

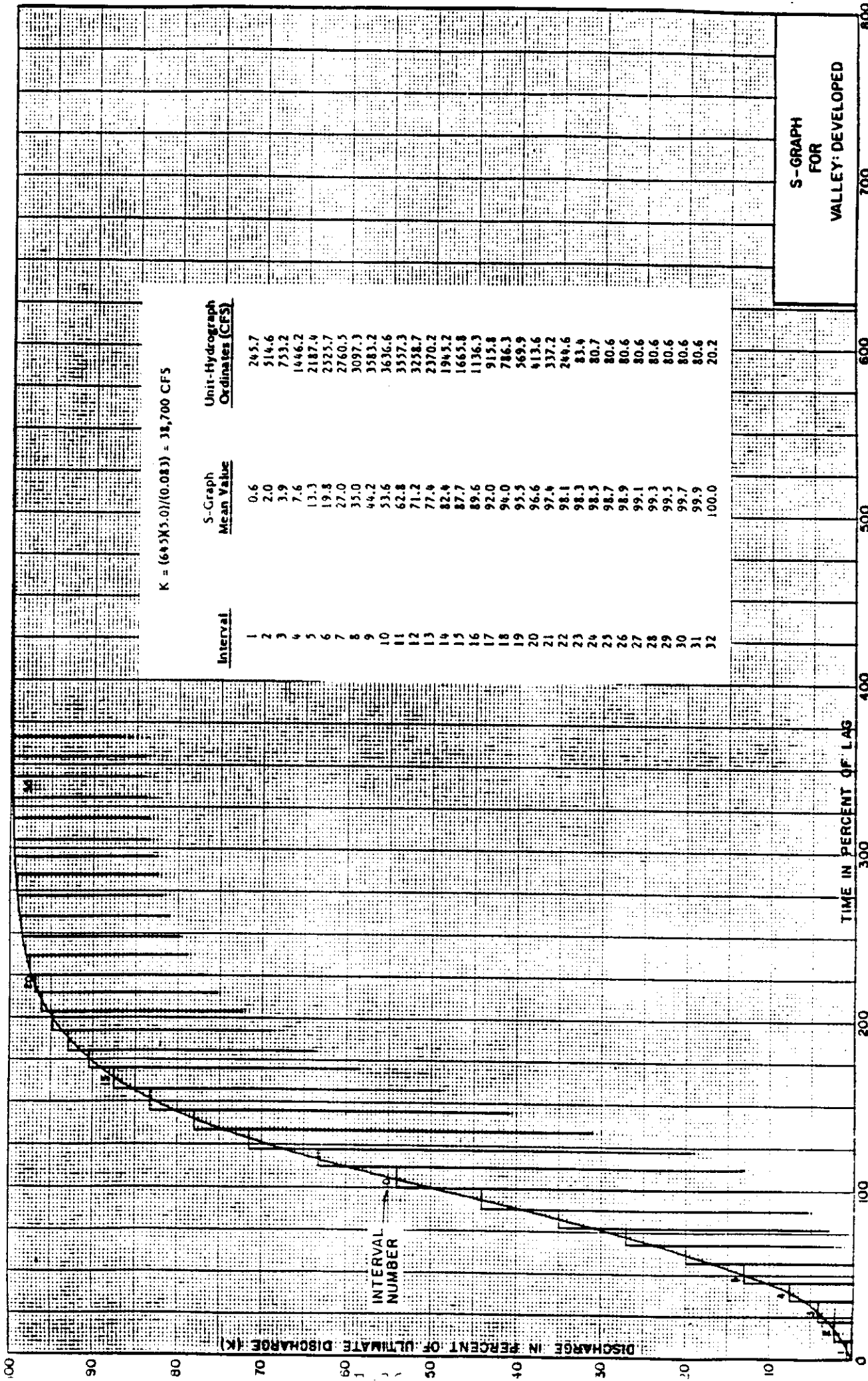
**WATERSHED HYDROLOGY
FOR
SANITARY SURVEYS AND
WATERSHED MANAGEMENT**

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Abstract

**Watershed hydrology for sanitary surveys and watershed management,
Invited Presentation, Stormwater Management and Sanitary Surveys
Conference. Presented by Woodward-Clyde Consultants, Ontario, California,
June 9, 1994.**



