ENHANCED SHALLOW MARSH SYSTEM

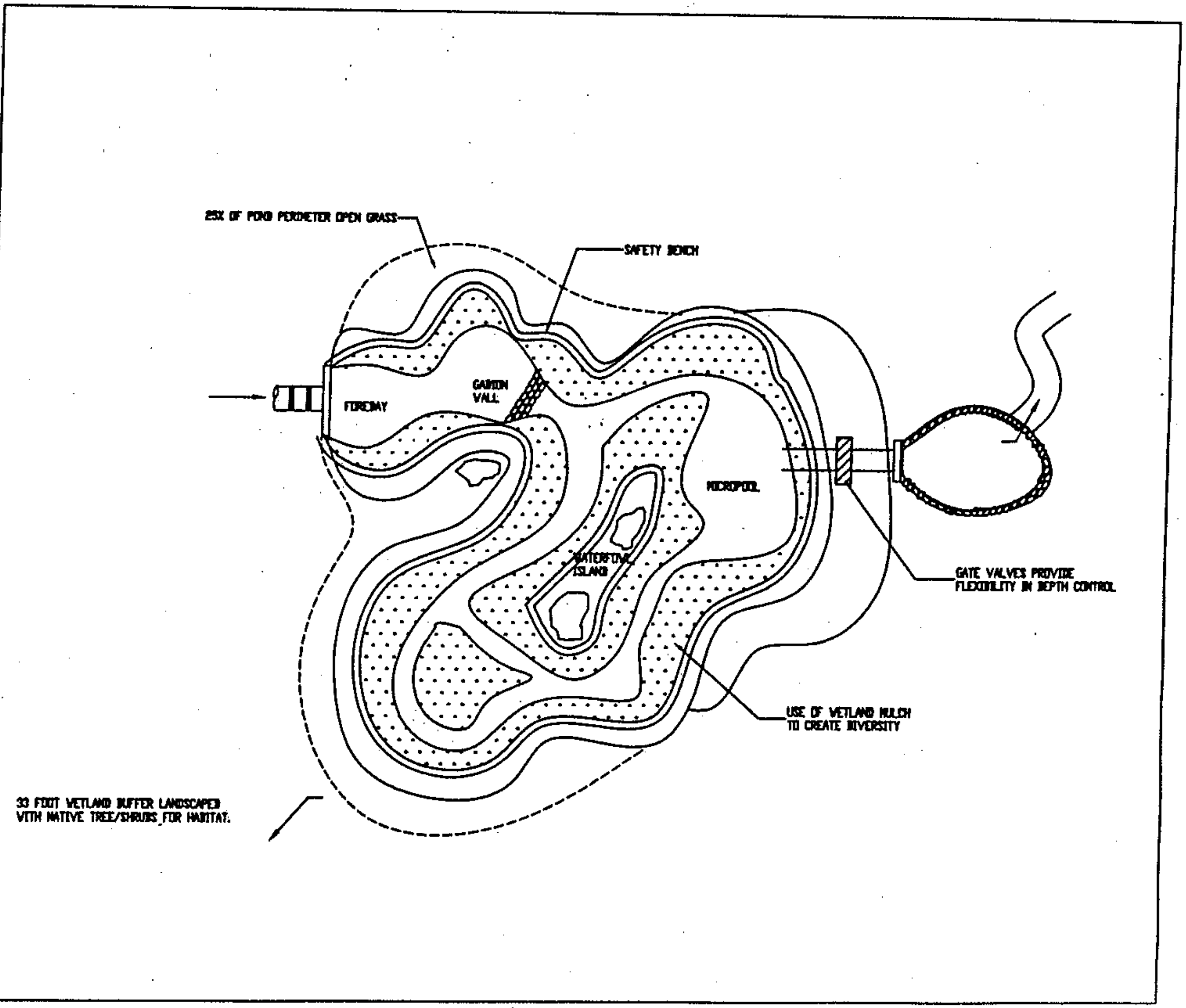
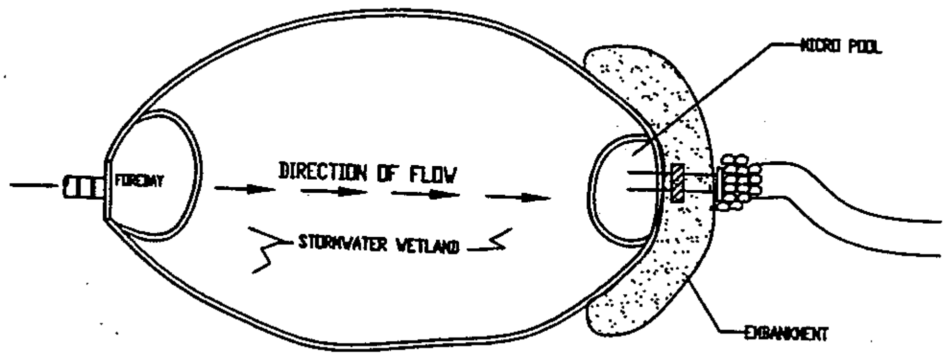
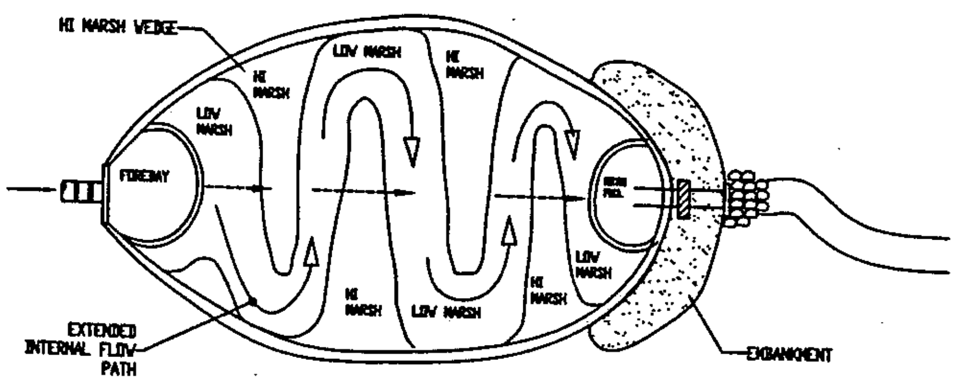


FIGURE 2.9-1

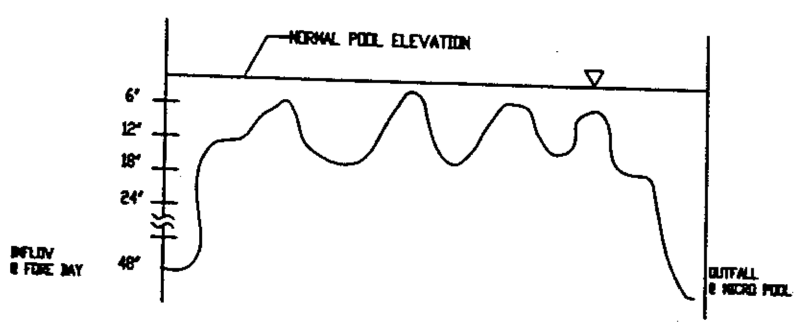
USE OF HI MARSH WEDGES TO EXTEND THE INTERNAL FLOW PATH THROUGHT A STORMWATER WETLAND



A. NORMAL FLOW PATH



B. DRY WEATHER FLOW PATH



C. CROSS-SECTION FROM INFLOW TO OUTFALL

Although the flow path of runoff during storms is governed by the distance between the inlet and outlet of the pond the effective flow path during dry weather can be much greater if wedges of hi marsh (1 to 6 inches) are placed at right angles to the normal direction of flow.

FIGURE 2.9-2 USE OF PLACEMENT OF HIGH MARSH IN WETLAND SYSTEMS.

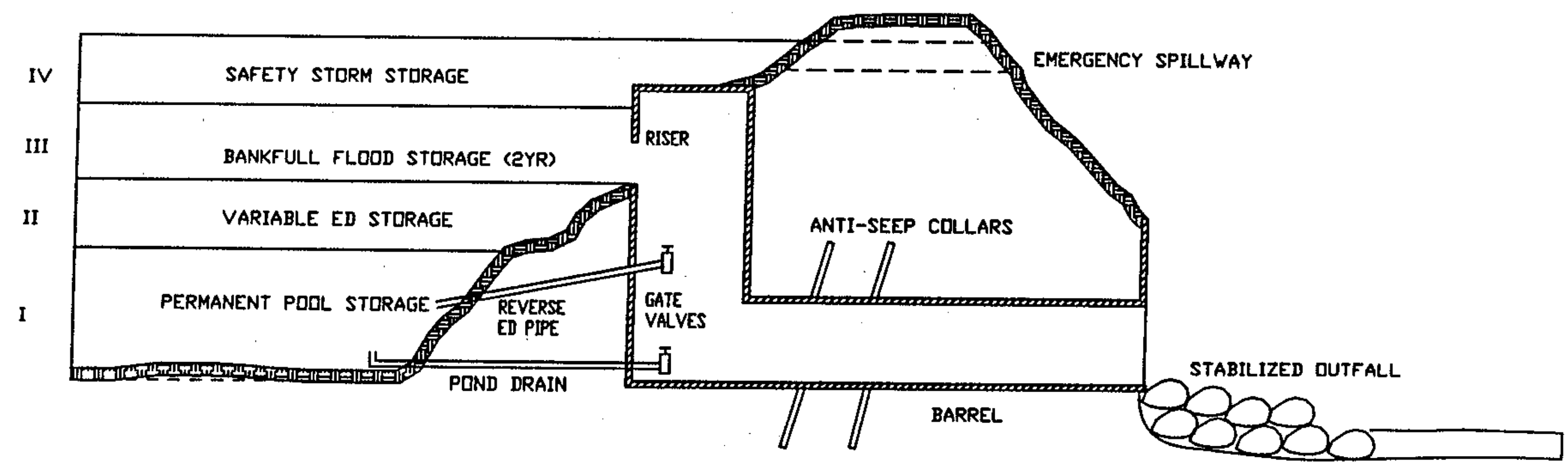
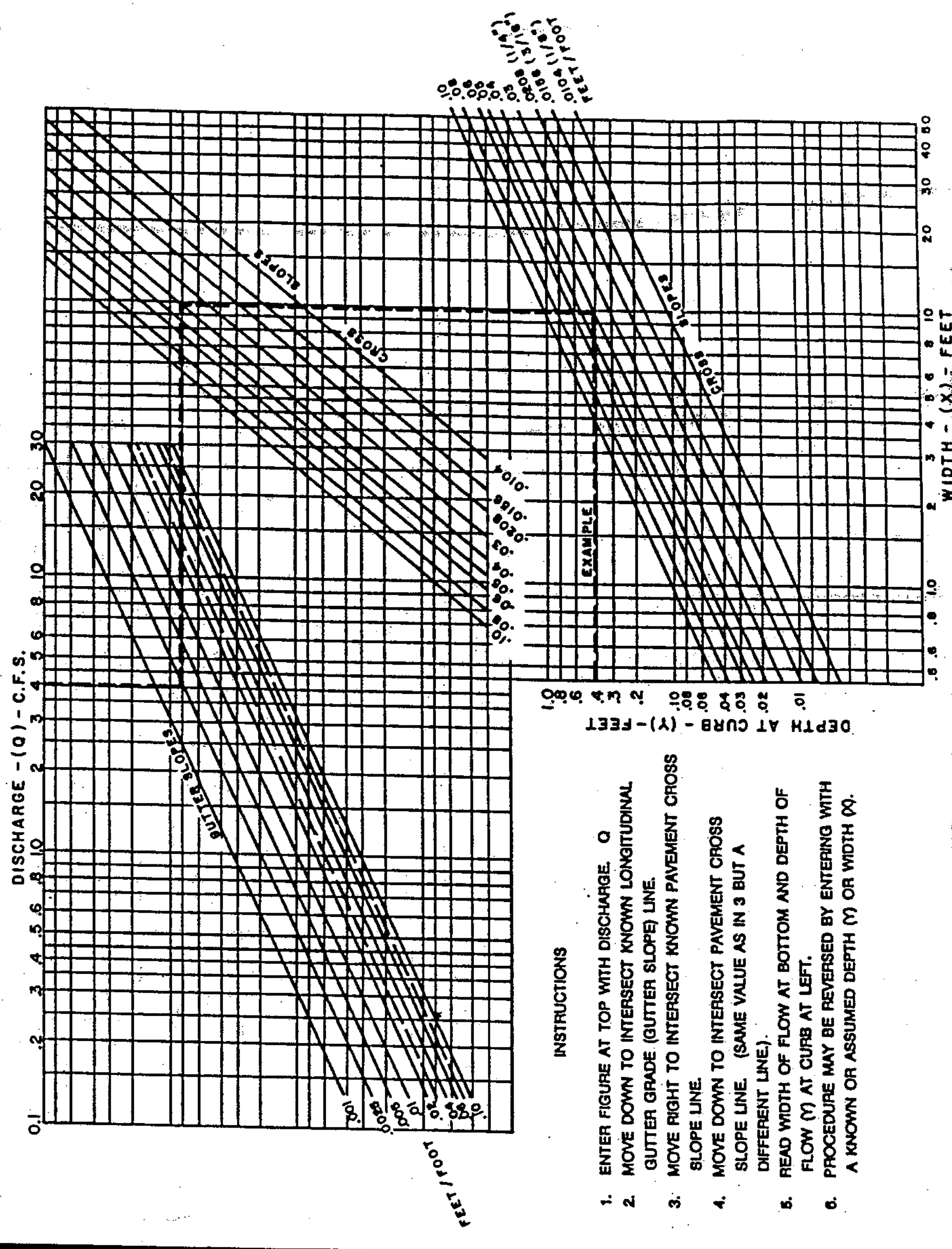


FIGURE 2.9-3 CROSS-SECTION VIEW OF A STANDARD ED POND SYSTEM DESIGN

TOWN OF SOUTH WINDSOR	GUTTER FLOW ANALYSIS	FORM 2.1

PROJECT		DESIGNED BY	DATE
STREET	FIRM	CHECKED BY	SHEET Nº

1 INLET STATION AND OFFSET	2 TIME TO INLET	3 AREA IN ACRES	4 RUNOFF COEFFICIENT	5 AI	6 SUM OF AI	7 TOTAL AI	8 RAINFALL INTENSITY	9 Q TO INLET	10 GRADE OF GUTTER	11 CROSS SLOPE OF SHOULDER	12 DEPTH OF FLOW AT GUTTER	13 WIDTH OF FLOW	14 Q BYPASSING INLET	15 AI BYPASSING INLET	16 AI ENTERING CATCH BASIN



INSTRUCTIONS

1. ENTER FIGURE AT TOP WITH DISCHARGE, Q
2. MOVE DOWN TO INTERSECT KNOWN LONGITUDINAL GUTTER GRADE (GUTTER SLOPE) LINE.
3. MOVE RIGHT TO INTERSECT KNOWN PAVEMENT CROSS SLOPE LINE.
4. MOVE DOWN TO INTERSECT PAVEMENT CROSS SLOPE LINE. (SAME VALUE AS IN 3 BUT A DIFFERENT LINE.)
5. READ WIDTH OF FLOW AT BOTTOM AND DEPTH OF FLOW (Y) AT CURB AT LEFT.
6. PROCEDURE MAY BE REVERSED BY ENTERING WITH A KNOWN OR ASSUMED DEPTH (Y) OR WIDTH (X).

TOWN OF SOUTH WINDSOR STANDARD DETAIL JANUARY, 1991	FLOW CHARACTERISTIC CURVES (STRAIGHT CROSS SLOPES WITH CURB) n = 0.015 (CHART 1) REVISED:	APPROVED PUBLIC WORKS DIRECTOR

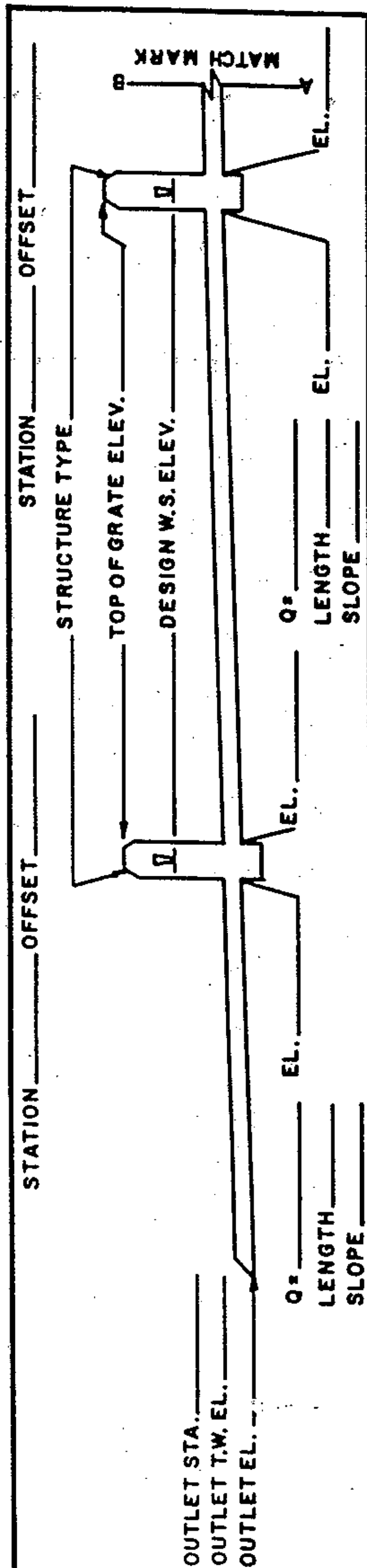
TOWN OF SOUTH WINDSOR	STORM SEWER SYSTEM DESIGN	FORM 2.2

PROJECT		DESIGNED BY	DATE
STREET	FIRM	CHECKED BY	SHEET Nº

1	LINE SEGMENT
2	TIME TO INLET
3	TIME IN PIPE
4	ACCUMULATED TIME
5	AI ENTERING CATCH BASIN
6	SUM OF AI IN SYSTEM
7	RAINFALL INTENSITY
8	Q IN SYSTEM
9	PIPE SIZE
10	LENGTH OF PIPE
11	SLOPE
12	AVERAGE VELOCITY
13	FULL CAPACITY
14	HEADWATER
15	"n"

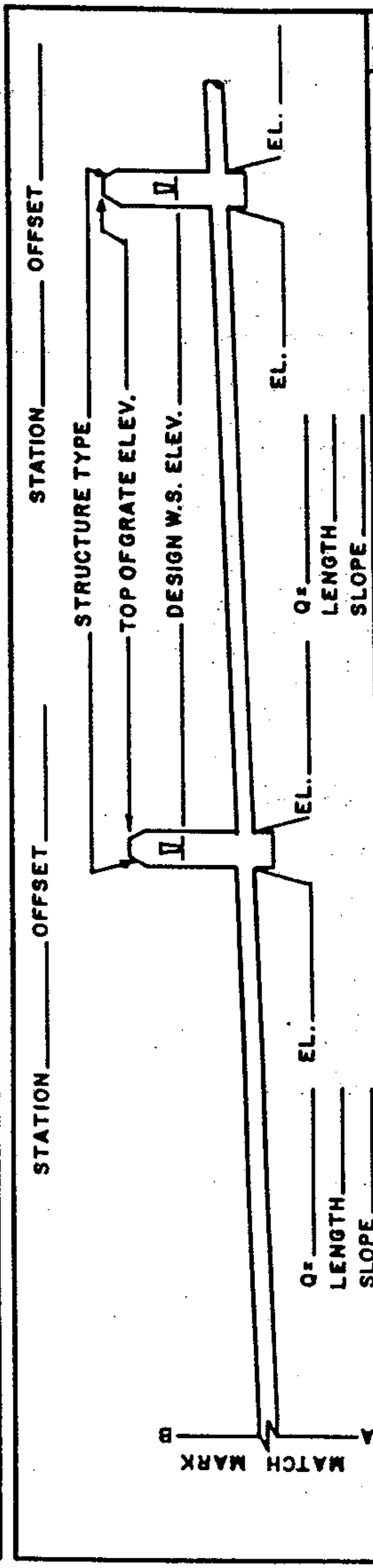
TOWN OF SOUTH WINDSOR	WATER SURFACE ANALYSIS	FORM 2.3

PROJECT		DESIGNED BY	DATE
STREET	FIRM	CHECKED BY	SHEET N°



SIZE/TYPE	n	INLET CONTROL HW/D	INLET CONTROL HW	OUTLET CONTROL K_e	H	d_c	$\frac{d_c+D}{2}$	HW = H + h_o − LS_o: TW	h_o	LS	HW	CONTROL HW

SIZE/TYPE	n	INLET CONTROL HW/D	INLET CONTROL HW	OUTLET CONTROL K_e	H	d_c	$\frac{d_c+D}{2}$	HW = H + h_o − LS_o: TW	h_o	LS	HW	CONTROL HW



SIZE/TYPE	n	INLET CONTROL HW/D	INLET CONTROL HW	OUTLET CONTROL K_e	H	d_c	$\frac{d_c+D}{2}$	HW = H + h_o − LS_o: TW	h_o	LS	HW	CONTROL HW

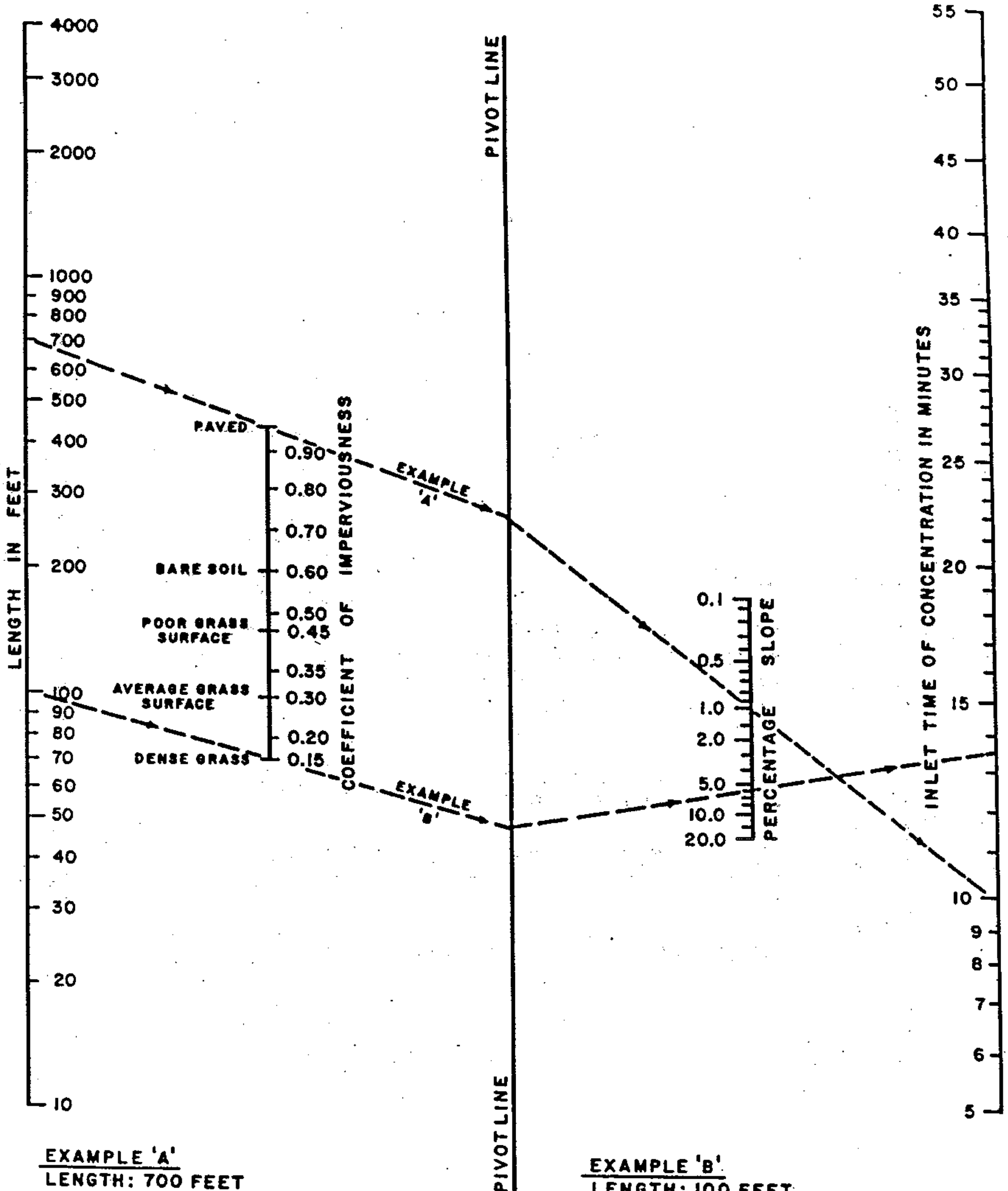
SIZE/TYPE	n	INLET CONTROL HW/D	INLET CONTROL HW	OUTLET CONTROL K_e	H	d_c	$\frac{d_c+D}{2}$	HW = H + h_o − LS_o: TW	h_o	LS	HW	CONTROL HW

RAINFALL INTENSITY CHART IN INCHES PER HOUR
HARTFORD, CT

STORM (YRS)	MINUTES																										
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
2	4.1	3.8	3.6	3.4	3.2	3.1	3.0	2.9	2.8	2.6	2.5	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.7	1.7	1.7	1.7
10	6.2	5.6	5.4	5.3	5.0	4.7	4.5	4.4	4.3	4.1	4.0	3.9	3.8	3.7	3.5	3.4	3.3	3.3	3.2	3.2	3.1	3.0	2.9	2.9	2.8	2.7	2.6	2.6
25	7.1	6.7	6.4	6.1	5.7	5.6	5.4	5.2	5.0	4.9	4.7	4.5	4.4	4.3	4.2	4.1	4.0	4.0	3.9	3.8	3.7	3.6	3.5	3.5	3.4	3.3	3.2	3.2
50	7.7	7.4	7.0	6.7	6.5	6.1	6.0	5.8	5.6	5.4	5.2	5.1	5.0	4.9	4.7	4.6	4.5	4.4	4.3	4.3	4.2	4.1	4.0	3.9	3.8	3.7	3.6	3.6
100	8.4	8.0	7.6	7.3	7.0	6.8	6.6	6.4	6.2	6.0	5.8	5.6	5.4	5.2	5.1	5.0	4.9	4.8	4.7	4.6	4.5	4.4	4.3	4.2	4.1	4.0	3.9	3.8

STORM (YRS)	MINUTES																											
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
2	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1
10	2.6	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8
25	3.1	3.1	3.0	3.0	2.9	2.9	2.8	2.8	2.7	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1
50	3.5	3.4	3.3	3.3	3.2	3.2	3.1	3.1	3.0	3.0	2.9	2.9	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3
100	3.8	3.7	3.7	3.6	3.6	3.6	3.5	3.5	3.4	3.4	3.3	3.3	3.2	3.2	3.2	3.1	3.1	3.0	2.9	2.9	2.8	2.8	2.7	2.7	2.7	2.7	2.6	2.6

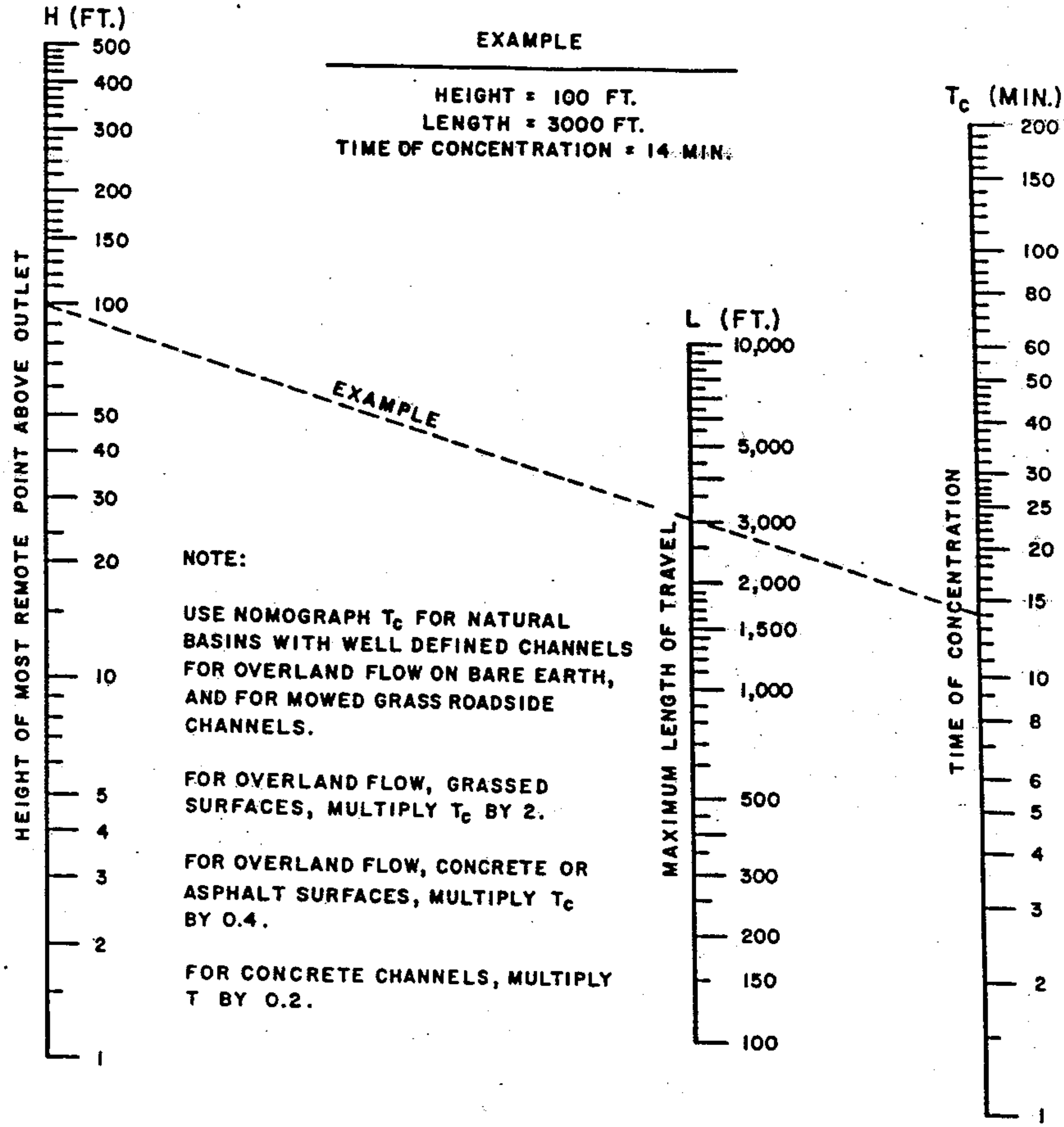
CHART 2



EXAMPLE 'A'
LENGTH: 700 FEET
PAVED
SLOPE: 1.0 %
TIME: 10 MINUTES

EXAMPLE 'B'
LENGTH: 100 FEET
DENSE GRASS
SLOPE: 6.0 %
TIME: 13 ½ MINUTES

TOWN OF SOUTH WINDSOR STANDARD DETAIL JANUARY, 1991	NOMOGRAPH FOR DETERMINING TIME OF CONCENTRATION (CHART 3) REVISED:	APPROVED PUBLIC WORKS DIRECTOR



NOTE:

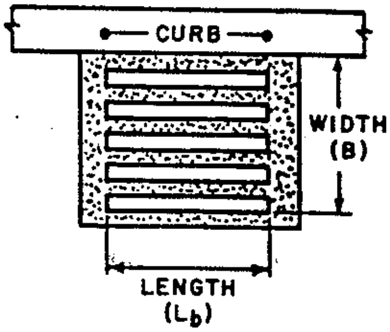
USE NOMOGRAPH T_c FOR NATURAL BASINS WITH WELL DEFINED CHANNELS FOR OVERLAND FLOW ON BARE EARTH, AND FOR MOWED GRASS ROADSIDE CHANNELS.

FOR OVERLAND FLOW, GRASSED SURFACES, MULTIPLY T_c BY 2.

FOR OVERLAND FLOW, CONCRETE OR ASPHALT SURFACES, MULTIPLY T_c BY 0.4.

FOR CONCRETE CHANNELS, MULTIPLY T BY 0.2.

TOWN OF SOUTH WINDSOR STANDARD DETAIL JANUARY, 1991	KIRPICH CHART TIME OF CONCENTRATION (CHART 4)	APPROVED
	REVISED:	PUBLIC WORKS DIRECTOR



$P = 2B + L_b$

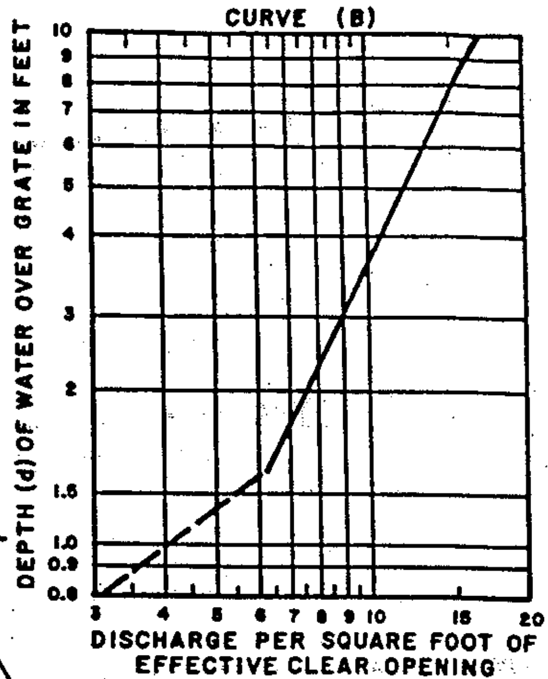
A = AREA OF CLEAR OPENING IN GRATE

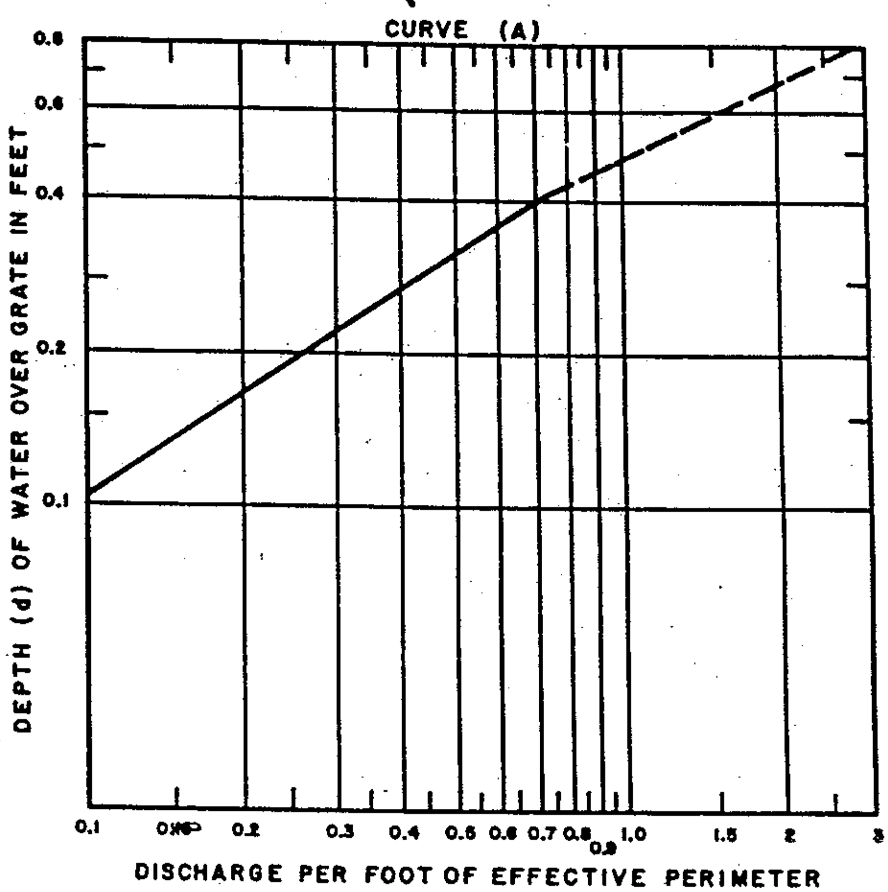
TO ALLOW FOR CLOGGING, DIVIDE P OR A BY 2 BEFORE OBTAINING d.

WITHOUT CURB, $P = 2(B + L_b)$

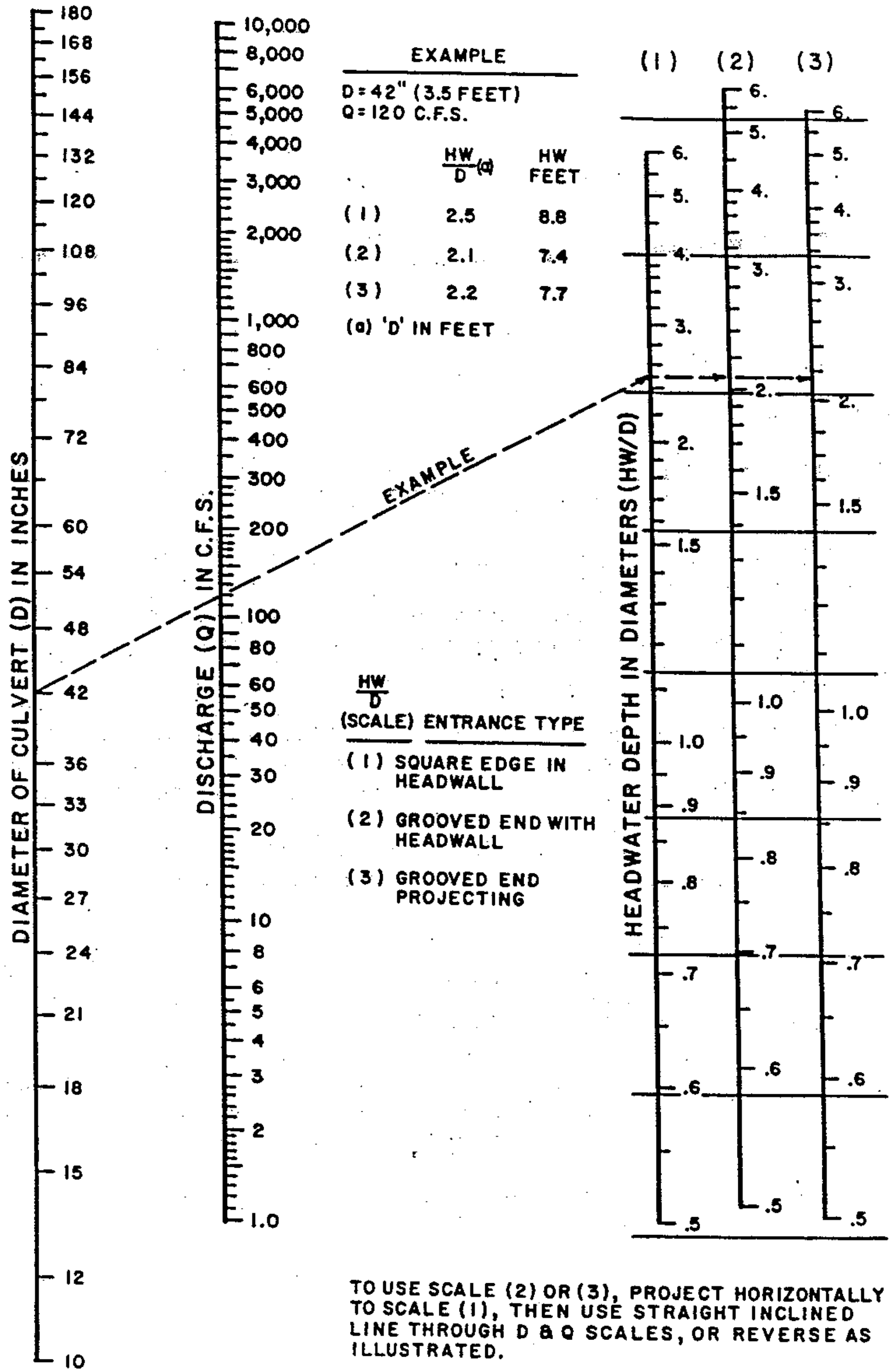
USE CURVE (B) FOR DEPTHS OVER GRATE MORE THAN 0.8 FT.

USE CURVE (A) FOR DEPTHS OVER GRATE LESS THAN 0.8 FT.





TOWN OF SOUTH WINDSOR STANDARD DETAIL JANUARY, 1991	HYDRAULIC CAPACITY OF GRATE INLET IN SUMP (CHART 5) REVISED:	APPROVED PUBLIC WORKS DIRECTOR



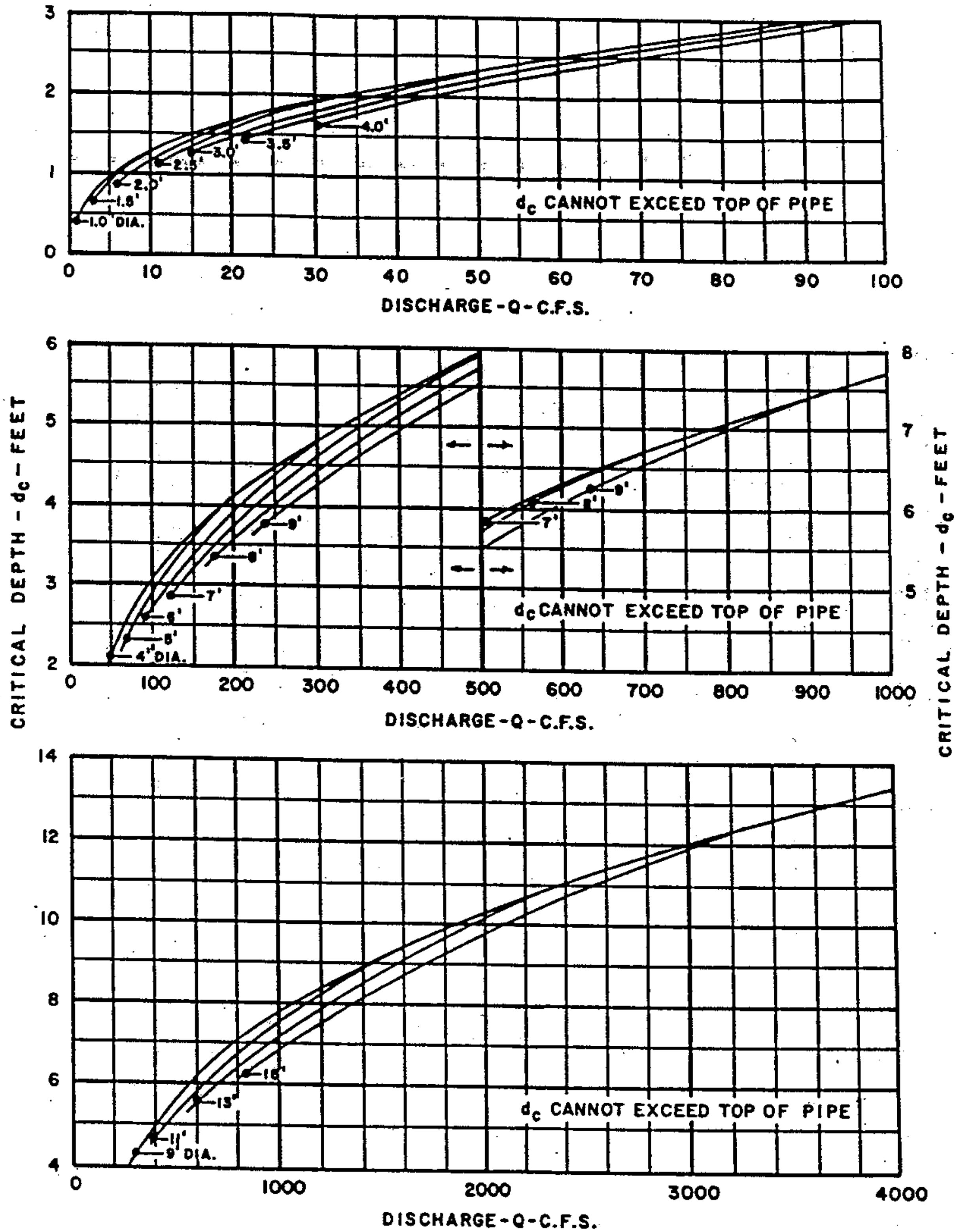
TOWN OF SOUTH WINDSOR
STANDARD DETAIL
JANUARY, 1991

HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL (CHART 6)

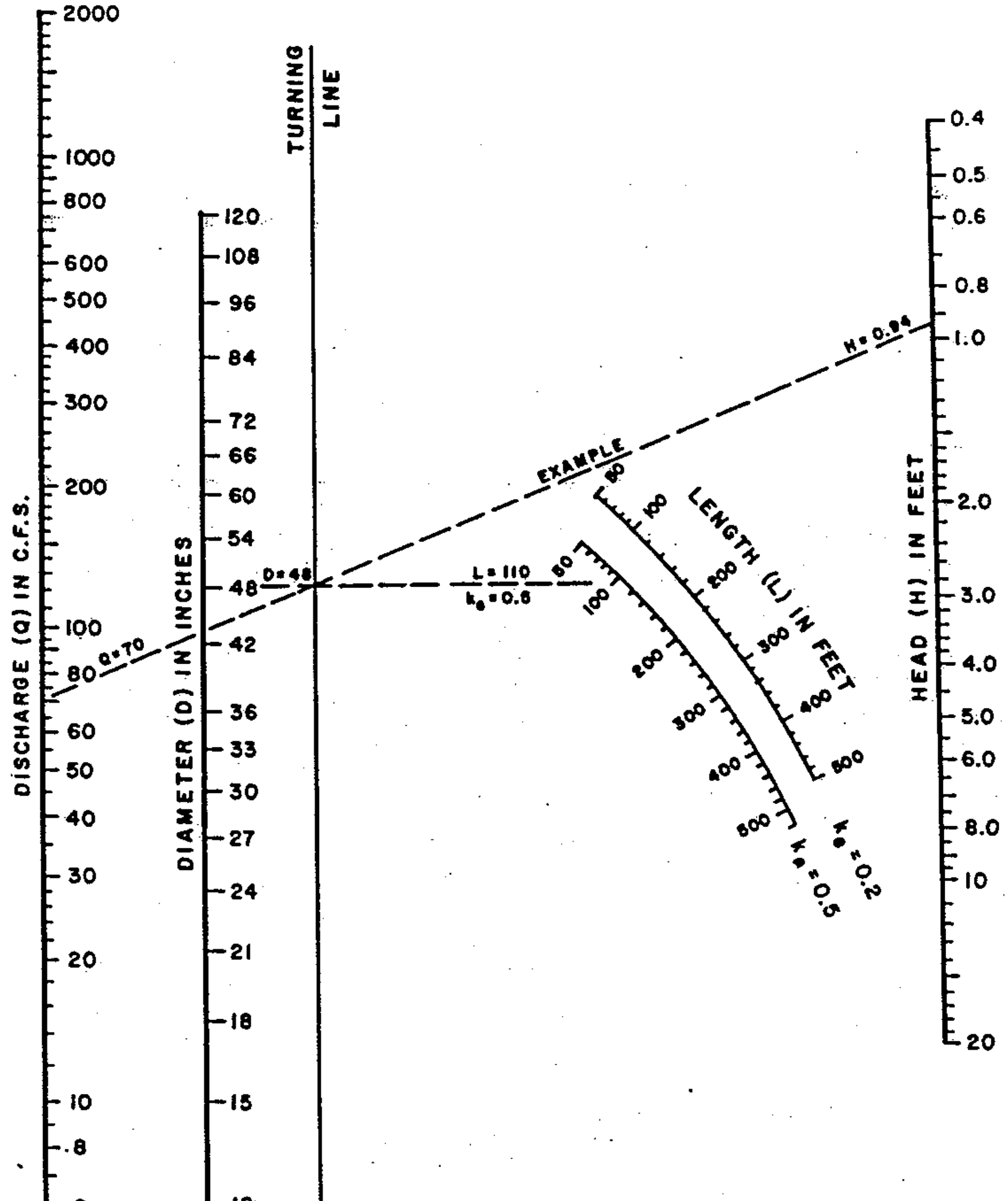
REVISED:

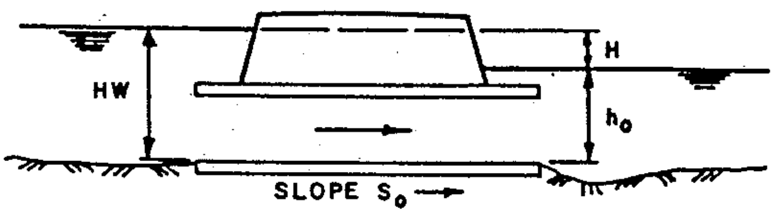
APPROVED

PUBLIC WORKS DIRECTOR



TOWN OF SOUTH WINDSOR STANDARD DETAIL JANUARY, 1991	CRITICAL DEPTH CIRCULAR PIPE (CHART 7)	APPROVED
	REVISED:	PUBLIC WORKS DIRECTOR





SUBMERGED OUTLET CULVERT FLOWING FULL

$HW = H + h_o - LS_o$

For outlet crown not submerged, compute HW by methods described in the design procedure.

TOWN OF SOUTH WINDSOR STANDARD DETAIL JANUARY, 1991	HEAD FOR CONCRETE PIPE CULVERTS FLOWING FULL $n = 0.012$ (CHART 8)	APPROVED
	REVISED:	PUBLIC WORKS DIRECTOR