FLOOD INSURANCE STUDY

DALLAS COUNTY, TEXAS

AND INCORPORATED AREAS

VOLUME 1 OF 9

	Community Name	Community Number
*	DALLAS COUNTY UNINCORPORATED AREAS	480165
*	ADDISON, TOWN OF	481089
	BALCH SPRINGS, CITY OF	480166
*	CARROLLTON, CITY OF	480167
	CEDAR HILL, CITY OF	480168
	COCKRELL HILL, CITY OF	480169
	COMBINE, CITY OF	480408
*	COPPELL, CITY OF	480170
*	DALLAS, CITY OF	480171
	DESOTO, CITY OF	480172
	DUNCANVILLE, CITY OF	480173
*	FARMERS BRANCH, CITY OF	480174
	FERRIS, CITY OF	481076
	FLOWER MOUND, TOWN OF	480777
*	GARLAND, CITY OF	485471
	GLENN HEIGHTS, CITY OF	481265
	GRAND PRAIRIE, CITY OF	485472
	GRAPEVINE, CITY OF	480598
*	HIGHLAND PARK, TOWN OF	480178
	HUTCHINS, CITY OF	480179
*	IRVING, CITY OF	480180
	LANCASTER, CITY OF	480182
	LEWISVILLE, CITY OF	480195
	MESQUITE, CITY OF	485490
	OVILLA, CITY OF	481155
*	RICHARDSON, CITY OF	480184
	ROWLETT, CITY OF	480185
	SACHSE, CITY OF	480186
	SEAGOVILLE, CITY OF	480187
	SUNNYVALE, TOWN OF	480188
*	UNIVERSITY PARK, CITY OF	480189
	WILMER, CITY OF	480190
	WYLIE, CITY OF	480759

REVISED■
PRELIMINARY
AUGUST 15, 2012

*** Communities Affected**

Revised Month date, year

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

48113CV001

This Revised Preliminary FIS report dated August 15, 2012 includes revisions based on detailed studies completed by the City of Dallas as a FEMA Cooperating Technical Partner (CTP). The following document only includes data revised since the September 28, 2010 Preliminary FIS report.

City of Dallas CTP Project Streams:

- Audelia Branch
- Beards Branch
- Caruth Creek
- East Fork of Joes Creek
- Jackson Branch
- Jenkins Branch
- Joes Creek
- McCommas Branch
- McCree Branch
- Royal Branch
- Rush Creek
- Skillman Branch
- West Fork of Joes Creek
- Williamson Branch

Table 1 – Scope of Study
Stream Reaches Studied by Detailed Methods

Stream Name	Downstream Limit	Upstream Limit	Length (mi)
New Detailed Study Streams			
Audelia Branch	Confluence with Jackson Branch	250 feet downstream of Buckingham Road	2.78
Beards Branch	Confluence with McCommas Branch	Hillside Drive	0.83
Caruth Creek	Confluence with White Rock Creek	Downstream of Shadybrook Lane	2.03
East Fork of Joe's Creek	Confluence with Joe's Creek	200 feet downstream of Beaver Brook Lane	0.71
Jackson Branch	Confluence with White Rock Creek	Walnut Street	5.05
Jenkins Branch	Confluence with White Rock Creek	Boedeker Street	2.14
Joe's Creek	Confluence with Elm Fork of Trinity River	Snow White Drive	6.07
McCommas Branch	Confluence with White Rock Creek	Approximately 70 feet East of Oakhurst Street	1.92
McCree Branch	Confluence of Jackson Branch	Audelia Road	1.08
Royal Branch	Confluence with White Rock Creek	Approximately 810 feet East of Hillcrest Road	1.57
Rush Creek	Confluence with White Rock Creek	Highgate Lane	2.63
Skillman Branch	Confluence with Caruth Creek	500 feet upstream of Southwestern Boulevard	0.53
West Fork of Joe's Creek	Confluence with Joe's Creek	Webb Chapel Road	3.81
Williamson Branch	Confluence with Rush Creek	Saratoga Circle	2.5

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods 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 is expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60

percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

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

3.1.1 New Detailed Study Streams

Detailed hydrologic analyses funded by individual cities were incorporated for Bachman Branch, Caruth Creek, Cedar Creek, Cedar Springs Branch, Chalk Hill Branch, Coombs Creek, Elam Creek, Hatfield Branch, Hickory Creek, Jackson Branch, Jenkins Branch, Joe's Creek, Knights Branch, Lisbon Branch, McCommas Branch, Prairie Creek, Royal Branch, Rush Creek, Turtle Creek, White Rock Creek, and Williamson Branch Watersheds in the City of Dallas, South and North Mesquite Creek Watersheds in the City of Mesquite, a portion of the Duck Creek Watershed in the Cities of Dallas and Mesquite, Furneaux Creek and Hutton Branch Watersheds in the City of Carrollton, Arbor Creek, Cottonwood Creek, Cedar Creek (Stream 8C5), Fish Creek, Hollings Branch, Johnson Creek, and Stream JC-1 Watersheds in the City of Grand Prairie, Bear Creek Watershed in the Cities of Grand Prairie and Irving, Bentle Branch Watershed in the Cities of Cedar Hill and Duncanville, portions of the Cottonwood Creek and Muddy Creek Watersheds in the City of Rowlett, Stream 6A1 Watershed in the Town of Highland Park, and Cottonwood Creek and Floyd Branch Watersheds in the Cities of Dallas and Richardson. Many aspects of these new detailed analyses are the same as the general discussion in Section 3.1.1, with the following exceptions.

<u>Caruth Creek, Jackson Branch, Jenkins Branch, McCommas Branch, Royal Branch, Rush Creek, and Williamson Branch Watersheds in the City of Dallas</u>

A detailed hydrologic analysis was prepared for these watersheds (collectively known as FY-10 White Rock Creek Watersheds), including the following streams:

Caruth Creek
    Skillman Branch
Jackson Branch
    Audelia Branch
    McCree Branch
Jenkins Branch
McCommas Branch
    Beards Branch
Royal Branch
Rush Creek
Williamson Branch

The FY-10 White Rock Creek Watersheds studies were performed by the City of Dallas as part of their FEMA Cooperating Technical Partner (CTP) Fiscal Year 2010 (FY-10) RiskMAP Project. The headwaters for each of the streams in these watersheds are located in the City of Dallas. Caruth Creek, Jackson Branch, Jenkins Branch, McCommas Branch, Royal Branch, Rush Creek, and Williamson Branch confluence with White Rock Creek. Skillman Branch confluences with Caruth Creek. Audelia Branch

and McCree Branch confluence with Jackson Branch. Beards Branch confluences with McCommas Branch.

The sources of rainfall data for the frequency floods were TP-40 and the NOAA technical memorandum HYDRO-35.

Topographic data for this study was acquired in 2010 by Sanborn Map Company for the Texas Natural Resources Information System (TNRIS) statewide LiDAR Data Acquisition Project. This data was acquired and processed to meet 1 meter RMSE horizontal accuracy and 0.07 meters vertical accuracy at 95 percent confidence level in open terrain using National Standards for Spatial Data Accuracy (NSSDA) and FEMA methodology.

The Caruth Creek Watershed was divided into 13 sub-basins covering an area of 2.60 square miles. The sub-basins vary in size from 0.03 to 0.54 square miles. The Jackson Branch Watershed was divided into 54 sub-basins covering an area of 8.44 square miles. The sub-basins vary in size from 0.03 to 0.61 square miles. The Jenkins Branch Watershed was divided into 13 sub-basins covering an area of 1.79 square miles. The sub-basins vary in size from 0.02 to 0.29 square miles. The McCommas Branch Watershed was divided into 14 sub-basins covering an area of 1.23 square miles. The sub-basins vary in size from 0.02 to 0.27 square miles. The Royal Branch Watershed was divided into 6 sub-basins covering an area of 1.30 square miles. The sub-basins vary in size from 0.14 to 0.32 square miles. The Rush Creek Watershed was divided into 9 sub-basins covering an area of 1.38 square miles. The sub-basins vary in size from 0.01 to 0.38 square miles. The Williamson Branch Watershed was divided into 12 sub-basins covering an area of 1.48 square miles. The sub-basins vary in size from 0.02 to 0.28 square miles.

The land use for these studies was developed based on the 2011 City of Dallas zoning maps and current aerial photography. The difference between the fully developed and existing land use conditions discharges was less than 5%. Therefore, fully developed land use conditions were utilized for this study.

Snyder's Unit Hydrograph method was utilized and lag times were computed for each sub-basin based on the guidance outlined in the NUDALLAS computer program manual published by USACE Fort Worth Division. See the White Rock Creek Watershed in the City of Dallas section for information of calculations.

Joe's Creek Watershed in the City of Dallas

A detailed hydrologic analysis was prepared for this watershed, including the following streams:

Joe's Creek
- East Fork of Joe's Creek
- West Fork of Joe's Creek

The Joe's Creek study was performed by the City of Dallas as part of their FEMA CTP FY-10 RiskMAP Project. The headwaters for each of the streams in this watershed are located in the City of Dallas. Joe's Creek confluences with the Elm Fork Trinity River.

West Fork of Joe's Creek confluences with Joe's Creek near its mouth, while East Fork of Joe's Creek confluences with Joe's Creek closer to its headwaters.

The sources of rainfall data for the frequency floods were TP-40 and the NOAA technical memorandum HYDRO-35. Rainfall point locations and depths were interpolated and adjusted to accurately simulate actual rainfall with the Joe's Creek Watershed in relation to the centroid of the Dallas city limits.

The primary source of topographic data for the detailed study was the TNRIS 2010 LiDAR Terrain Data for Dallas County, Texas.

The Joe's Creek Watershed was divided into 43 sub-basins covering an area of 11.30 square miles. The sub-basins vary in size from 0.01 to 0.98 square miles.

The land use for the Joe's Creek Watershed study was developed based on the 2011 City of Dallas zoning maps and current aerial photography. The difference between the fully developed and existing land use conditions discharges was less than 5%. Therefore, fully developed land use conditions were utilized for this study.

The NRCS Dimensionless Unit Hydrograph method was utilized and lag times were computed for each sub-basin based on the guidance outlined in USDA TR-55. Time of concentration was computed for overland flow, as well as channelized and storm sewer flow.

TABLE 2 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. mile)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.20% Annual Chance
New Detailed Study Streams					
AUDELIA BRANCH					
Above Claymore Drive	0.21	600	750	850	1,050
At headwaters of Audelia Branch	0.15	450	600	650	750
BEARDS BRANCH					
At Confluence with McCommas Branch	0.41	950	1,450	1,700	2,100
Above Wendover Road	0.38	900	1,400	1,650	2,100
2,040 feet below Hillside Drive	0.31	1,000	1,300	1,450	1,750
1,890 feet below Hillside Drive	0.28	900	1,200	1,300	1,600
1,790 feet below Hillside Drive	0.16	500	650	750	900
Hillside Drive	0.10	350	450	500	600
CARUTH CREEK					
At confluence with White Rock Creek	2.60	5,200	7,000	7,600	9,100
At Abrams Road	2.01	4,200	5,400	5,900	6,900

TABLE 2 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. mile)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.20% Annual Chance
New Detailed Study Streams					
CARUTH CREEK (CONTINUED)					
At abandoned railroad	1.91	4,100	5,300	5,700	6,800
560 feet above Eastridge Drive	1.72	4,000	5,100	5,500	6,600
Below confluence of Skillman Branch	1.51	3,800	4,800	5,200	6,100
Above confluence of Skillman Branch	1.02	2,500	3,400	3,700	4,500
1,740 feet below Hemlock Avenue	0.95	2,400	3,300	3,600	4,400
1,720 feet below Hemlock Avenue	0.88	2,300	3,100	3,400	4,100
At Shadybrook Lane	0.76	2,200	2,900	3,100	3,800
EAST FORK OF JOE'S CREEK					
Rosser Road	0.99	1,900	2,800	3,200	4,300
East Fork Joe's Creek Sub-basin 2 Outfall	0.59	1,100	1,700	1,900	2,600
At headwaters of East Fork of Joe's Creek	0.01	20	30	35	45
JACKSON BRANCH					
At confluence of McCree Branch	8.36	14,300	19,100	20,600	24,600
Above Lake Highlands Town Center Lake Outfall	6.99	12,700	16,100	17,500	20,600
Above Lake Highlands Town Center Weir	6.90	12,700	16,100	17,500	20,600
Above Walnut Hill Lane	6.85	12,700	16,000	17,500	20,600
Above Apartment Crossing	6.72	12,600	15,900	17,400	20,400
700 feet above Apartment Crossing	6.46	12,400	15,500	17,100	20,000
750 feet below Church Road	6.37	12,300	15,400	17,100	19,900
Above Church Road	6.27	12,300	15,400	17,000	19,800
Above Skillman Street	6.15	12,200	15,200	16,900	19,600
880 feet above Skillman Street	5.94	12,100	15,000	16,700	19,300
Above Royal Lane	5.64	11,800	14,700	16,400	18,700
1,200 feet above Royal Lane	5.28	11,300	14,300	15,600	17,500
At confluence of Audelia Branch	4.85	10,700	13,800	14,800	16,300
900 feet below Interstate Highway 635	1.94	4,400	5,600	6,000	6,900
Above Interstate Highway 635	1.65	3,800	4,900	5,300	6,200
Below Forest Lane	1.53	3,700	4,800	5,200	6,300
Above Forest Lane	1.32	3,200	4,200	4,600	5,500
720 feet above Forest Lane	1.28	3,200	4,200	4,500	5,500

TABLE 2 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. mile)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.20% Annual Chance
New Detailed Study Streams					
JACKSON BRANCH (CONTINUED)					
Above Chimney Hill Lane	1.05	2,700	3,600	3,900	4,800
400 feet below Richland College Dam	0.86	2,300	3,100	3,500	4,200
Above Richland College Dam	0.69	1,900	2,500	2,800	3,400
At Richland College El Paso Building	0.59	1,750	2,300	2,500	3,000
340 feet above foot bridge on North Lake through Richland College	0.59	1,800	2,300	2,600	3,100
At headwaters of Jackson Branch	0.52	1,550	2,000	2,300	2,700
JENKINS BRANCH					
240 feet above the confluence with White Rock Creek	1.79	2,500	3,800	4,300	5,250
1,650 above the confluence with White Rock Creek	1.72	2,750	4,000	4,350	5,300
100 feet above Greenville Avenue	1.53	2,800	3,850	4,150	5,150
250 feet above Fogelson Lane	1.41	2,800	3,750	4,050	5,050
70 feet above DART Rail Line	1.20	2,500	3,350	3,750	4,750
330 feet above DART Rail Line	1.17	2,550	3,350	3,750	4,750
70 feet below Golf Lakes Trail	1.12	2,450	3,350	3,800	4,800
80 feet below Northbound Central Expressway service road	0.82	1,600	2,400	2,900	3,750
100 feet above Southbound Central Expressway service road	0.77	1,450	2,300	2,750	3,700
700 feet above Southbound Central Expressway service road	0.75	1,400	2,300	2,750	3,750
370 feet below Glenshannon Drive	0.55	1,050	1,850	2,200	2,900
Below Boedeker Street	0.43	900	1,600	1,900	2,450
JOE'S CREEK					
At confluence with West Fork of Joe's Creek	11.24	11,000	14,600	15,700	19,100
At Interstate Highway 35	6.65	6,800	9,600	10,600	14,200
At Loop 12/Northwest Highway	6.46	6,800	9,600	10,700	14,200
At Willowbrook Road	6.31	6,800	9,900	11,200	14,600
At Harry Hines Boulevard	6.24	6,800	10,000	11,500	14,900
At Denton Drive	6.16	6,800	10,000	11,600	14,900
At Brockbank Drive	6.16	6,900	10,100	11,900	15,200
At Lombardy Lane	5.43	6,500	9,700	11,300	14,400

TABLE 2 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. mile)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.20% Annual Chance
New Detailed Study Streams					
JOE'S CREEK (CONTINUED)					
At Chapel Creek Drive	4.45	5,700	8,400	9,800	12,500
At Park Lane	4.25	5,700	8,300	9,600	12,400
At Webb Chapel Road	4.18	5,600	8,300	9,600	12,300
At Walnut Hill Lane	3.98	5,500	8,200	9,400	12,200
At Shady Oak Lane	3.73	5,500	7,900	9,200	11,800
At Marsh Lane	3.54	5,300	7,600	8,800	11,400
At Merrell Road	3.21	4,800	6,900	8,000	10,300
At confluence with East Fork of Joe's Creek	3.07	4,800	6,900	8,000	10,200
At Royal Lane	1.92	2,900	4,100	4,800	6,000
At Northaven Boulevard	1.56	2,400	3,500	4,000	5,200
At Alta Vista Lane	1.45	2,400	3,400	3,900	5,100
1,000 feet below Forest Lane	1.37	2,300	3,400	3,900	5,100
At Forest Lane	1.03	1,700	2,300	2,700	3,500
At Snow White Drive	0.66	1,100	1,600	1,900	2,500
McCOMMAS BRANCH					
At confluence with White Rock Creek	1.22	2,200	3,000	3,400	4,400
Above Railroad	1.18	2,200	3,000	3,400	4,400
Above Lawther Drive	1.06	2,200	3,000	3,500	4,500
130 feet below Sperry Street	0.93	2,300	3,400	3,900	4,900
Above Sperry Street	0.52	1,400	2,050	2,300	2,800
Above Wendover Road	0.45	1,300	1,850	2,000	2,400
550 feet east of Oakhurst Street	0.45	1,300	1,850	2,000	2,400
70 feet east of Oakhurst Street	0.32	1,000	1,350	1,500	1,800
McCREE BRANCH					
Above DART Rail crossing	1.30	2,600	3,100	3,400	4,000
Above White Rock Trail	1.21	2,600	3,100	3,400	4,000
Below Chiswell Road	1.09	2,600	3,300	3,600	4,400
520 feet above Chiswell Road	1.04	2,600	3,300	3,600	4,500
Above Fieldcrest Drive	0.94	2,400	3,100	3,600	4,500
530 feet above Fieldcrest Drive	0.85	2,500	3,300	3,600	4,400
At headwaters of McCree Branch	0.61	1,750	2,300	2,600	3,100

TABLE 2 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. mile)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.20% Annual Chance
New Detailed Study Streams					
ROYAL BRANCH					
At confluence with White Rock Creek	1.29	3,400	4,600	5,100	6,100
Above Central Expressway	1.07	2,800	3,800	4,200	5,000
1,450 feet below Boedeker Street	0.92	2,600	3,500	3,800	4,700
Above Boedeker Street	0.60	1,700	2,300	2,500	3,100
810 feet east of Hillcrest Road	0.26	800	1,100	1,200	1,450
RUSH CREEK					
At White Rock Lake	1.39	2,500	3,300	3,600	4,400
Above Dalgreen Drive	1.22	2,400	3,200	3,500	4,100
Above Mockingbird Lane	1.09	2,300	3,000	3,300	3,900
Above Abandoned Southern Pacific Railroad	1.08	2,300	3,000	3,300	3,800
Above Santa Barbara Drive	0.91	2,000	2,700	2,800	3,100
At DART rail crossing	0.76	1,950	2,500	2,600	2,900
470 feet above Trammel Drive	0.69	1,850	2,500	2,700	3,100
450 feet below Highgate Lane	0.64	1,800	2,400	2,600	3,100
Above Highgate Lane	0.26	850	1,100	1,200	1,450
SKILLMAN BRANCH					
At confluence with Caruth Creek	0.49	1,300	1,500	1,550	1,850
At Southwestern Boulevard	0.42	1,400	1,800	2,000	2,400
500 feet above Southwestern Boulevard	0.39	1,350	1,750	1,900	2,300
WEST FORK OF JOE'S CREEK					
At Interstate Highway 35	4.46	4,300	5,100	5,500	6,400
At Loop 12/Northwest Highway	4.40	4,300	5,200	5,600	6,400
At Lombardy Lane	4.26	4,300	5,300	5,700	6,500
At Manana Drive	3.29	3,700	4,700	5,300	6,500
At Walnut Hill Lane	2.38	2,800	3,500	3,900	4,700
At Shady Trail	2.32	2,900	3,700	4,100	5,000
At Harry Hines Boulevard	2.03	2,500	3,300	3,700	4,500
At Denton Drive	1.96	2,500	3,300	3,700	4,400
At West Fork of Joe's Creek 7 Outfall	1.93	2,500	3,300	3,700	4,500
At West Fork of Joe's Creek 6 Outfall	1.81	2,400	3,200	3,600	4,300
At West Fork of Joe's Creek 5 Outfall	1.76	2,300	3,200	3,500	4,300

TABLE 2 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. mile)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.20% Annual Chance
New Detailed Study Streams					
WEST FORK OF JOE'S CREEK (CONTINUED)					
At Brockbank Drive	1.70	2,400	3,200	3,600	4,400
At Royal Lane	1.58	2,300	3,200	3,600	4,500
At Silverton Drive	0.96	1,500	2,000	2,300	2,900
At Webb Chapel Road	0.93	1,600	2,200	2,600	3,300
WILLIAMSON BRANCH					
At White Rock Lake	1.48	2,500	3,300	3,700	5,000
Below Abandoned Railroad	1.46	2,500	3,300	3,700	5,000
Above Abandoned Railroad	1.40	2,400	3,200	3,600	4,900
Below Lower Williamson Road	1.32	2,400	3,100	3,600	5,000
Above Middle Williamson Road	1.23	2,300	3,100	3,600	4,900
Below Upper Williamson Road	1.19	2,300	3,100	3,600	4,900
Above Upper Williamson Road	1.14	2,200	3,000	3,600	4,800
Near Lakefair Circle	1.06	2,000	2,900	3,500	4,600
Above Mockingbird Lane	0.78	1,600	2,400	2,800	3,500
Above Abrams Road	0.59	1,600	2,200	2,500	3,000
Above Norris Street	0.41	1,400	1,800	1,950	2,400
At headwaters of Williamson Branch	0.21	750	1,000	1,100	1,300

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. 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 in conjunction with the data shown on the FIRM.

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

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

3.2.1 New Detailed Study Streams

Caruth Creek, Jackson Branch, Jenkins Branch, McCommas Branch, Royal Branch, Rush Creek, and Williamson Branch Watersheds in the City of Dallas

The streams involved in hydraulic updates in these watersheds are listed in Section 3.1.1.

Hydraulic methods used for these analyses are in accordance with the FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix C, dated November 2009. The USACE HEC-RAS computer program, version 4.1, was used to perform one-dimensional steady flow analyses for these studies. As part of these analyses, Flood Profiles were produced for the 10-, 2-, 1-, and 0.2-percent-annual-chance-floods.

Cross sections for these models were developed from field survey data obtained in the spring of 2011 as part of the City of Dallas FEMA CTP FY-10 study and TNRIS 2010 LiDAR terrain data.

Peak discharges for these models were developed using the hydrologic analyses as discussed in Section 3.1.1.

Manning's roughness coefficients were selected based on standard references, engineering judgment, aerial and field photography, and field observations of the streams' cnannels and floodplain areas.

No floodway exists as part of the effective study and therefore no floodway was computed for these studies.

Joe's Creek Watershed in the City of Dallas

The streams involved in hydraulic updates in this watershed are listed in Section 3.1.1.

Hydraulic methods used for this analysis are in accordance with the FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix C, dated November 2009. The USACE HEC-RAS computer program, version 4.1, was used to perform an one-dimensional steady flow analysis for this study. As part of this analysis, Flood Profiles were produced for the 10-, 2-, 1-, and 0.2-percent-annual-chance-floods.

Cross sections for this model were developed from field survey data obtained between winter of 2010 and spring of 2011 as part of the City of Dallas FEMA CTP FY-10 study and TNRIS 2010 LiDAR terrain data.

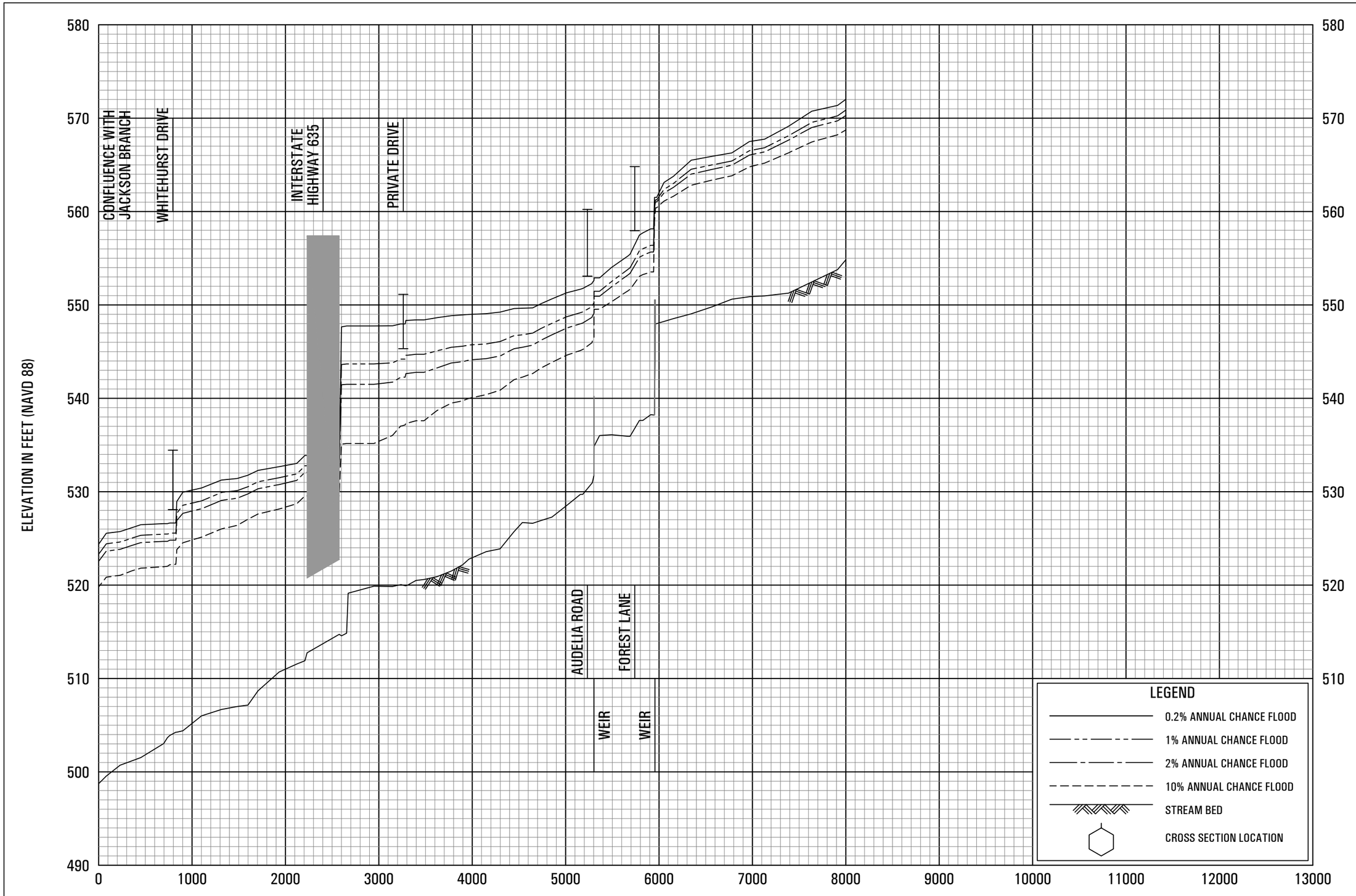
Peak discharges for this model were developed using the hydrologic analysis as discussed in Section 3.1.1.

Manning's roughness coefficients were selected based on standard references, engineering judgment, aerial and field photography, and field observations of the streams' cnannels and floodplain areas.

No floodway exists as part of the effective study and therefore no floodway was computed for these studies.

