

CITY of TAMPA



STORMWATER DEPARTMENT  
STANDARD DETAILS

1 = 1

No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: Storm	CITY of TAMPA STORMWATER DEPARTMENT	COVER SHEET	W.O.
3			6			DRN: Storm			SHEET
2			5			CKD:			1
1	12/09/04	MOVED INDEX TO SHEET 2	4			DATE: 7/03			OF 30

**CITY OF TAMPA STORMWATER DEPARTMENT**  
**STANDARD DETAILS GENERAL NOTES**

1. ALL DRAINAGE STRUCTURES (MANHOLES, INLETS, OUTFALL STRUCTURES AND OTHERS) SHALL INCLUDE A 6" THICK COMPACTED #57 AGGREGATE FOUNDATION, WRAPPED COMPLETELY WITH FILTER FABRIC MEETING FDOT STANDARD SPECIFICATIONS 441-2.3
2. ALL PIPE JOINTS (ROUND, ELIPTICAL AND BOX CULVERTS) SHALL BE WRAPPED COMPLETELY WITH FILTER FABRIC MEETING FDOT STANDARD SPECIFICATIONS 441-2.3. FABRIC SHALL EXTEND ONE FOOT ONTO EACH PIPE SECTION (JOINT) AND SHALL OVERLAP A MINIMUM OF ONE FOOT CIRCUMFERENTIALLY. FABRIC SHALL BE HELD IN PLACE WITH RUST-PROOF METAL STRAPPING.

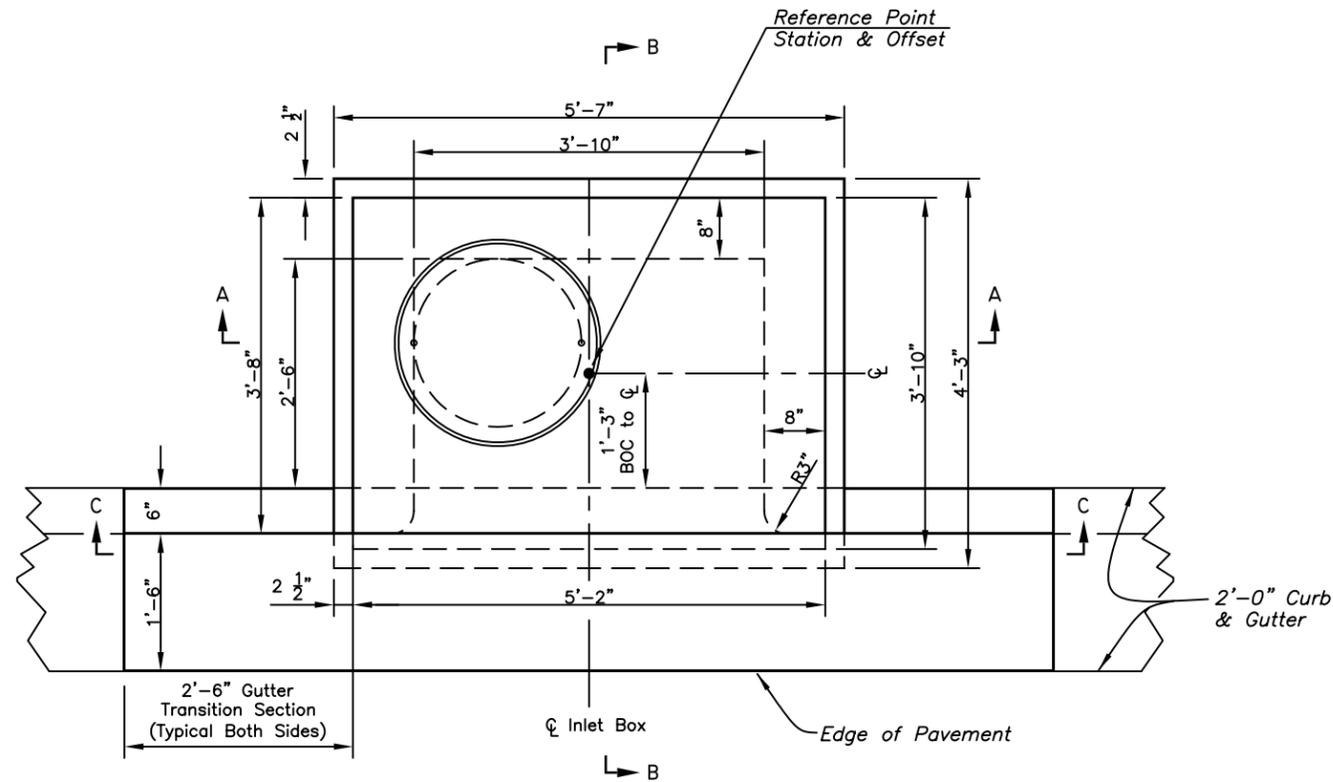
CITY OF TAMPA STANDARD DETAILS	
SCHEDULE OF CASTINGS	
STURCTURE TYPE	
All Curb Inlets (Cover)	USF 1190 (85 lb.)
All Curb Inlets (Ring)	USF 1190
All Manholes (Cover)	USF Type A0 (160 lb.)
All Manholes (Standard Ring)	USF 575
All Manholes (Inverted Ring)	USF 1175
Type T Grate Inlets	USF 6289
Type E Grate Inlets	USF 6286
Type H grate Inlets	USF 6288
Grate Seats	USF 7100
<b>NOTES:</b>	
1. All castings are as above or equal.	
2. All castings outside City Of Tampa ROW or easements shall <u>not</u> include the words "City Of Tampa" nor the ship logo.	
3. Manhole covers shall include the text "Stormwater" as shown in the Standard Drawing.	

**INDEX**

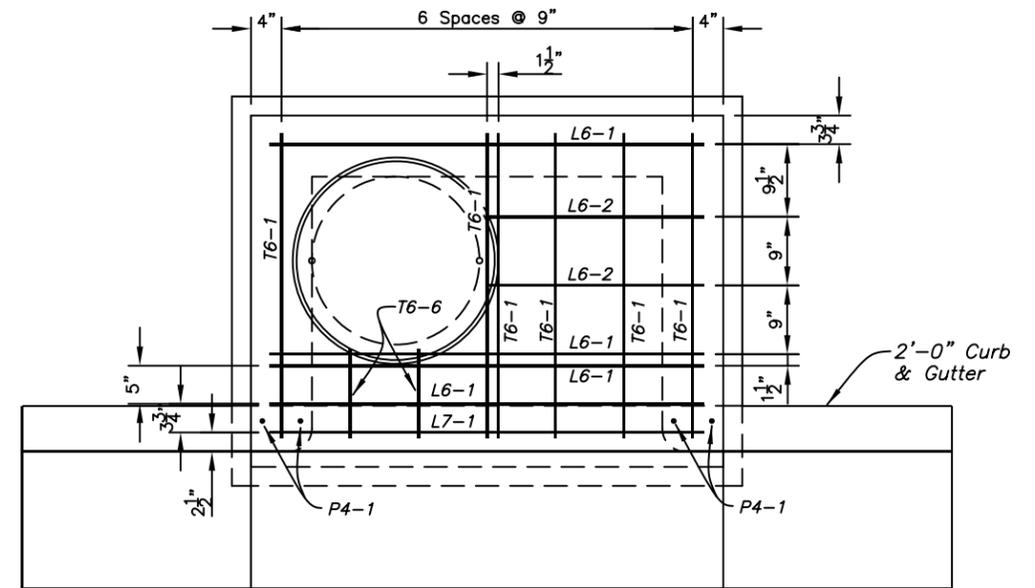
Sheet No.	Description
1	Cover
2	Index & General Notes
3 - 4	Type 1 Inlet
5 - 7	Type 2 Inlet
8 - 10	Type 3 Inlet
11	Type 1 Inlet Modified
12 - 13	Type BS-1 Curb Inlet
14 - 15	Type BV-1 Curb Inlet
16 - 17	Type BR-2 Curb Inlet
18 - 19	Type BR-1 Curb Inlet
20	Standard Inlet Details
21	Type "T" & "E" Grate Inlet
22	Type "H" Grate Inlet
23	Guidelines For Conflict Manholes
24	Miscellaneous Details (Pipe Joints & Jackets)
25	Miscellaneous Details (Collars & End Gaurds)
26	Open Bottom Inlet (Type "E")
27	Temproary Force Main & Pumping Standards
28	Miscellaneous Details (Manhole Castings, Etc.)
29	Payment limits & Jacked Crossing Details
30	Pipe Bedding Details

1 =

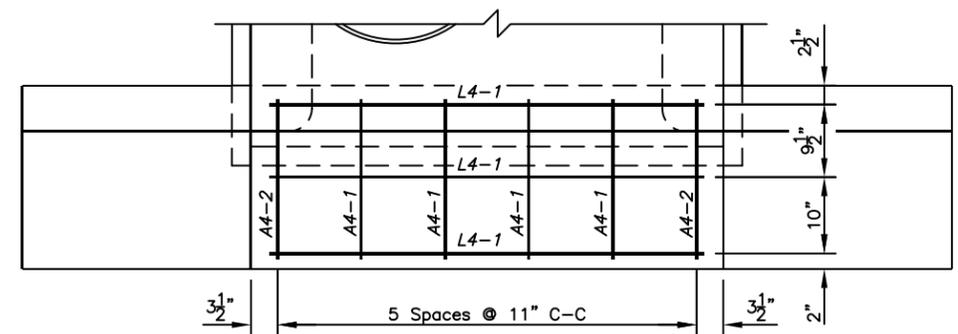
No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: Storm	<b>CITY of TAMPA</b> <b>STORMWATER DEPARTMENT</b>	<b>INDEX &amp; GENERAL NOTES</b>	W.O.
3			6			SHEET			
2			5			<b>2</b>			
1	12/09/04	NEW SHEET	4			OF 30			



PLAN  
Scale: 1/2" = 1'-0"



PLAN - TOP SLAB REINFORCEMENT  
Scale: 1/2" = 1'-0"



PLAN - APRON REINFORCEMENT  
Scale: 1/2" = 1'-0"

SCHEDULE OF REINFORCING STEEL BARS (FOR INLET TOP AND APRON ONLY)					
MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT
T6-1	No 6	6	3' 5"	5.132	30.794
T6-6	No 6	2	1' 1"	1.627	3.253
L4-1	No 4	3	4' 11"	3.285	9.854
L6-1	No 6	4	4' 11"	7.385	29.541
L6-2	No 6	2	2' 5 1/2"	3.692	7.384
L7-1	No 7	1	4' 11"	10.050	10.050
A4-1	No 4	4	1' 9"	1.169	4.676
A4-2	No 4	2	2' 9 1/4"	1.851	3.702
P4-1	No 4	4	1' 1 1/2"	0.752	3.006
TOTAL WEIGHT IN POUNDS					102.261

stormwater details/type 1 inlet 1/2"

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: Storm  
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DATE: 7/03

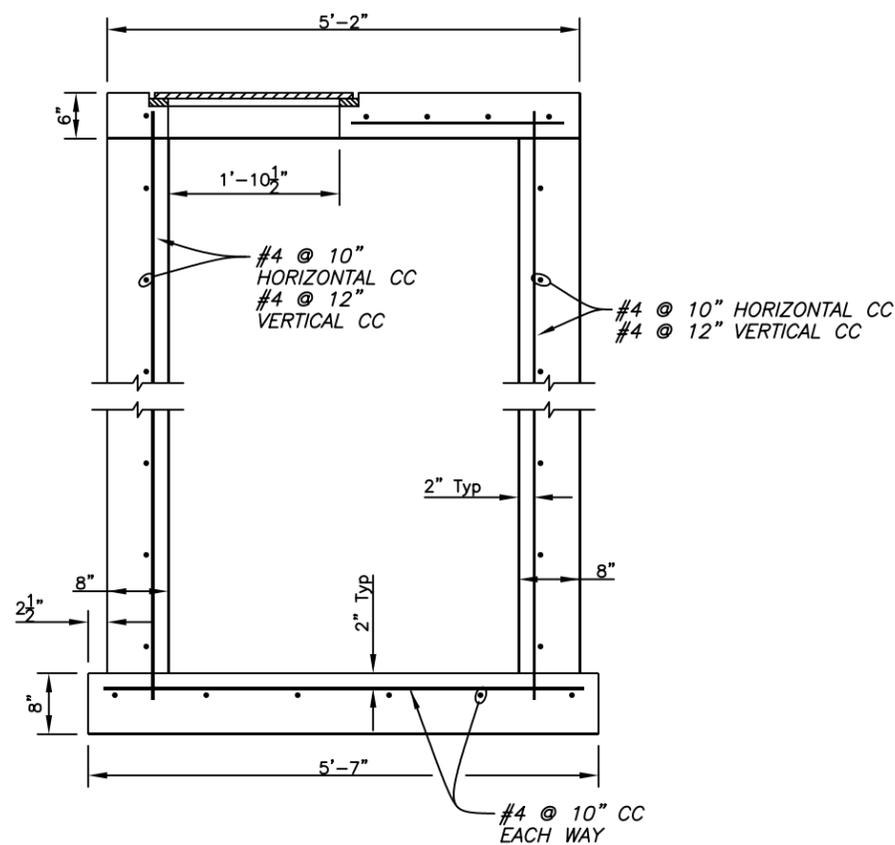
**CITY of TAMPA**  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE I INLET

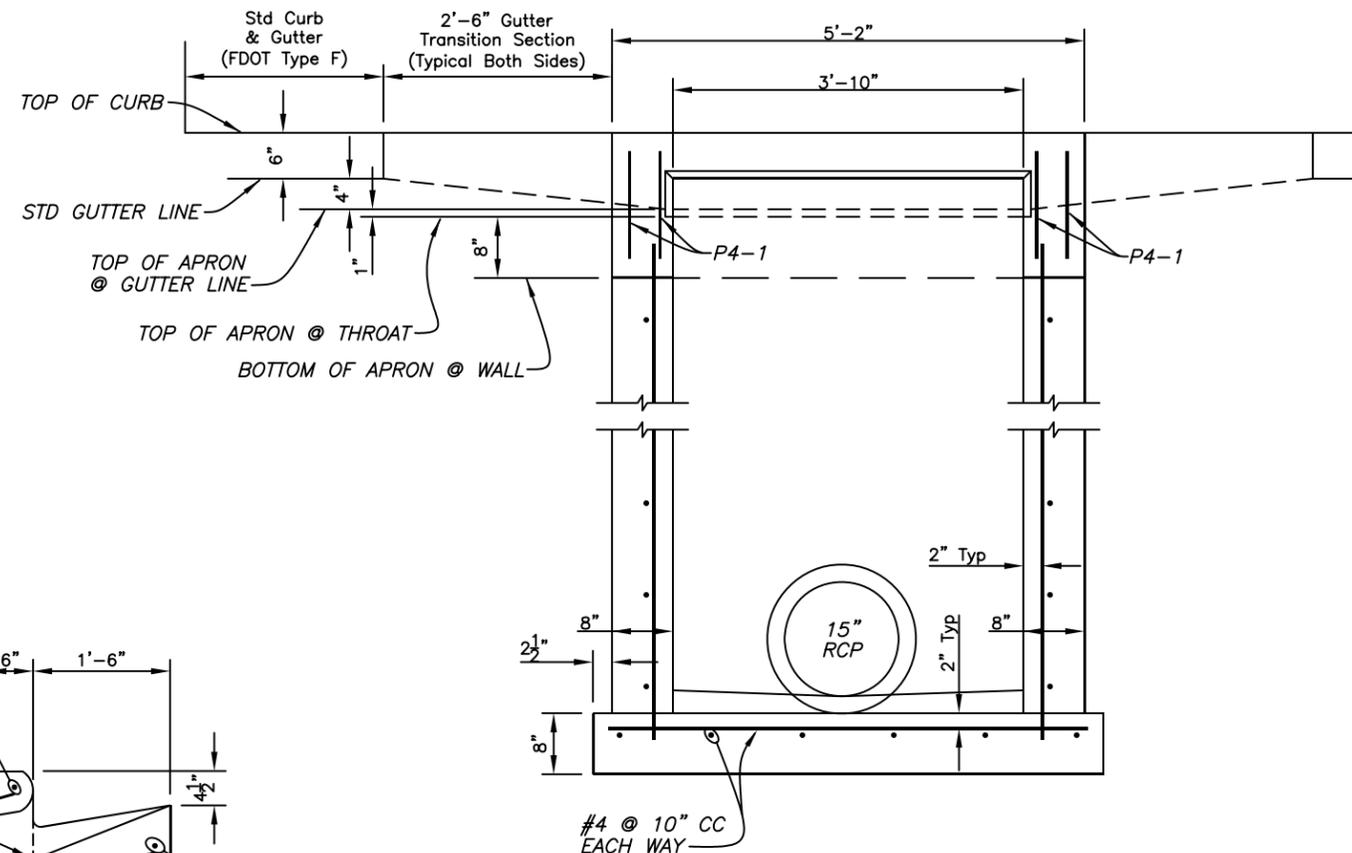
W.O.  
SHEET  
**3**  
OF 30

1/2"

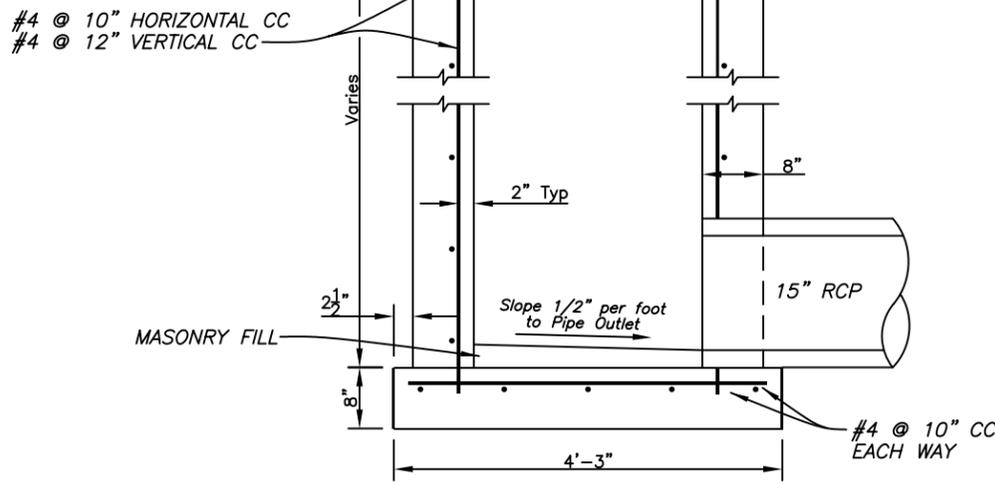
stormwater details/type 1 inlet



**SECTION A-A**  
Scale: 1/2" = 1'-0"



**SECTION C-C**  
Scale: 1/2" = 1'-0"



**SECTION B-B**  
Scale: 1/2" = 1'-0"

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: Storm  
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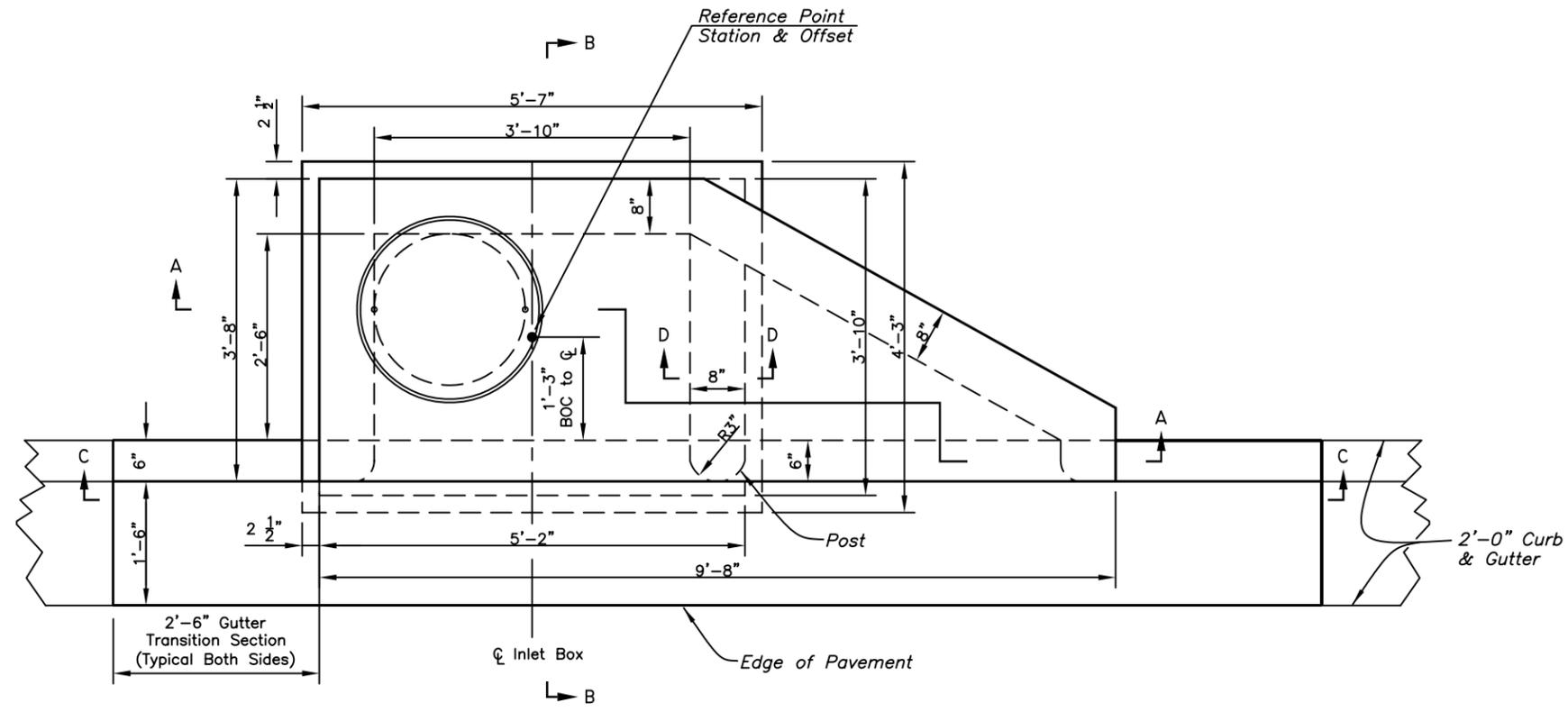
**CITY of TAMPA**  
**STORMWATER DEPARTMENT**

**STANDARD INLET DETAILS**  
**TYPE I INLET**

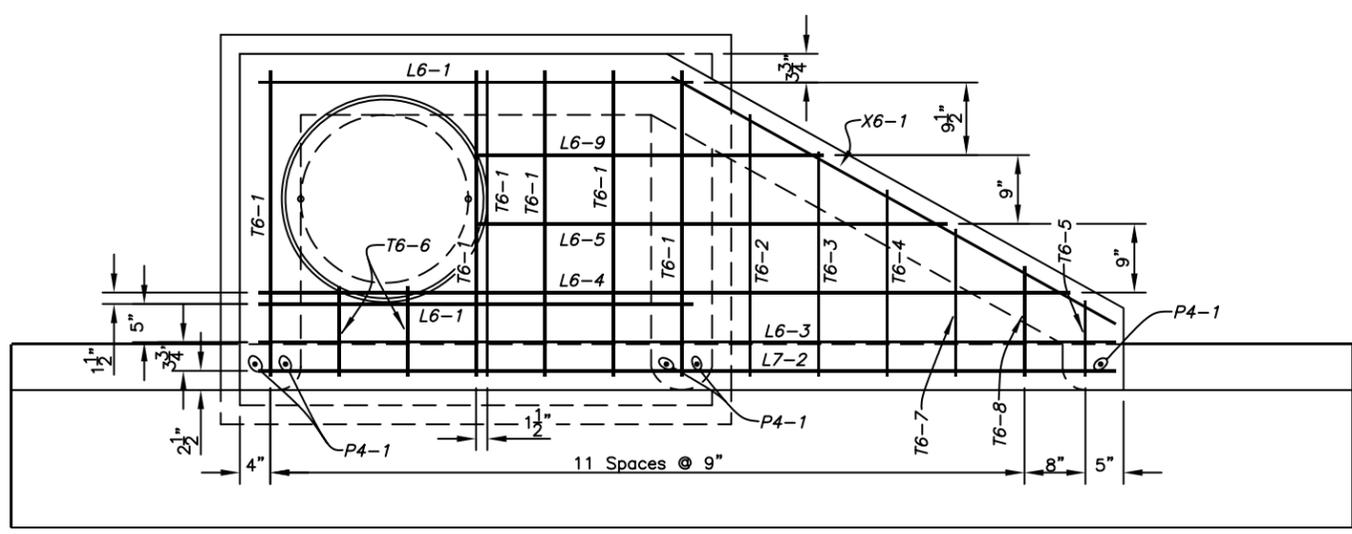
W.O.  
SHEET  
**4**  
OF 30

1/2"

stormwater details/type 2 inlet



PLAN  
Scale: 1/2" = 1'-0"



PLAN - TOP SLAB REINFORCEMENT  
Scale: 1/2" = 1'-0"

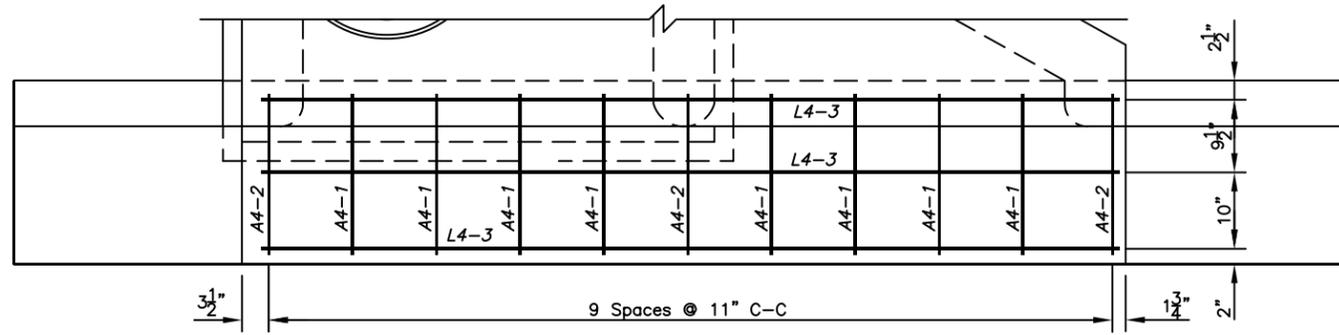
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1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

