VARIABLE DIMENSIONS AND QUANTITIES FOR TRIPLE 12 x 12 BARREL SECTIONS

REINFORCING BAR LIST

FILL	a1			a2			4b1			4b2			5e1			4e2		
	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	SP	NO.
0	4	6	13'-9	7	9	13'-9	4	9	32	4	9	34	5	12	22	4	17	20
1	4	9	13'-10	7	9	13'-10	4	9	32	4	9	34	5	12	22	4	17	20
2	4	9	13'-6	7	9	13'-6	4	9	32	4	9	34	5	12	22	4	17	20
3-6	4	9	13'-5	7	9	13'-5	4	9	32	4	9	34	5	12	22	4	17	20
7-8	4	9	13'-5	7	9	13'-5	4	9	32	4	9	34	5	12	22	4	17	20
9-10	4	6	13'-7	7	9	13'-7	4	9	32	4	9	34	5	12	22	4	17	20
11-12	5	12	13'-9	7	9	13'-9	4	9	32	4	9	34	5	12	22	4	17	20
13-15	4	6	14'-0	7	9	14'-0	4	9	32	4	9	34	5	12	22	4	17	20
16-17	4	6	14'-2	7	9	14'-2	4	9	32	4	9	34	5	12	22	4	17	20
18-19	6	9	14'-4	7	9	14'-4	4	9	32	4	9	34	5	12	22	4	17	20
20-21	4	6	14'-6	7	9	14'-6	4	9	32	4	9	34	5	12	22	4	17	20
22-23	4	6	14'-8	7	9	14'-8	4	9	32	4	9	34	5	12	22	4	17	20
24-25	4	6	14'-11	7	9	14'-11	4	9	32	4	9	34	5	12	22	4	17	20

FILL	5e3			4e4			4f1			4f2			4f3			4f4		
	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	SP	NO.
0	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
1	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
2	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
3-6	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
7-8	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
9-10	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
11-12	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
13-15	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
16-17	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
18-19	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
20-21	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
22-23	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10
24-25	5	12	11	4	17	10	4	12	26	4	17	20	4	12	13	4	17	10

FILL	k1			k2			k3			k4					k5				
	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	h	v	SIZE	SP	LENGTH	h	v
0	4	9	39'-8	5	9	10'-9	5	9	10'-4	6	18	5'-6	2'-3	3'-3	6	18	5'-4	2'-1	3'-3
1	4	9	39'-8	5	9	10'-5	5	9	9'-11	6	15	4'-8	2'-1	2'-7	6	15	4'-8	2'-1	2'-7
2	5	9	39'-8	5	9	8'-8	5	9	7'-10	5	9	5'-7	2'-11	2'-8	5	9	4'-10	2'-2	2'-8
3-6	5	12	39'-8	5	12	7'-3	5	12	6'-5	4	9	5'-7	2'-11	2'-8	5	9	4'-11	2'-3	2'-8
7-8	5	12	39'-8	6	12	7'-11	5	12	6'-10	5	9	5'-9	3'-1	2'-8	5	9	4'-11	2'-3	2'-8
9-10	5	12	39'-8	6	12	8'-1	5	12	6'-9	5	9	5'-8	3'-0	2'-8	5	9	4'-11	2'-3	2'-8
11-12	5	9	39'-8	5	9	7'-5	4	9	5'-3	6	12	5'-7	3'-0	2'-7	6	12	4'-8	2'-1	2'-7
13-15	5	9	39'-8	5	9	7'-7	4	9	5'-6	7	15	6'-1	2'-10	3'-3	7	15	5'-9	2'-6	3'-3
16-17	5	9	39'-8	5	9	7'-9	4	9	5'-5	7	15	6'-4	3'-1	3'-3	7	15	5'-8	2'-5	3'-3
18-19	5	9	39'-8	5	9	8'-1	4	9	5'-6	7	15	6'-4	3'-1	3'-3	7	15	5'-8	2'-5	3'-3
20-21	6	12	39'-8	6	12	8'-4	4	12	5'-5	7	15	7'-3	3'-1	4'-2	8	15	7'-2	3'-0	4'-2
22-23	6	12	39'-8	6	12	8'-6	4	12	5'-6	7	15	8'-1	3'-11	4'-2	8	15	8'-0	3'-10	4'-2
24-25	6	12	39'-8	6	12	8'-8	4	12	5'-8	7	12	7'-3	4'-0	3'-3	7	12	6'-4	3'-1	3'-3

