,644.9	1,644.9	1,645.0	0.1
C	20,608[2]	32	357	3.9	1,664.3	1,664.3	1,664.3	0.0
D	21,891[2]	30	141	6.2	1,685.9	1,685.9	1,686.0	0.1
E	23,982[2]	35	85	7.1	1,718.0	1,718.0	1,718.3	0.3
Mountain Creek								
A	1.49[3]	110	2,320	1.6	652.1	652.1	652.1	0.0
B	1.98[3]	440	2,010	1.7	656.4	656.4	656.8	0.4
C	2.47[3]	400	860	3.7	663.6	663.6	664.1	0.5
D	2.60[3]	350	1,430	2.2	666.4	666.4	667.4	1.0
E	2.92[3]	450	1,600	1.9	670.1	670.1	670.5	0.4
F	3.00[3]	500	1,230	2.4	673.0	673.0	673.3	0.3

[1]Miles above confluence with South Chickamauga Creek
[2]Feet above confluence with Tennessee River
[3]Miles above confluence with Tennessee River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

MACKEY BRANCH – MIDDLE CREEK – MOUNTAIN 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
Mountain Creek (cont.)								
G	3.41[1]	450	1,240	2.2	683.5	683.5	683.5	0.0
H	3.78[1]	230	645	3.8	690.1	690.1	690.3	0.2
I	3.96[1]	190	240	9.9	696.7	696.7	696.7	0.0
J	4.39[1]	360	1,330	1.6	709.7	709.7	710.0	0.3
K	4.52[1]	250	900	2.2	712.5	712.5	712.8	0.3
North Chickamauga Creek								
A	6,600[2]	140	3,000	8.8	659.6	656.2[3]	656.2	0.0
B	17,655[2]	270	4,606	5.8	662.4	662.4	662.6	0.2
C	27,000[2]	900	17,685	1.5	665.6	665.6	666.0	0.4
D	32,965[2]	1,050	23,015	1.2	666.4	666.4	667.3	0.9
E	35,650[2]	880	16,727	1.6	666.5	666.5	667.5	1.0
F	43,000[2]	1,380	23,082	1.1	667.8	667.8	668.8	1.0
G	51,500[2]	2,160	26,251	1.0	669.2	669.2	670.2	1.0
H	56,350[2]	1,600	22,380	1.2	670.3	670.3	671.2	0.9
I	63,600[2]	1,380	17,884	1.5	671.7	671.7	672.7	1.0
J	66,850[2]	630	8,762	3.1	672.2	672.2	673.1	0.9
K	74,700[2]	2,000	23,713	1.2	677.2	677.2	678.0	0.8
L	78,750[2]	2,230	23,415	1.2	678.2	678.2	679.0	0.8
M	87,047[2]	700	5,226	6.1	685.8	685.8	686.3	0.5
N	87,527[2]	573	3,699	8.7	686.2	686.2	687.0	0.8
O	88,427[2]	600	3,438	9.3	691.1	691.1	691.4	0.3
P	89,167[2]	171	1,747	18.3	696.4	696.4	696.4	0.0
Q	89,847[2]	200	6,601	4.8	707.1	706.7	706.7	0.0
R	90,777[2]	224	2,602	12.3	708.1	708.1	708.3	0.2

[1]Miles above confluence with Tennessee River
[2]Feet above confluence with Tennessee River
[3]Elevation computed without consideration of backwater effects from the Tennessee River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY,TN AND INCORPORATED AREAS

FLOODWAY DATA

MOUNTAIN CREEK – NORTH CHICKAMAUGA 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
North Chickamauga Creek (continued)								
S	91,927[1]	500	3,573	9.0	727.3	727.3	727.3	0.0
T	92,492[1]	209	2,860	11.2	732.2	732.2	732.2	0.0
U	93,192[1]	230	2,189	14.6	736.8	736.8	737.8	1.0
V	94,592[1]	180	2,819	11.4	747.6	747.6	748.6	1.0
W	95,292[1]	130	2,057	15.6	752.6	752.6	752.9	0.3
Pitts Branch								
A	0.49[2]	175	596	4.8	675.7	671.2[3]	671.2	0.0
B	0.62[2]	190	633	4.5	675.7	673.8[3]	674.6	0.8
C	0.71[2]	181	941	3.0	675.7	675.7	676.7	1.0
Ninemile Branch								
D	0.99[2]	185	652	3.5	678.3	678.3	679.2	0.9
E	1.26[2]	37	224	10.0	684.4	684.4	684.8	0.4
F	1.35[2]	41	261	8.5	687.7	687.7	687.8	0.1
G	1.55[2]	103	511	4.3	690.7	690.7	691.4	0.7
H	1.70[2]	40	290	5.7	697.0	697.0	697.0	0.0
I	2.03[2]	105	352	4.2	705.5	705.5	706.0	0.5
J	2.07[2]	145	657	2.2	706.0	706.0	706.9	0.9
K	2.52[2]	26	150	8.1	717.1	717.1	717.8	0.7
L	2.97[2]	18	143	6.8	732.6	732.6	733.2	0.6
M	3.16[2]	27	110	7.9	741.3	741.3	741.8	0.5
N	3.30[2]	55	299	2.1	750.8	750.8	751.7	0.9
O	3.63[2]	18	88	6.8	763.8	763.8	764.0	0.2

[1]Feet above confluence with Tennessee River
[2]Miles above confluence with North Chickamauga Creek
[3]Elevation computed without consideration of backwater effects from North Chickamauga Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

NORTH CHICKAMAUGA CREEK – PITTS BRANCH - NINEMILE BRANCH

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
Northeast Tributary to Unnamed Tributary to Tennessee River								
A	130	14	65	6.6	708.3	708.3	709.3	1.0
B	475	47	72	5.9	711.8	711.8	711.8	0.0
C	739	18	49	8.6	715.1	715.1	715.2	0.1
D	951	17	63	6.7	717.2	717.2	718.1	0.9
E	1,341	12	46	9.3	722.5	722.5	722.7	0.2

[1]Feet above confluence with Unnamed Tributary to Tennessee River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

FLOODWAY DATA

NORTHEAST TRIBUTARY TO UNNAMED TRIBUTARY TO TENNESSEE RIVER

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
Poe Branch								
A	164[1]	420	4,299	1.2	684.4	682.7[3]	683.4	0.7
B	3,443[1]	800	7,369	.6	684.4	683.3[3]	684.0	0.7
C	6,632[1]	1,000	8,610	.5	684.4	683.6[3]	684.4	0.8
D	7,630[1]	950	6,982	.6	684.4	683.7[3]	684.5	0.8
E	9,171[1]	780	3,902	1.1	684.4	684.4	685.2	0.8
F	10,444[1]	400	1,551	2.6	687.7	687.7	688.6	0.9
G	10,803[1]	300	1,186	3.4	691.4	691.4	691.4	0.0
H	11,046[1]	290	1,641	2.5	693.3	693.3	694.0	0.7
I	11,378[1]	310	1,350	3.0	694.3	694.3	695.3	1.0
J	12,646[1]	472	3,202	1.2	694.7	694.7	695.7	1.0
K	14,552[1]	180	1,920	2.0	703.6	703.6	703.8	0.2
L	15,201[1]	415	2,516	1.5	705.2	704.2	705.0	0.8
M	17,266[1]	170	998	3.5	707.2	707.2	707.5	0.3
N	18,897[1]	100	1,327	2.5	718.9	718.9	719.5	0.6
O	19,467[1]	200	1,759	1.9	719.0	719.0	719.9	0.9
P	20,138[1]	335	4,266	0.8	725.6	725.6	726.6	1.0
Q	20,655[1]	250	2,991	0.9	725.8	725.8	726.8	1.0
R	21,564[1]	150	2,449	1.1	733.5	733.5	734.3	0.8
S	23,074[1]	90	919	2.6	733.6	733.6	734.3	0.7
T	24,367[1]	71	233	6.8	740.7	740.7	741.6	0.9
Possum Creek								
A	24,376[2]	200	1,181	6.0	687.5	687.5	687.5	0.0
B	28,906[2]	134	1,145	6.0	693.8	693.8	693.8	0.0
C	30,406[2]	325	2,976	2.3	696.3	696.3	696.4	0.1
D	31,626[2]	1,200	6,587	1.0	697.0	697.0	697.4	0.4
E	33,425[2]	1,250	5,016	1.3	698.1	698.1	698.8	0.7

[1]Feet above confluence with North Chickamauga Creek
[2]Feet above confluence with the Tennessee River
[3]Elevation computed without consideration of backwater effects from North Chickamauga Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

POE BRANCH – POSSUM 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
Possum Creek (cont.)								
F	36,246[1]	116	506	11.2	715.9	715.9	716.2	0.3
G	37,283[1]	123	982	5.4	730.0	730.0	730.5	0.5
H	39,412[1]	83	459	11.5	763.6	763.6	764.3	0.7
I	41,543[1]	69	434	12.1	805.2	805.2	805.3	0.1
J	42,783[1]	80	428	12.2	829.0	829.0	829.0	0.0
K	44,383[1]	69	555	9.4	862.0	862.0	862.3	0.3
Rock Creek								
A	0.30[2]	315	1,815	6.7	693.0	693.0	693.6	0.6
B	0.60[2]	565	2,035	6.0	708.1	708.1	708.2	0.1
C	0.91[2]	450	1,560	7.8	720.0	720.0	720.6	0.6
D	1.16[2]	700	4,683	2.6	737.6	737.6	738.5	0.9
E	1.40[2]	400	1,555	7.8	750.6	750.6	750.8	0.2
F	1.73[2]	300	2,100	5.7	772.5	772.5	772.5	0.0
G	2.10[2]	470	1,300	9.3	796.9	796.9	796.9	0.0
H	2.42[2]	380	2,505	4.8	820.0	820.0	821.0	1.0
Rogers Branch								
A	2,713[3]	90	743	3.8	687.8	687.8	688.8	1.0
B	4,873[3]	240	758	3.7	694.7	694.7	694.9	0.2
C	5,704[3]	234	863	3.3	697.2	697.2	697.3	0.1
D	8,294[3]	425	1,369	2.0	701.1	701.1	701.6	0.5
E	12,709[3]	520	1,942	1.3	709.5	709.5	709.8	0.3
F	14,742[3]	295	1,084	2.3	712.1	712.1	712.9	0.8
G	17,618[3]	640	2,102	1.1	715.7	715.7	716.5	0.8
H	19,888[3]	376	742	2.8	718.6	718.6	719.4	0.8
I	21,756[3]	340	887	1.6	723.7	723.7	724.6	0.9

[1]Feet above confluence with the Tennessee River
[2]Miles above confluence with Sale Creek
[3]Feet above confluence with Wolftever Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

POSSUM CREEK – ROCK CREEK – ROGERS BRANCH

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
Rogers Branch (cont.)								
J	23,307	180	494	2.5	727.6	727.6	728.5	0.9
K	25,771	200	533	2.3	735.7	735.7	736.6	0.9
L	26,836	100	301	3.5	739.5	739.5	739.8	0.3
M	28,061	75	379	1.7	745.5	745.5	746.1	0.6
Rogers Branch Tributary								
A	1,521[2]	140	369	3.1	723.9	723.9	724.3	0.4
B	4,050[2]	140	412	2.5	734.7	734.7	735.5	0.8
C	5,000[2]	23	128	6.5	738.7	738.7	739.4	0.7
D	5,396[2]	52	355	2.5	741.6	741.6	742.5	0.9
Ryall Springs Branch								
A	0.12[3]	240	1,046	2.3	689.8	689.0[4]	690.0	1.0
B	0.55[3]	155	593	3.7	698.0	698.0	699.0	1.0
C	0.95[3]	50	337	6.0	707.5	707.5	708.4	0.9
D	1.29[3]	40	130	10.3	719.6	719.6	720.3	0.7
E	1.44[3]	100	382	3.4	726.6	726.6	727.6	1.0
F	1.70[3]	70	311	3.8	737.8	737.8	738.7	0.9
G	1.77[3]	80	355	3.3	741.8	741.8	742.7	0.9
H	1.89[3]	40	193	5.8	748.6	748.6	749.3	0.7
I	2.06[3]	80	319	3.3	756.5	756.5	757.5	1.0
J	2.20[3]	45	228	4.4	767.1	767.1	767.9	0.8
K	2.24[3]	45	206	4.8	769.0	769.0	769.9	0.9
L	2.30[3]	30	172	5.6	773.7	773.7	774.6	0.9
M	2.45[3]	20	77	11.9	784.8	784.8	784.8	0.0
N	2.59[3]	75	250	3.5	795.0	795.0	795.9	0.9

[1]Feet above confluence with Wolftever Creek
[2]Feet above confluence with Rogers Branch
[3]Miles above confluence with Mackey Branch
[4]Elevation computed without consideration of backwater effects from Mackey Branch

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

ROGERS BRANCH – ROGERS BRANCH TRIBUTARY – RYALL SPRINGS 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
Ryall Springs Branch (continued)								
O	2.83[1]	40	99	7.8	808.6	808.6	808.7	0.1
P	3.06[1]	100	319	2.2	830.1	830.1	831.1	1.0
Q	3.30[1]	30	69	8.7	850.7	850.7	850.7	0.0
Sale Creek								
A	4.15[2]	220	3,240	5.4	689.0	689.0	689.5	0.5
B	4.35[2]	350	2,165	8.1	689.2	689.2	689.7	0.5
C	4.53[2]	170	1,755	10.0	689.8	689.8	690.2	0.4
D	5.00[2]	430	4,295	4.0	693.3	693.3	693.5	0.2
E	5.34[2]	370	3,990	4.3	694.1	694.1	694.1	0.0
F	5.65[2]	380	4,800	3.6	696.3	696.3	696.6	0.3
G	6.00[2]	675	8,400	2.0	698.0	698.0	698.4	0.4
H	6.47[2]	960	11,145	1.5	699.0	699.0	699.7	0.7
I	6.85[2]	670	5,970	2.8	700.4	700.4	701.1	0.7
J	7.29[2]	610	4,735	3.4	701.4	701.4	702.2	0.8
K	7.73[2]	500	3,010	5.3	703.4	703.4	703.9	0.5
L	8.07[2]	320	2,680	6.0	708.7	708.7	709.0	0.3
Savannah Creek								
A	3.75[3]	465	2,169	3.8	689.6	689.6	689.7	0.1
B	4.68[3]	830	4,498	1.7	695.4	695.4	696.3	0.9
C	5.08[3]	260	1,450	5.2	697.4	697.4	698.2	0.8
D	5.17[3]	660	3,560	2.1	698.2	698.2	698.8	0.6
E	5.56[3]	435	2,122	3.1	700.7	700.7	701.5	0.8
F	6.37[3]	470	2,866	2.2	705.8	705.8	706.7	0.9
G	7.05[3]	595	3,249	1.7	708.6	708.6	709.6	1.0
H	7.84[3]	450	2,117	2.6	715.1	715.1	716.0	0.9

[1]Miles above confluence with Mackey Branch
[2]Miles above confluence with Tennessee River
[3]Miles above confluence with Wolftever Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

RYALL SPRINGS BRANCH – SALE BRANCH – SAVANNAH 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
Savannah Creek (Continued)								
I	8.43 [1]	360	2,186	2.4	719.0	719.0	719.6	0.6
J	9.11 [1]	220	1,118	4.1	724.9	724.9	725.8	0.9
K	9.84 [1]	340	1,582	2.3	733.7	733.7	734.6	0.9
L	10.50 [1]	130	861	4.0	740.6	740.6	741.4	0.8
M	11.07 [1]	270	1,512	2.2	748.7	748.7	749.1	0.4
Soddy Creek								
A	19,706 [2]	200	1,665	9.0	687.1	686.9 [3]	687.4	0.5
B	21,078 [2]	295	3,005	5.0	696.7	696.7	697.7	1.0
C	22,926 [2]	460	2,165	6.9	712.9	712.9	712.9	0.0
D	24,035 [2]	295	2,530	5.8	730.7	730.7	731.2	0.5
E	24,616 [2]	440	2,410	6.1	735.3	735.3	735.5	0.2
F	26,836 [2]	310	3,575	4.1	757.7	757.7	758.2	0.5
South Chickamauga Creek								
A	3,912 [2]	449	9,456	3.7	659.2	657.6 [3]	658.4	0.8
B	4,456 [2]	425	9,714	3.6	659.2	657.7 [3]	658.4	0.7
C	10,499 [2]	346	8,387	4.6	660.0	660.0	660.7	0.7
D	14,406 [2]	223	6,268	5.7	662.3	662.3	662.9	0.6
E	17,862 [2]	396	9,716	3.5	663.3	663.3	663.9	0.6
F	20,892 [2]	237	7,332	4.8	664.0	664.0	664.6	0.6
G	24,576 [2]	315	9,306	4.8	665.6	665.6	666.2	0.6
H	27,961 [2]	420	10,353	3.3	667.5	667.5	668.3	0.8
I	28,068 [2]	316	9,050	3.8	667.6	667.6	668.3	0.7
J	28,197 [2]	289	6,649	5.2	667.6	667.6	668.4	0.8
K	28,829 [2]	180	5,612	6.5	668.1	668.1	668.9	0.8
L	31,477 [2]	489	9,502	3.6	669.3	669.3	670.0	0.7

[1]Miles above confluence with Wolftever Creek

[2]Stream distance in feet above confluence with Tennessee River

[3]Elevation computed without consideration of backwater effects from Tennessee River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

SAVANNAH CREEK-SODDY CREEK-SOUTH CHICKAMAUGA 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
South Chickamauga Creek (continued)								
M	37,097	974	18,540	1.8	671.1	671.1	671.7	0.6
N	43,723	699	14,702	2.3	672.2	672.2	672.8	0.6
O	44,151	1,011	16,617	2.1	672.3	672.3	672.9	0.6
P	49,484	499	9,603	3.4	672.6	672.6	673.1	0.5
Q	50,487	749	15,337	2.1	672.8	672.8	673.5	0.7
R	51,417	941	18,942	1.7	672.8	672.8	673.5	0.7
S	51,692	1,084	21,069	1.6	673.0	673.0	673.6	0.6
T	52,156	1,269	23,313	1.4	673.0	673.0	673.7	0.7
U	53,090	1,250	21,679	1.5	673.0	673.0	673.7	0.7
V	53,989	1,508	23,498	1.4	673.0	673.0	673.7	0.7
W	54,516	1,600	24,420	1.3	673.1	673.1	673.7	0.6
X	55,501	1,783	29,764	1.1	673.1	673.1	673.8	0.7
Y	56,572	907	16,270	2.0	673.1	673.1	673.8	0.7
Z	57,081	891	15,383	2.1	673.2	673.2	673.9	0.7
AA	58,077	922	15,416	2.1	673.3	673.3	674.0	0.7
AB	59,499	916	12,051	2.7	673.4	673.4	674.1	0.7
AC	60,494	385	6,811	4.8	673.4	673.4	674.1	0.7
AD	61,032	338	6,125	5.3	673.7	673.7	674.4	0.7
AE	61,247	380	7,808	4.2	674.2	674.2	674.8	0.6
AF	63,534	178	4,482	7.3	674.6	674.6	675.1	0.5
AG	64,751	158	3,972	8.2	675.0	675.0	675.7	0.7
AH	65,237	158	3,706	8.8	676.3	676.3	676.3	0.0
AI	70,655	175	4,624	6.2	677.9	677.9	678.7	0.8
AJ	72,339	842	12,572	2.3	679.5	679.5	680.4	0.9
AK	77,469	203	4,319	7.1	681.1	681.1	681.8	0.7
AL	82,390	409	6,602	4.3	685.0	685.0	685.8	0.8
AM	86,622	788	10,092	2.8	688.0	688.0	688.8	0.8

[1]Stream distance in feet above confluence with Tennessee River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

SOUTH CHICKAMAUGA 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
Spring Creek								
A	0.08[1]	1,200	17,658	0.6	679.0	677.6[3]	678.5	0.9
B	0.32[1]	1,110	19,444	0.5	679.0	677.7[3]	678.6	0.9
C	0.70[1]	749	12,407	0.8	680.4	679.7[3]	680.1	0.4
D	2.26[1]	150	1,949	4.2	681.2	681.2	681.9	0.7
E	2.57[1]	640	6,941	1.1	681.9	681.9	682.8	0.9
F	3.10[1]	700	6,438	1.2	682.5	682.5	683.5	1.0
Stringers Branch								
A	1,162[2]	500	11,700	0.3	651.8	649.7[4]	650.2	0.5
B	4,731[2]	80	956	3.7	660.3	660.3	661.1	0.8
C	5,631[2]	80	1,174	3.6	666.6	666.6	667.4	0.8
D	6,332[2]	110	1,220	3.3	666.8	666.8	667.7	0.9
E	7,204[2]	260	1,400	2.8	669.7	669.7	670.4	0.7
F	8,741[2]	240	1,497	2.5	671.5	671.5	672.3	0.8
G	9,646[2]	205	663	5.4	673.4	673.4	674.1	0.7
H	11,206[2]	200	462	7.2	679.1	679.1	679.1	0.0
I	11,932[2]	270	1,100	2.9	686.8	686.8	687.3	0.5
J	14,885[2]	85	550	5.1	700.0	700.0	700.1	0.1
K	15,932[2]	105	627	4.2	705.2	705.2	705.3	0.1
L	16,702[2]	88	642	4.0	708.4	708.4	709.0	0.6
M	17,606[2]	53	270	8.9	711.0	711.0	711.0	0.0
N	18,107[2]	130	571	4.1	714.4	714.4	715.2	0.8
O	18,676[2]	145	749	3.1	715.8	715.8	716.3	0.5
P	20,262[2]	140	524	3.9	724.5	724.5	725.2	0.7
Q	22,531[2]	80	399	4.5	738.3	738.3	739.2	0.9

[1]Miles above mouth
[2]Feet above confluence with Mountain Creek
[3]Elevation computed using combined probability analysis with South Chickamauga Creek
[4]Elevation computed without consideration of backwater effects from Tennessee River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOODWAY DATA

SPRING CREEK – STRINGERS 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
Tennessee River								
A	0.36 [1]	700	31,199	8.0	648.8	648.8	649.5	0.7
B	1.41 [1]	730	35,329	7.1	650.0	650.0	650.7	0.7
C	2.46 [1]	1,070	51,720	4.8	651.0	651.0	651.7	0.7
D	6.67 [1]	875	37,820	6.6	652.9	652.9	653.6	0.7
E	8.78 [1]	1,020	40,007	6.2	654.4	654.4	655.1	0.7
F	10.88 [1]	1,060	41,353	6.0	655.6	655.6	656.3	0.7
G	12.99 [1]	1,380	51,314	4.9	656.6	656.6	657.6	1.0
H	15.09 [1]	1,210	44,722	5.6	658.0	658.0	658.7	0.7
I	17.20 [1]	1,250	43,341	5.3	659.0	659.0	659.8	0.8
J	19.30 [1]	1,380	55,913	4.1	659.5	659.5	660.3	0.8
West Chickamauga Creek								
A	0.65 [2]	2,235	39,280	0.7	677.4	676.5 [4]	677.5	1.0
B	2.05 [2]	1,750	21,110	1.2	677.4	677.3 [4]	678.3	1.0
C	2.91 [2]	350	4,515	5.4	678.0	678.0	678.9	0.9
Wilkerson Branch								
A	0.03 [3]	40	245	7.5	788.1	785.0 [5]	785.0	0.0
B	0.05 [3]	40	321	5.7	788.3	788.3	788.3	0.0
C	0.06 [3]	80	598	3.1	789.0	789.0	789.0	0.0
D	0.09 [3]	180	1,155	1.6	791.0	791.0	792.0	1.0
E	0.20 [3]	260	1,692	1.0	791.5	791.5	792.5	1.0
F	0.51 [3]	150	361	4.6	794.3	794.3	794.8	0.5
G	0.79 [3]	210	961	1.6	807.1	807.1	807.7	0.6
H	0.99 [3]	130	296	4.9	813.6	813.6	813.6	0.0
I	1.26 [3]	150	280	4.6	824.4	824.4	824.9	0.5

[1]Miles above county boundary
[2]Miles above mouth
[3]Miles above confluence with Wolftever Creek
[4]Elevation computed without consideration of backwater effects from South Chickamauga Creek
[5]Elevation computed without consideration of backwater effects from Wolftever Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

FLOODWAY DATA

TENNESSEE RIVER - WEST CHICKAMAUGA CREEK - WILKERSON 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
Wilkerson Branch (Cont.)								
J	1.47 [1]	150	250	4.8	830.7	830.7	831.4	0.7
K	1.75 [1]	125	185	6.0	842.1	842.1	842.2	0.1
Wolftever Creek								
A	1,976 [2]	303	3,396	3.2	686.1	683.6 [3]	684.4	0.8
B	3,501 [2]	1,222	14,013	0.8	686.1	684.0 [3]	684.7	0.7
C	6,501 [2]	242	2,637	4.1	686.1	684.0 [3]	684.7	0.7
D	8,000 [2]	360	4,437	2.4	686.1	684.6 [3]	685.2	0.6
E	10,001 [2]	177	2,076	5.2	686.1	685.1 [3]	685.6	0.5
F	11,038 [2]	249	2,446	4.4	686.1	685.8 [3]	686.5	0.7
G	11,264 [2]	240	2,313	4.7	686.5	686.5	687.0	0.5
H	13,501 [2]	424	2,726	4.0	688.6	688.6	688.8	0.2
I	16,498 [2]	191	1,610	6.7	694.8	694.8	695.0	0.2
J	19,723 [2]	238	1,814	6.0	699.9	699.9	700.2	0.3
K	21,707 [2]	1,020	5,637	1.9	704.0	704.0	704.5	0.5
L	23,500 [2]	254	3,027	3.6	706.2	706.2	706.6	0.4
M	24,500 [2]	119	1,298	8.3	706.4	706.4	706.8	0.4
N	25,999 [2]	212	2,577	4.2	709.6	709.6	710.1	0.5
O	27,499 [2]	101	1,126	9.6	710.4	710.4	710.7	0.3
P	29,500 [2]	300	2,712	4.0	714.4	714.4	714.9	0.5
Q	30,000 [2]	900	5,271	2.0	715.2	715.2	715.8	0.6
R	30,301 [2]	427	2,318	4.7	715.2	715.2	715.6	0.4
S	31,501 [2]	129	991	10.9	717.2	717.2	717.4	0.2
T	32,951 [2]	393	3,114	3.5	723.0	723.0	723.0	0.0
U	35,499 [2]	266	1,604	6.7	724.9	724.9	725.1	0.2
V	36,068 [2]	282	2,196	4.9	725.7	725.7	726.5	0.8
W	37,000 [2]	119	1,575	6.9	726.9	726.9	727.5	0.6
X	38,500 [2]	218	1,721	6.3	730.0	730.0	730.7	0.7
Y	40,413 [2]	350	3,136	3.4	736.5	736.5	736.7	0.2
Z	41,451 [2]	180	2,047	5.3	737.5	737.5	738.2	0.7

[1]Stream distance in miles above confluence with Wolftever Creek

[2]Stream distance in feet above confluence of Savannah Creek

[3]Elevations computed without considering backwater effects from Tennessee River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

FLOODWAY DATA

WILKERSON BRANCH - WOLFTEVER 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
Wolftever Creek								
AA	42,448	396	3,006	3.6	739.1	739.1	739.6	0.5
AB	43,615	158	1,138	9.5	739.9	739.9	739.9	0.0
AC	44,000	700	3,622	3.0	742.5	742.5	742.5	0.0
AD	45,558	580	5,030	2.1	744.4	744.4	744.8	0.4
AE	46,000	153	1,017	10.6	744.4	744.4	744.4	0.0
AF	46,618	250	2,289	4.7	747.5	747.5	748.0	0.5
AG	48,072	253	2,825	3.8	750.7	750.7	750.7	0.0
AH	49,710	500	4,335	2.5	752.5	752.5	752.5	0.0
AI	50,332	256	3,002	3.6	752.9	752.9	752.9	0.0
AJ	51,432	74	767	14.1	753.1	753.1	753.1	0.0
AK	51,757	123	2,448	4.4	763.9	763.9	763.9	0.0
AL	55,001	730	8,950	1.2	764.4	764.4	764.5	0.1
AM	56,850	1,000	9,370	1.2	764.7	764.7	765.2	0.5
AN	58,986	386	3,312	3.3	766.3	766.3	766.6	0.3
AO	59,140	620	3,458	3.1	767.3	767.3	767.7	0.4
AP	60,501	735	3,289	2.2	769.2	769.2	769.3	0.1
AQ	61,948	192	1,439	4.9	772.8	772.8	772.8	0.0
AR	62,299	243	2,112	3.4	773.9	773.9	773.9	0.0
AS	63,106	226	1,671	4.2	774.6	774.6	774.6	0.0
AT	63,403	128	1,363	5.2	782.9	782.9	782.9	0.0
AU	64,118	620	5,642	1.3	784.5	784.5	784.5	0.0
AV	64,343	260	2,856	2.5	787.3	787.3	787.4	0.1
AW	68,077	274	2,286	3.1	790.0	790.0	790.1	0.1
AX	68,456	1,022	6,925	1.0	791.0	791.0	792.0	1.0
AY	69,502	558	2,127	3.3	792.4	792.4	792.8	0.4
AZ	71,585	704	3,923	1.8	796.4	796.4	796.4	0.0

[1]Stream distance in feet above confluence of Savannah Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

FLOODWAY DATA

WOLFTEVER 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
Wolftever Creek (Cont.)								
BA	73.007 [1]	310	2,155	3.3	798.0	798.0	798.0	0.0
BB	77,003 [1]	390	1,857	2.0	803.6	803.6	804.5	0.9
BC	78,565 [1]	225	506	7.5	807.8	807.8	807.8	0.0
BD	78,737 [1]	162	1,044	3.6	810.0	810.0	810.5	0.5
BE	81,004 [1]	330	972	3.9	812.9	812.9	812.9	0.0
BF	84,727 [1]	315	1,254	3.0	825.2	825.2	825.2	0.0
Wolftever Creek Tributary								
A	982 [2]	160	484	2.9	765.4	763.9 [3]	764.6	0.7
B	1,045 [2]	150	546	2.6	765.4	764.1 [3]	764.9	0.8
C	1,225 [2]	25	201	7.0	765.4	764.8 [3]	765.6	0.8
D	2,012 [2]	100	434	2.3	768.3	768.3	769.3	1.0
E	2,746 [2]	110	425	2.4	769.9	769.9	770.8	0.9
F	3,284 [2]	45	269	3.8	772.0	772.0	772.6	0.6
G	3,543 [2]	60	245	4.2	773.0	773.0	774.0	1.0
H	4,319 [2]	86	336	3.0	776.3	776.3	777.2	0.9
I	5,180 [2]	115	315	3.2	780.7	780.7	781.0	0.3
J	5,607 [2]	54	238	4.3	783.8	783.8	783.8	0.0
K	6,827 [2]	64	355	2.9	787.8	787.8	788.5	0.7
L	7,513 [2]	64	285	2.1	789.1	789.1	790.1	1.0
M	8,960 [2]	36	144	4.2	795.3	795.3	795.3	0.0

[1]Stream distance in feet above confluence of Savannah Creek

[2]Stream distance in feet above confluence of Wolftever Creek

[3]Elevation computed without consideration of backwater effects from Wolftever Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

FLOODWAY DATA

WOLFTEVER CREEK - WOLFTEVER CREEK TRIBUTARY

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
Unnamed Tributary to Friar Branch								
A	1,860	631	384	1.1	681.0	675.9[2]	675.9	0.0
B	2,660	97	117	3.7	681.0	679.0[2]	679.1	0.1
C	3,063	170	683	1.5	683.5	683.5	683.5	0.0
D	3,950	35	181	5.7	683.6	683.6	684.3	0.7
E	4,355	56	188	5.5	686.1	686.1	686.6	0.5
F	4,436	75	321	3.2	687.2	687.2	688.2	1.0
G	4,972	41	290	3.6	689.1	689.1	689.9	0.8

[1]Feet above confluence with Friar Branch

[2]Elevations computed without consideration of backwater effect from Friar Branch

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

FLOODWAY DATA

UNNAMED TRIBUTARY TO FRIAR BRANCH

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 (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET NAVD)
Unnamed Tributary to Tennessee River								
A	663	200	1,125	2.4	659.0	648.4[2]	649.2	0.8
B	1,743	195	645	4.0	659.0	649.8[2]	650.4	0.6
C	2,309	175	2,787	0.9	664.1	664.1	664.4	0.3
D	3,473	165	1,699	1.3	664.1	664.1	664.4	0.3
E	4,346	155	772	2.7	664.2	664.2	664.8	0.6
F	5,094	212	394	5.1	667.3	667.3	667.5	0.2
G	5,540	150	903	1.9	675.8	675.8	676.8	1.0
H	6,984	82	594	2.8	687.8	687.8	688.5	0.7
I	8,283	236	635	2.6	692.5	692.5	693.1	0.6
J	9,502	154	309	5.1	703.1	703.1	703.3	0.2
K	10,431	98	190	6.0	714.3	714.3	714.6	0.3
L	11,274	10	89	12.9	729.1	729.1	730.0	0.9
M	11,821	14	111	10.3	738.3	738.3	739.2	0.9

[1] Feet above confluence with Tennessee River

[2] Elevations computed without considering backwater effects from Tennessee River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

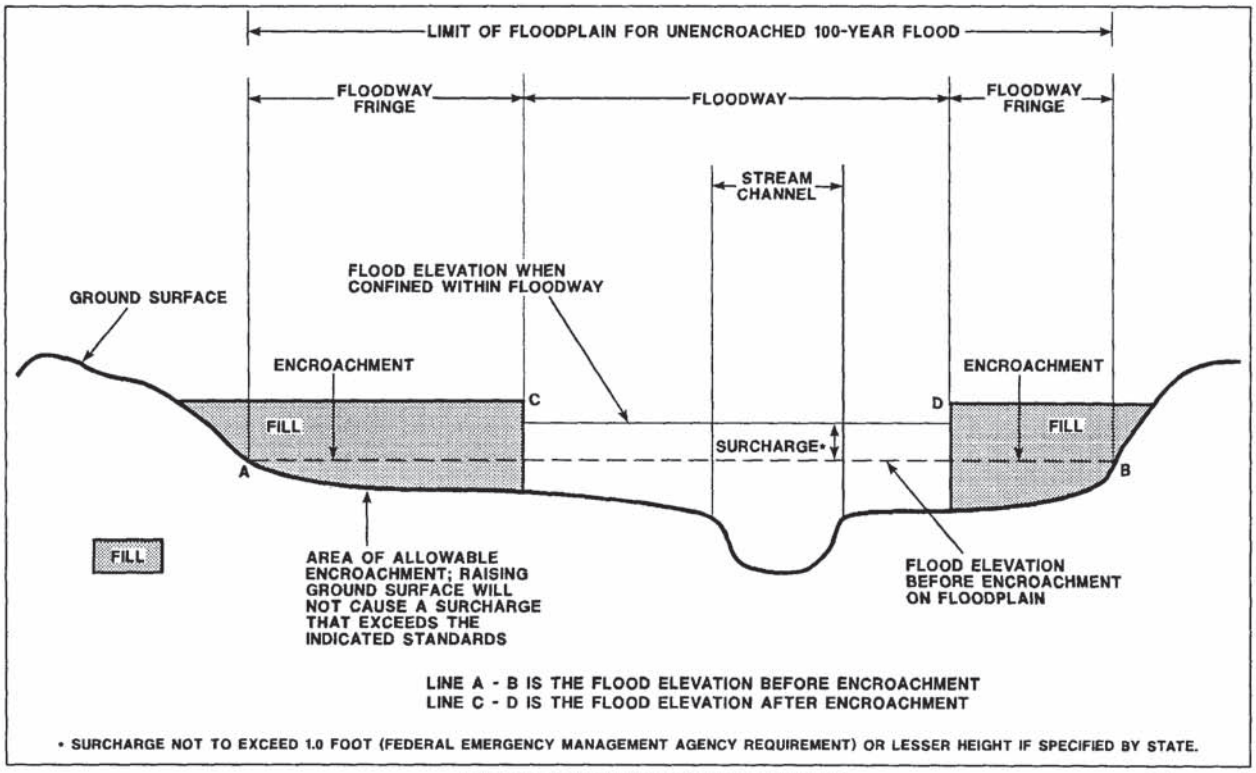
FLOODWAY DATA

UNNAMED TRIBUTARY TO TENNESSEE RIVER

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

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 5 for certain downstream cross sections of Black Creek; Chattanooga Creek; Chesnutt Creek; Falling Water Creek; Friar Branch; Lick Branch; Lick Branch Tributaries 1, 2, and 3; Little Soddy Creek; Little Wolftever Creek; Lookout Creek; Mackey Branch; Mountain Creek; Pitts Branch; Poe Branch; Ryall Springs Branch; Sale Creek; Savannah Creek; Soddy Creek; South Chickamauga Creek; Spring Creek; Stringers Branch; and Wilkerson Branch are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.



FLOODWAY SCHEMATIC Figure 2

5.0 INSURANCE APPLICATIONS

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

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year foodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

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

6.0 FLOOD INSURANCE RATE MAP

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

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

The current FIRM presents flooding information for the entire geographic area of Hamilton County. Previously, separate Flood Hazard Boundary Maps (FHBMs) and/or FIRMs were prepared for each identified flood-prone incorporated community and the unincorporated areas of the county. This countywide FIRM also includes flood hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community, up to and including this countywide FIS, are presented in Table 6, "Community Map History."

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Chattanooga, City of	June 14, 1974	None	September 3, 1980	October 22, 1982 November 1, 1985 September 6, 1989 October 16, 1992 May 18, 1998
Collegedale, City of	March 3, 1972	None	December 2, 1972	July 1, 1974 August 27, 1976 March 19, 1990
East Ridge, City of	October 27, 1972	None	October 27, 1972	July 1, 1974 September 24, 1976 March 18, 1977 September 15, 1978 August 1, 1983
Hamilton County (Unincorporated Areas)	August 1, 1979	None	August 1, 1979	August 20, 1982 September 6, 1989 August 2, 1994
Lakesite, City of [1]	N/A	N/A	N/A	
Lookout Mountain, Town of	May 14, 1976	None	September 1, 1986	
Red Bank, City of	March 15, 1979	None	March 15, 1979	September 5, 1990
Ridgeside, City of [2]	February 25, 1977	None	None	

[1] This community does not have map history prior to the first countywide mapping
[2] No Special Flood Hazard Areas identified

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Signal Mountain, Town of [1]	N/A	N/A	N/A	
Soddy-Daisy, City of	March 3, 1972	None	May 18, 1973	July 1, 1974 February 11, 1977 June 1, 1983
Walden, Town of [1, 2]	N/A	N/A	N/A	

[1] This community does not have map history prior to the first countywide mapping
[2] No Special Flood Hazard Areas identified

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

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

FISs have been prepared for the Unincorporated Areas of Bledsoe (FEMA, February 16, 1979), Bradley (FEMA, 1991), Marion (FEMA, 1980), Meigs (FEMA, November 16, 1990), Rhea (FEMA, September 4, 1991), and Sequatchie (U.S Department of Housing and Urban Development, 1977) Counties, Tennessee; Catoosa (FEMA, 1984) and Walker (FEMA, 1992) Counties, Georgia; and the City of Rossville, Georgia (FEMA, September 28, 1979). A countywide FIS has been prepared for Dade County and Incorporated Areas, Georgia (FEMA, May 17, 1989).

8.0 LOCATION OF DATA

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

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10.0 REVISION DESCRIPTIONS

This section has been added to provide information regarding significant revisions made since the original Flood Insurance Study was printed. Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To assure that any user is aware of all revisions, it is advisable to contact the community repository.

10.1 First Revision

Revised hydraulic analysis was performed for Friar Branch, South Chickamauga Creek, and Wolftever Creek. Terrain data used for these analyses was based on Digital Elevation Models (DEMs) developed from LiDAR provided by Hamilton County. The LiDAR data was collected by the Atlantic Group over the course of multiple collection flights that took place between February 11, 2011 and April 3, 2011. Survey data was collected for some bathymetric cross sections and selected hydraulic structures by Harned Surveying and Engineering, Inc. Field survey collection took place between June 7, 2010 and July 3, 2010. The terrain data, survey data and all elevations associated with the hydraulic model and floodplain mapping are referenced to the North American Vertical Datum of 1988 (NAVD88).

Hydraulic modeling was performed using USACE's computer modeling program HEC-RAS, version 4.1. Manning's 'n' values were range from 0.025 to 0.06 in the main channel and 0.06 and 0.14 in the overbank areas. These values are based on aerial imagery, photographs taken in the field, and engineering judgment. The channel values are indicative of the relatively clean channels with some pools and shoals and some weeds and stones. Some channel areas in the upper part of the reaches have higher manning's 'n' values, indicative of overgrown vegetation in the channel area. The range of overbank values is indicative of some grassy areas, some areas of moderate development, and some areas of moderate to dense forest growth.

Normal depth was used as the downstream boundary condition for all three flooding sources.

A revised floodway was also calculated for Friar Branch. Due to significant changes that have taken place in the floodplain and the modeling approach, it was not possible to maintain the floodway at the same location as the effective FIRMs. Therefore, the revised floodway was calculated using the equal conveyance reduction method. Floodway delineation was created using engineering judgment between modeled cross sections.

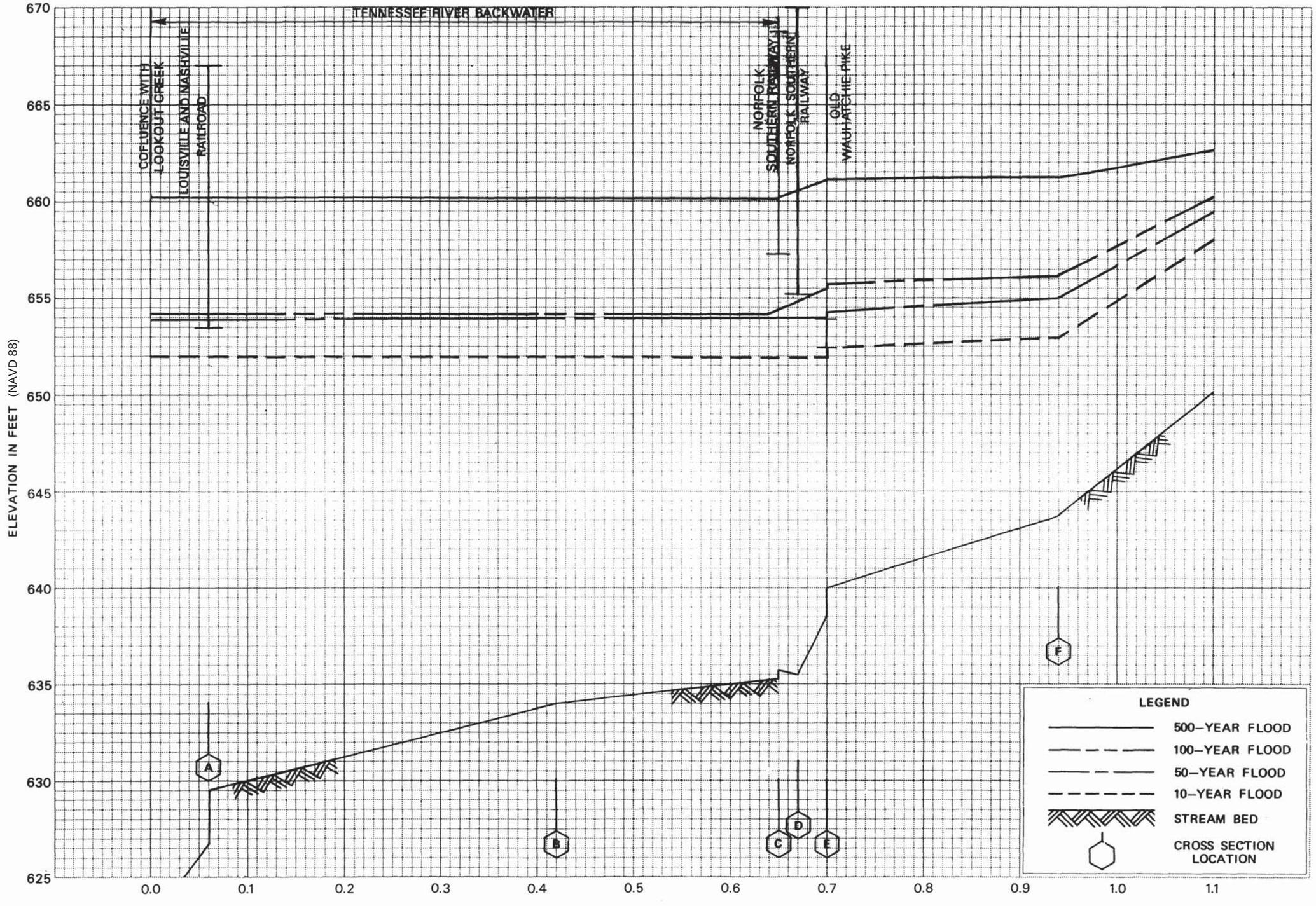
For some reaches of South Chickamauga Creek, the effective floodway was maintained by placing encroachment stations at the effective floodway location. For other reaches, a revised floodway was necessary due to significant changes that have taken place in the floodplain and the modeling approach. In these areas, the revised floodway was calculated using the equal conveyance reduction method.

The vertical datum was converted from NGVD to NAVD on all panels. The conversion and difference between NGVD and NAVD is 0.0 feet.

In addition, this revision incorporated five Letters of Map Revision (LOMRs): Case No. 04-04-A306P, dated December 29, 2004, Case No. 06-04-B180P, dated June 13, 2006, Case No. 06-04-BV55P, dated February 1, 2007, Case No. 07-04-4405P, dated April 17, 2008, and Case No. 07-04-5211P, dated October 29, 2007. The revised summary of discharge information associated with these LOMRs is shown in the table below.

TABLE 7 – REVISED SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
NORTHEAST TRIBUTARY TO UNNAMED TRIBUTARY TO TENNESSEE RIVER					
At Mouth	0.33	251	377	423	564
UNNAMED TRIBUTARY TO FRIAR BRANCH					
At Mouth	1.65	313	414	428	450
UNNAMED TRIBUTARY TO TENNESSEE RIVER					
At Mouth	2.92	1,649	2,379	2,646	3,447
Just downstream of Hixson Pike	1.44	1,031	1,521	1,701	2,245
Just downstream of Ely Road	1.20	946	1,402	1,570	2,076
Just downstream of Delashmitt Road	1.82	251	377	423	564



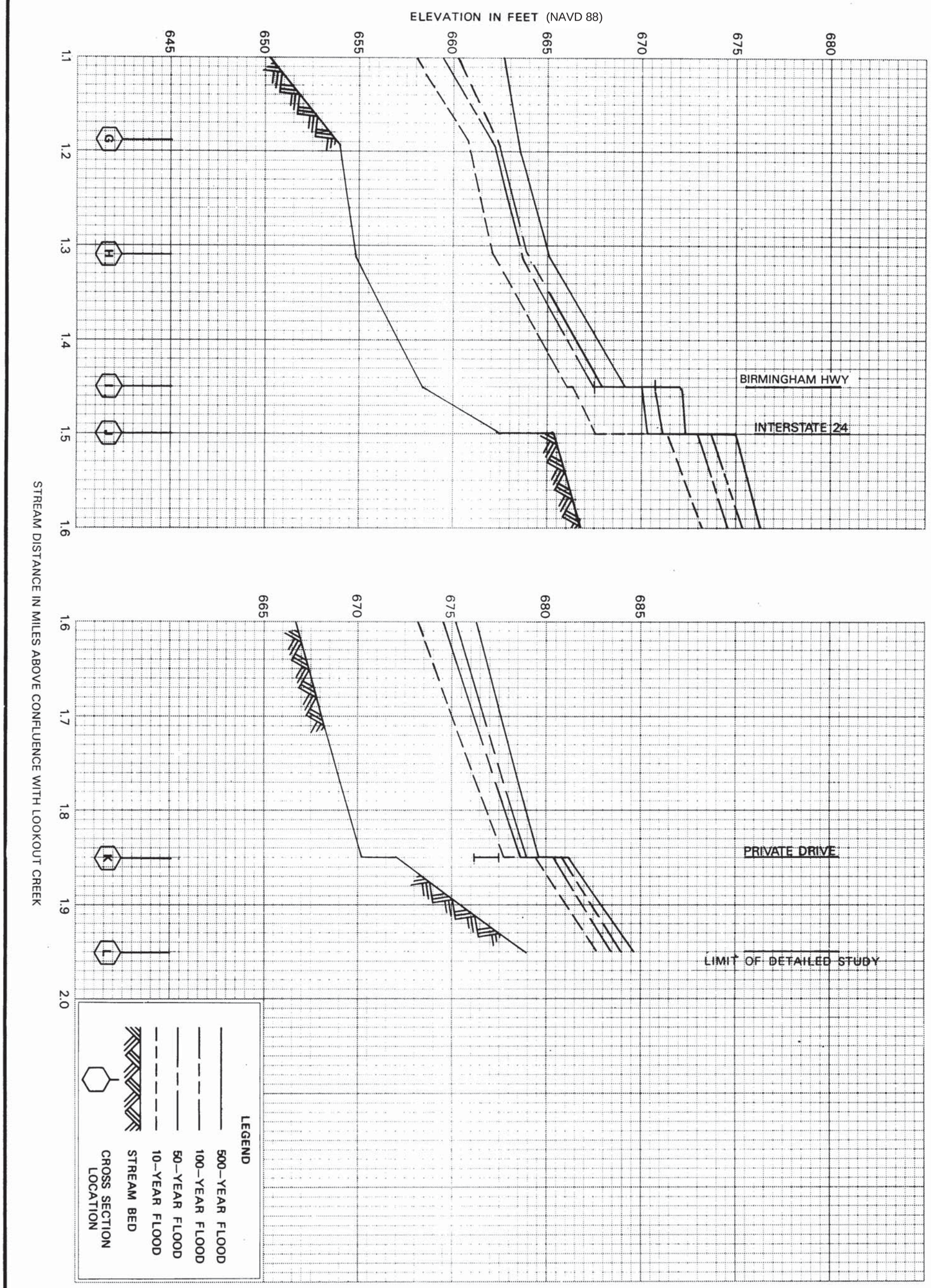
FLOOD PROFILES

BLACK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

01P



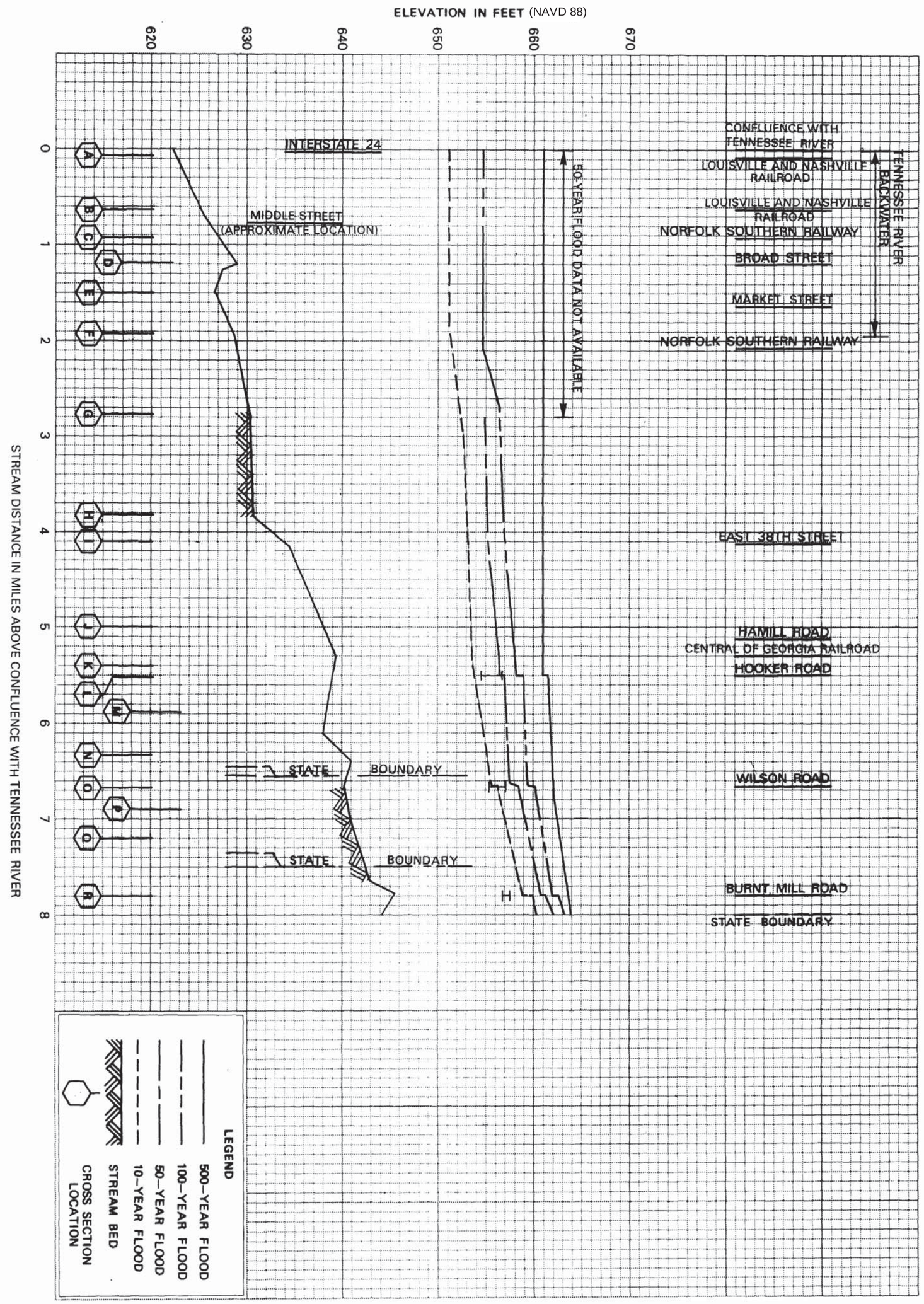
02P

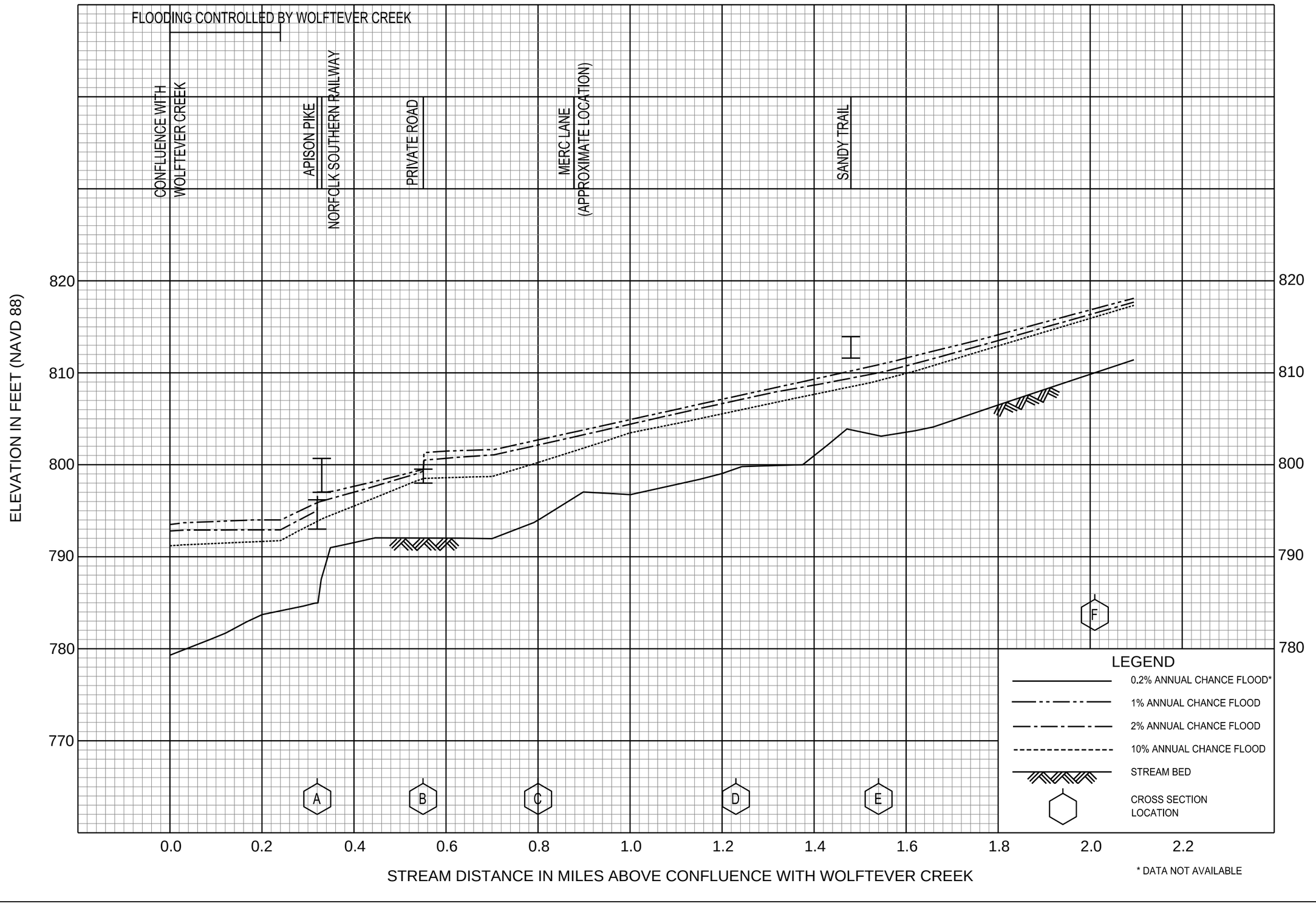
FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOOD PROFILES

BLACK CREEK


ELEVATION IN FEET (NAVD 88)
620
630
640
650
660
670
STREAM DISTANCE IN MILES ABOVE CONFLUENCE WITH TENNESSEE RIVER
0
1
2
3
4
5
6
7
8
INTERSTATE 24
MIDDLE STREET
(APPROXIMATE LOCATION)
STATE BOUNDARY
STATE BOUNDARY
50-YEAR FLOOD DATA NOT AVAILABLE
CONFLUENCE WITH TENNESSEE RIVER
LOUISVILLE AND NASHVILLE RAILROAD
LOUISVILLE AND NASHVILLE RAILROAD
NORFOLK SOUTHERN RAILWAY
BROAD STREET
MARKET STREET
NORFOLK SOUTHERN RAILWAY
TENNESSEE RIVER BACKWATER
EAST 38TH STREET
HAMILL ROAD
CENTRAL OF GEORGIA RAILROAD
HOOKER ROAD
WILSON ROAD
BURNT MILL ROAD
STATE BOUNDARY
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
H
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
50-YEAR FLOOD
10-YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION



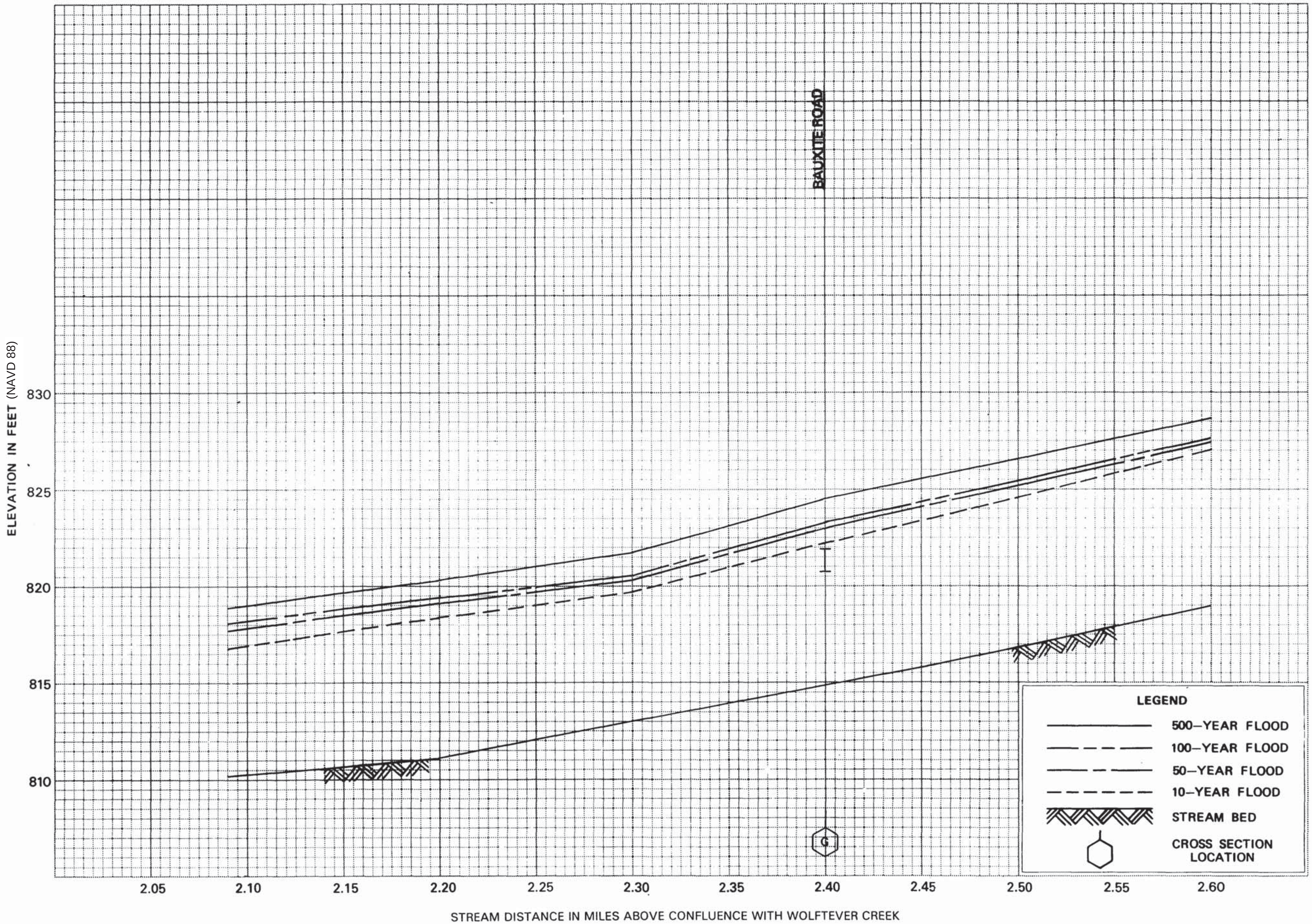
FLOOD PROFILES

CHESNUTT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



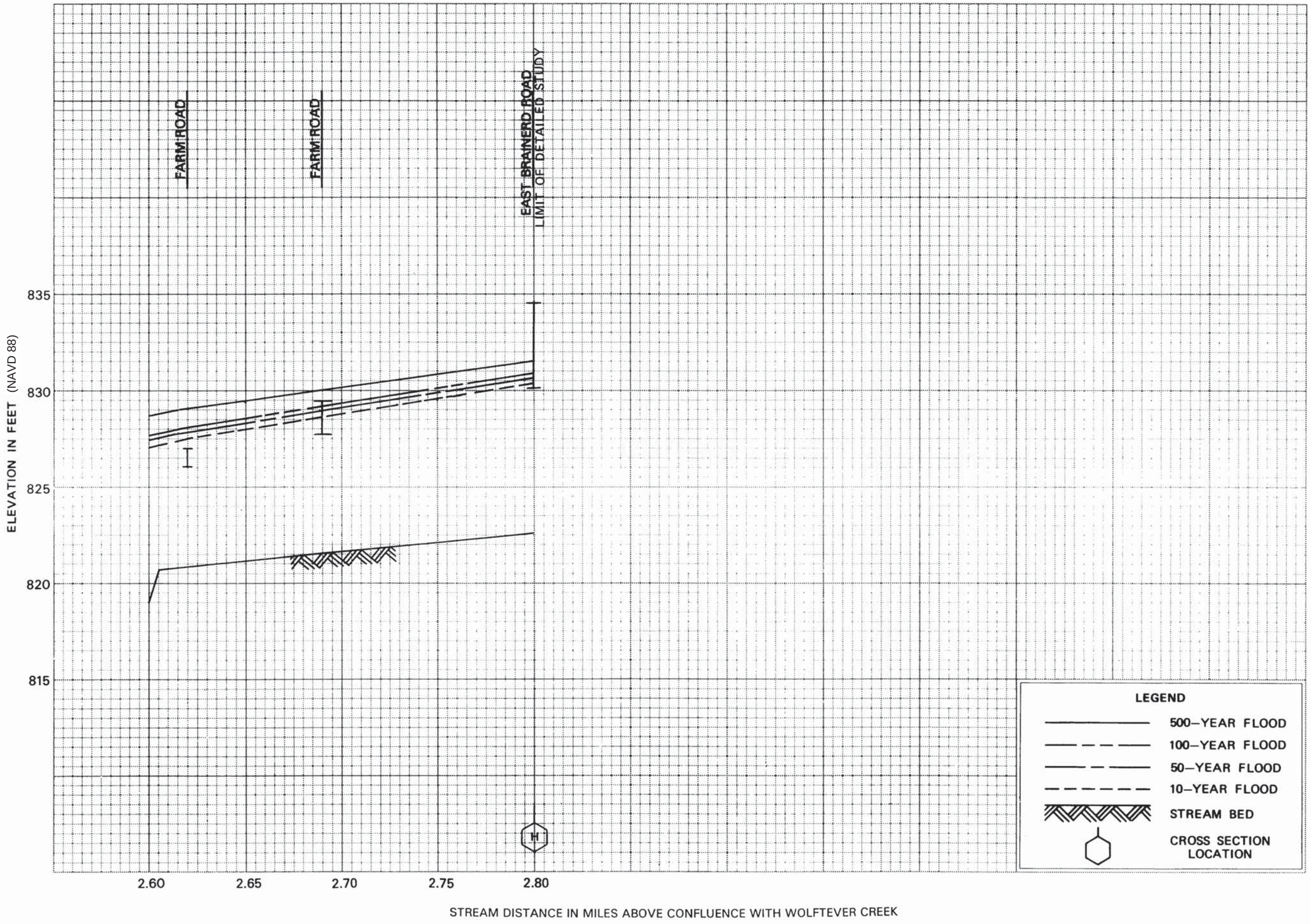
FLOOD PROFILES

CHESNUTT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

05P

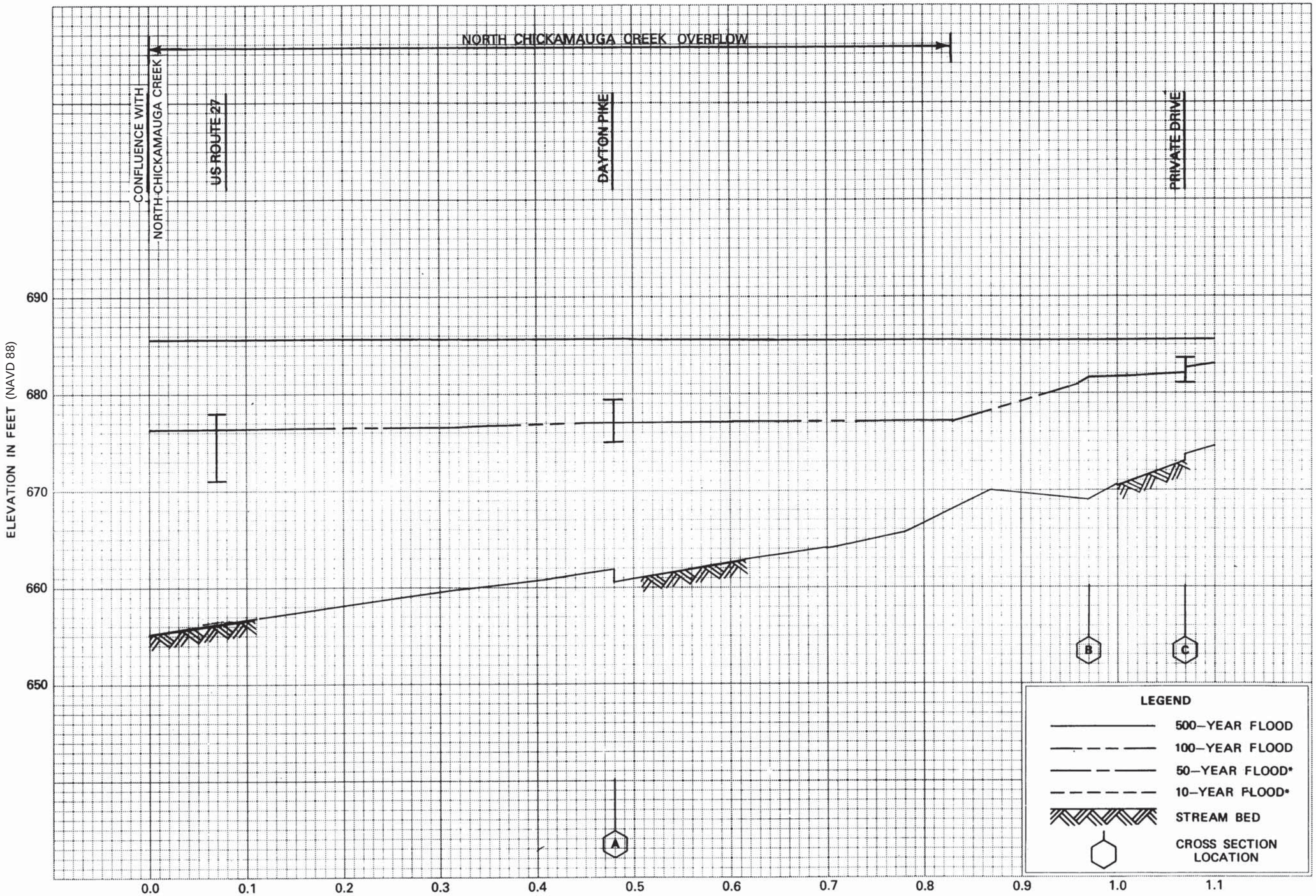


FLOOD PROFILES

CHESNUTT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS



* DATA NOT AVAILABLE

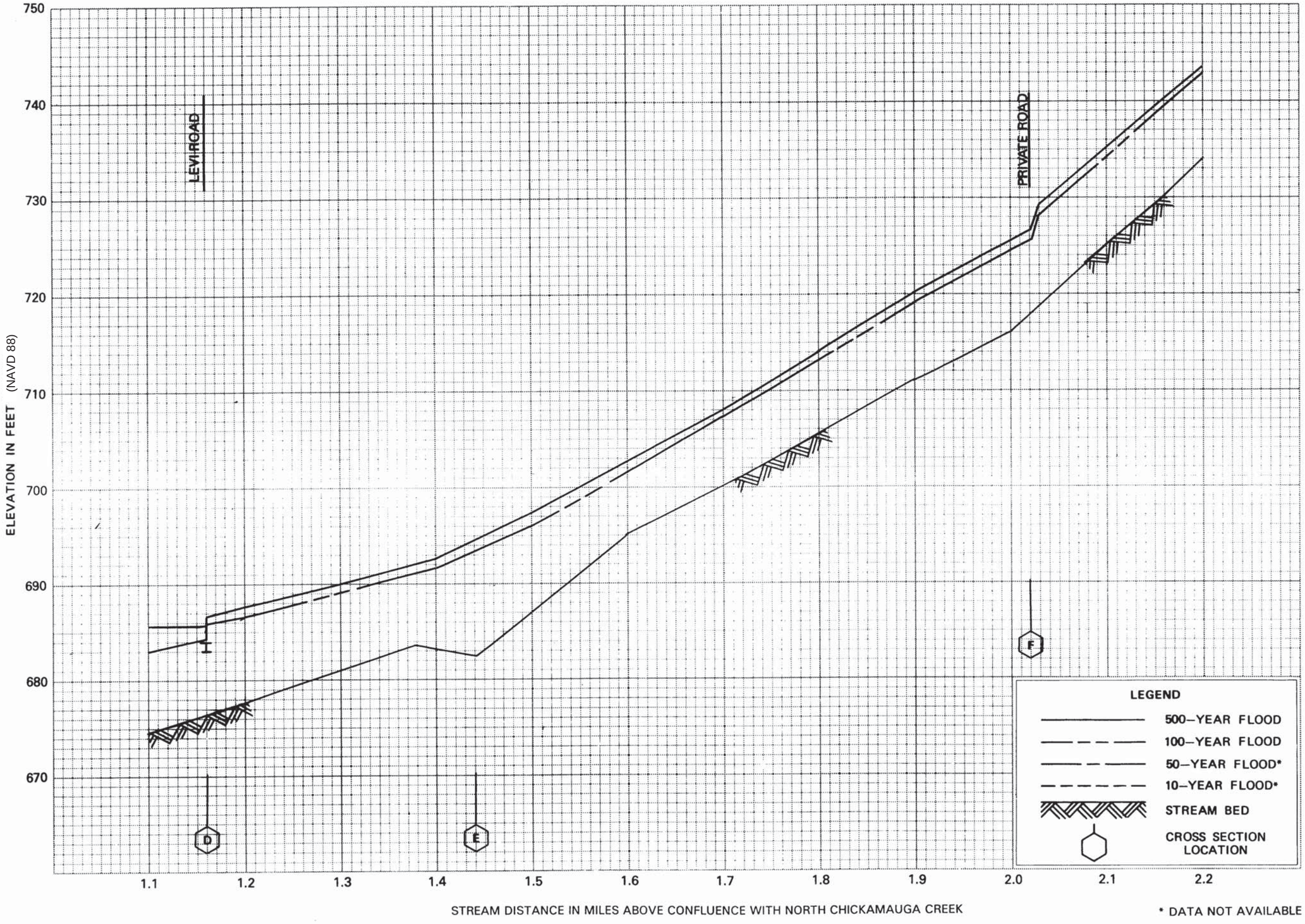
FLOOD PROFILES

FALLING WATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

07P



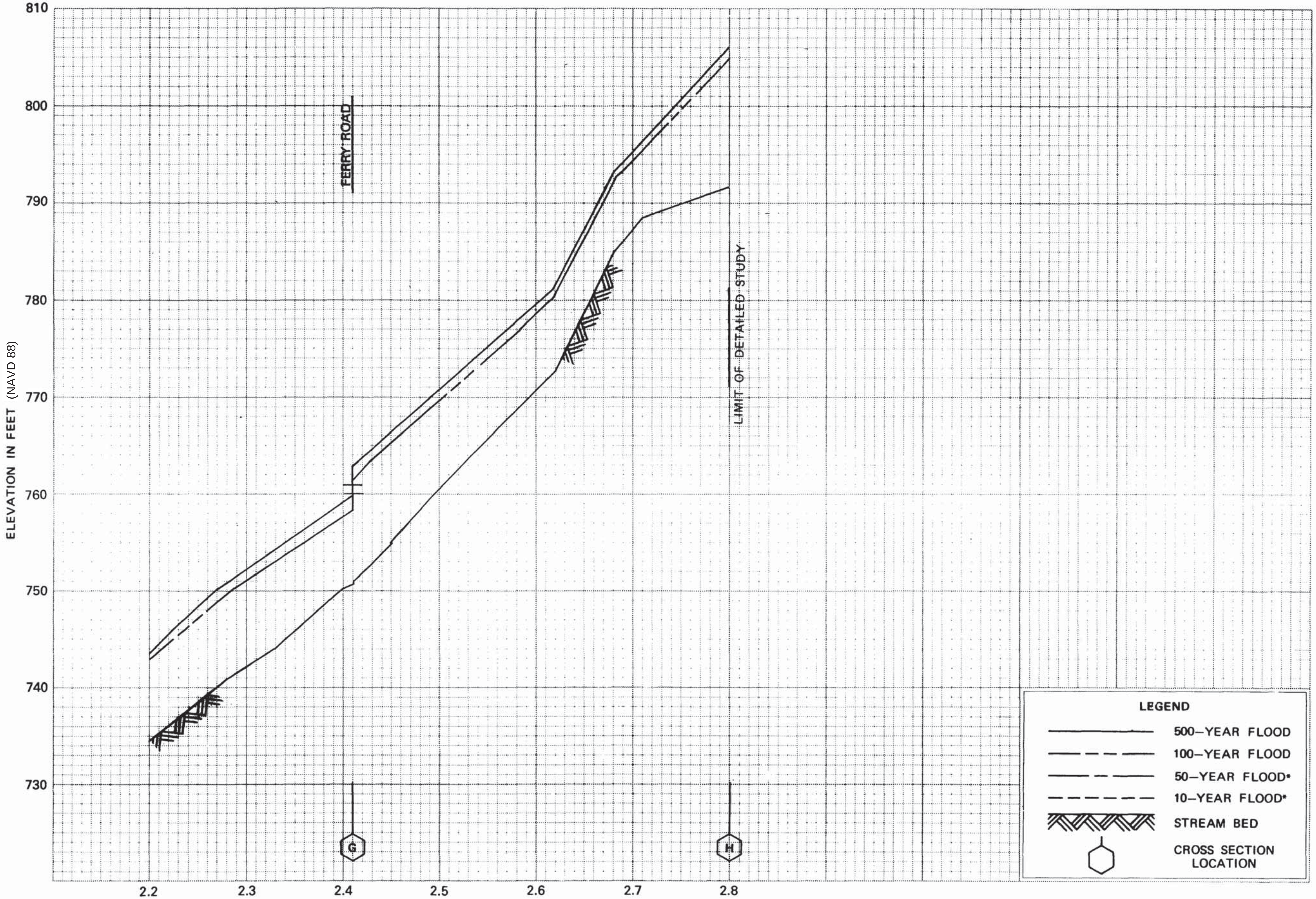
* DATA NOT AVAILABLE

FLOOD PROFILES

FALLING WATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



* DATA NOT AVAILABLE

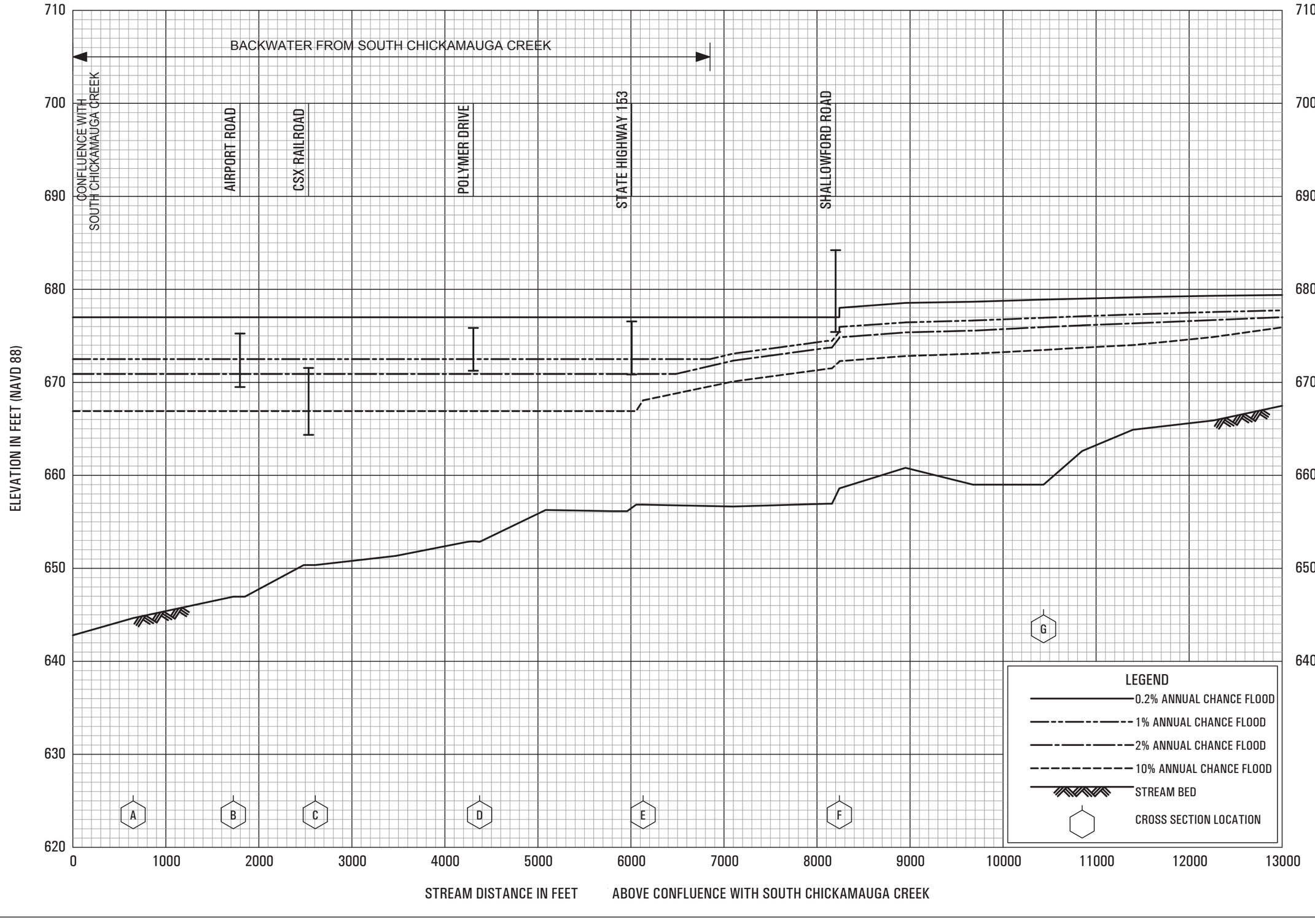
FLOOD PROFILES

FALLING WATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

09P



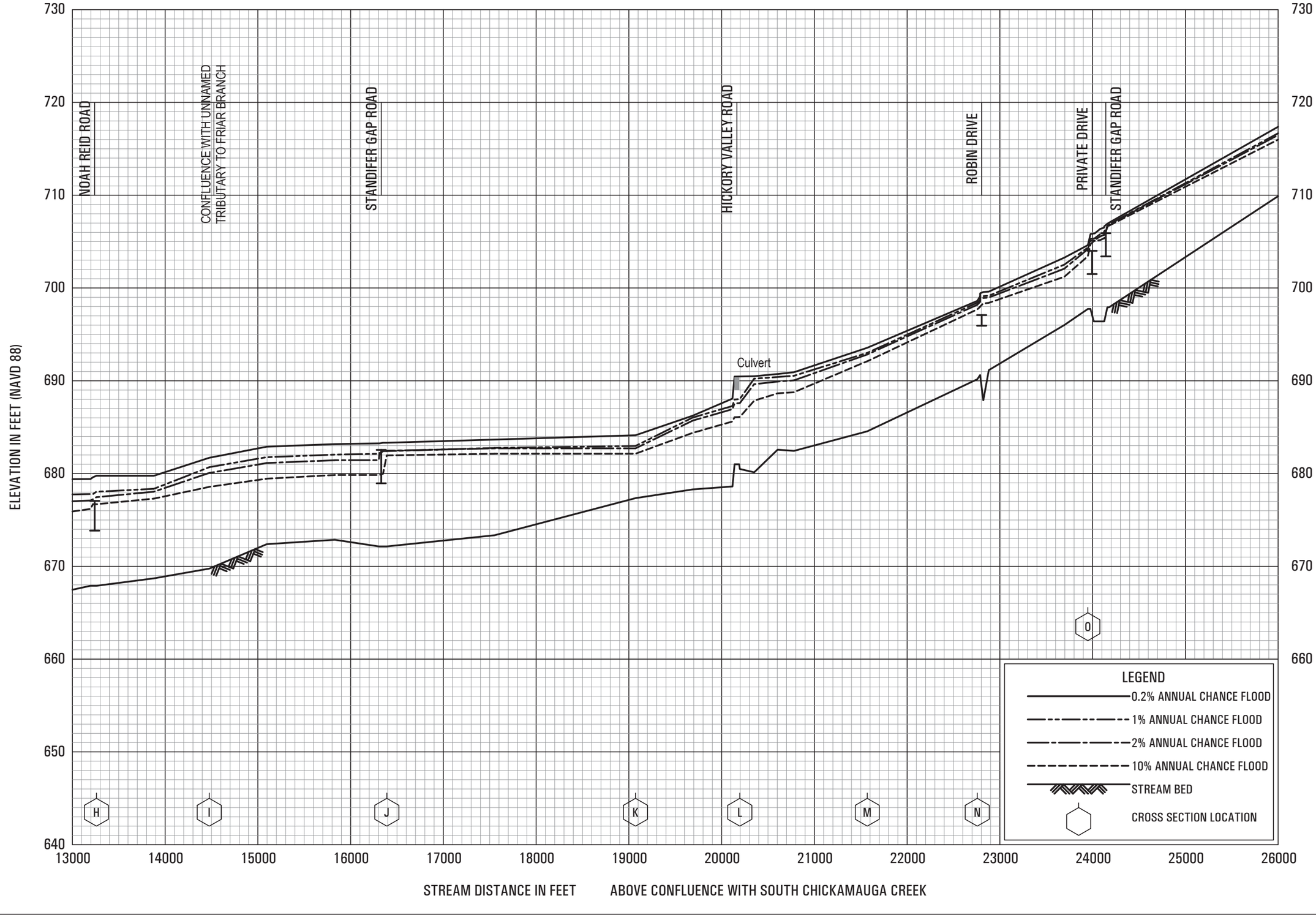
FLOOD PROFILES

FRIAR BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



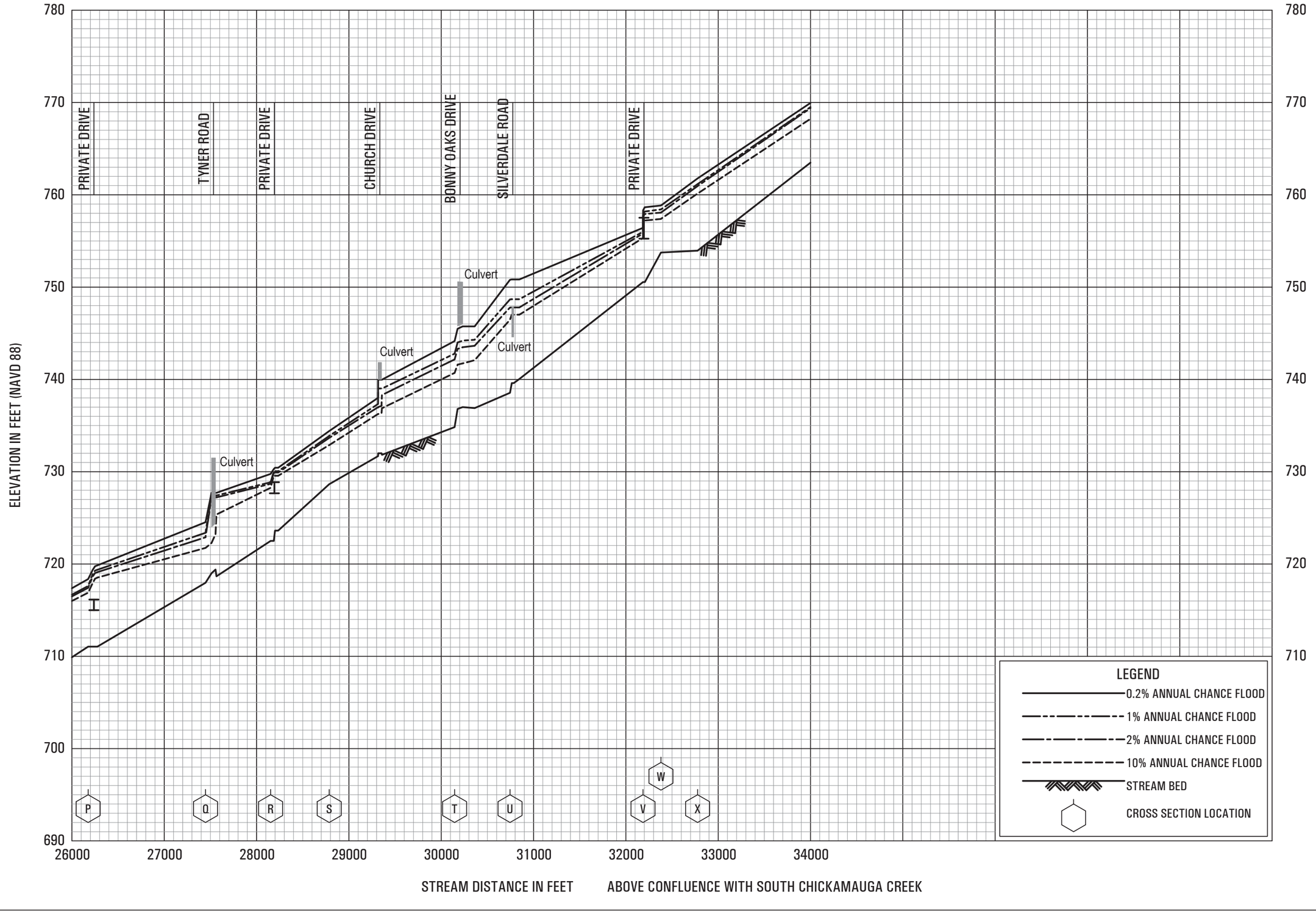
FLOOD PROFILES

FRIAR BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

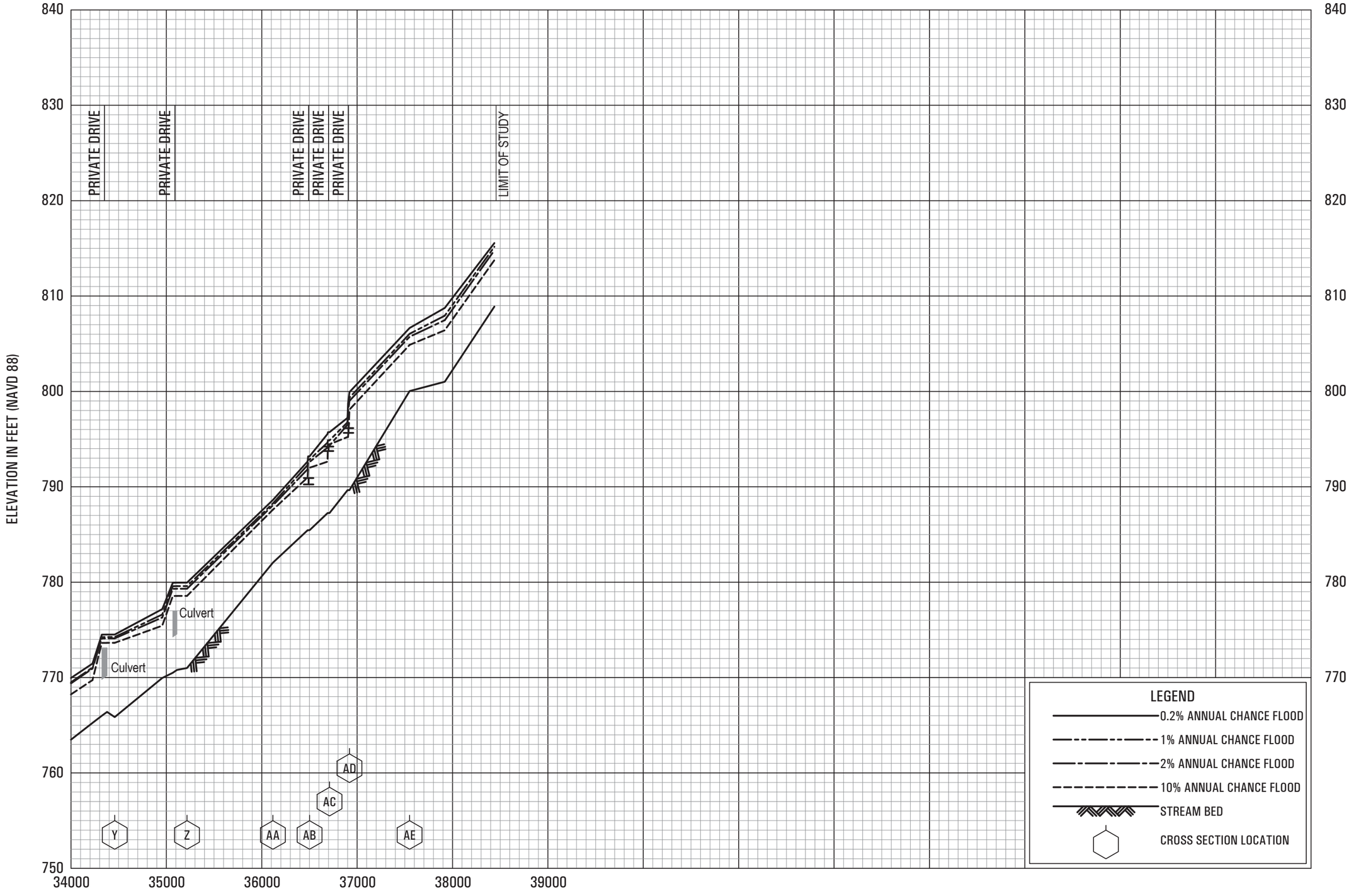
FRIAR BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

12P



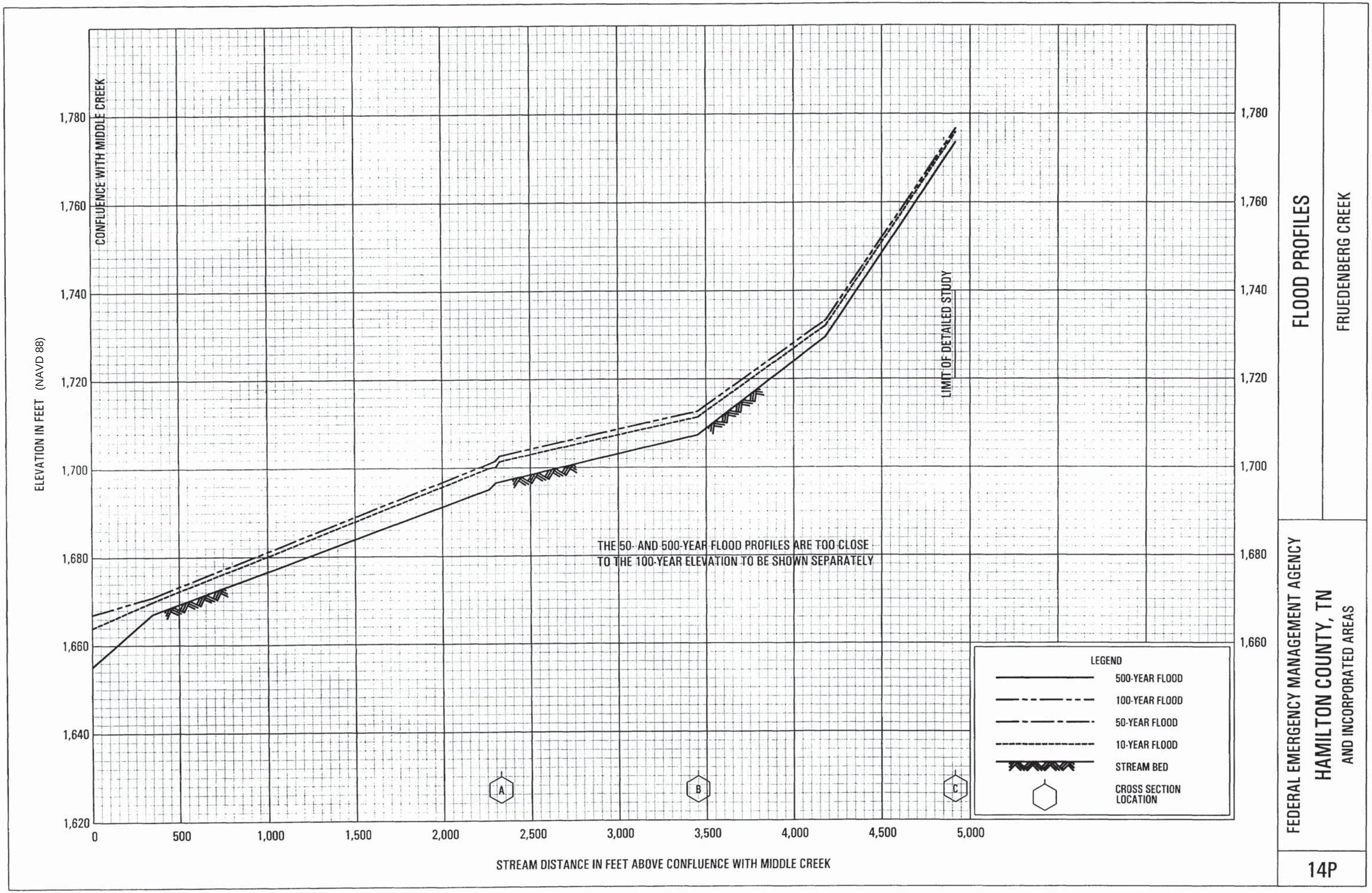
FLOOD PROFILES

FRIAR BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

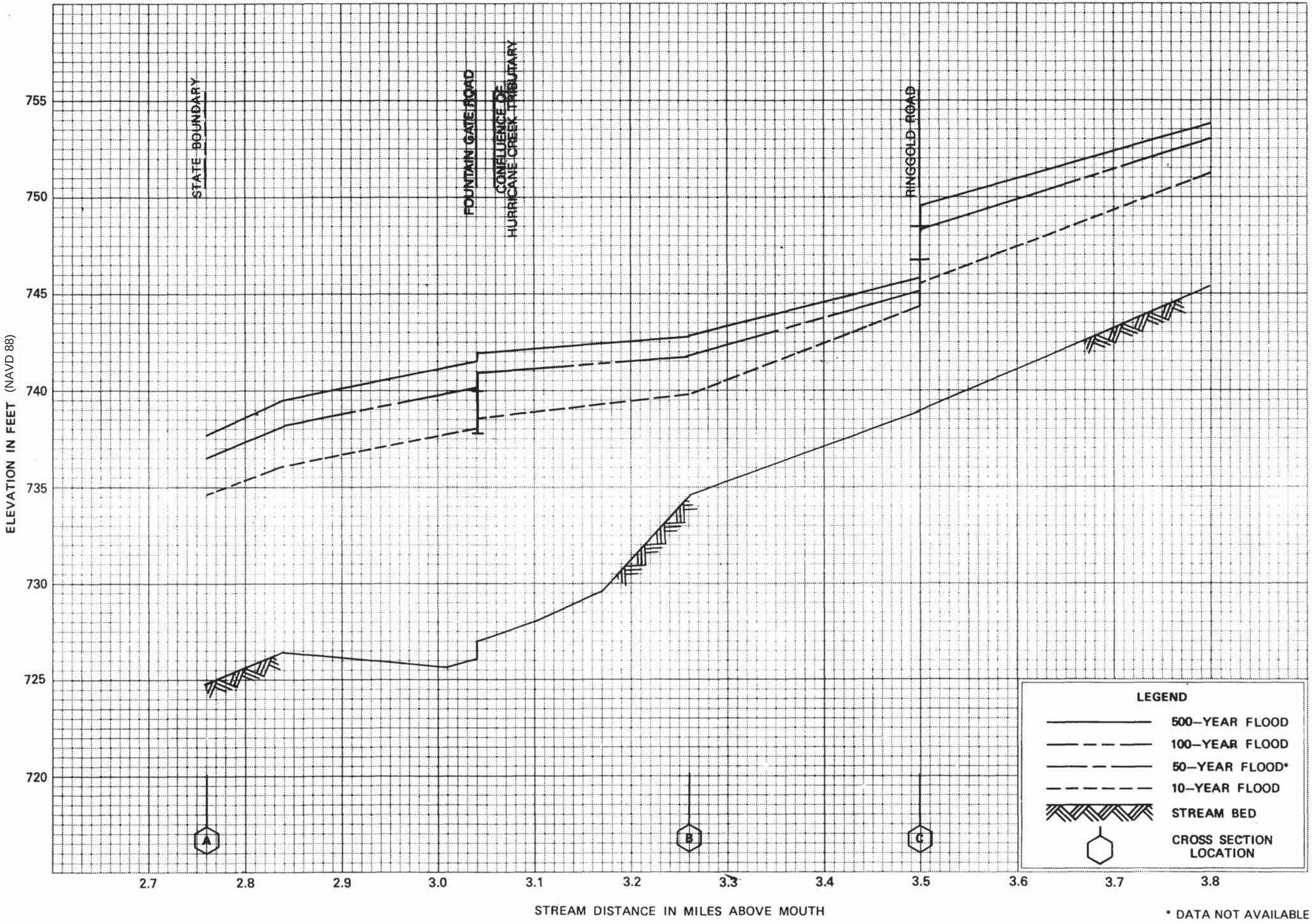
FRUEDENBERG CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

14P



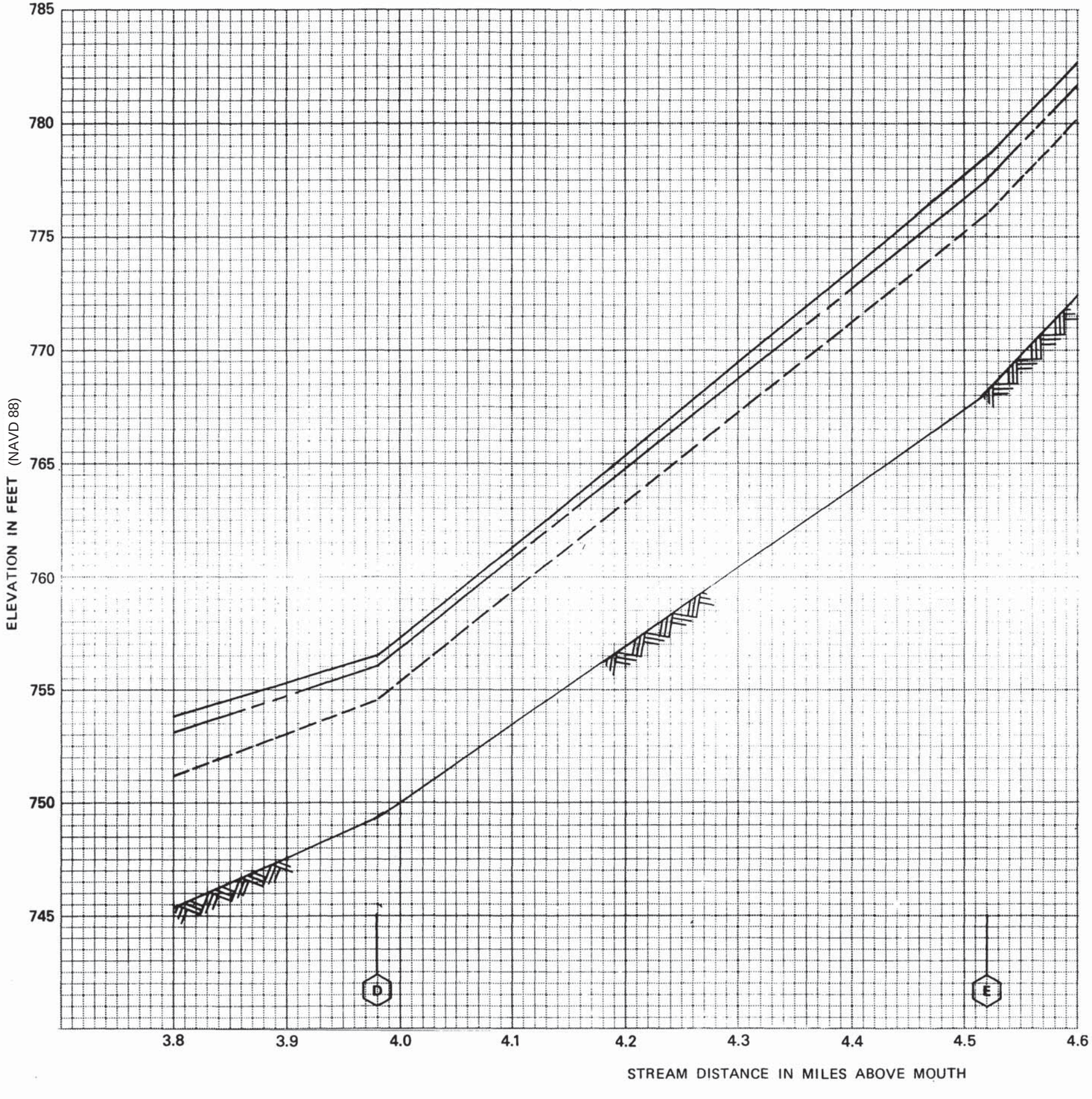
FLOOD PROFILES

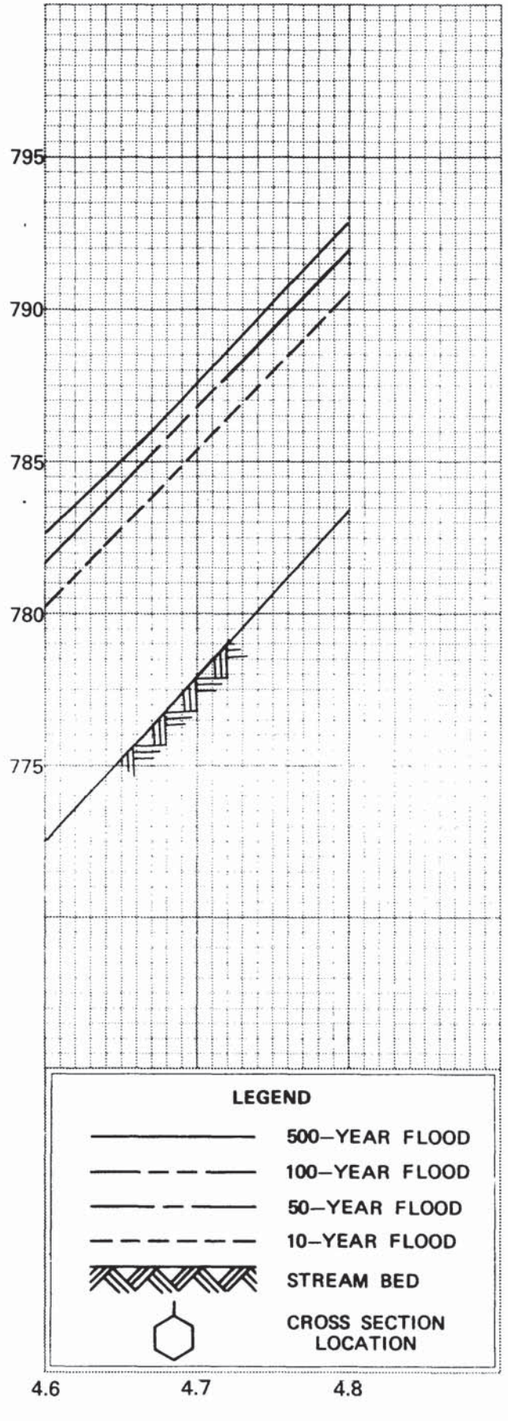
HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

15P





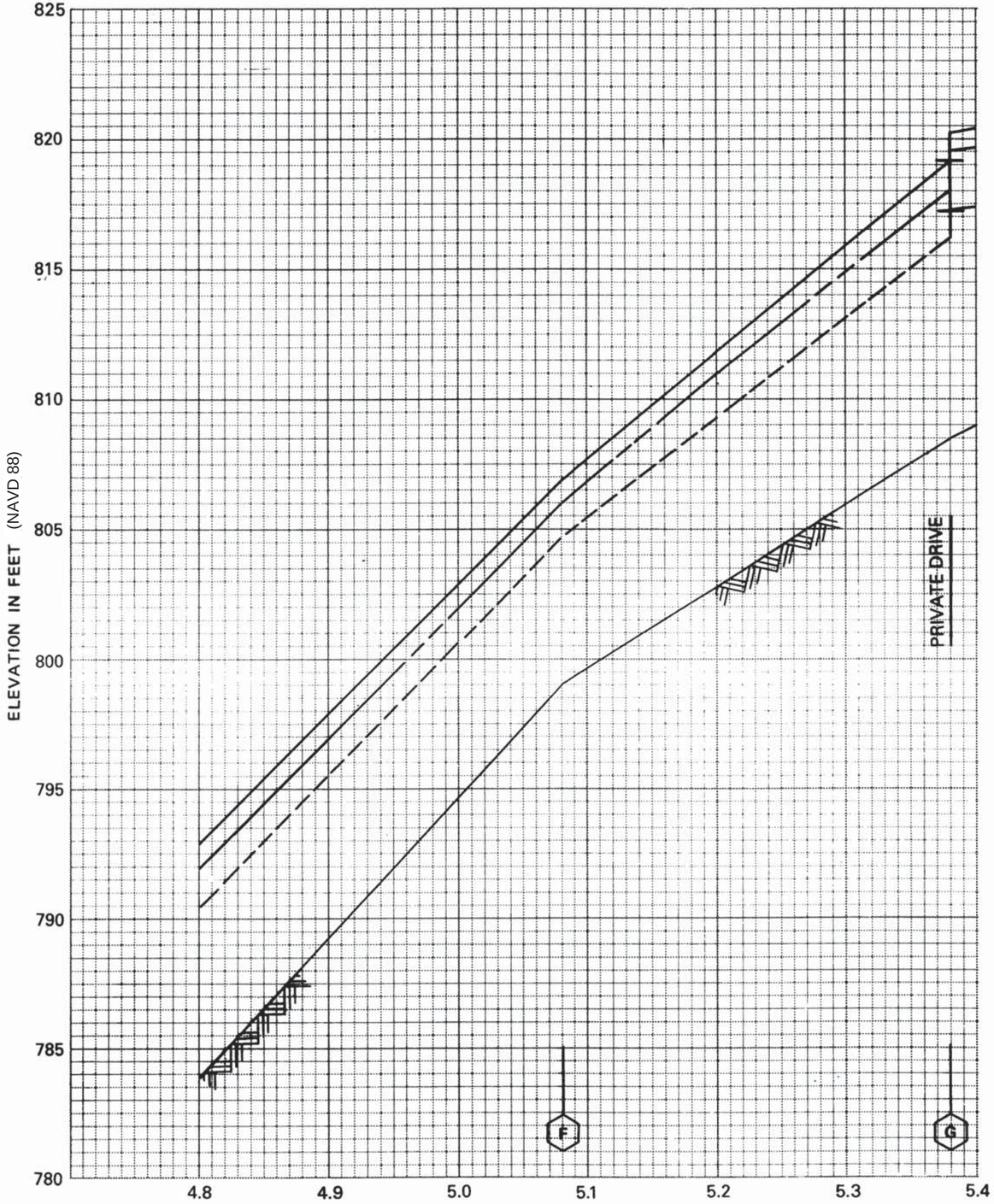
FLOOD PROFILES

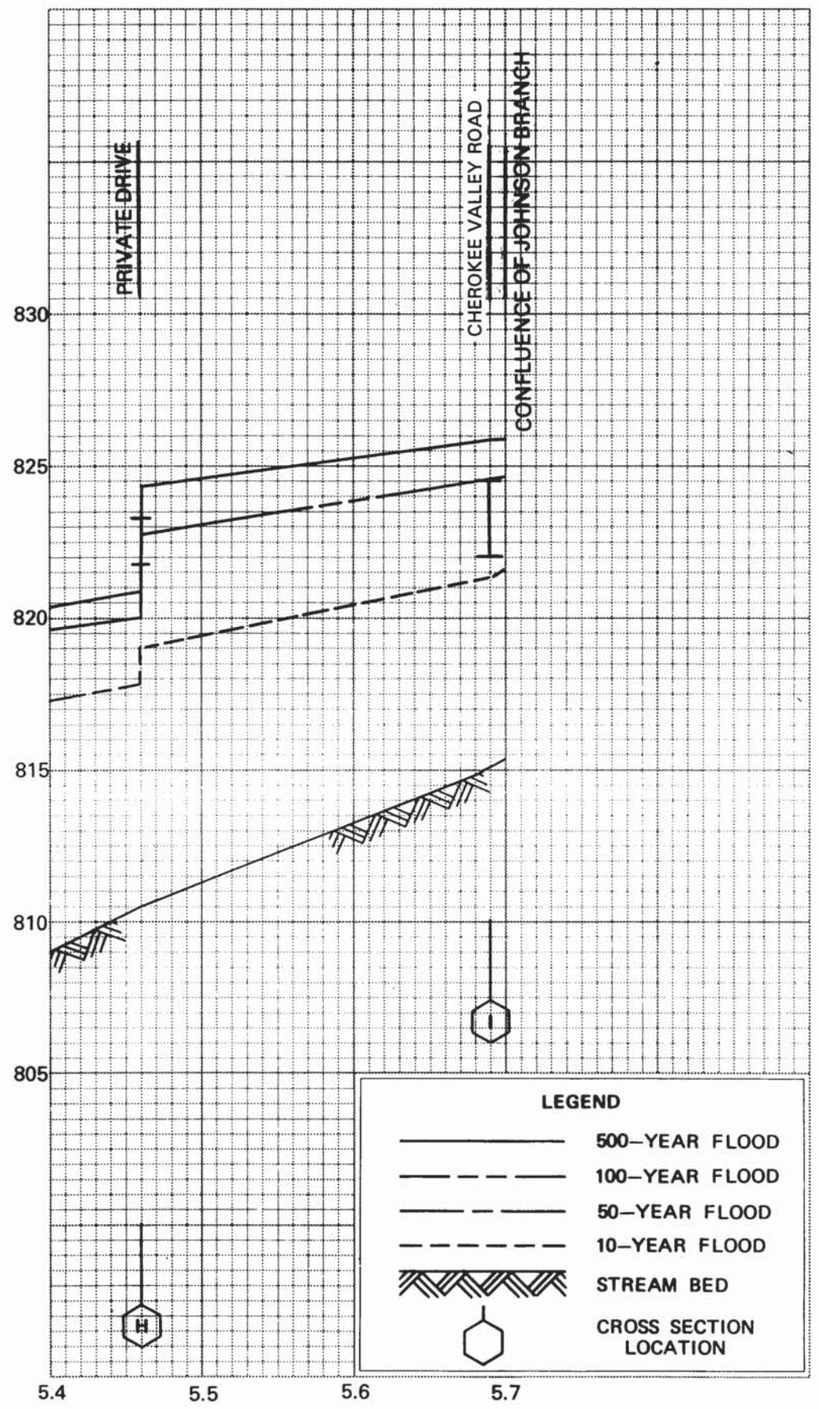
HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

16P





STREAM DISTANCE IN MILES ABOVE MOUTH

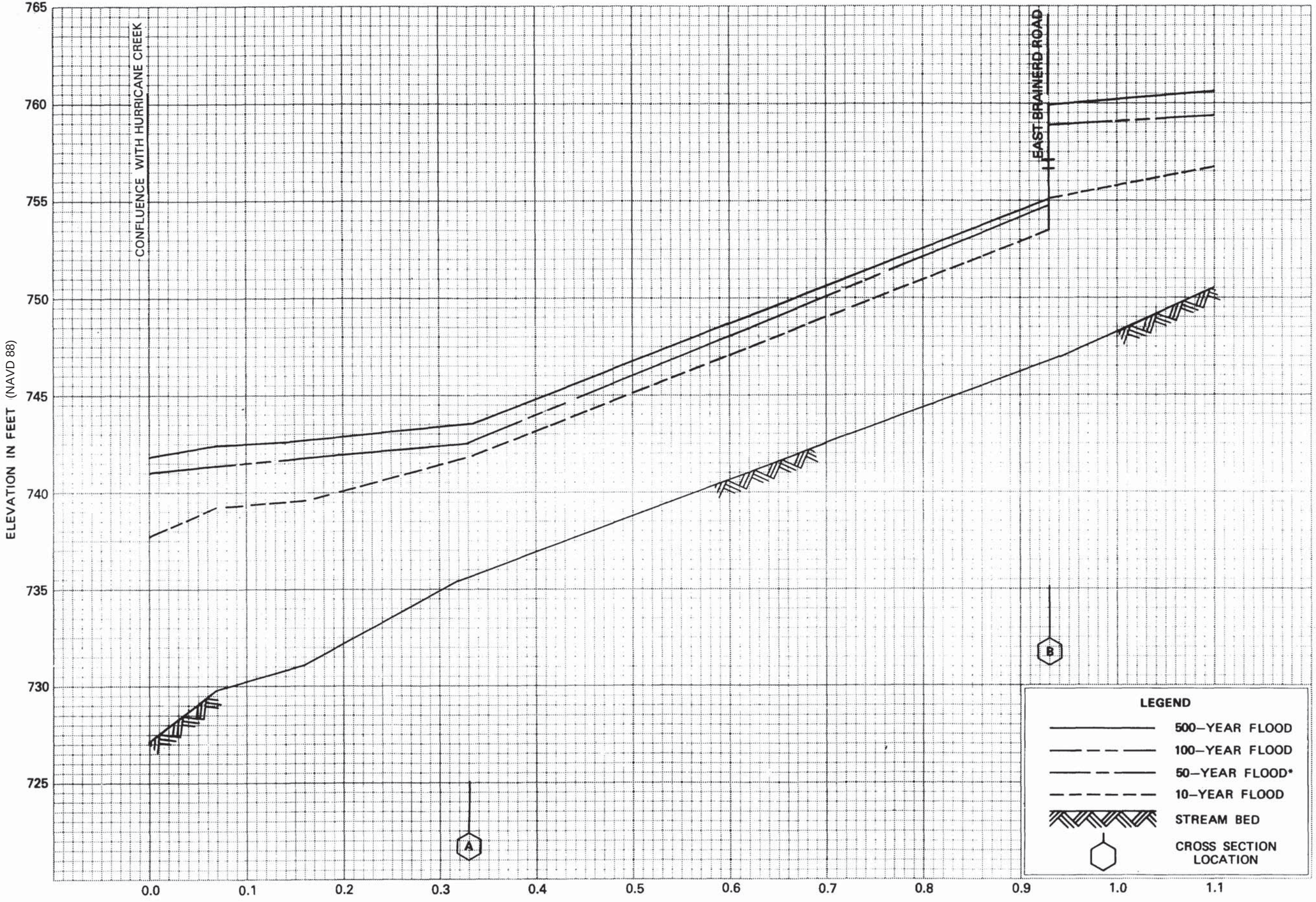
FLOOD PROFILES

HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

17P



STREAM DISTANCE IN MILES ABOVE CONFLUENCE WITH HURRICANE CREEK

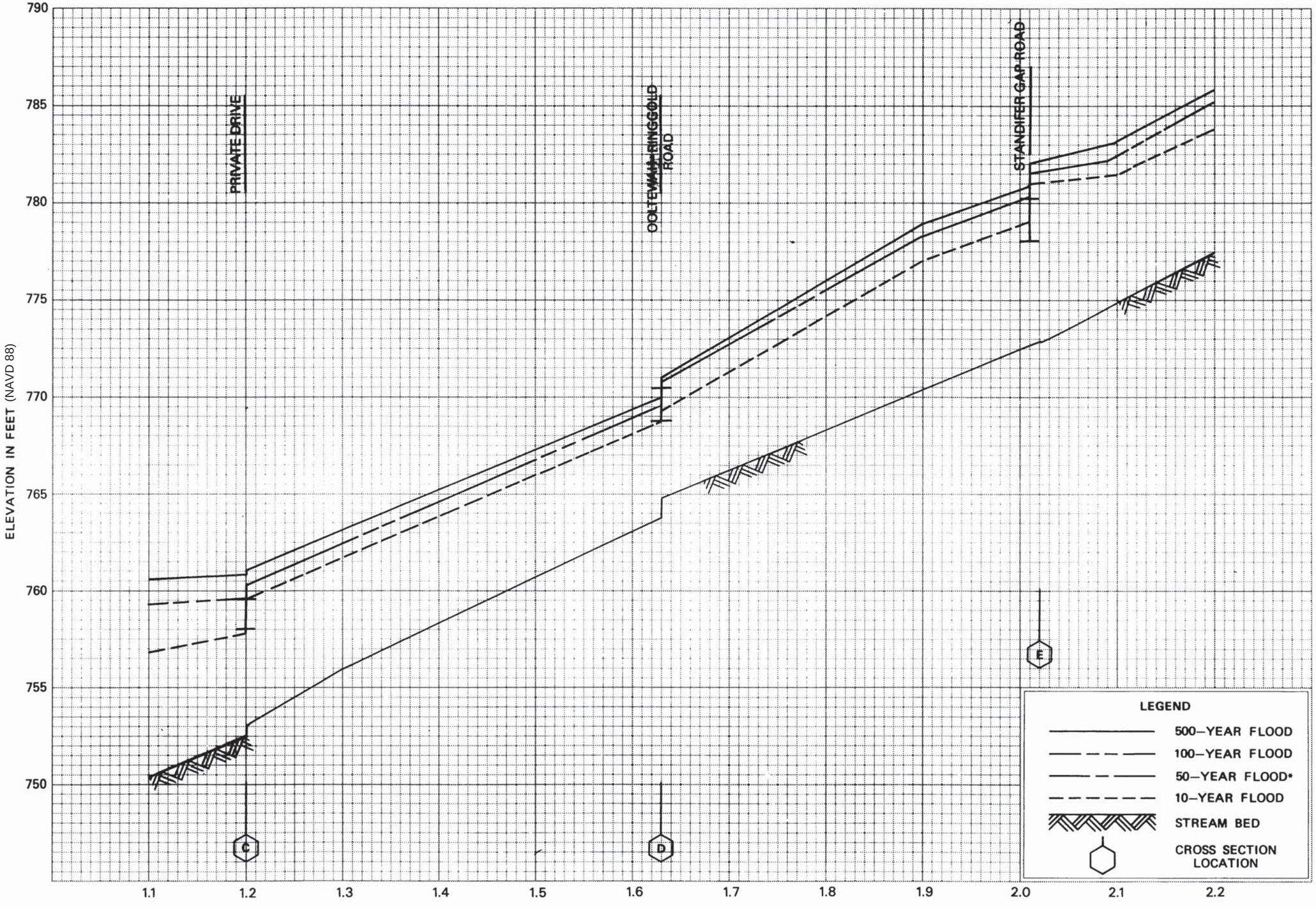
* DATA NOT AVAILABLE

FLOOD PROFILES

HURRICANE CREEK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

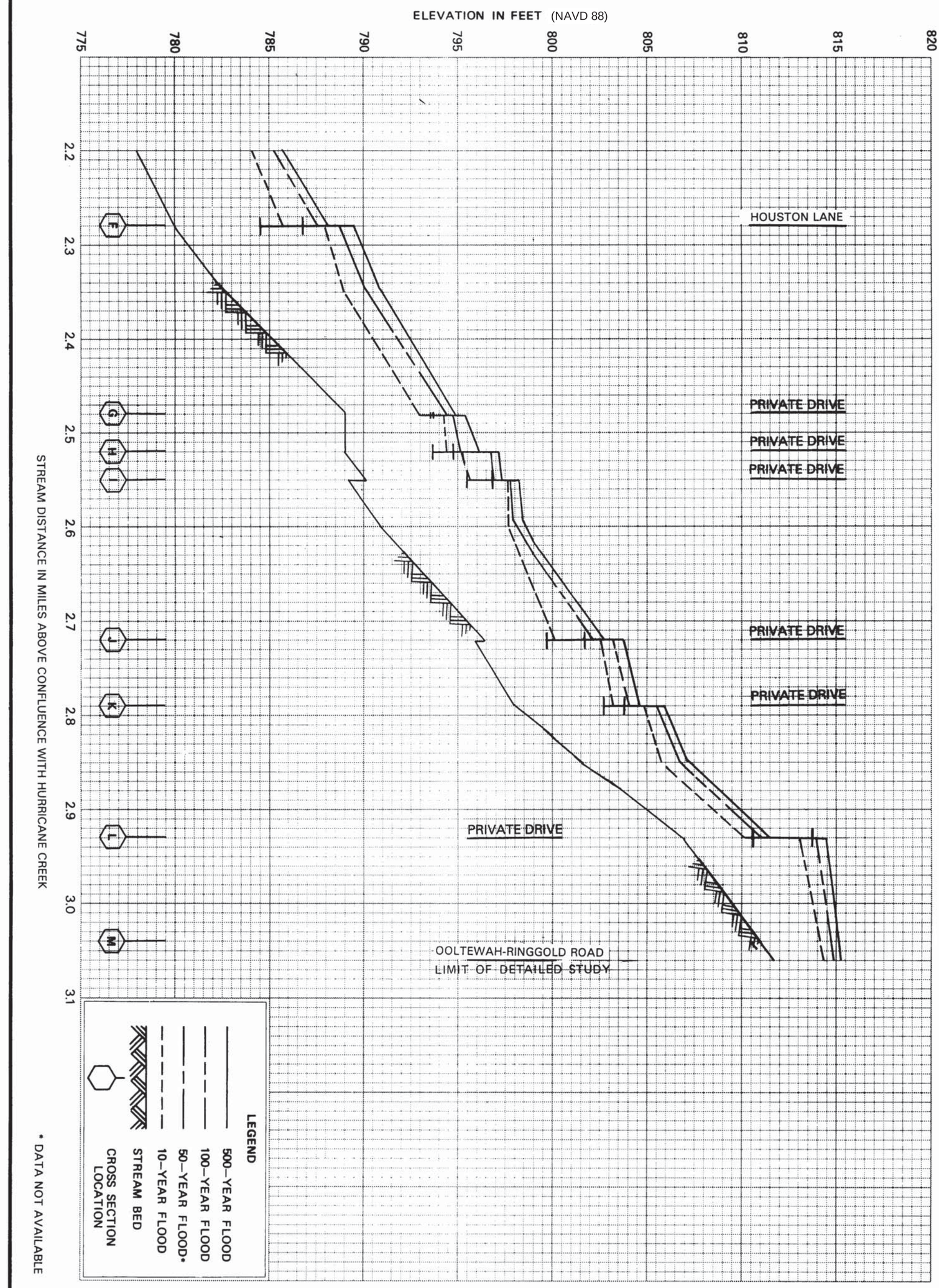


FLOOD PROFILES

HURRICANE CREEK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

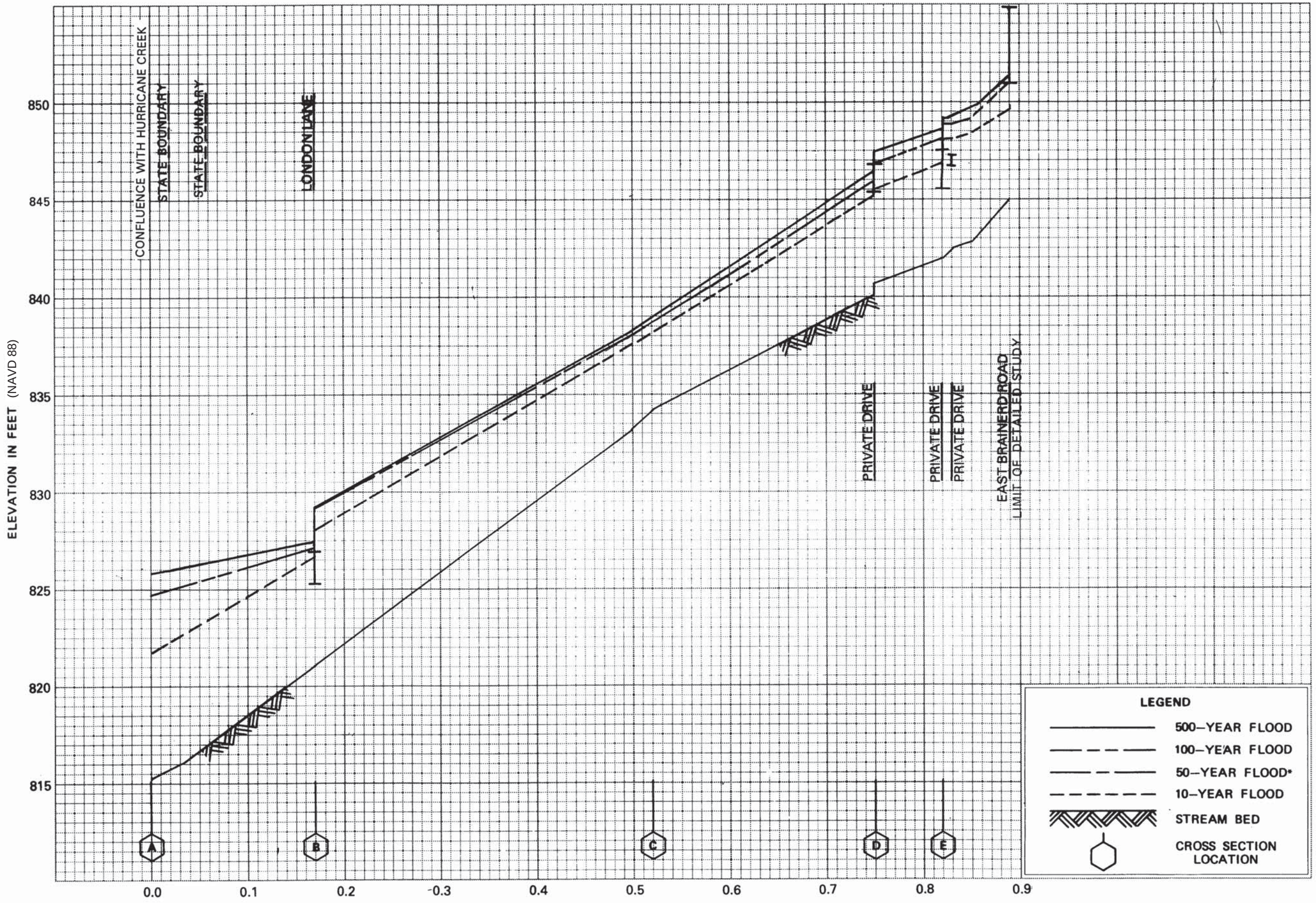


FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOOD PROFILES

HURRICANE CREEK TRIBUTARY



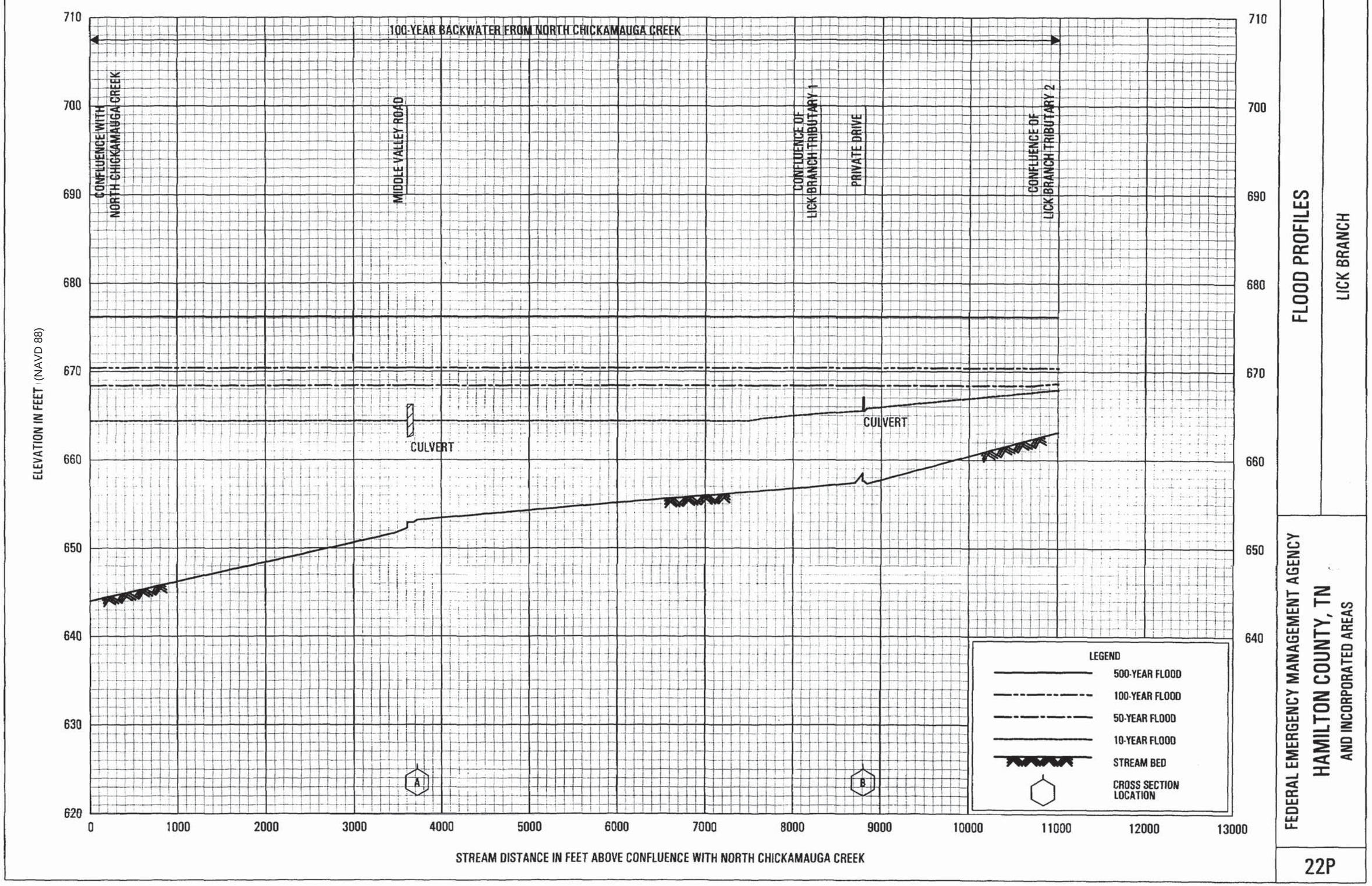
* DATA NOT AVAILABLE

FLOOD PROFILES

JOHNSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS



FLOOD PROFILES

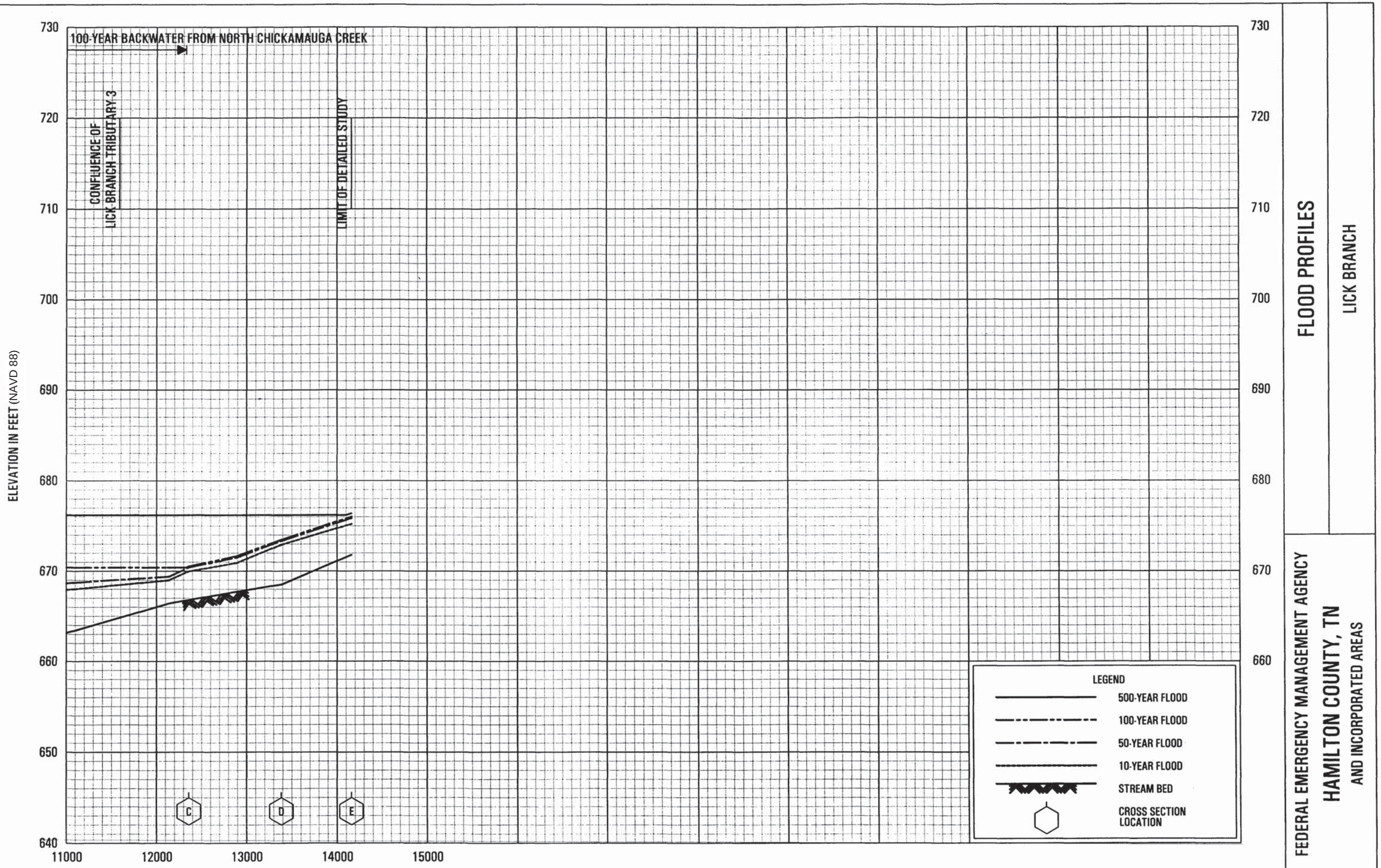
LICK BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

22P



FLOOD PROFILES

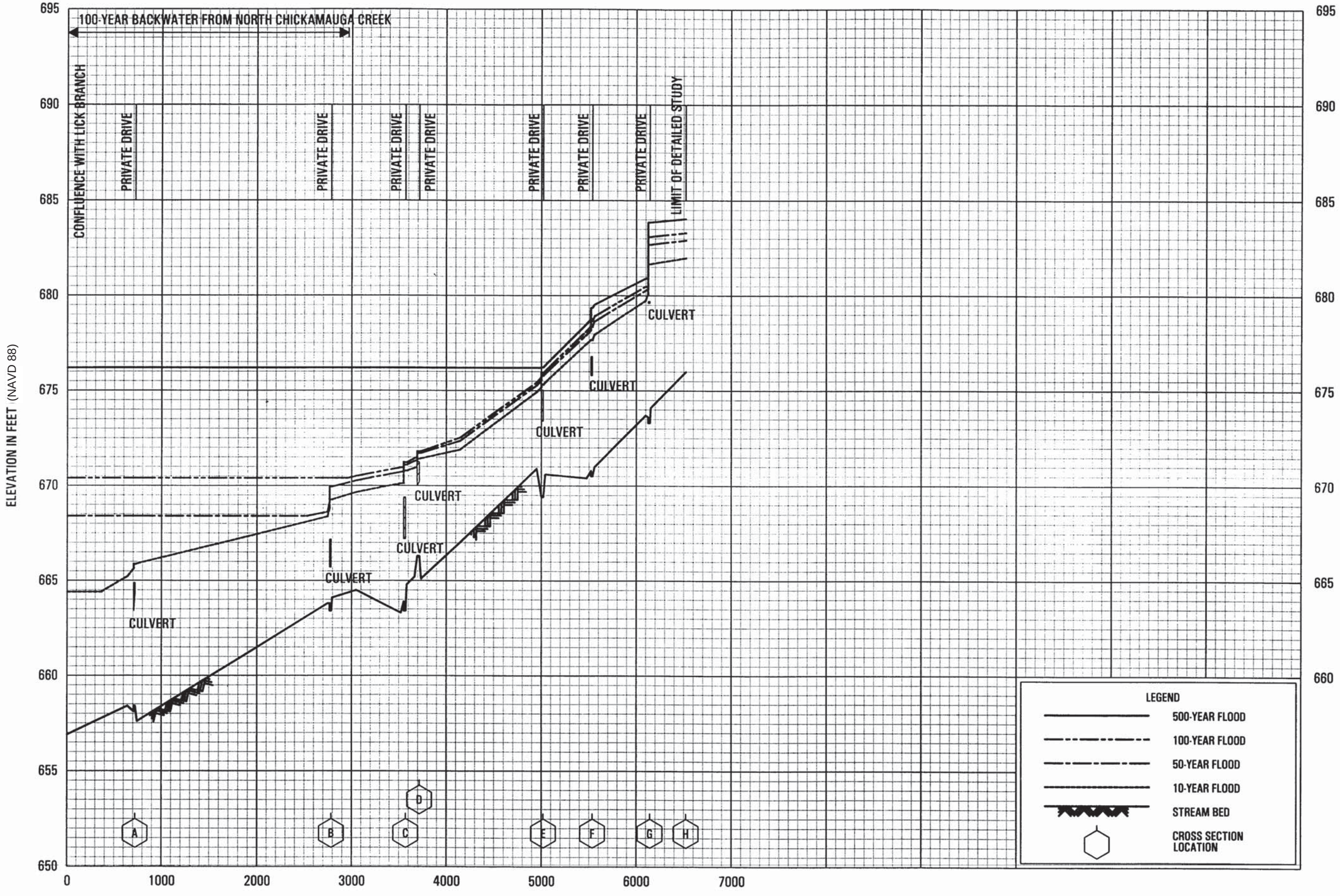
LICK BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

23P



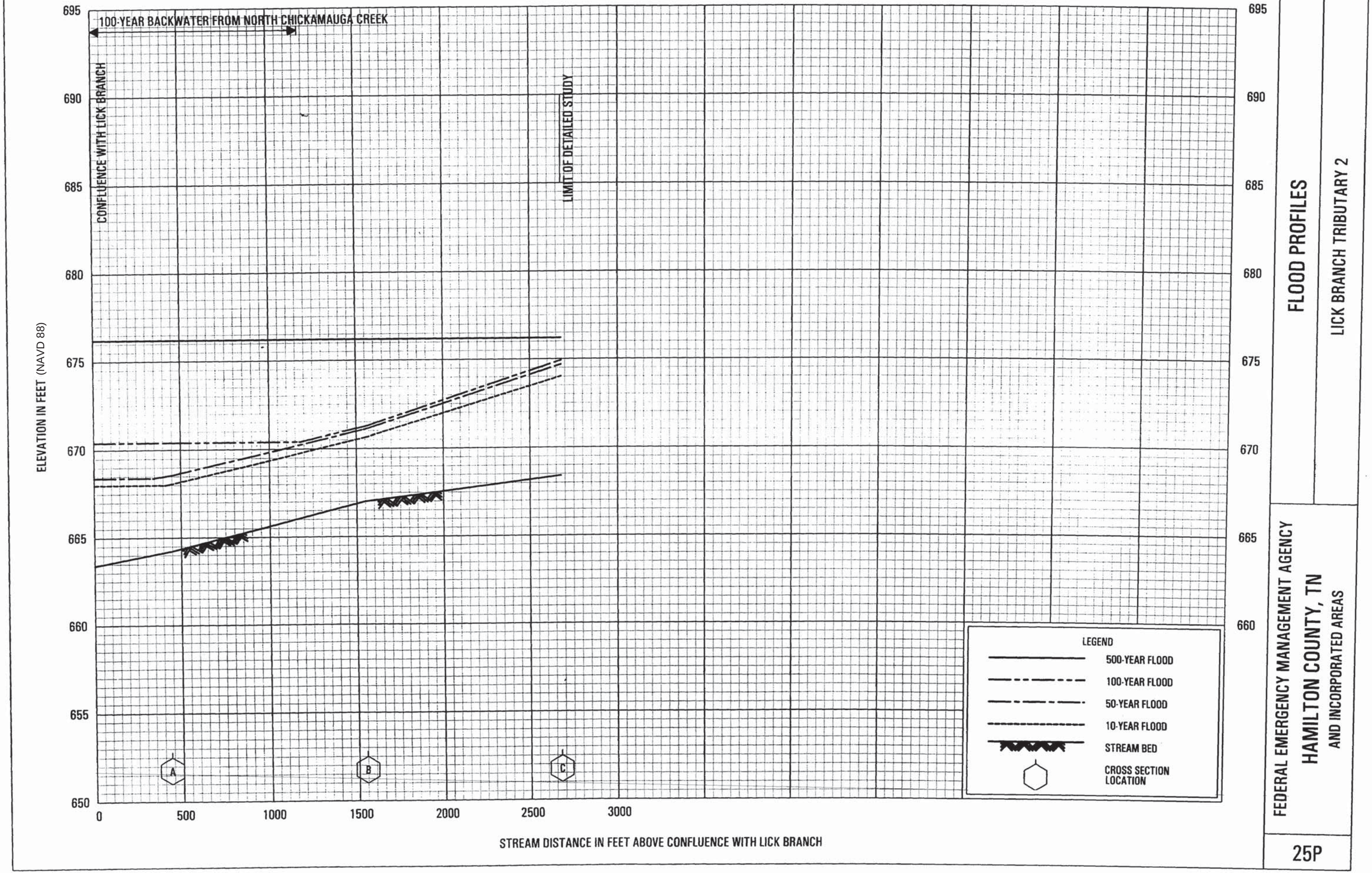
FLOOD PROFILES

LICK BRANCH TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



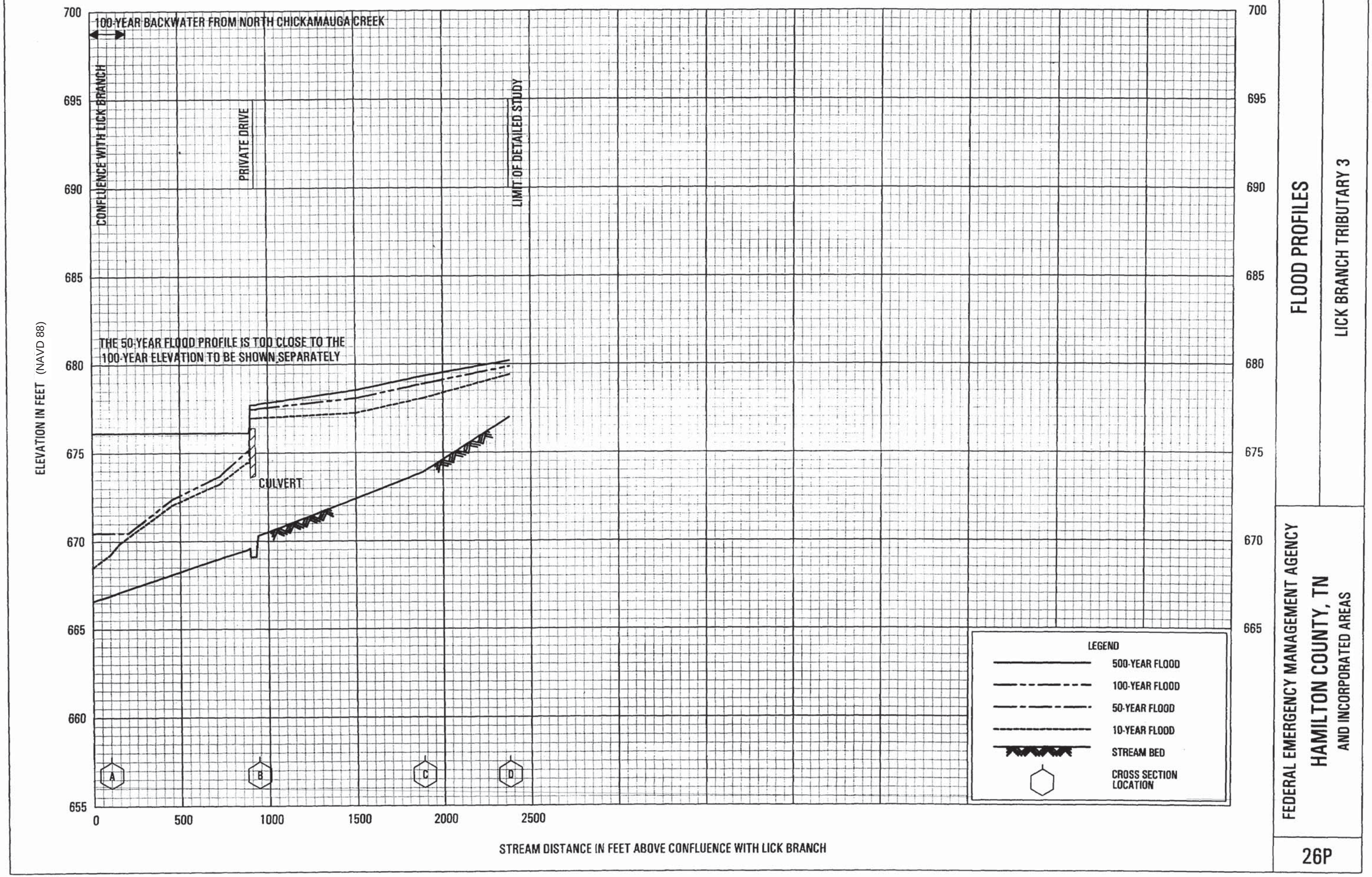
FLOOD PROFILES

LICK BRANCH TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

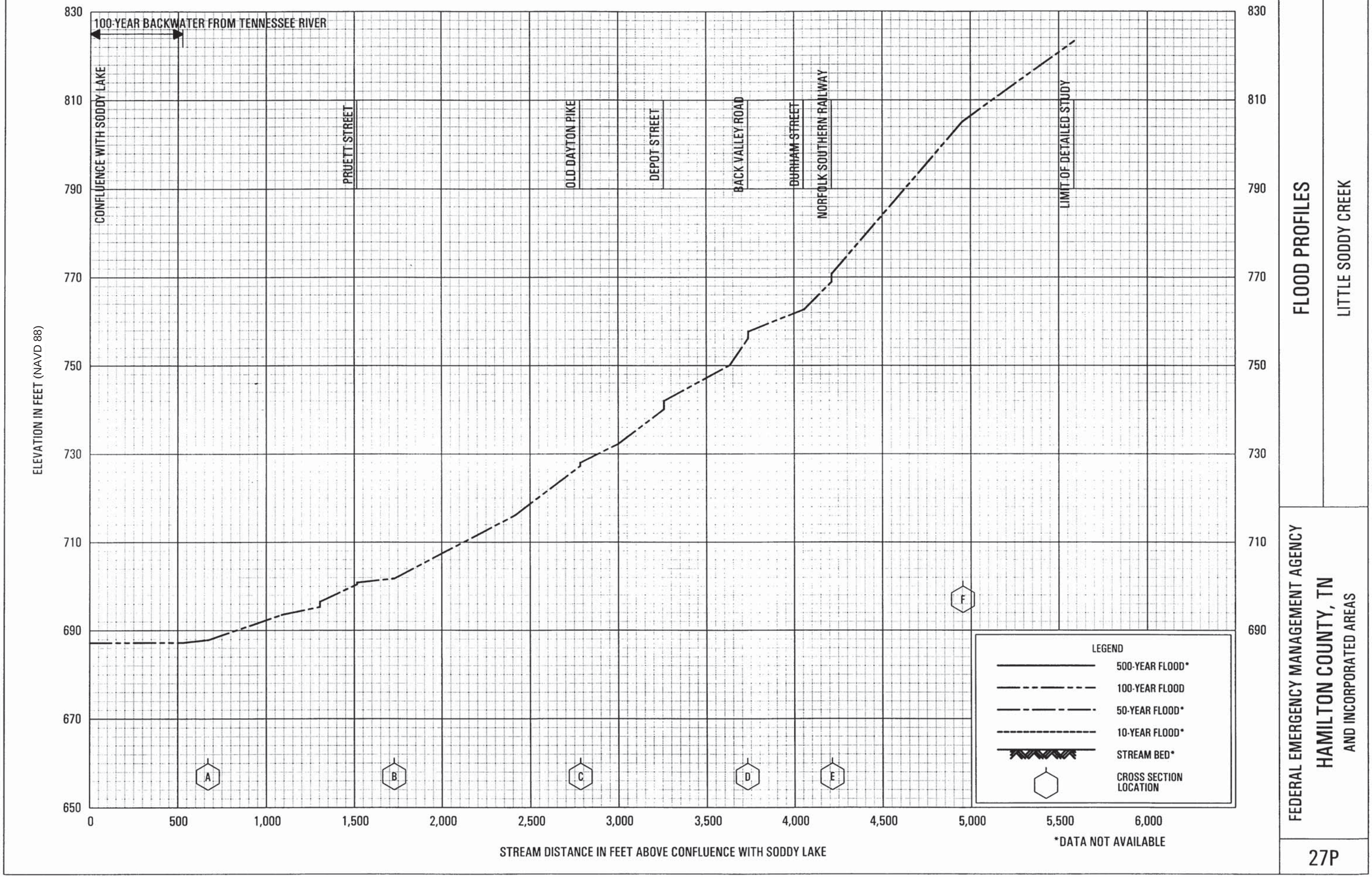
LICK BRANCH TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

26P



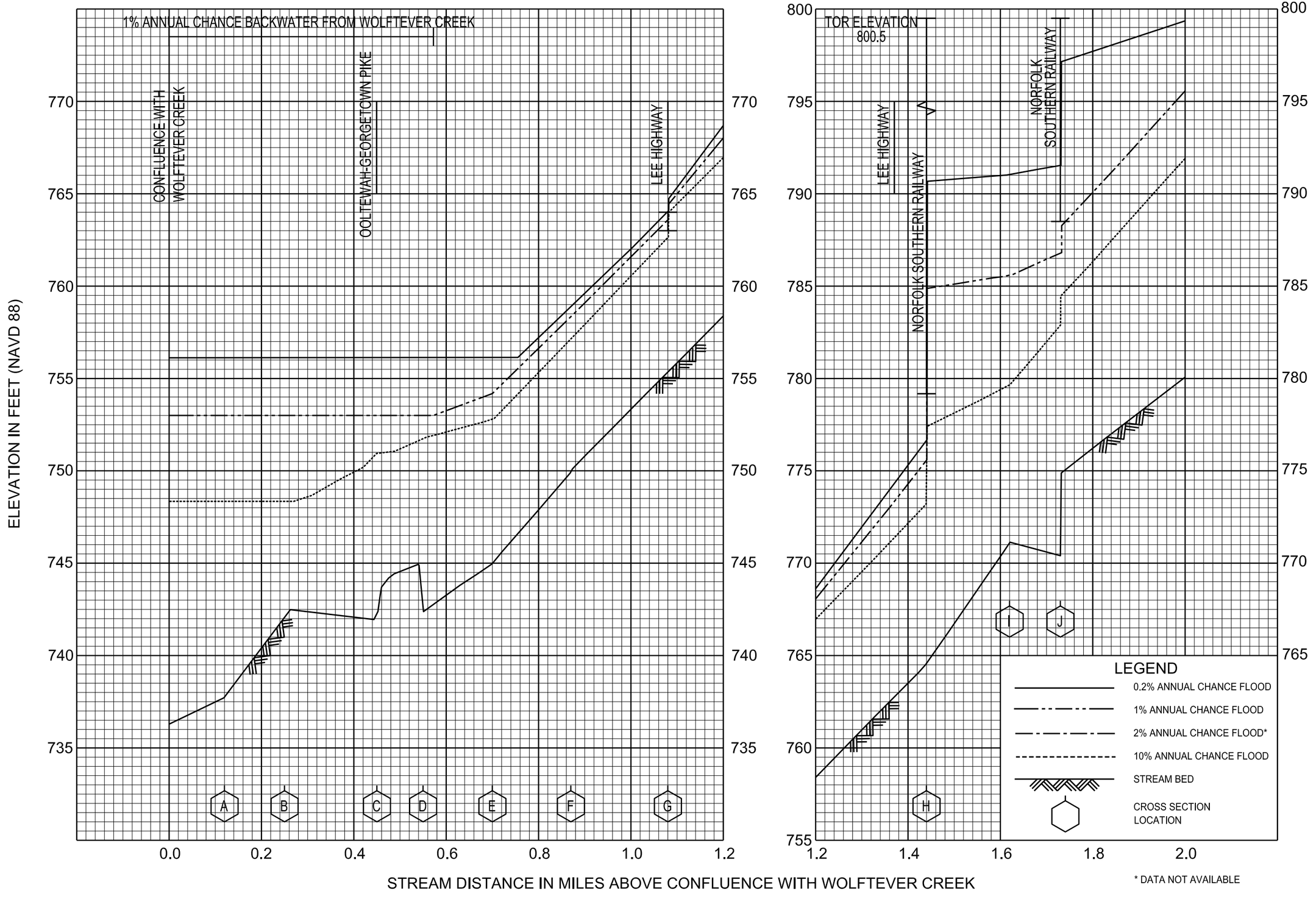
FLOOD PROFILES

LITTLE SODDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

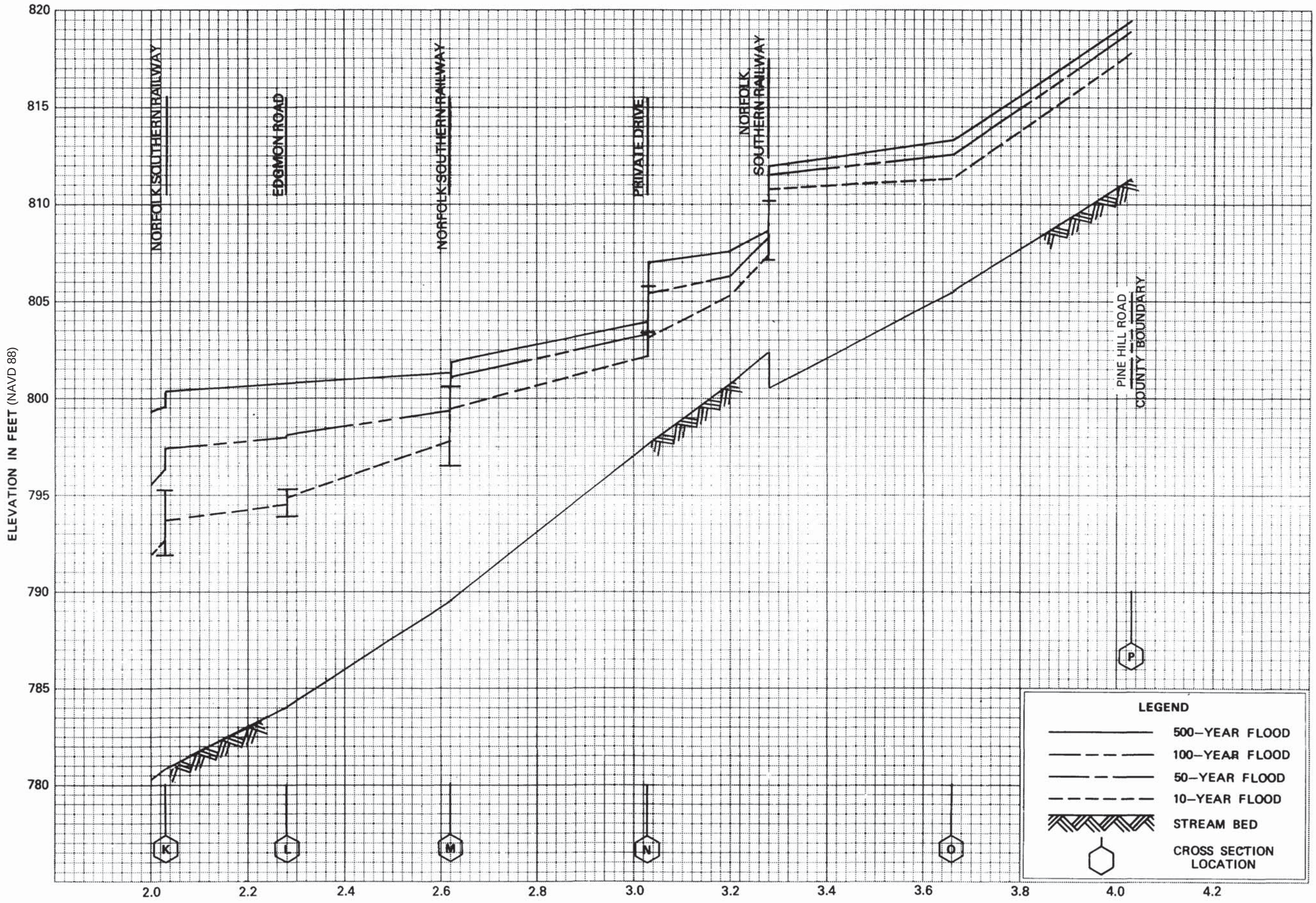


FLOOD PROFILES

LITTLE WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

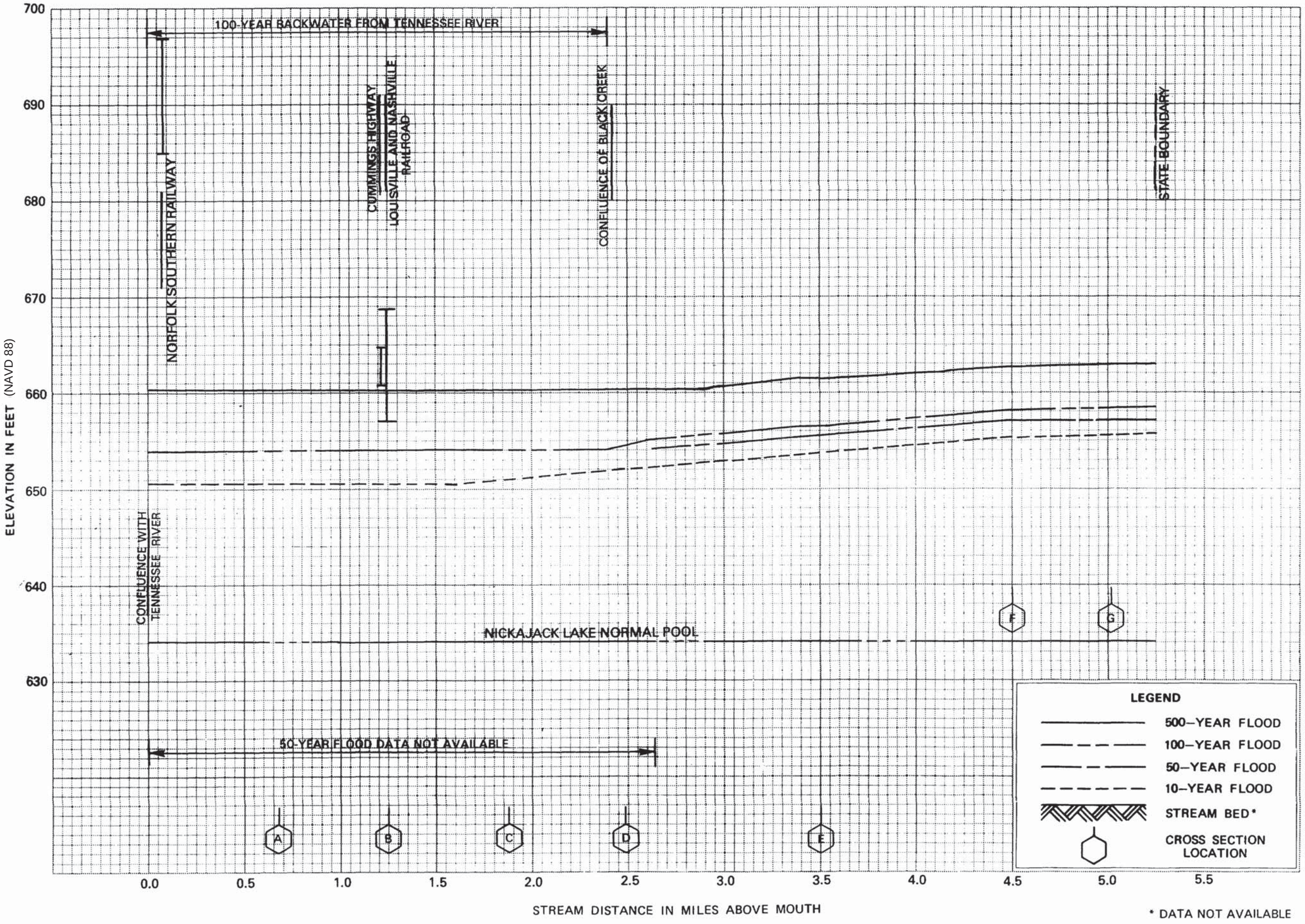


FLOOD PROFILES

LITTLE WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS



FLOOD PROFILES

LOOKOUT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

1-PERCENT-ANNUAL-CHANCE COMBINED RIVERINE EFFECTS WITH SOUTH CHICKAMAUGA CREEK

ELEVATION IN FEET (NAVD 88)

705
700
695
690
685
680
675
670
665
660

CONFLUENCE WITH SOUTH CHICKAMAUGA CREEK
LOUISVILLE AND NASHVILLE RAILROAD
DAVIDSON ROAD
E BRAINERD ROAD
CONFLUENCE OF RYALL SPRINGS BRANCH
PRIVATE ROAD
PRIVATE DRIVE
JENKINS ROAD
DAM
DAM
DAM

A B C D E F G H I J K

LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION

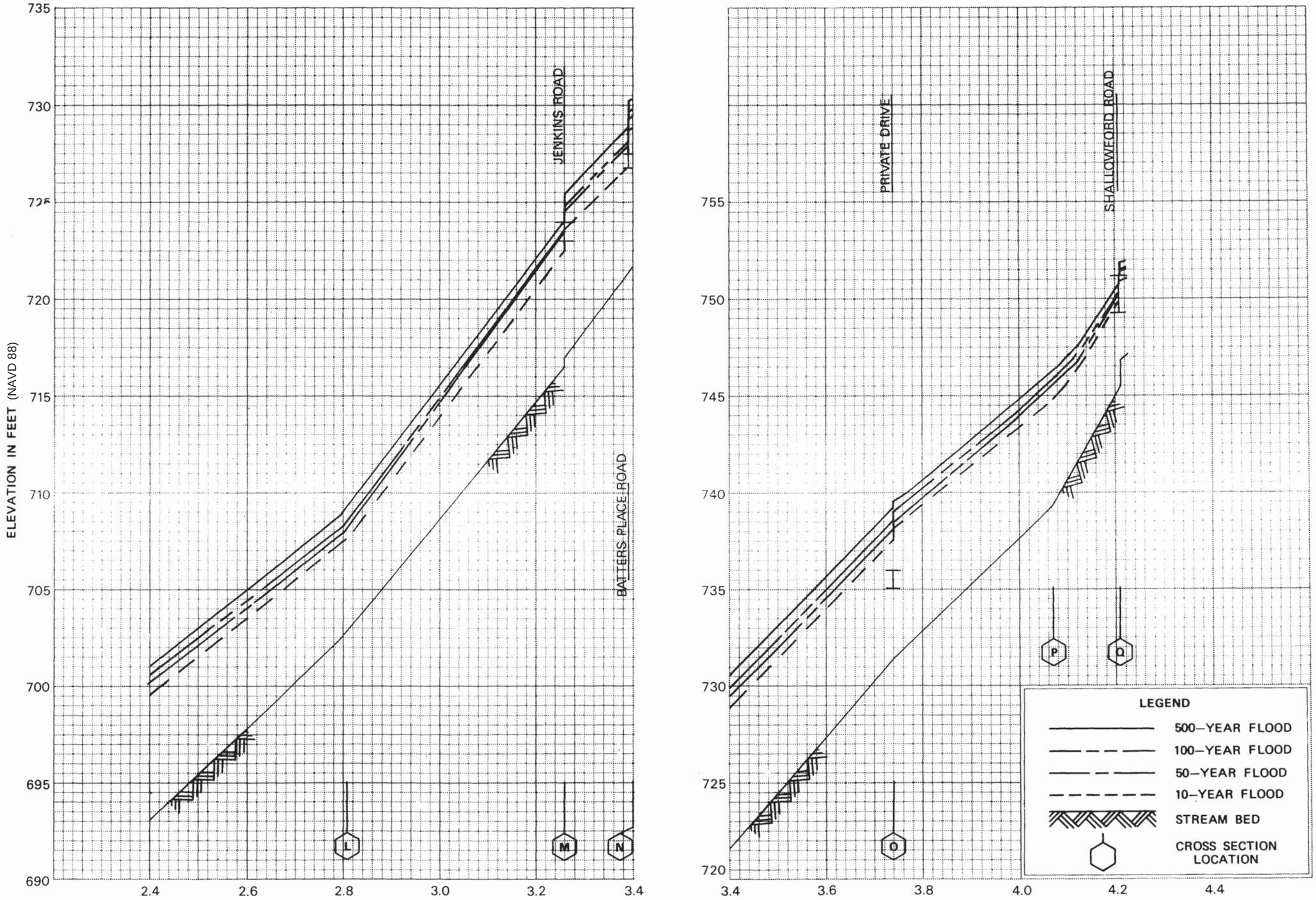
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4

STREAM DISTANCE IN MILES ABOVE CONFLUENCE WITH SOUTH CHICKAMAUGA CREEK

FLOOD PROFILES

MACKEY BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
HAMILTON COUNTY, TN
AND INCORPORATED AREAS



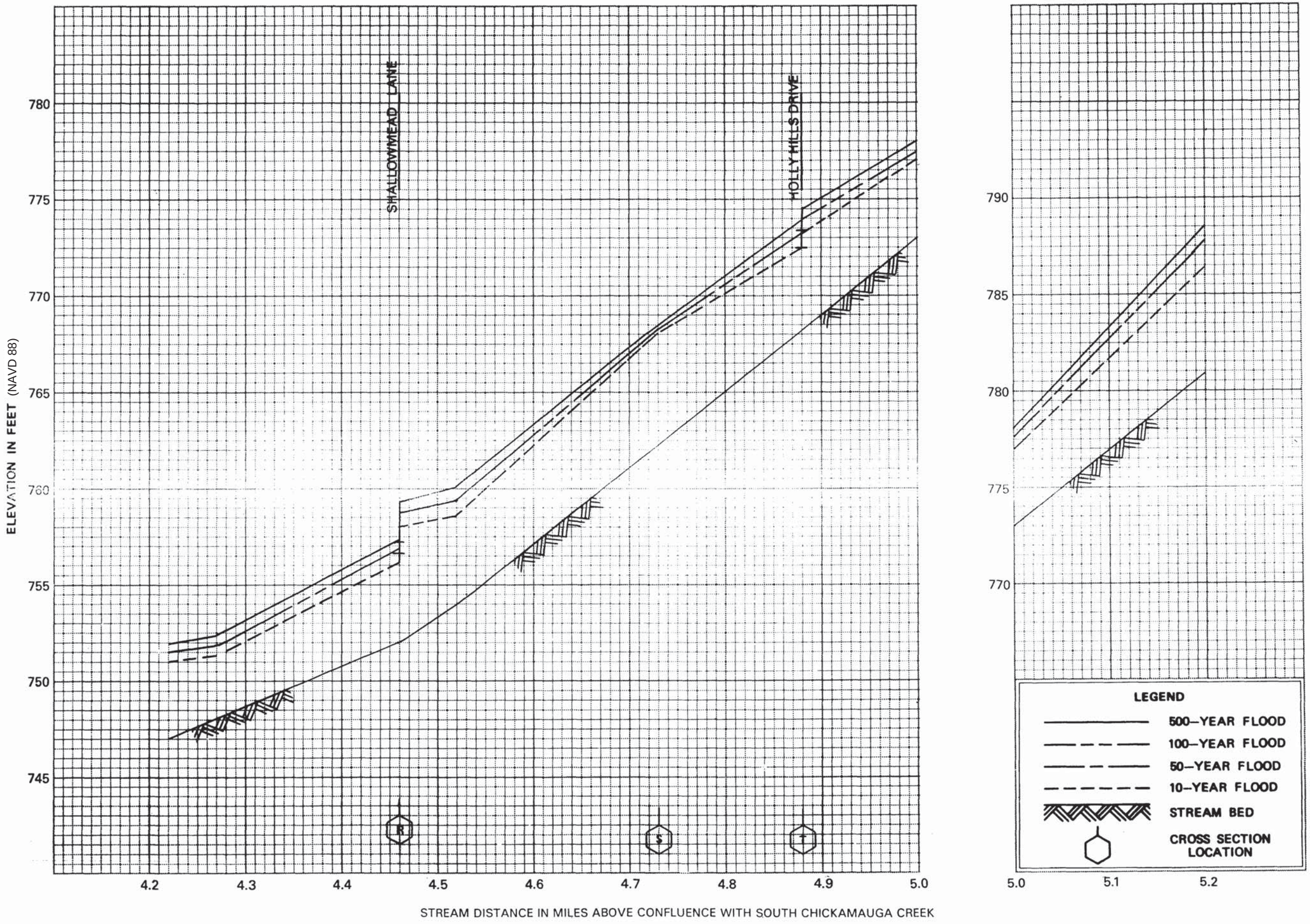
FLOOD PROFILES

MACKEY BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

32P

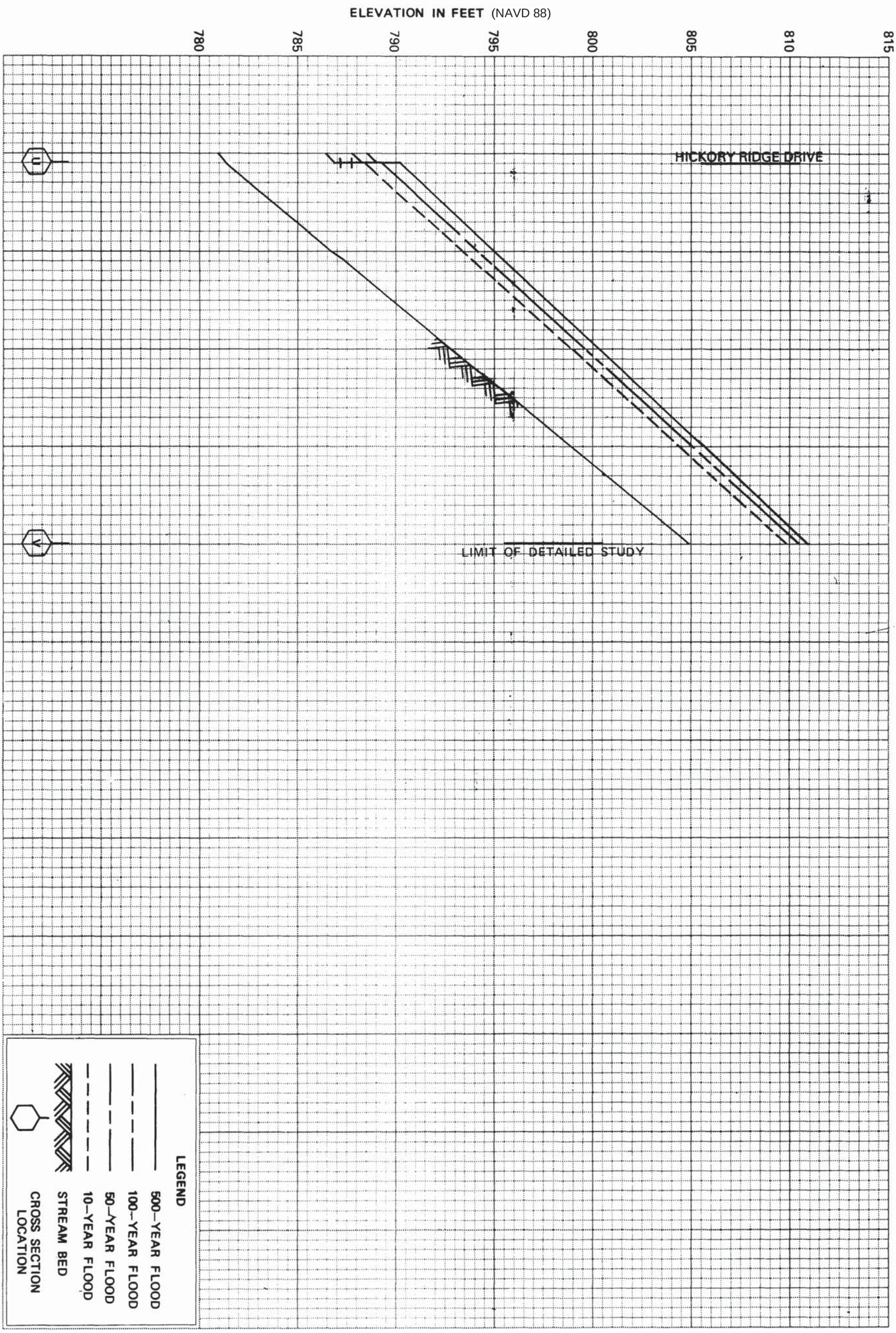


FLOOD PROFILES

MACKEY BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPRATED AREAS

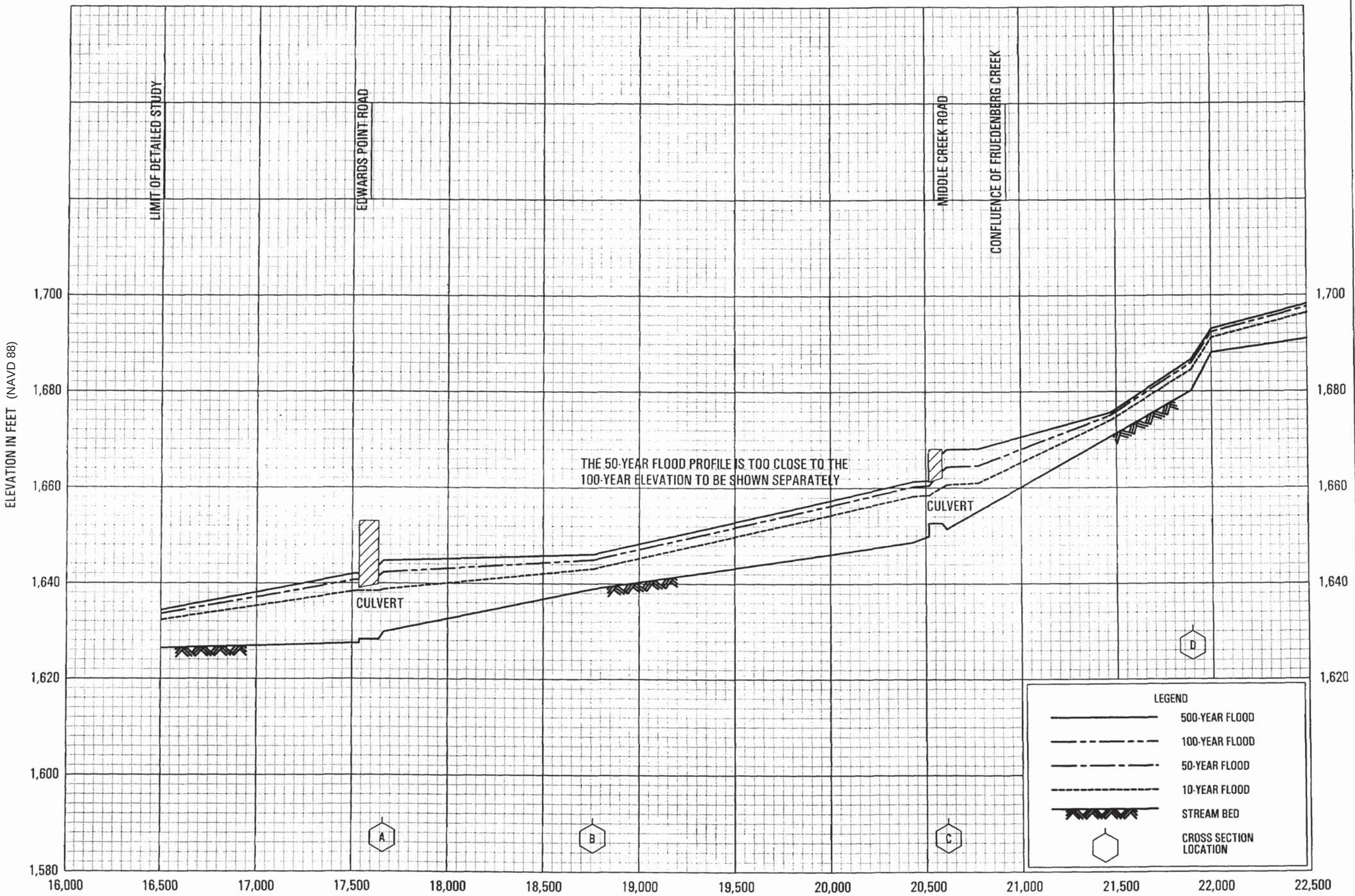


FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPRATED AREAS

FLOOD PROFILES

MACKEY BRANCH



FLOOD PROFILES

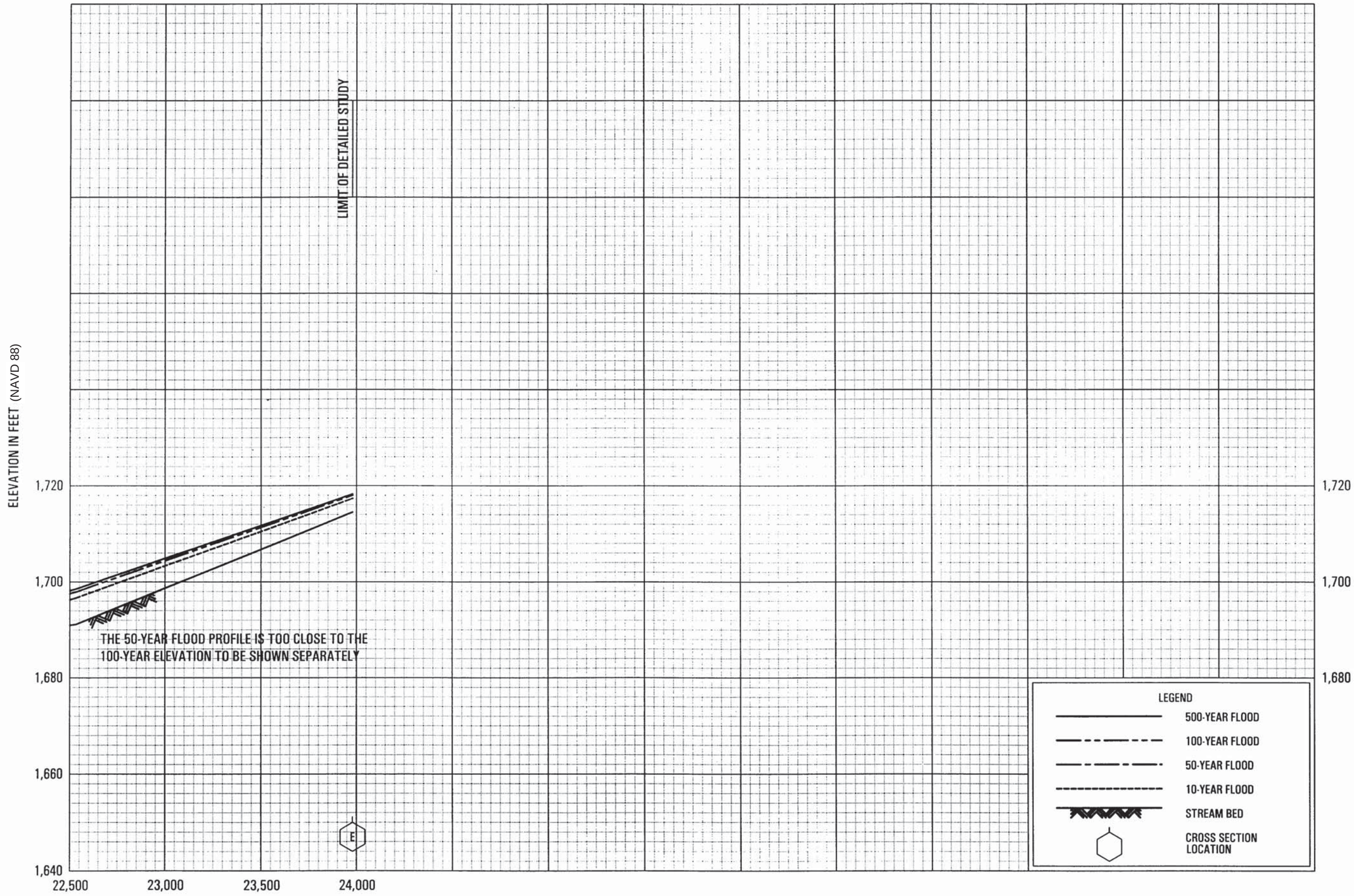
MIDDLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

35P



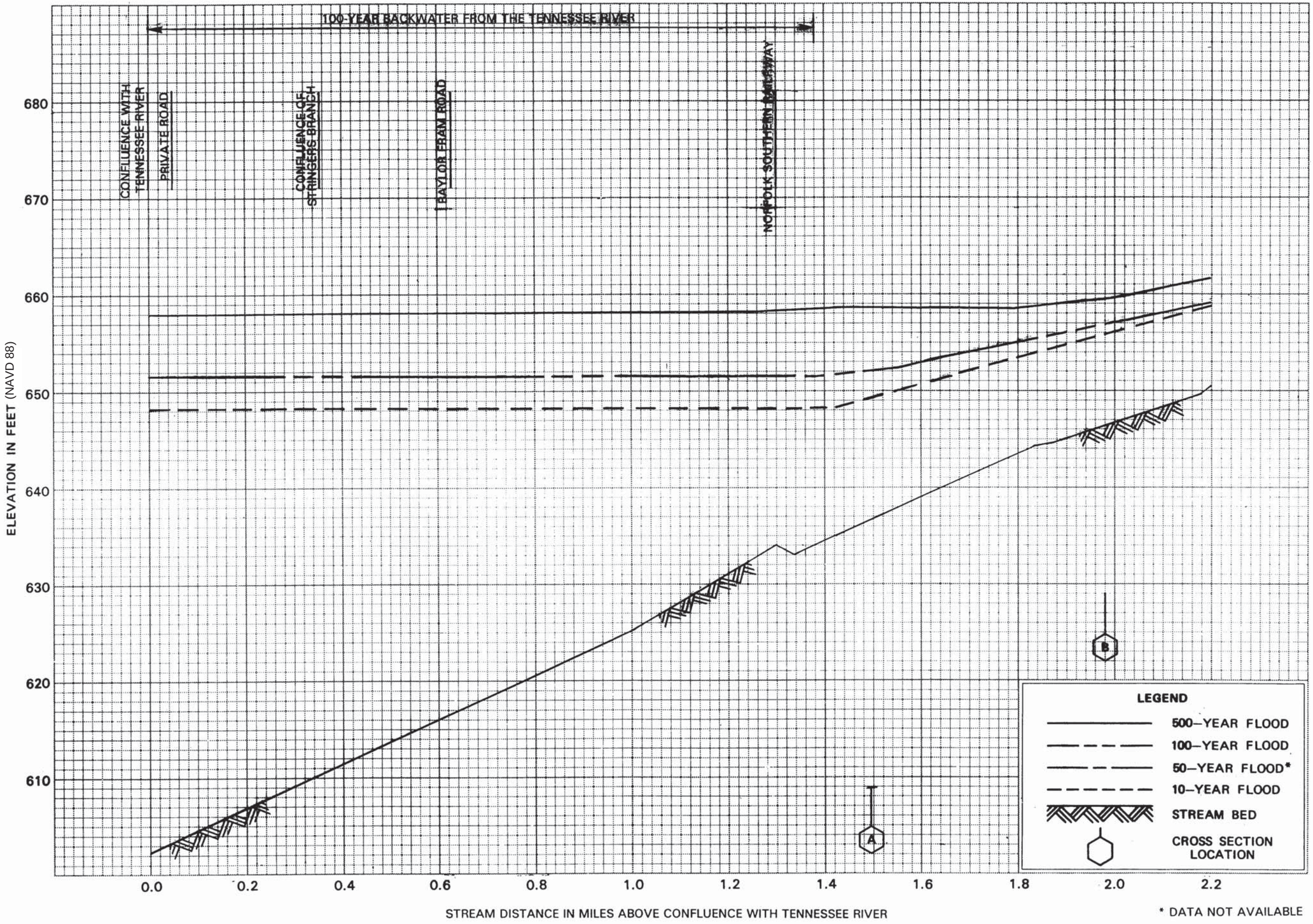
FLOOD PROFILES

MIDDLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



* DATA NOT AVAILABLE

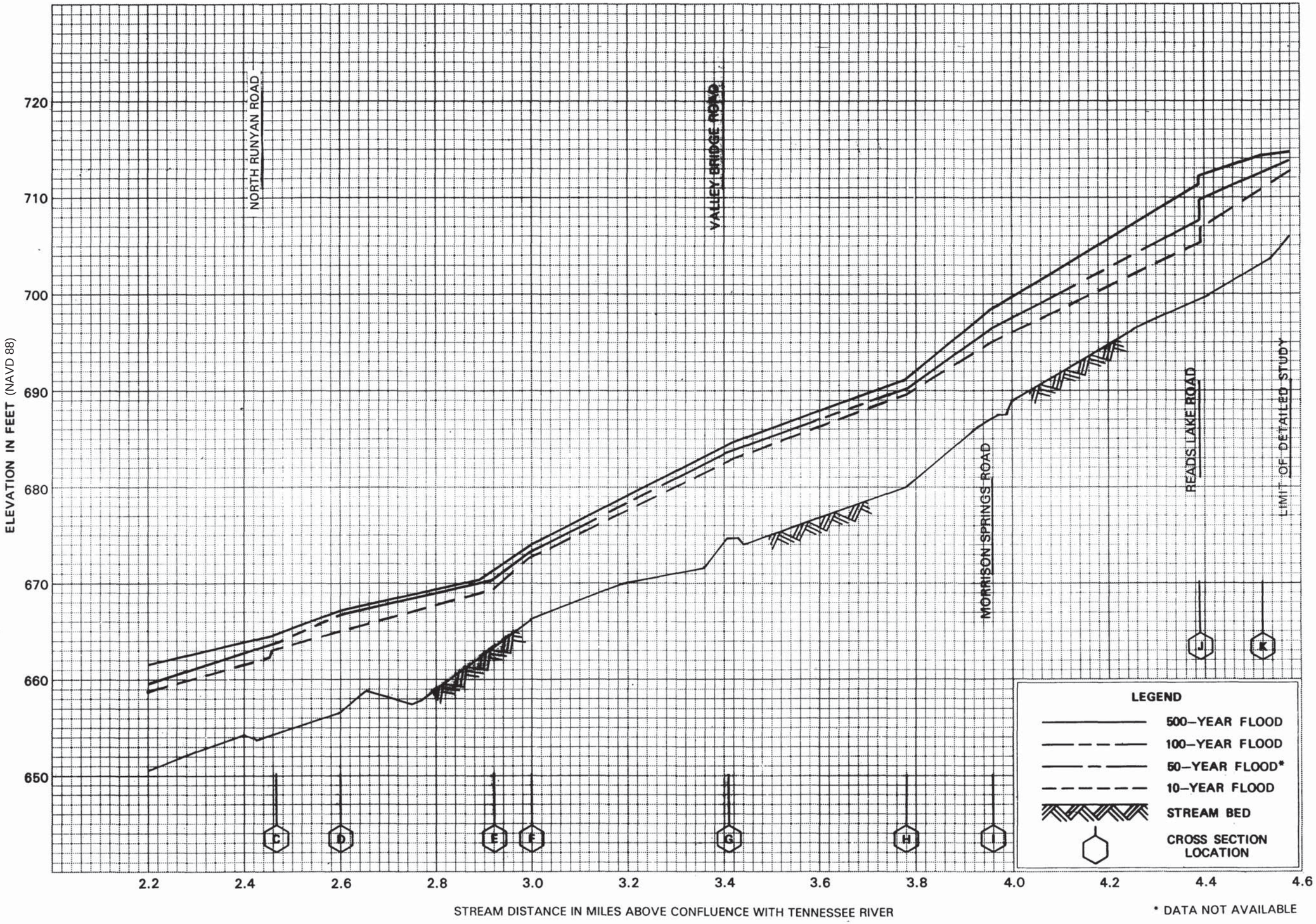
FLOOD PROFILES

MOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

37P

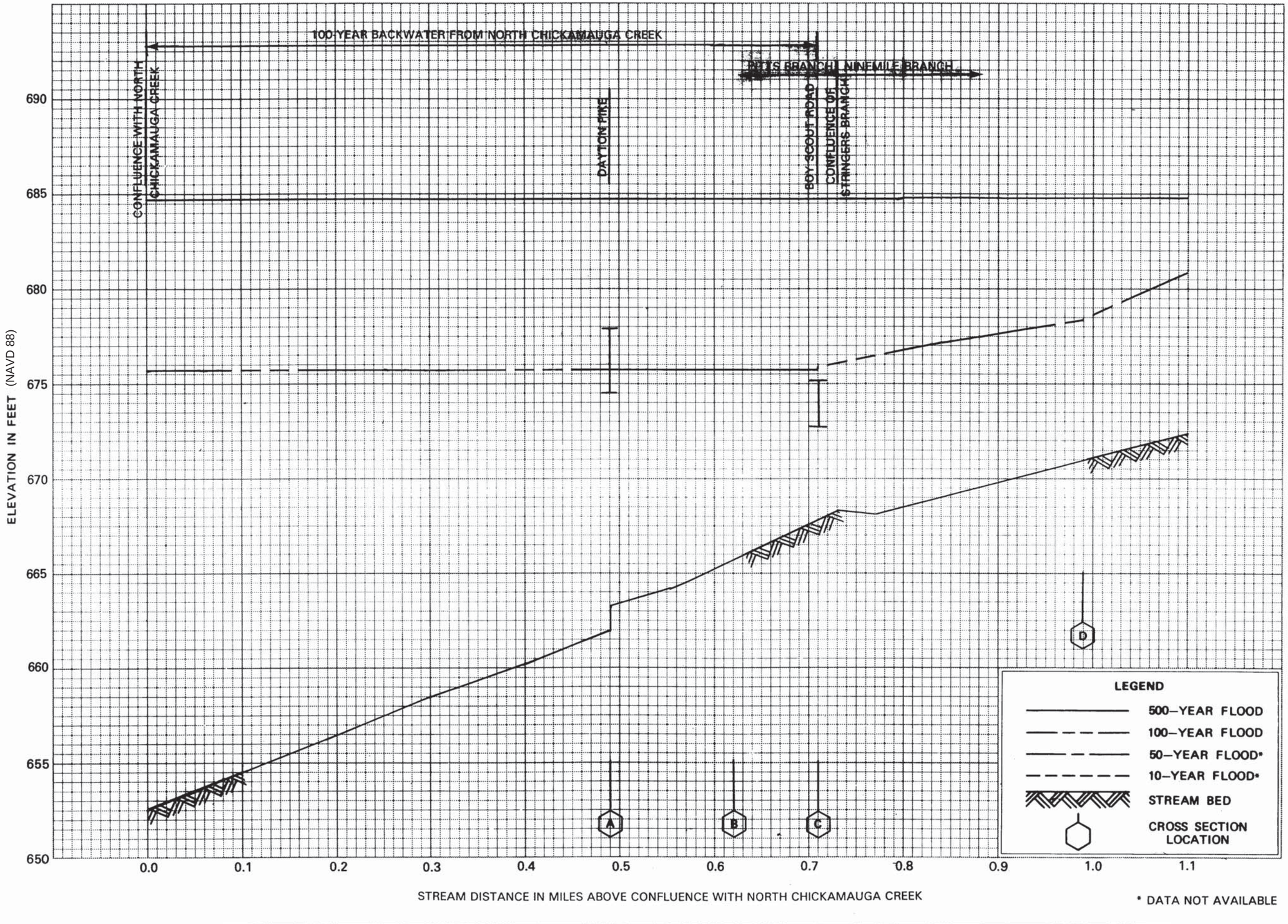


FLOOD PROFILES

MOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

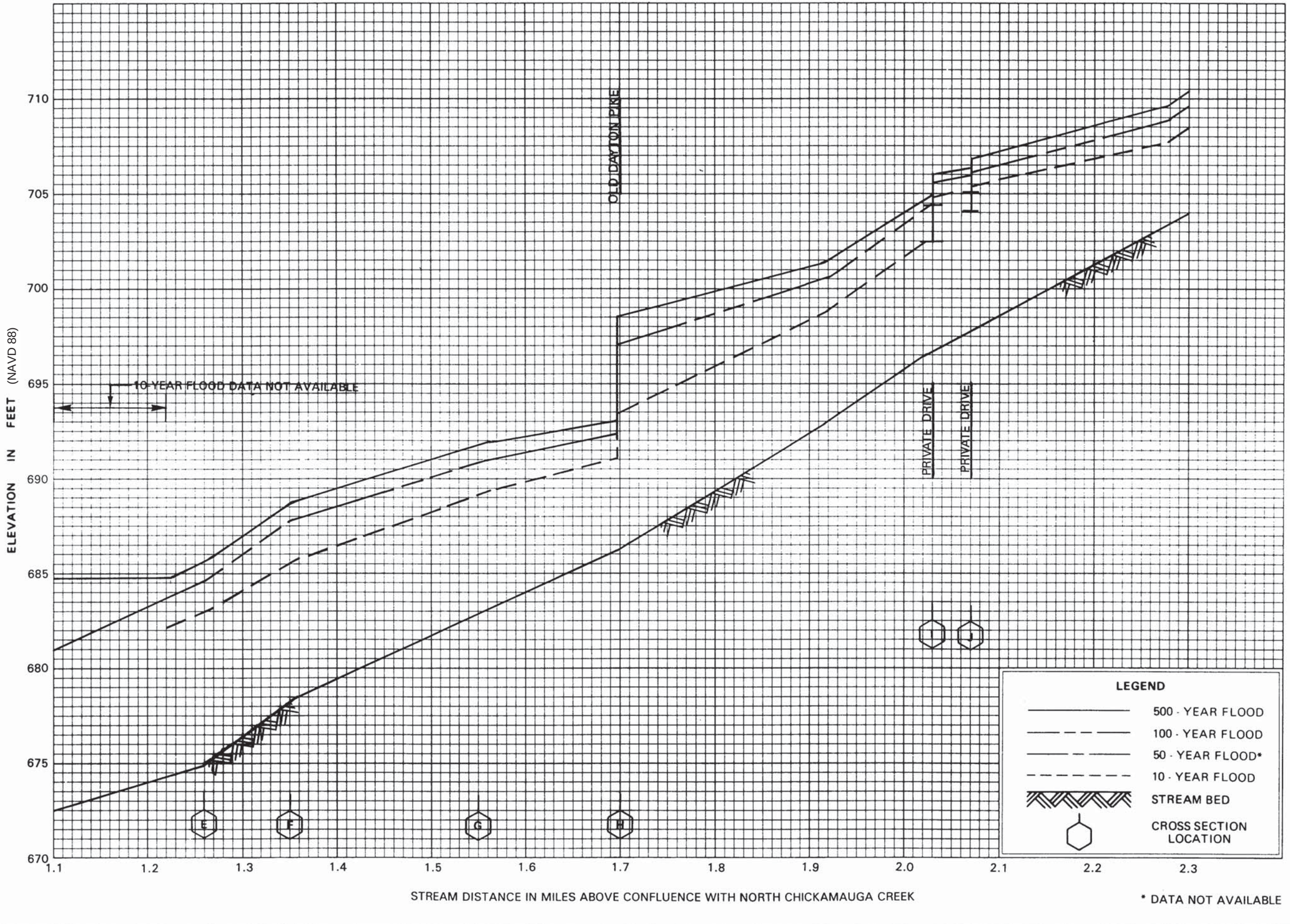


FLOOD PROFILES

PITTS BRANCH/NINEMILE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

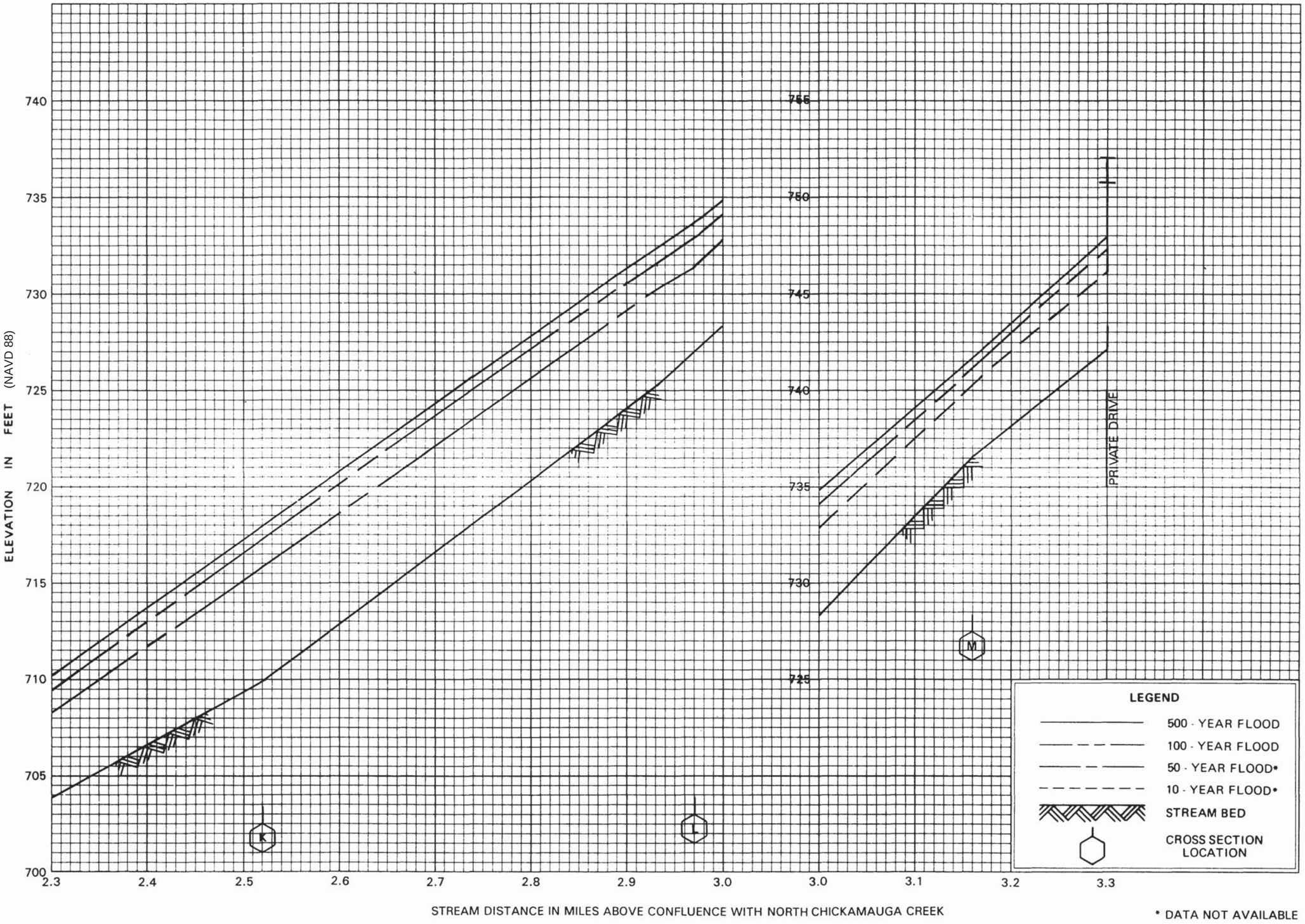


FLOOD PROFILES

NINEMILE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



STREAM DISTANCE IN MILES ABOVE CONFLUENCE WITH NORTH CHICKAMAUGA CREEK

* DATA NOT AVAILABLE

FLOOD PROFILES

NINEMILE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

41P

STREAM DISTANCE IN MILES ABOVE CONFLUENCE WITH NORTH CHICKAMAUGA CREEK

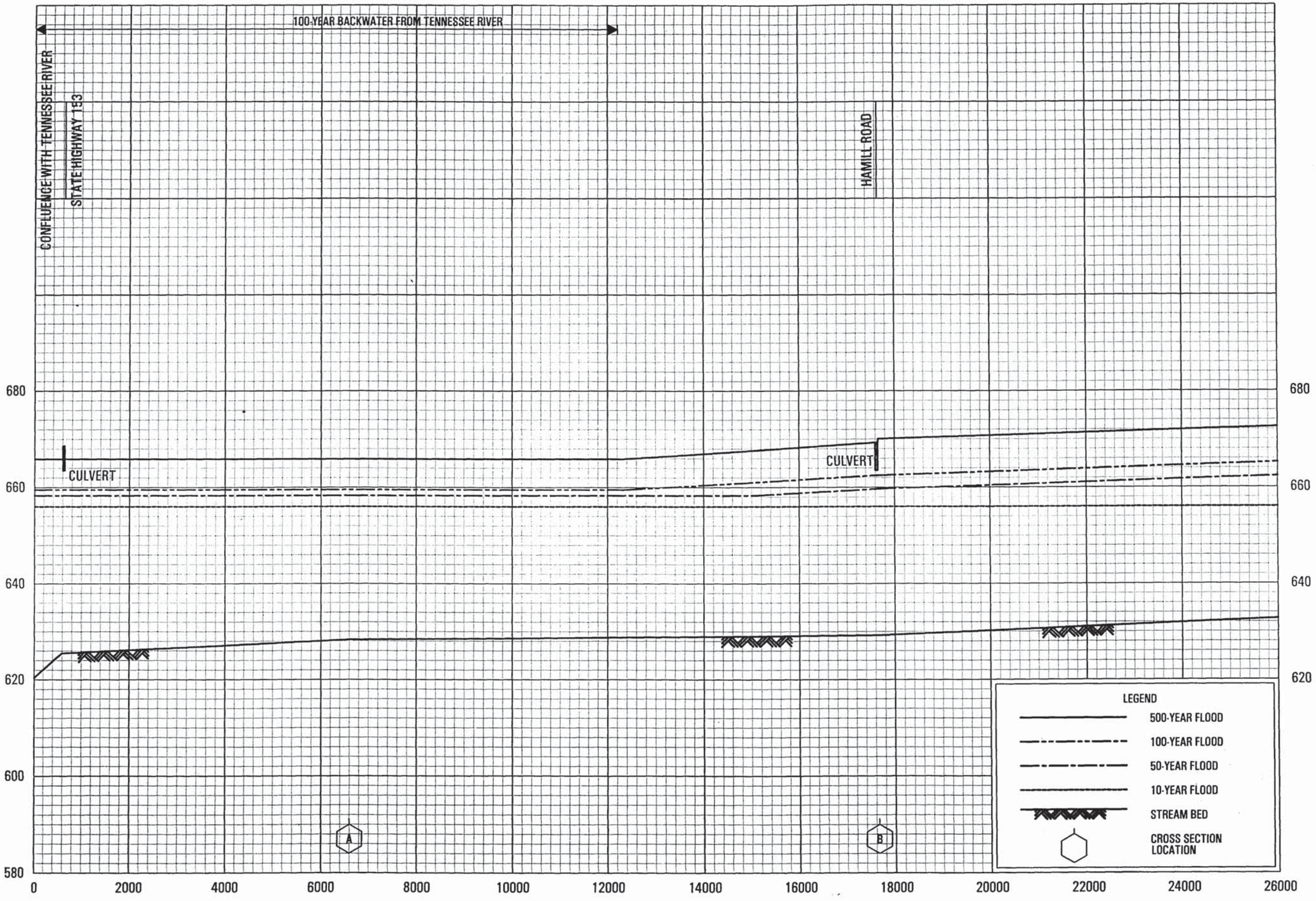
* DATA NOT AVAILABLE

FLOOD PROFILES

NINEMILE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



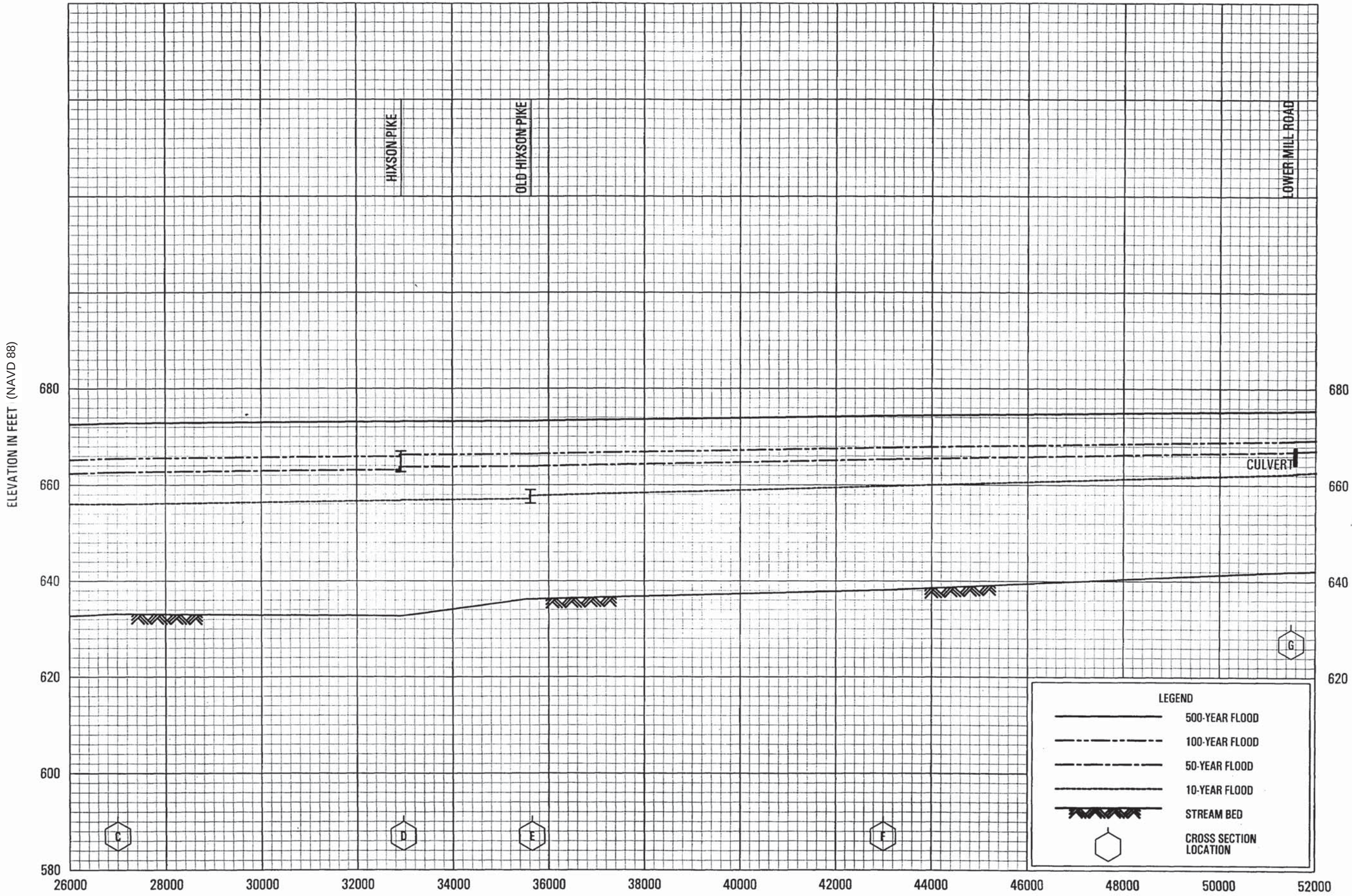
FLOOD PROFILES

NORTH CHICKAMAUGA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



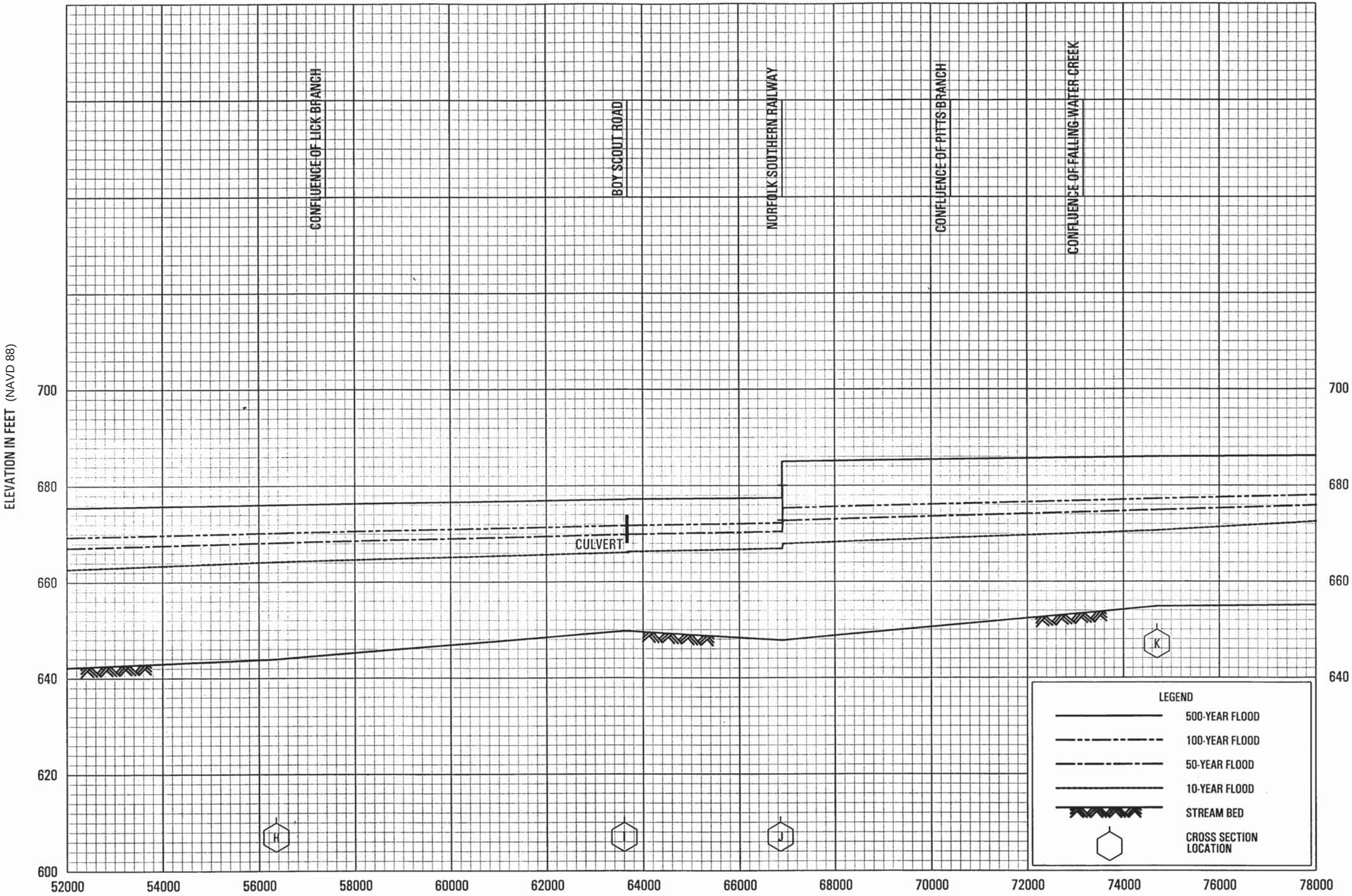
FLOOD PROFILES

NORTH CHICKAMAUGA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



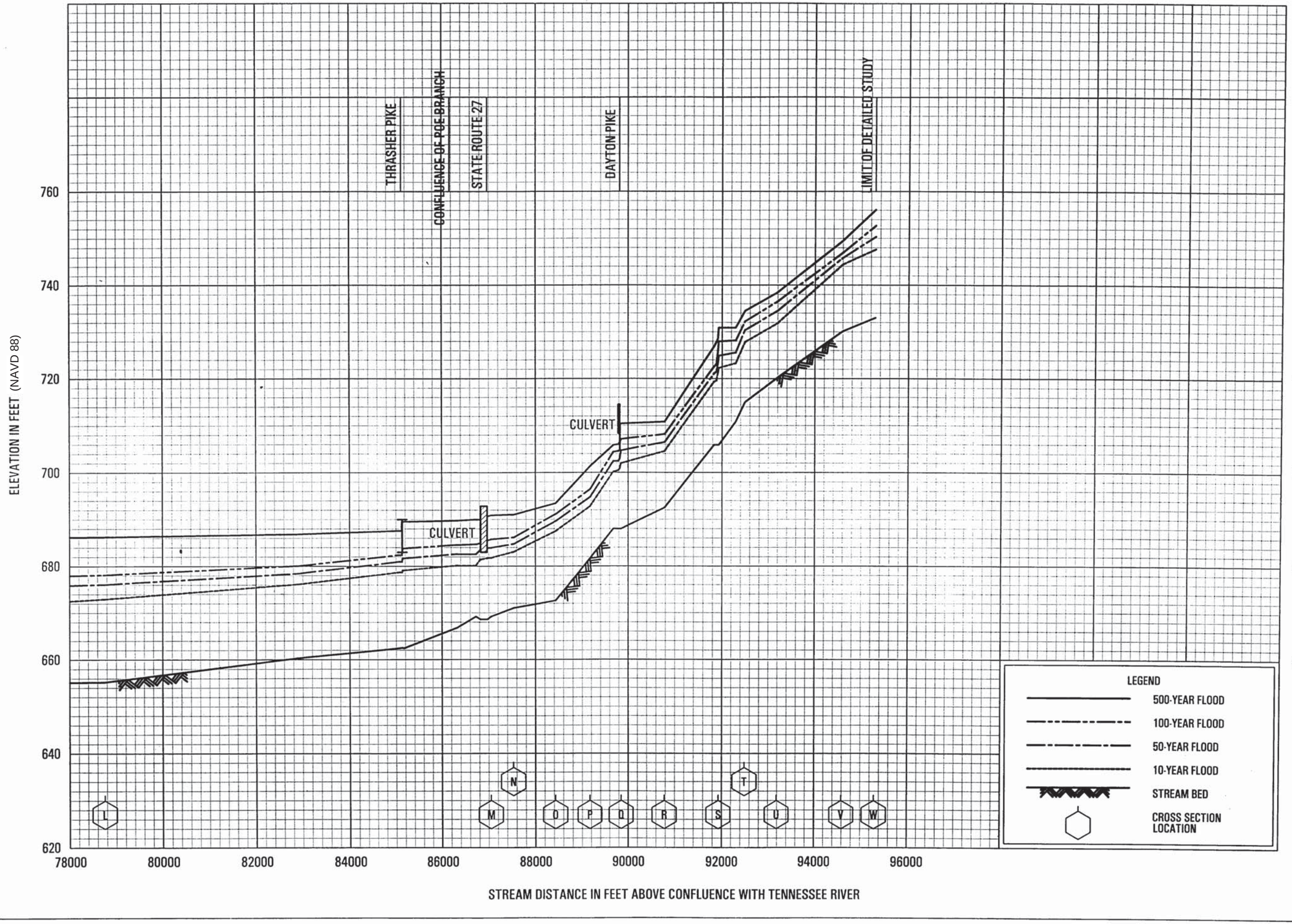
FLOOD PROFILES

NORTH CHICKAMAUGA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

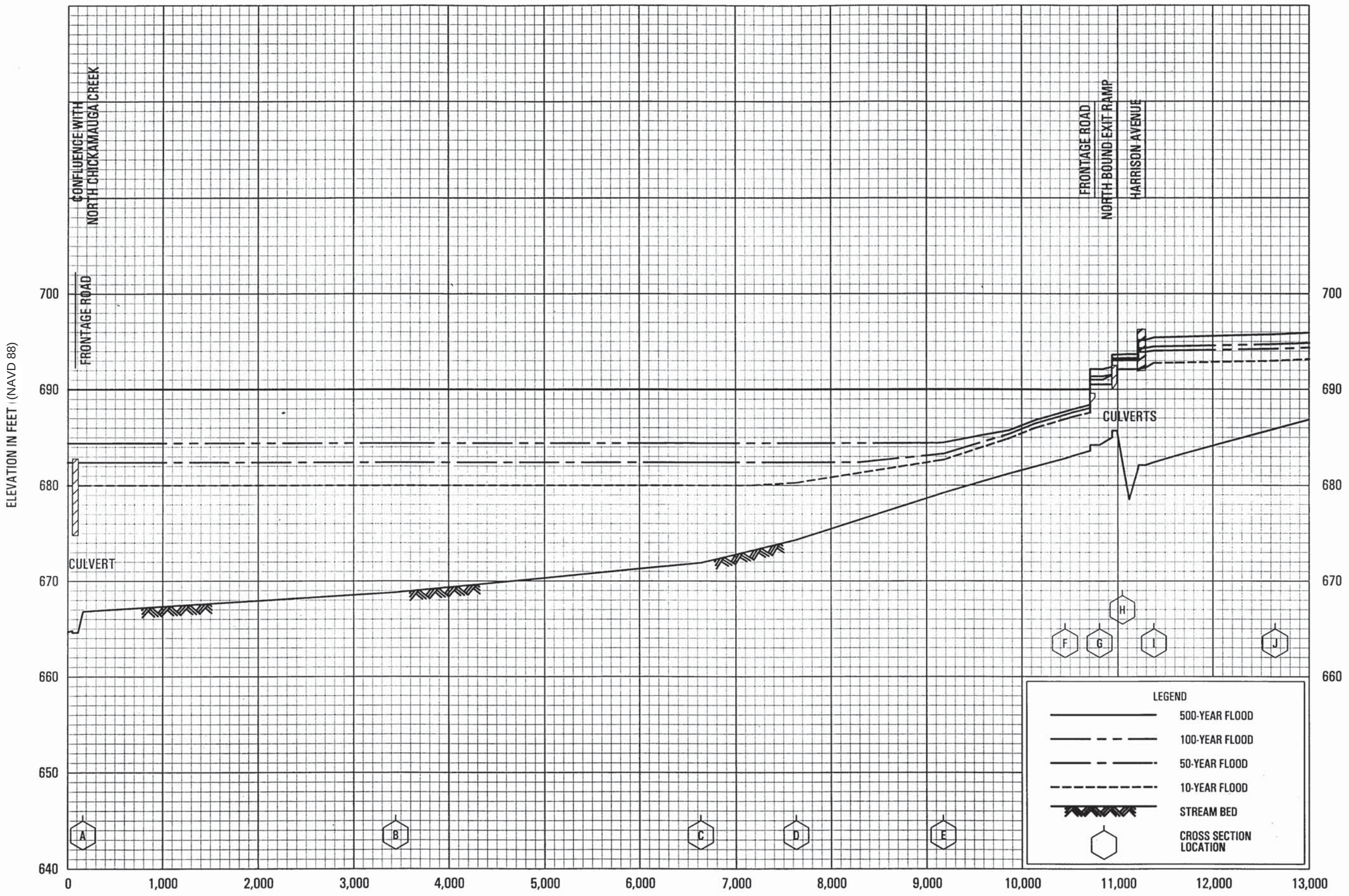
NORTH CHICKAMAUGA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

46P



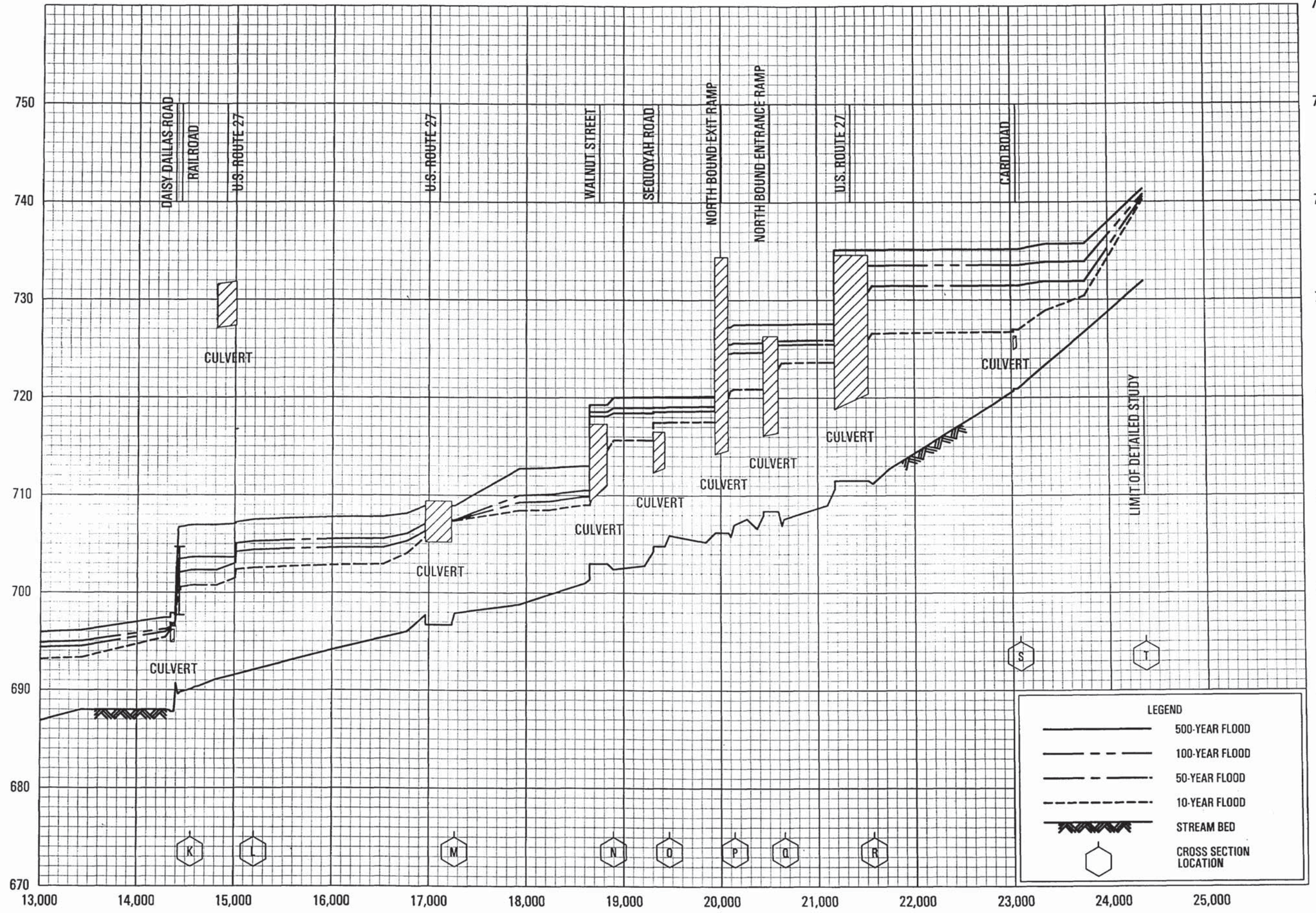
FLOOD PROFILES

POE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

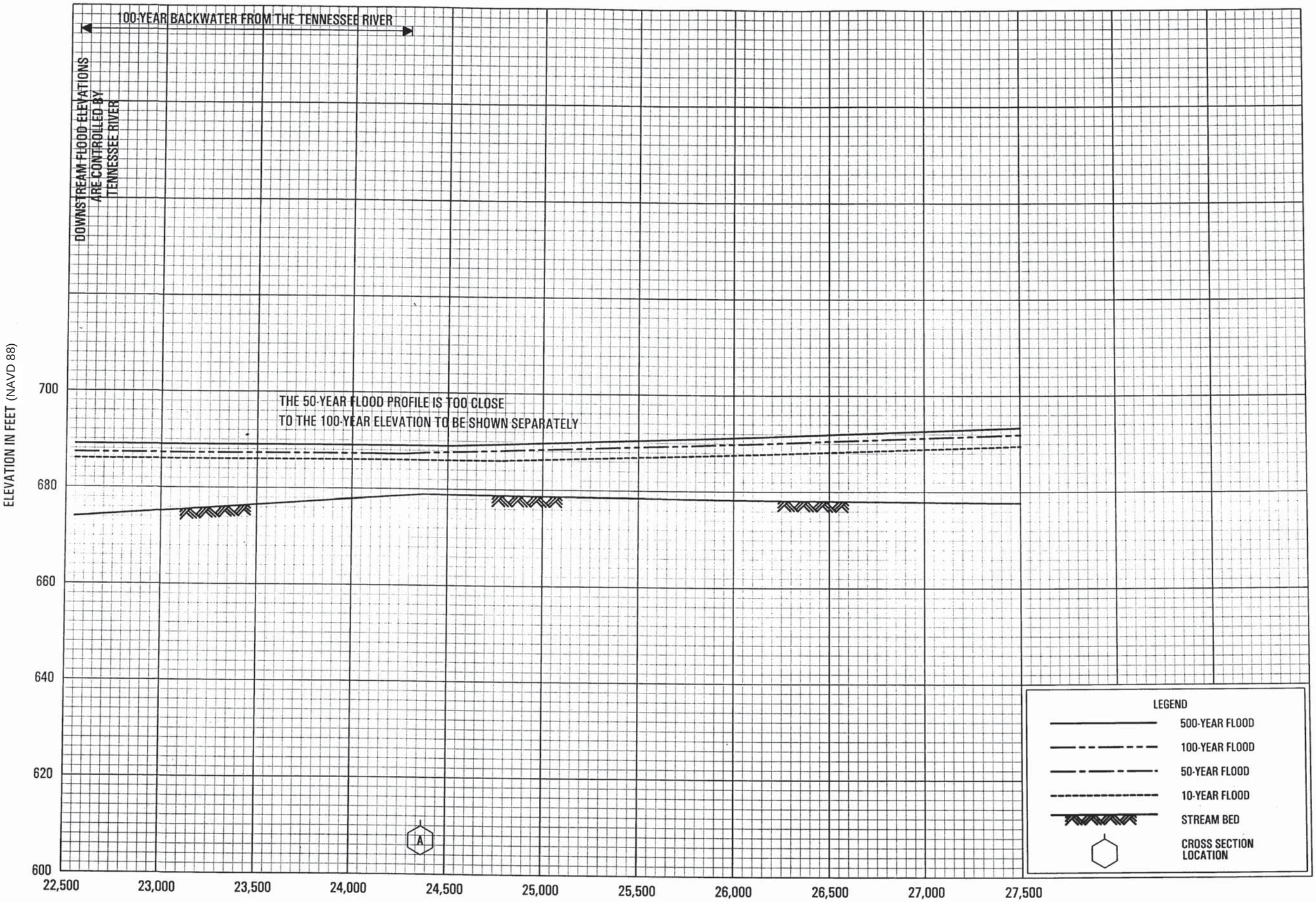
POE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

48P



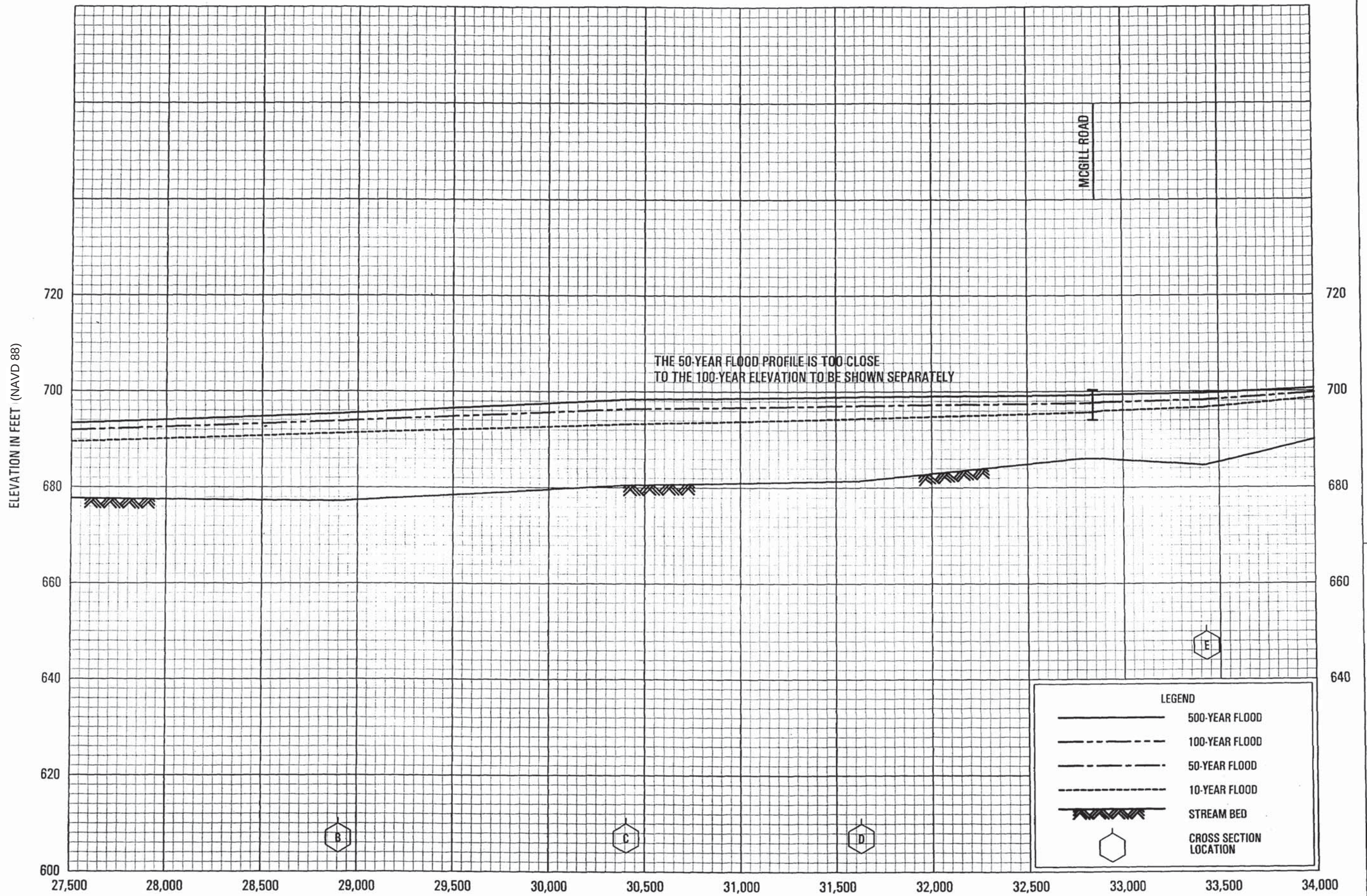
FLOOD PROFILES

POSSUM CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

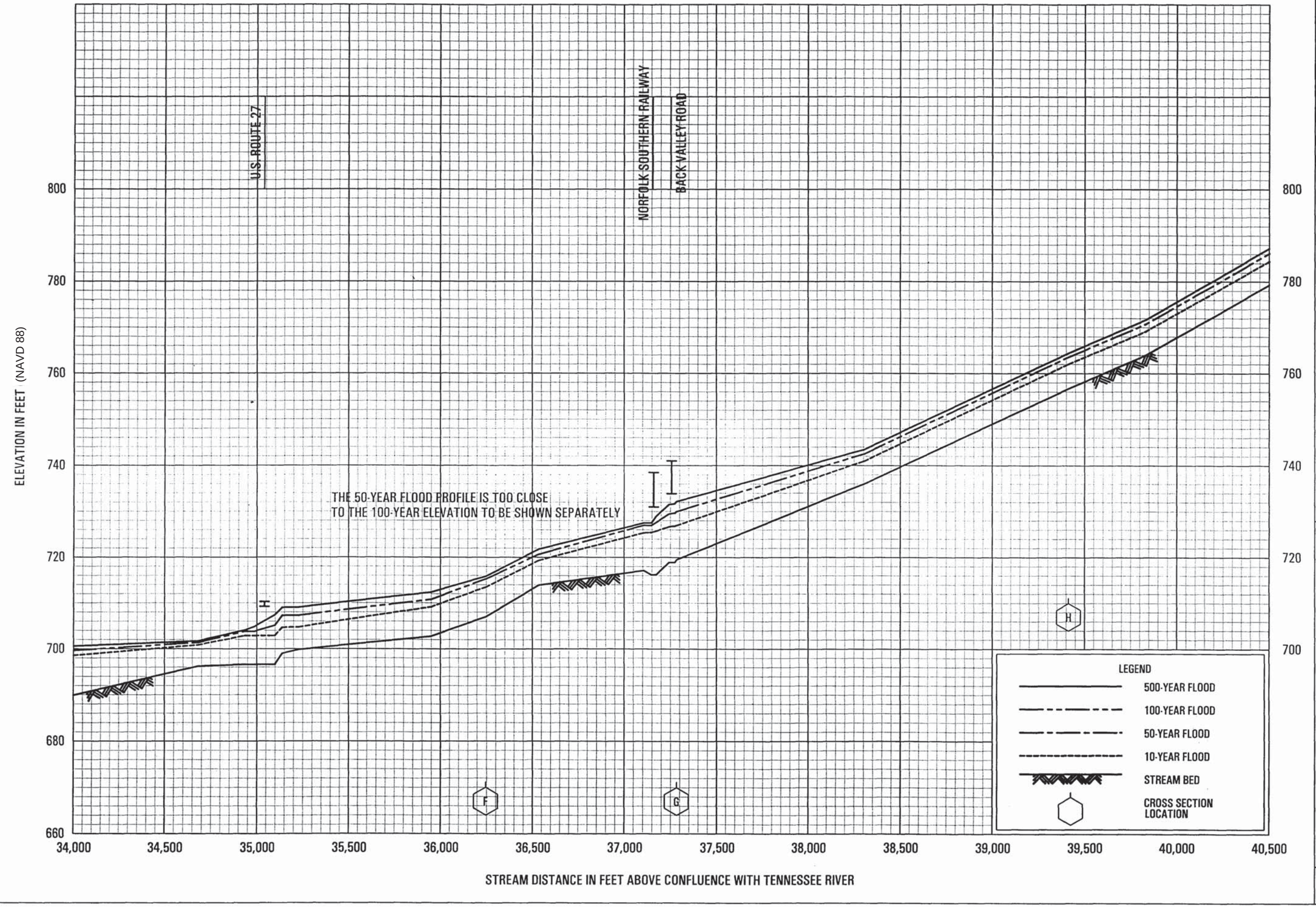
POSSUM CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

50P



FLOOD PROFILES

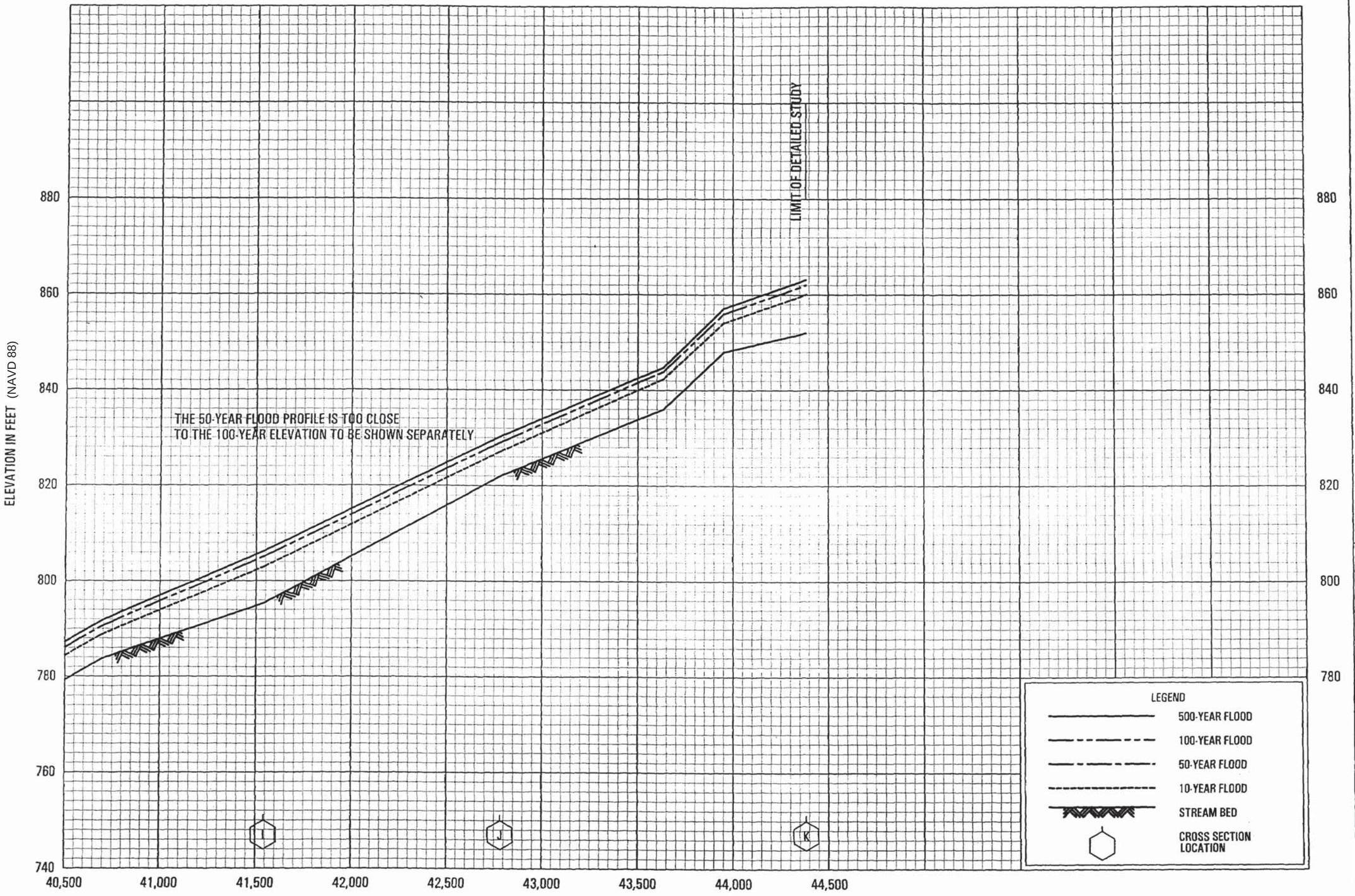
POSSUM CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

51P



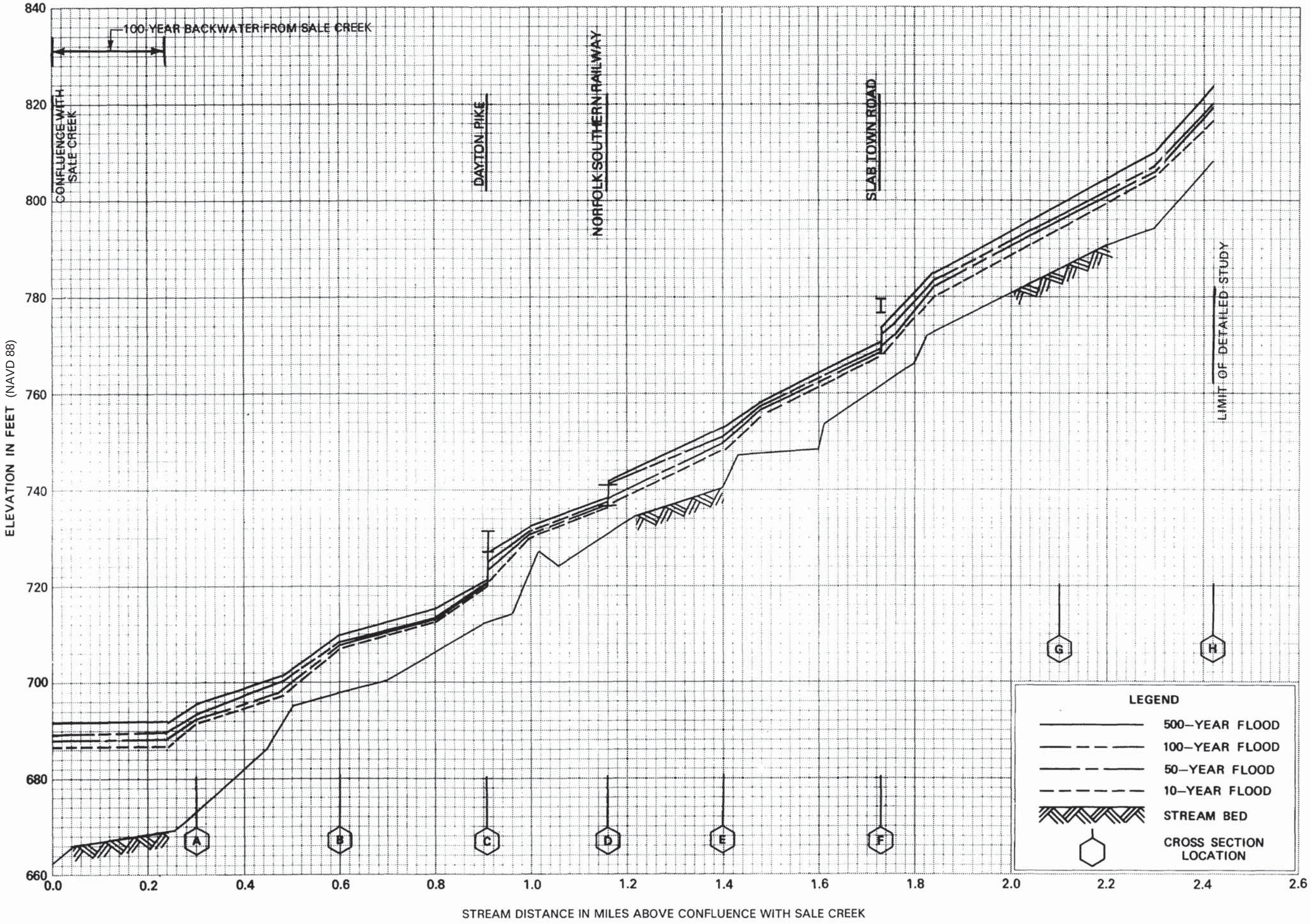
FLOOD PROFILES

POSSUM CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



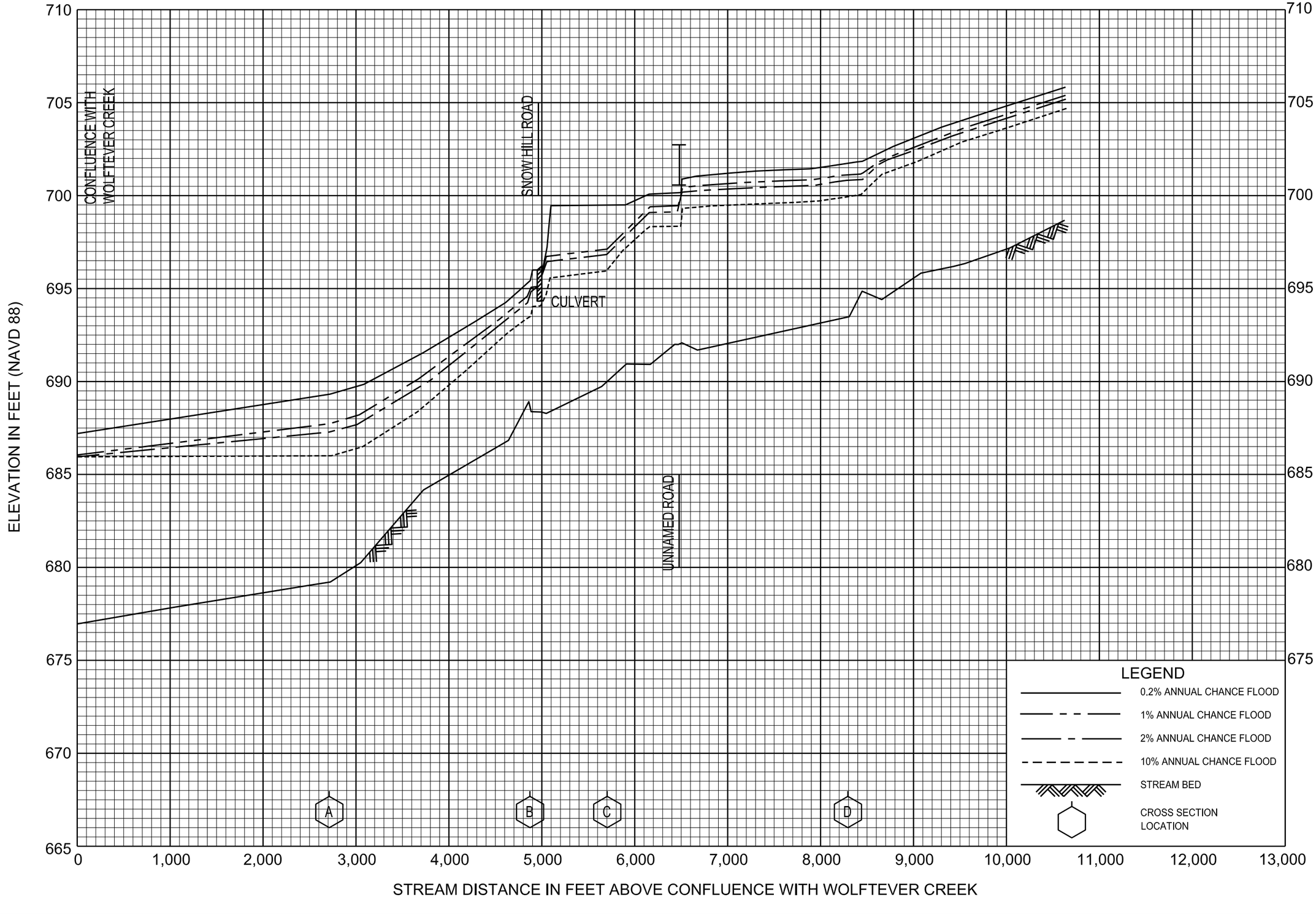
FLOOD PROFILES

ROCK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

53P



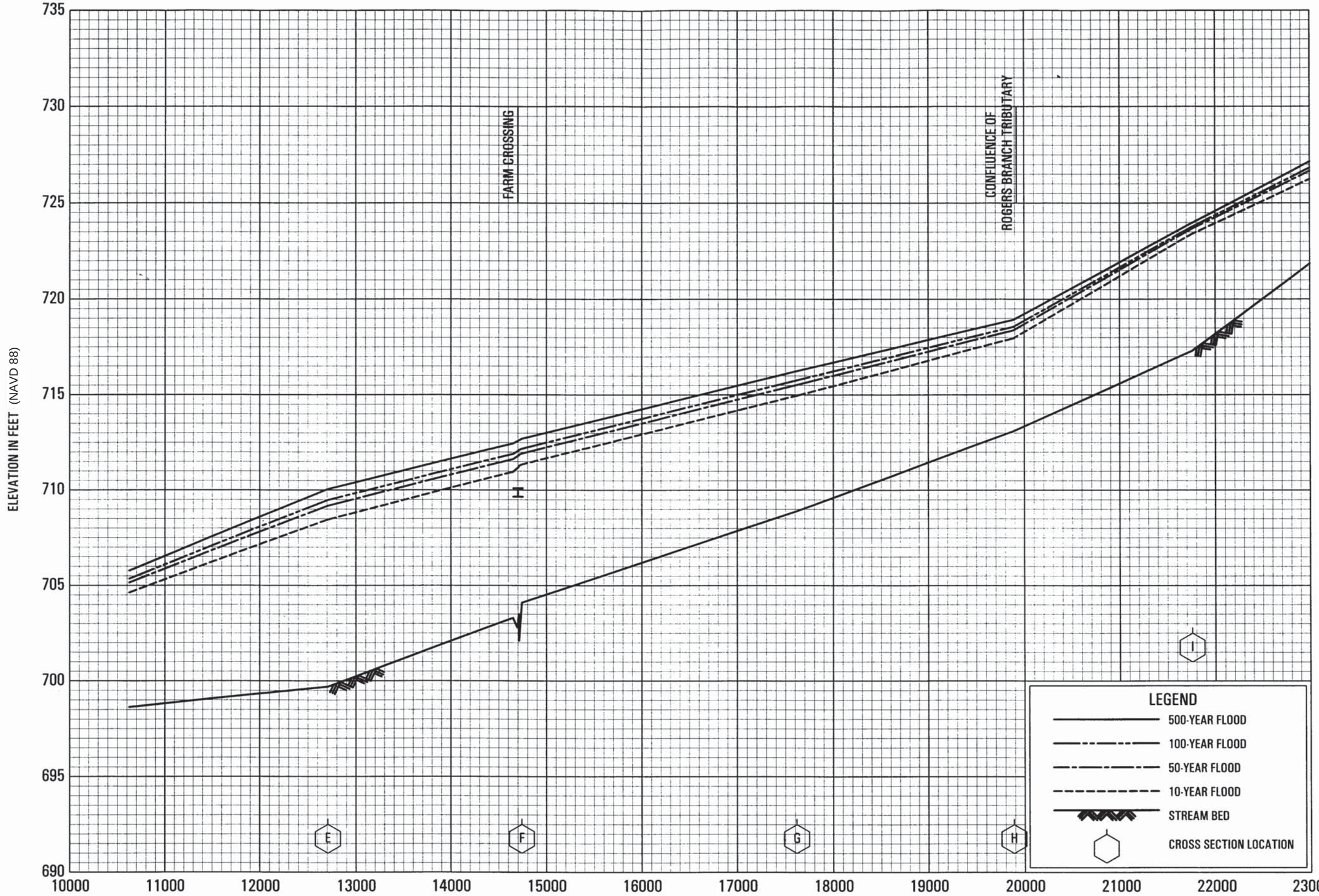
FLOOD PROFILES

ROGERS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

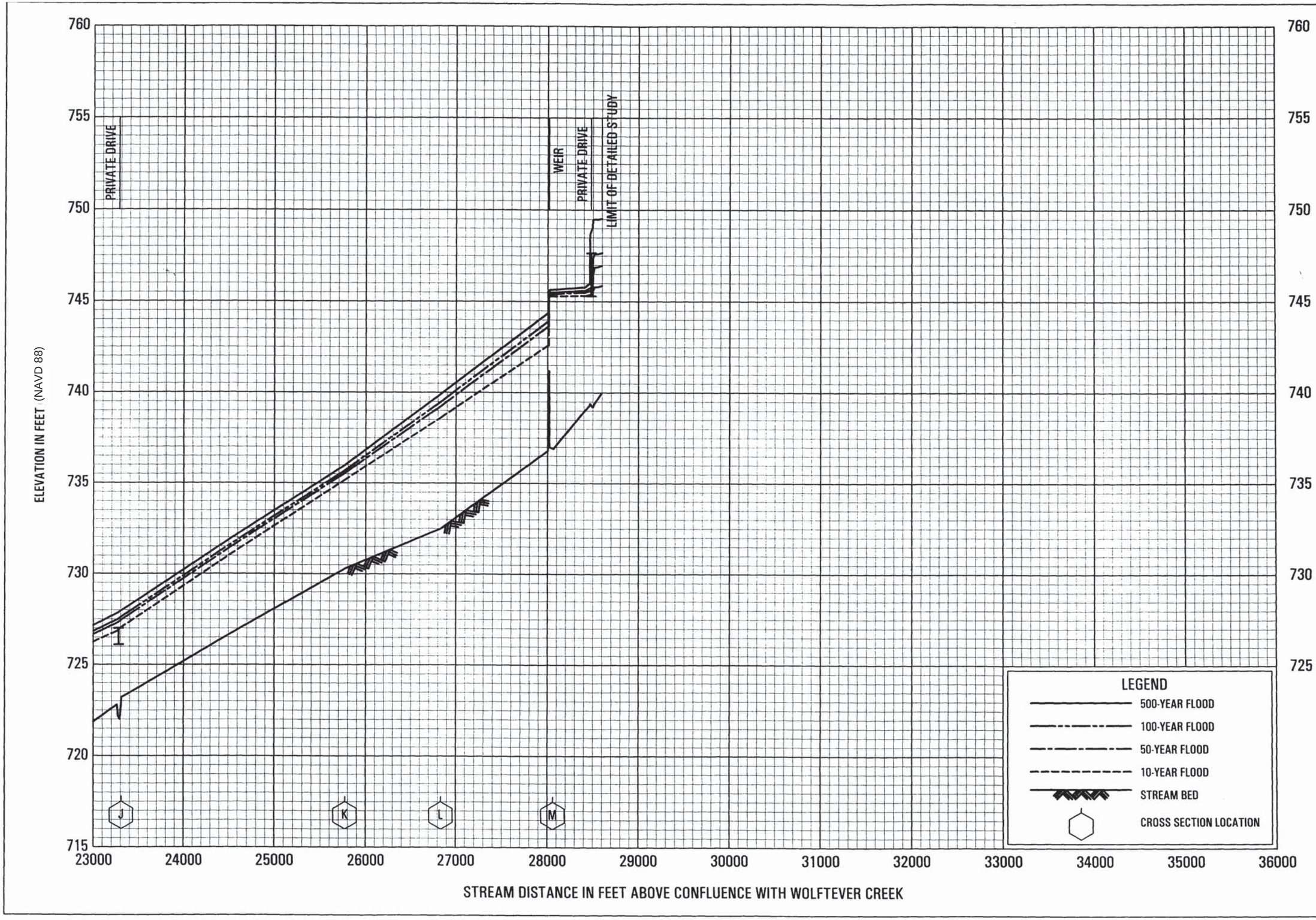
ROGERS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

55P



FLOOD PROFILES

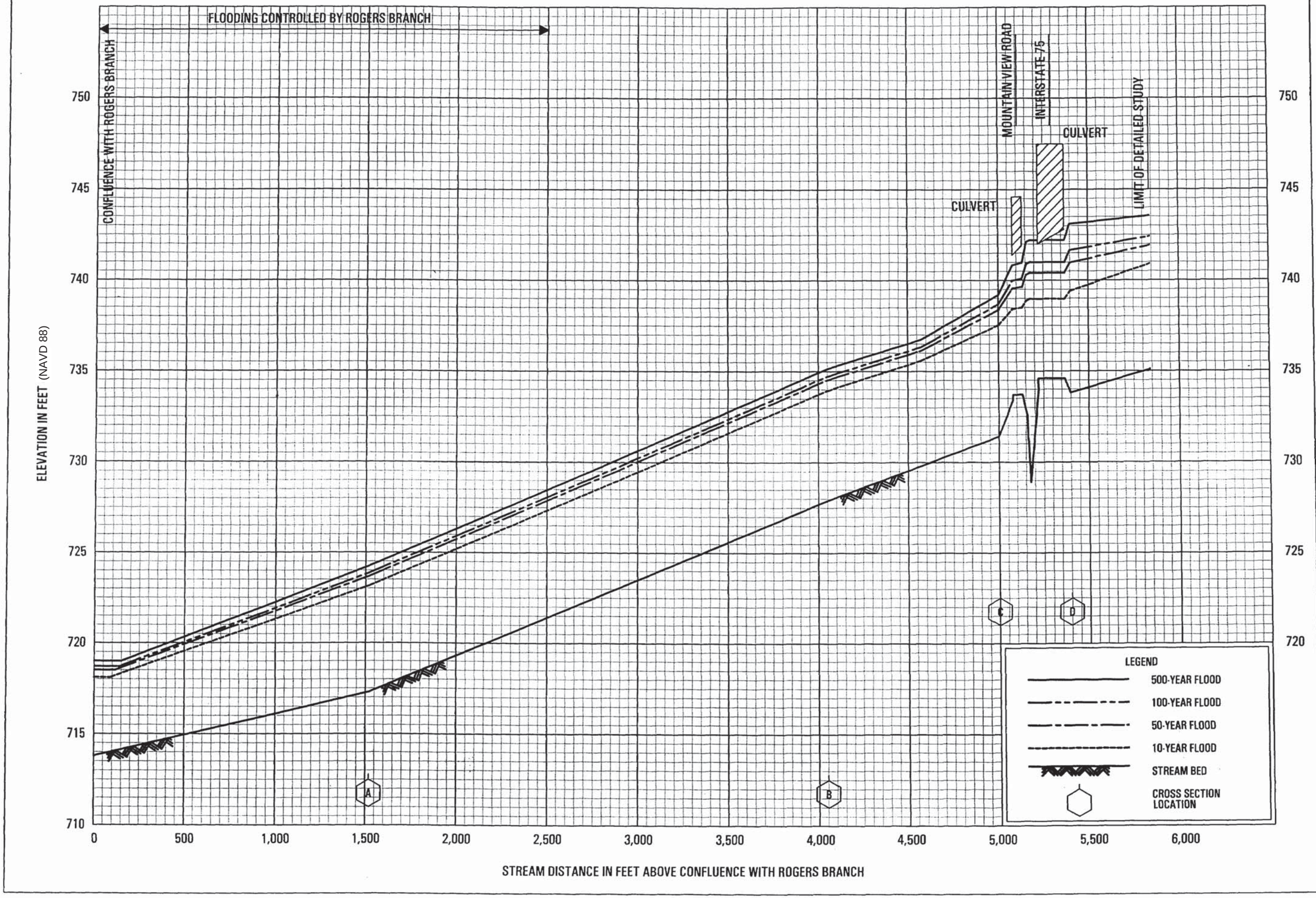
ROGERS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

56P



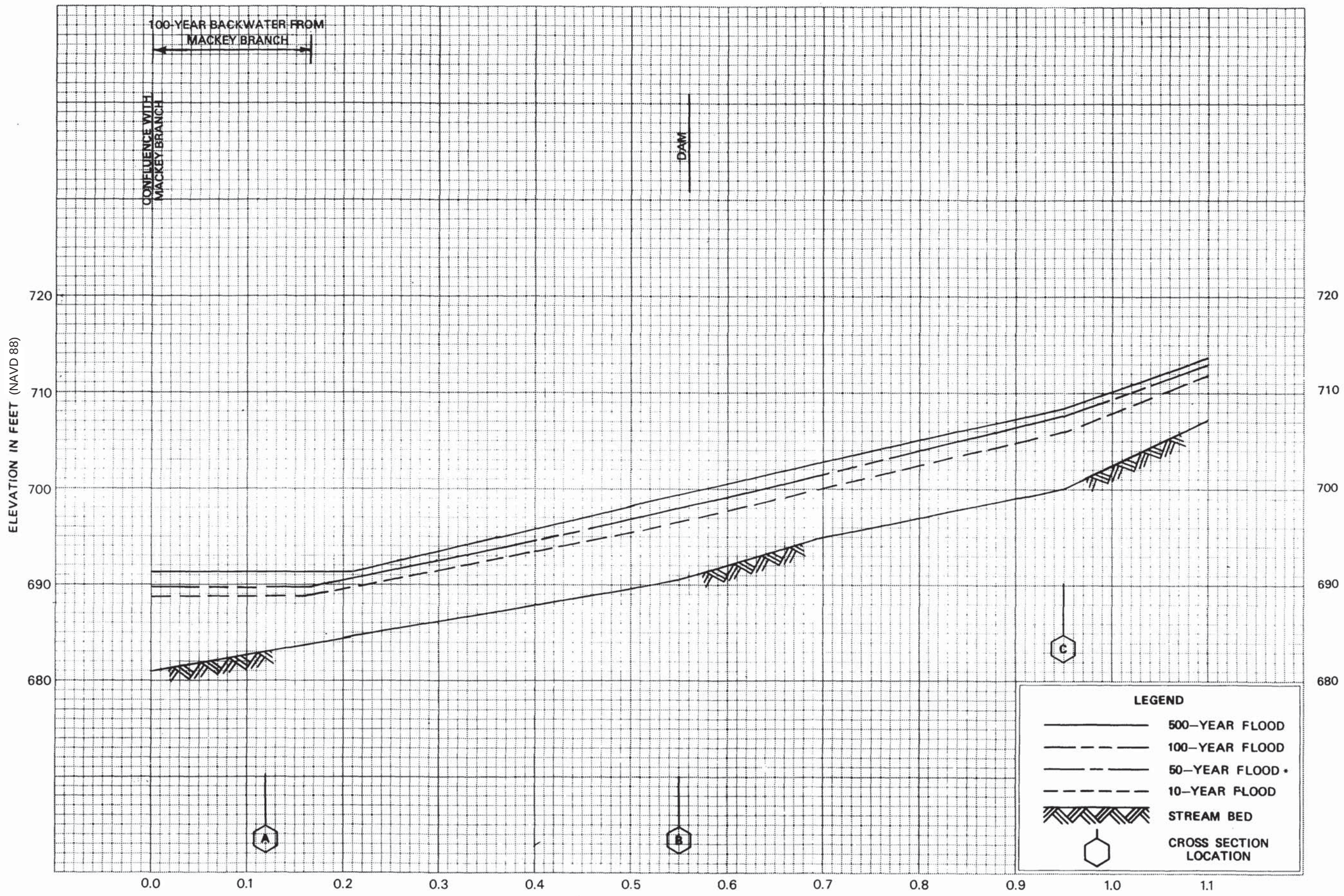
FLOOD PROFILES

ROGERS BRANCH TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



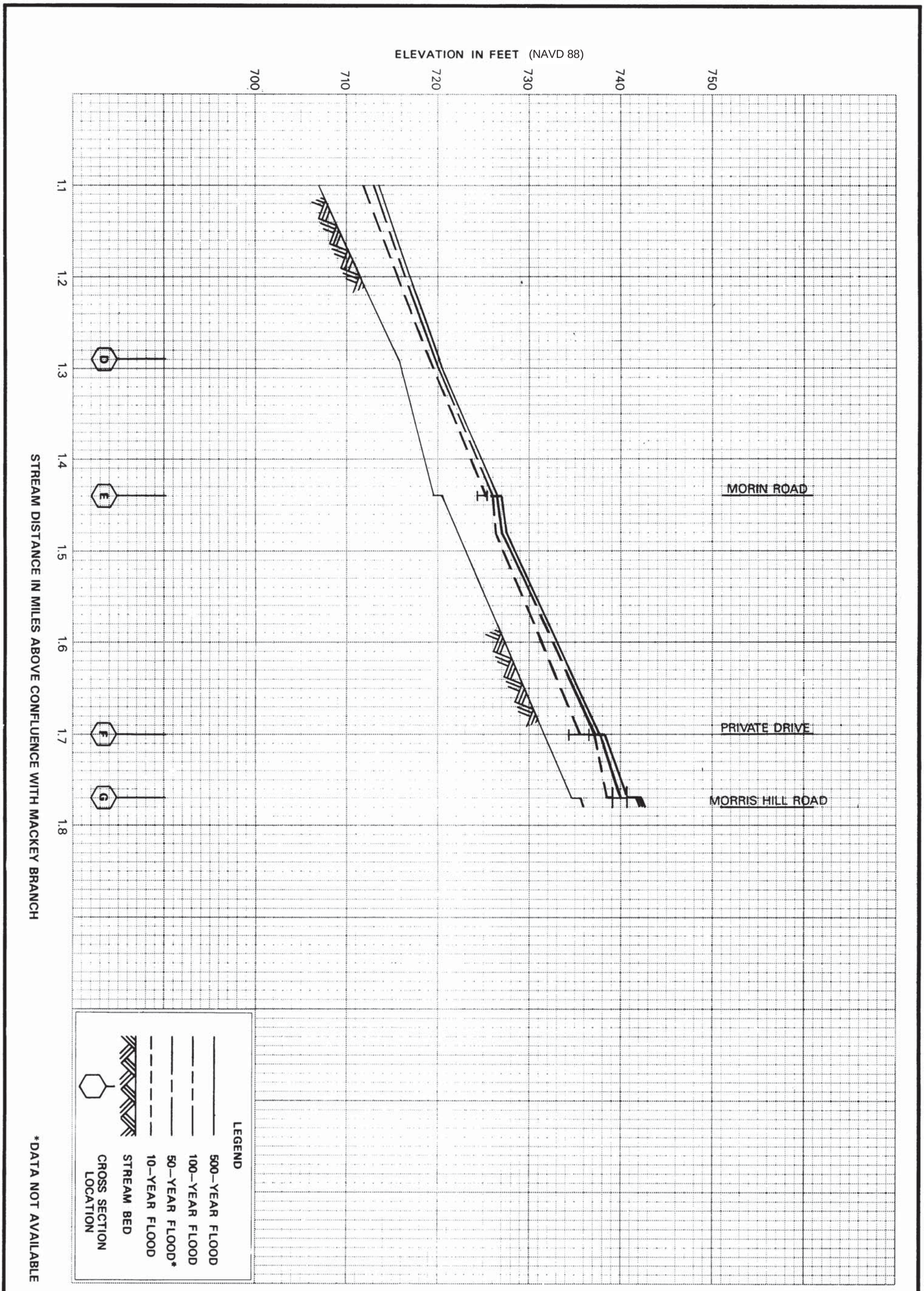
FLOOD PROFILES

RYALL SPRINGS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

58P

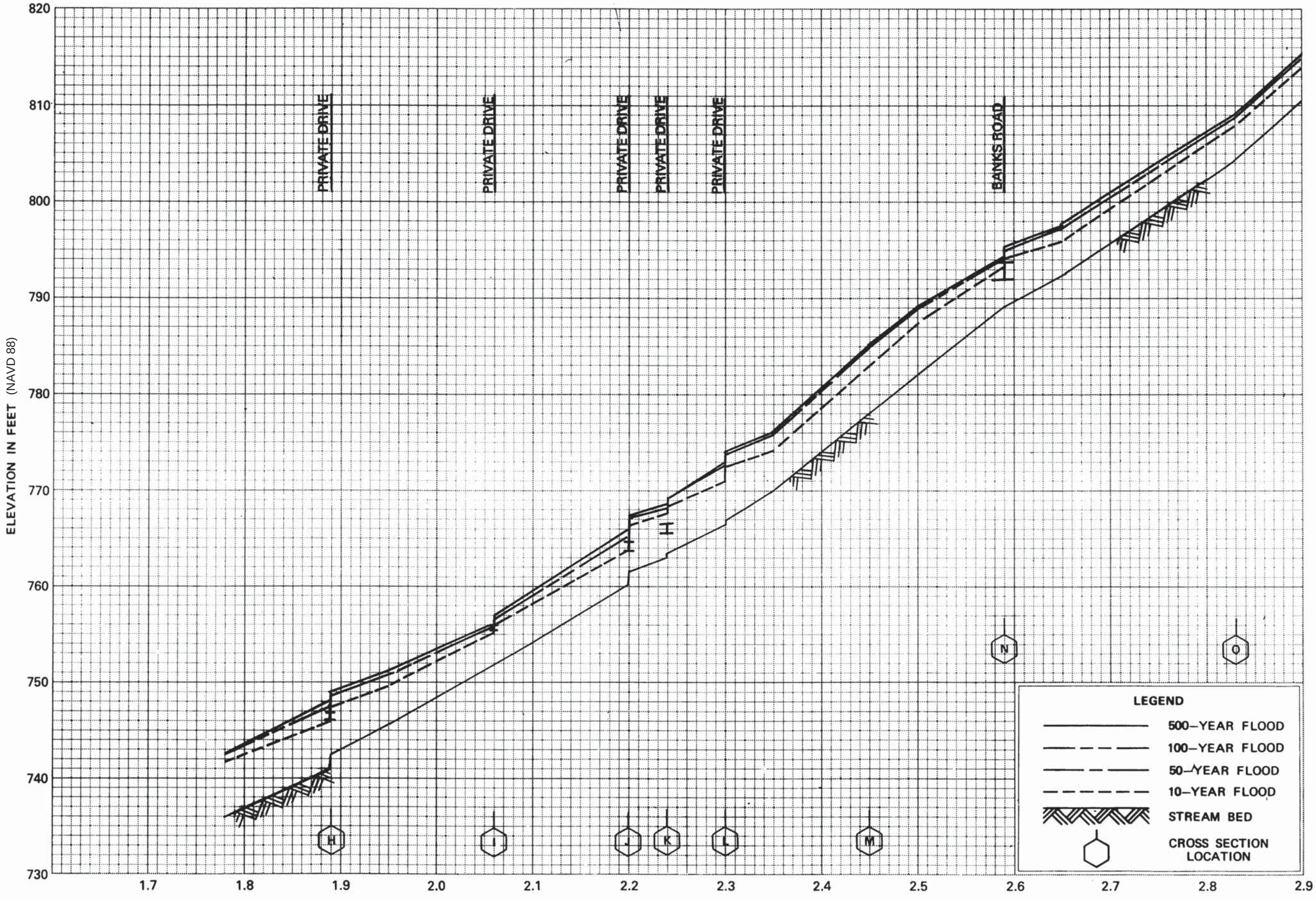


FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOOD PROFILES

RYALL SPRINGS BRANCH

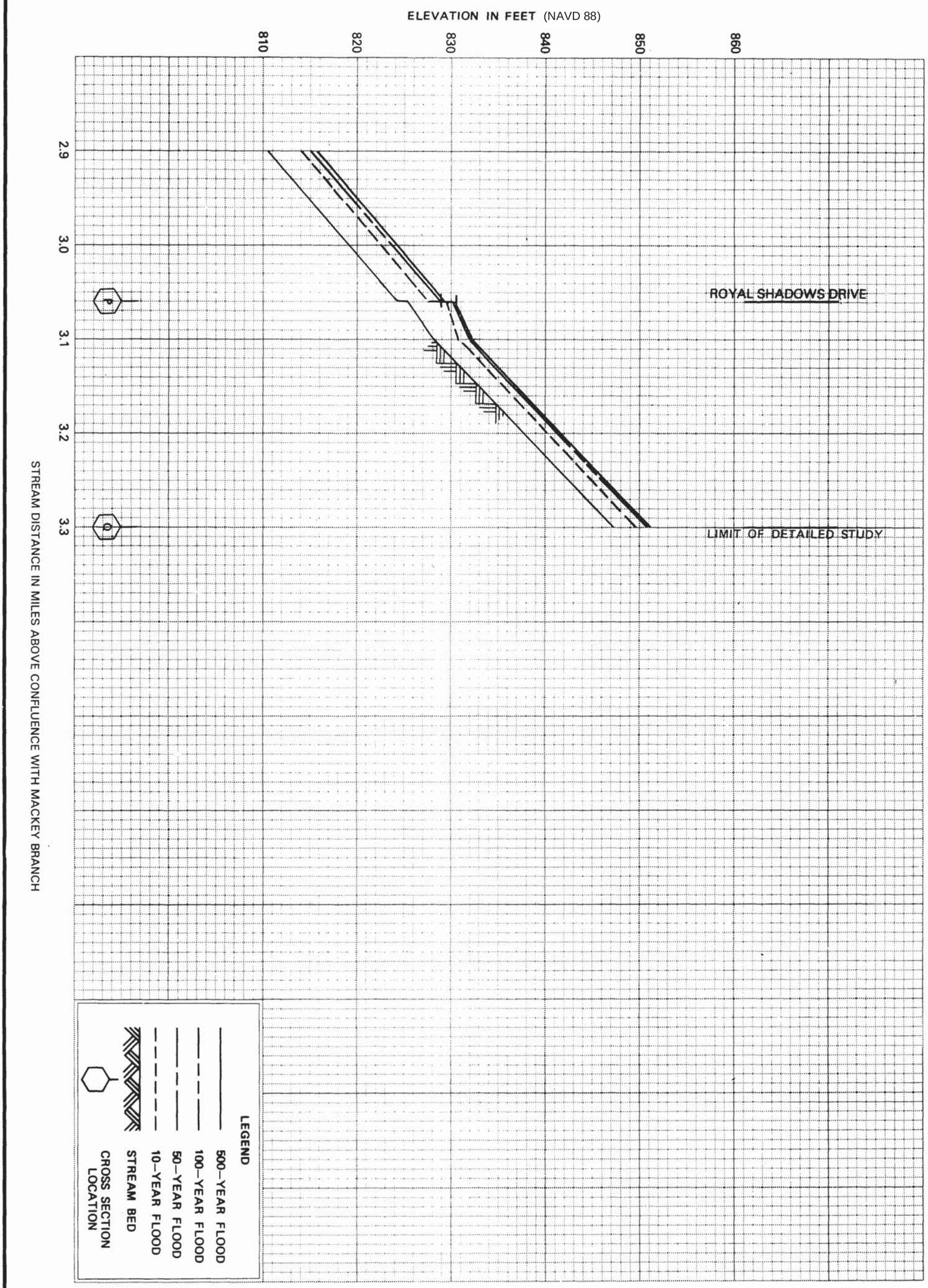


FLOOD PROFILES

RYALL SPRINGS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



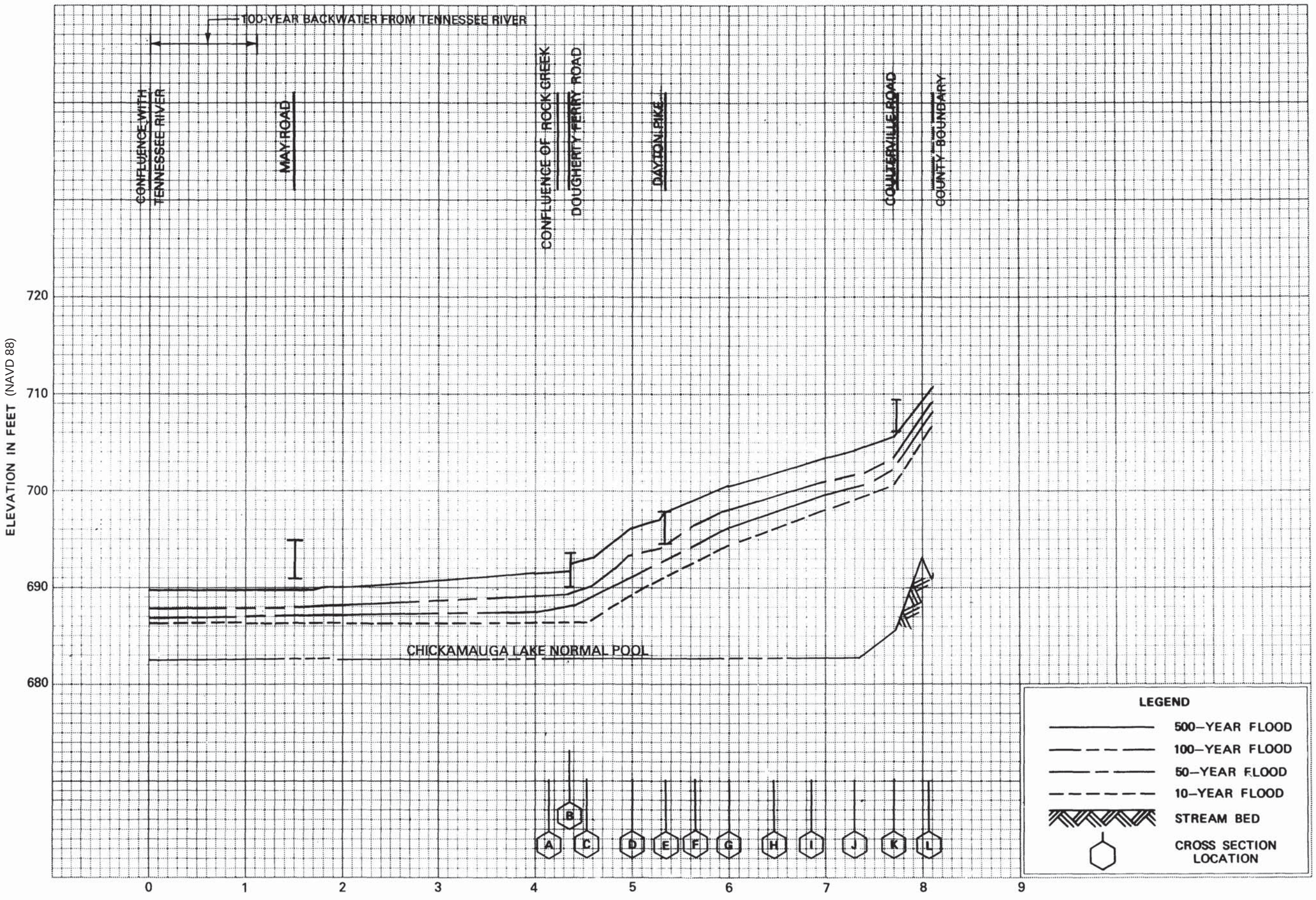
61P

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOOD PROFILES

RYALL SPRINGS BRANCH



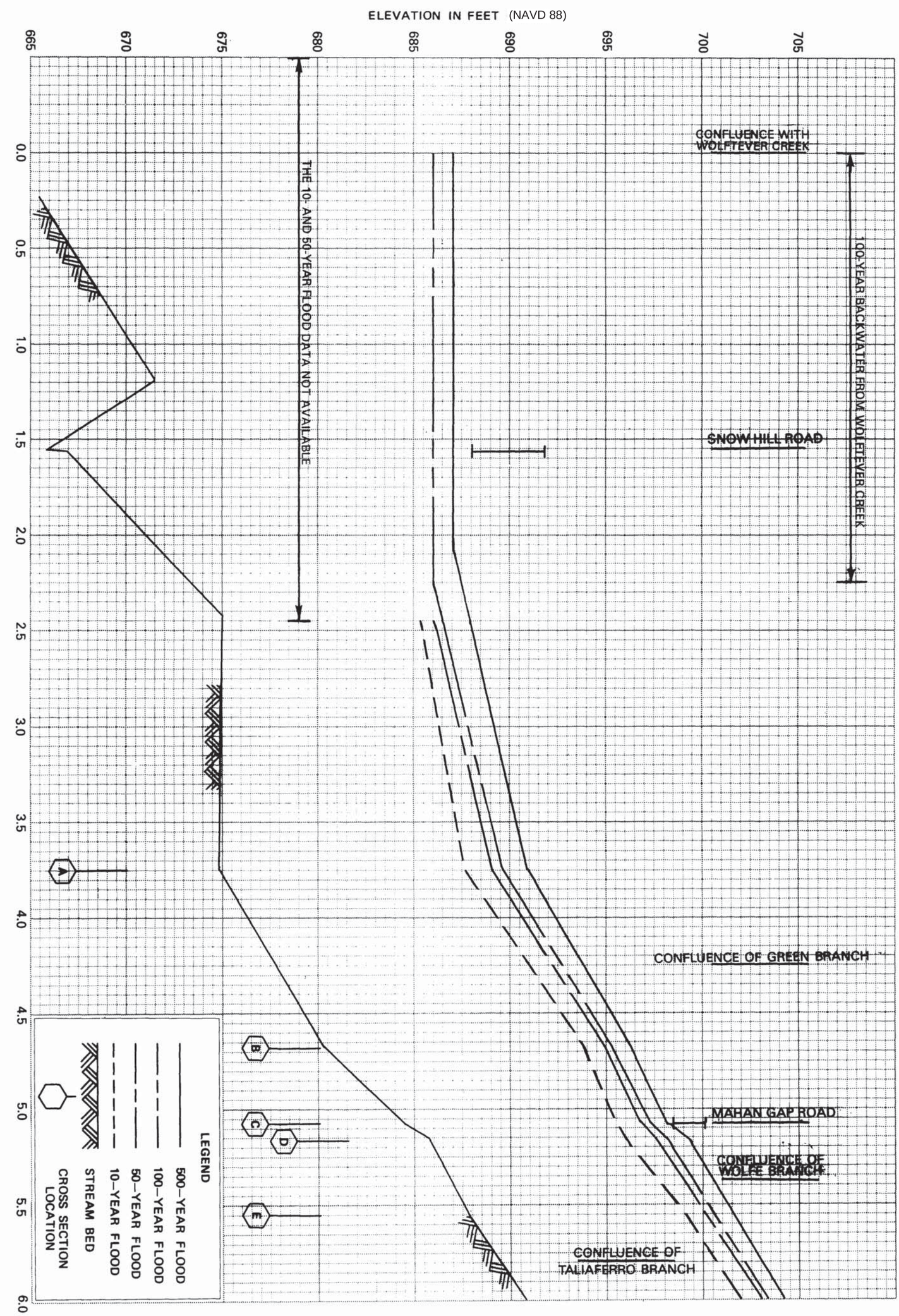
FLOOD PROFILES

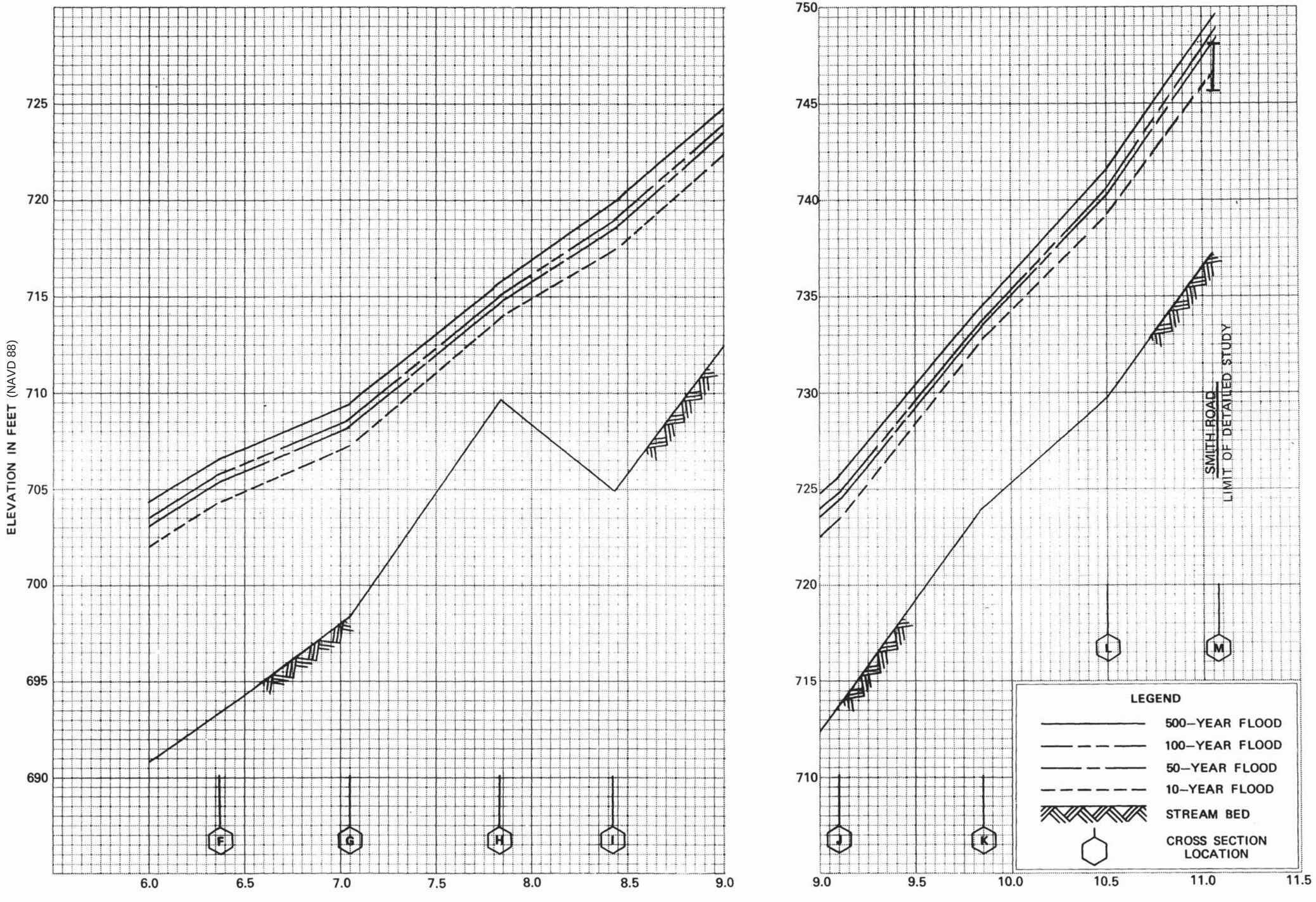
SALE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

62P


ELEVATION IN FEET (NAVD 88)
665
670
675
680
685
690
695
700
705
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
STREAM DISTANCE IN MILES ABOVE CONFLUENCE WITH WOLFTEVER CREEK
THE 10- AND 50-YEAR FLOOD DATA NOT AVAILABLE
CONFLUENCE WITH WOLFTEVER CREEK
100-YEAR BACKWATER FROM WOLFTEVER CREEK
SNOW HILL ROAD
CONFLUENCE OF GREEN BRANCH
MAHAN GAP ROAD
CONFLUENCE OF WOLFE BRANCH
CONFLUENCE OF TALIAFERRO BRANCH
A
B
C
D
E
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
50-YEAR FLOOD
10-YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION

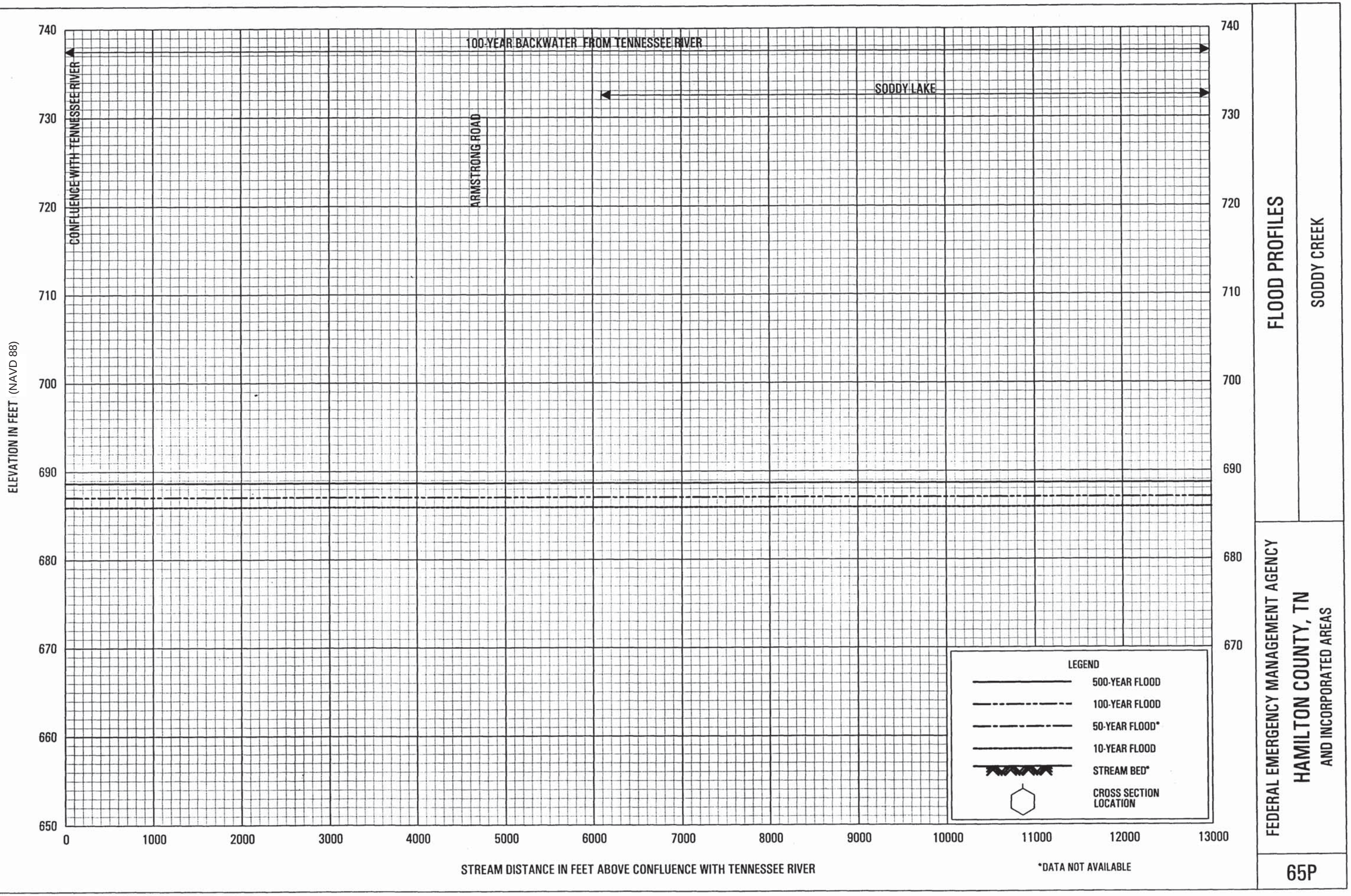


FLOOD PROFILES

SAVANNAH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



FLOOD PROFILES

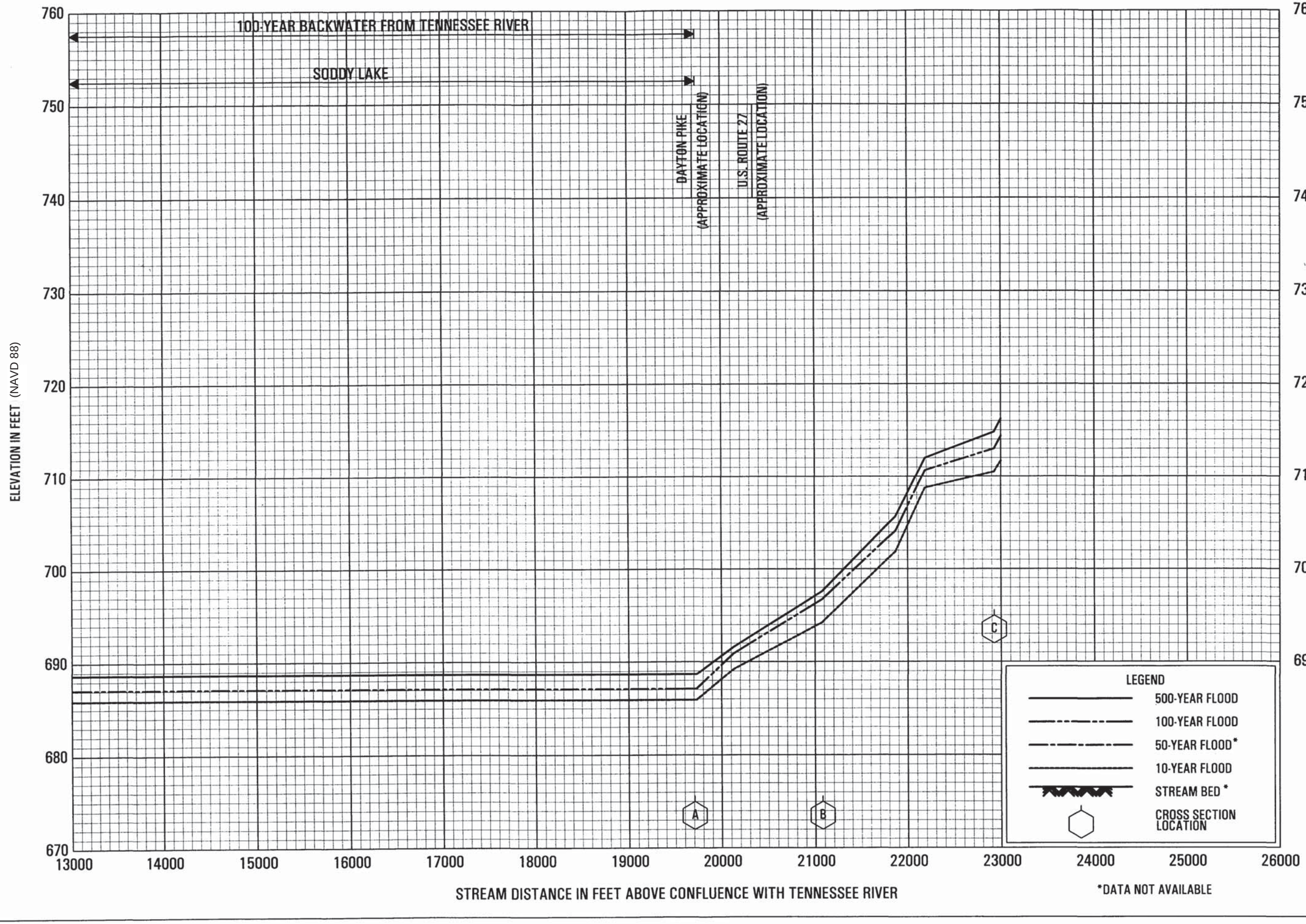
SODDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

65P



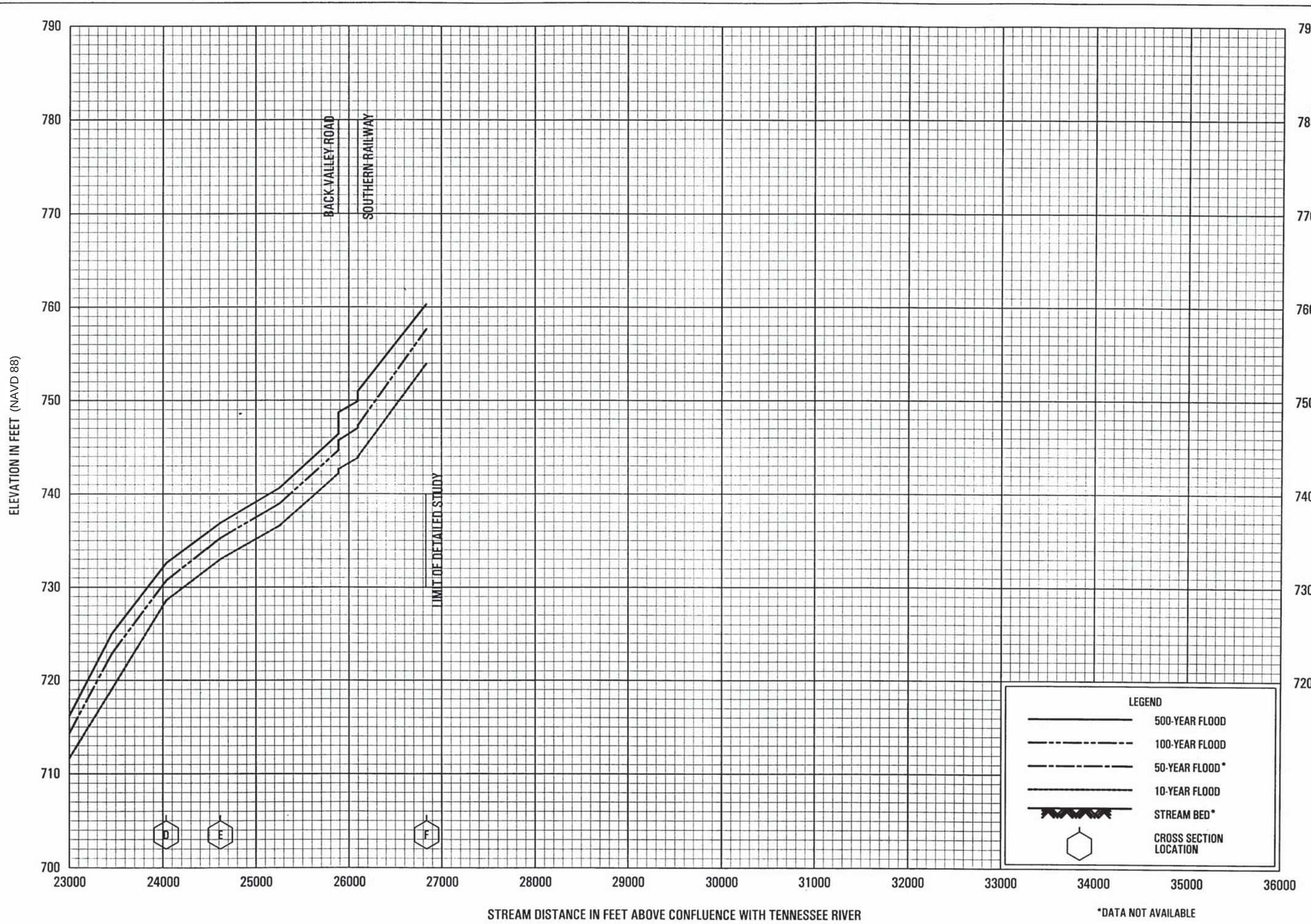
FLOOD PROFILES

SODDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



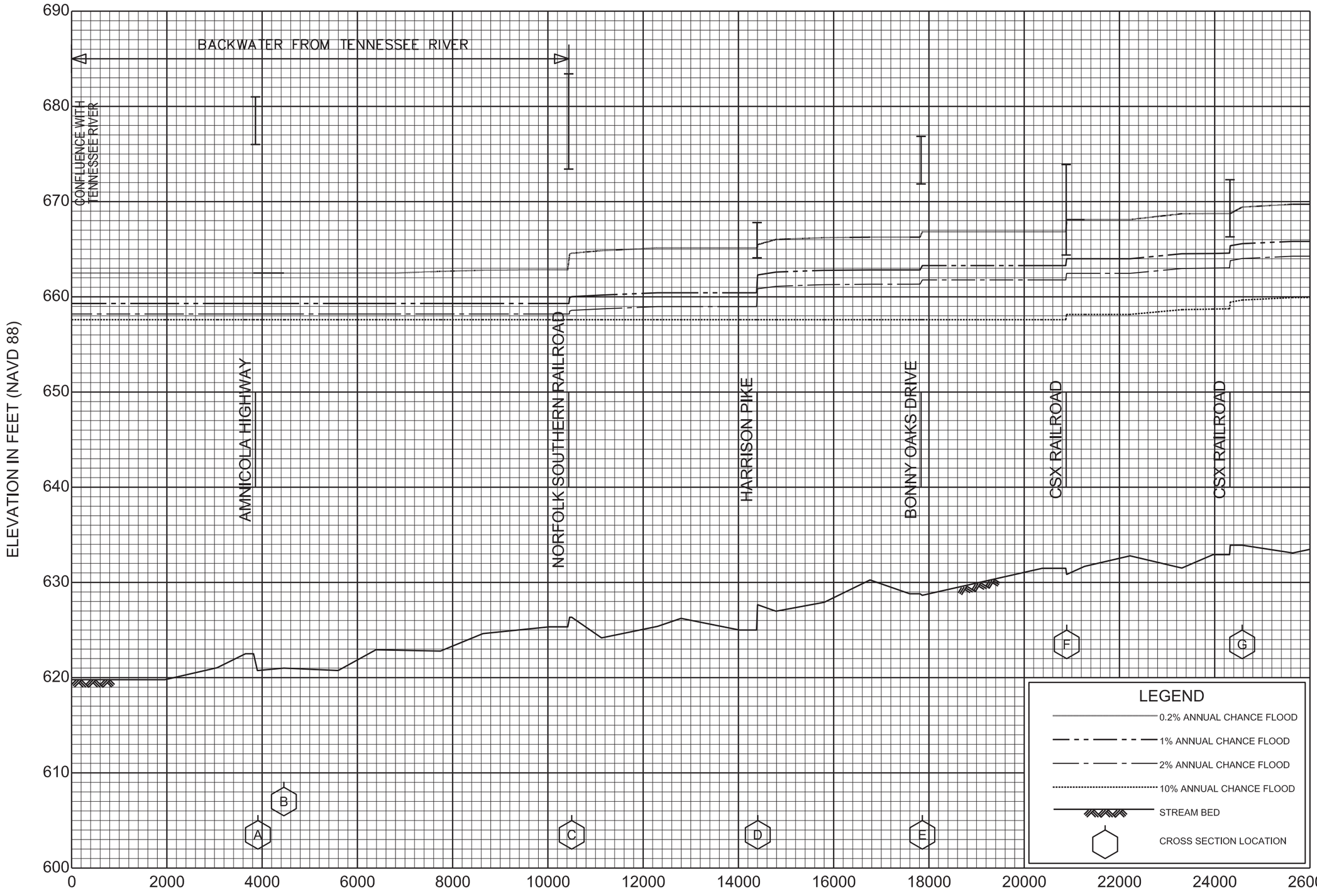
FLOOD PROFILES

SODDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

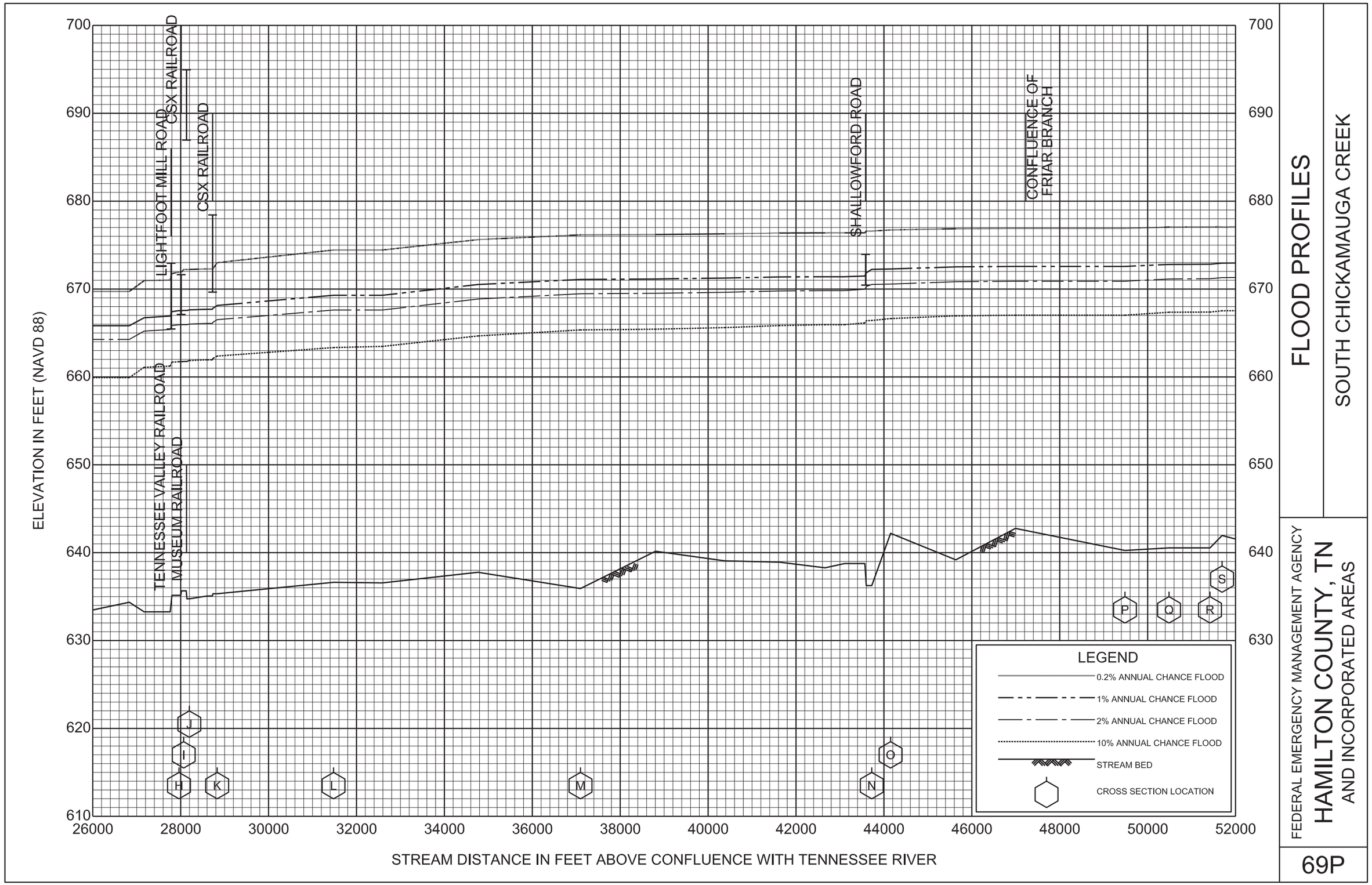


FLOOD PROFILES

SOUTH CHICKAMAUGA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



FLOOD PROFILES

SOUTH CHICKAMAUGA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

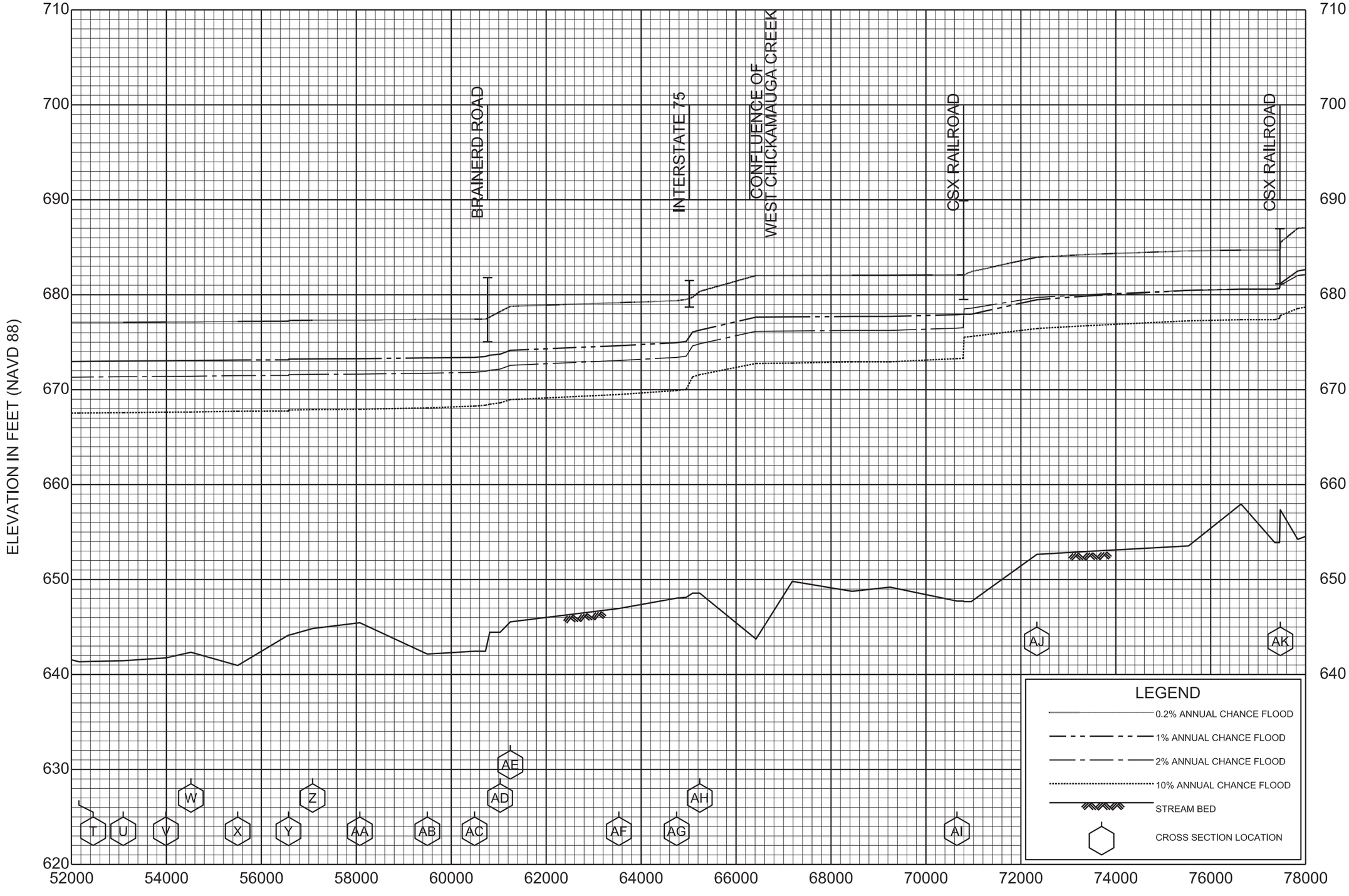
69P

FLOOD PROFILES

SOUTH CHICKAMAUGA CREEK

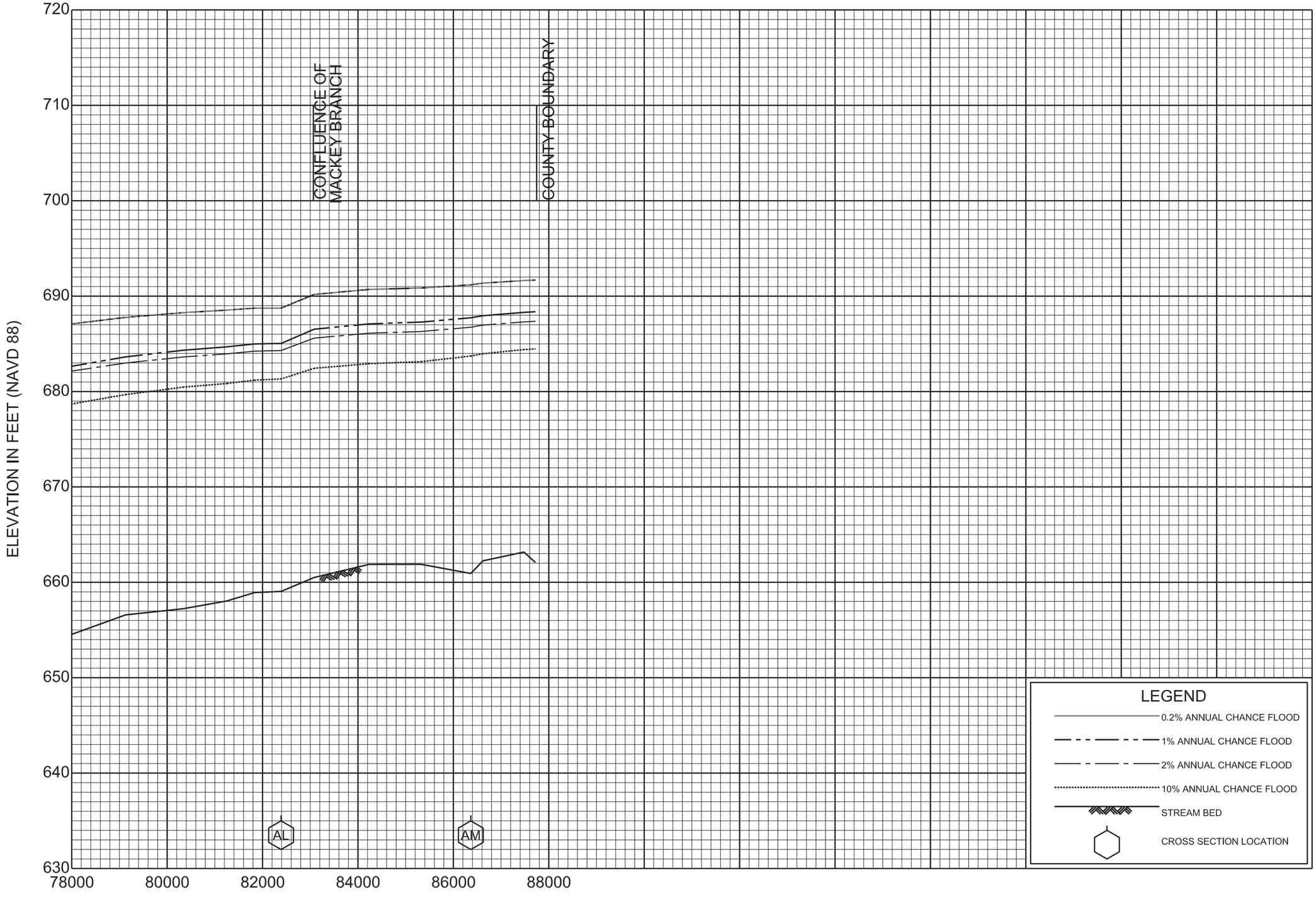
FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



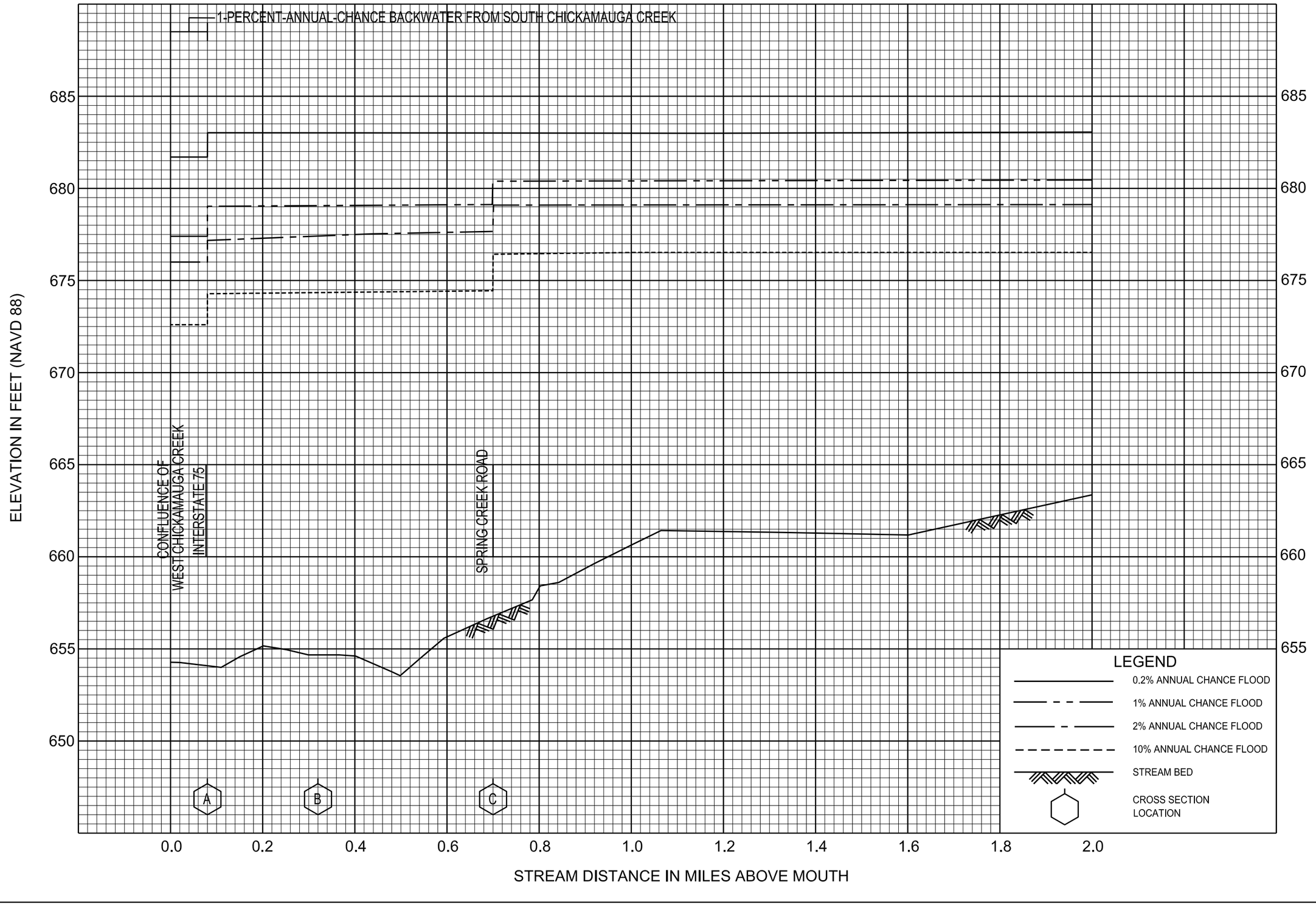
FLOOD PROFILES

SOUTH CHICKAMAUGA CREEK



FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

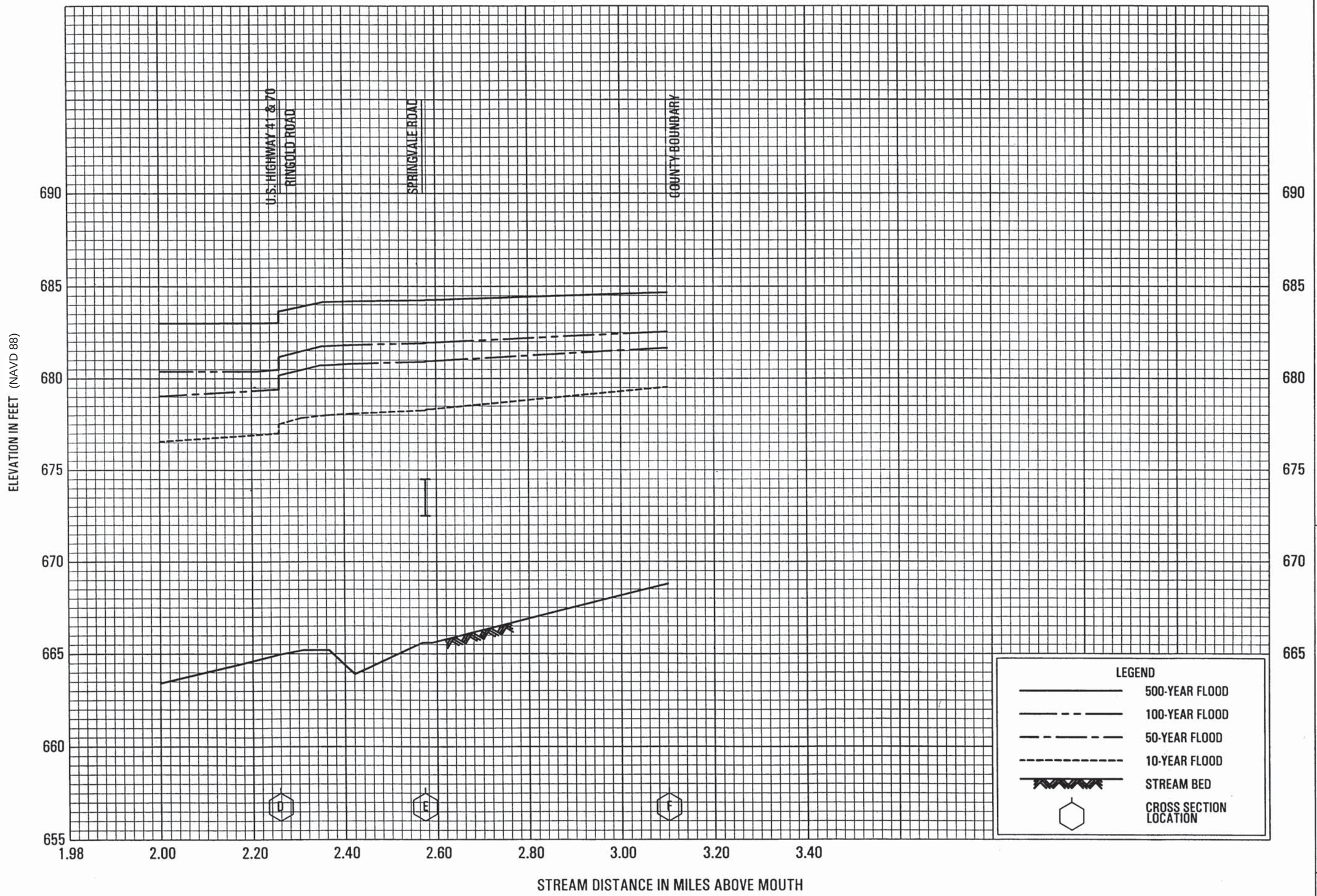


FLOOD PROFILES

SPRING CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



FLOOD PROFILES

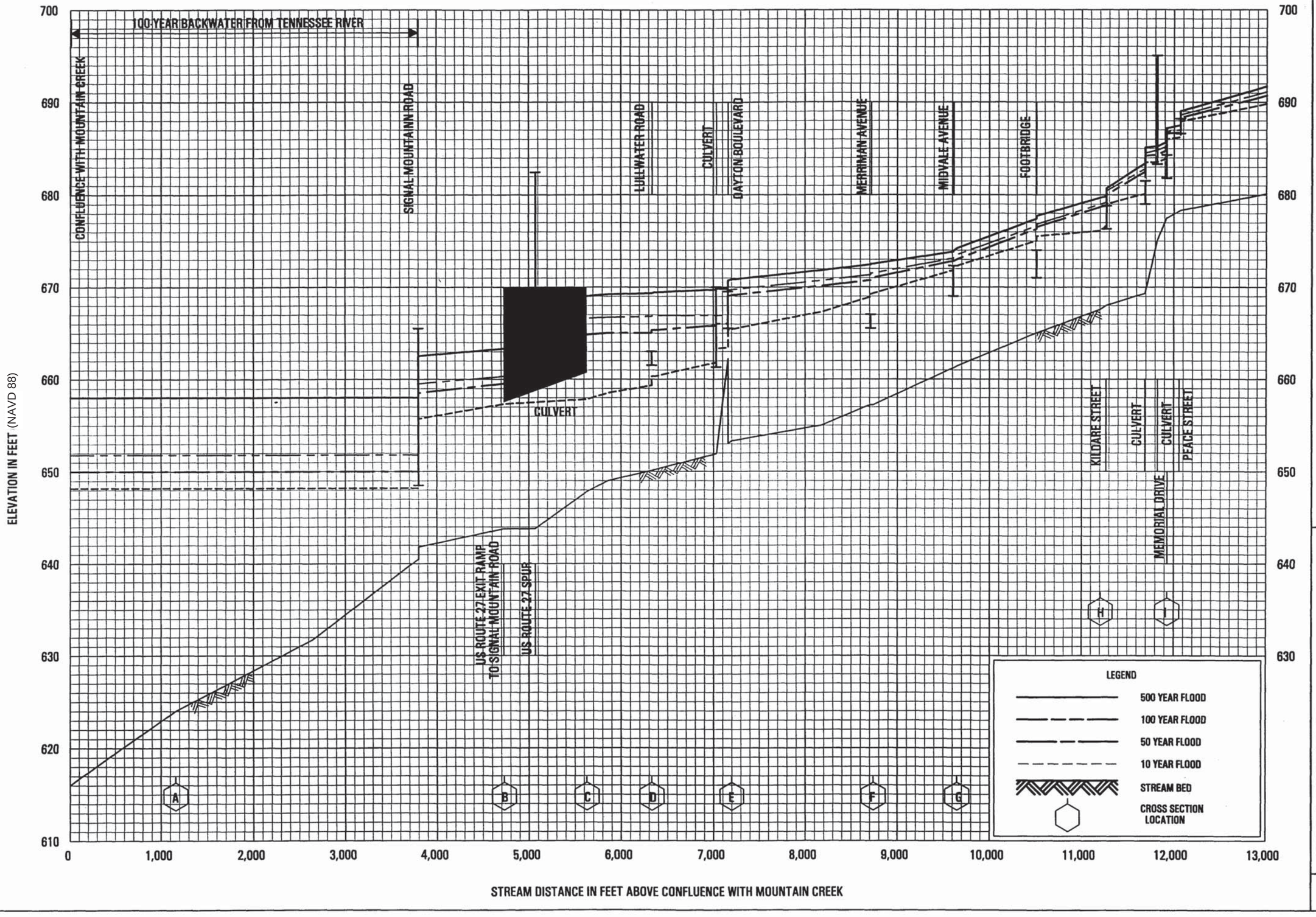
SPRING CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

73P



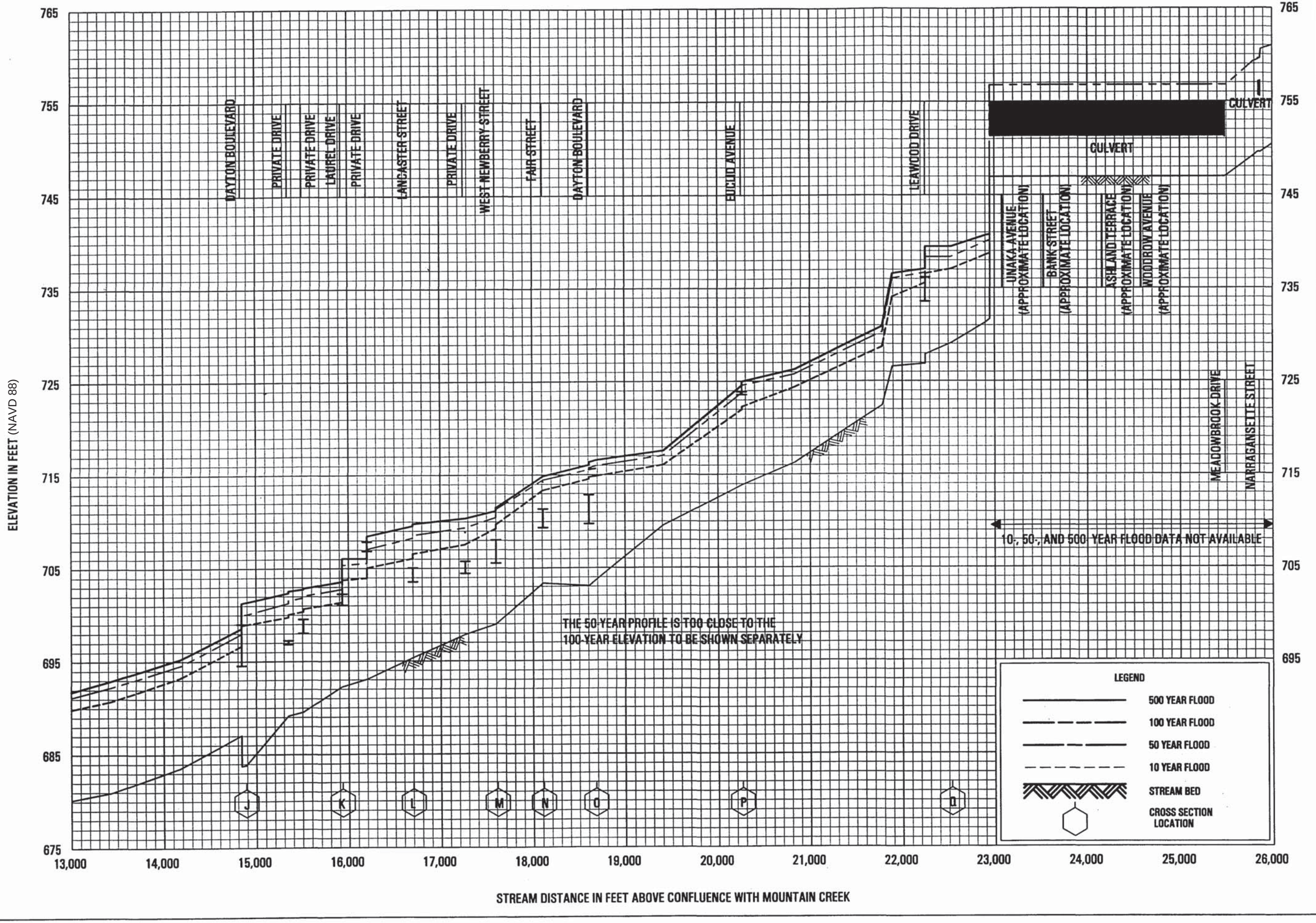
FLOOD PROFILES

STRINGERS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



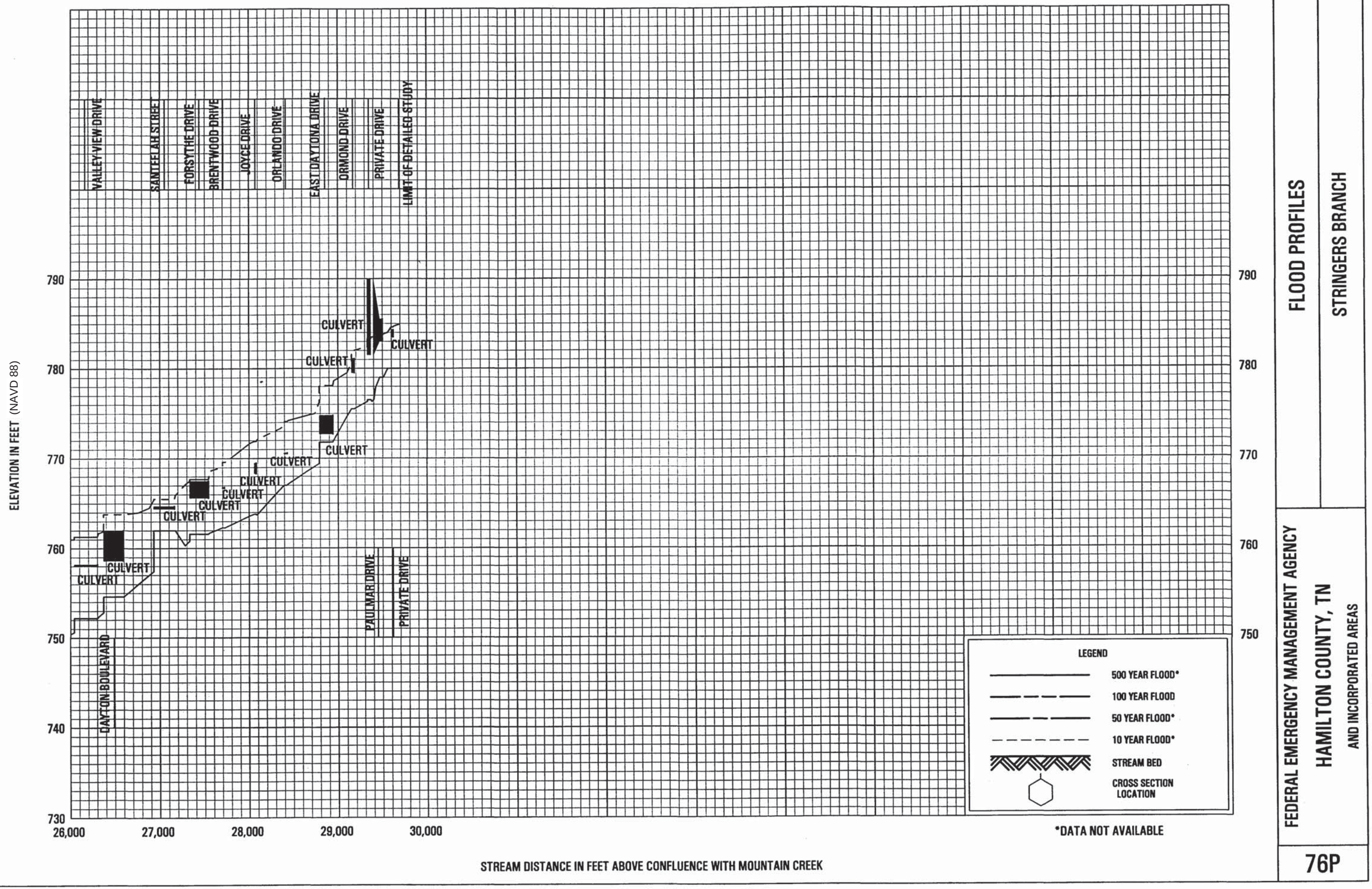
FLOOD PROFILES

STRINGERS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

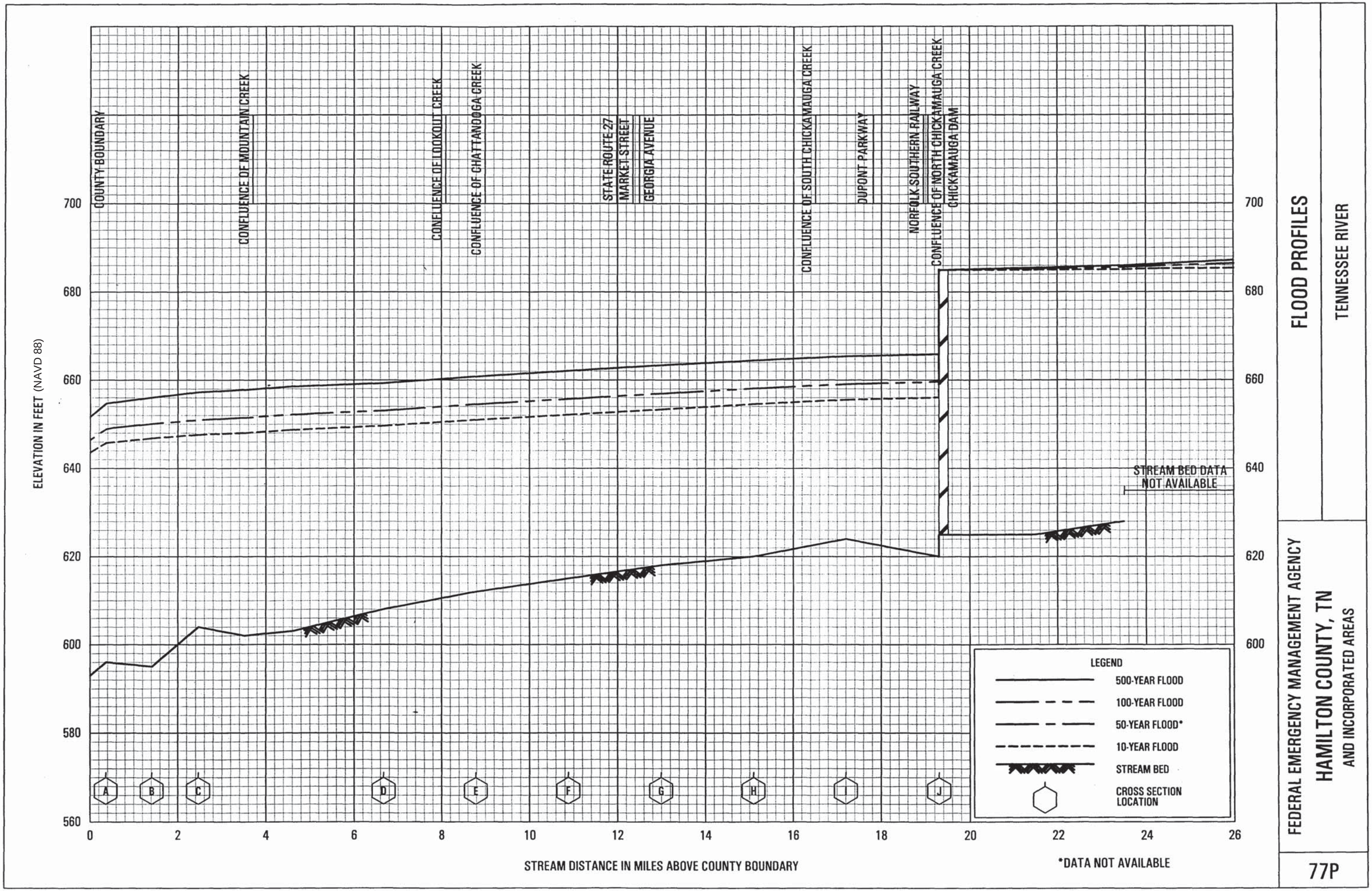
STRINGERS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

76P



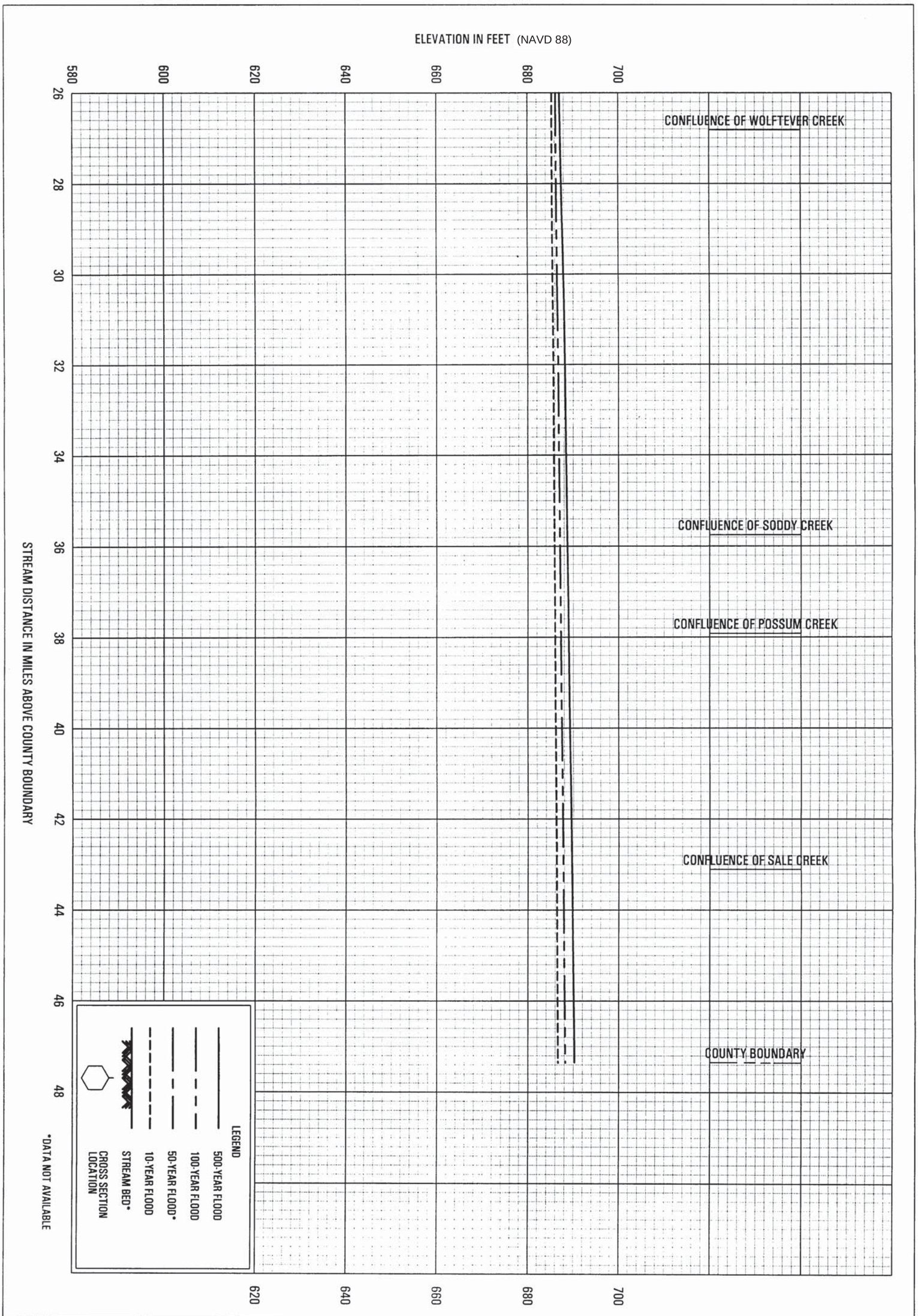
FLOOD PROFILES

TENNESSEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

FLOOD PROFILES

TENNESSEE RIVER

1-PERCENT-ANNUAL-CHANCE BACKWATER FROM SOUTH CHICKAMAUGA CREEK

CONFLUENCE OF SOUTH CHICKAMAUGA CREEK

CONFLUENCE OF SPRING CREEK

ELEVATION IN FEET (NAVD 88)

685
680
675
670
665
660
655
650
645

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2

STREAM DISTANCE IN MILES ABOVE MOUTH

A

B

LEGEND

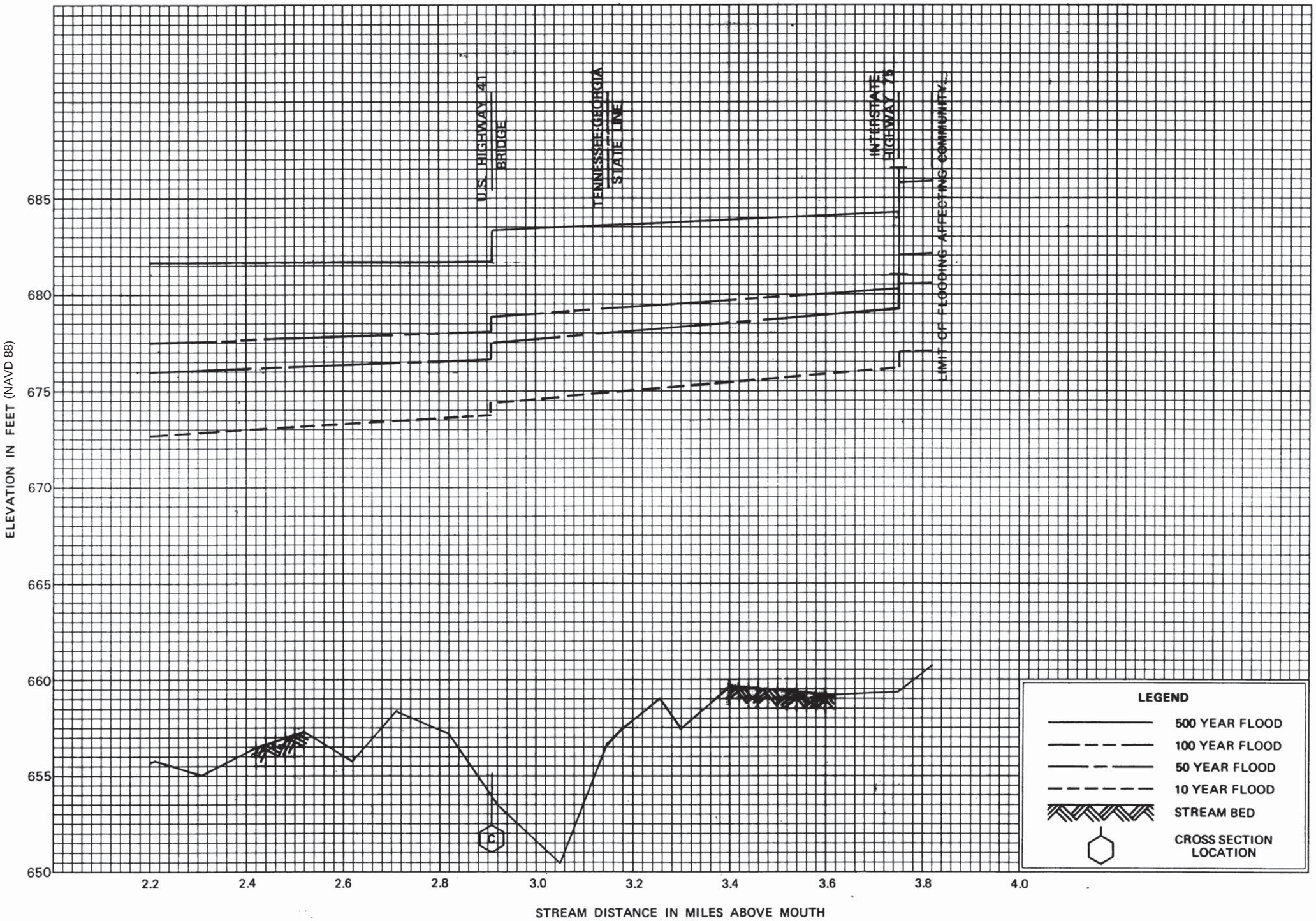
- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FLOOD PROFILES

WEST CHICKAMAUGA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



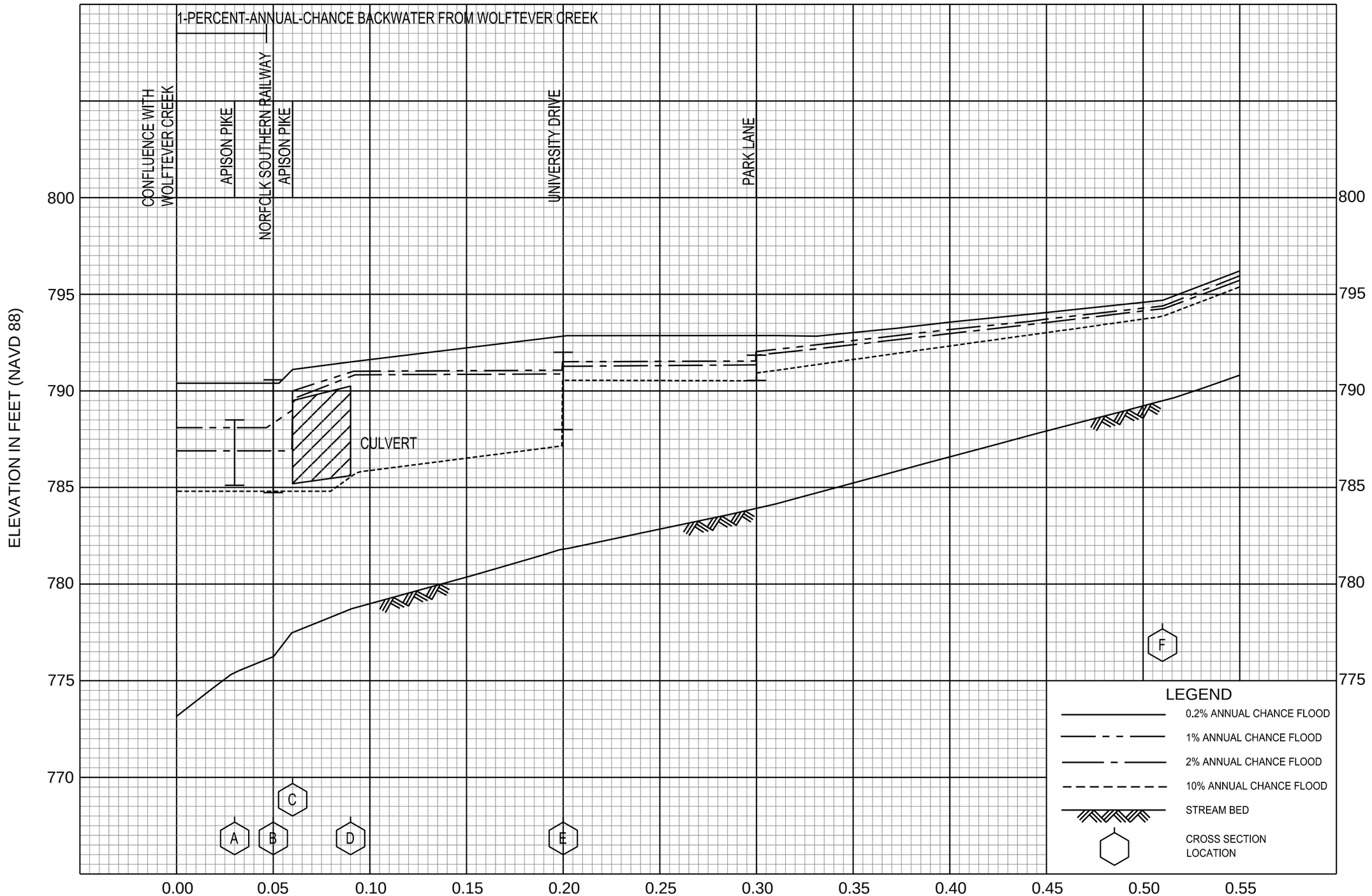
FLOOD PROFILES

WEST CHICKAMAUGA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

80P



FLOOD PROFILES

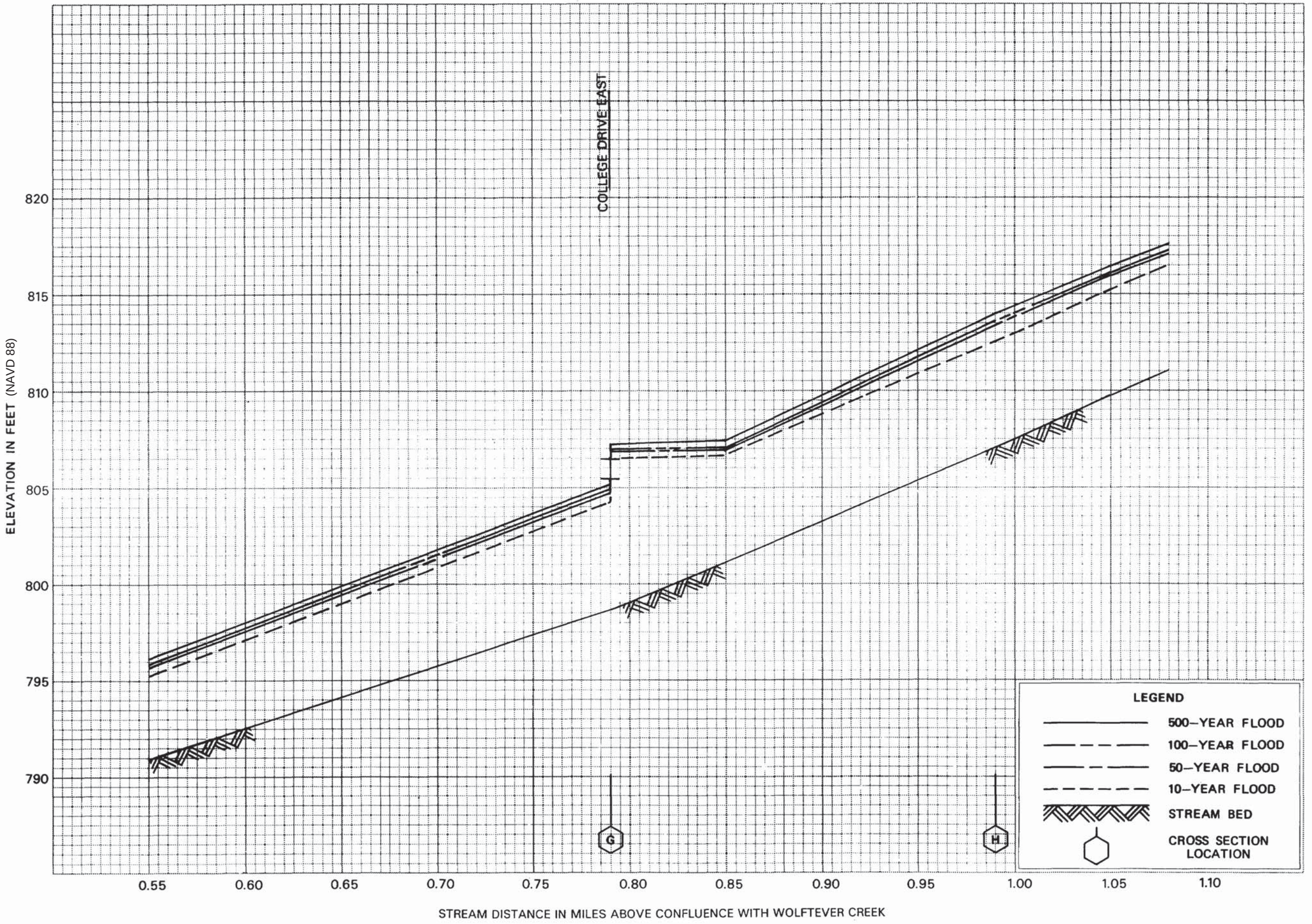
WILKERSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

81P



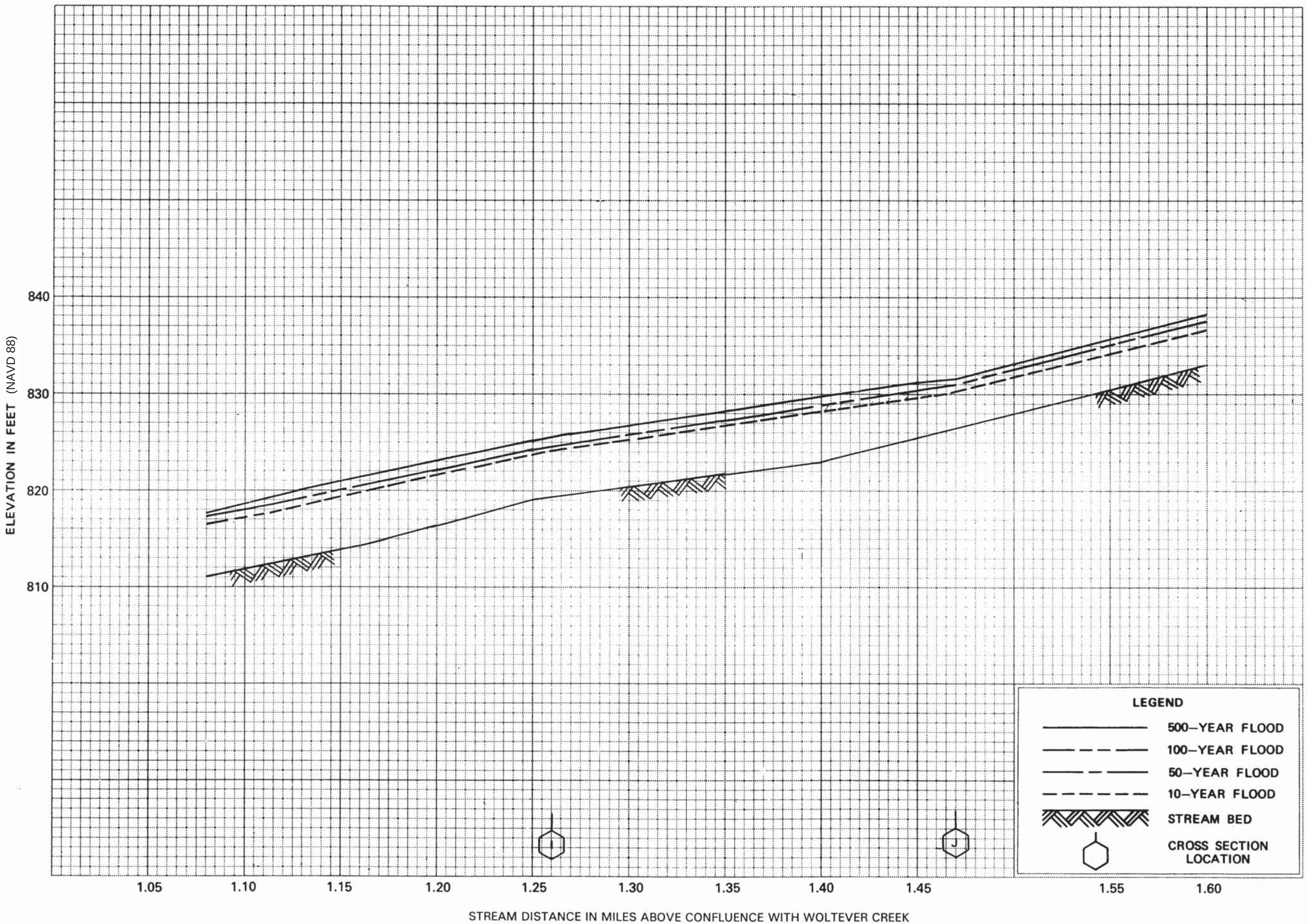
FLOOD PROFILES

WILKERSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

82P

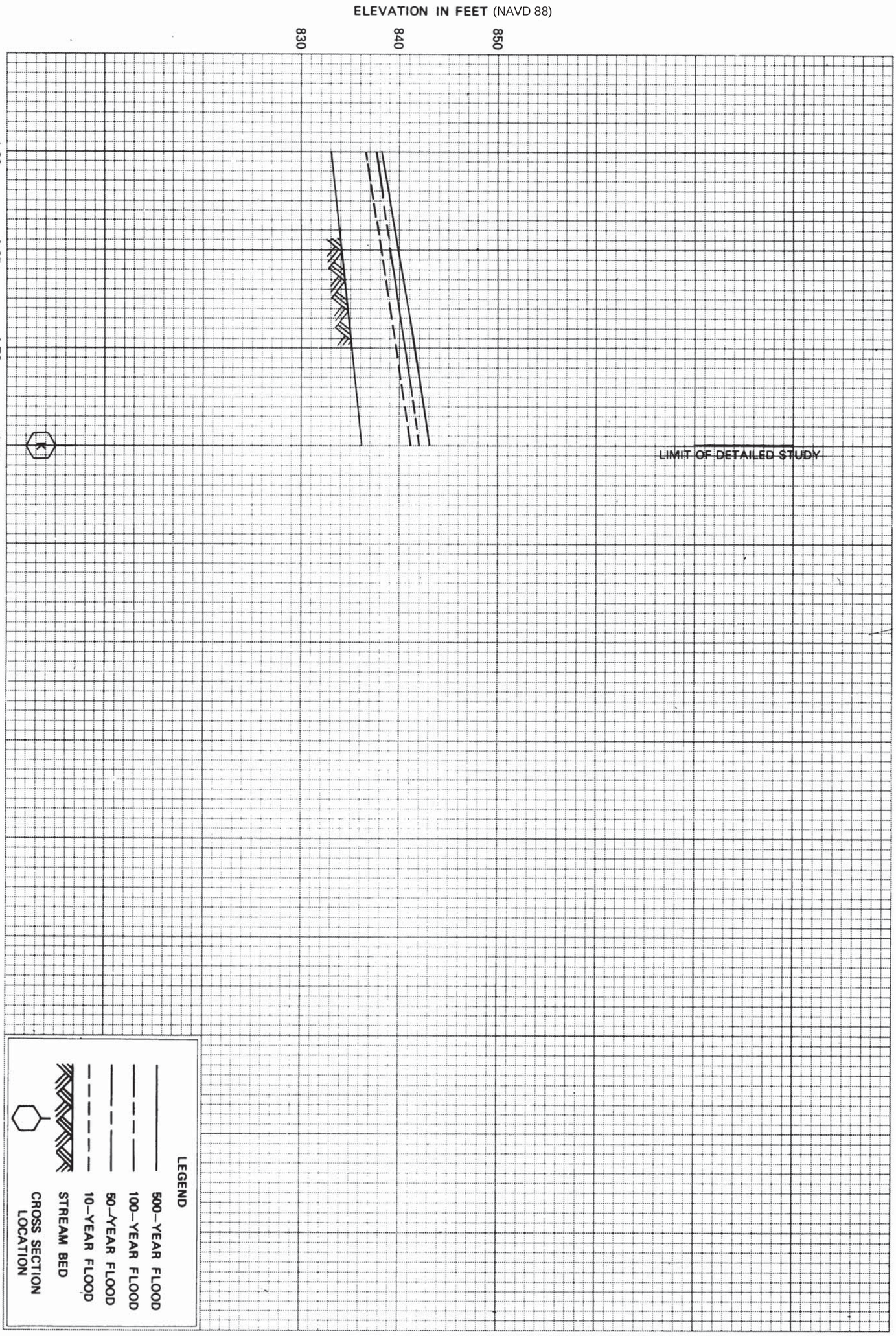


FLOOD PROFILES

WILKERSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

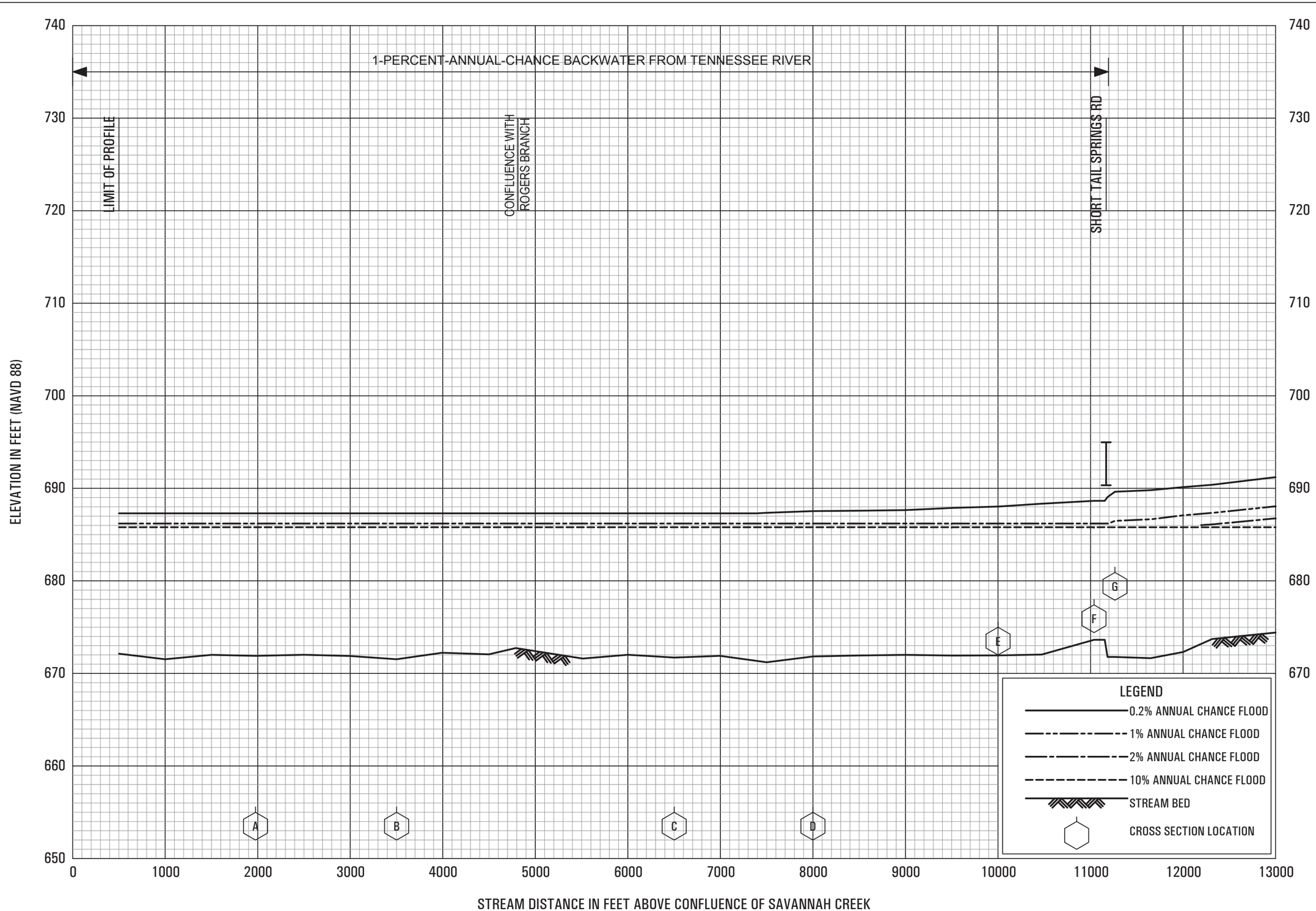


FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN AND INCORPORATED AREAS

FLOOD PROFILES

WILKERSON BRANCH



FLOOD PROFILES

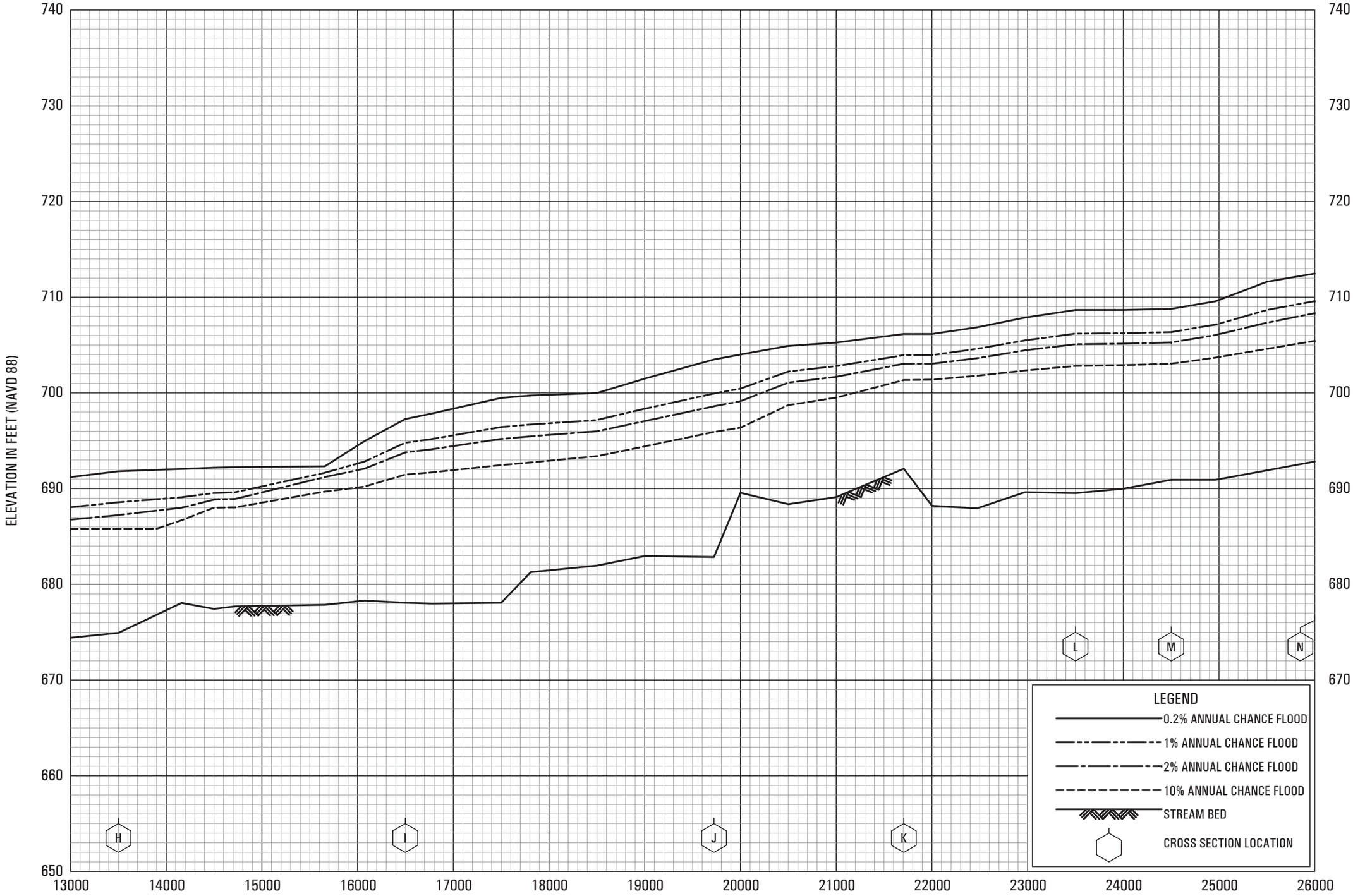
WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

85P



FLOOD PROFILES

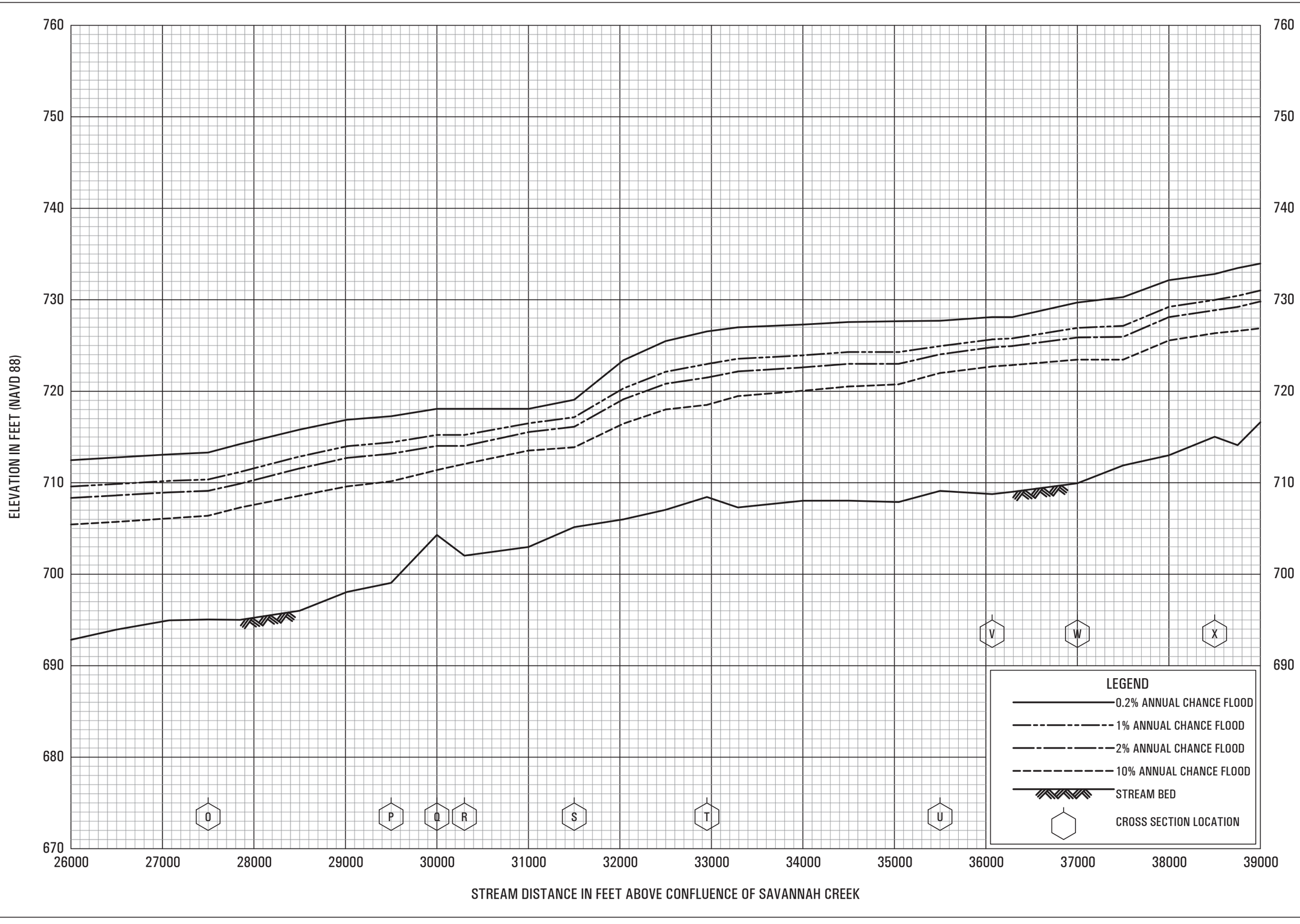
WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

86P



FLOOD PROFILES

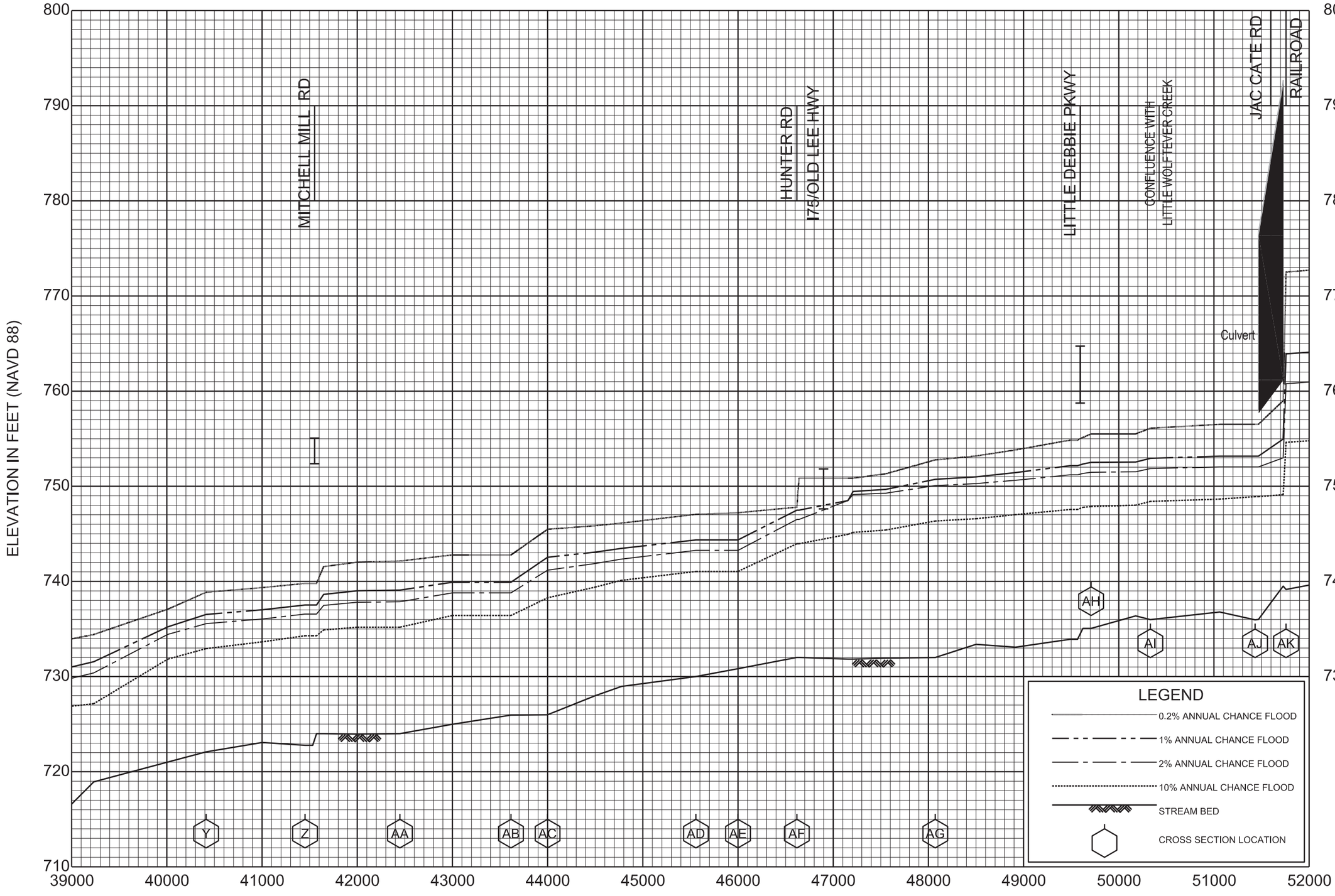
WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

87P



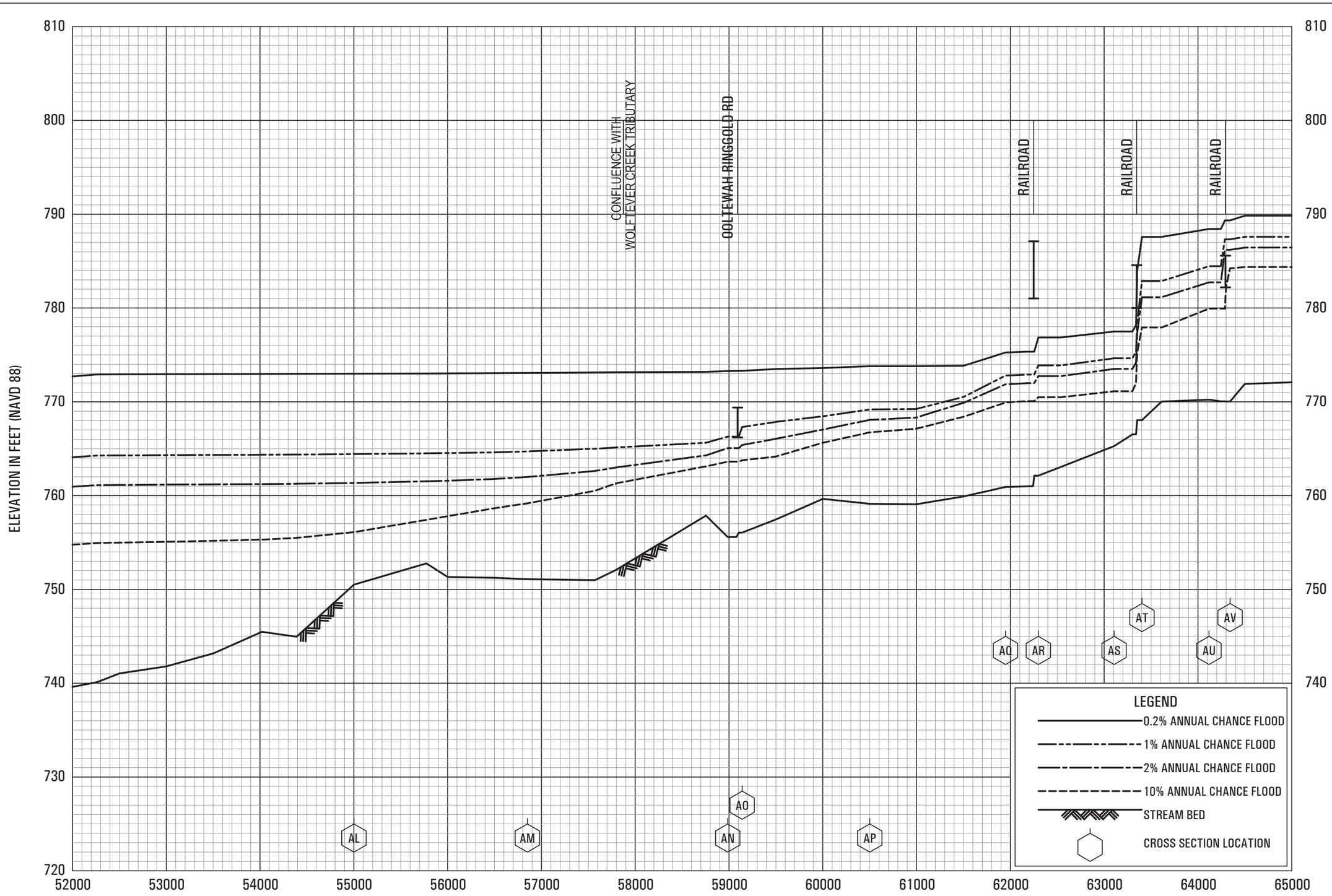
FLOOD PROFILES

WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS

88P



FLOOD PROFILES

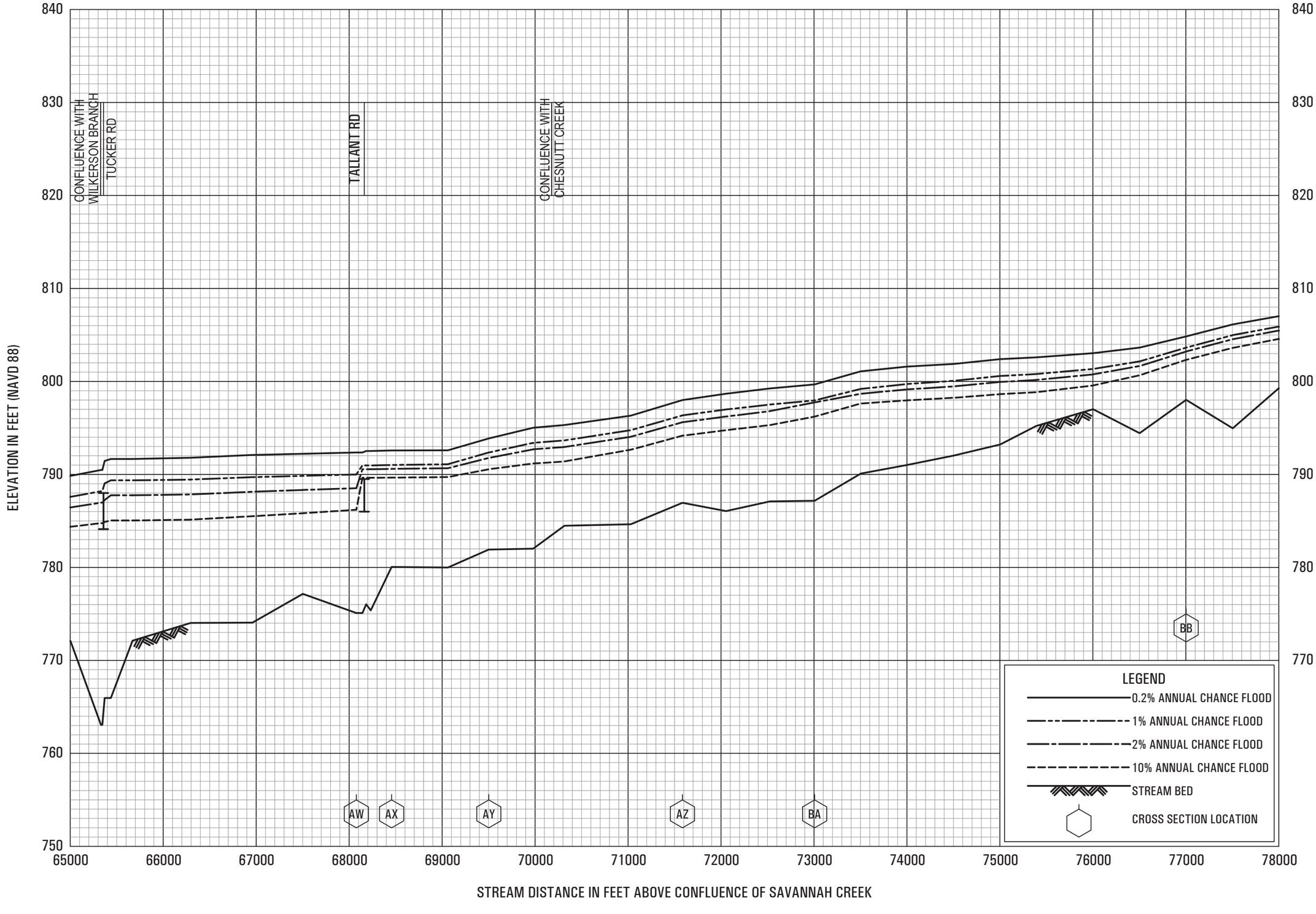
WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

89P



FLOOD PROFILES

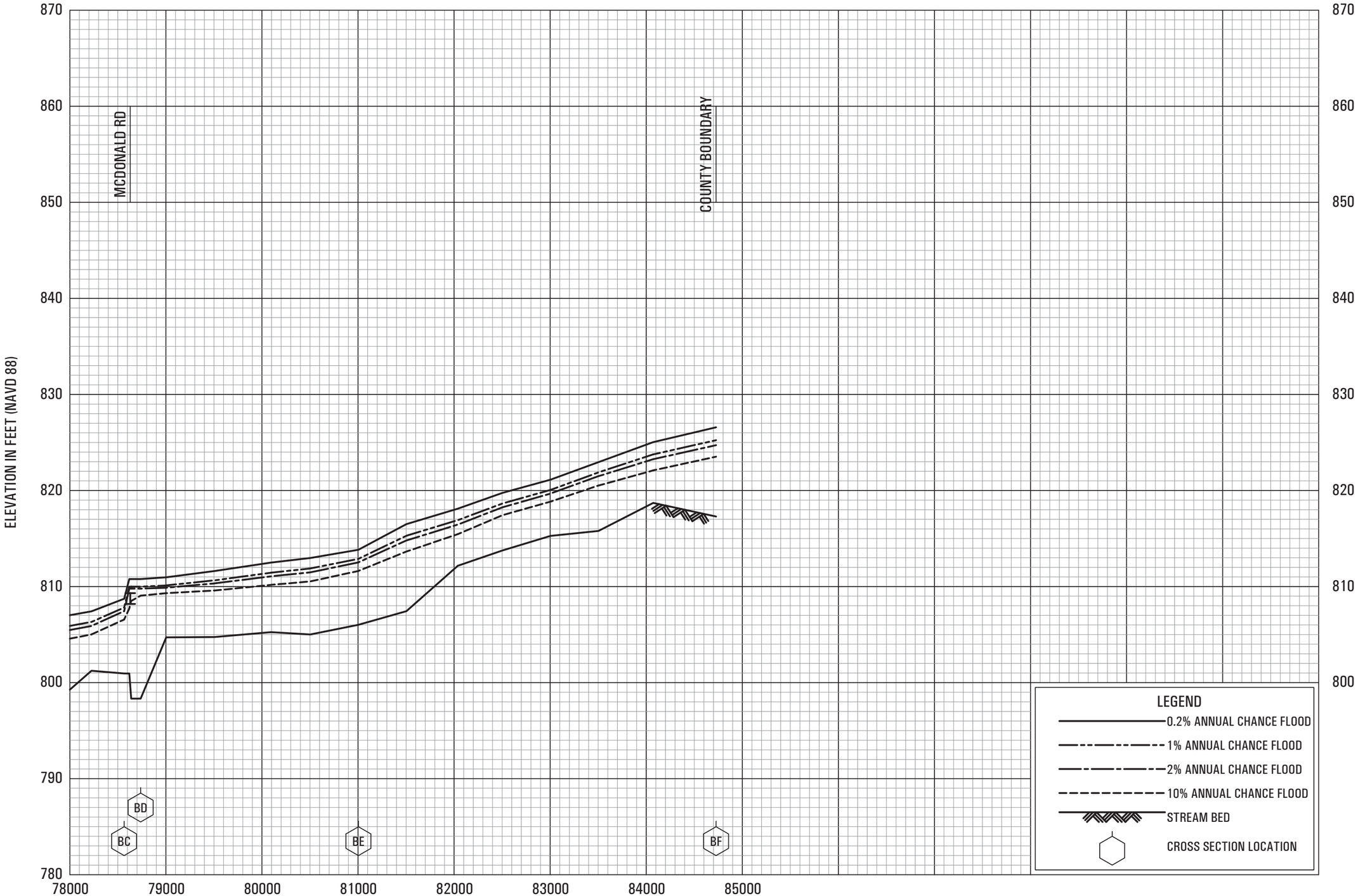
WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

90P



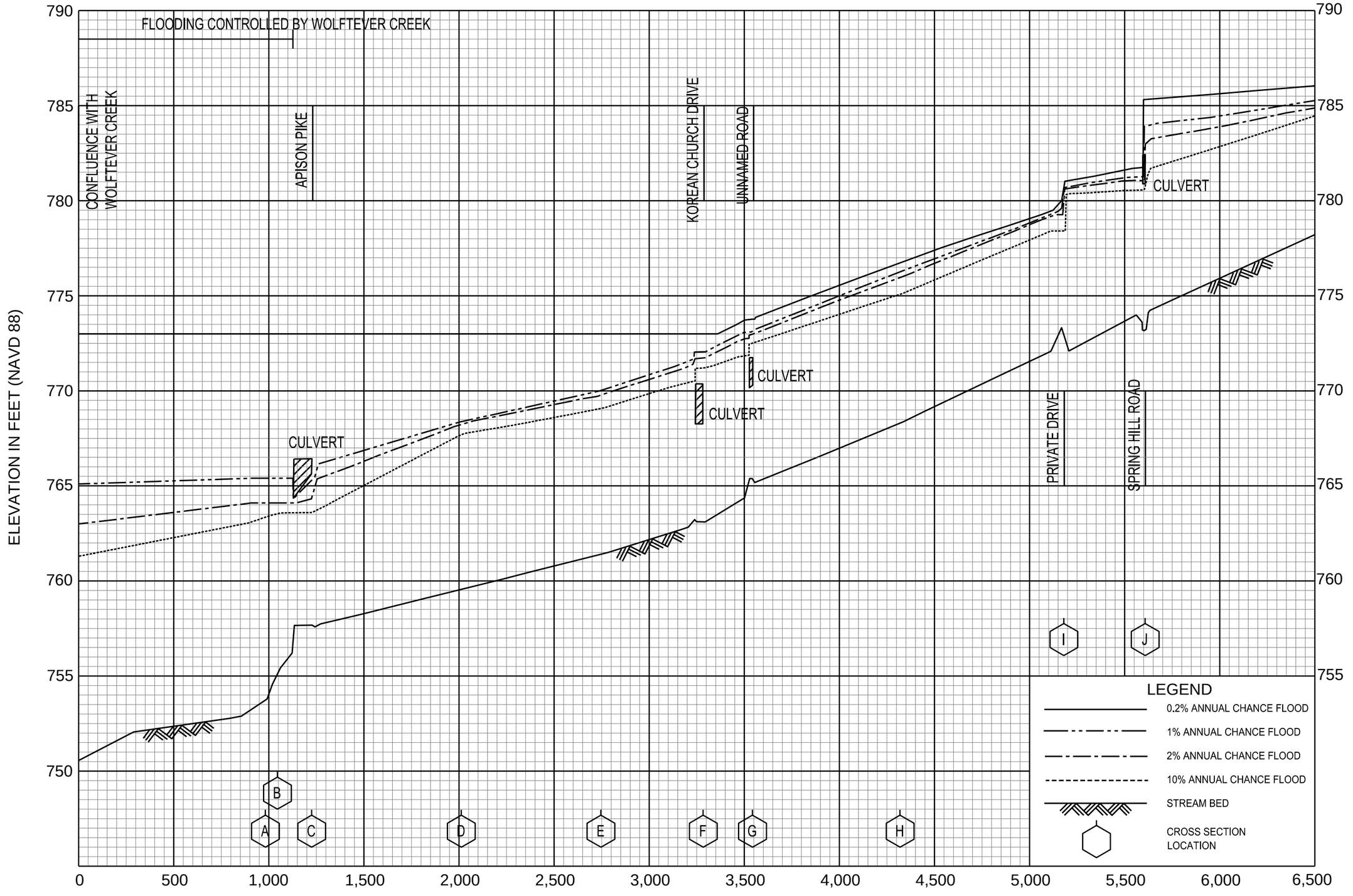
FLOOD PROFILES

WOLFTEVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

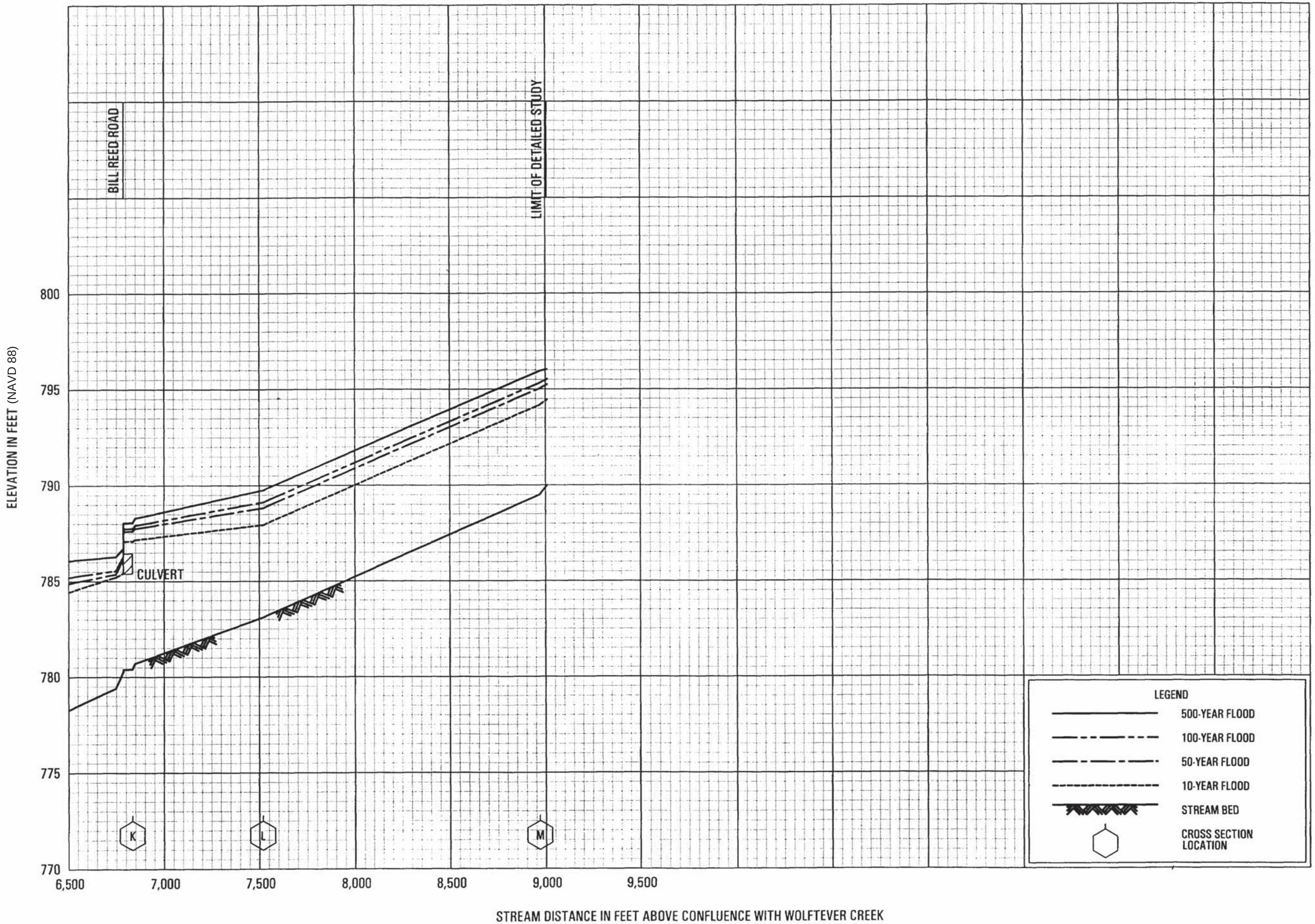
WOLFTEVER CREEK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

92P



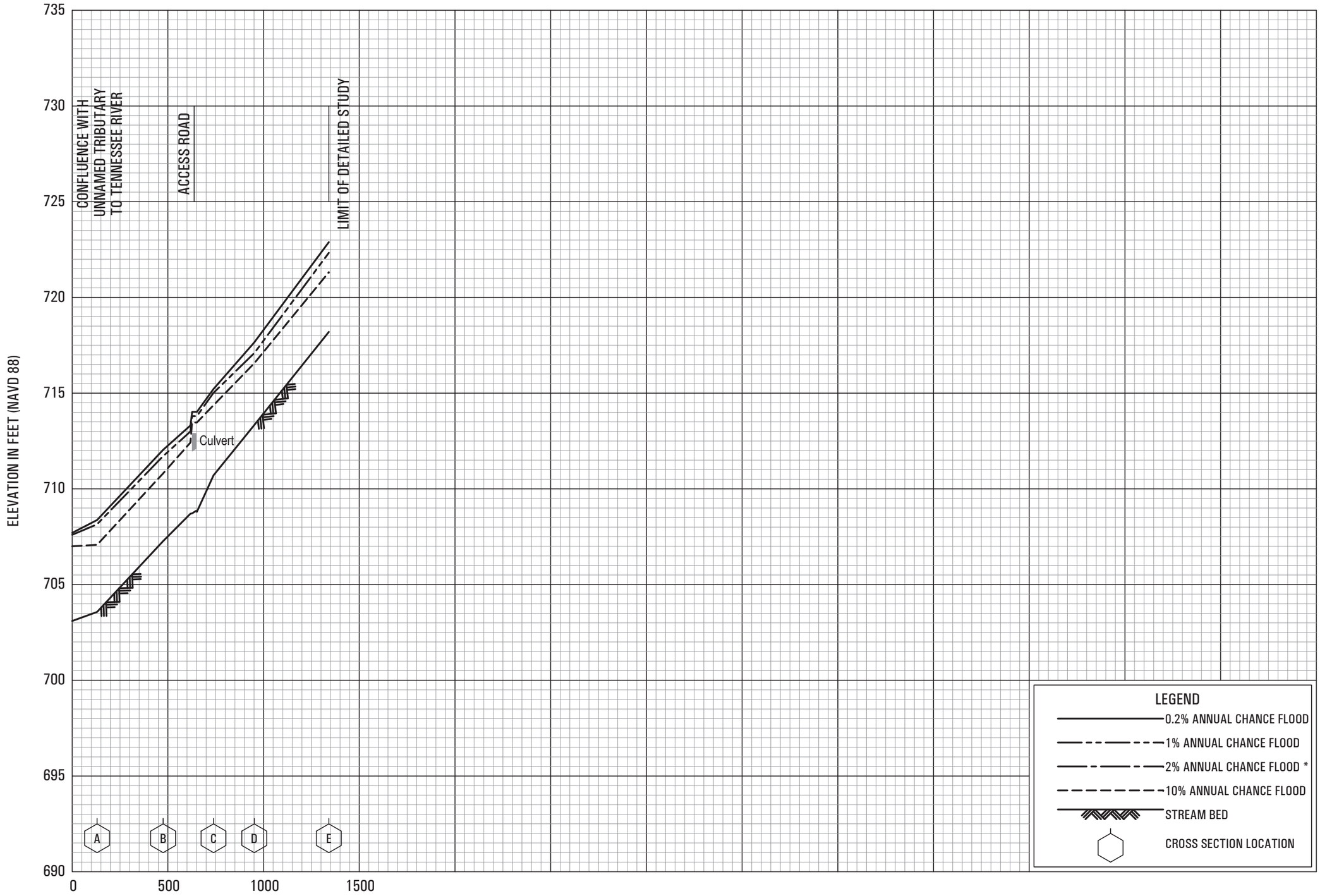
FLOOD PROFILES

WOLFTEVER CREEK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS



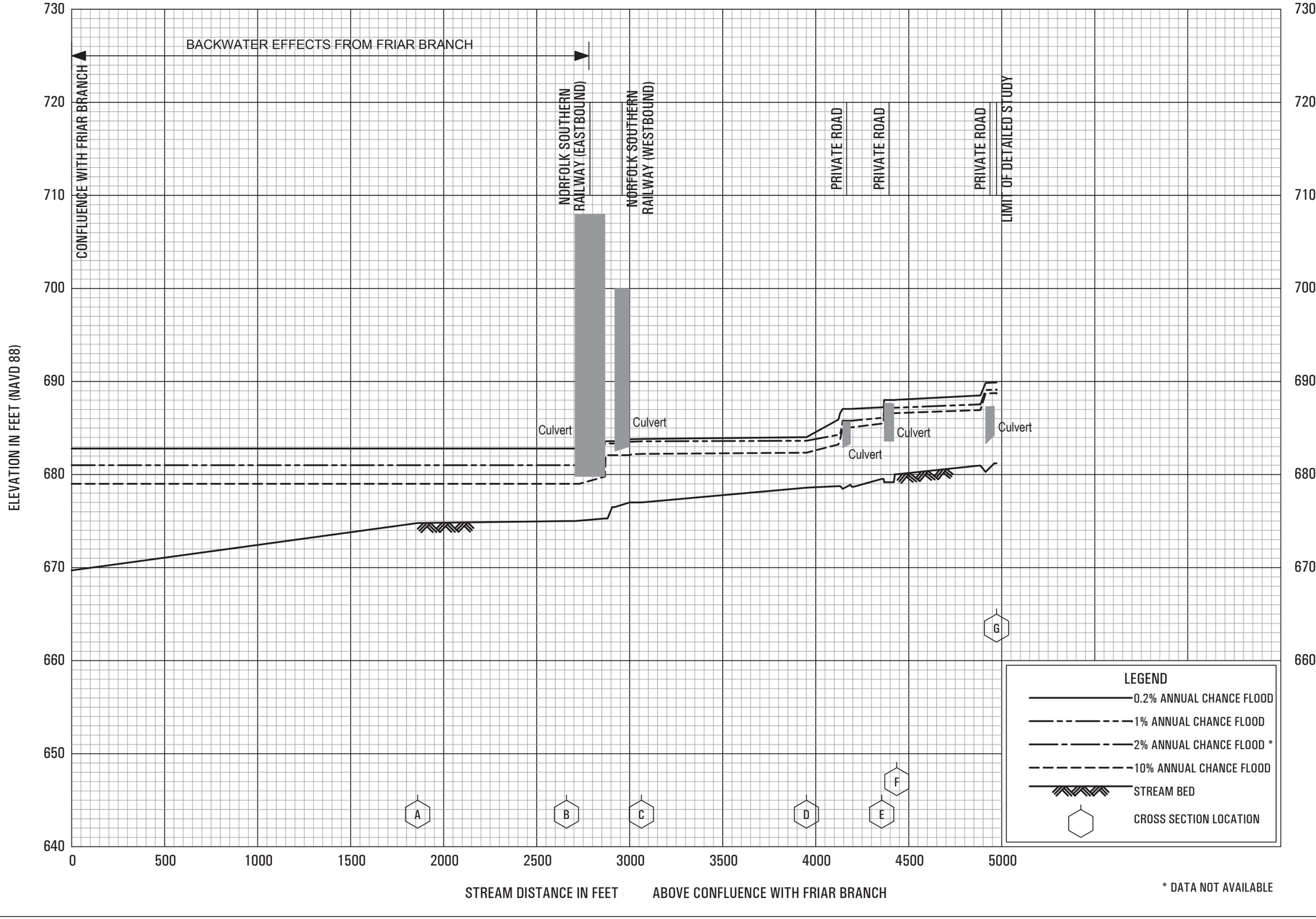
FLOOD PROFILES

NORTHEAST TRIBUTARY TO UNNAMED TRIBUTARY TO TENNESSEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

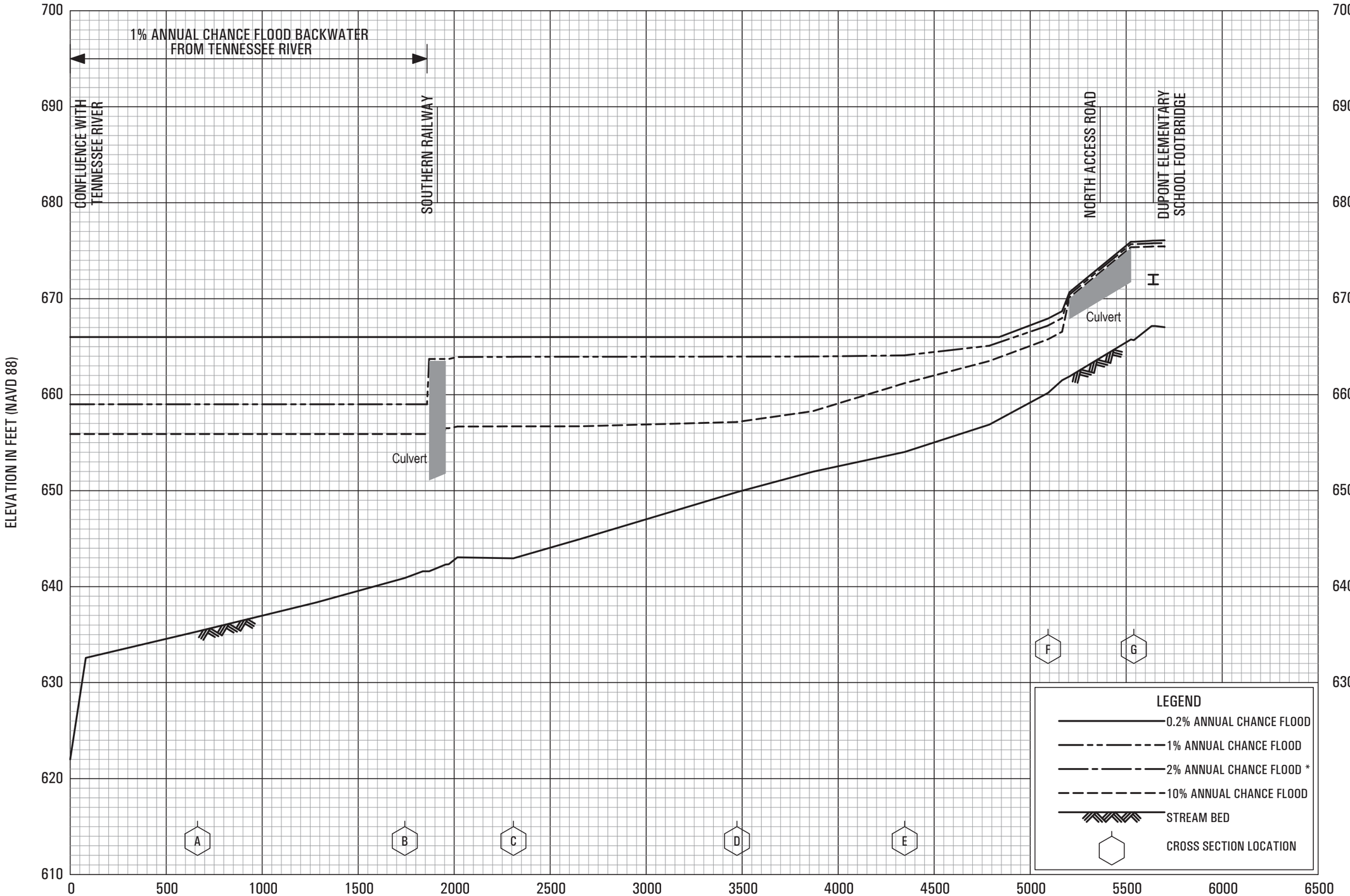


FLOOD PROFILES

UNNAMED TRIBUTARY TO FRIAR BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN
AND INCORPORATED AREAS



FLOOD PROFILES

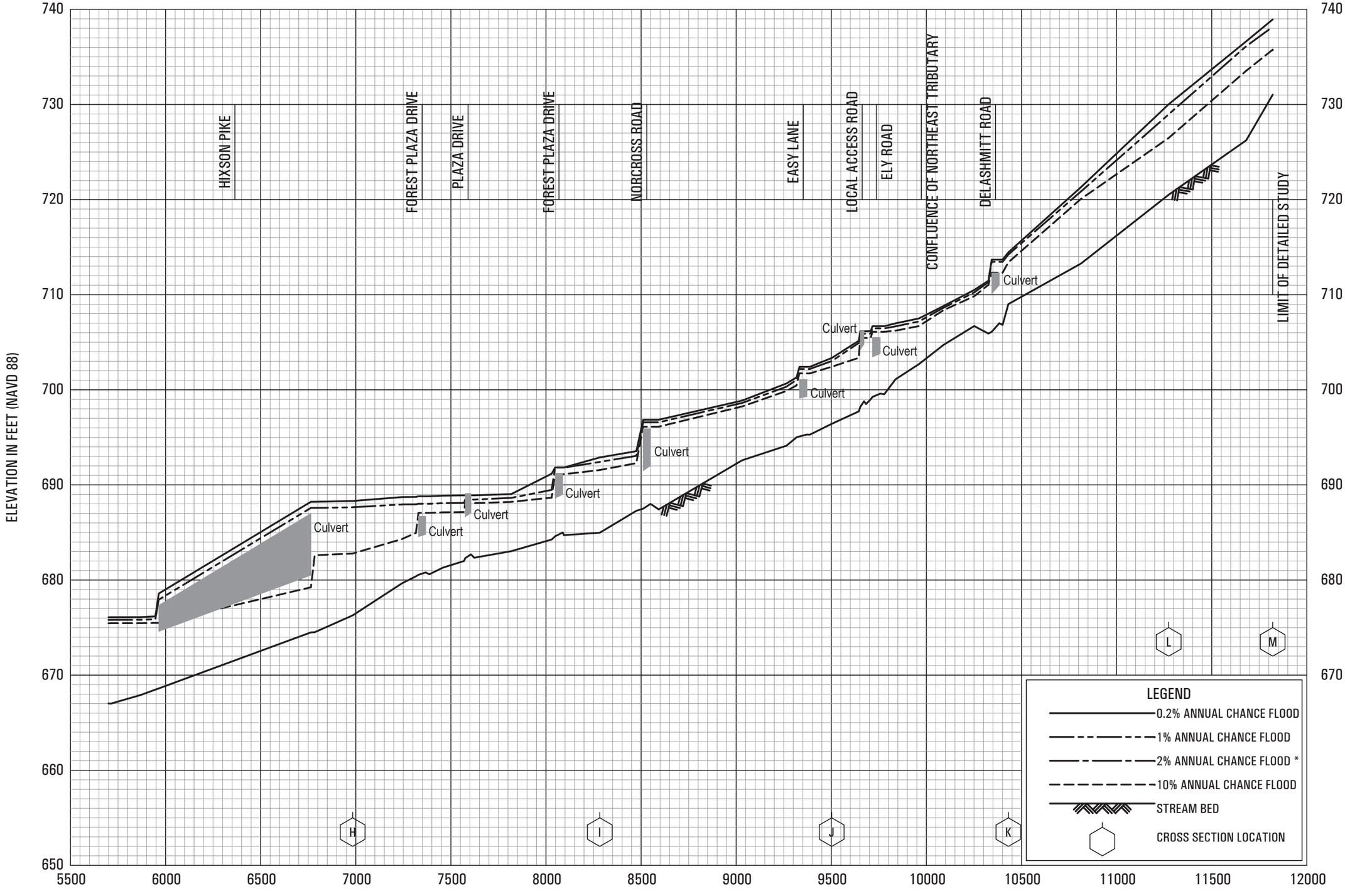
UNNAMED TRIBUTARY TO TENNESSEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAMILTON COUNTY, TN

AND INCORPORATED AREAS

96P



FLOOD PROFILES

UNNAMED TRIBUTARY TO TENNESSEE RIVER

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