**CITY of TAMPA**  
STORMWATER DEPARTMENT

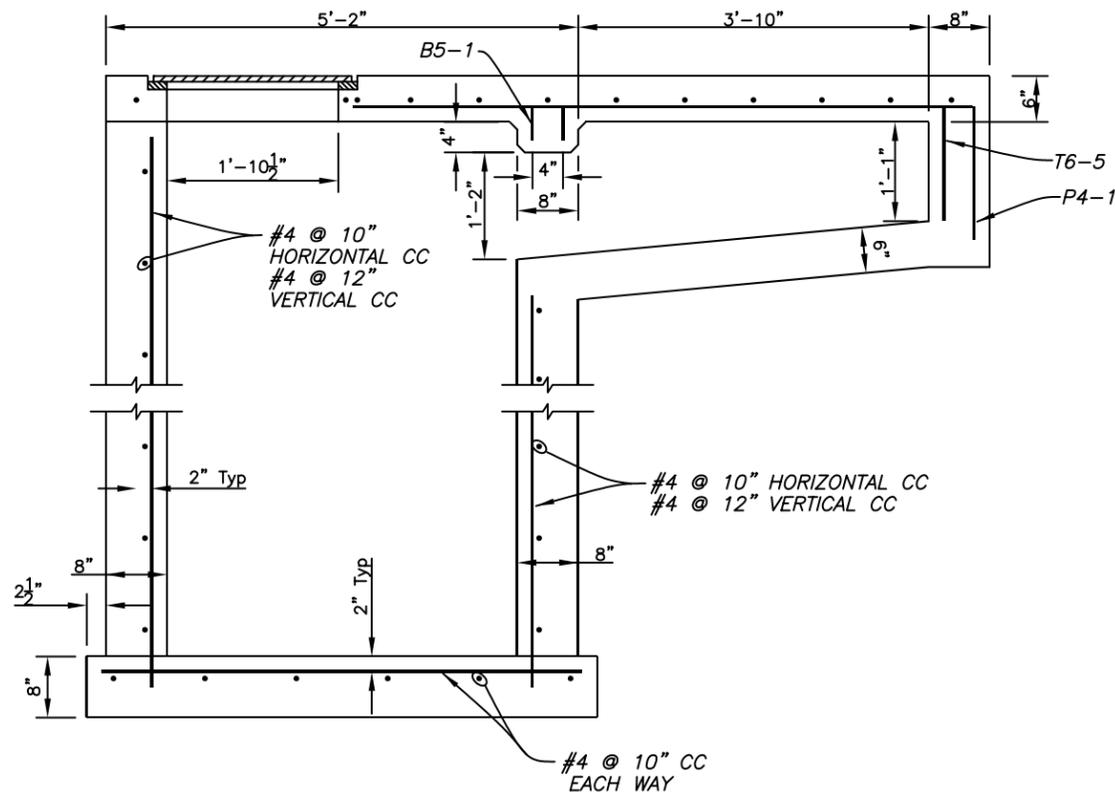
STANDARD INLET DETAILS  
TYPE 2 INLET

W.O.  
SHEET  
**5**  
OF 30

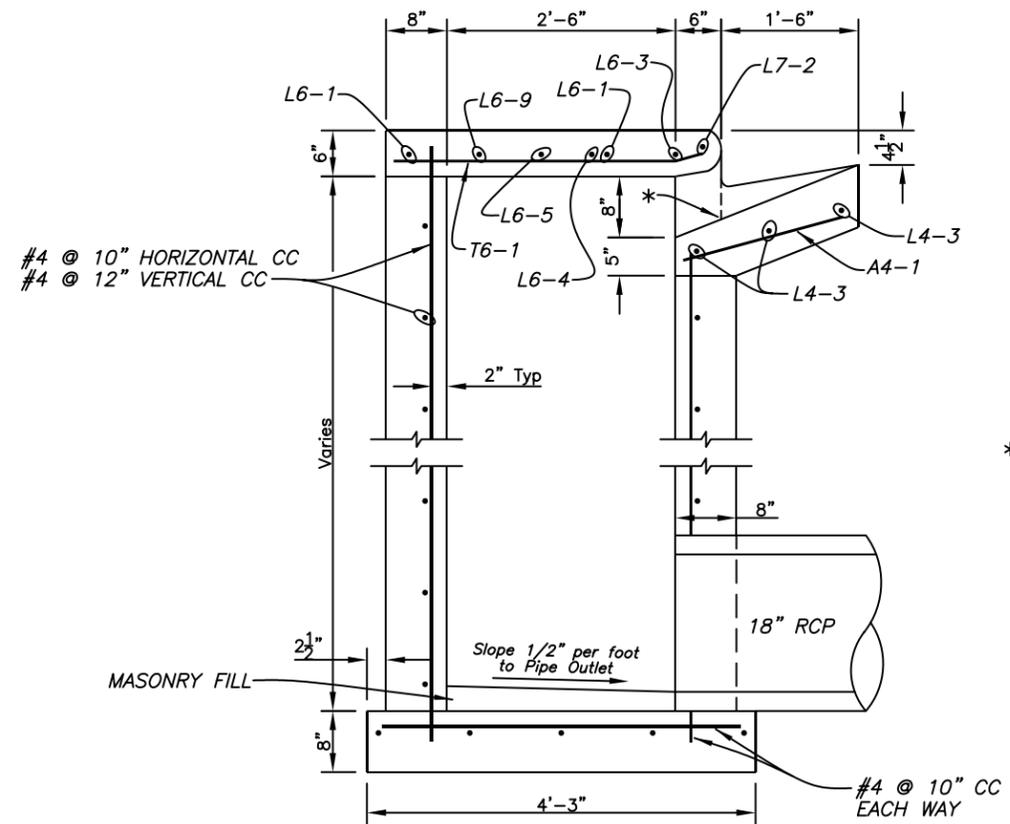


PLAN - APRON REINFORCEMENT

Scale: 1/2" = 1'-0"



SECTION A-A  
Scale: 1/2" = 1'-0"



SECTION B-B  
Scale: 1/2" = 1'-0"

\* = Location of Throat Elevation

1/2"

stormwater details/type 2 inlet

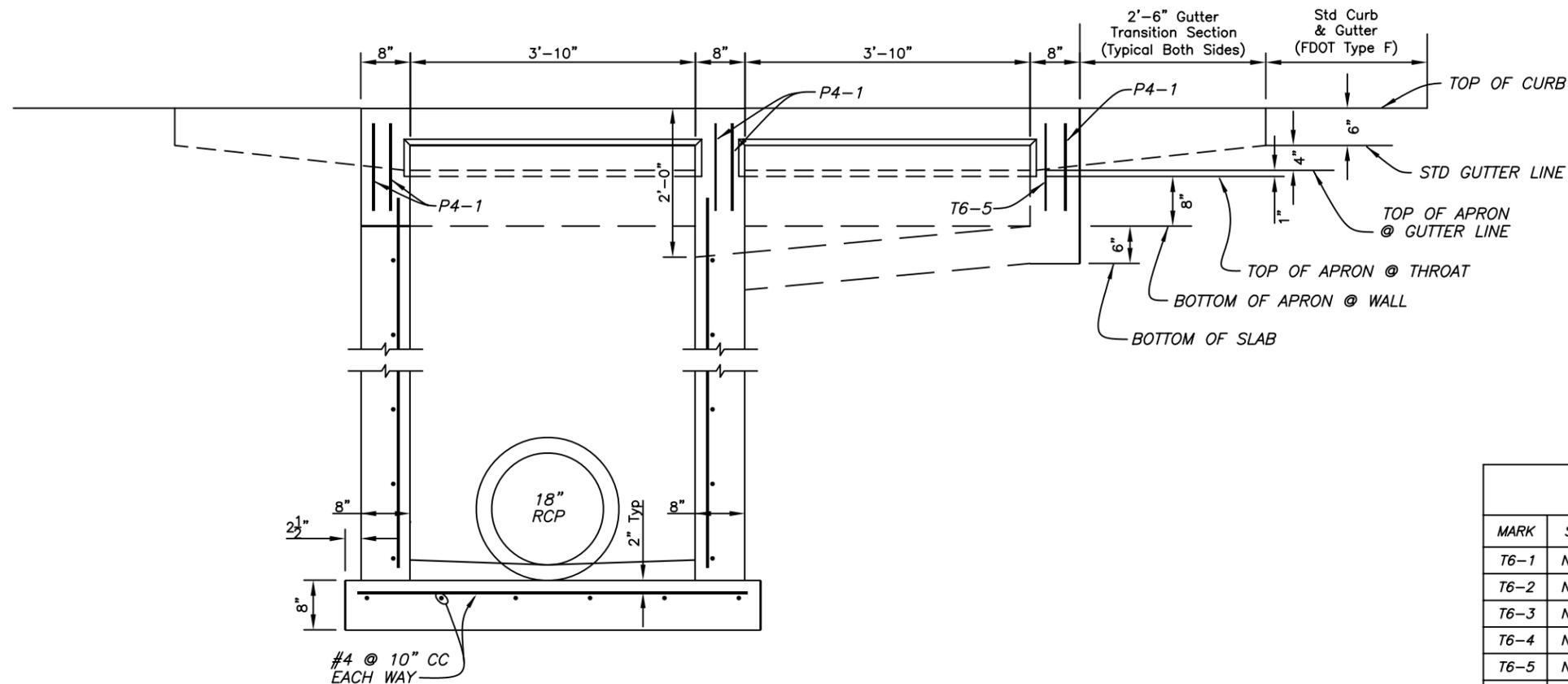
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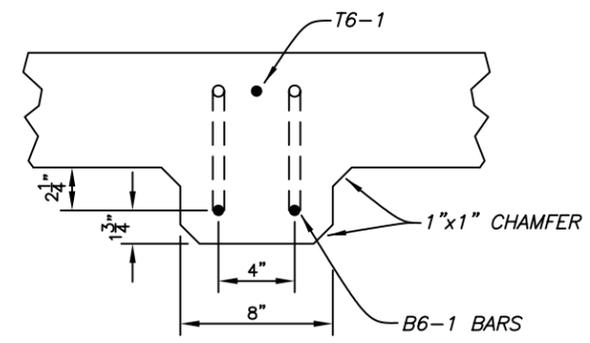
CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE 2 INLET

W.O.  
SHEET  
**6**  
OF 30



SECTION C-C  
Scale: 1/2" = 1'-0"



SECTION D-D  
Not To Scale

SCHEDULE OF REINFORCING STEEL BARS (FOR INLET TOP AND APRON ONLY)					
MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT
T6-1	No 6	6	3' 4"	5.007	30.040
T6-2	No 6	1	2' 10 1/2"	4.318	4.318
T6-3	No 6	1	2' 5 1/2"	3.692	3.692
T6-4	No 6	1	2' 1/2"	3.067	3.067
T6-5	No 6	1	10"	1.252	1.252
T6-6	No 6	2	1' 1"	1.627	3.254
T6-7	No 6	1	1' 7 1/2"	2.441	2.441
T6-8	No 6	1	1' 2 1/2"	1.815	1.815
L6-1	No 6	2	4' 9"	7.135	14.269
L6-3	No 6	1	9' 4"	14.019	14.019
L6-4	No 6	1	8' 10 1/2"	13.330	13.330
L6-5	No 6	1	5' 1 3/4"	7.729	7.729
L6-9	No 6	1	3' 9 3/4"	5.726	5.726
L7-2	No 7	1	9' 4"	19.077	19.077
L4-3	No 4	3	9' 4"	6.235	18.704
A4-1	No 4	8	1' 9"	1.169	9.352
A4-2	No 4	3	2' 9 1/4"	1.851	5.553
P4-1	No 4	5	1' 1 1/2"	0.752	3.758
B6-1	No 6	2	3' 8 1/2"	5.570	11.140
X6-1	No 6	1	5' 8 1/2"	8.574	8.574
TOTAL WEIGHT IN POUNDS					181.109

stormwater details/type 2 inlet

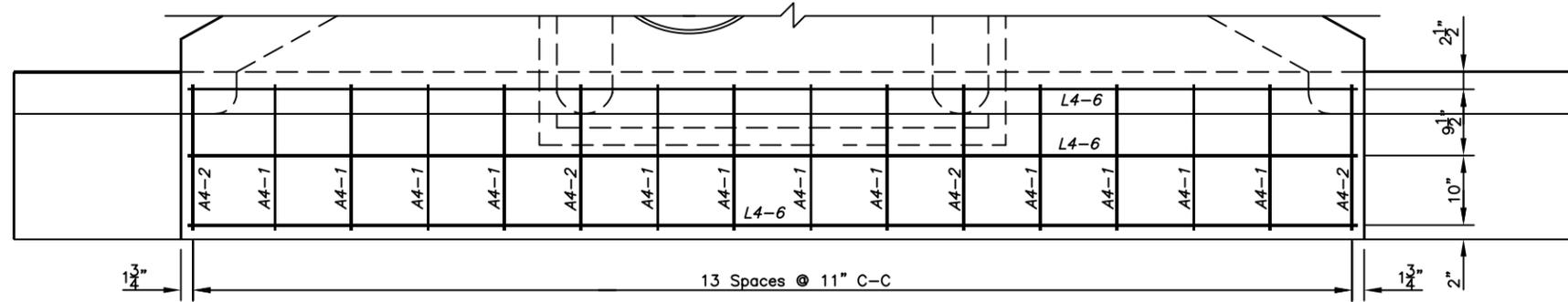
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1			4		

DES: Storm  
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**CITY of TAMPA**  
STORMWATER DEPARTMENT

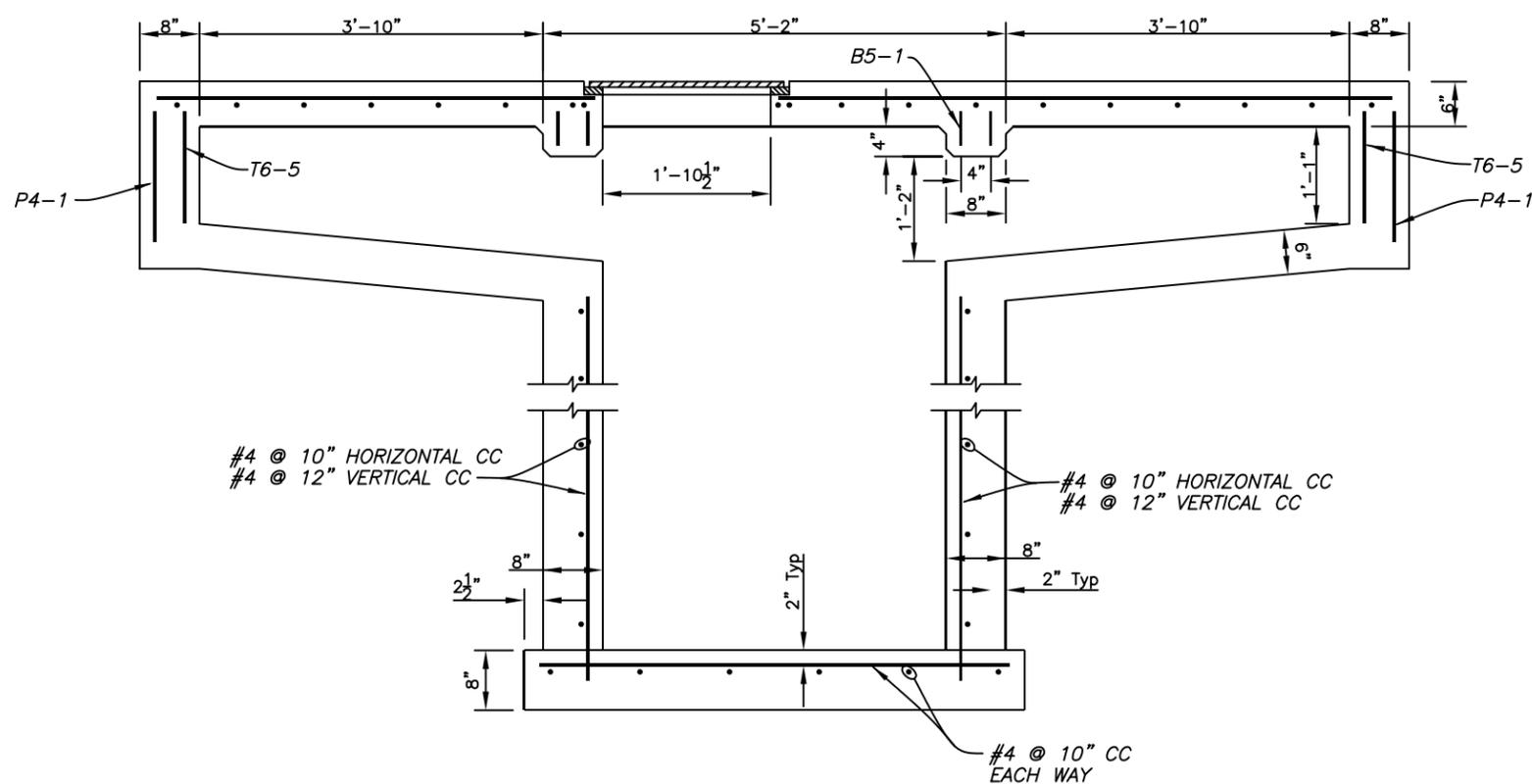
STANDARD INLET DETAILS  
TYPE 2 INLET

W.O.  
SHEET  
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OF 30



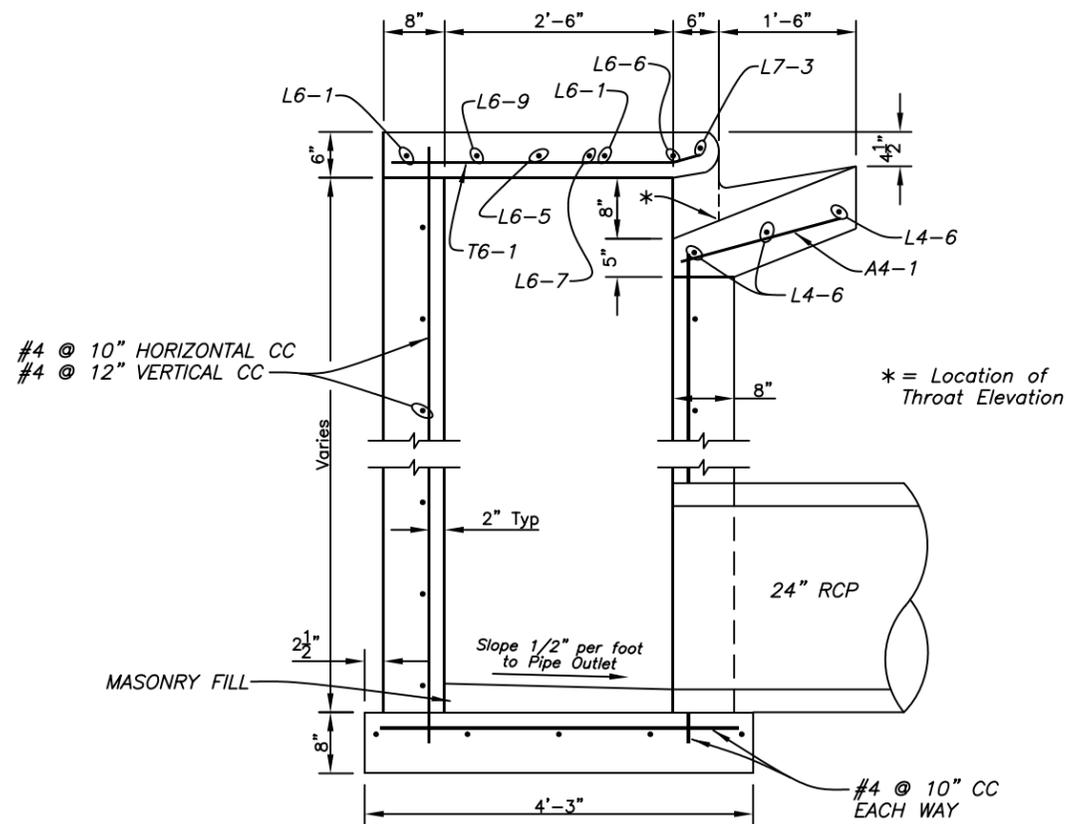
PLAN - APRON REINFORCEMENT

Scale: 1/2" = 1'-0"



SECTION A-A

Scale: 1/2" = 1'-0"



SECTION B-B

Scale: 1/2" = 1'-0"

stormwater details/type 3 inlet

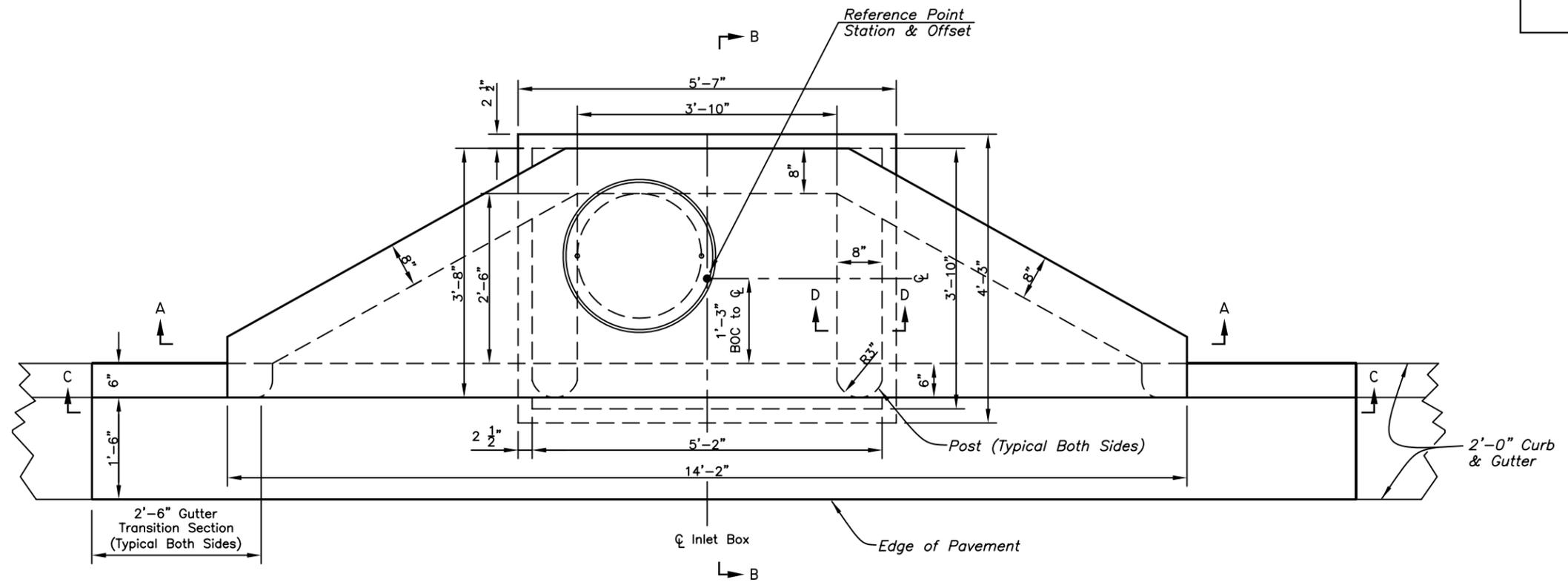
No.	DATE	REVISIONS	No.	DATE	REVISIONS
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2			5		
1			4		

DES: Storm  
 DRN: Storm  
 CKD:  
 DATE: 7/03

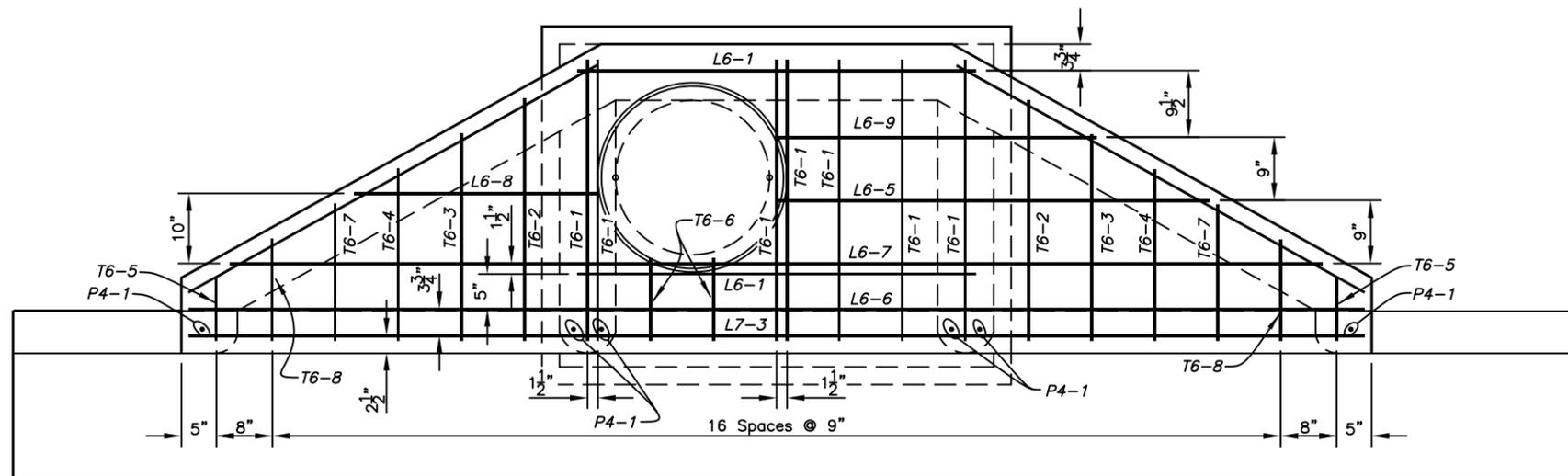
**CITY of TAMPA**  
 STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
 TYPE 3 INLET

W.O.  
 SHEET  
**8**  
 OF 30



PLAN  
Scale: 1/2" = 1'-0"



PLAN - TOP SLAB REINFORCEMENT  
Scale: 1/2" = 1'-0"

1/2"

stormwater details/type 3 inlet

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
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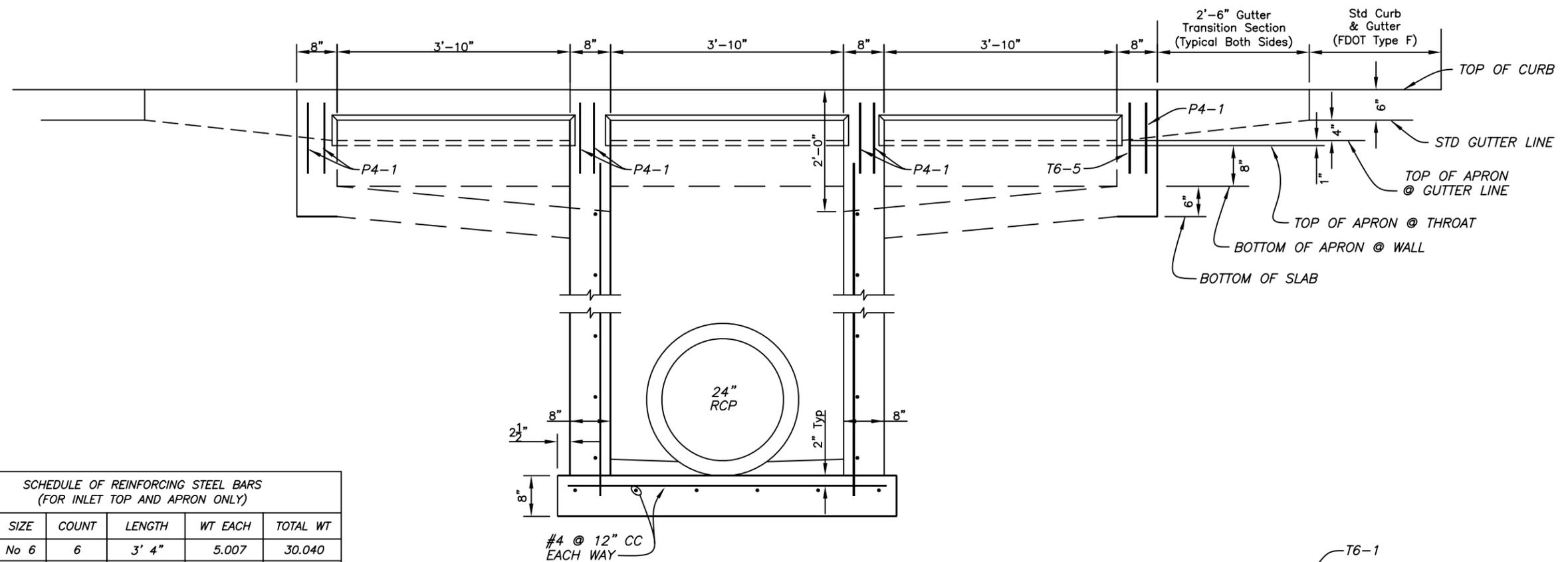
CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE 3 INLET

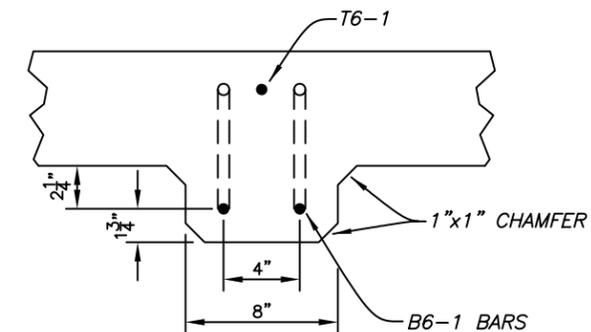
W.O.  
SHEET  
9  
OF 30

1/2"

stormwater details/type 3 inlet



SECTION C-C  
Scale: 1/2" = 1'-0"



SECTION D-D  
Not To Scale

SCHEDULE OF REINFORCING STEEL BARS (FOR INLET TOP AND APRON ONLY)					
MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT
T6-1	No 6	6	3' 4"	5.007	30.040
T6-2	No 6	2	2' 10 1/2"	4.318	8.637
T6-3	No 6	2	2' 5 1/2"	3.692	7.385
T6-4	No 6	2	2' 1/2"	3.067	6.133
T6-5	No 6	2	10"	1.252	2.503
T6-6	No 6	2	1' 1"	1.627	3.254
T6-7	No 6	2	1' 7 1/2"	2.441	4.882
T6-8	No 6	2	1' 2 1/2"	1.815	3.630
L6-1	No 6	2	4' 9"	7.135	14.269
L6-5	No 6	1	5' 1 3/4"	7.729	7.729
L6-6	No 6	1	13' 11"	20.903	20.903
L6-7	No 6	1	13' 1/4"	19.557	19.557
L6-8	No 6	1	2' 11"	4.381	4.381
L6-9	No 6	1	3' 9 3/4"	5.726	5.726
L7-3	No 7	1	13' 11"	28.446	28.446
L4-6	No 4	1	13' 11"	9.296	9.296
A4-1	No 4	12	1' 9"	1.169	14.028
A4-2	No 4	4	2' 9 1/4"	1.851	7.404
P4-1	No 4	6	1' 1 1/2"	0.752	4.509
B6-1	No 6	4	3' 8 1/2"	5.570	22.279
X6-1	No 6	2	5' 8 1/2"	8.574	17.148
TOTAL WEIGHT IN POUNDS					242.138

#4 @ 12" CC  
EACH WAY

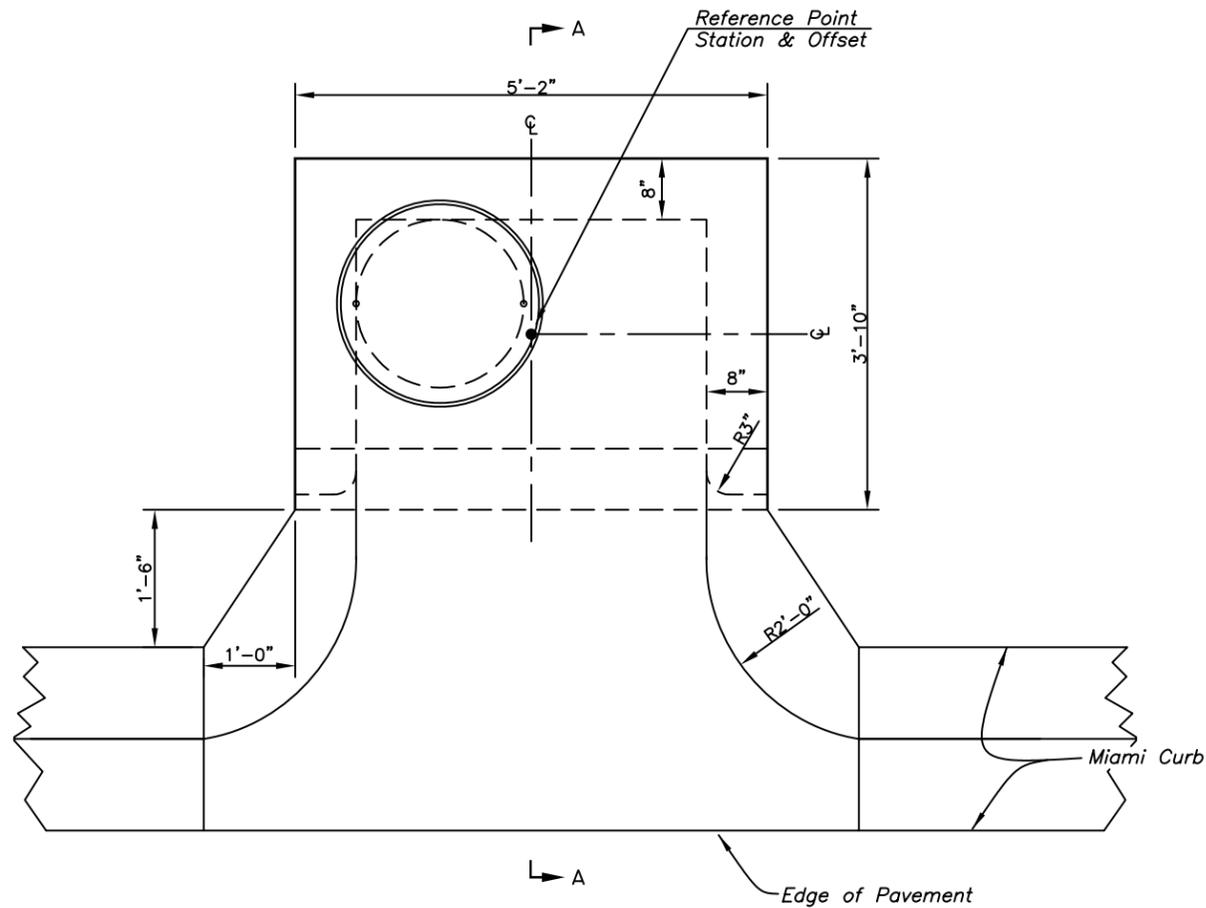
No.	DATE	REVISIONS	No.	DATE	REVISIONS
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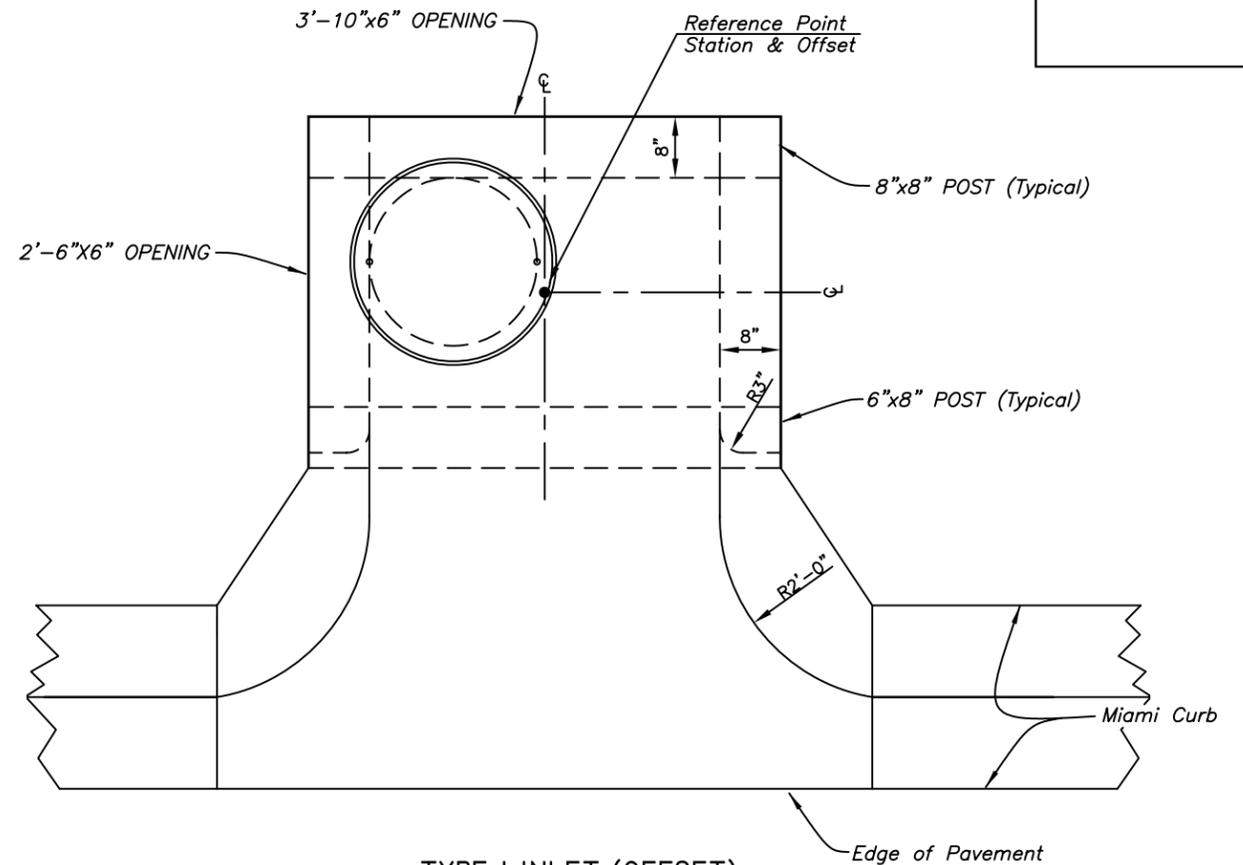
CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE 3 INLET

W.O.  
SHEET  
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OF 30

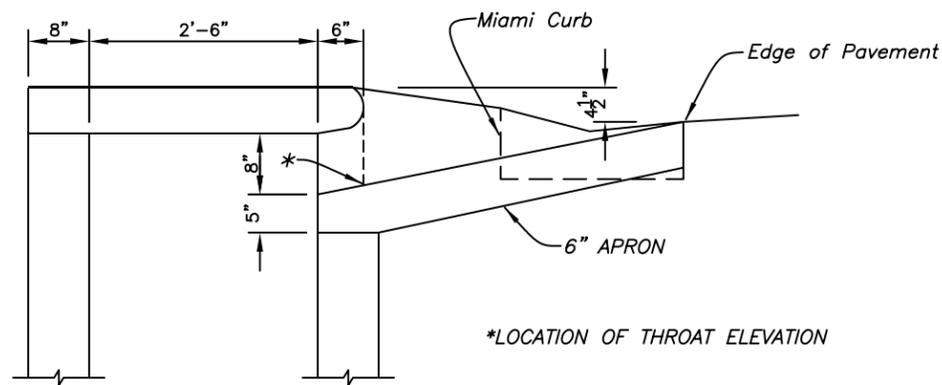


PLAN



TYPE I INLET (OFFSET)  
WITH SIDE AND/OR BACK OPENINGS

Scale: 1/2" = 1'-0"



SECTION A-A

TYPE I INLET (OFFSET)

Scale: 1/2" = 1'-0"

**TYPE 1 INLET (OFFSET)**

In cases where a curb inlet is used but no barrier curb is present, the Type 1 inlet shall be offset as shown herein. Preferably, Miami curb shall be used to convey runoff along the edge of pavement to the inlet.

In cases where no Miami curb is used, the offset shall remain as shown herein and the concrete apron shall be extended on a 1.5-to-1 horizontal angle to meet the edge of pavement. The concrete apron shall be reinforced with Number 4 steel bars at 11" on center. (Disregard the A4-designated bar counts and lengths in the Schedule of Reinforcing.)

Payment for the concrete apron, curb transitions and all other work incidental to offsetting the inlet shall be made under the Type 1 Inlet contract pay item and no separate nor additional payment shall be made for this modification to the standard.

**TYPE 1 INLET WITH TYPE D CURB**

In cases where a curb inlet is used with Type D Curb, the Type 1 Inlet may be offset as shown in "Type 1 Inlet (Offset)" or may be constructed in the same alignment as the standard detail; i.e. with the face of the inlet top aligned with the face of curb.

If the standard alignment is used, the concrete inlet throat shall be constructed as shown in the standard. A 2'-6" long concrete transition section shall be constructed on each side of the concrete inlet throat. This section shall transition from the Type D Curb (no gutter) to the 1'-6" wide concrete inlet throat.

Payment for the concrete apron or concrete inlet throat, curb transitions and all other work incidental to offsetting the inlet or adapting the inlet to a Type D Curb shall be made under the Type 1 Inlet contract pay item and no separate nor additional payment shall be made for this modification to the standard.

**TYPE 1 INLET WITH SIDE AND/OR BACK OPENINGS**

If side and/or back openings are called for in the project plans, dimensions of the openings shall be as shown in the detail included herein. Additional P4-1 reinforcing bars shall be used at the rate of four (4) per post section, as applicable. Six (6) inch thick concrete apron(s) as shown in the project plans shall be constructed at each side and back opening.

Payment for concrete aprons and all other work incidental to constructing inlets with side and/or back openings shall be made under the Inlet contract pay item and no separate nor additional payment shall be made for this modification to the standard.

1/2"

stormwater details/type 1 inlet

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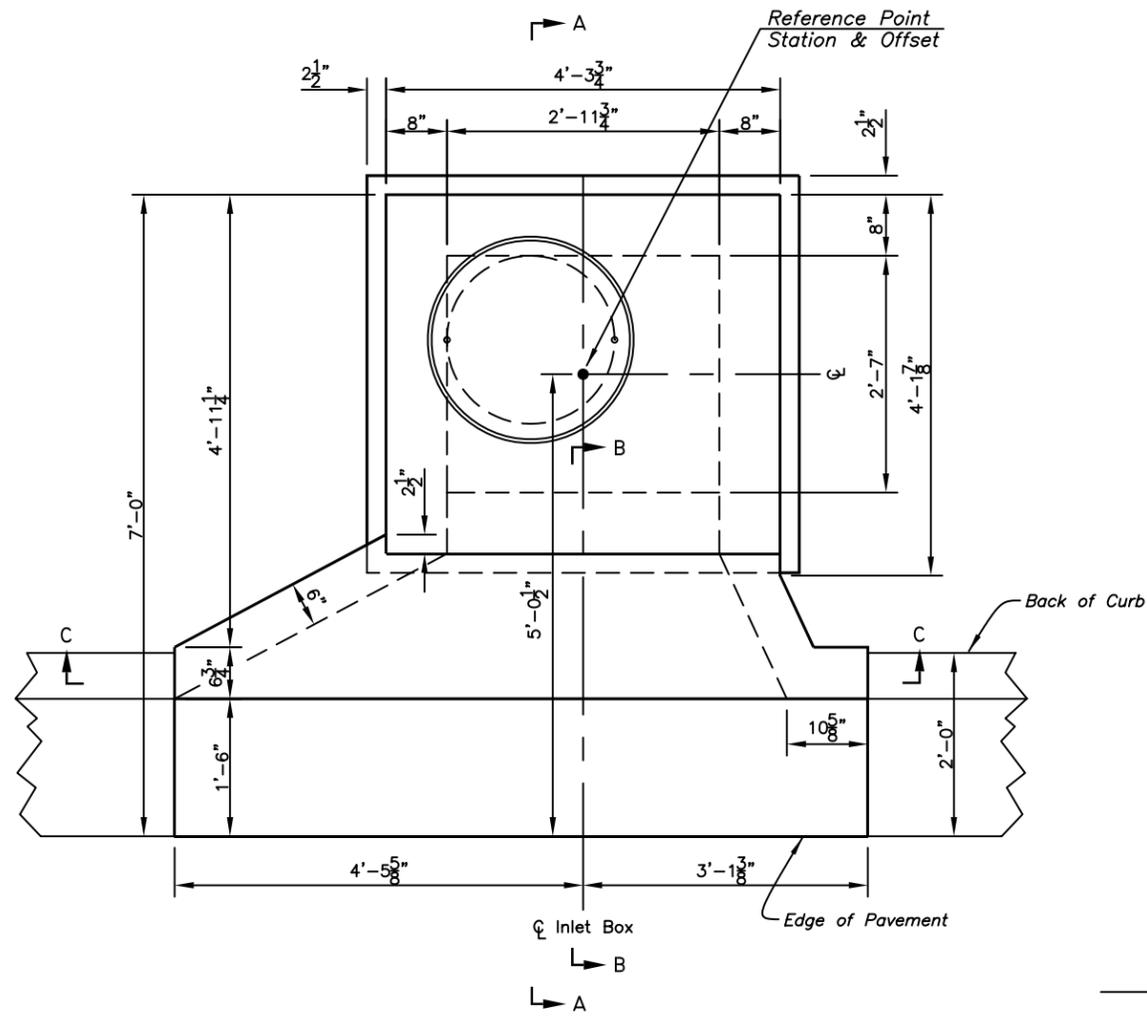
**CITY of TAMPA**  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE I INLET MODIFIED

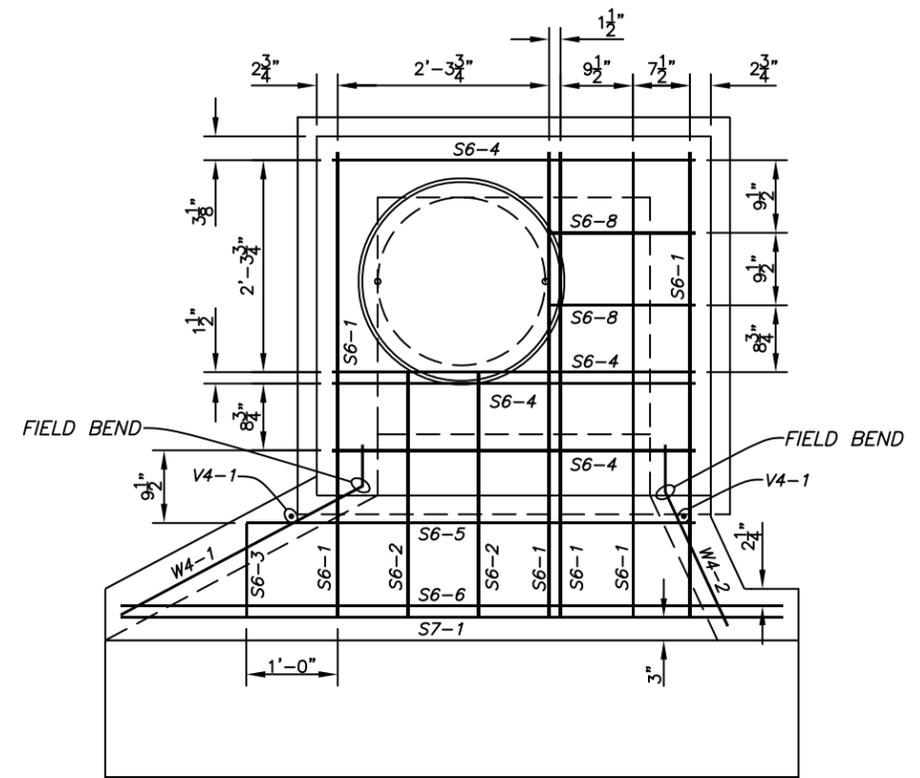
W.O.  
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OF 30

1/2"

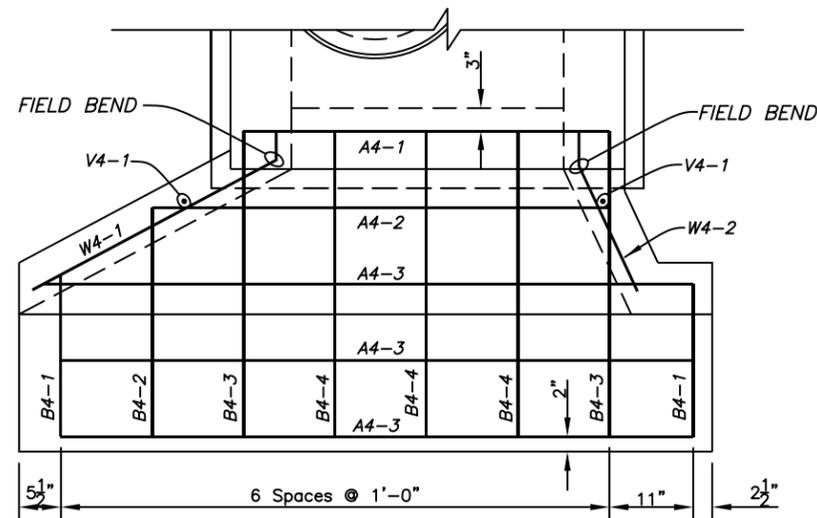
stormwater details/type bs-1 inlet



PLAN  
Scale: 1/2" = 1'-0"



PLAN - TOP SLAB REINFORCEMENT  
Scale: 1/2" = 1'-0"



PLAN - APRON REINFORCEMENT  
Scale: 1/2" = 1'-0"

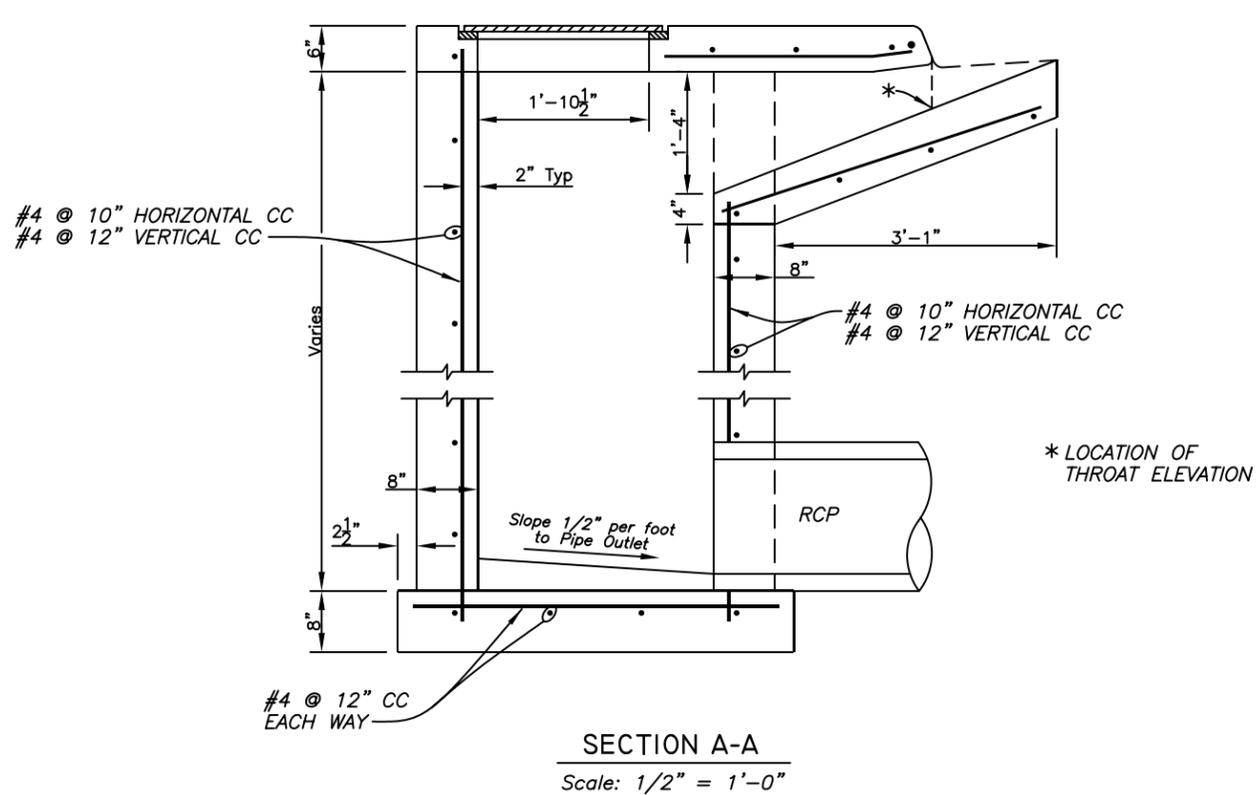
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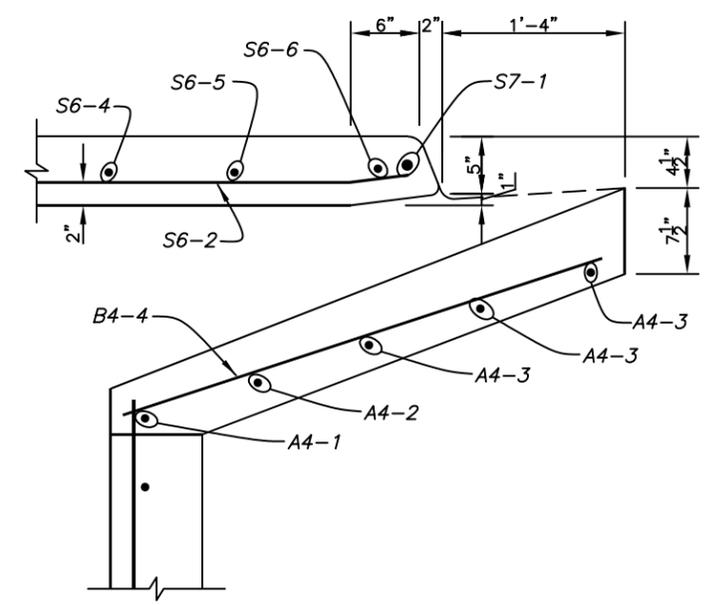
CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE BS-1 CURB INLET

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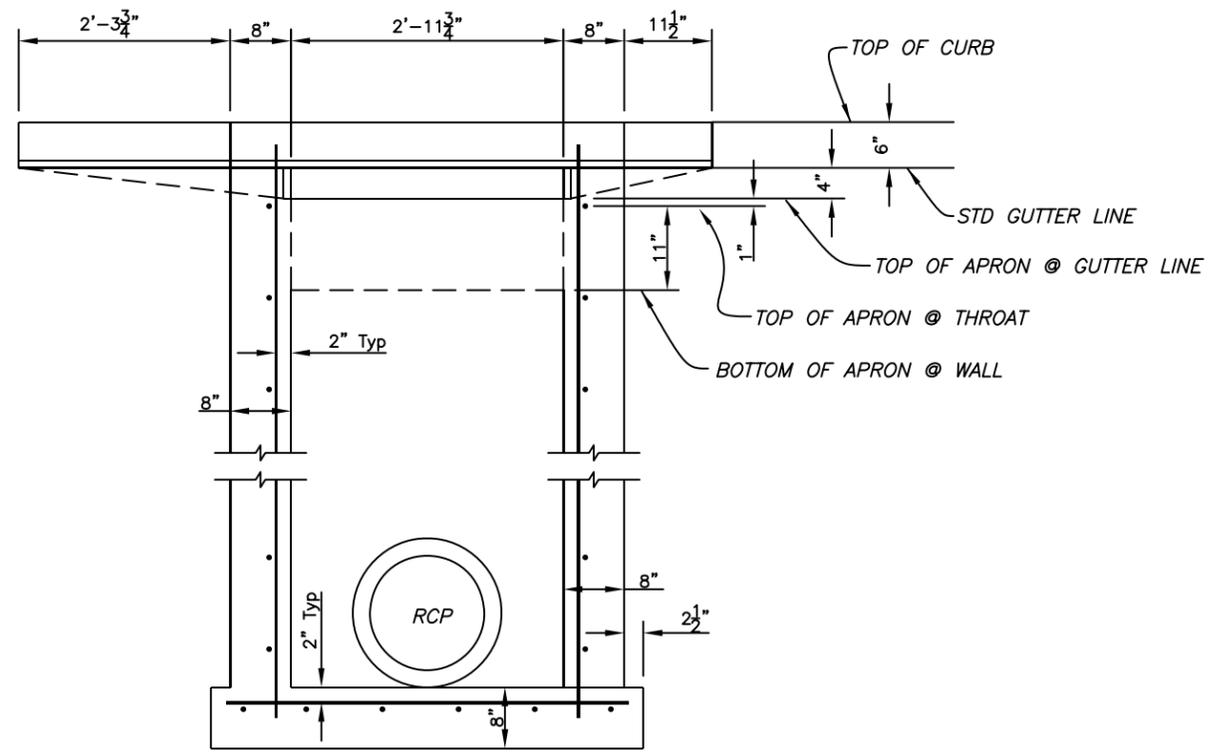


SECTION A-A  
Scale: 1/2" = 1'-0"



SECTION B-B  
Scale: 3/4" = 1'-0"

SCHEDULE OF REINFORCING STEEL BARS (FOR INLET TOP AND APRON ONLY)					
MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT
A4-1	No 4	1	3' 11 3/4"	2.658	2.658
A4-2	No 4	1	4' 11"	3.285	3.285
A4-3	No 4	3	7' 4"	4.898	4.898
B4-1	No 4	2	2' 9"	1.837	3.674
B4-2	No 4	2	3' 7 3/4"	2.436	4.871
B4-3	No 4	2	5' 0 3/4"	3.382	6.764
B4-4	No 4	3	3' 6 3/4"	2.380	7.140
S6-1	No 6	5	5' 3"	7.886	39.428
S6-2	No 6	2	2' 11"	4.381	8.763
S6-3	No 6	1	1' 2 1/2"	1.814	1.814
S6-4	No 6	4	3' 11 3/4"	5.976	23.906
S6-5	No 6	1	4' 10 1/2"	7.322	7.322
S6-6	No 6	1	6' 8"	10.014	10.014
S6-8	No 6	2	1' 7 1/2"	29.289	58.578
S7-1	No 7	1	7' 4"	14.989	14.989
V4-1	No 4	2	1' 8 1/2"	1.141	2.282
W4-1	No 4	2	3' 6"	2.338	4.676
W4-2	No 4	2	2' 1"	1.391	2.783
TOTAL WEIGHT IN POUNDS					217.641



SECTION C-C  
Scale: 1/2" = 1'-0"

stormwater details/type bs-1 inlet 1/2"

No.	DATE	REVISIONS	No.	DATE	REVISIONS
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CKD:  
DATE: 7/03

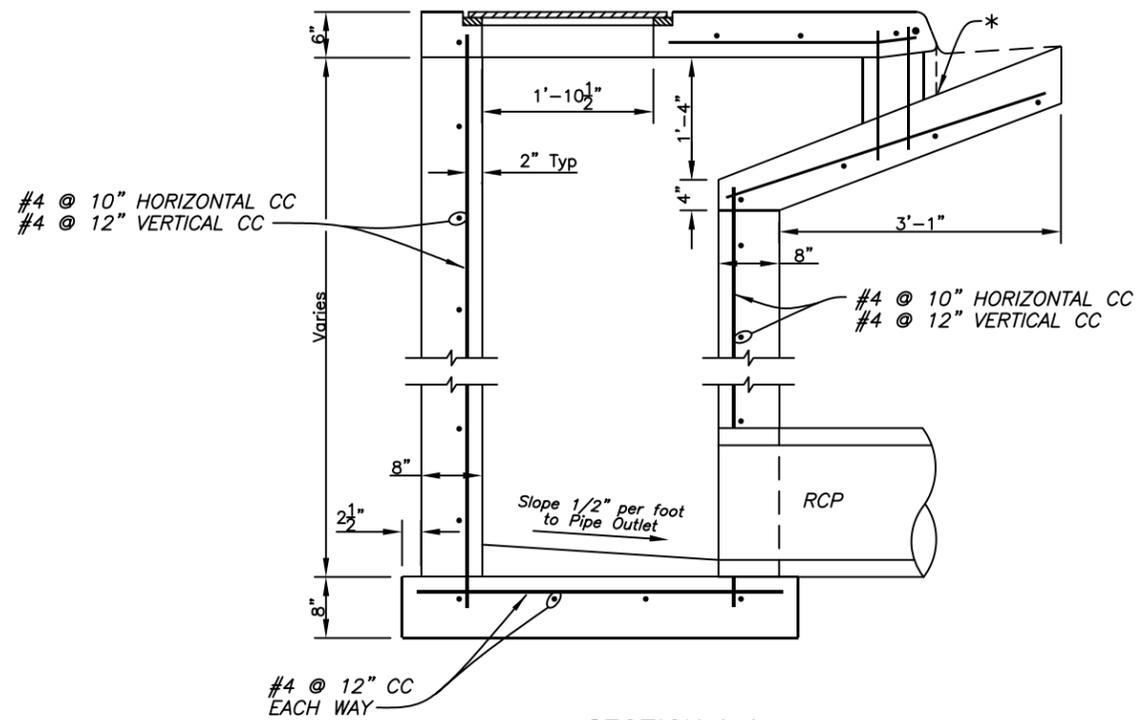
**CITY of TAMPA**  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE BS-1 CURB INLET

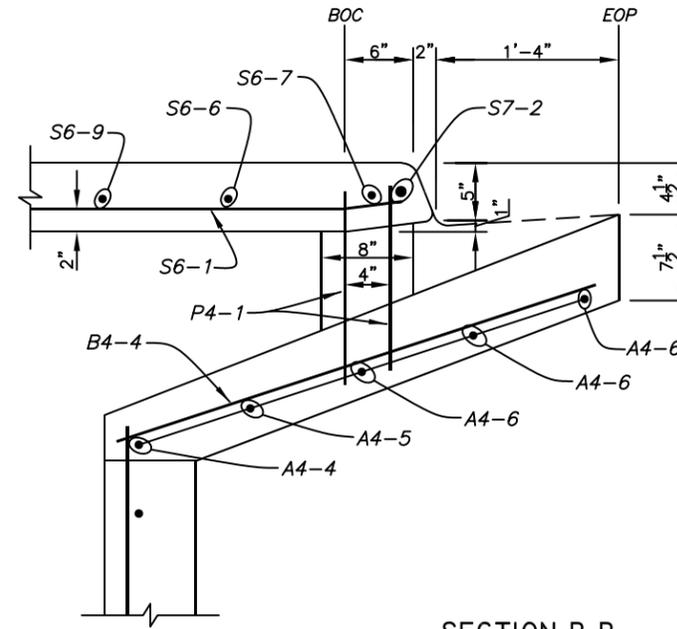
W.O.  
SHEET  
**13**  
OF 30



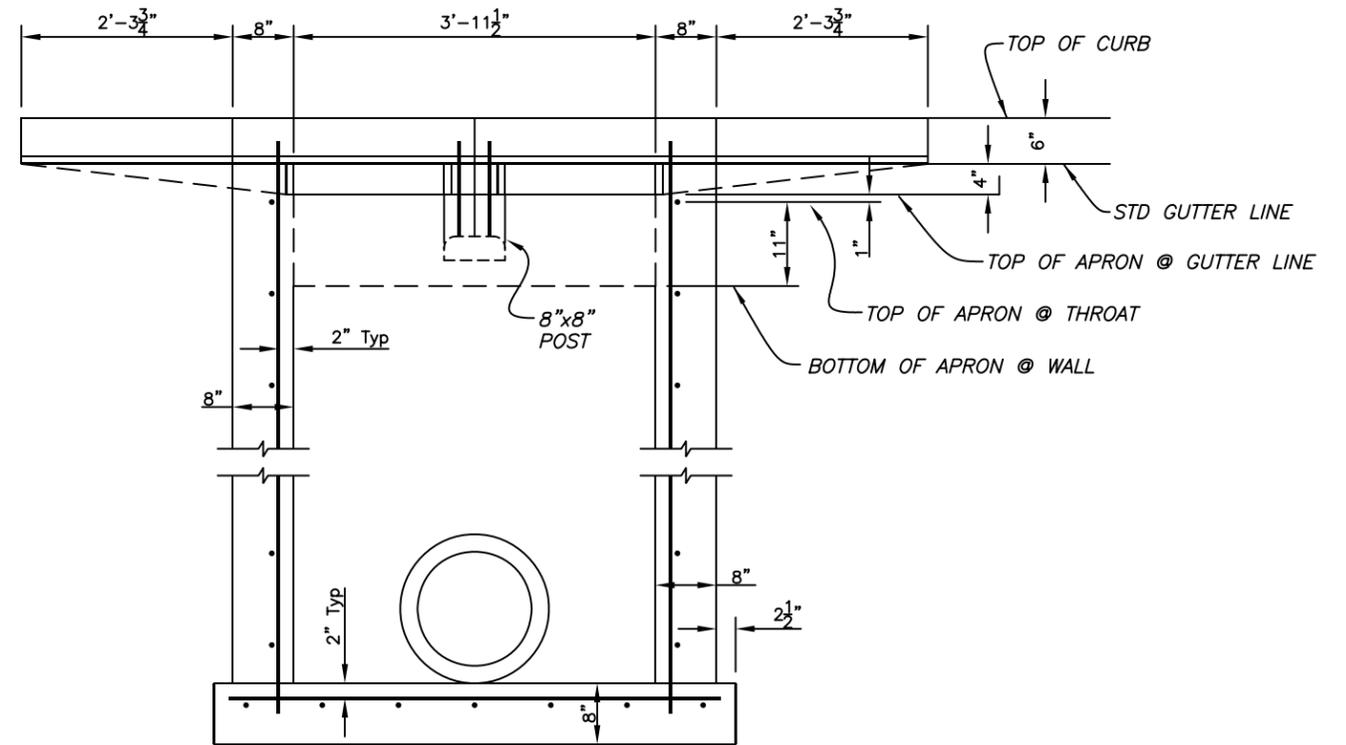
\* LOCATION OF THROAT ELEVATION



SECTION A-A  
Scale: 1/2" = 1'-0"



SECTION B-B  
Scale: 3/4" = 1'-0"



SECTION C-C  
Scale: 1/2" = 1'-0"

SCHEDULE OF REINFORCING STEEL BARS (FOR INLET TOP AND APRON ONLY)

MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT	MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT
A4-4	No 4	1	4' 11 1/2"	3.312	3.312	S6-2	No 6	5	2' 11"	4.381	8.763
A4-5	No 4	1	6' 7"	4.397	4.397	S6-3	No 6	2	1' 2 1/2"	1.814	3.629
A4-6	No 4	3	9' 7 3/4"	6.444	19.331	S6-6	No 6	1	6' 8"	10.014	10.014
B4-1	No 4	2	2' 9"	1.837	3.674	S6-7	No 6	1	9' 7 3/4"	14.488	14.488
B4-2	No 4	2	3' 7 3/4"	2.436	4.871	S6-9	No 6	4	4' 11 1/2"	7.447	29.788
B4-3	No 4	2	3' 6 3/4"	2.380	9.520	S6-10	No 6	2	2' 6"	3.755	7.510
B4-4	No 4	4	3' 6 3/4"	2.380	9.520	S7-2	No 7	1	9' 7 3/4"	19.716	19.716
P4-1	No 4	4	1' 3"	0.835	3.340	V4-1	No 4	2	1' 8 1/2"	1.141	2.282
S6-1	No 6	6	5' 3"	7.886	47.313	W4-1	No 4	4	3' 6"	2.338	9.352
TOTAL WEIGHT IN POUNDS										208.064	

1/2"

stormwater details/type bv-1 inlet

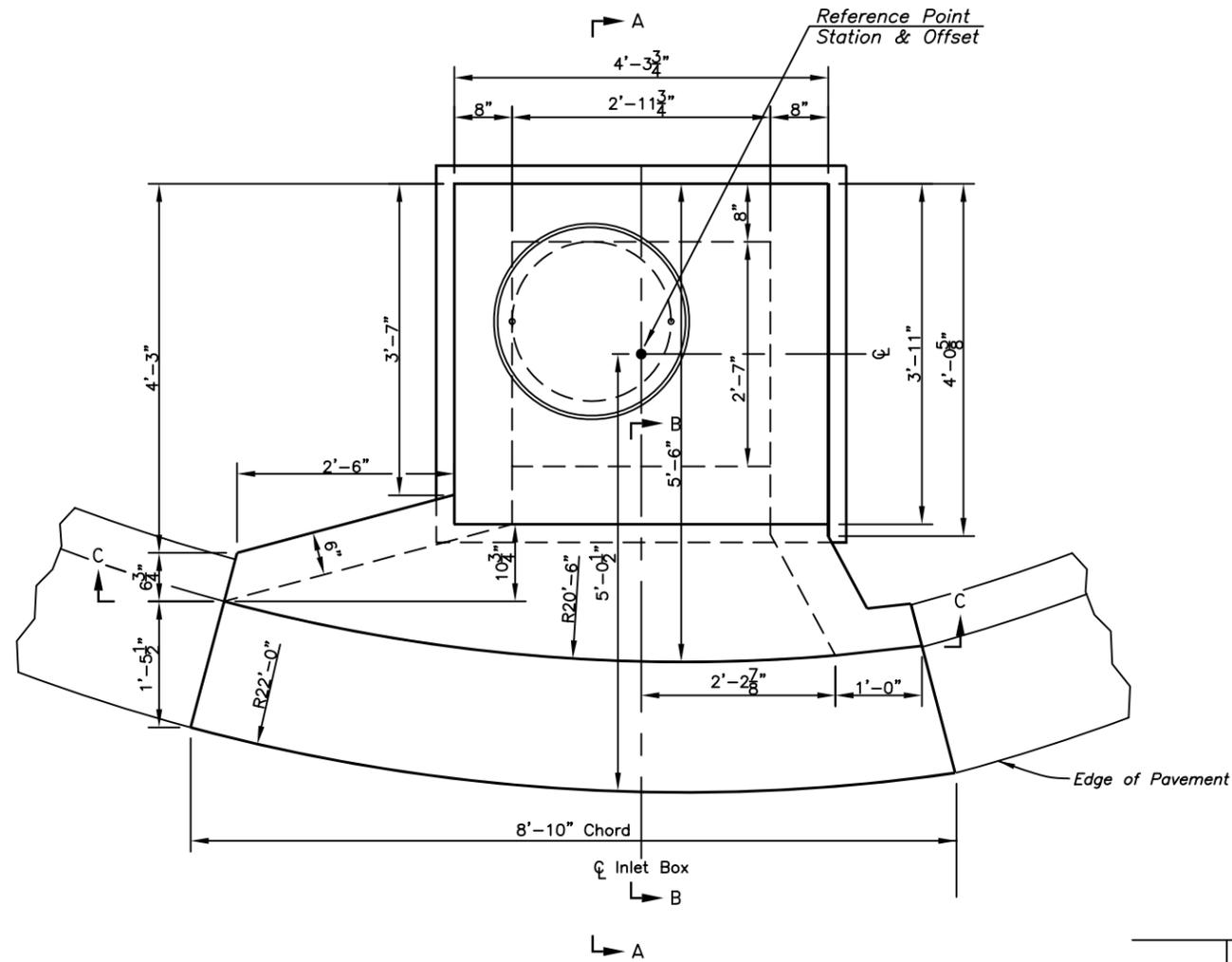
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

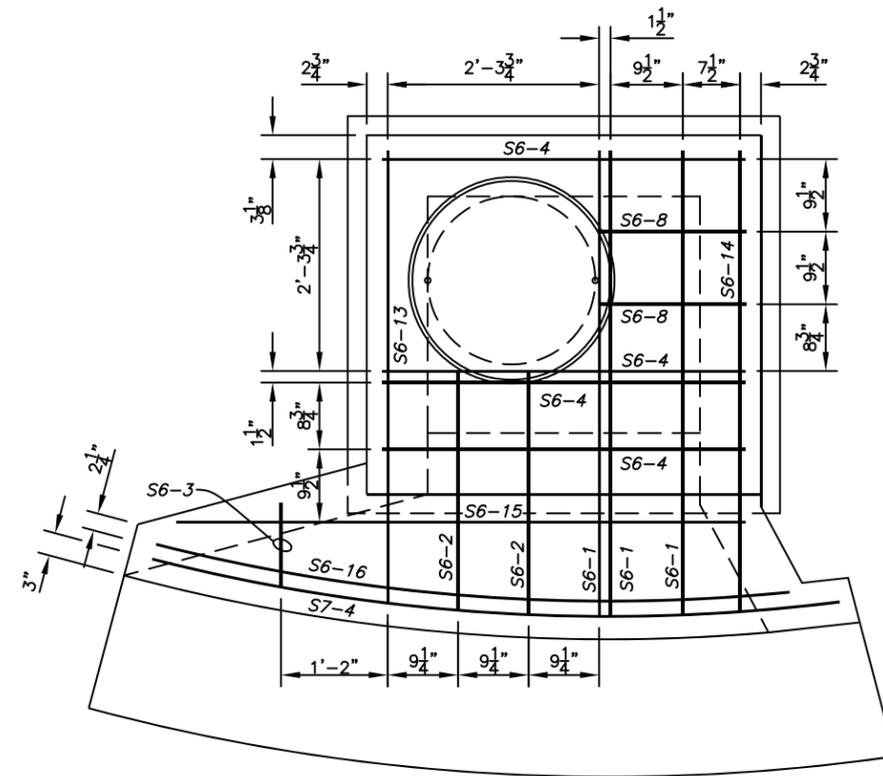
CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE BV-I CURB INLET

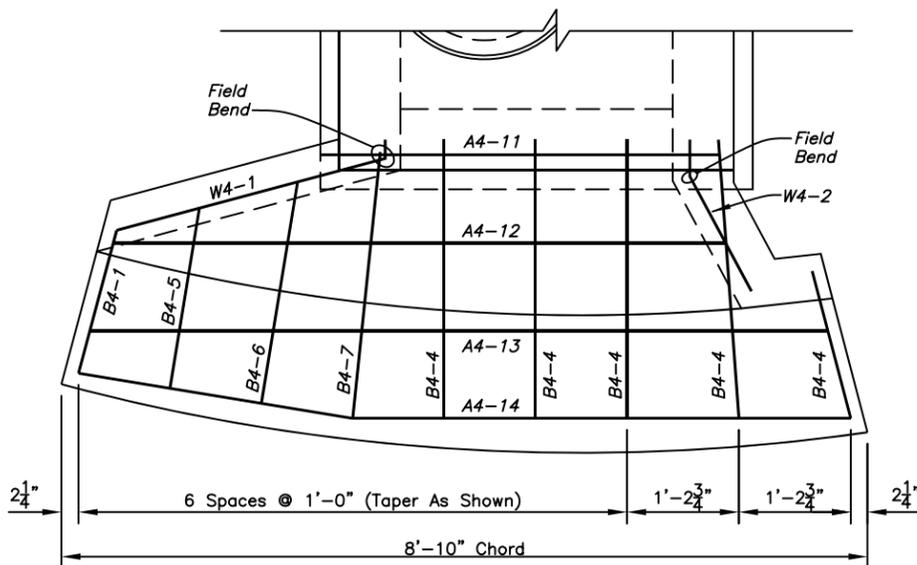
W.O.  
SHEET  
15  
OF 30



PLAN  
Scale: 1/2" = 1'-0"



PLAN - TOP SLAB REINFORCEMENT  
Scale: 1/2" = 1'-0"



PLAN - APRON REINFORCEMENT  
Scale: 1/2" = 1'-0"

stormwater details/type br-2 inlet

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

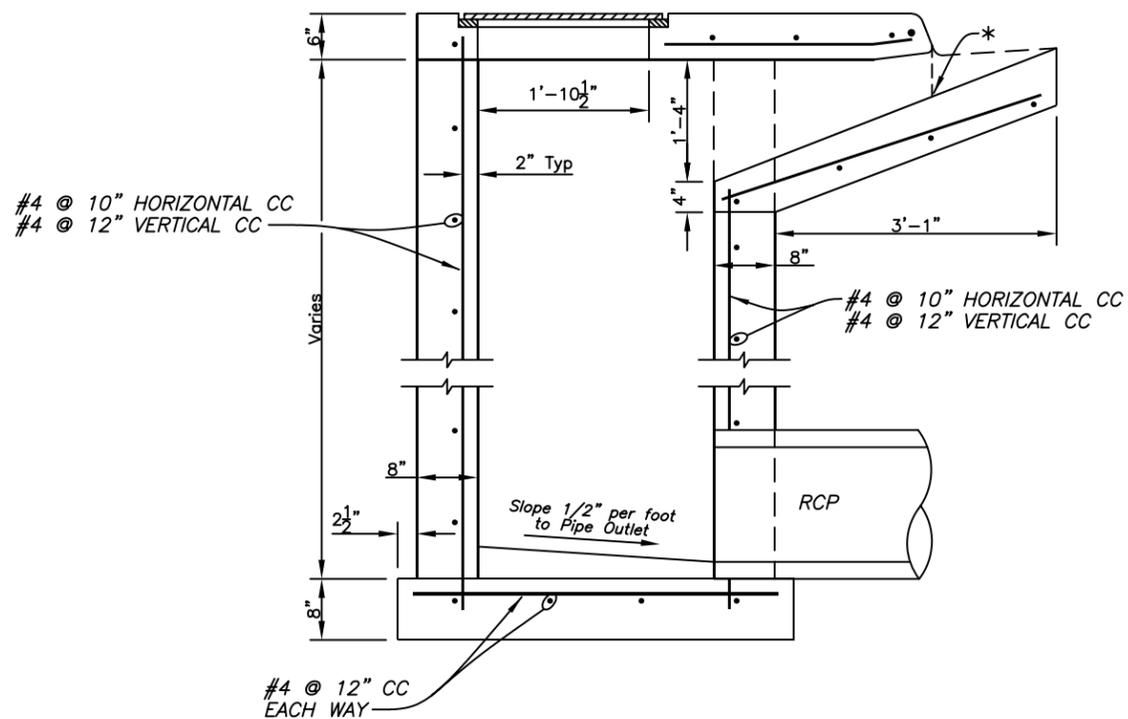
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DRN: Storm  
CKD:  
DATE: 7/03

**CITY of TAMPA**  
STORMWATER DEPARTMENT

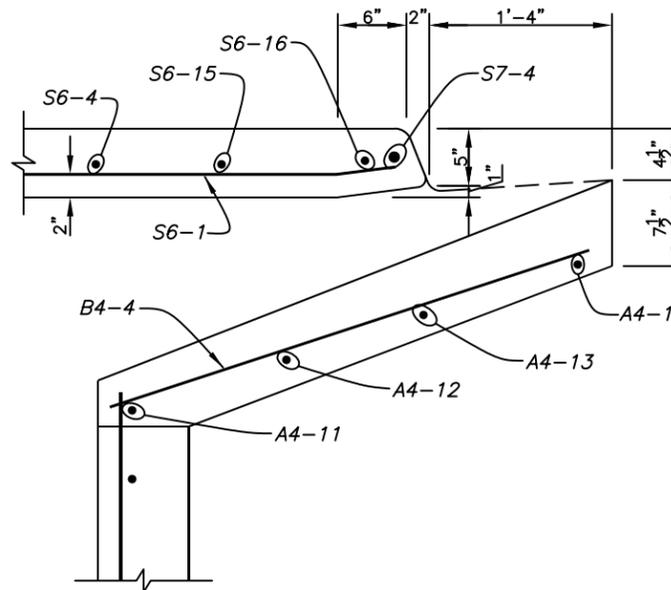
STANDARD INLET DETAILS  
TYPE BR-2 CURB INLET

W.O.  
SHEET  
**16**  
OF 30

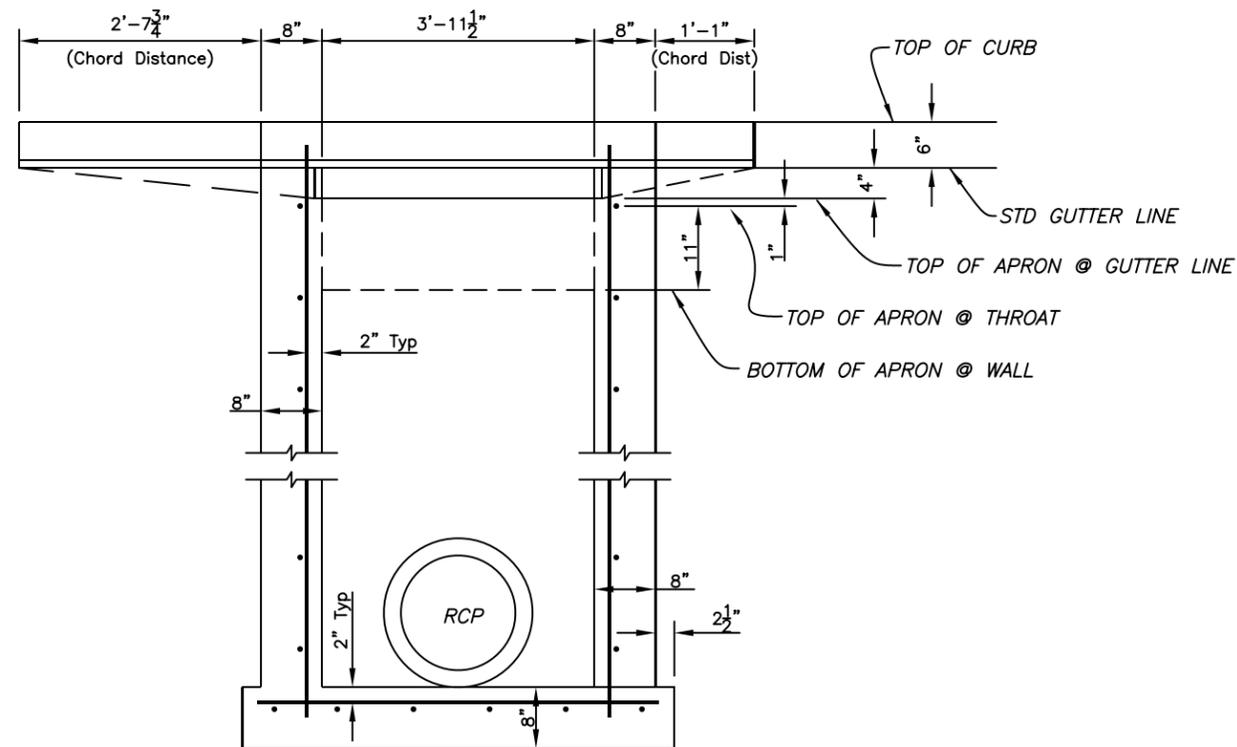
\* LOCATION OF THROAT ELEVATION



SECTION A-A  
Scale: 1/2" = 1'-0"



SECTION B-B  
Scale: 3/4" = 1'-0"



SECTION C-C  
Scale: 1/2" = 1'-0"

SCHEDULE OF REINFORCING STEEL BARS (FOR INLET TOP AND APRON ONLY)											
MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT	MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT
A4-11	No 4	1	4' 2"	2.784	2.784	S6-3	No 6	1	1' 2 1/2"	1.814	1.814
A4-12	No 4	1	6' 11"	4.621	4.621	S6-4	No 6	4	3' 11 3/4"	5.976	23.906
A4-13	No 4	1	8' 1"	5.399	5.399	S6-8	No 6	2	1' 7 1/2"	2.441	4.882
A4-14	No 4	1	8' 5"	5.623	5.623	S6-13	No 6	1	5' 1 1/2"	7.698	7.698
B4-1	No 4	2	2' 9"	1.837	3.674	S6-14	No 6	1	5' 2 1/2"	7.822	7.822
B4-4	No 4	3	3' 6 3/4"	2.380	7.140	S6-15	No 6	1	6' 4 1/2"	9.575	9.575
B4-5	No 4	1	3' 3 1/2"	2.199	2.199	S6-16	No 6	1	7' 8"	11.516	11.516
B4-6	No 4	1	4' 0 3/4"	2.714	2.714	S7-4	No 7	1	7' 9 3/4"	15.970	15.970
B4-7	No 4	1	4' 10 1/2"	3.257	3.257	W4-1	No 4	2	3' 6"	2.338	4.676
S6-1	No 6	3	5' 3"	7.886	23.657	W4-2	No 4	2	2' 1"	1.391	2.783
S6-2	No 6	2	2' 11"	4.381	8.763						
TOTAL WEIGHT IN POUNDS											160.471

stormwater details/type br-2 inlet 1/2"

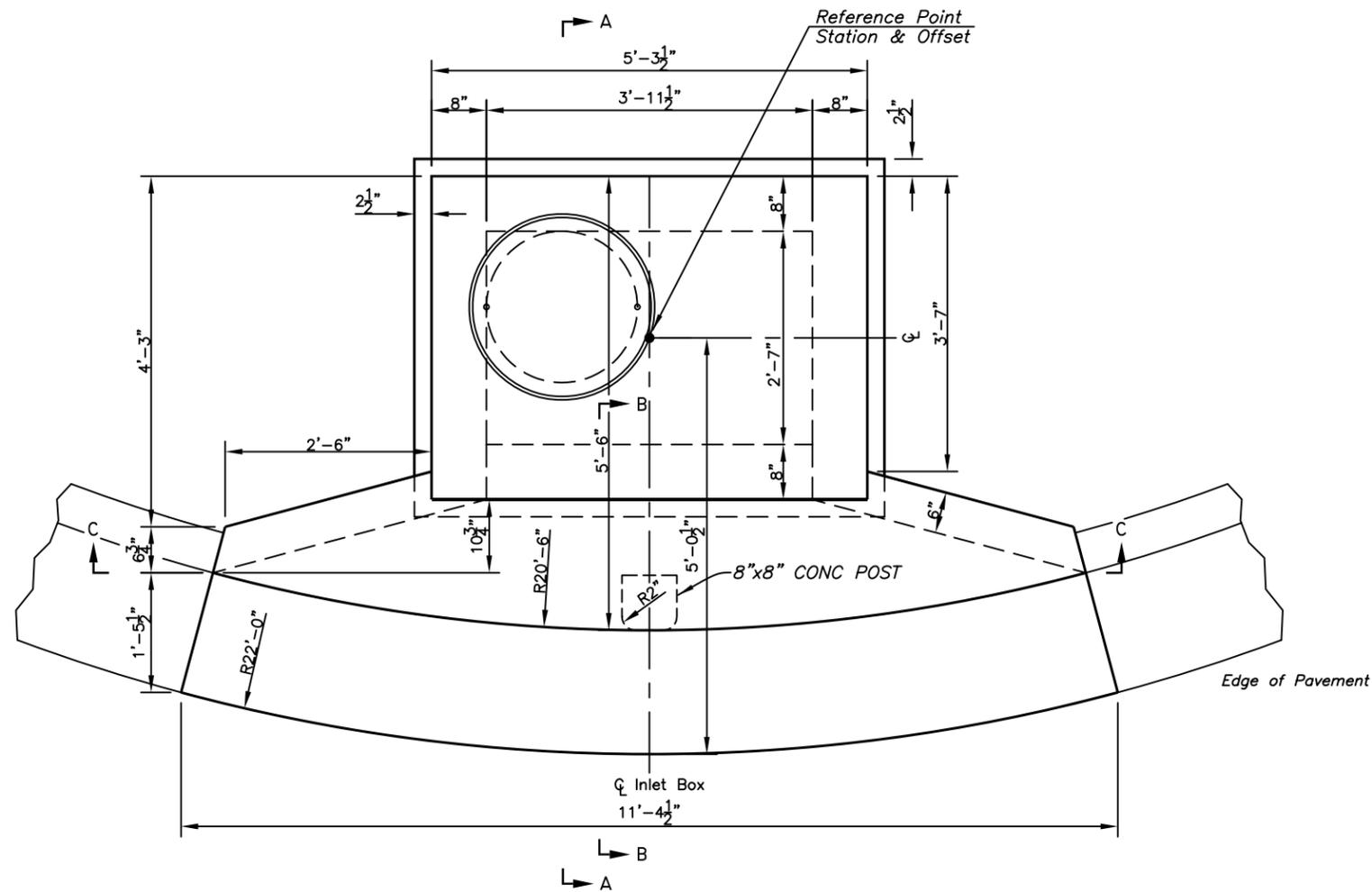
No.	DATE	REVISIONS	No.	DATE	REVISIONS
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2			5		
1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

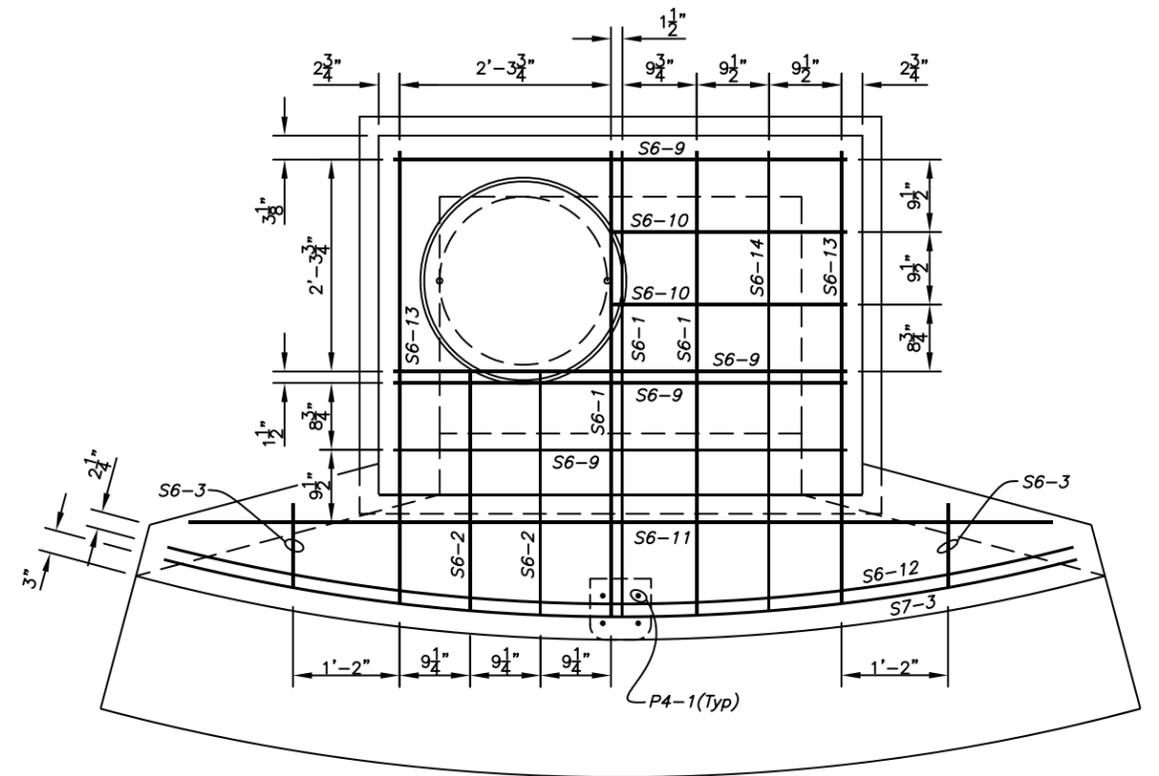
**CITY of TAMPA**  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE BR-2 CURB INLET

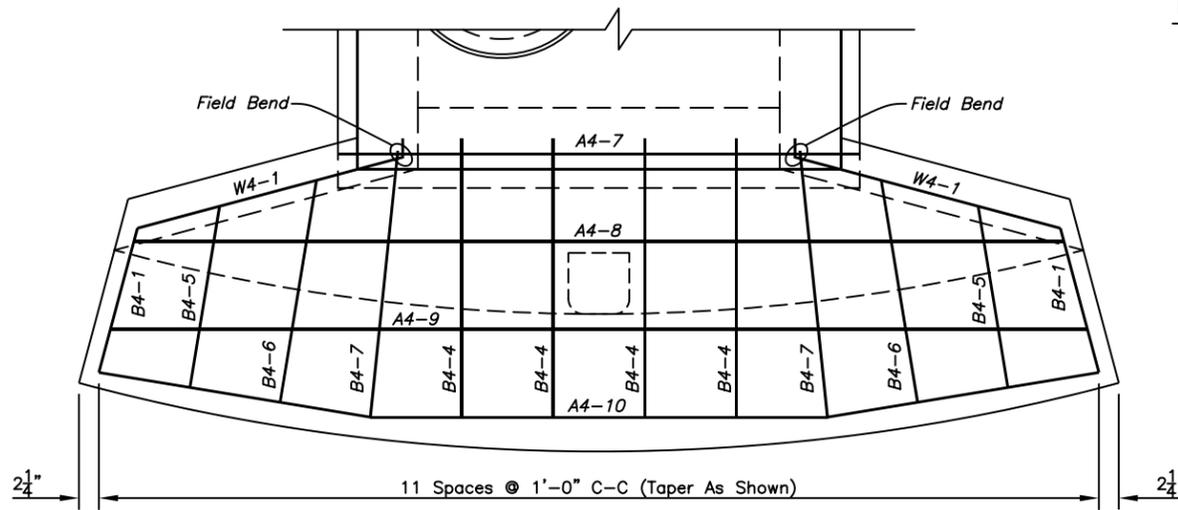
W.O.  
SHEET  
**17**  
OF 30



PLAN  
Scale: 1/2" = 1'-0"



PLAN - TOP SLAB REINFORCEMENT  
Scale: 1/2" = 1'-0"



PLAN - APRON REINFORCEMENT  
Scale: 1/2" = 1'-0"

stormwater details/type br-1 inlet

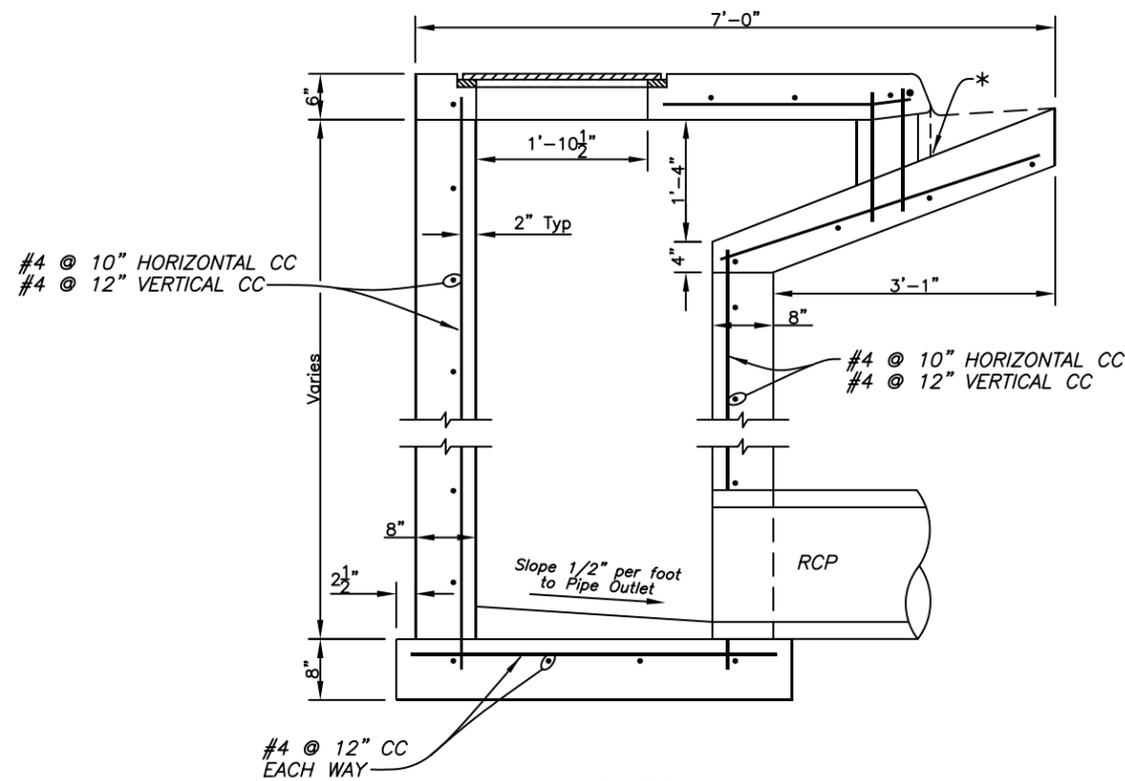
No.	DATE	REVISIONS	No.	DATE	REVISIONS
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2			5		
1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

**CITY of TAMPA**  
STORMWATER DEPARTMENT

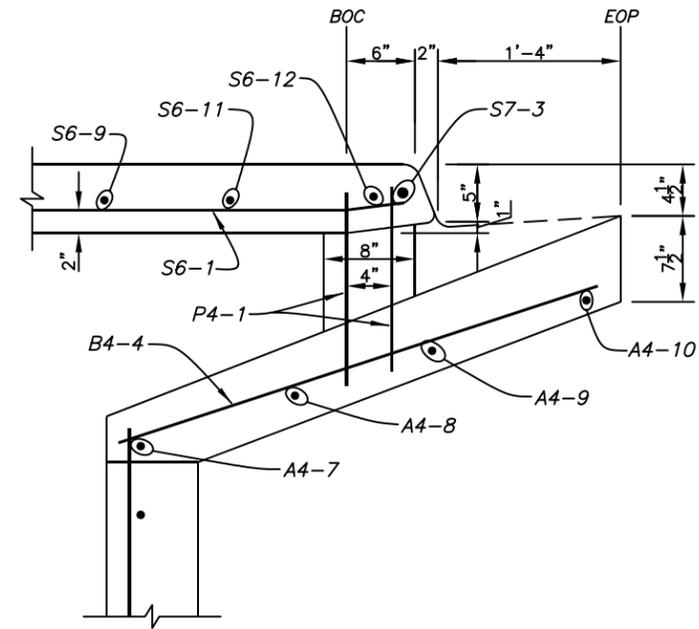
STANDARD INLET DETAILS  
TYPE BR-I CURB INLET

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SHEET  
**18**  
OF 30

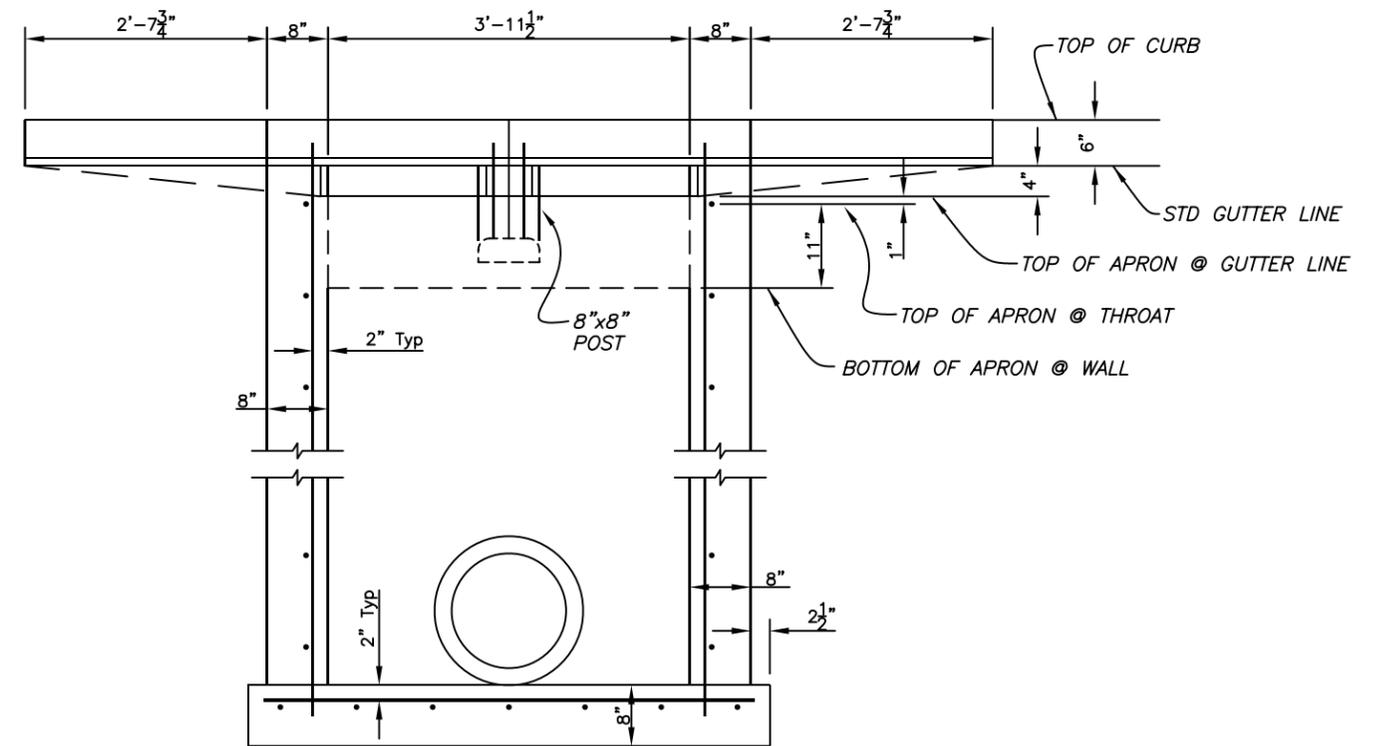


SECTION A-A  
Scale: 1/2" = 1'-0"

\* LOCATION OF THROAT ELEVATION



SECTION B-B  
Scale: 3/4" = 1'-0"



SECTION C-C  
Scale: 1/2" = 1'-0"

SCHEDULE OF REINFORCING STEEL BARS (FOR INLET TOP AND APRON ONLY)

MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT	MARK	SIZE	COUNT	LENGTH	WT EACH	TOTAL WT
A4-7	No 4	1	5' 4"	3.562	3.562	S6-1	No 6	3	5' 3"	7.886	23.657
A4-8	No 4	1	10' 3 1/2"	6.875	6.875	S6-2	No 6	2	2' 11"	4.381	8.763
A4-9	No 4	1	10' 9 1/2"	7.209	7.209	S6-3	No 6	2	1' 2 1/2"	1.814	3.629
A4-10	No 4	1	11' 2 1/2"	7.487	7.487	S6-9	No 6	4	4' 11 1/2"	7.447	29.788
B4-1	No 4	2	2' 9"	1.837	3.674	S6-10	No 6	2	2' 6"	3.755	7.510
B4-4	No 4	4	3' 6 3/4"	2.380	9.520	S6-11	No 6	1	9' 7"	14.394	14.394
B4-5	No 4	2	3' 3 1/2"	2.199	4.398	S6-12	No 6	1	10' 2"	15.271	15.271
B4-6	No 4	2	4' 0 3/4"	2.714	5.428	S6-13	No 6	2	5' 1 1/2"	7.698	15.396
B4-7	No 4	2	4' 10 1/2"	3.257	6.513	S6-14	No 6	1	5' 2 1/2"	7.822	7.822
P4-1	No 4	4	1' 3"	0.835	3.340	S7-3	No 7	1	10' 4 3/4"	21.249	21.249
						W4-1	No 4	4	3' 6"	2.338	9.352
TOTAL WEIGHT IN POUNDS										214.837	

1/2"

stormwater details/type br-1 inlet

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

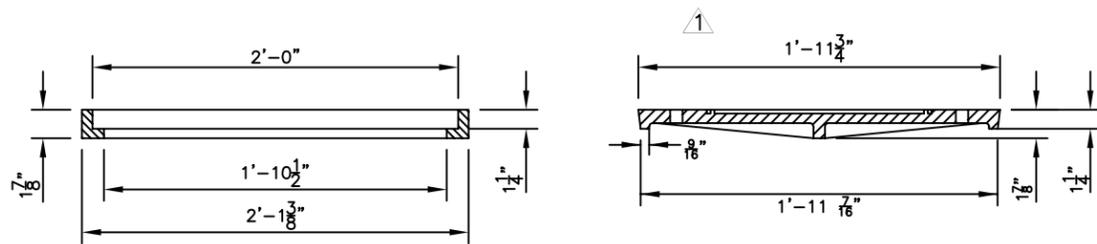
CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE BR-I CURB INLET

W.O.  
SHEET  
19  
OF 30



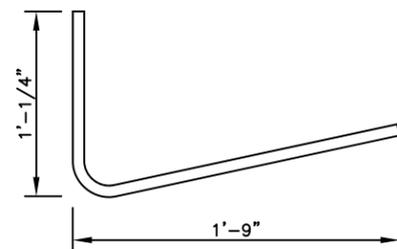
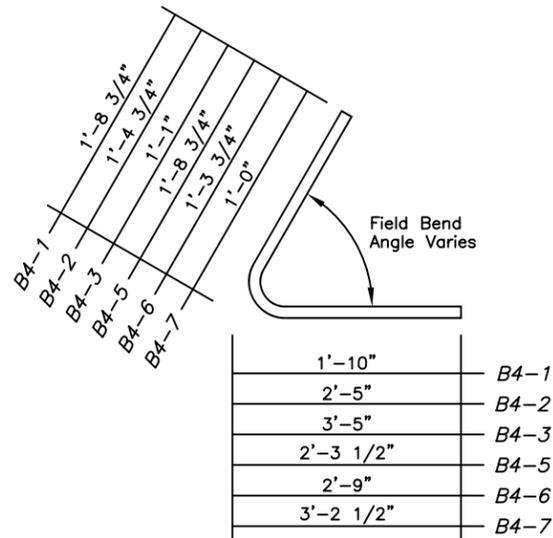
PLAN



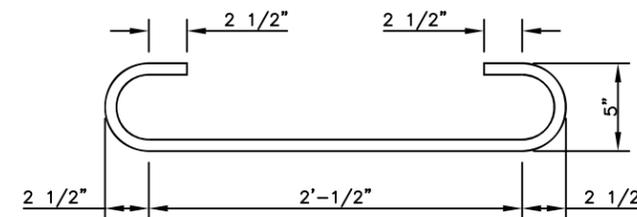
SECTION

STANDARD CAST IRON INLET  
RING AND COVER

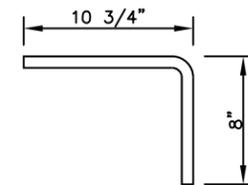
Scale: 1" = 1'-0"



A4-2



B6-1



T6-5

BENDING DIAGRAMS

Not To Scale

CURB INLET CONSTRUCTION NOTES  
TYPES 1,2,3 AND BS-1, BV-1, BR-1, BR-2

- Concrete for top slabs, bottom slabs, walls, aprons and curb-and-gutter transition sections shall be Class II Concrete, conforming to Section 346 of the project specifications, with reinforcing bars placement and spacing as indicated herein. Top slabs shall not be poured until all reinforcing bars have been placed, inspected and approval obtained.
- Curb inlets are typically designed with the outlet pipe at the front wall of the structure. Otherwise, maximum pipe size that will fit the side wall of any standard curb inlet is 24 inches. Larger pipe sizes and 24-inch pipes meeting the side wall at an angle other than 90 degrees require a larger substructure. Curb inlets may be modified to utilize inlet risers and tops meeting City inlet standards with substructures meeting FDOT standards for structure bottoms (Index #200). Design of these non-standard inlet structures shall be on case-specific basis.
- Refer to FDOT Standard Index #200 for reinforcing steel requirements at pipe openings. Any portion of the pipe protruding beyond the inside wall surface of the box shall be broken off and mortared to a smooth finish flush with the inside wall surface.
- At the discretion of the Engineer, boxes may be constructed of solid clay or portland cement concrete brick and mortar. The inside surface of all brick walls shall be plastered with one-half inch minimum thickness of 1:2 mix sand-cement mortar and left with a smooth finish.
- Minimum brick wall thickness shall be 7 1/2 inches when the distance (depth) from the rim of the cast ring and cover to the top of the bottom slab does not exceed 8 feet, and shall be 12 inches when such depth exceeds 8 feet. Brick shall be laid in stretcher courses with every sixth course a header course.
- Minimum clearance for all reinforcing bars shall be 1 1/2 inches from the nearest surface of the concrete member. Top slab reinforcement shall be 2 inches from the bottom of the slab. Other minimum clearances are as shown in drawings.
- Wing for inlet Types 2, BS-1 and BR-2 shall be placed on the upstream side of the center of box, with plan reversed if necessary because of the direction of gutter flow.
- Curb transition sections shall be included in the contract price of the inlet, and no separate payment shall be made.
- Top slab of all curb inlets shall be sloped at 2 percent toward the street.
- Dimensions shown for inlet types BR-1 and BR-2 are for the indicated curb radius only. Chord dimensions at the curb shall remain constant for other curb radii. Contractor shall adjust other inlet dimensions and reinforcing steel quantities to fit actual curb radius shown in the project plans.
- Reinforcing steel shall be ASTM Grade 60. Ring and cover material shall be ASTM-A48 Class 30 B Gray Iron.
- Inlet cover weight is 85 lbs. (approximate).
- All construction joints shall follow FDOT Standard Index #201.
- Side openings (slots) for curb inlets are to be used on Type 1 inlets (offset) only. Rear openings (slots) may be used on any curb inlet type. Refer to Sheet 10 for guidance.
- Refer to Section 425 of the project specifications for additional requirements.

NOTE TO ENGINEER:

Inlet types BS-1 and BV-1 shall be the preferred types for application on tangents. Inlet types 1, 2 and 3 shall only be used when dictated by conditions that would preclude the use of types BS-1 and BV-1.

1/2"

stormwater details/ gen info

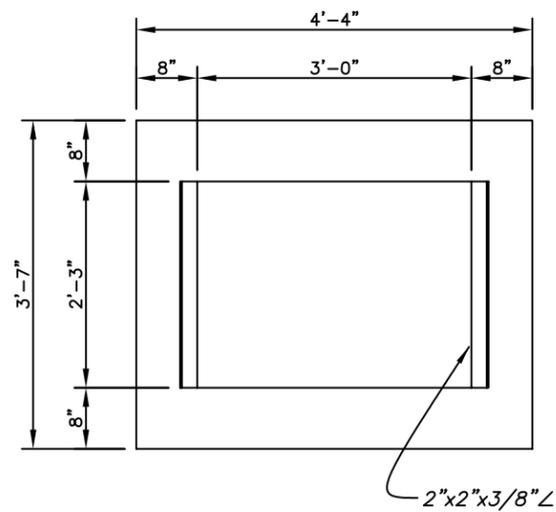
No.	DATE	REVISIONS	No.	DATE	REVISIONS
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2			5		
1	12/09/04	REVISED COVER DIMENSIONS	4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

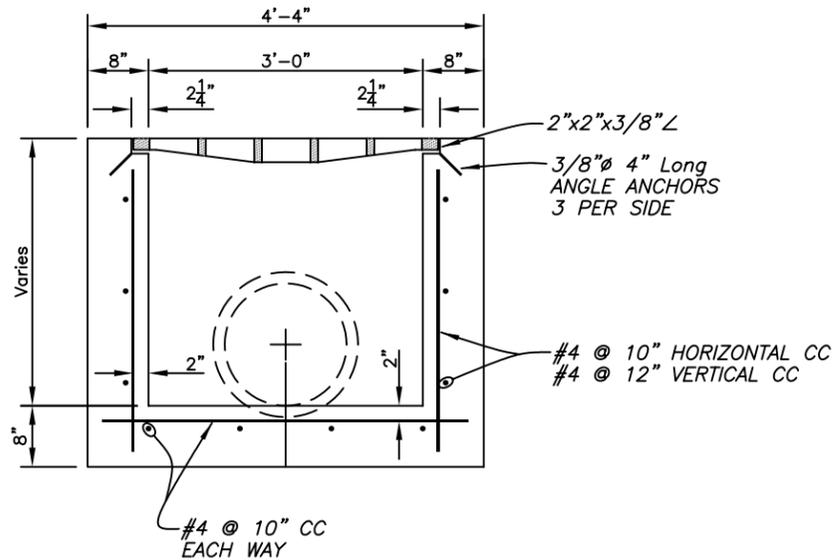
CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS

W.O.  
SHEET  
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OF 30



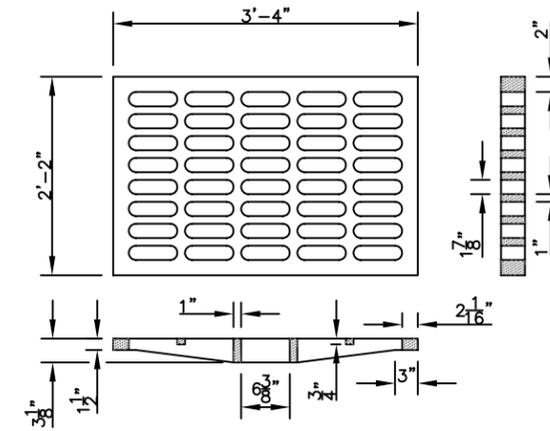
PLAN



SECTION

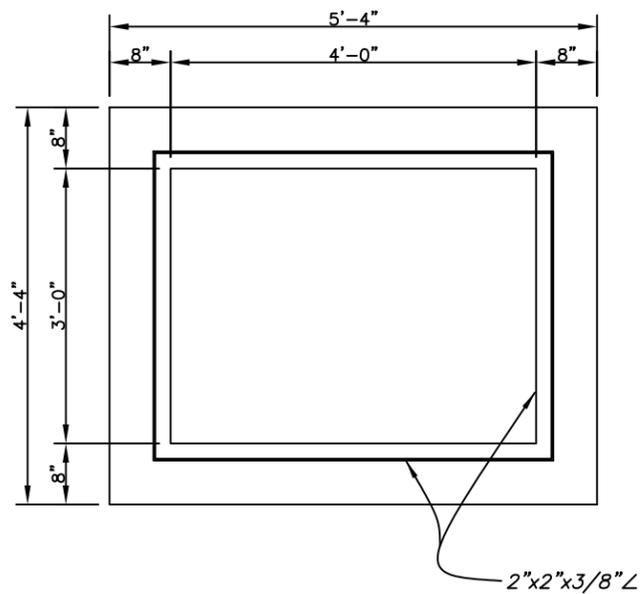
TYPE "T" GRATE INLET

Scale: 1/2" = 1'-0"

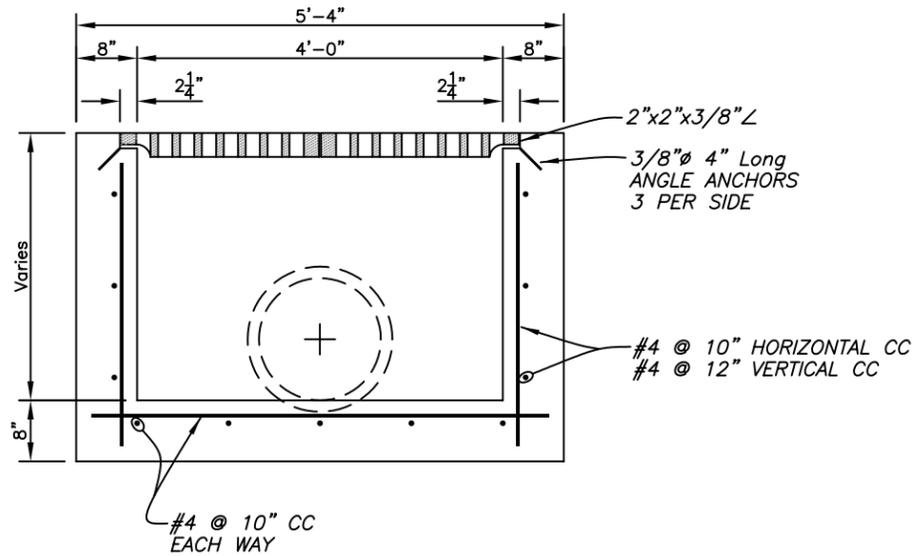


CAST IRON GRATING

Traffic Bearing



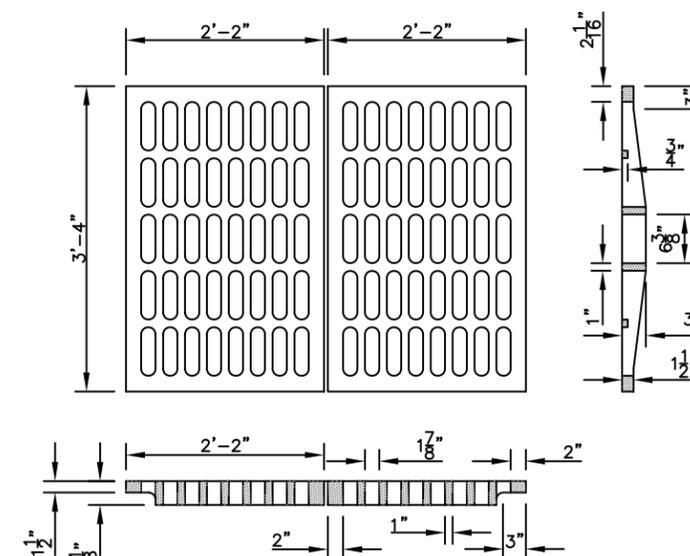
PLAN



SECTION

TYPE "E" GRATE INLET

Scale: 1/2" = 1'-0"



CAST IRON GRATING

Traffic Bearing

1/2"

stormwater details/grate inlet

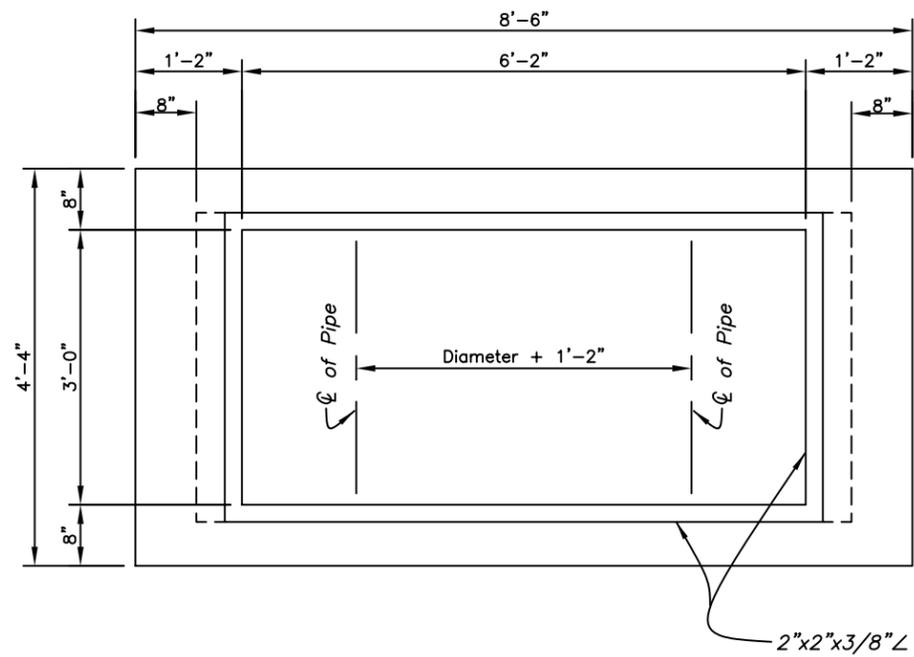
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: Storm  
 DRN: Storm  
 CKD:  
 DATE: 7/03

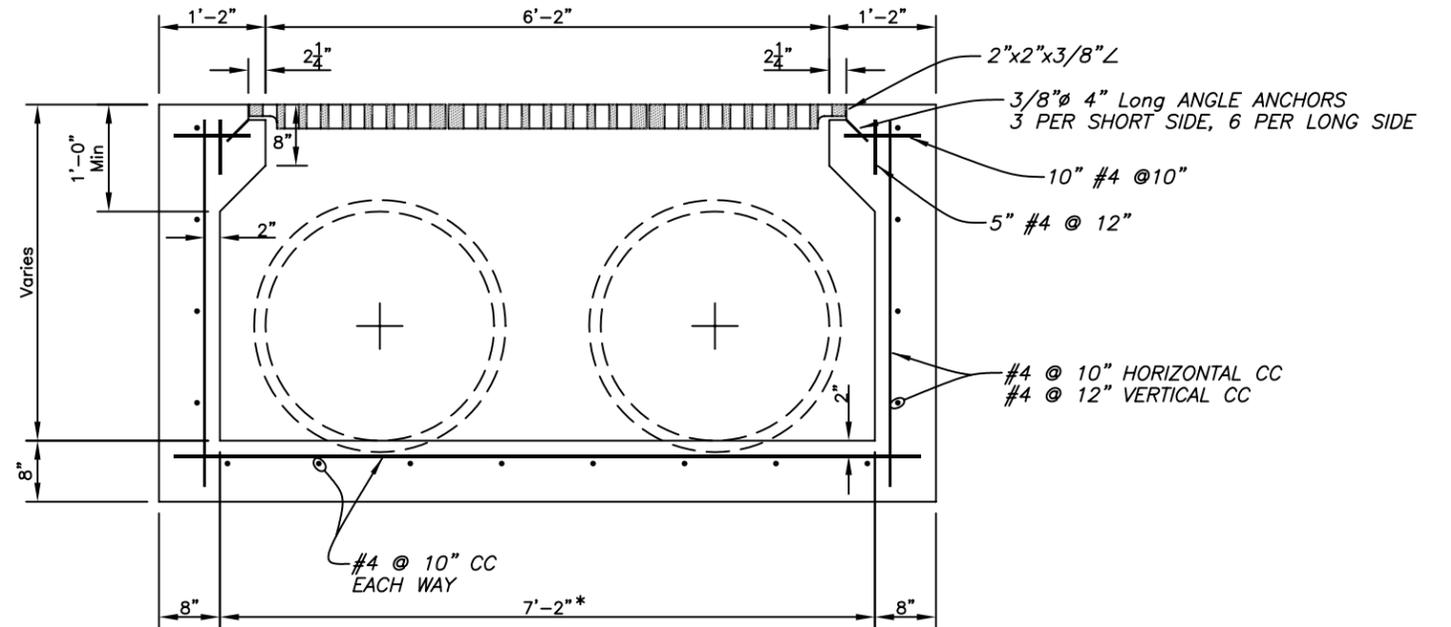
**CITY of TAMPA**  
**STORMWATER DEPARTMENT**

**STANDARD INLET DETAILS**  
**TYPE "T" & "E" GRATE INLET**

W.O.  
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 OF 30

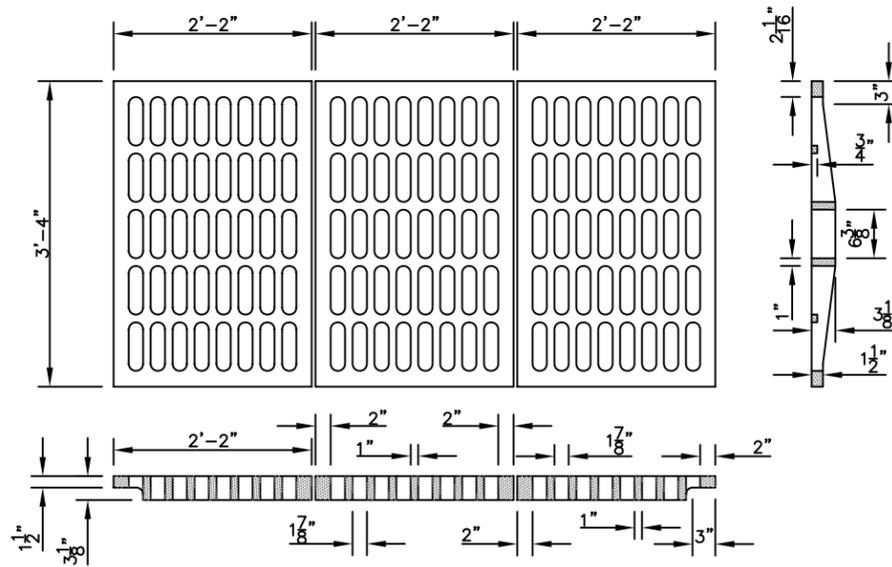


PLAN



SECTION

\* WHEREVER POSSIBLE, 6'-2"x3'-0" INSIDE DIMENSION BOX MAY BE USED WITH THE ENGINEER'S APPROVAL.



CAST IRON GRATING  
Traffic Bearing

NOTE:  
IF SIDE OPENINGS (SLOTS) ARE DESIRED IN GRATE INLETS, OPENINGS SHALL BE DESIGNED ON A CASE-BY-CASE BASIS, AND SHALL ACCOUNT FOR SUPPORT OF THE CAST IRON GRATE ABOVE THE OPENING.

TYPE "H" GRATE INLET  
Scale: 1/2" = 1'-0"

1/2"

stormwater details/grate inlet

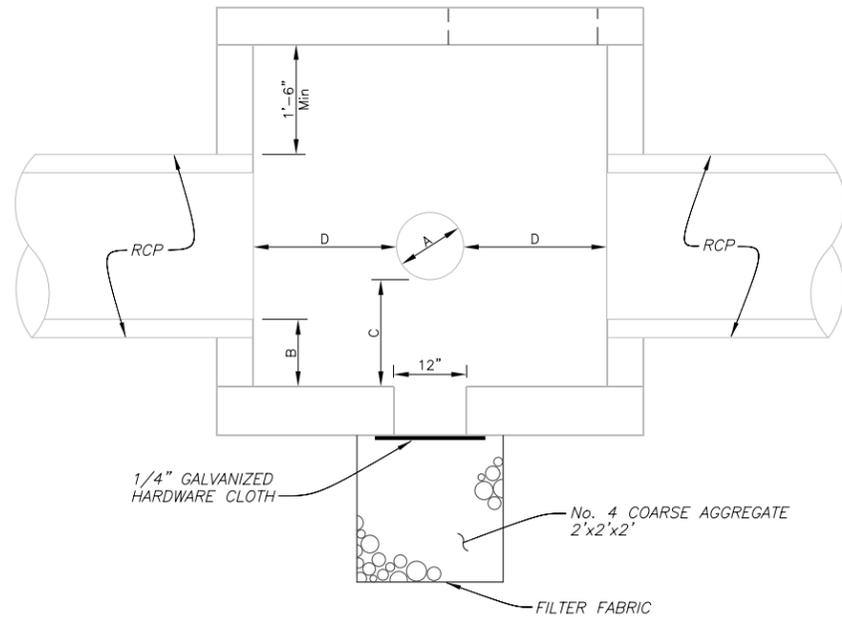
No.	DATE	REVISIONS	No.	DATE	REVISIONS
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2			5		
1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

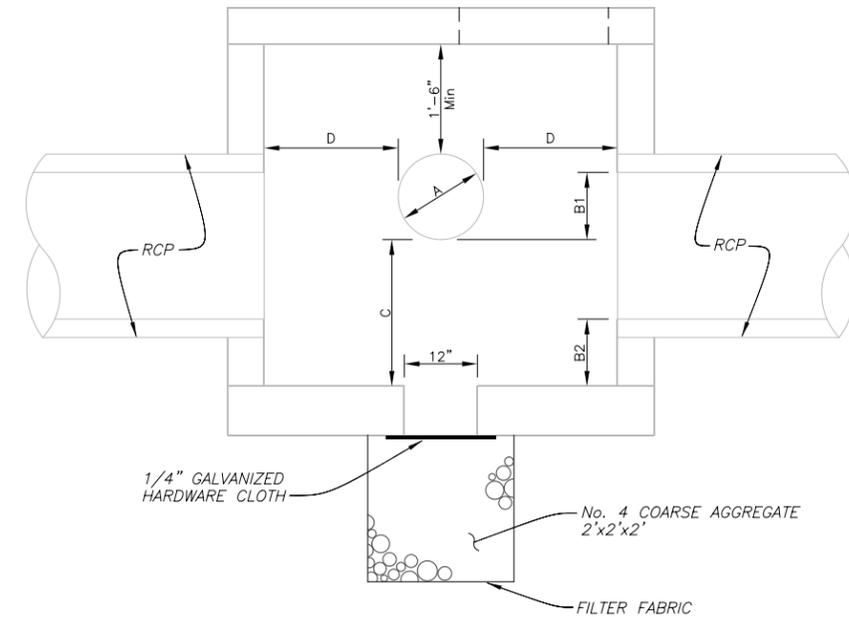
CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
TYPE H GRATE INLET

W.O.  
SHEET  
22  
OF 30



$B=A$   
 $C=1'-6''$  Minimum  
 (Use the greater of the two)  
**CONFLICT AT MID-POINT**  
 Not To Scale



$B2=B1$   
 $C=1'-6''$  Minimum  
 (Use the greater of the two)  
**CONFLICT AT CROWN**  
 Not To Scale

NOTES

- Conflict manhole shop drawing shall be submitted to the Engineer for approval prior to fabrication or beginning of any work on the conflict manhole.
- The structural design shall be consistent with FDOT Index 200 and as approved by the Engineer.
- For conflict structures with sanitary sewer(s.s.) pipes the following shall apply:

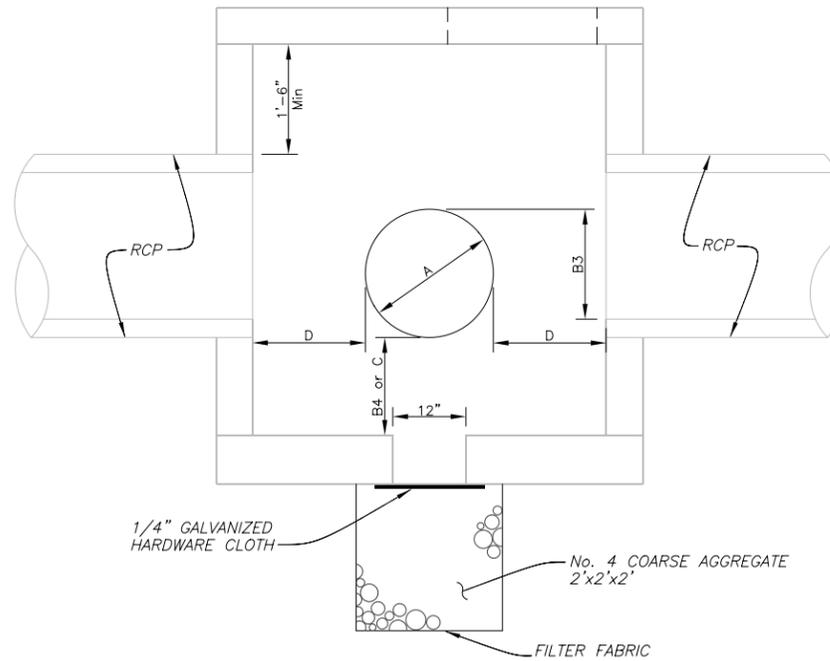
If the s.s. pipe is below the flowline of the storm pipe, replace the s.s. pipe with AWWA C-900 DR-18 Green and embed it in the sump with non-shrink grout. Connect the C-900 to the existing pipe with Fernco adapters.

If the s.s. pipe is above the flowline of the storm pipe, replace the s.s. pipe with AWWA C-900 DR-18 Green or ASTM 3034 SDR-35 or SDR-26 pipe and encase it in the smallest diameter steel casing pipe possible that will accommodate Cascade casing spacers. The steel casing shall be in compliance with Section W-67, "Steel Pipe And Fittings". Connect the new PVC pipe to the existing pipe with Fernco adapters.

