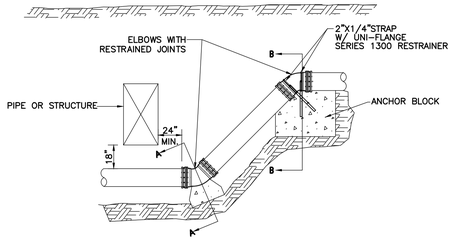
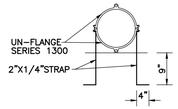
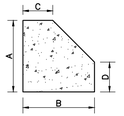


SECTION A–A SECTION B–B

ANCHOR BLOCK DIMENSIONS							
	PIPE SIZE	A	B	C	D	WIDTH	CU. YDS.
11¼°	4"	2.0'	2.0'	1.0'	1.83'	2.0'	0.29
	6"	2.0'	2.0'	1.0'	1.83'	2.0'	0.29
	8"	2.33'	3.0'	1.5'	2.08'	2.33'	0.57
	10"	2.75'	2.75'	1.375	2.50'	2.75'	0.75
	12"	3.0'	3.25'	1.5'	2.66'	3.0'	1.05
	14"	3.0'	4.0'	1.66'	2.66'	3.0'	1.19
	16"	4.0'	4.0'	1.66'	3.66'	4.0'	2.31
	18"	4.08'	5.0'	2.0'	3.75'	4.16'	3.07
22½°	4"	2.83'	2.5'	1.25'	2.33'	2.5'	0.63
	6"	2.83'	2.5'	1.25'	2.33'	2.5'	0.63
	8"	3.33'	3.0'	1.5'	2.75'	3.0'	1.06
	10"	3.92'	4.0'	2.0'	3.08'	3.0'	1.65
	12"	4.16'	4.0'	2.0'	3.42'	4.0'	2.36
	14"	4.33'	5.0'	2.5'	3.33'	4.0'	3.15
	16"	4.5'	5.0'	2.5'	3.50'	5.0'	3.94
	18"	5.33'	5.5'	2.75'	4.16'	6.0'	6.16
45°	4"	3.5'	3.0'	1.5'	1.75'	3.25'	1.11
	6"	3.5'	3.0'	1.5'	1.75'	3.25'	1.11
	8"	3.75'	4.0'	2.0'	1.83'	4.0'	1.94
	10"	4.5'	4.0'	2.0'	2.25'	5.0'	2.92
	12"	4.5'	4.16'	2.08'	2.75	5.0'	3.47
	14"	5.5'	5.5'	2.58'	3.0'	6.0'	5.91
	16"	6.08'	6.0'	3.0'	3.5'	6.0'	8.11
	18"	7.08'	7.0'	3.5'	3.6'	7.0'	11.27

*CONFORMS TO AWWA MANUAL OF WATER SUPPLY PRACTICES M4–1996

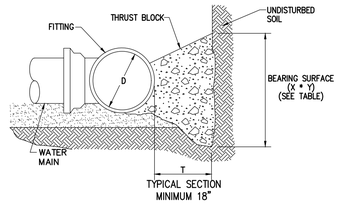


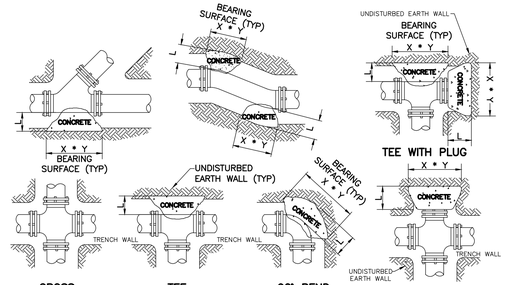


NOTES:

1. DO NOT COVER BELLS OR FLANGES WITH CONCRETE
2. WRAP ALL FITTINGS WITH VISQUEEN.
3. BACK ALL TEES ACCORDING TO SIZE OF BRANCH.
4. BACKING FUTURE LINE EXTENSIONS SHALL BE SUCH THAT LATER REMOVAL IS POSSIBLE.
5. ALL BENDS WHERE FITTINGS ARE USED, BOTH HORIZONTAL OR VERTICAL SHALL BE BACKED.
6. REACTION BACKING TABLE IS BASED ON 150 P.S.I. AND SOIL BEARING PRESSURE OF 1000 lb./sq.ft. ADDITIONAL BACKING MAY BE REQUIRED IN SOME AREAS AS DIRECTED BY ENGINEERS.
7. ALL CONCRETE SHALL BE 2500 P.S.I.
8. 18" AND LARGER REQUIRES SPECIFIC ANTI–THRUST DESIGN.

