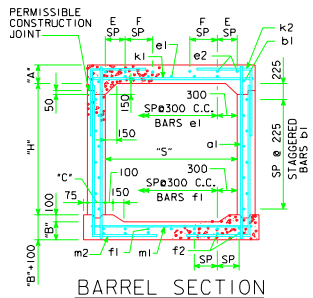
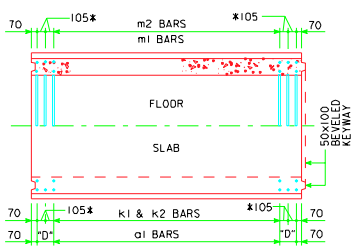
VARIABLE DIMENSIONS AND QUANTITIES FOR BARREL SECTIONS

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	2400	2400	270	255	230	140	15	140	2900	15	225	22	15	300	7	15	300	450	7	15	300	9	15	410	6	20	210	2760	15	140	2910	20	280	2570	1780	790	20	280	3840	1070	2770	0.852	0.854	1.057	2.762	325.5
300	2400	2400	280	270	230	140	15	140	2920	15	225	22	15	300	7	15	410	410	6	15	300	9	15	380	6	20	210	2760	15	210	2910	20	280	1990	1200	790	20	280	3820	1020	2800	0.881	0.899	1.057	2.836	308.2
600	2400	2400	205	255	230	210	15	210	2830	15	225	22	15	300	7	15	300	300	6	15	300	9	15	300	6	20	182	2760	20	210	2910	15	105	1580	890	690	15	105	3590	870	2720	0.666	0.854	1.057	2.576	345.4
900-2100	2400	2400	205	255	230	210	15	210	2830	15	225	22	15	300	7	15	280	280	6	15	300	9	15	280	6	20	280	2760	15	182	2910	15	182	1530	840	690	15	182	3560	840	2720	0.666	0.854	1.057	2.576	261.7
2400-3000	2400	2400	205	255	230	210	15	210	2830	15	225	22	15	300	7	15	410	-	4	15	300	9	15	410	4	15	182	2760	20	210	2910	15	105	1380	690	690	15	105	3410	690	2720	0.666	0.854	1.057	2.576	315.6
3300-3900	2400	2400	205	255	230	140	15	140	2830	15	225	22	15	300	7	15	410	-	4	15	300	9	15	410	4	20	210	2760	20	182	2910	15	105	1380	690	690	15	105	3410	690	2720	0.666	0.854	1.057	2.576	349.0
4200-4800	2400	2400	205	255	230	140	15	140	2830	15	225	22	15	300	7	15	410	-	4	15	300	9	15	410	4	20	182	2760	15	105	2910	15	105	1380	690	690	15	105	3410	690	2720	0.666	0.854	1.057	2.576	358.1
5100-6000	2400	2400	230	295	230	140	15	140	2900	15	225	22	15	300	7	15	410	-	4	15	300	9	15	410	4	25	210	2760	20	140	2910	20	182	1510	720	790	20	182	3490	720	2770	0.738	0.974	1.057	2.768	378.4
6300-7500	2400	2400	270	330	230	210	15	210	2970	15	225	22	15	300	7	15	410	-	4	15	300	9	15	410	4	20	140	2760	25	182	2910	25	210	1740	720	1020	25	210	3570	720	2850	0.852	1.079	1.057	2.988	434.9
0	2400	3000	270	255	255	210	15	210	3500	15	225	28	15	300	7	15	300	450	7	15	300	9	15	410	6	20	210	2810	15	140	2960	15	105	2420	1730	690	15	105	4530	1150	3380	0.872	0.871	1.476	3.220	415.1
300	2400	3000	280	270	255	210	15	210	3520	15	225	28	15	300	7	15	300	450	7	15	300	9	15	380	6	20	210	2810	15	140	2960	15	105	2420	1730	690	15	105	4480	1070	3410	0.901	0.917	1.476	3.295	418.9
600	2400	3000	205	255	255	140	15	140	3430	15	225	28	15	300	7	15	330	330	8	15	300	9	15	360	6	20	182	2810	15	105	2960	15	182	1970	1280	690	15	182	4350	1020	3330	0.683	0.871	1.476	3.030	361.2
900-2100	2400	3000	205	255	255	140	15	140	3430	15	225	28	15	300	7	15	330	330	6	15	300	9	15	300	6	15	140	2810	15	182	2960	15	182	1630	940	690	15	182	4220	890	3330	0.683	0.871	1.476	3.030	326.4
2400-3000	2400	3000	205	255	255	140	15	140	3430	15	225	28	15	300	7	15	300	300	6	15	300	9	15	280	6	15	140	2810	15	182	2960	15	182	1580	890	690	15	182	4200	870	3330	0.683	0.871	1.476	3.030	325.1
3300-3900	2400	3000	205	255	255	140	15	140	3430	15	225	28	15	300	7	15	410	-	4	15	300	9	15	410	4	15	105	2810	20	182	2960	20	210	1630	840	790	20	210	4170	840	3330	0.683	0.871	1.476	3.030	374.9
4200-4800	2400	3000	205	255	255	140	15	140	3430	15	225	28	15	300	7	15	410	-	4	15	300	9	15	410	4	20	182	2810	15	105	2960	20	182	1630	840	790	20	182	4170	840	3330	0.683	0.871	1.476	3.030	394.1
5100-6000	2400	3000	230	295	255	140	15	140	3500	15	225	28	15	300	7	15	410	-	4	15	300	9	15	410	4	25	210	2810	15	105	2960	20	182	1610	820	790	20	182	4200	820	3380	0.756	0.994	1.476	3.226	418.3
6300-7500	2400	3000	270	330	255	210	15	280	3570	15	225	28	15	300	7	15	410	-	4	15	300	9	15	410	4	25	210	2810	20	140	2960	25	182	1860	840	1020	25	182	4300	840	3460	0.872	1.101	1.476	3.449	501.0

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

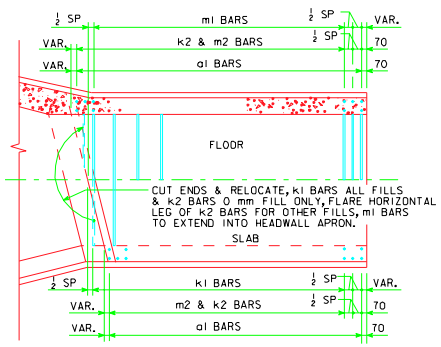


BARREL SECTION



STANDARD SECTION PLAN VIEW

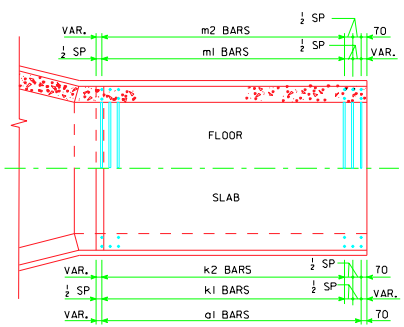
NOTE:
TYPICAL FOR LENGTHS OF 11 480 mm.
(KEYWAY IS TO BE OMITTED WHEN BELL JOINTS ARE USED)



PLAN - SKEW TYPICAL

(KEYWAY NOT SHOWN)

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

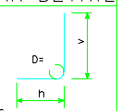


PLAN - 0° SKEW

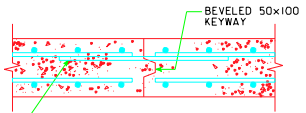
(KEYWAY NOT SHOWN)

BENT BAR DETAIL

BARS	D
15	100
20	120
25	150
30	240



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



ONE SET OF SIZE 15 r1x1050 mm DOWEL BARS @ 300 mm SPACING REQUIRED IN SLAB AT ALL CULVERT BARREL JOINTS, EXCEPT JOINTS WITH BELL JOINTS.
r1 BARS REQUIRED = 9, TOTAL MASS = 15 kg.

TOP SLAB CONSTRUCTION JOINT DETAIL

NOTES:

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

LATEST REVISION DATE :

APPROVED BY : Wilson A. Rendquist

STANDARD DESIGN

CULVERT BARREL DETAILS

FOR

REINFORCED CONCRETE BOX CULVERTS

PROJECT DEVELOPMENT DIVISION
IOWA DEPARTMENT OF TRANSPORTATION

JULY, 1995

MRCB-2400-2-95

RCB24M2.SD1

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXX