FLOOD INSURANCE STUDY

JOHNSON COUNTY, INDIANA
AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
*BARGERSVILLE, TOWN OF	180112
EDINBURGH, TOWN OF	180113
FRANKLIN, CITY OF	180114
GREENWOOD, CITY OF	180115
JOHNSON COUNTY (UNINCORPORATED AREAS)	180111
NEW WHITELAND, TOWN OF	180116
PRINCE'S LAKES, CITY OF	180117
*TRAFALGER, TOWN OF	185233
WHITELAND, TOWN OF	180118

*No Special Flood Hazard Areas Identified

Preliminary

August 19, 2014

REVISED: TBD

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
18081CV000B

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) report may not contain all data available within the Community Map Repository. Please contact the Community Map Repository for any additional data.

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, FEMA may revise part of this FIS report by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. Therefore, users should consult with community officials and check the Community Map Repository to obtain the most current FIS report components.

Initial Countywide Effective Date: August 2, 2007

Revised Dates: TBD

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
1.1 Purpose of Study	1
1.2 Authority and Acknowledgments	2
1.3 Coordination	5
2.0 AREA STUDIED	6
2.1 Scope of Study	6
2.2 Community Description	9
2.3 Principal Flood Problems	11
2.4 Flood Protection Measures	13
3.0 ENGINEERING METHODS	14
3.1 Hydrologic Analyses	15
3.2 Hydraulic Analyses	20
3.3 Vertical Datum	23
4.0 FLOODPLAIN MANAGEMENT APPLICATIONS	25
4.1 Floodplain Boundaries	25
4.2 Floodways	26
5.0 INSURANCE APPLICATION	51
6.0 FLOOD INSURANCE RATE MAP	52
7.0 OTHER STUDIES	54
8.0 LOCATION OF DATA	54
9.0 BIBLIOGRAPHY AND REFERENCES	54

FIGURES

Figure 1 – Vertical Datum Conversion	24
Figure 2 – Floodway Schematic	28

TABLES

Table 1 – CCO Meeting Dates for Pre-Countywide FIS	5
Table 2 – Limits of Approximate Study	6
Table 3 – Limits of Detailed Study	7
Table 4 – Previously Incorporated Letters of Map Change	9
Table 5 – Newly Incorporated Letters of Map Change	9
Table 6 – Summary of Discharges	15
Table 7 – Summary of Lake Elevations	20
Table 8 – Channel and Overbank Roughness Factors	22
Table 9 – Vertical Datum Conversion	25
Table 10 – Floodway Data	29
Table 11 – Community Map History	53

EXHIBITS

Exhibit 1 - Flood Profiles

Auburn Branch	Panel 01P
Big Blue River	Panel 02P
Brewer Ditch	Panels 03 – 07P
Buffalo Creek	Panel 08P
Canary Ditch	Panels 09A – 09CP
East Grassy Creek	Panels 10 – 13P
East Side Swale	Panels 14 – 16P
Fountain Creek	Panel 17P
Graham Ditch	Panel 18P
Grassy Creek	Panels 19 – 25P
Honey Creek	Panels 26 – 33P
Hurricane Creek	Panels 34 – 43P
Messersmith Creek	Panels 44 – 45P
Pleasant Creek	Panels 46 – 48P
Pleasant Creek South Branch	Panel 50P
Pleasant Run Creek	Panels 51 – 57P
Sugar Creek	Panels 58 – 61P
Tracy Ditch	Panel 62P
Turkey Pen Creek	Panels 63 – 64P
West Fork White River	Panel 65P
Youngs Creek	Panels 66 – 75P

*Exhibit 2 - Flood Insurance Rate Map Index

Flood Insurance Rate Map

*Published Separately

FLOOD INSURANCE STUDY

JOHNSON COUNTY, INDIANA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of Johnson County, Indiana, including the Cities of Franklin and Greenwood, and the Towns of Bargersville, Edinburgh, New Whiteland, Prince's Lakes, Trafalger, and Whiteland, and the unincorporated areas of Johnson County (hereinafter referred to collectively as Johnson County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The Town of Edinburgh is a multi-county community and the FIS and FIRMs show the portion of the Town of Edinburgh in Johnson County. The remaining portions of this community lie within Bartholomew and Shelby Counties. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. This information will also be used by Johnson 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 National Flood Insurance Program (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.

Furthermore, the Towns of Bargersville and Trafalger do not have special flood hazard areas within their incorporated limits. However, for the purpose of complete county-wide mapping of Johnson County, these towns are still included in this FIS and FIRMs.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

Information of the authority and acknowledgements for each of the new studies and previously printed FIS reports and Flood Insurance Rate Maps (FIRMs) for communities within Johnson County were compiled and are shown below:

Pre-Countywide Analyses:

Town of Edinburgh: The previously effective FIS for the Town of Edinburgh is dated January 2, 1987. The hydrologic and hydraulic analyses for the study were performed by Cole and Associates Inc., for the Federal Insurance Administration, under Contract No. H-4023. The work, which was completed in March 1978, covered all significant flooding sources affecting the Town of Edinburgh. A Revisions Description for the East Side Swale was incorporated into the FIS on November 5, 1986. The hydraulic analysis for the Revisions Description was performed by the Indiana Department of Natural Resources, Division of Water. The Federal Emergency Management Agency (FEMA) reviewed and accepted this data for purposes of this revision (Reference 1).

City of Franklin: The previously effective FIS for the City of Franklin is dated October 1, 1980. The hydrologic and hydraulic analyses for the study were performed by the U.S. Geological Survey for the Federal Insurance Administration, under Inter-Agency Agreement No. IAA-H-8-76, Project Order No. 11. This work, which was completed in April 1979, covered all significant flooding sources affecting the City of Franklin (Reference 2).

City of Greenwood: The previously effective FIS for the City of Greenwood is dated November 18, 1988. The hydrologic and hydraulic analyses for the study were performed by the U.S. Geological Survey, for the Federal Insurance Administration, under Inter-Agency Agreement No. IAA-H-9-77, Project Order No. 4, Amendment No. 2. The cross section and work maps were prepared by Air

Maps, Inc., of Elkhart, Indiana. This study was completed in October 1979. A Revisions Description for Pleasant Creek and Pleasant Run Creek was incorporated into the FIS on November 18, 1988. The hydraulic analyses for the Revisions Description were performed by the Indiana Department of Natural Resources, Division of Water. FEMA reviewed and accepted this data for purposes of this revision (Reference 3).

Town of New Whiteland: The previously effective FIS for the Town of New Whiteland is dated February 16, 1982. The hydrologic and hydraulic analyses for the study were performed under the directives of the Federal Emergency Management Agency for the Town of New Whiteland. Hydrologic and hydraulic analyses were obtained from work done in preparation of a Flood Insurance Study for the Town of Whiteland, performed by Snell Environmental Group, Inc., under Contract No. H-4777. The analyses for this study were completed in March 1980 (References 4 and 6).

Town of Prince's Lakes: The previously effective FIS for the Town of Prince's Lakes is dated March 16, 1981. The hydrologic and hydraulic analyses for the study were performed by Snell Environmental Group, Inc., for the Federal Insurance Administration, under Contract No. H-4777. The analyses for this study were completed in January 1980 (Reference 5).

Town of Whiteland: The previously effective FIS for the Town of Whiteland is dated March 16, 1981. The hydrologic and hydraulic analyses for the study were performed by Snell Environmental Group, Inc., for the Federal Insurance Administration, under Contract No. H-4777. The analyses for this study were completed in March 1980 (Reference 6).

Johnson County (Unincorporated Areas): The previously effective FIS for the unincorporated areas of Johnson County is dated March 2, 1989. The hydrologic and hydraulic analyses for the Driftwood River and Sugar Creek, from its mouth to just upstream of 650 South Road, were obtained from the FIS for the Town of Edinburgh, Indiana dated January 2, 1987. All other hydrologic and hydraulic analyses for the study

were performed by the U.S. Army Corps of Engineers (USACE), Louisville District, for the Federal Emergency Management Agency, under Inter-Agency Agreement No. EMW-85-E-1822, Project Order No. 1. The analyses for this study were completed in July 1986 (Reference 7).

Initial Countywide Analyses:

Johnson County (Countywide 2007): The hydrologic and hydraulic analyses for five (5) new approximate areas of Johnson County were performed for the 2007 countywide study by Fuller, Mossbarger, Scott and May Engineers (FMSM), for the Federal Emergency Management Agency (FEMA), under Contract No. EMC-2001-C0-0058, Task Order No. EMC-2003-T0-014. The analyses for the study were completed in July 2004 (Reference 12).

The hydrologic and hydraulic analyses for new detailed studies of East Grassy Creek, Graham Ditch, Grassy Creek, Hurricane Creek, Tracy Ditch and Youngs Creek were performed for the 2007 countywide study by Earth Tech, Inc. and the Indiana Department of Natural Resources (IDNR), for the Federal Emergency Management Agency (FEMA), under Contract No. EMW-94-C-4462. The analyses for the study were completed in June 2004 (Reference 12).

Redelineation of the previously effective flood hazard information for the 2007 countywide FIS report, correction to the North American Vertical Datum of 1988, and conversion of the unincorporated and incorporated areas of Johnson County into the Countywide format was performed by Fuller, Mossbarger, Scott and May Engineers, Inc., for the Federal Emergency Management Agency under Contract No. EMC-2001-CO-0058, Task Order No. EMC-2003-TO-014 (Reference 12).

Revised Countywide Analyses:

For this countywide FIS, the hydrologic and hydraulic analyses for Canary Ditch was performed by Landwater Group Inc. Hydrologic and hydraulic analyses for Buffalo Creek, Pleasant Creek, and Pleasant Run Creek were performed by the Indiana Department of Natural Resources.

The Indiana Department of Natural Resources managed the production of this countywide update as part of their Cooperating Technical Partner agreement with the Federal Emergency Management Agency dated April 22, 2004, which was defined by the Indiana DNR Mapping Activity Statement dated September 27, 2009 and funded under agreement number EMC-2009-GR-7008.

Base map information shown on the Flood Insurance Rate Map (FIRM) was provided in digital format by the State of Indiana, produced at a scale of 1:2,400, from aerial photography dated 2011. The projection used in the preparation of this map is State Plane East and the horizontal datum used is NAD 83, GRS80 spheroid.

1.3 Coordination

The purpose of an initial Consultation Coordinated Officer's (CCO's) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study. The dates of the initial and final CCO meetings held for the previously effective FIS reports covering the geographic area of Johnson County, Indiana are shown in Table 1 (Reference 1). The initial and final CCO meetings were attended by the study contractor, FEMA (or the Federal Insurance Administration), the Indiana Department of Natural Resources (IDNR), and the affected communities.

Table 1: CCO Meeting Dates for Pre-Countywide FIS

Community Name	Initial CCO Date	Final CCO Date
Bargersville, Town of	*	*
Edinburgh, Town of	March 1976	May 15, 1979
Franklin, City of	November 1975	April 24, 1980
Greenwood, City of	November 1975	May 21, 1981
Johnson County (Unincorporated Areas)	January 7, 1985	March 2, 1988
New Whiteland, Town of	*	September 18, 1981
Prince's Lakes, Town of	April 6, 1978	October 30, 1980
Trafalger, Town of	*	*
Whiteland, Town of	November 20, 1978	October 30, 1980

*data not available

The results of the 2007 countywide study were reviewed at the final CCO meeting held on June 8, 2005, and attended by representatives of FEMA, IDNR and representatives from Johnson County, the Cities of Greenwood and Franklin, and the Towns of Prince's Lakes, Bargersville, Edinburgh, New Whiteland and Trafalgar. All problems raised at that meeting have been addressed.

The results of this countywide revision were reviewed at the final CCO meeting held on <meeting date> and attended by representatives of FEMA, IDNR and <meeting attendants>.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Johnson County, Indiana, including the incorporated communities listed in Section 1.1

All FIRM panels for Johnson County were revised, updated, and republished in countywide format as a part of the 2007 FIS. The FIRM panel index, provided as Exhibit 2, illustrates the revised FIRM panel layout.

Approximate methods of analysis were used to study those areas having a low development potential or minimal flood hazards as identified during the initial CCO meeting. For this study, no new stream reaches were studied using approximate methods. Table 2 provides a list of streams that were studied by approximate method in the previous countywide FIS.

Table 2: Limits of Approximate Study

Flooding Source	Limits of Approximate Study
Amity Ditch	From confluence with Youngs Creek to just downstream of State Route 44 (1 square mile cutoff)
Gilmore Creek	From confluence with Youngs Creek to just downstream of County Road 200 West (1 square mile cutoff)
Herriotts Creek	From confluence with Sugar Creek to State Route 252
Honey Creek	Upstream of Stones Crossing Road to just upstream of Cutsinger Road (1 square mile cutoff)
Roberts Ditch	From confluence with Youngs Creek to just downstream of State Route 135 (1 square mile cutoff)

The areas studied by detailed methods were selected with priority given to all known flood hazards areas and areas of projected development of proposed construction. This study incorporates new detailed studies of Buffalo Creek, Canary Ditch, Pleasant Creek, and Pleasant Run Creek performed for and approved by IDNR. All flooding

sources studied by detailed methods are defined in Table 3. Source citations refer to the source of the detailed study.

Table 3: Limits of Detailed Study

Flooding Source	Limits of Detailed Study
Auburn Branch[7]	From confluence with Turkey Pen Creek to approximately 2,460 feet upstream of confluence with Turkey Pen Creek
Big Blue River[1]	From confluence with Driftwood River and Sugar Creek to approximately 1.24 miles upstream of Conrail
Brewer Ditch[6]	From approximately 1,600 feet downstream ofUS Route 31 to County Road 125 East
Buffalo Creek	From confluence with Pleasant Run Creek to County Line Road
Canary Ditch	From confluence with Youngs Creek to 1,900 feet upsteam of Earlywood Drive
East Grassy Creek[10]	From the confluence with Grassy Creek to approximately 0.06 mile upstream of County Road 750 North
East Side Swale[1]	From County Boundary to State Route 252
Fountain Creek[3]	From confluence with Pleasant Run Creek to County Boundary
Graham Ditch[10]	From the confluence with Canary Ditch to approximately 0.28 mile upstream of Earlywood Drive
Grassy Creek[10]	From the confluence with Youngs Creek to approximately 0.22 mile upstream of Sheek Road
Honey Creek[7]	From confluence with West Fork White River to 700 North Road

Table 3: Limits of Detailed Study
(Continued)

Flooding Source	Limits of Detailed Study
Hurricane Creek[11]	From confluence with Youngs Creek to approximately 0.87 mile upstream of County Road 800 North
Messersmith Creek[7]	From confluence with Honey Creek to approximately 0.95 miles upstream of County Road 500 West
Pleasant Creek[3]	From confluence with Pleasant Run Creek to South Emerson Avenue
Pleasant Creek South Branch[3]	From confluence with Pleasant Creek to South Emerson Avenue
Pleasant Run Creek	From confluence with West Fork White River to County Boundary upstream of Madison Avenue
Sugar Creek[1, 7]	From confluence with Driftwood River to approximately 1.32 miles upstream of Conrail
Tracy Ditch[10]	From the confluence with Grassy Creek to County Road 800 North
Turkey Pen Creek[7]	From confluence with Honey Creek to approximately 0.26 mile upstream of 800 North Road
West Fork White River[7]	From County Boundary to County Boundary
Youngs Creek [10]	From the confluence with Grassy Creek to approximately 0.31 mile upstream of County Road 200 North

This FIS update also incorporates the determination of letters issued by FEMA resulting in map changes (Letters of Map Change, or LOMC's). All Letters of Map Revision (LOMR's) that were included in the previous countywide FIS are summarized in Table 4. LOMR's that are newly included in this FIS revision are summarized in Table 5. Letters of Map Amendment (LOMA's) incorporated for this

study are summarized in the Summary of Map Actions (SOMA) included in the Technical Support Data Notebook (TSDN) associated with this FIS update. Copies of the TSDN may be obtained from the Community Map Repository.

Table 4: Previously Incorporated Letters of Map Change

Flooding Source	Community and Project Id	Date Issued	Type
Auburn Branch	Johnson County Upstream of Turkey Pen Creek	September 9, 1996	LOMR
Auburn Branch	Johnson County Eagle Trace Drive	June 14, 1999	LOMR
Honey Creek	Johnson County Upstream of Brentridge Parkway	March 20, 2000	LOMR
Messersmith Creek	Johnson County Innisbrooke Subdivision	January 23, 1996	LOMR
Pleasant Creek/Pleasant Creek South Branch	Johnson County South Emerson Avenue Area	April 22,2002	LOMR
Pleasant Creek/Pleasant Creek South Branch	Johnson County South Emerson Avenue Area	July 12, 2004	LOMR

Table 5: Newly Incorporated Letters of Map Change

Flooding Source	Community and Project Id	Case No.	Date Issued	Type
Pleasant Run Creek	City of Greenwood East Street Condominiums	13-05-3157P	March 5, 2013	LOMR

2.2 Community Description

Johnson County is located in central Indiana and encompasses an area of approximately 315 square miles. The county is rectangular in shape, extending 20 miles from north to south and 16 miles from east to west. Johnson County is bordered on the north by the City of Indianapolis and Marion County, on the east by Shelby County, on the South by Bartholomew and Brown Counties, and on the west by Morgan County.

Several major highways are located in Johnson County, including Interstate 65, US 31, and State Roads 37, 44 and 144. The county has experienced rapid growth in recent years from suburban expansion of the Greater Indianapolis Metropolitan Area. As development continues, the need for improved County floodplain management is increasingly important. (Reference 7) The 2000 U.S. census reported the population of Johnson County to be 115,209.

The climate in Johnson County is characteristically humid. According to the National Oceanic and Atmospheric Administration (NOAA), average daily temperatures range from 73.5 degrees Fahrenheit (F) in summer to 29.8 °F in winter. For the period of record between 1971 and 2002, annual average precipitation is approximately 40.9 inches, and the average recorded snowfall is approximately 27.0 inches. The distribution of precipitation is fairly uniform throughout the year.

Agriculture is the leading industry in Johnson County. The major types of farming are cash grain (primarily corn and soybeans) and livestock production (hogs, cattle, and dairy). The topography of the area is gently rolling to nearly flat. The land use of the study area is primarily agricultural with some wooded areas and some residential and commercial developments in select locations (Reference 7).

The Town of Edinburgh is located in the southeast corner of Johnson County and the northern section of Bartholomew County. Most of the Town of Edinburgh is situated on land 20 to 60 feet above the normal flow elevation of the streams being studied. The majority of the residential sections of the town are situated in areas above the floodplain, but there is some commercial development west of the town in low-lying areas. Runoff in the planning area is high due to the shallow clays underlain by bedrock in the form of fissured limestone. Sugar Creek originates in southeast Hancock County and continues south until it joins the Big Blue River at a point west of the Edinburgh downtown area. The Big Blue River flows into the planning area from the northeast. The confluence of these two streams constitutes the headwaters of the Driftwood River (Reference 1).

The City of Franklin is located in east-central Johnson County. Commercial development near the floodplains studied is primarily along U.S. Highway 31 and the southwestern edge of the downtown area. Lower Hurricane Creek and Canary Ditch, between U.S. Highway 31 and Conrail, border or pass though areas of residential development. The floodplains of upper Hurricane Creek, most of Canary Ditch, and Youngs Creek downstream from the Masonic Home are farmlands. Youngs Creek passes through the southern portion of Franklin and, just downstream from the sewage-treatment plant, it has a drainage area of 80.3 square miles. Hurricane Creek and Canary Ditch are both tributaries of Youngs Creek. Hurricane Creek has a drainage area of 16.4 square miles, and its confluence with Youngs Creek is in Providence Park between Home Avenue and South Street. Canary Ditch has a drainage area of 6.3 square miles, and its confluence with Youngs Creek is farther upstream, at a point just north of Indiana Highway 144. (Reference 2)

The City of Greenwood is located in northern Johnson County and is a suburban community bordered by farmland to the south and residential Indianapolis to the north. Within the floodplains studied, development consists of private businesses and single- family residences. Fountain Creek, a tributary to Pleasant Run Creek, is 1.5 miles long, and its drainage area is 1.0 square mile. Grassy Creek, a tributary flowing south to Youngs Creek is 7.5 miles long, and its drainage area is 15.3 square miles. Pleasant Creek, a tributary flowing west to Pleasant Run Creek, is 4.2 miles long, and

its drainage area is 4.2 square miles. Pleasant Creek South Branch, a small tributary flowing west to Pleasant Creek, is 0.8 mile long, and its drainage area is 0.6 square mile. Pleasant Run Creek, a tributary flowing west to the White River, is 15.2 miles long, and its drainage area is 24.1 square miles. (Reference 3)

The Town of New Whiteland is approximately at the center of Johnson County. New Whiteland borders Whiteland on the southeast. The economy of the area is primarily agricultural and commercial. East Grassy Creek drains primarily agricultural land in the vicinity of the town and is a tributary to Youngs Creek and part of the Wabash River Basin (Reference 4).

The Town of Prince's Lakes is located in Johnson County on the southern border adjoining Brown County, Indiana. The town is primarily a resort community where residents of urban areas, such as Indianapolis, maintain summer homes. Due to the seasonal influx of tourists, commercial enterprises are oriented toward summer recreation. East, North, White and Hants Lakes were studied in detail within the corporate limits (Reference 5).

The Town of Whiteland is approximately at the center of Johnson County. The economy of the area is primarily agricultural and commercial. Brewer Ditch and East Grassy Creek, which flow through Whiteland, drain primarily agricultural land in the vicinity of the town. These streams are tributaries to Youngs Creek and part of the Wabash River Basin. Development within the floodplain is limited, with most of this development being residential (Reference 6).

2.3 Principal Flood Problems

Flooding occurs almost every year in Johnson County, often as a result of snowmelt and/or spring rains or high intensity storms during early summer. Significant flooding occurred on the West Fork White River in 1964, on Pleasant Run Creek in 1969, and on Sugar Creek in 1959 (Reference 7). Localized flood problems in the incorporated areas are summarized below.

Town of Edinburgh: Minor flooding in the Town of Edinburgh has taken place in the Pruitt East Addition on the east side of the town. This flooding began when Interstate Highway 65 was completed in the late 1960's, which resulted in the alteration of the drainage patterns in the upstream areas of the East Side Swale. The swale runs through this subdivision and continues south and west until it joins the Driftwood River south of the city. Lack of an adequate sized culvert under Main Cross Street causes the backups in the subdivision. If, however, the culvert were enlarged, flooding

would probably occur in the next subdivision, downstream to the southwest of East Pruitt.

City of Franklin:

Overflows from Youngs Creek, Hurricane Creek, and Canary Ditch cause periodic flooding in low-lying areas of Franklin, especially where culverts under the railroad and highway bridges lack sufficient capacity to handle flood discharges. There have been a number of floods on Youngs Creek and Hurricane Creek since 1942. Prior to 1980, the three highest floods on both streams occurred in January 1952, November 1955 and May 1968. The Youngs Creek peak discharges associated with these events are 10,700 cubic feet per second (cfs), the maximum flood of record; 7,790 cfs; and 9,200 cfs respectively. These discharges were recorded at the U.S. Geological Survey gaging station near Edinburgh, 5 miles downstream from the study limits. According to an unpublished source from the Indiana Department of Natural Resources, the calculated recurrence intervals for the events are 25, 9, and 17 years respectively (Reference 2).

No information exists concerning historic flooding in the City of Franklin due to overflows from Canary Ditch. Since the May 1968 flood, no serious flooding has occurred in the City of Franklin (Reference 2).

City of Greenwood:

The City of Greenwood experienced a major flood in July 1969. Discharges of 4,540 cfs on Pleasant Run Creek at State Route 135, roughly equivalent to a 70- year flood, and 1,300 cfs on Pleasant Creek at U.S. Route 31, roughly equivalent to a 10-year flood, were measured. During this flood, the downstream bridge at 950 North Road was washed out. The results of the November 18, 1988 FIS indicated that the potential for flooding exists on Pleasant Creek owing to an undersized culvert at Conrail and on Pleasant Run Creek where there are channel encroachments from Fry Road to Madison Avenue (Reference 3).

Town of New Whiteland:	The most severe flooding in the Town of New Whiteland occurs due to high intensity, short duration storms, such as severe thunderstorms. The rapid rise of the streams analyzed and shallow flooding caused by ponding of runoff create the greatest flood damage. No historical data is available on past flooding on East Grassy Creek (Reference 4).
Town of Prince's Lakes:	There has been no history of flooding in the Town of Prince's Lakes. Any significant flooding will occur due to a high intensity rainfall or the failure of a dam releasing a sudden surge of water. This study was concerned with the potential flooding due to intense rainfall. A previous study, prepared by L. Robert Kimball and Associates, investigated the possibility of dam failure (Reference 5).
Town of Whiteland:	The most severe flooding in the Town of Whiteland will occur due to high intensity, short duration storms, such as severe thunderstorms. The rapid rise of the streams analyzed and shallow flooding caused by ponding of runoff will create the greatest flood damage. No historical data is available on past flooding on Brewer Ditch or East Grassy Creek (Reference 6).

2.4 Flood Protection Measures

Flood protection measures are not known to exist within the unincorporated areas of Johnson County (Reference 7).

Edinburgh was given a grant from the U.S. Department of Housing and Urban Development to help alleviate the problem of flooding by constructing an interceptor sewer to divert some of the upstream storm flows of the East Side Swale to the Big Blue River. This situation, however, does not provide full protection from the 100-year flood (Reference 1).

No flood protection or control structures exist within the City of Franklin. In addition, the city has no regulations or ordinances concerning floodplain management or zoning (Reference 2).

No physical flood protection measures existed in the City of Greenwood at the time of the study. Presently, the City of Greenwood Planning Commission relies upon the recommendations of IDNR and the Johnson County Drainage Board when issuing building permits in questionable flood prone areas (Reference 3).

No flood protection measures exist for the streams in the Town of New Whiteland (Reference 4).

There are no flood protection works for streams in the Town of Whiteland (Reference 6).

Appreciable flood protection measures have not been employed in Prince's Lakes. The lake level of East Lake can be adjusted somewhat by boards in the principal spillway. The removal of these boards in the case of a flood would somewhat alleviate flooding. The town does not have any flood protection ordinances or a floodplain development plan (Reference 5).

The state of Indiana has also set regulations concerning development in a flood plain. The Indiana Flood Control Act of 1945, as amending, requires that the channels and that portion of the flood plain known as the floodway be kept free and clear of interference or obstructions which could restrict the flow rate in a significant manner. The Act stipulates that the Indiana Flood Plain Management Act of 1973 further requires that flood plain management regulations adopted after July 1, 1974, meet a minimum set of standards for the delineation and regulation of flood hazard areas (Reference 1).

3.0 ENGINEERING METHODS

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

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by detailed methods affecting Johnson County. Table 6 contains a summary of peak discharges for the 10-, 2-, 1-, and 0.2-percent annual chance floods, where applicable, for each flooding source studied in detail in Johnson County. Peak discharges in the table were compiled from previously effective FIS reports for Johnson County and incorporated areas. Source citations refer to the source of the detailed study.

Table 6: Summary of Discharges

Flooding Source And Location	Drainage Area (Square Miles)	Peak Discharge (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Auburn Branch[7]					
At confluence with Turkey Pen Creek	1.72	770	1,130	1,310	1,590
Big Blue River[1]					
At Trail Creek	584	15,000	21,000	23,900	30,200
Brewer Ditch					
At corporate limits of Town of Whiteland	2.65	470	650	750	1,020
Buffalo Creek					
At Mouth	4.11	1,330	1,950	2,300	3,100
Canary Ditch					
Mouth at Youngs Creek	6.57	*	*	2,800	4,130
At Westfield Drive (east)	5.94	*	*	2,570	3,780
At U.S. Route 31	5.93	*	*	2,370	3,480
At Railroad	4.96	*	*	2,210	3,260
Just upstream of UNT Canary Ditch	3.82	*	*	1,780	2,630
Just upstream of Graham Ditch	2.26	*	*	1,150	1,700
At 400N Road	1.58	*	*	851	1,260
East Grassy Creek[10]					
At Mouth	3.8	*	*	1,684	2,189
At Conrail Railroad	2.6	*	*	1,276	1,659
At 750N Road	1.1	*	*	661	859

Table 6: Summary of Discharges (cont.)

Flooding Source And Location	Drainage Area (Square Miles)	Peak Discharge (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Fountain Creek[3]					
At confluence with Pleasant Run Creek	1.04	560	830	970	1,180
Graham Ditch[10]					
At Mouth	1.4	*	*	575	745
Grassy Creek[10]					
At Mouth	15.3	*	*	5,489	7,164
Including East Grassy Creek	12.7	*	*	5,303	6,834
At 500N Road	9.0	*	*	3,693	4,678
At 800N Road	8.1	*	*	3,463	4,345
Including Tracy Ditch	6.5	*	*	3,193	3,973
At U.S. Route 31	4.8	*	*	2,092	2,557
Below Conrail Railroad	3.5	*	*	1,227	1,350
Above Conrail Railroad	3.3	*	*	1,170	1,258
Below Granada Drive	2.5	*	*	1,425	1,853
At Fiesta Drive	1.4	*	*	813	1,058
Honey Creek[7]					
At confluence with West Fork White River	18.8	3,500	5,000	5,900	7,100
Just upstream of Messersmith Creek	15.0	3,000	4,350	5,100	6,200
Just upstream of Turkey Pen Creek	9.3	2,100	3,050	3,550	4,200
At State Route 135 Bridge	3.0	740	1,150	1,300	1,400
Hurricane Creek[11]					
At confluence with Youngs Creek	16.2	*	*	3,658	5,037
Just downstream of Eastview Drive	15.5	*	*	3,632	4,999
Just upstream of Eastview Drive	15.1	*	*	3,570	4,906
Just downstream of 400N Road	14.8	*	*	3,396	4,649
At 200E Road	13.1	*	*	3,396	4,649

Table 6: Summary of Discharges (cont.)

Flooding Source And Location	Drainage Area (Square Miles)	Peak Discharge (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Hurricane Creek (Continued)					
At 200E Road	11.4	*	*	3,252	4,437
At Interstate 65	9.6	*	*	3,019	4,096
At Whiteland Drive	7.5	*	*	2,754	3,709
Just Downstream of 575E Road	5.6	*	*	2,362	3,144
At North Hurricane Road	5.0	*	*	2,155	2,849
At 700E Road	3.7	*	*	1,950	2,557
At Billingsly Road	2.5	*	*	1,654	2,142
End of Study	1.1	*	*	1,355	1,727
Messersmith Creek[7]					
At confluence with Honey Creek	2.93	1,080	1,580	1,810	2,220
Pleasant Creek					
At Mouth	3.5	930	1,380	1,550	1,850
At Meridian Street	3.1	860	1,270	1,430	1,700
At Broadway Street	2.4	720	1,060	1,200	1,550
Above Pleasant Creek South Branch	1.6	540	800	900	1,200
Pleasant Creek South Branch[3]					
At Mouth	0.58	120	174	199	246
Pleasant Run Creek					
At Mouth	24.1	4100	5900	6800	9700
Above UNT Pleasant Run Creek	21.5	3800	5500	6400	9100
At County Line Road	20.6	3700	5300	6200	8800
Above Buffalo Creek	16.2	3200	4600	5300	7600
Above Fairview Creek	14.3	2900	4200	4900	7000
Above Fountain Creek	11.4	2600	3700	4300	6200
Above Briar Patch Lane	10.5	2400	3500	4100	5800
Above Pleasant Creek	6.1	1700	2500	2900	4200

Table 6: Summary of Discharges (cont.)

Flooding Source And Location	Drainage Area (Square Miles)	Peak Discharge (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pleasant Run Creek (Continued)					
Above Jolly Branch	5.5	1600	2300	2700	3900
Above County Line Road	5.1	1550	2200	2600	3800
Sugar Creek[1 7]					
At confluence with Driftwood River	474	18,000	26,200	30,000	39,300
At U.S. Route 31	350	15,700	22,900	26,100	34,100
Tracy Ditch[10]					
At Mouth	1.7	*	*	1,286	1,640
Below 800N Road	1.2	*	*	920	1,200
Above 800N Road	1.0	*	*	800	1,040
Turkey Pen Creek[7]					
At confluence with Honey Creek	4.48	1,400	2,050	2,400	2,900
Just upstream of Auburn Branch	3.20	1,140	1,670	1,940	2,350
West Fork White River[7]					
At Morgan-Johnson County Boundary	2,002	39,000	55,500	63,500	81,500
Youngs Creek					
End of Study	75.6	*	*	12,265	15,945
Including Hurricane Creek	75.6	*	*	12,245	15,919
At East Pedestrian Bridge	58.8	*	*	11,483	14,928
Including Ray Creek	53.7	*	*	11,214	14,578
Including Canary Ditch	44.4	*	*	10,675	13,878
Including Brewer Ditch	35.8	*	*	10,090	13,117
Including Moores Creek	29.7	*	*	9,611	12,494
Including Grassy Creek	23.8	*	*	9,074	11,796

* Data not available

Pre-Countywide Analyses:

The hydrologic analysis for East Grassy Creek, Graham Ditch, Grassy Creek, Hurricane Creek, Tracy Ditch and Youngs Creek was completed and approved in 1995. The US Army Corps of Engineers HEC-1 program was used to complete the hydrologic analysis for the project. HEC-1 was used to compute flood flows for the 100- and 500-year frequency storm events. Flows were coordinated with and approved by IDNR, Division of Water (References 10 and 11).

For the Big Blue River, the log-Pearson Type III distribution was used to determine discharges based on the Indiana Department of Natural Resources gaging station, Big Blue River at Shelbyville (Reference 1).

To define the discharge-frequency data for Brewer Creek, the SCS computer program TR-20 method was used. This method considers parameters such as total rainfall, runoff curves, times of concentration, drainage areas, and reach lengths. The results obtained were compared with nearby gaging stations and Minster's Regression. These computations verified the results determined by the use of the TR-20 program (References 4 and 6).

A combination of methods was used to correlate discharge-frequency data for Canary Ditch. The methods used were a regional relationship of basin characteristics to streamflow characteristics; regional relationships of stream flow, drainage area, and percentage of urbanization; and regional relationships of peak discharge and drainage area for nearby gaging stations having similar hydrologic settings. However, the actual discharges used for this study were determined by the second method described which was developed by the U.S. Soil Conservation Service. (Reference 2)

Since the drainage area for the East Side Swale was less than six square miles, the rational method was used for developing the discharge frequency relationship and these peak discharges were coordinated with and adjusted by IDNR, Division of Water (Reference 1).

A combination of methods was used to correlate discharge-frequency data for Fountain Creek, Pleasant Creek, Pleasant Creek South Branch and the portion of Pleasant Run Creek upstream of the City of Greenwood corporate limits. The methods used were a regional relationship of basin characteristics to streamflow characteristics; regional relationships of streamflow, drainage area, and percentage of urbanization; and regional relationships of peak discharge and drainage area for nearby gaging stations having similar hydrologic settings (Reference 3).

Final discharge values for Honey Creek, Messersmith Creek, Turkey Pen Creek, Auburn Branch, and the portion of the Pleasant Run Creek downstream of the City of Greenwood corporate limits were based on a regional study of all gages in the surrounding area. That study provided discharge versus drainage area relationships for drainage basins with similar hydrologic characteristics using guidelines outlined

in Bulletin No. 17B. Determination of the final discharge versus drainage area relationships considered omitting low and high outliers, weighting with the generalized skew, and historically adjusting outliers where possible (Reference 7).

The State Route 135 Bridge on Honey Creek had a constrictive opening and high roadway. The structure had the effect of inducing ponding on the upstream side and reducing discharges downstream of the structure. The effect of the structure was determined using the HEC-1 flood hydrograph model. The input data included discharge hydrographs, the physical properties of the bridge, and the ponding capacity upstream. The output data consisted primarily of discharges that had been reduced by those routings (Reference 7).

For the portion of Sugar Creek from its mouth to just upstream of 650 South Road, the log-Pearson Type III distribution was used to determine discharge values. For the portion of Sugar Creek upstream of 650 South Road, discharge values were based on an analysis of the Edinburgh gage (References 1 and 7).

For the West Fork White River, final discharges were based on analyses of nine gages along the entire length of the river (Reference 7).

Lake elevations were determined using the Soil Conservation Service (SCS) computer program TR-20. This program develops runoff volume for given rainfalls and determines elevation considering the storage-elevation-discharge relationship for each lake. The 10-, 50-, 100-, and 500-year floods were considered to be caused by the 24-hour rainfall with the same return period. The elevation frequency curve for stormwater levels is presented in Table 7 below. (Reference 5)

Table 7: Summary of Lake Elevations

	Elevations (NAVD) Feet			
Location	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
East Lake	775.9	776.5	776.9	778.0
North Lake	808.0	809.0	809.4	810.8
White Lake	864.8	865.4	8656	866.2
Hants Lake	781.8	782.1	782.2	782.5

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristic of flooding from the sources 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 Flood Insurance Rate Map (FIRM) represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data table in the FIS report. Flood elevations shown on the FIRM are primarily intended for flood

insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS report in conjunction with the data shown on the FIRM.

Revised Countywide Analyses:

Canary Ditch was modeled using USACE HEC-RAS program version 3.1.3. The starting water surface elevation was calculated using the Normal Depth Method utilizing Johnson County 2 foot mapping.

Flood profiles were prepared for all streams studied by detailed methods and show computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals. For this countywide FIS, flood profiles from the previously effective FIS reports and approved LOMRs have been consolidated into continuous stream reaches and adjusted to reflect the current vertical datum as described in Section 3.3. New profiles have been prepared for the new detailed studies and for the purposes of incorporating the Letters of Map Revisions (LOMRs) described in Section 2.1 above.

Cross section data for the new detailed studies was extracted from two-foot LiDAR mapping developed in 2011 by the Indiana Office of Information Technology and augmented with structure information based on available field survey data, bridge plans, and/or previous flood models.

Initial Countywide Analyses:

Water-surface elevations for floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program. For the new detailed studies on East Grassy Creek, Graham Ditch, Grassy Creek, Hurricane Creek, Tracy Ditch and Youngs Creek and other new approximate study reaches, the USACE HEC-RAS program (References 8 and 9) was used. HEC-RAS is an updated version of the HEC-2 program used to perform step-backwater analyses (Reference 12).

Cross section data used in the HEC-2 models of detailed streams in Johnson County was obtained from a variety of sources including: physical survey data, USGS topographic mapping, and local topographic mapping and aerial photography produced for Johnson County (Reference 12).

Cross section data for the new detailed studies of the initial countywide FIS were extracted from two-foot contour interval mapping developed in 1996 by Johnson County and augmented with structure information based on available field survey data, bridge plans, and/or previous flood models (Reference 12).

For new approximate study areas, analyses were based on field inspection and modeling of the stream reaches using simplified HEC-RAS models. Structure

measurements or field surveying was not performed. Cross section geometry was derived from topographic mapping provided by Johnson County with a maximum spacing of 1000 feet. Average Manning's "n" roughness values were determined by field inspection and assumed to be uniform throughout the cross section geometry. Starting water surface elevations were assumed to be normal depth (Reference 12).

Pre-Countywide Analyses:

Starting water surface elevations for East Grassy Creek, Graham Ditch, Grassy Creek, Hurricane Creek, Tracy Ditch and Youngs Creek were based upon normal depth. The only exception to this was the Grassy Creek model that simulated the conditions upstream of the storage floodway between the CRR and Granada Drive. For this model, the known storage elevation was used as the starting water-surface elevation (References 10 and 11).

Starting water surface elevations for Driftwood River, Sugar River, Big Blue River, East Side Swale, Fountain Creek, Pleasant Creek, Pleasant Creek South Branch, were determined by the slope-area method (References 1 and 3).

Channel and overbank roughness factors (Manning's "n" values) used in hydraulic computations were chosen by engineering judgment and were based on field observations of the stream and floodplain areas. In addition, 1964 flood high-water marks were reproduced in order to verify the roughness values for West Fork White River, while 1969 flood high-water marks were used for Pleasant Run Creek and 1956 flood high water marks used for Sugar Creek (Reference 7). Channel and overbank roughness factors used in the detailed studies are summarized by stream in Table 8. Source citations refer to the source of the detailed study.

Table 8: Channel and Overbank Roughness Factors

	Roughness Coefficients	
Stream	Main Channel	Overbanks
Auburn Branch[7]	0.050	0.060
Big Blue River[1]	0.045	0.070
Brewer Ditch[6]	0.030 – 0.060	0.035 – 0.100
Buffalo Creek	0.030 – 0.070	0.040 - 0.080
Canary Ditch	0.035 - 0.060	0.040 – 0.200
East Grassy Creek[10]	0.050	0.060 – 0.080
East Side Swale[1]	0.070	0.070 – 0.150
Fountain Creek[3]	0.025 – 0.080	0.025 – 0.220
Graham Ditch[10]	0.045	0.070
Grassy Creek[10]	0.020 – 0.055	0.080 – 0.100
Honey Creek[7]	0.050	0.060
Hurricane Creek[11]	0.033 – 0.062	0.040 – 0.070

Table 8: Channel and Overbank Roughness Factors (Continued)

Stream	Roughness Coefficients Main Channel	Overbanks
Messersmith Creek[7]	0.045 – 0.050	0.045 – 0.070
Pleasant Creek	0.040 – 0.150	0.050 – 0.100
Pleasant Creek South Branch[3]	0.025 – 0.080	0.025 – 0.220
Pleasant Run Creek	0.035 – 0.065	0.016 – 0.150
Sugar Creek[1 7]	0.030 – 0.050	0.065 – 0.090
Tracy Ditch[10]	0.045 – 0.052	0.060 – 0.070
Turkey Pen Creek[7]	0.050	0.060
West Fork White River[7]	0.035 – 0.060	0.050 – 0.100
Youngs Creek [10]	0.045 – 0.050	0.060 – 0.100

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the finalization of the North American Vertical Datum of 1988 (NAVD88), many FIS reports and FIRMs are being prepared using NAVD88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NAVD88. Structure and ground elevations in the community must, therefore, be referenced to NAVD88. It is important to note that adjacent communities may be referenced to NGVD29. This may result in differences in Base Flood Elevations (BFEs) across the corporate limits between the communities.

Effective information for the initial countywide FIS report was converted from NGVD29 to NAVD88 based on data presented in Figure 1 and Table 9. An average conversion of -0.402 feet was applied uniformly across the county to convert all effective BFEs and other profile elevations (Reference 12).

For more information on NAVD88, see the FEMA publication entitled Converting the National Flood Insurance Program to the North American Vertical Datum of 1988 (FEMA, June 1992) or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910.

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support

Data Notebook associated with the FIS report and FIRM for this community. Interested individuals may contact FEMA to access these data.

Figure 1: Vertical Datum Conversion

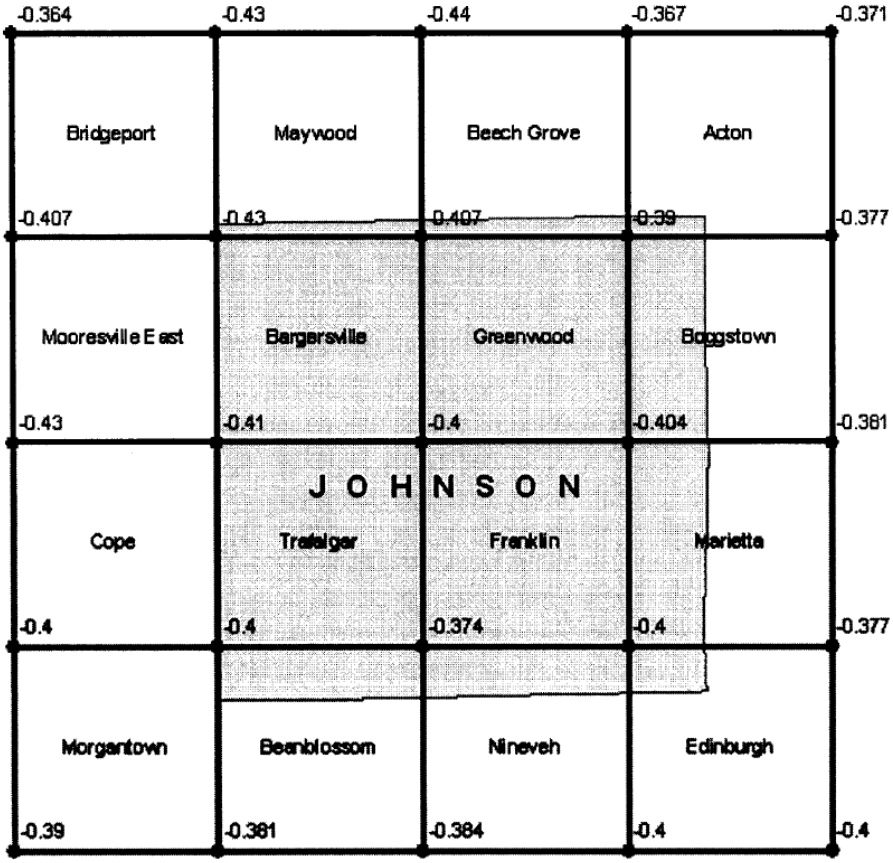


Table 9: Vertical Datum Conversion

Quadrangle Name	NAD 27 Longitude (dec. deg.)	NAD 27 Latitude (dec. deg.)	NGVD 29' to NAVD 88' Elevation Change (feet)
Maywood	86.125	39.625	-0.407
Beech Grove	86.000	39.625	-0.390
Moorseville East	86.250	39.500	-0.410
Greenwood	86.000	39.500	-0.404
Greenwood	86.125	39.500	-0.400
Cope	86.250	39.375	-0.400
Trafalgar	86.125	39.375	-0.374
Franklin	86.000	39.375	-0.400
Bridgeport	86.250	39.625	-0.430
		Min	-0.374
		Max	-0.430
		Average	-0.402
		Maximum Offset	0.028

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

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

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the community. For each stream studied by detailed methods, the 1- and 0.2-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic mapping provided by Johnson County. Topographic mapping was provided digitally as an AutoCAD drawing file, has a 2-foot contour interval and was derived from an aerial survey performed in 1996.

The floodplain boundaries for Buffalo Creek, Canary Ditch, Pleasant Creek, and Pleasant Run Creek were delineated using the 2010 Johnson County LiDAR.

The floodplain boundary just south of East Side Swale was extrapolated from the last computed water-surface elevation for East Side Swale and was delineated using topographic maps photo-enlarged to a scale of 1:2,000, with a 10-foot contour interval (Reference 1).

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

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

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The State of Indiana, however, as set down by the Indiana Flood Control Act of 1945 and the Natural Resources Commission Policy Guidelines, Section 6, adopted March 28, 1974, has designated that encroachment in the floodplain is limited to that which will cause no significant increase in flood height. As a result, no more than a 0.1-foot surcharge has been delineated for this study. The floodways shown in this report were approved by the Indiana State Natural Resources Commission when then review process was completed. (Reference 7). The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies. The floodways presented in this FIS report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the

floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations have been tabulated for selected cross sections in Table 10. In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown.

A floodway for East Side Swale was not delineated upstream of Main Cross Street due to the extent of development in the area (Reference 1).

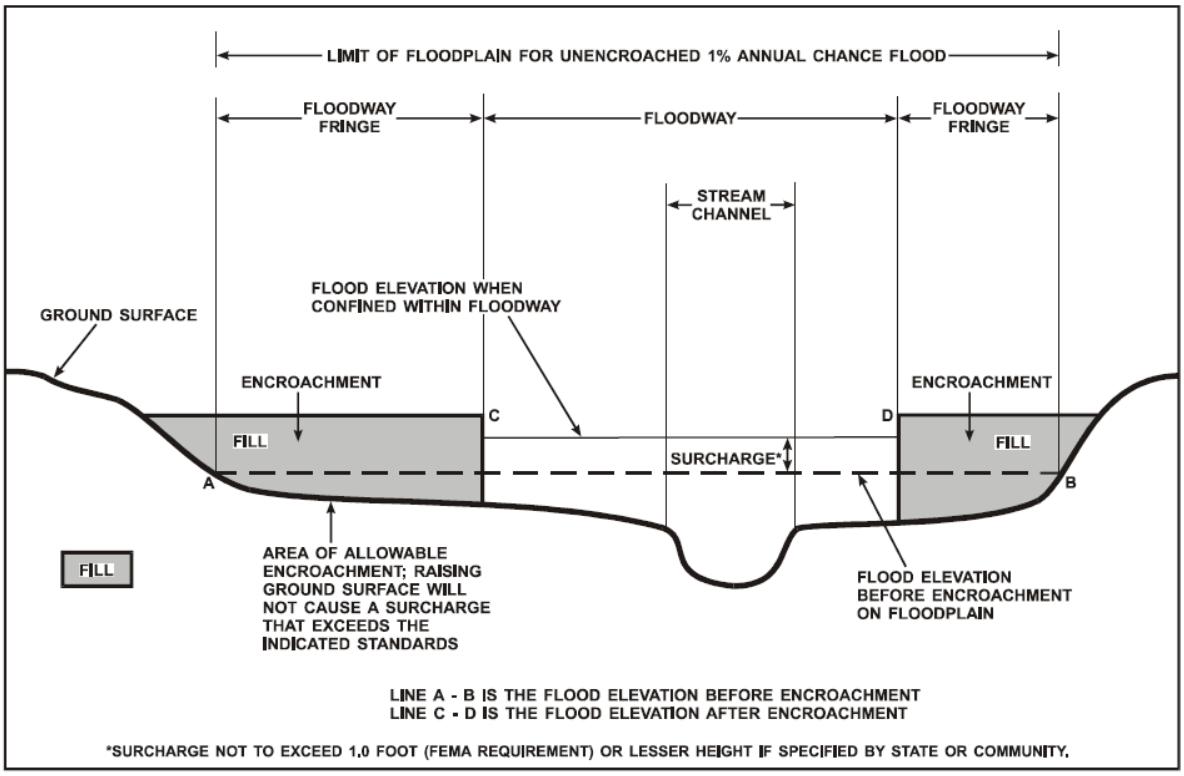
The floodways for Towns of Whiteland and New Whiteland were computed as all areas covered by water with significant downstream motion. A second step, however, involved the delineation of Administrative Floodways as established under IDNR criteria. Briefly, the Indiana Natural Resources Commission (INRC), acting through the IDNR, stipulates that any levee, bridge, road or railroad track embankment or structure that significantly penetrates into the 100-year flood boundary is to be included in the floodway. This allows the INRC to maintain control and authority over land areas that would normally fall within the floodway if they had not been built. Also, the maintenance of these types of structures is facilitated by keeping them under INRC jurisdiction. A computer check, using the HEC-2 program was used to verify the maximum surcharge requirements (References 4 and 6).

As part of the conversion of the 2007 FIS to the countywide format, floodway widths for all previously effective detailed studies were digitized from the previously effective FIRM and transferred onto the updated base mapping. As a result of differences between the original and updated basemapping, floodway widths in some areas may extend beyond the limits of the redelineated floodplain boundary.

For new detailed studies, HEC-RAS was used to determine the left and right encroachment stations of the floodway. The updated basemapping was incorporated into the HEC-RAS models. Consequently, the floodway boundaries for streams with new detailed studies (refer to Section 1.2) do not extend beyond the limits of the floodplain.

The area between the floodway and 1-percent-annual-chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent-annual-chance flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

Figure 2: Floodway Schematic



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
AUBURN BRANCH								
A	90 [1]	200	483	2.7	717.6	716.9 [3]	717.0	0.1
B	520 [1]	182	286	4.6	718.4	718.4	718.5	0.1
C	760 [1]	105	290	4.5	720.2	720.2	720.3	0.1
D	1,030 [1]	116	387	3.4	721.4	721.4	721.5	0.1
E	1,550 [1]	81	222	5.9	723.6	723.6	723.7	0.1
F	2,125 [1]	43	181	7.2	727.3	727.3	727.4	0.1
G	2,452 [1]	81	290	4.5	729.7	729.7	729.8	0.1
BIG BLUE RIVER								
A	0.48 [2]	2,030	3,769	6.3	660.9	660.9	661.0	0.1
B	0.49 [2]	2,000	3,732	6.4	661.0	661.0	661.1	0.1
C	0.85 [2]	2,250	4,995	4.8	663.4	663.4	663.5	0.1
D	0.89 [2]	2,120	11,250	2.1	663.8	663.8	663.9	0.1
E	1.04 [2]	2,136	14,965	1.6	664.9	664.9	665.0	0.1
F	1.42 [2]	2,670	42,890	0.5	665.5	665.5	665.6	0.1
G	1.65 [2]	3,500	23,580	1.0	666.2	666.2	666.3	0.1
H	2.03 [2]	2,853	19,578	1.2	667.4	667.4	667.5	0.1
I	2.32 [2]	3,099	17,603	1.4	667.7	667.7	667.8	0.1
J	2.62 [2]	3,091	16,420	1.5	668.3	668.3	668.4	0.1
K	2.84 [2]	2,473	11,112	2.2	669.0	669.0	669.1	0.1

[1] DISTANCE IN FEET ABOVE MOUTH
[2] DISTANCE IN MILES ABOVE MOUTH
[3] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM TURKEY PEN CREEK

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN
AND INCORPORATED AREAS

FLOODWAY DATA

AUBURN BRANCH - BIG BLUE RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
BREWER DITCH								
A	556	550	1,281	1.6	749.7	747.7[2]	747.8	0.1
B	1,689	330	1,017	2.0	749.7	749.4[2]	749.5	0.1
C	2,558	258	851	2.4	751.1	751.1	751.1	0.0
D	2,877	310	1,039	2.0	751.5	751.5	751.6	0.1
E	3,082	274	1,093	1.9	751.8	751.8	751.9	0.1
F	8,871	253	954	2.2	752.4	752.4	752.4	0.0
G	3,688	211	547	3.8	752.8	752.8	752.8	0.0
H	3,945	205	625	3.3	754.5	754.5	754.5	0.0
I	5,177	374	1,204	1.7	756.0	756.0	756.0	0.0
J	5,876	437	1,260	1.6	756.7	756.7	756.7	0.0
K	6,153	296	778	2.7	757.5	757.5	757.5	0.0
L	7,568	209	654	2.6	760.1	760.1	760.2	0.1
M	7,788	262	726	2.4	760.6	760.6	760.6	0.0
N	8,411	242	593	2.9	761.6	761.6	761.6	0.0
O	8,892	219	737	2.3	763.2	763.2	763.2	0.0
P	9,181	221	780	2.2	764.0	764.0	764.0	0.0
Q	10,668	333	940	1.8	766.4	766.4	766.5	0.1
R	11,704	218	632	2.7	768.5	768.5	768.5	0.0
S	12,175	237	877	2.0	769.4	769.4	769.4	0.0
T	12,629	213	735	2.3	769.9	769.9	769.9	0.0
U	13,108	163	553	3.1	770.8	770.8	770.8	0.0
V	13,622	194	723	2.4	772.1	772.1	772.1	0.0
W	14,116	228	827	2.1	772.7	772.7	772.7	0.0
X	14,791	263	771	2.2	773.4	773.4	773.4	0.0
Y	15,319	208	585	2.9	774.3	774.3	774.3	0.0
Z	15,653	205	544	3.2	775.1	775.1	775.1	0.0
AA	16,090	210	651	2.6	776.0	776.0	776.0	0.0
AB	16,358	189	565	3.0	776.5	776.5	776.5	0.0
AC	16,584	165	512	3.4	776.9	776.9	776.9	0.0

[1] DISTANCE IN FEET ABOVE MOUTH
[2] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM YOUNGS CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
BREWER DITCH (CONTINUED)								
AD	17,525 [1]	175	602	2.9	778.6	778.6	778.7	0.1
AE	18,328 [1]	280	784	2.2	779.9	779.9	780.0	0.1
AF	18,797 [1]	200	560	3.1	780.8	780.8	780.9	0.1
AG	19,235 [1]	155	508	3.4	782.1	782.1	782.1	0.0
AH	19,917 [1]	265	856	2.0	783.8	783.8	783.8	0.0
AI	20,294 [1]	269	826	2.1	784.1	784.1	784.2	0.1
AJ	20,722 [1]	272	721	1.3	784.5	784.5	784.5	0.0
AK	21,609 [1]	224	681	1.3	786.6	786.6	786.6	0.0
AL	22,065 [1]	185	451	2.0	786.8	786.8	786.8	0.0
AM	22,338 [1]	118	346	2.6	787.0	787.0	787.1	0.1
AN	22,567 [1]	83	241	3.8	787.4	787.4	787.4	0.0
AO	23,430 [1]	200	361	1.9	790.4	790.4	790.5	0.1
AP	23,957 [1]	180	211	3.3	791.2	791.2	791.2	0.0
AQ	24,685 [1]	250	405	1.7	793.4	793.4	793.5	0.1
AR	25,014 [1]	225	503	1.4	793.8	793.8	793.9	0.1
AS	25,506 [1]	370	332	2.1	794.4	794.4	794.4	0.0
AT	25,767 [1]	329	399	2.9	795.1	795.1	795.2	0.1
AU	26,203 [1]	500	3,894	0.2	802.7	802.7	802.7	0.0
AV	26,766 [1]	540	3,480	0.2	802.7	802.7	802.7	0.0
BUFFALO CREEK								
A	402 [2]	239	1,631	1.4	689.9	689.9	689.9	0.0
B	1,475 [2]	165	874	2.6	693.4	693.4	693.5	0.1
C	1,975 [2]	220	772	3.0	693.9	693.9	694.0	0.1
D	2,395 [2]	220	637	3.6	684.9	694.9	695.0	0.1
E	3,075 [2]	219	511	4.5	697.5	697.5	697.5	0.0

[1] DISTANCE IN FEET ABOVE MOUTH
[2] DISTANCE IN FEET ABOVE CONFLUENCE WITH PLEASANT RUN CREEK

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN AND INCORPORATED AREAS

FLOODWAY DATA

BREWER DITCH - BUFFALO CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
CANARY DITCH								
A	1,520	245	1,110	2.5	743.1	739.8 [2]	739.8	0.0
B	2,520	176	848	3.3	743.1	741.2 [2]	741.3	0.1
C	3,620	526	2,489	1.3	743.1	741.8 [2]	741.9	0.1
D	4,275	582	2,318	1.3	743.1	743.0 [2]	743.1	0.1
E	6,275	280	828	3.4	743.7	743.7	743.8	0.1
F	6,965	268	962	2.7	747.9	747.9	747.9	0.0
G	7,865	424	1,908	1.4	748.3	748.3	748.4	0.1
H	8,915	369	2,536	0.9	752.0	752.0	752.1	0.1
I	9,815	450	2,260	1.1	752.2	752.2	752.3	0.1
J	11,315	680	2,082	1.2	752.6	752.6	752.7	0.1
K	12,190	343	1,260	1.8	753.6	753.6	753.7	0.1
L	13,170	529	1,982	1.1	755.4	755.4	755.5	0.1
M	15,270	405	786	2.3	757.6	757.6	757.7	0.1
N	15,870	221	444	4.0	758.8	758.8	758.9	0.1
O	16,470	125	390	4.6	760.4	760.4	760.5	0.1
P	17,170	121	365	3.2	761.7	761.7	761.8	0.1
Q	17,760	298	1,268	0.9	766.0	766.0	766.1	0.1
R	18,360	263	841	1.4	766.1	766.1	766.2	0.1
S	19,060	299	598	1.9	766.5	766.5	766.6	0.1

[1] DISTANCE IN FEET ABOVE MOUTH
[2] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM YOUNGS DITCH

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN AND INCORPORATED AREAS

FLOODWAY DATA

CANARY DITCH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
EAST GRASSY CREEK								
A	966	205	663	2.5	780.8	780.8	780.9	0.1
B	1,270	245	1,240	1.4	785.1	785.1	785.1	0.0
C	2,829	275	1,096	1.5	786.1	786.1	786.2	0.1
D	3,159	266	765	2.2	786.3	786.3	786.4	0.1
E	3,439	119	435	3.9	786.8	786.8	786.9	0.1
F	3,668	93	453	4.2	788.6	788.6	788.7	0.1
G	4,625	175	642	2.6	792.6	792.6	792.6	0.0
H	5,560	116	442	3.8	794.4	794.4	794.4	0.0
I	6,135	200	709	2.4	795.7	795.7	795.7	0.0
J	7,772	35	751	6.2	800.1	800.1	800.1	0.0
K	10,514	470	3,498	0.4	810.2	810.2	810.3	0.1
L	11,498	495	2,913	0.4	810.2	810.2	810.3	0.1
M	13,679	405	1,657	0.8	810.4	810.4	810.4	0.0
N	16,347	240	644	2.0	813.0	813.0	813.0	0.0
O	18,413	390	1,040	1.2	815.0	815.0	815.1	0.1
P	20,188	220	447	2.9	817.8	817.8	817.8	0.0
Q	21,958	260	547	1.2	820.3	820.3	820.4	0.1

[1] DISTANCE IN FEET ABOVE MOUTH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
EAST SIDE SWALE								
B	800 [1]	177	342	1.4	667.5	667.5	667.6	0.1
C	1,420 [1]	253	672	0.6	668.2	668.2	668.3	0.1
D	1,810 [1]	152	213	1.9	668.6	668.6	668.7	0.1
E	2,474 [1]	10	419	0.9	669.4	669.4	669.5	0.1
F	3,004 [1]	200	510	0.7	669.5	669.5	669.6	0.1
G	3,844 [1]	405	1,209	0.3	669.6	669.6	669.7	0.1
H	4,659 [1]	653	1,000	0.4	669.7	669.7	669.8	0.1
I	5,281 [1]	*	*	*	669.8	669.8	*	*
J	6,001 [1]	*	*	*	670.2	670.2	*	*
K	6,231 [1]	*	*	*	670.3	670.3	*	*
FOUNTAIN CREEK								
A	0.140 [2]	155	273	3.6	742.2	742.2	742.2	0.0
B	0.380 [2]	135	292	3.3	744.3	744.3	744.3	0.0
GRAHAM DITCH								
A	451 [3]	40	159	3.6	761.4	761.0 [4]	761.1	0.1
B	723 [3]	33	108	5.3	761.8	761.8	761.8	0.0
C	1,162 [3]	79	339	2.1	765.6	765.6	765.6	0.0
D	1,665 [3]	50	198	2.9	766.0	766.0	766.0	0.0
E	2,001 [3]	38	184	3.1	766.3	766.3	766.3	0.0
F	2,296 [3]	34	142	4.1	766.7	766.7	766.7	0.0
G	2,630 [3]	27	115	5.0	767.8	767.8	767.8	0.0

[1] DISTANCE IN FEET ABOVE JOHNSON/ BARTHOLOMEW COUNTY BOUNDARY

* DATA NOT AVAILABLE

[2] DISTANCE IN MILES ABOVE MOUTH

[3] DISTANCE IN FEET ABOVE MOUTH

[4] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM CANARY DITCH

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN
AND INCORPORATED AREAS

FLOODWAY DATA

EAST SIDE SWALE - FOUNTAIN CREEK - GRAHAM DITCH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
GRASSY CREEK								
A	312	320	1,998	2.8	766.8	765.4 [2]	765.5	0.1
B	2,841	415	2,482	2.2	767.7	767.7	767.8	0.1
C	5,227	510	2,797	2.0	770.3	770.3	770.4	0.1
D	7,651	540	2,572	2.1	772.3	772.3	772.4	0.1
E	10,745	770	3,069	1.7	775.2	775.2	775.3	0.1
F	13,232	730	3,082	1.7	777.6	777.6	777.7	0.1
G	15,840	660	3,654	1.0	781.7	781.7	781.7	0.0
H	18,158	595	2,102	1.8	782.7	782.7	782.8	0.1
I	21,072	655	2,702	1.3	786.0	786.0	786.1	0.1
J	24,119	845	2,222	1.6	787.9	787.9	788.0	0.1
K	26,300	435	963	2.2	790.2	790.2	790.3	0.1
L	28,855	185	616	3.4	796.1	796.1	796.1	0.0
M	31,342	230	878	1.4	800.7	800.7	800.8	0.1
N	33,380	89	492	5.6	806.5	806.5	806.5	0.0
O	36,395	340	449	3.2	807.1	807.1	807.1	0.0
P	36,939	320	1,130	1.3	808.8	808.8	808.9	0.1
Q	39,653	103	321	2.5	813.7	813.7	813.7	0.0
R	42,203	147	244	3.3	820.0	820.0	820.0	0.0
S	42,858	82	288	2.8	821.8	821.8	821.9	0.1

[1] DISTANCE IN FEET ABOVE MOUTH

[2] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM YOUNGS CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
HONEY CREEK								
A	1.240	900	2,088	2.8	659.9	659.9	660.0	0.1
B	1.526	668	2,651	1.9	663.8	663.8	663.9	0.1
C	1.775	790	1,683	3.0	665.4	665.4	665.5	0.1
D	1.842	694	1,952	2.6	666.9	666.9	667.0	0.1
E	2.011	552	1,765	2.9	668.3	668.3	668.4	0.1
F	2.164	380	811	6.3.	670.6	670.6	670.7	0.1
G	2.230	450	1,094	4.7	672.5	672.5	672.6	0.1
H	2.479	447	1,565	3.3	676.0	676.0	676.1	0.1
I	2.631	580	1,678	3.0	677.8	677.8	677.9	0.1
J	2.933	445	1,452	2.4	680.3	680.3	680.4	0.1
K	3.103	203	807	4.4	681.5	681.5	681.6	0.1
L	3.130	147	689	5.2	681.9	681.9	682.0	0.1
M	3.194	300	760	4.7	683.6	683.6	683.7	0.1
N	3.328	327	981	3.6	685.2	685.2	685.3	0.1
O	3.351	394	1,213	2.9	685.7	685.7	685.8	0.1
P	3.535	330	856	4.1	688.0	688.0	688.1	0.1
Q	3.655	330	656	5.4	690.4	690.4	690.4	0.0
R	3.871	380	783	4.5	696.0	696.0	696.0	0.0
S	4.323	387	720	4.4	701.9	701.9	701.9	0.0
T	4.515	300	743	4.3	704.9	704.9	705.0	0.1
U	4.599	240	823	3.3	707.4	707.4	707.5	0.1
V	4.879	291	727	3.7	710.7	710.7	710.8	0.1
W	5.030	250	710	3.8	713.4	713.4	713.5	0.1
X	5.086	142	607	4.4	714.4	714.4	714.4	0.0
Y	5.130	229	976	2.8	716.0	716.0	716.1	0.1
Z	5.283	360	562	4.8	717.7	717.7	717.8	0.1
AA	5.314	320	591	4.6	719.1	719.1	719.2	0.1
AB	5.480	227	852	3.2	721.1	721.1	721.2	0.1
AC	5.683	124	536	4.3	723.0	723.0	723.1	0.1

[1] DISTANCE IN MILES ABOVE MOUTH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
HONEY CREEK (CONTINUED)								
AD	5.843	111	351	5.3	725.8	725.8	725.9	0.1
AE	5.880	95	576	3.2	728.1	728.1	728.1	0.0
AF	5.956	79	365	5.1	728.6	728.6	728.6	0.0
AG	6.107	54	283	6.5	731.7	731.7	731.8	0.1
AH	6.225	92	359	5.2	735.3	735.3	735.4	0.1
AI	6.394	159	520	3.6	738.8	738.8	738.9	0.1
AJ	6.570	112	410	4.5	742.7	742.7	742.8	0.1
AK	6.619	128	528	3.5	743.7	743.7	743.8	0.1
AL	6.860	177	323	4.6	747.7	747.7	747.7	0.0
AM	6.994	120	445	3.4	752.1	752.1	752.2	0.1
AN	7.201	110	377	4.0	754.3	754.3	754.4	0.1
AO	7.269	168	640	2.0	758.2	758.2	758.2	0.0
AP	7.283	177	579	2.2	758.4	758.4	758.4	0.0
AQ	7.483	206	827	1.6	759.2	759.2	759.2	0.0
AR	7.500	207	841	1.5	759.3	759.3	759.3	0.0
AS	7.580	95	253	6.8	759.3	759.3	759.3	0.0
AT	7.597	99	328	5.2	760.6	760.6	760.6	0.0
AU	7.758	119	329	5.2	765.8	765.8	765.9	0.1
AV	7.775	92	400	4.3	766.8	766.8	766.8	0.0
AW	7.800	96	366	4.7	767.2	767.2	767.2	0.1
AX	7.817	121	464	3.7	767.7	767.7	767.7	0.0
AY	7.925	161	531	3.0	768.8	768.8	768.9	0.1
AZ	7.942	170	586	2.7	769.1	769.1	769.2	0.1
BA	8.005	186	604	2.7	769.6	769.6	769.7	0.1
BB	8.117	238	804	2.0	770.4	770.4	770.5	0.1
BC	8.180	155	471	3.4	770.9	770.9	771.0	0.1
BD	8.197	207	621	2.6	771.4	771.4	771.5	0.1
BE	8.302	274	719	2.0	772.2	772.2	772.3	0.1
BF	8.470	179	466	3.1	773.7	773.7	773.8	0.1

[1] DISTANCE IN MILES ABOVE MOUTH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
HURRICANE CREEK								
A	507	233	722	5.1	720.9	716.0 [2]	716.1	0.1
B	940	76	650	5.6	724.9	724.9	724.9	0.0
C	1,272	395	2,487	1.5	726.0	726.0	726.0	0.0
D	1,658	590	3,277	1.1	726.1	726.1	726.1	0.0
E	2,012	440	3,659	1.0	726.1	726.1	726.2	0.1
F	2,334	430	3,178	1.2	726.2	726.2	726.3	0.1
G	2,651	430	3,652	1.0	726.2	726.2	726.3	0.1
H	2,909	400	3,494	1.1	726.2	726.2	726.3	0.1
I	3,221	380	2,833	1.3	726.2	726.2	726.3	0.1
J	3,648	360	2,678	1.4	726.2	726.2	726.3	0.1
K	4,066	390	1,990	1.8	726.2	726.2	726.3	0.1
L	4,287	399	2,079	1.8	726.4	726.4	726.4	0.0
M	4,625	460	1,731	2.1	726.5	726.5	726.6	0.1
N	4,990	450	2,295	1.6	726.8	726.8	726.9	0.1
O	5,349	430	1,502	2.4	727.0	727.0	727.0	0.0
P	5,903	440	1,724	2.1	727.6	727.6	727.7	0.1
Q	6,294	380	1,481	2.5	728.0	728.0	728.0	0.0
R	6,864	500	1,515	2.4	729.1	729.1	729.1	0.0
S	7,503	569	2,105	1.7	730.1	730.1	730.1	0.0
T	8,026	888	2,721	1.3	730.3	730.3	730.4	0.1
U	8,459	1,176	3,846	0.9	730.5	730.5	730.5	0.0
V	9,092	889	3,050	1.1	730.7	730.7	730.7	0.0
W	9,425	801	3,035	1.1	730.8	730.8	730.8	0.0
X	10,069	669	1,315	1.1	731.0	731.0	731.0	0.0
Y	11,014	163	449	3.1	731.4	731.4	731.4	0.0
Z	14,837	244	945	1.5	734.8	734.8	734.9	0.1
AA	15,803	713	1,503	2.3	735.8	735.8	735.8	0.0
AB	16,394	815	1616	2.0	737.0	737.0	737.0	0.0
AC	16,822	1,068	2,524	1.3	737.3	737.3	737.4	0.1

[1] DISTANCE IN FEET ABOVE MOUTH

[2] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM YOUNGS CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
HURRICANE CREEK (CONTINUED)								
AD	17,176	1,201	2,785	1.2	737.4	737.4	737.5	0.1
AE	17,567	1,080	2,797	1.2	737.6	737.6	737.7	0.1
AF	17,936	716	2,550	1.3	737.7	737.7	737.8	0.1
AG	18,385	673	2,312	1.4	737.9	737.9	738.0	0.1
AH	19,071	900	2,150	1.5	738.6	738.6	738.6	0.0
AI	19,652	650	1,643	2.0	739.2	739.2	739.3	0.1
AJ	19,995	575	1,687	1.9	739.6	739.6	739.7	0.1
AK	20,497	650	2,102	1.6	740.1	740.1	740.1	0.0
AL	20,930	530	1,849	1.8	740.4	740.4	740.4	0.0
AM	21,395	657	1,977	1.5	742.5	742.5	742.5	0.0
AN	21,975	728	2,828	1.1	742.7	742.7	742.8	0.1
AO	22,477	616	1,870	1.6	742.9	742.9	742.9	0.0
AP	23,037	384	1,415	2.1	743.2	743.2	743.3	0.1
AQ	23,501	533	1,754	1.7	743.6	743.6	743.6	0.0
AR	23,654	601	1,867	1.6	743.7	743.7	743.7	0.0
AS	23,924	696	2,232	1.4	743.8	743.8	743.9	0.1
AT	24,267	533	1,745	1.7	743.9	743.9	744.0	0.1
AU	24,663	372	1,243	2.4	744.2	744.2	744.3	0.1
AV	25,091	599	2,206	1.4	744.5	744.5	744.6	0.1
AW	29,724	825	2,901	4.1	746.7	746.7	746.7	0.0
AX	26,231	687	3,353	0.8	747.1	747.1	747.1	0.0
AY	26,574	676	3,230	0.9	747.2	747.2	747.2	0.0
AZ	26,785	644	2,920	0.9	747.2	747.2	747.2	0.0
BA	26,865	645	2,590	1.1	747.4	747.4	747.5	0.1
BB	27,324	537	1,972	1.4	747.5	747.5	747.6	0.1
BC	27,768	706	2,473	1.1	747.6	747.6	747.7	0.1
BD	28,200	1,016	3601	0.8	747.7	747.7	747.8	0.1
BE	28,723	797	2,598	1.1	747.8	747.8	747.8	0.0

[1] DISTANCE IN FEET ABOVE MOUTH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
HURRICANE CREEK (CONTINUED)								
BF	29,283	746	1,915	1.4	748.0	748.0	748.0	0.0
BG	29,721	819	1,966	1.4	748.3	748.3	748.4	0.1
BH	30,202	489	1,414	2.0	748.6	748.6	748.7	0.1
BI	30,708	600	1,121	2.5	749.8	749.8	749.8	0.0
BJ	31,147	635	1,646	1.7	750.7	750.7	750..8	0.1
BK	31,400	875	2,465	1.1	750.9	750.9	751.0	0.1
BL	31,854	1,025	2,598	1.1	751.1	751.1	751.2	0.1
BM	32,166	1,075	2,591	1.2	751.2	751.2	751.3	0.1
BN	32,662	1,146	2,363	1.4	751.5	751.5	751.6	0.1
BO	33,391	1,092	2,144	1.5	752.6	752.6	752.7	0.1
BP	33,438	830	1,540	1.5	753.1	753.1	753.1	0.0
BQ	33,903	927	1,962	1.2	753.5	753.5	753.6	0.1
BR	34,362	1,077	1,863	1.3	753.8	753.8	753.9	0.1
BS	34,716	1,209	2,033	1.2	754.1	754.1	754.2	0.1
BT	35,228	1,194	2,096	1.1	754.5	754.5	754.6	0.1
BU	35,719	1,114	1,821	1.3	754.8	754.8	754.9	0.1
BV	36,163	1,240	1,111	2.1	757.0	757.0	757.1	0.1
BW	36,516	1,153	1,867	1.3	758.0	758.0	758.1	0.1
BX	36,886	275	404	5.9	760.8	760.8	760.9	0.1
BY	37,161	321	682	3.5	762.7	762.7	762.7	0.0
BZ	37,388	354	817	2.9	763.3	763.3	763.4	0.1
CA	37,868	340	938	2.3	764.2	764.2	764.3	0.1
CB	38,196	389	852	2.7	764.9	764.9	765.0	0.1
CC	38,581	819	4,018	0.5	769.8	769.8	769.8	0.0
CD	39,098	664	3,308	0.7	769.8	769.8	769.8	0.0
CE	39,489	744	2,564	0.8	769.8	769.8	769.9	0.1
CF	39,975	755	1918	1.1	769.9	769.9	770.0	0.1
CG	40,360	467	1,188	1.8	770.2	770.2	770.2	0.0

[1] DISTANCE IN FEET ABOVE MOUTH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
HURRICANE CREEK (CONTINUED)								
CH	40,872	225	717	2.7	772.9	772.9	773.0	0.1
CI	41,490	297	1,306	1.5	773.6	773.6	773.7	0.1
CJ	41,855	300	1,274	1.5	773.7	773.7	773.8	0.1
CK	42,224	219	696	2.8	774.9	774.9	775.0	0.1
CL	42,430	213	650	3.0	775.3	775.3	775.4	0.1
CM	42,689	200	625	3.1	775.9	775.9	775.9	0.0
CN	43,185	228	713	2.7	777.4	777.4	777.5	0.1
CO	43,623	136	481	4.1	778.8	778.8	778.9	0.1
CP	44,093	283	1,054	1.9	779.9	779.9	779.9	0.0
CQ	44,447	210	792	2.5	780.1	780.1	780.2	0.1
CR	44,679	369	1,135	1.7	780.4	780.4	780.5	0.1
CS	45,081	250	768	2.5	780.8	780.8	780.8	0.0
CT	45,345	229	720	2.7	781.3	781.3	781.3	0.0
CU	45,661	245	824	2.4	781.8	781.8	781.9	0.1
CV	45,878	250	816	2.4	782.1	782.1	782.2	0.1
CW	46,332	200	573	3.4	782.9	782.9	783.0	0.1
CX	46,538	210	664	2.9	783.4	783.4	783.5	0.1
CY	46,786	250	700	2.8	783.9	783.9	784.0	0.1
CZ	47,182	338	781	2.5	784.7	784.7	784.8	0.1
DA	47,457	269	469	4.2	785.4	785.4	785.5	0.1
DB	47,663	265	784	2.5	786.1	786.1	786.2	0.1
DC	47,779	210	541	3.6	786.2	786.2	786.3	0.1
DD	47,932	170	501	3.9	786.6	786.6	786.7	0.1
DE	48,270	272	1,526	1.1	791.8	791.8	791.9	0.1
DF	48,645	227	1,319	1.3	791.9	791.9	792.0	0.1
DG	48,877	225	1,658	1.0	792.0	792.0	792.1	0.1
DH	48,956	225	1582	1.1	792.0	792.0	792.1	0.1
DI	49,188	222	1,526	1.1	792.0	792.0	792.1	0.1

[1] DISTANCE IN FEET ABOVE MOUTH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
HURRICANE CREEK (CONTUNUED)								
DJ	49,379	234	1,096	1.5	792.0	792.0	792.1	0.1
DK	49,743	200	1,094	1.5	792.2	792.2	792.3	0.1
DL	50,086	197	649	2.6	792.3	792.3	792.4	0.1
DM	50,508	225	799	2.1	792.9	792.9	793.0	0.1
DN	50,794	189	688	2.4	793.2	793.2	793.3	0.1
DO	51,079	142	389	4.3	793.5	793.5	793.6	0.1
DP	51,417	170	512	3.2	794.6	794.6	794.6	0.0
DQ	51,739	170	451	3.7	795.2	795.2	795.3	0.1
DR	52,103	190	438	3.8	796.2	796.2	796.2	0.0
DS	52,525	325	1,221	1.4	799.4	799.4	799.5	0.1
DT	53,956	312	1,404	1.2	802.3	802.3	802.3	0.0
DU	54,363	360	1,366	1.2	802.4	802.4	802.4	0.0
DV	54,775	230	971	1.7	802.4	802.4	802.4	0.0
DW	55,213	545	1,396	1.2	802.6	802.6	802.6	0.0
DX	56,111	660	1,634	0.8	803.6	803.6	803.7	0.1
DY	56,633	465	799	1.7	803.8	803.8	803.8	0.0
DZ	56,992	210	584	2.3	804.2	804.2	804.2	0.0
EA	57,399	268	487	2.8	804.9	804.9	804.9	0.0
EB	57,858	164	448	3.0	805.8	805.8	805.9	0.1
EC	58,117	240	467	2.9	806.6	806.6	806.7	0.1
ED	58,671	223	512	2.7	808.0	808.0	808.1	0.1
EE	59,247	321	617	2.2	809.1	809.1	809.2	0.1
EF	59,743	451	806	1.7	809.8	809.8	809.9	0.1
EG	60,250	317	528	2.6	811.4	811.4	811.5	0.1

[1] DISTANCE IN FEET ABOVE MOUTH

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
MESSERSMITH CREEK								
A	0.104	200	669	2.7	663.3	662.0 [2]	662.1	0.1
B	0.230	254	689	2.6	663.3	663.2 [2]	663.3	0.1
C	0.383	430	680	2.7	665.3	665.3	665.4	0.1
D	0.620	483	879	2.1	668.3	668.3	668.4	0.1
E	0.708	503	772	2.1	669.3	669.3	669.4	0.1
F	0.730	450	544	3.0	669.5	669.5	669.5	0.0
G	1.024	182	898	1.8	673.6	673.6	673.6	0.0
H	1.366	389	616	2.3	681.2	681.2	681.2	0.0
I	1.407	361	734	1.9	682.1	682.1	682.1	0.0
J	1.727	172	466	2.7	686.0	686.0	686.1	0.1
K	1.990	143	348	3.7	691.8	691.8	691.9	0.1
L	2.177	155	335	2.1	696.2	696.2	696.3	0.1
M	2.341	78	233	3.0	698.5	698.5	698.6	0.1

[1] DISTANCE IN MILES ABOVE MOUTH

[2] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM HONEY CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
PLEASANT CREEK								
A	2,215 [1]	200	337	4.6	769.5	769.5	769.5	0.0
B	3,386 [1]	69	231	6.7	776.3	776.3	776.3	0.0
C	4,667 [1]	155	400	3.9	781.8	781.8	781.8	0.0
D	5,665 [1]	41	189	8.2	791.5	791.5	791.5	0.0
E	7,438 [1]	129	390	3.7	798.5	798.5	798.6	0.1
F	7,809 [1]	139	250	5.7	800.4	800.4	800.5	0.1
G	8,598 [1]	507	2,722	0.5	806.3	806.3	806.4	0.1
H	9,660 [1]	249	1,177	1.0	806.5	806.5	806.5	0.0
I	10,781 [1]	161	461	2.6	806.9	806.9	807.0	0.1
J	12,100 [1]	120	372	3.2	809.1	809.1	809.2	0.1
K	13,305 [1]	54	167	5.4	811.0	811.0	811.1	0.1
L	14,856 [1]	72	267	3.4	813.3	813.3	813.4	0.1
M	15,854 [1]	73	222	4.1	815.4	815.4	815.4	0.0
PLEASANT CREEEK SOUTH BRANCH								
A	0.10 [2]	36	82	2.4	818.2	817.0 [3]	817.0	0.0
B	0.39 [2]	25	83	2.2	821.3	821.3	821.3	0.0

[1] DISTANCE IN FEET ABOVE CONFLUENCE WITH PLEASANT RUN CREEK
[2] DISTANCE IN MILES ABOVE MOUTH
[3] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM PLEASANT CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
PLEASANT RUN CREEK								
A	19,799	780	4,333	1.4	680.9	680.9	681.0	0.1
B	21,153	700	2,175	2.9	681.7	681.7	681.8	0.1
C	22,387	610	1,619	3.8	684.8	684.8	684.9	0.1
D	23,297	464	1,565	4.0	686.9	686.9	687.0	0.1
E	24,826	500	1,973	2.7	691.0	691.0	691.1	0.1
F	25,693	370	1,134	4.7	692.8	692.8	692.8	0.0
G	26,522	500	1,760	3.0	695.2	695.2	695.3	0.1
H	27,971	500	1,640	3.2	698.6	698.6	698.7	0.1
I	28,771	450	1,324	4.0	700.0	700.0	700.1	0.1
J	29,570	409	1,195	4.4	702.8	702.8	702.9	0.1
K	30,398	660	2,147	2.5	705.3	705.3	705.4	0.1
L	32,609	345	1,400	3.5	712.9	712.9	713.0	0.1
M	33,837	450	1,434	3.4	715.8	715.8	715.9	0.1
N	37,042	440	2,077	2.4	724.6	724.6	724.7	0.1
O	39,216	500	1,975	2.5	728.5	728.5	728.6	0.1
P	39,976	539	1,617	3.0	730.2	730.2	730.2	0.0
Q	41,763	420	1,461	3.4	734.3	734.3	734.4	0.1
R	42,933	450	1,261	3.9	737.1	737.1	737.2	0.1
S	45,509	300	1,575	2.7	745.4	745.4	745.4	0.0
T	46,507	300	1,466	2.9	746.4	746.4	746.5	0.1
U	47,633	285	1,021	4.2	747.7	747.7	747.8	0.1
V	48,781	388	1,228	3.5	750.0	750.0	750.1	0.1
W	49,661	260	902	4.5	752.1	752.1	752.1	0.0
X	51,407	275	1,234	3.3	756.3	756.3	756.3	0.0
Y	52,770	340	1,206	3.4	758.9	758.9	759.0	0.1
Z	54,365	100	542	5.4	763.9	763.9	763.9	0.0
AA	55,442	210	1,029	2.8	765.1	765.1	765.2	0.1
AB	57,921	145	1,069	2.5	770.7	770.7	770.8	0.1
AC	95,233	84	391	6.9	776.0	776.0	776.0	0.0
AD	61,545	460	789	3.4	779.7	779.7	779.8	0.1

[1] DISTANCE IN FEET ABOVE CONFLUENCE WITH WHITE RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
SUGAR CREEK								
A	1.162	1,247	9,505	3.2	661.3	661.3	661.4	0.1
B	1.668	1,367	3,427	8.8	664.5	664.5	664.5	0.0
C	1.980	1,888	8,464	3.5	667.8	667.8	667.8	0.0
D	2.380	3,053	18,457	1.6	668.8	668.8	668.8	0.0
E	2.820	2,578	14,929	2.0	669.3	669.3	669.3	0.0
F	3.240	2,430	20,455	1.5	669.9	669.9	669.9	0.0
G	4.320	2,676	10,335	2.9	671.6	671.6	671.7	0.1
H	4.405	2,702	9,841	3.0	671.8	671.8	671.9	0.1
I	4.958	2,130	8,770	3.4	673.5	673.5	673.6	0.1
J	5.540	1,193	8,428	3.6	676.0	676.0	676.1	0.1
K	6.360	1,168	8,912	2.9	678.1	678.1	678.2	0.1
L	6.470	1,182	9,232	2.8	678.9	678.9	679.0	0.1
M	6.740	887	6,640	3.9	679.5	679.5	679.6	0.1
N	6.970	324	3,243	8.0	680.5	680.5	680.6	0.1
O	7.300	1,320	3,774	6.9	683.1	683.1	683.2	0.1
P	7.410	2,038	15,134	1.7	684.6	684.6	684.7	0.1
Q	7.690	2,068	16,428	1.6	684.8	684.8	684.9	0.1
R	8.380	2,126	11,878	2.2	685.4	685.4	685.5	0.1
S	8.700	1,850	11,001	2.4	685.9	685.9	686.0	0.1

[1] DISTANCE IN MILES ABOVE JOHNSON/ BARTHOLOMEW COUNTY BOUNDARY

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN
AND INCORPORATED AREAS

FLOODWAY DATA

SUGAR CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
TRACY DITCH								
A	1,036	730	946	1.4	789.3	788.9 [2]	789.0	0.1
B	1,806	610	1,692	0.8	789.5	789.5	789.6	0.1
C	2,980	630	1,622	0.8	789.9	789.9	790.0	0.1
D	3,315	677	1,163	1.1	790.4	790.4	790.4	0.0
E	4,047	755	1,375	0.9	791.0	791.0	791.1	0.1
F	4,653	705	1,076	1.2	791.3	791.3	791.4	0.1
G	5,146	575	1,006	0.9	791.7	791.7	791.8	0.1
H	5,533	100	281	3.3	791.9	791.9	792.0	0.1
I	6,040	166	364	2.5	793.2	793.2	793.3	0.1
J	6,109	130	289	2.8	794.7	794.7	794.7	0.0

[1] DISTANCE IN FEET ABOVE MOUTH

[2] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM GRASSY CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
TURKEY PEN CREEK								
A	0.028	253	597	4.8	678.7	677.1 [2]	677.2	0.1
B	0.150	286	606	3.7	679.8	679.3 [2]	679.4	0.1
C	0.180	227	717	3.1	680.9	680.9	680.9	0.0
D	0.260	215	669	3.3	682.0	682.0	682.1	0.1
E	0.533	188	559	4.0	686.5	686.5	686.6	0.1
F	0.600	129	514	4.3	687.7	687.7	687.7	0.0
G	0.673	88	427	5.2	689.0	689.0	689.1	0.1
H	0.793	101	410	5.4	691.8	691.8	691.9	0.1
I	0.840	244	1,134	2.0	693.6	693.6	693.7	0.1
J	0.890	151	644	3.3	693.8	693.8	693.9	0.1
K	0.960	113	378	5.6	695.0	695.0	695.1	0.1
L	1.040	123	407	5.2	697.6	697.6	697.7	0.1
M	1.098	95	454	4.6	699.1	699.1	699.2	0.1
N	1.245	72	352	6.0	702.0	702.0	702.1	0.1
O	1.395	39	209	10.1	705.9	705.9	706.0	0.1
P	1.430	100	347	6.1	712.3	712.3	712.4	0.1
Q	1.466	139	758	2.8	713.2	713.2	713.3	0.1
R	1.642	138	486	4.0	714.7	714.7	714.8	0.1
S	1.733	126	363	5.3	716.5	716.5	716.6	0.1
T	1.762	127	463	2.5	717.7	717.7	717.8	0.1
U	1.804	106	304	3.8	718.0	718.0	718.1	0.1
V	1.865	114	294	3.9	719.1	719.1	719.2	0.1
W	1.947	123	291	3.9	720.6	720.6	720.7	0.1
X	1.980	92	312	3.7	723.8	723.8	723.8	0.0
Y	2.217	84	212	5.4	729.2	729.2	729.2	0.0

[1] DISTANCE IN MILES ABOVE MOUTH

[2] ELEVATIONS WITHOUT CONSIDERING OVERFLOW EFFECT FROM HONEY CREEK

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN
AND INCORPORATED AREAS

FLOODWAY DATA

TURKEY PEN CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
WEST FORK WHITE RIVER								
A	214.32	8,020 [2]	44,147	1.4	647.6	647.6	647.6	0.0
B	214.91	8,200 [2]	55,870	1.1	649.3	649.3	649.4	0.1
C	215.56	8,150 [2]	44,909	1.4	650.0	650.0	650.1	0.1
D	217.18	6,800	32,333	2.0	653.6	653.6	653.6	0.0
E	218.89	5,690	28,008	2.2	658.3	658.3	658.4	0.1
F	219.48	4,100	16,789	3.7	659.5	659.5	659.6	0.1

[1] DISTANCE IN MILES ABOVE MOUTH

[2] THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN
AND INCORPORATED AREAS

FLOODWAY DATA

WEST FORK WHITE RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
YOUNGS CREEK								
A	44,923	1,034	5,751	2.1	711.2	711.2	711.3	0.1
B	47,520	804	5,475	2.2	714.1	714.1	714.2	0.1
C	49,950	804	4,750	2.6	715.4	715.4	715.5	0.1
D	52,741	564	3,853	3.2	718.2	718.2	718.2	0.0
E	53,385	524	3,972	3.1	720.4	720.4	720.5	0.1
F	54,131	708	5,507	2.1	721.1	721.1	721.2	0.1
G	54,412	773	5,583	2.1	721.4	721.4	721.4	0.0
H	54,913	151	5,302	6.3	723.1	723.1	723.1	0.0
I	55,707	550	3,149	3.7	724.7	724.7	724.8	0.1
J	57,549	890	5,025	2.2	726.3	726.3	726.4	0.1
K	58,510	753	6,640	2.6	727.1	727.1	727.1	0.0
L	59,889	1,149	9,680	1.2	727.8	727.8	727.9	0.1
M	62,706	1,442	9,925	1.1	728.6	728.6	728.6	0.0
N	65,978	902	6,088	1.8	729.7	729.7	729.8	0.1
O	69,134	1,076	6,032	1.9	732.3	732.3	732.3	0.0
P	72,140	122	6,130	7.7	736.5	736.5	736.5	0.0
Q	74,811	550	4,424	2.4	739.3	739.3	739.4	0.1
R	77,197	1,170	10,772	1.0	743.0	743.0	743.1	0.1
S	80,536	620	5,128	2.0	743.7	743.7	743.8	0.1
T	83,348	843	5,585	1.8	745.4	745.4	745.5	0.1
U	86,579	728	3,614	2.8	747.3	747.3	747.4	0.1
V	89,496	660	3,831	2.6	749.7	749.7	749.7	0.0
W	92,418	722	5,062	1.9	753.2	753.2	753.3	0.1
X	94,804	850	5,474	1.8	754.9	754.9	754.9	0.0
Y	96,934	765	4,506	2.1	756.5	756.5	756.5	0.0
Z	99,795	895	3,976	2.4	759.2	759.2	759.2	0.0
AA	103,294	560	3,477	2.6	762.6	762.6	762.7	0.1
AB	105,883	860	3926	2.3	765.1	765.1	765.2	0.1
AC	107,507	650	5,168	1.8	766.8	766.8	766.8	0.0

[1] DISTANCE IN FEET ABOVE MOUTH

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. These zones are as follows:

Zone A

Zone A is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or base flood depths are shown within this zone.

Zone AE

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

Zone X

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

6.0 FLOOD INSURANCE RATE MAP

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

For flood insurance applications, the map designates flood insurance risk zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

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

The current FIRM presents flooding information for the entire geographic area of Johnson County. Previously, separate FIRMs were prepared for each identified flood prone incorporated community and for the unincorporated areas of the county. Historical data relating to the maps prepared for each community are presented in Table 11.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE(S)	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE(S)
Bargersville, Town of [1,2]	N/A	N/A	N/A	
Edinburgh, Town of	February 1, 1974	October 10, 1975	September 16, 1981	January 2, 1987
Franklin, City of	December 28, 1973	July 25, 1975	April 1, 1981	
Greenwood, City of	January 9, 1974	January 2, 1976	May 17, 1982	
Johnson County (Unincorporated Areas)	October 18, 1974	November 4, 1977 October 16, 1984	March 2, 1989	
New Whiteland, Town of	January 16, 1974	May 21, 1976	August 16, 1982	
Prince's Lakes, Town of	May 3, 1974	August 27, 1976	September 16, 1981	
Trafalger, Town of [1,3]	N/A	N/A	N/A	
Whiteland, Town of	December 17, 1976	N/A	September 16, 1981	

[1] No Special Flood Hazard Areas identified

[2] The initial FHBM was rescinded and the initial effective FIRM was the initial countywide FIRM.

[3] This community does not have map history prior to the first countywide mapping

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN (AND INCORPORATED AREAS)

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

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

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Flood Insurance and Mitigation Division, Federal Emergency Management Agency, Region V, 536 S. Clark Street, 6th Floor, Chicago, IL 60605

9.0 BIBLIORAPHY AND REFERENCES

1. Federal Emergency Management Agency, Flood Insurance Study. Town of Edinburgh. Bartholomew and Johnson Counties. Indiana Washington D.C., January 2, 1987.

2. Federal Emergency Management Agency, Flood Insurance Study. City of Franklin. Johnson County. Indiana Washington D.C., October 1, 1980.

3. Federal Emergency Management Agency, Flood Insurance Study. City of Greenwood. Johnson County. Indiana Washington D.C., November 18, 1988.

4. Federal Emergency Management Agency, Flood Insurance Study. Town of New Whiteland. Johnson County. Indiana Washington D.C., February 16, 1982.

5. Federal Emergency Management Agency, Flood Insurance Study. Town of Prince's Lakes. Johnson County. Indiana Washington D.C., March 16, 1981.

6. Federal Emergency Management Agency, Flood Insurance Study. Town of Whiteland. Johnson County. Indiana Washington D.C., March 16, 1981.

7. Federal Emergency Management Agency, Flood Insurance Study. Johnson County. Indiana (unincorporated), Washington D.C., March 2, 1989.