WA–3 VERTICAL THRUST BLOCKING DETAIL
NO SCALE





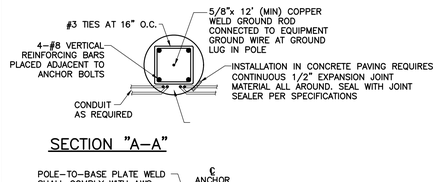
HORIZONTAL THRUST BLOCKING
(BLOCKING HEIGHT GREATER THAN PIPE O.D.) (BLOCKING WIDTH BETWEEN 1 & 2 TIMES HEIGHT)
REQUIRED SQ. FT. OF UNDISTURBED EARTH WALL FOR REACTION BACKING

PIPE SIZE	TYPE OF FITTINGS																					
	90°					45°					22½°					11¼°					TEE & PLUG				
	L	X	Y	CY	FT²	L	X	Y	CY	FT²	L	X	Y	CY	FT²	L	X	Y	CY	FT²	L	X	Y	CY	FT²
4"	1.5'	2'	2'	0.15	4	1.5'	1'	2'	0.07	2	1.5'	1'	1'	0.04	1	1.5'	1'	1'	0.04	1	1.5'	1.5'	2'	0.11	3
6"	1.5'	3'	2.67'	0.30	8	1.5'	2'	2'	0.15	4	1.5'	1'	2'	0.07	2	1.5'	1'	1'	0.04	1	1.5'	2'	3'	0.22	6
8"	2'	3'	4.67'	0.69	14	2'	1.5'	4.67'	0.35	7	2'	2'	2.2'	0.22	4	2'	1'	2'	0.10	2	2'	3'	3.33'	0.49	10
10"	2'	4'	5.25'	1.04	21	2'	3.5'	3.14'	0.54	11	2'	2'	3'	0.30	6	2'	1.33'	1.5'	0.10	3	2'	3.5'	4.29'	0.74	15
12"	2'	5'	5.80'	1.43	29	2'	3.5'	4.57'	0.79	16	2'	3'	2.67'	0.40	8	2'	2'	2'	0.20	4	2'	4'	5.25'	1.04	21
14"	3'	6'	6.50'	2.89	39	3'	4'	5.25'	1.56	21	3'	3'	3.67'	0.82	11	3'	3'	1.67'	0.37	5	3'	4.5'	6.22'	2.07	28
16"	3'	7'	7.14'	3.70	50	3'	5'	5.40'	2.00	27	3'	4	3.50'	1.04	14	3'	3'	2.33'	0.52	7	3'	5'	7.20'	2.67	36
18"	3'	8'	7.88'	4.67	63	3'	5'	6.80'	2.52	34	3'	4	4.25'	1.26	17	3'	3'	3'	0.67	9	3'	6'	7.50'	3.33	45

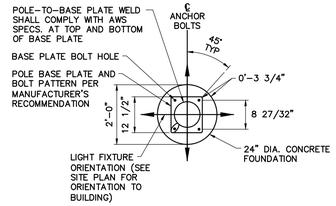
NOTES:

1. DO NOT COVER BELLS OR FLANGES WITH CONCRETE
2. WRAP ALL FITTINGS WITH VISQUEEN. (PLASTIC SHEETING USED AS A BARRIER BETWEEN THE FITTING AND THE CONCRETE)
3. BACK ALL TEES ACCORDING TO SIZE OF BRANCH.
4. BACKING FUTURE LINE EXTENSIONS SHALL BE SUCH THAT LATER REMOVAL IS POSSIBLE.
5. ALL BENDS WHERE FITTINGS ARE USED, BOTH HORIZONTAL OR VERTICAL SHALL BE BACKED.
6. REACTION BACKING TABLE IS BASED ON 150 P.S.I. AND SOIL BEARING PRESSURE OF 1000 lb./sq.ft. ADDITIONAL BACKING MAY BE REQUIRED IN CLAY SOILS AS DIRECTED BY ENGINEERS
7. ALL CONCRETE SHALL BE 2500 P.S.I.
8. 18" AND LARGER REQUIRES SPECIFIC ANTI–THRUST DESIGN.
9. ALL RESTRAINT DEVICES SHALL MEET OR EXCEED UNI–B–13–94: RECOMMENDED PERFORMANCE SPECIFICATION FOR JOINT RESTRAINT DEVICES FOR USE WITH POLYVINYL CHLORIDE (PVC) PIPE.

WA–4 HORIZONTAL THRUST BLOCKING DETAIL
NO SCALE

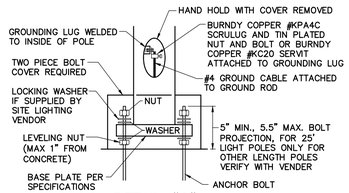


SECTION "A–A"

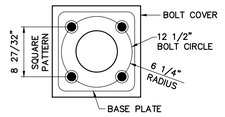


BOLT COVER TYPICAL

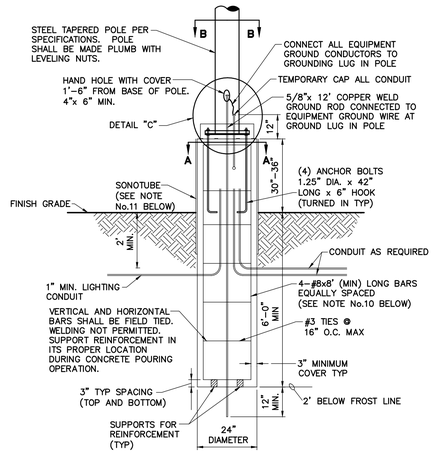
SECTION "B–B"



DETAIL "C"



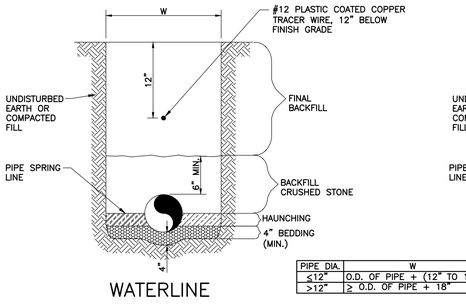
TYPICAL ANCHOR BOLT SPACING
NOTE: REFER TO MANUFACTURERS SPECIFICATIONS.



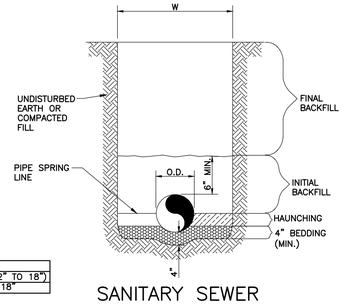
NOTES:

1. 3500 PSI MIN. 28 DAY COMPRESSIVE STRENGTH CONCRETE WITH GRADE 60 REINFORCING STEEL
2. IF WATER IS PRESENT IN HOLE, REMOVE BEFORE POURING CONCRETE.
3. FOUNDATION EXCAVATION SHALL BE BY 24" AUGER IN UNDISTURBED OR PROPERLY COMPACTED FILL PER SPECIFICATIONS.
4. FOUNDATION SHALL HAVE A MINIMUM ALLOWABLE END BEARING OF 2000 PSF.
5. FOUNDATION HAS BEEN DESIGNED FOR A COHESIVE SOIL BASED ON A MINIMUM COHESIVE VALUE OF 1000 PSF.
6. FOUNDATION HAS BEEN DESIGNED FOR A GRANULAR SOIL BASED ON A MINIMUM LATERAL SOIL PRESSURE OF 1000 PSF, UTILIZING AASHTO FIGURE 1.8.2C(4) OF "EMBEDMENT OF POSTS WITH OVERTURNING LOADS".
7. EXPOSED CONCRETE SHALL BE PAINTED TRAFFIC YELLOW.
8. DETAIL FOR 25' POLE WITH MAX. FIXTURE EPA 4.6 SQ.FT. (TO BE COORDINATED WITH VENDER)
9. ALL LIGHT POLE BASE FOUNDATIONS SHALL BE CAST–IN–PLACE. PRE–CAST LIGHT POLE BASE FOUNDATIONS ARE NOT ACCEPTABLE.
10. VERTICAL RE–BARS SHALL BE WITHIN 3" FROM THE TOP OF THE CONCRETE BASE. THE ON SITE TESTING FIRM TO VERIFY PRIOR TO POURING CONCRETE BASE.
11. SONOTUBE FORM TO TERMINATE 18" BELOW GRADE, UNLESS NEEDED TO KEEP EXCAVATED AREA FROM COLLAPSING.

