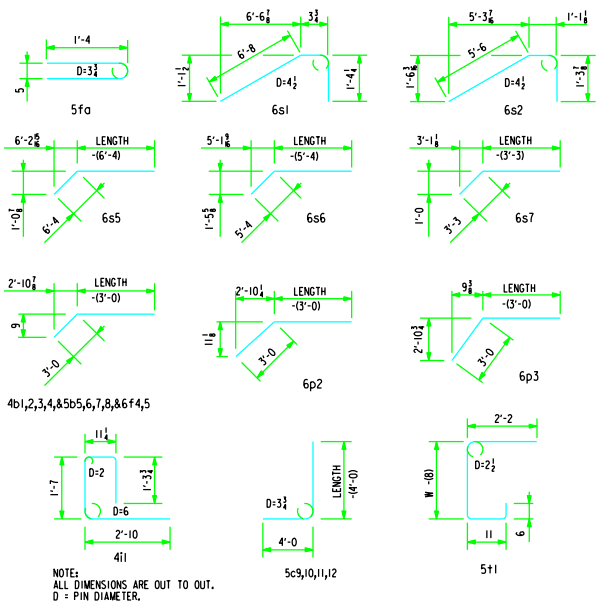
BILL OF REINFORCING FOR ONE HEADWALL 45° SKEW CULVERT SPAN x CULVERT HEIGHT

LOCATION	SHAPE	BAR	12' X 12'			12' X 10'			12' X 8'			12' X 6'			10' X 12'			10' X 10'			10' X 8'			10' X 6'			8' X 10'			8' X 8'			8' X 6'			BAR
			NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	
FENCE ANCHOR (GALV.)		5fa	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	5fa
WINGWALL, B.F.H. L		4b1	1	74'-9	51	1	63'-1	43	1	51'-5	36	1	39'-9	27	1	74'-9	51	1	63'-1	43	1	51'-5	36	1	39'-9	27	1	63'-1	43	1	51'-5	36	1	39'-9	27	4b1
WINGWALL, B.F.H. S		4b2	1	46'-0	32	1	39'-0	26	1	32'-0	21	1	25'-0	17	1	46'-0	32	1	39'-0	26	1	32'-0	21	1	25'-0	17	1	39'-0	26	1	32'-0	21	1	25'-0	17	4b2
WINGWALL, B.F.H. L		4b3	10 VAR	19'-6 TO 71'-11	313	8 VAR	19'-6 TO 60'-3	218	6 VAR	19'-6 TO 48'-8	139	4 VAR	19'-6 TO 37'-0	75	10 VAR	19'-6 TO 71'-11	313	8 VAR	19'-6 TO 60'-3	218	6 VAR	19'-6 TO 48'-8	139	4 VAR	19'-6 TO 37'-0	75	8 VAR	19'-6 TO 60'-3	218	6 VAR	19'-6 TO 48'-8	139	4 VAR	19'-6 TO 37'-0	75	4b3
WINGWALL, B.F.H. S		4b4	10 VAR	12'-10 TO 44'-4	194	8 VAR	12'-10 TO 37'-4	134	6 VAR	12'-10 TO 30'-4	86	4 VAR	12'-10 TO 23'-4	48	10 VAR	12'-10 TO 44'-4	194	8 VAR	12'-10 TO 37'-4	134	6 VAR	12'-10 TO 30'-4	86	4 VAR	12'-10 TO 23'-4	48	8 VAR	12'-10 TO 37'-4	134	6 VAR	12'-10 TO 30'-4	86	4 VAR	12'-10 TO 23'-4	48	4b4
WINGWALL, F.F.H. L		5b5	1	74'-9	80	1	63'-1	68	1	51'-5	56	1	39'-9	41	1	74'-9	80	1	63'-1	68	1	51'-5	56	1	39'-9	41	1	63'-1	68	1	51'-5	56	1	39'-9	41	5b5
WINGWALL, F.F.H. S		5b6	1 VAR	46'-0	50	1	39'-0	41	1	32'-0	33	1	25'-0	26	1	46'-0	50	1	39'-0	41	1	32'-0	33	1	25'-0	26	1	39'-0	41	1	32'-0	33	1	25'-0	26	5b6
WINGWALL, F.F.H. L		5b7	11 VAR	13'-8 TO 71'-11	503	9 VAR	13'-8 TO 60'-3	355	7 VAR	13'-8 TO 48'-8	232	5 VAR	13'-8 TO 37'-0	132	11 VAR	13'-8 TO 71'-11	503	9 VAR	13'-8 TO 60'-3	355	7 VAR	13'-8 TO 48'-8	232	5 VAR	13'-8 TO 37'-0	132	9 VAR	13'-8 TO 60'-3	355	7 VAR	13'-8 TO 48'-8	232	5 VAR	13'-8 TO 37'-0	132	5b7
WINGWALL, F.F.H. S		5b8	11 VAR	9'-4 TO 44'-4	312	9 VAR	9'-4 TO 37'-4	219	7 VAR	9'-4 TO 30'-4	145	5 VAR	9'-4 TO 23'-4	85	11 VAR	9'-4 TO 44'-4	312	9 VAR	9'-4 TO 37'-4	219	7 VAR	9'-4 TO 30'-4	145	5 VAR	9'-4 TO 23'-4	85	9 VAR	9'-4 TO 37'-4	219	7 VAR	9'-4 TO 30'-4	145	5 VAR	9'-4 TO 23'-4	85	5b8
CENTER WALL, BOTH F.H.		5b9	21 VAR	5'-11 TO 36'-9	467	17 VAR	6'-0 TO 31'-3	330	13 VAR	6'-1 TO 25'-7	215	9 VAR	6'-3 TO 20'-0	123	21 VAR	5'-11 TO 36'-9	467	17 VAR	6'-0 TO 31'-3	330	13 VAR	6'-1 TO 25'-7	215	9 VAR	6'-3 TO 20'-0	123	17 VAR	6'-0 TO 31'-3	330	13 VAR	6'-1 TO 25'-7	215	9 VAR	6'-3 TO 20'-0	123	5b9
WINGWALL, F.F.V. L		4c1	72 VAR	2'-10 TO 15'-0	429	60 VAR	2'-10 TO 12'-11	316	49 VAR	2'-10 TO 11'-0	226	37 VAR	2'-10 TO 9'-0	146	72 VAR	2'-9 TO 14'-11	425	60 VAR	2'-9 TO 12'-10	312	49 VAR	2'-9 TO 10'-11	224	37 VAR	2'-9 TO 8'-11	144	60 VAR	2'-7 TO 12'-8	306	49 VAR	2'-7 TO 10'-9	218	37 VAR	2'-7 TO 8'-9	140	4c1
WINGWALL, F.F.V. S		4c2	43 VAR	2'-10 TO 14'-10	254	36 VAR	2'-10 TO 12'-10	188	29 VAR	2'-10 TO 10'-10	132	22 VAR	2'-10 TO 8'-10	86	43 VAR	2'-9 TO 14'-9	251	36 VAR	2'-9 TO 12'-9	186	29 VAR	2'-9 TO 10'-9	131	22 VAR	2'-9 TO 8'-9	85	36 VAR	2'-7 TO 12'-7	182	29 VAR	2'-7 TO 10'-7	127	22 VAR	2'-7 TO 8'-7	82	4c2
WINGWALL, F.F.V. L		4c3	1	13'-9	9	2	11'-9	16	1	9'-9	7	1	7'-9	5	1	13'-8	9	2	11'-8	16	1	9'-8	6	1	7'-8	5	2	11'-6	15	1	9'-6	6	1	7'-6	5	4c3
WINGWALL, F.F.V. S		4c3	2	13'-9	18	2	11'-9	16	2	9'-9	13	2	7'-9	10	2	13'-8	18	2	11'-8	16	2	9'-8	13	2	7'-8	10	2	11'-6	15	2	9'-6	13	2	7'-6	10	4c3
CENTER WALL, BOTH F.V.		4c4	2	1'-9	2	2	1'-9	2	2	1'-9	2	2	1'-8	2	2	1'-8	2	2	1'-8	2	2	1'-8	2	2	1'-7	2	2	1'-6	2	2	1'-6	2	2	1'-5	2	4c4
CENTER WALL, BOTH F.V.		4c5	66 VAR	1'-10 TO 12'-5	314	55 VAR	1'-10 TO 10'-5	225	44 VAR	1'-10 TO 8'-6	152	33 VAR	1'-10 TO 6'-6	92	66 VAR	1'-9 TO 12'-4	310	55 VAR	1'-9 TO 10'-4	222	44 VAR	1'-9 TO 8'-5	149	33 VAR	1'-9 TO 6'-5	90	55 VAR	1'-7 TO 10'-2	216	44 VAR	1'-7 TO 8'-3	145	33 VAR	1'-7 TO 6'-3	86	4c5
CENTER WALL, BOTH F.V.		4c6	3	12'-7	25	3	10'-7	21	3	8'-7	17	3	6'-7	13	3	12'-6	25	3	10'-6	21	3	8'-6	17	3	6'-6	13	3	10'-4	21	3	8'-4	17	3	6'-4	13	4c6
WINGWALL, B.F.V. L		5c7	15 VAR	2'-10 TO 5'-3	63	15 VAR	2'-10 TO 5'-3	63	15 VAR	2'-10 TO 5'-3	63	15 VAR	2'-10 TO 5'-3	63	15 VAR	2'-9 TO 5'-2	62	15 VAR	2'-9 TO 5'-2	62	15 VAR	2'-9 TO 5'-2	62	15 VAR	2'-9 TO 5'-2	62	15 VAR	2'-7 TO 5'-0	59	15 VAR	2'-7 TO 5'-0	59	15 VAR	2'-7 TO 5'-0	59	5c7
WINGWALL, B.F.V. S		5c8	4 VAR	2'-10 TO 3'-8	14	4 VAR	2'-10 TO 3'-8	14	4 VAR	2'-10 TO 3'-8	14	4 VAR	2'-10 TO 3'-8	14	4 VAR	2'-9 TO 3'-7	13	4 VAR	2'-9 TO 3'-7	13	4 VAR	2'-9 TO 3'-7	13	4 VAR	2'-9 TO 3'-7	13	4 VAR	2'-7 TO 3'-5	13	4 VAR	2'-7 TO 3'-5	13	4 VAR	2'-7 TO 3'-5	13	5c8
WINGWALL, B.F.V. L		5c9	57 VAR	9'-5 TO 19'-0	845	45 VAR	9'-5 TO 16'-11	618	34 VAR	9'-5 TO 15'-0	433	22 VAR	9'-5 TO 13'-0	257	57 VAR	9'-4 TO 18'-11	840	45 VAR	9'-4 TO 16'-10	614	34 VAR	9'-4 TO 14'-11	430	22 VAR	9'-4 TO 12'-11	255	45 VAR	9'-2 TO 16'-8	606	34 VAR	9'-2 TO 14'-9	424	22 VAR	9'-2 TO 12'-9	251	5c9
WINGWALL, B.F.V. S		5c10	39 VAR	8'-0 TO 18'-10	546	32 VAR	8'-0 TO 16'-10	414	25 VAR	8'-0 TO 14'-10	298	18 VAR	8'-0 TO 12'-10	196	39 VAR	7'-11 TO 18'-9	542	32 VAR	7'-11 TO 16'-9	412	25 VAR	7'-11 TO 14'-9	296	18 VAR	7'-11 TO 12'-9	194	32 VAR	7'-9 TO 16'-7	406	25 VAR	7'-9 TO 14'-7	291	18 VAR	7'-9 TO 12'-7	191	5c10
WINGWALL, B.F.V. L		5c11	43	10'-6	471	31	10'-6	340	19	10'-6	208	-	-	-	43	10'-6	471	31	10'-6	339	19	10'-6	208	-	-	-	31	10'-6	339	19	10'-6	208	-	-	-	5c11
WINGWALL, B.F.V. S		5c11	26	10'-6	285	19	10'-6	208	12	10'-6	131	-	-	-	26	10'-6	285	19	10'-6	208	12	10'-6	131	-	-	-	19	10'-6	208	12	10'-6	131	-	-	-	5c11
WINGWALL, B.F.V. L		5c12	1	17'-8	18	2	15'-8	33	1	13'-8	14	1	11'-8	12	1	17'-7	18	2	15'-7	33	1	13'-7	14	1	11'-7	12	2	15'-5	32	1	13'-5	14	1	11'-5	12	5c12
WINGWALL, B.F.V. S		5c12	2	17'-8	37	2	15'-8	33	2	13'-8	29	2	11'-8	24	2	17'-7	37	2	15'-7	33	2	13'-7	28	2	11'-7	24	2	15'-5	32	2	13'-5	28	2	11'-5	24	5c12
APRON, LONGIT., BOTT.		4d1	17	38'-0	432	17	32'-4	367	17	26'-9	304	17	21'-1	239	15	38'-0	381	13	32'-4	281	13	26'-9	232	13	21'-1	183	11	32'-4	238	11	26'-9	197	11	21'-1	155	4d1
APRON, LONGIT., BOTT. L		4d2	3	67'-3	139	3	55'-8	116	3	44'-0	92	3	32'-6	65	3	67'-3	139	3	55'-8	116	3	44'-0	92	3	32'-6	65	3	55'-8	116	3	44'-0	92	3	32'-6	65	4d2
APRON, LONGIT., BOTT. S		4d3	3	41'-10	88	3	34'-10	70	3	27'-11	56	3	21'-0	42	3	41'-10	88	3	34'-10	70	3	27'-11	56	3	21'-0	42	3	34'-10	70	3	27'-11	56	3	21'-0	42	4d3
APRON, LONGIT., TOP		6f1	24	38'-0	1370	24	32'-4	1166	24	26'-9	964	24	21'-1	760	20	38'-0	1142	20	32'-4	971	20	26'-9	804	20	21'-1	633	16	32'-4	777	16	26'-9	643	16	21'-1	507	6f1
APRON, LONGIT., TOP L		6f2	15 VAR	6'-6 TO 34'-10	466	12 VAR	6'-11 TO 29'-2	325	9 VAR	7'-3 TO 23'-6	208	7 VAR	5'-7 TO 17'-10	123	15 VAR	6'-6 TO 34'-10	466	12 VAR	6'-11 TO 29'-2	325	9 VAR	7'-3 TO 23'-6	208	7 VAR	5'-7 TO 17'-10	123	12 VAR	6'-11 TO 29'-2	325	9 VAR	7'-3 TO 23'-6	208	7 VAR	5'-7 TO 17'-10	123	6f2
APRON, LONGIT., TOP S		6f3	9 VAR	8'-1 TO 35'-2	292	8 VAR	5'-9 TO 29'-6	212	6 VAR	6'-10 TO 23'-10	138	4 VAR	7'-11 TO 18'-2	78	9 VAR	8'-1 TO 35'-2	292	8 VAR	5'-9 TO 29'-6	212	6 VAR	6'-10 TO 23'-10	138	4 VAR	7'-11 TO 18'-2	78	8 VAR	5'-9 TO 29'-6	212	6 VAR	6'-10 TO 23'-10	138	4 VAR	7 '-11 TO 18'-2	78	6f3
APRON, LONGIT., TOP L		6f4	1	74'-8	115	1	63'-1	98	1	51'-5	80	1	39'-9	60	1	74'-8	115	1	63'-1	98	1	51'-5	80	1	39'-9	60	1	63'-1	98	1	51'-5	80	1	39'-9	60	6f4
APRON, LONGIT., TOP S		6f5	1	45'-11	72	1	39'-0	59	1	32'-0	48	1	25'-0	38	1	45'-11	72	1	39'-0	59	1	32'-0	48	1	25'-0	38	1	39'-0	59	1	32'-0	48	1	25'-0	38	6f5
PARAPET, VERTICAL		4l1	51	6'-8	227	49	6'-8	218	49	6'-8	218	49	6'-8	218	43	6'-8	191	41	6'-8	183	41	6'-8	183	41	6'-8	183	33	6'-8	147	33	6'-8	147	33	6'-8	147	4l1
PARAPET, HORIZONTAL		7j1	4	35'-8	292	4	35'-5	290	4	35'-5	290	4	35'-4	289	4	30'-0	245	4	29'-9	243	4	29'-9	243	4	29'-8	243	4	24'-1	197	4	24'-1	197	4	24'-0	196	7j1
APRON, TRANS., TOP		6m1	19 VAR	30'-4 TO 33'-9	914	19 VAR	29'-10 TO 33'-2	899	17 VAR	29'-10 TO 32'-10	800	10 VAR	29'-6 TO 31'-3	456	17 VAR	25'-10 TO 28'-10	698	17 VAR	25'-4 TO 28'-4	685	17 VAR	25'-4 TO 28'-4	685	12 VAR	25'-0 TO 27'-1	469	14 VAR	20'-10 TO 23'-3	463	14 VAR	20'-10 TO 23'-3	463	15 VAR	20'-6 TO 23'-2	491	6m1
APRON, TRANS., TOP		6m2	13 VAR	33'-11 TO 38'-3	705	6 VAR	33'-4 TO 35'-2	309	-	-	-	9 VAR	18'-9 TO 24'-9	294	18 VAR	29'-0 TO 35'-5	871	10 VAR	28'-6 TO 31'-11	454	3 VAR	28'-6 TO 29'-3	130	4 VAR	19'-0 TO 21'-3	121	16 VAR	23'-5 TO 29'-0	630	8 VAR	23'-5 TO 26'-0	297	-	-	-	6m2
APRON, TRANS., TOP		6m3	17 VAR	18'-11 TO 27'-11	598	17 VAR	16'-11 TO 25'-11	547	17 VAR	15'-10 TO 25'-3	525	7 VAR	14'-6 TO 18'-0	171	14 VAR	17'-5 TO 24'-9	443	14 VAR	16'-0 TO 22'-9	407	14 VAR	14'-4 TO 21'-7	378	10 VAR	13'-0 TO 18'-3	235	11 VAR	14'-6 TO 20'-2	286	12 VAR	12'-10 TO 19'-0	287	11 VAR	11'-6 TO 17'-2	237	6m3
APRON, TRANS., TOP		6m4	11	18'-7	307	11	16'-10	278	11	15'-6	256	11	13'-11	230	9	16'-11	228	9	15'-5	208	9	14'-0	189	9	12'-6	169	7	14'-0	147	7	12'-5	131	7	11'-1	117	6m4
APRON, TRANS., BOTT.		6m5	24 VAR	28'-11 TO 53'-5	1526	20 VAR	28'-8 TO 48'-11	1192	16 VAR	28'-8 TO 44'-8	896	12 VAR	28'-7 TO 40'-4	624	24 VAR	23'-3 TO 47'-10	1305	20 VAR	23'-0 TO 43'-3	1007	16 VAR	23'-0 TO 39'-0	745	12 VAR	22'-11 TO 34'-8	519	20 VAR	17'-4 TO 37'-8	826	16 VAR	17'-4 TO 33'-4	609	12 VAR	17'-3 TO 29'-0	417	6m5
CURTAIN, HORIZONTAL		6p1	4	35'-7	214	4	35'-4	212	4	35'-4	212	4	35'-2	211	4	29'-11	180	4	29'-8	178	4	29'-8	178	4	29'-6	177	4	24'-0	144	4	24'-0	144	4	23'-10	143	6p1
CURTAIN, HORIZONTAL L		6p2	4	42'-4	266	4	36'-0	216	4	29'-8	178	4	23'-4	140	4	42'-4	266	4	36'-0	216	4	29'-8	178	4	23'-4	140	4	36'-0	216	4	29'-8	178	4	23'-4	140	6p2
CURTAIN, HORIZONTAL S		6p3	4	15'-8	94	4	13'-8	82	4	11'-7	70	4	9'-7	58	4	15'-8	94	4	13'-8	82	4	11'-7	70	4	9'-7	58	4	13'-8	82	4	11'-7	70	4	9'-7	58	6p3
WING SLOPE, BOTH F. L		6s1	2	8'-4	25	2	8'-4	25	2	8'-4	25	2	8'-4	25	2	8'-4	25	2	8'-4	25	2	8'-4	25	2	8'-4	25	2	8'-4	25	2	8'-4	25	2	8'-4	25	6s1
WING SLOPE, BOTH F. S		6s2	2	7'-11	24	2	7'-11	24	2	7'-11	24	2	7'-11	24	2	7'-11	24	2	7'-11	24	2	7'-11	24	2	7'-11	24	2	7'-11	24	2	7'-11	24	2	7'-11	24	6s2
WING SLOPE, BOTH F. L		6s3	2	69'-4	214	2	57'-6	179	2	45'-9	143	2	33'-10	102	2	69'-4	214	2	57'-6	179	2	45'-9	143	2	33'-10	102	2	57'-6	179	2	45'-9	143	2	33'-10	102	6s3
WING SLOPE, BOTH F. S		6s4	2	42'-3	133	2	35'-0	105	2	27'-9	83	2	20'-6	62	2	42'-3	133	2	35'-0	105	2	27'-9	83	2	20'-6	62	2	35'-0	105	2	27'-9	83	2	20'-6	62	6s4
WING SLOPE, F.F L		6s5	1	74'-6	115	1	62'-8	97	1	50'-10	79	1	39'-1	59	1	74'-6	115	1	62'-8	97	1	50'-10	79	1	39'-1	59	1	62'-8	97	1	50'-10	79	1	39'-1	59	6s5
WING SLOPE, F.F S		6s6	1	47'-4	74	1	40'-1	63	1	32'-10	49	1	25'-6	38	1	47'-4	74	1	40'-1	63	1	32'-10	49	1	25'-6	38	1	40'-1	63	1	32'-10	49	1	25'-6	38	6s6
CENTER WALL, BOTH F.		6s7	2	38'-8	116	2	32'-10	99	2	26'-10	81	2	20'-11	63	2	38'-8	116	2	32'-10	99	2	26'-10	81	2	20'-11	63	2	32'-10	99	2	26'-10	81	2	20'-11	63	6s7
CURTAIN, VERT.		5t1	61	7'-11	504	55	7'-5	425	48	6'-11	346	41	6'-5	274	57	7'-11	471	51	7'-5	395	44	6'-11	317	37	6'-5	248	47	7'-5	364	40	6'-11	289	33	6'-5	221	5t1

ESTIMATED QUANTITIES ONE HEADWALL																																			
	REINF. STEEL			14,660 lbs.			11,620 lbs.			8873 lbs.			6243 lbs.			13,704 lbs.			10,711 lbs.			8131 lbs.			5646 lbs.			9881 lbs.			7423 lbs.			5076 lbs.		
	CONCRETE	PARAPET △	4.0	137.8 cu. yd.		3.7	100.5 cu. yd.		3.7	75.2 cu. yd.		3.6	51.9 cu. yd.		3.5	126.0 cu. yd.		3.3	90.8 cu. yd.		3.3	67.5 cu. yd.		3.2	45.9 cu. yd.		2.9	79.2 cu. yd.		2.9	58.2 cu. yd.		2.8	39.0 cu. yd.		
		WINGWALLS	41.9			25.2			17.0			9.4			41.9			25.2			17.0			9.4			25.2			17.0			9.4			
		FOOTINGS	91.9			71.6			54.5			38.9			80.6			62.3			47.2			33.3			51.1			38.3			26.8			

BENT BAR DETAILS



NOTE:
ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER.

△ NOTE: INCLUDES TOP OF WINGWALL QUANTITIES.
WEIGHT OF BARS OVER 40'-0 LONG INCLUDE AN ALLOWANCE OF 2'-0 FOR LAP.

SUBSCRIPT L DENOTES LONG WING.
SUBSCRIPT S DENOTES SHORT WING.

NOTES:

1. SEE DRAWING TWRCB-GI-87 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.

HEADWALL NOTES:

THIS HEADWALL IS BASED ON A 3:1 SLOPE NORMAL TO CENTERLINE OF ROADWAY.

THE SIDES OF THE FOOTING ARE TO BE FORMED TO INSURE CORRECT LINE AND GRADE.

ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

ALL REINFORCING IS TO BE SECURELY WIRED IN PLACE BEFORE THE CONCRETE IS POURED. ALL SLAB AND FLOOR REINFORCING STEEL IS TO BE SUPPORTED BY BAR CHAIRS AT INTERVALS OF NOT MORE THAN 3'-0 IN EITHER DIRECTION AS OUTLINED IN THE STANDARD SPECIFICATIONS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN. CLEARANCE TO THE BOTTOM ENDS OF VERTICAL BARS SHALL BE 3 INCHES.

CONCRETE QUANTITIES ARE ESTIMATED FROM BACK OF PARAPET.

HORIZONTAL TAILS OF BARS "b" & "s" ESTIMATED TO EXTEND 2'-0 BEYOND BACK OF PARAPET (INTO END OF BARREL). LONGITUDINAL BARS "d", "6f1", "6f4" AND "6f5" ESTIMATED TO PROJECT INTO END SECTION OF BARREL A MINIMUM OF 2'-0 BEYOND BACK OF PARAPET.

THE "LENGTH" COLUMN REFLECTS TOTAL NUMBER OF FEET NECESSARY TO MEET THESE REQUIREMENTS.

LATEST REVISION DATE : 02-10

APPROVED BY : Norman E. McDonald

STANDARD DESIGN

FLARED WING HEADWALLS

FOR

TWIN REINFORCED CONCRETE BOX CULVERTS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

JULY , 1987

TWH 45-6-87

REVISED 02-10 - THE 6s7 VERTICAL DIMENSION FOR BENDING THE 3'-3 LEG WAS CHANGED.
ENGLISH\SIGNED\TWINCULVERTS.DGN - TWH 45-6-87