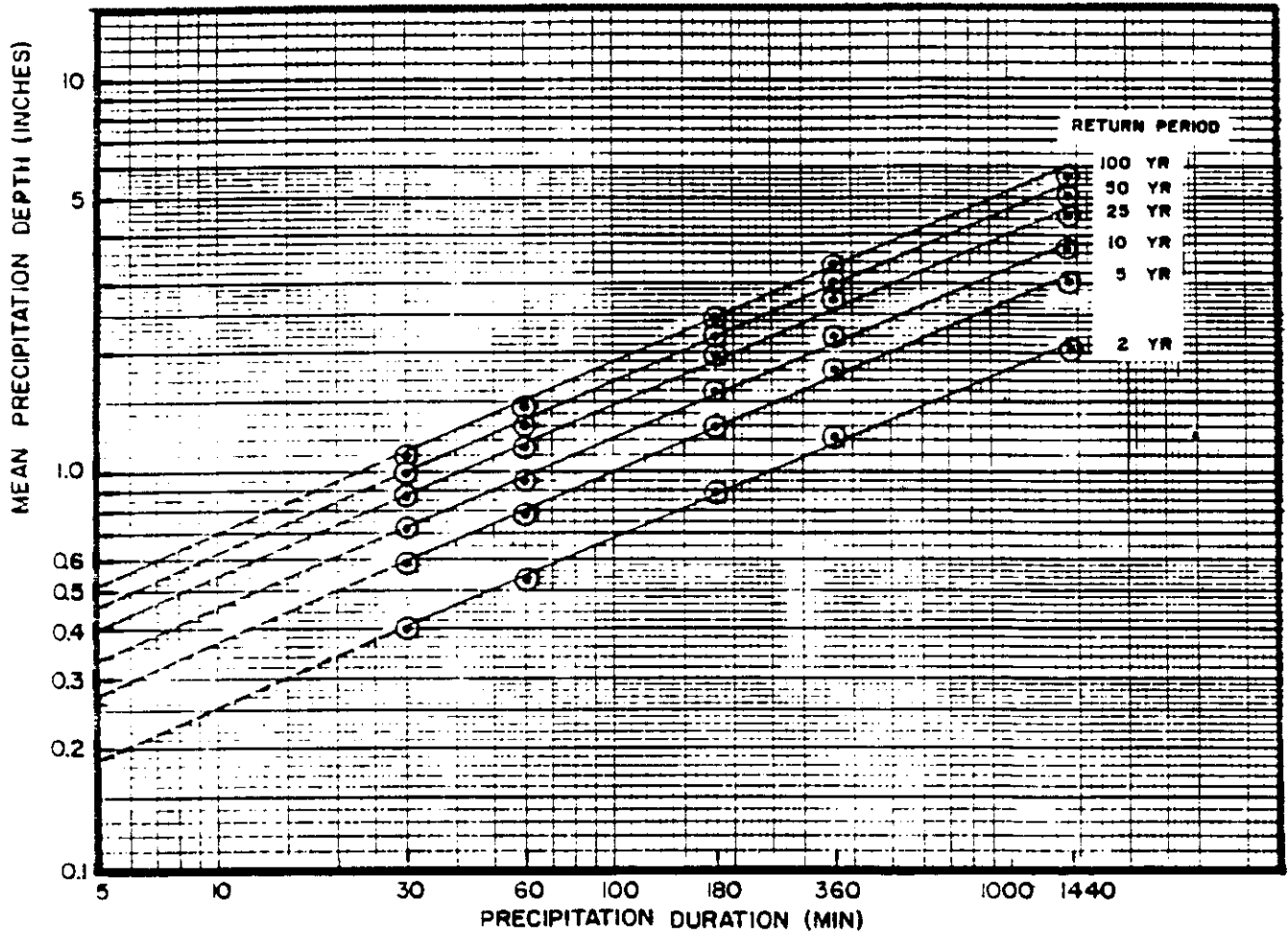
$K = (64.5K5.0)/(0.083) = 38,700 \text{ CFS}$

Interval	S-Graph Mean Value	Unit-Hydrograph Ordinates (CFS)
1	0.6	245.7
2	2.0	514.6
3	3.9	753.2
4	7.6	1446.2
5	13.3	2187.4
6	19.8	2523.7
7	27.0	2760.5
8	33.0	3097.3
9	44.2	3583.2
10	53.6	3636.6
11	62.8	3537.3
12	71.2	3238.7
13	77.6	2370.2
14	82.4	1943.2
15	87.7	1663.8
16	89.6	1136.3
17	92.0	915.8
18	94.0	786.3
19	95.5	569.9
20	96.6	413.6
21	97.4	337.2
22	98.1	244.6
23	98.3	83.4
24	98.5	80.7
25	98.7	80.6
26	98.9	80.6
27	99.1	80.6
28	99.3	80.6
29	99.5	80.6
30	99.7	80.6
31	99.9	80.6
32	100.0	20.2

S-GRAPH FOR VALLEY DEVELOPED

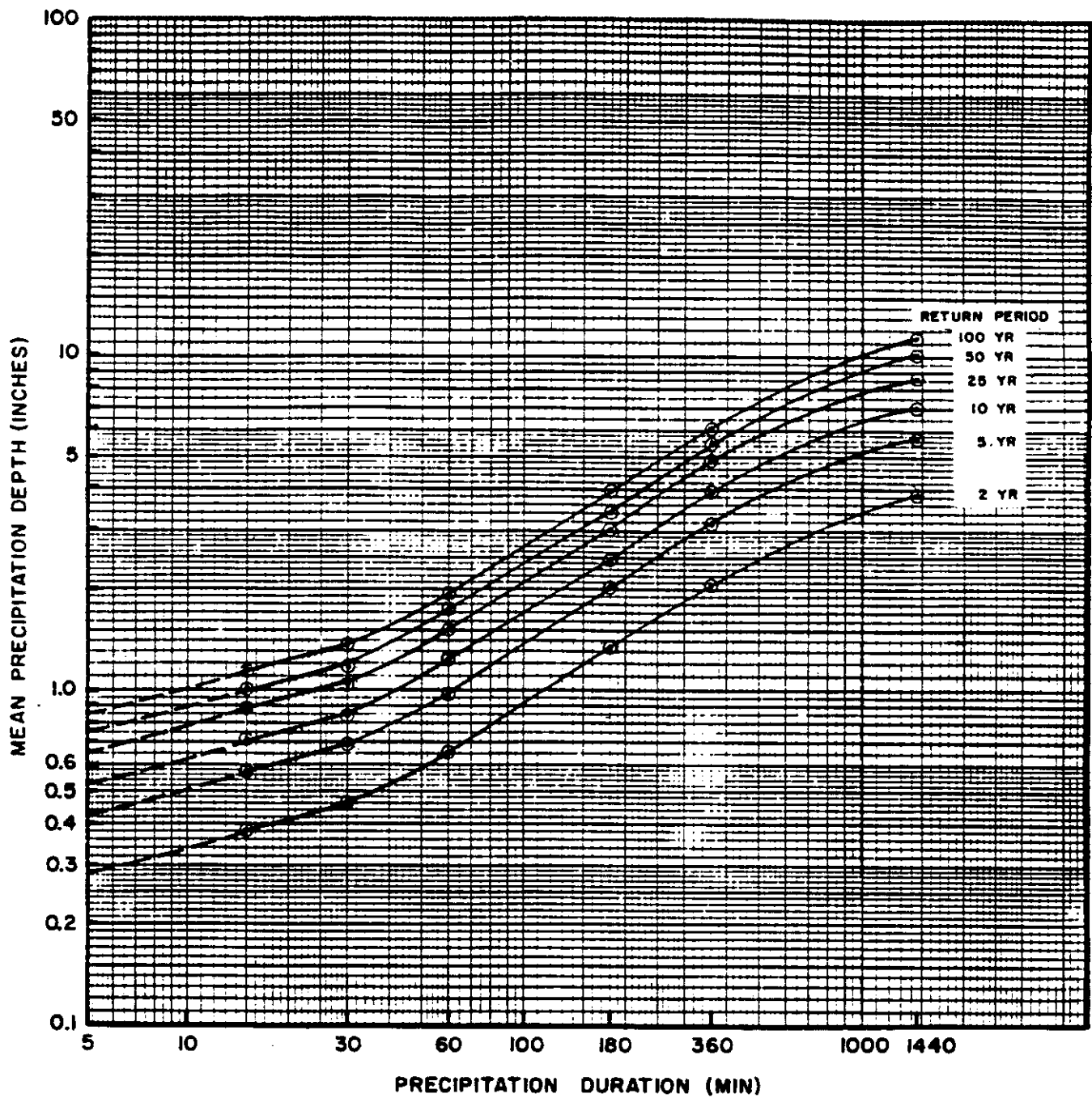
Regression Equations: $D(t) = at^b$
 (D= Depth in inches, t= duration in minutes)

Return Frequency (years)	a	b
2	0.095	0.426
5	0.131	0.438
10	0.170	0.427
25	0.200	0.434
50	0.225	0.434
100	0.259	0.427



ORANGE COUNTY
 HYDROLOGY MANUAL

MEAN PRECIPITATION
 DEPTHS FOR
 NONMOUNTAINOUS AREAS



REF. NOVEMBER 1981 STATE
OF CALIF. DWR SANTIAGO
PEAK #RC156

ORANGE COUNTY
HYDROLOGY MANUAL

MEAN PRECIPITATION
DEPTHS FOR
MOUNTAINOUS AREA

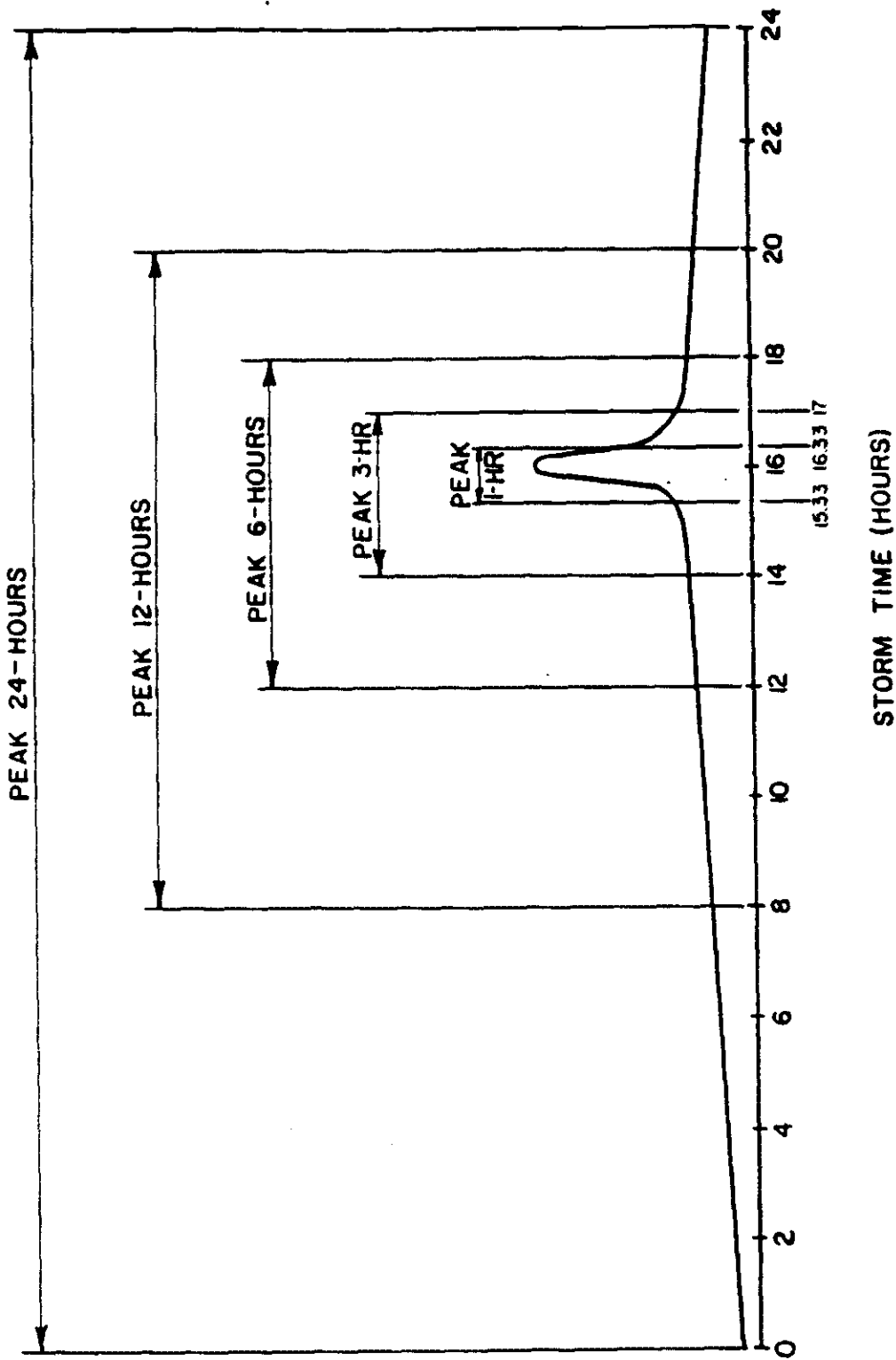
TABLE B.1.
MAXIMUM PRECIPITATION FOR INDICATED DURATION D-DAYS (INCHES)