REINFORCING BAR LIST

FILL	k6			k7			k9			m1			m2			m3		
	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH
0	5	15	39'-8	5	15	5'-8	5	7.5	39'-8	4	12	40'-2	5	12	7'-10	4	12	7'-2
1	4	9	39'-8	4	9	5'-6	4	4.5	39'-8	5	15	40'-2	5	15	7'-4	4	15	5'-2
2	5	9	32'-3	5	9	5'-4	5	4.5	39'-8	5	9	40'-2	5	9	7'-0	4	9	4'-7
3-6	5	9	30'-3	5	9	4'-10	5	4.5	39'-8	5	12	40'-2	6	12	7'-10	5	12	6'-10
7-8	5	9	30'-3	6	9	5'-5	5	4.5	39'-8	5	9	40'-2	5	9	7'-1	4	9	5'-9
9-10	5	9	30'-2	6	9	5'-5	5	4.5	39'-8	5	9	40'-2	5	9	7'-3	4	9	5'-3
11-12	6	12	30'-4	7	12	5'-7	6	4.5	39'-8	5	9	40'-2	5	9	7'-5	4	9	5'-4
13-15	6	9	30'-2	6	9	4'-9	6	4.5	39'-8	6	12	40'-2	6	12	7'-11	4	12	5'-3
16-17	7	15	30'-5	8	15	5'-10	7	7.5	39'-8	6	12	40'-2	6	12	8'-0	4	12	5'-4
18-19	7	15	30'-5	8	15	5'-11	7	7.5	39'-8	6	12	40'-2	6	12	8'-1	4	12	5'-6
20-21	7	15	30'-4	8	15	5'-11	7	7.5	39'-8	7	15	40'-2	7	15	8'-6	4	15	5'-3
22-23	7	15	30'-4	8	15	7'-0	7	7.5	39'-8	7	15	40'-2	7	15	8'-7	4	15	5'-5
24-25	7	15	30'-4	8	15	7'-0	7	7.5	39'-8	7	15	40'-2	7	15	8'-11	4	15	5'-4

FILL	m4					m5					m6			m7			m9		
	SIZE	SP	LENGTH	h	v	SIZE	SP	LENGTH	h	v	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH
0	6	18	16'-7	3'-4	13'-3	7	18	15'-8	2'-5	13'-3	5	12	31'-0	5	12	4'-4	5	4.5	40'-2
1	6	15	16'-7	3'-3	13'-4	6	15	15'-4	2'-0	13'-4	5	12	30'-9	5	12	4'-4	5	4.5	40'-2
2	5	9	16'-1	3'-1	13'-0	5	9	15'-1	2'-1	13'-0	6	12	31'-0	7	12	5'-3	6	4.5	40'-2
3-6	5	9	16'-0	3'-1	12'-11	5	9	15'-0	2'-1	12'-11	5	9	30'-5	6	9	5'-1	5	4.5	40'-2
7-8	5	9	15'-11	3'-0	12'-11	5	9	15'-0	2'-1	12'-11	6	12	30'-7	7	12	5'-5	6	4.5	40'-2
9-10	5	9	16'-0	2'-11	13'-1	5	9	15'-2	2'-1	13'-1	6	12	30'-7	7	12	5'-6	6	4.5	40'-2
11-12	6	12	16'-3	3'-0	13'-3	6	12	15'-3	2'-0	13'-3	6	12	30'-6	7	12	5'-6	6	4.5	40'-2
13-15	7	15	16'-4	2'-10	13'-6	7	15	15'-11	2'-5	13'-6	6	9	30'-4	6	9	4'-9	6	4.5	40'-2
16-17	7	15	16'-7	2'-11	13'-8	7	15	16'-1	2'-5	13'-8	7	15	30'-8	8	15	5'-10	7	7.5	40'-2
18-19	7	15	16'-11	3'-1	13'-10	7	15	16'-3	2'-5	13'-10	7	15	30'-7	8	15	5'-10	7	7.5	40'-2
20-21	7	15	17'-1	3'-1	14'-0	8	15	17'-0	3'-0	14'-0	7	15	30'-7	8	15	5'-11	7	7.5	40'-2
22-23	7	15	17'-4	3'-2	14'-2	8	15	17'-2	3'-0	14'-2	7	15	30'-7	8	15	5'-11	7	7.5	40'-2
24-25	7	12	18'-5	4'-0	14'-5	7	12	16'-10	2'-5	14'-5	8	18	30'-7	8	18	5'-8	8	4.5	40'-2

