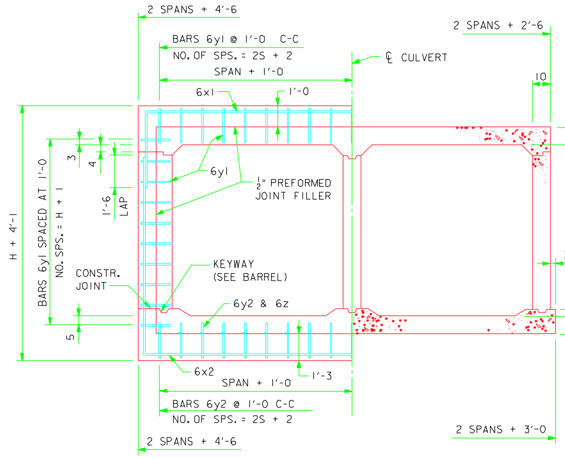
CONCRETE PLACEMENT

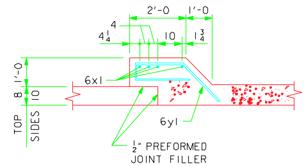
SIZE	FOOTING	WALLS	SLAB
8′ x 6′	2.511	1.049	2.071
8′ x 8′	2.511	1.420	2.071
8′ x 10′	2.511	1.790	2.071

ESTIMATE OF QUANTITIES - ONE JOINT - 8′ SPAN

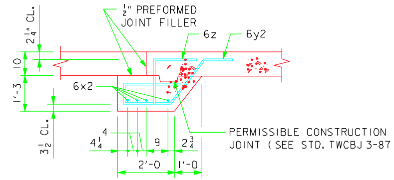
BILL OF REINFORCING STEEL			8′ x 6′				8′ x 8′				8′ x 10′			
MARK	LOCATION	SHAPE	SIZE	NO.	LENGTH	LIN. FT.	SIZE	NO.	LENGTH	LIN. FT.	SIZE	NO.	LENGTH	LIN. FT.
x1	SLAB AND WALLS		6	4	28′-0	112.0	6	4	28′-0	112.0	6	4	28′-0	112.0
x2	FLOOR AND WALLS		6	4	28′-0	112.0	6	4	28′-0	112.0	6	4	28′-0	112.0
x3	WALLS		6	8	4′-6	36.0	6	8	6′-6	52.0	6	8	8′-6	68.0
y1	TOP AND SIDES		6	35	6′-2	215.8	6	39	6′-2	240.5	6	43	6′-2	265.2
y2	BOTTOM		6	19	7′-5	140.9	6	19	7′-5	140.9	6	19	7′-5	140.9
z	BOTTOM & FLOOR		6	19	3′-3	61.8	6	19	3′-3	61.8	6	19	3′-3	61.8
					LENGTH	678.5			LENGTH	719.2			LENGTH	759.9
TOTAL WEIGHT						1019 lbs.				1080 lbs.				1141 lbs.
TOTAL CONCRETE						5.6 cu. yds.				6.0 cu. yds.				6.4 cu. yds.



JOINT DETAIL
SECTION THRU BARREL

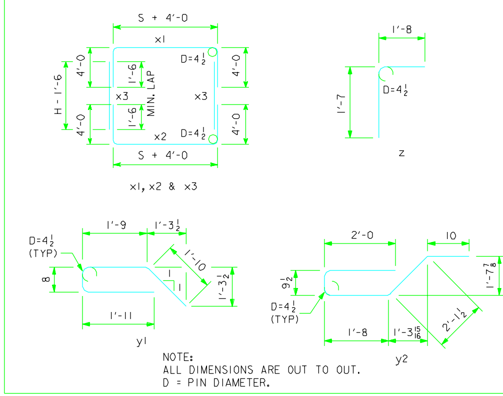


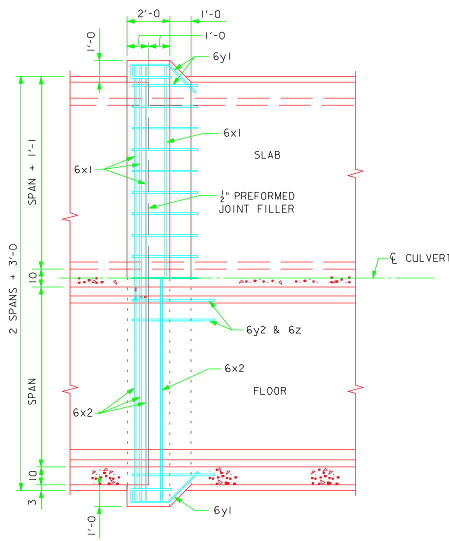
TOP & SIDES - BARS y1



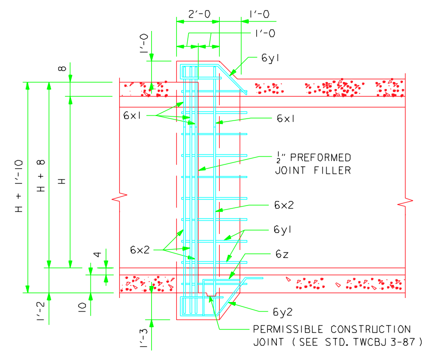
BOTTOM BARS - y2 & z

BENT BAR DETAILS





PLAN VIEW



LONGITUDINAL SECTION

NOTES:

1. DIMENSIONS AND QUANTITIES SHOWN BASED ON SLAB THICKNESS OF 8″, WALL = 10″, 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 TWRCB-G1-87 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.
6. BARS x1 AND x2 MAY BE FURNISHED IN TWO EQUAL LENGTHS ADDING 24 DIAMETERS TO THE OVERALL LENGTH FOR LAP. THE ABOVE IS TO BE PERFORMED AT NO ADDITIONAL COST TO THE CONTRACTING AUTHORITY.
7. 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
TWIN REINFORCED CONCRETE BOX CULVERTS

8′ SPAN

HIGHWAY DIVISION
IOWA DEPARTMENT OF TRANSPORTATION

JULY , 1987

TWCBJ 1-87

REVISED: 8/89; NOTE #7 ADDED.
REVISED: 12/96; NOTE CORRECTED.
REVISED 05-01 - ADDED 2¼″ CL. DIMENSION TO BOTTOM BARS y2 AND z.
REVISED 04-02 - ADDED PERMISSIBLE CULVERT BELL JOINT.
TWCBJ1.S01

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC