

APPROVED HYDRANTS:
 MUELLER – SUPER CENTURION 250
 WATEROUS – PACER 250

TYPE:
 3 WAY HYDRANT, NATIONAL STANDARD THREAD,
 STAINLESS STEEL BOLTS WITH MIN. 5' BURY,
 W/TRAFFIC KNOCK-OFF W/EPOXY COATED SHOE.

NOTES:

1. USE ONE (1) FIRE HYDRANT EXTENSION TO RAISE HYDRANT UP TO 48" TO GRADE.
2. DO NOT USE VERTICAL 45° BENDS TO RAISE FIRE HYDRANTS TO GRADE.
3. HYDRANTS MUST BE CHROME YELLOW.
4. DIRECTION OF OPEN AND TYPE OF OPERATING NUT IS DETERMINED BY FIRE DISTRICT.



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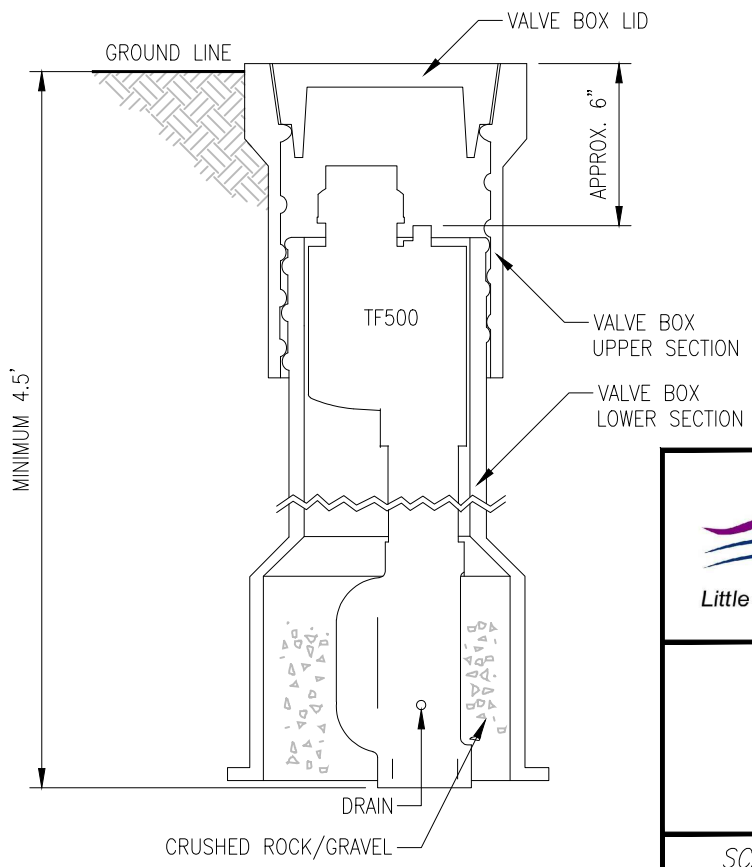
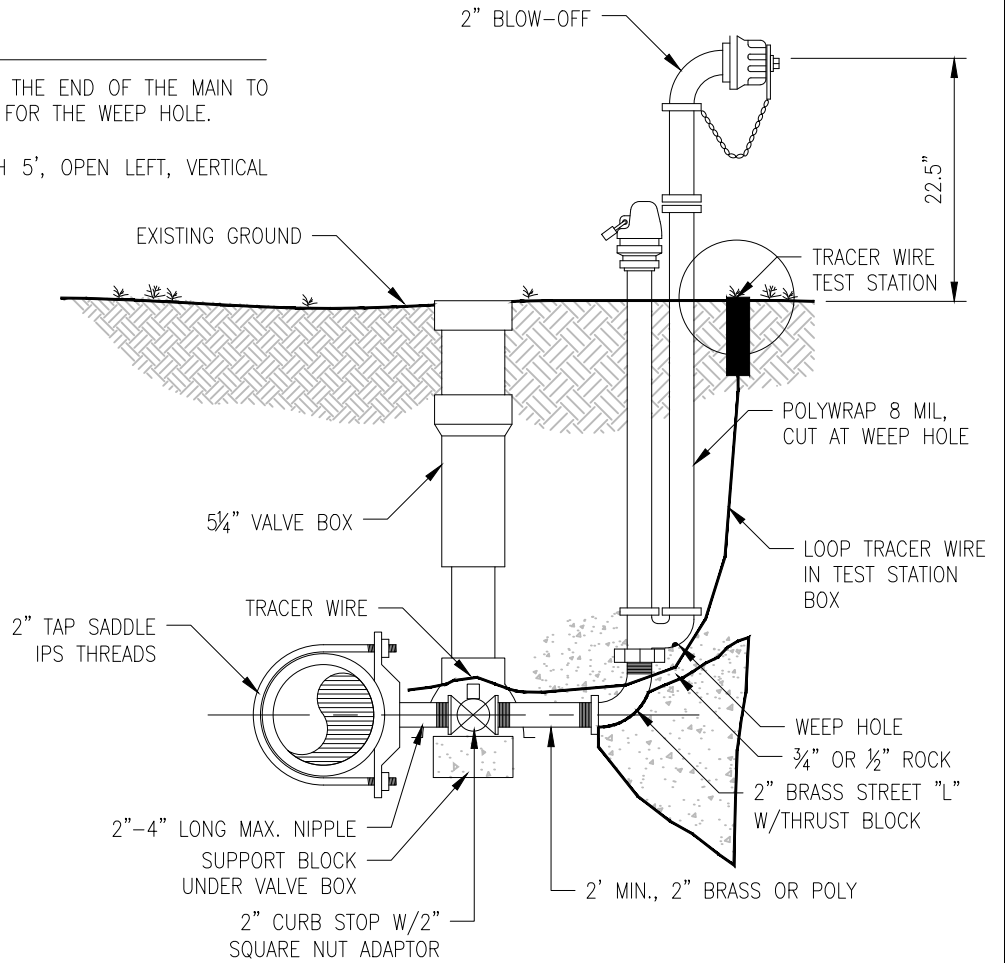
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FIRE HYDRANT ASSEMBLY

SCALE:	DRAWN BY:	DATE:	DATE REVISED:
AS NOTED	DJM	12/14/99	02/01/2021

CONSTRUCTION NOTES:

1. WRAP IN 8 MIL, POLYETHYLENE FROM THE END OF THE MAIN TO GROUND LEVEL, LEAVING AN OPENING FOR THE WEEP HOLE.
2. PART # KUPFERLE #77. BURY DEPTH 5', OPEN LEFT, VERTICAL INLET.
3. NO STOP AND WASTE ALLOWED.



NOTE :

1. MINIMUM 4' LONG BLOWOFF. THE DEPTH OF BURY MUST BE A MINIMUM 4.5'.
2. VERTICAL INLET

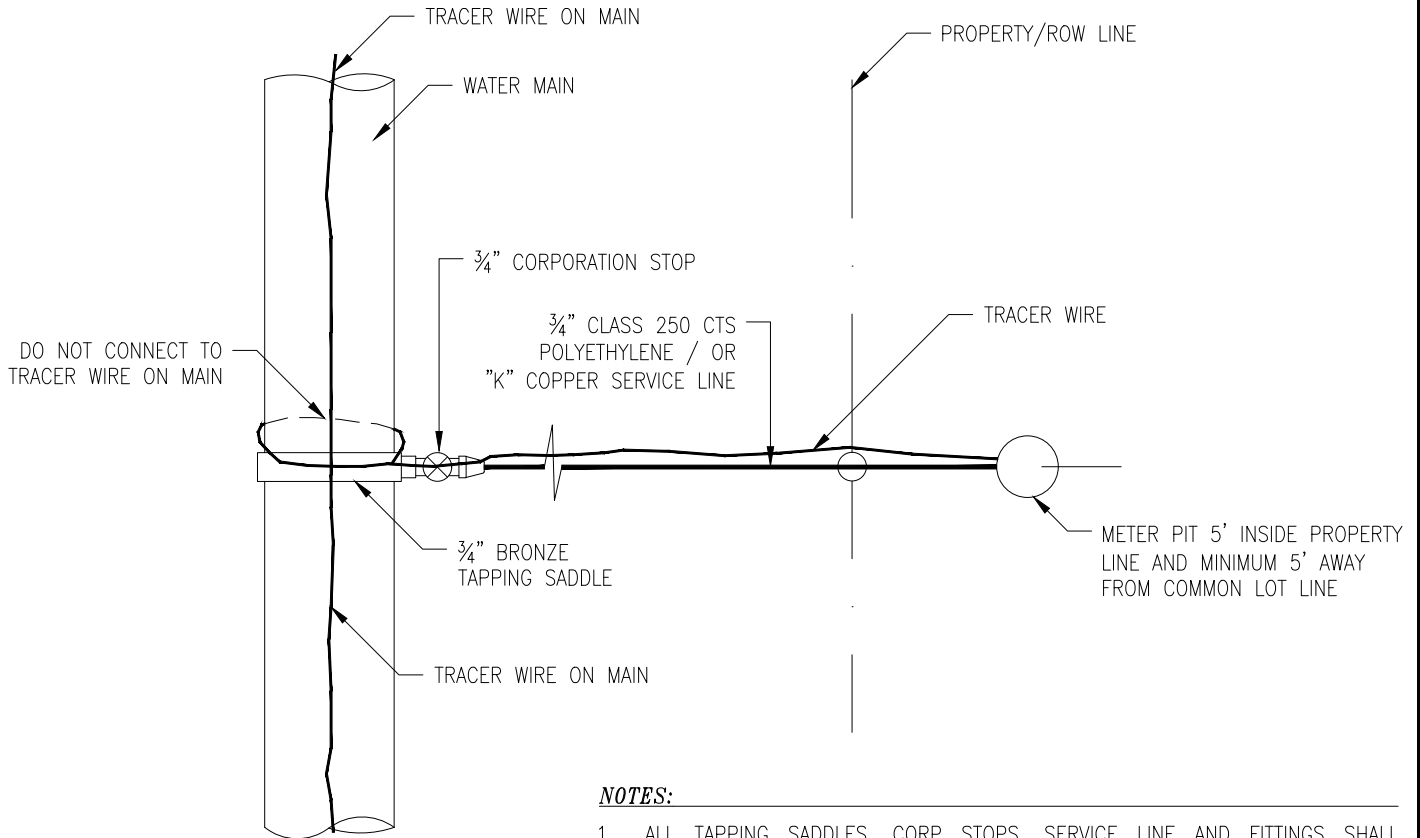


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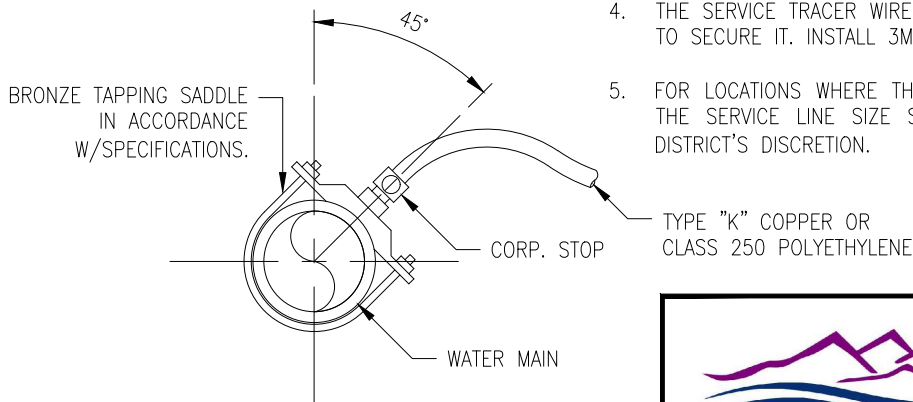
2" BLOW-OFF DETAIL

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NOTES:

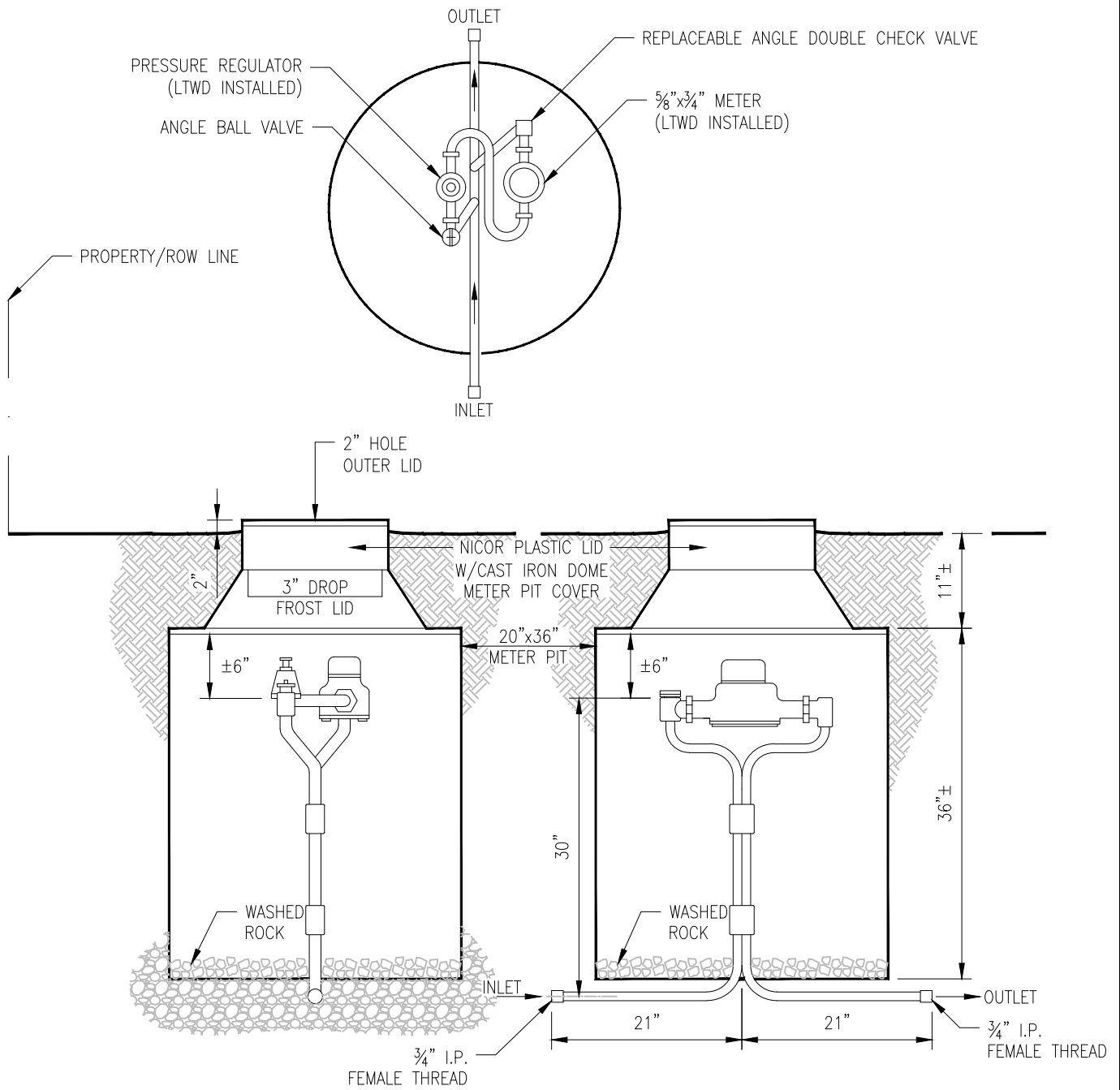
1. ALL TAPPING SADDLES, CORP STOPS, SERVICE LINE AND FITTINGS SHALL CONFORM TO LITTLE THOMPSON WATER DISTRICT SPECIFICATIONS AND RATED FOR 200 PSI.
2. ALL SERVICE LINES SHALL HAVE TRACER WIRE.
3. THE SERVICE TRACER WIRE IS NOT TIED INTO THE MAIN TRACER WIRE.
4. THE SERVICE TRACER WIRE IS TO BE WRAPPED AROUND MAIN AT TAP SADDLE TO SECURE IT. INSTALL 3M DBY CONNECTOR AT END OF WIRE.
5. FOR LOCATIONS WHERE THE METER PIT IS MORE THAN 85' FROM THE MAIN, THE SERVICE LINE SIZE SHALL BE INCREASED TO THE NEXT SIZE AT THE DISTRICT'S DISCRETION.



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RESIDENTIAL WATER SERVICE AND PIT LOCATION DETAIL

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NOTES:

- SPECIFIC METER PIT CARSON HEAVYWALL 20 OR APPROVED EQUAL

SETTER MODEL NUMBERS:

A.Y. McDONALD: 3/4" - 761Q230QFII

PART NUMBER FOR NICOR LID:

13.0PWATth CASTINGS BLU

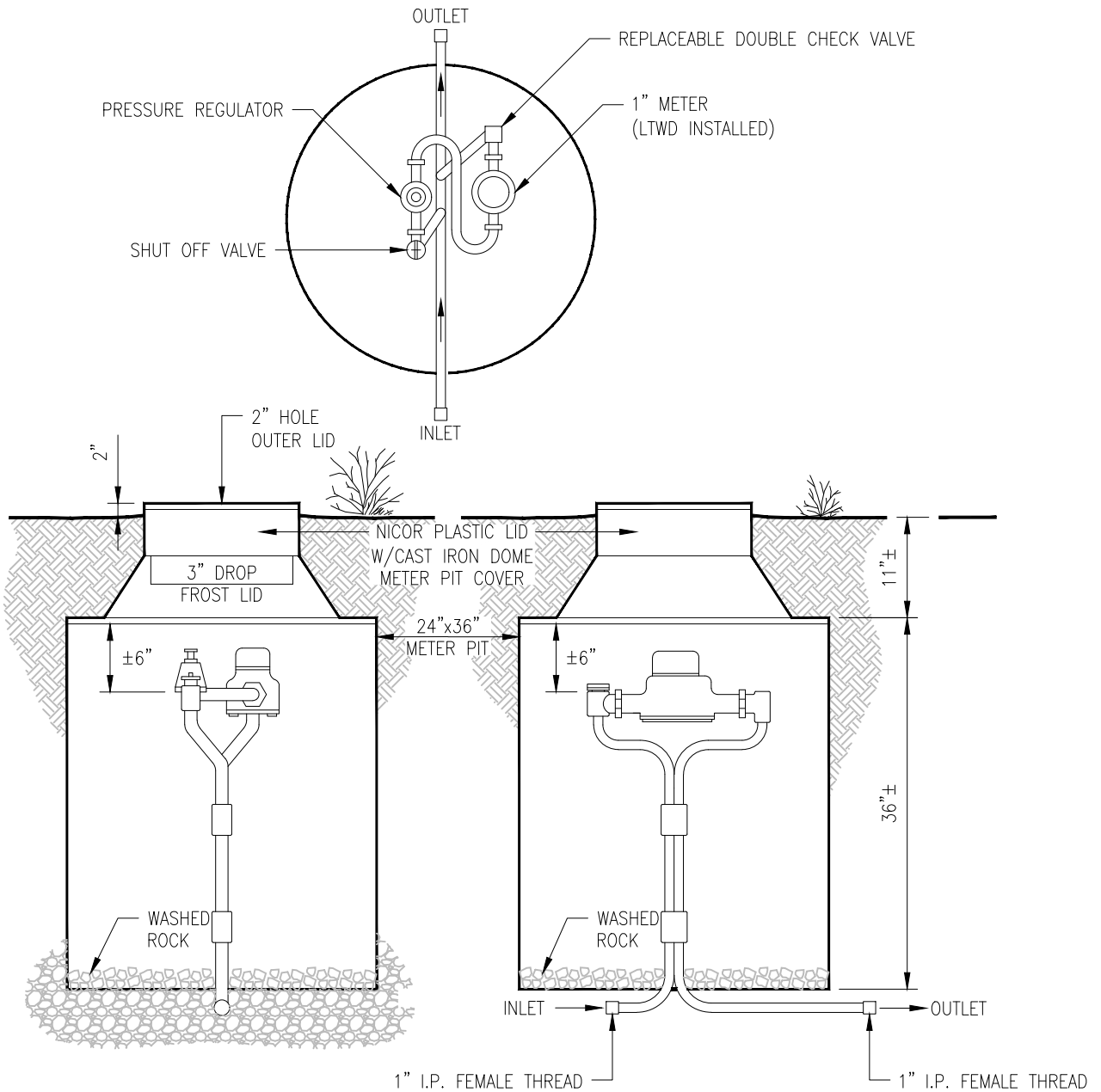


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5/8" & 3/4" RESIDENTIAL METER PIT DETAIL

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SETTER MODEL NUMBERS:
 A.Y. McDONALD: 1" - 761Q430QFII
 PART NUMBER FOR NICOR LID:
 13.0PWATh CASTINGS BLU

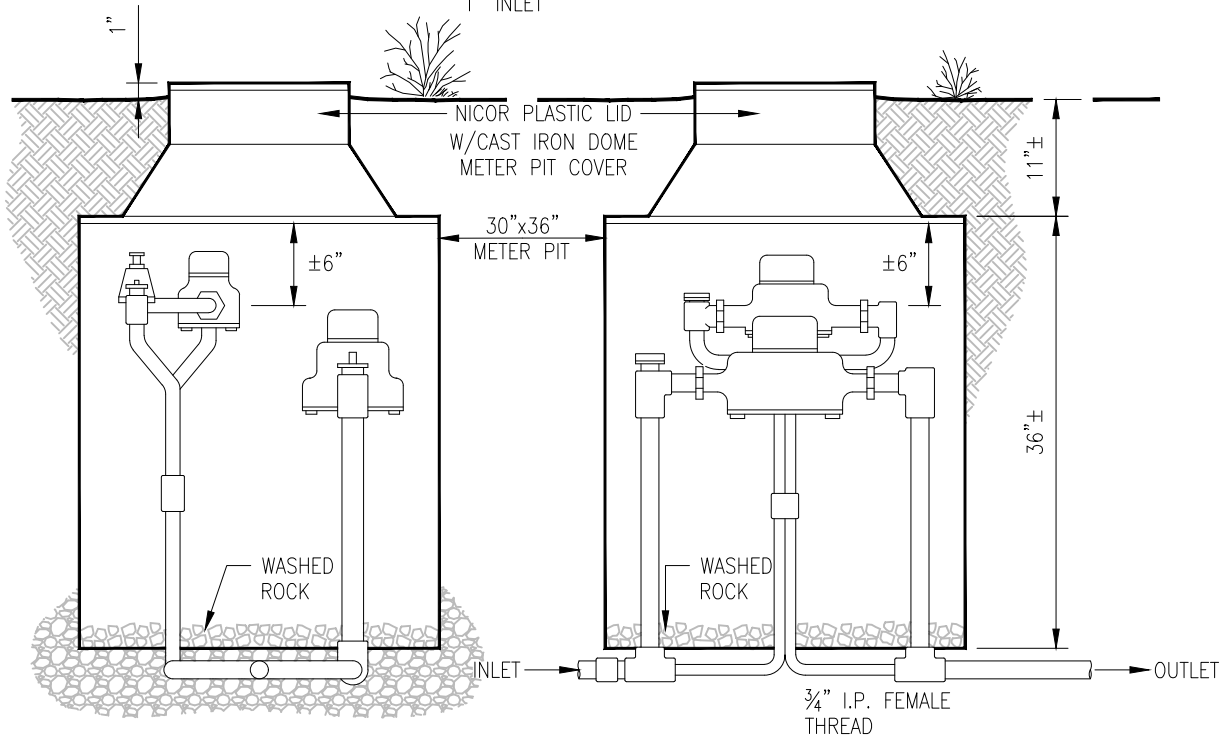
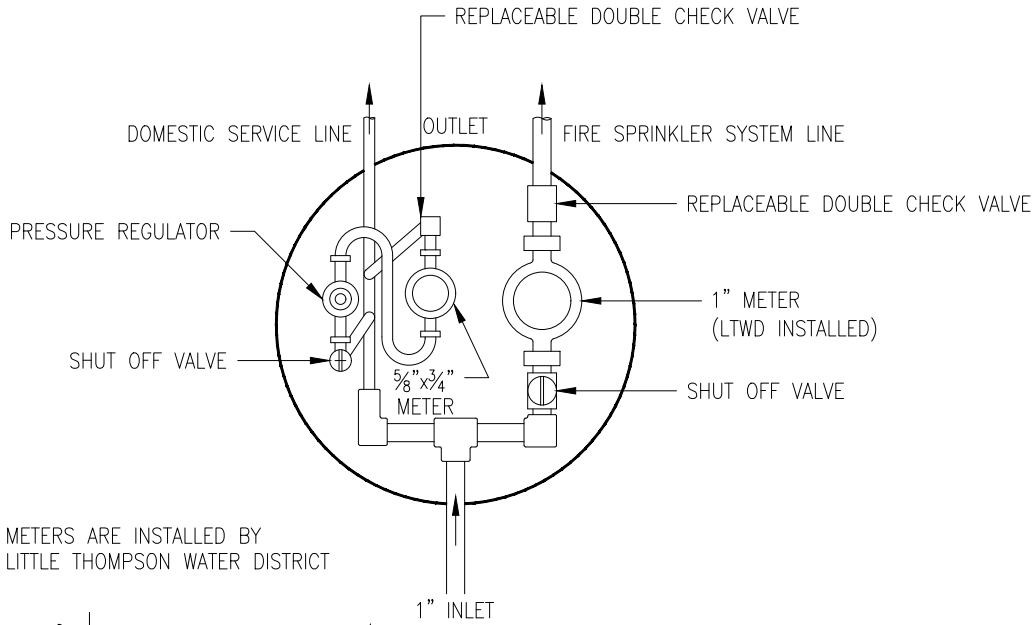


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1" RESIDENTIAL METER PIT DETAIL

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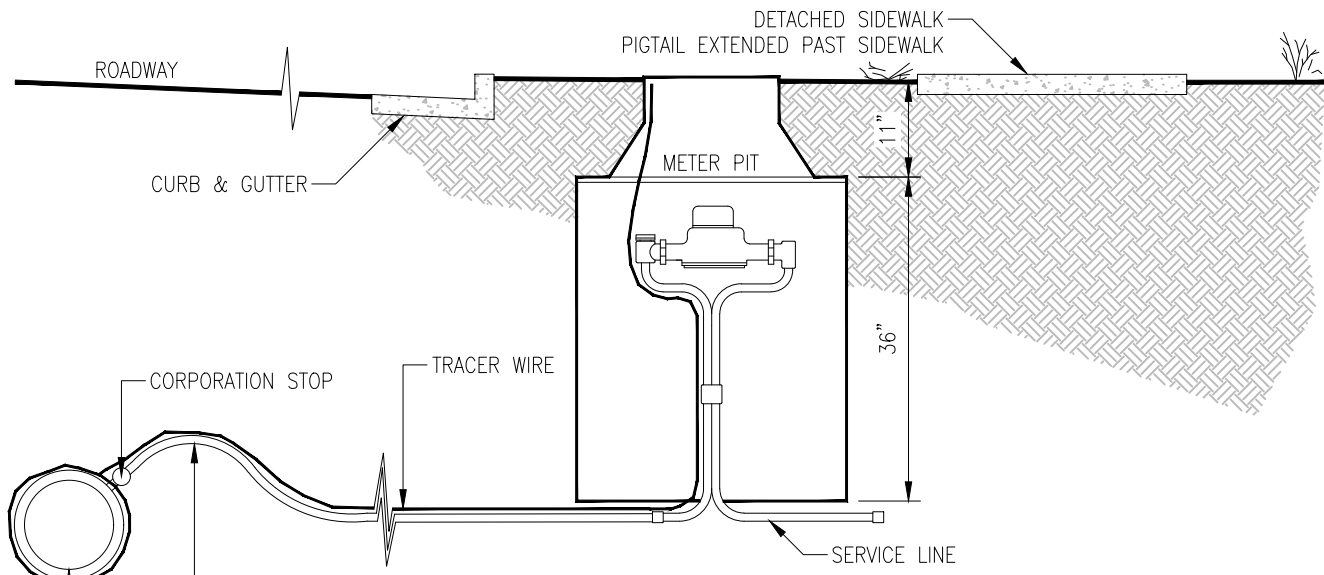
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SETTER MODEL NUMBERS:
A.Y. McDONALD: 1" - 761Q430QFII

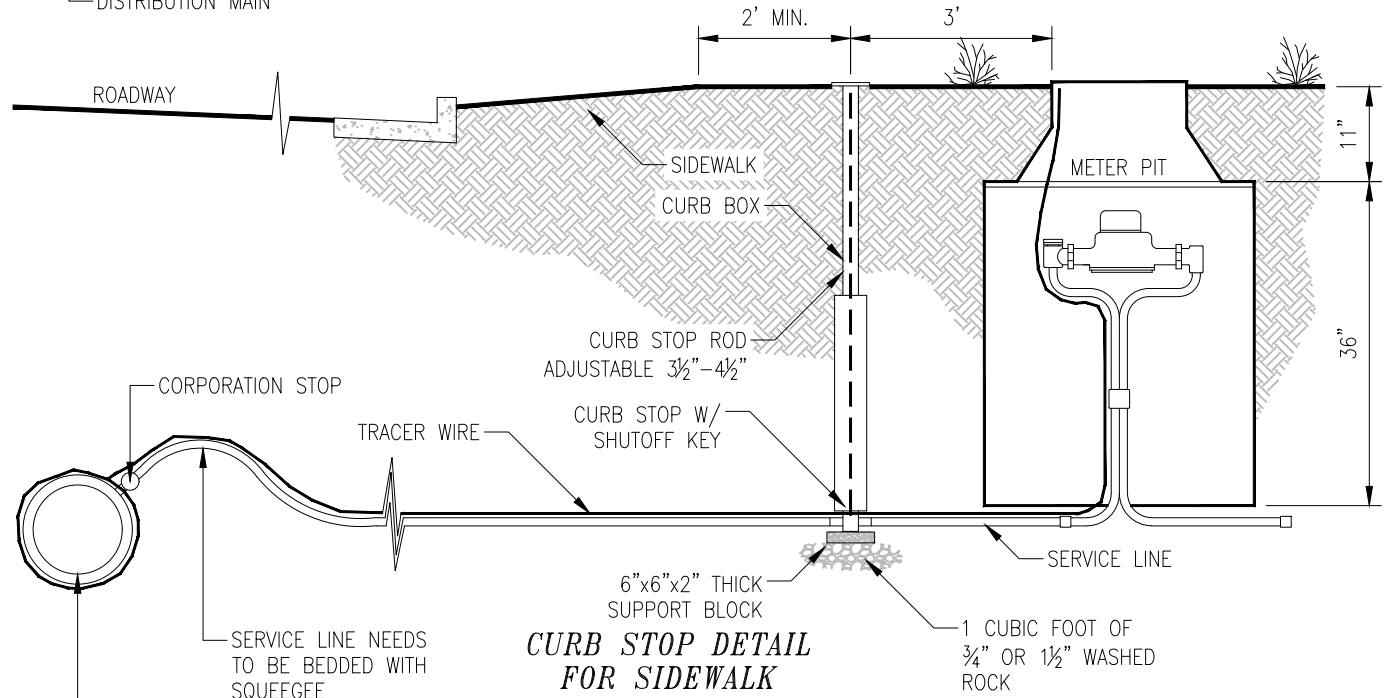
PART NUMBER FOR NICOR LID:
13.0PWATh CASTINGS BLU

RESIDENTIAL 1" FIRE SPRINKLER METER

SCALE:	DRAWN BY:	DATE:	DATE REVISED:
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**CURB STOP DETAIL
DETACHED SIDEWALK**



**CURB STOP DETAIL
FOR SIDEWALK**

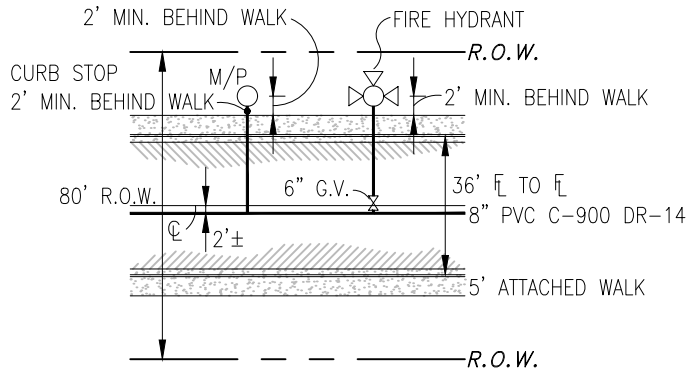
NOTE:
1. METER PIT NEEDS TO BE 5 FT INSIDE PROPERTY LINE.



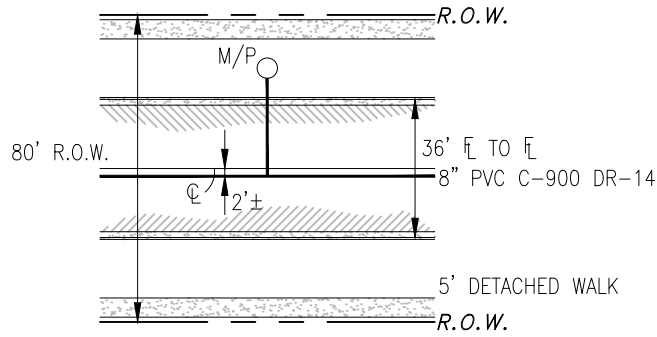
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**METER PIT AND CURB STOP
DETAIL FOR SIDEWALK**

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TYPICAL CURB STOP DETAIL
ATTACHED WALK



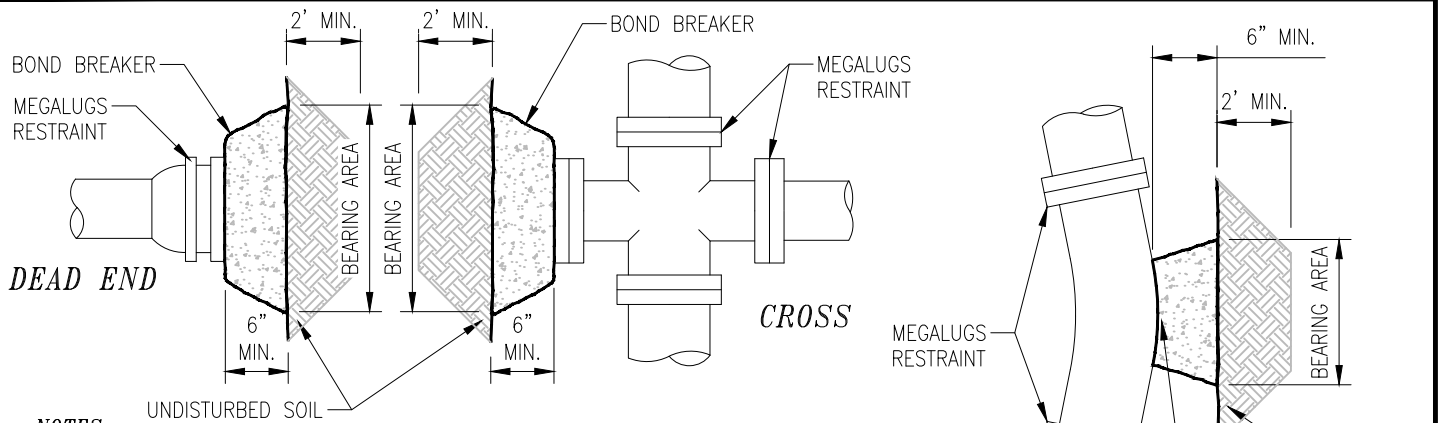
TYPICAL CURB STOP DETAIL
DETACHED WALK



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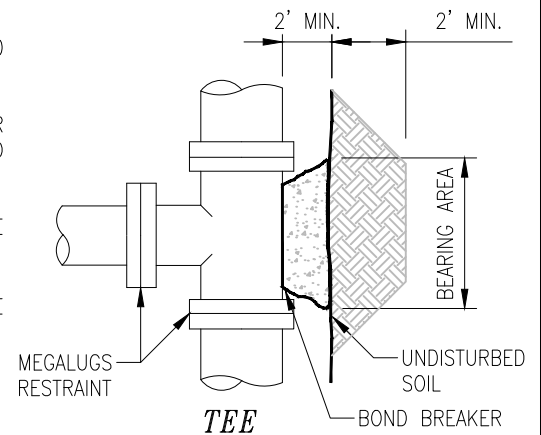
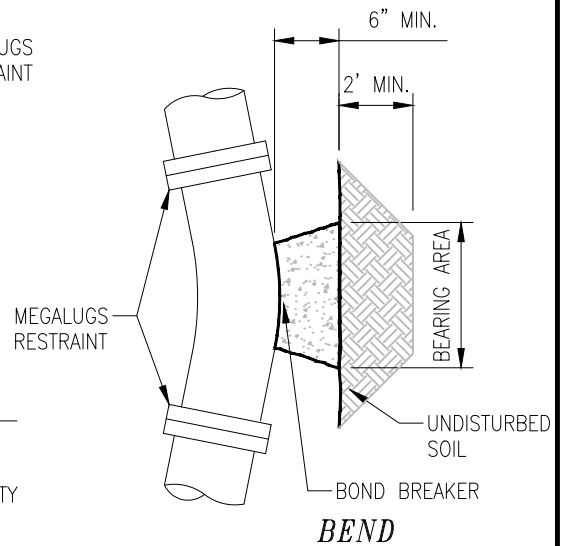
TYPICAL CURB STOP DETAIL

SCALE:	DRAWN BY:	DATE:	DATE REVISED:
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NOTES:

1. BEARING SURFACES SHOWN IN CHART ARE MINIMUM
2. THE CHART IS BASED ON 150 PSI POTENTIAL PIPE PRESSURE PLUS A 1.5 SAFETY FACTOR.
3. ASSUMED BEARING CAPACITY IS 1,500 LB/SQ. FT.
4. ALL CONCRETE IS TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
5. THE DISTRICT ENGINEER OR AUTHORIZED REPRESENTATIVE IS RESPONSIBLE FOR VERIFYING THE ACTUAL SITE CONDITIONS WITH RESPECT TO THE ASSUMPTIONS LISTED ABOVE.
6. INSTALL POLY BEND BREAKERS BETWEEN PIPE AND CONCRETE WITH NO CONCRETE COVERING BOLTS OR GLANDS.
7. MEGALUGS (OR OTHER APPROVED MECHANICAL JOINT RESTRAINT GLANDS) SHALL BE INSTALLED ON ALL FITTINGS.
8. NO SACK CRETE ALLOWED.

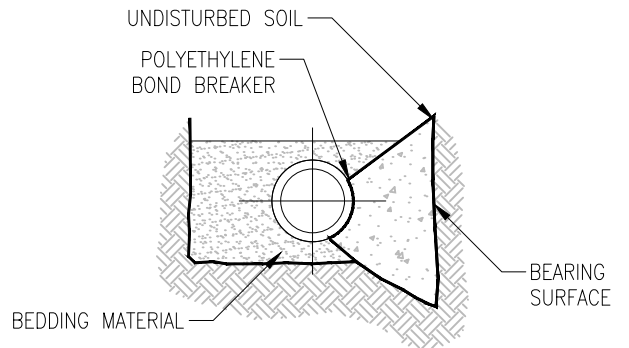


MINIMUM BEARING SURFACE AREA (FT ²)					
NOMINAL PIPE ϕ	1 1/4"	2 1/2"	4 5/8"	6"	TEE OR DEAD END
4"	1.00	1.00	1.00	1.75	1.25
6"	1.00	1.25	2.25	3.25	2.75
8"	1.00	2.00	3.75	6.75	5.00
12"	2.25	4.25	8.25	15.00	10.75
16"	3.25	7.50	14.25	26.50	18.75

LENGTH OF RESTRAINED PIPE					
NOMINAL PIPE ϕ	4"	6"	8"	12"	16"
FITTING	L	L	L	L	L
90° BEND, TEE, DEAD END	30'	46'	61'	90'	116'
VALVE	30'	46'	61'	90'	116'
45° BEND	10'	13'	18'	26'	34'
2 1/2° BEND	10'	10'	10'	20'	20'
1 1/4° BEND	5'	5'	5'	10'	10'

NOTE:

1. THESE NUMBERS ARE ROUNDED UP TO THE NEXT WHOLE NUMBER.



TYPICAL CROSS-SECTION

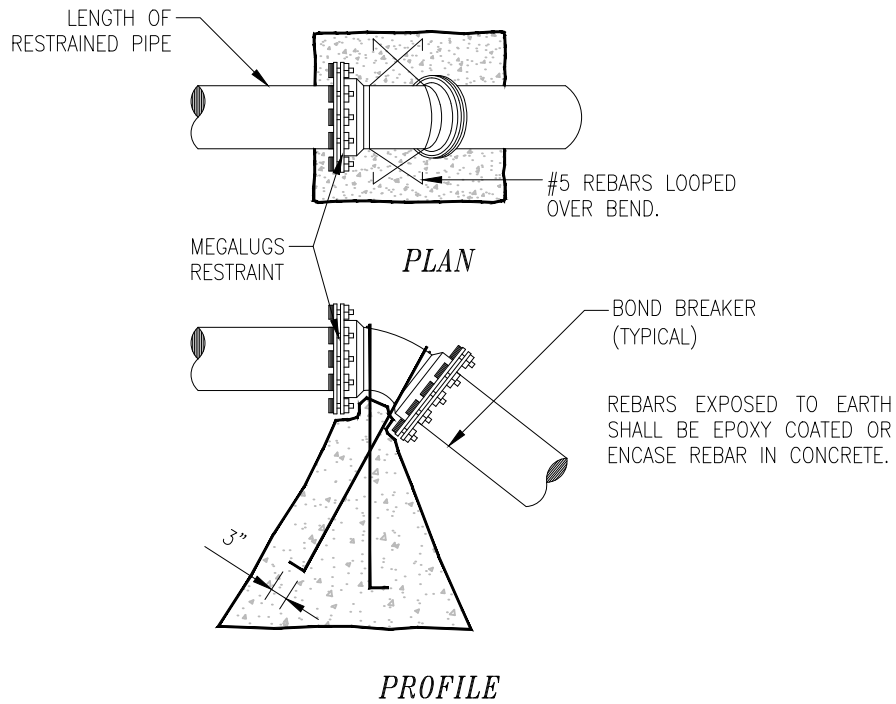


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HORIZONTAL THRUST BLOCK DETAIL

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NOTES:

1. VOLUME IS IN CUBIC FEET.
2. ALL CONCRETE TO BE 3,000 P.S.I. MIN.
3. BLOCKS TO BE CENTERED HORIZONTALLY ON THE BEND.
4. DESIGN BASED ON A TEST PRESSURE OF 150 P.S.I. AND SAFETY FACTOR OF 1.5.
5. THE DESIGN ENGINEER OR AUTHORIZED REPRESENTATIVE IS RESPONSIBLE FOR VERIFYING THE ACTUAL SITE CONDITIONS WITH RESPECT TO THE ASSUMPTIONS LISTED ABOVE.
6. MEGALUGS (OR OTHER APPROVED MECHANICAL JOINT RESTRAINT DEVICES) SHALL BE INSTALLED ON ALL FITTINGS.

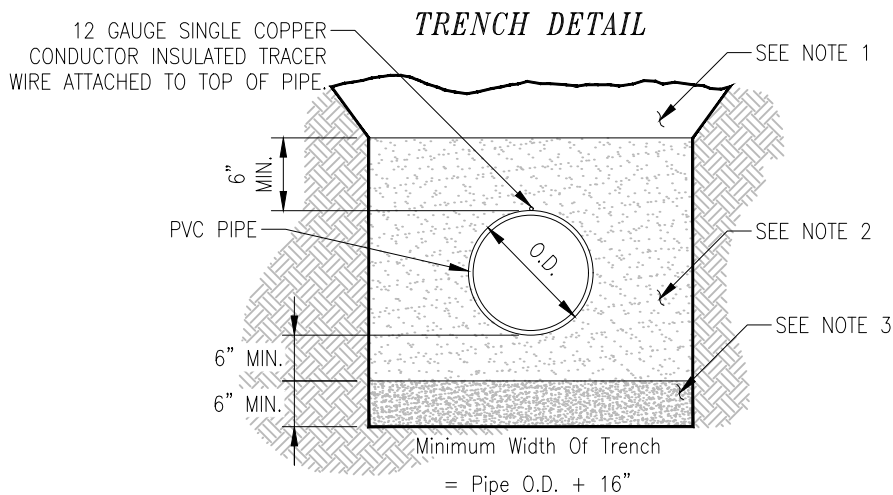
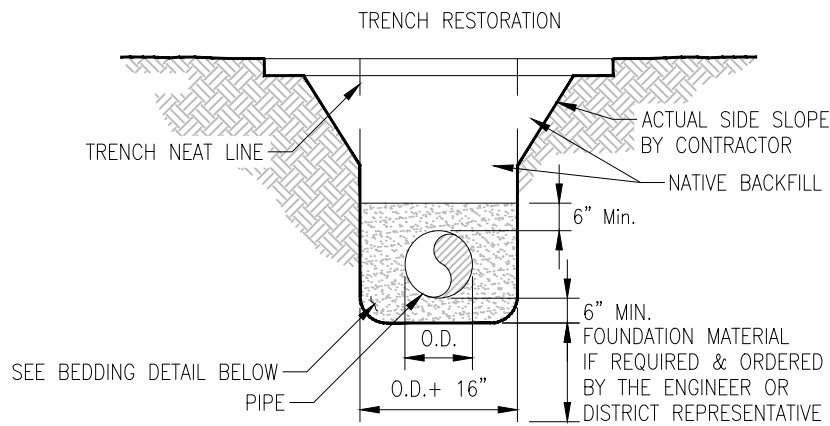
SIZE OF PIPE	11¼°	22½°	45°
	VOL	VOL	VOL
4"	4	8	15
6"	9	18	33
8"	16	31	58
10"	25	49	90
12"	36	70	129
16"	49	101	196



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*UPPER VERTICAL THRUST
 BLOCK DETAIL*