DIMENSIONS

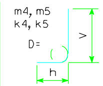
FILL	S	H	A	B	C	*D	*E	*F	*G	*J
0	12	12	11	11	12	6	4.5	9	18	12
1	12	12	11.5	12	12	9	4.5	7.5	12	12
2	12	12	9.5	10	12	9	4.5	4.5	12	12
3-6	12	12	8	10	12	9	4.5	4.5	12	12
7-8	12	12	8	10.5	12	9	4.5	4.5	12	12
9-10	12	12	9	11.5	12	6	4.5	4.5	12	12
11-12	12	12	10	12.5	12	9	4.5	9	12	12
13-15	12	12	11.5	14	12	6	4.5	7.5	12	12
16-17	12	12	12.5	15	12	6	4.5	7.5	18	18
18-19	12	12	13.5	16	12	9	4.5	7.5	18	18
20-21	12	12	14.5	17	12	6	4.5	7.5	18	18
22-23	12	12	15.5	18	12	6	4.5	7.5	18	18
24-25	12	12	16.5	19.5	12	6	4.5	9	18	12

DIMENSIONS

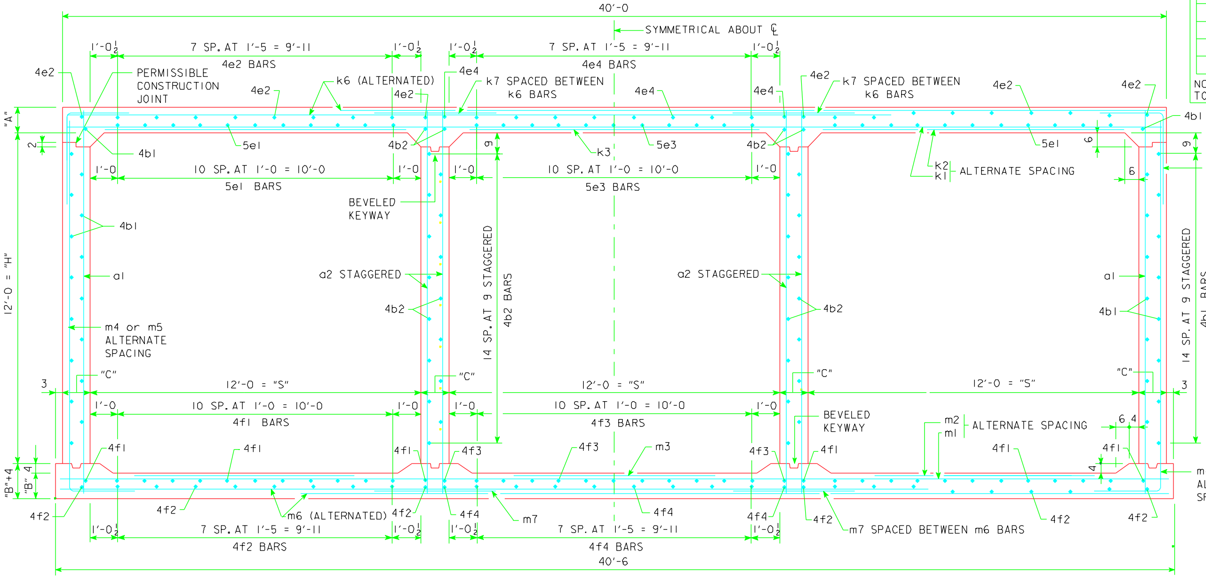
FILL	*K	*L	R	T	U	V	W	X	Y	Z
0	4.5	3	1'-4	1'-6	2'-10	——	2'-11	2'-11	4'-5	2'-2
1	7.5	3	1'-7	1'-8	2'-9	——	3'-3	3'-11	4'-2	2'-2
2	4.5	3	2'-7	2'-7	2'-8	5'-11	3'-4	4'-3	4'-5	2'-8
3-6	4.5	3	3'-3	3'-2	2'-5	3'-11	2'-11	3'-1	3'-10	2'-7
7-8	4.5	3	3'-1	2'-10	2'-9	3'-11	3'-4	3'-8	4'-0	2'-9
9-10	4.5	3	3'-1	2'-10	2'-9	3'-10	3'-4	3'-10	4'-0	2'-9
11-12	4.5	3	3'-10	3'-3	2'-10	4'-0	3'-3	3'-10	3'-11	2'-9
13-15	4.5	3	3'-9	3'-3	2'-5	3'-10	3'-2	3'-11	3'-9	2'-5
16-17	4.5	3	3'-10	3'-3	2'-11	4'-1	3'-2	3'-10	4'-1	2'-11
18-19	4.5	3	3'-9	3'-1	3'-0	4'-1	3'-2	3'-9	4'-0	2'-11
20-21	7.5	3	3'-10	3'-1	3'-0	4'-0	3'-0	3'-10	4'-0	3'-0
22-23	7.5	3	3'-9	3'-0	3'-6	4'-0	3'-0	3'-10	4'-0	3'-0
24-25	7.5	3	3'-8	3'-0	3'-6	4'-0	2'-10	3'-10	4'-0	2'-10

BENT BAR DETAILS

BARS	D
4	3
5	3 3/4
6	4 1/2
7	5 1/4
8	6



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



TRIPLE 12 x 12 BARREL SECTION

* THESE DIMENSIONS ARE CORRECT FOR 38'-0 LONG STANDARD SECTIONS ONLY. DIMENSIONS MUST BE RECALCULATED FOR ALL OTHER SECTION LENGTHS.

QUANTITIES

FILL	CONCRETE CU YD/FT				STEEL
	SLAB	FLOOR	WALL	TOTAL	LBS/FT
0	1.461	1.460	1.717	4.638	569.95
1	1.522	1.585	1.717	4.824	561.45
2	1.276	1.335	1.717	4.328	662.13
3-6	1.090	1.335	1.717	4.142	612.08
7-8	1.090	1.397	1.717	4.204	649.71
9-10	1.214	1.522	1.717	4.453	663.89
11-12	1.337	1.647	1.717	4.701	680.61
13-15	1.522	1.835	1.717	5.074	741.13
16-17	1.646	1.960	1.717	5.323	737.66
18-19	1.769	2.085	1.717	5.571	761.66
20-21	1.893	2.210	1.717	5.820	793.29
22-23	2.016	2.335	1.717	6.068	807.58
24-25	2.140	2.522	1.717	6.379	823.00

DIMENSIONS LISTED ON THIS SHEET TO BE USED IN CONJUNCTION WITH SHEET TRRCB 2-01.

LATEST REVISION DATE :

APPROVED BY :

STANDARD DESIGN

CULVERT BARREL DETAILS

FOR

TRIPLE REINFORCED CONCRETE BOX CULVERTS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

SEPT., 2001

TRRCB 12-12-01

TRB1212.S01 - 09-01 THIS SHEET ISSUED.

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC