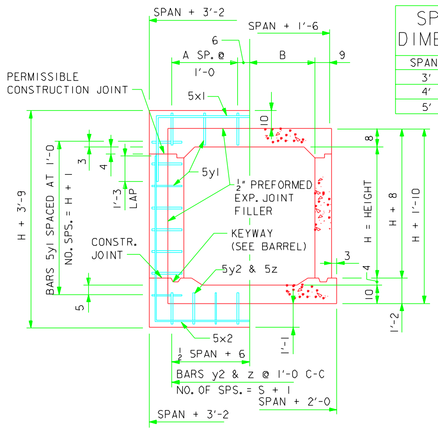


JOINT DETAIL
SECTION THRU BARREL

SPACING AND DIMENSION TABLE

SPAN	A	B
3'	1	1'-6
4'	2	2'-0
5'	2	2'-6

ESTIMATE OF QUANTITIES - ONE JOINT - 3', 4', & 5' SPAN

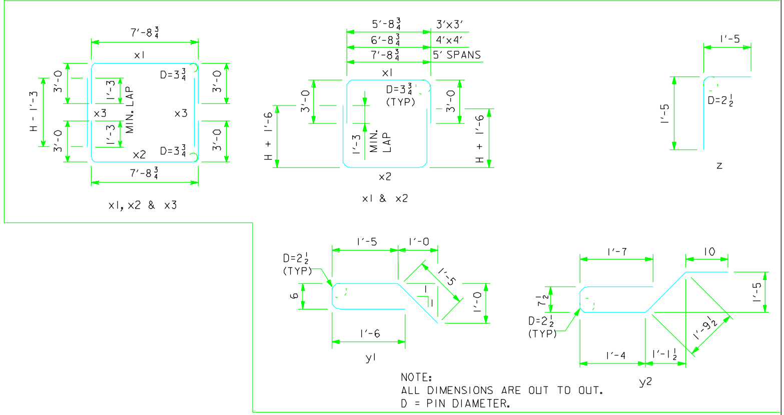
BILL OF REINFORCING STEEL			3' x 3'				4' x 4'				5' x 3'			
MARK	LOCATION	SHAPE	SIZE	NO.	LENGTH	LIN. FT.	SIZE	NO.	LENGTH	LIN. FT.	SIZE	NO.	LENGTH	LIN. FT.
x1	SLAB AND WALLS		5	3	11'-9	35.3	5	3	12'-9	38.3	5	3	13'-9	41.3
x2	FLOOR AND WALLS		5	3	14'-9	44.3	5	3	17'-9	53.3	5	3	16'-9	50.3
x3	WALLS		—	—	—	—	—	—	—	—	—	—	—	—
y1	TOP AND SIDES		5	14	4'-10	67.3	5	18	4'-10	87.0	5	16	4'-10	77.3
y2	BOTTOM		5	5	6'-2	30.8	5	6	6'-2	37.0	5	7	6'-2	43.2
z	BOTTOM & FLOOR		5	5	2'-10	14.2	5	6	2'-10	17.0	5	7	2'-10	19.8
					LENGTH	191.9			LENGTH	232.6			LENGTH	231.9
TOTAL WEIGHT						201 lbs.				243 lbs.				242 lbs.
TOTAL CONCRETE						1.5 cu. yds.				1.8 cu. yds.				1.8 cu. yds.

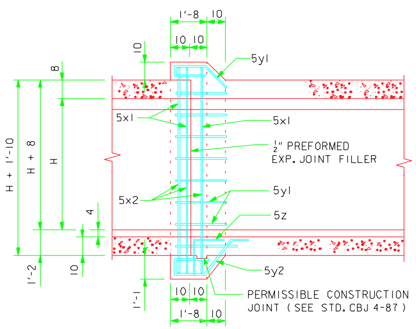
MARK	5' x 4'				5' x 5'				5' x 6'			
	SIZE	NO.	LENGTH	LIN. FT.	SIZE	NO.	LENGTH	LIN. FT.	SIZE	NO.	LENGTH	LIN. FT.
x1	5	3	13'-9	41.3	5	3	13'-9	41.3	5	3	13'-9	41.3
x2	5	3	18'-9	56.3	5	3	20'-9	62.3	5	3	13'-9	41.3
x3	—	—	—	—	—	—	—	—	5	6	5'-9	34.5
y1	5	18	4'-10	87.0	5	20	4'-10	96.7	5	22	4'-10	106.3
y2	5	7	6'-2	43.2	5	7	6'-2	43.2	5	7	6'-2	43.2
z	5	7	2'-10	19.8	5	7	2'-10	19.8	5	7	2'-10	19.8
			LENGTH	247.6			LENGTH	263.3			LENGTH	286.4
TOTAL WEIGHT				258 lbs.				275 lbs.				299 lbs.
TOTAL CONCRETE				1.9 cu. yds.				2.1 cu. yds.				2.2 cu. yds.

CONCRETE PLACEMENT

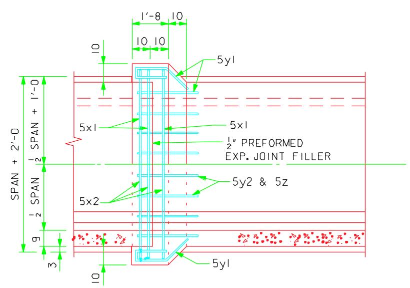
SIZE	FOOTING	WALLS	SLAB
3' x 3'	.656	.343	.518
4' x 4'	.740	.472	.584
5' x 3'	.823	.343	.647
5' x 4'	.823	.472	.647
5' x 5'	.823	.600	.647
5' x 6'	.823	.729	.647

BENT BAR DETAILS

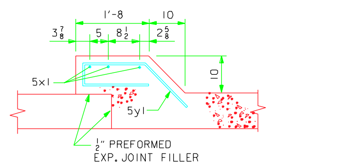




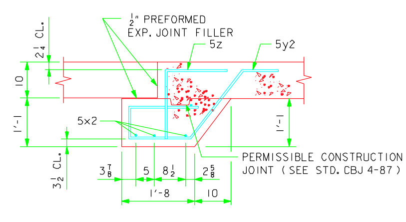
LONGITUDINAL SECTION



PLAN VIEW



TOP & SIDES - BARS y1



BOTTOM BARS - y2 & z

NOTES:

1. DIMENSIONS AND QUANTITIES SHOWN BASED ON SLAB THICKNESS OF 8", WALL = 9", AND FLOOR = 10".
2. CHANGE LENGTHS OF BARS x1, x2, z, AND ADJUST REINFORCING STEEL AND CONCRETE QUANTITIES ACCORDINGLY FOR SLAB, WALL, AND FLOOR THICKNESSES OTHER THAN SHOWN.
3. ALL BAR LENGTHS ARE ESTIMATED WITH A 2" CLEARANCE FROM CONCRETE EDGE TO OUTSIDE OF BAR, EXCEPT AS NOTED.
4. MATERIAL AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS OF I.D.O.T.
5. SEE DRAWING RCB-GI-87 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.
6. BARREL FLOOR BARS m1 ARE TO BE SHORTENED 6" AT BELL JOINTS.

LATEST REVISION DATE : 04-02

APPROVED BY :

STANDARD DESIGN

CULVERT BELL JOINTS

FOR
REINFORCED CONCRETE BOX CULVERTS
3', 4' & 5' SPAN

HIGHWAY DIVISION
IOWA DEPARTMENT OF TRANSPORTATION

MAY , 1987

CBJ 1-87

REVISED 04-02 - ADDED PERMISSIBLE CULVERT BELL JOINT. TOTAL LENGTH CHANGED FOR 3 x 3 AND 5 x 6.
CBJ.S01 -REVISED : 8/89 ; "y2" & "z" IN ALL HEIGHTS CHANGED. , 3' & 4' SPANS ADDED. NOTE #6 ADDED.

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC