STORM DRAINAGE

LOCATION: BRANCHESTER SECTION 3

DATE: _____ CALC. DAS CHKD. ELG P.N. _____ REV. 6/1/88 6/15/89

J.K. TIMMONS & ASSOC., P.C.
4411 CROSSINGS BLVD.
PRINCE GEORGE CO., VA.
458-8685

$h_j = 0.35(V_2^2/2g)$ – EXPANSION LOSS
$h_b = 0.25(V_2^2/2g)$ – CONTRACTION LOSS
$h_c = K(V_2^2/2g)$ – BEND LOSS
$h_t = h_e + h_b + h_c$ – TOTAL JUNCTION LOSS

THE ENERGY LOSS FOR THE INITIAL INLET OF A STORM SEWER SYSTEM IS 0.5 $(V_2^2/2g)$.
WHEN MORE THAN ONE LINE ENTERS AN INLET DETERMINE LINE EXERTING GREATEST MOMENTUM (QV) FOR h_i.
USE LINE WITH GREATEST "K" VALUE FOR DETERMINING h_b.
IF INLET BAFFLING IS USED REDUCE "h_b" BY 50%.
IF SURFACE INFLOW OCCURS INCREASE "h_b" BY 50%.
BEGIN HYDRAULIC GRADE LINE AT PIPE OUTFALL USING 0.8 PIPE DIA. OR TW WHICHEVER IS GREATER.

BOF K = 0.70 BOF K = 0.35
EOF K = 0.80 EOF K = 0.35
BOF K = 0.60 EOF K = 0.22
EOF K = 0.50 BOF K = 0.18
BOF K = 0.47 EOF K = 0.10

HYDRAULIC GRADE LINE
JUNCTION LOSSES

STRUCTURE	V_1	V_2	K_b	K_c	h_i	h_e	h_b	h_c	h_t
35	V_1				h_i	1.3	50%	2 ft	z_j
25	V_2				h_e				h_j
	Δ	Δ	K_b	K_c	h_b				h_b
					h_c				h_c
					h_t				ELEV. D_2

ELEV. D_2 = ELEV. D_1 + h_j + L_1S_1 + h_b + h_c + h_t + h_e + h_i + z_j

* SPECIAL CONDITIONS REQUIRING USE OF CORRUGATED METAL PIPE.

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CONCRETE OR V.C.	0.013
PLAIN or FULLY COATED	0.024
PARTIALLY COATED (25%)	0.020
FULLY MULTIPLY COATED	0.013
FULLY PAVED	0.013

STRUCTURE TYPE	L	S_o	V_o	h_o	h_i	h_b	h_c	h_t	ELEV. D_1
35	V_1				h_i	1.3	50%	2 ft	ELEV. D_2
25	V_2				h_e				z_j
	Δ	K_b	K_c	h_b	h_c				h_j
					h_t				ELEV. D_1

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