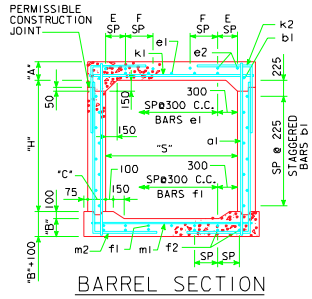
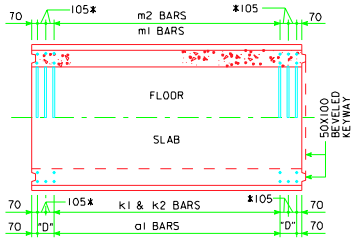
VARIABLE DIMENSIONS AND QUANTITIES FOR BARREL SECTIONS

DIMENSIONS							DIMENSIONS																																				QUANTITIES				
							a1			b1			e1			e2			f1			f2			k1			m1			k2					m2						CONCRETE m³/m				STEEL
																SPACING																														
FILL	S	H	A	B	C	*D	SIZE	SP	L	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	E	F	NO.	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	SP	L	SIZE	SP	L	SIZE	SP	L	h	v	SIZE	SP	L	h	v	SLAB	FLOOR	WALLS	TOTAL	kg/m
0	3000	2400	270	270	230	210	15	210	2910	15	225	22	15	300	9	15	300	300	11	15	300	11	15	410	6	20	182	3360	15	182	3510	15	105	2690	2000	690	15	105	3970	1170	2800	1.014	1.061	1.057	3.132	410.2
300	3000	2400	280	295	230	140	15	140	2950	15	225	22	15	300	9	15	330	330	6	15	300	11	15	410	6	20	182	3360	15	182	3510	15	182	1630	940	690	15	182	3890	1070	2820	1.049	1.151	1.057	3.256	324.4
600	3000	2400	220	255	230	140	15	140	2850	15	225	22	15	300	9	15	330	330	6	15	300	11	15	360	6	20	140	3360	20	182	3510	15	105	1610	920	690	15	105	3690	970	2720	0.841	1.007	1.057	2.904	410.0
900-2100	3000	2400	205	255	230	140	15	140	2830	15	225	22	15	300	9	15	280	280	6	15	300	11	15	280	6	15	140	3360	25	210	3510	15	105	1530	840	690	15	105	3560	840	2720	0.789	1.007	1.057	2.852	405.8
2400-3000	3000	2400	205	255	230	140	15	140	2830	15	225	22	15	300	9	15	280	280	6	15	300	11	15	280	6	25	210	3360	25	182	3510	20	182	1630	840	790	20	182	3560	840	2720	0.789	1.007	1.057	2.852	429.3
3300-3900	3000	2400	205	270	230	140	15	140	2850	15	225	22	15	300	9	15	410	-	4	15	300	11	15	410	4	25	182	3360	25	210	3510	20	182	1610	820	790	20	182	3510	790	2720	0.789	1.061	1.057	2.907	421.3
4200-4800	3000	2400	245	305	230	210	15	210	2920	15	225	22	15	300	9	15	410	-	4	15	300	11	15	410	4	25	182	3360	20	105	3510	25	210	1840	820	1020	25	210	3560	790	2770	0.928	1.187	1.057	3.171	485.4
5100-6000	3000	2400	280	345	230	210	15	210	3000	15	225	22	15	300	9	15	410	-	4	15	300	11	15	410	4	20	105	3360	20	105	3510	25	210	1760	740	1020	25	210	3600	720	2880	1.049	1.331	1.057	3.437	485.5
6300-7500	3000	2400	330	395	230	210	15	210	3100	15	225	22	15	300	9	15	410	-	4	15	300	11	15	410	4	20	105	3360	25	182	3510	25	182	1710	690	1020	25	182	3670	690	2980	1.222	1.512	1.057	3.790	516.7
0	3000	3000	270	280	255	140	15	140	3520	15	225	28	15	300	9	15	300	300	11	15	300	11	15	410	6	20	182	3410	20	280	3560	15	182	2730	2040	690	15	182	4660	1250	3410	1.034	1.116	1.476	3.626	389.1
300	3000	3000	280	295	255	140	15	140	3550	15	225	28	15	300	9	15	380	380	8	15	300	11	15	410	6	20	182	3410	15	182	3560	15	105	2170	1480	690	15	105	4630	1200	3430	1.069	1.171	1.476	3.716	456.0
600	3000	3000	220	255	255	140	15	140	3450	15	225	28	15	300	9	15	410	410	6	15	300	11	15	410	6	20	140	3410	20	182	3560	20	210	1940	1150	790	20	210	4450	1120	3330	0.858	1.024	1.476	3.359	425.7
