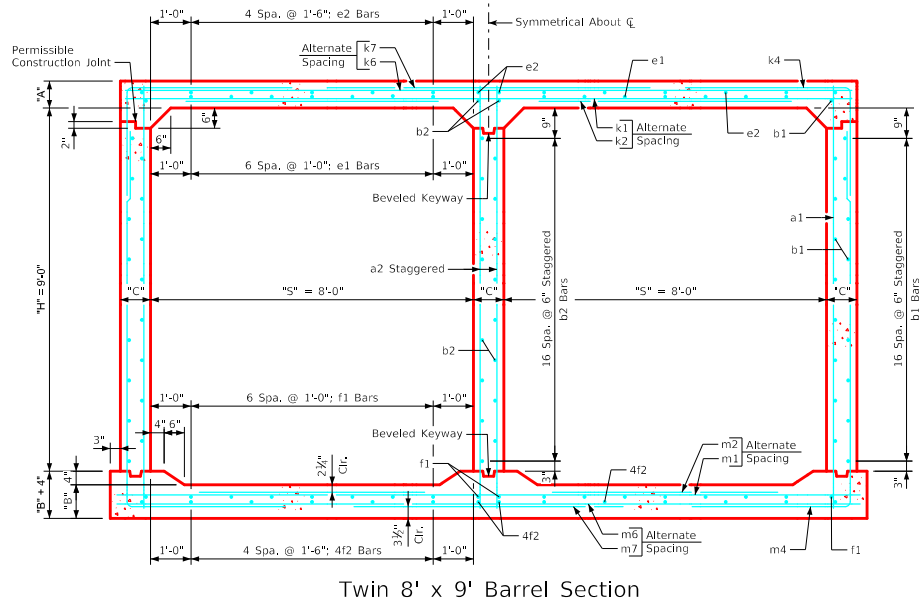
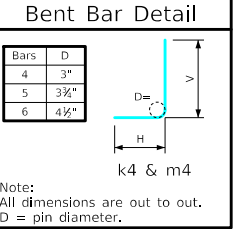


Variable Dimensions and Quantities for Twin 8' x 9' Barrel Sections

Dimensions													Bar List																																										
FILL	S	H	A	B	C	D	E	U	W	X	Z	a1			a2			b1			b2			e1			e2			f1			f2			k1			k2			k4			k6			k7			k9				
Size	Sp.	L	Size	Sp.	L	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L								
0	8	9	13	11	9	9	9	0'-0	5'-2	1'-11	5'-7	5	12	10'-11	6	9	10'-11	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	5	18	17'-11	5	18	8'-11	4	6	8'-7	5'-5	3'-2	4	12	17'-11	4	12	10'-4	4	4.5	17'-11
1	8	9	11.5	10.5	9	9	9	0'-0	5'-5	1'-11	5'-7	5	12	10'-9	6	9	10'-9	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	5	18	17'-11	5	18	8'-11	4	6	8'-2	5'-2	3'-0	4	12	17'-11	5	18	10'-10	5	4.5	17'-11
2	8	9	8	10	9	9	9	0'-10	5'-7	1'-8	5'-7	5	12	10'-5	6	9	10'-5	4	6	36	4	6	19	5	12	14	4	18	14	4	12	18	4	18	14	6	18	17'-11	6	18	7'-9	4	6	7'-9	5'-0	2'-9	5	18	17'-11	6	18	11'-2	6	4.5	17'-11
3	8	9	8	10	9	9	9	1'-6	4'-5	2'-4	3'-6	4	9	10'-5	6	9	10'-5	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	6	18	17'-11	5	18	6'-7	4	6	7'-0	4'-3	2'-9	4	12	17'-11	4	12	8'-10	4	4.5	17'-11
4	8	9	8	10	9	9	9	1'-6	3'-6	2'-5	3'-3	4	9	10'-5	6	9	10'-5	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	4	12	17'-11	4	12	6'-10	4	6	6'-8	3'-11	2'-9	4	12	17'-11	4	12	7'-0	4	4.5	17'-11
5-7	8	9	8	10	9	9	9	1'-7	3'-3	2'-5	2'-11	4	9	10'-5	6	9	10'-5	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	4	12	17'-11	4	12	6'-8	4	6	6'-6	3'-9	2'-9	4	12	17'-11	5	12	6'-6	5	4.5	17'-11
8-10	8	9	8	10	9	9	9	2'-1	2'-11	2'-3	2'-11	4	12	10'-5	6	9	10'-5	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	6	18	17'-11	5	18	5'-7	6	9	7'-0	3'-6	3'-6	5	12	17'-11	5	12	5'-10	5	4.5	17'-11
11-13	8	9	8.5	11	9	9	9	2'-0	2'-10	2'-0	3'-3	4	12	10'-6	6	9	10'-6	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	5	12	17'-11	4	12	5'-9	5	6	6'-6	3'-3	3'-3	4	9	17'-11	5	9	5'-8	5	4.5	17'-11
14-16	8	9	9.5	12.5	9	9	9	1'-10	3'-0	1'-11	3'-0	4	12	10'-9	6	9	10'-9	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	5	12	17'-11	4	12	6'-3	5	6	6'-4	3'-2	3'-2	5	12	17'-11	6	12	6'-0	6	4.5	17'-11
17-19	8	9	10.5	12.5	9	9	9	1'-10	2'-11	1'-6	3'-0	4	12	10'-10	6	9	10'-10	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	5	12	17'-11	4	12	6'-5	5	6	6'-6	3'-3	3'-3	5	12	17'-11	6	12	5'-10	6	4.5	17'-11
20-22	8	9	12	14.5	10	9	9	1'-5	3'-2	1'-6	3'-2	4	12	11'-1	7	9	11'-1	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	6	18	18'-2	5	18	7'-3	5	6	6'-10	3'-5	3'-5	5	18	18'-2	8	18	6'-4	8	4.5	18'-2
23-25	8	9	13	15.5	11	9	9	1'-3	3'-2	1'-1	3'-3	4	9	11'-3	7	9	11'-3	4	6	36	4	6	19	4	12	14	4	18	14	4	12	18	4	18	14	5	12	18'-5	4	12	7'-7	6	9	7'-2	3'-3	3'-11	5	18	18'-5	8	18	6'-4	8	4.5	18'-5

Bar List																											Quantities												
FILL	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Slab	Floor	Walls	Total	(LB/FT)	(Steel)
0	5	12	18'-5	4	12	6'-2	4	6	14'-4	5'-0	9'-4	4	18	18'-5	6	18	11'-2	6	4.5	18'-5	0.789	0.696	0.715	2.200	279.16														
1	5	12	18'-5	4	12	6'-2	4	6	14'-4	5'-0	9'-4	4	18	18'-5	6	18	11'-2	6	4.5	18'-5	0.705	0.667	0.715	2.087	274.87														
2	5	12	18'-5	5	12	6'-5	4	6	14'-3	5'-0	9'-3	5	18	18'-5	6	18	11'-2	6	4.5	18'-5	0.507	0.638	0.715	1.860	304.74														
3	5	12	18'-5	4	12	5'-4	4	6	13'-3	4'-0	9'-2	5	18	18'-5	6	18	7'-0	6	4.5	18'-5	0.507	0.638	0.715	1.860	268.03														
4	5	12	18'-5	4	12	4'-11	4	6	13'-0	3'-9	9'-3	5	18	18'-5	6	18	6'-6	6	4.5	18'-5	0.507	0.638	0.715	1.860	256.63														
5-7	5	12	18'-5	4	12	4'-11	4	6	12'-10	3'-7	9'-3	4	9	18'-5	4	9	5'-10	4	4.5	18'-5	0.507	0.638	0.715	1.860	258.61														
8-10	5	12	18'-5	4	12	5'-6	6	9	12'-9	3'-6	9'-3	4	9	18'-5	5	9	5'-10	5	4.5	18'-5	0.507	0.638	0.715	1.860	301.26														
11-13	5	12	18'-5	4	12	6'-1	5	6	12'-7	3'-3	9'-4	5	18	18'-5	8	18	6'-6	8	4.5	18'-5	0.536	0.696	0.715	1.947	301.89														
14-16	5	12	18'-5	4	12	6'-5	5	6	12'-10	3'-4	9'-6	4	9	18'-5	5	9	6'-0	5	4.5	18'-5	0.592	0.782	0.715	2.089	305.82														
17-19	4	9	18'-5	4	9	7'-0	5	6	12'-7	3'-1	9'-6	5	12	18'-5	6	12	6'-0	6	4.5	18'-5	0.648	0.782	0.715	2.145	310.21														
20-22	5	12	18'-8	4	12	7'-3	5	6	12'-11	3'-3	9'-8	4	9	18'-8	5	9	6'-4	5	4.5	18'-8	0.746	0.912	0.795	2.453	320.50														
23-25	4	9	18'-11	4	9	8'-2	6	9	13'-1	3'-4	9'-9	5	18	18'-11	8	18	6'-6	8	4.5	18'-11	0.817	0.984	0.876	2.677	331.55														



- Notes:**
- Dimensions listed on this sheet to be used in conjunction with Sheet TWRCB G3-20.
 - Fill, dimensions "S" and "H" are in feet.
 - Dimensions "A", "B", "C", "D", and "Sp." listed in the bar list are in inches.
 - Dimensions "L", "H", "V" are in feet and inches.

LATEST REVISION DATE	APPROVED BY BRIDGE ENGINEER	IOWADOT Highway Division	TWRCB 8-9-20
		Standard Design Twin Reinforced Concrete Box Culverts July, 2020	
		Culvert Barrel Details 8' x 9' Barrel Sections	

ENGLISHLRFDDESIGNEDTWINCULVERTS.DGN - TWRCB 8-9-20 - THIS SHEET ISSUED 07-2020.