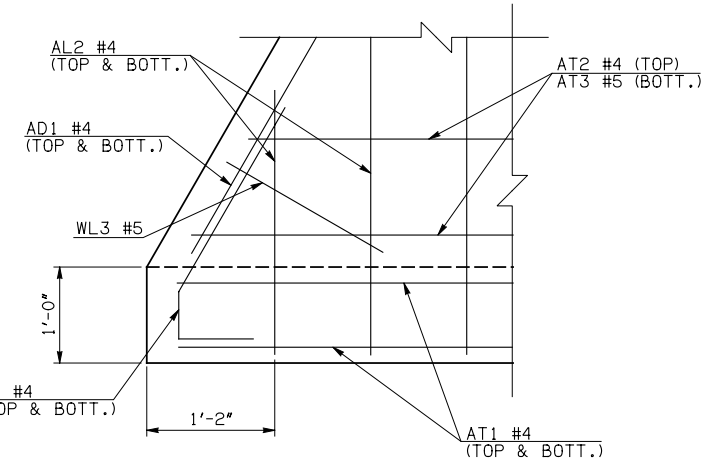
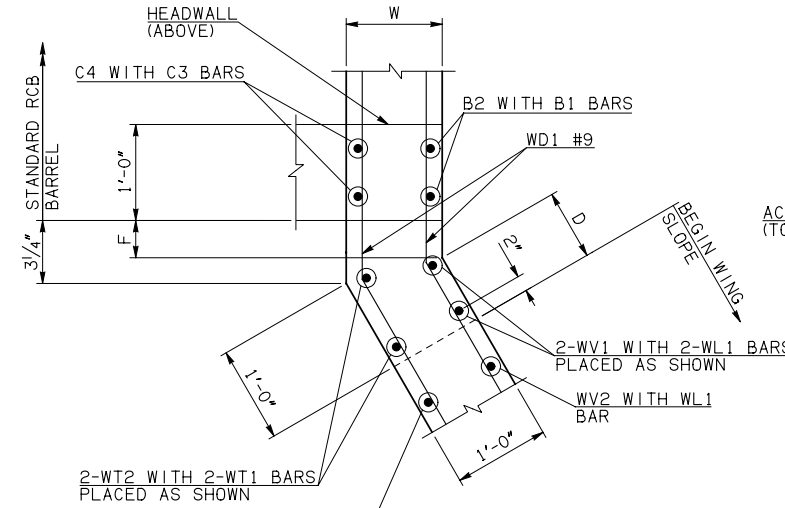
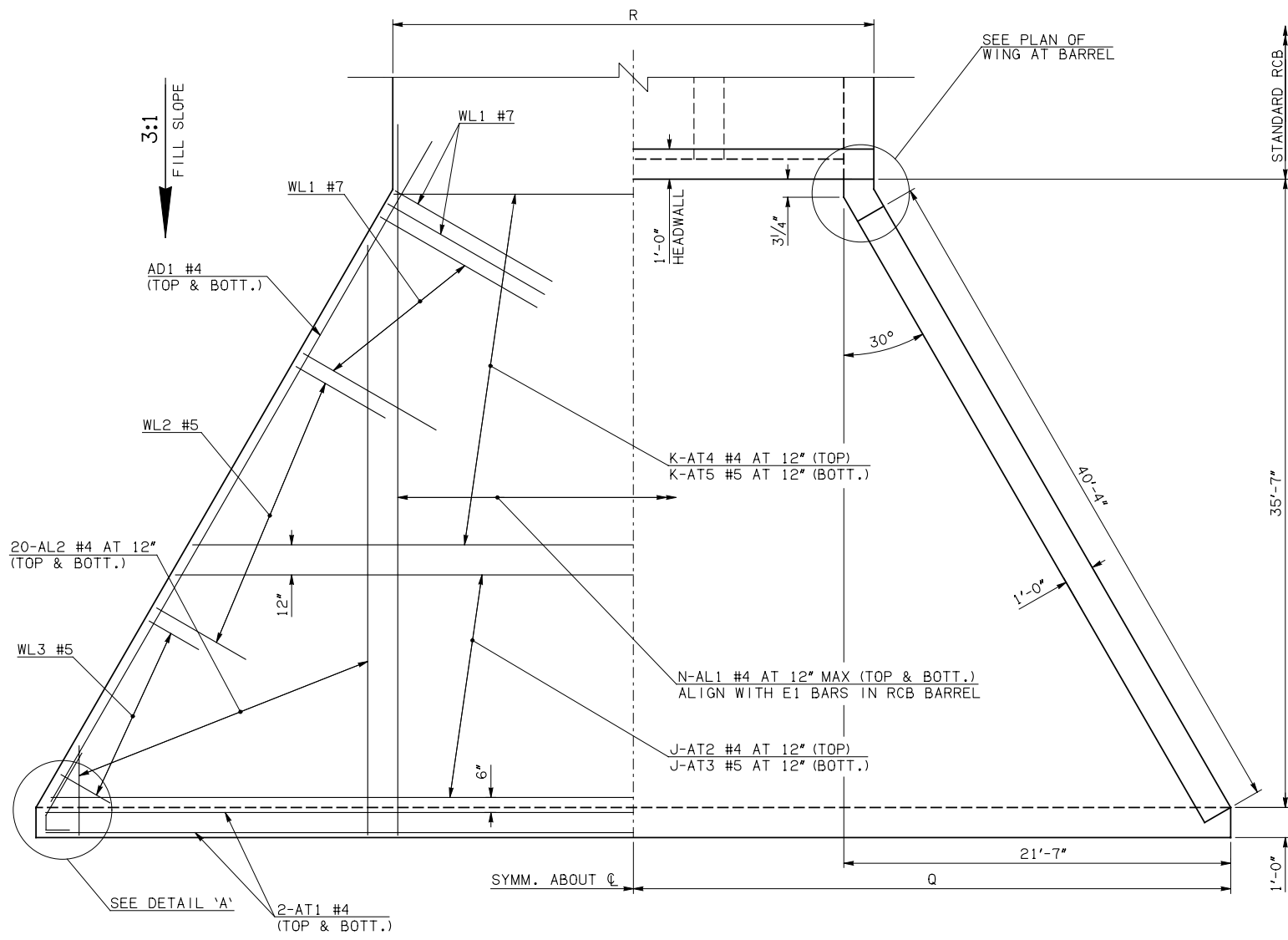
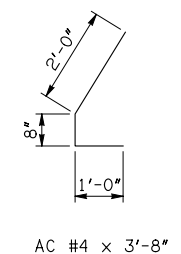


DESCRIPTION	REVISIONS	DATE

WINGWALL DIMENSIONS			
SPAN	W	D	F
10'	12"	8 3/4"	0
12'	12"	8 3/4"	0
14'	12"	8 3/4"	0
16'	13"	6 3/4"	1 3/4"
18'	14"	4 3/4"	3 1/2"
20'	15"	2 3/4"	5 1/4"



APRON VARIABLES						
SPAN	DIM. R	DIM. Q	QTY. J	QTY. K	QTY. N	
10'	34'-0"	37'-7"	13	23	38	
12'	40'-0"	40'-7"	18	18	44	
14'	46'-0"	43'-7"	23	13	50	
16'	52'-2"	46'-7"	29	7	56	
18'	58'-4"	49'-7"	34	2	62	
20'	64'-6"	52'-7"	36	0	68	



WINGWALL BAR LIST					
ONE WINGWALL SHOWN; TWO REQUIRED					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
WD1	#9	22	BNT	8'-4"	
WH1	#4	2	STR	41'-2"	
WH2	#4	22	STR	21'-1 1/2" AVG.	3'-10" TO 38'-5"
WH3	#5	2	STR	41'-9"	
WL1	#7	21	BNT	14'-5"	
WL2	#5	31	BNT	10'-3"	
WL3	#5	10	BNT	4'-8 1/2" AVG.	3'-5" TO 6'-0"
WT1	#4	32	STR	2'-10"	
WT2	#4	2	STR	12'-0"	
WT3	#4	10	STR	10'-6 1/2" AVG.	9'-3" TO 11'-10"
WT4	#4	20	STR	6'-3" AVG.	3'-6" TO 9'-0"
WT5	#4	10	STR	2'-8 1/2" AVG.	1'-5" TO 4'-0"
WV1	#5	2	STR	12'-0"	
WV2	#5	19	STR	10'-6 1/2" AVG.	9'-3" TO 11'-10"
WV3	#5	20	STR	6'-3" AVG.	3'-6" TO 9'-0"
U1	#4	1	BNT	3'-0"	

HALF APRON REINFORCING

HALF APRON PLAN

APRON DETAIL

APRON AND HEADWALL BAR LIST

APRON AND HEADWALL BAR LIST																				
ONE APRON AND ONE HEADWALL SHOWN																				
			10' SPAN			12' SPAN			14' SPAN			16' SPAN			18' SPAN			20' SPAN		
MARK	SIZE	FORM	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS
AC	#4	BNT	4	3'-8"		4	3'-8"		4	3'-8"		4	3'-8"		4	3'-8"		4	3'-8"	
AD1	#4	STR	4	43'-2"		4	43'-2"		4	43'-2"		4	43'-2"		4	43'-2"		4	43'-2"	
AL1	#4	STR	76	38'-5"		88	38'-5"		100	38'-5"		112	38'-5"		124	38'-5"		136	38'-5"	
AL2	#4	STR	80	18'-11 1/2" AVG.	2'-6" TO 35'-5"	80	18'-11 1/2" AVG.	2'-6" TO 35'-5"	80	18'-11 1/2" AVG.	2'-6" TO 35'-5"	80	18'-11 1/2" AVG.	2'-6" TO 35'-5"	80	18'-11 1/2" AVG.	2'-6" TO 35'-5"	80	18'-11 1/2" AVG.	2'-6" TO 35'-5"
AT1	#4	STR	4	77'-4" ③		4	83'-4" ③		4	89'-4" ③		4	95'-4" ③		4	101'-4" ③		4	107'-4" ③	
AT2	#4	STR	13	69'-10 1/2" AVG.	62'-11" TO 76'-10" ③	18	73'-0" AVG.	63'-2" TO 82'-10" ③	23	76'-1 1/2" AVG.	63'-5" TO 88'-10" ③	29	78'-8" AVG.	62'-6" TO 94'-10" ③	34	81'-9" AVG.	62'-8" TO 100'-10" ③	36	86'-7 1/2" AVG.	66'-5" TO 106'-10" ③
AT3	#5	STR	13	69'-10 1/2" AVG.	62'-11" TO 76'-10" ③	18	73'-0" AVG.	63'-2" TO 82'-10" ③	23	76'-1 1/2" AVG.	63'-5" TO 88'-10" ③	29	78'-8" AVG.	62'-6" TO 94'-10" ③	34	81'-9" AVG.	62'-8" TO 100'-10" ③	36	86'-7 1/2" AVG.	66'-5" TO 106'-10" ③
AT4	#4	STR	23	46'-7" AVG.	33'-11" TO 59'-3"	18	49'-8 1/2" AVG.	39'-11" TO 59'-6"	13	52'-10" AVG.	45'-11" TO 59'-9"	7	55'-4 1/2" AVG.	51'-11" TO 58'-10"	2	58'-5 1/2" AVG.	57'-11" TO 59'-0"	0		
AT5	#5	STR	23	46'-7" AVG.	33'-11" TO 59'-3"	18	49'-8 1/2" AVG.	39'-11" TO 59'-6"	13	52'-10" AVG.	45'-11" TO 59'-9"	7	55'-4 1/2" AVG.	51'-11" TO 58'-10"	2	58'-5 1/2" AVG.	57'-11" TO 59'-0"	0		
CH	#4	STR	4	33'-8"		4	39'-8"		4	45'-8"		4	51'-10"		4	58'-0"		4	66'-8" ③	
CL1	#4	BNT	38	4'-4"		44	4'-4"		50	4'-4"		56	4'-4"		62	4'-4"		68	4'-4"	
CL2	#4	BNT	38	4'-3"		44	4'-3"		50	4'-3"		56	4'-3"		62	4'-3"		68	4'-3"	

- ① 4-SETS OF 20-AL2 BARS REQUIRED
- ② 2-SETS OF 11-WH2 BARS REQUIRED
- ③ INCLUDES 2'-6" LAP

QUANTITIES							
ITEM	UNIT	10' SPAN	12' SPAN	14' SPAN	16' SPAN	18' SPAN	20' SPAN
CLASS AA CONCRETE	CY	101.80	110.80	119.70	128.60	137.50	146.20
REINFORCING STEEL	LB	12430.00	13180.00	13960.00	14720.00	15480.00	16240.00

NOTE: QUANTITIES ABOVE ARE FOR ONE END SECTION, WHICH IS COMPRISED OF ONE HEADWALL, ONE APRON, AND TWO WINGWALLS. INCLUDED IN REINFORCING STEEL PAY ITEM QUANTITY IS THE WEIGHT OF ADDITIONAL RCB BARREL REINFORCING STEEL REQUIRED AS SHOWN.

APPROVED BY BRIDGE ENGINEER *Robert J. Muehl* DATE 4/09/09

**OKLAHOMA DEPT. OF TRANSPORTATION**  
**BRIDGE STANDARD (ENGLISH)**  
 RCB CULVERTS - END SECTION DETAILS  
 TRIPLE CELL - 10'-0" HEIGHT - 0°  
 SHEET NO. 1 OF 2

1999 SPECIFICATIONS	RCB-E3-H10-0-1	OOE
		B-642E