FLOOD INSURANCE STUDY

STRAFFORD COUNTY, NEW HAMPSHIRE
(ALL JURISDICTIONS)

COMMUNITY NAME	COMMUNITY NUMBER
BARRINGTON, TOWN OF	330178
DOVER, CITY OF	330145
DURHAM, TOWN OF	330146
FARMINGTON, TOWN OF	330147
LEE, TOWN OF	330148
MADBURY, TOWN OF	330219
MIDDLETON, TOWN OF	330222
MILTON, TOWN OF	330149
NEW DURHAM, TOWN OF	330227
ROCHESTER, CITY OF	330150
ROLLINSFORD, TOWN OF	330190
SOMERSWORTH, CITY OF	330151
STRAFFORD, TOWN OF	330196

PRELIMINARY
April 9, 2014

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
33017CV000B

NOTICE TO
FLOOD INSURANCE STUDY USERS

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

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

Initial Countywide FIS Effective Date: May 17, 2005 Revised

Countywide FIS Effective Date: __________

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FLOOD INSURANCE STUDY
STRAFFORD COUNTY, NEW HAMPSHIRE
(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), Flood Hazard Boundary Maps (FHBMs), and Flood Boundary and Floodway Maps (FBFMs) for, the geographic area of Strafford County, New Hampshire, including: the Cities of Dover, Rochester, and Somersworth; and the Towns of Barrington, Durham, Farmington, Lee, Madbury, Middleton, Milton, New Durham, Rollinsford, and Strafford (hereinafter referred to collectively as Strafford 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 Strafford 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.

This FIS report presents the contents of original community-based FIS reports as well as two updates. The first update was completed in 2005, when the community reports were combined into a countywide report and the Flood Insurance Rate Maps were presented in digital format. The second update was completed in 2013, when new riverine analyses were performed in 4 communities in the southeastern portion of Strafford County.

Additional information regarding the 2013 update is included under the heading "2013 Coastal Study Update" located within appropriate sections throughout this report.

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.

The May 17, 2005 FIS (FEMA, 2005) was prepared to include the incorporated communities within Strafford County in a countywide FIS. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

Dover, City of:	the hydrologic and hydraulic analyses for the FIS report dated October 1979 were prepared by the U.S. Soil Conservation Service (SCS) for the Federal Insurance Administration, under Inter-Agency Agreement No. IAA-H-18-75, Project order No. 8. That work was completed in January 1978.
Durham, Town of:	the hydrologic and hydraulic analyses of Lamprey River, Oyster River, Hamel Brook, and Longmarsh Brook for the FIS report dated May 3, 1990, were prepared by the SCS for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-86-E-2225, Project Order No. 01. That work was completed in September 1987. The hydrologic and hydraulic analyses of College Brook, the Lamprey River, the Oyster River, and Pettee Brook for the FIS report dated August 23, 2001, were prepared by the U.S. Geological Survey (USGS) for FEMA, under Inter-Agency Agreement No. EMW-97-IA-0155. That work was completed in April 1998.
Farmington, Town of:	the hydrologic and hydraulic analyses for the FIS report dated May 17, 1988, were prepared by Costello, Lomasney, & deNapoli, Inc., for FEMA, under Contract No. EMW-84-R-1600. That work was completed in November 1985.

Milton, Town of: the hydrologic and hydraulic analyses for the FIS report dated June 3, 1988, were performed by Costello, Lomasney, & deNapoli, Inc., for FEMA, under Contract No. EMW-84-R-160. That work was completed in November 1985.

New Durham, Town of: the hydrologic and hydraulic analyses for the FIS report dated May 2, 1991, were prepared by the SCS for FEMA, under Inter-Agency Agreement No. EMW-88-E-2736, Project Order No. 2. That work was completed in September 1989.

Rochester, City of: the hydrologic and hydraulic analyses for the FIS report dated March 16, 1982, were prepared by Hamilton Engineering Associates, Inc. for FEMA, under Contract No. EMW-C-0334. That work was completed in April 1981.

Somersworth, City of: the hydrologic and hydraulic analyses for the FIS report dated February 16, 1982, were performed by Hamilton Engineering Associates, Inc. for FEMA, under Contract No. EMW-C-0334. That work was completed in April 1981.

Strafford, Town of: the hydrologic and hydraulic analyses of Bow Lake for the FIS report dated May 2, 2002, were prepared by the USGS, New Hampshire/Vermont District, for FEMA, under Inter-Agency Agreement No. EMW-99-IA-0163, Project Order No. 1. That work was completed in June 2000.

The authority and acknowledgments for the Towns of Barrington, Lee, Madbury, Middleton, and Rollinsford were not available prior to the 2005 countywide study because no FIS reports had been published for those communities.

The 2005 countywide FIS was produced by Dewberry & Davis LLC under agreement with FEMA. The work was effective in May of 2005. The contract required the digital conversion of existing effective FIRMs and Flood Hazard Boundary Maps, and the preparation of a FIS and Digital FIRM (DFIRM) for Strafford County (All Jurisdictions). No new hydrologic or hydraulic analyses were prepared.

Base map information shown on FIRM panels produced for the 2005 study was derived from USGS Digital Orthophoto Quadrangles (DOQs) produced at a scale of 1:12,000 from photography dated 1998 or later.

The digital FIRM was produced using New Hampshire State Plane Coordinate system, FIPS Zone 2800 Feet, referenced to the North American Datum of 1983 (NAD 83), GRS80 spheroid.

2013 Coastal Study Update

The 2013 coastal study update was prepared by the University of New Hampshire (UNH) for FEMA under Agreement No. EMB-2010-CA-0916 and completed in September of 2013. The study consisted of revisions to the analyses in 4 contiguous communities located in southeastern Strafford County, including the City of Dover and the Towns of Durham, Madbury, and Rollinsford.

The 2013 FIS includes revisions to detailed studies in the incorporated community of Durham, NH within Strafford County. Information on the authority and acknowledgements for this jurisdiction is shown below.

Durham, Town of:	the hydrologic and hydraulic analyses for the FIS report dated _______, were prepared by the U.S. Geological Survey, New England Water Science Center, for FEMA. That work was completed in November, 2012.

In addition, the 2013 FIS includes revisions to all Zone A study streams in the 4 contiguous communities. The revisions were based on new estimates for the 1% flood discharges and delineating the 1% flood limits on better topography than available at the time of the previous studies. The work was completed in June 2013.

Base map information shown on FIRM panels produced for the 2013 revision was derived from 1-foot resolution orthophotography acquired in April-May, 2010. The project used in the preparation of the digital FIRM was New Hampshire State Plane Feet, FIPS Zone 2800, referenced to the North American Datum of 1983 (NAD83), GRS80 spheroid.

1.3 Coordination

During the early years of the National Flood Insurance Program, Consultation Coordination Officer's (CCO) meetings were held for each jurisdiction in this countywide FIS. An initial CCO meeting was held typically with representatives of FEMA, the community, and the study contractor to explain the nature and purpose of an FIS, and to identify the streams to be studied by detailed methods. A final CCO meeting was held typically with representatives of FEMA, the community, and the study contractor to review the results of the study.

Prior to the countywide FIS, the dates of the historical initial and final CCO meetings held for all jurisdictions within Strafford County are shown in Table 1, "Initial and Final CCO Meetings."

TABLE 1 – INITIAL AND FINAL CCO MEETINGS

Community Name	Initial CCO Meeting	Final CCO Meeting
Dover, City of	May 1978	October 11, 1978
Durham, Town of	July 15, 1997	September 27, 1999
Farmington, Town of	April 12, 1984	November 20, 1986
Milton, Town of	April 12, 1984	August 21, 1986
New Durham, Town of	September 2, 1987	June 11, 1990
Rochester, City of	June 1979	September 24, 1981
Somersworth, City of	June 1979	August 19, 1981
Strafford, Town of	August 25, 1999	June 25, 2001

For the 2005 countywide study, letters were sent to all communities within Strafford County notifying them of the scope of the FIS. The letters stated that the effective FIRMs and Flood Hazard Boundary Maps (FHBMs) of these communities would be digitally converted to a format that conforms to FEMA's Digital FIRM (DFIRM) specifications. The letters further stated that no new hydrologic and hydraulic analyses were prepared. The results of the 2005 countywide study were reviewed at the final CCO meetings held on November 12, 2003, and attended by representatives of the communities, FEMA, Dewberry and Davis LLC, the University of New Hampshire, and the NH Office of State Planning.

For the 2013 coastal study revising the maps for 4 communities within Strafford County, invitations to attend a Risk MAP Discovery Meeting were sent to the 4 communities on August 31, 2011. The invitations included a request to submit pertinent information on local flood risks and hazards to UNH. The meetings were held on September 22, 2011, and were attended by representatives of the communities, the University of New Hampshire, the FEMA Regional Service Center (RSC), FEMA, AECOM, the NH Office of State Planning, and the New Hampshire-Vermont Water Science Center of the U.S. Geological Survey. Prior to the release of the preliminary maps, communities were invited to attend one of a daylong series of Workmap review sessions held on August 1, 2013, and attended by representatives of the communities, the University of New Hampshire, FEMA, AECOM, the NH Office of Energy and Planning (formerly known as the NH Office of State Planning), and the New Hampshire-Vermont Water Science Center of the U.S. Geological Survey. The final CCO meetings were held on ______, and attended by representatives of the communities, the ________. All problems raised at that meeting were addressed in this study.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Strafford County, New Hampshire.

May 17, 2005 Countywide FIS

All or portions of the flooding sources listed in Table 2, "Flooding Sources Studied by Detailed Methods," were studied by detailed methods.

TABLE 2 - FLOODING SOURCES STUDIED BY DETAILED METHODS

Bellamy River	Dames Brook	Little Bay
Bow Lake	Ela River	Mad River
Branch River	Hamel Brook	Miller Brook
Club Pond	Longmarsh Brook	Oyster River
Cocheco River	Kicking Horse Brook	Pettee Brook
College Brook	Lamprey River	Salmon Falls River

The 2005 countywide FIS also incorporated the determinations of letters issued by FEMA resulting in map changes (Letter of Map Revision [LOMR], Letter of Map Revision- based on Fill [LOMR-F], and Letter of Map Amendment [LOMA]), as shown in Table 3, "Letters of Map Change."

TABLE 3 – LETTERS OF MAP CHANGE

Community Name	Flooding Source(s)/ Project Identifier	Effective Date	Type
Somersworth, City of	Peters Marsh Brook – Stackpole Property	April 4, 2003	LOMR
Somersworth, City of	Peters Marsh Brook – Central Parkway	March 13, 2003	LOMA

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

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

For the 2005 countywide study, the flood hazard information shown on the previous FIRMs, FHBMs, and FBFMs for the aforementioned communities was converted to a digital format. In addition, several areas of approximate flooding were extended in order to match the approximate flooding across community corporate limits within Strafford County. The delineation involved the use of topographic maps at a scale of 1:24,000 and contour intervals of 10 and 20 feet (U.S. Department of the Interior, 1958 et cetera).

2013 Coastal Study Update

The 2013 study consisted of revisions to the riverine analyses in 4 contiguous communities located in southeastern Strafford County. These communities include: Dover, Durham, Madbury, and Rollinsford. The work performed in these communities consisted of revisions as follows:

- Revised Zone AE studies on the Oyster and Lamprey Rivers
- Revisions due to updated topographic data on the tidal portion of the Salmon Falls River, Bellamy River, Cocheco River, College Brook, Oyster River, Hamel Brook/Longmarsh Brook, Pettee Brook, and Woodman Brook
- Zone A basic studies replaced all existing Zone A streams.

The updated topographic data used for the 2013 study was based on LiDAR collected at a 2.0 meter nominal post spacing (2.0m GSD) for approximately 8,200 mi^2 of coastal areas including parts of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, and New York, as part of the American Recovery and Reinvestment Act (ARRA) of 2009. The data was collected by Photo Science Inc. in May of 2011. No snow was on the ground and rivers were at or below normal levels. Some areas of the project required 1.0 meter nominal post spacing (1.0m GSD), and a required 9.25cm Vertical Accuracy. The study area was covered by 1.0 meter post spacing LiDAR data and a portion of the contributing drainage area was covered by the 2.0 meter post spacing LiDAR data. A seamless Digital Elevation Model (DEM) at a 10 ft resolution was created combining the above datasets to create a base elevation for the coastal analyses.

No Letters of Map Revision (LOMRs) were incorporated in the 2013 coastal update.

2.2 Community Description

Strafford County is located in southeastern New Hampshire. In Strafford County, there are 13 communities. The Towns of New Durham, Middleton, and Milton are located in the northern section of the county. The Towns of Farmington, Strafford, Barrington, and the City of Rochester lie in the central part of the county. The Towns of Rollinsford, Madbury, Lee, Durham, and the Cities of Somersworth and Dover comprise the southeastern portion of the county.

Strafford County is bordered to the north by the communities of Carroll County: the Towns of Wolfeboro, Brookfield, and Wakefield. To the east, the county is bordered by the communities of York County, Maine: the Towns of Acton, Lebanon, Berwick, South Berwick, and Eliot. The county is bordered to the south and southwest by communities of Rockingham County: the Towns of Newington, Newmarket, Epping, Nottingham, and Northwood. Strafford County is bordered to the east by the Town of Pittsfield, in Merrimack County, and to the northwest by the Towns of Barnstead and Alton, in Belknap County.

According to the U.S. Census Bureau, the population of Strafford County was 123,143 in 2010.

The topography of the county varies from flat coastal plains and rounded rolling hills in the southeast, to rugged, forested mountains in the northwest.

The climate of Strafford County is characterized by mean annual summer and winter temperatures of 70 degrees Fahrenheit (°F) and 24°F, respectively. The mean annual precipitation is between 40 and 45 inches, which is distributed evenly throughout the year. The average annual snowfall is approximately 55 inches.

The main flooding sources in Strafford County are the Salmon Falls River, which flows south and forms the eastern boundary of the county, and the Cocheco River which extends from the southwest to the north-central part of the county. Both rivers drain into the Piscataqua River, a tidal river which enters the Atlantic Ocean at Portsmouth Harbor.

2.3 Principal Flood Problems

Flooding in Strafford County historically has occurred in every season. Floods occurring during the mid-summer and late summer are often associated with tropical storms moving up the Atlantic coastline. The more severe flooding occurs in early spring as a result of snowmelt and heavy rains. Major floods of this type occurred in 1986, 1927, 1936, and 1954. The March 1986 flood on the Cocheco River was in excess of a 1-percent chance event. The flood of March 1936 caused damage to structures in the floodplains of the Cocheco River and the Salmon Falls River. The March 1936 flood on the Salmon Falls River had approximately a 50-year recurrence interval. The March 1977 flood on the Bellamy River was approximately a 7-percent chance event. Other more recent noteworthy storms causing flooding in the area have included May 2006, April 2007, and March 2010.

On the Lamprey River, several large floods have occurred since the USGS gage No. 01073500 was installed at Packers Falls. The two most severe floods were in March 1936 and April 1987. The respective discharges associated with these events were 5,490 cubic feet per second (cfs) and 7,500 cfs. The estimated return periods for floods of these magnitudes are 25 years and in excess of 100 years, respectively. In the Town of Durham, these floodwaters caused damage to roads, bridges, and dams, especially in the area of State Route 108, and in the area of Longmarsh Road. (USGS, 1934-1985).

Low-lying areas adjacent to the Ela River, Great Bay and tidal portions of the Oyster River are subject to periodic flooding. However, little significant damage occurs in these areas due to the general absence of buildings and other structures.

Ice and debris jams occurring at culverts, bridges, and other debris-catching structures, especially along the Cocheco River, have helped to compound flooding in the county.

2.4 Flood Protection Measures

In the Town of Farmington, channel modifications and dike construction were completed in 1955 and 1958 and included modifications of the Cocheco River, the Mad River, and Dames Brook. In 1955, the improvement consisted of straightening and enlarging 600 feet of the Mad River channel and 3,100 feet of the channel of the Cocheco River from the Central Street bridge to the South Main Street bridge. Construction of 3,000 feet of dike along the left bank of the Cocheco River between the two bridges was also completed (U.S. Army Corps of Engineers [USACE], 1955). In 1958, an additional 200 feet of dike was constructed on the left bank just downstream of the South Main Street bridge.

Bow Lake in the Cocheco River watershed and Swains Lake and Bellamy Reservoir in the Bellamy River watershed give a degree of flood protection incidental to their design use. The New Hampshire Water Resources Board operates Bow Lake and Swains Lake for recreational use of the reservoirs. Each fall the pools are drawn down in anticipation of the spring runoff. This procedure not only prevents damage to shoreline property, but also allows for temporary storage of floodwater, thus lowering the frequency of downstream flooding. Bellamy Reservoir, a water supply site for the City of Portsmouth, New Hampshire, has a significant effect on the Bellamy River flood potential within the City of Dover. The flood storage available due to the 362-acre normal pool, coupled with the two-stage weir outlet structure, reduces downstream flows by nearly 50 percent.

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 exceedance) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the county at the time of completion of this FIS. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

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

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

Pre-countywide Analyses

For the Ela River in the Town of New Durham and the Bellamy River and Cocheco River in the City of Dover, discharge-frequency data were developed using an SCS synthetic rainfall-runoff procedure based on regionalized climatological data coupled with individual stream physical characteristics for input into the SCS TR-20 computer program (U.S. Department of Agriculture [USDA], 1983).

In the Town of Durham, discharge-frequency data for Hamel and Longmarsh Brooks (which consist of directed flow from the Lamprey River to the Oyster River) were developed using iterative hydraulic analyses at the watershed divide. The final values resulted when the downstream flow of the Lamprey River plus the diverted flow equaled the upstream inflow to the diversion location. Technical Release No. 20 was used to verify this information (USDA, 1983). No drainage area was computed for the diversion flow due to changing conditions at the watershed divide.

In the Town of Durham, peak discharge computations for the Oyster River and the Lamprey River were based on log-Pearson Type III analyses of gage records at USGS gaging stations No. 01073000 and No. 01073500, respectively (USGS, 1981). Peak discharge computations for the Oyster River at Mill Pond Dam and the Lamprey River at gage No. 01073500 were based on discharge values that were determined in the 1990 Town of Durham FIS.

In the Town of Durham, peak discharge computations for College and Pettee Brooks were based on regional regression equations developed by the USGS from peak-discharge records for floods along selected rivers in urbanized areas (USGS, 1994). The 100-year recurrence interval was then transposed to the drainage areas at different locations along the rivers in Durham using the following drainage area-discharge ratio formula:

$$Q = Q_g \, (A/A_g)^{0.75}$$

Where Q is the discharge at the different specific site locations, Q_g is the drainage at the USGS stream gage, and A and A_g are the drainage areas at the specific site and at the USGS stream gage, respectively.

In the Town of Milton and the Cities of Somersworth and Rochester, flood discharge frequencies for the Salmon Falls River were computed using log-Pearson Type III Statistical Analysis of peak discharges at USGS gage No. 01072100 located on the Salmon Falls River just downstream of the Milton Three Ponds Dam and at USGS gage No. 01072500, in operation from 1930 to 1969, located on the Salmon Falls River near South Lebanon, Maine (U.S. Water Resources Council, 1977). The discharges for the Salmon Falls River in the Town of Milton were compared to the FIS for the City of Rochester and discrepancies were resolved (FEMA, September 16, 1982).

Flood discharges for the Branch River and Miller Brook in the Town of Milton, the Cocheco River in the City of Rochester and the Town of Farmington, and the Mad River, the Ela River, Dames Brook, and Kicking Horse Brook in the Town of Farmington were determined using USGS regional equations which were based on multiple analysis of gaged data in New Hampshire (USGS, 1978).

In the Town of Farmington, flood discharges for the streams studied by approximate methods were also determined using these USGS regional equations (USGS, 1978).

For the Town of Strafford, the inflow 100-year flood discharge value for Bow Lake was determined based upon a drainage area relationship with the Isinglass River, as determined by the USACE in a dam break analysis of the Bow Lake dam (USACE, 1984). For the flood study of Bow Lake, the USACE determined that a value of 1,800 cfs was used as the 100-year discharge, as this is the most conservative value based upon other empirical equations. The outflow peak discharge for Bow Lake was based on flood hydrographs synthesized for the 100-year flood and routed through the reservoir by the USGS using a standard storage routing procedure.

For the Town of Durham, flood levels of significance in the tidal areas of the Oyster River and Little Bay are the result of storm tides on the coast at Portsmouth primarily caused by extratropical northeastern storms and hurricanes. Study data were obtained for peak tidal elevation-frequency relationships for coastal flooding on the Piscataqua River at Portsmouth. The study was based on a statistical analysis of the total tide elevations produced by historical northeasters and hurricanes. The National Ocean Survey (NOS) tide gage on Seavey Island provided a longer database. A statistical technique called regionalization was used in the study to generate synthetic, peak total elevations for years prior to the establishment of the Portsmouth tide gage and for the time periods when data was incomplete in Portsmouth (FEMA, May 1982).

2005 Countywide Analyses

No hydrologic analyses were conducted for the 2005 countywide study.

2013 Coastal Study Update

For the 2013 study, hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by approximate methods in the 4 communities studied. Discharges for the 1-percent-annual-chance recurrence interval for all approximate study streams in these communities were determined using regression equations found in Olson, S.A., 2009, Estimation of flood discharges at selected recurrence intervals for streams in New Hampshire, U.S. Geological Survey Scientific Investigations Report 2008-5206.

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for the flooding sources studied in detail affecting the town of Durham.

Hydrologic analyses for the Oyster River (Durham, NH) was based on a log-Pearson Type III frequency analysis of the stream gage data at the USGS stream gage no. 01073000 at Durham, NH which has 77 years of record (1934 – 2011) and a drainage area of 12.3 square miles.

Hydrologic analyses for the Lamprey River (Durham, NH) was based on a log-Pearson Type III frequency analysis of the stream gage data at the USGS stream gage no. 01073500 at Packers Falls at Durham, NH which has 77 years of record (1934 – 2011) and a drainage area of 185 square miles. Based on a recently completed Lamprey River watershed study at the University of

New Hampshire (Scholz, 2011), it was assumed that 20% of Lamprey River flood flow is diverted to the Oyster River watershed via La Roche and Longmarsh Brooks.

Discharges from the stream gage analysis for both study reaches were transferred to stream locations removed from the stream gage by the formula:

$$Q/Q_g = (A/A_g)^{1.0}$$

Where Q is the discharge at the different specific site location, Q_g is the discharge at the USGS stream gage, and A and A_g are the drainage areas at the specific site and at the USGS stream gage, respectively.

A summary of the drainage area-peak discharge relationships for all of the streams studied by detailed methods is shown in Table 4, "Summary of Discharges."

TABLE 4 – SUMMARY OF DISCHARGES

Flooding Source and Location	Drainage Area (sq. miles)	Peak Discharges (cfs)			
		10-Year	50-Year	100-Year	500-Year
BELLAMY RIVER					
At State Route 108 in Dover	26.21	910	1,940	2,440	3,690
At Bellamy Road in Dover	25.40	910	1,940	2,440	3,690
At Dover-Madbury corporate limits	24.22	910	1,940	2,440	3,690
BRANCH RIVER					
At confluence with Salmon Falls River	57.0	2,050	3,270	3,930	5,500
Upstream of confluence of Jones Brook	54.6	1,295	2,055	2,470	3,600
COCHECO RIVER					
At Central Avenue in Dover	173.45	6,330	11,140	13,560	19,110
At Fourth Street in Dover	173.15	6,330	11,140	13,560	19,110
At Whittier Street in Dover	171.30	6,330	11,140	13,560	19,110
At England Road in Rochester	73.6	3,160	5,100	6,120	9,580
At Spaulding Turnpike	56.1	2,300	3,720	4,460	6,650
At North Main Street	53.6	2,260	3,660	4,400	6,500
At Little Falls Bridge Road	50.4	2,150	3,530	4,240	6,250
At Farmington-Rochester corporate limits	50.0	2,150	3,530	4,240	6,250
Upstream of confluence of Mad River	23.4	1,610	2,900	3,560	5,440
Upstream of confluence of Ela River	13.7	910	1,630	2,010	3,100

TABLE 4 – SUMMARY OF DISCHARGES – continued

Flooding Source and Location	Drainage Area (sq. miles)	Peak Discharges (cfs)			
		10-Year	50-Year	100-Year	500-Year
COLLEGE BROOK					
Above confluence with Oyster River	0.91	100	150	170	240
Above railroad crossing	0.65	75	110	130	180
DAMES BROOK					
At confluence with Cocheco River	5.8	380	700	860	1,320
ELA RIVER					
At confluence with Cocheco River	9.5	480	840	1,020	1,560
At Old Quaker Road	8.0	*	*	570	*
At Club Pond Dam	2.7	*	*	900	*
KICKING HORSE BROOK					
At confluence with Dames Brook	0.6	40	80	105	175
At Bunker Street	0.45	30	60	80	120
LAMPREY RIVER					
At MacCallen Dam[1]	212	4,320	7,320	8,920	13,600
At confluence of Longmarsh Brook[1]	188	3,840	6,510	7,940	12,100
At confluence of Woodman Brook	186	4,740	8,030	9,790	14,900
At USGS Streamgage No. 01073500	185	4,720	7,990	9,740	14,900
At Wiswall Dam	184	4,690	7,950	9,690	14,800
MAD RIVER					
At confluence with Cocheco River	9.7	710	1,320	1,630	2,550
Upstream of Brook C	8.3	620	1,160	1,440	2,280
Approximately 0.93 miles upstream of Brook C	7.6	560	1,050	1,300	2,045
Upstream of Brook B	4.6	330	620	760	1,200
MILLER BROOK					
At confluence with Salmon Falls River	3.1	210	370	440	660

* Data not available
[1] Due to diversion to Oyster River (dam located in Rockingham County).

TABLE 4 - SUMMARY OF DISCHARGES – continued

Flooding Source and Location	Drainage Area (sq. miles)	Peak Discharges (cfs)			
		10-Year	50-Year	100-Year	500-Year
OYSTER RIVER					
At Route 108 Bridge	20.4	1,060	1,720	2,050	2,960
At confluence with College Brook	20.3	1,060	1,710	2,030	2,940
At confluence with Long Marsh Brook	19.0	990	1,600	1,910	2,750
At Durham Reservoir Dam	17.0	890	1,430	1,700	2,460
At confluence with Chesley Brook	15.6	810	1,310	1,560	2,260
At Lee/Durham town boundary	13.9	730	1,170	1,400	2,020
At USGS Streamgage No. 01073000	12.3	640	1,030	1,230	1,780
PETTEE BROOK					
Above Edgewood Road	0.80	60	90	105	145
Above UNH Parking Lot "A"	0.66	50	80	90	125
SALMON FALLS RIVER					
At Buffumsville Road	234.7	4,600	7,460	9,000	13,800
At Walnut Grove Road	148.6	3,360	5,450	6,570	10,080
At Spaulding Avenue	130.5	3,050	4,940	5,960	9,150
At Milton-Rochester corporate limits	117.3	3,030	4,700	5,500	7,960
At USGS gage (01072100) in Milton downstream of Milton Three Ponds Dam	108.0	2,930	4,500	5,290	7,490
Upstream of confluence of Branch River	41.5	1,430	2,200	2,580	3,660
Upstream of confluence of Miller Brook	28.7	1,080	1,660	1,960	2,770

The stillwater elevations for the 10-, 50-, 100-, and 500-year floods have been determined for all detailed studied ponds and tidal areas and are summarized in Table 5, "Summary of Stillwater Elevations." For a description of the methodologies used to compute elevations for Bow Lake, Little Bay, and Oyster River, please refer to Section 3.2, Hydraulic Analyses, in this text.

TABLE 5- SUMMARY OF STILLWATER ELEVATIONS

Flooding Source and Location	Elevation (feet NGVD[1], NAVD[2])			
	10-Year	50-Year	100-Year	500-Year
BOW LAKE				
At Bow Lake Dam (routed)	*	*	516.9[1]	*
CLUB POND				
For its entire shoreline within the Town of New Durham	*	*	533.9[1]	*
LITTLE BAY AND OYSTER RIVER				
Downstream of Mill Pond Dam within the Town of Durham	5.7[2]	6.2[2]	6.4[2]	7.0[2]
PISCATAQUA RIVER				
From confluence of Cocheco River to Rockingham County boundary	*	*	8.3[2]	*

[1]National Geodetic Vertical Datum of 1929
[2]North American Vertical Datum of 1988
*Data Not Available

3.2 Hydraulic Analyses

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

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

For all riverine flooding sources studied in detail, flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

The hydraulic analyses 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.

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

Precountywide Analyses

Cross sections for the backwater analyses of the Salmon Falls River and the Cocheco River in the City of Rochester were obtained from aerial photographs flown in May 1980 at a scale of 1.0 inch equals 800 feet (Moore Survey and Mapping, May 1980, Scale 1:9,600). Cross sections for the backwater analyses of all streams studied in detail in the Towns of Farmington and Milton were obtained from aerial photographs flown in May 1984 at a scale of 1:4,800 with a contour interval of 4 feet, and supplemented by field surveys and bridge plans (Quinn Associates, Inc., 1985).

Cross-section data for the Lamprey River in the Town of Durham was obtained through FEMA from the 1990 Town of Durham FIS step backwater model and from field measurements. Cross-section data for the Oyster River, Pettee Brook, and College Brook were obtained from field surveys. All bridges, dams, and culverts were field checked to obtain or verify elevation data and structural geometry.

Along certain portions of the Oyster River in the Town of Durham, a profile base line is shown on the maps to represent channel distances as indicated on the Flood Profiles and Floodway Data tables.

For Bow Lake in the Town of Strafford, water-surface elevations of floods of the selected recurrence intervals were computed through an analysis of the Bow Lake dam using weir and orifice equations. For Bow Lake, the 100-year water surface elevation was used along with USGS topographic maps to determine the extent of the flooding (U.S. Department of the Interior, 1958, et cetera).

For the Ela River in the Town of New Durham, and the Cocheco and Bellamy Rivers in the Town of Dover, water-surface elevations of floods of the selected recurrence intervals were computed using the SCS WSP-2 step-backwater computer program (USDA, 1976). Starting water-surface elevations for the Ela River were determined by computing critical depth at a cross section a short distance downstream of the Old Quaker Road bridge abutment. The results of the water-surface computations for Ela River are tabulated for selected cross sections in Table 6, "100-Year Flood Data".

For the Cocheco River in the City of Rochester and Town of Farmington, the Salmon Falls River, Branch River, and Miller Brook in the Town of Milton, the Mad River, the Ela River, Dames Brook, and Kicking Horse Brook in the Town of Farmington, and the Oyster River, the Lamprey River, College Brook, and Pettee Brook in the Town of Durham, water surface elevations of floods of the selected recurrence intervals were computed using USACE HEC-2 step-backwater computer program (USACE, 1991).

FLOODING SOURCE		RIVER CHANNEL				1% ANNUAL CHANCE WATER-SURFACE ELEVATIONS (FEET NGVD)
CROSS SECTION	DISTANCE[1] (FEET)	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	STREAM-BED ELEVATION (FEET NGVD)	
Ela River						
L	18,160	5,685	109	315	2.5	513.4
M	18,320	5,813	44	75	8.9	515.0
N	18,420	5,905	221	591	1.8	516.3
O	25,750	13,241	479	2,577	0.3	519.9
P	29,325	16,820	220	631	1.1	520.6
Q	36,360	23,870	262	1,012	0.9	526.4
R	36,600	24,095	184	496	2.5	526.9
S	36,720	24,225	143	665	1.7	531.7

[1]Distances are measured in feet above confluence with Cocheco River

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

100-YEAR FLOOD DATA

ELA RIVER

Starting water-surface elevations for the Cocheco River were taken from known elevations in the City of Rochester FIS (FEMA, September 1982). Starting water-surface elevations for the Salmon Falls River in the City of Rochester and the Town of Milton were taken from known elevations in the City of Somersworth FIS and City of Rochester FIS, respectively (FEMA, August 1982; FEMA, September 1982). Starting water-surface elevations for the Salmon Falls River in the City of Somersworth, the Cocheco River in the City of Rochester, the Branch River and Miller Brook in the Town of Milton, and the Mad River, the Ela River, Dames Brook, and Kicking Horse Brook in the Town of Farmington, were calculated using the slope/area method. The starting water-surface elevation for the Oyster River was calculated using normal depth at the mouth of the Oyster River. The starting water-surface elevations for the Lamprey River were determined by computing critical depths at the MacCallen Dam in the Town of Newmarket, Rockingham County, and Mill Pond Dam, respectively. The gates were assumed to be closed. The starting water-surface elevations for College and Pettee Brooks were calculated using normal depth at the mouth. The water-surface elevations determined for the 100-year flood, floodway, and 500-year were then used, along with USGS topographic maps and a base map generated by the University of New Hampshire (UNH), to determine the extent of flooding (USGS, 1958, et cetera; UNH, 1996).

Approximately one mile north of the Town of Durham (Strafford County)-Town of Newmarket (Rockingham County) corporate limits, flood flows in the Lamprey River divide, with a portion being diverted over State Route 108 into Longmarsh Brook in the Oyster River watershed. The quality of flow diverted was subtracted from the flow within the Lamprey River in order to model backwater conditions present during flood events. Trial and error computer runs were made until the downstream flow of the Lamprey River plus the diverted flow equaled the upstream inflow to the diversion location.

The flood levels caused by the storm tides on the coast at Portsmouth were translated upstream to the Great Bay at the Town of Durham. These levels were based on an FIS for the Town of Exeter, in which hydraulic analyses of the inland propagation of the storm surge were performed for the Piscataqua River and Great Bay estuary system using a one-dimensional (1-D) storm surge model (FEMA, MAY 1982). The 1-D model was based on the hydrodynamic equations of motion and conservation of mass.

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."

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.

2005 Countywide Analyses

No hydraulic analyses were conducted for the 2005 countywide study.

2013 Coastal Study Update

The Lamprey River was studied by detailed methods in the town of Durham from the downstream corporate limit for the Town of Durham to the upstream corporate limit for the Town of Durham. The Oyster River was studied by detailed methods in the Town of Durham from the Route 108 bridge at its confluence with Little Bay to the upstream corporate limit for the Town of Durham.

For the Town of Newmarket, the Lamprey River channel and structural cross section data (elevation, northing and easting) were obtained from USGS field surveys and Wright-Pierce, Inc. field surveys. For the Town of Durham, Oyster River channel and structural cross section data (elevation, northing and easting) were obtained from USGS field surveys and Vanasse Hangen Brustlin (VHB), Inc. field surveys. The overbank portion of the cross section data for the Lamprey and Oyster Rivers was derived from LiDAR (LIght Detection And Ranging) data collected by Photo Science in 2011 for New England under a USGS Geospatial Products and Services contract.

Cross sections for the backwater analyses of the detailed study streams were located at close intervals above and below bridges in order to compute the significant backwater effects of these structures in the developed areas. In long reaches between structures, appropriate valley cross sections were also obtained from within channel surveys and from LiDAR on the overbanks.

Water-surface elevations of floods of the selected recurrence intervals were computed for the detailed study streams using U.S. Army Corps of Engineers HEC-RAS (version 4.1.0) step-backwater computer program (U.S. Army Corps of Engineers, January 2010). In those areas where the analysis indicated supercritical flow conditions, critical depth was assumed for the flood elevation because of the inherent instability of supercritical flow.

The starting water-surface for the Lamprey River was determined through computation of critical depth at the MacCallen Dam in Newmarket. The starting water-surface for the Oyster River was determined through computation of normal depth in the channel downstream of the Route 108 bridge.

The Oyster River HEC-RAS flood model was calibrated to the Durham Reservoir Oyster River dam peak high-water mark data that was collected by University of New Hampshire staff during the May 2006 and April 2007 floods. In addition, Dr. Thomas Lee of the University of New Hampshire provided digital photography of the May 2006 peak flood elevations at the Mill Pond dam and the Route 155A bridge which also aided in calibration of the HEC-RAS model. The Lamprey River HEC-RAS flood model was calibrated to the USGS stream gage 01073500 data and to the peak high-water mark data collected by the USGS along the Lamprey River after the April 2007 flood.

As in the pre-countywide analyses, 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 the Lamprey and Oyster Rivers are also shown in Table 7, "Manning's "n" Values".

TABLE 7 – MANNING'S "n" VALUES

Stream	Channel "n"	Overbank "n"
Bellamy River	0.035-0.065	0.050-0.120
Branch River	0.030-0.040	0.040-0.120
Cocheco River	0.024-0.055	0.050-0.200
College Brook	0.030-0.050	0.020-0.060
Dames Brook	0.030-0.036	0.065-0.120
Ela River	0.035-0.070	0.070-0.120
Kicking Horse Brook	0.013-0.065	0.020-0.120
Lamprey River	0.040-0.065	0.050-0.100
Lamprey River diversion	0.025-0.070	0.060-0.120
Mad River	0.030-0.055	0.060-0.120
Miller Brook	0.032-0.050	0.050-0.090
Oyster River	0.020-0.050	0.040-0.010
Pettee Brook	0.020-0.070	0.020-0.060
Salmon Falls River	0.029-0.070	0.035-0.150

For this 2013 study, water-surface profiles for Zone A basic studies and for Zone AE detailed studies were computed through the use of the USACE HEC-RAS computer program. Water surface profiles were computed for the 1-percent-annual-chance storm for the Zone A basic studies and for the 0.2, 1, 2, and 10-percent-annual chance storms for the Zone AE detailed studies.

The Zone A basic studies used the computer program Watershed Information SystEm (WISE) as a preprocessor to HEC-RAS. WISE combined geo-referenced data from the terrain model and miscellaneous shapefiles (such as streams and cross sections). The WISE program was used to generate the input data file for HEC-RAS. Then HEC-RAS was used to determine the flood elevation at each cross section of the modeled stream. No floodway was calculated for the Zone A basic studies.

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. Previously, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), FIS reports and FIRMs are typically being prepared using NAVD 88 as the referenced vertical datum. The datum conversion from NGVD 29 to NAVD 88 for Strafford County is -0.6 feet. Elevation 0 NGVD 29 is elevation -0.6 NAVD 88.

Flood elevations shown in this FIS report and on the FIRM for the following 4 communities are referenced to NAVD 88: Dover, Durham, Madbury, and Rollinsford. Structure and ground elevations in these communities must, therefore, be referenced to NAVD88.

Flood elevations shown in this FIS report and on the FIRM for the 9 remaining communities in Strafford County, including Barrington, Farmington, Lee, Middleton, Milton, New Durham, Rochester, Somersworth, and Strafford, are referenced to NGVD29. Structure and ground elevations in these communities must, therefore, be referenced to NGVD 29. It is important to note that adjacent communities may be referenced to NAVD 88. This may result in differences in base flood elevations across the corporate limits between the communities.

A summary of the vertical datum reference by town in Strafford County is provided in Table 8, "Vertical Datum Reference by Community."

TABLE 8 – VERTICAL DATUM REFERENCE BY COMMUNITY

Community Name	Vertical Datum Reference
Barrington	NGVD 29
Dover	NAVD 88
Durham	NAVD 88
Farmington	NGVD 29
Lee	NGVD 29
Madbury	NAVD 88
Middleton	NGVD 29
Milton	NGVD 29
New Durham	NGVD 29
Rochester	NGVD 29
Rollinsford	NAVD 88
Somersworth	NGVD 29
Strafford	NGVD 29

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

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

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

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the county. For the streams studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section.

Pre-countywide Analysis

For the flooding sources studied in detail, the boundaries were interpolated between the cross sections using topographic maps at scales of 1:24,000, 1:24,000, 1:24,000, 1:4,800, 1:4,800, 1:1,200, and 1:400 with contour intervals of 20, 10, 5, 5, 4, 2, and 2 feet, respectively, and a soil survey map (USGS, 1958, et cetera; Department of Public Works and Highway, 1965; Moore Survey and Mapping, May 1980, 1:4,800; Quinn Associates, Inc., 1985; James W. Sewall Company, 1967; UNH, 1996; USDA, 1973).

For the streams studied by approximate methods, the 100-year floodplain boundaries were delineated using a combination of the following: previously printed FHBMs for the Town of Farmington (U.S. Department of Housing and Urban Development, 1979), Town of Milton (U.S. Department of Housing and Urban Development, February 18, 1977), Town of New Durham (U.S. Department of Housing and Urban Development, December 10, 1976), City of Dover (U.S. Department of Housing and Urban Development, February 11, 1977), City of Rochester (U.S. Department of Housing and Urban Development, November 1977), and City of Somersworth (U.S. Department of Housing and Urban Development, November 1976); previously printed FIS/FIRM for the Town of Durham (FEMA, May 3, 1990); previously printed FIRM for the Town of Strafford (FEMA, April 2, 1986, FIRM, Town of Strafford); topographic maps at scales of 1:62,500, 1:24,000, and 1:4,800, with contour intervals of 20, 20, and 4 feet, respectively (USGS, 1957, et cetera; USGS, 1958, et cetera; Quinn Associates, Inc., 1985); and normal depth calculations.

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

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

2005 Countywide Analyses

No remapping was conducted in 2005.

2013 Coastal Update

For streams studied in detail, 1-percent and 0.2-percent annual chance floodplain boundaries were delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated based on 2-foot contour interval topography from the 2011 LiDAR mission discussed in Section 2.1. The LiDAR was also utilized to support the basic Zone A modeling and delineations, as well as the redelineation of hydraulic analyses from previous studies.

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as 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 9). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodways for the Cocheco River and the Salmon Falls River extend beyond the county boundary.

No floodways were computed for Pettee Brook, College Brook, portions of the Oyster River, and Kicking Horse Brook because the 100-year storm is contained entirely within the channel except at the confluence with Dames Brook, Bow Lake in the Town of Strafford, and the Ela River and Club Pond within the Town of New Durham.

No floodway was computed at the watershed divide between the Lamprey River and the Oyster River due to possible changes in State Route 108, an important hydraulic control. This area should be analyzed at the time changes are proposed to State Route 108 to ensure that additional flood hazards are not created (see Section 2.3).

In the City of Dover, no analysis was made for the Cocheco and Bellamy Rivers as to what stage induction may occur downstream due to the decrease in flood storage created by this encroachment. For example, blockage of the wide floodplain above Broad Street to the theoretical floodway limits may have deleterious effects downstream.

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 9, "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.

