FPA 2016-002

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 1

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
City of Pueblo	085077
Pueblo County Unincorporated Areas	080147
Town of Boone	080148
Town of Rye	080150

FEMA

EFFECTIVE: **PRELIMINARY: MARCH 25, 2016**

Date TBD

FLOOD INSURANCE STUDY NUMBER
08101CV000A

Version Number 2.3.3.2

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Published Separately

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FLOOD INSURANCE STUDY REPORT
PUEBLO COUNTY, COLORADO

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60.3, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as "Post-FIRM" buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community's regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Pueblo County, Colorado.

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 1. 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 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
City of Pueblo	085077	11020002 11020003	08101C0482D 08101C0483D 08101C0484D 08101C0491D 08101C0492D 08101C0493D 08101C0494D 08101C0503D 08101C0504D 08101C0505D 08101C0510D[1] 08101C0511D 08101C0512D	

Table 1: 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
City of Pueblo (continued)	085077		08101C0513D 08101C0514D 08101C0520D 08101C0540D 08101C0705D 08101C0706D 08101C0707D 08101C0710D 08101C0726D 08101C0727D 08101C0730D	

Table 1: 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
Pueblo County, Unincorporated Areas	080147	11020002 11020003 11020004 11020005 11020006 11020007	08101C0025D[1] 08101C0050D[1] 08101C0075D 08101C0100D 08101C0125D 08101C0150D 08101C0175D[1] 08101C0200D[1] 08101C0225D 08101C0250D 08101C0263D 08101C0264D 08101C0268D 08101C0269D 08101C0275D 08101C0280D 08101C0290D 08101C0300D[1] 08101C0325D 08101C0350D 08101C0375D 08101C0400D 08101C0425D[1] 08101C0450D 08101C0454D 08101C0455D 08101C0458D[1] 08101C0459D 08101C0460D[1] 08101C0465D 08101C0466D 08101C0467D 08101C0470D 08101C0476D 08101C0477D 08101C0478D[1] 08101C0479D 08101C0481D 08101C0482D 08101C0483D 08101C0484D	

Table 1: 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
Pueblo County, Unincorporated Areas (continued)	080147		08101C0490D 08101C0491D 08101C0492D 08101C0493D 08101C0503D 08101C0504D 08101C0505D 08101C0510D[1] 08101C0512D 08101C0514D 08101C0520D 08101C0540D 08101C0550D 08101C0575D 08101C0600D 08101C0625D[1] 08101C0650D 08101C0675D 08101C0700D 08101C0705D 08101C0706D 08101C0710D 08101C0715D 08101C0720D 08101C0726D 08101C0727D	

Table 1: 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
Pueblo County, Unincorporated Areas (continued)	080147		08101C0730D 08101C0735D 08101C0740D 08101C0745D 08101C0755D 08101C0760D 08101C0765D 08101C0770D 08101C0780D 08101C0800D 08101C0825D 08101C0850D 08101C0875D 08101C0900D 08101C0925D 08101C0930D 08101C0935D 08101C0950D 08101C0975D[1] 08101C1000D 08101C1025D 08101C1050D 08101C1075D 08101C1100D[1] 08101C1105D[1] 08101C1110D 08101C1115D 08101C1120D 08101C1130D 08101C1135D 08101C1140D 08101C1145D 08101C1175D 08101C1200D 08101C1225D 08101C1250D 08101C1275D 08101C1300D 08101C1325D 08101C1350D 08101C1375D	

Table 1: 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
Pueblo County, Unincorporated Areas (continued)	080147		08101C1400D 08101C1425D 08101C1450D[1]	
Town of Boone	080148	11020005	08101C0575D 08101C0800D	Town of Boone
Town of Rye	080150	11020002	08101C1120D	Town of Rye

[1] Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table , "Map Repositories," within this FIS Report.

- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the Unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

- The initial Countywide FIS Report for Pueblo County became effective on TBD. Refer to Table 28 for information about subsequent revisions to the FIRMs.

- Selected FIRM panels for the community may contain information (such as floodways and

cross sections) that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels. In addition, former flood hazard zone designations have been changed as follows:

Old Zone	New Zone
A1 through A30	AE
V1 through V30	VE
B	X (shaded)
C	X (unshaded)

- FEMA does not impose floodplain management requirements or special insurance ratings based on Limit of Moderate Wave Action (LiMWA) delineations at this time. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. If the LiMWA is shown on the FIRM, it is being provided by FEMA as information only. For communities that do adopt Zone VE building standards in the area defined by the LiMWA, additional Community Rating System (CRS) credits are available. Refer to Section 2.5.4 for additional information about the LiMWA.

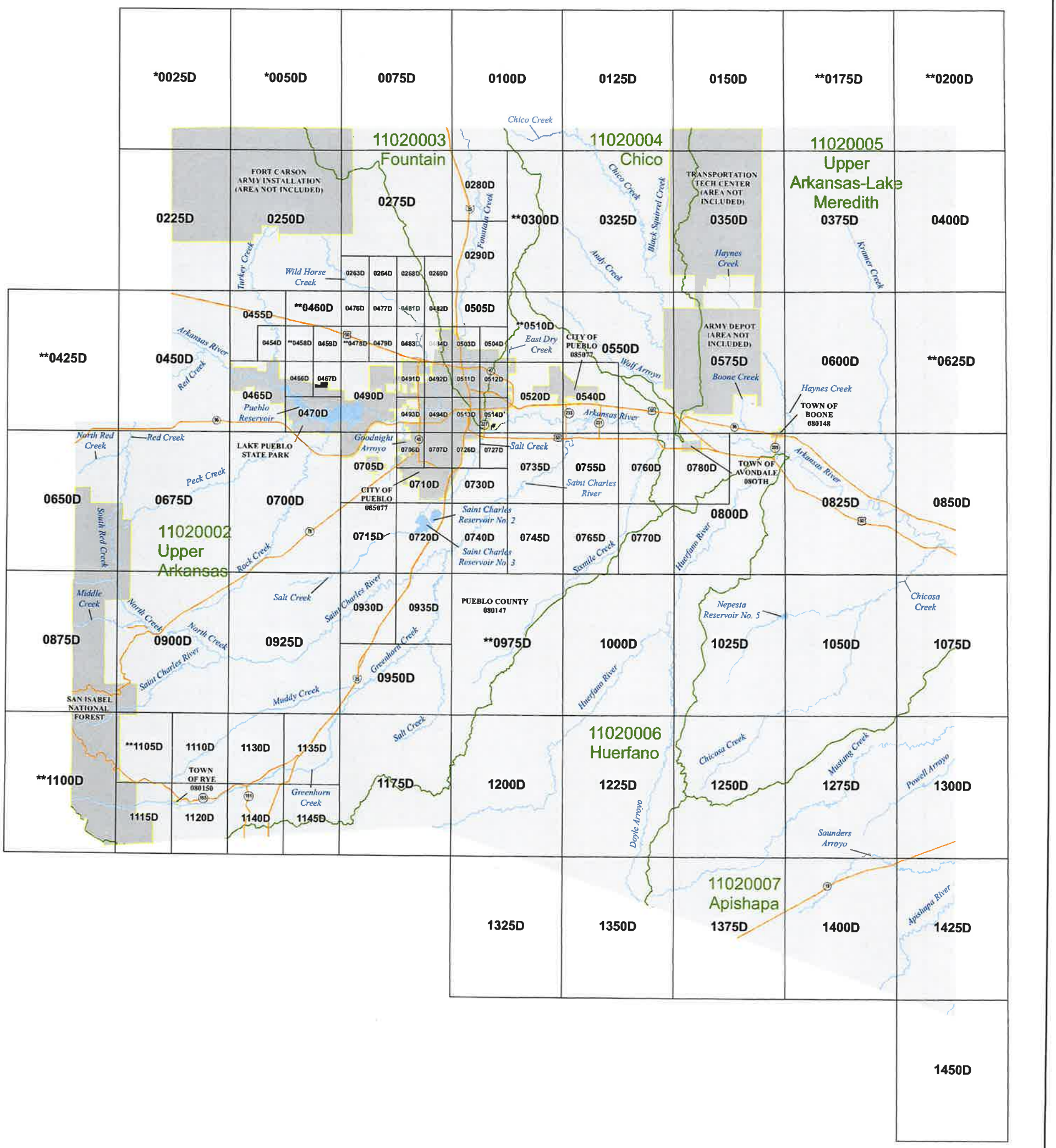
  The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at http://www.fema.gov or contact your appropriate FEMA Regional Office for more information about this program.

- Previous FIS Reports and FIRMs may have included one or more levees that were accredited as reducing the risk associated with the 1% annual chance flood based on the information available and the mapping standards of the NFIP at that time. For FEMA to continue to accredit the identified levees, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee Systems."

  Since the status of levees is subject to change at any time, the user should contact the appropriate agency for the latest information regarding levees presented in Table of this FIS Report. For levees owned or operated by the U.S. Army Corps of Engineers (USACE), information may be obtained from the USACE national levee database. For all other levees, the user is encouraged to contact the appropriate local community.

  Please also note that FEMA has identified one or more levees in this jurisdiction that have not been demonstrated by the community or levee owner to meet the requirements of 44CFR Part 65.10, of the NFIP regulations as it relates to the levee's capacity to provide 1 percent annual chance flood protection. As such, there are temporary actions are being taken until such time as FEMA is able to initiate a new flood risk project to apply new levee analysis and mapping procedures to leveed areas. These temporary actions involve using the flood hazard data shown on the previous effective FIRM exactly as shown on that prior FIRM and identifying the area with bounding lines and special map notes. If a vertical datum conversion was executed for the county, then the Base Flood Elevations shown on the FIRM will now reflect elevations referenced to the North American Vertical Datum of 1988 (NAVD88). These levees are on FIRM panels 08101C0492D, 08101C0494D, 08101C0513D, and 08101C0514D, on Fountain and East Dry Creek, and are identified on FIRM panels as potential areas of flood hazard data changes based on further review. Please refer to Section 4.4 of this FIS report for more information.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at http://www.fema.gov.



1 INCH = 32,862 FEET 1:394,341

0 15,500 31,000 62,000 Feet

Map Projection:
Universal Transverse Mercator Zone 13 North, Meters;
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - AREA NOT INCLUDED
** PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS IDENTIFIED

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

PUEBLO COUNTY, COLORADO AND INCORPORATED AREAS

PANELS PRINTED:
0075, 0100, 0125, 0150, 0225, 0250, 0263, 0264, 0268, 0269, 0275, 0280, 0290, 0325, 0350, 0375, 0400, 0450, 0454, 0455, 0459, 0465, 0466, 0467, 0470, 0476, 0477, 0479, 0481, 0482, 0483, 0484, 0490, 0491, 0492, 0493, 0494, 0503, 0504, 0505, 0511, 0512, 0513, 0514, 0520, 0540, 0550, 0575, 0600, 0650, 0675, 0700, 0705, 0706, 0707, 0710, 0715, 0720, 0726, 0727, 0730, 0735, 0740, 0745, 0755, 0760, 0765, 0770, 0780, 0800, 0825, 0850, 0875, 0900, 0925, 0930, 0935, 0950, 1000, 1025, 1050, 1075, 1110, 1115, 1120, 1130, 1135, 1140, 1145, 1175, 1200, 1225, 1250, 1275, 1300,1325, 1350, 1375, 1400, 1425, 1450

FEMA

MAP NUMBER
08101CIND0B
MAP REVISED

PRELIMINARY

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 These are the initial Pueblo County FIRMs in countywide format.
Table 28 in 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.

Figure 2. FIRM Notes to Users

PROJECTION INFORMATION: The projection used in the preparation of the map was Universal Transverse Mercator (UTM) Zone 13. The horizontal datum was NAD83 (NSRS-2007), GRS1980 spheroid. 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 the FIRM are referenced to the North American Vertical Datum of 1988. These 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 and the North American Vertical Datum of 1988, 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

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided by United States Department of Agriculture at a scale of 1:12,000. For information about base maps, refer to Section 6.2 "Base Map" in this FIS Report.

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.

Figure 2. FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Pueblo County, Colorado, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to These are the initial Pueblo County FIRMs in countywide format.
Table 28 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 Pueblo County, Colorado, effective TBD.

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.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.
	Regulatory Floodway determined in Zone AE.

Figure 3: Map Legend for FIRM

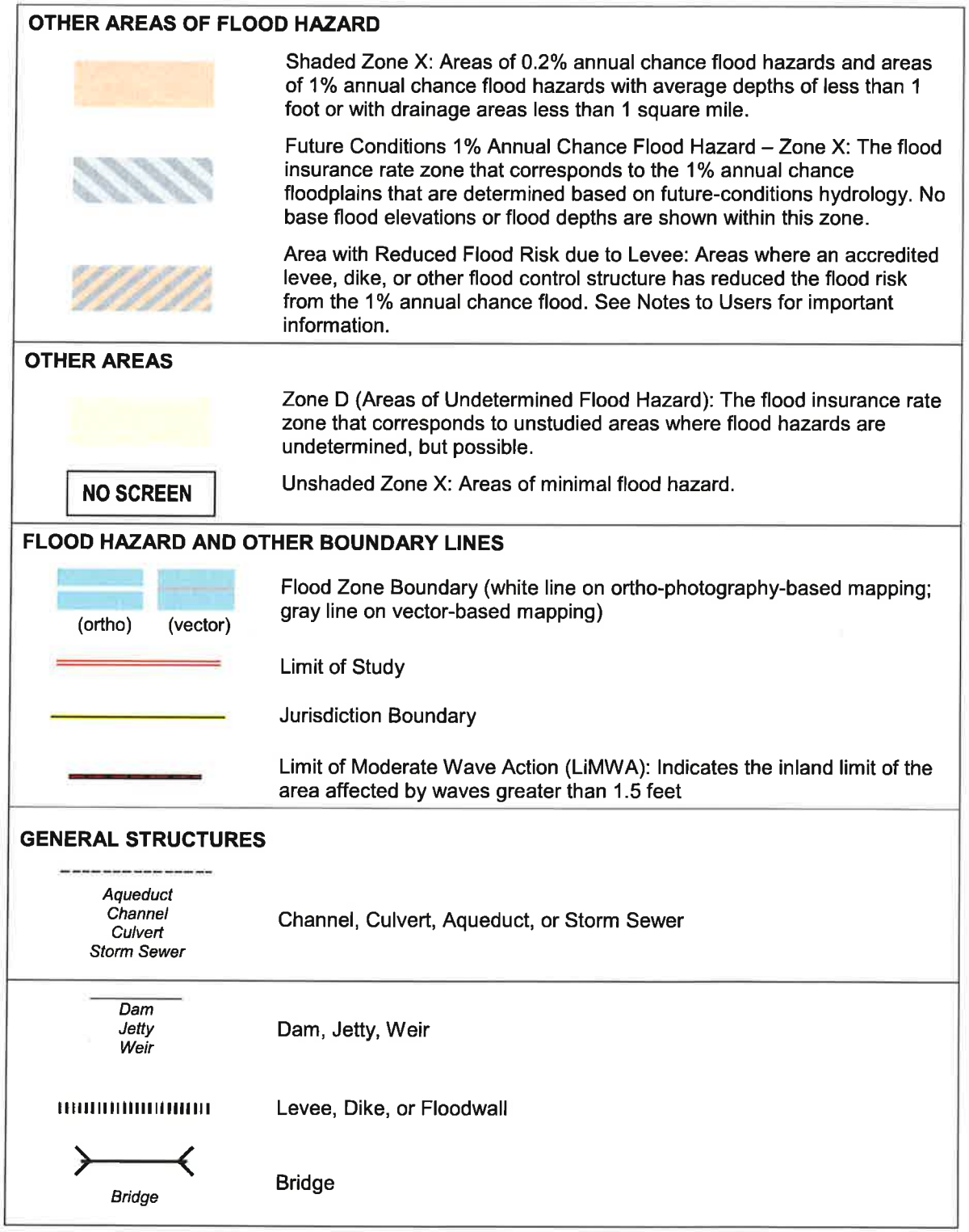
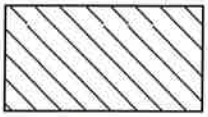


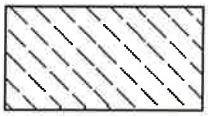
Figure 3: Map Legend for FIRM

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): *CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas. See Notes to Users for important information.*



CBRS AREA 09/30/2009

Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.



OTHERWISE PROTECTED AREA 09/30/2009

Otherwise Protected Area

REFERENCE MARKERS

22.0 ● River mile Markers

CROSS SECTION & TRANSECT INFORMATION

B 20.2 Lettered Cross Section with Regulatory Water Surface Elevation (BFE)

5280 21.1 Numbered Cross Section with Regulatory Water Surface Elevation (BFE)

17.5 Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)

8 Coastal Transect

Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.

Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.

513 Base Flood Elevation Line

ZONE AE (EL 16) Static Base Flood Elevation value (shown under zone label)

ZONE AO (DEPTH 2) Zone designation with Depth

ZONE AO (DEPTH 2) (VEL 15 FPS) Zone designation with Depth and Velocity

Figure 3: Map Legend for FIRM

BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
$^{42}76^{000m}E$	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Pueblo County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, "Map Legend for FIRM", describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Pueblo County, Colorado, respectively.

Table 2, "Flooding Sources Included in this FIS Report," lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table . Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

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. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Within this jurisdiction, there are one or more levees that have not been demonstrated by the communities or levee owners to meet the requirements of 44CFR Part 65.10 of the NFIP regulations (44 CFR 65.10) as it relates to the levee's capacity to provide 1-percent- annual -chance flood protection. As such, the floodplain boundaries in this area are subject to change. Please refer to

Section 4.4 of this FIS for more information on how this may affect the floodplain boundaries shown on this FIRM.

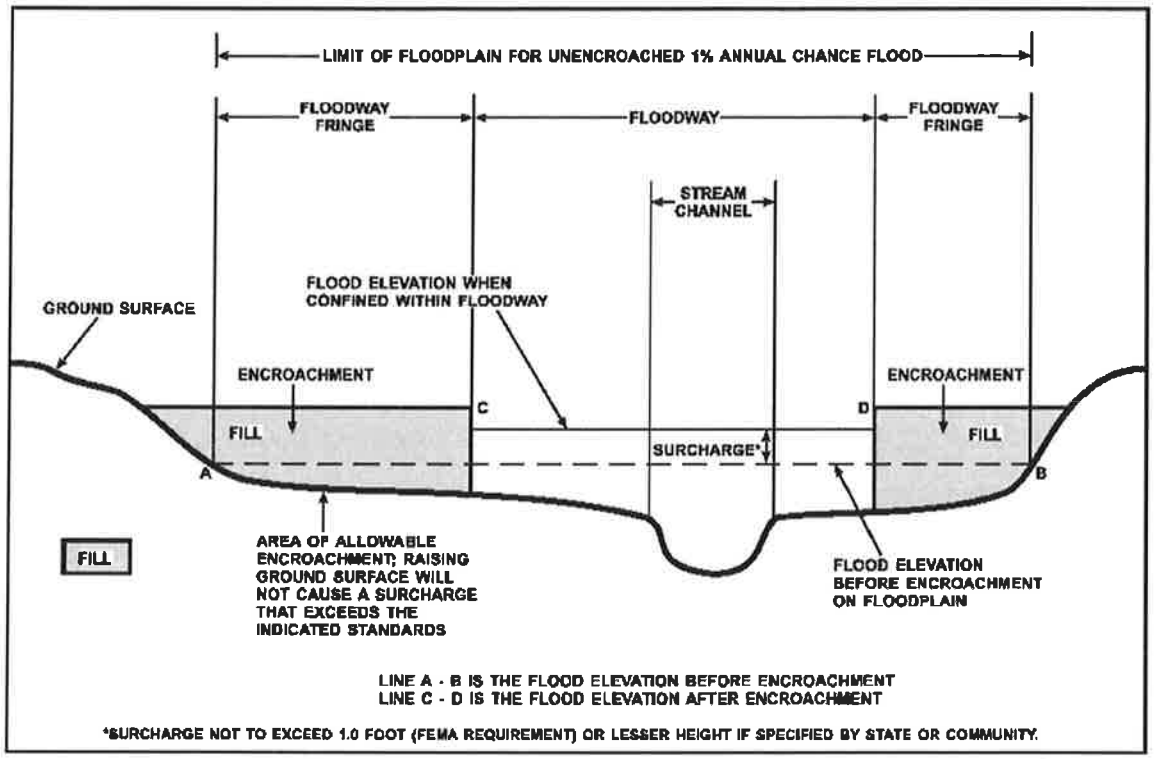
2.2 Floodways

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 balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. Regulations for Colorado require communities in Pueblo County to limit increases caused by encroachment to 0.5 feet, and several communities have adopted additional restrictions. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Arkansas River	City of Pueblo	Pueblo County line	Pueblo Reservoir	11020002	2.35	-	Y	AE	2013
	Pueblo County	Baxter Rd crossing	City of Pueblo line	11020002	6.84	-	Y	AE	2013
Dry Creek	Pueblo County	Confluence with Wild Horse - Dry Creek	50 feet from E Platteville Rd	11020002	0.12	-	Y	AE	2013
East Dry Creek	City of Pueblo	Pueblo County line	106 ft north of Pueblo County line	11020002	0.62	-	N	AE	1987
	Pueblo County	430 ft above confluence with Arkansas River	City of Pueblo line	11020002	0.87	-	N	AE	1987
Fountain Creek	City of Pueblo	Confluence with Arkansas River	Pueblo County line	11020003	6.34	-	Y	AE	2013
	Pueblo County	City of Pueblo line	.6 mi from I-25	11020002 11020003	10.63	-	Y	AE	2013
Goodnight Arroyo	City of Pueblo	Pueblo County line	.03 mi from Savannah Dr	11020002	1.49	-	Y	AE	2013
	Pueblo County	62 feet above confluence with Arkansas River	City of Pueblo line	11020002	1.89	-	Y	AE	2013
Goodnight Arroyo Highway 96 Split Flow	Pueblo County	Start of split flow	Confluence with Goodnight Arroyo	11020002	0.17	-	N	AE	2013
Goodnight Arroyo Left Overbank Split Flow	Pueblo County	13 feet above confluence with Goodnight Arroyo	.02 mi from the confluence with Goodnight Arroyo	11020002	0.26	-	Y	AE	2013

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Salt Creek	Pueblo County	169 ft above confluence with Arkansas River	1 mi from S Little Burnt Mill Rd	11020002	12.10	-	N	AE	1987
Sixmile Creek	Pueblo County	256 feet above confluence with Arkansas River	.38 mi from 40th Lane	10020002	6.37	-	N	AE	1987
Saint Charles River	Pueblo County	Confluence with the Arkansas River	.3 mi from S Burnt Mill Rd	11020002	27.21	-	N	AE	1987
Turkey Creek	Pueblo County	Pueblo West Metro District southern Boundary	Pueblo West Metro District northern Boundary	11020002	0.02	-	Y	AE	2013
University Park Tributary	City of Pueblo	Confluence with Fountain Creek	.38 mi from Jerry Murphy Rd	11020003	0.67	-	N	AE	1987
Wild Horse - Dry Creek	City of Pueblo	3 feet above confluence with Arkansas River	Pueblo County line	11020002	3.24	-	Y	AE	2013
	Pueblo County	Confluence with Dry Creek	City of Pueblo line	11020002	3.45	-	Y	AE	2013

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

This section is not applicable to this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5. Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project']

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, "Map Legend for FIRM." Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in the Unincorporated and incorporated areas of Pueblo County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
City of Pueblo	A, AE, AO, X
Pueblo County	A, AE, AO, X
Town of Boone	A, X
Town of Rye	A, X

3.2 Coastal Barrier Resources System

This section is not applicable to this Flood Risk Project.

Table 4. Coastal Barrier Resources System Information

[Not Applicable to this Flood Risk Project]

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 5 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Upper Arkansas	11020002	Arkansas River	Begins at the west Pueblo County line, extends north, south, and east from the confluence of the Arkansas River, approximately 25% of Pueblo County	2,303
Fountain	11020003	Fountain Creek	Begins at confluence with Arkansas River, extends north-northwest, approximately 10% of Pueblo County	928
Chico	11020004	Chico Creek	Begins at confluence with Arkansas River, extends north-northwest, approximately 8% of Pueblo County	725
Upper Arkansas – Lake Meredith	11020005	Arkansas River	Begins at confluence with Arkansas River, extends both northwest and southwest from the river, approximately 24% of Pueblo County	2,212
Huerfano	11020006	Huerfano River	Begins at confluence with Arkansas River, extends southwest, approximately 20% of Pueblo County	1,860
Apishapa	11020007	Apishapa River	Begins at the east Pueblo County line and extends southwest, approximately 12% of Pueblo County	1,075

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Pueblo County by flooding source.

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
General, Pueblo County	Analysis of climatological data and inspection of the flood history show that the most severe flood-producing storms occur during the late spring or summer months. The spring season is the transitional period between the occurrence of instability and frontal activity and is subject to storms caused by both types of activities. This may result in heavy spring snow storms in the higher elevations or high intensity rains over the plains region. These storms and the physical features of the area can produce a rapid concentration of runoff that characterizes flash floods of high peak flows, small volumes, and short duration.
Arkansas River Basin	Historical accounts fo flooding include reference to several major floods in the Arkansas River Basin in Colorado. Information on past floods in Pueblo, as available in newspaper files and other historical documents, is almost exclusively concerned with flooding on the Arkansas River and Fountain Creek. Major flooding in Pueblo probably included simultanteous flooding on smaller streams as well. References to the smaller streams in the area appear only rarely in early newspaper accounts, and specific information on the intensity, duration, and magnitude of the storms and flood effects is generally lacking.
Arkansas River	The 1921 flood is the historic flood of record. The business districts were gutted by water during June 3 and the morning of June 4. Earlier on June 3, Dry Creek flooded a northwest section of the city. A few hours after the Arkansas River flood, Fountain Creek ravaged a corridor along its channel. On June 10, the Arkansas River flooded the city again, but with less volume and in a smaller area. When it was over, the toll of dead and missing was more than 200. A survey ordered by city commissioners showed 510 dwellings were washed away, 98 were damaged, and 61 were moved off their foundations. Damages were estimated to be more than $10 million, not including property lost in transit on the railroad, crop losses, and other similar losses. It is significant that in 1921 the city had an assessed value of only $33 million. The floodwater converged on the commercial and industrial area from many points. It claimed the railroad yards as another channel. From its 1921 channel, in what is now the Elizabeth Street extension, it surged north and south. From the west, it came down side streets and alleys that intersect West, Elizabeth, Greenwood, Court, and Main Streets, as well as Grand, 2nd, and Santa Fe Avenues. It carried a cargo of houses, livestock, railroad cars, and rafts of lumber. The flood was caused by cloudbursts in the Rocky Mountain foothill region. The swift rise and fall and the unprecedented stage of the flood were remarkable given the small area the storm covered. The Arkansas River peaked at 103,000 cubic feet per second (cfs), the largest discharge of reliable record at Pueblo.

Table 6: Principal Flood Problems (continued)

Fountain Creek	Flooding on June 17, 1965 cased damage in the city of Pueblo and in Pueblo County, estimated at $3.7 million. Non-natural obstructions limited the Fountain Creek channel to a width of 250 feet or less at several locations. Approximately 53 city blocks were inundated to depths of up to 8 feet. 370 residences and 59 businesses were damaged. The cloudburst-type rains that occurred in the vicinity of Colorado Springs on June 17 produced this Fountain Creek flood. The major portion of the floodwater originated from Jimmy Camp Creek near Colorado Springs. The peak discharge from this small, 78-square mile watershed was 124,000 cfs at the confluence with Fountain Creek. The rainfall was so intense (up to 12 inches in 3 hours) that the entire countryside became a moving lake. The discharge of 47,000 cfs on Fountain Creek is the highest of record at Pueblo.
Lake Minnequa	Accourting to CF&I Steel Corporation records, Lake Minnequa overflowed in 1921 and 1965. No documentation of the 1921 flood is available. However, it is known that overflows from the lake on August 22, 1965 flooded the street system below the curb line. This event had an estimated discharge from the lake of 800 to 1,000 cfs. According to the National Weather Service records for this date, 2.35 inches of precipitation fell at Pueblo Reservoir located 0.5 miles from Lake Minnequa. The NOAA atlas cited this as less than a 10-year storm event.

Table 7 contains information about historic flood elevations in the communities within Pueblo County.

Table 7: Historic Flooding Elevations

This section is not applicable to this Flood Risk Project.

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Pueblo County such as dams, jetties, and/or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 8: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Fountain Creek	Fountain Creek floodwall	Floodwall	West bank, North of 8th Avenue, adjacent to Interstate 25	Concrete structure

4.4 Levees

For purposes of the NFIP, FEMA only recognizes levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with comprehensive floodplain management criteria. The Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10) describes the information needed for FEMA to determine if a levee system reduces the risk from the 1% annual chance flood. This information must be supplied to FEMA by the community

or other party when a flood risk study or restudy is conducted, when FIRMs are revised, or upon FEMA request. FEMA reviews the information for the purpose of establishing the appropriate FIRM flood zone.

Levee systems that are determined to reduce the risk from the 1% annual chance flood are accredited by FEMA. FEMA can also grant provisional accreditation to a levee system that was previously accredited on an effective FIRM and for which FEMA is awaiting data and/or documentation to demonstrate compliance with Section 65.10. These levee systems are referred to as Provisionally Accredited Levees, or PALs. Provisional accreditation provides communities and levee owners with a specified timeframe to obtain the necessary data to confirm the levee's certification status. Accredited levee systems and PALs are shown on the FIRM using the symbology shown in Figure 3 and in Table 9. If the required information for a PAL is not submitted within the required timeframe, or if information indicates that a levee system not longer meets Section 65.10, FEMA will de-accredit the levee system and issue an effective FIRM showing the levee-impacted area as a SFHA.

FEMA coordinates its programs with USACE, who may inspect, maintain, and repair levee systems. The USACE has authority under Public Law 84-99 to supplement local efforts to repair flood control projects that are damaged by floods. Like FEMA, the USACE provides a program to allow public sponsors or operators to address levee system maintenance deficiencies. Failure to do so within the required timeframe results in the levee system being placed in an inactive status in the USACE Rehabilitation and Inspection Program. Levee systems in an inactive status are ineligible for rehabilitation assistance under Public Law 84-99.

FEMA coordinated with the USACE, the local communities, and other organizations to compile a list of levees that exist within Pueblo County. Table 9, "Levees," lists all accredited levees, PALs, and de-accredited levees shown on the FIRM for this FIS Report. Other categories of levees may also be included in the table. The Levee ID shown in this table may not match numbers based on other identification systems that were listed in previous FIS Reports. Levees identified as PALs in the table are labeled on the FIRM to indicate their provisional status.

Please note that FEMA has identified levees in this jurisdiction that have not been demonstrated by the community or levee owner to meet the requirements of 44CFR Part 65.10 of the NFIP regulations as it relates to the levee's capacity to provide 1-percent-annual-chance flood protection. As such, the existing flood hazard analysis in the affected areas has been carried forward from the previously-printed effective FIRM panel(s) and the area has been clearly identified on the FIRM panel with notes and bounding lines. This has been done to inform users that a temporary mapping action has been put in place until such time as FEMA is able to initiate a new flood risk project to apply new flood hazard mapping procedures for leveed areas. These levees occur on FIRM panels 08101C0492D, 08101C0494D, 08101C0513D, and 08101C0514D, on Fountain and East Dry Creek, and are identified on the FIRM panels as potential areas of flood hazard data changes based on further review. Levees and their accreditation status are listed in Table 9 of this FIS report.

Please note that the information presented in Table 9 is subject to change at any time. For that reason, the latest information regarding any USACE structure presented in the table should be obtained by contacting USACE and accessing the USACE national levee database. For levees owned and/or operated by someone other than the USACE, contact the local community shown in Table 31.

Table 9: Levees

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)	Levee Status
City of Pueblo	East Dry Creek	North of the confluence of East Dry Creek and Arkansas River	City of Pueblo	N	NA	N	08101C0520D	Not accredited
City of Pueblo	Fountain Creek	East bank at 14th Street downstream to the abandoned railroad bridge	City of Pueblo	N	NA	N	08101C0513D 08101C0514D	Not accredited

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 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-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table, "Incorporated Letters of Map Change", which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, "FIRM Revisions."

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. (Coastal stillwater elevations are not applicable to this Flood Risk Project.) Stream gage information is provided in Table 12.

Table 10: Summary of Dicharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Future	0.2% Annual Chance
Arkansas River	Downstream of Fountain Creek and the CO-227 crossing	6,940	20,700	*	36,500	45,700	*	69,700
Arkansas River	Downstream of diversion structure	4,730	6,300	*	6,500	7,400	*	18,900
Arkansas River	Upstream of detailed study limit	4,720	10,400	*	14,000	16,500	*	18,900
Dry Creek	Downstream of Platteville Blvd	26	1,088	*	2,202	2,653	*	3,926
Fountain Creek	0.9 miles downstream of little Fountain Creek	926	14,400	*	30,200	39,600	*	70,000
Fountain Creek	Upstream side of new Pinon Road bridge	849	10,700	*	24,200	33,300	*	66,800
Fountain Creek	Upstream side of US HWY 50 bridge, approx.. 2.6 miles upstream from mouth	681	14,700	*	29,900	39,400	*	71,300
Goodnight Arroyo	0.75 miles upstream of Red Creek Springs Road	5	1,751	*	3,878	5,203	*	8,282
Wild Horse – Dry Creek	Downstream of confluence of Wild Horse Creek Tributary 1	80	4,535	*	9,179	11,006	*	16,163
Wild Horse – Dry Creek	Downstream of confluence of Wild Horse Creek Tributary 2	76	3,929	*	8,065	9,686	*	14,308

Table 10: Summary of Dicharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance Existing	1% Annual Chance Future	0.2% Annual Chance
Wild Horse – Dry Creek	Downstream of confluence of Williams Creek	69	2,664	*	5,482	6,592	*	9,801
Wild Horse – Dry Creek	Confluence of Wild Horse and Dry Creek	54	2,436	*	4,572	5,474	*	8,162
Turkey Creek	Upstream of Pueblo West Metro District boundary	120	*	*	*	21,320	*	*
Turkey Creek	Upstream of Tejon Avenue	114	*	*	*	21,150	*	*
Turkey Creek	Upstream end of reach	102	*	*	*	20,720	*	*

***Not calculated for this Flood Risk Project**

Figure 7: Frequency Discharge-Drainage Area Curves

Not available for this Flood Risk Project

Table 11: Summary of Non-Coastal Stillwater Elevations

Not applicable to this Flood Risk Project.

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Arkansas River	07099400	USGS	Arkansas River above Pueblo, CO.	4670	10/1/1965	9/30/2007
Fountain Creek	07106500	USGS	Fountain Creek at Pueblo, CO.	926	1/1/1922	12/21/2015
Fountain Creek	07106300	USGS	Fountain Creek near Pinon, CO.	865	4/1/1973	10/2/2014

Table 12: Stream Gage Information used to Determine Discharges (continued)

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Fountain Creek	07106000	USGS	Fountain Creek near Fountain Creek	681	8/2/1938	9/1/2008
Fountain Creek	07103700	USGS	Fountain Creek near Colorado Springs, CO.	103	8/2/1958	9/1/2008
Fountain Creek	07105500	USGS	Fountain Creek at Colorado Springs	392	8/2/1976	9/1/2008
Fountain Creek	07105530	USGS	Fountain Creek below Janitell Road below Colorado Springs, CO.	413	5/29/1990	9/1/2008
Fountain Creek	07105800	USGS	Fountain Creek near Security, CO.	495	7/24/1965	9/1/2008

5.2 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. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross

sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 24, "Floodway Data."

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13. Roughness coefficients are provided in Table 14. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Arksansas River	Baxter Road	Lamkin Street	HEC-HMS 4.0	HEC-RAS Version 4.0.0	2013	AE	
	Lamkin Street	Pueblo Reservoir	HEC-HMS 4.0	HEC-RAS Version 4.0.0	2013	A	
Dry Creek	Confluence with Wild Horse - Dry Creek	Pueblo County/ Pueblo West Boundary	HEC-HMS 4.0	HEC-RAS Version 4.0.0	2013	AE	
East Dry Creek	Data Not Calculated for this FIS Report						
Fountain Creek	Confluence with the Arkansas River	Old Piñon Road	HEC-HMS 4.0	HEC-RAS Version 4.0.0	2013	AE	
Goodnight Arroyo	Confluence with the Arkansas River	Thames Drive	HEC-HMS 4.0	HEC-RAS Version 4.0.0	2013	AE	
	5.5 river miles of unnamed tributaries		HEC-HMS 4.0	HEC-RAS Version 4.0.0	2013	A	
Goodnight Arroyo – Highway 96 Split Flow	Data Not Calculated for this FIS Report						
Goodnight Arroyo – Left Overbank Split Flow	Data Not Calculated for this FIS Report						
Saint Charles River	Data Not Calculated for this FIS Report						
Salt Creek	Data Not Calculated for this FIS Report						
Sixmile Creek	Data Not Calculated for this FIS Report						

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Turkey Creek	Pueblo Reservoir State Park	US Hwy 50	HEC-HMS 3.0.0	HEC-RAS Version 3.1.3	2006	A	
University Park Tributary	Data Not Calculated for this FIS Report						
Wild Horse – Dry Creek	Confluence with the Arkansas River	3 ft above confluence with Arkansas River	HEC-HMS 4.0	HEC-RAS Version 4.0.0	2013	AE	

Table 14: Roughness Coefficients

Flooding Source	Channel "n"	Overbank "n"
Arkansas River	0.020-0.060	0.016-0.13
Fountain Creek	0.020-0.081	0.050-0.135
Goodnight Arroyo	0.02-0.07	0.03-0.06
Wild Horse Creek/Dry Creek	0.044-0.074	0.016-0.055

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 15: Summary of Coastal Analyses

[Not applicable to this flood risk project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas

[Not applicable to this flood risk project]

Table 16: Tide Gage Analysis Specifics

[Not applicable to this flood risk project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project

Table 17: Coastal Transect Parameters

[Not applicable to this flood risk project]

Figure 9: Transect Location Map

[Not applicable to this flood risk project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

Table 18: Summary of Alluvial Fan Analyses

[Not applicable to this flood risk project]

Table 19: Results of Alluvial Fan Analyses

[Not applicable to this flood risk project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

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

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at 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

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 archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please contact information services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

The datum conversion locations and values that were calculated for Pueblo County are provided in Table 20.

Table 20: Countywide Vertical Datum Conversion

[Not applicable to this Flood Risk Project.]

The vertical datum shift was calculated for each digitally converted stream at 3 points: one at the downstream end, one at the midway point, and one at the upstream end. These streams were grouped to carry one vertical datum conversion factor. Conversion results are presented in the table on the following page.

The average stream conversion was calculated to be 2.778 ft (0.847 m). The conversion factors

ranged from a maximum value of 2.904 ft (0.885 m) and a minimum value of 2.664 ft (0.812 m). From this range, the maximum offset was calculated to be 0.240 ft (2.904 to 2.664 ft). The maximum offset does not exceed 0.25 ft and therefore, a stream group conversion factor can be applied to the existing effective data.

In addition, the average conversion factor, 2.778 ft, is greater than 0.1 ft and the use of a passive datum conversion does not apply. Additionally, the vertical datum shift was calculated for each corner of the USGS 7.5-minute topographic quadrangle maps located inside or within 2.5 miles of the County boundary. The quadrangle corner maximum offset was calculated to be 2.010 ft which far exceeds the 0.25 ft limit and the use of a countywide conversion does not apply.

An average conversion factor of 2.778 ft will be applied to all components of the FIS report related to digitally converted detailed study streams that display the 1-percent-annual-chance flood elevations. Calculations for the vertical offsets on a stream by stream basis are depicted in Table 21.

Table 21: Stream-Based Vertical Datum Conversion

Flooding Source	Average Vertical Datum Conversion Factor (feet)
Sixmile Creek	2.664
Sixmile Creek	2.694
Sixmile Creek	2.687
Saint Charles River	2.710
Saint Charles River	2.904
Saint Charles River	2.739
Salt Creek	2.897
Salt Creek	2.746
Salt Creek	2.762
East Dry Creek	2.746
East Dry Creek	2.776
East Dry Creek	2.795
University Park	2.828
University Park	2.828
University Park	2.825
Lake Minnequa	2.802
Lake Minnequa	2.805
Lake Minnequa	2.802

Average Conversion from NGVD29 to NAVD88 = 2.778 feet

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, http://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping.