TYPICAL LIGHTING POLE BASE DETAIL
NO SCALE



WATERLINE



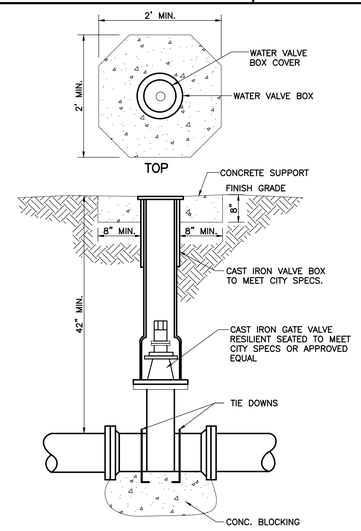
SANITARY SEWER

PIPE DIA.	W
≤12"	O.D. OF PIPE + (12" TO 18")
>12"	≥ O.D. OF PIPE + 18"

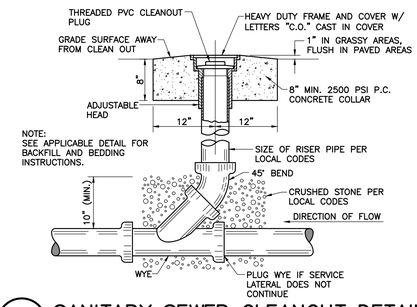
GENERAL NOTES

1. BEDDING SHALL BE CLASS I–A WORKED BY HAND. IF GROUNDWATER IS ANTICIPATED, THEN BEDDING SHALL BE CLASS I–B COMPACTED TO 85% STANDARD PROCTOR. (SEE SPECIFICATIONS FOR GRADATION)
2. HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE VOIDS AND SHALL BE CLASS I–A OR CLASS I–B COMPACTED TO 85% PROCTOR OR CLASS II COMPACTED TO 85% PROCTOR.
3. INITIAL BACKFILL SHALL BE CLASS I–A WORKED BY HAND, OR CLASS I–B OR CLASS II COMPACTED TO 85% STANDARD PROCTOR.
4. FINAL BACKFILL UNDER PAVED AREAS SHALL BE CLASS I.
6. FINAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS IV–A COMPACTED TO 95% STANDARD PROCTOR.
7. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321–89.
8. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698. CLASS III AND IV–A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
9. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".
10. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES. (SEE SPECIFICATIONS)

UT–1 UTILITY TRENCH AND BEDDING DETAILS
NO SCALE



WA–2 GATE VALVE & VALVE BOX DETAIL
NO SCALE



SAS–3 SANITARY SEWER CLEANOUT DETAIL
NO SCALE

Three working days prior to the start of any excavation on this site the Contractor shall contact 1–800–344–7483 for utility location information.

The contractor shall verify and implement all the required Federal Occupational Safety and Health Administration (OSHA) and/or OSHA approved state–plan regulations established for the type of construction required by these plans.

PERMIT SET

STATE OF MISSOURI RICK G. ROHLFING NUMBER E–29409 REGISTERED PROFESSIONAL ENGINEER

Rick Rohlfing 11/30/20
Date

Rick G. Rohlfing, P.E. #E–29409
State of Missouri
Registered Professional Engineer
for BFA, Inc. Professional Engineer Corporation #000472

bfaeng.com TELEPHONE: (636) 239–4751
BFA Engineering•Surveying
103 ELM STREET WASHINGTON, MISSOURI 63090

BRYAN CROSSING LOT 2, LLC
950 Bryan Road
O'Fallon, St. Charles County,
Missouri 63366

REVISIONS

1			
By:		App:	
2			
By:		App:	
3			
By:		App:	
4			
By:		App:	

DRAWN	J.A.K.
CHECKED	R.G.R.
DATE	11/30/2020
SCALE	AS NOTED
JOB No.	5918
SHEET NAME	DETAIL SHEET 5

DTL–5

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