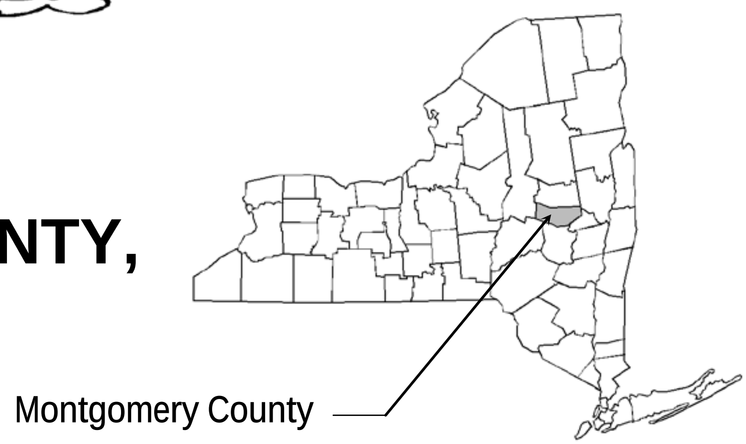
FLOOD INSURANCE STUDY

MONTGOMERY COUNTY, NEW YORK
(ALL JURISDICTIONS)



COMMUNITY NAME	COMMUNITY NUMBER	COMMUNITY NAME	COMMUNITY NUMBER
AMES, VILLAGE OF	360439	GLEN, TOWN OF	361295
AMSTERDAM, CITY OF	360440	HAGAMAN, VILLAGE OF	360450
AMSTERDAM, TOWN OF	360441	MINDEN, TOWN OF	360451
CANAJOHARIE, TOWN OF	360442	MOHAWK, TOWN OF	360452
CANAJOHARIE, VILLAGE OF	360443	NELLISTON, VILLAGE OF	360453
CHARLESTON, TOWN OF	360444	PALATINE BRIDGE, VILLAGE OF	360454
FLORIDA, TOWN OF	360445	PALATINE, TOWN OF	361413
FONDA, VILLAGE OF	360446	ROOT, TOWN OF	360455
FORT JOHNSON, VILLAGE OF	360447	ST. JOHNSVILLE, TOWN OF	360456
FORT PLAIN, VILLAGE OF	360448	ST. JOHNSVILLE, VILLAGE OF	360457
FULTONVILLE, VILLAGE OF	360449		

PRELIMINARY:
SEPTEMBER 30, 2011

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
36057CV000A

NOTICE TO
FLOOD INSURANCE STUDY USERS

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

Selected Flood Insurance Rate Map panels for the communities within Montgomery County 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 Zone	New Zone
A1 through A30	AE
V1 through V30	VE
B	X
C	X

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

Initial Countywide FIS Effective Date:

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FLOOD INSURANCE STUDY
MONTGOMERY COUNTY, NEW YORK (ALL JURISDICTIONS)

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) investigates the existence and severity of flood hazards in, or revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs) for the geographic area of Montgomery County, New York, including: the City of Amsterdam; the towns of Amsterdam, Canajoharie, Charleston, Florida, Glen, Minden, Mohawk, Palatine, Root, and St. Johnsville; and the villages of Ames, Canajoharie, Fonda, Fort Johnson, Fort Plain, Fultonville, Hagaman, Nelliston, Palatine Bridge, and St. Johnsville (hereinafter referred to collectively as Montgomery County).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This FIS has developed flood risk data for various areas of the county that will be used to establish actuarial flood insurance rates. This information will also be used by Montgomery County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and will also be used by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

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

This FIS was prepared to include all jurisdictions within Montgomery County into a countywide format. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

Amsterdam, City of:	The hydrologic and hydraulic analyses for the FIS report dated December 19, 1984 were prepared by the New York State Department of Environmental Conservation (NYSDEC) and Dewberry & Davis for the Federal Emergency Management Agency (FEMA), under Contract No. H-4624. The original work was completed in

April 1983. Revised information was submitted by the New York District of the U.S. Army Corps of Engineers (USACE). The revision was incorporated into the FIS report in August 1984.

Canajoharie, Town of: The hydrologic and hydraulic analyses for the FIS report dated July 6, 1982, were prepared by Edwards and Kelcey for FEMA, under Contract No. EWM-C-0080. That study was completed in June 1981.

Canajoharie, Village of: The hydrologic and hydraulic analyses for the FIS report dated May 3, 1982, were prepared by Edwards and Kelcey for FEMA, under Contract No. EWM-C-0080. That study was completed in June 1981.

Fonda, Village of: The hydrologic and hydraulic analyses for the FIS report dated July 6, 1982, were prepared by Edwards and Kelcey for FEMA under Contract No. EWM-C-0080. That study was completed in April 1981. The hydrologic and hydraulic analyses for Cayadutta Creek were previously performed by the U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS).

Fort Johnson, Village of: The hydrologic and hydraulic analyses for the FIS report dated July 19, 1982, were prepared by Edwards and Kelcey for FEMA under Contract No. EWM-C-0080. That study was completed in April 1981.

Fort Plain, Village of: For the FIS report dated May 3, 1982, the hydrologic and hydraulic analyses were prepared by Edwards and Kelcey for FEMA, under Contract No. EWM-C-0080. That work was completed in June 1981. For the revised FIS report dated June 17, 2002, the hydrologic and hydraulic analyses for Otsquago Creek were prepared by Leonard Jackson Associates for FEMA, under Contract No. EMN-96-CO-0026. That work was completed in September 2000.

Fultonville, Village of: The hydrologic and hydraulic analyses for the FIS report dated April 15, 1982, were prepared by Edwards and Kelcey for FEMA under Contract No. EWM-C-0080. That study was completed in April 1981.

Minden, Town of:	The hydrologic and hydraulic analyses for the FIS report dated July 19, 1982, were prepared by Edwards and Kelcey for FEMA under Contract No. EWM-C-0080. That study was completed in September 1981.
Nelliston, Village of:	The hydrologic and hydraulic analyses for the FIS report dated May 3, 1982, were prepared by Edwards and Kelcey for FEMA under Contract No. EWM-C-0080. That study was completed in June 1981.
Palatine, Town of:	The hydrologic and hydraulic analyses for the FIS report dated May 4, 1987, were performed by Edwards and Kelcey for FEMA during the preparation of the FIS for the Town of Canajoharie. That study was completed in June 1981.
Palatine Bridge, Village of:	The hydrologic and hydraulic analyses for the FIS report dated May 3, 1982, were prepared by Edwards and Kelcey for FEMA under Contract No. EWM-C-0080. That study was completed in June 1981.
St. Johnsville, Town of:	The hydrologic and hydraulic analyses for the FIS report dated September 16, 1982, were prepared by Edwards and Kelcey for FEMA under Contract No. EWM-C-0080. That study was completed in September 1981.
St. Johnsville, Village of:	The hydrologic and hydraulic analyses from the FIS report dated September 29, 1989, were prepared by Edwards and Kelcey for FEMA under Contract No. EWM-C-0080. The work for that study was completed in September 1981.

There are no previous FISs for the towns of Amsterdam, Charleston, Florida, Glen, Mohawk, Palatine, and Root, and the villages of Ames and Hagaman; therefore, the previous authority and acknowledgment information for these communities is not included in this FIS.

This countywide FIS incorporates updated hydrologic and hydraulic analyses for East Canada Creek and Mohawk River. The work was performed by URS Group, Inc., in association with Dewberry & Davis LLC for FEMA under the Hazard Mitigation and Technical Assistance Contract No. HSFEHQ-06-D-0162. The work for East Canada Creek was completed in October 2009. The work for Mohawk River was completed in April 2011.

Floodplains for all detailed studies, including unrevised streams, have been redelineated using updated topographic data provided to FEMA as part of this revision. In addition, new analyses was undertaken for the majority of approximate study floodplains throughout the County. This work was performed jointly by T.Y. Lin International (TYLI) and Dewberry & Davis LLC under TYLI's Contract No. EMN-2003-CO-0005 for FEMA. The topographic data was generated by the Light Detection and Ranging (LIDAR) project performed under USGS contract No: 07CRCN004 which covered approximately 2,714 square miles of floodplain. The LIDAR data were collected in the spring of 2007 and processed by Terrapoint USA, a subcontractor to Dewberry & Davis LLC. This countywide FIS was compiled by TYLI.

Base map information shown on the FIRM was provided in digital format by the New York State Office of Cyber Security and Critical Infrastructure Coordination. This information was provided as 60-centimeter resolution panchromatic orthoimagery from photography dated April 2005.

The projection used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 18. The horizontal datum was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection, or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdictional boundaries. These differences do not affect the accuracy of this FIRM.

1.3 Coordination

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

The dates of the initial and final CCO meetings held for jurisdictions within Montgomery County are shown in Table 1, “Initial and Final CCO Meetings.”

TABLE 1 – INITIAL AND FINAL CCO MEETINGS

Community	Initial CCO Date	Final CCO Date
Ames, Village of	*	*
Amsterdam, City of	May 26, 1977	August 18, 1983
Amsterdam, Town of	*	*
Canajoharie, Town of	June, 1979	December 8, 1981
Canajoharie, Village of	June, 1979	December 8, 1981
Charleston, Town of	*	*
Florida, Town of	*	*
Fonda, Village of	June, 1979	December 8, 1981

* Data not available

TABLE 1 – INITIAL AND FINAL CCO MEETINGS
(Continued)

Community	Initial CCO Date	Final CCO Date
Fort Johnson, Village	June, 1979	March 9, 1982
Fort Plain, Village	June, 1979	May 28, 2001
Fultonville, Village of	June, 1979	December 8, 1981
Glen, Town of	*	*
Hagaman, Village of	*	*
Minden, Town of	June, 1979	March 8, 1982
Mohawk, Town of	*	*
Nelliston, Village of	June, 1979	December 8, 1981
Palatine Bridge, Village of	June, 1979	December 8, 1981
Palatine, Town of	*	June 10, 1986
Root, Town of	*	*
St. Johnsville, Town of	June, 1979	March 8, 1982
St. Johnsville, Village of	April 11, 1988	August 18, 1988

* Data not available

The initial CCO meeting for this revision was held on , and was attended by representatives TYLI, Risk Assessment, Mapping and Planning Partners' (RAMPP) Regional Support Center (RSC) for FEMA Region II, NYSDEC, and FEMA.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Montgomery County, New York.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction. All or portions of the flooding sources listed in Table 2, "Flooding Sources Studied by Detailed Methods," were studied by detailed methods. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

TABLE 2 - FLOODING SOURCES STUDIED BY DETAILED METHODS

Bunn Creek Reach 1	East Canada Creek	North Chuctanunda Creek
Bunn Creek Reach 2	Kayaderosseras Creek	Otsquago Creek
Cayadutta Creek	Mohawk River	South Chuctanunda Creek
Dove Creek		

Table 3, "Stream Name Changes," lists streams that have names in this countywide FIS other than those used in previously printed FISs for the communities in which they are located.

TABLE 3 – STREAM NAME CHANGES

COMMUNITY	OLD NAME	NEW NAME
City of Amsterdam	Bunn Creek	Bunn Creek Reach 1
	Bunn Creek	Bunn Creek Reach 2

As part of this countywide FIS, updated analyses were included for the flooding sources shown in Table 4, "Scope of Revision."

TABLE 4 - SCOPE OF REVISION

Stream	Limits of Revised or New Detailed Study
East Canada Creek	0.7 miles; from its confluence with Mohawk River to the Montgomery County boundary;
Mohawk River	43.7 miles; entire reach within Montgomery County.

Riverine flooding sources throughout the county have been studied by detailed methods at different times and, prior to this countywide FIS, often on a community-by-community basis. Table 5, "Model Dates for Riverine Flooding Sources" below represents the hydraulic modeling dates for the detailed study flooding sources in the county.

TABLE 5 – MODEL DATES FOR RIVERINE FLOODING

STREAM NAME	COMMUNITY	MOST RECENT MODEL DATE
Bunn Creek Reach 1	City of Amsterdam	April 1984
Bunn Creek Reach 2	City of Amsterdam	April 1984
Cayadutta Creek	Village of Fonda	April 1981
Dove Creek	City of Amsterdam	April 1984
East Canada Creek	Town of St. Johnsville	October 2009
Kayaderosseras Creek	Village of Fort Johnson	April 1981
Mohawk River	City of Amsterdam	April 2011
Mohawk River	Town of Amsterdam	April 2011
Mohawk River	Town of Canajoharie	April 2011
Mohawk River	Village of Canajoharie	April 2011
Mohawk River	Town of Florida	April 2011
Mohawk River	Village of Fonda	April 2011
Mohawk River	Village of Fort Plain	April 2011
Mohawk River	Village of Fultonville	April 2011

TABLE 5 – MODEL DATES FOR RIVERINE FLOODING
(Continued)

STREAM NAME	COMMUNITY	MOST RECENT MODEL DATE
Mohawk River	Town of Glen	April 2011
Mohawk River	Town of Minden	April 2011
Mohawk River	Town of Mohawk	April 2011
Mohawk River	Village of Nelliston	April 2011
Mohawk River	Town of Palatine	April 2011
Mohawk River	Village of Palatine Bridge	April 2011
Mohawk River	Town of Root	April 2011
Mohawk River	Town of St. Johnsville	April 2011
Mohawk River	Village of St. Johnsville	April 2011
North Chuctanunda Creek	City of Amsterdam	April 1984
Otsquago Creek	Village of Fort Plain	September 2000
Otsquago Creek	Town of Minden	June 1981
South Chuctanunda Creek	City of Amsterdam	April 1984

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

All or portions of numerous flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Montgomery County.

2.2 Community Description

Montgomery County is located in the central part of New York. It is bordered on the north by Fulton County; on the east by Saratoga and Schenectady Counties; on the south by Schoharie County; on the southwest by Otsego County; and on the west by Herkimer County.

The climate in central New York is characteristically humid continental. Summer and winter temperature extremes in the area have ranged from -36 degrees Fahrenheit (°F) at the Village of Salisbury, located 18 miles northwest of Fort Plain, to 102°F at the Village of Sharon Springs, located 10 miles south of Fort Plain (USACE, 1975). The distribution of precipitation is fairly uniform throughout the year with a mean annual precipitation of approximately 38.0 inches (U.S. Department of the Interior, 1979).

According to the 2000 U.S. Census Bureau, the population of Montgomery County was 49,708 and the land area was 404.82 square miles.

2.3 Principal Flood Problems

The past history of flooding on streams in Montgomery County indicates that flooding typically occurs in the late winter and early spring months. Flooding during this portion of the year is usually a result of ice blockages accompanied by the spring rainfall and snowmelt. Flooding may also occur during the late summer months as a result of tropical storms tracking northward along the Atlantic coastline, or due to regional thunderstorm activity.

Recent Flooding Events

Between June 26 and June 29, 2006, a severe storm cause catastrophic flooding across New York, New Jersey and Pennsylvania. Rainfall totals for this event ranged from 2 inches to greater than 13 inches of rainfall in southern New York. Documented peak water-surface elevations at locations throughout the Mohawk River basin exceeded the published 1-percent annual chance profile elevations in the effective FIS reports; although areas in Montgomery County were spared the worst of the storm. USGS stream gaging stations on East and West Canada Creek recorded peak discharges on the morning of June 28, 2006. At USGS Gage 01348000 (East Canada Creek at East Creek, New York, a peak discharge of 24,000 cubic feet per second (cfs) was recorded, exceeding the published peak discharge for a 0.2-percent annual chance flood event. At USGS Gage 01349150 (Canajoharie Creek near Canajoharie, New York), a peak discharge of 3,630 cfs was recorded, approximately equal to approximately 33-percent annual chance flood.

Historic Flooding Events

On March 5, 1979, the Mohawk River and Otsquago Creek overtopped their banks due to ice jamming in the channels, and caused extensive damage in the Town of Minden and the Village of Fort Plain. Floodwaters were reported to be four feet deep in the area of the shopping center on River Street and along Hancock Street in the Village of Fort Plain. (Courier Standard Enterprise, 1979). Subsequent to the washout of the aqueduct downstream of State Route 5S, ice jam flooding on Otsquago Creek was reduced.

On March 11, 1976, an ice jam near the State Route 5 bridge on Kayaderosseras Creek caused serious damage to the Village of Fort Johnson. As a result of this flood, the Prospect Street bridge was washed out, several residences along Fort Johnson Avenue were inundated, and a garage located adjacent to the stream suffered structural damage.

On October 17, 1955, the Mohawk River, Cayadutta Creek and Kayaderosseras Creek overtopped their banks, inundating low-lying areas in the City of Amsterdam, Village of Fonda, Village of Fort Johnson and Village of Fultonville. A peak discharge of 100,000 cfs was recorded at USGS Gage 01357500 at Cohoes, New York. In the Village of Fonda, floodwaters covered the Fonda Fairgrounds and areas south of Park Street, with residents experiencing water depths from several inches to several feet. In the Village of Fort Johnson, floodwaters covered much of the residential properties along Kayaderosseras Creek, and floodwaters from the Mohawk River covered the railroad tracks and portions of State Route 5. In the Village of Fultonville, floodwaters damaged many residential dwellings along Union and Montgomery Streets, as well as the oil storage facility adjacent to the river.

On October 2, 1945, the Mohawk River overtopped its banks, inundating low-lying areas and causing widespread damage in Montgomery County. In the Town of Canajoharie, floodwaters covered the railroad and a portion of State Route 5S near the Village of Fort Plain. This segment of road frequently floods, due to backwater from the Mohawk River through a large box culvert under the thruway. At USGS Gage 01347000 near Little Falls, a peak discharge of 25,300 cfs was recorded. In the Village of Canajoharie, floodwaters inundated the Village's wastewater treatment facility and most of Beechnut Foods' manufacturing areas. In the Village of Fonda, floodwaters covered Fonda Fairgrounds and areas south of Park Street. In the Village of Fultonville, floodwaters damaged residential dwellings along Union and Montgomery Streets, as well as the oil storage facility adjacent to the river. In the Village of Nelliston, floodwaters covered farmland located southeast of the center of the Village to a depth of several feet. Floodwaters also covered farmland to the east and west of the Village and Town of St. Johnsville.

On September 22, 1938, the Mohawk River and its tributaries overtopped their banks, inundating low-lying areas and causing widespread damage in Montgomery County. Floodwaters from the Mohawk River covered the railroad tracks and portions of State Route 5 and State Route 5S. At USGS Gage 0134700 near Little Falls, a peak discharge of 22,700 cfs was recorded. In the Village of Canajoharie, floodwaters inundated the Village's wastewater treatment facility and most of Beechnut Foods' manufacturing areas. In the Village of Fonda, floodwaters covered Fonda Fairgrounds and areas south of Park Street. In the Village of Fultonville, floodwaters damaged residential dwellings along Union and Montgomery Streets, as well as the oil storage facility adjacent to the river. In the Village of Nelliston, floodwaters covered farmland located southeast of the center of the Village to a depth of several feet. Floodwaters also covered farmland to the east and west of the Village and Town of St. Johnsville.

2.4 Flood Protection Measures

There are no flood protection measures existing at this time which affect flooding along Mohawk River and Otsquago Creek within the Village of Fort Plain. The movable navigation dams operated by the New York Department of Transportation (NYDOT) were not designed to provide flood control (NYDOT, 1980). However, the maintenance of the barge canal right-of-way within the Mohawk River through annual dredging has greatly improved the waterway’s flooding handling capability.

Concrete walls and earth embankments control the extent of flooding in the vicinity of the confluence of South Chuctanunda Creek with the Mohawk River. At the time of this report, this system was not accredited with providing protection from the 1-percent annual chance flood.

Non-structural measures of flood protection are being utilized to aid in the prevention of future flood damage. These measures are in the form of land-use regulations which control building within areas that have a high risk of flooding. In addition to the NYDOT channel maintenance, the county currently adheres to and implements the minimum standards as set forth in the National Flood Insurance Program (NFIP), and the measures outlined in the New York State Building Code.

3.0 ENGINEERING METHODS

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

3.1 Hydrologic Analyses

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

For each community within Montgomery County that had a previously printed FIS report, the hydrologic analyses described in those reports have been compiled and are summarized below.

Precountywide Analyses

Peak discharges for all non-revised streams studied in detail were determined using the methods outlined in the USGS publication WRI 79-83, Techniques for Estimating Magnitude and Frequency of Floods on Rural Unregulated Streams in New York State Excluding Long Island (USGS, July 1979). This method of calculating discharges utilizes a log-Pearson Type III (LPIII) analysis to construct discharge-frequency curves. The discharge-frequency data and various basin characteristics are used to develop multiple linear regression equations for the floods of selected recurrence intervals. The peak discharges for the 0.2-percent annual chance flood were extrapolated from these results.

Revised Analyses

For East Canada Creek and Mohawk River, peak discharges were determined at selected gaging stations using the procedures outlined in the Water Resources Council (WRC) Bulletin 17B, "Guidelines for Determining Flood Flow Frequency". Peak discharges were calculated using the USGS PeakFQ software.

A summary of the drainage area-peak discharge relationships for all the streams studied by detailed methods is shown in Table 6, "Summary of Discharges."

TABLE 6 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
BUNN CREEK REACH 1					
At confluence with North Chuctanunda Creek	4.5	524	834	983	1,190
CAYADUTTA CREEK					
At the confluence with Mohawk River	60.3	4,582	6,445	7,366	9,400
DOVE CREEK					
At confluence with Mohawk River	1.5	239	389	462	650
EAST CANADA CREEK					
At confluence of East Creek (USGS Gage 01348000)	292	14,600	21,000	*	32,500
At the upstream Montgomery County boundary	288	14,500	20,800	23,900	32,100
KAYADEROSSERAS CREEK					
At the confluence with Mohawk River	17.0	1,265	1,895	2,170	2,900
MOHAWK RIVER					
At the downstream Montgomery County boundary	3,242.0	86,600	112,800	123,700	148,900
At the Amsterdam City downstream corporate limit	3,211.0	85,500	111,300	122,000	146,800

TABLE 6 – SUMMARY OF DISCHARGES

(Continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
At the Amsterdam City upstream corporate limit	3,124.0	82,500	107,100	117,300	140,800
Approximately 300 feet upstream of confluence of Schoharie Creek	2,157.0	50,500	63,300	68,600	80,400
At State Route 148 in Fonda Village	2,113.0	49,100	61,500	66,600	77,900
Approximately 670 feet from intersection of Reservoir Jennings and State Highway 5	2,025.0	46,500	57,900	62,600	73,100
At the Palatine Bridge Village downstream corporate limit	1,931.0	43,600	54,200	58,500	68,000
At the Fort Plain Village downstream corporate limit	1,856.0	41,400	51,200	55,200	64,100
At Lock 16 in St. Johnsville Village	1,696.0	36,800	45,100	48,500	55,900
At upstream Montgomery County boundary (Confluence of East Canada Creek)	1,319.0	26,300	31,600	33,700	38,200
NORTH CHUCTANUNDA CREEK					
At confluence with Mohawk River	41.0	2,155	3,170	3,615	4,700
At Amsterdam City upstream corporate limits	33.0	1,720	2,510	2,855	3,750
OTSQUAGO CREEK					
At the confluence with Mohawk River	59.2	8,400	12,700	14,800	20,400
SOUTH CHUCTANUNDA CREEK					
At confluence with Mohawk River	31.7	1,959	2,947	3,394	4,600

3.2 Hydraulic Analyses

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

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

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the FIRM (Exhibit 2). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

For each community within Montgomery County that has a previously printed FIS report, the hydraulic analyses described in those reports have been compiled and are summarized below.

Pre-Countywide Analyses

Water-surface elevations of floods of the selected recurrence intervals for all non-revised streams studied in detail were computed using the USACE HEC-2 step-backwater computer software (U.S. Army Corps of Engineers, 1973). Flood profiles were drawn showing computed water-surface elevations for the floods of the selected recurrence intervals.

For Bunn Creek Reach 1 and Bunn Creek Reach 2, starting water-surface elevations were taken from critical depth calculations.

For Dove Creek, starting water-surface elevations were taken from the mean annual flood on the Mohawk River.

For Kayaderosseras Creek, starting water-surface elevations were determined using the slope/area method.

For North Chuctanunda Creek, starting water-surface elevations were taken from critical depth calculations.

For Otsquago Creek in the Village of Fort Plain, starting water-surface elevations were taken from the original HEC-2 model contained in the 1982 FIS. For the Town of Minden, starting water-surface elevations were also taken from the 1982 FIS for the Village of Fort Plain.

For South Chuctanunda Creek, starting water-surface elevations were taken from the mean annual flood on the Mohawk River.

Revised Analyses

For East Canada Creek, water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-RAS step-backwater computer software, Version 3.1.3 (U.S. Army Corps of Engineers, 2005). Starting water-surface elevations were determined using the slope/area method.

For the Mohawk River, water-surface elevations of floods of the selected recurrence intervals were computed using the Danish Hydraulic Institute (DHI) hydrodynamic modeling software MIKE 11. In addition to cross-section geometry, this model accounts for moveable dams and locks.

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

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the streams and floodplain areas. Roughness factors for all streams studied by detailed methods are shown in Table 7, "Manning's "n" Values."

TABLE 7- MANNING'S "n" VALUES

Stream	Channel “n”	Overbank “n”
Bunn Creek Reach 1	0.030 – 0.040	0.035 – 0.070
Bull Creek Reach 2	0.030 – 0.040	0.035 – 0.070
Cayadutta Creek	0.040 - 0.060	0.060 - 0.150
Dove Creek	0.032 - 0.063	0.079 - 0.085
East Canada Creek	0.035 - 0.070	0.013 - 0.100
Kayaderosseras Creek	0.048 - 0.055	0.050 - 0.055
Mohawk River	0.030 - 0.052	0.060 - 0.100
North Chuctanunda Creek	0.020 - 0.030	0.020 - 0.070
Otsquago Creek	0.030 - 0.051	0.060 - 0.090
South Chuctanunda Creek	0.017 - 0.030	0.060 - 0.070

Qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

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

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)

- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)

- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)

- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

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

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

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

3.3 Vertical Datum

All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

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

Prior versions of the FIS report and FIRM were referenced to NGVD 29. When a datum conversion is affected for an FIS report and FIRM, the Flood Profiles, base flood elevations (BFEs) and ERMs reflect the new datum values. To compare structure and ground elevations to 1-percent annual chance flood elevations shown in the FIS and on the FIRM, the subject structure and ground elevations must be referenced to the new datum values.

As noted above, the elevations shown in the FIS report and on the FIRM for Montgomery County are referenced to NAVD 88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor to NGVD 29 is +.503. The BFEs shown on the FIRM represent whole-foot rounded values. For example, a BFE of 102.4 will appear as 102 on the FIRM and 102.6 will appear as 103. Therefore, users that wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor(s) to elevations shown on the Flood Profiles and supporting data tables in the FIS report, which are shown at a minimum to the nearest 0.1 foot.

NGVD 29 = NAVD 88 + 0.503 foot

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June 1992, or contact the Spatial Reference System Division, National Geodetic Survey, NOAA, Silver Spring Metro Center, 1315 East-West Highway, Silver Spring, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 1-percent annual chance floodplain data, which may include a combination of the following: 10-, 2-, 1-, and 0.2-percent annual chance flood elevations; delineations of the 1- and 0.2-percent annual chance floodplains; and 1-percent annual chance floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance flood is employed to indicate additional areas of flood risk in the county. For the streams studied in detail, the 1- and 0.2-percent annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section.

The 1- and 0.2-percent annual chance floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 1-percent annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 0.2-percent annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent annual chance floodplain boundaries are close together, only the 1-percent annual chance floodplain 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 floodways in this FIS are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this FIS were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 8). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 1-percent annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

Portions of the floodway for East Canada Creek extend beyond the county boundary.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 8, "Floodway Data." In order to reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

Floodwaters from North Chuctanunda Creek, South Chuctanunda Creek, and Bunn Creek were found to have hazardous velocities. To provide guidance for encroachment into these areas, a proposed floodway is delineated for that part of the 1-percent annual chance floodplain that conveys flow. A floodway was not computed for Cayadutta Creek.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 8 for certain downstream cross sections of Bunn Creek Reach 1, East Canada Creek, Otsquago Creek and South Chuctanunda Creek are lower than the regulatory flood elevations in that area, which must take into account the 1-percent annual chance flooding due to backwater from other sources.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Bunn Creek Reach 1								
A	0[1]	30	99	9.9	377.9	377.3[3]	377.4	0.1
B	646[1]	20	84	11.6	395.2	395.2	395.2	0.0
C	2239[1]	20	83	11.8	442.3	442.3	442.3	0.0
D	2822[1]	20	84	11.7	458.0	458.0	458.0	0.0
E	4140[1]	34	100	9.8	536.4	536.4	536.4	0.0
Bunn Creek Reach 2								
A	6334[1]	71	619	1.4	589.1	589.1	589.7	0.6
B	9109[1]	30	98	10.0	637.4	637.4	637.6	0.2
Dove Creek								
A	622[2]	12	66	7.0	283.4	283.4	283.4	0.0
B	1414[2]	20	54	8.6	307.7	307.7	307.8	0.1
C	2614[2]	23	53	8.7	357.1	357.1	357.1	0.0
East Canada Creek								
A	464[2]	428	2389	10.1	320.1	315.5[4]	315.9	0.4
B	1887[2]	301	2214	10.9	322.8	322.8	323.8	1.0
C	2513[2]	317	3730	6.5	329.7	329.7	330.1	0.4
D	3080[2]	406	3838	6.3	330.9	330.9	331.3	0.4
E	4034[2]	309	2304	10.5	333.1	333.1	333.4	0.3
F	4806[2]	293	2549	9.5	335.6	335.6	336.6	1.0
G	5710[2]	376	2772	8.7	340.5	340.5	341.0	0.5
H	6552[2]	171	1682	14.3	345.1	345.1	345.3	0.2
I	7225[2]	267	2791	8.6	351.2	351.2	351.4	0.2
J	9123[2]	239	1604	15.0	444.6	444.6	444.6	0.0
K	9548[2]	582	5731	4.2	465.0	465.0	465.3	0.3

[1]Feet above confluence with North Chuctanunda Creek
[2]Feet above confluence with Mohawk River
[3]Elevation computed without consideration of backwater effects from North Chuctanunda Creek
[4]Elevation computed without consideration of backwater effects from Mohawk River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

BUNN CREEK REACH 1 – BUNN CREEK REACH 2 - DOVE CREEK - EAST CANADA CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
East Canada Creek (Continued)								
L	11523[1]	1621	29732	0.8	508.2	508.2	508.4	0.2
M	13611[1]	1813	30569	0.8	508.3	508.3	508.4	0.1
N	17169[1]	638	6211	3.9	508.3	508.3	508.5	0.2
O	19496[1]	421	2089	11.5	518.2	518.2	518.4	0.2
Kayaderosseras Creek								
A	2180[1]	70	309	7.0	287.9	287.9	287.9	0.0
B	4820[1]	127	405	5.4	336.4	336.4	336.4	0.0
North Chuctanunda Creek								
A	1475[1]	51	284	12.7	304.9	304.9	305.8	0.9
B	5870[1]	46	241	13.0	455.3	455.3	455.3	0.0
C	9395[1]	50	247	12.7	520.0	520.0	520.0	0.0
D	12025[1]	46	226	12.7	599.7	599.7	599.7	0.0
E	13395[1]	83	605	4.7	636.0	636.0	636.5	0.5
F	14985[1]	120	706	4.0	641.1	641.1	642.0	0.9
Mohawk River								
A	7474[2]	769	24132	5.1	257.3	257.3	258.1	0.8
B	10111[2]	702	21258	5.8	257.7	257.7	258.6	0.9
C	14807[2]	1143	30095	4.1	258.8	258.8	259.6	0.8
D	21076[2]	939	22642	5.4	260.0	260.0	260.6	0.6
E	26594[2]	1002	20247	6.0	266.1	266.1	266.8	0.7
F	31678[2]	1067	27277	4.5	267.7	267.7	268.3	0.6
G	37571[2]	824	20676	5.8	269.1	269.1	269.7	0.6
H	42840[2]	561	15590	7.6	271.5	271.5	271.8	0.3

[1]Feet above confluence with Mohawk River

[2]Feet above limit of study

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

EAST CANADA CREEK - KAYADEROSSERAS CREEK - NORTH CHUCTANUNDA CREEK - MOHAWK RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mohawk River (Continued)								
I	46044	1038	23908	4.9	272.7	272.7	273.1	0.4
J	49028	945	18948	6.2	275.7	275.7	276.1	0.4
K	51146	1254	26035	4.5	276.6	276.6	277.0	0.4
L	56247	1375	24648	4.7	278.0	278.0	278.3	0.3
M	61907	1429	26034	4.5	279.5	279.5	279.7	0.2
N	67106	1219	17719	6.5	280.8	280.8	281.1	0.4
O	70529	1369	27083	4.3	289.1	289.1	289.1	0.0
P	75542	1466	20045	3.4	290.1	290.1	290.1	0.0
Q	79775	1427	23216	2.9	290.5	290.5	290.8	0.3
R	84173	1102	20485	3.3	291.2	291.2	291.4	0.2
S	90875	772	17019	3.9	292.0	292.0	292.3	0.3
T	93322	845	16887	4.0	292.4	292.4	292.8	0.4
U	97795	732	14295	4.6	293.3	293.3	293.7	0.4
V	102514	965	21581	3.0	294.1	294.1	294.5	0.4
W	105173	890	18552	3.5	294.4	294.4	294.8	0.4
X	109885	1211	22755	2.8	295.0	295.0	295.3	0.3
Y	115526	983	18400	3.5	295.6	295.6	296.0	0.4
Z	119006	893	16947	3.7	296.1	296.1	296.6	0.5
AA	123670	1218	20040	3.1	297.3	297.3	297.9	0.6
AB	129501	1121	22120	2.8	298.5	298.5	299.0	0.5
AC	131869	845	19873	3.1	298.8	298.8	299.3	0.5
AD	137769	1116	22498	2.7	299.6	299.6	300.2	0.6
AE	141916	734	15024	4.0	300.3	300.3	300.9	0.6
AF	144546	905	20752	2.9	301.0	301.0	301.6	0.6
AG	150604	1322	24190	2.5	301.9	301.9	302.2	0.3
AH	156423	640	16257	3.6	302.6	302.6	302.9	0.3

