

ENGLISH REDS (IN) TRIPLE CULVERTS.DGN - TRH 15-8-12 - THIS SHEET ISSUED 04-12-

BILL OF REINFORCING FOR ONE HEADWALL 15° SKEW CULVERT SPAN x CULVERT HEIGHT

BAR	LOCATION	SHAPE	12' x 5'		12' x 4'		10' x 12'		10' x 11'		10' x 10'		10' x 9'		10' x 8'		BAR								
			NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH		WT.	NO.	LENGTH	WT.				
5Fa	FENCE ANCHOR (GALV.)		2	2'-10	6	2	2'-10	6	2	2'-10	6	2	2'-10	6	2	2'-10	6	5Fa							
4b1	WINGWALL, B.F.H. LONG		1	21'-0	14	1	17'-7	12	1	45'-0	32	1	41'-7	29	1	38'-2	25	1	34'-9	23	1	31'-4	21	4b1	
4b2	WINGWALL, B.F.H. SHORT		1	18'-9	13	1	15'-9	11	1	39'-8	26	1	36'-9	25	1	33'-9	23	1	30'-9	21	1	27'-9	19	4b2	
4b3	WINGWALL, B.F.H. LONG		3	12'-7 TO 19'-6	32	2	12'-7 TO 16'-0	19	10	12'-7 TO 43'-5	189	9	12'-7 TO 40'-0	158	8	12'-7 TO 36'-7	131	7	12'-7 TO 33'-2	107	6	12'-7 TO 29'-9	85	4b3	
4b4	WINGWALL, B.F.H. SHORT		3	11'-4 TO 17'-4	29	2	11'-4 TO 14'-4	17	10	11'-4 TO 38'-4	166	9	11'-4 TO 35'-4	140	8	11'-4 TO 32'-4	117	7	11'-4 TO 29'-4	95	6	11'-4 TO 26'-4	75	4b4	
5b5	WINGWALL, F.F.H. LONG		1	21'-1	22	1	17'-8	18	1	45'-1	49	1	41'-8	46	1	38'-3	40	1	34'-10	36	1	31'-4	33	5b5	
5b6	WINGWALL, F.F.H. SHORT		1	18'-9	20	1	15'-9	16	1	39'-9	41	1	36'-9	38	1	33'-9	35	1	30'-9	32	1	27'-9	29	5b6	
5b7	WINGWALL, F.F.H. LONG		4	9'-3 TO 19'-6	60	3	9'-2 TO 16'-1	40	11	9'-3 TO 43'-6	307	10	9'-3 TO 40'-1	260	9	9'-3 TO 36'-8	216	8	9'-3 TO 33'-3	177	7	9'-3 TO 29'-10	143	5b7	
5b8	WINGWALL, F.F.H. SHORT		4	8'-5 TO 17'-5	54	3	8'-5 TO 14'-5	36	11	8'-5 TO 38'-5	269	10	8'-5 TO 35'-5	229	9	8'-5 TO 32'-5	192	8	8'-5 TO 29'-5	158	7	8'-5 TO 26'-5	127	5b8	
5b9	INTERIOR WALLS, BOTH F.H.		14	EA. 5'-5 TO 13'-7	139	10	EA. 5'-5 TO 13'-7	89	42	EA. 5'-1 TO 26'-0	726	38	EA. 5'-1 TO 26'-0	616	34	EA. 5'-1 TO 23'-11	514	30	EA. 5'-2 TO 19'-9	422	26	EA. 5'-2 TO 19'-9	338	5b9	
4c1	WINGWALL, F.F.V. LONG		18	2'-10 TO 7'-10	64	15	2'-10 TO 6'-11	49	42	2'-9 TO 14'-9	245	39	2'-9 TO 13'-10	216	35	2'-9 TO 12'-8	180	32	2'-9 TO 11'-10	156	29	2'-9 TO 10'-11	132	4c1	
4c2	WINGWALL, F.F.V. SHORT		16	2'-10 TO 7'-10	57	13	2'-10 TO 6'-10	42	37	2'-9 TO 14'-9	216	34	2'-9 TO 13'-9	187	31	2'-9 TO 12'-9	160	28	2'-9 TO 11'-9	136	25	2'-9 TO 10'-9	113	4c2	
4c3	WINGWALL, F.F.V. LONG		---	---	---	---	---	---	19	9'-7 TO 14'-10	155	16	9'-7 TO 14'-10	126	12	9'-7 TO 12'-10	90	9	9'-7 TO 11'-11	65	---	---	---	4c3	
4c4	WINGWALL, F.F.V. SHORT		---	---	---	---	---	---	17	9'-7 TO 14'-11	139	14	9'-7 TO 13'-11	110	11	9'-7 TO 12'-11	83	8	9'-7 TO 11'-11	57	---	---	---	4c4	
