



CITY OF BONNER SPRINGS

STANDARD DRAWINGS

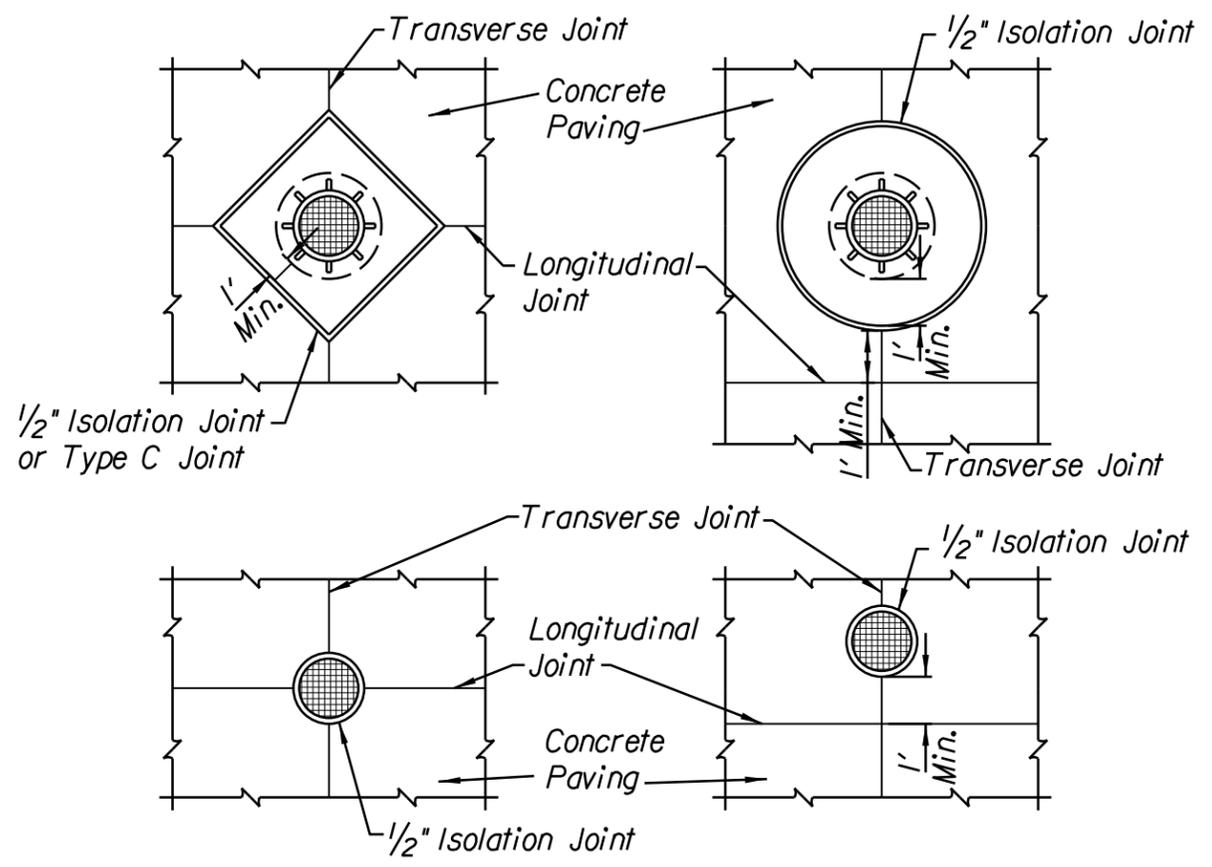
ADOPTED JULY 11, 2005

Rev. December 7, 2012

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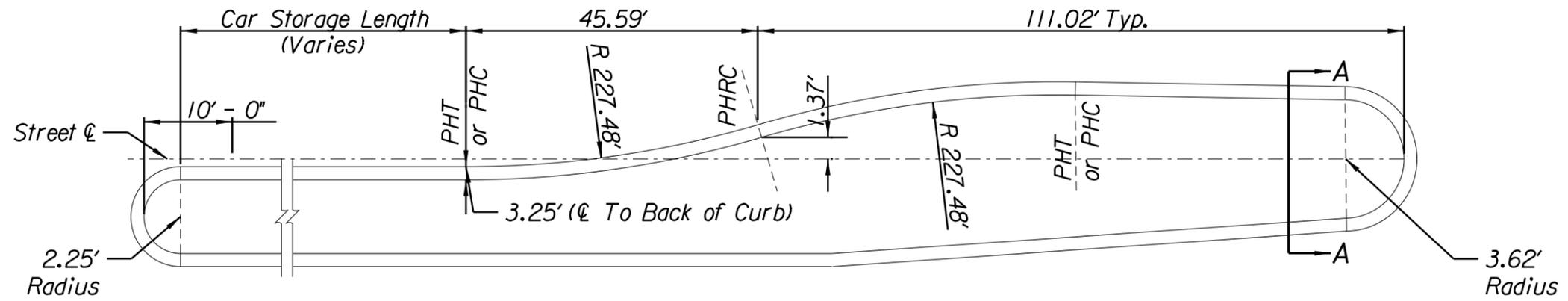
<u>DRAWING NUMBER</u>	<u>DESCRIPTION</u>
22-1	CONCRETE PAVING STRUCTURE DETAILS
22-2	TYPICAL MEDIAN DETAIL
22-3	PAVEMENT PATCHING DETAILS
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File: MATRNL-100-514-000-00 - Project - Discipline: Stormwater - Design: General - 2/16/2011 8:25:00 AM - 25:00:00 - 2/16/2011 8:25:00 AM - B. J. Hansen

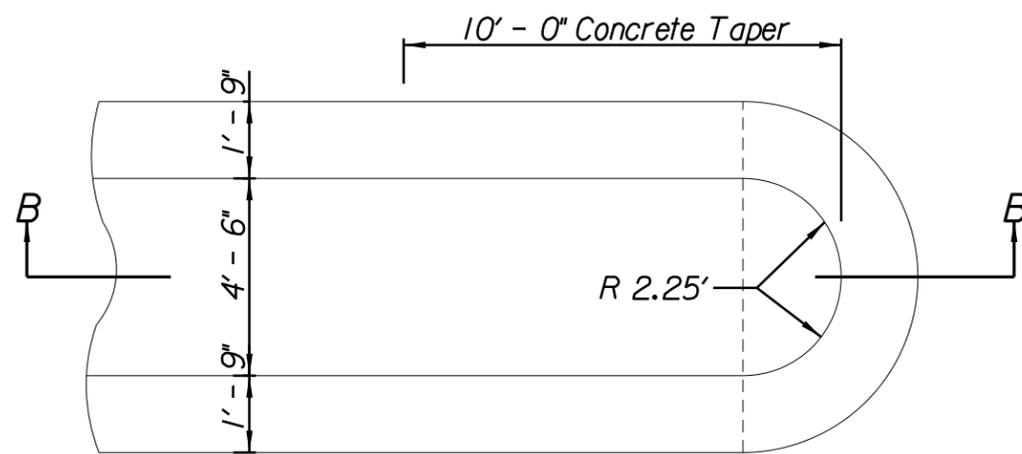


CONCRETE PAVING STRUCTURE DETAILS
 N.T.S.

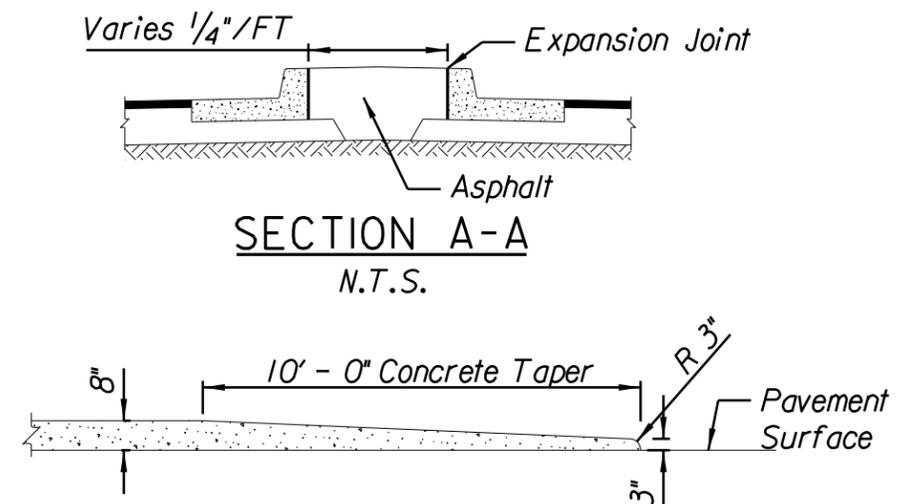
CITY OF BONNER SPRINGS		
ADOPTED: 07-11-2005		DRAWING TITLE
REVISIONS General Revisions	DATE 8/15/2011	BY WFL
		STANDARD DETAIL
		CONCRETE PAVING STRUCTURE DETAILS
		22-1



PLAN
N.T.S.



PLAN
N.T.S.



SECTION A-A
N.T.S.

SECTION B-B
N.T.S.

NOSE DETAIL LEFT TURN BAY ISLANDS
N.T.S.



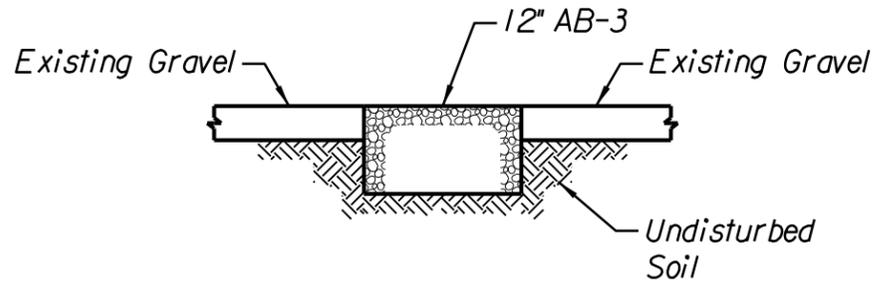
CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005		
REVISIONS	DATE	BY
General Revisions	8/15/2011	WFL

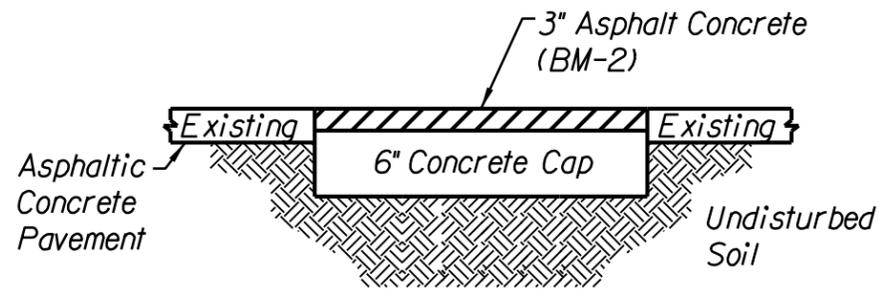
DRAWING TITLE
TYPICAL MEDIAN DETAIL

STANDARD DETAIL
22-2

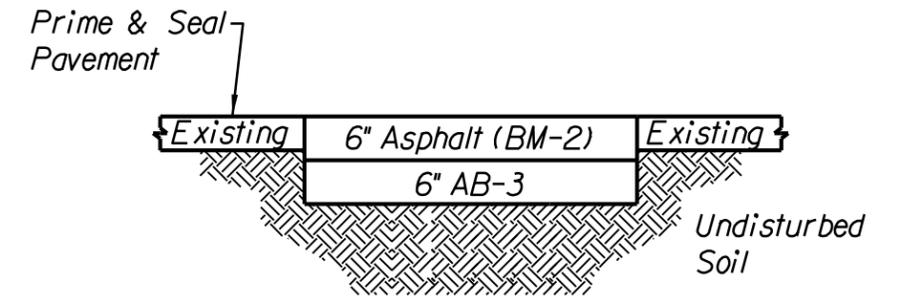
File: MATRNL1-100-514-000-00 - Project - Disciplines: Stormway - Design: Bgreen21061818_25over\del22-2.dwg
 Times: 3/20/18 PM
 By: B. Johnson



GRAVEL STREET & DRIVEWAY DETAIL
N.T.S.



STREET PATCH DETAIL
N.T.S.



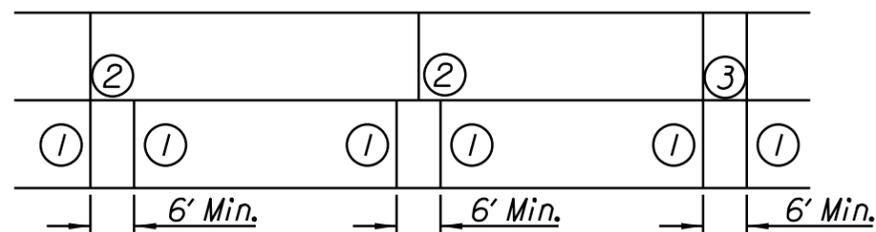
PRIME & SEAL STREET PATCH DETAIL
N.T.S.

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 Times: 3:40:50 PM
 By: B. J. Hansen



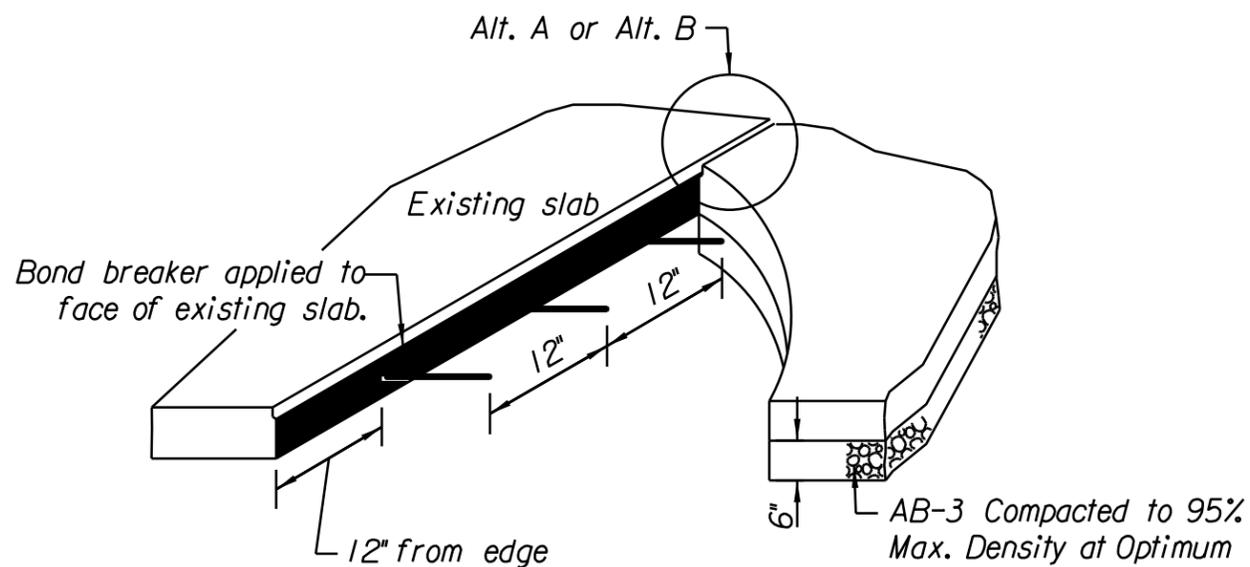
CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	PAVEMENT PATCHING DETAILS	22-3
General Revisions	8/15/2011	WFL		

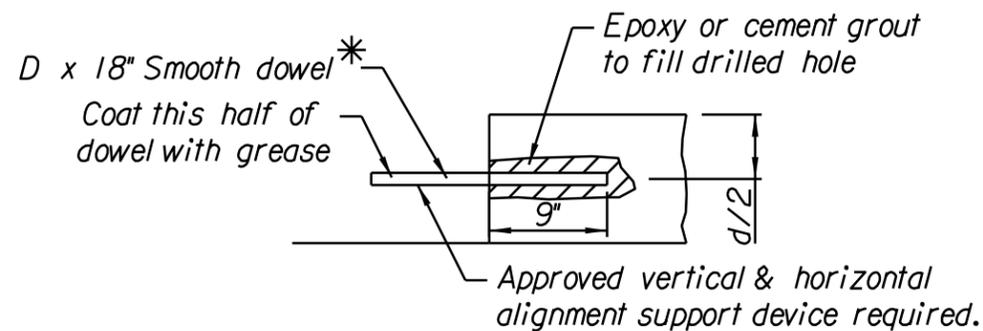


PLAN
N.T.S.

- ① - Butt type joint with smooth dowel bars, use bond breaker.
- ② - Butt type joint, use bond breaker.
- ③ - Butt type joint (lanes poured separately).



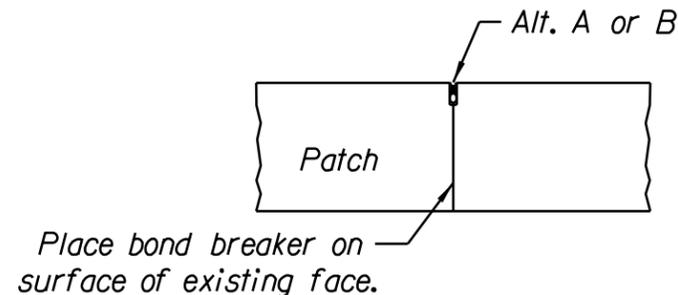
TYPE ① - Contraction Joint
N.T.S.



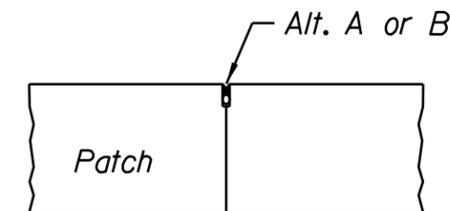
TYPE ① - Detail
N.T.S.

*Dowel sizes used shall be selected as follows:

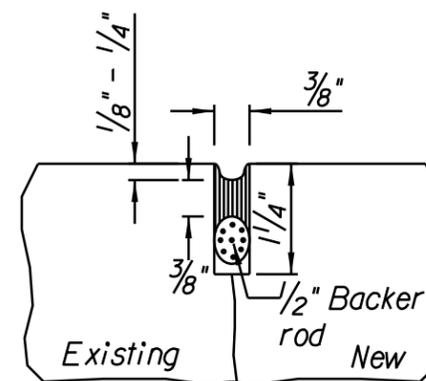
- 8" Thick Pavement - Use 1" Dia.
- 9" Thick Pavement - Use 1-1/8" Dia.
- 10" Thick Pavement - Use 1-1/4" Dia.
- 11" Thick Pavement - Use 1-3/8" Dia.
- 12" Thick Pavement - Use 1-1/2" Dia.



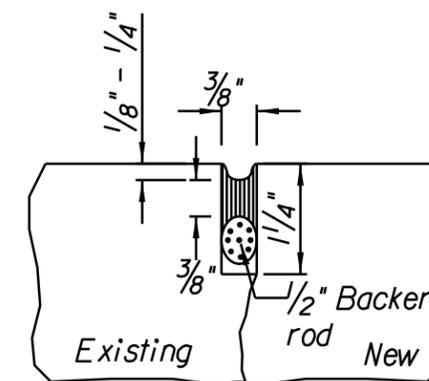
TYPE ② - Centerline Joint
N.T.S.



TYPE ② - Centerline Joint
(Full Width Patch)
(Two Lanes Poured Separately)
N.T.S.



Alt. A - Sawed
N.T.S.



Alt. B - Formed
N.T.S.

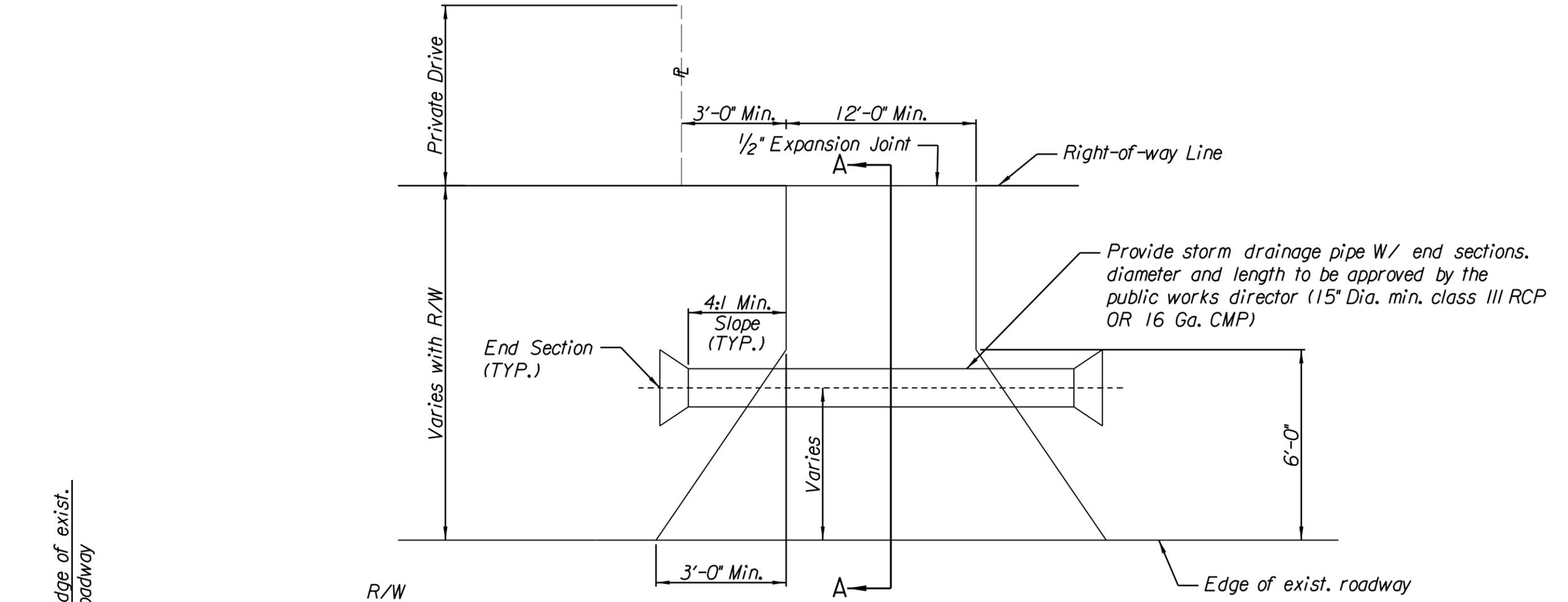
Note: When practical it should be a general practice to construct slabs the same length as those being repaired. A patch must be at least 6' in length. It can be as long as 30'. However, when the patch exceeds 15' the patch must contain welded wire mesh reinforcement. This mesh shall consist of W4 longitudinal wire at 6" spacing and W4 transverse wire at 12" spacing. Mesh shall be placed at mid-depth of slab and shall extend to within 6" of the longitudinal edge and to within 9" of the transverse edge of the patch. If a continuous repair exceeds 30' then the repair should be divided into as many 30' slabs as possible. If the remaining portion is between 1' and 5' combine it with the last 30' segment and divide it into equal parts. If the remaining portion is between 6' and 29' leave as is. The above does not prevent the contractor from using 15' slab lengths throughout.



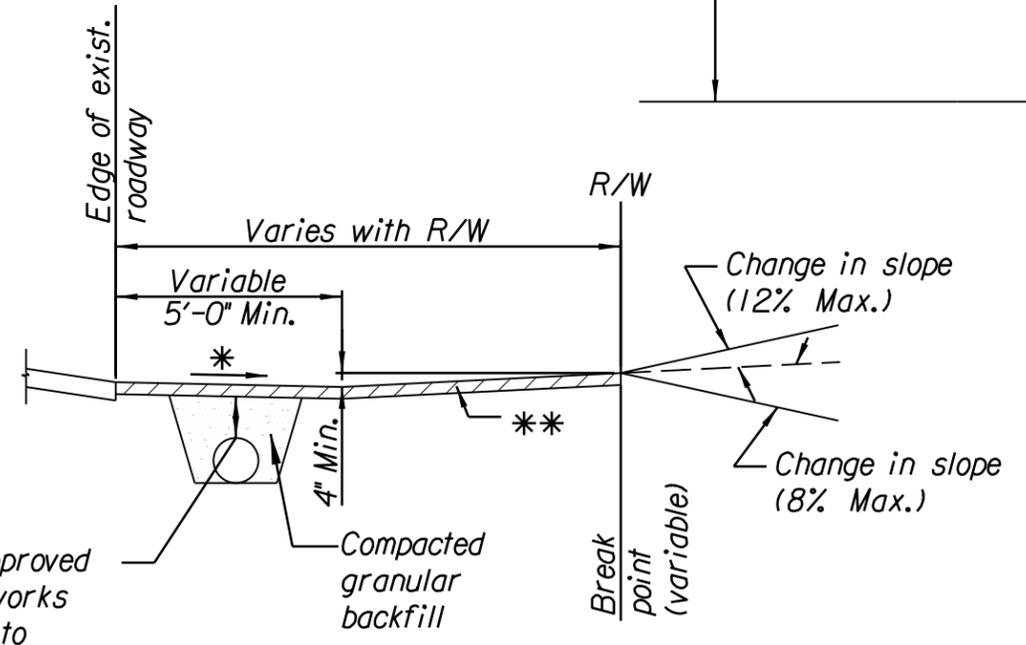
CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	RIGID PAVEMENT JOINT REPAIR	22-4
Updated Notes for Dowels	2/28/2011	WFL		
General Revisions	8/15/2011	WFL		

File: MATRNL-100-514-000-00 - Project - Disposal Lines Stormway - Design - Bonner Springs - 2/16/2011 8:25:00 AM - 23-1.dwg
 Times: 3:40:58 PM - Eric Johnson



PLAN
N.T.S.



SECTION A-A
N.T.S.

Depth to be approved by the public works director prior to installation.

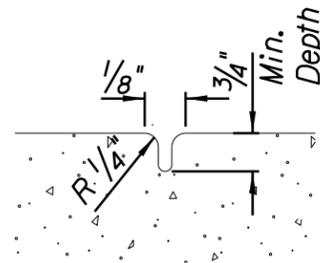
* Match exist. roadway crown (0.5% Min. - 2% Max.)

** For residential zoning districts:
4" Min. hot mix asphalt (BM-2)
For agricultural zoning districts:
6" Min. rock (AB-3)

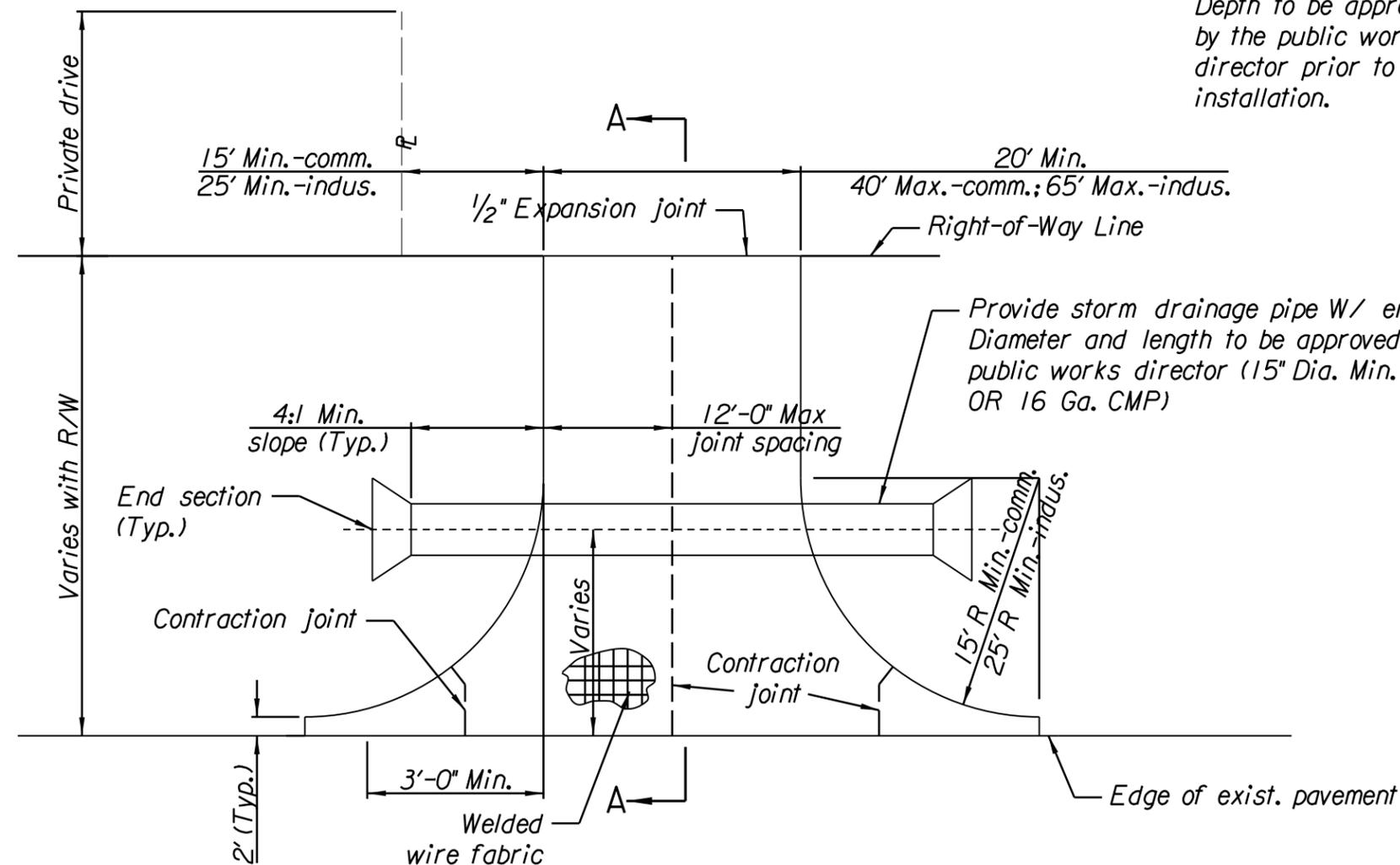


CITY OF BONNER SPRINGS

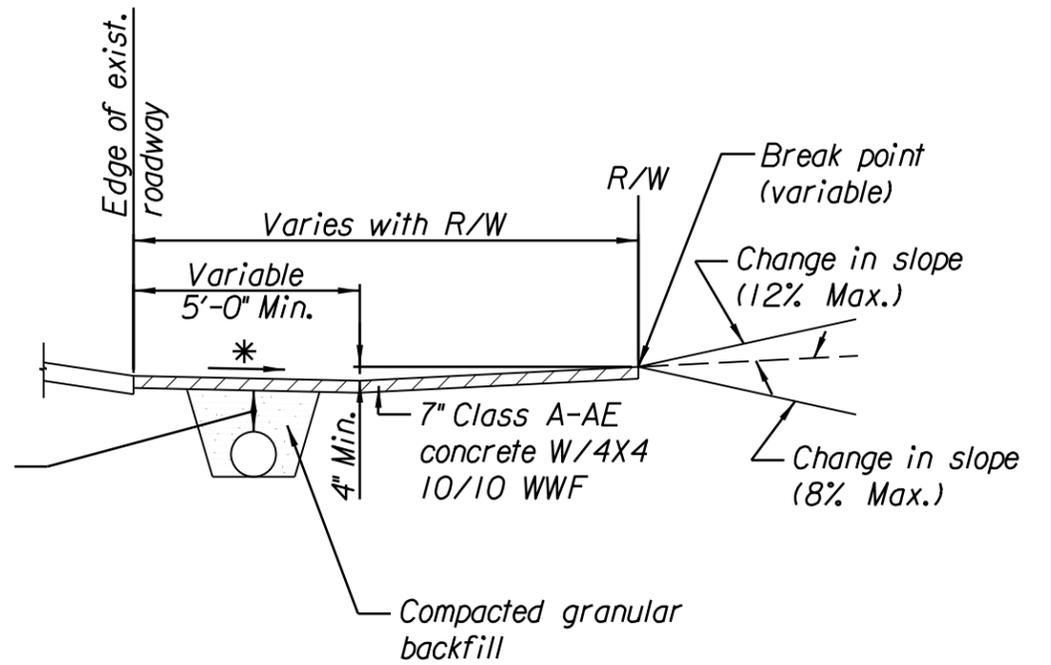
ADOPTED: 07-11-2005			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	RESIDENTIAL DRIVE ADJACENT TO NON-CURBED STREET	23-1
General Revisions	8/15/2011	WFL		



CONTRACTION JOINT
N.T.S.



PLAN
N.T.S.



SECTION A-A
N.T.S.

* Match exist. roadway crown
(0.5% Min. - 2% Max.)

File: MATERNAL-100-514-000-0-0-ProJect-Disciplines/Stormway-Design/Sheet 23-2.dwg
 Design: Bryan 2/16/2011 2:50:00 PM
 Times: 3:41:00 PM
 Plot: 8/15/2011 10:00:00 AM



CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005

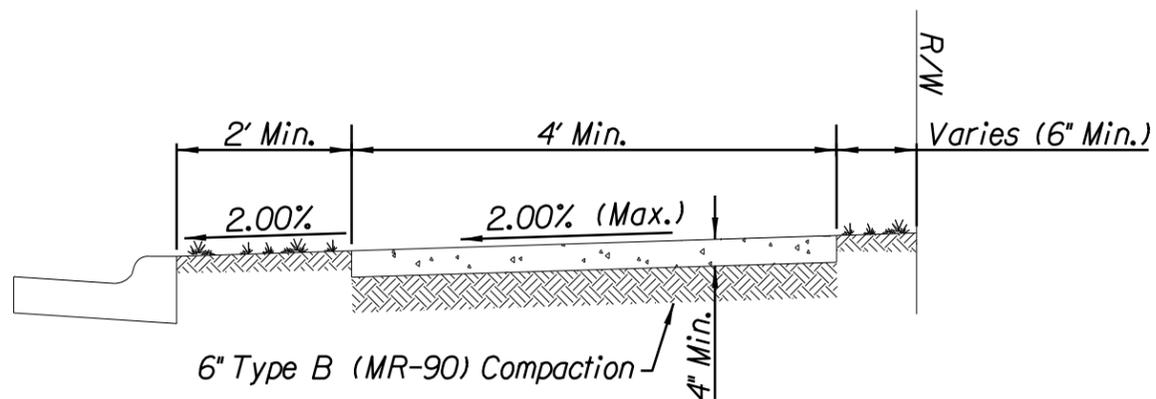
REVISIONS	DATE	BY
General Revisions	8/15/2011	WFL

DRAWING TITLE

**COMMERCIAL AND INDUSTRIAL DRIVE
ADJACENT TO
NON-CURBED STREET**

STANDARD DETAIL

23-2



TYPICAL SIDEWALK

N.T.S.

NOTES:

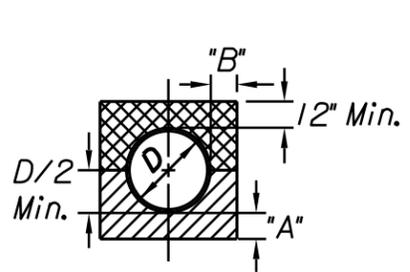
1. Joints shall be formed at right angles to the alignment of the sidewalk and to the depths indicated below.
2. The sidewalk shall be marked off into square sections by contraction joints. Contraction joints shall be one-eighth (1/8) inch wide by one (1) inch deep and may be formed by tooling or by use of a concrete saw.
3. Expansion joints shall be formed by a one-half (1/2) inch thick preformed joint filler, extending the full depth of the slab, and secured so that they are not moved by depositing and compacting the concrete at these joints.
4. Expansion joints shall be placed where sidewalk abuts other structures and shall not be spaced more than 50 feet apart on straight runs for hand laid sidewalk and not more than 100 feet apart on straight runs for machine laid sidewalks.
5. Sidewalks shall conform to the latest ADA guidelines.

