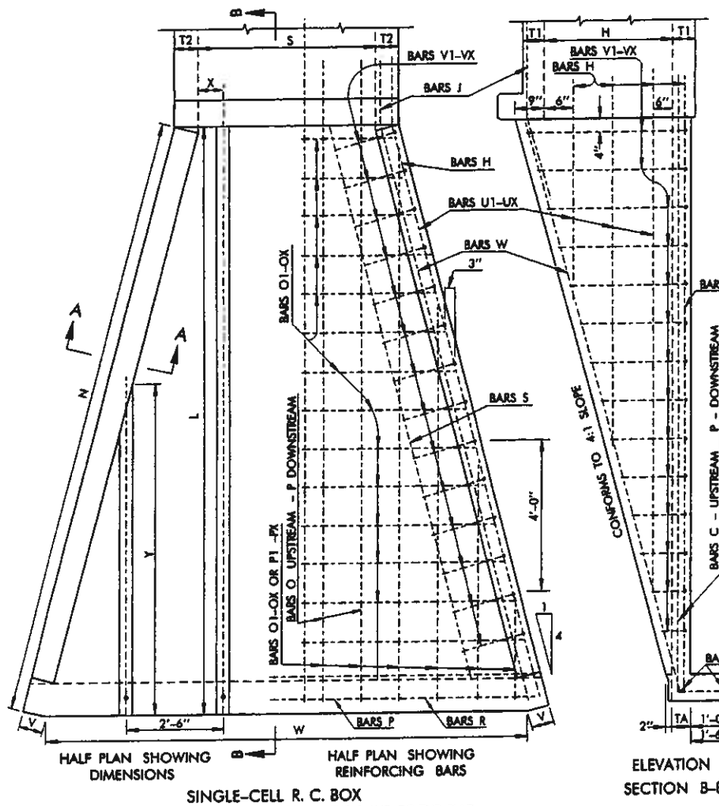
DESCRIPTION	REVISIONS	DATE
	RE-ISSUE W/1999 ENGLISH SPECS.	7/99
	Add Curb Dimensions	lgc 11/02
	Gen. Notes 11,12,Add CLAA Conc.	lgc 6/05

SPECIAL WINGWALL FOR SINGLE CELL REINFORCED CONCRETE BOXES

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

CULVERT SIZE	TABLE OF DIMENSIONS							TOTAL QUANTITIES 4 WINGS / 2 APRONS 2 CURTAIN WALLS			BARS H #4 2'-6" LG@12"		BARS J #6 4'-0" LONG		BARS O #4 @12" C/C			BARS O1-OX #4 @12" C/C			BARS P #4 @12" C/C			BARS P1-PX #4 @12" C/C			BARS Q1-QX #4 @12" C/C			BARS R 4 - #4		BARS S 8 - #4		BARS U1-UX #4			BARS V1-VX #4 @12"C/C			B BARS W			PIPE RUNNERS HEADWALL PIPE		WINGWALL PIPE	
	L	N	V	W	TA	X	Y	CONC. C.Y.	STEEL LBS.	PIPE L.F.	NO.	WT.	NO.	WT.	NO.	LGTH.	WT.	NO.	AVE. LGTH.	WT.	NO.	LGTH.	WT.	NO.	AVE. LGTH.	WT.	NO.	LGTH.	WT.	NO.	AVE. LGTH.	WT.	NO.	LGTH.	WT.	LENGTH	WT.	NO.	AVE. LENGTH	WT.	NO.	AVE. LENGTH	WT.	SIZE	LGTH.	WT.	NO.	LO	NO.	L1
S X H																																														
2 X 2	11'-0"	11'-2 9/16"	6"	7'-6"	6"	—	10'-0"	4.01	530	42.58	12	20	8	48	2	13'-4"	18	6	7'-5"	30	2	13'-10"	18	6	7'-11"	32	22	5'-2"	76	7'-6"	20	10'- 9"	57	8	6'-6 1/2"	35	40	3'-1 1/2"	84	#5	11'-0"	92	0		4	10'-7 3/4"
3 X 2	11'-0"	11'-2 9/16"	6"	8'-6"	6"	0'-3"	—	4.47	567	45.00	12	20	8	48	3	13'-4"	27	6	7'-5"	30	3	13'-10"	28	6	7'-11"	32	22	6'-2"	91	8'-6"	23	10'- 9"	57	8	6'-6 1/2"	35	40	3'-1 1/2"	84	#5	11'-0"	92	4	11'-3"	0	—
3 X 2.5	13'-0"	13'-3 5/16"	6"	9'-6"	6"	1'-6"	9'-0"	5.73	714	65.08	16	27	8	48	3	15'-4"	31	8	7'-5"	40	3	13'-10"	32	8	7'-11"	43	26	6'-6"	113	9'-6"	25	12'- 9"	68	12	8'-7"	69	48	3'-4 1/2"	108	#5	13'-2"	110	2	13'-3 3/4"	4	9'-7 3/8"
3 X 3	13'-0"	13'-3 5/16"	6"	9'-6"	6"	1'-6"	11'-0"	7.35	822	77.42	16	27	8	48	3	17'-4"	35	8	9'-5"	50	3	17'-10"	36	8	9'-11"	53	30	7'-2"	144	10'-6"	28	14'-10"	79	12	8'-7"	69	56	3'-7 1/2"	126	#5	15'-3"	127	2	15'-4 1/2"	4	11'-8"
4 X 2	11'-0"	11'-2 9/16"	6"	9'-6"	6"	2'-0"	9'-0"	4.94	601	60.96	12	20	8	48	4	13'-4"	36	6	7'-5"	30	4	13'-10"	37	6	7'-11"	32	22	7'-3"	105	9'-6"	25	10'- 9"	57	8	6'-6 1/2"	35	40	3'-1 1/2"	84	#5	11'-0"	92	2	11'-3"	4	9'-7 3/8"
4 X 2.5	13'-0"	13'-3 5/16"	6"	10'-6"	6"	2'-0"	11'-0"	6.28	762	73.29	16	27	8	48	4	15'-4"	41	8	7'-5"	40	4	15'-10"	42	8	7'-11"	43	26	7'-6"	130	10'-6"	28	12'- 9"	68	12	8'-7"	69	48	3'-4 1/2"	108	#5	13'-2"	110	2	13'-3 3/4"	4	11'-8"
4 X 3	15'-0"	15'-4"	6 1/2"	11'-6"	6"	0'-9"	8'-0"	7.97	858	95.83	16	27	8	48	4	17'-4"	46	8	9'-5"	50	4	17'-10"	48	8	9'-11"	53	30	8'-2"	164	11'-6"	31	14'-10"	79	12	8'-7"	69	56	3'-7 1/2"	126	#5	15'-3"	127	4	15'-4 1/2"	4	8'-7"
4 X 4	19'-0"	19'-5 1/4"	7"	13'-6"	7"	0'-9"	12'-0"	12.97	1225	128.79	20	33	8	48	4	21'-4"	57	10	11'-5"	76	4	21'-10"	58	10	11'-11"	79	38	9'-2"	233	13'-6"	36	18'-11"	101	16	10'-7 1/2"	114	72	4'-2 1/2"	156	#6	19'-6"	234	4	19'-4"	4	12'-8 3/8"
5 X 2	11'-0"	11'-2 9/16"	6"	10'-6"	6"	0'-2"	—	5.41	637	67.50	12	20	8	48	4	13'-4"	45	6	7'-5"	30	5	13'-10"	46	6	7'-11"	32	22	8'-2"	120	10'-6"	28	10'- 9"	57	8	6'-6 1/2"	35	40	3'-1 1/2"	84	#5	11'-0"	92	6	11'-3"	0	—
5 X 3	15'-0"	15'-4"	6 1/2"	12'-6"	6"	1'-3"	10'-0"	8.76	914	104.08	16	27	8	48	5	17'-4"	58	8	9'-5"	50	5	17'-10"	60	8	9'-11"	53	30	9'-2"	184	12'-6"	33	14'-10"	79	12	8'-7"	69	56	3'-7 1/2"	126	#5	15'-3"	127	4	15'-4 1/2"	4	10'-7 3/4"
5 X 4	19'-0"	19'-5 1/4"	7"	14'-6"	7"	0'-2"	9'-0"	13.82	1282	158.46	20	33	8	48	5	21'-4"	71	10	11'-5"	76	5	21'-10"	73	10	11'-11"	79	38	10'-2"	258	14'-6"	39	18'-11"	101	16	10'-7 1/2"	114	72	4'-2 1/2"	156	#6	19'-6"	234	6	19'-4"	4	9'-7 3/8"
5 X 5	23'-0"	23'-4 3/4"	7"	16'-6"	7"	0'-2"	13'-0"	19.00	1720	196.67	24	40	8	48	5	25'-4"	85	12	13'-5"	108	5	25'-10"	86	12	13'-11"	112	46	11'-3"	343	16'-6"	44	23'- 1"	123	20	12'-8"	169	88	4'-8 1/2"	277	#6	23'-9"	285	6	23'-7 1/2"	4	13'-8 3/4"
6 X 2	11'-0"	11'-2 9/16"	6"	11'-6"	6"	1'-9"	8'-0"	5.89	672	79.33	12	20	8	48	6	17'-4"	69	8	9'-5"	50	6	17'-10"	71	8	9'-11"	53	30	10'-2"	204	13'-6"	36	14'-10"	79	12	8'-7"	69	56	3'-8 1/2"	139	#5	15'-3"	127	4	15'-4 1/2"	4	12'-8 3/8"
6 X 3	15'-0"	15'-4"	6 1/2"	13'-6"	7"	1'-9"	12'-0"	10.20	972	112.29	16	27	8	48	6	21'-4"	86	10	11'-5"	76	6	21'-10"	88	10	11'-11"	79	38	11'-2"	283	15'-6"	41	18'-11"	101	16	10'-7 1/2"	114	72	4'-2 1/2"	156	#6	19'-6"	234	6	19'-4"	4	11'-8"
6 X 4	19'-0"	19'-5 1/4"	7"	15'-6"	7"	0'-6"	11'-0"	14.74	1339	163.67	20	33	8	48	6	21'-4"	102	12	13'-5"	108	6	25'-10"	104	12	13'-11"	112	46	12'-2"	374	17'-6"	47	23'- 1"	123	20	12'-8"	169	88	4'-9 1/2"	282	#6	23'-9"	285	8	23'-7 1/2"	4	13'-8 3/4"
6 X 5	23'-0"	23'-4 3/4"	7"	17'-6"	8"	0'-2"	13'-0"	21.69	1794	243.92	24	40	8	48	6	25'-4"	119	12	13'-5"	108	6	25'-10"	121	12	13'-11"	112	46	13'-2"	432	18'-6"	52	23'- 1"	123	20	12'-8"	169	88	4'-9 1/2"	282	#6	23'-9"	285	8	23'-7 1/2"	4	13'-8 3/4"
7 X 3	15'-0"	15'-4"	6 1/2"	14'-6"	7"	1'-0"	9'-0"	11.09	1049	130.71	16	27	8	48	7	21'-4"	100	10	11'-5"	76	7	21'-10"	102	10	11'-11"	79	38	12'-2"	309	16'-6"	44	18'-11"	101	16	10'-7 1/2"	114	72	4'-2 1/2"	156	#6	19'-6"	234	6	19'-4"	4	13'-8 3/4"
7 X 4	19'-0"	19'-5 1/4"	7"	16'-6"	7"	1'-0"	13'-0"	15.63	1396	171.92	20	33	8	48	7	25'-4"	118	12	13'-5"	108	7	25'-10"	121	12	13'-11"	112	46	13'-2"	405	18'-6"	49	23'- 1"	123	20	12'-8"	169	88	4'-9 1/2"	282	#6	23'-9"	285	8	23'-7 1/2"	4	13'-8 3/4"
7 X 5	23'-0"	23'-4 3/4"	7"	18'-6"	8"	0'-2"	13'-0"	22.25	1860	243.92	24	40	8	48	7	17'-4"	93	8	9'-5"	50	8	17'-10"	95	8	9'-11"	53	30	12'-2"	244	15'-6"	41	14'-10"	79	12	8'-7"	69	56	3'-8 1/2"	139	#5	15'-3"	127	6	15'-4 1/2"	4	11'-8"
8 X 3	15'-0"	15'-4"	6 1/2"	15'-6"	7"	1'-6"	11'-0"	11.80	1065	138.92	16	27	8	48	8	21'-4"	114	10	11'-5"	76	8	21'-10"	117	10	11'-11"	79	38	13'-2"	334	17'-6"	47	18'-11"	101	16	10'-7 1/2"	114	72	4'-3 1/2"	206	#6	19'-6"	234	8	19'-4"	4	10'-7 3/4"
8 X 4	19'-0"	19'-5 1/4"	7"	17'-6"	8"	0'-3"	10'-0"	16.13	1303	198.58	20	33	8	48	8	21'-4"	114	10	11'-5"	76	8	21'-10"	117	10	11'-11"	79	38	13'-2"	334	17'-6"	47	18'-11"	101	16	10'-7 1/2"	114	72	4'-3 1/2"	206	#6	19'-6"	234	8	19'-4"	4	13'-8 3/4"
8 X 5	23'-0"	23'-4 3/4"	7"	19'-6"	8"	0'-2"	13'-0"	24.08	1927	191.17	24	40	8	48	8	25'-4"	138	12	13'-5"	108	8	25'-10"	138	12	13'-11"	112	46	14'-2"	435	19'-6"	52	23'- 1"	123	20	12'-8"	169	88	4'-9 1/2"	282	#6	23'-9"	285	10	23'-7 1/2"	4	13'-8 3/4"
10 X 3	15'-0"	15'-4"	6 1/2"	17'-6"	8"	1'-3"	10'-0"	14.54	1158	165.58	16	27	8	48	8	17'-4"	116	8	9'-5"	50	10	17'-10"	119	8	9'-11"	53	30	14'-2"	284	17'-6"	47	14'-10"	79	12	8'-7"	69	56	3'-8 1/2"	139	#5	15'-3"	127	8	15'-4 1/2"	4	10'-7 3/4"
10 X 4	19'-0"	19'-5 1/4"	7"	19'-6"	8"	0'-2"	9'-0"	20.28	1617	233.46	20	66	8	48	10	21'-4"	143	10	11'-5"	76	10	21'-10"	146	10	11'-11"	79	38	15'-2"	385	19'-6"	52	18'-11"	101	16	10'-7 1/2"	114	72	4'-3 1/2"	206	#6	19'-6"	234	10	19'-4"	4	9'-7 3/4"
10 X 5	23'-0"	23'-6 3/4"	7"	21'-6"	8"	0'-2"	13'-0"	26.57	2063	291.17	24	40	8	48	10	25'-4"	169	12	13'-5"	108	10	25'-10"	173	12	13'-11"	112	46	16'-2"	497	21'-6"	57	23'- 1"	123	20	12'-8"	169	88	4'-9 1/2"	282	#6	23'-9"	285	10	23'-7 1/2"	4	13'-8 3/4"

SINGLE CELL BOXES

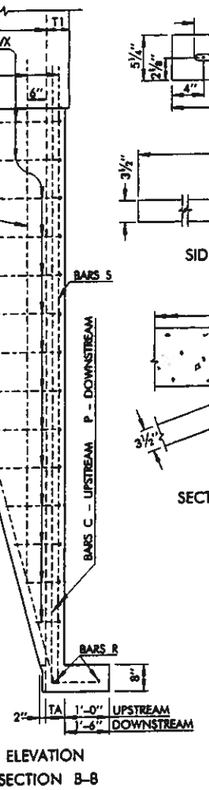


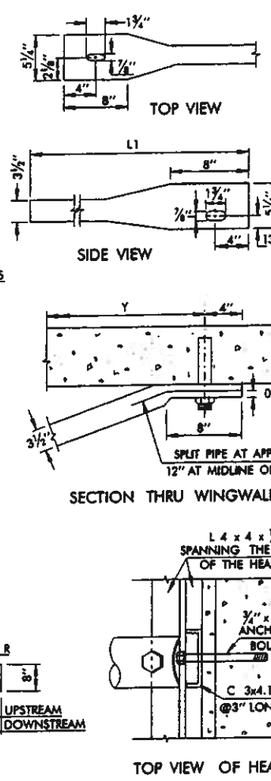
HALF PLAN SHOWING DIMENSIONS

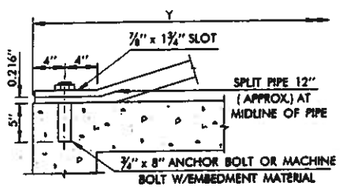
HALF PLAN SHOWING REINFORCING BARS

SINGLE-CELL R. C. BOX

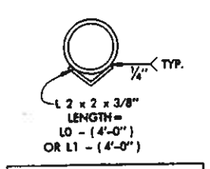
NOTE: ALL DIMENSIONS MEASURED IN THE PLANE OF THE SLAB



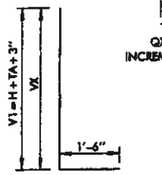




SECTION THRU TOEWALL

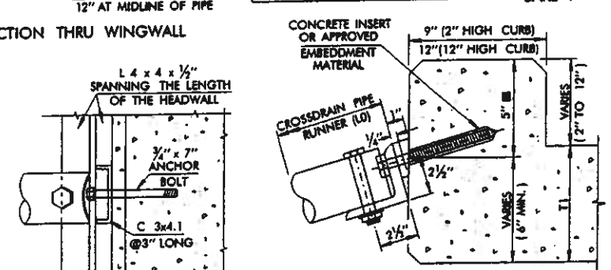


NOTE:
WHERE LO OR L1 IS GREATER THAN 15'-0", THE PIPE RUNNERS SHALL BE STRENGTHENED OVER THE MIDSPAN AS SHOWN



VX DIMENSION IS DECREASED BY AN INCREMENT OF 3" FOR EACH SUCCESIVE BAR

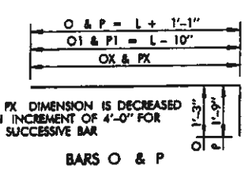
BARS V



SIDE VIEW OF HEADWALL

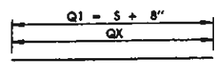
SEE RDY. STD. RCB1, RCB2 FOR T1 DIM OR SEE BRIDGE STD. RCB-C1 FOR EQUIV. DIM

TOP VIEW OF HEADWALL



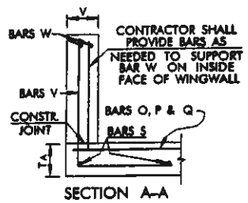
OX & PX DIMENSION IS DECREASED BY AN INCREMENT OF 4'-0" FOR EACH SUCCESSIVE BAR

BARS O & P

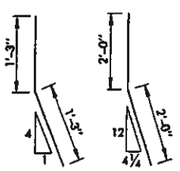


QX DIMENSION IS INCREASED BY AN INCREMENT OF 6" FOR EACH SUCCESSIVE BAR.

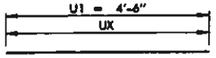
BARS Q



SECTION A-A



BARS H BARS J



U DIMENSION IS INCREASED BY AN INCREMENT OF 4'-1" FOR EACH SUCCESSIVE BAR

BARS U

GENERAL NOTES

1. PIPE RUNNERS SHALL BE 3" SCHEDULE 40 STEEL PIPE, ASTM A 53, & A 120. BOLTS AND NUTS SHALL CONFORM TO ASTM A 307.
2. HOLES SHALL BE 1/16" OVERSIZE, UNLESS OTHERWISE NOTED.
3. STEEL PLATE SHALL CONFORM TO ASTM A 36.
4. DIMENSIONS AND MEASUREMENTS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
5. 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.
6. 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.
7. QUANTITIES SHOWN DO NOT INCLUDE QUANTITIES FOR CURB.
8. OVERALL LENGTH OF HEADWALL PIPE (LO) INCLUDING BENDS.
9. OVERALL LENGTH OF WINGWALL PIPE (L1) INCLUDING BENDS.
10. DESIRABLE DIMENSION, HOWEVER, DIMENSION SHOULD NOT BE LESS THAN 4", IF ANCHOR BOLT HOLE IS DRILLED HORIZONTALLY. VALUE OF T1 COULD MAKE THIS DIMENSION SLIGHTLY MORE OR LESS. T1 & T2 DIMENSIONS TO BE SHOWN ELSEWHERE ON PLANS.
11. 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.
12. 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. Sankowski DATE 6/6/05

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

1999 SPECIFICATIONS | (4 : 1 SAFETY SLOPE) | SCGW-2 | 02E | R-141E