

**UNIFORM DESIGN AND CONSTRUCTION  
STANDARDS FOR EXTENDING WATER  
DISTRIBUTION SYSTEMS**

**SECTION 5**

**STANDARD DETAILS**

Revised: September 20, 2017

## STANDARD DETAILS

### SECTION 5

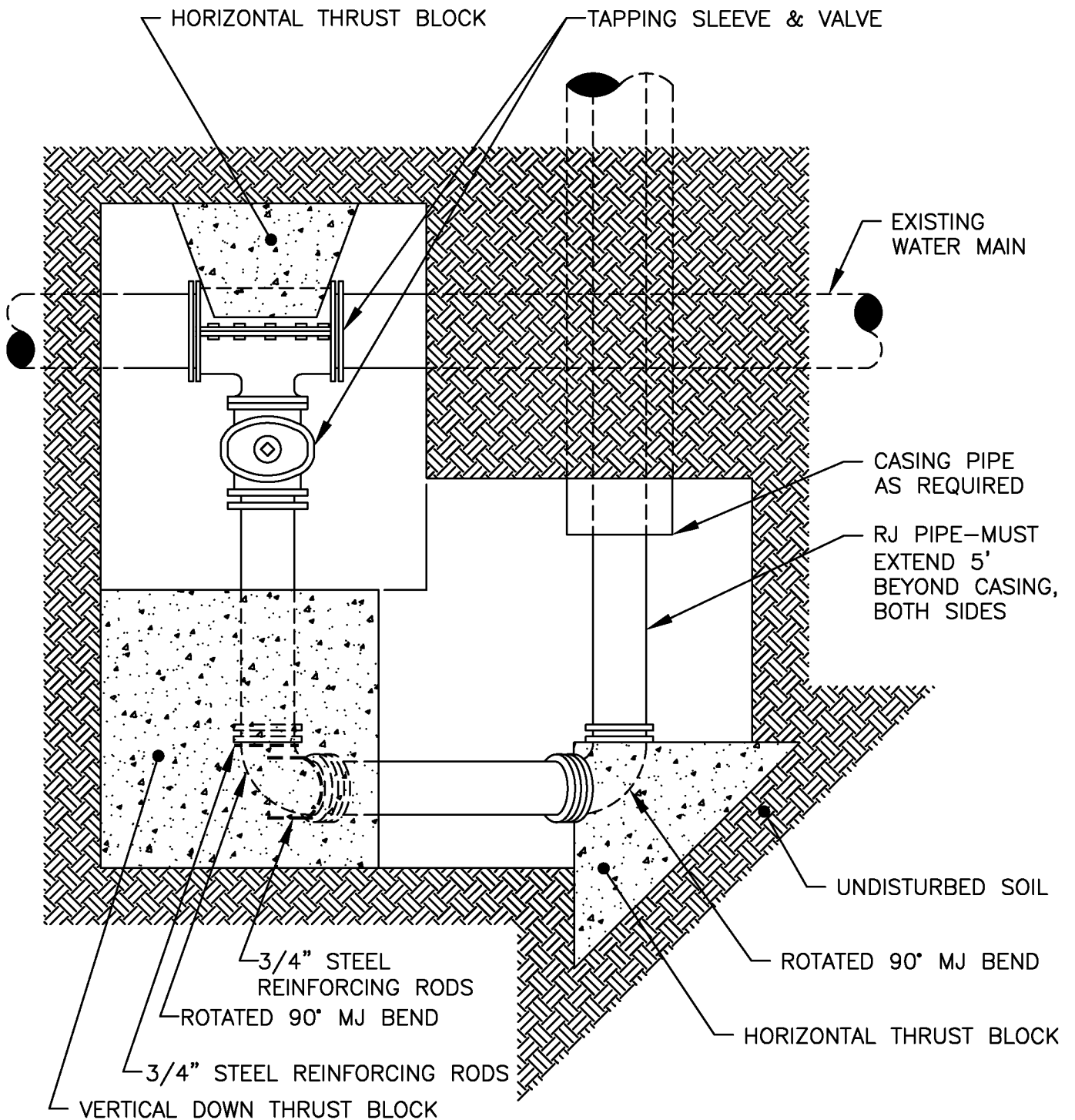
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### BACKSIDE TAP - PLAN VIEW

NOT TO SCALE

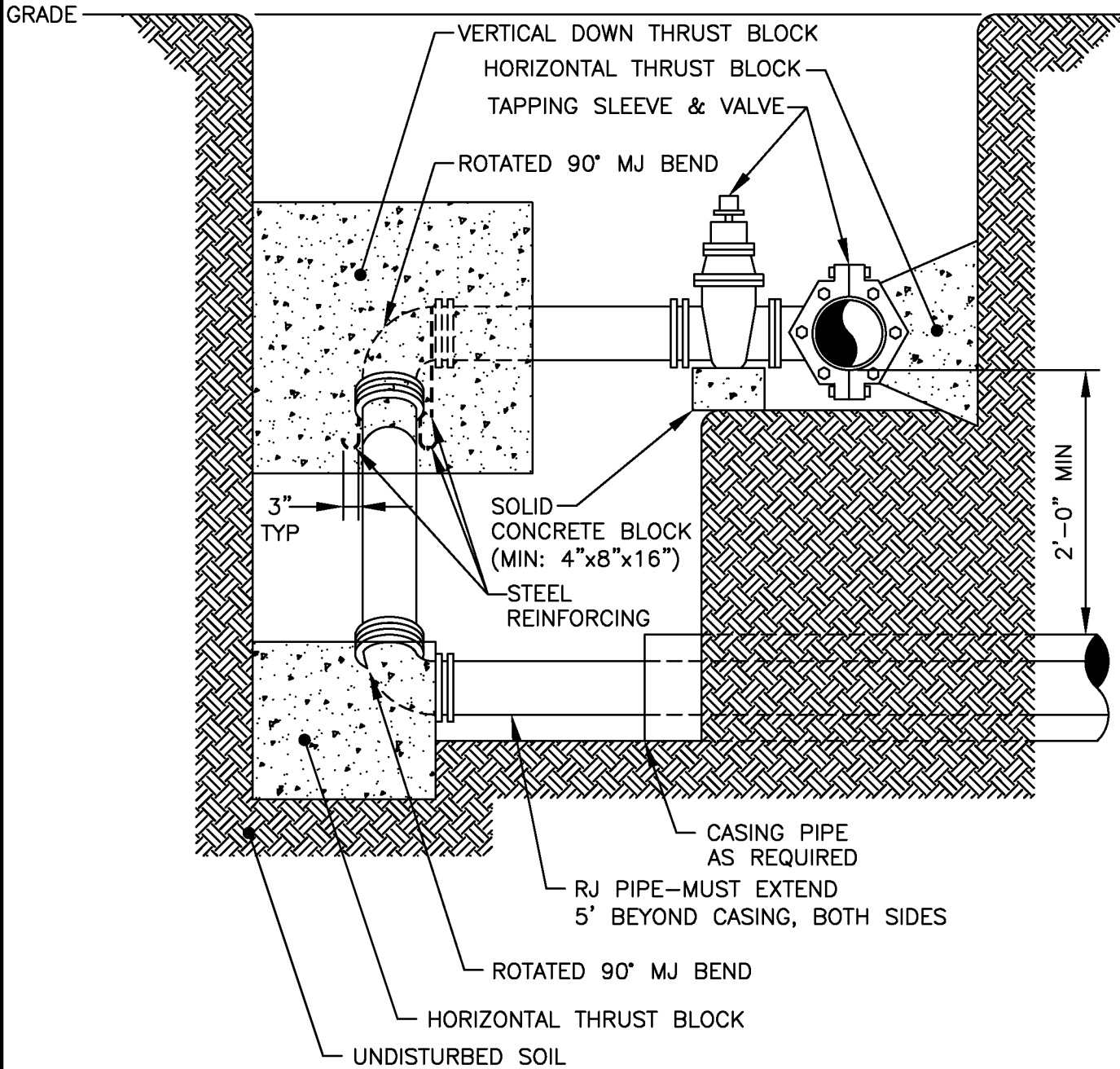


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DME 1

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### BACKSIDE TAP - SIDE ELEVATION

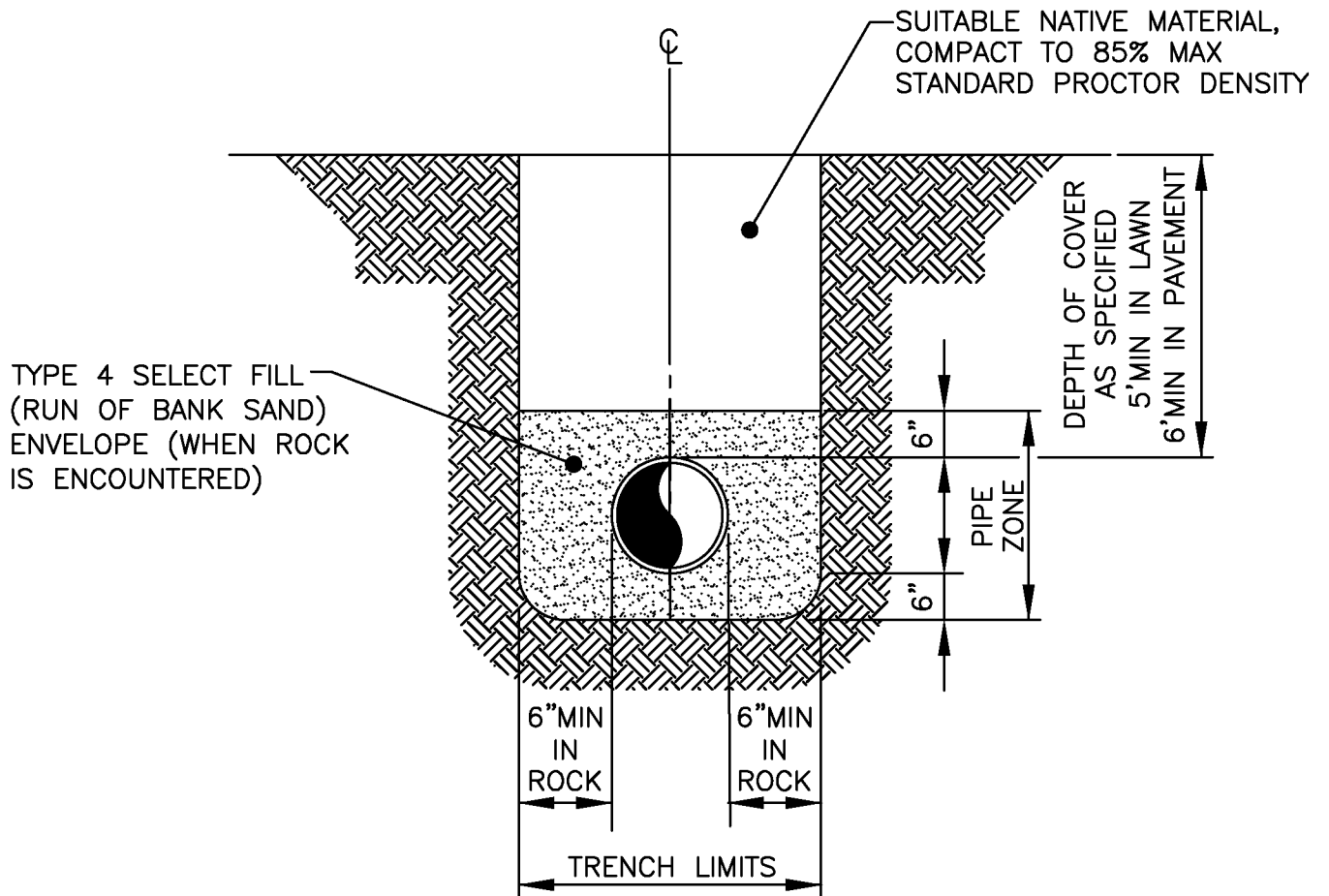
NOT TO SCALE



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DME 2



NOTE: EXCAVATION TO MEET OSHA REQUIREMENTS.

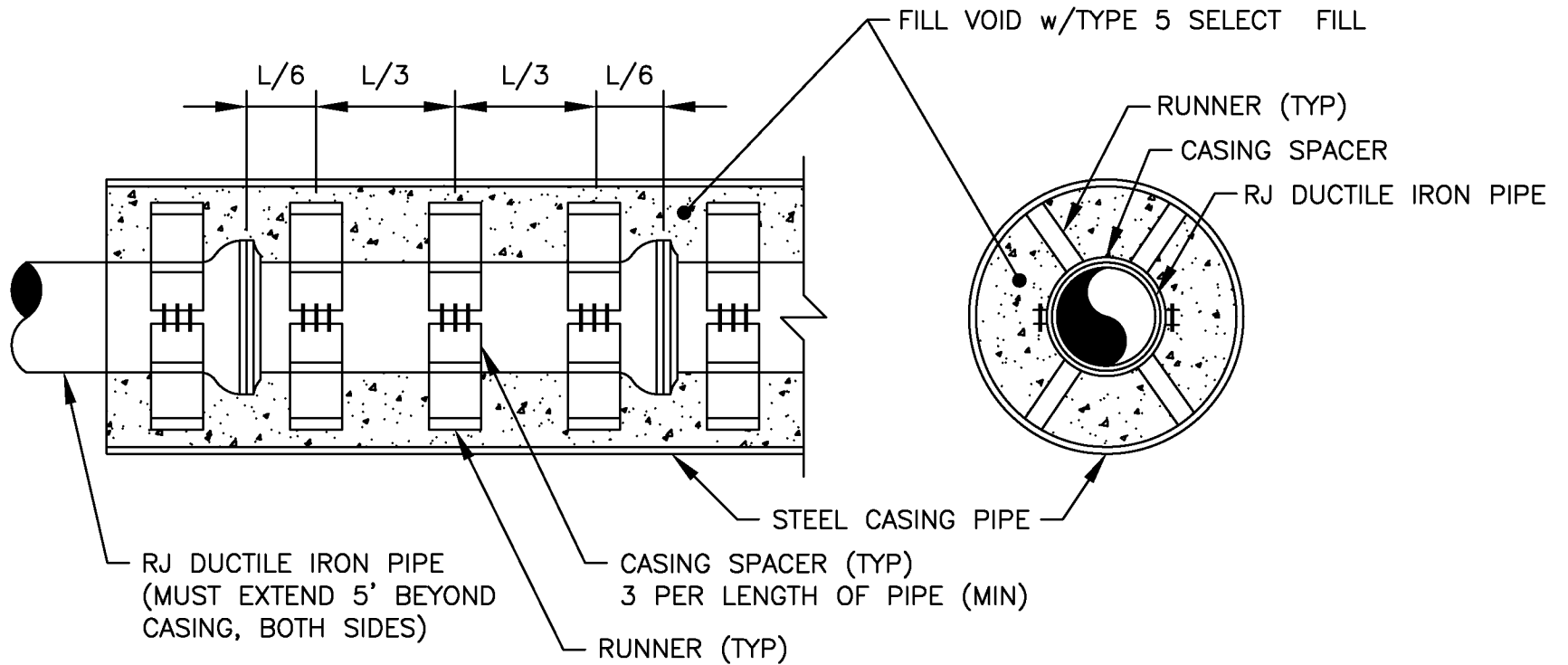
**DIP TRENCH**  
NOT TO SCALE



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DME 3



**CASING PIPE**

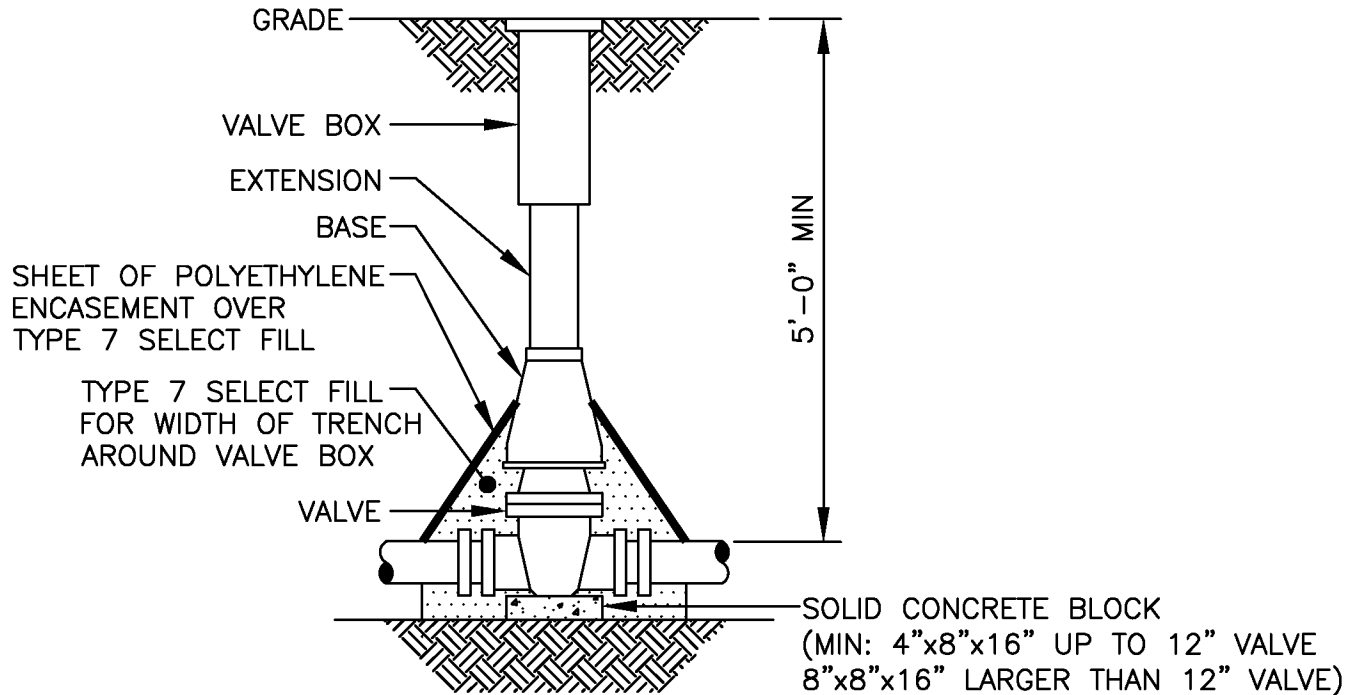
NOT TO SCALE



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DME 4



NOTES:

1. VALVE BOX SHALL BE CENTERED ON VALVE AND SET ON COMPACTED BACKFILL.
2. VALVE SHALL NOT SUPPORT VALVE BOX.
3. ALL VALVES SHALL BE OPEN LEFT EXCEPT:  
TOWN OF WEBSTER – VALVES 12” AND SMALLER SHALL OPEN RIGHT.  
TOWN OF HENRIETTA – SHALL OPEN RIGHT

**VALVE**  
NOT TO SCALE



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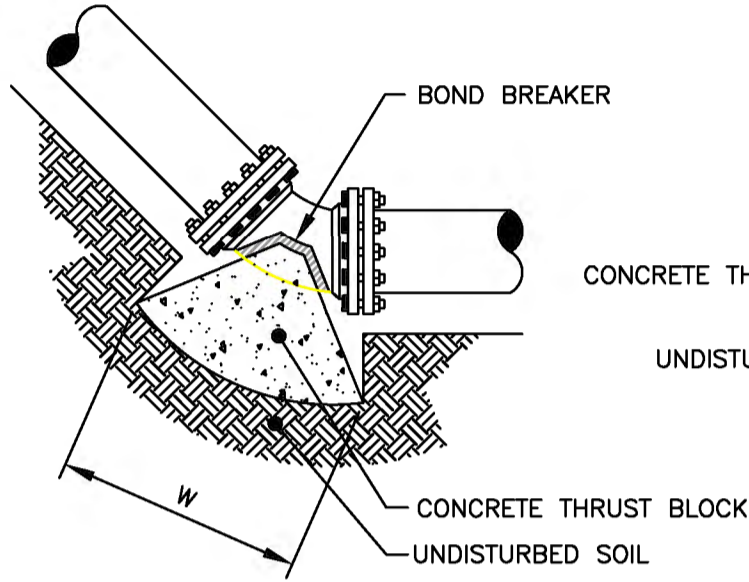
SEPT 2016  
DATE

DME 5

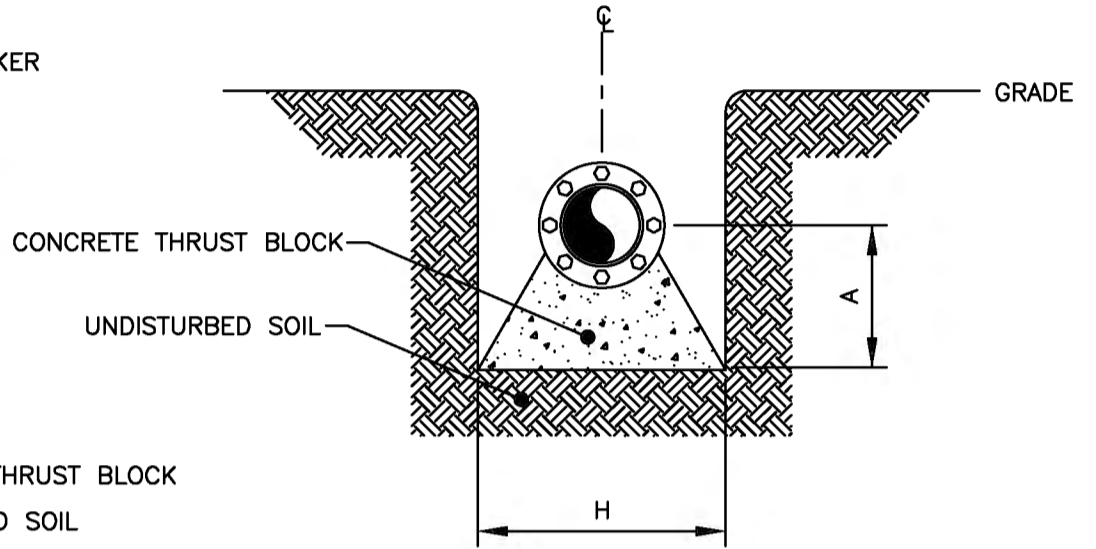
PIPE DIAMETER	BEND OR FITTING															
	11 1/4 DEGREE			22 1/2 DEGREE			45 DEGREE			90 DEGREE			TEE*, CAP OR PLUG			
	H (FT)	W (FT)	A (FT)	H (FT)	W (FT)	A (FT)	H (FT)	W (FT)	A (FT)	H (FT)	W (FT)	A (FT)	H (FT)	W (FT)	A (FT)	

\* SIZE BLOCK BASED ON BRANCH DIAMETER.  
 SOIL BEARING STRENGTH - \_\_\_\_\_ PSF  
 \_\_\_\_\_ PSI TEST PRESSURE

**HORIZONTAL AND VERTICAL UP THRUST BLOCKS**



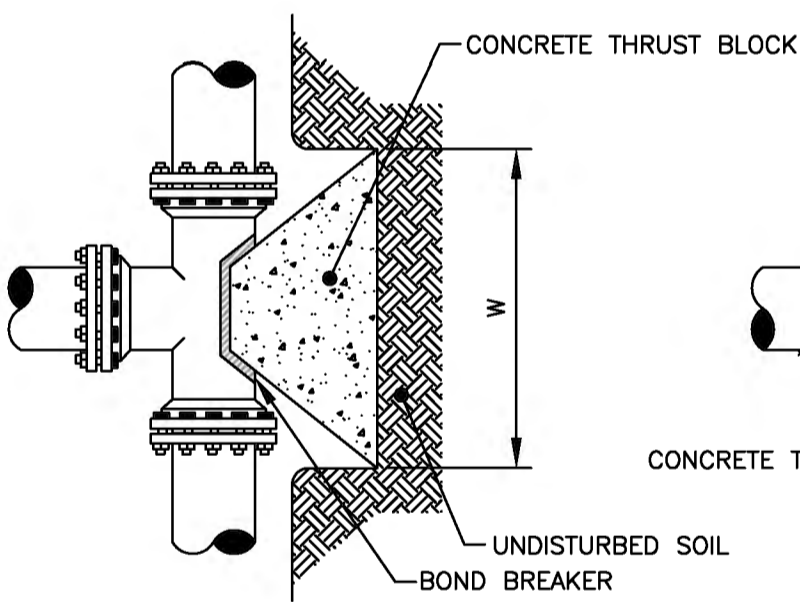
BEND PROFILE



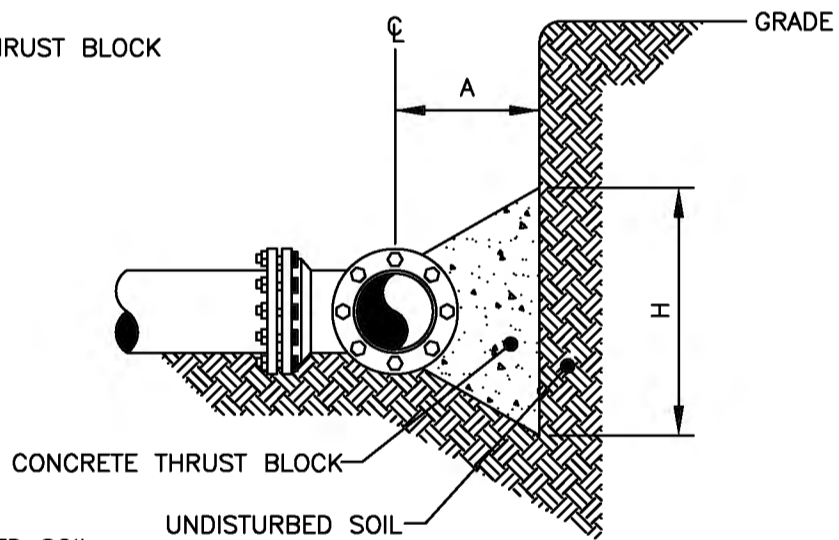
BEND ELEVATION

**VERTICAL UP THRUST BLOCKS**

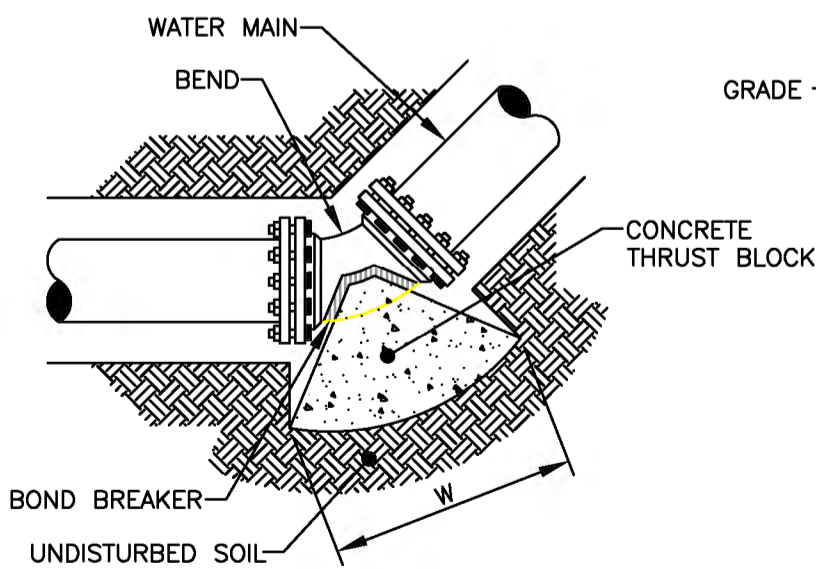
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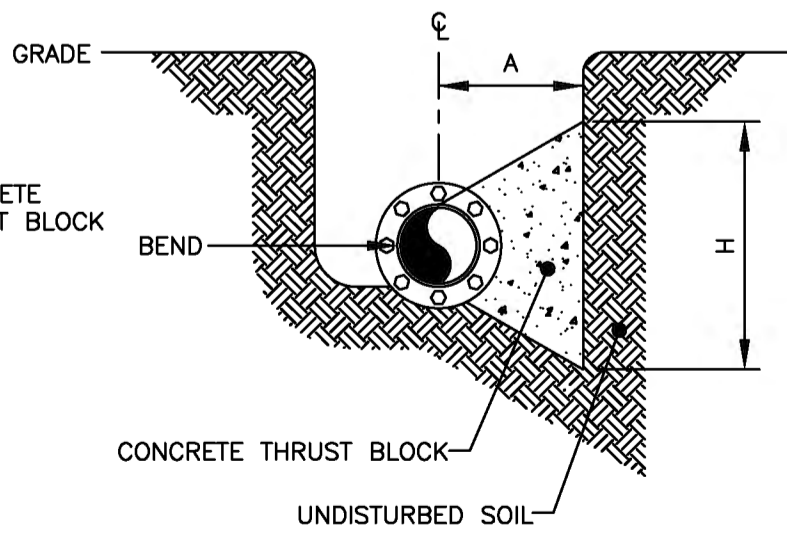
TEE PLAN



TEE ELEVATION



BEND PLAN



BEND ELEVATION

**HORIZONTAL THRUST BLOCKS**

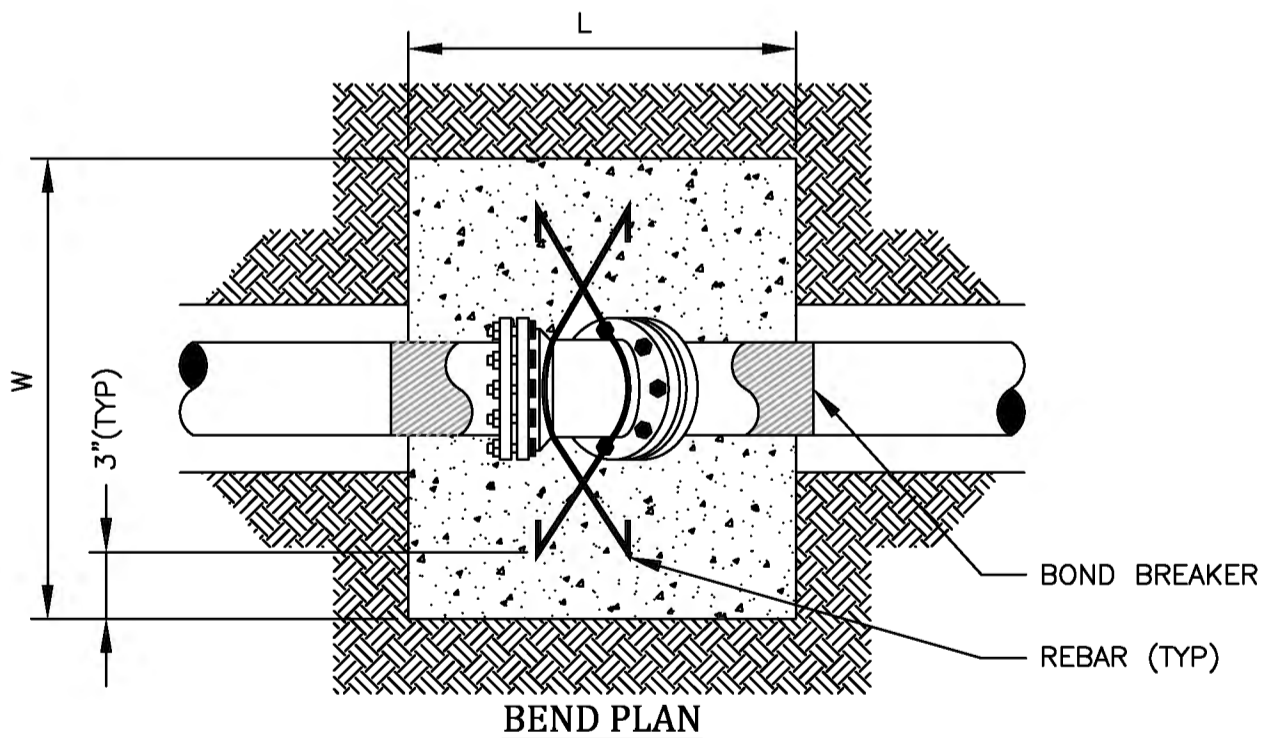
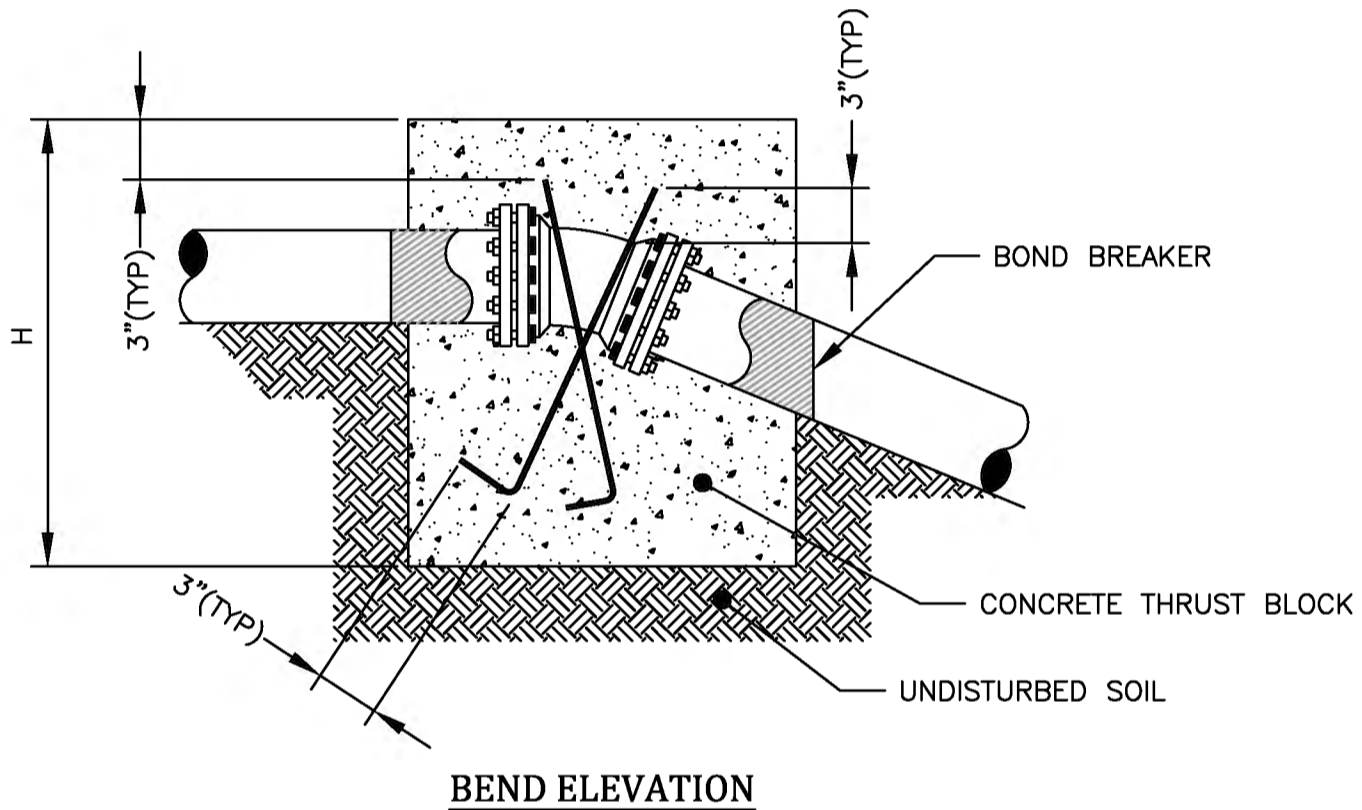
NOT TO SCALE



PIPE DIAMETER	BEND															
	11 1/4 DEGREE				22 1/2 DEGREE				45 DEGREE				90 DEGREE			
	L (FT)	W (FT)	H (FT)	VOL (CY)	L (FT)	W (FT)	H (FT)	VOL (CY)	L (FT)	W (FT)	H (FT)	VOL (CY)	L (FT)	W (FT)	H (FT)	VOL (CY)

SOIL BEARING STRENGTH - PSF  
 PSI TEST PRESSURE

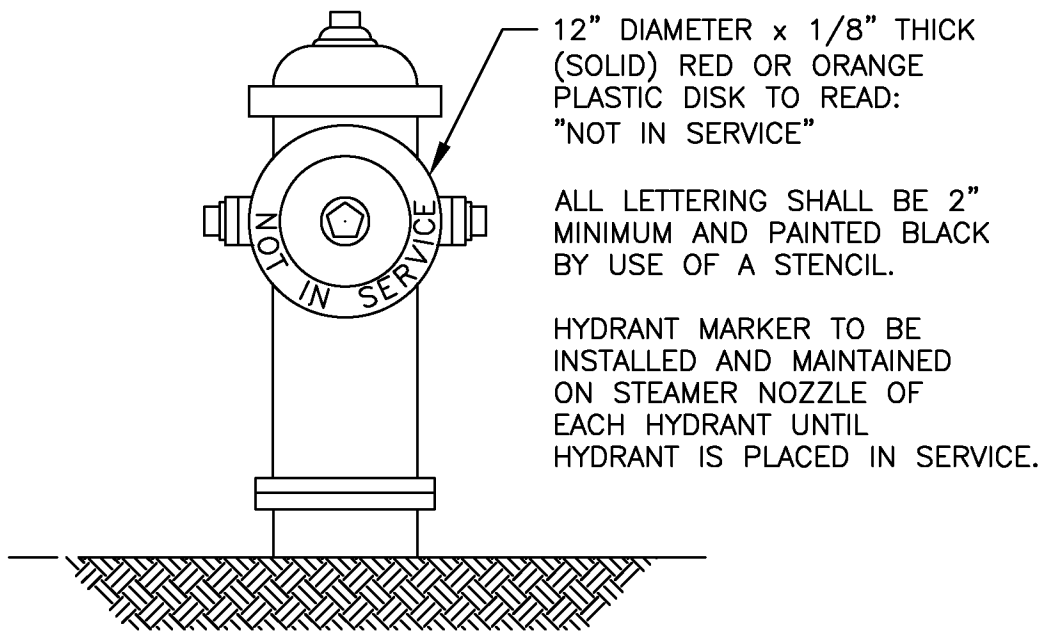
**VERTICAL DOWN THRUST BLOCKS**



- NOTES:**
- THRUST BLOCKS SHALL BE CENTERED HORIZONTALLY ON BENDS.
  - VOLUMES SHOWN IN CHART ARE MINIMUMS.

**VERTICAL DOWN THRUST BLOCKS**

NOT TO SCALE



## HYDRANT MARKER

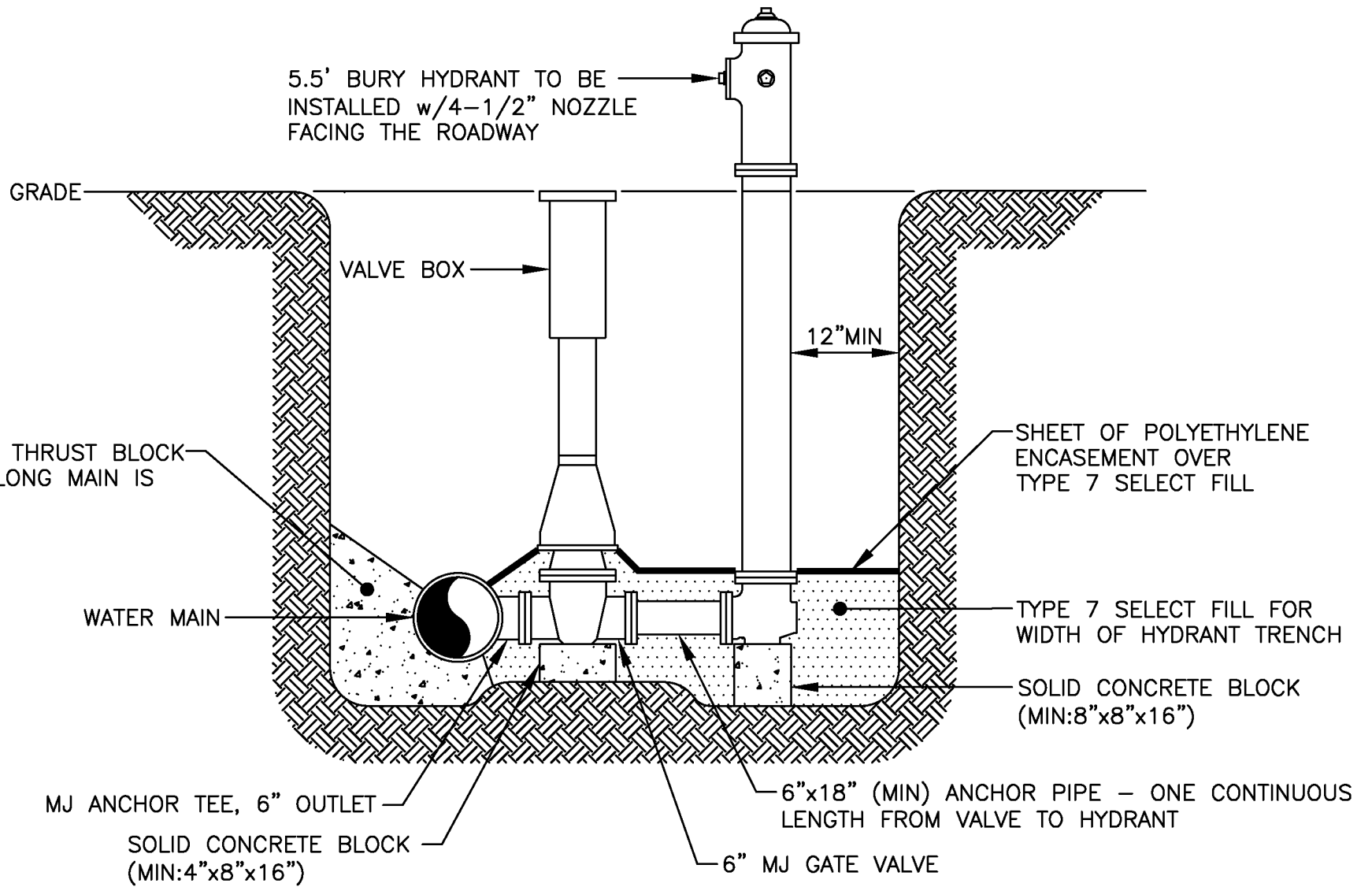
NOT TO SCALE



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DME 8



### PERPENDICULAR HYDRANT ASSEMBLY

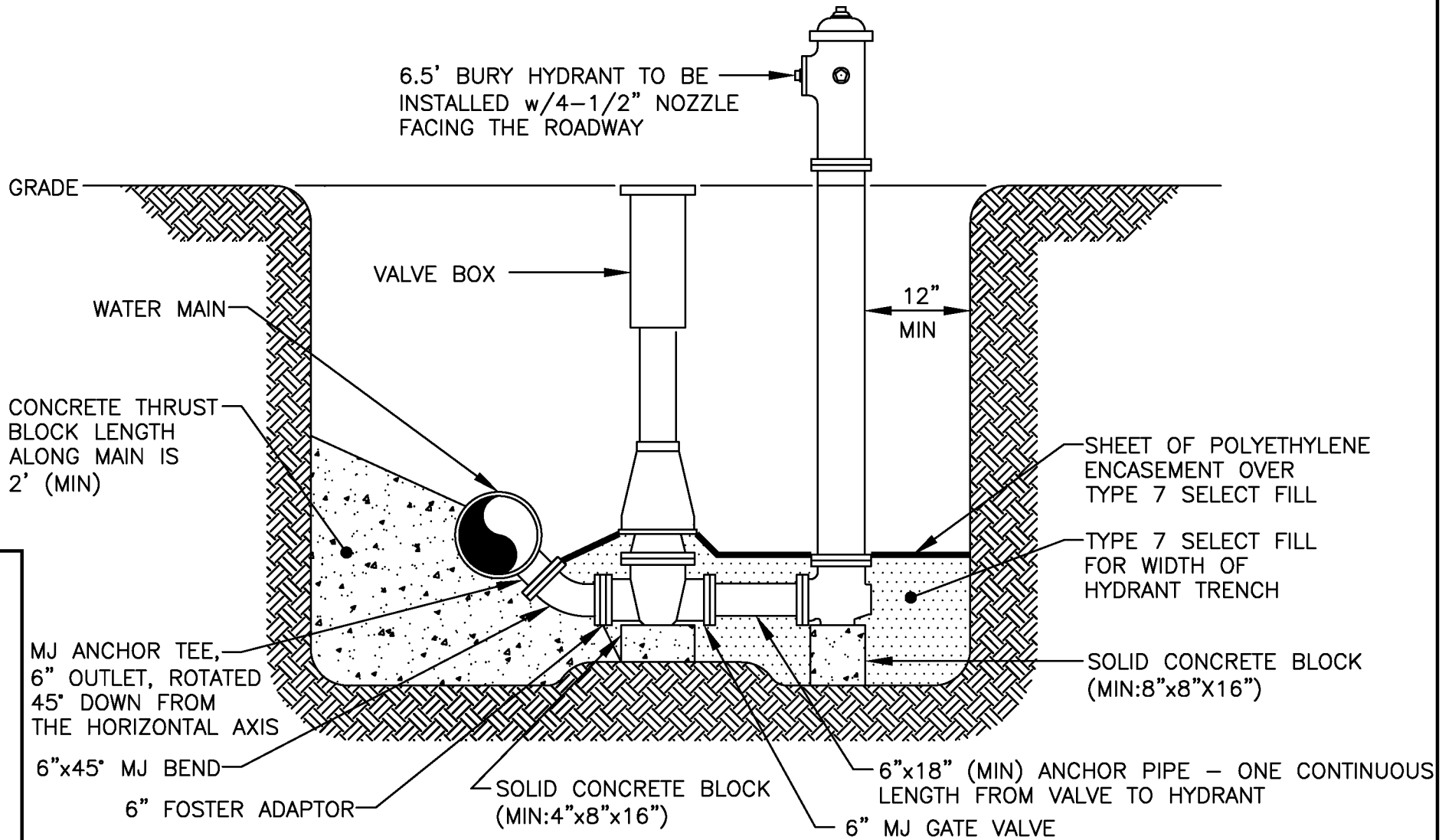
NOT TO SCALE



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## PERPENDICULAR BLOW-OFF HYDRANT ASSEMBLY

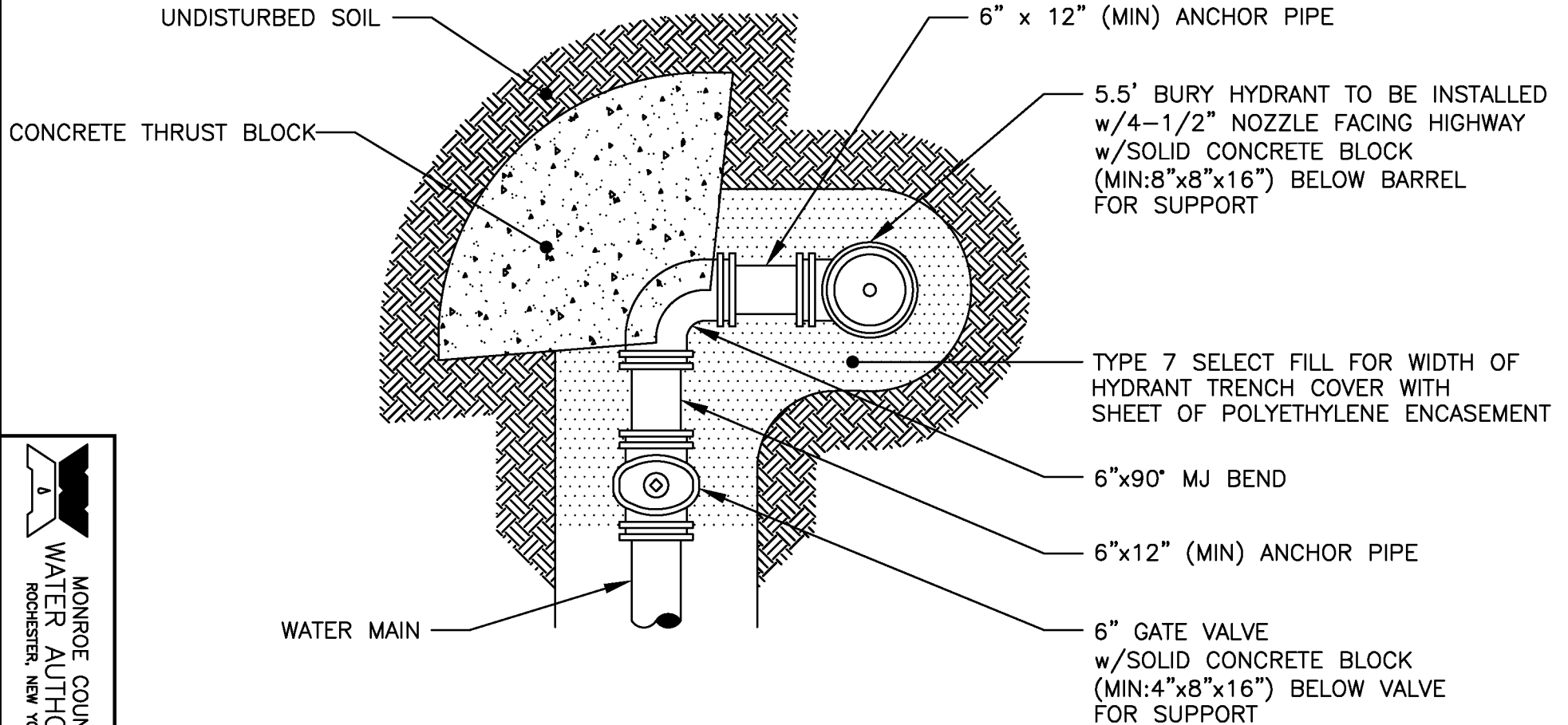
NOT TO SCALE



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## DEAD END PERPENDICULAR HYDRANT ASSEMBLY

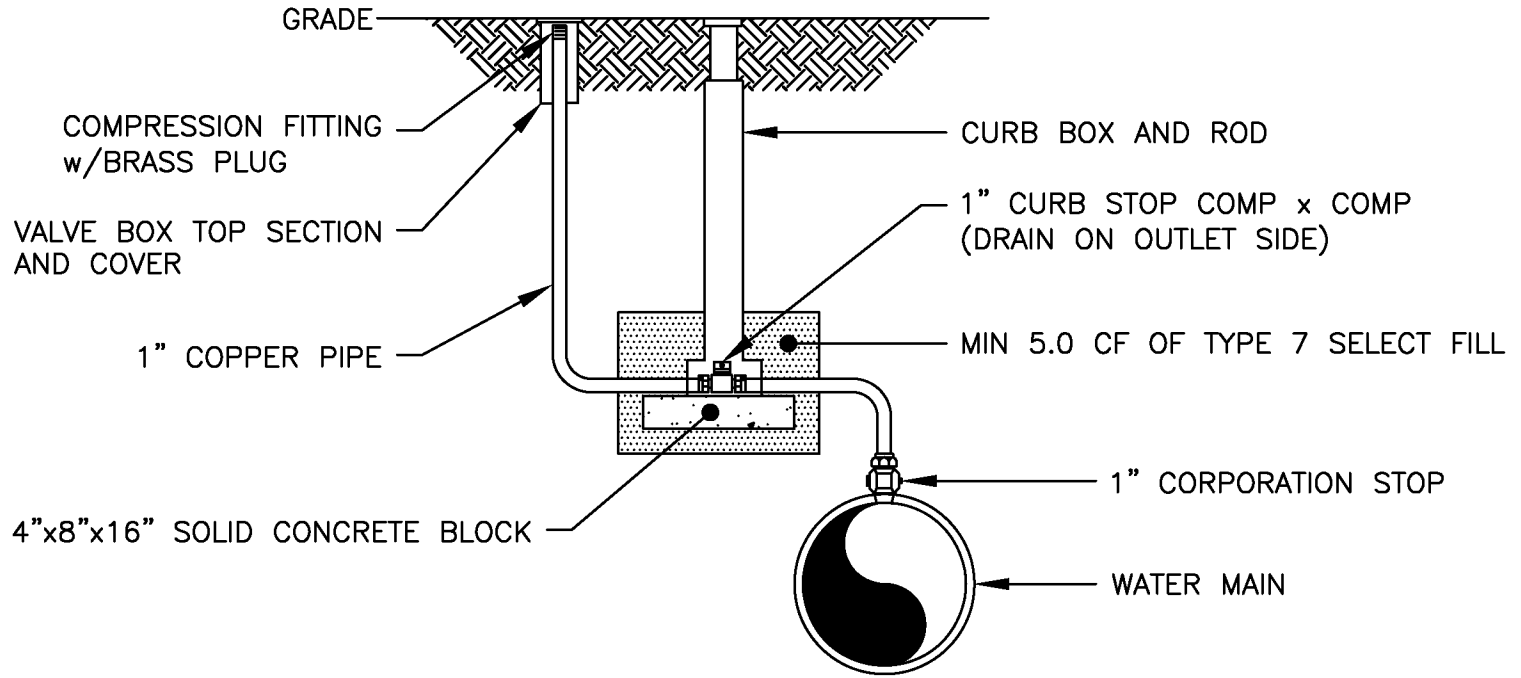
NOT TO SCALE



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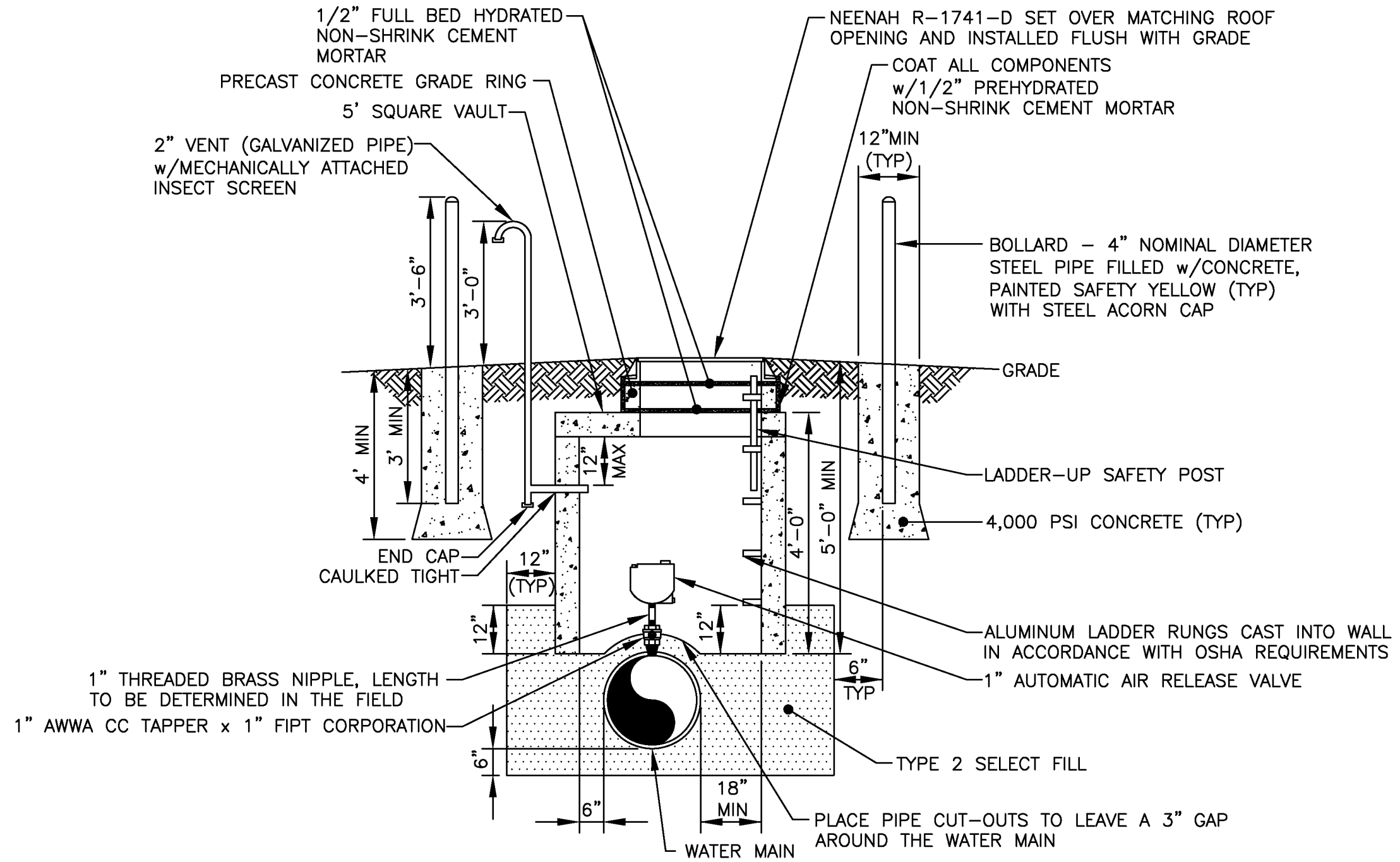
## 1" PERMANENT MANUAL AIR RELEASE

NOT TO SCALE



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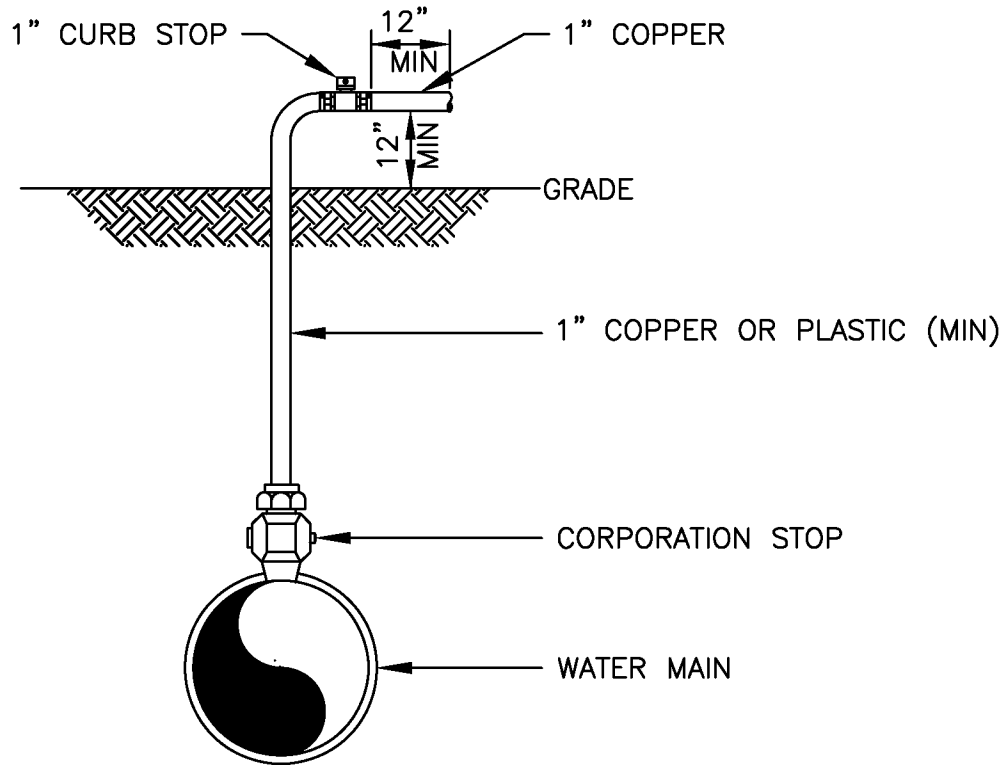
SEPT 2016  
DATE  
DME 12



**AUTOMATIC AIR RELEASE VALVE**

NOT TO SCALE

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**NOTE:** IN THE PRESENCE OF A WATER AUTHORITY REPRESENTATIVE REMOVE ALL CORPORATIONS ASSOCIATED WITH TEMPORARY DISINFECTION/SAMPLE TAPS AND REPLACE WITH THREADED BRASS PLUGS.

## DISINFECTION/BLOW-OFF/SAMPLING TAP (TEMPORARY)

NOT TO SCALE



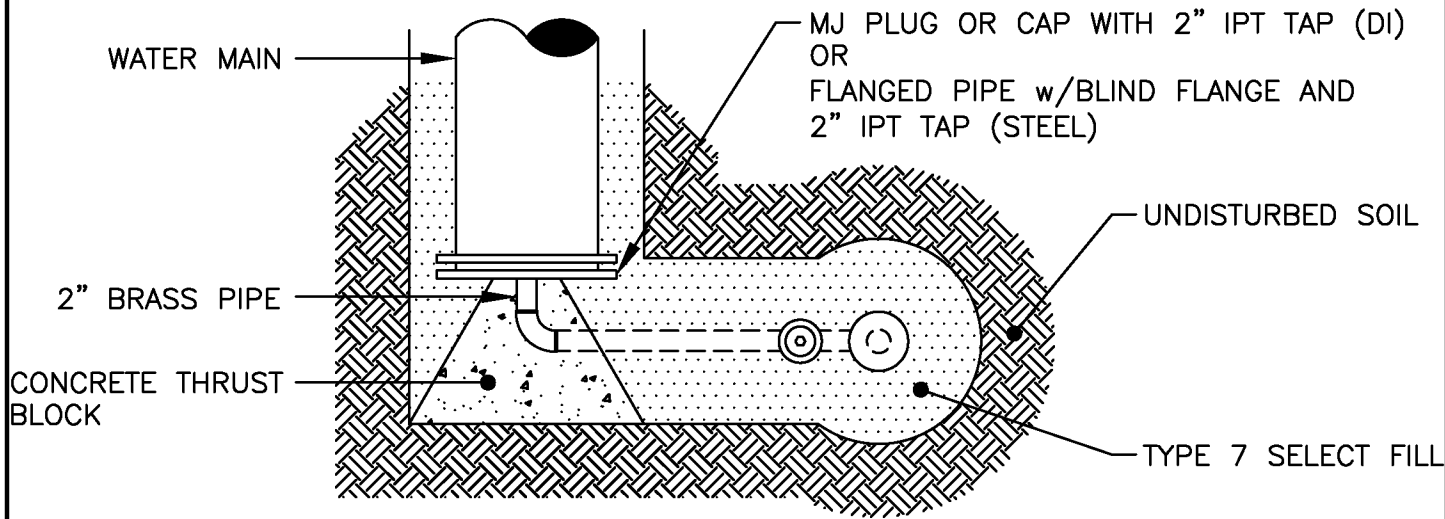
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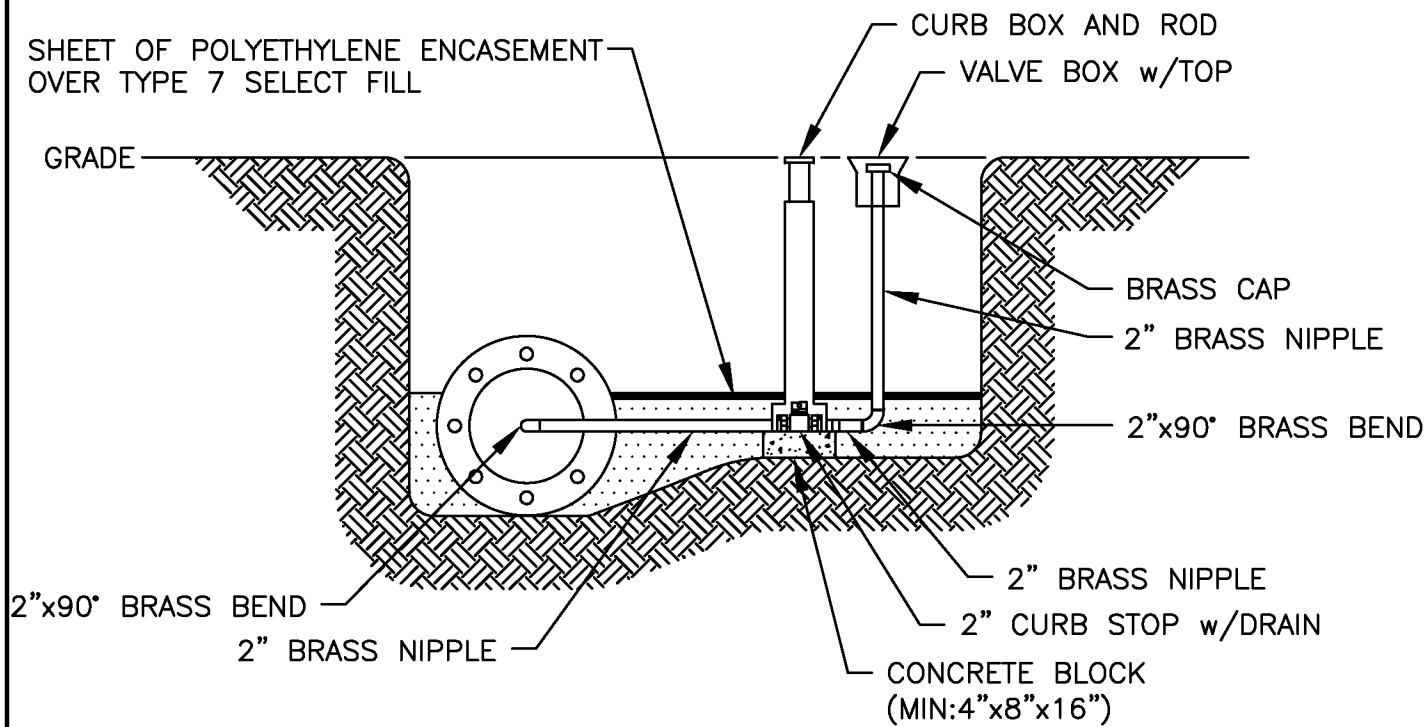
DME 14



