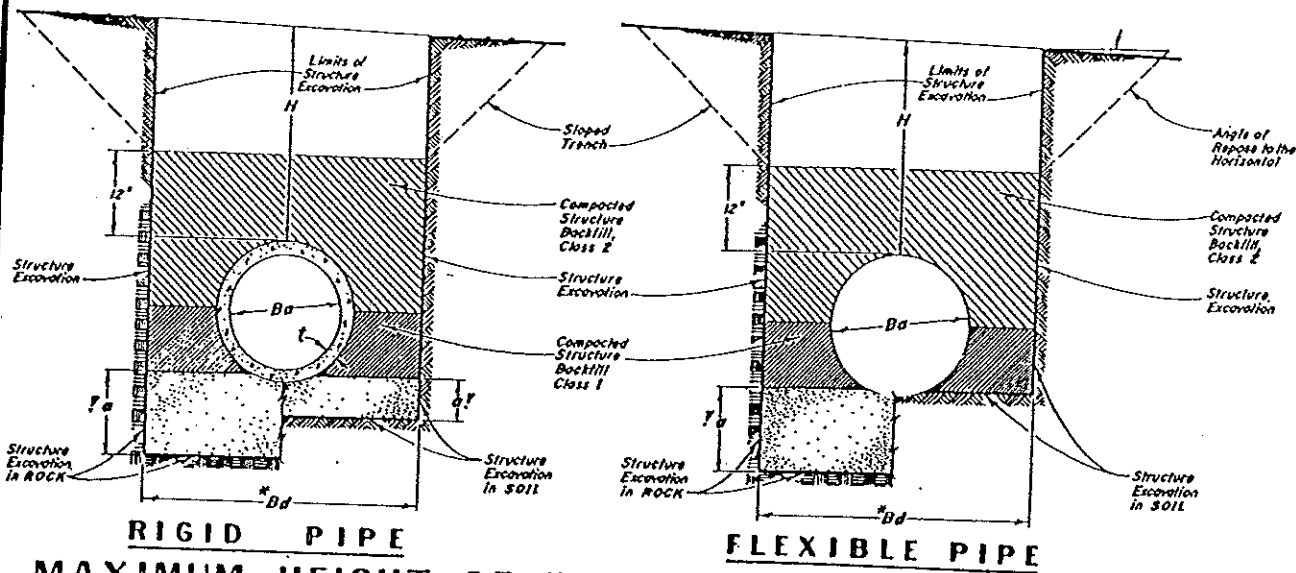


PIPE INSTALLATION IN TRENCH



RIGID PIPE **FLEXIBLE PIPE**
MAXIMUM HEIGHT OF FILL OVER TOP OF PIPE IN FEET
 (FILL HEIGHTS GREATER THAN MAXIMUM WILL REQUIRE SPECIAL DESIGN)

LEGEND

- H = Height of fill over top of pipe.
- Dd = Inside diameter of pipe.
- Dt = Trench width.
- t = Wall thickness of pipe.

⊖ = Loose granular bedding, as follows:
 I.R. OF PIPE @ M SOIL @ M ROCK
 6" - 27" 3" 12"
 30" - 60" 4" 12"
 66" or > 6" 12"

* TRENCH WIDTHS
 CSP, RCP (N.RCP): Dd = Dd + 3'

T Bedding Material for SOIL shall be Gravel, 3"
 Dia. MAX
 Bedding Material for ROCK shall be Gravel, 2"
 Dia. MAX
GENERAL NOTES

Minimum cover for prefabricated pipe shall be 2 feet.
 Changes in design criteria will require compensating change in pipe design.
 When pipe sewer is to be extended or replaced with pipe of different material, the connections shall conform to the detail shown on plans or be approved.
 Spacing for multiple pipe sewer installations shall be 1/2" inside Dia. or open, or 3' max.
TRENCH INSTALLATION:
 Trenches over 3 feet in depth shall be either shored or the trench walls shall be sloped to the angle of repose. If sloped, the bottom of the slope shall be a minimum of 1 foot above the top of the pipe.
 Shoring will be required when the bottom of the slope is more than 3 feet above the bottom of the trench. Shoring shall extend a minimum of one foot above the bottom of the slope.
 Timber sheeting or shoring may be cut off 1 foot above the top of the pipe after backfilling is complete.

REINFORCED CONCRETE

Ba In.	Dd In.	50 INCH GRADE B - LOAD				
		1000	1330	1660	2000	3000
PIPE CLASS						
		II	III	IV	V	
12	4.00	18	25	37	40+	
12	4.25	18	25	37	40+	
18	4.50	18	25	37	40+	
24	4.75	18	25	37	40+	
24	5.00	18	25	37	40+	
27	5.25	18	25	37	40+	
30	5.50	18	25	37	40+	
33	5.75	18	25	37	40+	
36	6.00	18	25	37	40+	
42	6.50	18	25	37	40+	
48	7.00	18	25	37	40+	
54	7.50	18	25	37	40+	
60	8.00	18	25	37	40+	
66	8.50	18	25	37	40+	
72	9.00	18	25	37	40+	
78	9.50	18	25	37	40+	
84	10.00	18	25	37	40+	
90	10.50	18	25	37	40+	
96	11.00	18	25	37	40+	
102	11.50	18	25	37	40+	
108	12.00	18	25	37	40+	

RCP DESIGN CRITERIA:

Safety Factor = 1.33 on UTL
 Soil Weight = 120 lb. per cu ft.
 Load Factor = 1.3
 Bedding = Class III
 (modified)
NOTE: Where trench width cause transition to embankment condition, fill heights for protected pipe (Standard M-604-PC) are shown.

STEEL - 2 1/2" x 1 1/2" CORRUGATIONS

Ba In.	Dd In.	H ABOVE TOP OF PIPE IN FEET					
		1-15	16-20	21-25	26-30	31-36	36-40
THICKNESS IN INCHES							
12-48	4-7	.064	.064	.064	.064	.064	.064
54	7.50	.078	.078	.078	.078	.078	.078
60	8.00	.078	.078	.078	.078	.109	.109
66	8.50	.078	.078	.109	.109	.138	.138
72	9.00	.078	.109	.109	.138	.168	.168
78	9.50	.109	.138	.138	.168		
84	10.00	.109	.138	.168			

CSP DESIGN CRITERIA:

(2" x 1" CORRUGATIONS; 60" H 84" PIPE)
 shall be .064" (thick 118 gage) to M = 40 TL
 Soil Weight = 120 lb. per cu ft.
 Safety Factor for Seam Strength = 2.00
 Buckling Stress Level = 1/2 Yield Strength
 Load Factor (Backfill) = 83% Standard Density
 AASHTO-T-99 (K = 0.86)

REFERENCE: Colorado Department of Highways
 Standard M-604-S (with modifications)