[1]Feet above limit of study

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

MOHAWK RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mohawk River (Continued)								
AI	159004[1]	518	11731	5.0	303.1	303.1	303.4	0.3
AJ	163432[1]	652	15649	3.7	304.4	304.4	304.6	0.2
AK	168066[1]	448	12176	4.6	305.1	305.1	305.4	0.3
AL	172532[1]	512	11191	4.9	306.0	306.0	306.7	0.7
AM	178214[1]	461	10551	5.2	307.9	307.9	308.7	0.8
AN	185057[1]	1280	17646	3.0	310.0	310.0	310.7	0.7
AO	189751[1]	897	11090	4.7	311.3	311.3	312.1	0.8
AP	193516[1]	1072	15592	3.3	312.9	312.9	313.7	0.8
AQ	197684[1]	1367	20897	2.4	313.4	313.4	314.4	1.0
AR	201271[1]	1510	21490	2.3	314.0	314.0	314.9	0.9
AS	205920[1]	518	11572	4.2	314.3	314.3	315.3	1.0
AT	209076[1]	745	12627	3.8	314.9	314.9	315.8	0.9
AU	214308[1]	1125	12494	3.8	315.9	315.9	316.7	0.8
AV	220073[1]	1966	16266	2.8	317.0	317.0	317.8	0.8
AW	223156[1]	1281	9039	5.0	318.2	318.2	319.0	0.8
Otsquago Creek								
A	283[2]	147	1,653	9.0	307.1	304.4[3]	304.4	0.0
B	2,327[2]	86	1,030	14.4	314.6	314.6	314.6	0.0
C	3,529[2]	127	1,235	12.0	324.5	324.5	325.3	0.8
D	4,623[2]	797	3,528	4.2	336.7	336.7	336.7	0.0
E	6,021[2]	430	3,352	4.4	347.9	347.9	348.0	0.1
F	7,320[2]	98	929	15.9	354.3	354.3	354.7	0.4
G	10,031[2]	185	1,186	12.5	379.6	379.6	379.6	0.0
H	14,741[2]	108	899	16.5	417.4	417.4	417.4	0.0

[1]Feet above limit of study
[2]Feet above confluence with Mohawk River
[3]Elevation computed without consideration of backwater effects from Mohawk River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

MOHAWK RIVER - OTSQUAGO CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Otsquago Creek (Continued)								
I	19306	240	1322	11.2	456.1	456.1	456.3	0.2
J	23686	242	1397	10.6	484.1	484.1	484.1	0.0
K	26726	193	1209	12.2	507.9	507.9	507.9	0.0
South Chuctanunda Creek								
A	0	258	2237	1.5	270.9	258.2[2]	259.2	1.0
B	150	192	1360	2.5	270.9	258.2[2]	259.2	1.0
C	1017	66	287	11.8	270.9	264.7[2]	264.7	0.0
D	1747	88	316	10.7	272.4	272.3[2]	272.3	0.0
E	2277	66	286	11.9	279.0	279.0	279.0	0.0
F	3267	54	268	12.7	295.3	295.3	295.3	0.0
G	4807	76	300	11.3	320.9	320.9	320.9	0.0
H	6252	90	317	10.7	337.4	337.4	337.4	0.0

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

TABLE 8

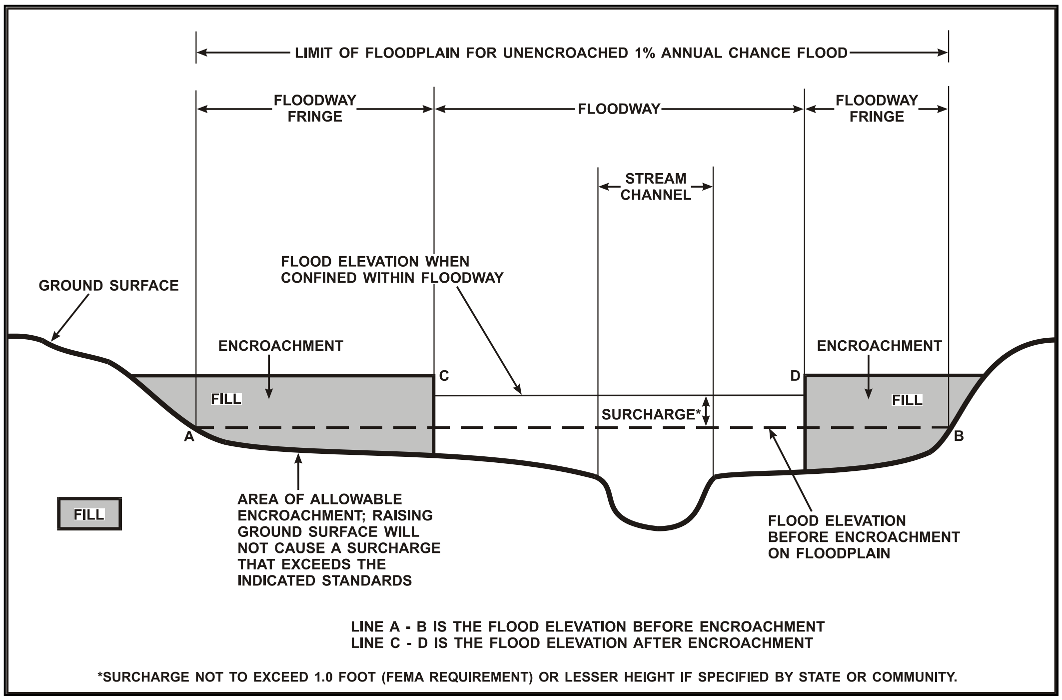
FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY (ALL JURISDICTIONS)

FLOODWAY DATA

OTSQUAGO CREEK - SOUTH CHUCTANUNDA CREEK

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



FLOODWAY SCHEMATIC Figure 1

5.0 INSURANCE APPLICATIONS

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

Zone A

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

Zone AE

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

Zone AH

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

Zone AO

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

Zone AR

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

Zone A99

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

Zone V

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

Zone VE

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

Zone X

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

Zone D

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

6.0 FLOOD INSURANCE RATE MAP

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

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

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

The current FIRM presents flooding information for the entire geographic area of Montgomery County. Previously, separate Flood Hazard Boundary Maps and/or FIRMs were prepared for each identified flood-prone incorporated community and the unincorporated areas of the county. This countywide FIRM also includes flood hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community, up to and including this countywide FIS, are presented in Table 9, "Community Map History."

7.0 OTHER STUDIES

Because it is based on more up-to-date analyses, this FIS supersedes the previously printed FISs for the communities with Montgomery County.

COMMUNITY NAME	INITIAL NFIP MAP DATE	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	INITIAL FIRM DATE	FIRM REVISIONS DATE
Ames, Village of	July 15, 1977		December 4, 1985	
Amsterdam, City of	March 1, 1974	July 2, 1976 January 7, 1977	July 16, 1984	June 19, 1985
Amsterdam, Town of	July 19, 1974	June 18, 1976 April 15, 1977	December 1, 1987*	
Canajoharie, Town of	May 3, 1974	April 23, 1976	January 6, 1983	
Canajoharie, Village of	February 22, 1974	June 11, 1976	November 3, 1982	
Charleston, Town of	July 26, 1974	May 28, 1976	October 15, 1985	
Florida, Town of	August 2, 1974	June 25, 1976	December 1, 1987*	
Fonda, Village of	March 1, 1974	June 18, 1976	January 6, 1983	
Fort Johnson, Village	March 15, 1974	July 30, 1976	January 19, 1983	
Fort Plain, Village	April 12, 1974	May 28, 1976	November 3, 1982	June 17, 2002
Fultonville, Village of	March 1, 1974	July 9, 1976	October 15, 1982	
Glen, Town of	January 17, 1975		February 19, 1986	
Hagaman, Village of	August 6, 1976		March 18, 1986	

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY
(ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL NFIP MAP DATE	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	INITIAL FIRM DATE	FIRM REVISIONS DATE
Minden, Town of	November 1, 1974	July 9, 1976	January 19, 1983	
Mohawk, Town of	February 15, 1974	April 2, 1976	August 5, 1985	
Nelliston, Village of	February 15, 1974	April 30, 1976 July 1, 1977	November 3, 1982	
Palatine Bridge, Village of	February 15, 1974	June 18, 1976	November 17, 1982	
Palatine, Town of	November 29, 1974		May 4, 1987	
Root, Town of	October 25, 1974	June 18, 1976	April 1, 1988*	
St. Johnsville, Town of	August 16, 1974	June 4, 1976	March 16, 1983	
St. Johnsville, Village of	February 15, 1974	June 18, 1976	February 19, 1986	September 29, 1989

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY
(ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Montgomery County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, FHBMs, FBFMs, and FIRMs for all of the incorporated areas within Montgomery County.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this FIS can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, 26 Federal Plaza, Room 1337, New York, New York 10278.

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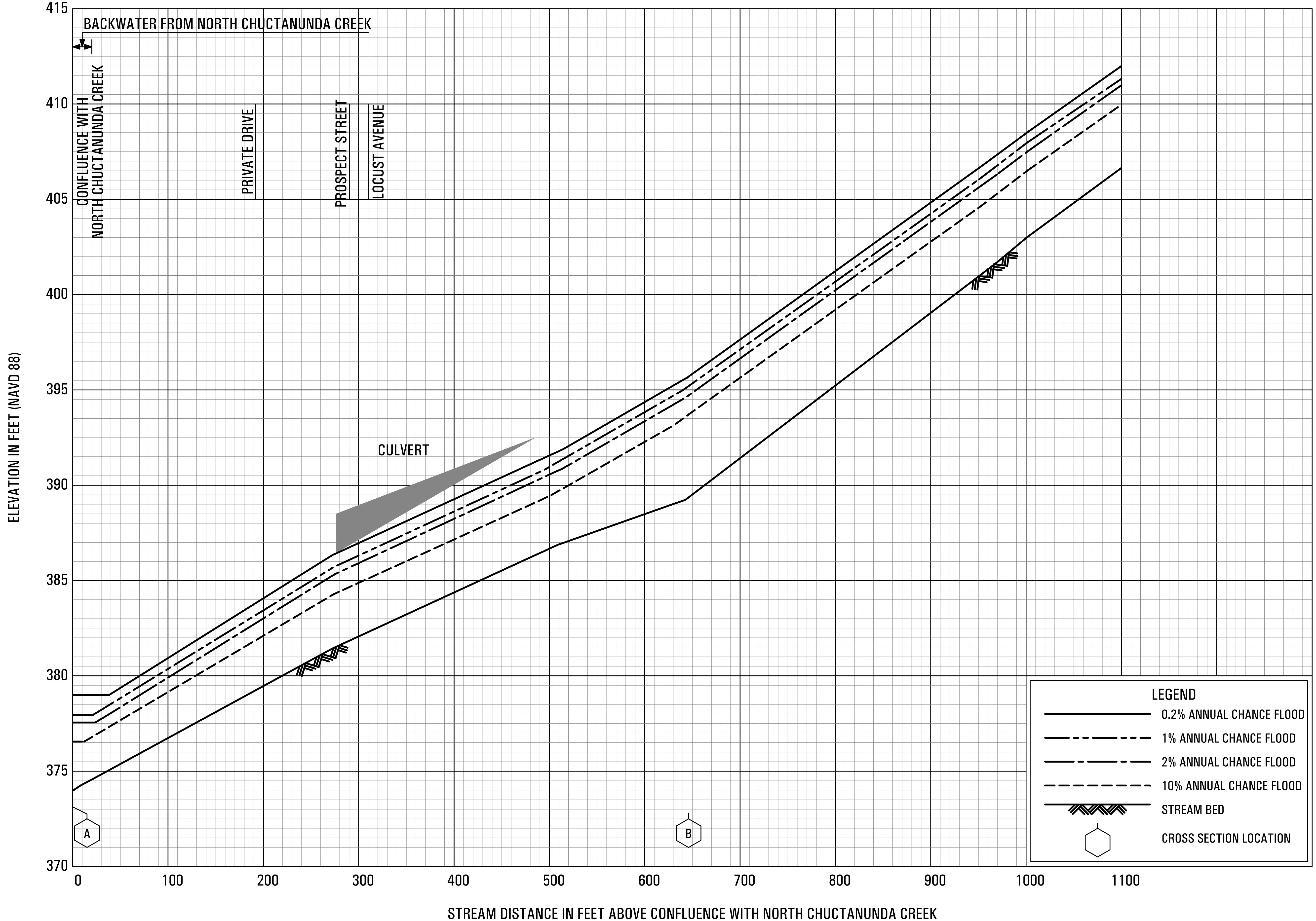


FLOOD PROFILES

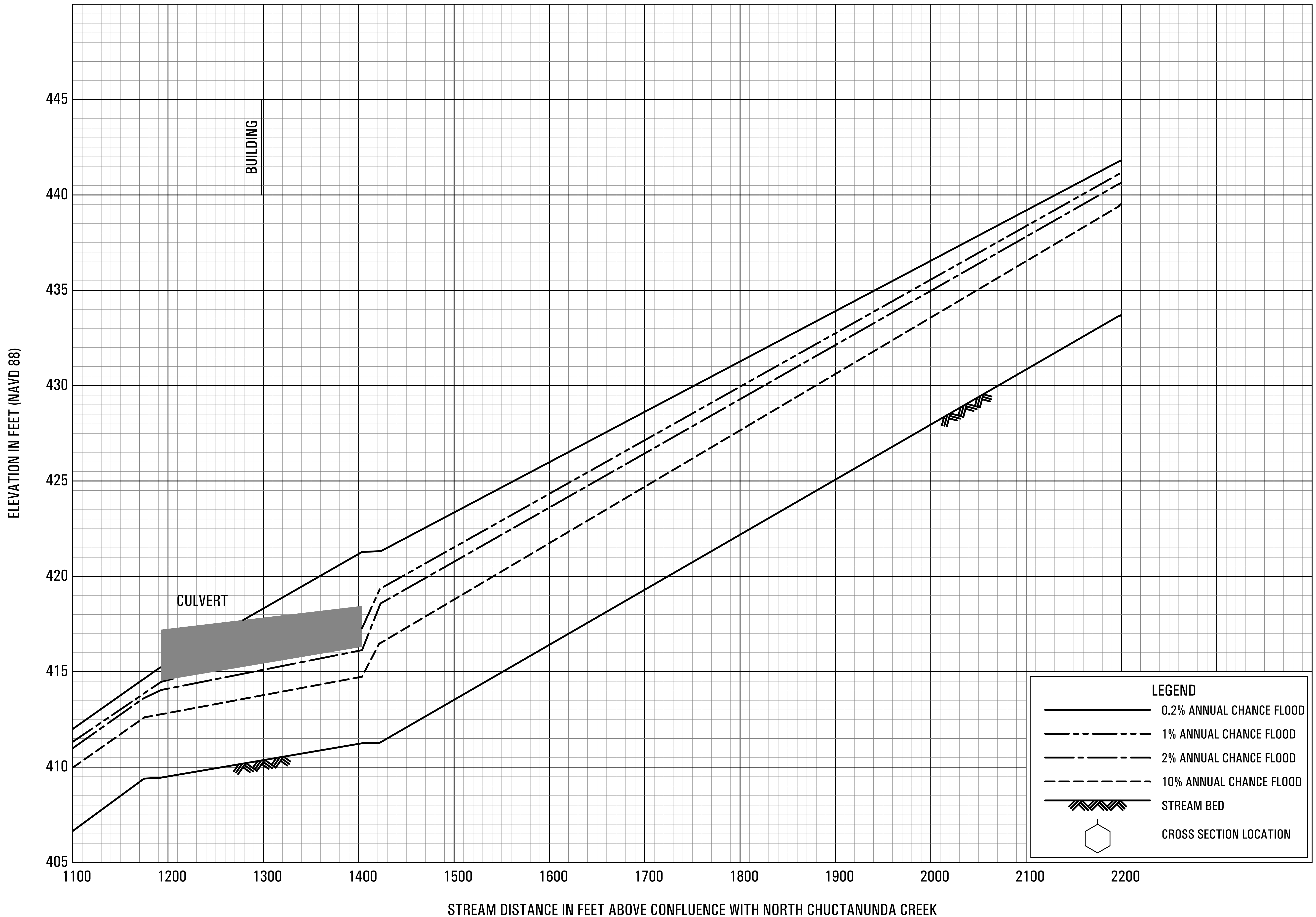
BUNN CREEK REACH 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

01P



FLOOD PROFILES

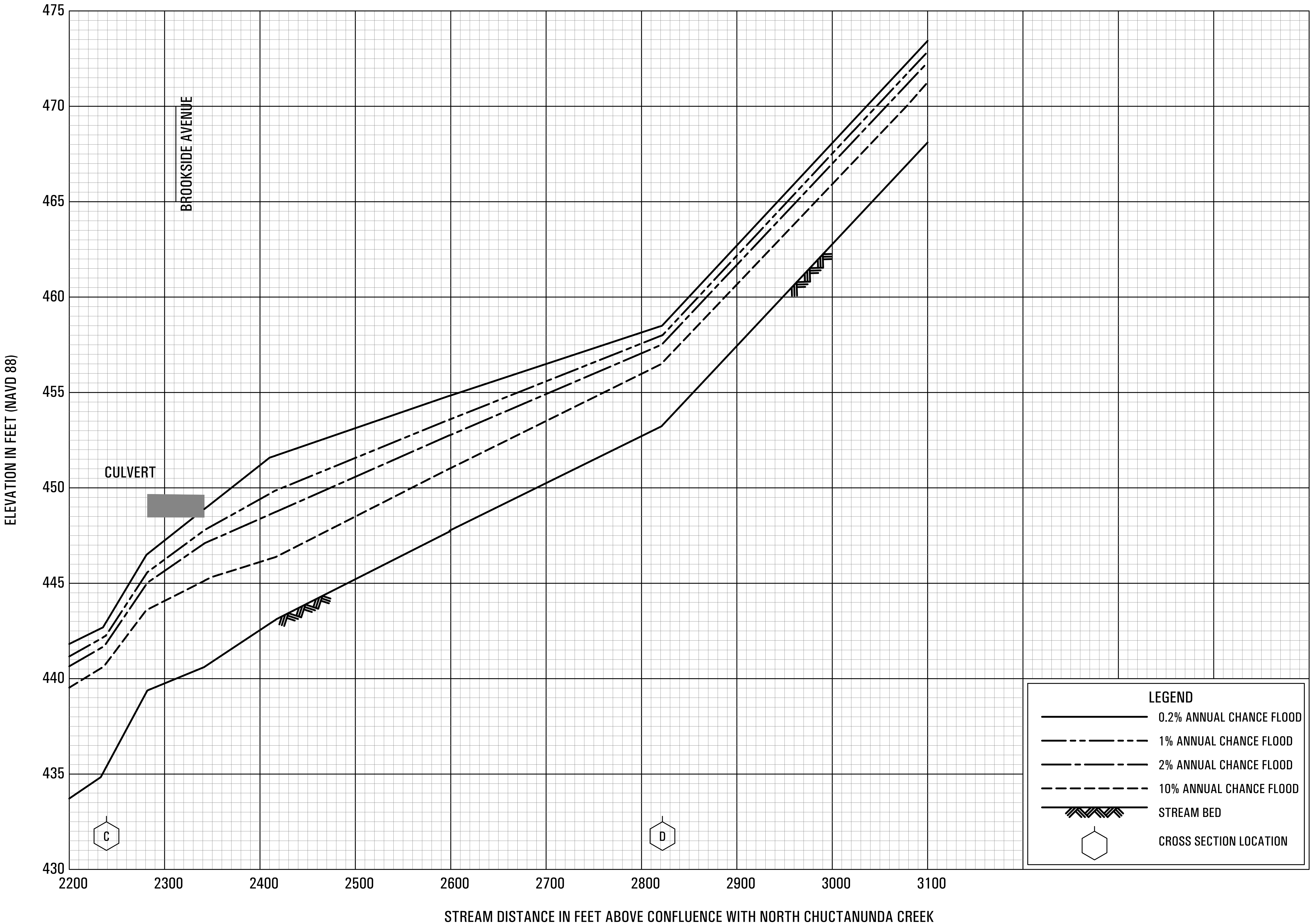
BUNN CREEK REACH 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

02P



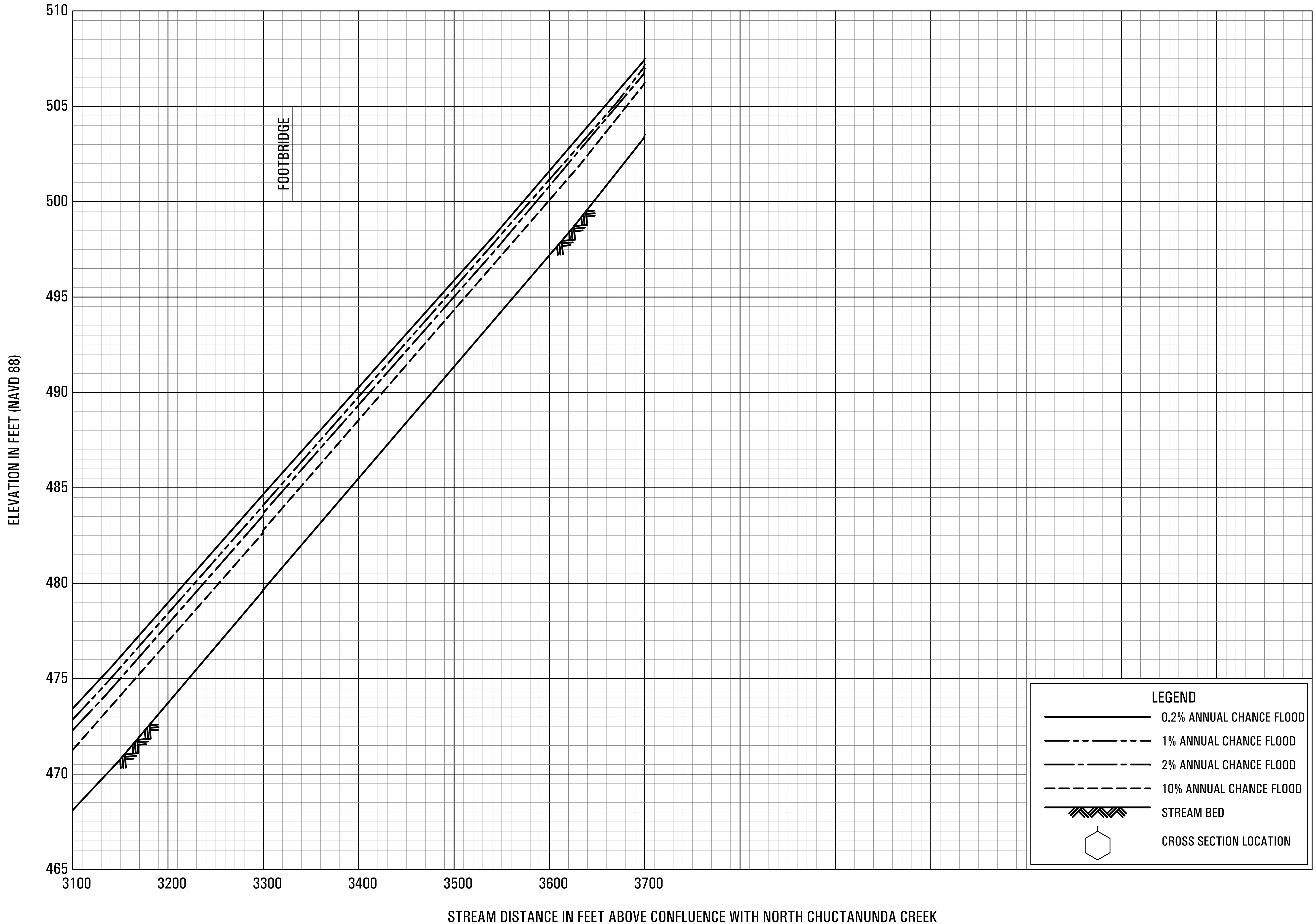
FLOOD PROFILES

BUNN CREEK REACH 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



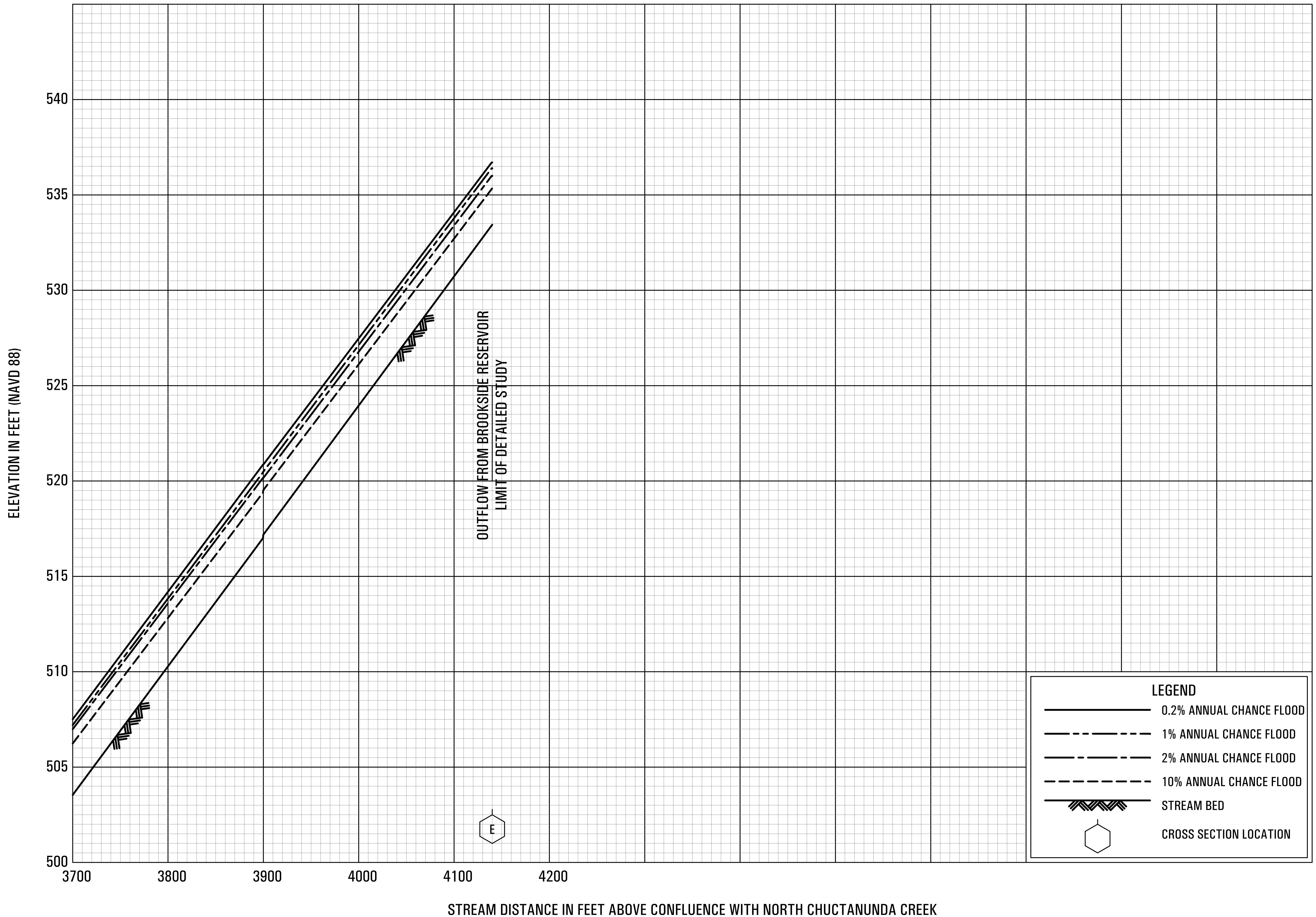
FLOOD PROFILES

BUNN CREEK REACH 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

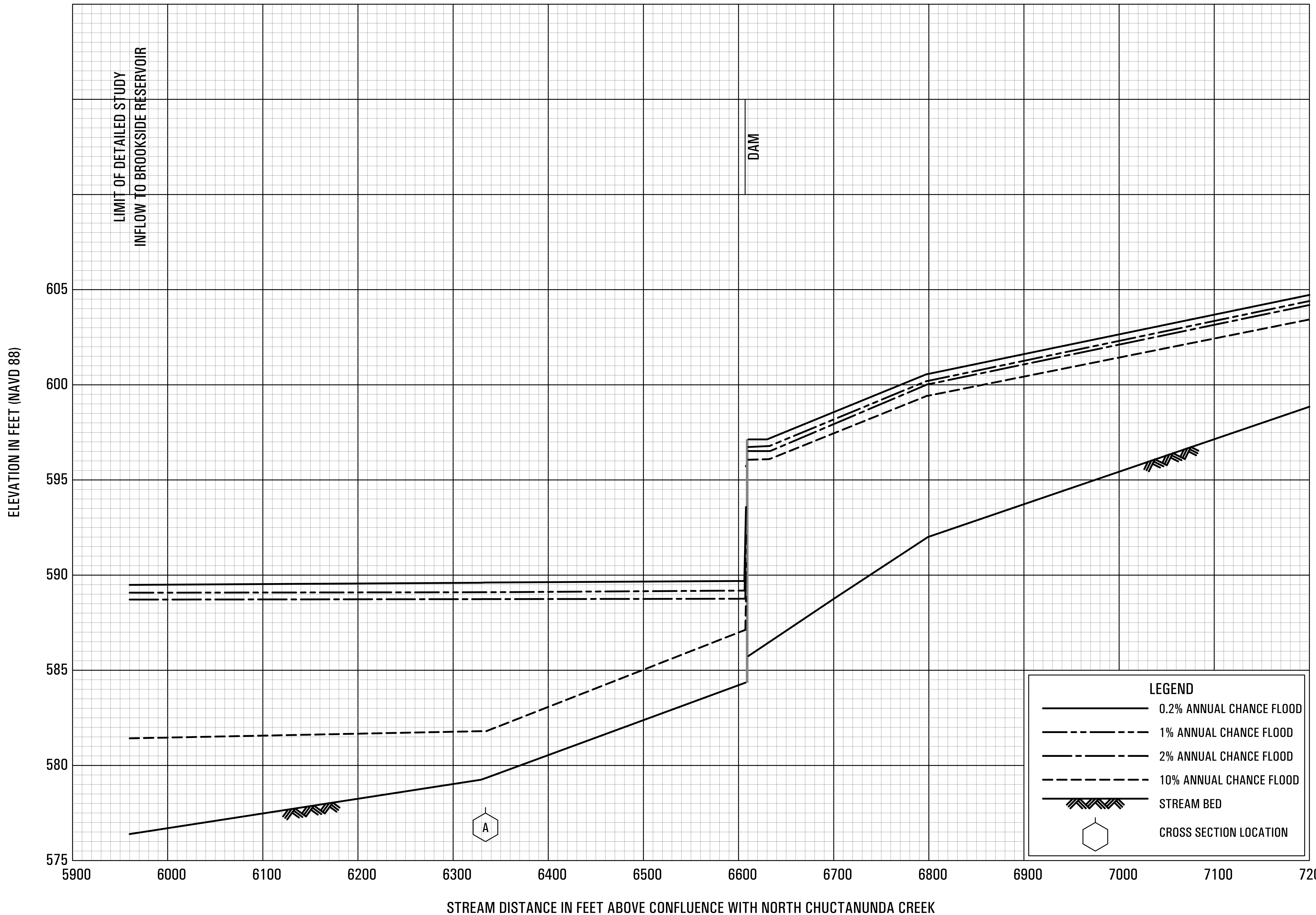
BUNN CREEK REACH 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

05P



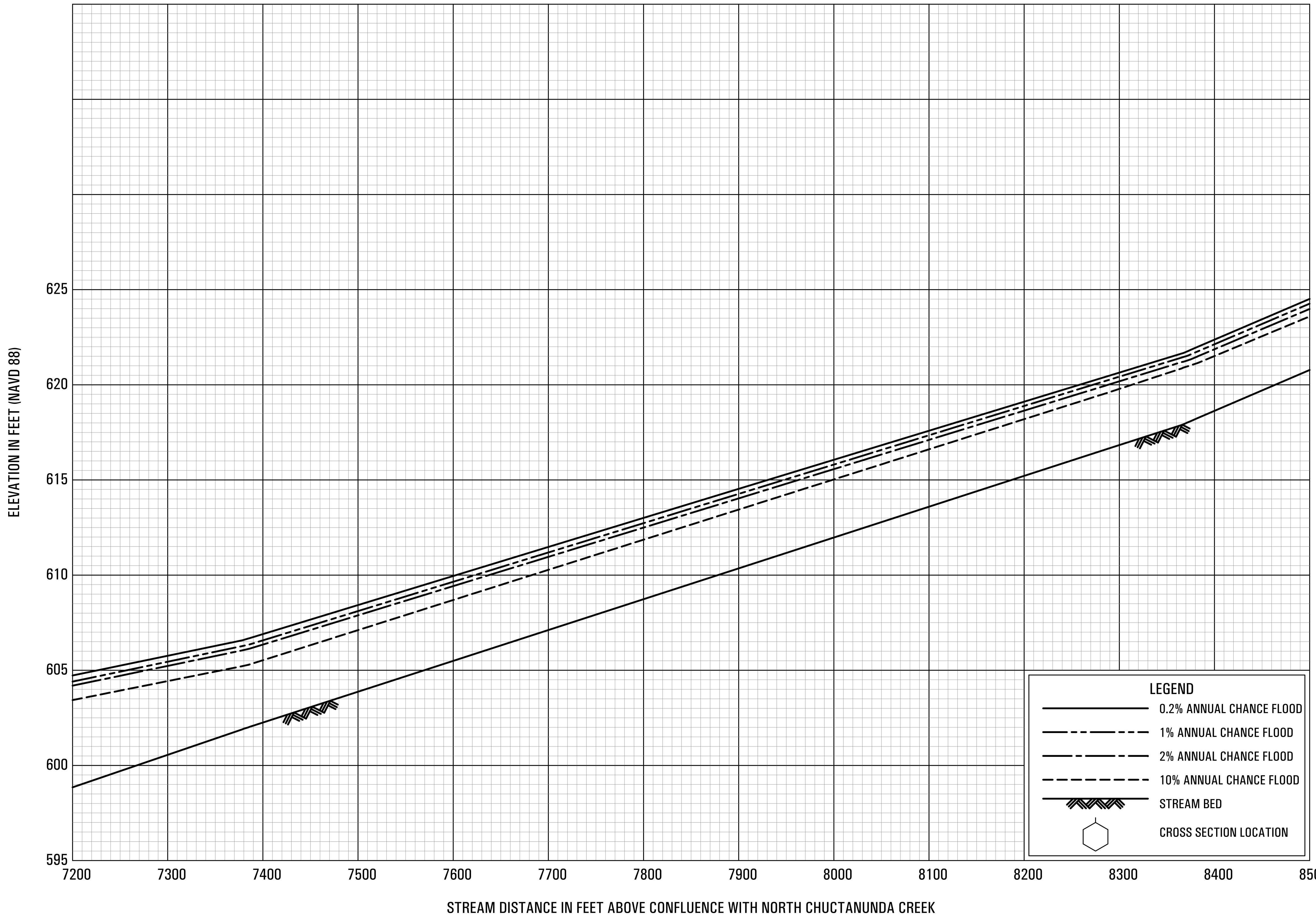
FLOOD PROFILES

BUNN CREEK REACH 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



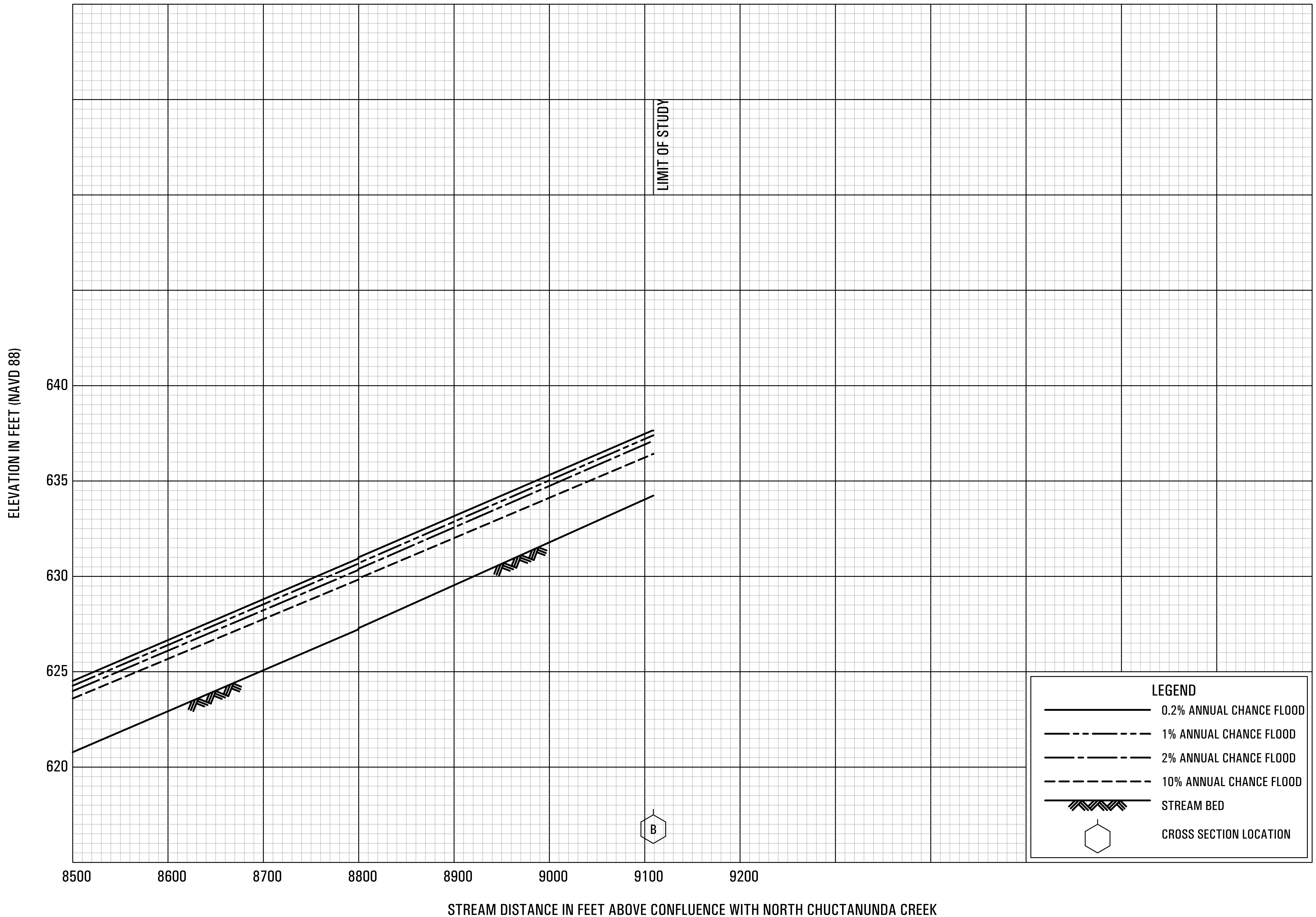
FLOOD PROFILES

BUNN CREEK REACH 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



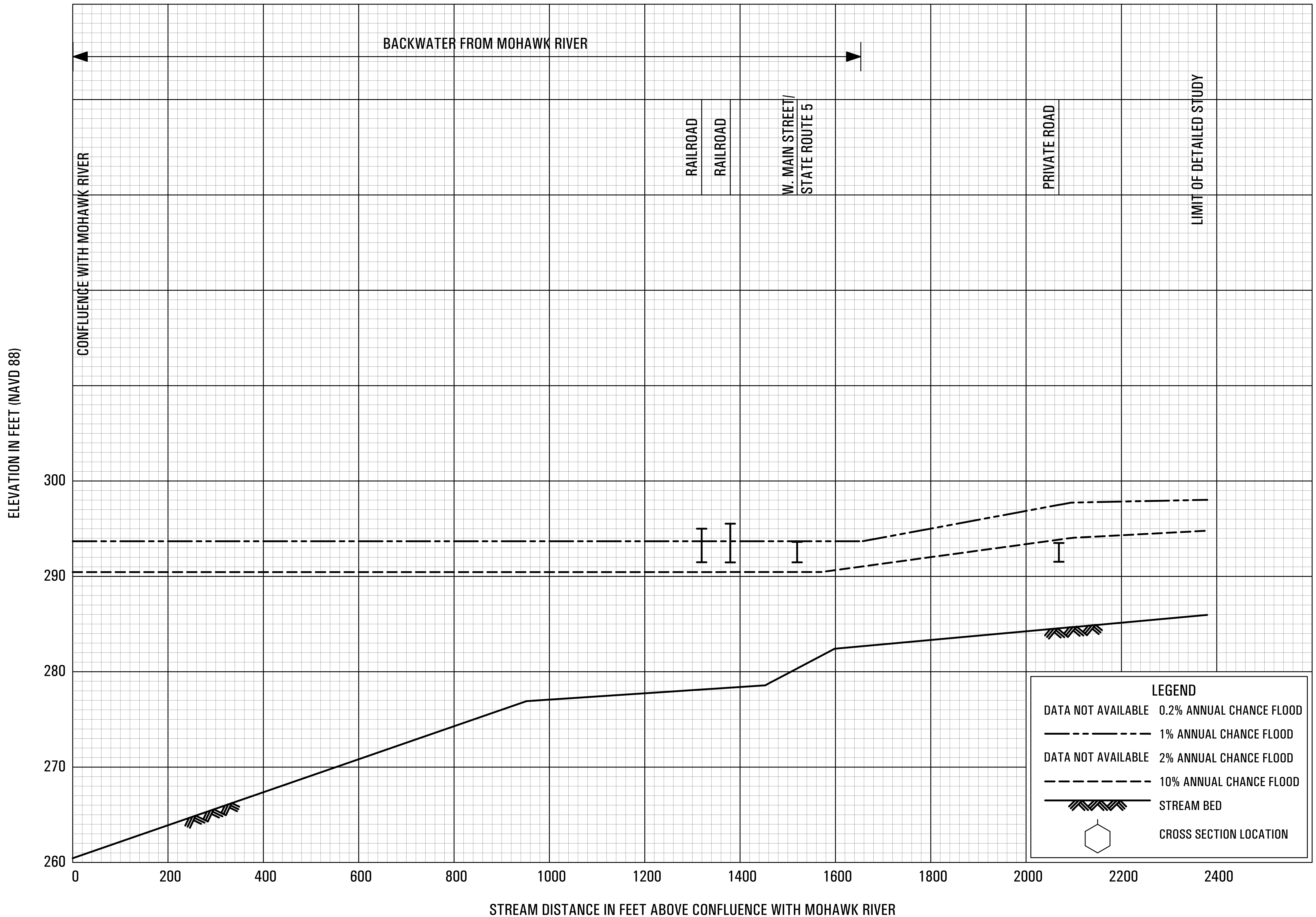
FLOOD PROFILES

BUNN CREEK REACH 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



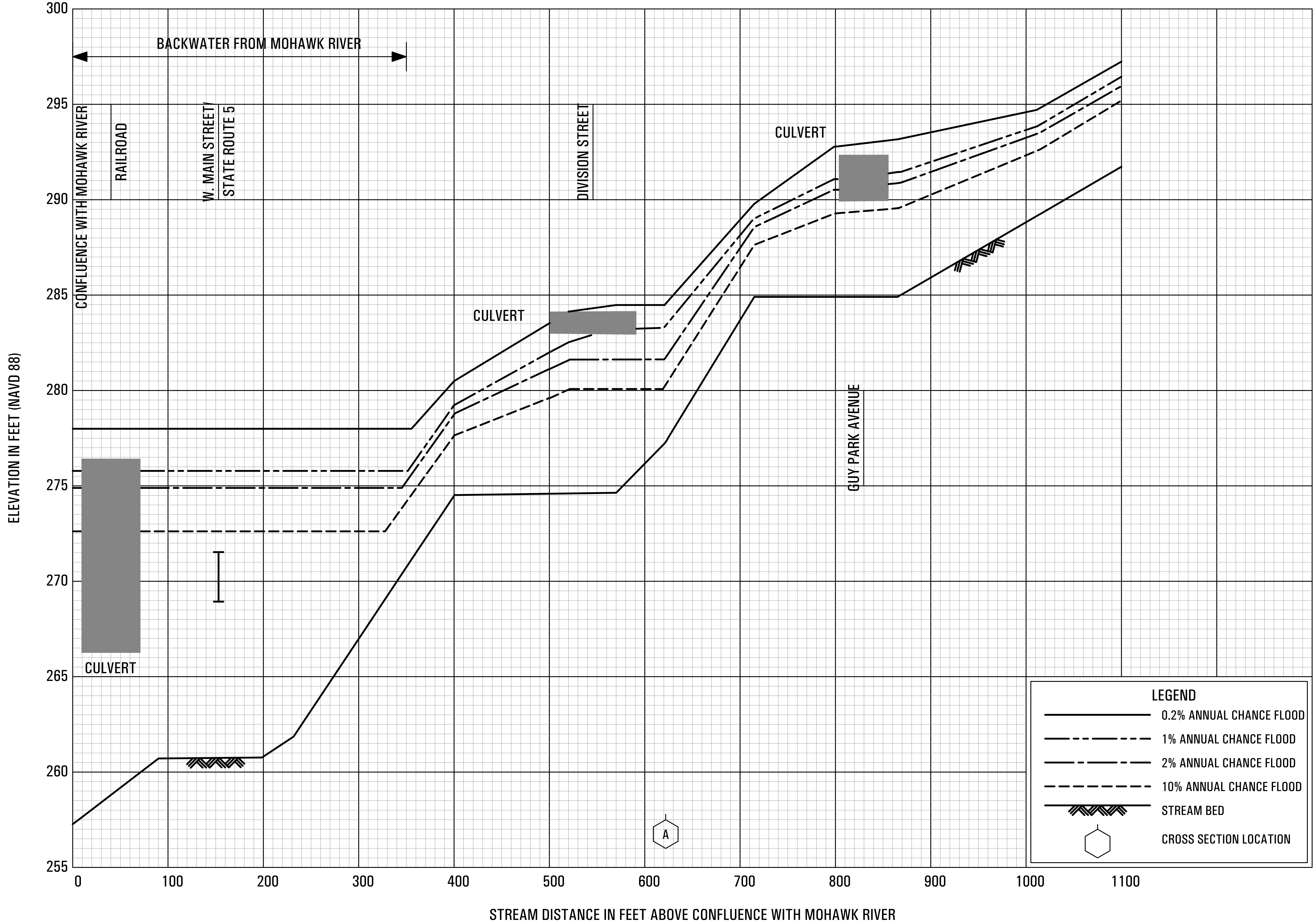
FLOOD PROFILES

CAYADUTTA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



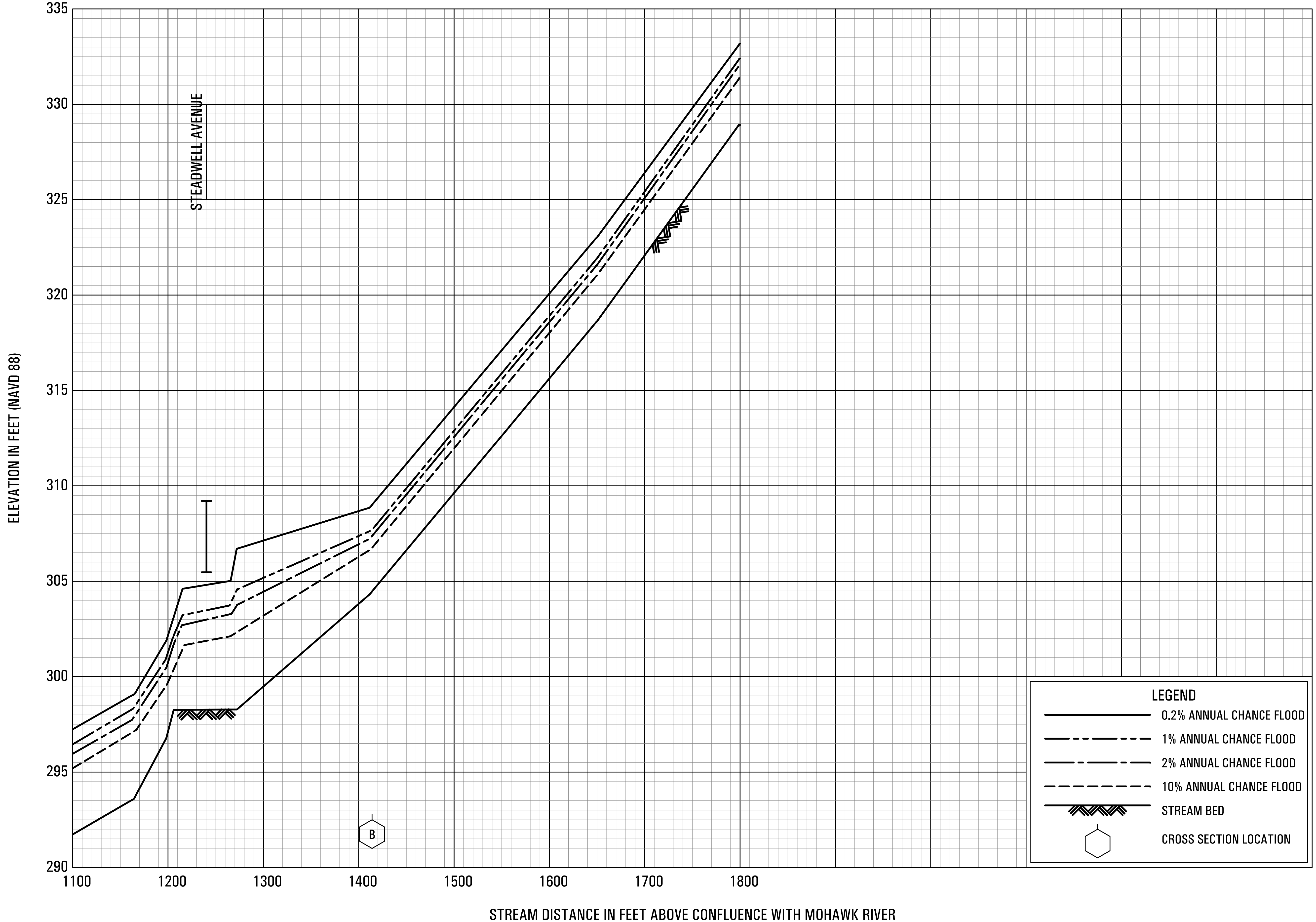
FLOOD PROFILES

DOVE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

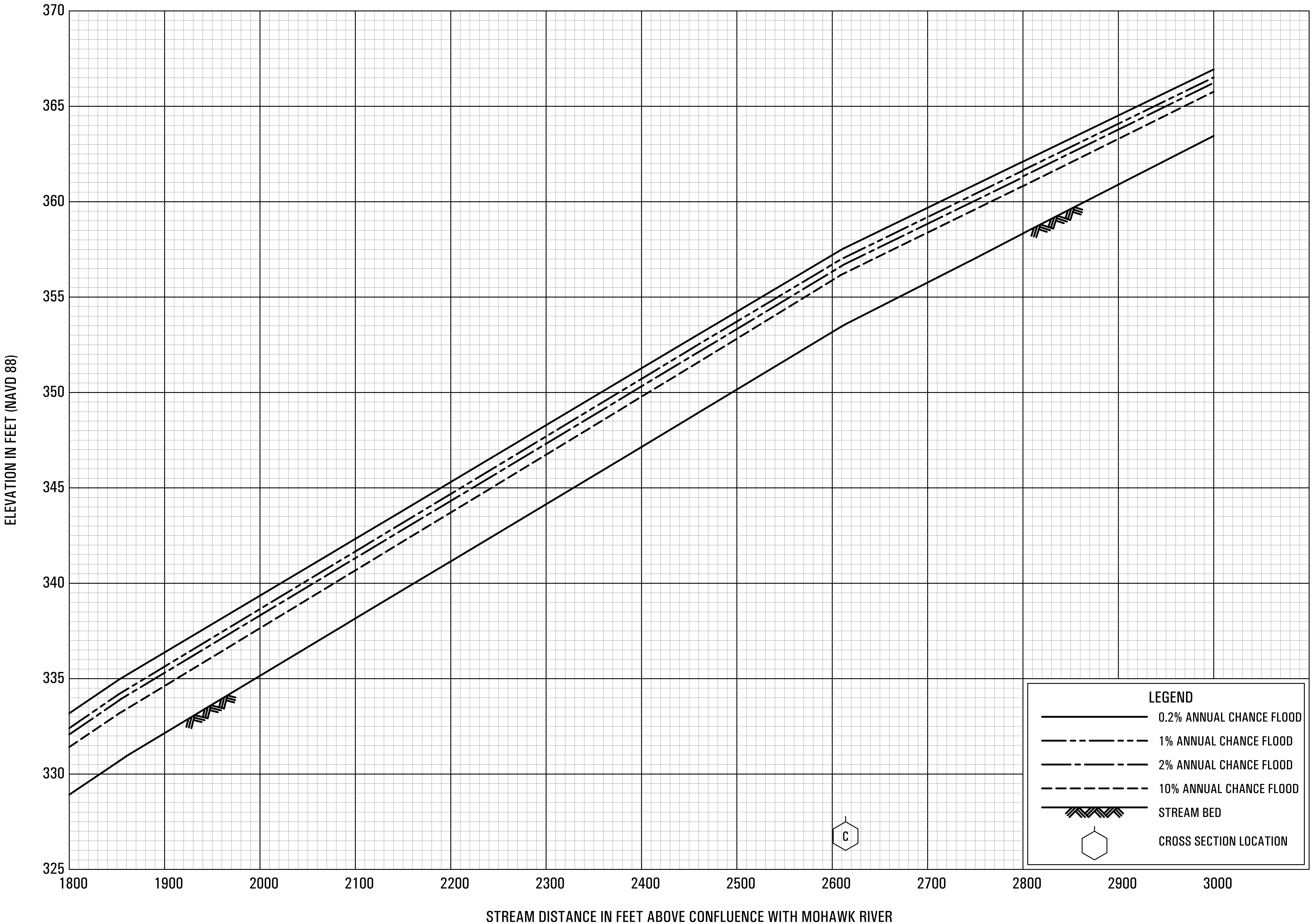
DOVE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

11P



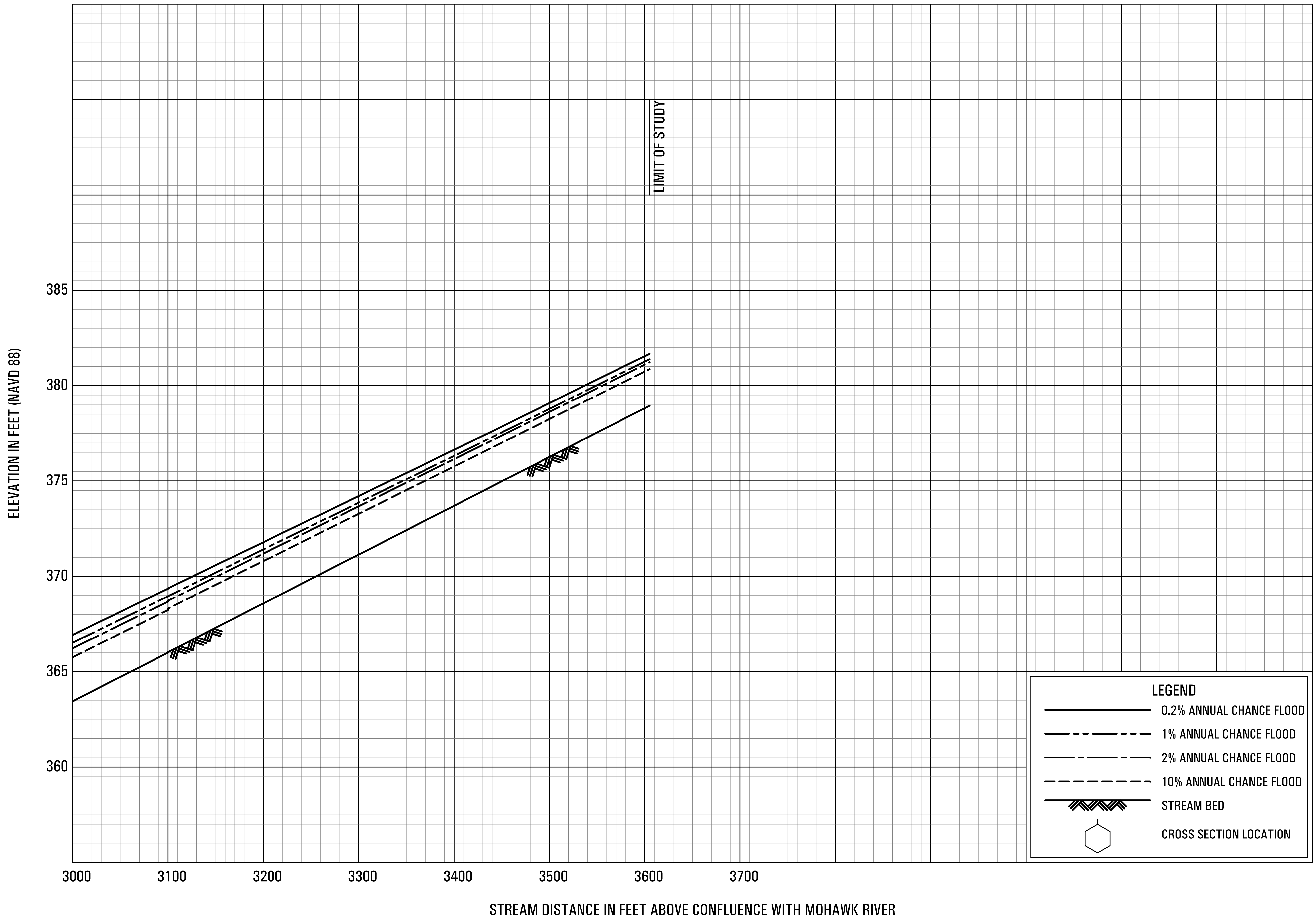
FLOOD PROFILES

DOVE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



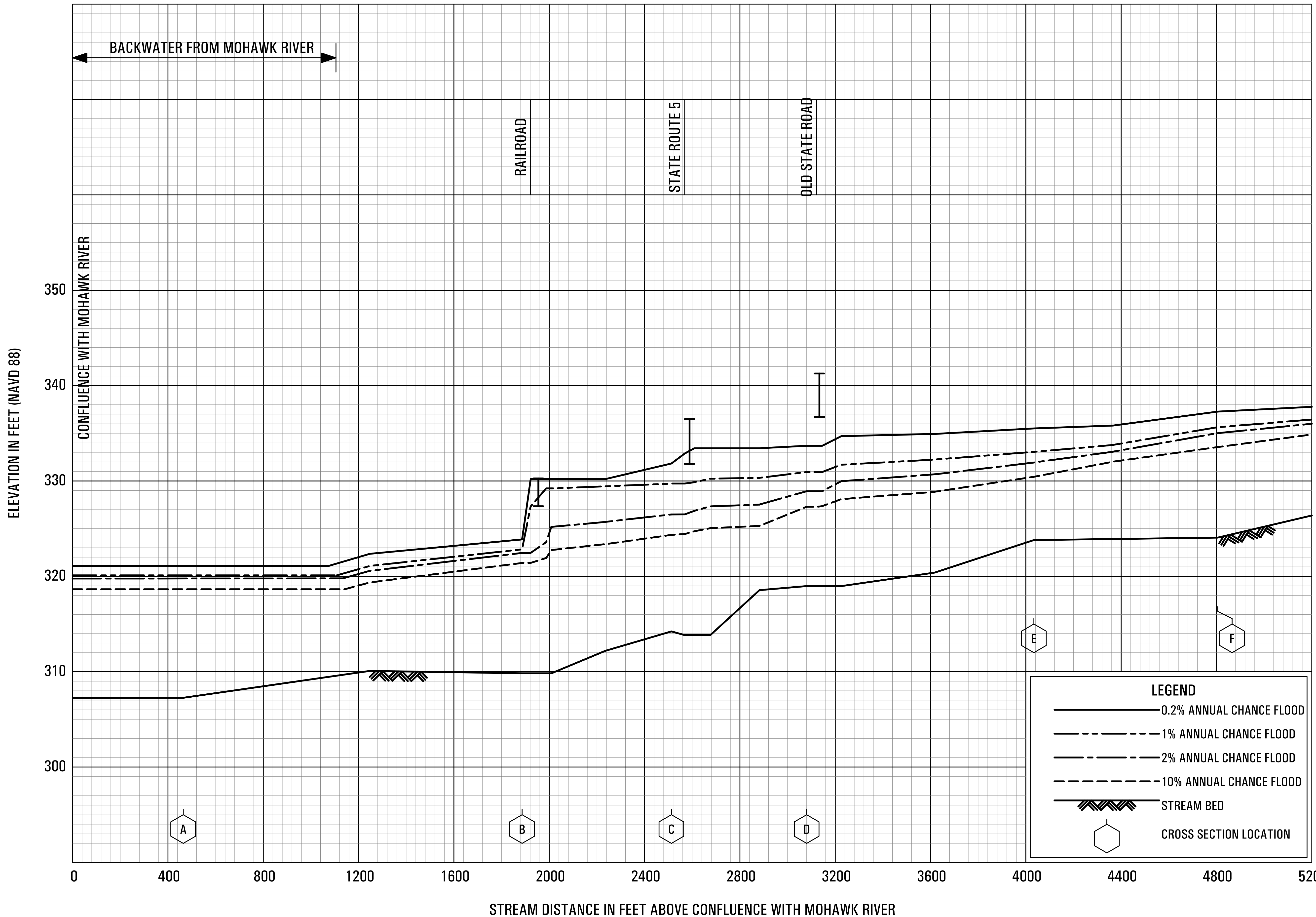
FLOOD PROFILES

DOVE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

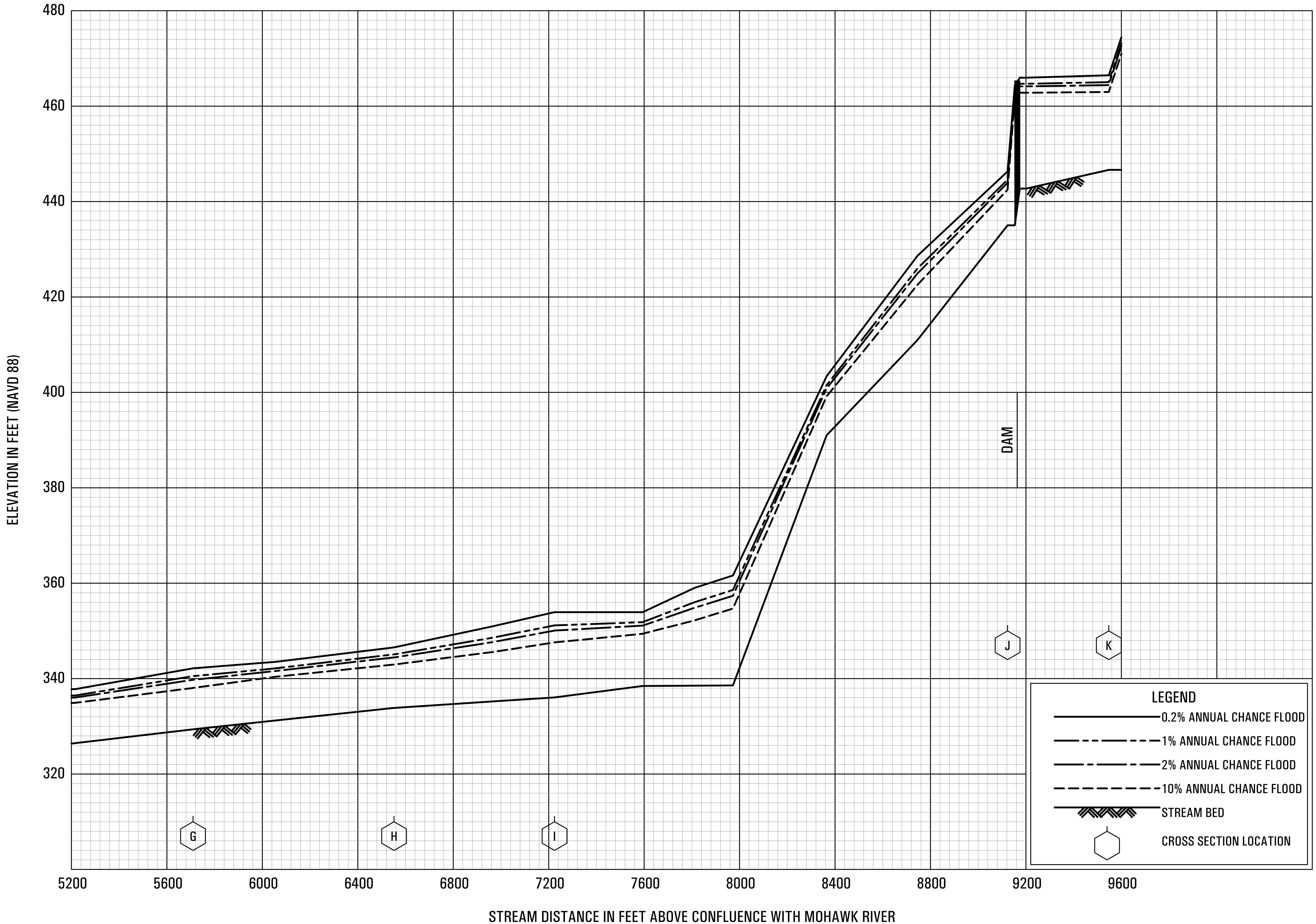
EAST CANADA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JUSIDICTIONS)

14P



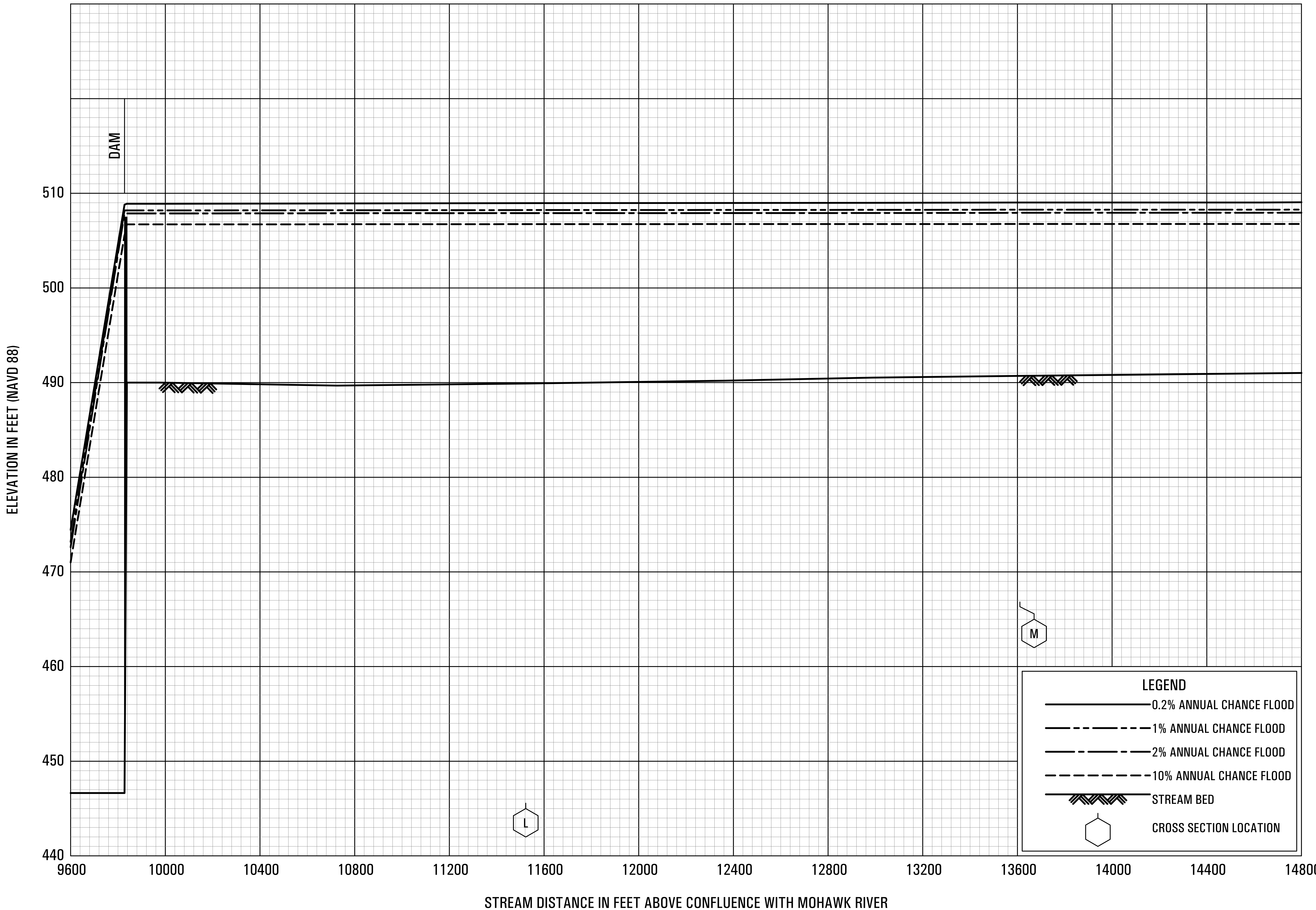
FLOOD PROFILES

EAST CANADA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JUSIDICTIONS)



