VARIABLE DIMENSIONS AND QUANTITIES FOR BARREL SECTIONS

REINFORCING BAR LIST

FILL	a1			a2			b1			b2			e1			e2			e3			e4			f1			f2			f3			f4			k1			k2			k3			k4					k5				
	SIZE	SP	LENGTH	SIZE	SP	LENGTH	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	NO.	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	h	v	SIZE	SP	LENGTH	h	v
0	15	280	3500	20	175	3500	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2620	15	280	2600	15	280	1230	540	690	15	280	1230	540	690
300	15	280	3530	20	175	3530	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2540	15	280	2490	15	280	1230	540	690	15	280	1230	540	690
600	15	280	3460	20	175	3460	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	20	280	2370	15	280	2540	20	280	1560	740	820	15	280	1460	640	820
900-1800	15	280	3430	15	140	3430	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2290	15	280	1830	15	280	1560	870	690	15	280	1250	560	690
2100-3000	15	280	3430	15	140	3430	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2140	15	280	1960	15	280	1610	820	790	15	280	1460	640	820
3300-3600	20	210	3480	15	140	3480	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	1990	15	280	1530	15	280	1510	720	790	20	280	1400	610	790
3900-4500	20	210	3530	15	140	3530	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2190	15	280	1660	15	210	1510	720	790	15	210	1430	610	820
4800-5100	15	210	3580	15	140	3580	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2210	15	280	1680	15	210	1510	690	820	15	210	1430	610	820
5400-5700	15	210	3620	15	140	3620	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2160	15	280	1430	15	210	1690	870	820	15	210	1430	610	820
6000-6300	20	210	3670	15	140	3670	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2190	15	280	1430	15	210	1690	870	820	15	210	1410	590	820
6600-6900	15	280	3720	15	140	3720	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	15	280	2320	15	280	1610	20	280	1940	940	1000	20	280	1690	690	1000
7200-7500	15	280	3770	15	140	3770	10	175	34	10	175	36	15	300	18	10	360	20	15	300	9	10	360	10	15	420	18	10	360	20	15	420	9	10	360	10	15	280	9920	20	280	2390	15	280	1660	20	280	1860	920	940	20	280	1610	670	940

REINFORCING BAR LIST

FILL	k6			k7			k9			m1			m2			m3			m4				m5				m6			m7			m9		
	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH	h	v	SIZE	SP	LENGTH	h	v	SIZE	SP	LENGTH	SIZE	SP	LENGTH	SIZE	SP	LENGTH
0	15	280	9920	15	280	1550	15	105	9920	15	280	10 070	15	280	2090	15	280	1880	15	280	3970	590	3380	15	280	3890	510	3380	15	280	10 070	15	280	1100	15	105	10 070
300	15	280	9920	15	280	1530	15	105	9920	15	280	10 070	15	280	2140	15	280	1910	15	280	4220	790	3430	15	280	3940	510	3430	15	280	7880	15	280	1170	15	105	10 070
600	15	280	8490	15	280	1500	15	105	9920	15	280	10 070	15	280	1940	15	280	1350	15	280	4100	740	3360	15	280	3950	590	3360	15	280	7930	20	280	1430	15	105	10 070
900-1800	15	280	7900	15	280	1550	15	105	9920	15	280	10 070	15	280	2110	15	280	1780	15	280	4120	790	3330	15	280	3840	510	3330	15	280	7780	15	280	1350	15	105	10 070
2100-3000	15	210	7730	15	210	1480	15	105	9920	15	280	10 070	15	280	2160	15	280	1780	15	280	4070	740	3330	20	280	3920	590	3330	15	210	7780	15	210	1430	20	105	10 070
3300-3600	15	210	7680	15	210	1270	15	105	9920	15	280	10 070	15	280	2210	15	280	1630	15	280	4100	740	3360	20	280	3920	560	3360	15	210	7780	15	210	1330	20	105	10 070
3900-4500	15	210	7700	15	210	1380	20	105	9920	15	280	10 070	20	280	2240	15	280	1630	15	210	4300	870	3430	15	210	4020	590	3430	15	210	7800	15	210	1400	25	105	10 070
4800-5100	15	210	7680	15	210	1380	20	105	9920	15	280	10 070	20	280	2270	15	280	1530	15	210	4350	870	3480	20	210	4070	590	3480	15	210	7800	15	210	1400	25	105	10 070
5400-5700	15	210	7730	15	210	1430	25	105	9920	15	280	10 070	20	280	2290	15	280	1530	15	210	4350	870	3480	15	210	4100	590	3510	15	210	7800	15	210	1430	20	105	10 070
6000-6300	15	210	7730	15	210	1450	25	105	9920	15	280	10 070	20	280	2320	15	280	1580	15	210	4250	690	3560	15	210	4150	590	3560	15	210	7750	15	210	1350	20	105	10 070
6600-6900	15	210	7730	15	210	1430	25	105	9920	15	280	10 070	20	280	2340	15	280	1630	20	280	4330	740	3590	20	280	4280	690	3590	15	210	7750	15	210	1400	20	105	10 070
7200-7500	15	210	7730	15	210	1430	25	105	9920	15	280	10 070	20	280	2390	15	280	1660	20	280	4450	790	3660	20	280	4330	670	3660	15	210	7780	15	210	1450	20	105	10 070