TABLE 3 – SUMMARY OF ROUGHNESS COEFFICIENTS
Stream Reaches Studied by Detailed Methods

Stream Name	Channel "n" Value	Overbank "n" Value
New Detailed Study Streams		
Audelia Branch	0.013-0.080	0.013-0.120
Beards Branch	0.013-0.065	0.035-0.120
Caruth Creek	0.015-0.065	0.015-0.090
East Fork of Joe's Creek	0.015-0.075	0.040-0.100
Jackson Branch	0.013-0.090	0.013-0.120
Jenkins Branch	0.015-0.070	0.025-0.120
Joe's Creek	0.015-0.075	0.015-0.120
McCommas Branch	0.013-0.065	0.040-0.120
McCree Branch	0.013-0.090	0.020-0.120
Royal Branch	0.015-0.065	0.025-0.100
Rush Creek	0.015-0.090	0.020-0.120
Skillman Branch	0.015-0.065	0.035-0.090
West Fork of Joe's Creek	0.015-0.075	0.015-0.120
Williamson Branch	0.013-0.065	0.013-0.120



FLOOD PROFILES

AUDELIA BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD 88)

640
630
620
610
600
590
580
570
560
550

8000
9000
10000
11000
12000
13000
14000
15000
16000
17000
18000
19000
20000
21000

SHADOW WAY BRIDGE
PRIVATE DRIVE
PRIVATE DRIVE
WEIR
WALNUT STREET FOOTBRIDGE
LAWLER ROAD
PRIVATE DRIVE
PRIVATE DRIVE
CLAYMORE DRIVE
LIMIT OF DETAILED STUDY

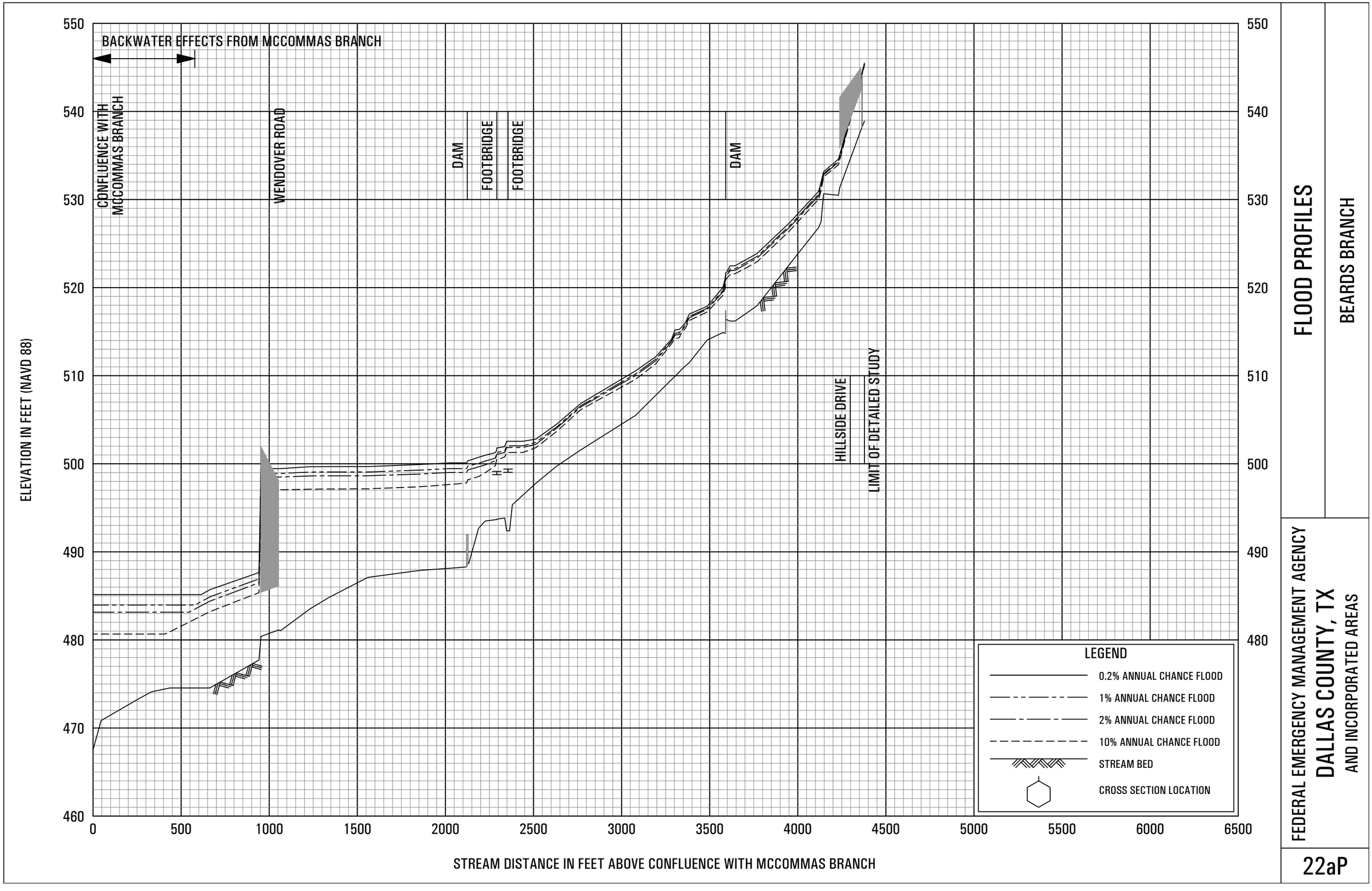
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH JACKSON BRANCH

FLOOD PROFILES

AUDELIA BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
DALLAS COUNTY, TX
AND INCORPORATED AREAS



FLOOD PROFILES

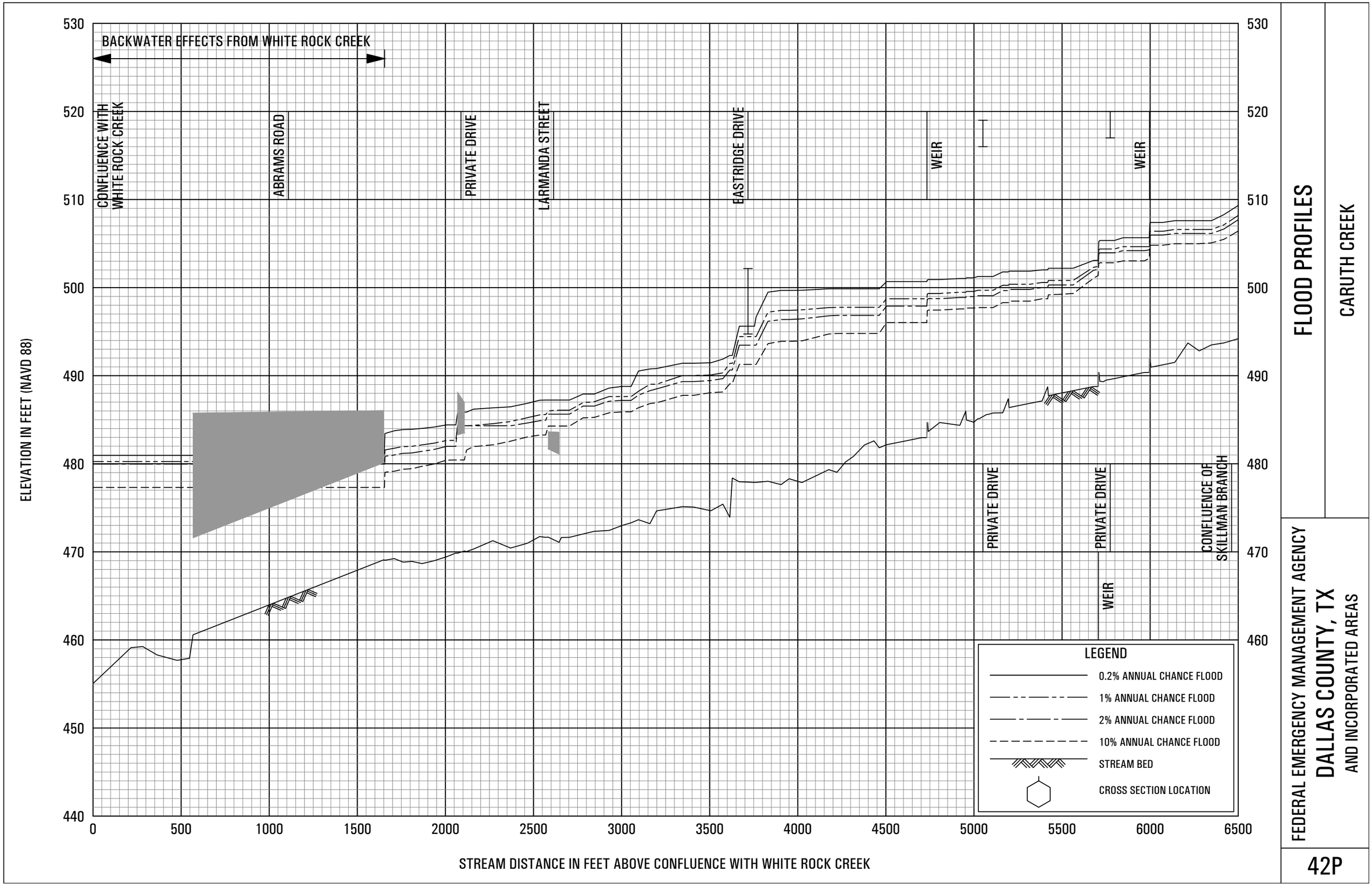
BEARDS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

22aP



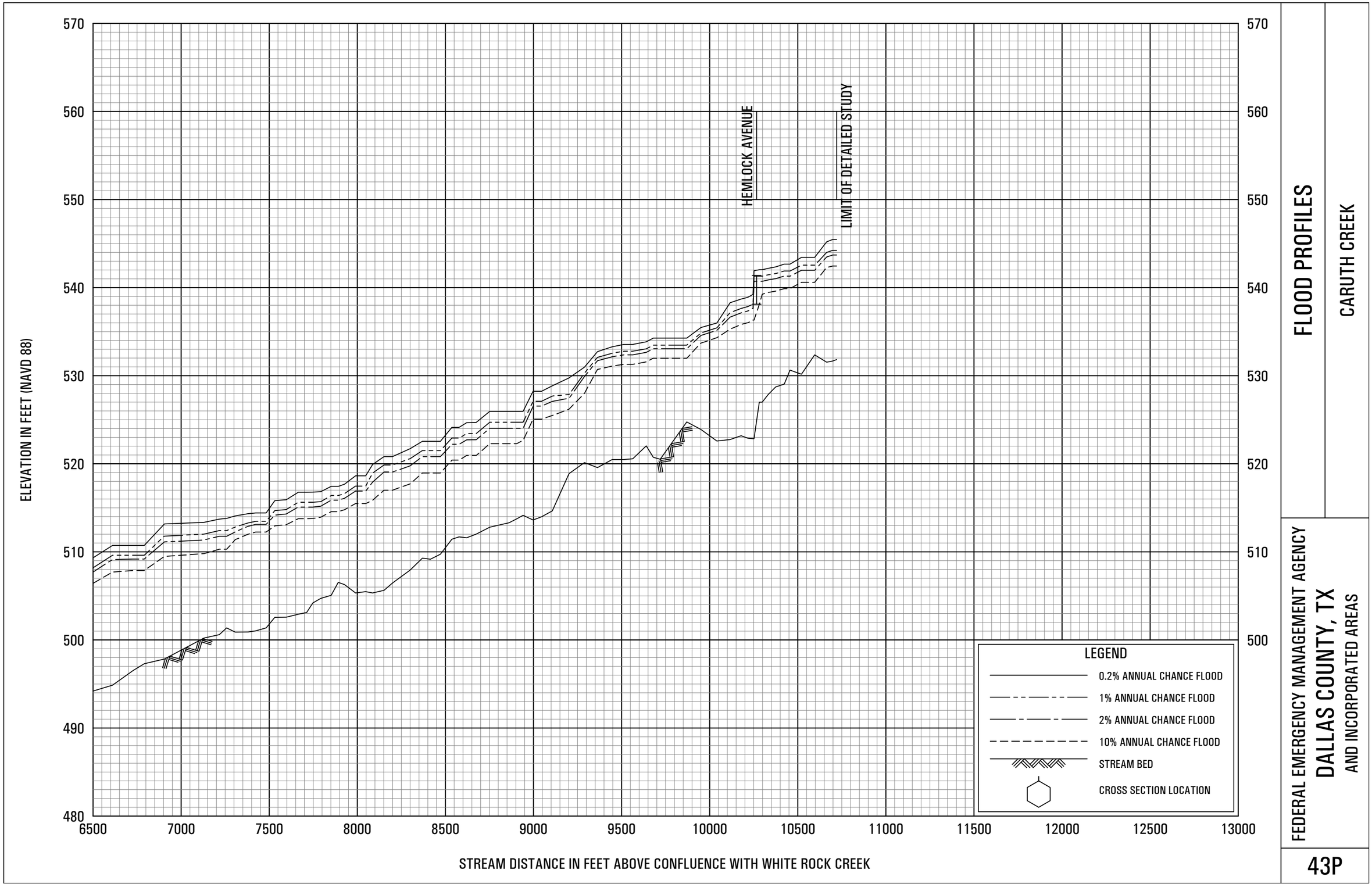
FLOOD PROFILES

CARUTH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS



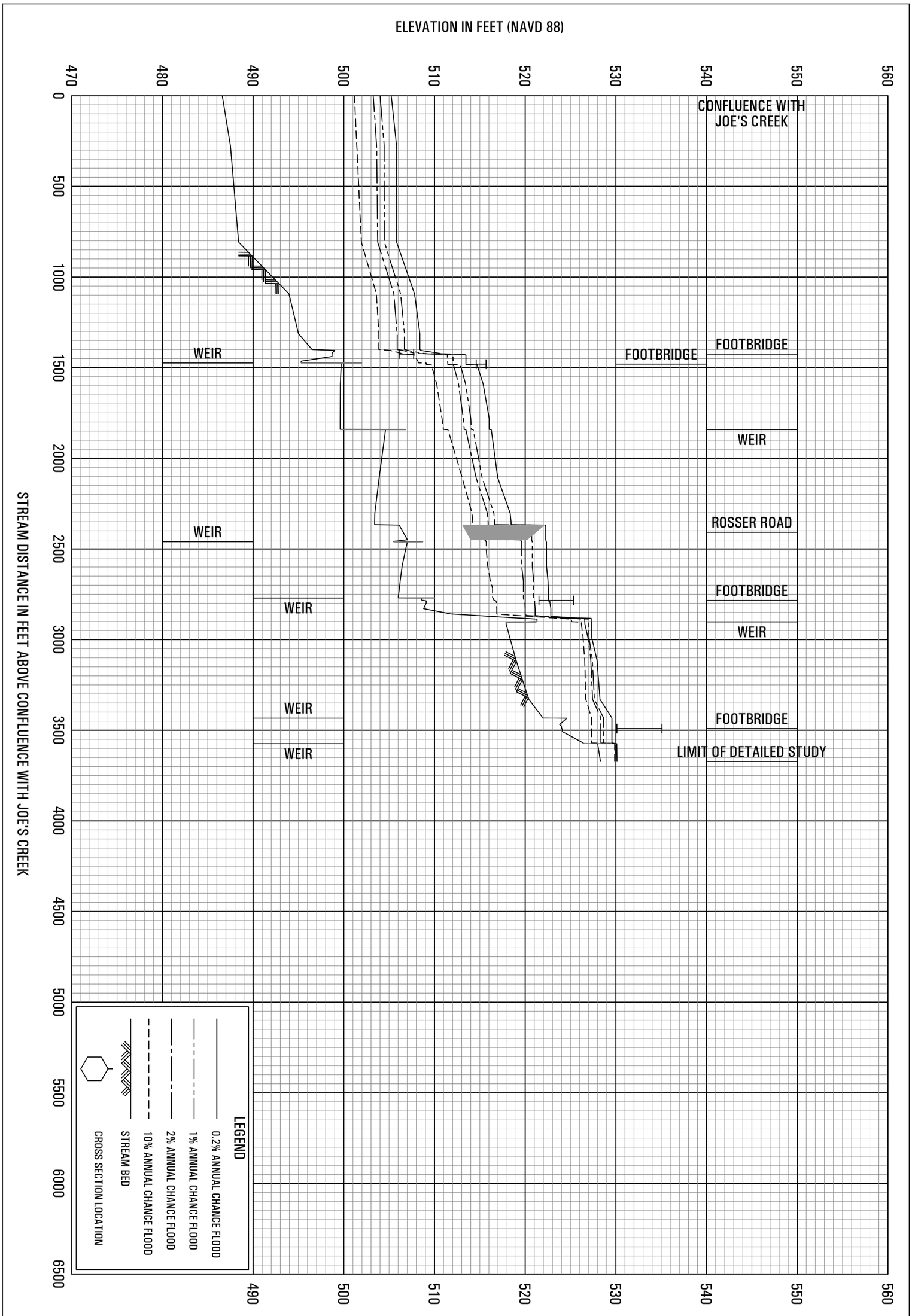
FLOOD PROFILES

CARUTH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS



132P

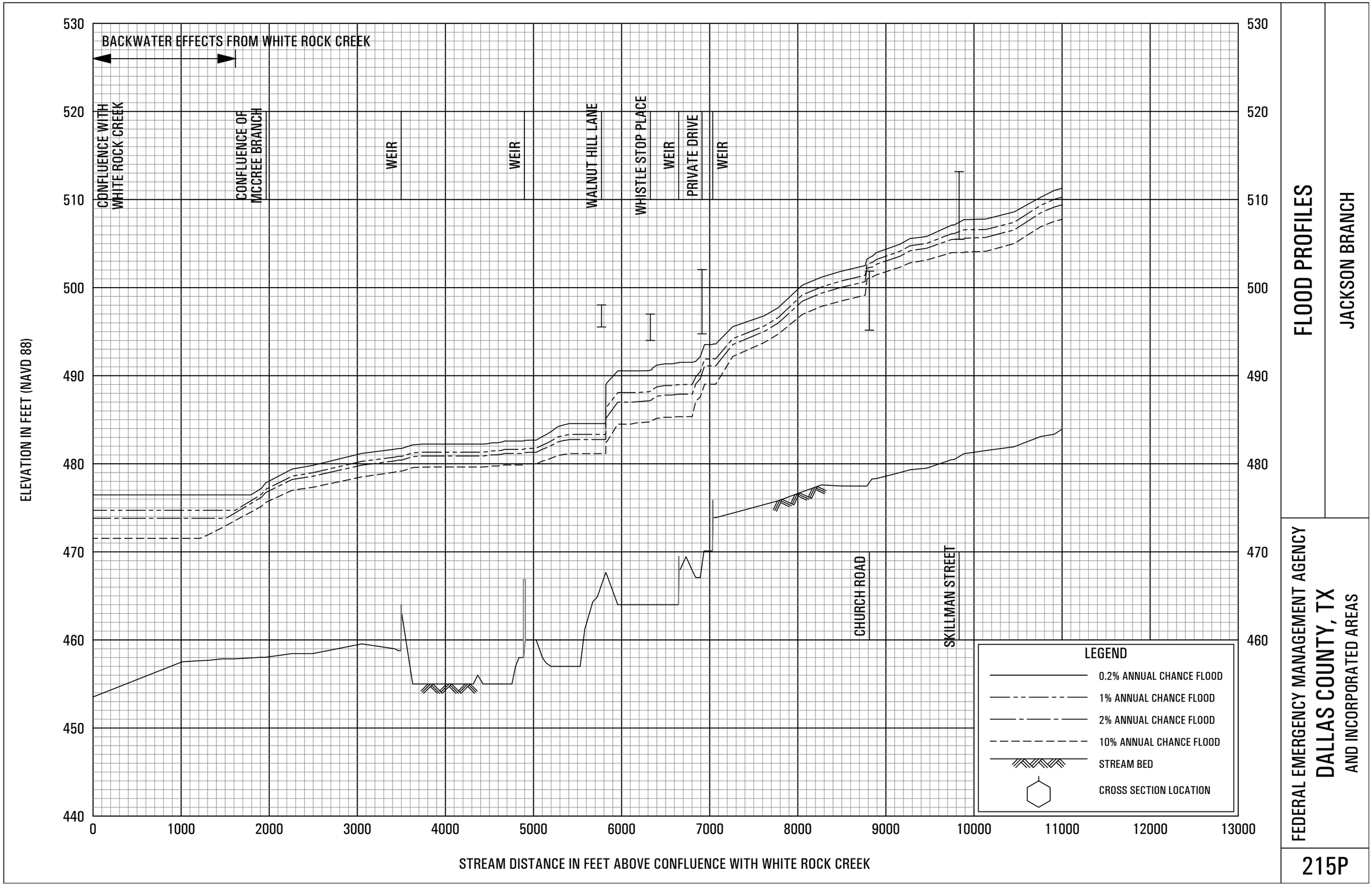
FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

FLOOD PROFILES

EAST FORK OF JOE'S CREEK



FLOOD PROFILES

JACKSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

215P

ELEVATION IN FEET (NAVD 88)

570
560
550
540
530
520
510
500
490
480

ROYAL LANE
ROYAL LANE
CONFLUENCE OF AUDELIA BRANCH
WHITEHURST DRIVE
WEIR
INTERSTATE HIGHWAY 635
FOREST LANE
WEIR

LEGEND
- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

11000 12000 13000 14000 15000 16000 17000 18000 19000 20000 21000 22000 23000 24000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WHITE ROCK CREEK

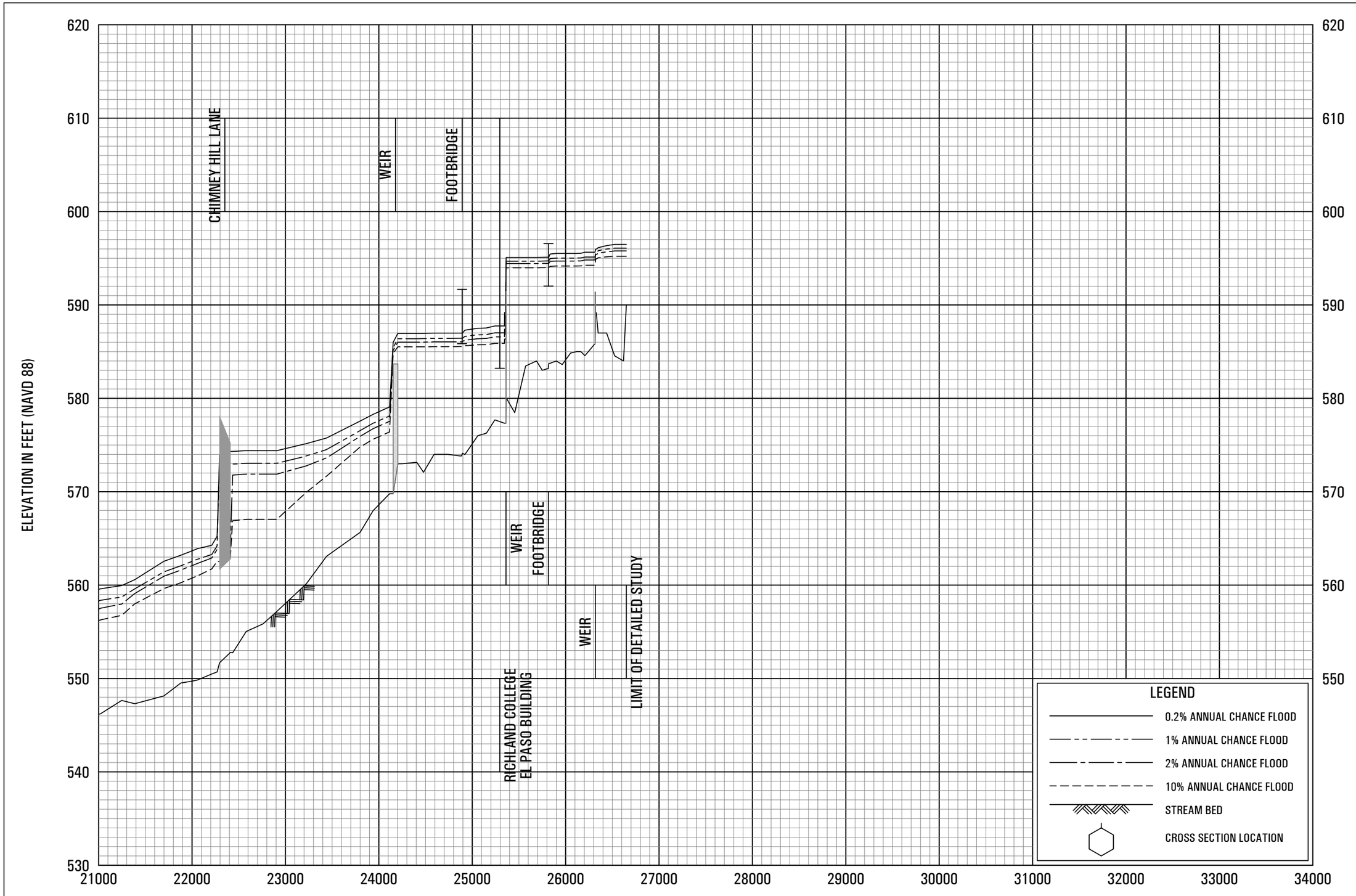
FLOOD PROFILES

JACKSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

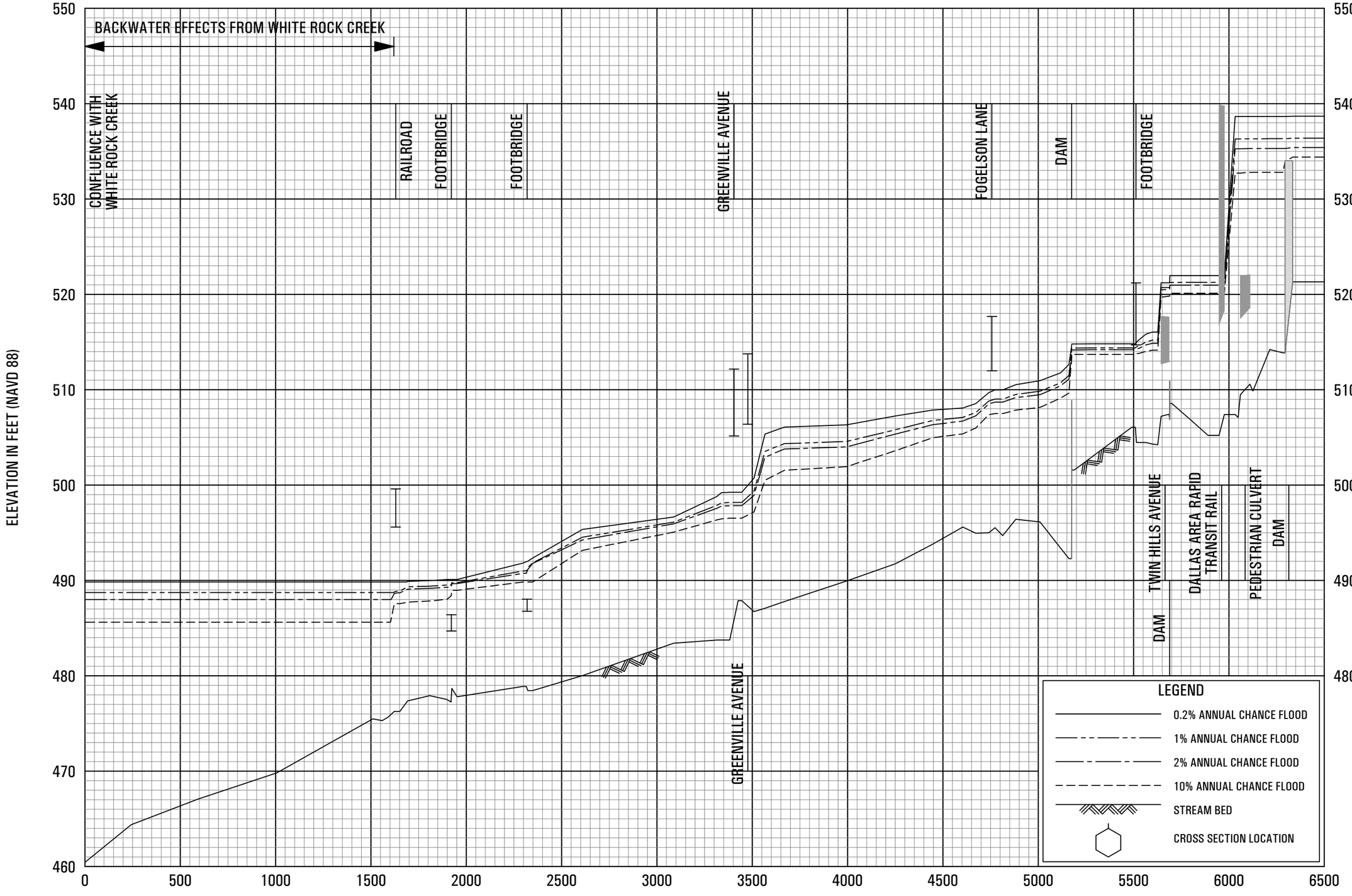
JACKSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

217P



FLOOD PROFILES

JENKINS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD 88)

600
590
580
570
560
550
540
530
520
510

GOLF LAKES TRAIL
U.S. HIGHWAY 75
FOOTBRIDGE
FOOTBRIDGE
DAM
DAM
MORNING GLORY
DAM
MORNING GLORY
FOOTBRIDGE
DAM
GLENSHANNON DRIVE
DAM
DAM
LIMIT OF DETAILED STUDY
DAM
DAM

LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION

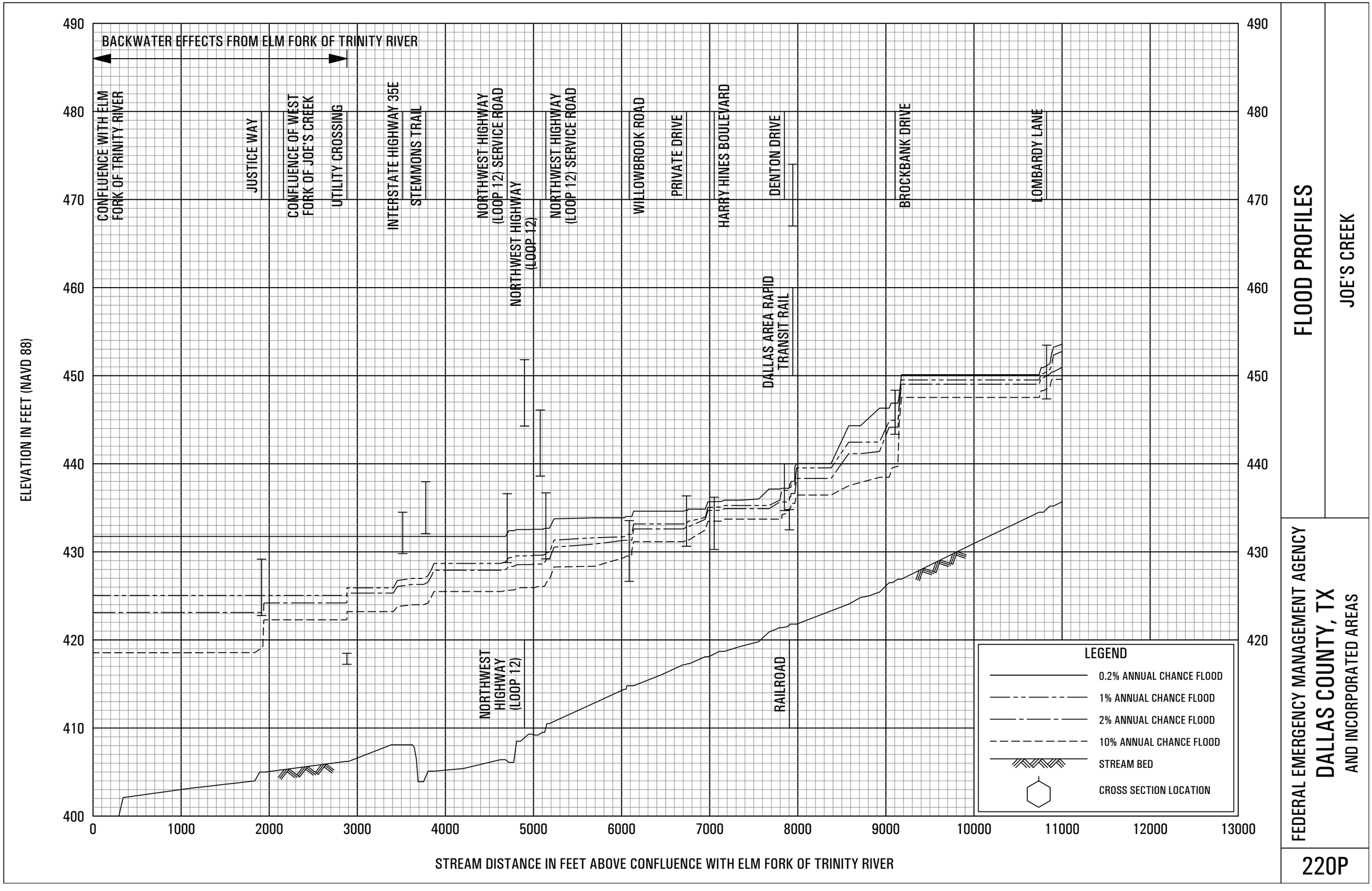
6500 7000 7500 8000 8500 9000 9500 10000 10500 11000 11500 12000 12500 13000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH WHITE ROCK CREEK

FLOOD PROFILES

JENKINS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
DALLAS COUNTY, TX
AND INCORPORATED AREAS



FLOOD PROFILES

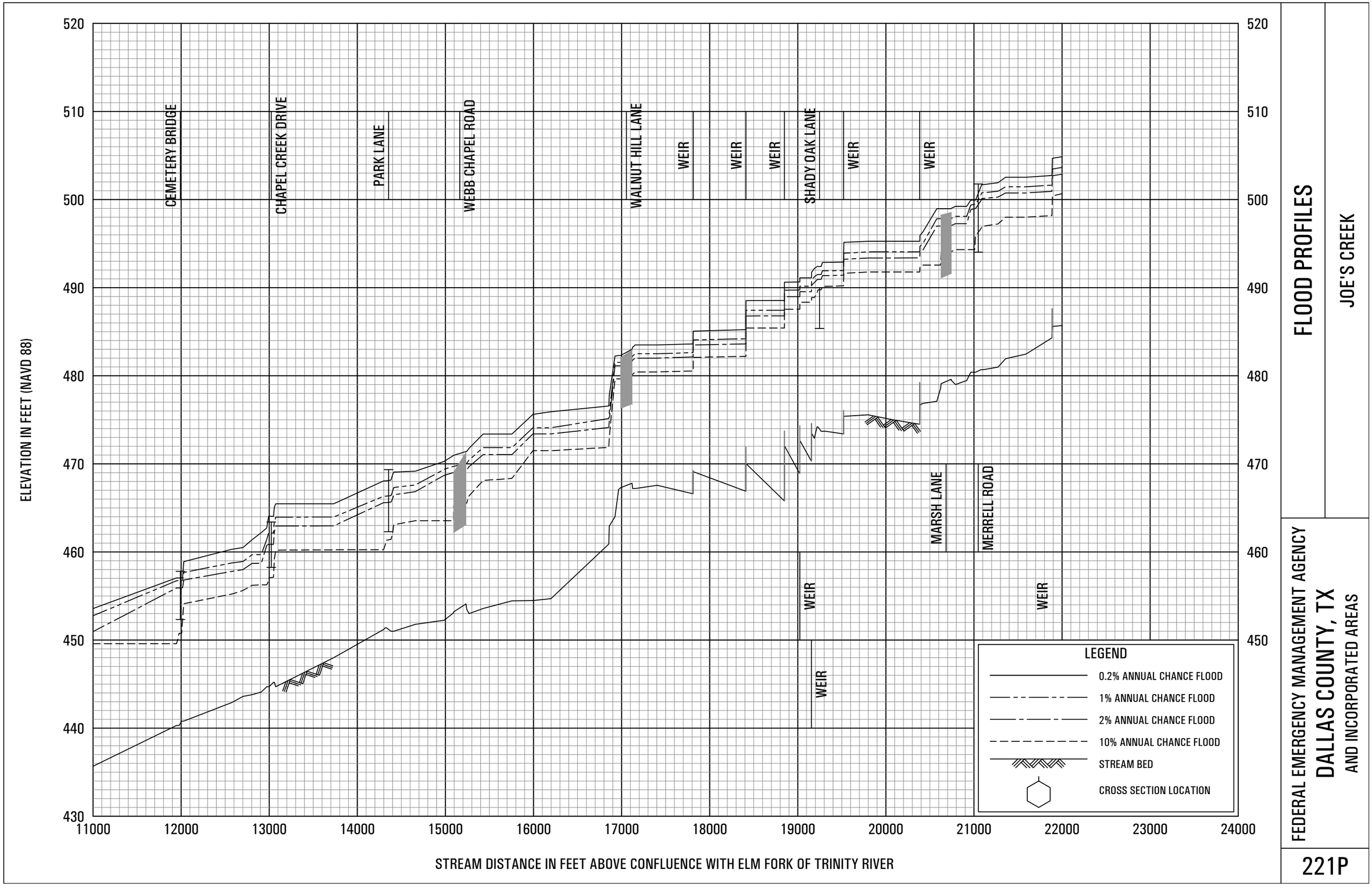
JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

220P



FLOOD PROFILES

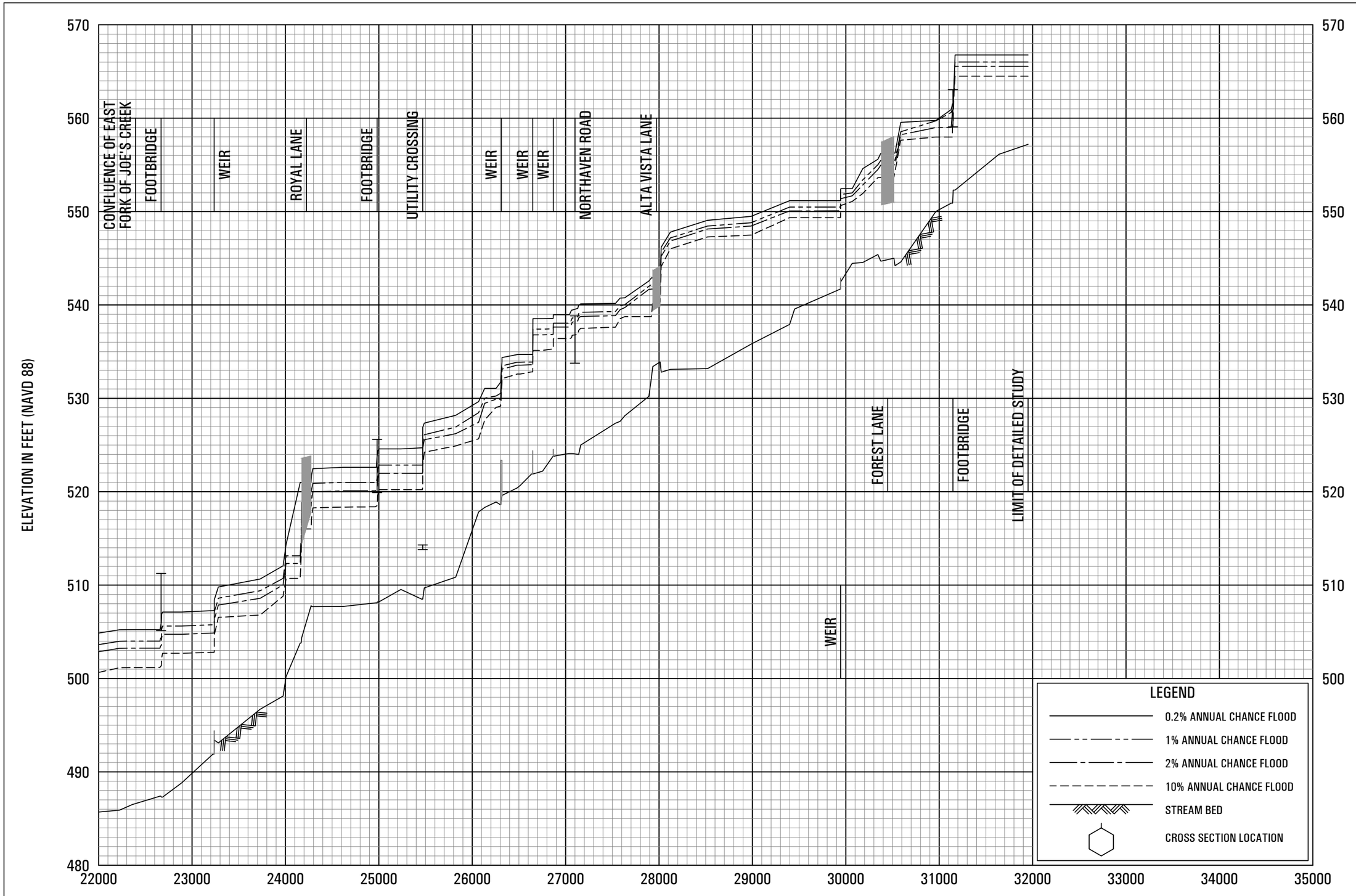
JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

221P



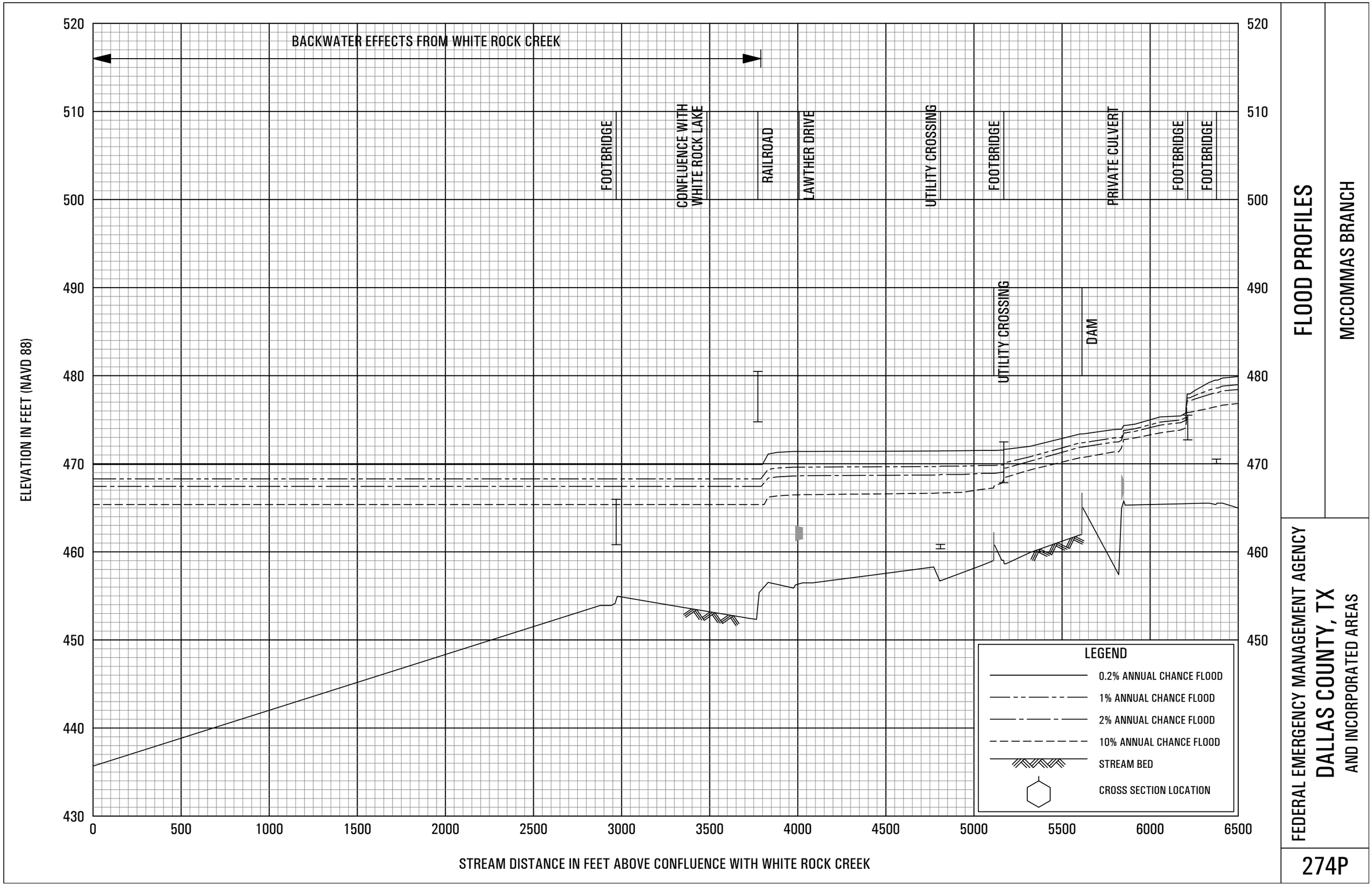
FLOOD PROFILES

JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

MCCOMMAS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

274P

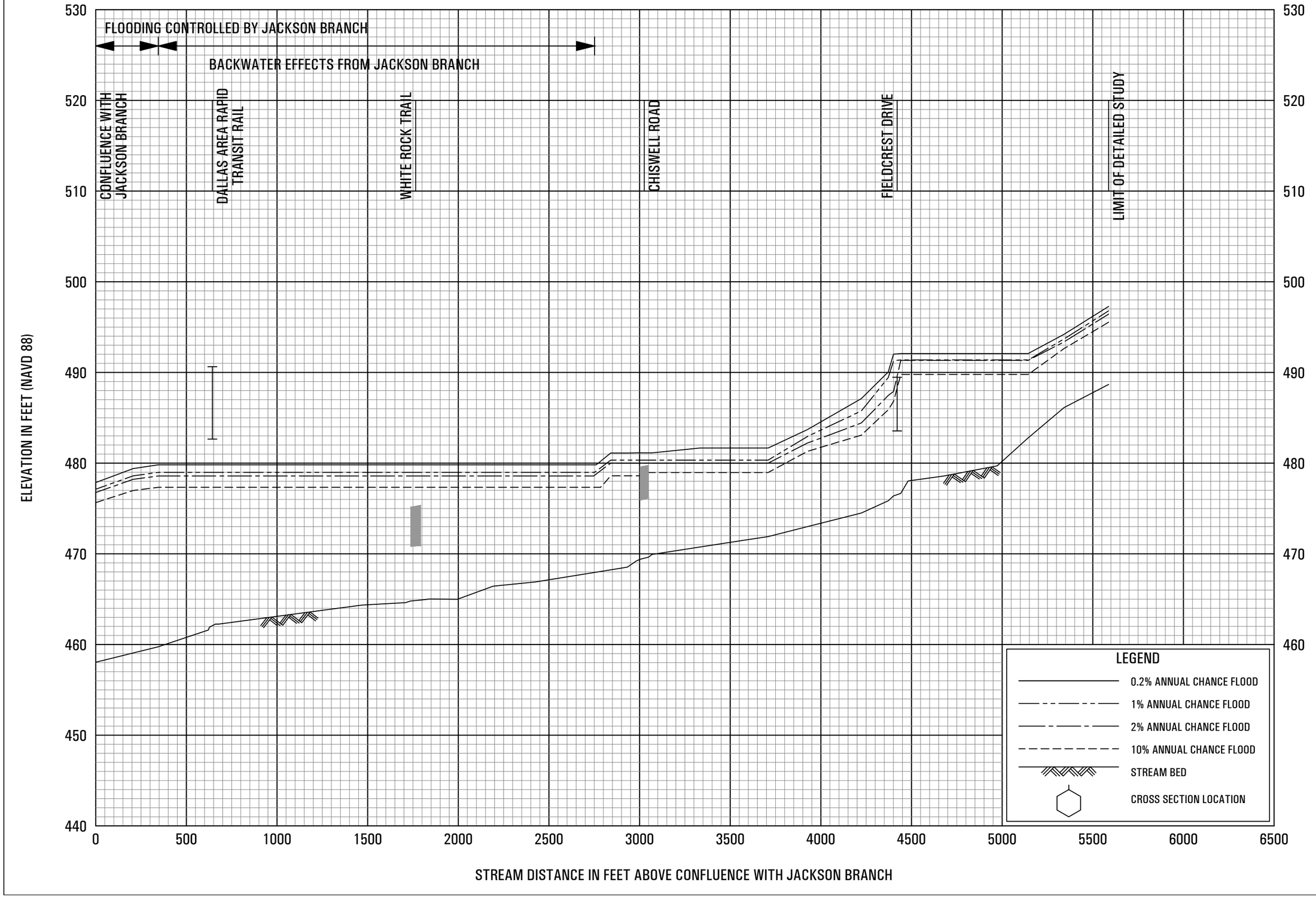
FLOOD PROFILES

MCCOMMAS BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS



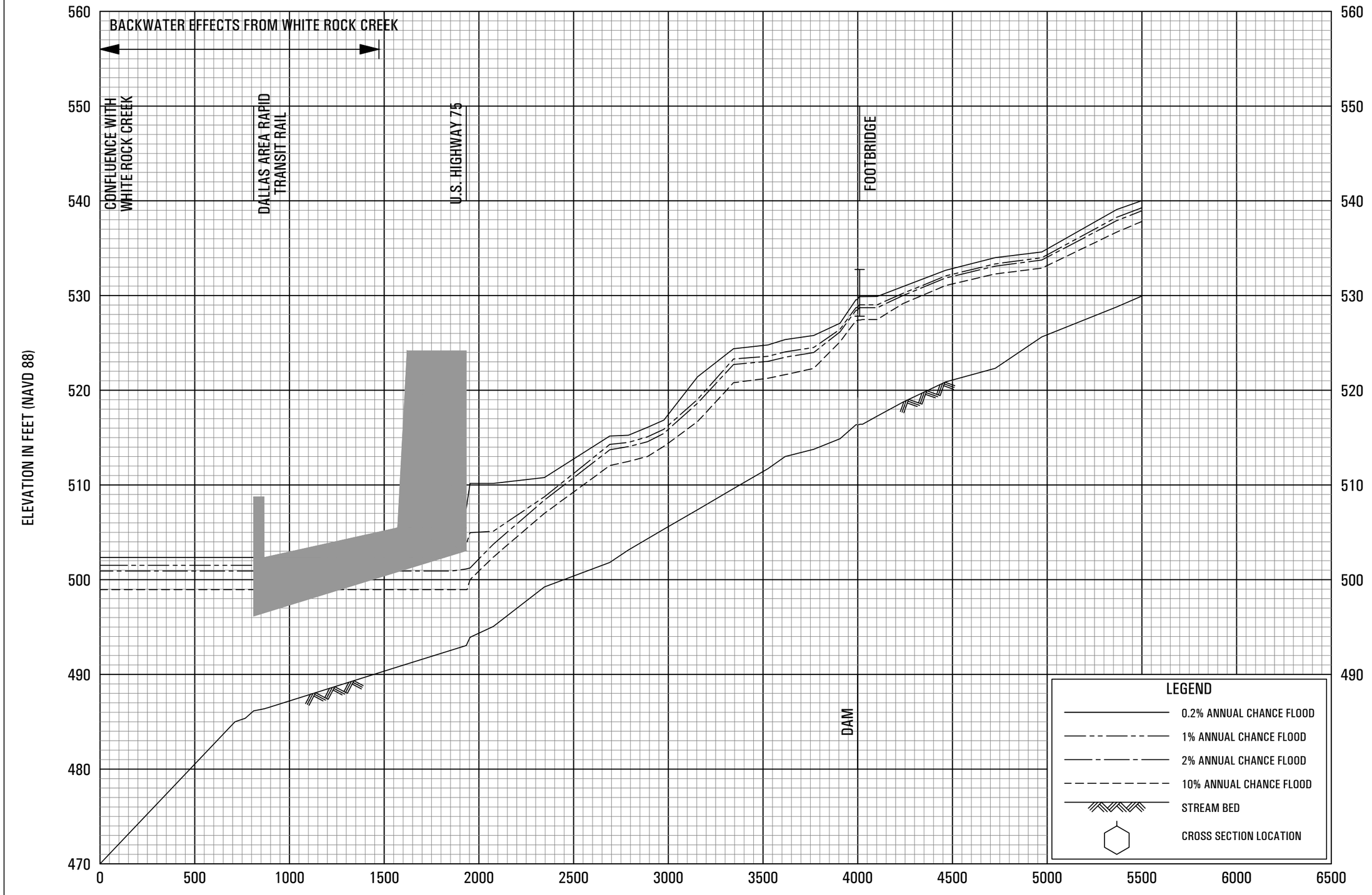
FLOOD PROFILES

MCCREE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS



FLOOD PROFILES

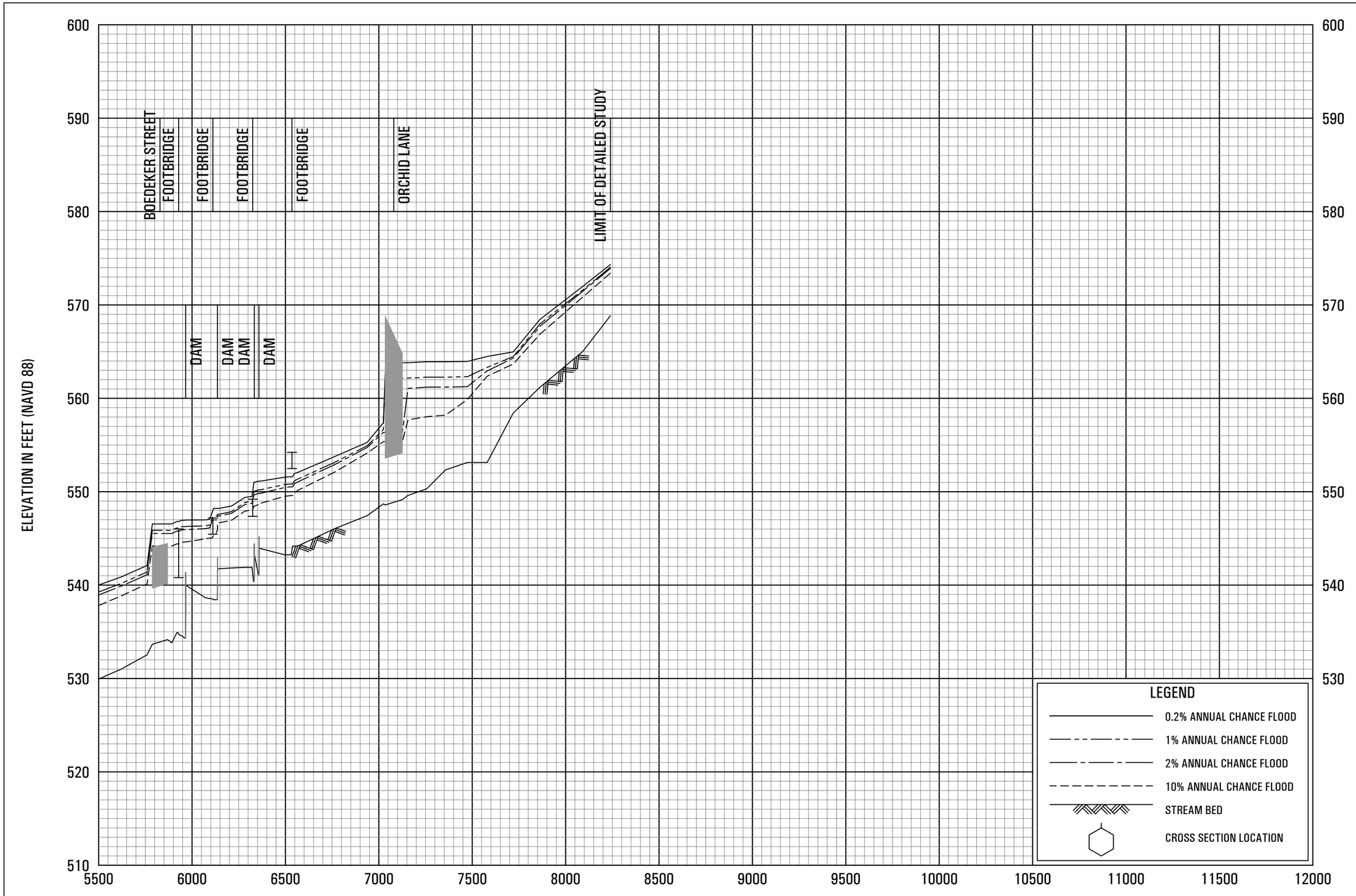
ROYAL BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