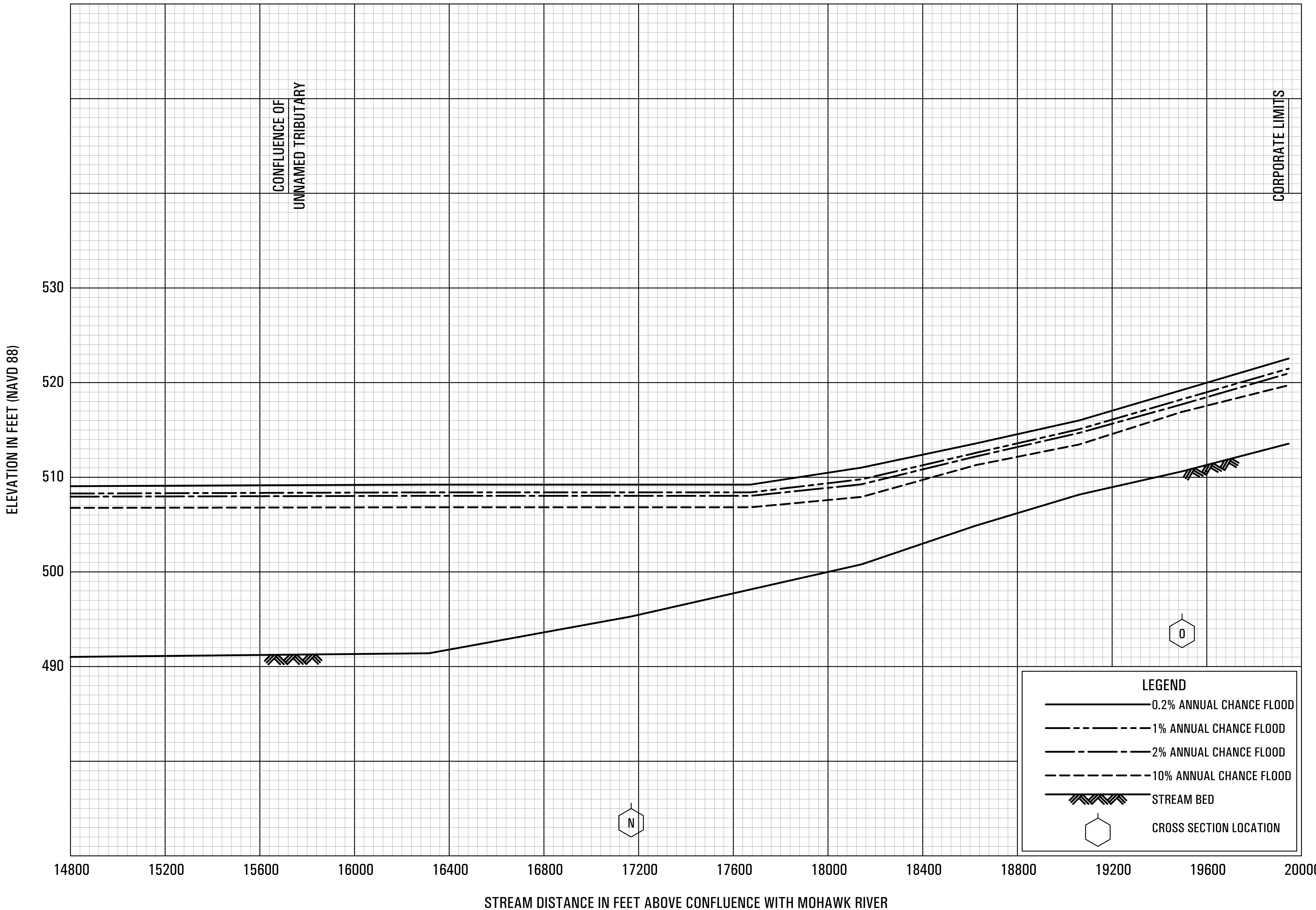
FLOOD PROFILES

EAST CANADA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JUSIDICTIONS)



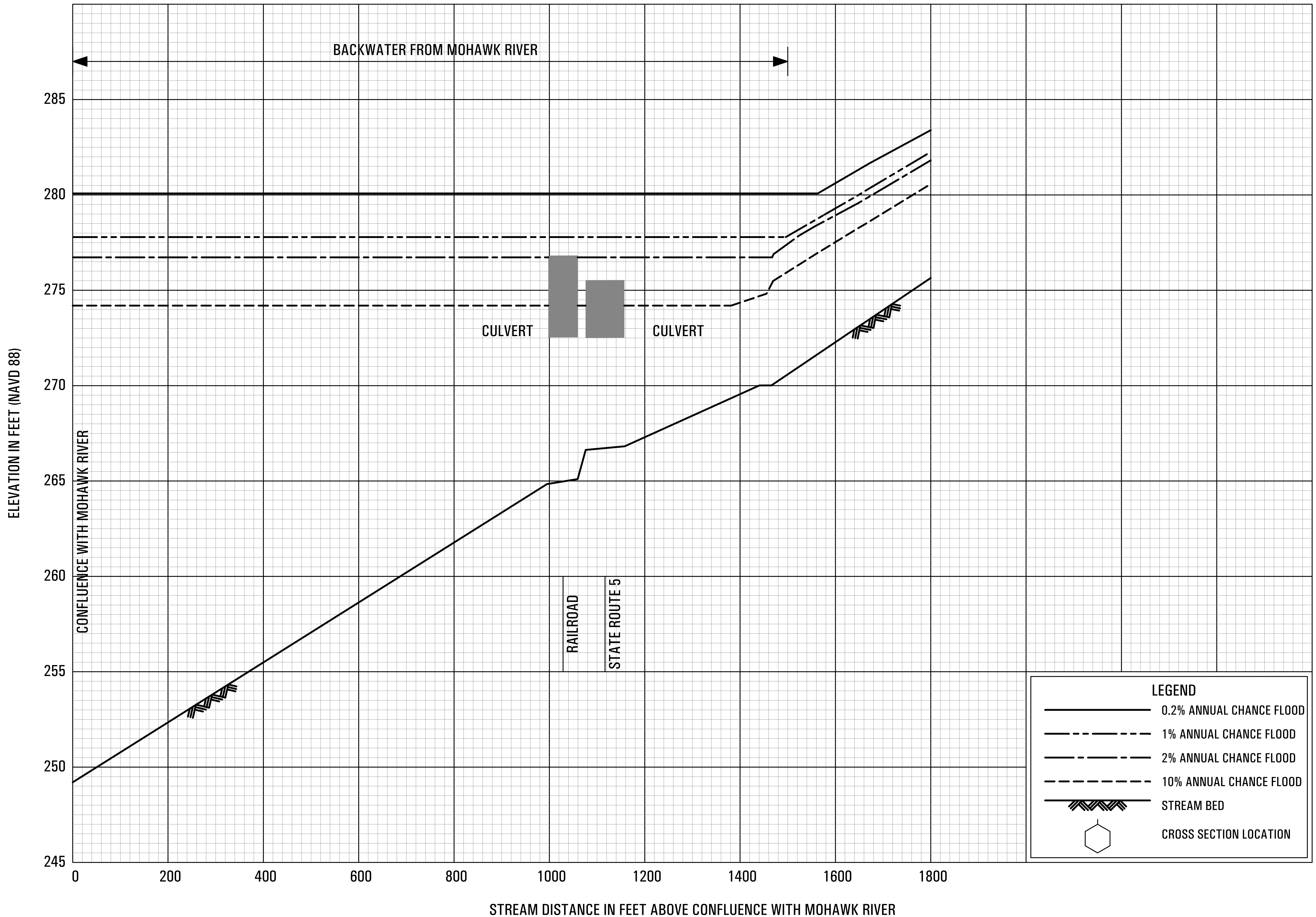
FLOOD PROFILES

EAST CANADA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JUSIDICTIONS)



FLOOD PROFILES

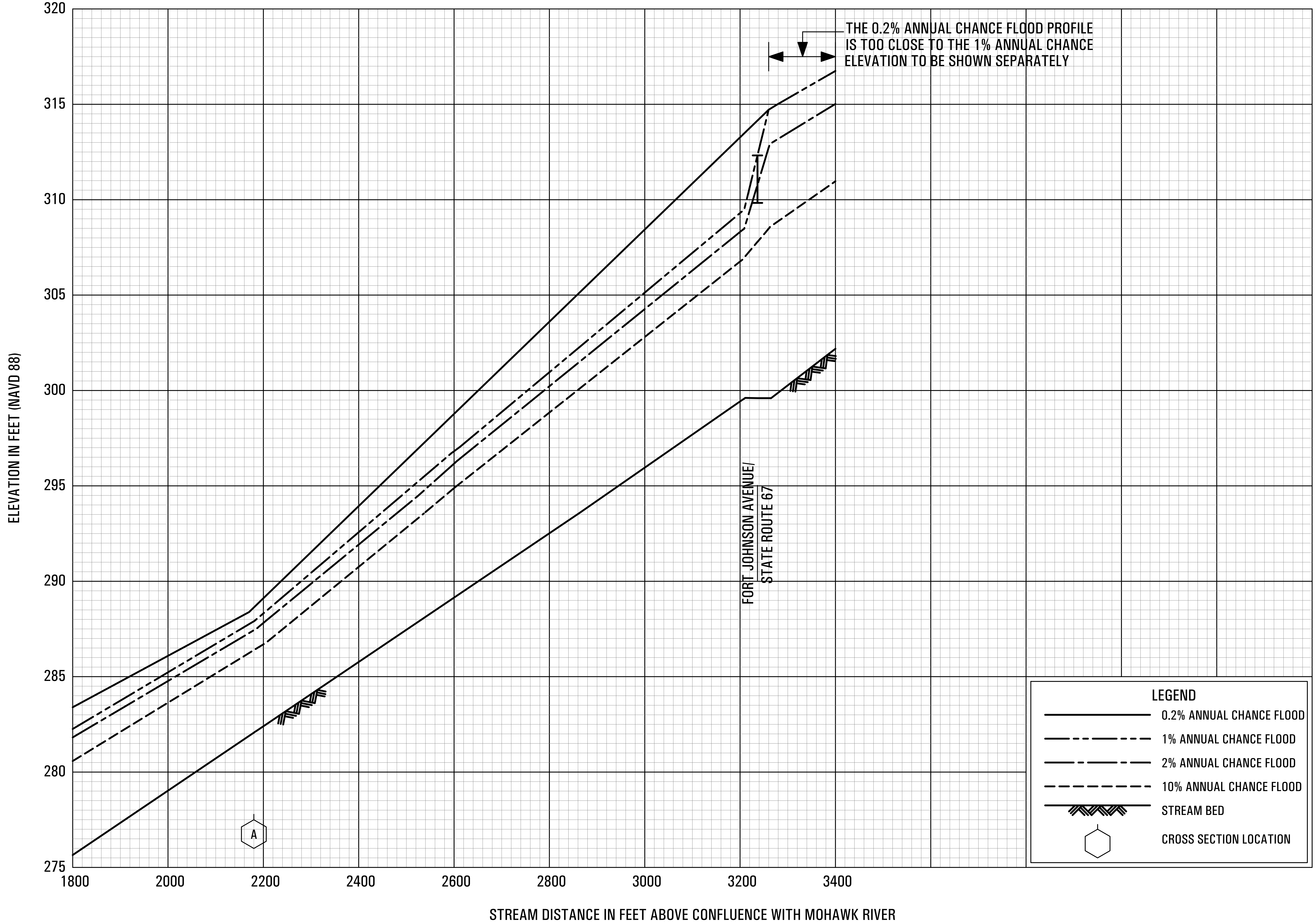
KAYADEROSSERAS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

18P



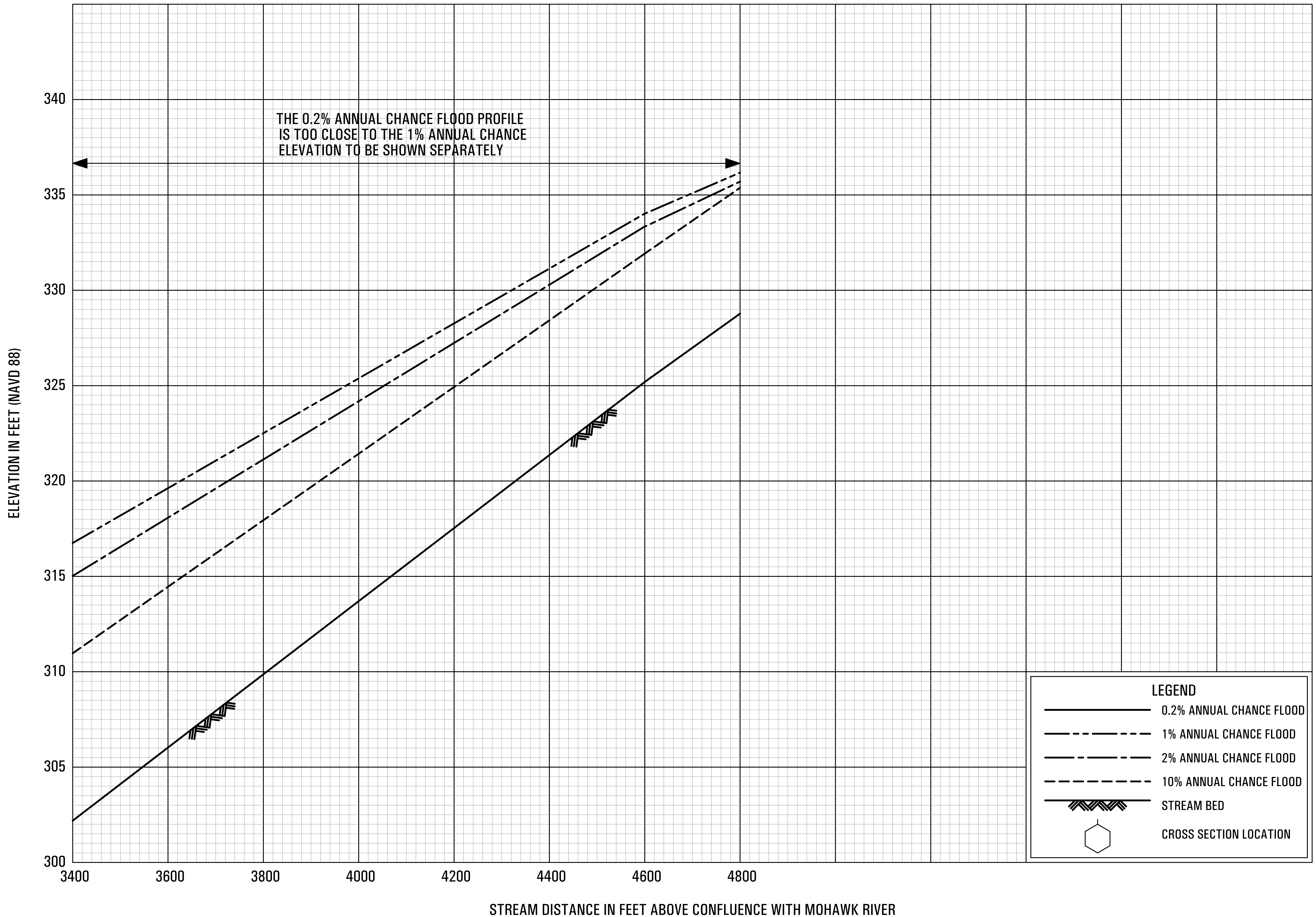
FLOOD PROFILES

KAYADEROSSERAS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



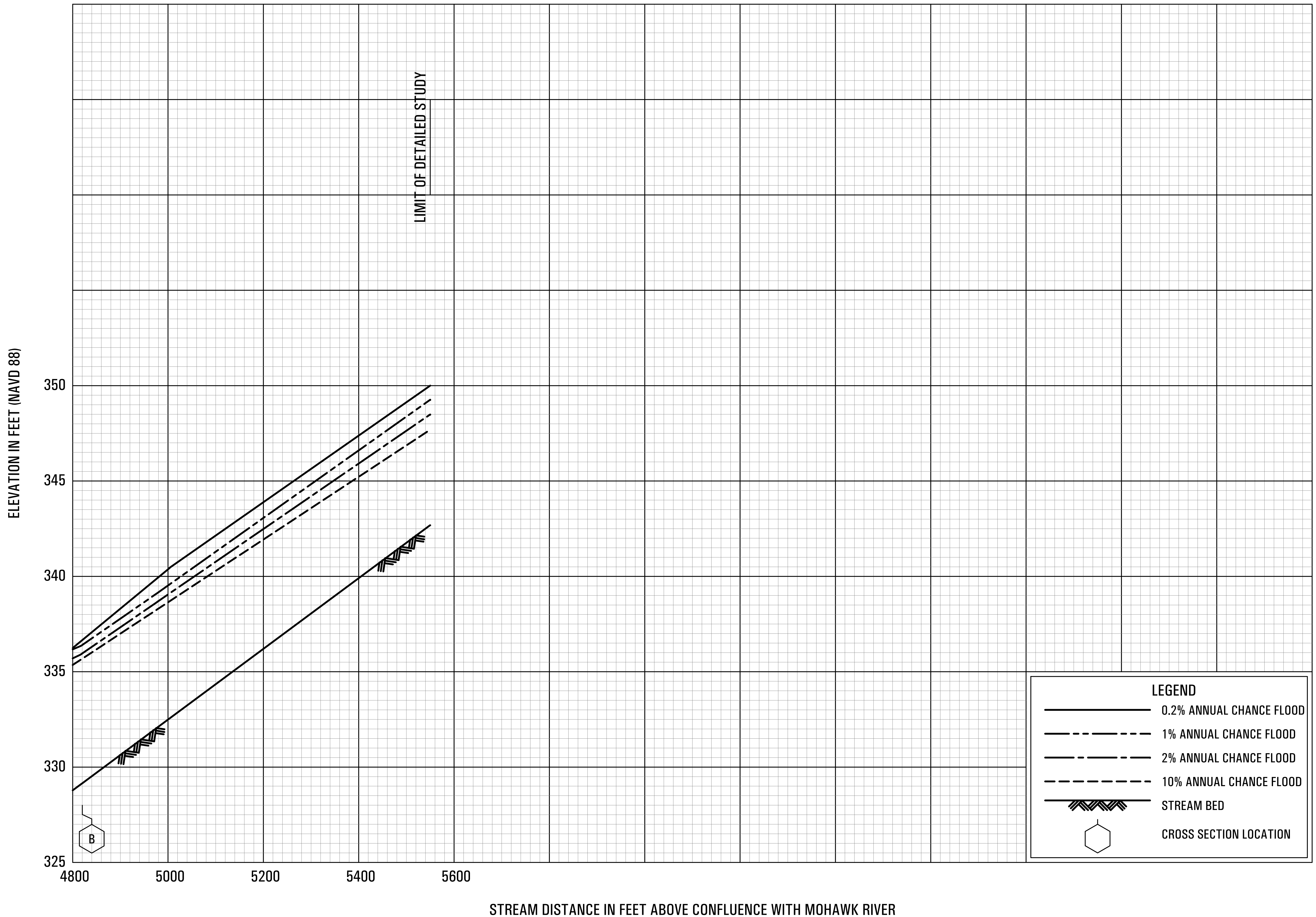
FLOOD PROFILES

KAYADEROSSERAS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



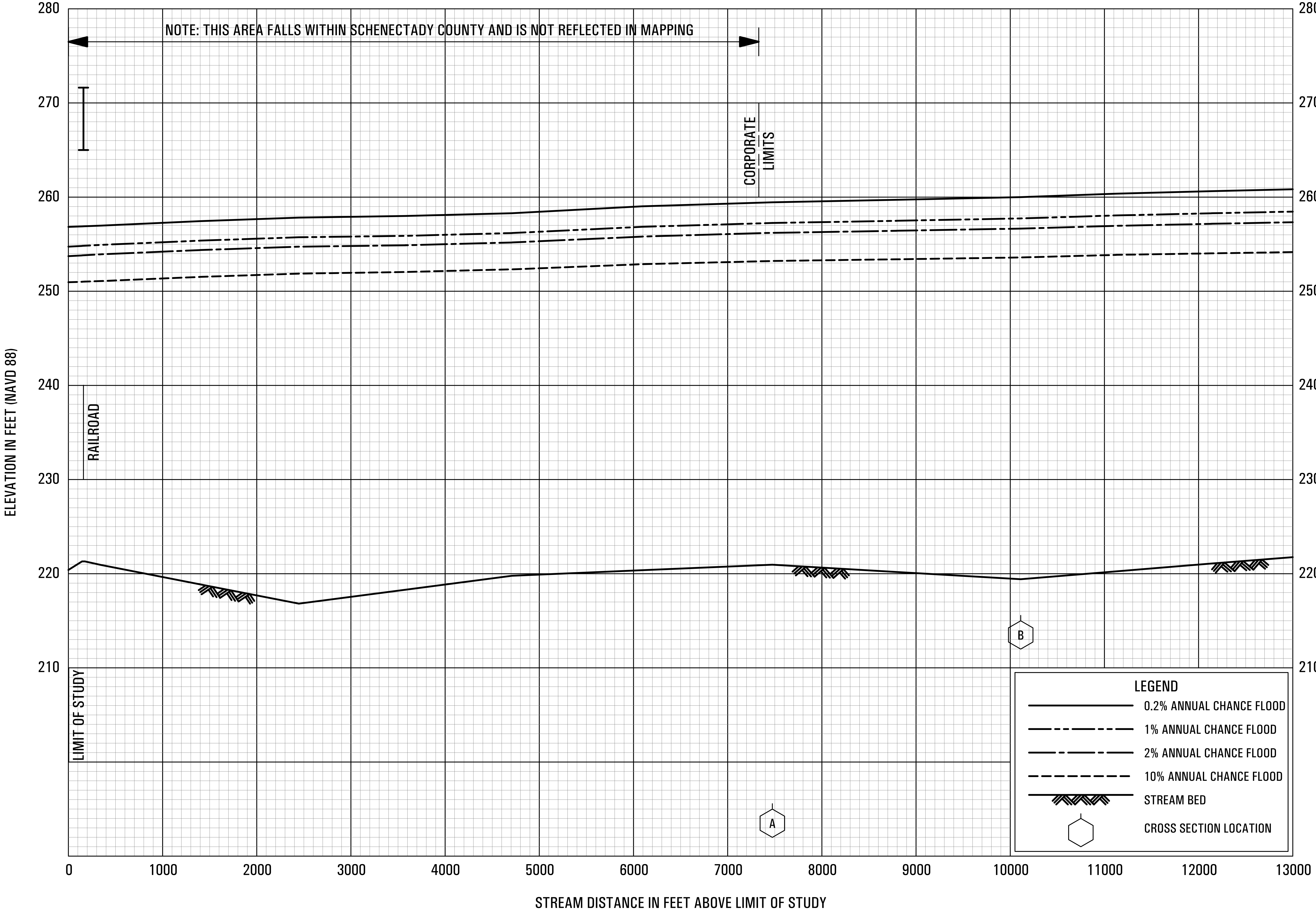
FLOOD PROFILES

KAYADEROSSERAS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

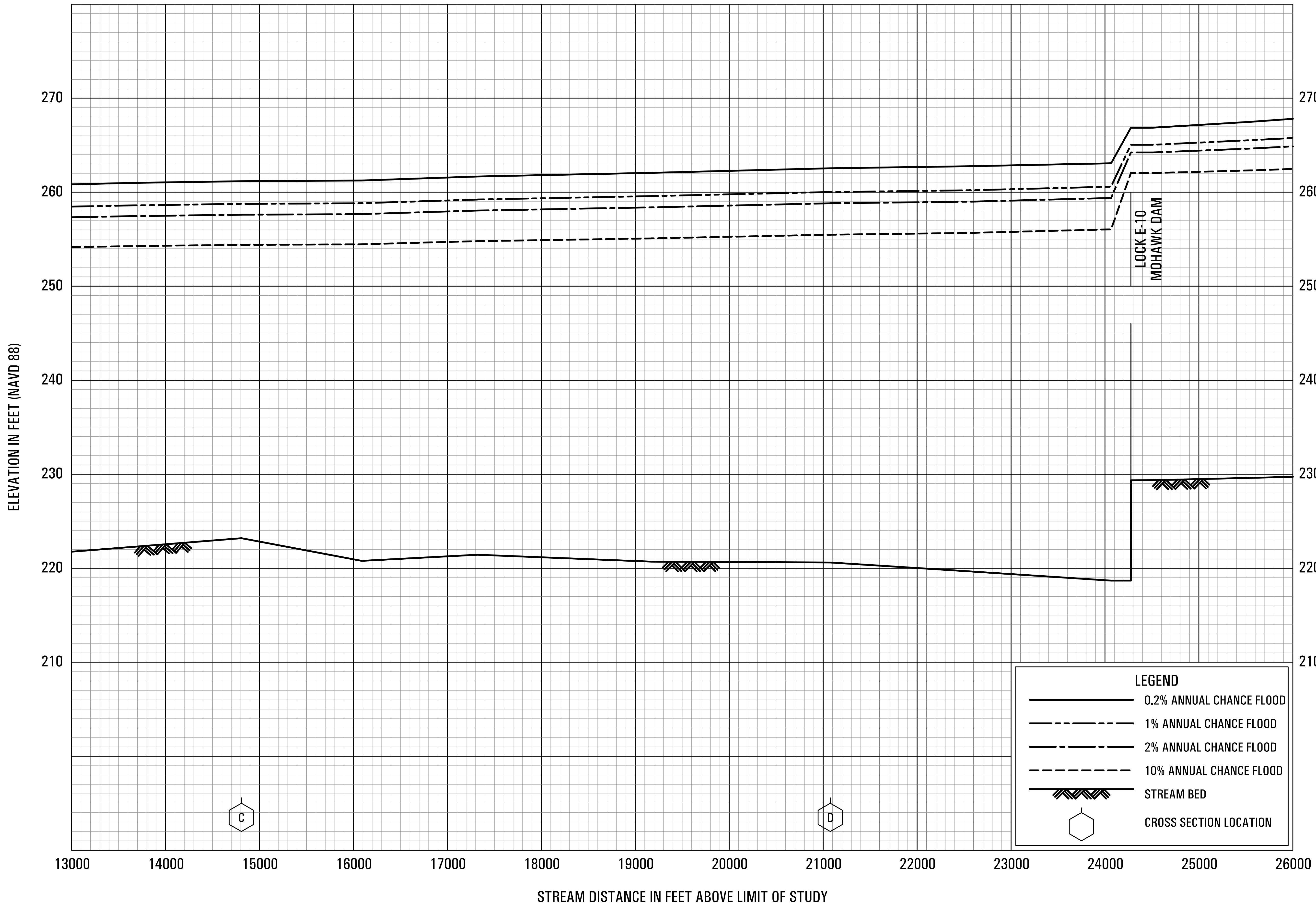


FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY
(ALL JURISDICTIONS)



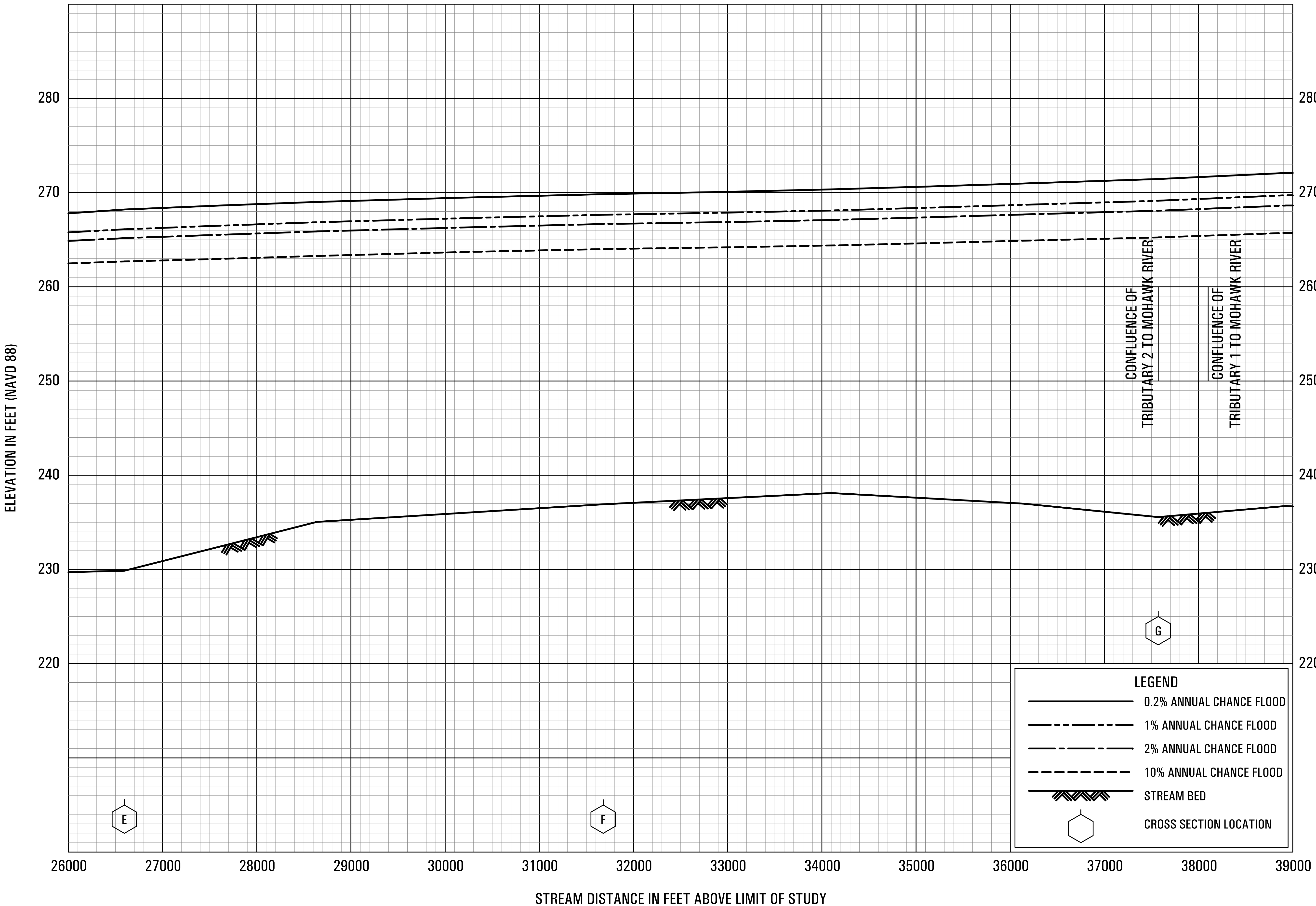
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

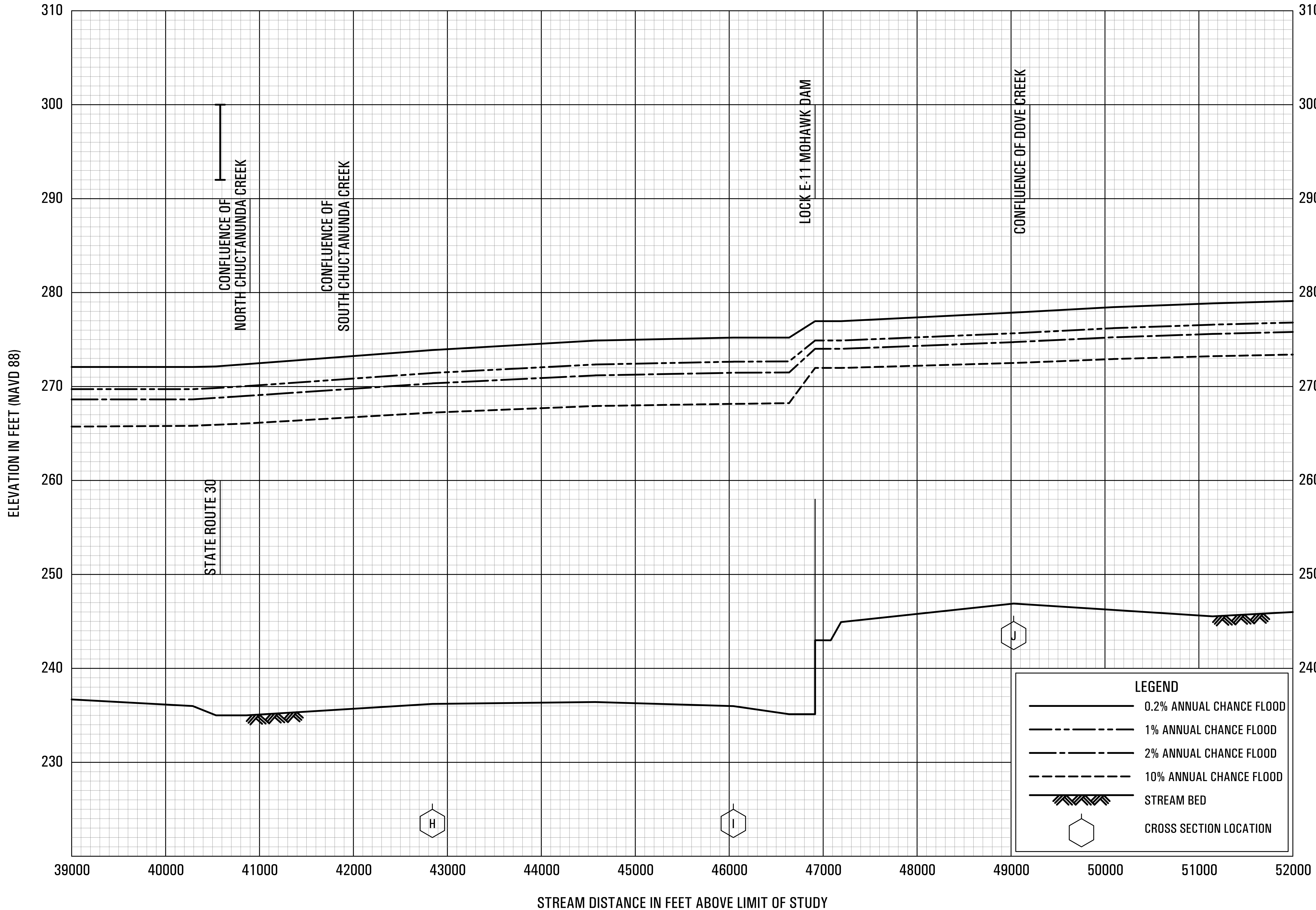
(ALL JURISDICTIONS)



FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
MONTGOMERY COUNTY, NY
(ALL JURISDICTIONS)



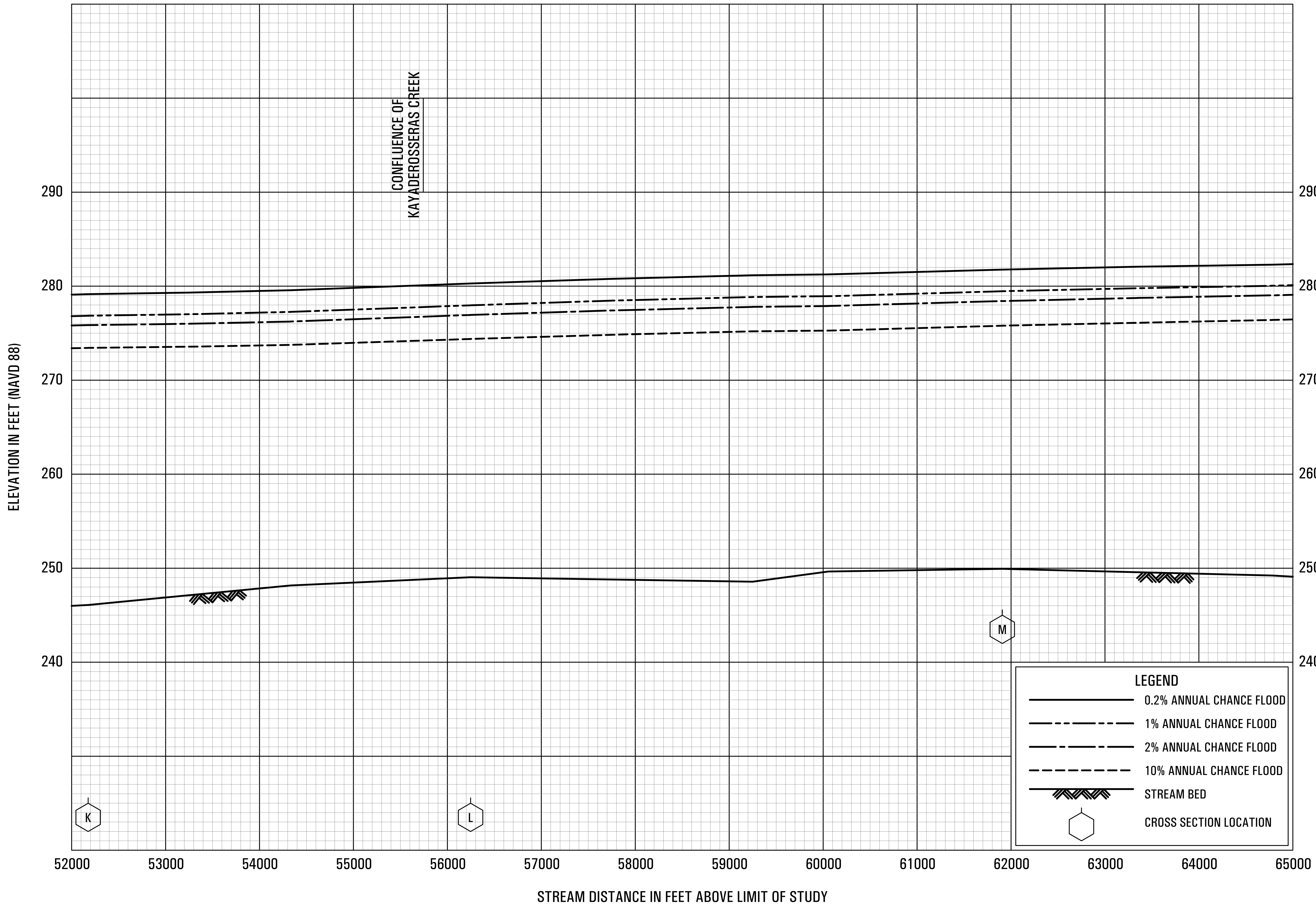
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY
(ALL JURISDICTIONS)

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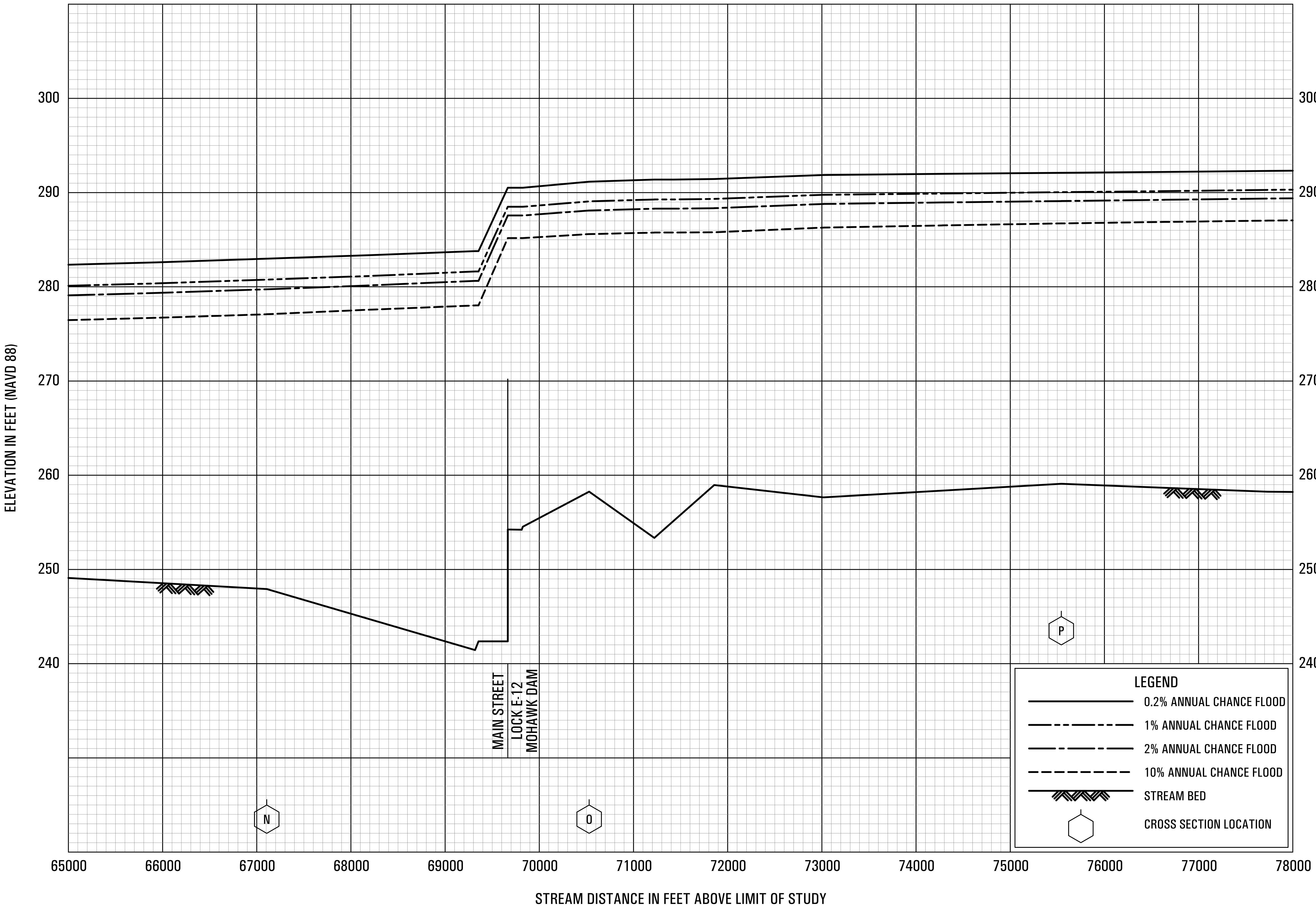


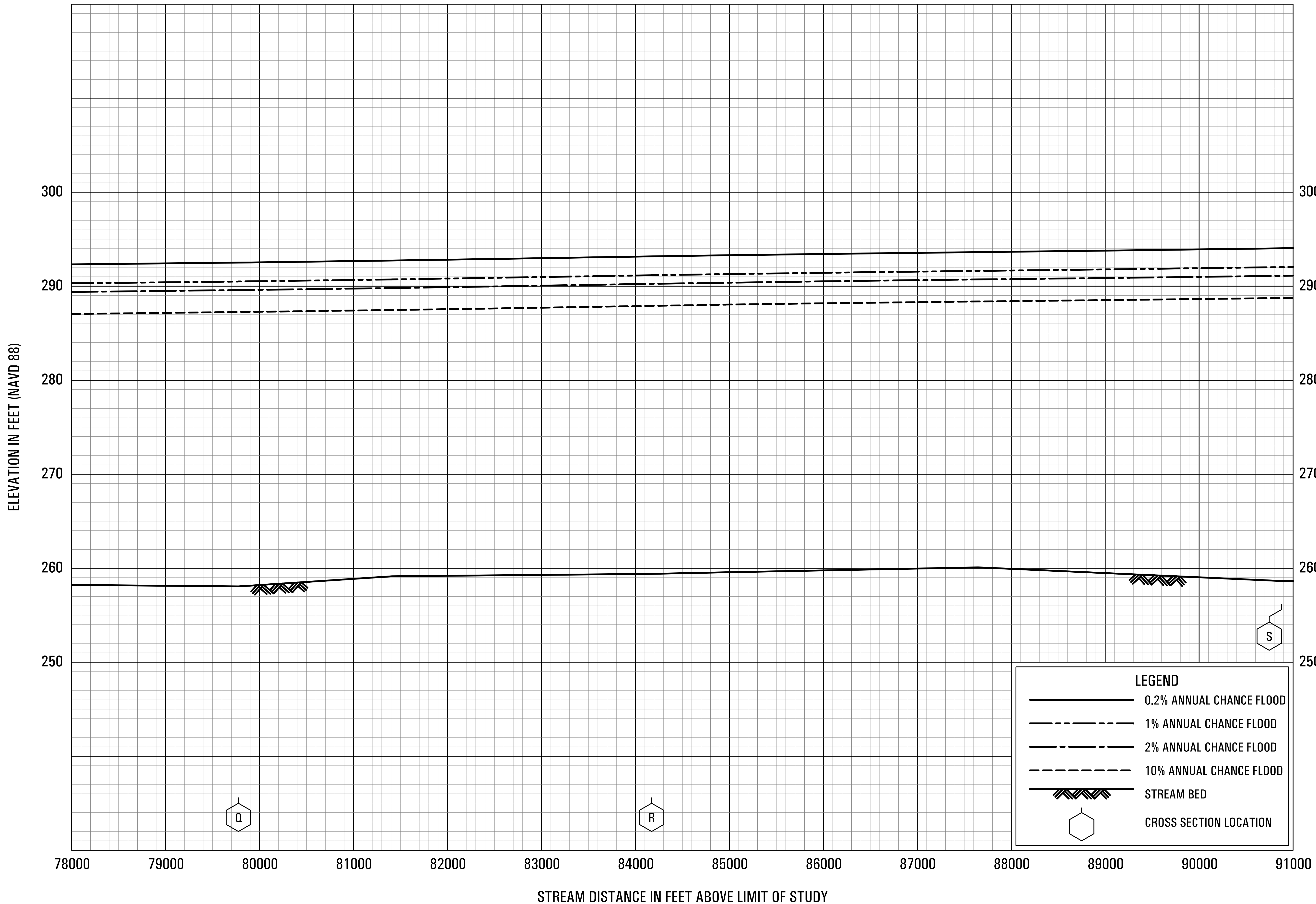
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



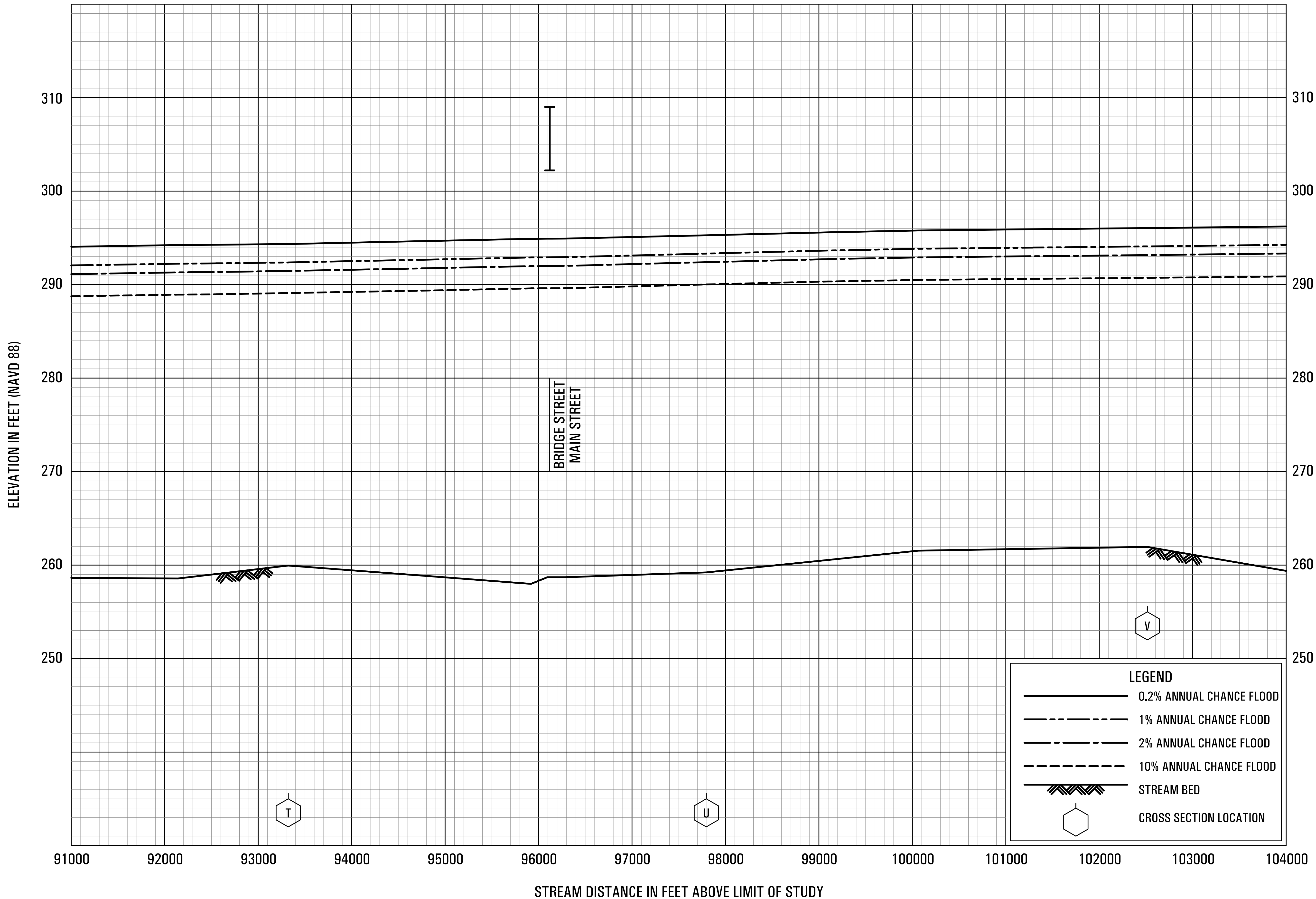
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



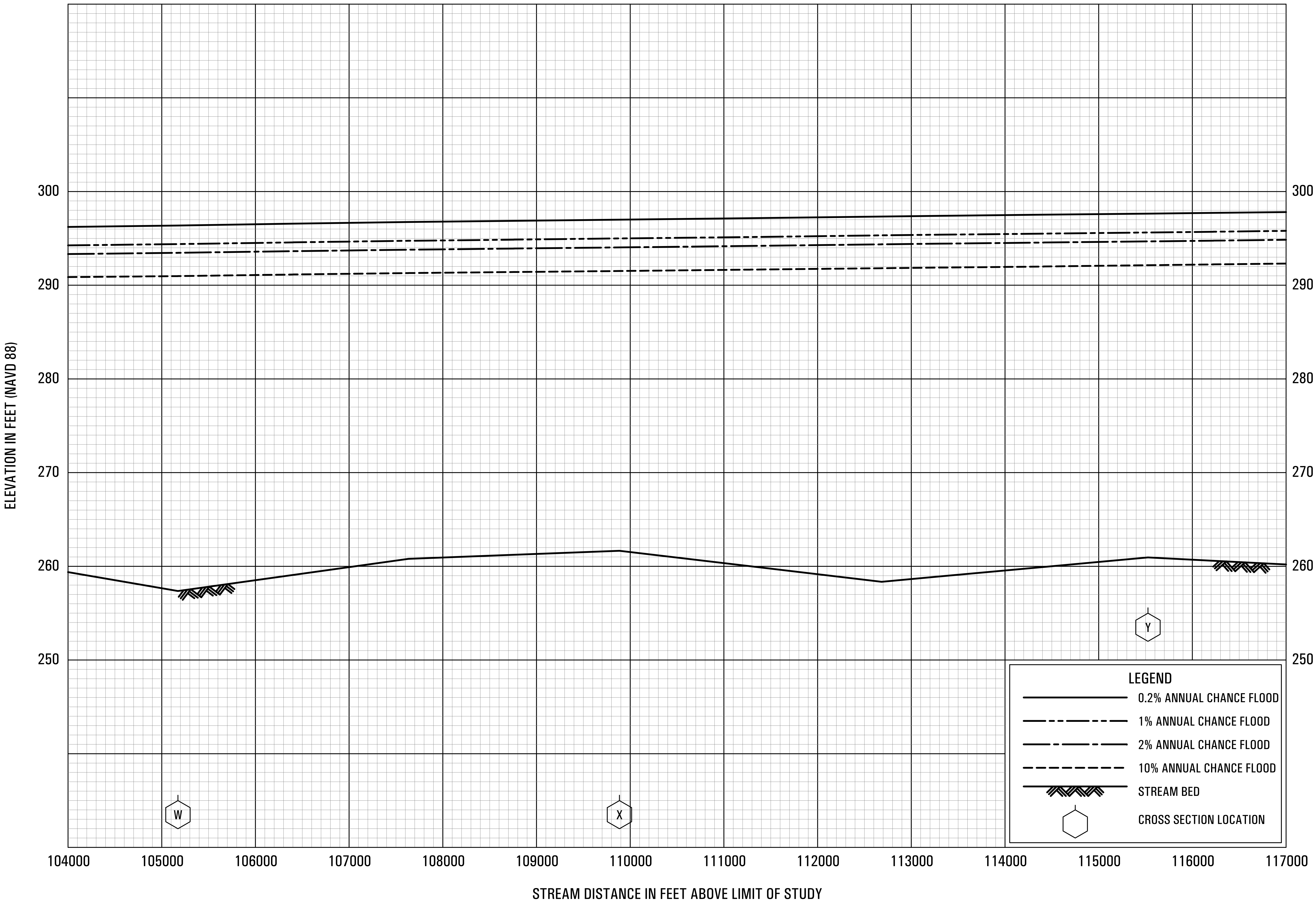
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



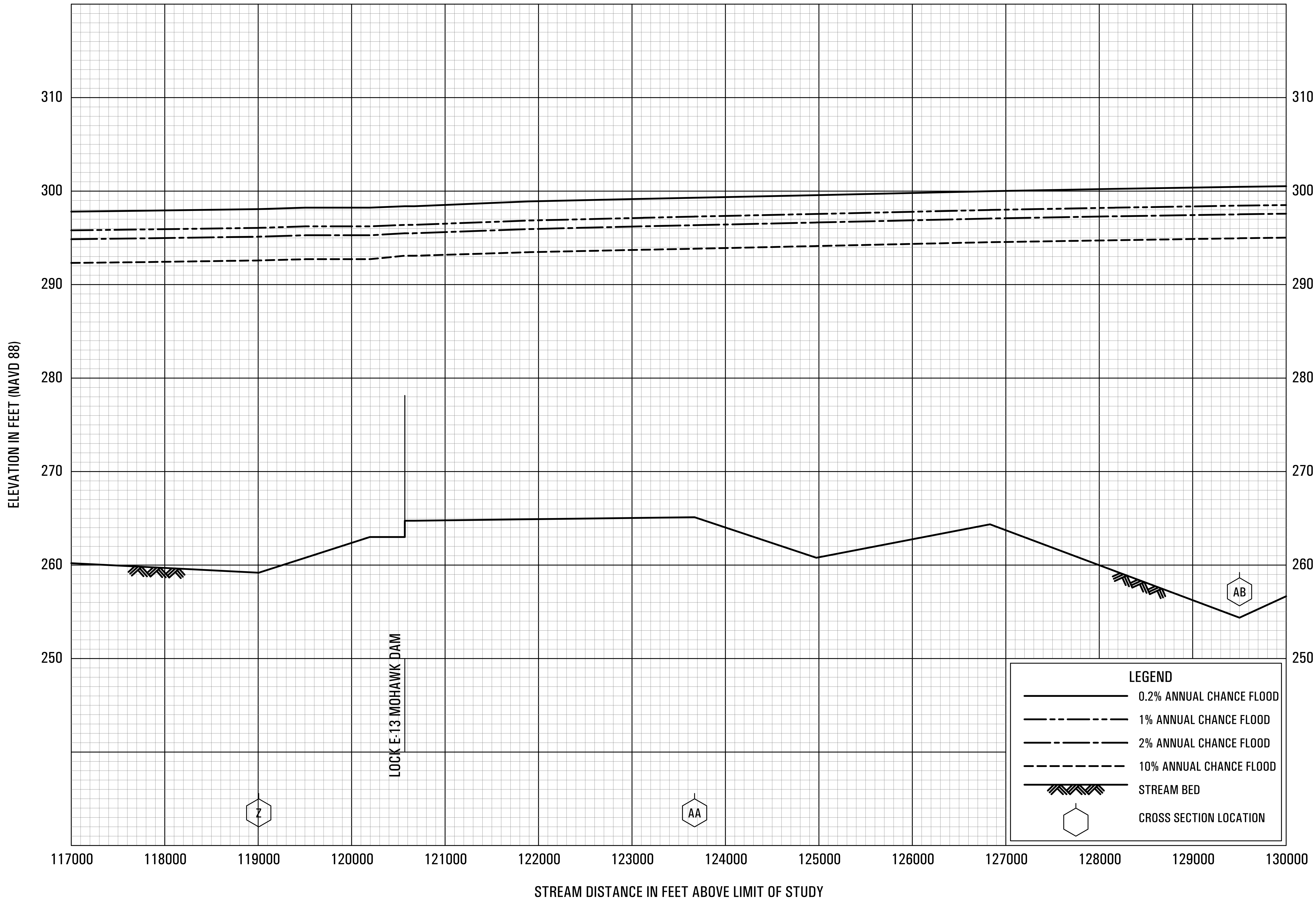
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



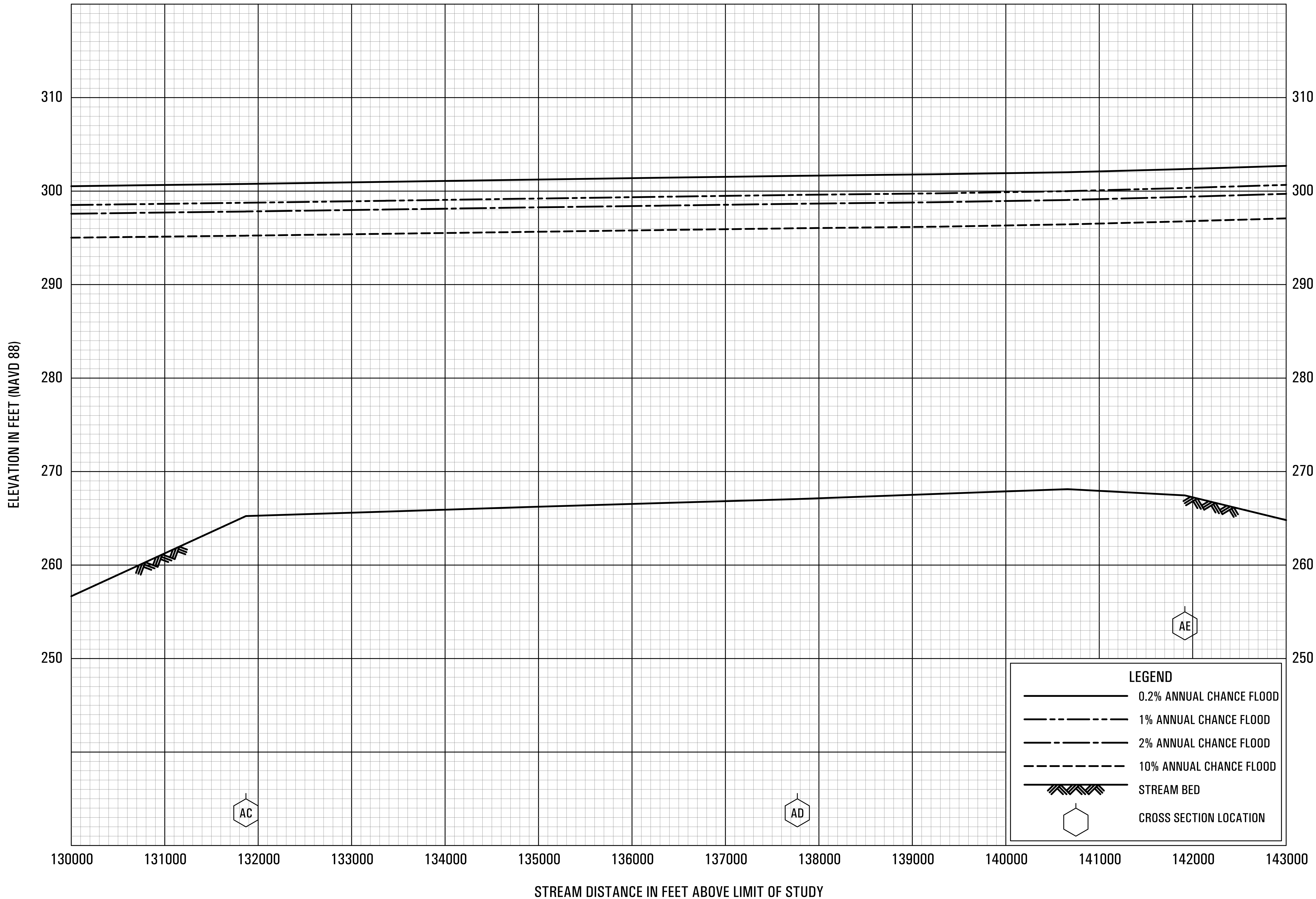
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



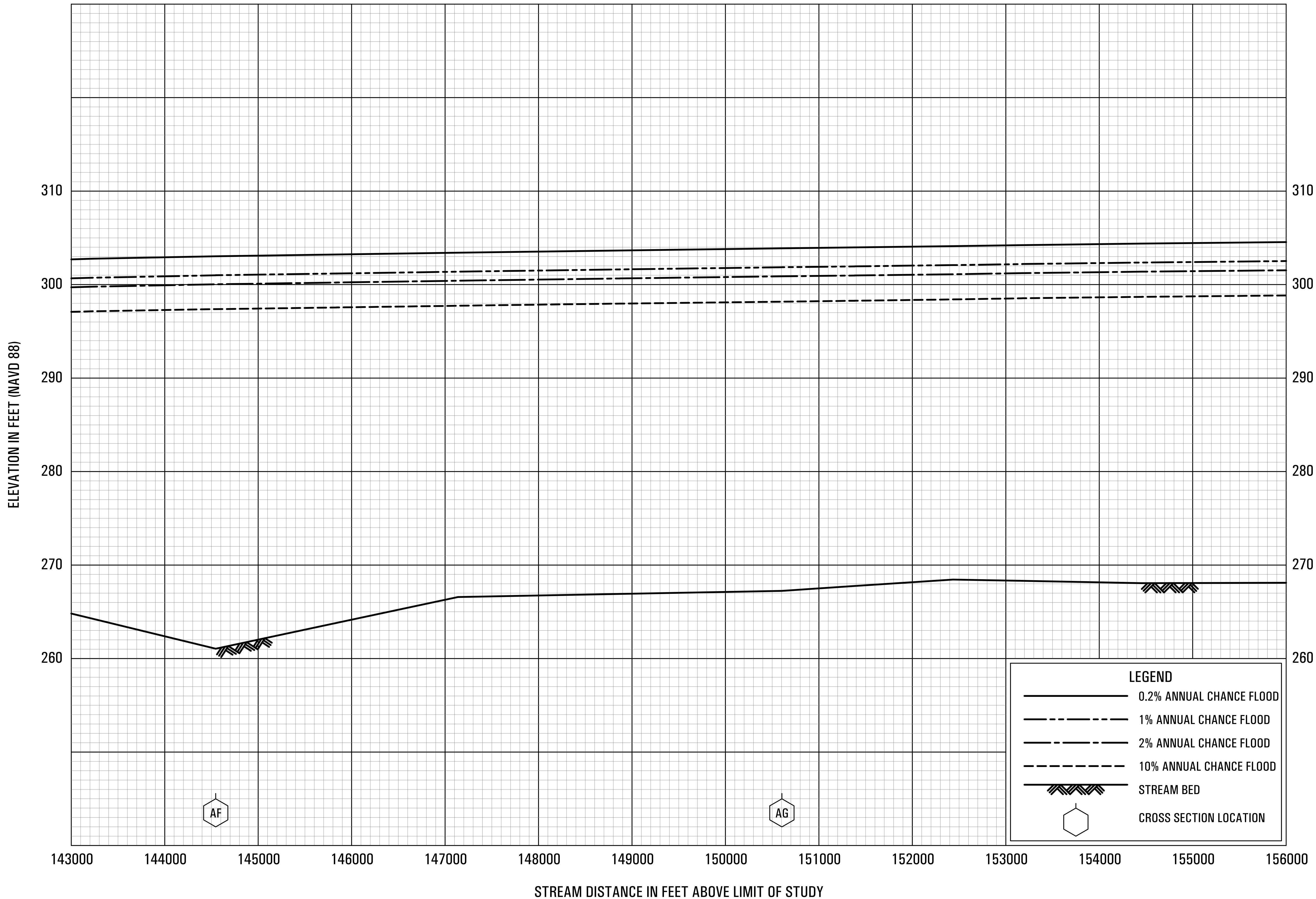
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



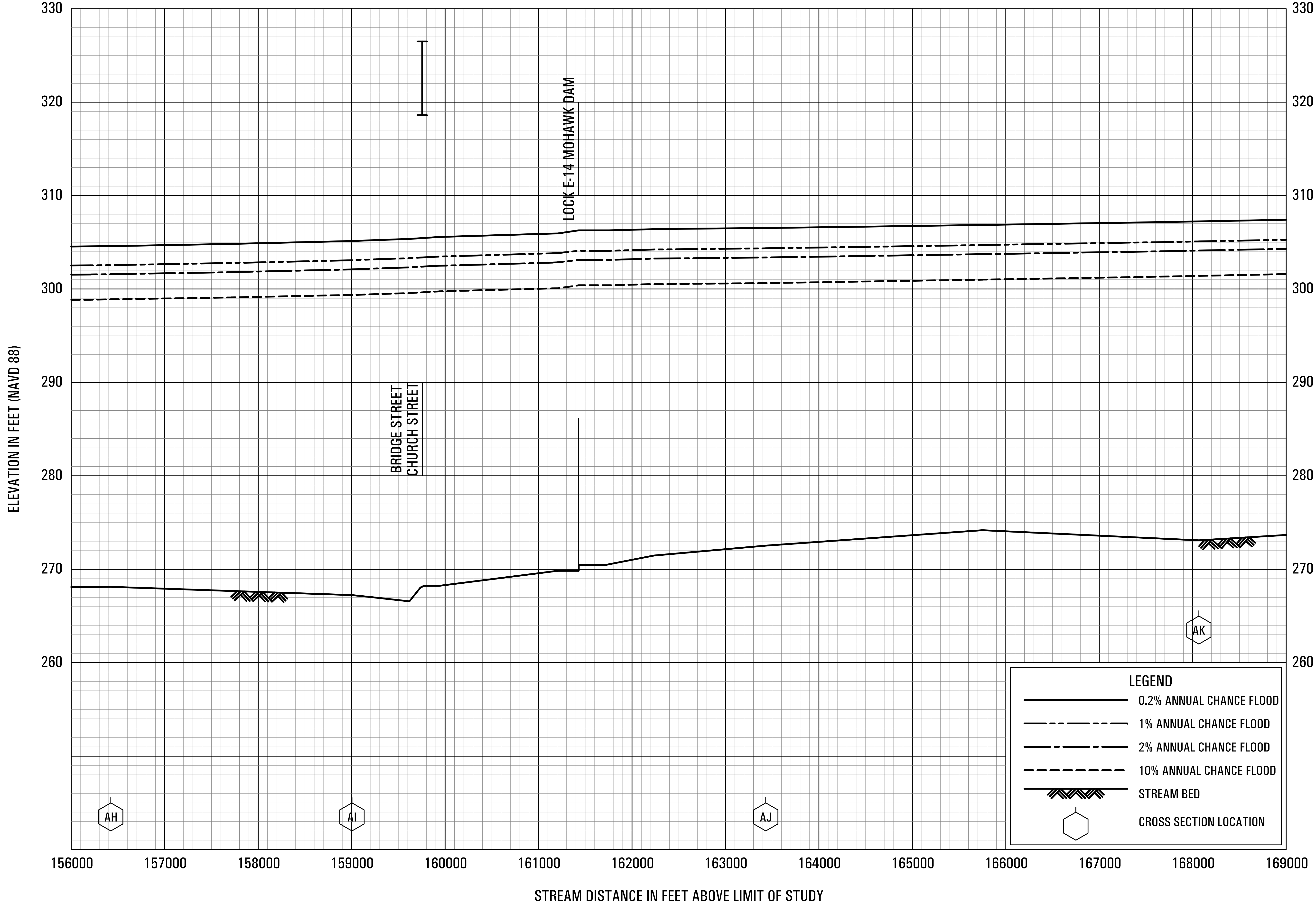
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