DIMENSIONS

FILL	S	H	A	B	C	✱D	✱E	✱F	✱G	✱J
0	3000	3000	270	255	255	210	105	210	280	280
300	3000	3000	280	280	255	210	105	210	280	280
600	3000	3000	230	255	255	210	105	210	280	280
900-1800	3000	3000	205	255	255	210	105	210	280	280
2100-3000	3000	3000	205	255	255	210	105	210	280	280
3300-3600	3000	3000	230	280	255	210	105	210	280	280
3900-4500	3000	3000	255	305	255	210	105	210	280	280
4800-5100	3000	3000	280	330	255	210	105	210	280	280
5400-5700	3000	3000	295	355	255	210	105	210	280	280
6000-6300	3000	3000	320	380	255	210	105	210	280	280
6600-6900	3000	3000	345	405	255	210	105	210	280	280
7200-7500	3000	3000	370	430	255	210	105	210	280	280

DIMENSIONS

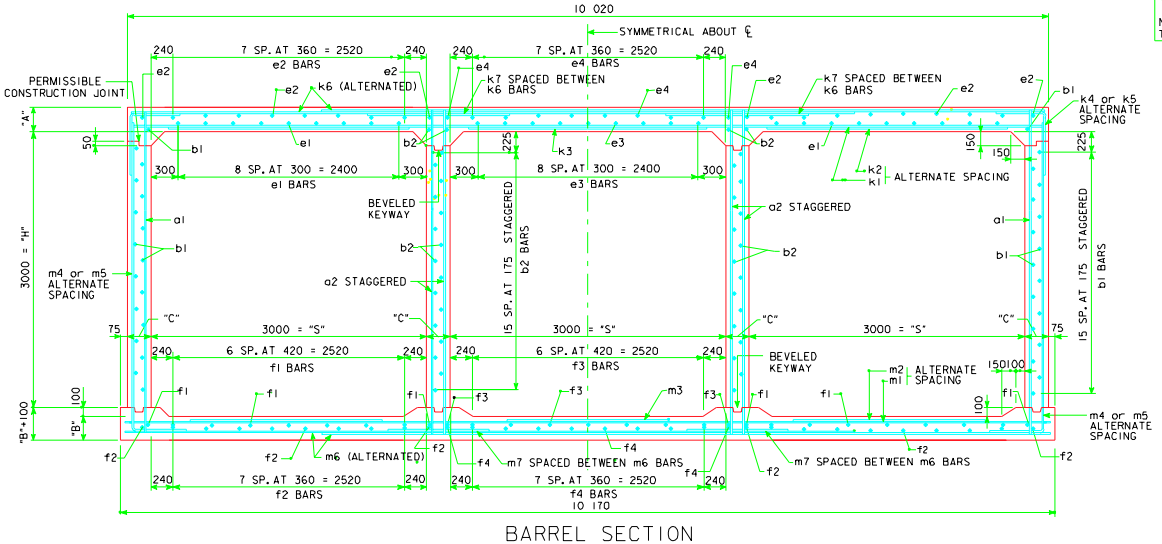
FILL	✱K	✱L	R	T	U	V	W	X	Y	Z
0	105	70	330	385	835	3333	685	690	3408	510
300	105	70	380	465	845	3333	685	670	1218	630
600	105	70	440	435	815	1903	785	950	1268	770
900-1800	105	140	710	555	835	1313	685	740	1118	710
2100-3000	105	140	650	635	795	1143	635	740	1118	770
3300-3600	105	140	860	735	685	1093	635	810	1118	720
3900-4500	105	140	800	655	745	1113	635	810	1138	740
4800-5100	105	140	790	665	765	1093	625	860	1138	740
5400-5700	105	210	910	685	765	1143	635	860	1138	770
6000-6300	105	140	910	685	785	1143	635	840	1088	740
6600-6900	105	140	820	635	765	1143	635	810	1088	760
7200-7500	105	140	800	585	765	1143	615	800	1118	790

BENT BAR DETAILS

BARS	D
15	100
20	120
25	150

m4, m5
k4, k5
D=
V
h

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



BARREL SECTION

QUANTITIES

FILL	CONCRETE m3/m				STEEL
	SLAB	FLOOR	WALL	TOTAL	kg/m
0	2.923	2.795	2.930	8.648	779.0
300	3.023	3.050	2.930	9.003	771.3
600	2.522	2.795	2.930	8.247	790.2
900-1800	2.272	2.795	2.930	7.997	735.2
2100-3000	2.272	2.795	2.930	7.997	798.7
3300-3600	2.522	3.050	2.930	8.502	836.0
3900-4500	2.773	3.304	2.930	9.006	879.8
4800-5100	3.023	3.558	2.930	9.511	885.6
5400-5700	3.174	3.812	2.930	9.916	860.2
6000-6300	3.424	4.067	2.930	10.421	889.5
6600-6900	3.675	4.321	2.930	10.925	889.0
7200-7500	3.925	4.575	2.930	11.430	906.5

* THESE DIMENSIONS ARE CORRECT FOR 11 480 mm LONG STANDARD SECTIONS ONLY. DIMENSIONS MUST BE RECALCULATED FOR ALL OTHER SECTION LENGTHS.

DIMENSIONS LISTED ON THIS SHEET TO BE USED IN CONJUNCTION WITH SHEET MTRRCB 2-94

LATEST REVISION DATE : 12-5-96

APPROVED BY :

STANDARD DESIGN

CULVERT BARREL DETAILS

FOR

TRIPLE REINFORCED CONCRETE BOX CULVERTS

PROJECT DEVELOPMENT DIVISION

IOWA DEPARTMENT OF TRANSPORTATION

DECEMBER, 1994

MTRRCB 3000-3000-94

REVISED : 12/96 ;KEYWAY NOTATION CHANGED.
TRB3030M.SOI : THIS SHEET ISSUED 03/95

XXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC