

PUMPER NOZZLE TO FACE STREET. HYDRANT TO BE MUELLER, AMERICAN-DARLING OR APPROVED EQUAL

"STORZ" NOZZLE CONNECTION

48" MAX.

18" MIN.

FIRE HYDRANT NOTES:

1. FIRE HYDRANTS SHALL BE INSTALLED PER PLANS AND FIELD VERIFICATION WITH LCWASD INSPECTOR. THE DISTANCE FROM THE WATER MAIN TO THE FIRE HYDRANT VARIES. THE CONTRACTOR'S BID PRICE FOR FIRE HYDRANT ASSEMBLIES SHALL BE BASED ON AVERAGE DISTANCE OF 15' FEET.
2. COSTS TO INSTALL THE FIRE HYDRANT TO GRADE SHALL BE PAID BY THE CONTRACTOR.
3. ALL FITTINGS SHALL BE MECHANICALLY RESTRAINED.
4. TOP OF VALVE BOX AND COLLAR SHALL BE PAINTED AS DIRECTED BY ENGINEER.
5. ALL NEW HYDRANTS SHALL BE FURNISHED WITH "STORZ" NOZZLES IN ACCORDANCE WITH SPECS.

FINISH GRADE

SLOPE GROUND TO DRAIN AWAY FROM HYDRANT

3/4" STONE TO 6" ABOVE BARREL

CLEAR WEEP HOLE BEFORE INSTALLATION DO NOT FILL W/ CONCRETE

FITTING RESTRAINT

NEW 6" D.I.P. (USE GRADE LOCK WHEN NEEDED)

3'-0" MIN. COVER

CONCRETE PROTECTOR RING

CAST IRON VALVE BOX W/ CAP

6" GATE VALVE

3/4" DIAMETER THREADED ROD (2 REQUIRED)

MECHANICAL JOINT HYDRANT TEE

WATER MAIN

LENGTH TO BE DETERMINED IN THE FIELD

FITTING RESTRAINT

NOTE:

- 1) DISTANCE AND DIRECTION TO VALVE TO BE STAMPED INTO METAL ON THE BONNET
- 2) HYDRANT TO BE RODDED TO THE VALVE IF THE DISTANCE IS LESS THAN 10'

FIRE HYDRANT AND VALVE DETAIL
N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT

LAYOUT TITLE:
FIRE HYDRANT AND VALVE

CATEGORY:
WATER

DATE:
06/2023

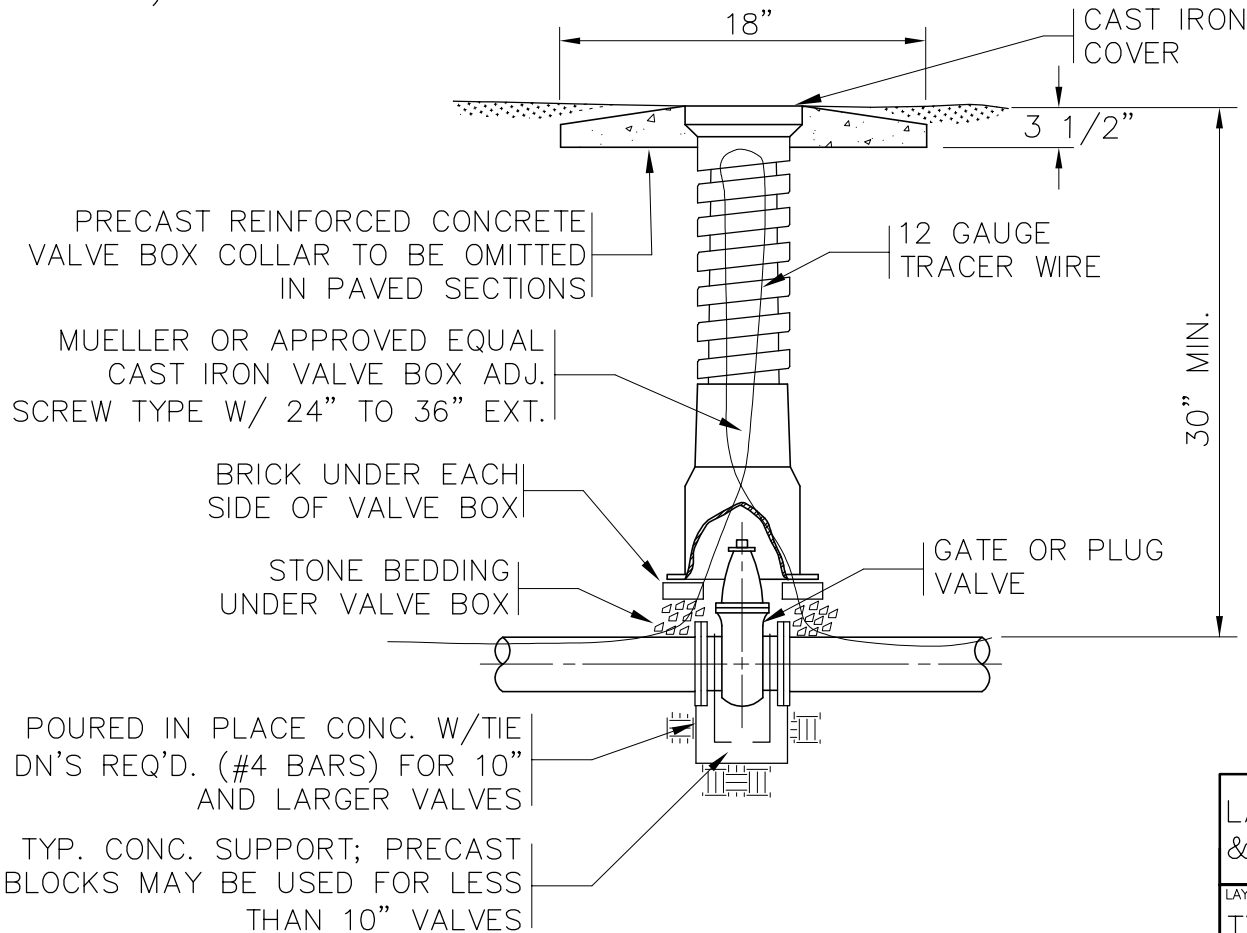
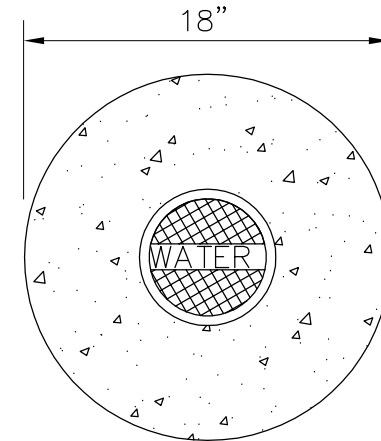
SCALE:
N.T.S.

DETAIL SHORTNAME:
FHYD

SHEET
W1

NOTE:

1. EXTENSION STEM WILL BE REQ'D. TO BE WITHIN 2' OF THE SURFACE IF OPERATING NUT IS OVER 5' BELOW GRADE. EXTENSION SHALL BE PERMANENTLY ATTACHED TO VALVE NUT AND SHALL BE PROVIDED WITH HORIZONTAL SPACERS FOR VERTICAL ALIGNMENT WITHIN THE VALVE BOX.
2. TOP OF VALVE BOX AND COLLAR SHALL BE PAINTED BLUE FOR MAIN LINE VALVES, RED FOR HYDRANT VALVES.
3. 12 GAUGE TRACER WIRE TO BE ACCESSIBLE. (STRANDED COPPER COATED)

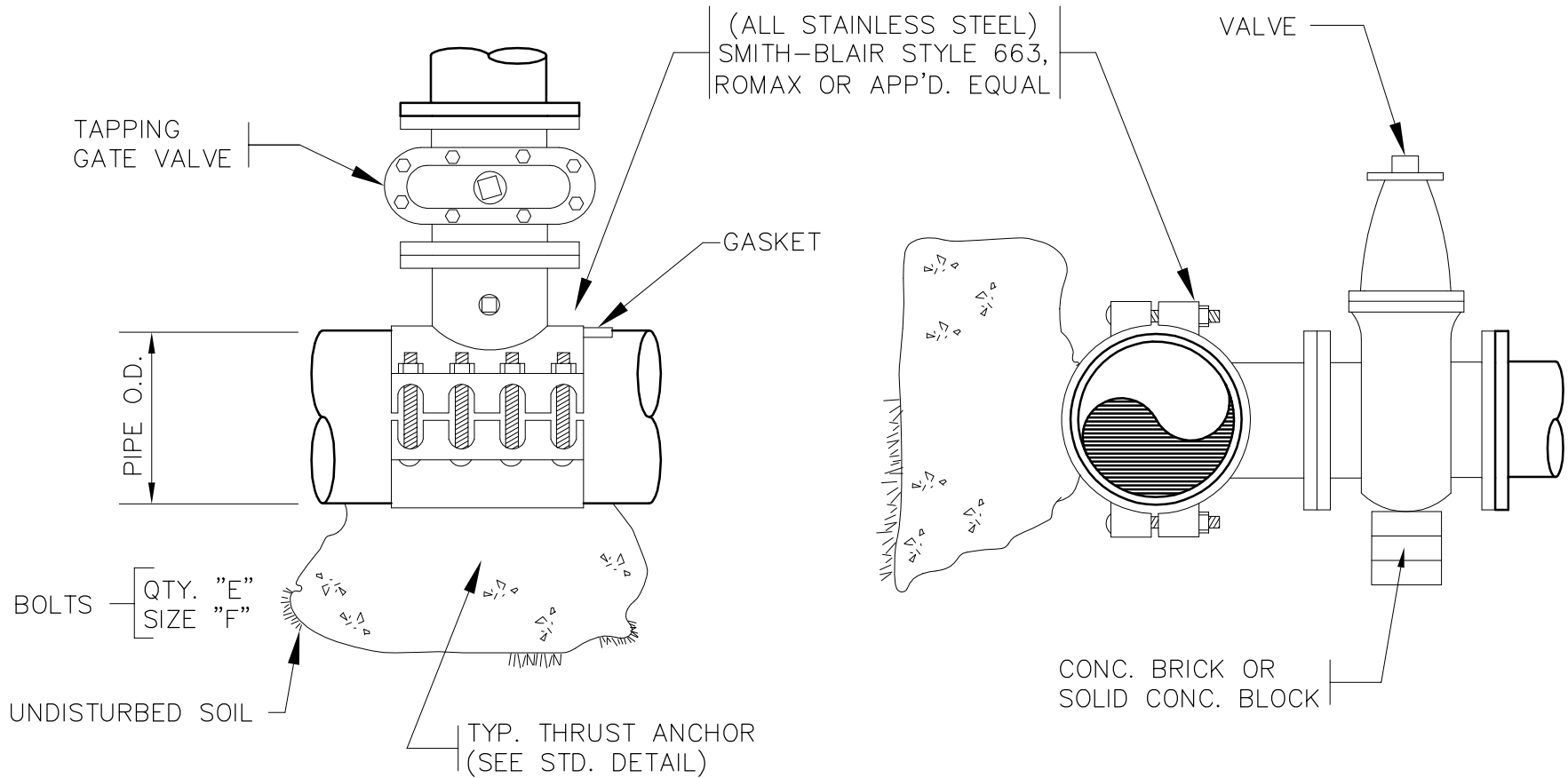


NOTE:
SEE TYPICAL FITTING AND
JOINT RESTRAINT DETAILS
FOR VALVE RESTRAINTS.

TYPICAL VALVE AND VALVE BOX

N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: TYP. VALVE AND VALVE BOX	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: VALBX	SHEET W2



NOTE:

1. WRAP TAPPING SLEEVE/VALVE IN PLASTIC PRIOR TO BLOCKING INSTALLATION.
2. LCWSD INSPECTOR TO WITNESS ALL TAPS INSTALLED.
3. HYDROSTATIC TEST AT 150 PSI PRIOR TO TAPPING MAIN.

LANCASTER COUNTY WATER
& SEWER DISTRICT

LAYOUT TITLE:

TYPICAL TAPPING SLEEVE

CATEGORY:

WATER

DATE:

06/2023

SCALE:

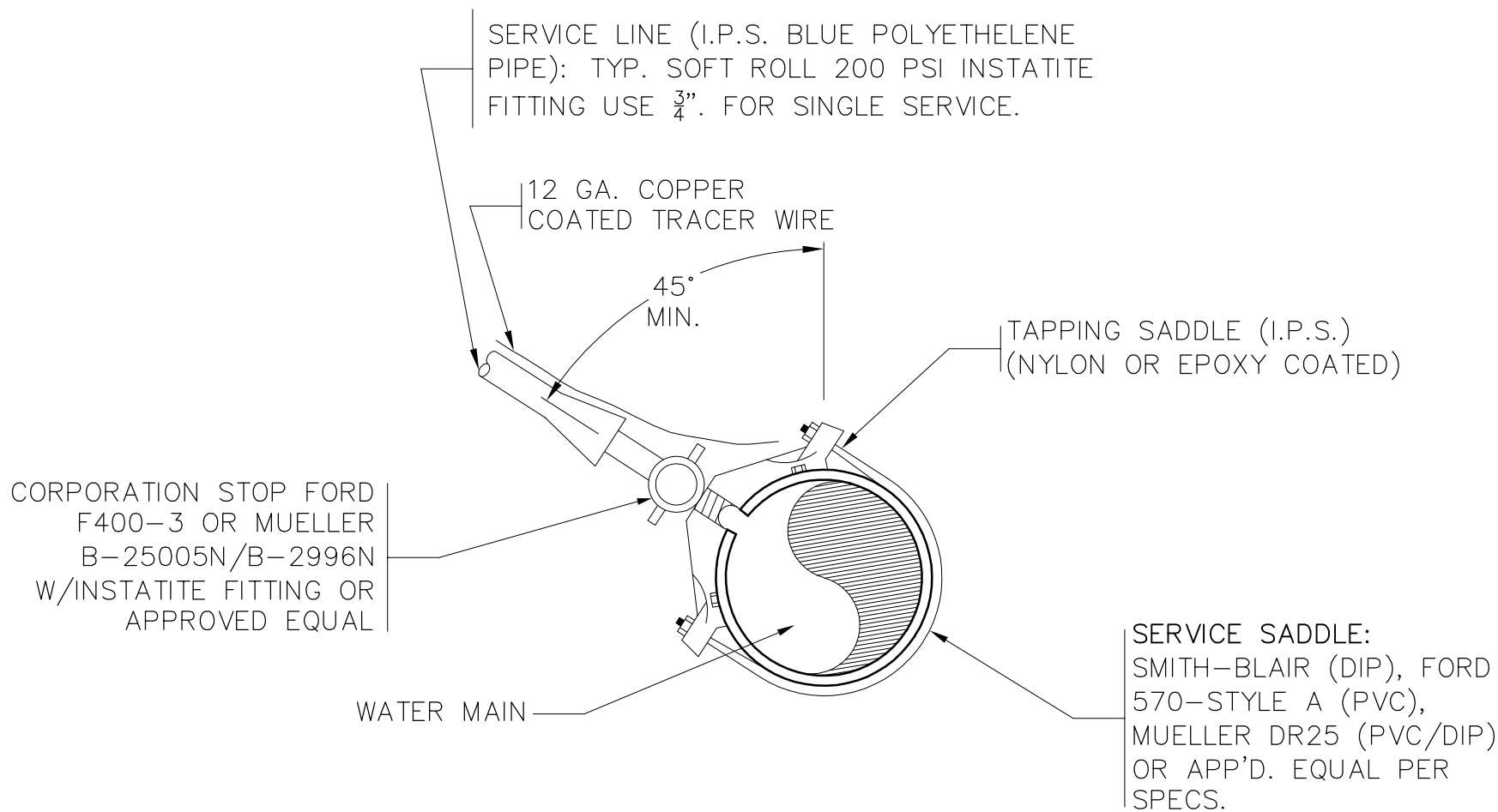
N.T.S.

DETAIL SHORTNAME:

TSVLV

SHEET

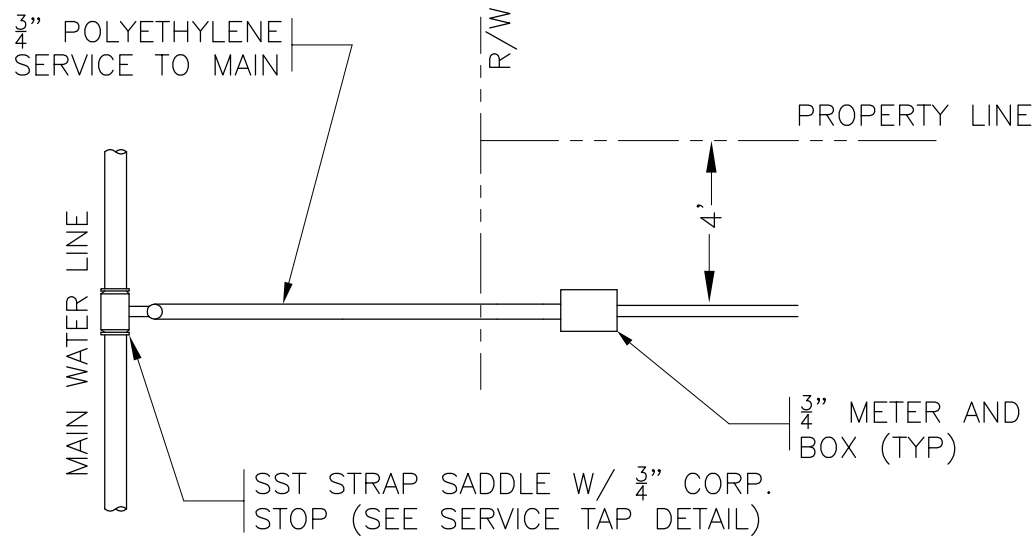
W3



TYPICAL SERVICE TAP
N.T.S.

NOTE:
SINGLE SST STRAP SADDLE FOR
WATER MAINS 4" & LESS. DBL.
SST STRAP SADDLE FOR WATER
MAINS LARGER THAN 4".

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: TYPICAL SERVICE TAP	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: SERVTAP	SHEET W4



TYPICAL SINGLE SERVICE CONNECTION

N.T.S.

NOTE:

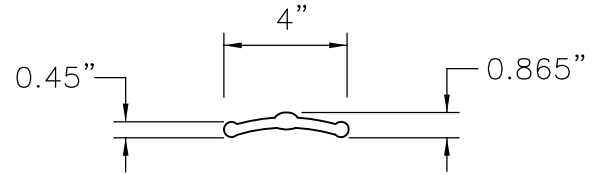
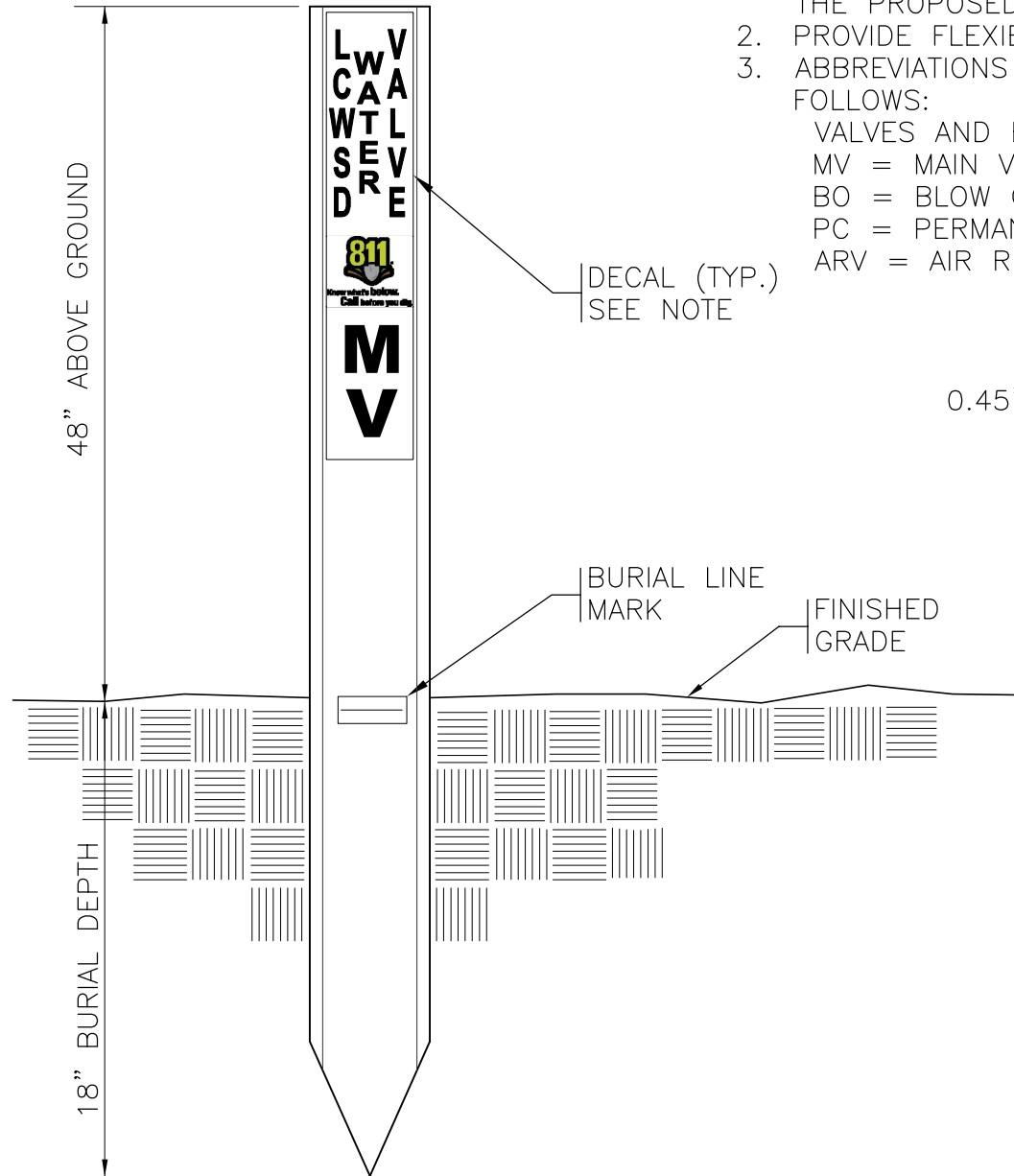
1. INSTALL 12 GAUGE STRANDED TRACER WIRE INSIDE METER BOX.
2. USE NYLON OR EPOXY COATED SADDLE.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: TYPICAL SERVICE CONNECTION	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: SERCON	SHEET W5

NOTES:

1. INSTALL FLEXIBLE UTILITY MARKER ON EDGE OF THE PROPOSED WATER MAIN EASEMENT.
2. PROVIDE FLEXIBLE UTILITY MARKER AT ALL VALVES.
3. ABBREVIATIONS DECAL PLACED ON MARK AS FOLLOWS:

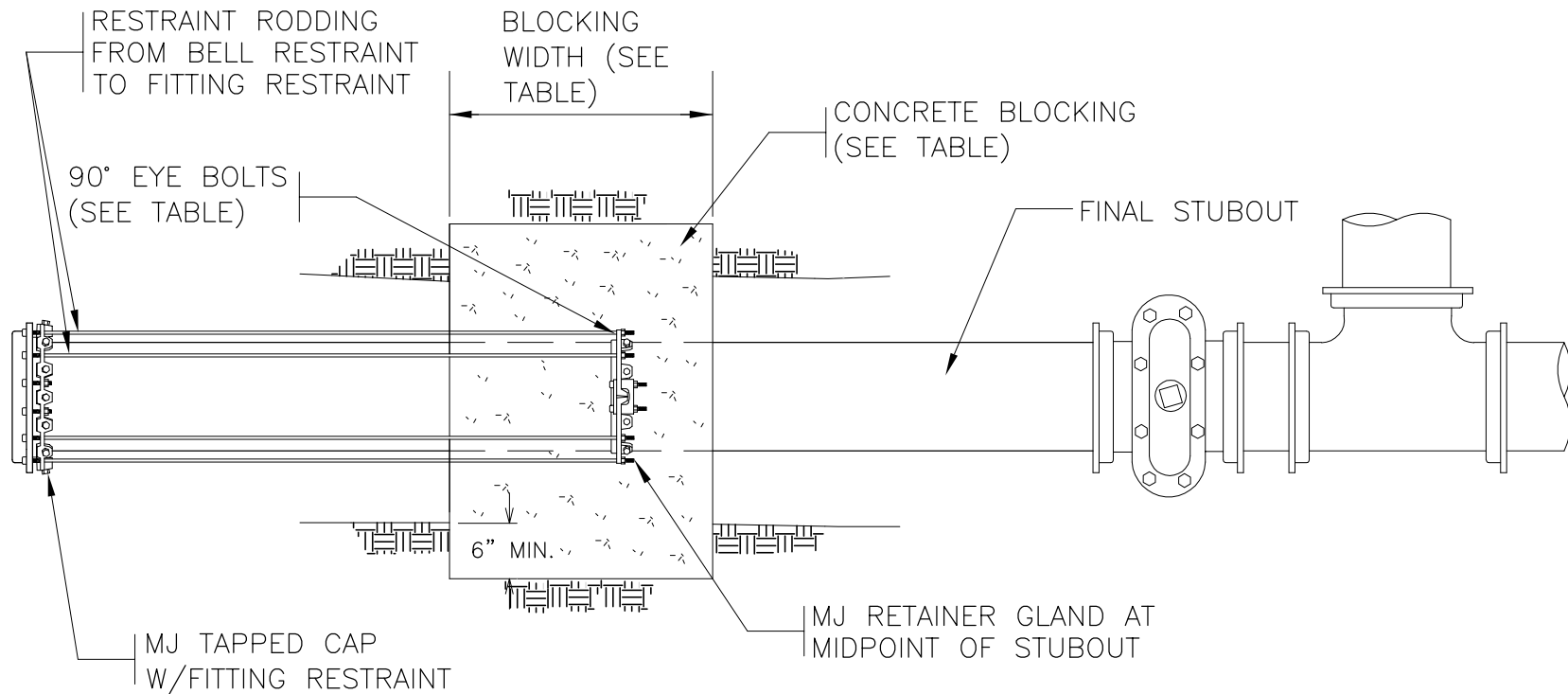
VALVES AND BLOWOFF ASSEMBLIES, FACING VALVE
 MV = MAIN VALVE
 BO = BLOW OFF VALVE
 PC = PERMANENTLY CLOSED
 ARV = AIR RELIEF VALVE



TOP VIEW

VALVE MARKER POST DETAIL
 N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: TYPICAL VALVE MARKER POST	
CATEGORY: WATER	
DATE: 06/2023	SCALE: NONE
DETAIL SHORTNAME: FLUMARK	SHEET W6



MINIMUM BLOCKING DIMENSIONS			
PIPE SIZE (inches)	BLOCKING BEARING AREA (ft ²)	BLOCKING WIDTH (inches)	# EYE BOLTS
4	2	24	4
6	4	24	4
8	7	36	6
10	11	36	6
12	15	36	6
OVER 12" BY THE DESIGN ENGINEER			

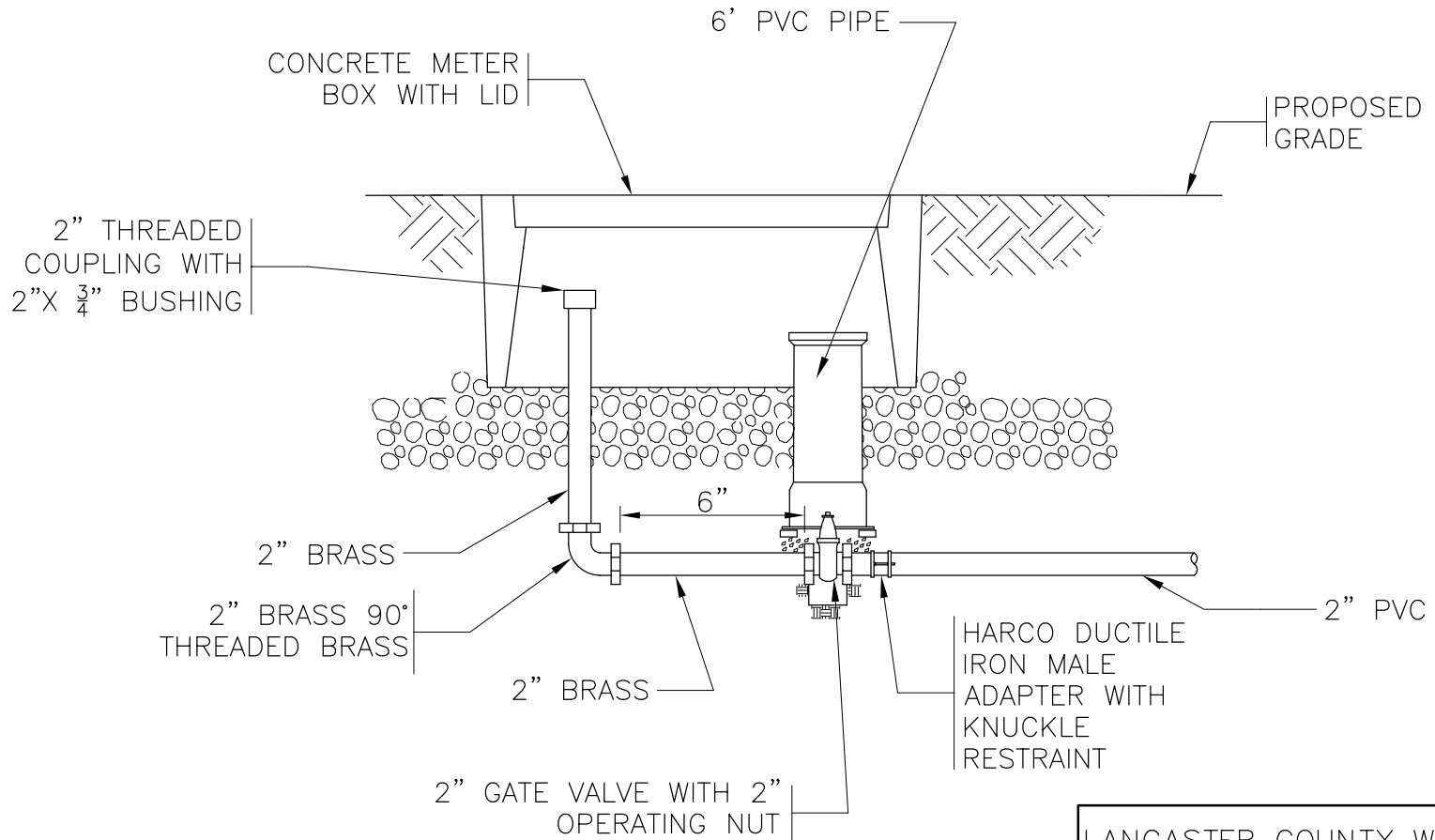
NOTE:
 THE MINIMUM DIMENSIONS TABLE IS BASED ON AN ASSUMED SOIL BEARING OF 2000 LBS. PER SQ. FT. IF BEARING VALUE FOR SOIL IS LESS, THEN AREA SHOWN HEREIN SHOULD BE INCREASED ACCORDINGLY.

TYPICAL FUTURE WATERLINE STUBOUT
 N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: FUTURE WATERLINE STUBOUT	
CATEGORY: WATER	
DATE: 06/2023	SCALE: NONE
DETAIL SHORTNAME: FUTSTUB	SHEET W7

NOTES:

1. 12 GAUGE TRACER WIRE (STRANDED) TO BE ACCESSIBLE IN VALVE BOX.
2. GALVANIZED PIPE SHALL NOT BE USED.
3. BLOWOFF ASSEMBLY TO BE RESTRAINED/BLOCKED PER SPECS.

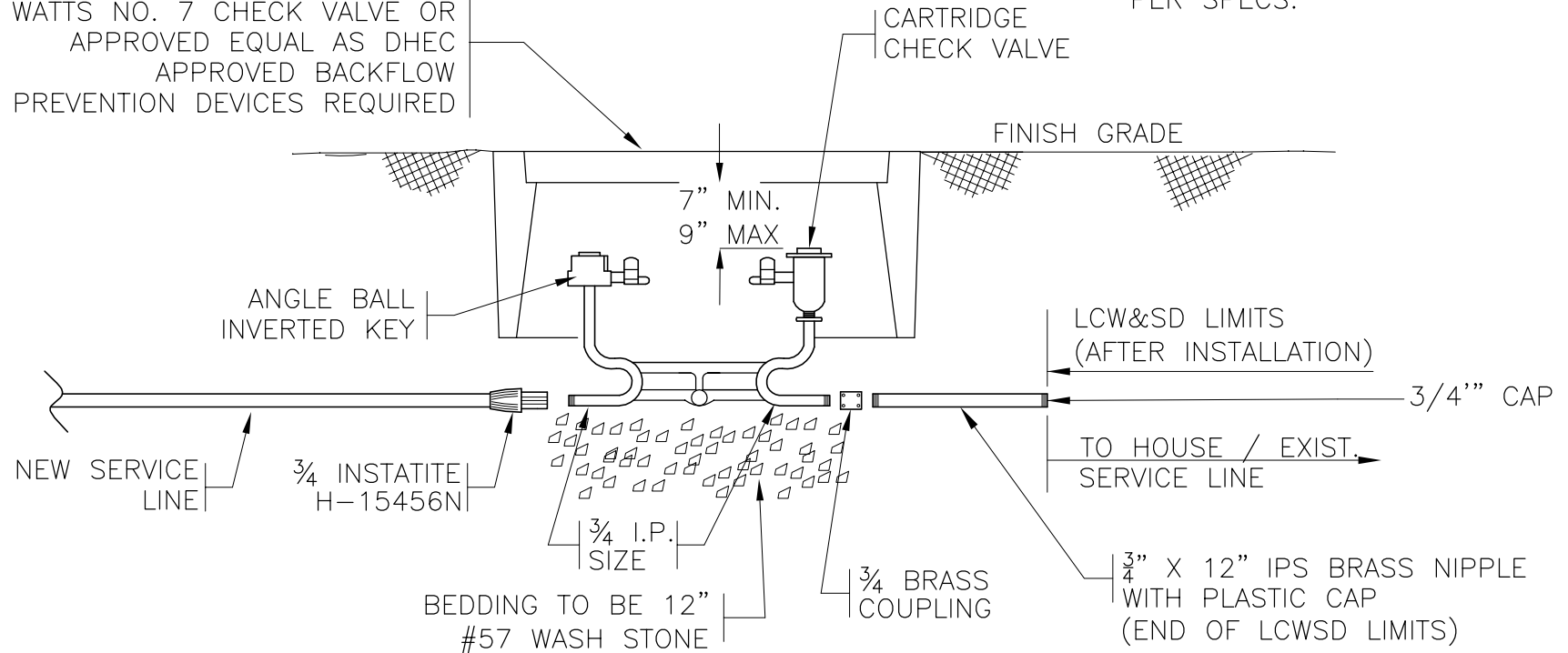


2" BLOWOFF ASSEMBLY
N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: TYPICAL BLOWOFF DETAIL	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: BLOWOFF	SHEET W8

CONCRETE METER BOX AND WATTS NO. 7 CHECK VALVE OR APPROVED EQUAL AS DHEC APPROVED BACKFLOW PREVENTION DEVICES REQUIRED

MODEL NUMBERS FOR COPPERSETTERS TO BE MUELLER, McDONALD, FORD, PER SPECS.

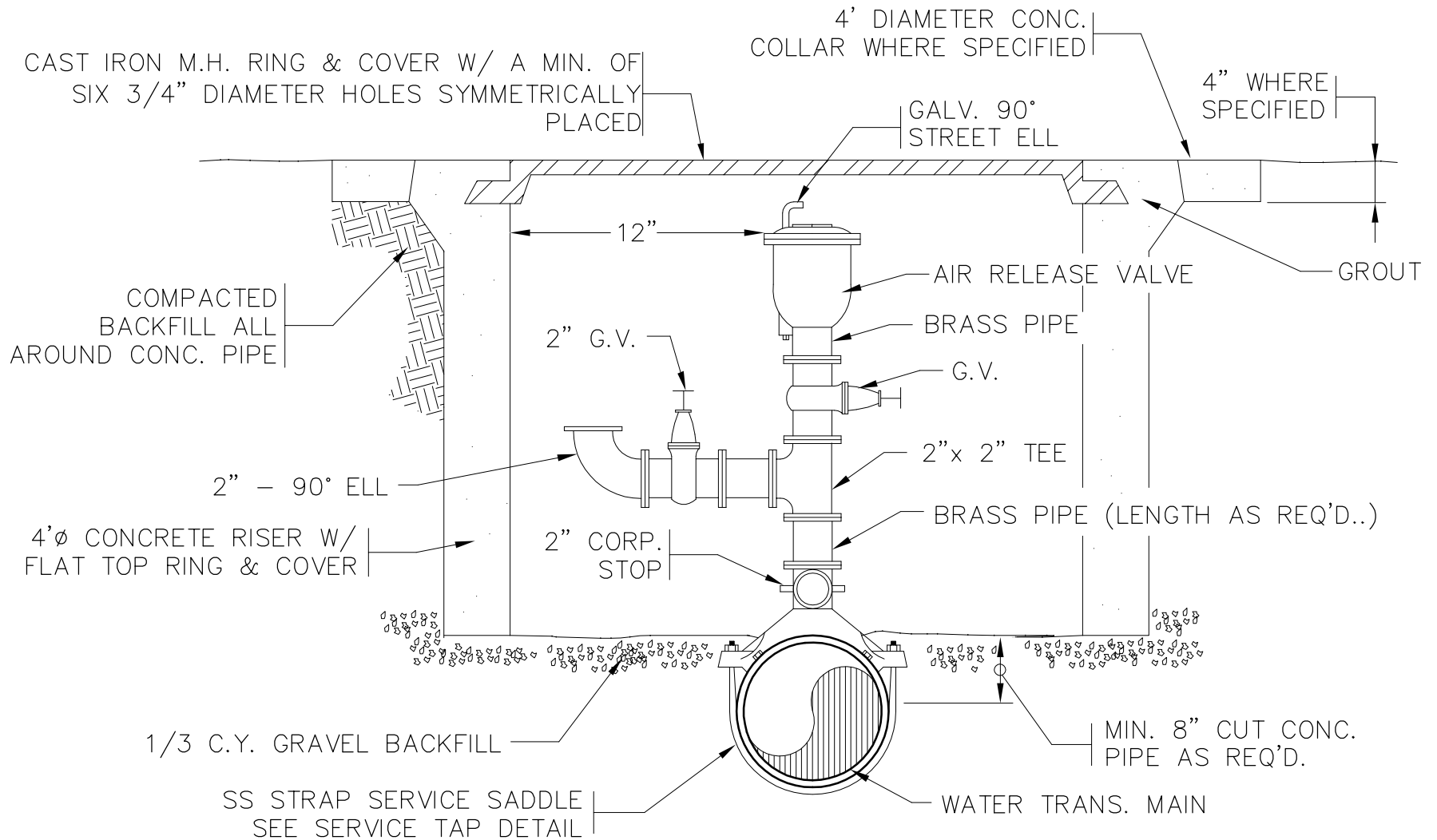


NOTES:

1. METER WILL BE A 5" x 3" METER CONFORMING TO AWWA SPEC'S. PER LCWSD STANDARD SPECIFICATIONS.
2. CONTRACTOR TO PROVIDE FINAL SETTING TO FINAL PROPERTY GRADE, ALL METER YOKE BOXES AND SERVICE MATERIAL PRIOR TO LCWSD SETTING WATER METER.
3. CONTRACTOR RESPONSIBLE FOR DISTANCE BETWEEN METER SETTER AND INSIDE OF LID, 7 INCHES MIN. TO 9 INCHES MAX., UNTIL METER HAS BEEN SET.

TYPICAL METER BOX
N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: TYPICAL METER BOX DETAIL	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: METERBOX	SHEET W9

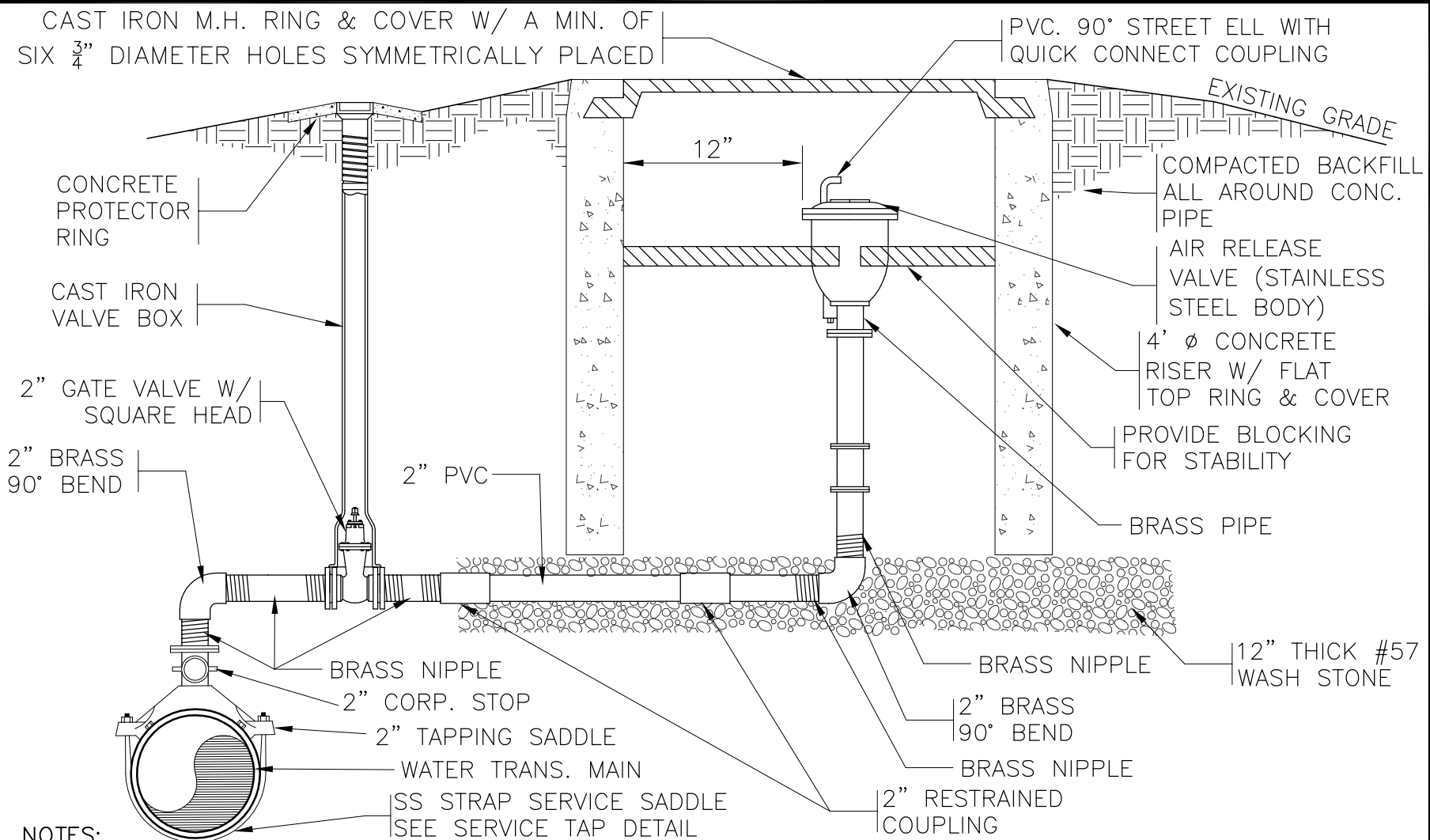


NOTES:

1. AIR RELEASE VALVE SHALL BE INSTALLED ON THE HIGH POINT OF WATER MAIN.
2. ALL MATERIALS & EQUIPMENT TO BE PER AWWA SPEC'S.
3. AIR RELEASE SHALL BE UL SERIES CRISPIN VALVE OR APPROVED EQUAL PER LCWSD SPECIFICATIONS.
4. CORP. STOP, BRASS PIPE, FITTINGS, AND ANGLE VALVE TO BE SAME DIA. AS AIR RELEASE VALVE INLET.
5. LIMIT OF PAY ITEMS INCLUDES SERVICE SADDLE.

AIR RELEASE VALVE ASSEMBLY
N.T.S. WITH NO OFFSET

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: AIR RELEASE VALVE ASSEMBLY WITH NO OFFSET	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: ARVA2	SHEET: W10



NOTES:

1. AIR RELEASE VALVE SHALL BE INSTALLED ON THE HIGH POINT OF WATER MAIN.
2. ALL MATERIALS & EQUIPMENT TO BE PER AWWA SPEC'S.
3. AIR RELEASE SHALL BE H-TEC, UL SERIES CRISPIN VALVE OR APPROVED EQUAL PER LCWSD SPECIFICATIONS.
4. CORP. STOP, BRASS PIPE, FITTINGS, AND ANGLE VALVE TO BE SAME DIA. AS AIR RELEASE VALVE INLET.
5. LIMIT OF PAY ITEMS INCLUDES SERVICE SADDLE.
6. LARGER THAN 2" ARV MAY REQUIRE LARGER VAULT.
7. SWING JOINT (2-90 DEGREE BENDS) SHALL BE PROVIDED WHERE PVC RESTRAINT COUPLINGS ARE NOT UTILIZED DUE TO SPACE LIMITATIONS

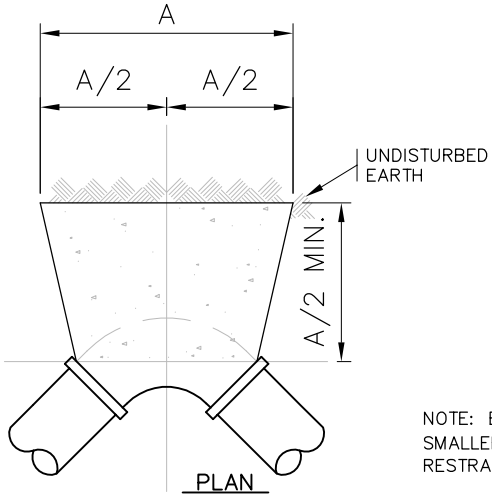
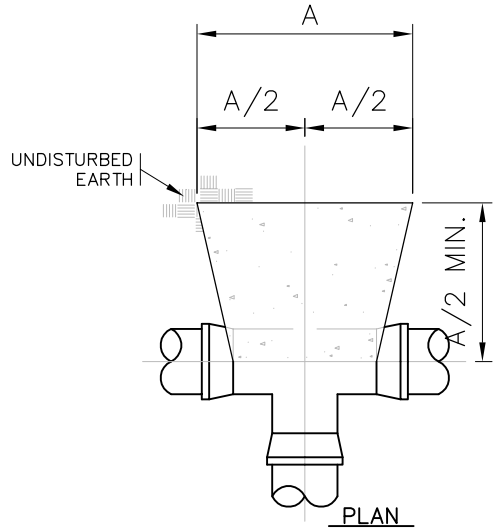
AIR RELEASE AND VACUUM VALVE ASSEMBLY
N.T.S. WITH OFFSET

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: AIR RELEASE & VACUUM ASSEMBLY WITH OFFSET	
CATEGORY: WATER	
DATE: 06/2023	SCALE: NONE
DETAIL SHORTNAME: ARVA	SHEET W11

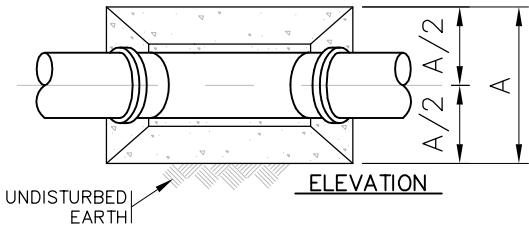
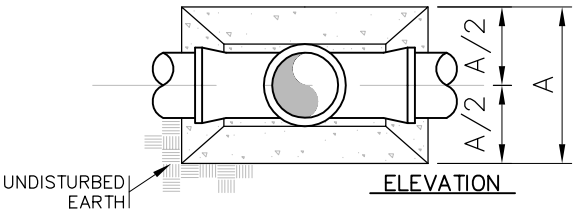
D:\LC_water_rev_2023\W11_ARVA.dwg, 8/17/2023 1:50:04 PM, Microsoft Print to PDF

BEND / FITTING	DIMENSION A (FEET)									
	PIPE SIZE (NOM. DIA. IN INCHES)									
	2.5	4	6	8	10	12	16	18	20	30
90° BEND	–	1.4	2.0	2.8	3.4	4.0	5.4	6.0	6.7	10
45° BEND	–	1.0	1.7	2.0	2.5	3.0	4.0	4.5	5.0	7.4
22 1/2° BEND	–	0.8	1.7	1.5	1.8	2.2	2.9	3.3	3.6	5.3
11 1/4° BEND	–	0.5	1	1.0	1.3	1.7	2.0	2.3	2.5	3.7
TEE BRANCH/DEAD END	–	1.2	1.7	2.6	2.9	3.5	4.6	5.1	5.7	8.4

- DESIGN PARAMETERS:
1. BASED ON TEST PRESSURE OF 200 PSI
 2. SOIL ASSUMED TO BE 2000 PSF CLAY/GRAVEL



NOTE: BLOCKING ONLY ALLOWED FOR SMALLER THAN 4" PIPE WHERE MECHANICAL RESTRAINT CANNOT BE UTILIZED



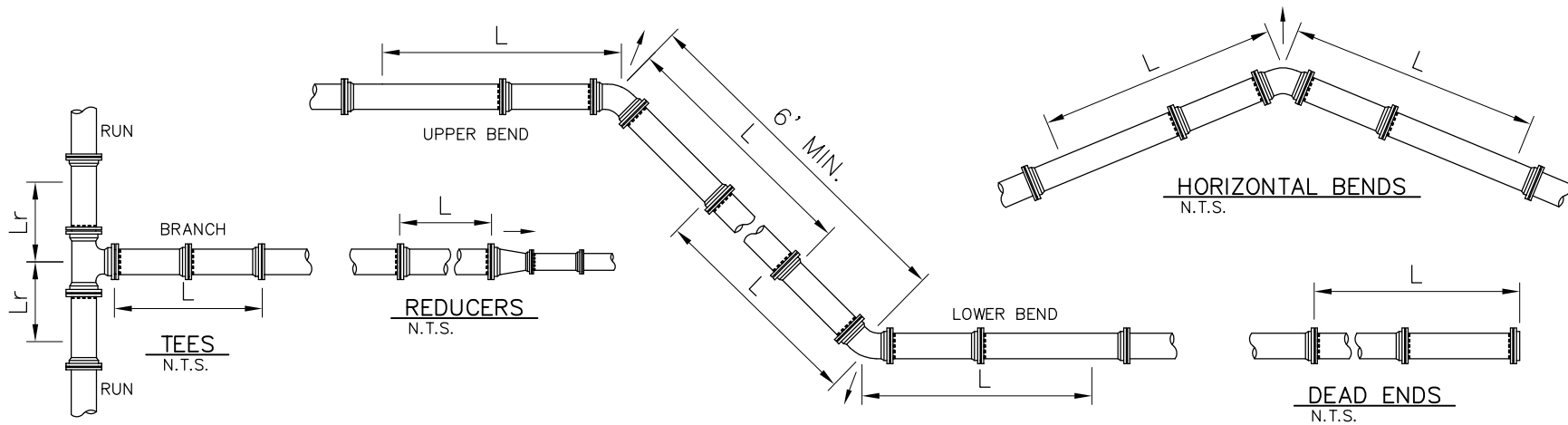
- NOTES:**
1. THRUST BLOCKS SHALL BE CONSTRUCTED OF 3000 P.S.I. CONCRETE
 2. INSTALL PLASTIC SHEATHING AROUND BEND OR FITTING TO PREVENT BONDING OF CONCRETE TO FITTINGS OR BOLTS.
 3. CONTRACTOR TO SUBMIT CALCULATIONS FOR DIFFERING CONDITIONS FROM STANDARD DESIGN PARAMETERS.

**CONCRETE THRUST BLOCK DETAIL FOR
WATER MAIN HORIZONTAL BENDS AND TEES**
N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: CONC. THRUST BLOCK DETAIL	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: TBTAF	SHEET W12

Size & Material		Horizontal Bend (Degrees)				Tee	Reducer	Dead End/Valve	Vertical Offset 45° Bend	
		90	45	22.5	11.25	6" Branch	X 6"		Upper	Lower
12" DIP	Length Restrained (ft)	48	20	9	5	21	63	87	35	15
10" DIP	Length Restrained (ft)	41	17	8	4	26	45	73	29	12
8" DIP	Length Restrained (ft)	34	14	7	3	30	26	61	25	10
6" DIP	Length Restrained (ft)	26	11	5	2	34	4" - 24	47	19	8

Size & Material		Horizontal Bend (Degrees)				Tee	Reducer	Dead End/Valve	Vertical Offset 45° Bend	
		90	45	22.5	11.25	6" Branch	X 6"		Upper	Lower
12" PVC	Length Restrained (ft)	60	25	12	6	23	99	136	66	21
10" PVC	Length Restrained (ft)	51	21	10	5	40	71	115	56	18
8" PVC	Length Restrained (ft)	43	18	8	4	47	40	96	46	15
6" PVC	Length Restrained (ft)	33	14	7	3	53	4" - 38	56	35	11



DESIGN PARAMETERS

DEPTH OF BURY 3 FT
 SAFETY FACTOR 2:1
 TRENCH TYPE 3, SEE DETAIL
 TEST PRESSURE 150 PSI
 SOIL TYPE SILTY SANDS, SAND SILT MIXTURES BACKFILLED USING NATIVE SOILS.

VERTICAL OFFSETS
N.T.S.

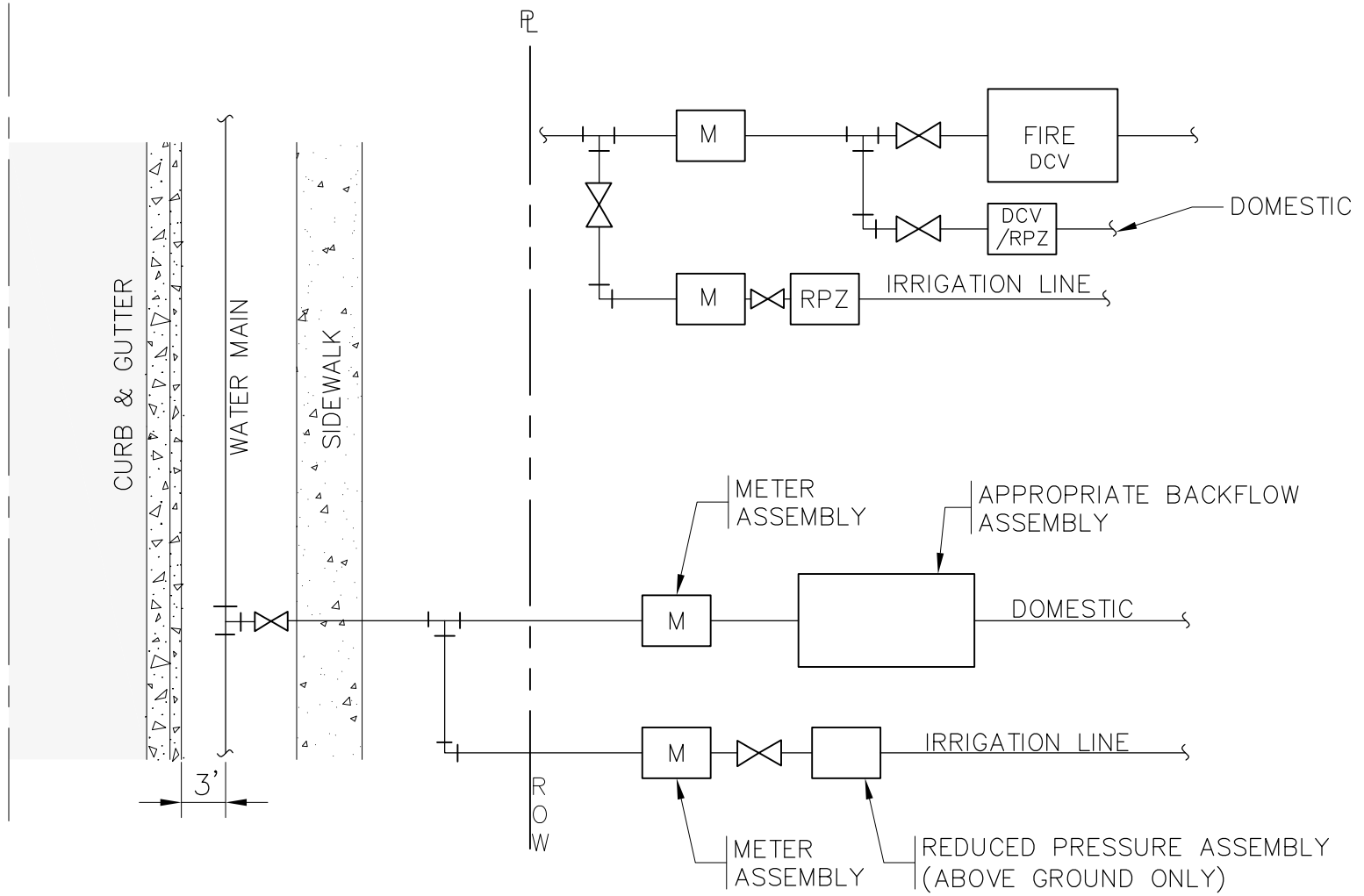
NOTE:

- THE CONTRACTOR SHALL INSTALL RESTRAINED JOINT THRUST PROTECTION AT ALL BENDS, TEES, REDUCERS, VERTICAL OFFSETS. THE ABOVE LENGTHS ARE MINIMUM LENGTHS REQUIRED FOR THE DESIGN PARAMETERS SHOWN ABOVE. THESE RESTRAINING CONDITIONS ARE COMMON CONDITION
- WHEN USING MECHANICAL JOINT RESTRAINTS SUCH AS MEGA-LUGS FOR PVC & DIP OR TR FLEX AND GRIFFIN SNAP-LOK, CONCRETE BLOCKING SHALL BE EXCLUDED FROM THE INSTALLATION.

MECHANICAL JOINT RESTRAINT DETAILS
N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: MECHANICAL JOINT RESTRAINT	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: JNTRST	SHEET W13

S:\YSDS_Project_CAD\Details\LANCASTER COUNTY\WATER\Rev_2023\W14_FDIRR.dwg, 10/11/2023, 4:19:32 PM, Adbobe PDF

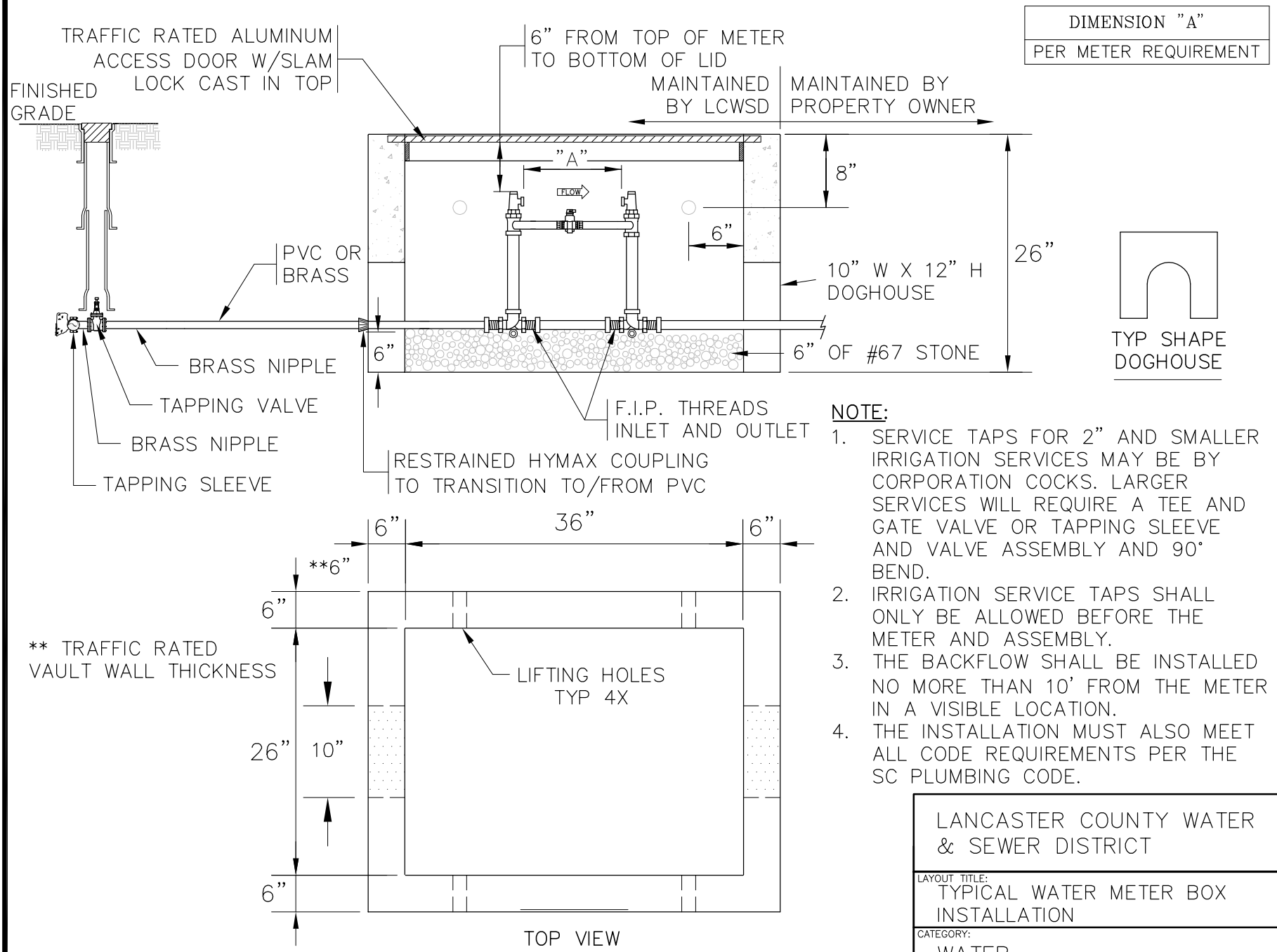


NOTE:

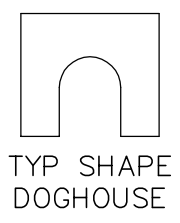
1. SERVICE TAPS FOR 2" AND SMALLER IRRIGATION SERVICES MAY BE BY CORPORATION COCKS. LARGER SERVICES WILL REQUIRE A TEE AND GATE VALVE OR TAPPING SLEEVE AND VALVE ASSEMBLY AND 90° BEND.
2. IRRIGATION SERVICE TAPS SHALL ONLY BE ALLOWED BEFORE THE METER AND ASSEMBLY.
3. THE BACKFLOW SHALL BE INSTALLED NO MORE THAN 10' FROM THE METER IN A VISIBLE LOCATION.
4. THE INSTALLATION MUST MEET ALL CODE REQUIREMENTS PER THE SC PLUMBING CODE.
5. WATER MAIN TO BE INSTALLED 3' OFF BACK OF CURB.

FIRE, DOMESTIC & IRRIGATION OPTIONS SCHEMATIC
N.T.S.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: FIRE, DOMESTIC & IRRIGATION OPTIONS SCHEMATIC	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: FDIRR	SHEET W14



DIMENSION "A"
PER METER REQUIREMENT



- NOTE:**
1. SERVICE TAPS FOR 2" AND SMALLER IRRIGATION SERVICES MAY BE BY CORPORATION COCKS. LARGER SERVICES WILL REQUIRE A TEE AND GATE VALVE OR TAPPING SLEEVE AND VALVE ASSEMBLY AND 90° BEND.
 2. IRRIGATION SERVICE TAPS SHALL ONLY BE ALLOWED BEFORE THE METER AND ASSEMBLY.
 3. THE BACKFLOW SHALL BE INSTALLED NO MORE THAN 10' FROM THE METER IN A VISIBLE LOCATION.
 4. THE INSTALLATION MUST ALSO MEET ALL CODE REQUIREMENTS PER THE SC PLUMBING CODE.

LANCASTER COUNTY WATER & SEWER DISTRICT	
LAYOUT TITLE: TYPICAL WATER METER BOX INSTALLATION	
CATEGORY: WATER	
DATE: 06/2023	SCALE: N.T.S.
DETAIL SHORTNAME: WMBOX	SHEET W15

TYPICAL WATER METER BOX INSTALLATION
N.T.S.