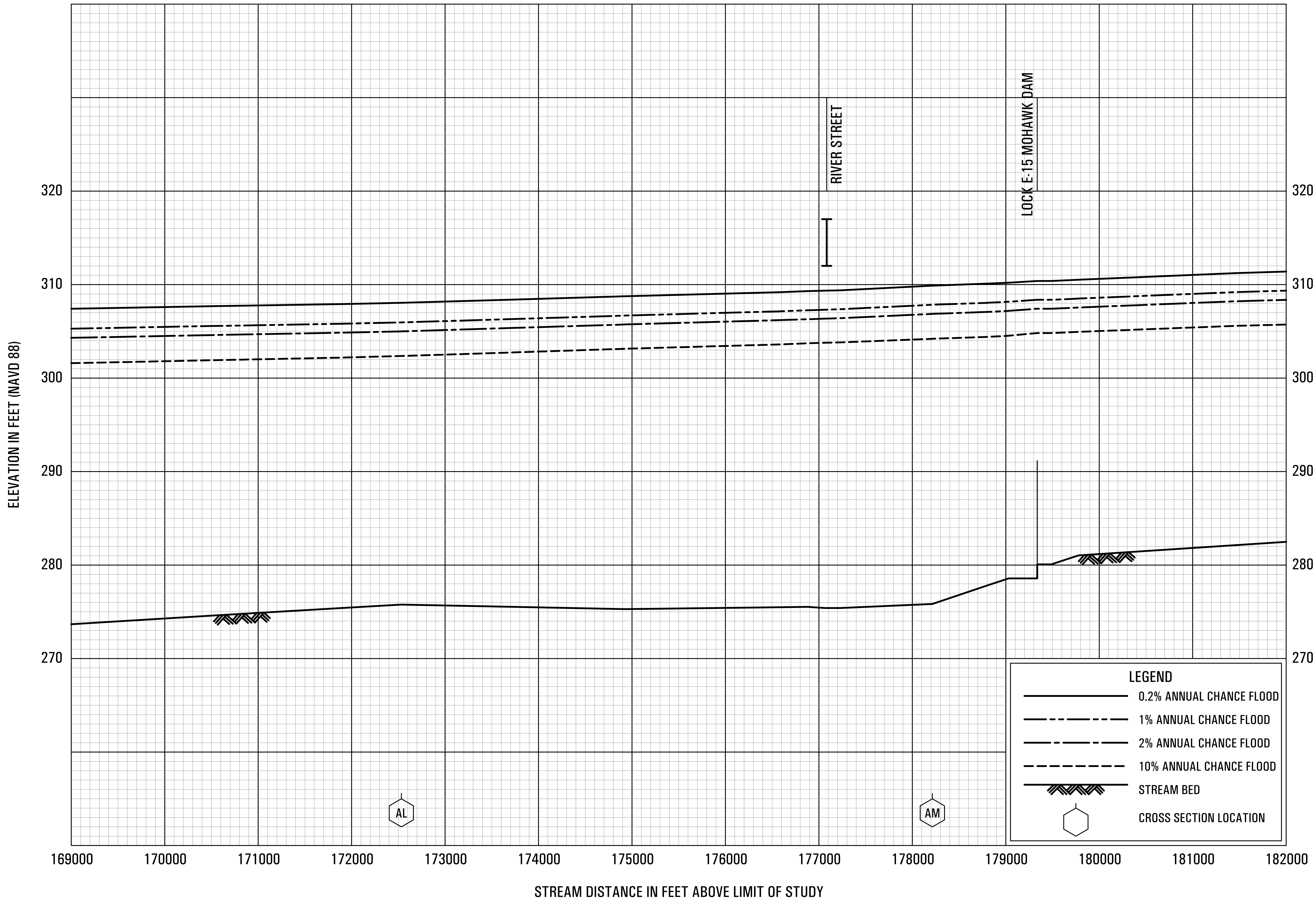
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



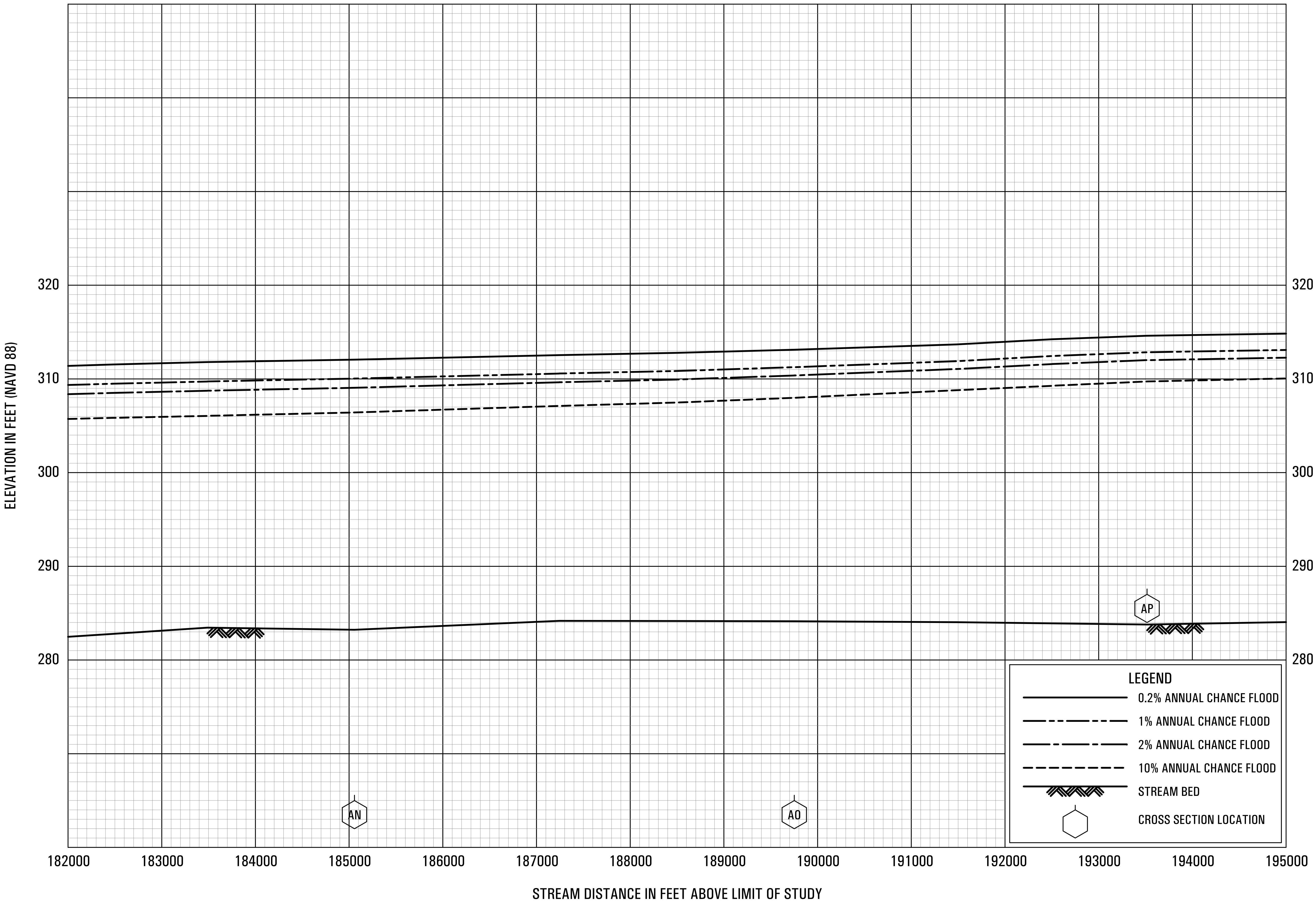
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



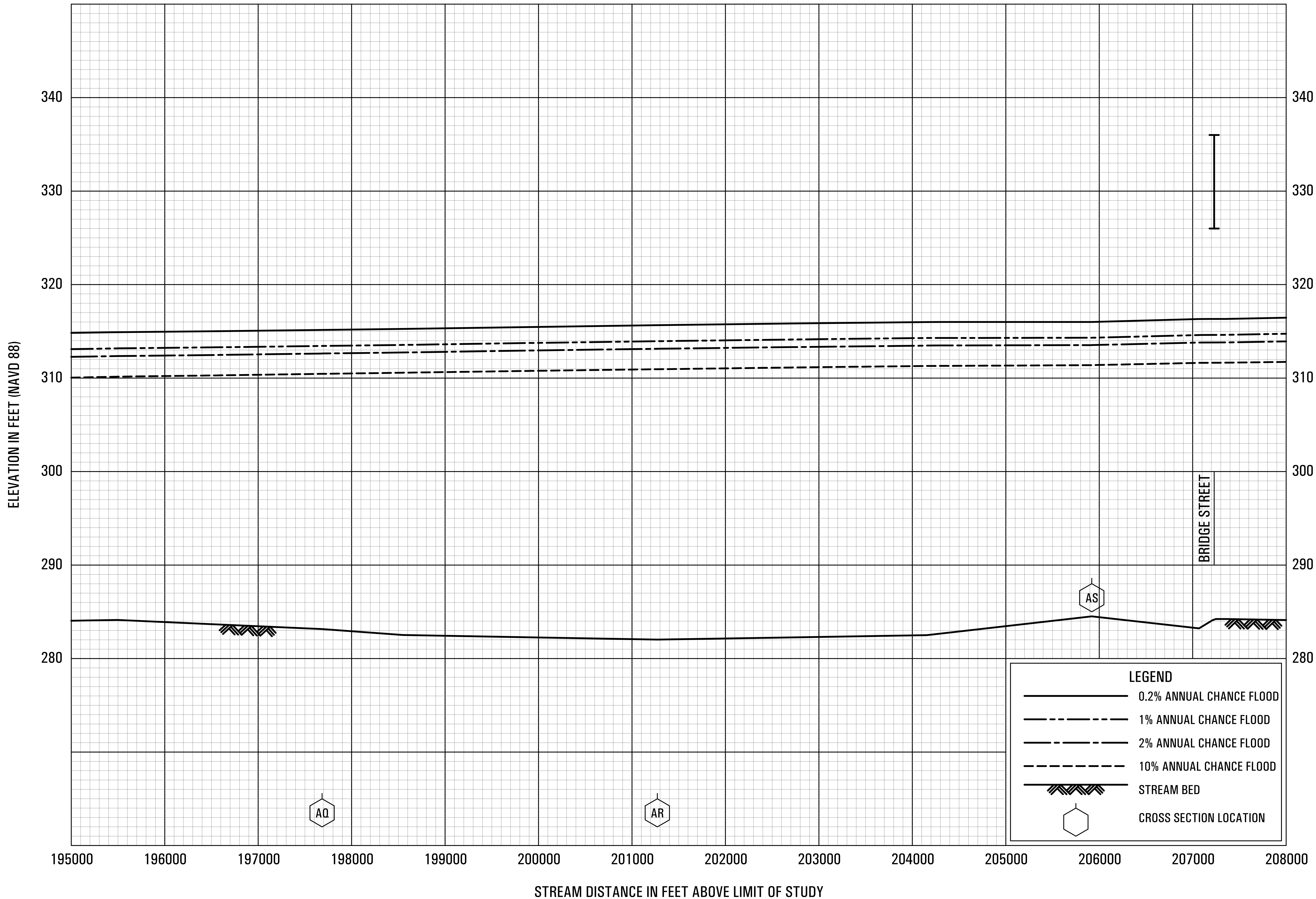
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

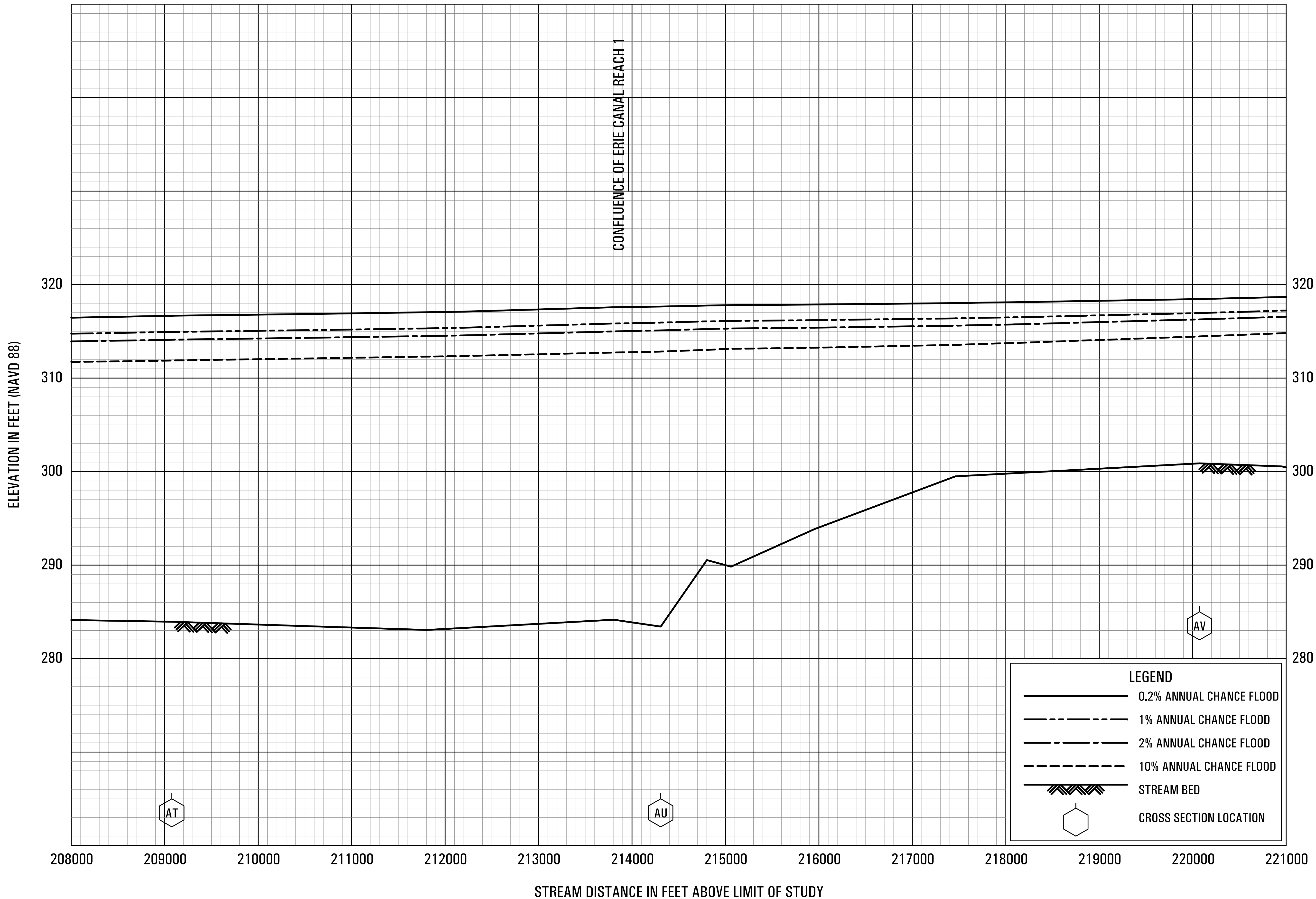
MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

37P



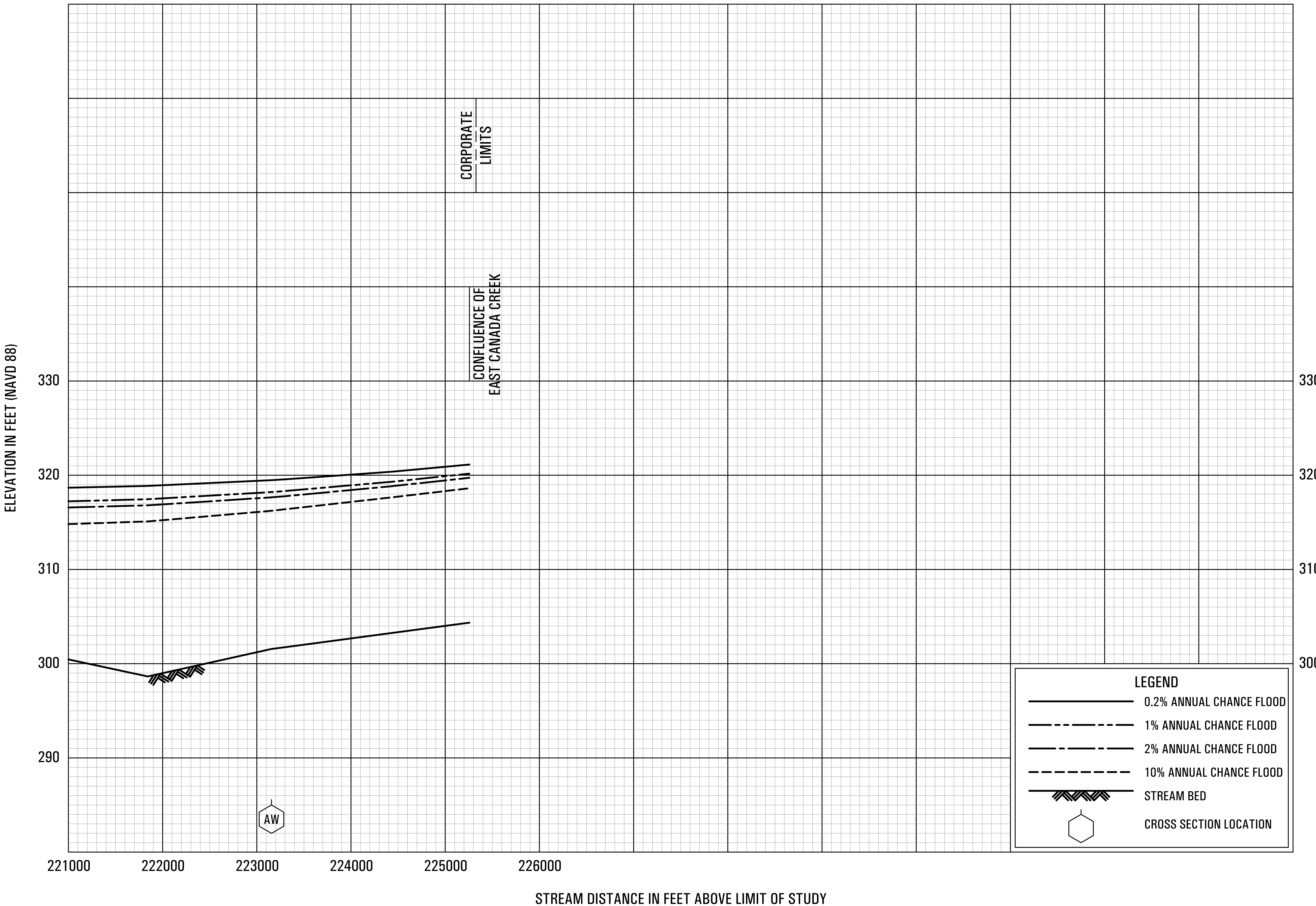
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



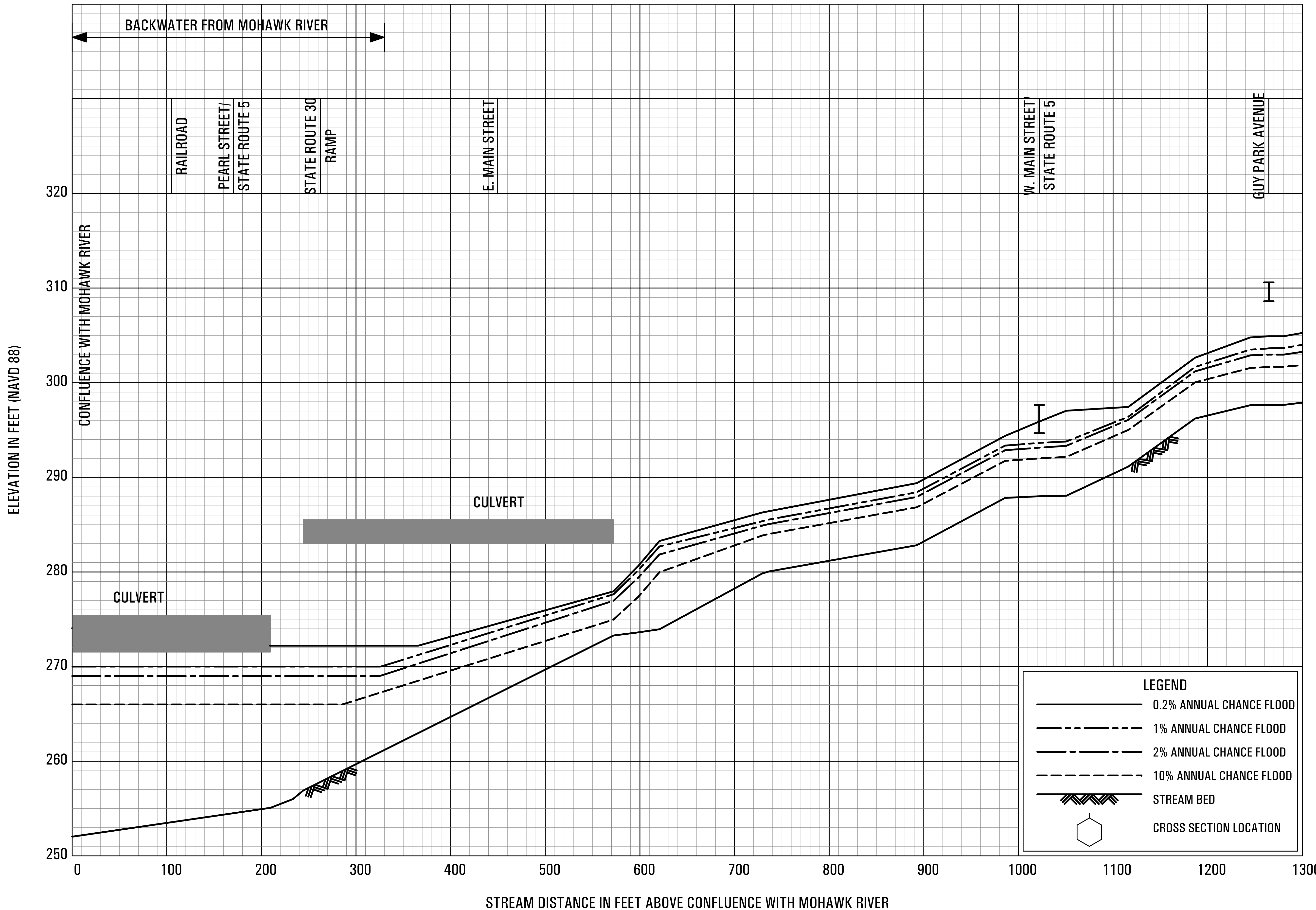
FLOOD PROFILES

MOHAWK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



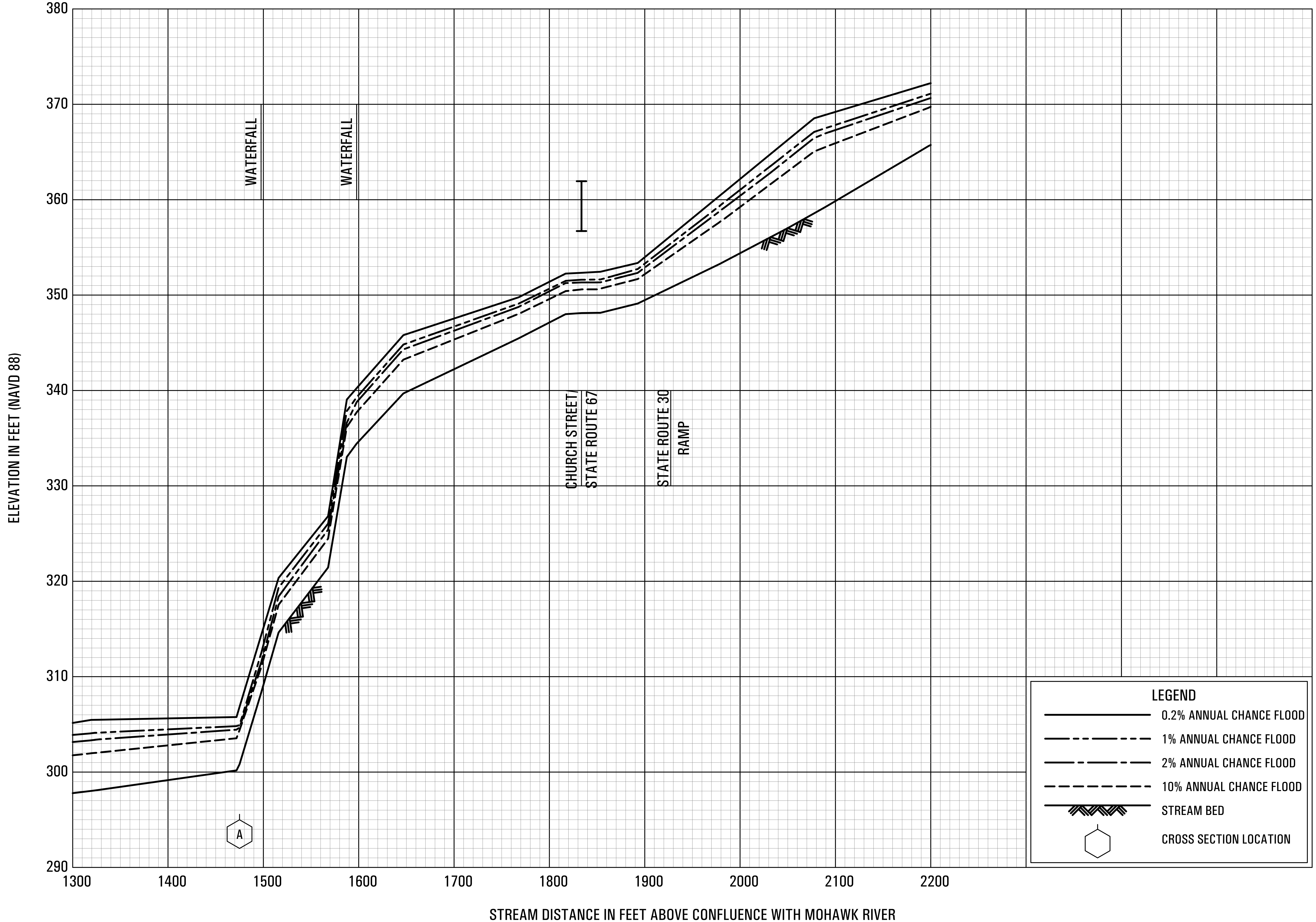
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

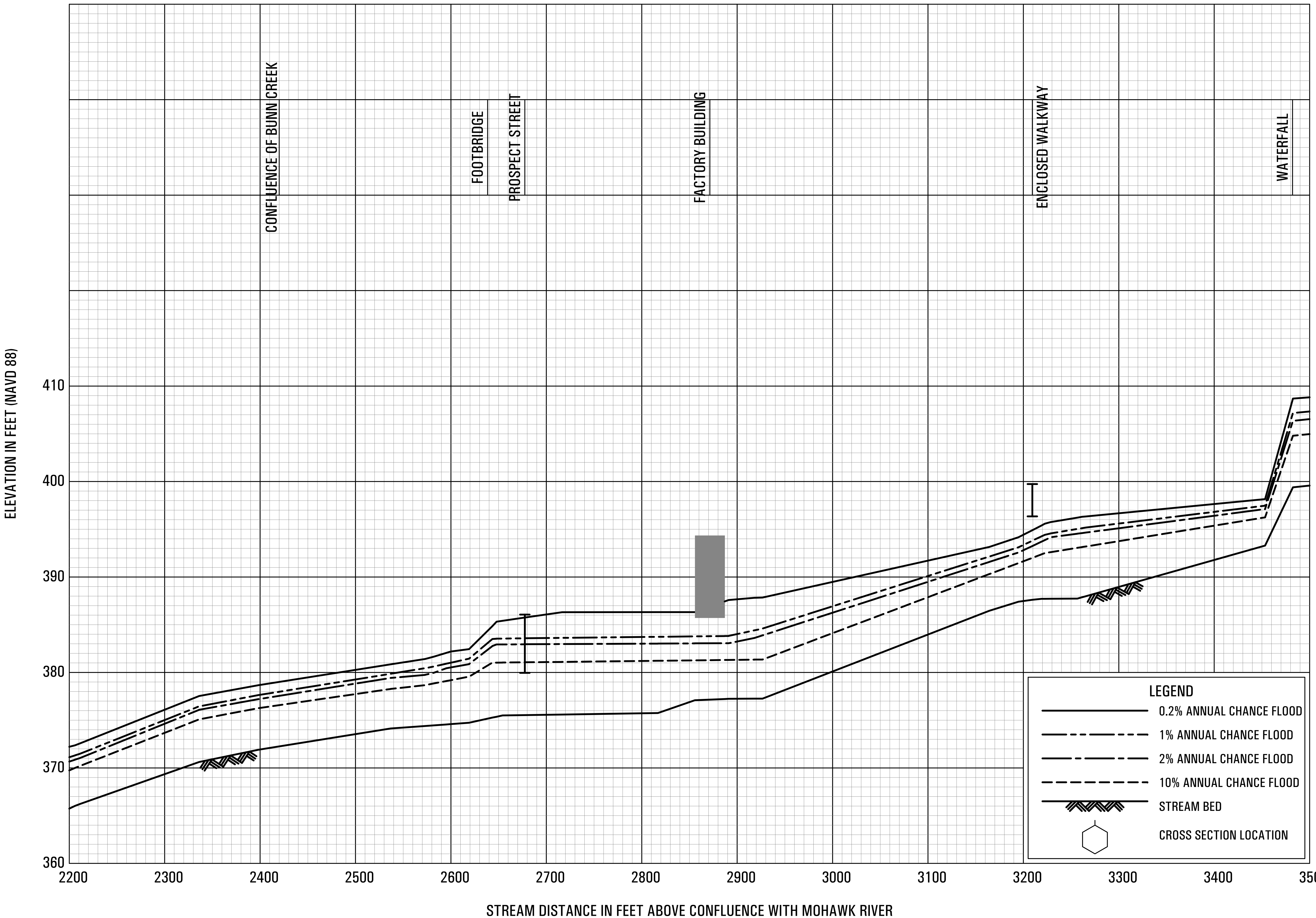
NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

41P



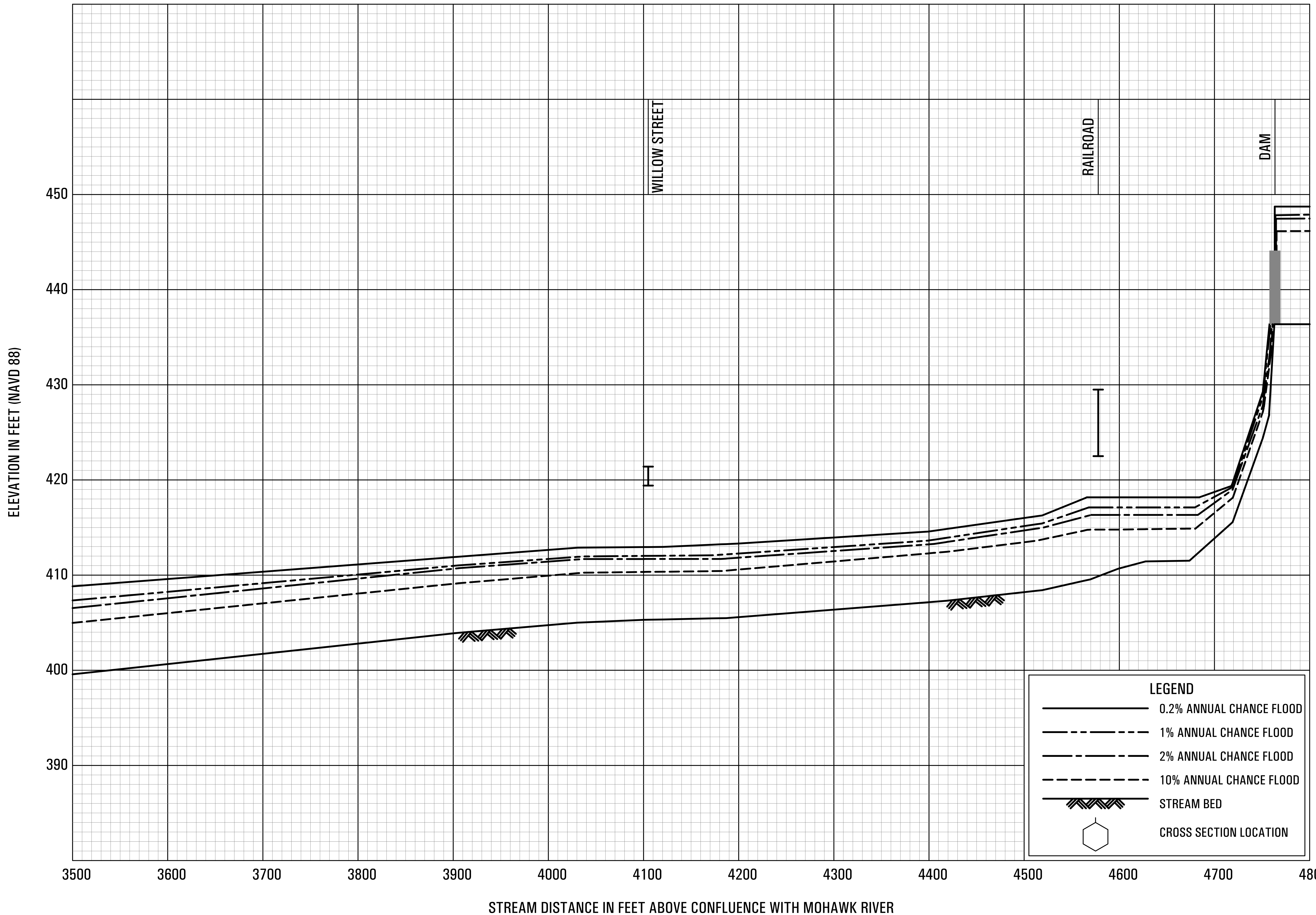
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



