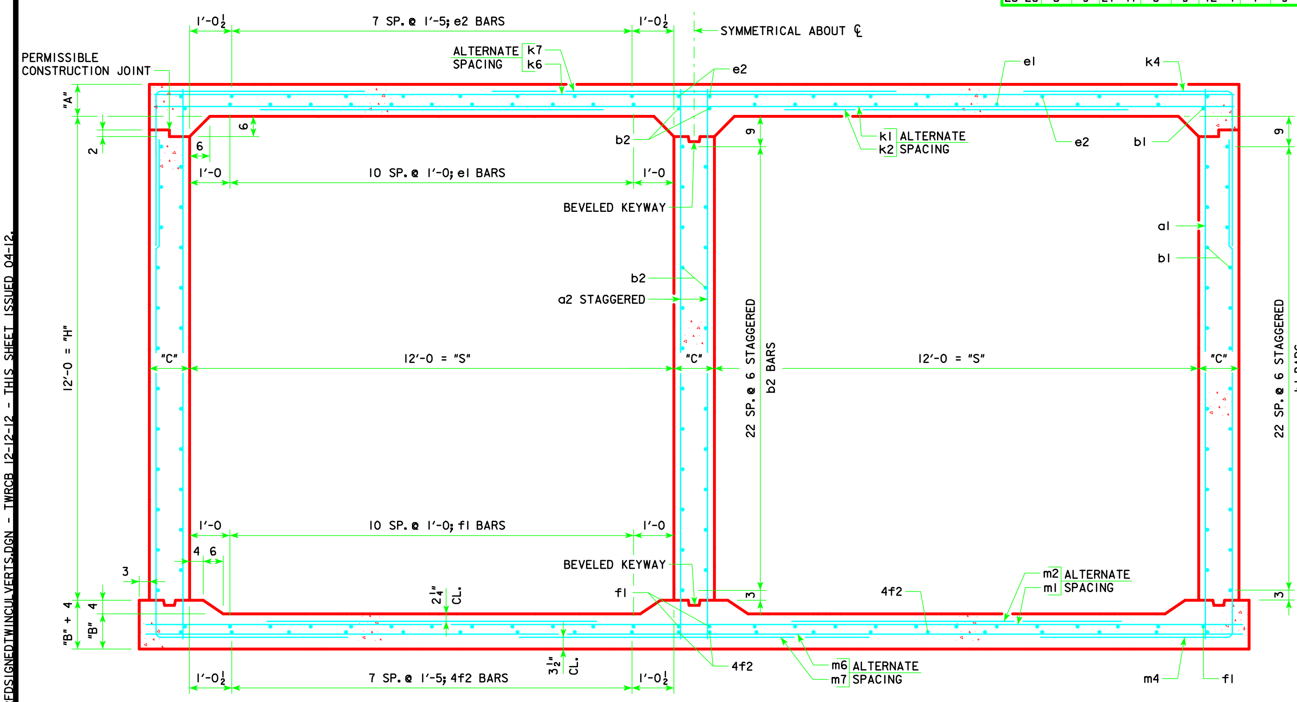
VARIABLE DIMENSIONS AND QUANTITIES FOR TWIN 12 x 12 BARREL SECTIONS

DIMENSIONS												BAR LIST														
												a1			a2			b1			b2			e1		
FILL	S	H	A	B	C	D	E	U	W	X	Z	SIZE	SP.	L	SIZE	SP.	L	SIZE	SP.	NO.	SIZE	SP.	NO.	SIZE	SP.	NO.
0	12	12	14.5	13	12	9	9	0'-3	7'-10	2'-6	7'-5	4	12	14'-2	7	9	14'-2	4	6	48	4	6	25	4	12	22
1	12	12	13.5	12.5	12	6	9	0'-11	7'-10	2'-6	5'-6	4	6	14'-1	7	9	14'-1	4	6	48	4	6	25	4	12	22
2	12	12	10	10.5	12	9	9	2'-0	7'-0	2'-9	4'-6	4	9	13'-7	7	9	13'-7	4	6	48	4	6	25	5	12	22
3	12	12	10.5	10.5	12	9	9	2'-4	5'-11	2'-9	4'-4	4	12	13'-8	7	9	13'-8	4	6	48	4	6	25	4	12	22
4	12	12	9.5	10.5	12	9	9	2'-10	5'-0	3'-1	4'-4	4	12	13'-7	7	9	13'-7	4	6	48	4	6	25	4	12	22
5-7	12	12	9.5	11.5	12	9	9	2'-10	4'-8	3'-2	4'-3	4	9	13'-8	7	9	13'-8	4	6	48	4	6	25	4	12	22
8-10	12	12	11	13.5	12	9	9	3'-0	4'-2	3'-2	4'-2	5	9	13'-11	7	9	13'-11	4	6	48	4	6	25	4	12	22
11-13	12	12	12.5	15	12	9	9	2'-10	4'-3	2'-11	4'-3	4	9	14'-2	7	9	14'-2	4	6	48	4	6	25	4	12	22
14-16	12	12	14.5	17	12.5	9	9	2'-7	4'-4	2'-8	4'-5	6	9	14'-6	7	9	14'-6	4	6	48	4	6	25	4	12	22
17-19	12	12	16	18.5	13.5	9	6	2'-2	4'-5	2'-2	4'-7	5	12	14'-9	6	6	14'-9	4	6	48	4	6	25	4	12	22
20-22	12	12	18	20.5	14	9	9	1'-11	4'-7	1'-10	4'-9	5	12	15'-1	8	9	15'-1	4	6	48	4	6	25	4	12	22
23-25	12	12	19.5	22.5	15	6	9	1'-4	4'-9	1'-5	4'-11	4	6	15'-5	8	9	15'-5	4	6	48	4	6	25	4	12	22

	BAR LIST																												
	e2			f1			f2			k1			k2			k4					k6			k7			k9		
FILL	SIZE	SP.	NO.	SIZE	SP.	NO.	SIZE	SP.	NO.	SIZE	SP.	L	SIZE	SP.	L	SIZE	SP.	L	H	V	SIZE	SP.	L	SIZE	SP.	L	SIZE	SP.	L
0	5	17	20	4	12	26	4	17	20	5	12	26'-8	5	12	13'-1	6	9	11'-4	7'-7	3'-9	5	18	26'-8	7	18	15'-8	7	4.5	26'-8
1	4	17	20	4	12	26	4	17	20	6	18	26'-8	6	18	12'-5	6	9	11'-2	7'-7	3'-7	5	18	26'-8	7	18	15'-8	7	4.5	26'-8
2	4	17	20	4	12	26	4	17	20	6	12	26'-8	5	12	10'-3	7	9	10'-2	6'-4	3'-10	5	12	26'-8	6	12	14'-0	6	4.5	26'-8
3	4	17	20	4	12	26	4	17	20	6	12	26'-8	5	12	10'-0	7	9	9'-10	5'-11	3'-11	5	12	26'-8	6	12	11'-10	6	4.5	26'-8
4	4	17	20	4	12	26	4	17	20	6	12	26'-8	5	12	8'-6	7	9	9'-0	5'-2	3'-10	4	12	26'-8	7	12	10'-0	7	4.5	26'-8
5-7	4	17	20	4	12	26	4	17	20	5	9	26'-8	4	9	8'-6	7	9	8'-9	4'-11	3'-10	5	12	26'-8	7	12	9'-4	7	4.5	26'-8
8-10	4	17	20	4	12	26	4	17	20	5	9	26'-8	4	9	8'-6	5	6	7'-7	4'-6	3'-1	5	9	26'-8	6	9	8'-4	6	4.5	26'-8
11-13	4	17	20	4	12	26	4	17	20	5	9	26'-8	4	9	9'-0	7	9	8'-7	4'-6	4'-1	4	9	26'-8	7	9	8'-6	7	4.5	26'-8
14-16	4	17	20	4	12	26	4	17	20	5	9	26'-9	4	9	9'-11	5	6	7'-11	4'-6	3'-5	4	9	26'-9	7	9	8'-8	7	4.5	26'-9
17-19	4	17	20	4	12	26	4	17	20	6	12	27'-0	5	12	10'-6	7	9	9'-0	4'-6	4'-6	4	9	27'-0	7	9	8'-10	7	4.5	27'-0
20-22	4	17	20	4	12	26	4	17	20	6	12	27'-2	5	12	11'-4	6	6	8'-8	4'-8	4'-0	4	9	27'-2	7	9	9'-2	7	4.5	27'-2
23-25	4	17	20	5	12	26	4	17	20	7	18	27'-5	7	18	12'-4	7	9	9'-6	4'-9	4'-9	4	9	27'-5	7	9	9'-6	7	4.5	27'-5

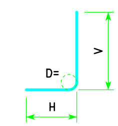
	BAR LIST																				QUANTITIES				
	m1			m2			m4					m6			m7			m9			CONCRETE (CY/FT)				STEEL
FILL	SIZE	SP.	L	SIZE	SP.	L	SIZE	SP.	L	H	V	SIZE	SP.	L	SIZE	SP.	L	SIZE	SP.	L	SLAB	FLOOR	WALLS	TOTAL	(LB/FT)
0	5	12	27'-2	5	12	9'-9	7	9	20'-2	7'-8	12'-6	5	12	27'-2	5	12	14'-10	5	4.5	27'-2	1.277	1.169	1.289	3.735	529.97
1	5	12	27'-2	5	12	9'-8	6	9	19'-2	6'-8	12'-6	4	12	27'-2	6	12	11'-0	6	4.5	27'-2	1.194	1.127	1.289	3.610	495.66
2	5	9	27'-2	5	9	8'-7	7	9	17'-6	5'-2	12'-4	4	9	27'-2	6	9	9'-0	6	4.5	27'-2	0.902	0.957	1.289	3.148	555.74
3	5	9	27'-2	5	9	8'-8	7	9	17'-3	4'-11	12'-4	5	9	27'-2	6	9	8'-8	6	4.5	27'-2	0.944	0.957	1.289	3.190	548.00
4	5	9	27'-2	5	9	8'-2	7	9	17'-1	4'-9	12'-4	5	12	27'-2	7	12	8'-8	7	4.5	27'-2	0.861	0.957	1.289	3.107	524.92
5-7	6	12	27'-2	5	12	8'-2	7	9	17'-2	4'-9	12'-5	5	9	27'-2	6	9	8'-6	6	4.5	27'-2	0.861	1.042	1.289	3.192	537.50
8-10	6	12	27'-2	5	12	8'-6	5	6	17'-2	4'-7	12'-7	5	9	27'-2	6	9	8'-4	6	4.5	27'-2	0.986	1.212	1.289	3.487	514.84
11-13	6	12	27'-2	5	12	9'-5	7	9	17'-2	4'-6	12'-8	4	9	27'-2	7	9	8'-6	7	4.5	27'-2	1.111	1.339	1.289	3.739	536.13
14-16	6	12	27'-3	5	12	9'-11	5	6	17'-5	4'-7	12'-10	4	9	27'-3	7	9	8'-10	7	4.5	27'-3	1.285	1.517	1.342	4.144	534.68
17-19	6	12	27'-6	5	12	11'-1	7	9	17'-7	4'-7	13'-0	4	9	27'-6	7	9	9'-2	7	4.5	27'-6	1.427	1.662	1.449	4.538	570.24
20-22	7	18	27'-8	7	18	11'-9	6	6	17'-11	4'-9	13'-2	5	12	27'-8	8	12	9'-6	8	4.5	27'-8	1.605	1.844	1.503	4.952	607.47
23-25	5	9	27'-11	5	9	12'-4	7	9	18'-2	4'-10	13'-4	4	9	27'-11	7	9	9'-10	7	4.5	27'-11	1.752	2.037	1.610	5.399	627.61



TWIN 12 x 12 BARREL SECTION

BENT BAR DETAIL

BARS	D
5	3¾
6	4½
7	5¼



k4 & m4

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

NOTES:

1. DIMENSIONS LISTED ON THIS SHEET TO BE USED IN CONJUNCTION WITH SHEET TWRCB G2-12.
2. DIMENSIONS "A", "B", "C", "D", "E", AND "SP." LISTED IN THE BAR LIST ARE IN INCHES.

LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN
TWIN REINFORCED CONCRETE BOX CULVERTS
APRIL, 2012

CULVERT BARREL DETAILS
12 x 12 BARREL SECTIONS

TWRCB 12-12-12

ENGLISH\RFDSIGNED\TWINCULVERTS.DGN - TWRCB 12-12-12 - THIS SHEET ISSUED 04-12.