

PHILADELPHIA

WATER

— DEPARTMENT —

WATER METER  
INSTALLATION  
STANDARDS

REV. #	REV. DATE	APP. BY	PAGE REVISED, REVISION DESCRIPTION
1	3/6/97	M. LAVERY	<ul style="list-style-type: none"> <li>DWG.1, REVISED NOTE TO ADD ADDITIONAL PERSONNEL TO INFORM FOR PIPES 3" AND GREATER</li> <li>BACKFLOW PREVENTER NOTE TO INDICATE DEVICE SHOULD BE DOWNSTREAM OF METER</li> </ul>
2	3/6/97	M. LAVERY	<ul style="list-style-type: none"> <li>DWG.1, UPDATED ADDRESS AND TITLE BLOCK</li> </ul>
3	3/6/97	M. LAVERY	<ul style="list-style-type: none"> <li>DWG.2, ENLARGED METER PIT DIMENSIONS</li> <li>INCREASED LAYING LENGTHS OF PIPE UPSTREAM AND DOWNSTREAM OF METER</li> <li>UPDATED TITLE BLOCK, NOTES</li> </ul>
4	3/6/97	M. LAVERY	<ul style="list-style-type: none"> <li>DWG.3, ADDED DRAWING OF METER INSTALLATION INSIDE BUILDING</li> </ul>
5	3/6/97	M. LAVERY	<ul style="list-style-type: none"> <li>DWG.4&amp;5, INDICATED DIMENSIONS FOR CENTERLINE OF OPENING</li> <li>CHANGED TITLE BLOCK AND NOTES</li> </ul>
6	3/6/97	M. LAVERY	<ul style="list-style-type: none"> <li>DWG.6,7&amp;8, CHANGED TITLE BLOCK</li> </ul>
7	8/27/2021	G. OAKLEY	<ul style="list-style-type: none"> <li>REVISED CONTACT INFORMATION &amp; PROCESS OUTLINES</li> <li>ADDED ACCESS PANEL &amp; CRAWLSPACE REQUIREMENTS</li> <li>ADDED METER READING EQUIPMENT REQUIREMENTS</li> <li>UPDATED REQUIREMENTS OF SUPERSEDING STANDARDS</li> </ul>
8	8/27/2021	G. OAKLEY	<ul style="list-style-type: none"> <li>UPDATED METER DRAWINGS FOR CURRENT EQUIPMENT</li> <li>ADDED SPACING AND PIT SIZING REQUIREMENTS</li> <li>ADDED 912 ADAPTOR REQUIREMENTS</li> </ul>
9	8/27/2021	G. OAKLEY	<ul style="list-style-type: none"> <li>ADDED REQUIREMENT FOR METER READING EQUIPMENT PIT INSTALLATION</li> <li>UPDATED ACCESS DOOR REQUIREMENTS</li> </ul>
10	8/27/2021	G. OAKLEY	<ul style="list-style-type: none"> <li>UPDATED BYPASS REQUIREMENTS FOR 1½"-2" SERVICES</li> <li>UPDATED BACKFLOW PREVENTION REQUIREMENTS</li> </ul>
11	8/27/2021	G. OAKLEY	<ul style="list-style-type: none"> <li>ADDED METER READING EQUIPMENT DRAWINGS</li> </ul>



## REVISION LOG

DRAWN BY: A.MOURADIAN  
CHECKED BY: G. OAKLEY

DATE: AUG.27.2021  
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METERING PLANS for all meter installations must be submitted to the Department as part of PWD Utility Plan Review. Plans are to be submitted to [PWDUR@phila.gov](mailto:PWDUR@phila.gov), and [PWDMeterPermitting@phila.gov](mailto:PWDMeterPermitting@phila.gov). Additionally, a meter sizing form must be completed for each domestic connection. Please contact PWDUR or the Metering Division for this form. For more information on PWD metering policies and requirements, contact the Metering Division at:

Philadelphia Water Department – Metering Division  
 N. 29th Street & W. Cambria Street  
 Philadelphia, PA 19132  
 Phone: (215)685–3000

Meter Permitting Inquiries: [PWDMeterPermitting@phila.gov](mailto:PWDMeterPermitting@phila.gov)  
 General Metering Inquiries: [PWDMetering@phila.gov](mailto:PWDMetering@phila.gov)

BACKFLOW PREVENTERS, as required by the PWD Cross Connection Control Program, must be located downstream of the meter assembly. If no meter is required, backflow preventers must be located within one hundred feet (100ft) of pipe run from the connections to the main.

For information on backflow preventers and further information on the PWD Cross Connection Control program, contact the Backflow Compliance office at:

Backflow Compliance Office  
 9001 State Road, Philadelphia, PA 19136  
 Phone: (215)685–6085 Fax: (215)333–9453  
 Email: [ccc.bls@Phila.gov](mailto:ccc.bls@Phila.gov)  
 Website: [www.Phila.gov/water/ccc.html](http://www.Phila.gov/water/ccc.html)

WATER METERS and meter spools are furnished and installed by the Water Department. The cost is covered in the fee charged for a water permit.

Water meters are required to be located inside an off–street meter pit, when building facade is 35 feet or greater from the property line and/or curb line, where only occasional H–20 loading is encountered.

Meters shall be connected to the Service Line with:

- Coppersettlers (for meters  $\frac{5}{8}$ " to 1")
- Flanges (oval)(for meters  $1\frac{1}{2}$ " to 2")
- Flanges (for meters 3" to 10")
- 912 cast flanged coupling adapter (for meters 3" to 10") \*house side only

Meters are to be no more than a maximum height of 3' from the floor unless otherwise permitted by the Water Department.

Meters for connections  $\frac{5}{8}$ " through 2" that may be concealed by walls/etc shall have a 24"x24" access panel or opening.



## GENERAL METER INSTALLATION NOTES

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## WATER CONNECTION AND SUPPLY PIPE

Water Connection and Supply Pipes shall be as follows:

- $\frac{3}{4}$ " to 2" diameter Water Connection and Supply Pipe shall be copper up to a minimum of 12" after the backflow preventer, conforming to one of the standards listed in table 605.4 in the Philadelphia Plumbing Code.
- 3" to 10" diameter Water Connection and Supply Pipe shall be ductile iron-flanged pipe up to the backflow preventer, conforming to one of the standards listed in table 605.4 in the Philadelphia Plumbing Code.

Water Connection Pipe that enters a property into a crawlspace: the meter is to be installed at least 2' above the nearest finished floor, and a 24"x24" access panel or opening is required.

## METER READING EQUIPMENT

Meter Reading Equipment is to be installed as follows:

- Provided Transmitter Connector is to be mounted on street-facing building facade, 2 to 4 ft. above ground level. See diagram on page 12.
- Wires are to be reconnected as when provided. No exposed wires may be present on exterior of building. See diagram on page 12.
- If provided wire is not sufficiently long to complete the installation, 24 AWG (or larger) 3-strand wire shall be used to extend the run.
- Install provided connector at meter location, leaving 2 feet of coiled wire at meter.

## METER PITS AND ACCESSORIES

Meter pits and accessories shall be tested and registered with the quality certification staff in accordance with the quality certification standard QC-1 for precast concrete products. Meter Pits shall be designed for H-20 loading. All precast segments shall be keyed and their join watertight.

Precast manufacturers shall be certified in accordance with QC-1 by the Department's quality certification staff. Direct all requests for Q.C. certification to:

Philadelphia Water Department  
Bureau Of Laboratory Services  
1500 E. Hunting Park Avenue  
Philadelphia, PA 19124-4941

ATTN: Q.C. CERTIFICATION STAFF



## GENERAL METER INSTALLATION NOTES

DRAWN BY: A.MOURADIAN

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METER PITS AND ACCESSORIES (CONTINUED)

CONCRETE shall consist of Portland cement which conforms to ASTM C150 with aggregates which conform to ASTM C33. The minimum compressive strength shall be 4000 PSI.

REINFORCING STEEL shall conform to ASTM A615 grade 60 for bars or ASTM A185 for welded wire fabric.

FLANGES (OVAL) shall be used as companion flanges for 1½” to 2” meters. Flanges shall be produced of bronze and shall be faced, drilled and tapped to conform to ANSI B1.20.1. Flange dimensions shall conform to AWWA C700. Flanges shall be fixed.

FLANGED FITTINGS shall be produced of ductile iron and conform to the applicable requirements for ductile iron fittings specified in ANSI/AWWA C110/A21.10.08. Flanges shall be fixed.

FLANGES for all pipe and fittings shall be adequate for water service of 250 PSI working pressure. The bolt circle and bolt holes of the flanges shall match those of the class 125 flanges shown in ANSI B-16.1. Flanges shall be fixed.

NUTS AND BOLTS shall conform to ASTM standard A193-B7 and A194 GRADE 4.

GASKETS shall be ½” thick and made of either SBR or neoprene rubber, meeting the material requirements of ANSI/AWWA C111/A21.11 mechanical joint gaskets.

GATE VALVES shall be suitable for water service of 150 PSI working pressure and shall be in accordance with AWWA C500.



GENERAL METER INSTALLATION NOTES

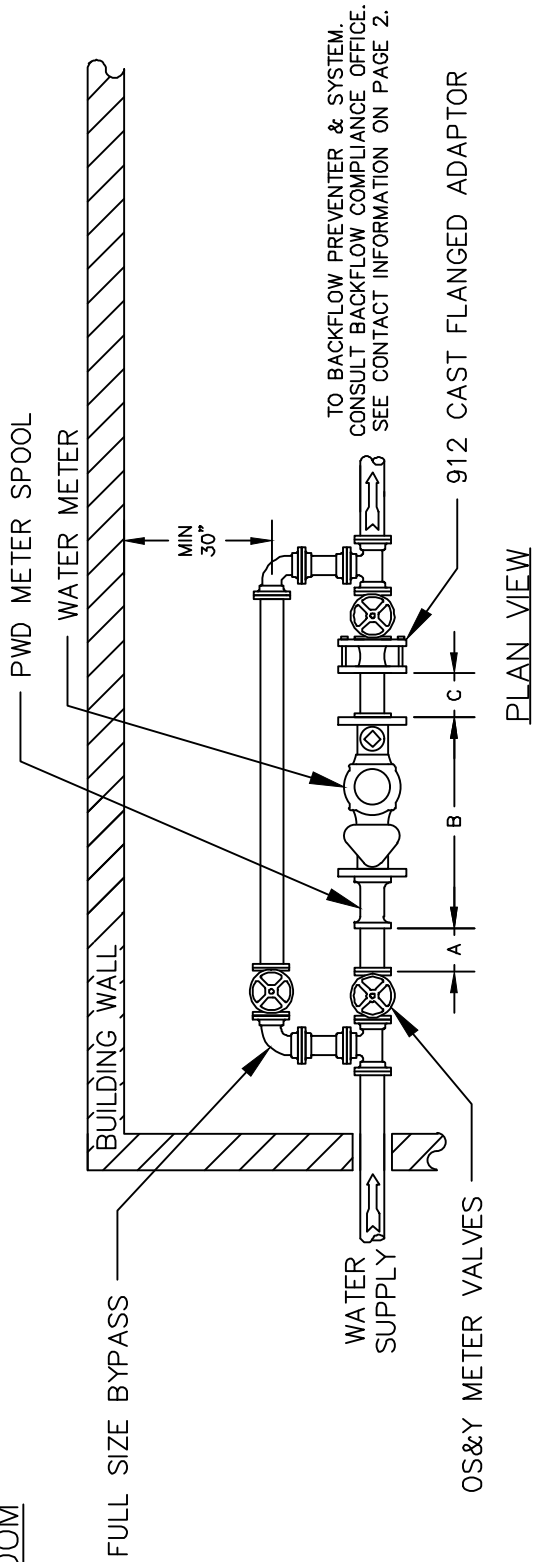
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DATE: AUG.27.2021

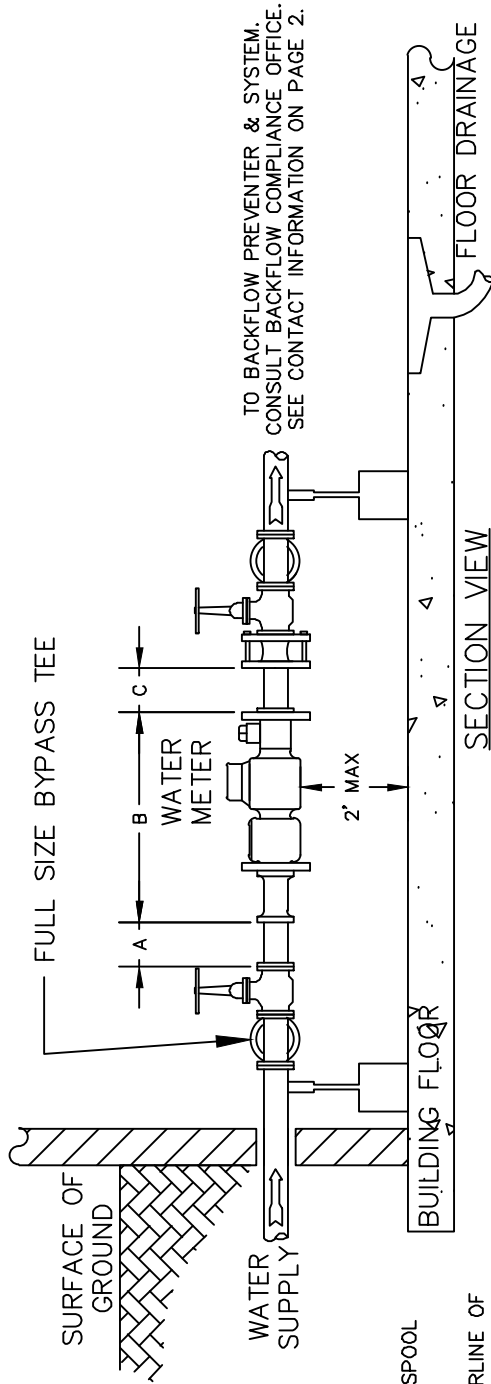
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METER ROOM



