



THE FLINTKOTE COMPANY / PIPE PRODUCTS DIVISION

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December 2, 1975

Mr. Alvin I. Leff,
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P.O. Box 860
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Subject: VCP Maximum Depth of Burial for Extra Strength
and Standard Strength Pipe.
ASTM C-700 Specification

Dear Al:

My memory did not serve me too well in the matter of depth of bury on extra strength VCP. The calculations indicate that the maximum depth varies from 15 feet to 17 feet rather than 18 feet.

I calculated the maximum depths for both extra strength and standard strength VCP in sizes 8" through 42" excluding the less popular sizes of 21", 27", 33" and 39". These sizes would not change the picture of the design parameters employed by VCP since it was apparent the three edge bearing values were modified to present nice, round, orderly, incremental changes from size to size. This is demonstrated on the attached plot for extra strength pipe in sizes 15", 18" and 30".

My first exercise was to test whether the VCP design was based on transition width or $B_c + 2'-0"$. Based on 36" E.S.VCP, $H = 18'-0"$, $L.F. = 1.9$, $S.F. = 1.5$ and $w = 120 \text{ \#/foot}^3$, W_d at the transition width calculated to 14,000 #/foot while the safe field supporting strength equaled 7,600 #/foot. Since $B_c + 2'-0"$ approximates the transition width for smaller diameter pipe and since there is a substantial increase in pipe loading on the larger diameter pipe from $B_c + 2'-0"$ to the transition width, I think it is safe to assume that the transition width is not a design criteria.

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The rest of my calculations were based on the following parameters:

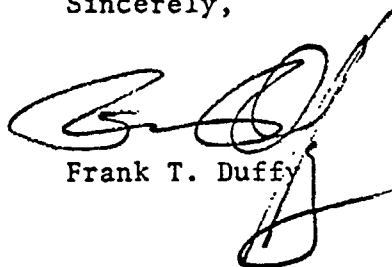
W	=	120 #/ft.
B _c	=	Max. O.D.
B _d	=	B _c + 2'-0"
L.F.	=	1.9
S.F.	=	1.5

I calculated the safe field supporting strength (SFSS) of each pipe and using $SFSS = W_d$, the value for C_d was determined from the Marston formula. The ratio of H/B_d was determined from the graph on Page 189 of the WPCF Manual of Practice-Number 9 and H was then determined from this ratio. The values of H are plotted on the attached graph.

The percents shown on the plot represent the percent of pipe installed up to that particular depth for each size group as determined by our depth of burial survey.

The results of this exercise should be helpful in the selection of the A/C sewer pipe classifications.

Sincerely,



Frank T. Duffy

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Attachment

cc: Mr. E. W. Spinzig, Johns-Manville
Mr. W. R. Perrell, CAPCO
Mr. H. Fraser, Johns-Manville, Canada
Mr. J. Jackson, A/CPPA
Mr. H. Taylor

