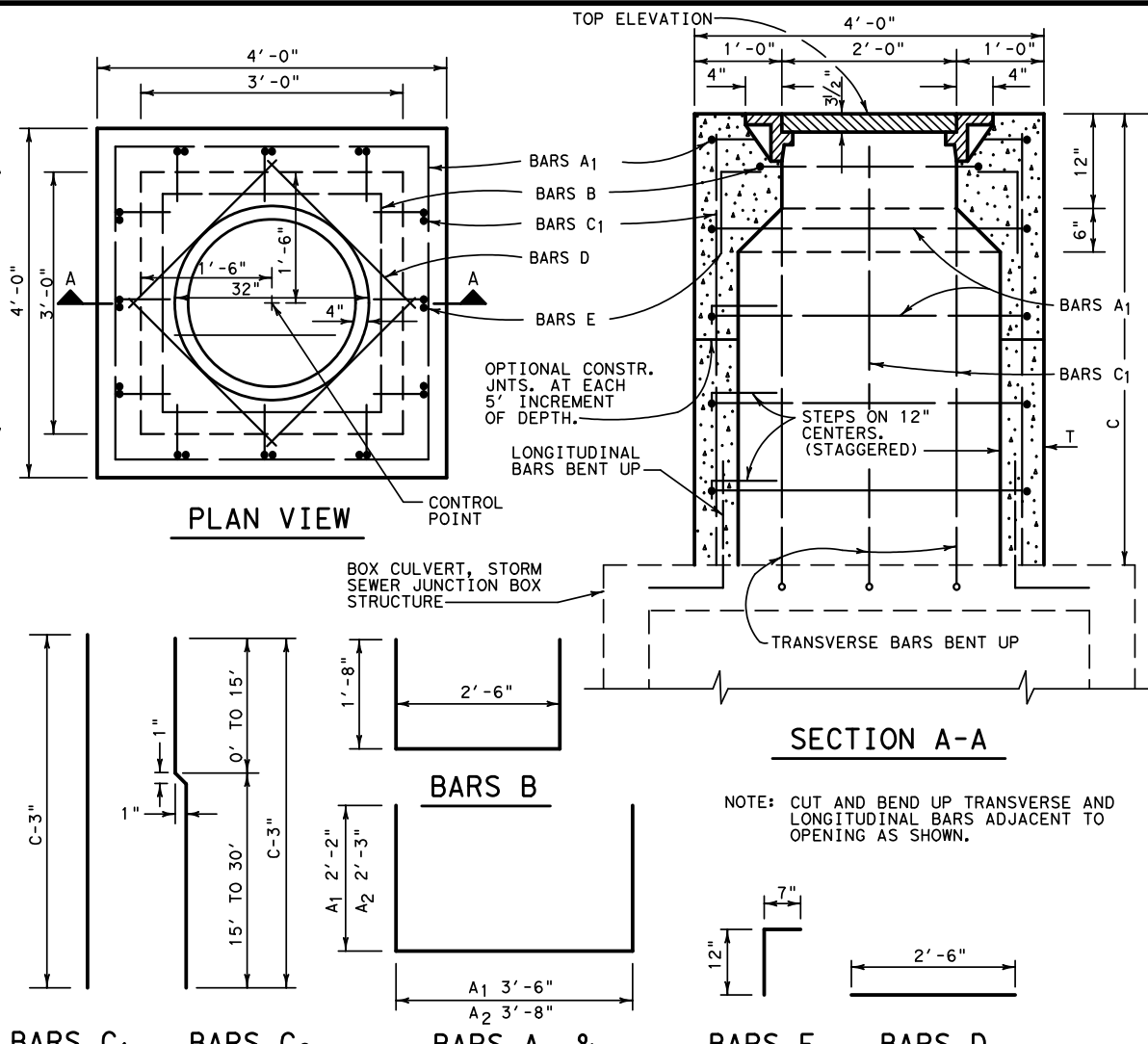
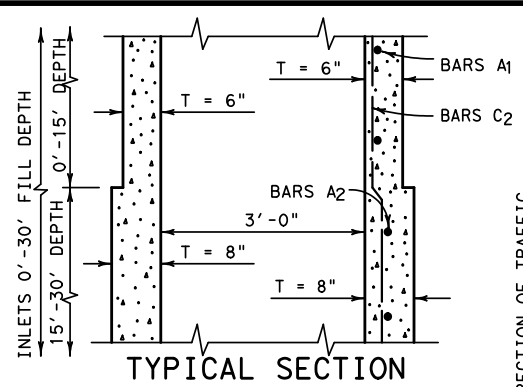