340P



FLOOD PROFILES

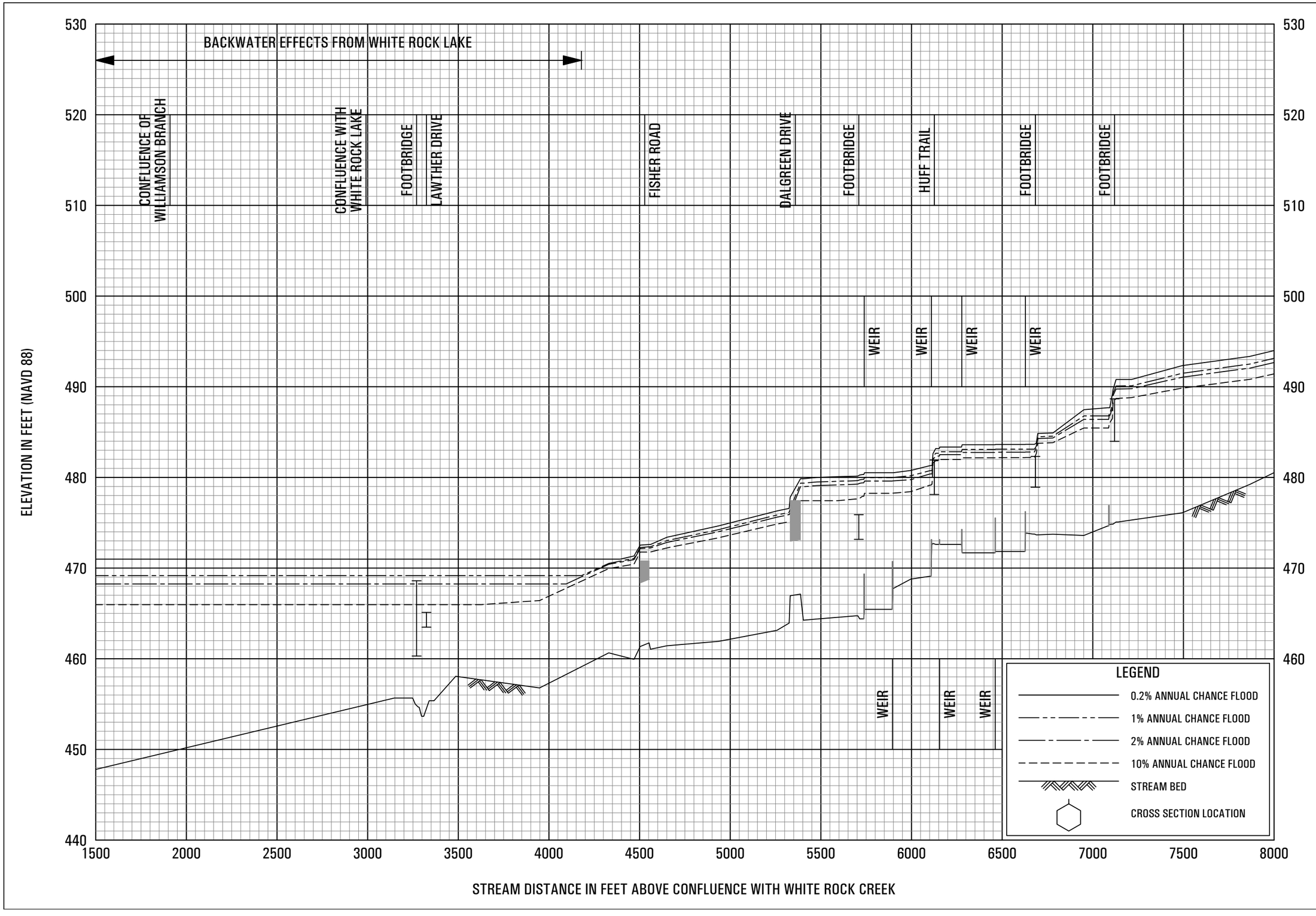
ROYAL BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

341P



FLOOD PROFILES

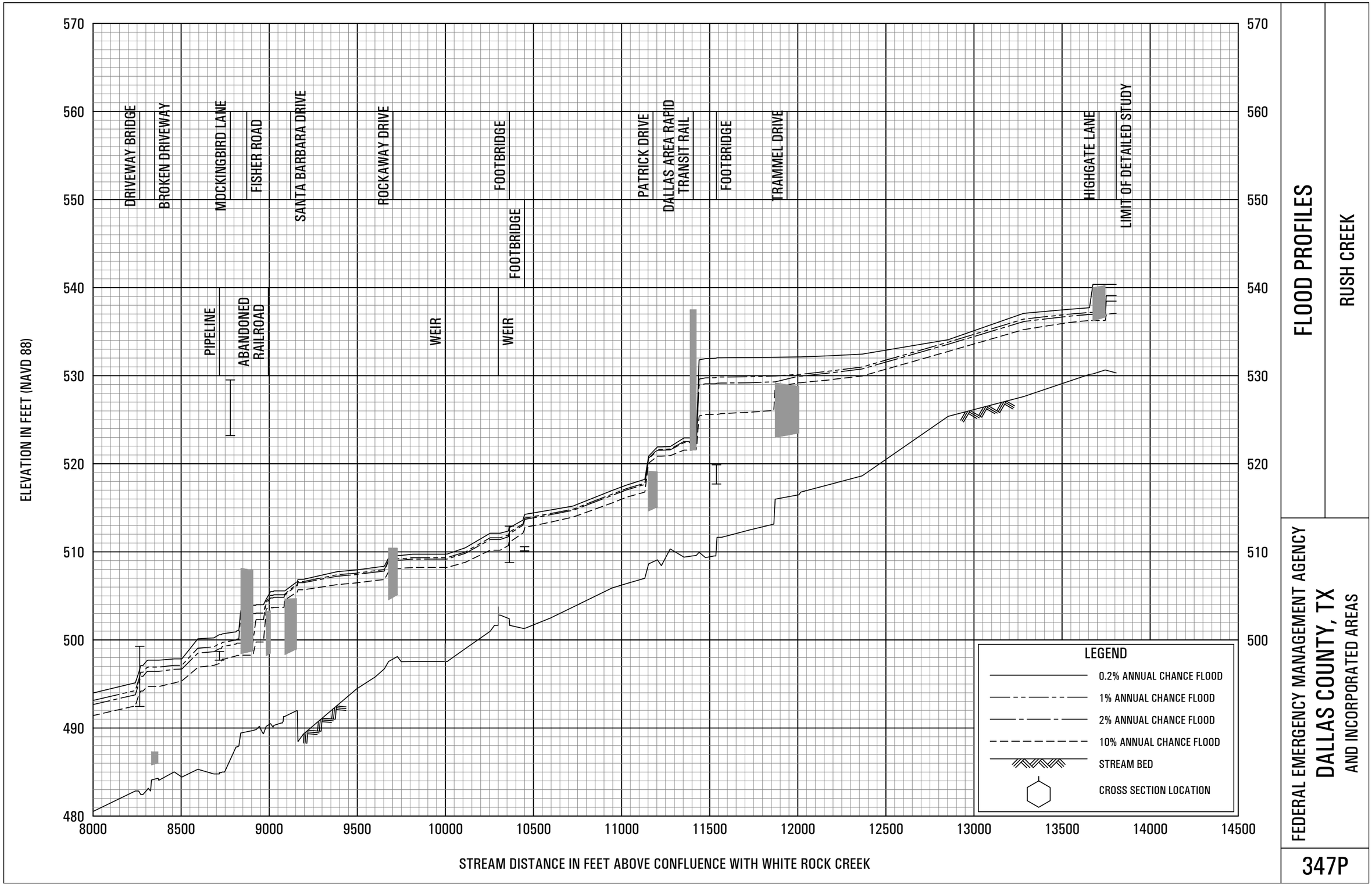
RUSH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

346P



FLOOD PROFILES

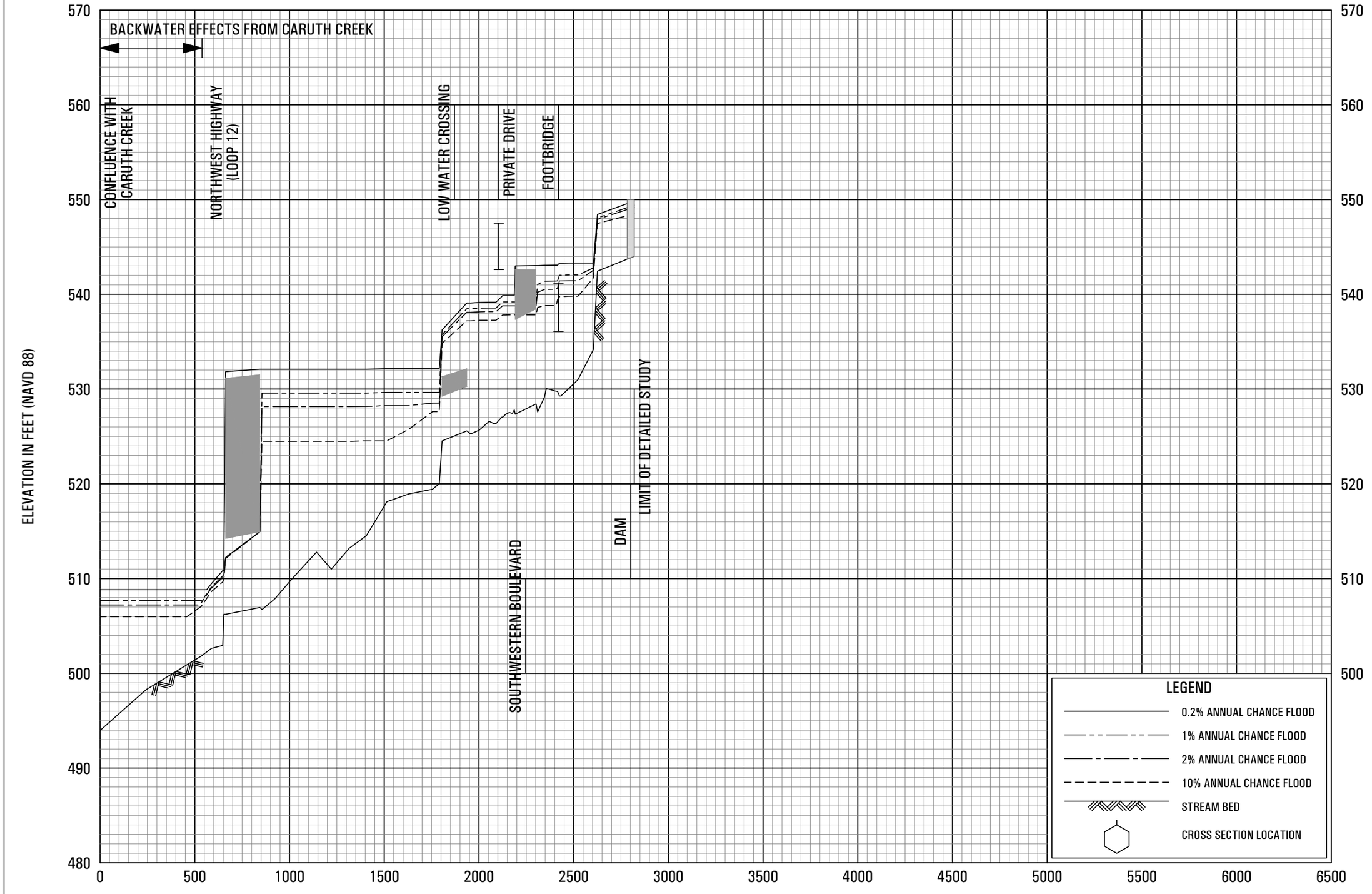
RUSH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