File: MATRNL-100-514-000-00 - Pro. Det. - Disciplines: Sidewalk - Design: General: 2/16/2011 2:56:00 PM - 2/16/2011 2:56:00 PM - 2/16/2011 2:56:00 PM

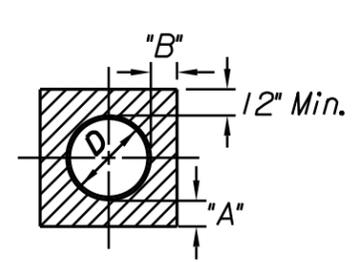
 CITY OF BONNER SPRINGS		
ADOPTED: 07-11-2005		DRAWING TITLE
REVISIONS General Revisions	DATE 8/15/2011	BY WFL
		STANDARD DETAIL
		SIDEWALK DETAIL
		23-4

"P" Area of Transverse Steel Exposed as a % of Concrete Area at Crown Reinforcing by Engineer As Follows:
 #3 Bars @ 6" O.C.E.W.

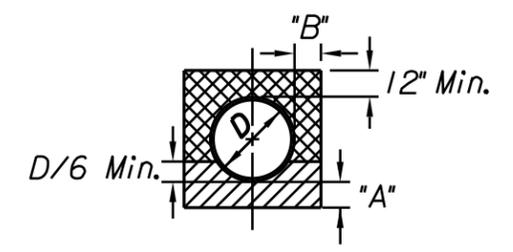
Class "A" Concrete Embedment



Class "B" Embedment First Class



Class "B" Embedment First Class Modified



Class "C" Embedment

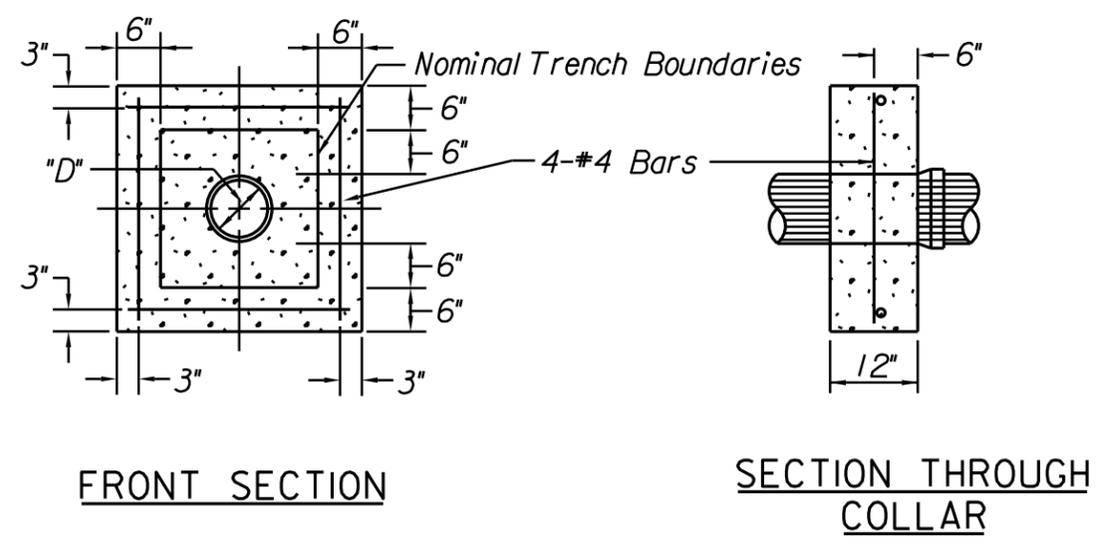
TYPE	P	LOAD FACTOR
Reinforced	0.40%	3.5
Reinforced	1.00%	4.8
Plain		2.8

D	ROCK		SOIL	
	A	B	A	B
4"-18"	6"	6"	4"	6"
21"-24"	9"	7"	4"	7"
27"-30"	9"	8"	4"	8"

- Hand Placed & Hand Tamped Backfill
- Granular Fill
- Concrete

"D" Nominal Pipe Diameter
 "A" Fill Below Pipe (See Table)
 "B" Side Clearances (See Table)

STANDARD EMBEDMENTS
 N.T.S.



FRONT SECTION

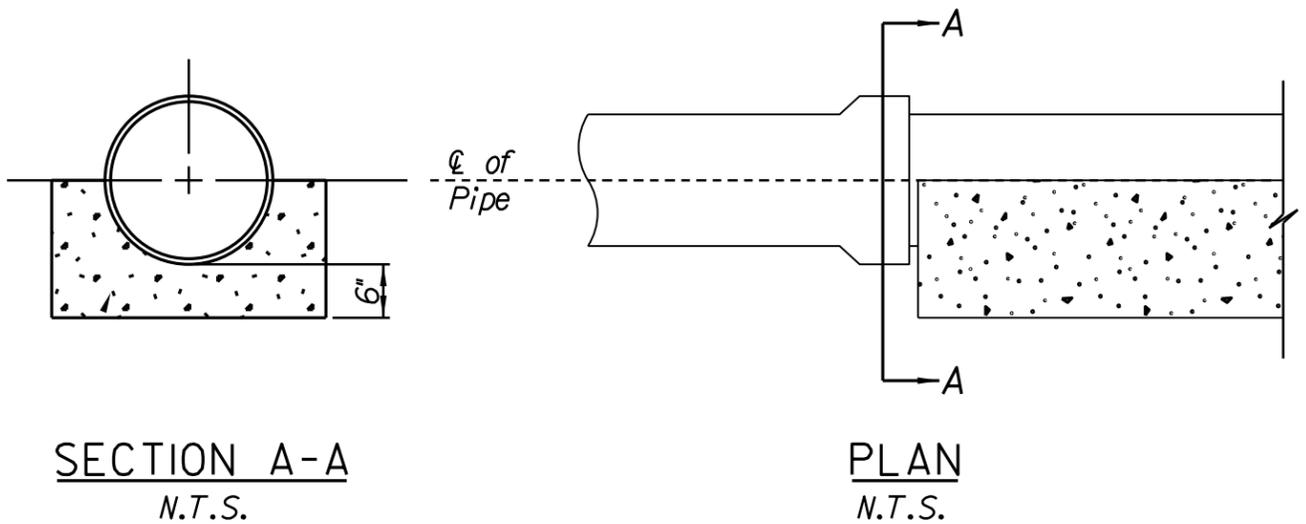
SECTION THROUGH COLLAR

CONCRETE COLLAR DETAIL
 N.T.S.

			CITY OF BONNER SPRINGS	
ADOPTED: 07-11-2005		DRAWING TITLE		STANDARD DETAIL
REVISIONS	DATE	BY	EMBEDMENTS FOR SEWER CONDUIT	25-1
Embedment Changes	11/2/2007	ARW		
General Revisions	8/15/2011	WFL		
General Revisions	12/7/2012	ARW		

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 Times: 3/11/14 PM
 By: J. Johnson

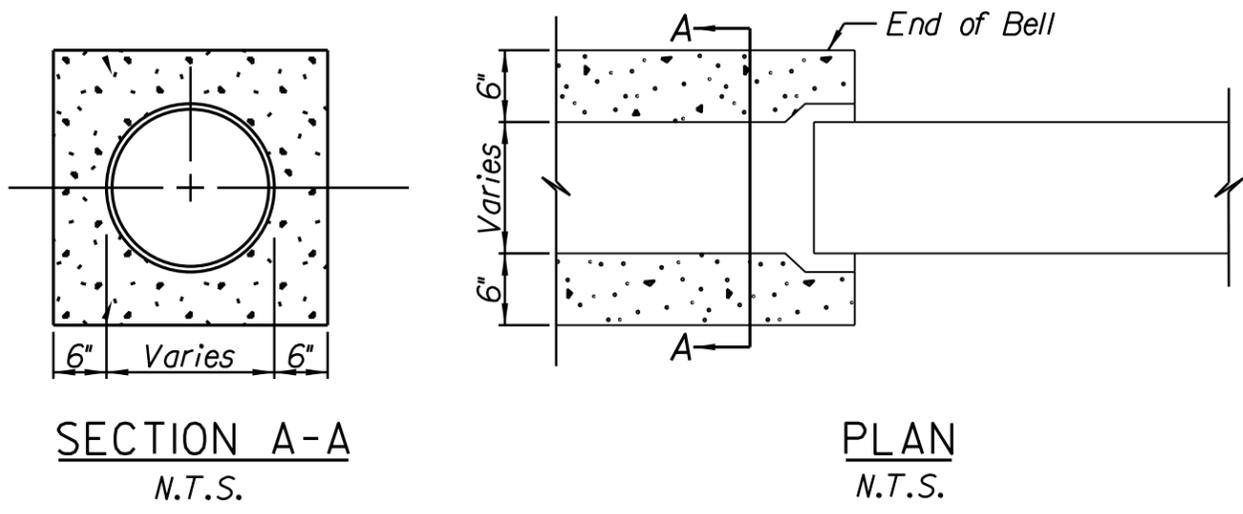
File: MATERN I-100-514-000-00 - Pro. Det. - Disciplines: Stormway - Design: 21/06/2011 2:58:25 PM - 3/4/11 1:16 PM - Eric Johnson



Note:
 All Concrete Shall Be MCIB A618-1-4 (4000 P.S.I. Concrete).
 The Min. Thickness, Sides and Bottom, Shall be 6". The
 Top of The Concrete Shall Be at Least to the Center
 of the Pipe.

 CITY OF BONNER SPRINGS		
ADOPTED: 07-11-2005		DRAWING TITLE
REVISIONS General Revisions	DATE 8/15/2011	BY WFL
CONCRETE CRADLE DETAIL		
STANDARD DETAIL 25-2		

File: MATERN I-100-514-000-00 - Pro. Det - Disciplines: Stormway - Design: 2/19/2011 2:58:25 PM - 25-3.dwg
 Time: 3/11/19 PM - Eric J. Johnson



SECTION A-A
N.T.S.

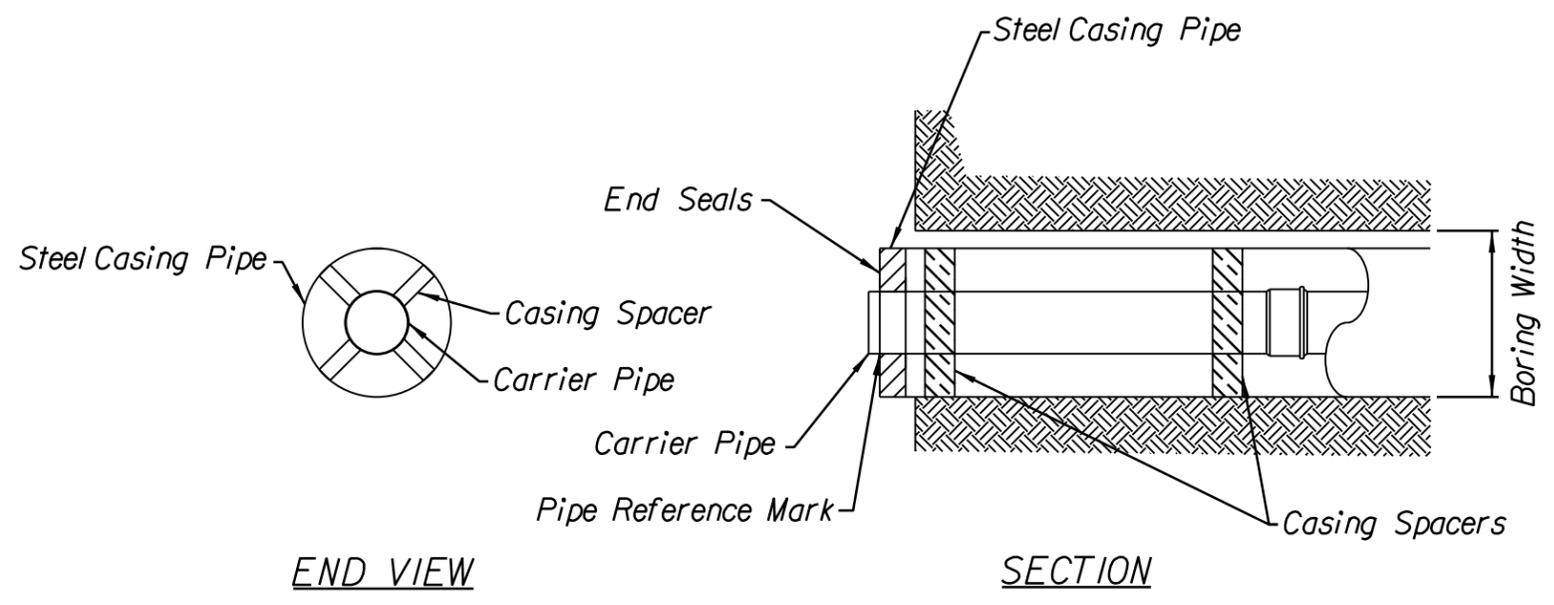
PLAN
N.T.S.

PIPE DIA.	CONCRETE QUANTITIES PER LINEAR FOOT (FOR INFORMATION ONLY)
8"	0.11 CY/L.F.
10"	0.12 CY/L.F.
12"	0.14 CY/L.F.
15"	0.15 CY/L.F.

Note:
 All Concrete Shall Be MCIB A618-1-4 (4000 P.S.I. Concrete) With a Minimum Thickness (All Sides) of 6 Inches.

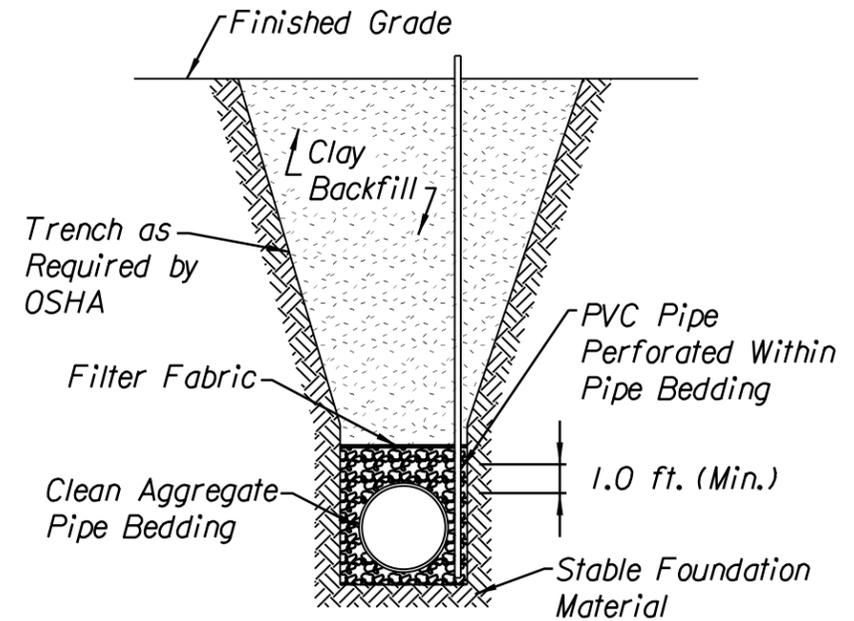
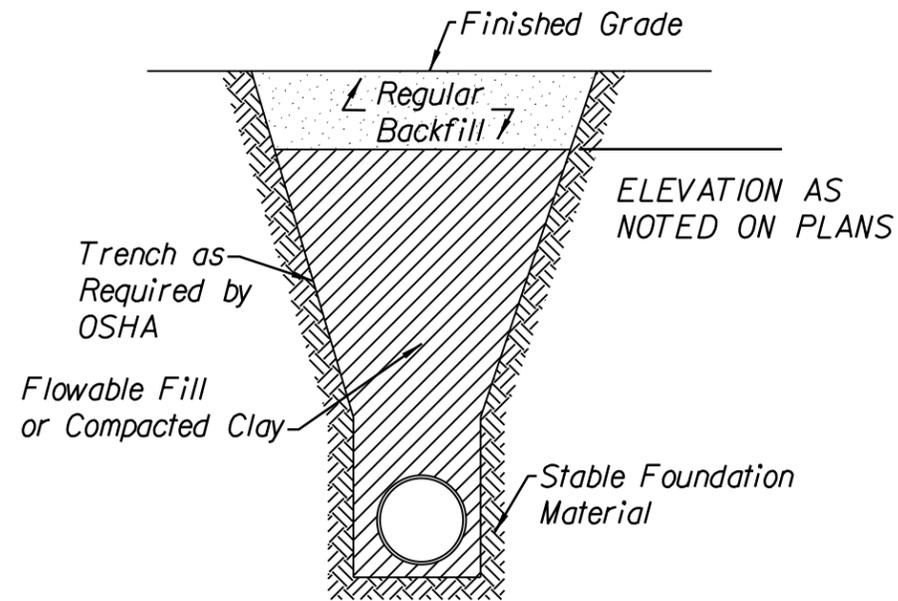
 CITY OF BONNER SPRINGS																	
ADOPTED: 07-11-2005	DRAWING TITLE	STANDARD DETAIL															
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REVISIONS	DATE	BY															
General Revisions	8/15/2011	WFL															

File: MAT:BNV1-100-514-000-00 - Project - Disciplines: Stormway - Design: Borewell 21/6/6/18 - 25sewer.vsd(25-4.dwg) - Times: 3/4/21 PM - By: J. Johnson



CASING PIPE AND END SEAL DETAIL
 N.T.S.

CITY OF BONNER SPRINGS		
ADOPTED: 07-11-2005	DRAWING TITLE	STANDARD DETAIL
REVISIONS General Revisions General Revisions	DATE 8/15/2011 12/7/2012	BY WFL ARW
CASING PIPE AND END SEAL DETAIL		25-4



NOTES:

Impervious ditch checks shall be placed where shown on the plans. Length (10' Min.) shall be as noted on the plans. Flowable fill shall consist of a Portland Cement grout having a minimum 28 day compressive strength of 500 psi. Compacted clay shall be compacted to obtain 90% of Max. density at optimum moisture +/- 2%.

Regular backfill (above ditch check) shall be free of debris, organic material, and stones > 12" in any dimension.

Top of impervious material shall be a minimum of 2'-0" below finished grade.

IMPERVIOUS DITCH CHECK DETAIL

N.T.S.

NOTES:

Preplaced-aggregate concrete shall be placed to the limits shown on the plans.

Clay backfill (above preplaced-aggregate concrete) shall be compacted to 95% Max. dry density at optimum moisture +/- 2%.

Top of preplaced-aggregate concrete shall be a minimum of 1'-0" above the top of the largest O.D. of the pipe (bell end).

Size and spacing of the perforations and spacing of PVC pipe longitudinal to the trench shall be determined by the contractor.

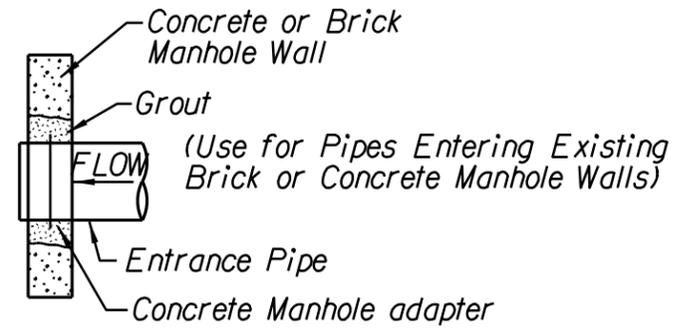
See specifications for additional requirements.

PREPLACED-AGGREGATE CONCRETE DETAIL

N.T.S.

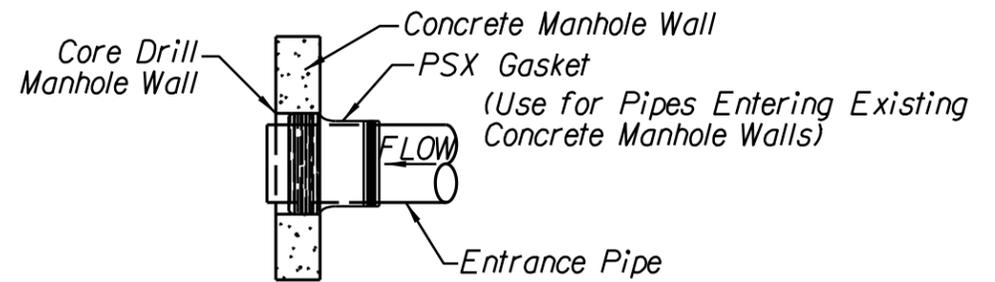
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 CITY OF BONNER SPRINGS			DRAWING TITLE		STANDARD DETAIL		
ADOPTED: 07-11-2005			DITCH CHECK DETAILS		25-7		
REVISIONS		DATE					BY
General Revisions		8/15/2011					WFL
General Revisions		12/7/2012	ARW				



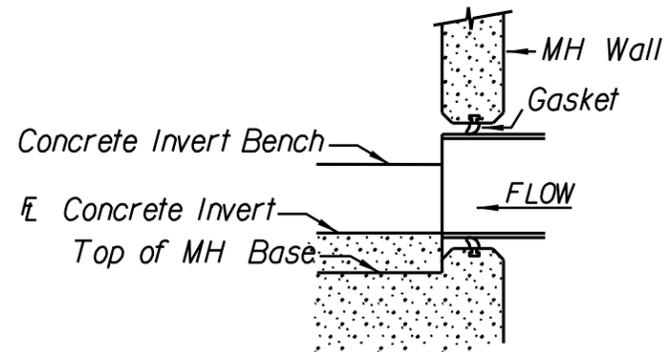
CONCRETE OR BRICK MANHOLE ADAPTER

N.T.S.



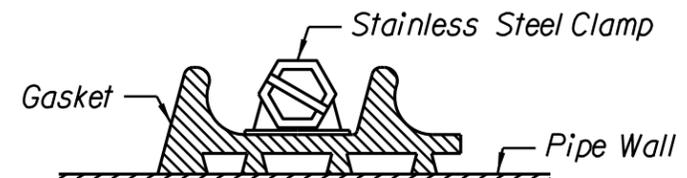
CONCRETE MANHOLE ADAPTER

N.T.S.



FLEXIBLE WALL CONNECTION

N.T.S.



WATERSTOP GASKET

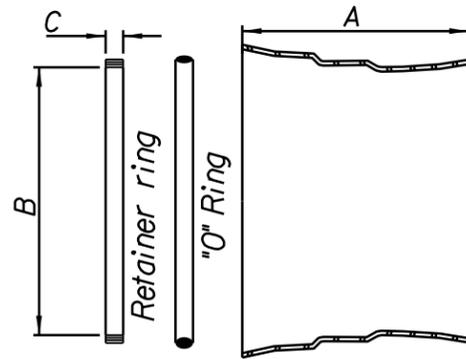
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 Times: 3/1/11 3:11 PM
 By: J. Hansen

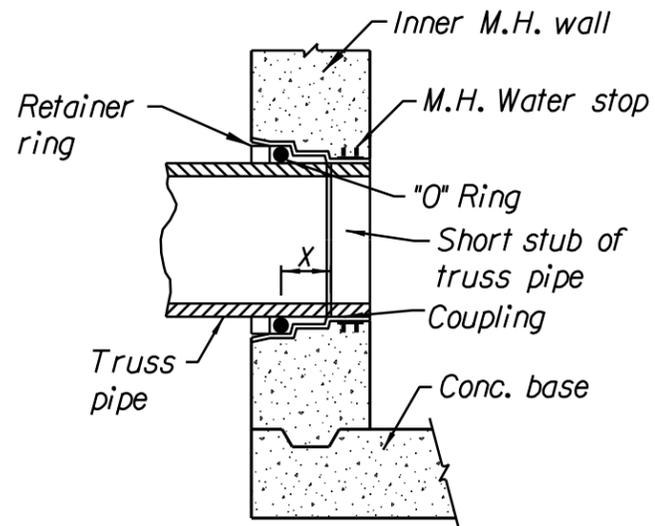


CITY OF BONNER SPRINGS

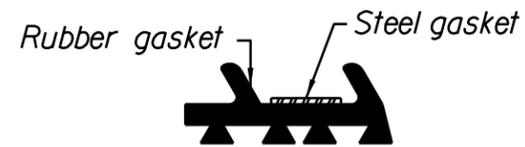
ADOPTED: 07-11-2005			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	TYPICAL M.H. CONNECTION DETAILS	25-8
Revise Flexible Wall Connection	10/26/2007	ARW		
General Revisions	8/15/2011	WFL		



COUPLING
N.T.S.



SECTION
N.T.S.



M.H. WATER STOP
N.T.S.

TABLE FOR DIM. X	
DIA.	X
8"	2"
10"	2 1/4"
12"	2 1/2"
15"	3"

DIM. TABLE FOR RINGS			
NOM. SIZE	A	B	C
4"	4.2"	4.3"	0.3"
6"	4.9"	6.3"	0.3"
8"	7.5"	9.4"	0.5"
10"	8.5"	11.8"	0.6"
12"	9.6"	14.1"	0.8"
15"	11.7"	17.6"	0.9"

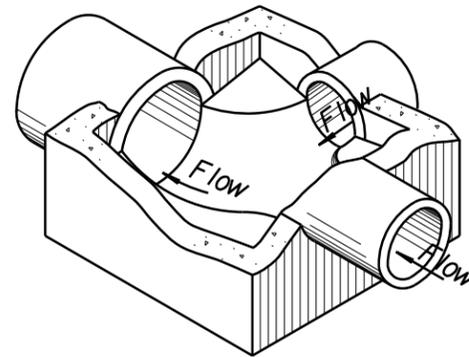
NOTES:

1. Place stop on pipe near center of manhole wall.
2. Tighten steel band to assure positive seal against pipe outside. A screwdriver may be used to take up initial slack, but a socket wrench (5/16") is preferred to insure proper tightness.
3. All methods and materials used shall be in accordance with the Manufacturer's recommendations.



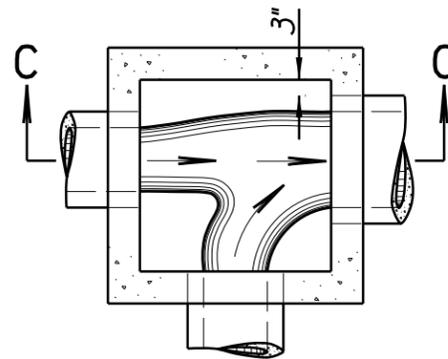
CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005		DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	
General Revisions	8/15/2011	WFL	
		M.H. CONNECTIONS W/TRUSS PIPE	25-9

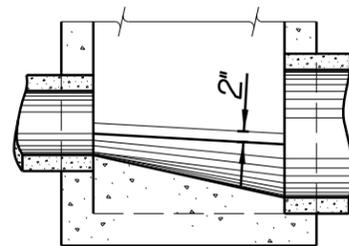


Floor of manhole shall be shaped as shown in the examples to increase hydraulic efficiency.

SHAPED MANHOLE INVERT ISOMETRIC
N.T.S.



SHAPED INVERT PLAN
N.T.S.

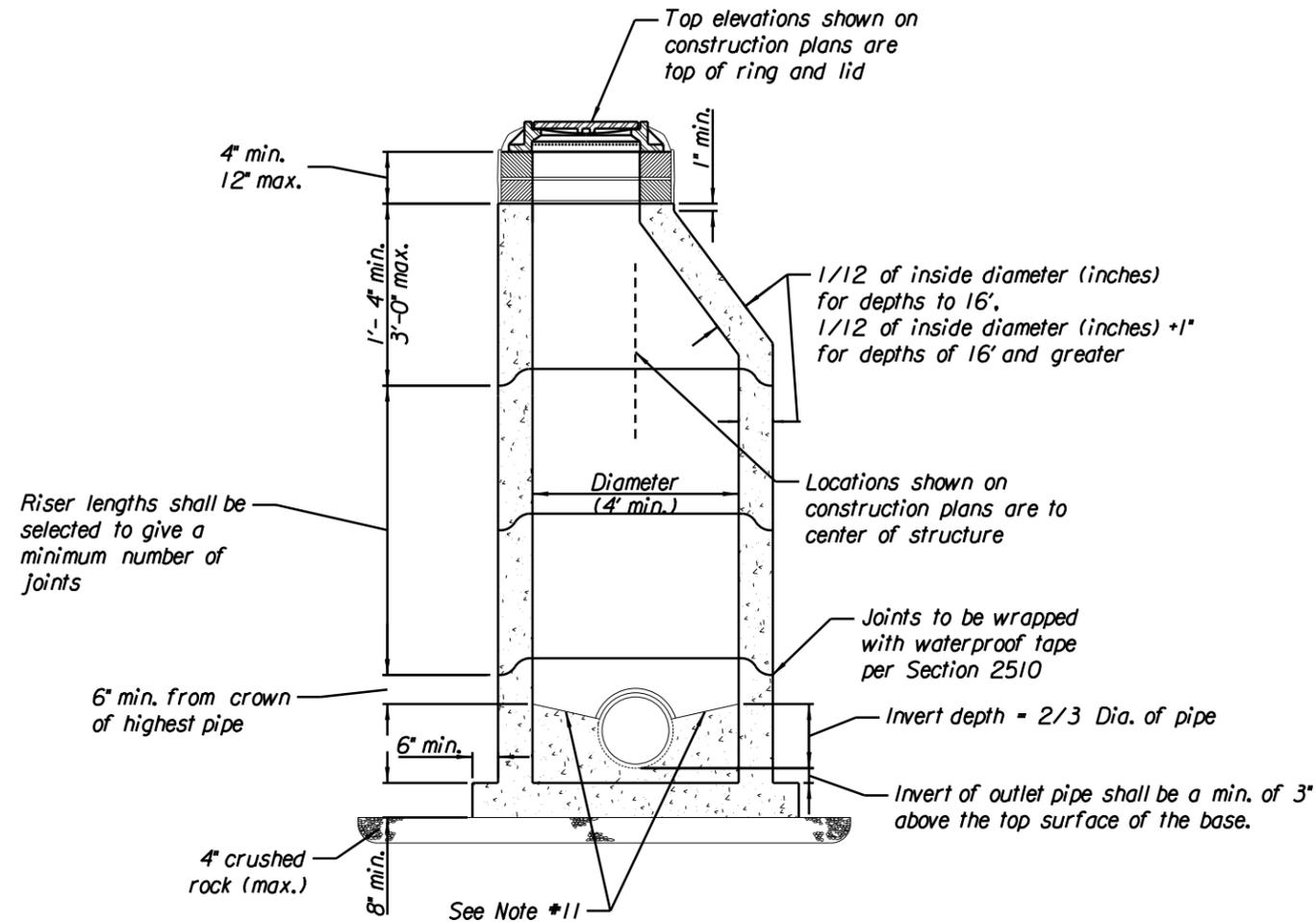


SHAPED INVERT SECTION C-C
N.T.S.

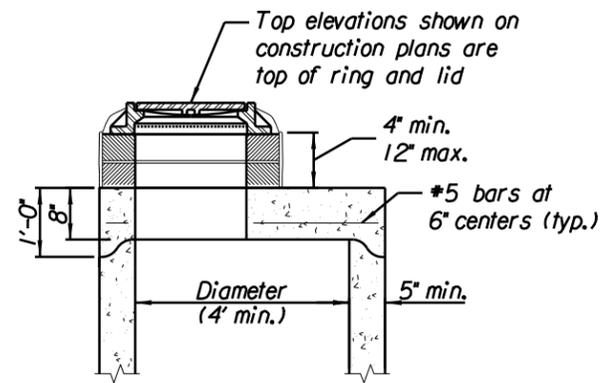


CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	MANHOLE INVERT SHAPING DETAIL	25-10
General Revisions	8/15/2011	WFL		



**STANDARD PRECAST MANHOLE
(ECCENTRIC CONE)**



**STANDARD PRECAST MANHOLE
(SHALLOW TYPE)**

(See Eccentric Cone for other details.)

NOTES:

1. All manholes are to be precast concrete and of eccentric cone type unless otherwise specified.
2. Manhole top adjustments shall be accomplished by the use of concrete adjustment rings.
3. Top of manhole casting shall be set in accordance with Section 2510.6.1 of the Standard Specifications or as directed by the Engineer.
4. Reinforcement in all sections shall equal or exceed A.S.T.M. C-478 Specifications except as modified by Section 2500 of the Standard Specifications.
5. The Engineer shall designate modifications for manholes with special designs.
6. The inside diameter of the manhole shall be a minimum of 4'-0" for pipe diameters from 12" through 24", 5'-0" for pipe diameters from 27" through 36", and 6'-0" for pipe diameters 42" through 48".
7. Clearance tolerance of pipe openings: The maximum allowable pipe opening on a horizontal axis shall be the outside diameter of the pipe plus 12". The maximum allowable pipe opening on a vertical axis shall be the outside diameter of the pipe plus 8". The minimum clearance between the outside surface of an installed pipe and the concrete of the manhole shall be 2".
8. Installation of pipe openings: All required pipe openings shall be cast into the manhole barrel sections.
9. No direct payment will be made for shaping floor or connecting pipes as shown on the plans.
10. Brick adjustment rings are NOT allowed.
11. See Manhole Invert Shaping Detail 25-10 and Section 2510 of the Standard Drawings and Standard Specifications.
12. Manhole coatings shall be per Section 2510.3 of the Standard Specifications.

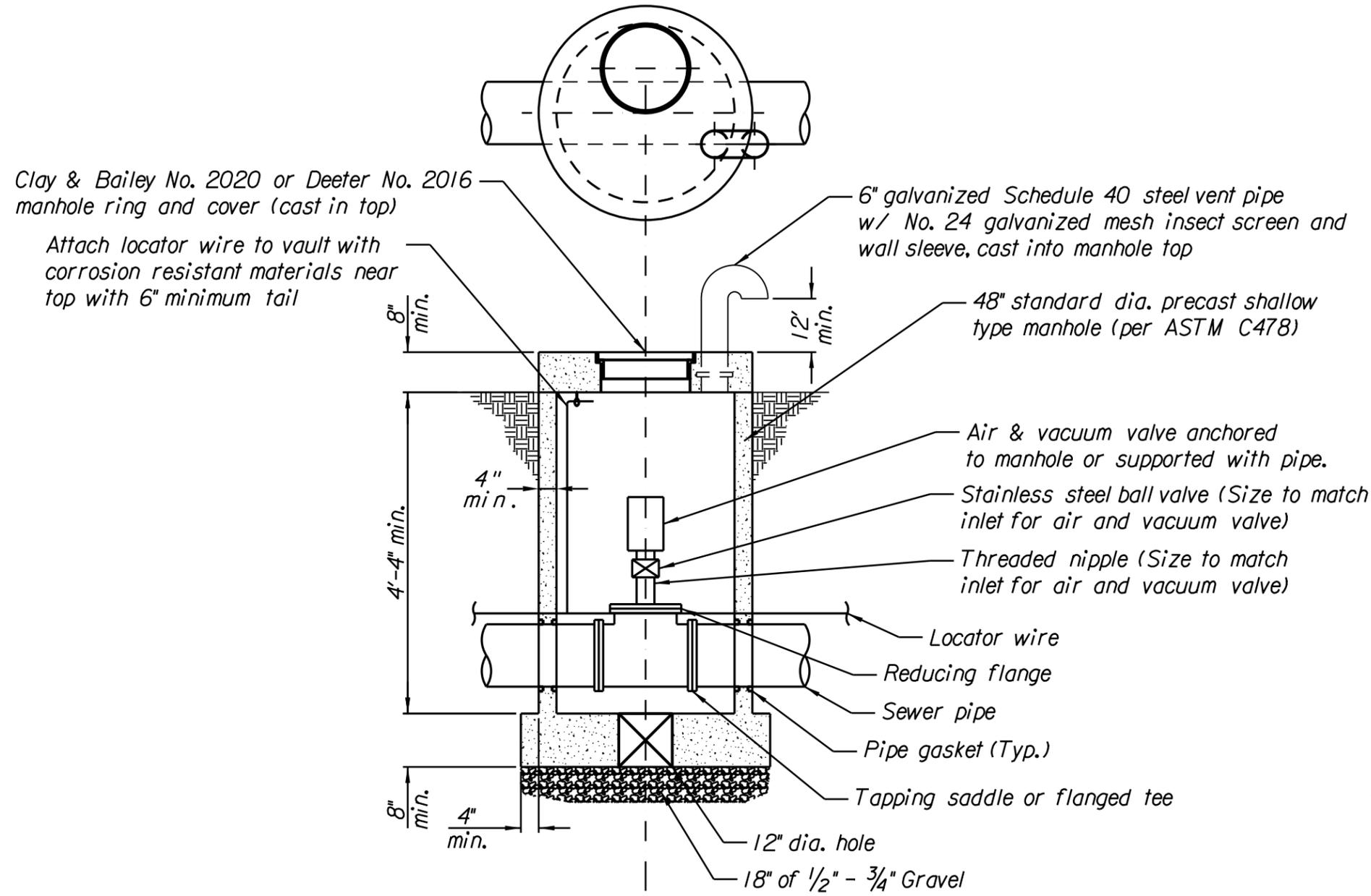


CITY OF BONNER SPRINGS

ADOPTED: 11-15-2007			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	STANDARD MANHOLE DETAILS	25-11A
New Detail	10/30/2007	RC		
General Revisions	8/15/2011	WFL		
General Revisions	12/7/2012	ARW		

File: MATERN-100-514-000-00 - Project - Disposal/Inflow/Overflow - Design/General/2106/2106-25-11A.dwg - Times: 3/11/13 8:11 AM - B. J. Hansen

File: \\s1\p1\1-100-514-00a2.0 - Project - Discipline: Bonner Springs Water - Engineering: PE - B. J. Hansen



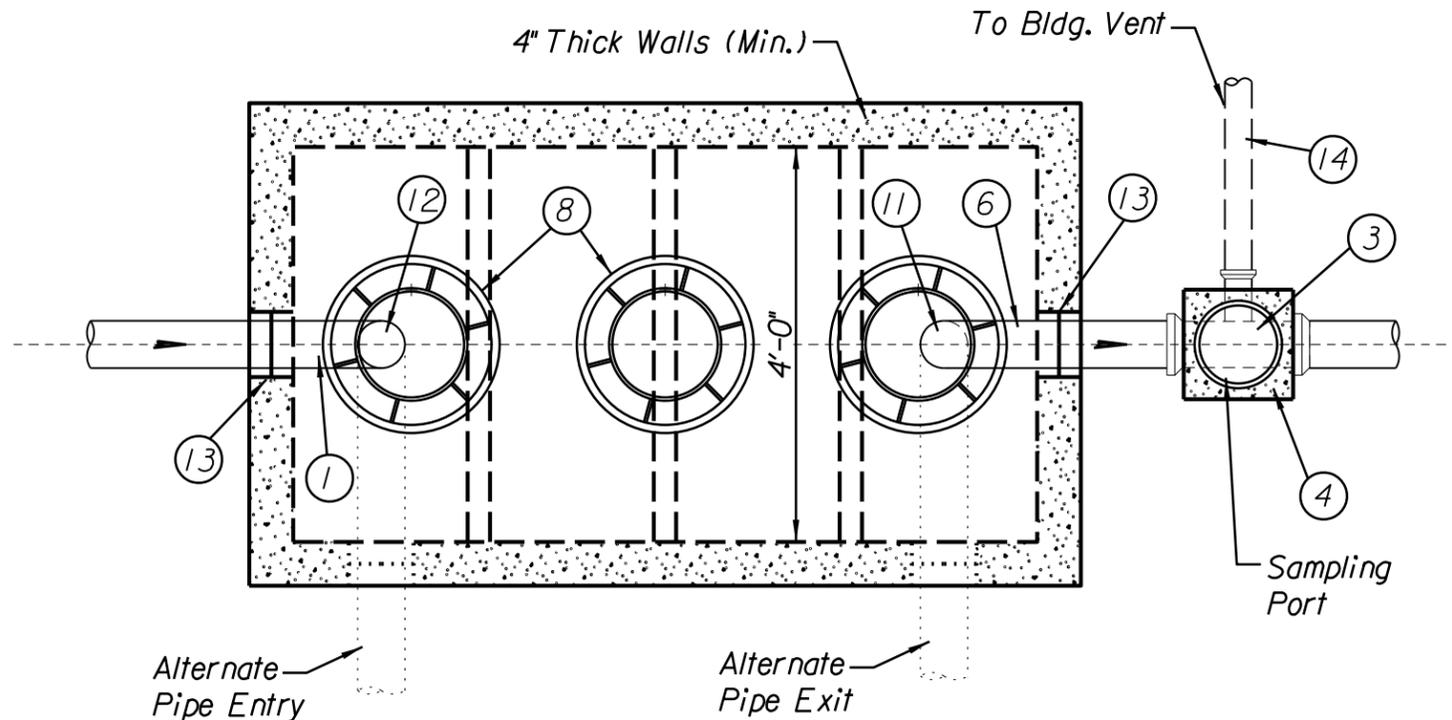
TYPICAL AIR AND VACUUM VALVE VAULT DETAIL

(Dimensions will vary with pipe diameter)
N.T.S.

Notes:

1. Sewage combination air & vacuum valve complete with accessories for flashing shall be APCO Series 440 SCAV or Model 445 or approved equal.
2. Valve shall be sized to meet Manufacturer's design criteria.
3. If valve is anchored to manhole wall for support, anchor straps and materials shall be corrosion resistant.

 CITY OF BONNER SPRINGS														
ADOPTED: 07-11-2005	DRAWING TITLE	STANDARD DETAIL												
<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>Added Locator Wire</td> <td>10/26/2007</td> <td>RC</td> </tr> <tr> <td>General Revisions</td> <td>8/15/2011</td> <td>WFL</td> </tr> <tr> <td>General Revisions</td> <td>12/7/2012</td> <td>ARN</td> </tr> </tbody> </table>	REVISIONS	DATE	BY	Added Locator Wire	10/26/2007	RC	General Revisions	8/15/2011	WFL	General Revisions	12/7/2012	ARN	AIR RELEASE VALVE DETAILS	25-12
REVISIONS	DATE	BY												
Added Locator Wire	10/26/2007	RC												
General Revisions	8/15/2011	WFL												
General Revisions	12/7/2012	ARN												

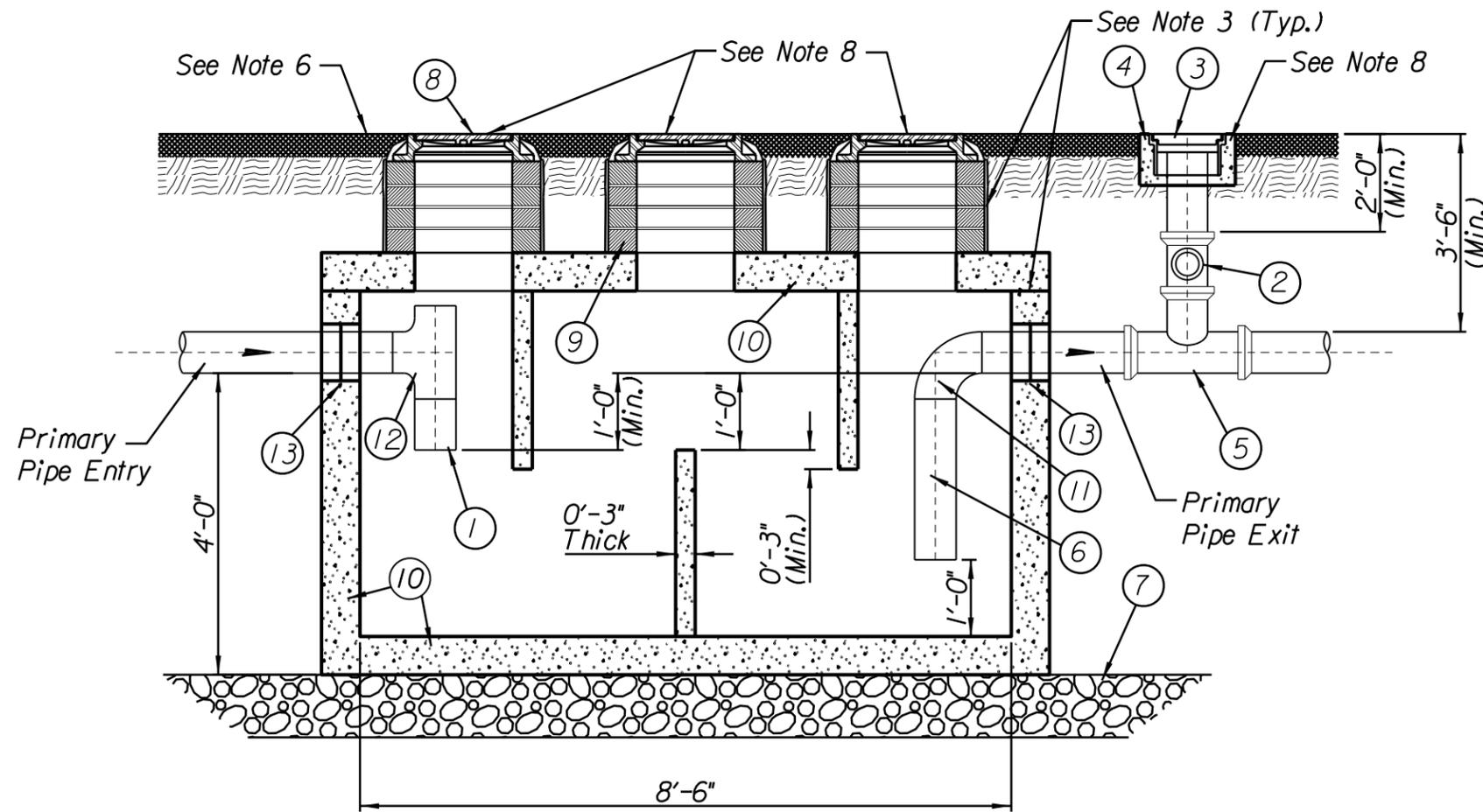


ITEM	DESCRIPTION
1	6" ABS INLET PIPE*
2	6"X6"X6" TEE WITH 2" PIPE TO BUILDING VENT*
3	THREADED C/O COVER & FRAME NEENAH R-1976 OR APP EQUAL**
4	15X15"X8" CONCRETE PAD
5	6"X6"X6" TWO-WAY CLEANOUT TEE*
6	6" ABS OUTLET*
7	4"-6" GRAVEL BEDDING
8	HEAVY-DUTY CAST IRON FRAME AND COVER LABELED "SEWER"
9	CONCRETE ADJUSTMENT RINGS
10	REINFORCE AS REQUIRED FOR SERVICE CONDITIONS
11	6" ABS 90° ELBOW*
12	6" ABS TEE*
13	A-LOK OR PRESS SEAL PSX PIPE/WALL CONNECTOR
14	2" VENT PIPE

* LARGER PIPE MAY BE SUBSTITUTED TO MATCH UPSTREAM PIPE DIAMETER.
 ** REFER TO CLEAN OUT DETAIL(S) ON STANDARD DETAIL SHEET 25-6.

NOTES:

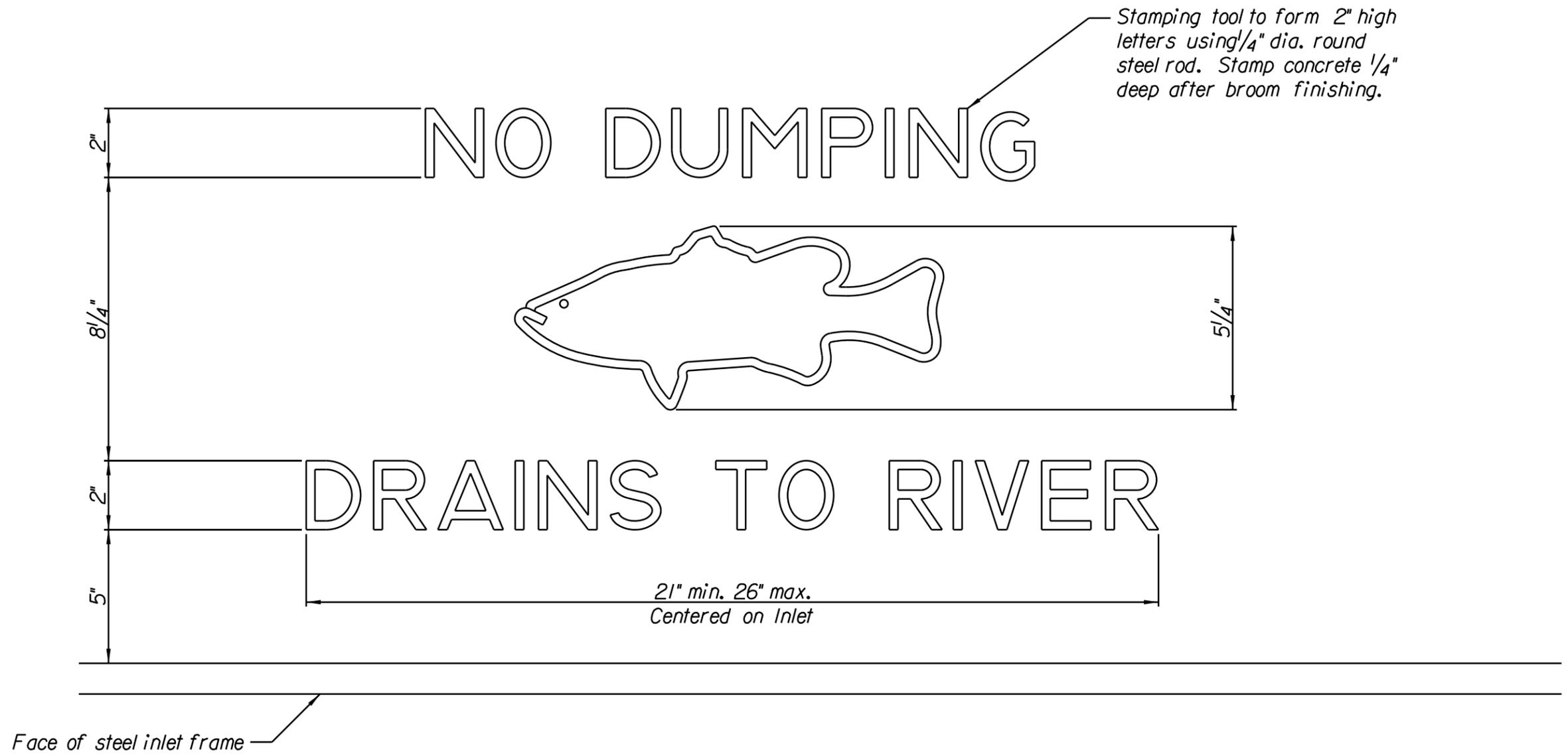
- Three covers and risers shown. Two covers and risers centered over baffles are optional.
- Interceptor size - 1000 Gal minimum (revise the size dimensions, as needed, for larger capacity interceptors).
- All joints at the frame & cover, concrete adjustment rings and the lid of the interceptor shall be sealed per section 2500.
- Piping on the interior of the interceptor shall be ABS with solvent-cemented joints.
- Grease Interceptor shall be vacuum tested for water tightness after the backfill operations have been completed in accordance with BSU technical specifications.
- Interceptor shown in paved installation. Manhole frame and cover shall be installed as indicated for manhole covers per section 2510. If installed in pavement, structure shall be designed for H-20 loading.
- Interior shall be epoxy coated. See section 2510.3 for interior coating requirements.
- Grade to drain away from manholes and cleanouts.