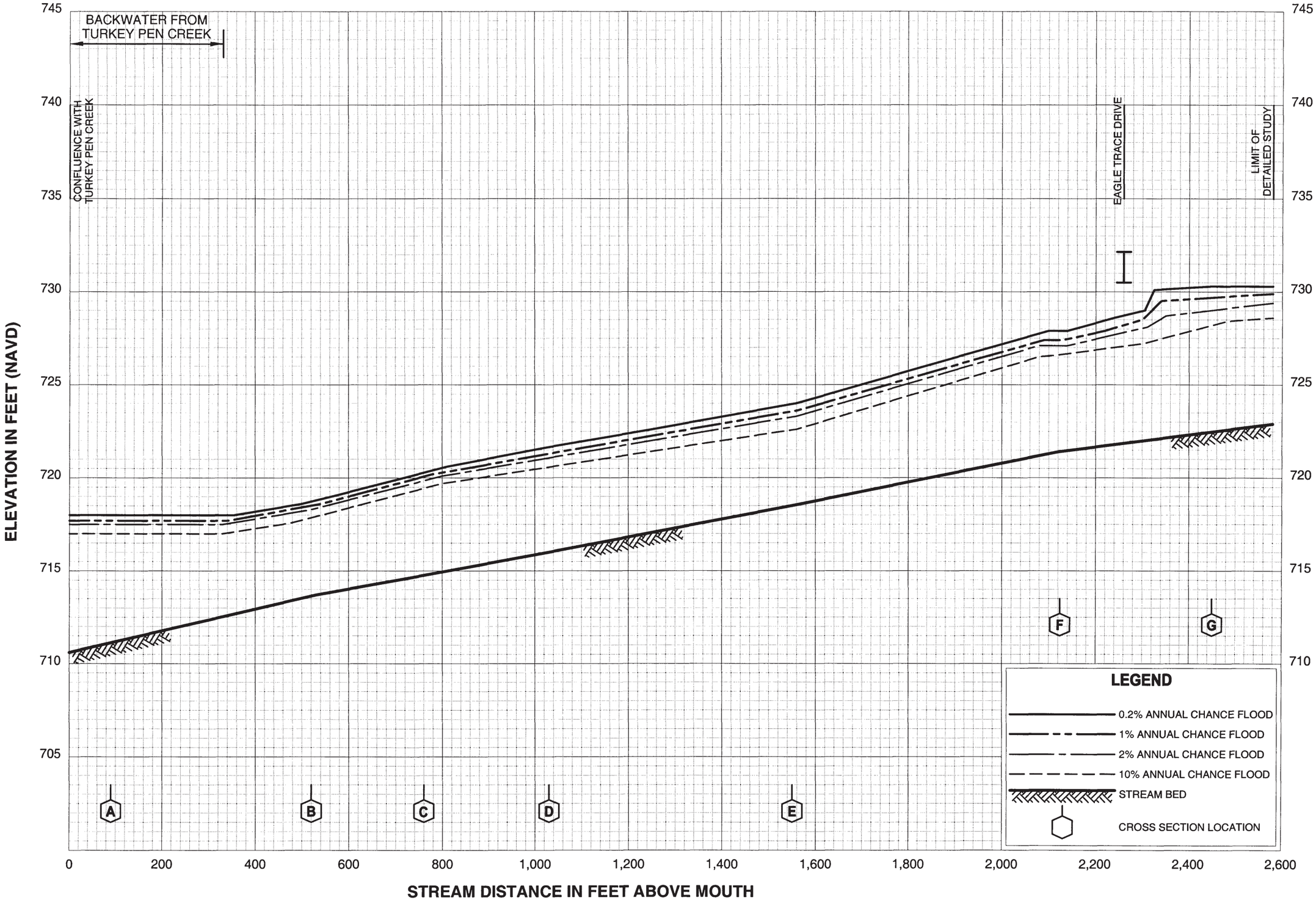
8. U.S. Army Corps of Engineers, Hydrologic Engineering Center. River Analysis System HEC-RAS User's Manual, Version 3.1.2, April 2004.

9. U.S. Army Corps of Engineers, Hydrologic Engineering Center. River Analysis System HEC-RAS Hydraulic Reference Manual, Version 3.1.2, April 2004.

10. The hydrologic and hydraulic analyses for this study were performed by Earth Tech, Inc., for the Federal Insurance Administration, under Contract No. EMW-94-C-4462. This study was approved by IDNR, Division of Water in June 2004.

11. The hydrologic and hydraulic analyses for this study were performed by the Indiana Department of Natural Resources, Division of Water, for the Federal Insurance Administration under Contract No. EMW-94-C-4462. This study was completed and approved by IDNR in June 2004.

12. Federal Emergency Management Agency, Flood Insurance Study. Johnson County, Indiana and Incorporated Areas, Washington D.C., August 2, 2007.



FLOOD PROFILES

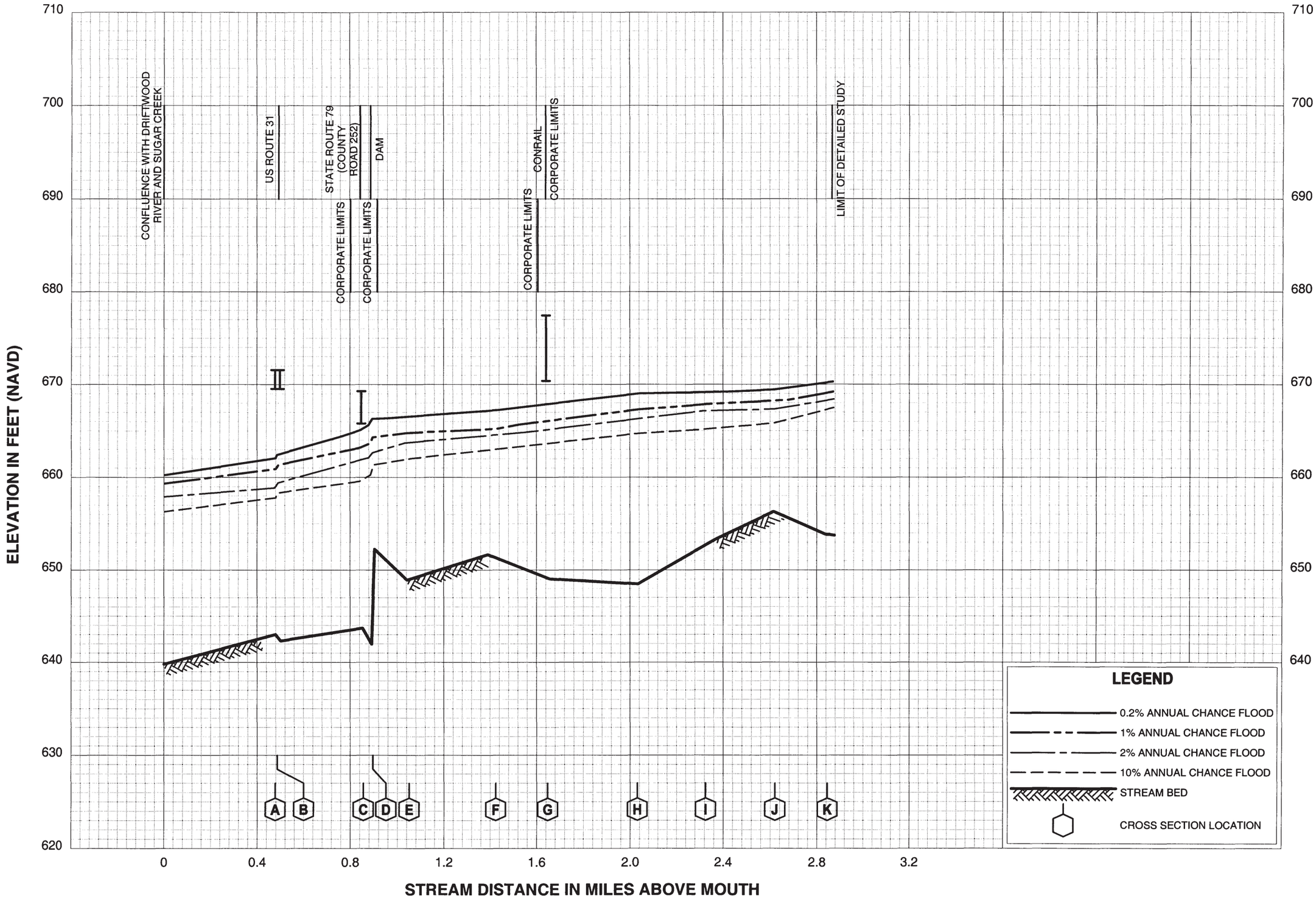
AUBURN BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS

01P



FLOOD PROFILES

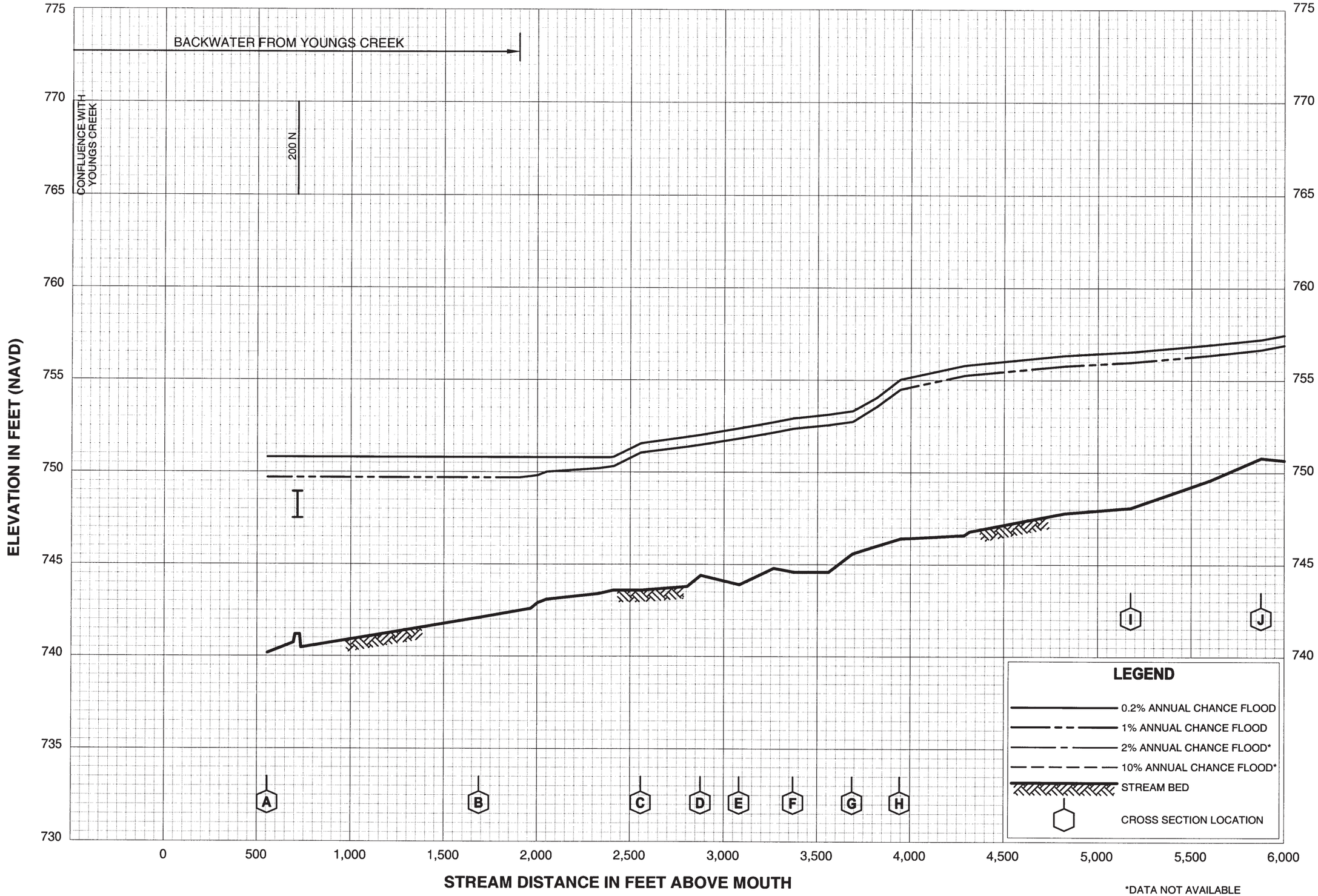
BIG BLUE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS

02P



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FLOOD PROFILES

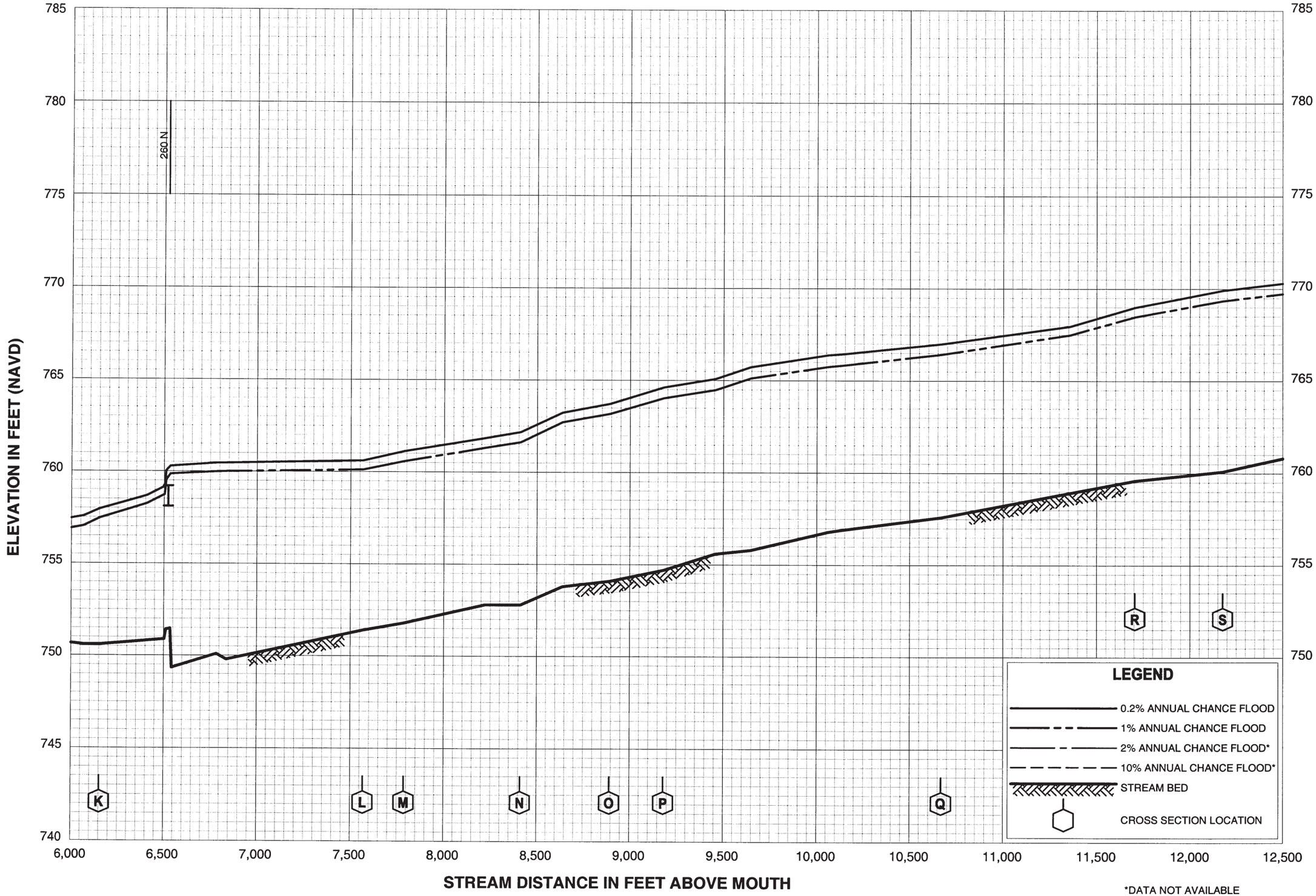
BREWER DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

03P



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FLOOD PROFILES

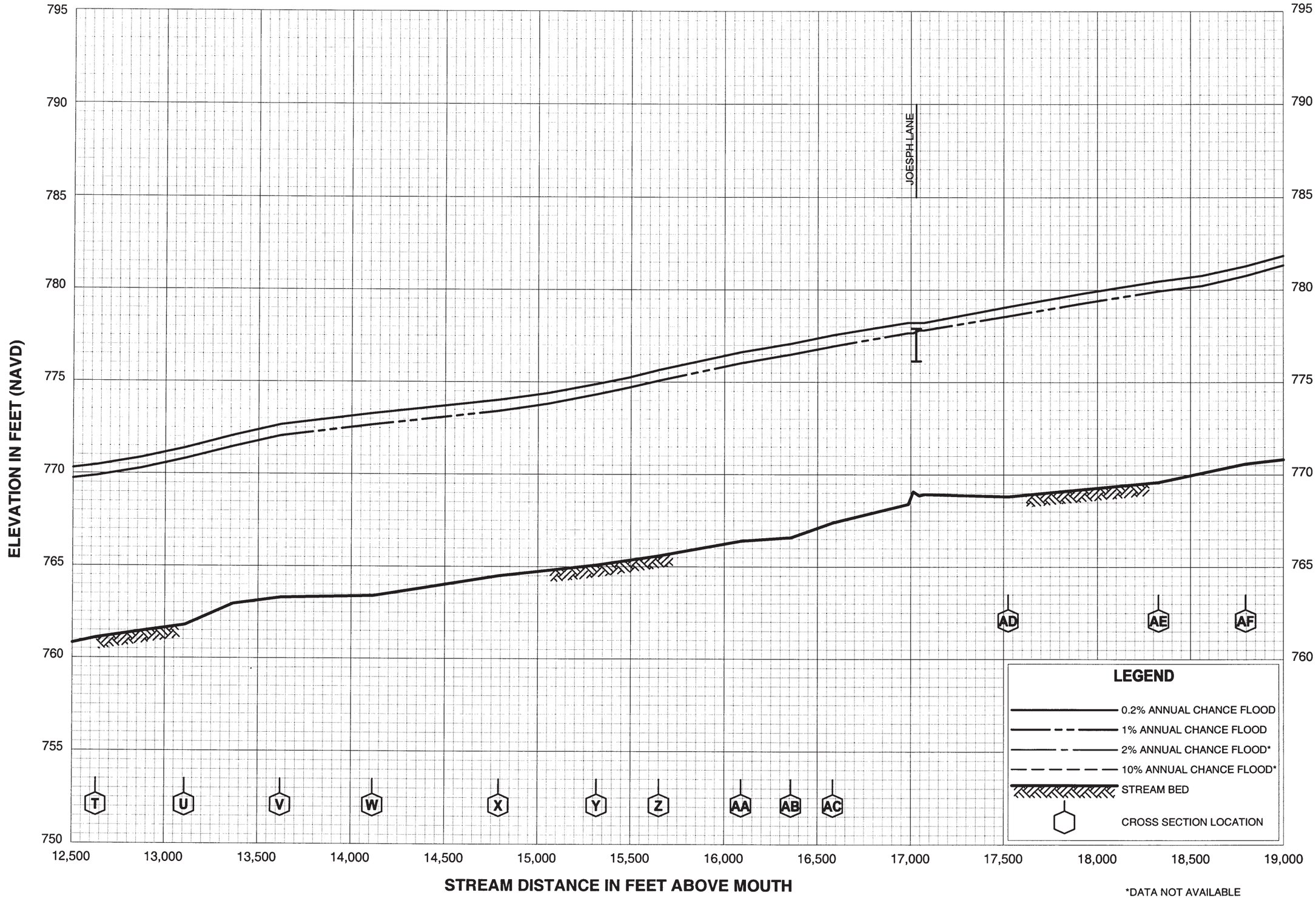
BREWER DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

04P



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FLOOD PROFILES

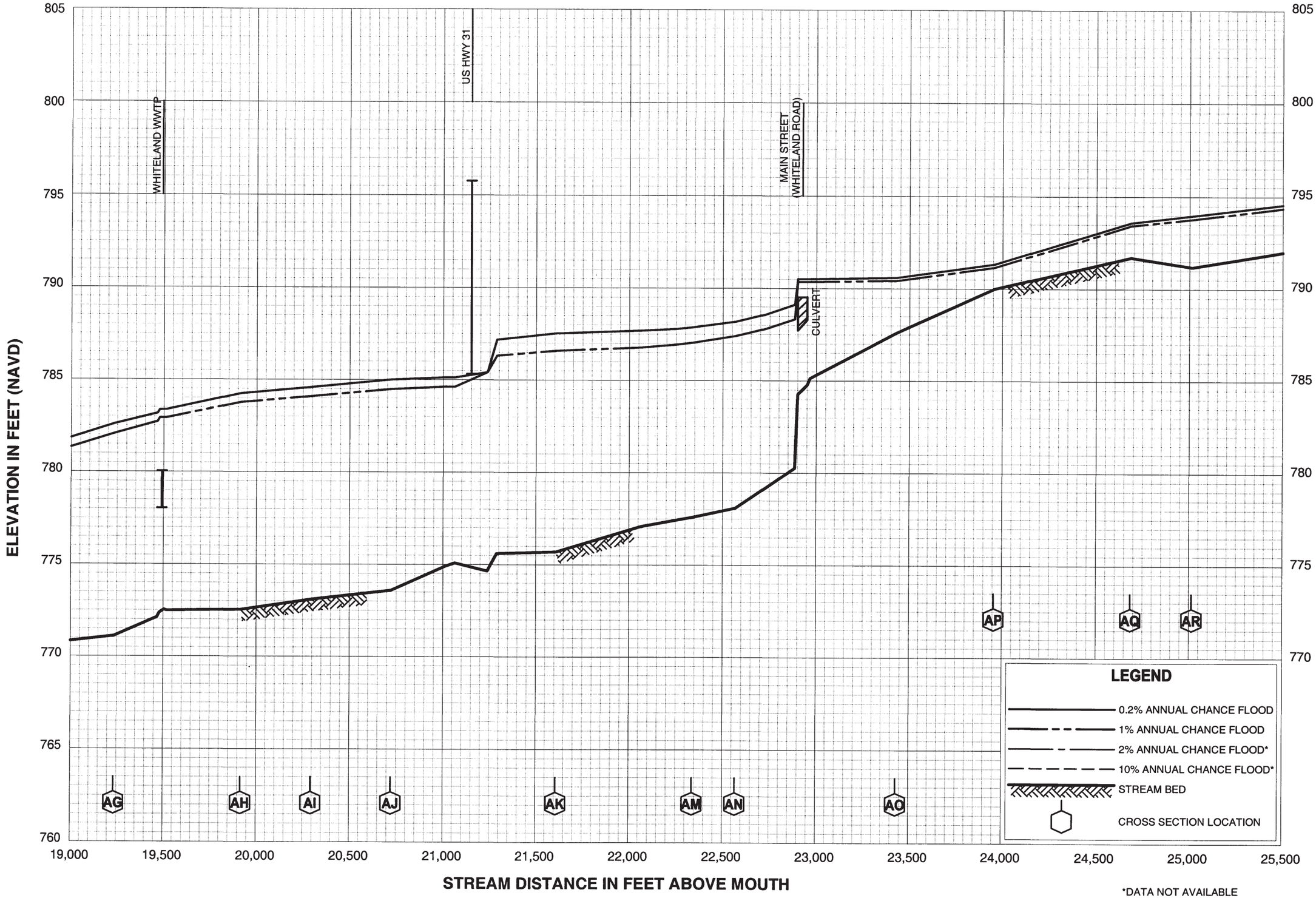
BREWER DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

05P



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FLOOD PROFILES

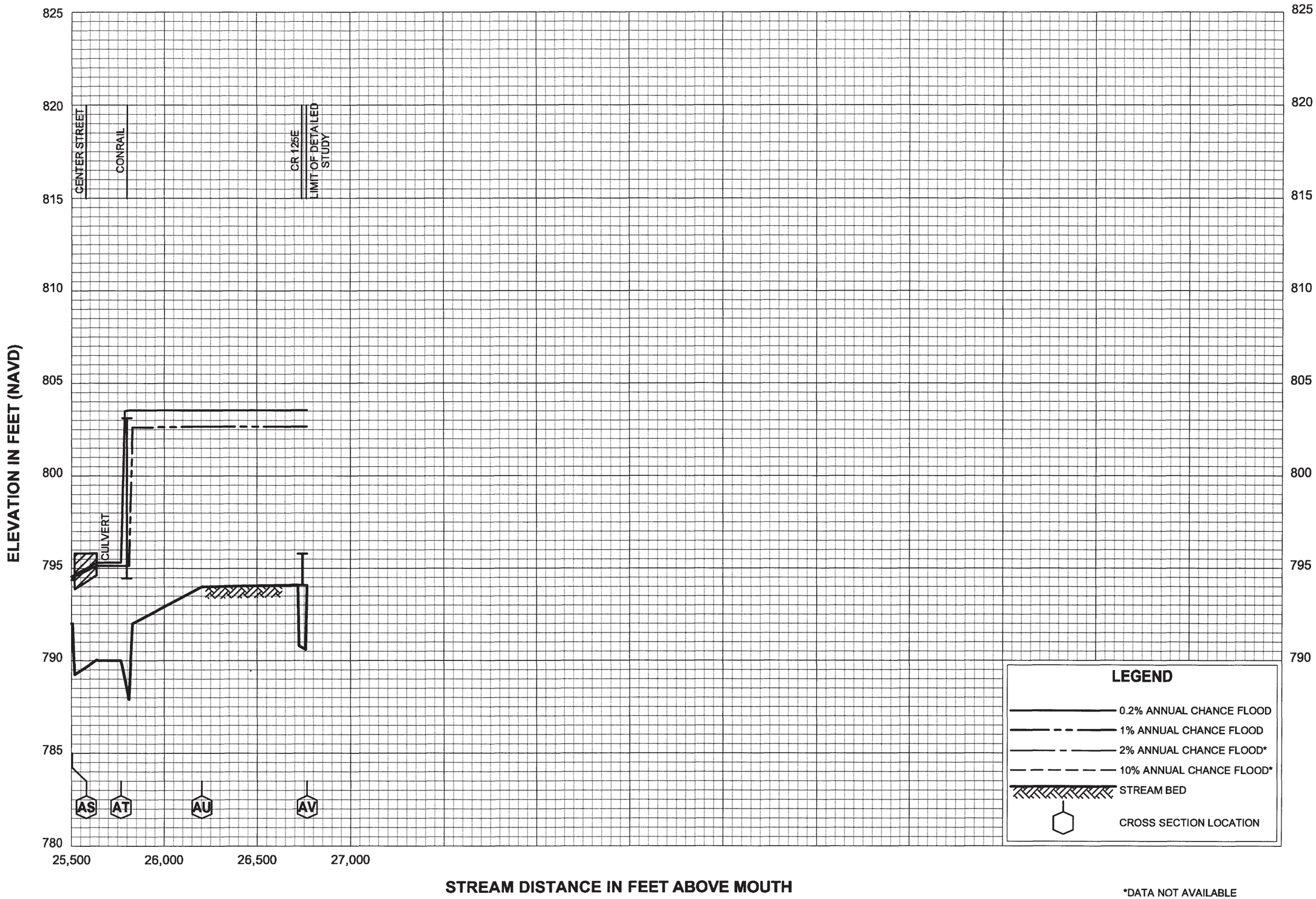
BREWER DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

06P



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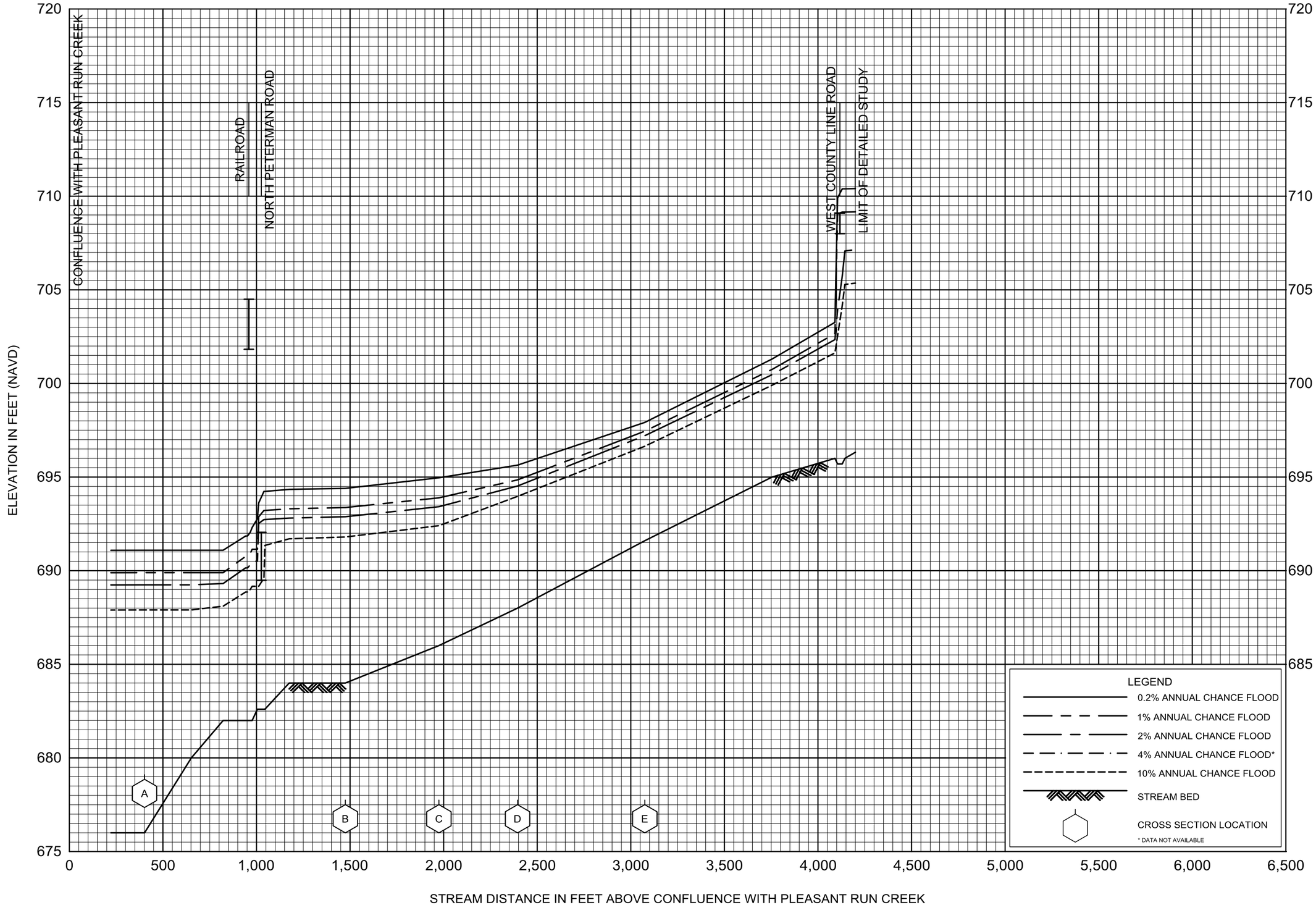
FLOOD PROFILES

BREWER DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



FLOOD PROFILES

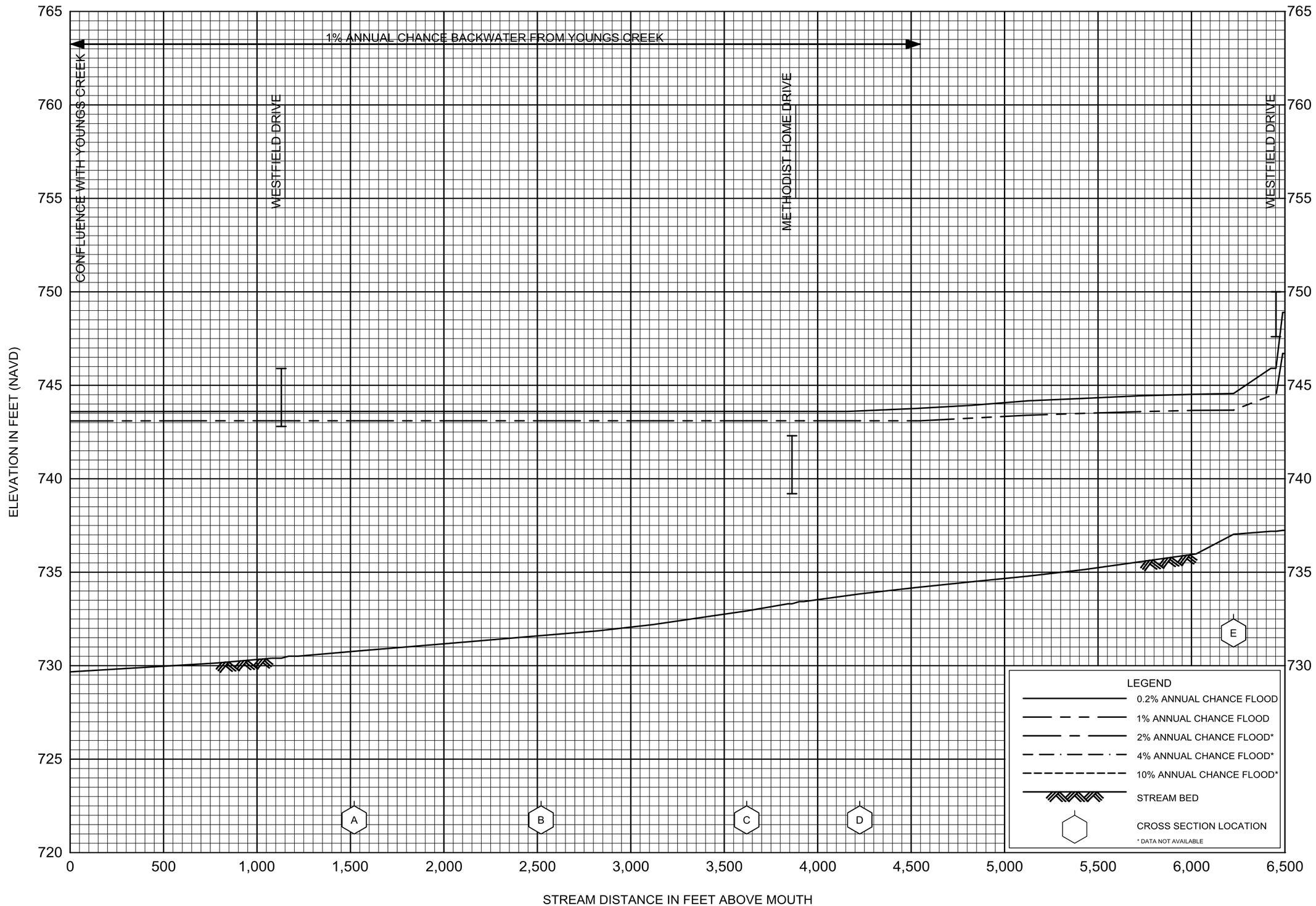
BUFFALO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

08P



FLOOD PROFILES

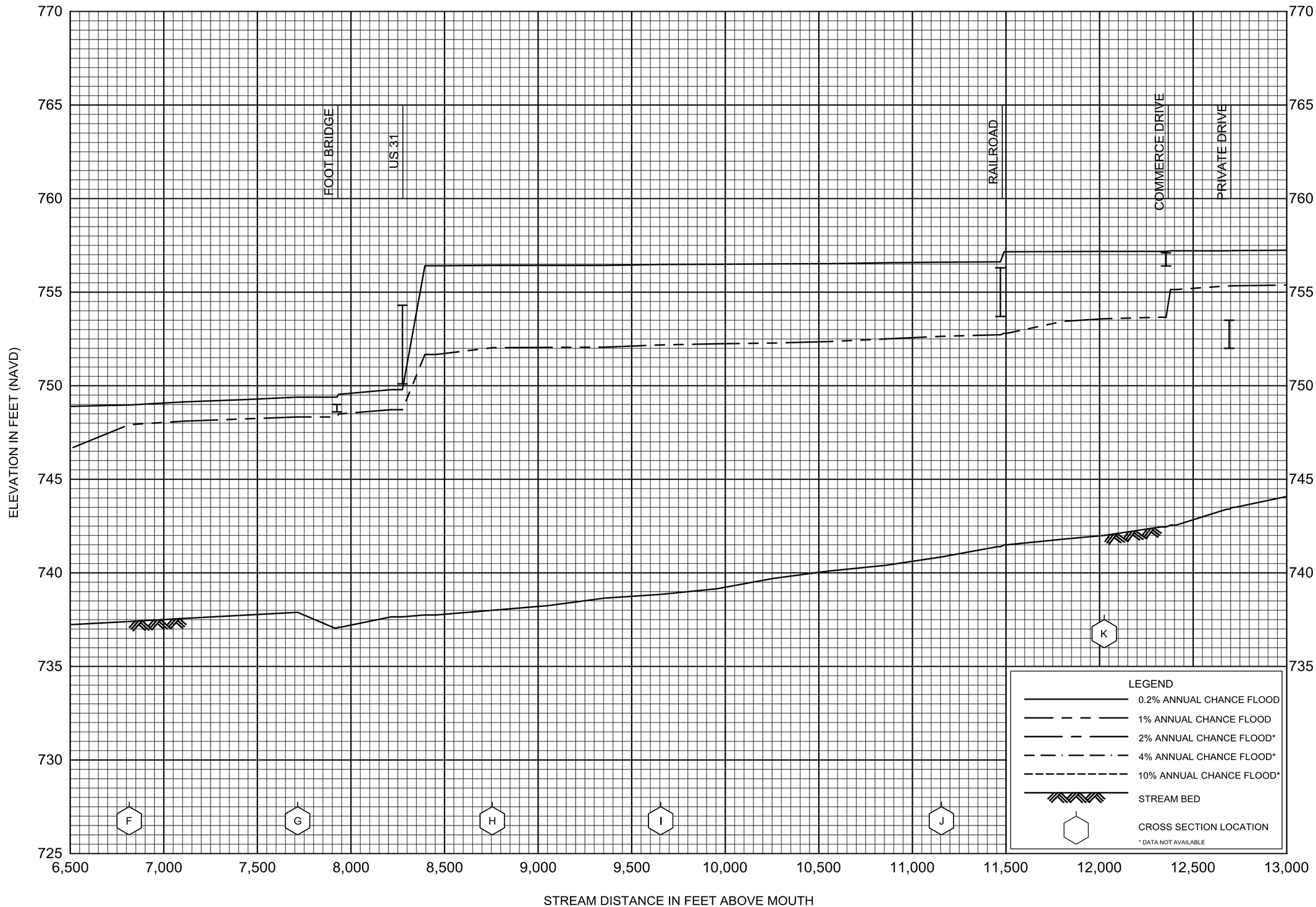
CANARY DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

09AP



FLOOD PROFILES

CANARY DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

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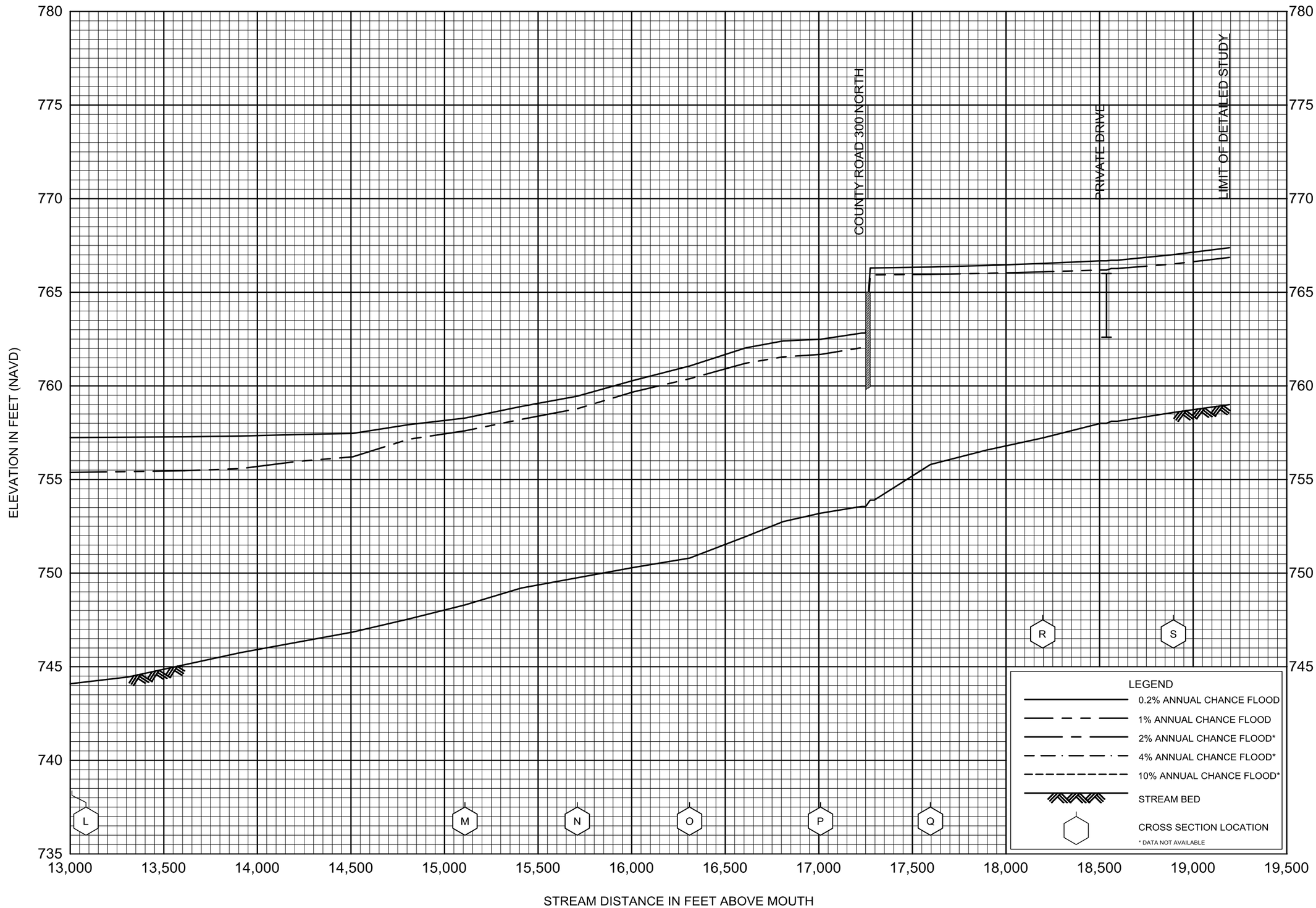


FLOOD PROFILES

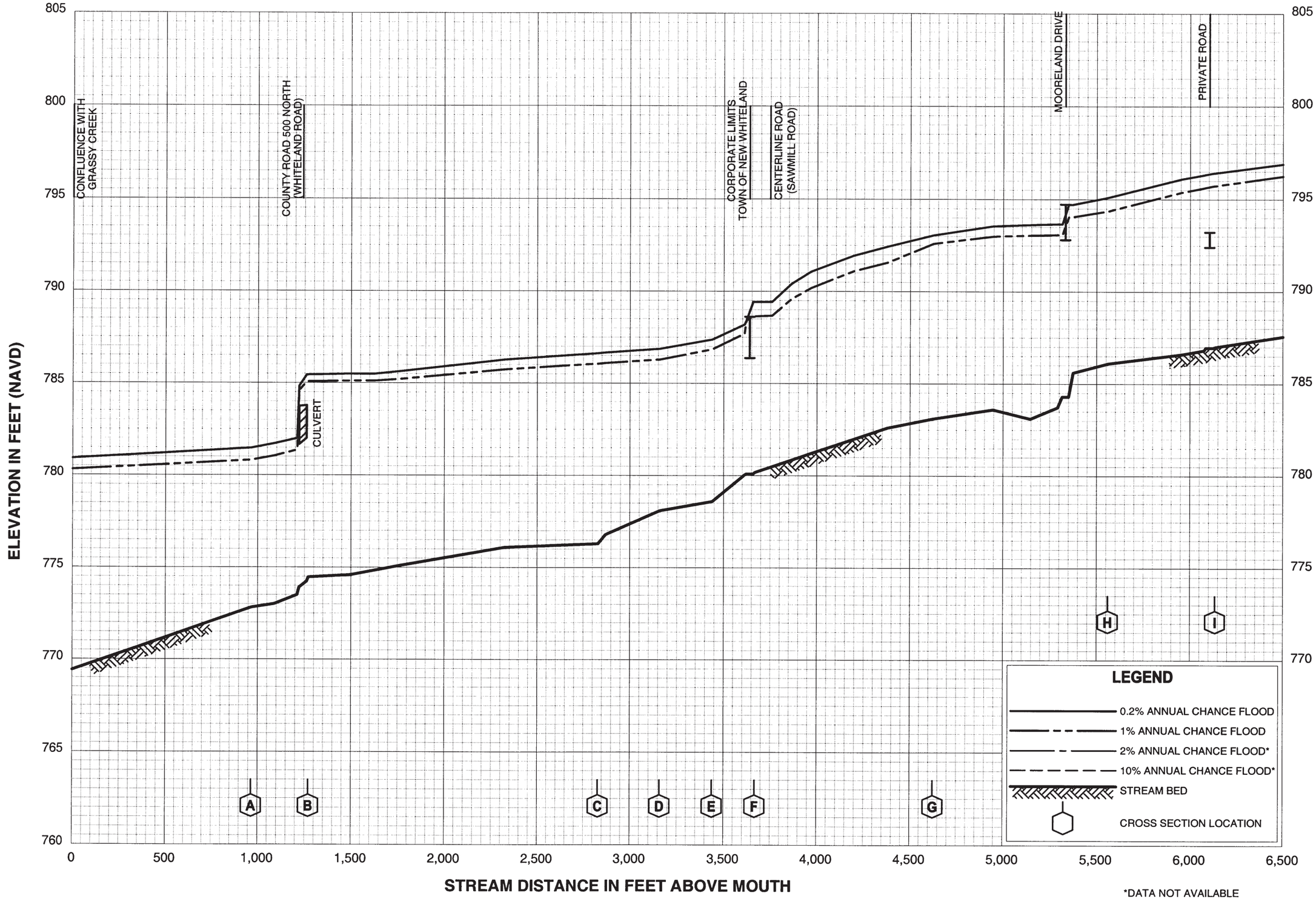
CANARY DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