PLAN VIEW



SECTION VIEW

- NOTES:
- WATER METER AND PWD METER SPOOL ARE THE PROPERTY OF PWD.
  - DISTANCE FROM WALL TO CENTERLINE OF BYPASS AND/OR METER PIPING TO BE NO LESS THAN 30 INCHES, UNLESS OTHERWISE PERMITTED BY PWD.
  - UNOBSTRUCTED AREA CONTAINING ONLY METER AND BACKFLOW INSTALLATION TO BE OF EQUAL OR GREATER DIMENSIONS TO REQUIRED METER PIT FOR EQUIVALENT SERVICE SIZE, UNLESS OTHERWISE PERMITTED BY PWD.

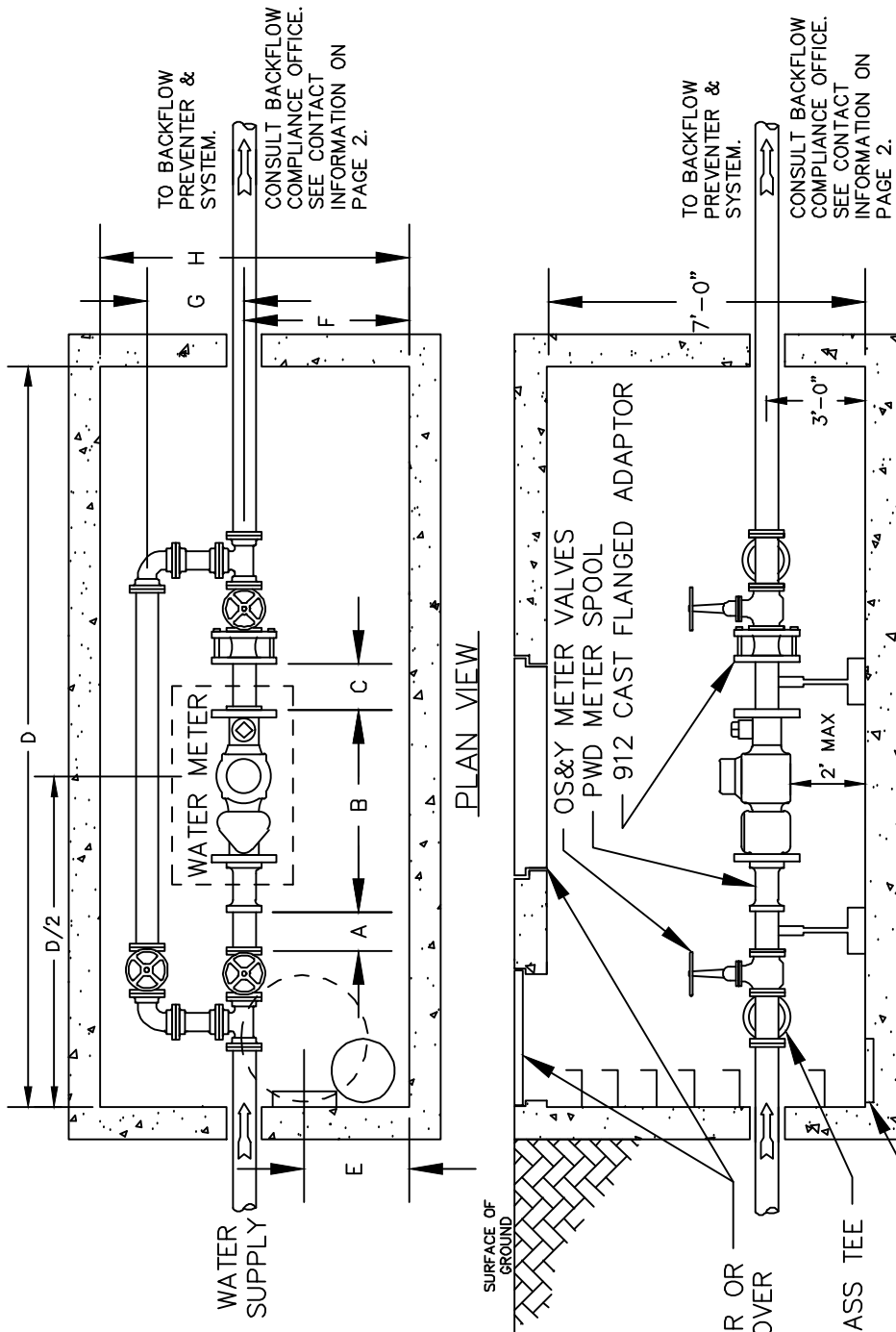
DIMENSION	PIPE SIZE				
	3"	4"	6"	8"	10"
A	1'-6"	2'-0"	2'-6"	3'-6"	3'-6"
B	2'-1"	2'-5 1/2"	3'-1"	4'-5 1/2"	5'-8 3/4"
C	1'-0"	1'-6"	1'-6"	2'-0"	2'-6"

NOT TO SCALE

METER PIT

NOTES:

- PIPE SHALL BE WRAPPED WITH 3 LAYERS OF 1" THICK FELT IN SECTIONS THAT PASS THROUGH WALL
- WALL OPENING FOR PIPE SHALL BE CIRCULAR WITH A DIAMETER OF 1" GREATER THAN PIPE
- CLEARANCE OF 24" (ON CENTER) IS REQUIRED BETWEEN LINES, WHEN MULTIPLE METERS ARE INSTALLED IN SINGLE PIT.



DIMENSION	PIPE SIZE			
	3"	4"	6"	10"
A	1'-6"	2'-0"	3'-6"	3'-6"
B	2'-2"	2'-5 1/2"	3'-4"	5'-8 3/4"
C	1'-0"	1'-6"	2'-0"	2'-6"
D	9'-6"	11'-6"	13'-6"	17'-0"
E	1'-8"	1'-8"	2'-6"	2'-6"
F	3'-0"	3'-0"	4'-0"	4'-0"
G	1'-14"	1'-32"	1'-52"	2'-32"
H	6'-0"	6'-0"	8'-0"	8'-0"

NOTES:

- WATER METER AND PWD METER SPOOL ARE THE PROPERTY OF PWD.
- IF A METER PIT HAS MULTIPLE INSTALLATIONS, THE METER PIT SIZE IS REQUIRED TO BE THE DIMENSIONS OF ONE SERVICE SIZE LARGER THAN THE LARGEST INSTALLED.

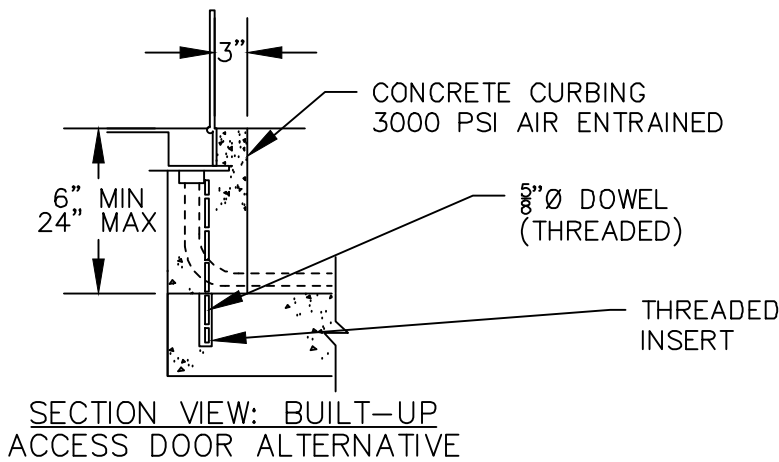
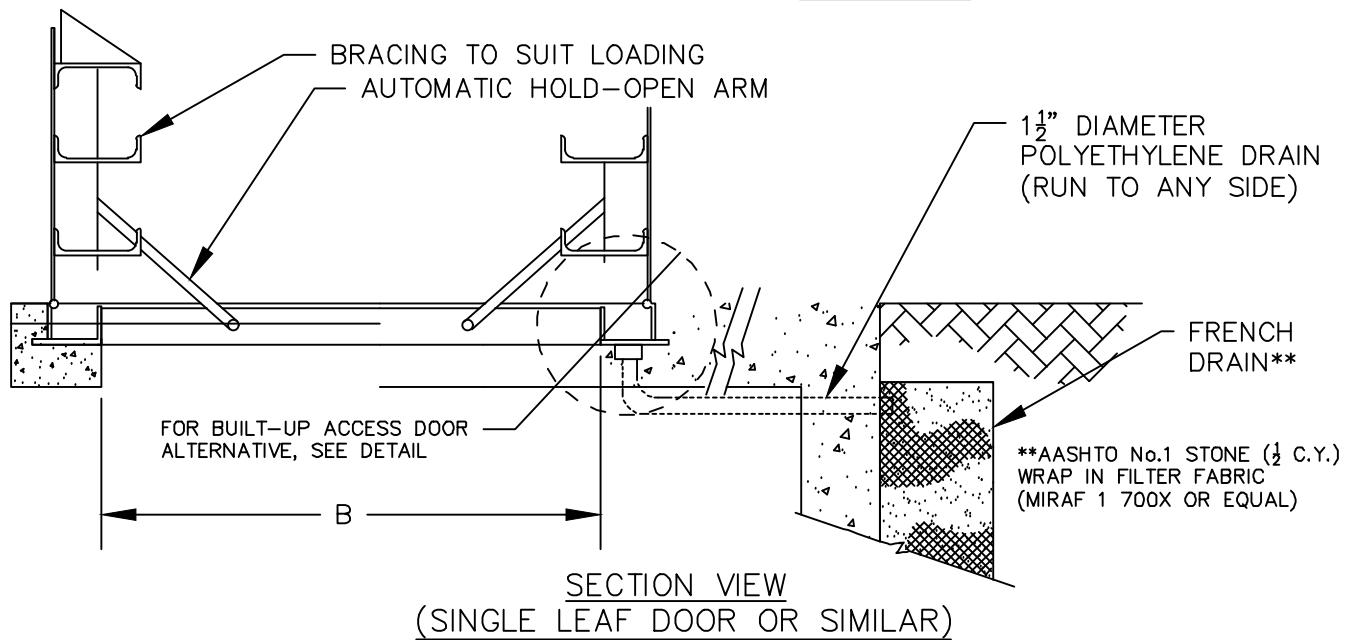
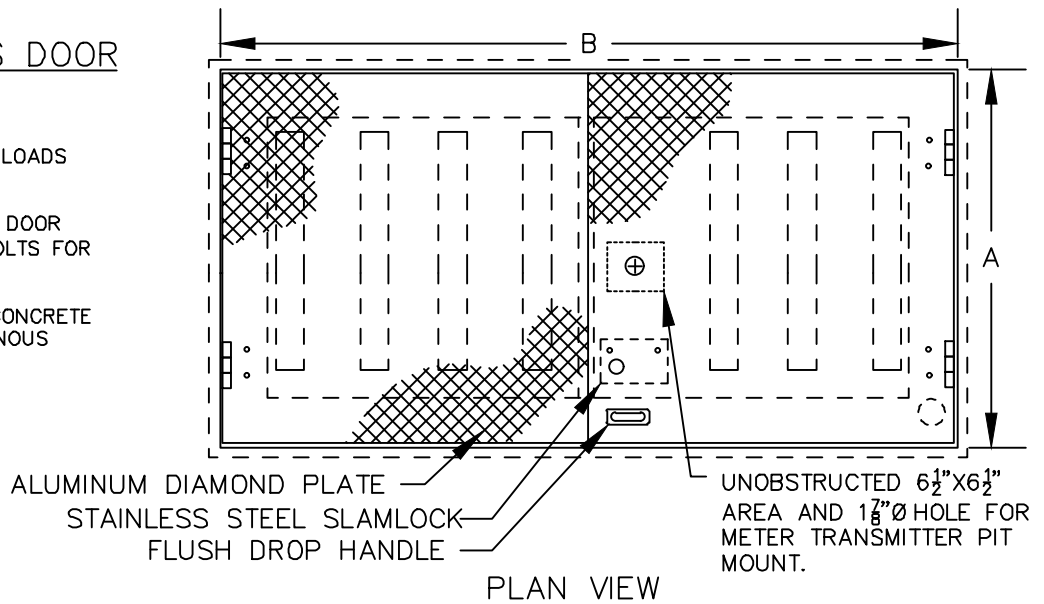
# METER PIT ACCESS DOOR

## NOTES:

DOOR SHALL WITHSTAND H-20 LOADS WITHOUT IMPACT.

USE ALUMINUM MATERIALS FOR DOOR AND STAINLESS STEEL NUTS/BOLTS FOR OTHER HARDWARE.

DOOR SURFACES CONTACTING CONCRETE SHALL BE COATED WITH BITUMINOUS PAINT.



## METER PIT DOOR SIZING

METER SIZE	DIMENSION	
	A	B
*3"	24"	30"
*4"	24"	36"
**6"	24"	48"
**8"	30"	48"
**10"	36"	48"

\*SINGLE LEAF DOOR  
\*\*DOUBLE LEAF DOOR

NOT TO SCALE



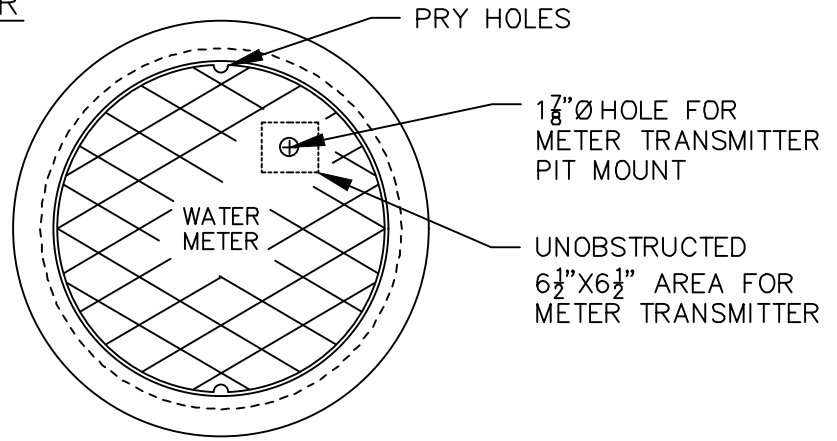
# MANHOLE FRAME AND COVER

**NOTES:**

MANHOLE FRAME AND COVER SHALL BE FOR HEAVY DUTY USE, MADE OF CLASS 30B GRAY IRON, CONFORMING TO ASTM-A48 OR EQUIVALENT.

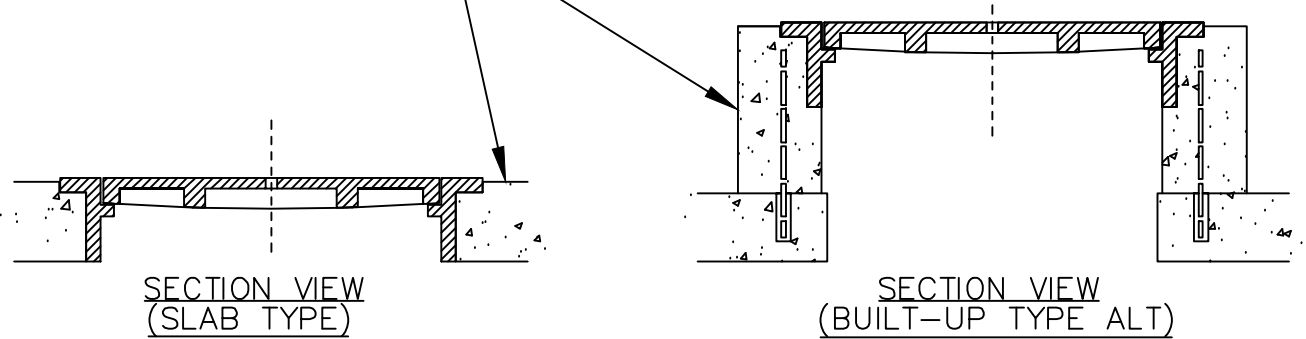
MACHINE FINISH FRAME SEAT, COVER SEAT, AND COVER SIDEWALL.

MANHOLE OR ACCESS DOOR SHALL HAVE AN UNOBSTRUCTED SECTION OF AT LEAST 6½" BY 6½" AREA, OF NO GREATER THAN 1¼" THICKNESS, WITH A 1¼" DIAMETER HOLE DRILLED AT CENTER OF AREA FOR INSTALLATION OF METER TRANSMITTER PIT MOUNT.



PLAN VIEW

CONCRETE CURBING  
3000 PSI AIR-ENTRAINED



# MANHOLE STEPS

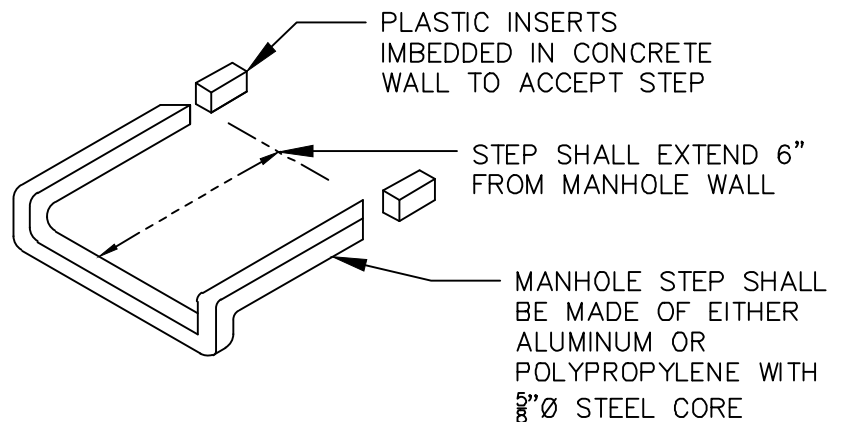
**NOTES:**

ALUMINUM SHALL CONFORM TO ASTM B-221 ALLOY 6061 T-6.

MANHOLE STEPS SHALL SATISFY ALL REQUIREMENTS OF OSHA.

PLASTIC INSERTS SHALL CONFORM TO STEP EMBEDMENT DEPTH AS REQUIRED BY ASTM C-478, C-497.

POLYPROPYLENE SHALL CONFORM TO ASTM D5857, WITH STEEL CORE CONFORMING TO ASTM A615, GRADE 60.



NOT TO SCALE



## METER PIT DETAILS: COVER, FRAME, STEPS

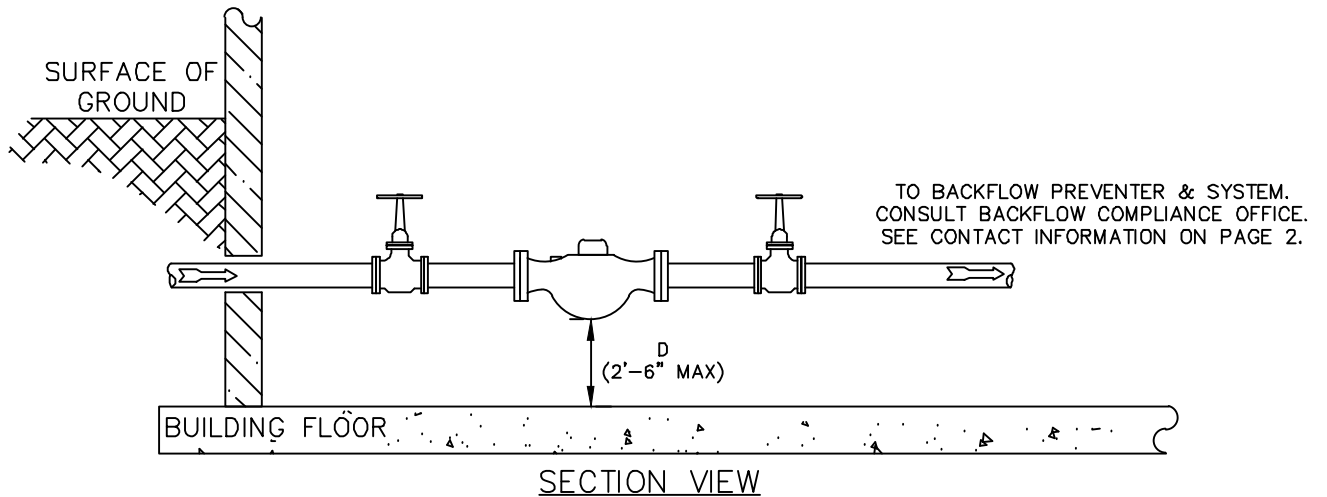
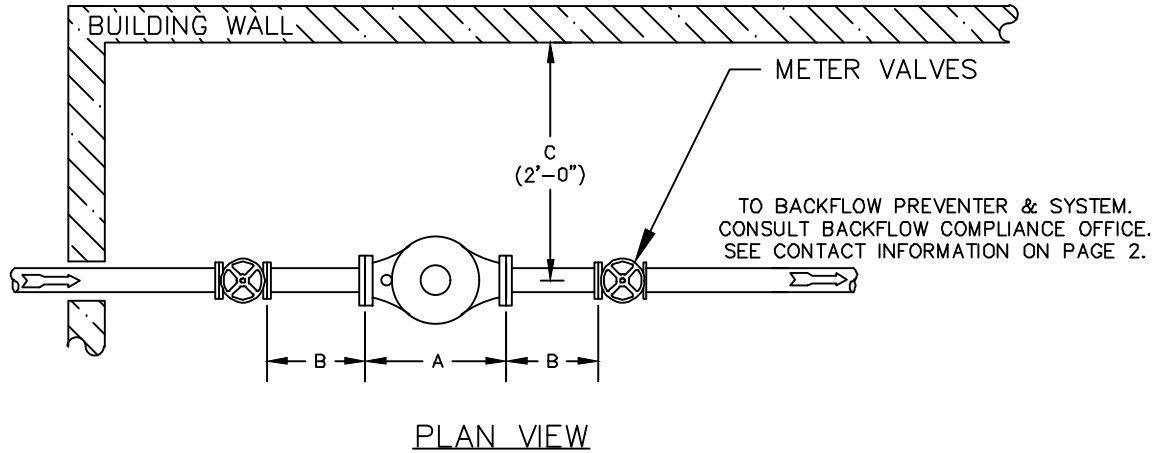
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DATE: AUG.27.2021  
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# METER ROOM

**NOTES:**

METERING PLAN INCLUDING ROOM LAYOUT AND DESIGN TO BE SUBMITTED TO THE METERING UNIT FOR APPROVAL. SEE PAGE 2 FOR CONTACT INFORMATION.



**NOTES:**

GATE OR BALL VALVES MAY BE USED -EXCEPT WHERE A BYPASS IS PRESENT, GATE VALVES ARE REQUIRED.

BYPASS FOR 1½" AND 2" LINES REQUIRED AT THE DISCRETION OF PWD METERING PERMITS GROUP.

BACKFLOW PREVENTION PLAN MUST BE REVIEWED BY THE BACKFLOW COMPLIANCE OFFICE. SEE CONTACT INFORMATION ON PAGE 2.

DIMENSION	PIPE SIZE	
		0'-1½"
A	1'-1½"	1'-5"
B	1'-0"	1'-0"
C	2'-0"	2'-0"
D	2'-6"	2'-6"

NOT TO SCALE



INDOOR INSTALLATION: 1-½" AND 2" PIPE

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# METER PIT

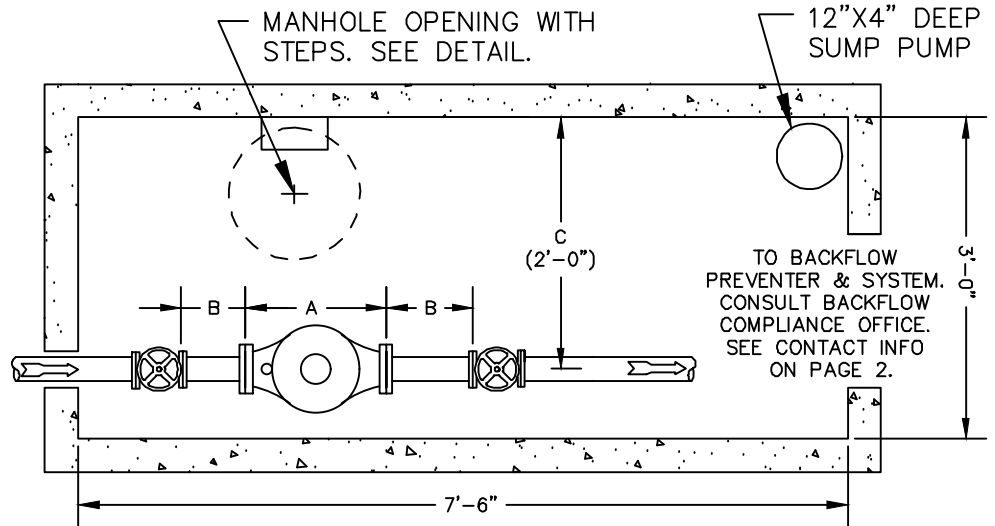
**NOTES:**

WALL OPENING FOR PIPE SHALL BE CIRCULAR WITH A DIAMETER OF 1" GREATER THAN THE PIPE

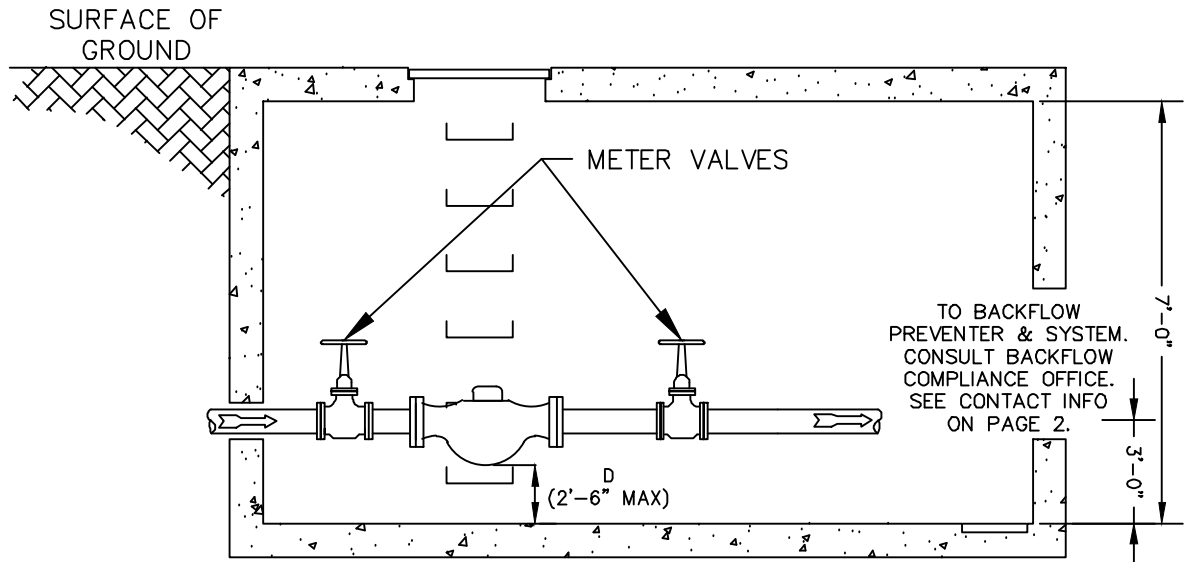
PIPE SHALL BE WRAPPED WITH 3 LAYERS OF 1" THICK FELT IN SECTIONS THAT PASS THROUGH WALL

BACKFLOW PREVENTION PLAN MUST BE REVIEWED BY THE BACKFLOW COMPLIANCE OFFICE. SEE CONTACT INFORMATION ON PAGE 2.

DIMENSION	PIPE SIZE	
	0'-1½"	0'-2"
A	1'-1½"	1'-5"
B	1'-0"	1'-0"
C	2'-0"	2'-0"
D	2'-6"	2'-6"



PLAN VIEW  
W/ BACKFLOW PREVENTER



SECTION VIEW  
W/DOUBLE CHECK VALVE

NOT TO SCALE



METER PIT INSTALLATION:  
1-½" AND 2" PIPE W/ BACKFLOW PREVENTER

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DATE: AUG. 27, 2021

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# FORD BOX

**NOTES:**

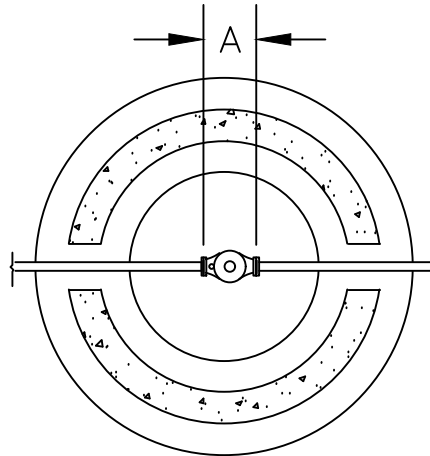
LOCATE METER PIT OUTSIDE TRAFFIC LANES.

PLUMBER SHALL SPECIFY THE TYPE OF CONNECTIONS THE COPPERSETTER WILL BE EQUIPPED WITH.

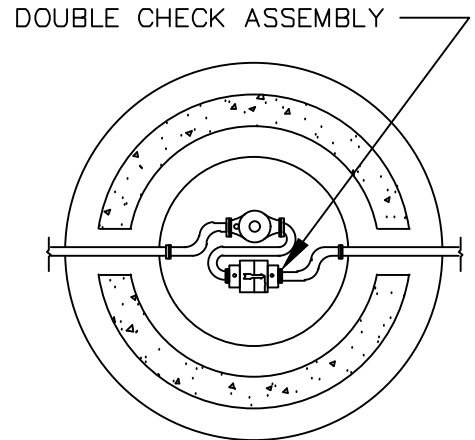
PLUMBER ALSO TO SPECIFY THE EXACT LAYING LENGTH NEEDED IN THE COPPERSETTER FOR BACKFLOW PREVENTER.

WALL OPENING FOR PIPE SHALL BE CIRCULAR WITH DIAMETER 1" GREATER THAN THE PIPE.

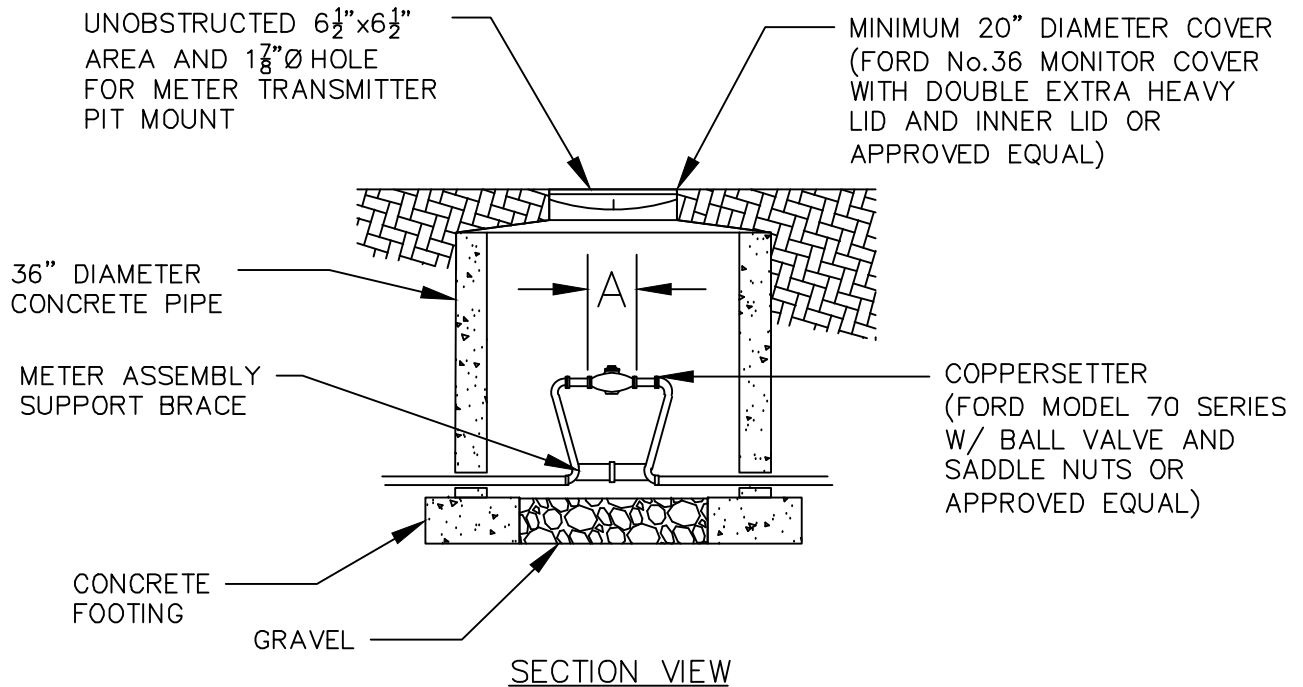
BACKFLOW PREVENTION PLAN MUST BE REVIEWED BY THE BACKFLOW COMPLIANCE OFFICE. SEE CONTACT INFORMATION ON PAGE 2.



