

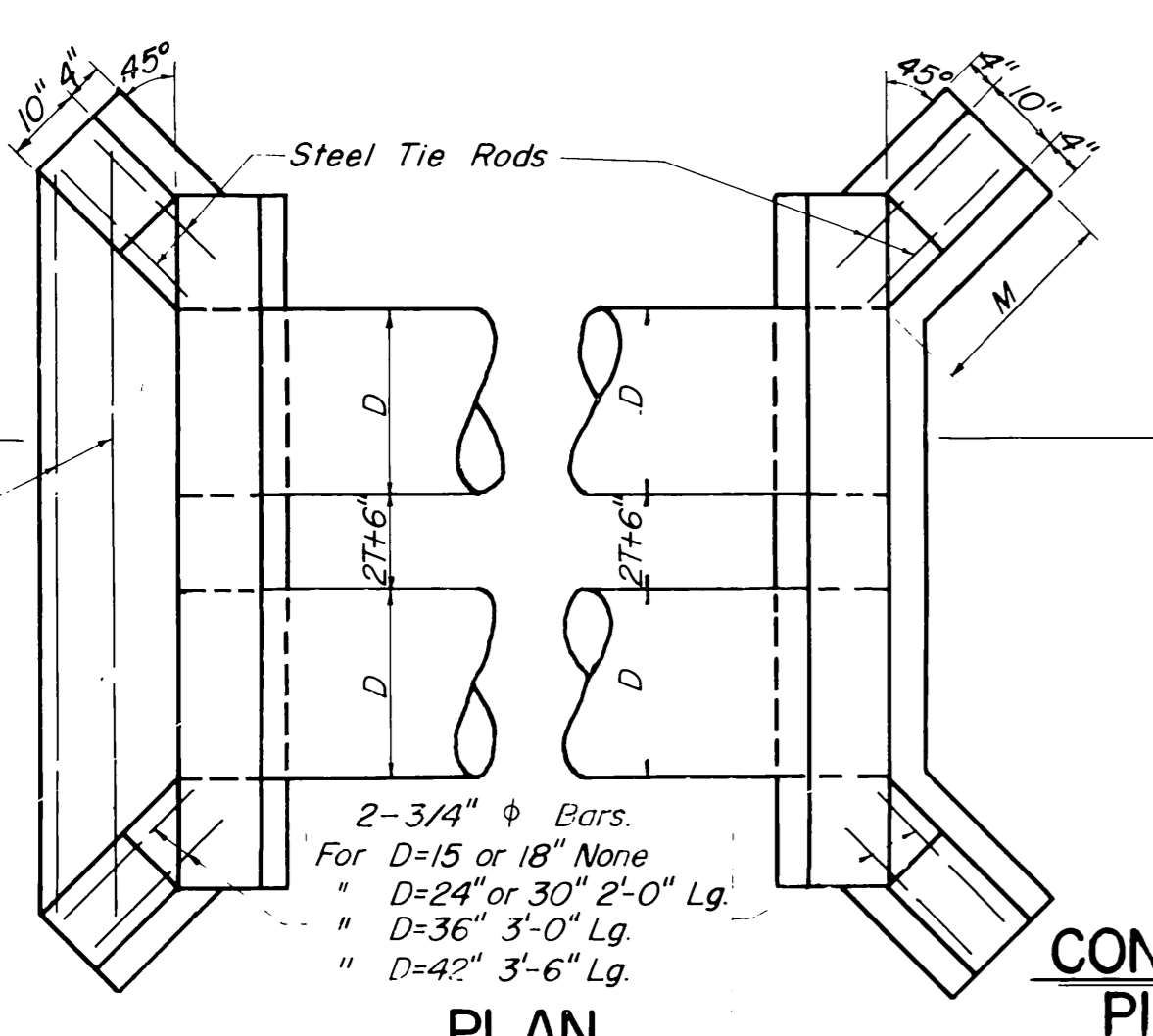
FOR DOUBLE PIPE CULVERTS

OPENING D	AREA SQ. FT.	DIMENSIONS					QUANT. ONE ENDWALL				ADDITIONAL MATERIAL REQUIRED FOR APRON		
		WALL	FOOTING	CLASS A CONC.	STEEL	REINFORCING	WALL	FOOTING	TOTAL	CONC.	STEEL		
12"	1.6	2'-0"	2'-0"	1'-0"	1'-8"	1'-0"	12.0	13.3	25.5	0.94	55	0.12	6
15"	2.5	2'-6"	2'-3"	1'-2"	1'-10"	1'-2"	17.0	20.7	37.7	1.40	64	0.20	11
18"	3.5	3'-0"	2'-6"	1'-3"	1'-11"	1'-3"	22.1	26.8	48.9	1.81	77	0.28	15
24"	6.3	4'-0"	3'-0"	1'-4"	2'-0"	1'-4"	33.7	37.6	71.3	2.64	95	0.46	27
30"	9.8	5'-0"	3'-6"	1'-5"	2'-1"	1'-5"	48.0	50.2	98.2	3.64	117	0.68	41
36"	14.1	6'-0"	4'-0"	1'-6"	2'-2"	1'-6"	65.3	64.8	130.1	4.82	142	0.94	58
42"	19.2	7'-0"	4'-6"	1'-7"	2'-3"	1'-7"	85.7	81.3	167.0	6.19	163	1.25	77

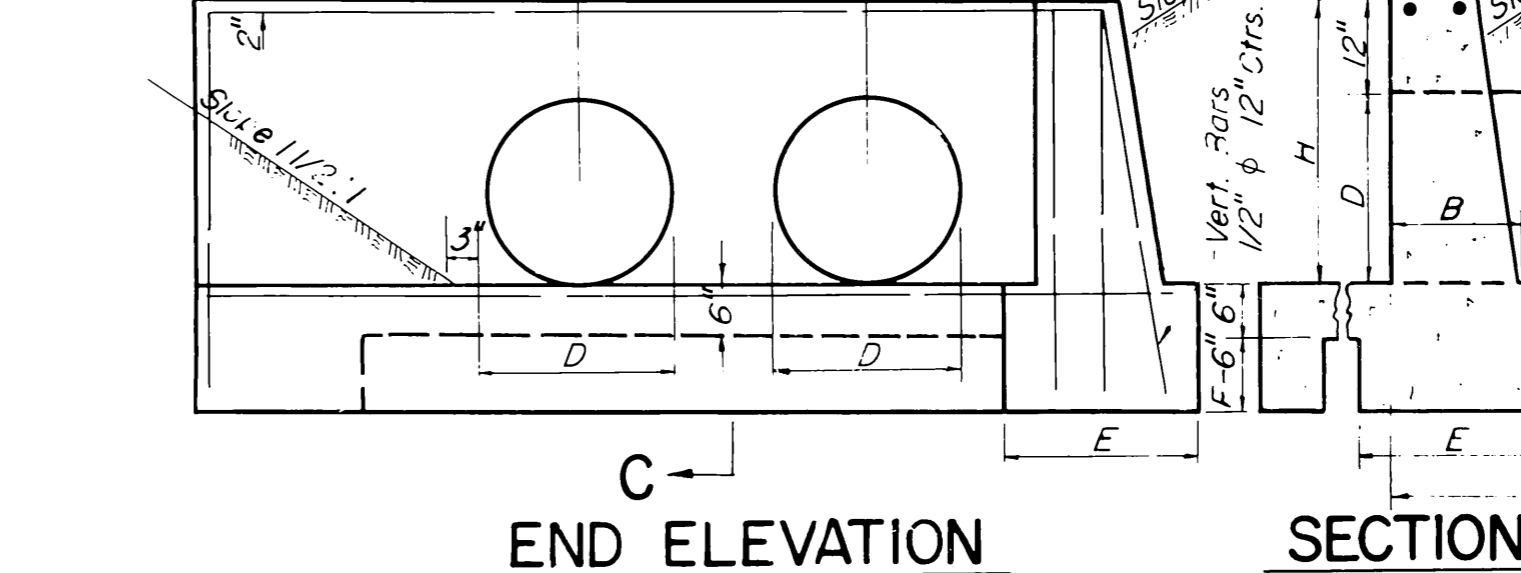
TABLE OF DIMENSION & QUANTITIES FOR ENDWALLS WITH 45° WINGS

OPENING D	AREA SQ. FT.	DIMENSIONS					QUANTITIES IN ONE ENDWALL				ADDITIONAL MATERIAL REQUIRED FOR APRON		
		WALL					CLASS A CONCRETE				REINFORCING STEEL		
		H	G	L	M	F	WALL	FOOTING	TOTAL	REINFORCING	CONC.	STEEL	
15"	2.5	2'-3"	5'-8 1/2"	1'-0"	1'-1"	1'-2"	8.6	11.4	20.0	0.74	50	.06	7
18"	3.5	2'-6"	6'-3"	1'-2"	1'-7"	1'-3"	10.9	15.1	26.0	0.96	57	.16	17
24"	6.3	3'-0"	7'-4"	1'-5"	2'-1"	1'-4"	15.1	20.3	35.4	1.31	78	.33	21
30"	9.8	3'-6"	8'-5"	1'-9"	2'-5"	1'-6"	19.4	26.8	46.2	1.71	88	.54	26
36"	14.1	4'-0"	9'-6"	2'-0"	2'-11"	1'-8"	24.8	35.0	59.8	2.21	104	.93	30
42"	19.2	4'-6"	10'-7"	2'-3"	3'-6"	1'-10"	31.3	44.7	76.0	2.81	117	1.47	53

All construction and materials requirements shall be in accordance with the current standard specifications.
Chamfer All Exposed Edges 3/4"
Unless otherwise specified, all exposed concrete surfaces shall have a finish in accordance with the current standard specifications.



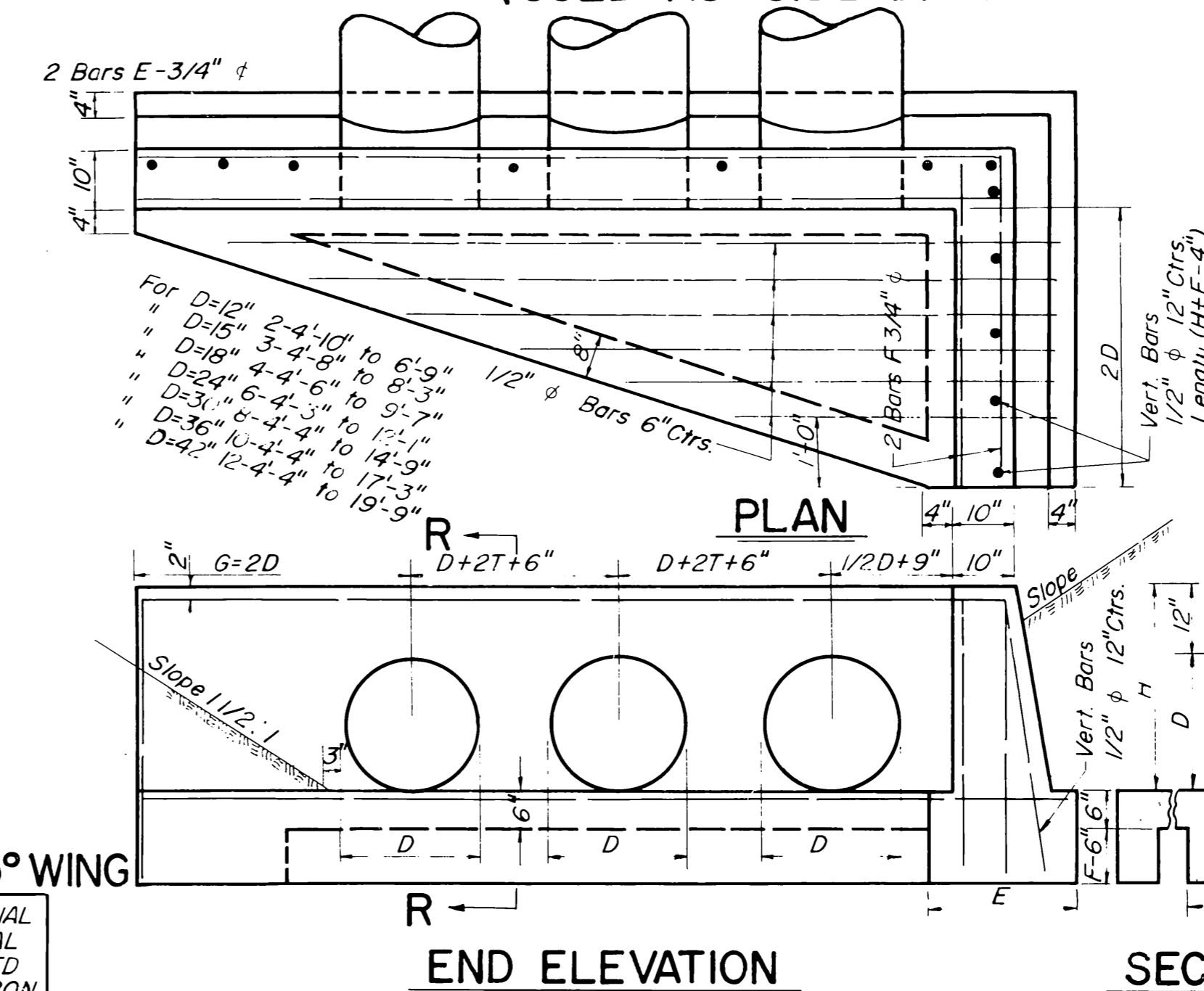
CONCRETE ENDWALLS FOR DOUBLE PIPE CULVERTS WITH 45° WINGS



90° CONCRETE ENDWALLS FOR DOUBLE PIPE CULVERTS (USED AS SIDE DRAINS AND FARM ENTRANCES)

FOR TRIPLE PIPE CULVERTS

OPENING D	AREA SQ. FT.	DIMENSIONS					QUANT. ONE ENDWALL				ADDITIONAL MATERIAL REQUIRED FOR APRON		
		WALL	FOOTING	CLASS A CONC.	STEEL	REINFORCING	WALL	FOOTING	TOTAL	CONC.	STEEL		
12"	2.4	2'-0"	2'-0"	1'-0"	1'-8"	1'-0"	14.0	16.6	30.6	1.13	66	0.17	8
15"	3.7	2'-6"	2'-3"	1'-2"	1'-10"	1'-2"	19.6	25.3	44.9	1.66	76	0.27	13
18"	5.3	3'-0"	2'-6"	1'-3"	1'-11"	1'-3"	25.2	32.6	57.8	2.14	86	0.37	19
24"	9.4	4'-0"	3'-0"	1'-4"	2'-0"	1'-4"	37.7	45.6	83.3	3.09	107	0.61	33
30"	14.7	5'-0"	3'-6"	1'-5"	2'-1"	1'-5"	53.1	60.7	113.8	4.21	132	0.90	51
36"	21.2	6'-0"	4'-0"	1'-6"	2'-2"	1'-6"	71.5	78.4	149.9	5.55	158	1.25	72
42"	28.3	7'-0"	4'-6"	1'-7"	2'-3"	1'-7"	93.2	98.3	191.5	7.09	182	1.66	97

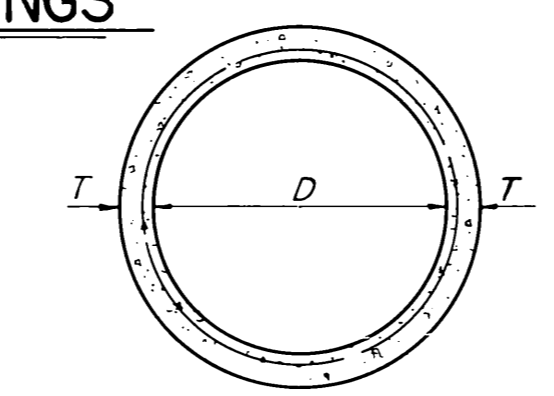
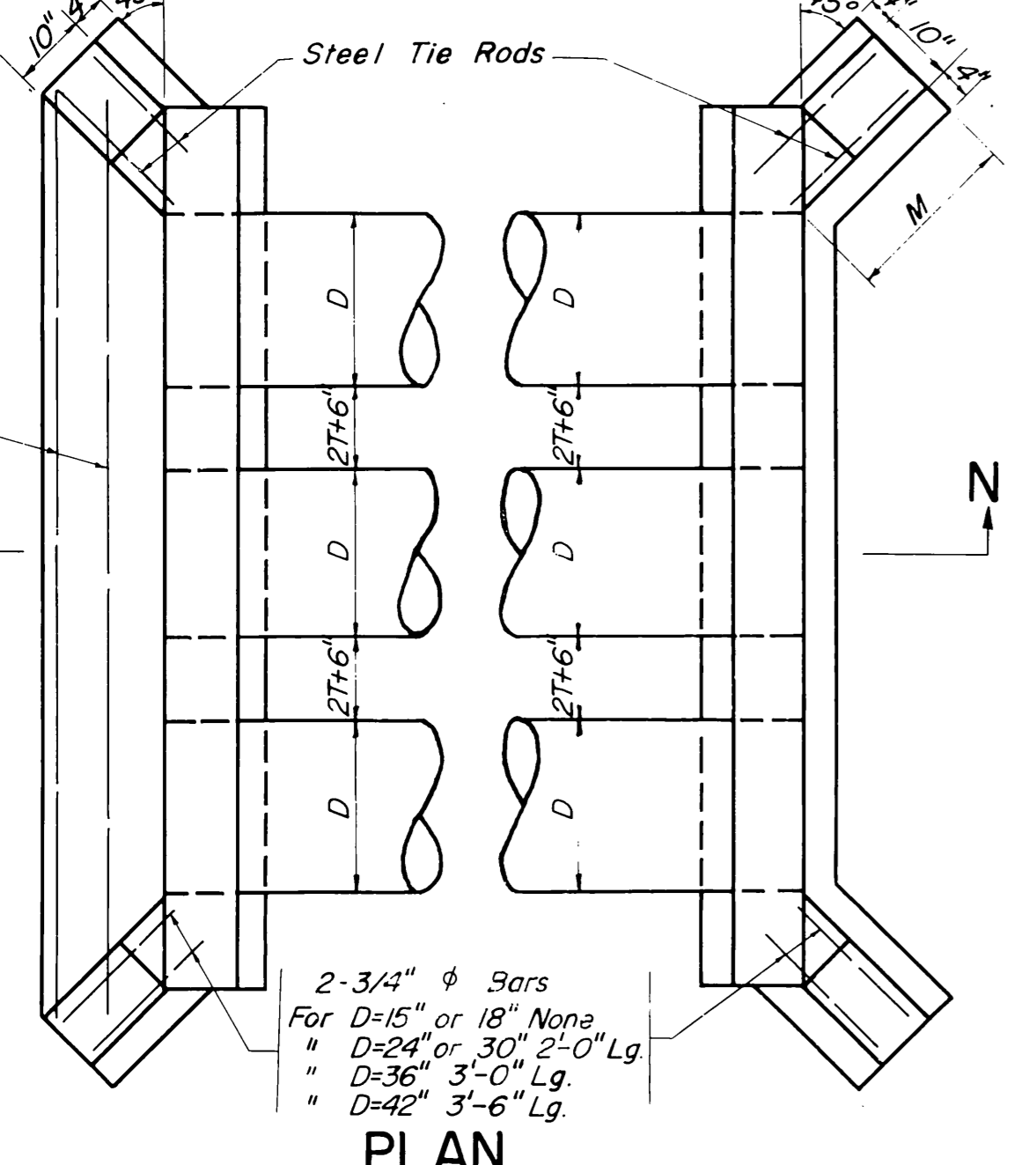
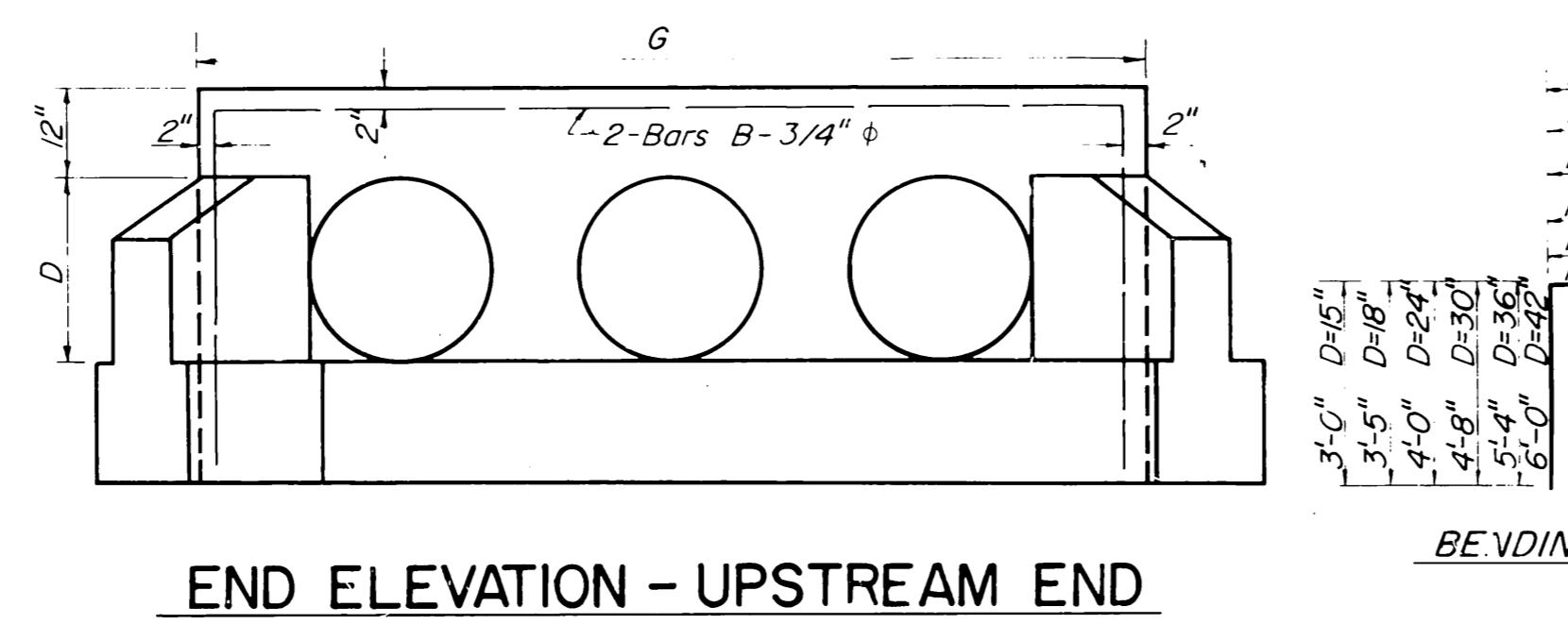
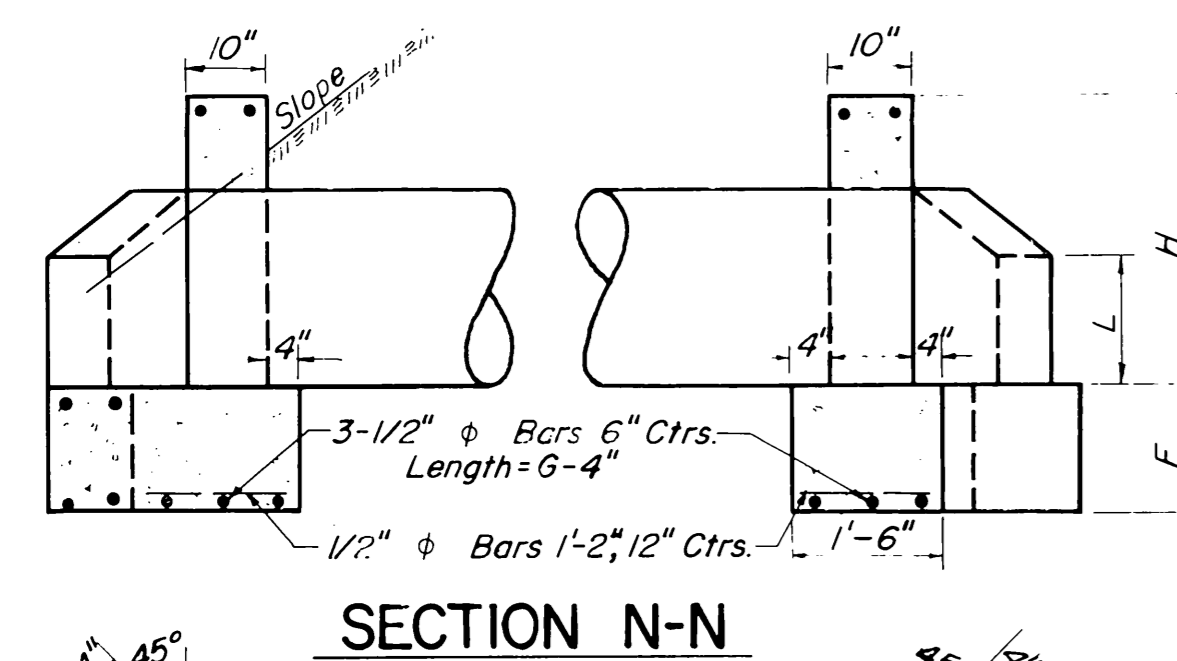


90° CONCRETE ENDWALLS FOR TRIPLE PIPE CULVERTS (USED AS SIDE DRAINS AND FARM ENTRANCES)

TABLE OF DIMENSIONS & QUANTITIES FOR ENDWALLS WITH 45° WING

OPENING D	AREA SQ. FT.	DIMENSIONS					QUANTITIES IN ONE ENDWALL				ADDITIONAL MATERIAL REQUIRED FOR APRON		
		WALL					CLASS A CONCRETE				REINFORCING STEEL		
		H	G	L	M	F	WALL	FOOTING	TOTAL	REINFORCING	CONC.	STEEL	
15"	3.7	2'-3"	7'-10"	1'-0"	1'-1"	1'-2"	10.8	15.1	25.9	.96	62	.10	10
18"	5.3	2'-6"	8'-8"	1'-2"	1'-7"	1'-3"	13.5	19.7	33.2	1.23	70	.25	23
24"	9.4	3'-0"	10'-4"	1'-5"	2'-1"	1'-4"	18.5	26.3	44.8	1.66	95	.50	29
30"	14.7	3'-6"	12'-0"	1'-9"	2'-5"	1'-6"	23.7	34.8	58.5	2.17	109	.82	35
36"	21.2	4'-0"	13'-8"	2'-0"	2'-11"	1'-8"	29.9	45.4	75.3	2.79	128	1.37	41
42"	28.3	4'-6"	15'-4"	2'-3"	3'-6"	1'-10"	37.2	57.7	94.9	3.51	145	2.16	72

CONCRETE ENDWALLS FOR TRIPLE PIPE CULVERTS WITH 45° WINGS



DIMENSIONS

D	T
15"	2 1/4"
18"	2 1/2"
24"	3"
30"	3 1/2"
36"	4"
42"	4 1/2"

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	Rev. 1987 Spec.	LED	

OKLAHOMA DEPARTMENT OF TRANSPORTATION
OKLAHOMA CITY, OKLAHOMA

STANDARD CONCRETE ENDWALLS FOR DOUBLE & TRIPLE CONCRETE PIPE CULVERTS

REVISIONS: 7/11/47, 7/15/47
DESIGNED BY: [Signature]
CHECKED BY: [Signature]
APPROVED BY: [Signature]
SQUAD: [Signature]