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TYPICAL BEDDING DETAIL

NOTES:

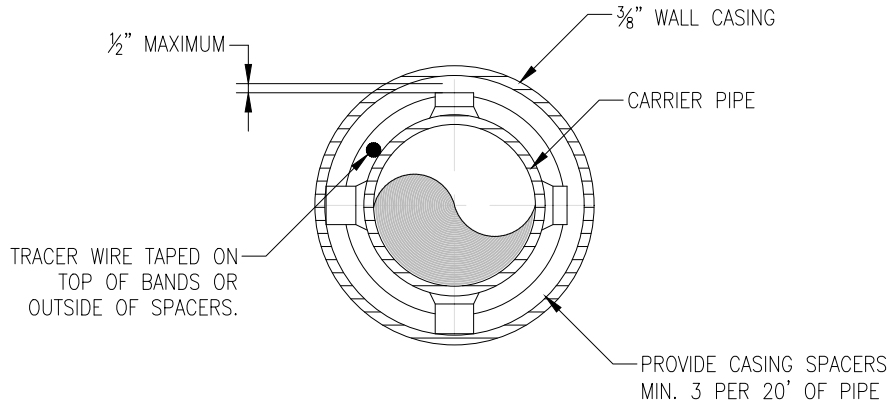
1. USE SOLID BACKFILL OR NATIVE MATERIAL CONTAINING NO LUMPS, NO SIGNIFICANT AMOUNT OF ORGANIC MATERIAL (GRASS, TREE ROOTS, BRANCHES...), OR ROCKS LARGER THAN 3/4", IN ANY DIRECTION. NATIVE MATERIALS MUST BE APPROVED PRIOR TO USE, ADEQUATE COMPACTION IS REQUIRED TO MINIMIZE FUTURE SETTLING OF FILL.
2. BED PIPE IN SQUEEGEE MATERIAL APPROVED BY DISTRICT REPRESENTATIVE.
3. OVER EXCAVATE IN UNSUITABLE MATERIAL & REPLACE WITH STABILIZATION MATERIAL AS REQUIRED ON PLANS OR AS DIRECTED BY DISTRICT REPRESENTATIVE.
4. GROUNDWATER BARRIERS SHALL BE CONSTRUCTED EVERY 500 FEET OF TRENCH WHICH HAS BEEN BACKFILLED WITH NON-NATIVE MATERIAL. GROUNDWATER BARRIERS SHALL BE CONSTRUCTED THE FULL TRENCH WIDTH, APPROXIMATELY 4 FEET LONG, AND TO WITHIN 1 FOOT OF THE TOP OF THE TRENCH.



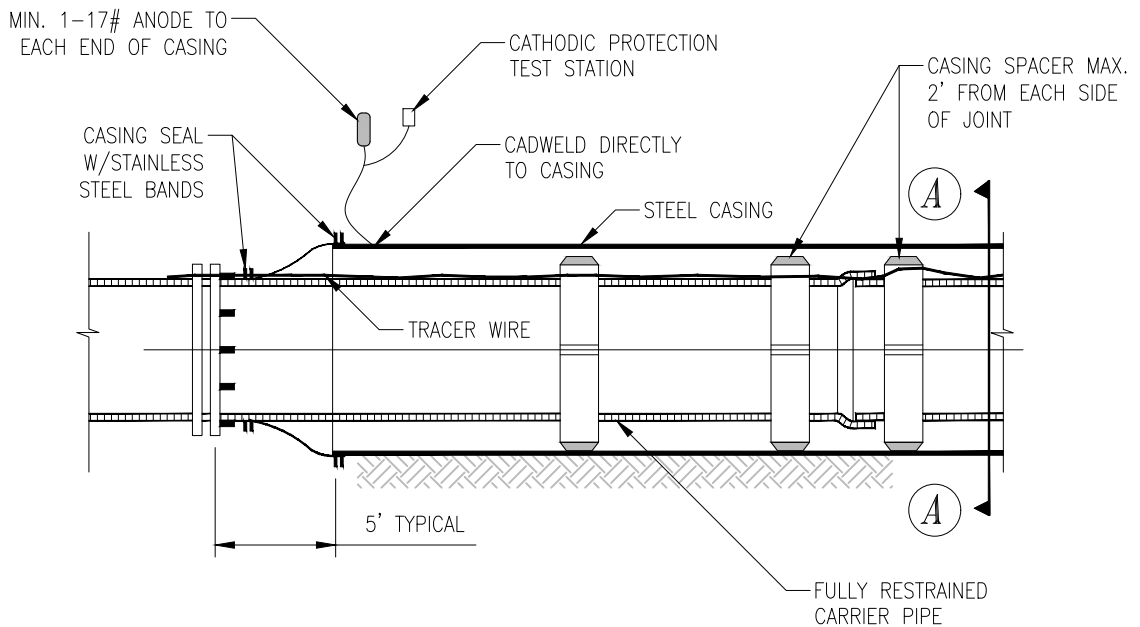
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PIPE BEDDING DETAIL

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SECTION 'A'



NOTES:

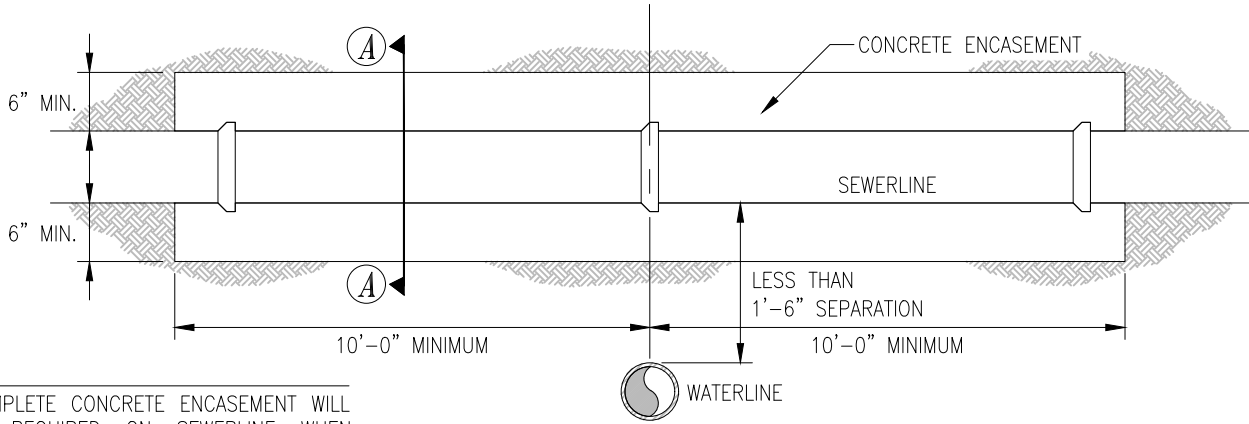
1. PROVIDE MJ CAP OR SEAL FOR OPEN END OF PIPE WHEN PUSHING THROUGH CASING. ALL JOINTS THROUGH CASING AND 21' BEYOND RESTRAINED.
2. CASING SPACERS SHALL BE STAINLESS STEEL WITH POLYMER RUNNERS. LOCATIONS AND QUANTITY SHALL BE NO LESS 3 PER PIPE LENGTH OR MORE AS RECOMMENDED BY PIPE MANUFACTURER.



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**STANDARD PIPE CASING
DETAIL**

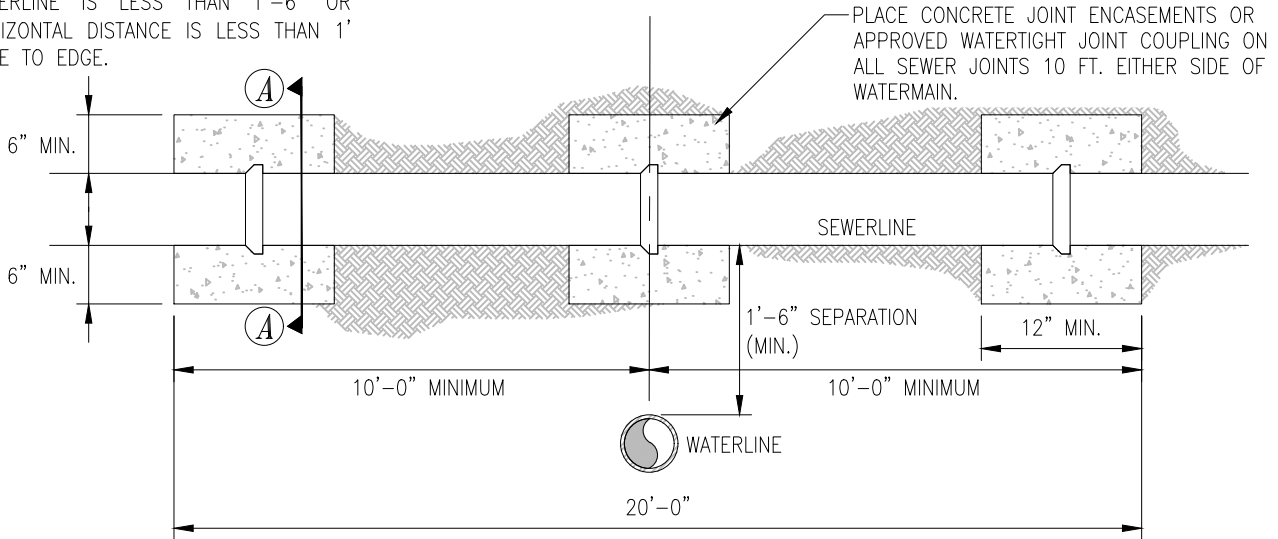
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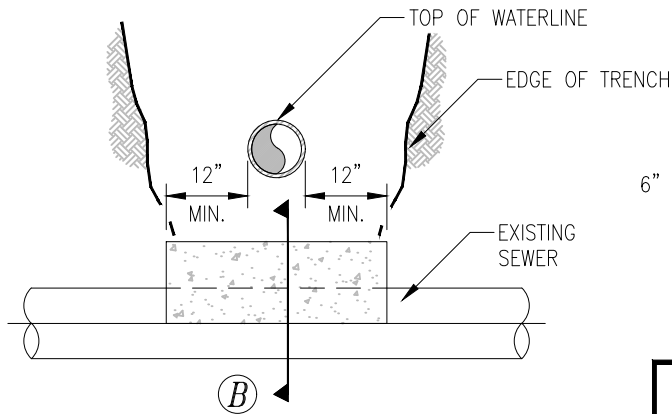
SEWER CONCRETE ENCASEMENT

NOTE:

1. COMPLETE CONCRETE ENCASEMENT WILL BE REQUIRED ON SEWERLINE WHEN CLEAR VERTICAL DISTANCE FROM WATERLINE IS LESS THAN 1'-6" OR HORIZONTAL DISTANCE IS LESS THAN 1' EDGE TO EDGE.



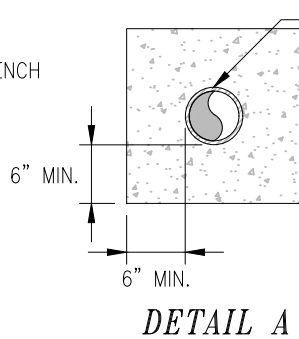
SEWER JOINT ENCASEMENT



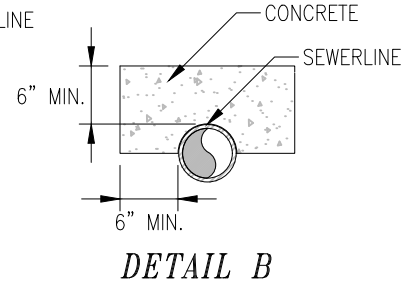
SEWER CROSSING UNDER

NOTE:

1. CONCRETE ENCASEMENT WILL NOT BE REQUIRED IF WATERLINE IS 2'-6" OR MORE ABOVE SEWERLINE.
2. IF WATERLINE COMES IN AFTER SEWER, USE STEEL CASING ON WATERLINE. IF SEWERLINE COMES IN AFTER WATER, ENCASE SEWERLINE PER DETAILS.
3. IF WATER IS UNDER SEWER, THE WATERLINE MUST BE IN STEEL CASING ACCORDING TO STEEL CASING DETAIL.
4. IF WATER IS ABOVE THE SEWER WITH A MIN. OF 18", NO CASING IS REQUIRED.



DETAIL A



DETAIL B

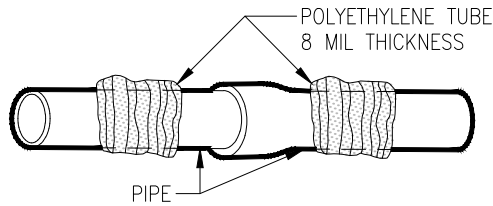


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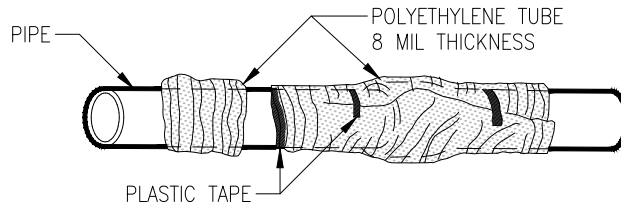
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SEWER CROSSING DETAIL

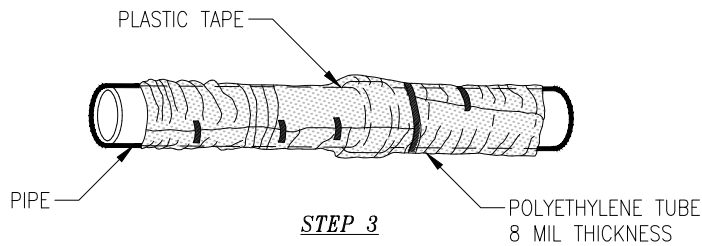
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STEP 1



STEP 2



STEP 3

STEP 1 – PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING IT INTO TRENCH.

STEP 2 – PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF PIPE AND TAPED IN PLACE.

TAPS: MAKE TAPS BY WRAPPING THREE LAYERS OF COMPATIBLE TAPE AROUND THE PIPE TO COVER THE TAPPING MACHINE AREA. INSTALL CORPORATION STOP THROUGH THE TAPE AND POLYETHYLENE.

STEP 3 – OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF PIPE AND TAPED IN PLACE.

STEP 4 – CAREFULLY BACKFILL WITH CLEAN MATERIAL THAT WILL NOT DAMAGE ENCASEMENT.

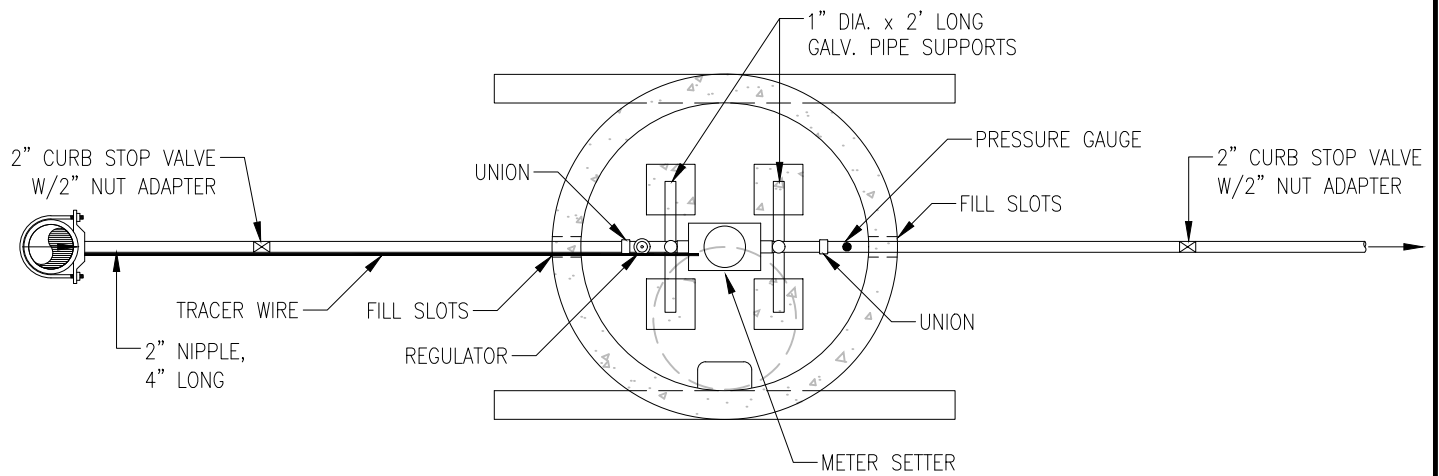


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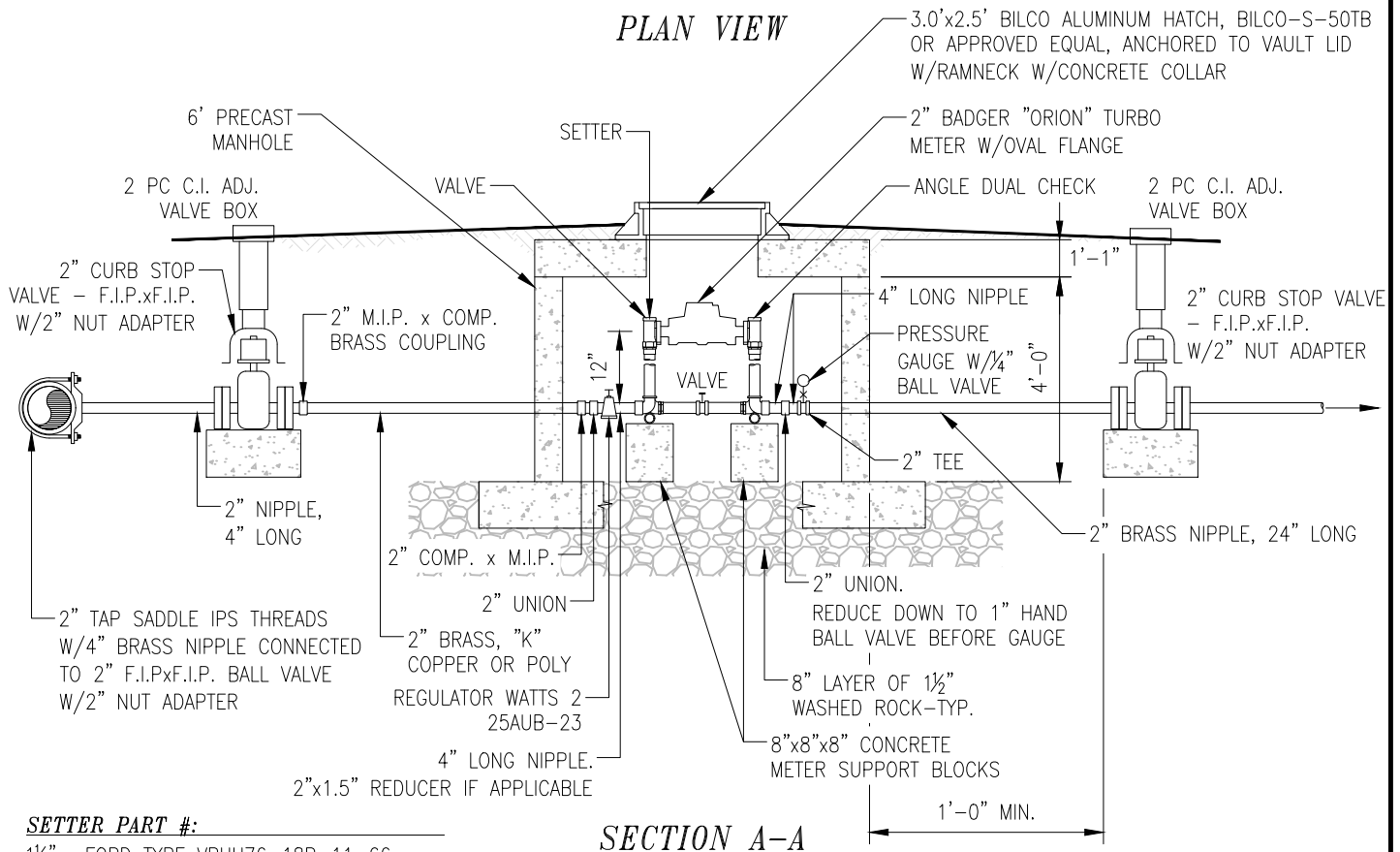
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**FIELD INSTALLATION
 POLYETHYLENE AWWA C 105
 METHOD A DETAIL**

SCALE:	DRAWN BY:	DATE:	DATE REVISED:
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PLAN VIEW



SECTION A-A

SETTER PART #:

- 1 1/2" FORD TYPE VBHH76-18B-11-66
- 2" FORD TYPE VBHH77-18B-11-77

MANHOLE PARTS LIST:

- 6' I.D.x13" OFFSET FLATTOP 24" OPENING
- 6' I.D. FLATx48" W/PIPE SLOTS
- FOOTER 12"x9"x8'-0" LONG

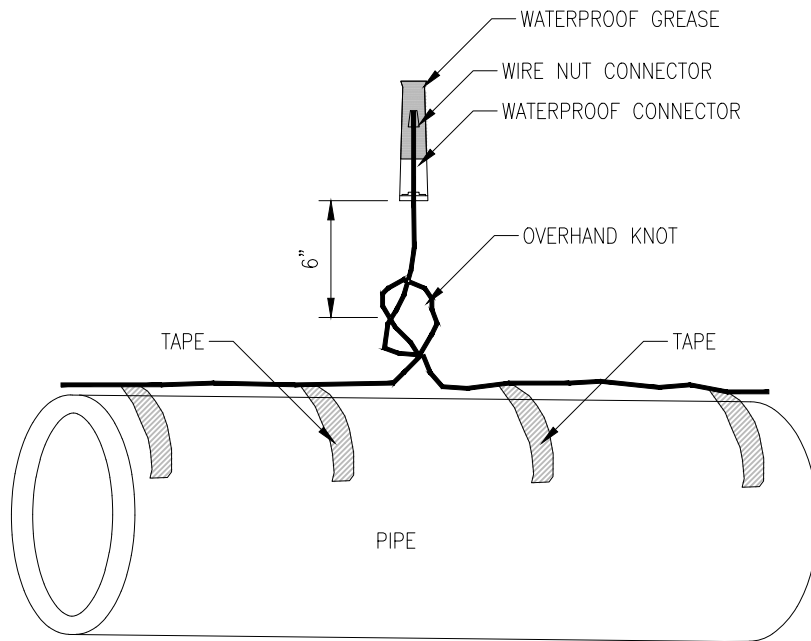


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1-1/2" & 2" METER VAULTS DETAIL

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NOTES:

1. WATERPROOF CONNECTOR SHALL BE "3M DBY DIRECT BURY SPLICE KIT" OR AN APPROVED EQUAL.
2. THE TRACER WIRE COATING SHALL BE STRIPPED BACK ½".
3. A WIRE NUT SHALL BE USED TO CONNECT THE BARE METAL ENDS OF THE TRACER WIRE.
4. THE WIRE NUT SHALL BE PLACED INSIDE THE WATERPROOF CONNECTOR ACCORDING TO THE MANUFACTURES INSTALLATION INSTRUCTIONS.
5. AN OVERHAND KNOT SHALL BE TIED 6" FROM THE WATERPROOF CONNECTOR.
6. THE TRACER WIRE SHALL BE TAPED TO THE PIPE ON BOTH SIDES OF THE SPLICE.

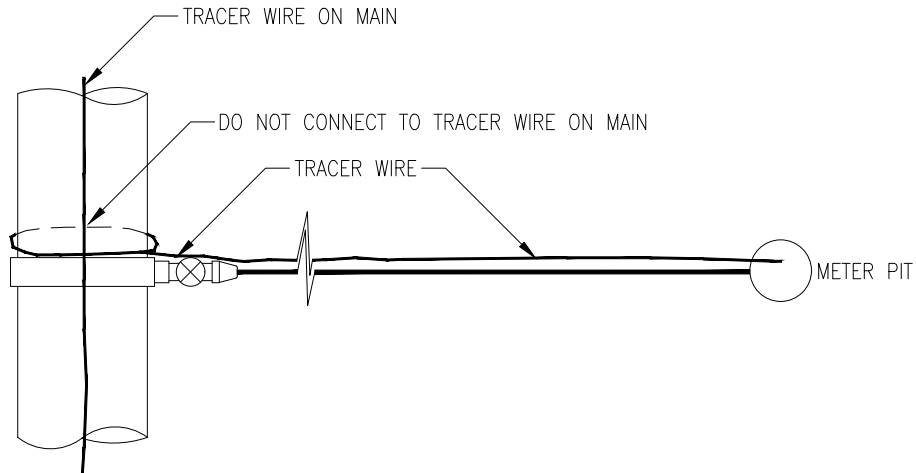


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TRACER WIRE SPLICE DETAIL

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NOTES:

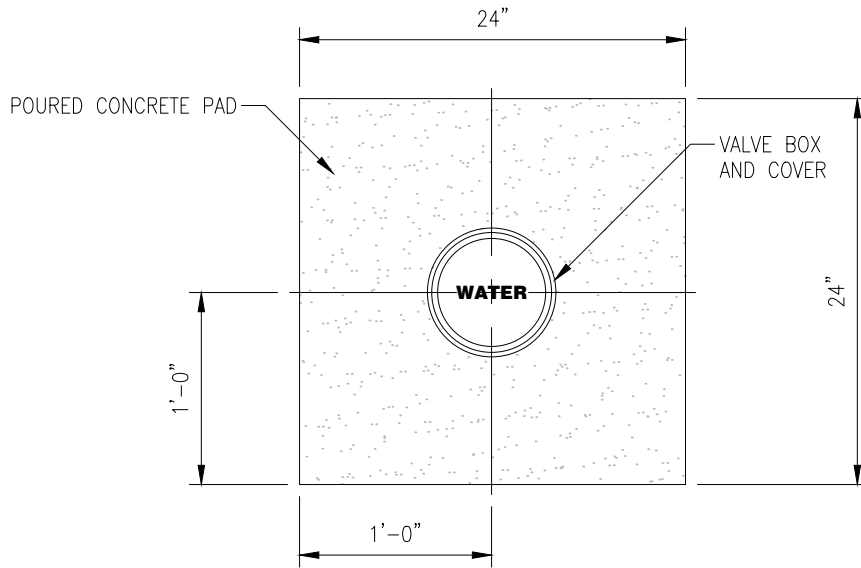
1. ALL SERVICE LINES SHALL HAVE TRACER WIRE.
2. THE SERVICE TRACER WIRE IS NOT TIED INTO THE MAIN TRACER WIRE.
3. THE SERVICE TRACER WIRE IS TO BE WRAPPED AROUND MAIN AT TAP SADDLE TO SECURE IT. INSTALL 3M GREASE CONNECTOR AT END OF WIRE.
4. PIGTAIL THE SERVICE TRACER WIRE DOWNSTREAM OF METER PIT AND EXTEND TO EDGE OF RIGHT OF WAY.



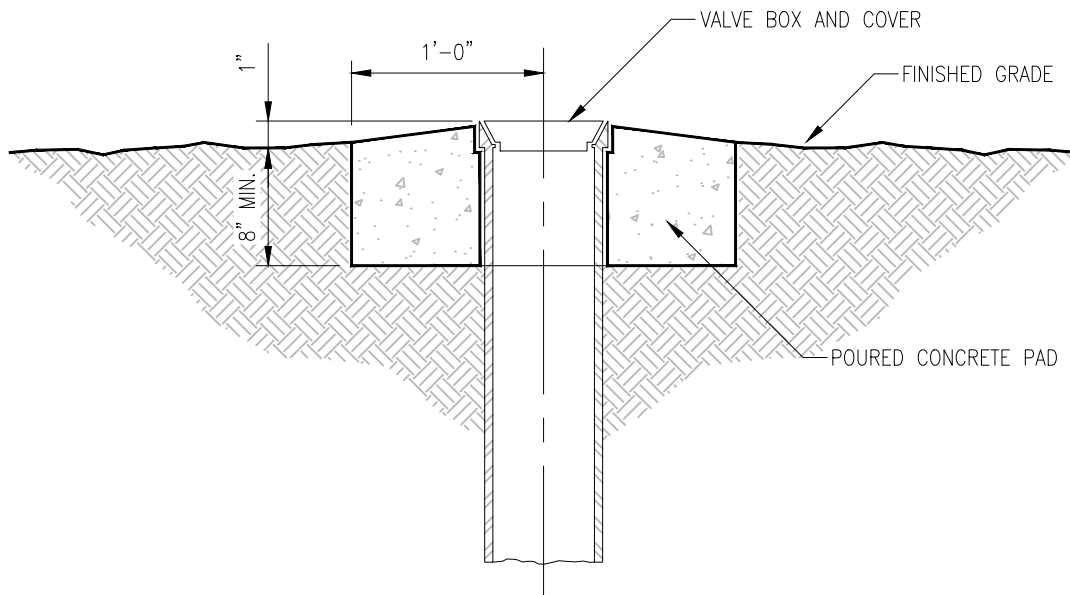
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*TRACER WIRE CONNECTIONS
 FROM MAIN LINE TO METER
 PIT DETAIL*

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PLAN VIEW



ELEVATION

NOTES:

1. CONCRETE PADS FOR VALVE BOX ARE TO BE INSTALLED USING A 2000 PSI MIX.
2. VALVE BOX CONCRETE PAD TO BE INSTALLED ON ALL VALVES IN NON-PAVED AREAS OR AS DIRECTED BY LTWD WATER.

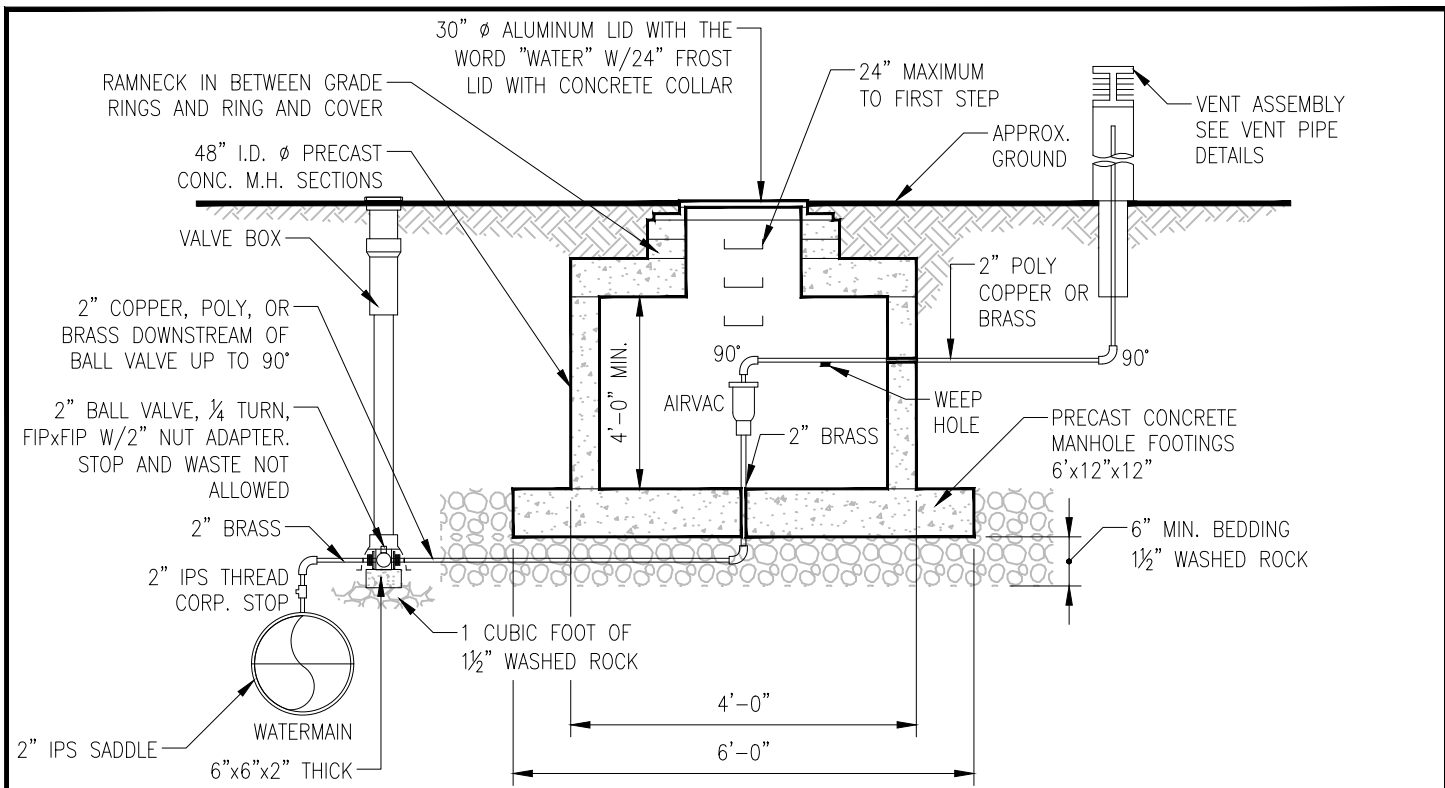


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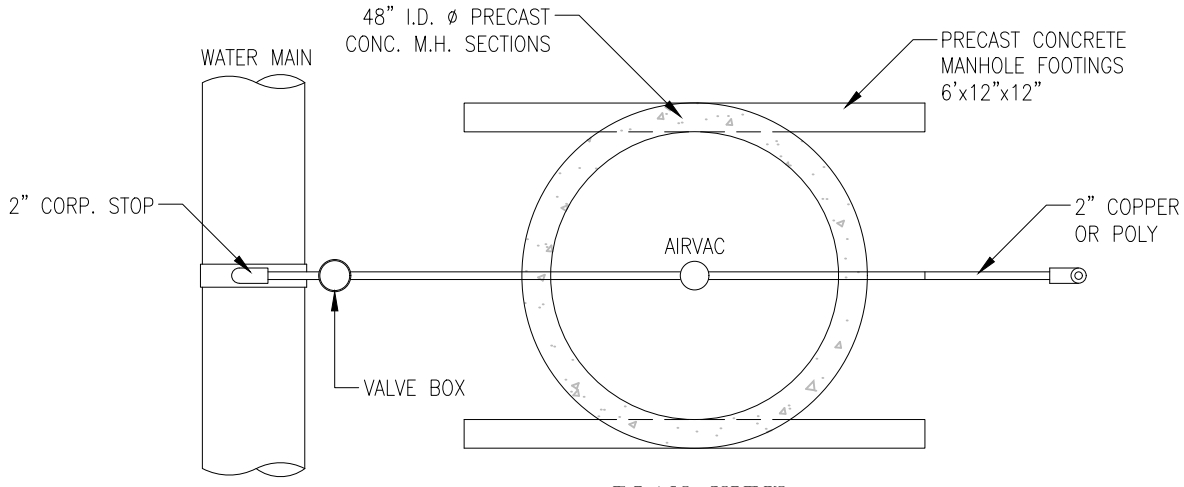
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 FAX: (970) 532-3734

***VALVE BOX CONCRETE PAD
 DETAIL***

SCALE:	DRAWN BY:	DATE:	DATE REVISED:
AS NOTED	DJM	12/14/99	02/01/2021



ELEVATION



PLAN VIEW

- MANHOLE PARTS LIST:**
- 4' I.D.x13" OFFSET FLATTOP 24" OPENING
 - 4' I.D. FLATx48" W/PIPE SLOTS
 - FOOTER 12"x9"x8'-0" LONG

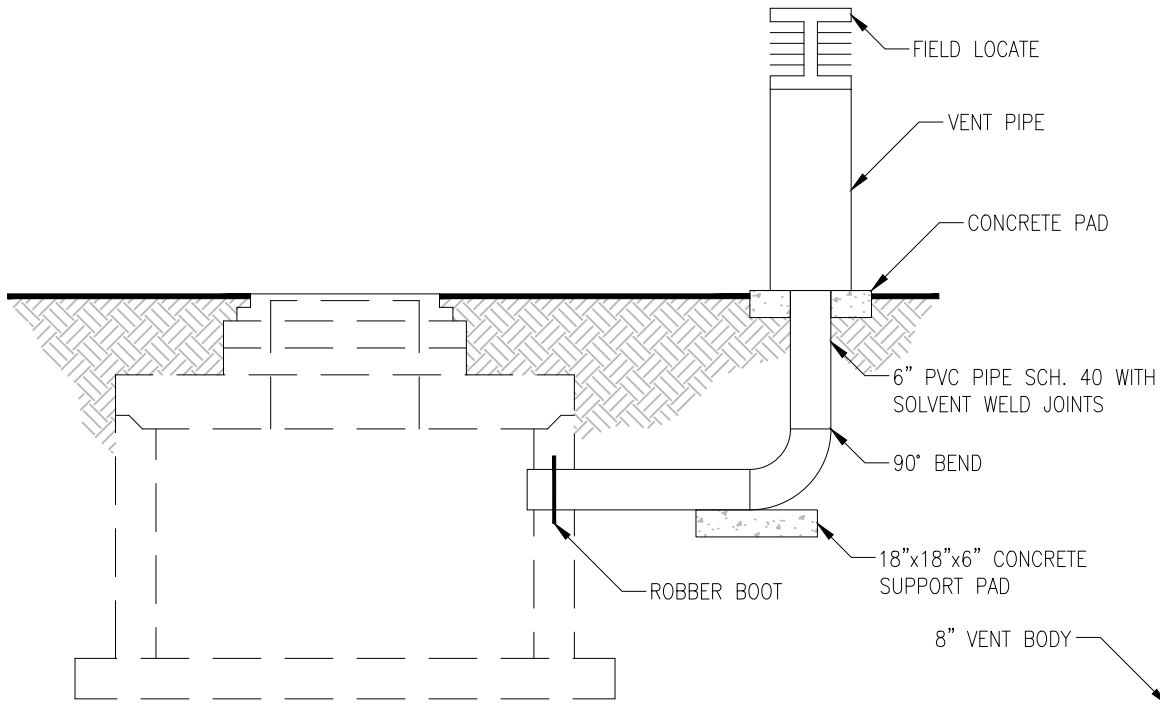


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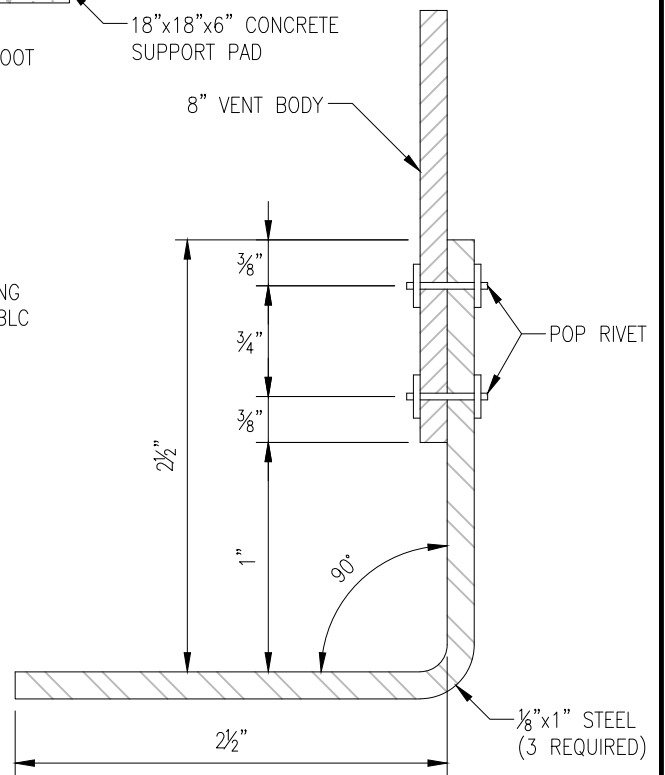
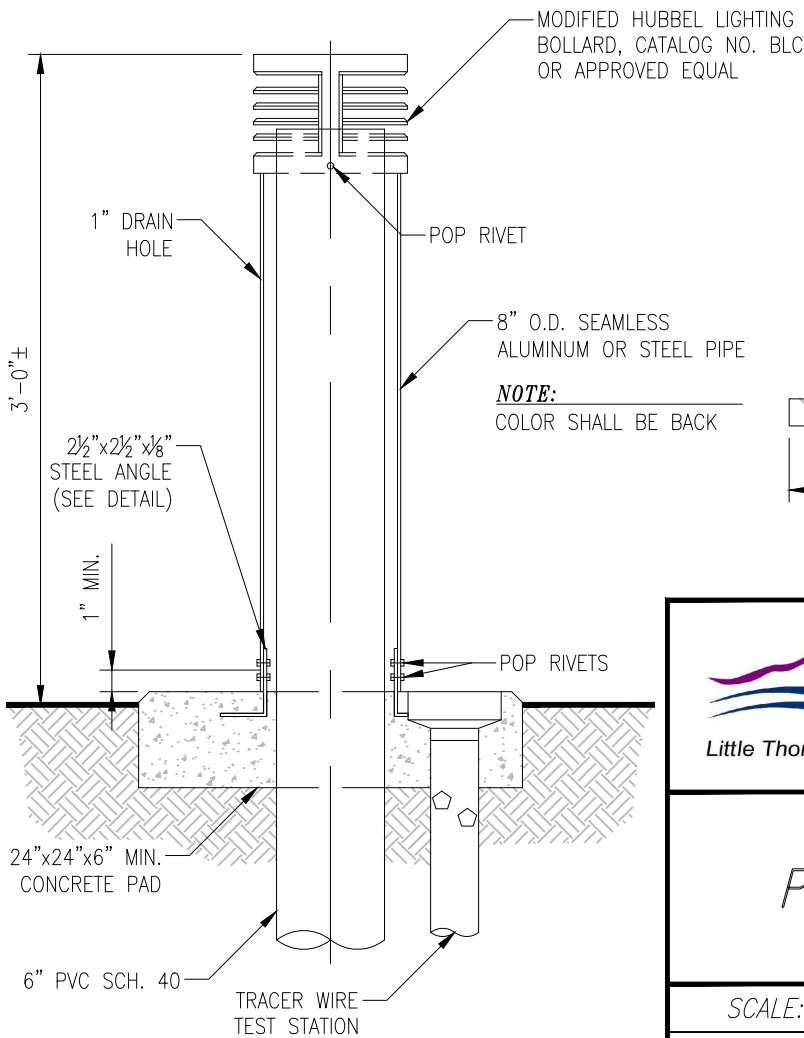
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2" AIRVAC DETAIL

SCALE:	DRAWN BY:	DATE:	DATE REVISED:
AS NOTED	DJM	12/14/99	02/01/2021



VAULT VENT PIPE INSTALLATION





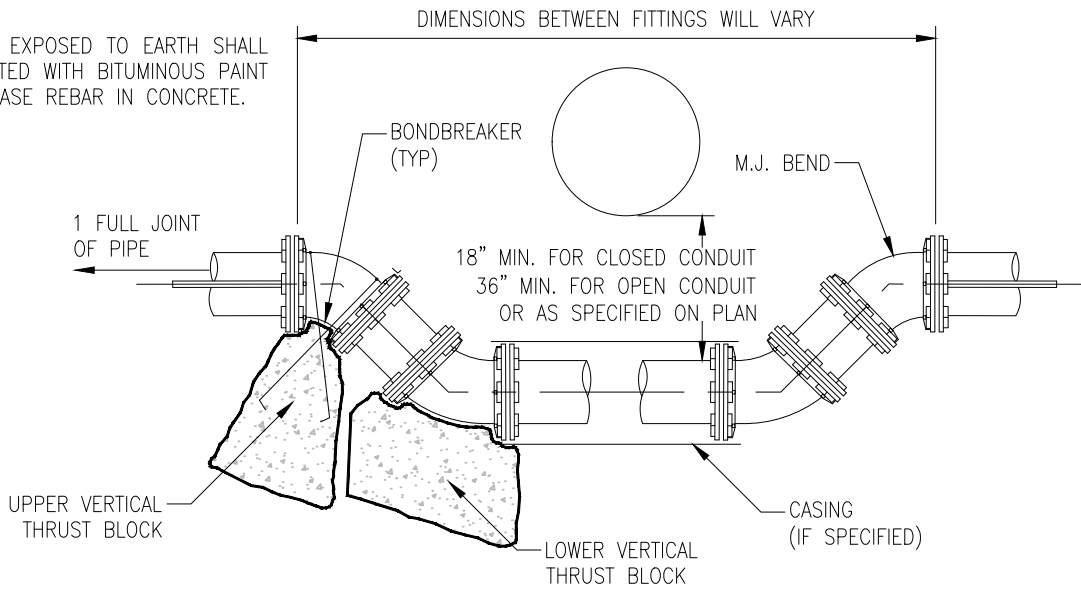
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PVC VENT PIPE DETAIL

SCALE:	DRAWN BY:	DATE:	DATE REVISED:
AS NOTED	DJM	12/14/99	02/01/2021

REBARS EXPOSED TO EARTH SHALL BE COATED WITH BITUMINOUS PAINT OR ENCASE REBAR IN CONCRETE.



SIZE OF PIPE	11¼°	22½°	45°
	VOL	VOL	VOL
4"	4	8	15
6"	9	18	33
8"	16	31	58
10"	25	49	90
12"	36	70	129
16"	49	101	196

NOTES:

1. LOWERING OF THIS TYPE SHALL BE RESTRAINED BY MEANS OF MEGALUGS AND CONCRETE THRUST BLOCKS.
2. FOR SIZING INFORMATION OF THRUST BLOCKS REFER TO THRUST BLOCK DETAILS.
3. END BOTH ENDS OF CROSSING WITH A FULL 20'/18' JOINT OF PIPE. IN ADDITION TO JOINT RESTRAINTS BASED ON LENGTH OF RESTRAINED PIPE.
4. ALL METALLIC PIPE, FITTINGS, AND APPURTENANCES SHALL BE WRAPPED IN 8 MIL. POLYETHYLENE.



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**16" OR SMALLER WATERLINE,
 LOWERING DETAIL**

SCALE:	DRAWN BY:	DATE:	DATE REVISED:
AS NOTED	DJM	12/14/99	02/01/2021