BELOW 2000' ELEVATION

Return Period In Yrs.	1D	2D	3D	4D	5D	6D	8D	10D	15D	20D	30D	60D	365D
2	2.05	2.76	3.08	3.21	3.36	3.61	3.94	4.24	4.73	5.21	6.20	8.44	13.60
5	3.03	4.24	4.79	5.01	5.23	5.59	6.05	6.47	7.20	7.83	9.18	12.69	19.13
10	3.68	5.23	5.92	6.22	6.50	6.94	7.44	7.94	8.79	9.49	11.07	15.48	22.56
20	4.31	6.17	6.99	7.38	7.71	8.22	8.74	9.31	10.26	11.02	12.80	18.08	25.69
25	4.49	6.46	7.33	7.75	8.09	8.63	9.15	9.74	10.72	11.49	13.34	18.90	26.66
40	4.89	7.06	8.03	8.50	8.88	9.47	9.98	10.62	10.95	12.46	14.44	20.58	28.63
50	5.07	7.35	8.35	8.86	9.25	9.86	10.38	11.03	12.11	12.91	14.95	21.37	29.55
100	5.63	8.22	9.35	9.95	10.38	11.07	11.57	12.29	13.45	14.28	16.51	23.77	32.32

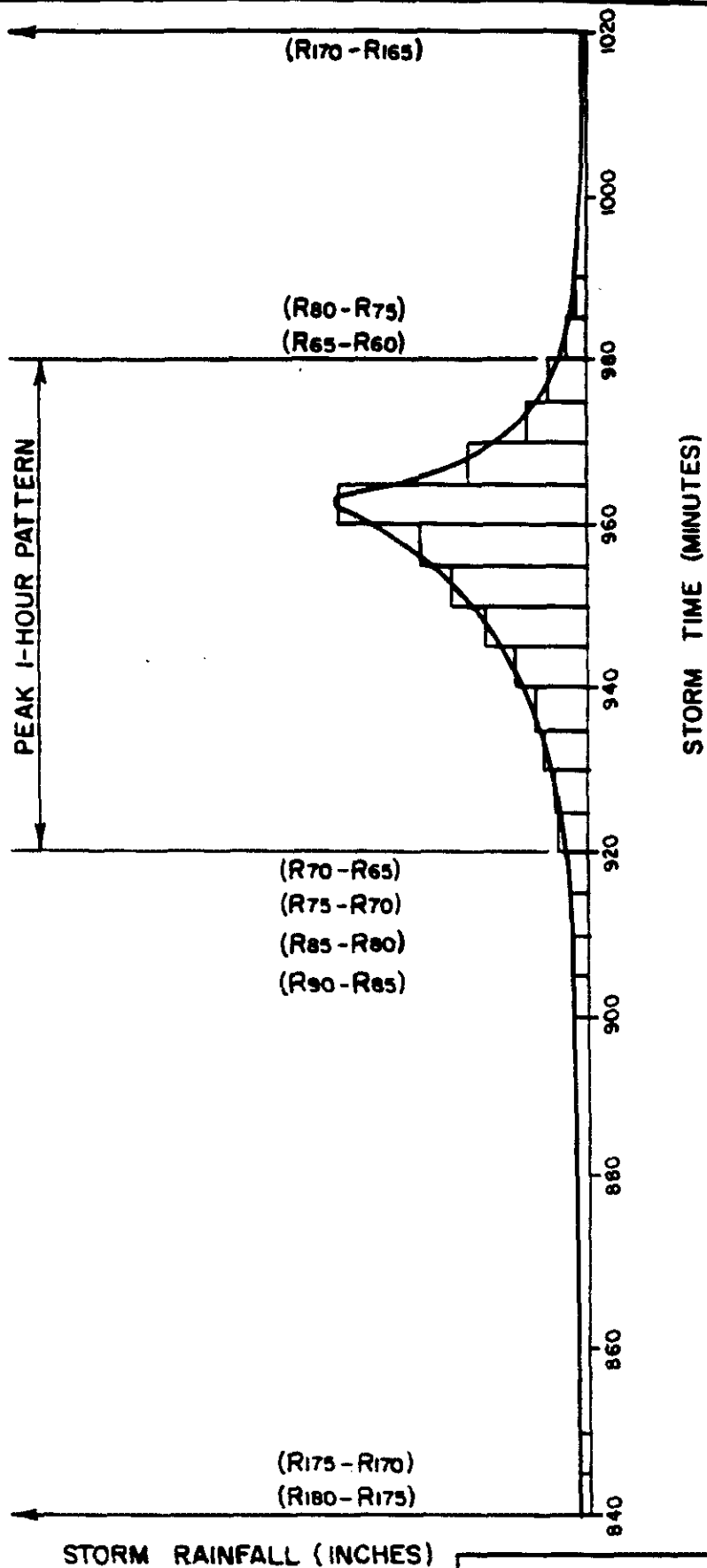
ABOVE 2000' ELEVATION

Return Period In Yrs.	1D	2D	3D	4D	5D	6D	8D	10D	15D	20D	30D	60D	365D
2	3.81	5.33	5.89	6.22	6.66	7.17	7.88	8.38	8.97	9.62	11.29	15.91	26.05
5	5.71	8.25	9.23	9.75	10.40	11.12	12.17	12.81	13.72	14.51	16.73	23.74	36.88
10	7.05	10.26	11.58	12.23	12.98	13.80	15.02	15.71	16.83	17.66	20.17	28.69	43.86
20	8.36	12.20	13.85	14.63	15.45	16.35	17.72	18.42	19.74	20.59	23.33	33.25	50.33
25	8.76	12.81	14.58	15.40	16.24	17.16	18.57	19.27	20.65	21.50	24.31	34.66	52.35
40	9.62	14.08	16.08	16.99	17.87	18.82	20.32	21.02	22.53	21.95	26.32	37.56	53.33
50	10.02	14.68	16.79	17.74	18.63	19.61	21.14	21.84	23.41	24.25	27.25	38.91	58.43
100	11.27	16.52	18.98	20.05	20.99	22.01	23.65	24.33	26.09	26.91	30.09	42.99	64.30



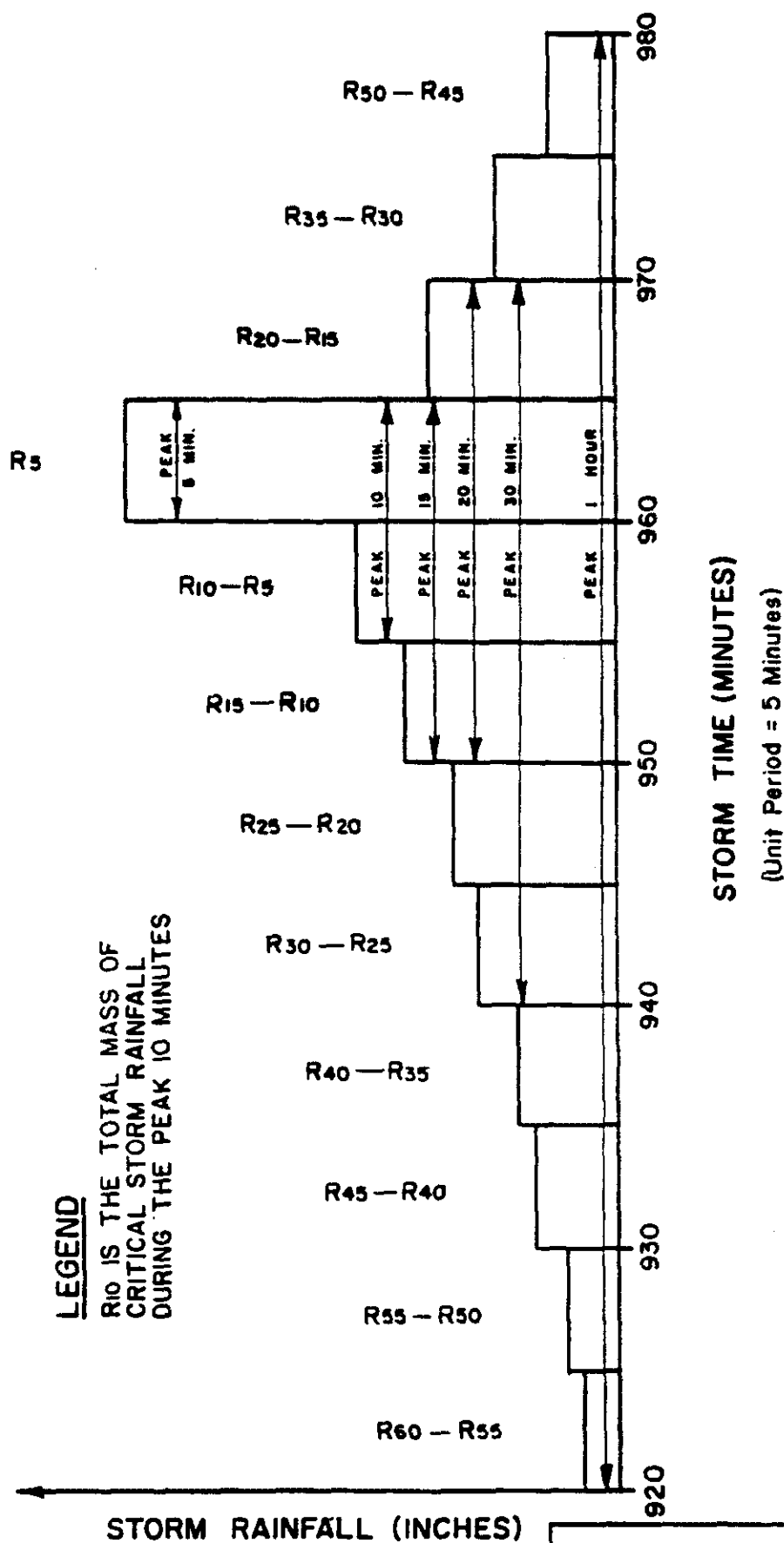
ORANGE COUNTY
HYDROLOGY MANUAL

DESIGN CRITICAL
STORM PEAK
24-HOUR PATTERN



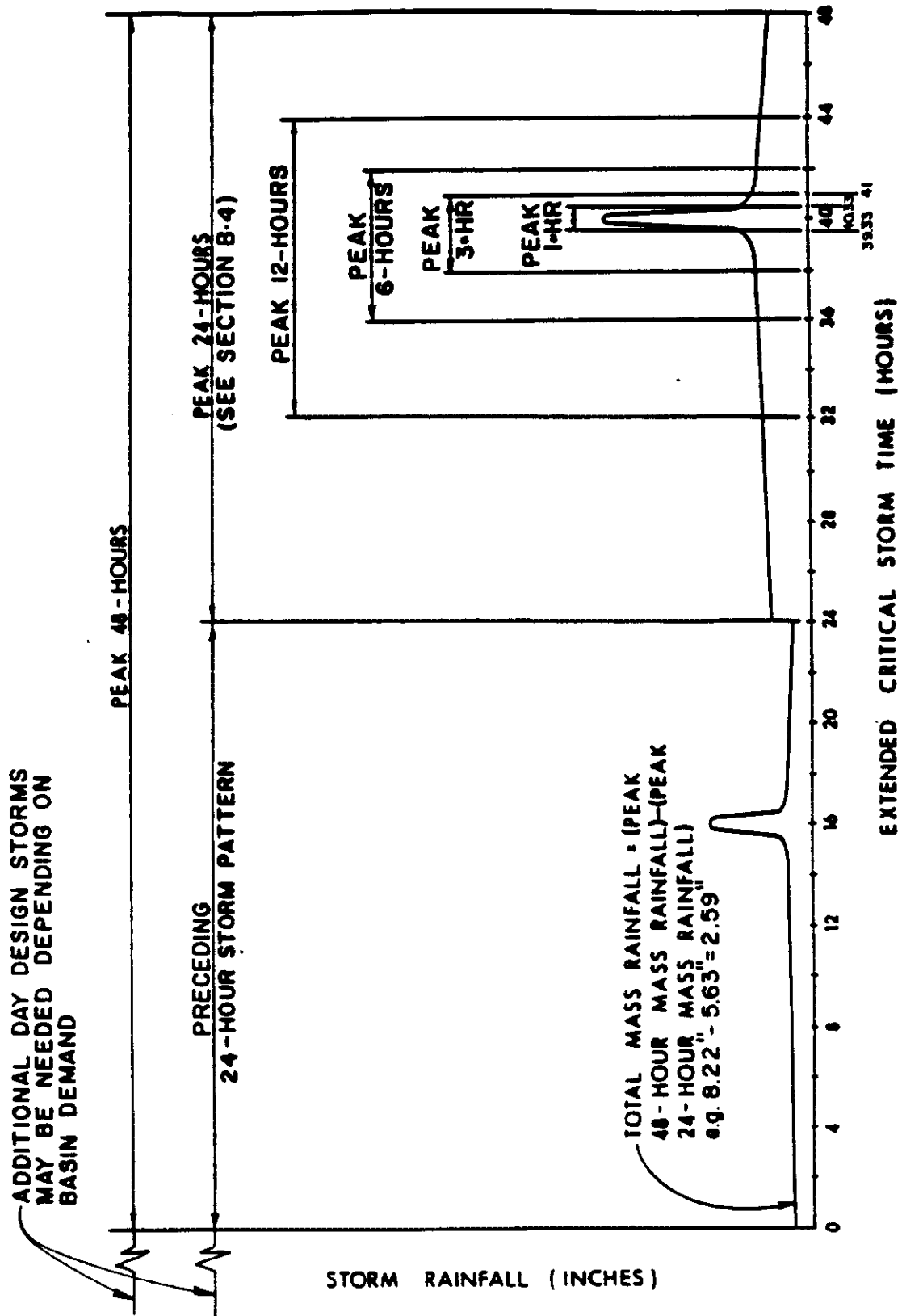
ORANGE COUNTY
HYDROLOGY MANUAL

DESIGN CRITICAL
STORM PEAK
3-HOUR PATTERN

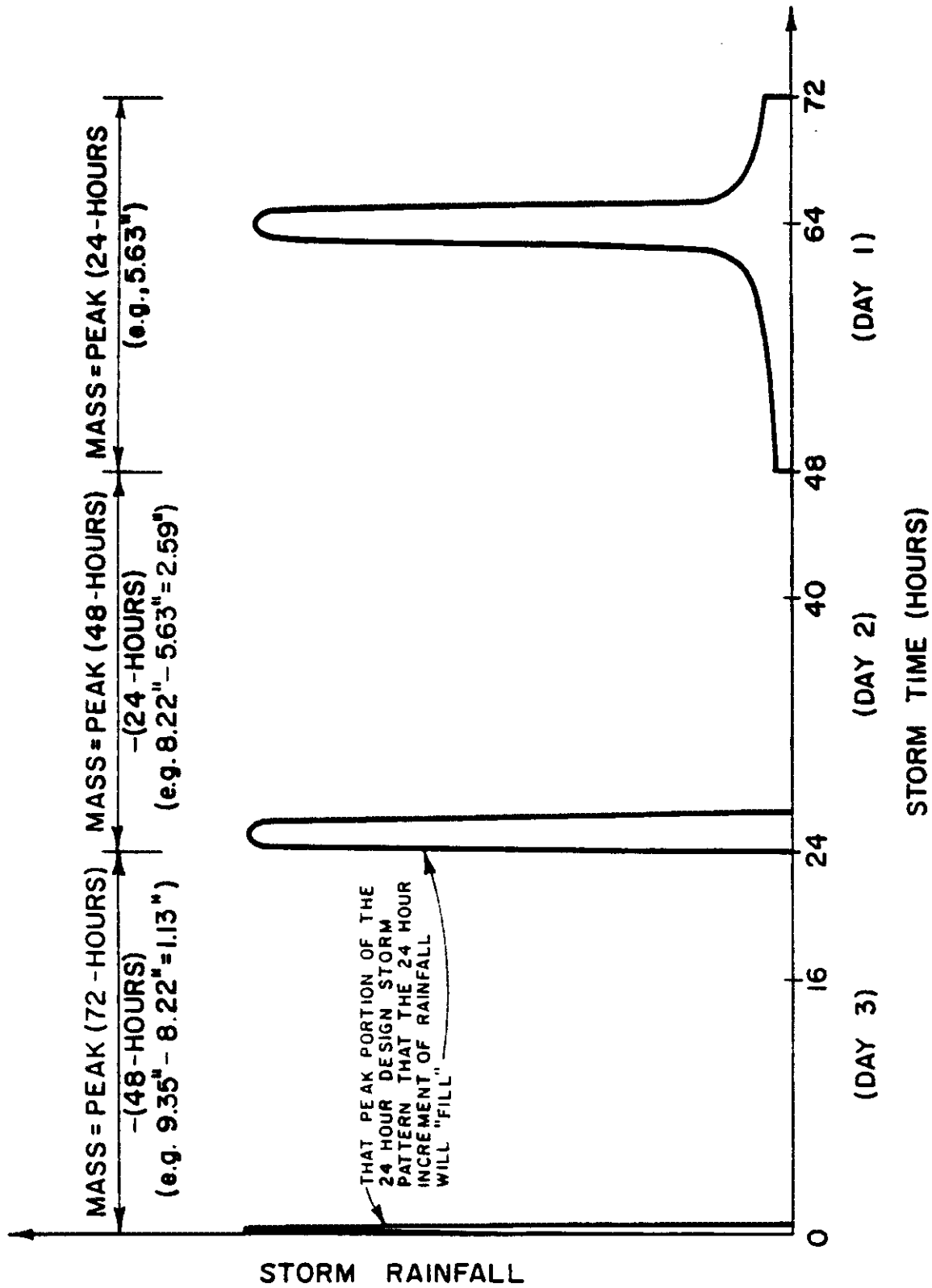


ORANGE COUNTY
 HYDROLOGY MANUAL

DESIGN CRITICAL
 STORM PEAK
 1-HOUR PATTERN



(SEE TABLE B.1 FOR LONG DURATION PRECIPITATION DATA)



IN NON-MOUNTAINOUS AREAS, 100-YEAR 1-DAY DEPTH = 5.63", 2-DAY = 8.22", 3-DAY = 9.35" (SEE TABLE B.1)