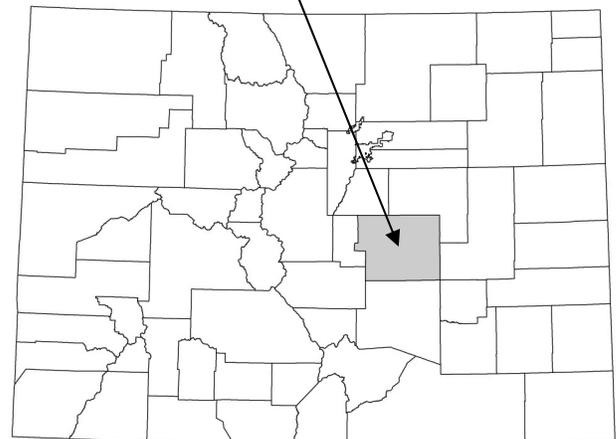


FLOOD INSURANCE STUDY



EL PASO COUNTY, COLORADO, AND INCORPORATED AREAS VOLUME 3 OF 8

El Paso County



COMMUNITY NAME	COMMUNITY NUMBER
CALHAN, TOWN OF	080192
COLORADO SPRINGS, CITY OF	080060
EL PASO COUNTY (UNINCORPORATED AREAS)	080059
FOUNTAIN, CITY OF	080061
GREEN MOUNTAIN FALLS, TOWN OF	080062
MANITOU SPRINGS, CITY OF	080063
MONUMENT, TOWN OF	080064
PALMER LAKE, TOWN OF	080065
RAMAH, TOWN OF	080066

Preliminary



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
08041CV003A

NOTICE TO
FLOOD INSURANCE STUDY USERS

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

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 the Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS report components.

This FIS report was revised on August 23, 1999. Users should refer to Section 10.0, Revisions Description, for further information. Section 10.0 is intended to present the most up-to-date information for specific portions of this FIS report. Therefore, users of this report should be aware that the information presented in Section 10.0 superseded information in Sections 1.0 through 9.0 of this FIS report.

Initial Countywide FIS Report Effective Date: March 17, 1997

Revised Countywide FIS Report Effective Date: August 23, 1999

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	Flood Insurance Rate Maps

5.0 INSURANCE APPLICATION

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

Zone A

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

Zone AE

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

Zone AH

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

Zone AO

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

Zone AR

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

Zone A99

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

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

Zone X

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

Zone D

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

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

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

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

The countywide Flood Insurance Rate Map presents flooding information for the entire geographic area of El Paso County. Previously, Flood Insurance Rate Maps were prepared for each identified floodprone incorporated community and the unincorporated areas of the county. This countywide Flood Insurance Rate Map also includes flood hazard information that was presented separately on Flood Boundary and Floodway Maps, where applicable. Historical data relating to the maps prepared for each community are presented in Table 9, "Community Map History."

7.0 OTHER STUDIES

This study revises and updates the previous Flood Insurance Studies and Flood Insurance Rate Maps for the unincorporated areas of El Paso County and incorporated communities within El Paso County.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE(S)	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE(S)
Calhan, Town of	January 17, 1975	None	March 18, 1986	TBD
Colorado Springs, City of	February 1, 1974	April 4, 1978	December 18, 1986	March 2, 1989 February 16, 1990 September 30, 1992 November 2, 1994 August 16, 1995
Fountain, City of	June 28, 1974	October 24, 1975 May 29, 1979	June 5, 1985	TBD
Green Mountain Falls, Town of	August 30, 1974	December 12, 1975	June 5, 1985	TBD
Manitou Springs, City of	March 29, 1974	February 21, 1975	February 1, 1984	TBD
Monument, Town of	May 24, 1974	October 22, 1976	December 18, 1986	September 29, 1989
Palmer Lake, Town of	November 16, 1973	None	July 3, 1978	TBD
Ramah, Town of	September 13, 1974	February 20, 1976	August 5, 1986	February 4, 1988
El Paso, County of (Unincorporated Areas)	December 27, 1974	August 2, 1977	December 18, 1986	March 16, 1989 September 28, 1990 September 30, 1992

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

EL PASO COUNTY, CO
AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

Various studies have been used to compile this Flood Insurance Study. These reports were obtained from Federal, State, and local agencies, as well as through private developers.

The USACE prepared the Report on Hydrologic Investigations, Flood Insurance Studies of Colorado Springs and El Paso County, Colorado, in December 1976. This report was prepared under a contract with FEMA (Contract No. IAA-M-10-77), with the USACE, Albuquerque District, acting as a study contractor. Many of the flows used in this study were adopted from that report; however, not all of the flows were utilized (see Section 3.1).

A report used for general information was the 1970 report entitled Comprehensive Drainage Plan for the Pikes Peak Region prepared by the PPACG. Flow rates were not used from this report because they were developed for future conditions, but the information was reviewed to compare peak 1-percent-annual-chance flow rates on most of the streams studied in detail.

Studies reviewed for particular streams are detailed below.

Black Squirrel Creek. For Black Squirrel Creek and its tributaries, two reports were prepared: a September 2003 USACE hydrologic analysis report, and an August 2013 hydraulic evaluation and floodplain mapping report by Anderson Consulting Engineers, Inc. Flows and mapping were used from both reports.

Cottonwood Creek. The 1976 USACE Flood Plain Information Report for Cottonwood Creek and a 1979 Master Drainage Study prepared for the City of Colorado Springs were reviewed to check their applicability to the present study. Flows in these reports were developed for future conditions and, therefore, were not used in this study. The subdivision plans for Woodland Hills, Filing No. 1, were also reviewed for consistency with the present study.

Douglas Creek (North and South). Hydrologic information was obtained from the Douglas Creek Master Drainage Plan, prepared in 1981, by Leigh Whitehead and Associates. Subdivision reports for areas under development in Mountain Shadows and the Pinon Valley Subdivision were also reviewed.

Dry Creek and its Tributaries. Detailed hydrologic information from the Dry Creek Master Drainage Study, prepared by KKBNA, Inc., in 1984, was utilized in this Flood Insurance Study report.

Fountain Creek. Five reports on Fountain Creek were prepared: a March 2006 hydraulics report for the Fountain Creek watershed by URS for the USACE; an April 2010 hydrology report for Fountain Creek for FEMA Region VIII by Michael Baker Jr., Inc.; a 2012 hydraulic analysis and mapping flood study report for Fountain Creek and Upper Fountain Creek for FEMA Region VIII by URS; a June 2013 floodplain restudy for Fountain Creek for the City of Colorado Springs by WHPacific; and a June

2013 hydraulics and flood hazard mapping report for the Colorado Water Conservation Board and the City of Colorado Springs by Anderson Consulting Engineers, Inc. Hydrology, hydraulics, and flood hazard mapping were utilized from all of these reports.

Jimmy Camp Creek. For Jimmy Camp Creek, two reports were published: a 1973 USACE Flood Plain Information Report, and a 1975 SCS Flood Hazard Analysis. Flows and mapping were used from both reports.

Mesa Basin. Detailed topographic mapping and digitized channel cross sections for this stream were obtained in 1982. This mapping was used to delineate floodplains, using detailed channel cross sections. Hydrologic data were obtained from the Mesa Basin Master Drainage Plan, prepared in 1976 by Parker and Associates, Inc.

Monument Creek. Two studies were prepared for Monument Creek: a May 1971 Flood Plain Information Report for Monument Creek in Colorado Springs, and a 1978 Flood Insurance Study for Palmer Lake. Material from the former report was used south of the U.S. Air Force Academy. North of the Academy, hydrology developed for this study agrees in general with the Palmer Lake study. The corporate limits in this countywide study reflect the most recent information and hydrology. The discharges reflect these revisions, with the discharges in the current corporate boundaries of Palmer Lake being in general agreement with the 1978 study. At Red Rock Ranch Drive, the stream bottom is shown as the top of the road due to the limited capacity of the culvert. The hydrology for Monument Creek Tributary is found in the 1978 Flood Insurance Study for Palmer Lake. Except for revisions within the corporate limits which now show portions of the stream in the county, there is general agreement between the 1978 study and the current study.

Peterson Field Drainage. The hydrologic analysis was conducted for this Flood Insurance Study using information contained in the 1976 Peterson Field Master Drainage Planing Report, and the Colorado Springs Municipal Airport Runway 17L-35R, Grading and Drainage Report.

Rockrimmon Basin. Hydrologic information from the Rockrimmon Basin Master Drainage Study, prepared in 1973 by United Western Planning, Inc., supplied a portion of the hydrologic data contained herein.

Sand Creek. The Flood Hazard Analysis for Sand Creek in Colorado Springs and El Paso County, Colorado, prepared in 1973 by the SCS, was revised to obtain hydrologic information for Sand Creek. Detailed topographic mapping and digitized channel cross sections were completed in 1981 and 1982 to obtain information for the hydraulic analysis of Sand Creek.

Spring Creek. Detailed hydrologic information from the Bear Creek Drainage Plan, prepared by Lincoln-DeVore, Inc., in 1980, was utilized in this Flood Insurance Study. The mapping used for the Spring Creek study area was obtained from Reids Aerial

Mapping, Inc., and Landmark Mapping, Ltd.

Templeton Gap Floodway. Hydrologic information reviewed for this study was obtained from the Templeton Gap-North Shooks Run Drainage Basin Study, prepared in 1977 by Lincoln-DeVore, Inc.

Sutherland Creek. A floodplain study for Sutherland Creek in the Crystal Hills area of Manitou Springs was printed in July 1975. The 1-percent-annual-chance flood discharge of 750 cfs determined in that study was found to be too low because an assumption was made in that study that Fountain and Sutherland Creeks would have coincident flood events. The contributing discharge of Sutherland Creek to Fountain Creek at their confluence is 1,000 cfs in the USACE report, and the 1975 floodplain study for Sutherland Creek assumed that this was the total discharge of the 1-percent-annual-chance storm on Sutherland Creek. The USACE report did not assume coincident flood events on the two streams, and the Sutherland Creek discharge of 1,000 cfs at the south actually represents a far more frequent event.

No detailed studies that could be compared to this study were located for Pine Creek, Kettle Creek, Security Creek, Widefield Creek, and Windmill Gulch, or the Templeton Gap Floodway.

A Flood Hazard Boundary Map has been published for the unincorporated areas of El Paso County. The floodplain boundaries shown on that map have been included in this study unless superseded by more detailed analysis.

A countywide Flood Insurance Study was previously published in 1997 for El Paso County and was revised in 1999. This study supersedes the previous Flood Insurance Study.

This FIS report either supersedes or is compatible with all previous studies on streams studied in this report and should be considered authoritative for purposes of the NFIP. Table 10 contains all Letters of Map Revision (LOMRs) that have been incorporated into the FIS since the previous effective date.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Federal Insurance and Mitigation Division, Denver Federal Center, Building 710, P.O. Box 25267, Denver, Colorado 80225-0267.

Table 10 Letters of Map Revision

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
El Paso County, CO (Unincorporated areas)	Dirty Woman Creek	14-08-0567P	February 19, 2015	LOMR
	Haegler Ranch Tributary 1 and 1A	14-08-1121P	March 24, 2015	LOMR
	Jimmy Camp Creek – East Tributary Lorso Ranch Development	14-08-0534P	January 29, 2015	LOMR
	Sand Creek Sand Creek – Constitution to Powers	13-08-0960P	April 11, 2014	LOMR
	Fountain Creek Fountain Creek in Manitou Springs	13-08-0369P	January 17, 2014	LOMR
	Black Squirrel Creek West Fork Bennett Ranch Basin; East Tributary to Black Squirrel Creek West Fork Bennett Ranch Basin State Highway 274 Channel Improvements	12-08-0659P	July 12, 2013	LOMR
	Sand Creek Woodmen Road Widening Project	12-08-0579P	February 28, 2013	LOMR
	Cottonwood Creek Cottonwood Creek PDM Grant Project	12-08-0168P	January 4, 2013	LOMR
	Crooked Canyon Creek I-25 Pikes Peak International Raceway	12-08-0499P	January 12, 2012	LOMR
	Pine Creek Monument Creek	11-08-0869P	March 8, 2012	LOMR
	Sand Creek South Midway Landfill	10-08-0838P	April 28, 2011	LOMR
	Unnamed Tributary 1 to Brackett Creek, Unnamed Tributary 2 to Brackett Creek Judge Orr Estates	09-08-0363P	November 30, 2009	LOMR
	North Tributary to Crooked Canyon, RD Nixon Detention Dam, Sand Canyon, Tributary to Sand Canyon Clear Spring Ranch	09-08-0499P	October 14, 2009	LOMR

Table 10 Letters of Map Revision (cont.)

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
	Fountain Creek and Jimmy Camp Creek Confluence Vista Project – Fountain Creek and Jimmy Camp Creek	09-08-0321P	July 23, 2009	LOMR
	Sand Creek Sand Creek Letter of Map Revision, Mustang Place to Arroya Lane	08-08-0541P	July 23, 2009	LOMR
	Teachout Creek Teachout Creek and Unnamed Tributary Letter of Map Revision	08-08-0381P	April 2, 2009	LOMR
	East Tributary of West Cherry Creek Elk Ridge Estates	08-08-0488P	March 30, 2009	LOMR
	East Fork Sand Creek Marksheffel Road Bridge	08-08-0630P	September 24, 2008	LOMR
	Main Tributary to Black Squirrel Creek West Fork Bennett Ranch Basin Falcon Crossing	07-08-0802P	September 2, 2008	LOMR
	West Fork Black Squirrel Creek Solberg Ranch Tributary, Solberg Ranch East Tributary Cottonwood Draw Subdivision No. 2	07-08-0527P	June 16, 2008	LOMR
	Unnamed Tributary to Black Squirrel Creek No. 2 Falcon Highlands Subdivision	07-08-0324P	March 12, 2008	LOMR
	Templeton Gap Floodway Park Vista Subdivision	07-08-0414P	January 16, 2008	LOMR
	Tributary to West Kiowa Creek Priceless Subdivision	08-08-0059P	December 21, 2007	LOMR
	Dirty Woman Creek Brookmoore Subdivision	07-08-0475P	November 30, 2007	LOMR
	Jimmy Camp Creek Lorson Ranch Development Jimmy Camp Creek	06-08-B643P	August 29, 2007	LOMR
	Black Squirrel Creek, West Trib to Black Squirrel Creek, East Trib to Black Squirrel Creek, South Trib to Black Squirrel Creek Latigo Trail	07-08-0044P	August 22, 2007	LOMR

Table 10 Letters of Map Revision (cont.)

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
	Hook Line Ranch Center Tributary Sinclair Property	07-08-0241P	July 30, 2007	LOMR
	Sand Creek Center Tributary Sand Creek Center Tributary and East Fork LOMR	05-08-0368P	May 23, 2007	LOMR
	Sand Creek Spilt Flow, Sand Creek Ridgeview at Sand Creek Stabilization Improvement	05-08-0638P	April 18, 2007	LOMR
	Geick Ranch Tributary 4 Elbert Road Site	06-08-B218P	March 20, 2007	LOMR
	East Fork Sand Creek Marksheffel Business District	06-08-B137P	December 13, 2006	LOMR
	Black Squirrel Creek Upper Black Squirrel Creek and Snipe Creek	06-08-B377P	December 11, 2006	LOMR
	Falcon Basin Middle Tributary Regency Center – Falcon Highlands Marketplace Filing No. 1	06-08-B427P	November 3, 2006	LOMR
	Sand Creek East Fork Claremont Ranch Subdivision	05-08-A578P	October 30, 2006	LOMR
	Black Squirrel Creek Seclusion	06-08-B441P	October 13, 2006	LOMR
	West Cherry Creek and Tributary to West Cherry Creek West Cherry Springs Ranch	06-08-B221P	August 17, 2006	LOMR
	Unnamed Tributary to Black Squirrel Creek No. 2 Falcon Highlands Subdivision – Topographic Update	06-08-B408P	June 8, 2006	LOMR
	Unnamed Tributary to Black Squirrel Creek No. 2 Falcon Highlands Subdivision	05-08-0586P	June 7, 2006	LOMR
	Unnamed Zone A Ponding Colorado Springs Landfill Deflation Basin	06-08-B125P	May 4, 2006	LOMR

Table 10 Letters of Map Revision (cont.)

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
	Sand Creek East Woodmen Road to Mustang Place	04-08-0779P	December 7, 2005	LOMR
	West Fork Squirrel Creek –Solberg Ranch-West Unnamed Tributary Larranage Subdivision	05-08-0459P	November 30, 2005	LOMR
	Peterson Field Drainage Rickerno Subdivision, First Filing, Lot 1, Community Education Center	05-08-0185P	August 30, 2005	LOMR
	Black Forest Creek Middle Tributary Black Forest Creek Middle Tributary	04-08-0709P	May 18, 2005	LOMR
	Black Squirrel Creek-Haegler Basin- Sage Creek Sage Creek Filing #2 LOMR	04-08-0519P	May 11, 2005	LOMR
	Jimmy Camp Creek, West Tributary Heritage Subdivision LOMR	04-08-0427P	April 27, 2005	LOMR
	Haegler Ranch Tributary 2, 3, 4 Santa Fe Springs	04-08-0587P	February 16, 2005	LOMR
	Black Squirrel Creek West Fork Bennett Ranch Basin Falcon Heights Filing No. 5	05-08-0147P	February 8, 2005	LOMR
	Sand Creek East Fork and Subtributary Claremont Ranch Subdivision	04-08-0114P	December 29, 2004	LOMR
	Sand Creek East Fork and Subtributary Rocky Mountain Industrial Park	04-08-0062P	November 18, 2004	LOMR
	Sand Creek East Fork Sand Creek East Fork LOMR	03-08-0689P	October 7, 2004	LOMR
	East Cherry Creek, Tributary to East Cherry Creek #1, Tributary to East Cherry Creek #2 Cherry Creek Springs Project	03-08-0617P	June 23, 2004	LOMR
	Beaver Creek, North Beaver Creek, Piñon Lake Tributary Beaver Creek LOMR	03-08-0449P	June 23, 2004	LOMR

Table 10 Letters of Map Revision (cont.)

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
	Upper East Tributary to Chico Creek Park Ridge	03-08-0406P	June 16, 2004	LOMR
	Black Squirrel Creek Northgate	03-08-0659P	May 19, 2004	LOMR
	Hook and Line Ranch Center Tributary Prairie Vista Subdivision	04-08-0109P	May 5, 2004	LOMR
	Security Creek Upper Security Creek Floodplain Revision	03-08-0318P	April 9, 2004	LOMR
	Tributary to Sand Creek East Fork Marksheffel Business Creek	03-08-0619P	March 24, 2004	LOMR
	Haegler Ranch Trib 1, 1A, 2 Geick Ranch Trib 1, 2 Fourway Ranch LOMR	04-08-0012P	March 19, 2004	LOMR
	Falcon Basin East Tributary Woodmen Hills Filing No. 11	03-08-0646P	March 4, 2004	LOMR
	Pine Creek	01-08-0177P	January 15, 2004	LOMR
	Unnamed Tributary to Black Squirrel Creek No. 2 West Tributary Falcon Basin Zone A Conversion	03-08-0385P	November 26, 2003	LOMR
	Unnamed tributary of Black Squirrel Creek Woodmen Hills Subdivision	01-08-0289P	August 5, 2002	LOMR
	Black Squirrel Creek	01-08-0226P	May 14, 2002	LOMR
	West Cherry Creek	00-08-0417P	September 23, 2001	LOMR
	Cottonwood Creek	00-08-0085P	May 24, 2001	LOMR
	Black Squirrel Creek	00-08-0054P	August 18, 2000	LOMR
	Dirty Woman Creek – Lake Fork	99-08-012P	November 9, 1998	LOMR
City of Colorado Springs, CO	Jimmy Camp Creek – East Tributary Lorso Ranch Development	14-08-0534P	January 29, 2015	LOMR
	Sand Creek Sand Creek – Constitution to Powers	13-08-0960P	April 11, 2014	LOMR

Table 10 Letters of Map Revision (cont.)

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
	Sand Creek Sand Creek – Fountain Blvd to Academy Blvd	13-08-1078P	March 14, 2014	LOMR
	Fountain Creek Fountain Creek in Manitou Springs	13-08-0369P	January 17, 2014	LOMR
	Cottonwood Creek Cottonwood Creek PDM Grant Project	12-08-0168P	January 4, 2013	LOMR
	Sand Creek Sand Creek below Palmer Park Blvd	12-08-0218P	October 8, 2012	LOMR
	Sand Creek Sand Creek Stream Stability Improvements at Karr Road	11-08-1101P	August 13, 2012	LOMR
	Monument Creek Monument Creek	11-08-0869P	March 8, 2012	LOMR
	Peterson Field Drainage Canyon Springs at Soaring Eagles	10-08-0471P	December 29, 2010	LOMR
	Cottonwood Creek Cottonwood Creek, Peaks at Woodmen	10-08-0460P	November 17, 2010	LOMR
	South Shooks Run South Shooks Run – El Paso Avenue to Kiowa Street	10-08-0386P	August 19, 2010	LOMR
	Unnamed Tributary to Jimmy Camp Creek Bradley Heights	09-08-0556P	June 30, 2009	LOMR
	Sand Creek West Fork Sand Creek West Fork Sewer Erosion Protection Project	08-08-0212P	September 4, 2008	LOMR
	Sand Creek Sand Creek 12” Sewer Crossing at Hancock Expressway	07-08-0958P	August 15, 2008	LOMR
	Templeton Gap Floodway Park Vista Subdivision	07-08-0414P	January 16, 2008	LOMR

Table 10 Letters of Map Revision (cont.)

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
	Jimmy Camp Creek Lorson Ranch Development- Jimmy Camp Creek	06-08-B643P	August 29, 2007	LOMR
	Sand Creek Center Tributary Sand Creek Center Tributary and East Fork LOMR	05-08-0368P	May 23, 2007	LOMR
	Sand Creek Spilt Flow, Sand Creek Ridgeview at Sand Creek Stabilization Improvement	05-08-0638P	April 18, 2007	LOMR
	Sand Creek Sand Creek Improvements	06-08-A647P	April 4, 2007	LOMR
	Monument Creek Monument Creek Sewer Erosion Protection Project	05-08-0608P	October 25, 2006	LOMR
	Pine Creek, Pine Creek Detention Basins, and North Pine Creek	05-08-0575P	August 23, 2006	LOMR
	Unnamed Tributary to Black Squirrel Creek No. 2 Falcon Highlands Subdivision	05-08-0586P	June 7, 2006	LOMR
	Fisher's Canyon Fisher's Canyon – The Foothills Condominium	06-08-B006P	February 14, 2006	LOMR
	Unnamed Tributary to Black Squirrel Creek No. 2 Falcon Highlands Subdivision	06-08-B408P	June 8, 2006	LOMR
	Peterson Field Drainage Rickerno Subdivision, First Filing, Lot 1, Community Education Center	05-08-0185P	August 30, 2005	LOMR
	Douglas Creek North Oak Valley Park	05-08-0469P	July 5, 2005	LOMR
	Fairfax Creek Fairfax Creek 2004 LOMR	04-08-0434P	December 2, 2004	LOMR
	Sand Creek East Fork	03-08-0689P	October 7, 2004	LOMR
	Black Squirrel Creek Northgate	03-08-0659P	May 19, 2004	LOMR

Table 10 Letters of Map Revision (cont.)

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
	Pine Creek Colorado State Highway 83	01-08-177P	January 15, 2004	LOMR
	South Shooks Run El Paso Avenue to Kiowa Street	04-08-0092P	November 26, 2004	LOMR
	Mesa Basin Mesa Basin 2003 LOMR	03-08-0212P	October 9, 2003	LOMR
	Sand Creek	02-08-0394P	July 31, 2003	LOMR
	Sand Creek Sand Creek LOMR, Section AO to AQ	03-08-0223P	May 13, 2003	LOMR
	Sand Creek Miller's Crossing	02-08-0325P	August 21, 2002	LOMR
	Peterson Field Drainage	02-08-0141P	August 6, 2002	LOMR
	Sand Creek	01-08-0039P	July 5, 2001	LOMR
	Pine Creek	00-08-0088P	July 28, 2000	LOMR
	Peterson Field Drainage	98-08-0372P	December 14, 1999	LOMR
	South Valley Dry Creek Tuscany Heights at Peregrine	99-08-074P	July 1, 1999	LOMR
	Sand Creek Elite Business Park Filing No. 1	98-08-313P	August 27, 1998	LOMR
	Cottonwood Creek Chestnut Glen Filing No. 3	98-08-135P	July 1, 1998	LOMR
	Douglas Creek South Chelsea Glen	97-08-285P	October 9, 1997	LOMR
	Dry Creek Rockledge at Peregrine Filing No. 3	97-08-251P	August 20, 1997	LOMR
City of Manitou Springs, CO	Fountain Creek Fountain Creek in Manitou Springs	13-08-0369P	January 17, 2014	LOMR
City of Fountain, CO	Jimmy Camp Creek Lorson ranch Development Jimmy Camp Creek	06-08-B643P	August 29, 2007	LOMR

Table 10 Letters of Map Revision (cont.)

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Case Number</u>	<u>Effective Date</u>	<u>Type</u>
	Crooked Canyon Creek I-25 Pikes Peak International Raceway	12-08-0499P	December 12, 2012	LOMR
	Jimmy Camp Creek Heritage Subdivision LOMR	04-08-0427P	April 27, 2005	LOMR
	Security Creek Upper Security Creek Floodplain Revision	03-08-0318P	April 9, 2004	LOMR
Town of Palmer Lake	Carpenter Creek Palmer Lake Ranch	07-08-0979P	April 10, 2009	LOMR
Town of Monument	Teachout Creek Teachout Creek and Unnamed Tributary Letter of Map Revision	08-08-0381P	April 2, 2009	LOMR
	Jackson Creek and Teachout Creek Triview Metropolitan District	03-08-0661P	April 13, 2004	LOMR
	Dirty Woman Creek	14-08-0567P	February 19, 2015	LOMR
Town of Green Mountain Falls	Catamount Creek Catamount Creek 2004 LOMR	04-08-0136P	July 15, 2004	LOMR

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10.0 REVISIONS DESCRIPTIONS

This section has been added to provide information regarding significant revisions made since the original Flood Insurance Study and Flood Insurance Rate Maps were printed. Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. All users are advised to contact the Community Map Repository at the address below to obtain the most up-to-date flood hazard data.

Pikes Peak Regional Building Department
Floodplain Management Office
2880 International Circle
Colorado Springs, CO 80910

10.1 First Revision

City of Colorado Springs (Revised March 2, 1989) and El Paso County, Unincorporated Areas (Revised March 16, 1989)

These studies were revised to show modifications to the flooding along Pine Creek between the downstream confluence of the Pine Creek Overflow and the culvert conveying the Pine Creek Overflow beneath Academy Boulevard. The basis for the revision was a technical report entitled Flood Plain Study, Chapel Hills Technical Center, Lot 9 Block 2, prepared by Olsson Associates, Colorado Springs, Colorado, and dated August 29, 1986. This report contained more detailed topographic data than that used in the original study as well as a revised hydraulic analysis of Pine Creek that included the effects of the existing twin box culverts beneath the Plaza at the Chapel Hills Shopping Center and an existing concrete channel located along the south side of the Chapel Hills Technological Center Subdivision. From this hydraulic analysis, it was determined that there was no longer a well-defined channel for this specific reach and that the area was subject to shallow flooding, or sheet flow. Because of the nature of the flooding along this reach, it was designated Zone AO, depth 1.0 foot. The existing BFEs and floodway boundary delineations for this reach have been removed from the Flood Insurance Rate Map. The affected Floodway Data Table and profiles have also been revised to reflect this change.

Due to discrepancies between the capacity of the culvert located beneath Academy Boulevard and the 1,000-cfs discharge modeled in the previous hydraulic analysis for Pine Creek Overflow, the detailed Special Flood Hazard Area (SFHA) along this stream was converted to approximate Zone A. However, the floodplain delineation along Pine Creek Overflow remained the same as the delineation shown on the December 18, 1986, Flood Insurance Rate Map. Because no BFEs are shown for Pine Creek Overflow, Profile Panel 188P was deleted from the Flood Insurance Study report.

The Letter of Map Revision (LOMR) issued on October 5, 1988, for El Paso County was also incorporated into the revision. The basis for the revision was a modification to the SFHA along Beaver Creek due to the construction of Bristlecone Dam and Lake in the Forest Lakes Subdivision. In support of this LOMR, the following data were submitted:

- Certified "as-built" drawings for Bristlecone Lake, Dam, and Reservoir prepared by WCC, dated January 1987
- A copy of the November 13, 1986, letter from the Colorado State Engineer to Mr. Robert E. Byrd, landowner, accepting the dam for the storage of water
- A copy of the July 25, 1988, letter from R.E. Byrd & Associates to Mr. Randall outlining the proposed maintenance program to eventually be assumed by the Homeowners Association, or in case of their default, by the Forest Lakes Metropolitan District
- A copy of the proposed Operation and Maintenance Plan for Bristlecone Dam and Reservoir, prepared by WCC for Mr. Robert E. Byrd, dated March 1987
- A certified topographic map of Bristlecone Reservoir area and approximately 3,840 feet of Beaver Creek upstream of the reservoir's normal pool elevation of 6,885.0 feet showing the revised 1-percent-annual-chance floodplain boundaries and revised cross section locations

As a result of this LOMR, the 1-percent-annual-chance flood delineation, designated as approximate Zone A, was modified for an approximate 3,840-foot reach of Beaver Creek immediately upstream of Bristlecone Dam.

This revision also incorporated the following LOMRs issued for the City of Colorado Springs on the Flood Insurance Rate Map:

1. The LOMR issued on March 26, 1987, was for an area along the unnamed tributary to Douglas Creek North. This LOMR was issued to show the effects of the relocation of the unnamed tributary to Douglas Creek North as a result of the construction of a concrete-lined channel west of the Oak Valley Residential Project. In addition, the SFHA to the east of the Oak Valley Residential Project near the intersection of Allegheny Drive and Centennial Boulevard was revised to reflect the effects of a new storm sewer as well as curb and gutter improvements. This LOMR was based on the following submitted data: an engineering report entitled Oak Valley Residential FEMA Discharge Study; a 1-percent-annual-chance flood profile along an unnamed tributary to Douglas Creek North; and "as-built" plans entitled Oak Valley

Drainage Channel dated December 1981, prepared by Leigh Whitehead and Associates, and Oak Valley Residential Street Improvement Plans, Including Sanitary Sewer and Storm Sewer, prepared by JR Engineering, Ltd., dated September 1986.

2. The LOMR issued on August 7, 1987, was for an area along Douglas Creek North between Allegheny Drive and Pinon Park Drive. This LOMR was based on the construction of a concrete-lined channel. In support of this LOMR, an engineering report entitled Douglas Creek North, Letter of Map Revision, City of Colorado Springs, El Paso County, Colorado, dated June 1987, prepared by Greiner Engineering, Inc., was submitted. This report contained "as-built" drawings and a hydraulic analysis for Douglas Creek North and an unnamed tributary.
3. The LOMR issued on September 3, 1987, was for an area along Fisher's Canyon (formerly labeled as Spring Run). The basis for this LOMR was a channelization project for an area located west of the bridge at Loomis Avenue and east of West Meadow Drive. In support of this LOMR, an engineering report, dated June 4, 1987, and prepared by Drexel, Barrell Engineers/Surveyors Inc., was submitted. This report included a hydrologic analysis for the basin, a HEC-2 computer analysis for the channel, and a revised floodplain delineation.

The name of this stream was changed from Spring Run to Fisher's Canyon to be in agreement with the name shown on the USGS topographic quadrangle map, at the request of the community. This change is reflected on the Flood Insurance Rate Map.

4. The LOMR issued on March 28, 1988, was in the vicinity of the Pebble Way Bridge crossing along Dry Creek. This LOMR was based on bridge improvements at Pebble Way. In support of this LOMR, "as-built" construction plans entitled Pebble Way Bridge Improvements, prepared by Simons, Li and Associates, Inc., and dated July 1987; hydraulic analyses representing the effective and revised 1-percent and 0.2-percent-annual-chance flood profiles, prepared by KIOWA Engineering Corporation; and revised flood profiles, prepared by SLA and dated December 1985, were submitted. The profile for Dry Creek was also revised to reflect this LOMR.
5. The LOMR issued on June 9, 1988, was for an area along North Channel Dry Creek. The reason for the LOMR was to show the relocation of Woodmen Road and drainage improvements along the North Channel Dry Creek from the upstream limit of study to a point approximately 3,000 feet downstream. This reach is now designated as approximate Zone A. In support of this LOMR, a technical report entitled North Channel Dry Creek, FEMA Drainage Studies, prepared

by JR Engineering, Ltd., and dated October 1987, was submitted. Profile panels for North Channel Dry Creek have been deleted from the Flood Insurance Study report.

6. The LOMR issued on September 2, 1988, was for an area along Douglas Creek North from approximately 400 feet downstream of Chestnut Street to a point approximately 2,100 feet upstream of Garden of the Gods Road. The basis for this LOMR was a channelization project for the above-referenced reach which contains the 1-percent-annual-chance flood. As a result of this project, the floodway delineation for this reach was removed. In support of this LOMR, an engineering report entitled Flood Profiles and Floodway Analysis Due to construction of New Culvert at Garden of the Gods Road on Douglas Creek North, Colorado Springs, Colorado, El Paso County, prepared by HTA, Inc., and dated 1987, was submitted. The profile panel and Floodway Data Table for Douglas Creek North have been revised to reflect this LOMR.

7. The LOMR issued on September 28, 1988, was for a reach of the West Tributary of Sand Creek from Constitution Avenue to a point approximately 800 feet upstream. In support of this LOMR, the following data were submitted:

- A portion of the Sand Creek Master Drainage Plan Study, City of Colorado Springs and El Paso County, prepared by Simons, Li and Associates, Inc., and dated July 1985, which contained hydrologic and hydraulic analyses for the Palmer Park drainage area and Georgetown Square
- Plan and profile sheets 1 and 2 of 2 entitled Academy Circle, Executive Park at Academy Sub, No. 4, prepared by United Planning and Engineering, dated March 23, 1978, and certified by a registered professional engineer
- "As-built" plans of the storm drain, certified by a registered professional engineer and entitled Executive Park at Academy Subdivision, Filing Number 8, Colorado Springs, Colorado, prepared by Monument Valley Engineers, Inc.
- Plan Number 7706-7a, certified by a registered professional engineer, entitled Georgetown Square Greenbelt from Constitution to Maizeland Road, prepared by R. Madrid and dated June 1977, showing the outfall of the storm sewer into Greenbelt Channel
- A topographic map entitled Georgetown Square, 100-Year Flood

Map Revision, prepared by Hydro-Triad, Ltd., with the revised floodplain delineations

The basis for this LOMR was the construction of a storm drain system and channelization project upstream of Georgetown Square. The storm drain system and channelization intercepts storm flow and diverts it to Greenbelt Channel. As a result, the Zone A 1-percent-annual-chance flood boundary delineation was modified to remove the Georgetown Square Subdivision from the 1-percent-annual-chance floodplain.

8. The Letter of Map Amendment (LOMA) issued on November 18, 1981, was for an area designated as Pinon Valley, Filing No. 1, located along Douglas Creek North. The basis for this LOMA was topographic data submitted by Mr. Raymond L. Holt, Pinon Valley Company.

10.2 Second Revision

City of Colorado Springs (Revised February 16, 1990)

This study was revised to show how channel improvements along Sand Creek East Fork, from Powers Boulevard to a point approximately 2,850 feet upstream of Powers Boulevard, affect the BFEs and floodplain and floodway boundaries.

Computations for the revised hydraulic analysis, using the USACE HEC-2 step-backwater computer program, were performed by Claycomb Engineering Associates, Inc. The findings were presented in the report entitled Aeroplains Filing No. 2, (Airport Industrial Park, Phase II), Colorado Springs, Colorado, dated August 1988. The BFEs and floodplain and floodway boundaries have been revised to reflect these data. The Floodway Data Table and profile panels for Sand Creek East Fork have also been modified as part of this revision.

El Paso County (Unincorporated Areas) (Revised September 28, 1990)

This study was revised to show flooding modifications along Crystal Creek, from approximately 70 feet upstream of the confluence with Monument Lake upstream to a point approximately 1,140 feet above Beacon Light Road; and Dirty Woman Creek, from a point approximately 60 feet downstream of Mitchell Avenue upstream to a point just below the southbound on-ramp of Interstate Highway 85-87. The basis for this revision was a technical report entitled Flood Hazard Identification Report, Crystal Creek and Dirty Woman Creek, dated June 1986, prepared by the CWCB. This report contained detailed 1-percent-annual-chance base flood hazard information which was utilized to update the previously determined 1-percent-annual-chance Zone A flood hazard information. Additional data in the form of corporate limit annexations and revisions were also included to update this Flood Insurance Study. The revised information is depicted on the Flood Insurance Rate Map. The Summary of

Discharges Table has been revised and profiles were added to incorporate these changes.

10.3 Third Revision

El Paso County (Unincorporated Areas) and the City of Colorado Springs (Revised September 30, 1992)

This study was revised to include and update detailed flooding information for Templeton Gap Floodway, Sand Creek Center Tributary and Overflow, Sand Creek East Fork Subtributary, Sand Creek West Fork, South Shooks Run, Windmill Gulch and Overflows, Crystal Creek, Dirty Woman Creek, Fisher's Canyon, Jimmy Camp West Tributary and South Overflow, Cheyenne Run, and Spring Run and Overflow. The hydrologic and hydraulic analyses for this revision were performed for FEMA, by Resource Consultants, Inc., under Contract No. EMW-88-C-2607. This work was completed in December 1990.

The results of this revision were reviewed at an intermediate community coordination meeting held on November 15, 1990, and attended by representatives of the study contractor, FEMA, the CWCB, El Paso County, the City of Colorado Springs, and the Regional Building Department. All problems have been resolved.

Hydrologic data for the streams involved in this revision were developed by Resource Consultants, Inc., using the SCS computer program Technical Release No. 20 (TR-20). All hydrologic data were developed in accordance with the City of Colorado Springs and El Paso County Drainage Criteria Manual. Additional peak flow information for streams in this revision is contained in a report prepared by Resource Consultants, Inc., for FEMA entitled Proposed Hydrology for Use in Hydraulic Analysis of FEMA Flood Studies and Restudies.

Hydraulic analyses for this revision were carried out using the USACE HEC-2 water-surface profile computer program. Flood profiles were drawn showing computed water-surface elevations for the 10-percent, 2-percent, 1-percent, and 0.2-percent-annual-chance recurrence intervals.

Cross section locations and floodplain boundaries for the revisions completed by Resource Consultants, Inc., in 1990 utilized various mapping sources. For Crystal Creek, Dirty Woman Creek, Sand Creek Center Tributary, and Templeton Gap, mapping was provided in cooperation with El Paso County at a scale of 1:1,200, with 2-foot contour intervals. For Fisher's Canyon, mapping was taken from aerial topographic maps at a scale of 1:2,400, with 2-foot contour intervals. For Jimmy Camp West Tributary, mapping was taken from a variety of sources. Mapping for Sand Creek East Fork Subtributary was taken from 1:2,400 scale maps with 2-foot contour intervals. For Windmill Gulch,

cross sections and floodplain delineations were determined using topographic maps at a scale of 1:2,400, with 2-foot contour intervals. For Cheyenne Run and Spring Run, mapping was taken from aerial topographic maps at a scale of 1:1,200, with 2-foot contour intervals.

Cross section information was supplemented and verified by field survey. The results of this revision are in agreement with results determined for the City of Colorado Springs, Colorado.

For the streams included in this revision, approximately 26 reports were reviewed for the basins being studied. A complete list of references along with descriptions for each tributary can be found in Proposed Hydrology for Use in Hydraulic Analysis of FEMA Studies and Restudies, prepared in 1989 by Resource Consultants, Inc.

As a result of this revision, the Summary of Discharges and Floodway Data Tables were updated.

10.4 Fourth Revision

City of Colorado Springs (Revised November 2, 1994)

This study was revised to include a portion of the LOMR issued on September 3, 1987, for an area along Fisher's Canyon. This portion of the LOMR was not shown on the September 30, 1992, update for Panel 0287. The basis for the LOMR was a channelization project for an area along Fisher's Canyon located west of the bridge at Loomis Avenue and east of West Meadow Drive. In support of this LOMR, an engineering report, dated June 4, 1987, and prepared by Drexel, Barrell Engineers/Surveyors Inc., was submitted. This report included a hydrologic analysis for the basin, a HEC-2 hydraulic analysis for the channel, and a revised floodplain delineation. The 1-percent-annual-chance flood is contained within the channel. The stream was originally called Spring Run, but the name was changed to Fisher's Canyon to be in agreement with the name shown on the USGS topographic quadrangle map.

10.5 Fifth Revision

This study was revised on March 17, 1997, to show modifications to the flooding along Bear Creek, Black Forest Creek, Black Forest Creek-Baptist Road Tributary, Black Forest Creek-Middle Tributary, Camp Creek, Crystal Creek, Crystal Creek-Split Flow Channel, Dirty Woman Creek, Dirty Woman Creek-Lake Fork, Dirty Woman Creek-Middle Fork, Dirty Woman Creek-North Fork, Dirty Woman Creek-South Fork, Douglas Creek South, Fisher's Canyon-Above Loomis Avenue, Fisher's Canyon-South Branch, Pine Creek, Pine Creek Tributary, and Sutherland Creek in El Paso County, Colorado and Incorporated Areas. Also, as part of this revision, the Flood Insurance Rate

Maps for El Paso County and the incorporated communities within El Paso County have been combined into the countywide format.

The hydrologic and hydraulic analyses for this revision were performed for FEMA by Resource Consultants and Engineers, Inc., under Contract No. EMW-91-C-3366. This work was completed in August 1994.

Bear Creek

The flooding along Bear Creek has been revised from its confluence with Fountain Creek to approximately 570 feet upstream of Eighth Street.

The peak discharge-frequency relationships for Bear Creek were developed using the Natural Resources Conservation Service (NRCS), formerly the SCS, computer program for project formulation hydrology, TR-20. The hydrologic data for this revision were developed in accordance with the City of Colorado Springs and El Paso County Drainage Criteria Manual. Additional peak discharge-frequency relationships used for this revision were obtained from the reports entitled "Proposed Hydrology for Use in the Hydraulic Analysis of FEMA Studies and Restudies" and "Proposed Hydrology for FEMA Phase II Flood Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

Starting water-surface elevations were determined using the slope-area method. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors for the main channel ranged from 0.030-0.040. An overbank roughness factor of 0.020 was used for the entire stream.

Between cross sections, the 1-percent and 0.2-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:1,200, with a contour interval of 2 feet.

Black Forest Creek, Black Forest Creek-Baptist Road Tributary, and Black Forest Creek-Middle Tributary

The flooding along Black Forest Creek has been revised from its confluence with Monument Creek to approximately 1,840 feet upstream of Gleneagle Drive. The flooding along Black Forest Creek-Baptist Road Tributary has been revised from its confluence with Black Forest Creek to approximately 250 feet upstream of Celtic Court. The flooding along Black Forest Creek-Middle Tributary has been revised from just above Interstate 25 to approximately 100 feet upstream of Westchester Drive.

The peak discharge-frequency relationships for Black Forest Creek, Black Forest Creek-Baptist Road Tributary, and Black Forest Creek-Middle Tributary were developed using the NRCS computer program for project formulation hydrology, TR-20. The hydrologic data for this revision were obtained from the reports entitled "Proposed Hydrology for Use in the Hydraulic Analysis of FEMA Studies and Restudies" and "Proposed Hydrology for FEMA Phase II Flood Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

Starting water-surface elevations were based on critical depth. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors ranged from 0.015-0.040 in the main channels and from 0.040-0.060 in the overbanks.

Between cross sections, the 1-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:2,400, with a contour interval of 2 feet.

Camp Creek

The flooding along Camp Creek has been revised from its confluence with Fountain Creek to approximately 1.5 miles above Gateway Road.

The hydrologic data were developed using the NRCS computer program for project formulation hydrology, TR-20. Due to the extreme variability of the steep, upland channels, the channel travel times used in the model were determined for flow velocities near critical. In the concrete-lined channel, supercritical flow velocities were used. An NRCS Type IIA rainfall distribution was also used in the model. The net effect was a decrease in peak flows from the previous study due to the differences in technical approach. The hydrologic data for this revision were obtained from the report entitled "Proposed Hydrology for FEMA Phase II Flood Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

Starting water-surface elevations were determined using the backwater elevation for Fountain Creek. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors for Camp Creek ranged from 0.022-0.090 in the main channel and from 0.050-0.090 in the overbanks.

Between cross sections, the 1-percent and 0.2-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:1,200, with a contour interval of 2 feet.

Crystal Creek and Crystal Creek-Split Flow Channel

The flooding along Crystal Creek has been revised from its confluence with Monument Lake to approximately 800 feet upstream of Deer Creek Road. The flooding along Crystal Creek-Split Flow Channel has been revised from its divergence with Crystal Creek to its confluence with Dirty Woman Creek.

The peak discharge-frequency relationships for Crystal Creek and Crystal Creek-Split Flow Channel were developed using the NRCS computer program for project formulation hydrology, TR-20. The hydrologic data for this revision were obtained from the reports entitled "Proposed Hydrology for Use in the Hydraulic Analysis of FEMA Studies and Restudies" and "Proposed Hydrology for FEMA Phase II Flood Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

Starting water-surface elevations were determined using the slope-area method. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors ranged from 0.020-0.040 in the main channels and from 0.030-0.450 in the overbanks.

Between cross sections, the 1-percent and 0.2-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:1,200, with a contour interval of 2 feet.

Dirty Woman Creek, Dirty Woman Creek-Lake Fork, Dirty Woman Creek-Middle Fork, Dirty Woman Creek-North Fork, and Dirty Woman Creek-South Fork

The flooding along Dirty Woman Creek has been revised from its confluence with Monument Creek to approximately 2,150 feet upstream of Furrow Road. The flooding along Dirty Woman Creek-Lake Fork has been studied from its confluence with Dirty Woman Creek to approximately 345 feet upstream of Woodmoor Drive. The flooding along Dirty Woman Creek-Middle Fork has been studied from its confluence with Dirty Woman Creek to approximately 1,050 feet upstream of Furrow Road. The flooding along Dirty Woman Creek-North Fork has been studied from its confluence with Dirty Woman Creek-Middle Fork to approximately 6,415 feet upstream of Augusta Drive. The flooding along Dirty Woman Creek-South Fork has been studied from its confluence with Dirty Woman Creek to approximately 1,000 feet upstream of

Furrow Road.

The peak discharge-frequency relationships for Dirty Woman Creek and its forks were developed using the NRCS computer program for project formulation hydrology, TR-20. The hydrologic data for this revision were obtained from the reports entitled "Proposed Hydrology for Use in the Hydraulic Analysis of FEMA Studies and Restudies" and "Proposed Hydrology for FEMA Phase II Flood Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

The backwater elevation from Monument Creek was used as the starting water-surface elevation for Dirty Woman Creek. The starting water-surface elevations for the Lake, Middle, North, and South Forks of Dirty Woman Creek were determined assuming critical depth. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors for Dirty Woman Creek ranged from 0.015-0.040 in the main channel and from 0.020-0.050 in the overbank areas. Roughness factors for Dirty Woman Creek-Lake, Middle, North, and South Forks ranged from 0.015-0.040 in the main channel and from 0.020-0.040 in the overbank areas.

Between cross sections, the 1-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:1,200, with a contour interval of 2 feet.

Douglas Creek South

The flooding along Douglas Creek South has been revised from approximately 4,500 feet upstream of its confluence with Monument Creek to approximately 1,620 feet upstream of Arrowswest Drive.

The peak discharge-frequency relationships for Douglas Creek South were developed using the NRCS computer program for project formulation hydrology, TR-20. The hydrologic data for this revision were developed in accordance with the City of Colorado Springs and El Paso County Drainage Criteria Manual. Additional peak discharge-frequency relationships used for this revision were obtained from the reports entitled "Proposed Hydrology for Use in the Hydraulic Analysis of FEMA Studies and Restudies" and "Proposed Hydrology for FEMA Phase II Flood Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

Starting water-surface elevations were determined using the profile published for a previous Flood Insurance Study for the City of Colorado Springs. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors ranged from 0.015-0.040 in the main channel and from 0.035-0.070 in the overbank areas.

Between cross sections, the 1-percent and 0.2-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:1,200, with a contour interval of 2 feet.

Fisher's Canyon-Above Loomis Avenue and Fisher's Canyon-South Branch

The flooding along Fisher's Canyon-Above Loomis Avenue has been studied from approximately 3,650 feet upstream of Loomis Avenue to approximately 580 feet upstream of Cheyenne Meadows Road. The flooding along Fisher's Canyon-South Branch has been studied from its confluence with Fisher's Canyon-Above Loomis Avenue to approximately 190 feet upstream of Wycliffe Drive.

The peak discharge-frequency relationships for Fisher's Canyon-Above Loomis Avenue and Fisher's Canyon-South Branch were developed using the NRCS computer program for project formulation hydrology, TR-20. The hydrologic data for this revision were obtained from the reports entitled "Proposed Hydrology for Use in the Hydraulic Analysis of FEMA Studies and Restudies" and "Proposed Hydrology for FEMA Phase II Flood Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

Starting water-surface elevations were determined using the slope-area method. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors for the main channel ranged from 0.040-0.050. An overbank roughness factor of 0.030 was used for the entire stream.

Between cross sections, the 1-percent and 0.2-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:1,200, with a contour interval of 2 feet.

Pine Creek and Pine Creek Tributary

The flooding along Pine Creek has been revised from its confluence with Monument Creek to approximately 600 feet upstream of Academy Boulevard. Pine Creek Tributary is a newly studied creek and has been analyzed from its confluence with Pine Creek to the outfall from the 90-inch corrugated metal

pipe from Mirage Drive along the north side of Briargate Road in the channel adjacent to Chapel Hills Mall.

The peak discharge-frequency relationships for Pine Creek and Pine Creek Tributary were developed using the NRCS computer program for project formulation hydrology, TR-20. The hydrologic data for this revision were obtained from the report entitled "Proposed Hydrology for Use in the Hydraulic Analysis of FEMA Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

The starting water-surface elevation for Pine Creek was based on the backwater elevation in Monument Creek. The starting water-surface elevation for Pine Creek Tributary was based on critical depth. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors for Pine Creek ranged from 0.014-0.050 in the main channel and from 0.035-0.050 in the overbank areas. Roughness factors for Pine Creek Tributary ranged from 0.015-0.025 in the main channel and from 0.020-0.030 in the overbank areas.

It was determined in the hydraulic analysis that flows break out of the main channel of Pine Creek at Academy Boulevard. These breakout flows continue through the Chapel Hills Technological Center and eventually re-enter Pine Creek through Pine Creek Tributary. This breakout area was analyzed with the USACE HEC-2 step-backwater program and was mapped as Zone AO (1 foot) due to shallow flooding in the area. A profile was not prepared.

Between cross sections, the 1-percent and 0.2-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:1,200, with a contour interval of 2 feet.

Sutherland Creek

The flooding along Sutherland Creek has been revised from approximately 860 feet upstream of its confluence with Fountain Creek to approximately 1,250 feet upstream of Crystal Hills Boulevard.

The peak discharge-frequency relationships for Sutherland Creek were developed using the NRCS computer program for project formulation hydrology, TR-20. The hydrologic data for this revision were developed in accordance with the City of Colorado Springs and El Paso County Drainage Criteria Manual. Additional peak discharge-frequency relationships used for this revision were obtained from the report entitled "Proposed Hydrology for FEMA Phase II Flood Studies and Restudies".

Water-surface elevations of floods of the selected recurrence intervals were computed with the USACE HEC-2 step-backwater program.

Starting water-surface elevations were based on critical depth. Roughness factors (Manning's "n") used in the hydraulic computations were chosen based on engineering judgment and field observations of the stream and overbank areas. Roughness factors of 0.030 and 0.060 were used for the main channel and overbanks, respectively.

Between cross sections, the 1-percent and 0.2-percent-annual-chance floodplain boundaries were interpolated using topographic maps at a scale of 1:1,200, with a contour interval of 2 feet.

Countywide Update

This revision has combined the Flood Insurance Rate Maps and Flood Insurance Study reports of El Paso County and incorporated cities into the countywide format.

Under the countywide format, Flood Insurance Rate Map panels have been produced using a single layout format for the entire area within the county instead of separate layout formats for each community. The single layout format facilitates the matching of adjacent panels and depicts the flood hazard area within the entire panel border, even in areas beyond a community corporate boundary line. In addition, under the countywide format, this single Flood Insurance Study report provides all Flood Insurance Study information and data for the entire county area.

The mapping for the countywide conversion has been prepared using digital data. Previously published Flood Insurance Rate Map data produced manually have been converted to vector digital data by a digitizing process. These vector data were fit to raster digital images of the USGS quadrangle maps of the county area to provide horizontal positioning.

Road and highway name and centerline data for the City of Colorado Springs have been obtained from digital data provided by the City. Road and highway name and centerline data for the remaining incorporated and unincorporated areas of El Paso County have been obtained from the TIGER files of the U.S. Department of Commerce, Bureau of the Census. The digital data are a digital street map. The horizontal positioning was adjusted to match the horizontal positioning of physical features such as roads as shown on the USGS quadrangle maps of the county area. The adjusted centerline data were then computer-plotted with the digitized floodplain data to produce the countywide Flood Insurance Rate Map.

This revision also incorporated the following LOMRs:

1. A LOMR was issued on April 11, 1989, for Colorado Springs, for two unnamed tributaries of Monument Creek in the Peregrine North Valley Subdivision to reflect the effects of stormwater improvements.
2. A LOMR issued on July 9, 1990, for a reach of North Douglas Creek for approximately 2,000 feet downstream of Eyrie Drive through the City of Colorado Springs, to reflect the effects of a concrete-lined channel.
3. A LOMR was issued on December 20, 1990, for the City of Colorado Springs to reflect the effects of a stormwater detention facility and channelization for an Unnamed Tributary of Monument Creek in the Peregrine North Valley Subdivision.
4. LOMRs were issued on December 20, 1990, for the City of Colorado Springs and January 16, 1991, for the unincorporated areas of El Paso County, along a reach of Fountain Creek between 31st Street and Ridge Road, to reflect improved topography and a more detailed hydraulic analysis.
5. A LOMA was issued on January 22, 1992, for El Paso County, resulting in a revision to the approximate 1-percent-annual-chance flood boundaries along Williams Creek.
6. A LOMR was issued on January 24, 1994, for an unnamed tributary to Douglas Creek North through the City of Colorado Springs to reflect the effects of extending a storm drain system with culverts along Wilson Road.
7. A LOMR was issued on February 15, 1994, for a reach along Monument Creek within Colorado Springs. This LOMR was issued to show the effects of more detailed hydraulic analyses and updated topographic information to reflect the existing configuration of the channel and overbanks along a reach of Monument Creek. The revised reach, from Fillmore Street to approximately 100 feet upstream of the confluence with Douglas Creek South, was impacted by stream aggradation, degradation, and bank sloughing. The BFEs increased by a maximum of 3.3 feet and the SFHAs both increased and decreased.

The profile and Floodway Data Table for Monument Creek were revised as part of this LOMR.

8. LOMRs were issued on July 1, 1994, for Colorado Springs and the unincorporated areas of El Paso County, to reflect the effects of updated topographic information and channel improvements including riprap lining and three drop structures along Cottonwood Creek.

9. A LOMR was issued on July 22, 1994, for a reach along Templeton Gap South Overflow through Colorado Springs. This LOMR was issued to show the effects of channel improvements, culvert construction at Wesley Circle and Van Teylingen Drive, and more detailed hydraulic and hydrologic analysis along Templeton Gap South Overflow from its confluence with Templeton Gap Floodway to approximately 600 feet upstream of Van Teylingen Drive. As a result of the improvements, a portion of the SFHA, previously designated as Zone AH, shifted approximately 200 feet closer to Wesley Drive. A portion of the flooding contained in the improved channel is now designated Zone AE and the overflow from the channel and culverts is designated as Zone AO (Depth 1.0 foot) shallow flooding. The shallow flooding occurs in the vicinity of the intersection of Betty Drive and Van Teylingen Drive.

The profile for Templeton Gap South Overflow has been added to the Flood Insurance Study as a result of this LOMR.

10. A LOMR was issued on August 22, 1994, for a reach along Douglas Creek South through Colorado Springs. This LOMR was issued to show the effects of updated topographic information along a branch of Douglas Creek South that extends north near Centennial Boulevard from its confluence with Douglas Creek South to Garden of the Gods Road. As a result of the incorporation of the updated topographic information, the SFHA has been shifted and is contained within the Centennial Boulevard right-of-way.

11. LOMRs were issued on August 24, 1994, for a reach along Sand Creek through Colorado Springs and the unincorporated areas of El Paso County. These LOMRs were issued to show the effects of updated topographic information, a channelization project from the Colorado and Eastern Railroad to North Carefree Circle, and existing culverts at Constitution Avenue and North Carefree Circle that were not previously modeled along Sand Creek. As a result of the analysis, the SFHA and floodway were relocated and the BFEs increased along the entire revised reach.

The profile and Floodway Data Table for Sand Creek were revised as a result of these LOMRs. In addition, the name of the railroad shown on the profiles was changed from Chicago, Rock Island and Pacific Railroad Company to the Colorado and Eastern Railroad to agree with the information shown on the Flood Insurance Rate Map.

12. A LOMR was issued on September 7, 1994, for Colorado Springs, to reflect the effects of the reconstruction of the bridge at Murray Boulevard and channel modifications along Sand Creek West Fork.
13. A LOMR was issued on October 20, 1994, for Colorado Springs, to

reflect the effects of improvements to the detention pond located just upstream of Woodmen Road and the construction of a 48-inch reinforced-concrete culvert from the detention pond to a point approximately 1,650 feet upstream along North Fork Dry Creek.

14. LOMRs were issued on January 5, 1995, for the City of Colorado Springs and the unincorporated areas of El Paso County, to reflect the effects of the construction of a detention pond located just upstream of the confluence with Cottonwood Creek, channel improvements from the confluence to a point 2,600 feet upstream of the confluence, and a hydraulic analysis of the existing channel above the channelization using more detailed topographic mapping along Fairfax Creek.
15. A LOMR was issued on July 14, 1995, for a reach of Cottonwood Creek through Colorado Springs. This LOMR shows the effects of updated topographic information from approximately 1,650 feet downstream to approximately 2,700 feet upstream of Rangewood Drive, and the construction of a culvert at Rangewood Drive. As a result of this revision, the BFEs increased and decreased and the width of the SFHA decreased. In addition, the discrepancy between the channel length shown on the Flood Insurance Rate Map and Profile Panels between Cross Sections AI and AK was corrected using information provided to process the LOMR. The Flood Insurance Rate Map, Profile Panels, and Floodway Data Table were revised to reflect this LOMR.
16. LOMRs were issued on October 25, 1995, for the City of Colorado Springs and the unincorporated areas of El Paso County, to reflect the effects of revised topography and improved roadway crossings at Galley Road and Powers Boulevard along Sand Creek between East Platte Avenue and the Colorado Eastern Railroad.
17. A LOMR was issued on January 22, 1996, for the City of Colorado Springs to reflect the effects of the construction of approximately 2,500 linear feet of storm sewer and two storm sewer detention ponds along Dry Creek and approximately 100 linear feet of storm sewer and one storm sewer detention pond along South Valley Dry Creek.
18. A LOMR was issued September 17, 1996, for the City of Colorado Springs to reflect the effects of the construction of an underground pipe along Dry Creek from approximately 400 feet upstream to approximately 1,200 feet upstream of the intersection of Orchard Path Road and Orchard Valley Road.

10.6 Sixth Revision

This study was revised on August 23, 1999, to incorporate detailed flood-hazard information for the unincorporated areas of El Paso County and the Town of Calhan for Calhan Main Channel and Calhan East and Fairground Tributaries.

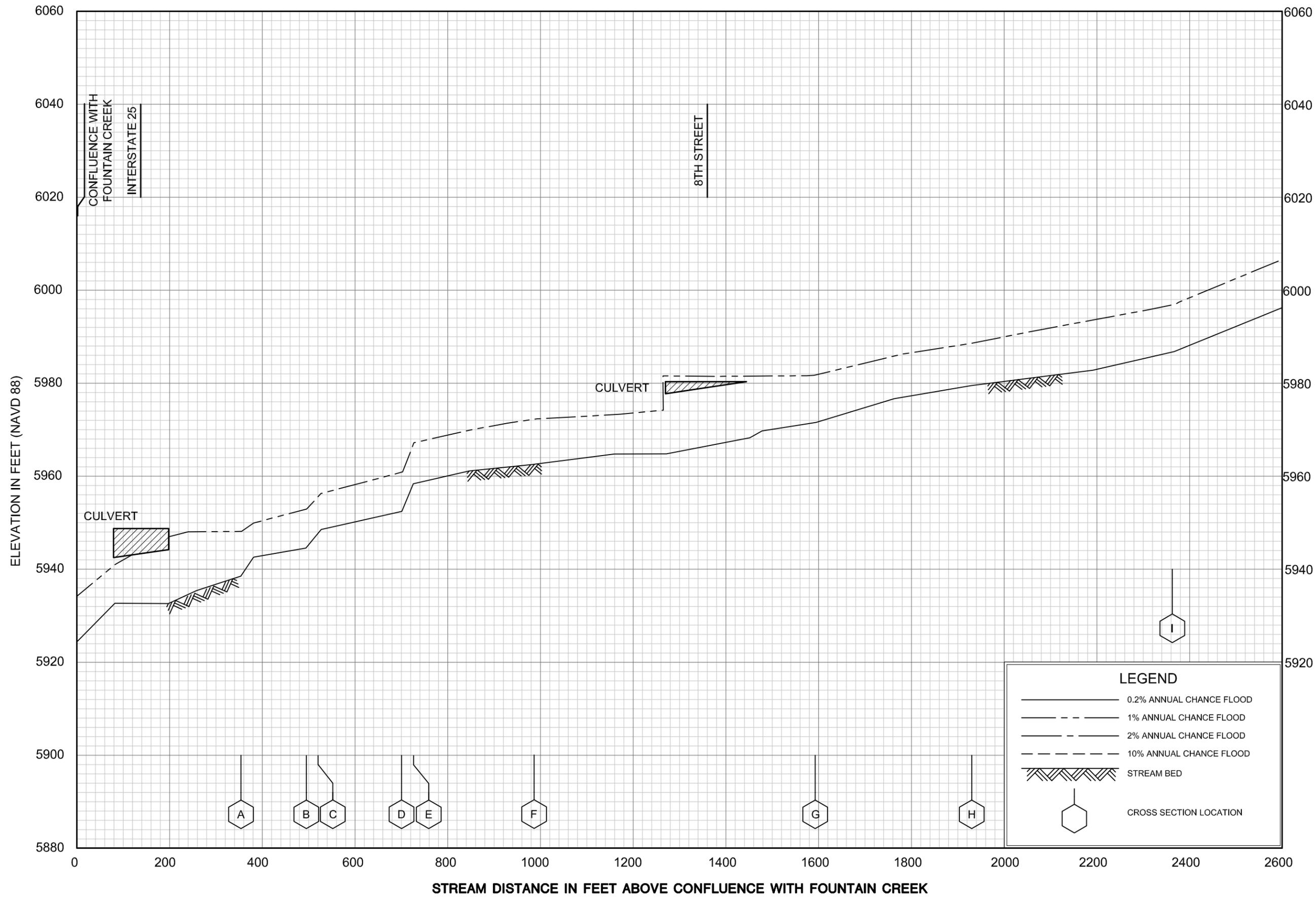
The hydrologic and hydraulic analyses for the restudy were prepared by the NRCS, in cooperation with the CWCB, El Paso County, and the Town of Calhan. The data used for the restudy were originally prepared for purposes other than the NFIP. FEMA did not perform a technical review of the data, but does accept them as valid for purposes of the restudy and the NFIP.

The results of the restudy were reviewed at the final CCO meeting held on February 22, 1999, and attended by representatives of the Town of Calhan and FEMA. All problems raised at the meeting have been addressed in this restudy.

The 1-percent-annual-chance discharges were based on results of a TR-20 computer model to generate peak frequency discharges. The 10-percent, 2-percent, 1-percent, and 0.2-percent-annual-chance flood peak discharges are shown in Table 3, "Summary of Discharges." The hydraulic analyses were developed using the USACE HEC-2 computer program.

Channel cross sections were obtained from topographic maps at a scale of 1" = 200', with a contour interval of 2 feet. Bridge sections and roughness coefficients (Manning's "n" values) were established based on field inspections from site visits. The vegetation in the watersheds is predominantly native range in fair to poor condition. Approximately 25 percent of the lower basin is occupied by residential and commercial properties. Most of the properties are located in the northeast corner of the lower basin. The floodplains within the study limits generally contain typically residential and commercial property improvements, such as buildings, yards, fences, streets, and vehicles. Vegetation such as lawns, shrubs, and trees is part of the landscaping. The slopes range from 4 to 6 percent.

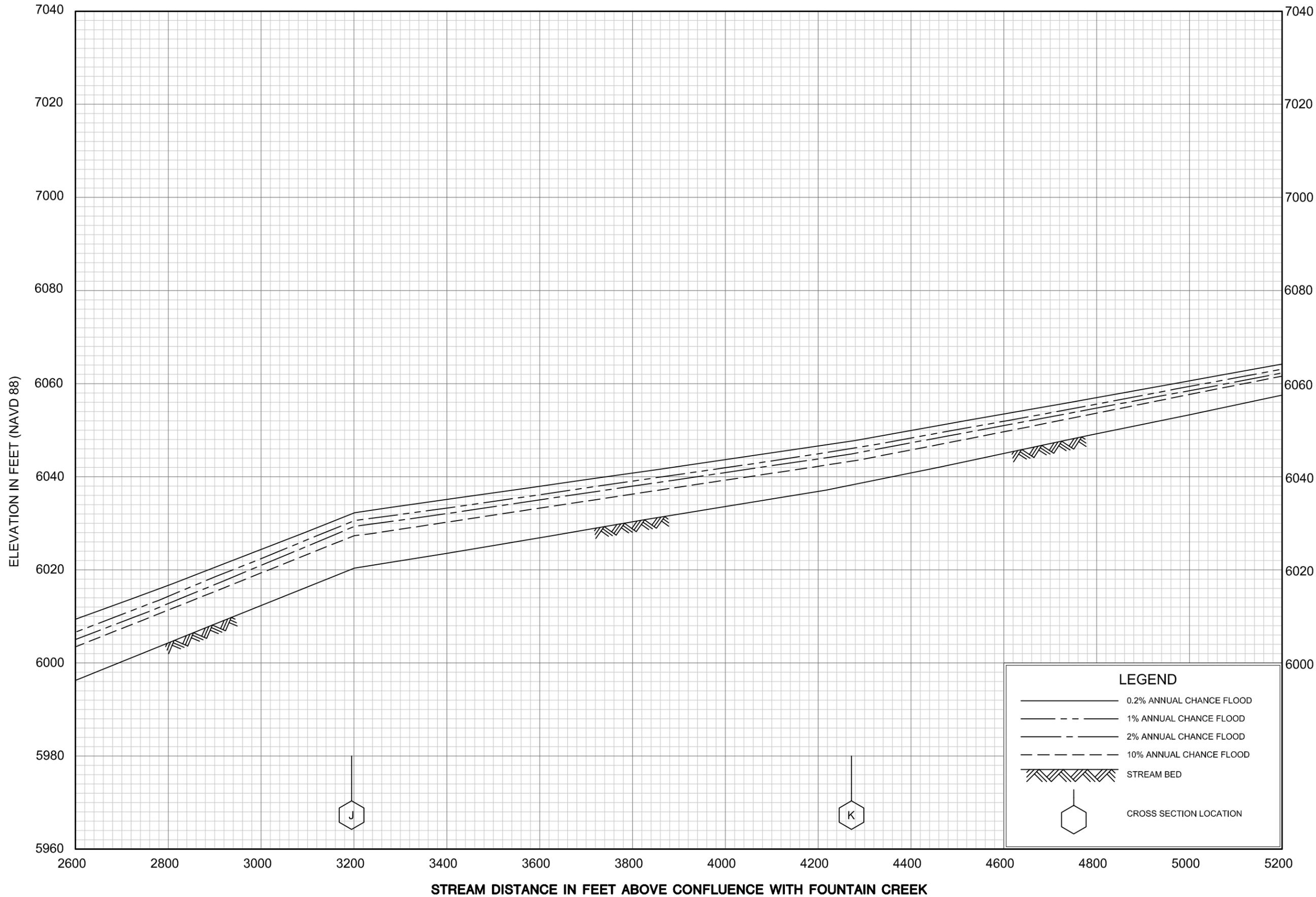
Table 2, "Streams Studied by Detailed Methods," and Exhibit 1, "Flood Profiles," were revised to reflect changes as a result of the restudy.



FLOOD PROFILES

BEAR CREEK

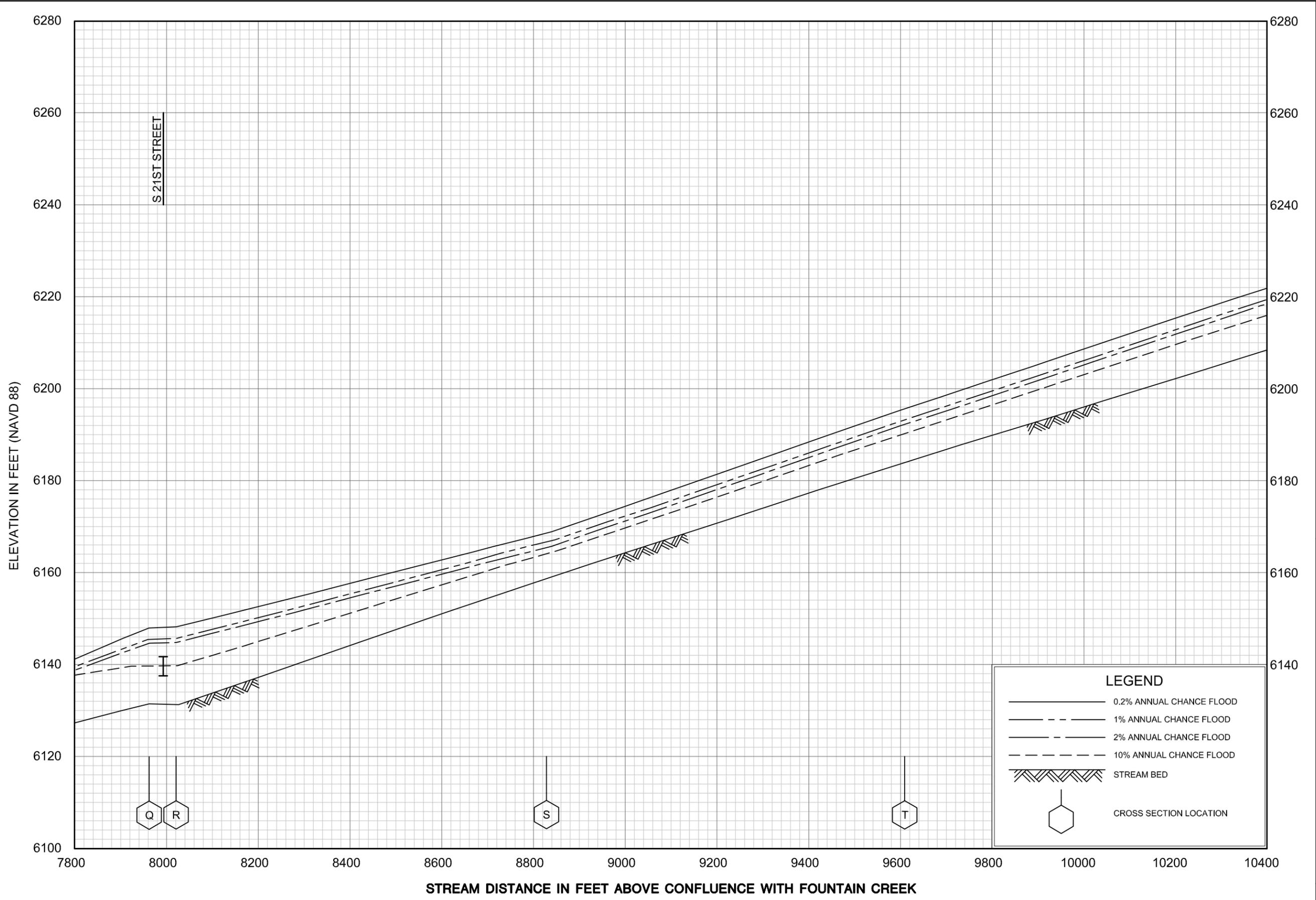
FEDERAL EMERGENCY MANAGEMENT AGENCY
EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)



FLOOD PROFILES

BEAR CREEK

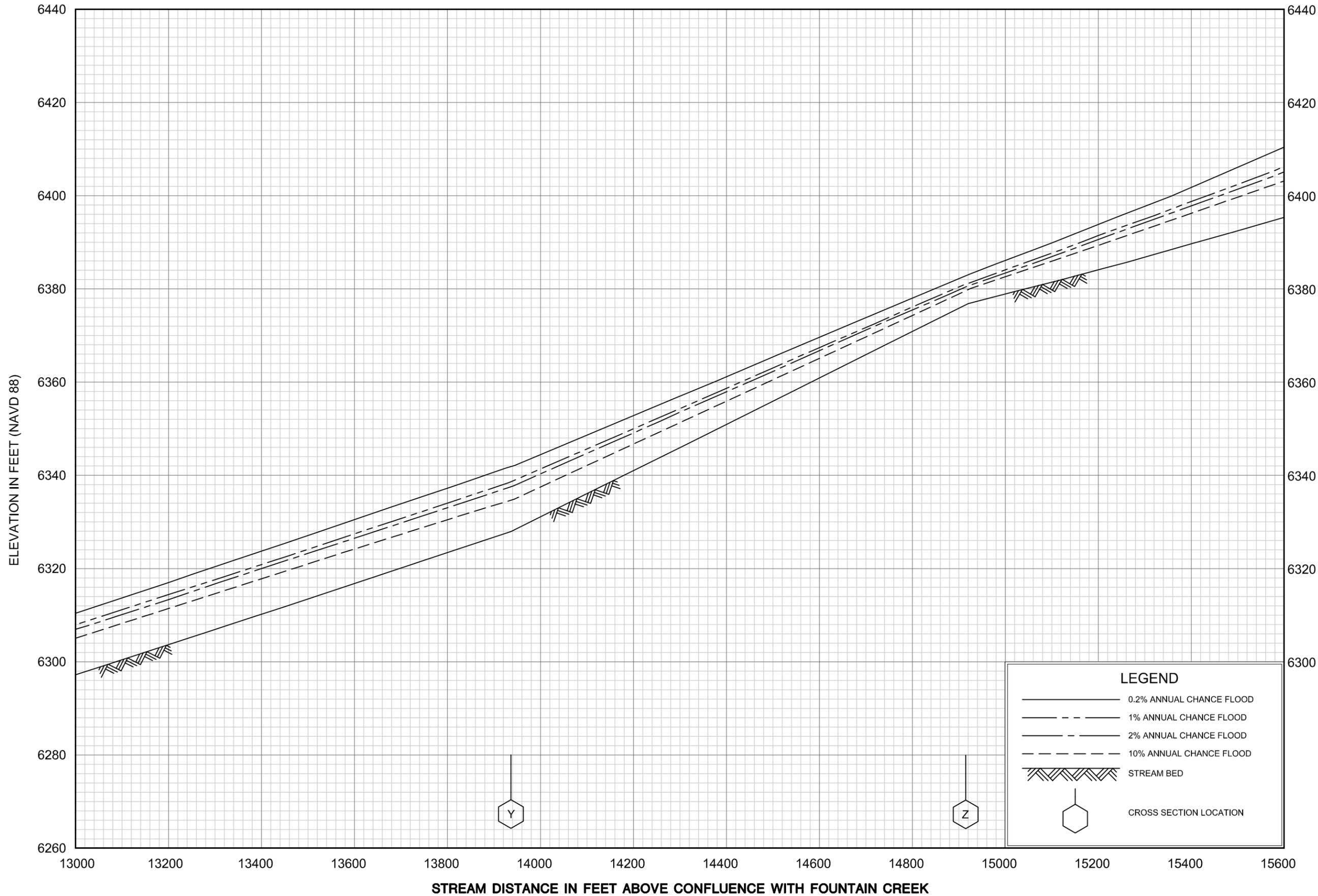
FEDERAL EMERGENCY MANAGEMENT AGENCY
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FLOOD PROFILES
BEAR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
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(AND INCORPORATED AREAS)

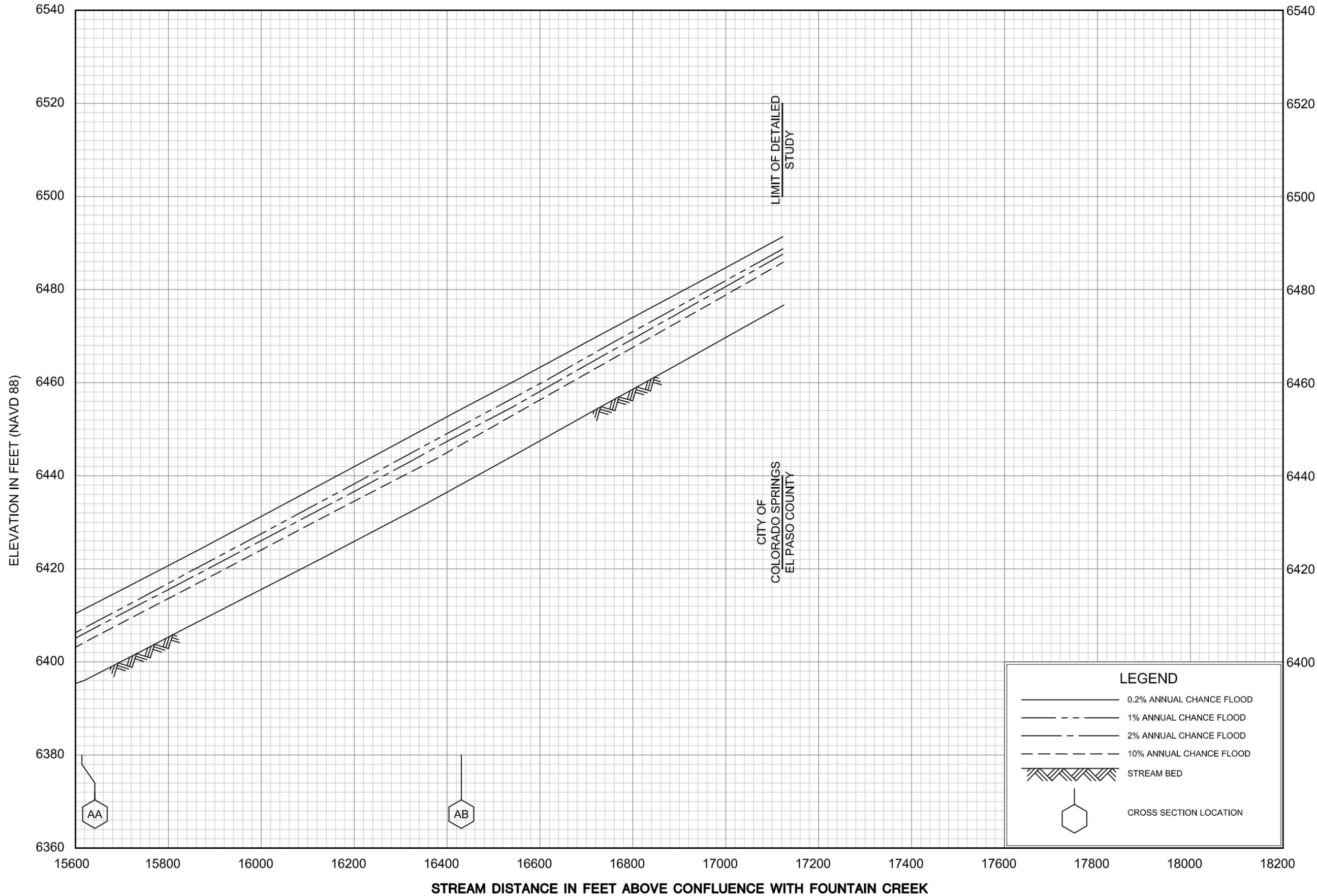
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FLOOD PROFILES

BEAR CREEK

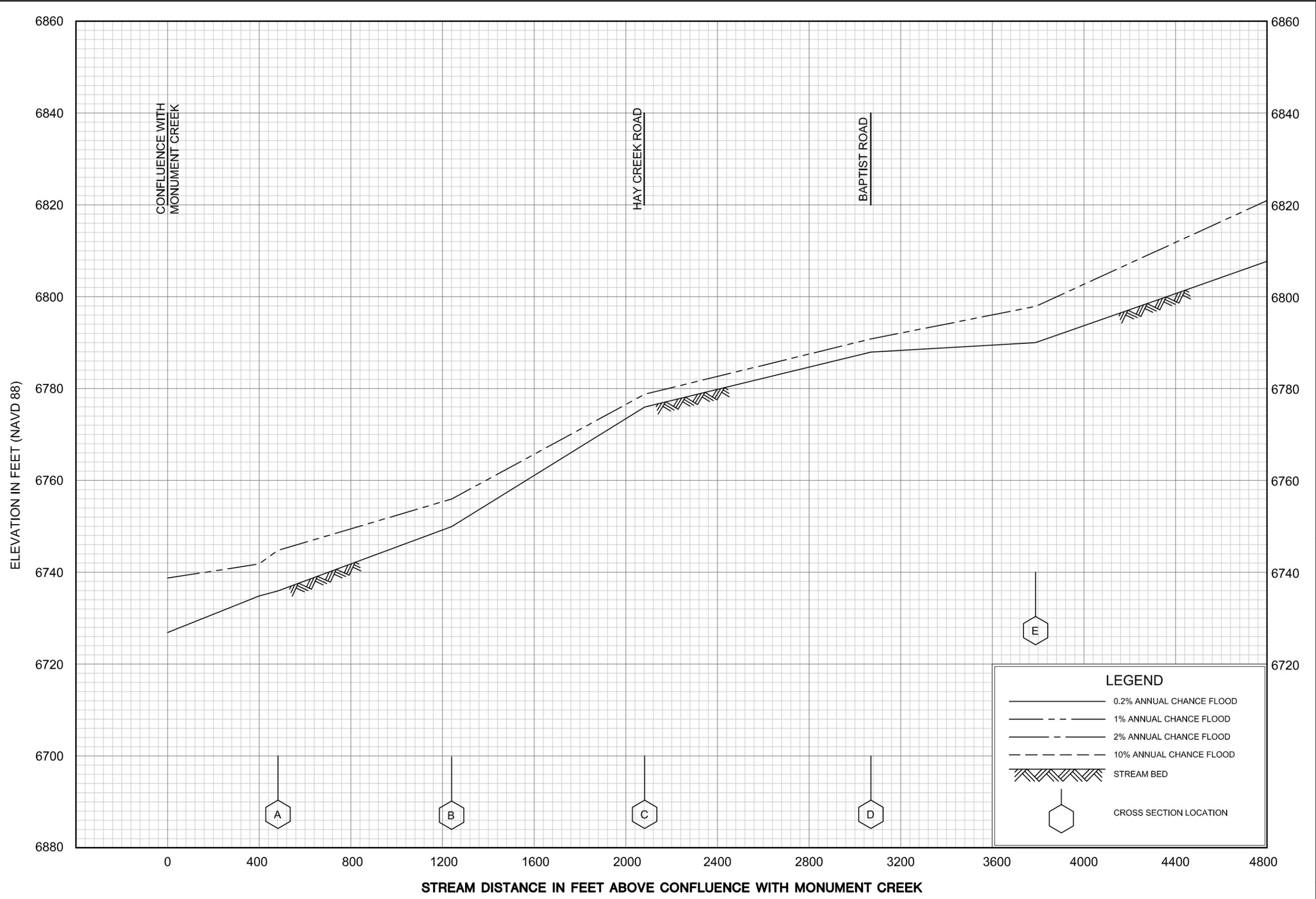
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 (AND INCORPORATED AREAS)



FLOOD PROFILES

BEAR CREEK

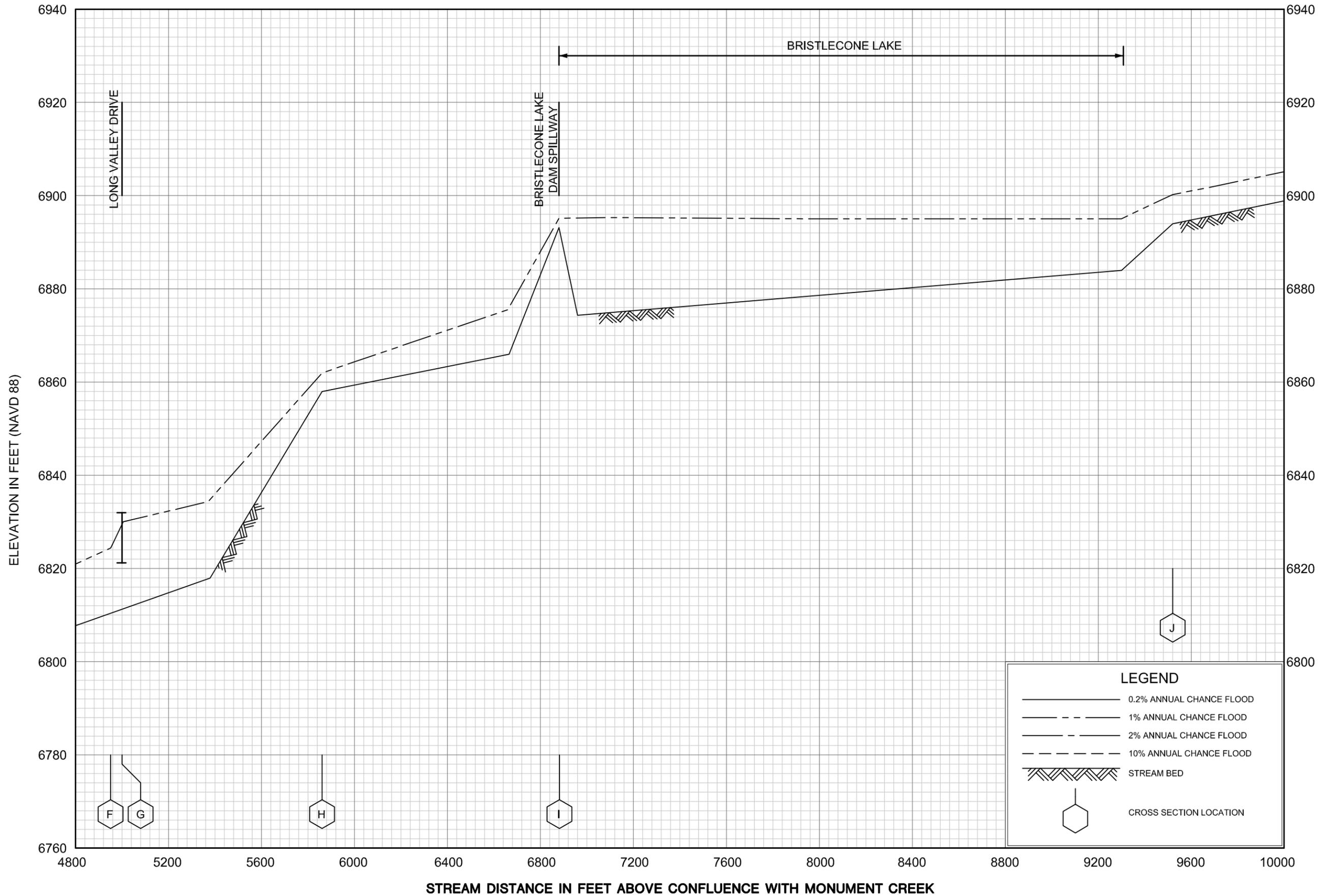
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FLOOD PROFILES
BEAVER CREEK

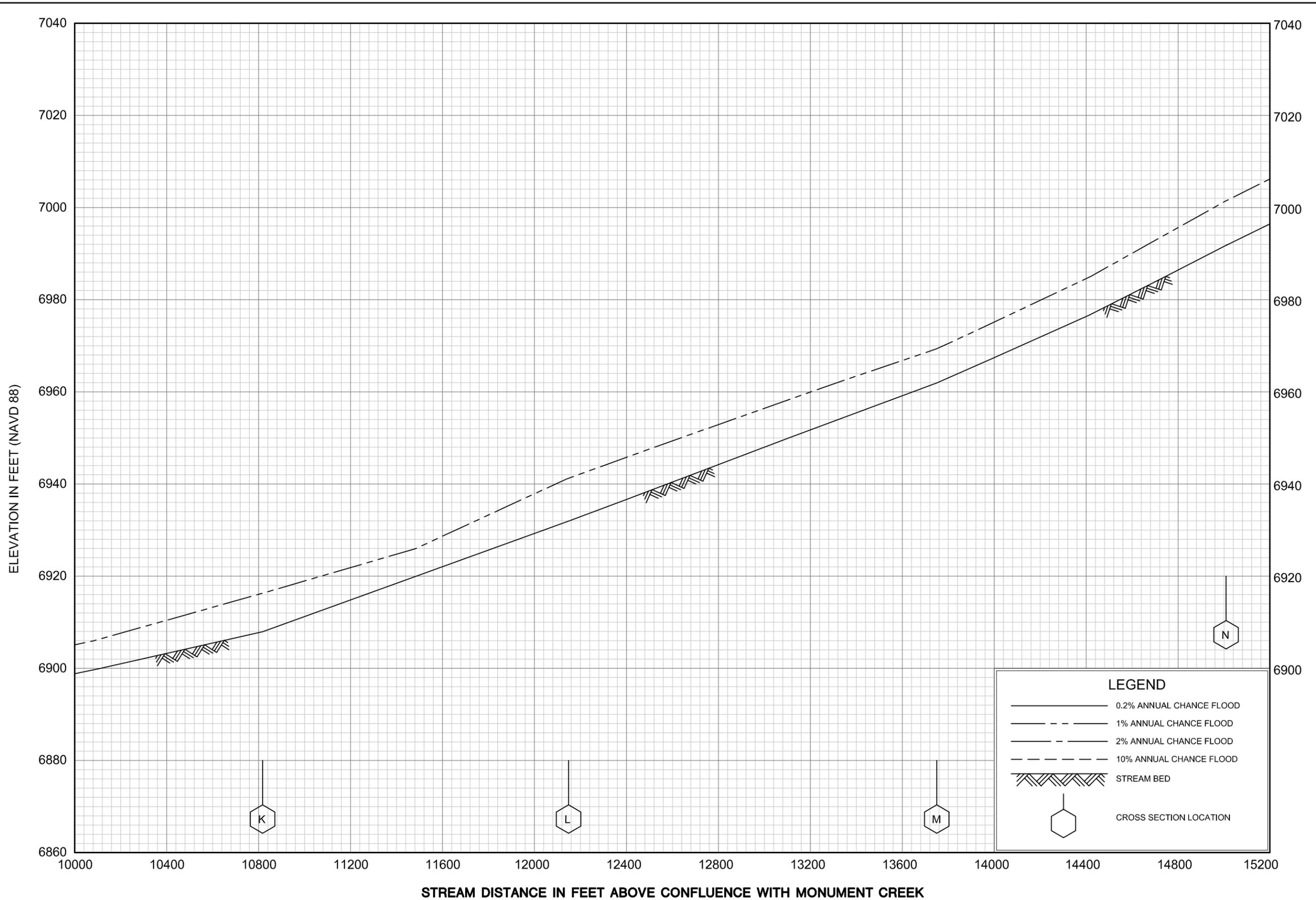
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EL PASO COUNTY, CO
(AND INCORPORATED AREAS)

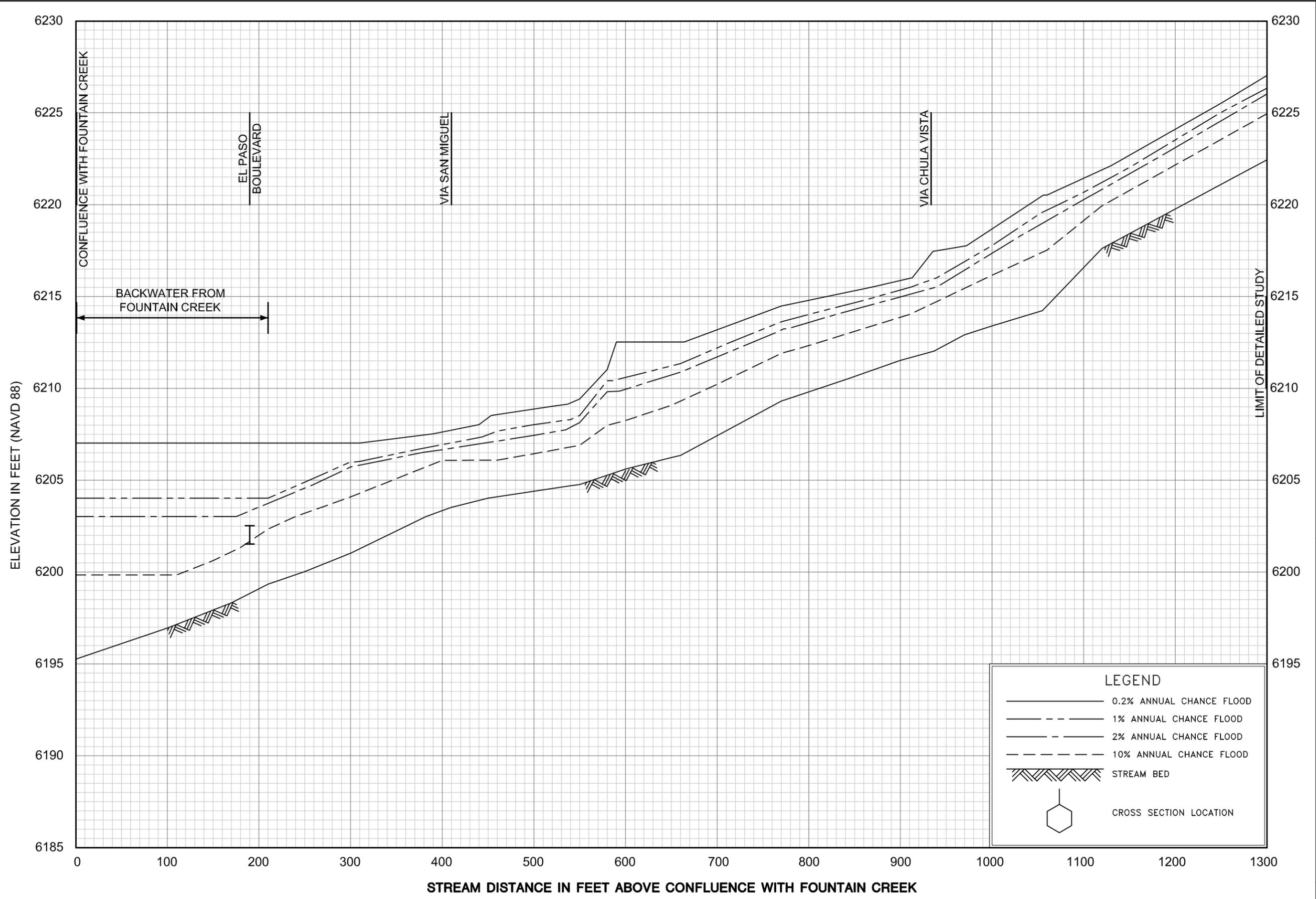
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FLOOD PROFILES
BEAVER CREEK

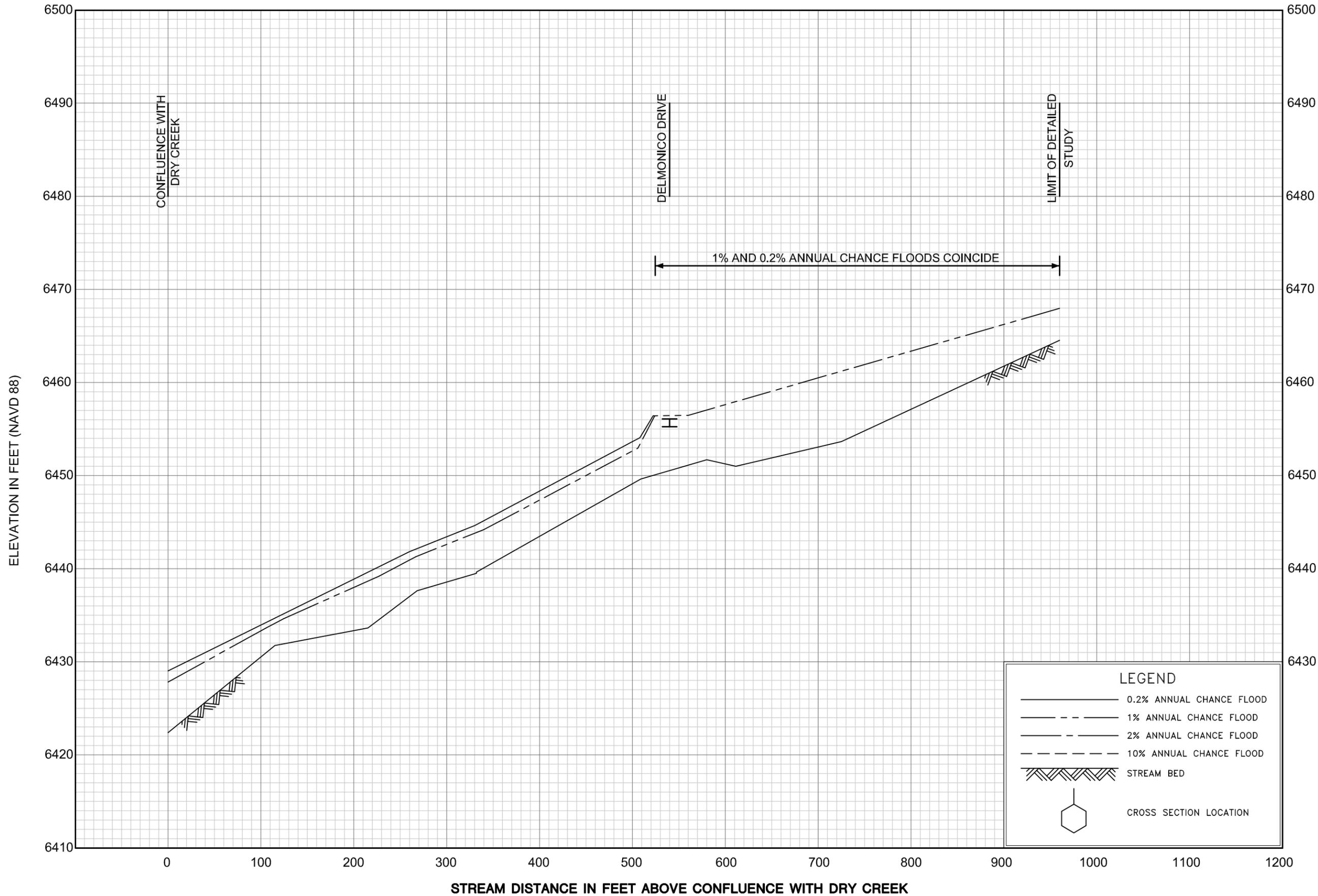
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FLOOD PROFILES
BECKERS LANE TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY
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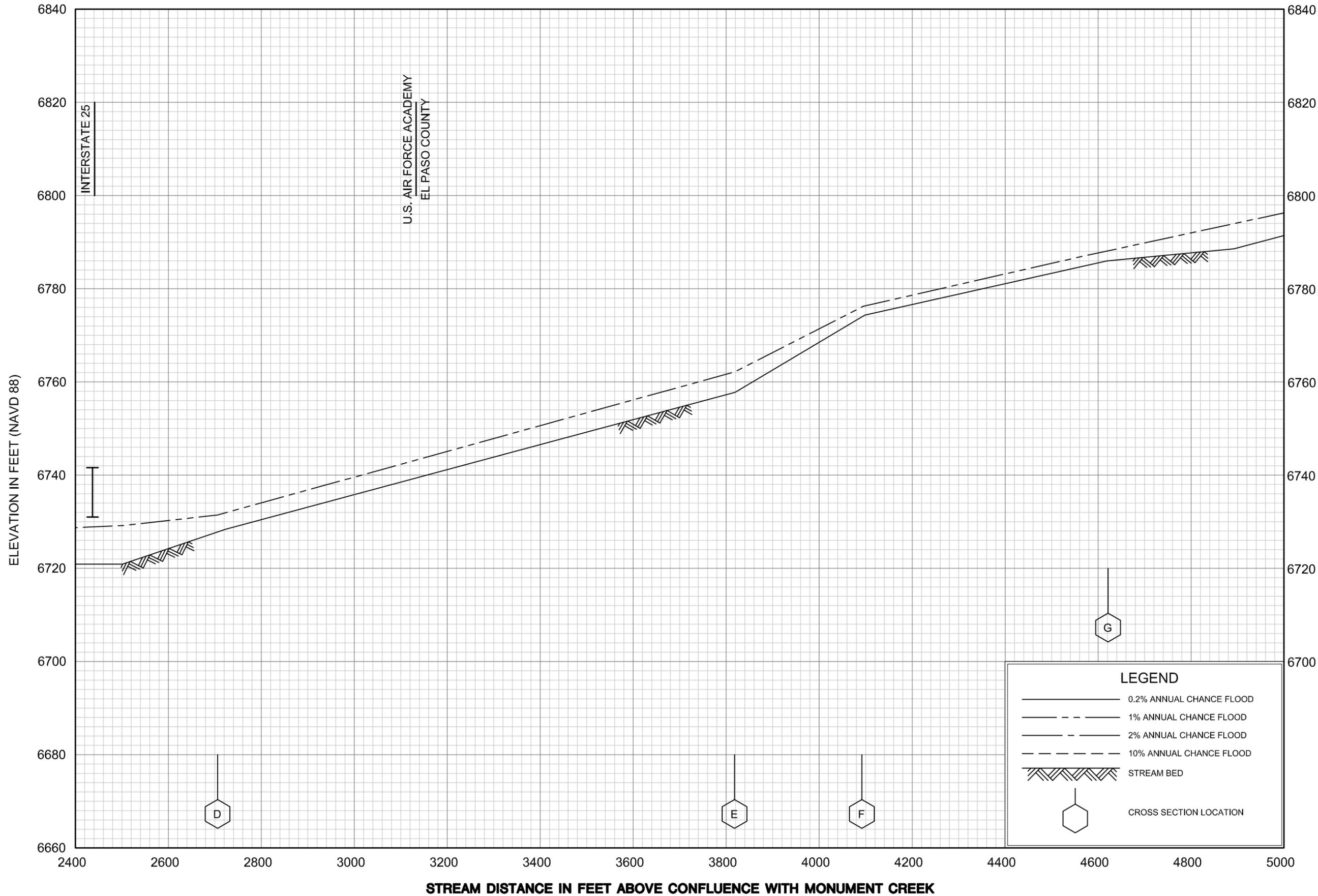


FLOOD PROFILES

BIG VALLEY

FEDERAL EMERGENCY MANAGEMENT AGENCY

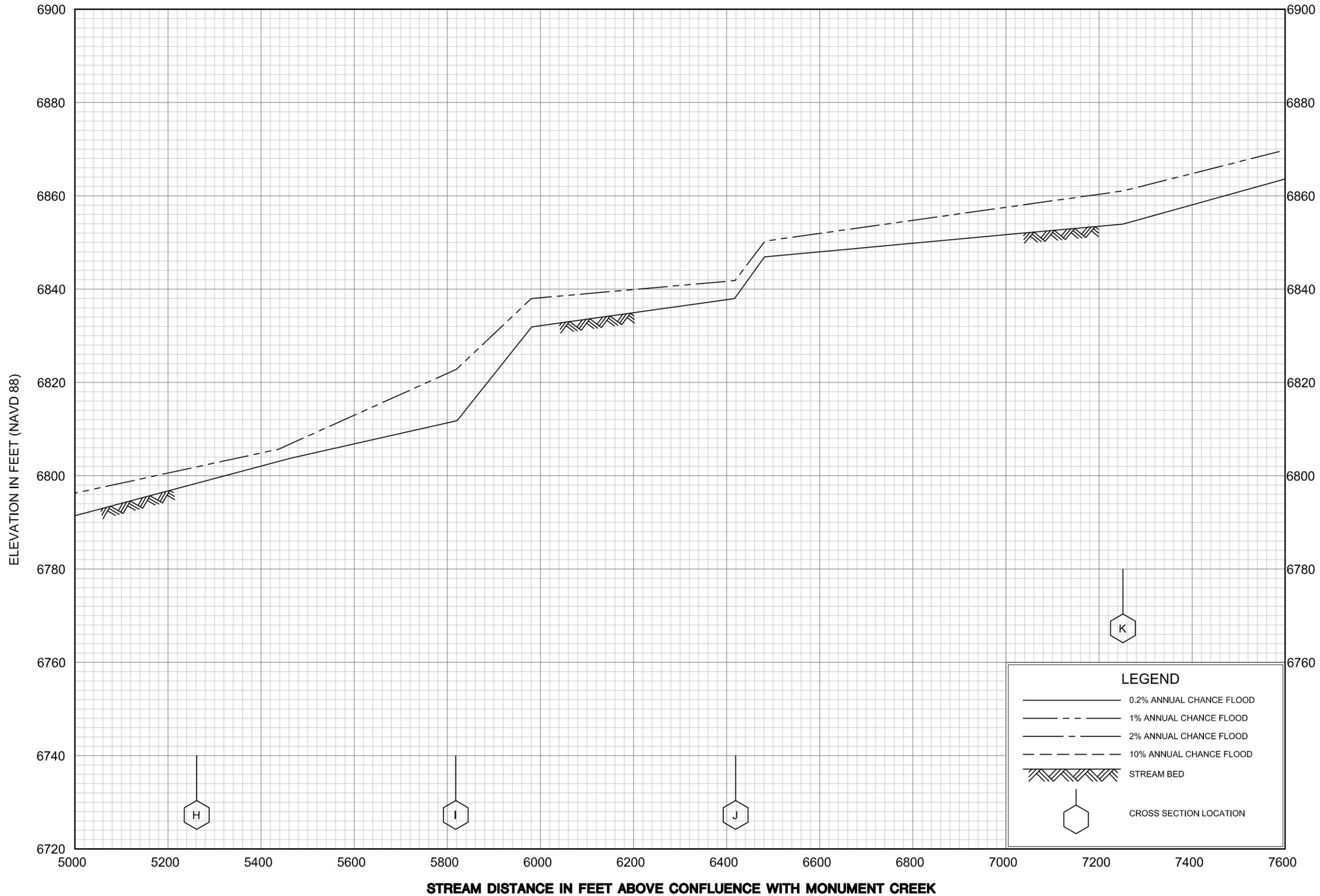
EL PASO COUNTY, CO
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FLOOD PROFILES

BLACK FOREST CREEK

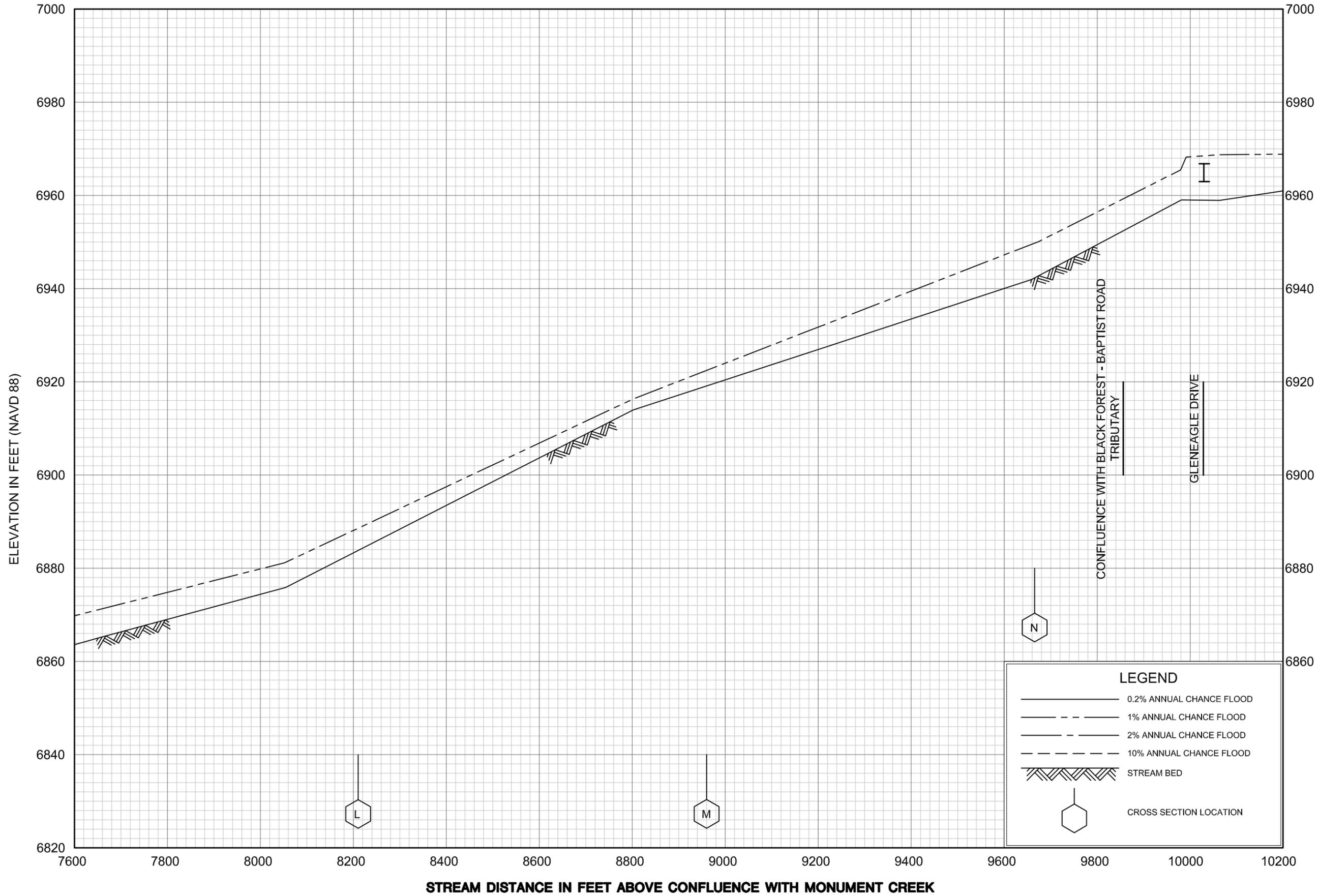
FEDERAL EMERGENCY MANAGEMENT AGENCY
EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)



FLOOD PROFILES

BLACK FOREST CREEK

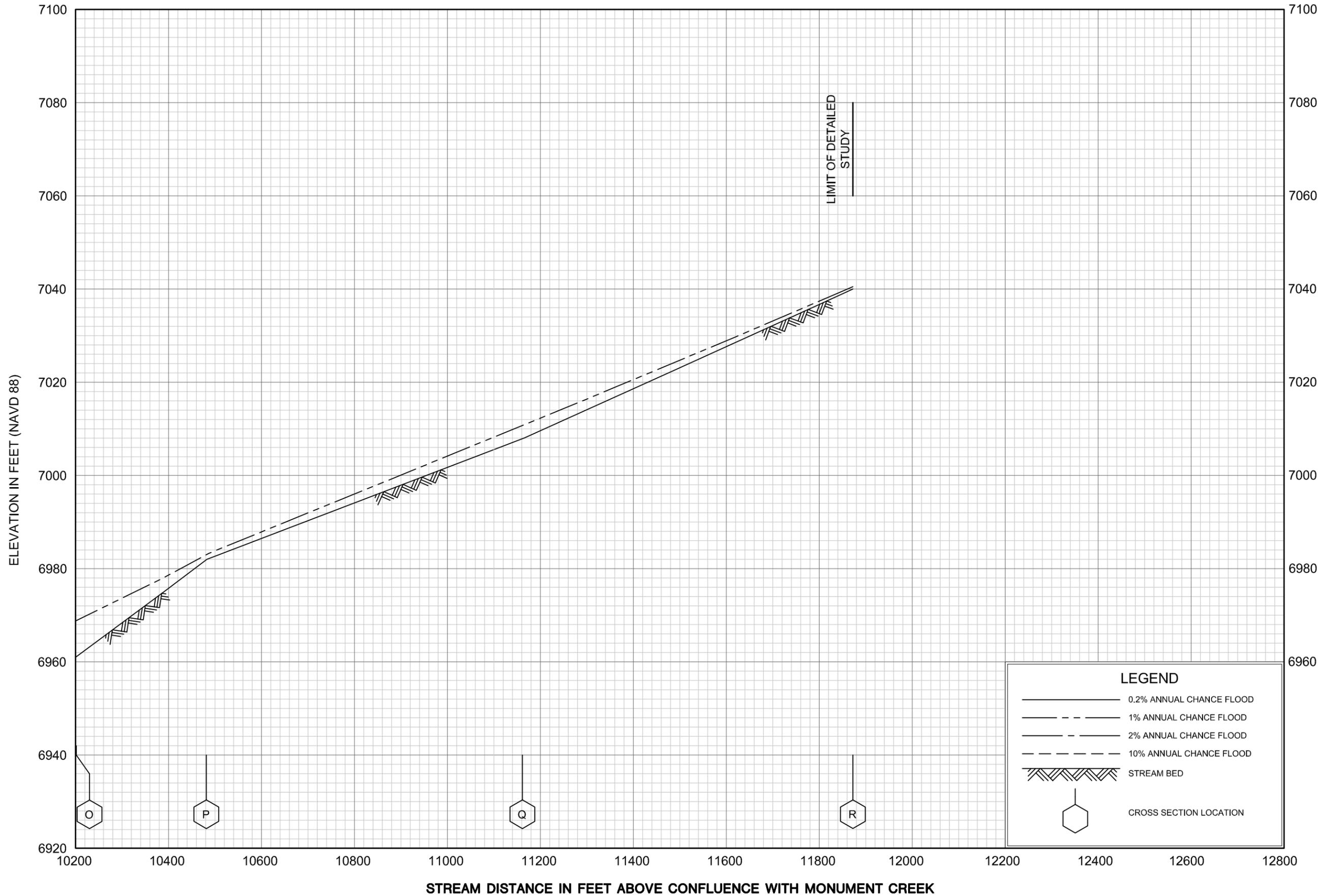
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FLOOD PROFILES

BLACK FOREST CREEK

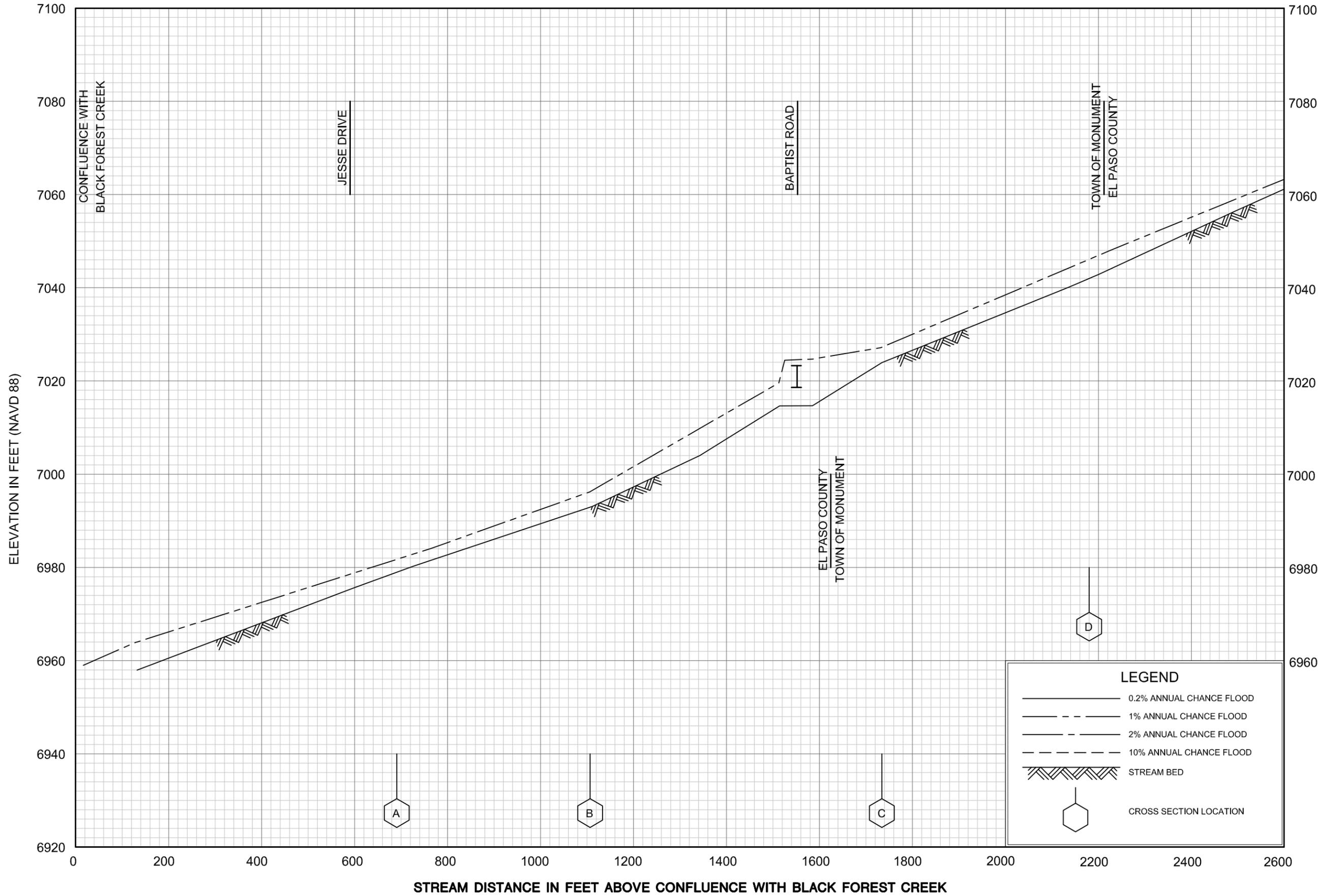
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FLOOD PROFILES

BLACK FOREST CREEK

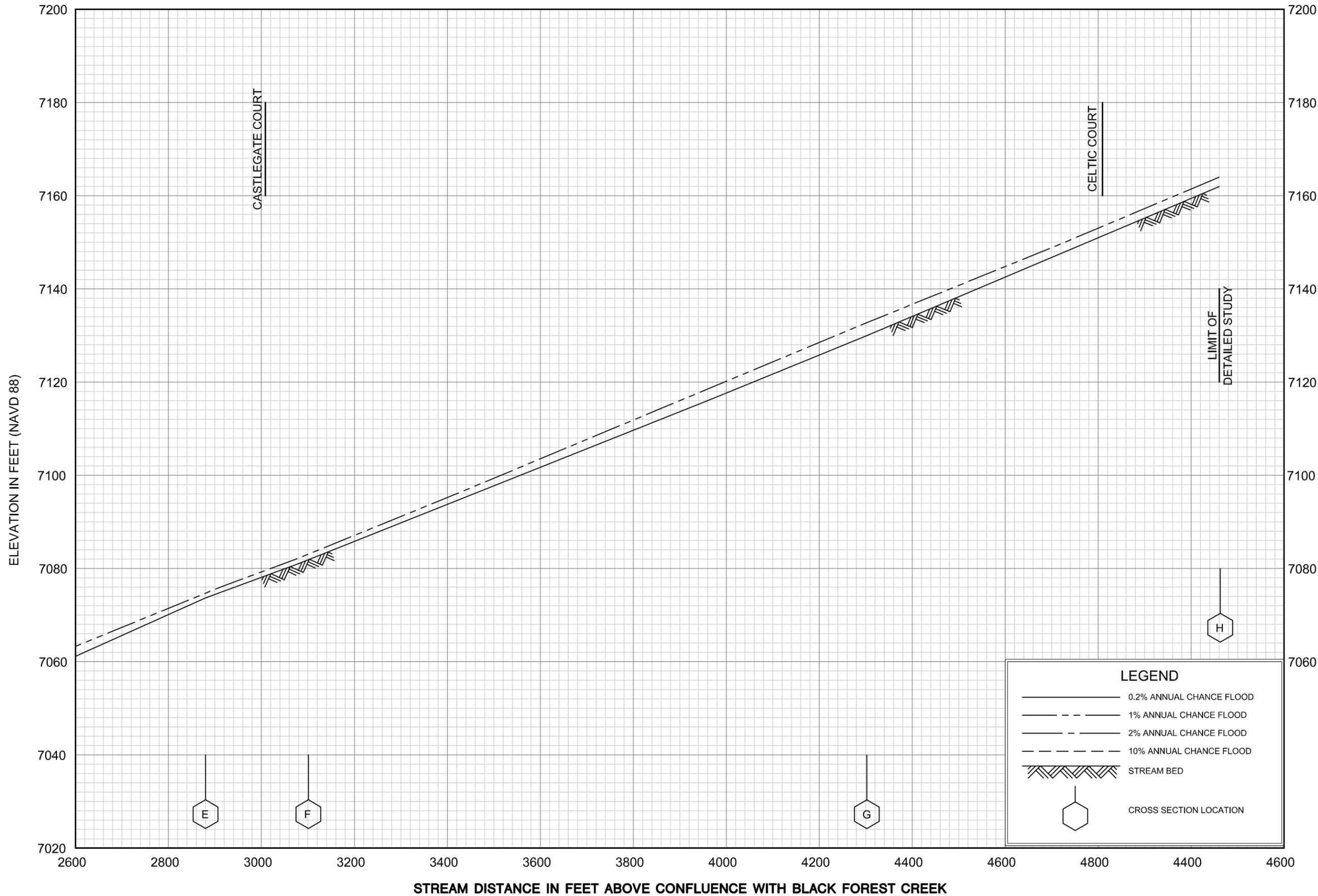
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EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)



FLOOD PROFILES

BLACK FOREST CREEK - BAPTIST ROAD TRIBUTARY

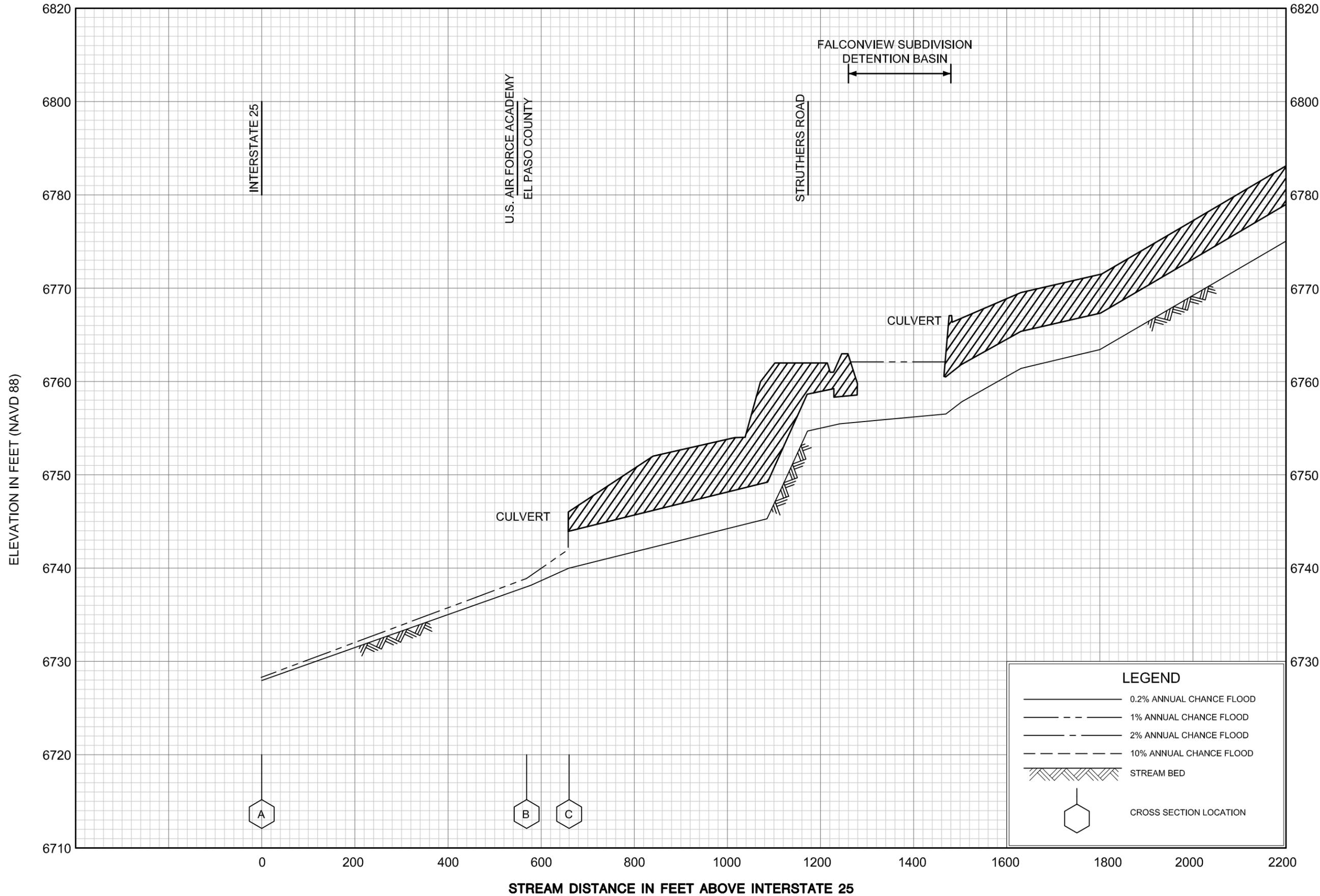
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EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)



FLOOD PROFILES

BLACK FOREST CREEK - BAPTIST ROAD TRIBUTARY

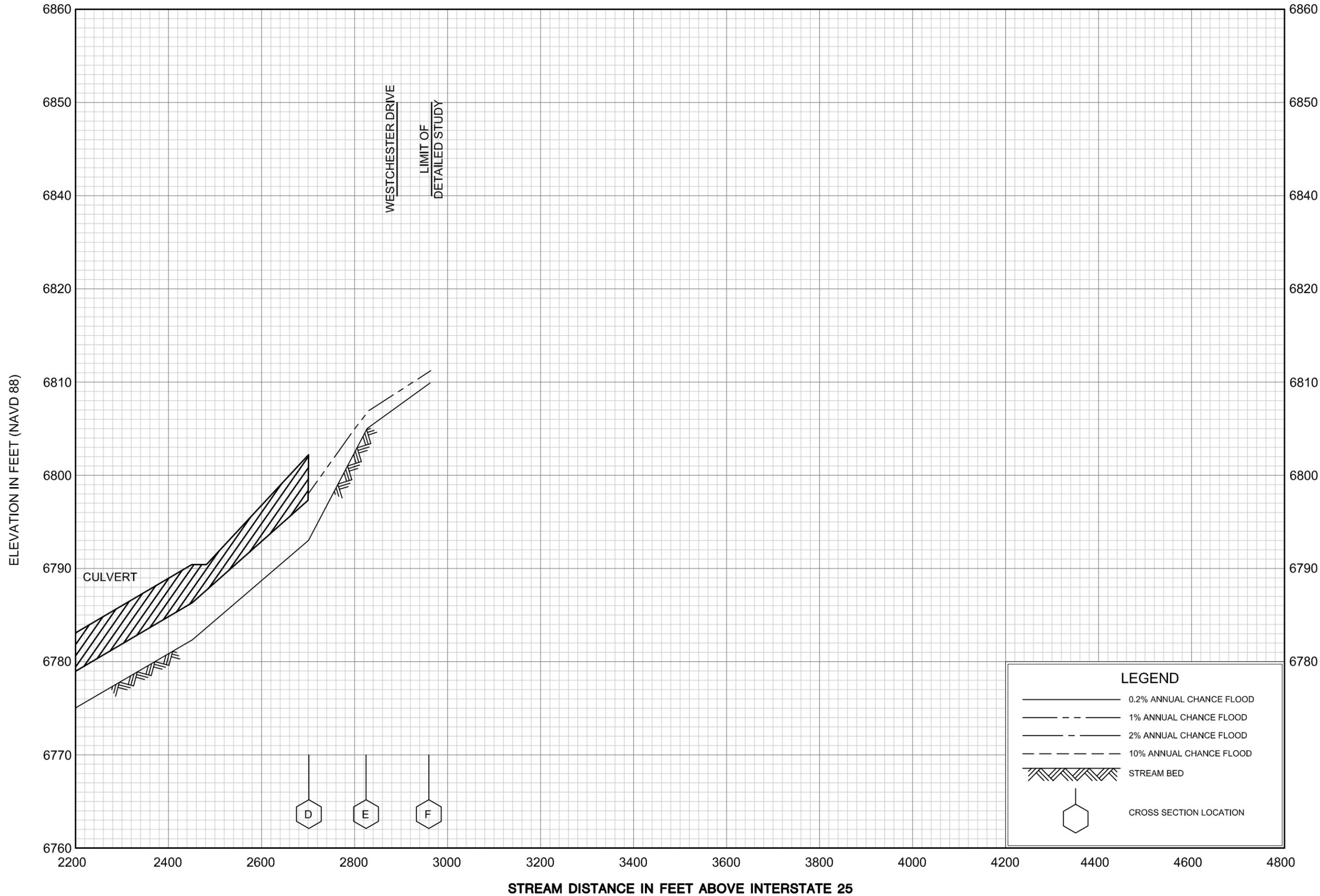
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EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)



FLOOD PROFILES

BLACK FOREST CREEK - MIDDLE TRIBUTARY

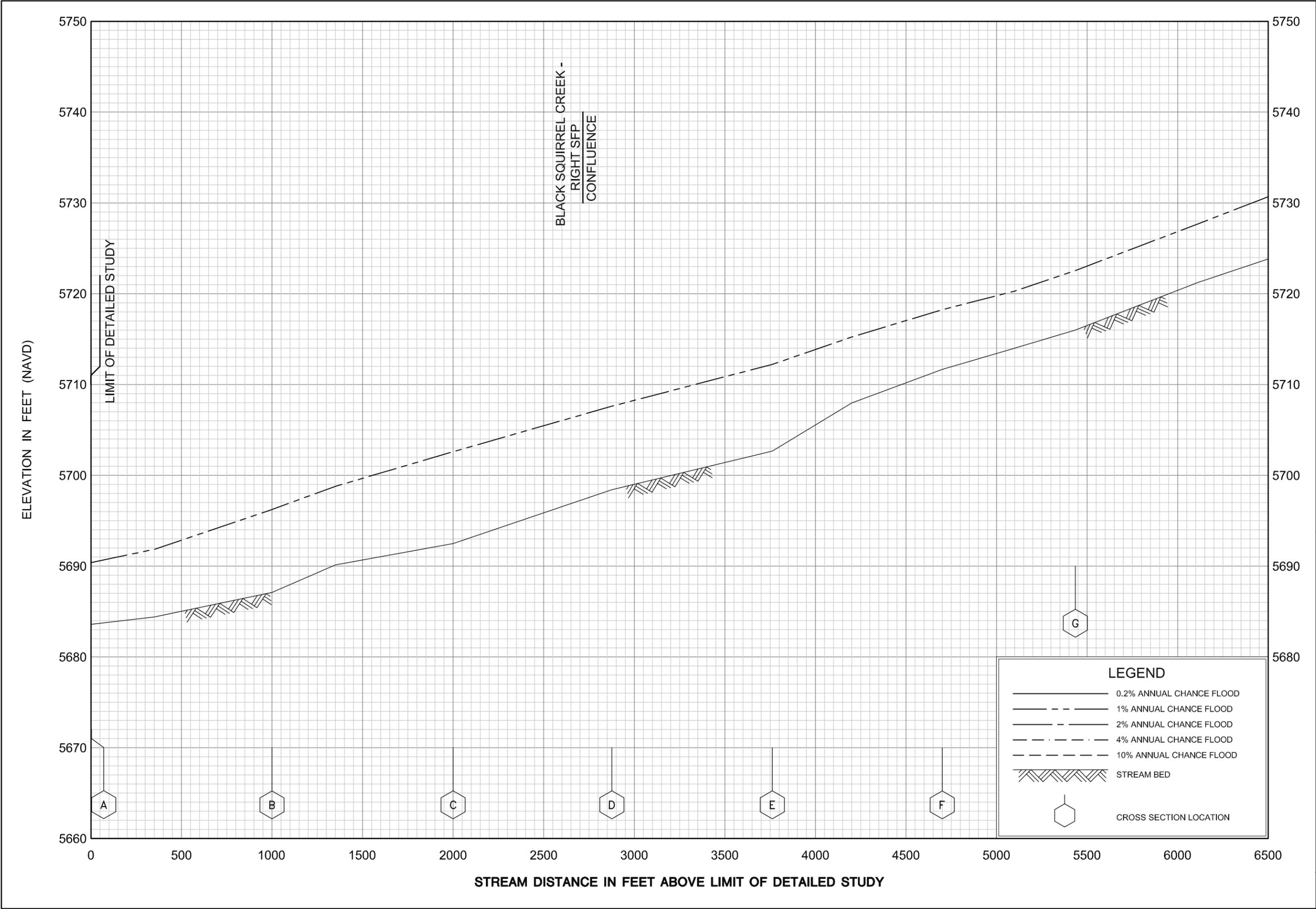
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FLOOD PROFILES

BLACK FOREST CREEK - MIDDLE TRIBUTARY

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EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)

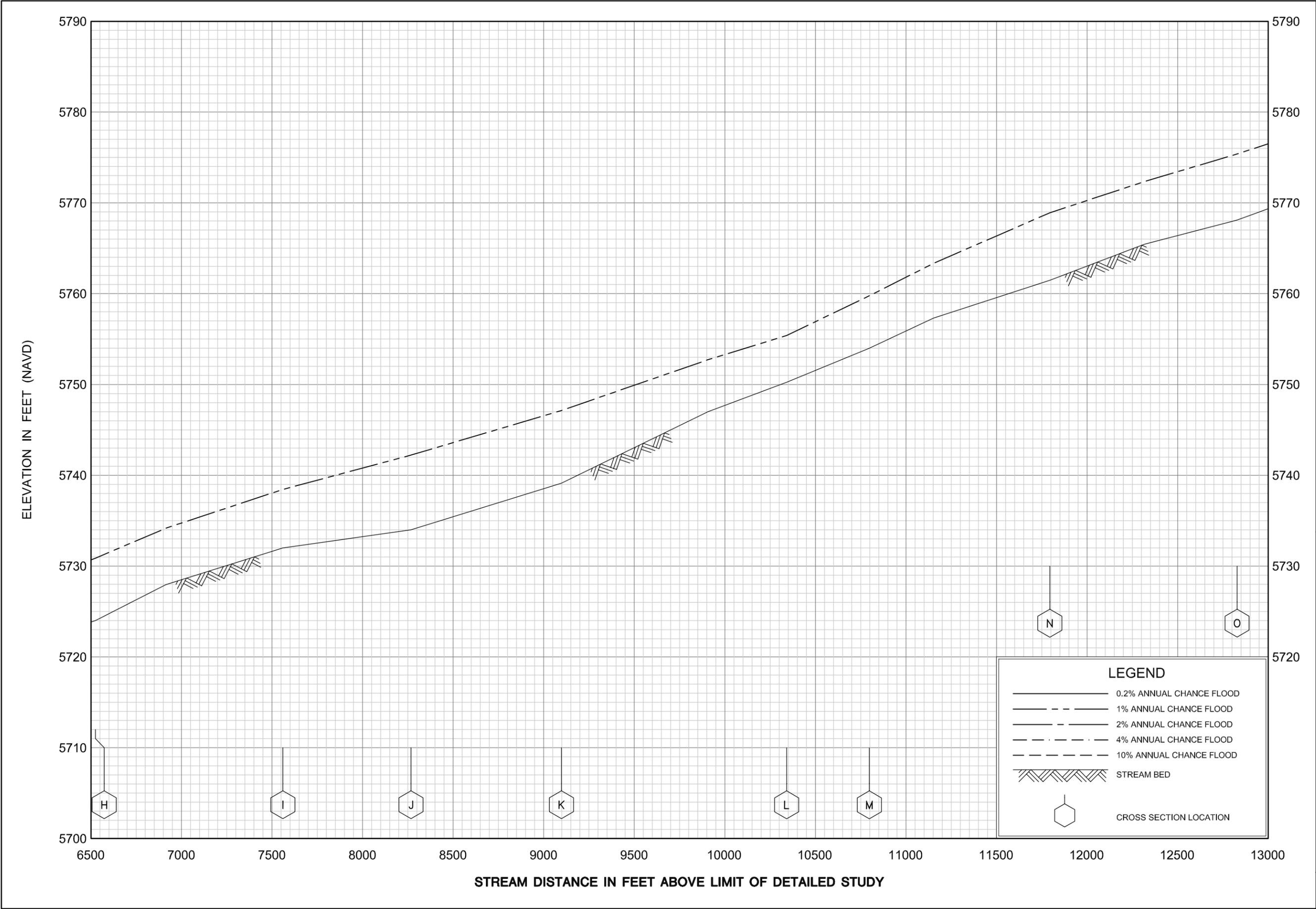


FLOOD PROFILES

BLACK SQUIRREL CREEK

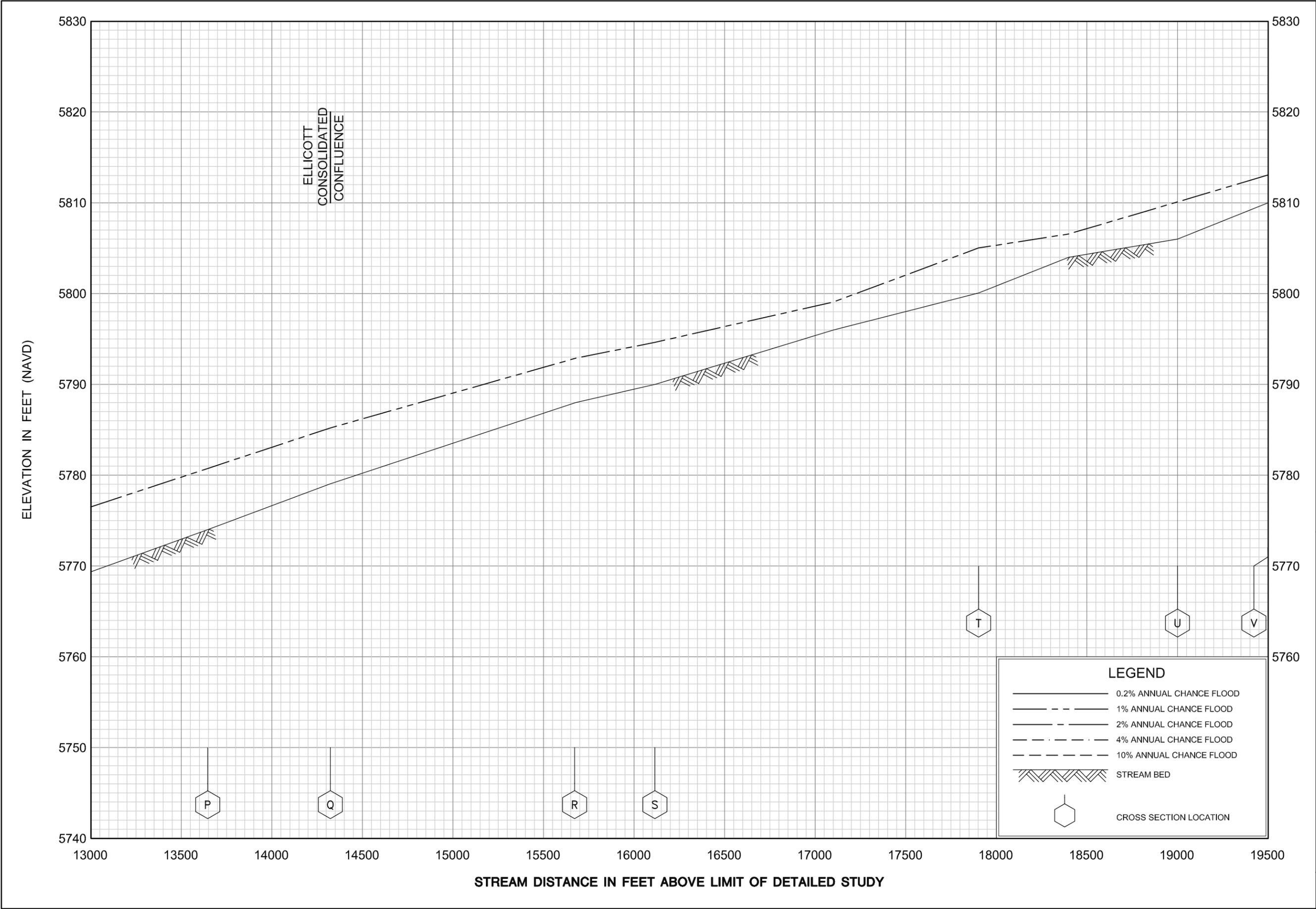
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AND INCORPORATED AREAS



FLOOD PROFILES
BLACK SQUIRREL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
EL PASO COUNTY, CO
AND INCORPORATED AREAS

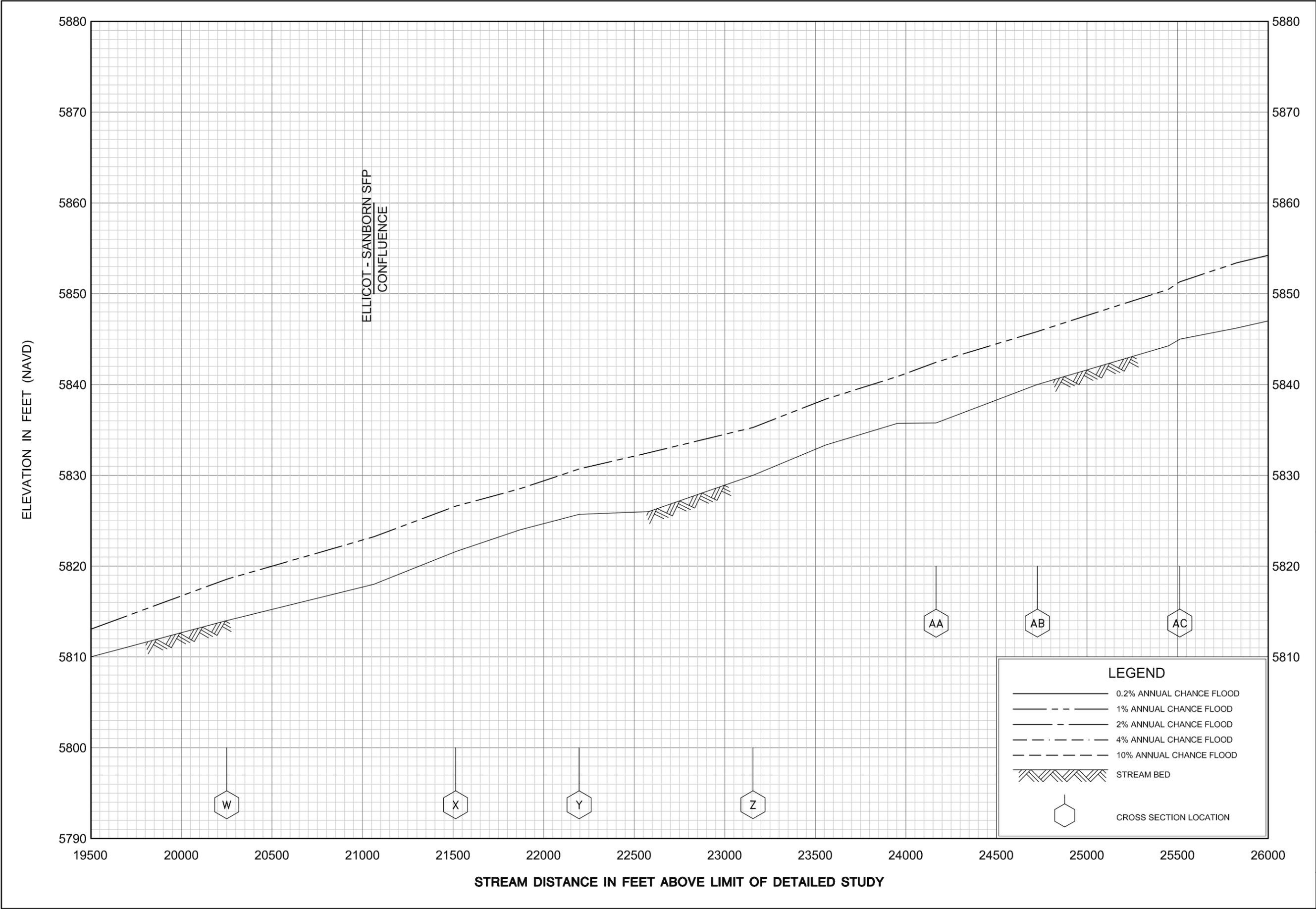


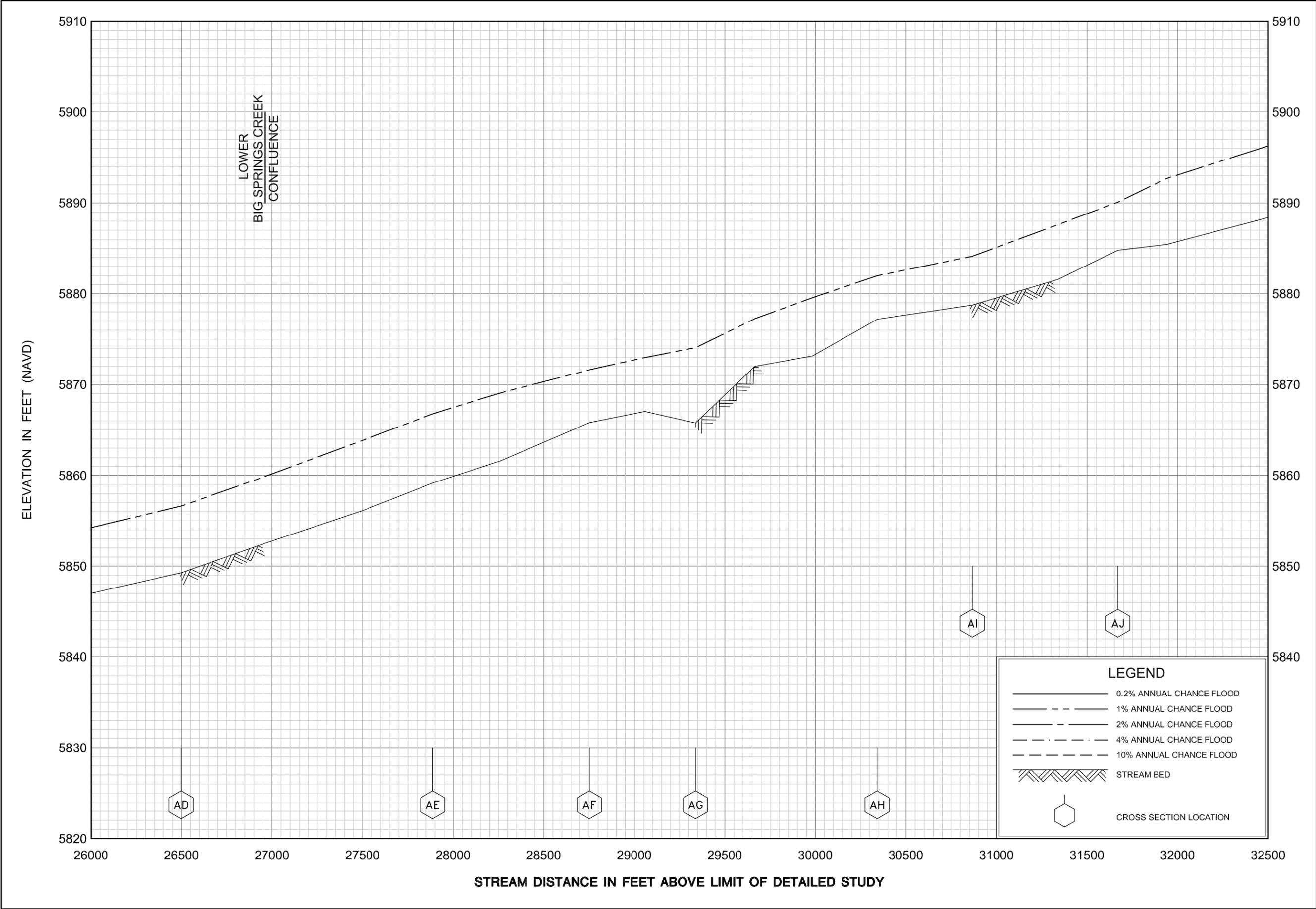
FLOOD PROFILES

BLACK SQUIRREL CREEK

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AND INCORPORATED AREAS



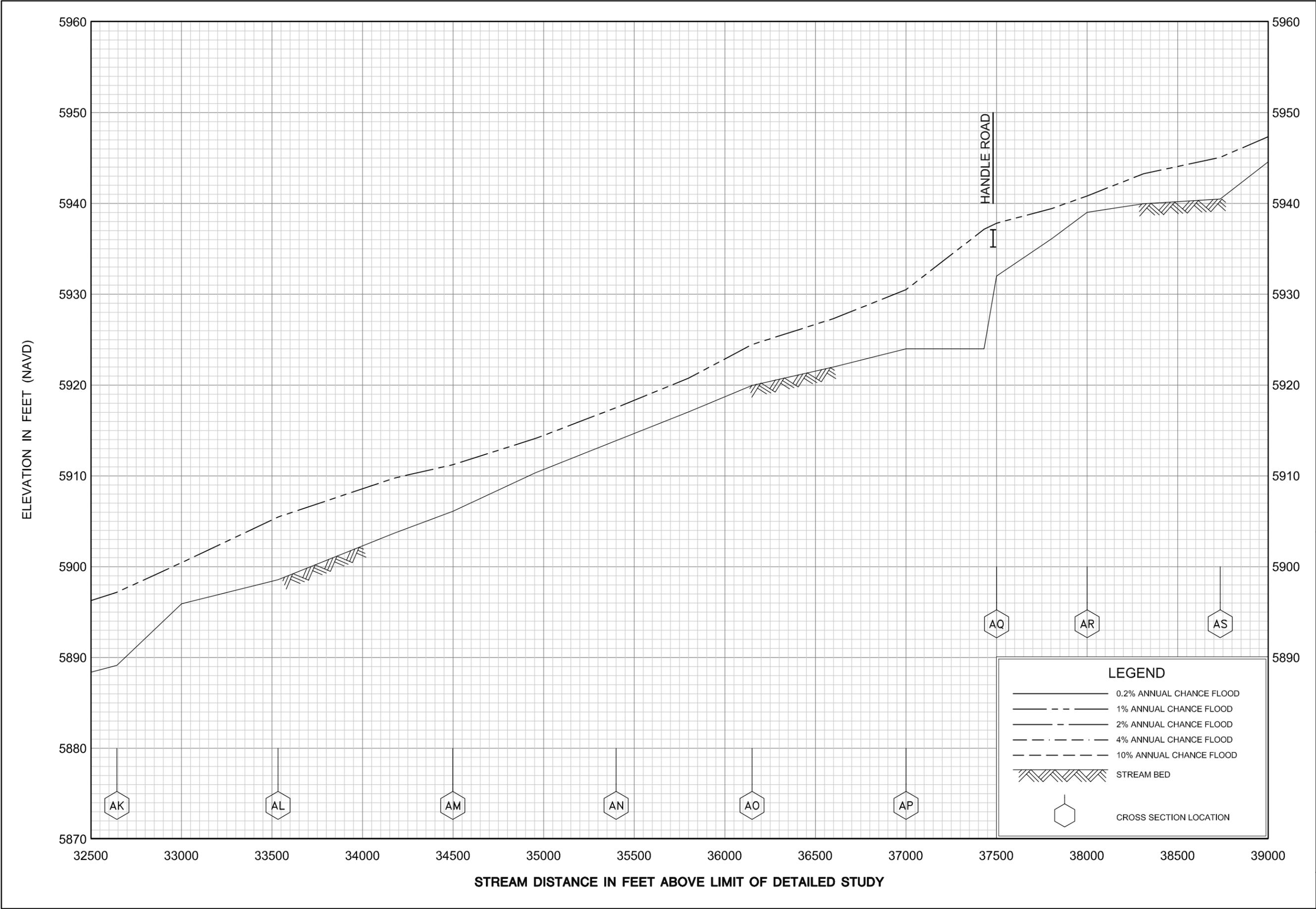


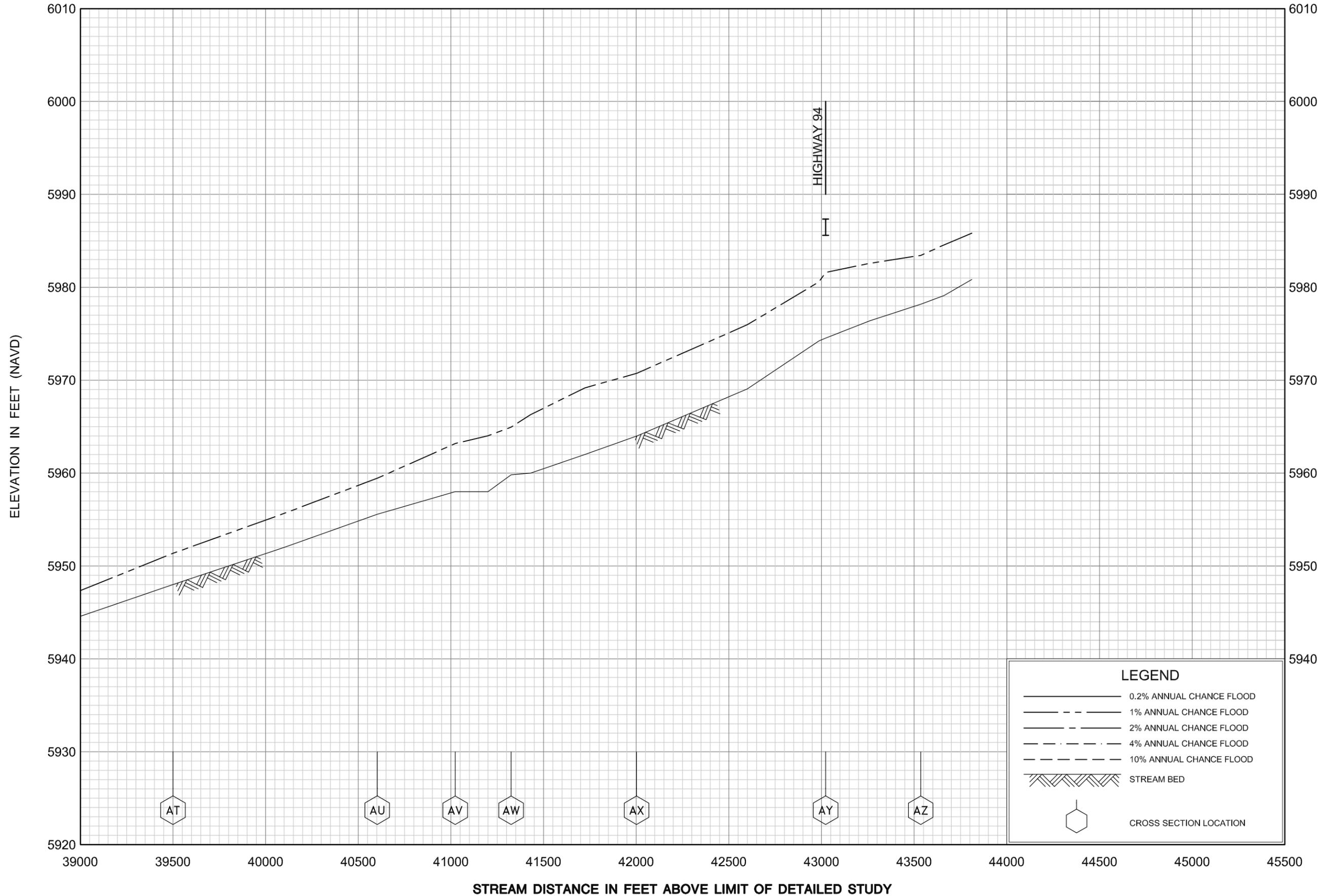
FLOOD PROFILES

BLACK SQUIRREL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

EL PASO COUNTY, CO
AND INCORPORATED AREAS



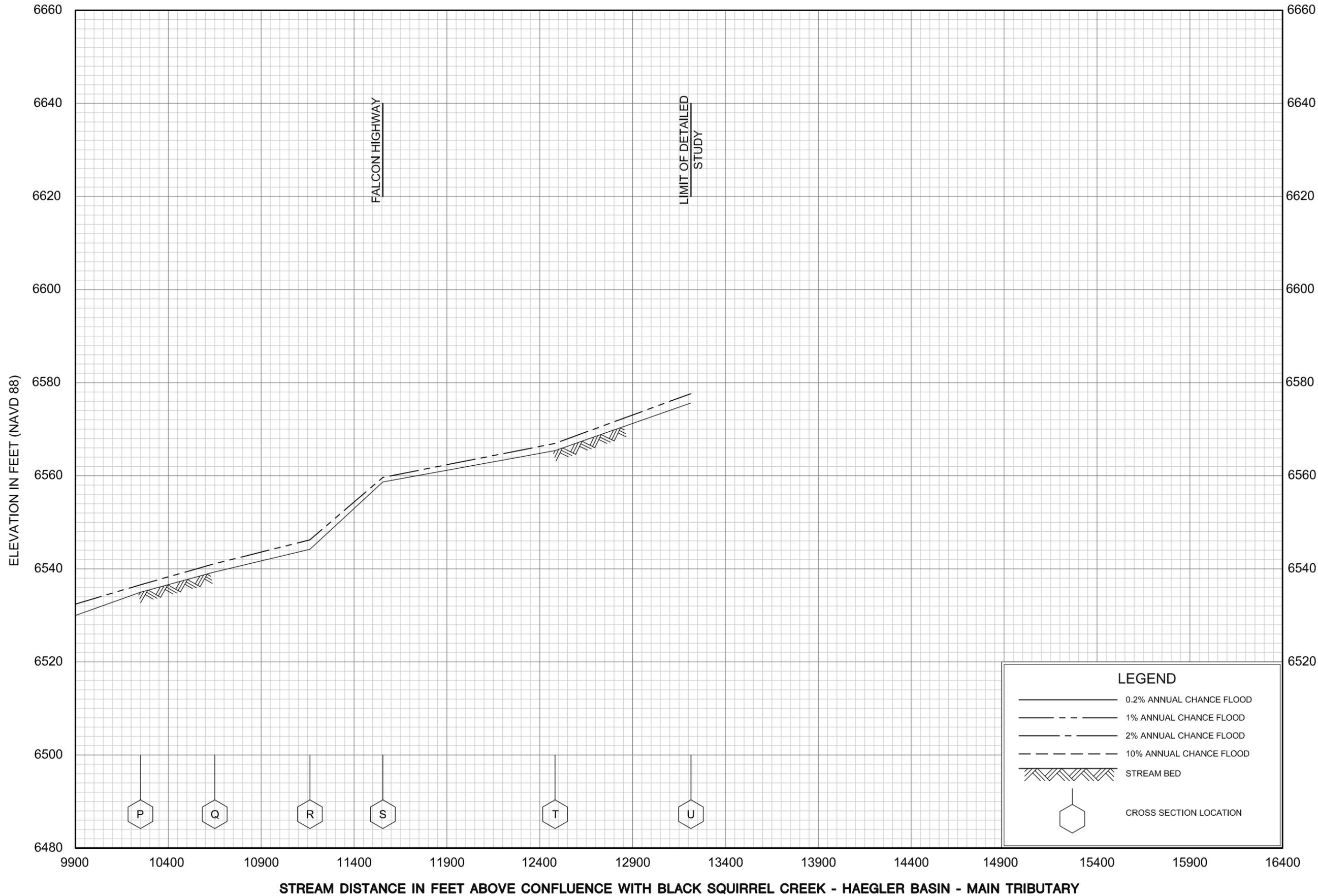


FLOOD PROFILES

BLACK SQUIRREL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

EL PASO COUNTY, CO
AND INCORPORATED AREAS

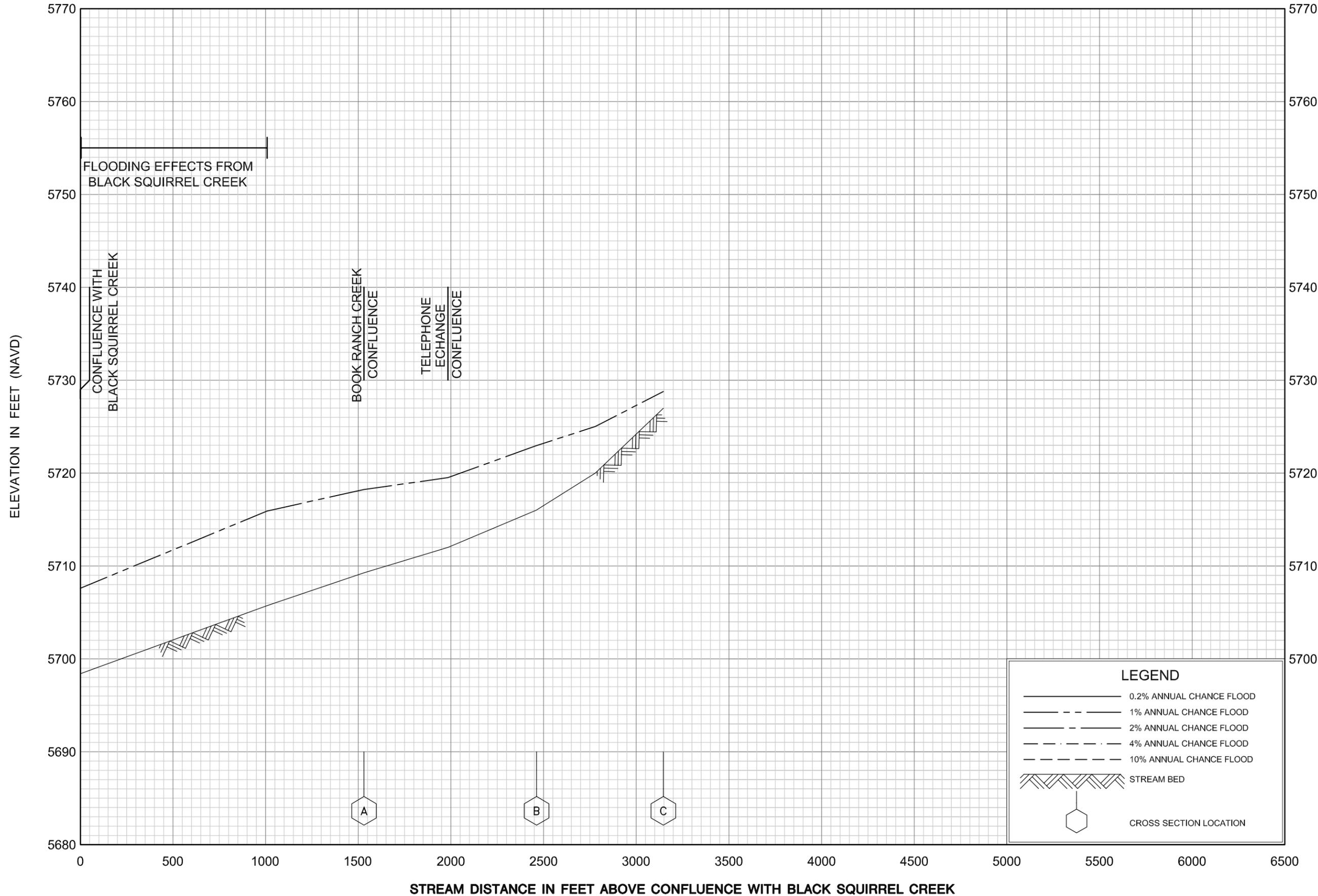


FLOOD PROFILES

**BLACK SQUIRREL CREEK -
HAEGLER BASIN - SAGE CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY

EL PASO COUNTY, CO
(AND INCORPORATED AREAS)

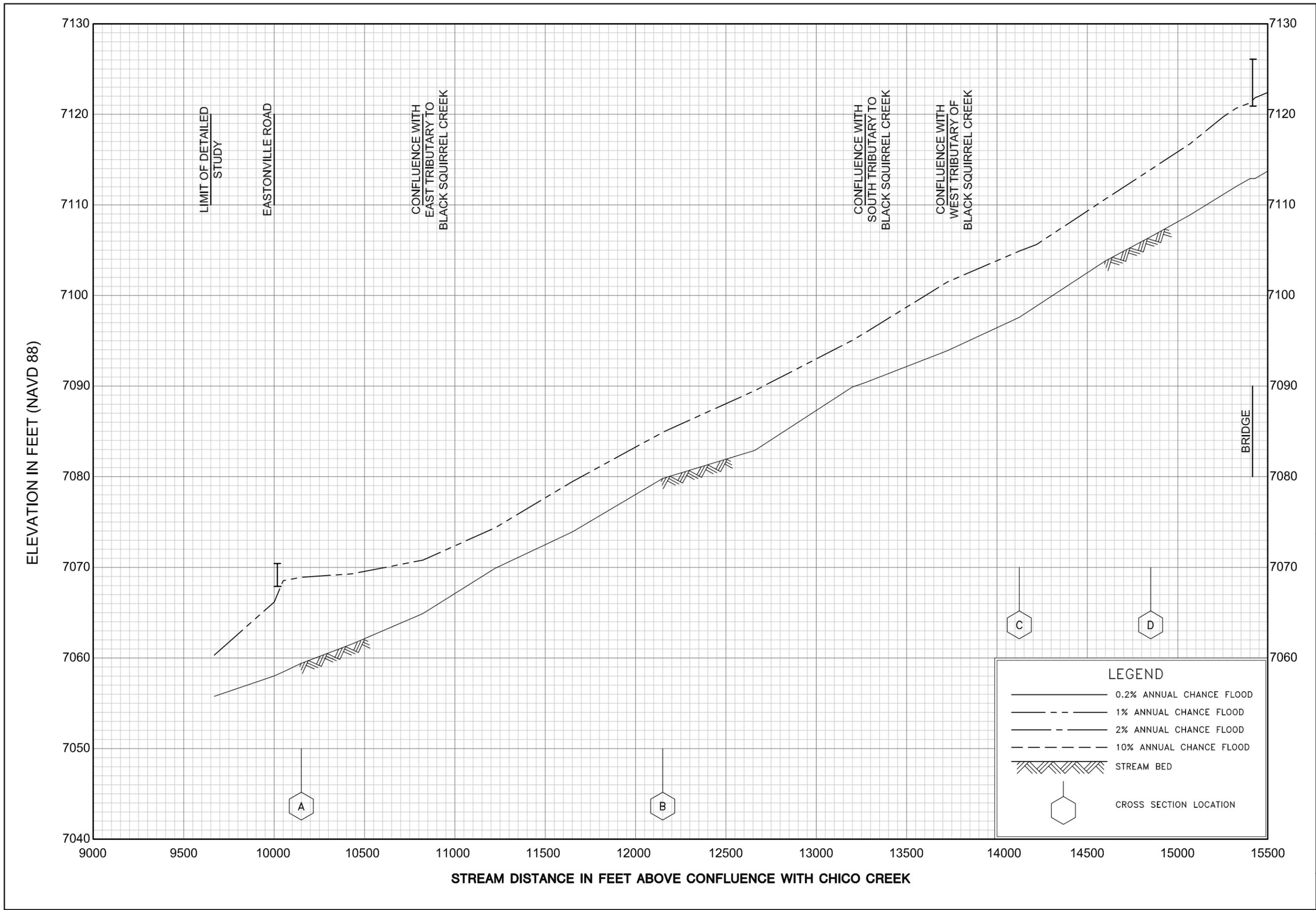


FLOOD PROFILES

BLACK SQUIRREL CREEK - RIGHT SPLIT FLOW PATH

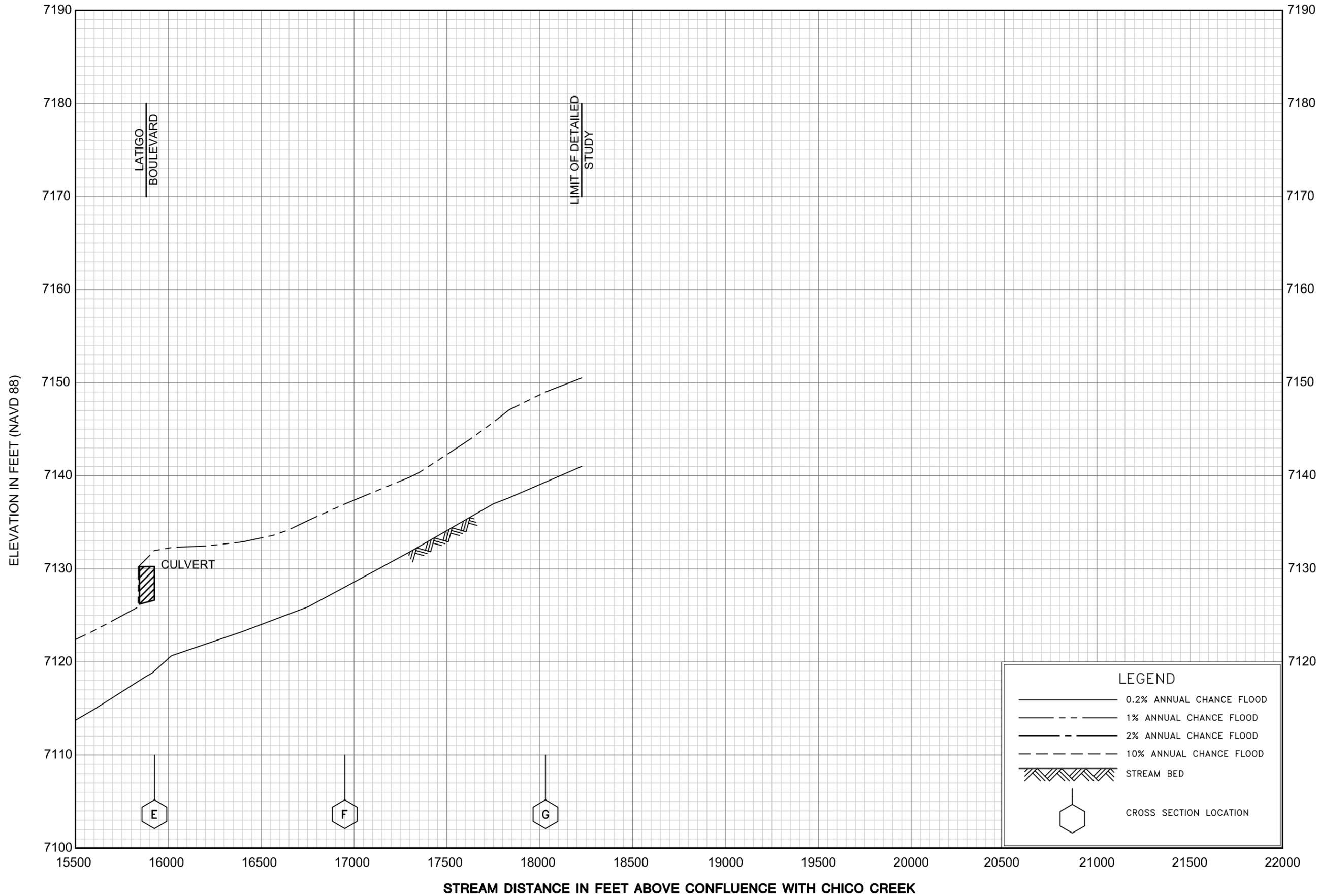
FEDERAL EMERGENCY MANAGEMENT AGENCY

EL PASO COUNTY, CO
AND INCORPORATED AREAS



FLOOD PROFILES
BLACK SQUIRREL CREEK -
UPSTREAM OF US HIGHWAY 24

FEDERAL EMERGENCY MANAGEMENT AGENCY
EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)

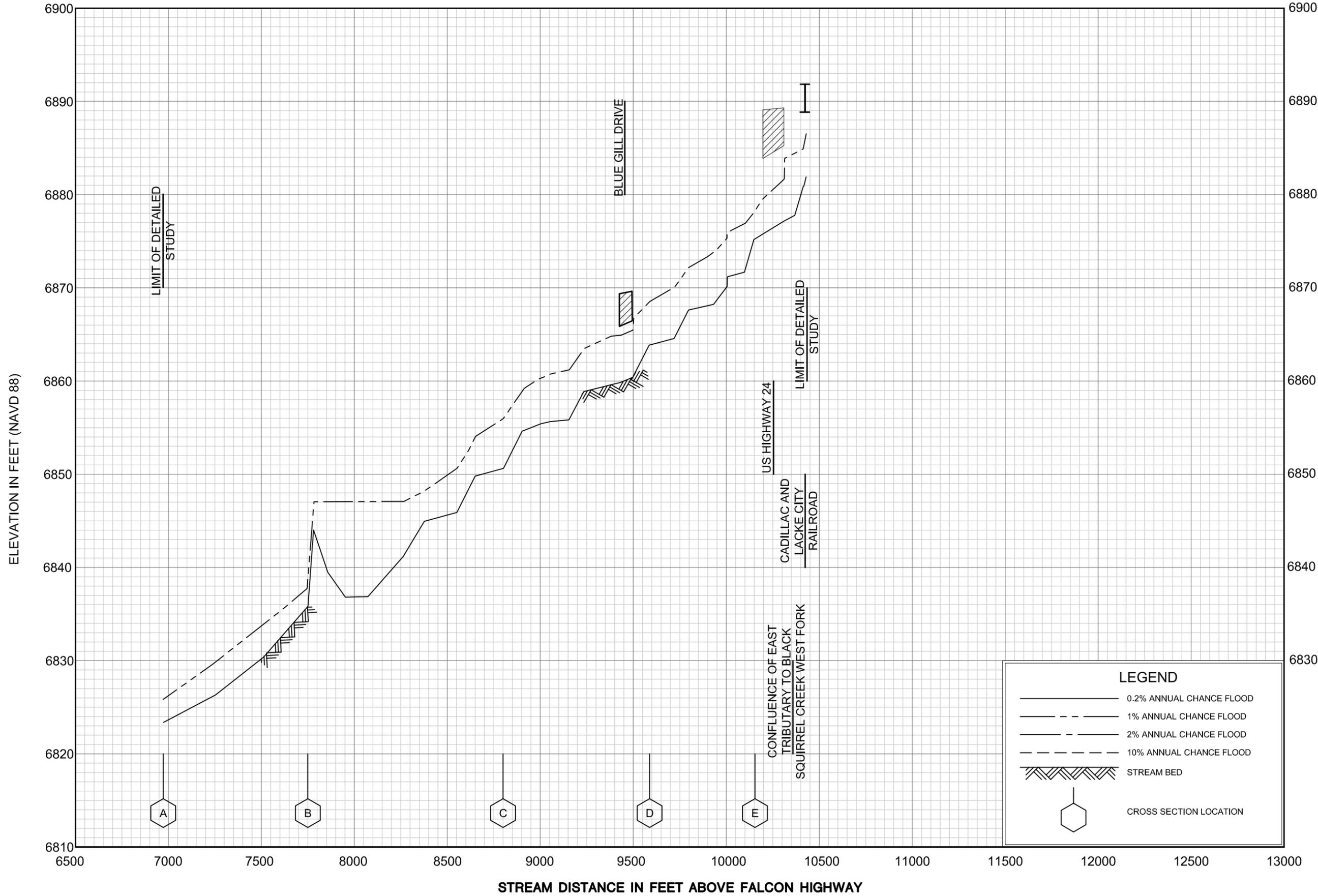


FLOOD PROFILES

**BLACK SQUIRREL CREEK -
UPSTREAM OF US HIGHWAY 24**

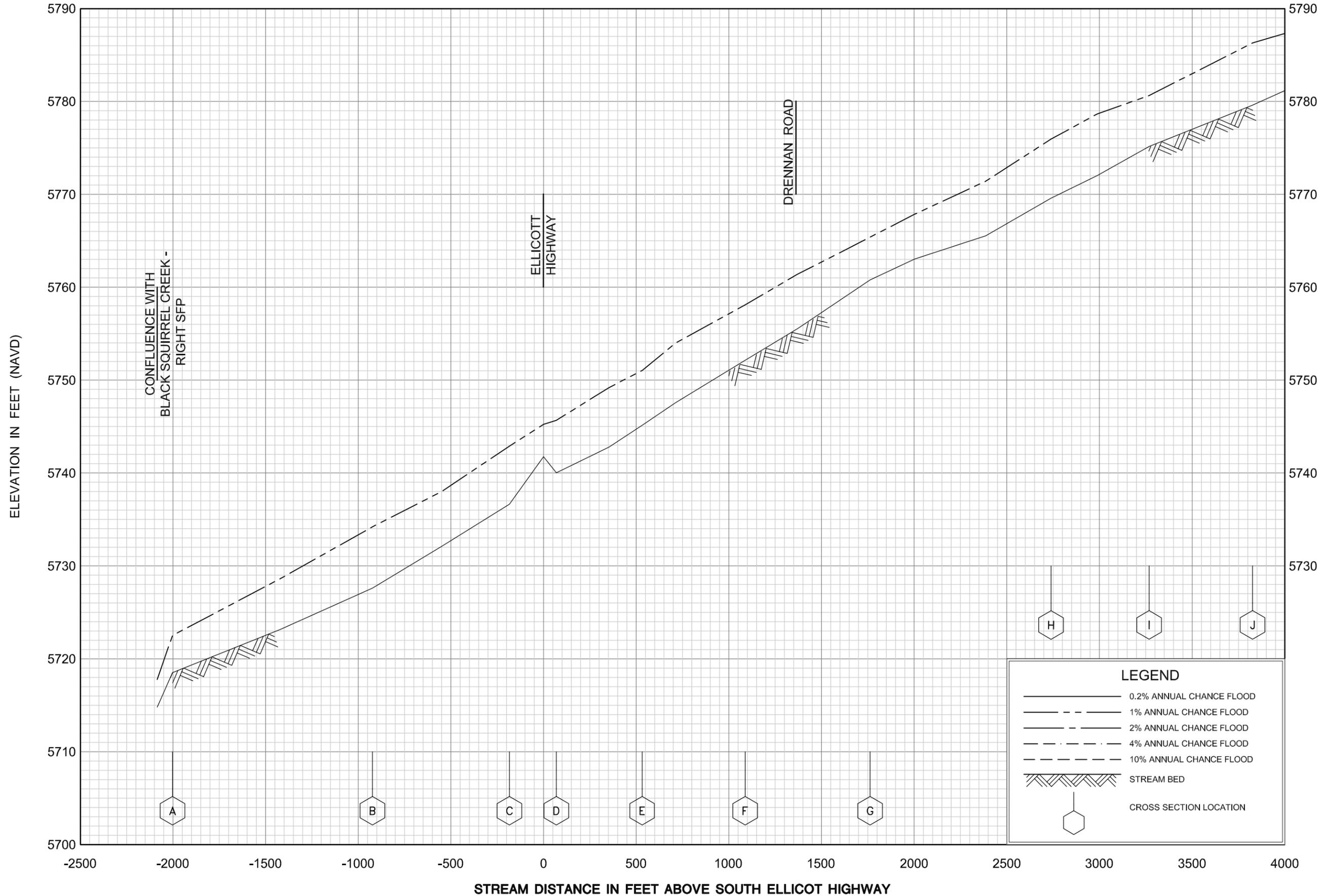
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EL PASO COUNTY, CO
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FLOOD PROFILES
 BLACK SQUIRREL CREEK - WEST FORK
 BENNETT RANCH BASIN

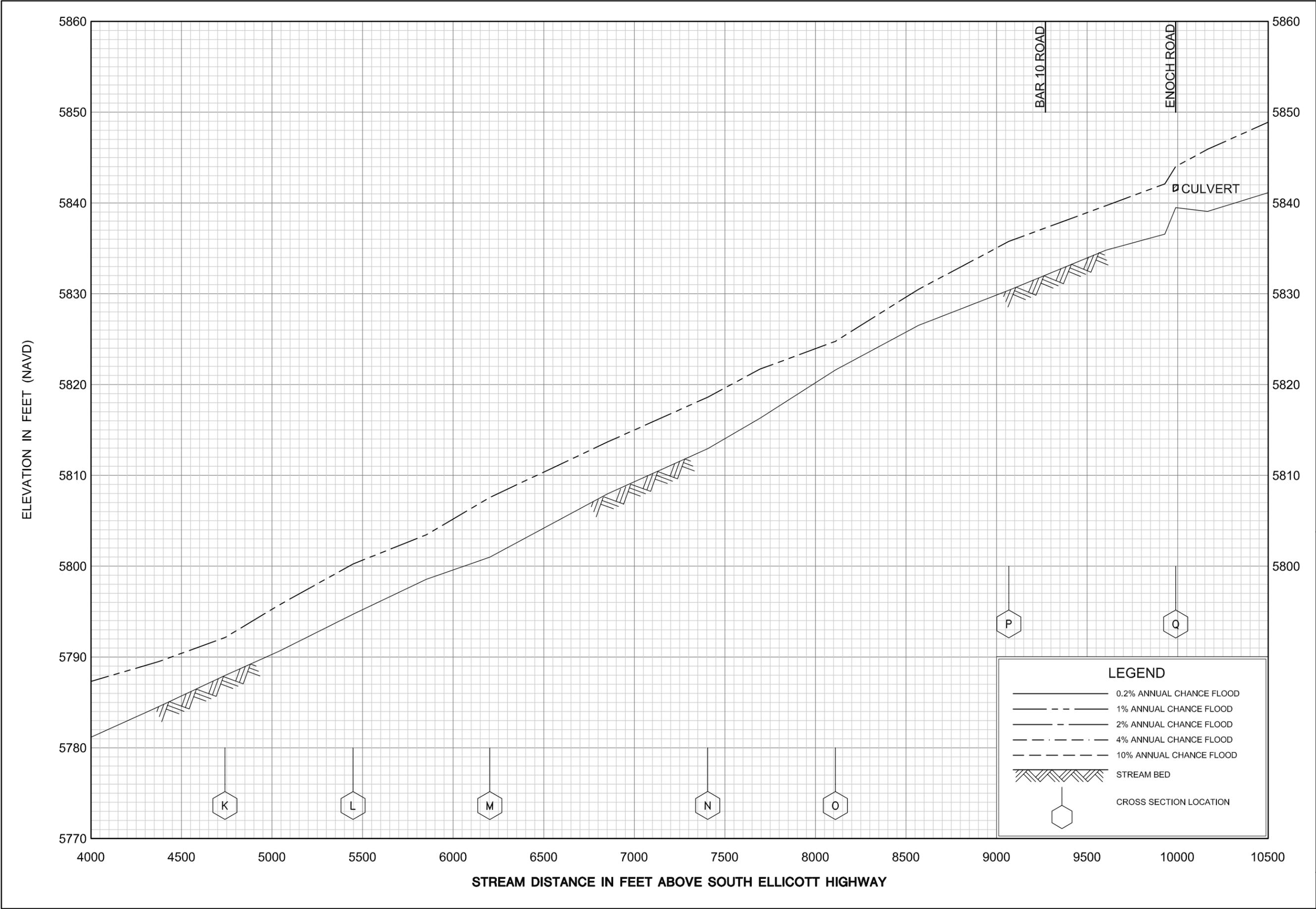


FLOOD PROFILES

BOOK RANCH CREEK

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EL PASO COUNTY, CO
AND INCORPORATED AREAS

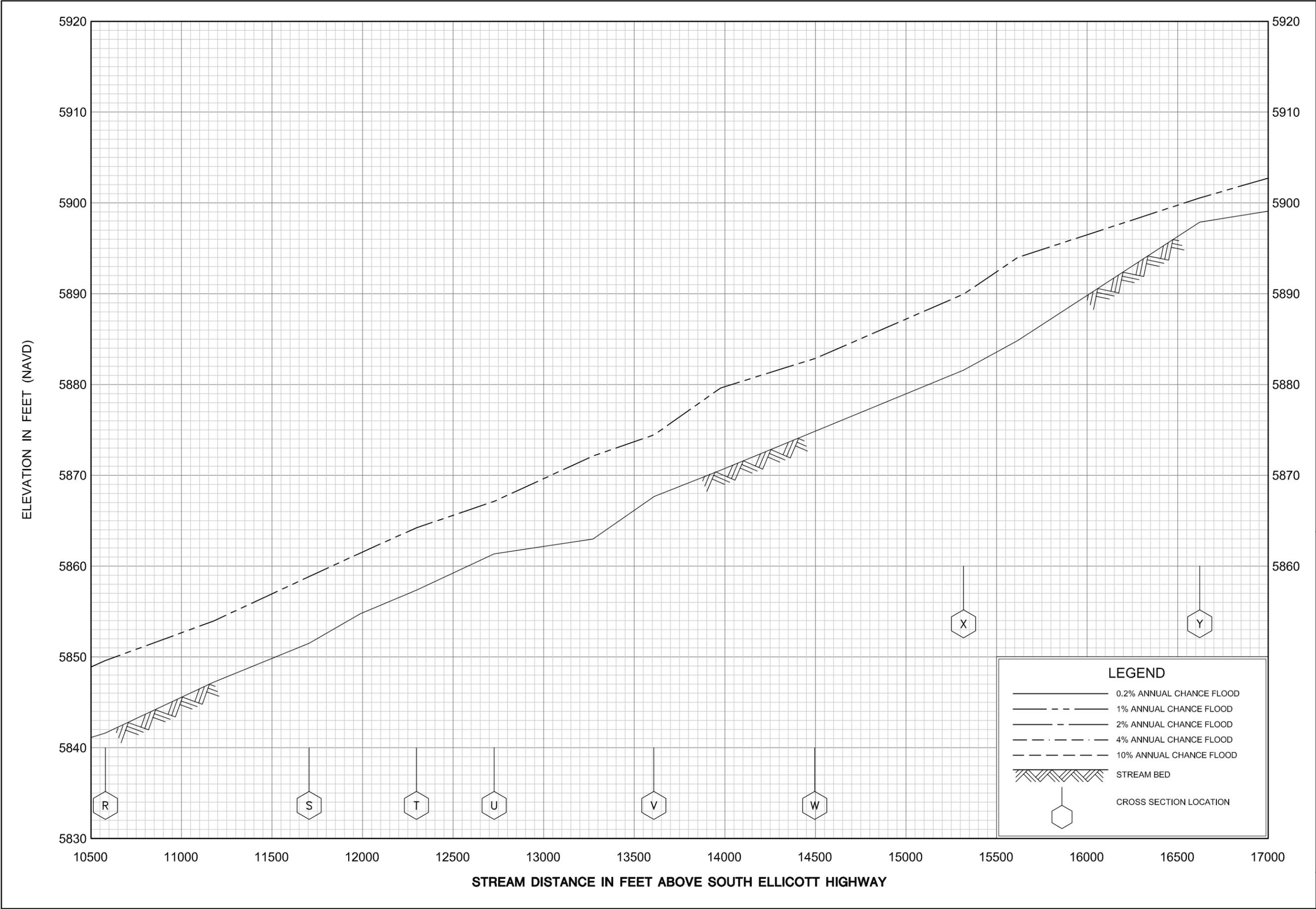


FLOOD PROFILES

BOOK RANCH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

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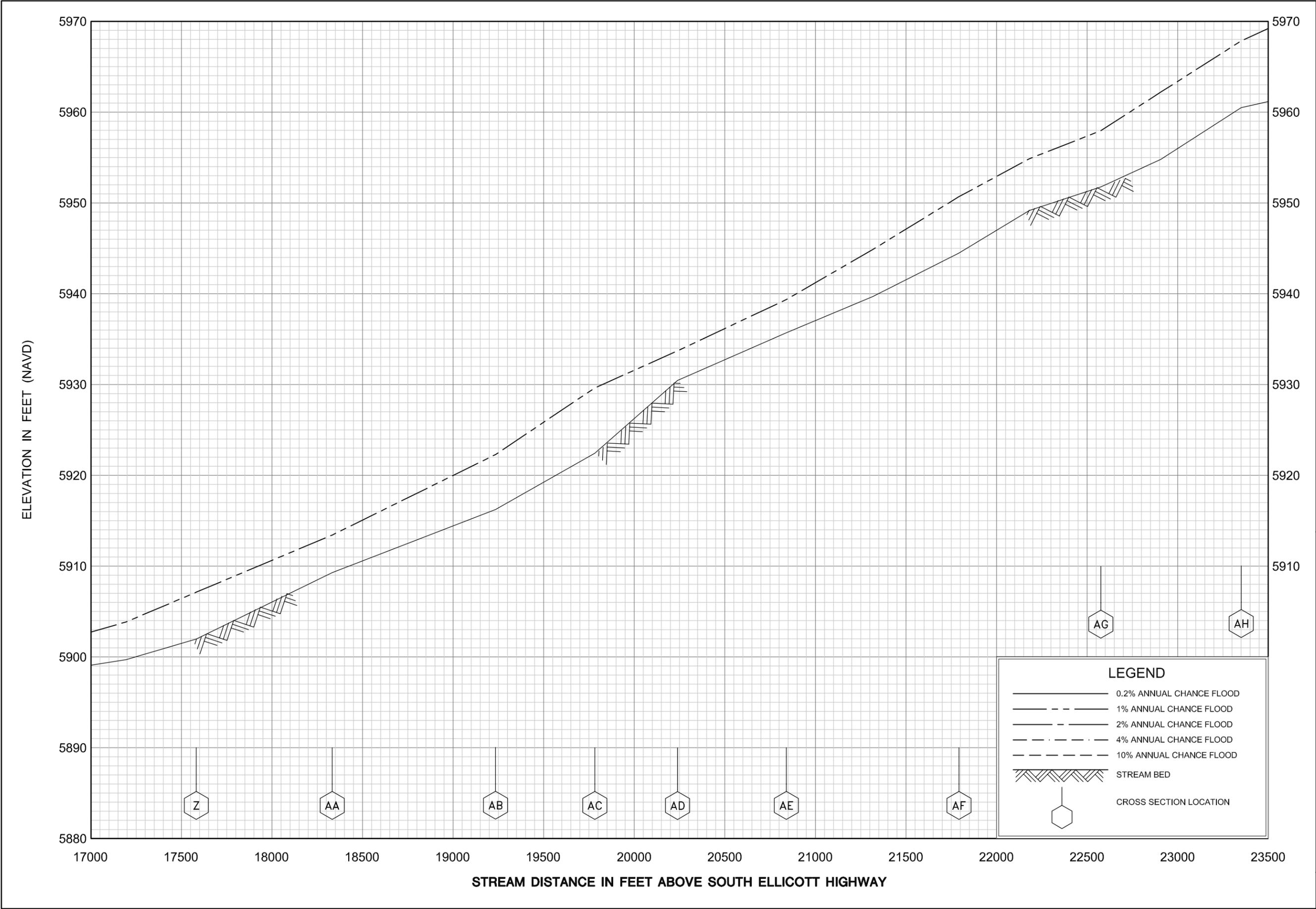


FLOOD PROFILES

BOOK RANCH CREEK

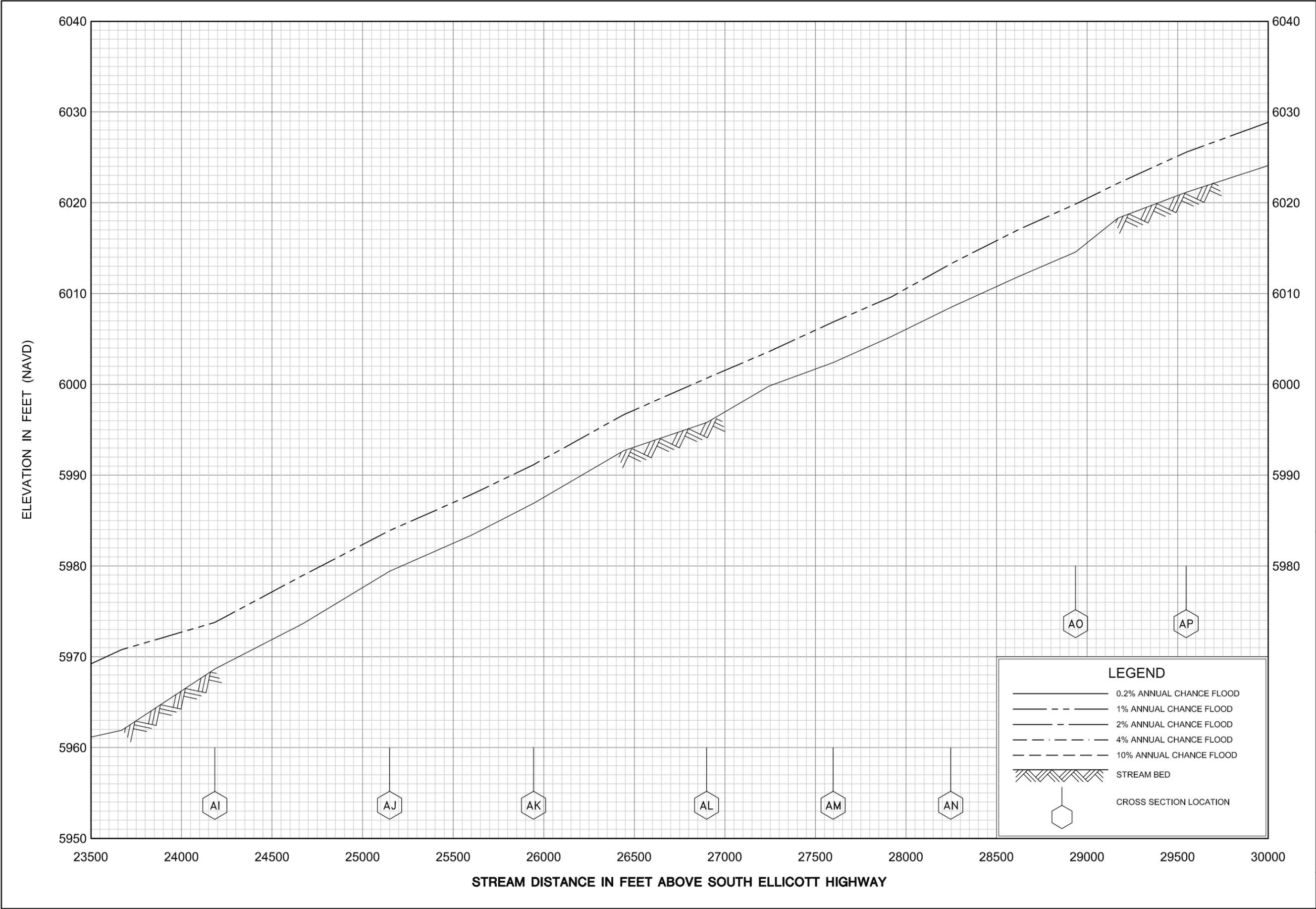
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AND INCORPORATED AREAS



FLOOD PROFILES
BOOK RANCH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
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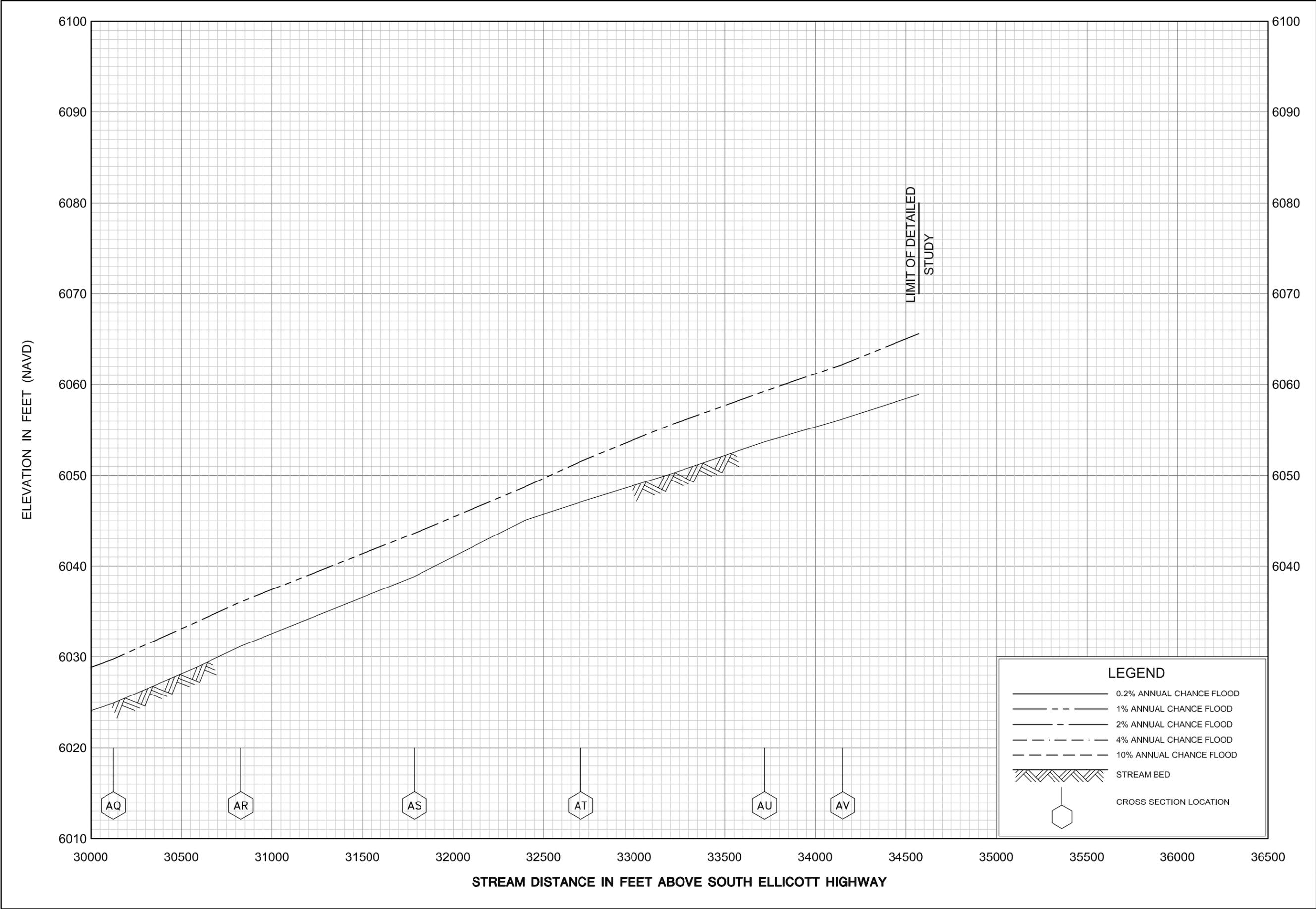


FLOOD PROFILES

BOOK RANCH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

**EL PASO COUNTY, CO
AND INCORPORATED AREAS**



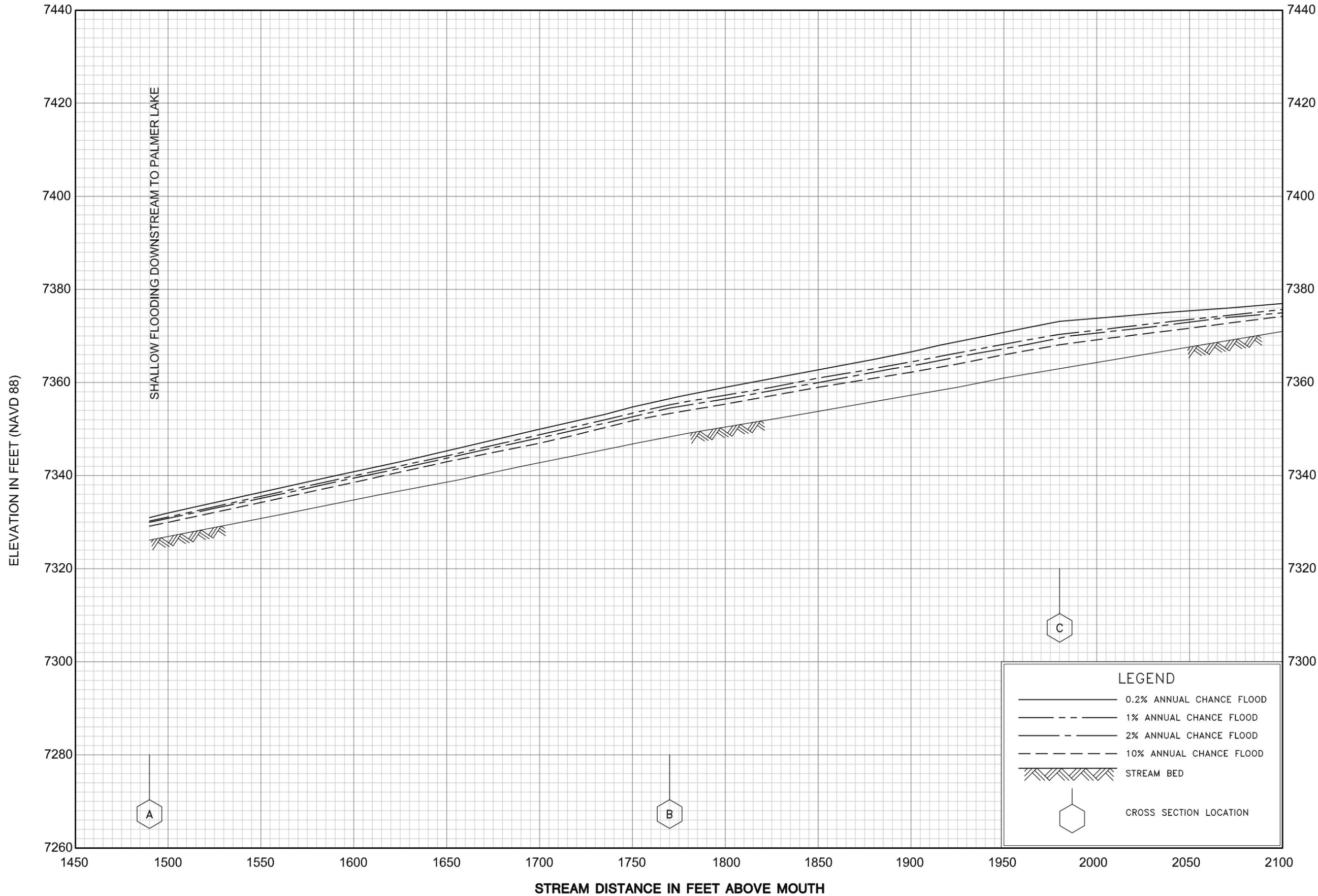
FLOOD PROFILES

BOOK RANCH CREEK

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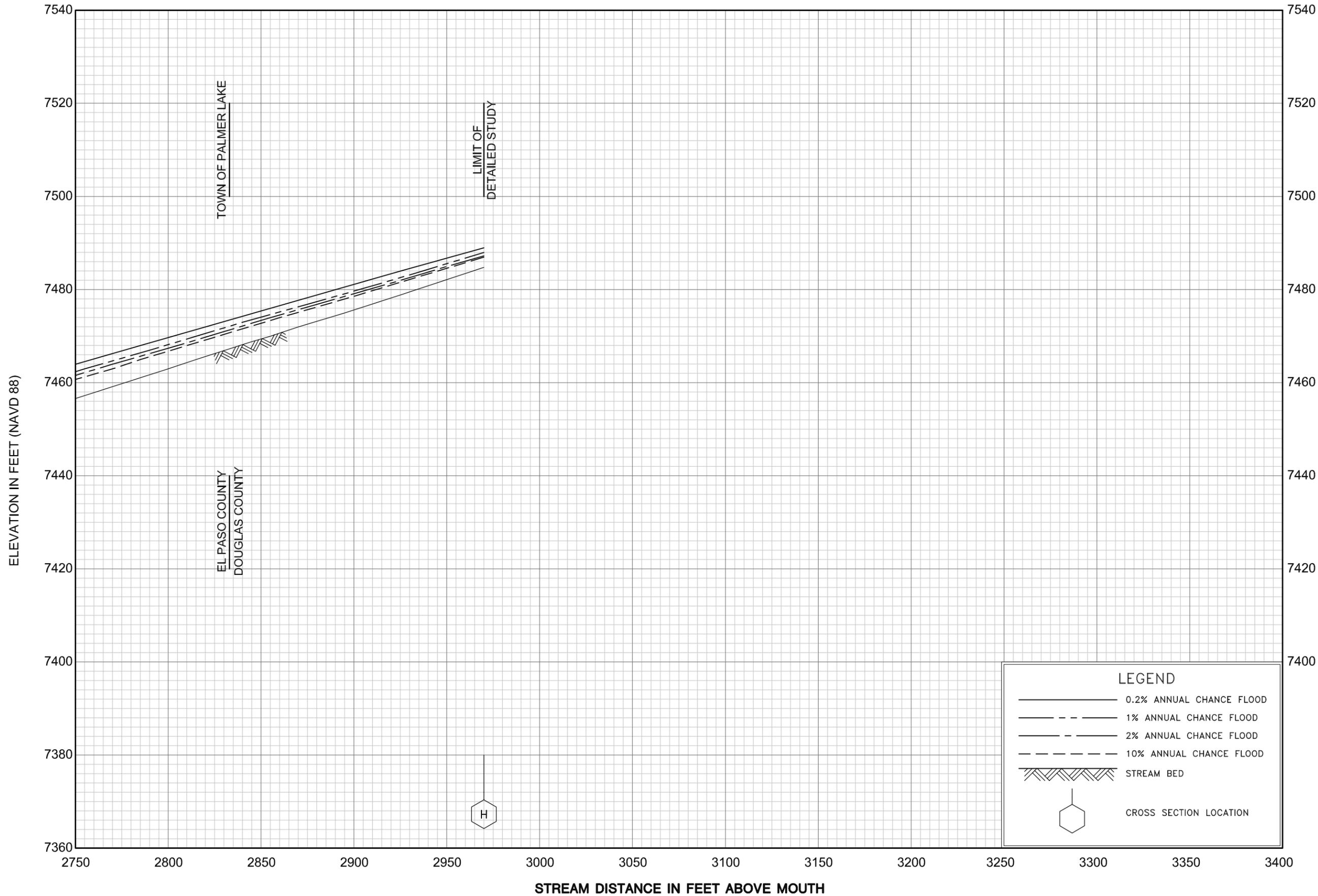
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FLOOD PROFILES

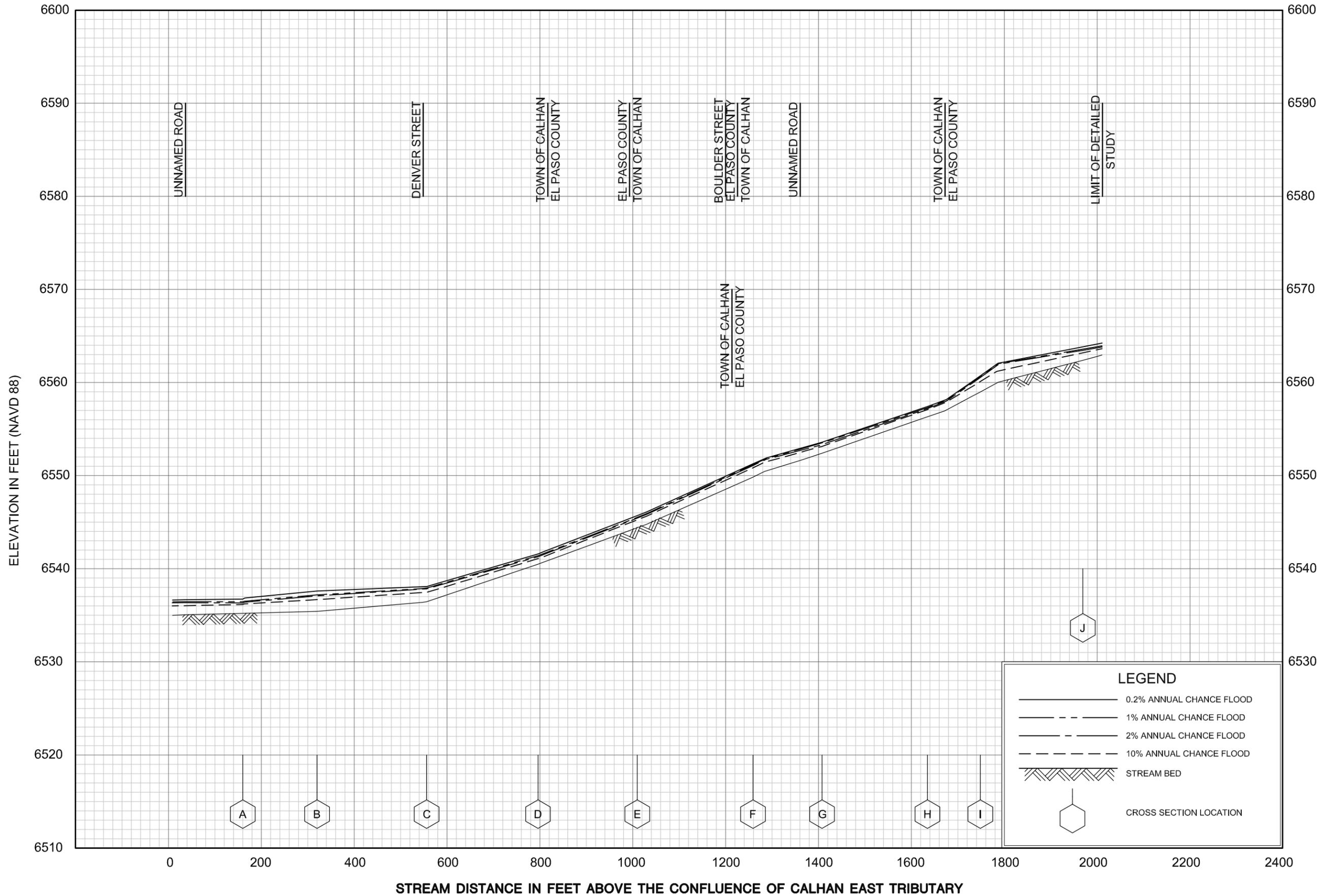
BUTLER CANYON

FEDERAL EMERGENCY MANAGEMENT AGENCY
EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)



FLOOD PROFILES
BUTLER CANYON

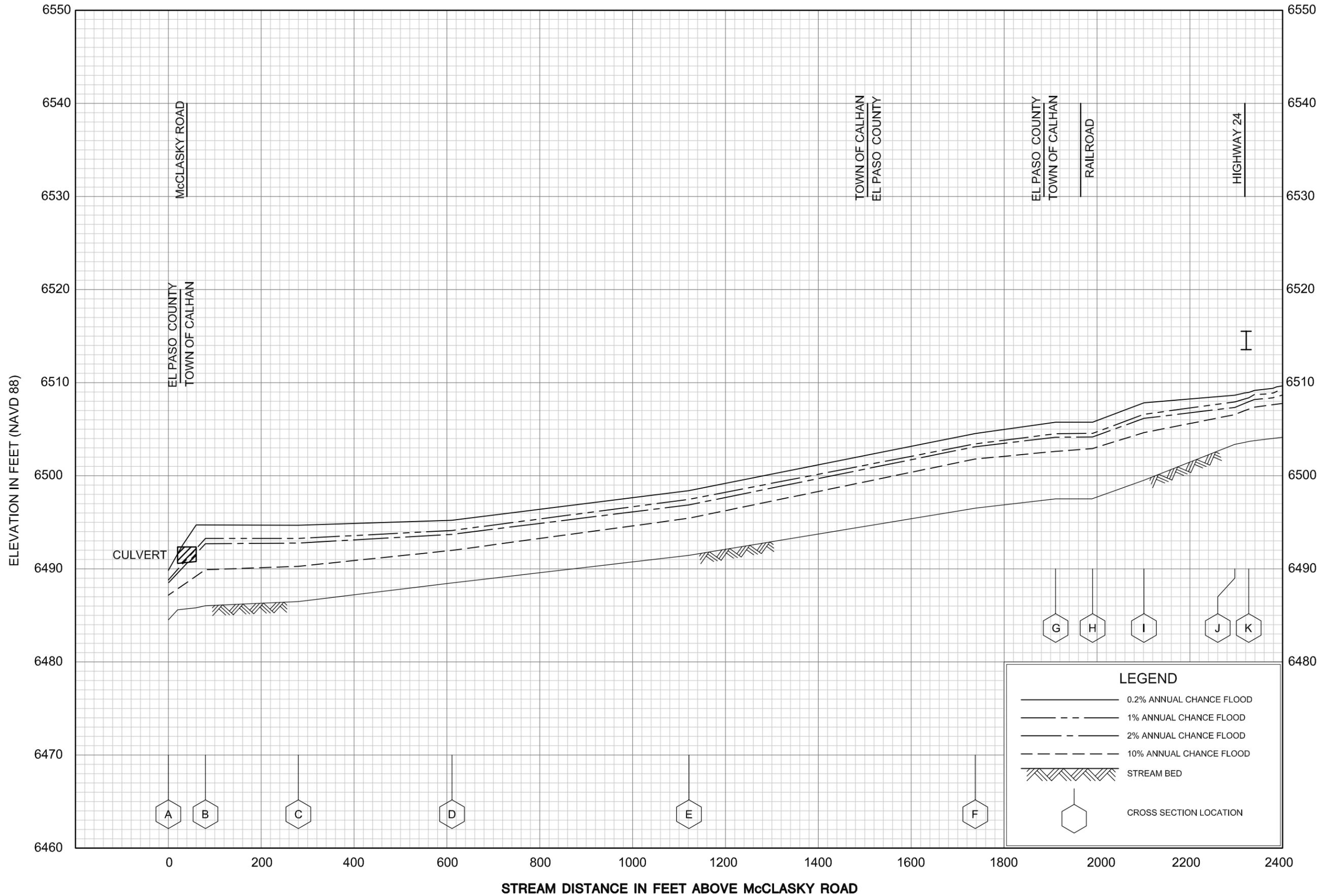
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EL PASO COUNTY, CO
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FLOOD PROFILES

CALHAN FAIRGROUND TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY
EL PASO COUNTY, CO
 (AND INCORPORATED AREAS)

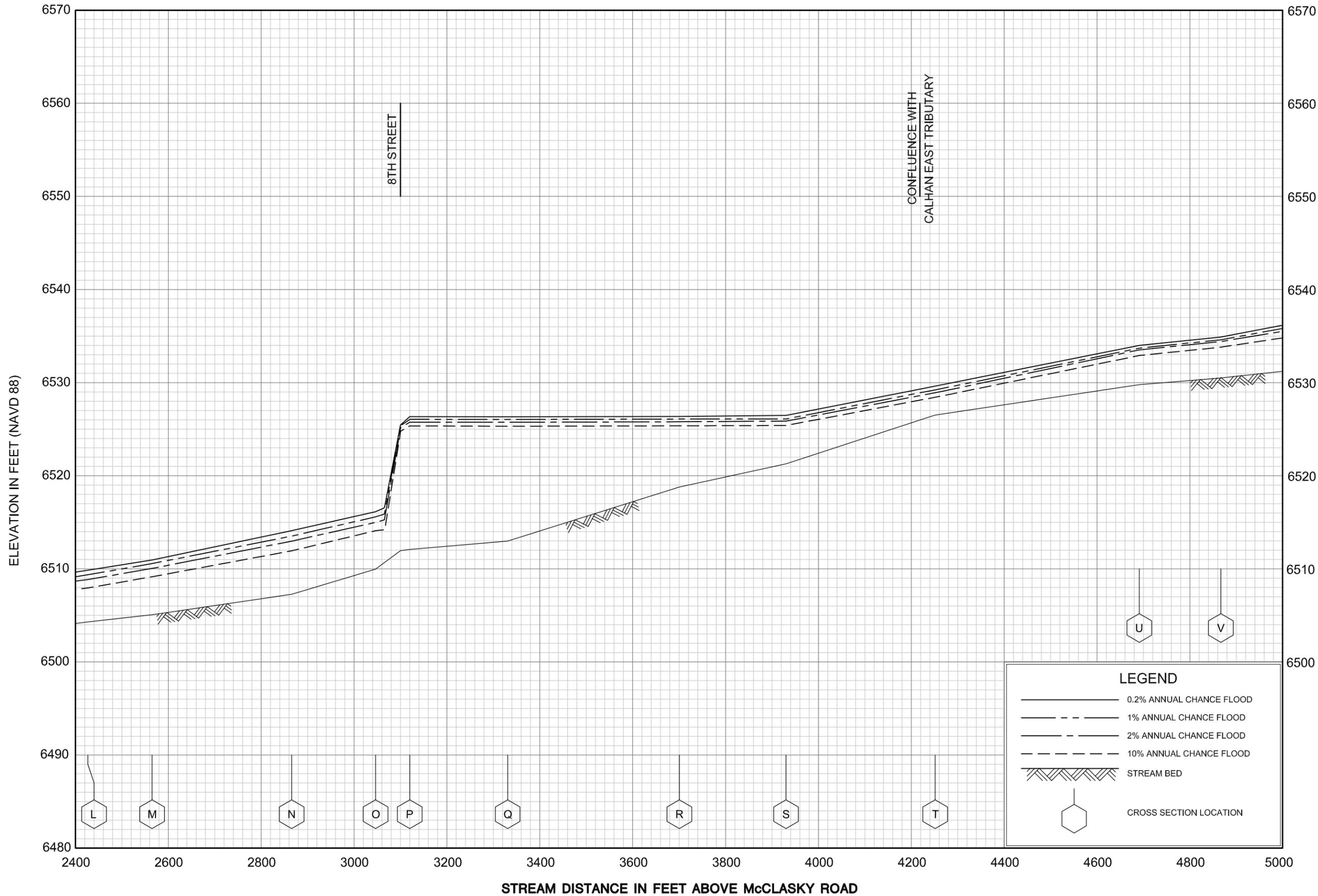


FLOOD PROFILES

CALHAN MAIN CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

EL PASO COUNTY, CO
(AND INCORPORATED AREAS)



FLOOD PROFILES

CALHAN MAIN CHANNEL

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