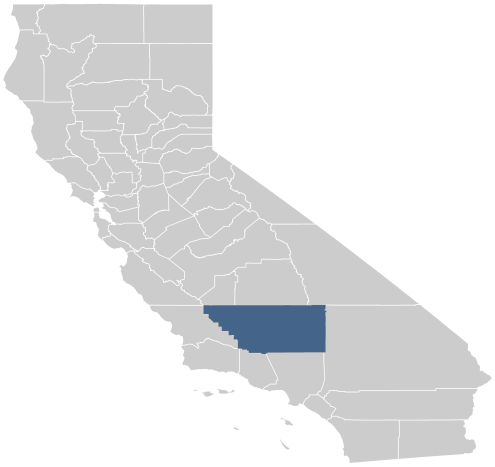
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 2 OF 3



KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
Arvin, City of	060076	McFarland, City of	060080
Bakersfield, City of	060077	Ridgecrest, City of	060081
California City, City of	060440	Shafter, City of	060082
Delano, City of	060078	Taft, City of	065063
Kern County, Unincorporated Areas	060075	Tehachapi, City of	060084
Maricopa, City of	060079	Wasco, City of	060085

PRELIMINARY:
NOVEMBER 15, 2019

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FEMA

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FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Little Dixie Wash								
A	0	379	2,151	2.1	2,414.0	2,414.0	2,414.9	0.9
B	170	439	1,639	2.8	2,414.3	2,414.3	2,415.0	0.7
C	1,550	115	432	10.7	2,421.7	2,421.7	2,421.8	0.1
D	2,925	200	852	5.4	2,430.1	2,430.1	2,430.9	0.8
E	4,655	90	396	11.6	2,440.9	2,440.9	2,441.9	1.0
F	5,735	150	773	5.9	2,449.3	2,449.3	2,449.8	0.5
G	7,135	325	709	6.5	2,455.8	2,455.8	2,456.6	0.8

[1] Feet Above Inyokern Road

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

LITTLE DIXIE WASH

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Poso Creek								
A	0	156	507	9.9	417.7	417.7	417.7	0.0
B	3,470	1,150	1,653	8.4	426.4	426.4	426.6	0.2
C	4,870	490	1,366	7.9	429.3	429.3	430.1	0.8
D	6,870	396	1,019	9.5	434.0	434.0	434.6	0.6
E	7,470	425	1,345	8.1	435.6	435.6	436.6	1.0
F	8,570	619	1,803	5.5	437.6	437.6	438.6	1.0
G	10,920	1,066	1,733	7.0	443.9	443.9	444.0	0.1
H	12,580	1,280	2,235	5.2	447.6	447.6	448.0	0.4
I	13,680	1265	1,706	7.4	449.5	449.5	450.3	0.8
J	14,830	1,660	2,620	4.0	452.9	452.9	453.5	0.6
K	18,750	1,767	1,555	5.5	461.4	461.4	461.4	0.0
L	26,860	1,860	3,172	6.0	483.1	483.1	483.2	0.1
M	29,160	1,646	4,016	4.7	488.6	488.6	488.9	0.3
N	30,510	1,715	3,199	5.9	491.6	491.6	492.0	0.4
O	31,610	1,627	3,450	5.5	495.6	495.6	495.6	0.0
P	34,060	1,750	4,761	4.0	499.8	499.8	500.7	0.9
Q	35,410	948	2,866	6.6	502.9	502.9	502.9	0.0
R	36,660	1,189	6,700	2.8	504.2	504.2	504.5	0.3
S	38,000	324	1526	12.4	504.9	504.9	504.9	0.0
T	39,450	519	2126	8.9	512.4	512.4	512.5	0.1
U	40,900	473	2319	8.2	516.8	516.8	516.9	0.1
V	41,980	573	3944	4.8	518.2	518.2	518.7	0.5
W	43,360	241	1383	13.7	519.2	519.2	519.4	0.2
X	44,810	236	1587	12.0	525.3	525.3	526.2	0.9
Y	45,380	213	1423	13.3	528.7	528.7	528.8	0.1

[1] Feet Above State Highway 99

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

POSO CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Ranger Station Creek								
A	810	217	519	6.5	5,155.9	5,155.9	5,156.1	0.2
B	1,140	73	296	11.5	5,161.1	5,161.1	5,161.2	0.1
C	1,965	103	351	9.7	5,176.6	5,176.6	5,176.8	0.2
D	2,600	73	306	11.1	5,186.0	5,186.0	5,186.1	0.1
E	3,050	115	453	7.5	5,189.6	5,189.6	5,190.5	0.9
F	3,470	69[2]	299	11.4	5,195.2	5,195.2	5,195.5	0.3

[1] Feet Above Confluence With Cuddy Creek

[2] Floodway Outside Kern County

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

RANGER STATION CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Sandy Creek								
A	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
B	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
C	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
D	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
E	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
F	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
G	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
H	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
I	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
J	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
K	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
L	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
M	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
N	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
O	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
P	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
Q	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
R	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
S	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
T	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
U	15,352 [1]	475	—— [2]	—— [2]	1,001.0	—— [2]	—— [2]	—— [2]
V	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
W	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
X	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
Y	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]	—— [2]
Z	17,692 [1]	167	—— [2]	—— [2]	1,059.3	—— [2]	—— [2]	—— [2]

[1] Feet Above Confluence With North Sandy Creek

[2] Data Not Available

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

SANDY CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Sandy Creek (Cont)								
AA	17,692 [1]	167	__ [2]	__ [2]	1,059.3	__ [2]	__ [2]	__ [2]
AB	19,092 [1]	94	__ [2]	__ [2]	1,095.7	__ [2]	__ [2]	__ [2]
AC	20,752 [1]	98	__ [2]	__ [2]	1,140.2	__ [2]	__ [2]	__ [2]
AD	21,652 [1]	282	__ [2]	__ [2]	1,172.0	__ [2]	__ [2]	__ [2]
AE	21,838 [1]	286	__ [2]	__ [2]	1,173.6	__ [2]	__ [2]	__ [2]
AF	22,768 [1]	119	__ [2]	__ [2]	1,192.0	__ [2]	__ [2]	__ [2]

[1] Feet Above Confluence With North Sandy Creek

[2] Data Not Available

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

SANDY CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Branch Poso Creek								
A	0	4,442	10,811	1.0	445.7	445.7	446.7	1.0
B	1,000	1,720	5,579	1.9	446.2	446.2	446.9	0.7
C	2,650	1,485	3,109	3.4	447.3	447.3	448.0	0.7
D	4,800	1,073	2,146	4.9	453.1	453.1	453.8	0.7
E	7,150	1,713	3,432	3.1	458.2	458.2	458.8	0.6

[1] Feet Above State Highway 99

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

SOUTH BRANCH POSO CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Fork Kern River								
A	0	2,350	8,284	3.9	2,614.1	2,600.4[2]	2,601.4	1.0
B	2,240	2,970	5,977	5.4	2,614.1	2,608.9[2]	2,608.9	0.0
C	4,470	2,280	9,854	3.2	2,617.5	2,617.5	2,618.1	0.6
D	6,170	2,107	8,820	3.5	2,621.7	2,621.7	2,622.0	0.3
E	6,270	2,000	6,524	4.7	2,621.8	2,621.8	2,622.1	0.3
F	6,303	2,000	13,427	2.3	2,625.7	2,625.7	2,625.7	0.0
G	6,403	2,120	12,591	2.4	2,625.7	2,625.7	2,625.7	0.0
H	9,103	2,110	3,420	8.9	2,628.3	2,628.3	2,628.6	0.3
I	11,953	2,340	9,600	3.0	2,637.4	2,637.4	2,637.8	0.4
J	13,733	1,350	4,226	6.5	2,640.5	2,640.5	2,640.8	0.3
K	15,373	980	5,622	4.9	2,645.6	2,645.6	2,645.9	0.3
L	18,013	2,446	3,447	7.6	2,654.9	2,654.9	2,654.9	0.0
M	18,114	2,450	4,010	6.5	2,658.0	2,658.0	2,658.3	0.3
N	18,155	2,450	6,712	3.9	2,659.0	2,659.0	2,659.5	0.5
O	18,256	2,500	10,747	2.2	2,659.2	2,659.2	2,659.8	0.6
P	19,896	1,600	5,771	3.8	2,660.6	2,660.6	2,660.9	0.3
Q	21,971	1,270	3,712	6.0	2,667.8	2,667.8	2,667.9	0.1
R	24,146	1,470	6,195	3.6	2,674.5	2,674.5	2,675.2	0.7
S	26,146	1,000	3,447	6.4	2,680.6	2,680.6	2,681.0	0.4
T	27,946	1,450	6,224	3.6	2,686.6	2,686.6	2,687.2	0.6
U	29,871	2,050	6,144	3.6	2,691.0	2,691.0	2,691.3	0.3
V	31,941	1,250	4,446	5.0	2,697.2	2,697.2	2,697.8	0.6
W	33,966	1,190	5,170	4.3	2,702.3	2,702.3	2,703.0	0.7
X	35,726	1,240	5,485	4.0	2,705.5	2,705.5	2,706.2	0.7
Y	37,386	1,000	5,435	4.1	2,707.9	2,707.9	2,708.5	0.6
Z	37,616	1,320	10,461	2.1	2,712.8	2,712.8	2,712.9	0.1

[1] Feet Above Limit of Detailed Study
[2] Elevation does not include backwater effects from Lake Isabella

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

FLOODWAY DATA

SOUTH FORK KERN RIVER

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Fork Kern River (Cont'd)								
AA	38,516	580	2,045	10.8	2,712.8	2,712.8	2,713.2	0.4
AB	40,216	450	4,292	5.0	2,721.0	2,721.0	2,721.9	0.9
AC	42,246	380	2,674	8.0	2,725.4	2,725.4	2,726.4	1.0
AD	43,646	310	3,076	7.0	2,732.4	2,732.4	2,733.2	0.8
AE	45,396	480	3,519	6.1	2,738.1	2,738.1	2,738.8	0.7
AF	47,196	420	3,777	5.7	2,743.7	2,743.7	2,744.1	0.4
AG	48,971	236	2,386	9.0	2,749.6	2,749.6	2,749.9	0.3
AH	51,471	950	4,261	5.0	2,761.7	2,761.7	2,762.3	0.6

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

SOUTH FORK KERN RIVER

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tierra del Sol Creek								
A	220	200	532	4.3	2,310.0	2,310.0	2,311.0	1.0
B	700	135	367	7.6	2,314.1	2,314.1	2,314.3	0.2
C	1,720	165	646	4.3	2,321.5	2,321.5	2,322.0	0.5
D	2,250	320	485	5.8	2,326.1	2,326.1	2,326.3	0.2
E	2,472	370	685	4.1	2,327.0	2,327.0	2,327.7	0.7
F	2,742	385	1,447	1.9	2,328.4	2,328.4	2,328.7	0.3
G	4,172	265	578	4.8	2,331.3	2,331.3	2,331.8	0.5
H	5,452	221	605	4.6	2,341.5	2,341.5	2,342.2	0.7
I	5,572	352	795	3.5	2,341.7	2,341.7	2,342.7	1.0
J	6,072	108	281	9.8	2,343.8	2,343.8	2,344.1	0.3
K	6,582	605	436	6.0	2,349.2	2,349.2	2,349.7	0.5
L	6,742	750	1,396	1.9	2,350.4	2,350.4	2,351.1	0.7
M	6,877	600	1,407	1.9	2,350.6	2,350.6	2,351.1	0.5
N	7,307	160	552	4.8	2,350.9	2,350.9	2,351.6	0.7
O	7,807	81	338	7.8	2,352.8	2,352.8	2,352.8	0.0
P	8,287	322	547	4.8	2,354.3	2,354.3	2,355.1	0.8
Q	8,627	460	542	4.6	2,355.5	2,355.5	2,356.1	0.6
R	8,747	410	1166	2.1	2,356.1	2,356.1	2,356.8	0.7
S	9,042	80	439	5.7	2,356.2	2,356.2	2,356.8	0.6
T	9,692	80	425	5.9	2,357.4	2,357.4	2,358.1	0.7
U	10,427	95	253	9.3	2,360.8	2,360.8	2,360.8	0.0
V	10,562	103	348	6.8	2,362.6	2,362.6	2,362.9	0.3
W	11,362	165	838	2.8	2,363.8	2,363.8	2,364.6	0.8
X	12,082	139	320	7.0	2,370.1	2,370.1	2,370.5	0.4
Y	12,482	200	558	4.0	2,371.7	2,371.7	2,372.6	0.9

[1] Feet Above Confluence With Cache Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

TIERRA DEL SOL CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Upper Sycamore Creek								
A	0	71	308	9.4	4,030.5	4,030.5	4,030.5	0.0
B	740	83	372	7.8	4,035.3	4,035.3	4,035.3	0.0
C	1,505	69	379	6.1	4,037.8	4,037.8	4,037.8	0.0
D	2,255	319	583	5.0	4,043.0	4,043.0	4,043.0	0.0
E	2,305	299	1,038	2.8	4,043.4	4,043.4	4,043.4	0.0
F	2,665	320	934	3.1	4,043.7	4,043.7	4,043.7	0.0
G	2,706	346	947	3.1	4,043.7	4,043.7	4,043.7	0.0
H	2,966	751	2,614	1.1	4,043.9	4,043.9	4,043.9	0.0
I	3,781	1,023	3,339	0.9	4,044.0	4,044.0	4,044.0	0.0
J	4,381	261	828	3.5	4,044.0	4,044.0	4,044.0	0.0
K	4,601	176	287	7.3	4,046.2	4,046.2	4,047.2	1.0
L	5,651	415	854	2.4	4,049.2	4,049.2	4,050.2	1.0
M	6,751	266	346	6.0	4,052.8	4,052.8	4,053.2	0.4
N	7,491	512	900	2.3	4,055.4	4,055.4	4,055.7	0.3
O	7,566	501	907	2.3	4,062.4	4,062.4	4,063.4	1.0
P	7,766	1,206	5,959	0.3	4,062.8	4,062.8	4,063.4	0.6
Q	8,466	365	814	2.6	4,063.0	4,063.0	4,063.8	0.8
R	9,116	304	437	4.8	4,066.6	4,066.6	4,067.3	0.7
S	9,616	153	290	7.2	4,073.8	4,073.8	4,074.1	0.3
T	9,936	99	232	9.0	4,080.4	4,080.4	4,081.3	0.9
U	10,346	199	350	6.0	4,088.1	4,088.1	4,088.7	0.6
V	10,836	61	200	10.4	4,096.4	4,096.4	4,096.4	0.0
W	11,481	137	317	6.6	4,105.5	4,105.5	4,106.0	0.5
X	12,011	114	286	2.2	4,106.8	4,106.8	4,107.5	0.7
Y	13,251	471	1,613	0.4	4,106.9	4,106.9	4,107.6	0.7
Z	14,191	708	2,182	0.3	4,107.0	4,107.0	4,107.7	0.7

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

UPPER SYCAMORE CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Upper Sycamore Creek (Cont'd)								
AA	15,101	985	3,808	0.2	4,107.0	4,107.0	4,107.7	0.7
AB	15,801	838	2,873	0.2	4,107.0	4,107.0	4,107.7	0.7
AC	16,576	428	617	1.0	4,107.3	4,107.3	4,107.8	0.5
AD	17,351	246	279	2.3	4,108.8	4,108.8	4,108.9	0.1
AE	18,791	176	149	3.2	4,116.2	4,116.2	4,116.3	0.1
AF	20,191	98	88	5.5	4,146.6	4,146.6	4,146.6	0.0
AG	21,151	421	322	1.0	4,172.7	4,172.7	4,172.7	0.0

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

UPPER SYCAMORE CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Weaver Creek								
A	1,000	276	476	9.5	2,877.9	2,877.9	2,877.9	0.0
B	1,621	117	317	14.2	2,884.4	2,884.4	2,884.4	0.0
C	2,100	112	397	11.3	2,895.1	2,895.1	2,895.1	0.0
D	2,678	132	301	14.9	2,905.6	2,905.6	2,905.6	0.0
E	3,266	261	495	9.1	2,920.5	2,920.5	2,920.5	0.0
F	3,856	205	246	18.3	2,927.8	2,927.8	2,927.8	0.0
G	4,408	328	461	9.8	2,943.2	2,943.2	2,943.2	0.0
H	4,690	286	343	13.1	2,948.8	2,948.8	2,948.8	0.0
I	5,125	327	332	13.6	2,958.8	2,958.8	2,958.8	0.0
J	5,697	105	254	17.7	2,970.6	2,970.6	2,970.6	0.0
K	6,366	159	380	11.9	2,989.9	2,989.9	2,989.9	0.0
L	6,926	238	389	11.6	3,001.7	3,001.7	3,001.7	0.0
M	7,478	137	308	14.6	3,016.2	3,016.2	3,016.2	0.0

[1] Feet Above Confluence With Caliente Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

WEAVER CREEK

Table 24: Flood Hazard and Non-Encroachment Data for Selected Streams

[Not Applicable to this Flood Risk Project]

6.4 Coastal Flood Hazard Mapping

This section is not applicable to the Flood Risk Project.

Table 25: Summary of Coastal Transect Mapping Considerations

[Not Applicable to this Flood Risk Project]

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 30, “Map Repositories”).

6.5.1 Letters of Map Amendment

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

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

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at https://www.fema.gov/online-tutorials.

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

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states

FEMA's determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

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

A tutorial for LOMR-F is available at https://www.fema.gov/online-tutorials.

6.5.3 Letters of Map Revision

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

To obtain an application for a LOMR, visit https://www.fema.gov/media-library/assets/documents/1343 and download the form "MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision". Visit the "Flood Map-Related Fees" section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Kern County FIRM are listed in Table 26. Please note that this table only includes LOMCs that have been issued on the FIRM panels updated by this map revision. For all other areas within this county, users should be aware that revisions to the FIS Report made by prior LOMRs may not be reflected herein and users will need to continue to use the previously issued LOMRs to obtain the most current data.

Table 26: Incorporated Letters of Map Change

[Not Applicable to this Flood Risk Project]

6.5.4 Physical Map Revisions

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

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is

afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

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

6.5.5 Contracted Restudies

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

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Kern County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 27, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.

- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or "pending" (for Preliminary FIS Reports) is shown. If the community is listed in Table 27 but not identified on the map, the community is treated as if it were unmapped.

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

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

- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community.

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

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

The initial effective date for the Kern County FIRMs in countywide format was 09/26/2008.

Table 27: Community Map History

Community Name	Initial Identification Date	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Arvin, City of	08/04/1987	N/A	N/A	08/04/1987	09/26/2008
Bakersfield, City of	08/16/1974	08/16/1974	08/06/1976	05/01/1985	TBD 09/26/2008
California City, City of	04/15/1977	04/15/1977	N/A	01/20/1982	09/26/2008 09/19/1984
Delano, City of[1]	09/26/2008	N/A	N/A	09/26/2008	N/A
Kern County, Unincorporated Areas	06/20/1978	06/20/1978	N/A	09/29/1986	TBD 09/26/2008 09/06/1995 03/02/1994 09/28/1990 09/29/1989
Maricopa, City of	06/14/1974	06/14/1974	11/14/1975	09/24/1984	09/26/2008
McFarland, City of	06/28/1974	06/28/1974	08/15/1975	09/29/1986	09/26/2008
Ridgecrest, City of	09/06/1974	09/06/1974	02/04/1977	01/06/1982	09/26/2008
Shafter, City of	02/06/1976	02/06/1976	N/A	09/29/1989	TBD 09/26/2008
Taft, City of	06/28/1974	06/28/1974	03/26/1976	09/30/1992	09/26/2008
Tehachapi, City of	07/30/1976	07/30/1976	09/26/1977	06/15/1982	09/26/2008
Wasco, City of	05/17/1974	05/17/1974	01/05/1982	07/04/1989	09/26/2008

[1] This community did not have a FIRM prior to the first countywide FIRM for Kern County

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 28 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 28: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Streams studied by approximate methods	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County Unincorporated Areas, Mcfarland, City of, Ridgecrest, City of, Shafter, City of, Taft, City of, Techachapi, City of, Wasco, City of
Antelope Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County Unincorporated Areas; Tehachapi, City of
Blackburn Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County Unincorporated Areas; Tehachapi, City of
Bodfish Creek, East Nicolls Peak	09/26/2008	Gill & Pulver Engineers Inc.	EMW-89-C-2469	June 1988	Kern County, Unincorporated Areas
Boron Avenue Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Cache Creek	09/26/2008	Boyle Engineering Corporation	H-4709 and EMW-C-0722	January 1983	California City, City of
Caliente Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Caliente Creek near Loraine	TBD	Ricks Engineering Company	EMW-84-1639	May 1986	Kern County, Unincorporated Areas
Caliente Creek Tributary 1	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Cottonwood Creek	TBD	Boyle Engineering Corporation	H-4709	March 1981	Bakersfield, City of

Table 28: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Cuddy Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
El Paso Wash	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas; Ridgecrest, City of
Erskine Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Freeman Gulch, Grapevine Canyon, Indian Wells Canyon, Kelso Creek, Short Canyon, Short Canyon at Kelso Creek	09/26/2008	Aqua Resources, Inc. (ARI)	EMW-89-C-2844	March 1994	Kern County, Unincorporated Areas
Indian Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Jawbone Canyon Wash	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Kern River	TBD	Compass	HSFE60-15-D-0003	September 20, 2018	Bakersfield, City of, Kern County, Unincorporated Areas
Kern River at Kernville	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Kern River-with consideration of Levees	TBD	Compass	HSFE60-15-D-0003	August 2018	Bakersfield, City of, Kern County, Unincorporated Areas
Kern River-without consideration of Levees	TBD	Compass	HSFE60-15-D-0003	August 2018	Bakersfield, City of
Lake Isabella	TBD	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas

Table 28: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Little Dixie Wash	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
North Sandy Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas, Taft, City of
Poso Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Ranger Station Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Sandy Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Taft, City of
South Branch Poso Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
South Fork Kern River	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Tierra Del Sol Creek	09/26/2008	Boyle Engineering Corporation	H-4709 and EMW-C-0722	January 1983	California City, City of
Upper Sycamore Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas
Weaver Creek	09/26/2008	Boyle Engineering Corporation	H-4709	March 1984	Kern County, Unincorporated Areas

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and previous Flood Risk Projects are shown in Table 29. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 29: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Arvin, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County
Bakersfield, City of	TBD	03/14/2018	Flood Hazard Study Meeting	FEMA, City of Bakersfield and Kern County officials, Compass
		TBD	Initial CCO Meeting	TBD
		TBD	Final CCO Meeting	TBD
California City, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County
Delano, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County
Kern County, Unincorporated Areas	TBD	03/14/2018	Flood Hazard Study Meeting	FEMA, City of Bakersfield and Kern County officials, Compass
		TBD	Initial CCO Meeting	TBD
		TBD	Final CCO Meeting	TBD

Table 29: Community Meetings (continued)

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Maricopa, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County
McFarland, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County
Ridgecrest, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County
Shafter, City of	TBD	03/14/2018	Flood Hazard Study Meeting	FEMA, City of Bakersfield and Kern County officials, Compass
		TBD	Initial CCO Meeting	TBD
		TBD	Final CCO Meeting	TBD
Taft, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County

Table 29: Community Meetings (continued)

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Tehachapi, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County
Wasco, City of	09/26/2008	06/29/2005	Initial CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of McFarland and Shafter and Kern County
		01/03/2008	Final CCO Meeting	FEMA, the study contractor, HDR Engineering, Cities of of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Taft, Tehachapi, Wasco, and Kern County

SECTION 8.0 – ADDITIONAL INFORMATION

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

The additional data that was used for this project includes the FIS Report and FIRM that were previously prepared for Kern County (FEMA 2008).

Table 30 is a list of the locations where FIRMs for Kern County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 30: Map Repositories

Community	Address	City	State	Zip Code
Arvin, City of	City Hall 200 Campus Drive	Arvin	CA	93203
Bakersfield, City of	Public Works 1501 Truxtun Avenue	Bakersfield	CA	93301
California City, City of	Building Department 8001 California City Boulevard	California	CA	93505
Delano, City of	Community Development 1015 Eleventh Avenue	Delano	CA	93215
Kern County, Unincorporated Areas	Planning Department 2700 M Street Suite 400	Bakersfield	CA	93301
Maricopa, City of	Town Administration 400 California	Maricopa	CA	93252
McFarland, City of	Public Works 401 West Kern Avenue	McFarland	CA	93250
Ridgecrest, City of	Public Works Department 100 West California Avenue	Ridgecrest	CA	93555
Shafter, City of	City Administration 336 Pacific Avenue	Shafter	CA	93263
Taft, City of	Planning Department 209 East Kern Street	Taft	CA	93268
Tehachapi, City of	City Hall 115 South Robinson Street	Tehachapi	CA	93581
Wasco, City of	Public Works 801 8th Street	Wasco	CA	93280

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM Databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the

public monthly. NFHL data can be viewed or ordered from the website shown in Table 31.

Table 31 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the State NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of State and local GIS data in their state.

Table 31: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	https://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/engineering-library
NFIP website	https://www.fema.gov/national-flood-insurance-program
NFHL Dataset	https://msc.fema.gov
FEMA Region IX	Federal Regional Center 1111 Broadway, Suite 1200 Oakland, CA 94607-4052 (510) 627-7181
Other Federal Agencies	
USGS website	www.usgs.gov
Hydraulic Engineering Center website	www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Kelly Soule California Dept. of Water Resources 3464 El Camino Avenue Suite 200 Sacramento, CA 95821 916-574-1441 kelly.soule@water.ca.gov
State GIS Coordinator	David Harris, Agency Information Coordinator California Resources Agency 1416 Ninth Street, Room 1311 Sacramento, CA 95814 Tel. (916) 445 5088 david.harris@resources.ca.gov

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

Table 32 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 32: Bibliography and References

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
Compass 2016a	Federal Emergency Management Agency	*2016 Compass Kern County, CA PAL Hydraulics Study*	Compass	Washington, D.C.	N/A	https://msc.fema.gov
Compass 2016b	Federal Emergency Management Agency	*2016 Compass Kern County, CA PAL DFIRM*	Compass	Washington, D.C.	N/A	https://msc.fema.gov
Cooper 1979a	Cooper Aerial Survey Company	*Topographic Maps, Scale 1:4,800, Contour Interval 4 feet*	Cooper Aerial Survey Company	California	September 1979	N/A
Cooper 1979b	Cooper Aerial Survey Company	*Topographic Maps, Vicinity of ridge-crest*	Cooper Aerial Survey Company	California	November 1979	N/A
Cooper 1979c	Cooper Aerial Survey Company	*Topographic maps, Scale 1:9,600, Contour Interval 4 feet*	Cooper Aerial Survey Company	California	June 1979	N/A
FEMA 1982a	Federal Emergency Management Agency	*Flood Insurance Study, Kern County, CA, and Incorporated Areas*	FEMA	Washington, D.C.	January 1982	N/A
FEMA 1982b	Federal Emergency Management Agency	*Flood Insurance Study, Kern County, CA, and Incorporated Areas*	FEMA	Washington, D.C.	January 1982	N/A

Table 32: Bibliography and References (continued)

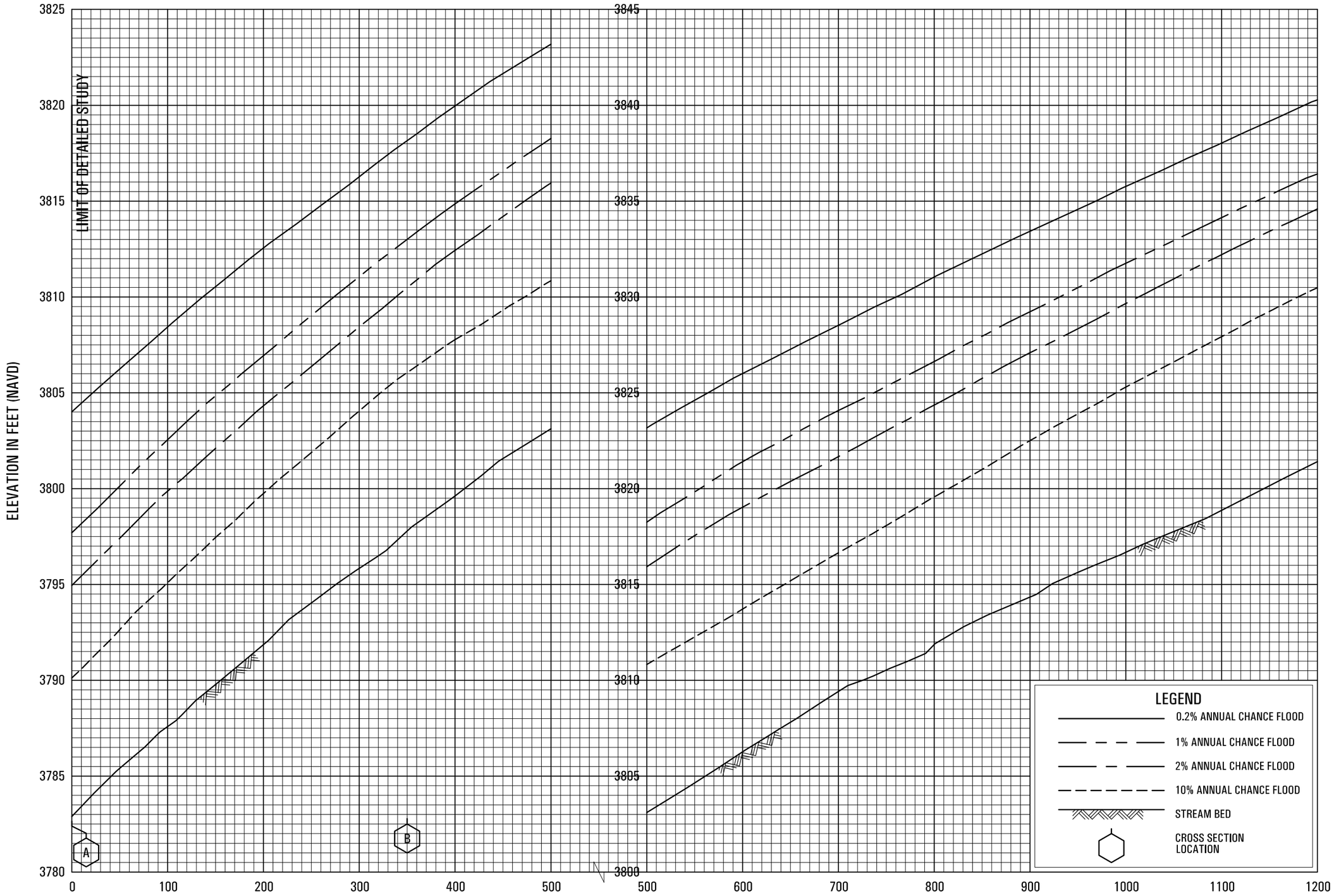
Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
FEMA 2008a	Federal Emergency Management Agency	*Kern County, CA Effective Data*	FEMA	Washington, D.C.	September 2008	https://msc.fema.gov
FEMA 2008b	Federal Emergency Management Agency	*Flood Insurance Study, Kern County, CA, and Incorporated Areas*	FEMA	Washington, D.C.	September 2008	https://msc.fema.gov
KCWA 1977	Kern County Water Agency	Cooperative Stream Gaging Program	Kern County Water Agency	California	May 1977	N/A
LOMC1	Federal Emergency Management Agency	FIS, Kern County, CA	FEMA	Washington, D.C.	April 1990	https://msc.fema.gov
LOMC2	Federal Emergency Management Agency	LOMR 15-09-0191P	FEMA	Washington, D.C.	March 2015	https://msc.fema.gov
LOMC7	Federal Emergency Management Agency	LOMR 18-09-0302P	FEMA	Washington, D.C.	March 2018	https://msc.fema.gov
STARR II 2019a	Federal Emergency Management Agency	Region XI, Kern County, CA (Lake Isabella), Community-Initiated Map Change	STARR II	Washington, D.C.	N/A	https://msc.fema.gov
STARR II 2019b	Federal Emergency Management Agency	*Kern County, CA PMR*	STARR II	Washington, D.C.	N/A	https://msc.fema.gov

Table 32: Bibliography and References (continued)

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USACE 1968	U.S. Army Corps of Engineers	*Hydrologic Engineering Center, Computer Program 723-X6-L202A HEC-2 WaterSurface Proifles*	USACE	Davis, CA	December 1968	https://www.usace.army.mil/
USACE 1976	U.S. Army Corps of Engineers	*Hec-2 Water-Surface Profiles, Computer Program*	USACE	Davis, CA	1976	https://www.usace.army.mil/
USACE 1981	U.S. Army Corps of Engineers	*Hec-1 Flood Hydrograph Package*	USACE	Davis, CA	1973	https://www.usace.army.mil/
USACE 2010	U.S. Army Corps of Engineers	*Hec-Ras Analysis System, Hydraulic Reference Manual, Version 4.1*	USACE	Davis, CA	January 2010	https://www.usace.army.mil/
USACE 2014	U.S. Army Corps of Engineers	*National Levee Database*	USACE	Washington, D.C.	November 2014	https://www.geoplatform.usace.army.mil/home
US Census 2015	U.S. Census Bureau	*Kern County, CA Tiger Streets*	U.S. Census	Fort Worth, Texas	January 2015	https://wwww.census.gov
USDA 1965	U.S. Department of Agriculture, Soil Conservation	*Technical Release No. 20, Computer Program for Project Formulation-Hydrology,*	USACE	Washington, D.C.	1965	N/A
USDA 1973	U.S. Department of Argriculture	*Topographic Maps Scale 1:4,800, Contour Interval 4 feet*	USDA	Washington, D.C.	January 1, 1973	N/A
USDA 2016	USDA FSA APFO Aerial Photography Field Office	*Orthophotography*	USDA	Salt Lake City Utah	September 2016	https://www.datagateway.nrcs.usda.gov

Table 32: Bibliography and References (continued)

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USDI 1972	U.S. Department of Interior Geological Survey	*7.5 Minute Series Topographic Map Scale 1:24000, Contour Interval 5 feet*	U.S. Department of Interior Geological Survey	California	1972	N/A
USDI 1954	U.S. Department of Interior Geological Survey	*7.5 Minute Series Topographic Map Scale 1:24000, Contour Interval 5 feet*	U.S. Department of Interior Geological Survey	California	1953	N/A
USDI 1977	U.S. Department of Interior Geological Survey	*7.5 Minute Series Topographic Map Scale 1:24000, Contour Interval 5 feet*	U.S. Department of Interior Geological Survey	California	Various	N/A
USGSa	United States Geological Survey	*Digital Orthophoto Quadrangle*	USGS	N/A	N/A	N/A
USGS 1994	United States Geological Survey	*Digital Orthophoto Quadrangle*	USGS	N/A	June 1994	N/A
USGS 2016	United States Geological Survey	*National Hydrography Data Set*	USGS	Fort Worth, Texas	January 2016	https://www.usgs.gov



FLOOD PROFILES

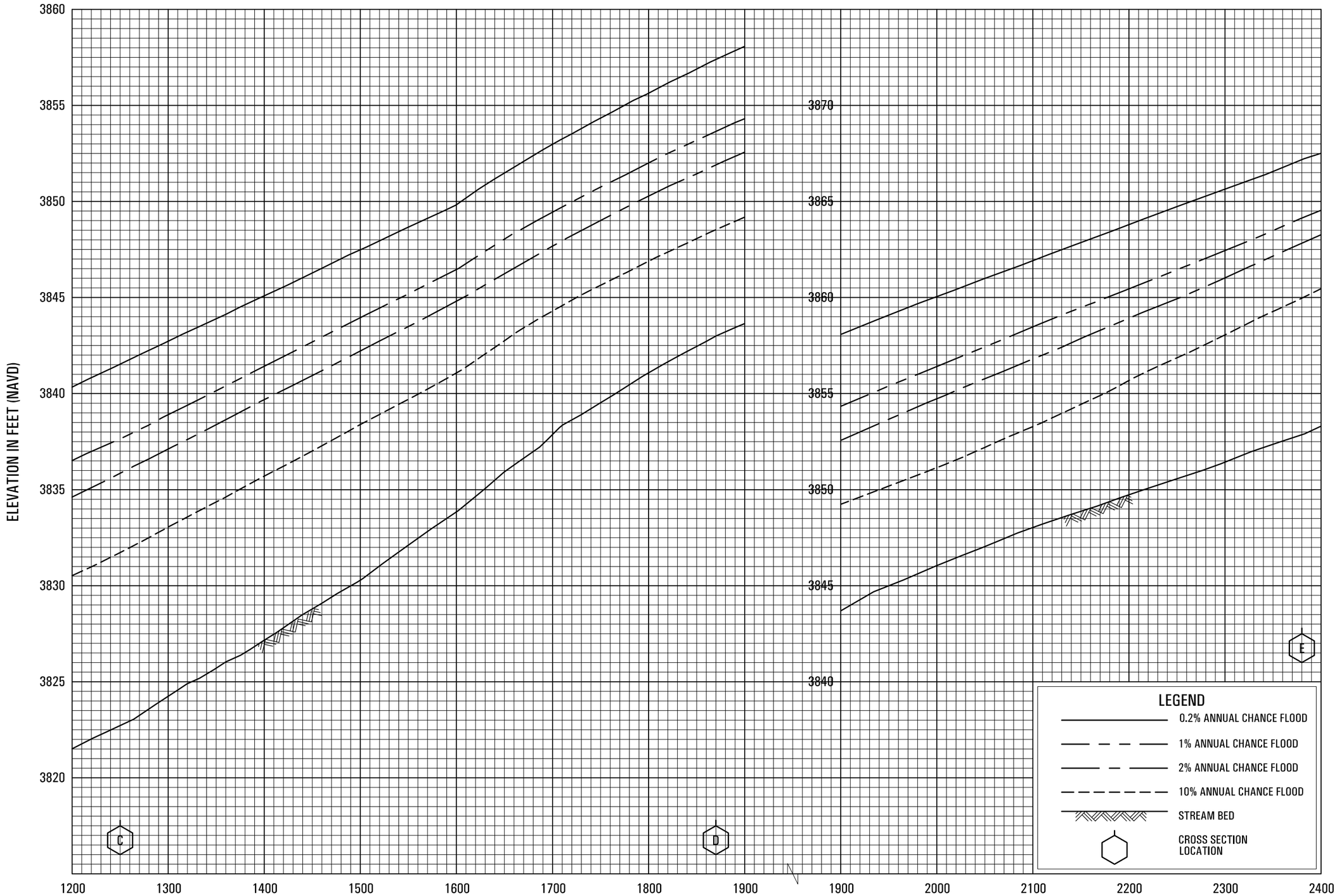
ANTELOPE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

01P



FLOOD PROFILES

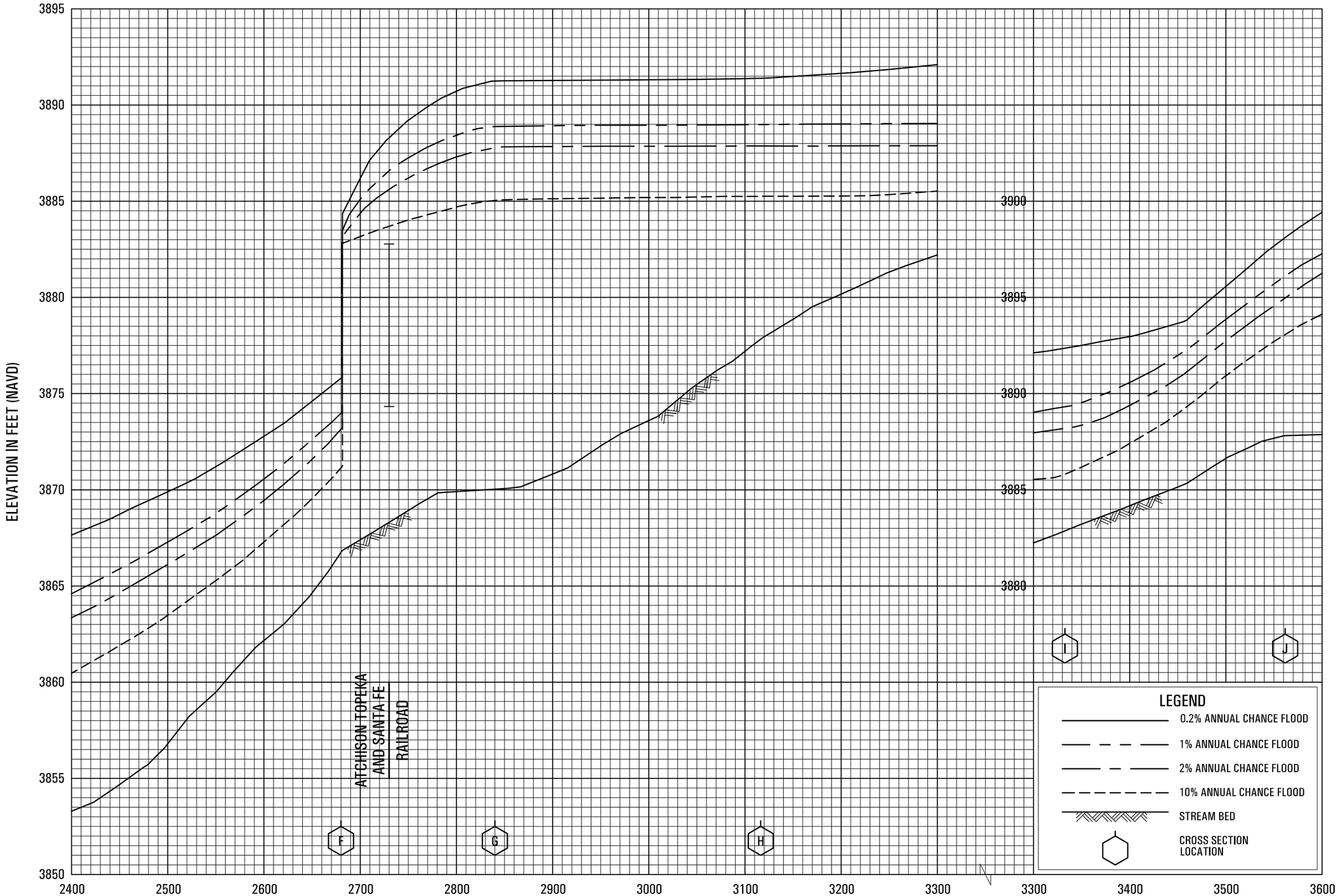
ANTELOPE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

02P



FLOOD PROFILES

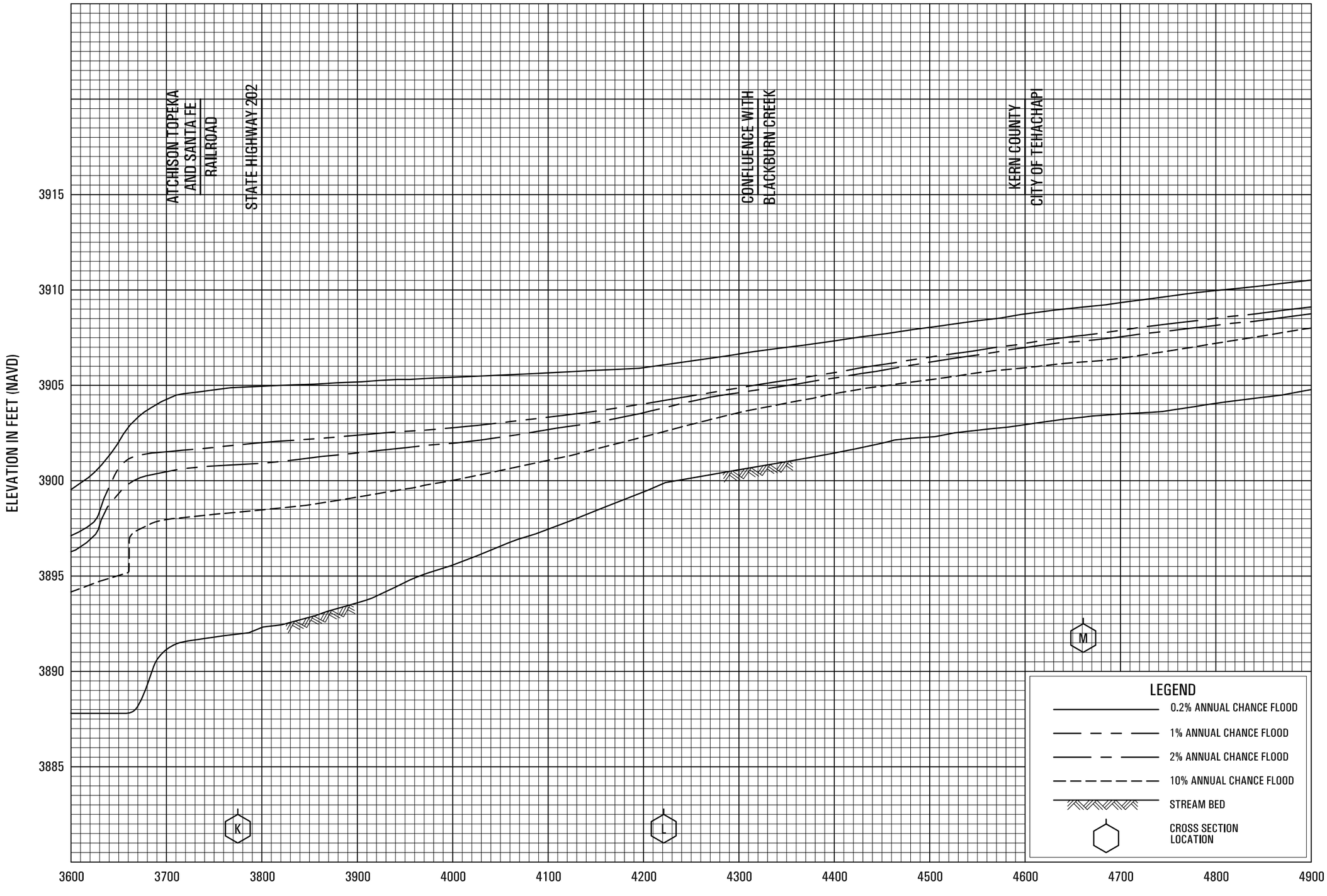
ANTELOPE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

03P



FLOOD PROFILES

ANTELOPE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

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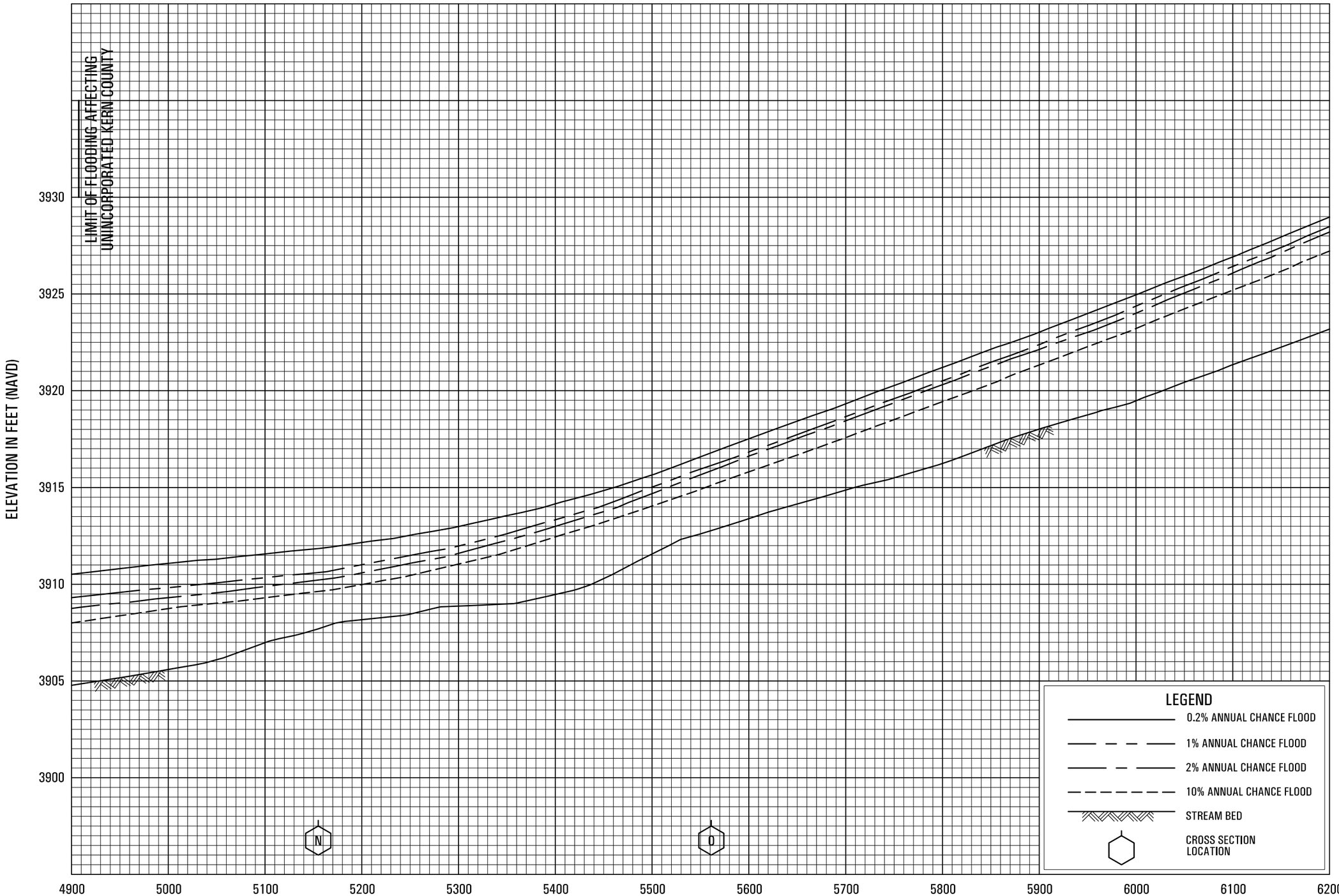

FLOOD PROFILES

ANTELOPE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

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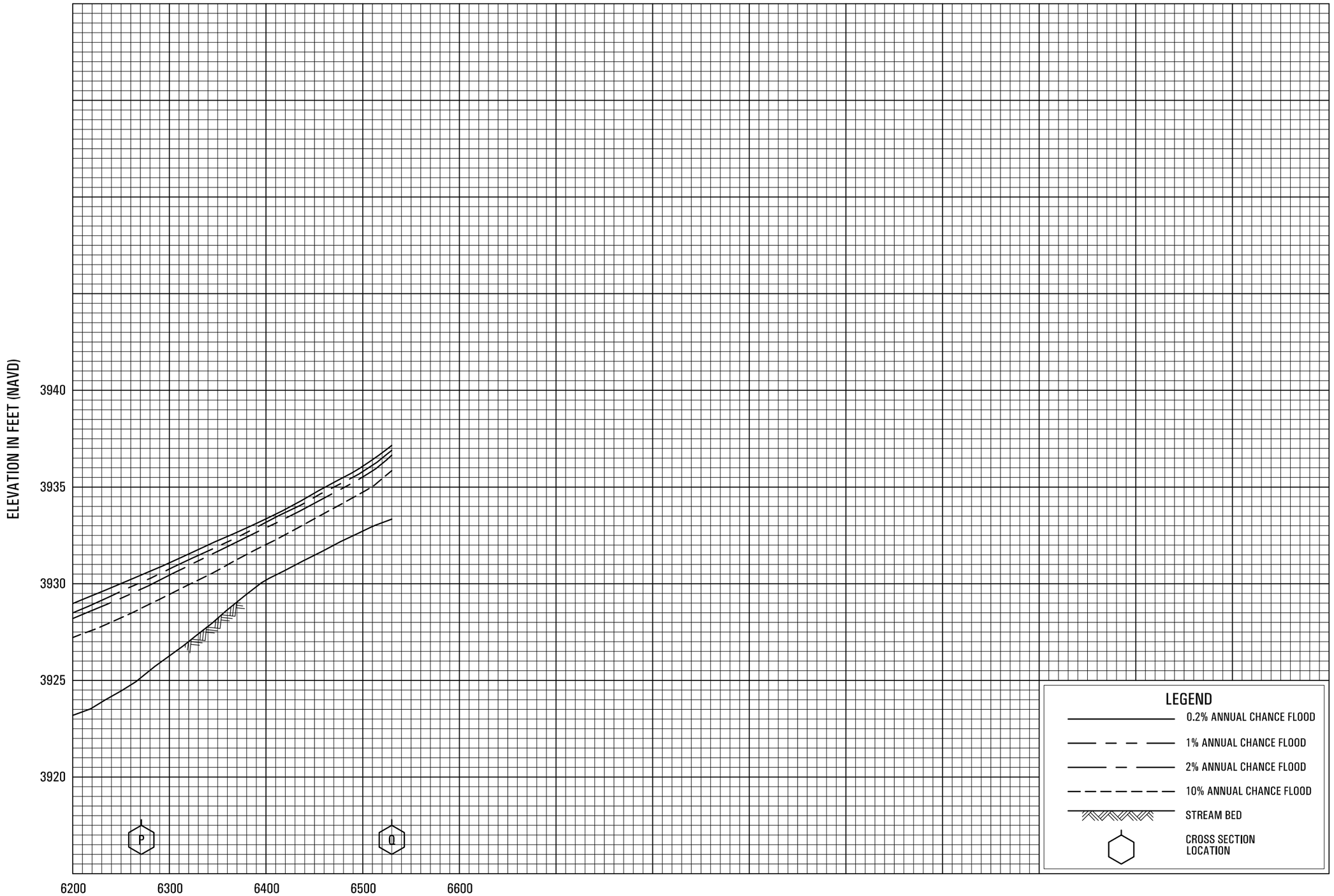

FLOOD PROFILES

ANTELOPE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

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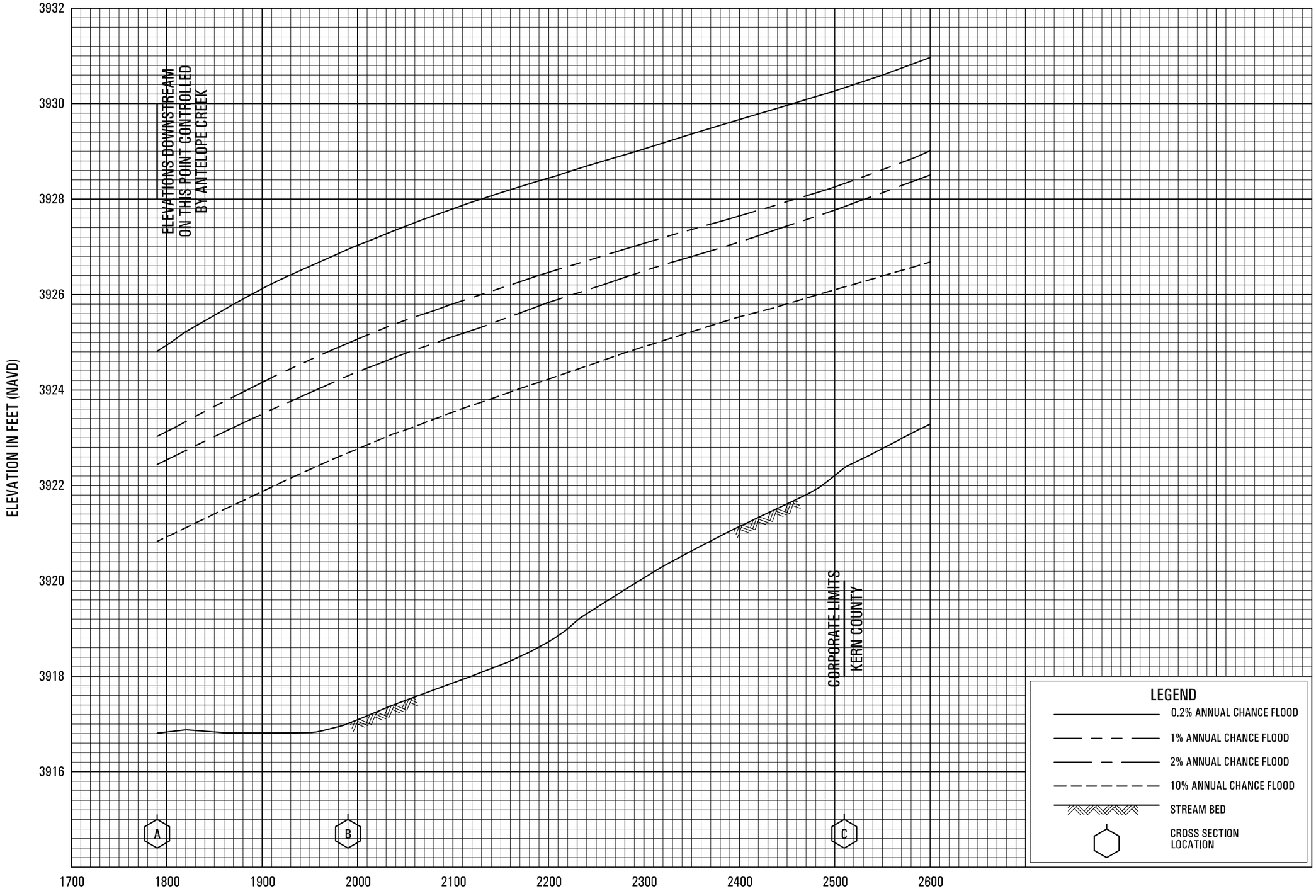


FLOOD PROFILES

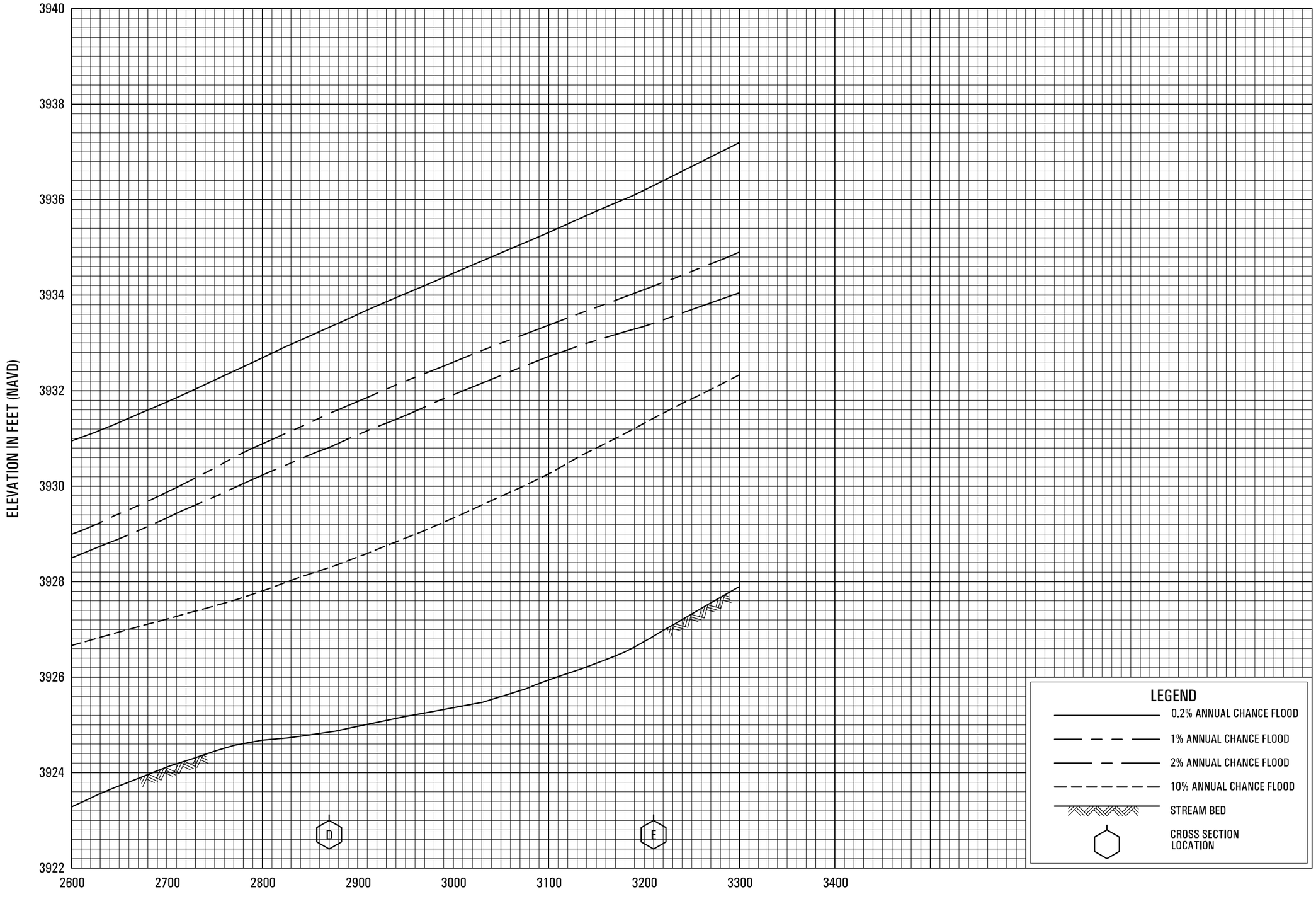
BLACKBURN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

07P



FLOOD PROFILES

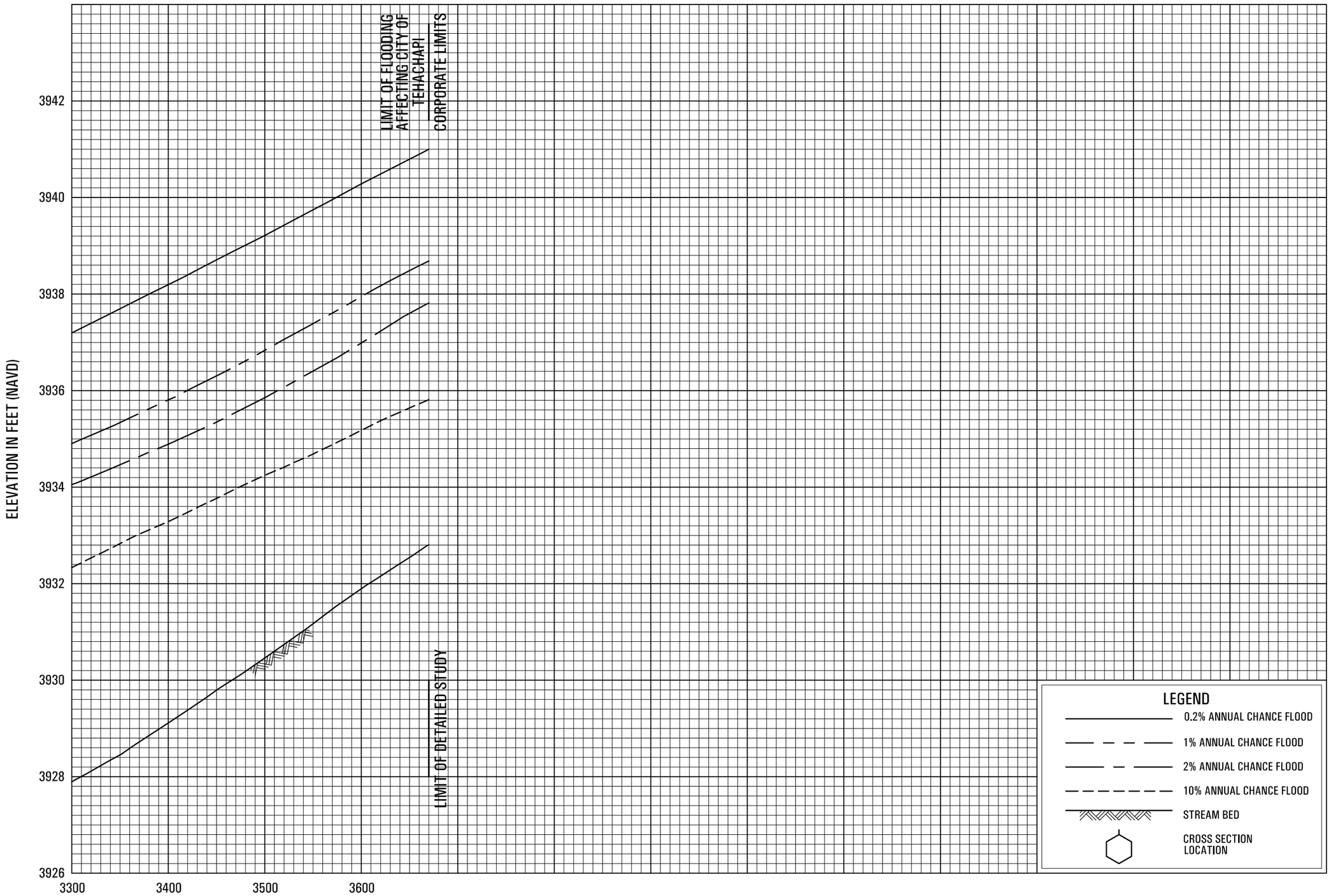
BLACKBURN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

08P



FLOOD PROFILES

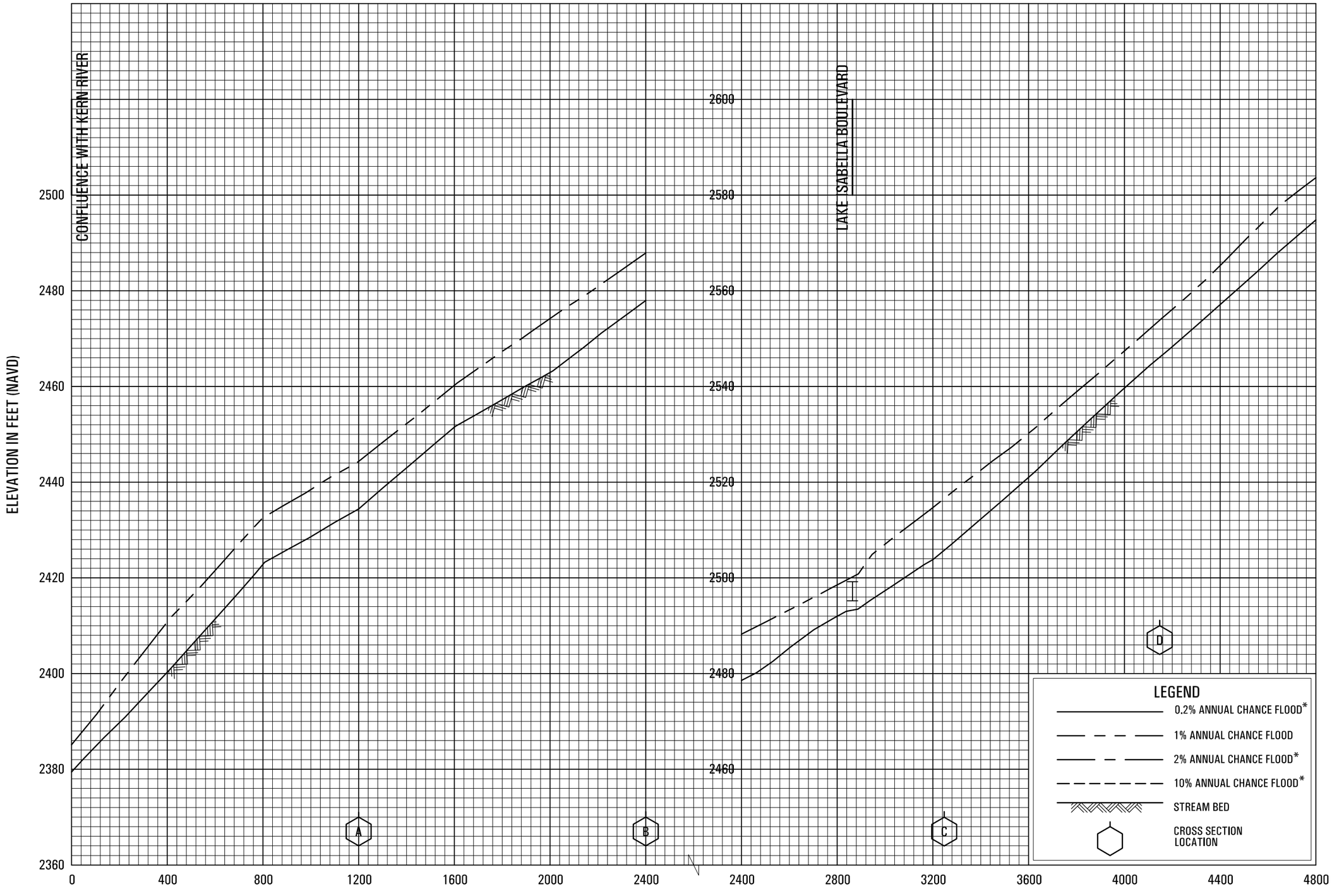
BLACKBURN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

09P



FLOOD PROFILES

BODFISH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

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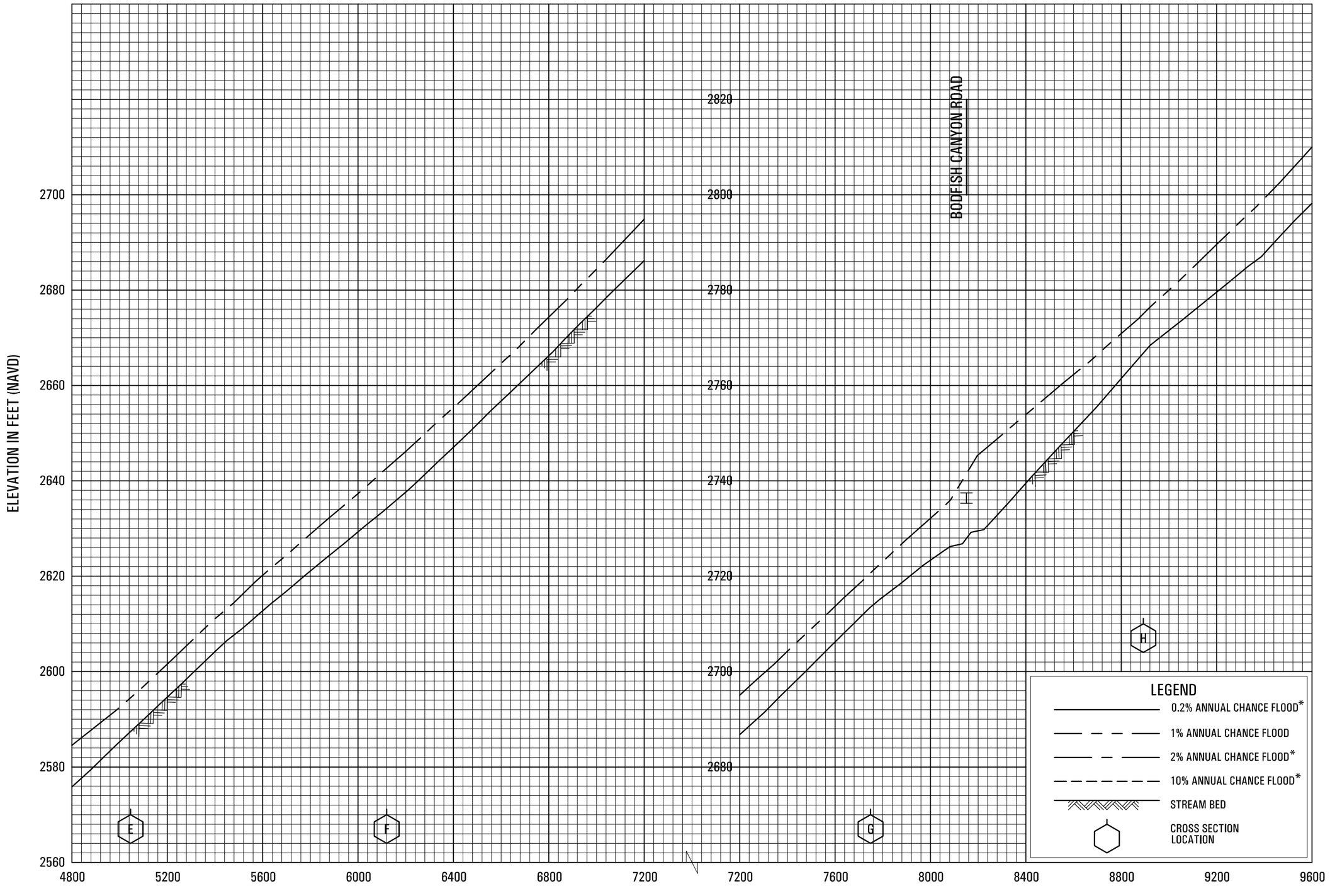

FLOOD PROFILES

BODFISH CREEK

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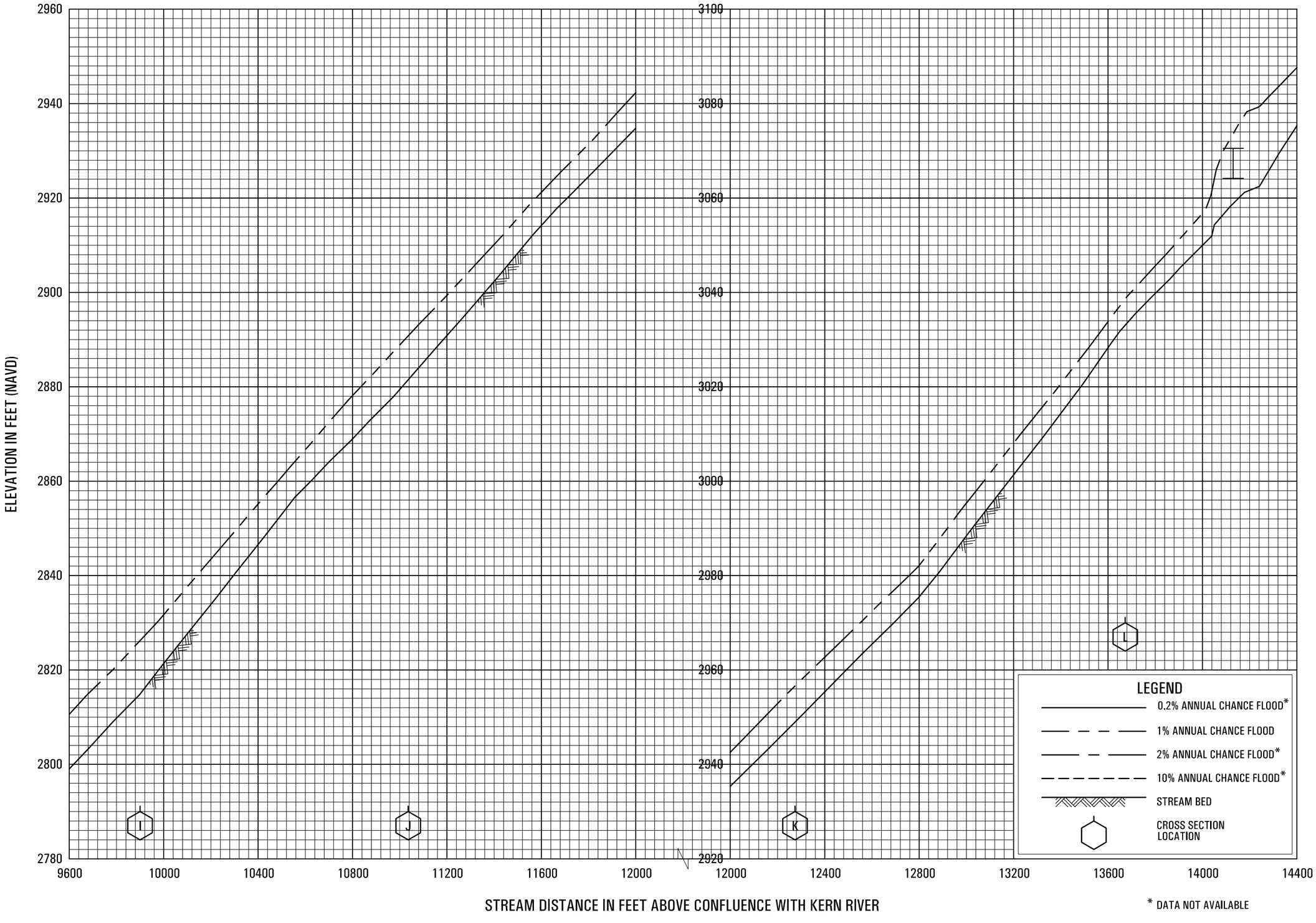
KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

BODFISH CREEK

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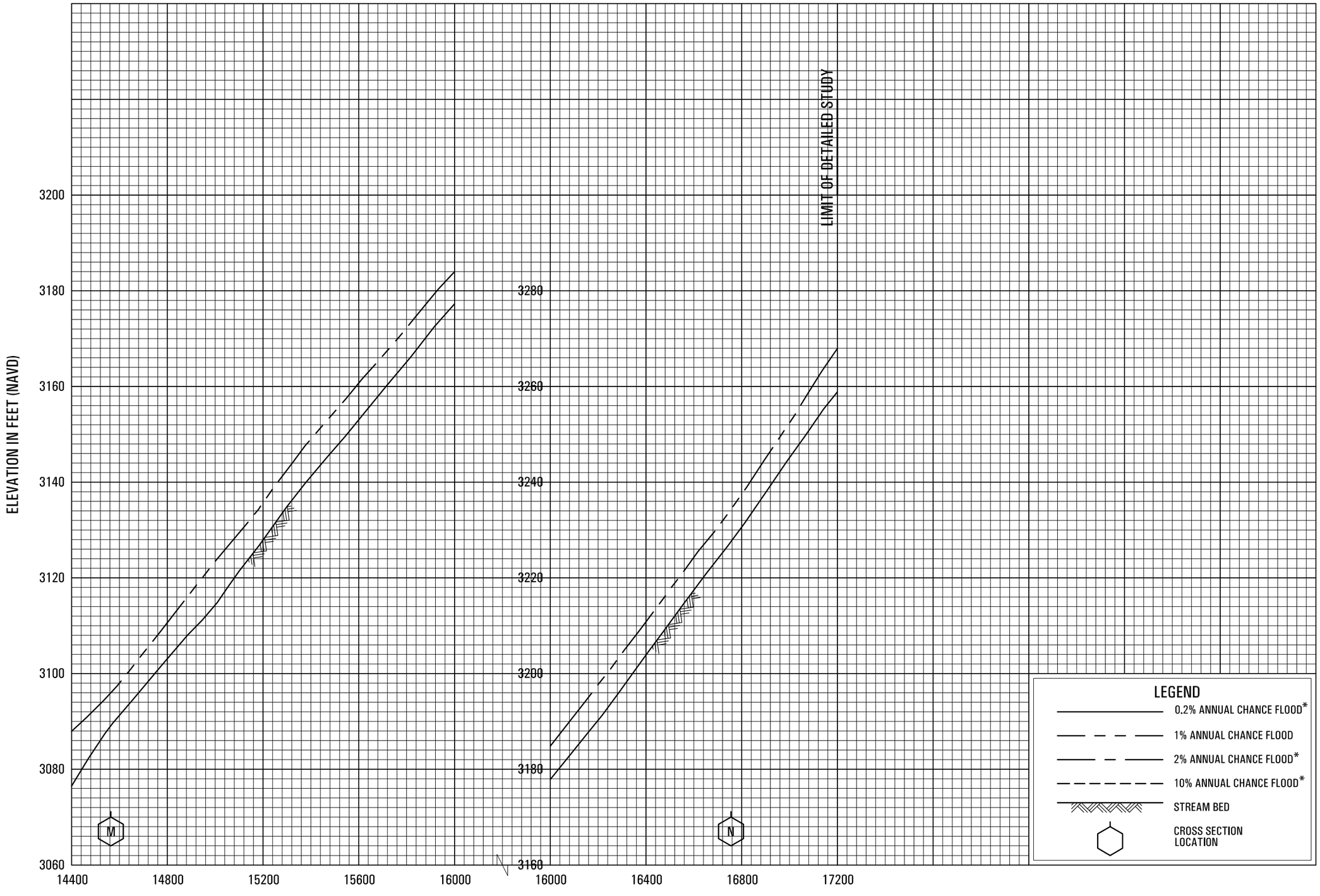
KERN COUNTY, CA

AND INCORPORATED AREAS



STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH KERN RIVER

* DATA NOT AVAILABLE

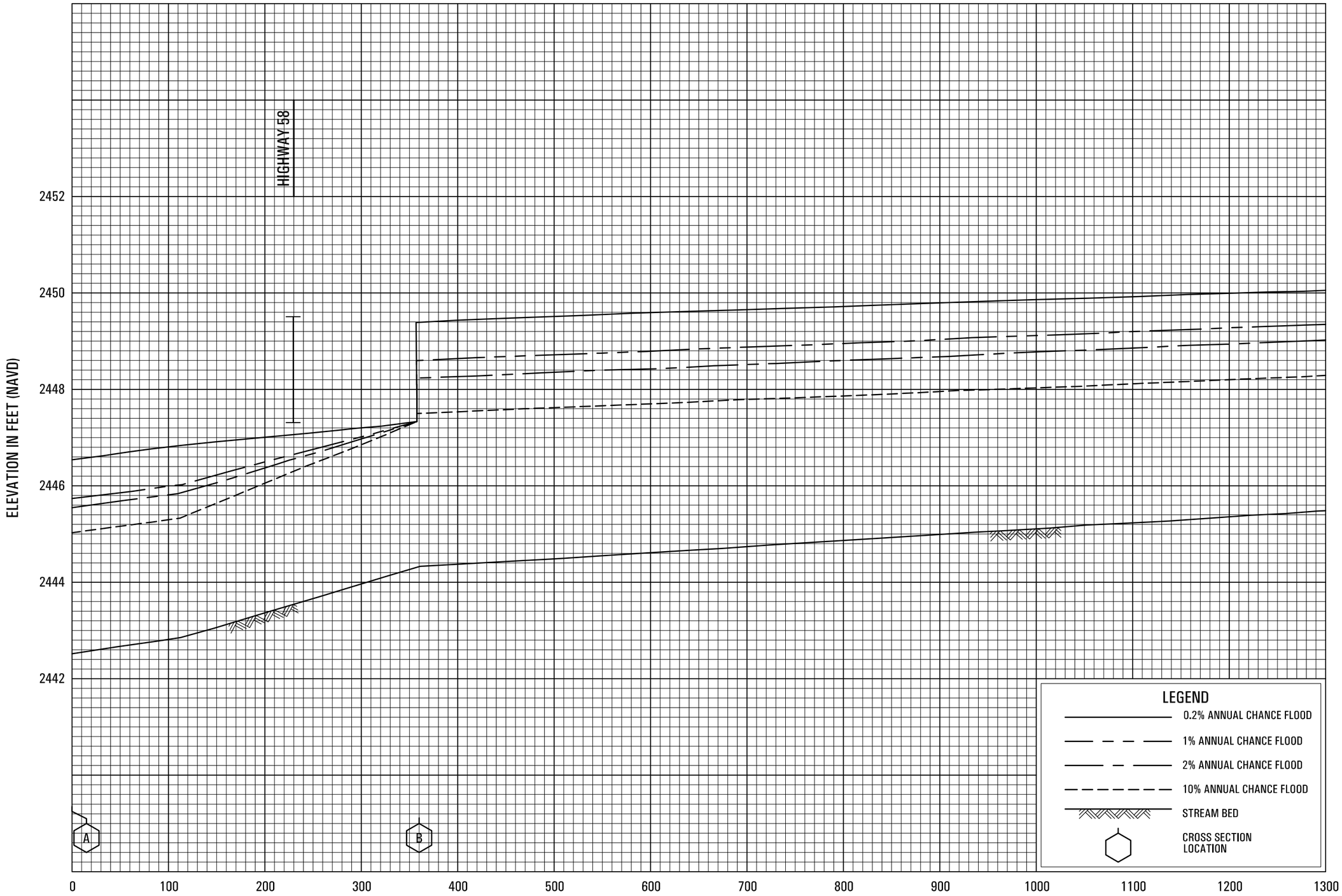
FLOOD PROFILES

BODFISH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



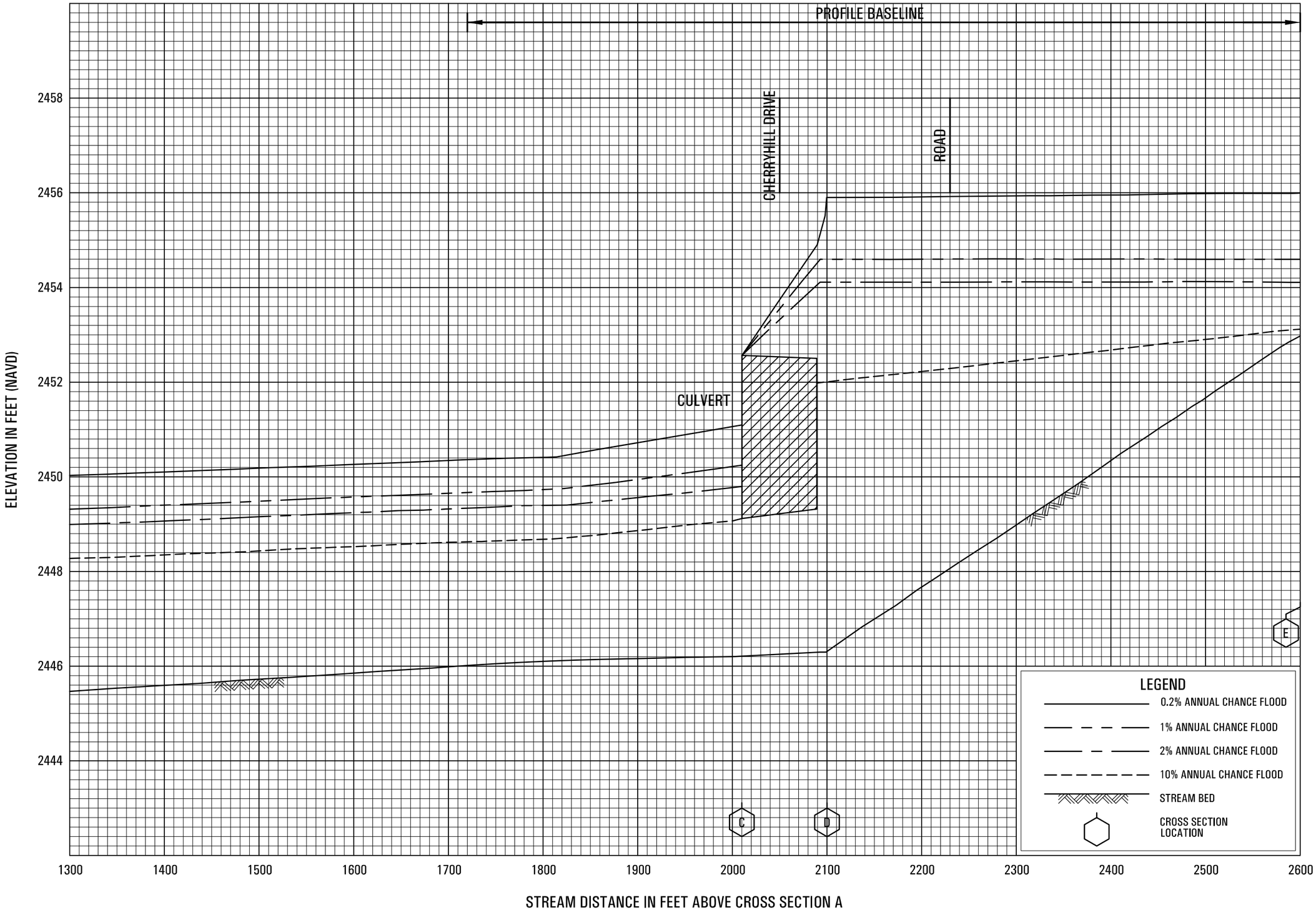
FLOOD PROFILES

BORON AVENUE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



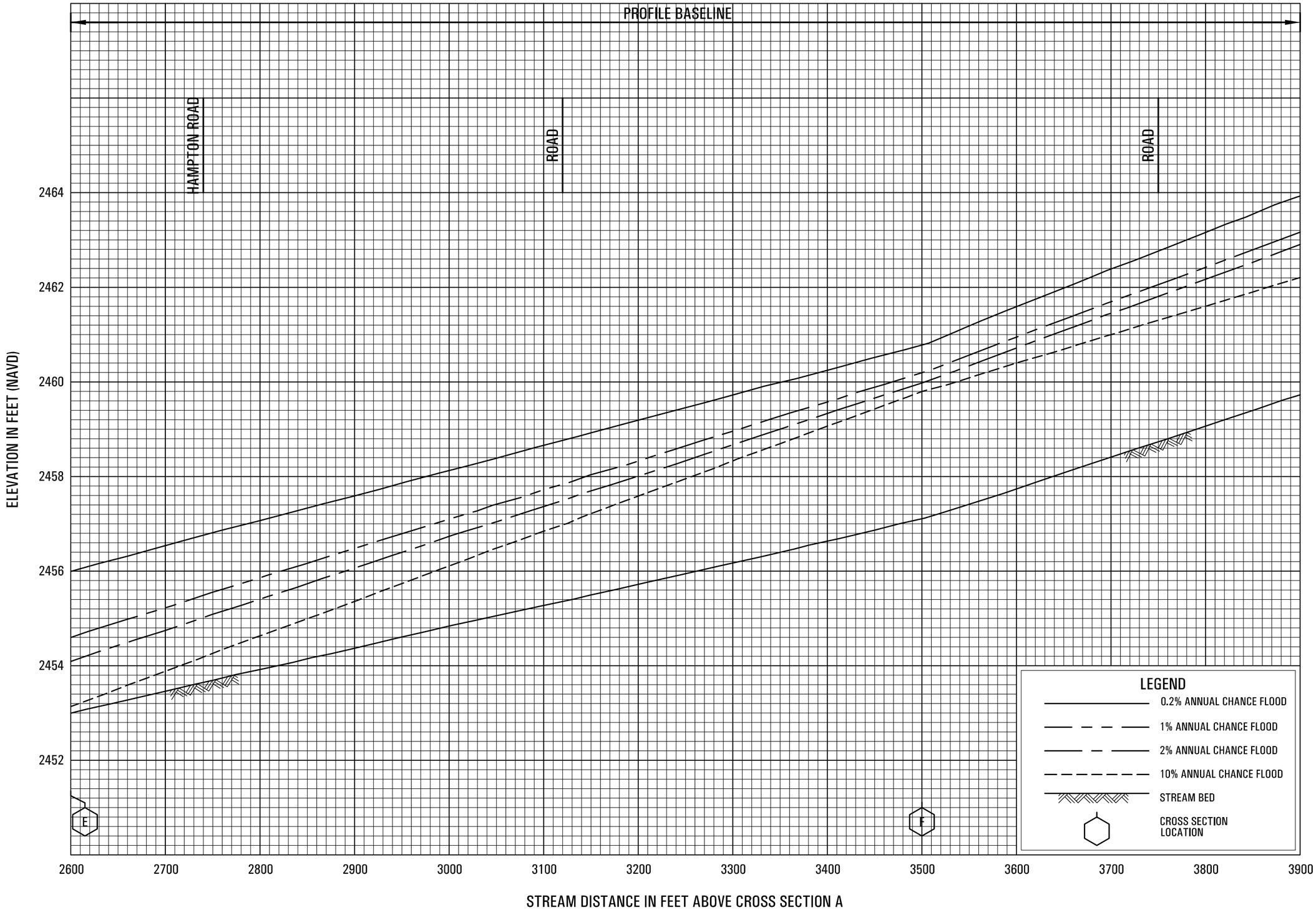
FLOOD PROFILES

BORON AVENUE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

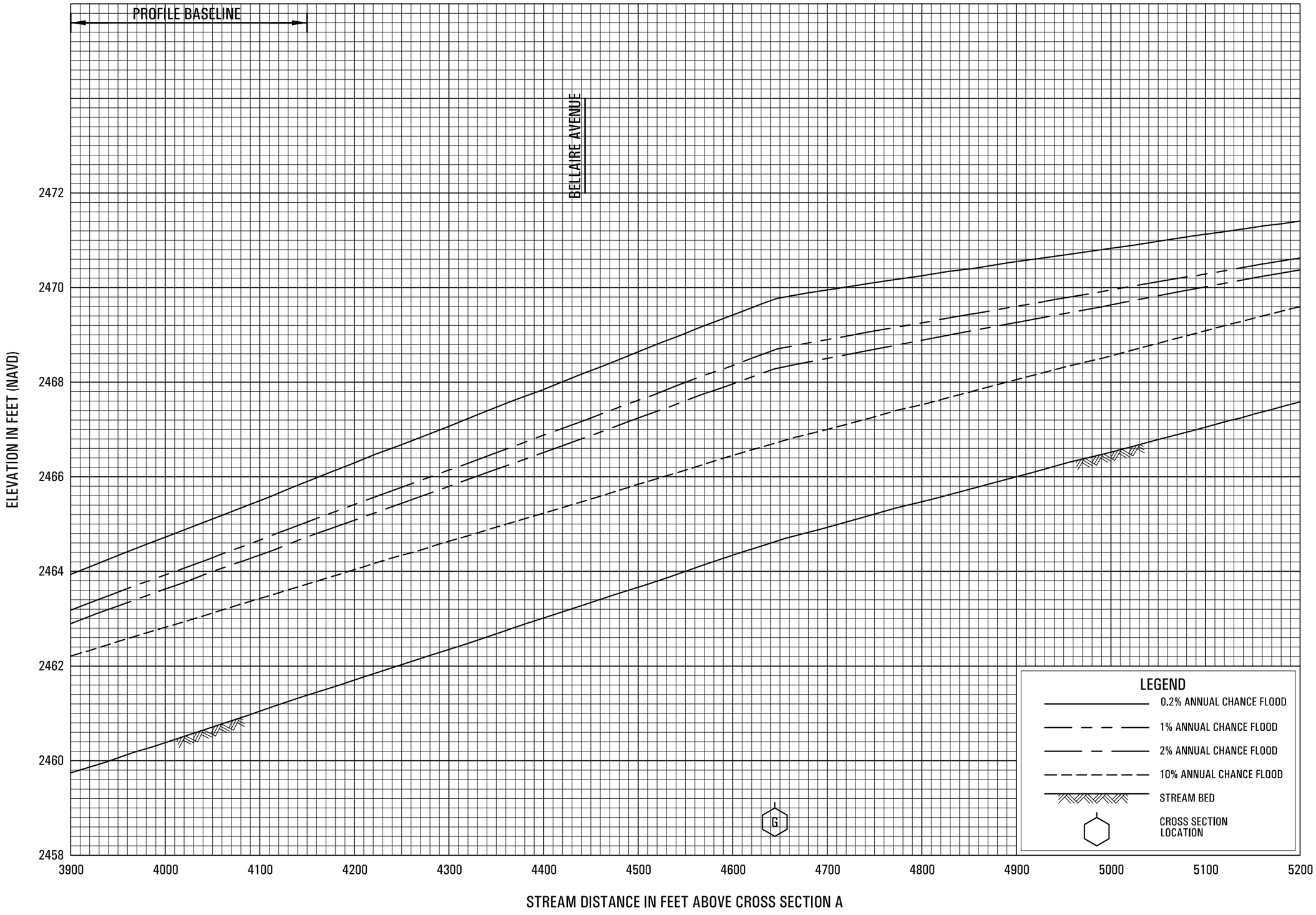
BORON AVENUE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

16P



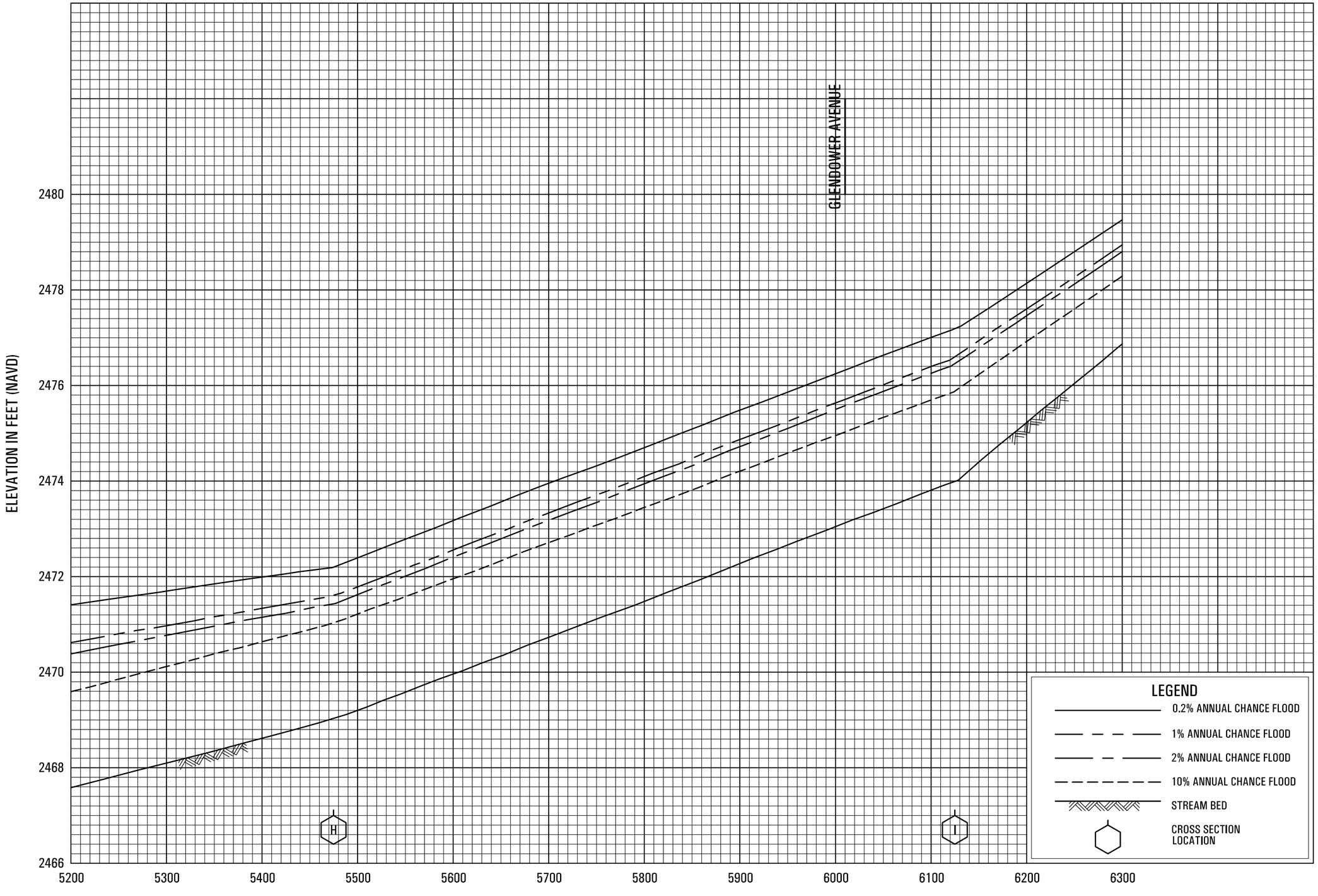
FLOOD PROFILES

BORON AVENUE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



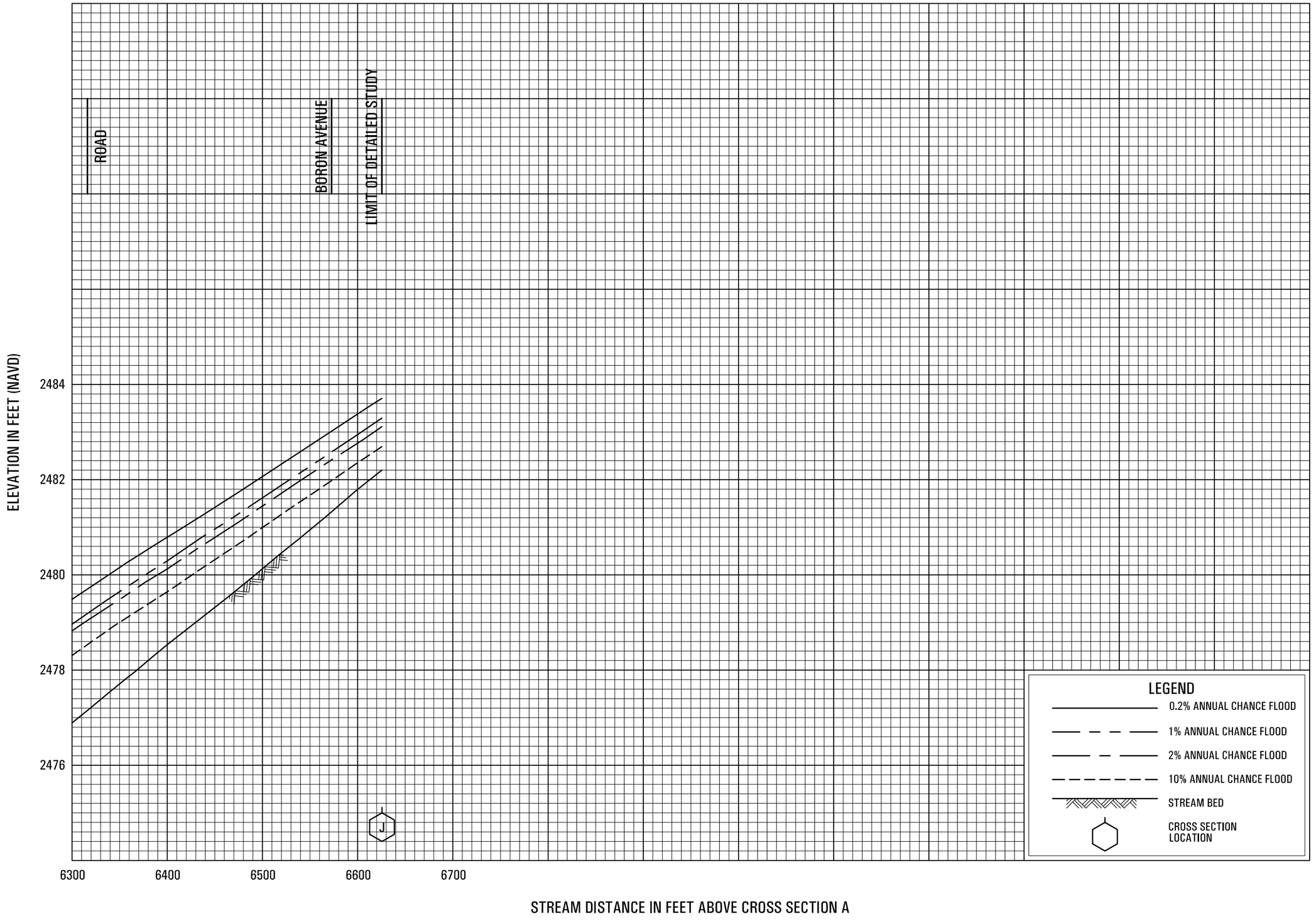
FLOOD PROFILES

BORON AVENUE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



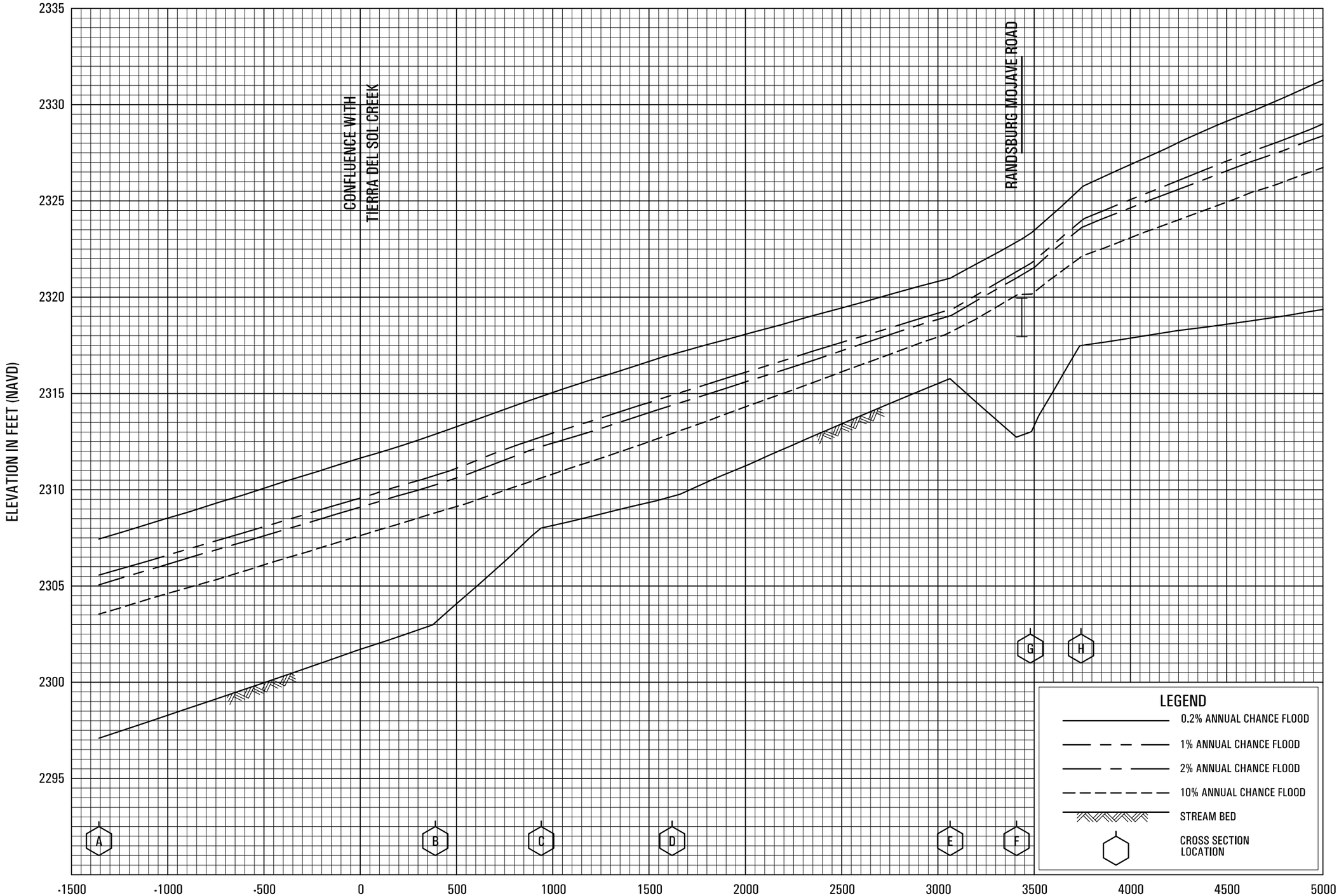
FLOOD PROFILES

BORON AVENUE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



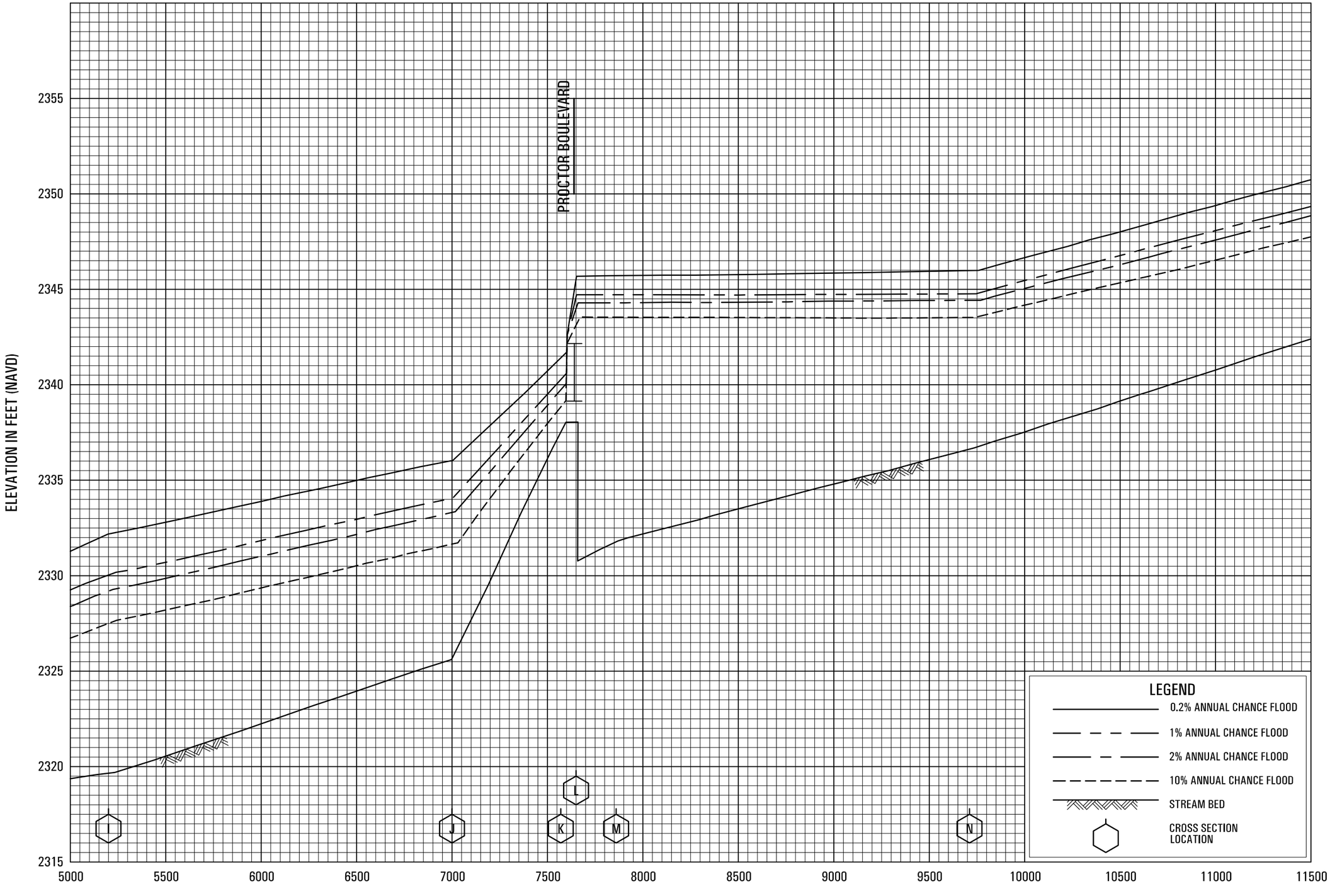
FLOOD PROFILES

CACHE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



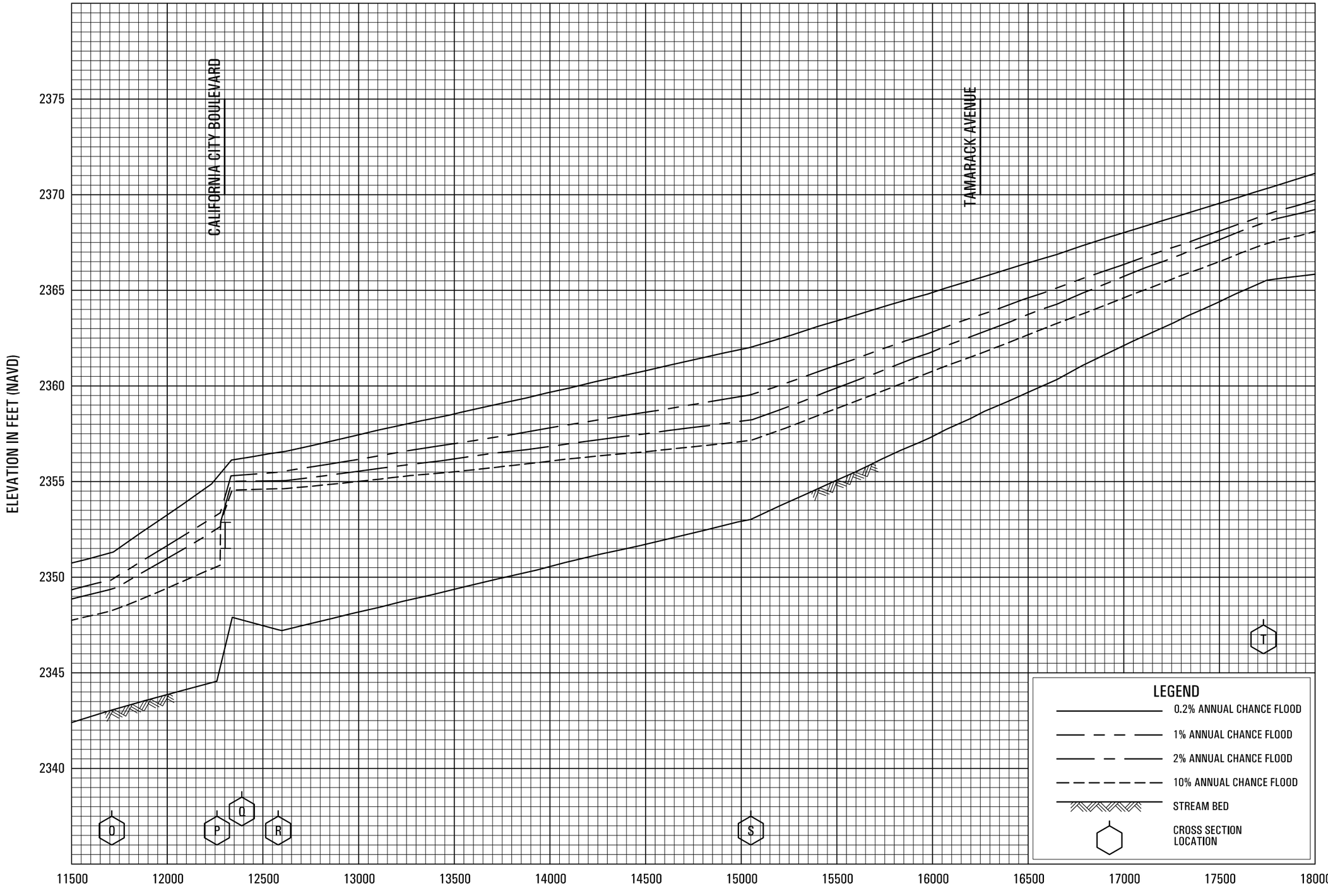
FLOOD PROFILES

CACHE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



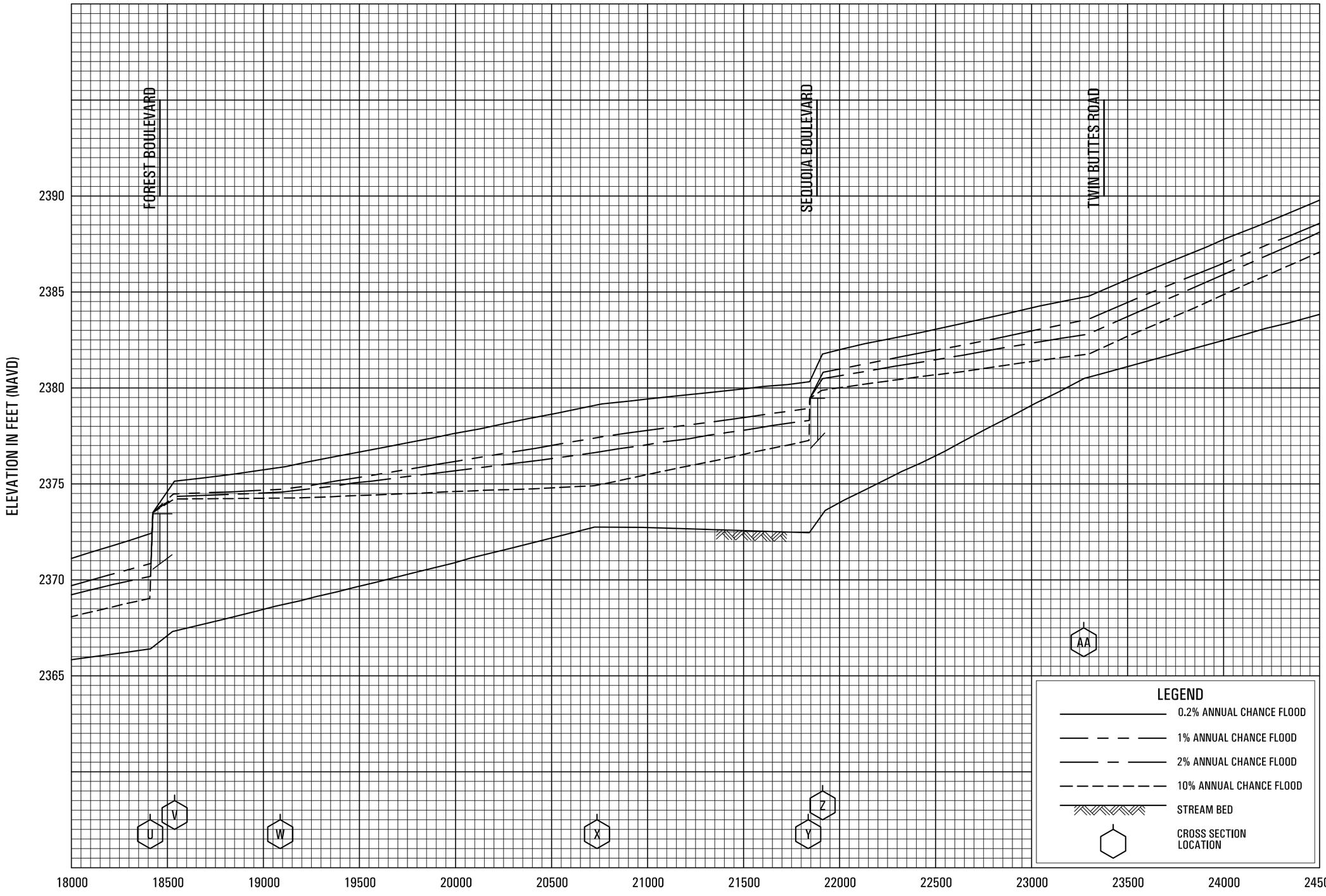
FLOOD PROFILES

CACHE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



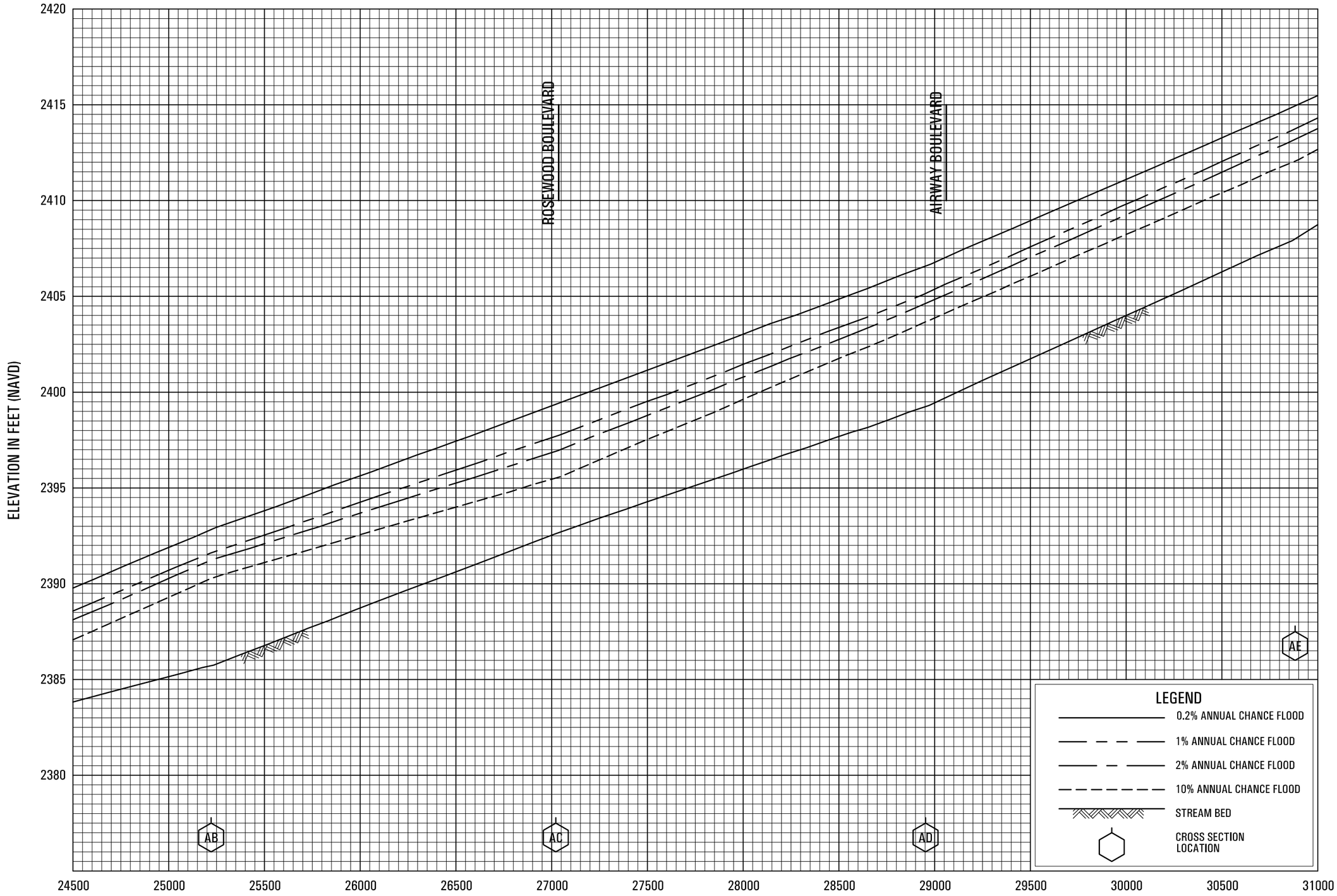
FLOOD PROFILES

CACHE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



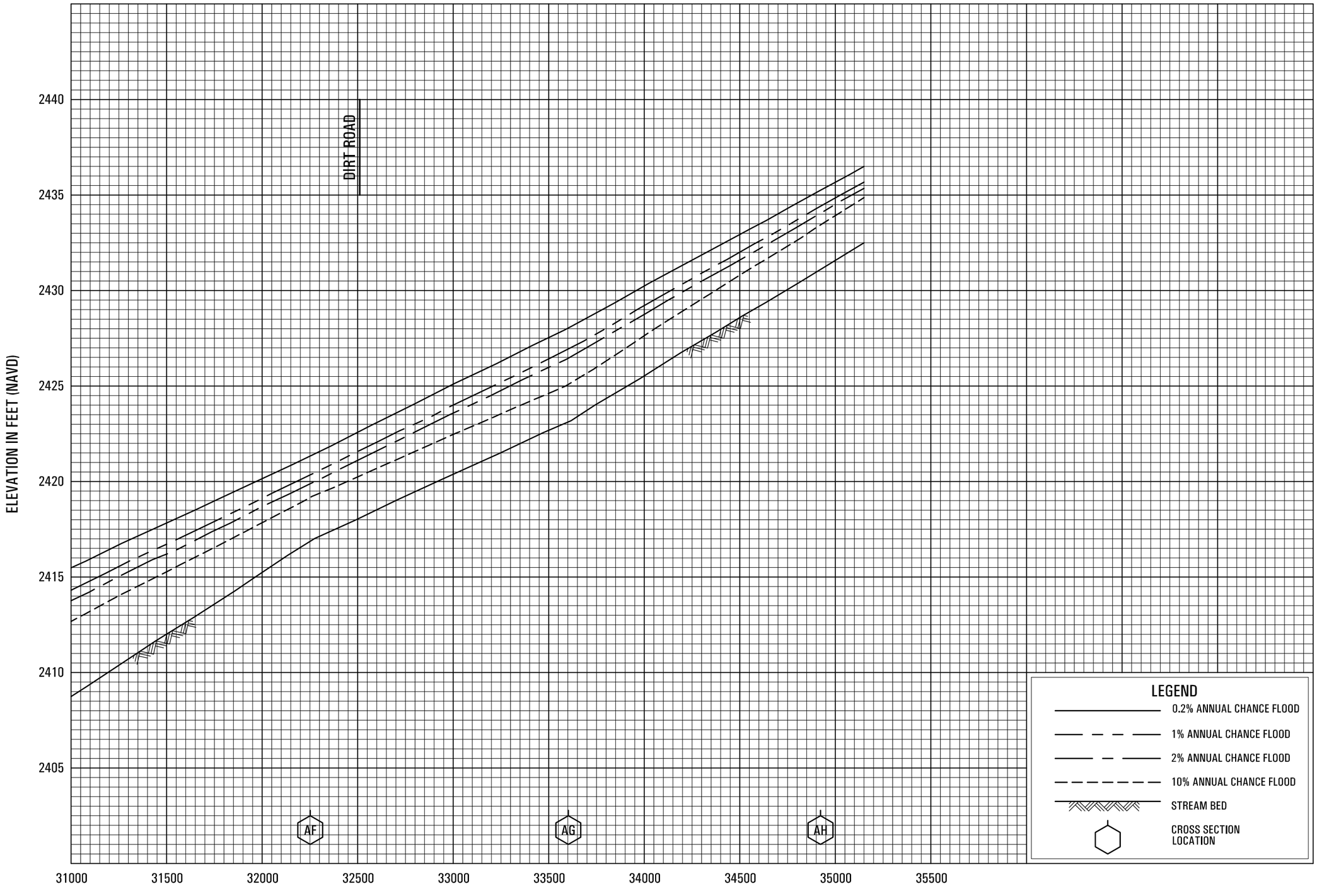
FLOOD PROFILES

CACHE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

CACHE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

25P

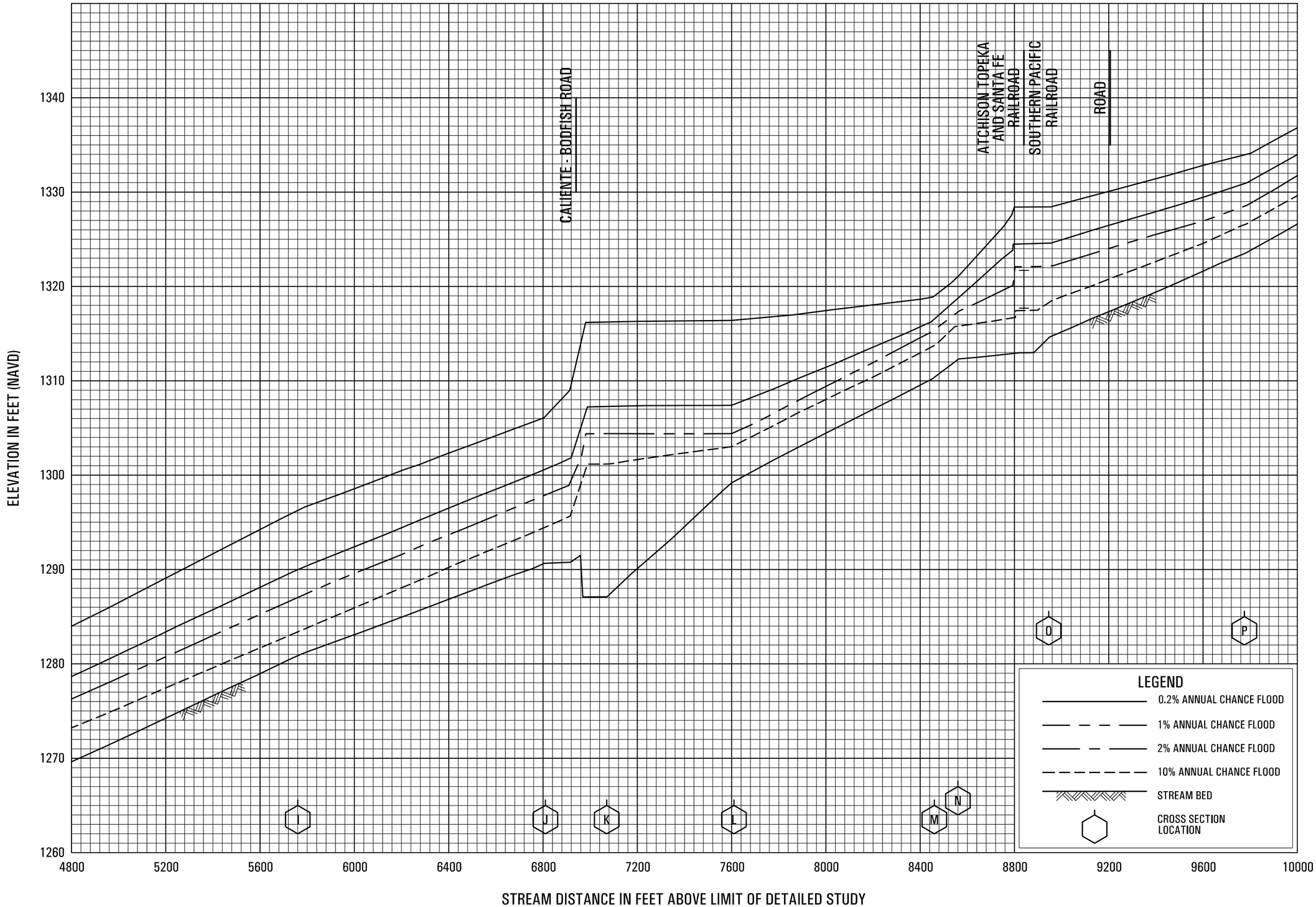
FLOOD PROFILES

CALIENTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

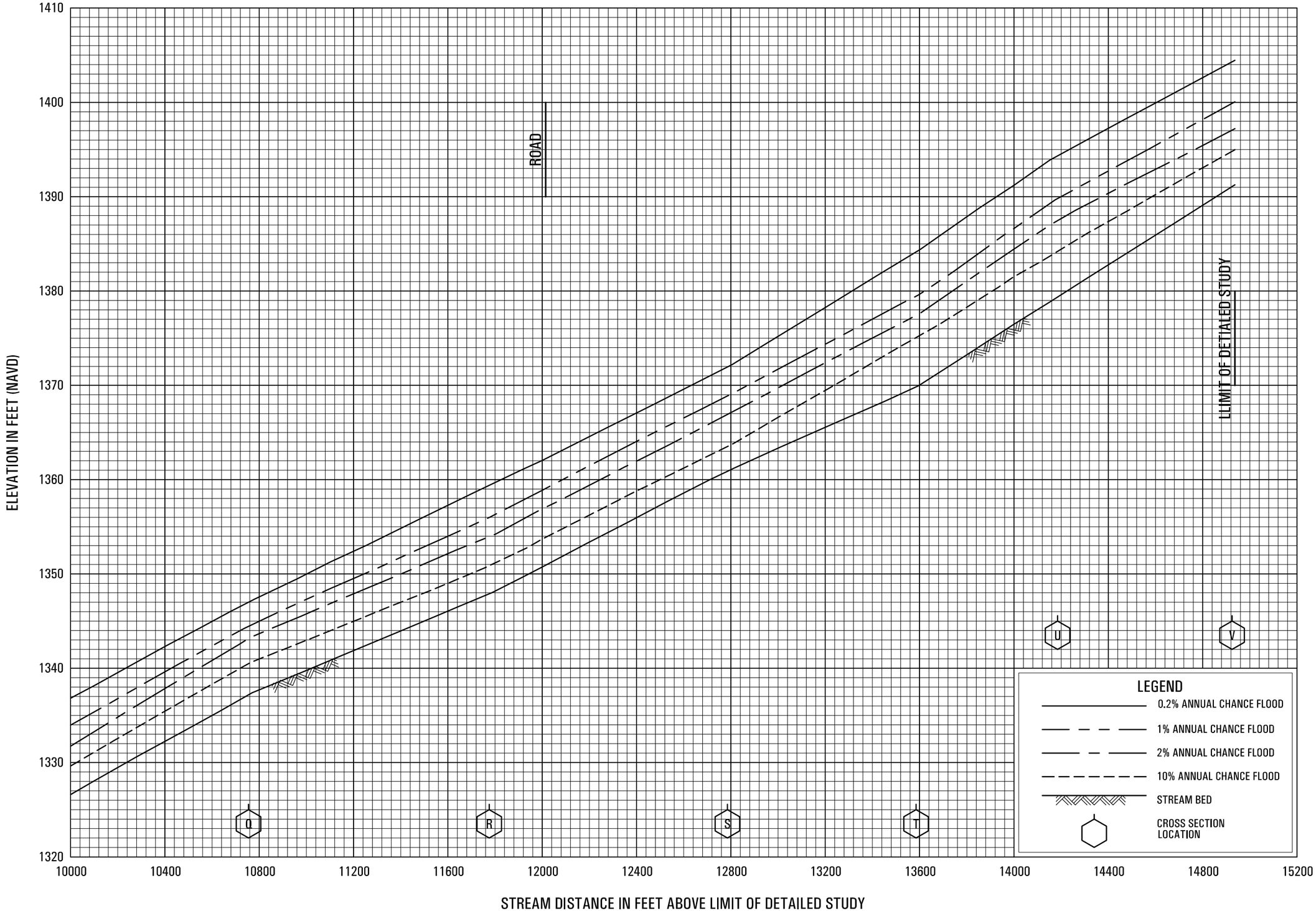
CALIENTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