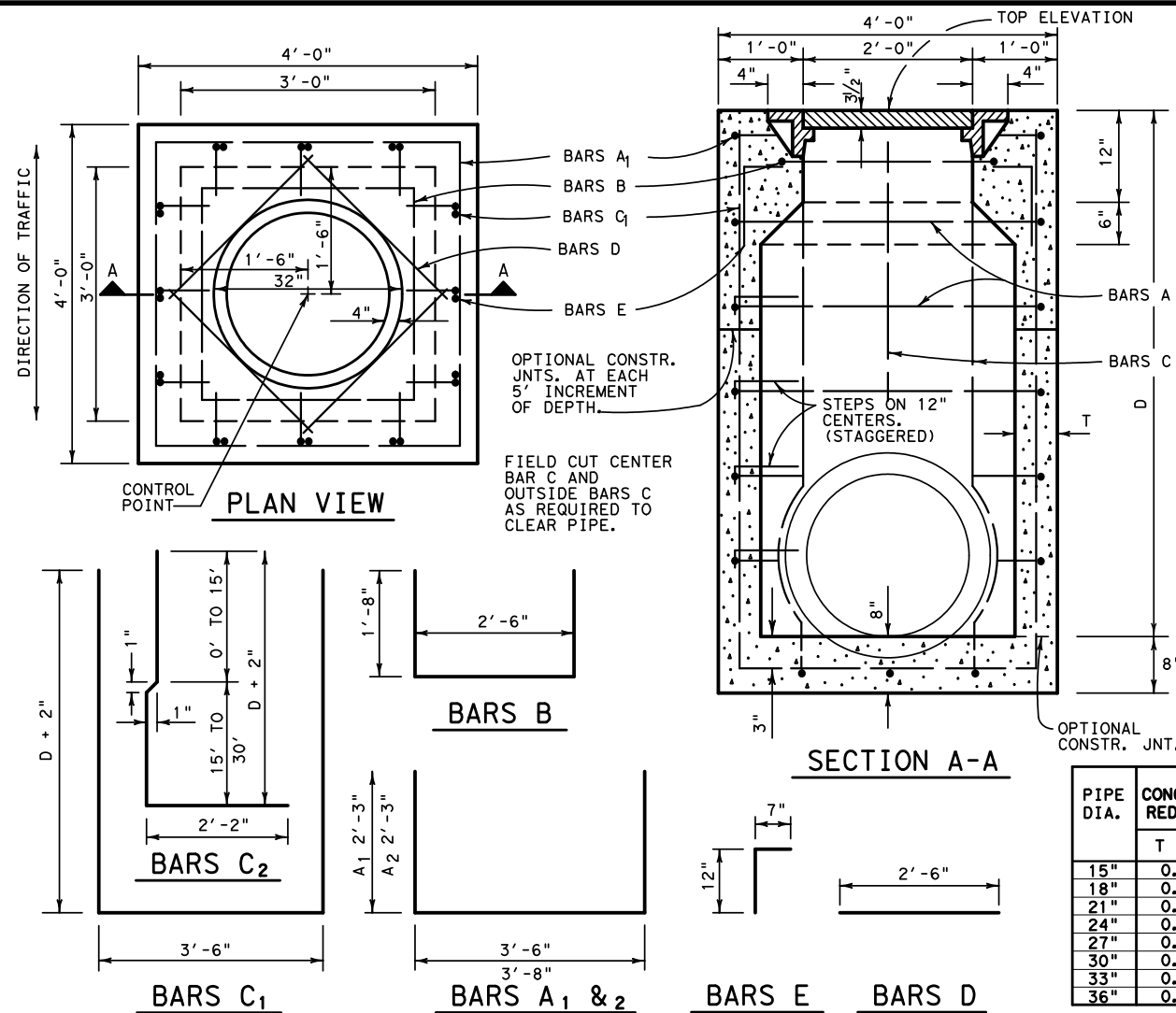


DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

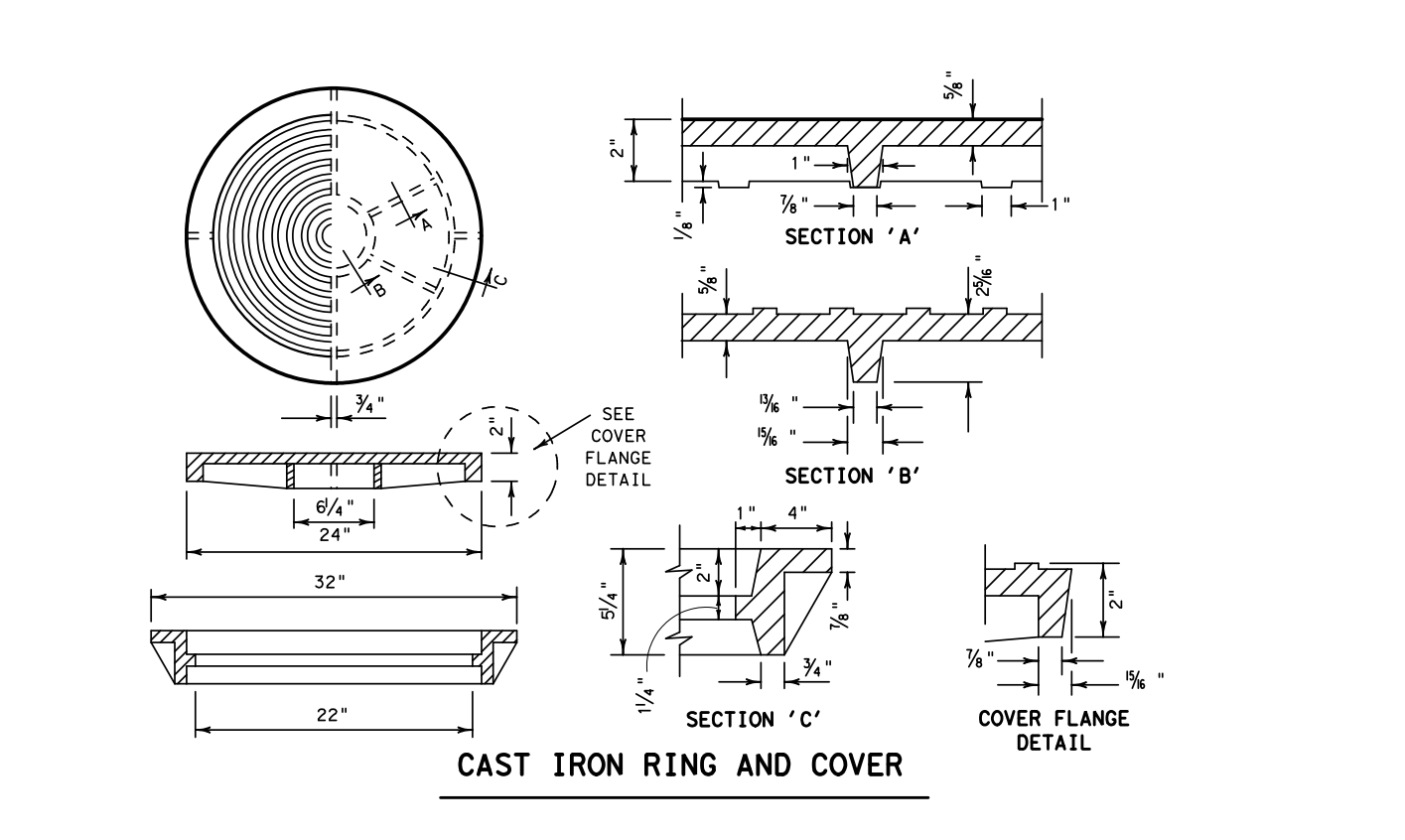
http://www.dot.state.tx.us/ftw/spec/info/standard.htm mh102fw.dgn

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36
37	38	39
40	41	42
43	44	45
46	47	48
49	50	51
52	53	54
55	56	57
58	59	60
61	62	63
64	65	66
67	68	69
70	71	72
73	74	75
76	77	78
79	80	81
82	83	84
85	86	87
88	89	90
91	92	93
94	95	96
97	98	99
100	101	102



PIPE DIA.	CONCRETE QUANTITY REDUCTION TABLE	
	T = 6"	T = 8"
15"	0.04	0.05
18"	0.05	0.07
21"	0.08	0.10
24"	0.09	0.12
27"	0.11	0.15
30"	0.14	0.18
33"	0.17	0.22
36"	0.20	0.26

TYPE 1 STRUCTURE



CAST IRON RING AND COVER

BARS	SIZE	SPAC.	D = 4'-0"				D = 10'-0"				D = 20'-0"				D = 30'-0"			
			NO.	LNTH.	WT.	CU. YDS.	NO.	LNTH.	WT.	CU. YDS.	NO.	LNTH.	WT.	CU. YDS.	NO.	LNTH.	WT.	CU. YDS.
A1	No. 4	12"	8	7'-10"	42	20	7'-10"	105	30	7'-10"	157	30	7'-10"	157	30	7'-10"	157	
A2	No. 4	12"							10	8'-2"	55	30	8'-2"	164				
B	No. 4	-	2	5'-10"	8	2	5'-10"	8	2	5'-10"	8	2	5'-10"	8				
C1	No. 4	12"	6	11'-9"	47	6	23'-9"	95										
C2	No. 4	12"							12	22'-4"	179	12	32'-4"	259				
D	No. 4	-	4	2'-6"	7	4	2'-6"	7	4	2'-6"	7	4	2'-6"	7				
E	No. 4	-	12	1'-7"	13	12	1'-7"	13	12	1'-7"	13	12	1'-7"	13				
STEPS	No. 6	12"	2	2'-10"	9	8	2'-10"	34	18	2'-10"	77	28	2'-10"	119				
TOTAL STEEL - LBS.					126			262			496			727				
CLASS "A" CONC. - CU. YDS.					1.70			3.25			6.37			10.01				
D = 3' TO D = 15'			LBS. STEEL 102 + 22.75 LB/LF			CU. YDS. CONC. 1.44 + 0.259 CY/LF			D = 15' TO D = 30'			LBS. STEEL 374 + 23.19 LB/LF			CU. YDS. CONC. 4.55 + 0.364 CY/LF			

BARS	SIZE	SPAC.	C = 1'-6"				C = 10'-0"				C = 20'-0"				C = 30'-0"			
			NO.	LNTH.	WT.	CU. YDS.	NO.	LNTH.	WT.	CU. YDS.	NO.	LNTH.	WT.	CU. YDS.	NO.	LNTH.	WT.	CU. YDS.
A1	No. 4	12"	4	7'-10"	21	20	7'-10"	105	30	7'-10"	157	30	7'-10"	157	30	7'-10"	157	
A2	No. 4	12"							10	8'-2"	55	30	8'-2"	164				
B	No. 4	-	2	5'-10"	8	2	5'-10"	8	2	5'-10"	8	2	5'-10"	8				
C1	No. 4	12"							12	9'-9"	78							
C2	No. 4	12"										12	19'-6"	158	12	29'-6"	238	
D	No. 4	-	4	2'-6"	7	4	2'-6"	7	4	2'-6"	7	4	2'-6"	7				
E	No. 4	-	12	1'-7"	13	12	1'-7"	13	12	1'-7"	13	12	1'-7"	13				
STEPS	No. 6	12"				8	2'-10"	34	18	2'-10"	77	28	2'-10"	119				
TOTAL STEEL - LBS.					49			245			475			706				
CLASS "A" CONC. - CU. YDS.					0.65			2.85			5.97			9.61				
C = 1'-6" TO C = 15'			LBS. STEEL 60 + 22.75 LB/LF			CU. YDS. CONC. 0.65 + 0.259 CY/LF			C = 15' TO C = 30'			LBS. STEEL 358 + 23.19 LB/LF			CU. YDS. CONC. 4.15 + 0.364 CY/LF			

- GENERAL NOTES:**
- ALL CONCRETE SHALL BE CLASS "A".
 - ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS. REINFORCING STEEL SHALL BE PLACED WITH THE CENTERS OF OUTSIDE LAYERS OF BARS 3" FROM THE CONCRETE SURFACE WHERE THE WALL THICKNESS, T, IS 6" AND SHALL BE PLACED WITH THE CENTERS OF OUTSIDE LAYERS OF BARS 4" FROM THE CONCRETE SURFACE WHERE THE WALL THICKNESS, T, IS 8" UNLESS OTHERWISE NOTED.
 - RING AND COVER SHALL CONFORM TO ITEM 471.
 - CONSTRUCT TOP TO CONFORM TO SLOPE OF SURFACE.
 - LOCATION OF MANHOLE AS SHOWN IN THE PLANS REFERS TO CONTROL POINT SHOWN ON THIS SHEET. FOR TYPE 1-C STRUCTURES NOT ON CULVERTS, LOWER STRUCTURE MAY BE POSITIONED AS REQUIRED TO ALIGN WITH TOP STRUCTURE, STORM DRAIN PIPES OR OTHER ADJACENT STRUCTURES.
 - MANHOLE TOP MAY BE CAST MONOLITHICALLY WITH CONCRETE PAVEMENT. IF NOT PLACED MONOLITHICALLY, A SEALED 1/2" EXPANSION JOINT SHALL BE PLACED AROUND THE TOP OF THE MANHOLE STRUCTURE, TO THE DEPTH OF CONCRETE PAVEMENT. CLASS 3, 4, 5 OR 7 JOINT SEALANT SHALL BE USED TO SEAL JOINT.
 - WHEN USED WITH JUNCTION BOX, MEASURE AND PAY FOR MANHOLE AND JUNCTION BOX SEPARATELY.

REVISIONS: 10/09-Added note to pay for junction box separately

Texas Department of Transportation
FORT WORTH DISTRICT
2002 by Texas Department of Transportation
All Rights Reserved

STORM DRAIN MANHOLE DETAILS
TYPES 1 & 1-C
MH-1-02 (FW)

ORIG DRAW DATE: 8/02	DESIGNER:	FED. REG.:	STATE:	PROJ. NO.:	HIGHWAY:
CHECKED:	6	TEXAS			
DRAWN:	DISTRICT:	COUNTY:	CONTROL SECTION:	JOB:	SHEET:
CHECKED:	FTW				