 CITY OF BONNER SPRINGS		STANDARD DETAIL										
ADOPTED: 07-11-2005		DRAWING TITLE										
<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>General Revisions</td> <td>8/15/2011</td> <td>WFL</td> </tr> <tr> <td>General Revisions</td> <td>11/12/2012</td> <td>ARN</td> </tr> </tbody> </table>		REVISIONS	DATE	BY	General Revisions	8/15/2011	WFL	General Revisions	11/12/2012	ARN	GREASE INTERCEPTOR DETAIL	
REVISIONS	DATE	BY										
General Revisions	8/15/2011	WFL										
General Revisions	11/12/2012	ARN										
		25-13										

File: MATRNL-100-514-000-00 - Project - Discipline: Stormwater - Design: General - Drawing: 25-13 - 25-13.dwg - Time: 3/11/17, PM - By: J. Hansen

File: MATRNL-100-514-000-00 - Pro. Det. - Disciplinary Boardway - Design Board 2/16/2011 2:56:25 PM - 2/16/2011 2:56:25 PM - B. J. Johnson

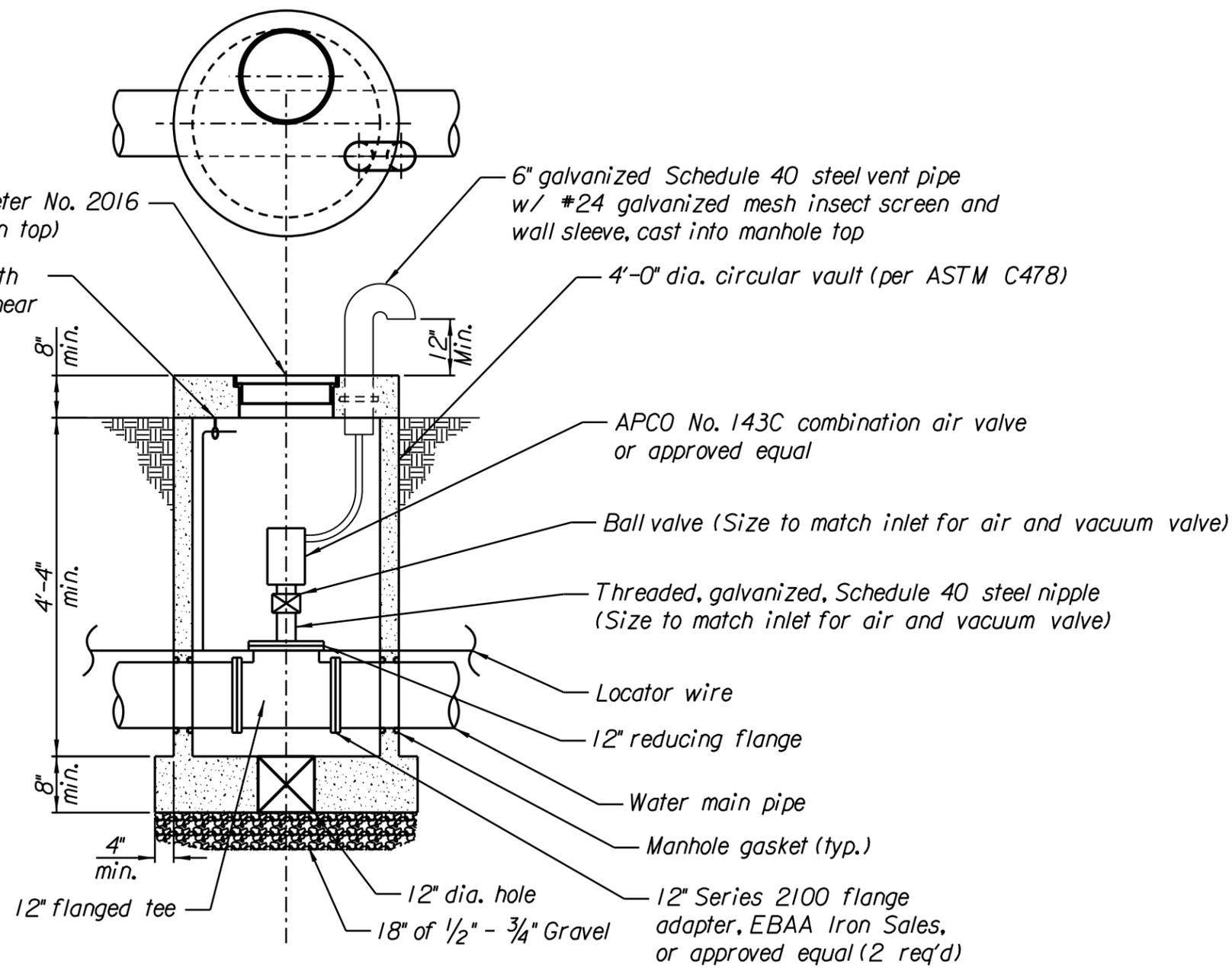


CURB INLET STAMP

N.T.S.

			CITY OF BONNER SPRINGS	
ADOPTED: 07-11-2005		DRAWING TITLE		STANDARD DETAIL
REVISIONS	DATE	BY	CURB INLET STAMP	26-1
General Revisions	8/15/2011	WFL		

File: MAT:BNV1-100-514-000-00 - Pro: loc - Dis: install: S: Bonway - Design: BN: 2/16/08: 25: Cover: Val: 29-3.dwg - Time: 3:41:54 PM - By: J. Johnson



Clay & Bailey No. 2020 or Deeter No. 2016 manhole ring and cover (cast in top)

Attach locator wire to vault with corrosion resistant materials near top with 6" minimum tail

6" galvanized Schedule 40 steel vent pipe w/ #24 galvanized mesh insect screen and wall sleeve, cast into manhole top

4'-0" dia. circular vault (per ASTM C478)

APCO No. 143C combination air valve or approved equal

Ball valve (Size to match inlet for air and vacuum valve)

Threaded, galvanized, Schedule 40 steel nipple (Size to match inlet for air and vacuum valve)

Locator wire

12" reducing flange

Water main pipe

Manhole gasket (typ.)

12" Series 2100 flange adapter, EBAA Iron Sales, or approved equal (2 req'd)

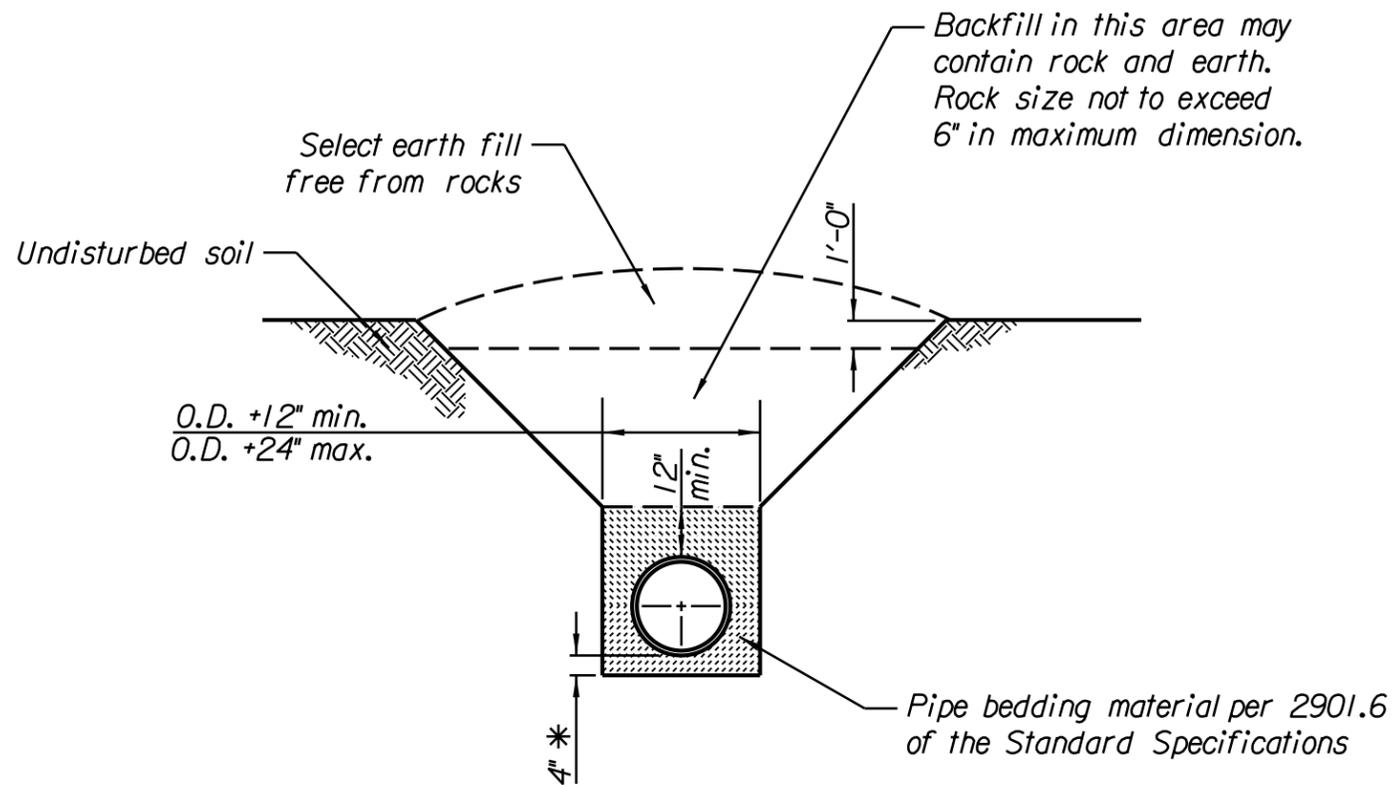
12" flanged tee

12" dia. hole

18" of 1/2" - 3/4" Gravel

TYPICAL AIR AND VACUUM VALVE VAULT DETAIL
 (Dimensions will vary with pipe diameter)
 N.T.S.

 CITY OF BONNER SPRINGS			DRAWING TITLE	STANDARD DETAIL
ADOPTED: 07-11-2005			AIR RELEASE VALVE DETAILS	29-3
REVISIONS	DATE	BY		
Locator Wire Changes	11/02/2007	ARW		
General Revisions	8/15/2011	WFL		
General Revisions	12/7/2012	ARW		



* Increase in rock. See Detail 29-5

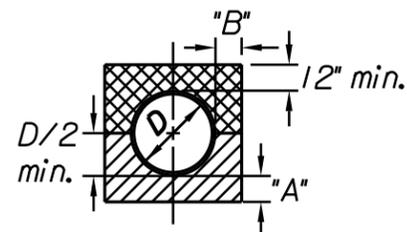
TYPICAL TRENCH FOR PIPE MAIN
N.T.S.

NOTE:

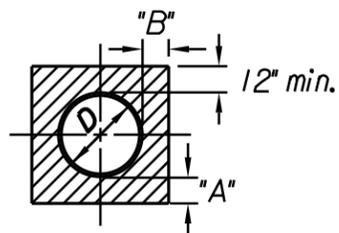
1. All pipes shall have a locator wire. See Standard Drawing 29-9.

 CITY OF BONNER SPRINGS																				
ADOPTED: 07-11-2005	DRAWING TITLE	STANDARD DETAIL																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">REVISIONS</th> <th style="text-align: left;">DATE</th> <th style="text-align: left;">BY</th> </tr> </thead> <tbody> <tr> <td>Added HDPE/Bedding</td> <td>10/26/2007</td> <td>RC</td> </tr> <tr> <td>General Revisions</td> <td>8/15/2011</td> <td>WFL</td> </tr> <tr> <td>General Revisions</td> <td>12/7/2012</td> <td>ARW</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	DATE	BY	Added HDPE/Bedding	10/26/2007	RC	General Revisions	8/15/2011	WFL	General Revisions	12/7/2012	ARW							TYPICAL PIPE MAIN TRENCH DETAILS	29-4A
REVISIONS	DATE	BY																		
Added HDPE/Bedding	10/26/2007	RC																		
General Revisions	8/15/2011	WFL																		
General Revisions	12/7/2012	ARW																		

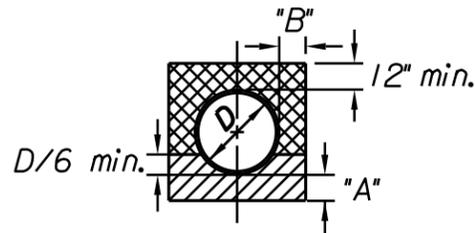
File: \\s:\TR\11-100-514-00a2.0 - Project - Discipline: Bonner Springs Water - Engineering: PE - Matt Hansen



Class "B" Embedment
First Class



Class "B" Embedment
First Class Modified

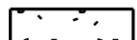


Class "C" Embedment

TABLE OF BEDDING DEPTHS & SIDE CLEARANCES				
Pipe Dia.	Rock		Soil	
	A	B	A	B
4"-18"	6"	6"	4"	6"
20"-24"	9"	9"	4"	7"
26"-30"	9"	9"	4"	8"

 Hand Placed & Hand Tamped Backfill

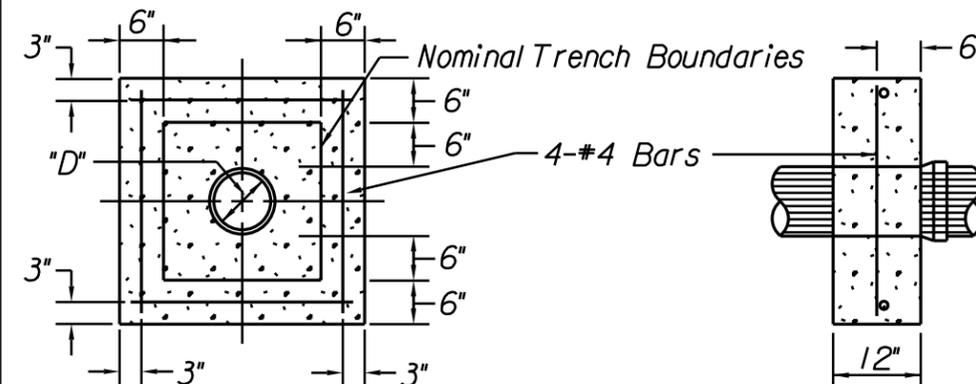
 Granular Fill

 Concrete

"D" Nominal Pipe Diameter

"A" Fill Below Pipe (See Table)

"B" Side Clearances (See Table)



FRONT SECTION

SECTION THROUGH
COLLAR

CONCRETE COLLAR DETAIL

N.T.S.

STANDARD EMBEDMENTS

N.T.S.



CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005

REVISIONS	DATE	BY
Embedment Revisions	11/02/2007	ARN
General Revisions	8/15/2011	WFL
General Revisions	12/7/2012	ARN

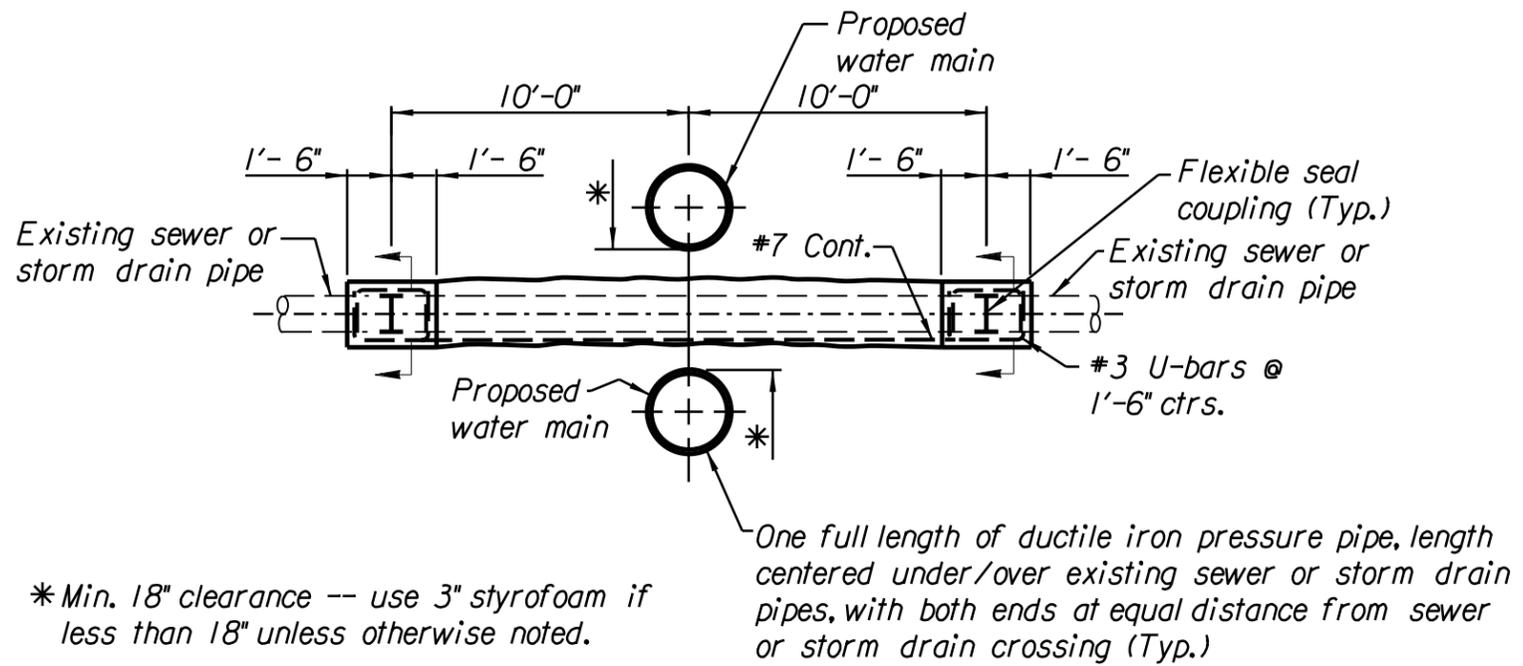
DRAWING TITLE

STANDARD DETAIL

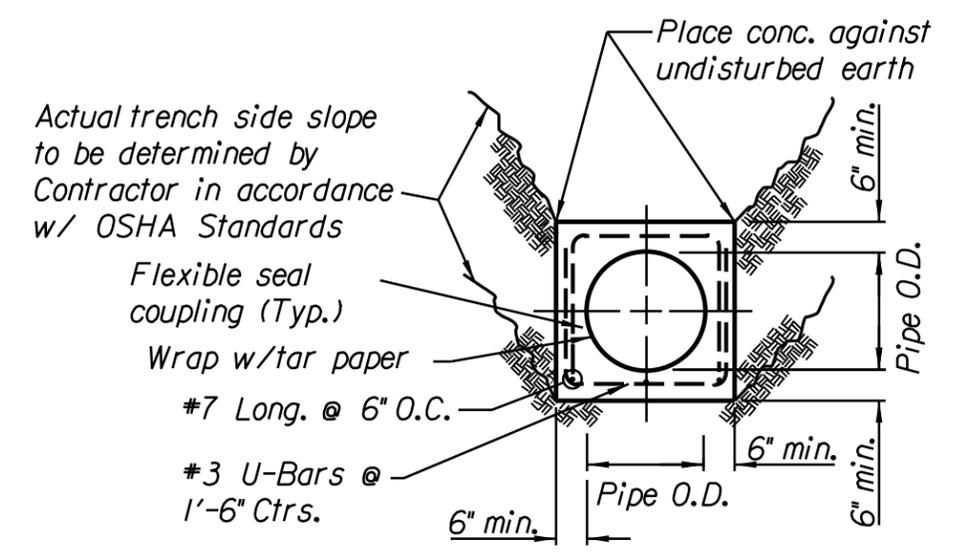
**EMBEDMENTS FOR
WATERLINES**

29-5

File: MATBWI-100-514-000-00 - Project - Disciplines: Stormway - Design: General: 2/16/2018 2:56:18 PM - 3/22/2018 10:29:56 AM



CONCRETE ENCASEMENT ELEVATION



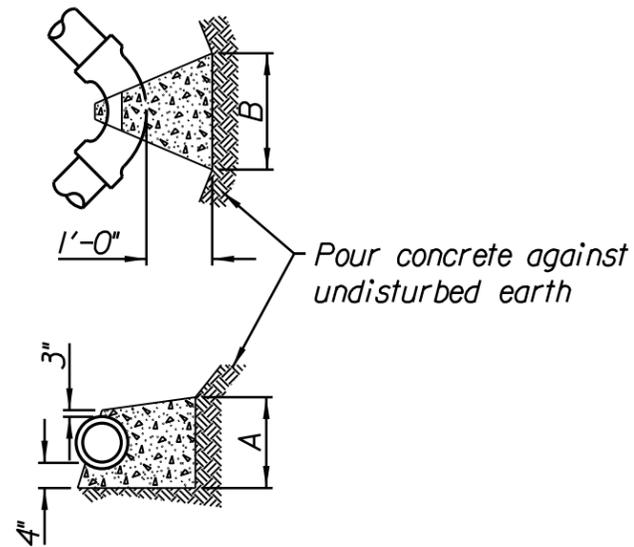
CONCRETE ENCASEMENT SECTION

SEWER AND STORM DRAIN CROSSING
N.T.S.

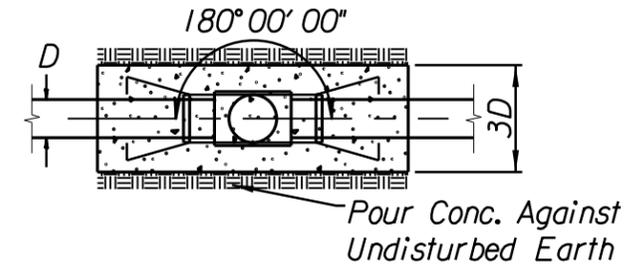
 CITY OF BONNER SPRINGS																	
ADOPTED: 07-11-2005	DRAWING TITLE	STANDARD DETAIL															
<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>General Revisions</td> <td>8/15/2011</td> <td>WFL</td> </tr> <tr> <td>General Revisions</td> <td>12/7/2012</td> <td>ARN</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	DATE	BY	General Revisions	8/15/2011	WFL	General Revisions	12/7/2012	ARN							SEWER AND STORM DRAIN CROSSING DETAIL	29-6
REVISIONS	DATE	BY															
General Revisions	8/15/2011	WFL															
General Revisions	12/7/2012	ARN															

File: MAT:BNV1-100-514-000-00 - Project - Disposal Lines Stormway - Design - General 2/16/2018 2:56:18 PM - 25sewer.vxd(25-7).dgn
 Times: 3/22/2015 PM - Eric J. Johnson

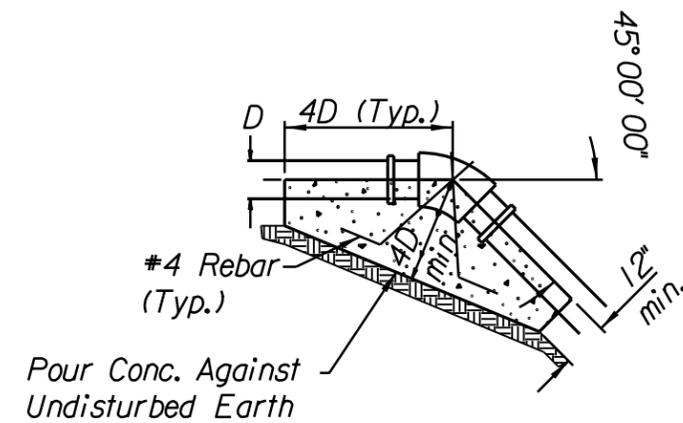
THRUST BLOCK SCHEDULE			
Size	Fitting	"A"	"B"
4" & 6"	Tee	24"	24"
	90°	27"	30"
	45°	14"	30"
	22 1/2°	13"	19"
	11 1/4°	12"	15"
8"	Tee	30"	30"
	90°	36"	38"
	45°	24"	30"
	22 1/2°	17"	22"
	11 1/4°	12"	20"
12"	Tee	44"	44"
	90°	52"	60"
	45°	40"	40"
	22 1/2°	25"	35"
	11 1/4°	15"	30"



THRUST BLOCK DETAIL
N.T.S.



TOP VIEW



SIDE VIEW

GRAVITY BLOCK DETAIL
N.T.S.

Notes:

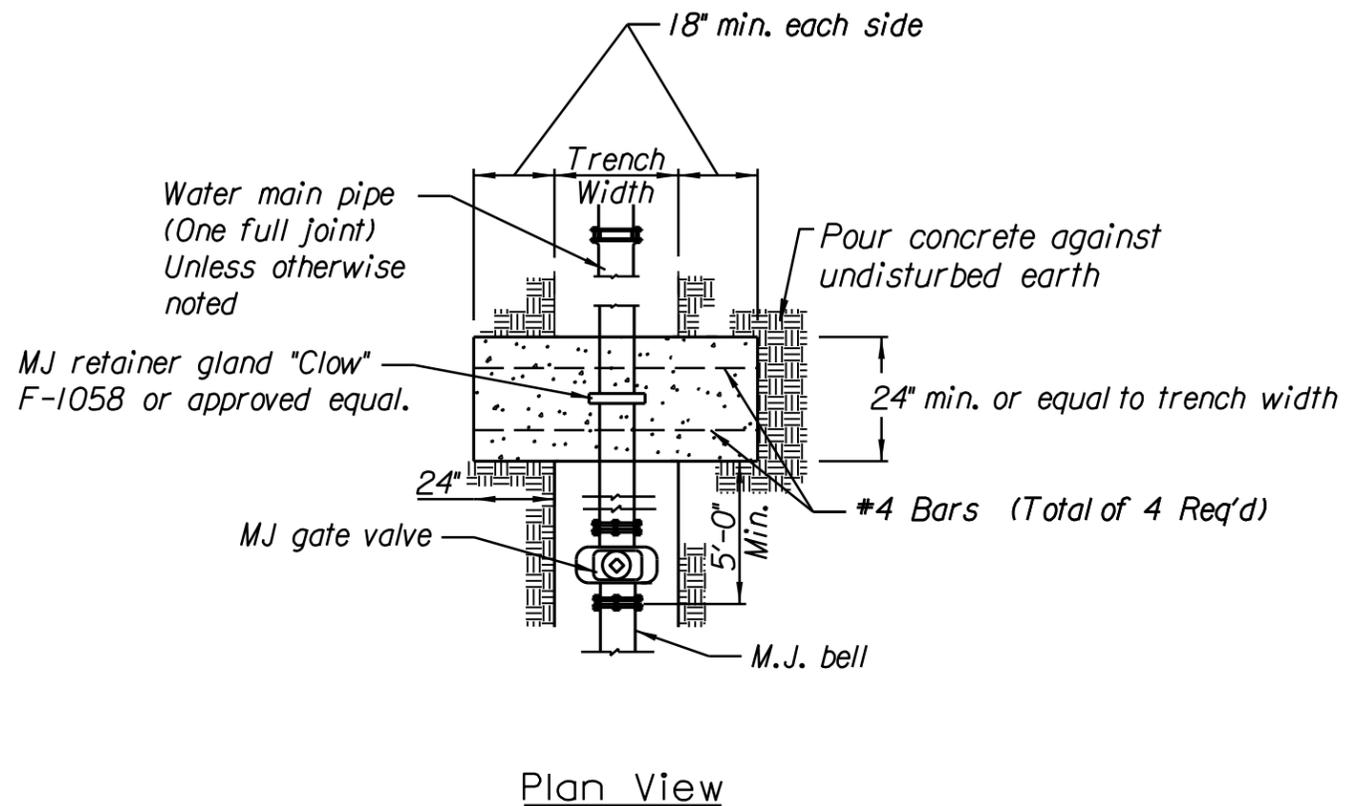
- All concrete for Thrust Blocking shall be MCIB A618-1-4 (4000 P.S.I. concrete)
- MJ fittings with retainer glands required for ALL vertical bends in unrestricted pipe.



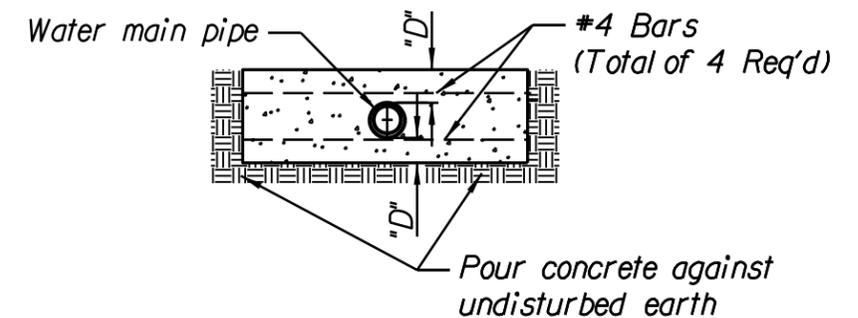
CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	THRUST & GRAVITY BLOCK DETAILS	29-7
General Revisions	8/15/2011	WFL		
General Revisions	12/7/2012	ARN		

File: MATRNU-100-514-000-00 - Pro: Jec - Disciplinary: Stormway - Design: General: 2/16/2011 8:25:00 AM: 29-8.dwg
 Times: 3/22/08 PM - Eric J. Johnson



Pipe Size	"D" Min.
4"	4"
6"	4"
8"	7"
12"	15"

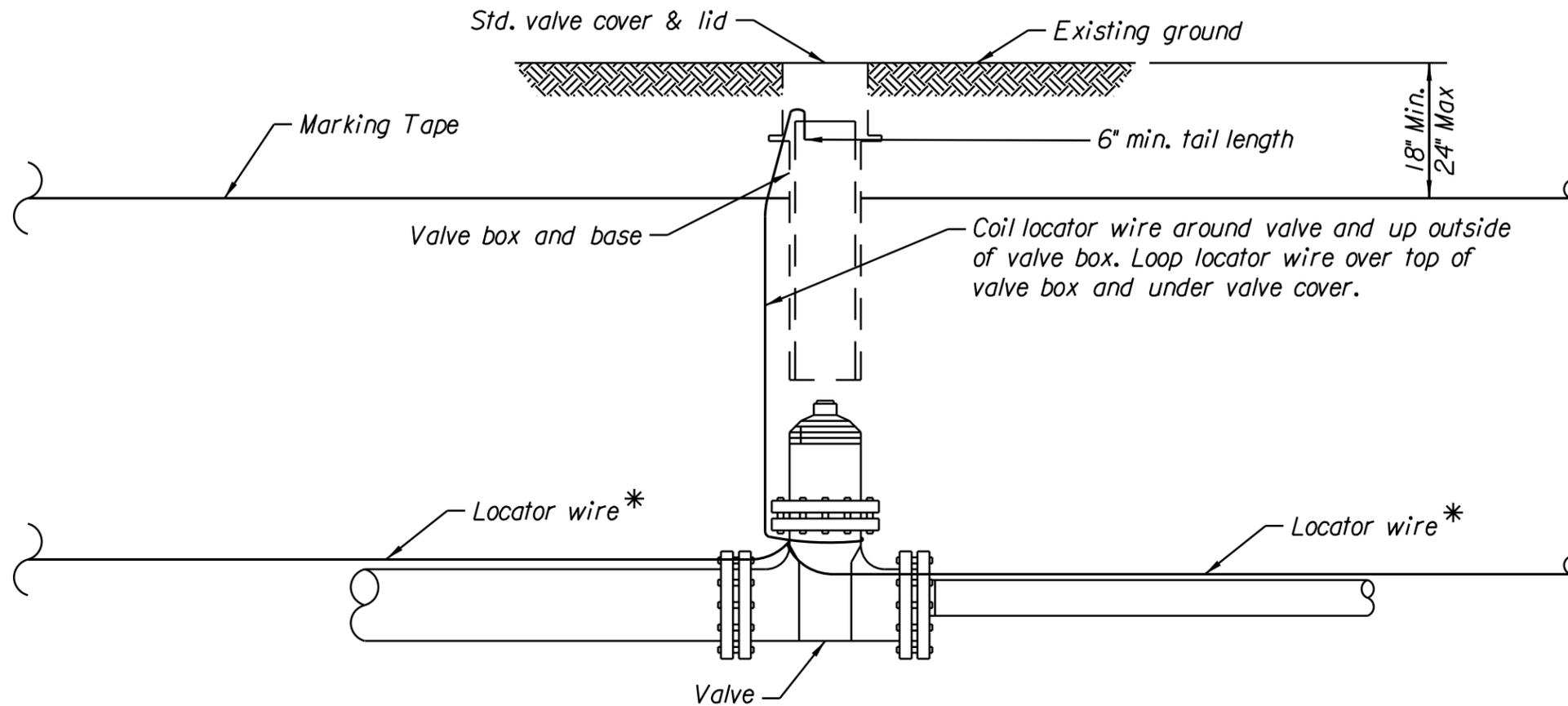


Front View

ANCHOR BLOCK DETAIL

N.T.S.

 CITY OF BONNER SPRINGS				
ADOPTED:	DATE	BY	DRAWING TITLE	STANDARD DETAIL
07-11-2005	8/15/2011	WFL	ANCHOR BLOCK DETAIL	29-8
REVISIONS				
General Revisions				



* Secure above pipe per the Standard Specifications

LOCATOR WIRE DETAIL

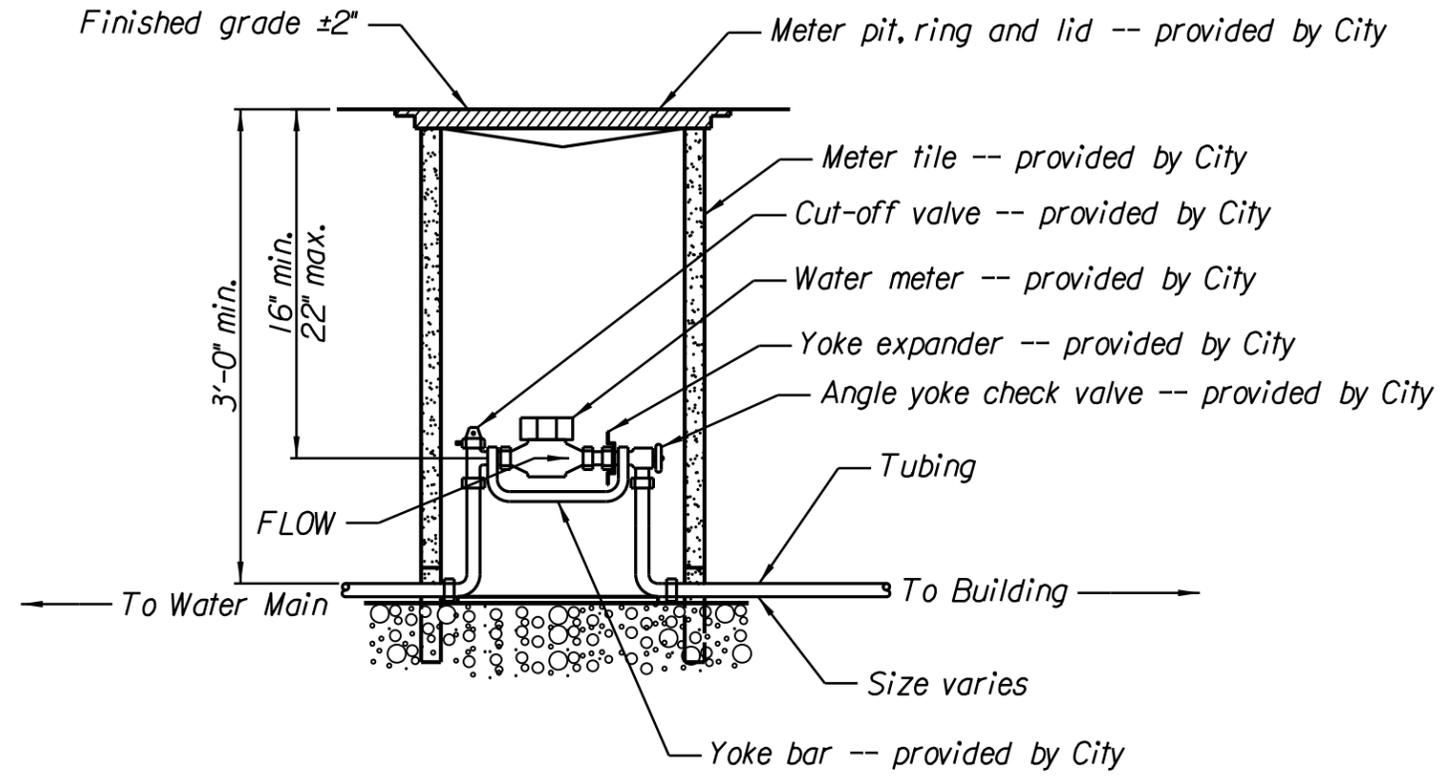
N.T.S.



CITY OF BONNER SPRINGS

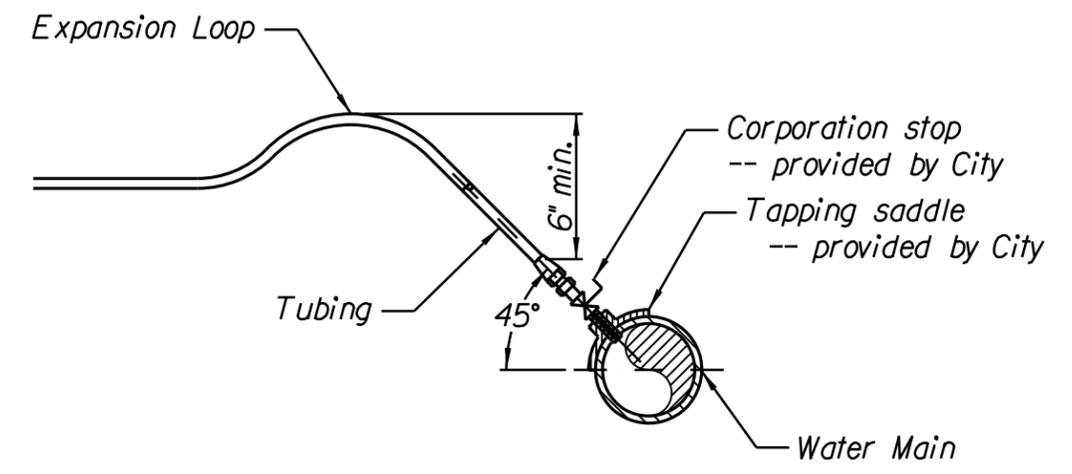
ADOPTED: 07-11-2005			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	LOCATOR WIRE DETAIL	29-9
Added Locator Wire to DIP	10/26/2007	RC		
General Revisions	8/15/2011	WFL		
General Revisions	12/7/2012	ARW		

F:\11\11-00-514-00a2-0-Project-Disposal\lines\Bongard\216\216.dwg - Water - Engineering\216-00.dwg - Wamsen



TYPICAL SERVICE METER SETTING

N.T.S.



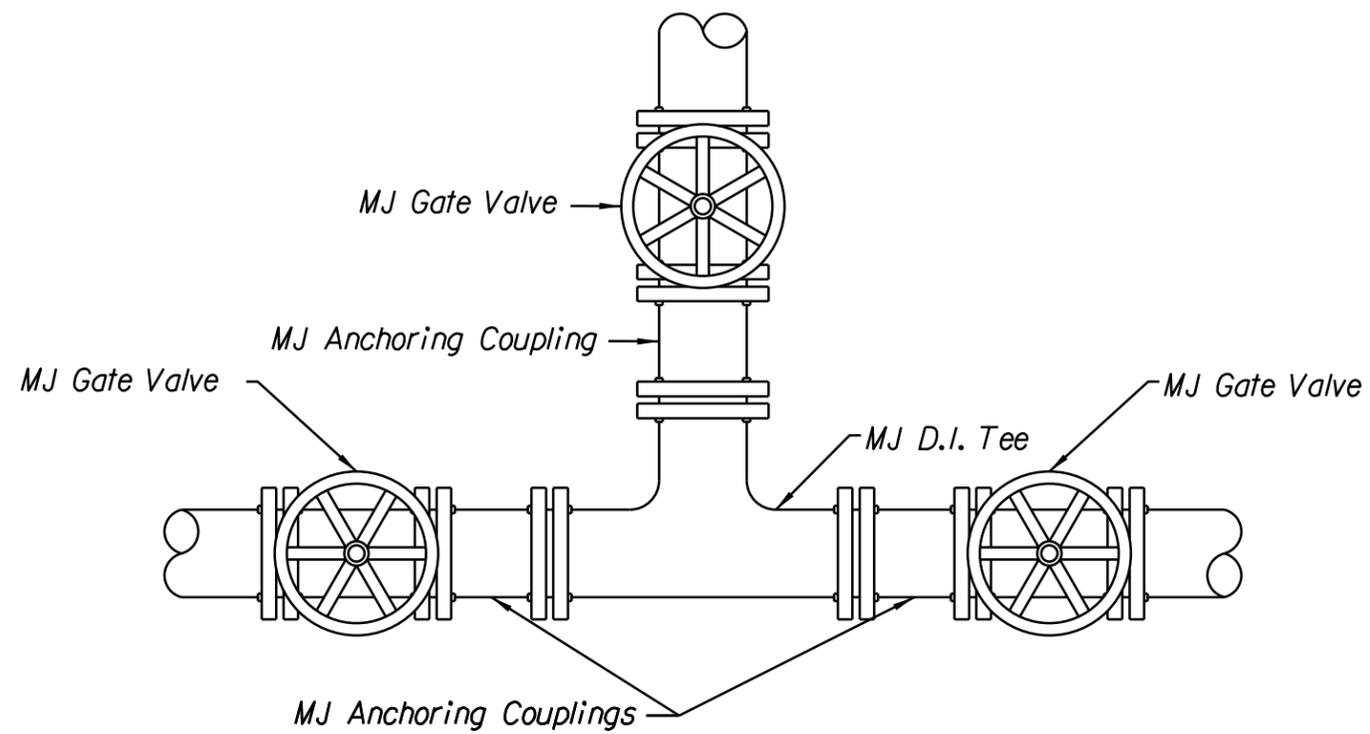
SERVICE LINE TO MAIN CONNECTION DETAIL

N.T.S.



CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005			DRAWING TITLE	STANDARD DETAIL
REVISIONS	DATE	BY	TYPICAL WATER SERVICE DETAILS	29-10A
Removed Parts List	10/26/2007	RC		
General Revisions	8/15/2011	WFL		
General Revisions	12/7/2012	ARW		



VALVE & TEE CONNECT

N.T.S.

*Note: Anchoing Coupling does not mean rodding together.
It means Anchoing Coupling.*

File: MATRNL1-100-514-000-00 - Pro. Det. - Disciplines: Stormway - Design: Bonner Springs 2/16/2018 2:50:48 PM - 3:40:00 PM - Times: 3:42:22 PM - Eric J. Johnson



CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005

REVISIONS	DATE	BY
General Revisions	8/15/2011	WFL
General Revisions	12/7/2012	ARN

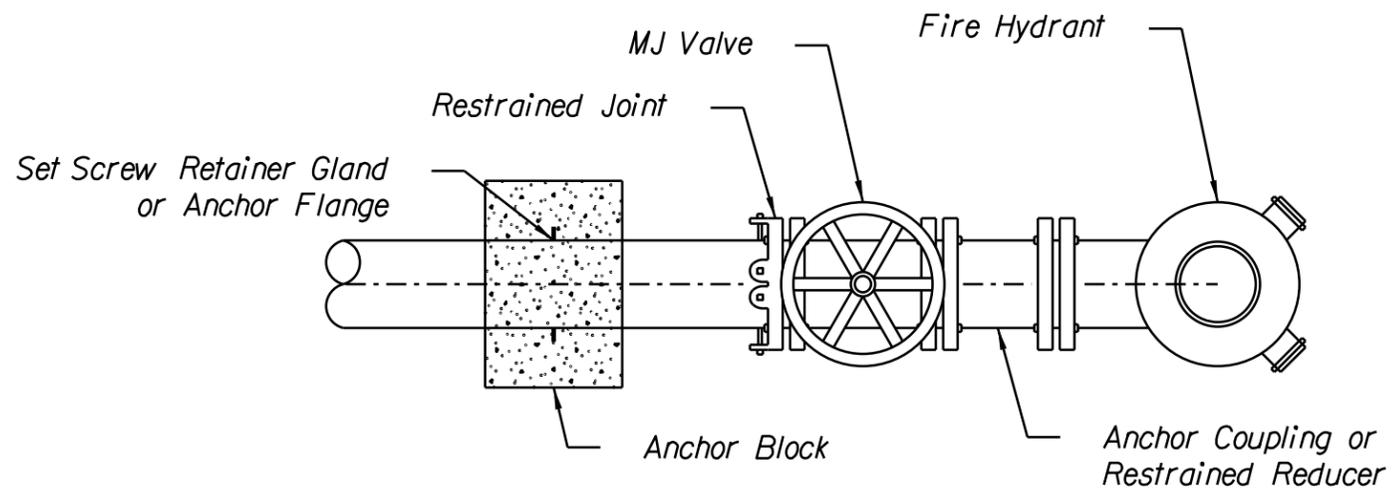
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STANDARD DETAIL

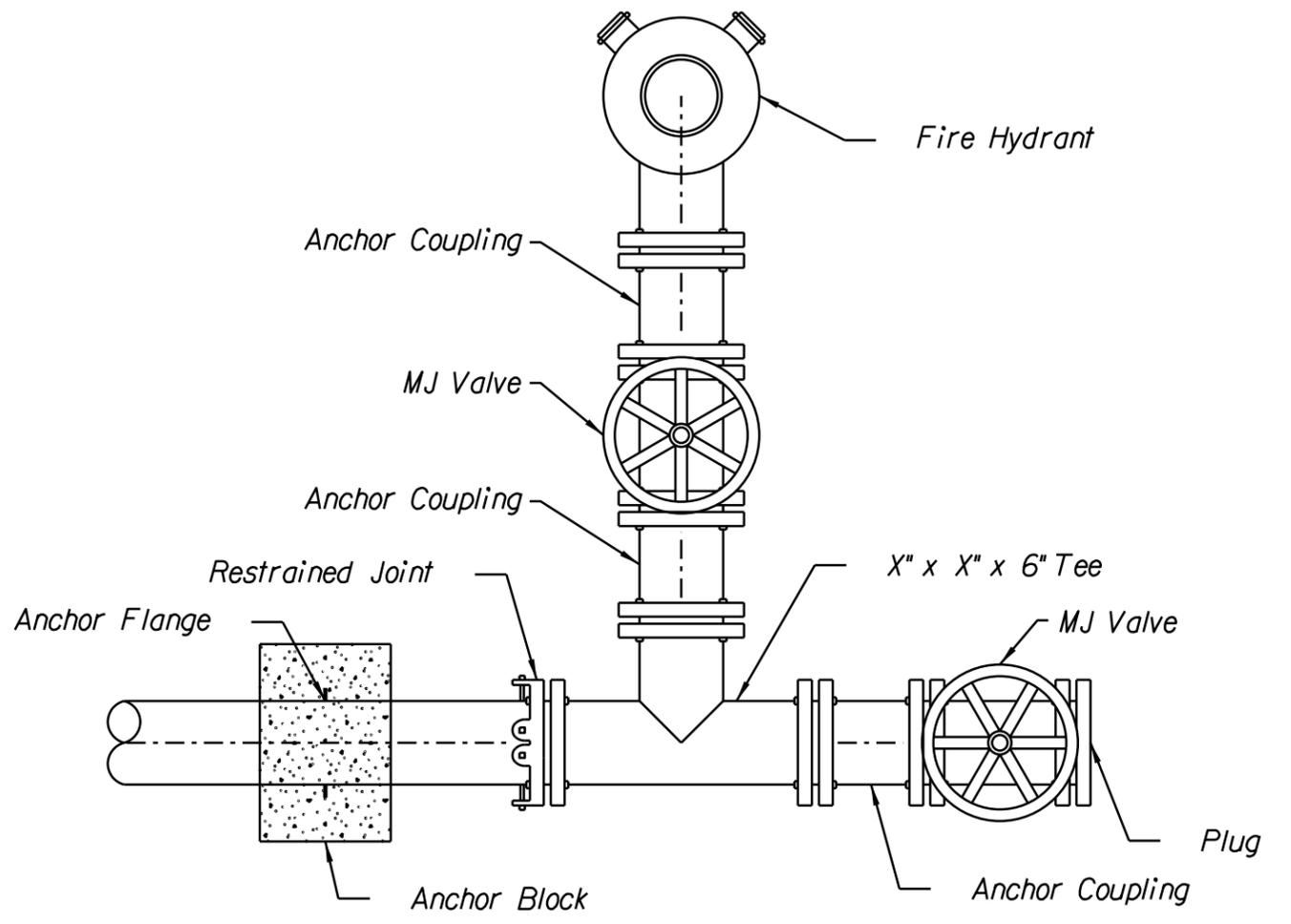
**VALVE & TEE PIPE
CONNECTION**

29-13

File: MATRNL1-100-514-000-00 - Project - Disciplines: Stormway - Design: Open: 2/16/2018 2:50:48 PM - 3/22/24 PM - Eric Johnson

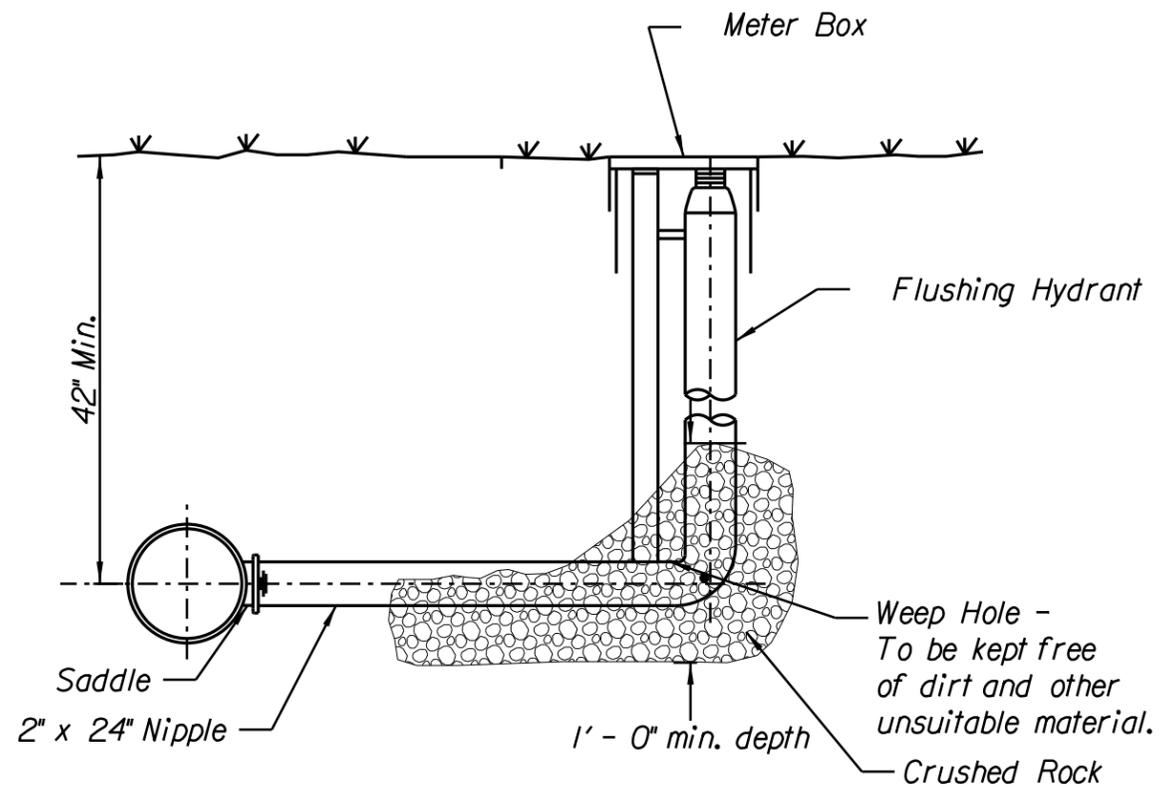


END OF LINE ASSEMBLY (OPTION 1)
N.T.S.



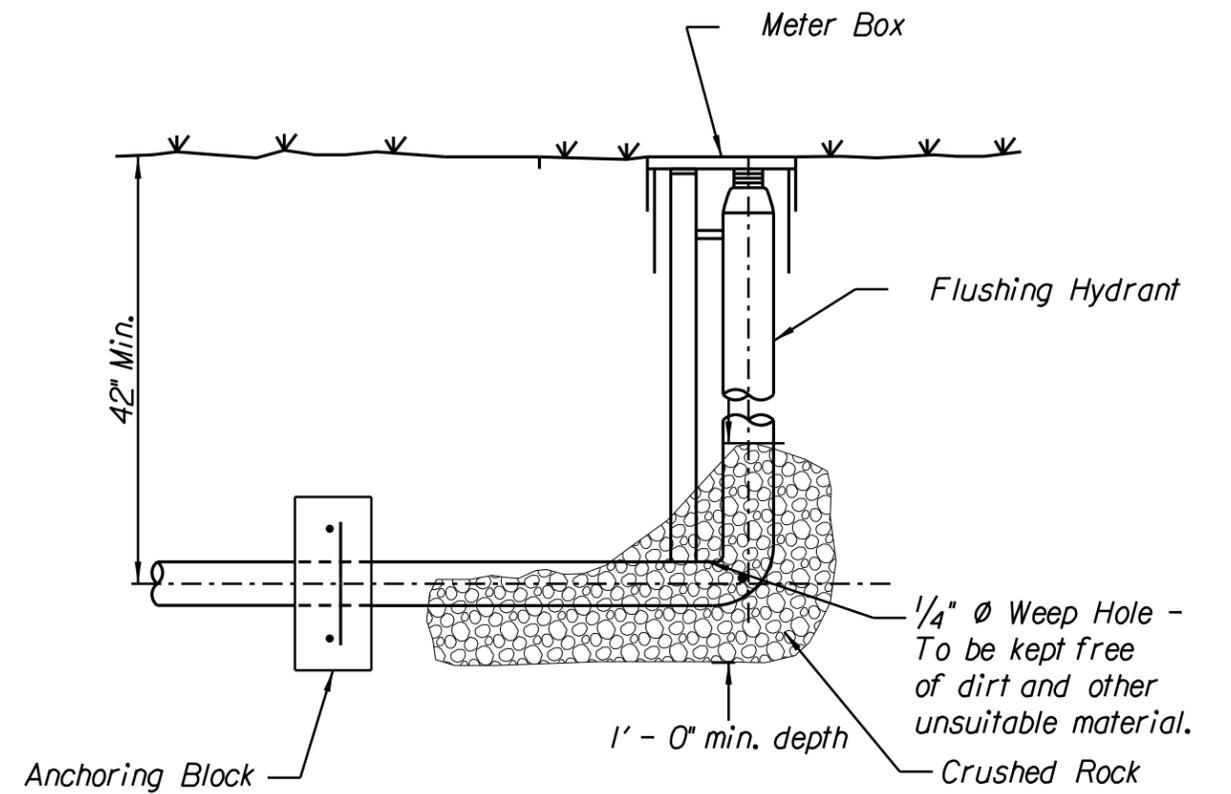
END OF LINE ASSEMBLY (OPTION 2)
N.T.S.

 CITY OF BONNER SPRINGS			DRAWING TITLE		STANDARD DETAIL		
ADOPTED: 07-11-2005			END OF LINE ASSEMBLY		29-14		
REVISIONS		DATE					BY
General Revisions		8/15/2011					WFL
General Revisions		12/7/2012	ARN				



4" AND LARGER MAIN LINE BLOW OFF

N.T.S.



END OF LINE BLOW OFF

N.T.S.

File: MATERNAL-100-514-000-00 - Project - Disciplinary - Stormway - Districts - Water & Sewer - 07-11-2005 - 11:26 AM - B. J. Hansen



CITY OF BONNER SPRINGS

ADOPTED: 07-11-2005		
REVISIONS	DATE	BY
General Revisions	8/15/2011	WFL
General Revisions	12/7/2012	ARN

DRAWING TITLE
WATERLINE BLOW OFF DETAIL

STANDARD DETAIL
29-15

