

FLOOD INSURANCE STUDY



DEARBORN COUNTY, INDIANA AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
AURORA, CITY OF	185172
DEARBORN COUNTY UNINCORPORATED AREAS	180038
DILLSBORO, TOWN OF	180598
GREENDALE, TOWN OF	180040
LAWRENCEBURG, CITY OF	180041
MOORES HILL, TOWN OF	180599
ST. LEON, TOWN OF	180600
WEST HARRISON, TOWN OF	180042



PRELIMINARY:



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
18029CV0000A

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.

Selected Flood Insurance Rate Map panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels (e.g., floodways, cross sections). In addition, former flood hazard zone designations have been changed as follows:

Old Zones(s)	New Zone
A1 through A30	AE
V1 through V30	VE
B	X
C	X

Effective Date:

Revised Dates:

TABLE OF CONTENTS

	Page
1.0 <u>INTRODUCTION</u>	1
1.1 Purpose of Study	1
1.2 Authority and Acknowledgments	1
1.3 Coordination	3
2.0 <u>AREA STUDIED</u>	4
2.1 Scope of Study	4
2.2 Community Description	6
2.3 Principal Flood Problems	7
2.4 Flood Protection Measures	8
3.0 <u>ENGINEERING METHODS</u>	8
3.1 Hydrologic Analyses	9
3.2 Hydraulic Analyses	11
3.3 Vertical Datum	12
4.0 <u>FLOODPLAIN MANAGEMENT APPLICATIONS</u>	13
4.1 Floodplain Boundaries	13
4.2 Floodways	14
5.0 <u>INSURANCE APPLICATION</u>	24
6.0 <u>FLOOD INSURANCE RATE MAP</u>	26
7.0 <u>OTHER STUDIES</u>	28
8.0 <u>LOCATION OF DATA</u>	28
9.0 <u>BIBLIOGRAPHY AND REFERENCES</u>	28

FIGURES

Figure 1 - Floodway Schematic	15
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TABLES

Table 1 – CCO Meeting Dates for Pre-Countywide FIS	3
Table 2 – Streams Studied by Detailed Methods	5
Table 3 – Streams Studied by Approximate Methods	5
Table 4 – Scope of Work	5
Table 5 - Summary of Discharges	9

Table 6 – Channel and Overbank Roughness Factors	12
Table 7 – Floodway Data	16
Table 8 – Community Map History	27

EXHIBITS

Exhibit 1 - Flood Profiles

Great Miami River	Panels 01P-02P
Laughery Creek	Panel 03P
Logan Creek	Panels 04P-06P
Ohio River	Panel 07P
Tanners Creek	Panels 08P-11P
Whitewater River	Panels 12P-15P
Wilson Creek	Panels 16P-17P

Exhibit 2 - Flood Insurance Rate Map Index

Flood Insurance Rate Map

FLOOD INSURANCE STUDY
DEARBORN COUNTY, INDIANA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and supercedes the FIS reports and Flood Insurance Rate Maps (FIRMs) in the geographic area of Dearborn County, Indiana, including the Cities of Aurora and Lawrenceburg, the Towns of Dillsboro, Greendale, Moores Hill, St. Leon, and West Harrison, and the unincorporated areas of Dearborn County (hereinafter referred to collectively as Dearborn County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. This information will also be used by Dearborn 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.

The Digital Flood Insurance Rate Map (DFIRM) and FIS report for this countywide study have been produced in digital format. Flood hazard information was converted to meet the Federal Emergency Management Agency (FEMA) DFIRM database specifications and Geographic Information System (GIS) format requirements. The flood hazard information was created and is provided in a digital format so that it can be incorporated into local GIS and be accessed more easily by the community.

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 Dearborn County was compiled and is shown below:

- City of Aurora: The previously effective FIS for the City of Aurora is dated January 1970. The hydrologic and hydraulic analyses for this study were performed by the U. S Army Corps of Engineers for the Federal Insurance Administration. This study was authorized on November 6, 1969.
- Dearborn County
(Unincorporated Areas): The previously effective FIS for the County of Dearborn is dated March 16, 1982. The hydrologic and hydraulic analyses for this study were performed by Snell Environmental Group, Inc. for the Federal Emergency Management Agency under Contract No. H-4777. This study was completed in January 1981.
- Town of Greendale: The previously effective FIS for the Town of Greendale is dated March 16, 1982. The hydrologic and hydraulic analyses for this study were performed by Snell Environmental Group for the Federal Emergency Management Agency, under Contract No. H-4777. This study was completed December 1980.
- City of Lawrenceburg: The previously effective FIS for the City of Lawrenceburg is dated March 16, 1982. The hydrologic and hydraulic analyses for this study were performed by the Snell Environmental Group for the Federal Emergency Management Agency, under Contract No. H-4777. This study was completed in December 1980.
- Town of West Harrison: The previously effective FIS for the Town of West Harrison is dated January 17, 1984. The hydrologic and hydraulic analyses for this study were obtained from the Flood Insurance Study for Dearborn County, Unincorporated Areas, Indiana, referenced under the Federal Emergency Management Agency, and dated March 1982.
- New Studies: The hydrologic and hydraulic analysis for approximate stream reaches of Dearborn County were performed by Christopher B. Burke Engineering, Ltd., on behalf of the Indiana Department of Natural Resources, under Indiana Public Works Project Number E400203. The

Indiana Department of Natural Resources managed the production of this study as part of their Cooperating Technical Partner agreement with the Federal Emergency Management Agency dated April 29, 2004, which was defined by the Indiana DNR Mapping Activity Statement 05-03 dated June 23, 2005 and funded under agreement number EMC-2005-GR-7022.

Redelineation of the previously effective flood hazard information for this FIS report was performed by Christopher B. Burke Engineering, Ltd., on behalf of the Indiana Department of Natural Resources, under Indiana Public Works Project Number E400203. Correction to the North American Vertical Datum of 1988 and conversion of the unincorporated and incorporated areas of Dearborn County into the countywide format was performed by the Indiana Department of Natural Resources. The Indiana Department of Natural Resources managed the production of this study as part of their Cooperating Technical Partner agreement with the Federal Emergency Management Agency dated April 29, 2004, which was defined by the Indiana DNR Mapping Activity Statement 05-03 dated June 23, 2005 and funded under agreement number EMC-2005-GR-7022.

The coordinate system used for the production of the digital FIRMs is the Transverse Mercator projection, Indiana State Plane coordinate system, East Zone, referenced to the North American Datum of 1983 and the GRS 1980 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 Dearborn County, Indiana are shown in Table 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

<u>Community Name</u>	<u>Initial CCO Date</u>	<u>Final CCO Date</u>
Aurora, City of	November 21, 1978	*
Dearborn County	April, 1978	September 6, 1981
Greendale, Town of	April 1978	October 6, 1981
Lawrenceburg, City of	April, 1978	October 6, 1981
West Harrison, Town of	*	February 8, 1984

*Unknown dates

For this countywide FIS, an initial CCO meeting was held on March 3, 2005 and was attended by IDNR and representatives from the Cities of Aurora and Lawrenceburg, the Town of Greendale, and Dearborn County.

The results of the countywide study were reviewed at the final CCO meeting held on , and attended by representatives of FEMA, IDNR and . All problems raised at that meeting have been addressed.

2.0 AREA STUDIED

2.1 **Scope of Study**

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

All FIRM panels for Dearborn County have been revised, updated, and republished in countywide format as a part of this 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, eleven (11) new stream reaches were studied using approximate methods. The scope and methods of new approximate studies were proposed and agreed upon by FEMA, the IDNR, and Dearborn County. The streams studied by approximate methods are listed in Table 3.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas, and areas of projected development or proposed construction through 1997. The streams studied by detailed methods are listed in Table 2. Two (2) new leverage studies and one (1) new stream reach

This FIS update also incorporates the determination of letters issued by FEMA resulting in map changes (Letters of Map Change, or LOMCs). The following LOMCs have been incorporated into the mapped changes. The following Letters of Map Revision (LOMRs) have been issued for Dearborn County. Letters of Map Amendment (LOMAs) revalidated 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.

<u>LOMC</u>	<u>Case Number</u>	<u>Date Issued</u>	<u>Project Identifier</u>
LOMR	00-05-285P	1/09/2002	Greendale Levee

TABLE 2 – STREAMS STUDIED BY DETAILED METHODS

Great Miami River	Tanners Creek
Laughery Creek	Whitewater River
Logan Creek	Wilson Creek
Ohio River	

TABLE 3 – STREAMS STUDIED BY APPROXIMATE METHODS

Blue Creek	North Hogan Creek
Brushy Fork	Pinhook Creek
Doublelick Run	Salt Fork
East Fork Tanners Creek	Slab Camp Creek
Jameson Creek	South Hogan Creek
Laughery Creek	Tanners Creek
Little Jameson Creek	UNT Logan Creek
Logan Creek	UNT West Fork Tanners Creek
Mud Lick Creek	Wilson Creek

TABLE 4 – SCOPE OF STUDY

<u>Stream</u>	<u>Limits of Detailed Study</u>
Great Miami River	Baltimore and Ohio Railway to confluence with Doublelick run
Ohio River	Dearborn County Limits
Tanners Creek	Mouth at Ohio River to Greendale Corporate Limits
<u>Stream</u>	<u>Limits of Approximate Study</u>
Brushy Fork	Mouth to North Dearborn Road
Doublelick Creek	Mouth to Hidden Valley Lake
East Fork Tanners Creek	Mouth to Confluence with Slab Camp Creek
Jameson Creek	State Line to Township Line
Little Jameson Creek	Mouth to Section Line
Pinhook Creek	Mouth to Limit of Jurisdiction
Salt Fork	Mouth to North Dearborn Road
Slab Camp Creek	Mouth to North Dearborn Road
Tanners Creek	Greendale Corporate Limits to confluence with EFK/WFK Tanners Creek
Unnamed Tributary	Mouth to St. Joe Road
Logan Creek	
Logan Creek	Mouth to County Line

2.2 Community Description

Dearborn County is located in southeastern Indiana, bordering southwestern Ohio. Dearborn County is bordered by Hamilton County, Ohio to the east, Boone County, Kentucky to the southeast, Ohio County Indiana to the south, Ripley County, Indiana to the west and Franklin County, Indiana to the north. The total land area contained within the county is 305.2 square miles. Dearborn County is located approximately 90 miles southeast of Indianapolis, Indiana, and approximately 20 miles west of Cincinnati, Ohio. Dearborn County is served by Interstate 74 and Interstate 275. According to the Indiana Business Research Center, the population of Dearborn County in 2005 was reported to be 49,082.

The climate in Dearborn County is characteristically continental. It is primarily influenced by eastward moving masses of cold polar air from the north and warm gulf air from the south. According to the National Oceanic and Atmospheric Administration (NOAA), average daily temperatures for Dearborn County range from 70 degrees Fahrenheit (F) in summer to 30 degrees F in winter. For the period of record between 1971 and 2000, annual average precipitation was approximately 43.9 inches.

Dearborn County is characterized by highly rolling, dissected topography. Approximately 38% of the county is agricultural land. Soils within the county vary from near level, well- to poorly-drained loamy soils for the Logan Creek-Whitewater River floodplains to steep, well-drained soils for the remainder of the streams' floodplains (Reference 8).

Streamflow in Dearborn County is drained in a northwest to southeast direction. The major streams in the county are Whitewater River, Tanners Creek, Hogan Creek, and Laughery Creek with drainage areas of 1369, 106, 128, and 343 square miles, respectively, at the county boundary.

Tanners Creek, Laughery Creek and Wilson Creek are all tributaries of the Ohio River. Wilson Creek has a drainage area of 9.2 square miles at its mouth. Logan Creek is a tributary of Whitewater River. At its mouth, it has a drainage area of 13.2 square miles.

The City of Aurora is located in southeastern Dearborn County. It is the first town south of Lawrenceburg. The Ohio River is located at the southern boundary of the corporate limits. The city is divided by Hogan Creek and its two branches, North Hogan Creek and South Hogan Creek, which flow from the north and west into the Ohio River. According to STATS Indiana, the population of Aurora in 2005 was 4,064.

The Town of Dillsboro is located in southwestern Dearborn County. According to STATS Indiana, the population of Dillsboro was 1,442 in 2005.

The Town of Greendale is located in southeastern Dearborn County. It is bordered by the City of Lawrenceburg to the south and west and Unincorporated Dearborn County on the north and east. The total land area contained within the town is approximately five (5) square miles. Floodplain areas in town are affected by Tanners Creek and the Ohio River. According to STATS Indiana, the population of Greendale in 2005 was 4,357.

The City of Lawrenceburg is located in southeastern Dearborn County and is the county seat. Lawrenceburg is about 10 miles downstream from Cincinnati, Ohio along the Ohio River. Lawrenceburg is bordered to the north and east by Greendale and to the west and east by unincorporated Dearborn County. The southern border is the Ohio River. The total land area contained within the city is approximately 5 square miles. According to STATS Indiana, the population of Lawrenceburg in 2005 was 4,750.

The Town of Moores Hill is located in western Dearborn County. According to STATS Indiana, the population of Moores Hill was 646 in 2005.

The Town of St. Leon is located in northern Dearborn County. According to STATS Indiana, the population of St. Leon was 510 in 2005.

The Town of West Harrison is located on the eastern border of Dearborn County. West Harrison is bordered by the City of Harrison and Hamilton County, Ohio to the east by the unincorporated areas of Dearborn County on all other sides. According to STATS Indiana, the population of West Harrison in 2005 was 317.

2.3 Principal Flood Problems

Major flooding in Dearborn County primarily occurs along the Ohio River and its tributaries. Major floods principally occur during the winter and spring months, but can occur during any season. There have been a number of major floods in Dearborn County this century. The major source of flooding in Dearborn County is the Ohio River, which forms part of the eastern border of Dearborn County. Backwater results of the Ohio River on streams feeding that river extend for some distance up those tributaries. The greatest flood in the history of Dearborn County was the January 1937 flood with a recurrence interval of slightly less than 200 years. Other large floods this century include the April 1913 flood and the March 1945 flood, both with recurrence intervals of 100 years as well as the March 1964 flood with a recurrence interval of about 90 years on the Ohio River (Reference 9). Dearborn County was also flooded in March 1997, which a recurrence interval of approximately 50 years.

Historically, the Ohio River tributaries in Dearborn County flood whenever the Ohio River floods.

City of Aurora: The Ohio River lies on the southern boundary of the Aurora corporate limits. The major floods of the Ohio River have flooded the region, such as 1913, 1937, 1964, and 1997.

City of West Harrison: Flooding along the Ohio River basin can occur during any season of the year. The majority of large floods have occurred between winter and spring.

City of Lawrenceburg: The history of flooding on Tanners Creek within the City of Lawrenceburg indicates that flooding may occur during any season of the year. The majority of large floods have occurred between winter and early spring.

City of Greendale: The history of flooding on Tanners Creek within the Town of Greendale indicates that flooding may occur during any season of the year. The majority of large floods have occurred between winter and spring months.

2.4 Flood Protection Measures

Greendale Levee: -CONVERTED RAILROAD

Lawrenceburg Levee: Principal developments in Lawrenceburg are protected by a levee and floodwall which protects the city against a flood of the magnitude equal to the 1937 flood with three feet of freeboard. The project protects 460 acres of urban land, however, there is now development outside the protected area. Flood protection consists of 18,300 feet of earth levee, 1,175 feet of concrete wall, four pumping plants, necessary relief wells and drainage structures. The Lawrenceburg flood protection network is concentrated between the Ohio River and Tanners Creek.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in Dearborn 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 Analysis

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

Table 5 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 Dearborn County.

Table 5. Summary of Discharges

Flooding Source <u>And Location</u>	Drainage Area <u>(Square Miles)</u>	Peak Discharge (CFS)			
		<u>10% Annual Chance</u>	<u>2% Annual Chance</u>	<u>1% Annual Chance</u>	<u>0.2% Annual Chance</u>
Great Miami River Mouth	5371	115,130	161,137	179,444	225,000
Laughery Creek Mouth	343.0	29,500	43,500	48,500	64,000
River mile 0.6	342.3	29,360	43,360	48,360	63,860
River mile 1.12	340.5	29,000	43,000	48,000	63,500
River mile 2.12	338.8	28,940	42,880	47,880	63,200
River mile 3.14	337.2	28,860	42,720	47,720	63,080
River mile 3.66	335.7	28,785	42,570	47,570	62,850
River mile 4.31	334.6	27,730	42,460	47,460	62,690
Logan Creek Mouth	13.2	3,800	5,600	6,400	8,200
River mile 1.73	11.9	3,600	5,300	6,000	7,700

Table 5. Summary of Discharges (cont'd)

Flooding Source And Location	Drainage Area (Square Miles)	Peak Discharge (CFS)			
		10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Ohio River Markland Lock & Dam	83,170	565,000	705,000	760,000	890,000
Tanners Creek About 3,500 ft. downstream of Conrail Bridge	101.5	13,620	19,980	22,725	29,300
Whitewater River Harrison special study Site (near Dearborn County line)	1,368	42,500	55,000	62,000	83,600
Wilson Creek Mouth	9.2	3,200	4,500	5,050	6,600
Upstream of Rt. 50 Bridge	7.8	2,800	4,100	4,650	6,000

Standard and accepted hydrologic methods were used to develop discharge data on the study streams in Dearborn County.

For the Whitewater River, discharges were based on statistical analysis of discharge records at the Brookville gage. The Brookville gage (No. 03276500) has been in operation continuously for 57 years. This analysis followed the standard log-Pearson Type III method as outlined by the Water Resources Council (Reference 10). Flood discharges for Logan, Laughery, Wilson and Tanners Creek were obtained using the TR-20 computer program developed by SCS (Reference 11). These results were compared with a regional analysis of stream gages for surrounding basins according to Bulletin No. 17 (Reference 10). The analyses proved to be compatible.

Frequency discharge relationships for the Great Miami River were taken from analysis previously completed by the Miami Conservancy District (unpublished data). This previous report utilized regional frequency studies involving such factors as channel slope, rainfall intensity duration patterns, and drainage areas.

The hydrologic analyses for the Ohio River were performed by the U.S. Army Corps of Engineers. The natural discharge-frequency curves were developed in accordance with methods presented in papers by Leo R. Beard, Statistical Methods in Hydrology (Reference 12). The natural discharge frequency curves were then modified to reflect the routing of 12 representative floods. The representative floods, in turn, were

further modified by an upstream Corps of Engineers reservoir system which included reservoirs completed or near completion in 1976 and is considered current in 2002.

3.2 Hydraulic Analysis

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the 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.

Cross section data for Laughery Creek, Logan Creek, Tanners Creek, Whitewater River, and Wilson Creek were obtained in 1979 by field survey and from aerial photographs (by photographic methods) at a negative scale of 1:7920 (Reference 13). All bridges, dams and culverts were field measured to obtain elevations and structural geometry. Cross sections for the Ohio River were determined from detailed mapping with bathymetry (1" = 600' with 5-foot contour intervals), developed for Corps of Engineers - Ohio River navigation studies.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles. For stream segments for which a floodway was computed (Section 4.2), selected cross sections locations are also shown on the Flood Boundary and Floodway Map.

Water-surface elevations of floods of the selected recurrence intervals were computed in April 1984 through the use of the COE HEC-2 step-backwater computer program (Reference 15). For the new approximate study reaches and the Ohio River, the USACE HEC-RAS (Version 3.1.1) program was used (Reference 20).

Flood profiles were prepared for all streams studied by detailed methods and show computed water-surface elevations for floods of the selected recurrence intervals. For this countywide FIS, flood profiles and approved LOMRs have been consolidated into continuous stream reaches and adjusted to reflect the current vertical datum as described in Section 3.3. In cases where the 50- and 100-year flood elevations are close together, due to limitations of the profile scale, only the 100-year profile has been shown. Flood boundaries for streams studied by the approximate methods were determined based on a regional drainage area versus flood stage analysis.

The starting water-surface elevation for Whitewater River was obtained from the Unincorporated Areas of County of Hamilton, Ohio Flood Insurance Study (Reference 14). Starting water-surface elevations for the Ohio River were determined based on a frequency analysis of the Markland Locks and Dam lower gate. The

Great Miami, Laughery Creek, Logan Creek, Wilson Creek and Tanners Creek starting water-surface elevations were derived using the slope-area method. Starting water-surface elevations for the Ohio River were obtained using gaged data and known elevation-discharge relationships at those locations. For the new approximate study reaches, the USACE HEC-RAS (Version 3.1.1) (USACE, 2003b) program was used.

Channel and overbank roughness factors (Manning’s “n” values) used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the stream and floodplain areas. Channel and overbank roughness factors used in the detailed studies are summarized by stream in Table 6.

Table 6. Channel and Overbank Roughness Factors

<u>Stream</u>	<u>Roughness Coefficients</u>	
	<u>Main Channel</u>	<u>Overbanks</u>
Tanners Creek	0.03 – 0.05	0.04 – 0.075
Ohio River	0.0289	0.11
Laughery Creek	0.028 – 0.05	0.03 – 0.06
Whitewater River	0.028 - 0.035	0.03 – 0.06
Wilson Creek	0.04 – 0.07	0.04 – 0.07

For new approximate study areas, analyses were based on field inspection and modeling of the stream reaches using simplified HEC-RAS models. Structural measurements or field surveying was not performed. Cross section geometry was derived from USGS topographic mapping with a maximum spacing of 490 feet. Starting elevations were assumed to be normal depth.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the Flood Profiles (Exhibit 1) are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

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. In this revision, a vertical datum conversion of -0.64 foot was calculated at the centroid of the county and used to convert all elevations in Dearborn County from NGVD29 to NAVD88 using the National Geodetic Survey's VERTCON online utility (VERTCON, 2005).

$$(NGVD29 - 0.64 = NAVD88)$$

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 (Internet address <http://www.ngs.noaa.gov>).

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.

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 USGS topographic maps.