4c5	WINGWALL, F.F.V. LONG		2	6'-9	9	2	5'-9	8	2	13'-8	18	1	12'-8	8	2	11'-8	16	2	10'-8	14	1	9'-8	6	4c5	
4c6	INTERIOR WALLS, BOTH F.V.		4	17'-9	5	4	11'-8	4	4	11'-8	4	4	11'-8	4	4	11'-8	4	4	11'-8	4	4	11'-8	4	4	4c6
4c7	INTERIOR WALLS, BOTH F.V.		40	EA. 1'-11 TO 5'-5	98	32	EA. 1'-11 TO 4'-5	67	98	EA. 1'-11 TO 12'-4	466	90	EA. 1'-11 TO 11'-4	396	82	EA. 1'-11 TO 10'-4	333	74	EA. 1'-11 TO 9'-5	278	66	EA. 1'-11 TO 8'-5	226	4c7	
4c8	INTERIOR WALLS, BOTH F.V.		4	5'-7	15	4	4'-7	12	4	12'-6	33	4	11'-6	31	4	10'-6	28	4	9'-6	25	4	8'-6	23	4c8	
5c9	WINGWALL, B.F.V. LONG		9	2'-10 TO 5'-2	38	9	2'-10 TO 5'-2	38	9	2'-9 TO 5'-1	37	9	2'-9 TO 5'-1	37	9	2'-9 TO 5'-1	37	9	2'-9 TO 5'-1	37	9	2'-9 TO 5'-1	37	5c9	
5c10	WINGWALL, B.F.V. SHORT		6	2'-10 TO 4'-6	23	6	2'-10 TO 4'-6	23	6	2'-9 TO 4'-5	22	6	2'-9 TO 4'-5	22	6	2'-9 TO 4'-5	22	6	2'-9 TO 4'-5	22	6	2'-9 TO 4'-5	22	5c10	
5c11	WINGWALL, B.F.V. LONG		9	9'-6 TO 11'-10	100	6	9'-6 TO 10'-11	64	33	9'-5 TO 18'-9	485	30	9'-5 TO 17'-10	426	26	9'-5 TO 16'-8	354	23	9'-5 TO 15'-10	303	20	9'-5 TO 14'-11	254	5c11	
5c12	WINGWALL, B.F.V. SHORT		10	8'-10 TO 11'-10	108	7	8'-10 TO 10'-10	72	31	8'-9 TO 18'-9	445	28	8'-9 TO 17'-9	387	25	8'-9 TO 16'-9	332	22	8'-9 TO 15'-9	281	19	8'-9 TO 14'-9	233	5c12	
6c13	WINGWALL, B.F.V. LONG		---	---	---	---	---	---	27	10'-6	426	24	10'-6	379	20	10'-6	315	17	10'-6	268	14	10'-6	221	6c13	
6c14	WINGWALL, B.F.V. SHORT		---	---	---	---	---	---	24	10'-6	379	21	10'-6	331	18	10'-6	284	15	10'-6	237	12	10'-6	189	6c14	
5c14	WINGWALL, B.F.V. LONG		2	10'-9	22	2	9'-9	20	2	17'-8	37	1	16'-8	17	2	15'-8	33	2	14'-8	31	1	13'-8	14	5c14	
5c14	WINGWALL, B.F.V. SHORT		2	10'-9	22	2	9'-9	20	2	17'-8	37	2	16'-8	35	2	15'-8	33	2	14'-8	31	2	13'-8	29	5c14	
4d1	APRON, LONGIT., BOT.		25	13'-11	232	25	11'-11	199	21	28'-5	399	21	26'-4	369	21	24'-4	341	21	22'-3	312	21	20'-2	283	4d1	
4d2	APRON, LONGIT., BOT. LONG		3	15'-11	32	3	12'-7	25	3	39'-7	79	3	36'-2	72	3	32'-9	66	3	29'-5	59	3	26'-0	52	4d2	
4d3	APRON, LONGIT., BOT. SHORT		3	14'-4	29	3	11'-5	23	3	35'-0	70	3	32'-0	64	3	29'-0	58	3	26'-1	52	3	23'-1	46	4d3	
6f1	APRON, LONGIT., TOP		37	13'-11	773	37	11'-11	662	31	28'-5	1323	31	26'-4	1226	31	24'-4	1133	31	22'-3	1036	31	20'-2	939	6f1	
6f2	APRON, LONGIT., TOP LONG		3	5'-11 TO 11'-1	38	2	6'-5 TO 9'-0	23	9	5'-5 TO 25'-7	210	8	5'-10 TO 23'-6	176	7	6'-3 TO 21'-5	145	6	6'-3 TO 19'-5	118	5	7'-2 TO 17'-4	92	6f2	
6f3	APRON, LONGIT., TOP SHORT		3	5'-3 TO 11'-2	37	2	6'-2 TO 9'-1	23	8	5'-5 TO 25'-8	187	7	6'-3 TO 23'-8	157	6	7'-0 TO 21'-7	129	6	6'-4 TO 19'-6	110	5	5'-9 TO 17'-5	87	6f3	
6f4	APRON, LONGIT., TOP LONG		1	21'-1	32	1	17'-8	27	1	45'-1	71	1	41'-8	66	1	38'-3	57	1	34'-10	52	1	31'-4	47	6f4	
6f5	APRON, LONGIT., TOP SHORT		1	18'-9	28	1	15'-9	24	1	39'-9	60	1	36'-9	55	1	33'-9	51	1	30'-9	46	1	27'-9	42	6f5	
4f1	PARAPET, VERTICAL		75	6'-2	309	75	6'-2	309	65	6'-2	268	63	6'-2	260	63	6'-2	260	63	6'-2	260	63	6'-2	260	4f1	
7j1	PARAPET, HORIZONTAL		4	40'-0	327	4	40'-0	327	4	34'-10	285	4	34'-6	282	4	34'-1	279	4	34'-1	279	4	34'-1	279	7j1	
6m1	APRON, TRANS., TOP		8	40'-3 TO 41'-7	519	7	40'-3 TO 41'-4	453	7	35'-1 TO 36'-2	375	7	34'-9 TO 35'-10	371	7	34'-4 TO 35'-6	367	7	34'-4 TO 35'-6	367	7	34'-4 TO 35'-6	367	6m1	
6m2	APRON, TRANS., TOP		1	41'-10 TO 41'-10	66	1	35'-5 TO 35'-5	53	23	36'-6 TO 44'-9	1447	20	36'-2 TO 43'-3	1223	17	35'-9 TO 41'-9	1006	14	35'-9 TO 40'-8	810	12	35'-9 TO 39'-11	682	6m2	
6m3	APRON, TRANS., TOP		14	3'-10 TO 3'-10	438	12	4'-0 TO 32'-9	330	11	8'-8 TO 34'-9	359	11	8'-7 TO 34'-9	357	12	5'-11 TO 34'-9	366	12	6'-0 TO 34'-9	367	11	6'-2 TO 34'-9	317	6m3	
6m4	APRON, TRANS., BOT.		10	34'-5 TO 39'-3	553	8	34'-5 TO 38'-2	436	24	28'-8 TO 41'-1	1267	22	28'-6 TO 39'-10	1129	20	28'-4 TO 38'-7	1005	18	28'-4 TO 37'-6	890	16	28'-4 TO 36'-5	778	6m4	
6p1	CURTAIN, HORIZONTAL		4	39'-0	234	4	39'-0	234	4	33'-5	201	4	33'-2	199	4	33'-0	198	4	33'-0	198	4	33'-0	198	6p1	
6p2	CURTAIN, HORIZONTAL LONG		4	11'-2	67	4	9'-8	58	4	21'-9	131	4	20'-3	122	4	18'-9	113	4	17'-3	104	4	15'-9	95	6p2	
6p3	CURTAIN, HORIZONTAL SHORT		4	9'-1	55	4	7'-11	48	4	16'-10	101	4	15'-9	95	4	14'-7	88	4	13'-6	81	4	12'-5	75	6p3	
6s1	WING SLOPE, BOTH F. LONG		2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	6s1	
6s2	WING SLOPE, BOTH F. SHORT		2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	6s2	
6s3	WING SLOPE, BOTH F. LONG		2	16'-9	50	2	13'-2	40	2	14'-9	132	2	13'-2	115	2	13'-2	104	2	13'-0	93	2	12'-5	82	6s3	
6s4	WING SLOPE, BOTH F. SHORT		2	15'-2	46	2	12'-0	36	2	17'-4	112	2	16'-2	103	2	15'-0	93	2	14'-8	84	2	14'-8	74	6s4	
6s5	WING SLOPE, F.F. LONG		1	20'-11	31	1	17'-4	26	1	45'-11	72	1	42'-4	67	1	38'-9	58	1	35'-2	53	1	31'-8	48	6s5	
6s6	WING SLOPE, F.F. SHORT		1	19'-0	29	1	15'-10	24	1	41'-2	65	1	38'-0	57	1	34'-10	52	1	31'-8	48	1	28'-6	43	6s6	
6s7	INTERIOR WALLS, BOTH F.H.		4	14'-4	86	4	12'-1	73	4	30'-4	182	4	28'-1	169	4	25'-10	155	4	23'-6	141	4	21'-			