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 9 for certain downstream cross sections of the Branch River, Miller Brook, and Dames Brook are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	26,715	96	814	3.0	54.4	54.4	55.4	1.0
B	28,253	69	580	4.2	74.8	74.8	75.8	1.0
C	30,765	166	1,170	2.1	86.4	86.4	87.4	1.0
D	33,773	309	2,069	1.2	87.8	87.8	88.8	1.0
E	36,283	476	2,343	1.0	88.7	88.7	89.7	1.0

[1]Feet above Scammel Bridge at Little Bay

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

FLOODWAY DATA

BELLAMY RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Branch River								
A	980	451	2,516	1.6	421.0	415.5[2]	416.3	0.8
B	3,080	1,895	7,385	0.5	421.0	415.9[2]	416.5	0.6
C	5,590	435	1,070	3.7	421.0	415.2[2]	416.2	1.0
D	6,410	404	1,540	2.6	421.0	417.8[2]	417.8	0.0
E	7,070	200	1,260	3.1	421.0	418.1[2]	418.1	0.0
F	7,780	301	1,265	3.1	421.0	418.5[2]	418.5	0.0
G	10,220	336	1,651	2.4	421.0	419.4[2]	420.2	0.8
H	11,970	507	2,429	1.6	421.0	420.1[2]	421.1	1.0
I	13,950	837	4,686	0.8	421.0	421.0[2]	421.7	0.7
J	15,000	289	1,252	3.1	421.1	421.1	421.8	0.7
K	15,250	420	2,087	1.9	423.3	423.3	423.3	0.0
L	16,410	551	2,831	1.4	423.6	423.6	423.8	0.2
M	17,900	600	2,624	1.5	423.9	423.9	424.1	0.2
N	18,200	112	382	10.3	424.9	424.9	424.9	0.0
0	19,600	543	2,064	1.2	429.7	429.7	430.7	1.0
P	20,500	342	675	3.7	432.6	432.6	432.6	0.0
Q	20,780	221	1,038	2.4	434.5	434.5	434.5	0.0
R	21,600	300	1,035	2.4	435.7	435.7	435.9	0.2
S	22,900	81	246	10.0	440.8	440.8	440.8	0.0

[1]Feet above confluence with Salmon Falls River

[2]Elevation computed without consideration of backwater effects from Salmon Falls River

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

BRANCH RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (**FEET**)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cocheco River								
A	14,810	262	3,704	3.7	8.7	8.7	9.7	1.0
B	17,000	226	3,108	4.4	10.7	10.7	11.7	1.0
C	20,943	290	4,202	3.2	46.4	46.4	47.4	1.0
D	22,358	707	7,643	1.8	46.8	46.8	47.8	1.0
E	23,553	128	2,623	5.2	46.9	46.9	47.9	1.0
F	25,458	225	3,781	3.6	47.4	47.4	48.4	1.0

[1]Feet above confluence with Piscataqua River

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

FLOODWAY DATA

COCHECO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cocheco River (continued)								
G	450	740	7,329	1.7	124.2	124.2	125.1	0.9
H	11,660	70	870	7.0	125.9	125.9	126.6	0.7
I	11,730	256	2,087	2.9	127.0	127.0	127.9	0.9
J	19,850	94	1,258	4.9	130.7	130.7	131.1	0.4
K	21,470	144	996	6.1	131.6	131.6	132.0	0.4
L	24,265	148	625	9.8	139.4	139.4	139.5	0.1
M	24,615	76	723	8.5	143.4	143.4	143.4	0.0
N	24,666	100	1,657	3.7	160.6	160.6	160.6	0.0
0	26,116	117	1,368	4.5	162.4	162.4	162.7	0.3
P	26,228	105	1,322	4.6	182.0	182.0	182.0	0.0
Q	26,388	105	1,214	5.0	182.1	182.1	182.1	0.0
R	26,488	105	1,431	4.3	182.7	182.7	182.7	0.0
S	32,093	104	1,492	2.9	183.8	183.8	184.1	0.3
T	33,204	110	1,370	3.2	184.0	184.0	184.3	0.3
U	34,874	49	665	6.6	184.1	184.1	184.4	0.3
V	34,979	130	1,424	3.1	184.8	184.8	185.1	0.3
W	41,989	250	1,915	2.3	186.5	186.5	186.7	0.2
X	45,024	75	349	12.6	192.3	192.3	192.3	0.0
Y	45,424	85	367	12.0	199.1	199.1	199.1	0.0
Z	45,479	102	1,175	3.7	218.4	218.4	218.4	0.0
AA	45,637	150	1,573	2.8	218.7	218.7	218.7	0.0
AB	45,941	222	1,080	4.1	218.8	218.8	218.8	0.0
AC	45,987	241	2,122	2.1	224.4	224.4	224.8	0.4
AD	46,353	176	1,645	2.7	224.5	224.5	224.9	0.4
AE	49,093	169	1,277	3.4	225.1	225.1	225.4	0.3

[1]Feet above Dover-Rochester corporate limits

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

COCHECO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cocheco River (continued)								
AF	49,148	200	2,064	2.1	225.3	225.3	225.6	0.3
AG	56,348	73	831	5.3	226.0	226.0	226.7	0.7
AH	57,995	472	1,918	2.3	227.1	227.1	227.6	0.5
AI	60,570	98	979	4.5	228.4	228.4	228.7	0.3
AJ	60,642	208	1,564	2.8	228.7	228.7	228.8	0.1
AK	66,672	54	571	7.7	231.7	231.7	232.1	0.4
AL	66,732	253	1,732	2.5	233.1	233.1	233.4	0.3
AM	75,482	410	2,545	1.7	235.9	235.9	236.1	0.2
AN	79,240	110	726	5.8	237.6	237.6	237.9	0.3
AO	79,740	150	1,261	3.4	238.5	238.5	239.2	0.7
AP	80,003	85	857	4.9	240.1	240.1	240.2	0.1
AQ	80,804	440	3,448	1.2	240.3	240.3	241.0	0.7
AR	81,495	540	3,275	1.3	240.4	240.4	241.2	0.8
AS	82,736	650	4,123	1.0	240.5	240.5	241.4	0.9
AT	83,618	630	3,640	1.2	240.7	240.7	241.7	1.0
AU	84,996	600	2,661	1.6	241.3	241.3	242.3	1.0
AV	85,610	380	2,699	1.6	241.3	241.3	242.3	1.0
AW	85,950	350	2,466	1.7	244.6	244.6	244.9	0.3
AX	86,893	445	3,362	1.3	244.8	244.8	245.1	0.3
AY	87,633	138	751	5.6	244.9	244.9	245.9	1.0
AZ	88,332	130	954	4.4	246.6	246.6	246.6	0.0
BA	89,098	130	983	4.3	247.0	247.0	247.4	0.4
BB	90,180	126	696	6.1	247.7	247.7	248.3	0.6
BC	90,675	105	651	6.5	249.3	249.3	249.6	0.3
BD	90,925	240	1,874	2.3	254.8	254.8	255.1	0.3

[1]Feet above Dover-Rochester corporate limits

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

COCHECO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cocheco River (continued)								
BE	92,290	310	3,303	1.3	255.2	255.2	255.6	0.4
BF	93,140	250	2,257	1.9	255.3	255.3	255.7	0.4
BG	93,955	250	1,920	2.2	255.4	255.4	255.9	0.5
BH	94,365	340	3,464	1.2	255.5	255.5	256.0	0.5
BI	94,685	310	2,460	1.7	255.6	255.6	256.4	0.8
BJ	95,420	490	6,670	0.6	255.7	255.7	256.6	0.9
BK	96,590	590	5,946	0.7	255.8	255.8	256.7	0.9
BL	98,055	700	4,917	0.9	256.0	256.0	256.9	0.9
BM	99,150	970	4,192	1.0	256.2	256.2	257.1	0.9
BN	99,935	895	3,002	1.4	256.5	256.5	257.5	1.0
BO	100,820	403	1,152	3.7	257.7	257.7	258.0	0.3
BP	101,925	200	813	5.2	260.7	260.7	261.1	0.4
BQ	102,820	77	417	10.2	263.5	263.5	263.8	0.3
BR	103,550	65	442	9.6	268.2	268.2	268.2	0.0
BS	103,770	73	456	9.3	269.2	269.2	269.2	0.0
BT	104,780	77	543	7.8	273.2	273.2	273.4	0.2
BU	105,942	95	591	7.2	276.0	276.0	276.8	0.8
BV	106,443	81	480	7.4	278.2	278.2	278.3	0.1
BW	106,720	120	335	10.6	280.6	280.6	280.6	0.0
BX	106,950	53	382	9.3	282.9	282.9	283.0	0.1
BY	108,060	235	460	7.7	288.0	288.0	288.0	0.0
BZ	109,090	634	1,316	2.7	295.9	295.9	296.2	0.3
CA	109,805	350	593	6.0	300.7	300.7	300.9	0.2

[1]Feet above Dover-Rochester corporate limits

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

COCHECO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE'	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dames Brook								
A	100	35	137	6.3	260.6	260.5[2]	261.5	1.0
B	445	30	190	4.5	262.0	262.0	262.6	0.6
C	590	36	246	3.5	265.4	265.4	265.4	0.0
Ela River								
A	4,090	140	1,140	0.9	309.5	309.5	310.4	0.9
B	4,730	55	281	3.6	309.5	309.5	310.5	1.0
C	5,045	54	354	2.9	312.6	312.6	313.2	0.6
D	6,050	39	108	9.5	323.3	323.3	323.3	0.0
E	6,815	53	207	4.9	328.9	328.9	329.2	0.3
F	7,745	39	107	9.5	340.8	340.8	340.8	0.0
G	8,980	83	192	5.3	350.3	350.3	350.5	0.2
H	9,745	70	129	7.9	360.8	360.8	360.8	0.0
I	9,920	50	285	3.6	365.0	365.0	365.4	0.4
J	10,500	48	115	8.9	368.3	368.3	368.3	0.0
K	11,955	61	398	2.6	380.5	380.5	380.7	0.2

'Feet above confluence with Cocheco River
[2]Elevation computed without consideration of backwater effects from Cocheco River

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

DAMES BROOK - ELA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hamel Brook								
A	5,450	30	185	7.0	24.7	24.7	25.7	1.0
B	5,765	41	257	5.0	28.0	28.0	29.0	1.0
C	5,860	122	1,020	1.3	30.0	30.0	31.0	1.0
Longmarsh Brook								
D	6,345	127	1,175	1.1	30.4	30.4	31.4	1.0
E	7,805	253	1,920	0.7	31.9	31.9	32.9	1.0

[1]Feet above Mill Pond Dam

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

FLOODWAY DATA

HAMEL BROOK – LONGMARSH BROOK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION[1]	DISTANCE[2]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Lamprey River								
L	4367	585	7191	1.2	35.4	35.4	36.3	0.9
M	4670	377	5299	1.5	35.4	35.4	36.3	0.9
N	5029	286	5675	1.4	35.4	35.4	36.3	0.9
O	6657	306	4994	1.6	35.5	35.5	36.4	0.9
P	7682	311	4532	1.8	35.6	35.6	36.5	0.9
Q	8054	219	3546	2.8	35.6	35.6	36.5	0.9
R	8924	229	3432	2.9	35.6	35.6	36.6	1.0
S	9069	222	3355	3.0	35.6	35.6	36.6	1.0
T	9813	259	3537	2.8	35.8	35.8	36.8	1.0
U	10296	148	2730	3.6	35.8	35.8	36.8	1.0
V	10413	118	2234	4.4	36.0	36.0	36.9	0.9
W	11289	301	4117	2.4	36.4	36.4	37.4	1.0
X	12302	196	2865	3.4	36.5	36.5	37.5	1.0
Y	12962	240	2748	3.5	36.8	36.8	37.7	0.9
Z	13117	216	2445	4.0	36.9	36.9	37.8	0.9
AA	13952	135	1057	9.2	38.6	38.6	39.1	0.5
AB	14441	356	3770	2.6	41.3	41.3	41.5	0.2
AC	14507	341	3125	3.1	41.3	41.3	41.5	0.2
AD	14847	104	672	14.4	42.6	42.6	42.6	0.0
AE	15009	99	1039	9.3	47.2	47.2	47.2	0.0
AF	15084	90	1654	5.9	59.1	59.1	59.3	0.2

[1]Cross sections A-K are located in Rockingham County.
[2]Feet above MacCallen Dam

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

LAMPREY RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Lamprey River (continued)								
AG	15240	182	3863	2.5	59.2	59.2	59.9	0.7
AH	16747	170	3802	2.6	59.3	59.3	60.2	0.9
AI	18379	260	4228	2.3	59.4	59.4	60.4	1.0
AJ	18789	267	3942	2.5	59.5	59.5	60.5	1.0
AK	18872	212	2377	4.1	59.5	59.5	60.5	1.0
AL	18909	280	4128	2.4	62.5	62.5	62.7	0.2
AM	19067	149	1725	5.6	62.5	62.5	62.7	0.2
AN	19088	166	1946	5.0	63.2	63.2	63.4	0.2
AO	19187	253	3565	2.7	63.6	63.6	63.8	0.2
AP	19998	177	2523	3.8	63.7	63.7	63.9	0.2
AQ	21683	144	2516	3.9	64.1	64.1	64.4	0.3
AR	22817	216	2963	3.3	64.4	64.4	64.9	0.5

[1]Feet above MacCallen Dam.

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

LAMPREY RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mad River								
A	630	49	228	7.1	279.2	279.2	279.2	0.0
B	1,420	25	126	12.9	286.5	286.5	286.5	0.0
C	1,575	50	443	3.7	289.1	289.1	289.6	0.5
D	2,125	56	166	9.8	290.0	290.0	290.0	0.0
E	3,115	67	235	6.9	303.4	303.4	303.4	0.0
F	4,015	40	148	11.0	317.1	317.1	317.1	0.0
G	4,145	35	162	10.1	318.4	318.4	318.9	0.5
H	4,410	26	188	8.7	322.7	322.7	323.0	0.3
I	4,700	46	211	7.7	328.4	328.4	328.4	0.0
J	5,045	48	157	10.4	336.9	336.9	336.9	0.0
K	6,190	29	145	9.9	358.8	358.8	359.2	0.4
L	7,060	43	204	7.1	369.7	369.7	370.4	0.7
M	7,870	38	134	10.7	387.4	387.4	387.4	0.0
N	8,730	39	178	8.1	410.5	410.5	411.1	0.6
0	9,440	37	133	10.8	433.8	433.8	433.8	0.0
P	9,558	31	125	11.5	436.1	436.1	436.1	0.0
Q	10,400	49	166	8.6	455.8	455.8	456.2	0.4
R	11,110	53	159	8.2	472.4	472.4	472.4	0.0
S	12,105	60	174	7.5	493.0	493.0	493.3	0.3
T	13,255	57	153	8.5	518.3	518.3	518.3	0.0
U	13,780	24	107	12.1	544.7	544.7	544.7	0.0
V	14,310	47	196	6.6	553.8	553.8	554.1	0.3
W	15,050	30	150	8.7	559.7	559.7	560.1	0.4
X	16,045	48	183	4.1	565.6	565.6	565.8	0.2
Y	16,580	75	109	6.9	569.2	569.2	569.2	0.0

'Feet above confluence with Cocheco River

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

MAD RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Miller Brook								
A	780	65	263		426.1	424.7[2]	425.7	1.0
B	1,300	60	270		426.1	425.0[2]	426.0	1.0
C	1,600	65	261		427.0	427.0	427.1	0.1
D	1,950	65	250		427.0	427.0	427.2	0.2
E	2,875	41	129		427.3	427.3	428.2	0.9
F	3,700	25	78		431.5	431.5	431.8	0.3
G	4,000	35	87		433.6	433.6	434.1	0.5
H	4,170	40	62		436.3	436.3	436.3	0.0
I	4,300	100	731		444.6	444.6	445.5	0.9

'Feet above confluence with Salmon Falls River
[2]Elevation computed without consideration of backwater effects from Salmon Falls River

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

MILLER BROOK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Oyster River								
A	227	126	1015	2.0	13.7	13.7	13.8	0.1
B	762	420	2219	0.9	13.8	13.8	13.9	0.1
C	1116	78	595	3.4	13.8	13.8	13.9	0.1
D	2012	103	590	3.2	14.1	14.1	14.2	0.1
E	2802	86	616	2.8	14.4	14.4	14.6	0.2
F	3891	58	308	5.6	15.5	15.5	15.7	0.2
G	4433	42	159	10.8	19.9	19.9	20.8	0.9
H	5222	152	568	3.0	24.2	24.2	25.1	0.9
I	5868	57	331	5.2	25.2	25.2	25.9	0.7
J	6633	71	456	3.8	26.6	26.6	27.6	1.0
K	7343	42	215	8.0	28.1	28.1	29.0	0.9
L	7543	70	702	2.5	37.8	37.8	38.0	0.2
M	8270	43	387	4.4	37.9	37.9	38.2	0.3
N	8427	43	484	3.5	38.7	38.7	38.9	0.2
O	8936	240	1825	0.9	38.9	38.9	39.2	0.3
P	9642	36	242	7.0	38.9	38.9	39.1	0.2
Q	9689	72	465	3.7	39.2	39.2	39.8	0.6
R	9763	104	750	2.3	39.5	39.5	40.1	0.6
S	9784	156	922	1.9	51.4	51.4	51.4	0.0
T	9941	164	2198	0.8	51.5	51.5	51.5	0.0
U	11009	92	708	2.4	51.5	51.5	51.5	0.0

[1]Feet above confluence with Little Bay at Route 108 pedestrian bridge.

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

FLOODWAY DATA

OYSTER RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Oyster River (continued)								
V	11977	29	137	12.3	52.7	52.7	53.4	0.7
W	13031	128	828	2.0	56.8	56.8	57.8	1.0
X	14014	209	1015	1.6	57.4	57.4	58.3	0.9
Y	15453	76	347	4.8	58.5	58.5	59.3	0.8
Z	16646	48	403	3.9	61.0	61.0	61.7	0.7
AA	17606	178	1061	1.5	61.6	61.6	62.6	1.0
AB	18411	157	871	1.8	61.9	61.9	62.9	1.0
AC	19792	166	786	2.0	62.7	62.7	63.7	1.0
AD	20541	164	655	2.4	63.3	63.3	64.3	1.0
AE	21033	188[2]	693	2.0	63.8	63.8	64.6	0.8
AF	21139	84[2]	469	3.0	66.5	66.5	67.4	0.9
AG	21327	137[2]	1045	1.3	66.5	66.5	67.5	1.0
AH	21632	178[2]	1081	1.3	66.5	66.5	67.5	1.0

[1]Feet above confluence with Little Bay at Route 108 pedestrian bridge.
[2]Floodway width extends beyond the area of revision.

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

FLOODWAY DATA

OYSTER RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE'	WIDTH² (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Salmon Falls River								
A	800	130/50	1,264	7.1	73.1	73.1	73.3	0.2
B	3,030	98/30	814	11.1	75.6	75.6	76.0	0.4
C	3,108	120/25	1,026	8.8	76.8	76.8	76.8	0.0
D	4,903	154/90	1,376	6.5	85.2	85.2	86.2	1.0
E	4,991	260/120	5,378	1.7	109.3	109.3	109.3	0.0
F	8,211	160/95	2,472	3.6	109.4	109.4	109.4	0.0
G	10,696	113/30	1,782	5.0	116.6	116.6	116.8	0.2
H	10,748	115/45	1,310	6.9	123.9	123.9	123.9	0.0
I	12,978	296/130	887	10.1	167.0	167.0	167.0	0.0
J	13,029	275/150	3,015	3.0	174.8	174.8	174.8	0.0
K	13,359	109/50	1,312	6.9	174.8	174.8	174.8	0.0
L	13,469	130/65	1,756	5.1	175.7	175.7	175.7	0.0
M	15,049	160/80	2,113	4.5	176.6	176.6	176.7	0.1
N	17,319	125/75	2,080	4.3	177.2	177.2	177.4	0.2
0	20,039	127/70	2,206	4.1	177.7	177.7	178.1	0.4
P	21,839	111/50	1,712	5.3	177.9	177.9	178.3	0.4
Q	21,879	558/90	3,624	2.5	178.2	178.2	178.6	0.4
R	23,199	115/55	2,052	4.4	178.5	178.5	178.9	0.4
S	26,379	175/95	2,461	3.7	179.2	179.2	179.8	0.6
T	29,024	166/86	1,927	4.7	180.4	180.4	181.2	0.8
U	29,077	183/90	1,829	4.9	182.8	182.8	182.9	0.1
V	31,915	915/805	7,086	1.3	183.6	183.6	183.8	0.2
W	44,085	146/100	1,499	4.4	184.5	184.5	185.0	0.5
X	45,160	77/38	1,131	5.8	185.2	185.2	185.7	0.5
Y	45,200	352/55	3,212	2.0	185.8	185.8	186.2	0.4
Z	62,910	354/90	3,005	2.2	189.8	189.8	190.8	1.0

'Feet above Somersworth-Rollinsford corporate limits
'Width/width within county boundary

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

SALMON FALLS RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Salmon Falls River (continued)								
AA	70,945	100/60[2]	528	12.5	194.6	194.6	194.6	0.0
AB	71,400	199/95[2]	1,713	3.8	197.9	197.9	198.6	0.7
AC	71,470	164/100[2]	1,667	3.9	206.2	206.2	206.2	0.0
AD	72,770	79/40[2]	643	10.2	206.2	206.2	206.2	0.0
AE	72,870	219/110[2]	1,335	4.9	207.5	207.5	207.6	0.1
AF	73,250	70/35[2]	452	14.5	209.9	209.9	209.9	0.0
AG	73,350	70/30[2]	704	9.3	213.2	213.2	213.2	0.0
AH	74,550	100/50[2]	1,335	4.9	215.0	215.0	215.5	0.5
AI	80,700	165/125[2]	1,306	4.6	216.3	216.3	217.3	1.0
AJ	83,935	81/41[2]	868	6.9	219.3	219.3	220.1	0.8
AK	84,030	536/45[2]	1,805	3.3	221.2	221.2	221.4	0.2
AL	93,150	125/100[2]	1,267	4.7	222.9	222.9	223.4	0.5
AM	97,210	248/165[2]	2,338	2.5	226.2	226.2	227.1	0.9
AN	100,425	199/160[2]	1,079	5.5	228.2	228.2	229.0	0.8
AO	100,510	235/200[2]	1,646	3.6	229.4	229.4	230.4	1.0
AP	102,700	1,586/1,526[2]	4,687	1.3	232.6	232.6	233.2	0.6
AO	103,050	748/500[2]	3,344	1.8	247.3	247.3	247.3	0.0
AR	104,065	532[3]	8,177	0.7	247.3	247.3	247.3	0.0
AS	107,135	988[3]	8,201	0.7	247.3	247.3	247.3	0.0
AT	108,565	93[3]	664	8.3	248.2	248.2	248.2	0.0
AU	109,860	179[3]	607	9.1	257.8	257.8	257.8	0.0
AV	111,670	131[3]	902	6.1	265.5	265.5	265.7	0.2
AW	112,840	81[3]	421	13.1	310.1	310.1	310.1	0.0
AX	114,385	324[3]	1,966	2.8	355.1	355.1	356.1	1.0
AY	116,320	202[3]	1,506	3.7	398.8	398.8	399.4	0.6
AZ	116,520	115[3]	813	6.8	399.4	399.4	399.9	0.5

[1]Feet above Somersworth-Rollinsford corporate limits
[2]Width/width within county boundary
[3]This width extends beyond county boundary

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

SALMON FALLS RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Salmon Falls River (continued)								
BA	117,700	234	3,371	1.6	420.2	420.2	420.8	0.6
BB	118,440	197	2,520	2.1	420.3	420.3	420.9	0.6
BC	120,440	2,088	46,821	0.1	420.3	420.3	420.9	0.6
BD	122,970	610	9,603	0.6	420.3	420.3	420.9	0.6
BE	125,070	333	4,158	1.3	420.3	420.3	420.9	0.6
BF	126,935	705	9,177	0.6	420.4	420.4	421.0	0.6
BG	127,900	550	7,198	0.7	420.4	420.4	421.0	0.6
BH	128,420	273	4,312	1.2	420.8	420.8	421.5	0.7
BI	131,670	1,390	24,230	0.2	420.9	420.9	421.6	0.7
BJ	133,470	1,971	30,716	0.2	420.9	420.9	421.6	0.7
BK	135,770	1,584	21,746	0.2	420.9	420.9	421.6	0.7
BL	137,995	1,645	21,542	0.2	420.9	420.9	421.6	0.7
BM	139,745	2,150	26,769	0.1	420.9	420.9	421.6	0.7
BN	142,175	450	4,179	0.6	420.9	420.9	421.6	0.7
BO	143,645	692	7,016	0.4	420.9	420.9	421.6	0.7
BP	145,185	160	1,714	1.5	420.9	420.9	421.6	0.7
BQ	147,320	299	2,454	1.1	421.0	421.0	421.8	0.8
BR	148,620	200	1,593	1.6	421.0	421.0	421.8	0.8
BS	149,850	400	2,854	0.9	421.1	421.1	422.0	0.9
BT	151,370	551	3,783	0.7	421.2	421.2	422.2	1.0
BU	153,170	400	2,085	1.2	421.3	421.3	422.3	1.0
BV	155,120	571	2,695	1.0	421.6	421.6	422.6	1.0
BW	157,320	400	1,963	1.3	422.6	422.6	423.5	0.9
BX	158,720	450	2,574	1.0	423.0	423.0	424.0	1.0
BY	160,120	80	503	5.1	423.5	423.5	424.3	0.8
BZ	161,990	273	1,417	1.8	425.4	425.4	426.4	1.0

'Feet above Somersworth-Rollinsford corporate limits

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

SALMON FALLS RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD29)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Salmon Falls River (continued)								
CA	163,220	65	198	9.9	427.7	427.7	427.7	0.0
CB	164,640	127	1,422	1.4	451.3	451.3	451.3	0.0
CC	164,850	122	865	2.3	452.1	452.1	452.1	0.0
CD	166,275	82	211	9.3	464.8	464.8	464.8	0.0
CE	167,095	61	322	6.1	470.7	470.7	471.4	0.7
CF	168,720	218	494	4.0	490.9	490.9	491.4	0.5
CG	170,520	588	3,940	0.5	507.5	507.5	507.5	0.0
CH	172,320	110	816	2.4	507.5	507.5	507.5	0.0
CI	173,295	114	796	2.5	507.6	507.6	507.8	0.2
CJ	174,495	500	1,989	1.0	507.7	507.7	508.1	0.4
CK	175,945	125	847	2.3	507.9	507.9	508.3	0.4
CL	177,620	896	3,223	0.6	508.0	508.0	508.4	0.4
CM	179,070	105	1,013	1.9	508.1	508.1	508.5	0.4
CN	180,670	550	1,285	1.5	508.2	508.2	508.9	0.7
CO	181,740	443	1,315	1.5	508.9	508.9	509.9	1.0
CP	183,795	71	216	9.1	511.6	511.6	511.6	0.0

'Feet above Somersworth-Rollinsford corporate limits

TABLE 9

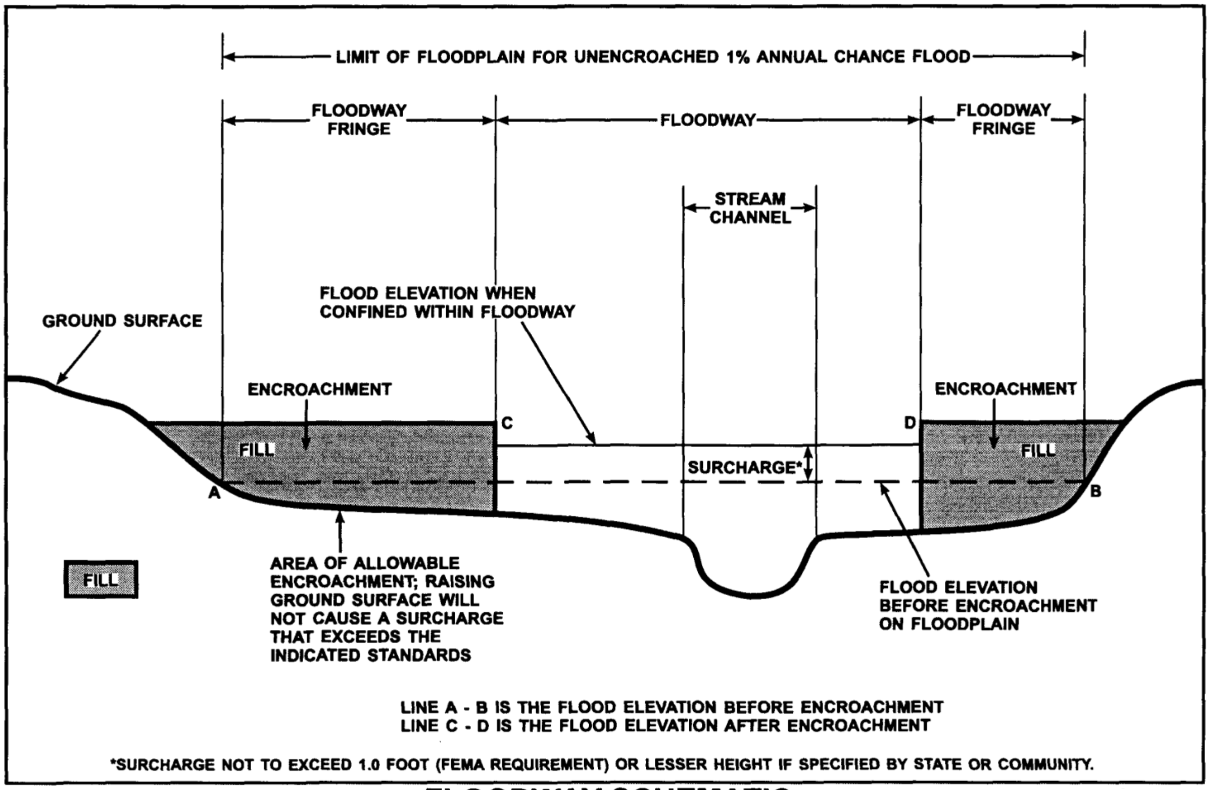
FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH (ALL JURISDICTIONS)

FLOODWAY DATA

SALMON FALLS RIVER

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 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 100-year floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year 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 X

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

6.0 FLOOD INSURANCE RATE MAP

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

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

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

The current FIRM presents flooding information for the entire geographic area of Strafford County. Prior to the 2005 countywide study, separate FIRMs were prepared for each identified flood-prone incorporated community in the county. The countywide FIRM also included flood hazard information that was presented separately on FBFMs, where applicable. Historical data relating to the maps prepared for each community are presented in Table 10, "Community Map History."

TABLE 10 – COMMUNITY MAP HISTORY

Community Name	Initial Identification	Flood Hazard Boundary Map Revisions Date	FIRM Effective Date	FIRM Revisions Date
Barrington, Town of	February 21, 1975		September 1, 1969	May 17, 2004
Dover, City of	July 26, 1974	February 11, 1977	April 15, 1980	May 17, 2004
Durham, Town of	September 13, 1974	May 14, 1976	May 3, 1990	August 23, 2001 May 17, 2004
Farmington, Town of	February 21, 1975	April 16, 1976 December 7, 1979	May 17, 1988	May 17, 2004
Lee, Town of	June 21, 1974	September 3, 1976	April 2, 1988	May 17, 2004
Madbury, Town of	January 17, 1975		May 17, 2004	May 17, 2004
Middleton, Town of	January 31, 1975	January 10, 1978	August 1, 1988	May 17, 2004
Milton, Town of	February 7, 1975	February 18, 1977	June 3, 1988	May 17, 2004
New Durham, Town of	February 7, 1975	December 10, 1976	May 2, 199	May 17, 2004
Rochester, City of	November 8, 1977		September 16, 1982	May 17, 2004
Rollinsford, Town of	January 3, 1975	February 28, 1978	April 2, 1986	May 17, 2004
Somersworth, City of	February 21, 1975	November 19, 1976	August 16, 1982	May 17, 2004
Strafford, Town of	February 28, 1975	December 31, 1976	April 2, 1986	May 2, 2002 May 17, 2004

7.0 OTHER STUDIES

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Strafford County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS reports, FBFMs, and FIRMs for all jurisdictions within Strafford County.

An FIS is currently being prepared for portions of Rockingham County, New Hampshire.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this FIS can be obtained by contacting Federal Insurance and Mitigation Division, FEMA Region I, 99 High Street, 6th Floor, Boston, MA 02110.

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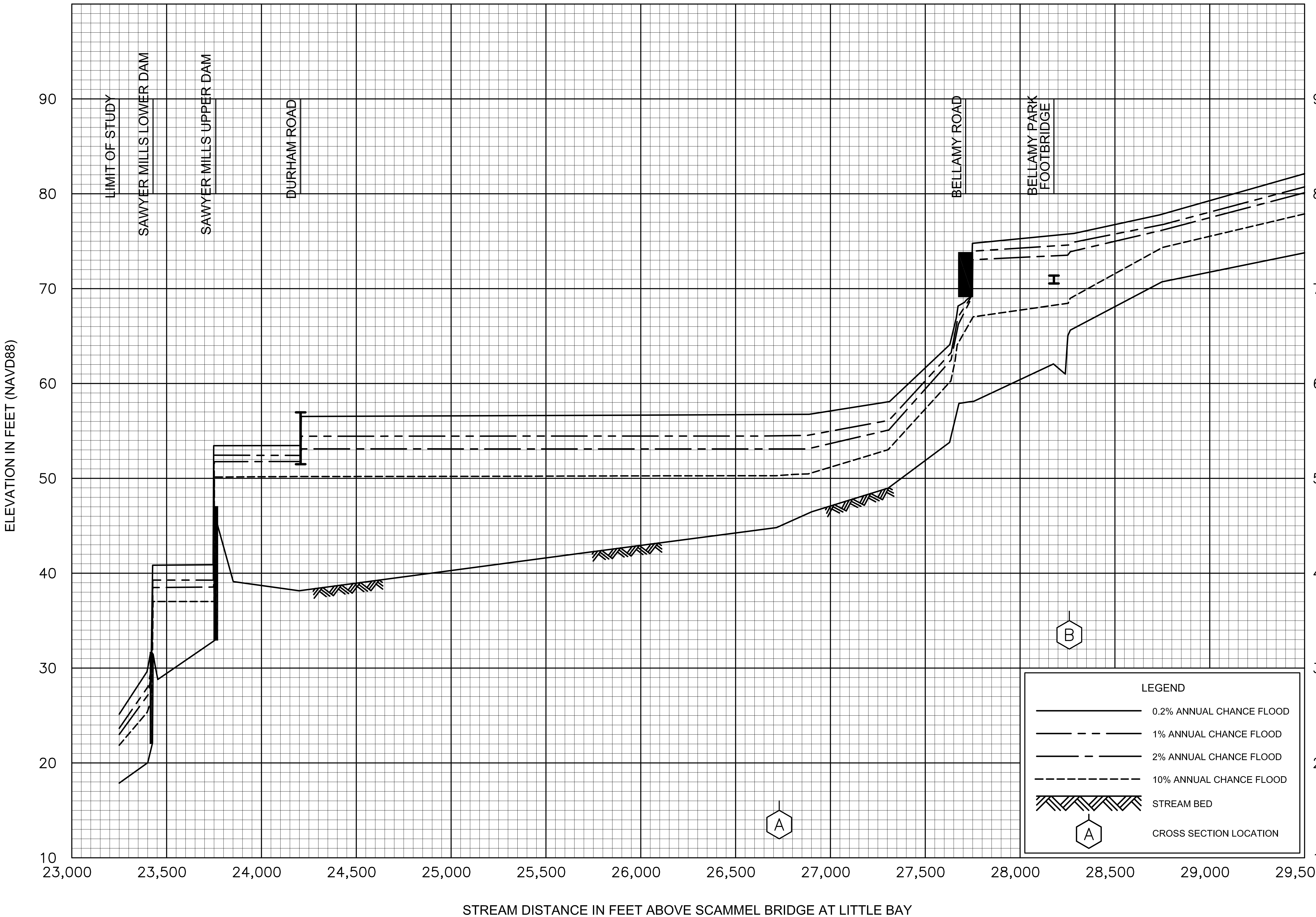


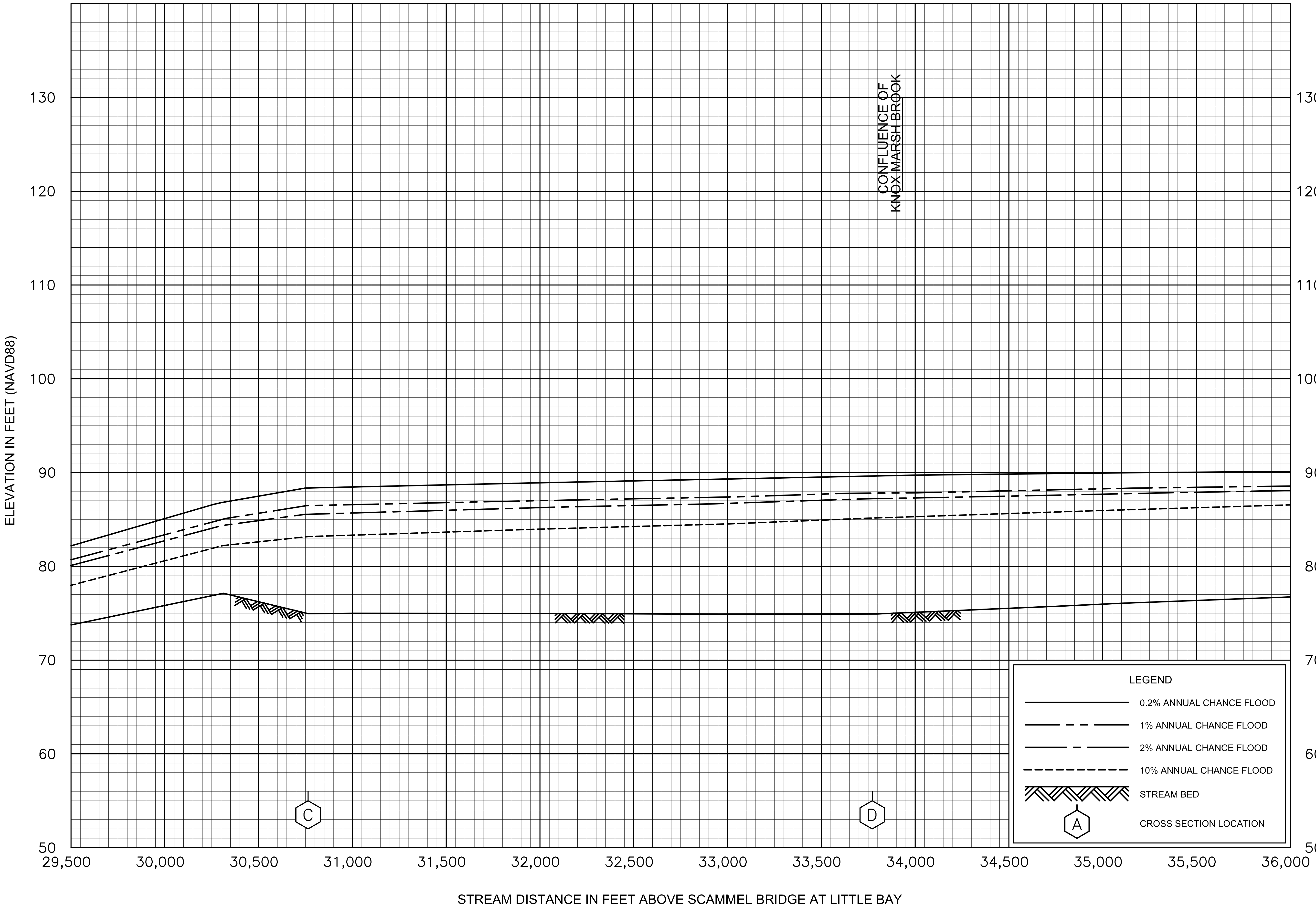
FLOOD PROFILES

BELLAMY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

01P



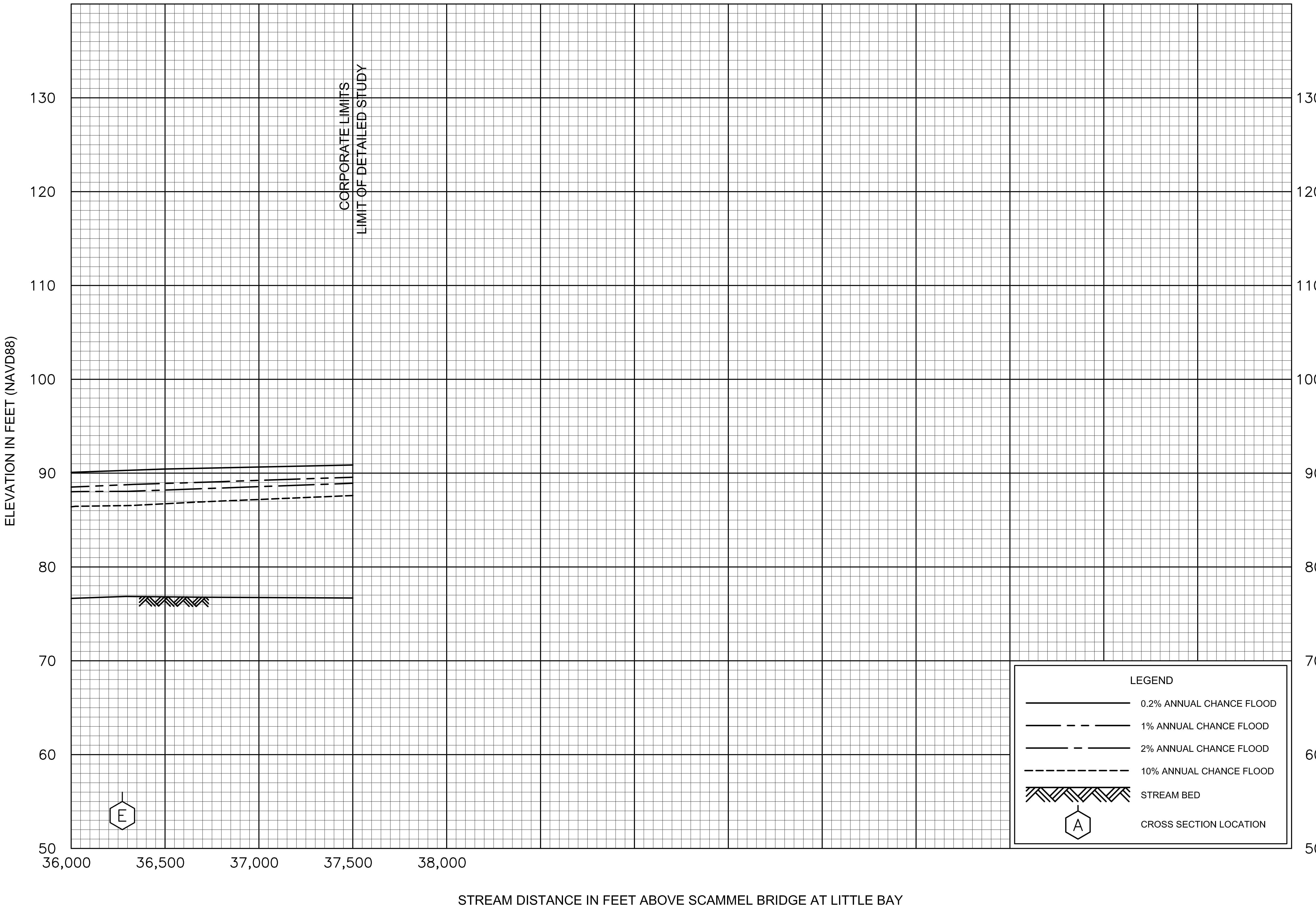
FLOOD PROFILES

BELLAMY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



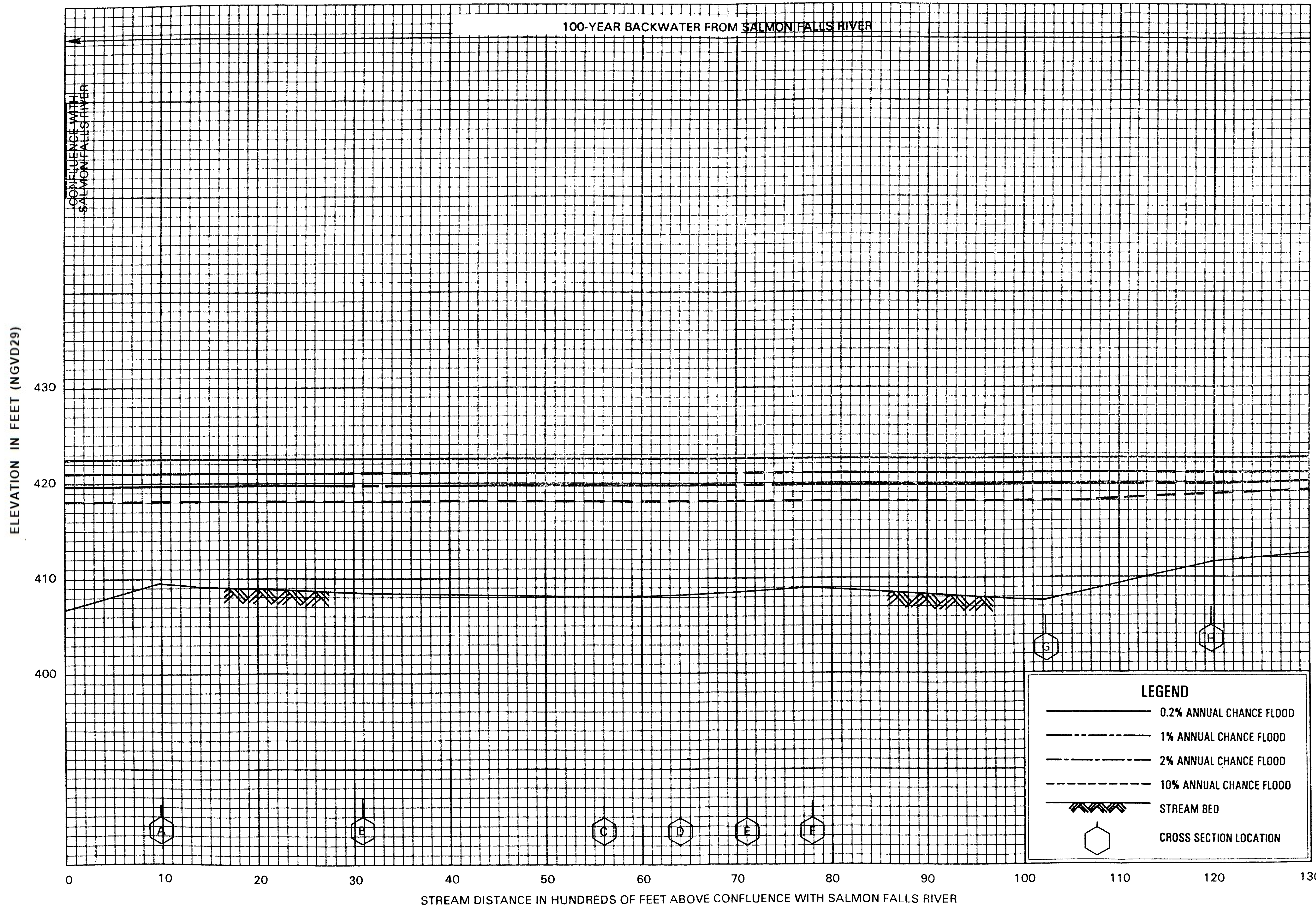
FLOOD PROFILES

BELLAMY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

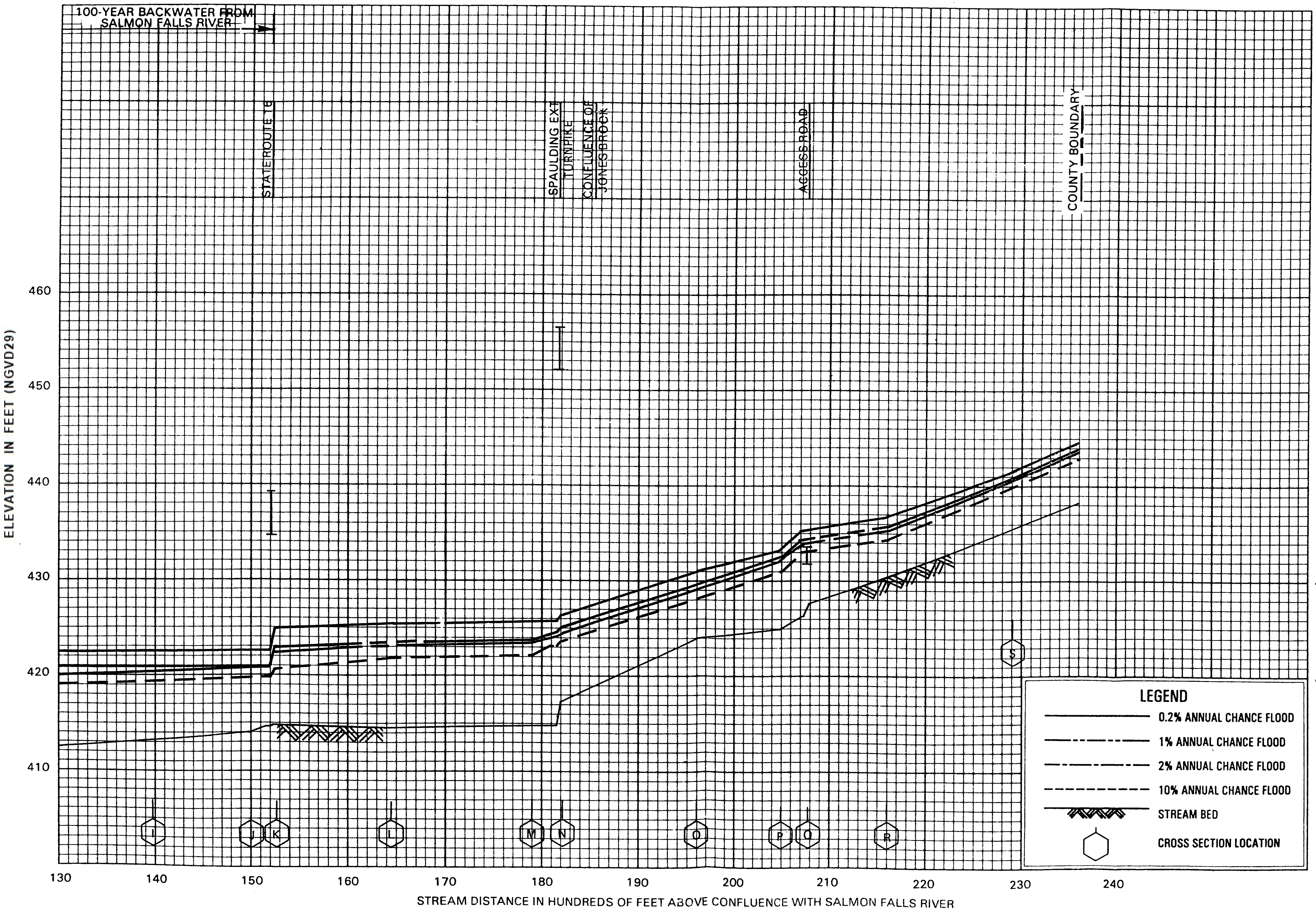
BRANCH RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

04P



FLOOD PROFILES

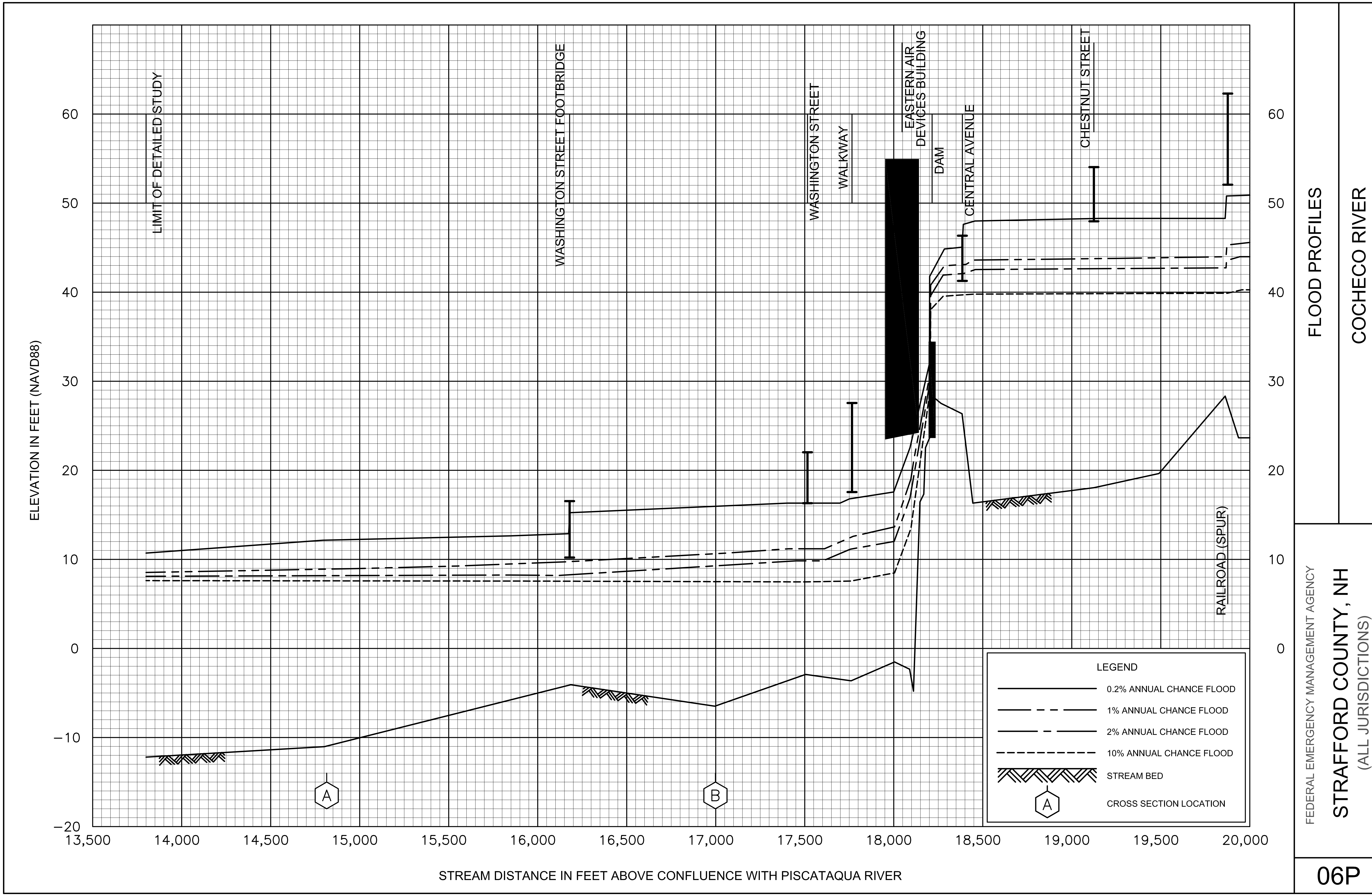
BRANCH RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

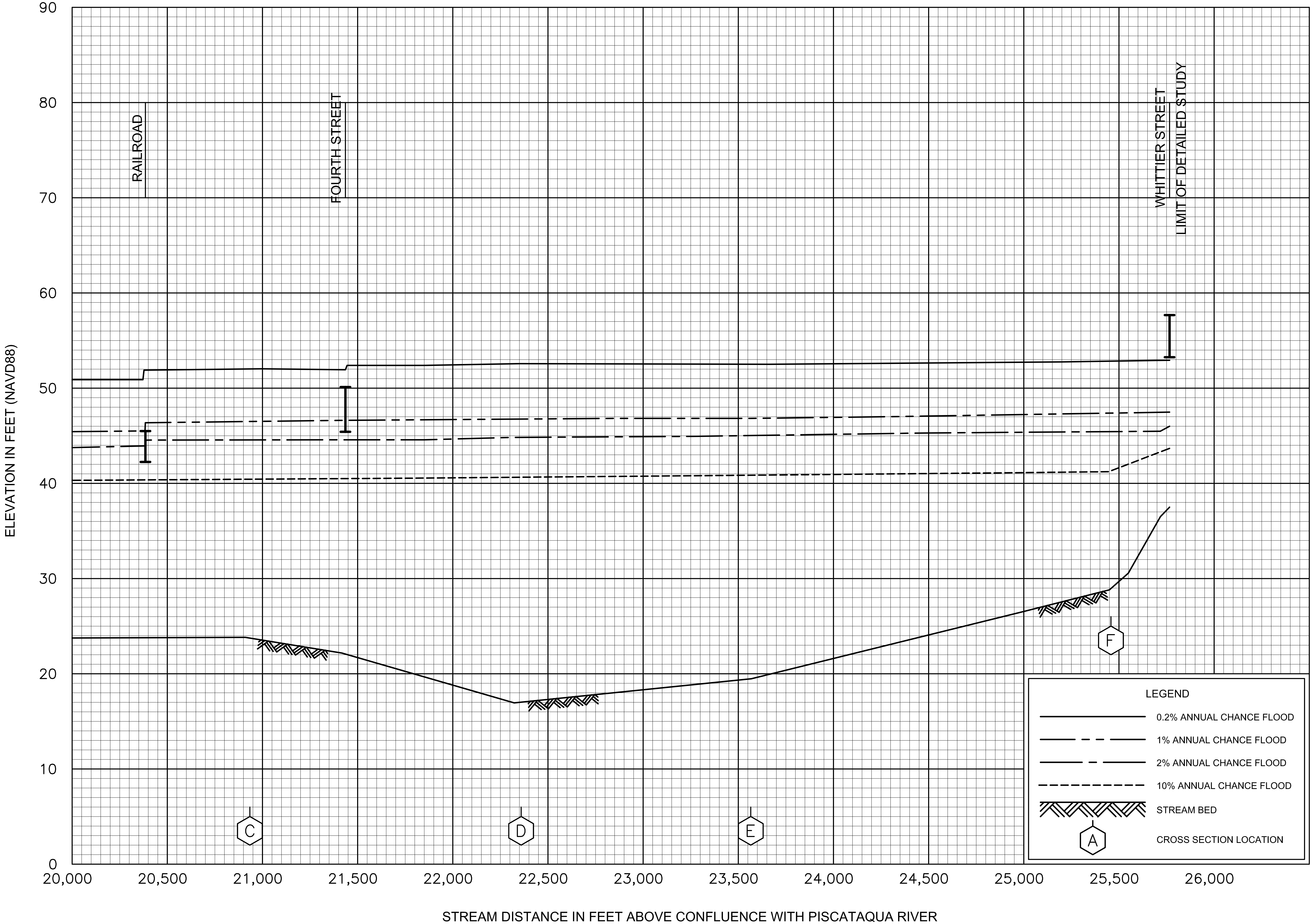
STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

05P



LIMIT OF DETAILED STUDY
WASHINGTON STREET FOOTBRIDGE
WASHINGTON STREET
WALKWAY
EASTERN AIR DEVICES BUILDING
DAM
CENTRAL AVENUE
CHESTNUT STREET
RAILROAD (SPUR)
ELEVATION IN FEET (NAVD88)
60
50
40
30
20
10
0
−10
−20
13,500
14,000
14,500
15,000
15,500
16,000
16,500
17,000
17,500
18,000
18,500
19,000
19,500
20,000
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH PISCATAQUA RIVER
A
B
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
FLOOD PROFILES
COCHECO RIVER
FEDERAL EMERGENCY MANAGEMENT AGENCY
STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)
06P



FLOOD PROFILES

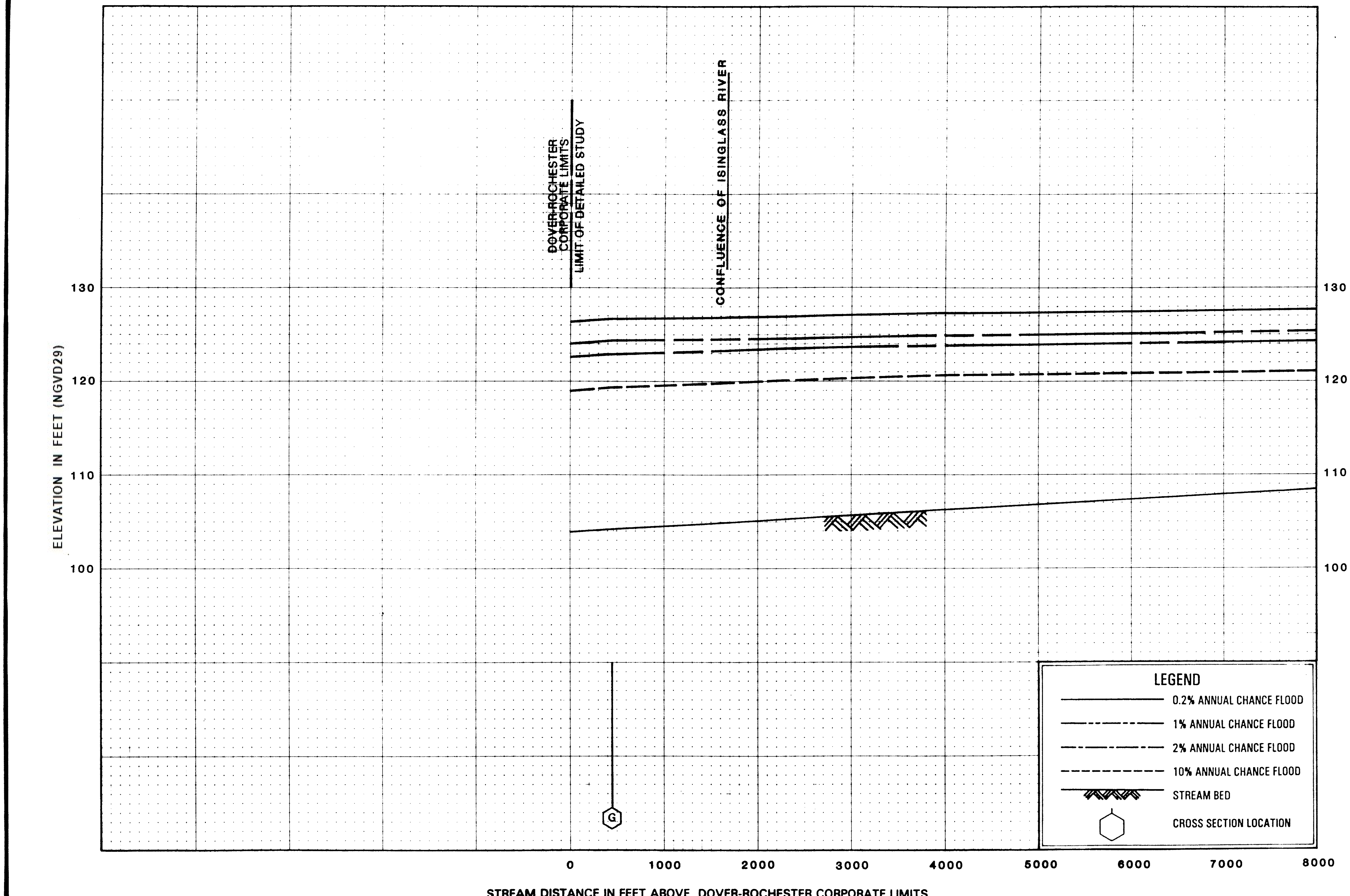
COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

07P



FLOOD PROFILES

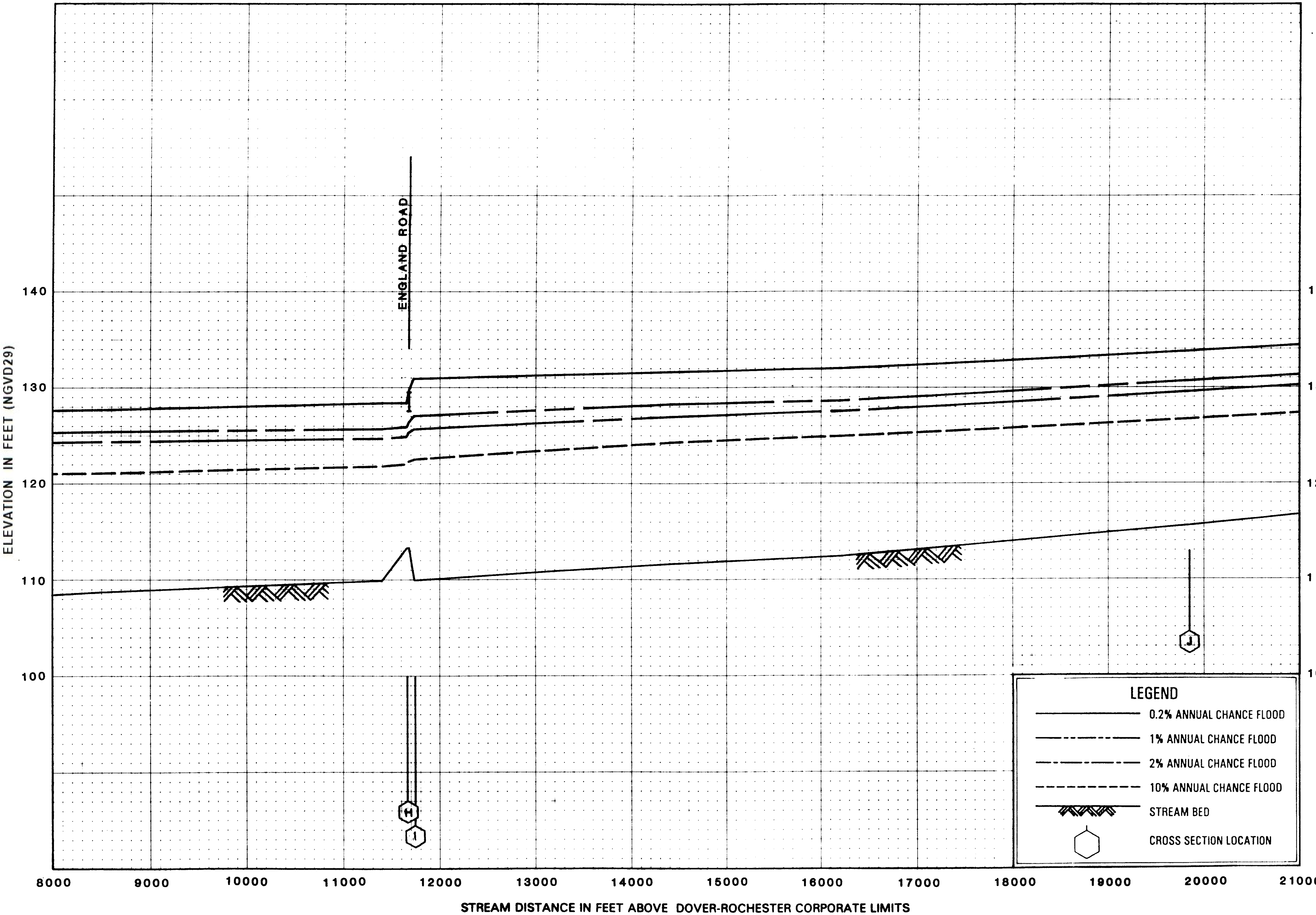
COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

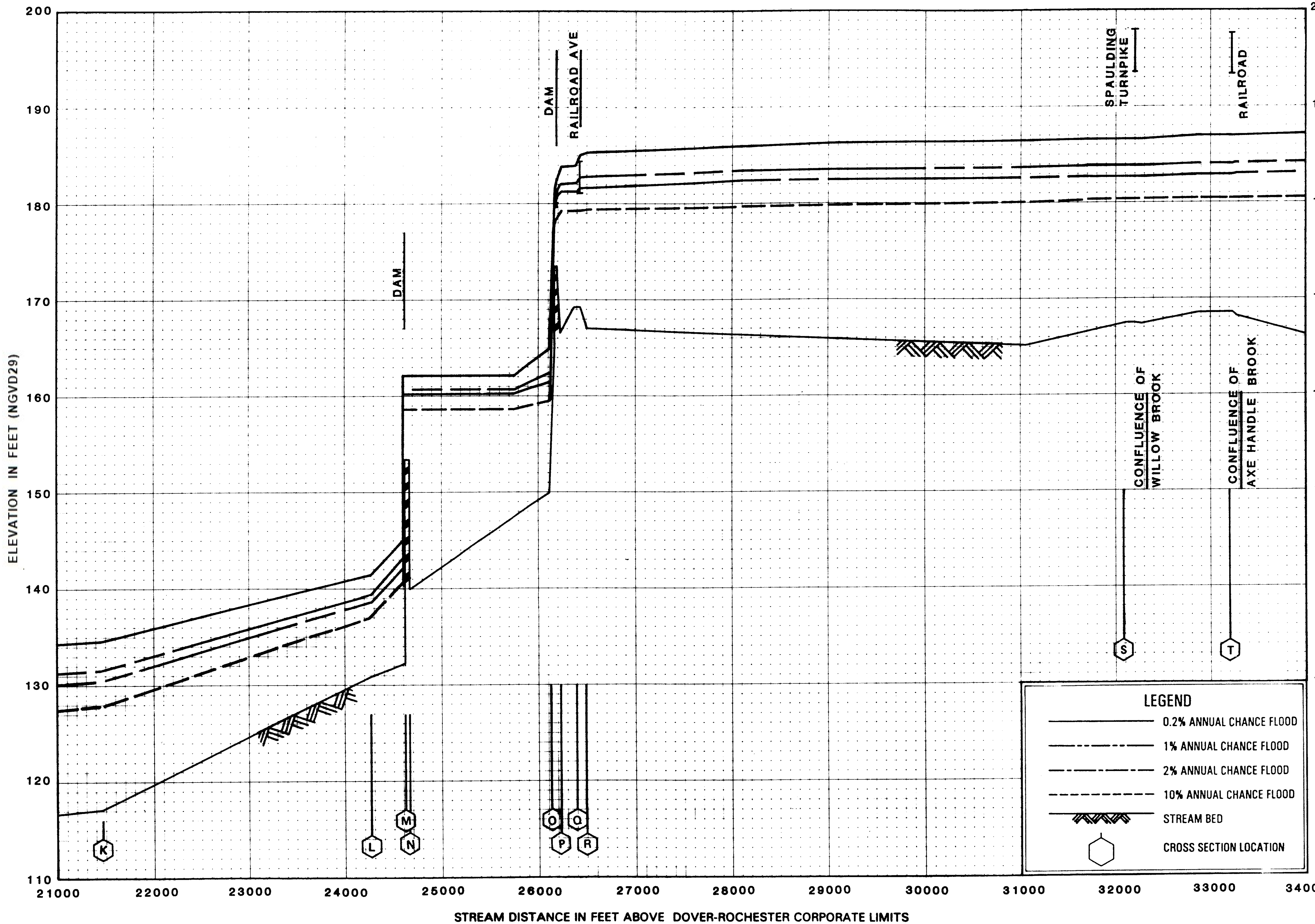
(ALL JURISDICTIONS)

08P



FLOOD PROFILES
COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



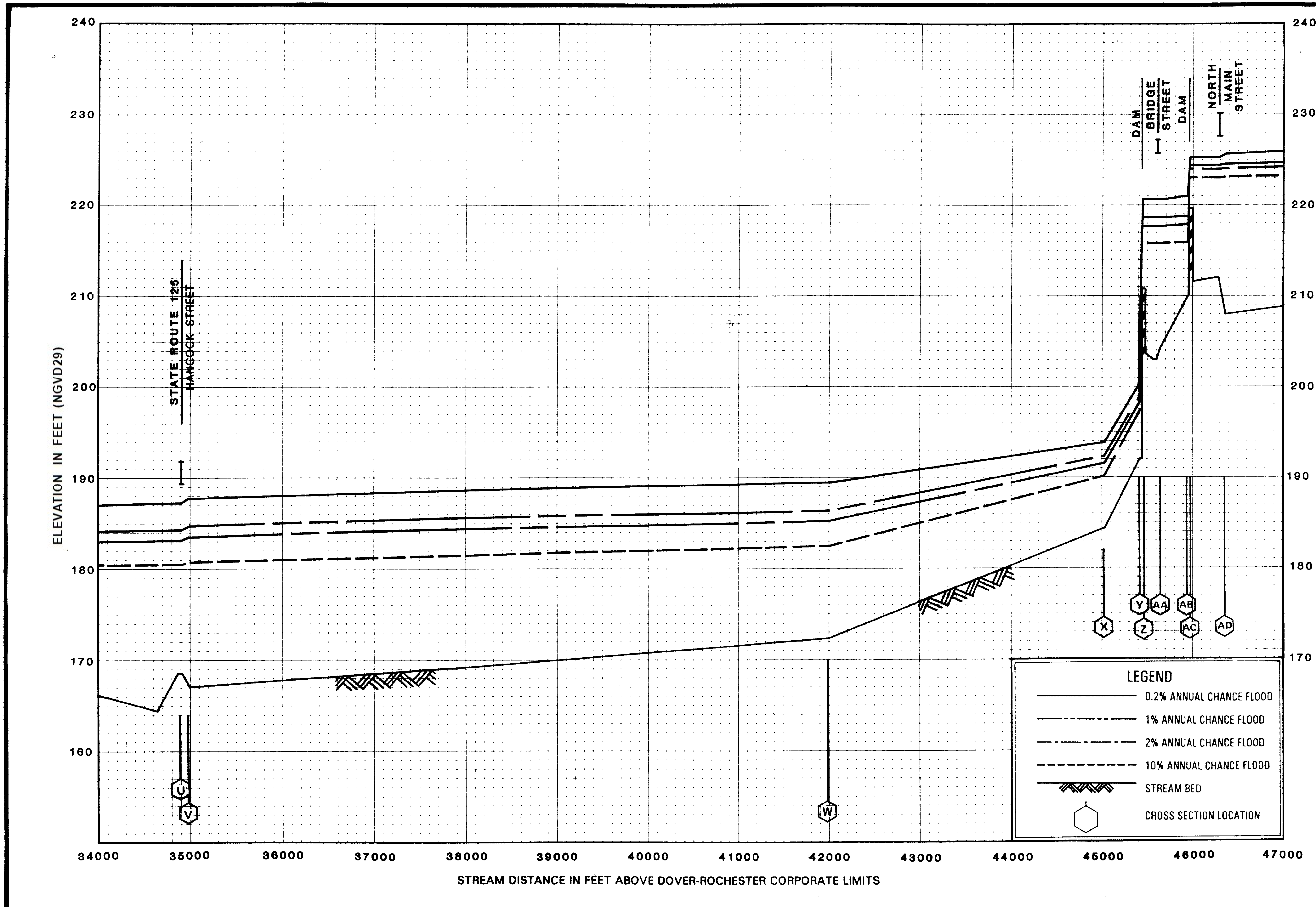
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



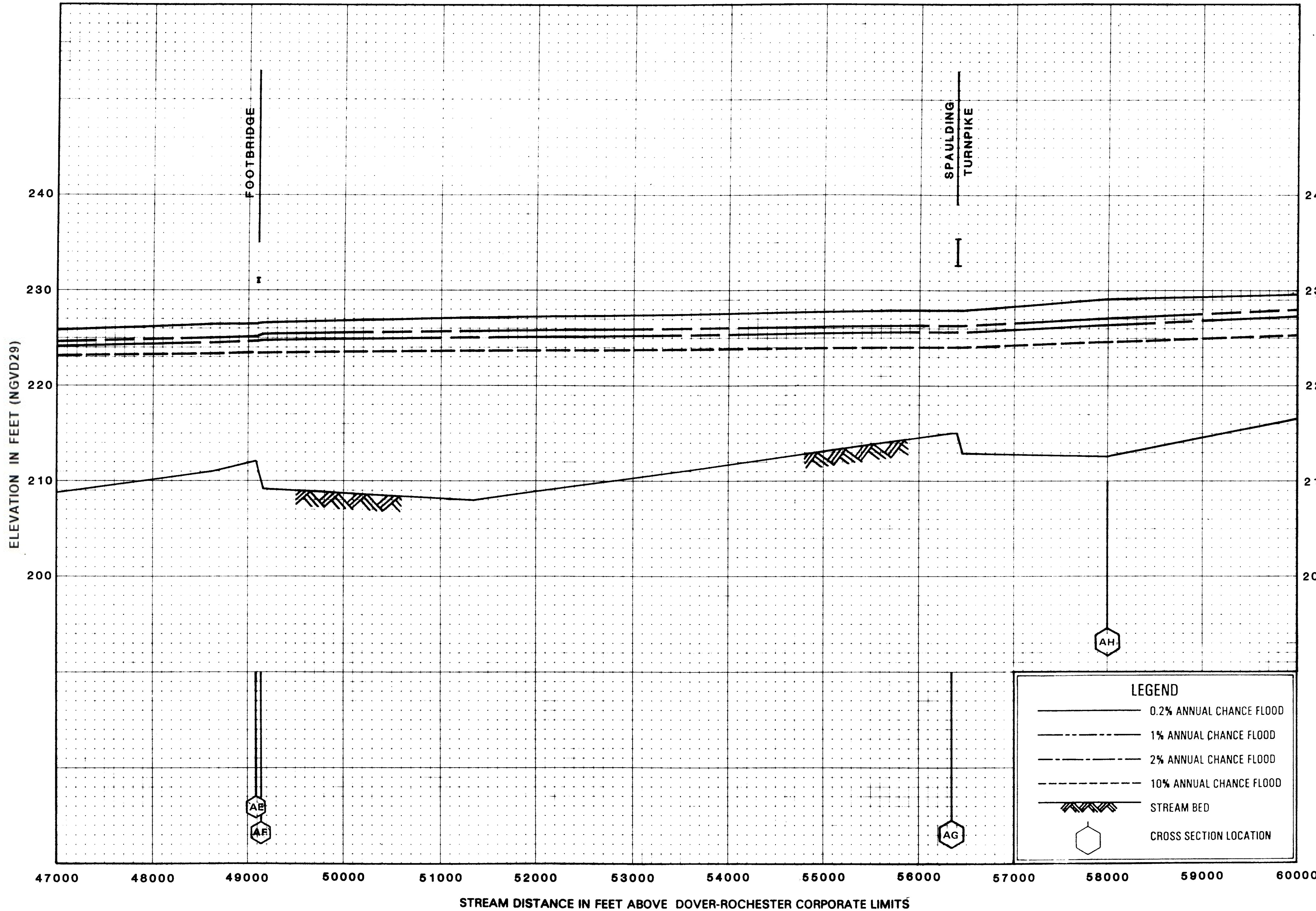
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



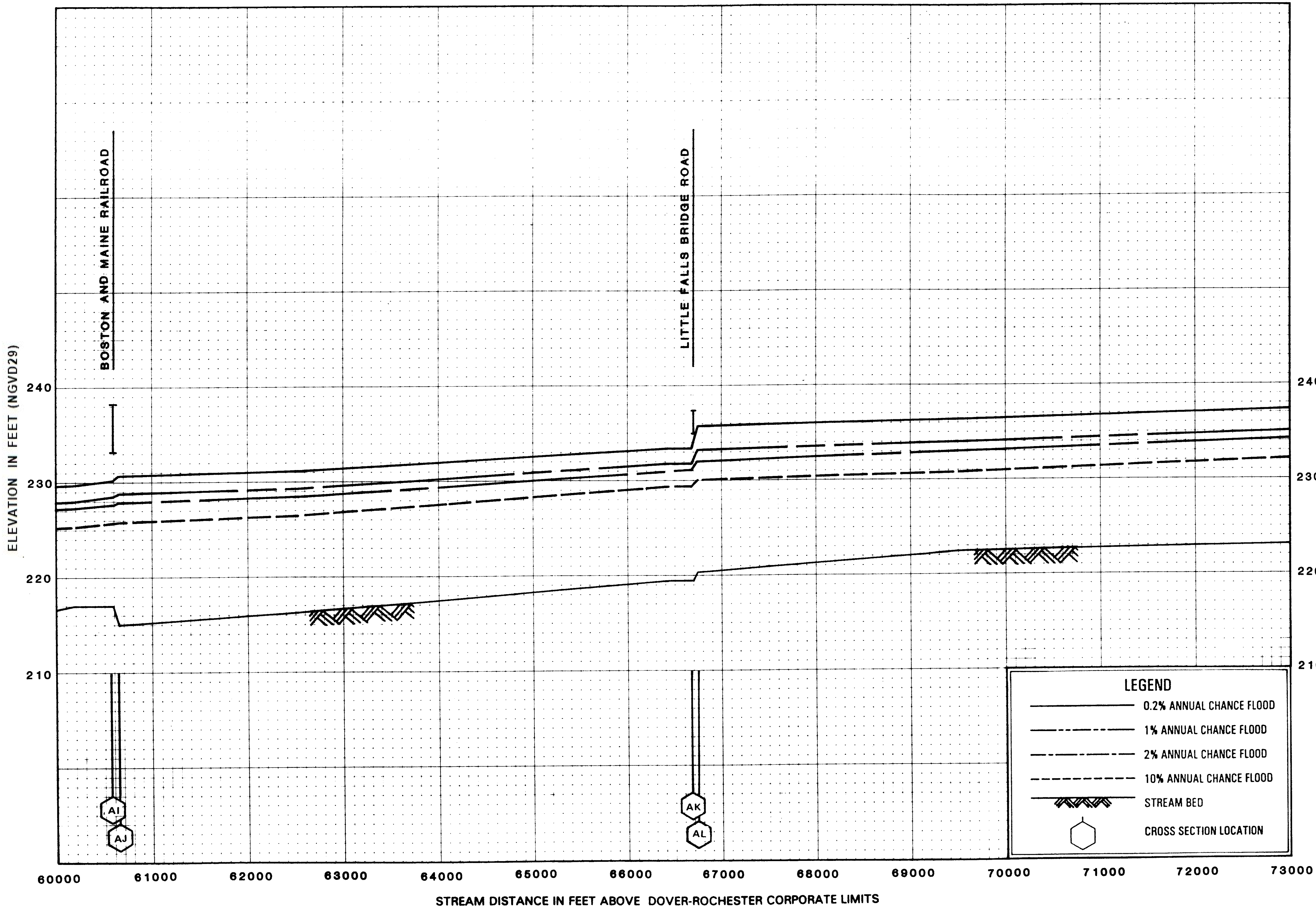
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



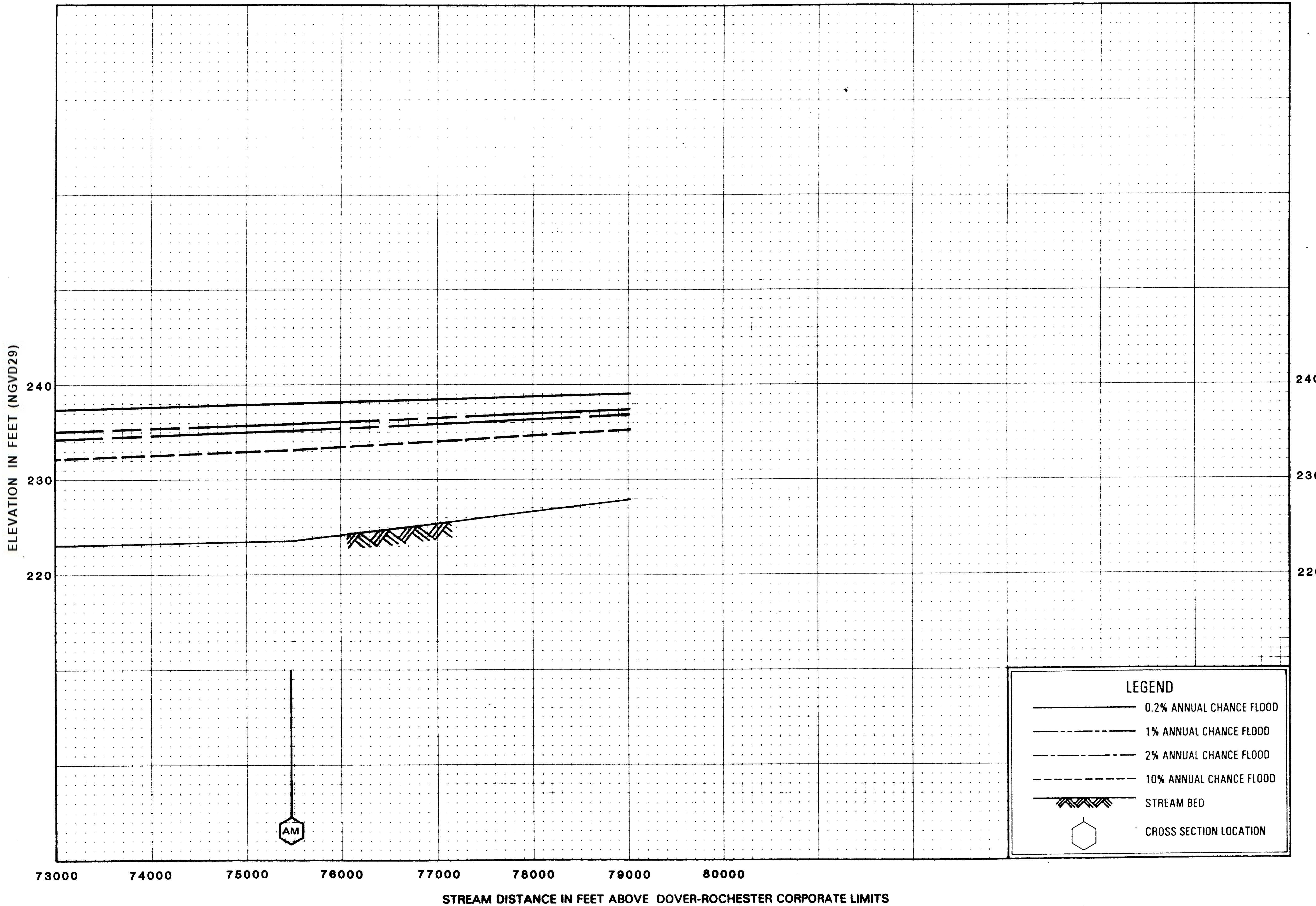
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



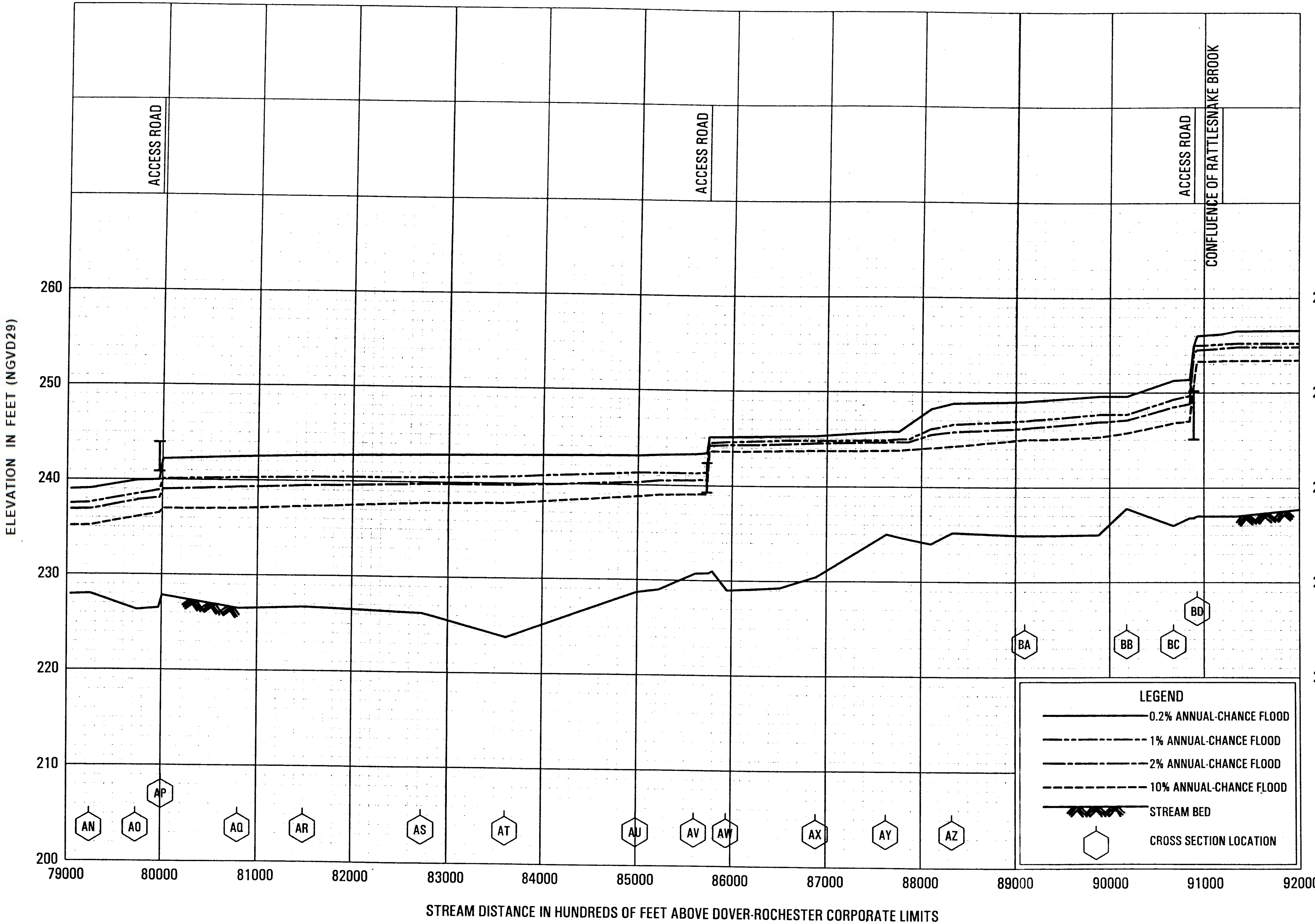
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



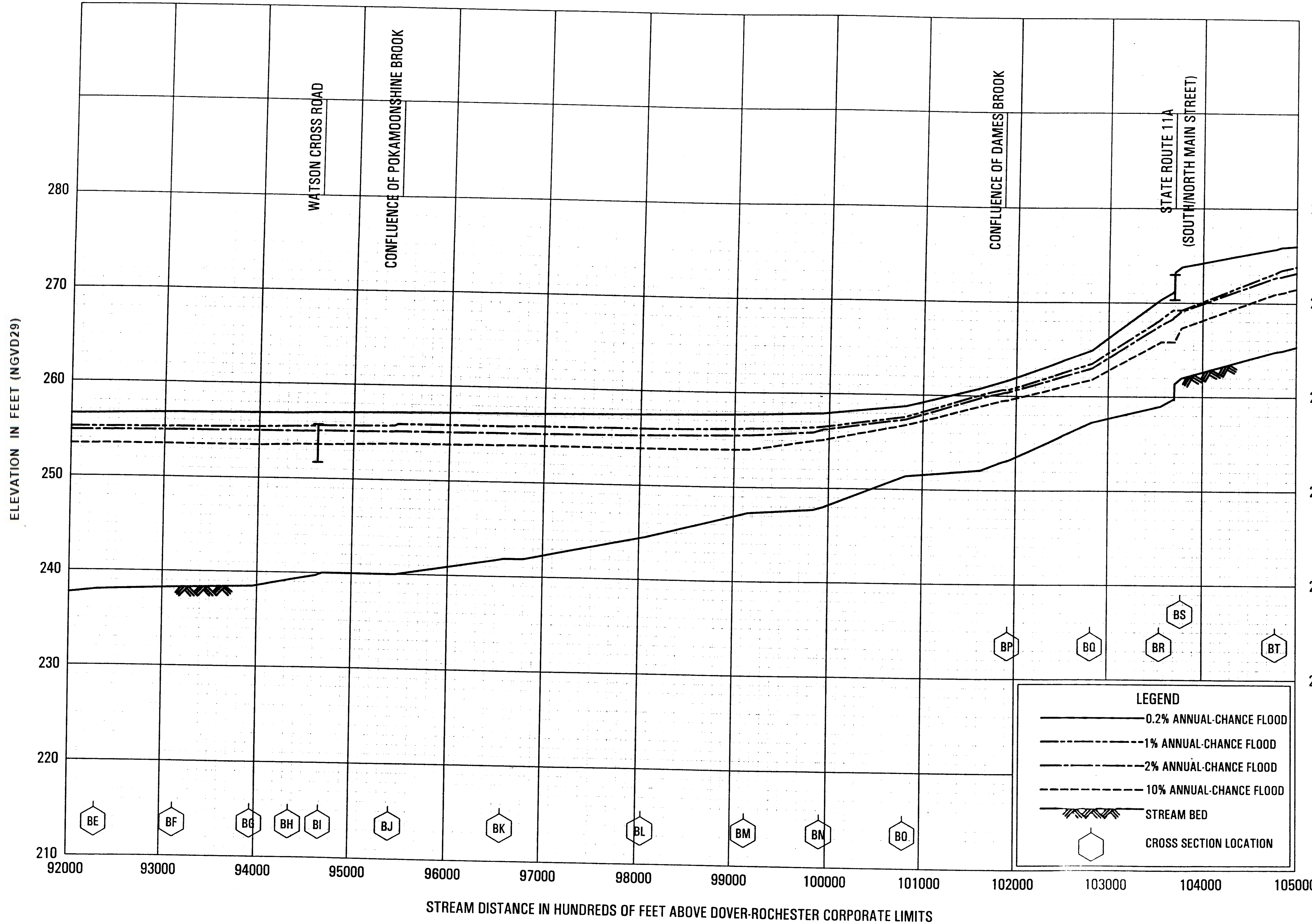
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

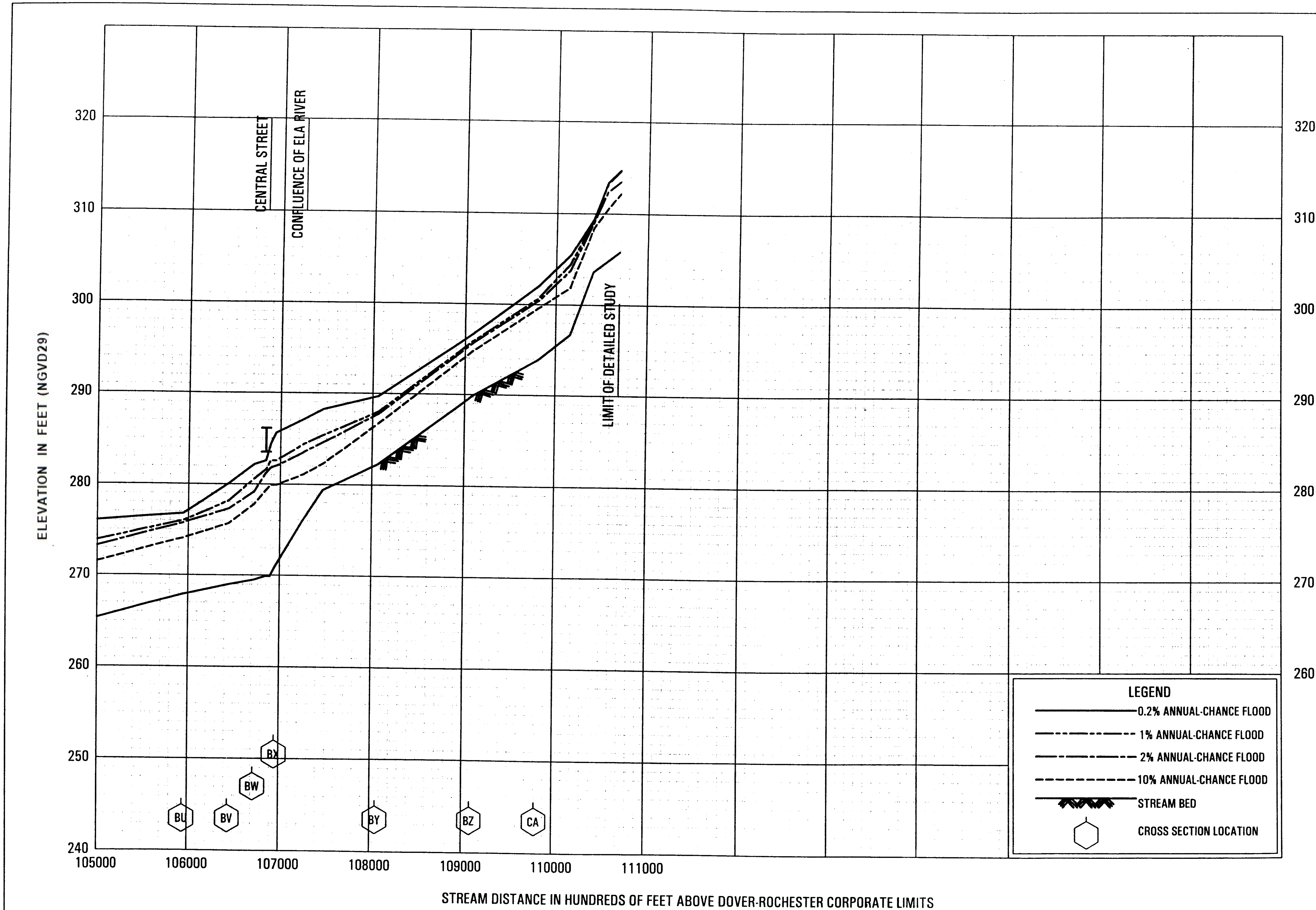
COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

16P



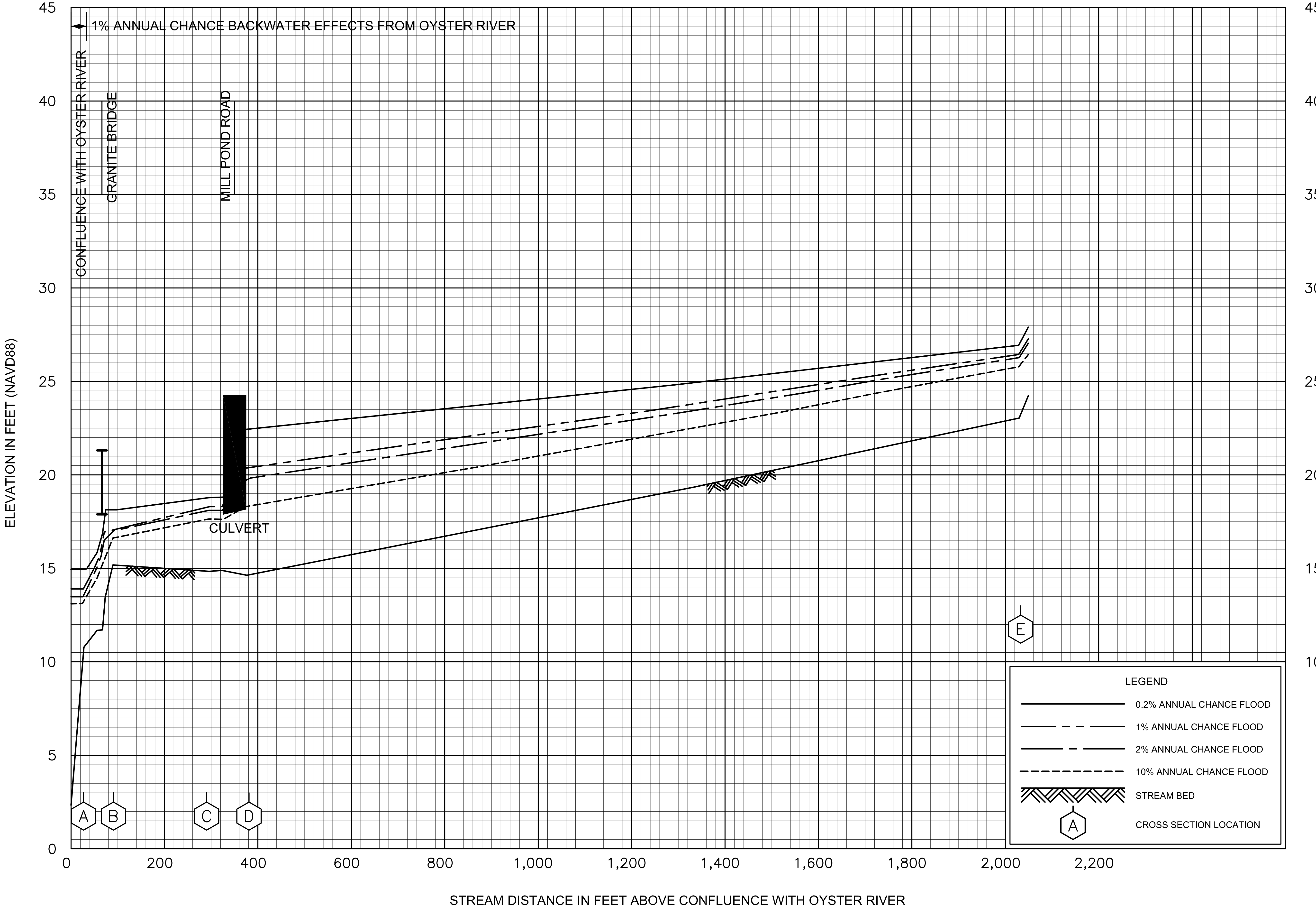
FLOOD PROFILES

COCHECO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



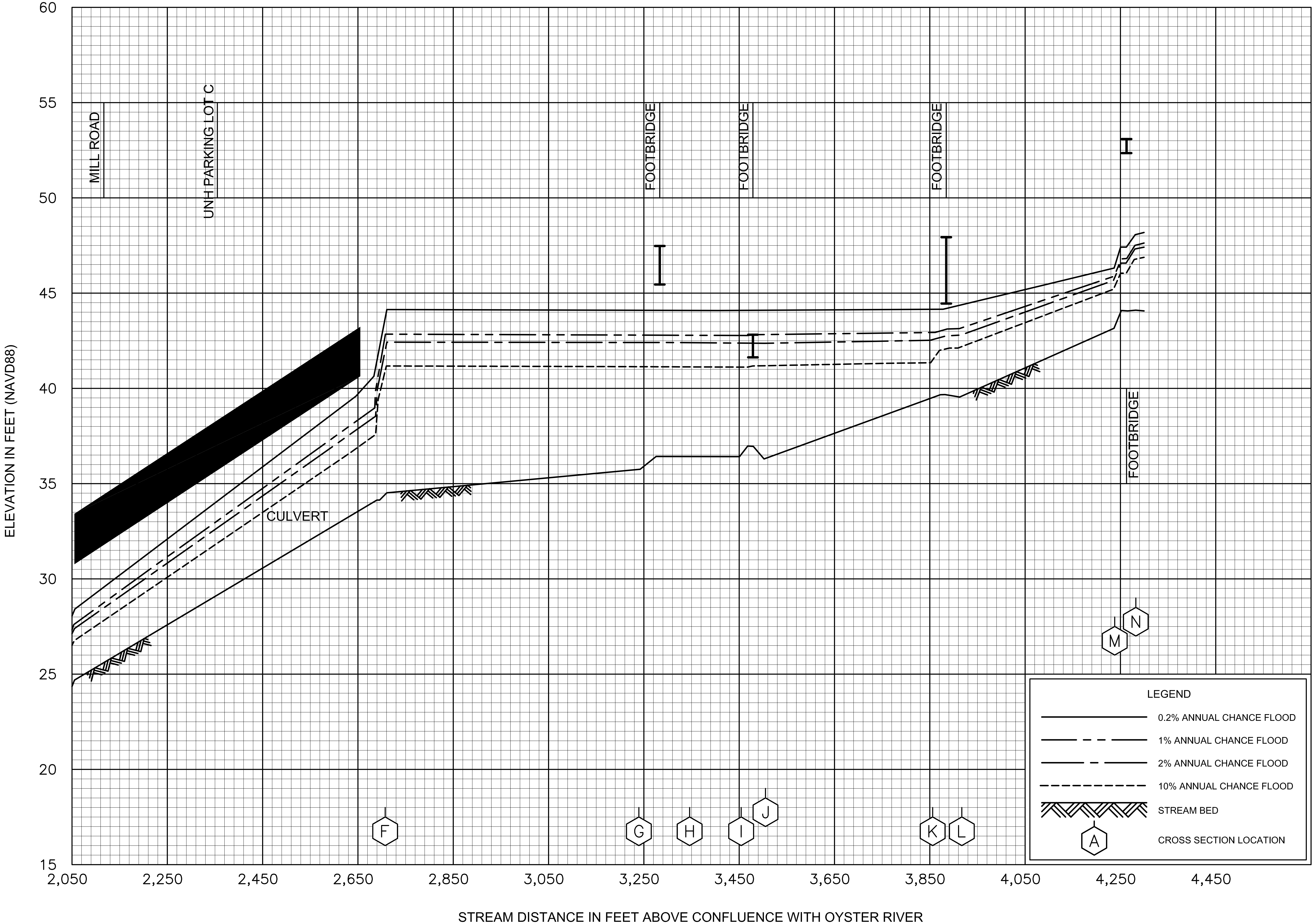
FLOOD PROFILES

COLLEGE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



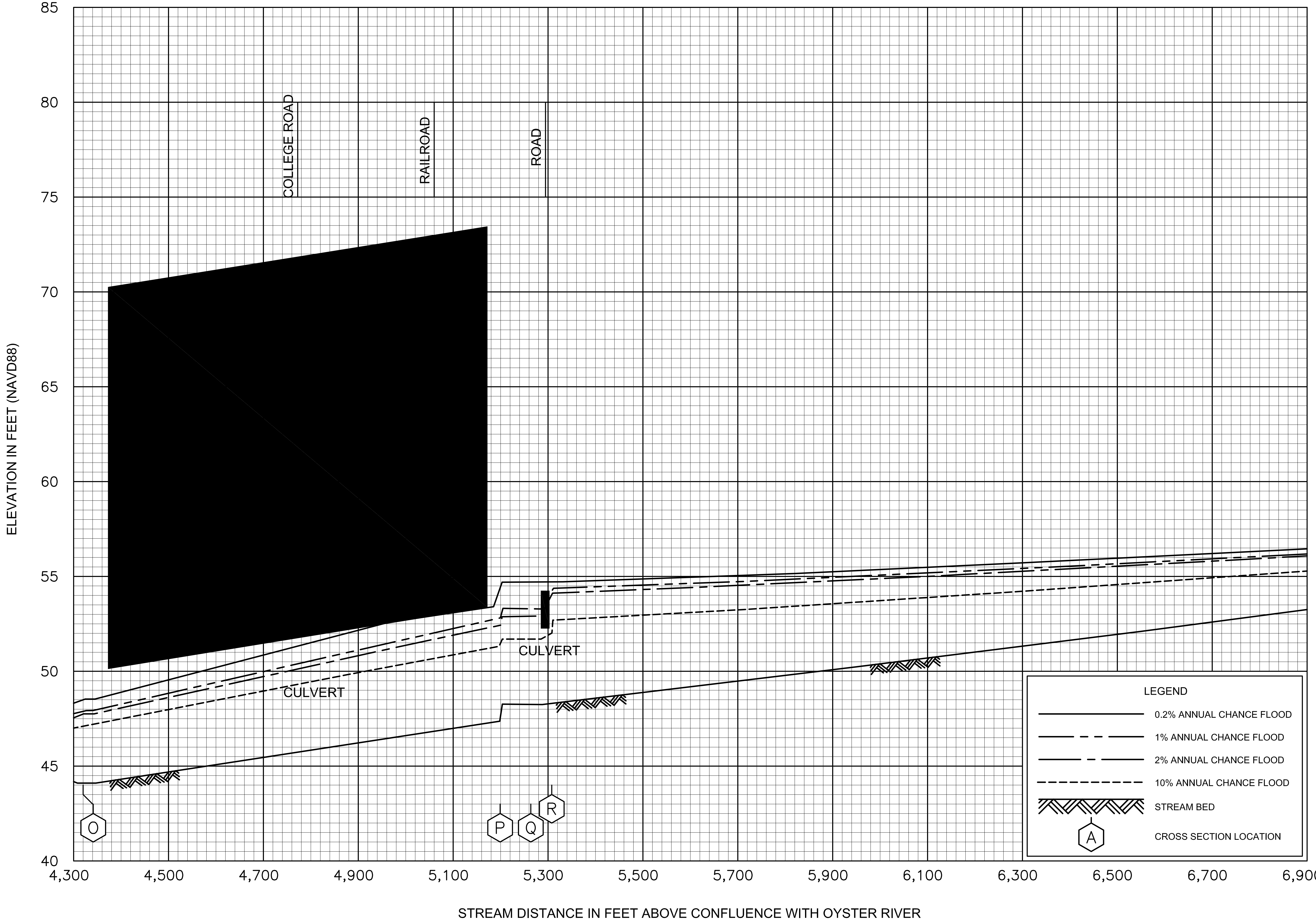
FLOOD PROFILES

COLLEGE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

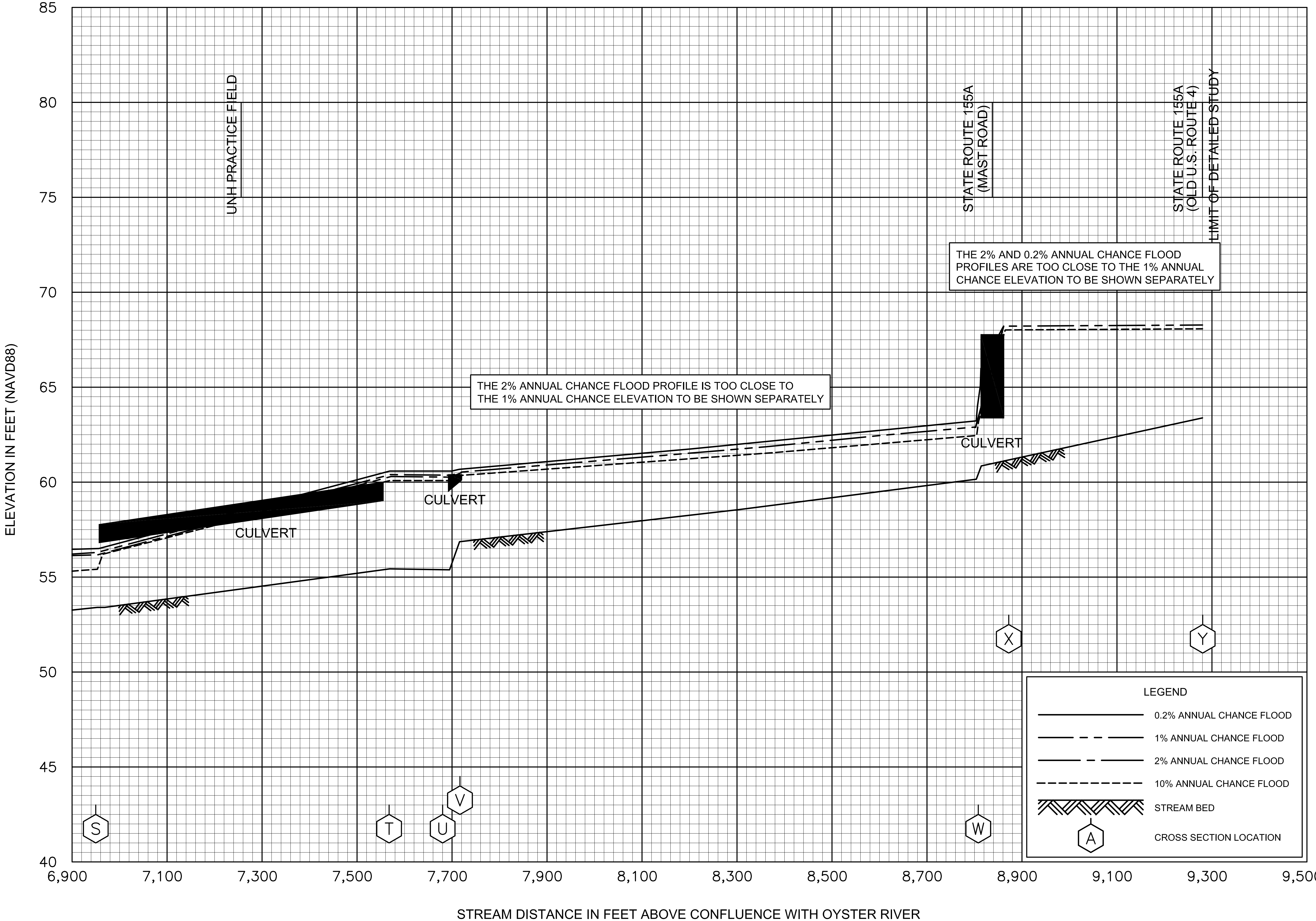
COLLEGE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

20P



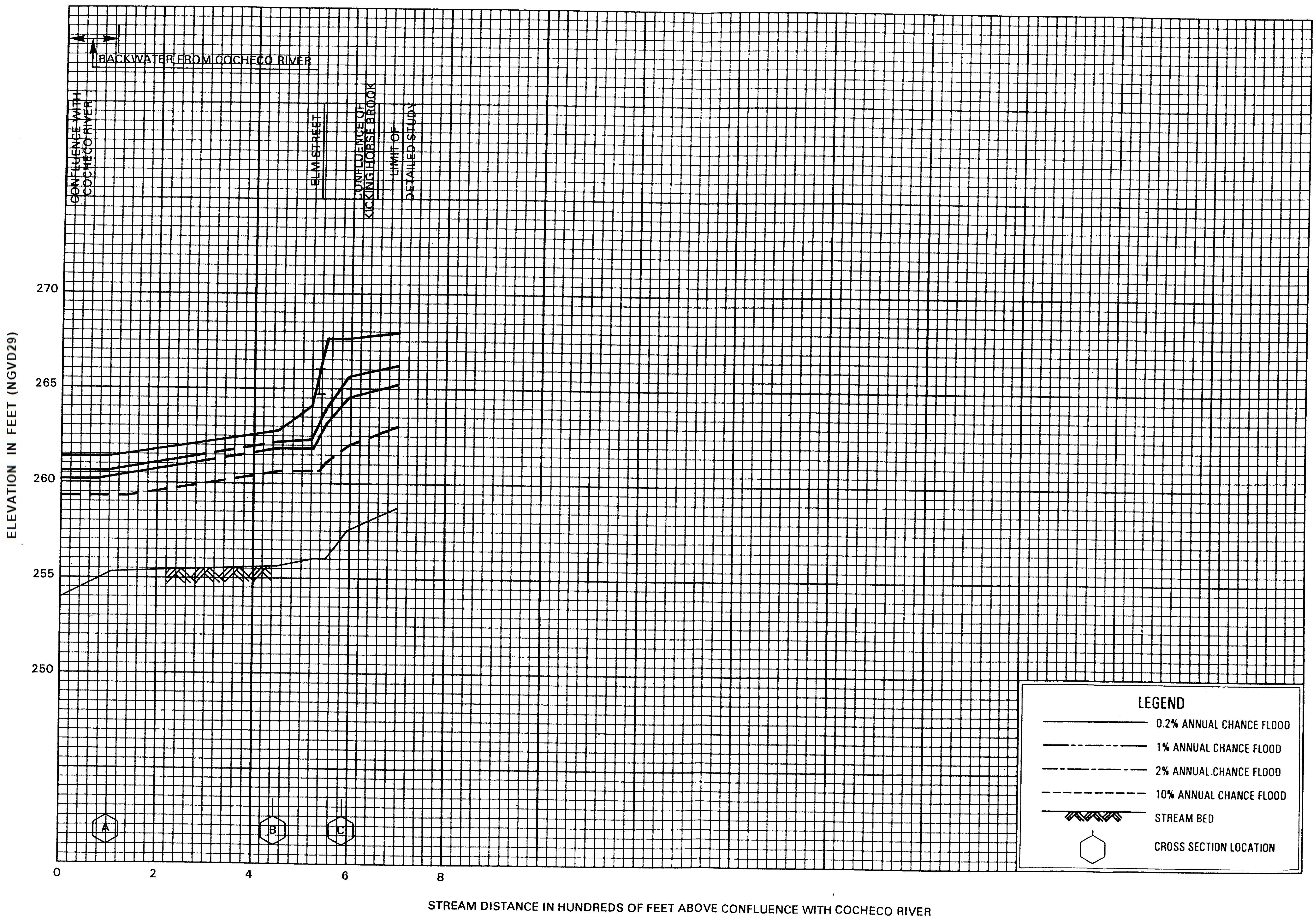
FLOOD PROFILES

COLLEGE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



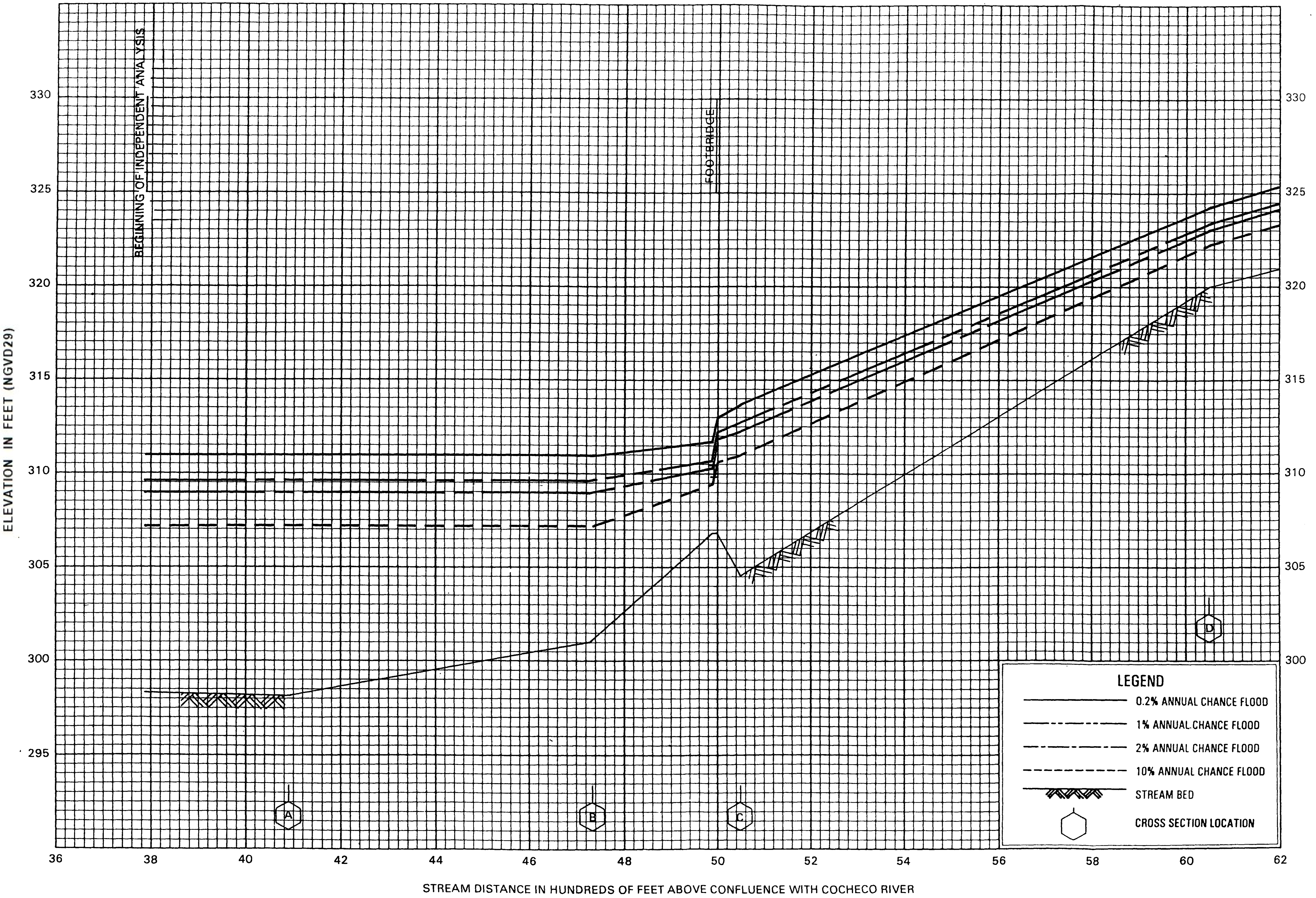
FLOOD PROFILES

DAMES BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



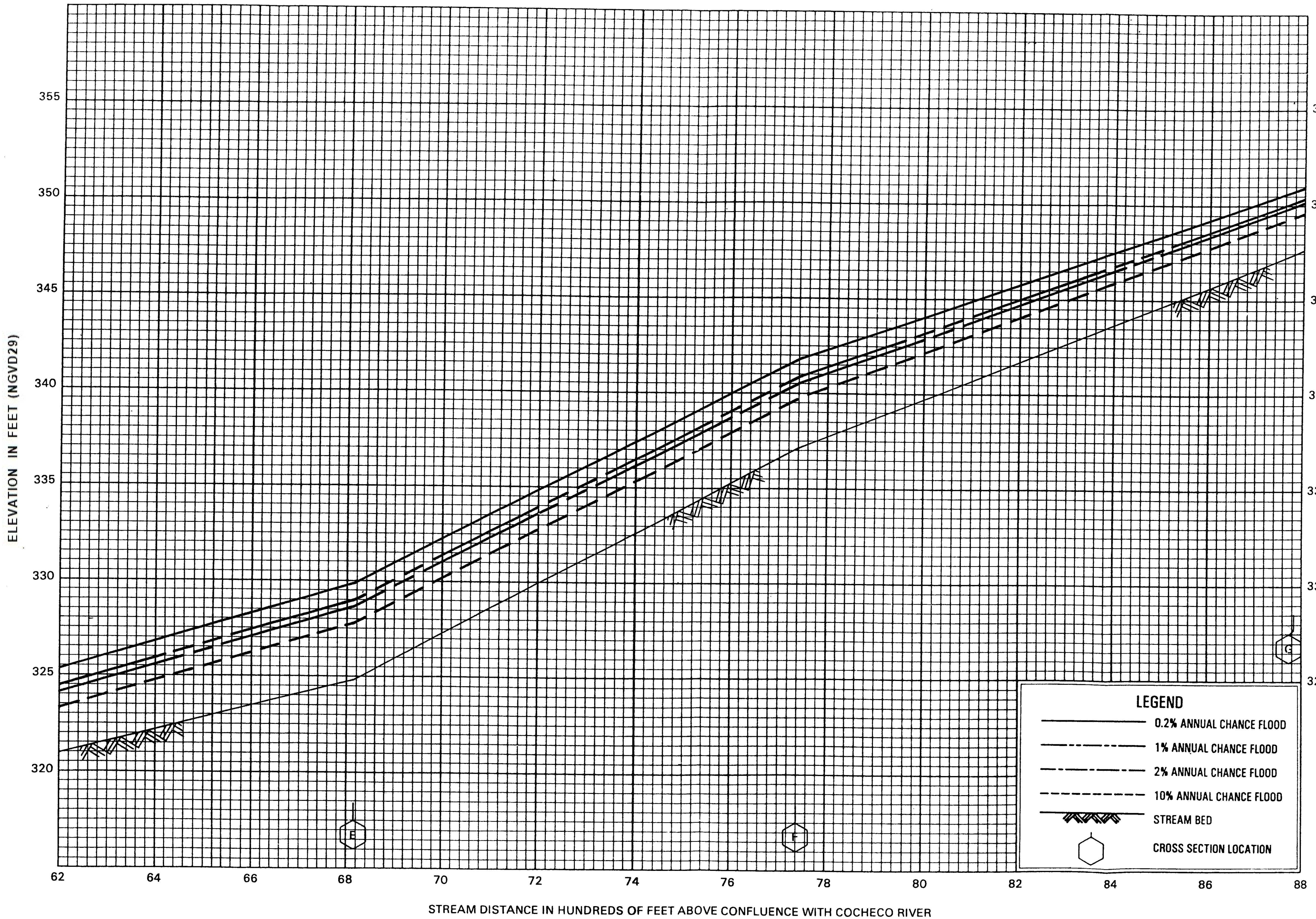
FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

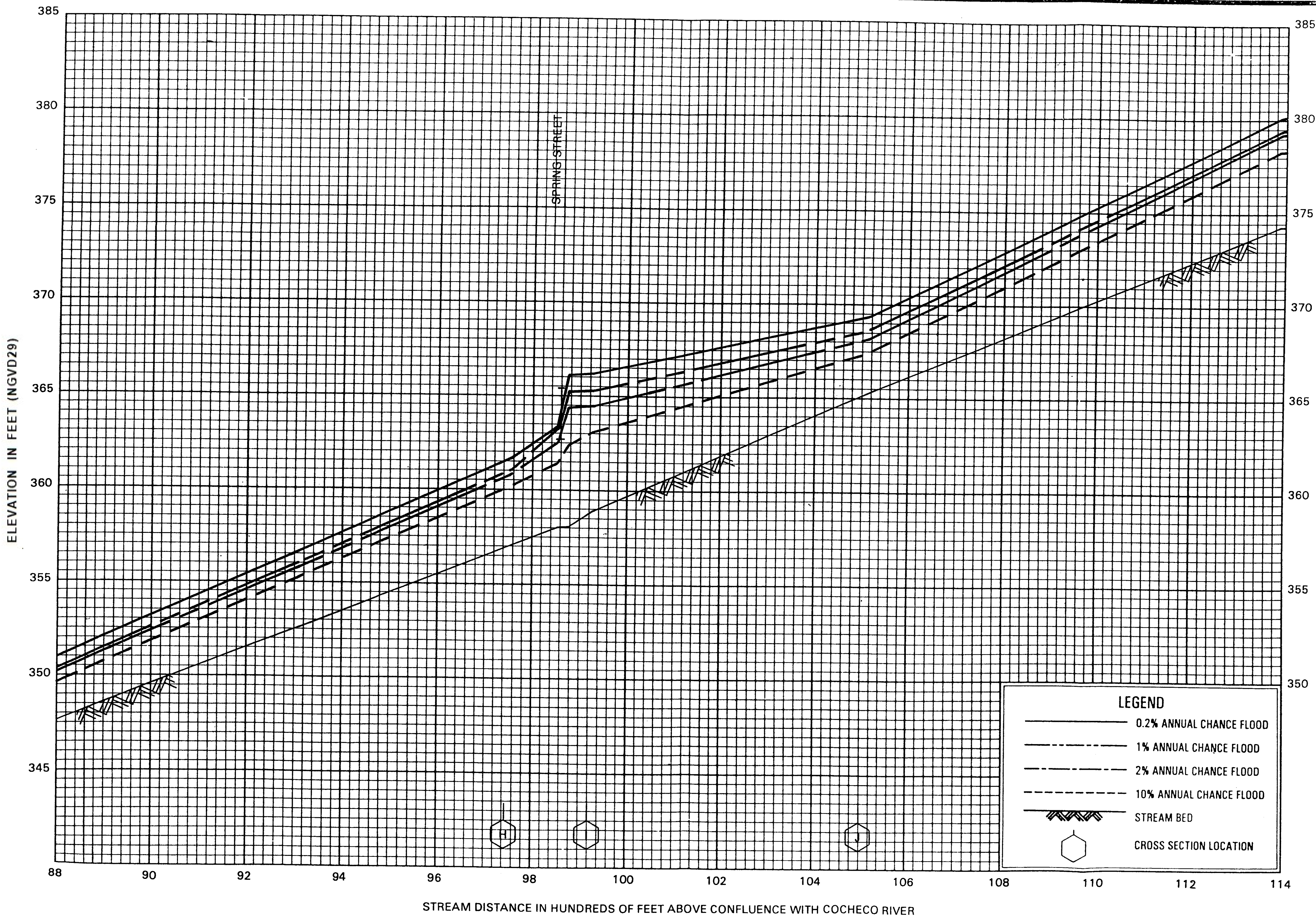
ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

24P



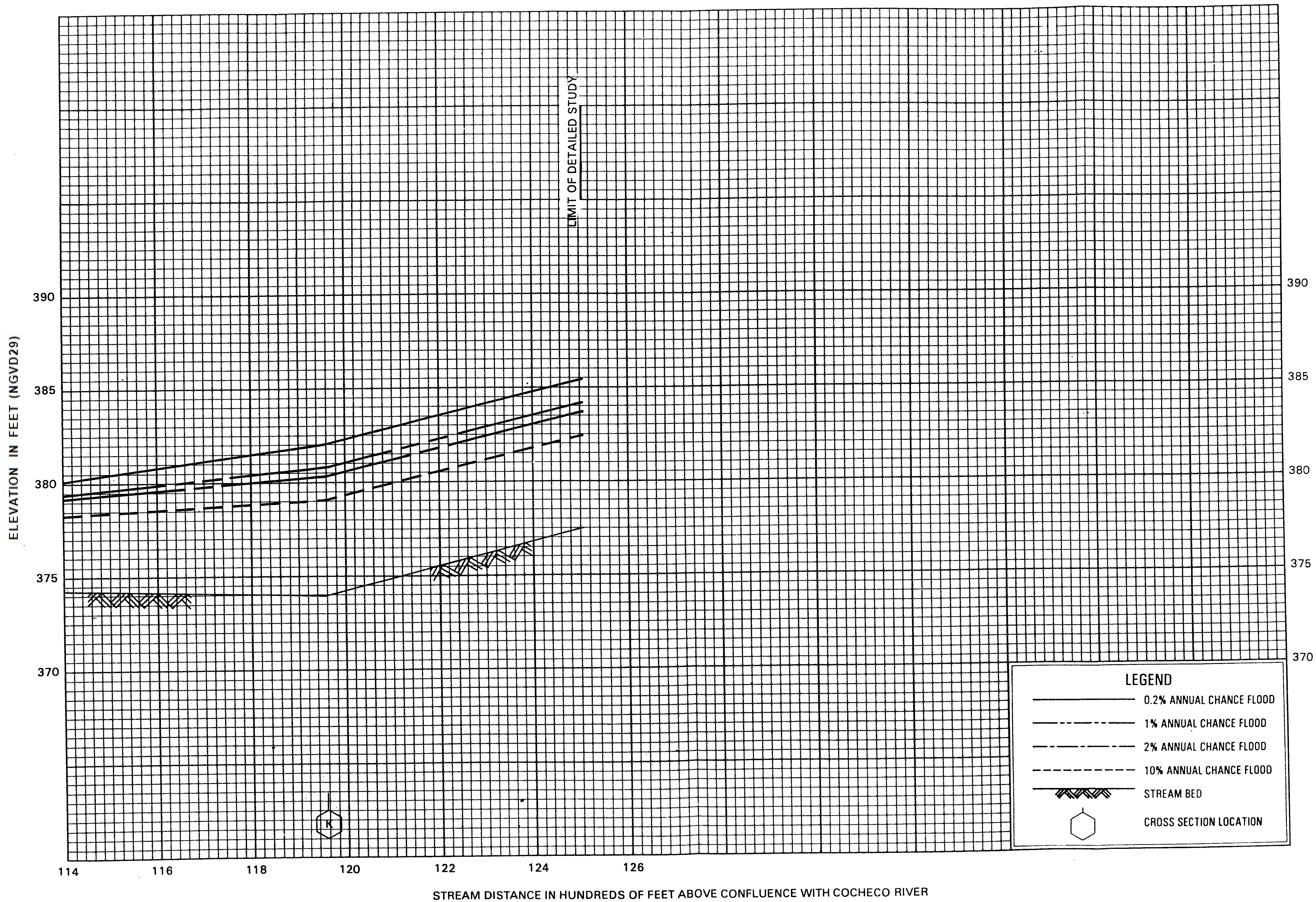
FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

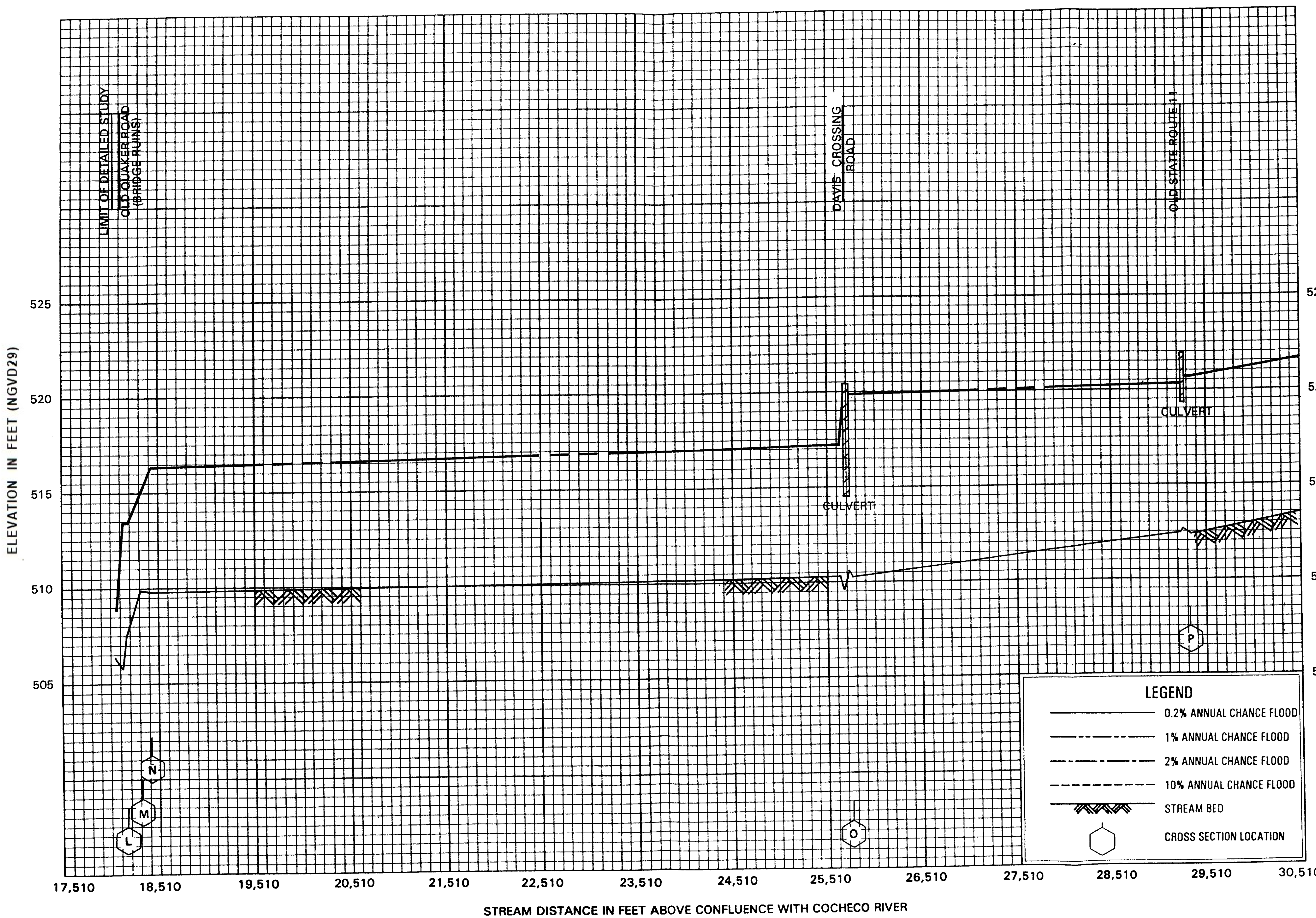
ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

26P



FLOOD PROFILES

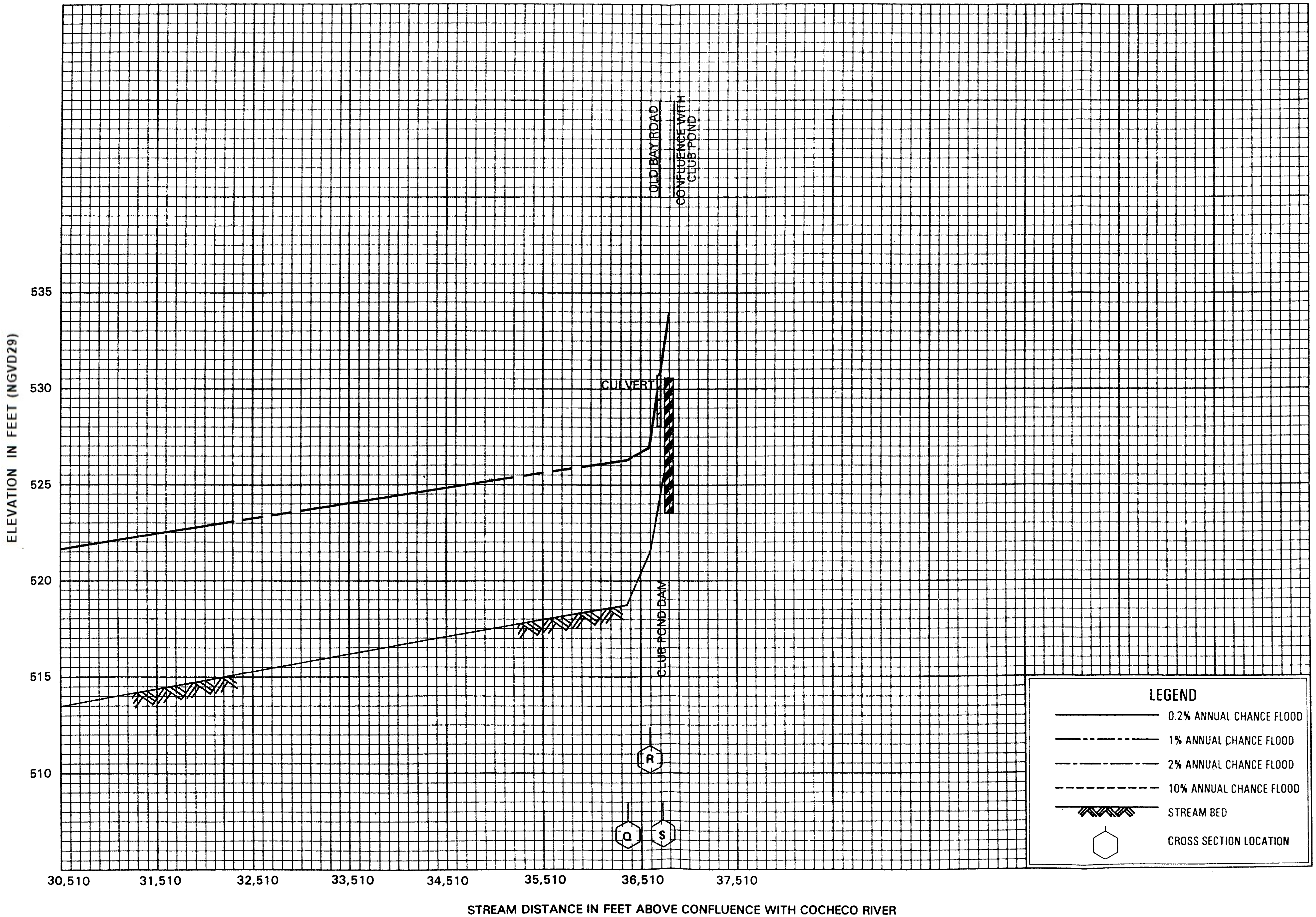
ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

27P



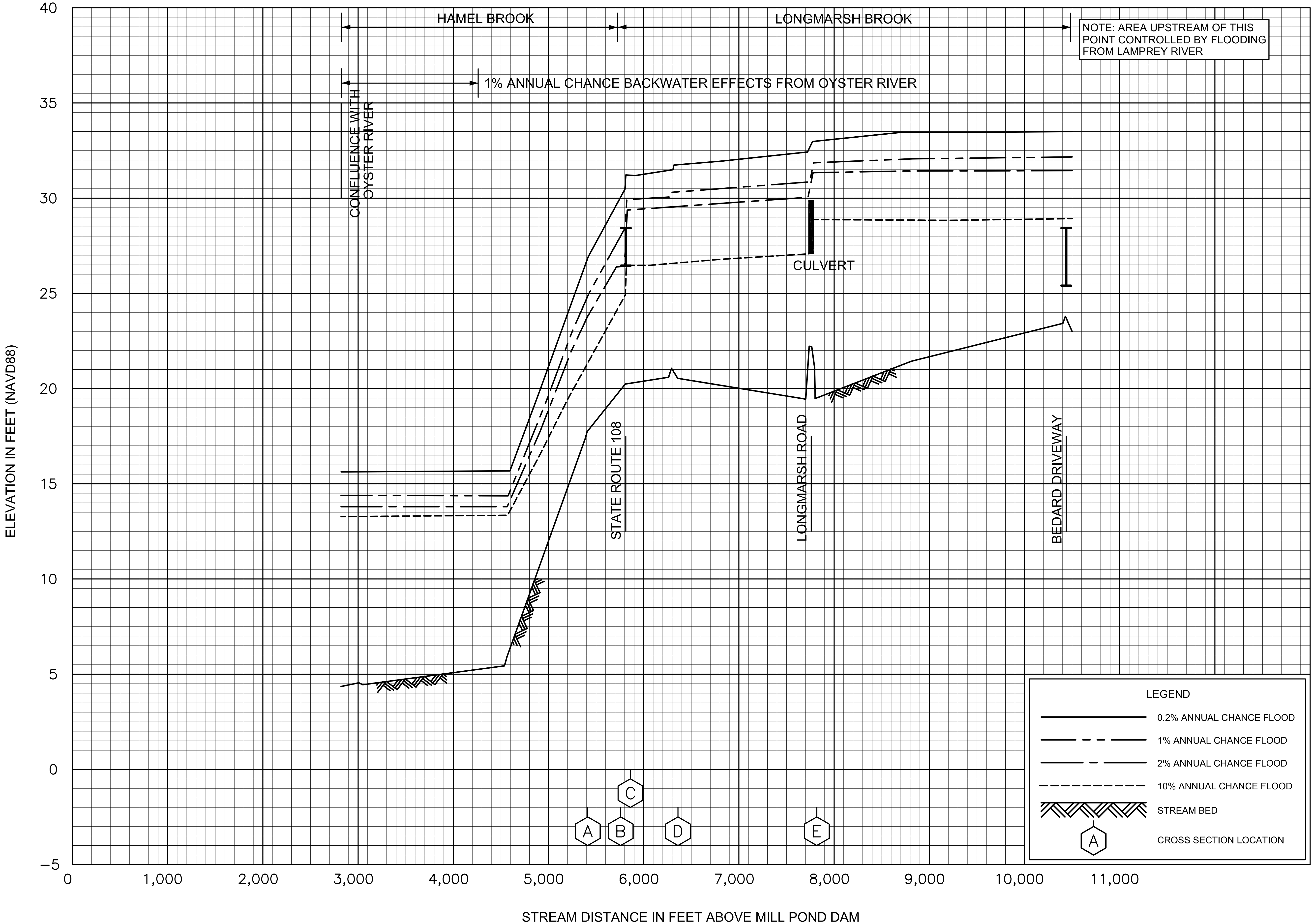
FLOOD PROFILES

ELA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

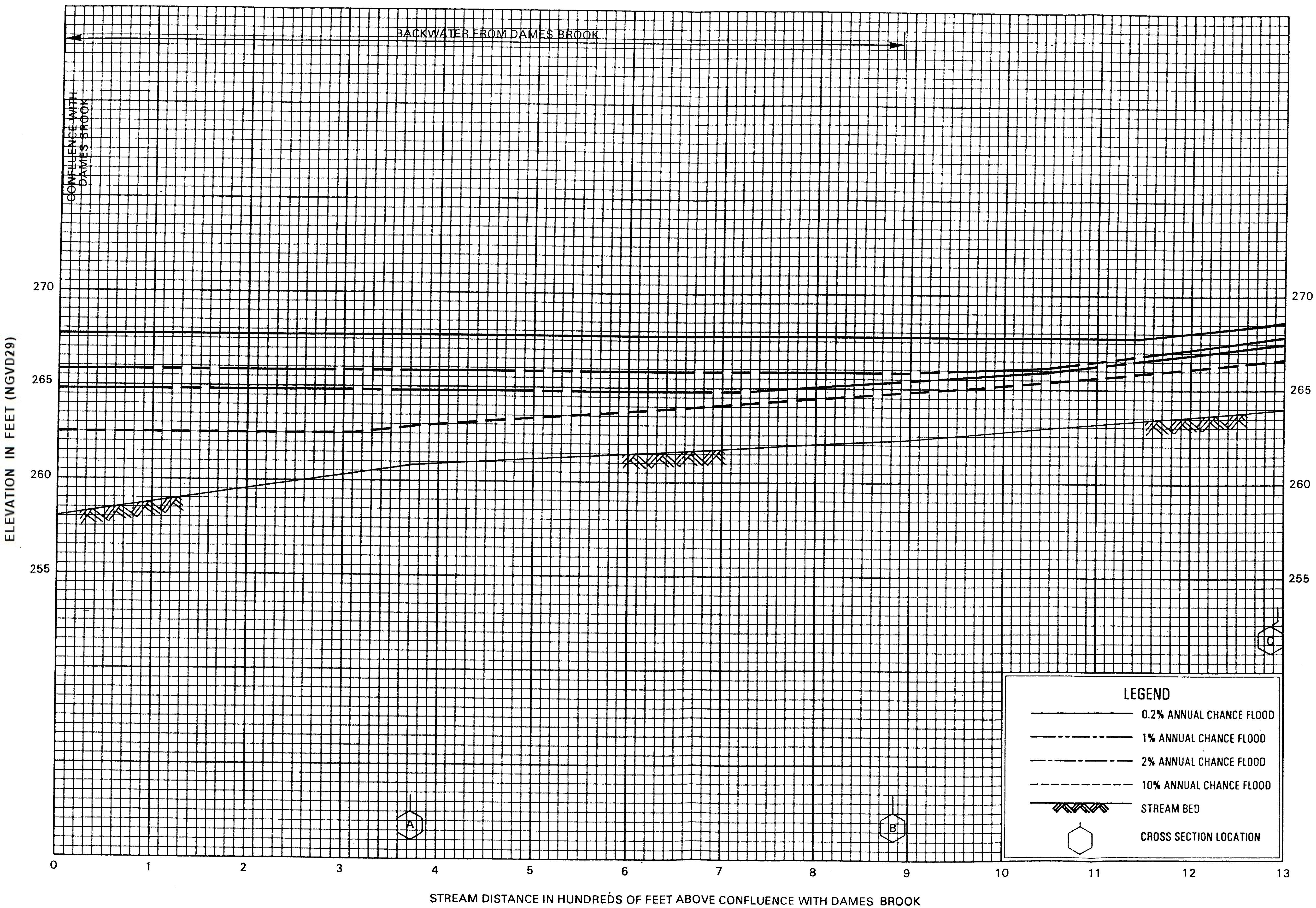
HAMEL BROOK - LONGMARSH BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

29P



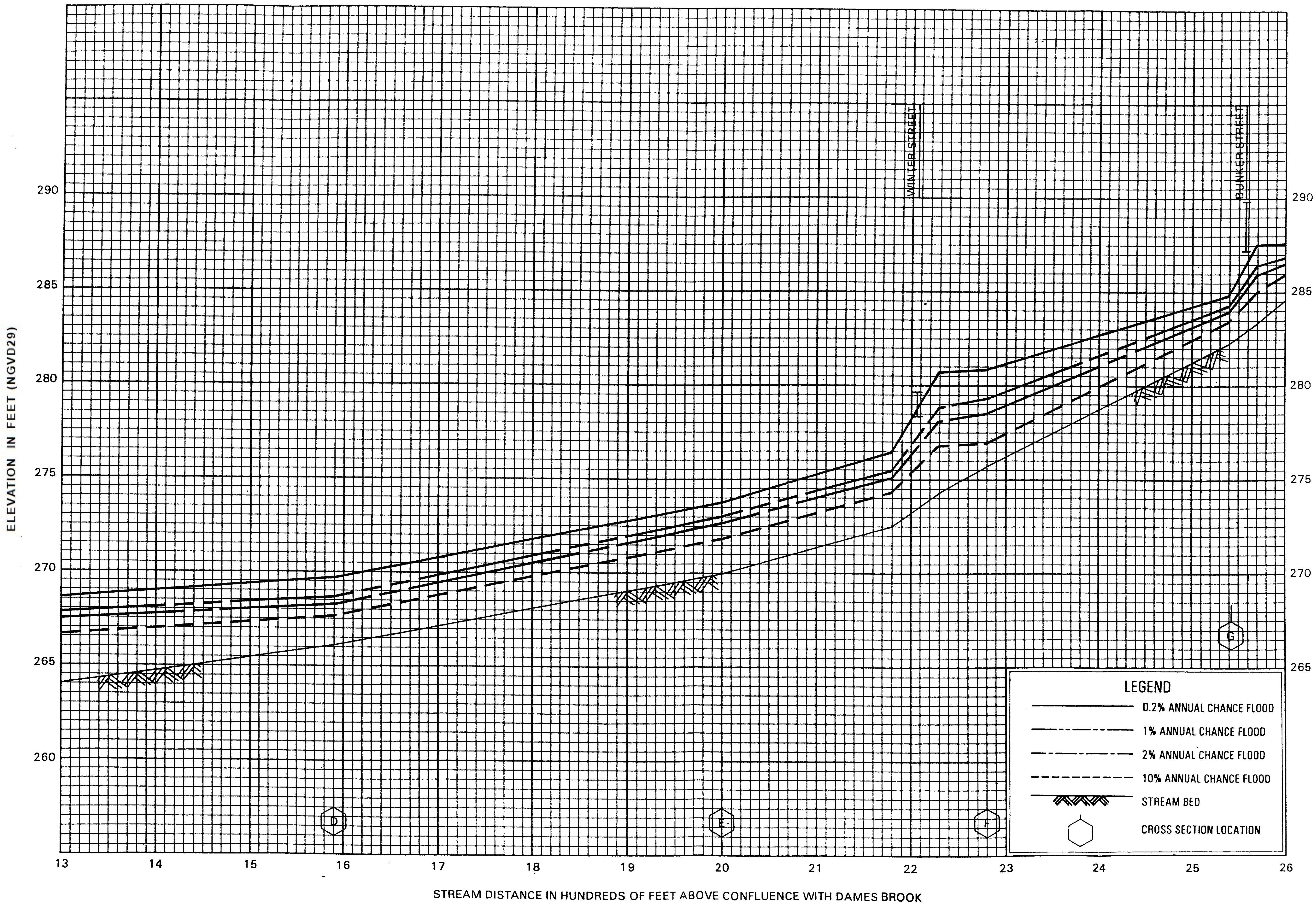
FLOOD PROFILES

KICKING HORSE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

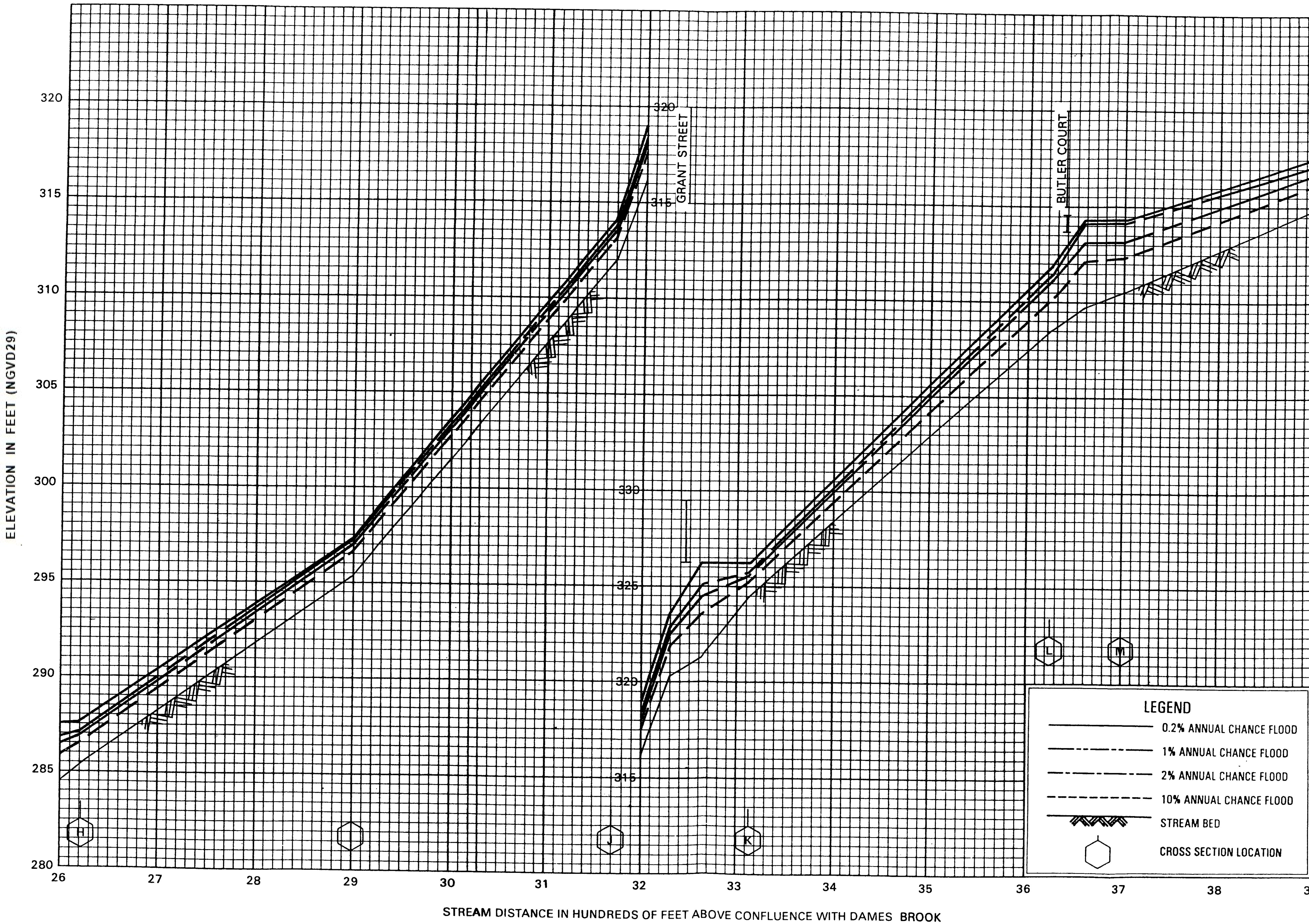
KICKING HORSE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

31P

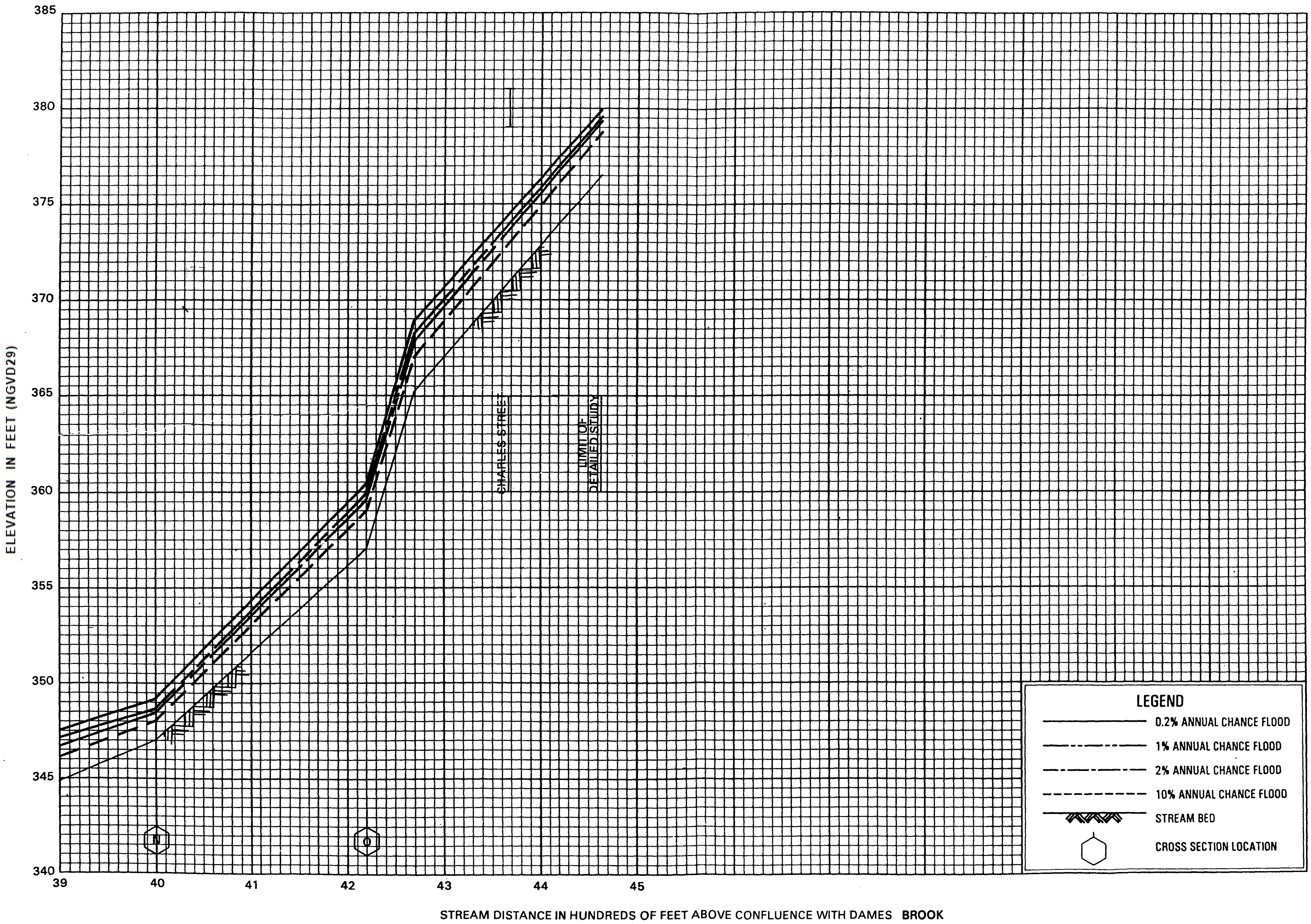


FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

FLOOD PROFILES

KICKING HORSE BROOK



FLOOD PROFILES

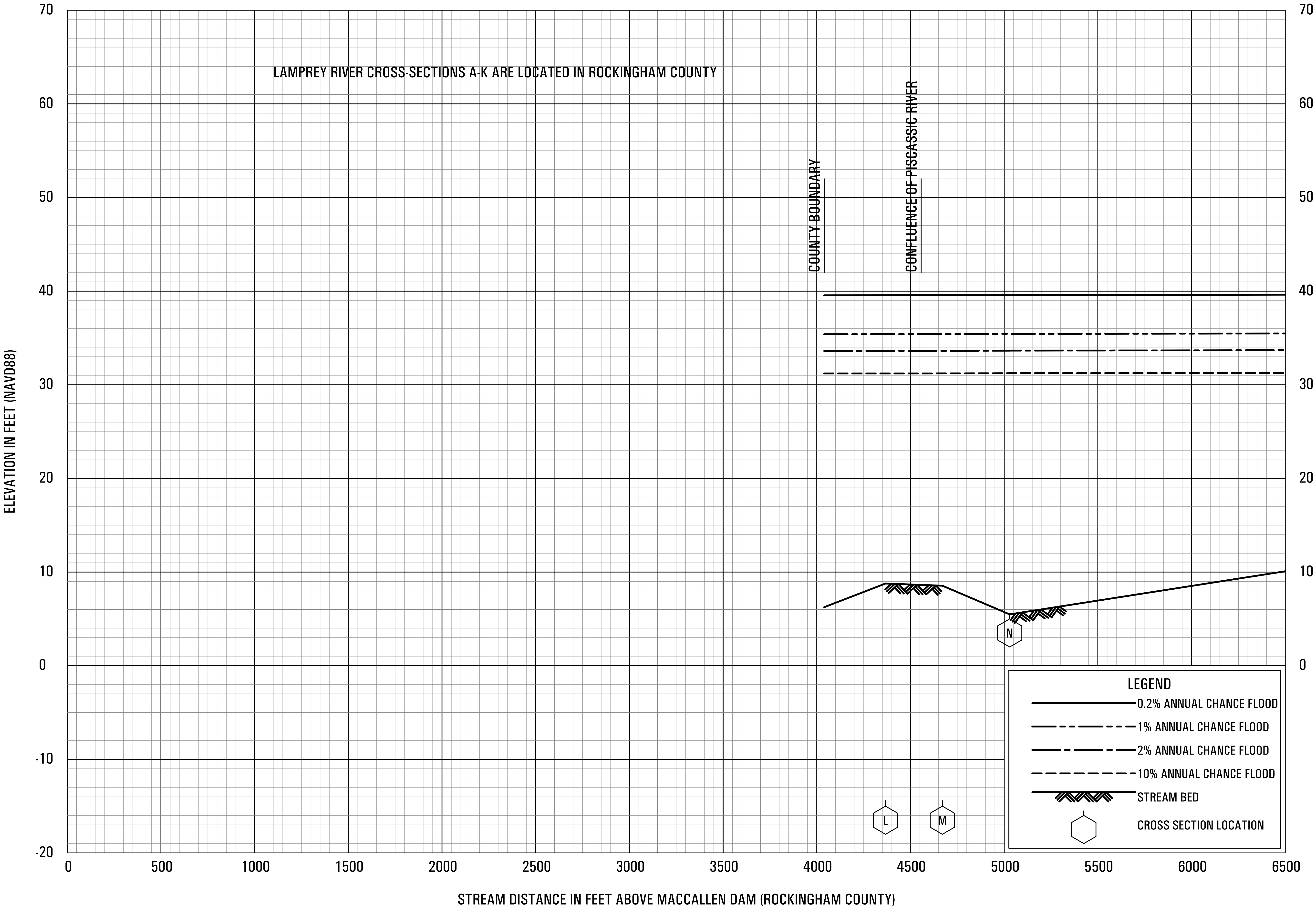
KICKING HORSE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

33P



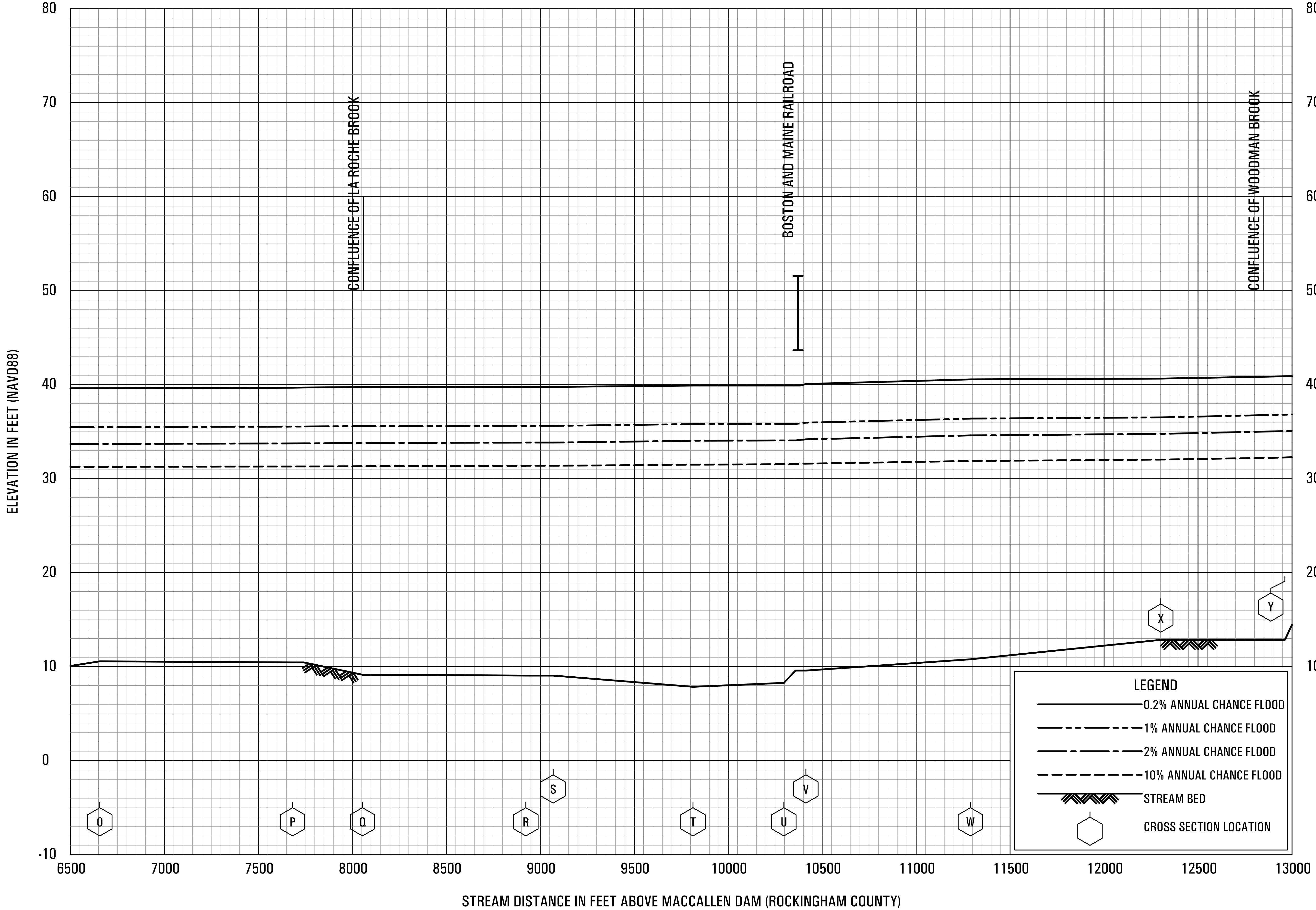
FLOOD PROFILES

LAMPREY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

(ALL JURISDICTIONS), NH

STRAFFORD COUNTY



FLOOD PROFILES

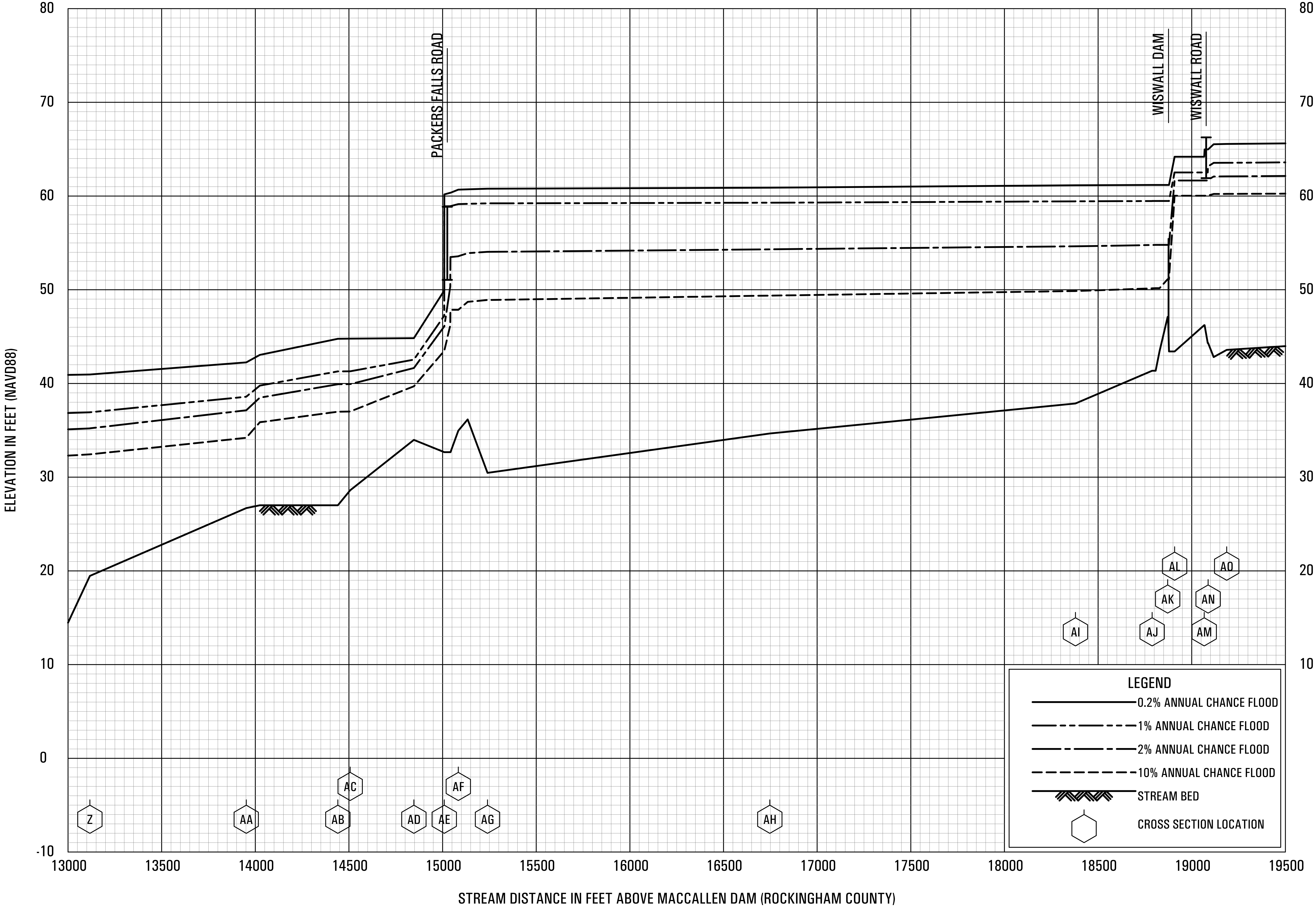
LAMPREY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

(ALL JURISDICTIONS), NH

STRAFFORD COUNTY

35P



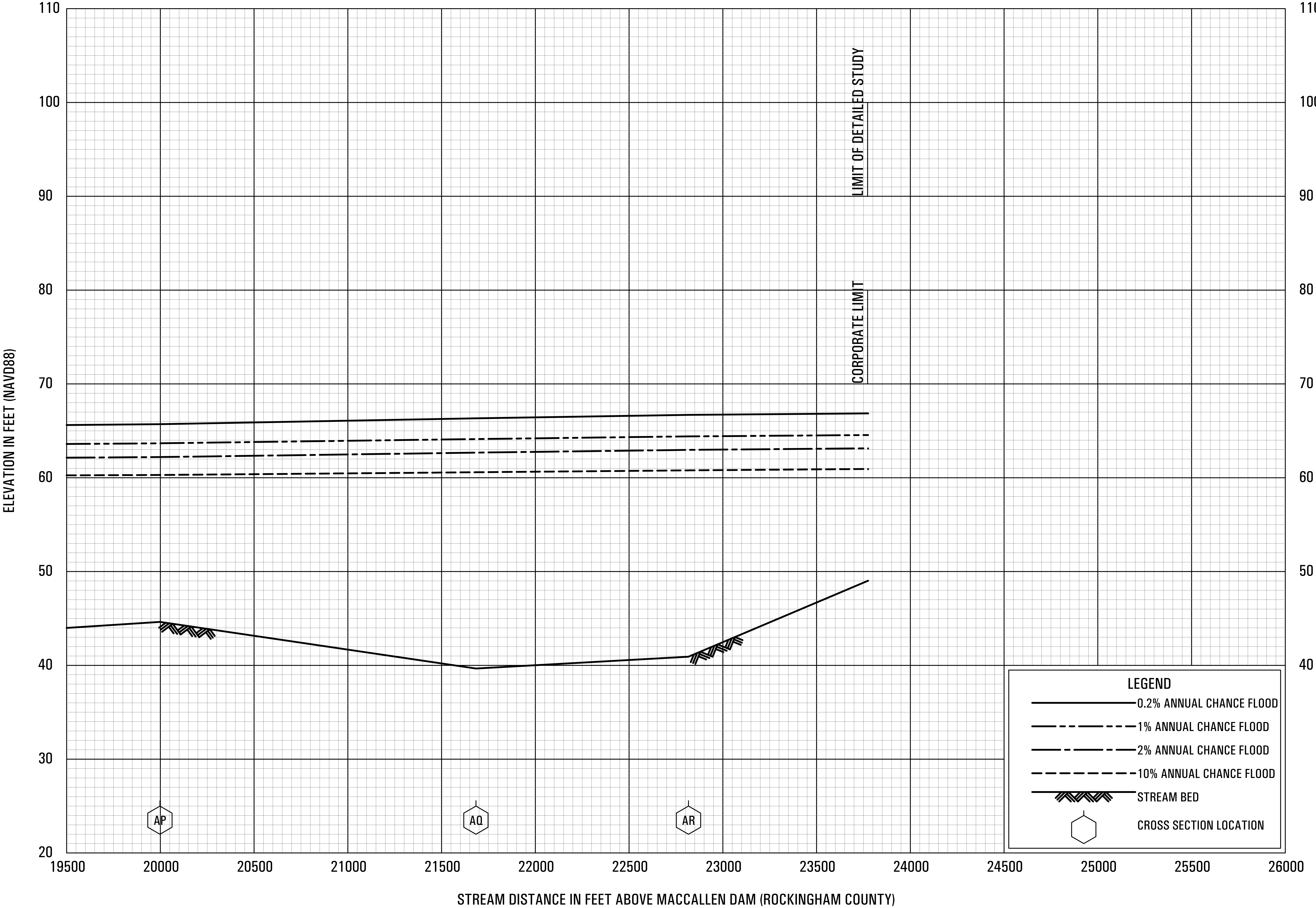
FLOOD PROFILES

LAMPREY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

(ALL JURISDICTIONS), NH

STRAFFORD COUNTY



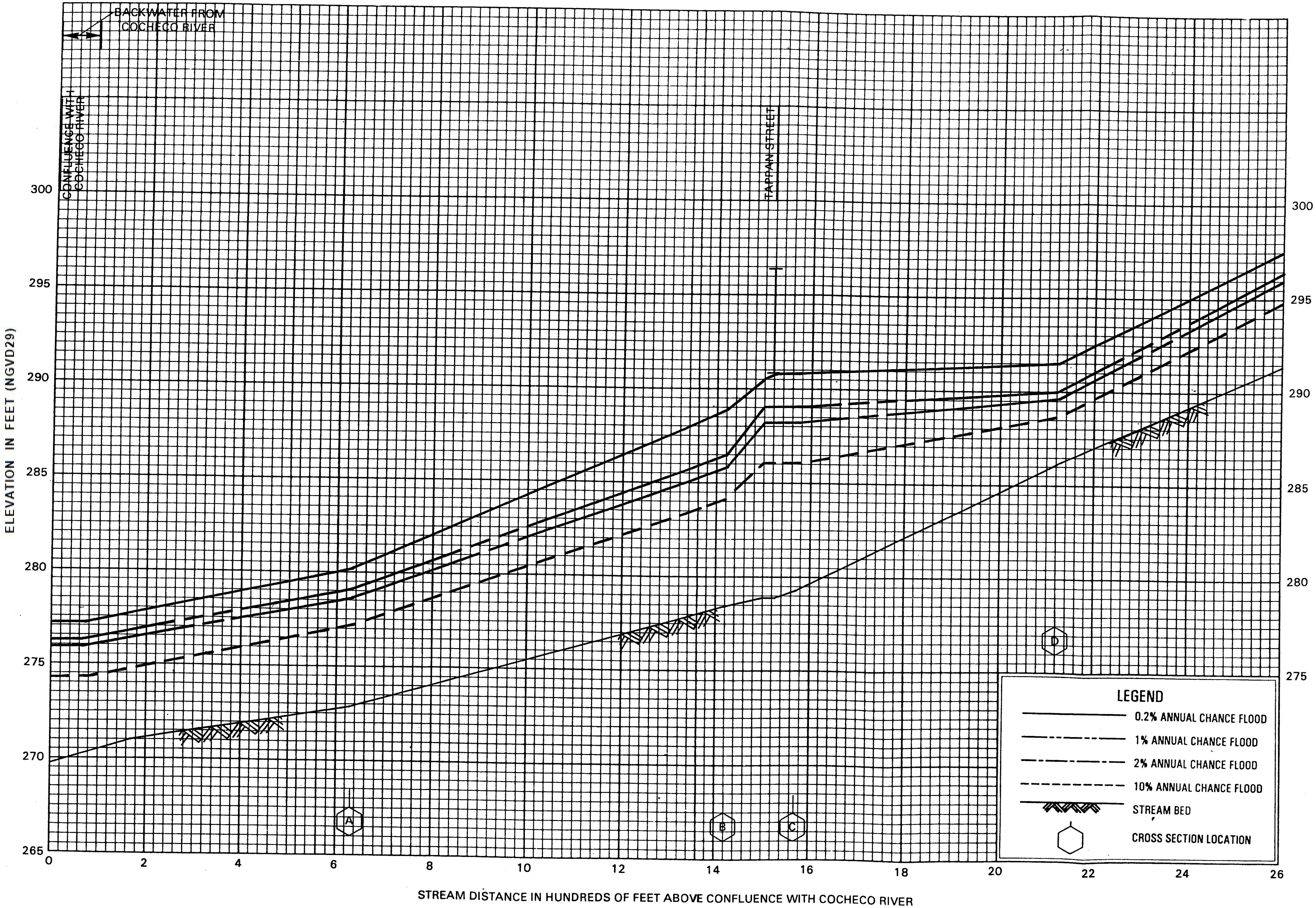
FLOOD PROFILES

LAMPREY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

(ALL JURISDICTIONS), NH

STRAFFORD COUNTY



FLOOD PROFILES

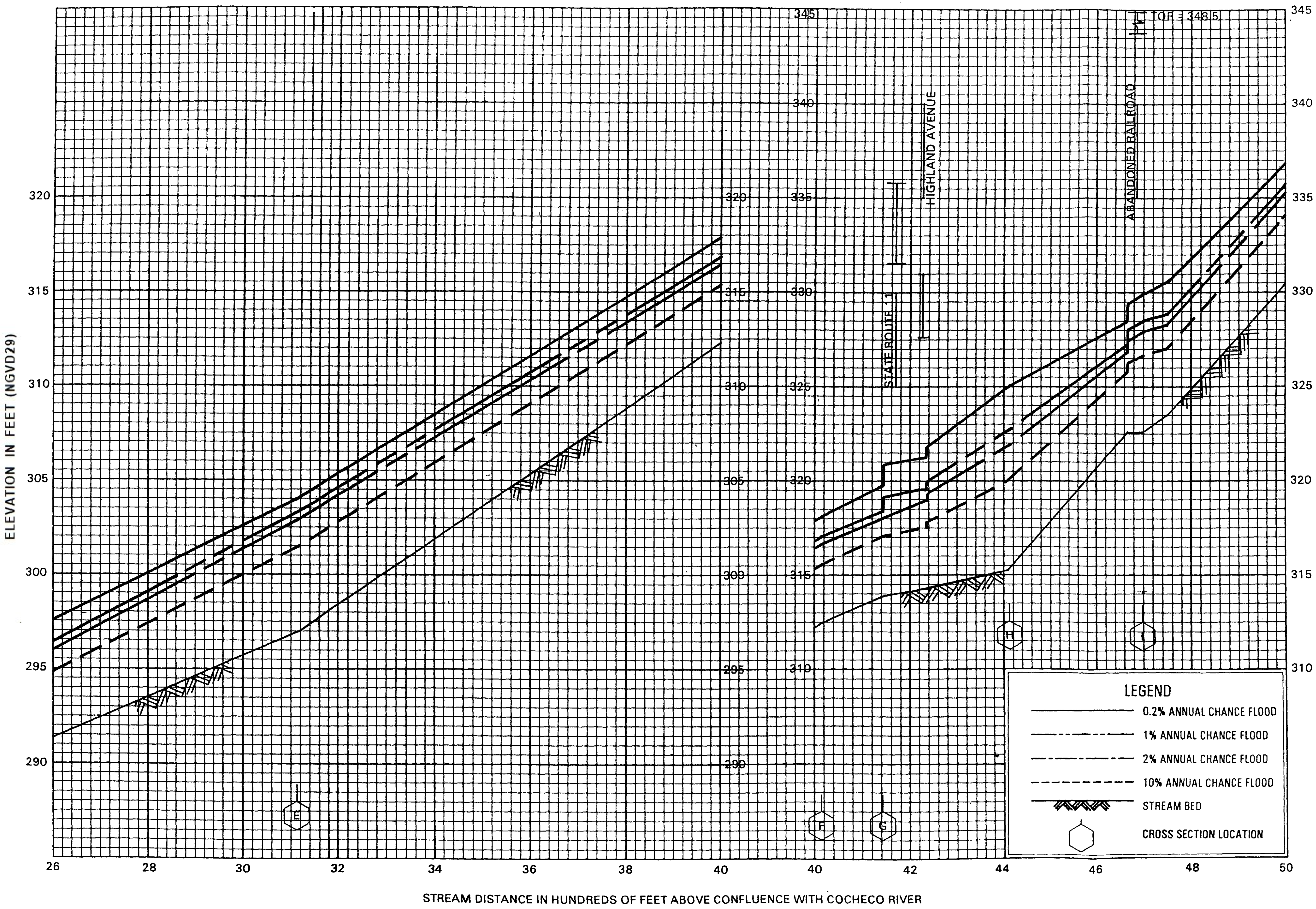
MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

38P



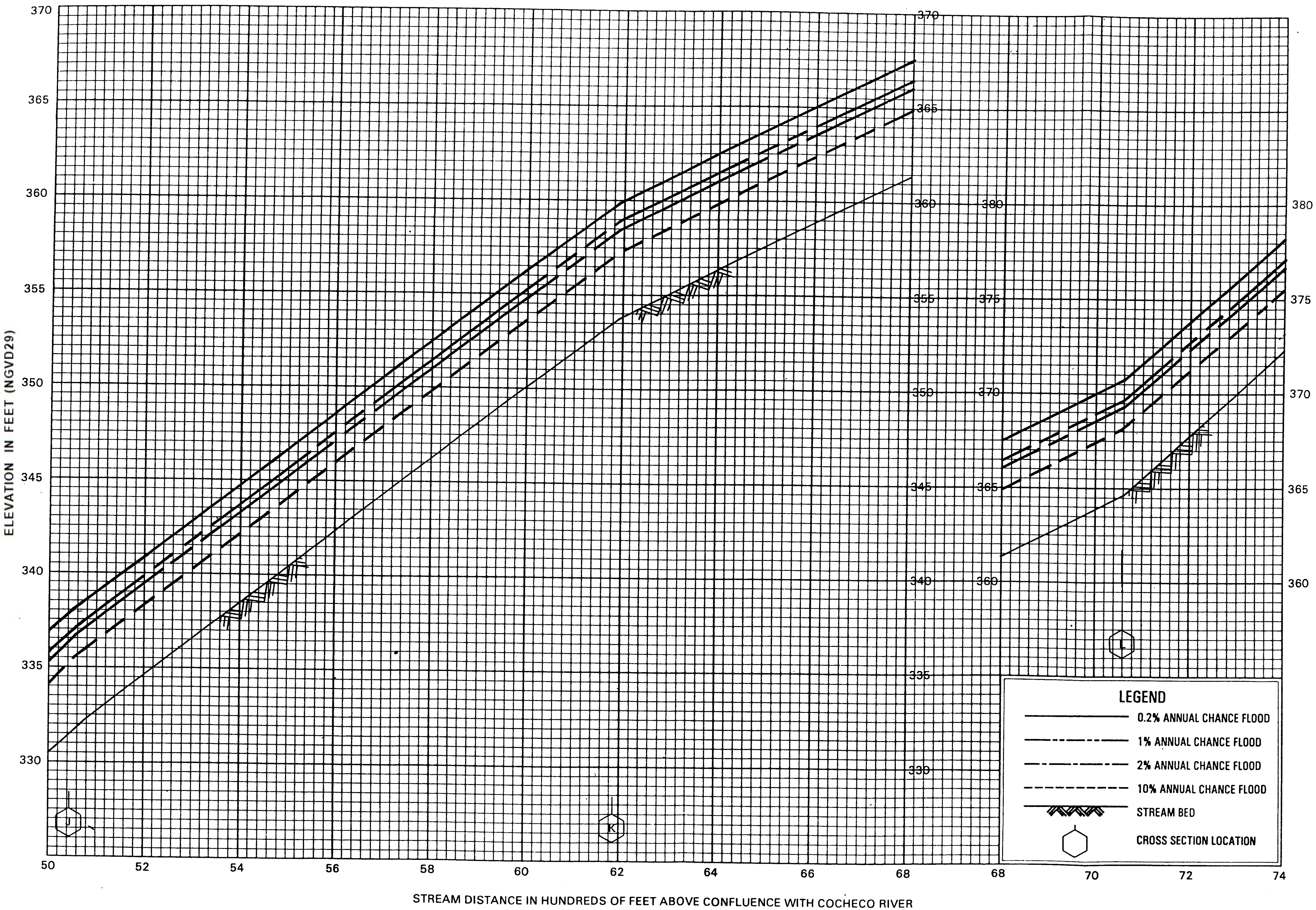
FLOOD PROFILES

MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



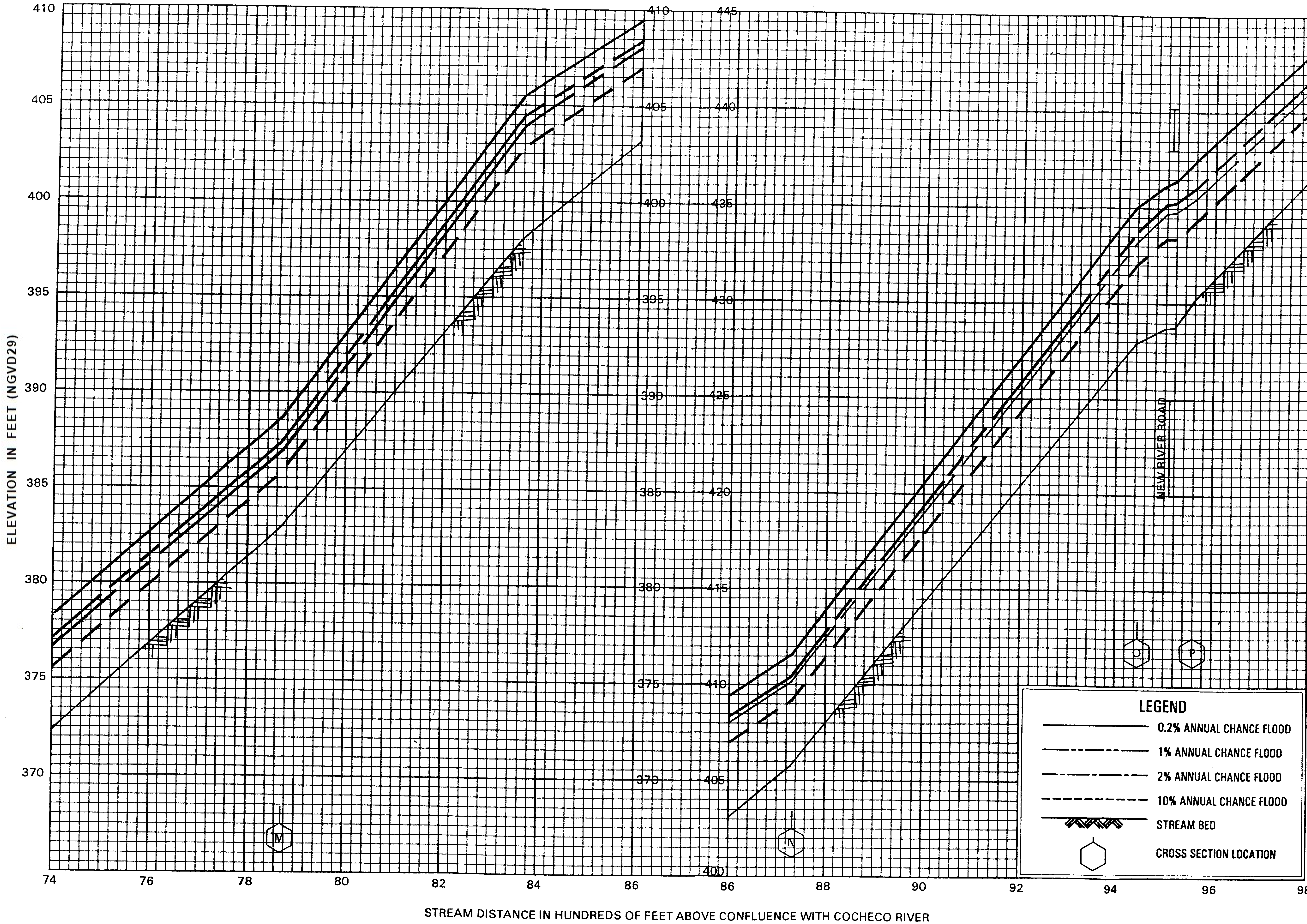
FLOOD PROFILES

MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

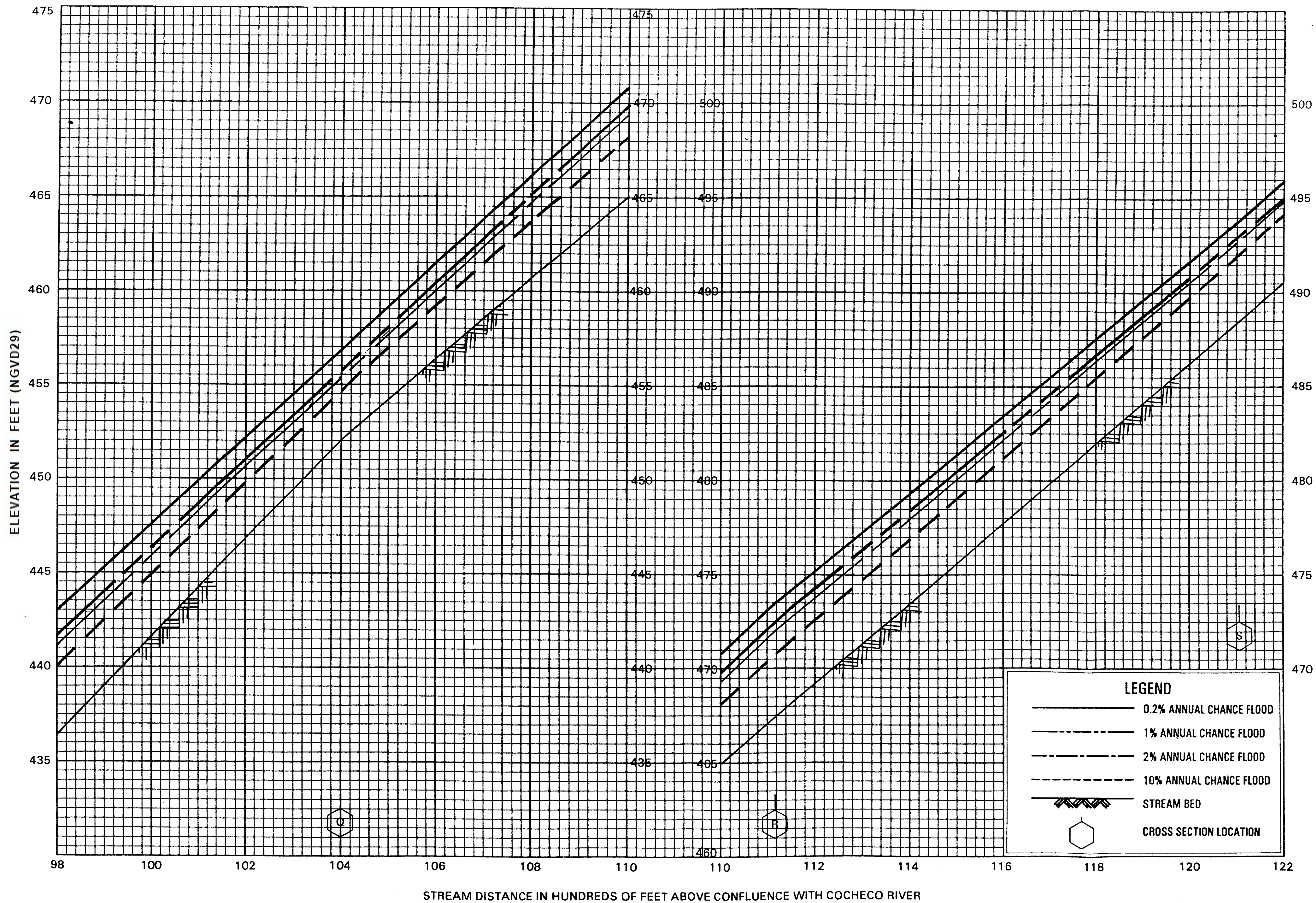


FLOOD PROFILES

MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



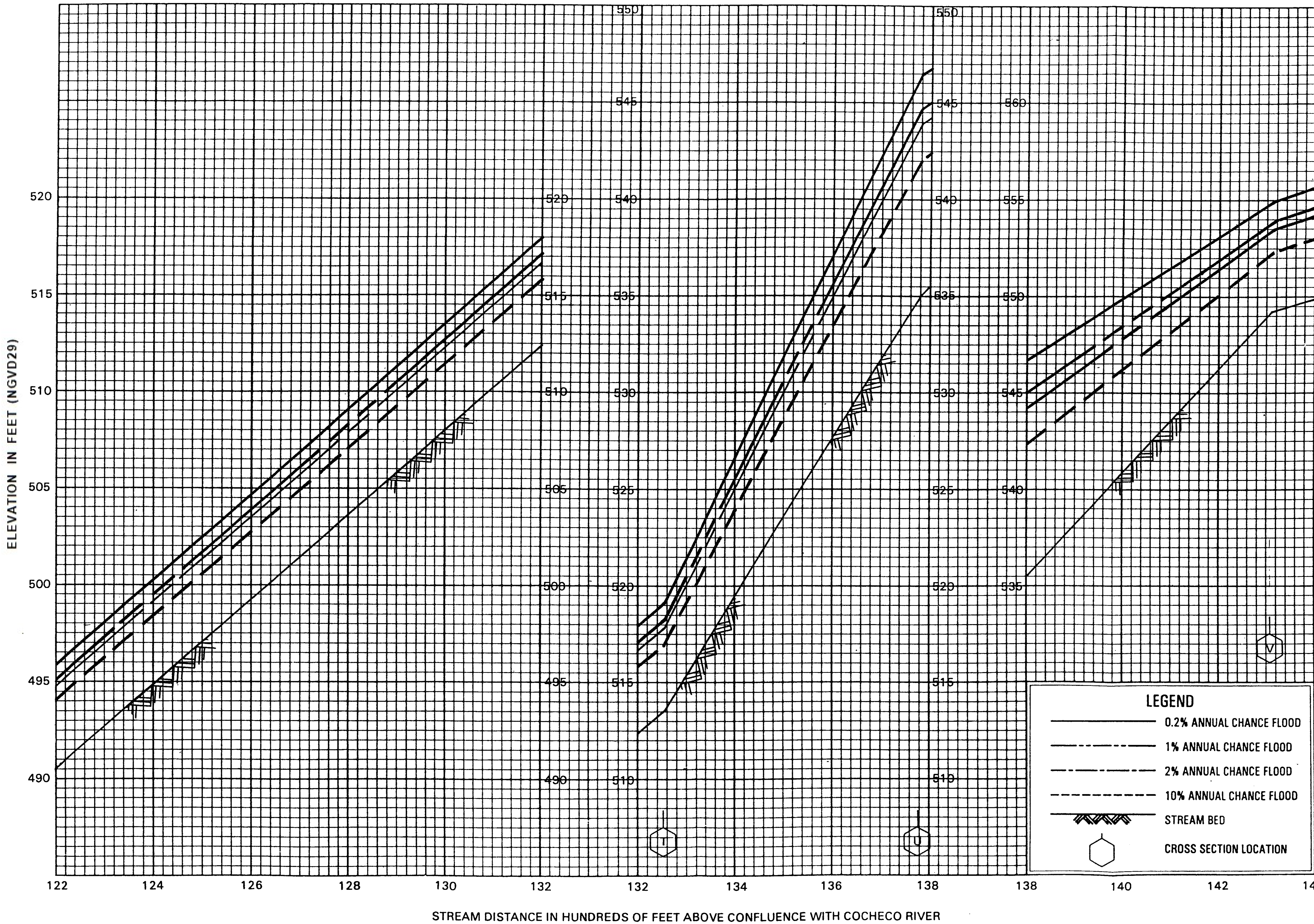
FLOOD PROFILES

MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



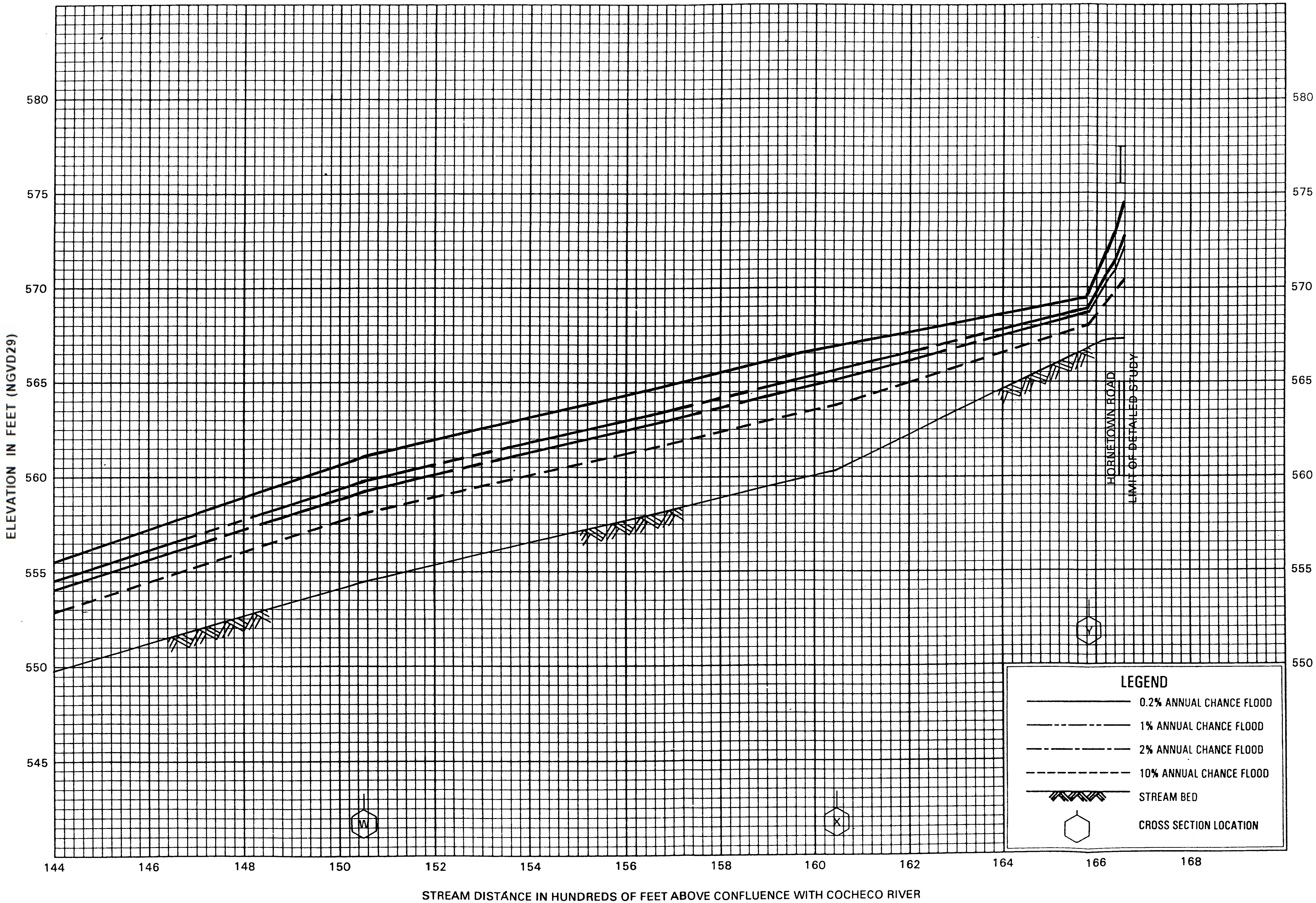
FLOOD PROFILES

MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



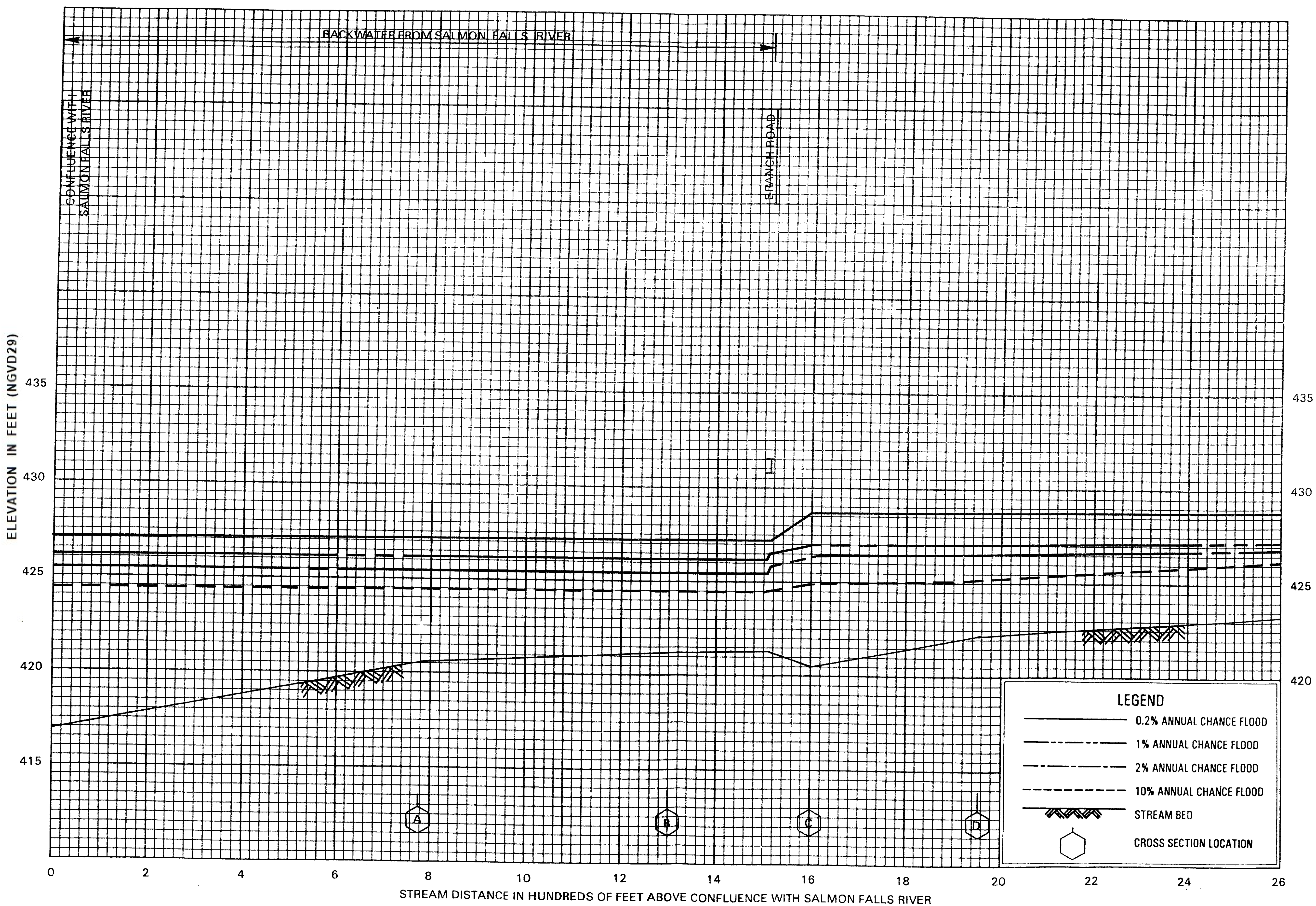
FLOOD PROFILES

MAD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

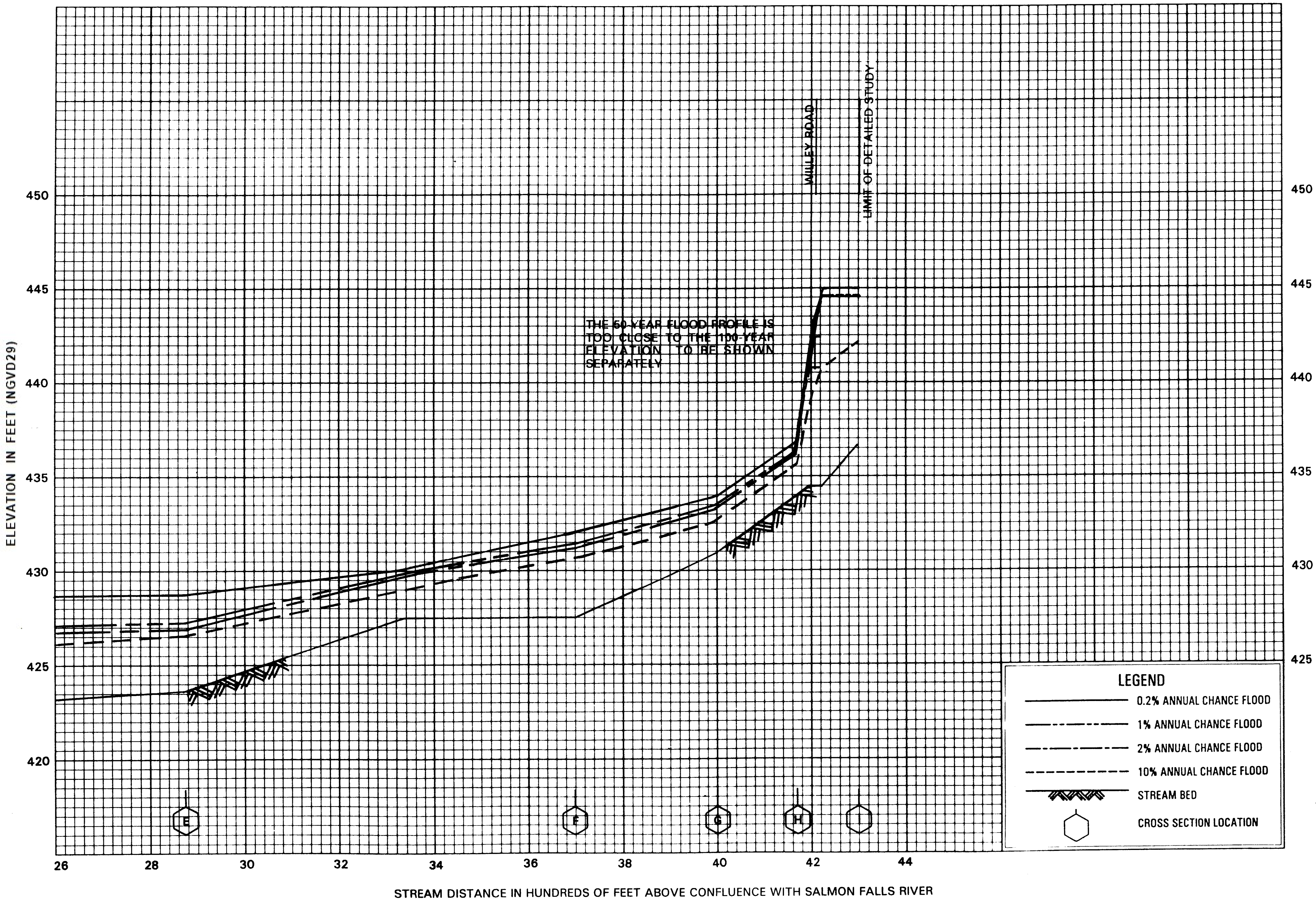


FLOOD PROFILES

MILLER BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



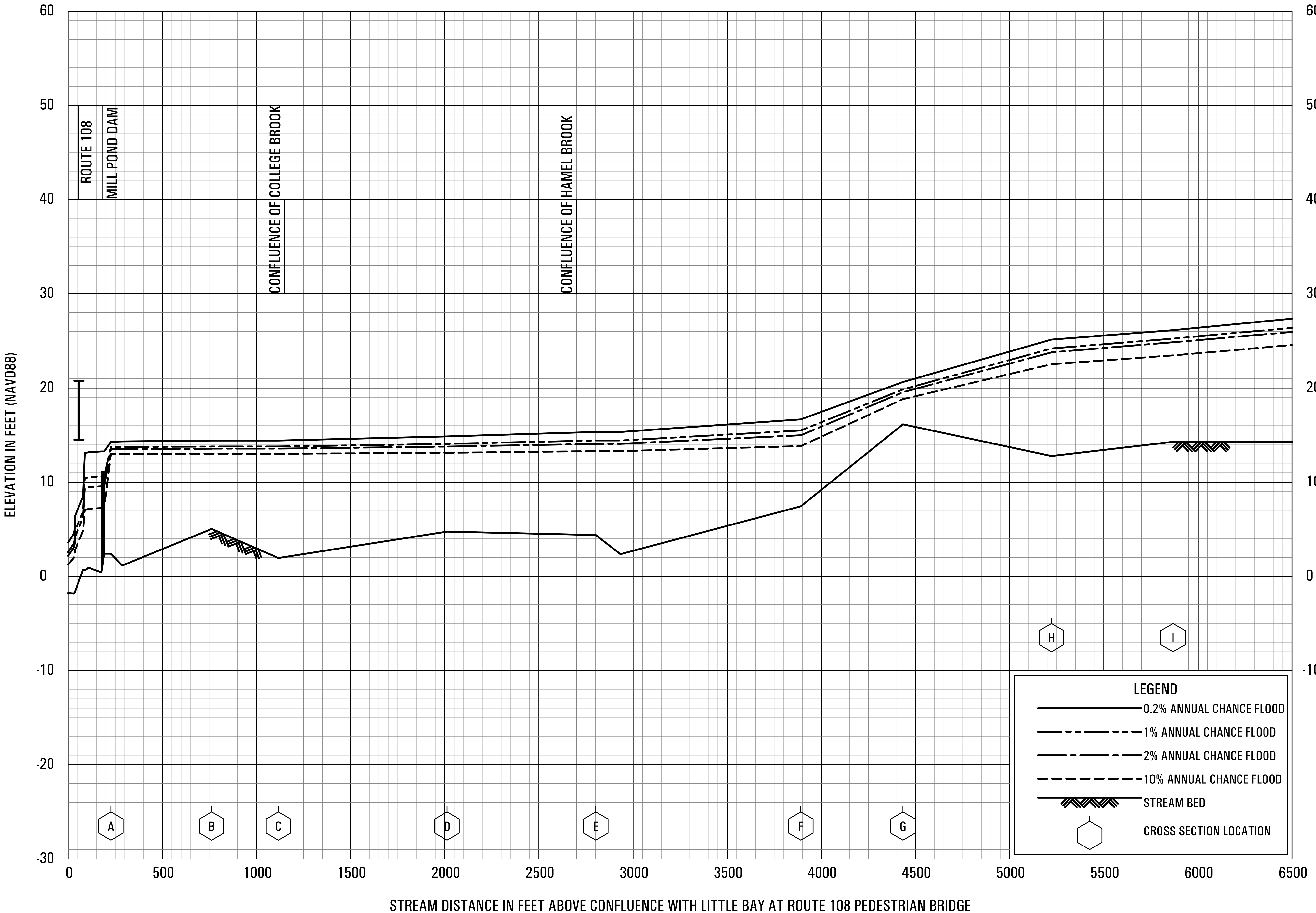
FLOOD PROFILES

MILLER BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

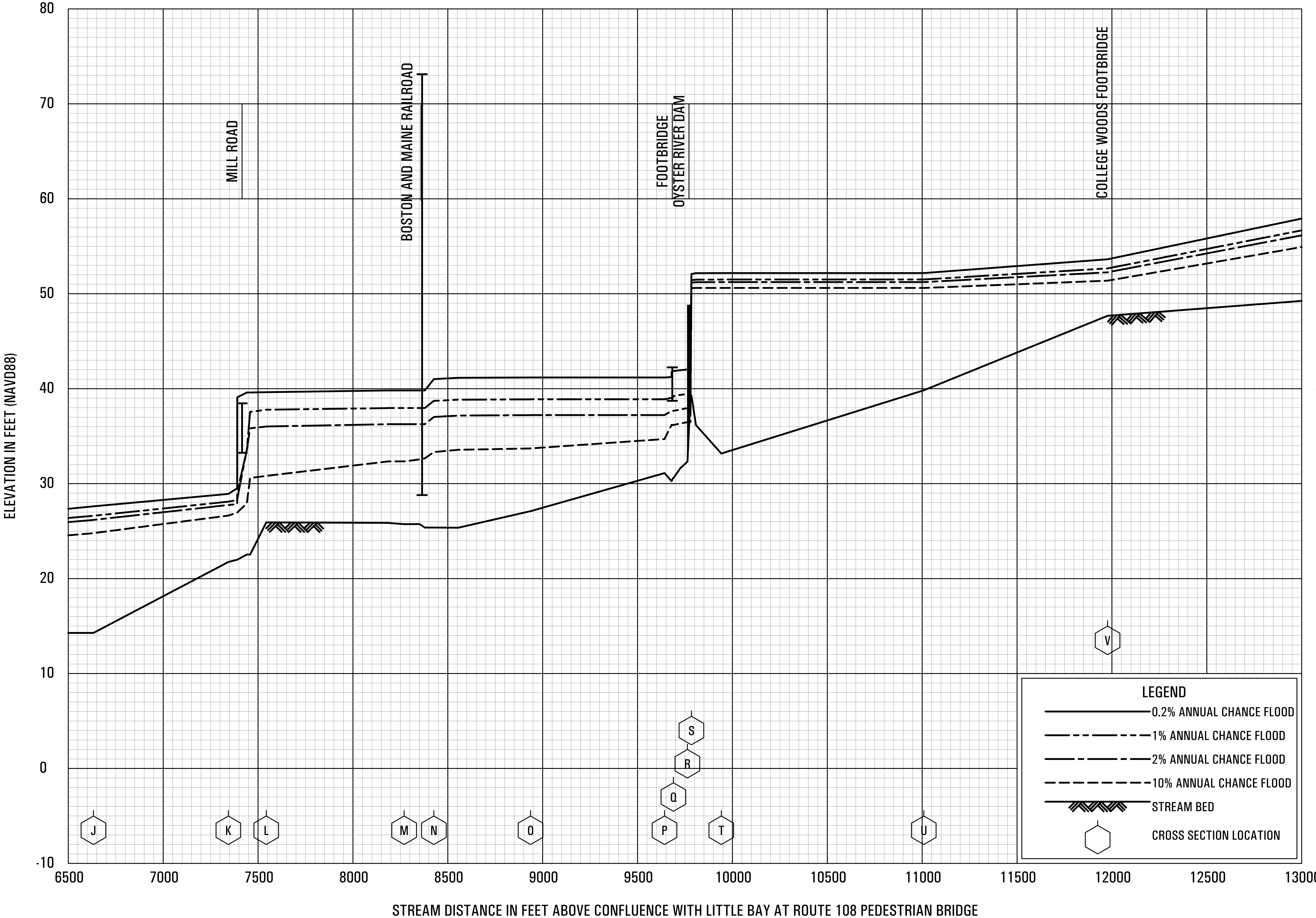
OYSTER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

DURHAM, NH

STRAFFORD COUNTY

47P



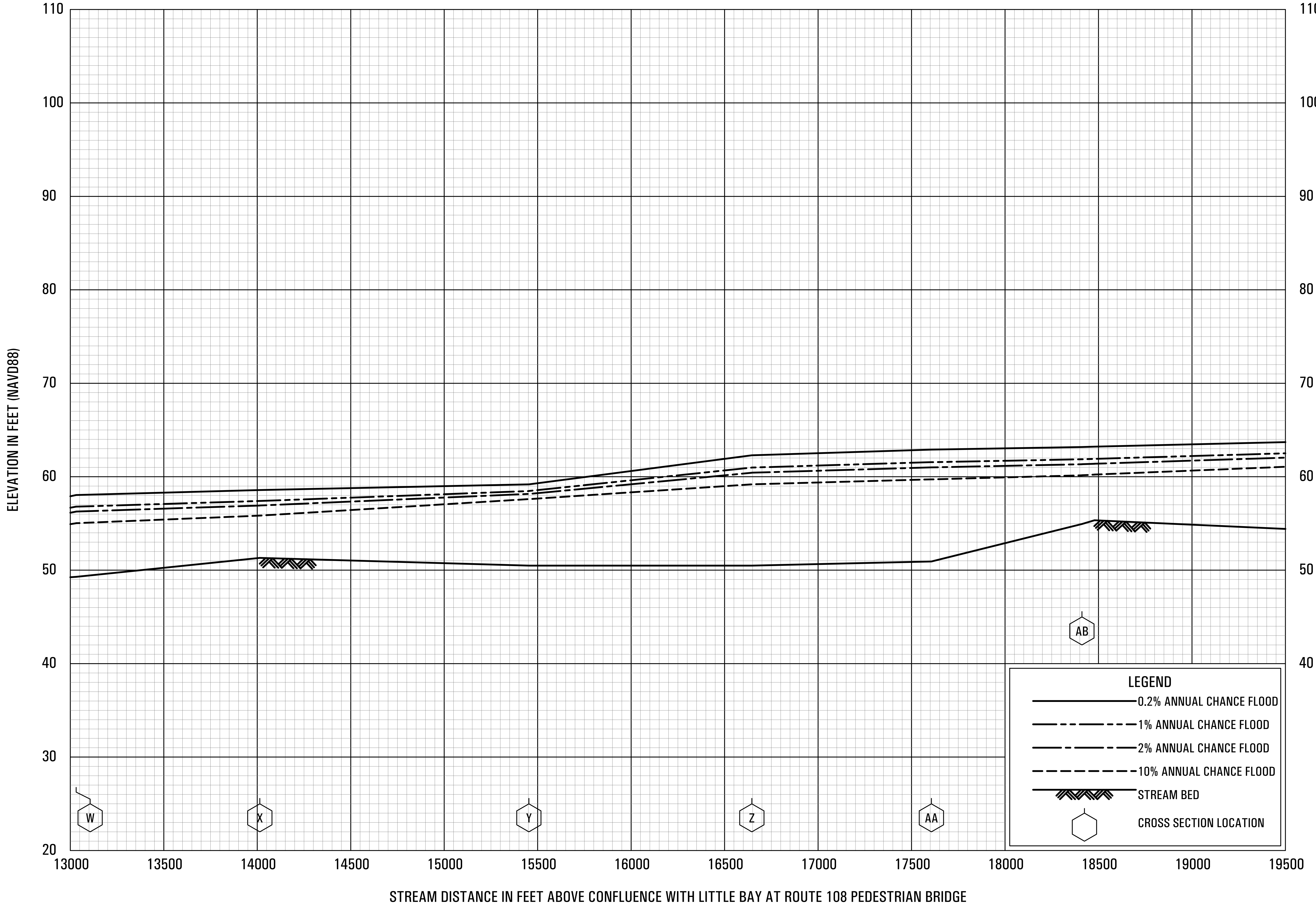
FLOOD PROFILES

OYSTER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

DURHAM, NH

STRAFFORD COUNTY



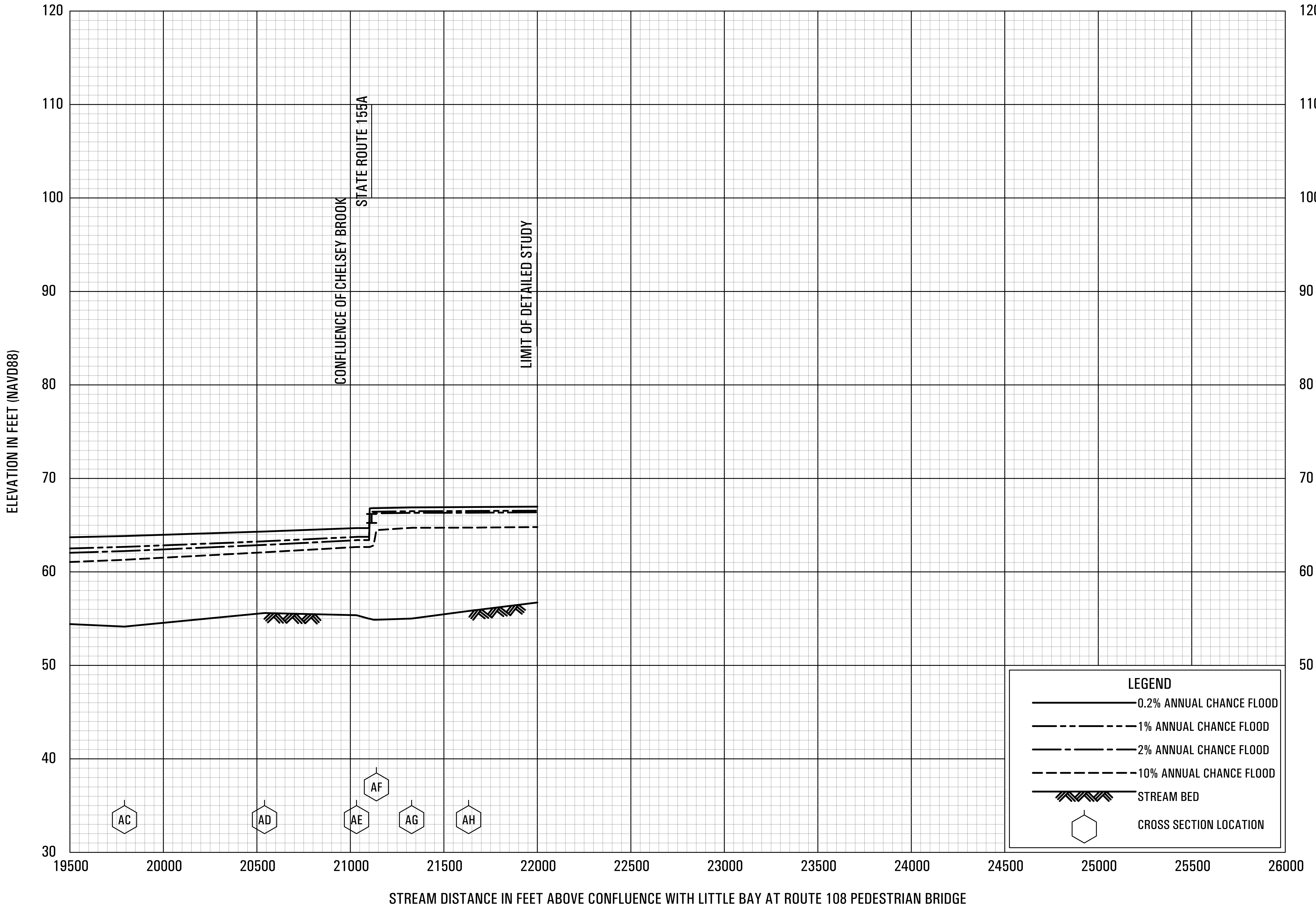
FLOOD PROFILES

OYSTER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

DURHAM, NH

STRAFFORD COUNTY



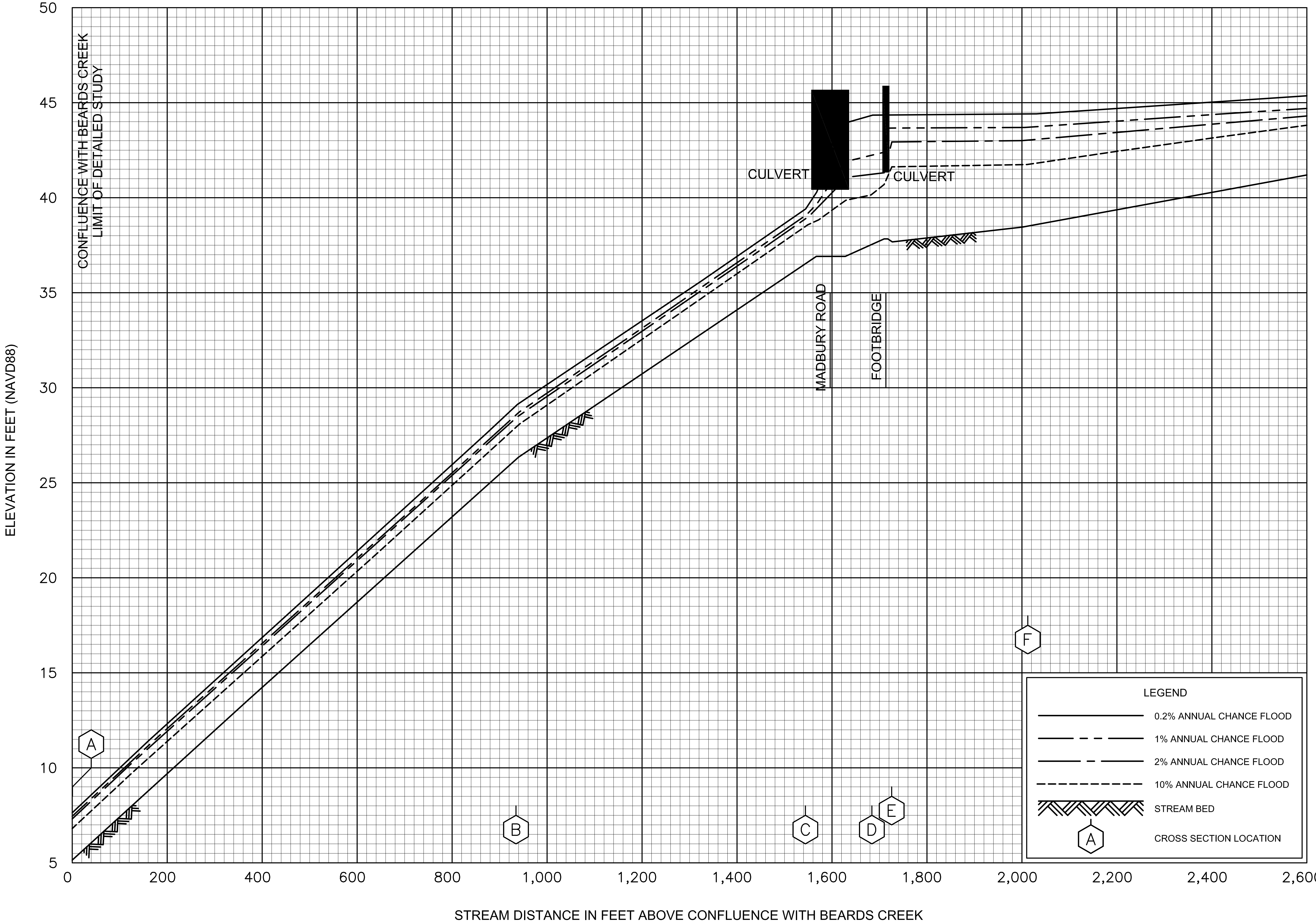
FLOOD PROFILES

OYSTER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

DURHAM, NH

STRAFFORD COUNTY

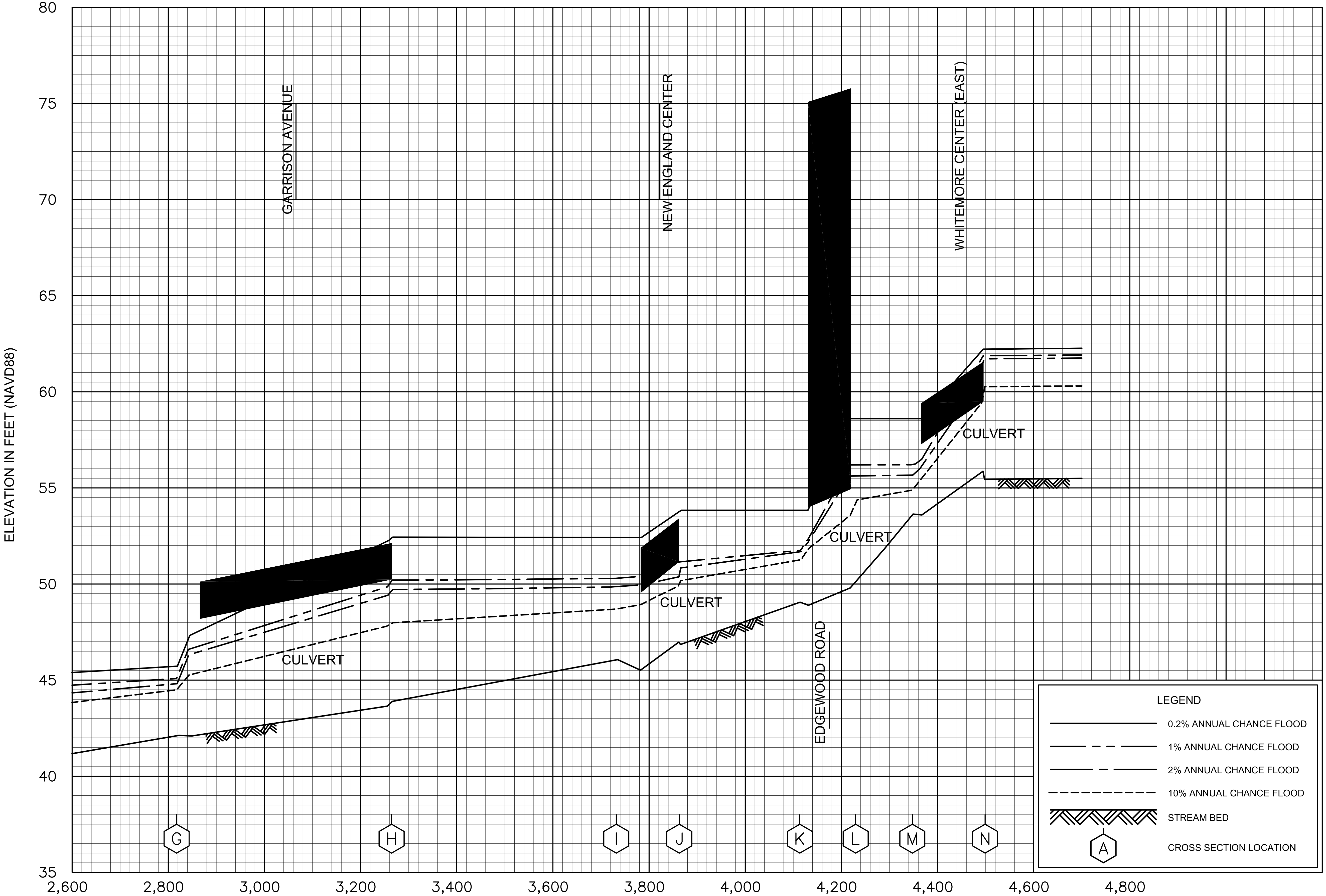


FLOOD PROFILES

PETTEE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

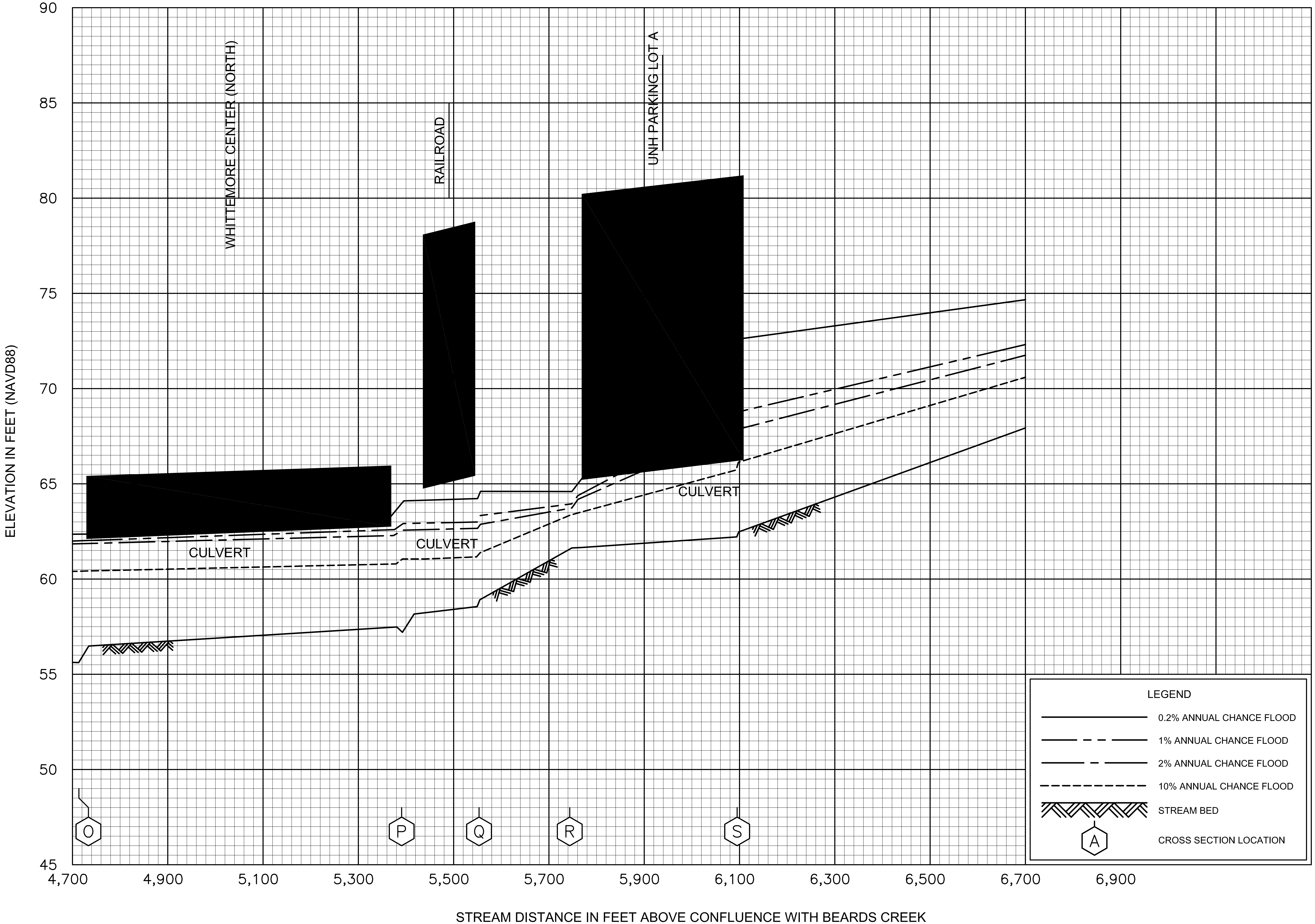


FLOOD PROFILES

PETTEE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



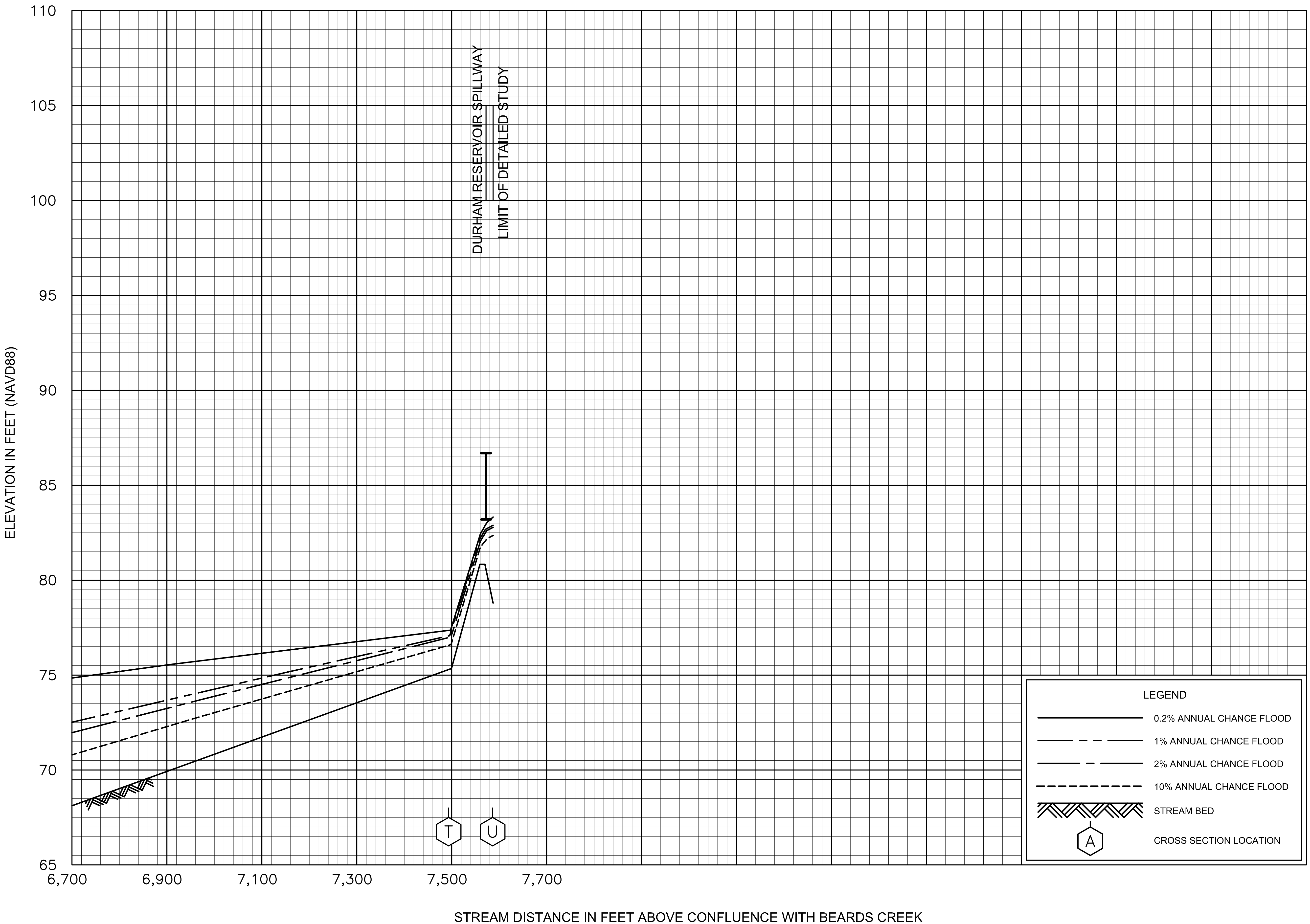
FLOOD PROFILES

PETTEE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



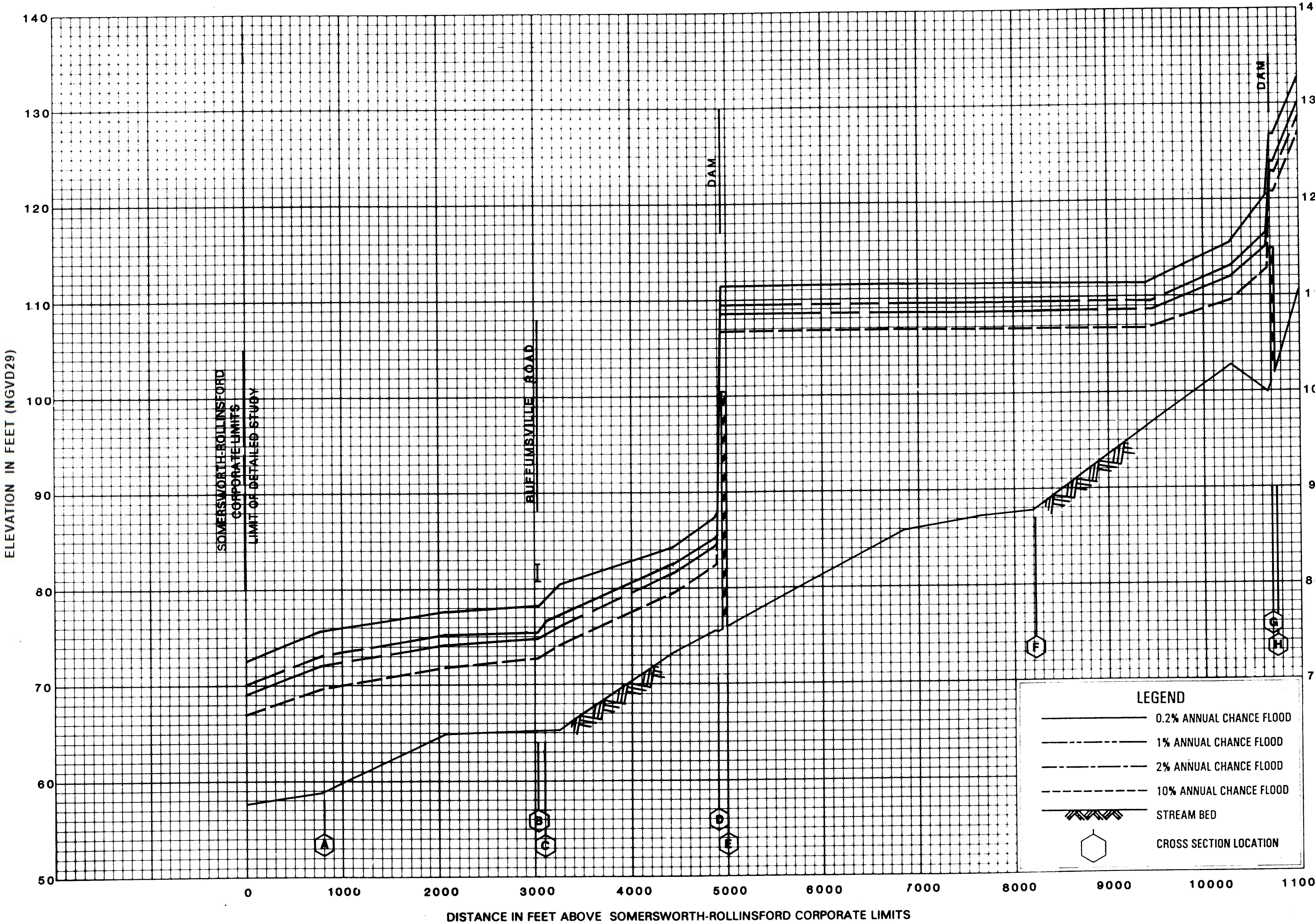
FLOOD PROFILES

PETTEE BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

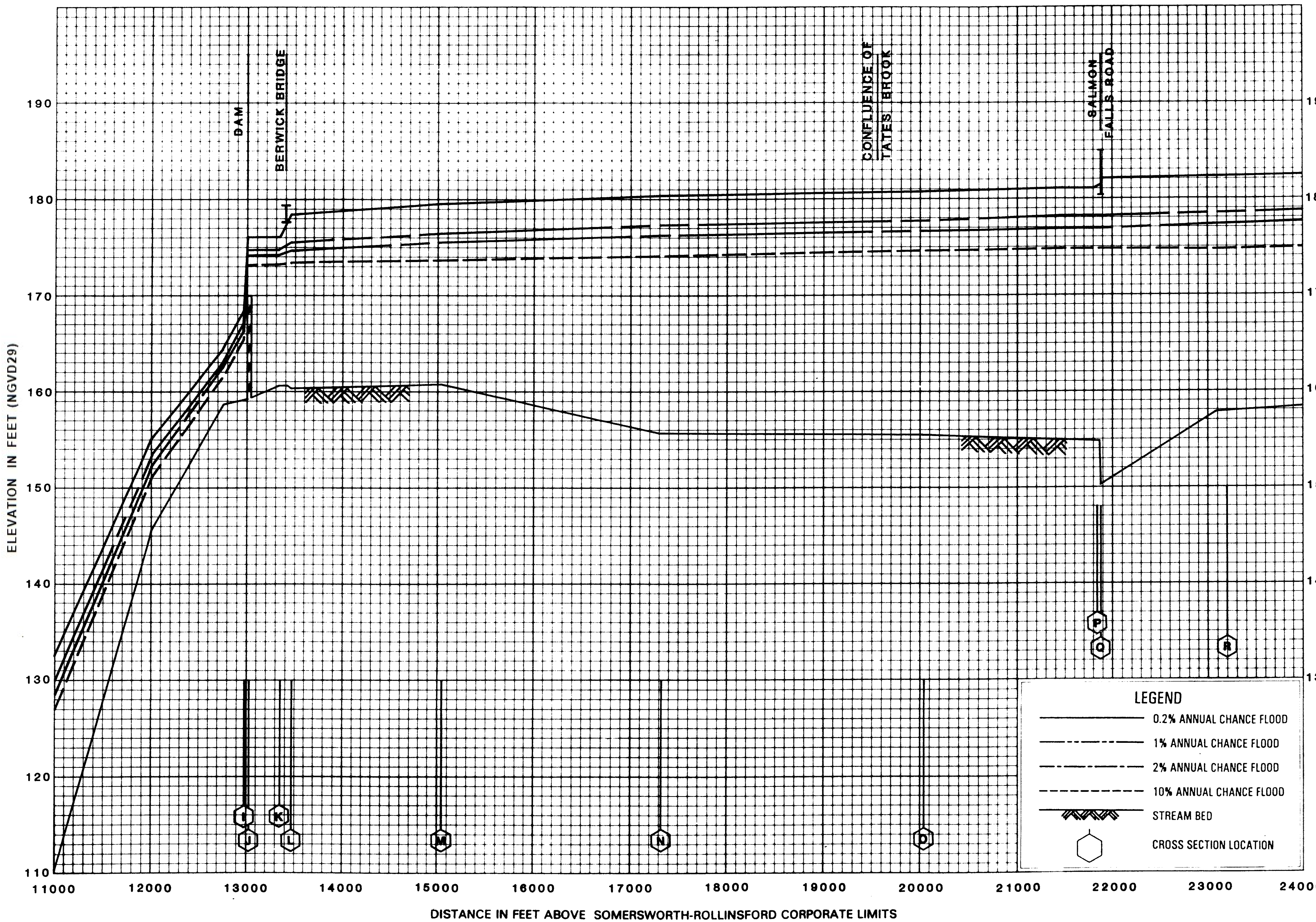
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

55P



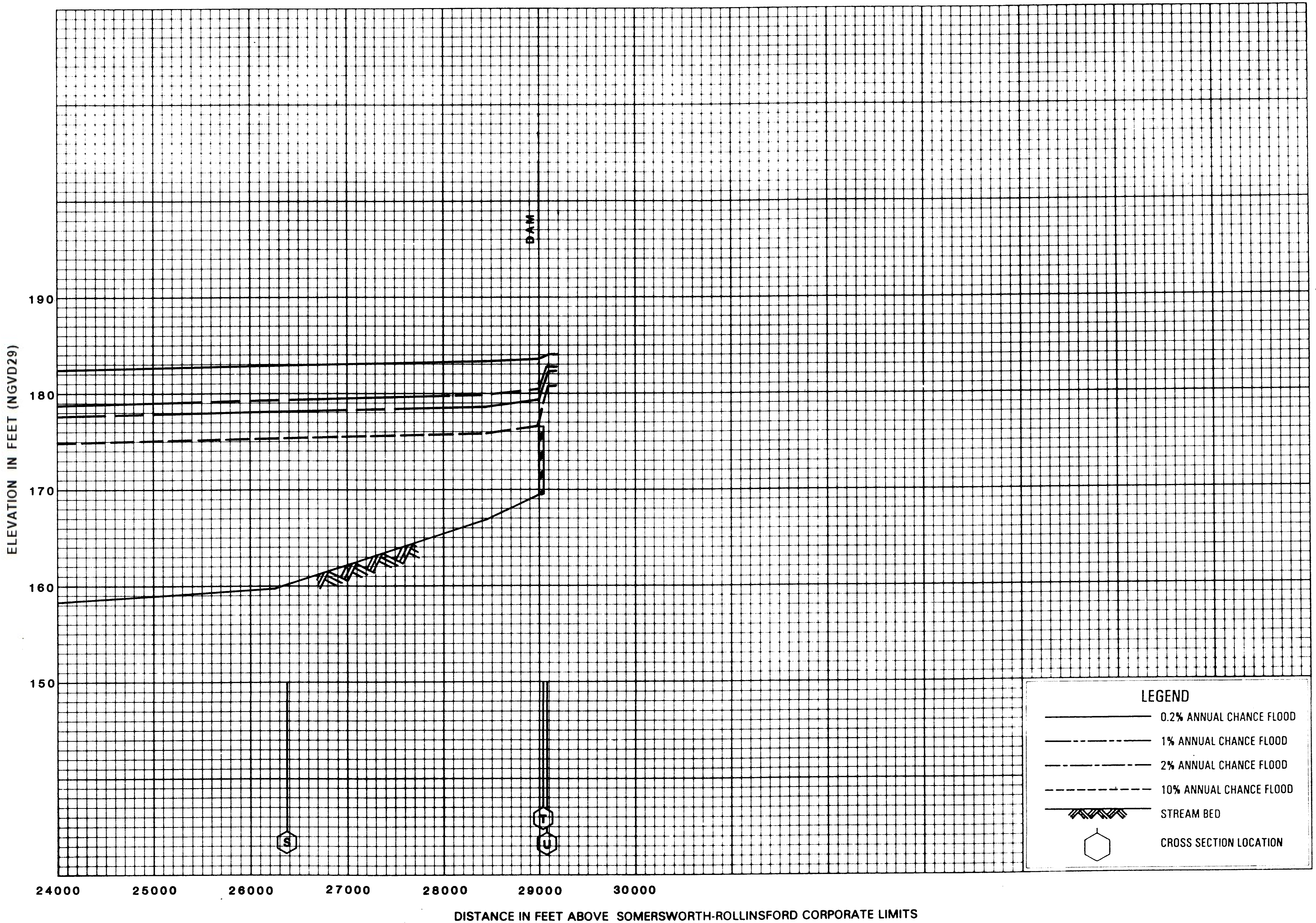
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



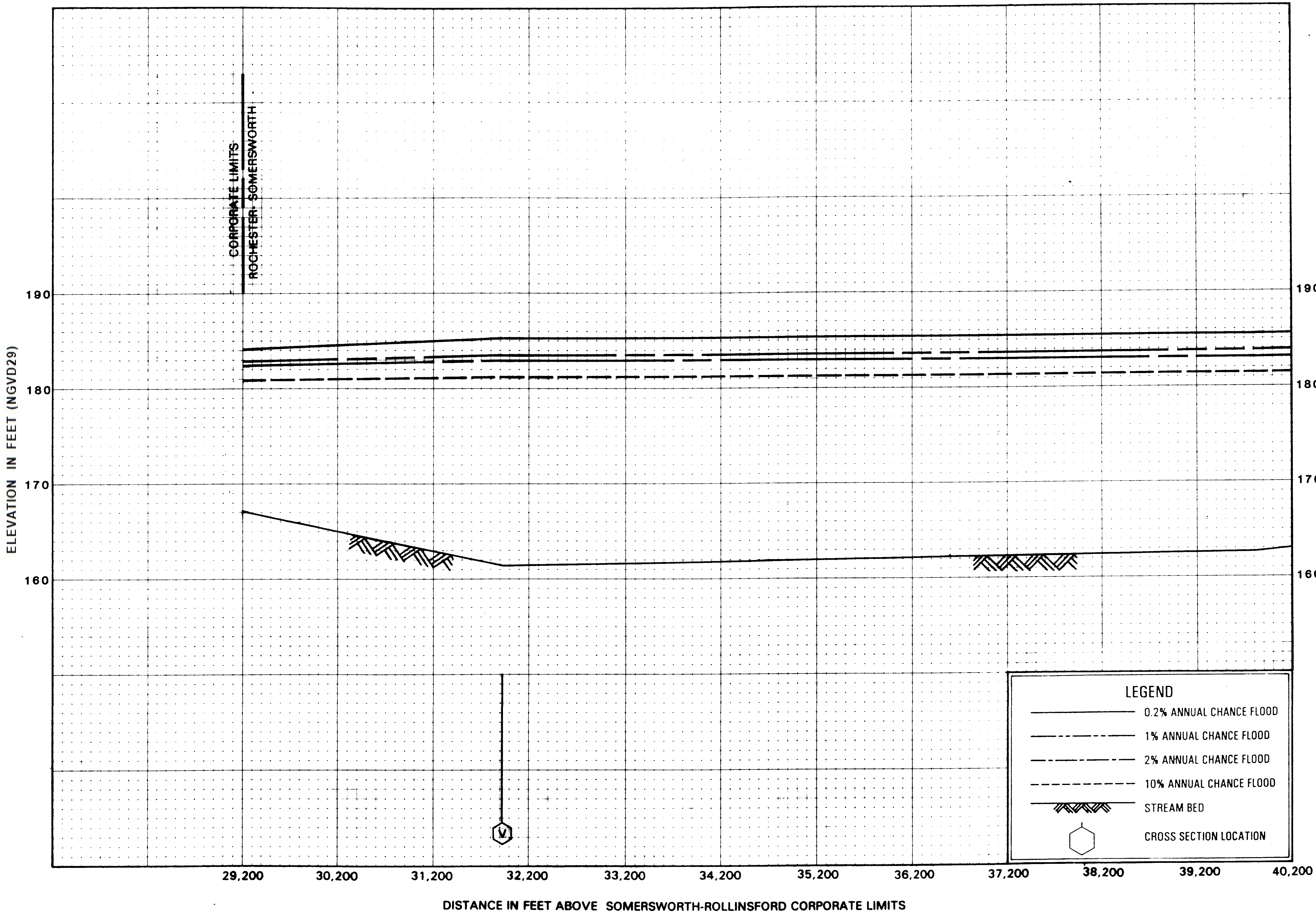
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

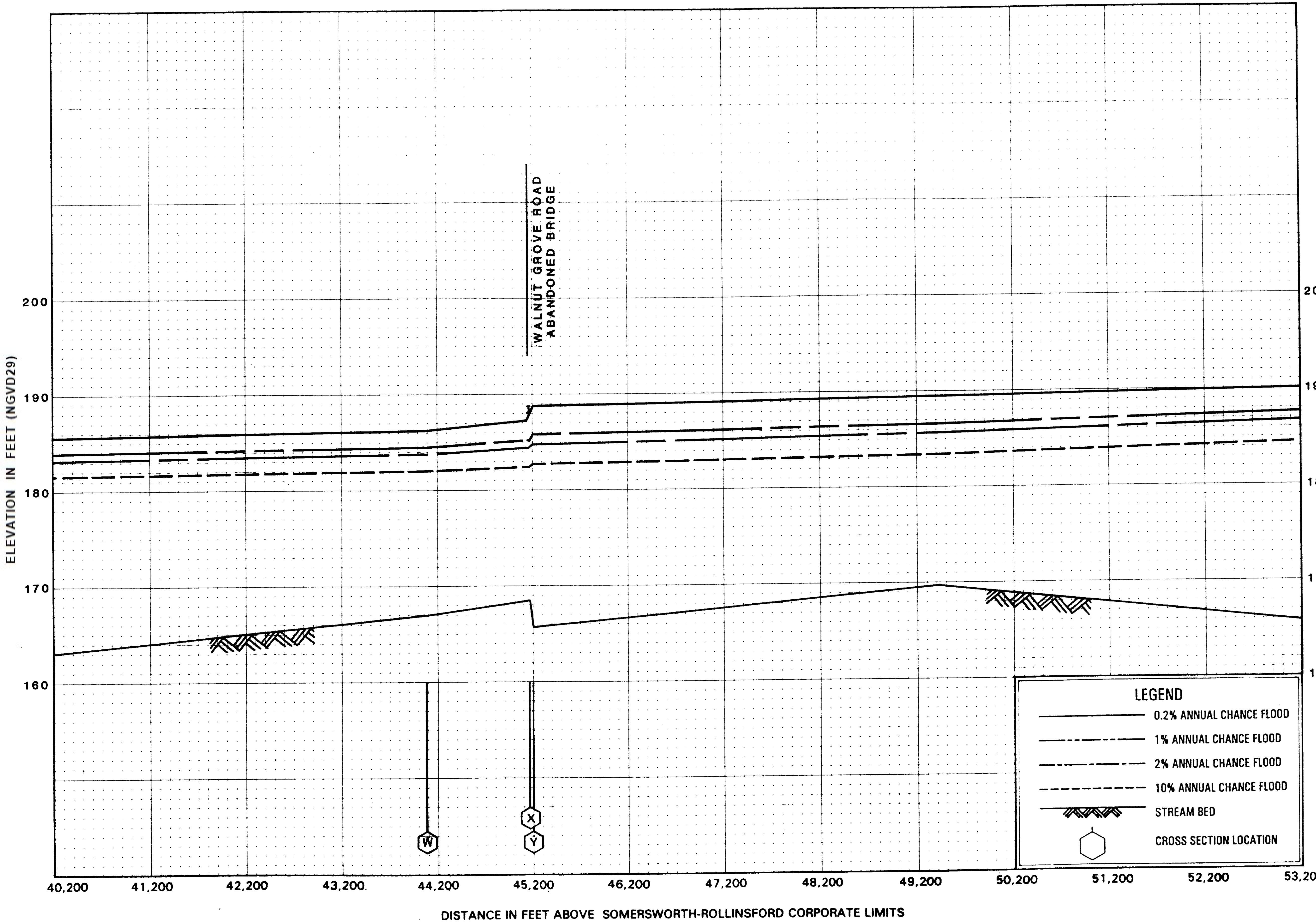


FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

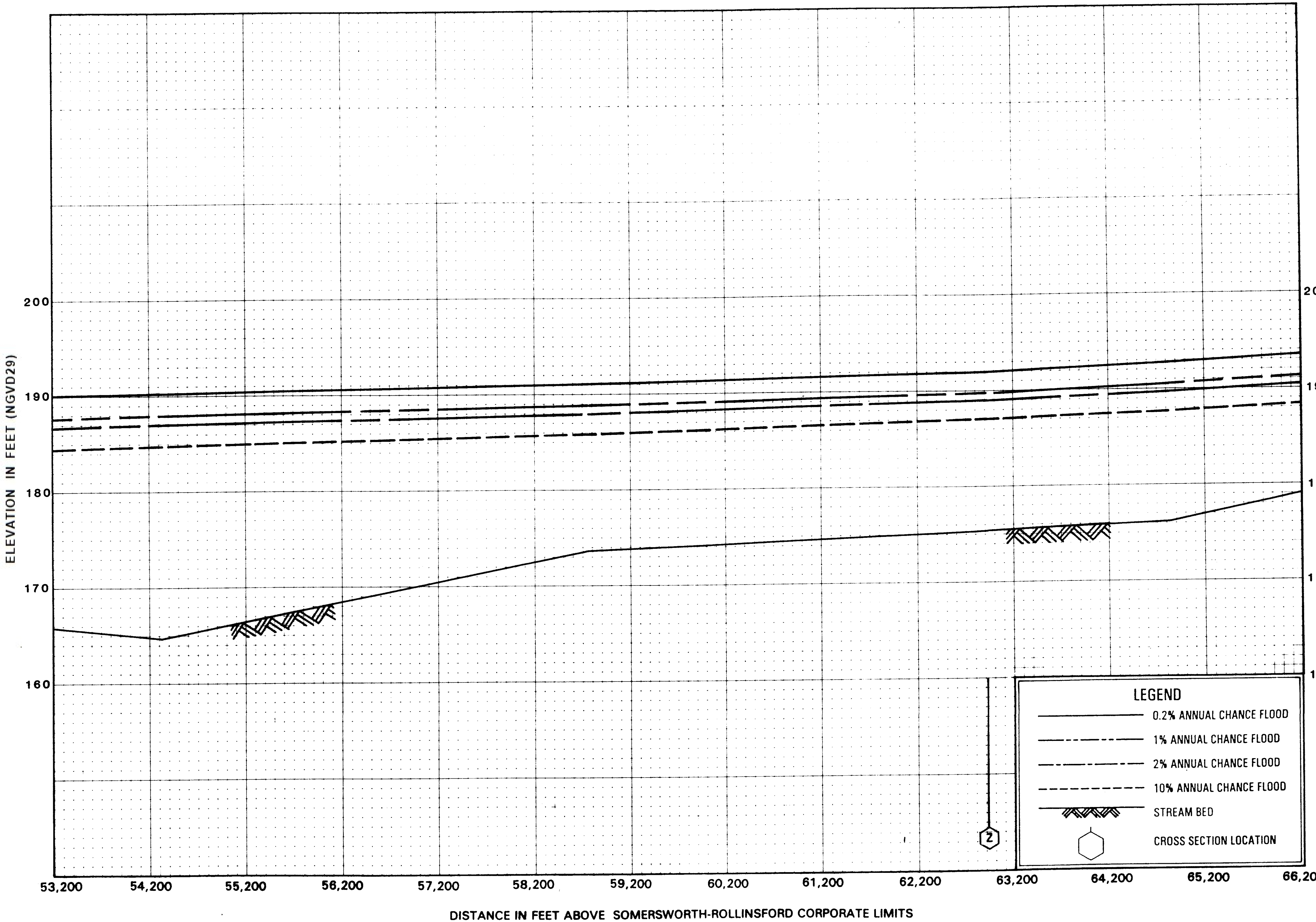


FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

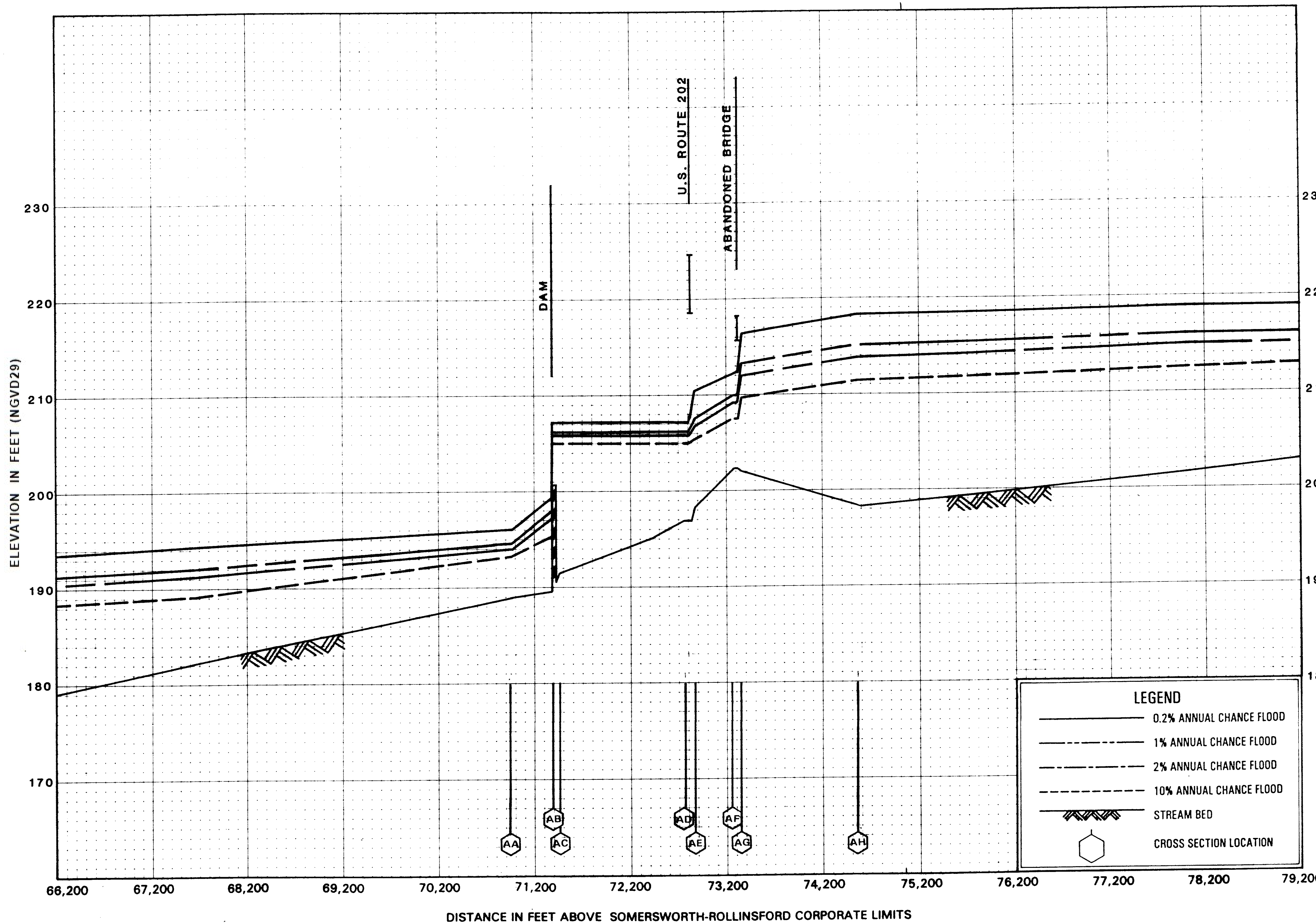


FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)



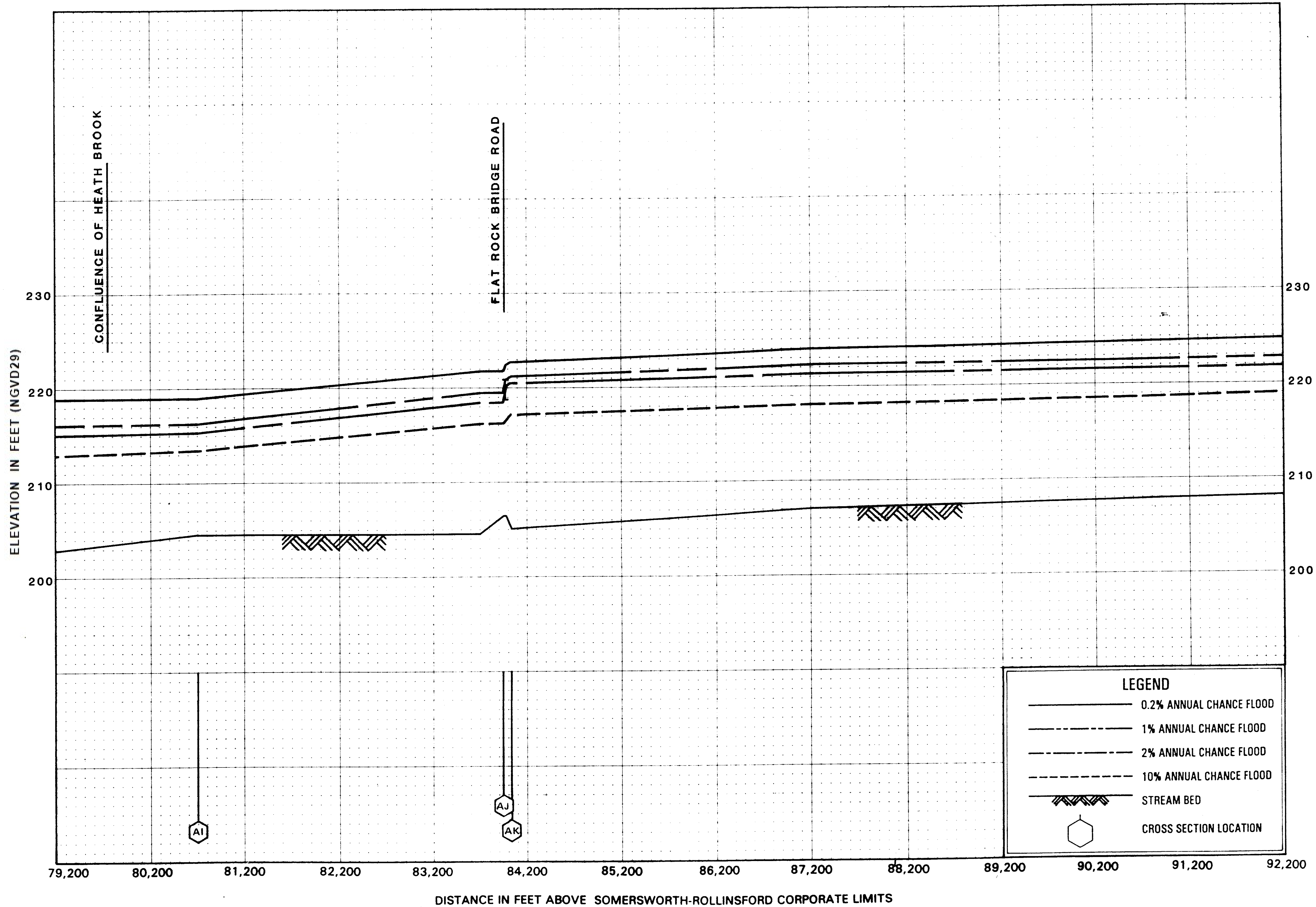
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



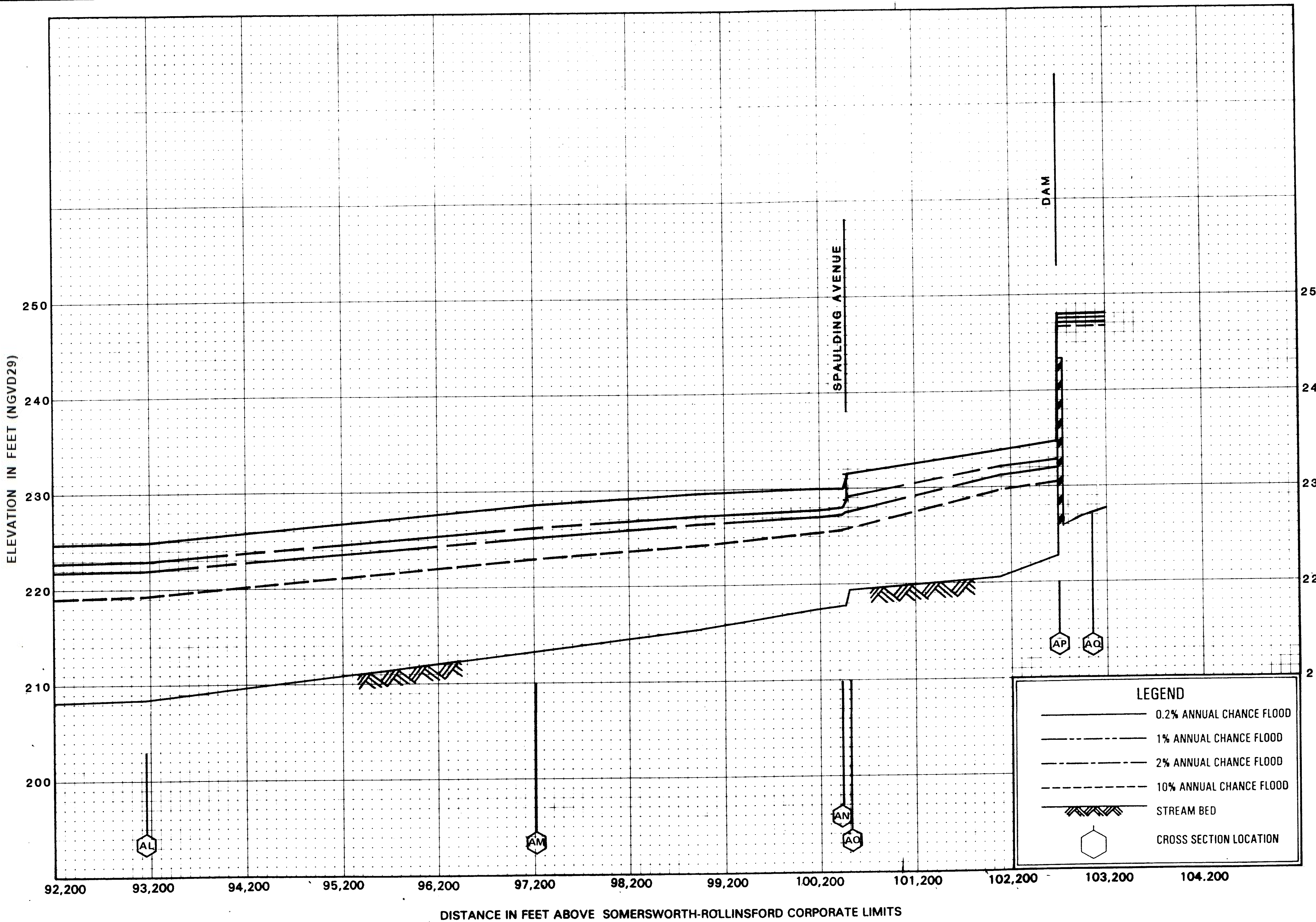
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



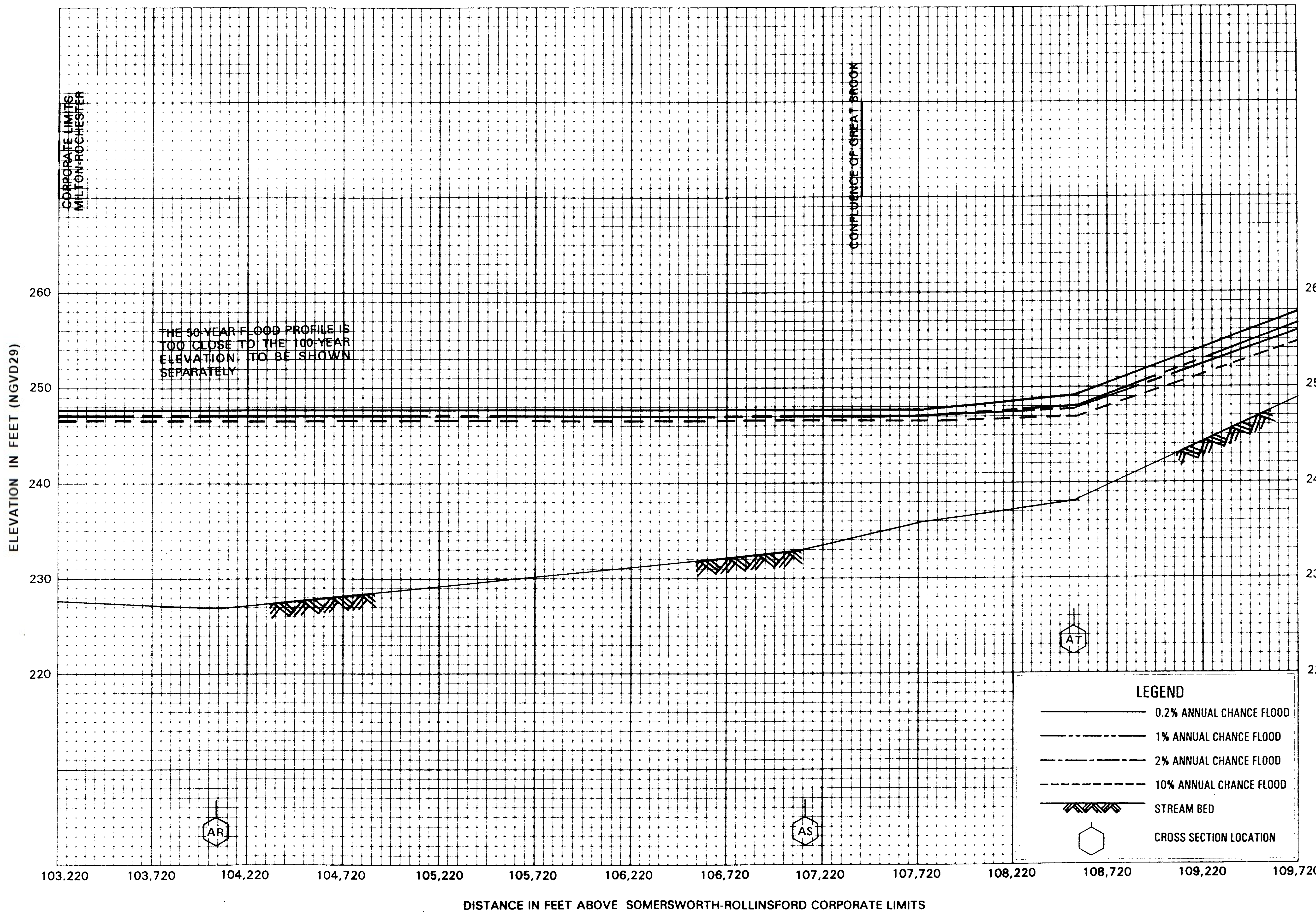
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



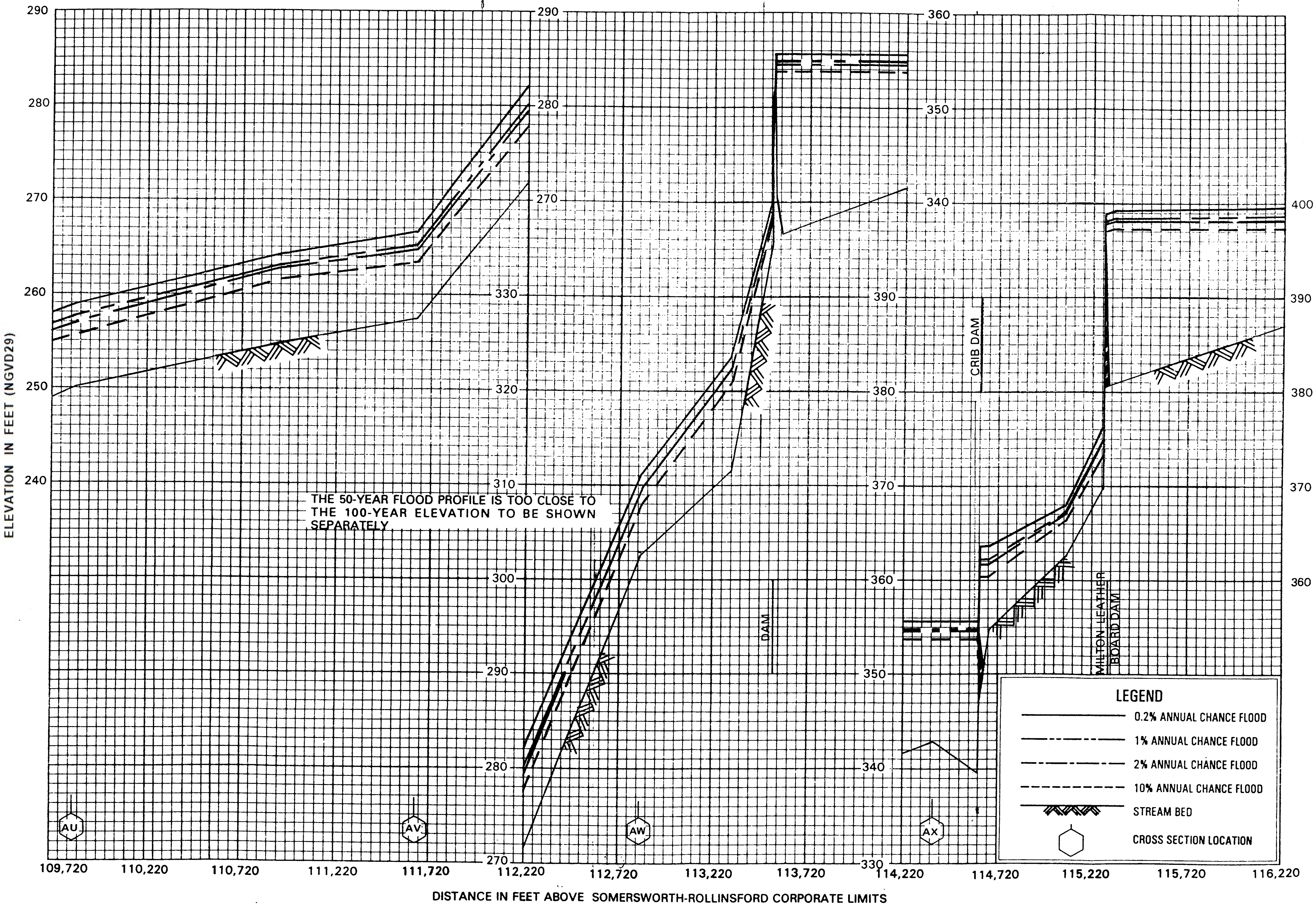
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

N342456



FLOOD PROFILES

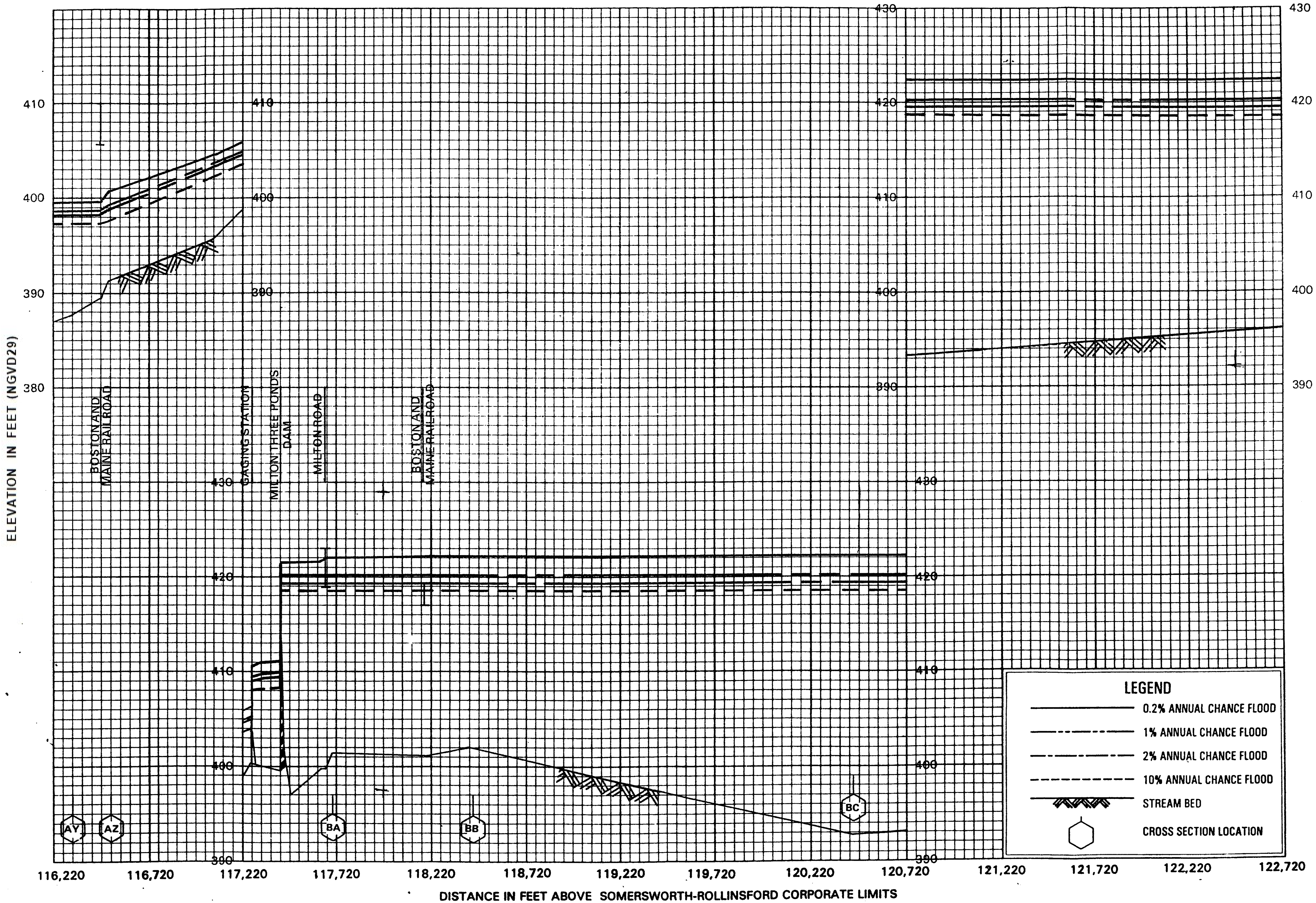
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH
(ALL JURISDICTIONS)

65P

124486



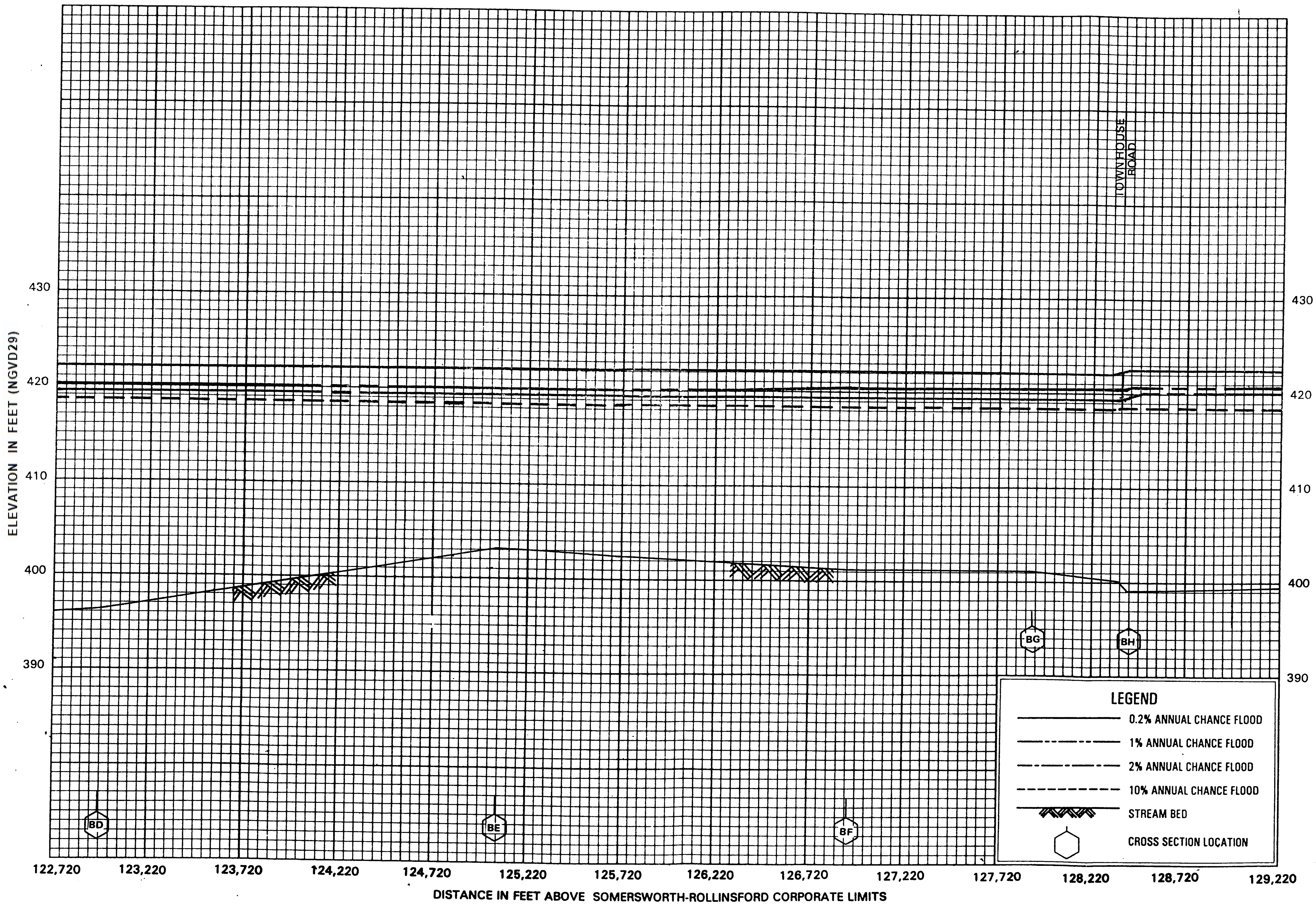
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

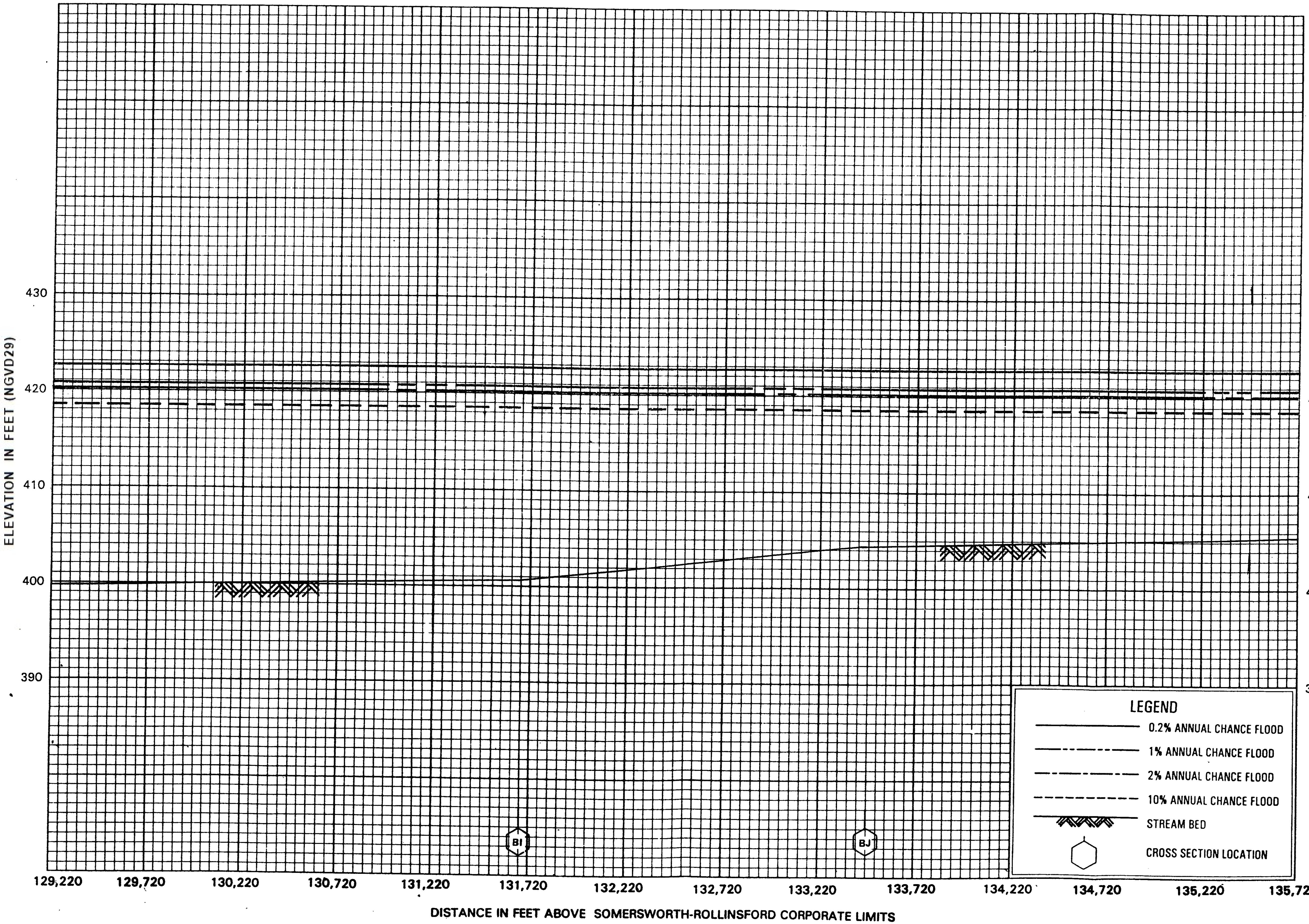
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

124486



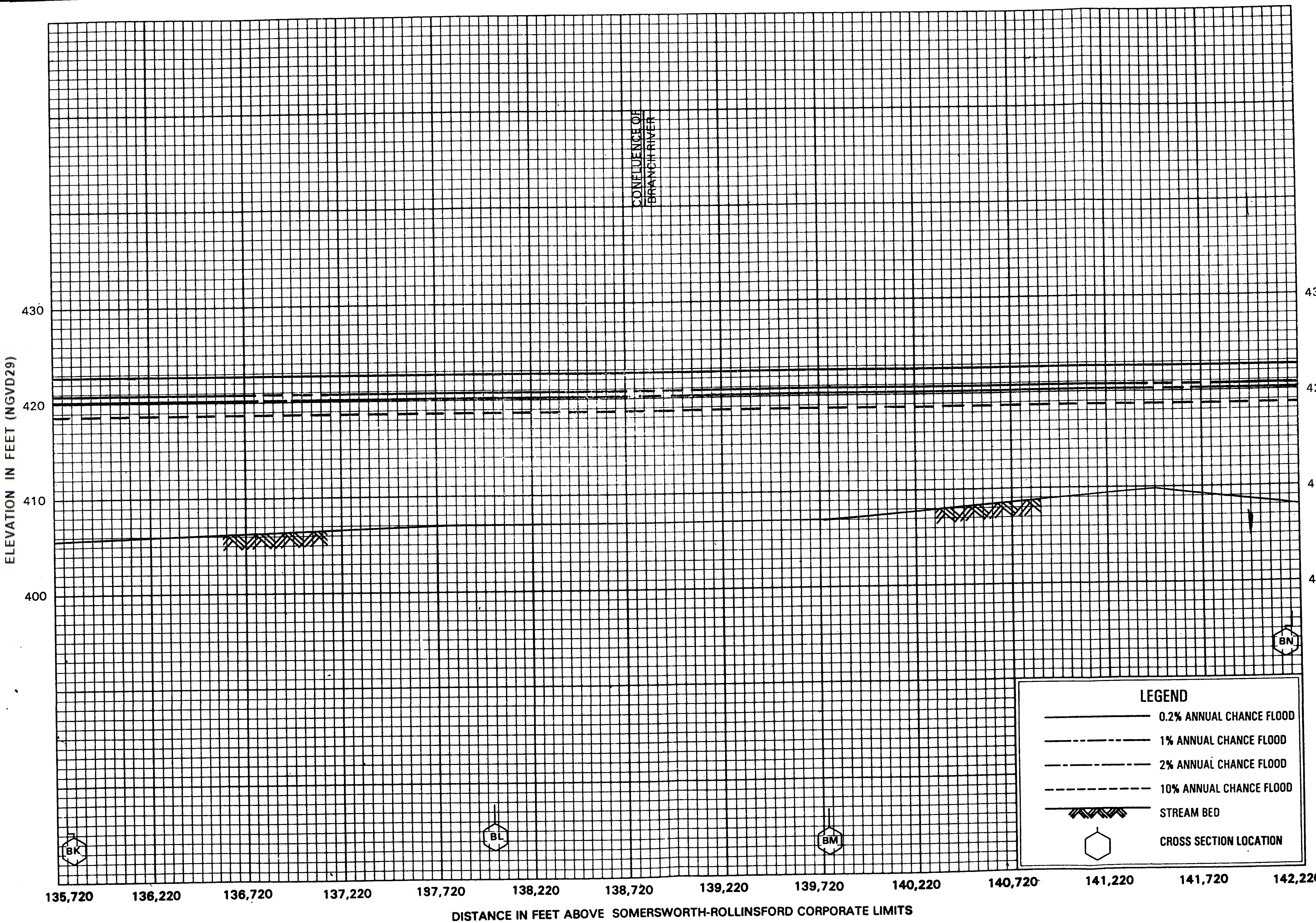
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



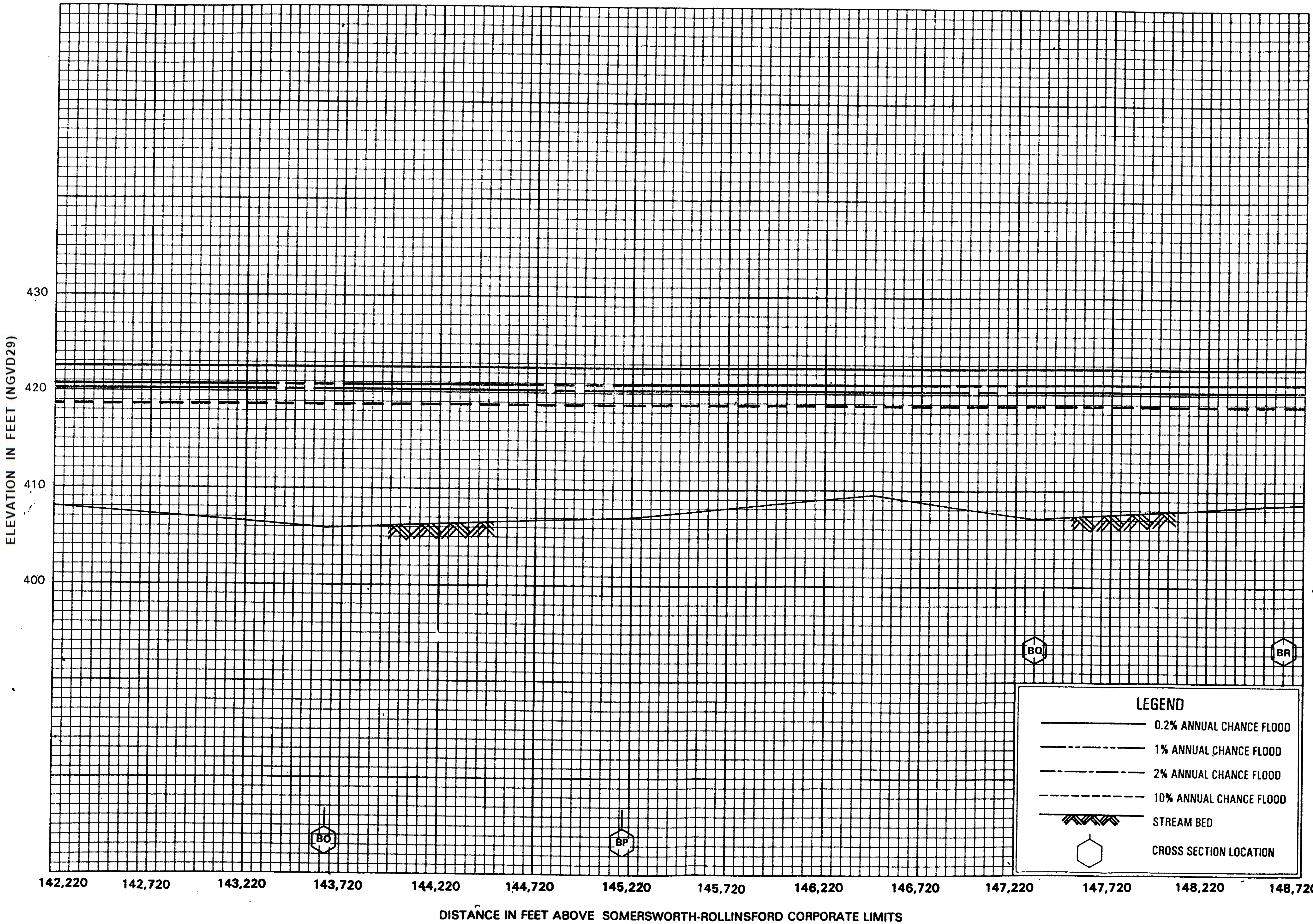
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

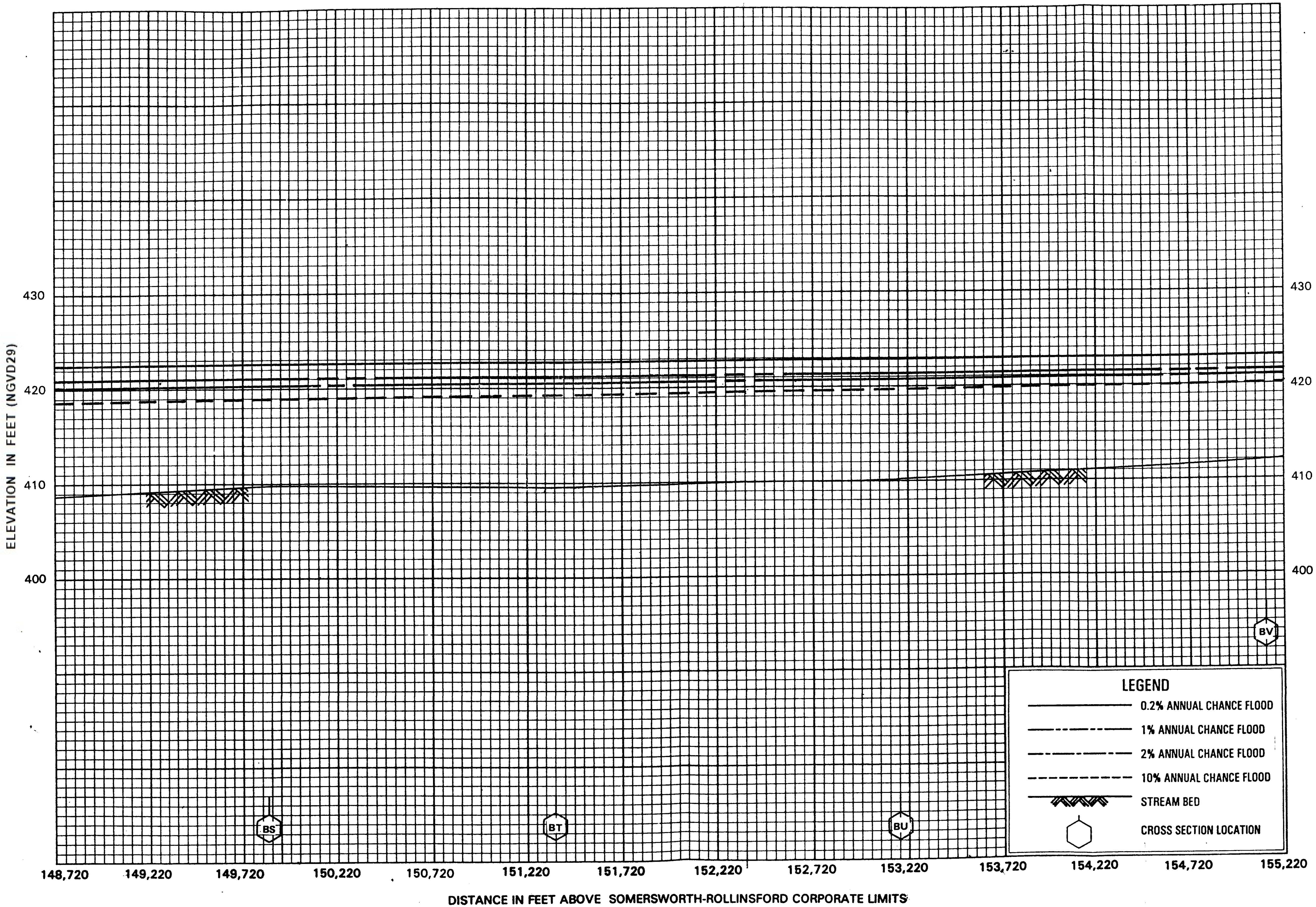
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

124488



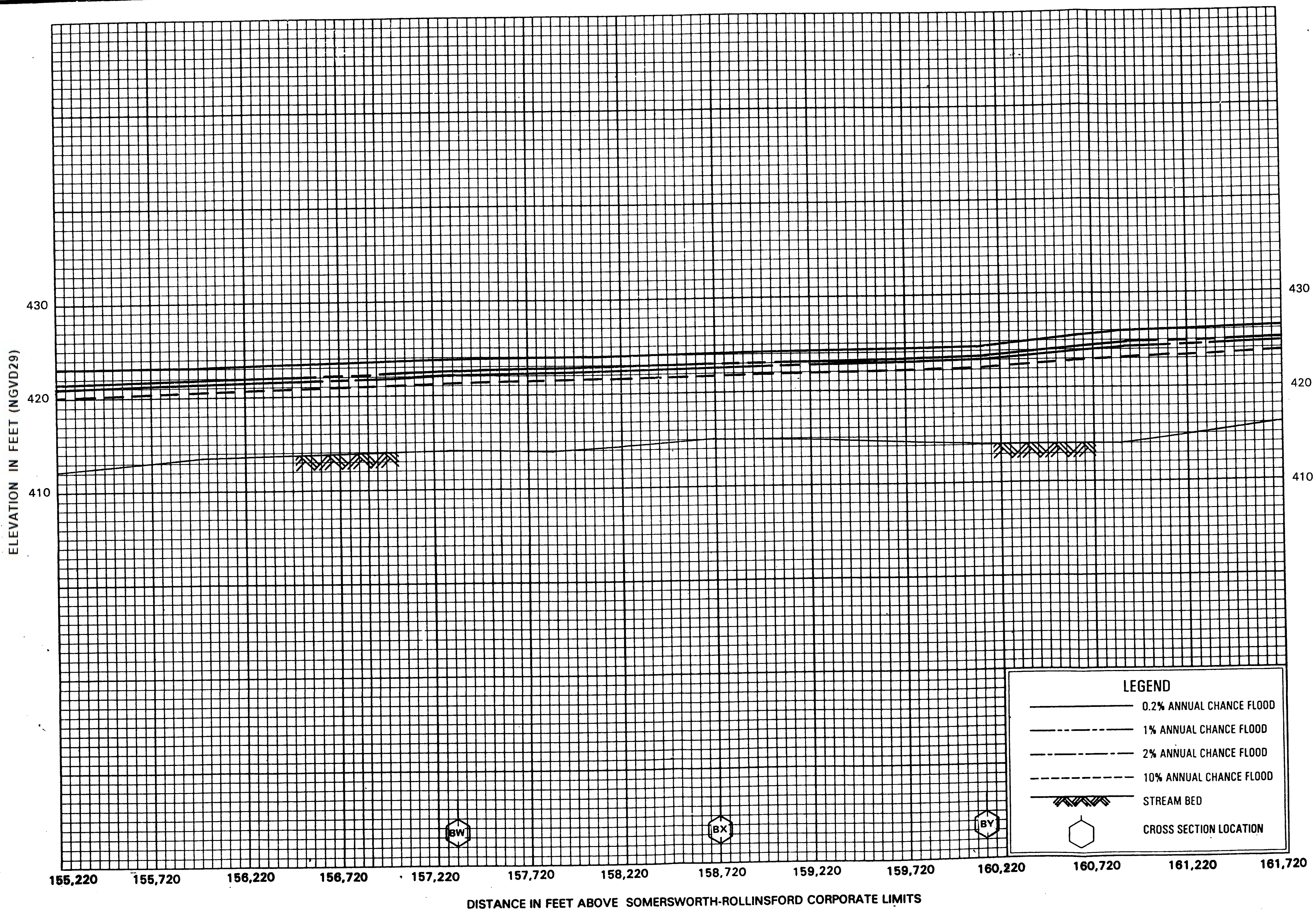
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



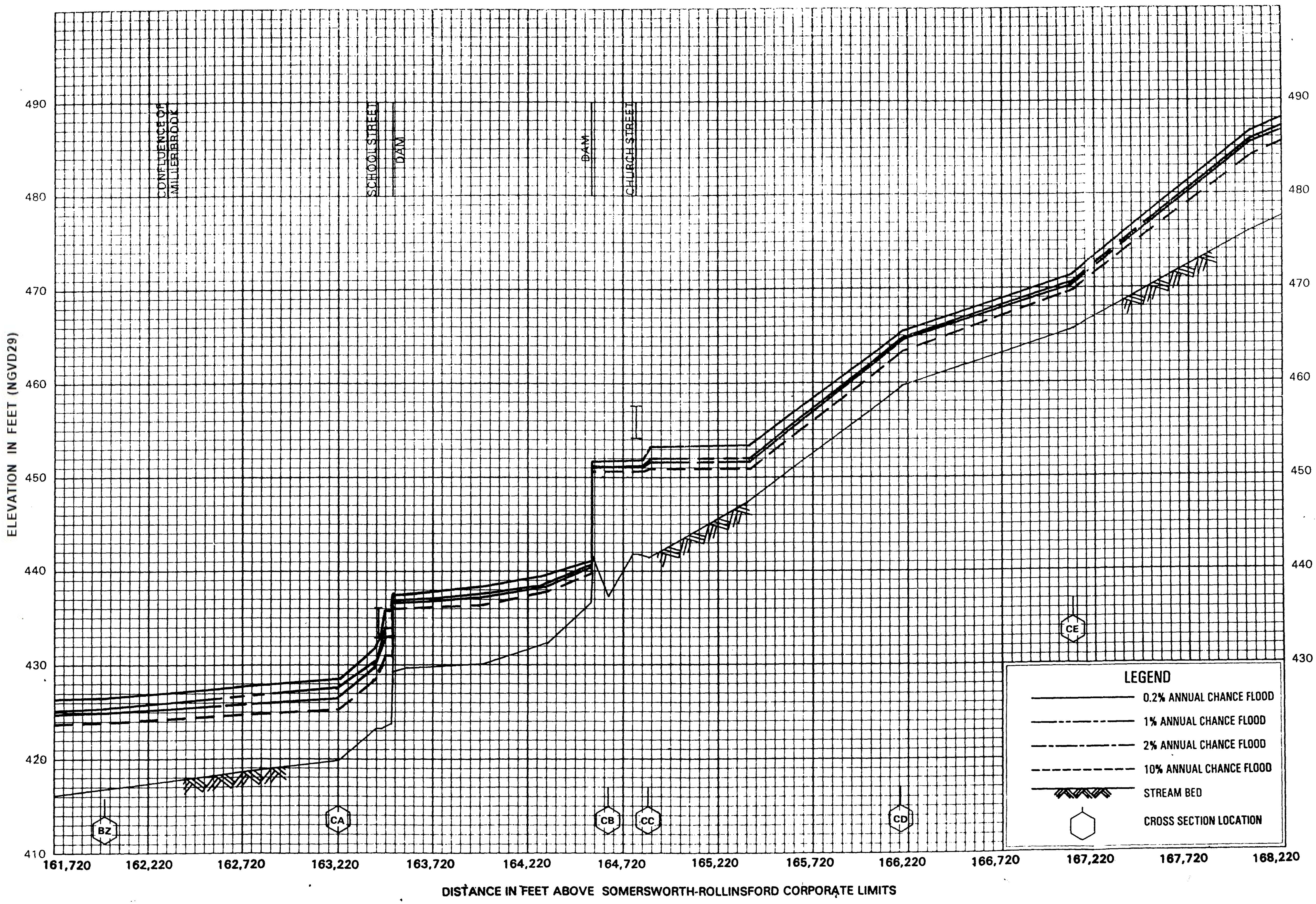
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

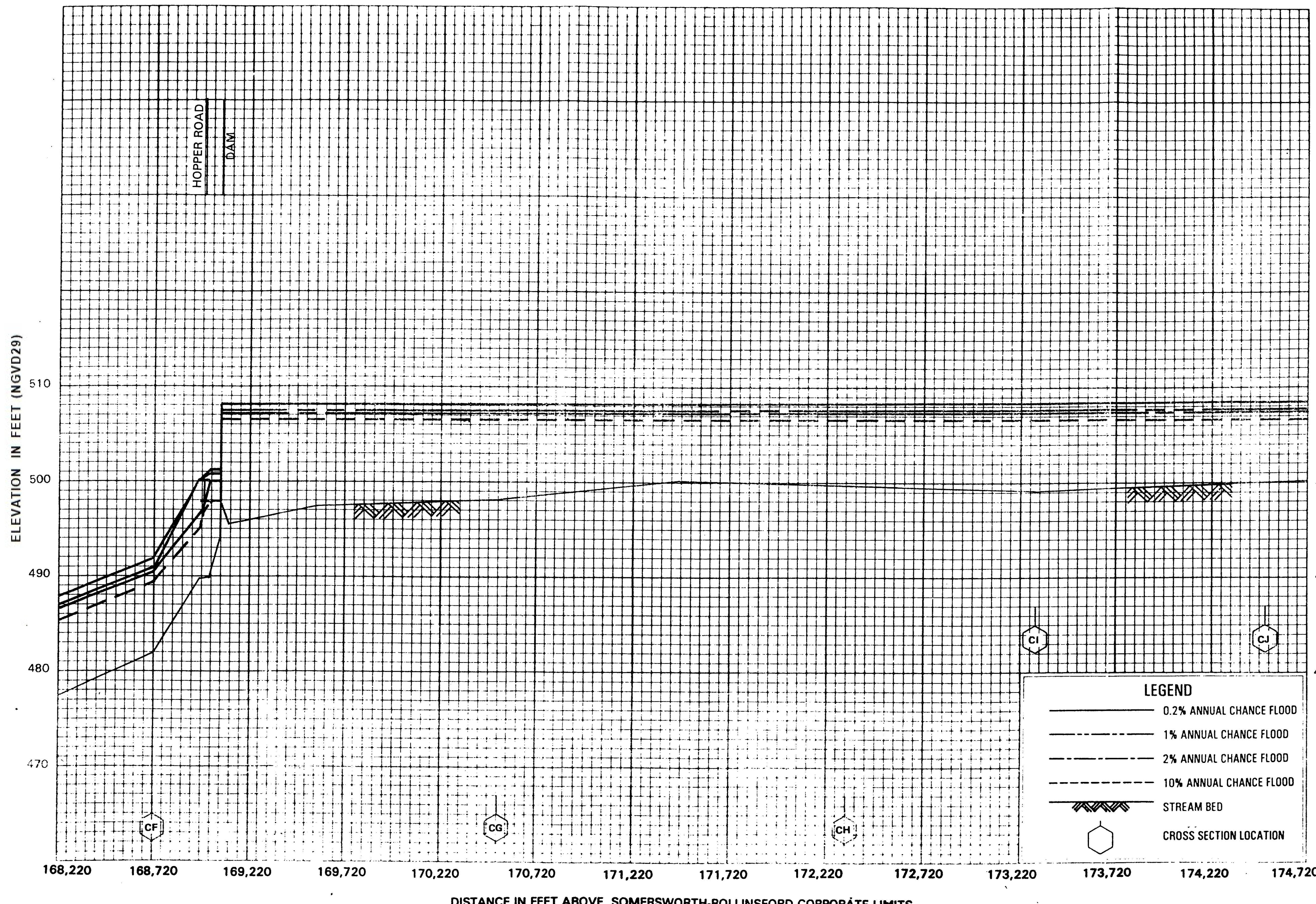
SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

73P



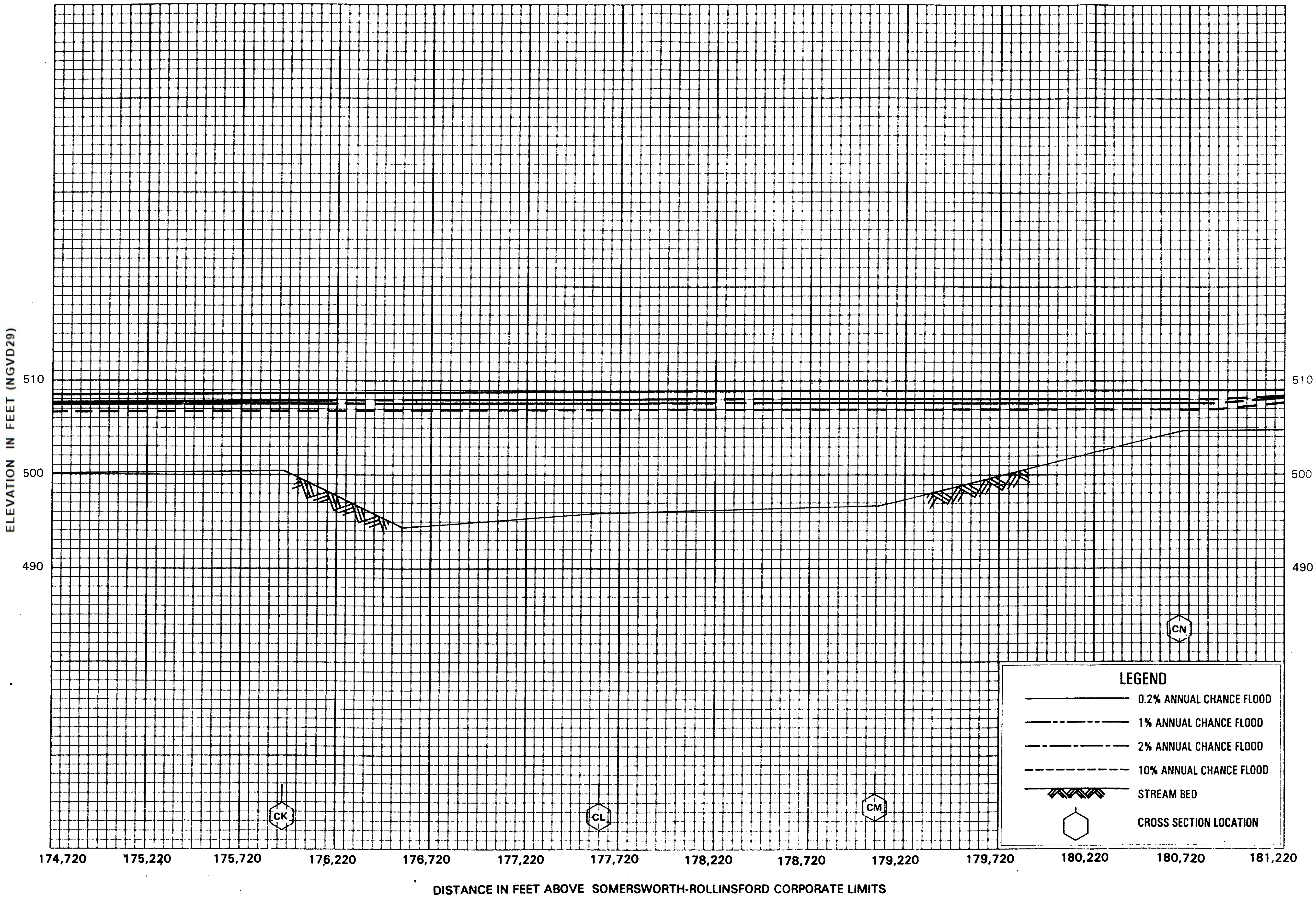
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



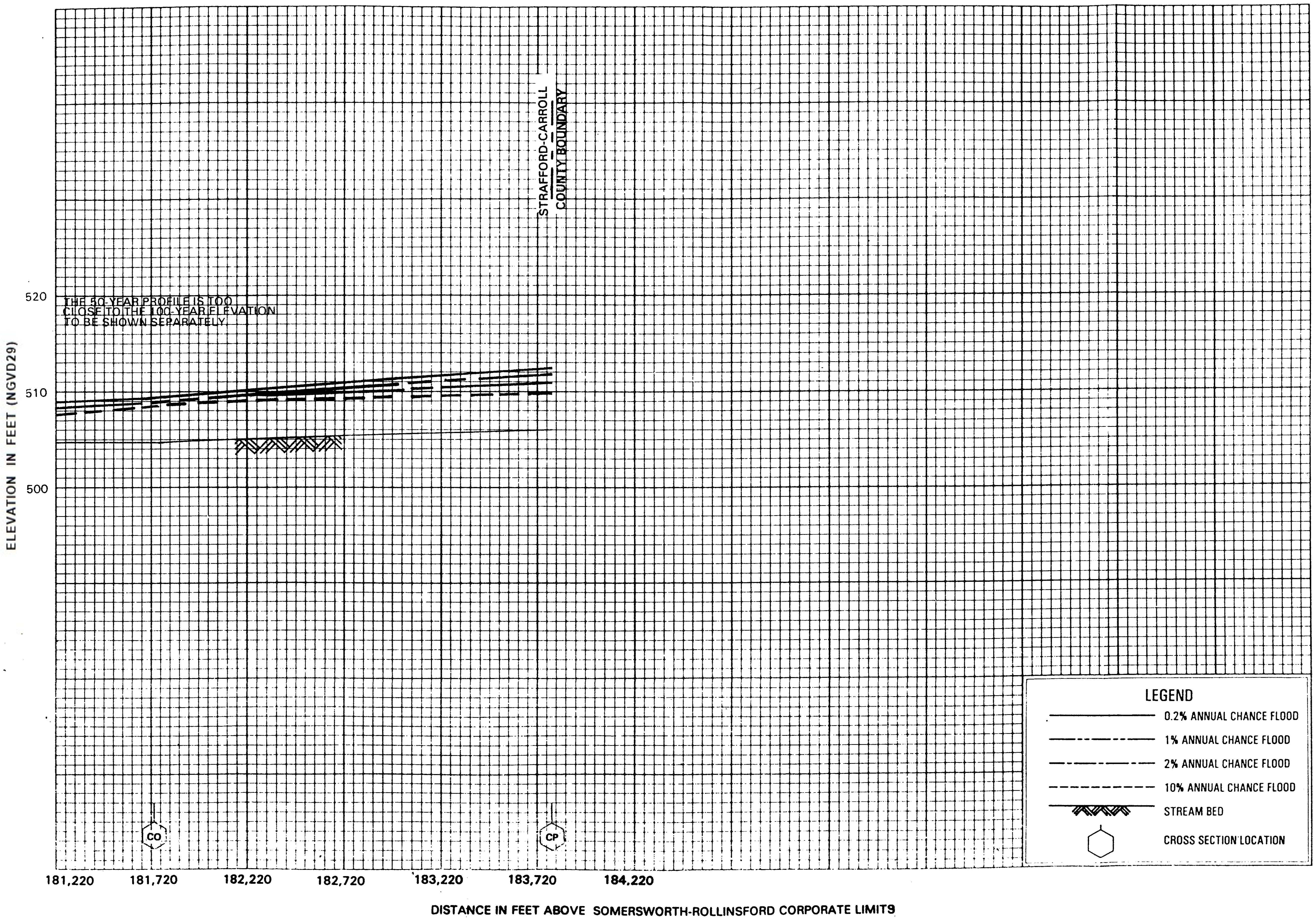
FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)



FLOOD PROFILES

SALMON FALLS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NH

(ALL JURISDICTIONS)

Figure 2. FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates, refer to Section 6 this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was State_Plane. The horizontal datum was NAD83. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on this map are referenced to either the National Geodetic Vertical Datum of 1929 (NGVD29) or the North American Vertical Datum of 1988 (NAVD88). Please refer to the title section on the lower right portion of this map to determine which datum is used for each community displayed on this panel. Additional information is available in Section 3 of the accompanying Flood Insurance Study report. Note that flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 (NGVD29) and the North American Vertical Datum of 1988 (NAVD88), visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

BASE MAP INFORMATION: Base map information shown on the FIRM was provided in digital format by the United States Geological Survey (USGS). This information was derived from digital orthophotography at a 1-ft resolution from photography dated 2010.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Strafford County, New Hampshire (All Jurisdictions), corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 10 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Strafford County, New Hampshire (All Jurisdictions).

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see http://www.fema.gov.

Table 11 is a list of the locations where FIRMs for Strafford County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

TABLE 11. MAP REPOSITORIES

Community	Address	City	State	Zip Code
Town of Barrington	Town Office 333 Calef Highway	Barrington	New Hampshire	03825
City of Dover	City Office 288 Central Avenue	Dover	New Hampshire	03820
Town of Durham	Town Office 15 Newmarket Road	Durham	New Hampshire	03824
Town of Farmington	Town Hall 356 Main Street	Farmington	New Hampshire	03835
Town of Lee	Town Hall 7 Mast Road	Lee	New Hampshire	03861
Town of Madbury	Town Hall 13 Town Hall Road	Madbury	New Hampshire	03823
Town of Middleton	Town Office 182 Kings Highway	Middleton	New Hampshire	03887
Town of Milton	Town Office 424 White Mountain Highway	Milton	New Hampshire	03851
Town of New Durham	Town Office 4 Main Street	New Durham	New Hampshire	03855
City of Rochester	Rochester City Code Enforcement Office City Hall 31 Wakefield St	Rochester	New Hampshire	03867
Town of Rollinsford	Town Office 667 Main Street	Rollinsford	New Hampshire	03869
City of Somersworth	City Hall 1 Government Highway	Somersworth	New Hampshire	03878
Town of Strafford	Town Hall 12 Mountain View Drive	Strafford	New Hampshire	03884

Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Strafford County, New Hampshire.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 12. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Jurisdictions that have no identified SFHAs as of the effective date of this study are indicated in the table. Changed conditions in these communities (such as urbanization or annexation) or the availability of new scientific or technical data about flood hazards could make it necessary to determine SFHAs in these jurisdictions in the future.

TABLE 12. LISTING OF NFIP JURISDICTIONS

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Town of Barrington	330178	01060003	33017C0190D, 33017C0195D, 33017C0213D, 33017C0260D, 33017C0280D, 33017C0285D, 33017C0290D[1], 33017C0295D, 33017C0302E, 33017C0305E, 33017C0315E	
City of Dover	330145	01060003	33017C0218E, 33017C0302E, 33017C0305E, 33017C0310E, 33017C0320E, 33017C0330E, 33017C0340E, 33017C0405E	
Town of Durham	330146	01060003	33017C0314E, 33017C0315E, 33017C0318E, 33017C0320E, 33017C0340E, 33017C0376E, 33017C0377E, 33017C0378E, 33017C0379E, 33017C0381E, 33017C0383E, 33017C0385E, 33017C0405E	
Town of Farmington	330147	01060003, 01070006	33017C0095D, 33017C0113D, 33017C0114D, 33017C0115D, 33017C0118D, 33017C0120D, 33017C0138D, 33017C0160D, 33017C0176D, 33017C0177D, 33017C0180D, 33017C0181D, 33017C0182D, 33017C0183D, 33017C0184D, 33017C0190D, 33017C0195D, 33017C0201D	
Town of Lee	330148	01060003	33017C0295D, 33017C0314E, 33017C0315E, 33017C0318E, 33017C0320E, 33017C0340E	

[1]Panel Not Printed – No Special Flood Hazard Areas

TABLE 12. LISTING OF NFIP JURISDICTIONS - continued

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Town of Madbury	330219	01060003	33017C0305E, 33017C0310E,33017C0315E, 33017C0318E, 33017C0320E, 33017C0340E	
Town of Middleton	330222	01060003, 01070002	33017C0040D, 33017C0045D[1], 33017C0105D, 33017C0107D,33017C0110D, 33017C0115D	
Town of Milton	330149	01060003	33017C0062D, 33017C0064D,33017C0065D, 33017C0105D, 33017C0107D,33017C0110D, 33017C0115D, 33017C0118D,33017C0120D, 33017C0126D, 33017C0127D,33017C0128D, 33017C0129D, 33017C0136D,33017C0137D, 33017C0138D, 33017C0201D	
Town of New Durham	330227	01060003, 01070002, 01070006	33017C0010D, 33017C0015D[1], 33017C0020D, 33017C0040D,33017C0085D, 33017C0095D, 33017C0105D,33017C0113D, 33017C0115D, 33017C0160D	
City of Rochester	330150	01060003	33017C0138D, 33017C0182D,33017C0183D, 33017C0184D, 33017C0190D,33017C0195D, 33017C0201D, 33017C0203D,33017C0204D, 33017C0208D, 33017C0211D,33017C0212D, 33017C0213D, 33017C0214D,33017C0216D, 33017C0217D, 33017C0218E, 3017C0219D, 33017C0302E, 33017C0305E, 33017C0310E	
Town of Rollinsford	330190	01060003	33017C0310E, 33017C0327E, 33017C0330E	
City of Somersworth	330151	01060003	33017C0217D, 33017C0218E,33017C0219D, 33017C0238D, 33017C0239D,33017C0310E, 33017C0327E, 33017C0330E	
Town of Strafford	330196	01060003, 01070006	33017C0155D, 33017C0160D,33017C0165D, 33017C0170D, 33017C0180D,33017C0190D, 33017C0195D, 33017C0255D,33017C0260D, 33017C0280D	

[1]Panel Not Printed – No Special Flood Hazard Areas