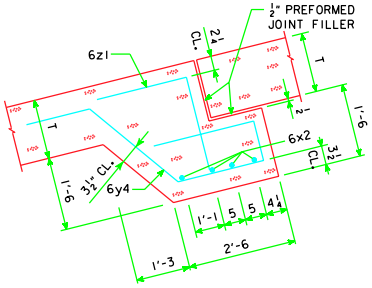
ESTIMATE OF QUANTITIES - FLUME BELL JOINTS

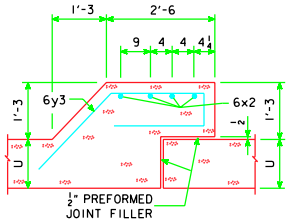
MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	MARK
JUNCTION BELL JOINT			10' x 4'			10' x 5'			10' x 6'			10' x 8'			10' x 10'			10' x 12'			12' x 6'			12' x 8'			12' x 10'			12' x 12'		
6x1	WALLS & FLOOR		4	22'-11	138	4	22'-11	138	4	22'-11	138	4	23'-1	139	4	23'-1	139	4	23'-5	141	4	25'-1	151	4	25'-3	152	4	25'-3	152	4	25'-7	154	6x1
6x3	WALLS VERT.		8	4'-4	52	8	5'-4	64	8	6'-4	76	8	8'-4	100	8	10'-4	124	8	12'-4	148	8	6'-4	76	8	8'-4	100	8	10'-4	124	8	12'-4	148	6x3
6y1	WALLS HORIZ.		12	7'-8	138	14	7'-8	161	16	7'-8	184	20	7'-10	235	24	7'-10	282	28	8'-1	340	16	7'-8	184	20	7'-10	235	24	7'-10	282	28	8'-1	340	6y1
6y2	FLOOR VERT.		12	9'-7	173	12	9'-7	173	12	9'-7	173	12	9'-7	173	12	9'-7	173	13	9'-7	187	14	9'-8	203	14	9'-8	203	14	9'-8	203	15	9'-8	218	6y2
6z1	FLOOR VERT.		12	4'-3	77	12	4'-3	77	12	4'-3	77	12	4'-3	77	12	4'-3	77	13	4'-3	83	14	4'-5	93	14	4'-5	93	14	4'-5	93	15	4'-5	100	6z1
TOTAL REINFORCING STEEL			578 LBS.			613 LBS.			648 LBS.			724 LBS.			795 LBS.			899 LBS.			707 LBS.			783 LBS.			854 LBS.			960 LBS.		
TOTAL CONCRETE			4.1 CU. YDS.			4.4 CU. YDS.			4.7 CU. YDS.			5.3 CU. YDS.			5.8 CU. YDS.			6.5 CU. YDS.			5.1 CU. YDS.			5.7 CU. YDS.			6.2 CU. YDS.			6.9 CU. YDS.		
CHUTE BELL JOINT			10' x 4'			10' x 5'			10' x 6'			10' x 8'			10' x 10'			10' x 12'			12' x 6'			12' x 8'			12' x 10'			12' x 12'		
6x2	WALLS & FLOOR		4	23'-9	143	4	25'-3	152	4	22'-11	138	4	23'-1	139	4	23'-1	139	4	23'-5	141	4	25'-1	151	4	25'-3	152	4	25'-3	152	4	25'-7	154	6x2
6x4	WALLS VERT.		---	-----	----	---	-----	----	8	4'-0	48	8	5'-6	66	8	7'-0	84	8	8'-6	102	8	4'-0	48	8	5'-6	66	8	7'-0	84	8	8'-6	102	6x4
6y3	WALLS HORIZ.		8	7'-8	92	10	7'-8	115	12	7'-8	138	14	7'-10	165	18	7'-10	212	20	8'-1	243	12	7'-8	138	16	7'-10	188	18	7'-10	212	22	8'-1	267	6y3
6y4	FLOOR VERT.		12	9'-2	165	12	9'-2	165	12	9'-2	165	12	9'-2	165	12	9'-2	165	13	9'-2	179	14	9'-4	196	14	9'-4	196	14	9'-4	196	15	9'-4	210	6y4
6z1	FLOOR VERT.		12	4'-3	77	12	4'-3	77	12	4'-3	77	12	4'-3	77	12	4'-3	77	13	4'-3	83	14	4'-5	93	14	4'-5	93	14	4'-5	93	15	4'-5	100	6z1
TOTAL REINFORCING STEEL			477 LBS.			509 LBS.			566 LBS.			612 LBS.			677 LBS.			748 LBS.			626 LBS.			695 LBS.			737 LBS.			833 LBS.		
TOTAL CONCRETE			3.6 CU. YDS.			3.8 CU. YDS.			4.0 CU. YDS.			4.4 CU. YDS.			4.9 CU. YDS.			5.4 CU. YDS.			4.4 CU. YDS.			4.8 CU. YDS.			5.3 CU. YDS.			5.8 CU. YDS.		

CONCRETE PLACEMENT

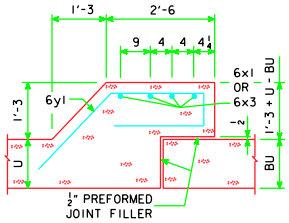
S x H	JUNCTION BELL		CHUTE BELL	
	FOOTING	WALLS	FOOTING	WALLS
10' x 4'	2.8	1.3	2.8	0.8
10' x 5'	2.8	1.6	2.8	1.0
10' x 6'	2.8	1.9	2.8	1.2
10' x 8'	2.8	2.5	2.8	1.6
10' x 10'	2.8	3.0	2.8	2.1
10' x 12'	2.9	3.6	2.9	2.5
12' x 6'	3.2	1.9	3.2	1.2
12' x 8'	3.2	2.5	3.2	1.6
12' x 10'	3.2	3.0	3.2	2.1
12' x 12'	3.3	3.6	3.3	2.5



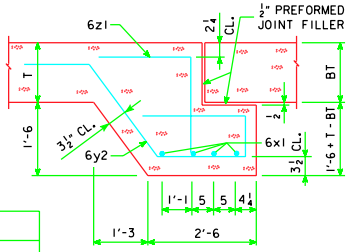
CHUTE FOOTING



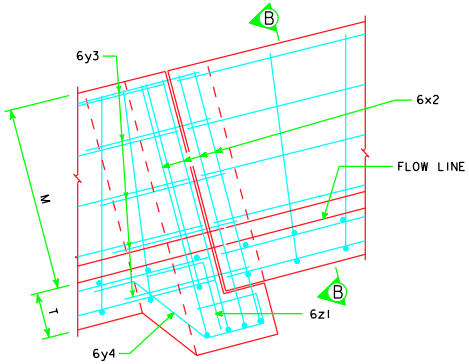
CHUTE WALLS



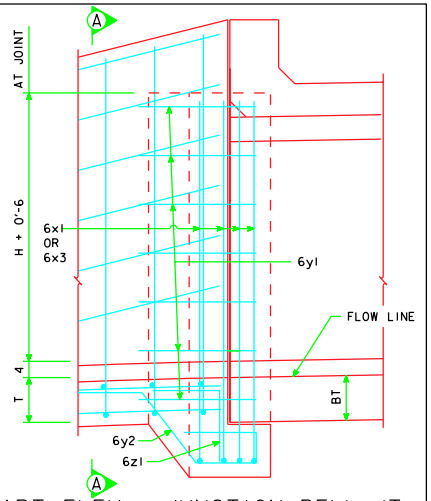
JUNCTION WALLS



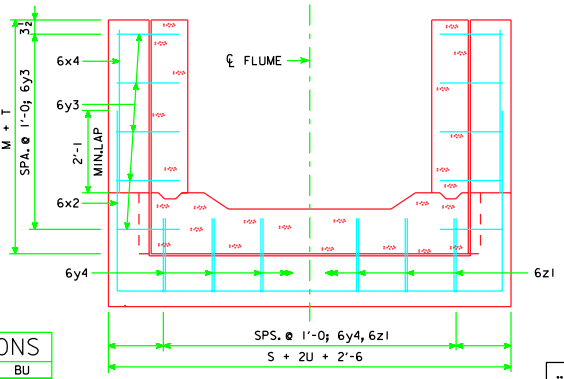
JUNCTION FOOTING



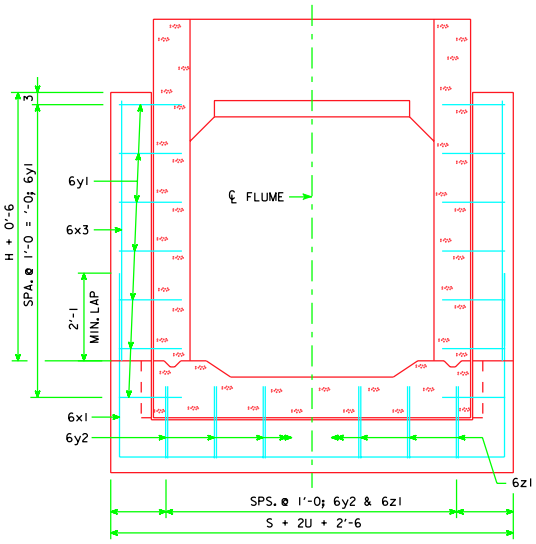
PART ELEVATION - CHUTE BELL JT.



PART ELEV. - JUNCTION BELL JT.

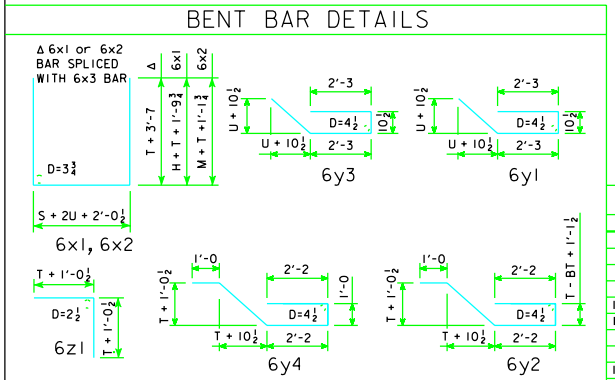


SECTION B-B



SECTION A-A

BENT BAR DETAILS



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

S = CULVERT SPAN
H = CULVERT HEIGHT

BARREL & CHUTE DIMENSIONS

S x H	M	T	U	BT	BU
10' x 4'	3'-0	1'-1	9	10½	9
10' x 5'	3'-9	1'-1	9	10	9
10' x 6'	4'-6	1'-1	9	10	9
10' x 8'	6'-0	1'-1	10	10½	9
10' x 10'	7'-6	1'-1	10	10	10
10' x 12'	9'-0	1'-1	1'-0	10½	1'-0
12' x 6'	4'-6	1'-2	9	11½	9
12' x 8'	6'-0	1'-2	10	1'-0	9
12' x 10'	7'-6	1'-2	10	1'-0	10
12' x 12'	9'-0	1'-2	1'-0	1'-0½	1'-0

NOTES:

1. DIMENSIONS AND QUANTITIES SHOWN BASED ON 'U' FLUME WALLS, 'BU' BARREL WALLS, 'T' FLUME FLOOR AND 'BT' BARREL FLOOR THICKNESSES.
2. CHANGE LENGTHS OF BARS 6x1 AND ADJUST REINFORCING STEEL AND CONCRETE QUANTITIES ACCORDINGLY OTHER THAN WALL AND FLOOR THICKNESSES SHOWN.
3. FLOOR BARS m1 ARE TO BE SHORTENED 6" AT BELL JOINTS.
4. SEE STANDARD SHEET RCF-01-04 FOR GENERAL INFORMATION.

LATEST REVISION DATE : 05-09

APPROVED BY :

STANDARD DESIGN

FLUME BELL JOINTS

FOR

REINFORCED CONCRETE FLUMES - 10' & 12' SPANS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

JANUARY, 2004

FBJ-03-04

REVISED 05-09 - CHANGED THE TOTAL CONCRETE QUANTITIES TO AGREE WITH THE CONCRETE PLACEMENT QUANTITIES.
FBJ0304.S01 - THIS SHEET ISSUED 01-04.