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

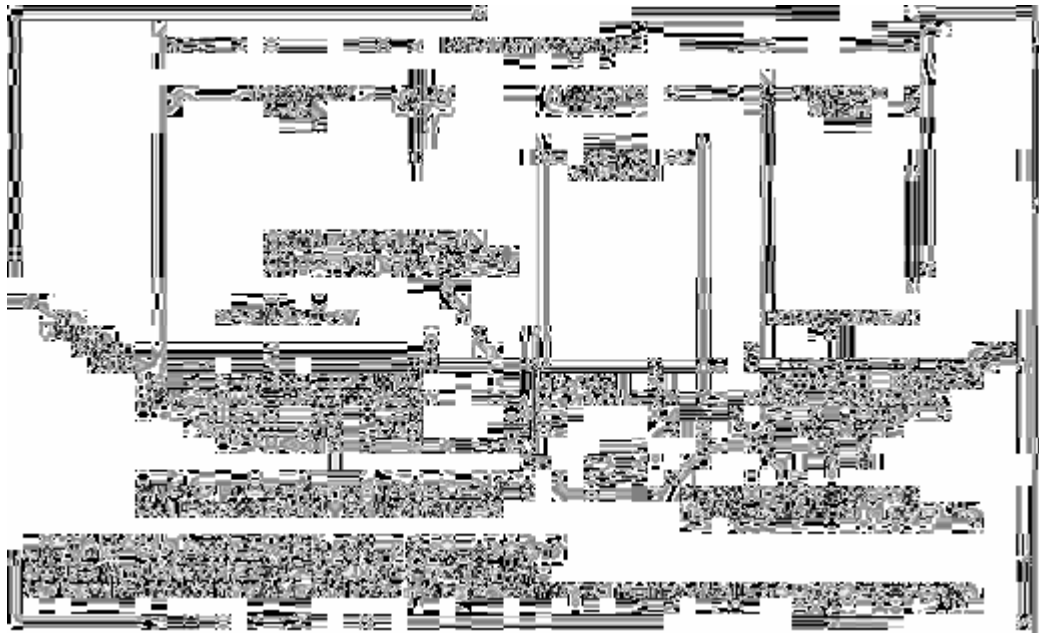
Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development 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, per Indiana Code IC 14-28-1 and Indiana Administrative Code 312 IAC 10, has designated that encroachment in the floodplain is limited to that which will cause no significant increase in flood height. As a result, floodways for this study are delineated based on a flood surcharge of less than 0.15 feet. The floodways in this study were approved by the IDNR and are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this FIS report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations have been tabulated for selected cross sections (Table 4). 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.

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 the allowable flood surcharge limit at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.

Figure 1: Floodway Schematic



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH ² (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY ³ (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
GREAT MIAMI RIVER								
A	0.48	991	22,495	8.0	489.4	469.9	470.0	0.1
B	0.95	7156	102,541	1.7	489.4	472.3	472.4	0.1
C	1.48	6205	72,109	2.5	489.4	472.4	472.5	0.1
D	2.19	6289	76,452	2.3	489.4	472.9	473.0	0.1
E	3.44	7762	67,593	2.7	489.4	473.5	473.6	0.1
LAUGHERY CREEK								
A	0.57	291/210	5,949	8.1	486.0	465.1	465.1	0.0
B	0.63	482/241	6,786	7.1	486.0	465.4	465.4	0.0
C	1.12	379/150	6,477	7.4	486.0	466.9	466.9	0.0
D	1.48	471/190	7,241	6.6	486.0	467.7	467.7	0.0
E	1.62	468/220	7,089	6.8	486.0	468.0	468.0	0.0
F	1.68	613/280	9,588	5.0	486.0	468.5	468.5	0.0
G	2.12	448/180	7,820	6.1	486.0	469.1	469.1	0.0
H	2.37	527/240	7,703	6.2	486.0	469.3	469.3	0.0
I	2.53	523/320	9,272	5.2	486.0	469.9	469.9	0.0
J	2.63	1084/920	12,832	3.7	486.0	470.2	470.2	0.0
K	2.78	1131/940	11,489	4.2	486.0	470.3	470.3	0.0
L	3.14	631/420	11,062	4.3	486.0	470.7	470.7	0.0
M	3.25	1104/140	16,526	2.9	486.0	470.9	470.9	0.0
N	3.41	2059/1020	20,319	2.3	486.0	471.0	471.0	0.0
O	3.66	2608/2240	20,781	2.3	486.0	471.1	471.1	0.0
P	4.09	2465/2280	11,173	4.3	486.0	471.1	471.1	0.0
Q	4.31	2846/2630	21,109	2.2	486.0	471.7	471.7	0.0
R	4.50	2924/1460	29,621	1.6	486.0	471.9	471.9	0.0
S	4.80	2264/120	19,987	2.4	486.0	471.9	471.9	0.0
T	5.03	2432/120	19,999	2.4	486.0	472.1	472.1	0.0

¹ MILES ABOVE MOUTH

² TOTAL WIDTH / WIDTH WITHIN COUNTY

³ ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM OHIO RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COUNTY OF DEARBORN, IN
(AND INCORPORATED AREAS)**

FLOODWAY DATA

GREAT MIAMI RIVER, LAUGHERY CREEK

FLOODING SOURCE		FLOODWAY			BASE 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)
LOGAN CREEK								
A	0.11	157	1278	5.0	532.8	524.6 ²	524.6	0.0
B	0.20	160	1230	5.2	532.8	525.5 ²	525.5	0.0
C	0.31	104	1101	5.8	532.8	526.5 ²	526.5	0.0
D	0.46	255	1183	5.4	532.8	527.8 ²	527.8	0.0
E	0.56	265	1109	5.8	532.8	529.0 ²	529.0	0.0
F	0.61	155	1132	5.7	532.8	530.3 ²	530.3	0.0
G	0.68	120	883	7.2	532.8	531.2 ²	531.2	0.0
H	0.82	181	1448	4.4	532.9	532.9	532.9	0.0
I	0.95	208	1653	3.9	534.0	534.0	534.0	0.0
J	1.02	149	1300	4.9	534.3	534.3	534.3	0.0
K	1.11	214	950	6.7	535.0	535.0	535.0	0.0
L	1.17	357	2020	3.2	536.5	536.5	536.5	0.0
M	1.26	376	2552	2.5	536.9	536.9	536.9	0.0
N	1.41	206	804	8.0	537.1	537.1	537.1	0.0
O	1.53	284	1362	4.7	540.5	540.5	540.5	0.0
P	1.63	118	595	10.8	541.1	541.1	541.1	0.0
Q	1.73	248	889	6.7	545.7	545.7	545.7	0.0
R	1.82	263	707	8.5	548.2	548.2	548.2	0.0
S	1.89	376	1361	4.4	550.7	550.7	550.7	0.0
T	1.98	214	1157	5.2	551.4	551.4	551.4	0.0
U	2.01	195	818	7.3	551.9	551.9	551.9	0.0
V	2.10	151	635	9.5	554.9	554.9	554.9	0.0
W	2.15	101	533	11.3	557.7	557.7	557.7	0.0
X	2.20	184	873	6.9	561.3	561.3	561.3	0.0
Y	2.22	83	590	10.2	562.6	562.6	562.6	0.0
Z	2.28	192	662	9.1	565.1	565.1	565.1	0.0

¹ MILES ABOVE MOUTH

² ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM WHITEWATER RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COUNTY OF DEARBORN, IN
(AND INCORPORATED AREAS)**

FLOODWAY DATA

LOGAN CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	AREA (SQ. FEET)	VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
OHIO RIVER								
A	498.50	4558	161065	4.7	486.1	486.1	486.2	0.1
B	498.00	2135	118398	6.4	486.1	486.1	486.3	0.1
C	497.25	1567	86296	8.8	486.0	486.0	486.1	0.1
D	496.50	2428	130435	5.8	487.2	487.2	487.4	0.1
E	495.00	2881	112653	6.8	487.7	487.7	487.8	0.1
F	494.00	2053	105462	7.2	488.1	488.1	488.2	0.1
G	493.50	2054	116199	6.5	488.5	488.5	488.6	0.1
H	493.00	1778	107722	7.1	488.7	488.7	488.8	0.1
I	492.75	2649	130756	5.8	488.8	488.8	488.9	0.1
J	492.00	3769	150666	5.0	489.3	489.3	489.4	0.1
K	491.50	2768	126346	6.0	489.4	489.4	489.5	0.1

¹ MILES BELOW PITTSBURG

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COUNTY OF DEARBORN, IN
(AND INCORPORATED AREAS)**

FLOODWAY DATA

OHIO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	AREA (SQ. FEET)	VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	FLOODWAY ² (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
TANNERS CREEK								
A	0.00	459	3539	6.6	488.5	463.7	463.7	0.0
B	0.30	328	4551	5.1	488.5	465.7	465.7	0.0
C	0.34	313	4714	5.0	488.5	465.8	465.8	0.0
D	0.37	180	3674	6.4	488.5	465.8	465.8	0.0
E	0.44	401	5652	4.1	488.5	466.2	466.2	0.0
F	0.73	1125	12167	1.9	488.5	466.9	466.9	0.0
G	1.05	1253	8694	2.7	488.5	467.1	467.1	0.0
H	1.49	1096	11566	2.0	488.5	467.5	467.5	0.0
I	1.80	372	5112	4.6	488.5	467.7	467.7	0.0
J	2.11	239	3922	5.9	488.5	468.2	468.2	0.0
K	2.30	239	3718	6.2	488.5	468.4	468.4	0.0
L	2.46	281	3984	5.8	488.5	468.9	468.9	0.0
M	2.86	404	5232	4.4	488.5	469.7	469.7	0.0
N	3.08	621	5988	3.9	488.5	470.1	470.1	0.0
O	3.62	382	5152	4.5	488.5	470.8	470.8	0.0
P	4.05	476	6545	3.5	488.5	471.6	471.6	0.0
Q	4.20	916	11669	2.0	488.5	472.0	472.0	0.0
R	4.76	587	6406	3.6	488.5	472.6	472.6	0.0
S	4.96	350	4730	4.8	488.5	473.0	473.0	0.0
T	5.17	480	6219	3.7	488.5	473.7	473.7	0.0
U	5.47	439	4967	4.6	488.5	474.0	474.0	0.0
V	5.72	330	4431	5.1	488.5	474.6	474.6	0.0
W	5.84	179	3148	7.2	488.5	474.8	474.8	0.0
X	5.98	335	5169	4.4	488.5	475.5	475.5	0.0
Y	6.14	540	7141	3.2	488.5	475.9	476.0	0.1
Z	6.30	420	5678	4.0	488.5	476.0	476.1	0.1

¹ MILES ABOVE MOUTH

² ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM OHIO RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COUNTY OF DEARBORN, IN
(AND INCORPORATED AREAS)**

FLOODWAY DATA

TANNERS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	AREA (SQ. FEET)	VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	FLOODWAY ² (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
TANNERS CREEK								
AA	6.38	325	5071	4.5	488.5	476.2	476.2	0.0
AB	6.55	310	4619	4.9	488.5	476.4	476.5	0.1
AC	6.68	315	4771	4.8	488.5	476.8	476.8	0.0
AD	6.78	395	6154	3.7	488.5	477.3	477.3	0.0
AE	6.98	320	5161	4.4	488.5	477.5	477.6	0.1
AF	7.09	615	7457	3.0	488.5	478.0	478.1	0.1
AG	7.28	600	7576	3.0	488.5	478.3	478.4	0.1
AH	7.46	820	8250	2.8	488.5	478.5	478.6	0.1
AI	7.62	665	8299	2.7	488.5	478.8	478.9	0.1
AJ	7.73	490	6542	3.5	488.5	479.0	479.0	0.0
AK	7.79	390	5700	4.0	488.5	479.0	479.0	0.0
AL	7.90	390	6159	3.9	488.5	479.2	479.3	0.1

¹ MILES ABOVE MOUTH

² ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM OHIO RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COUNTY OF DEARBORN, IN
(AND INCORPORATED AREAS)**

FLOODWAY DATA

TANNERS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	AREA (SQ. FEET)	VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
WHITEWATER RIVER								
A	7.95	1048/360 ²	11,477	5.4	512.6	512.6	512.6	0.0
B	8.04	600	9,892	6.3	513.0	513.0	513.0	0.0
C	8.37	1095	13,899	4.5	514.0	514.0	514.0	0.0
D	8.68	2336	15,255	4.1	514.5	514.5	514.5	0.0
E	8.93	2947	21,390	2.9	515.4	515.4	515.4	0.0
F	9.58	3346	13,984	4.4	516.3	516.3	516.3	0.0
G	10.04	4007	16,394	3.8	517.8	517.8	517.8	0.0
H	10.42	2512	12,588	4.9	519.0	519.0	519.0	0.0
I	10.68	1280	12,583	4.9	520.1	520.1	520.1	0.0
J	10.83	972	8,033	7.7	520.1	520.1	520.1	0.0
K	10.95	998	10,702	5.8	521.5	521.5	521.5	0.0
L	11.28	1676	12,204	5.1	522.8	522.8	522.8	0.0
M	11.43	1535	15,050	4.1	523.9	523.9	523.9	0.0
N	11.89	2401	11,552	5.4	525.4	525.4	525.4	0.0
O	12.11	1870	12,647	4.9	526.5	526.5	526.5	0.0
P	12.42	1439	6,923	9.0	527.3	527.3	527.3	0.0
Q	12.69	1197	7,844	7.9	529.7	529.7	529.7	0.0
R	12.78	1150	9,070	6.8	530.0	530.0	530.0	0.0
S	12.97	505	7,373	8.4	531.0	531.0	531.0	0.0
T	13.12	841	11,098	5.6	532.6	532.6	532.6	0.0
U	13.14	861	12,181	5.1	532.8	532.8	532.8	0.0
V	13.21	1410	9,682	6.4	532.8	532.8	532.8	0.0
W	13.36	1300	12,391	5.0	533.5	533.5	533.5	0.0
X	13.45	881	12,153	5.1	534.0	534.0	534.0	0.0
Y	13.61	1214	9,351	6.6	534.0	534.0	534.0	0.0
Z	13.70	1444	10,316	6.0	534.5	534.5	534.5	0.0

¹ MILES ABOVE MOUTH

² TOTAL WIDTH / WIDTH WITHIN COUNTY

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COUNTY OF DEARBORN, IN
(AND INCORPORATED AREAS)**

FLOODWAY DATA

WHITEWATER RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	AREA (SQ. FEET)	VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
WHITEWATER RIVER								
AA	13.87	1358	10,095	6.1	535.1	535.1	535.1	0.0
AB	14.17	630	6,234	9.9	536.0	536.0	536.0	0.0
AC	14.37	1827	14,114	4.4	538.2	538.2	538.2	0.0
AD	14.76	1710	9,870	6.3	538.9	538.9	538.9	0.0
AE	15.10	1549	10,007	6.2	540.3	540.3	540.3	0.0
AF	15.24	544	5,840	10.6	540.3	540.3	540.3	0.0
AG	15.77	602	7,115	8.7	543.6	543.6	543.6	0.0
AH	16.03	782	7,559	8.2	544.7	544.7	544.7	0.0
AI	16.14	890	10,015	6.2	546.2	546.2	546.2	0.0
AJ	16.28	853	8,756	7.1	546.7	546.7	546.7	0.0
AK	16.43	1200	6,684	9.3	546.7	546.7	546.7	0.0

¹ MILES ABOVE MOUTH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COUNTY OF DEARBORN, IN
(AND INCORPORATED AREAS)**

FLOODWAY DATA

WHITEWATER RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	AREA (SQ. FEET)	VELOCITY (FT/SEC)	REGULATORY (FEET, NAVD)	FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
WILSON CREEK								
A	0.00	807	1254	4.0	487.4	460.9 ²	460.9	0.0
B	0.11	450	1529	3.3	487.4	461.6 ²	461.6	0.0
C	0.14	400	1208	4.2	487.4	461.8 ²	461.8	0.0
D	0.37	972	5032	1.0	487.4	462.3 ²	462.3	0.0
E	0.55	869	3818	1.3	487.4	462.6 ²	462.6	0.0
F	1.01	627	2897	1.6	487.4	467.6 ²	467.6	0.0
G	1.20	268	1265	3.7	487.4	468.1 ²	468.1	0.0
H	1.43	282	1524	3.1	487.4	469.9 ²	469.9	0.0
I	1.59	519	2141	2.2	487.4	470.7 ²	470.7	0.0
J	1.80	258	1090	4.3	487.4	471.5 ²	471.5	0.0
K	1.92	306	1263	3.7	487.4	473.0 ²	473.0	0.0
L	2.04	374	1640	2.8	487.4	473.9 ²	473.9	0.0
M	2.32	280	773	5.4	487.4	476.5 ²	476.5	0.0
N	2.38	254	373	11.3	487.4	477.7 ²	477.7	0.0
O	2.52	264	1016	3.7	487.4	482.4 ²	482.4	0.0
P	2.71	98	395	9.6	489.5	489.5	489.5	0.0
Q	2.89	109	405	9.4	497.4	497.4	497.4	0.0
R	2.91	134	1275	3.0	501.6	501.6	501.6	0.0
S	2.94	188	757	5.0	502.1	502.1	502.1	0.0
T	3.12	109	475	8.0	510.2	510.2	510.2	0.0

¹ MILES ABOVE MOUTH

² ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM OHIO RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**COUNTY OF DEARBORN, IN
(AND INCORPORATED AREAS)**

FLOODWAY DATA

WILSON CREEK

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. 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 AH

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

Zone AO

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

Zone AR

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

Zone A99

Zone A99 is the flood insurance risk zone that corresponds to areas of the 1-percent-annual-chance floodplain that will be protected by a Federal flood protection system

where construction has reached specified statutory milestones. No BFEs or depths are shown within this zone.

Zone V

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

Zone VE

Zone VE is the flood insurance risk zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. 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.

Zone X (Future Base Flood)

Zone X (Future Base Flood) is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined based on future-conditions hydrology. No BFEs or base flood depths are shown within this zone.

Zone D

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

6.0 FLOOD INSURANCE RATE MAP

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

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

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

The countywide FIRM presents flooding information for the entire geographic area of Dearborn County. Previously, FIRMs were prepared for each incorporated community and the unincorporated areas of the County identified as flood-prone. This countywide FIRM also includes flood-hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community are presented in Table 8, "Community Map History."

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Aurora, City of	April 6, 1973	None	December 26, 1975	March 26, 1982
Dearborn, County of (Unincorporated Areas)	April 7, 1978	None	September 16, 1982	None
Dillsboro, Town of*	N/A	None	N/A	None
Greendale, Town of	January 16, 1974	December 12, 1975	September 16, 1982	None
Lawrenceburg, City of	January 16, 1974	June 11, 1976	September 16, 1982	None
Moore Hill, Town of*	N/A	None	N/A	None
St. Leon, Town of	TBD	None	TBD	None
West Harrison, Town of	September 6, 1974	May 14, 1976	January 17, 1985	None

* No special flood hazard areas identified

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

**DEARBORN COUNTY, IN
(ALL JURISDICTIONS)**

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

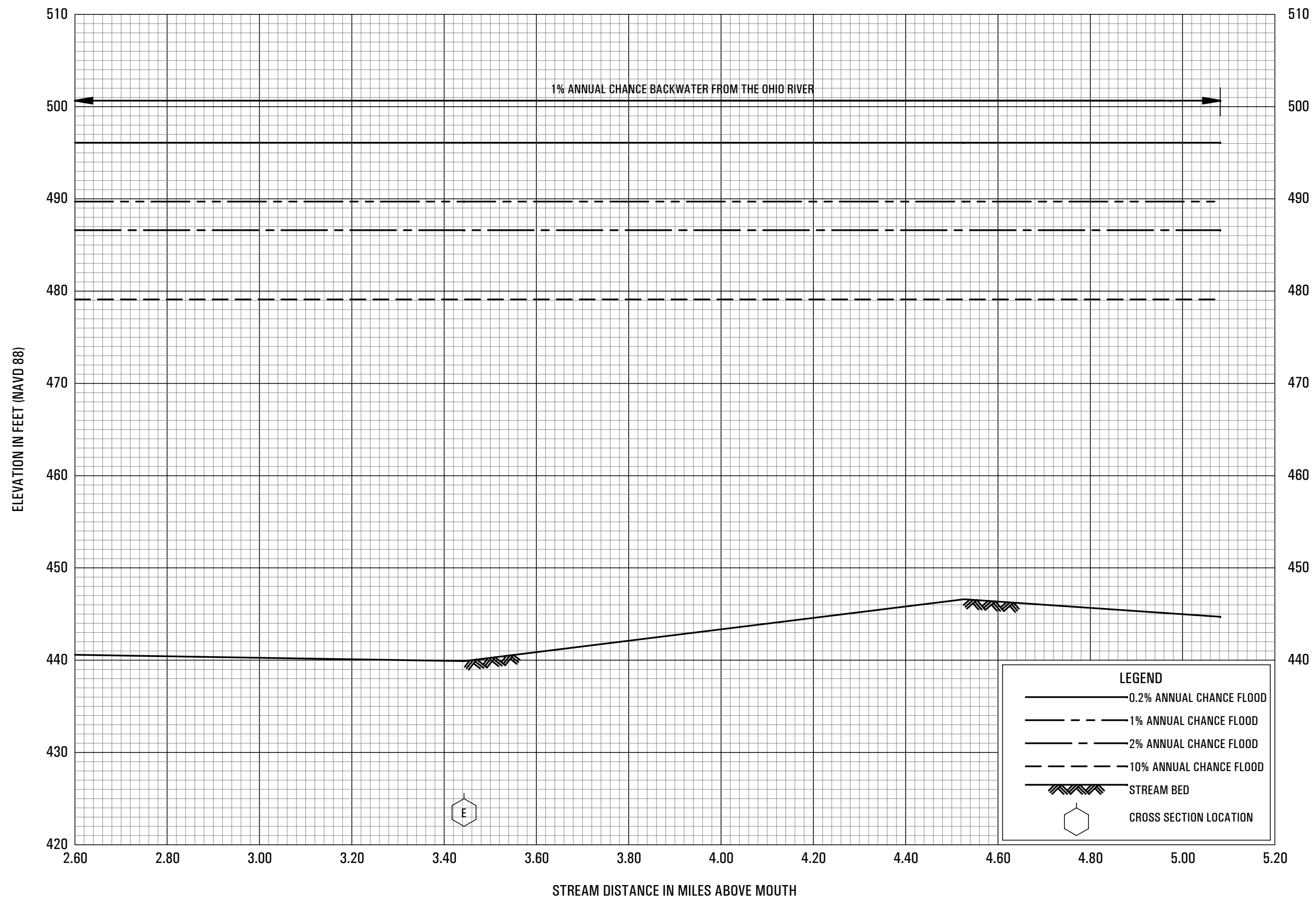
Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Flood Insurance and Mitigation Division, Federal Emergency Management Agency, Region V, 536 S. Clark Street, 6th Floor, Chicago, IL 60605

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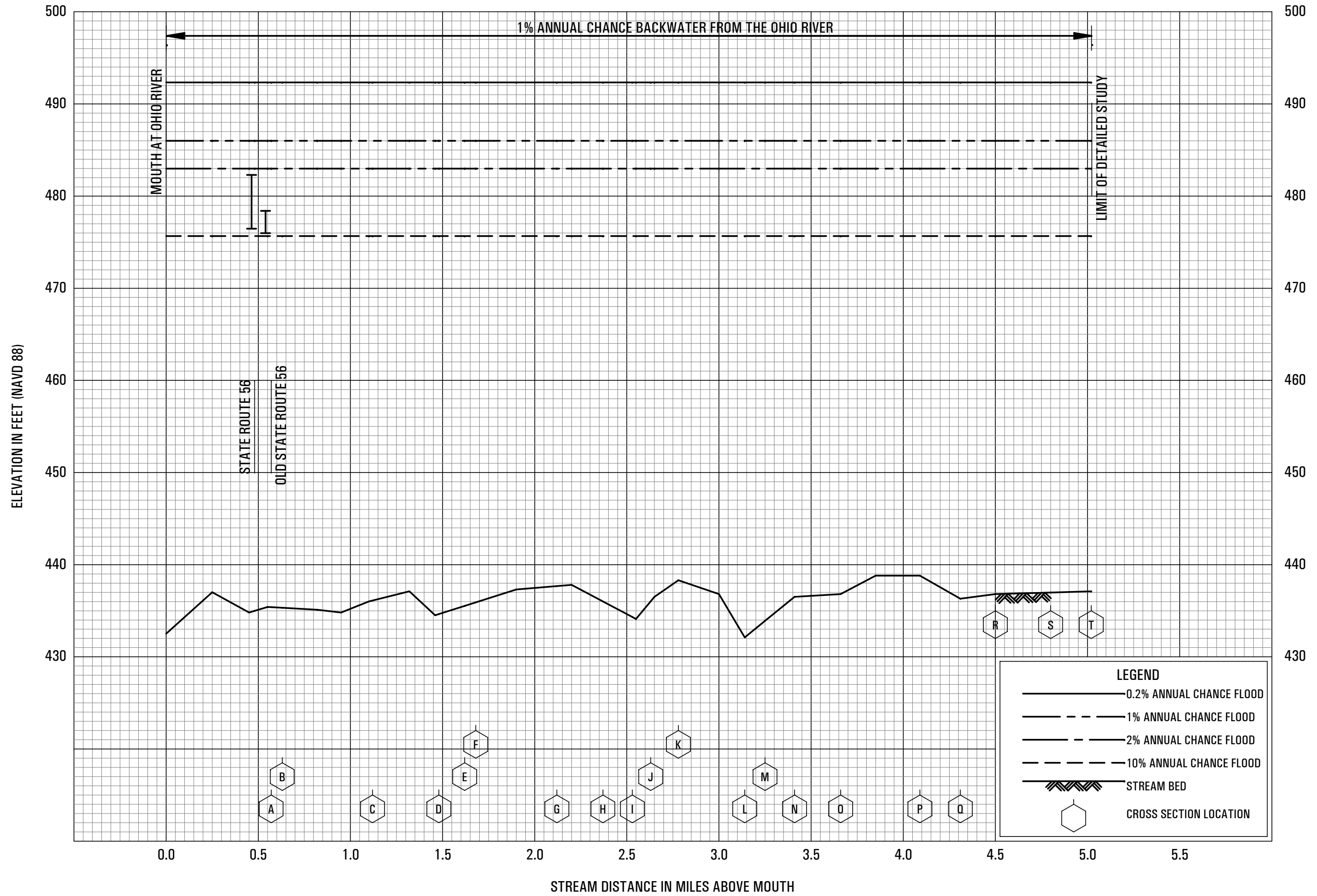


FLOOD PROFILES

GREAT MIAMI RIVER

**FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
AND INCORPORATED AREAS**

02P

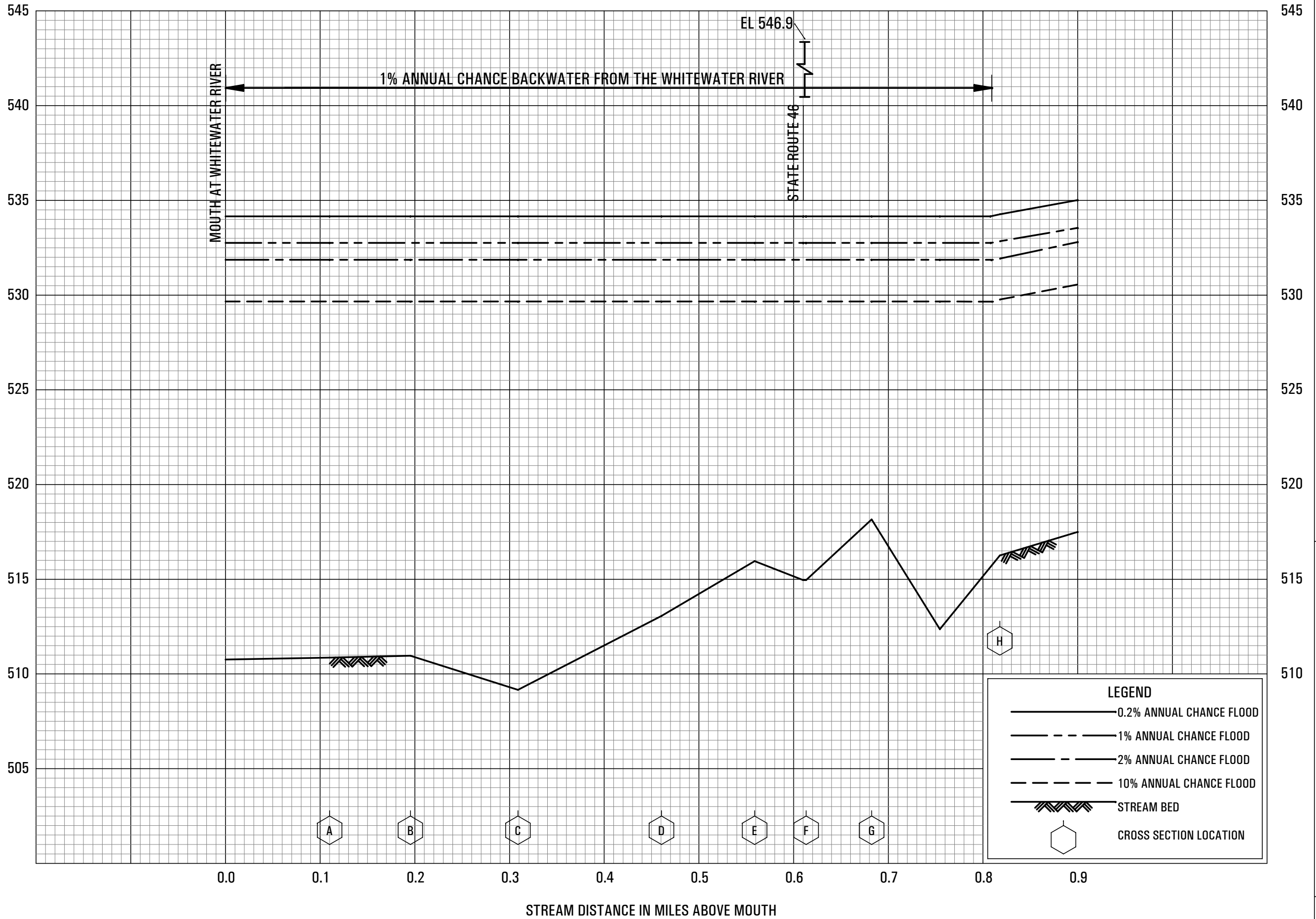


FLOOD PROFILES

LAUGHERY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
 AND INCORPORATED AREAS

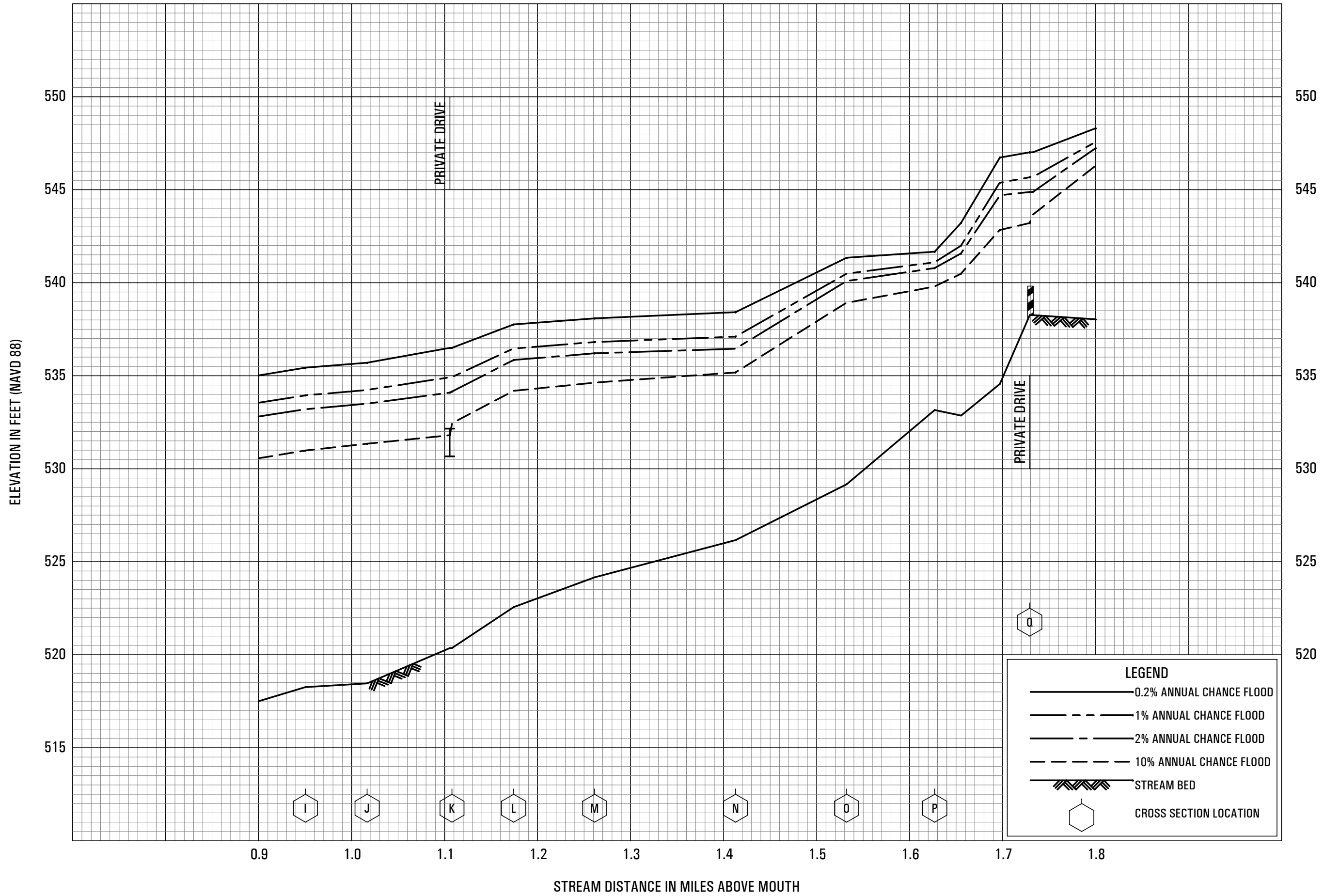
ELEVATION IN FEET (NAVD 88)



FLOOD PROFILES

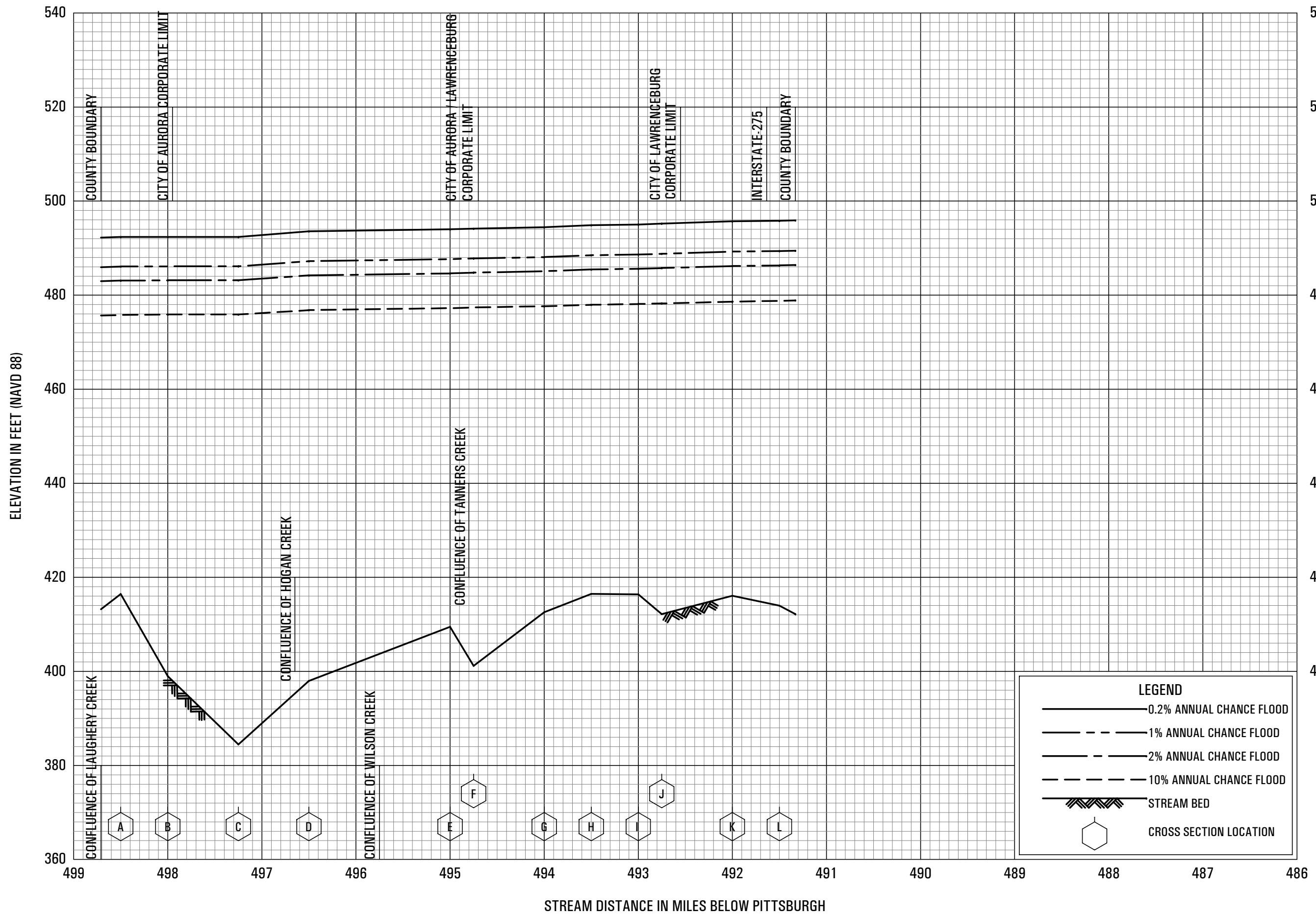
LOGAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
AND INCORPORATED AREAS



FLOOD PROFILES
LOGAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
AND INCORPORATED AREAS

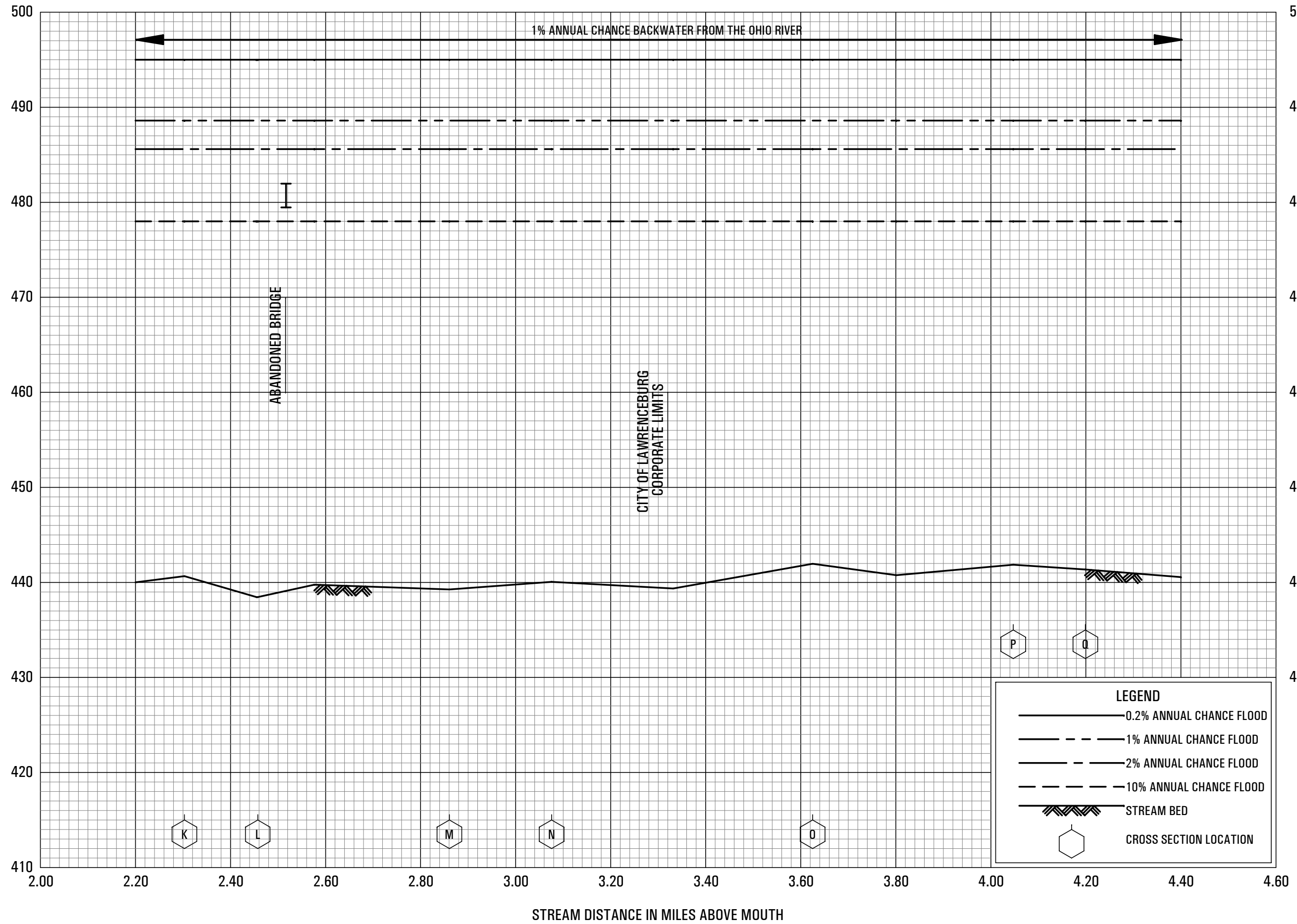


FLOOD PROFILES

OHIO RIVER

**FEDERAL EMERGENCY MANAGEMENT AGENCY
DEARBORN COUNTY, IN
AND INCORPORATED AREAS**

ELEVATION IN FEET (NAVD 88)



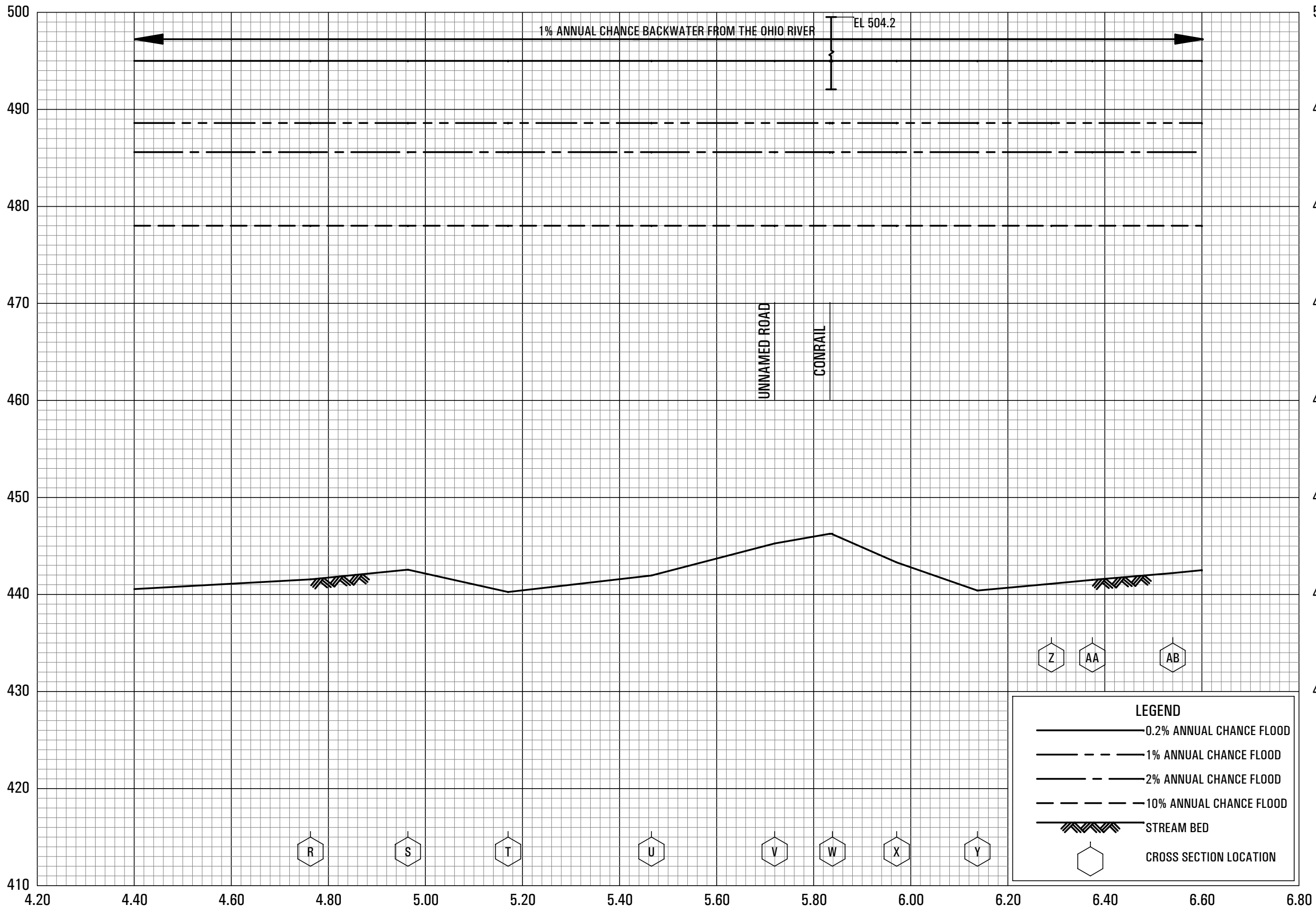
FLOOD PROFILES

TANNERS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
AND INCORPORATED AREAS

09P

ELEVATION IN FEET (NAVD 88)

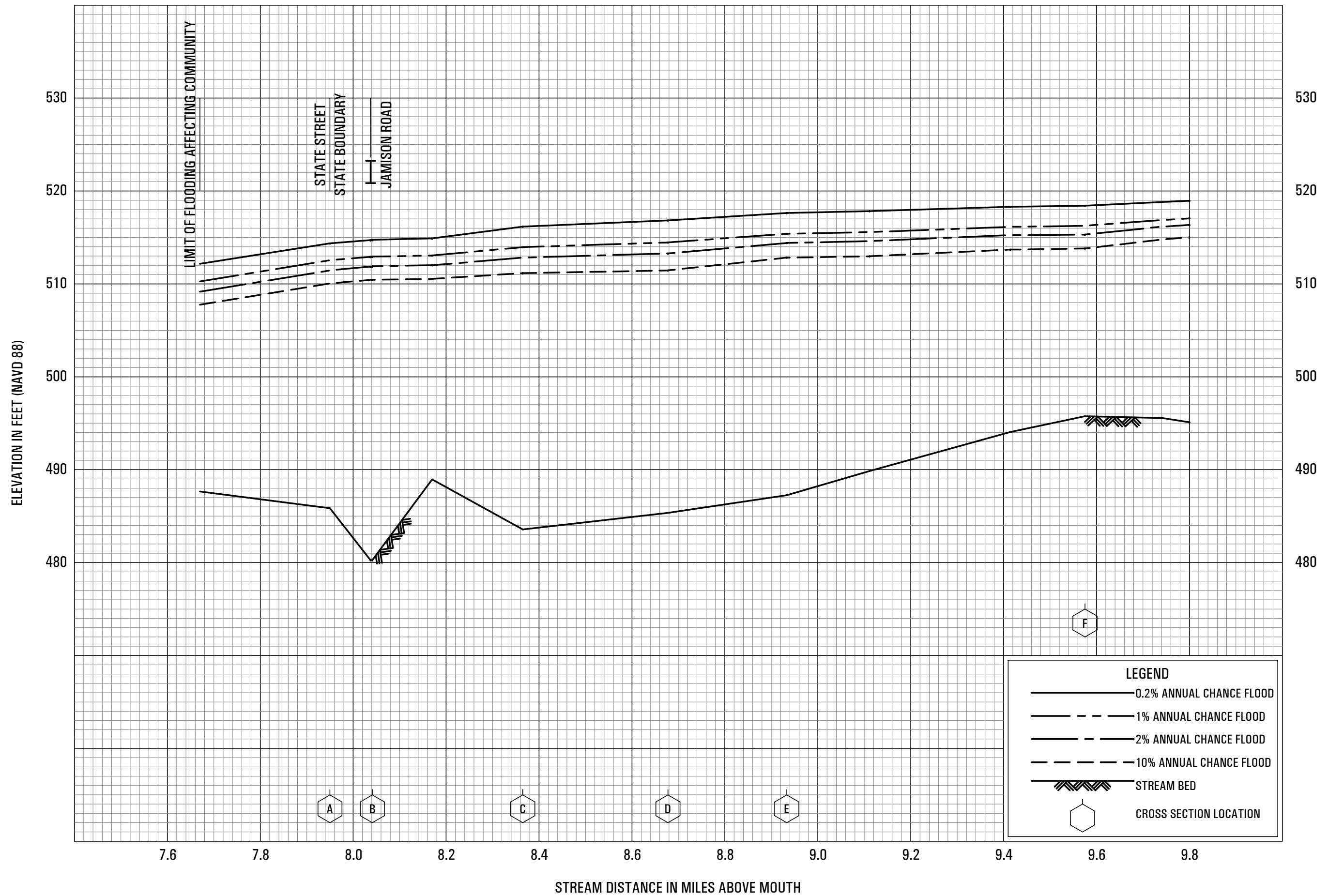


FLOOD PROFILES

TANNERS CREEK

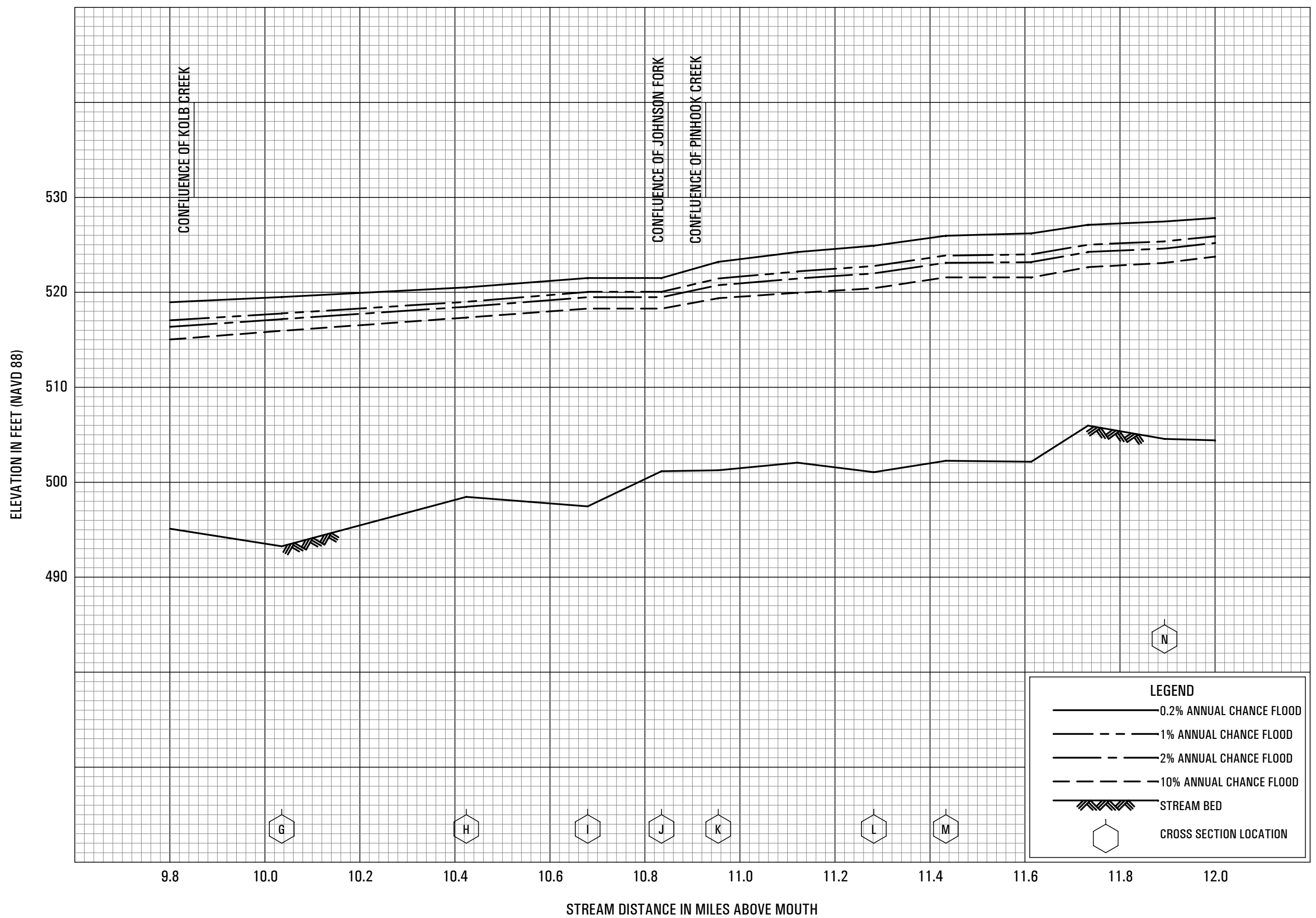
FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
AND INCORPORATED AREAS

