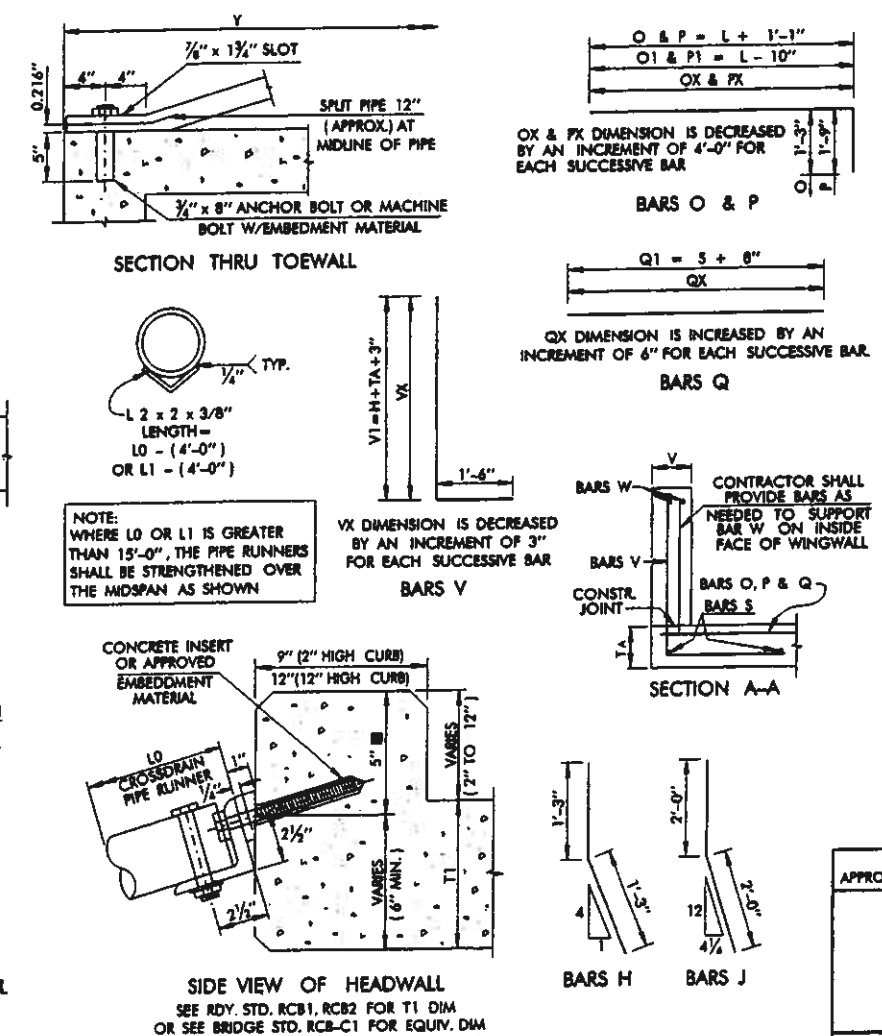
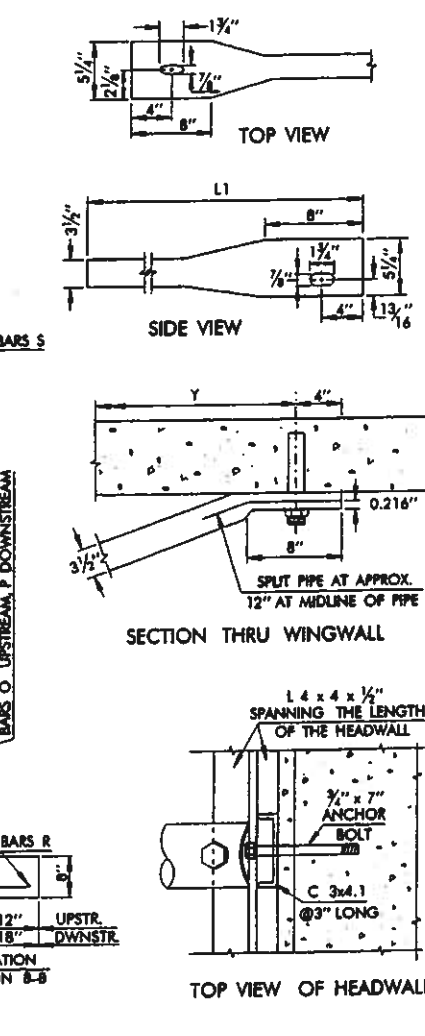
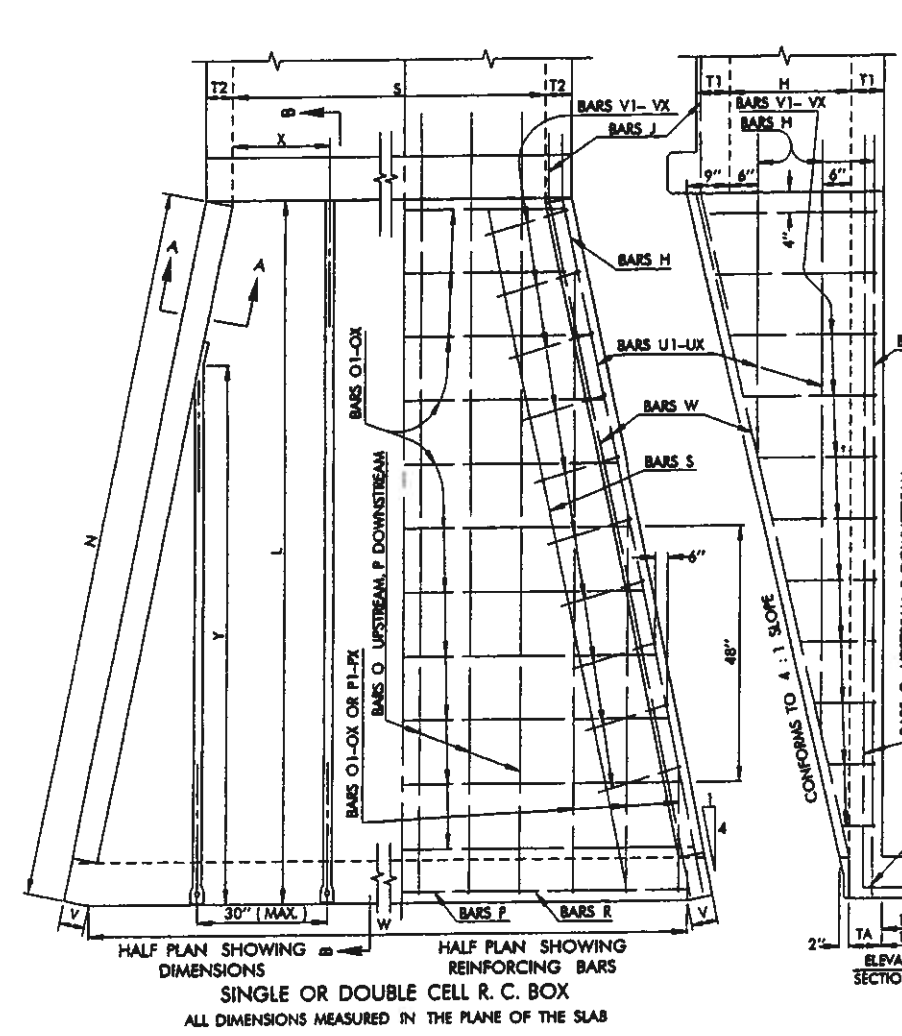


SPECIAL WINGWALL FOR MULTI-CELL REINFORCED CONCRETE BOXES

TABLE OF REINFORCING STEEL FOR 4 WINGS, 2 APRONS & 2 CURTAIN WALLS

CULVERT SIZE EACH BARREL	TABLE OF DIMENSIONS							TOTAL QUANTITIES 4 WINGS / 2 APRONS 2 CURTAIN WALLS		BARS H	BARS J	BARS O	BARS O1- OX	BARS P	BARS P1- PX	BARS Q1- QX	BARS R	BARS S	BARS U1- UX	BARS V1- VX	B BARS W		PIPE RUNNERS																																				
	S	X	H	L	N	V	W	T <sub>1</sub>	X	Y	C.Y.	LBS.	L.F.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.	NO.	WT.												
	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL	PIPE	CONC.	STEEL
4 X 2	11'-0"	11'-2 1/2"	6"	14'-3"	7"	1'-10 1/2"	8'-6"	8.10	766	106.54	12	20	8	48	9	13'-4"	80	4	3'-5"	29	9	13'-10"	83	4	5'-11"	32	22	11'-11"	175	11'-0"	29	10'-9"	37	8	6'-4 1/2"	35	40	3'-2 1/2"	86	85	11'-0"	92	6	11'-3"	4	9'-8 1/2"													
4 X 3	15'-0"	15'-4"	6 1/2"	16'-2"	7"	0'-7 1/2"	7'-4"	12.23	1,100	154.58	16	27	8	48	9	17'-4"	104	5	7'-5"	30	9	17'-10"	107	5	7'-11"	33	30	12'-10"	257	15'-0"	40	14'-10"	79	12	6'-7"	69	56	3'-8 1/2"	139	85	15'-3"	127	8	15'-4 1/2"	4	7'-10 1/2"													
4 X 4	19'-0"	19'-8 1/2"	7"	18'-2"	8"	0'-7 1/2"	11'-4"	18.95	1,565	204.06	20	33	8	48	9	21'-4"	128	6	9'-5"	76	9	21'-10"	131	6	9'-11"	36	38	15'-10"	351	19'-0"	51	18'-11"	101	16	10'-7 1/2"	114	72	4'-6 1/2"	218	86	19'-6"	234	8	19'-4"	4	12'-0 1/2"													
5 X 2	11'-0"	11'-2 1/2"	6"	14'-3"	7"	0'-7 1/2"	7'-6"	9.18	832	122.25	12	20	8	48	11	13'-4"	97	4	5'-5"	29	11	13'-10"	102	4	5'-11"	37	22	13'-11"	205	11'-0"	38	10'-9"	37	8	6'-4 1/2"	35	40	3'-2 1/2"	86	85	15'-3"	127	8	15'-4 1/2"	4	7'-10 1/2"													
5 X 3	15'-0"	15'-4"	6 1/2"	16'-2"	7"	0'-7 1/2"	11'-4"	13.66	1,187	171.06	16	27	8	48	11	17'-4"	127	5	7'-5"	30	11	17'-10"	131	5	7'-11"	33	30	14'-10"	297	15'-0"	40	14'-10"	79	12	6'-7"	69	56	3'-8 1/2"	139	85	15'-3"	127	8	15'-4 1/2"	4	7'-10 1/2"													
5 X 4	19'-0"	19'-8 1/2"	7"	20'-2"	8"	0'-7 1/2"	14'-4"	20.84	1,673	238.96	20	33	8	48	11	21'-4"	156	6	9'-5"	76	11	21'-10"	160	6	9'-11"	38	38	18'-10"	402	19'-0"	51	18'-11"	101	16	10'-7 1/2"	114	72	4'-6 1/2"	218	86	19'-6"	234	10	19'-4"	4	12'-0 1/2"													
6 X 2	11'-0"	11'-2 1/2"	6"	14'-3"	7"	0'-1 1/2"	7'-6"	10.17	889	135.00	12	20	8	48	13	13'-4"	115	4	5'-5"	29	13	13'-10"	120	4	5'-11"	32	22	15'-11"	234	11'-0"	29	10'-9"	37	8	6'-4 1/2"	35	40	3'-2 1/2"	86	85	15'-3"	127	10	15'-4 1/2"	4	7'-10 1/2"													
6 X 3	15'-0"	15'-4"	6 1/2"	16'-2"	7"	0'-1 1/2"	10'-4"	16.67	1,266	197.71	16	27	8	48	13	17'-4"	150	5	7'-5"	30	13	17'-10"	155	5	7'-11"	33	30	16'-10"	337	15'-0"	40	14'-10"	79	12	6'-7"	69	56	3'-8 1/2"	139	85	15'-3"	127	10	15'-4 1/2"	4	7'-10 1/2"													
6 X 4	19'-0"	19'-8 1/2"	7"	22'-2"	8"	0'-1 1/2"	13'-4"	22.94	1,766	273.83	20	33	8	48	13	21'-4"	184	6	9'-5"	73	13	21'-10"	189	6	9'-11"	38	38	17'-10"	453	19'-0"	51	18'-11"	101	16	10'-7 1/2"	114	72	4'-6 1/2"	218	86	19'-6"	234	12	19'-4"	4	12'-0 1/2"													
6 X 5	23'-0"	23'-6 1/2"	7"	24'-2"	8"	0'-1 1/2"	15'-4"	24.88	2,232	348.83	24	40	8	48	13	25'-4"	219	7	11'-5"	107	13	25'-10"	224	7	11'-11"	41	46	18'-10"	579	23'-0"	61	23'-11"	123	20	12'-8"	169	88	4'-9 1/2"	282	86	23'-9"	285	10	23'-7 1/2"	8	14'-0 1/2"													
8 X 3	15'-0"	15'-4"	6 1/2"	16'-2"	7"	0'-10"	8'-4"	18.38	1,440	250.96	16	27	8	48	17	17'-4"	196	5	7'-5"	30	17	17'-10"	202	5	7'-11"	33	30	20'-10"	418	15'-0"	40	14'-10"	79	12	6'-7"	69	56	3'-8 1/2"	139	85	15'-3"	127	14	15'-4 1/2"	4	8'-11 1/2"													
8 X 4	19'-0"	19'-8 1/2"	7"	26'-2"	8"	0'-10"	12'-4"	26.94	1,985	325.17	20	33	8	48	17	21'-4"	241	6	9'-5"	76	17	21'-10"	248	6	9'-11"	40	38	21'-10"	554	19'-0"	51	18'-11"	101	16	10'-7 1/2"	114	72	4'-6 1/2"	218	86	19'-6"	234	14	19'-4"	4	13'-0 1/2"													
8 X 5	23'-0"	23'-6 1/2"	7"	28'-2"	8"	0'-11"	16'-4"	34.13	2,491	420.83	24	40	8	48	17	25'-4"	286	7	11'-5"	107	17	25'-10"	293	7	11'-11"	44	46	22'-10"	702	23'-0"	61	23'-11"	123	20	12'-8"	169	88	4'-9 1/2"	282	86	23'-9"	285	12	23'-7 1/2"	8	17'-2 1/2"													

\* AVERAGE FOR WINGWALL PIPE, MUST CALCULATE ACTUAL PIPE LENGTHS.



**GENERAL NOTES**

- PIPE RUNNERS SHALL BE 3" SCHEDULE 40 STEEL PIPE, ASTM A 53, & A 120. BOLTS AND NUTS SHALL CONFORM TO ASTM A 307.
- HOLES SHALL BE 1/16" OVERSIZE, UNLESS OTHERWISE NOTED.
- STEEL PLATE SHALL CONFORM TO ASTM A 36.
- DIMENSIONS AND MEASUREMENTS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
- STEEL COVER TO BE 2" FROM CENTER OF OUTSIDE LAYER OF STEEL TO FACE OF CONCRETE. CHAMFER EXPOSED CORNERS OF CONCRETE 3/4", EXCEPT AS OTHERWISE NOTED.
- ALL EXPOSED STEEL SHALL BE GALVANIZED UNLESS OTHERWISE SHOWN ON THE PLANS. GALVANIZING DAMAGED DURING TRANSPORT OR CONSTRUCTION SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.
- QUANTITIES SHOWN DO NOT INCLUDE QUANTITIES FOR CURB.
- OVERALL LENGTH OF HEADWALL PIPE (L0) INCLUDING BENDS.
- OVERALL LENGTH OF WINGWALL PIPE (L1) INCLUDING BENDS.
- DESIRABLE DIMENSION, HOWEVER, DIMENSION SHOULD NOT BE LESS THAN 4", IF ANCHOR BOLT HOLE IS DRILLED HORIZONTALLY. T1 & T2 DIMENSIONS TO BE SHOWN ELSEWHERE ON PLANS.
- ALL BOLTS, NUTS, WASHERS, BRACKETS, BRACE ANGLE FOR PIPE STRENGTH, SUPPORT ANGLES AT HEADWALL AND PIPE RUNNERS, SHOWN ON THIS DETAIL SHEET, ARE TO BE INCLUDED IN THE PRICE BID FOR CLASS A OR CLASS AA CONCRETE.
- WINGWALLS, CURB AND APRON CONSTRUCTION SHALL CONSIST OF SAME CLASS OF CONCRETE USED FOR REINFORCED CONCRETE BOX.

**BASIS OF PAYMENT**

ITEM NO.	ITEM	UNIT
509.06 (A)	CLASS AA CONCRETE	CU. YD.
509.06 (B)	CLASS A CONCRETE	CU. YD.
511.06 (A)	REINFORCING STEEL	LBS.

APPROVED BY ROADWAY ENGINEER *C.M. Schenk* DATE 6/6/05

OKLAHOMA DEPT. OF TRANSPORTATION  
 ROADWAY STANDARD (ENGLISH)  
 SAFETY GRATED WINGWALL  
 FOR MULTI-CELL REINFORCED CONCRETE BOX

1999 SPECIFICATIONS (4 : 1 SAFETY SLOPE) MCGW-2 OZE  
 R-142E