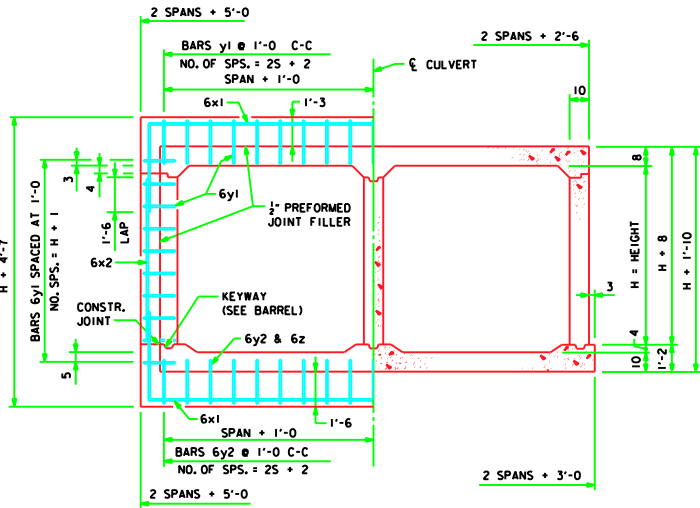
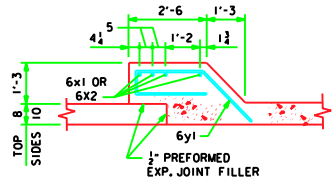


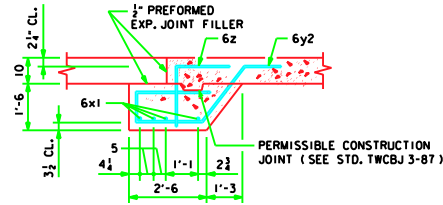
REVISED 04-07 - ADDED BAR SIZE TO BAR LABEL IN BAR LIST AND SHOWED BAR WEIGHTS PER BAR LABEL. 6x BAR LENGTHS CHANGED. TWCBJ 2-87



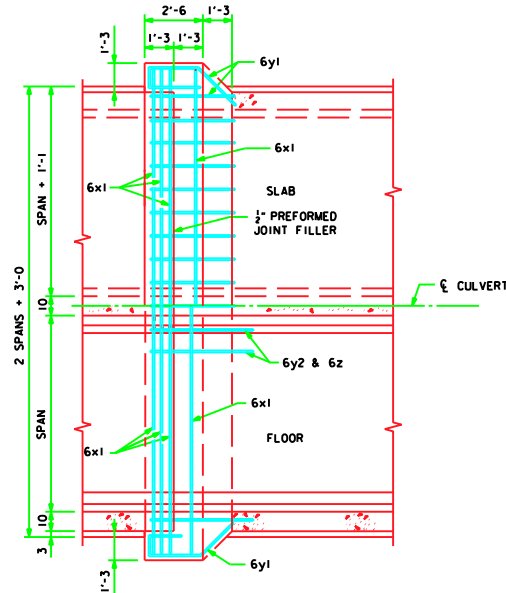
JOINT DETAIL SECTION THRU BARREL



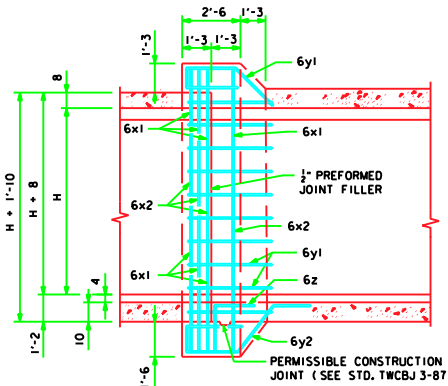
TOP & SIDES - BARS 6y1



BOTTOM BARS - 6y2 & 6z



PLAN VIEW



LONGITUDINAL SECTION

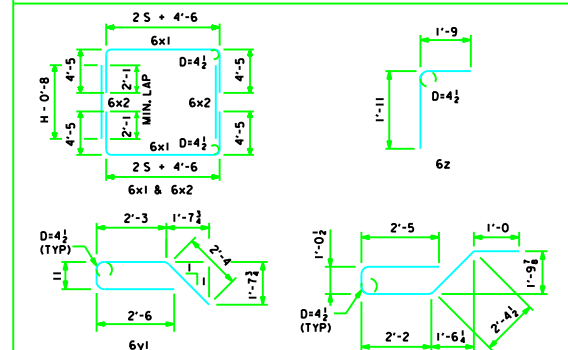
ESTIMATE OF QUANTITIES - ONE JOINT - 10' SPAN

BILL OF REINFORCING STEEL		10' X 6'		10' X 8'		10' X 10'		10' X 12'			
MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
6x1	SLAB AND FLOOR	U	8	33'-4	401	8	33'-4	401	8	33'-4	401
6x2	WALLS	U	8	5'-4	64	8	7'-4	88	8	9'-4	112
6y1	TOP AND SIDES	U	39	8'-0	463	43	8'-0	517	47	8'-0	565
6y2	BOTTOM	U	23	9'-0	311	23	9'-0	311	23	9'-0	311
6z	BOTTOM & FLOOR	U	23	3'-8	127	23	3'-8	127	23	3'-8	127
TOTAL WEIGHT					1372			1444			1516
TOTAL CONCRETE					10.3 cu. yds.			10.8 cu. yds.			11.4 cu. yds.
											12.0 cu. yds.

ESTIMATE OF QUANTITIES - ONE JOINT - 12' SPAN

BILL OF REINFORCING STEEL		12' X 6'		12' X 8'		12' X 10'		12' X 12'			
MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
6x1	SLAB AND FLOOR	U	8	37'-4	449	8	37'-4	449	8	37'-4	449
6x2	WALLS	U	8	5'-4	64	8	7'-4	88	8	9'-4	112
6y1	TOP AND SIDES	U	43	8'-0	517	47	8'-0	565	51	8'-0	613
6y2	BOTTOM	U	27	9'-0	365	27	9'-0	365	27	9'-0	365
6z	BOTTOM & FLOOR	U	27	3'-8	149	27	3'-8	149	27	3'-8	149
TOTAL WEIGHT					1544			1616			1688
TOTAL CONCRETE					11.5 cu. yds.			12.1 cu. yds.			12.7 cu. yds.
											13.3 cu. yds.

BENT BAR DETAILS



CONCRETE PLACEMENT

SIZE	FOOTING	WALLS	SLAB
10' X 6'	4,727	1,640	3,883
10' X 8'	4,727	2,218	3,883
10' X 10'	4,727	2,797	3,883
10' X 12'	4,727	3,376	3,883
12' X 6'	5,422	1,640	4,461
12' X 8'	5,422	2,218	4,461
12' X 10'	5,422	2,797	4,461
12' X 12'	5,422	3,376	4,461

NOTES:

- DIMENSIONS AND QUANTITIES SHOWN BASED ON SLAB THICKNESS OF 8", WALL = 10", AND FLOOR = 10".
- CHANGE LENGTHS OF BARS 6x1, 6z, AND ADJUST REINFORCING STEEL AND CONCRETE QUANTITIES ACCORDINGLY FOR SLAB, WALL, AND FLOOR THICKNESSES OTHER THAN SHOWN.
- ALL BAR LENGTHS ARE ESTIMATED WITH A 2" CLEARANCE FROM CONCRETE EDGE TO OUTSIDE OF BAR, EXCEPT AS NOTED.
- MATERIAL AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS OF I.D.O.T.
- SEE DRAWING TWRCB-G1-87 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.
- BARS 6x1 MAY BE FURNISHED IN TWO EQUAL LENGTHS ADDING 2'-0" TO THE OVERALL LENGTH TO OBTAIN A 2'-0" MIN. LAP. THE ABOVE IS TO BE PERFORMED AT NO ADDITIONAL COST TO THE CONTRACTING AUTHORITY.
- BARREL FLOOR BARS ml ARE TO BE SHORTENED 6" AT BELL JOINTS.

LATEST REVISION DATE :

04-07

APPROVED BY :

[Signature]

STANDARD DESIGN
CULVERT BELL JOINTS
 FOR
 TWIN REINFORCED CONCRETE BOX CULVERTS
 10' AND 12' SPANS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

JULY, 1987

TWCBJ 2-87