09CP



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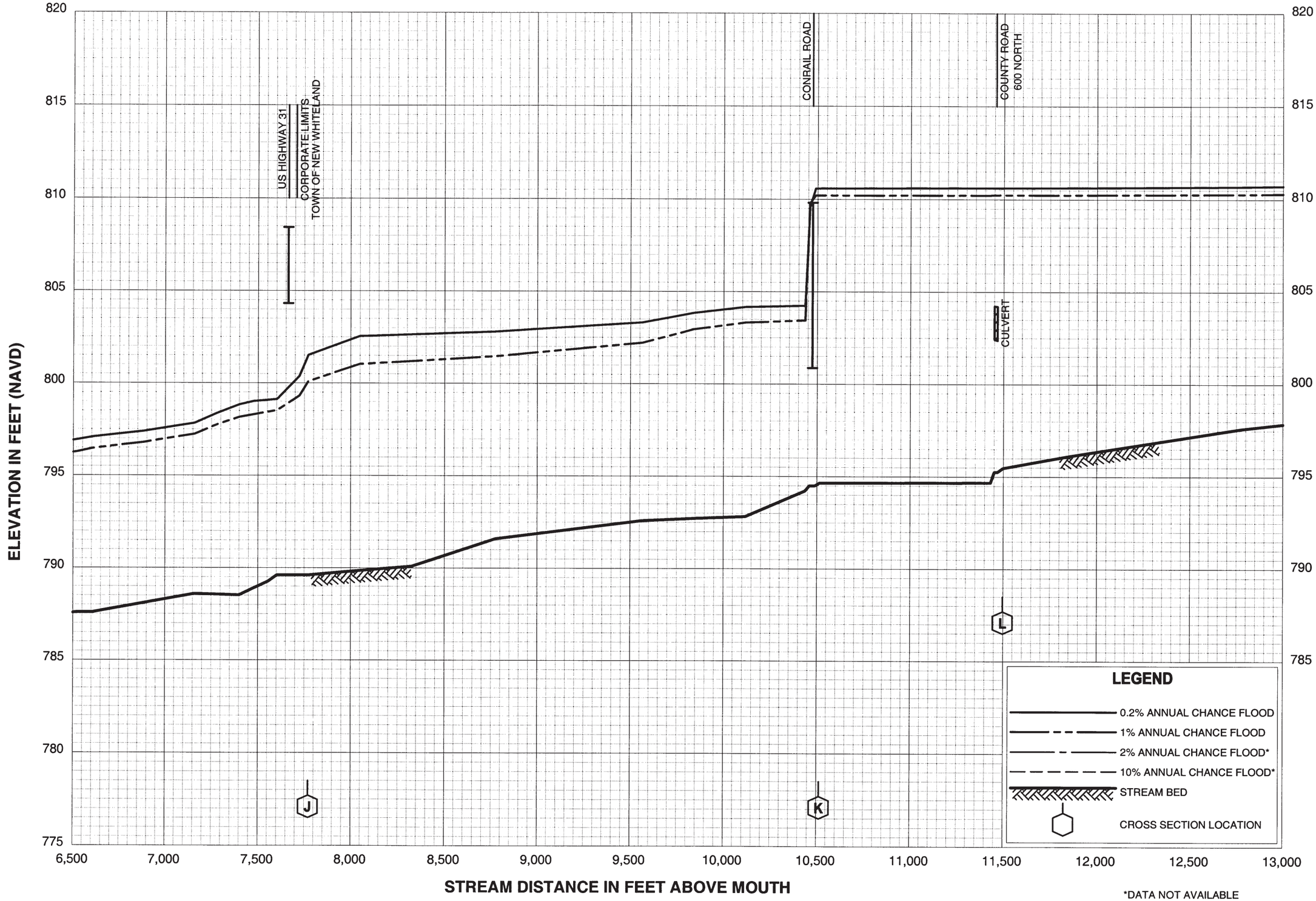
FLOOD PROFILES

EAST GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



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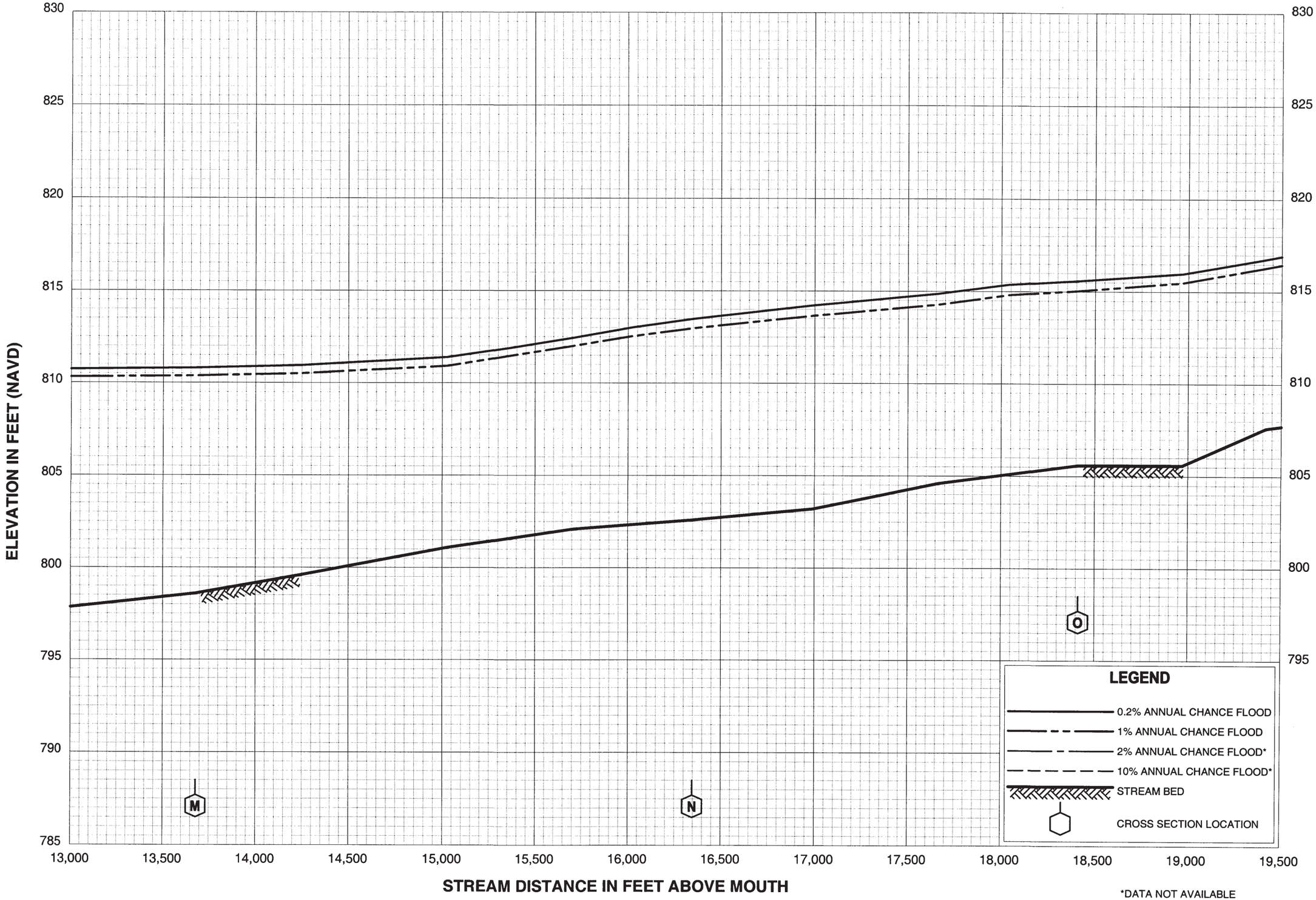
FLOOD PROFILES

EAST GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



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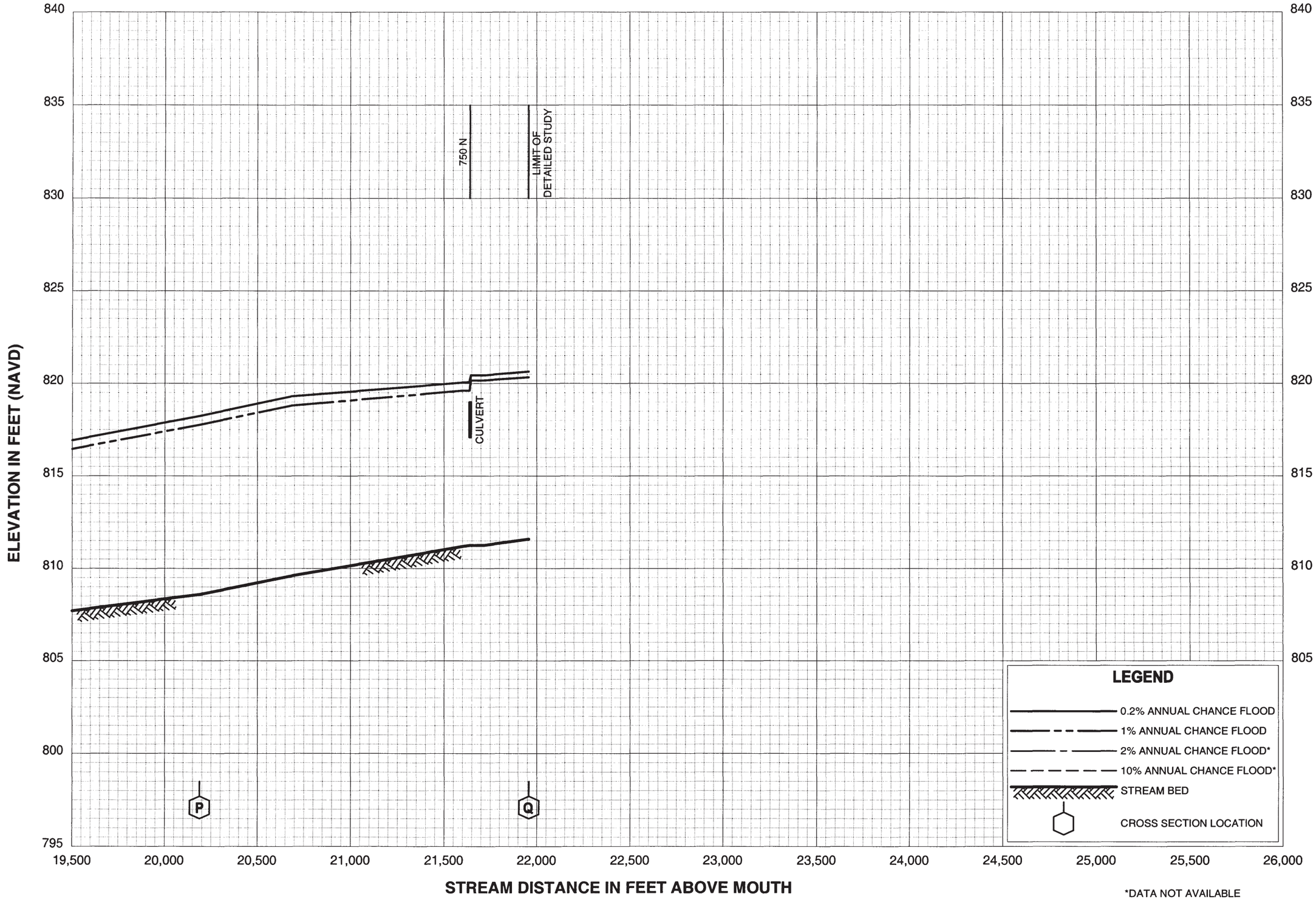
FLOOD PROFILES

EAST GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



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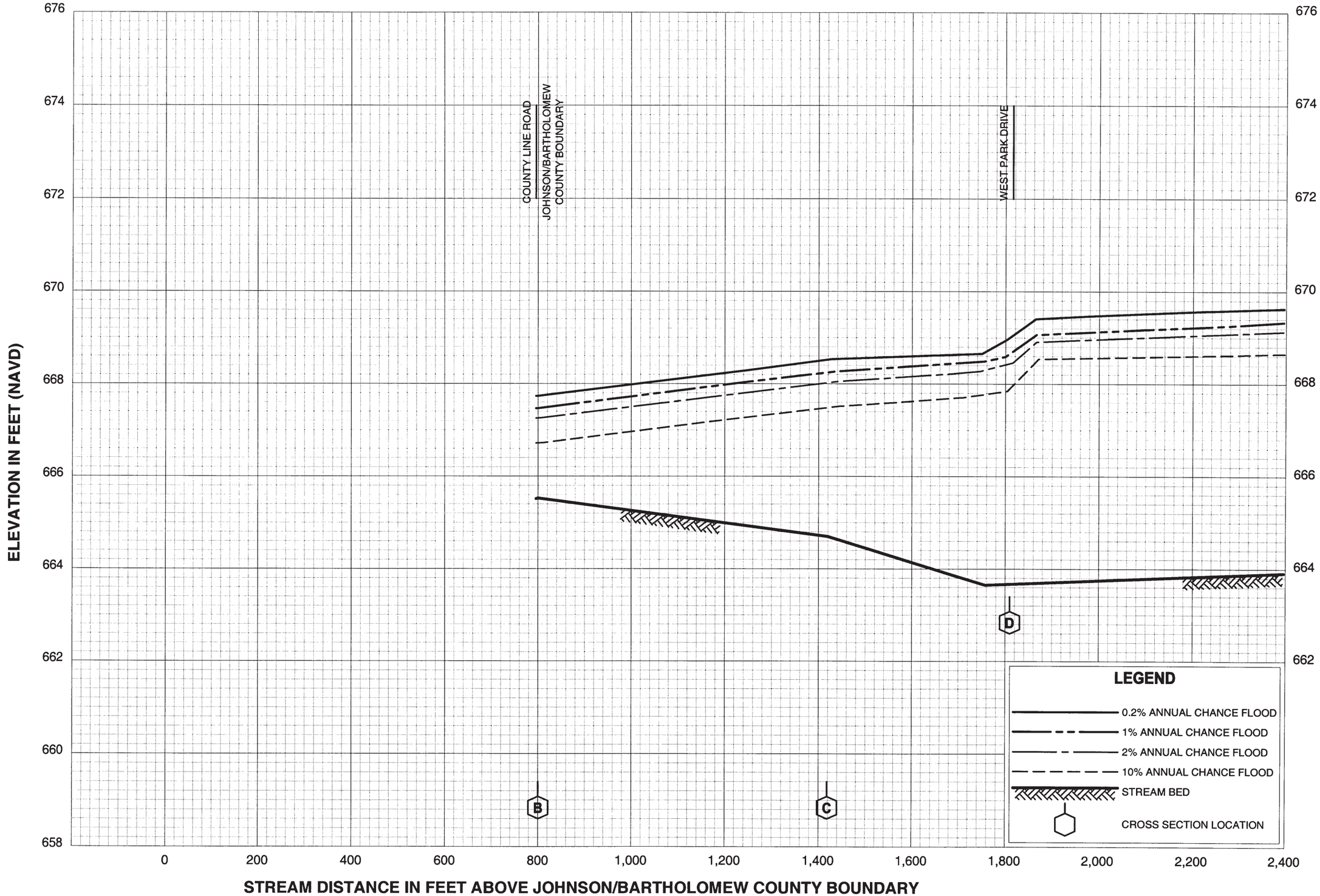
FLOOD PROFILES

EAST GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



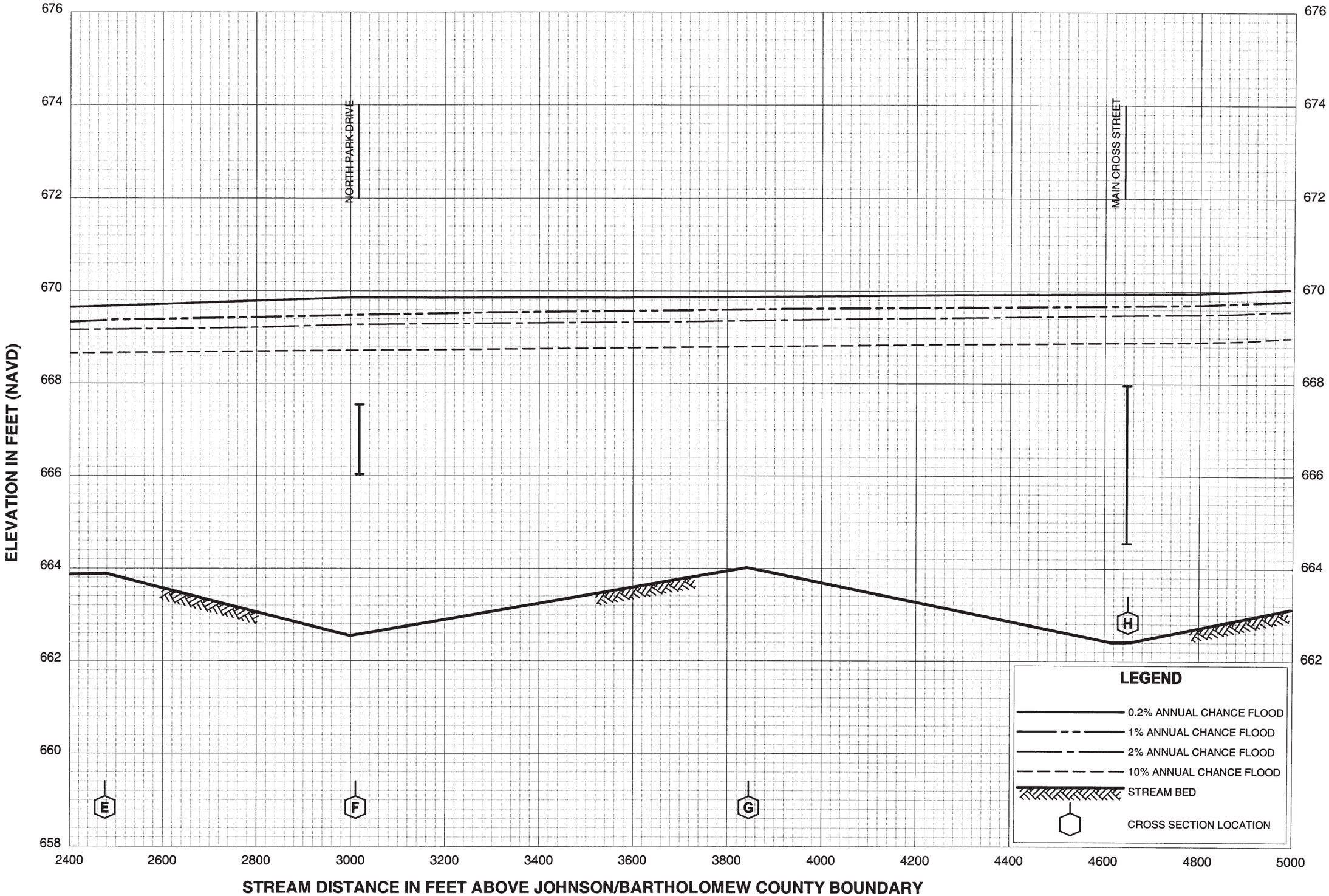
FLOOD PROFILES

EAST SIDE SWALE

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



FLOOD PROFILES

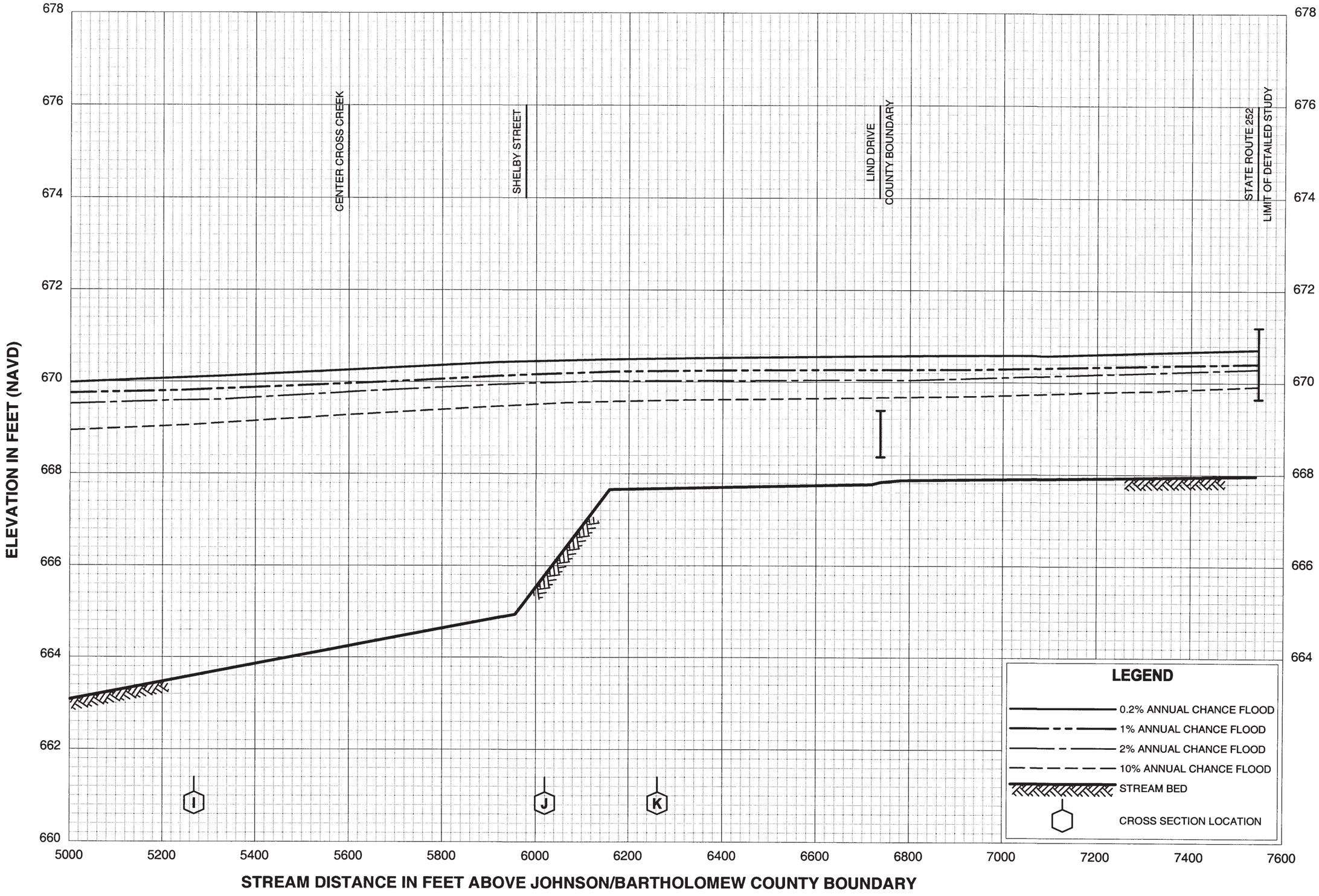
EAST SIDE SWALE

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS

15P



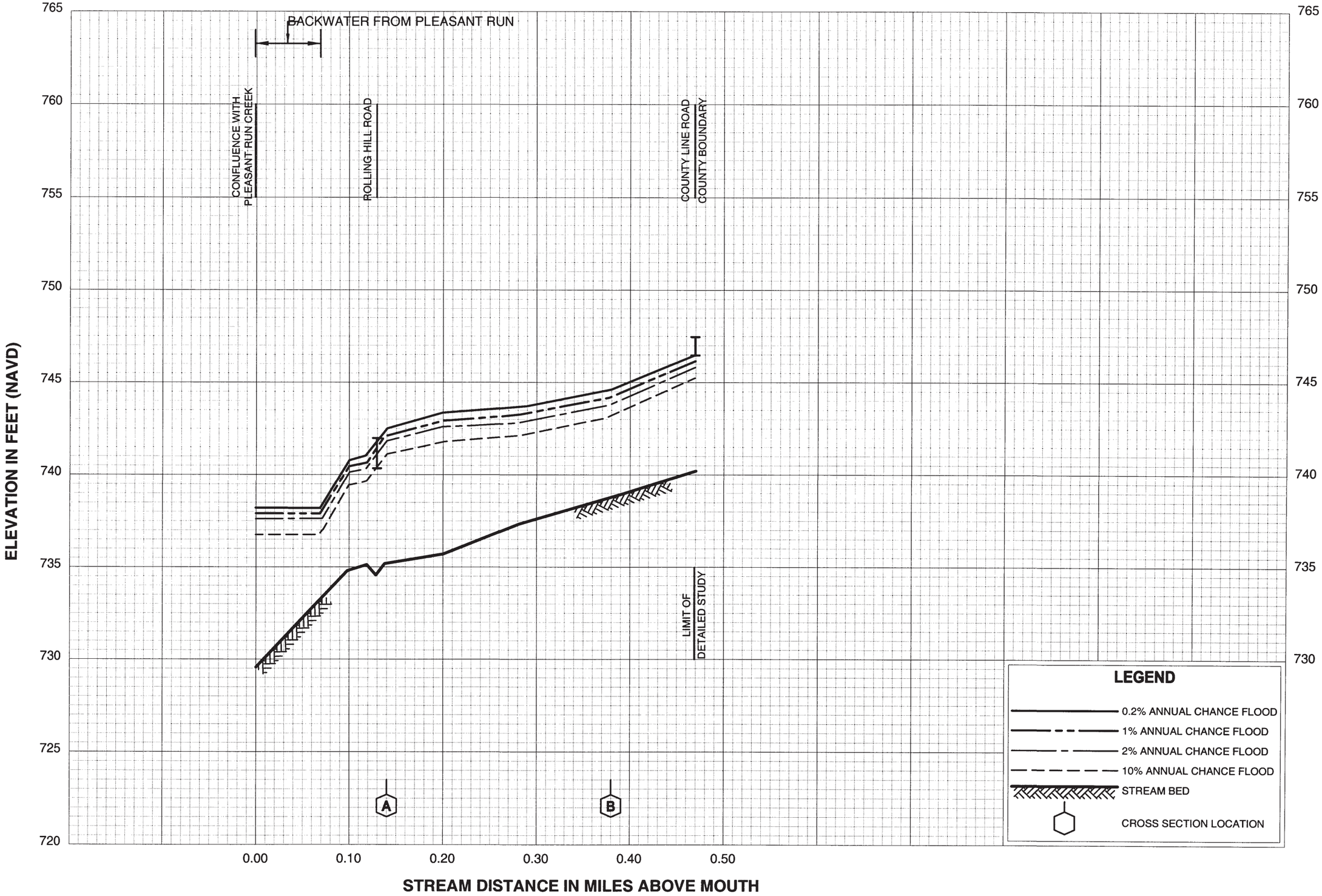
FLOOD PROFILES

EAST SIDE SWALE

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



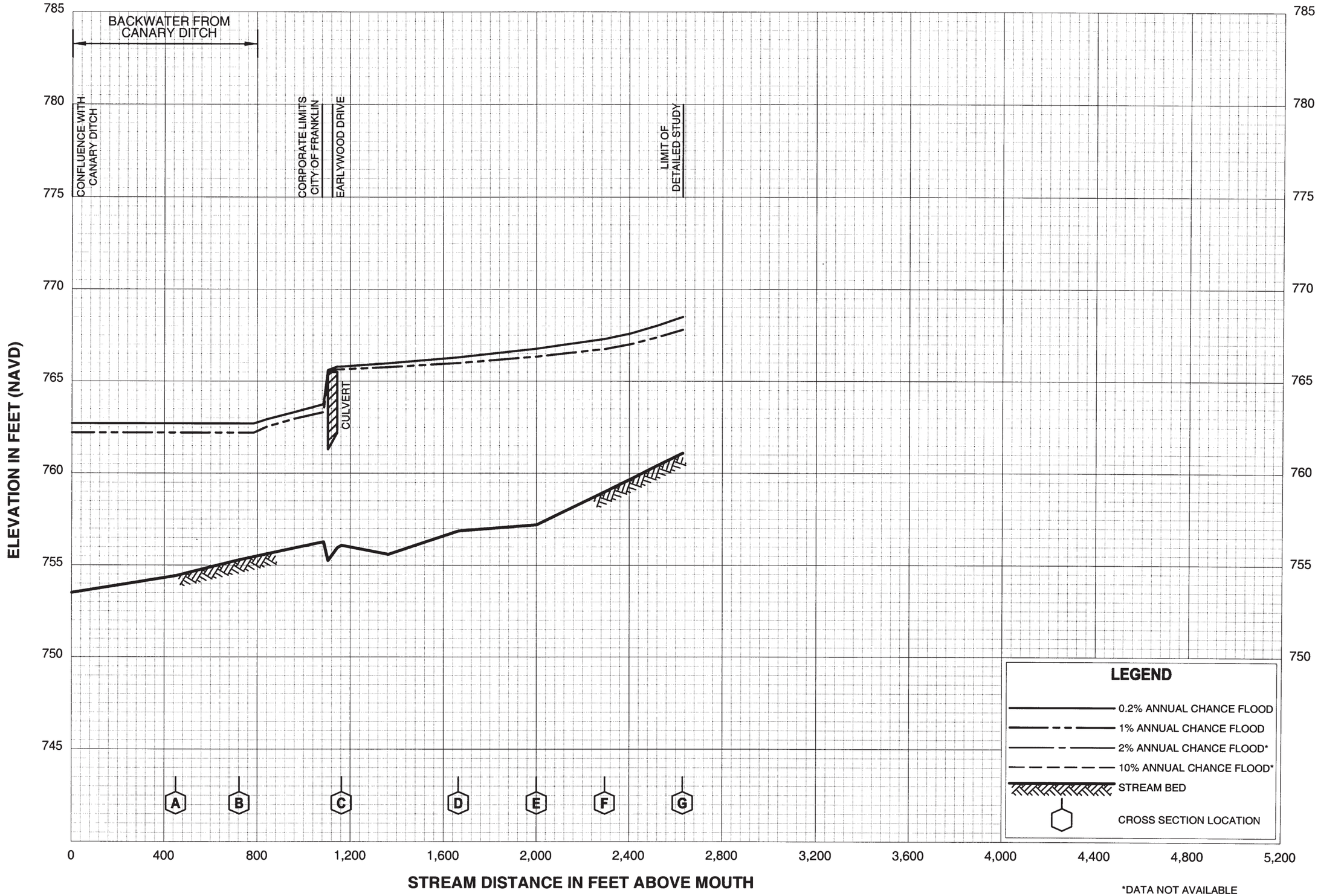
FLOOD PROFILES

FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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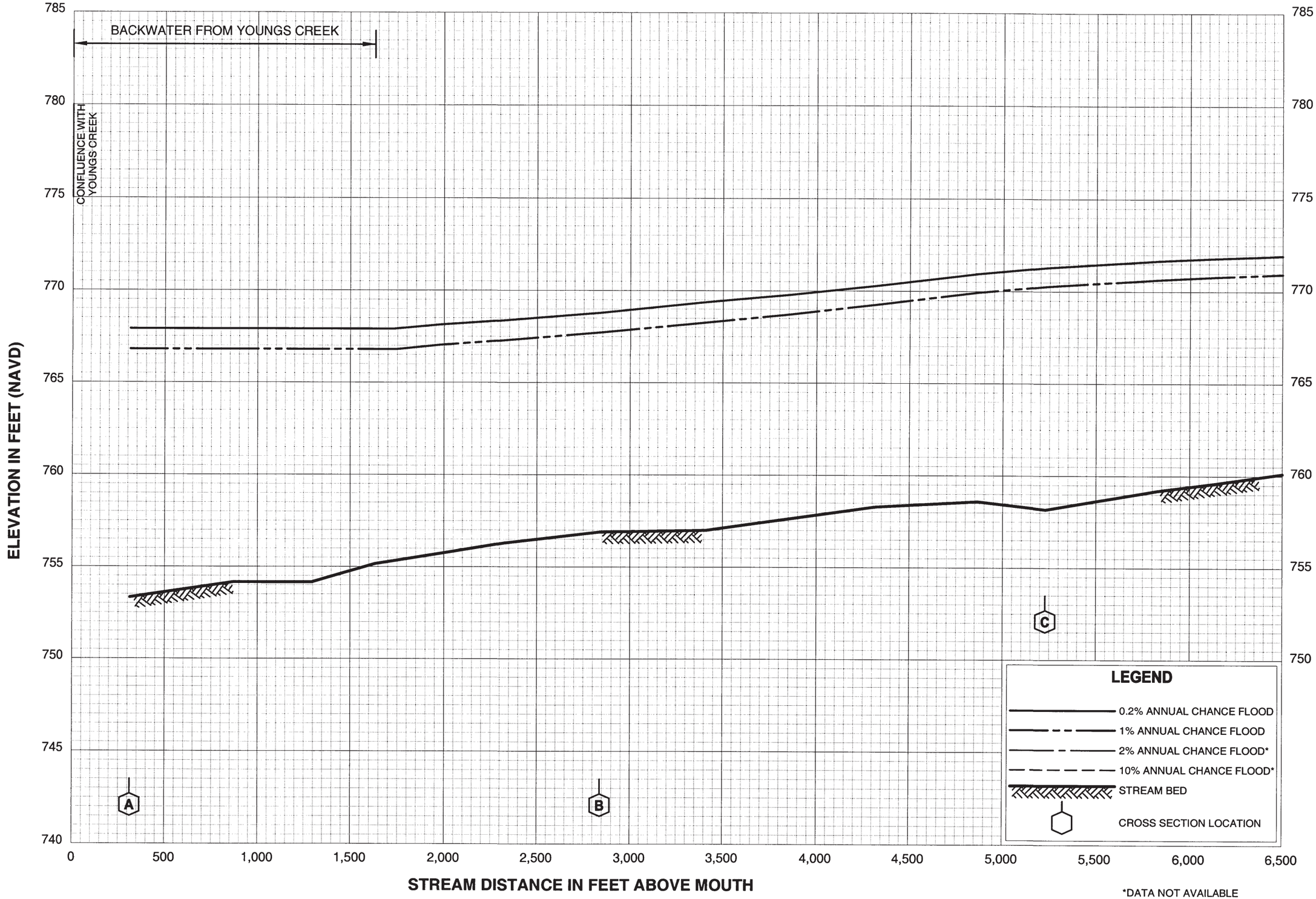
FLOOD PROFILES

GRAHAM DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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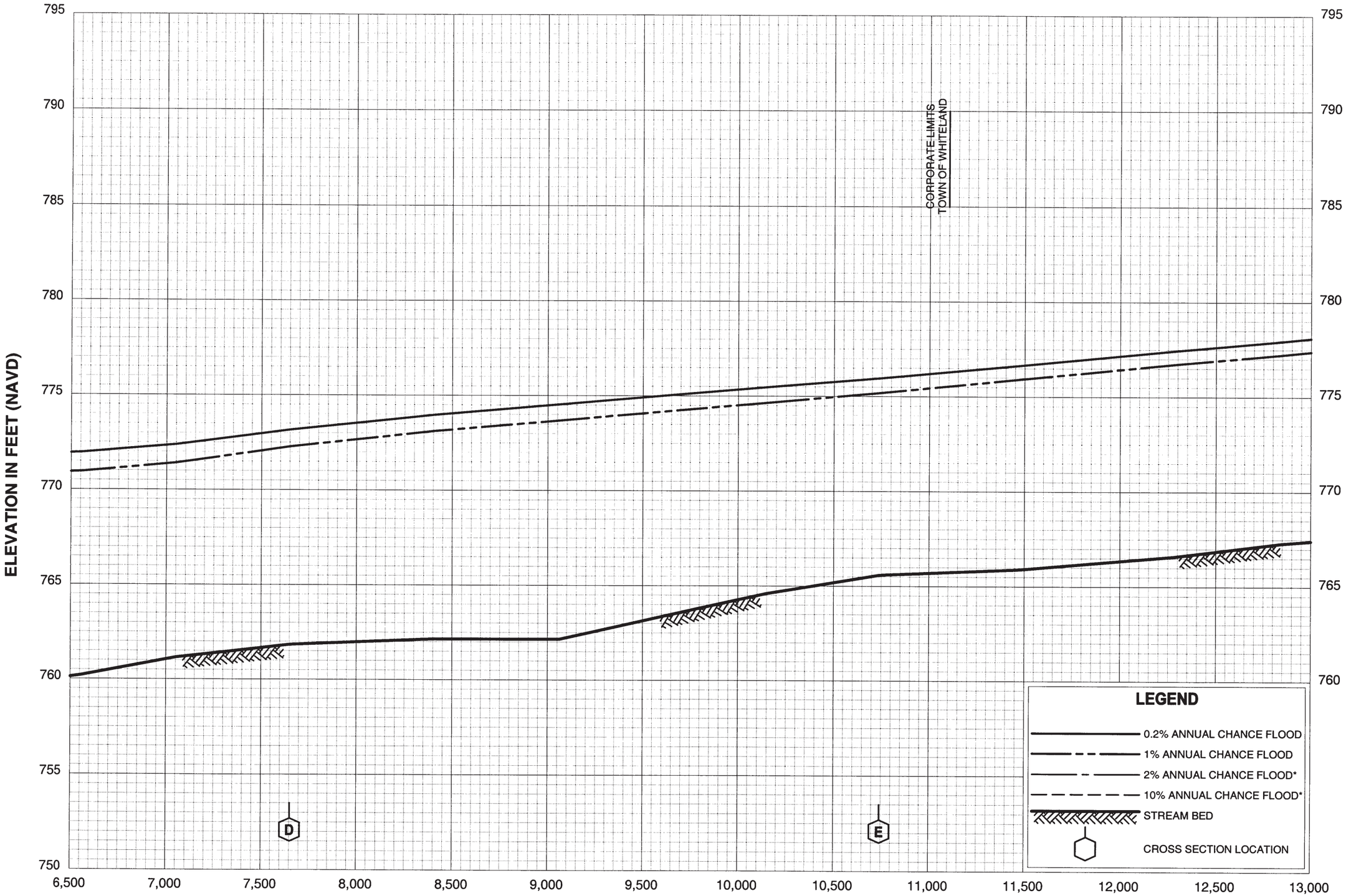
FLOOD PROFILES

GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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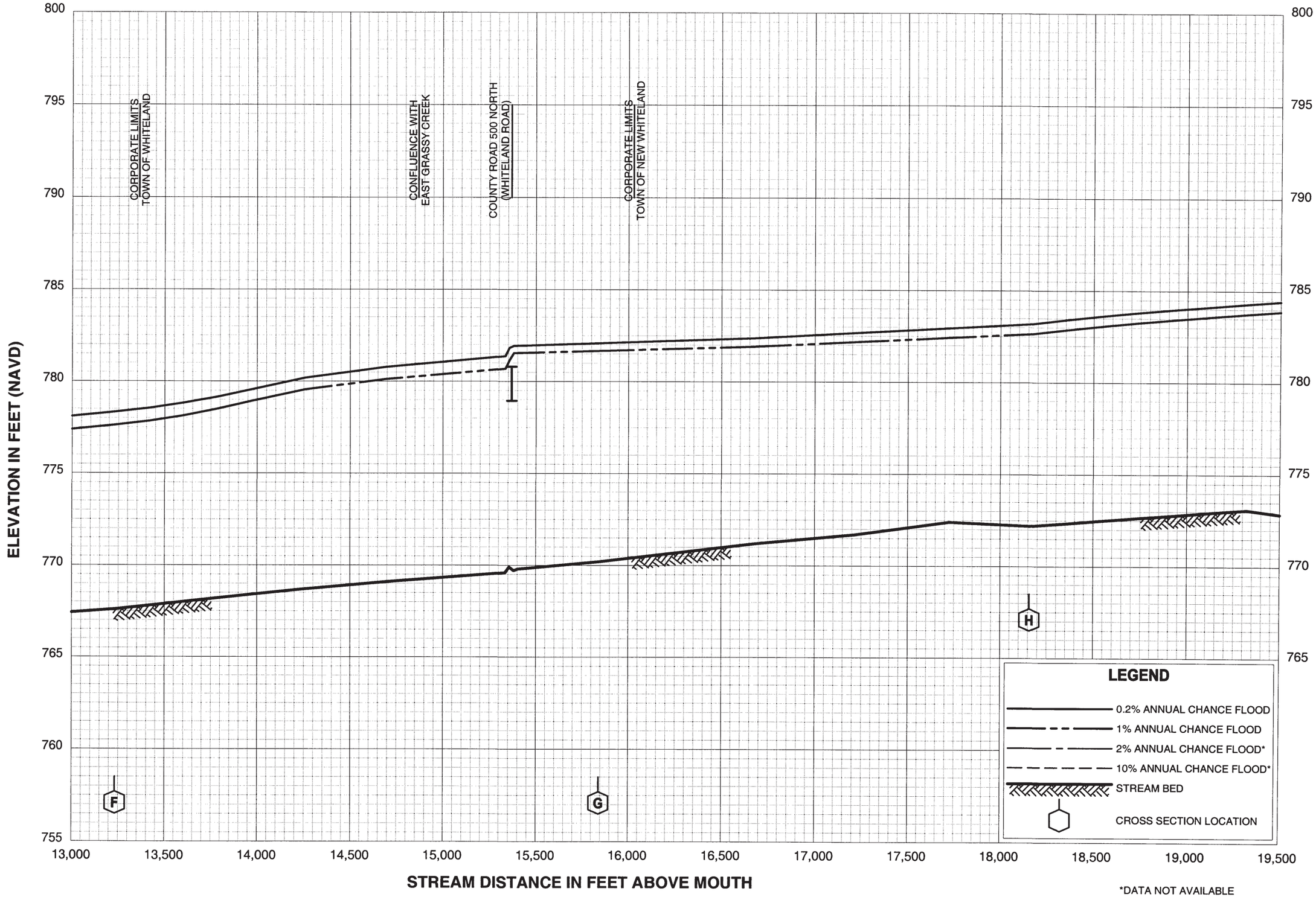
FLOOD PROFILES

GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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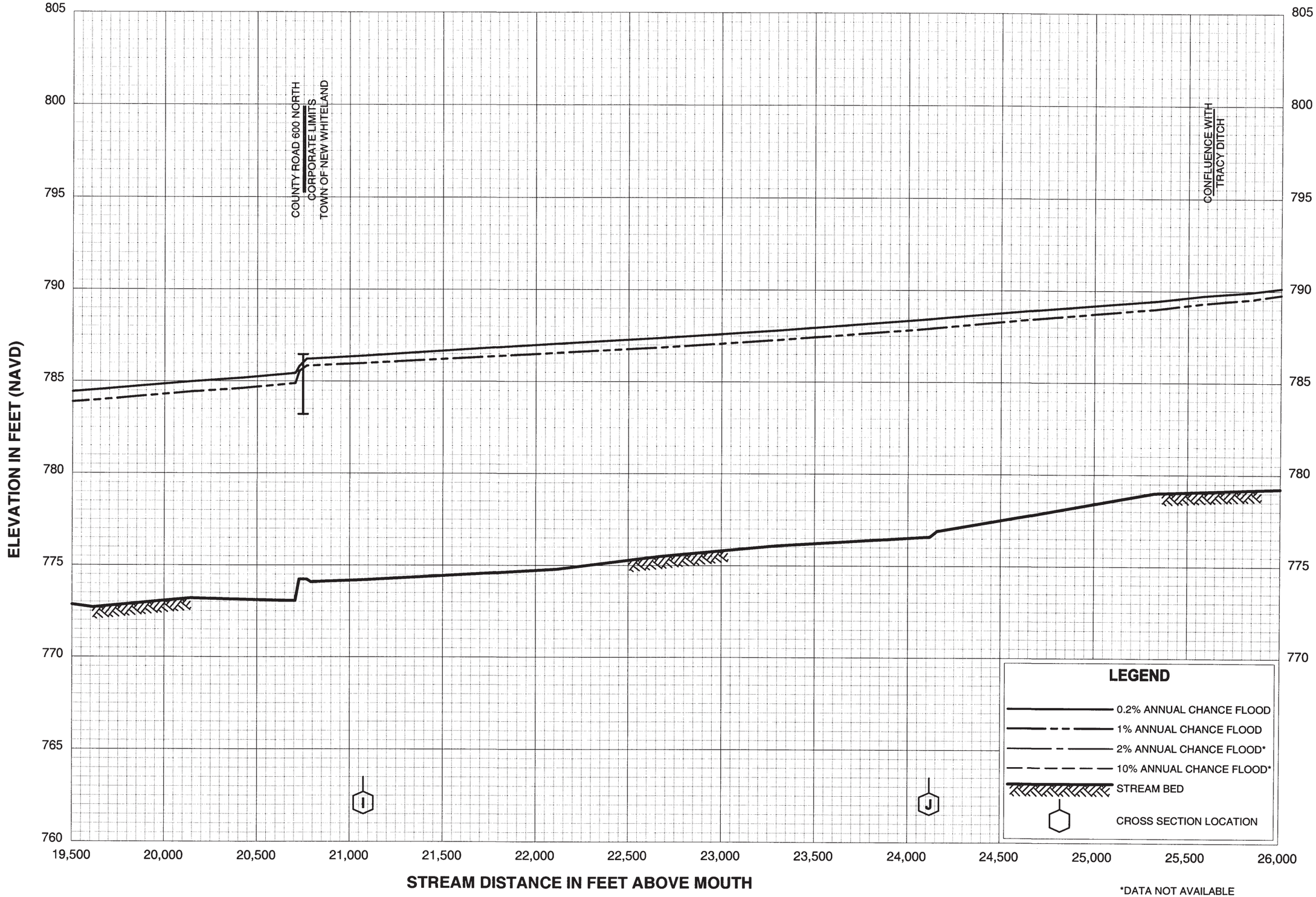
FLOOD PROFILES

GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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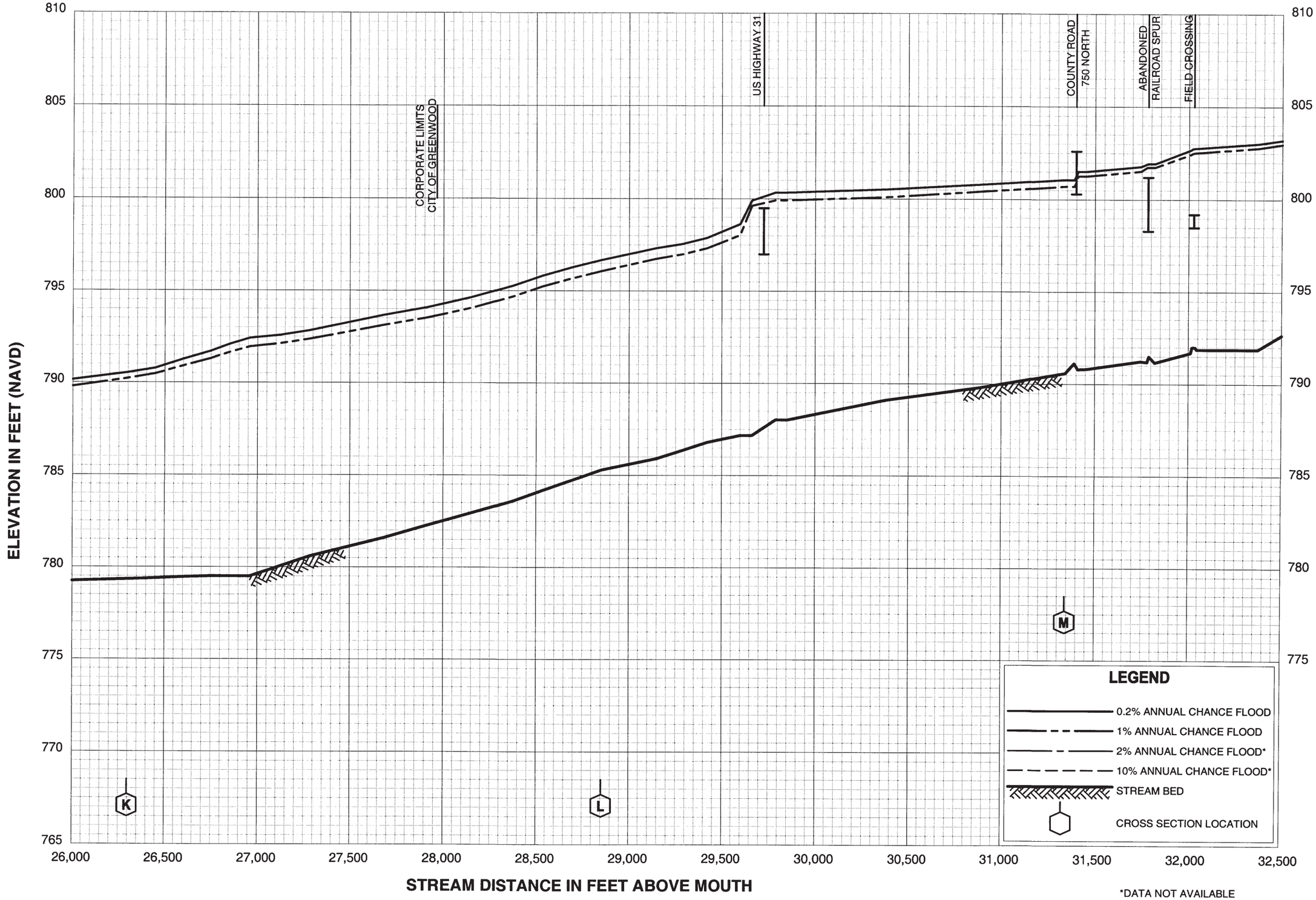
FLOOD PROFILES

GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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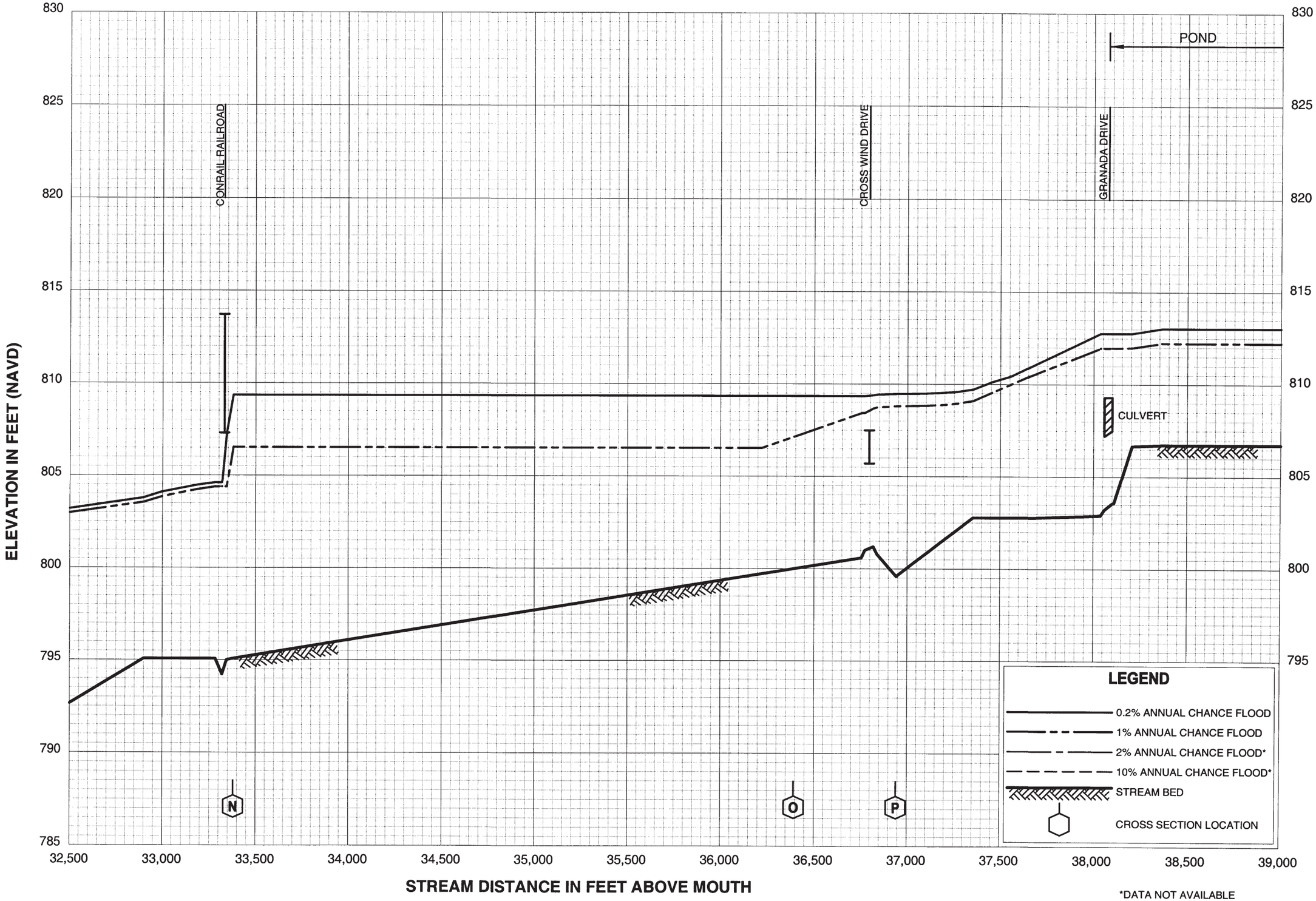
FLOOD PROFILES

GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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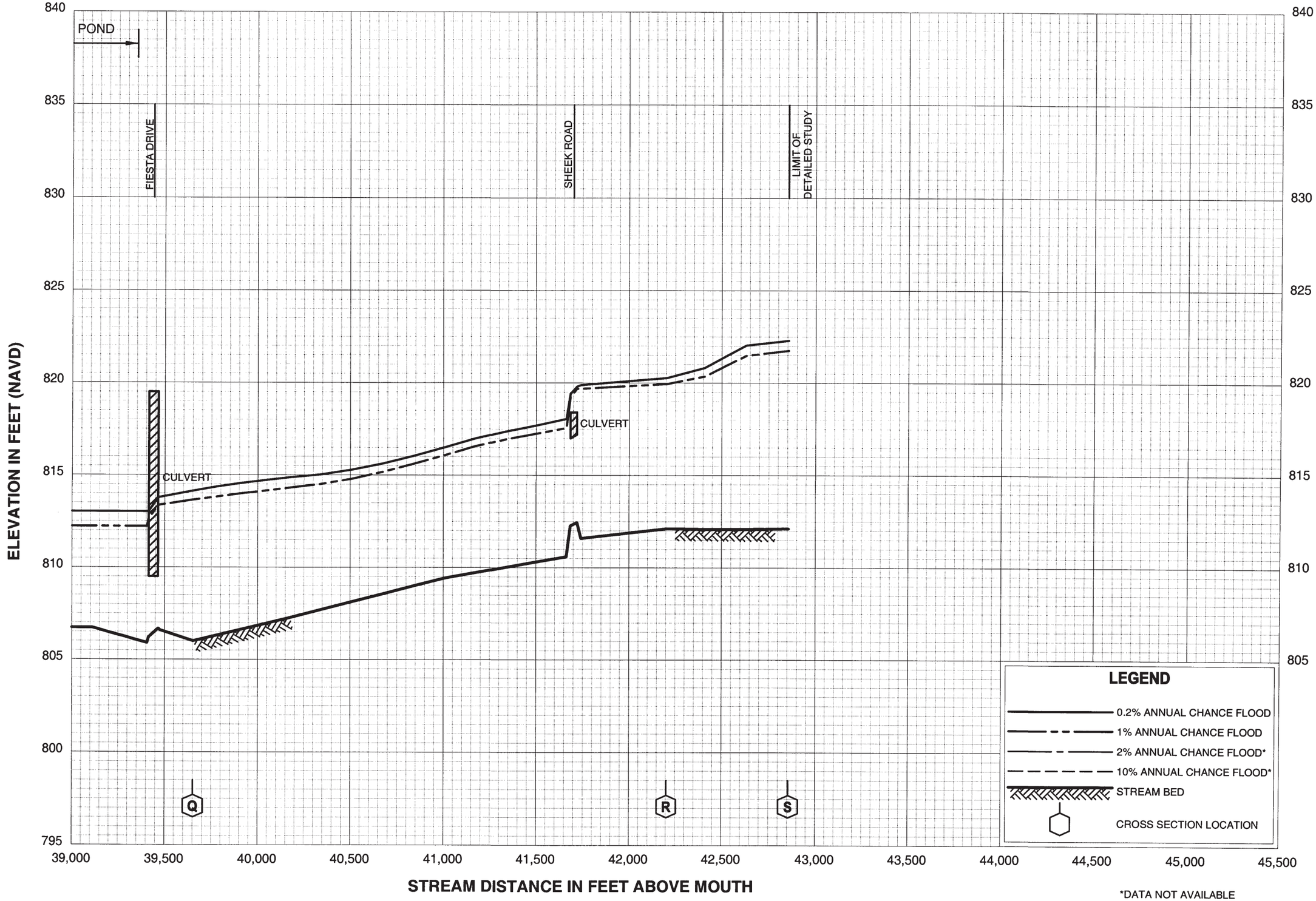
FLOOD PROFILES

GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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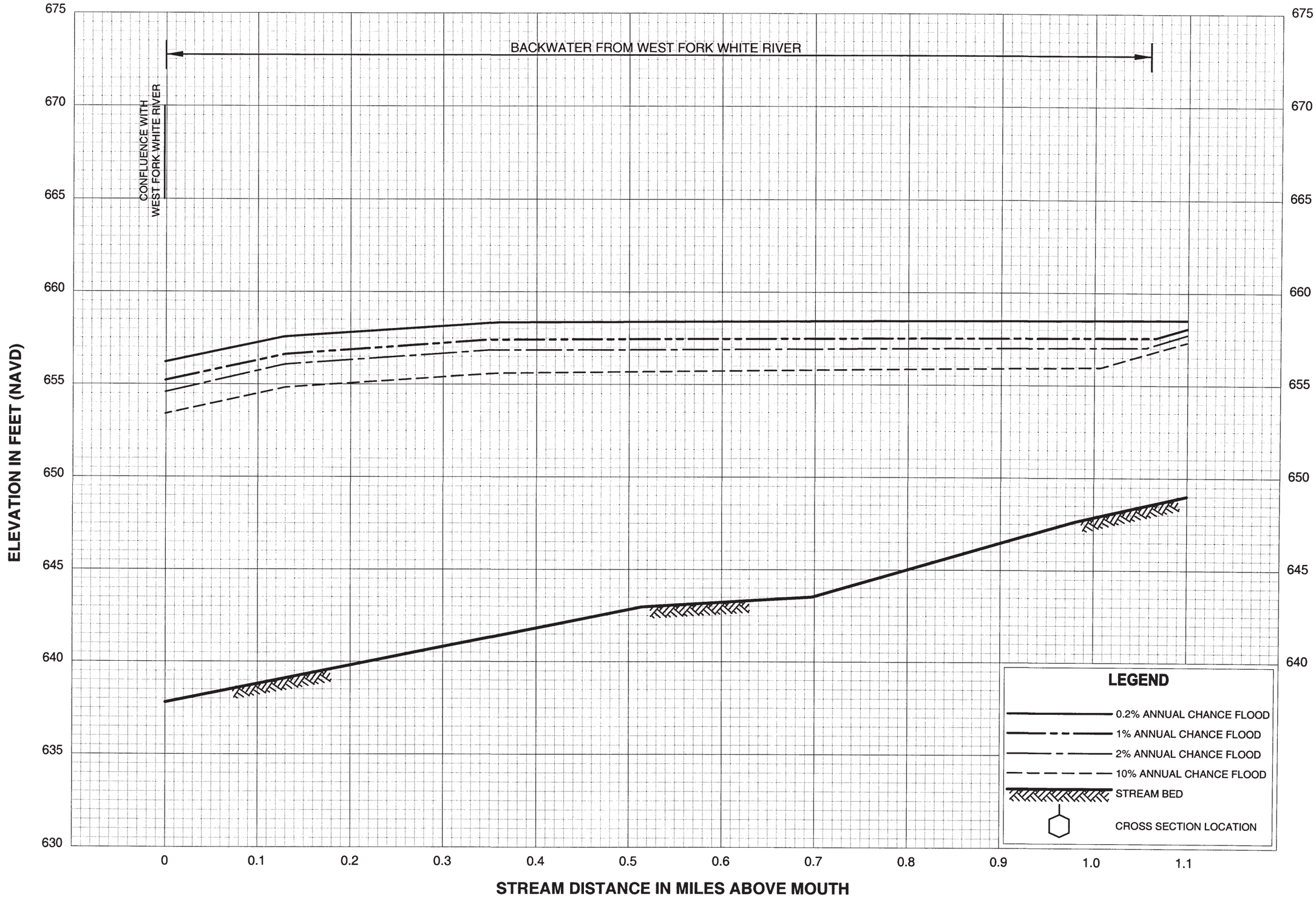
FLOOD PROFILES

GRASSY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



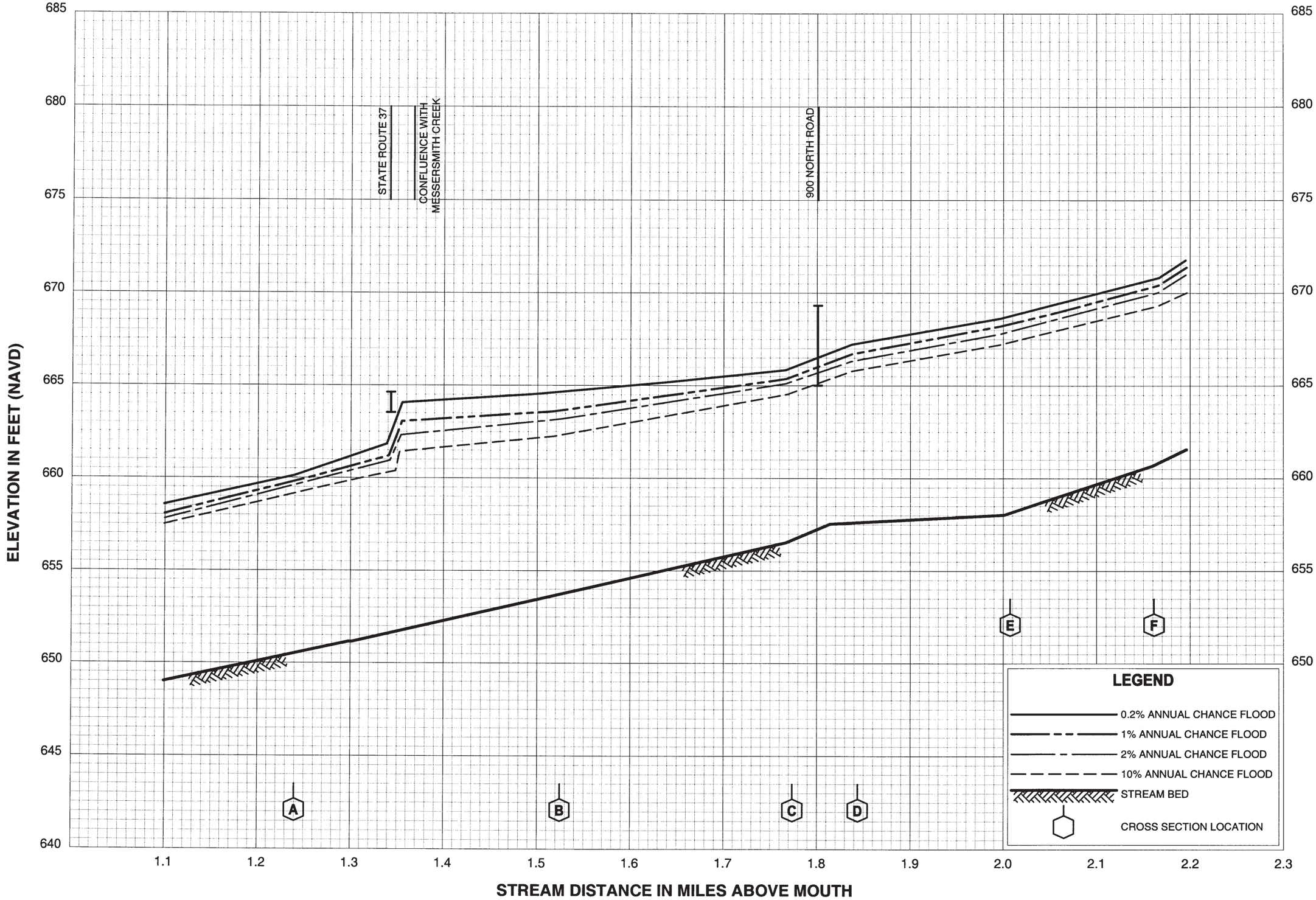
FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



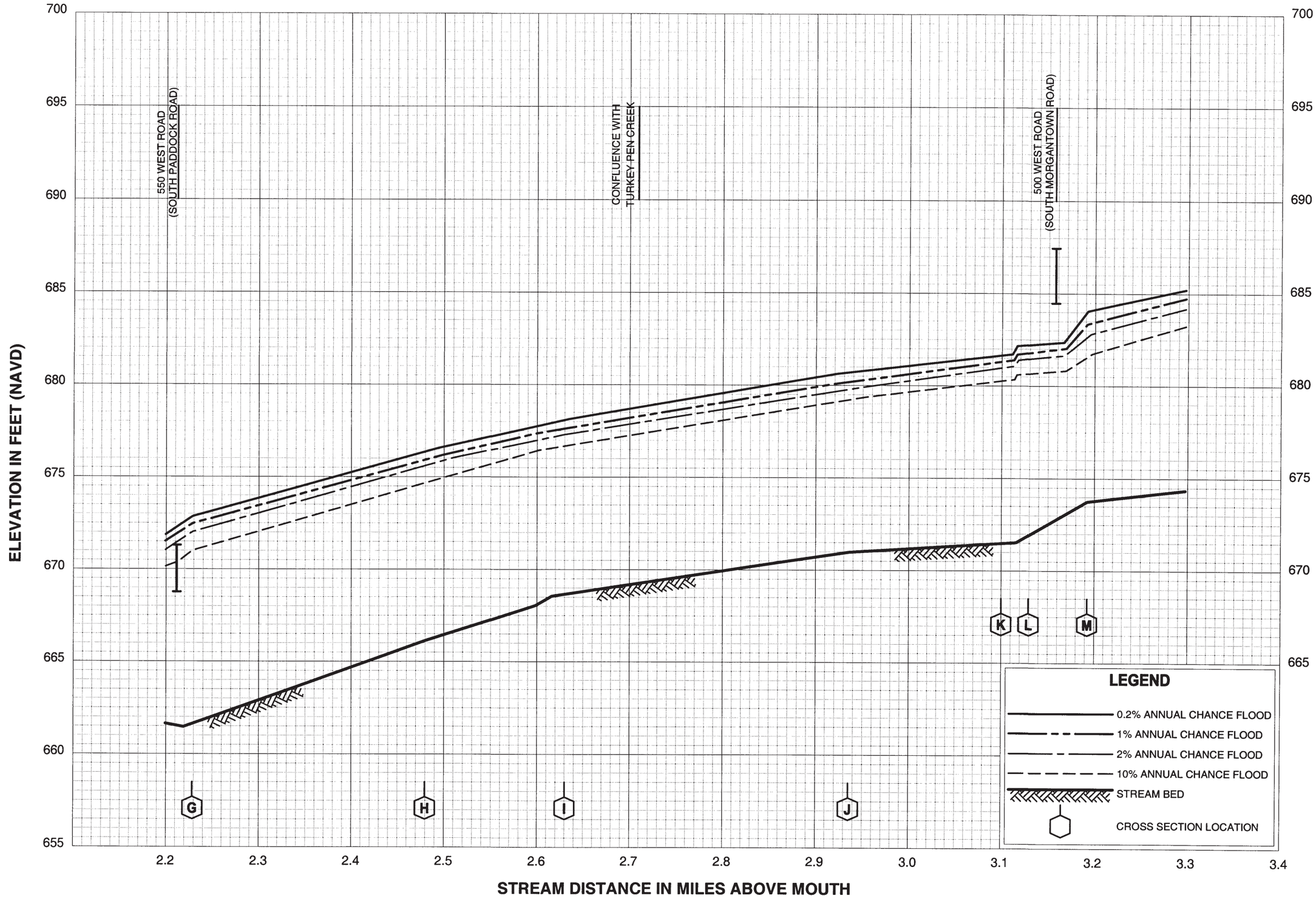
FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



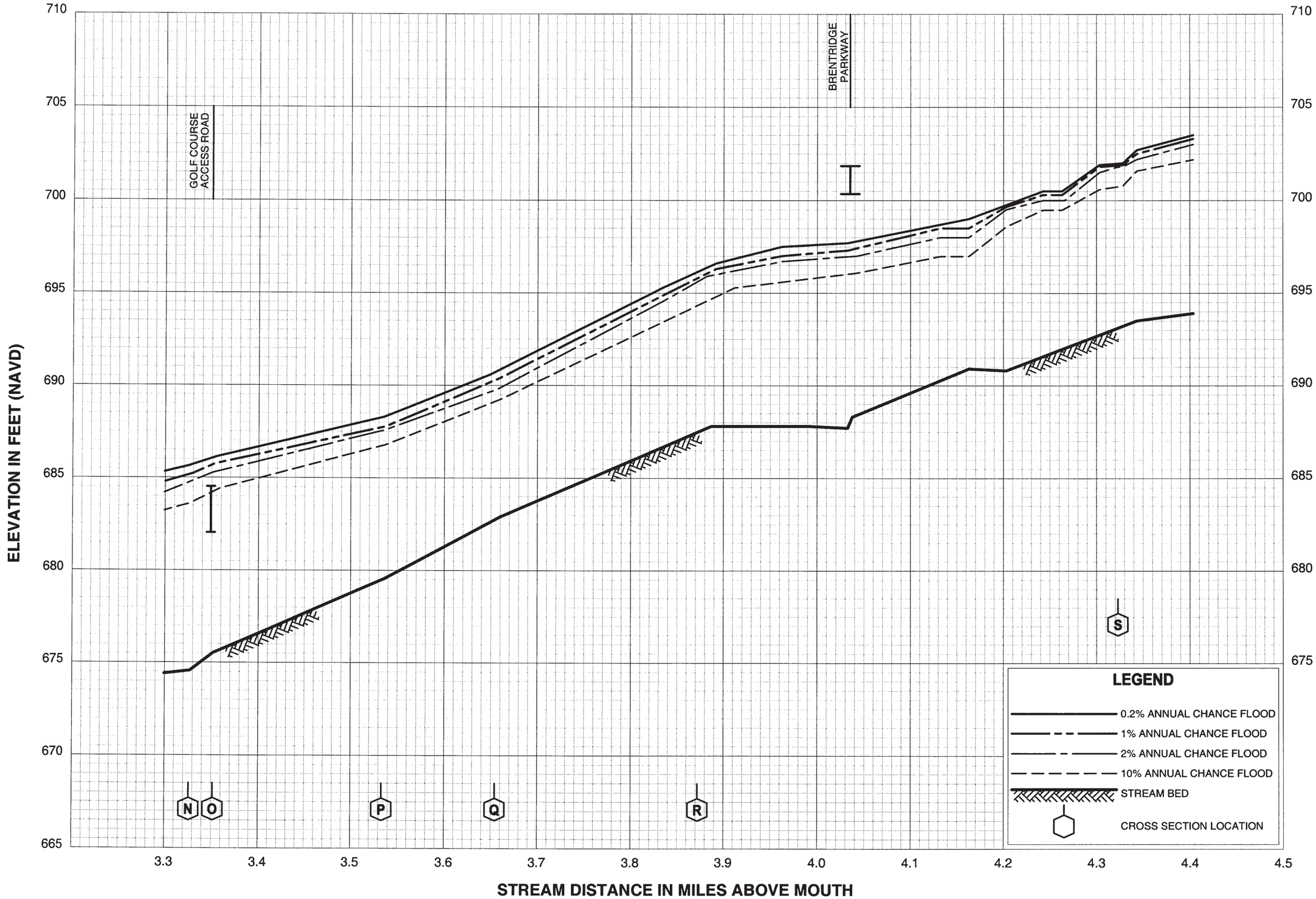
FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



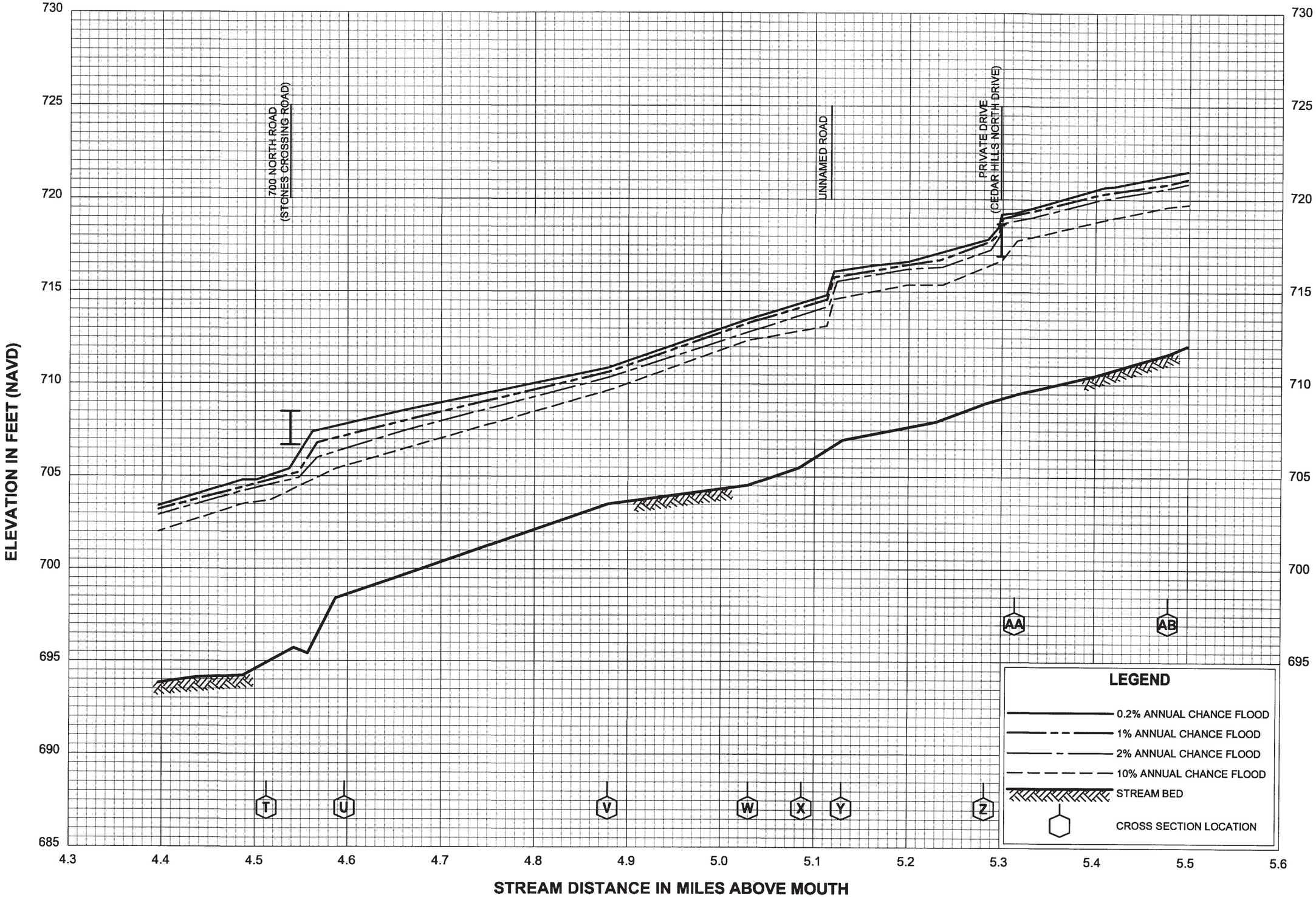
FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



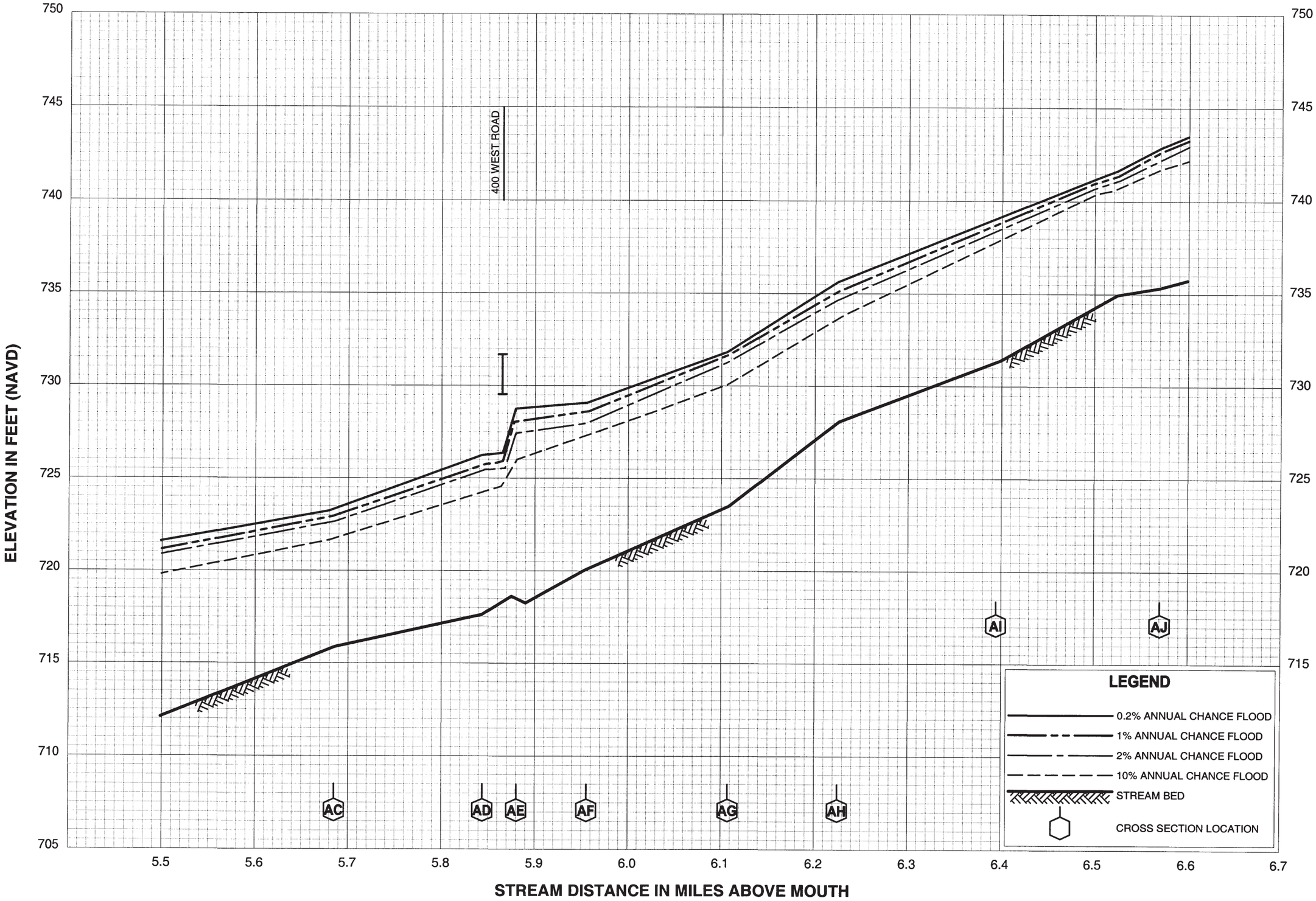
FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



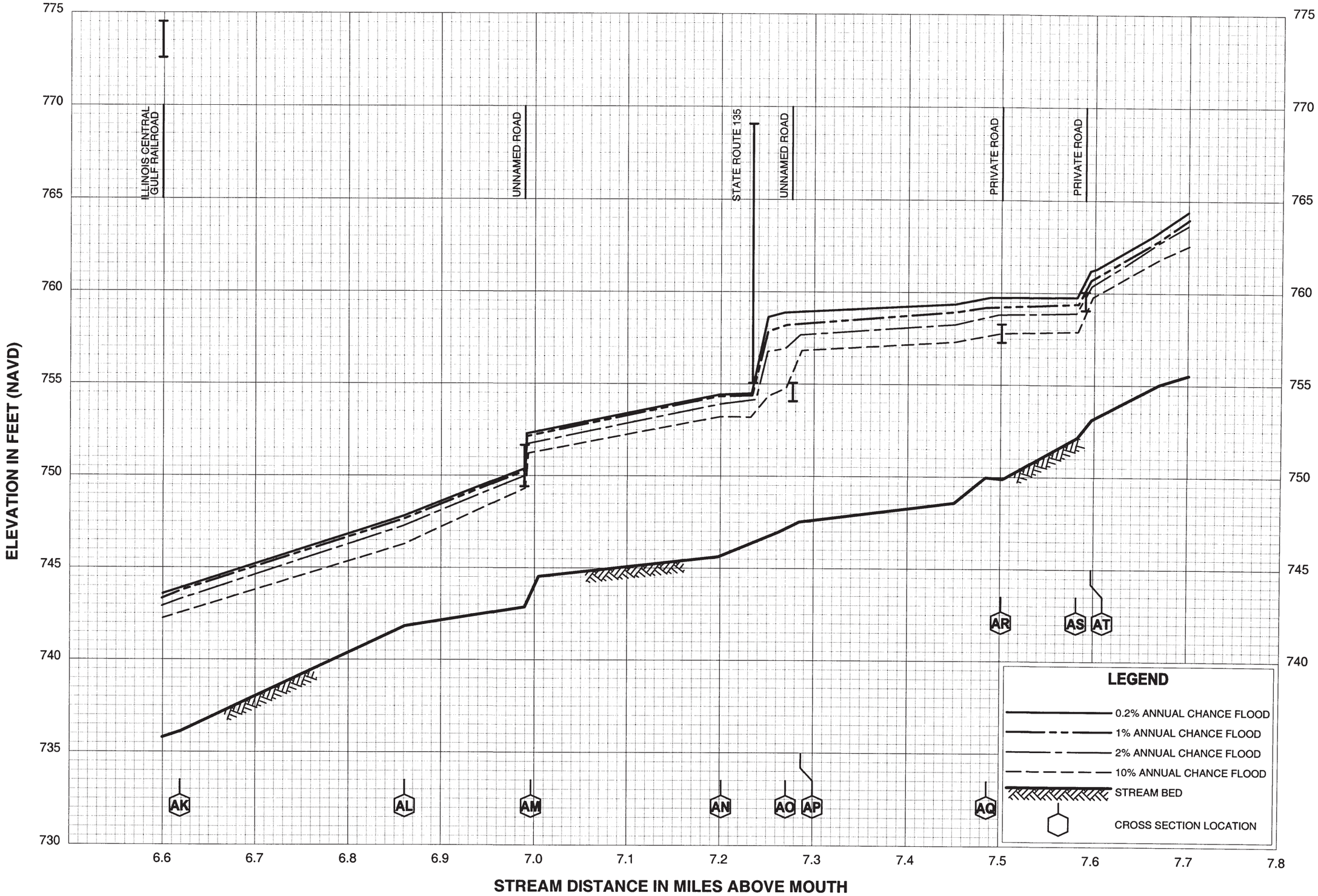
FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



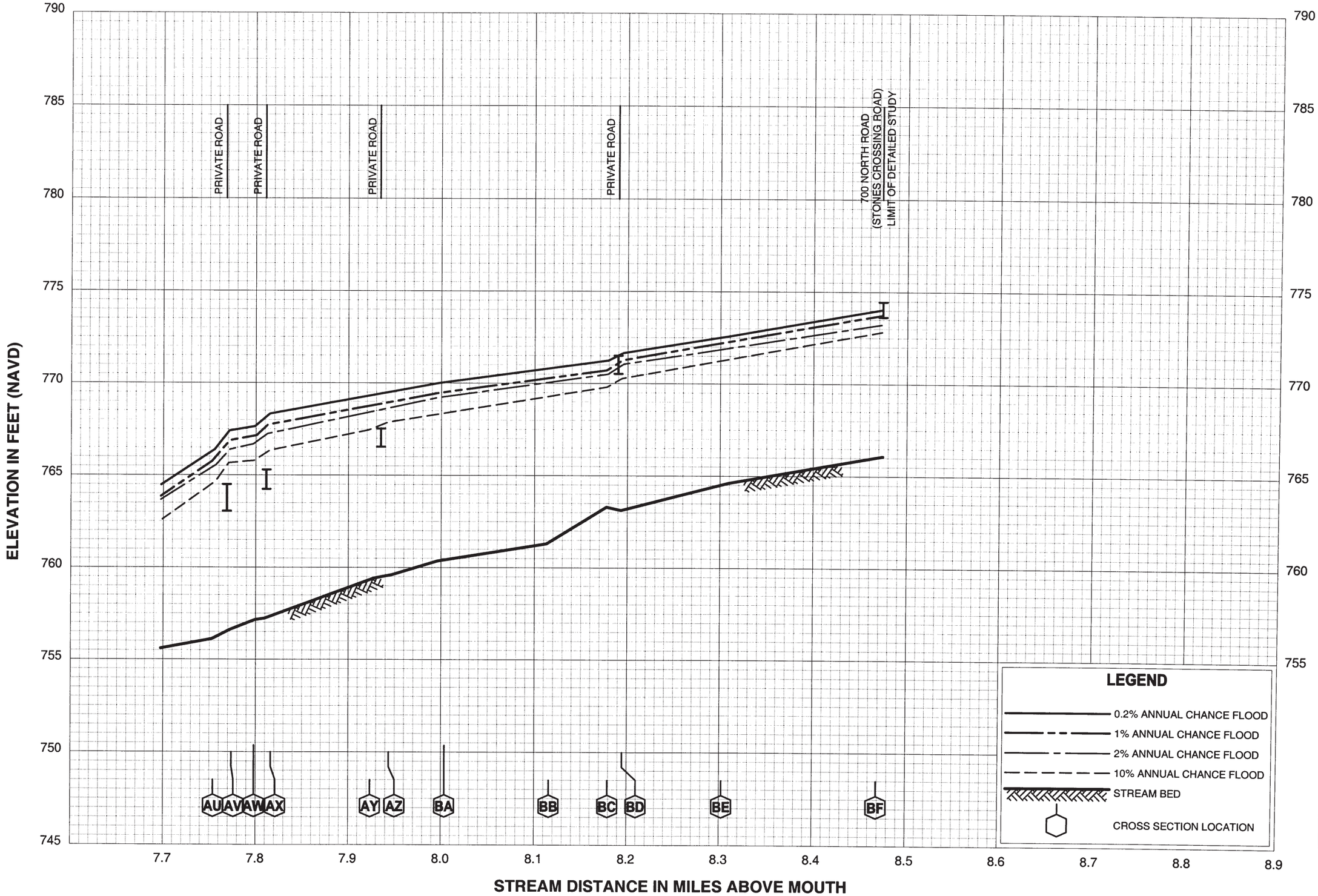
FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



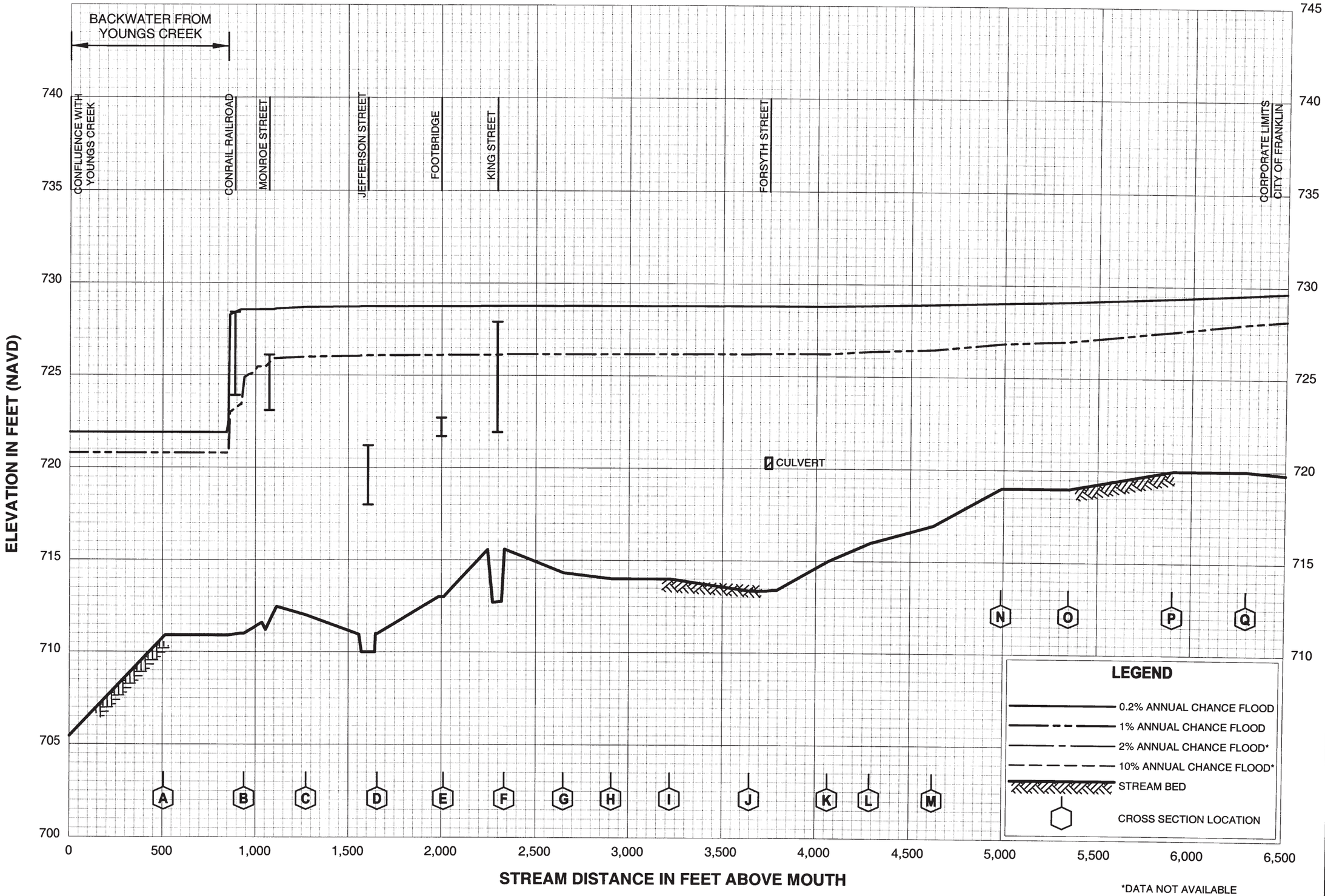
FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



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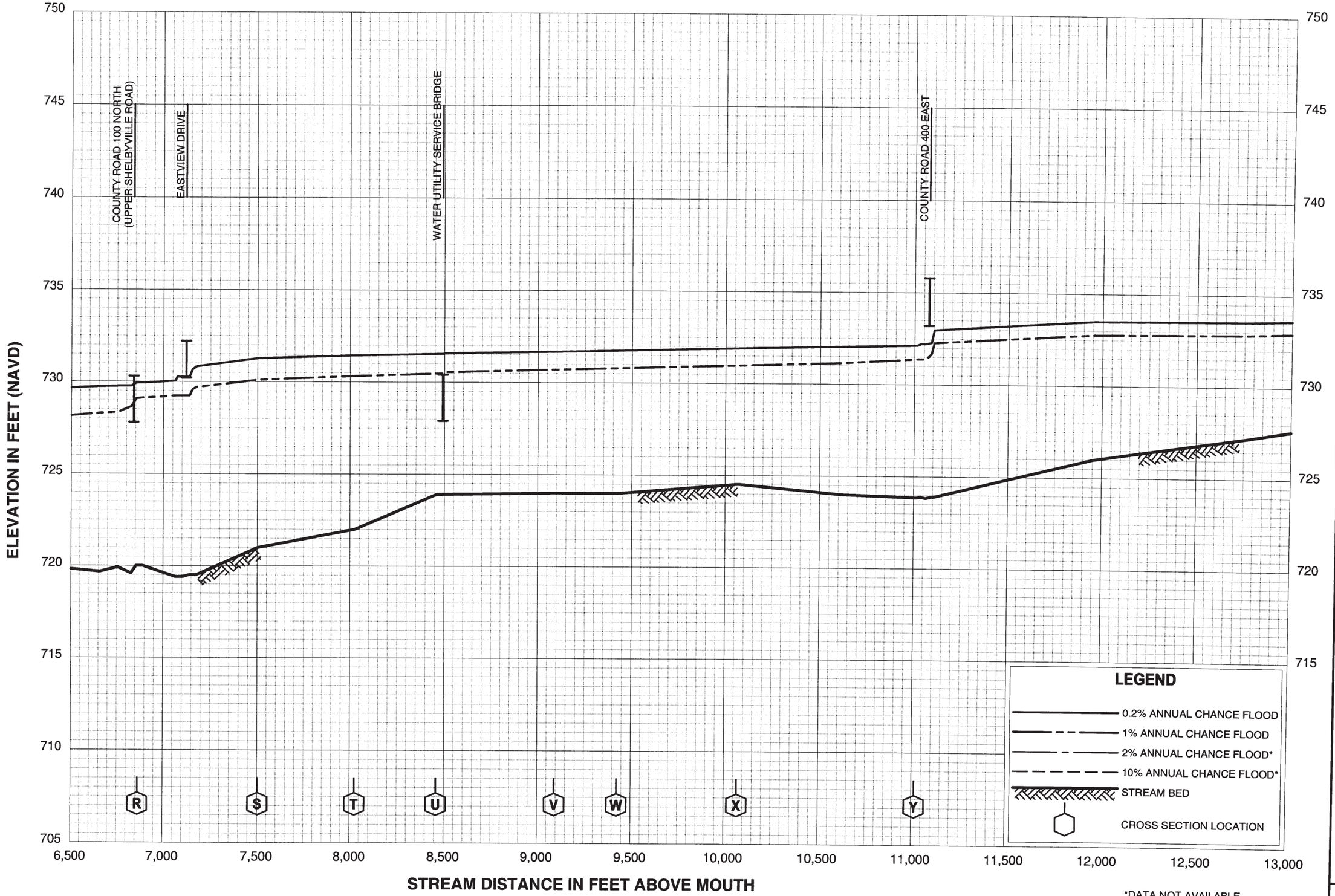
FLOOD PROFILES

HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



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FLOOD PROFILES

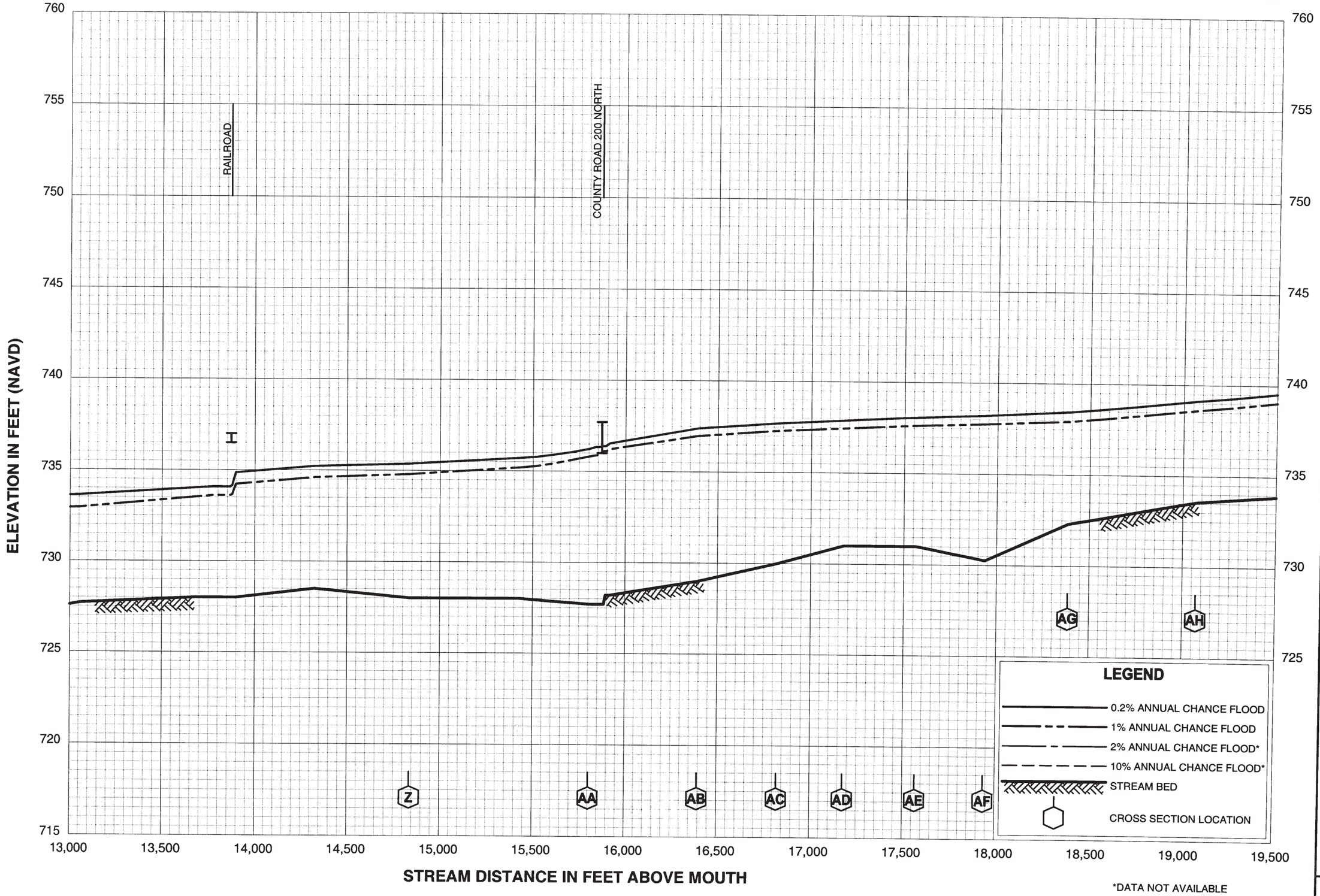
HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS

35P



*DATA NOT AVAILABLE

FLOOD PROFILES

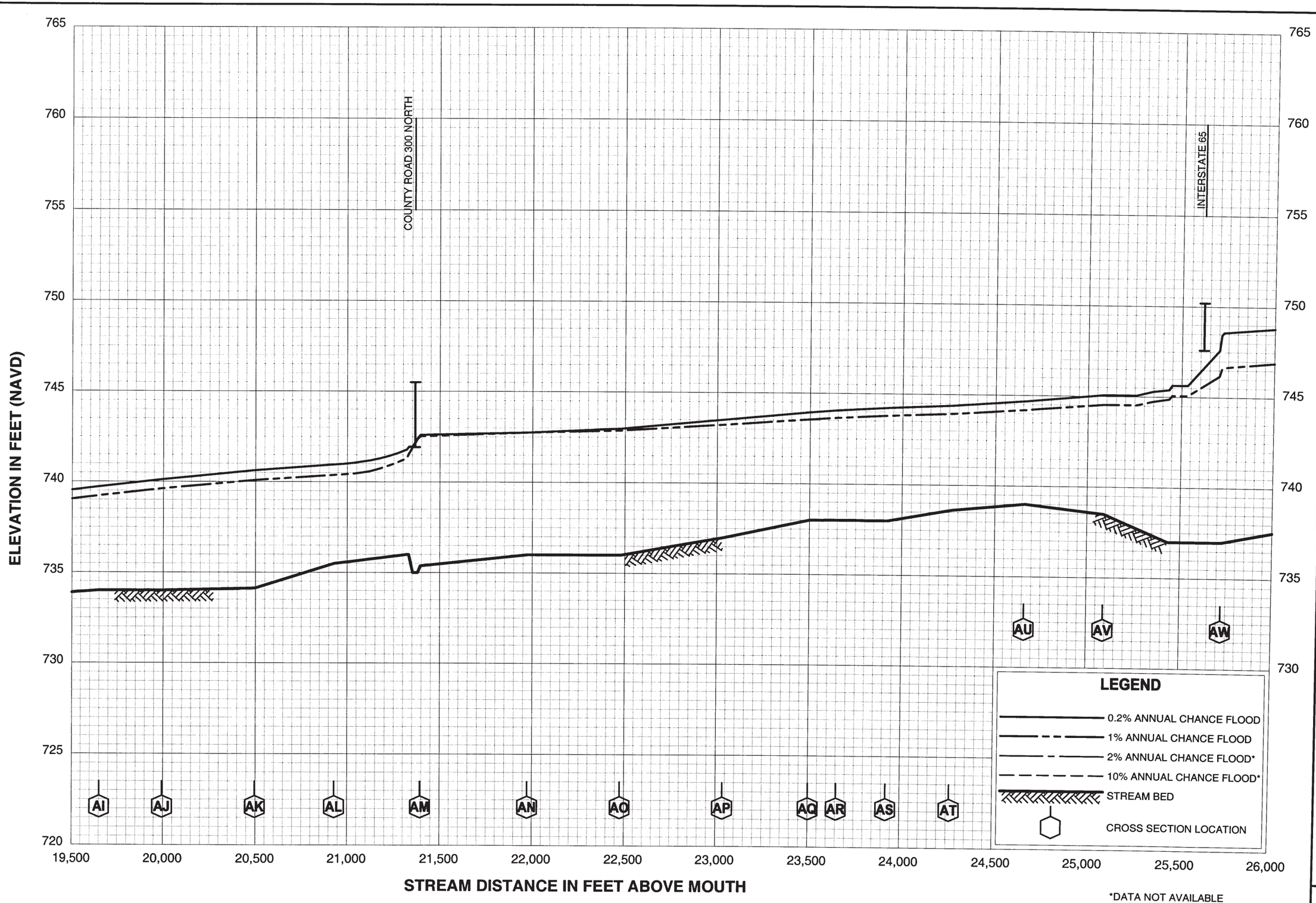
HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS

36P



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FLOOD PROFILES

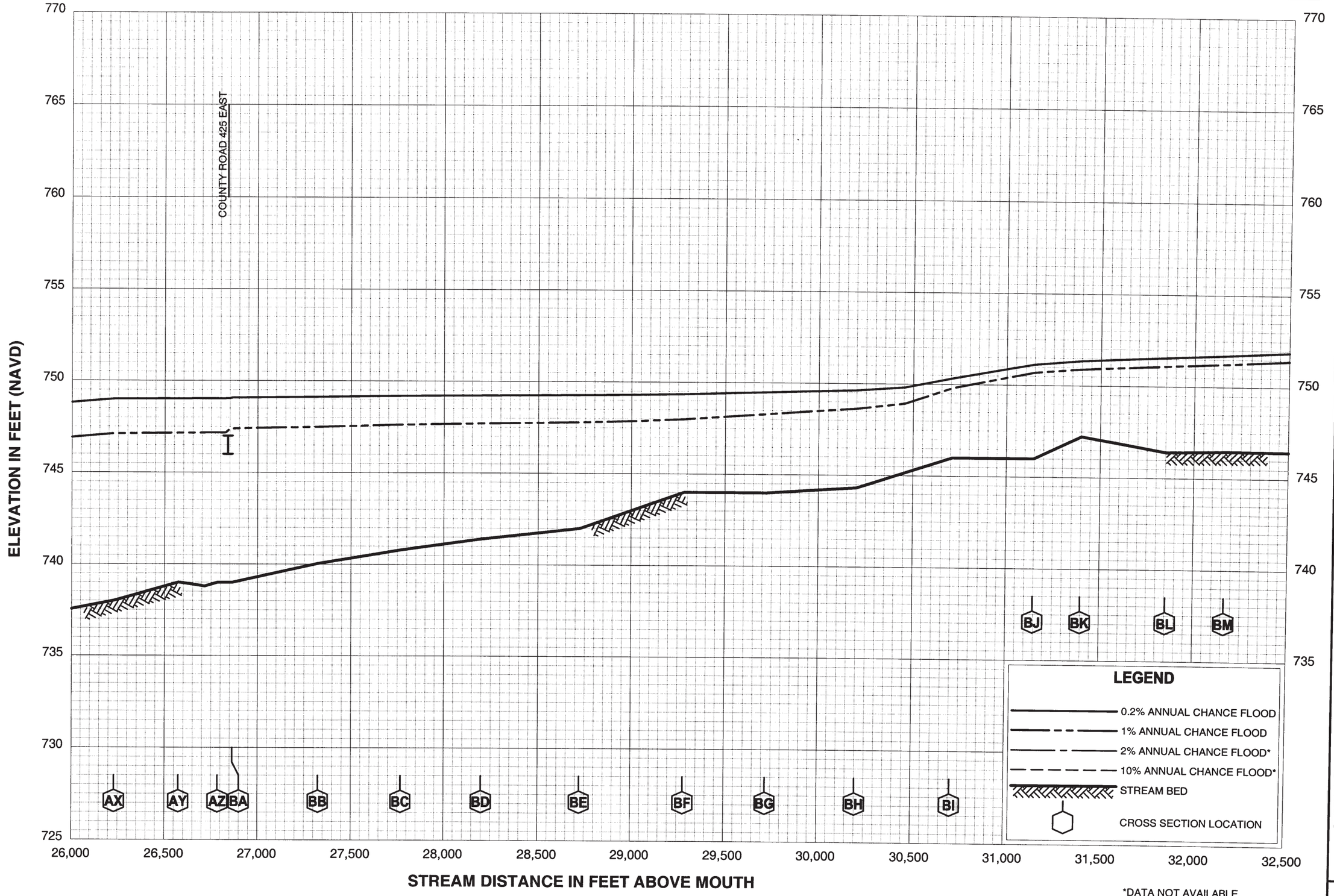
HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS

37P



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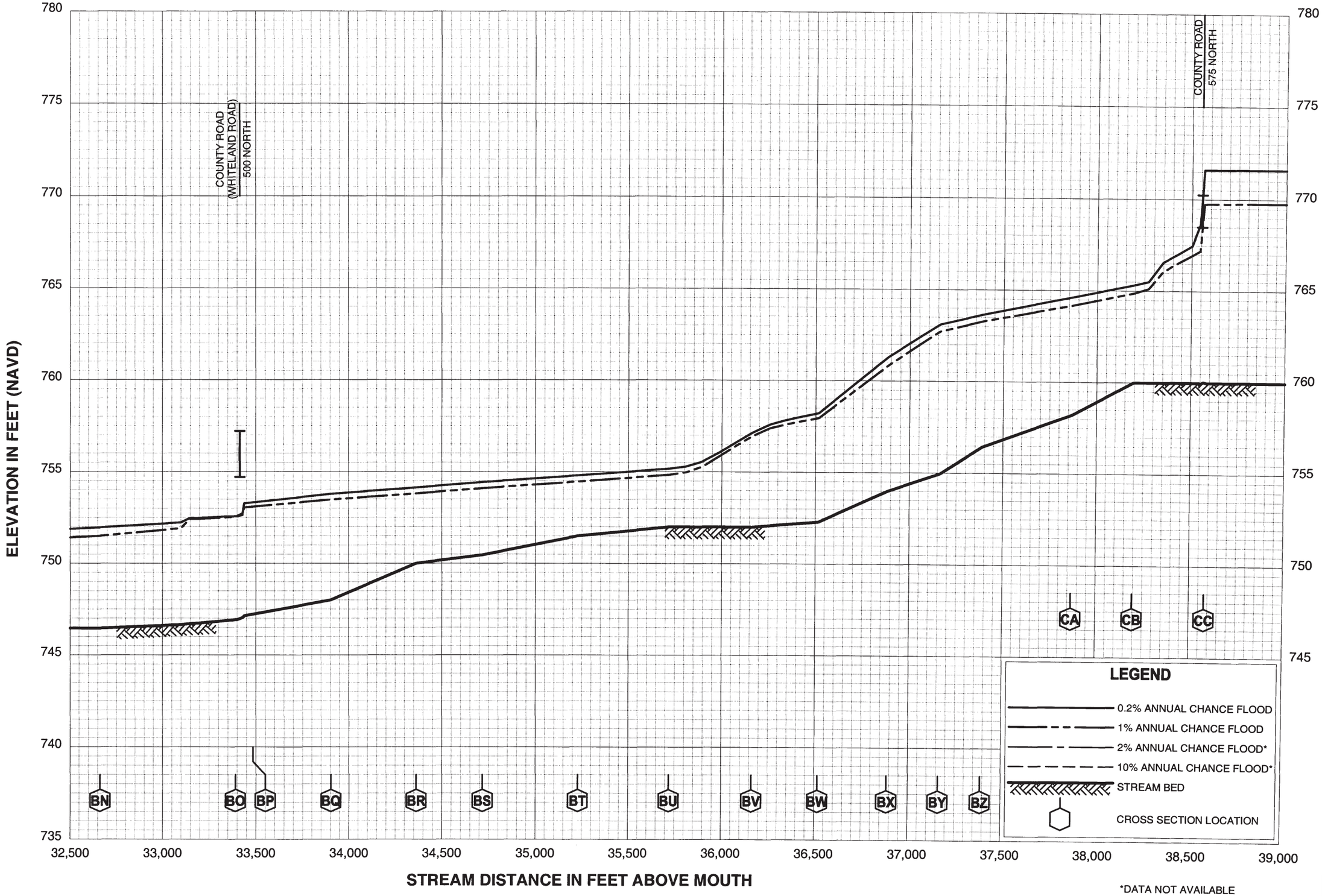
FLOOD PROFILES

HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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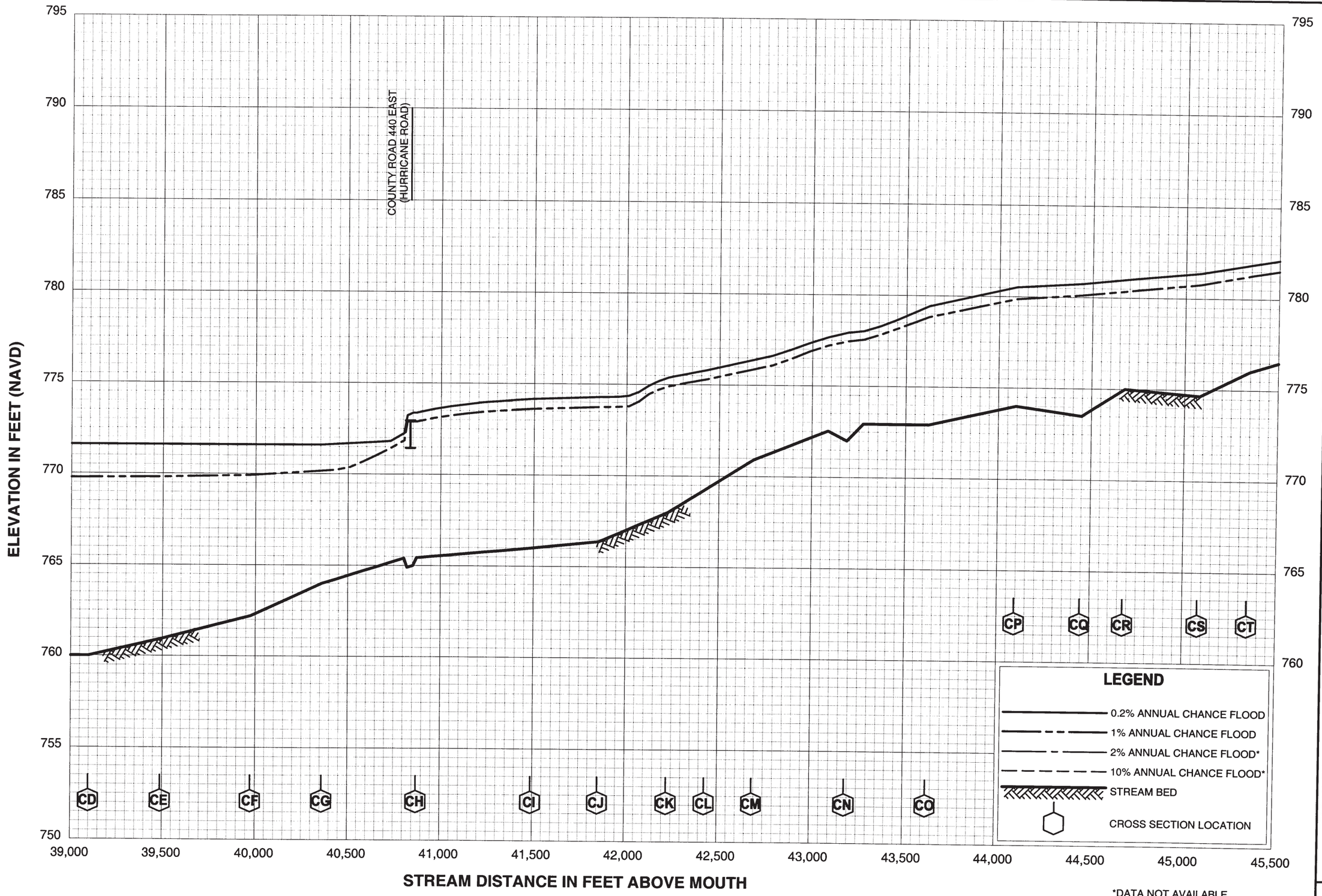
FLOOD PROFILES

HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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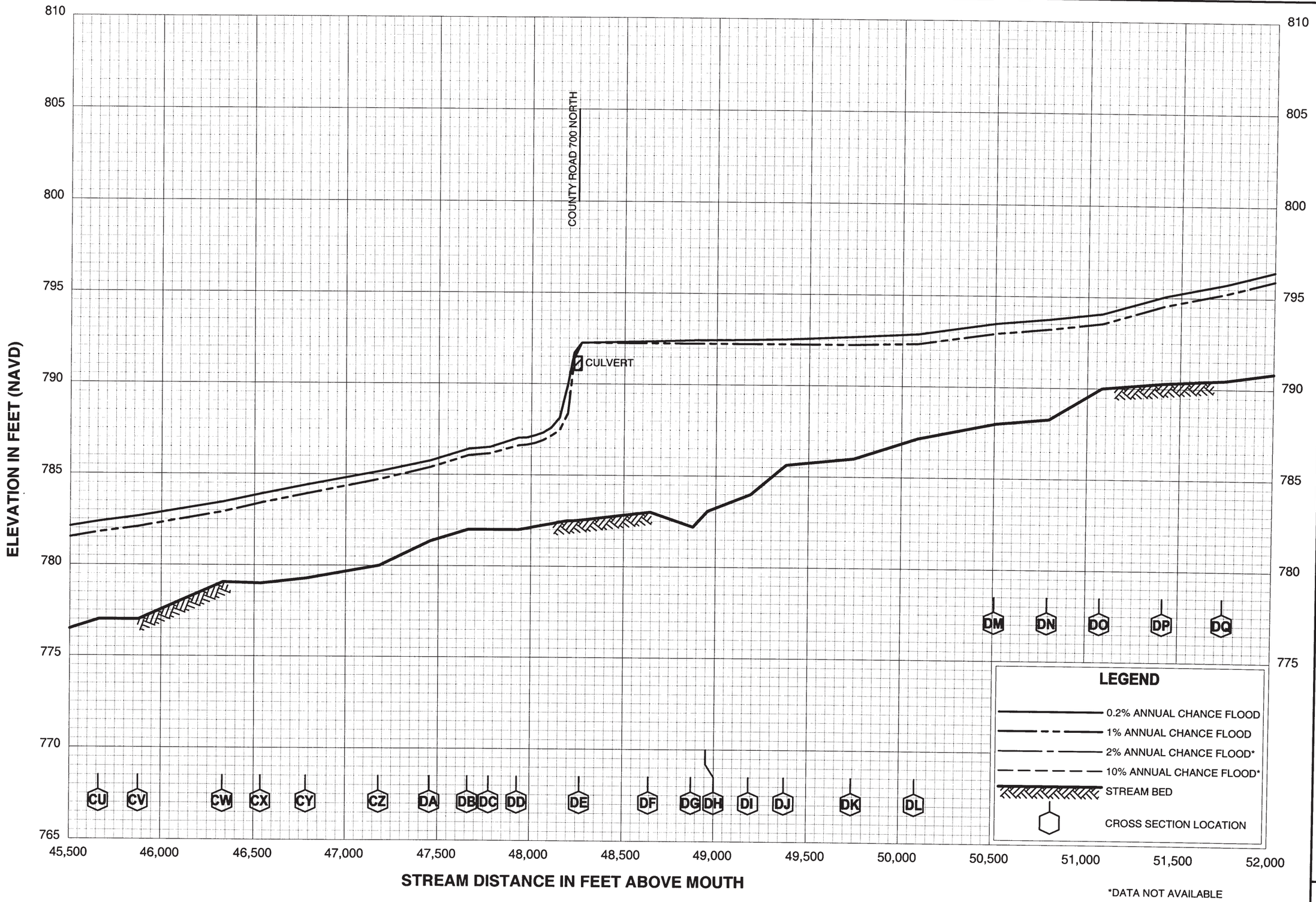
FLOOD PROFILES

HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



FLOOD PROFILES

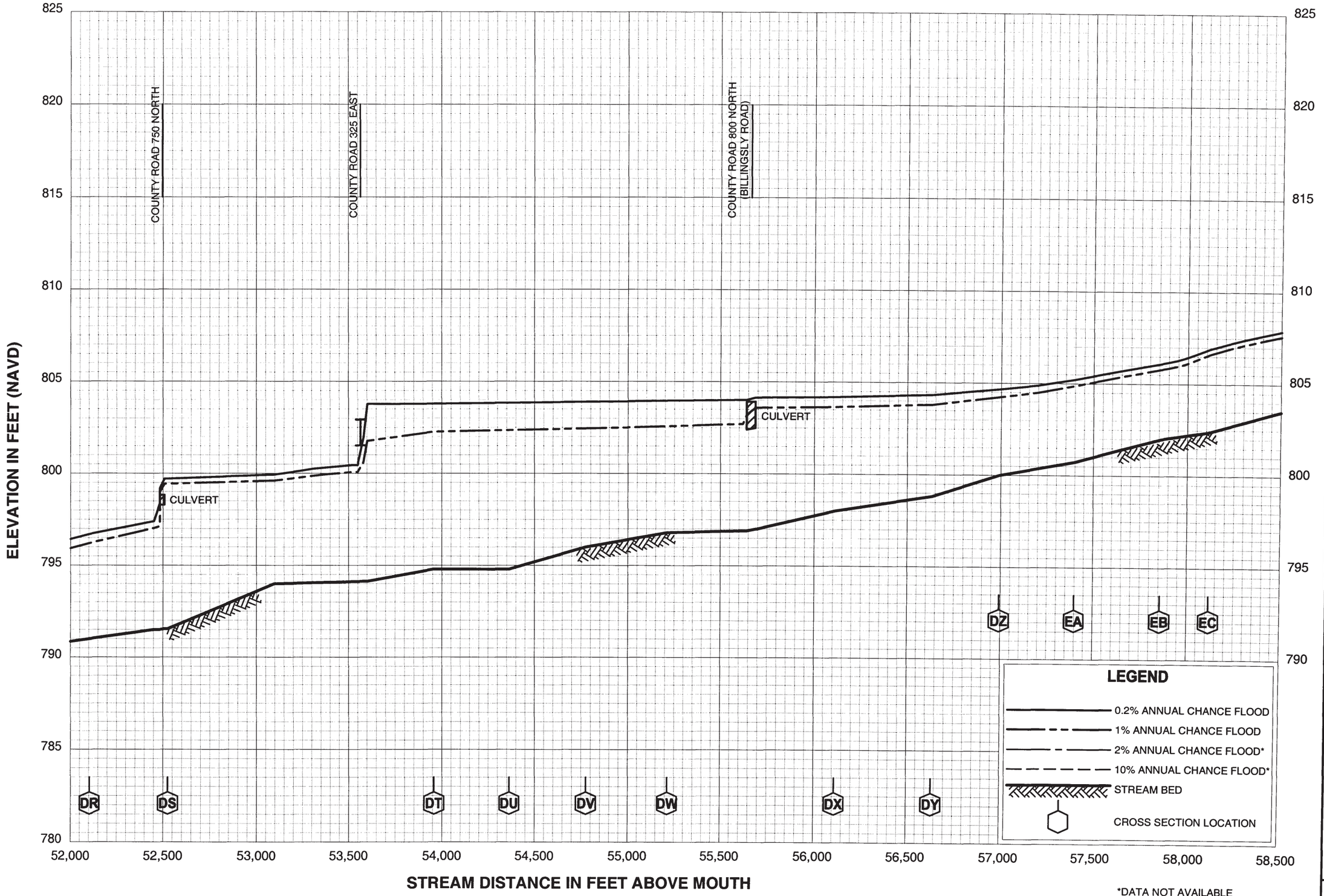
HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS

41P



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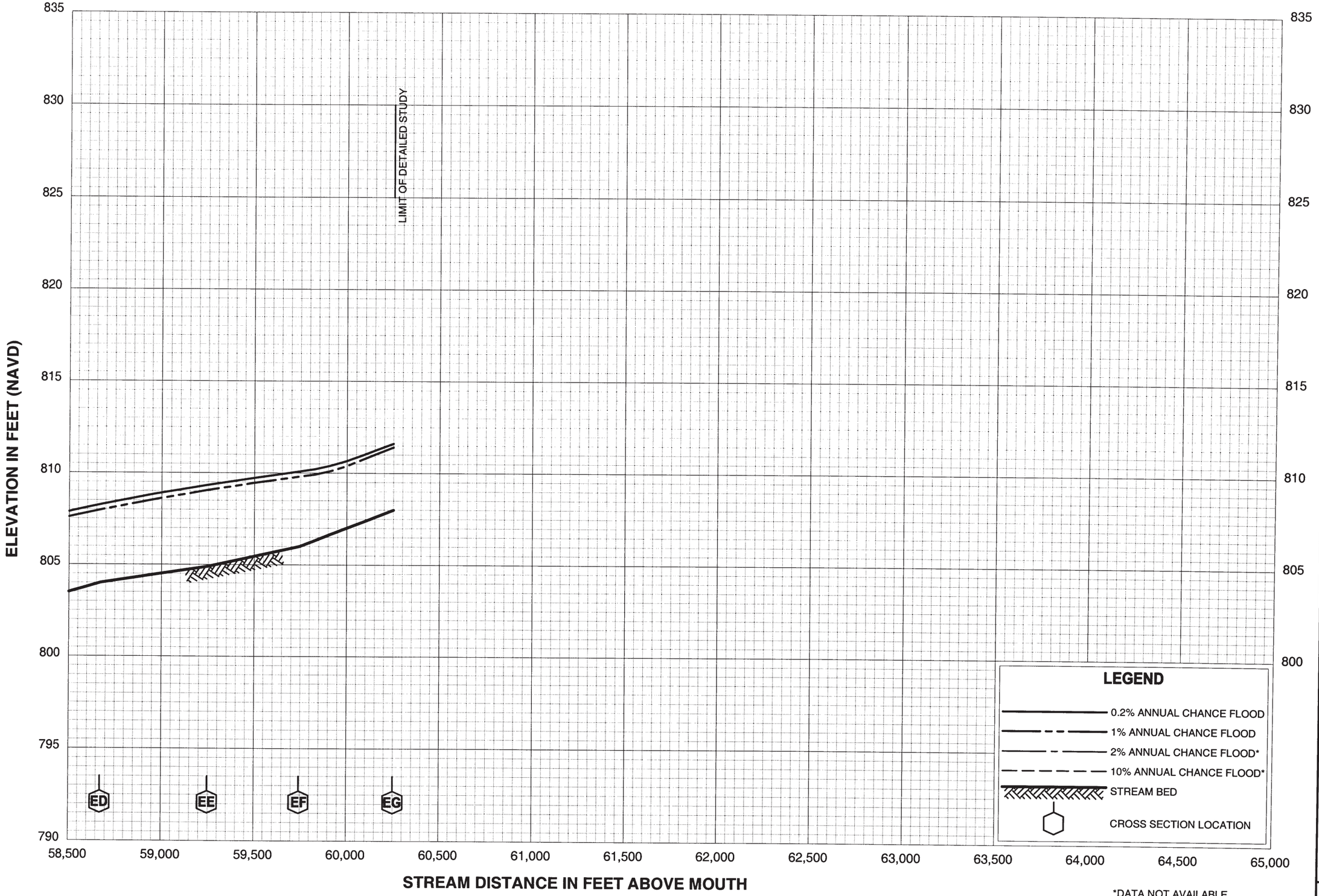
FLOOD PROFILES

HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



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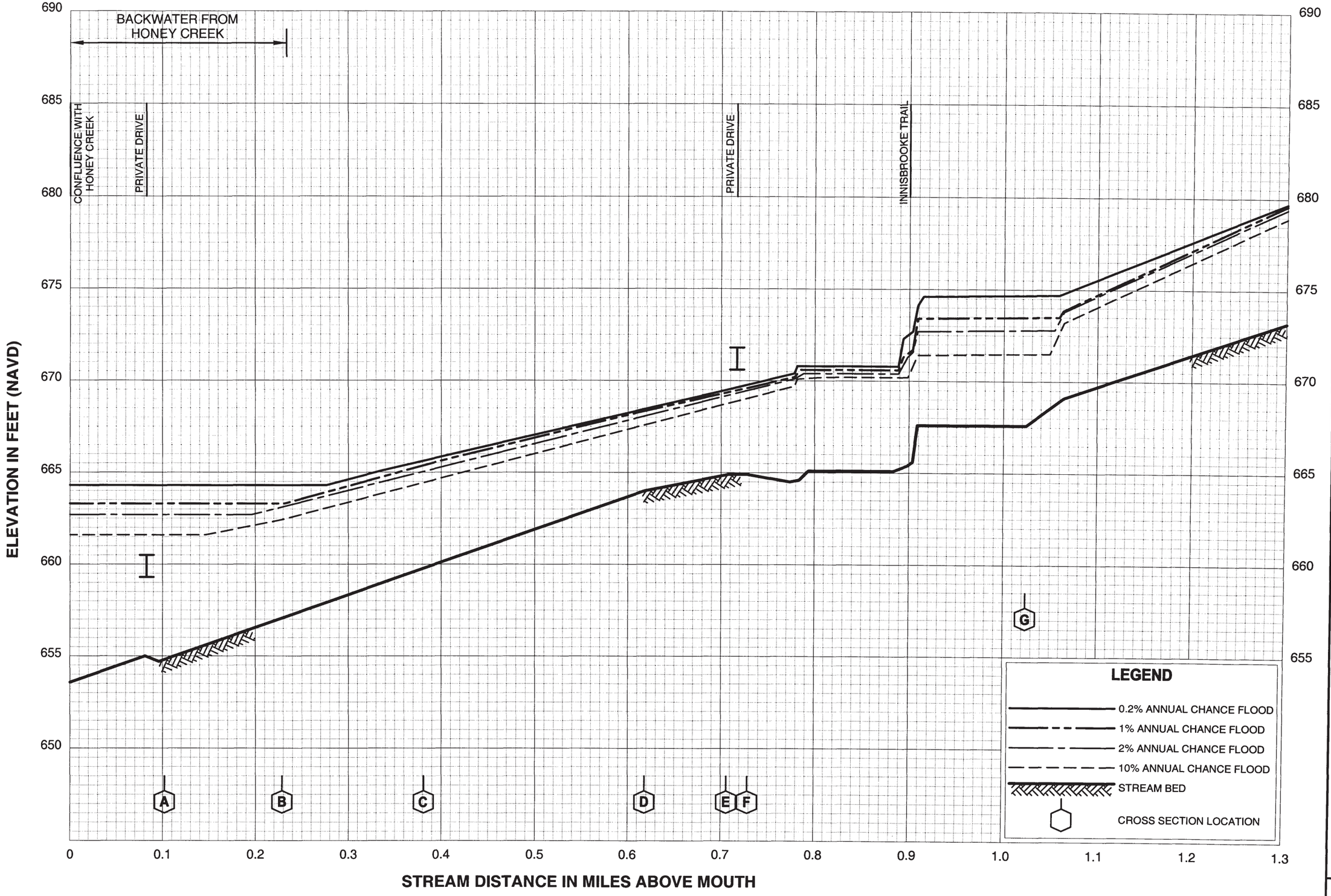
FLOOD PROFILES

HURRICANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



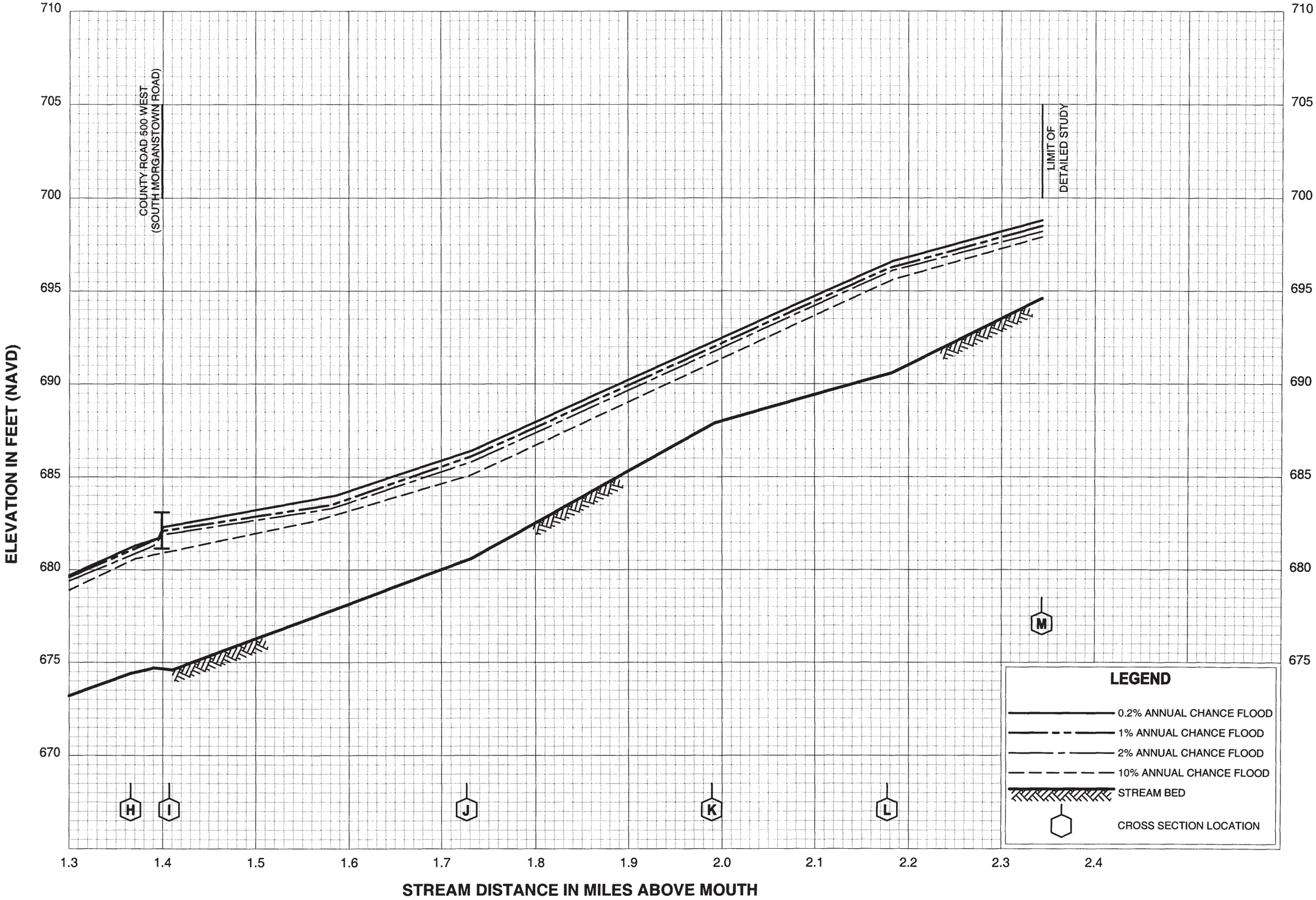
FLOOD PROFILES

MESSERSMITH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



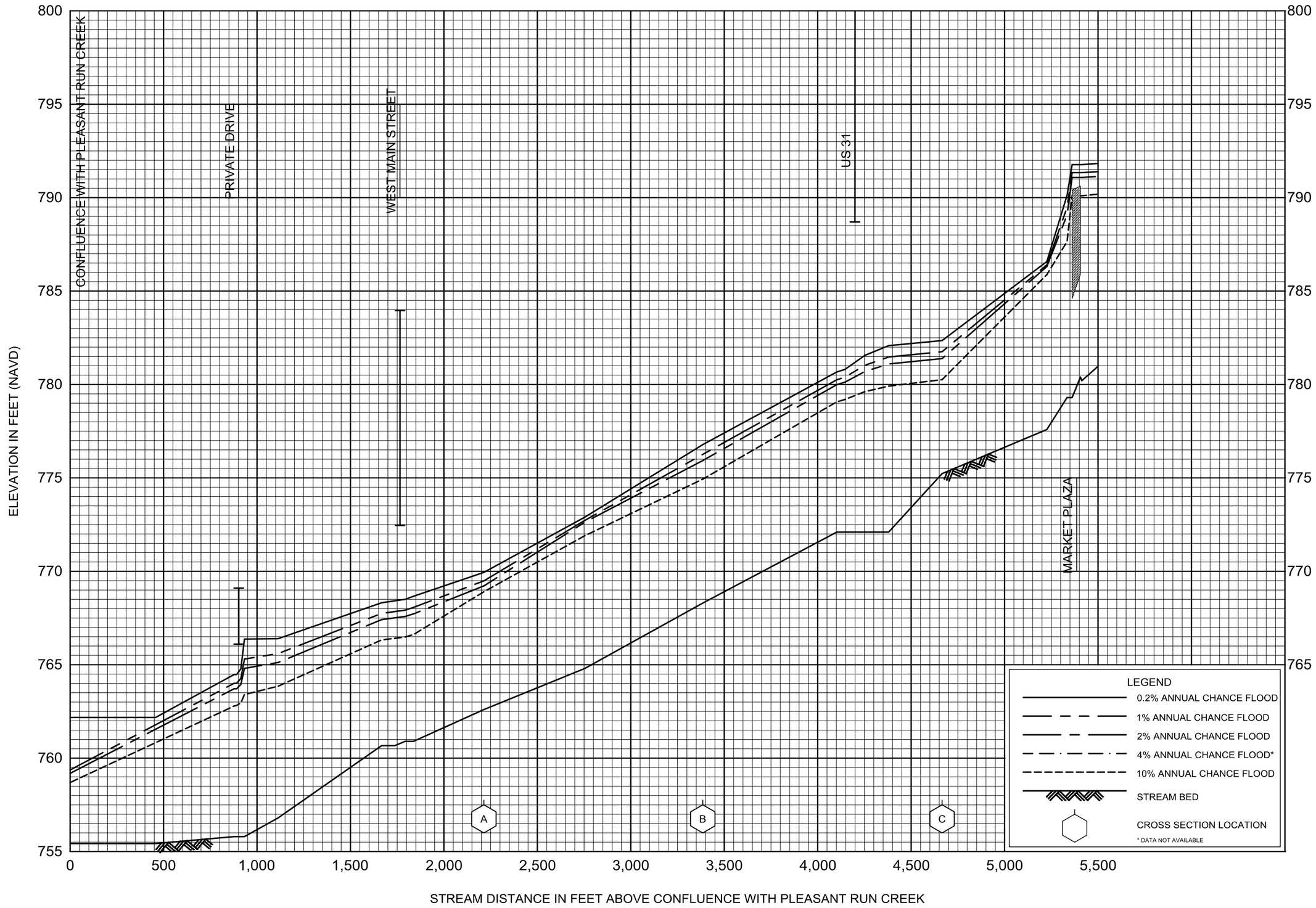
FLOOD PROFILES

MESSERSMITH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



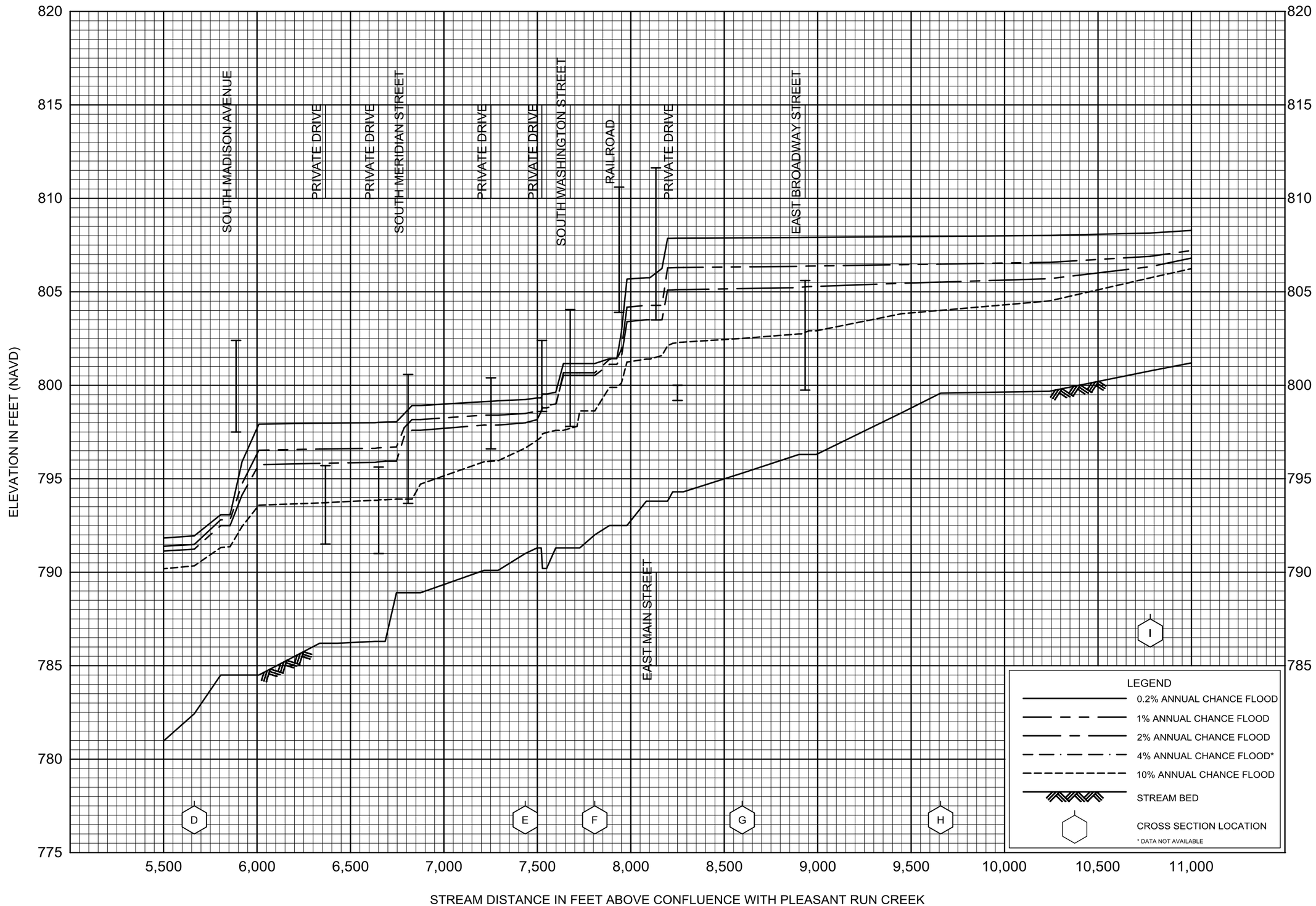
FLOOD PROFILES

PLEASANT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



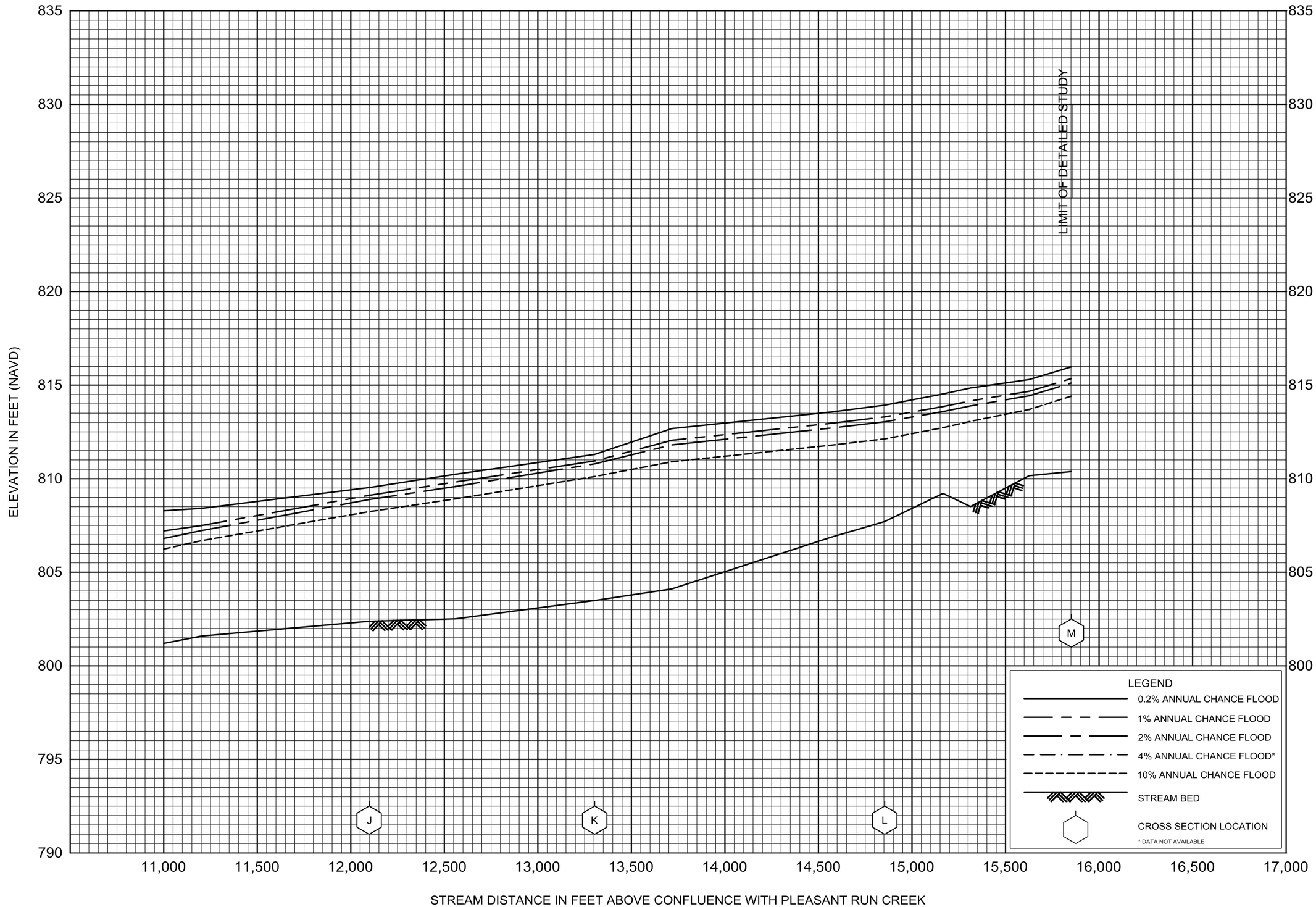
FLOOD PROFILES

PLEASANT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



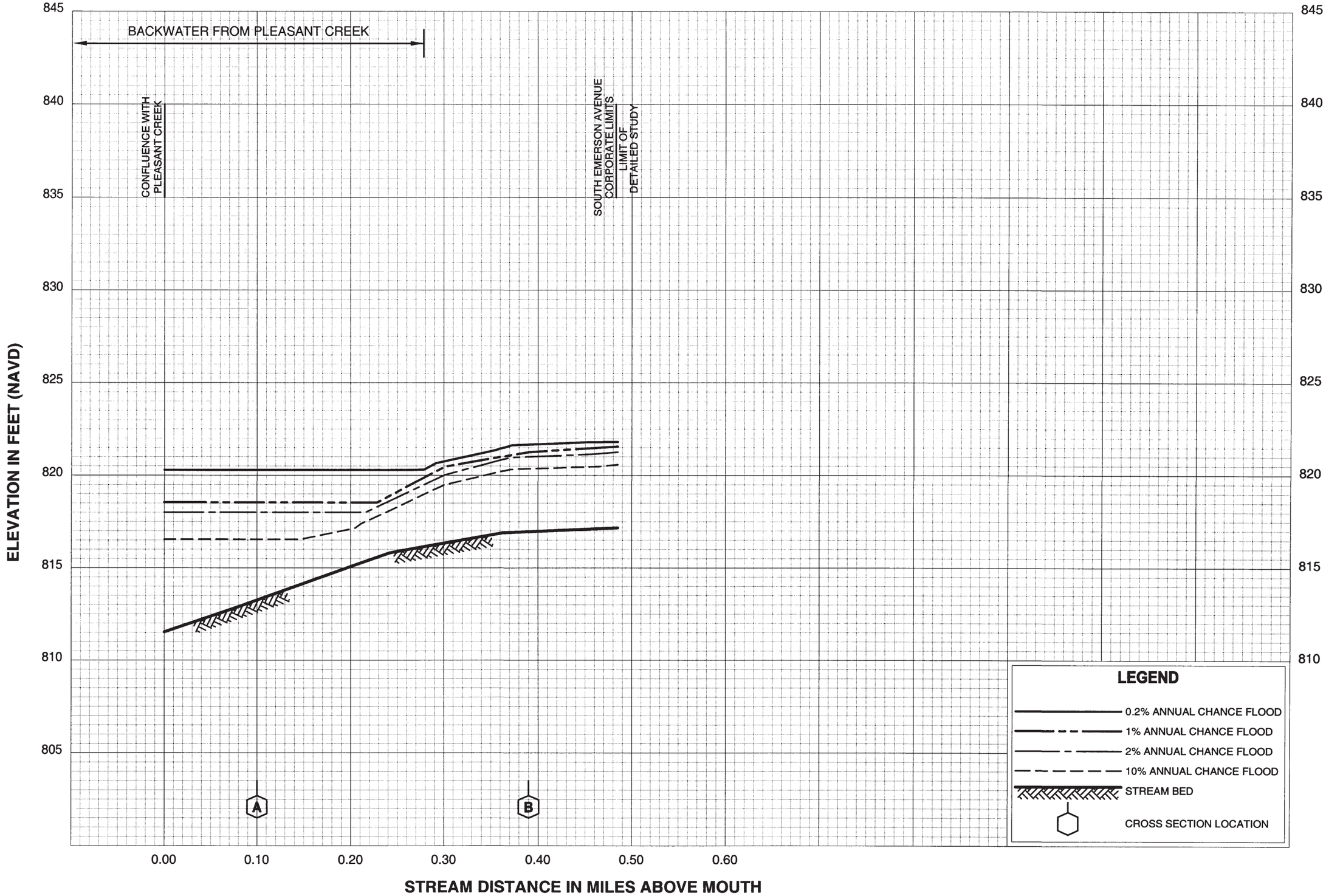
FLOOD PROFILES

PLEASANT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



FLOOD PROFILES

PLEASANT CREEK SOUTH BRANCH

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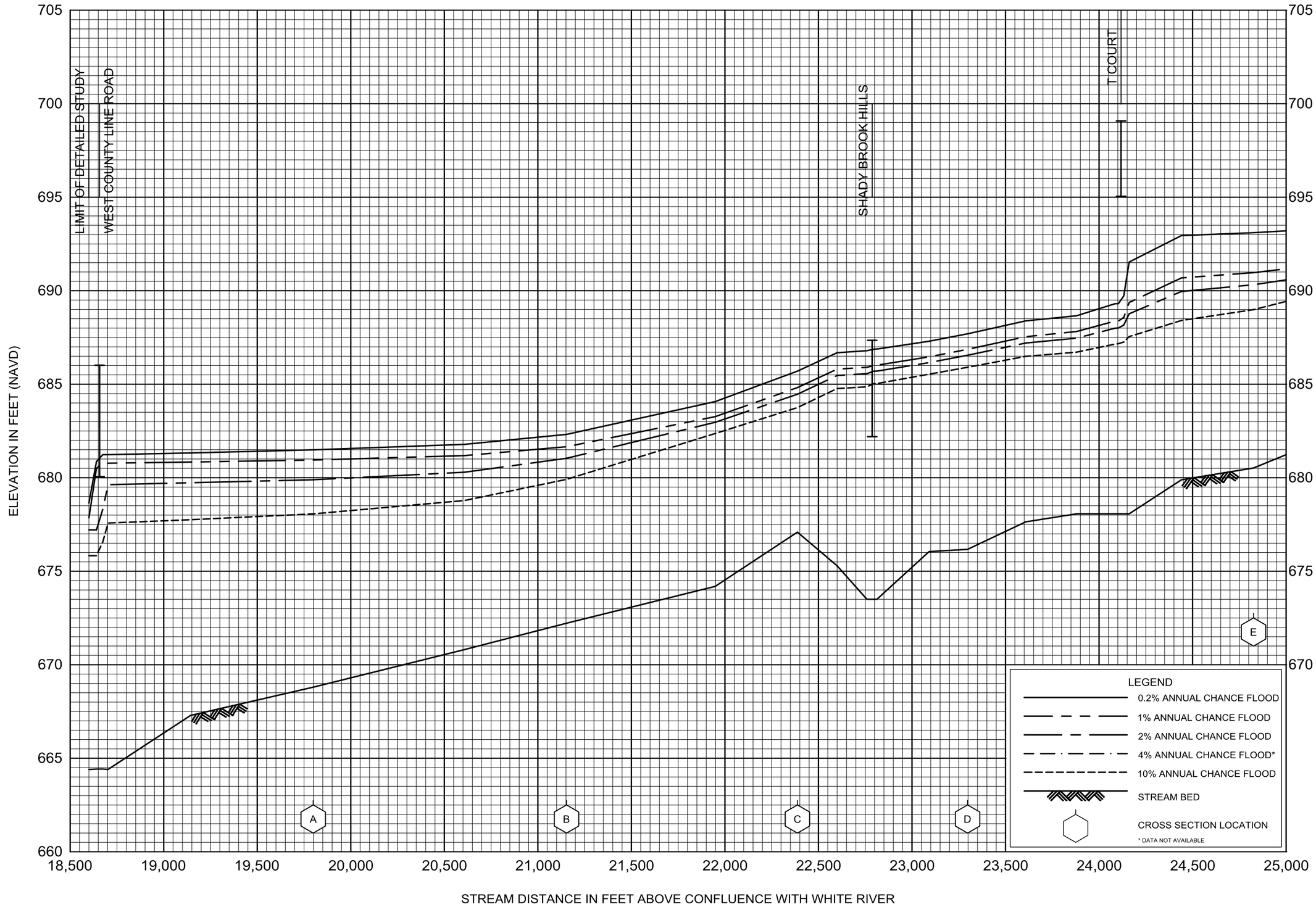
JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



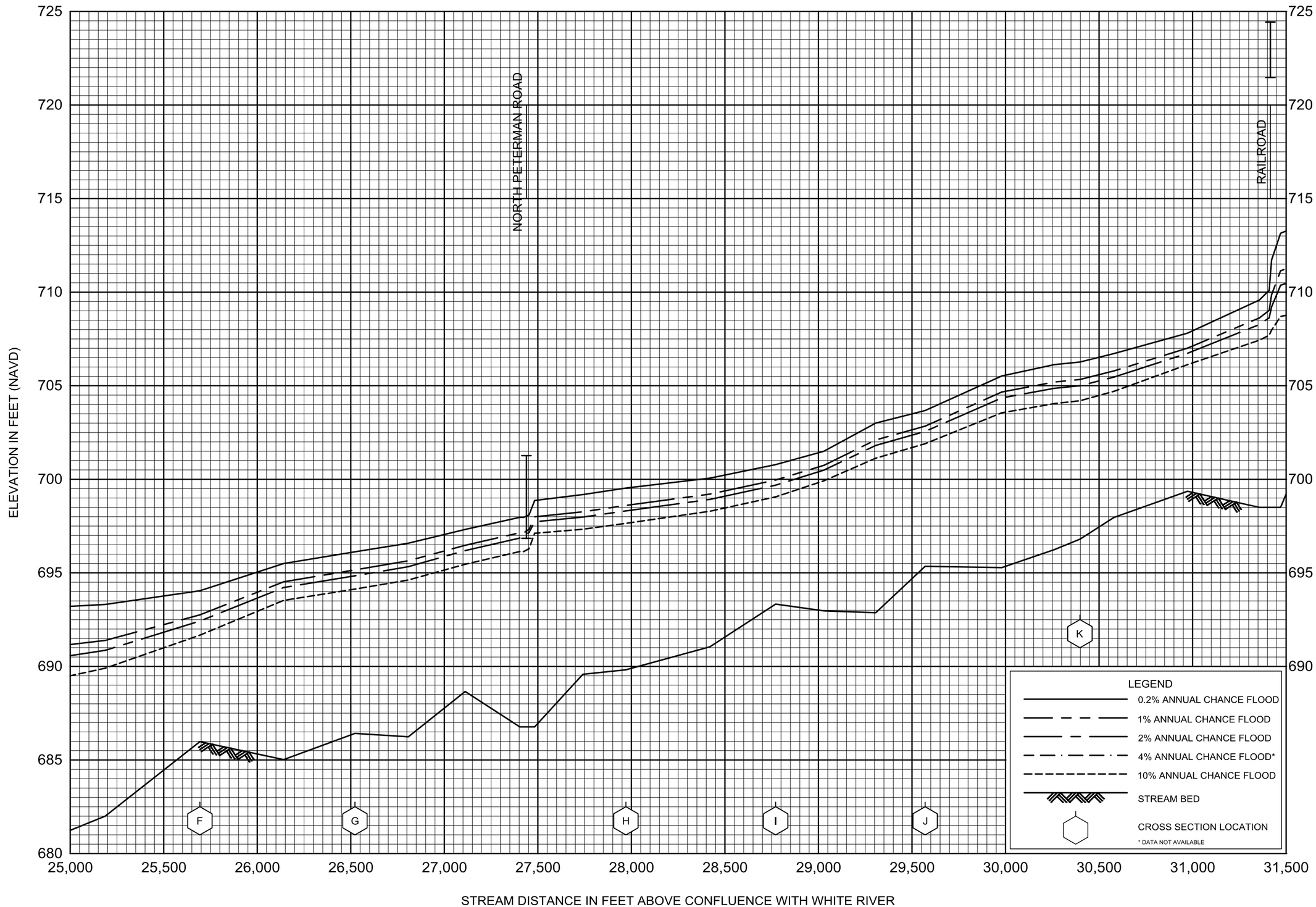
FLOOD PROFILES

PLEASANT RUN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



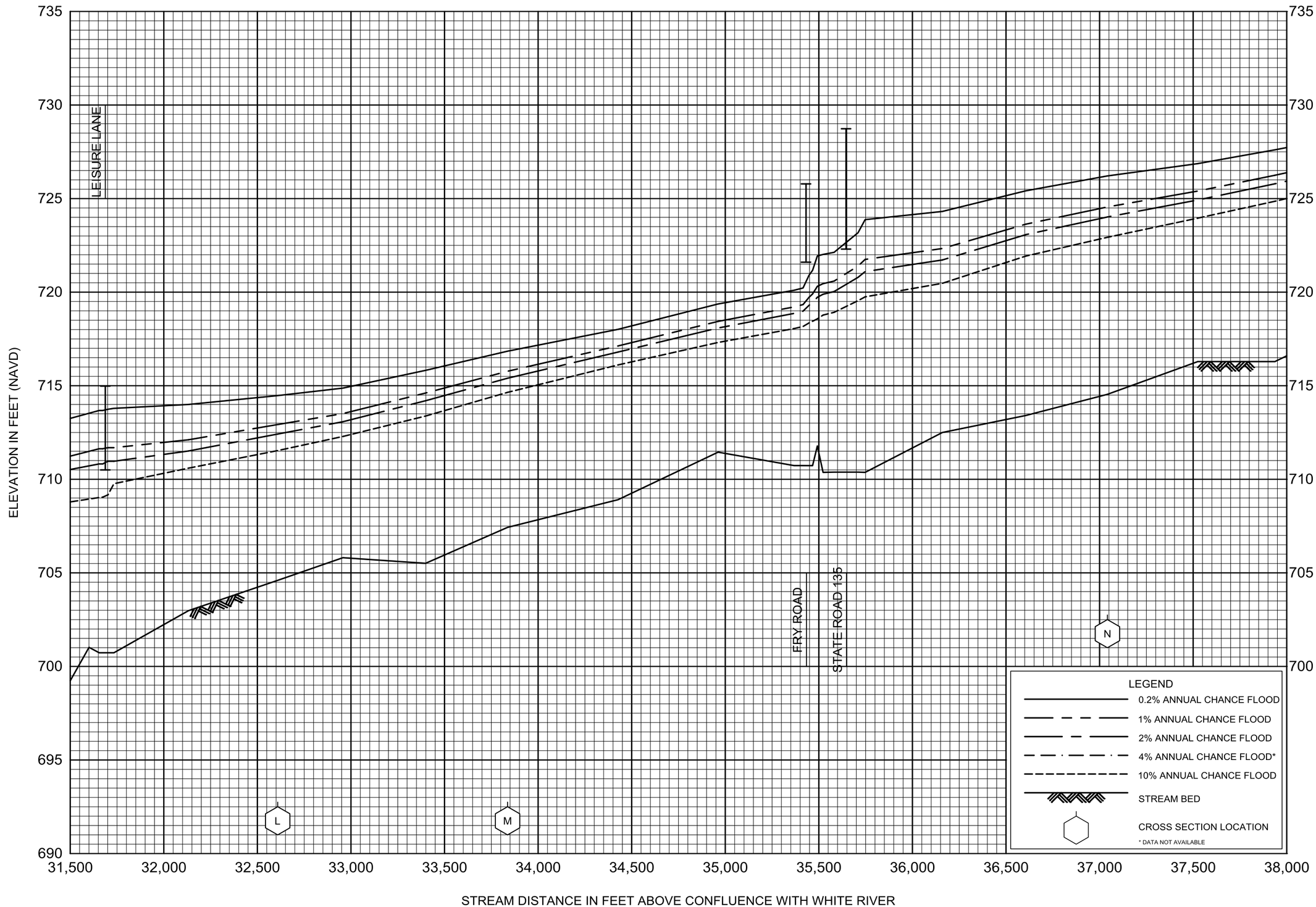
FLOOD PROFILES

PLEASANT RUN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



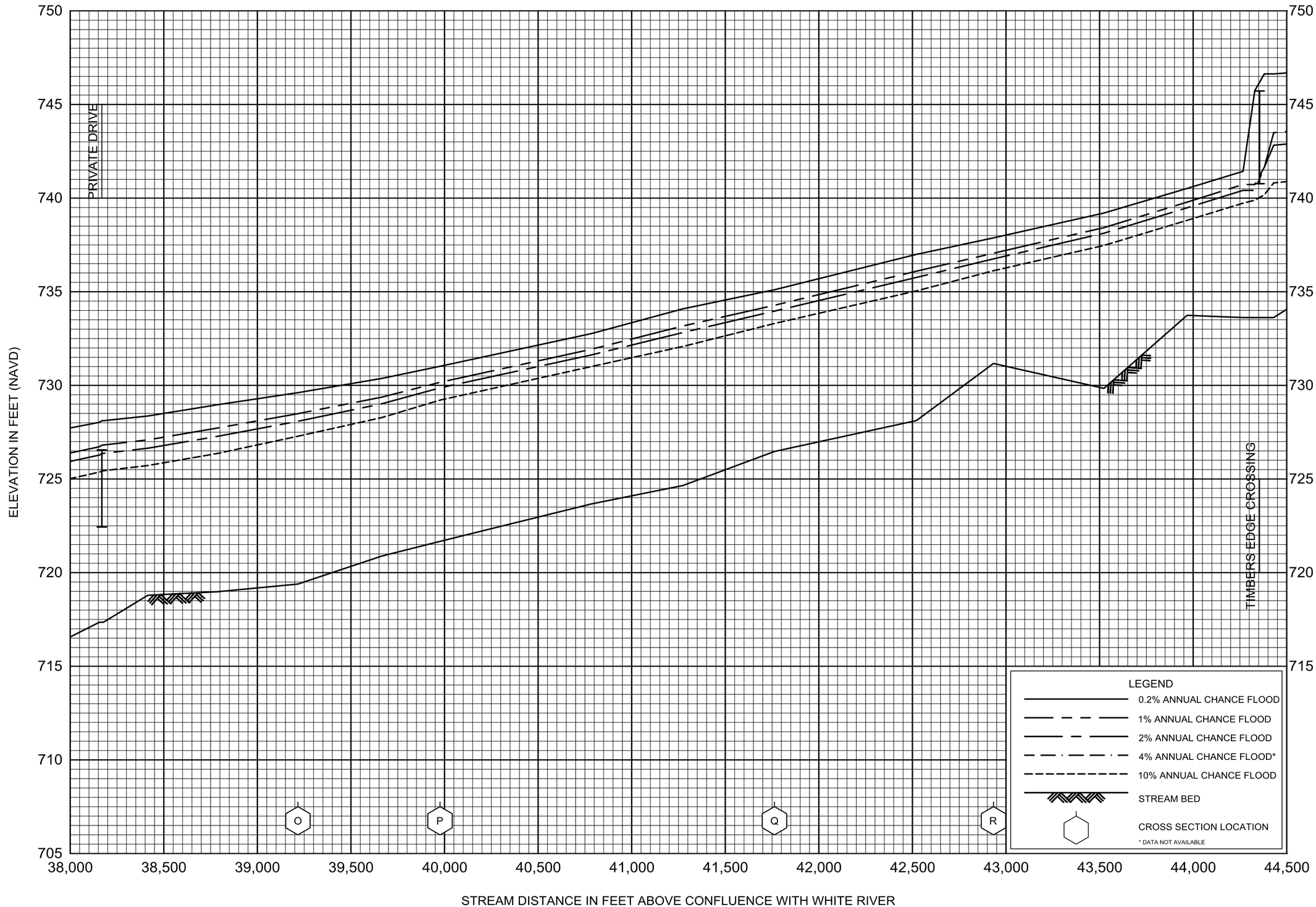
FLOOD PROFILES

PLEASANT RUN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



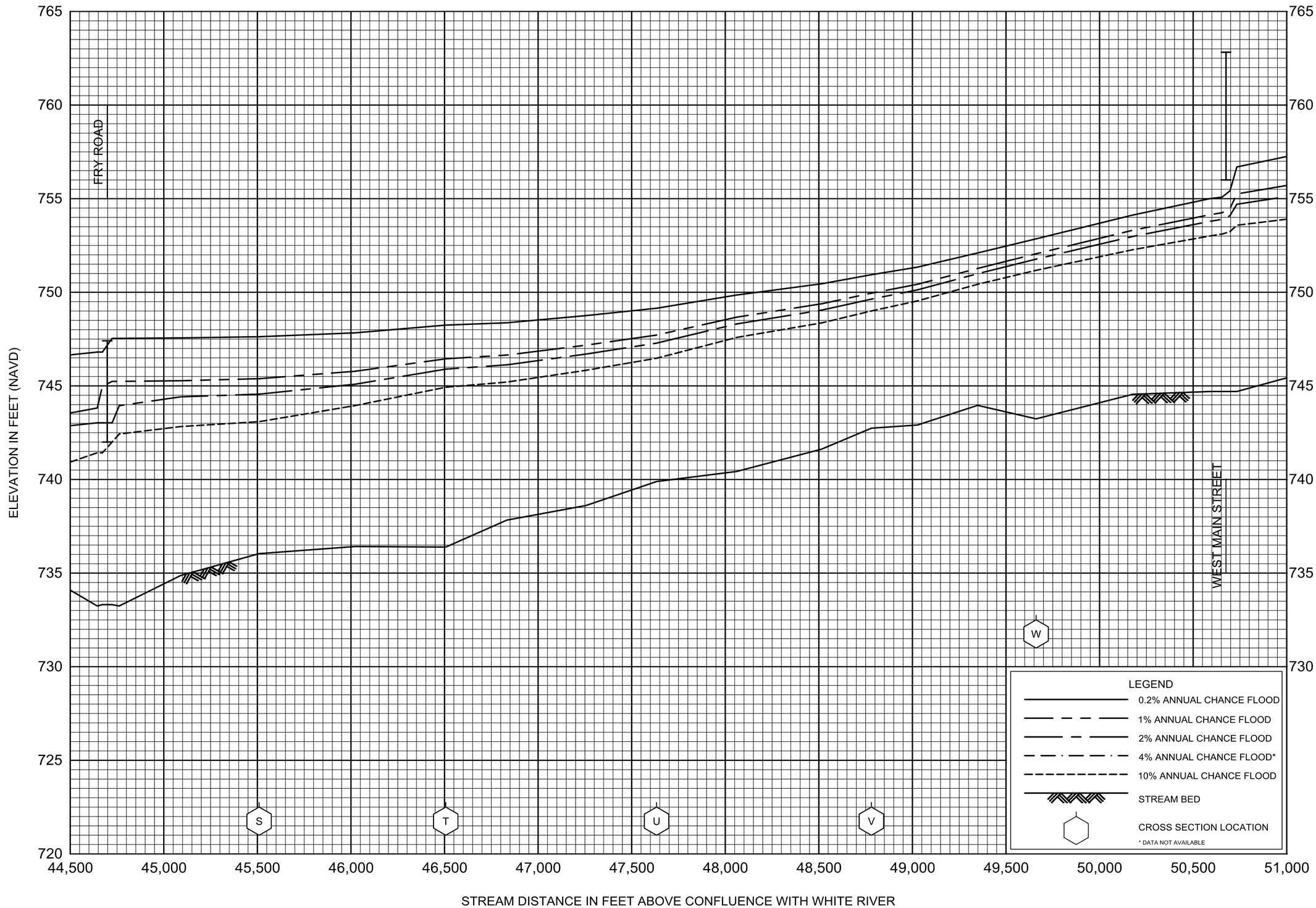
FLOOD PROFILES

PLEASANT RUN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



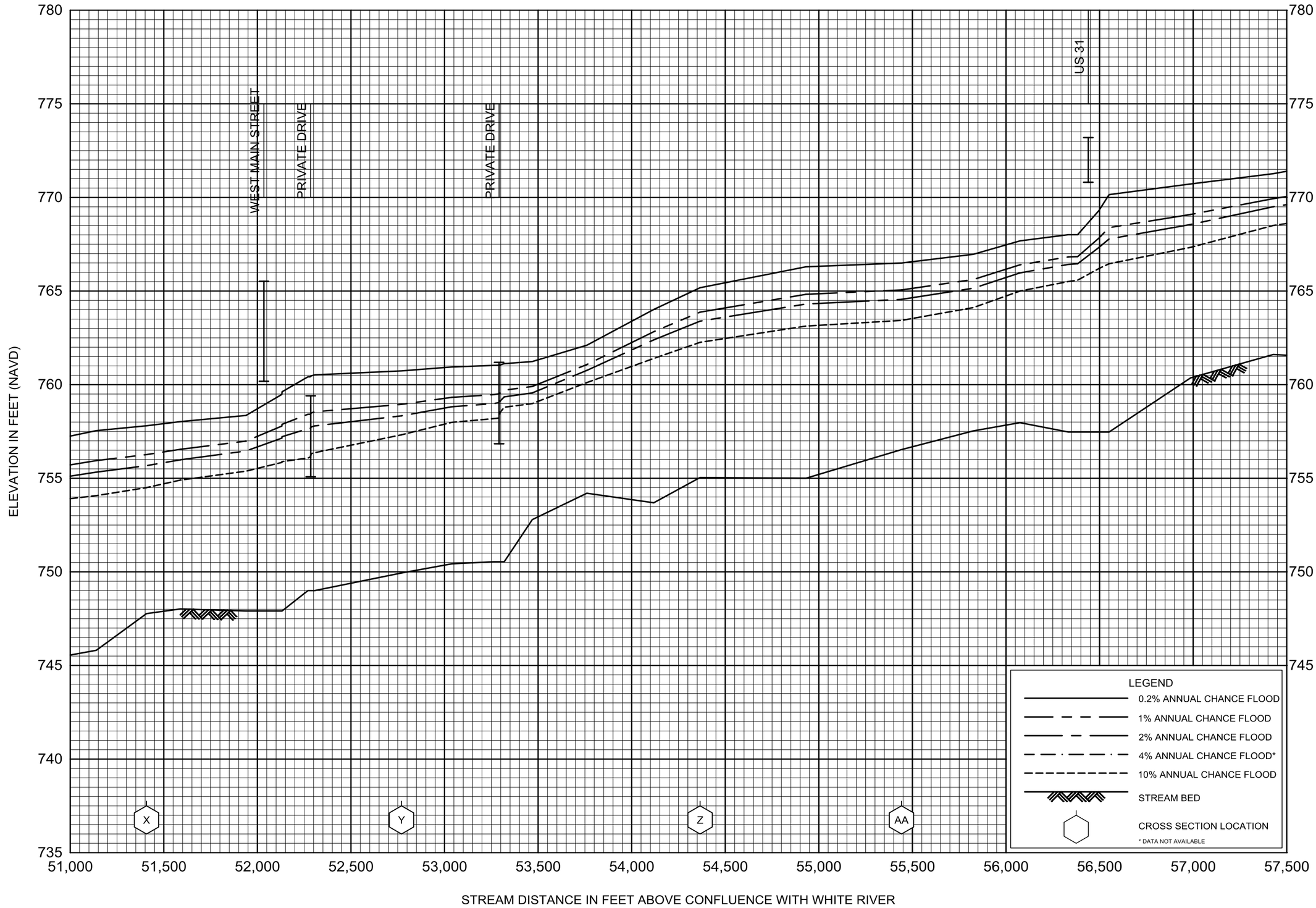
FLOOD PROFILES

PLEASANT RUN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



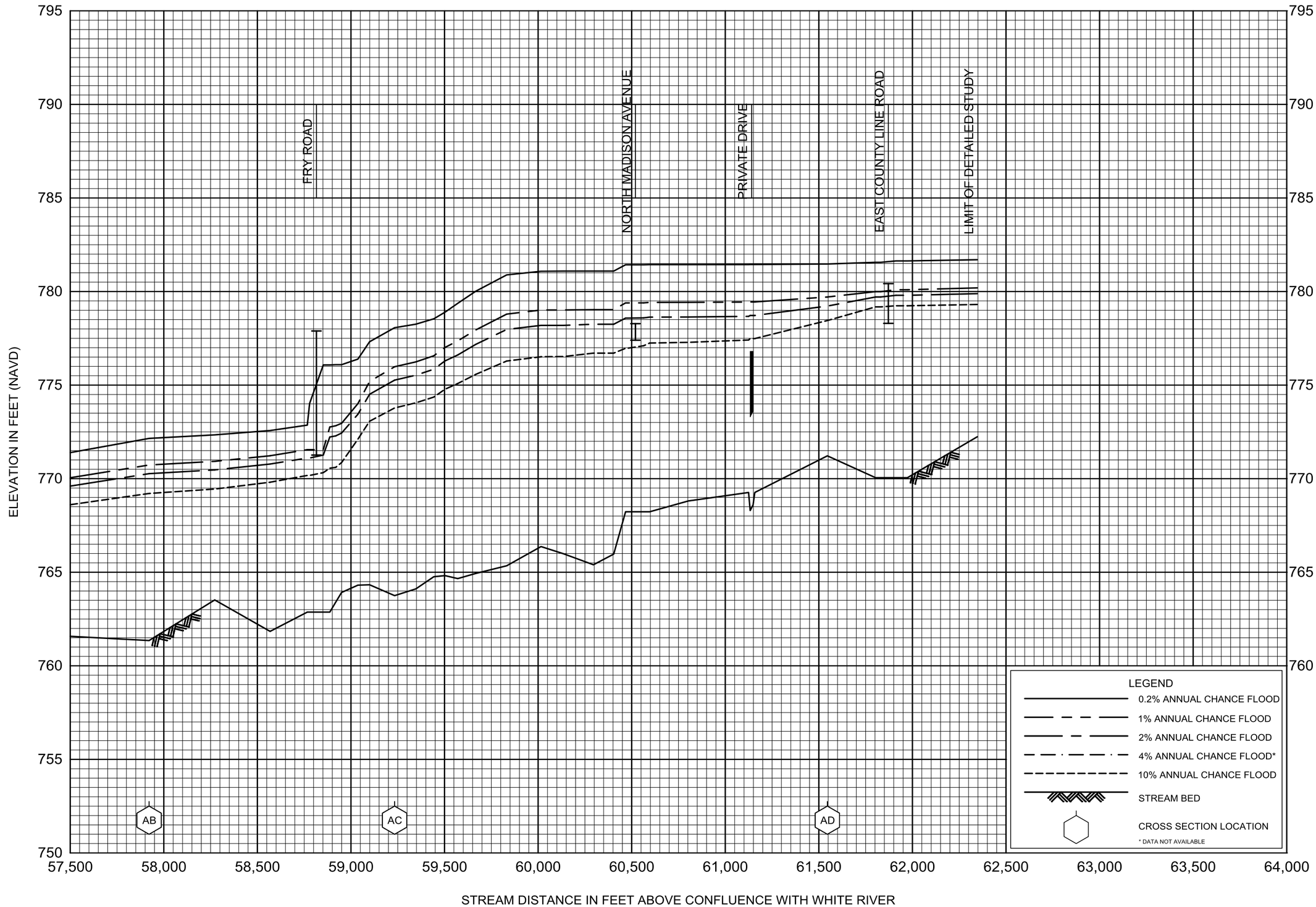
FLOOD PROFILES

PLEASANT RUN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



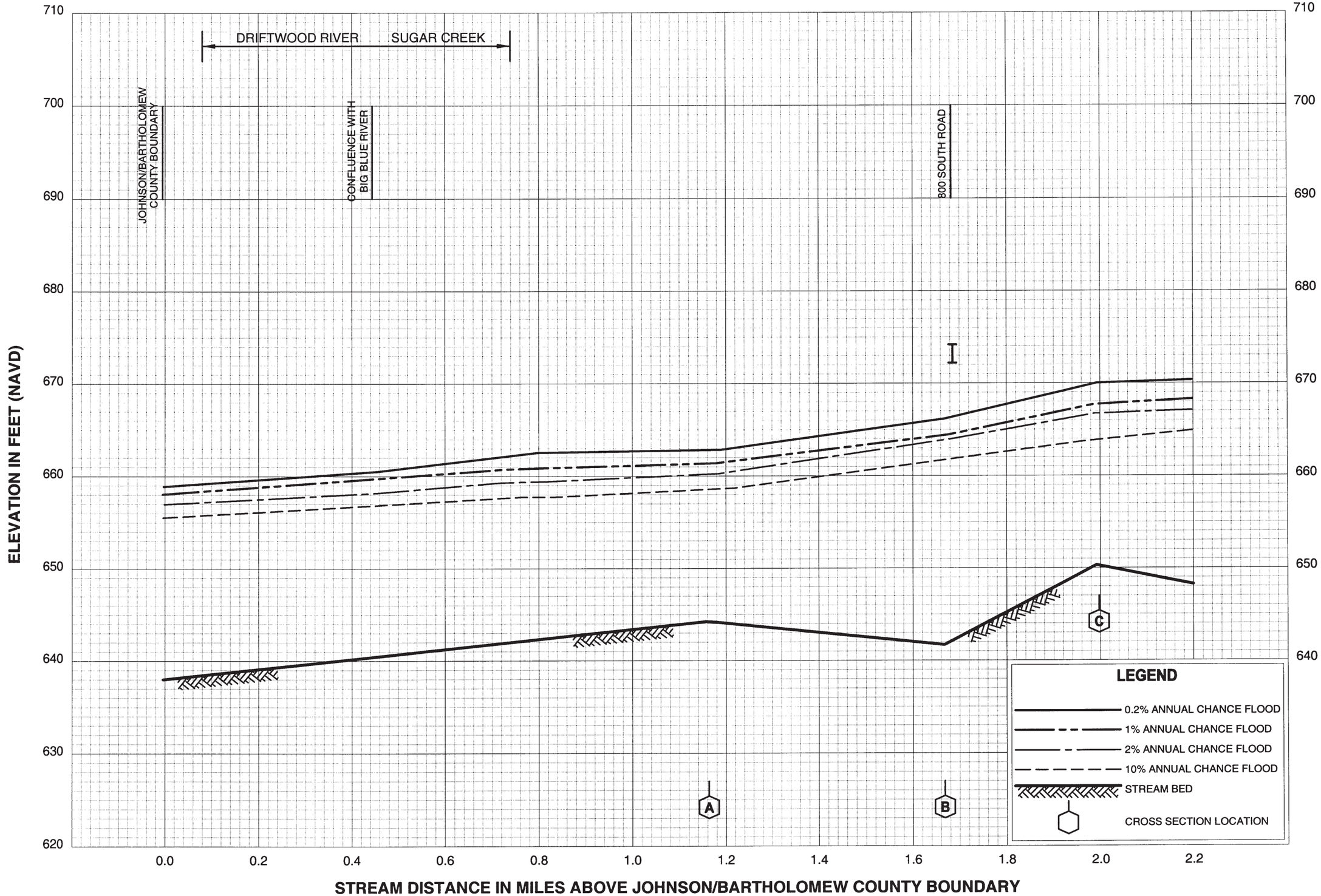
FLOOD PROFILES

PLEASANT RUN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



FLOOD PROFILES

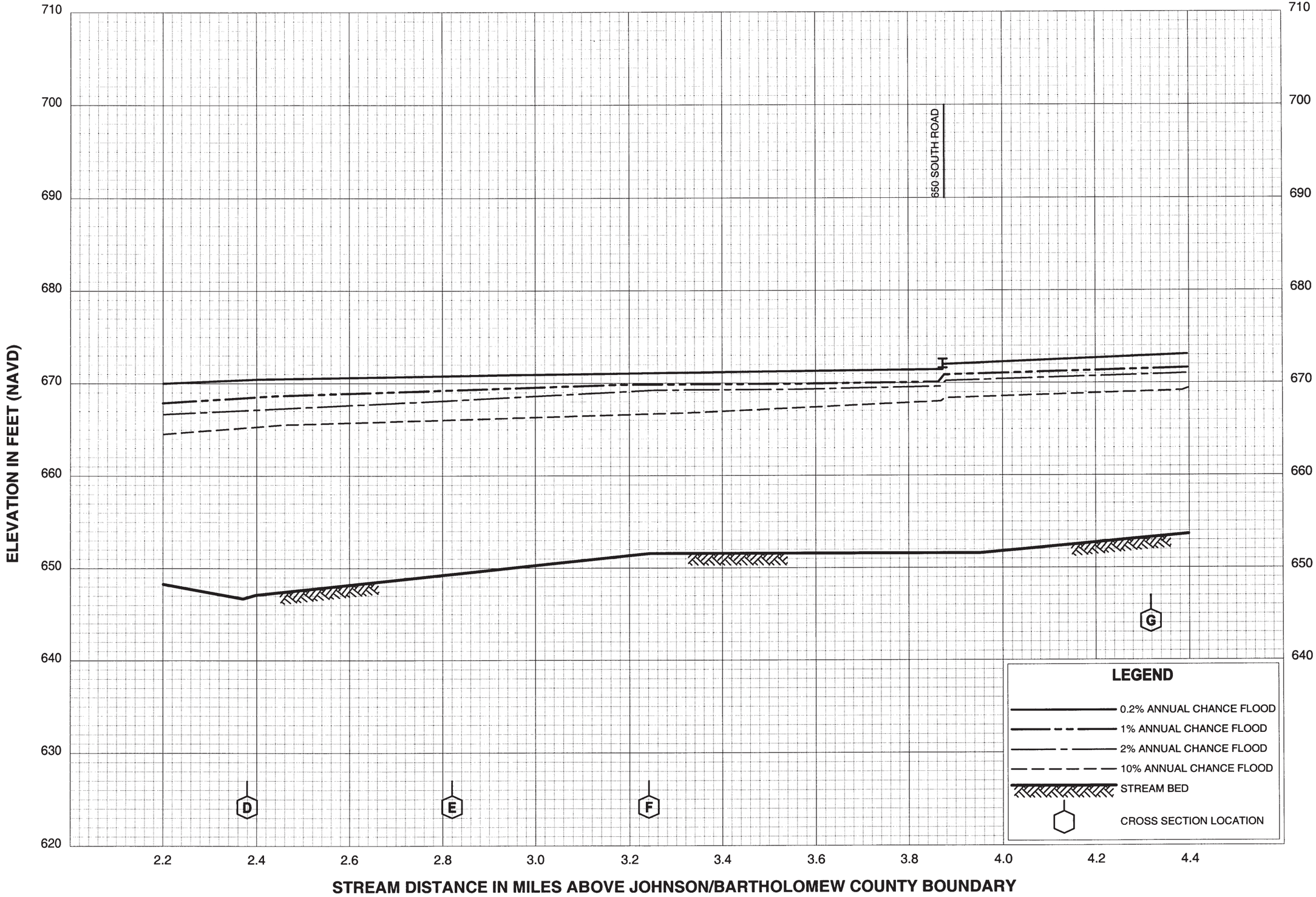
SUGAR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

58P



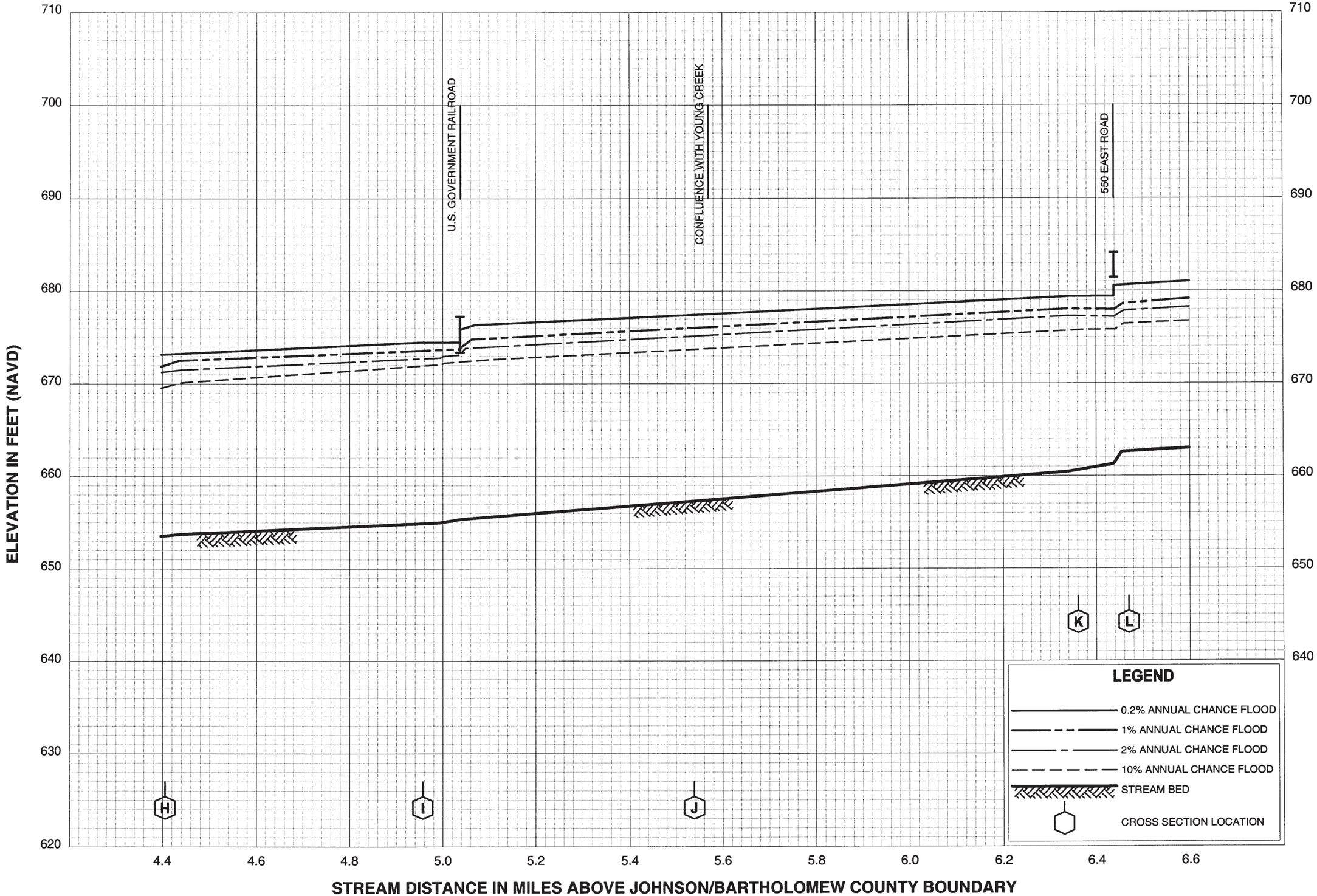
FLOOD PROFILES

SUGAR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



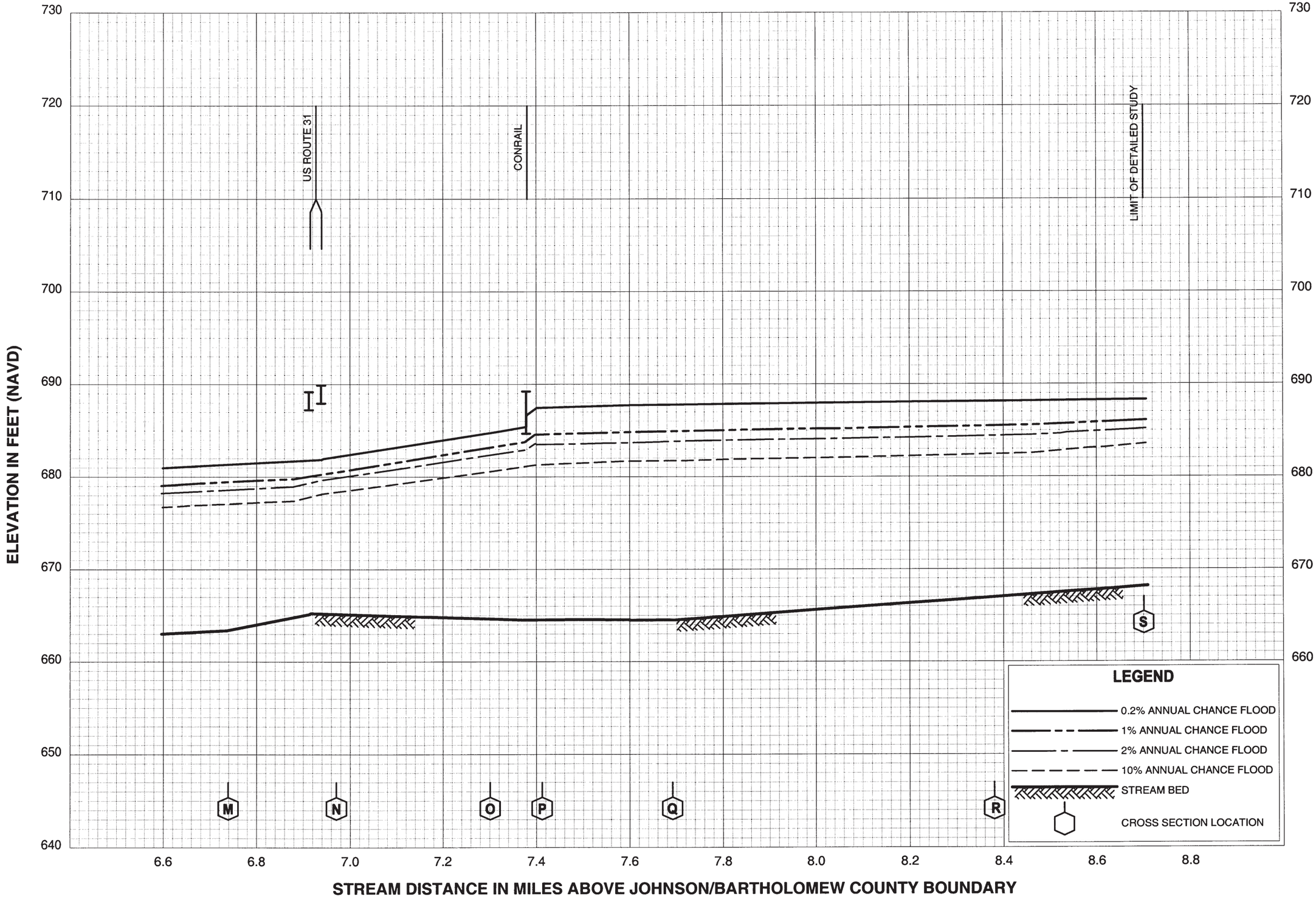
FLOOD PROFILES

SUGAR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



FLOOD PROFILES

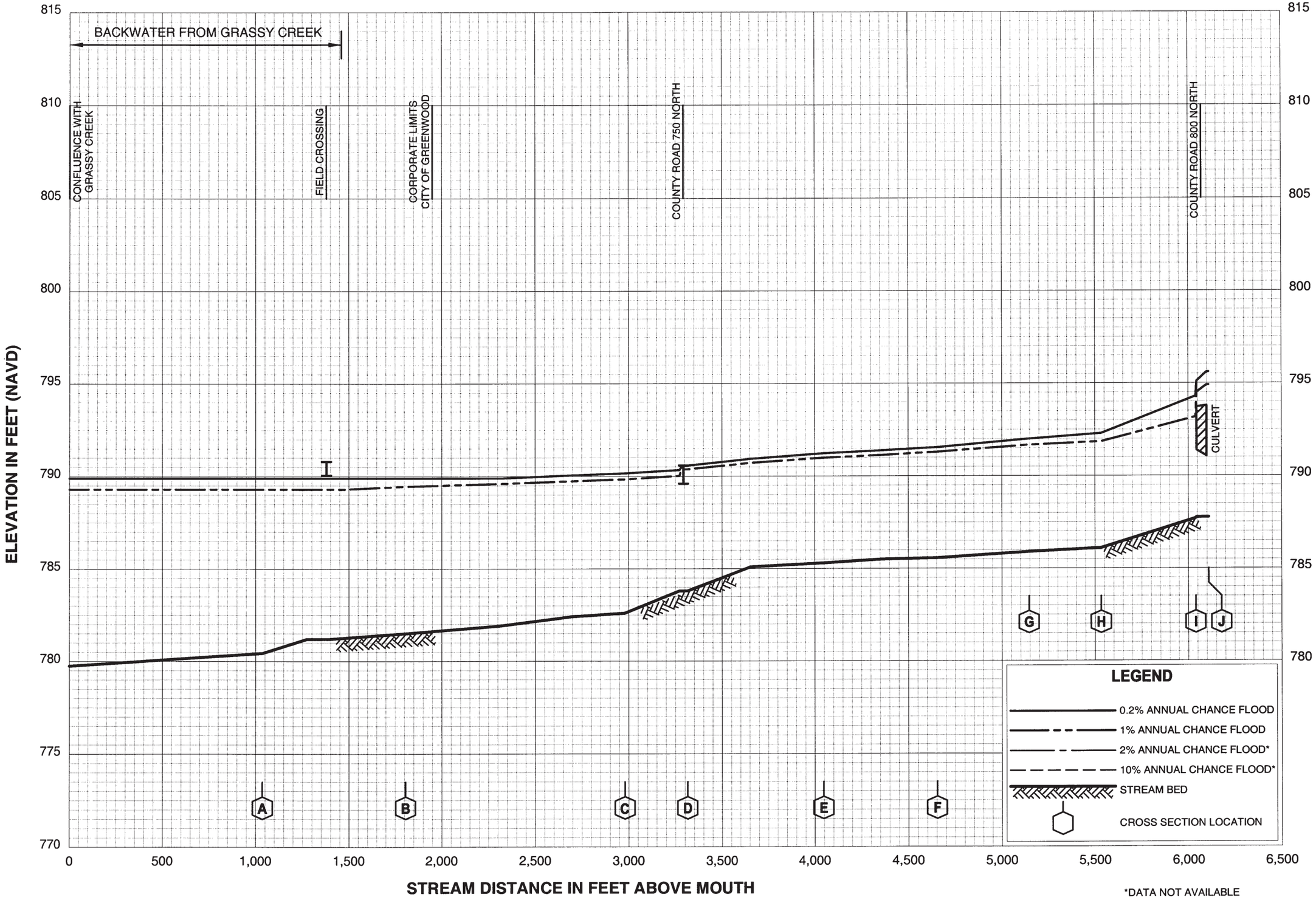
SUGAR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS

61P



*DATA NOT AVAILABLE

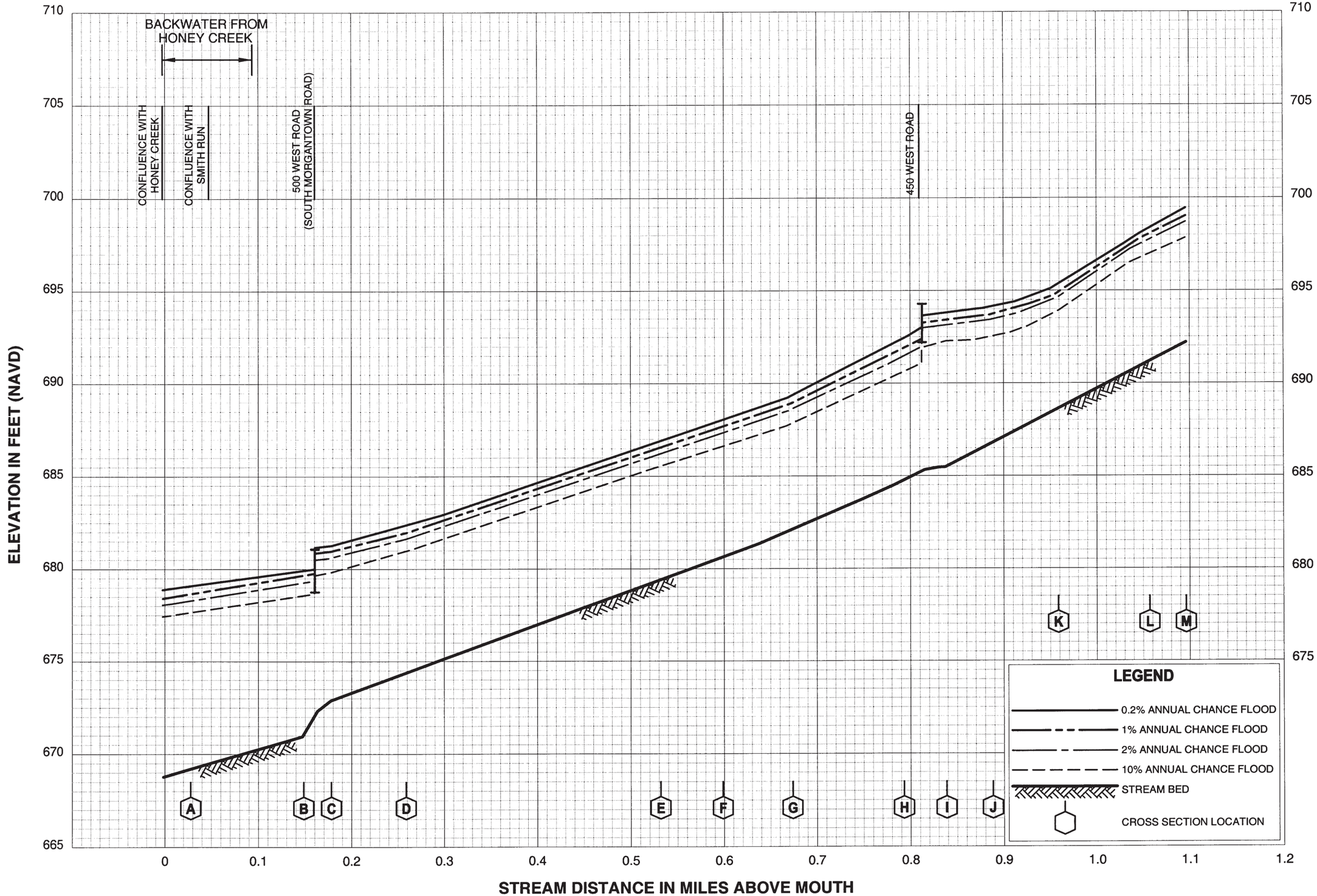
FLOOD PROFILES

TRACY DITCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN.