27P



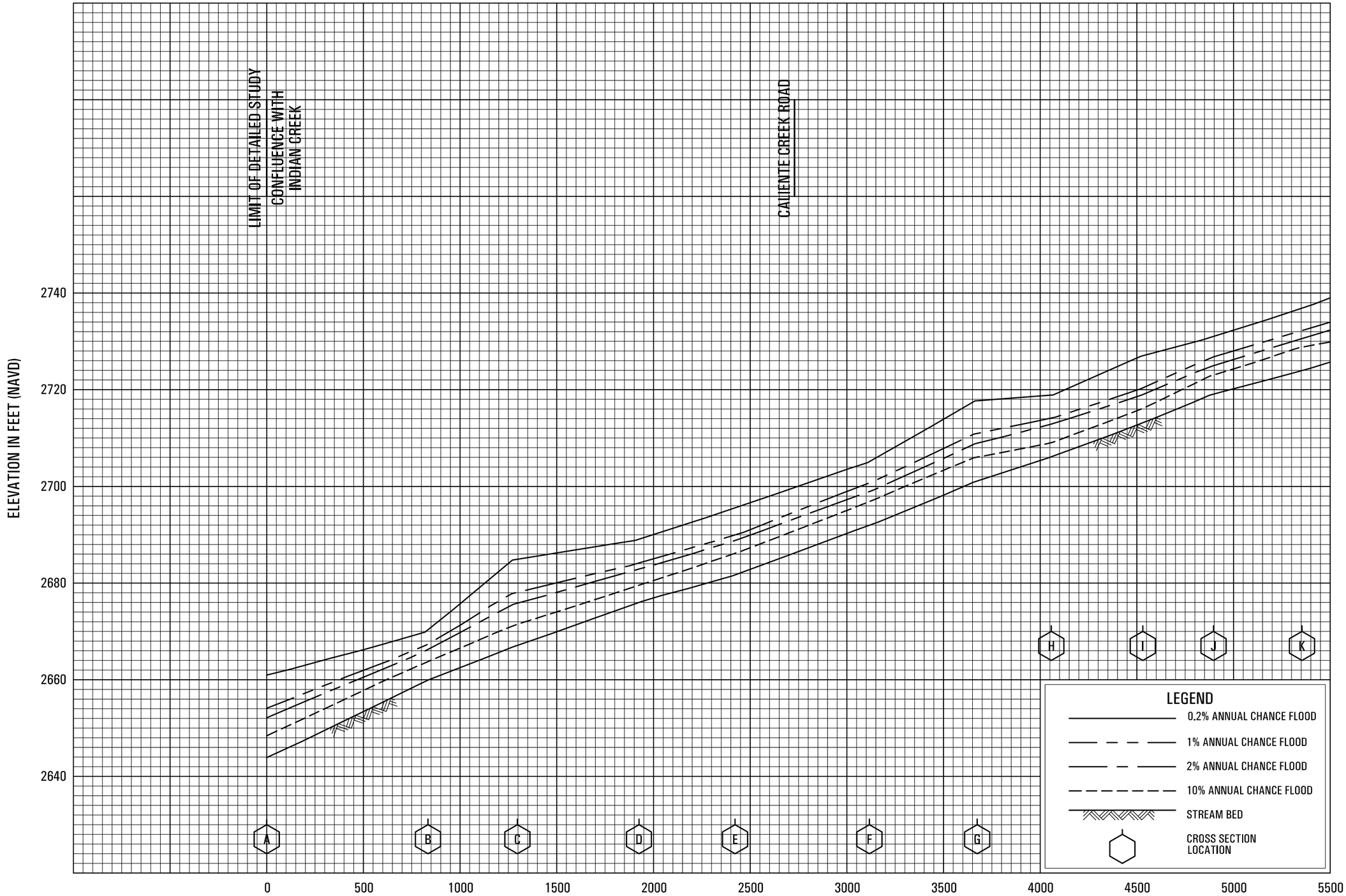
FLOOD PROFILES

CALIENTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



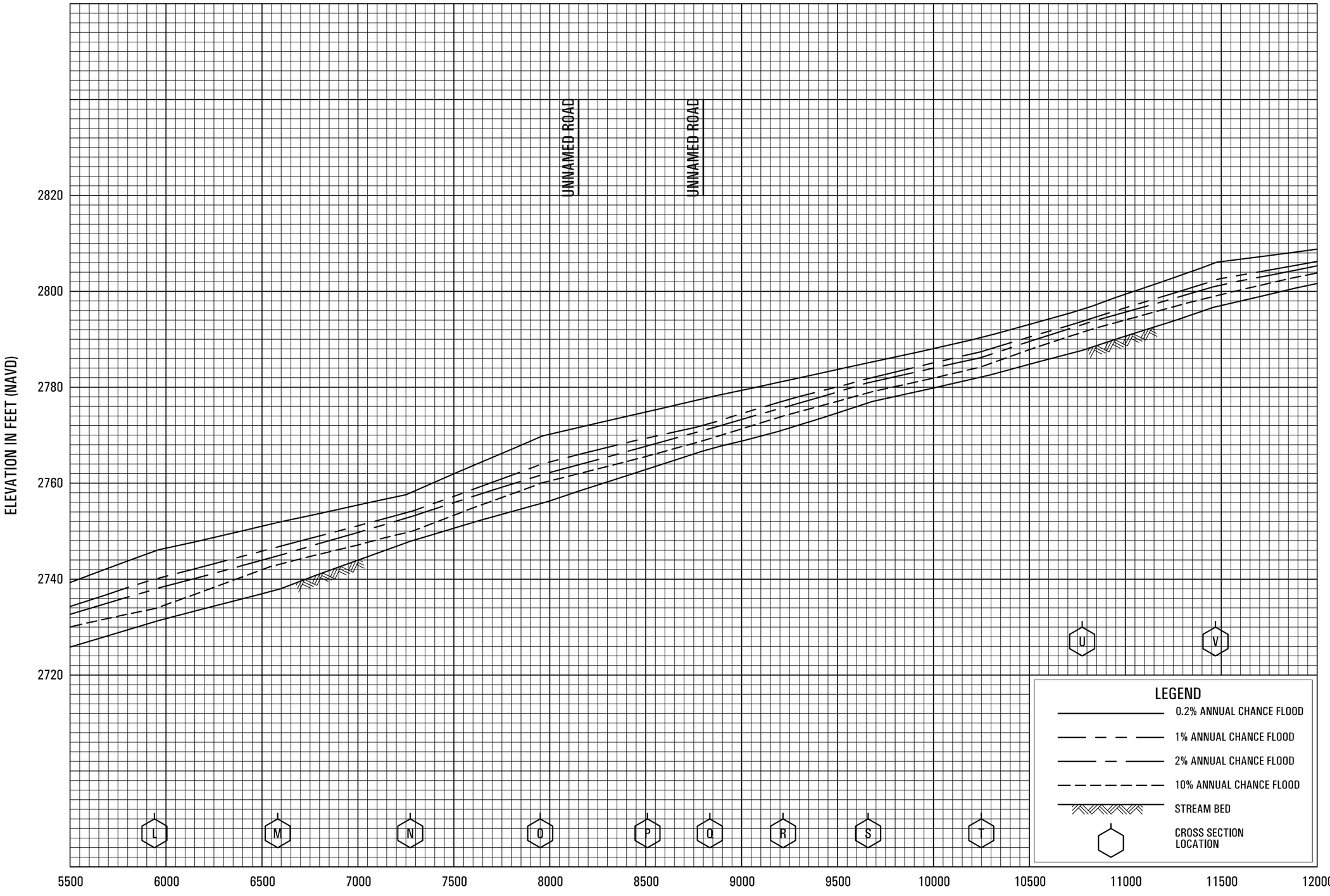
FLOOD PROFILES

CALIENTE CREEK NEAR LORAINE

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

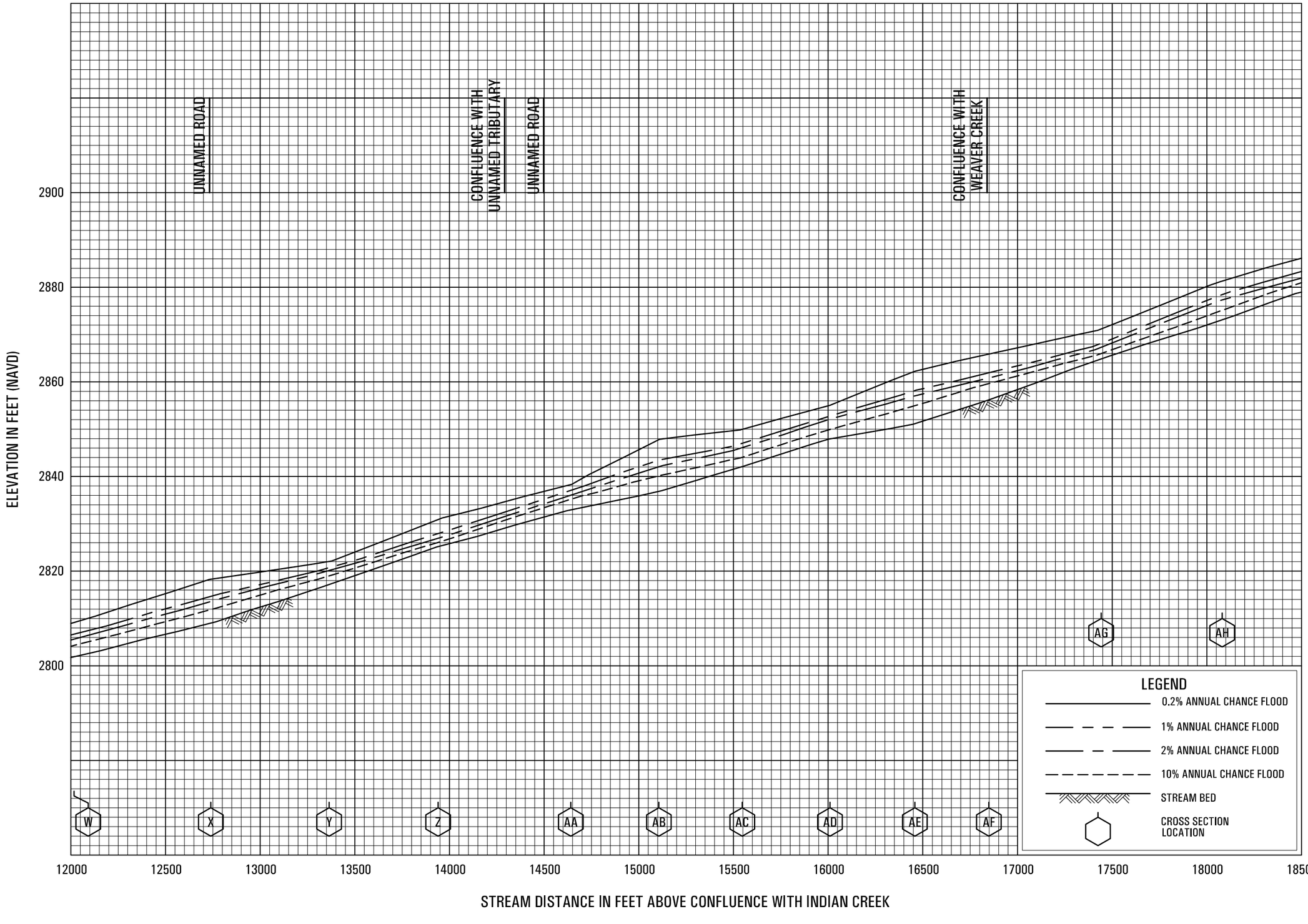
CALIENTE CREEK NEAR LORAINE

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

30P



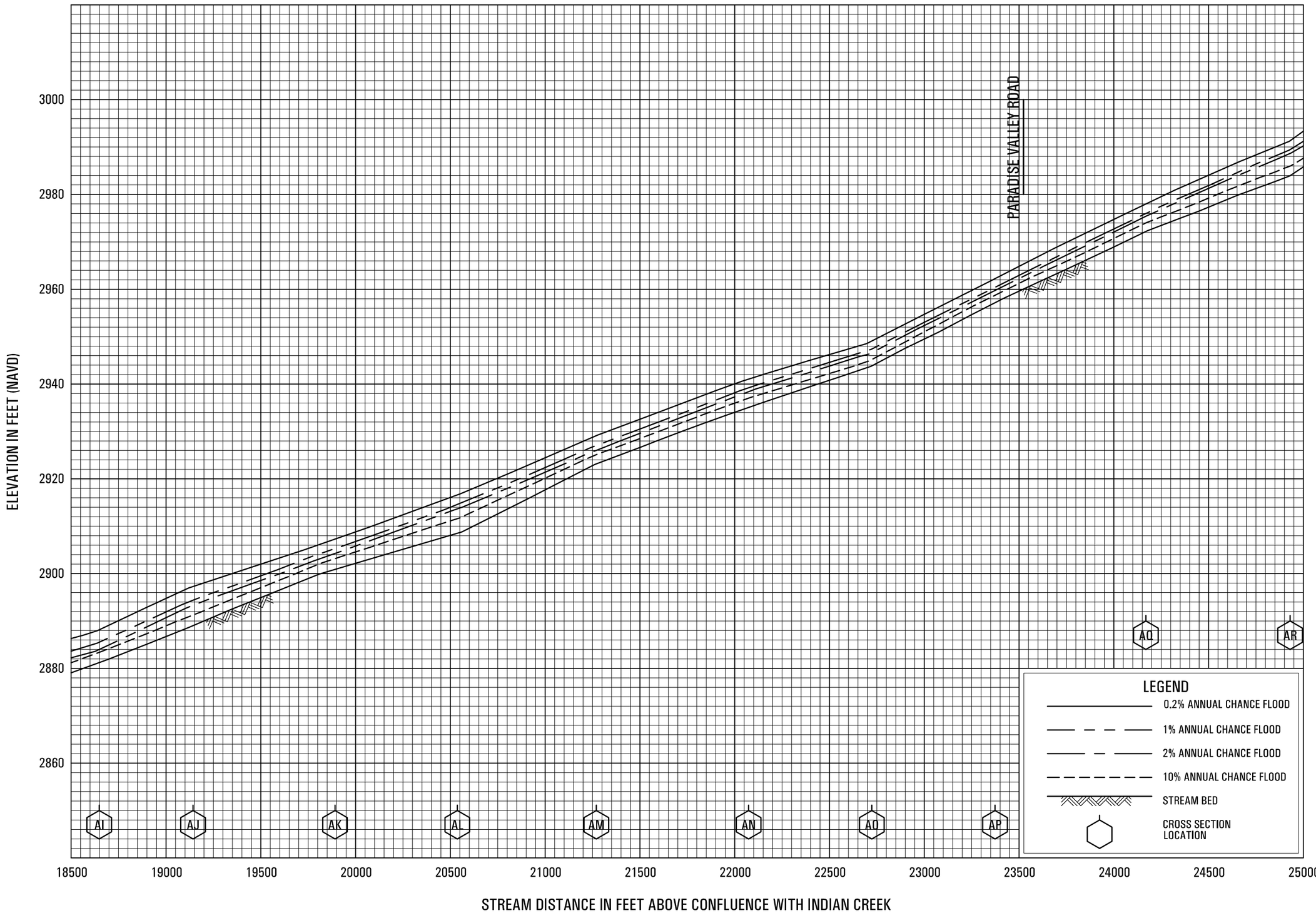
FLOOD PROFILES

CALIENTE CREEK NEAR LORAINE

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



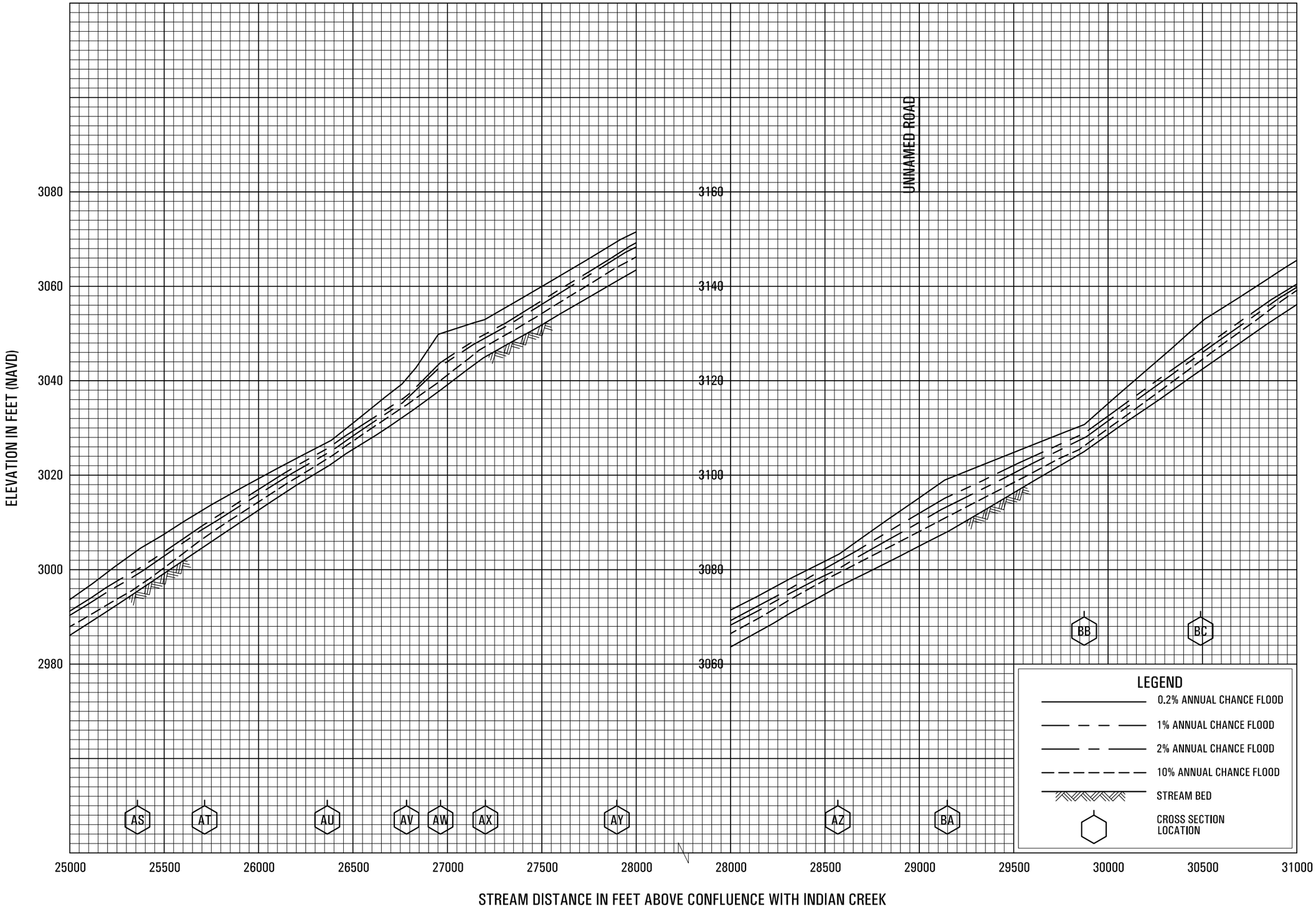
FLOOD PROFILES

CALIENTE CREEK NEAR LORAINE

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



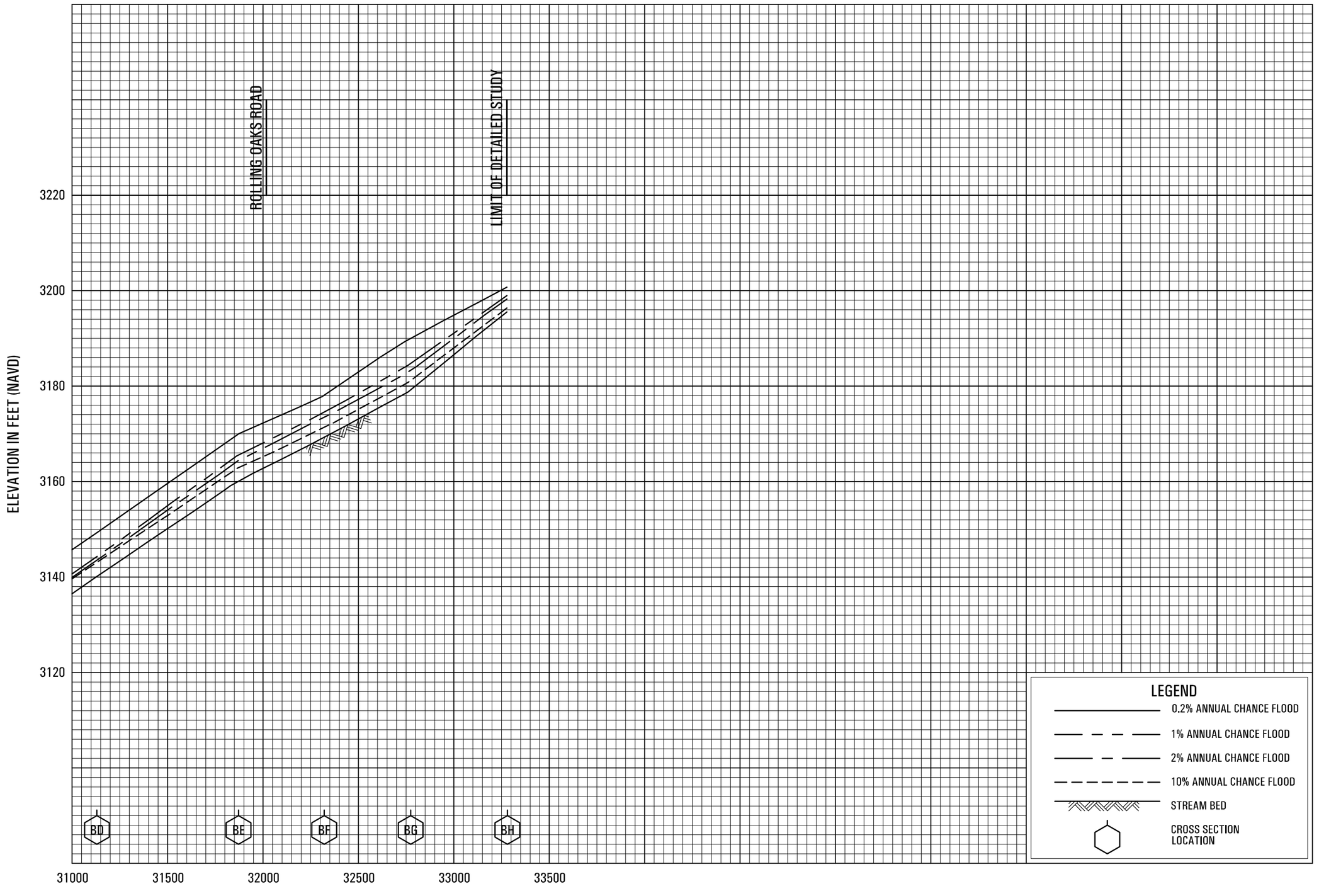
FLOOD PROFILES

CALIENTE CREEK NEAR LORAINE

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH INDIAN CREEK

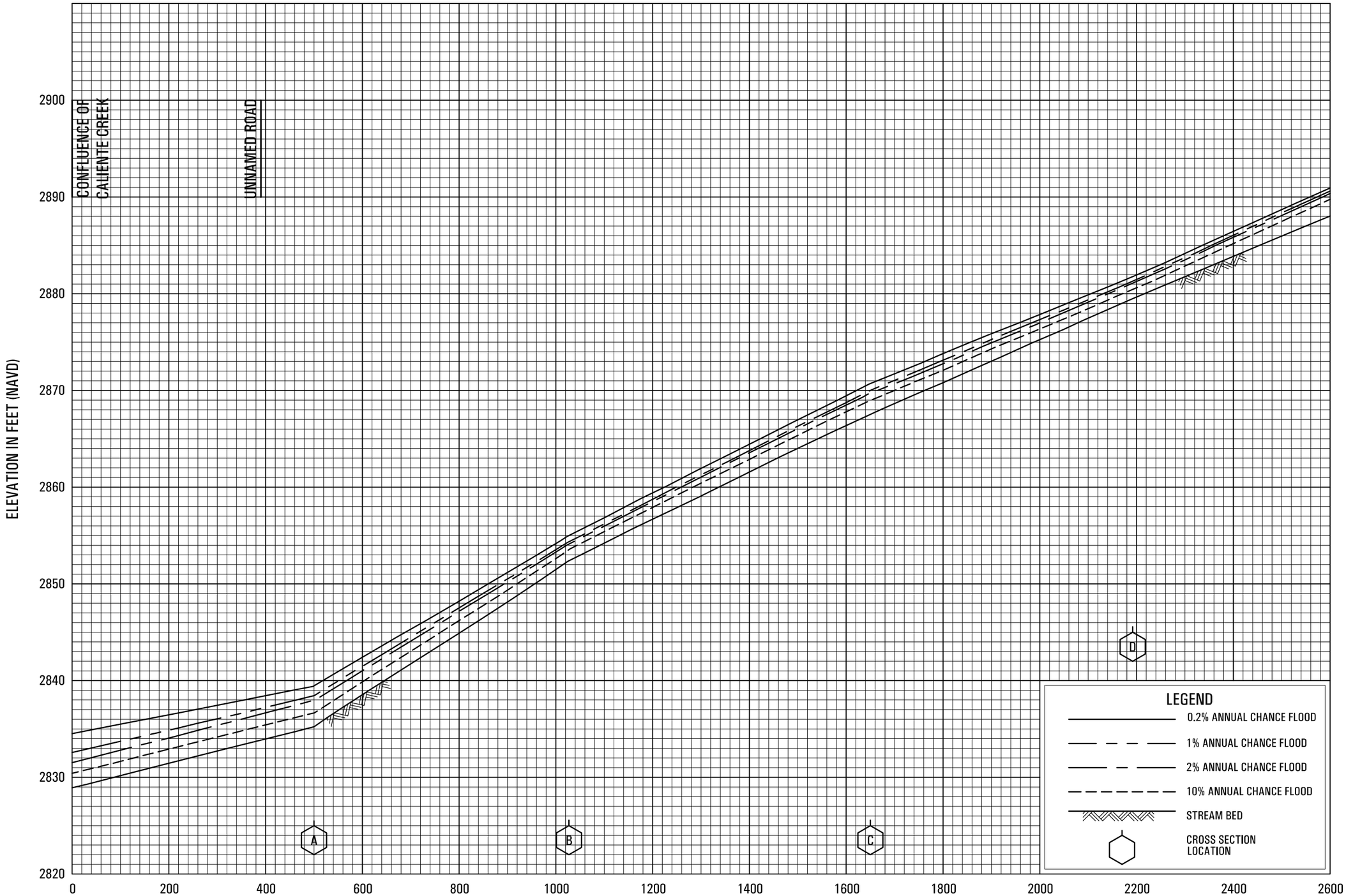
FLOOD PROFILES

CALIENTE CREEK NEAR LORAINE

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



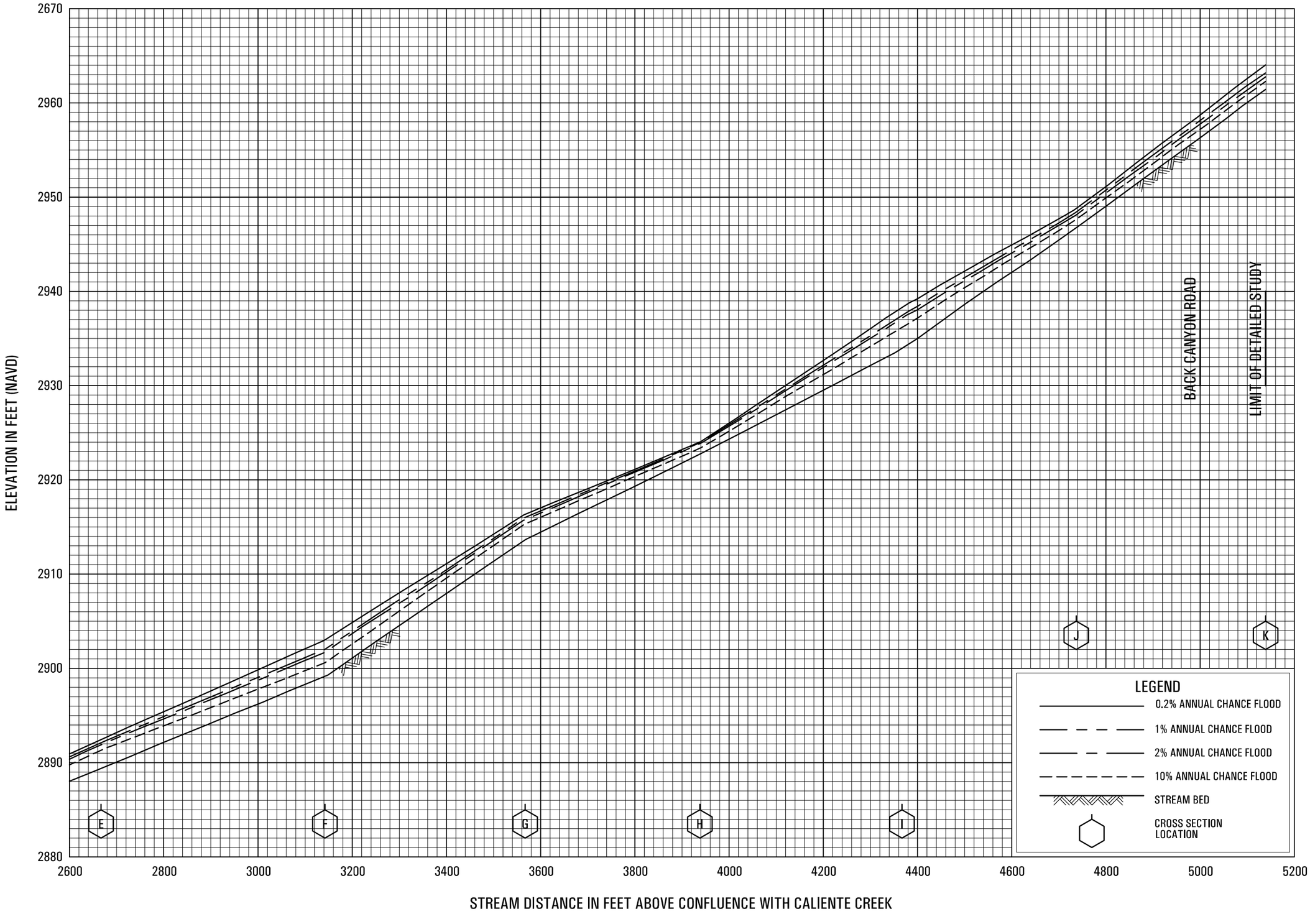
FLOOD PROFILES

CALIENTE CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



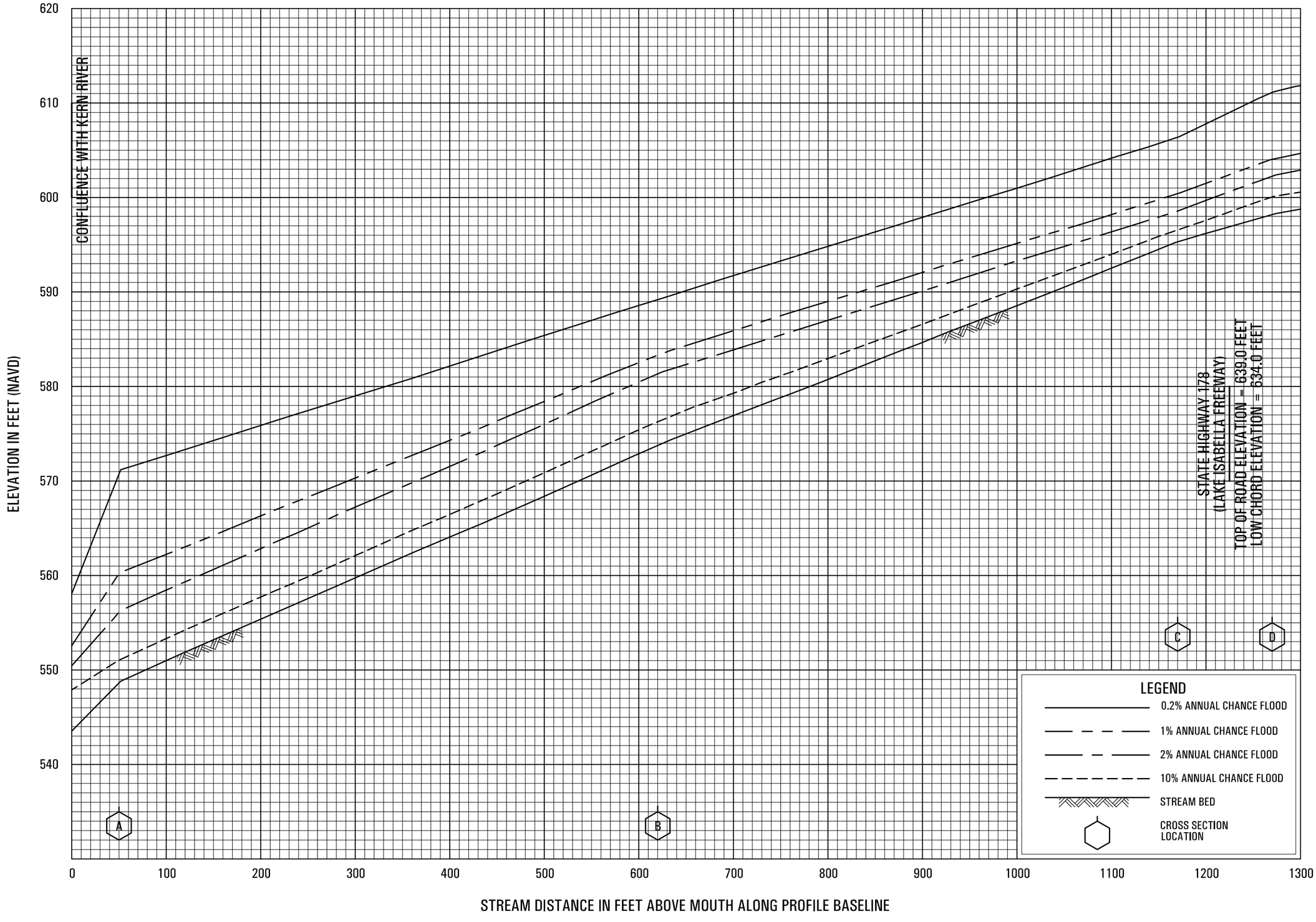
FLOOD PROFILES

CALIENTE CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



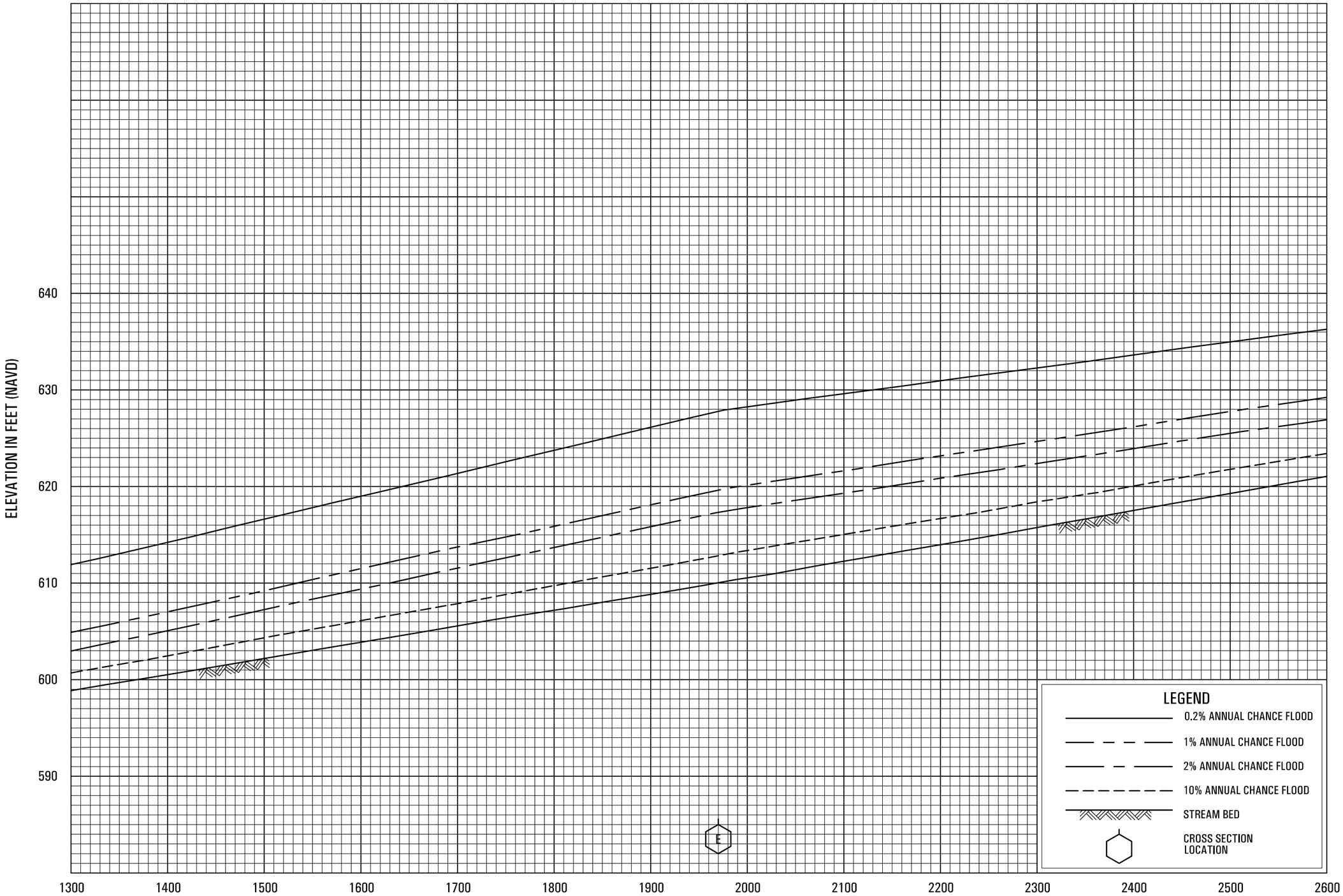
FLOOD PROFILES

COTTONWOOD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

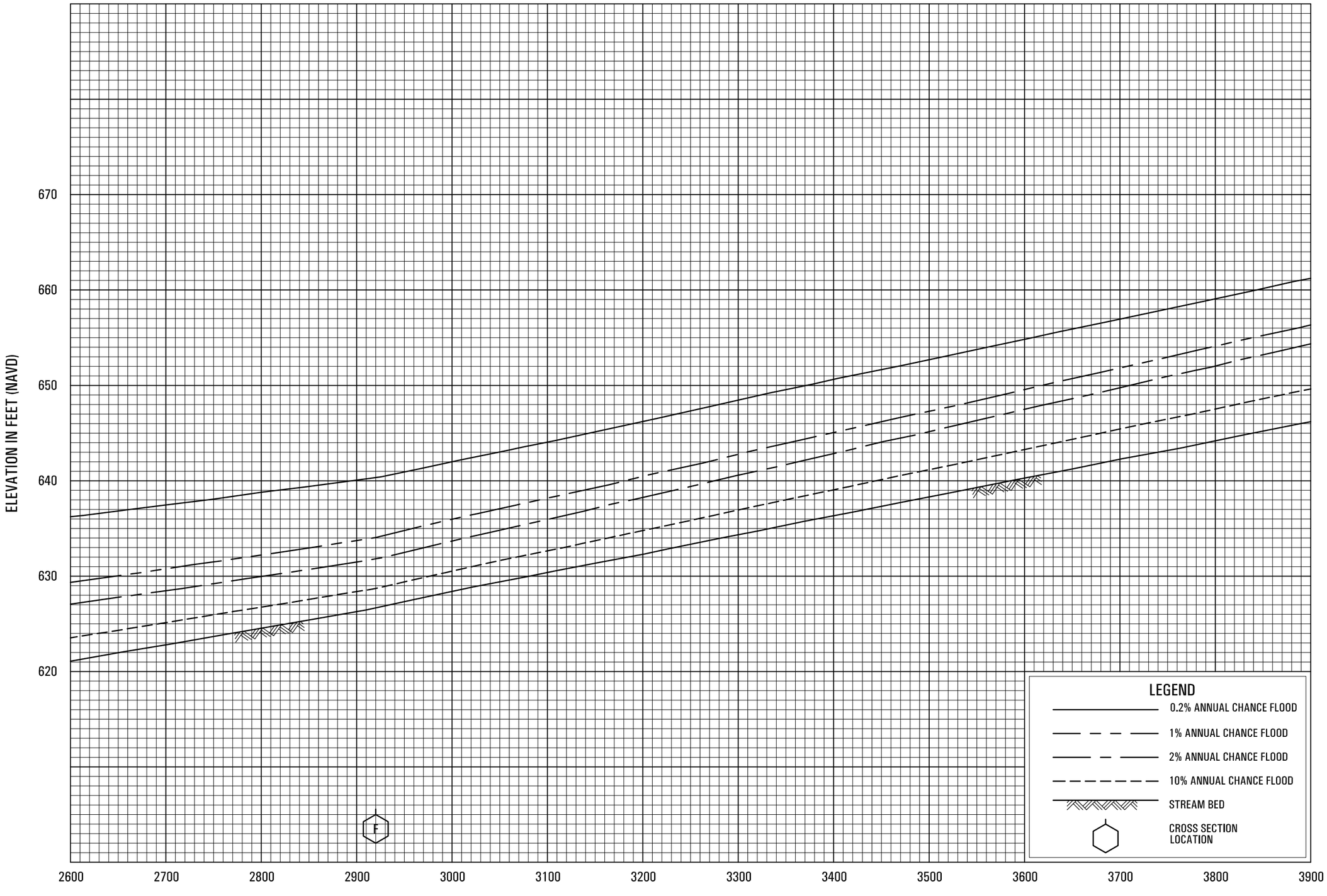
COTTONWOOD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

38P



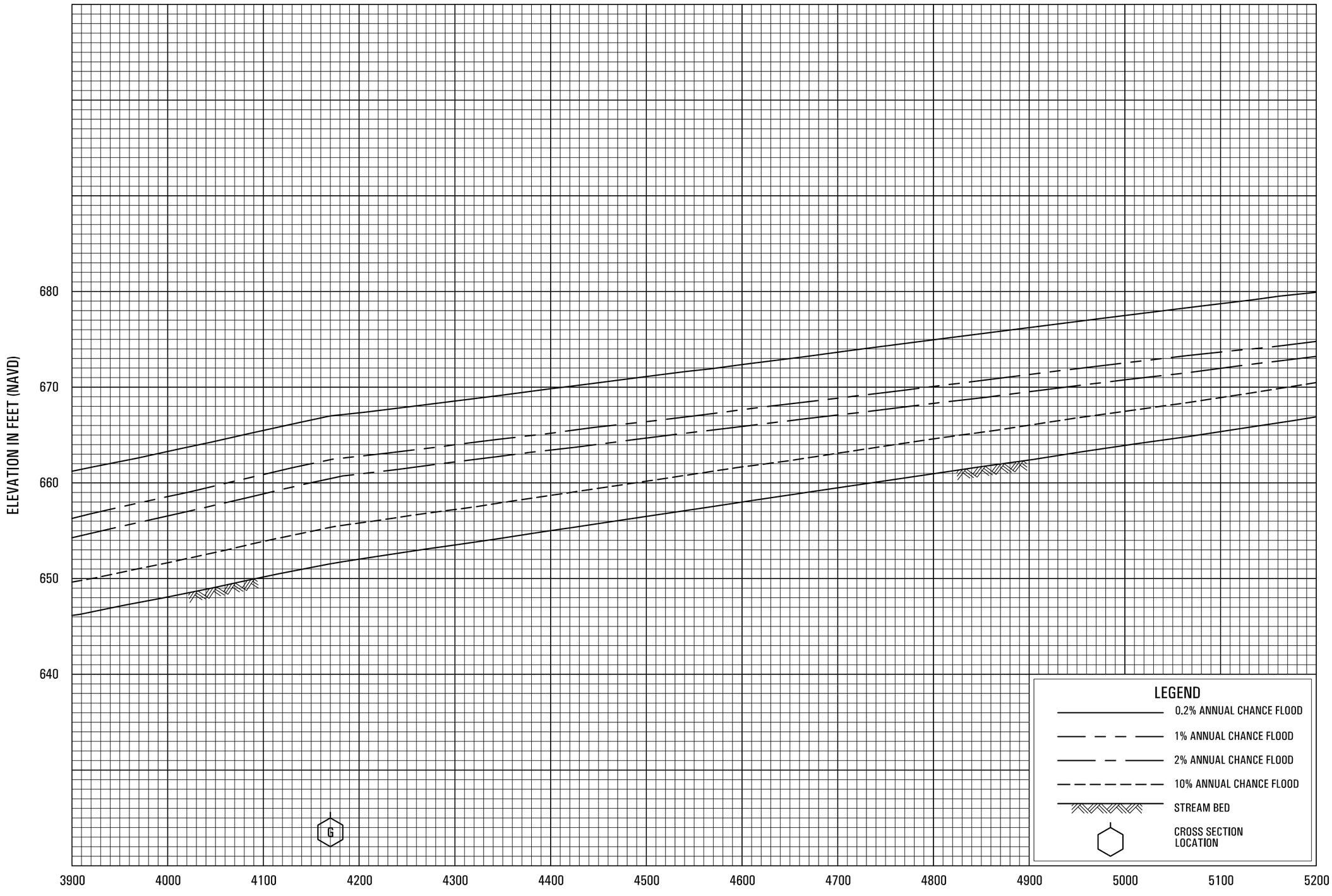
FLOOD PROFILES

COTTONWOOD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



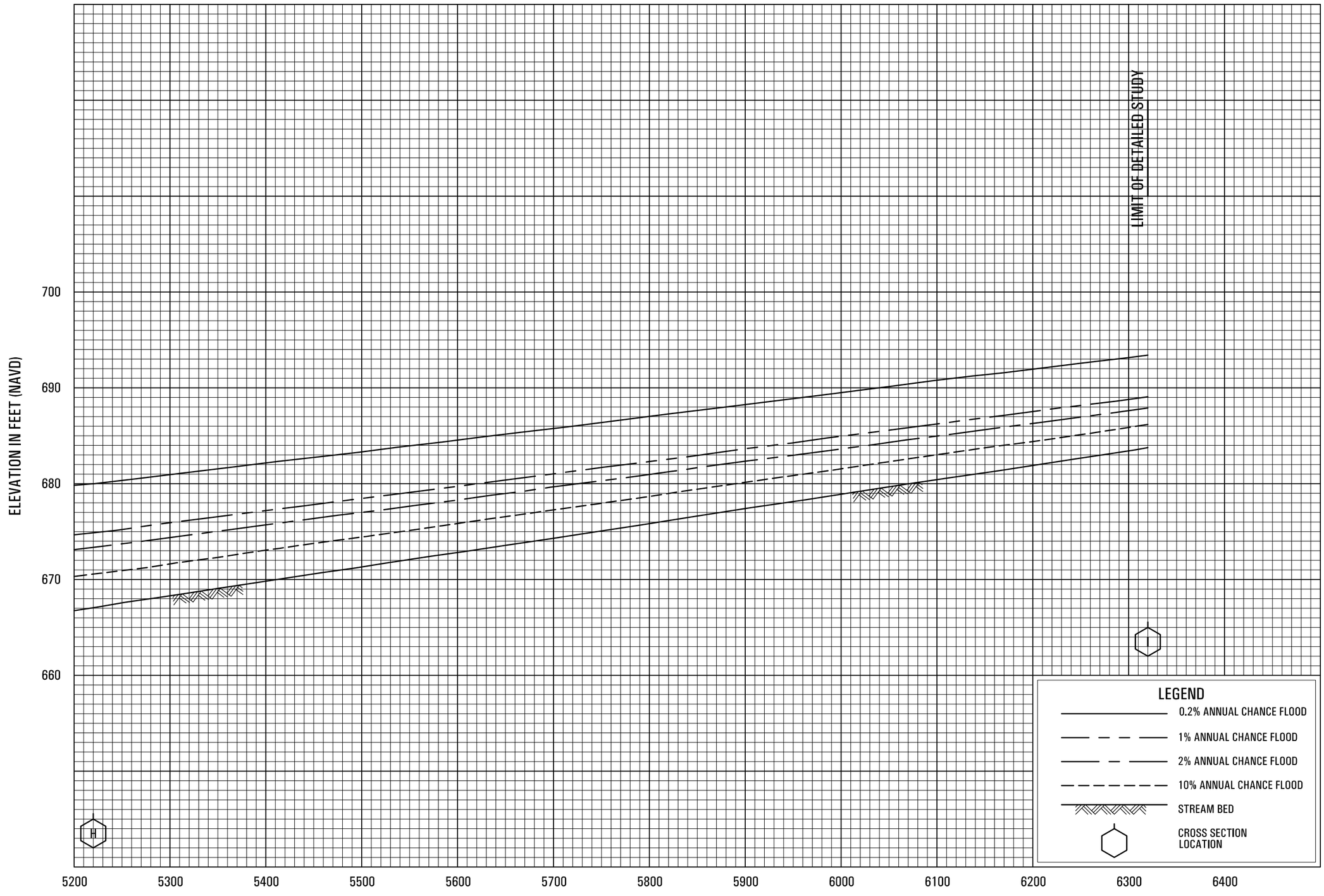
FLOOD PROFILES

COTTONWOOD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



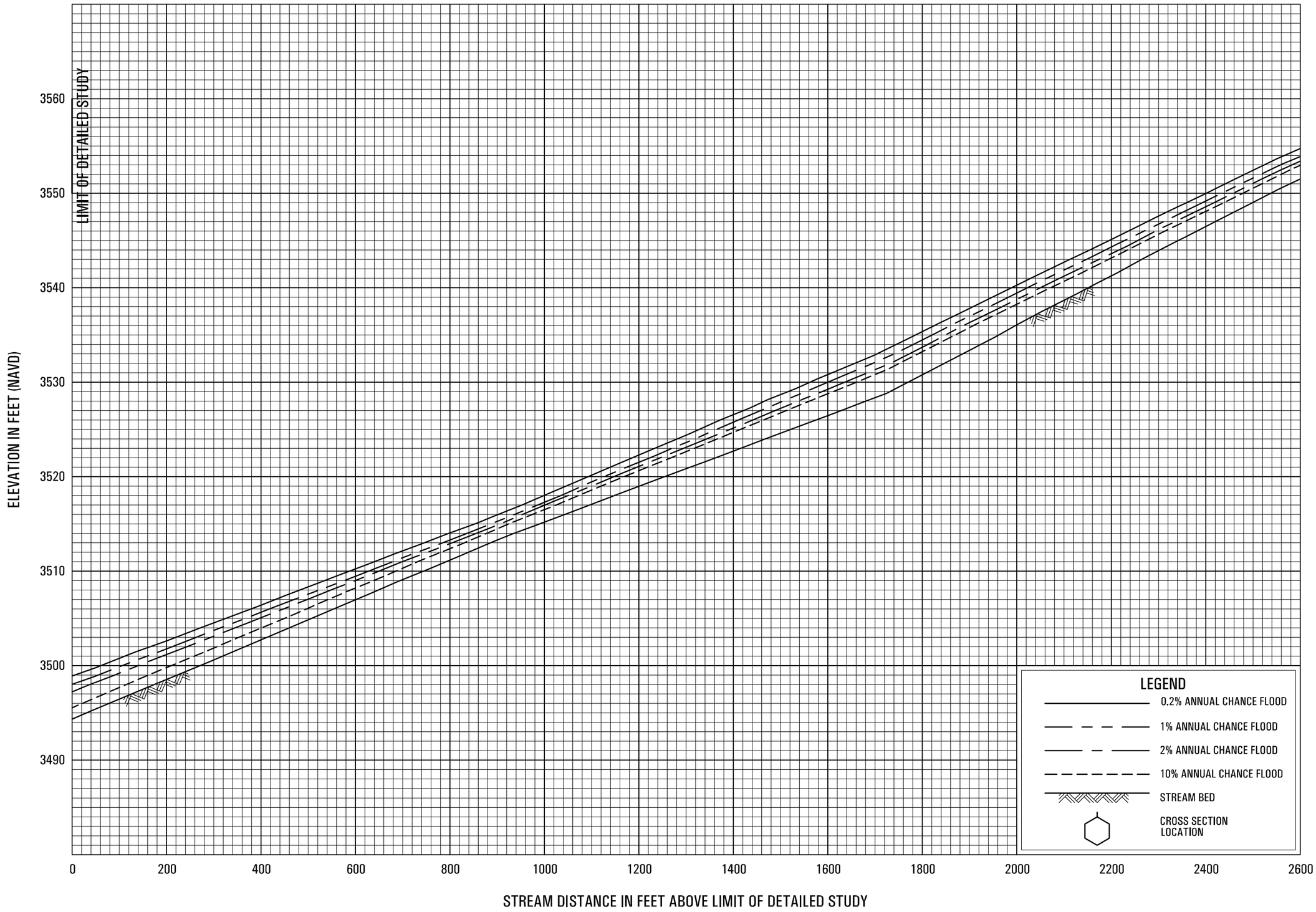
FLOOD PROFILES

COTTONWOOD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



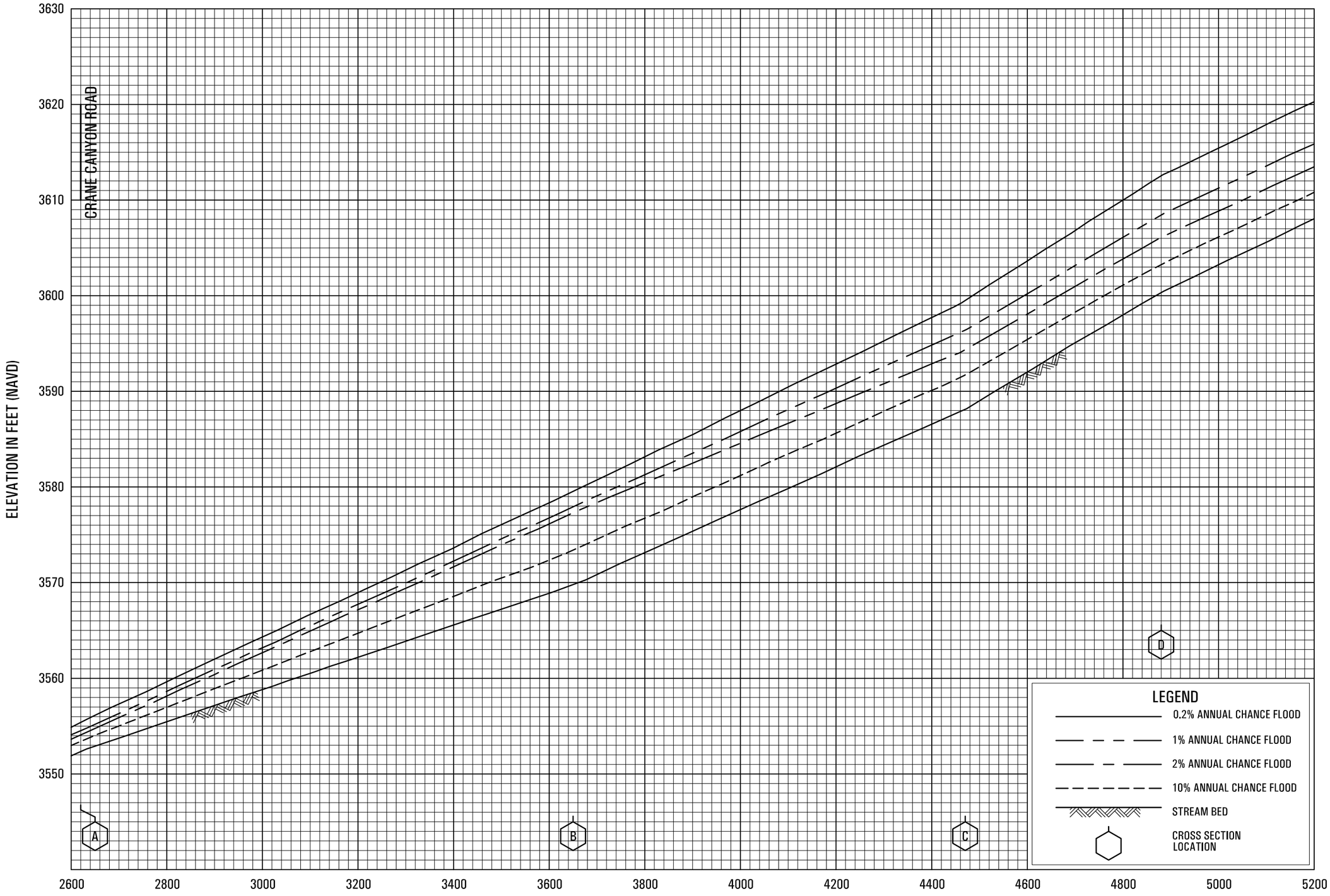
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



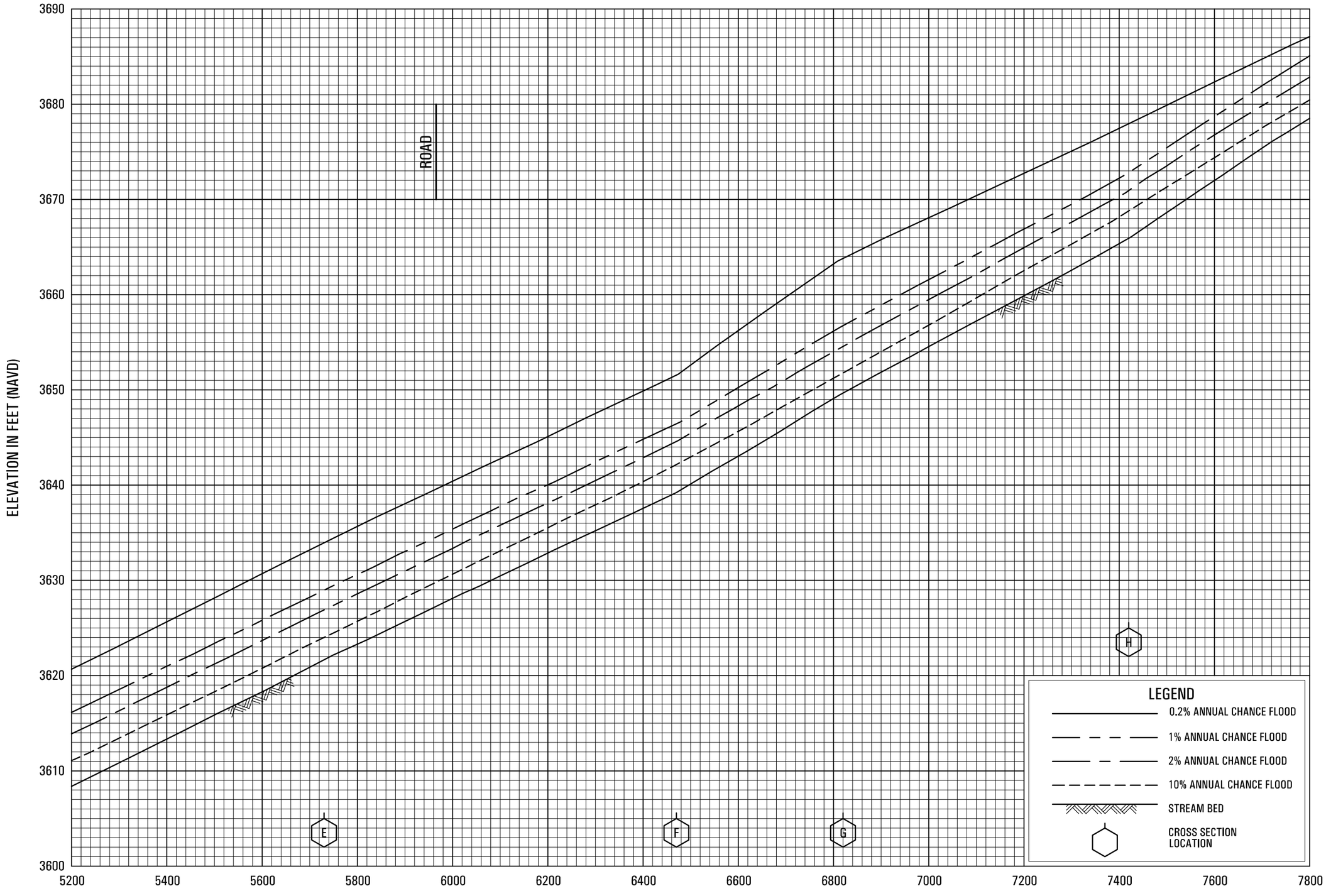
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



STREAM DISTANCE IN FEET ABOVE LIMIT OF DETAILED STUDY

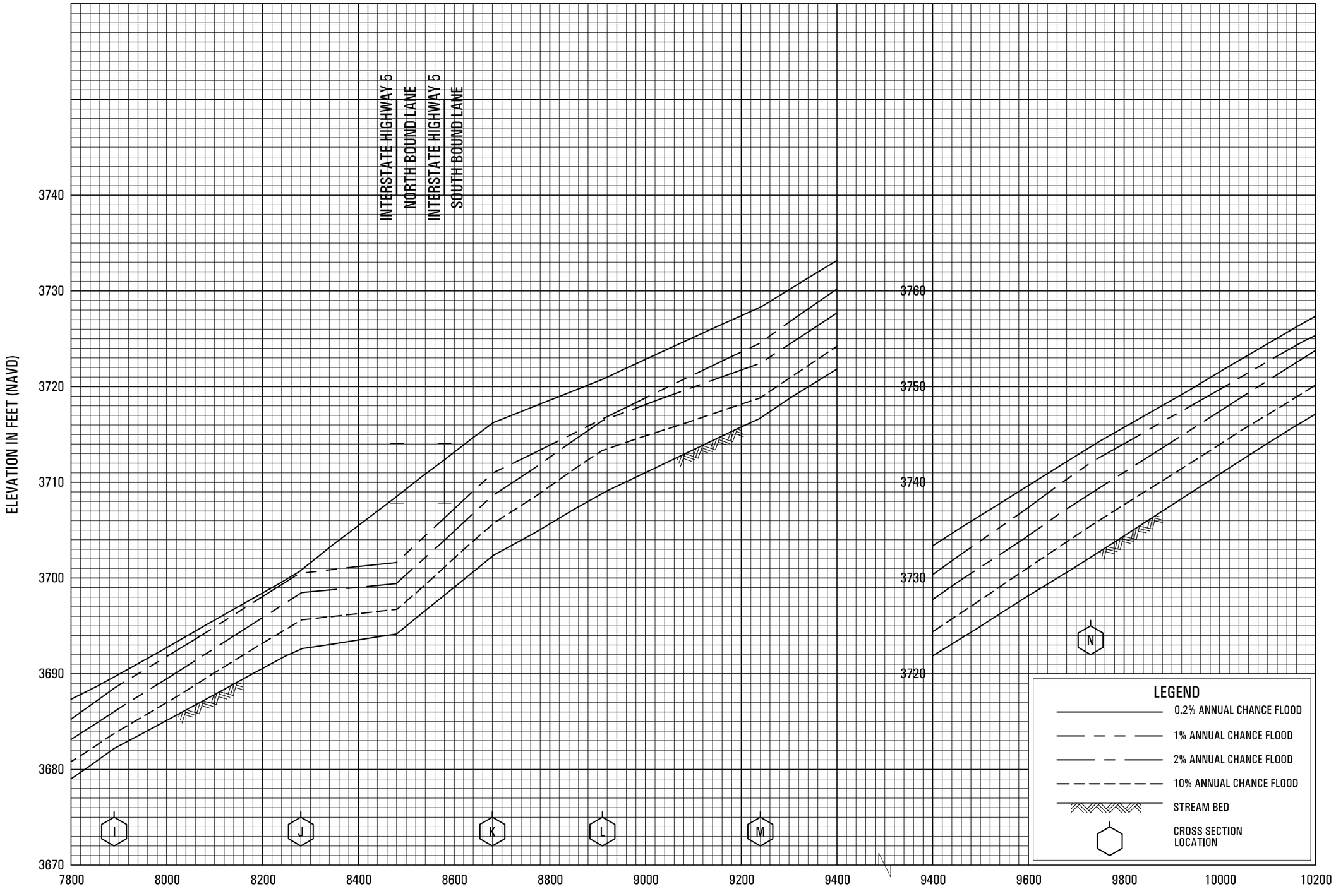
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

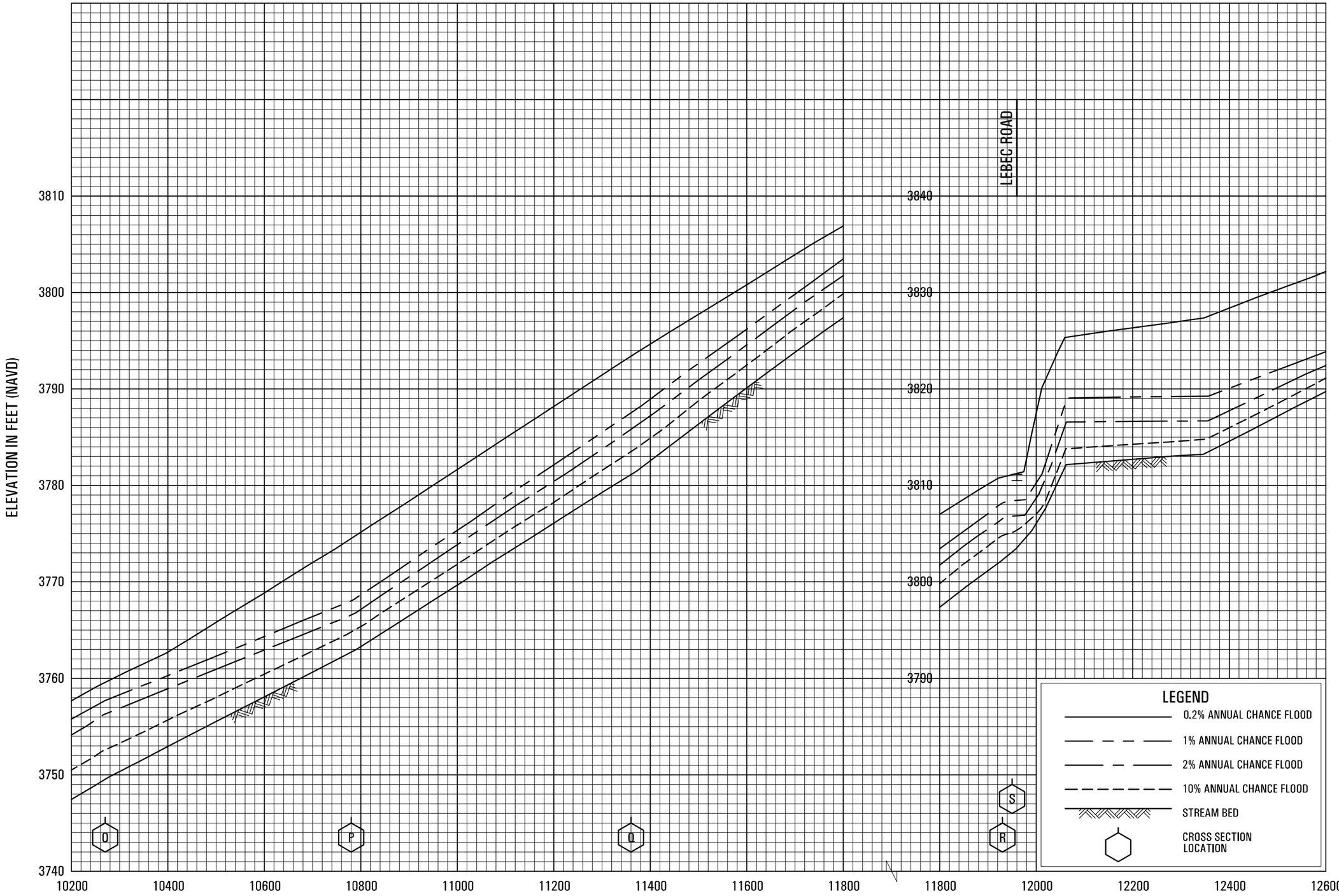
CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

45P



FLOOD PROFILES

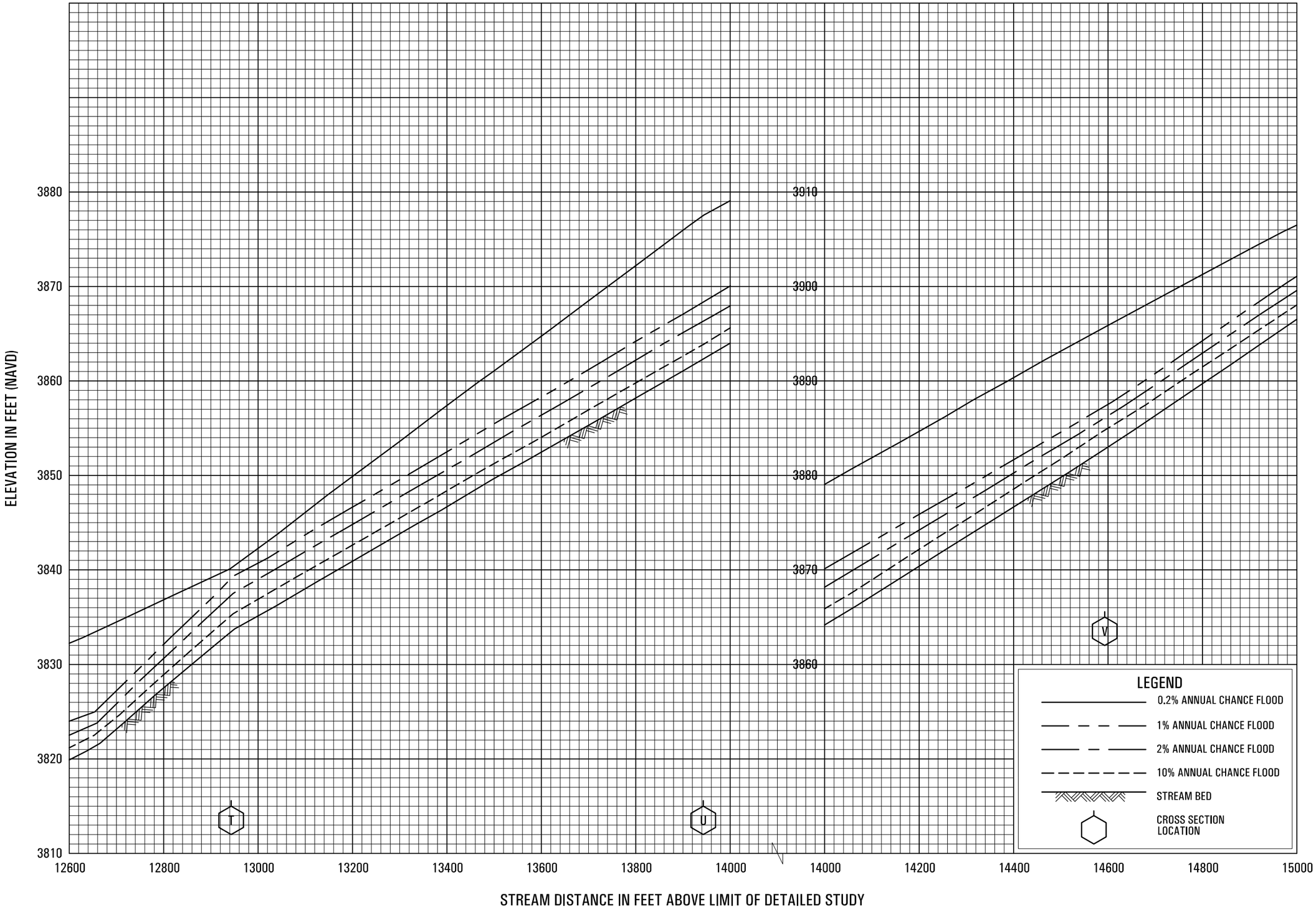
CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

46P



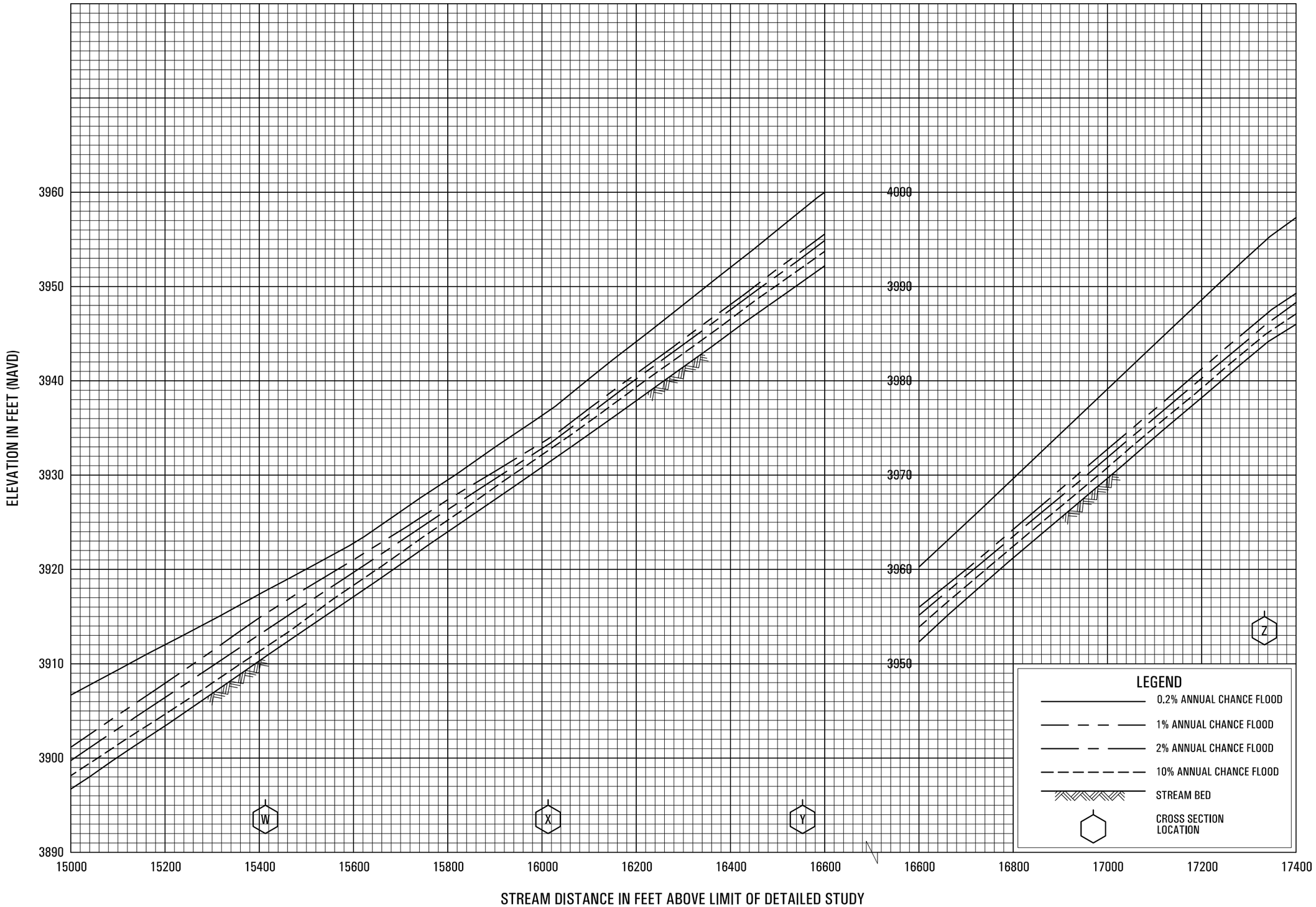
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

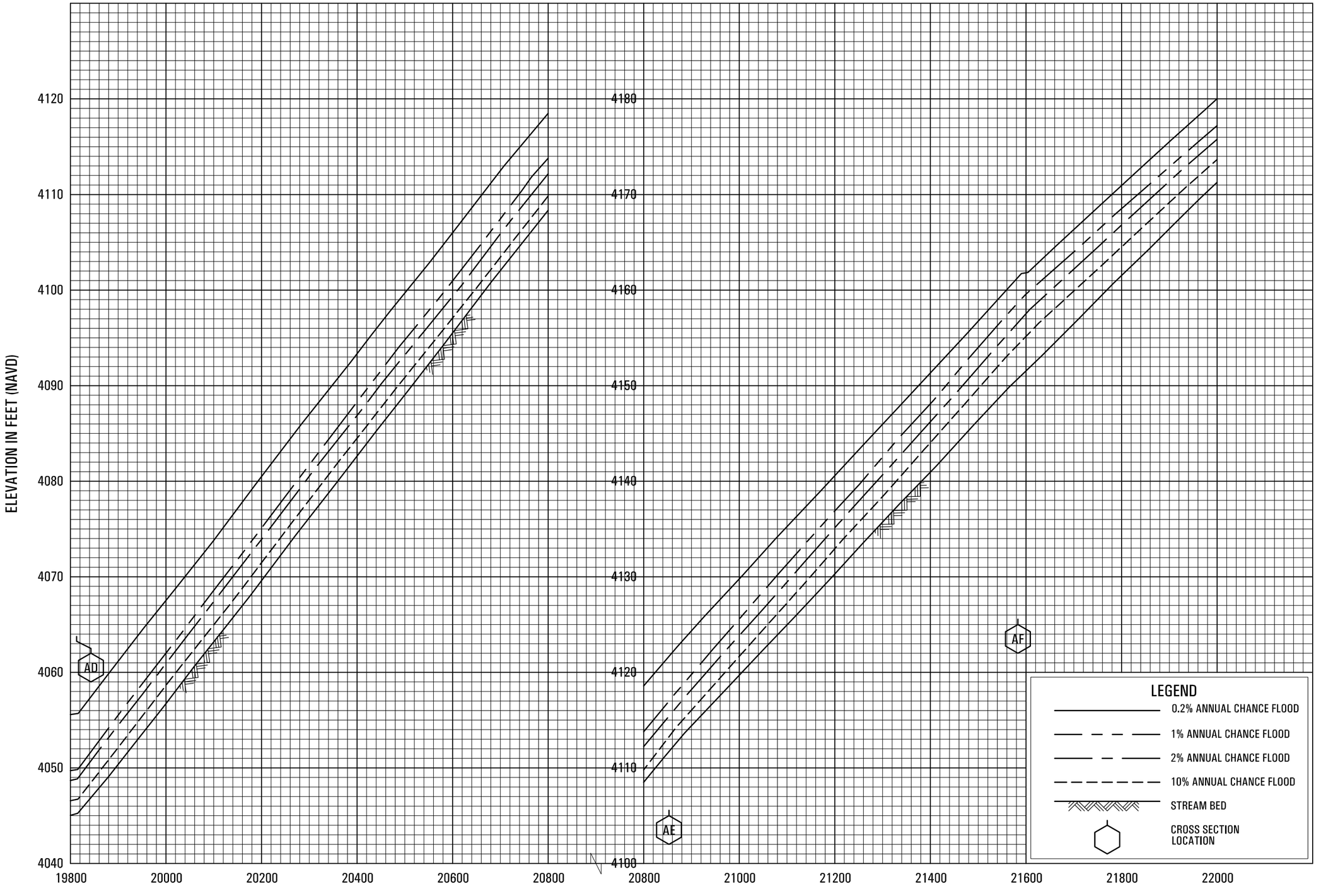
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

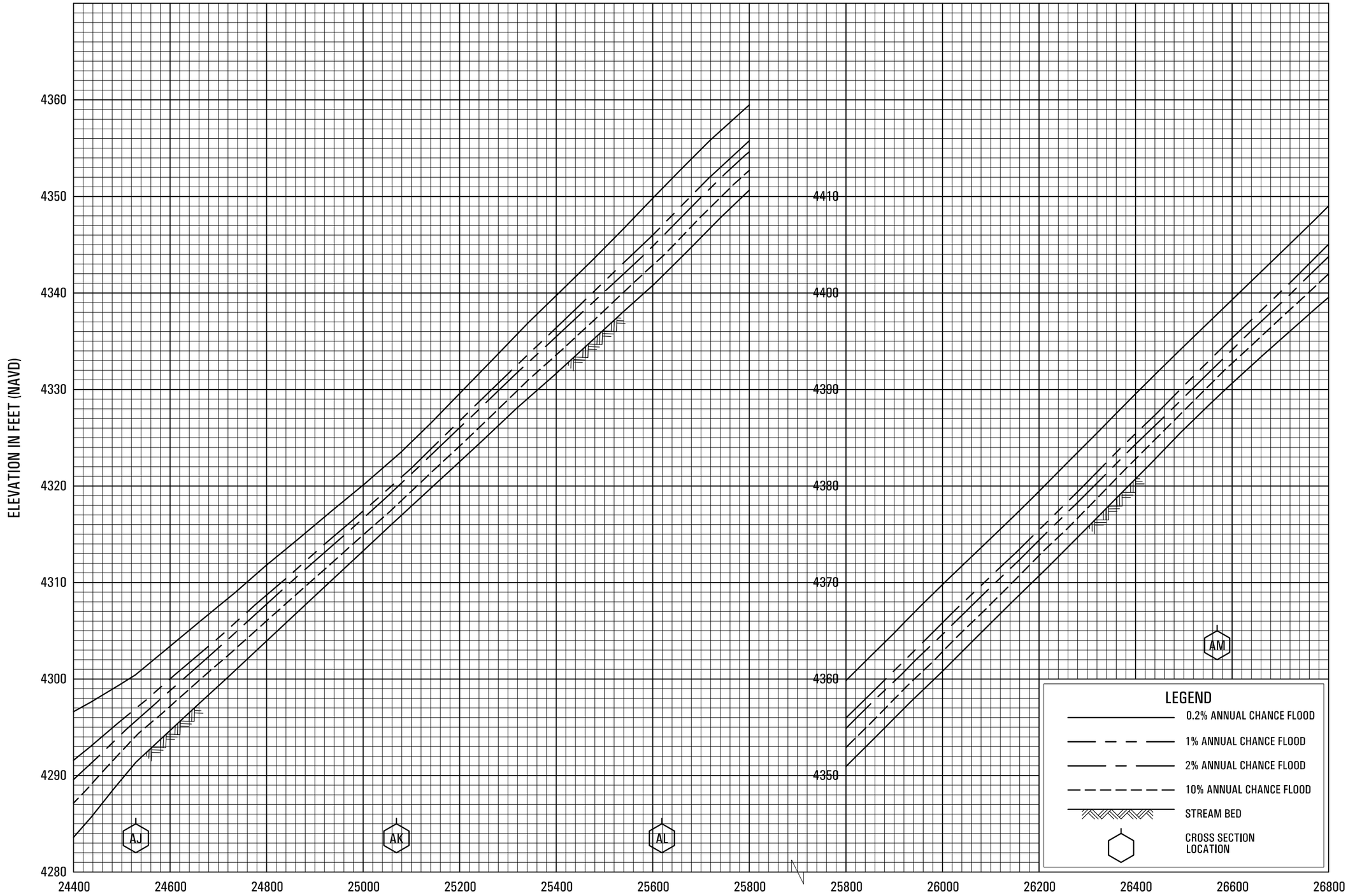
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

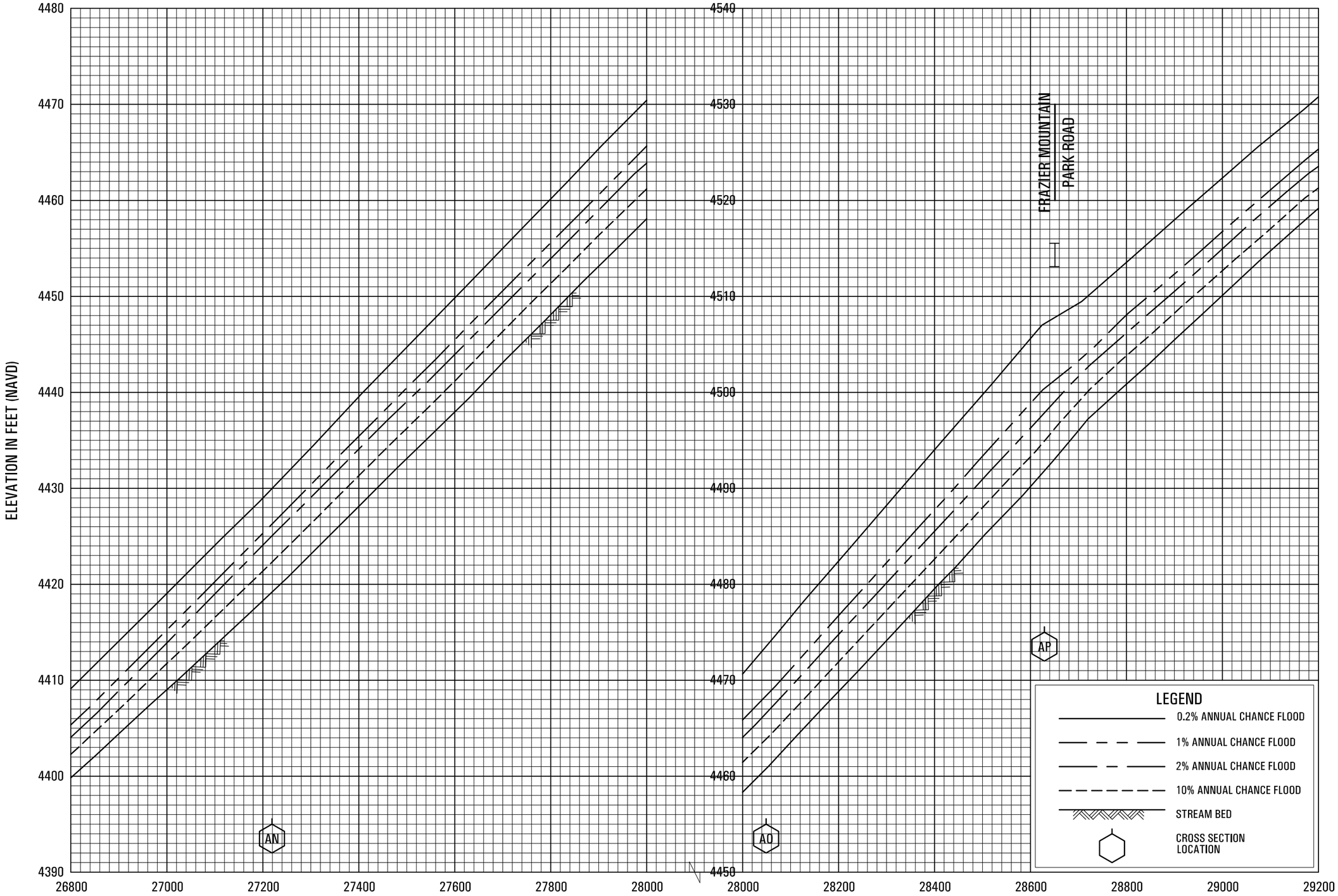
CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

52P



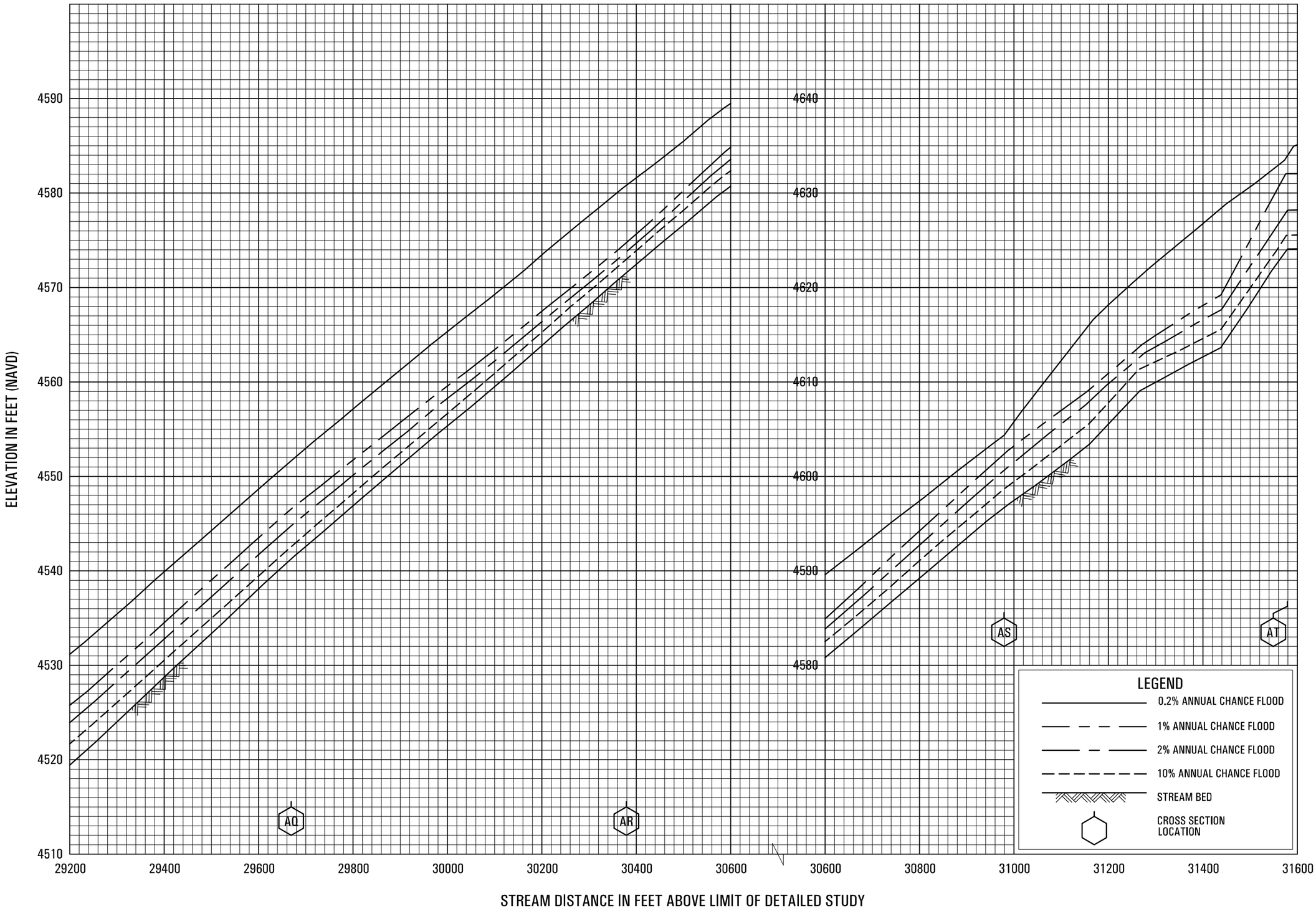
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



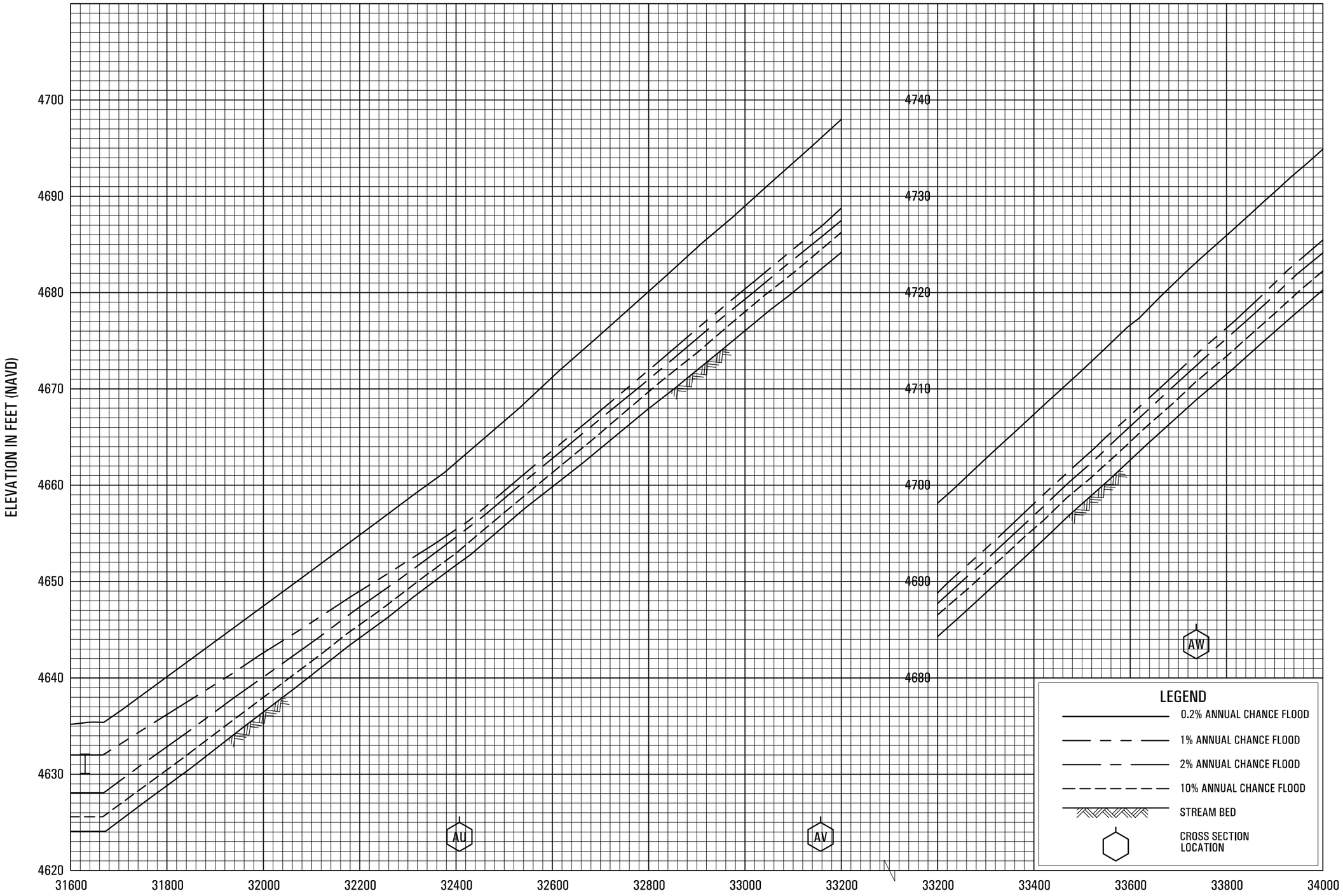
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



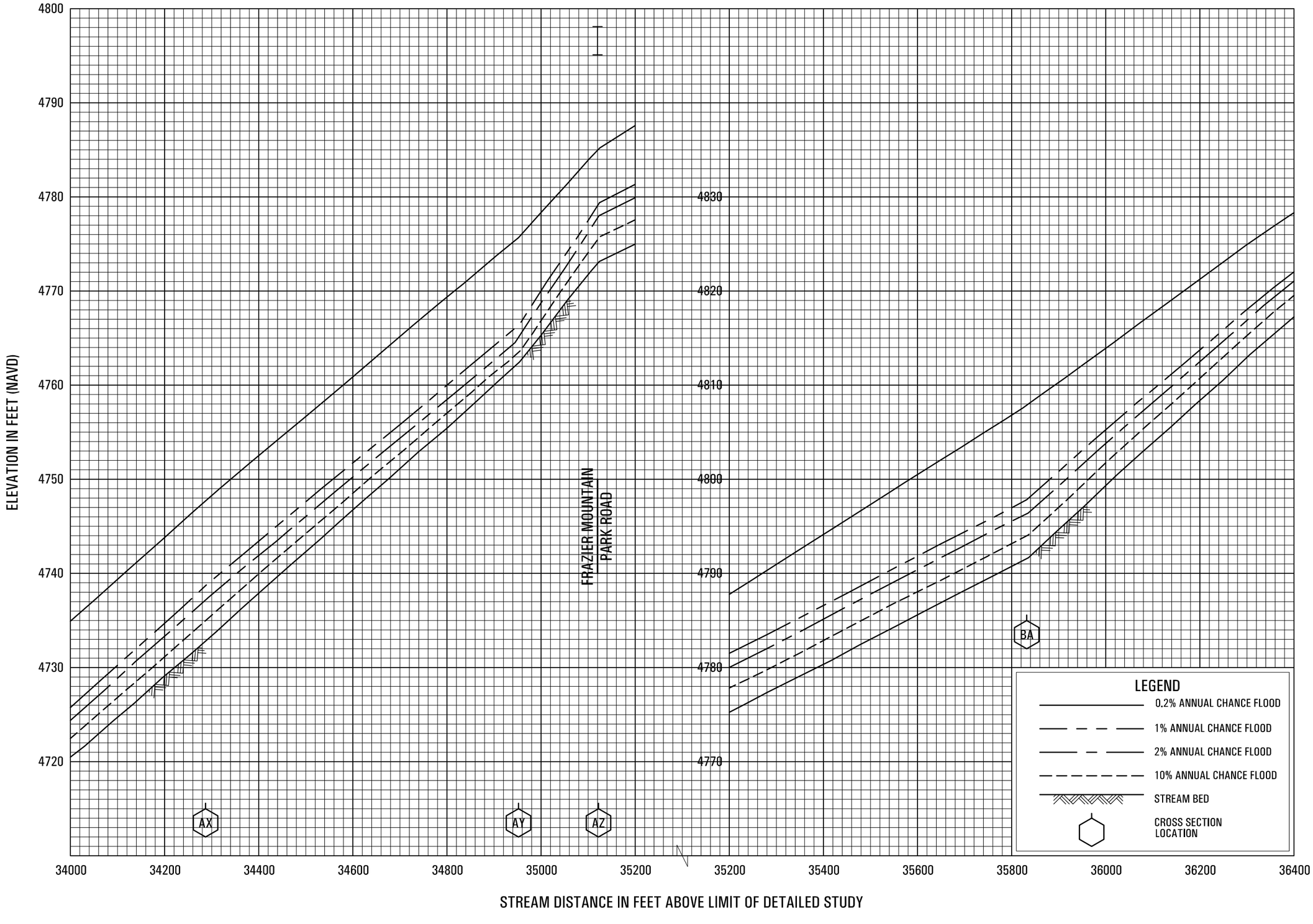
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



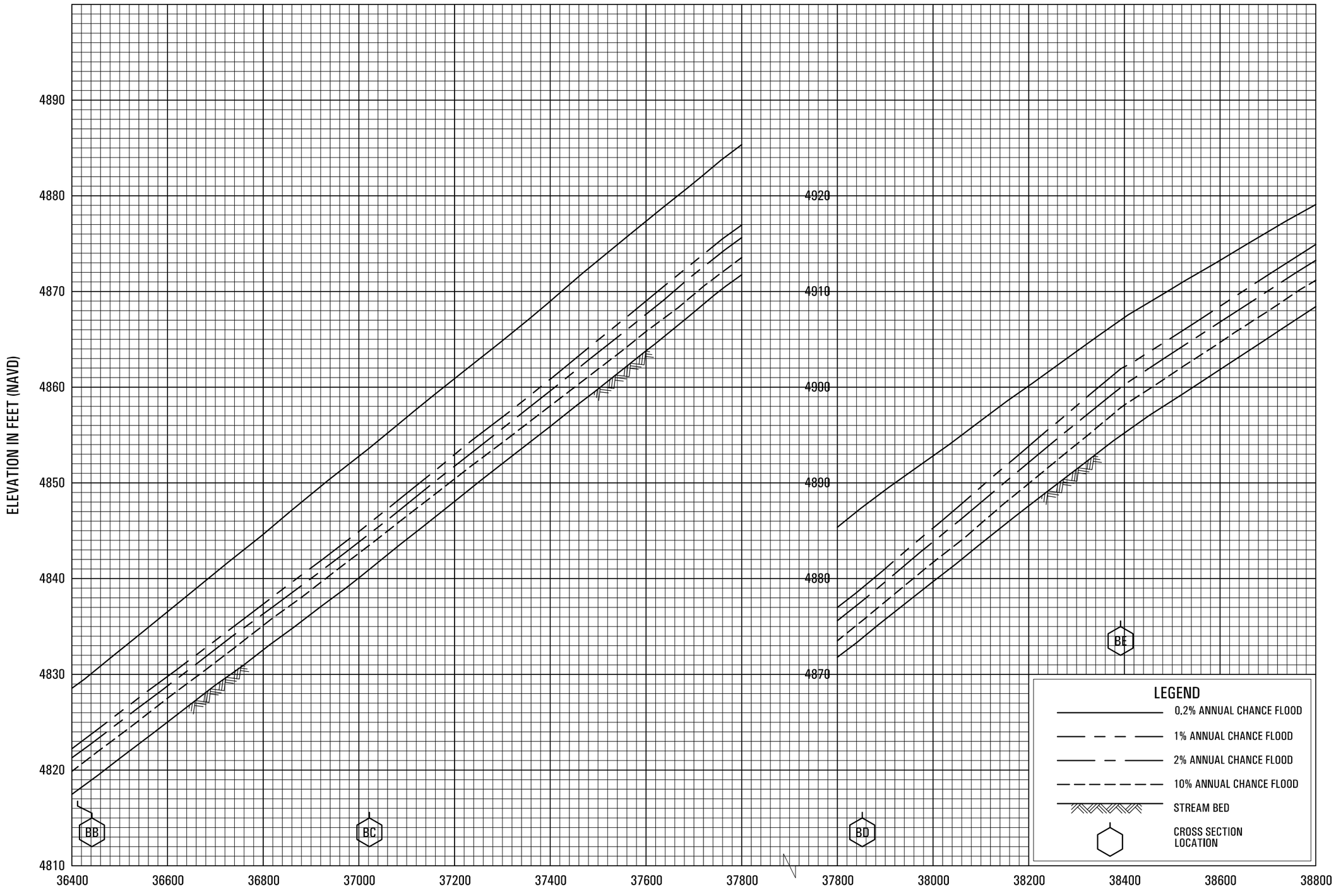
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



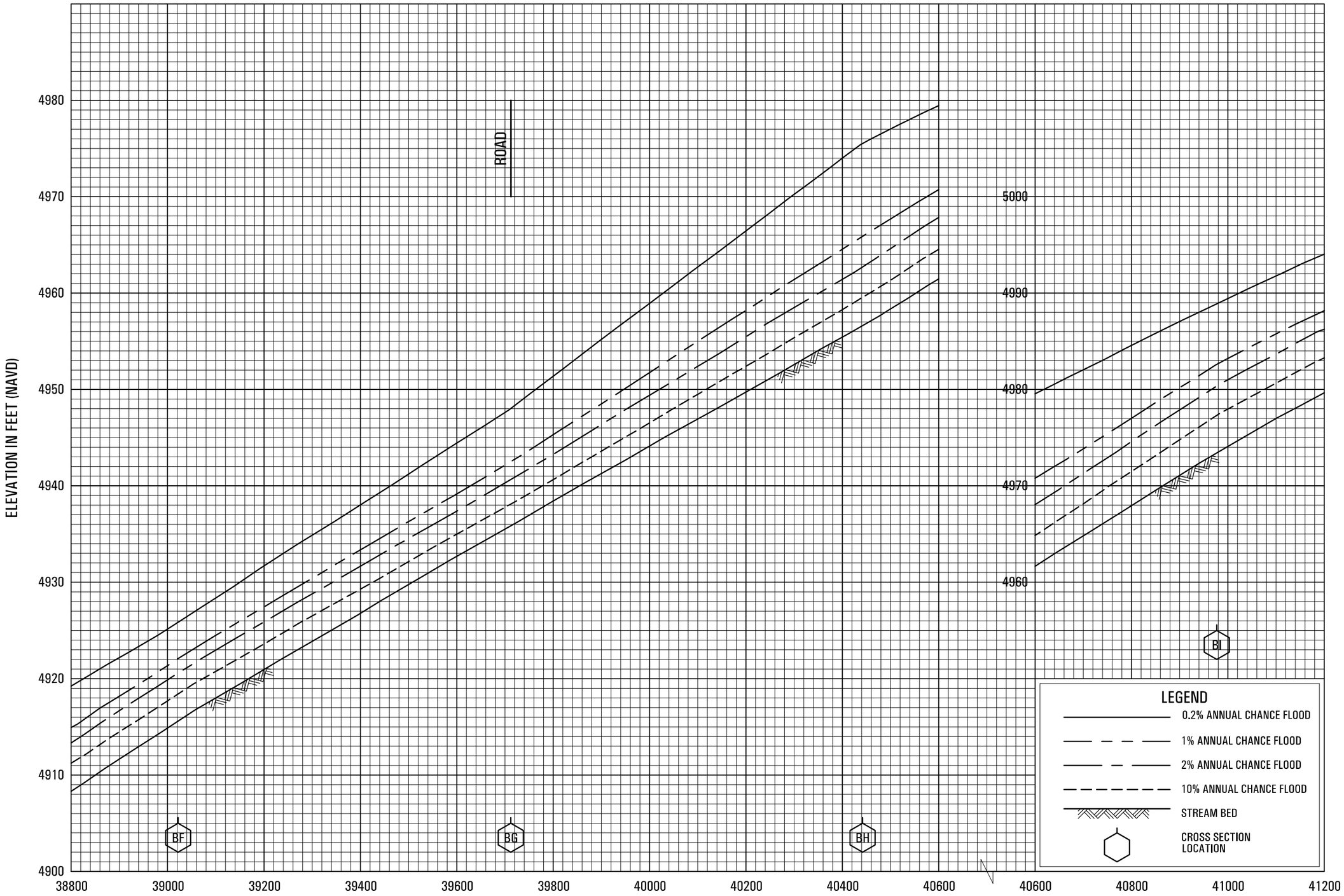
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



ELEVATION IN FEET (NAVD)

STREAM DISTANCE IN FEET ABOVE LIMIT OF DETAILED STUDY

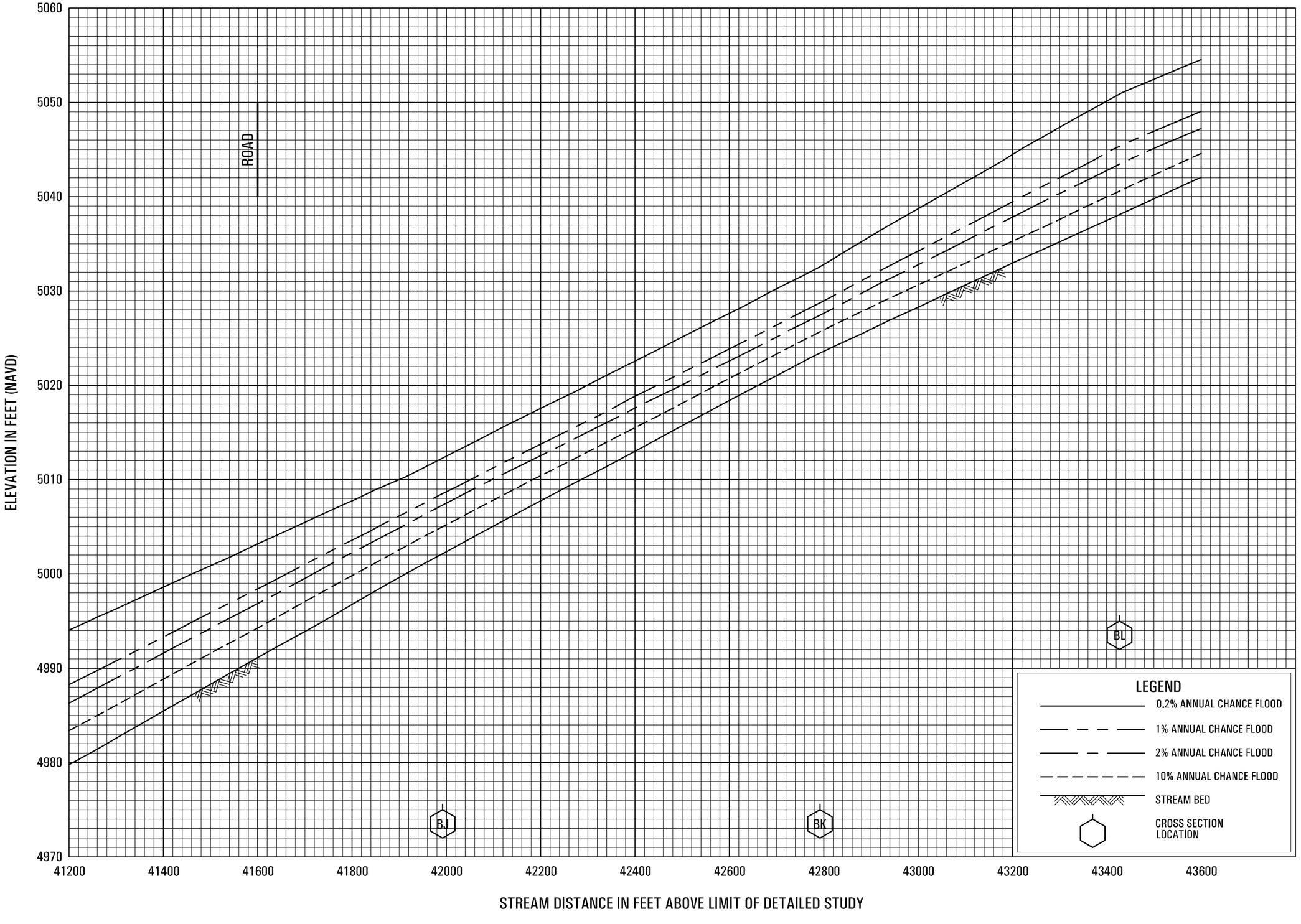
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

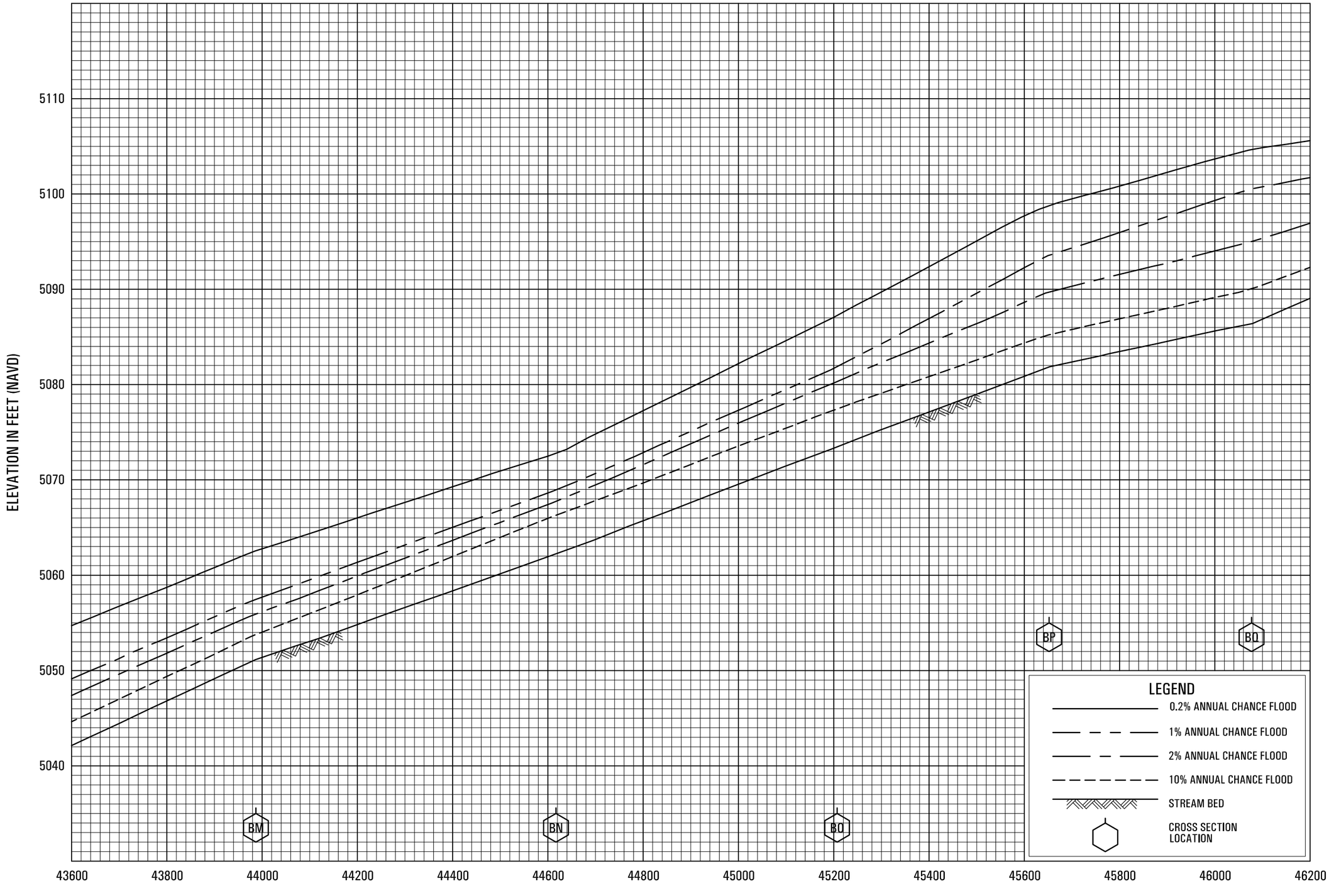
CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

59P



FLOOD PROFILES

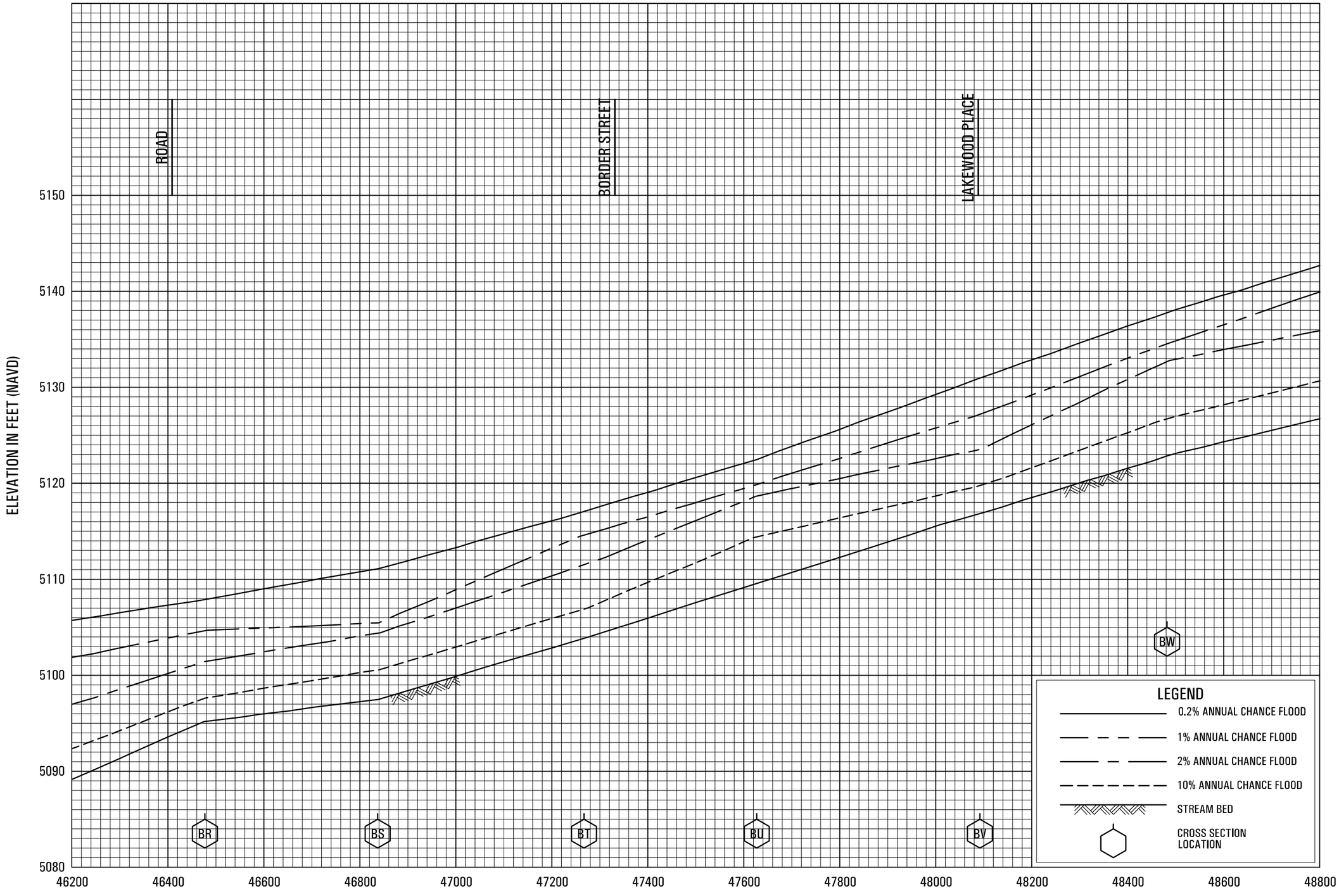
CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

60P



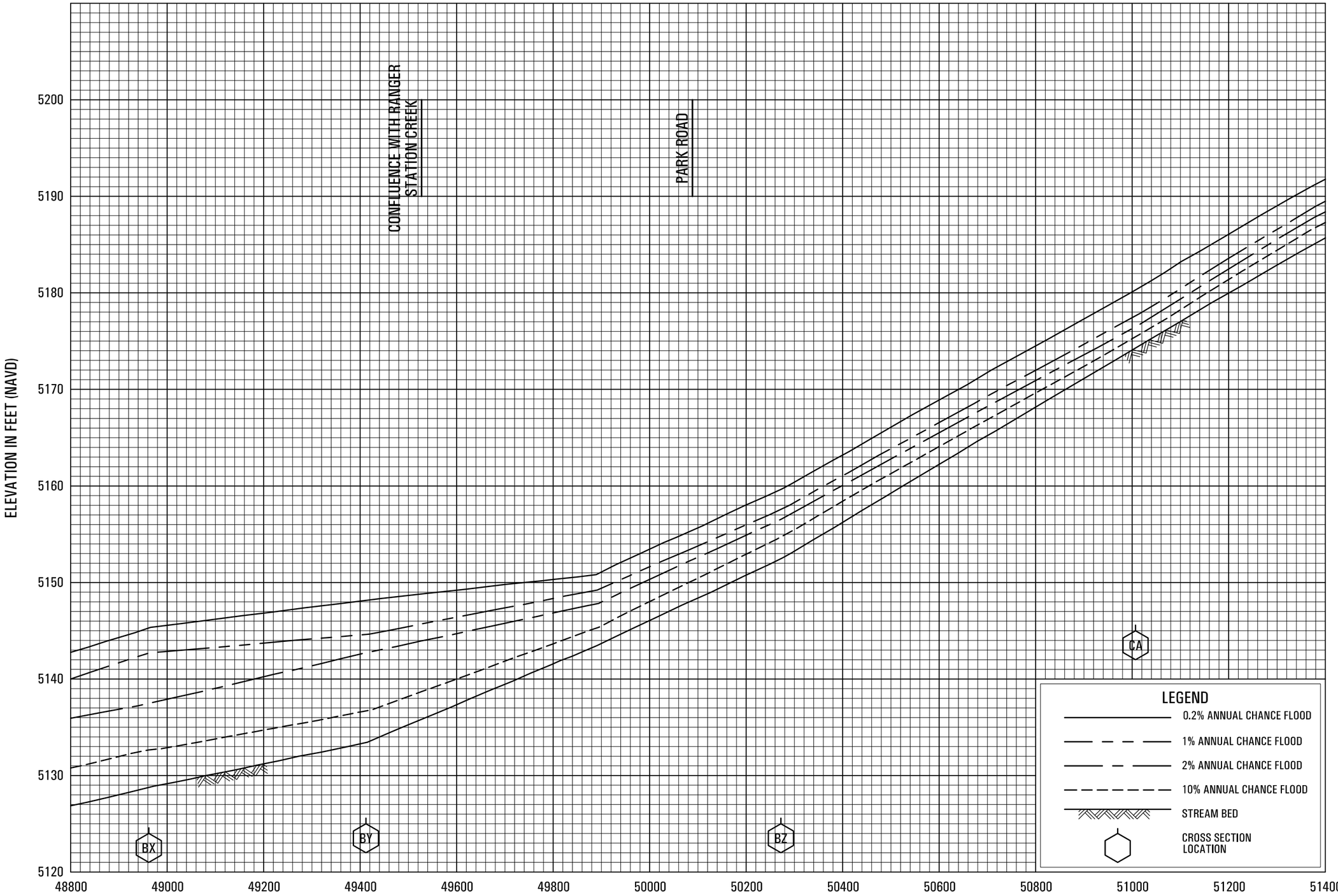
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

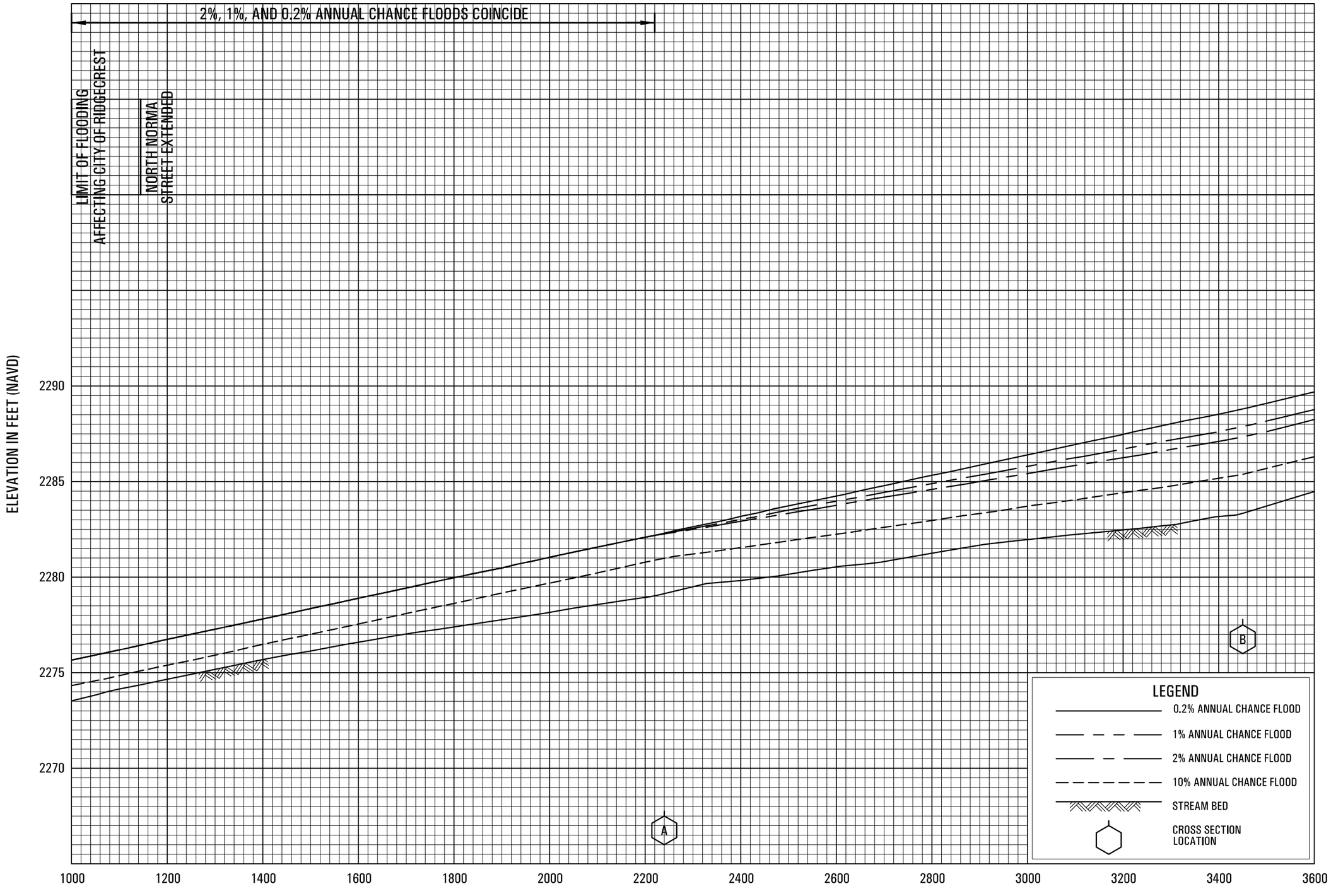
FLOOD PROFILES

CUDDY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

EL PASO WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

64P

FLOOD PROFILES

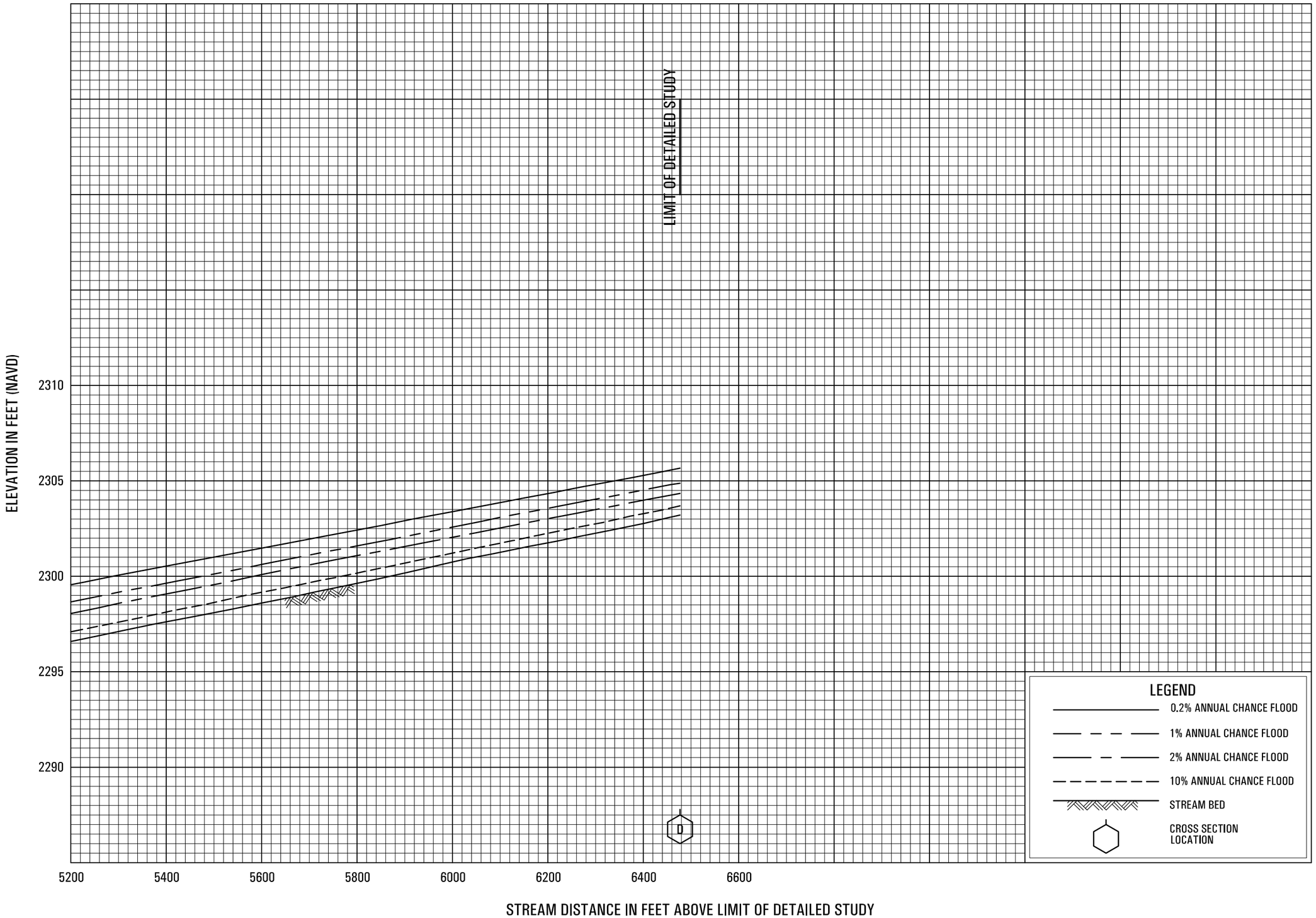
EL PASO WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

65P



FLOOD PROFILES

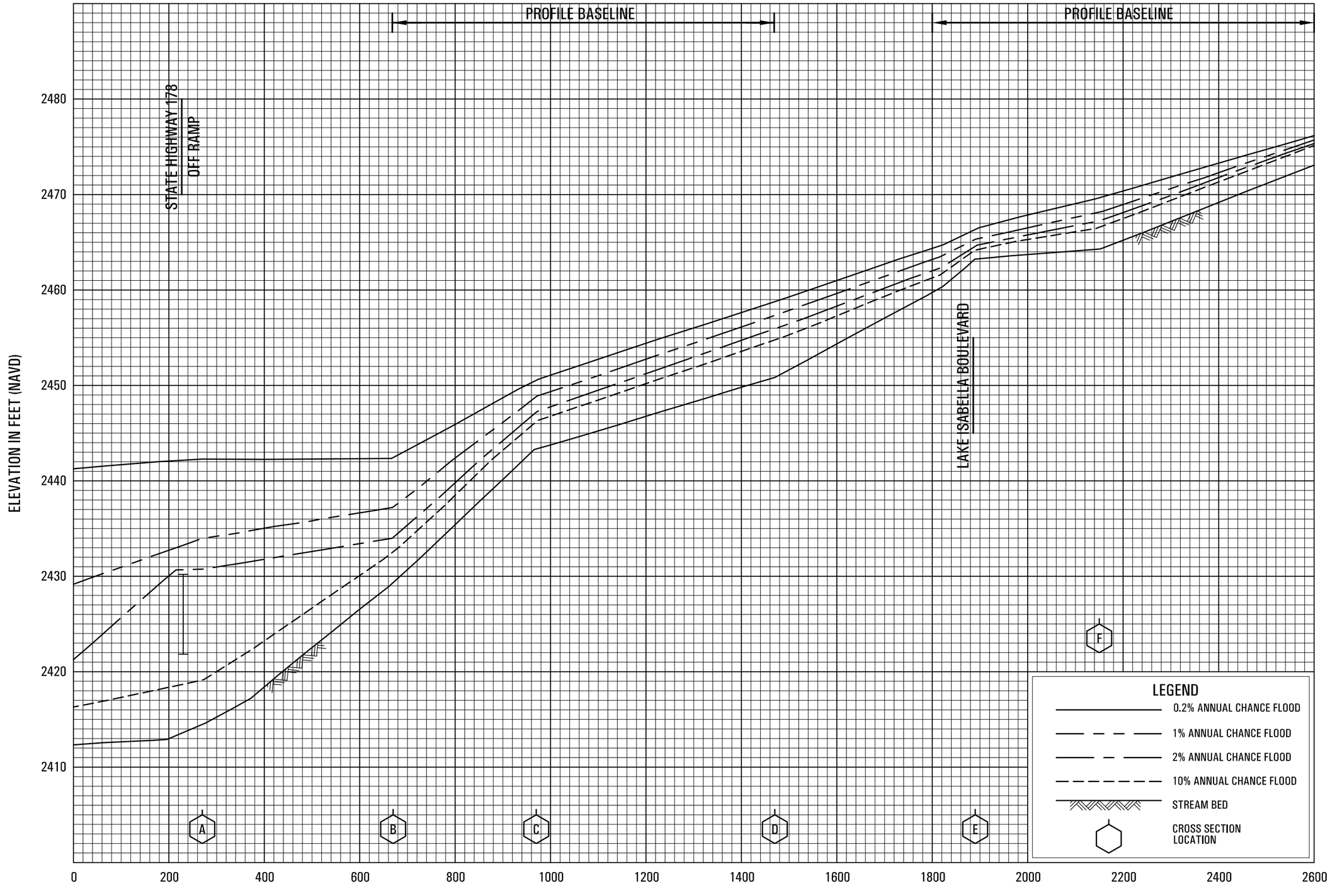
EL PASO WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

66P



FLOOD PROFILES

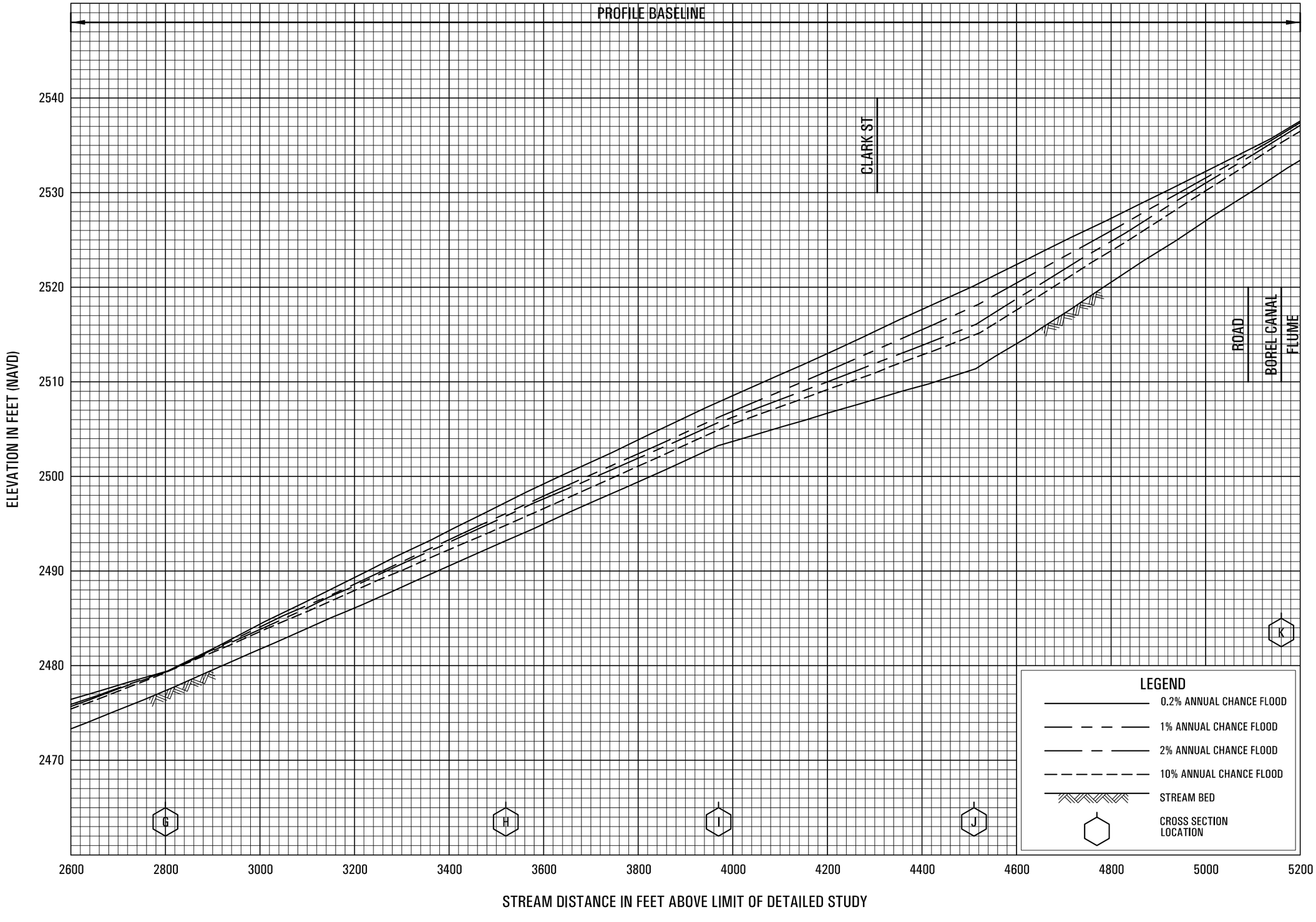
ERSKINE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

67P



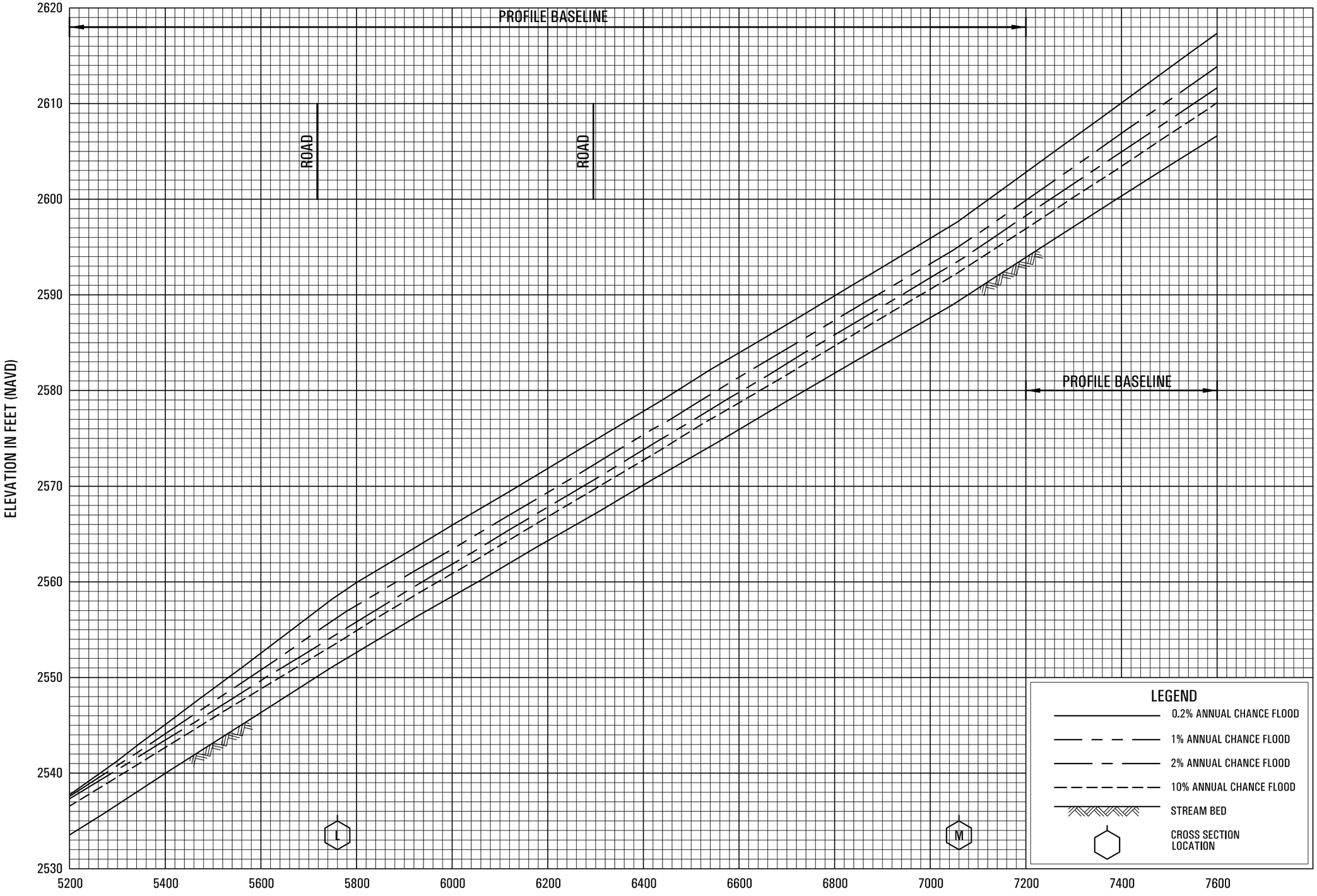
FLOOD PROFILES

ERSKINE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

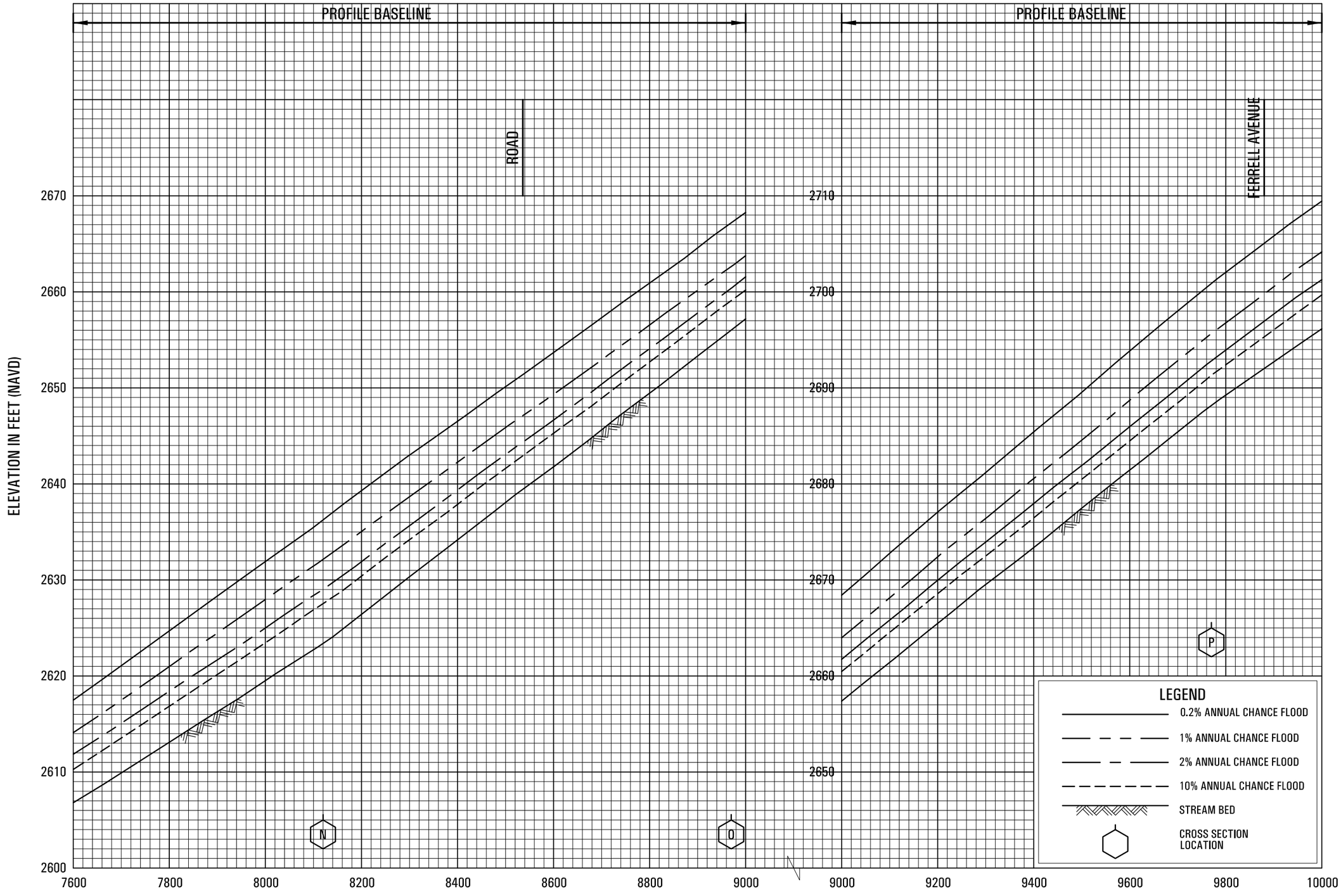
ERSKINE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

69P



FLOOD PROFILES

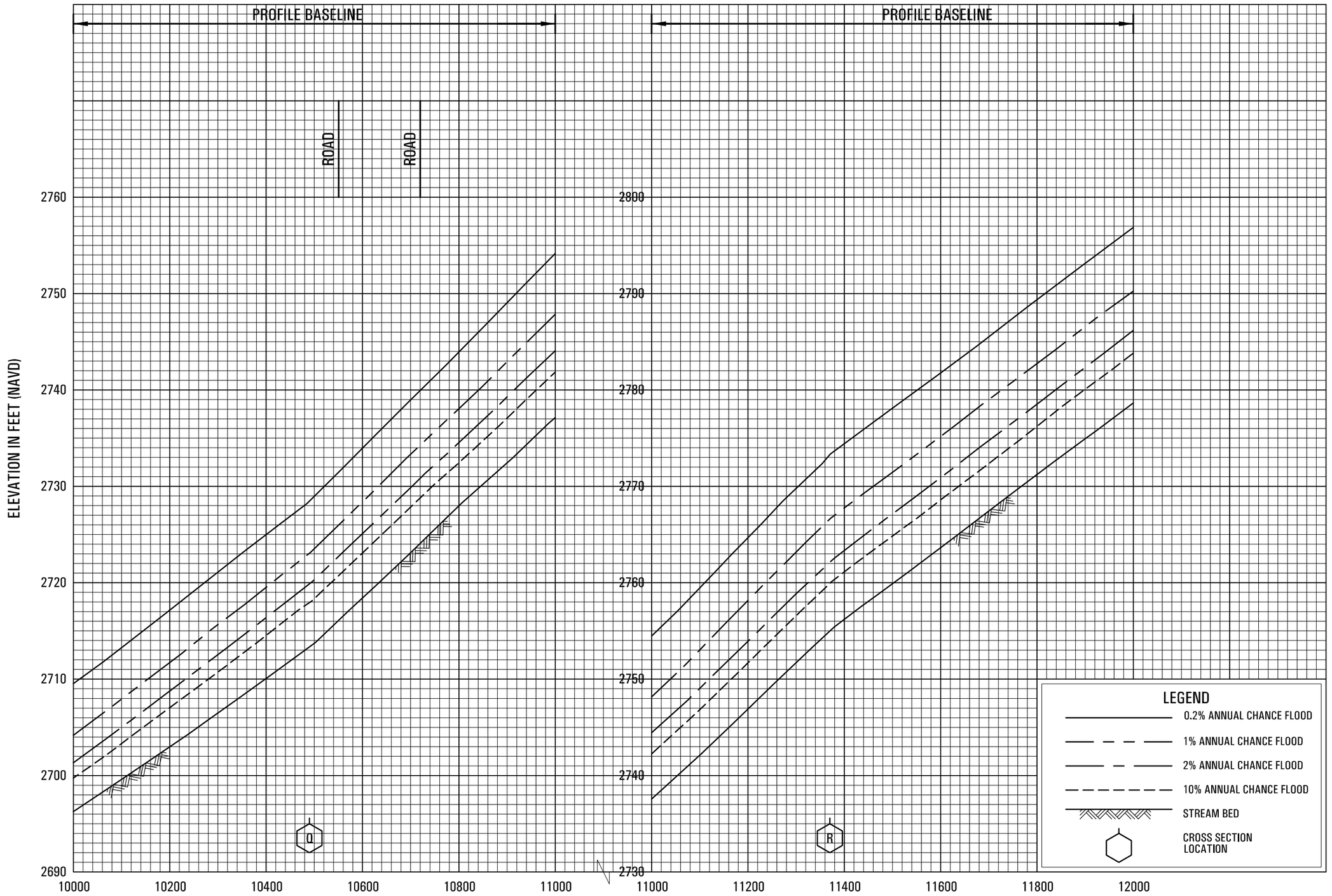
ERSKINE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

70P



FLOOD PROFILES

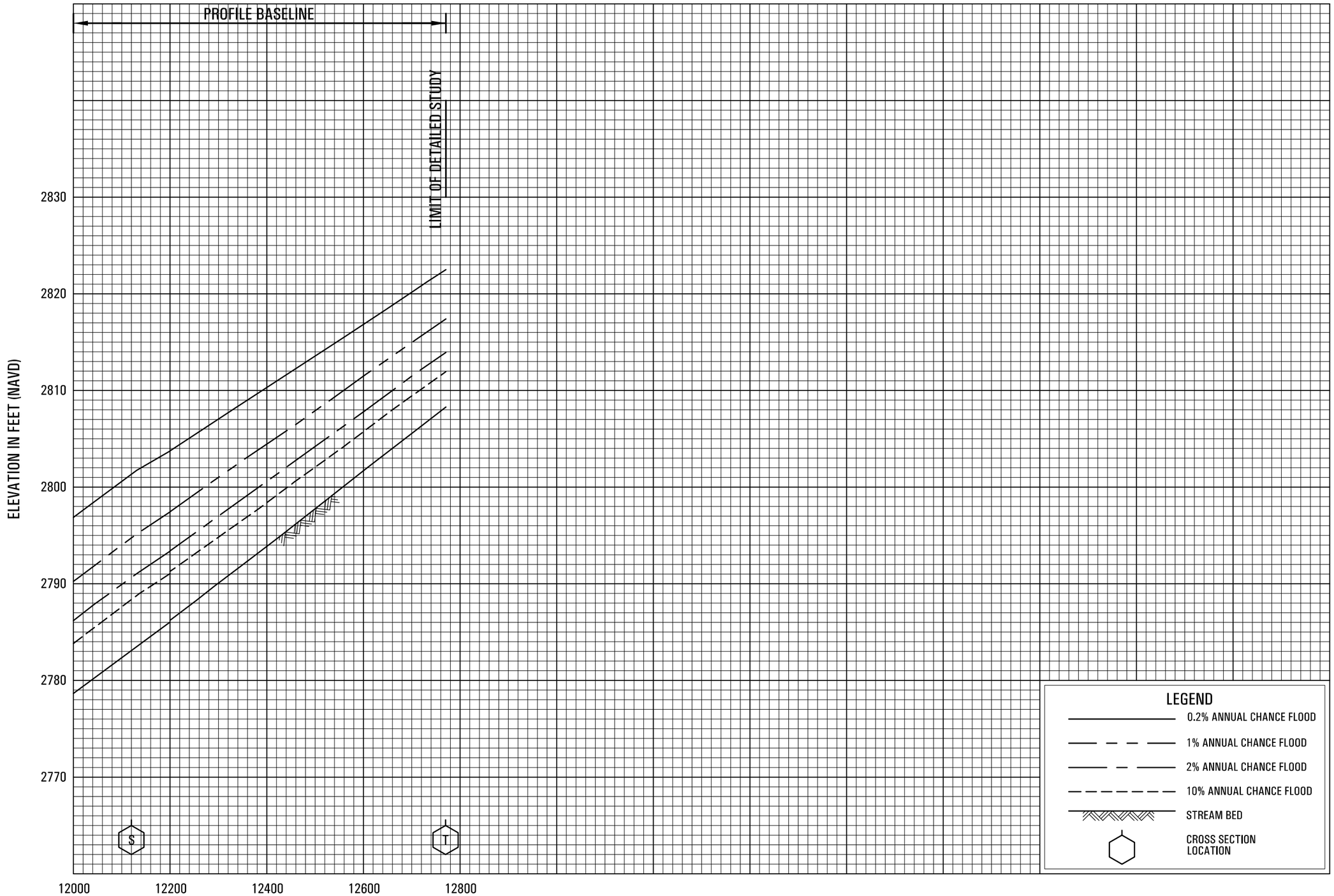
ERSKINE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

71P



FLOOD PROFILES

ERSKINE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

72P