BILL OF MATERIALS, RCP HDPE CMP

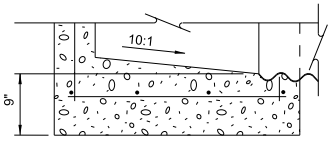
PIPE SIZE INCH	H MIN. FT.	SINGLE GRATE, L = 2'					DOUBLE GRATE = L = 3'					DOUBLE GRATE = L = 4'					DOUBLE GRATE = L = 5'					TRIPLE GRATE = L = 6'				
		★CONCRETE CU. YD.		★REINF. LB.		STR. STEEL GRATE LB.	★CONCRETE CU. YD.		★REINF. LB.		STR. STEEL LB.	★CONCRETE CU. YD.		★ REINF. LB.		STR. STEEL LB.	★CONCRETE CU. YD.		★ REINF. LB.		STR. STEEL LB.	★CONCRETE CU. YD.		★ REINF. LB.		STR. STEEL LB.
		BASE QUAN. H MIN.	ADD RATE C.Y./FT.	BASE QUAN. H MIN.	ADD RATE LB./FT.		BASE QUAN. H MIN.	ADD RATE C.Y./FT.	BASE QUAN. H MIN.	ADD RATE LB./FT.		BASE QUAN. H MIN.	ADD RATE C.Y./FT.	BASE QUAN. H MIN.	ADD RATE LB./FT.		BASE QUAN. H MIN.	ADD RATE C.Y./FT.	BASE QUAN. H MIN.	ADD RATE LB./FT.		BASE QUAN. H MIN.	ADD RATE C.Y./FT.	BASE QUAN. H MIN.	ADD RATE LB./FT.	
≤ 15	2.50	0.76	0.19	72	20	214	0.97	0.23	87	23	372	1.18	0.26	105	28	400	1.39	0.30	120	31	492	1.60	0.34	135	34	586
18	3.00	0.96	0.21	88	22	310	1.21	0.25	105	26	544	1.46	0.28	126	30	578	1.71	0.32	143	33	712	1.96	0.36	160	36	847
24	3.50	1.16	0.23	106	23	352	1.45	0.26	126	26	621	1.75	0.30	150	31	656	2.04	0.34	169	34	807	2.34	0.38	189	37	959
30	4.00	1.37	0.25	134	26	394	1.71	0.28	157	29	699	2.05	0.32	185	33	735	2.38	0.36	209	36	904	2.72	0.39	232	39	1075
36	4.50	1.59	0.26	151	28	527	1.97	0.30	175	31	940	2.35	0.34	205	35	982	2.73	0.38	230	39	1209	3.11	0.41	254	42	1437
42	5.00	1.83	0.28	177	29	579	2.25	0.32	205	32	1035	2.67	0.36	239	36	1078	3.09	0.39	267	39	1327	3.51	0.43	294	43	1577
48	5.50	2.08	0.30	209	31	708	2.54	0.34	239	34	1282	3.00	0.38	276	39	1328	3.47	0.41	307	42	1637	3.93	0.45	337	45	1948

★THE CONCRETE AND REINFORCING QUANTITIES ARE BASED ON THE H MIN. SHOWN. INCREASE THE CONCRETE AND REINFORCING BASE QUANTITY BY THE CORRESPONDING ADD RATE, PER FOOT OF INCREASED H, IF THE H SPECIFIED IS LARGER THAN H MIN

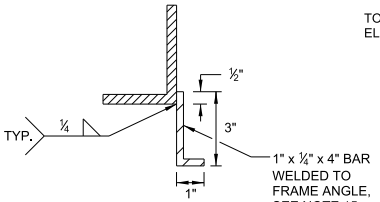
TABLE OF DIMENSIONS, RCP HDPE CMP

PIPE SIZE INCH	A	MAIN BARS INCH	FRAME ANGLES INCH	FRAME BARS INCH	L, FEET TYP. **				
					SINGLE GRATE	DOUBLE GRATE			TRIPLE GRATE
					2'	1'-6"	2'	2'-6"	2'
≤ 15	2'	3½ x ⅜	4 x 3 x ⅜	4 x ⅜	2	3	4	5	6
18	2'-6"	4½ x ⅜	5 x 3 x ⅜	5 x ⅜	2	3	4	5	6
24	3'	4½ x ⅜	5 x 3 x ⅜	5 x ⅜	2	3	4	5	6
30	3'-6"	4½ x ⅜	5 x 3 x ⅜	5 x ⅜	2	3	4	5	6
36	4'	5½ x ⅜	6 x 3½ x ⅜	6 x ⅜	2	3	4	5	6
42	4'-6"	5½ x ⅜	6 x 3½ x ⅜	6 x ⅜	2	3	4	5	6
48	5'	5½ x 7/16	6 x 3½ x ⅜	6 x ⅜	2	3	4	5	6

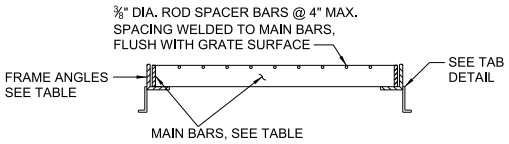
** WHEN USING MULTIPLE GRATES, SPECIFY TOTAL "L" DIMENSION IN CONTRACT PLANS



SECTION B-B



TAB DETAIL



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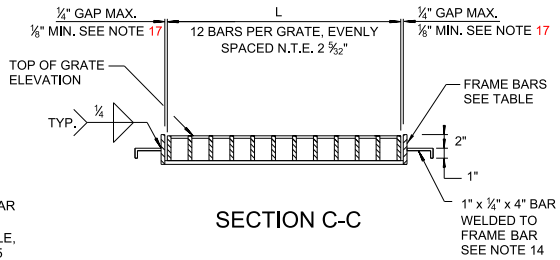

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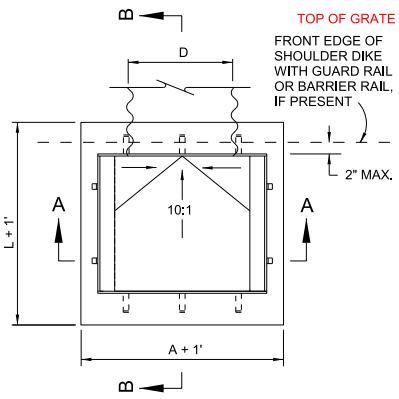
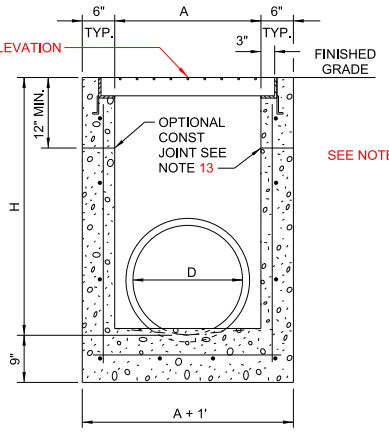
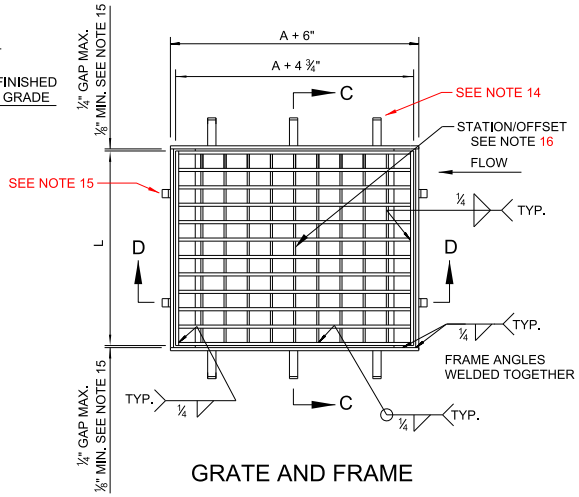


PLAN



SECTION A-A



GRATE AND FRAME

NOTES:

1. All concrete shall be class A or AA.
2. Reinforcing steel shall be ASTM A 615 grade 60 or A 706 grade 60 No. 4 bars with maximum spacing of 9-inches on center in walls and No. 5 bars with maximum spacing of 12 inches on center in base, wired tightly at all intersections and embedded 2-inches clear of inside surfaces.
3. Exposed edges of concrete shall be chamfered 1-inch.
4. Structural steel weight includes the main bars, frame angles, frame bars, rod spacer bars and tabs.
5. For drop inlets, configurations with 2 pipes-inflow pipe invert elevation shall be ≥ 0.1-feet above outflow pipe invert elevation.
6. Dimensions may be varied to fit local conditions if ordered by the Engineer. Contractor shall verify actual "H" value prior to construction. This will then be approved by the Engineer.
7. Commercial prefabricated gratings approved by the bridge division may be used in lieu of the field-welded grating shown.
8. Extreme low cover situations to be reviewed by hydraulics engineer.
9. See detail DS-27 for details if connecting HDPE pipe.
10. Slope catch basin floors 10:1 from all directions toward outlet pipe. If basin is used as a junction, shape flow line(s) to outlet pipe and provide a 10:1 slope to flow line(s).
11. A single Type 2 drop inlet shall be constructed unless a double or triple is specified.
12. Single grate configuration shown for clarity. For dimensions of grate, see Grate and Frame detail, and Table of Dimension.
13. To account for varying field conditions, precast drop inlets are to be only partially precast up to the construction joint and completed in the field to finished grade. Run rebar continuously through construction joint. Joint must be a minimum of 3-inches from horizontal bars.
14. Weld one bar on ℄ of grate and remaining two tabs 6-inches from edge of frame. Six tabs per inlet, three tabs on each side.
15. Weld tabs 6-inches from edge of frame. Four tabs per grate, two on each side.
16. For multiple grate installations, the station/offset is to the center of the concrete drop inlet structure.
17. Grate is to fit in the frame and be easily removed. If the gap between the grate and frame is greater than ¼-inches on each side of the grate, the grate and frame shall be removed and reconstructed to the tolerances specified, or with approval of the Engineer, a filler strip up to ¼-inches in thickness may be welded flush to the top of the frame to reduce the gap to a maximum of ¼-inches.
18. Interior wall dimensions will limit additional inlet size unless the "A" value is increased, "L" grates are added, and/or "H" value is increased.
19. "A" dimension is parallel to the flow or edge of pavement/shoulder dike or barrier rail, and "L" is perpendicular to the flow or edge of pavement/shoulder dike or barrier rail.
20. "L" dimension can be less than 2-feet. If less than 2-feet, bar spacing shall not exceed 2 5/32-inches.
21. Grates and inlet are designed for 16 kip HL-93 wheel load per "AASHTO LRFD Bridge Design Specifications 2012". Live load Impact and multiple presence factors are not applied.

NEVADA DEPARTMENT OF TRANSPORTATION

CHIEF HYDRAULICS ENGR. SIGNED ORIGINAL ON FILE

ADOPTED 11/1970

REVISED 7/2024

DROP INLET TYPE 2

SPEC. # 609

DETAIL NUMBER DS-32