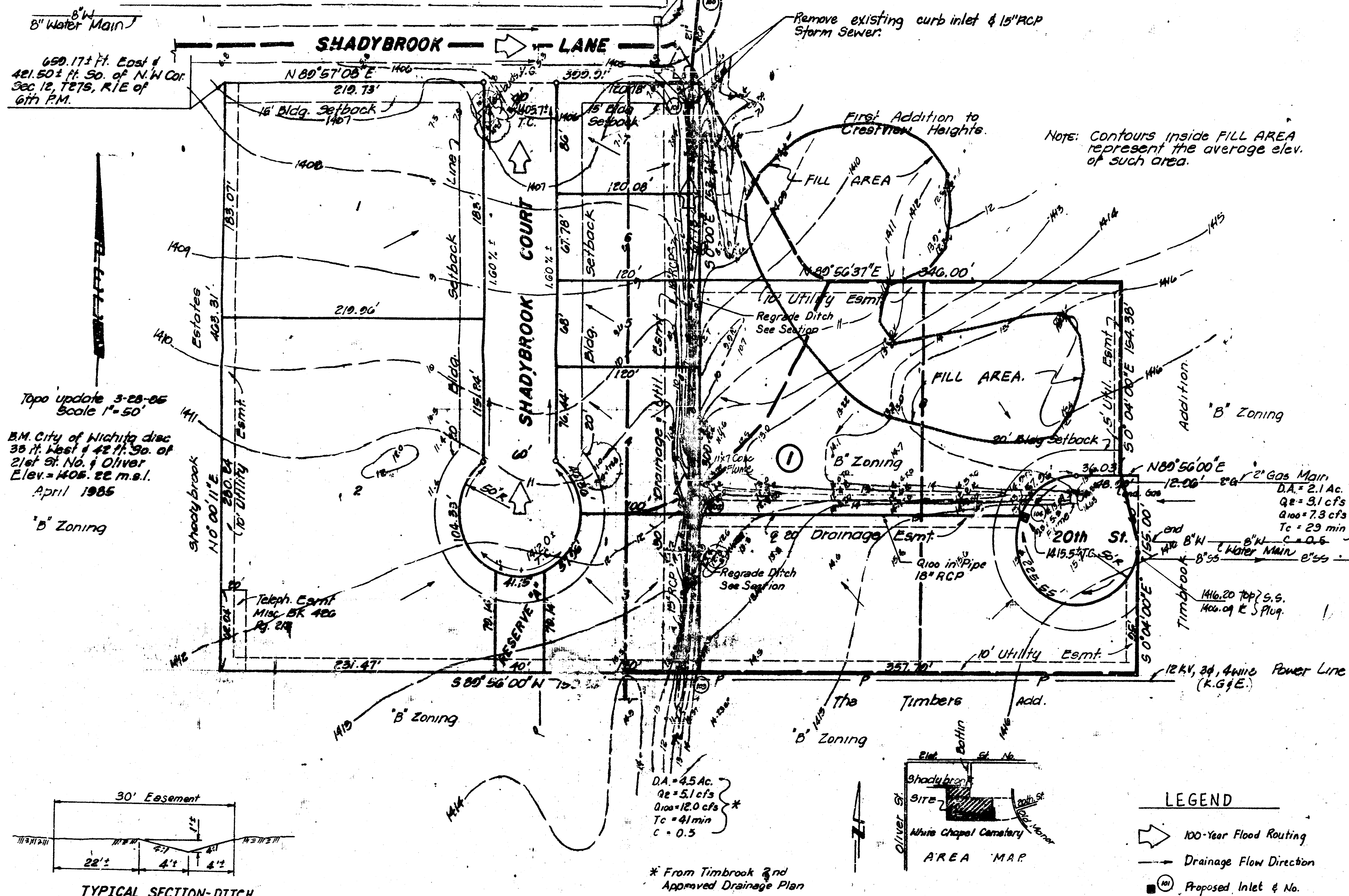


DRAINAGE PLAN OF: **TIMBROOK 3rd ADDITION** **WICHITA, SEDGWICK COUNTY, KANSAS.**

OWNER: Cerebral Palsy Research Foundation.
2021 N. Old Manor
Engineer: Professional Engineering Consultants
1440 English.

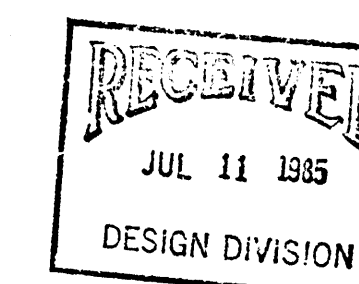


MEMO

TO: City of Wichita
PROJECT NO. 36-65160-757
PROJECT: Timbrook
3rd Addition
ATTN: Mr. Chris Breitenstein, P.E.
DATE: 7/9/85
FROM: Charles S. Brown, P.E.
REFERENCE: Revised Drainage Plan

COPIES TO:
Louise Olivarez, MAPD
File

Transmitted herewith are two (2) copies of the Revised Drainage Plan and supporting calculations for the referenced project.
The Final Plat will be submitted on July 19, 1985, for hearing by the Subdivision Committee on August 1, 1985.
If you have any questions, or need any additional information, please advise.
CSB/nkm



Date: 7-9-85
Project: Timbrook 3rd Addition
Item: Inlet Sizing

Node	Inlet Type	Design Q	Q
104	Curb Inlet	Q ₁₀₀	11.5 cfs
103	Catch Basin	Q ₂	5.1 cfs
102	"	Q ₂	2.4 cfs
101	"	Q ₂	2.0 cfs
100	(Existing Manhole to remain)		

104: Q = 11.5 cfs. Assume 1 COW Type 1A Inlet L=5' h=6"
A = Lh = 5 x 0.5 = 2.5 sq ft
Using Chart 12 allocating d₁ = 0.95'
Max. d₁ = Mord + a
= (Curb depth + 0.3') + (2")
= (0.55' + 0.3') + (0.16') = 1.01'
USE 1 COW INLET L=5'

103: Q = 5.1 cfs. Use depth of water = 0.4'
Using Chart 12 allocating P required = 1'
USE 1 COW STD 2'x4' Catch Basin P provided = 1'

HYDROLOGY DATA SHEET		PAGE 1 OF 7	
PROJECT: Timbrook 3rd Addition		PROJECT NO. 36-65160-757	
ITEM: Storm Drainage		DATE: 7-9-85	
RETURN PERIOD: 2*		COMPUTATIONS BY: CSB	
REVISIONS BY:			
SCHEMATIC DIAGRAM: Shadybrook Lane, 9'x10' (10'x10' 10'x10')			
* 2 yr in all basins except 104 & 100 yr in subdivision 104			
TRIBUTARY AREA		HYDROLOGY SUMMATION	
SUB BASIN	AREA (Acres)	Q ₁₀ (cfs)	Q ₂ (cfs)
104	0.5	9.3	11.5
103	0.5	4.5	5.1
102	0.5	1.2	2.4
101	0.5	1.0	2.0
100	(Marked)		
CONDUIT DATA		DITCH & CONDUIT DATA	
PIPE (Inches)	VELOCITY (ft/sec)	PIPE (Inches)	VELOCITY (ft/sec)
18"	1.2	18"	1.2
24"	1.5	24"	1.5
30"	1.8	30"	1.8

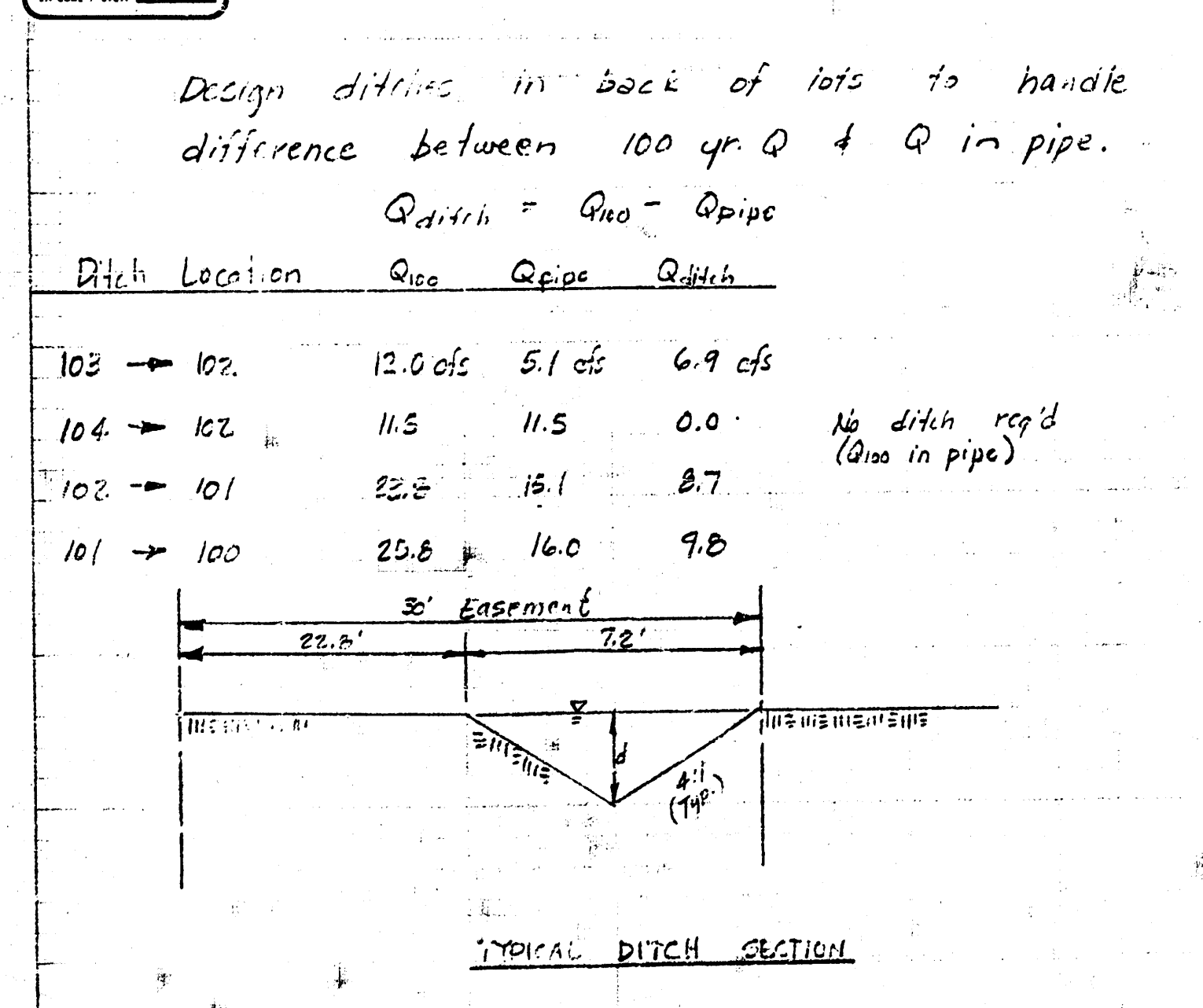
HYDROLOGY DATA SHEET		PAGE 2 OF 7	
PROJECT: Timbrook 3rd Addition		PROJECT NO. 36-65160-757	
ITEM: Storm Drainage		DATE: 7-9-85	
RETURN PERIOD: 100		COMPUTATIONS BY: CSB	
REVISIONS BY:			
TRIBUTARY AREA		HYDROLOGY SUMMATION	
SUB BASIN	AREA (Acres)	Q ₁₀ (cfs)	Q ₂ (cfs)
104	0.5	9.3	11.5
103	0.5	4.5	5.1
102	0.5	1.2	2.4
101	0.5	1.0	2.0
100	(Marked)		
CONDUIT DATA		DITCH & CONDUIT DATA	
PIPE (Inches)	VELOCITY (ft/sec)	PIPE (Inches)	VELOCITY (ft/sec)
18"	1.2	18"	1.2
24"	1.5	24"	1.5
30"	1.8	30"	1.8

Date: 7-9-85 Page 4 of 7
Project: Timbrook 3rd Addition
Item: Inlet Sizing

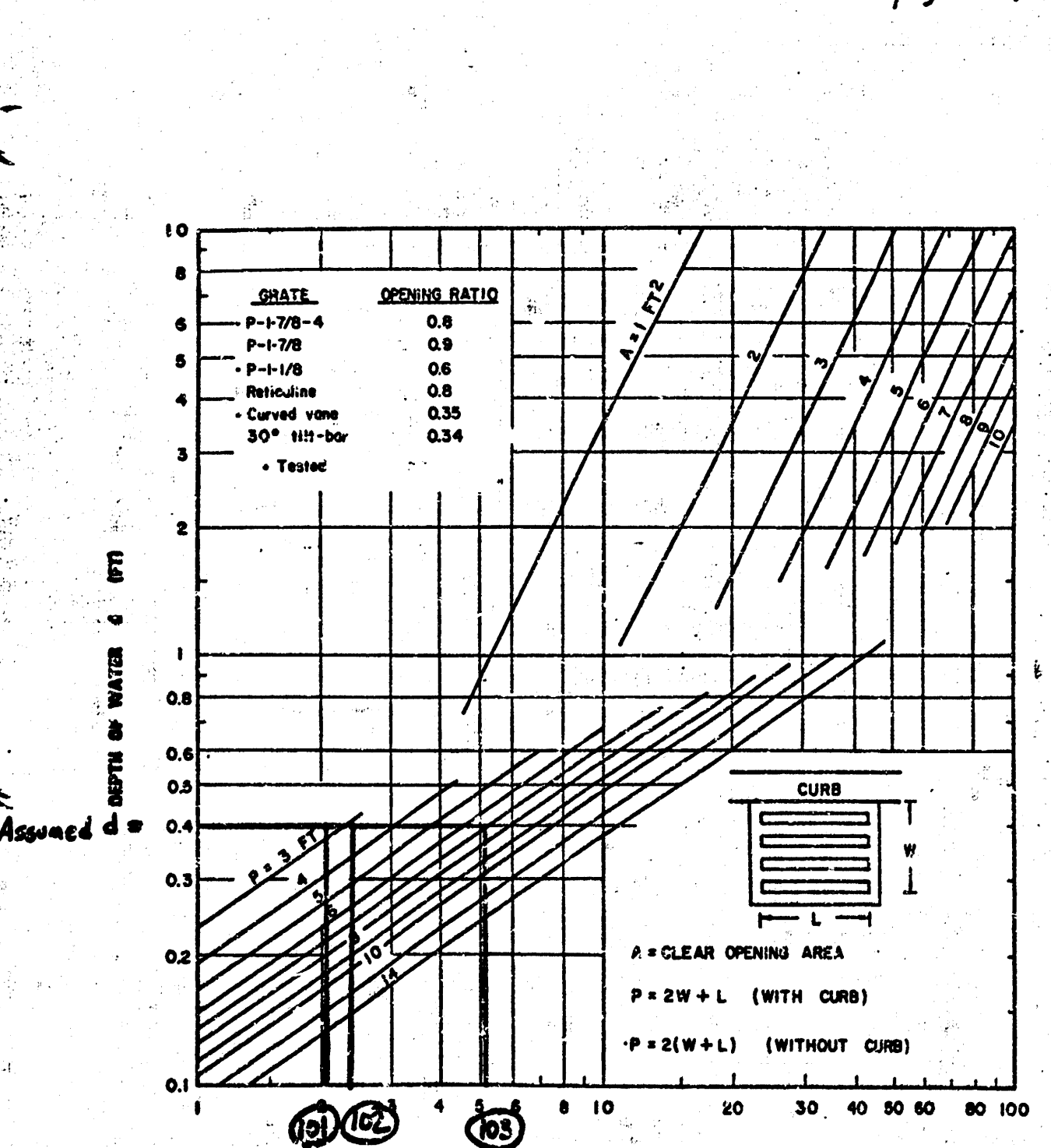
102: Q = 2.4 cfs. Use depth of water = 0.4'.
Using Chart 11 attached, Prepared = 8'.
Use 1 COW STD 2'x4' Catch Basin P provided = 10'

101: Q = 2.0 cfs. Use depth of water = 0.4'.
Using Chart 11 attached, Prepared = 3'.
Use 1 COW STD 2'x4' Catch Basin P provided = 10'

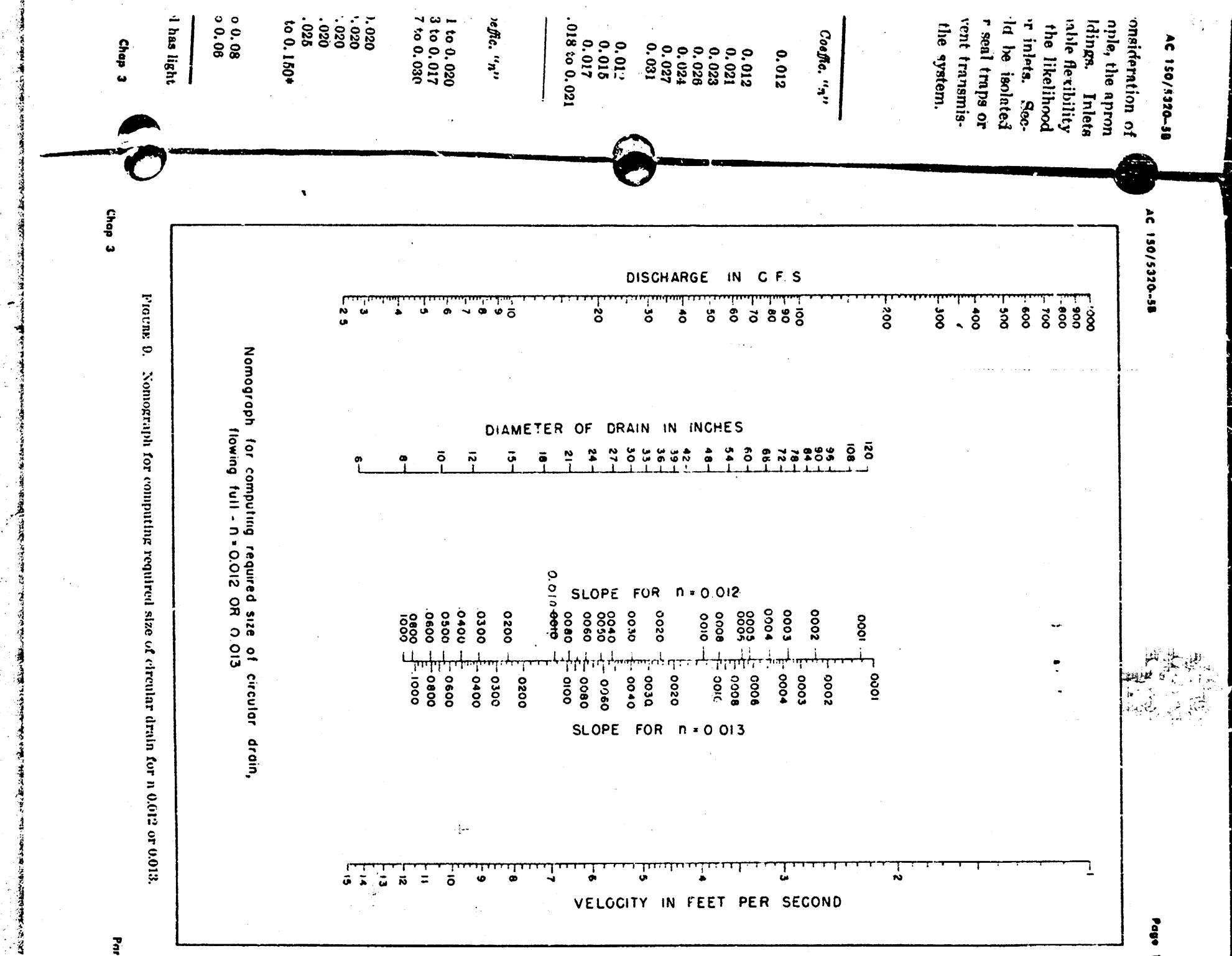
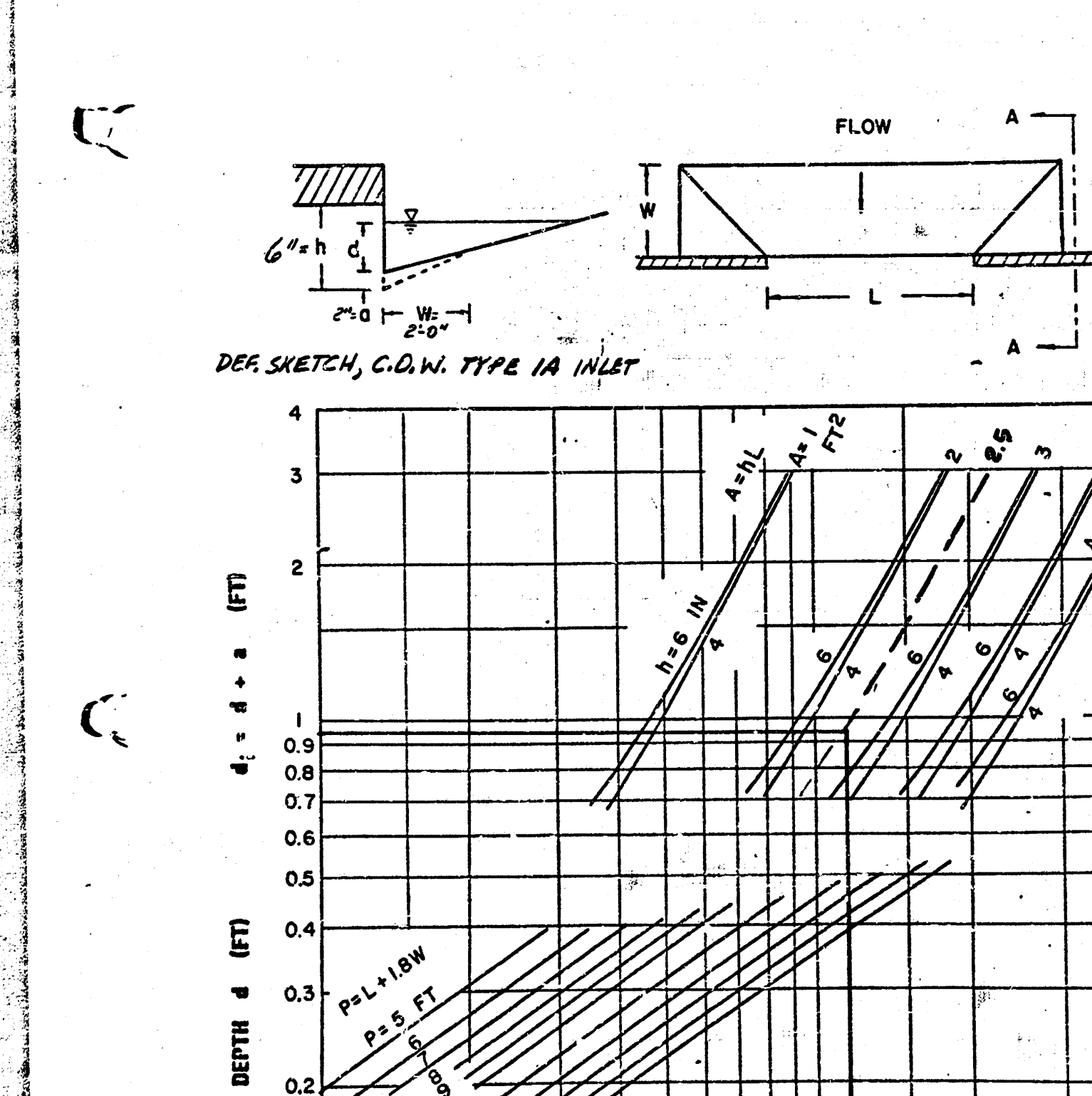
Date: 7-9-85 Page 5 of 7
Project: Timbrook 3rd Addition
Item: Catch Ditch Design



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RAINFALL INTENSITY TABLE
for
SEDGWICK COUNTY KANSAS

The following tabulation contains rainfall intensity in inches per hour as derived from ESSA Weather Bureau Technical Paper 40.

DURATION IN MINUTES	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
5	4.67	6.23	8.00	9.34	10.67	12.23	13.79
6	4.35	5.80	7.45	8.70	9.94	11.39	12.84
7	4.09	5.46	7.02	8.19	9.36	10.72	12.09
8	3.88	5.18	6.66	7.77	8.89	10.18	11.48
9	3.71	4.95	6.36	7.43	8.49	9.72	10.96
10	3.56	4.75	6.11	7.13	8.15	9.33	10.52
11	3.43	4.58	5.89	6.87	7.85	8.99	10.14
12	3.32	4.43	5.69	6.64	7.59	8.69	9.80
13	3.21	4.29	5.51	6.43	7.35	8.42	9.50
14	3.12	4.17	5.36	6.25	7.14	8.18	9.23
15	3.04	4.06	5.23	6.08	6.95	7.97	8.98
16	2.96	3.96	5.09	5.93	6.78	7.77	8.76
17	2.90	3.86	4.97	5.79	6.62	7.59	8.55
18	2.83	3.78	4.86	5.67	6.48	7.42	8.37
19	2.77	3.70	4.76	5.55	6.34	7.27	8.19
20	2.72	3.63	4.66	5.44	6.22	7.12	8.03
21	2.67	3.56	4.57	5.34	6.10	6.99	7.88
22	2.62	3.49	4.49	5.24	5.99	6.86	7.74
23	2.57	3.43	4.41	5.15	5.89	6.74	7.60
24	2.53	3.38	4.34	5.07	5.79	6.63	7.48
25	2.49	3.32	4.27	4.99	5.70	6.53	7.36
26	2.45	3.23	4.21	4.91	5.61	6.43	7.25
27	2.42	3.13	4.15	4.84	5.53	6.33	7.14
28	2.38	3.05	4.09	4.77	5.45	6.25	7.04
29	2.35	2.97	4.02	4.68	5.38	6.16	6.95
30	2.32	2.89	3.92	4.56	5.31	6.08	6.79
31	2.29	2.82	3.82	4.44	5.19	6.00	6.62
32	2.26	2.75	3.73	4.33	5.07	5.87	6.45
33	2.24	2.68	3.64	4.23	4.95	5.73	6.30
34	2.19	2.62	3.55	4.13	4.83	5.60	6.16
35	2.14	2.57	3.47	4.04	4.73	5.47	6.02
36	2.09	2.51	3.40	3.95	4.62	5.35	5.89
37	2.05	2.46	3.33	3.87	4.52	5.23	5.76
38	2.00	2.41	3.26	3.79	4.43	5.13	5.64
39	1.96	2.36	3.19	3.71	4.34	5.02	5.53
40	1.92	2.32	3.13	3.64	4.25	4.92	5.42
41	1.89	2.27	3.07	3.57	4.18	4.83	5.32
42	1.85	2.23	3.01	3.51	4.10	4.74	5.22
43	1.82	2.19	2.96	3.44	4.02	4.65	5.13
44	1.78	2.15	2.91	3.38	3.95	4.56	5.03
45	1.75	2.11	2.86	3.32	3.88	4.48	4.95

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DURATION IN MINUTES	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
46	1.72	2.08	2.81	3.27	3.82	4.41	4.86
47	1.69	2.04	2.76	3.21	3.75	4.33	4.78
48	1.67	2.01	2.72	3.16	3.69	4.26	4.70
49	1.64	1.98	2.67	3.11	3.63	4.19	4.63
50	1.61	1.95	2.63	3.06	3.58	4.13	4.56
51	1.59	1.92	2.59	3.01	3.52	4.06	4.49
52	1.56	1.89	2.55	2.97	3.47	4.00	4.42
53	1.54	1.86	2.51	2.92	3.42	3.94	4.35
54	1.52	1.84	2.48	2.88	3.37	3.88	4.29
55	1.50	1.81	2.44	2.84	3.32	3.83	4.23
56	1.47	1.79	2.41	2.80	3.27	3.77	4.17
57	1.45	1.76	2.37	2.76	3.23	3.72	4.11
58	1.43	1.74	2.34	2.73	3.19	3.67	4.06
59	1.42	1.72	2.31	2.69	3.14	3.62	4.01
60	1.40	1.69	2.28	2.65	3.10	3.57	3.95
61	1.38	1.67	2.25	2.62	3.06	3.53	3.90
62	1.36	1.65	2.22	2.59	3.02	3.48	3.85
63	1.34	1.63	2.20	2.55	2.99	3.44	3.81
64	1.33	1.61	2.17	2.52	2.95	3.40	3.76
65	1.31	1.59	2.14	2.49	2.92	3.35	3.71
66	1.30	1.57	2.12	2.46	2.88	3.31	3.67
67	1.28	1.56	2.09	2.44	2.85	3.27	3.63
68	1.26	1.54	2.07	2.41	2.81	3.24	3.59
69	1.25	1.52	2.05	2.38	2.78	3.20	3.54
70	1.24	1.50	2.02	2.35	2.75	3.16	3.51
71	1.22	1.49	2.00	2.33	2.72	3.13	3.47
72	1.21	1.47	1.98	2.30	2.69	3.09	3.43
73	1.20	1.46	1.96	2.28	2.66	3.06	3.39
74	1.18	1.44	1.94	2.25	2.63	3.03	3.36
75	1.17	1.43	1.92	2.23	2.61	3.00	3.32
76	1.16	1.41	1.90	2.21	2.58	2.96	3.29
77	1.15	1.40	1.88	2.18	2.55	2.93	3.25
78	1.13	1.38	1.86	2.16	2.53	2.90	3.22
79	1.12	1.37	1.84	2.14	2.50	2.88	3.19
80	1.11	1.36	1.82	2.12	2.48	2.85	3.16
81	1.10	1.34	1.81	2.10	2.46	2.82	3.13
82	1.09	1.33	1.79	2.08	2.43	2.79	3.10
83	1.08	1.32	1.77	2.06	2.41	2.76	3.07
84	1.07	1.31	1.75	2.04	2.39	2.74	3.04
85	1.06	1.30	1.74	2.03	2.37	2.71	3.01
86	1.05	1.28	1.72	2.00	2.34	2.69	2.99
87	1.04	1.27	1.71	1.99	2.32	2.66	2.96
88	1.03	1.26	1.69	1.97	2.30	2.64	2.93
89	1.02	1.25	1.68	1.95	2.28	2.62	2.91
90	1.01	1.24	1.66	1.93	2.26	2.59	2.88

DURATION IN MINUTES	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
91	1.00	1.23	1.65	1.92	2.24	2.57	2.86
92	1.00	1.22	1.63	1.90	2.22	2.55	2.83
93	0.99	1.21	1.62	1.89	2.20	2.53	2.81
94	0.98	1.20	1.61	1.87	2.19	2.51	2.79
95	0.97	1.19	1.59	1.85	2.17	2.49	2.76
96	0.96	1.18	1.58	1.84	2.15	2.46	2.74
97	0.96	1.17	1.57	1.82	2.13	2.44	2.72
98	0.95	1.16	1.56	1.81	2.12	2.42	2.70
99	0.94	1.15	1.54	1.80	2.10	2.41	2.67
100	0.93	1.14	1.53	1.78	2.08	2.39	2.65
101	0.93	1.13	1.52	1.77	2.07	2.39	2.65
102	0.92	1.13	1.51	1.75	2.05	2.35	2.61
103	0.91	1.12	1.50	1.74	2.04	2.33	2.59
104	0.90	1.11	1.49	1.73	2.02	2.31	2.57
105	0.90	1.10	1.47	1.72	2.01	2.30	2.55
106	0.89	1.09	1.46	1.70	1.99	2.28	2.54
107	0.88	1.09	1.45	1.69	1.98	2.26	2.52
108	0.86	1.08	1.44	1.68	1.96	2.25	2.50
109	0.87	1.07	1.43	1.67	1.95	2.23	2.48
110	0.87	1.06	1.42	1.65	1.93	2.21	2.46
111	0.86	1.06	1.41	1.64	1.92	2.20	2.45
112	0.85	1.05	1.40	1.63	1.91	2.18	2.43
113	0.85	1.04	1.39	1.62	1.89	2.17	2.41
114	0.84	1.03	1.38	1.61	1.88	2.15	2.40
115	0.84	1.03	1.37	1.60	1.87	2.14	2.38
116	0.83	1.02	1.36	1.59	1.86	2.12	2.36
117	0.82	1.01	1.36	1.58	1.84	2.11	2.35
118	0.82	1.01	1.35	1.57	1.83	2.09	2.33
119	0.81	1.00	1.34	1.56	1.82	2.08	2.32
120	0.81	0.99	1.33	1.55	1.81	2.07	2.30
121	0.80	0.99	1.32	1.54	1.80	2.05	2.29
122	0.80	0.98	1.31	1.53	1.78	2.04	2.27
123	0.79	0.97	1.30	1.52	1.77	2.03	2.26
124	0.79	0.97	1.30	1.51	1.76	2.01	2.24
125	0.78	0.96	1.29	1.50	1.75	2.00	2.23
126	0.78	0.96	1.28	1.49	1.74	1.99	2.22
127	0.77	0.95	1.27	1.48	1.73	1.98	2.20
128							
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