10P



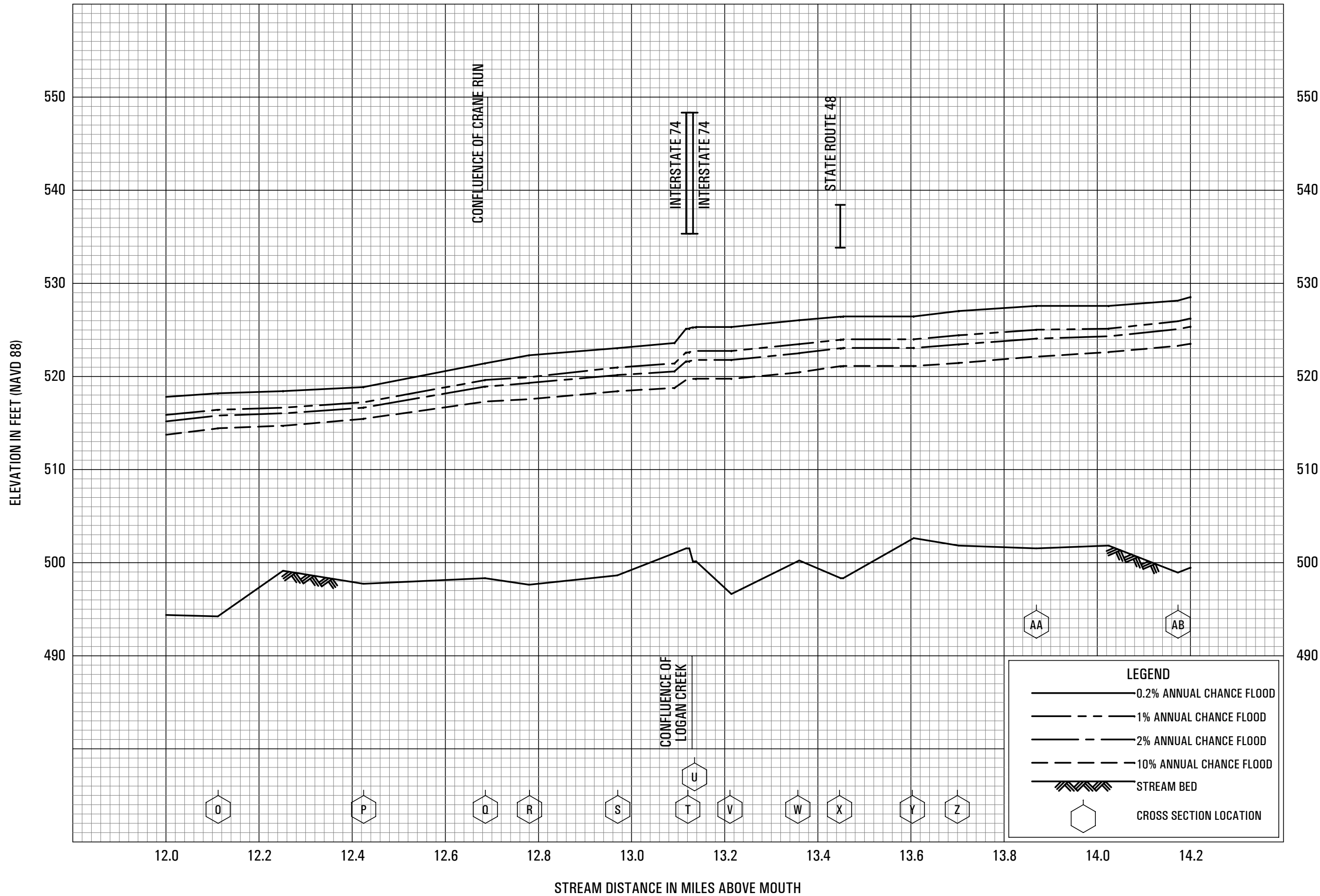
FLOOD PROFILES
WHITWATER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
 AND INCORPORATED AREAS



FLOOD PROFILES
WHITEWATER RIVER

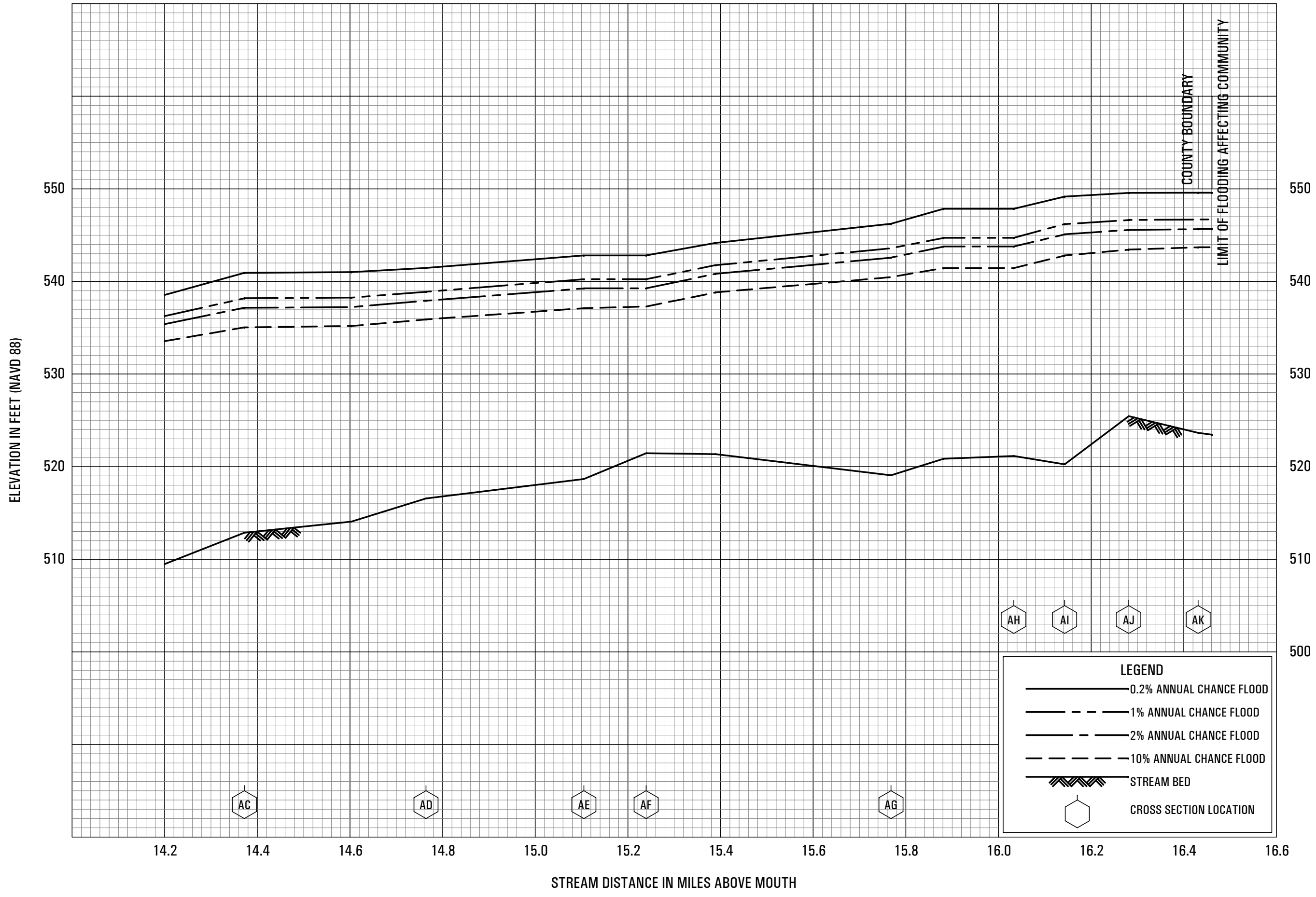
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FLOOD PROFILES

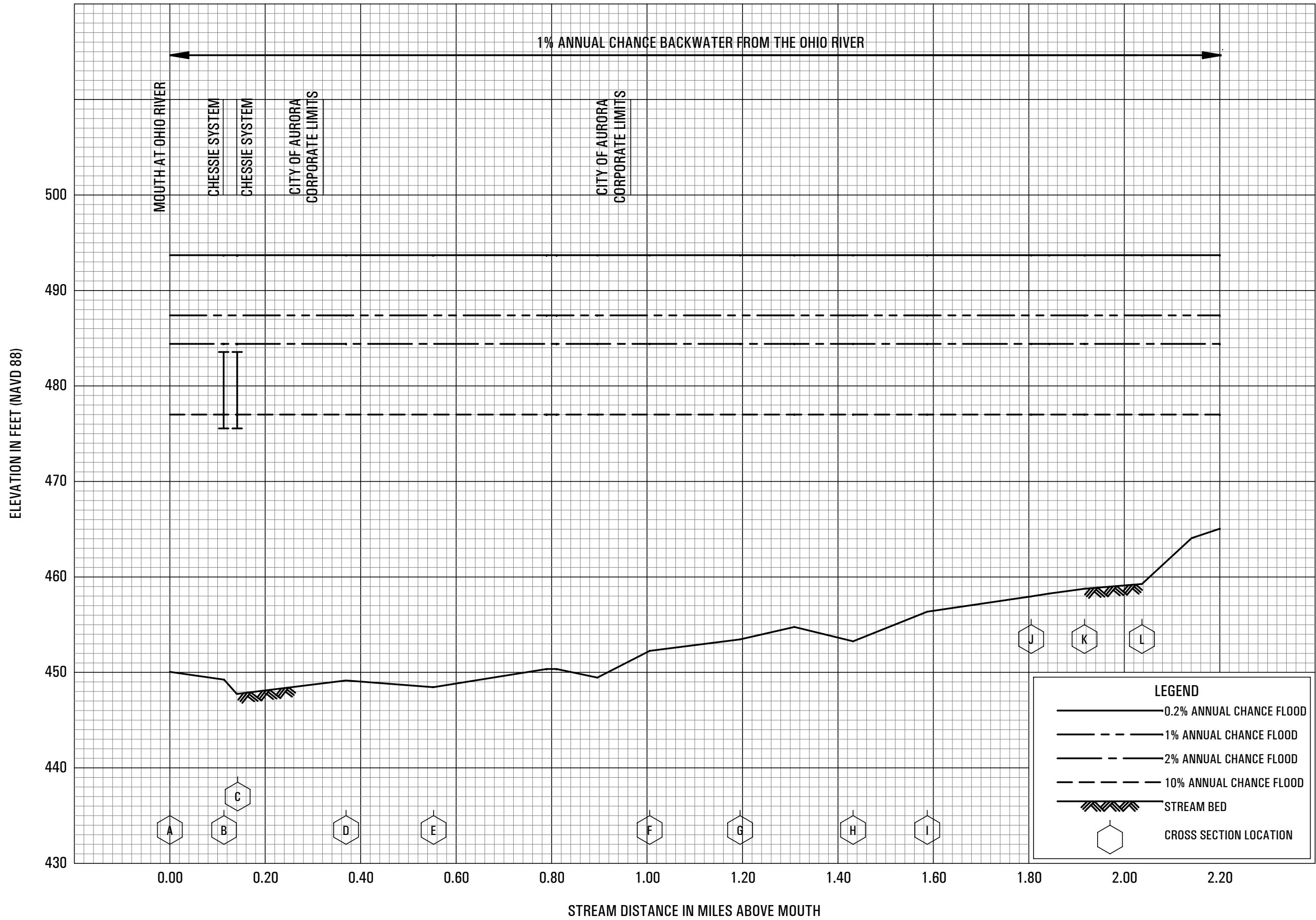
WHITTEWATER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
 AND INCORPORATED AREAS



FLOOD PROFILES
WHITWATER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
AND INCORPORATED AREAS



FLOOD PROFILES

WILSON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
COUNTY OF DEARBORN, IN
 AND INCORPORATED AREAS