900-2100	3000	3000	205	255	255	140	15	140	3430	15	225	28	15	300	9	15	330	330	6	15	300	11	15	330	6	20	210	3410	25	210	3560	20	210	1730	940	790	20	210	4270	940	3330	0.806	1.024	1.476	3.306	419.9
2400-3000	3000	3000	205	255	255	140	15	140	3430	15	225	28	15	300	9	15	300	300	6	15	300	11	15	300	6	25	280	3410	20	140	3560	20	182	1710	920	790	20	182	4250	920	3330	0.806	1.024	1.476	3.306	441.1
3300-3900	3000	3000	205	280	255	140	15	140	3460	15	225	28	15	300	9	15	300	300	6	15	300	11	15	280	6	15	105	3410	25	182	3560	20	182	1680	890	790	20	182	4230	870	3360	0.806	1.116	1.476	3.398	458.6
4200-4800	3000	3000	245	305	255	140	15	140	3520	15	225	28	15	300	9	15	410	-	4	15	300	11	15	410	4	20	140	3410	20	105	3560	15	105	1640	820	820	15	105	4230	820	3410	0.946	1.207	1.476	3.630	478.7
5100-6000	3000	3000	280	345	255	210	15	280	3600	15	225	28	15	300	9	15	410	-	4	15	300	11	15	410	4	25	210	3410	20	105	3560	25	182	1860	840	1020	25	182	4320	840	3480	1.069	1.354	1.476	3.899	549.3
6300-7500	3000	3000	330	395	255	210	15	280	3700	15	225	28	15	300	9	15	410	-	4	15	300	11	15	410	4	20	105	3410	20	105	3560	20	105	1760	820	940	20	105	4410	820	3590	1.245	1.537	1.476	4.258	561.5
0	3000	3600	270	280	305	140	15	140	4120	15	225	32	15	300	9	15	300	300	11	15	300	11	15	330	8	20	182	3510	15	210	3660	15	105	2780	2090	690	15	105	5350	1330	4020	1.073	1.154	2.130	4.357	520.7
300	3000	3600	280	305	305	140	15	140	4160	15	225	32	15	300	9	15	380	460	8	15	300	11	15	410	6	15	140	3510	15	182	3660	15	105	2780	2090	690	15	105	5370	1300	4070	1.110	1.248	2.130	4.487	511.4
600	3000	3600	220	255	305	350	15	350	4050	15	225	32	15	300	9	15	360	360	8	15	300	11	15	410	6	25	280	3510	20	182	3660	20	182	2190	1400	790	20	182	5160	1220	3940	0.893	1.060	2.130	4.083	437.3
900-2100	3000	3600	205	255	305	350	15	350	4030	15	225	32	15	300	9	15	380	380	6	15	300	11	15	380	6	15	182	3510	20	182	3660	20	182	1910	1120	790	20	182	5040	1100	3940	0.839	1.060	2.130	4.028	401.8
2400-3000	3000	3600	205	255	305	210	15	210	4030	15	225	32	15	300	9	15	380	380	6	15	300	11	15	380	6	15	140	3510	15	105	3660	25	280	2400	1120	1280	25	280	5060	1120	3940	0.839	1.060	2.130	4.028	479.2
3300-3900	3000	3600	205	280	305	420	20	420	4060	15	225	32	15	300	9	15	330	330	6	15	300	11	15	330	6	25	210	3510	20	140	3660	20	140	1810	1020	790	20	140	4970	1000	3970	0.839	1.154	2.130	4.122	507.9
4200-4800	3000	3600	245	320	305	420	20	420	4140	15	225	32	15	300	9	15	330	330	6	15	300	11	15	300	6	25	210	3510	20	140	3660	20	140	1790	1000	790	20	140	5010	970	4040	0.983	1.304	2.130	4.417	509.5
5100-6000	3000	3600	280	355	305	180	15	180	4210	15	225	32	15	300	9	15	330	330	6	15	300	11	15	330	6	20	140	3510	25	210	3660	25	182	2020	1000	1020	25	182	5120	1000	4120	1.110	1.436	2.130	4.675	521.8
6300-7500	3000	3600	330	405	305	140	15	140	4310	15	225	32	15	300	9	15	300	300	6	15	300	11	15	330	6	25	182	3510	20	105	3660	20	105	1910	970	940	20	105	5220	1000	4220	1.290	1.624	2.130	5.044	575.0

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

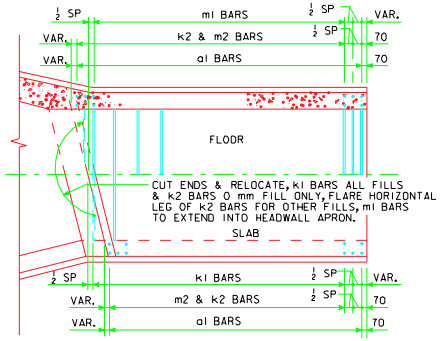


BARREL SECTION



STANDARD SECTION PLAN VIEW

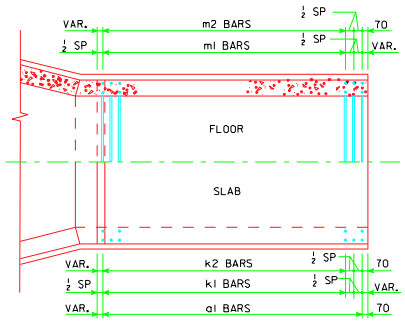
NOTE:
TYPICAL FOR LENGTHS OF 11 480 mm.
(KEYWAY IS TO BE OMITTED WHEN BELL JOINTS ARE USED)



PLAN - SKEW TYPICAL

(KEYWAY NOT SHOWN)

NOTE:
ALL LONGITUDINAL BARREL STEEL SHALL EXTEND AT LEAST TO THE BACKFACE OF PARAPET.

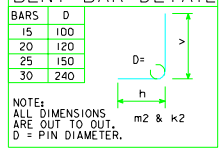


PLAN - 0° SKEW

(KEYWAY NOT SHOWN)

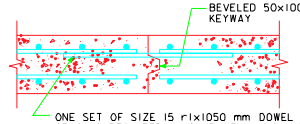
BENT BAR DETAIL

BARS	D
15	100
20	120
25	150
30	240



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

m2 & k2



ONE SET OF SIZE 15 r1x1050 mm DOWEL BARS ø 300 mm SPACING REQUIRED IN SLAB AT ALL CULVERT BARREL JOINTS, EXCEPT JOINTS WITH BELL JOINTS.
r1 BARS REQUIRED = 11, TOTAL MASS = 19 kg.

TOP SLAB CONSTRUCTION JOINT DETAIL

NOTES:

1. SEE SHEET MRCB-G1-95 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.

LATEST REVISION DATE :

APPROVED BY : William A. Kierkegaard

STANDARD DESIGN

CULVERT BARREL DETAILS

FOR

REINFORCED CONCRETE BOX CULVERTS

PROJECT DEVELOPMENT DIVISION
IOWA DEPARTMENT OF TRANSPORTATION

JULY, 1995

MRCB-3000-2-95

RCB30M2.SOI

XXXXXXXXXXSYSTEMTIME XXXXXXXXUSERNAME XXXXXXXXXX