PLAN VIEW



PLAN VIEW WITH DOUBLE CHECK ASSEMBLY



DIMENSION	PIPE SIZE	
	5/8"	1"
A	7-1/2"	10-3/4"

NOT TO SCALE



## METER PIT INSTALLATION: FORD BOX 5/8" AND 1" PIPE

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# METER READING EQUIPMENT

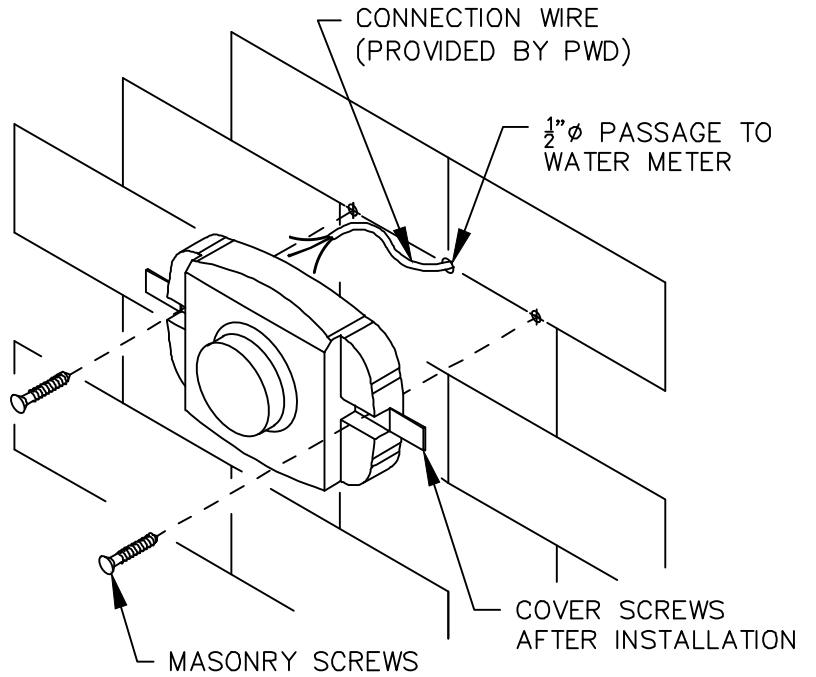
**NOTES:**

METER TRANSMITTER CONNECTOR TO BE INSTALLED ON STREET-FACING BUILDING FACADE.

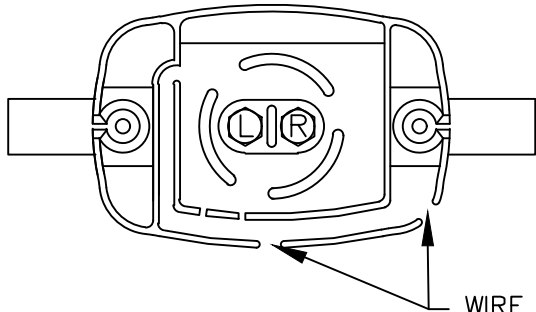
METER TRANSMITTER CONNECTOR REQUIRES MINIMUM CLEARANCE OF 5 INCHES IN ALL DIRECTIONS.

METER TRANSMITTER TO BE SECURED TO CONNECTOR BY PWD AT TIME OF METER INSTALLATION.

SECURELY REATTACH WIRE CONNECTORS TO TERMINALS. WIRE TERMINALS ARE INTERCHANGEABLE.

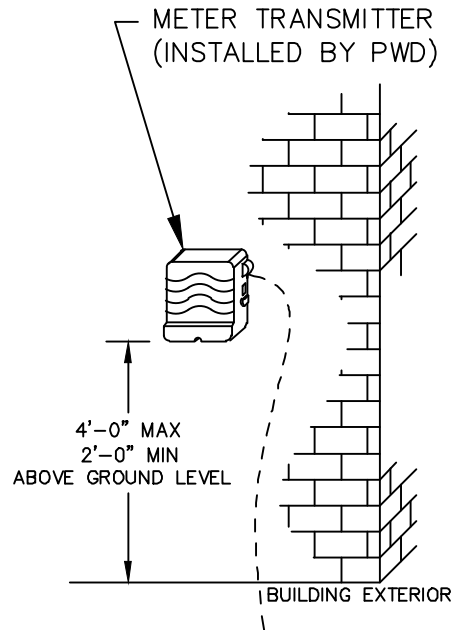
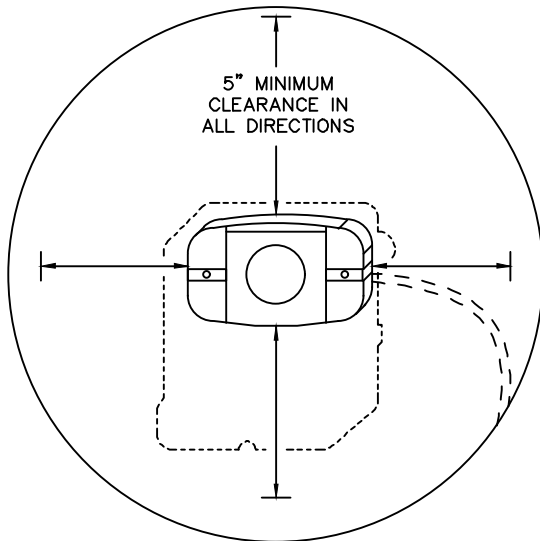


METER TRANSMITTER CONNECTOR



BACK VIEW

WIRE PASSAGE CUTOUTS (IF NEEDED)



NOT TO SCALE



## INDOOR INSTALLATION: METER READING EQUIPMENT

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