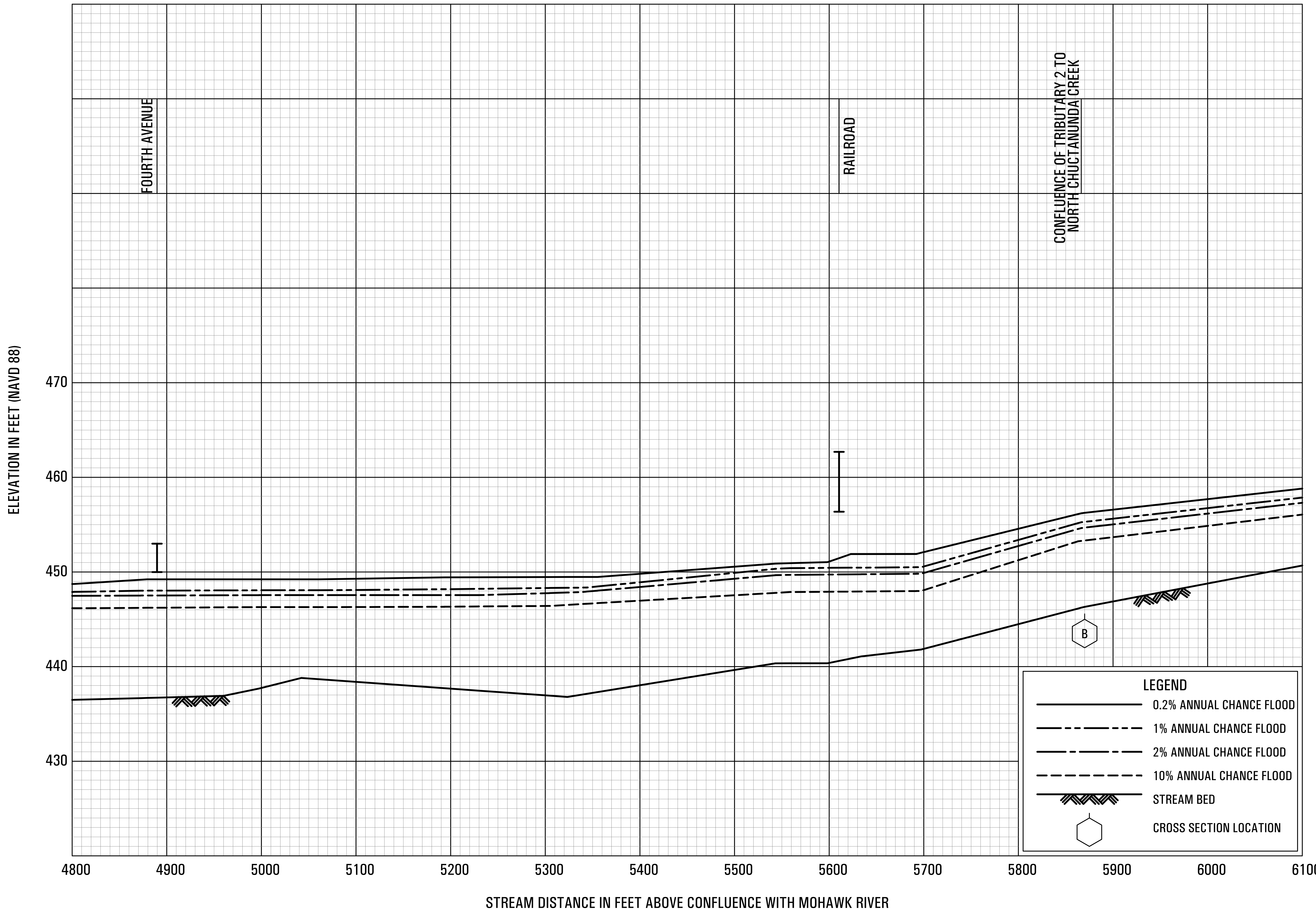
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



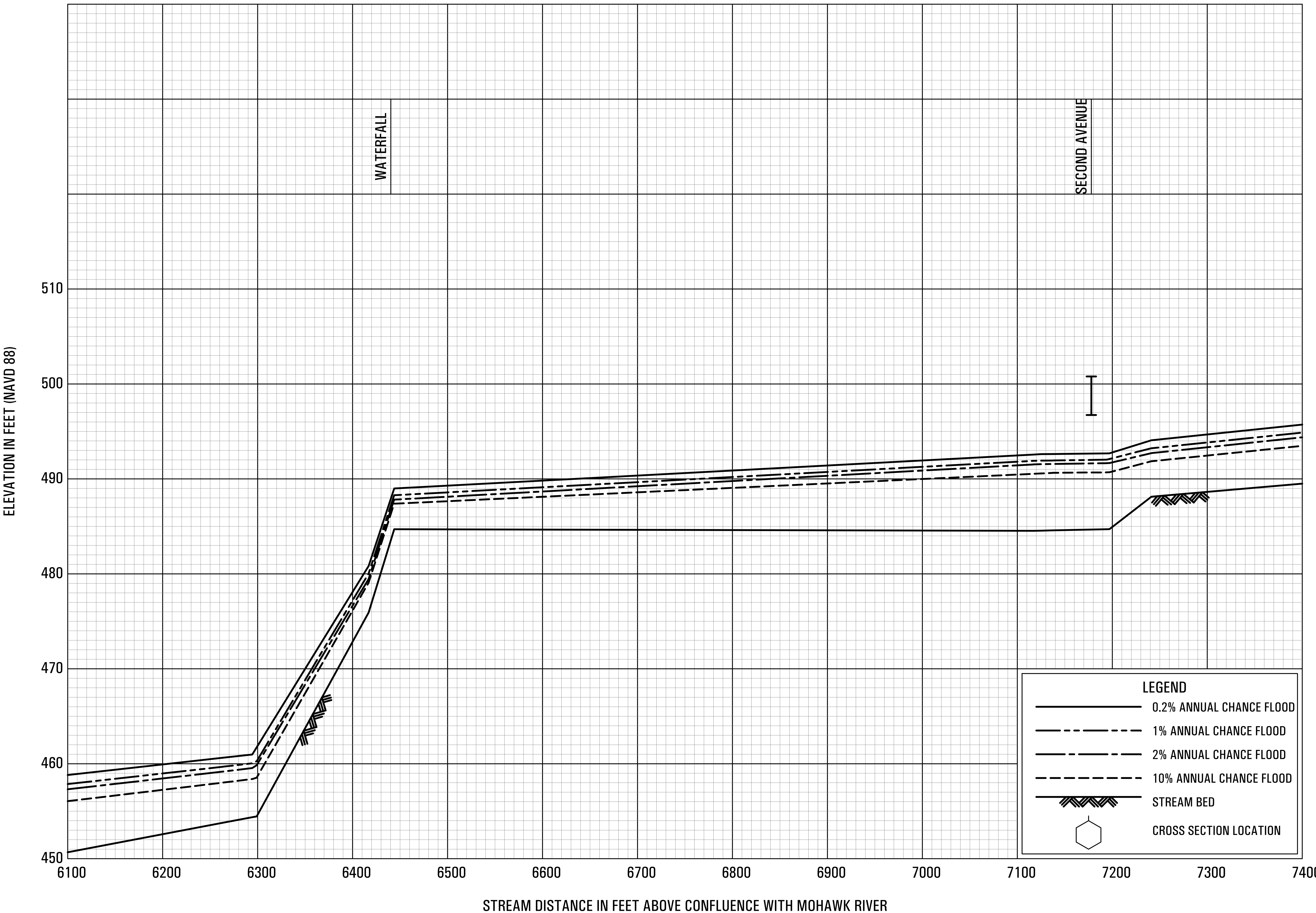
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



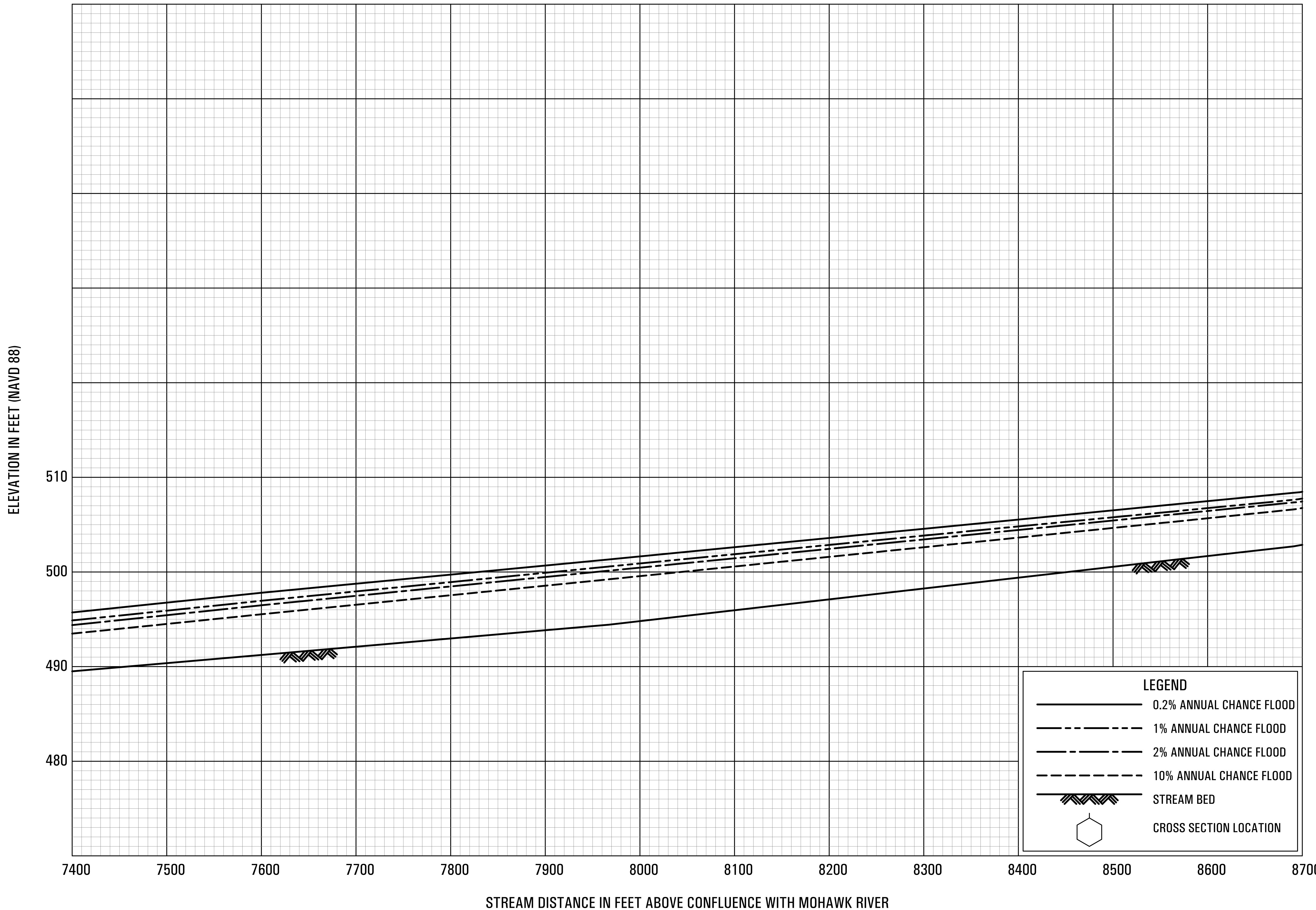
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



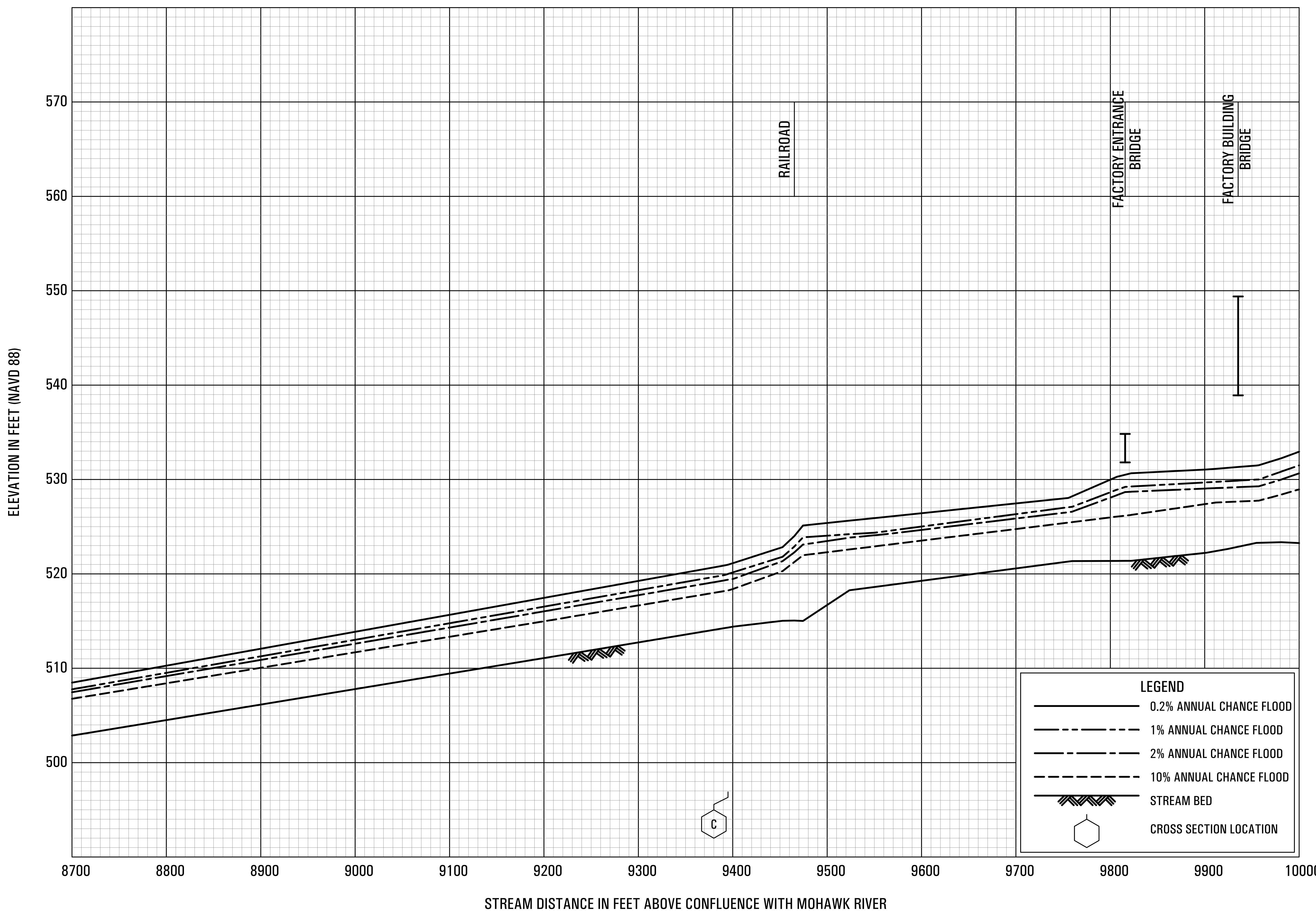
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



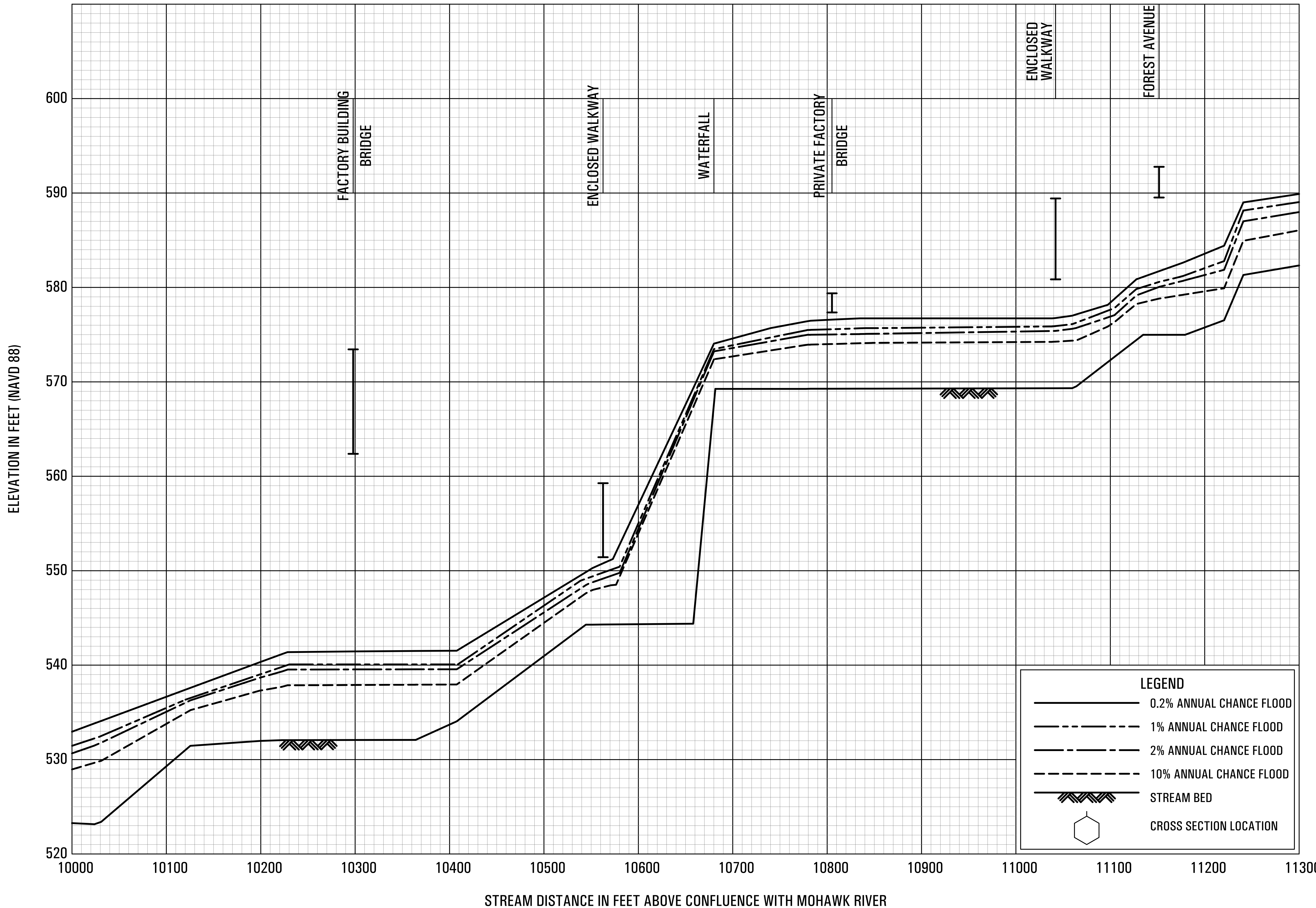
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

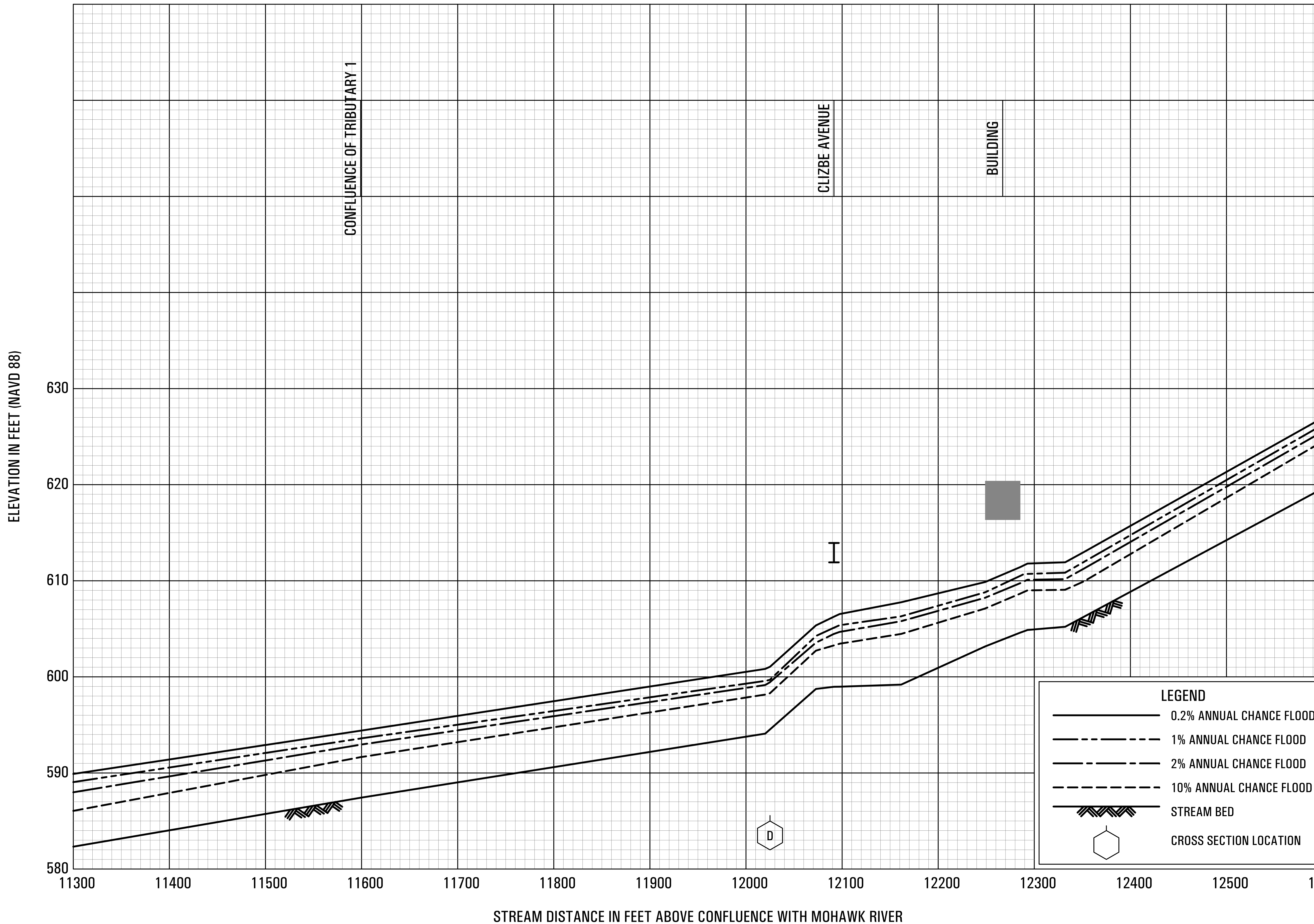
NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

48P



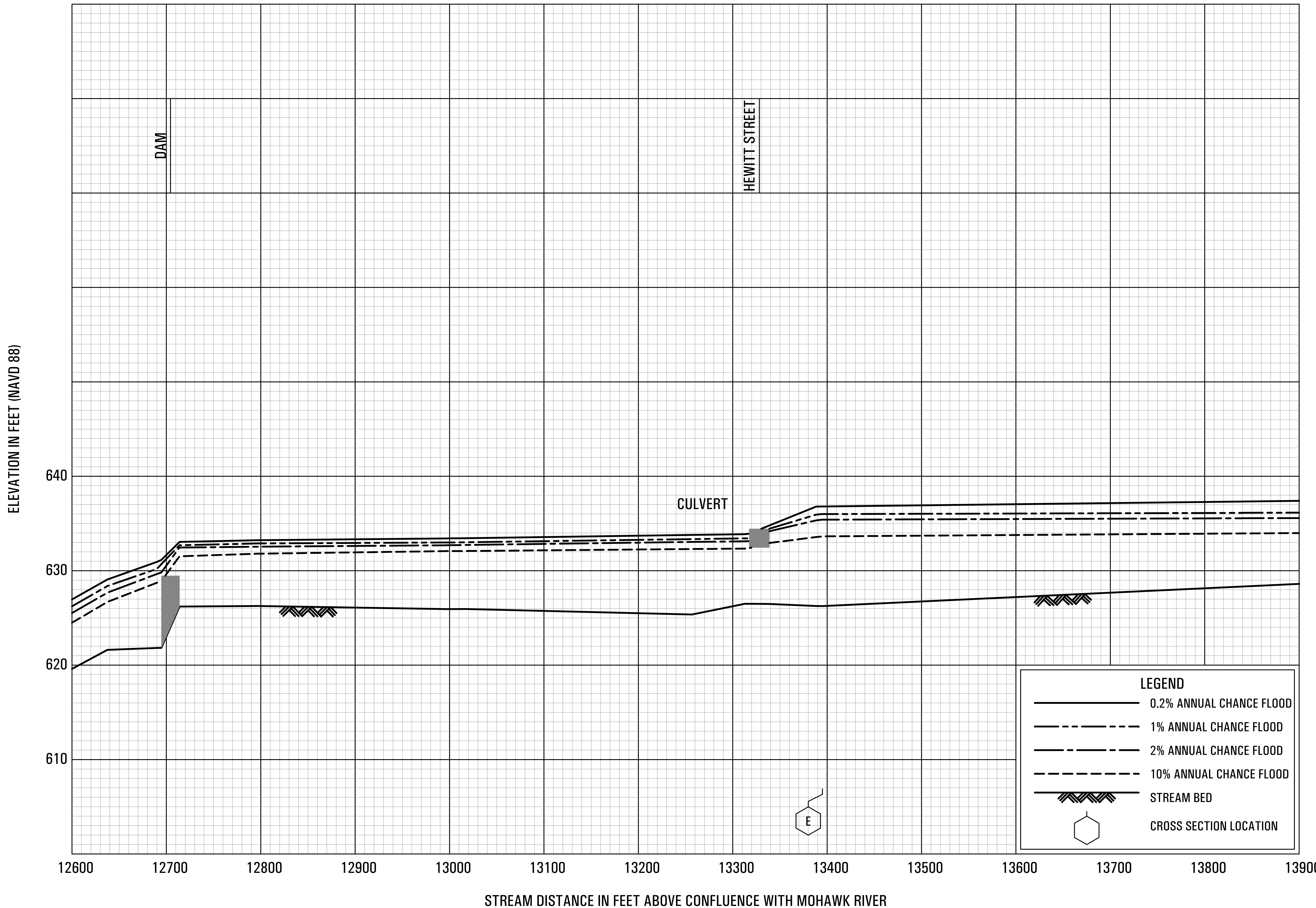
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

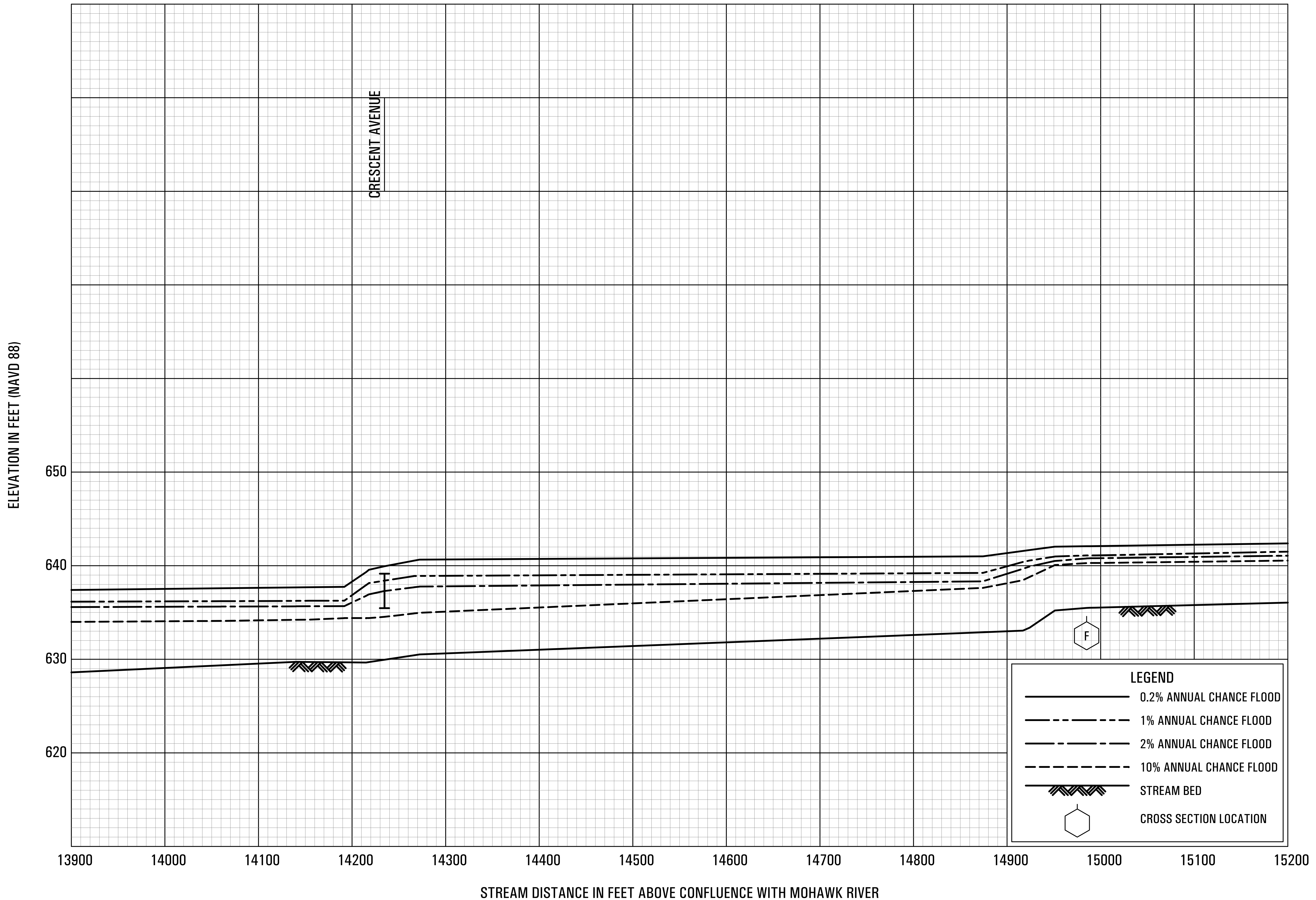
NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

50P



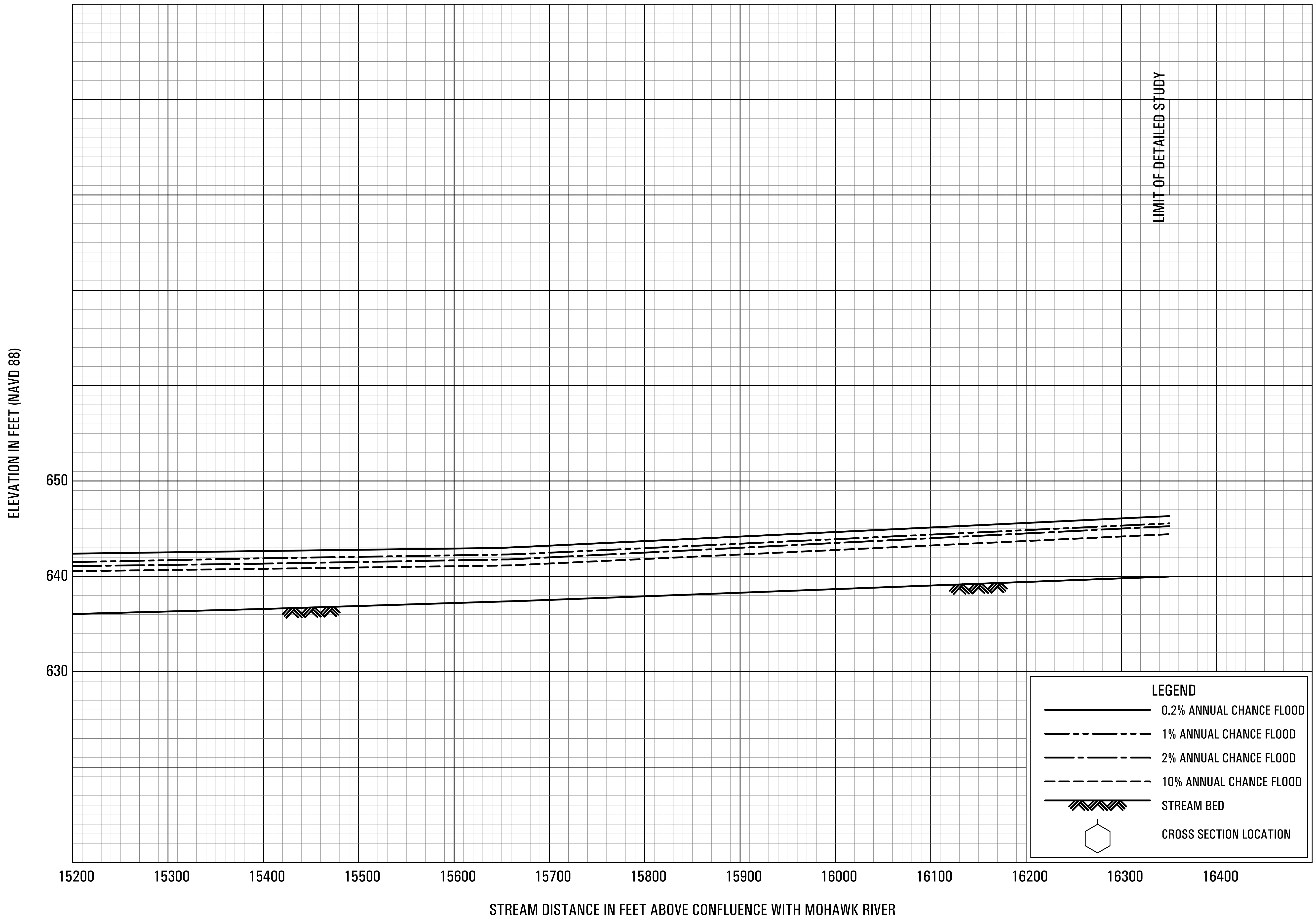
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



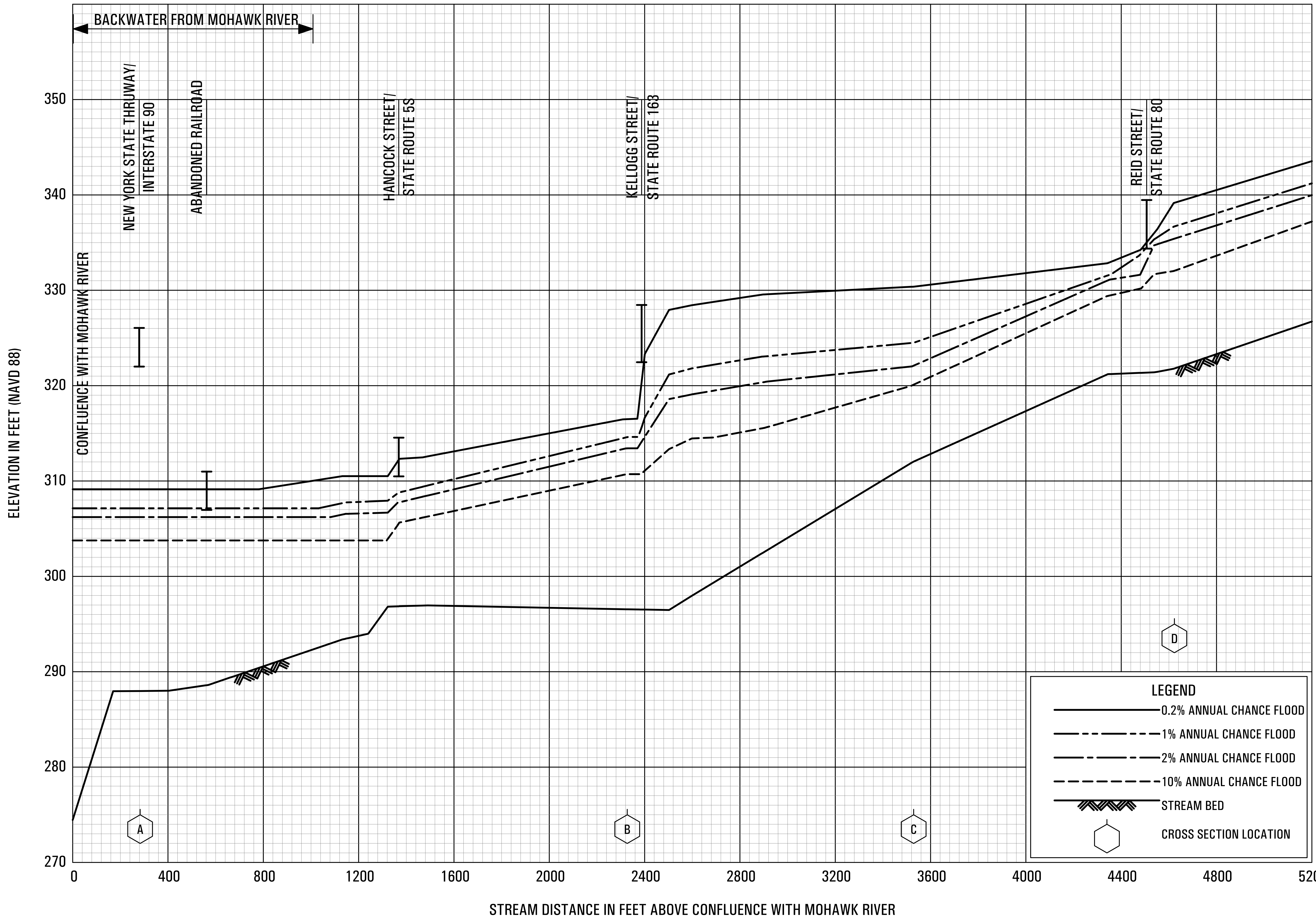
FLOOD PROFILES

NORTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



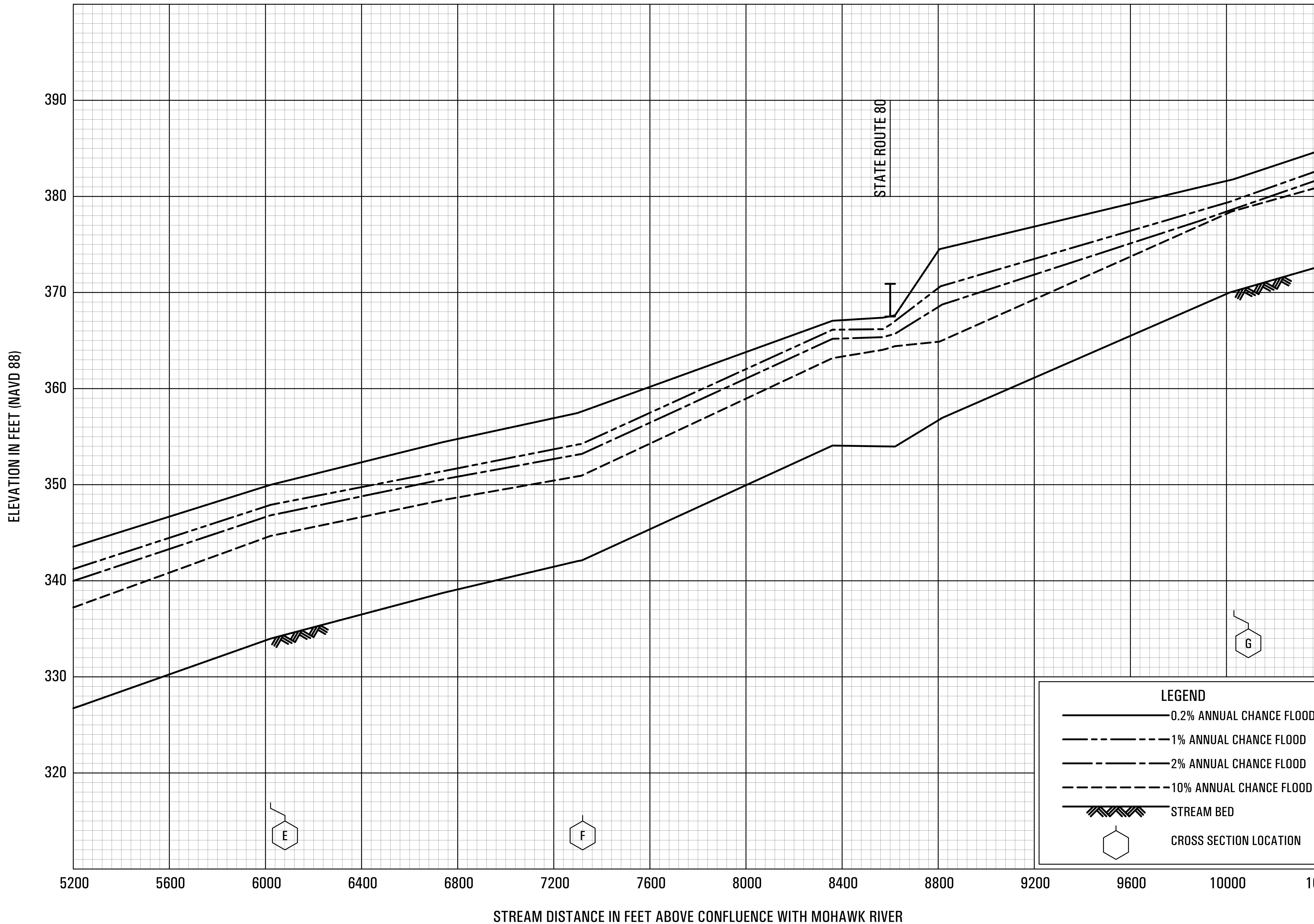
FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

FLOOD PROFILES

OTSQUAGO CREEK



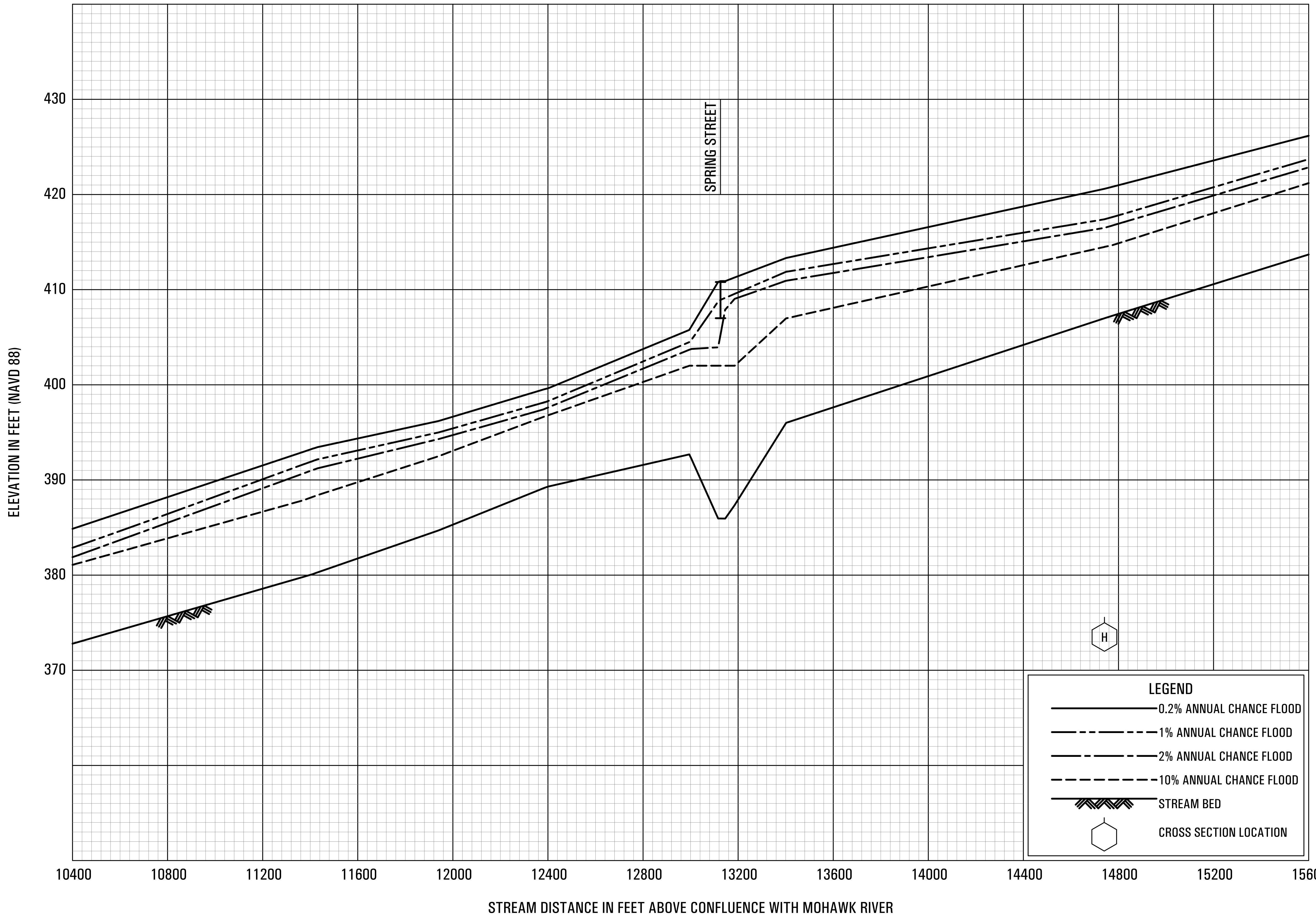
FLOOD PROFILES

OTSQUAGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

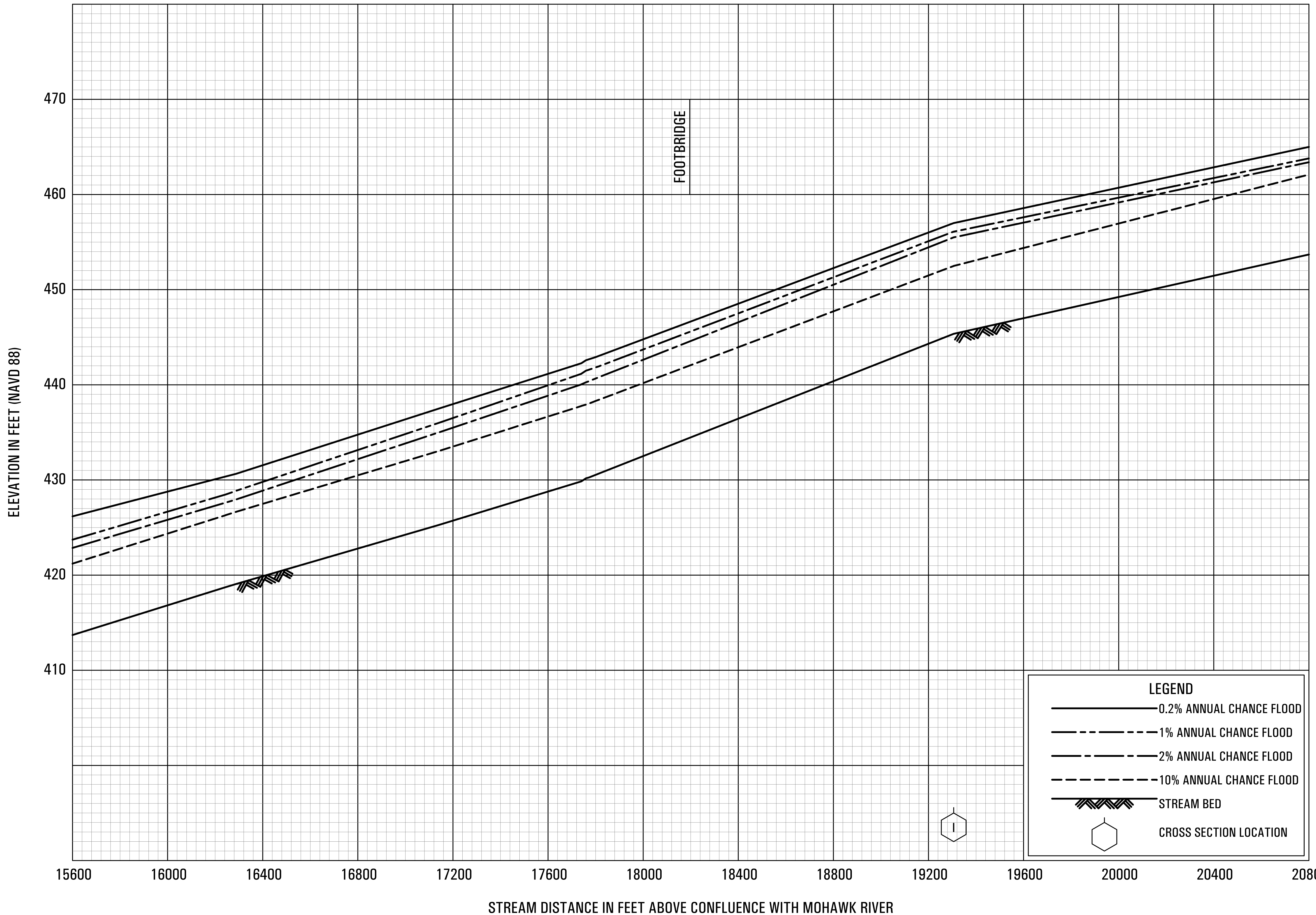
OTSQUAGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)

55P



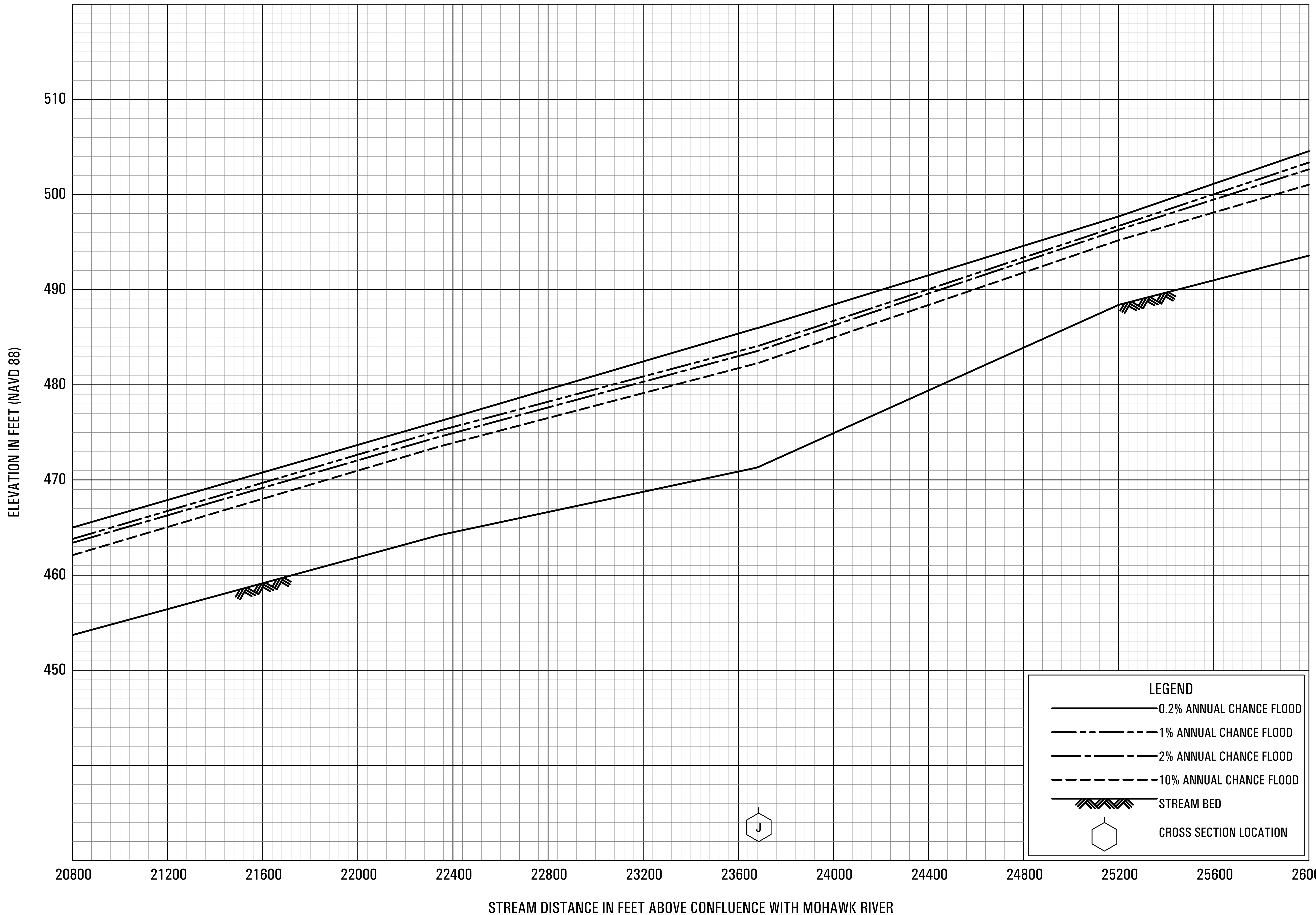
FLOOD PROFILES

OTSQUAGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



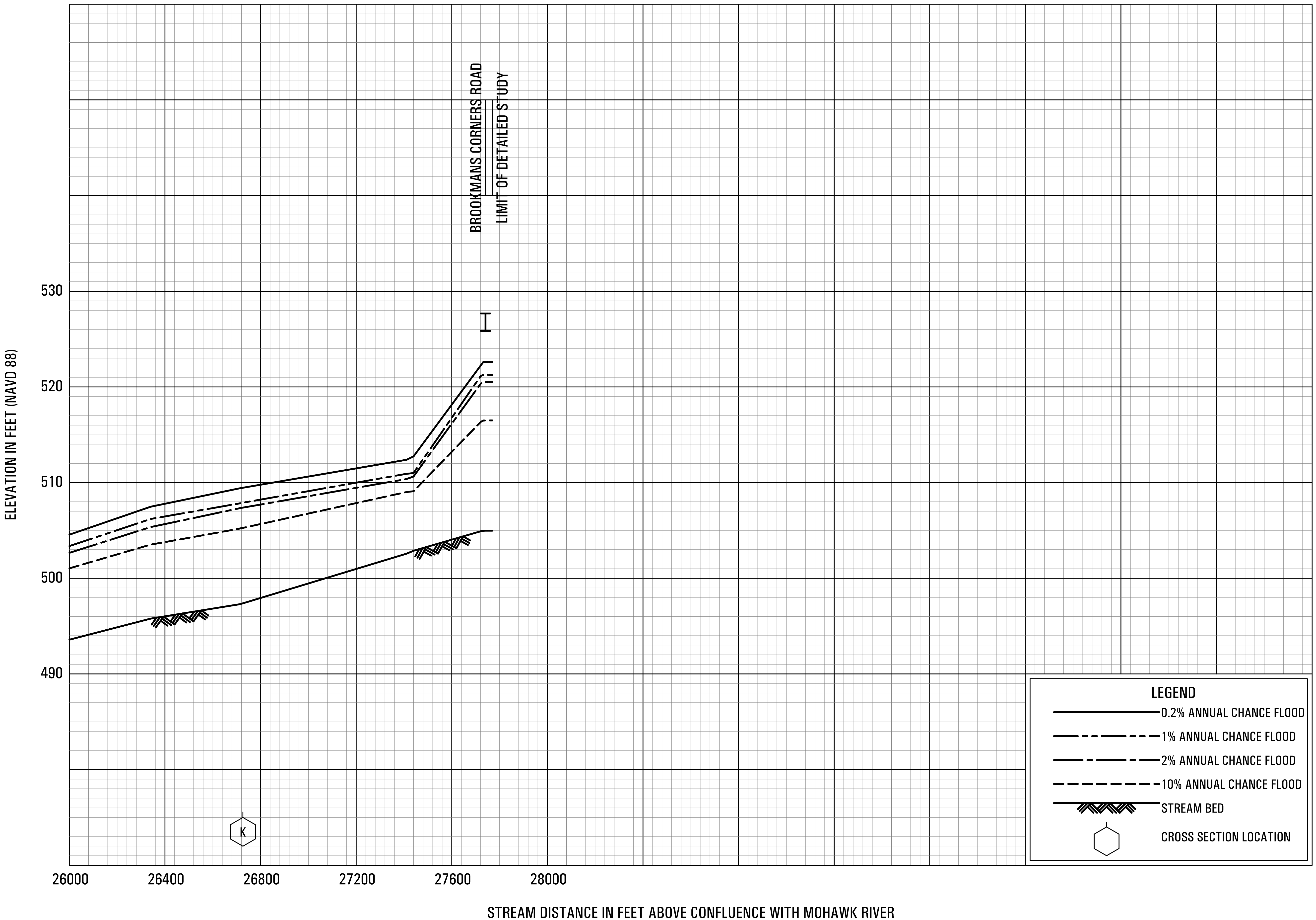
FLOOD PROFILES

OTSQUAGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



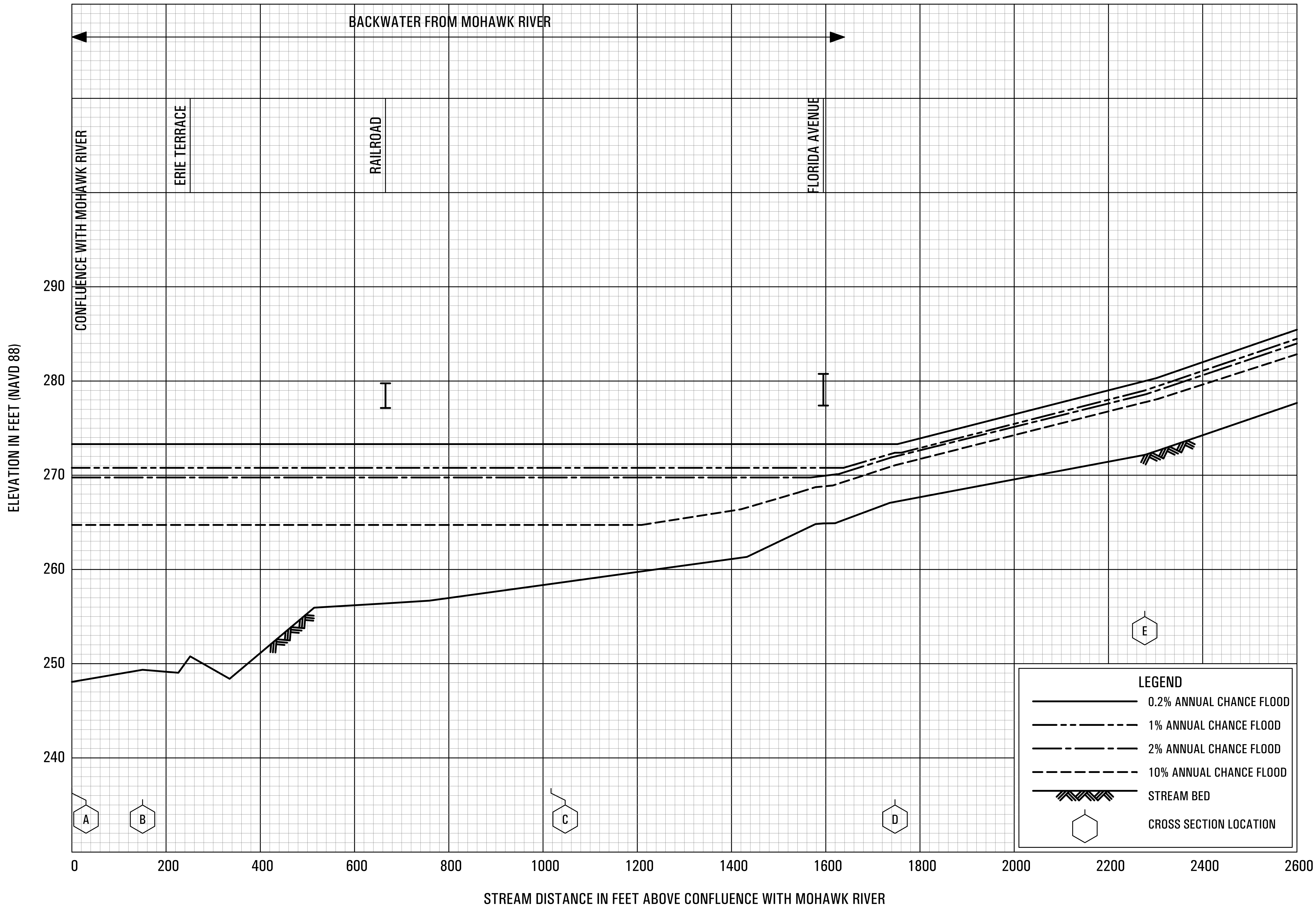
FLOOD PROFILES

OTSQUAGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



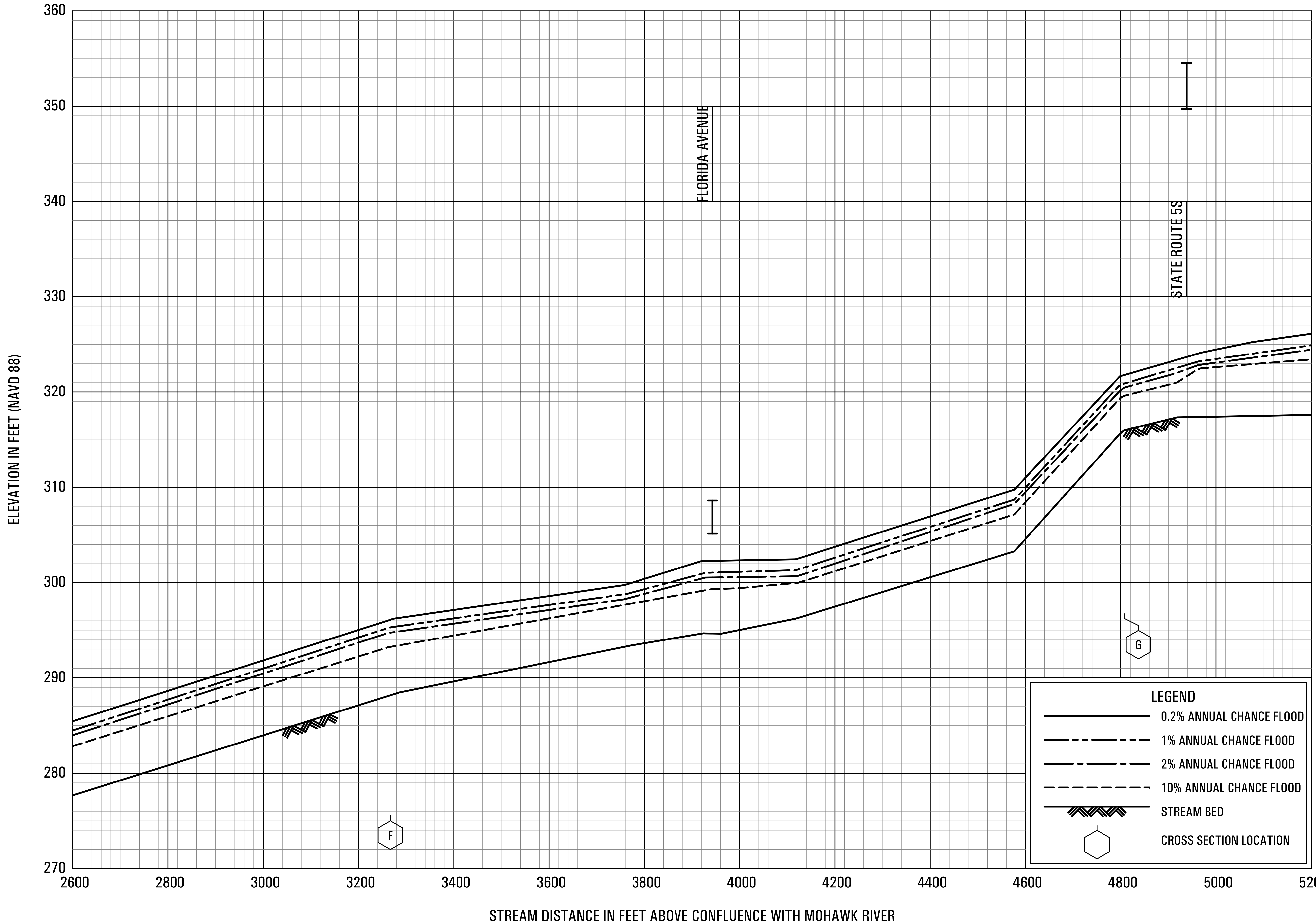
FLOOD PROFILES

SOUTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



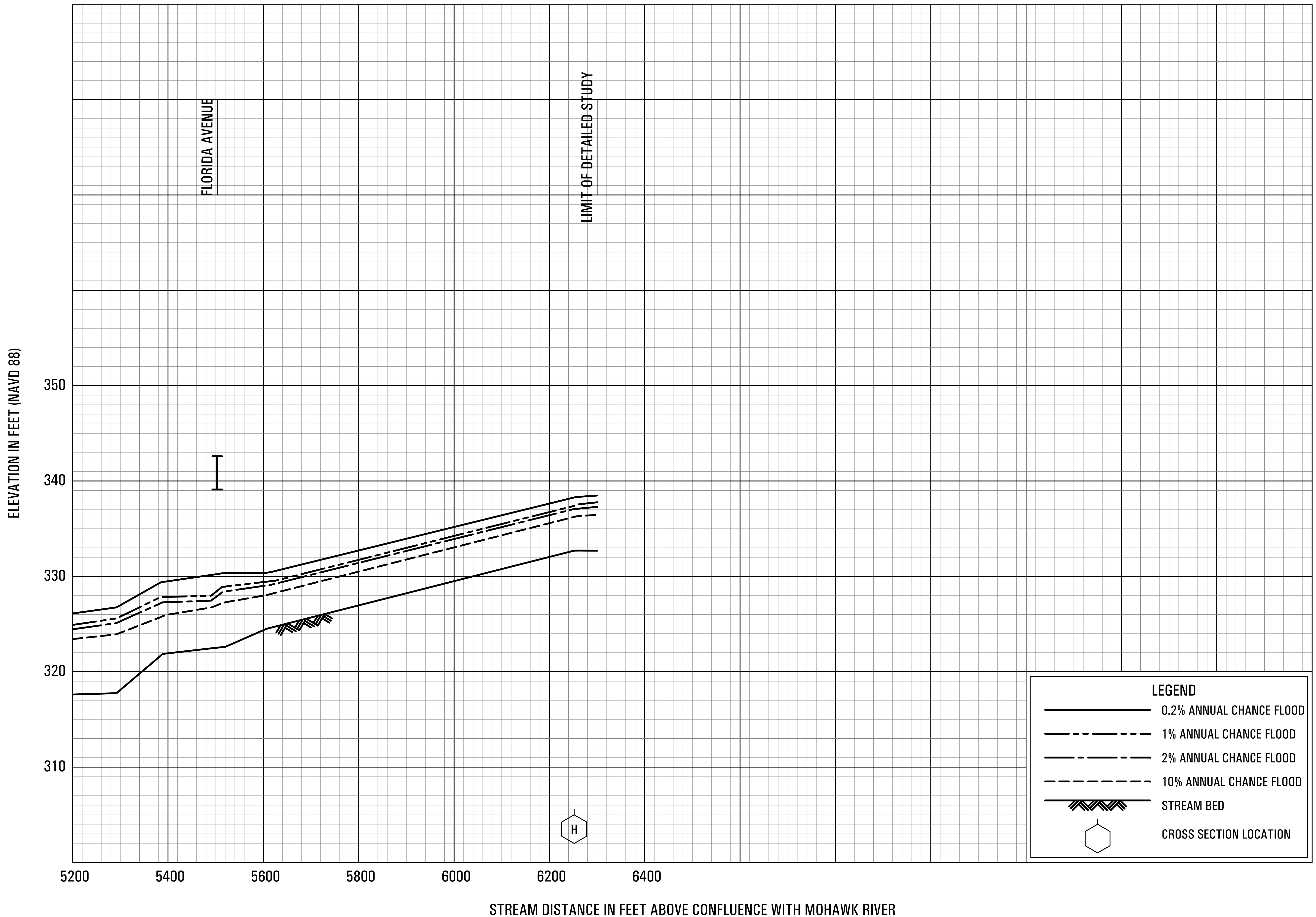
FLOOD PROFILES

SOUTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)



FLOOD PROFILES

SOUTH CHUCTANUNDA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, NY

(ALL JURISDICTIONS)