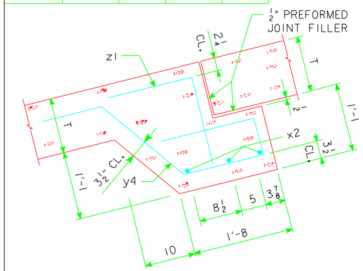
ESTIMATE OF QUANTITIES - FLUME BELL JOINTS

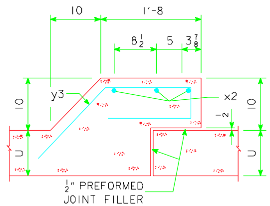
MARK	SIZE	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	MARK
JUNCTION BELL JOINT				3′ x 3′			4′ x 4′			5′ x 3′			5′ x 4′			5′ x 5′			5′ x 6′			
x1	5	WALLS & FLOOR		3	16′-4	51	3	15′-0	47	3	18′-4	57	3	16′-0	50	3	16′-0	50	3	16′-0	50	x1
x3	5	WALLS VERT.		---	-----	----	6	4′-4	27	---	-----	----	6	4′-4	27	6	5′-4	33	6	6′-4	40	x3
y1	5	WALLS HORIZ.		10	5′-1	53	12	5′-1	64	10	5′-1	53	12	5′-1	64	14	5′-1	74	16	5′-1	85	y1
y2	5	FLOOR VERT.		5	6′-8	35	6	6′-8	42	7	6′-8	49	7	6′-8	49	7	6′-8	49	7	6′-8	49	y2
z1	5	FLOOR VERT.		5	3′-1	16	6	3′-1	19	7	3′-1	23	7	3′-1	23	7	3′-1	23	7	3′-1	23	z1
TOTAL REINFORCING STEEL				155 LBS.			199 LBS.			182 LBS.			213 LBS.			229 LBS.			247 LBS.			
TOTAL CONCRETE				1.1 CU. YDS.			1.3 CU. YDS.			1.3 CU. YDS.			1.4 CU. YDS.			1.5 CU. YDS.			1.7 CU. YDS.			
CHUTE BELL JOINT				3′ x 3′			4′ x 4′			5′ x 3′			5′ x 4′			5′ x 5′			5′ x 6′			
x2	5	WALLS & FLOOR		3	13′-3	41	3	15′-9	49	3	15′-3	48	3	16′-10	53	3	18′-4	57	3	19′-10	62	x2
y3	5	WALLS HORIZ.		8	5′-1	42	8	5′-1	42	8	5′-1	42	8	5′-1	42	10	5′-1	53	12	5′-1	64	y3
y4	5	FLOOR VERT.		5	6′-7	34	6	6′-7	41	7	6′-7	48	7	6′-7	48	7	6′-7	48	7	6′-7	48	y4
z1	5	FLOOR VERT.		5	3′-1	16	6	3′-1	19	7	3′-1	23	7	3′-1	23	7	3′-1	23	7	3′-1	23	z1
TOTAL REINFORCING STEEL				133 LBS.			151 LBS.			161 LBS.			166 LBS.			181 LBS.			197 LBS.			
TOTAL CONCRETE				0.9 CU. YDS.			1.1 CU. YDS.			1.1 CU. YDS.			1.2 CU. YDS.			1.3 CU. YDS.			1.4 CU. YDS.			

CONCRETE PLACEMENT

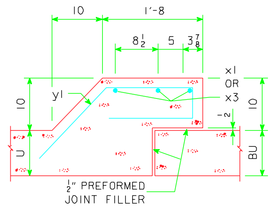
S x H	JUNCTION BELL		CHUTE BELL	
	FOOTING	WALLS	FOOTING	WALLS
3′ x 3′	0.7	0.5	0.7	0.2
4′ x 4′	0.8	0.6	0.8	0.3
5′ x 3′	0.8	0.5	0.8	0.2
5′ x 4′	0.8	0.6	0.8	0.3
5′ x 5′	0.8	0.7	0.8	0.4
5′ x 6′	0.8	0.8	0.8	0.5



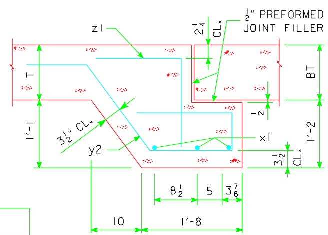
CHUTE FOOTING



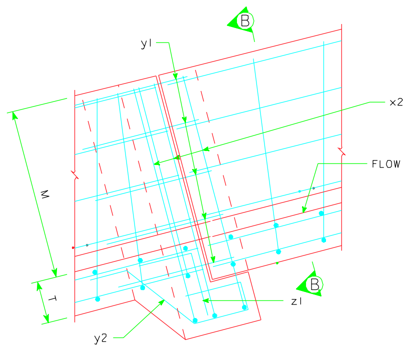
CHUTE WALLS



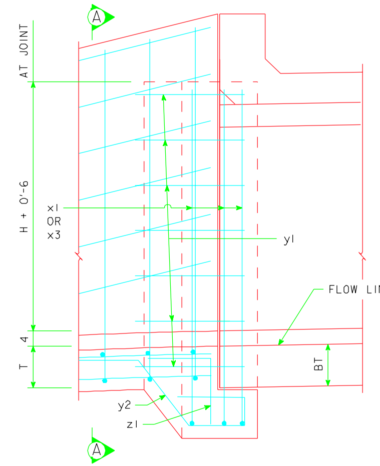
JUNCTION WALLS



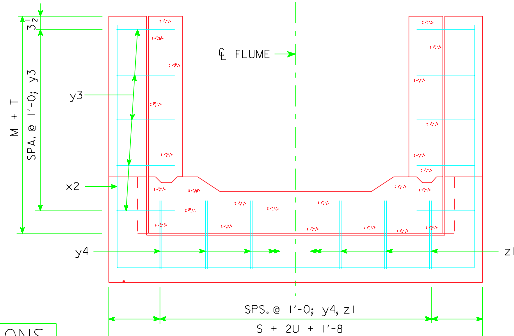
JUNCTION FOOTING



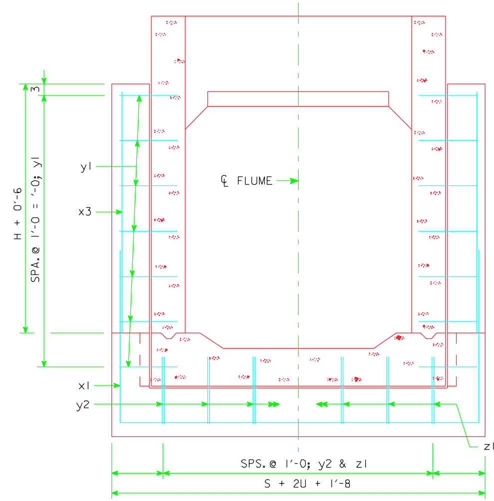
PART ELEVATION - CHUTE BELL JT.



PART ELEV. - JUNCTION BELL JT.

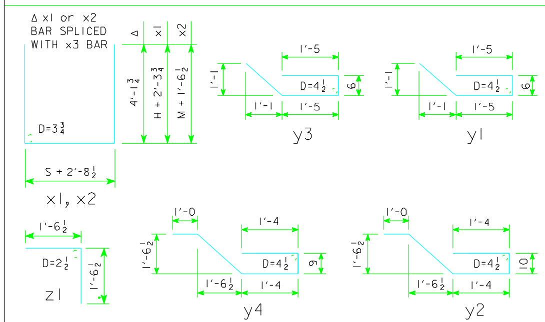


SECTION B-B



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
3′ x 3′	2′-3	11	9	10	9
4′ x 4′	3′-0	11	9	10	9
5′ x 3′	2′-3	11	9	10	9
5′ x 4′	3′-0	11	9	10	9
5′ x 5′	3′-9	11	9	10	9
5′ x 6′	4′-6	11	9	10	9

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 x1 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 :

APPROVED BY :

STANDARD DESIGN

FLUME BELL JOINTS

FOR

REINFORCED CONCRETE FLUMES - 3′, 4′ & 5′ SPANS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

JANUARY, 2004

FBJ-01-04

FBJ0104.S01 - THIS SHEET ISSUED 01-04.

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