



East Central Railway

Office of the
General Manager (Engg)/Hajipur

PCE's CIRCULAR No- 30/2008/WORKS

Sub- Standard Types of Colony Drains.

In order to standardise the construction of colony drains, copy of CE's Drg. No. A-48-2008 is hereby enclosed. In this drawing, seven types of drain from type-A to type-G have been shown. In the adjoining table corresponding to each type of drain, details of various parameters such as gradient as well as velocity and discharge under various discharge conditions have also been shown. The type of drain for construction should be decided based on gradient available between the invert levels at the point of inflow & at the point of outflow at site as well as maximum discharge required to be catered.

Adoption of these drains will not only standardise the construction of colony drains but also standardise their maintenance practices.

DA: CE's drawing No. A-48-2008.

Ansly
08-09-08

(V. KUMAR)

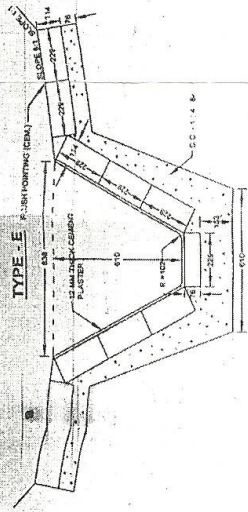
Chief Engineer/Works

Docket No- W-2/118/09/Works Policy
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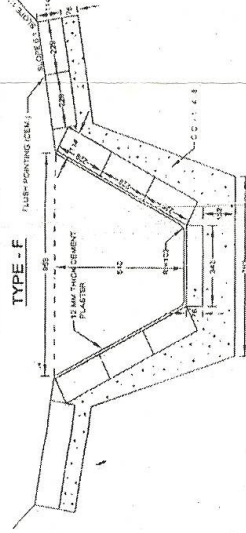
Date-10-09-08

1. CAO/Con/N, CAO/Con/S/MHX for information Pl.
2. DRM/DNR, DHN, MGS, SPJ & SEE for information Pl.
3. Sr.DEN/ (Co-ord)/DNR, DHN, MGS, SPJ & SEE for information and necessary action.
4. All HODs, Dy HODs/Engg Deptt/ECR

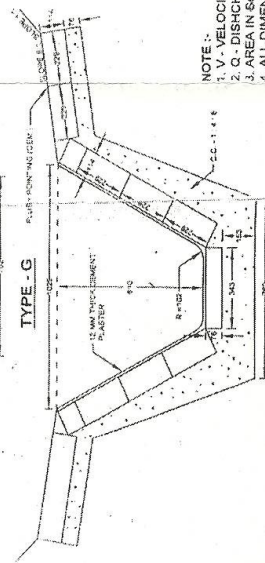
V. Kumar
Dy. CE/WORKS



SACCHARINE	FULL		1/2 FULL		FILL	
	IN	OUT	IN	OUT	IN	OUT
IN 300	1.0273	0.6339	1.4417	0.1370	1.6446	0.6178
IN 400	0.8670	0.7023	1.1167	0.1370	1.7064	0.6378
IN 500	0.7965	0.6534	1.1167	0.1215	1.5036	0.6478
IN 600	0.7102	0.6036	1.0667	0.1261	1.3611	0.6261
IN 700	0.6736	0.5288	0.9449	0.1279	1.2741	0.6278
IN 800	0.6215	0.4688	0.8687	0.1284	1.1735	0.6278
IN 900	0.5863	0.4250	0.7955	0.1284	1.0961	0.6265
IN 1000	0.5669	0.4250	0.7955	0.1284	1.0725	0.7365
IN 1100	0.5334	0.4222	0.7461	0.1284	1.0385	0.6278
IN 1200	0.5151	0.4222	0.7461	0.1284	1.0375	0.7365



GRADIENT	QUARTER CELL		HALF CELL		FULL
	AREA = 0.25A ²	AREA = 0.5A ²	AREA = 0.25A ²	AREA = 0.5A ²	
IN 320	1.7706	0.0168	1.6374	0.0228	0.0168 GRAMA
IN 340	1.7706	0.0168	1.6374	0.0228	0.0168 GRAMA
IN 360	1.7706	0.0168	1.6374	0.0228	0.0168 GRAMA
IN 380	0.9144	0.0506	1.0232	0.1025	0.0506 GRAMA
IN 400	0.9144	0.0506	1.0232	0.1025	0.0506 GRAMA
IN 420	0.9144	0.0506	1.0232	0.1025	0.0506 GRAMA
IN 440	0.7742	0.0408	0.9147	0.0442	0.0408 GRAMA
IN 460	0.7102	0.0267	0.8434	0.0293	0.0267 GRAMA
IN 480	0.6705	0.0242	0.6876	0.0262	0.0242 GRAMA
IN 500	0.6533	0.0416	0.6876	0.0262	0.0416 GRAMA
IN 1100	0.0006	0.0044	0.0047	0.0115	0.0006 GRAMA
IN 1200	0.0013	0.0076	0.0077	0.0155	0.0013 GRAMA



DEPARTMENT	NUMBER FULL TIME	NUMBER PART TIME	TOTAL FULL TIME	TOTAL PART TIME
1. IN 1200	4,813	0,000	4,813	2,654
2. IN 1200	4,813	0,000	4,813	2,654
3. IN 1200	4,813	0,000	4,813	2,654
4. IN 1200	4,813	0,000	4,813	2,654
5. IN 1200	4,813	0,000	4,813	2,654
6. IN 1200	4,813	0,000	4,813	2,654
7. IN 1200	4,813	0,000	4,813	2,654
8. IN 1200	4,813	0,000	4,813	2,654
9. IN 1200	4,813	0,000	4,813	2,654
10. IN 1200	4,813	0,000	4,813	2,654
11. IN 1200	4,813	0,000	4,813	2,654
12. IN 1200	4,813	0,000	4,813	2,654
13. IN 1200	4,813	0,000	4,813	2,654
14. IN 1200	4,813	0,000	4,813	2,654
15. IN 1200	4,813	0,000	4,813	2,654
16. IN 1200	4,813	0,000	4,813	2,654
17. IN 1200	4,813	0,000	4,813	2,654
18. IN 1200	4,813	0,000	4,813	2,654
19. IN 1200	4,813	0,000	4,813	2,654
20. IN 1200	4,813	0,000	4,813	2,654
21. IN 1200	4,813	0,000	4,813	2,654
22. IN 1200	4,813	0,000	4,813	2,654
23. IN 1200	4,813	0,000	4,813	2,654
24. IN 1200	4,813	0,000	4,813	2,654
25. IN 1200	4,813	0,000	4,813	2,654
26. IN 1200	4,813	0,000	4,813	2,654
27. IN 1200	4,813	0,000	4,813	2,654
28. IN 1200	4,813	0,000	4,813	2,654
29. IN 1200	4,813	0,000	4,813	2,654
30. IN 1200	4,813	0,000	4,813	2,654
31. IN 1200	4,813	0,000	4,813	2,654
32. IN 1200	4,813	0,000	4,813	2,654
33. IN 1200	4,813	0,000	4,813	2,654
34. IN 1200	4,813	0,000	4,813	2,654
35. IN 1200	4,813	0,000	4,813	2,654
36. IN 1200	4,813	0,000	4,813	2,654
37. IN 1200	4,813	0,000	4,813	2,654
38. IN 1200	4,813	0,000	4,813	2,654
39. IN 1200	4,813	0,000	4,813	2,654
40. IN 1200	4,813	0,000	4,813	2,654
41. IN 1200	4,813	0,000	4,813	2,654
42. IN 1200	4,813	0,000	4,813	2,654
43. IN 1200	4,813	0,000	4,813	2,654
44. IN 1200	4,813	0,000	4,813	2,654
45. IN 1200	4,813	0,000	4,813	2,654
46. IN 1200	4,813	0,000	4,813	2,654
47. IN 1200	4,813	0,000	4,813	2,654
48. IN 1200	4,813	0,000	4,813	2,654
49. IN 1200	4,813	0,000	4,813	2,654
50. IN 1200	4,813	0,000	4,813	2,654
51. IN 1200	4,813	0,000	4,813	2,654
52. IN 1200	4,813	0,000	4,813	2,654
53. IN 1200	4,813	0,000	4,813	2,654
54. IN 1200	4,813	0,000	4,813	2,654
55. IN 1200	4,813	0,000	4,813	2,654
56. IN 1200	4,813	0,000	4,813	2,654
57. IN 1200	4,813	0,000	4,813	2,654
58. IN 1200	4,813	0,000	4,813	2,654
59. IN 1200	4,813	0,000	4,813	2,654
60. IN 1200	4,813	0,000	4,813	2,654
61. IN 1200	4,813	0,000	4,813	2,654
62. IN 1200	4,813	0,000	4,813	2,654
63. IN 1200	4,813	0,000	4,813	2,654
64. IN 1200	4,813	0,000	4,813	2,654
65. IN 1200	4,813	0,000	4,813	2,654
66. IN 1200	4,813	0,000	4,813	2,654
67. IN 1200	4,813	0,000	4,813	2,654
68. IN 1200	4,813	0,000	4,813	2,654
69. IN 1200	4,813	0,000	4,813	2,654
70. IN 1200	4,813	0,000	4,813	2,654
71. IN 1200	4,813	0,000	4,813	2,654
72. IN 1200	4,813	0,000	4,813	2,654
73. IN 1200	4,813	0,000	4,813	2,654
74. IN 1200	4,813	0,000	4,813	2,654
75. IN 1200	4,813	0,000	4,813	2,654
76. IN 1200	4,813	0,000	4,813	2,654
77. IN 1200	4,813	0,000	4,813	2,654
78. IN 1200	4,813	0,000	4,813	2,654
79. IN 1200	4,813	0,000	4,813	2,654
80. IN 1200	4,813	0,000	4,813	2,654
81. IN 1200	4,813	0,000	4,813	2,654
82. IN 1200	4,813	0,000	4,813	2,654
83. IN 1200	4,813	0,000	4,813	2,654
84. IN 1200	4,813	0,000	4,813	2,654
85. IN 1200	4,813	0,000	4,813	2,654
86. IN 1200	4,813	0,000	4,813	2,654
87. IN 1200	4,813	0,000	4,813	2,654
88. IN 1200	4,813	0,000	4,813	2,654
89. IN 1200	4,813	0,000	4,813	2,654
90. IN 1200	4,813	0,000	4,813	2,654
91. IN 1200	4,813	0,000	4,813	2,654
92. IN 1200	4,813	0,000	4,813	2,654
93. IN 1200	4,813	0,000	4,813	2,654
94. IN 1200	4,813	0,000	4,813	2,654
95. IN 1200	4,813	0,000	4,813	2,654
96. IN 1200	4,813	0,000	4,813	2,654
97. IN 1200	4,813	0,000	4,813	2,654
98. IN 1200	4,813	0,000	4,813	2,654
99. IN 1200	4,813	0,000	4,813	2,654
100. IN 1200	4,813	0,000	4,813	2,654

NOTE:-
1. V - VELOCITY IN METER / SECOND.
2. Q - DISCHARGE IN CUM/SECOND.

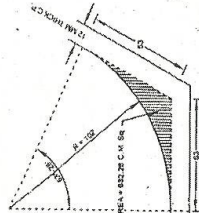
3. AREA IN Sq. M.
4. ALL DIMENSIONS ARE IN MM EXCEPT OTHER WISE STATED

THIS PLAN IS BASED ON N.F. RLY. C.E. PLAN NO. - CEST-(M)/184

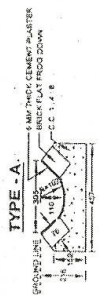
CPDE	WALP 26.1.08
Dy. CE/PLG.	25/01/08
* EAST CENTRAL RAILWAY	
* STANDARD TYPE OF DRAINS WITH DISCHARGE TABLES	

500	DRAWN BY	CHECKED BY	C.E.'S DRG. NO.	A-48-2008
(SCALE:- NOT TO SCALE)				

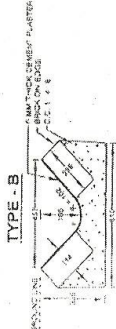
DETAIL OF BOTTOM CORNER



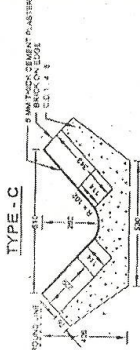
CONCENTR.	TYPE - A			
	AREA = 0.0066	AREA = 0.0066	AREA = 0.0066	AREA = 0.0066
1 IN 100	0.6388	0.0064	1.3543	0.0313
1 IN 200	0.7881	0.0052	1.7350	0.0250
1 IN 250	0.8584	0.0045	1.9759	0.0212
1 IN 300	0.9425	0.0037	2.2875	0.0181
1 IN 400	1.0329	0.0029	2.7111	0.0137
1 IN 500	1.1296	0.0026	3.0522	0.0118
1 IN 600	1.2348	0.0023	3.4115	0.0102
1 IN 800	1.3748	0.0020	3.9822	0.0079
1 IN 1000	1.5412	0.0018	4.5782	0.0074
1 IN 1200	1.7446	0.0016	5.2095	0.0066
1 IN 1500	2.0620	0.0013	6.1206	0.0052
1 IN 2000	2.4451	0.0011	7.4451	0.0041



TYPE - B									
SCHEDULE	TEMPERATURE RANGE, °F	PRESSURE LOSS, PSI		FLOW RATE, GPM		PRESSURE LOSS, PSI		FLOW RATE, GPM	
		100 FT	200 FT	100 FT	200 FT	100 FT	200 FT	100 FT	200 FT
1 IN 10	0.085	0.0045	0.0074	0.010	0.0164	1.8324	0.7818		
1 IN 20	0.095	0.0051	0.0084	0.0119	0.0192	1.9564	0.8163		
1 IN 30	0.105	0.0057	0.0094	0.0138	0.0219	2.0804	0.8508		
1 IN 40	0.115	0.0063	0.0104	0.0157	0.0248	2.2044	0.8853		
1 IN 50	0.125	0.0069	0.0114	0.0176	0.0277	2.3284	0.9198		
1 IN 60	0.135	0.0075	0.0124	0.0195	0.0306	2.4524	0.9543		
1 IN 70	0.145	0.0081	0.0134	0.0214	0.0335	2.5764	0.9888		
1 IN 80	0.155	0.0087	0.0144	0.0233	0.0364	2.7004	1.0233		
1 IN 90	0.165	0.0093	0.0154	0.0252	0.0393	2.8244	1.0578		
1 IN 100	0.175	0.0099	0.0164	0.0271	0.0422	2.9484	1.0923		
1 IN 120	0.195	0.0115	0.0184	0.0310	0.0481	3.2964	1.1863		
1 IN 140	0.215	0.0131	0.0204	0.0349	0.0540	3.6444	1.2803		
1 IN 160	0.235	0.0147	0.0224	0.0388	0.0599	3.9924	1.3743		
1 IN 180	0.255	0.0163	0.0244	0.0427	0.0658	4.3404	1.4683		
1 IN 200	0.275	0.0179	0.0264	0.0466	0.0717	4.6884	1.5623		
1 IN 220	0.295	0.0195	0.0284	0.0505	0.0776	5.0364	1.6563		
1 IN 240	0.315	0.0211	0.0304	0.0544	0.0835	5.3844	1.7503		
1 IN 260	0.335	0.0227	0.0324	0.0583	0.0894	5.7324	1.8443		
1 IN 280	0.355	0.0243	0.0344	0.0622	0.0953	6.0804	1.9383		
1 IN 300	0.375	0.0259	0.0364	0.0661	0.1012	6.4284	2.0323		
1 IN 320	0.395	0.0275	0.0384	0.0700	0.1071	6.7764	2.1263		
1 IN 340	0.415	0.0291	0.0404	0.0739	0.1130	7.1244	2.2203		
1 IN 360	0.435	0.0307	0.0424	0.0778	0.1189	7.4724	2.3143		
1 IN 380	0.455	0.0323	0.0444	0.0817	0.1248	7.8204	2.4083		
1 IN 400	0.475	0.0339	0.0464	0.0856	0.1307	8.1684	2.5023		
1 IN 420	0.495	0.0355	0.0484	0.0895	0.1366	8.5164	2.5963		
1 IN 440	0.515	0.0371	0.0504	0.0934	0.1425	8.8644	2.6903		
1 IN 460	0.535	0.0387	0.0524	0.0973	0.1484	9.2124	2.7843		
1 IN 480	0.555	0.0403	0.0544	0.1012	0.1543	9.5604	2.8783		
1 IN 500	0.575	0.0419	0.0564	0.1051	0.1602	9.9084	2.9723		
1 IN 520	0.595	0.0435	0.0584	0.1090	0.1661	10.2564	3.0663		
1 IN 540	0.615	0.0451	0.0604	0.1129	0.1720	10.6044	3.1603		
1 IN 560	0.635	0.0467	0.0624	0.1168	0.1779	10.9524	3.2543		
1 IN 580	0.655	0.0483	0.0644	0.1207	0.1838	11.3004	3.3483		
1 IN 600	0.675	0.0499	0.0664	0.1246	0.1897	11.6484	3.4423		



GRAIN/TYPE	TYPE - C					FUEL
	ASFA	V	ASFA	V	ASFA	
1 IN 100	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 200	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 300	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 400	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 500	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 600	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 700	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 800	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 900	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 1000	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502
1 IN 1200	1.0452	0.0589	1.5832	0.0430	1.2962	21.2502



TYPE - D			
GRANITE	QUARTZITE	HALE'S FULL	FULL
AREA = 0.0022	AREA = 0.0068	AREA = 0.0068	AREA = 0.1502
1 N 200	1 0211	1 0909	1 0098
1 N 400	0 8441	0 7016	1 0064
1 N 600	0 7351	0 5710	0 8998
1 N 800	0 6853	0 5162	0 8393
1 N 1000	0 6403	0 4835	0 7928
1 N 1200	0 6047	0 4516	0 7484
1 N 1400	0 5765	0 4244	0 7084
1 N 1600	0 5495	0 4018	0 6704
1 N 1800	0 5241	0 3816	0 6352
1 N 2000	0 4998	0 3626	0 5998
1 N 2200	0 4766	0 3456	0 5674
1 N 2400	0 4543	0 3304	0 5374
1 N 2600	0 4328	0 3168	0 5100
1 N 2800	0 4121	0 3046	0 4842
1 N 3000	0 3921	0 2936	0 4600
1 N 3200	0 3728	0 2836	0 4374
1 N 3400	0 3541	0 2744	0 4164
1 N 3600	0 3360	0 2658	0 3968
1 N 3800	0 3185	0 2576	0 3786
1 N 4000	0 3016	0 2498	0 3610
1 N 4200	0 2852	0 2424	0 3448
1 N 4400	0 2694	0 2354	0 3298
1 N 4600	0 2541	0 2288	0 3158
1 N 4800	0 2393	0 2224	0 3028
1 N 5000	0 2250	0 2164	0 2900
1 N 5200	0 2112	0 2108	0 2774
1 N 5400	0 1978	0 2056	0 2658
1 N 5600	0 1849	0 2008	0 2548
1 N 5800	0 1724	0 1964	0 2444
1 N 6000	0 1603	0 1924	0 2346
1 N 6200	0 1486	0 1888	0 2254
1 N 6400	0 1373	0 1856	0 2168
1 N 6600	0 1264	0 1828	0 2088
1 N 6800	0 1159	0 1804	0 2014
1 N 7000	0 1058	0 1784	0 1946
1 N 7200	0 960	0 1768	0 1884
1 N 7400	0 865	0 1756	0 1828
1 N 7600	0 774	0 1748	0 1776
1 N 7800	0 686	0 1744	0 1728
1 N 8000	0 601	0 1744	0 1684
1 N 8200	0 519	0 1756	0 1644
1 N 8400	0 440	0 1768	0 1608
1 N 8600	0 364	0 1784	0 1576
1 N 8800	0 291	0 1804	0 1548
1 N 9000	0 220	0 1828	0 1524
1 N 9200	0 152	0 1856	0 1502
1 N 9400	0 087	0 1888	0 1484
1 N 9600	0 024	0 1924	0 1470
1 N 9800	0 000	0 1964	0 1460
1 N 10000	0 000	0 2008	0 1452