AND INCORPORATED AREAS



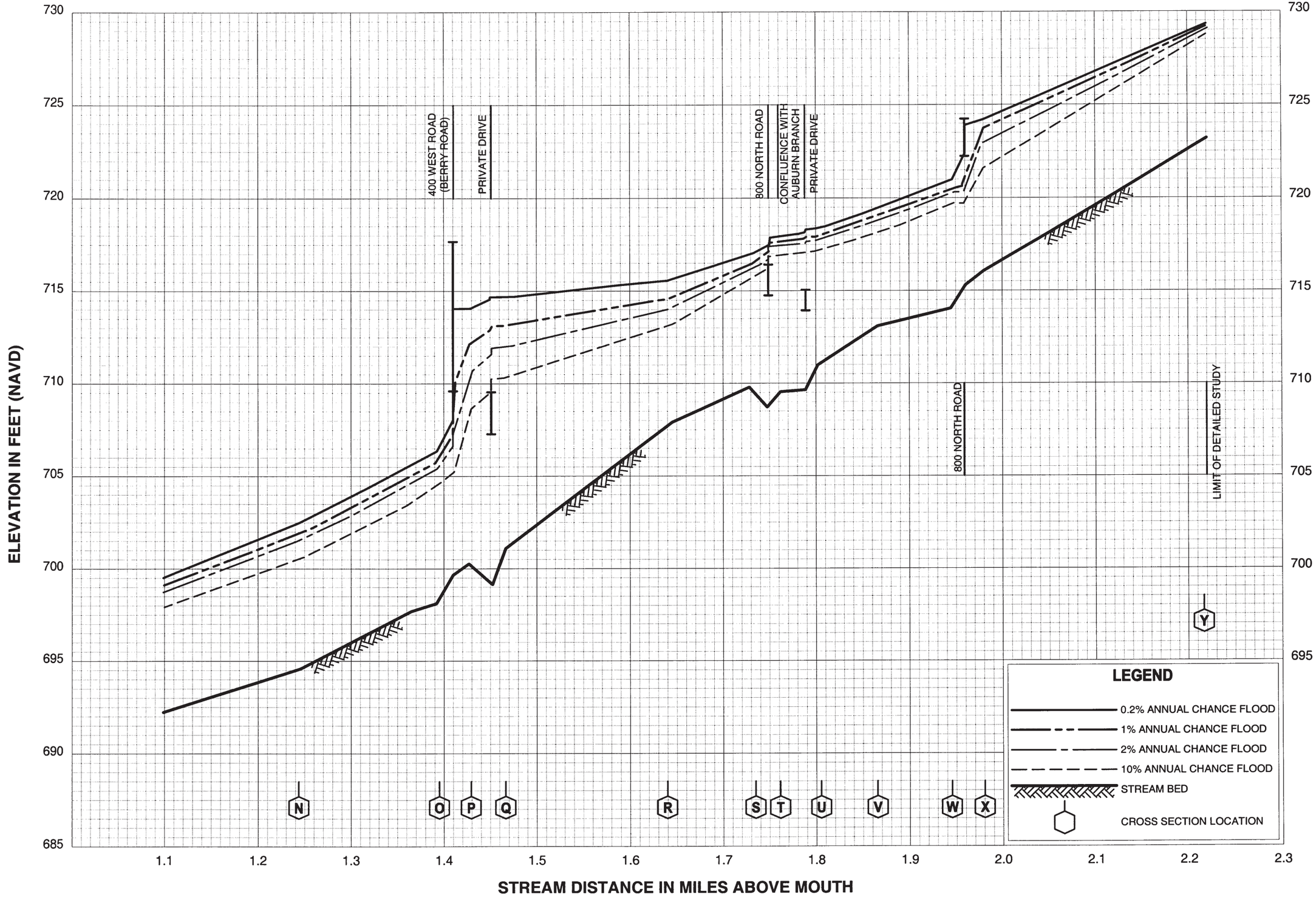
FLOOD PROFILES

TURKEY PEN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, IN

AND INCORPORATED AREAS



FLOOD PROFILES

TURKEY PEN CREEK

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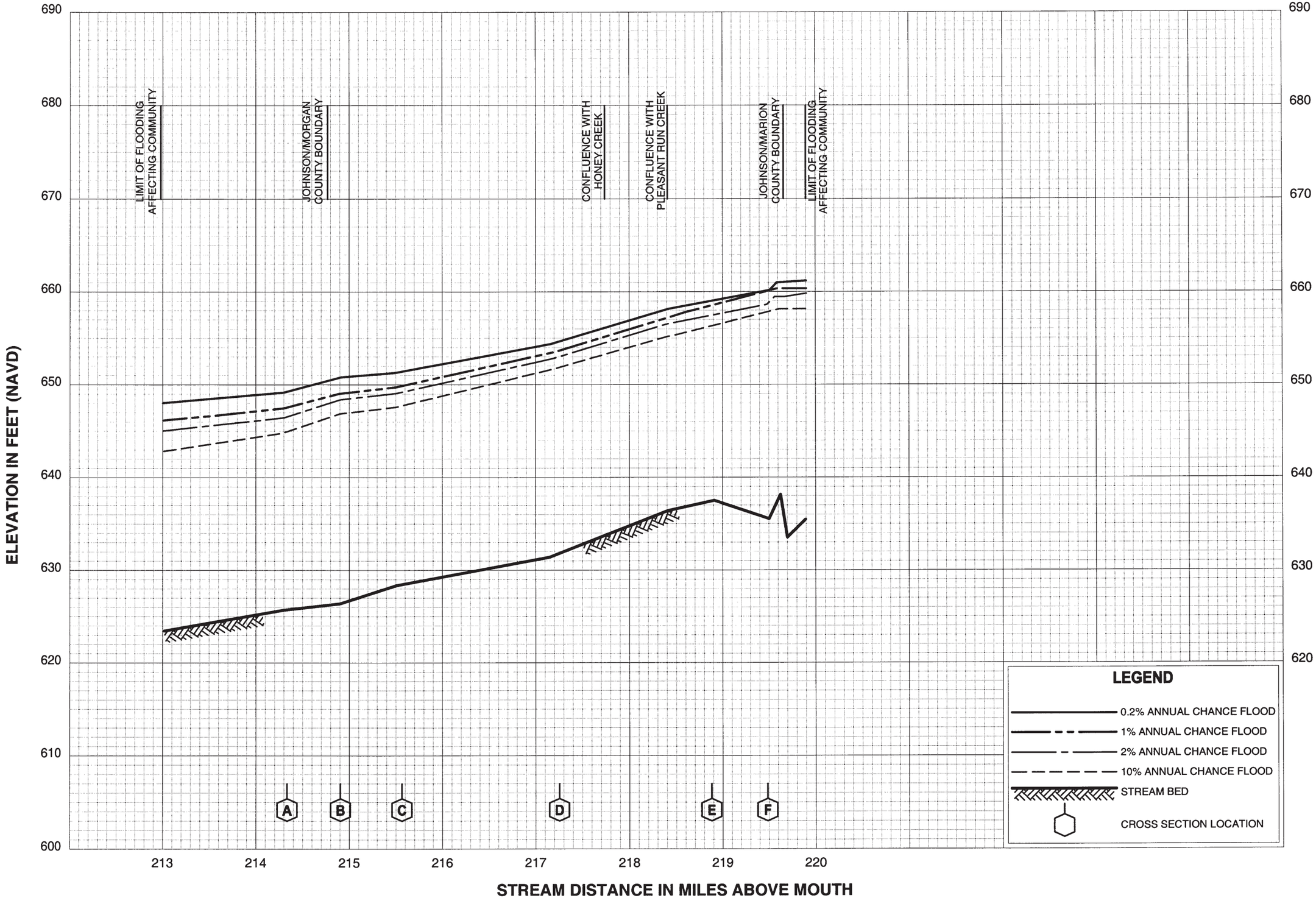

FLOOD PROFILES

WEST FORK WHITE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

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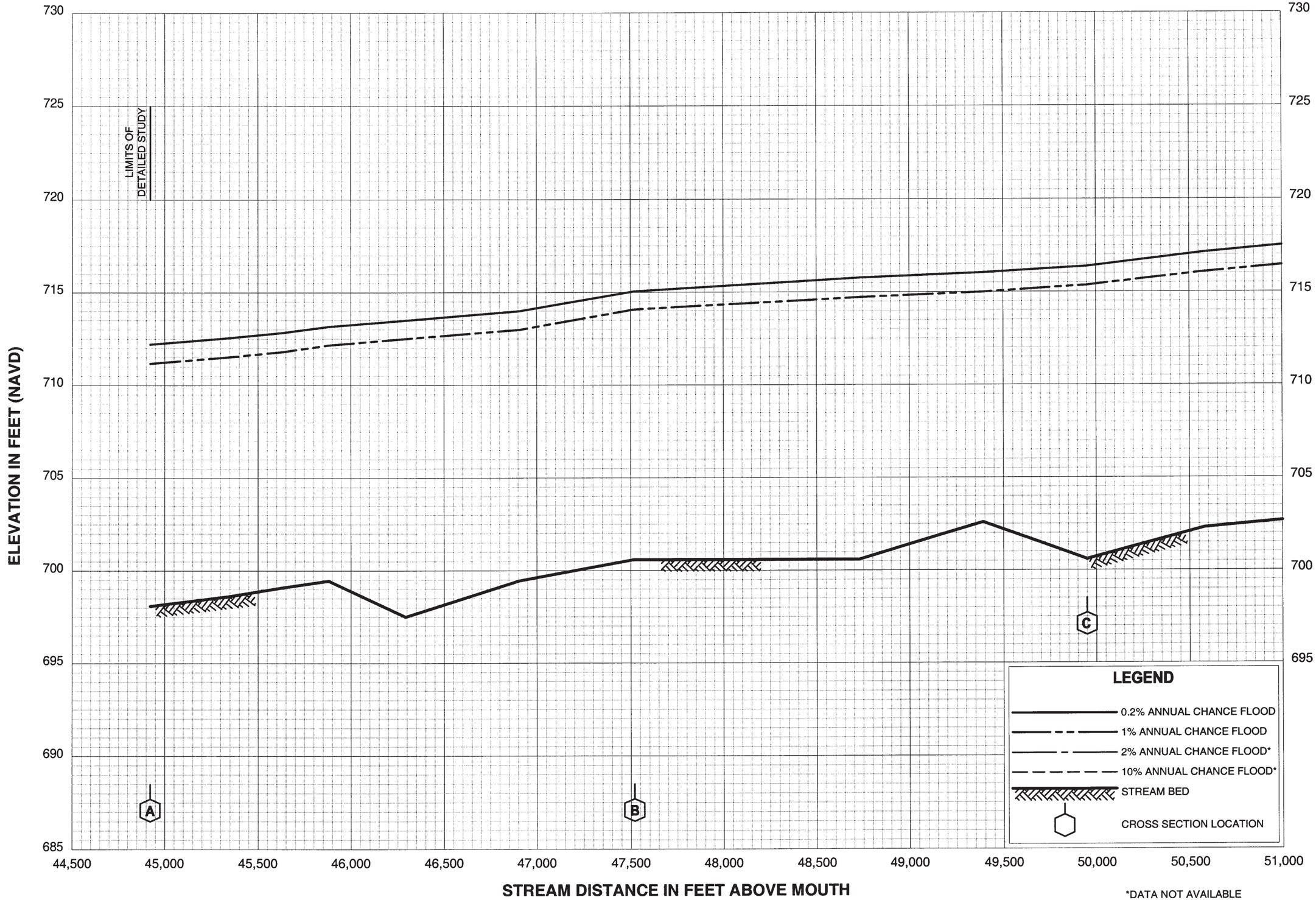

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FLOOD PROFILES

YOUNGS CREEK

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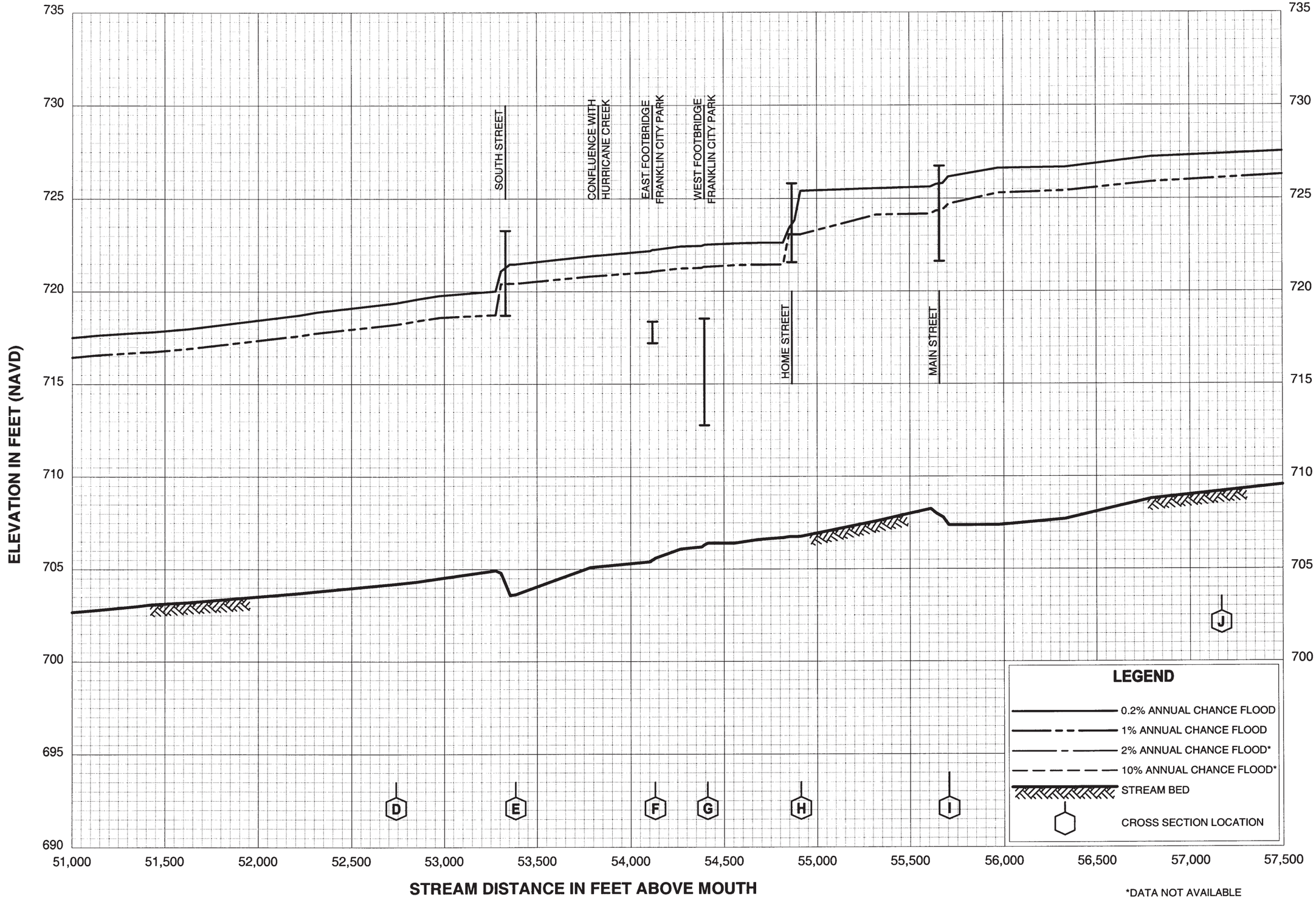

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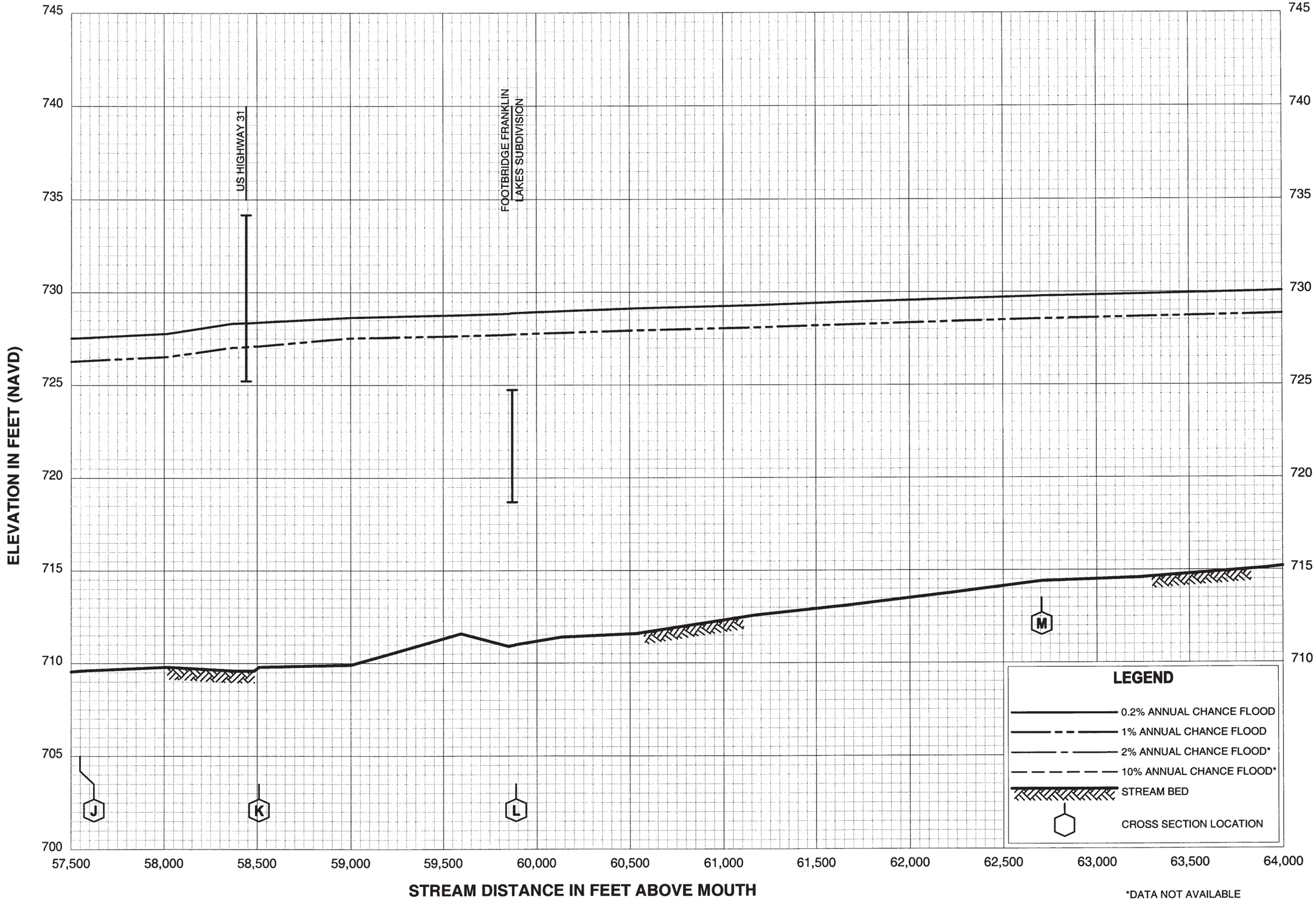

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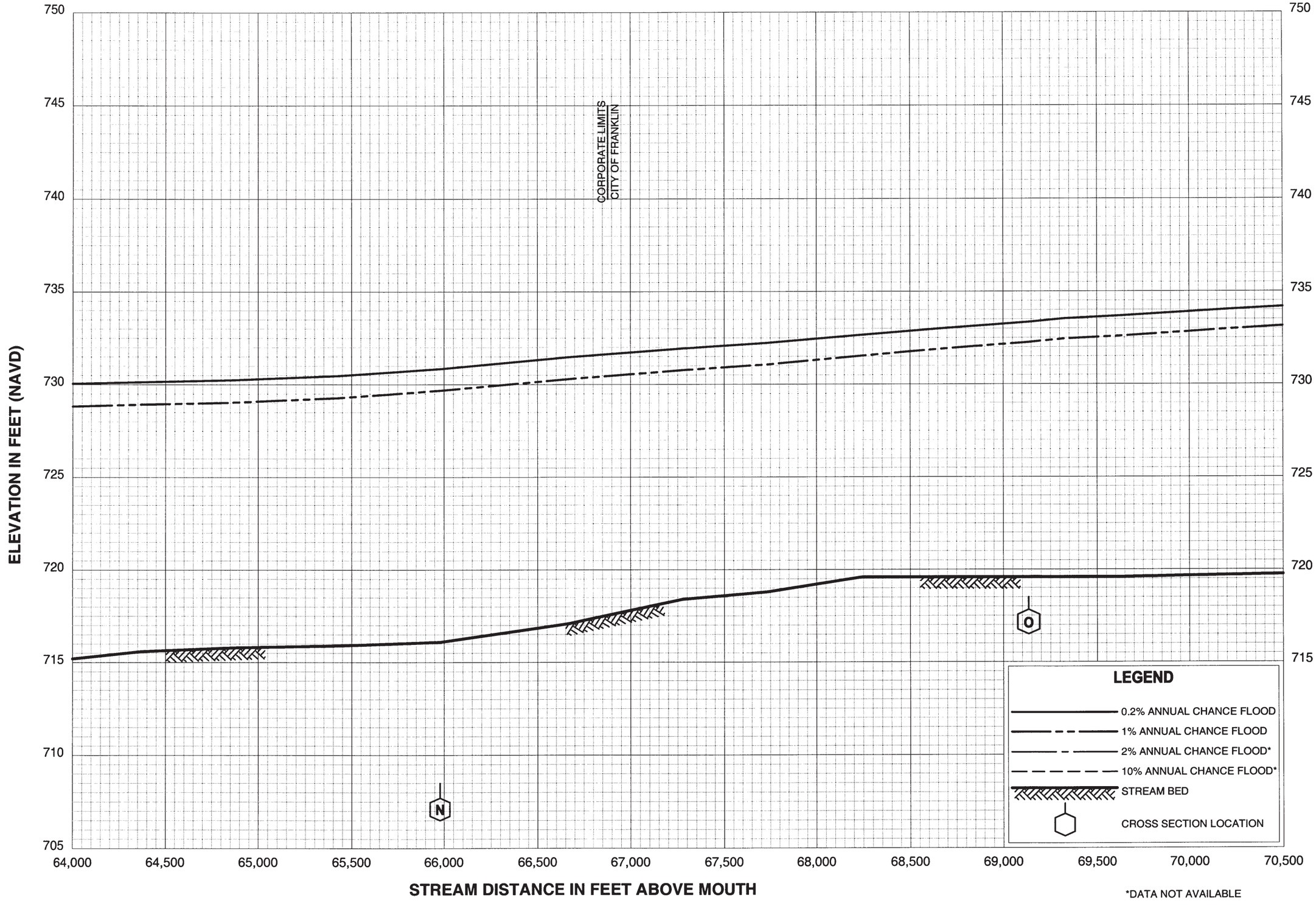

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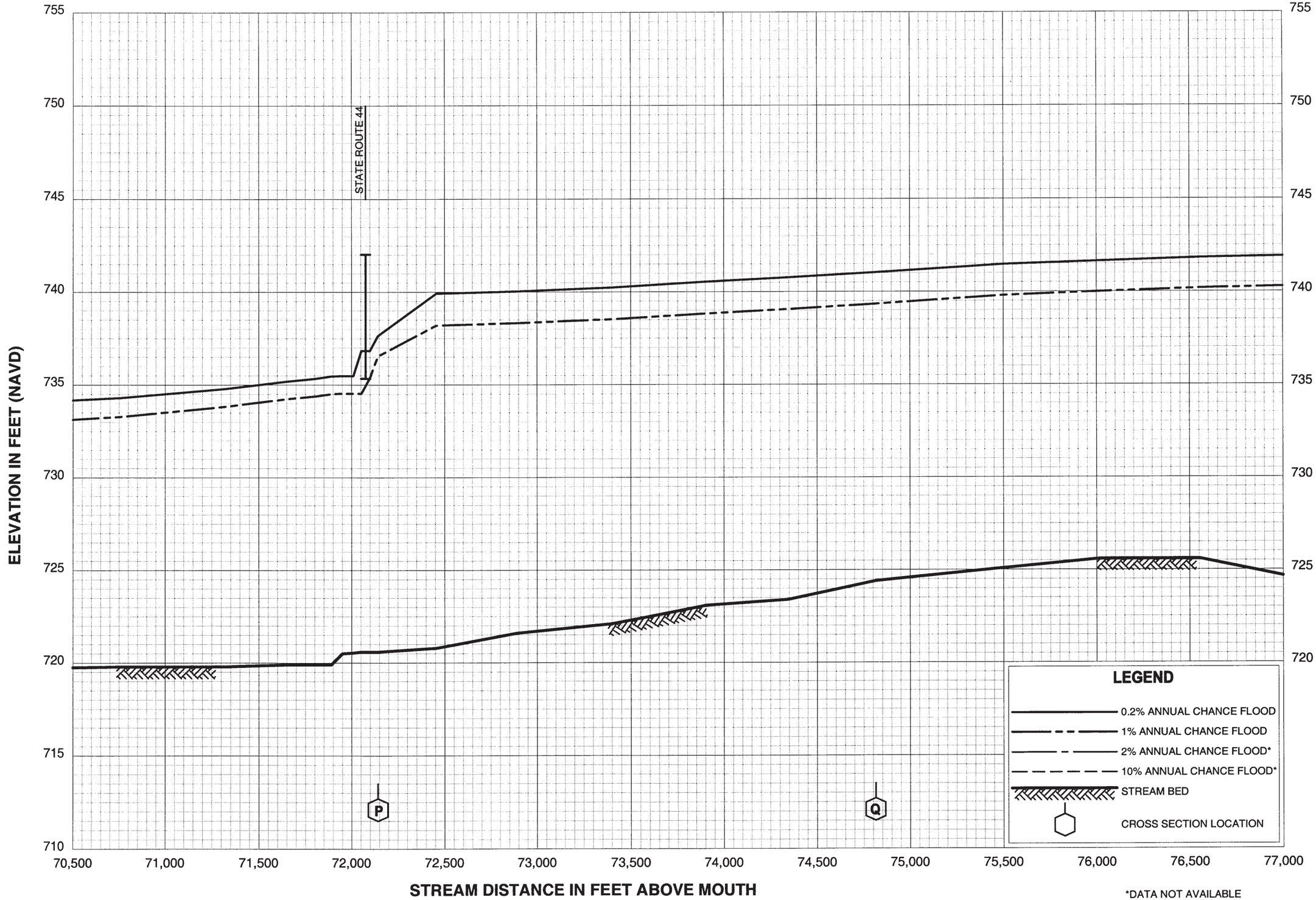

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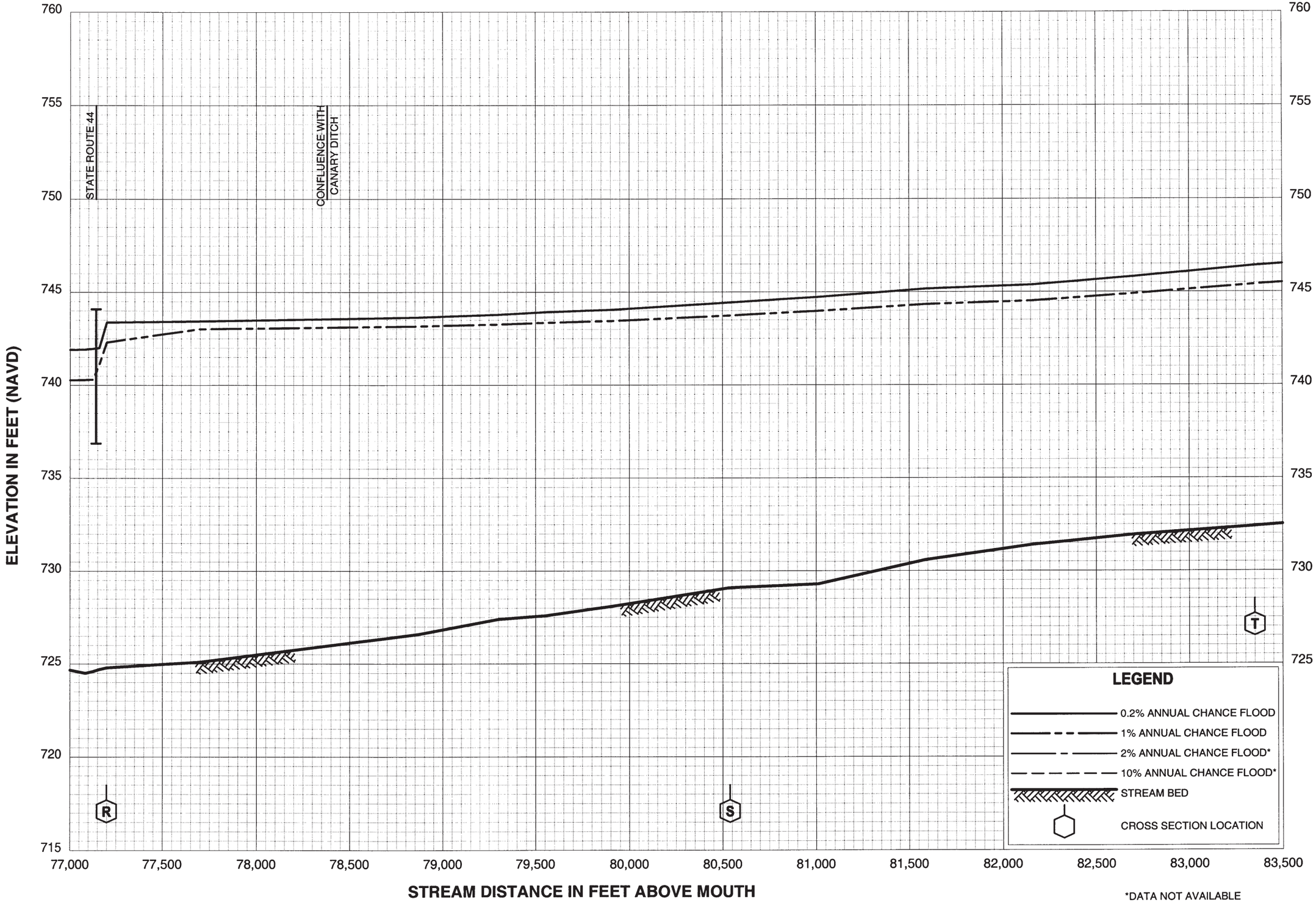

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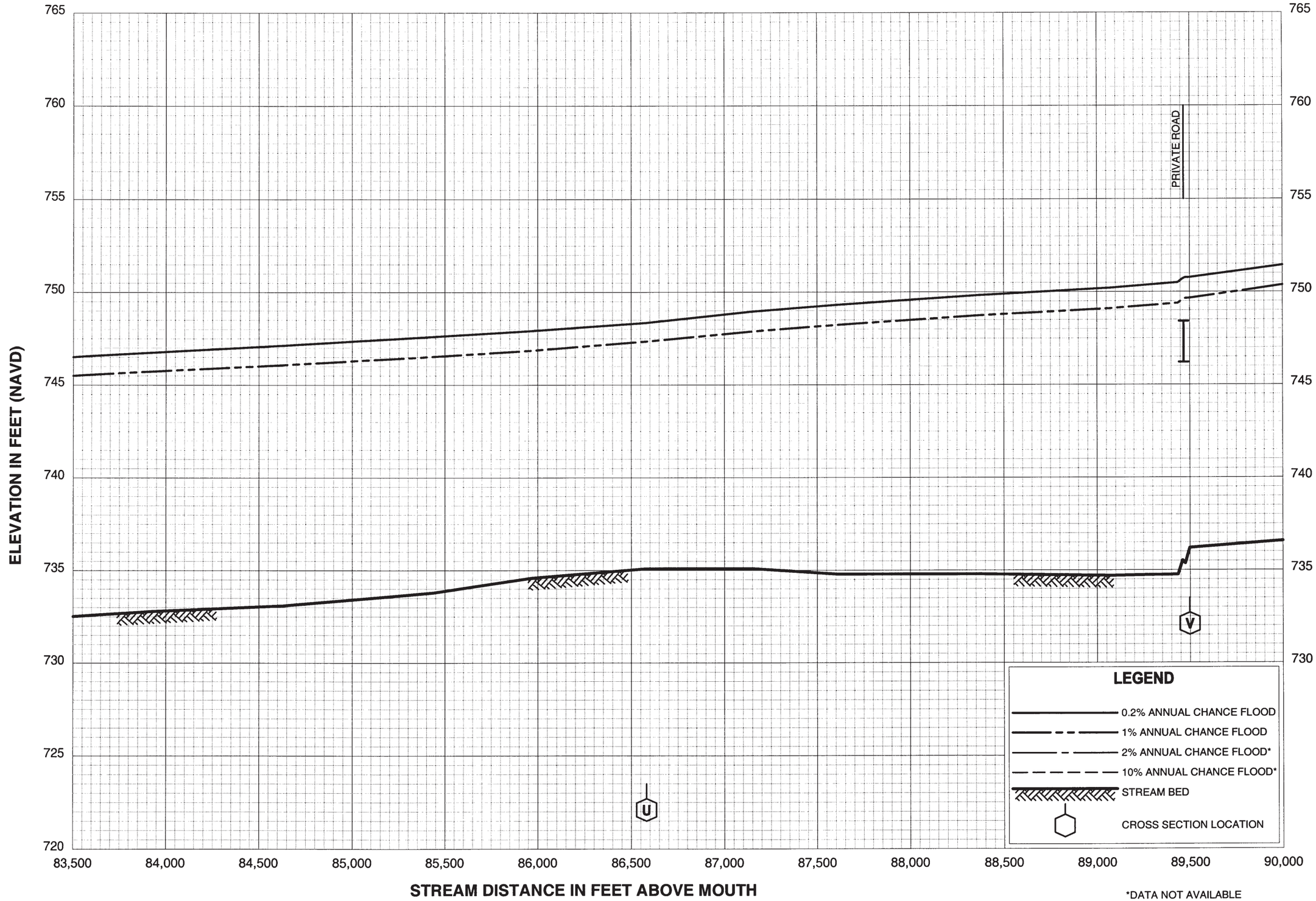

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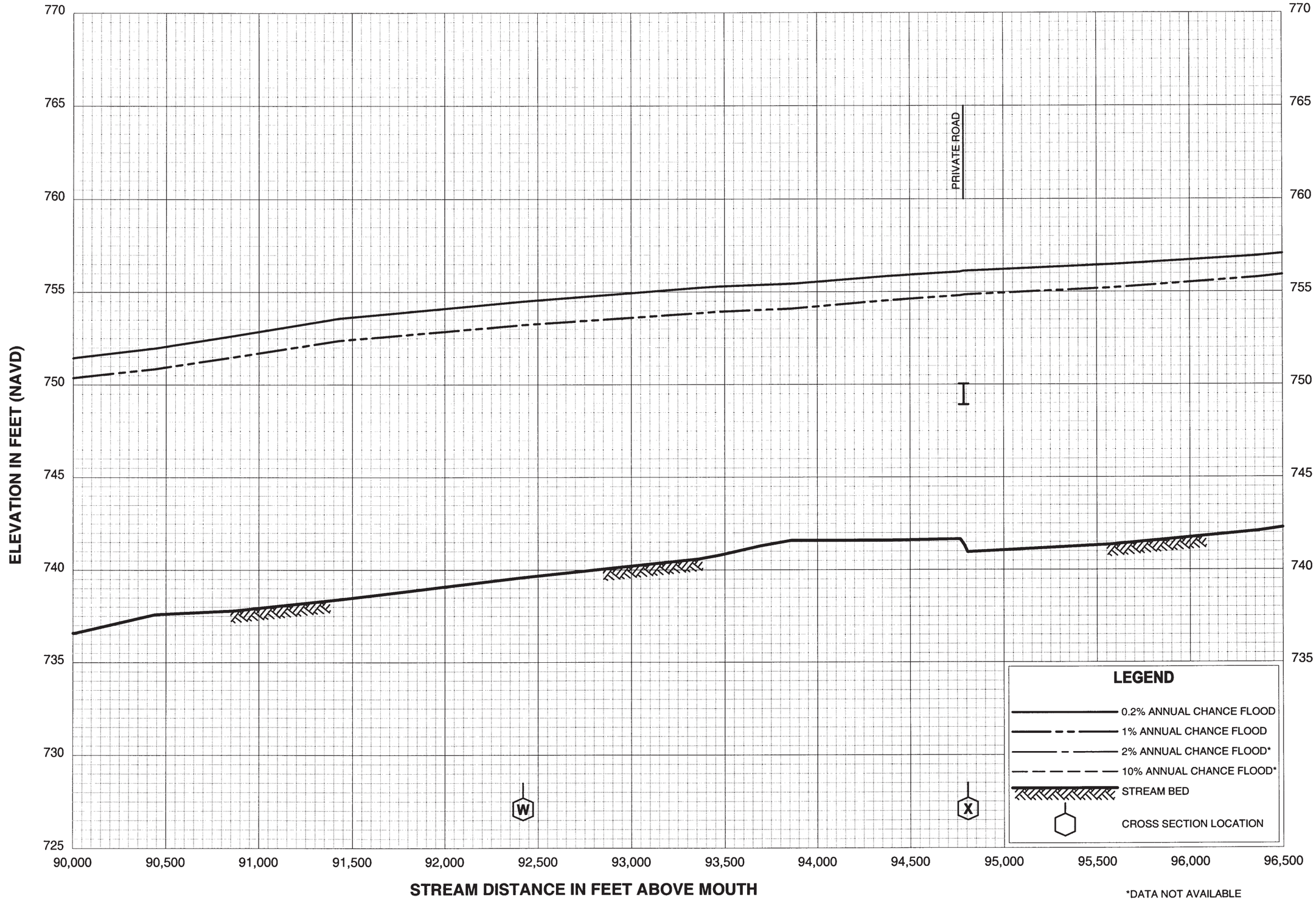

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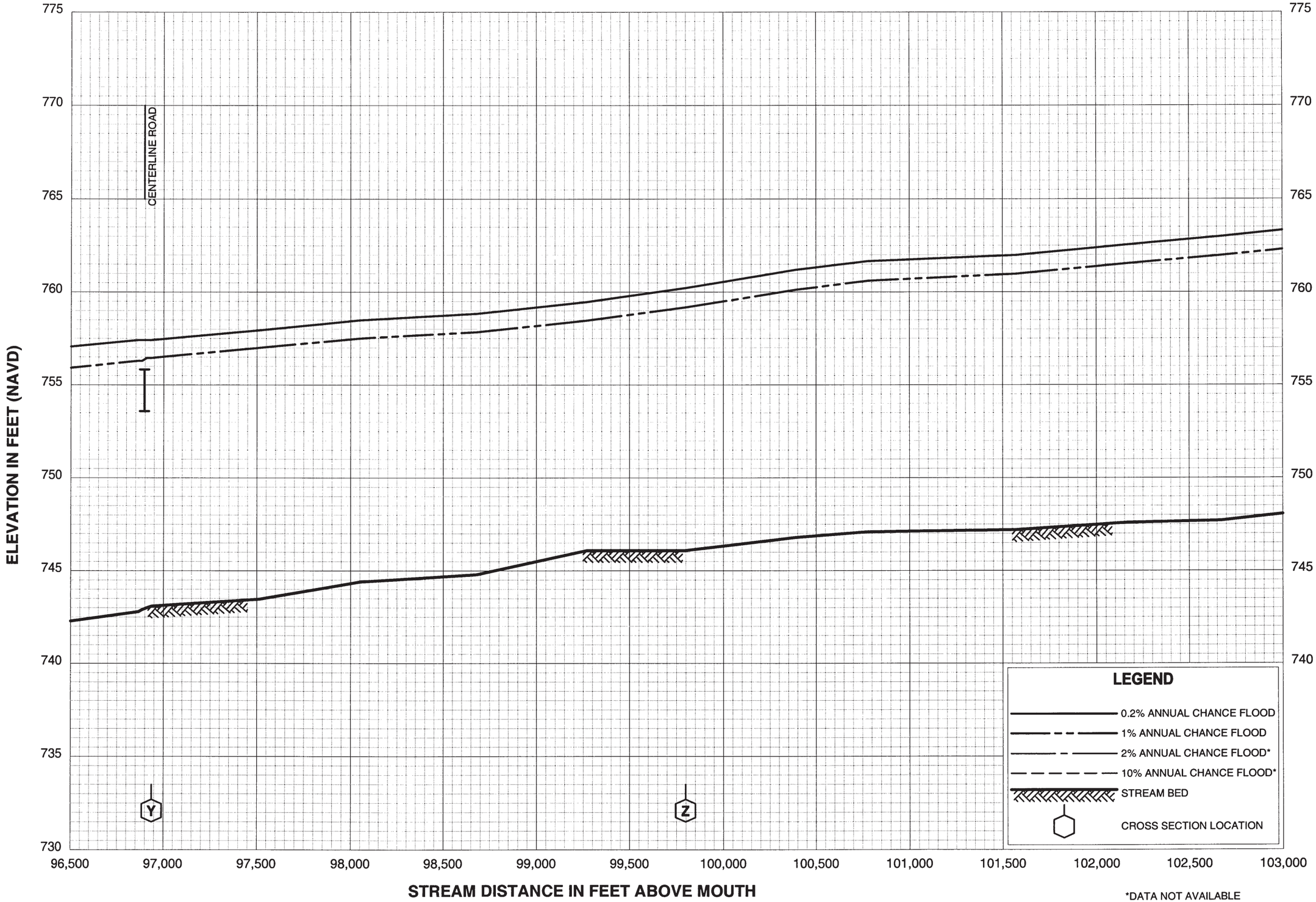

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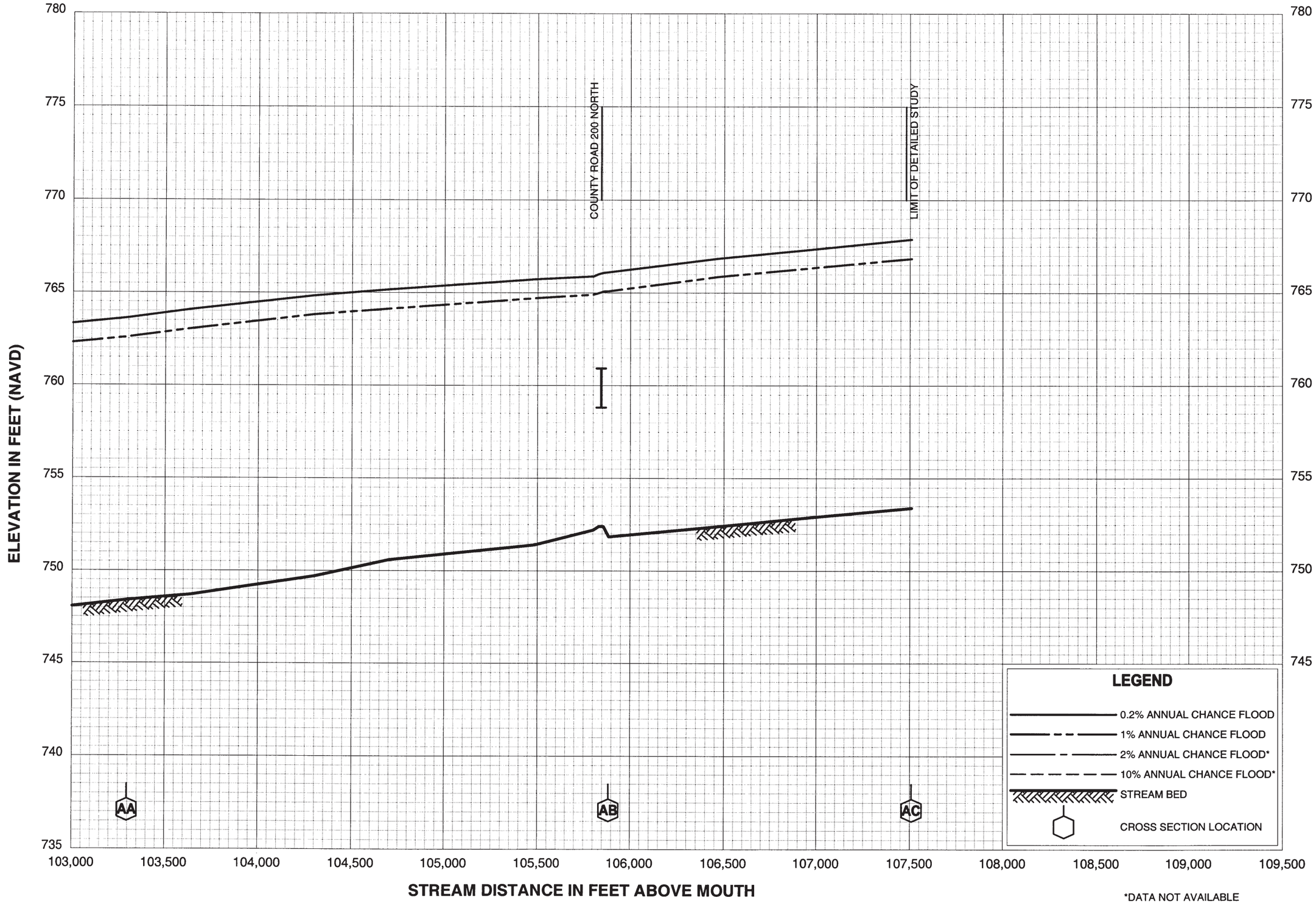

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