Base map information shown on the FIRM was derived from the sources described in Table 22.

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Digital Orthophoto	USDA - FSA	2013	1:12,000	NAIP Imagery
Political Boundaries	CDOT	2012	1:5,000	Municipal and county boundaries
Transportation Features	TIGER	2010	1:10,000	Roads and railroads
Surface Water Features	AGIO	2004	1:5,000	Streams, rivers, and lakes were derived from NHD data
Public Land Survey System (PLSS)	BLM	2014	1:24,000	PLSS Township, Range, and Area information

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23.

In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway

boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Pueblo County	All within HUC 11020002	Light Detection and Ranging data (LiDAR)	1:9,600	4 ft	Pueblo County, 2005
Pueblo Unincorporated Areas	All within HUC 11020002	Light Detection and Ranging data (LiDAR)	1:4,800	2 ft	Pueblo County, 2005

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report.

Table 24: Floodway Data

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	-295	1,980	7,784	6.1	4,579.5	4,579.5	4,580.0	0.5
B	91	1,964	11,438	4.0	4,582.0	4,582.0	4,582.8	0.8
C	1,012	1,334	11,286	4.5	4,583.7	4,583.7	4,584.3	0.6
D	3,063	1,425	12,354	3.4	4,586.5	4,586.5	4,587.2	0.7
E	6,080	2,339	10,457	4.1	4,589.7	4,589.7	4,589.8	0.1
F	8,102	2,891	16,276	2.7	4,593.7	4,593.7	4,593.9	0.2
G	10,461	2,815	11,445	3.8	4,595.0	4,595.0	4,595.2	0.2
H	11,997	2,326	11,229	3.9	4,598.9	4,598.9	4,598.9	0.0
I	14,306	3,010	16,162	2.7	4,602.0	4,602.0	4,602.3	0.3
J	15,955	2,900	15,342	3.0	4,603.2	4,603.2	4,604.0	0.8
K	18,575	2,000	15,037	2.9	4,608.7	4,608.7	4,609.6	0.9
L	21,683	2,317	13,292	3.3	4,612.1	4,612.1	4,612.4	0.3
M	24,317	1,546	10,448	4.2	4,617.1	4,617.1	4,617.2	0.1
N	27,462	2,068	12,350	3.8	4,623.2	4,623.2	4,623.5	0.3
O	29,898	1,958	12,578	4.2	4,624.0	4,624.0	4,624.6	0.6
P	31,496	966	7,397	8.4	4,624.7	4,624.7	4,625.2	0.5
Q	32,247	1,033	14,925	3.0	4,639.9	4,639.9	4,639.9	0.0
R	35,566	1,899	14,859	3.0	4,641.0	4,641.0	4,641.0	0.0
S	37,121	824	5,521	8.3	4,643.4	4,643.4	4,643.4	0.0
T	42,325	676	3,982	1.9	4,650.9	4,650.9	4,650.9	0.0
U	42,951	210	2,025	8.1	4,652.5	4,652.5	4,652.5	0.0
V	43,291	208	2,059	8.0	4,653.0	4,653.0	4,653.0	0.0
W	44,356	212	2,047	8.1	4,655.2	4,655.2	4,655.2	0.0

[1]Feet above Baxter Road

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

ARKANSAS 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
X	4,6494	188	2,017	8.2	4,660.4	4,660.4	4,660.4	0.0
Y	4,6866	207	2,286	7.2	4,661.4	4,661.4	4,661.4	0.0
Z	4,8018	187	2,038	8.1	4,665.7	4,665.7	4,665.7	0.0

[1]Feet above Baxter Road

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

ARKANSAS 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
A	198	82	580	4.6	4,895.2	4,895.2	4,895.4	0.2
B	470	91	601	4.4	4,895.9	4,895.9	4,896.2	0.3
C	586	139	594	4.5	4,896.2	4,896.2	4,896.4	0.2

[1]Feet above Confluence with Wild Horse - Dry Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

DRY CREEK

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	1,524	1,134	6,653	16.8	4,650.8	4,650.8	4,650.8	0.0
B	2,256	764	7,798	9.2	4,656.4	4,656.4	4,656.4	0.0
C	3,121	740	4,308	15.9	4,656.5	4,656.5	4,656.5	0.0
D	3,537	673	4,171	16.7	4,658.3	4,658.3	4,658.3	0.0
E	4,006	631	6,869	10.7	4,664.4	4,664.4	4,664.4	0.0
F	4,637	845	5,522	12.6	4,664.5	4,664.5	4,664.5	0.0
G	5,154	480	3,600	17.6	4,666.4	4,666.4	4,666.5	0.1
H	6,125	339	2,831	17.4	4,670.9	4,670.9	4,670.9	0.0
I	7,115	529	5,515	10.7	4,678.2	4,678.2	4,678.2	0.0
J	7,575	629	5,198	16.0	4,679.6	4,679.6	4,679.6	0.0
K	8,188	930	5,840	17.2	4,680.9	4,680.9	4,681.1	0.2
L	8,906	765	5,736	12.0	4,684.6	4,684.6	4,684.6	0.0
M	9,660	704	5,885	11.2	4,687.0	4,687.0	4,687.0	0.0
N	10,280	740	4,978	17.8	4,688.5	4,688.5	4,688.5	0.0
O	10,804	922	7,477	10.3	4,691.6	4,691.6	4,691.6	0.0
P	11,618	727	5,052	17.6	4,691.9	4,691.9	4,692.3	0.4
Q	12,479	738	4,706	14.3	4,694.9	4,694.9	4,695.5	0.6
R	13,513	795	5,823	14.6	4,701.3	4,701.3	4,701.8	0.5
S	13,829	995	4,023	16.4	4,702.1	4,702.1	4,702.1	0.0
T	14,195	1,206	13,287	7.8	4,714.0	4,714.0	4,714.0	0.0
U	16,051	698	5,008	17.9	4,714.3	4,714.3	4,714.3	0.0
V	16,869	687	4,638	12.9	4,717.5	4,717.5	4,717.5	0.0
W	17,505	864	4,991	16.4	4,719.2	4,719.2	4,719.2	0.0

[1]Feet above Confluence with Arkansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

FOUNTAIN CREEK

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
X	18,694	767	5,814	20.7	4,726.4	4,726.4	4,726.5	0.1
Y	19,356	654	5,204	20.9	4,728.4	4,728.4	4,728.5	0.1
Z	20,308	523	4,293	20.0	4,732.9	4,732.9	4,733.2	0.3
AA	21,003	640	5,107	12.7	4,735.9	4,735.9	4,736.4	0.5
AB	21,409	708	4,962	18.0	4,737.5	4,737.5	4,737.5	0.0
AC	22,058	462	5,038	8.7	4,742.9	4,742.9	4,742.9	0.0
AD	22,679	849	6,600	17.8	4,743.3	4,743.3	4,743.3	0.0
AE	23,133	1,131	8,877	8.5	4,745.2	4,745.2	4,745.2	0.0
AF	25,746	906	5,098	19.9	4,754.1	4,754.1	4,754.2	0.1
AG	26,889	543	3,285	14.9	4,760.0	4,760.0	4,760.5	0.5
AH	27,781	569	4,467	18.7	4,766.3	4,766.3	4,766.4	0.1
AI	28,881	1,072	7,642	20.3	4,772.9	4,772.9	4,773.2	0.3
AJ	29,813	1,557	8,987	17.6	4,777.5	4,777.5	4,777.7	0.2
AK	30,271	1,669	12,472	10.4	4,780.1	4,780.1	4,780.7	0.6
AL	32,307	1,417	6,660	15.0	4,785.1	4,785.1	4,785.2	0.1
AM	33,553	1,142	5,652	14.9	4,790.3	4,790.3	4,790.5	0.2
AN	34,395	1,301	4,637	12.8	4,794.1	4,794.1	4,794.2	0.1
AO	36,000	974	6,744	6.9	4,800.2	4,800.2	4,800.9	0.7
AP	37,341	1,138	5,913	15.5	4,805.0	4,805.0	4,805.2	0.2
AQ	38,027	1,448	7,810	16.6	4,809.7	4,809.7	4,810.0	0.3
AR	39,069	1,212	7,712	20.7	4,815.0	4,815.0	4,815.1	0.1
AS	40,074	919	4,320	14.1	4,818.2	4,818.2	4,818.5	0.3
AT	40,984	850	4,553	11.9	4,821.2	4,821.2	4,821.7	0.5

[1]Feet above Confluence with Arkansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

FOUNTAIN CREEK

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
AU	41,736	1,348	7,274	20.2	4,825.9	4,825.9	4,826.3	0.4
AV	42,674	1,229	6,747	18.0	4,830.7	4,830.7	4,831.2	0.5
AW	43,844	900	5,680	15.1	4,834.8	4,834.8	4,835.2	0.4
AX	45,202	1,074	7,682	18.9	4,843.5	4,843.5	4,843.5	0.0
AY	46,321	1,080	4,980	15.1	4,846.0	4,846.0	4,846.4	0.4
AZ	47,132	745	4,575	17.1	4,850.7	4,850.7	4,850.7	0.0
BA	47,939	830	4,499	16.9	4,855.5	4,855.5	4,855.5	0.0
BB	49,276	902	5,903	18.4	4,859.6	4,859.6	4,859.9	0.3
BC	49,837	991	6,590	12.6	4,862.9	4,862.9	4,863.6	0.7
BD	51,208	1,070	6,393	10.4	4,867.6	4,867.6	4,867.6	0.0
BE	52,098	1,202	6,919	17.0	4,872.2	4,872.2	4,872.8	0.6
BF	52,893	1,432	7,443	15.8	4,874.9	4,874.9	4,875.1	0.2
BG	53,768	1,376	7,240	15.7	4,878.4	4,878.4	4,879.0	0.6
BH	54,797	853	4,612	15.4	4,882.7	4,882.7	4,883.1	0.4
BI	55,690	641	3,549	14.1	4,885.2	4,885.2	4,885.4	0.2
BJ	56,818	799	3,713	14.0	4,890.2	4,890.2	4,890.2	0.0
BK	57,942	829	3,898	14.5	4,895.0	4,895.0	4,895.0	0.0
BL	59,140	1,476	9,086	8.3	4,898.9	4,898.9	4,898.9	0.0
BM	60,200	1,260	5,861	14.3	4,902.4	4,902.4	4,902.6	0.2
BN	61,208	1,408	5,889	14.8	4,908.0	4,908.0	4,908.2	0.2
BO	62,283	1,507	8,778	8.0	4,913.6	4,913.6	4,913.6	0.0
BP	63,449	1,362	5,417	13.5	4,916.4	4,916.4	4,916.4	0.0
BQ	64,156	1,415	4,766	15.5	4,918.0	4,918.0	4,918.0	0.0

[1]Feet above Confluence with Arkansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

FOUNTAIN CREEK

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
BR	65,718	1,680	9,566	7.4	4,923.1	4,923.1	4,923.3	0.2
BS	66,413	1,848	6,436	13.5	4,924.4	4,924.4	4,924.4	0.0
BT	67,174	1,941	7,077	14.1	4,929.4	4,929.4	4,929.4	0.0
BU	67,867	1,258	6,428	13.6	4,931.7	4,931.7	4,932.0	0.3
BV	69,008	889	4,551	15.7	4,934.9	4,934.9	4,935.2	0.3
BW	70,101	927	5,031	15.3	4,941.9	4,941.9	4,941.9	0.0
BX	72,919	2,131	9,393	15.7	4,949.9	4,949.9	4,949.9	0.0
BY	73,637	2,504	10,662	12.1	4,953.0	4,953.0	4,953.0	0.0
BZ	74,323	2,240	8,803	16.4	4,955.2	4,955.2	4,955.2	0.0
CA	74,873	1,778	8,511	16.3	4,958.8	4,958.8	4,959.1	0.3
CB	75,689	1,385	7,699	20.7	4,963.8	4,963.8	4,964.0	0.2
CC	76,657	1,700	7,815	15.3	4,967.7	4,967.7	4,967.8	0.1
CD	77,952	1,178	6,904	17.5	4,972.3	4,972.3	4,972.5	0.2
CE	79,923	767	3,758	14.0	4,982.0	4,982.0	4,982.0	0.0
CF	80,422	827	6,984	8.2	4,985.0	4,985.0	4,985.0	0.0
CG	82,187	1,732	9,290	17.4	4,991.9	4,991.9	4,992.5	0.6
CH	82,907	1,179	7,285	17.7	4,995.8	4,995.8	4,996.3	0.5
CI	83,825	1,376	8,003	16.8	4,999.3	4,999.3	4,999.3	0.0
CJ	85,406	1,599	8,483	11.3	5,003.1	5,003.1	5,003.3	0.2
CK	86,212	1,323	5,633	21.9	5,005.9	5,005.9	5,005.9	0.0
CL	86,893	2,226	13,444	15.1	5,011.7	5,011.7	5,011.7	0.0
CM	87,978	975	5,307	16.2	5,014.0	5,014.0	5,014.0	0.0
CN	89,449	1,372	10,867	8.0	5,021.9	5,021.9	5,022.0	0.1

[1]Feet above Confluence with Arkansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

FOUNTAIN CREEK

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	872	342	798	7.5	4,723.1	4,723.1	4,723.2	0.1
B	1,314	71	431	13.0	4,732.0	4,732.0	4,732.3	0.3
C	1,802	119	1,334	4.2	4,749.6	4,749.6	4,750.0	0.4
D	2,250	60	445	11.9	4,750.2	4,750.2	4,751.1	0.9
E	2,395	62	1,142	5.4	4,767.2	4,767.2	4,767.9	0.7
F	2,704	190	2,347	3.7	4,782.5	4,782.5	4,783.0	0.5
G	3,391	265	4,047	1.8	4,782.7	4,782.7	4,783.2	0.5
H	4,149	248	1,123	5.1	4,797.7	4,797.7	4,797.8	0.1
I	4,670	362	1,032	6.5	4,798.3	4,798.3	4,798.9	0.6
J	5,416	192	840	6.2	4,804.8	4,804.8	4,804.8	0.0
K	6,436	190	559	10.5	4,810.2	4,810.2	4,810.9	0.7
L	7,224	130	489	11.2	4,819.2	4,819.2	4,819.2	0.0
M	8,371	302	1,278	4.9	4,833.6	4,833.6	4,834.5	0.9
N	9,132	124	636	8.1	4,839.7	4,839.7	4,839.7	0.0
O	9,742	98	455	11.4	4,845.9	4,845.9	4,845.9	0.0
P	11,034	191	615	9.6	4,859.0	4,859.0	4,859.0	0.0
Q	12,243	89	422	12.3	4,873.2	4,873.2	4,873.2	0.0

[1]Feet above Confluence with Arkansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

GOODNIGHT ARROYO

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	342	156	1,620	0.7	4,782.7	4,782.7	4,783.2	0.5
B	824	105	239	4.7	4,792.9	4,792.9	4,793.0	0.1

[1]Feet above Confluence with Goodnight Arroyo

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

GOODNIGHT ARROYO LEFT OVERBANK SPLIT FLOW

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	2,018	50	691	2.9	4,763.2	4,763.2	4,763.2	0.0
B	2,358	64	197	10.0	4,774.3	4,774.3	4,774.3	0.0
C	2,698	62	229	8.6	4,776.4	4,776.4	4,776.4	0.0
D	3,209	70	203	9.7	4,780.6	4,780.6	4,780.6	0.0
E	3,762	70	203	9.7	4,786.1	4,786.1	4,786.1	0.0
F	4,038	61	152	9.0	4,789.2	4,789.2	4,789.2	0.0

[1]Feet above confluence with Fountain Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

UNIVERSITY PARK TRIBUTARY

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	1,064	293	1,067	11.3	4,679.0	4,679.0	4,679.4	0.4
B	1,765	310	1,565	9.3	4,683.5	4,683.5	4,684.2	0.7
C	2,271	282	1,361	8.2	4,687.2	4,687.2	4,687.2	0.0
D	3,069	499	1,570	9.6	4,690.7	4,690.7	4,690.7	0.0
E	3,922	773	1,582	9.6	4,697.6	4,697.6	4,697.6	0.0
F	5,080	300	2,391	4.7	4,705.3	4,705.3	4,705.5	0.2
G	6,260	108	984	11.2	4,710.5	4,710.5	4,711.1	0.6
H	7,229	106	1,152	9.6	4,717.3	4,717.3	4,717.4	0.1
I	8,330	121	1,669	5.8	4,722.3	4,722.3	4,722.3	0.1
J	9,823	317	1,433	6.8	4,733.1	4,733.1	4,733.1	0.0
K	11,226	280	1,079	6.9	4,744.2	4,744.2	4,744.2	0.0
L	12,618	103	1,141	6.2	4,752.3	4,752.3	4,753.1	0.8
M	13,741	171	1,589	4.2	4,757.1	4,757.1	4,757.6	0.5
N	15,090	260	1,274	4.5	4,765.3	4,765.3	4,766.2	0.9
O	16,973	161	1,269	4.5	4,773.5	4,773.5	4,774.3	0.8
P	17,680	121	1,005	5.6	4,776.6	4,776.6	4,776.9	0.3
Q	17,927	191	1,398	4.0	4,777.9	4,777.9	4,778.1	0.2
R	18,986	163	1,147	4.9	4,784.8	4,784.8	4,785.3	0.5
S	20,932	126	1,055	5.3	4,795.8	4,795.8	4,795.8	0.0
T	22,234	135	947	5.9	4,807.2	4,807.2	4,807.2	0.0
U	23,435	80	585	9.5	4,819.7	4,819.7	4,819.7	0.0
V	25,003	104	714	7.7	4,832.7	4,832.7	4,832.7	0.0
W	26,580	66	571	9.6	4,849.5	4,849.5	4,849.5	0.0

[1]Feet above Confluence with Arkansas River

TABLE24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

WILD HORSE – DRY CREEK

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
X	28,763	111	638	8.6	4,866.7	4,866.7	4,866.7	0.0
Y	29,588	149	1,194	4.6	4,877.2	4,877.2	4,877.3	0.1
Z	30,663	74	609	9.0	4,882.8	4,882.8	4,883.0	0.2
AA	31,968	124	923	5.9	4,892.8	4,892.8	4,892.9	0.1

[1]Feet above Confluence with Arkansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, COLORADO

AND INCORPORATED AREAS

FLOODWAY DATA

WILD HORSE – DRY CREEK

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

[Not applicable to this flood risk project]

6.4 Coastal Flood Hazard Mapping

This section is not applicable to this Flood Risk Project.

Table 26: Summary of Coastal Transect Mapping Considerations

[Not applicable to this flood risk project]

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 31, "Map Repositories").

6.5.1 Letters of Map Amendment

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA. A LOMA cannot be issued for properties located on the PFD (primary frontal dune).

To obtain an application for a LOMA, visit http://www.fema.gov and download the form "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill". Visit the "Flood Map-Related Fees" section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm.

For more information about how to apply for a LOMA, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA's determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting http://www.fema.gov for the "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill" or by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the "Flood Map-Related Fees" section.

A tutorial for LOMR-F is available at http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm.

6.5.3 Letters of Map Revision

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit http://www.fema.gov and download the form "MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision". Visit the "Flood Map-Related Fees" section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Pueblo County FIRM are listed in Table 27. Please note that this table only includes LOMCs that have been issued on the FIRM panels updated by this map revision. For all other areas within this county, users should be aware that revisions to the FIS Report made by prior LOMRs may not be reflected herein and users will need to continue to use the previously issued LOMRs to obtain the most current data.

Table 27: Incorporated Letters of Map Change

Case Number	Effective Date	Flooding Source	FIRM Panel(s)
00-08-073P	03/08/2000	US Hwy 50 from Six Mile Creek to Pueblo County High School (just west of 36th lane)	085077 0275B 085077 0360B 085077 0380B
00-08-344P	08/18/2000	Unnamed tributary to Six Mile Creek	085077 0275B 085077 0360B 085077 0380B
10-08-0862P	01/10/2011	Lake Minnequa	085077 0012C 085077 0012C 085077 0012C 085077 0012C

Table 27: Incorporated Letters of Map Change (continued)

Case Number	Effective Date	Flooding Source	FIRM Panel(s)
90-08-34P	04/25/1991	Fountain Creek from the confluence with the Arkansas River upstream to US Hwy 50	0850077 006C 0850077 010C

6.5.4 Physical Map Revisions

PMRs are an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit http://www.fema.gov and visit the "Flood Map Revision Processes" section.

6.5.5 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards within a given community. FEMA accomplishes this through a national watershed-based mapping needs assessment strategy, known as the Coordinated Needs Management Strategy (CNMS). The CNMS is used by FEMA to assign priorities and allocate funding for new flood hazard analyses used to update the FIS Report and FIRM. The goal of CNMS is to define the validity of the engineering study data within a mapped inventory. The CNMS is used to track the assessment process, document engineering gaps and their resolution, and aid in prioritization for using flood risk as a key factor for areas identified for flood map updates. Visit www.fema.gov to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Pueblo County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the Unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in These are the initial Pueblo County FIRMs **in** countywide format.
Table 28, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood

Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.

- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or "pending" (for Preliminary FIS Reports) is shown. If the community is listed in Table 28 but not identified on the map, the community is treated as if it were unmapped.

- *Initial FHBM Effective Date* is the effective date of the first Flood Hazard Boundary Map (FHBM). This date may be the same date as the Initial NFIP Map Date.

- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.

- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community. This is the first effective date that is shown on the FIRM panel.

- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in countywide format, as Physical Map Revisions (PMR) of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

These are the initial Pueblo County FIRMs in countywide format.

Table 28: Community Map History

Community Name	Initial Identification Date (First NFIP Map Published)	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
City of Pueblo	08/24/1973	08/24/1973	02/27/1976 04/02/1976	9/29/1986	04/25/1991 01/10/2011
Pueblo County Unincorporated Areas	10/25/1974	10/25/1974	-	09/29/1989	03/08/2000
Town of Boone	09/06/1974	09/06/1974	01/09/1976 09/19/1978	-	-
Town of Rye	07/18/1975	07/18/1975	09/26/1978	-	-

[1] No Special Flood Hazard Areas Identified

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 29 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 29: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Wild Horse - Dry Creek, Williams Creek, Dry Creek, Goodnight Arroyo	7/15/2013	Anderson Consulting Engineers, Inc.	ACE Project No. CoCWCB04	July, 2013	Pueblo County
Arkansas River and Fountain Creek	10/2013	Anderson Consulting Engineers, Inc.	ACE Project No. CPCWCB04	October, 2013	Pueblo County
Pueblo County DFIRM Conversion Project Zone A Floodplain Mapping for the Golf Course Drainage	11/18/2013	Anderson Consulting Engineers, Inc.	ACE Project No. COCWCB04	November, 2013	Pueblo County

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and any previous Flood Risk Projects are shown in Table . These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 30: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Pueblo County Unincorporated Areas	Final CCO meeting	TBD		

SECTION 8.0 – ADDITIONAL INFORMATION

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.

The additional data that was used for this project includes the FIS Report and FIRM that were previously prepared for Pueblo County and the City of Pueblo.

Table 31 is a list of the locations where FIRMs for Pueblo 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 31: Map Repositories

Community	Address	City	State	Zip Code
City of Pueblo	211 E. D Street	Pueblo	CO	81003
Pueblo County Unincorporated Areas	Planning Department 229 W 12th Street	Pueblo	CO	81003
Town of Boone	712 East Main	Boone	CO	80125
Town of Rye	Water Plant 8171 Park Rd	Rye	CO	81069

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 32.

Table 32 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the State NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of State and local GIS data in their state.

Table 32: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	http://www.fema.gov
NFIP website	http://www.fema.gov/national-flood-insurance-program
NFHL Dataset	http://msc.fema.gov
FEMA Region VIII	Federal Emergency Management Agency Denver Federal Center Building 710, Box 25267 Denver, CO 80225-0267 (303) 235-4800
Other Federal Agencies	
USGS website	http://www.usgs.gov
Hydraulic Engineering Center website	http://www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Jamie Prochno Community Assistance Program Coordinator 1313 Sherman St., Room 718 Denver CO 80202 Phone: 303-866-3441, x3215 Jamie.Prochno@state.co.us
State GIS Coordinator	Jon Gottsegen State GIS Coordinator State of Colorado Governor's Office of Information Technology 601 E. 18th Ave, Suite 250, Denver, CO 80203 Phone: 303-764-7700 jon.gottsegen@state.co.us
Statewide Regulatory Coordinator	Barbara Kelley Executive Director Colorado Department of Regulatory Agencies (DORA) 1560 Broadway, Suite 110 Denver, CO 80202 Phone: 303-894-7885 DORA_EDO@state.co.us

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

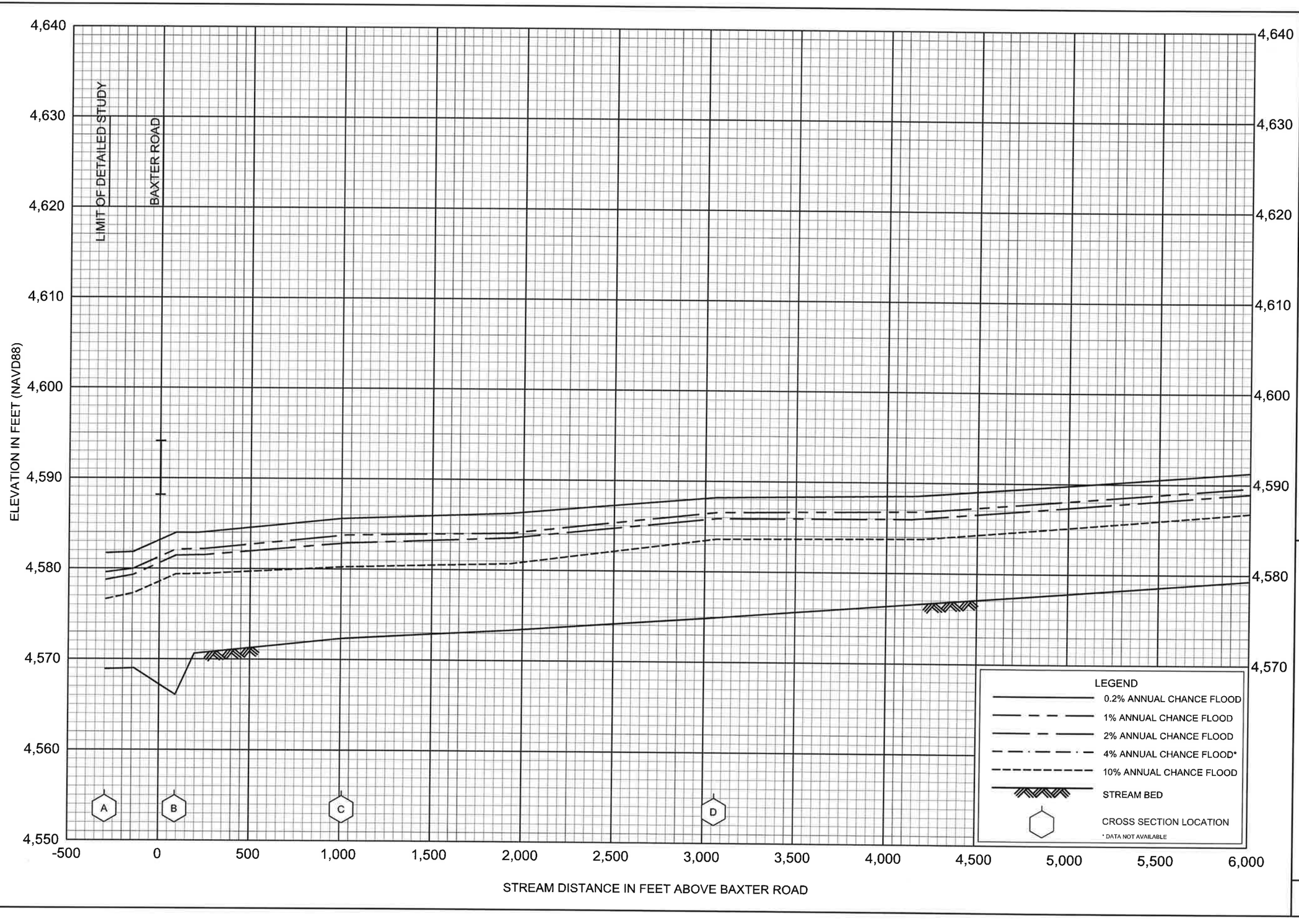
Table 33 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 33: Bibliography and References

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
2013a, Anderson Consulting Engineers	Anderson Consulting Engineers, Inc.	*Hydraulic Evaluation and Floodplain Mapping for While Horse Creek, Williams Creek, Dry Creek, and Goodnight Arroyo*	Anderson Consulting Engineers	Fort Collins, CO	July 15, 2013	http://www.acewater.com/
2013b, Anderson Consulting Engineers	Anderson Consulting Engineers, Inc.	*Hydraulic Evaluation and Floodplain Mapping for the Arkansas River and Fountain Creek*	Anderson Consulting Engineers	Fort Collins, CO	October 2013	http://www.acewater.com/
	Anderson Consulting Engineers, Inc.	*Redelineated Zone A*	Anderson Consulting Engineers	Fort Collins, CO	NA	http://www.acewater.com/
	Anderson Consulting Engineers, Inc.	*Letter of Map Revision for the City and County of Pueblo*	Anderson Consulting Engineers	Fort Collins, CO	2010	http://www.acewater.com/
	Levee Seclusion Guidance – Guidance for Flood Risk Analysis and Mapping, Levees Seclusion Appendix D page 39	*Digital Flood Insurance Rate Map Database, Pueblo County, Colorado*	Federal Emergency Management Agency	Washington, DC	NA	http://www.msc.fema.gov

Table 33: Bibliography and References (continued)

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
	Pueblo County, GIS Department	*Pueblo County, Colorado, Digital Flood Insurance Rate Map*	Pueblo County, GIS Department	Pueblo County	2004	http://county.pueblo.org/government/county/department/edgis
	National Hydrography Dataset	*Pueblo County, Colorado, Digital Flood Insurance Rate Map*	National Geodetic Survey Website	Silver Spring, MD	NA	www.ngs.noaa.gov/cgibin/ datasheet.prl
	Anderson Consulting Engineers, Inc.	*Pueblo County, Colorado, Digital Flood Insurance Rate Map Geospatial Data*	Anderson Consulting Engineers, Inc. 970-226-0120	Fort Collins, CO	2006	http://www.acewater.com/
	US Geological Survey (USGS) and Natural Resources Conservation Service (NRCS)	*Pueblo County, Colorado, Digital Flood Insurance Rate Map Geospatial Data*	USDA:NRCS Geospatial Data Gateway	NA	2002	https://gdg.sc.egov.usda.gov/
	National Agriculture Imagery Program (NAIP)	*Pueblo County, Colorado, Digital Flood Insurance Rate Map Geospatial Data*	National Agriculture Imagery Program (NAIP)	Salt Lake City, UT	2004	http://www.fsa.usda.gov/FSA/apfoapp?area=home&subject=prog&topic=nai
	Federal Emergency Management Agency (FEMA)	*Flood Insurance Study For Pueblo County*	FEMA	Washington, DC	NA	https://msc.fema.gov/portal



FLOOD PROFILES

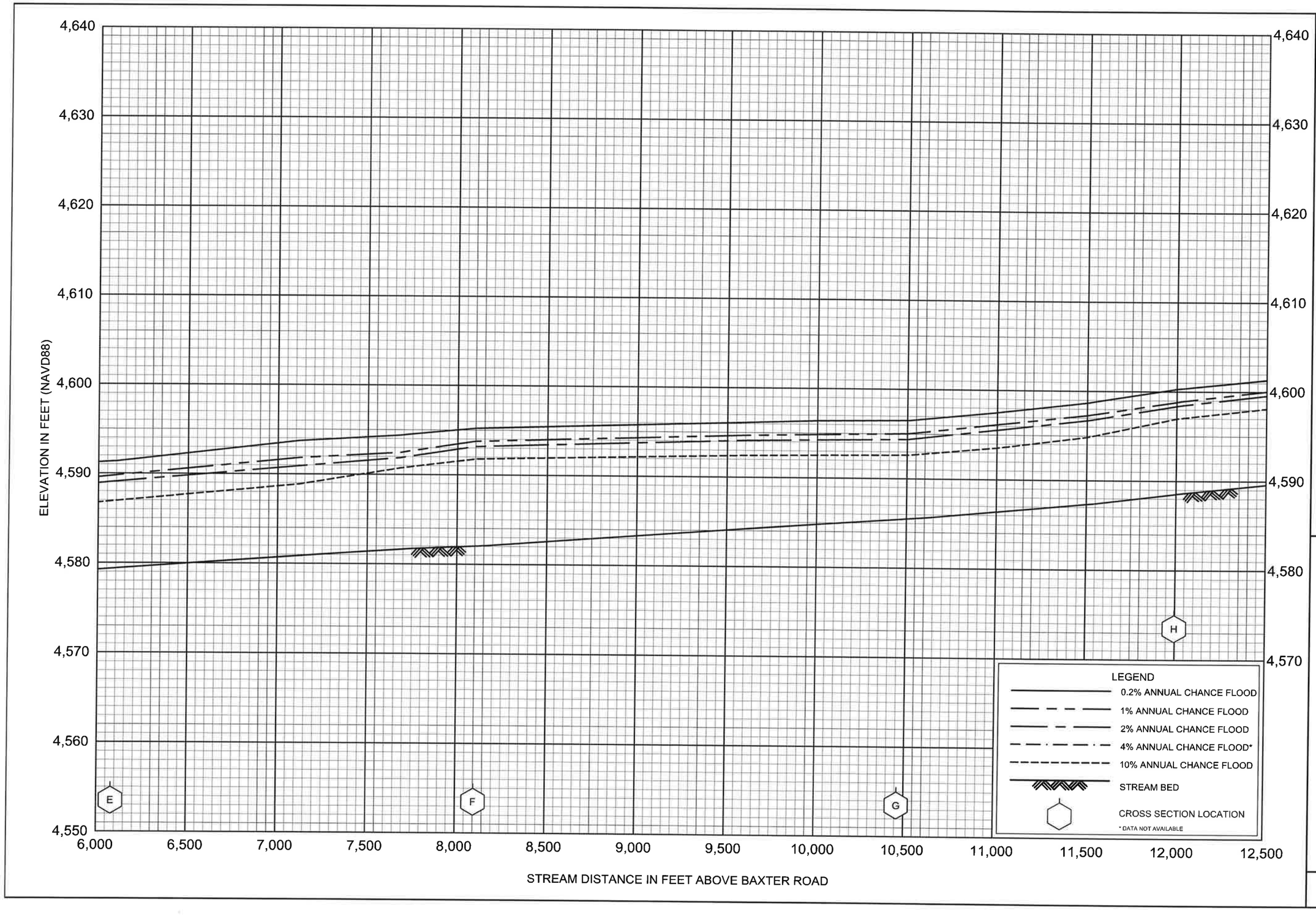
ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

01P



FLOOD PROFILES

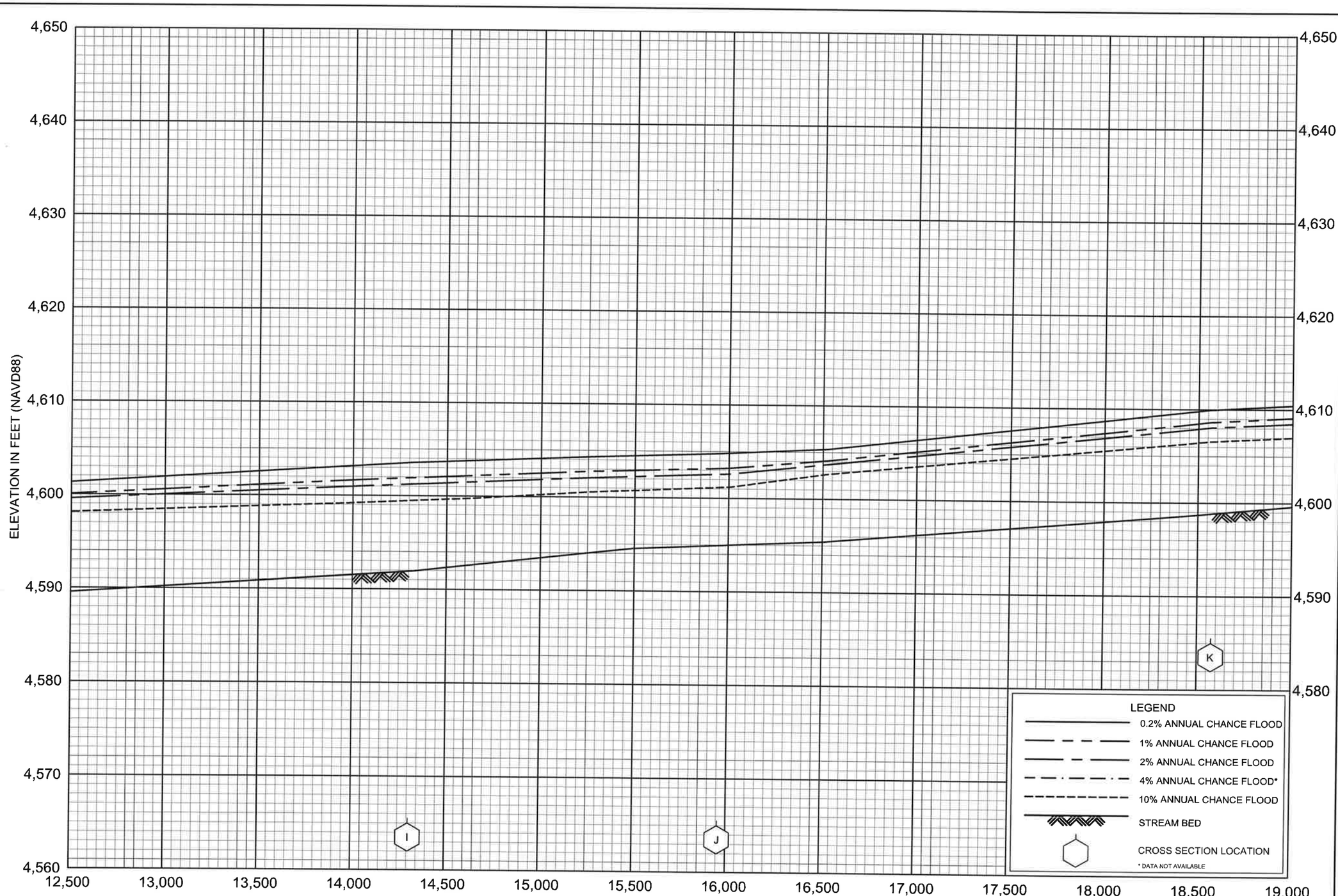
ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

02P



FLOOD PROFILES

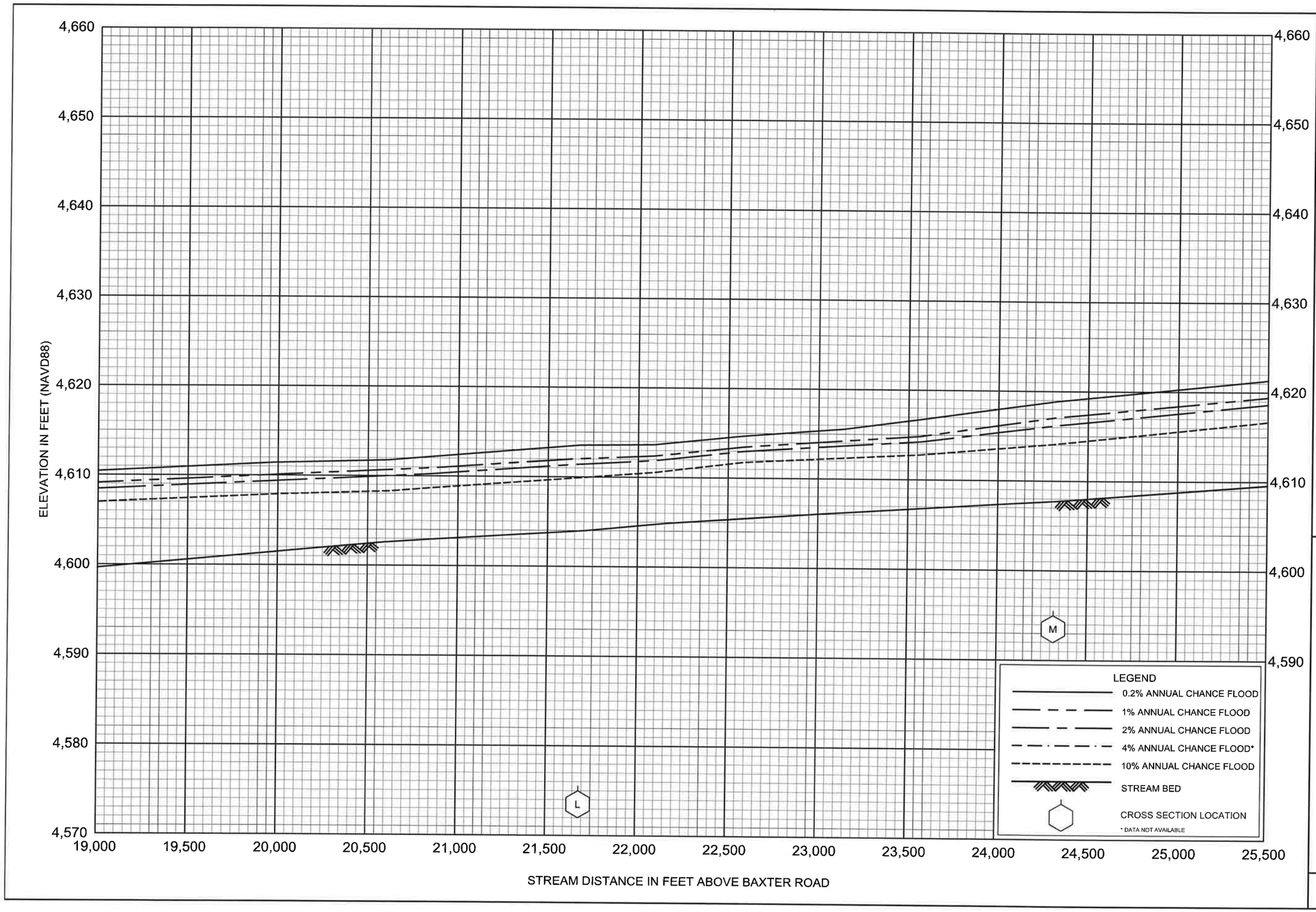
ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

03P



FLOOD PROFILES

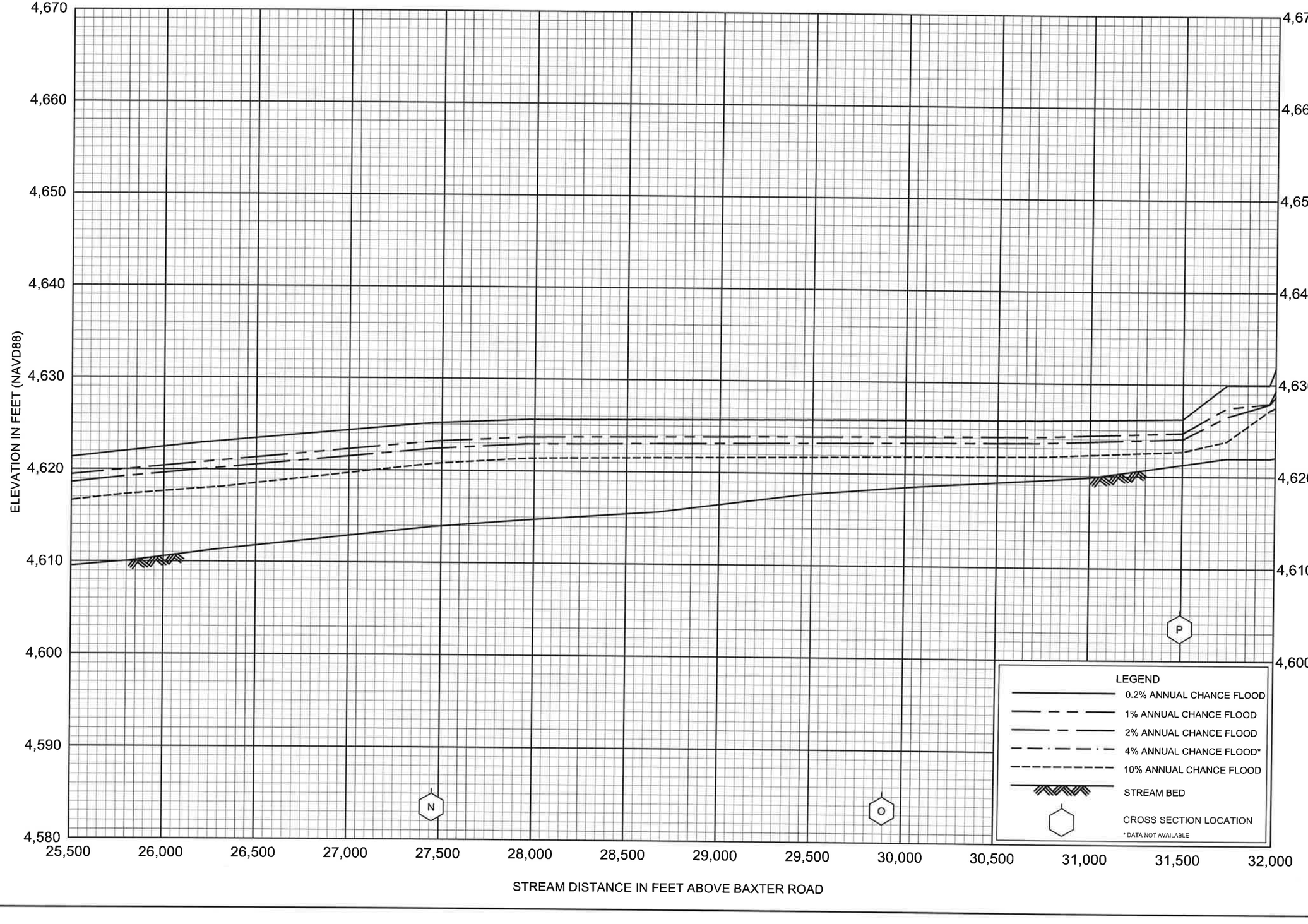
ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

04P



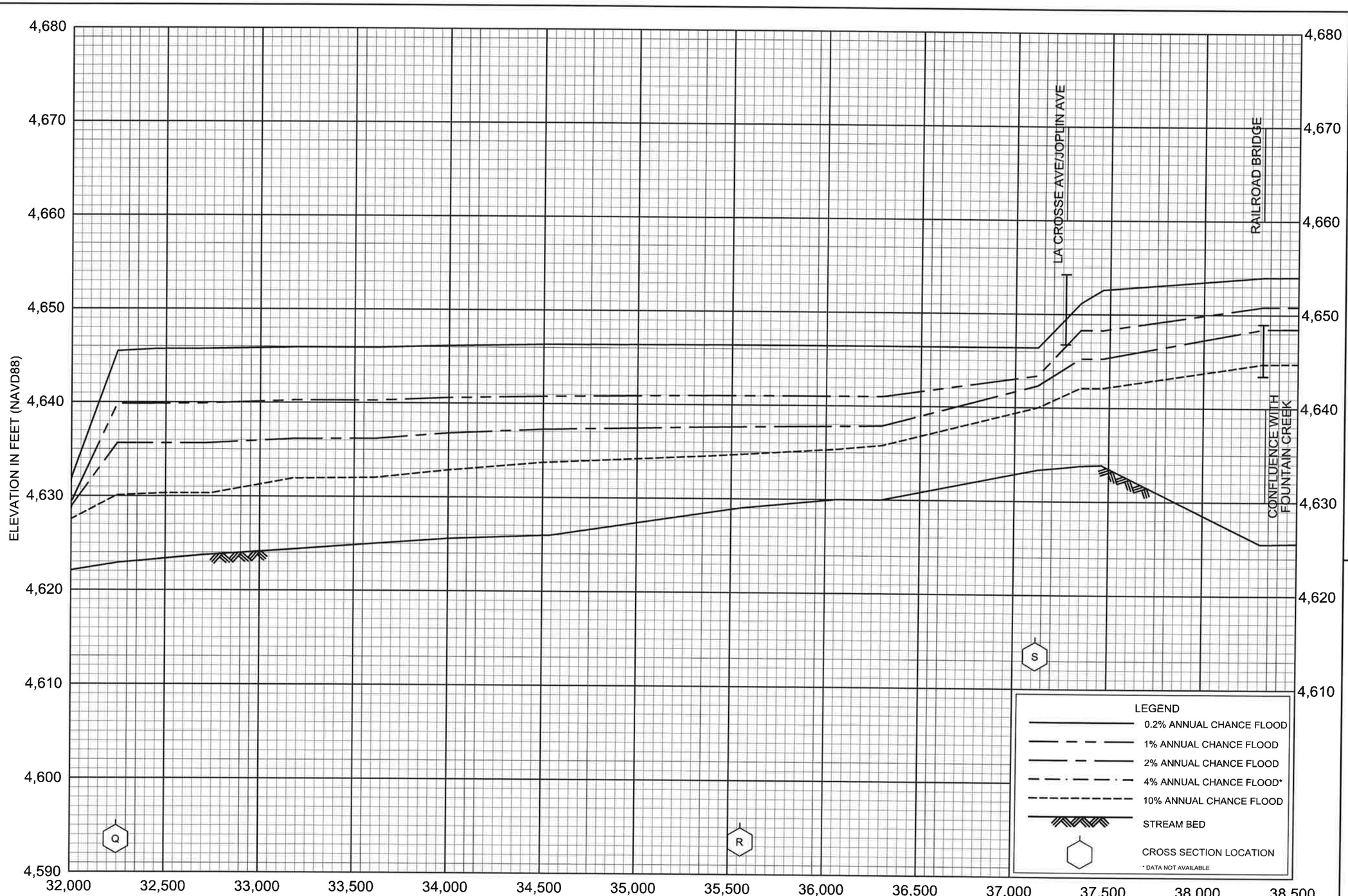
FLOOD PROFILES

ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

05P



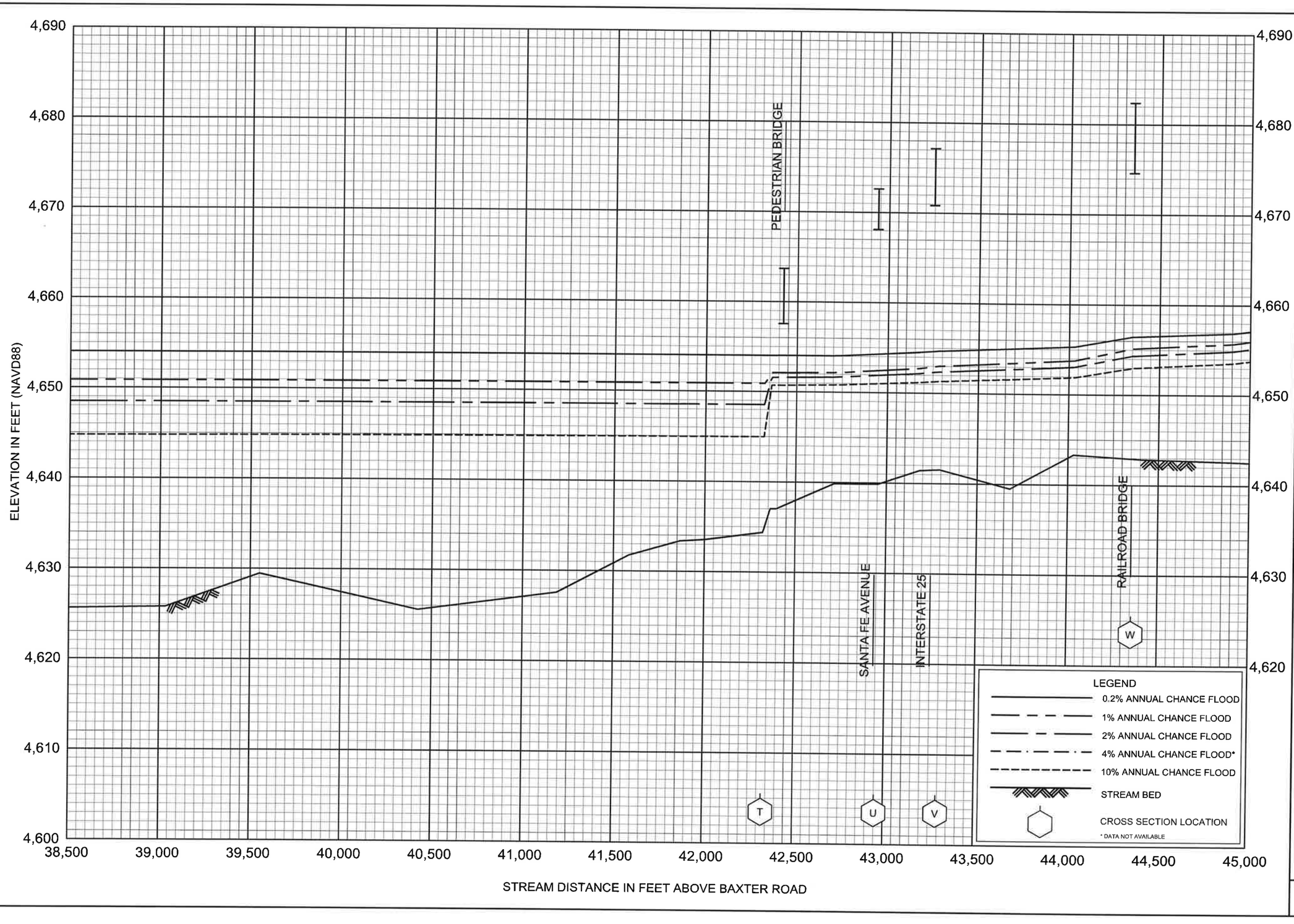
FLOOD PROFILES

ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

06P



FLOOD PROFILES

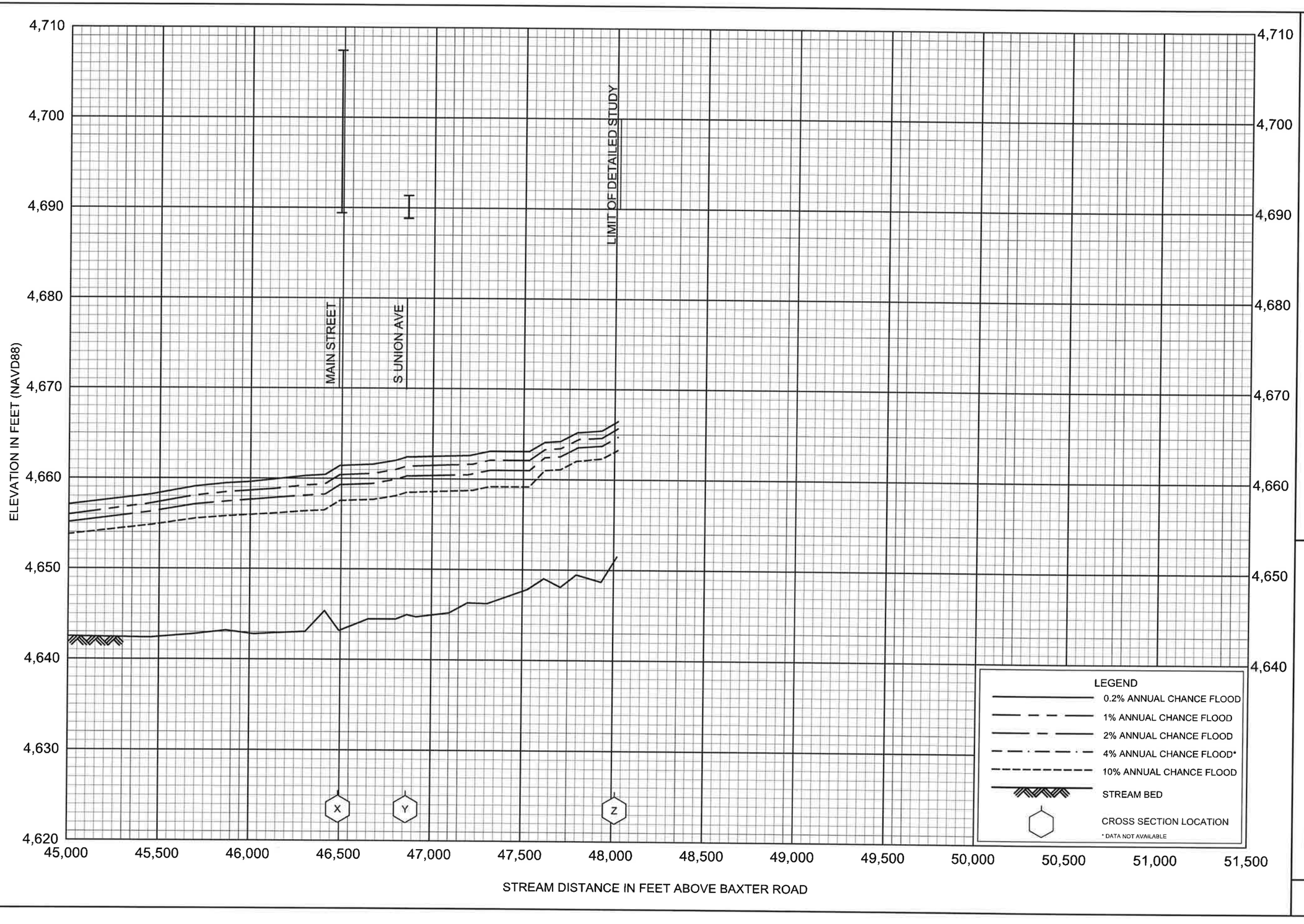
ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

07P



FLOOD PROFILES

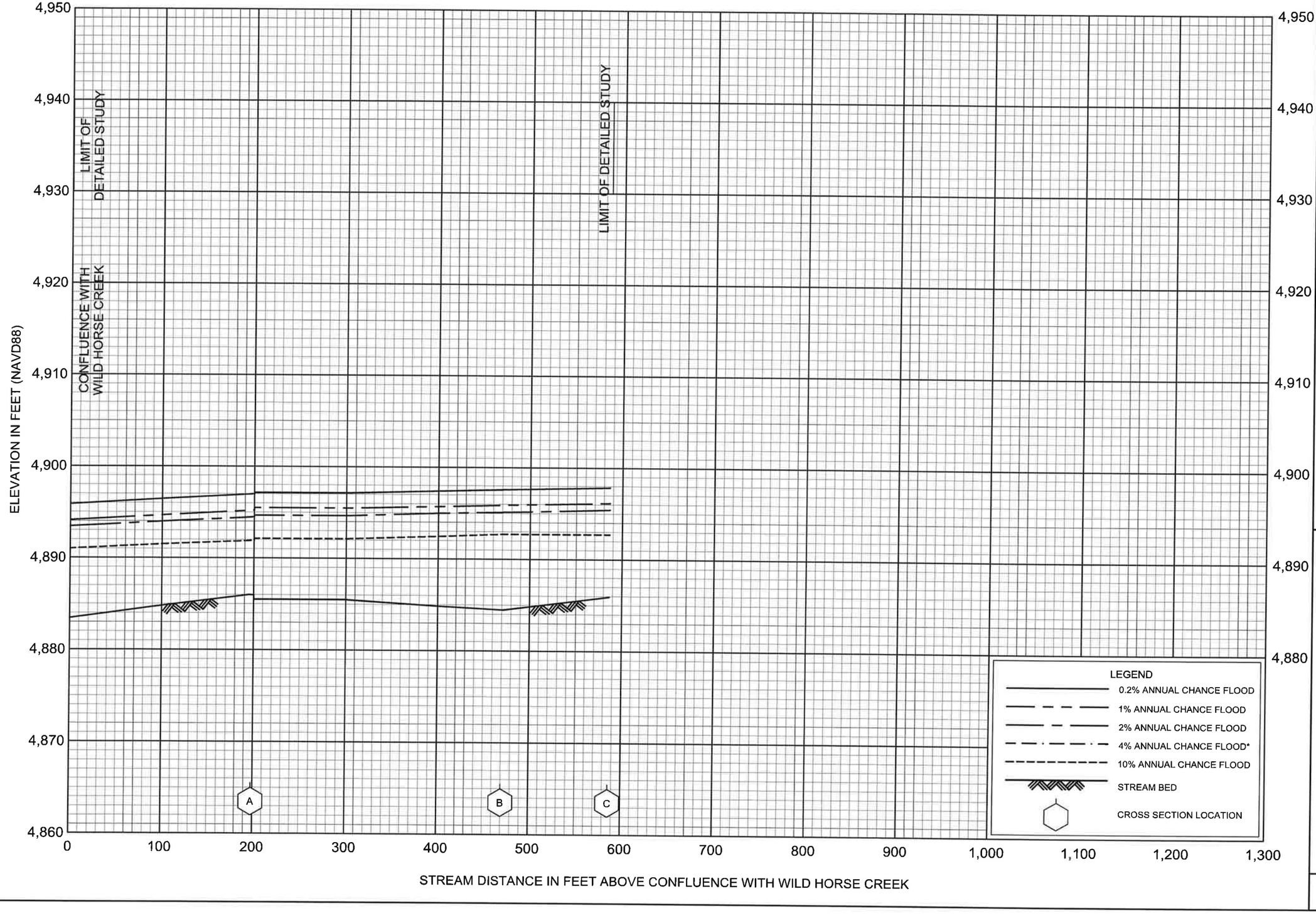
ARKANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

08P



FLOOD PROFILES

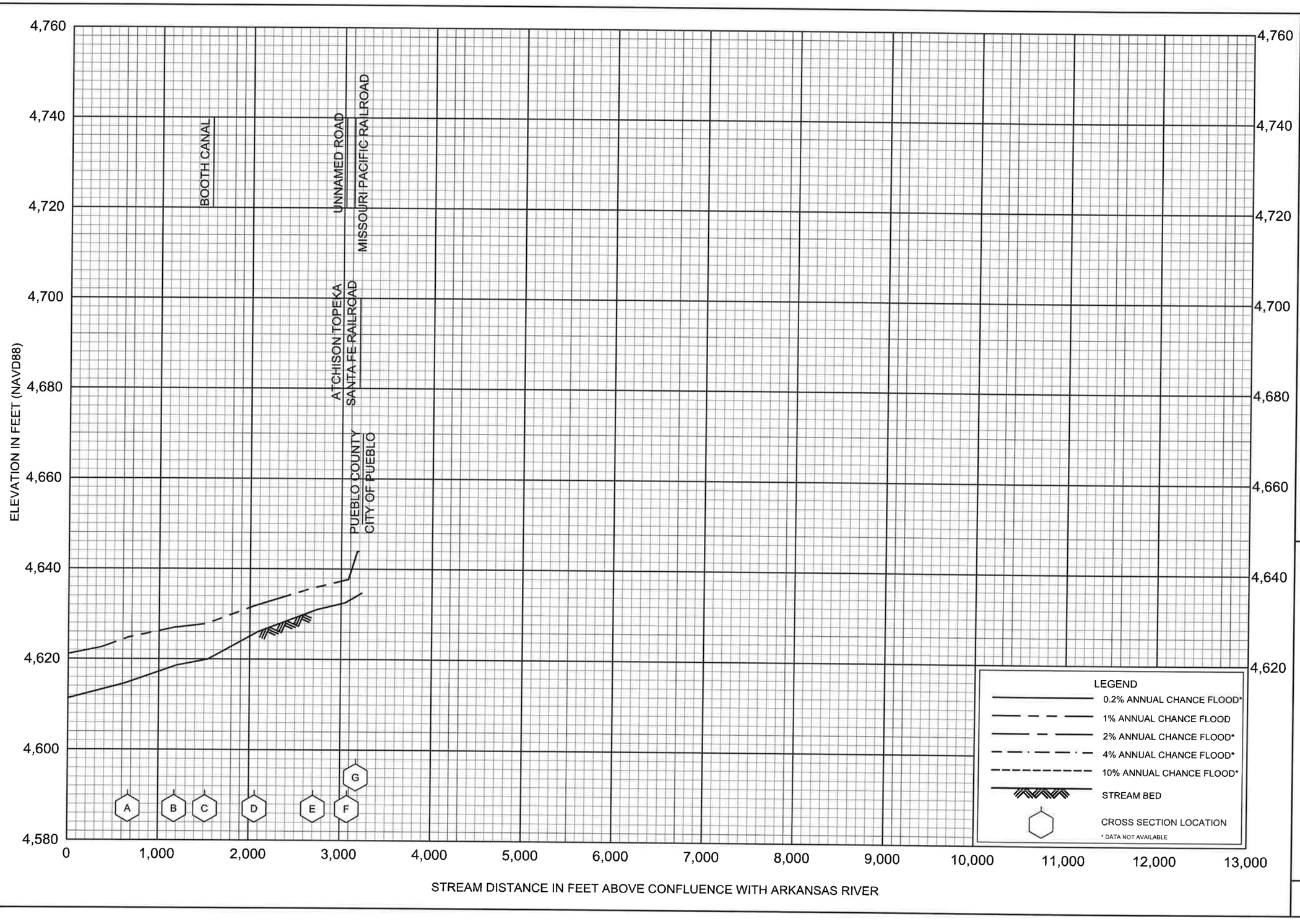
DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

09P



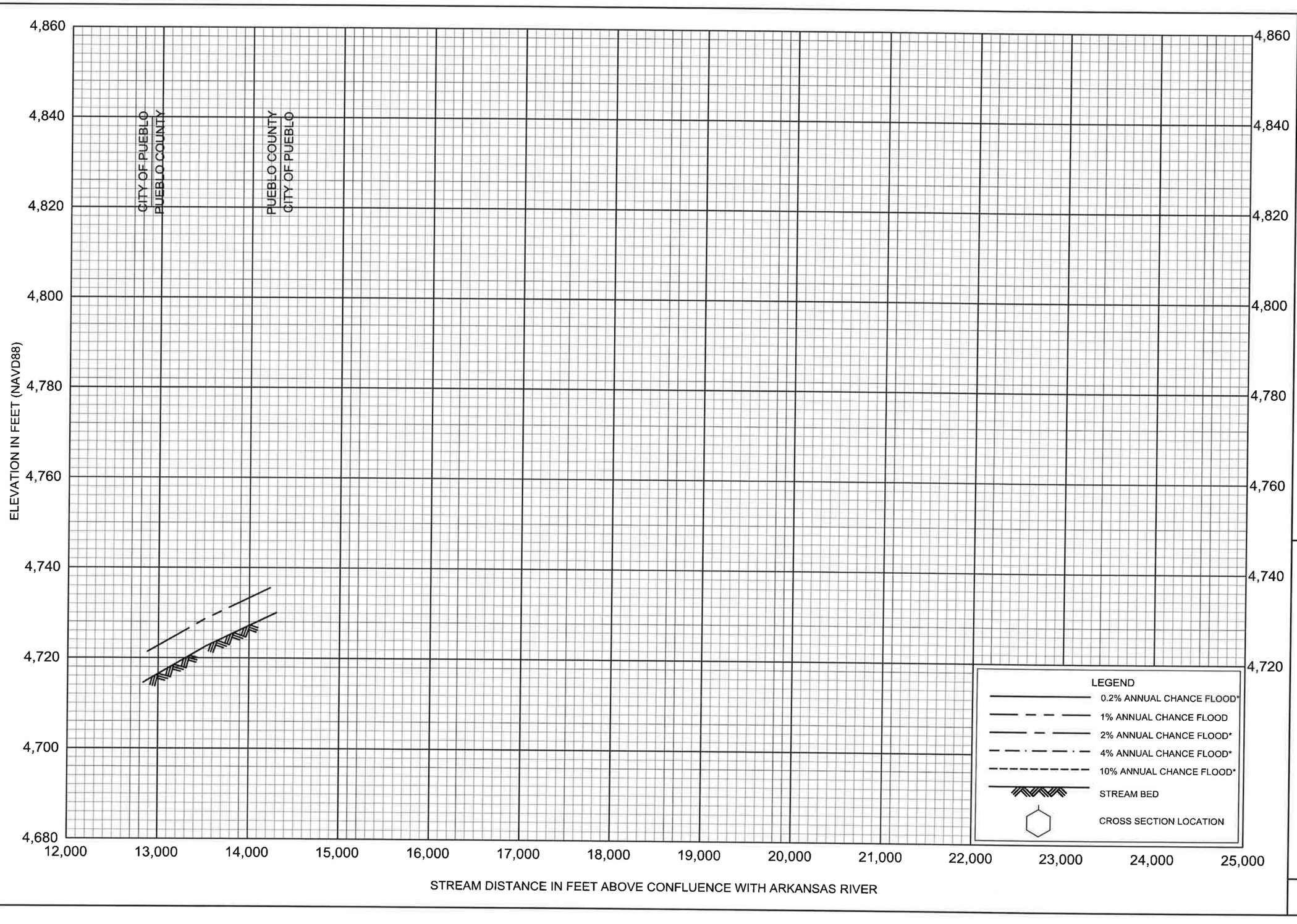
FLOOD PROFILES

EAST DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

10P



FLOOD PROFILES

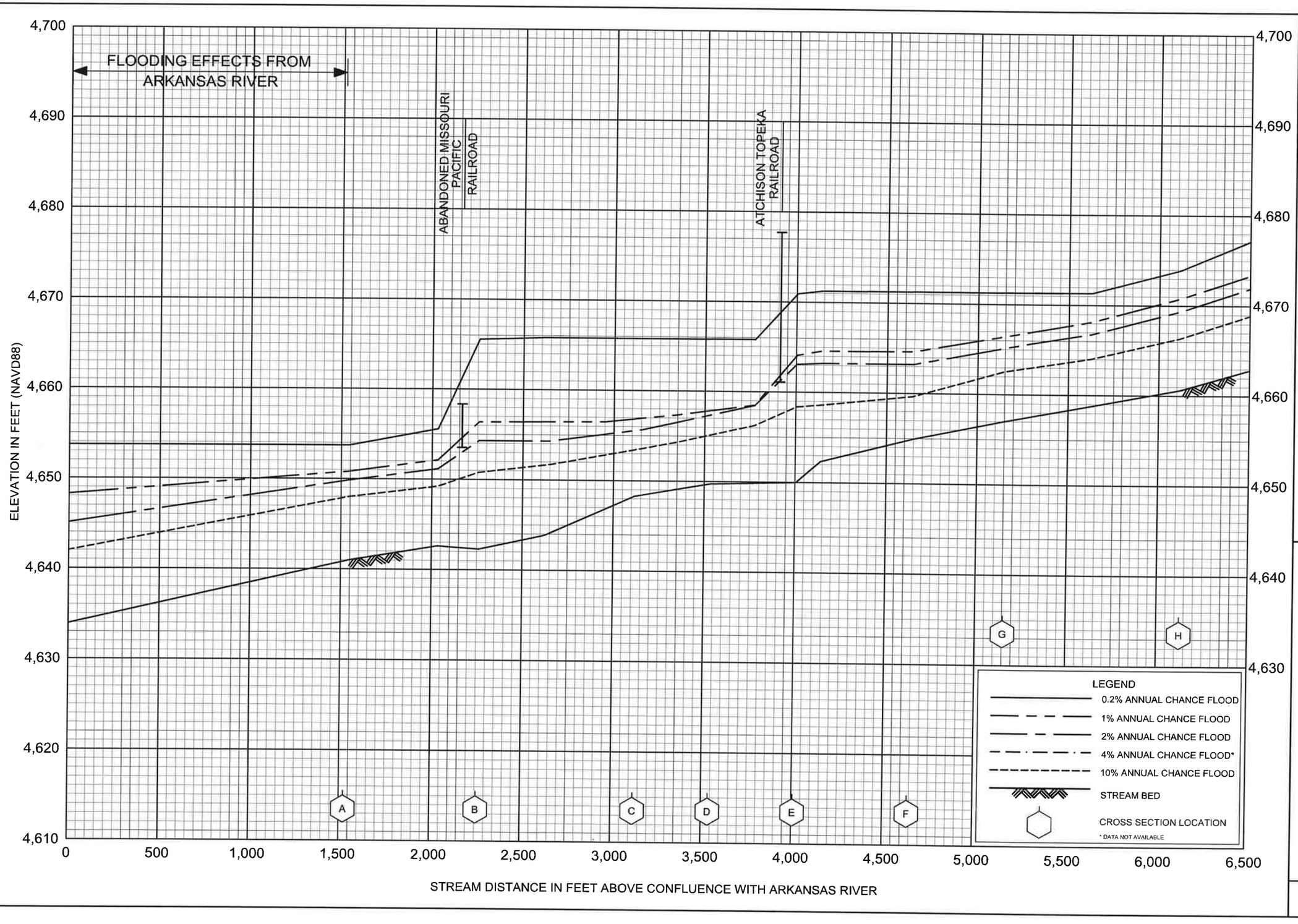
EAST DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

11P



FLOOD PROFILES

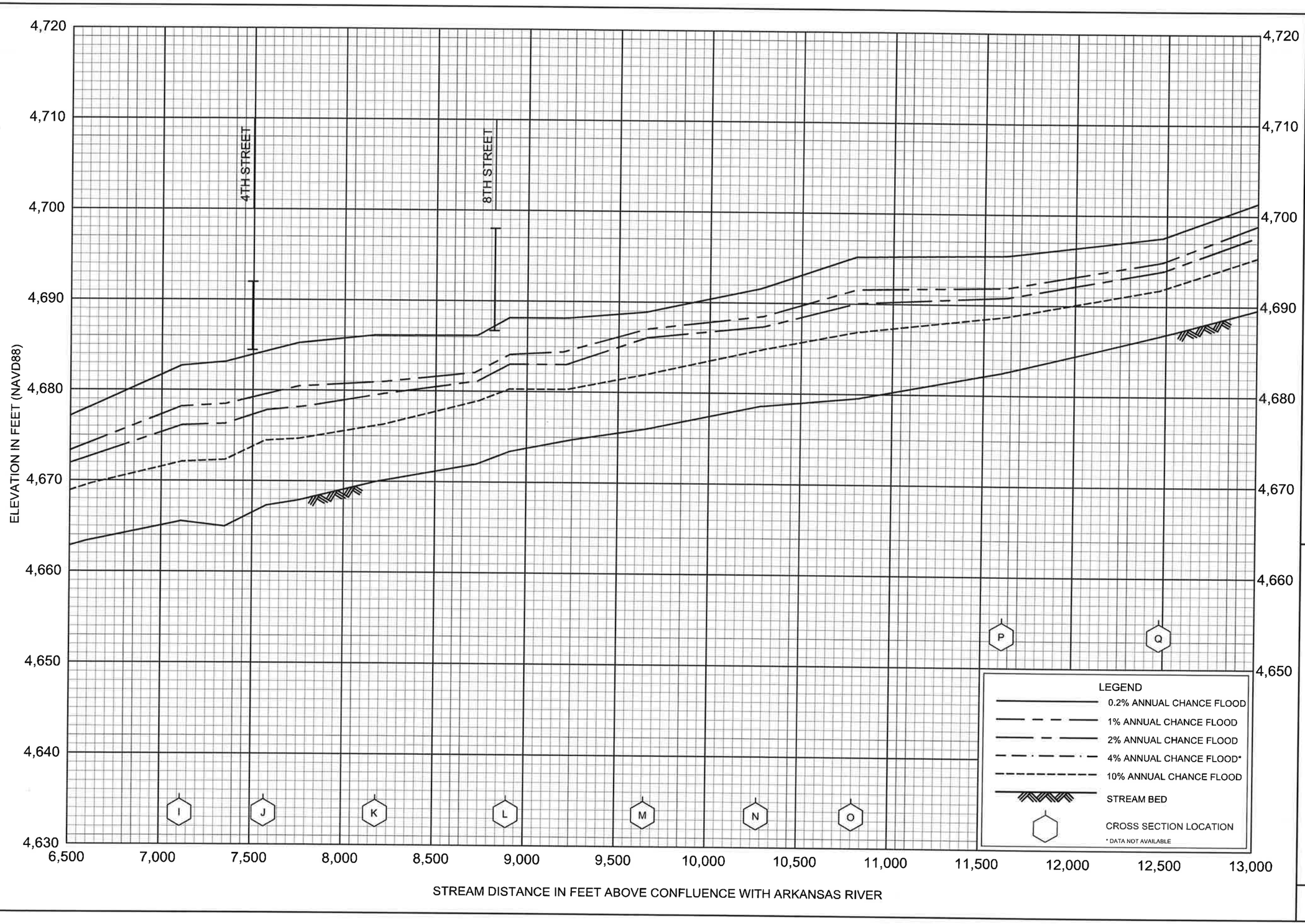
FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

12P



FLOOD PROFILES

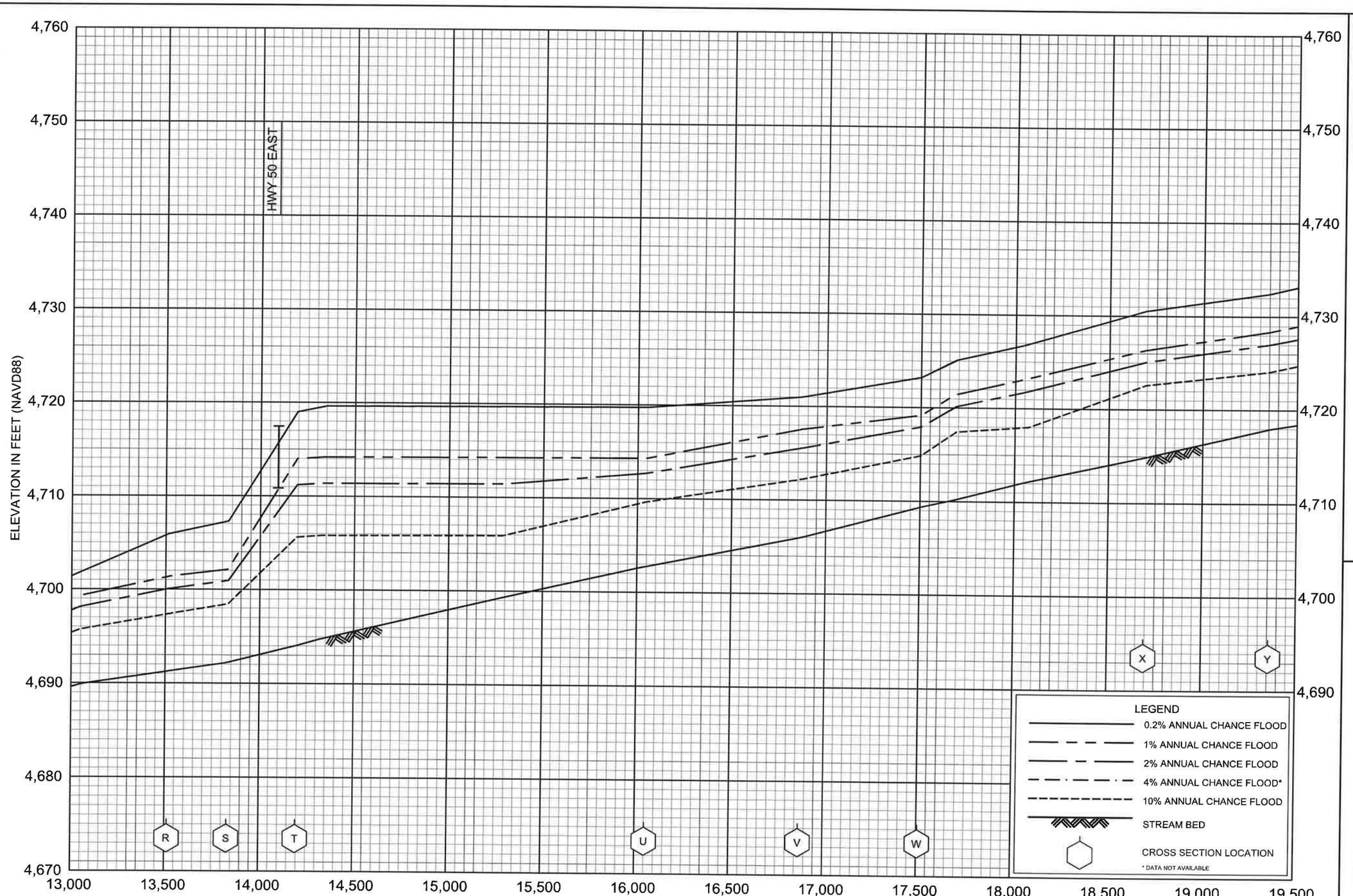
FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

13P



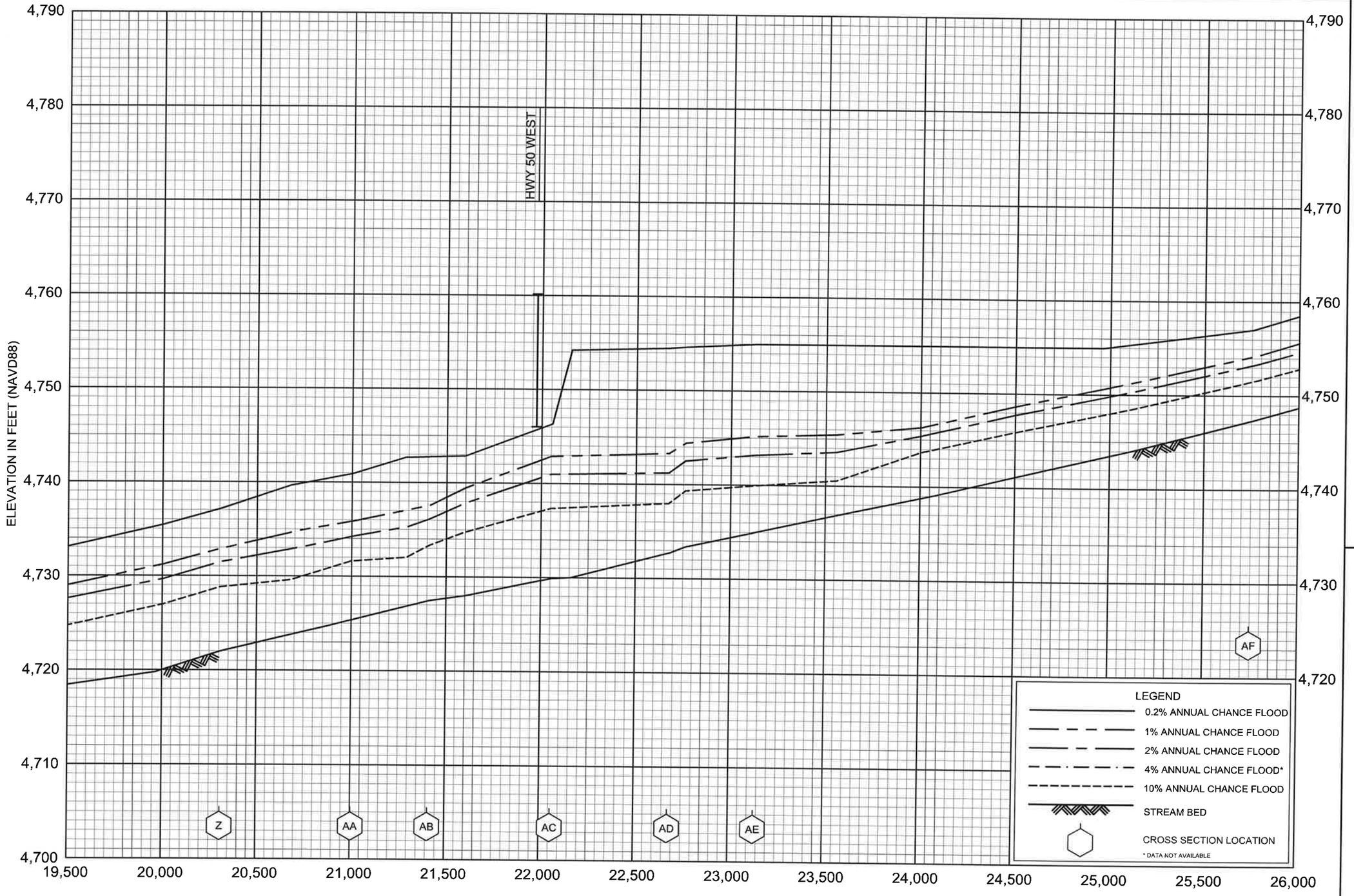
FLOOD PROFILES

FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS



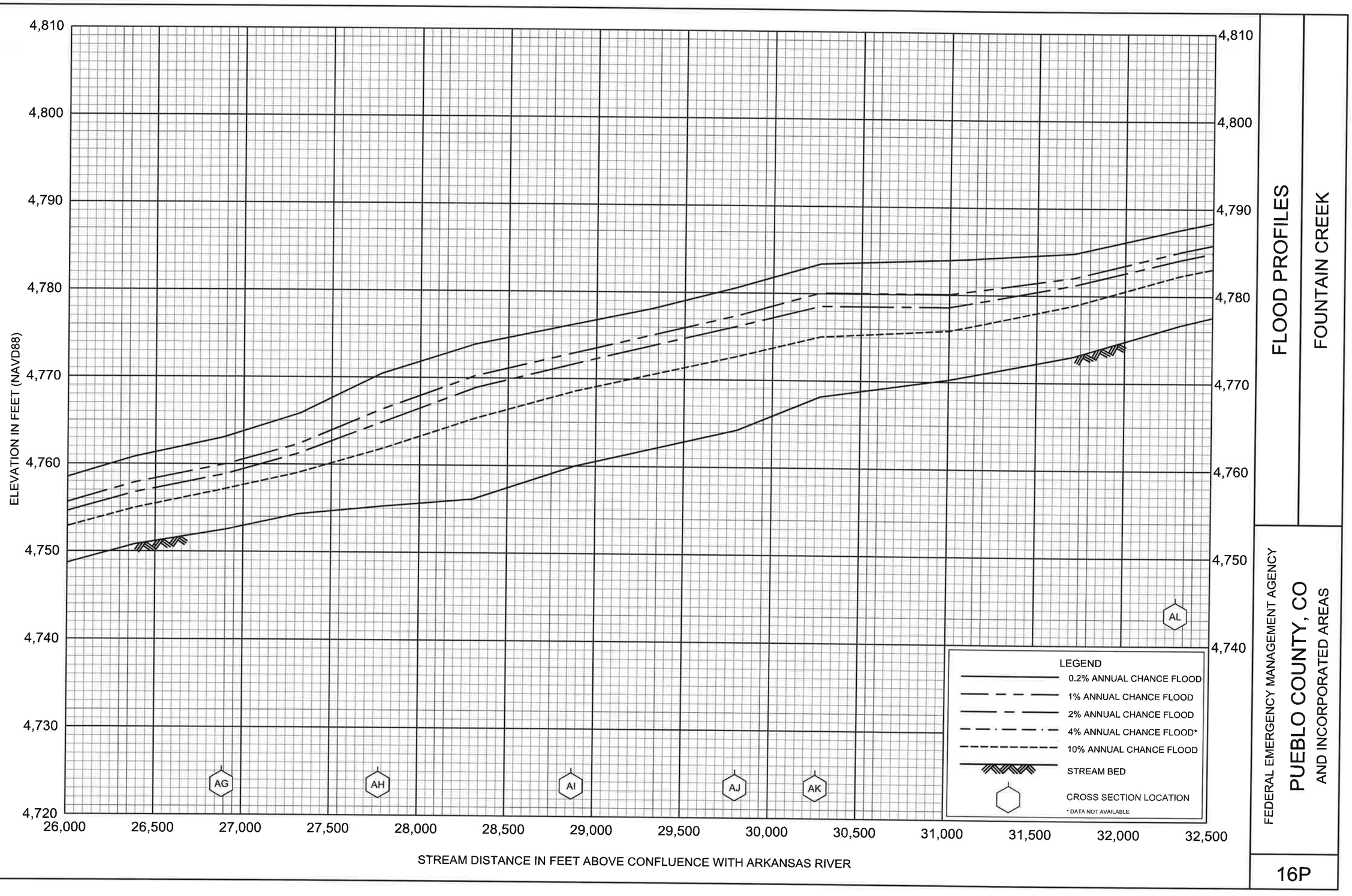
FLOOD PROFILES

FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

15P



FLOOD PROFILES

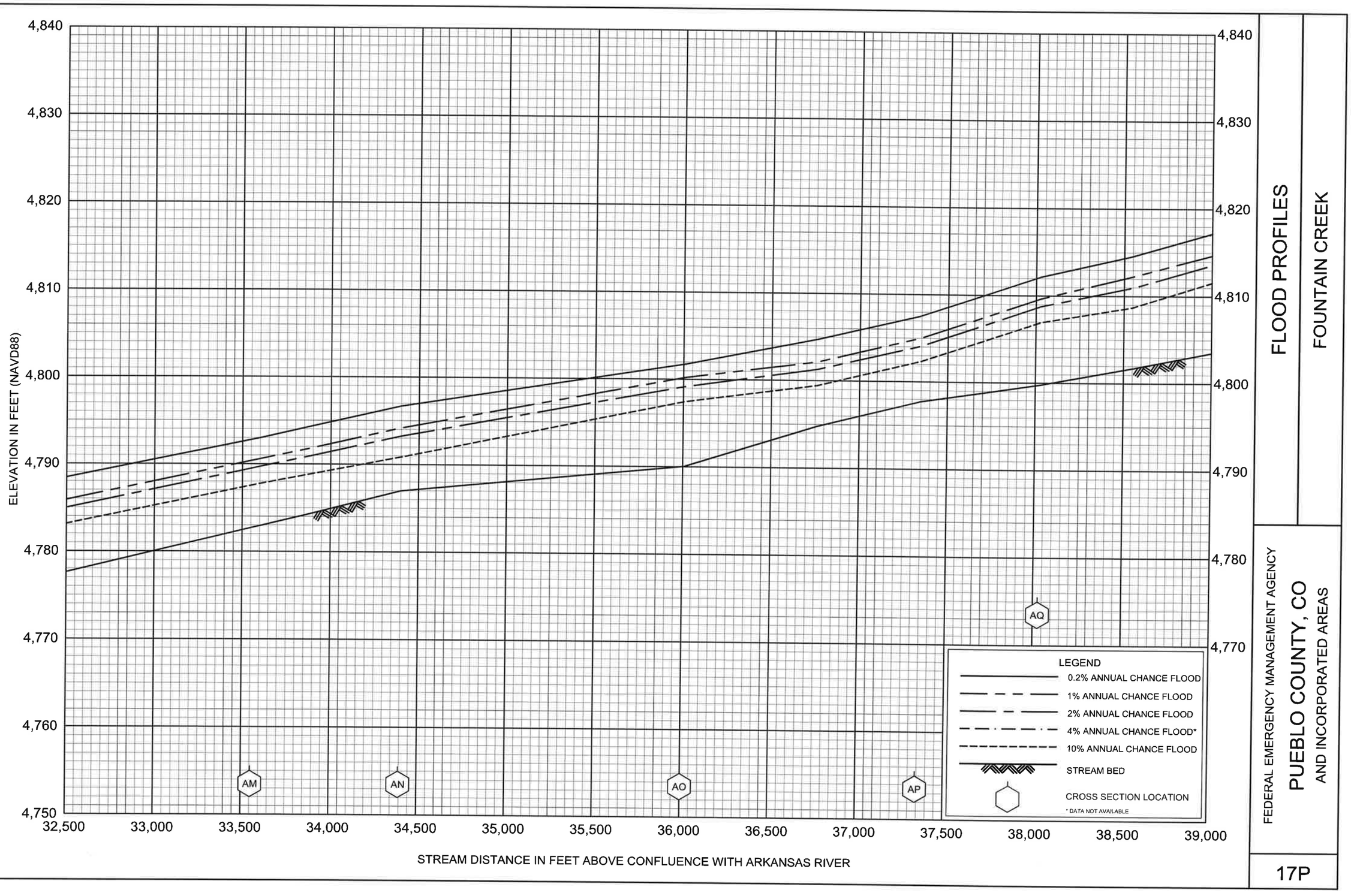
FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

16P



FLOOD PROFILES

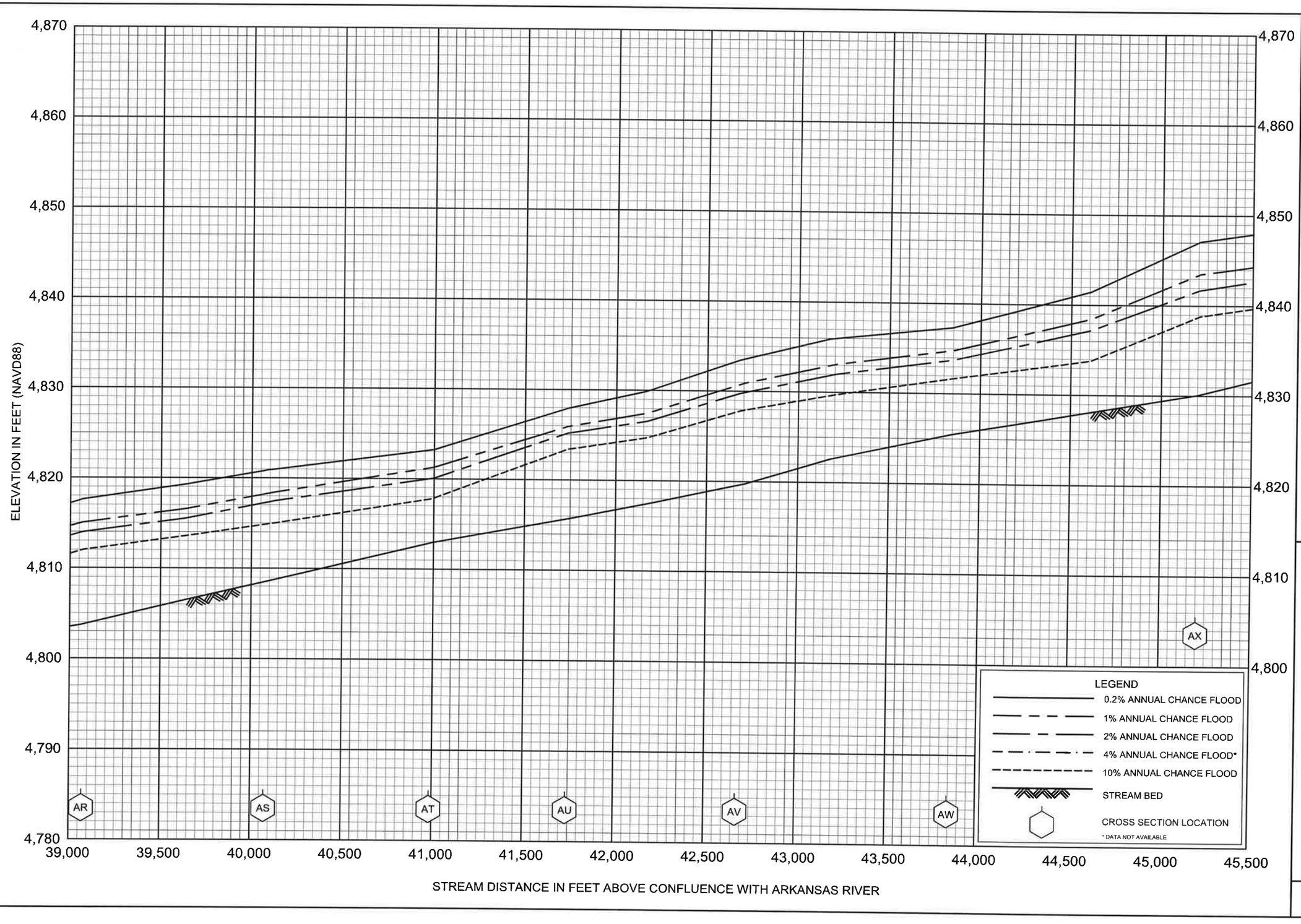
FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

17P



FLOOD PROFILES

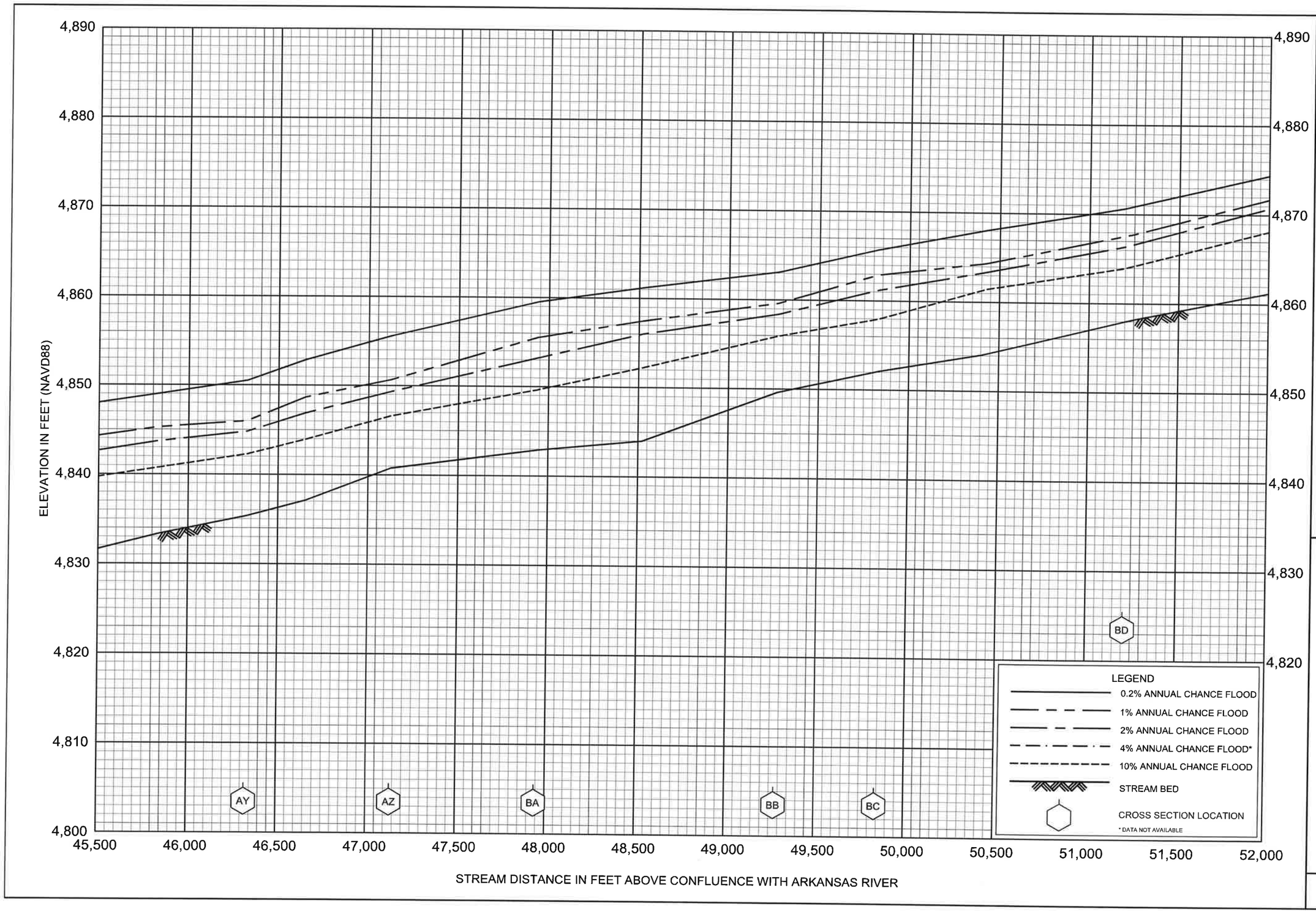
FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

18P



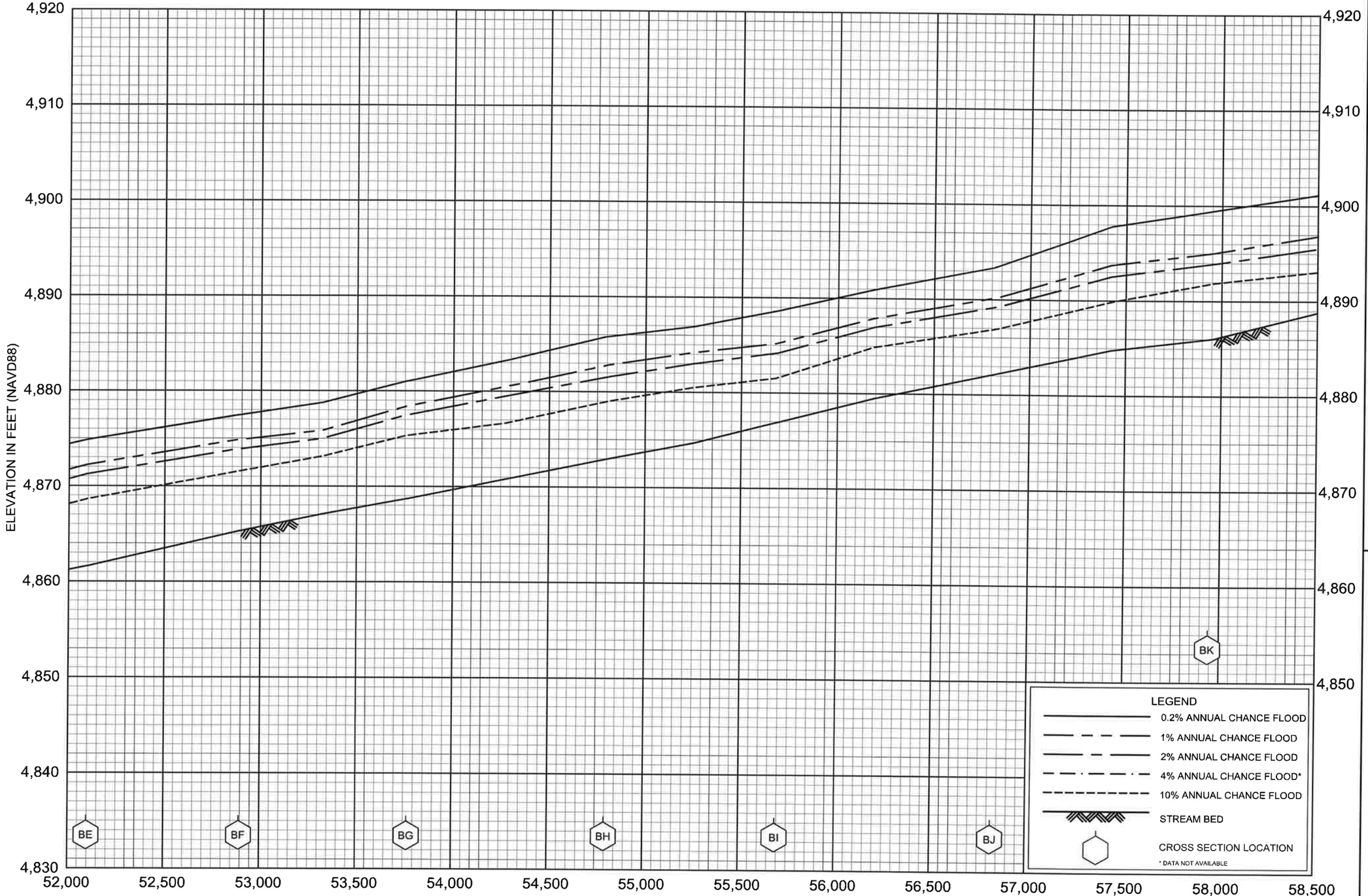
FLOOD PROFILES

FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS



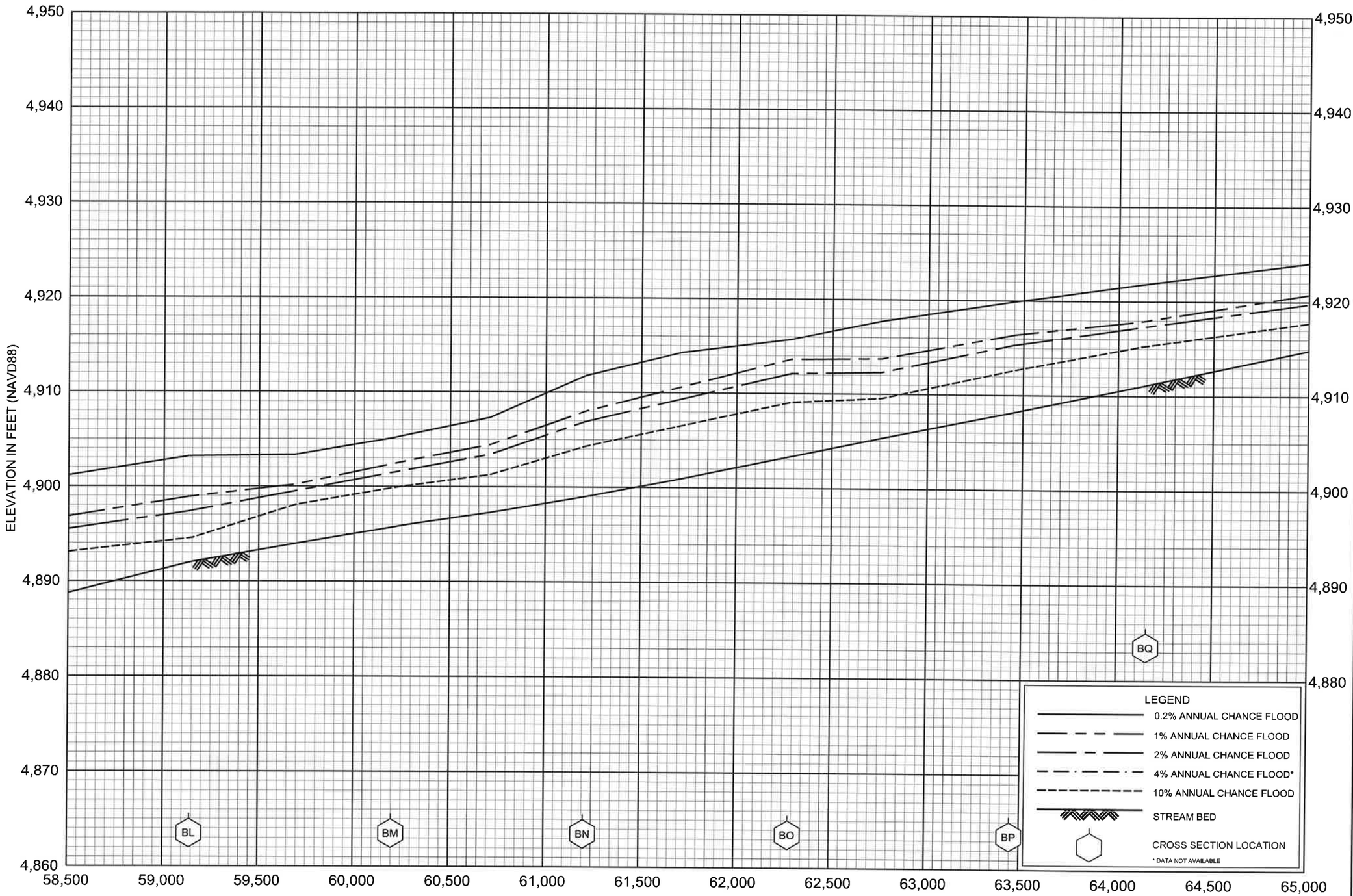
FLOOD PROFILES

FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

20P



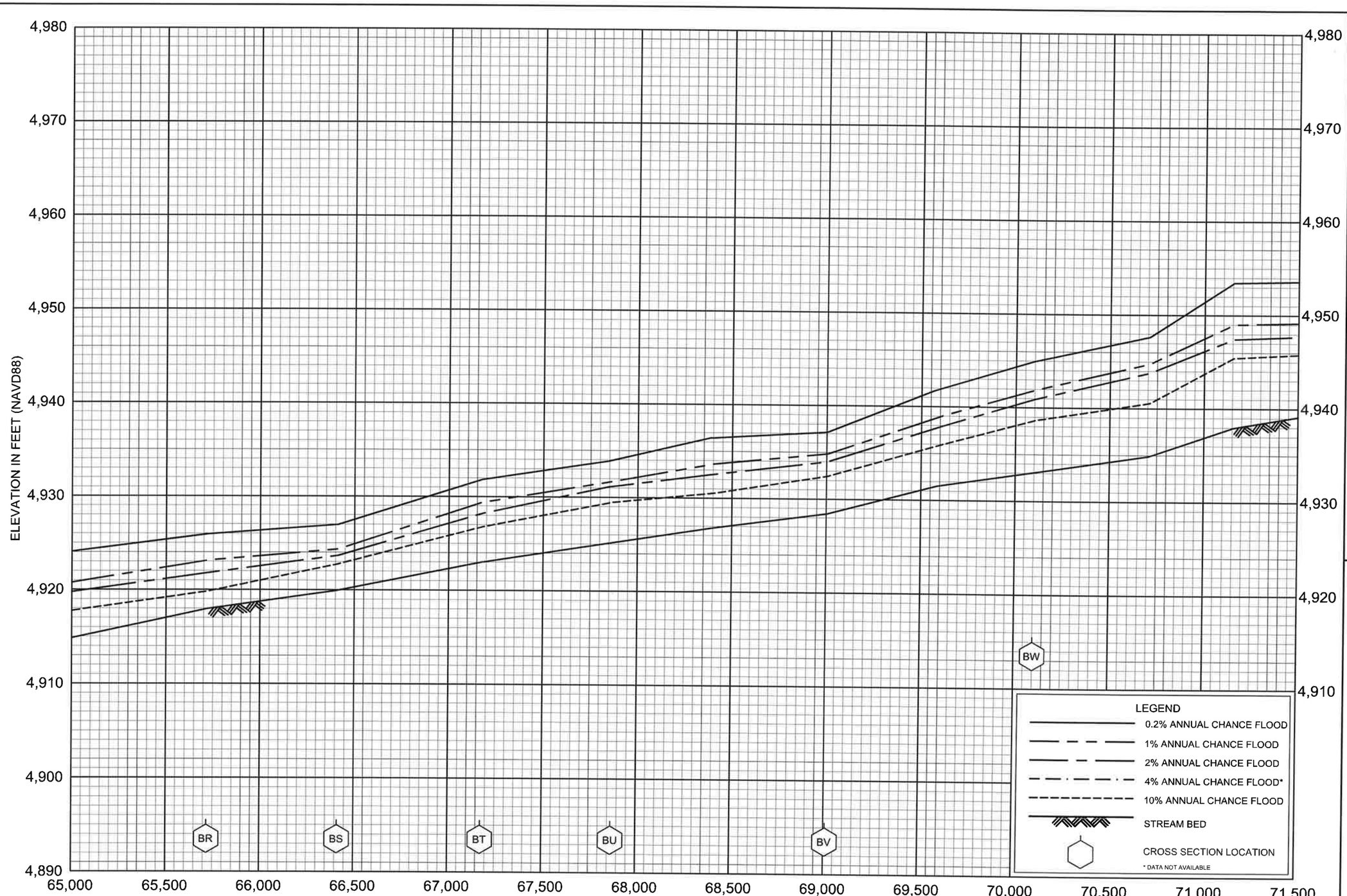
FLOOD PROFILES

FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

21P



FLOOD PROFILES

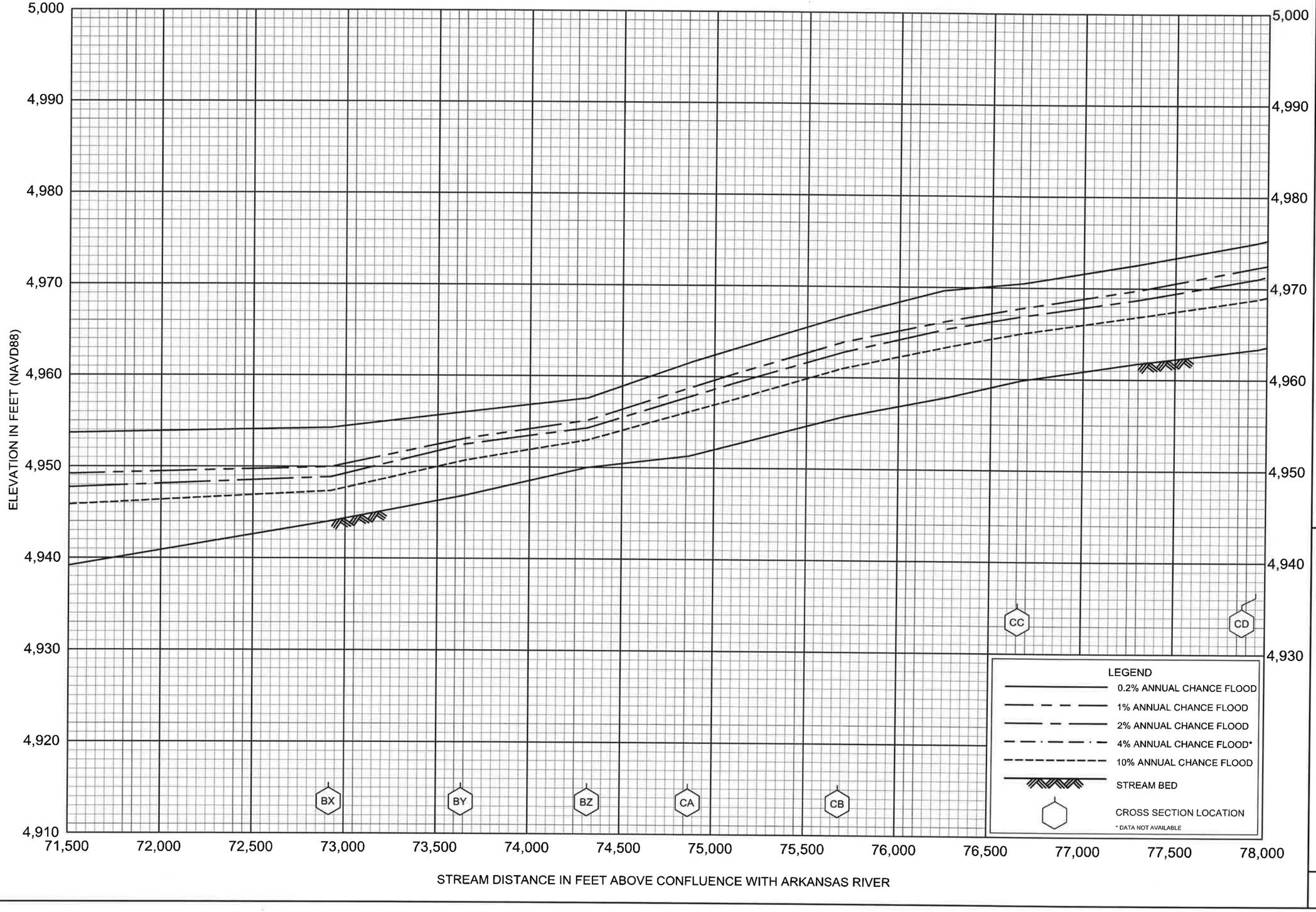
FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

22P



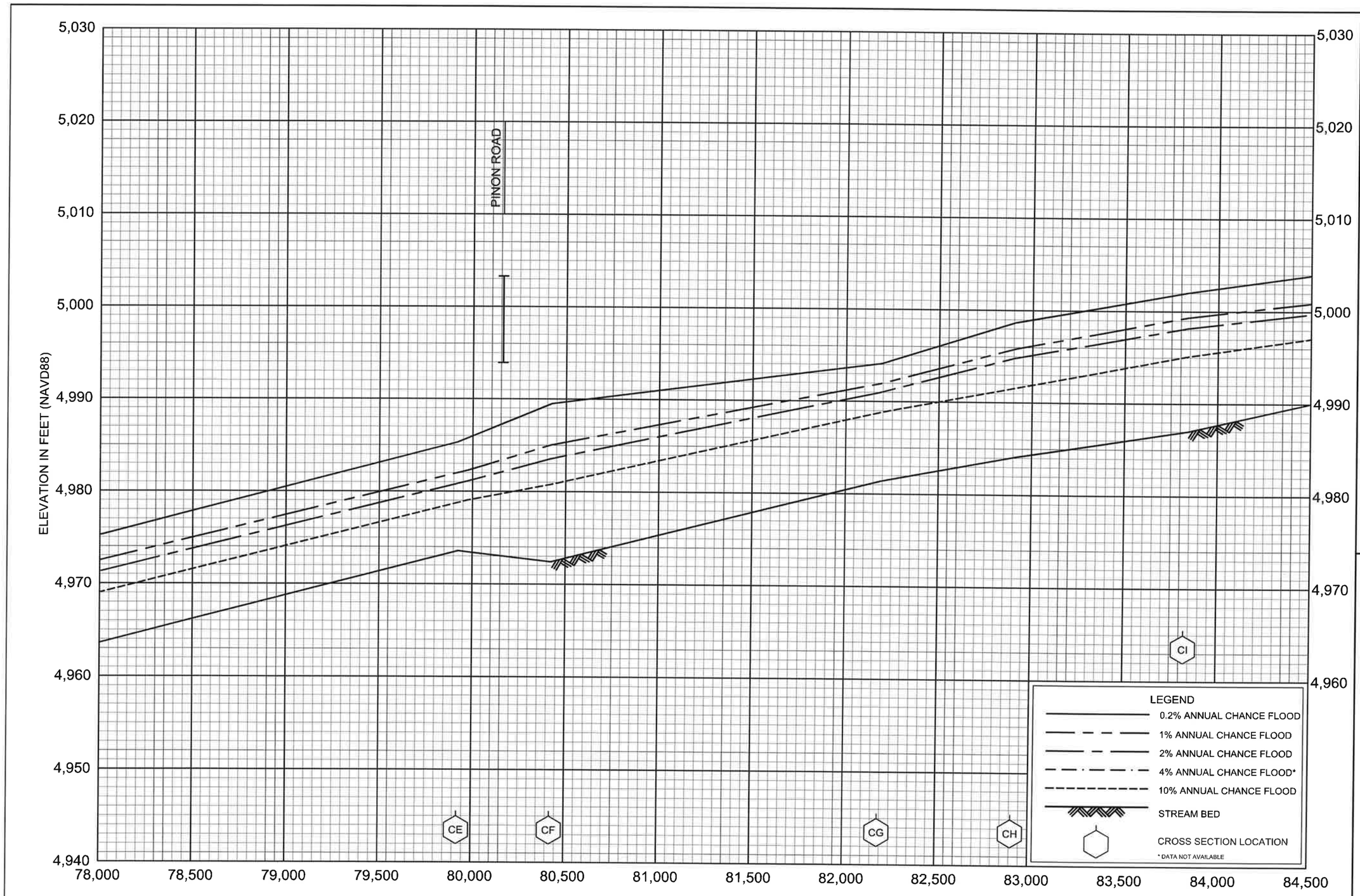
FLOOD PROFILES

FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

23P



FLOOD PROFILES

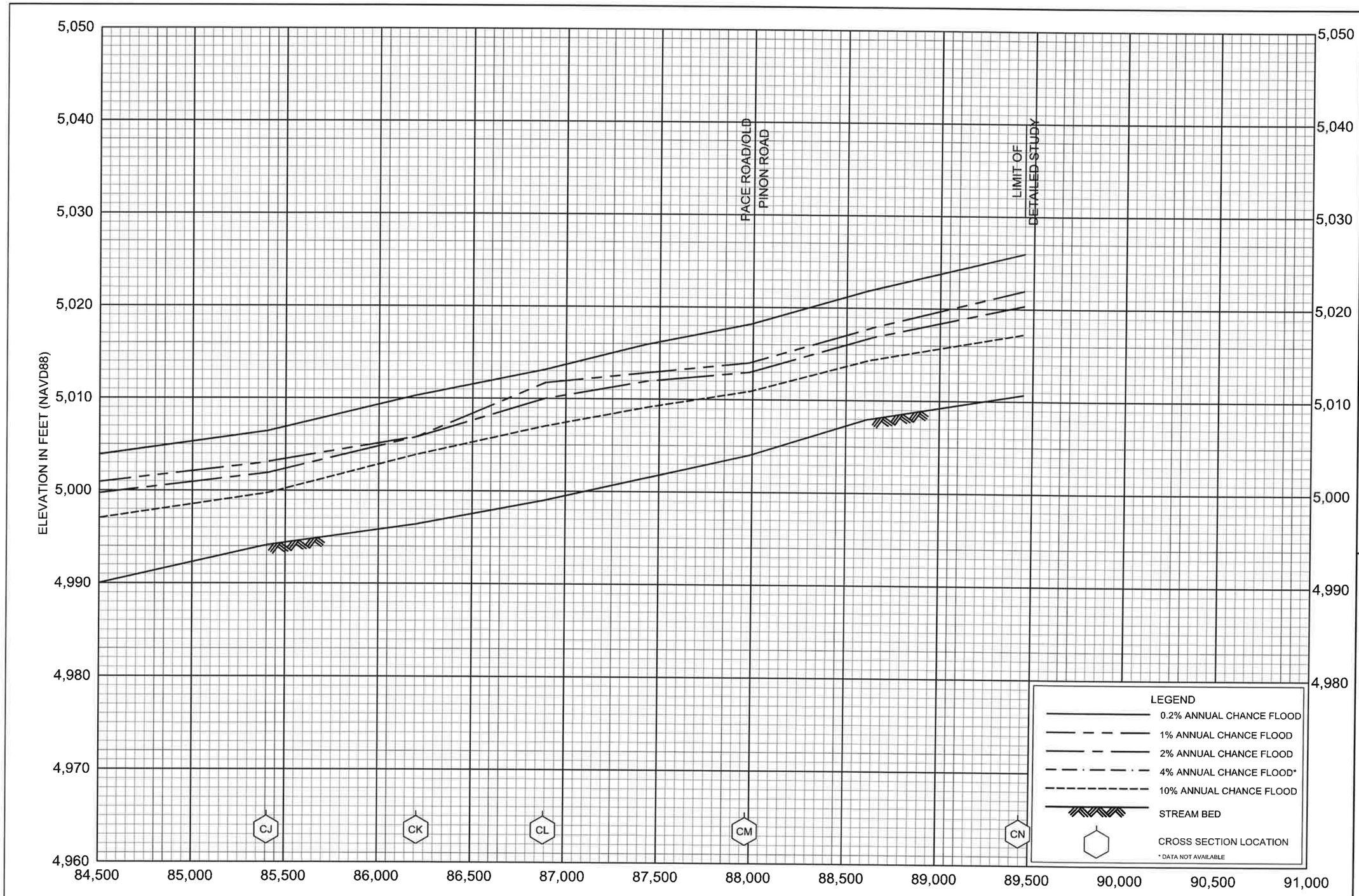
FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

24P



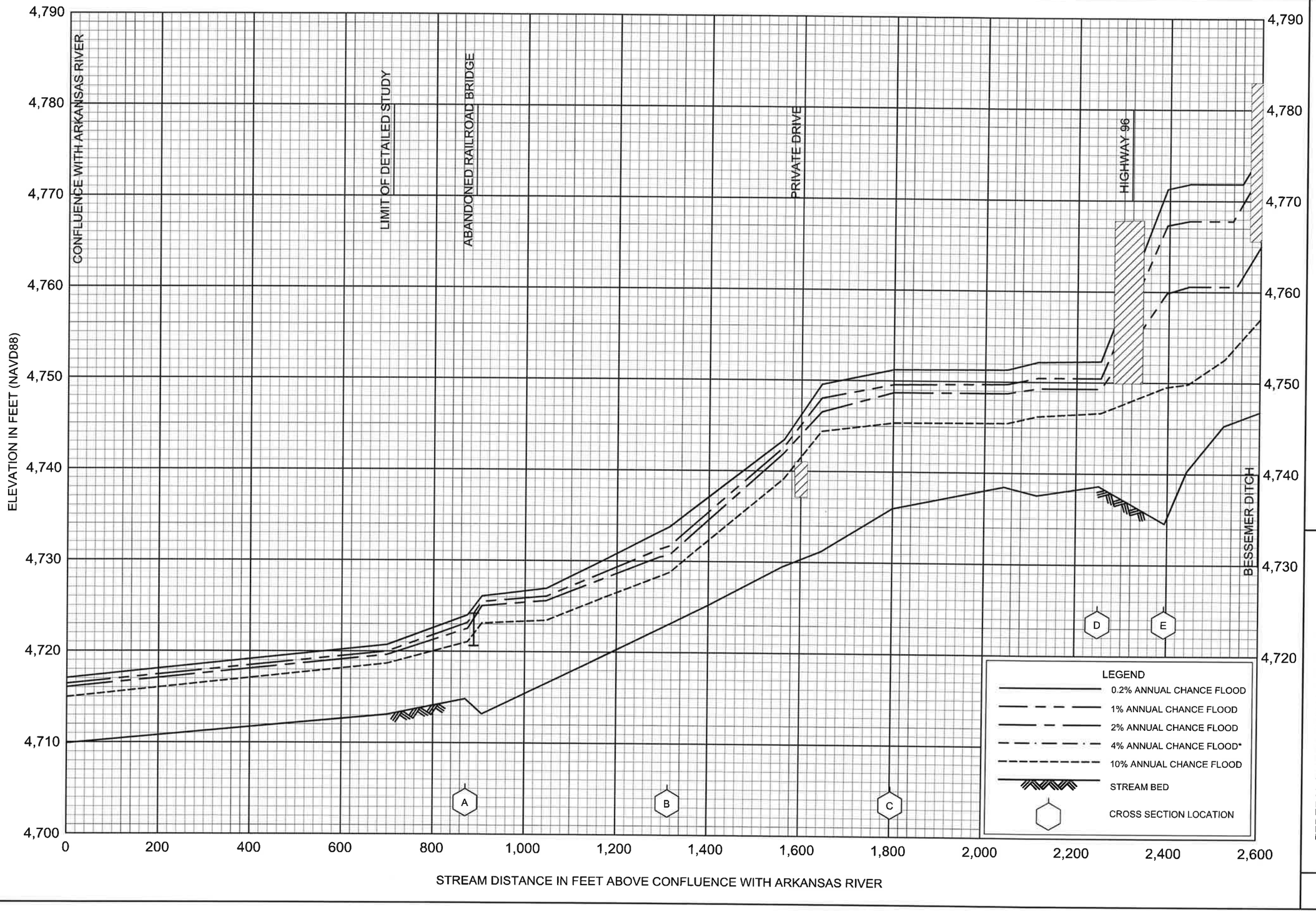
FLOOD PROFILES

FOUNTAIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

25P

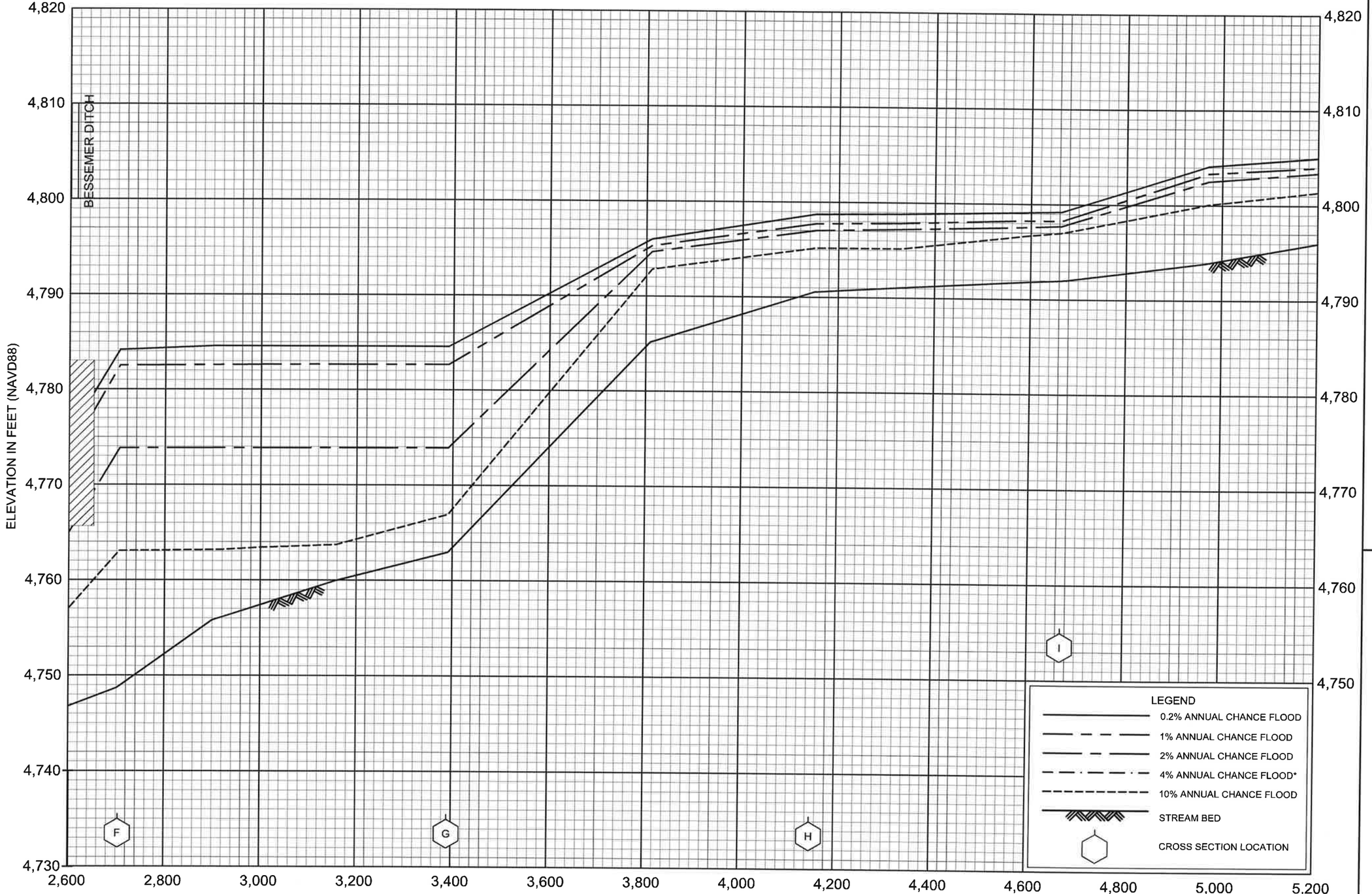


FLOOD PROFILES

GOODNIGHT ARROYO

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS



FLOOD PROFILES

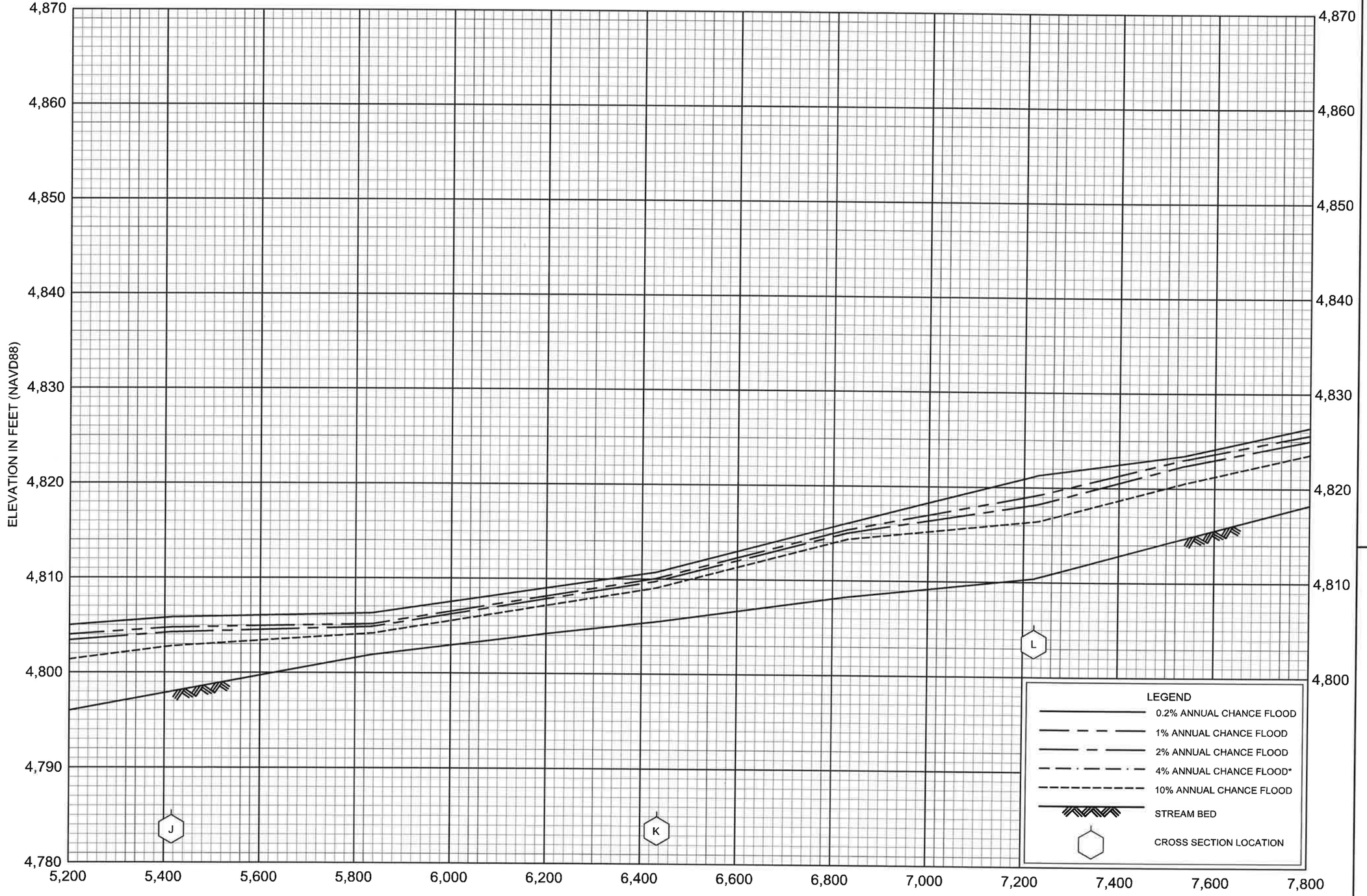
GOODNIGHT ARROYO

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

27P



FLOOD PROFILES

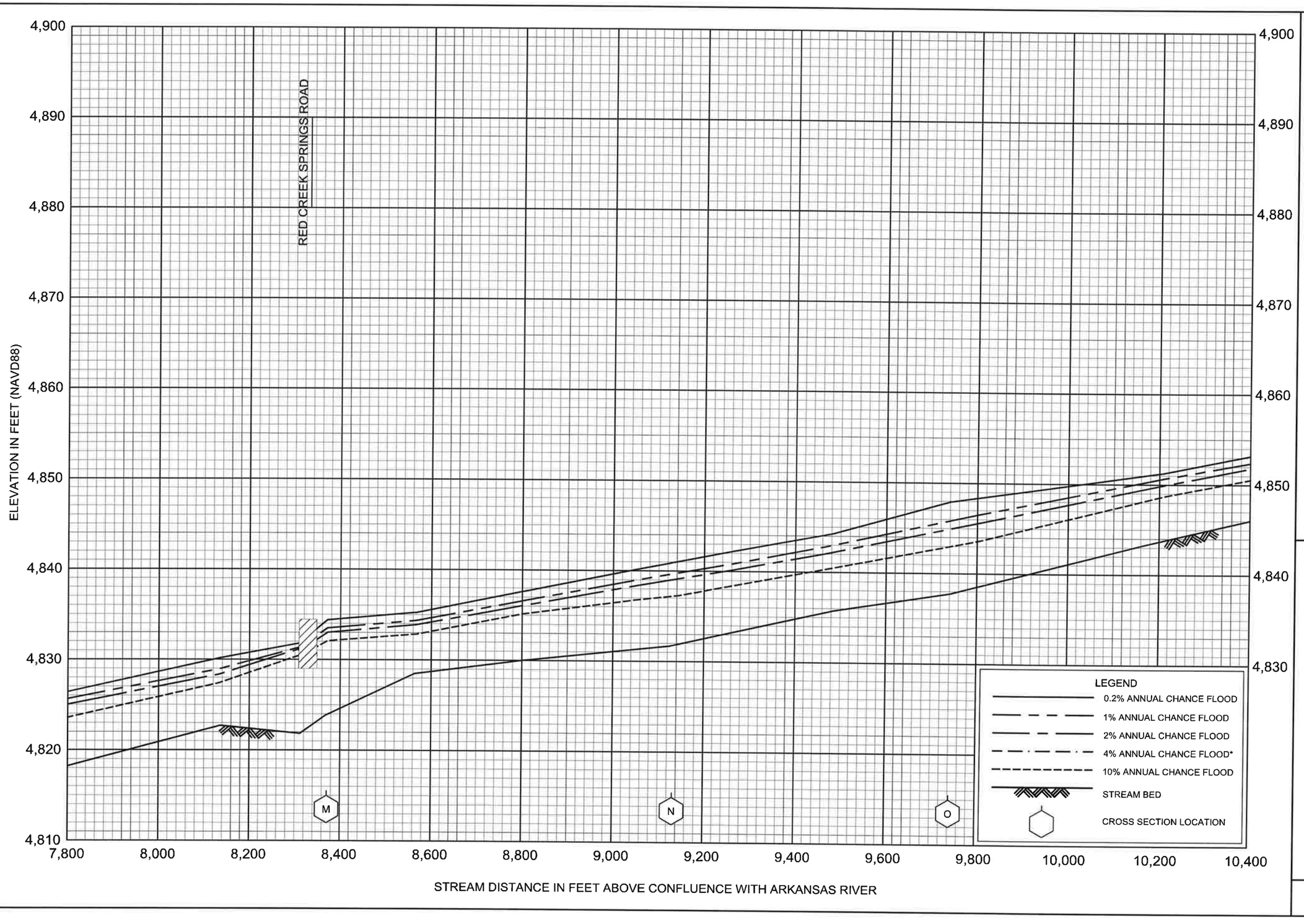
GOODNIGHT ARROYO

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

28P



FLOOD PROFILES

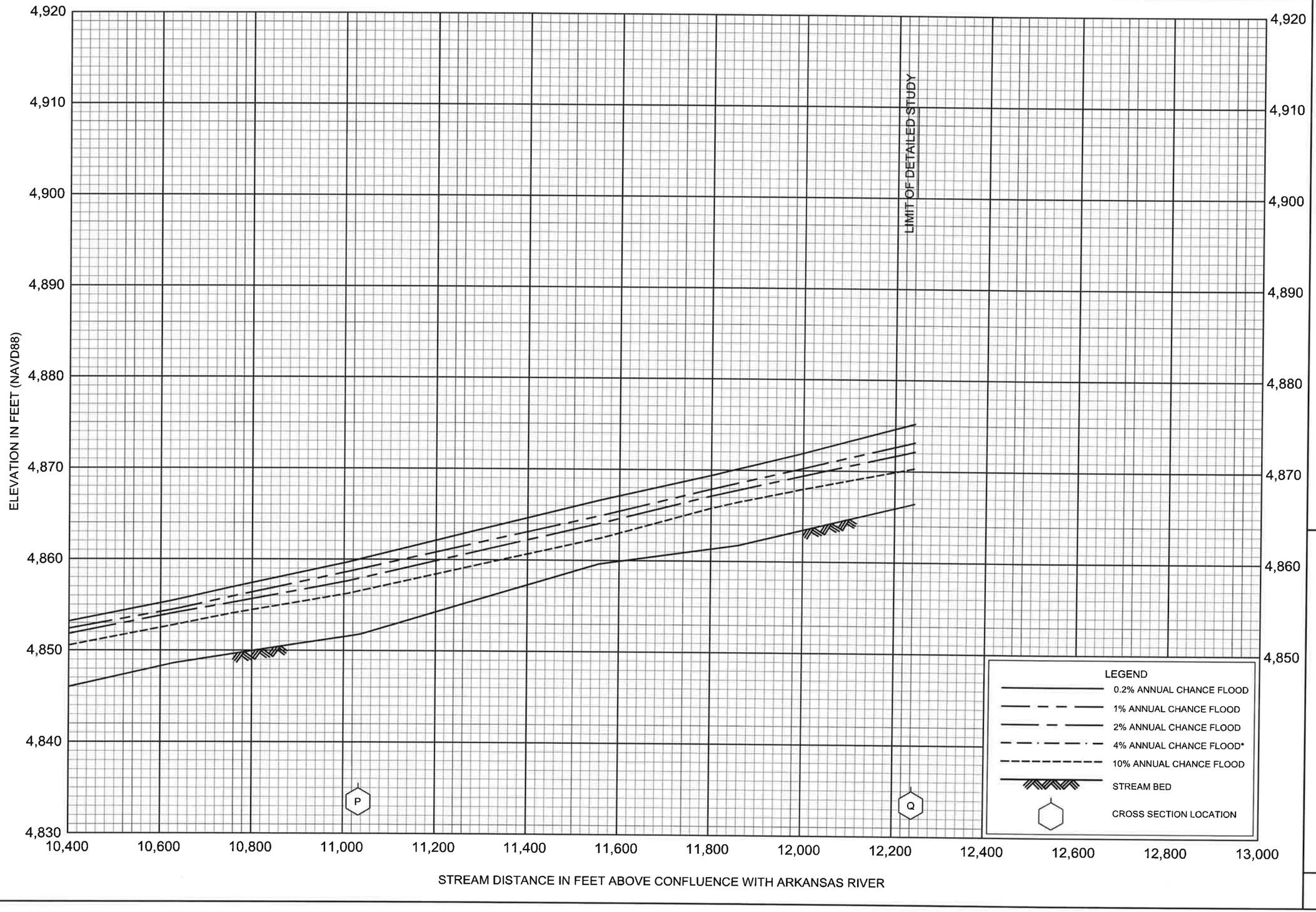
GOODNIGHT ARROYO

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

29P



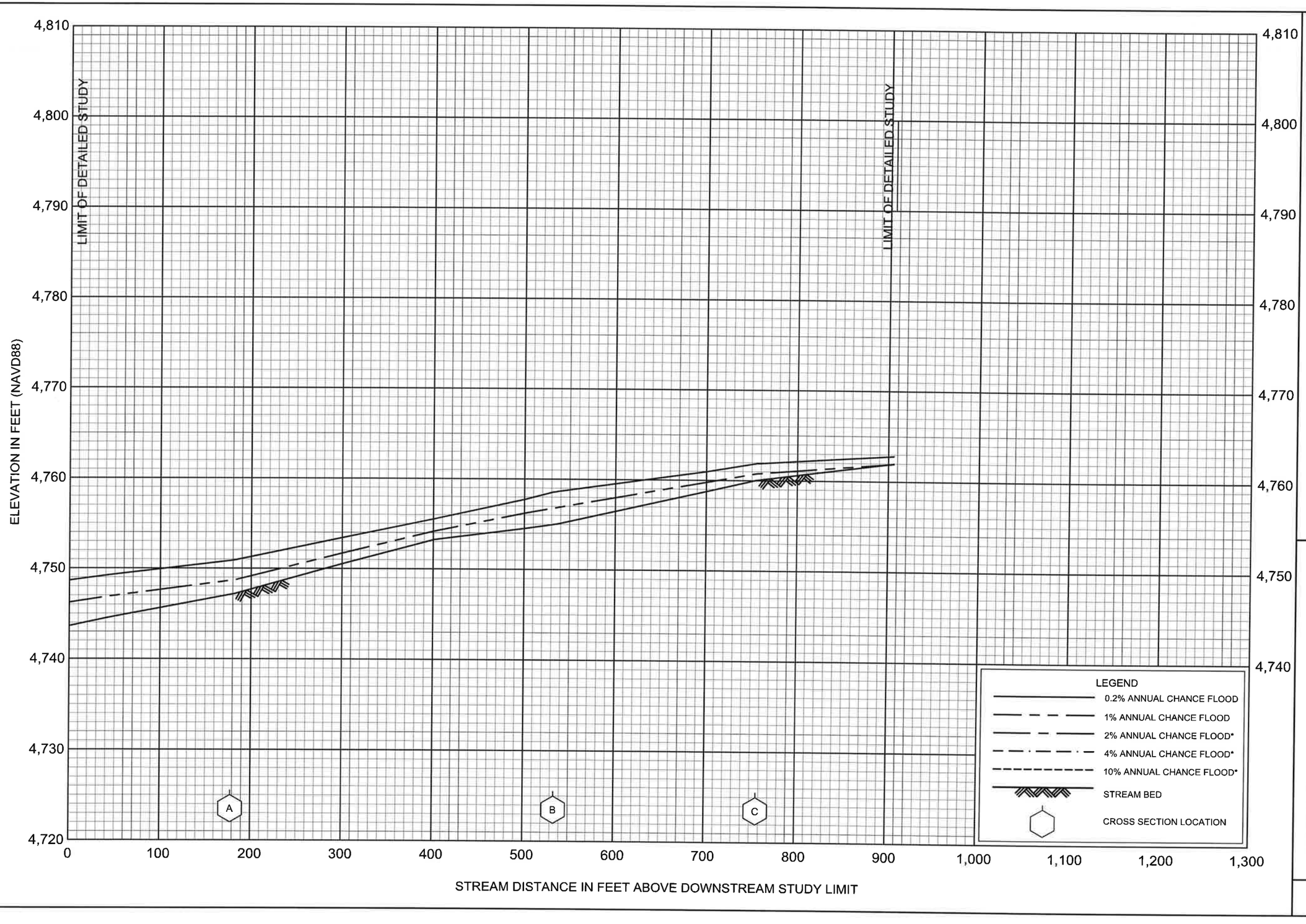
FLOOD PROFILES

GOODNIGHT ARROYO

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

30P



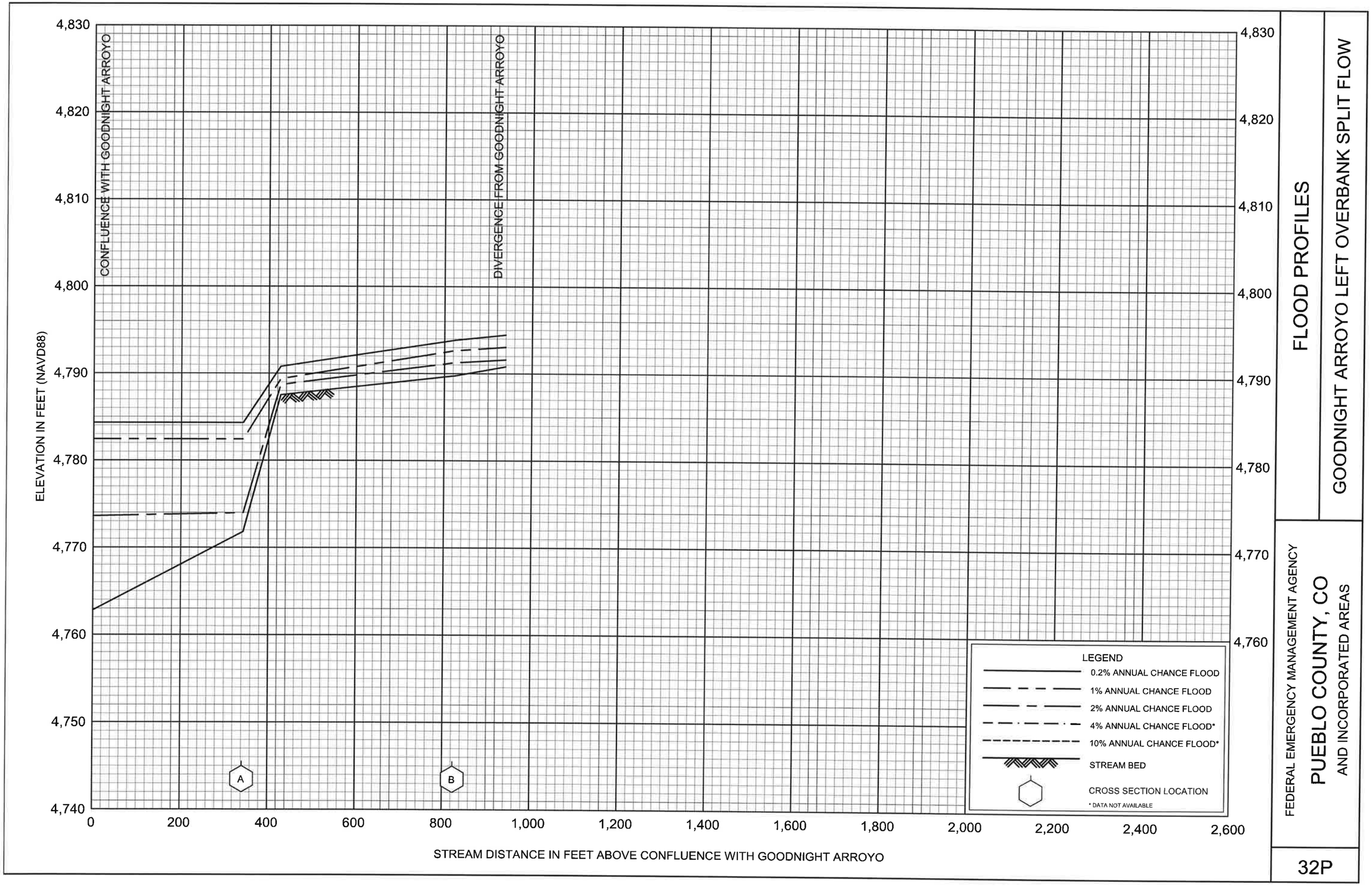
FLOOD PROFILES

GOODNIGHT ARROYO HIGHWAY 96 SPLIT FLOW

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS



FLOOD PROFILES

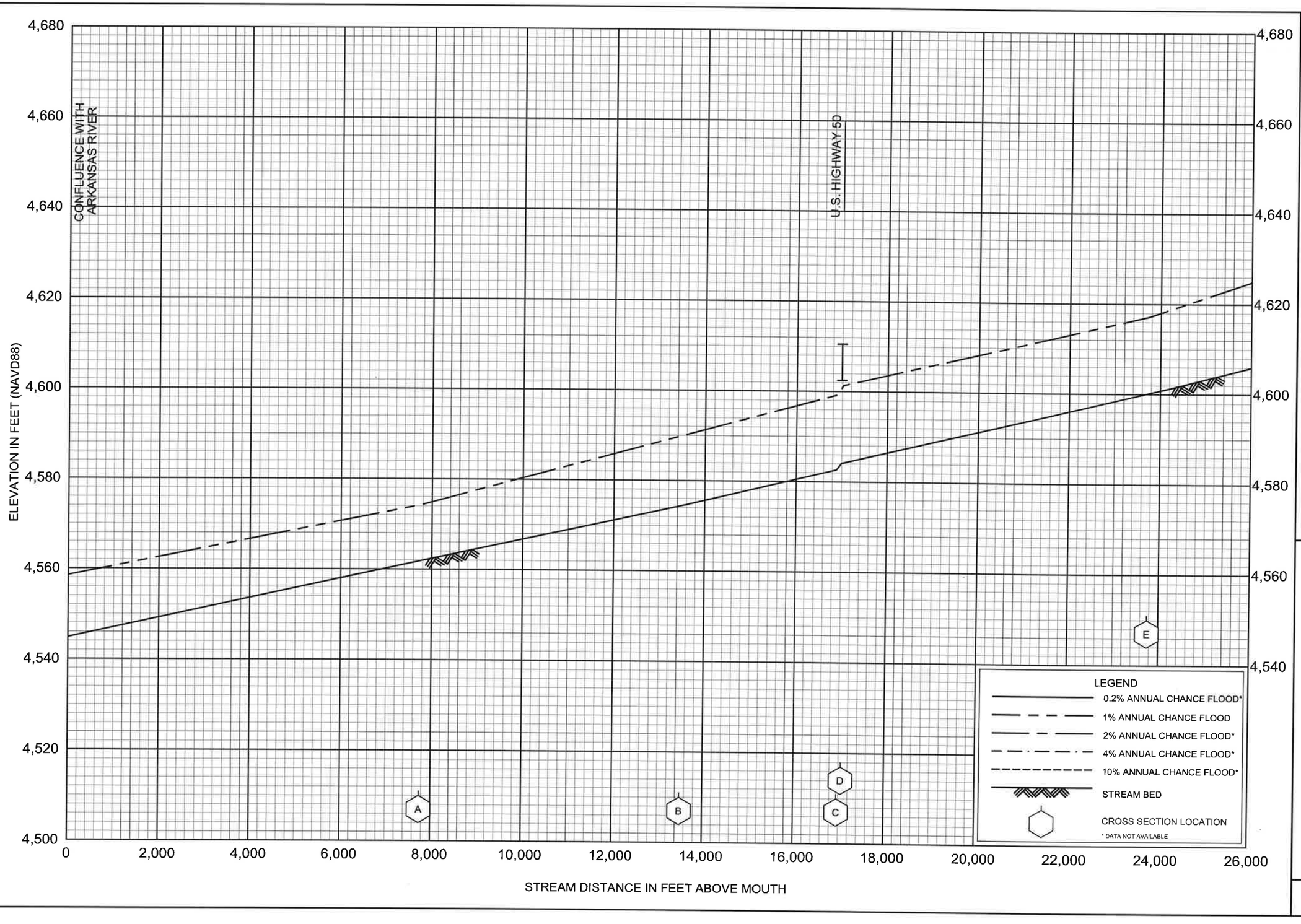
GOODNIGHT ARROYO LEFT OVERBANK SPLIT FLOW

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

32P



FLOOD PROFILES

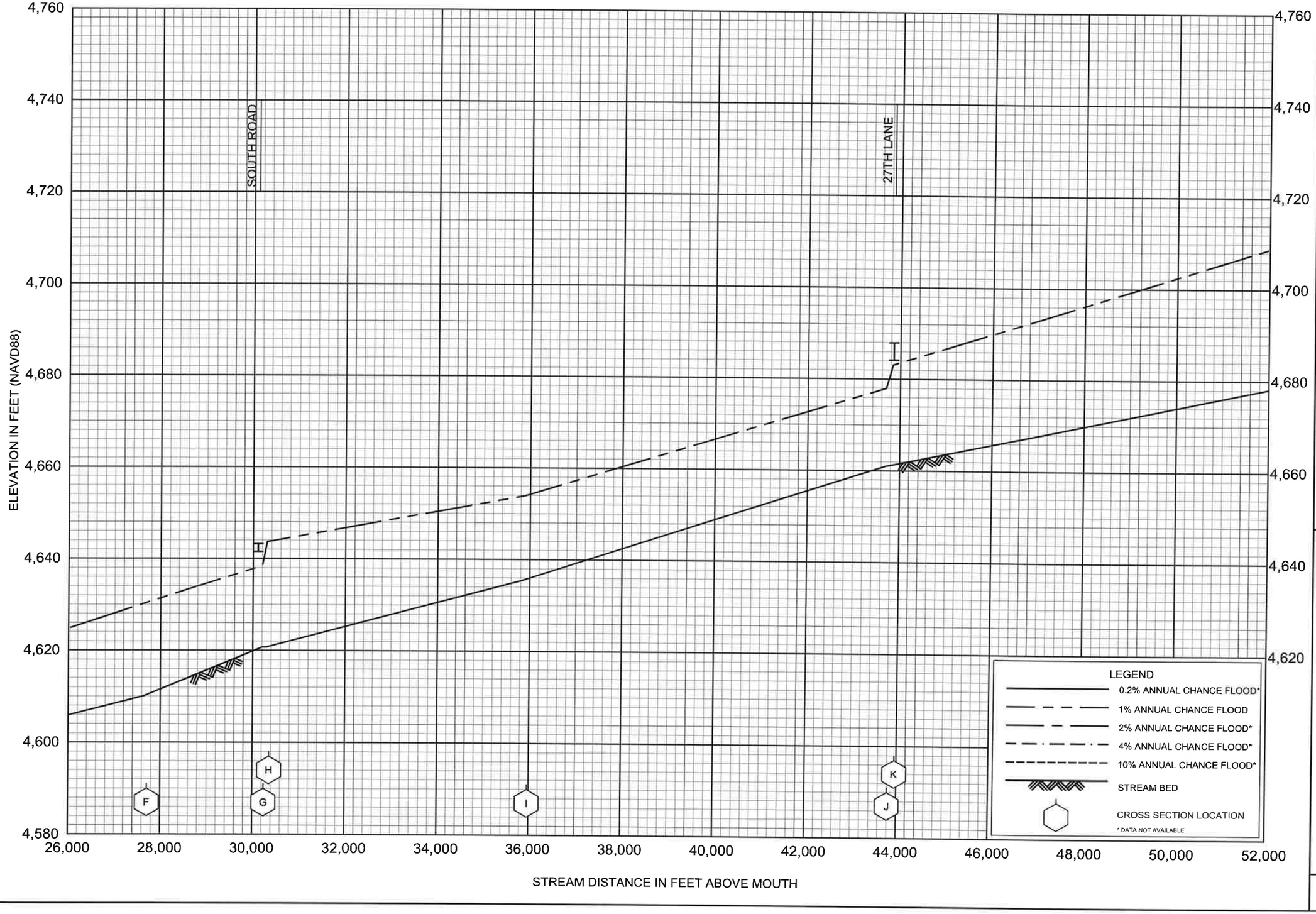
SAINT CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

33P



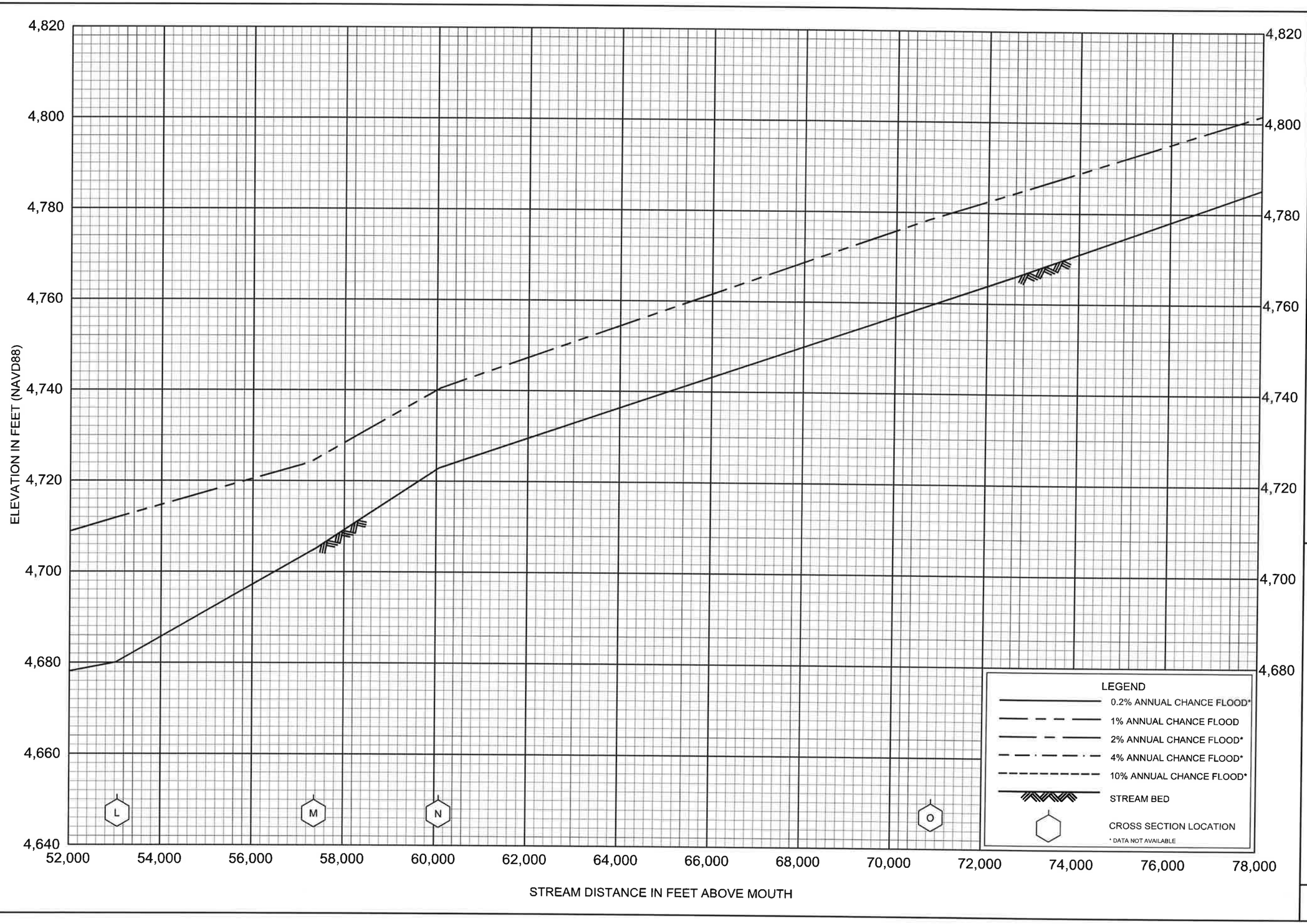
FLOOD PROFILES

SAINT CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

34P



FLOOD PROFILES

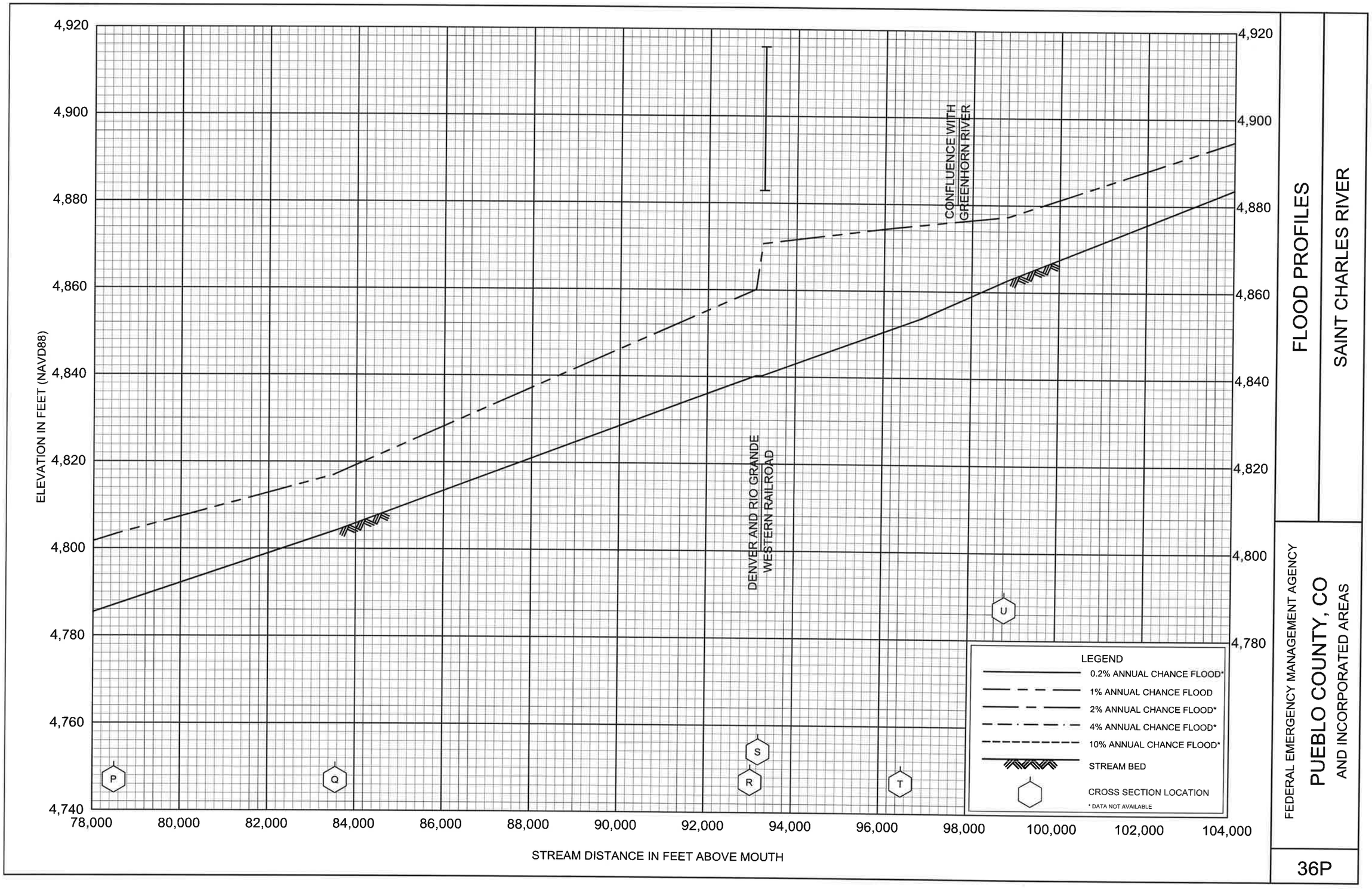
SAINT CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

35P



FLOOD PROFILES

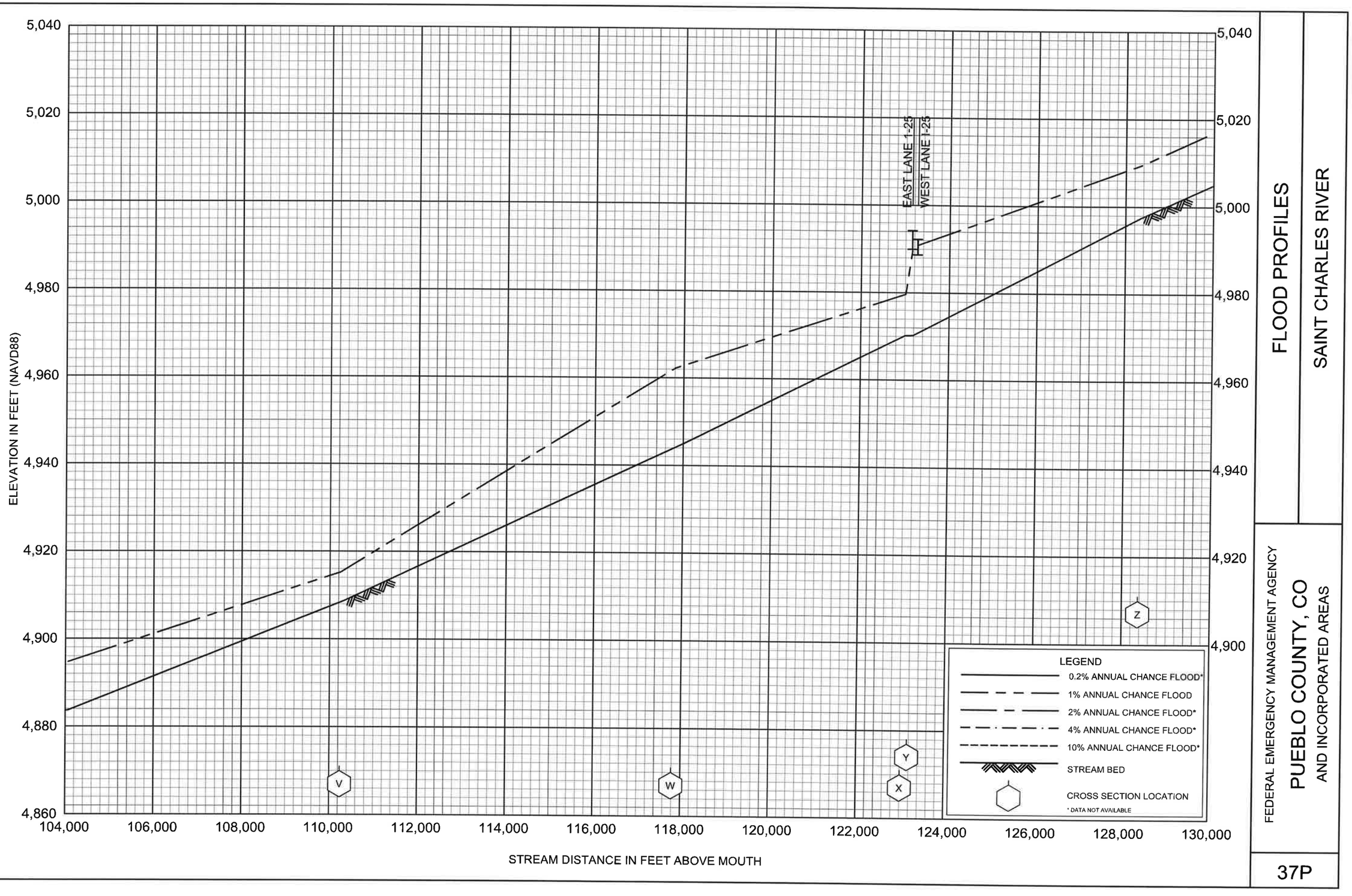
SAINT CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

36P



FLOOD PROFILES

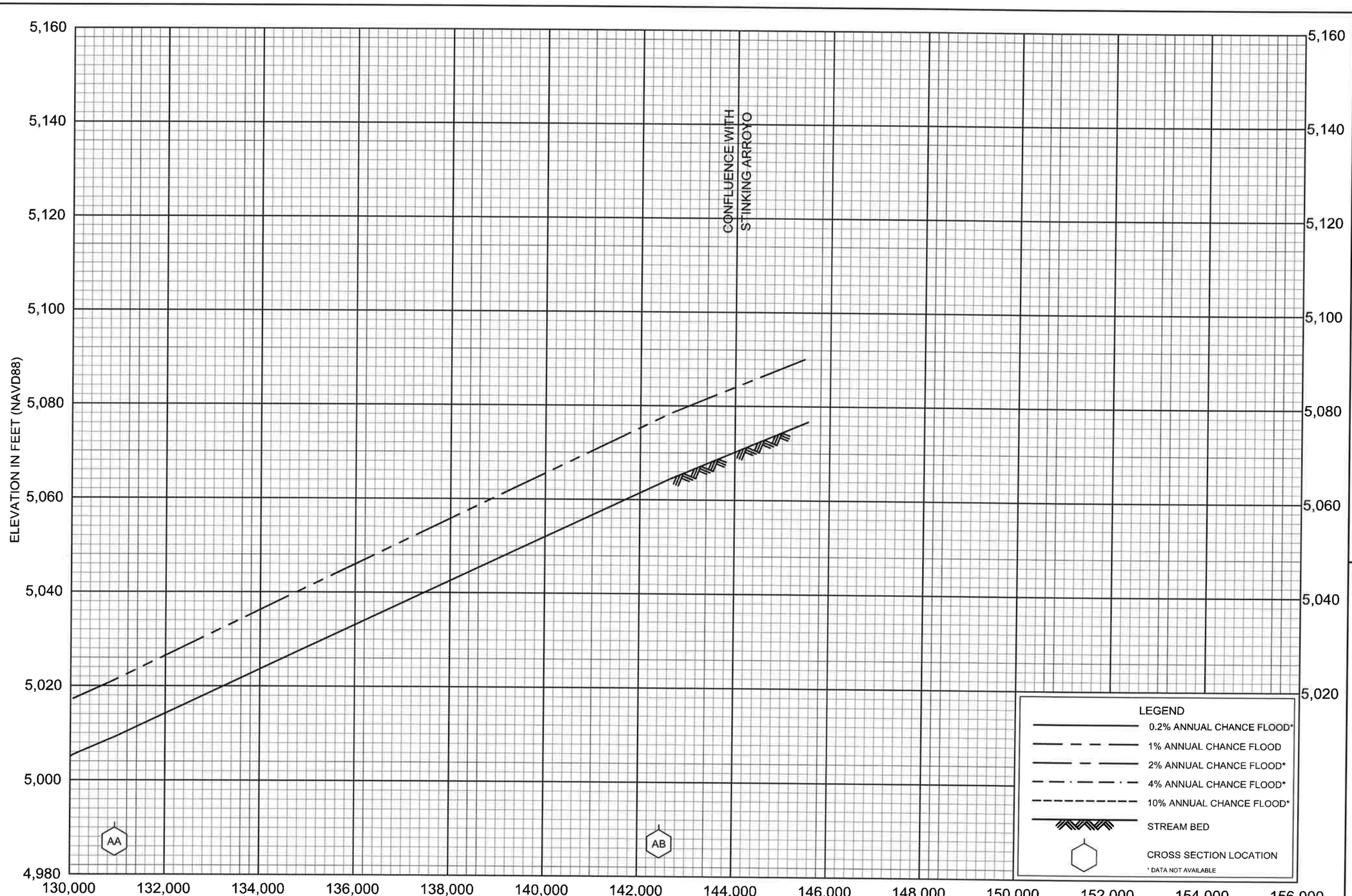
SAINT CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

37P



FLOOD PROFILES

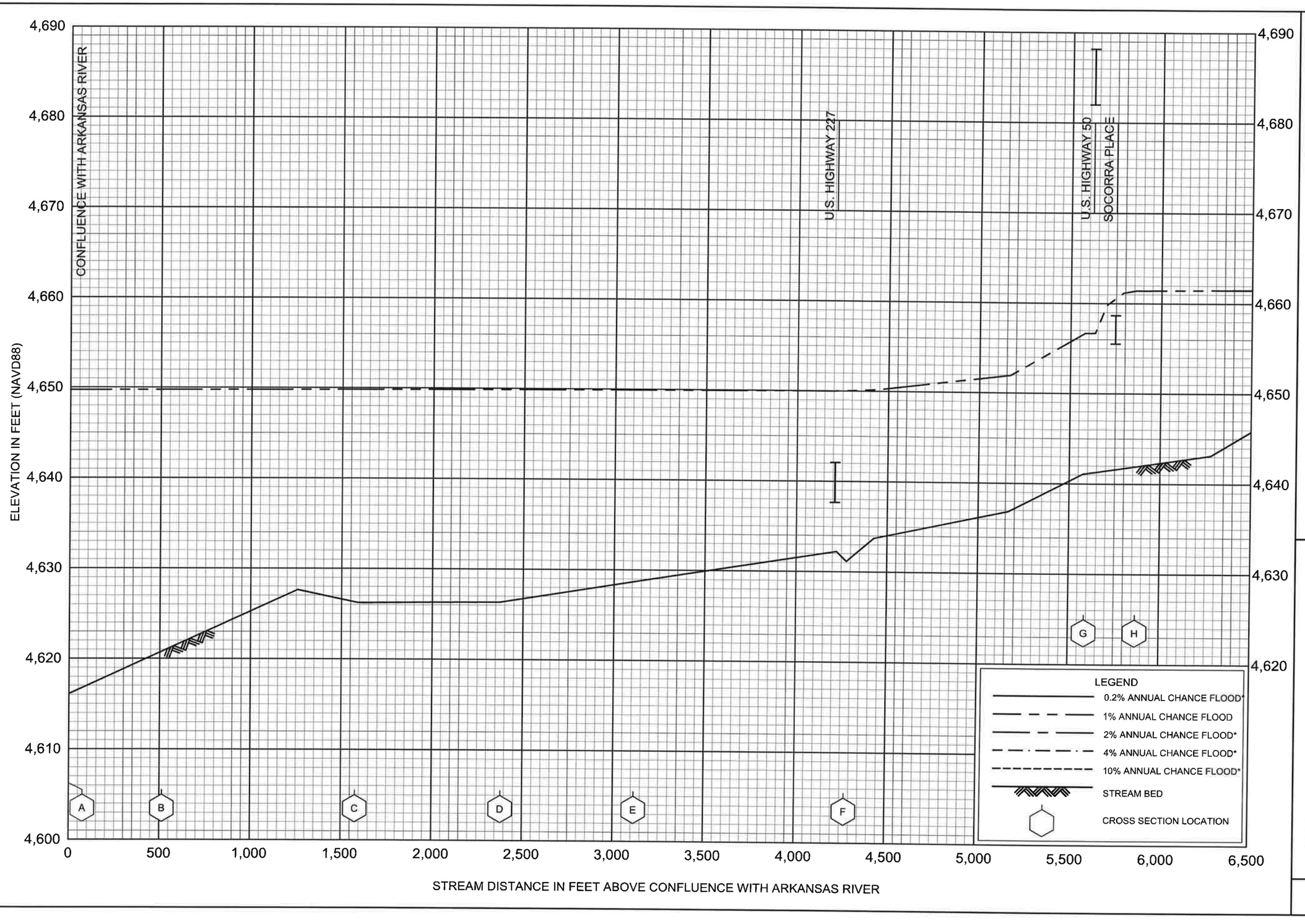
SAINT CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

38P



FLOOD PROFILES

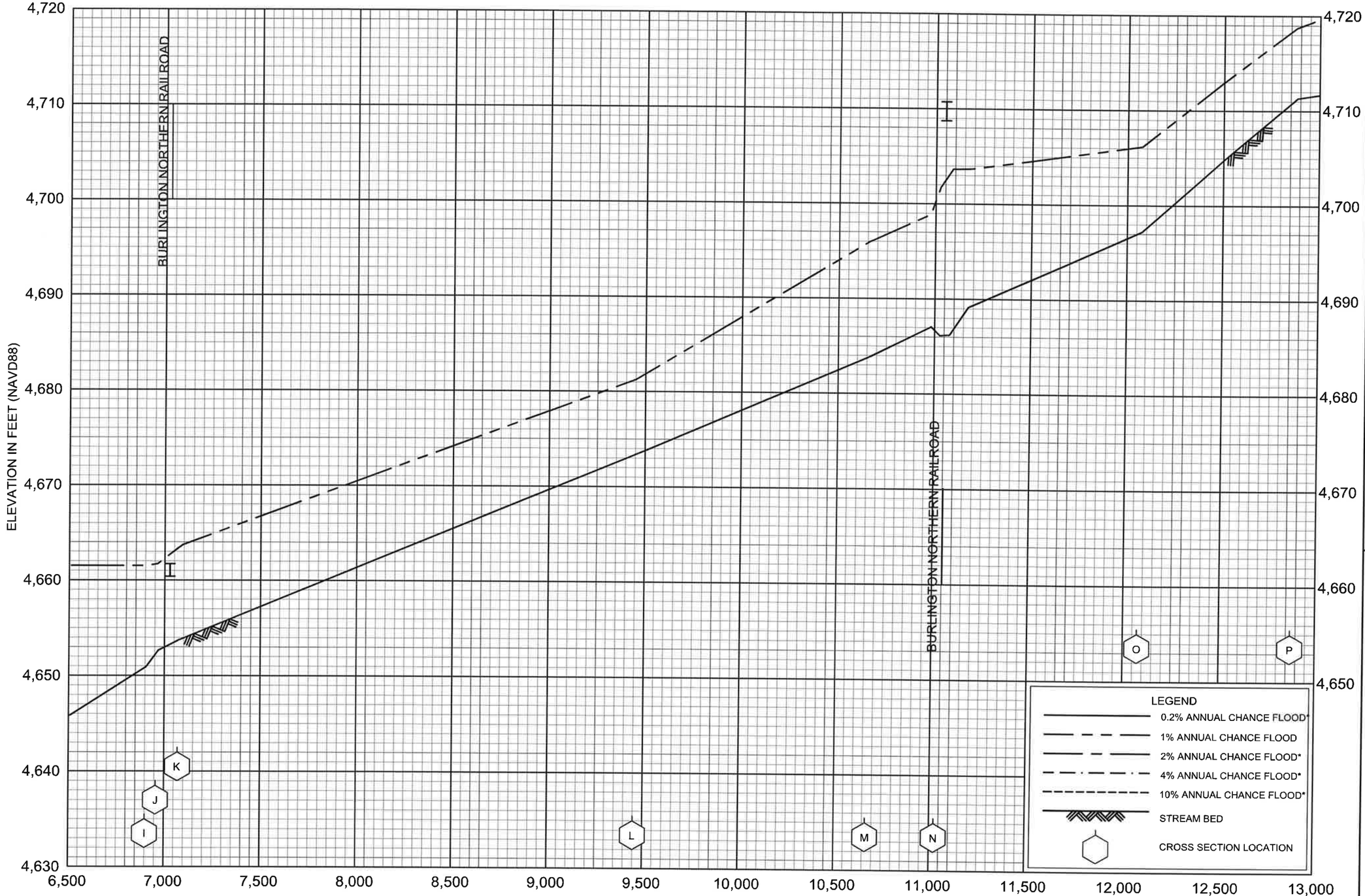
SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

39P



FLOOD PROFILES

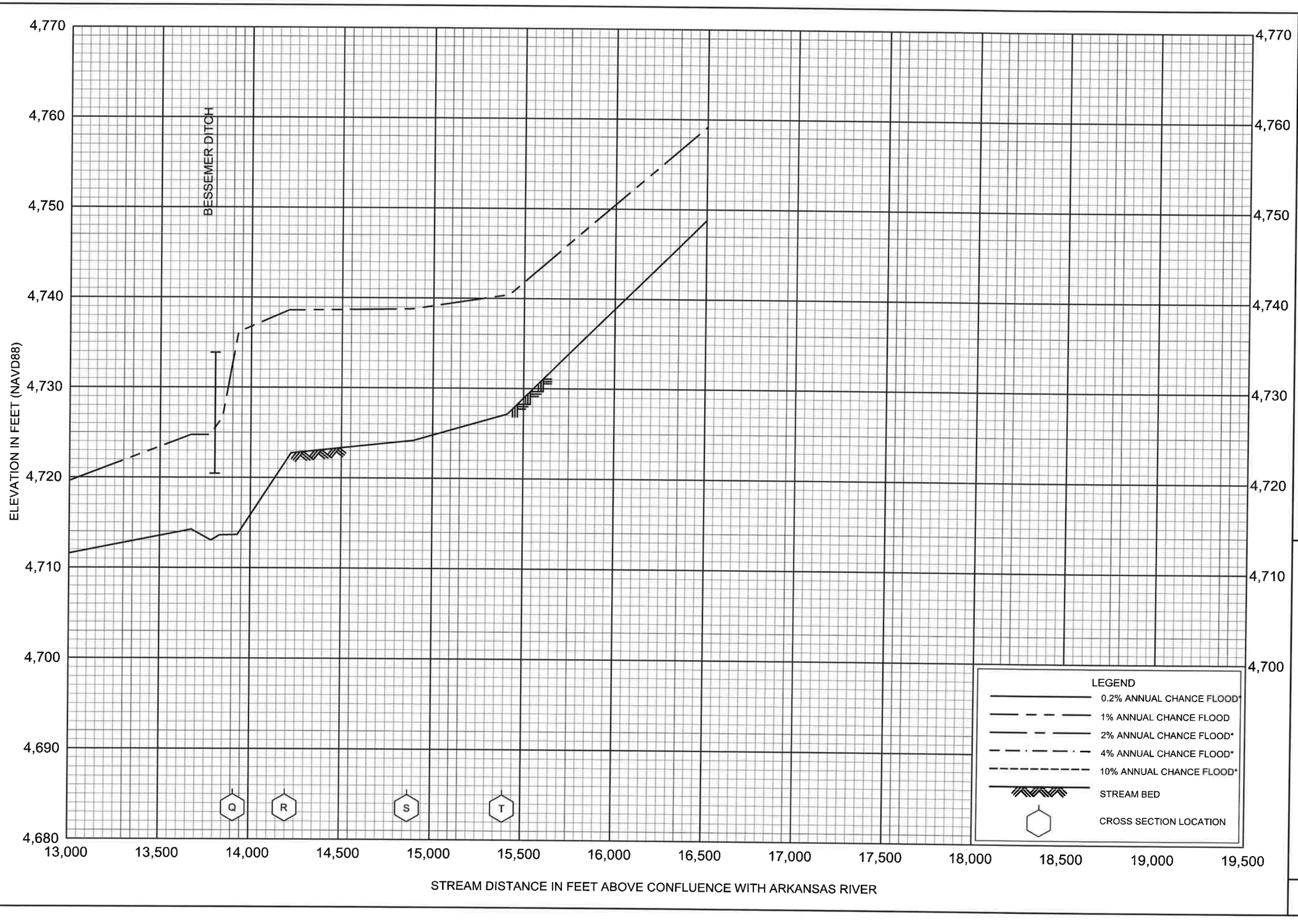
SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

40P



FLOOD PROFILES

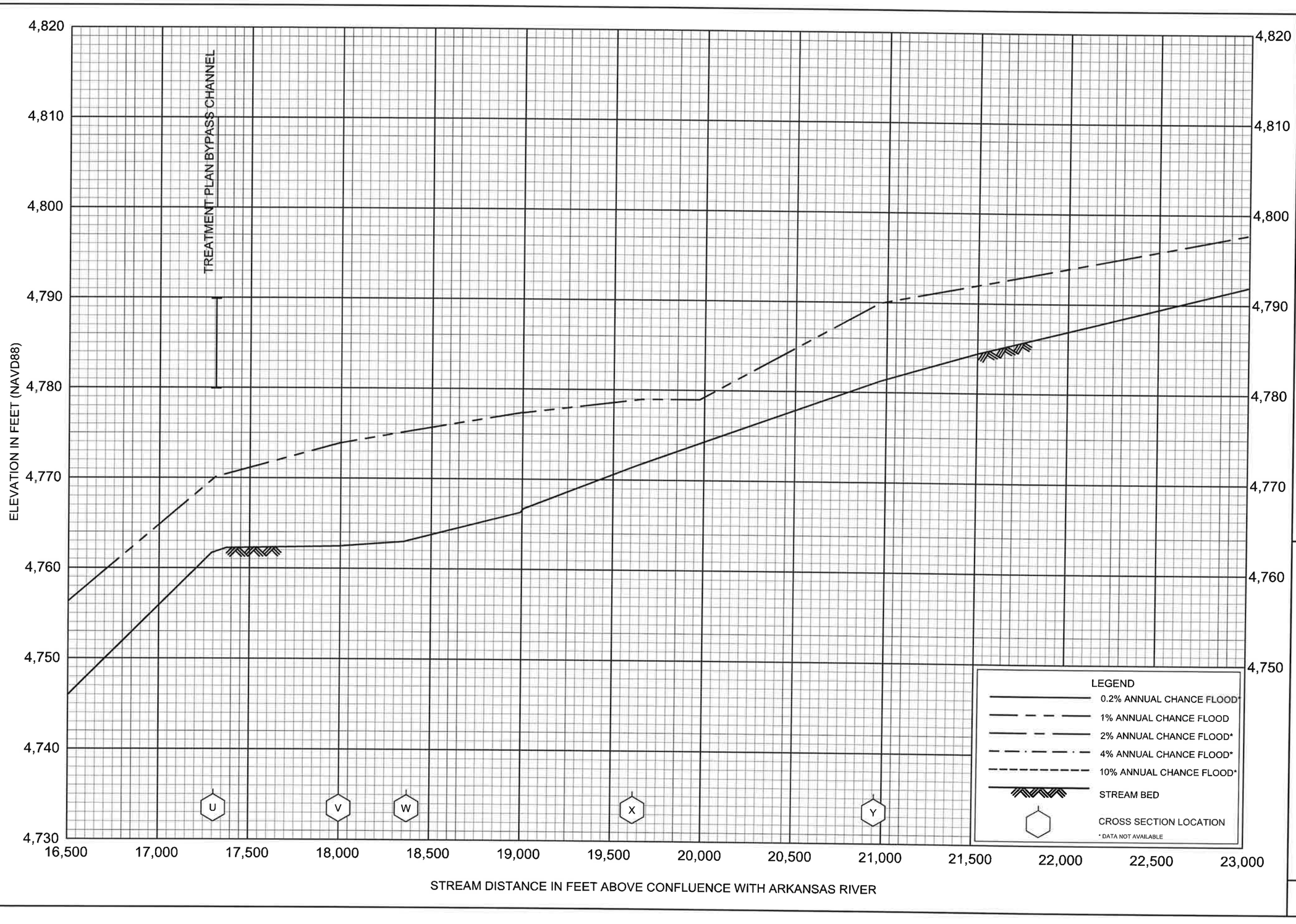
SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

41P



FLOOD PROFILES

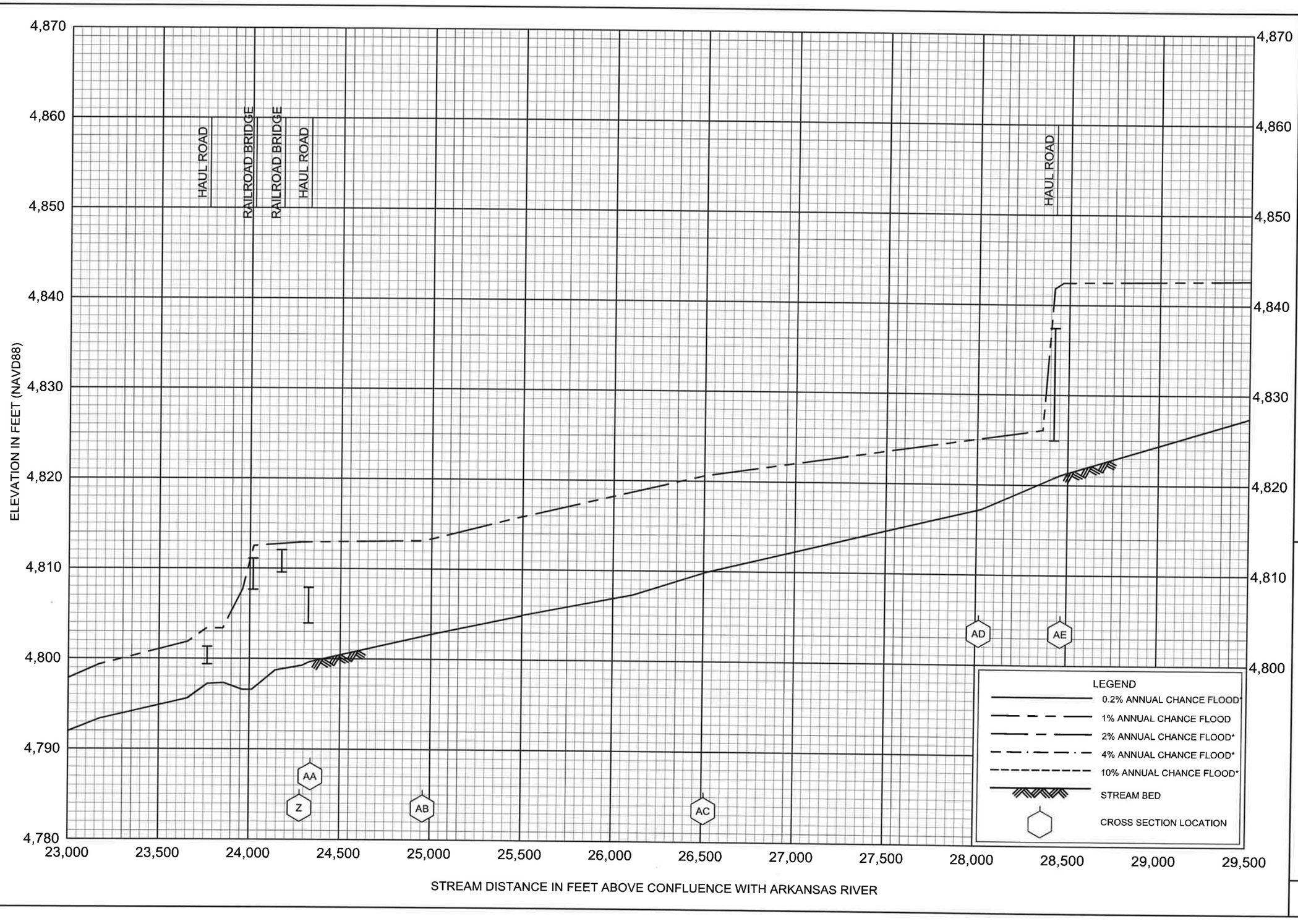
SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

42P



FLOOD PROFILES

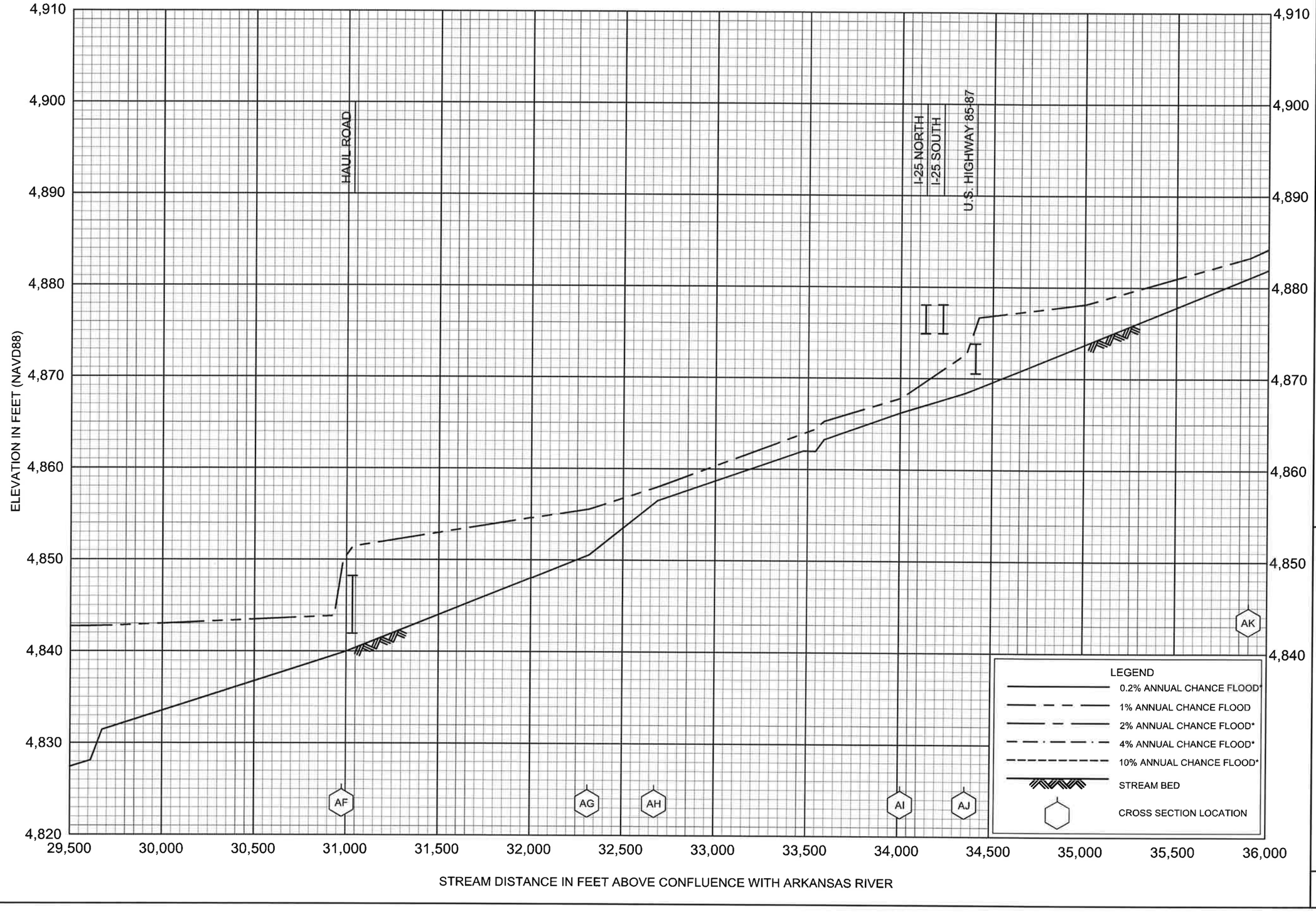
SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

43P



FLOOD PROFILES

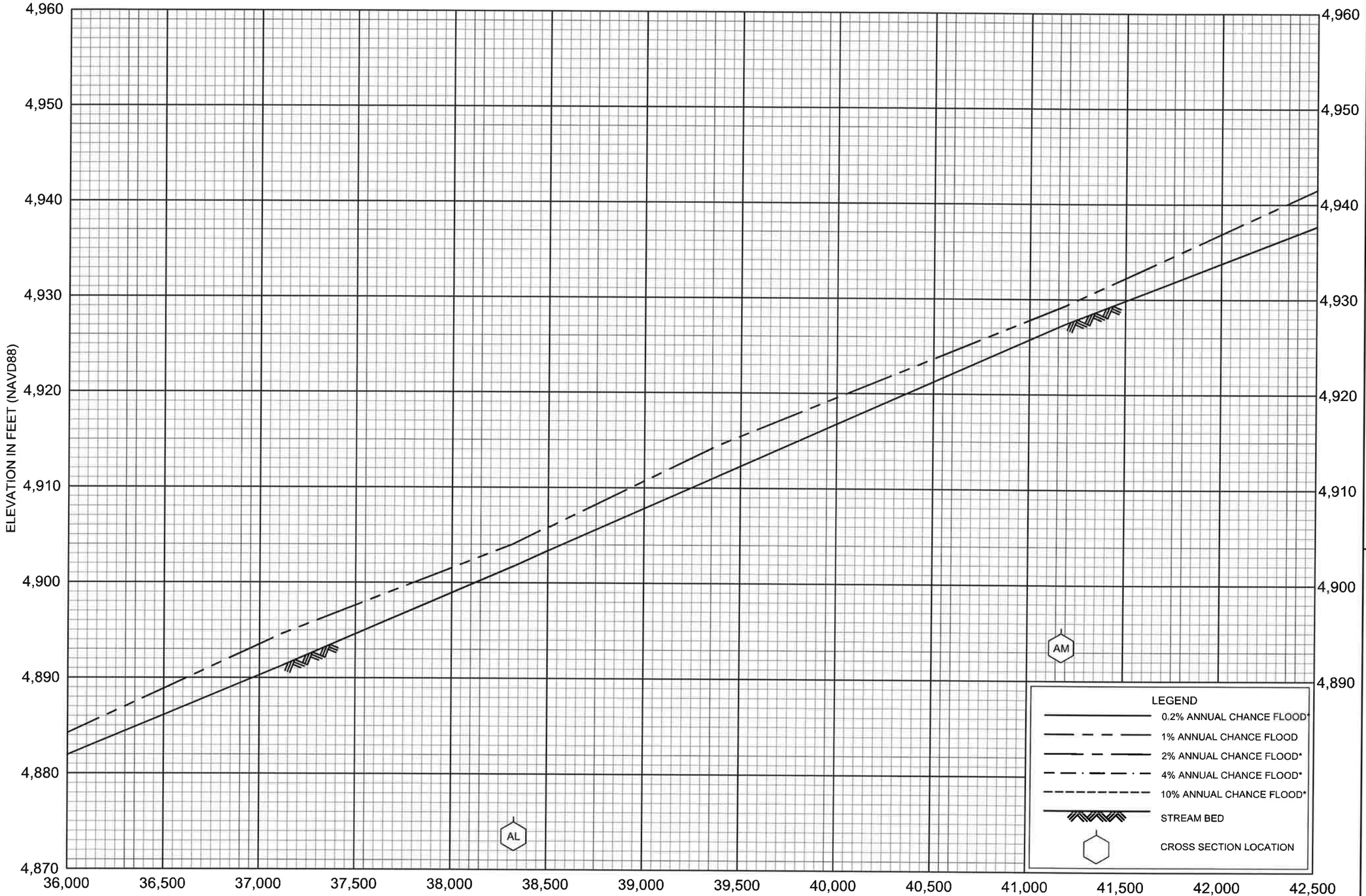
SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

44P



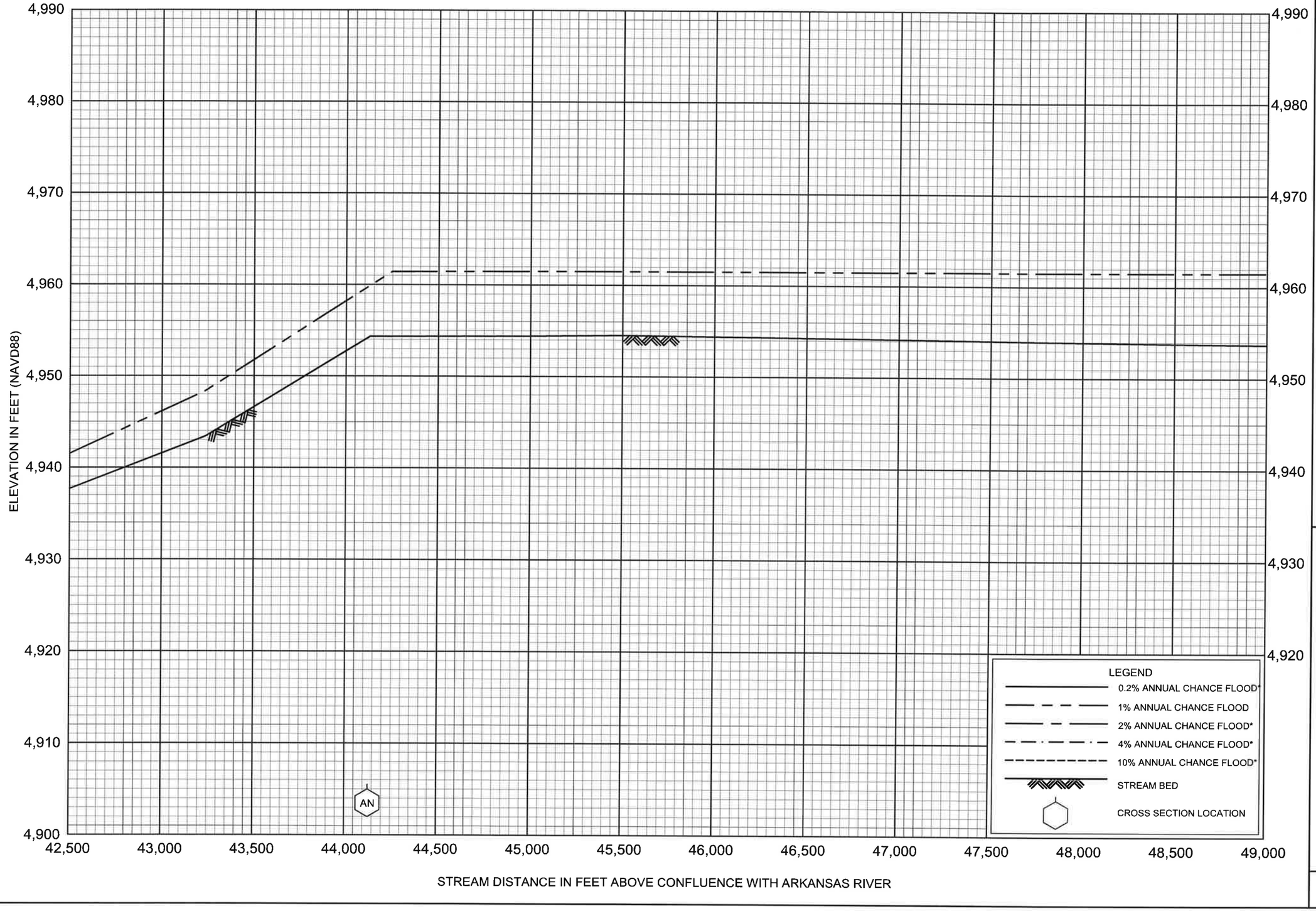
FLOOD PROFILES

SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

45P



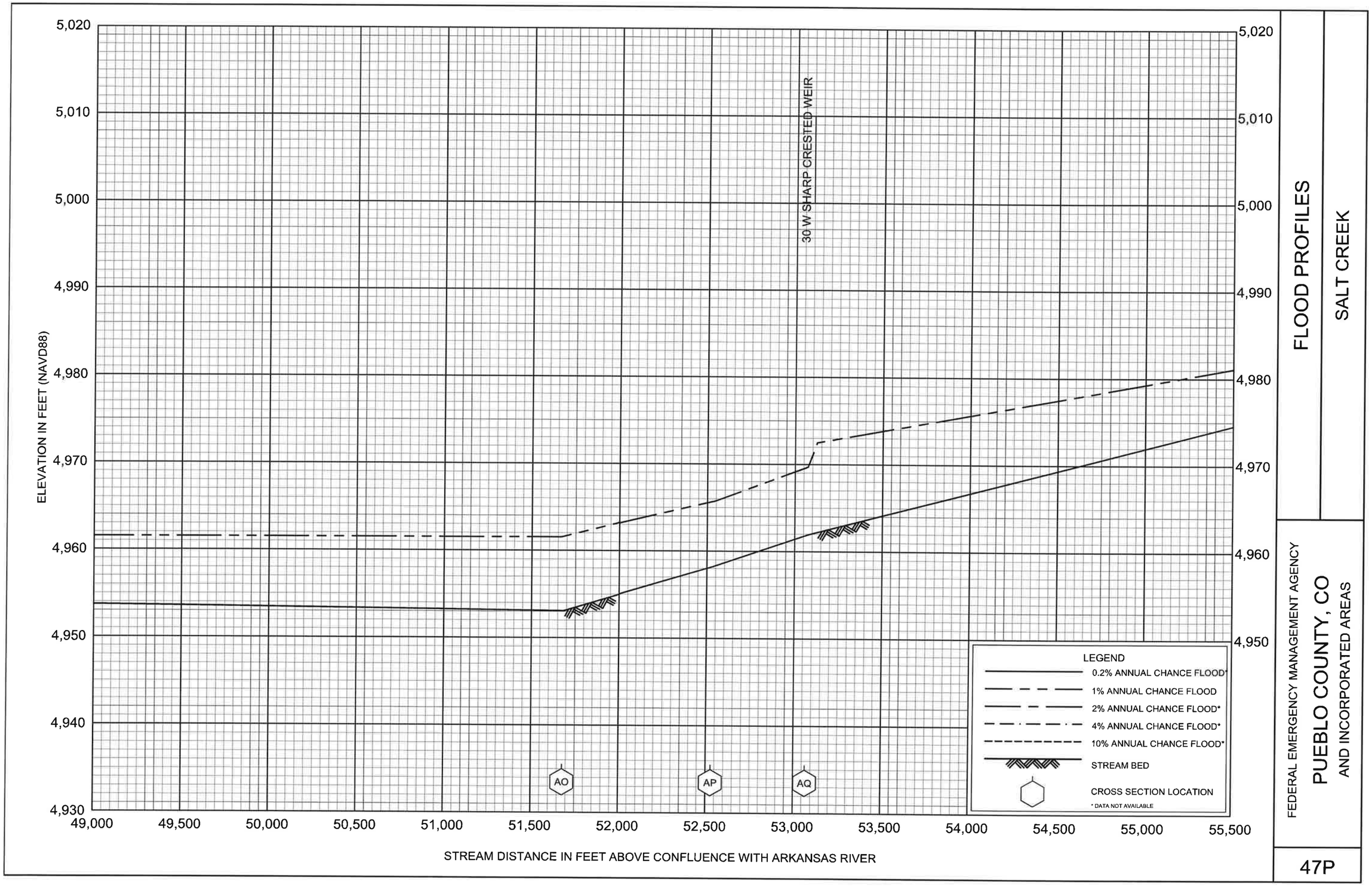
FLOOD PROFILES

SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

46P



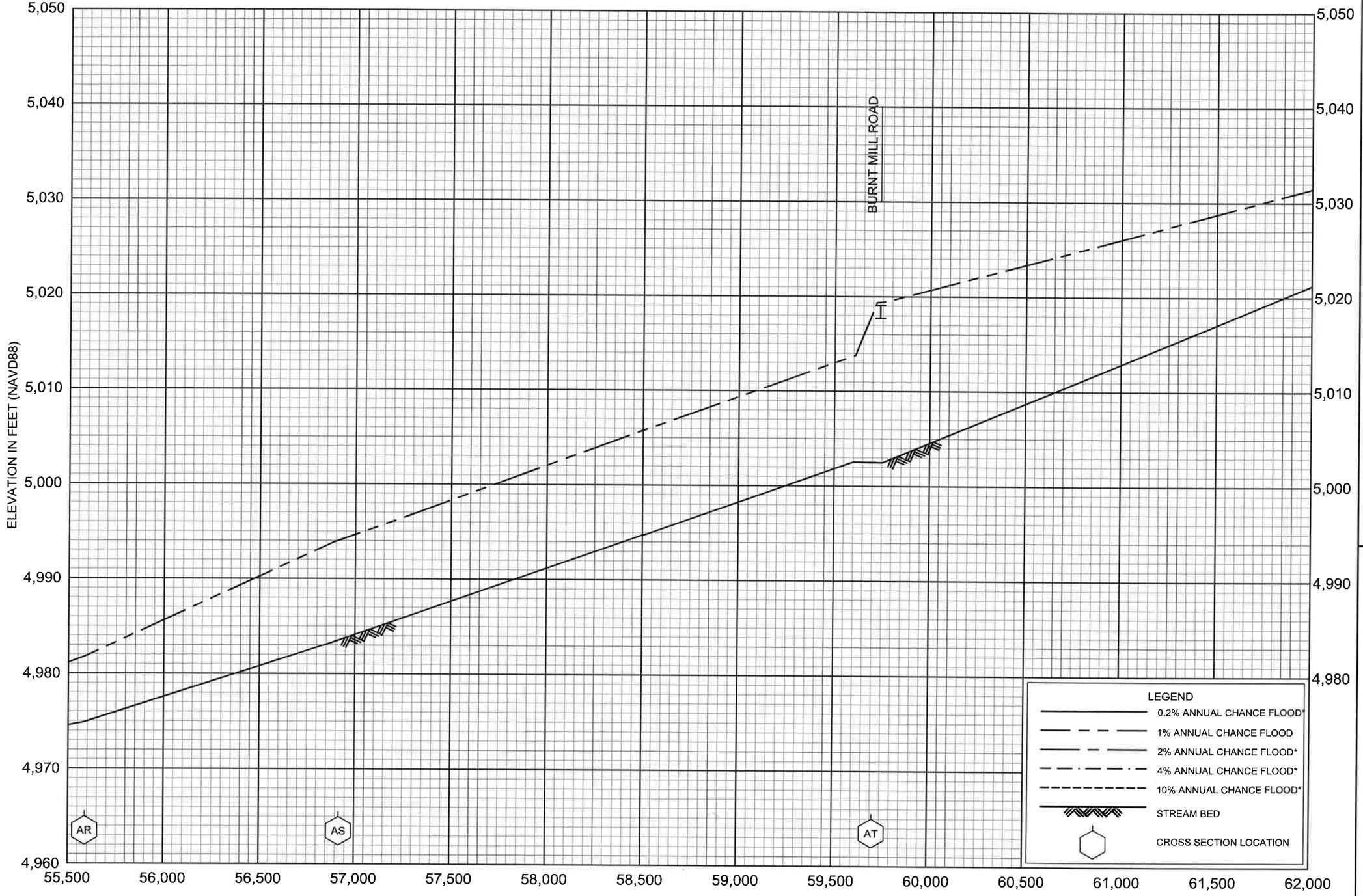
FLOOD PROFILES

SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

47P



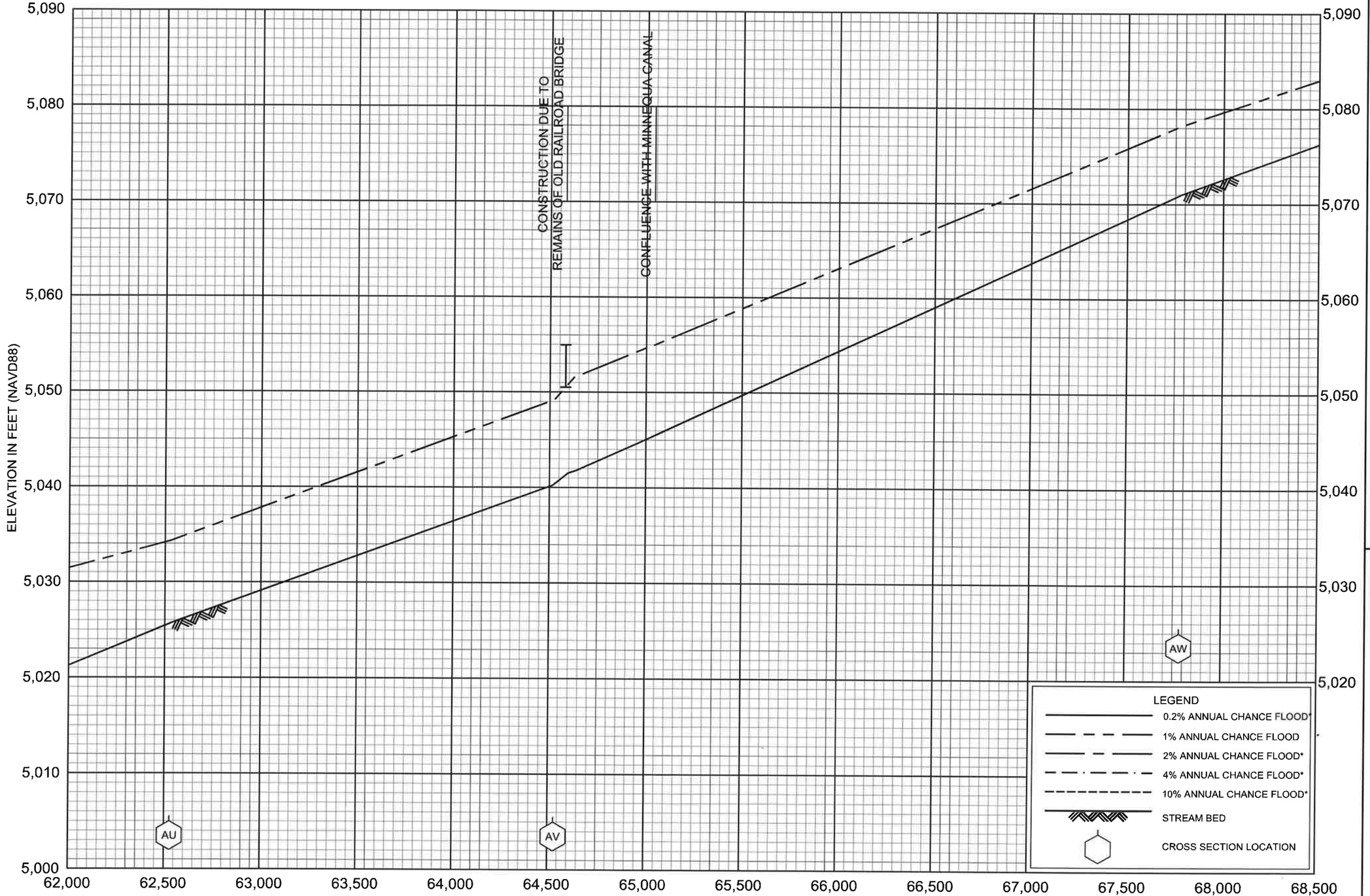
FLOOD PROFILES

SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS



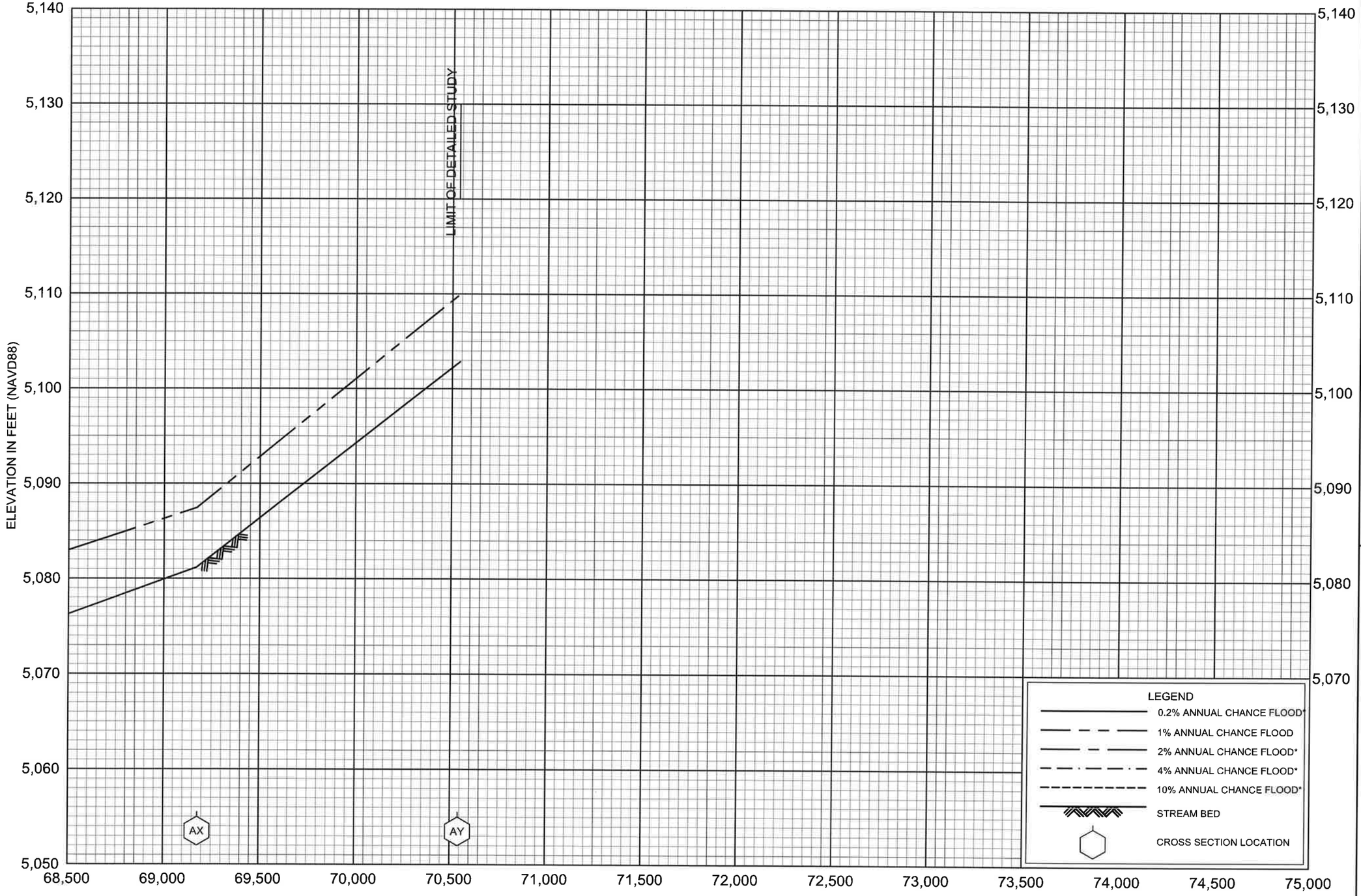
FLOOD PROFILES

SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

49P



FLOOD PROFILES

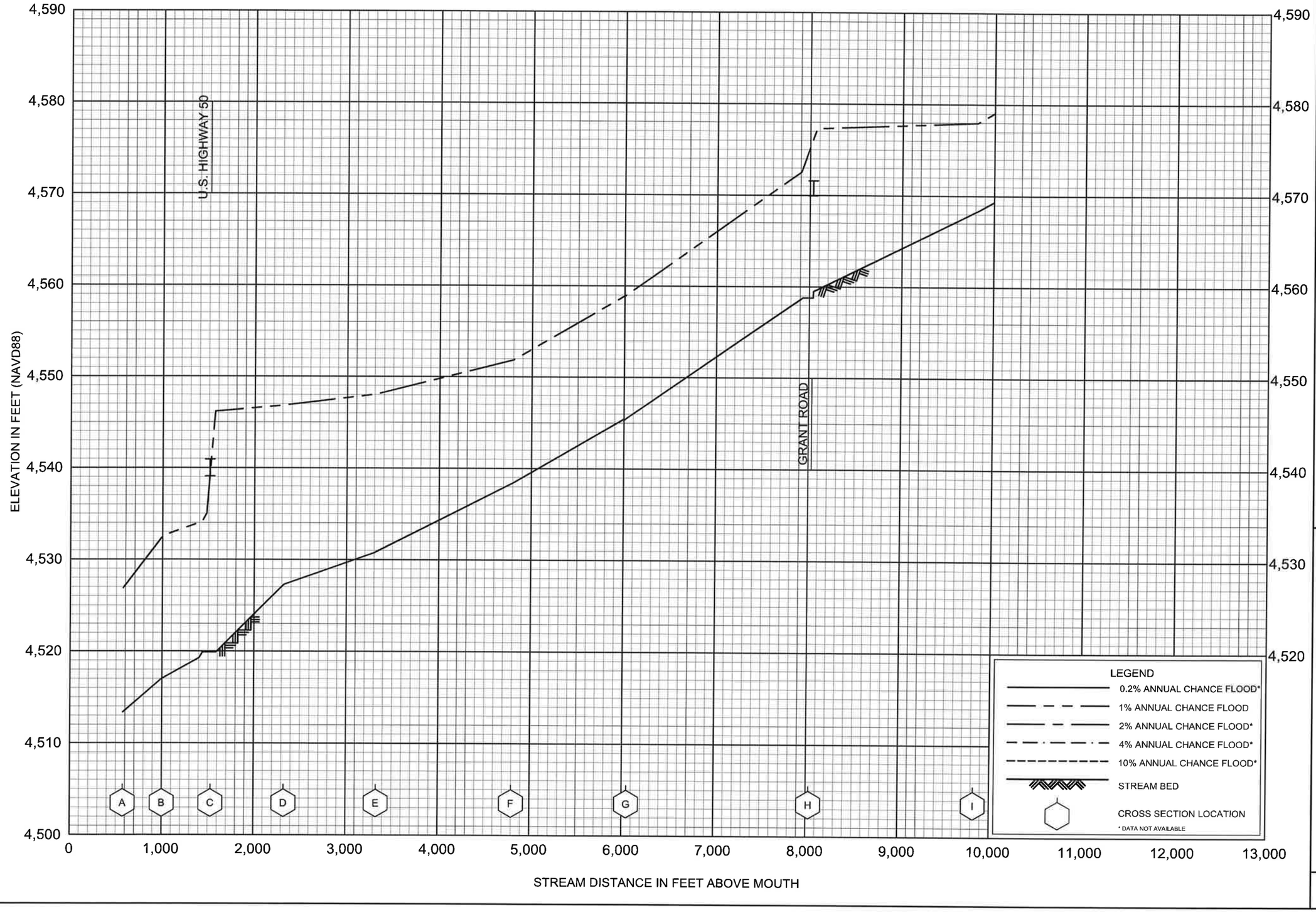
SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

50P



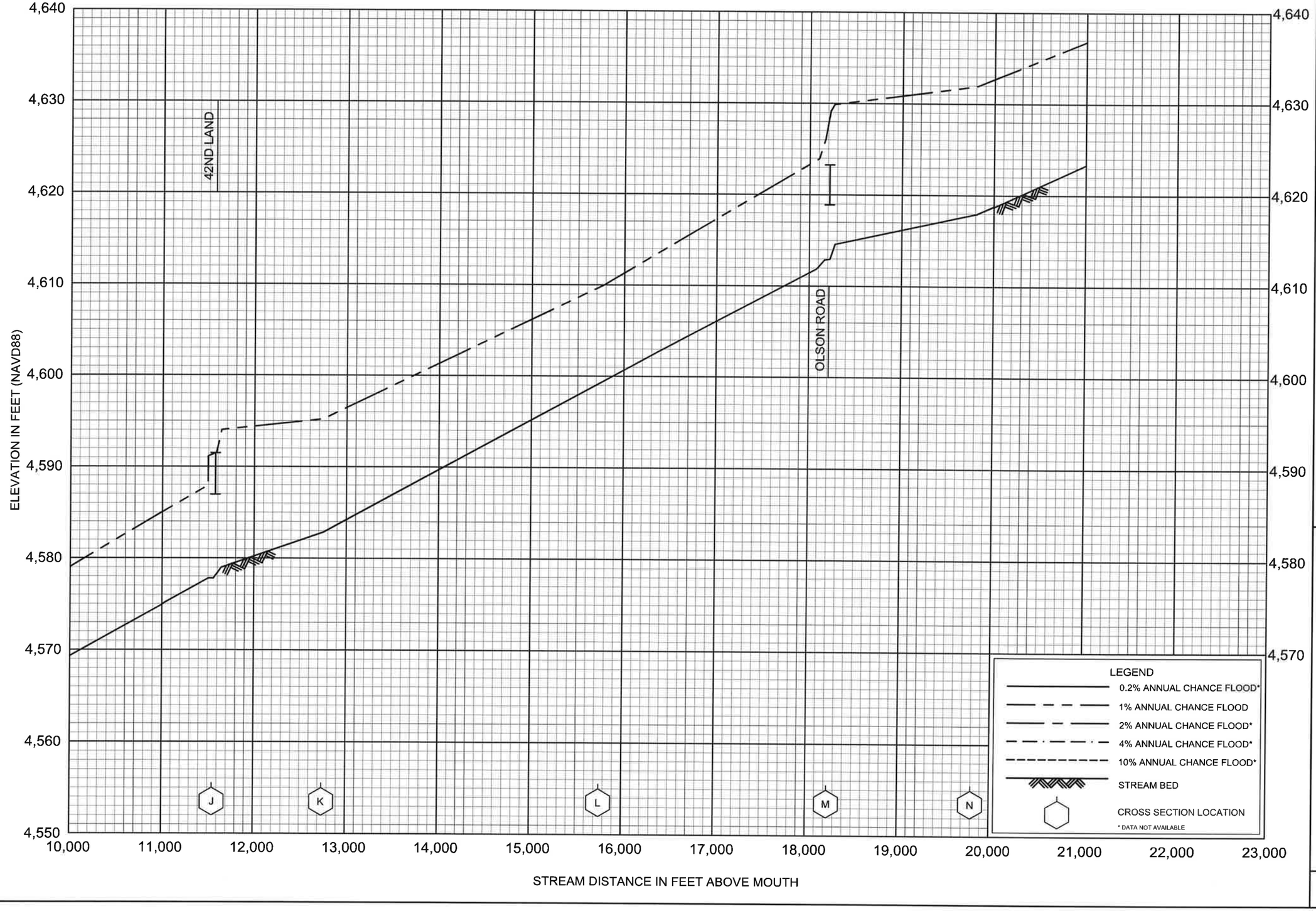
FLOOD PROFILES

SIXMILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

51P



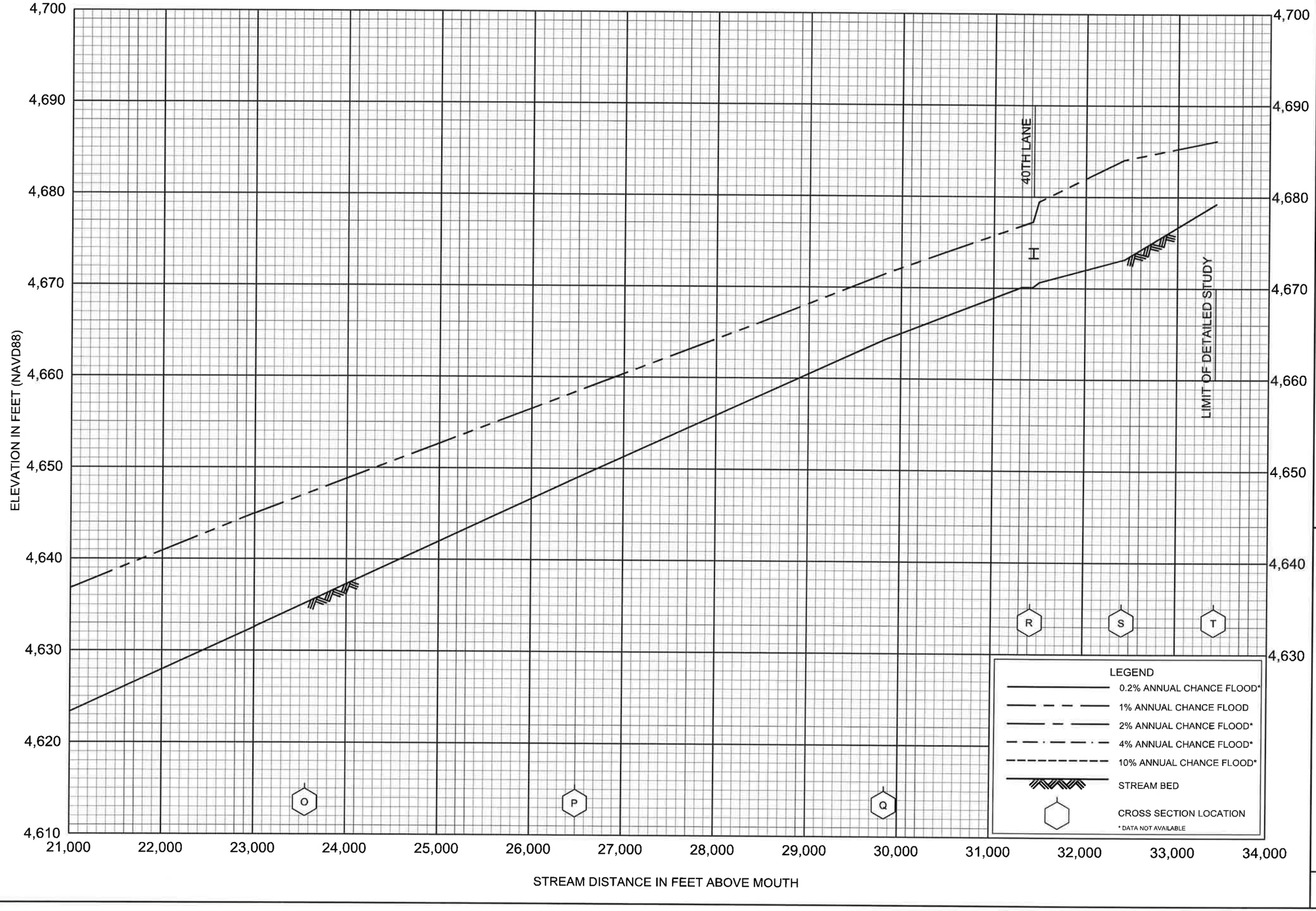
FLOOD PROFILES

SIXMILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

52P



FLOOD PROFILES

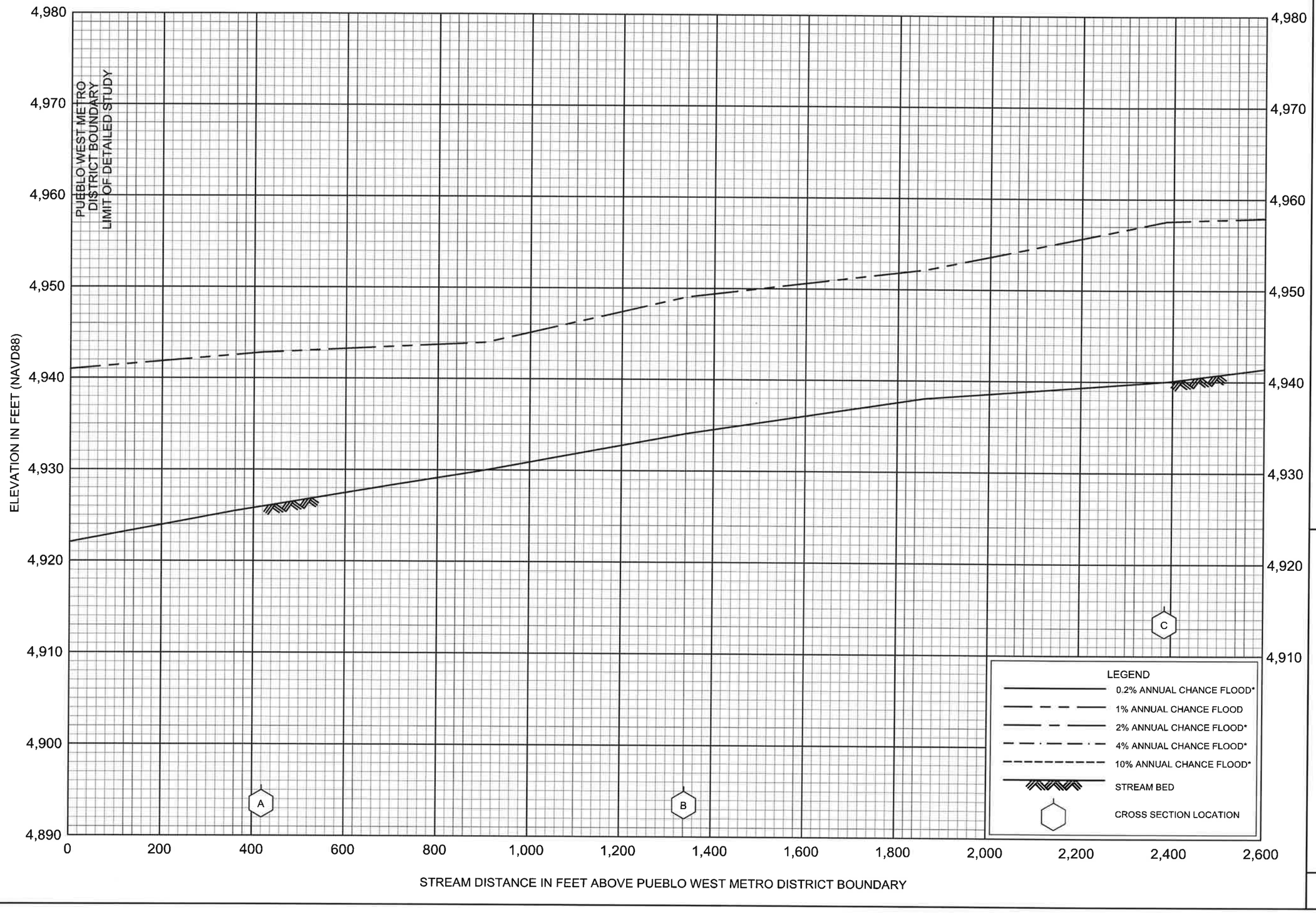
SIXMILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

53P



FLOOD PROFILES

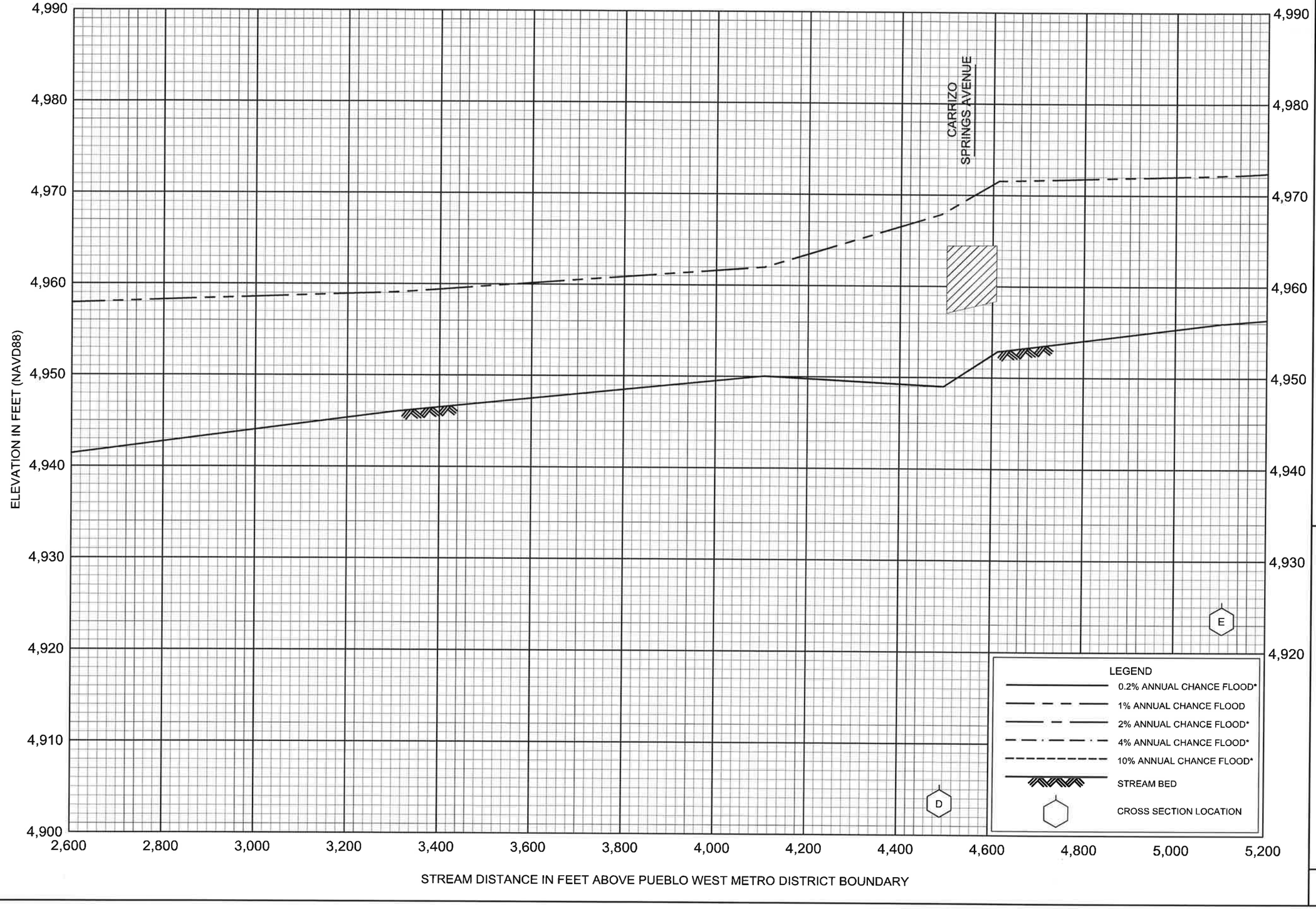
TURKEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

54P



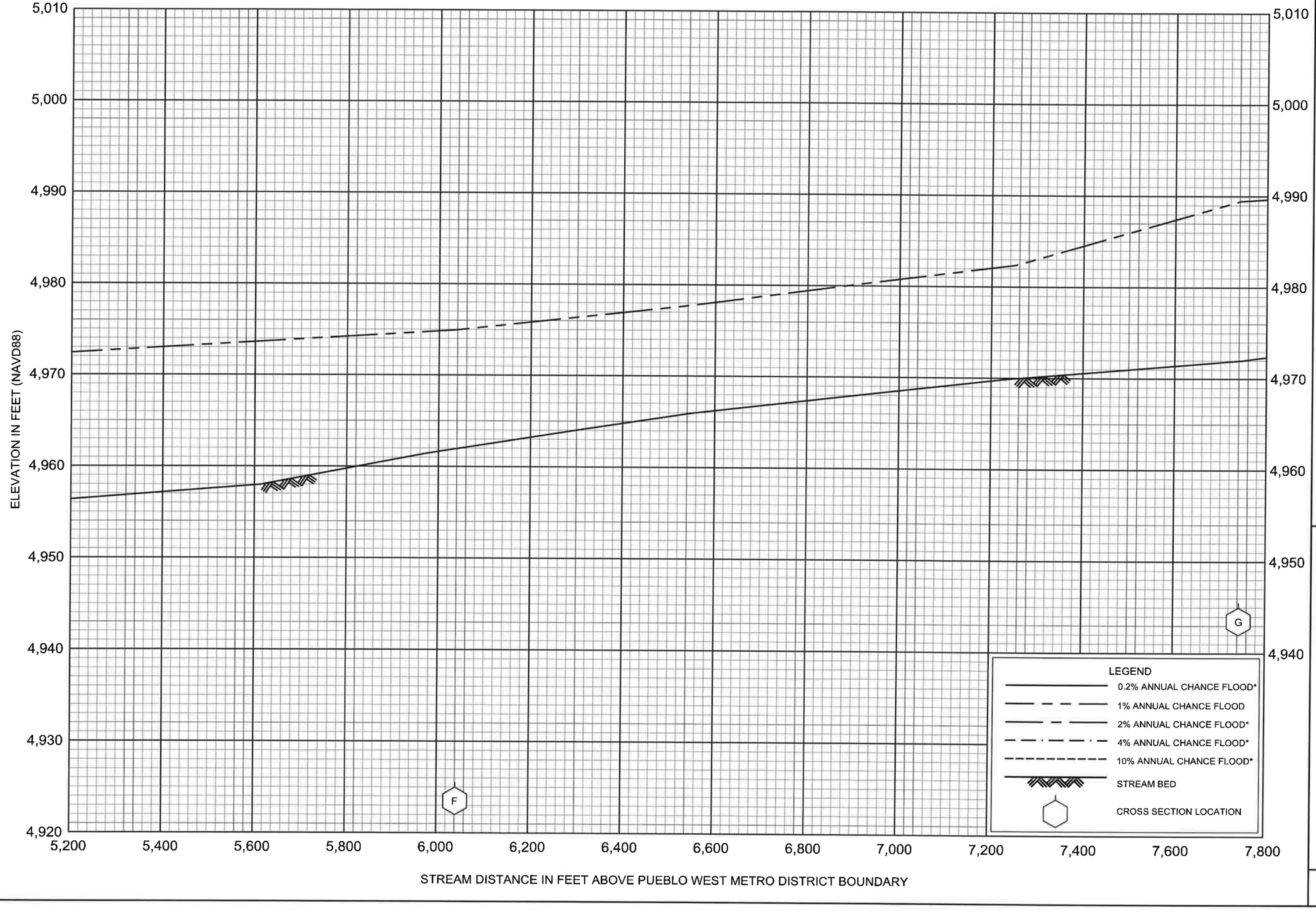
FLOOD PROFILES

TURKEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

55P

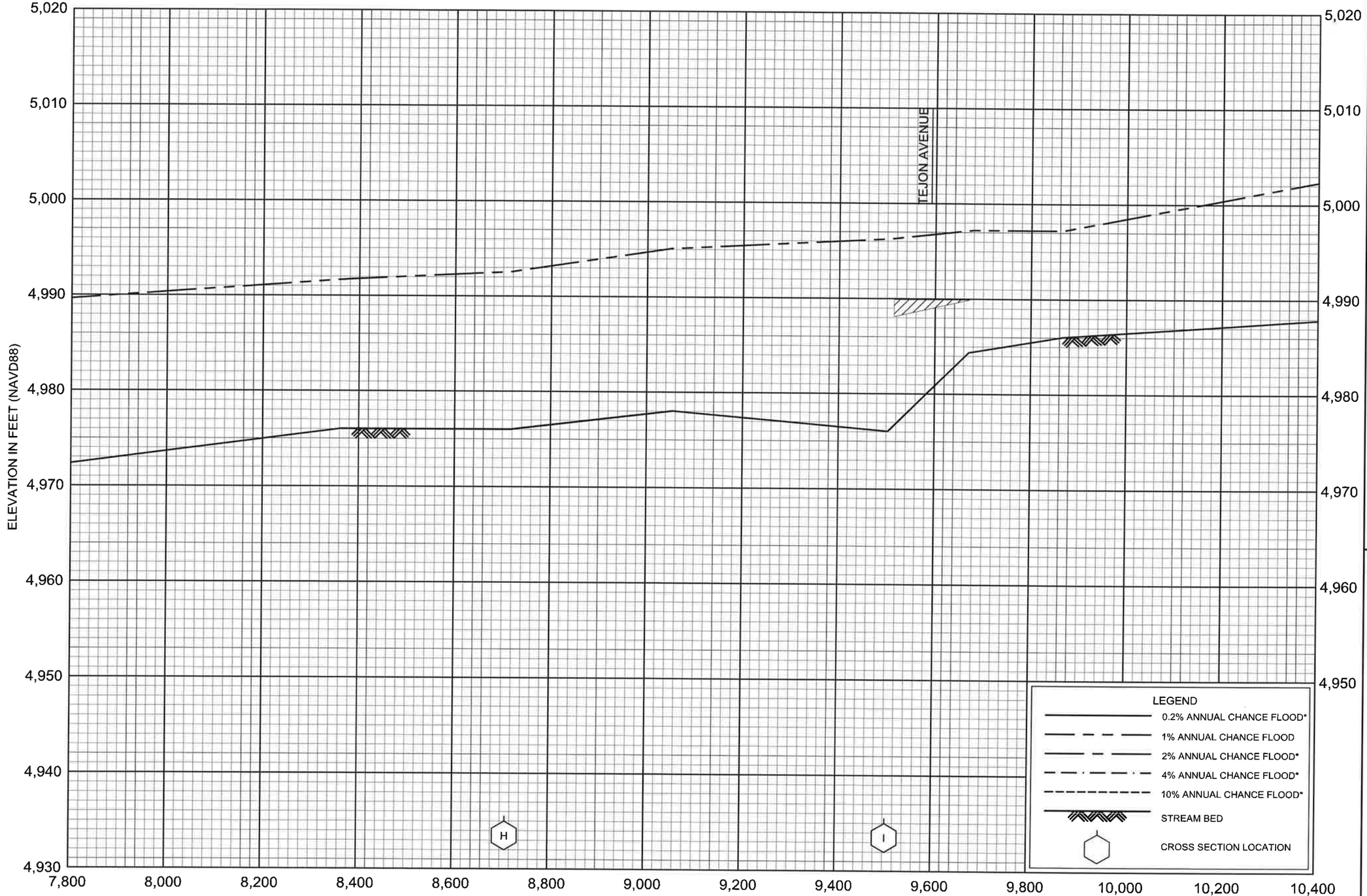


FLOOD PROFILES

TURKEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS



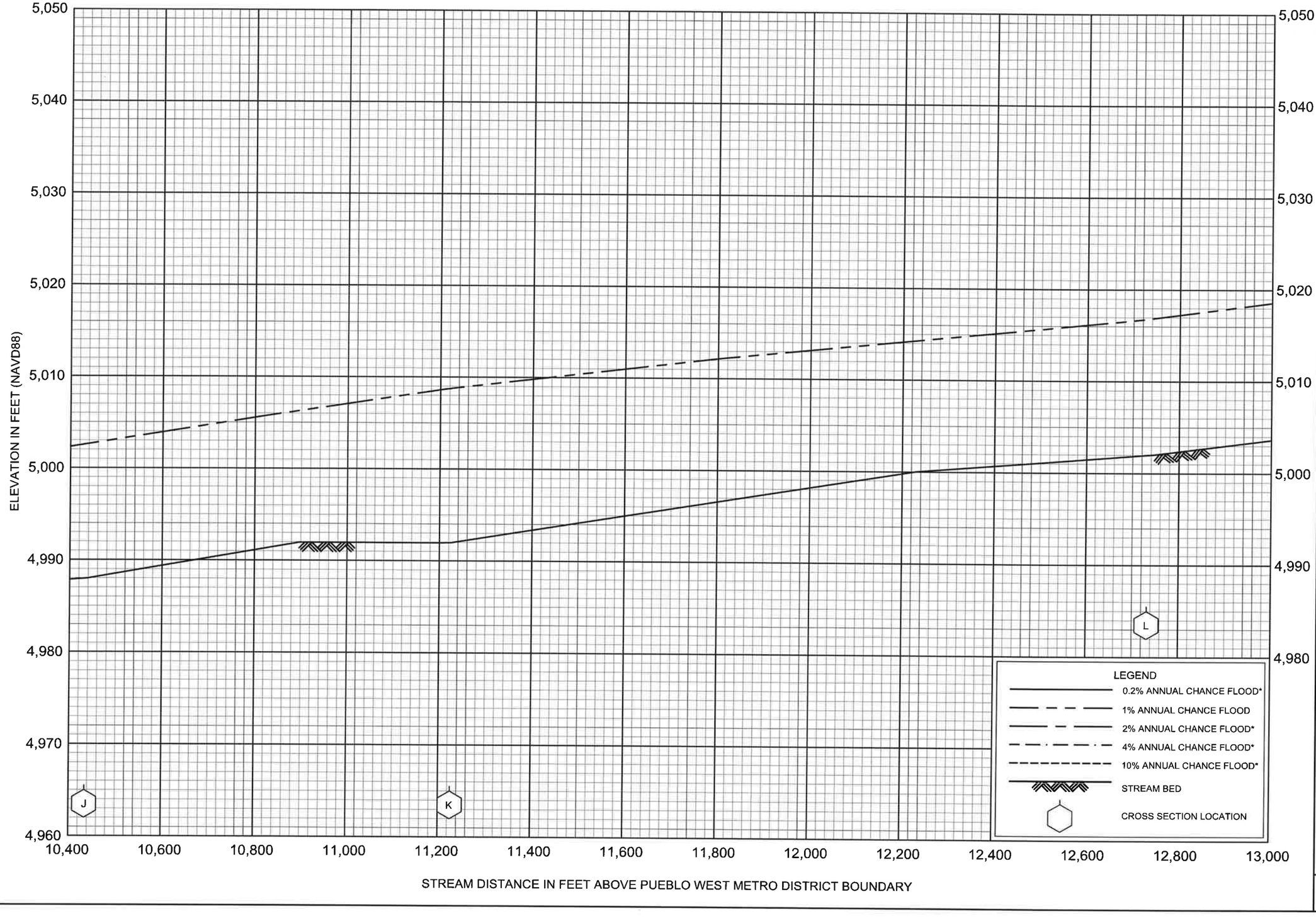
FLOOD PROFILES

TURKEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

57P



FLOOD PROFILES

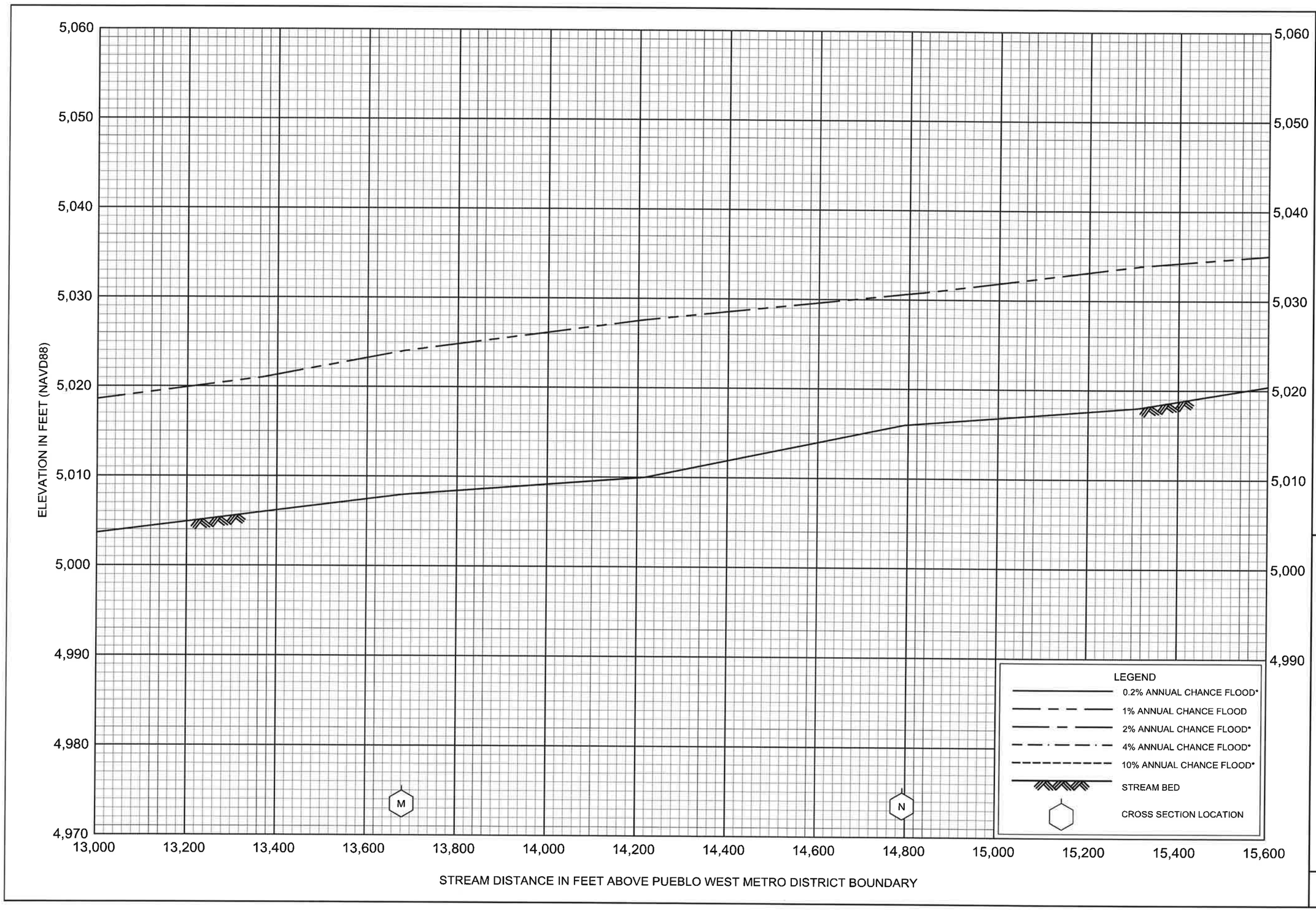
TURKEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

58P



FLOOD PROFILES

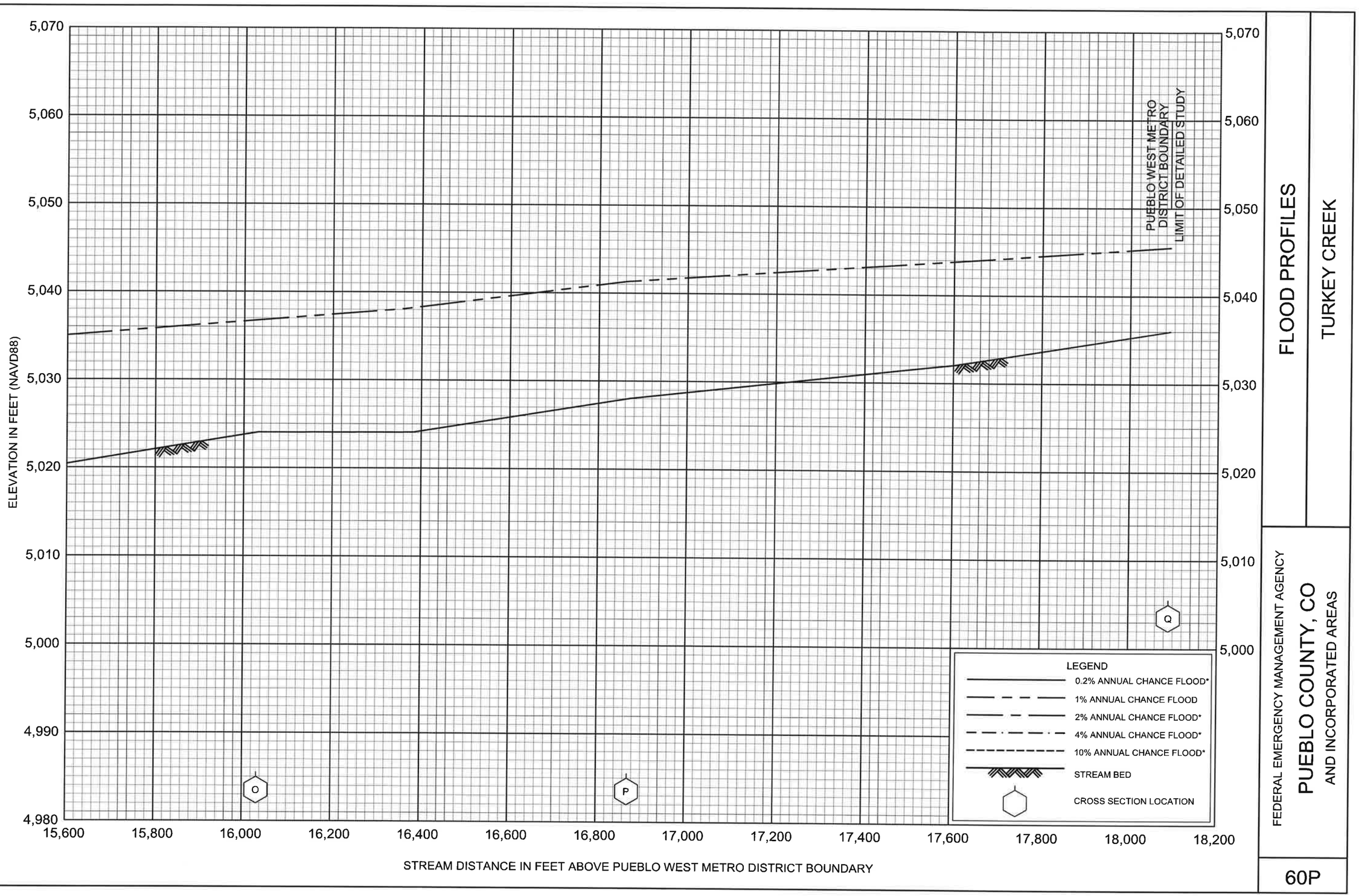
TURKEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

59P



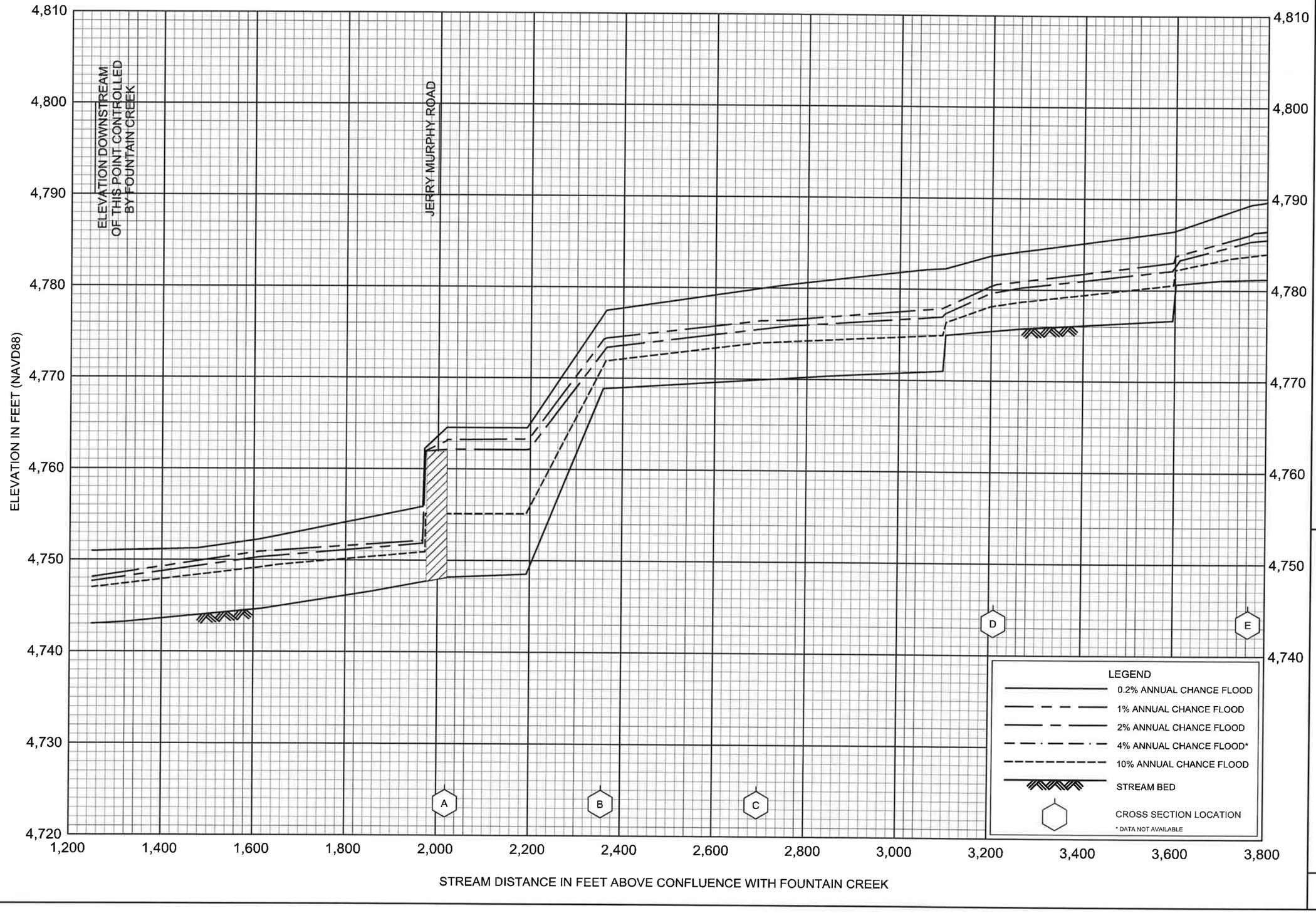
FLOOD PROFILES

TURKEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

60P



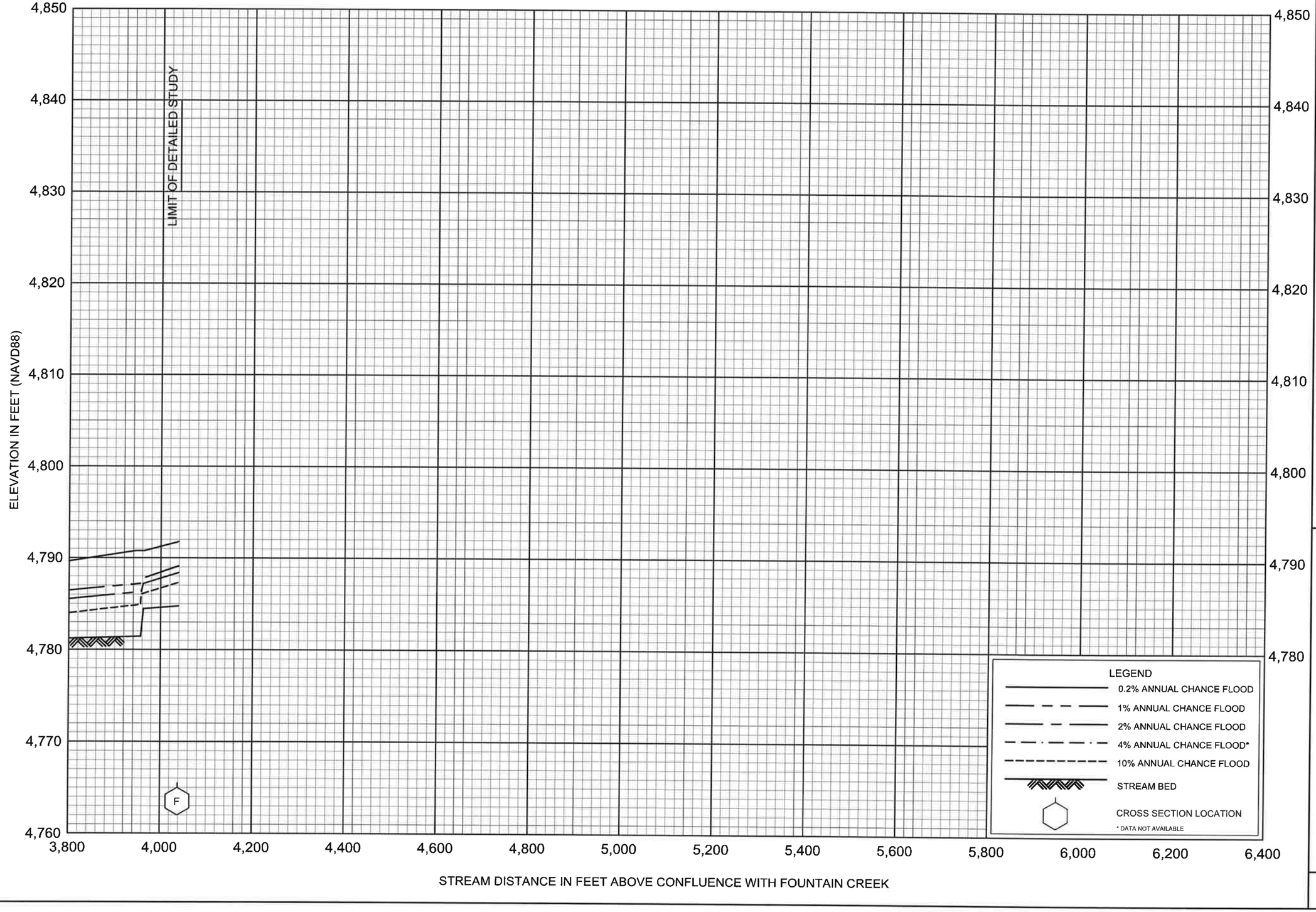
FLOOD PROFILES

UNIVERSITY PARK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

61P



FLOOD PROFILES

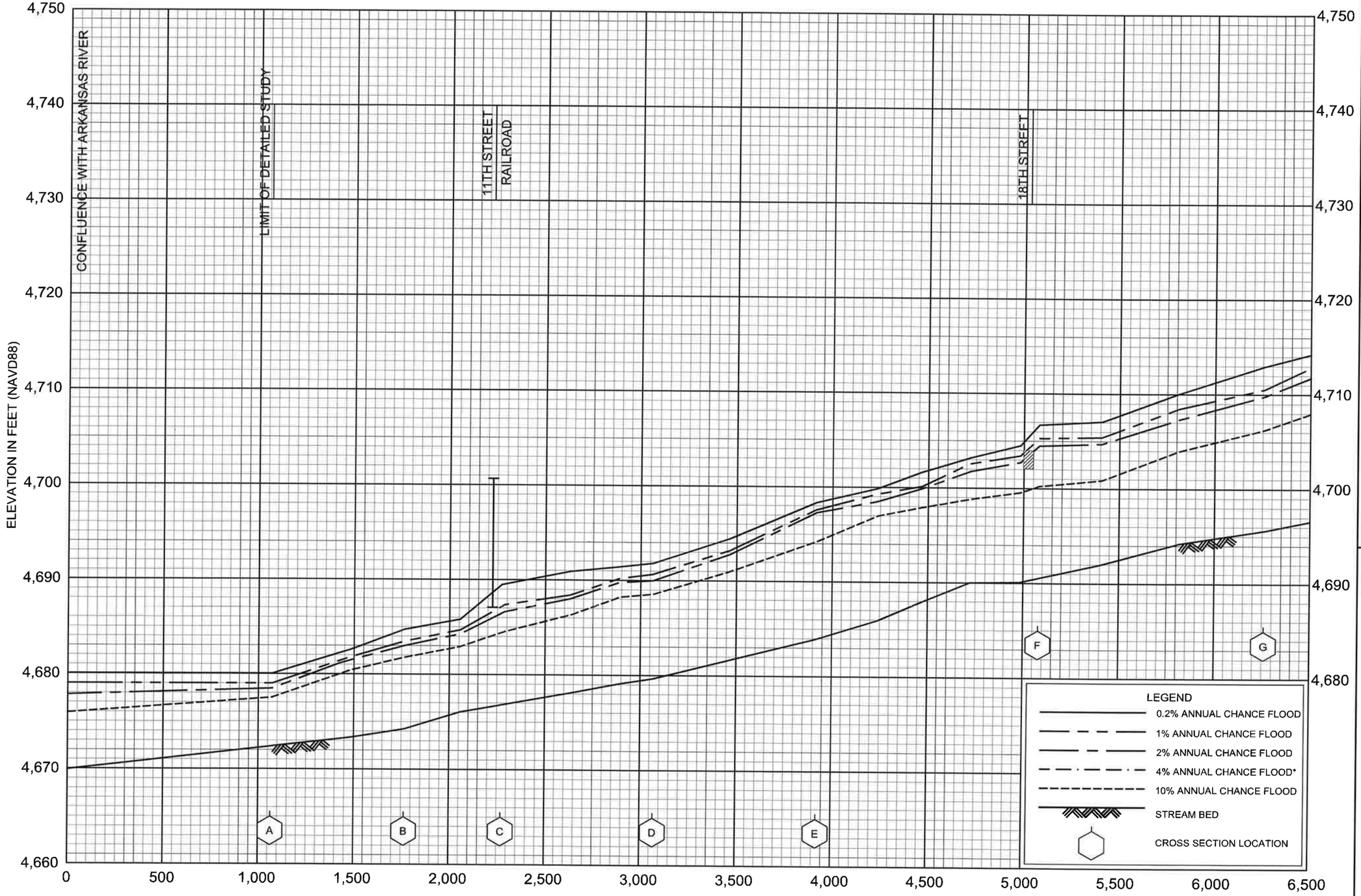
UNIVERSITY PARK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

62P



FLOOD PROFILES

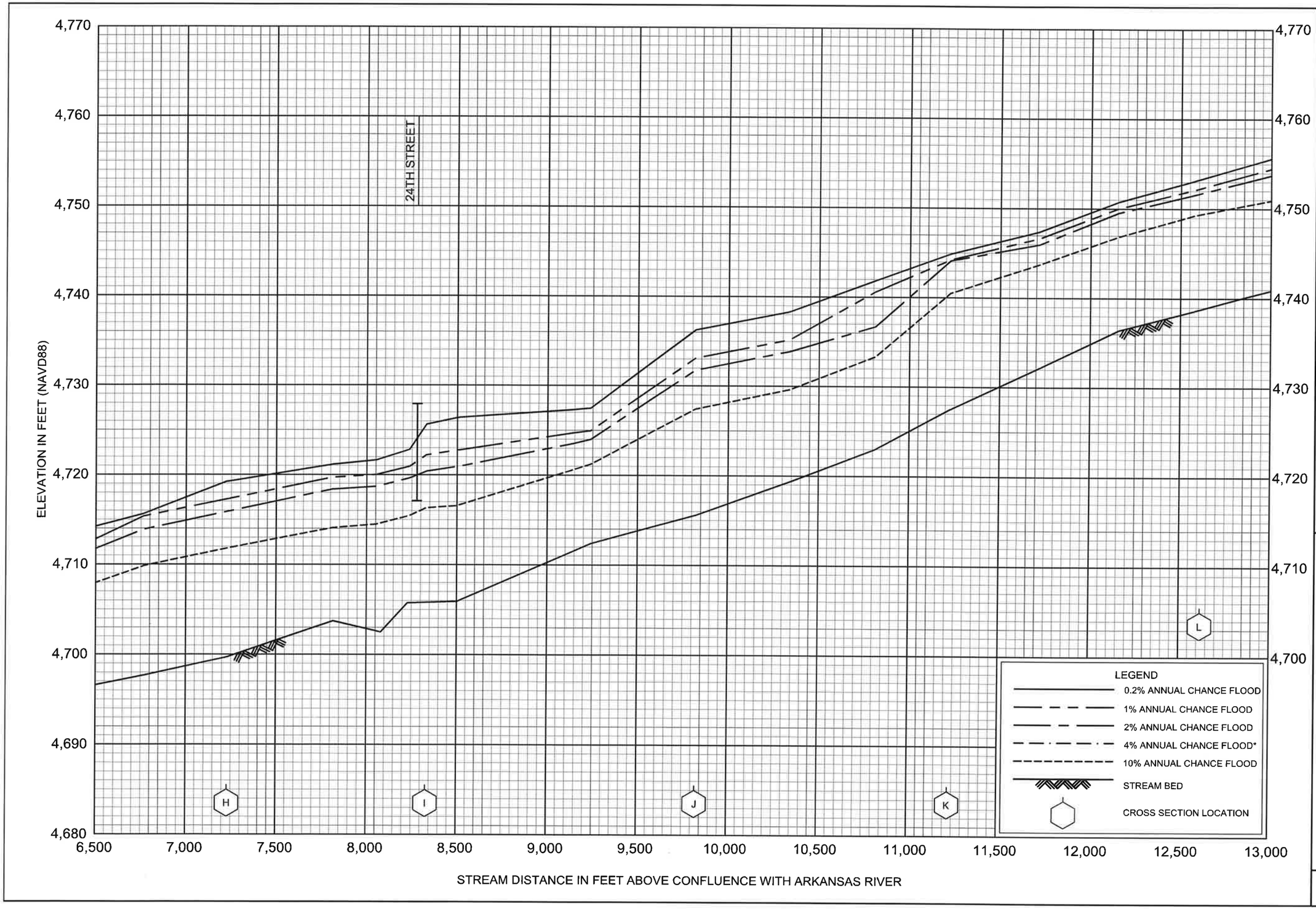
WILD HORSE - DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

63P



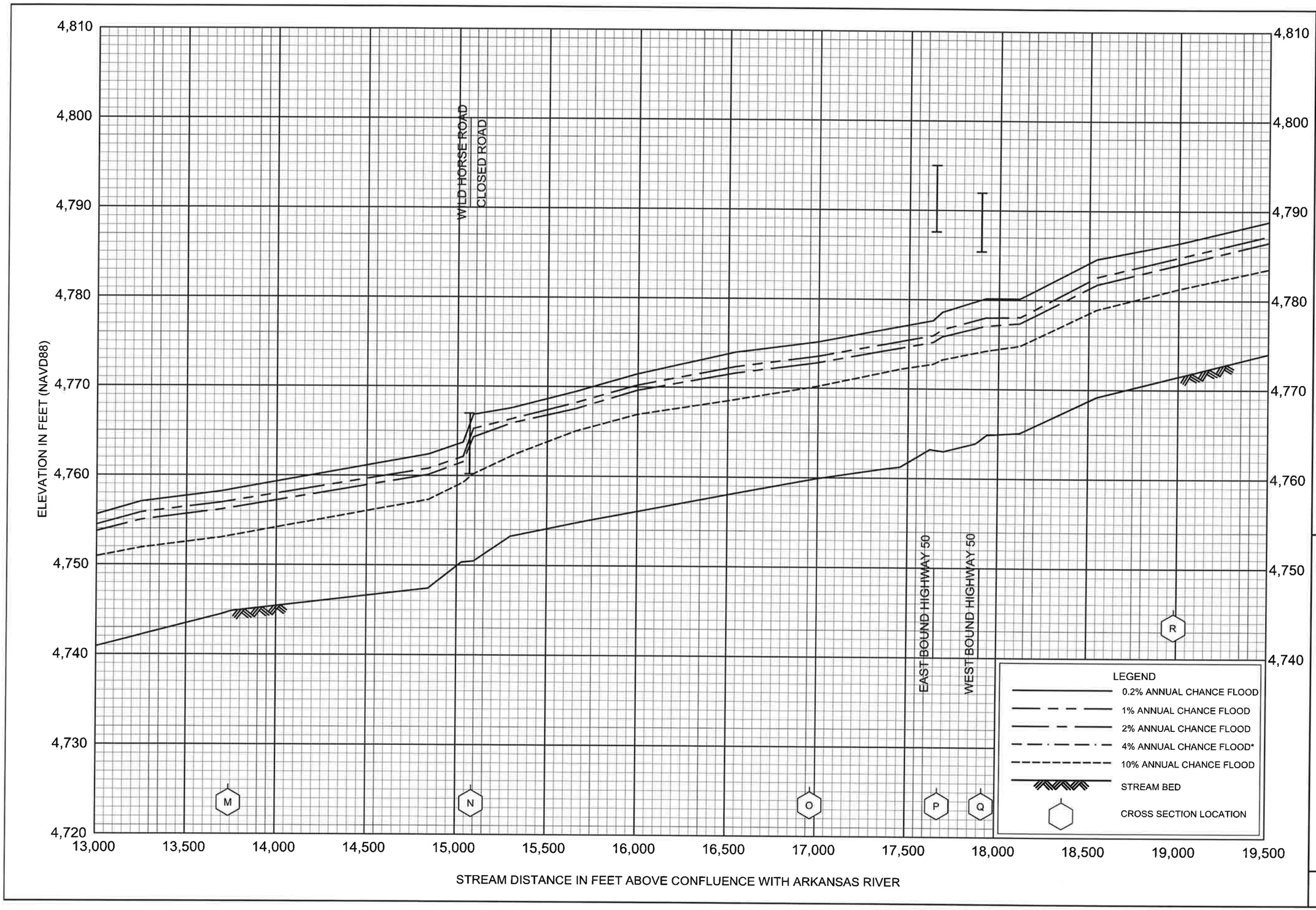
FLOOD PROFILES

WILD HORSE - DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

64P



FLOOD PROFILES

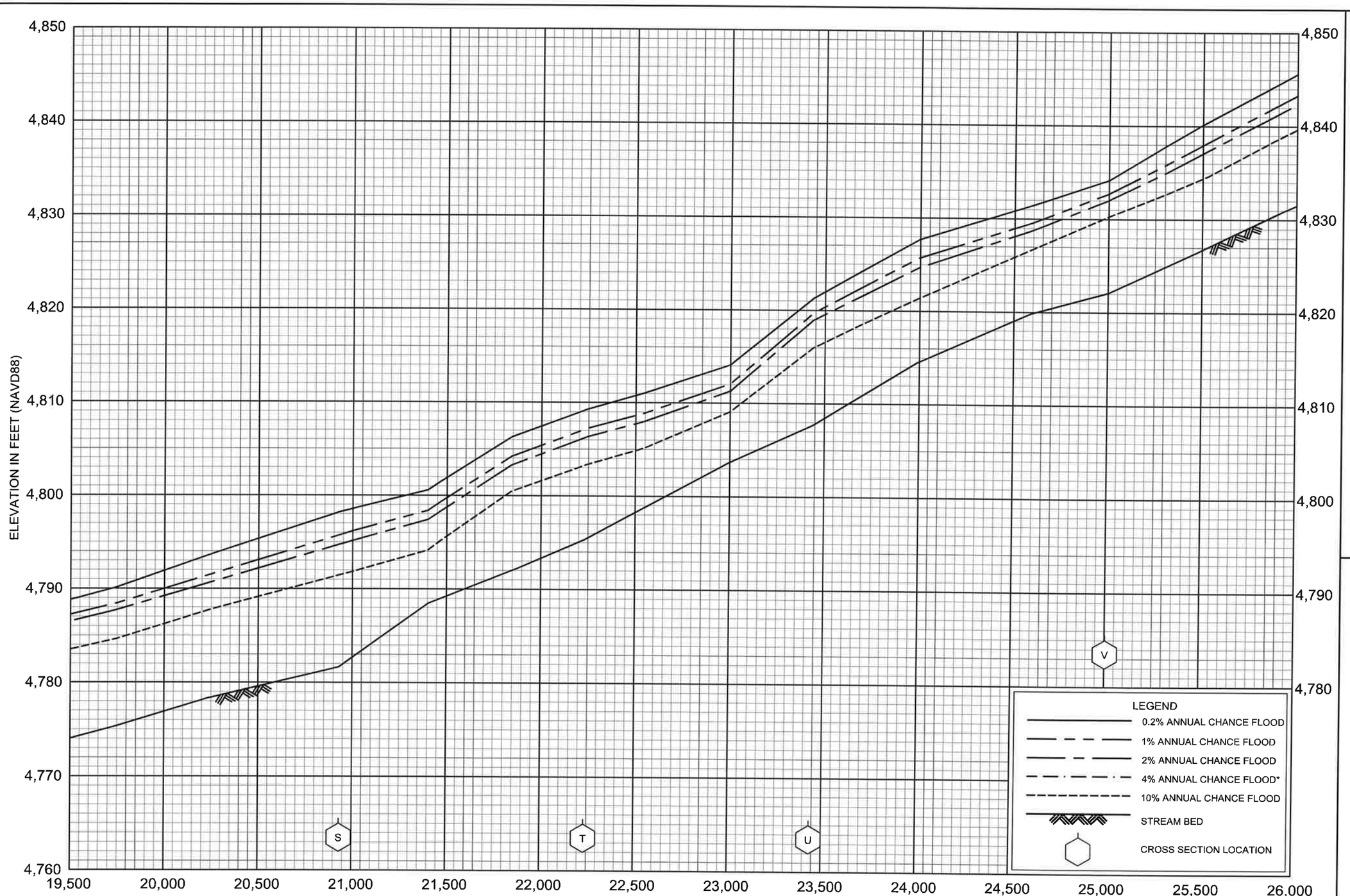
WILD HORSE - DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

65P



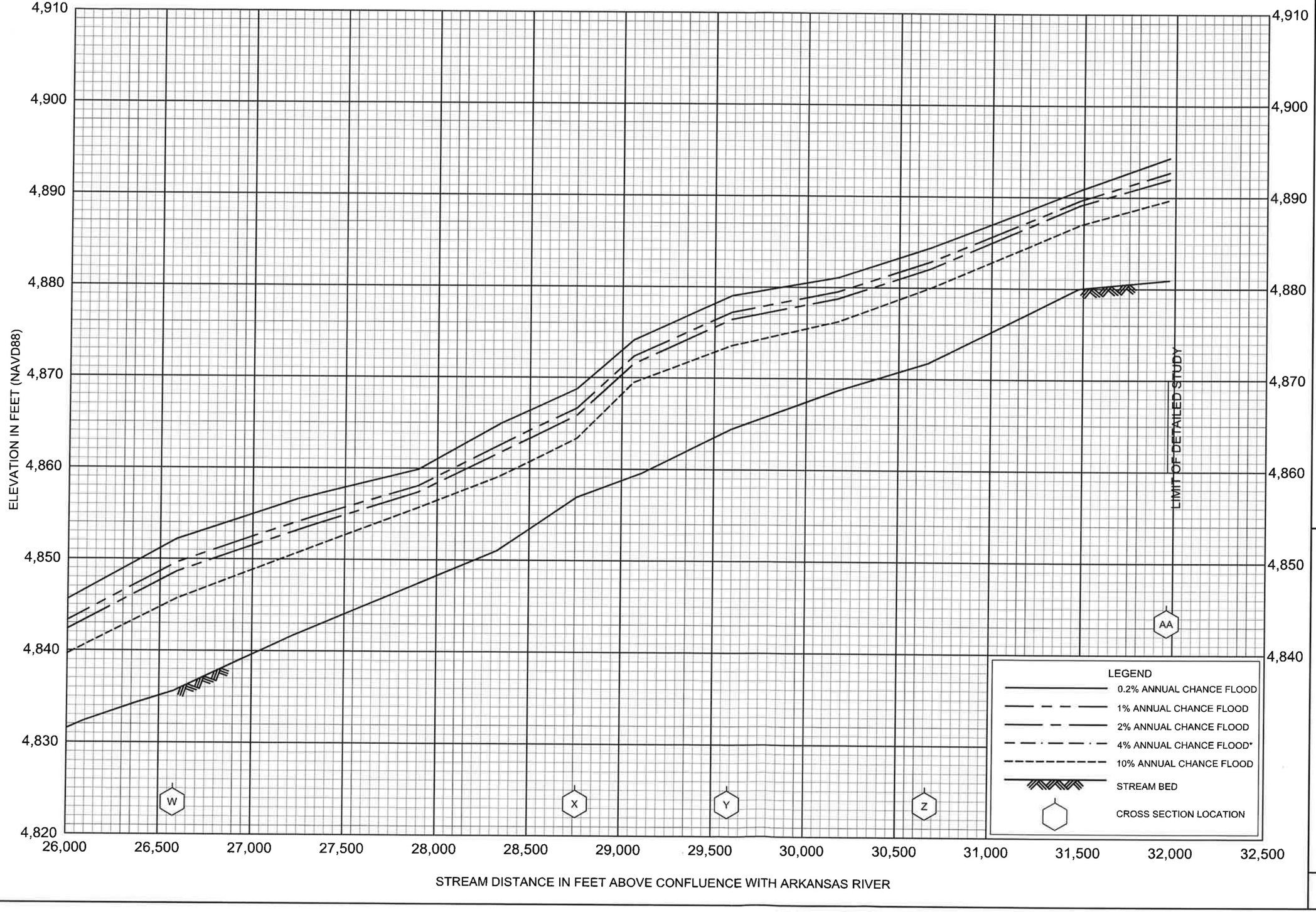
FLOOD PROFILES

WILD HORSE - DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
AND INCORPORATED AREAS

66P



FLOOD PROFILES

WILD HORSE - DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO

AND INCORPORATED AREAS

67P