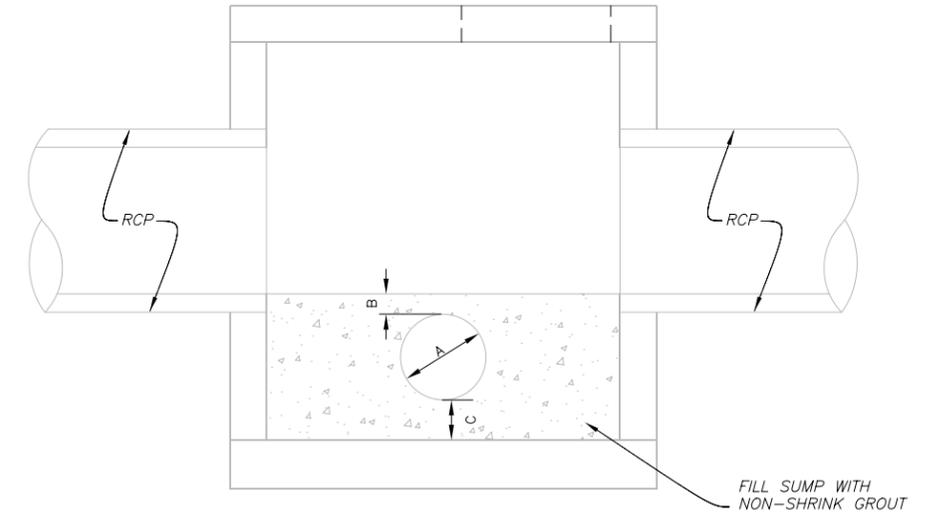
- Conflicting water mains shall be sleeved if a joint in the pipeline falls within the conflict structure.
- Filter fabric shall meet FDOT Standard Specification 441-2.3.

A = Outside diameter of the conflicting utility line or sleeve.

D = 2'-0" or 1/2(A) whichever is greater.



$B4=B3$   
 $C=1'-6''$  Minimum  
 (Use the greater of the two)  
**CONFLICT AT FLOWLINE**  
 Not To Scale



$C=B$   
**CONFLICT BELOW FLOWLINE WITH INSUFFICIENT CLEARANCE**  
 Not To Scale

stormwater details/conflict manhole 1/2"

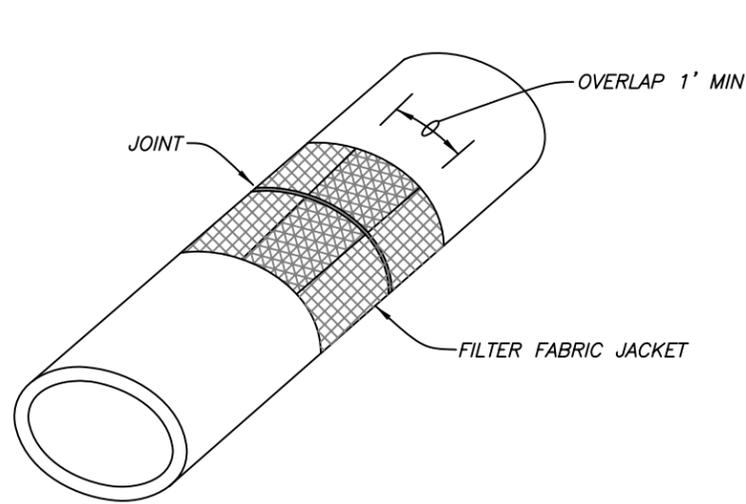
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2	4/26/07	Revised note 3	5		
1	12/09/04	ADDED CONFLICT BELOW FLOW LINE	4		

DES: Storm  
 DRN: Storm  
 CKD:  
 DATE: 7/03

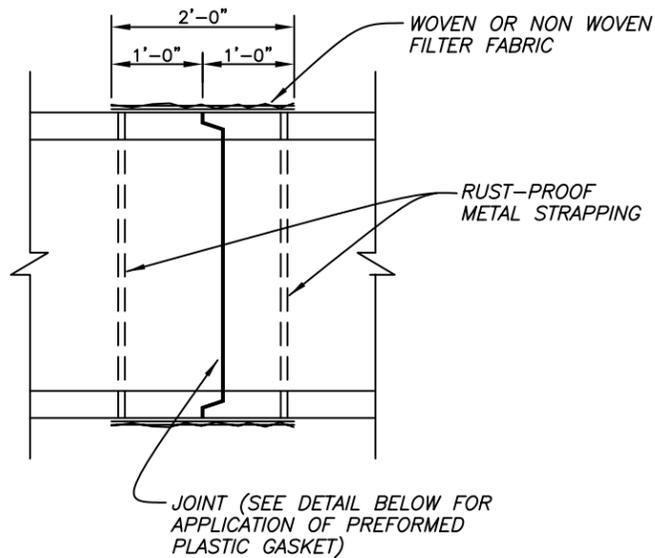
**CITY of TAMPA**  
 STORMWATER DEPARTMENT

**GUIDELINES FOR CONFLICT MANHOLES**

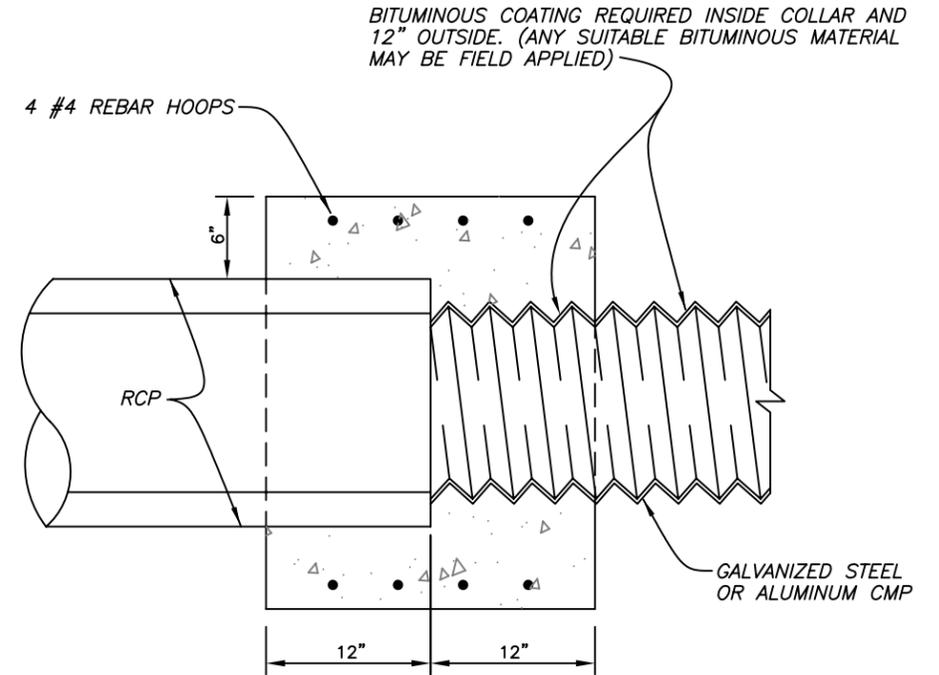
W.O.  
 SHEET  
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ISOMETRIC VIEW

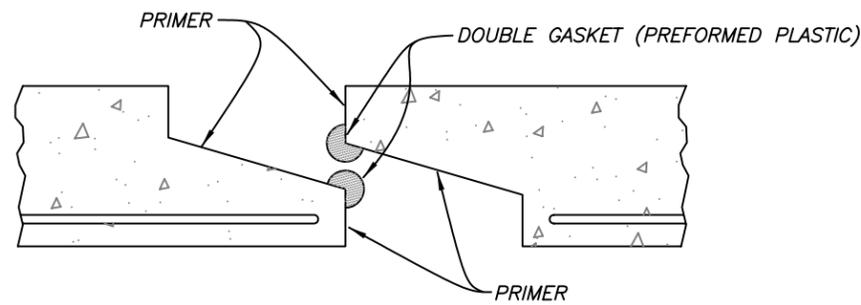


PIPE SECTION



CONCRETE JACKET FOR CONNECTING DISSIMILAR TYPES OF PIPES

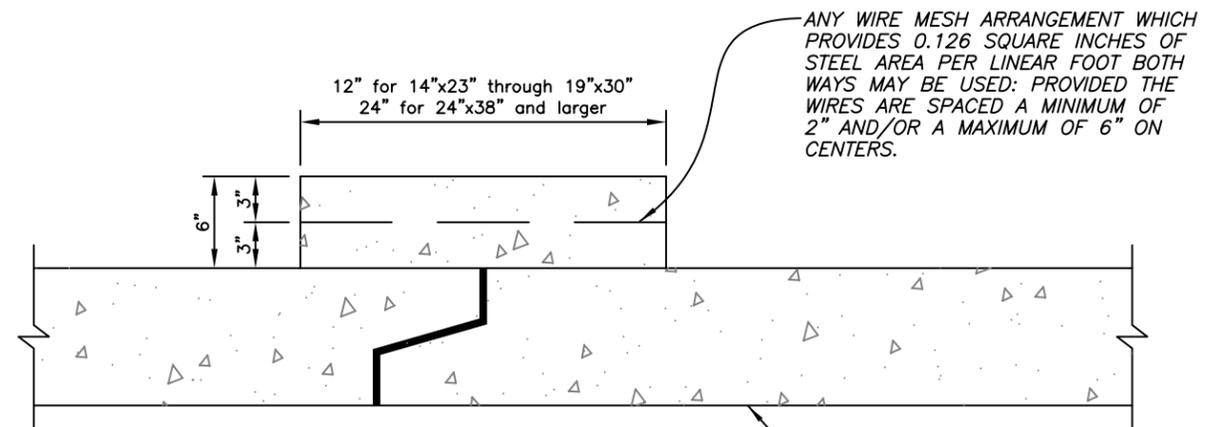
Not To Scale



JOINT SECTION (BEFORE PULL-UP)

ELLIPTICAL CONCRETE PIPE JOINTS

Not To Scale



ELLIPTICAL CONCRETE PIPE JACKET

Not To Scale

NOTES:

1. Either filter fabric or concrete jacket shall be provided at any single joint (not both).
2. Concrete jacket shall be provided at least at the last two joints before the outfall end if the pipe is not secured by an end wall. Engineer may specify concrete jacket at other joints.
3. Cost of concrete jacket and filter fabric jacket are to be included in the cost of elliptical pipe culverts.
4. Filter fabric shall meet FDOT Standard Specification 441-2.3.

1/2"

stormwater idetails/ misc details

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

CITY of TAMPA  
STORMWATER DEPARTMENT

MISCELLANEOUS DETAILS

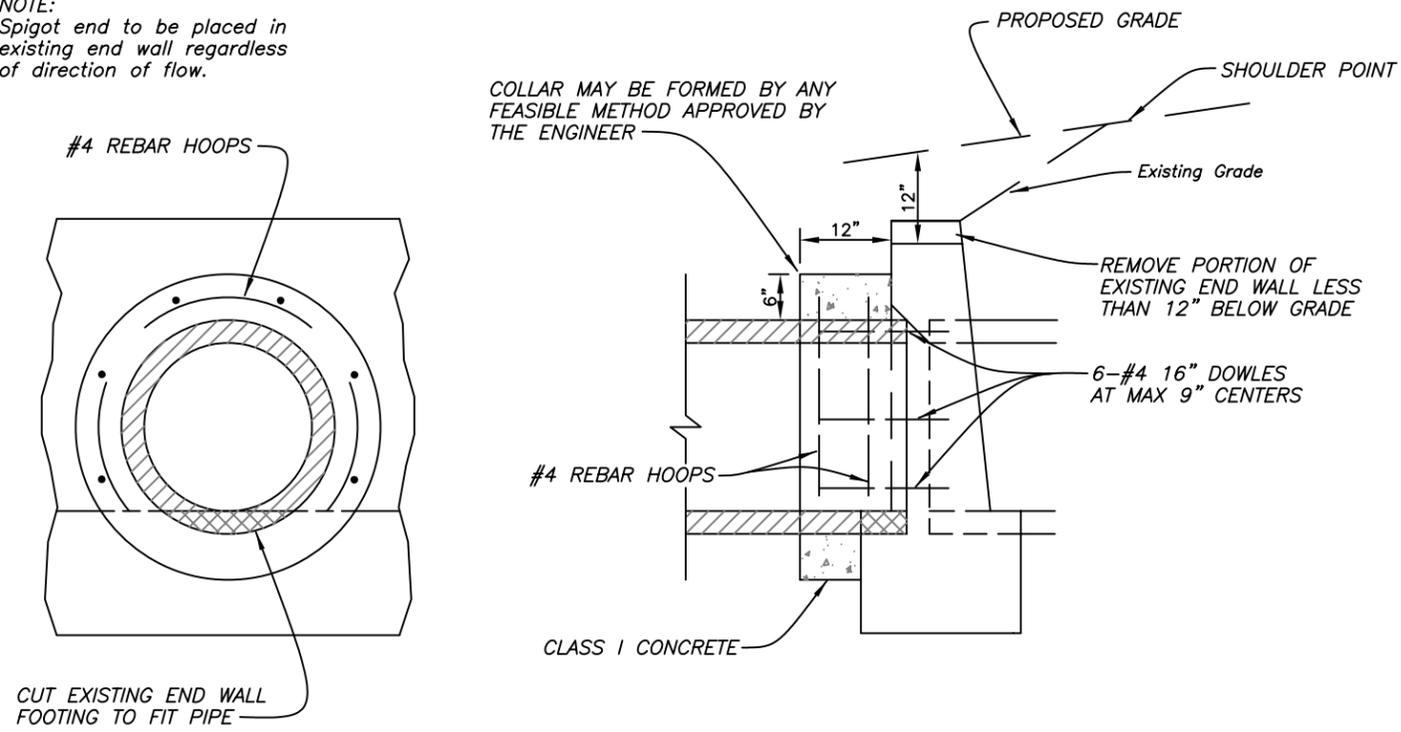
W.O.

SHEET

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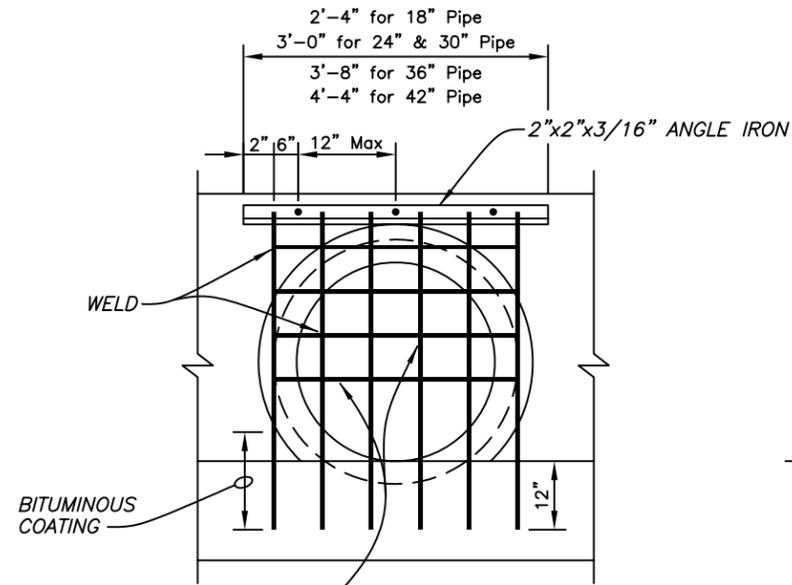
OF 30

NOTE:  
Spigot end to be placed in existing end wall regardless of direction of flow.

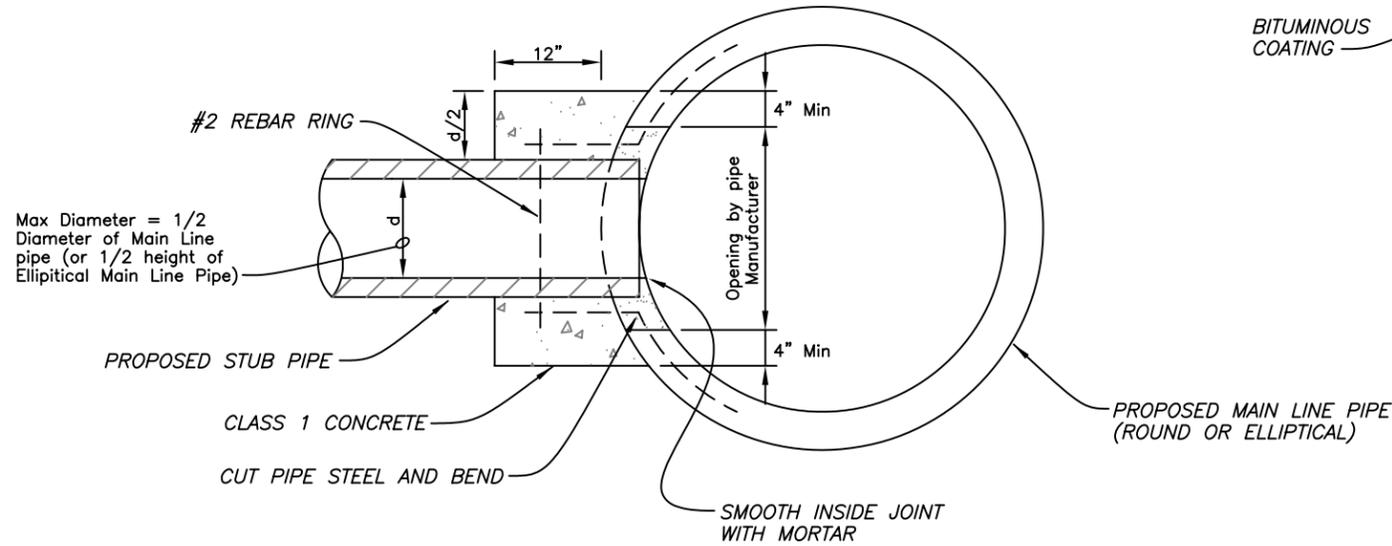
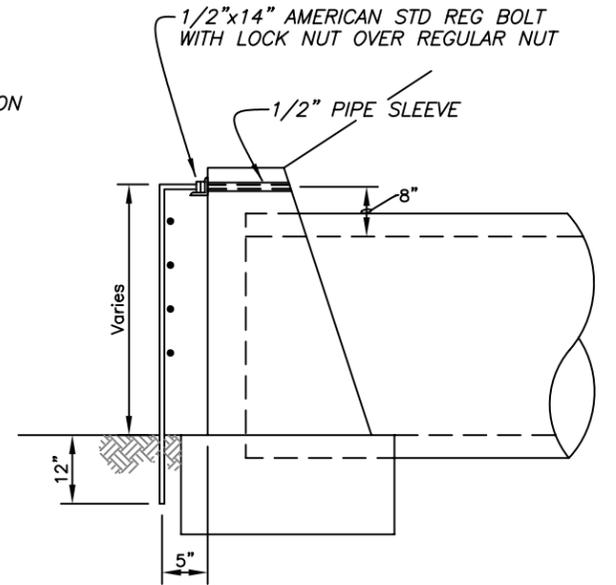


CONCRETE COLLAR FOR EXTENSION OF EXISTING PIPE CULVERT  
Not To Scale

NOTE:  
Guards to be constructed only at locations specified in detail plans



GUARD AT PIPE ENDS  
Not To Scale



CONCRETE COLLAR FOR JOINING MAINLINE PIPE AND STUB PIPE  
Not To Scale

1/2"

stormwater details/ misc details

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

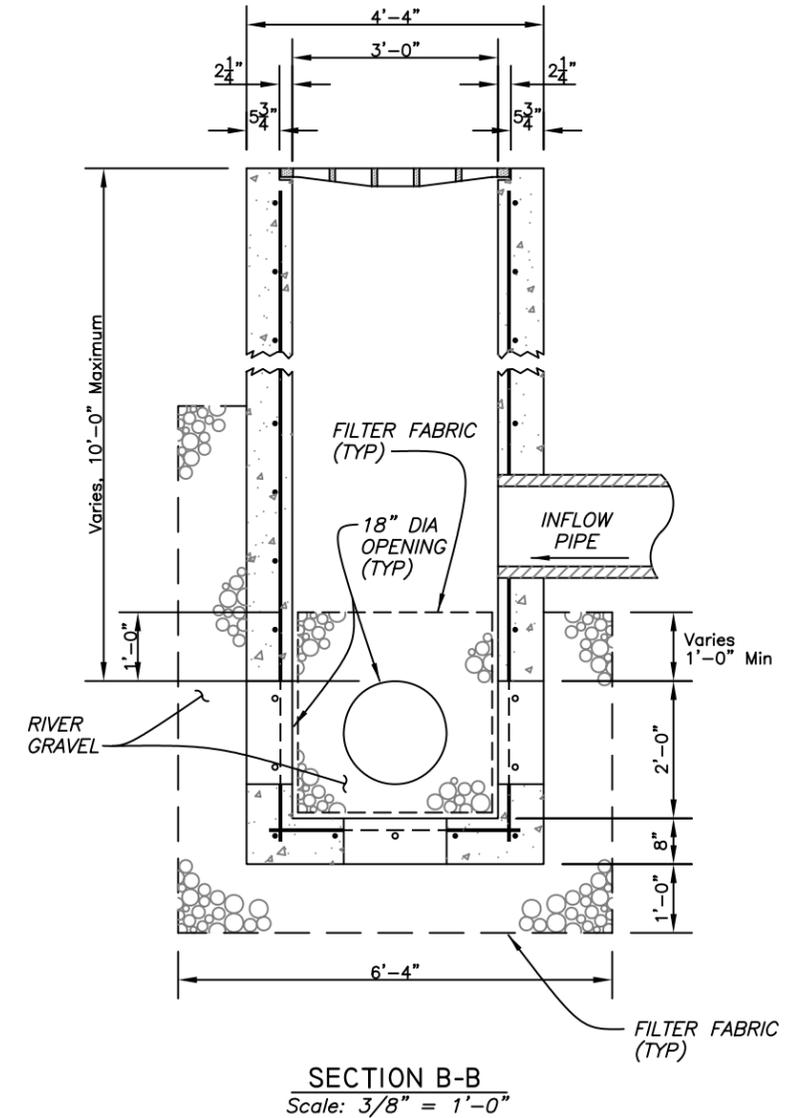
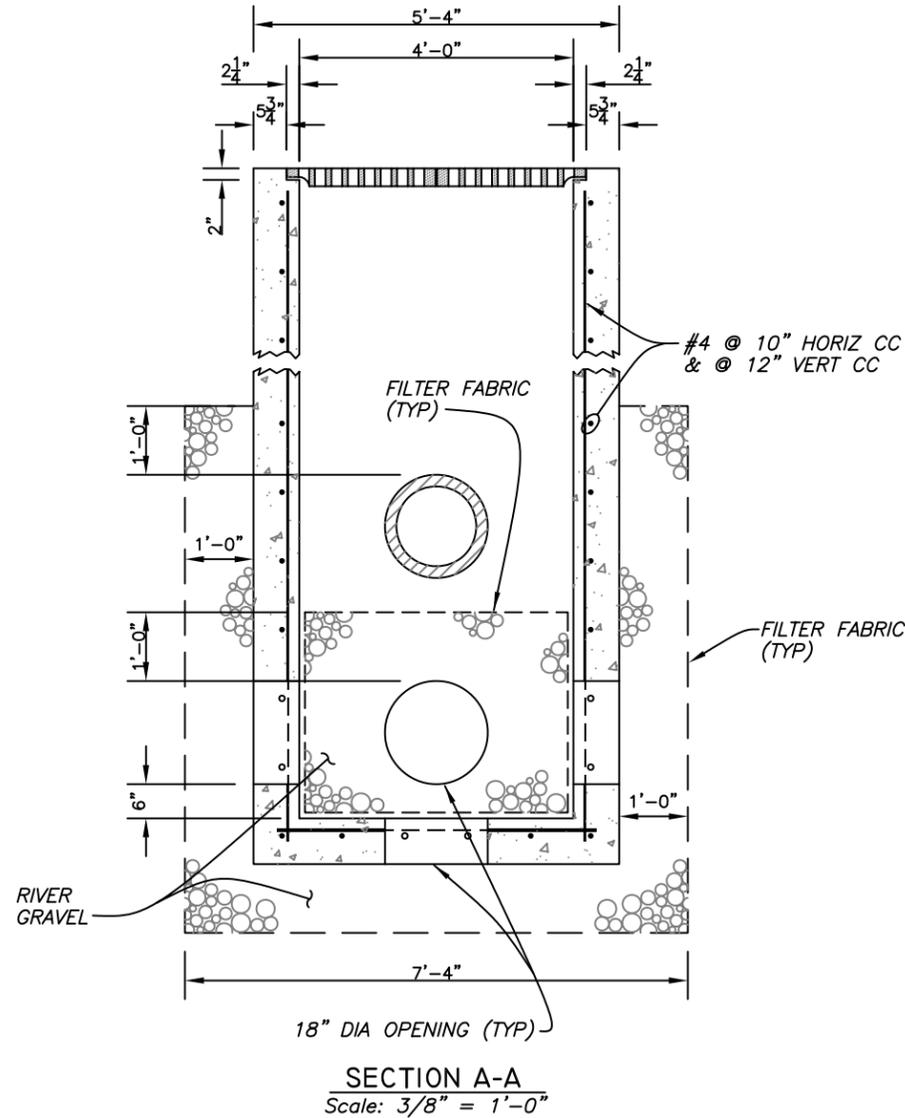
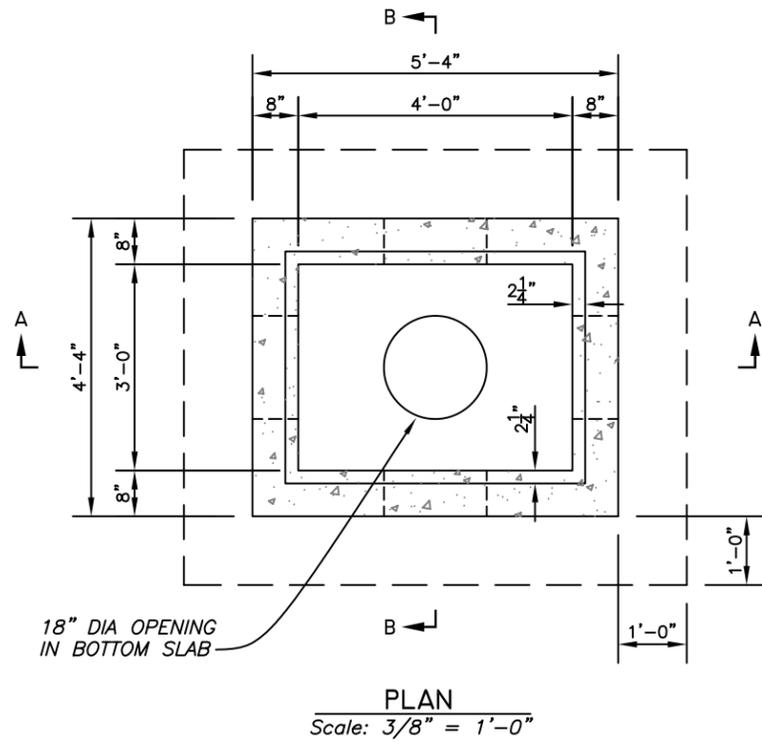
CITY of TAMPA  
STORMWATER DEPARTMENT

MISCELLANEOUS DETAILS

W.O.  
SHEET  
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OF 30

NOTE:

1. Open-bottom inlet shown herein is intended to be used at portable-pump locations (see temporary force main and pumping standards). For other open-bottom inlet applications, refer to FDOT Index #201 for guidance.
2. Follow Type "E" grate inlet standard for steel reinforcement of concrete.
3. For grate type and dimensions see Type "E" grate inlet standard.
4. A similar open-bottom substructure may be used in conjunction with City of Tampa curb type open-bottom inlets.
5. River gravel shall be clean and conform to D.O.T. specifications under Section 901-2 and shall meet ASTM size no. 4 gradation (1-1/2" to 3/4" size).
6. All exposed concrete corners and edges shall be chamfered 3/4".
7. Filter fabric shall meet FDOT Standard Specification 441-2.3.



3/8"

stormwaterdetails/open bottom

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

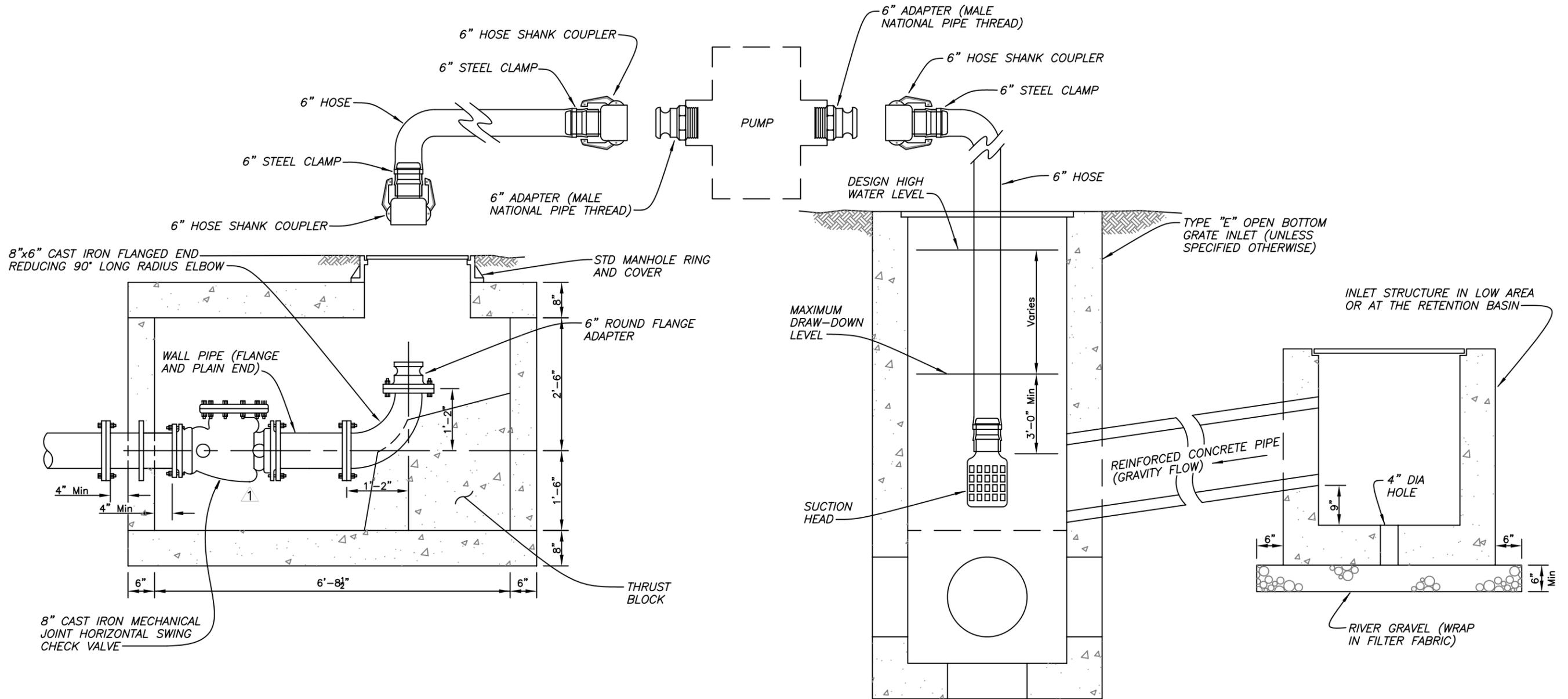
DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

CITY of TAMPA  
STORMWATER DEPARTMENT

STANDARD INLET DETAILS  
OPEN BOTTOM INLET (TYPE "E")

W.O.  
SHEET  
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OF 30

stormwater idetails/temp pump



**SECTION**  
Scale: 1/2" = 1'-0"

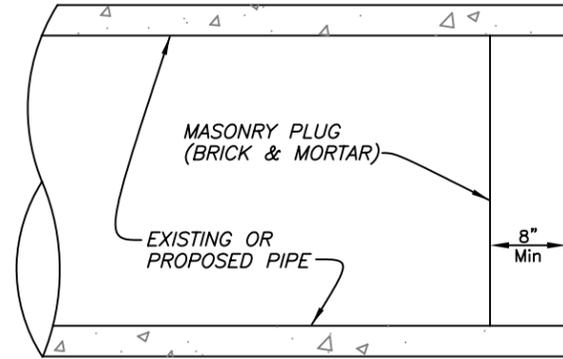
No.	DATE	REVISIONS	No.	DATE	REVISIONS
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2			5		
1	12/09/04	INCLUDED VALVE IN VAULT	4		

DES: Storm  
DRN: Storm  
CKD:  
DATE:

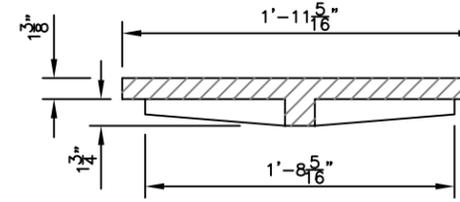
**CITY of TAMPA**  
**STORMWATER DEPARTMENT**

**TEMPORARY FORCE MAIN AND  
PUMPING STANDARDS**

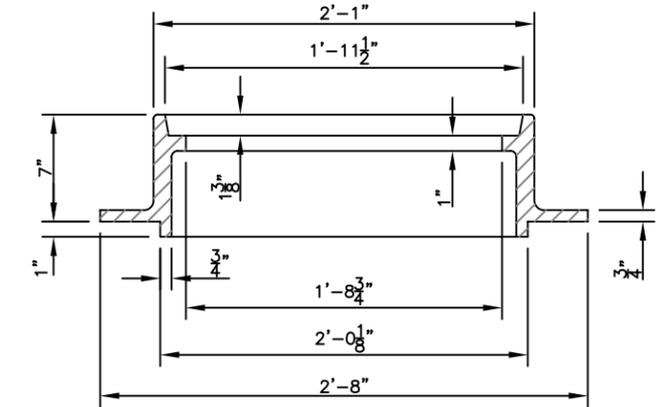
W.O.  
SHEET  
**27**  
OF 30



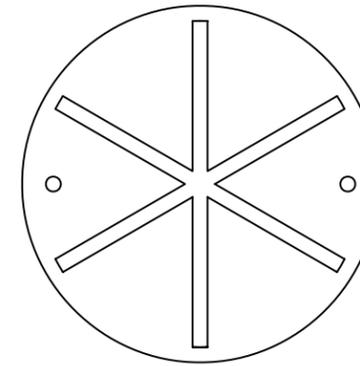
**PIPE PLUG**  
Not To Scale



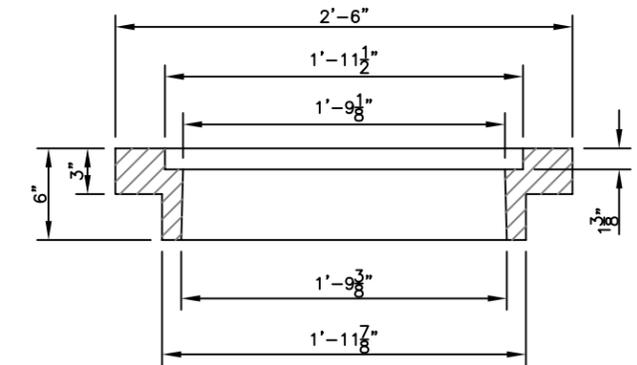
COVER SECTION



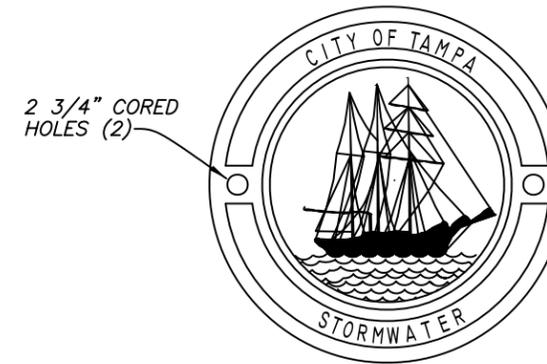
STANDARD FRAME SECTION



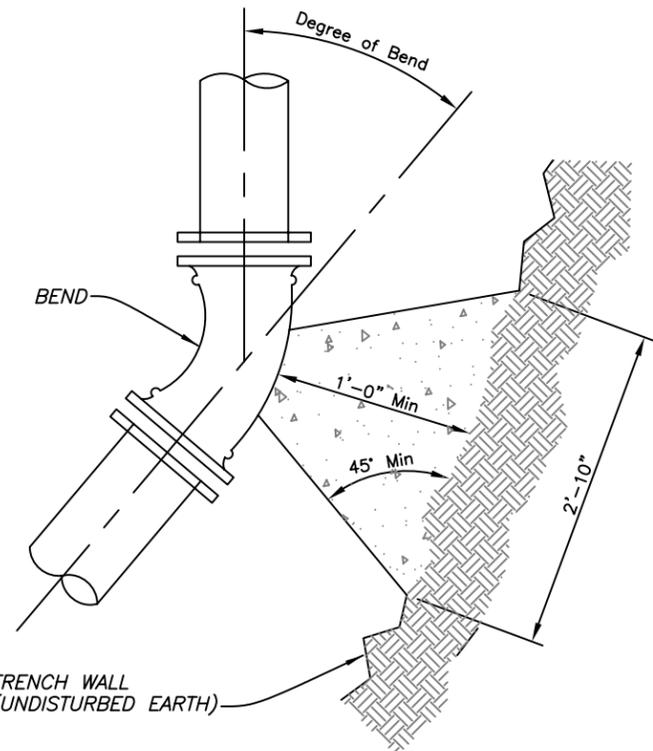
COVER BACK



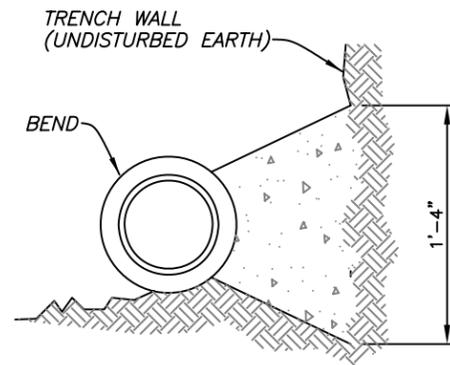
INVERTED FRAME SECTION



COVER FACE



**THRUST BLOCK**  
Not To Scale



**NOTES:**

1. Concrete shall be kept at sufficient distance from joints for removal of all joint accessories including bolts.
2. All bearing surfaces are to be carried to undisturbed soil.
3. Poor soil (silty soils, clay, muck or peat) will require larger thrust blocks.

**MANHOLE FRAMES & COVER**

Not To Scale

NOTE:  
Manhole structures shall be per FDOT Standard Index #200.

1/2"

stormwater details/ misc details

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: Storm  
DRN: Storm  
CKD:  
DATE: 7/03

**CITY of TAMPA**  
STORMWATER DEPARTMENT

MISCELLANEOUS DETAILS

W.O.

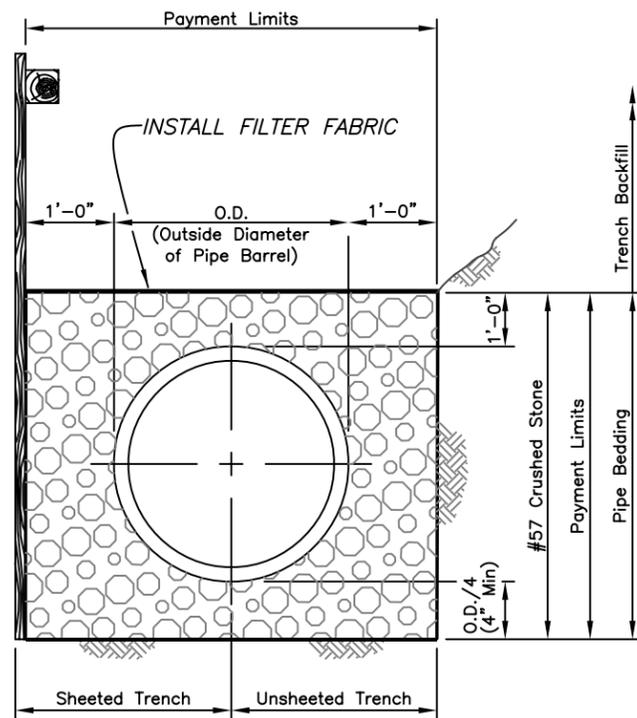
SHEET

**28**

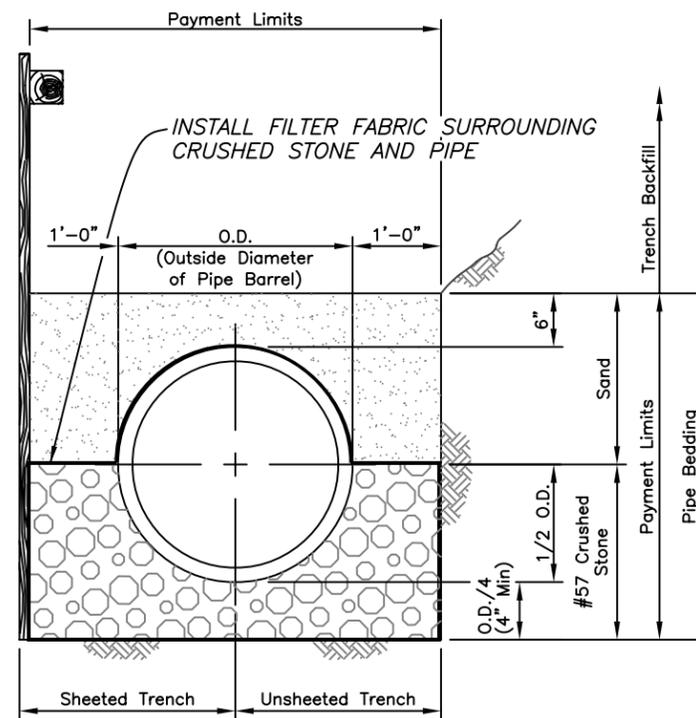
OF 30

Notes:

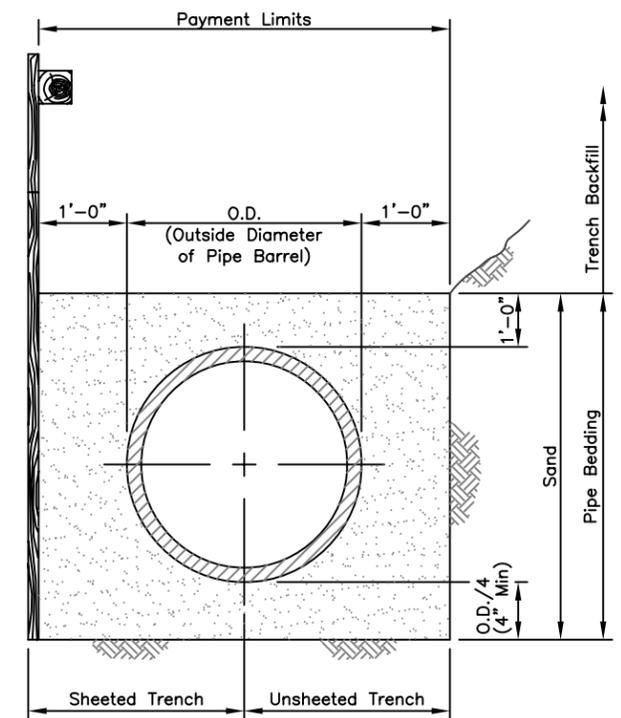
1. All types of pipe bedding shall extend to undisturbed earth at sides and bottom of the trench.
2. Sand and crushed stone pipe bedding shall be placed and compacted in accordance with specifications.
3. Bedding materials shall meet project specifications for Class B and Class C Bedding.
4. Filter fabric shall meet FDOT Standard Specification 441-2.3.



CLASS B-I BEDDING



CLASS B BEDDING



CLASS C BEDDING

Misc. Details

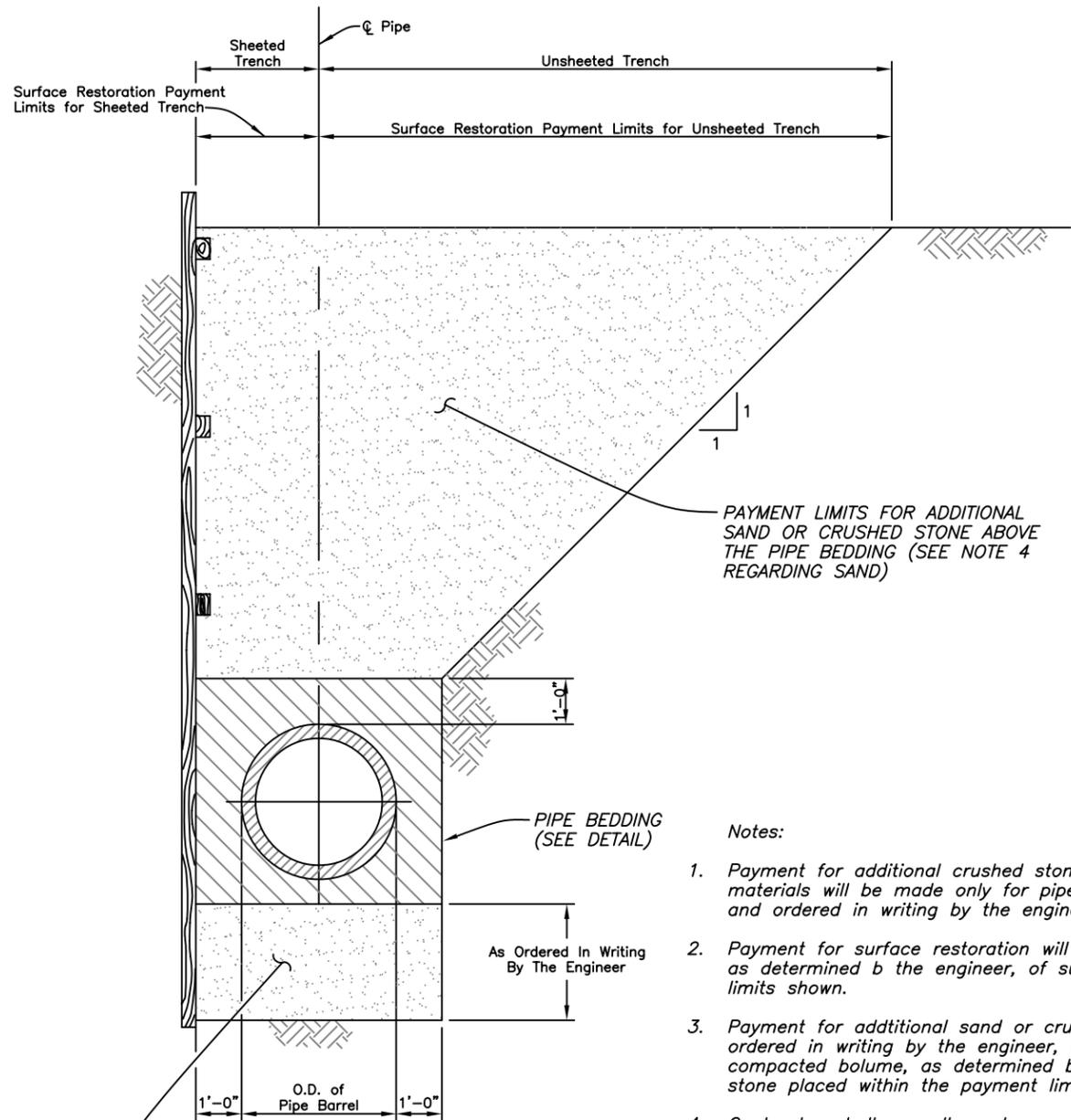
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1	12/09/04	NEW SHEET	4		

DES: STORM  
DRN: STORM  
CKD:  
DATE:

**CITY of TAMPA**  
STORMWATER DEPARTMENT

BEDDING DETAILS

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SHEET  
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PAYMENT LIMITS FOR ADDITIONAL SAND OR CRUSHED STONE ABOVE THE PIPE BEDDING (SEE NOTE 4 REGARDING SAND)

PAYMENT LIMITS FOR ADDITIONAL SAND OR CRUSHED STONE BELOW THE PIPE BEDDING (SEE NOTE 4 REGARDING SAND)

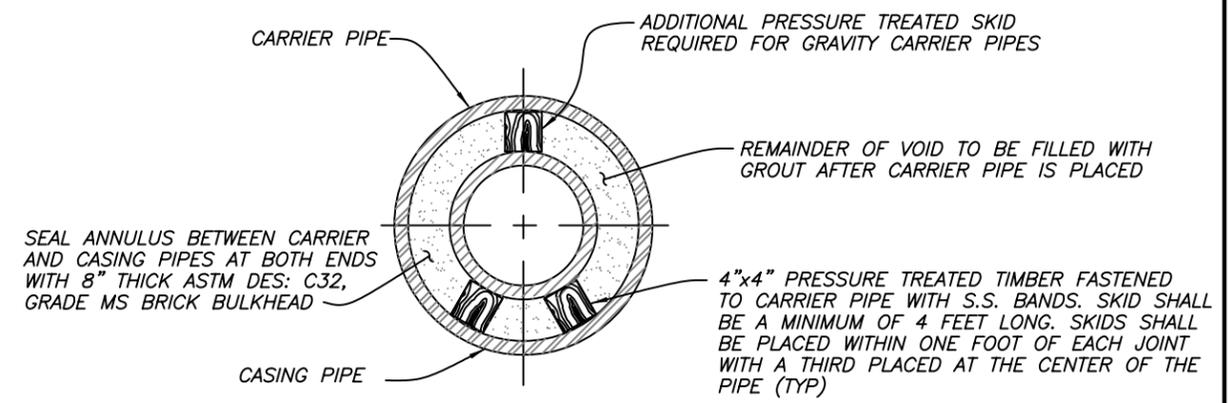
Notes:

1. Payment for additional crushed stone of Class D concrete pipe bedding materials will be made only for pipe bedding not shown in the plans and ordered in writing by the engineer.
2. Payment for surface restoration will be made for the actual quantities, as determined by the engineer, of surface restored within the payment limits shown.
3. Payment for additional sand or crushed stone for trench stabilization, ordered in writing by the engineer, will be made for the actual compacted volume, as determined by the engineer, of sand or crushed stone placed within the payment limits shown.
4. Contractor shall use all surplus sand, approved as suitable, from excavations in this contract prior to supplying sand from other sources. Payment for additional sand will be made only for sand supplied from sources other than excavations in this contract. See specifications for materials requirements.

PAYMENT LIMITS FOR SURFACE RESTORATION AND ADDITIONAL SAND OR CRUSHED STONE FOR TRENCH STABILIZATION

Not To Scale

QUANTITIES FOR PAYMENT FOR ADDITIONAL PIPE BEDDING MATERIALS ORDERED IN WRITING BY THE ENGINEER											
NOMINAL INSIDE DIAMETER (INCHES)	15	18	24	30	36	42	48	54	60	66	72
CUBIC YARDS OF CONCRETE PER LINEAR FOOT OF PIPE IN CONCRETE ENCASEMENT	0.258	0.299	0.383	0.472	0.588	0.690	0.797	0.909	1.027	1.150	1.279
CUBIC YARDS OF CONCRETE PER LINEAR FOOT OF PIPE IN CLASS A BEDDING (CONCRETE CRADLE)	0.128	0.150	0.192	0.236	0.294	0.345	0.399	0.455	0.514	0.514	0.640
CUBIC YARDS OF CRUSHED STONE PER LINEAR FOOT OF PIPE IN CLASS B-1 BEDDING	0.304	0.362	0.479	0.608	0.781	0.936	1.103	1.281	1.471	1.673	1.887
CUBIC YARDS OF CRUSHED STONE PER LINEAR FOOT OF PIPE IN CLASS B BEDDING	0.111	0.143	0.207	0.280	0.381	0.475	0.578	0.590	0.810	0.939	1.078



Notes:

1. Stainless steel casing spacers as manufactured by Cascade or equal may be used rather than a timber skid system.
2. All casing pipes shall be welded steel pipe conforming to ASTM DES A139 Grade B or ASTMDES A53 Grade B, having a minimum inside diameter as indicated on plans. The minimum wall thickness shall be 3/8" or thicker if so indicated on the plan and profile drawings.

CORRESPONDING CARRIER AND CASING PIPE SIZES											
NOMINAL INSIDE DIAMETER OF CARRIER PIPE (INCHES)	15	18	24	30	36	42	48	54	60	66	72
MINIMUM INSIDE DIAMETER OF CASING PIPE (INCHES)	30	36	48	60	60	66	78	84	90	96	102

DETAIL OF JACKED CROSSINGS

Not To Scale

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Misc. Details

No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STORM	CITY of TAMPA STORMWATER DEPARTMENT	PAYMENT LIMITS & JACKED CROSSINGS	W.O.
3			6			DRN: STORM			SHEET
2			5			CKD:			30
1	12/09/04	NEW SHEET	4			DATE:			OF 30