347P



FLOOD PROFILES

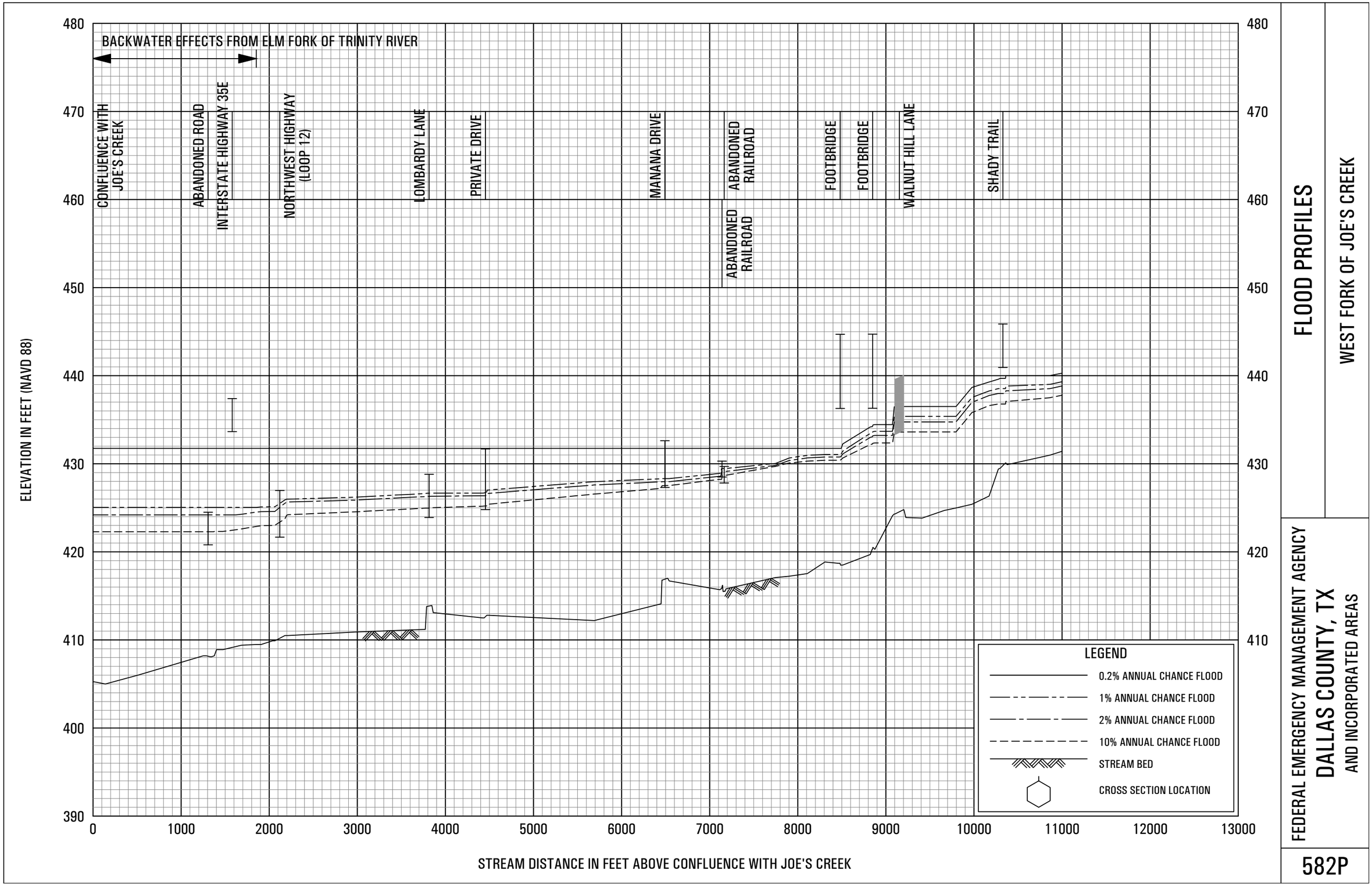
SKILLMAN BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

350P



FLOOD PROFILES

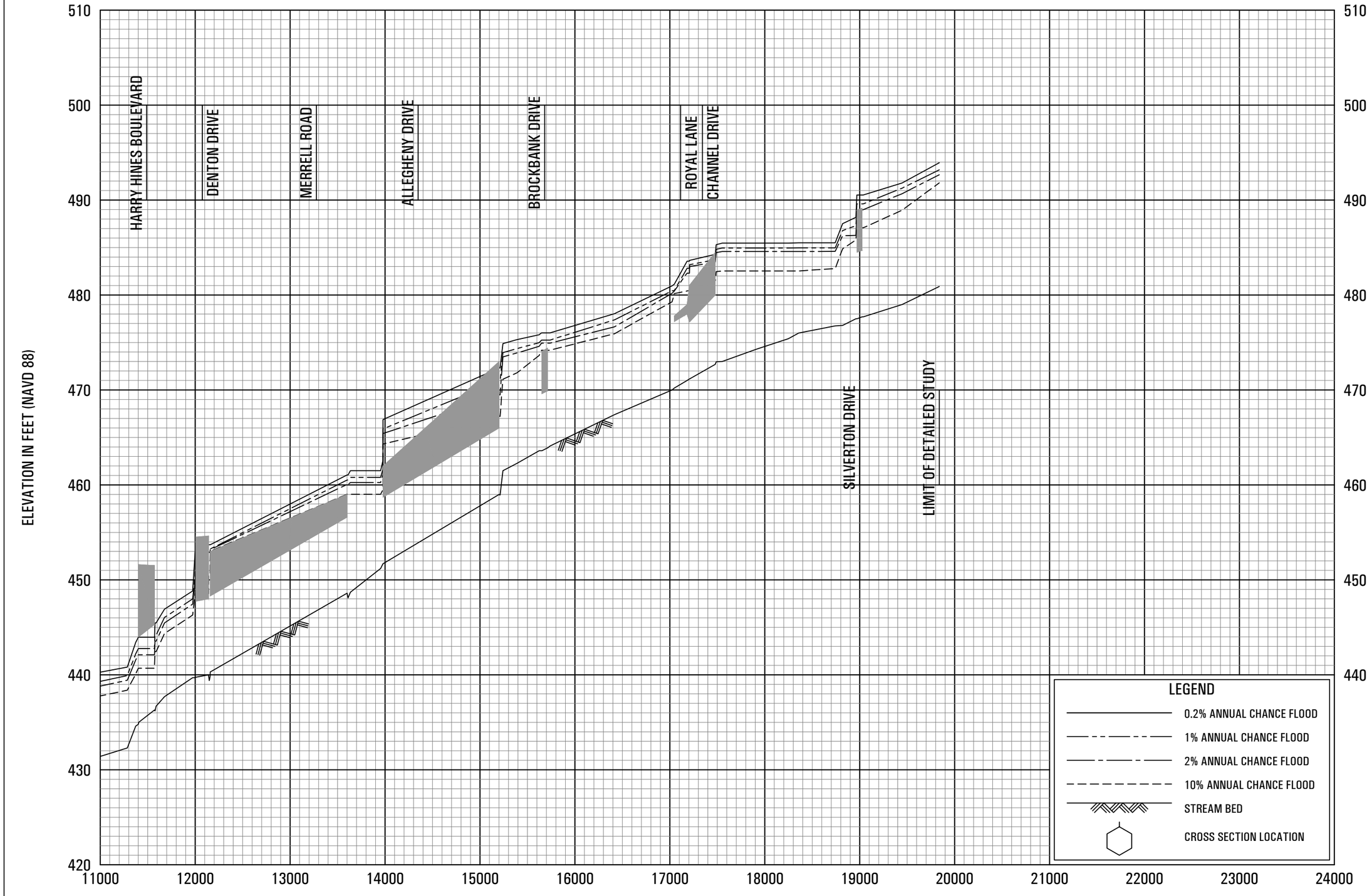
WEST FORK OF JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

582P



FLOOD PROFILES

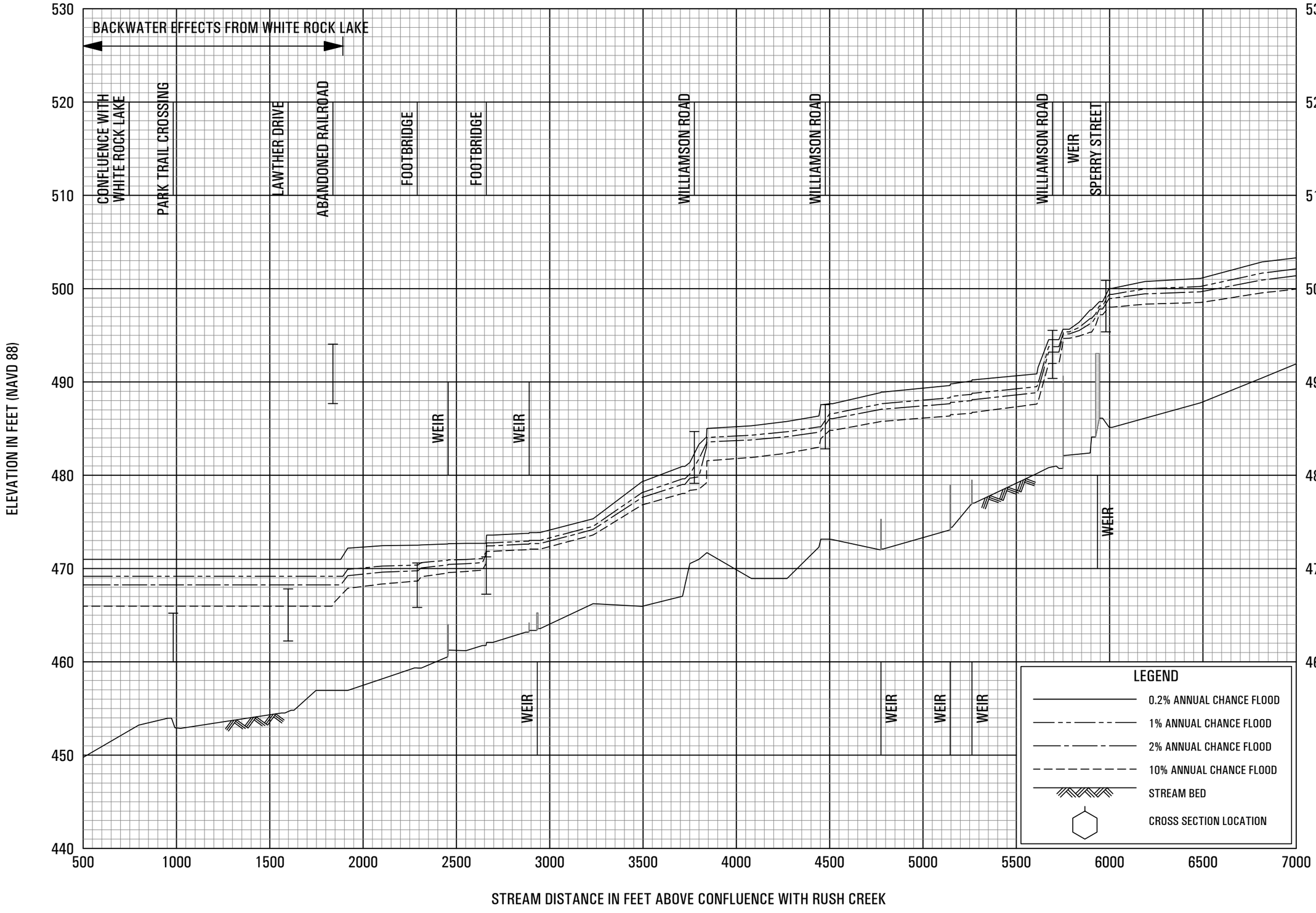
WEST FORK OF JOE'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

582aP



FLOOD PROFILES

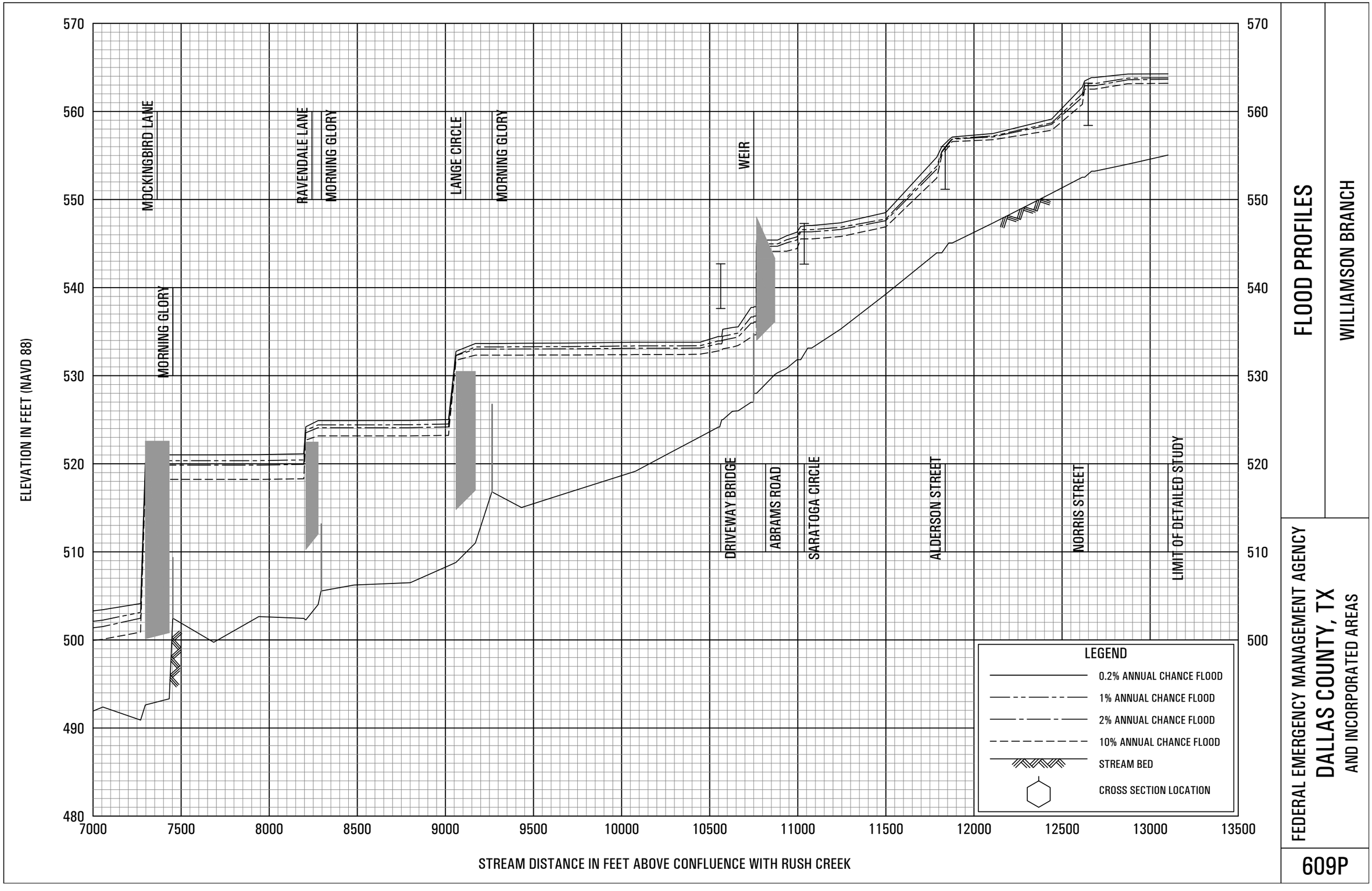
WILLIAMSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

608P



FLOOD PROFILES

WILLIAMSON BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

DALLAS COUNTY, TX

AND INCORPORATED AREAS

609P