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PLAN



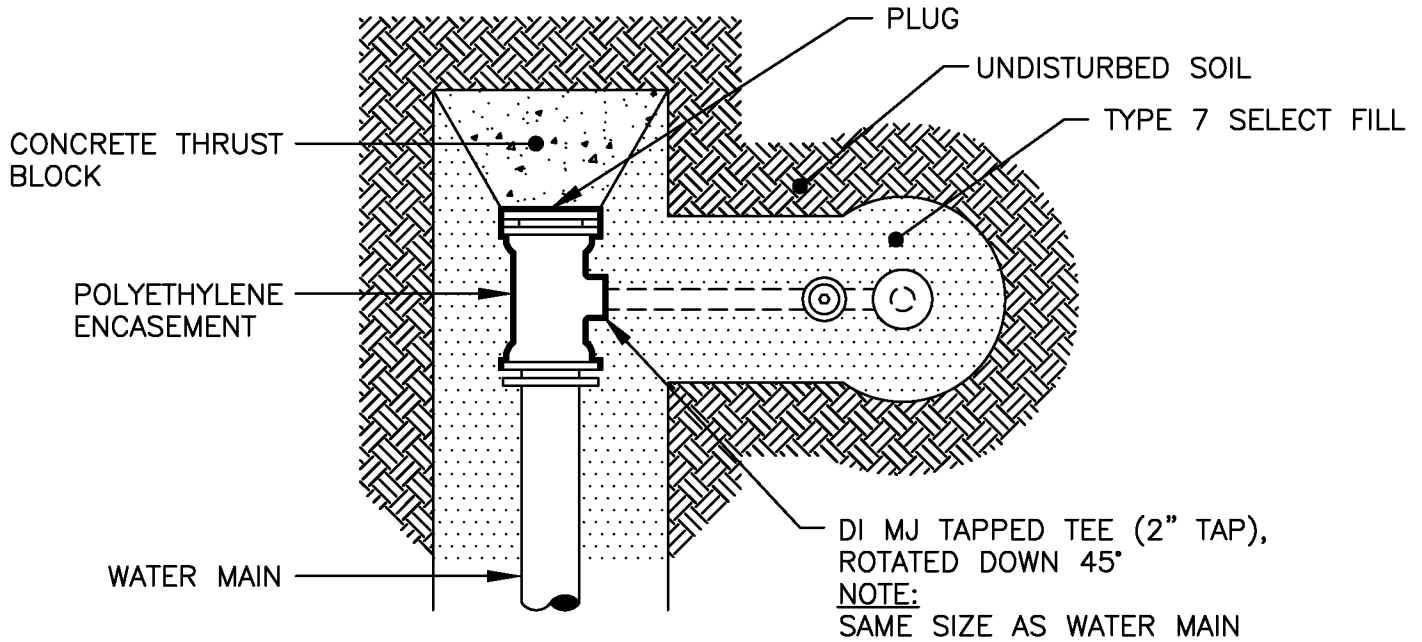
ELEVATION

PLUG OR CAP 2" BLOW-OFF

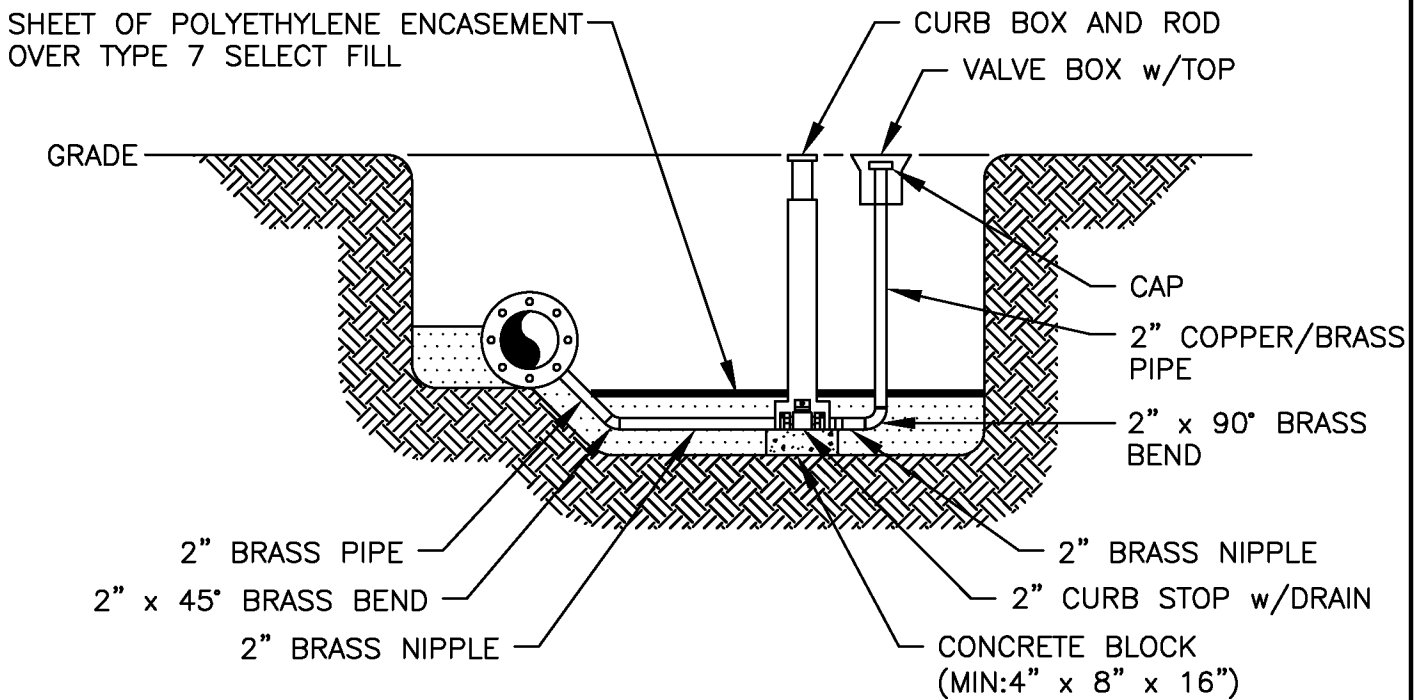
NOT TO SCALE

	MONROE COUNTY WATER AUTHORITY ROCHESTER, NEW YORK	SEPT 2016 DATE
		DME 15

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PLAN



ELEVATION

TEE w/2" BLOW-OFF

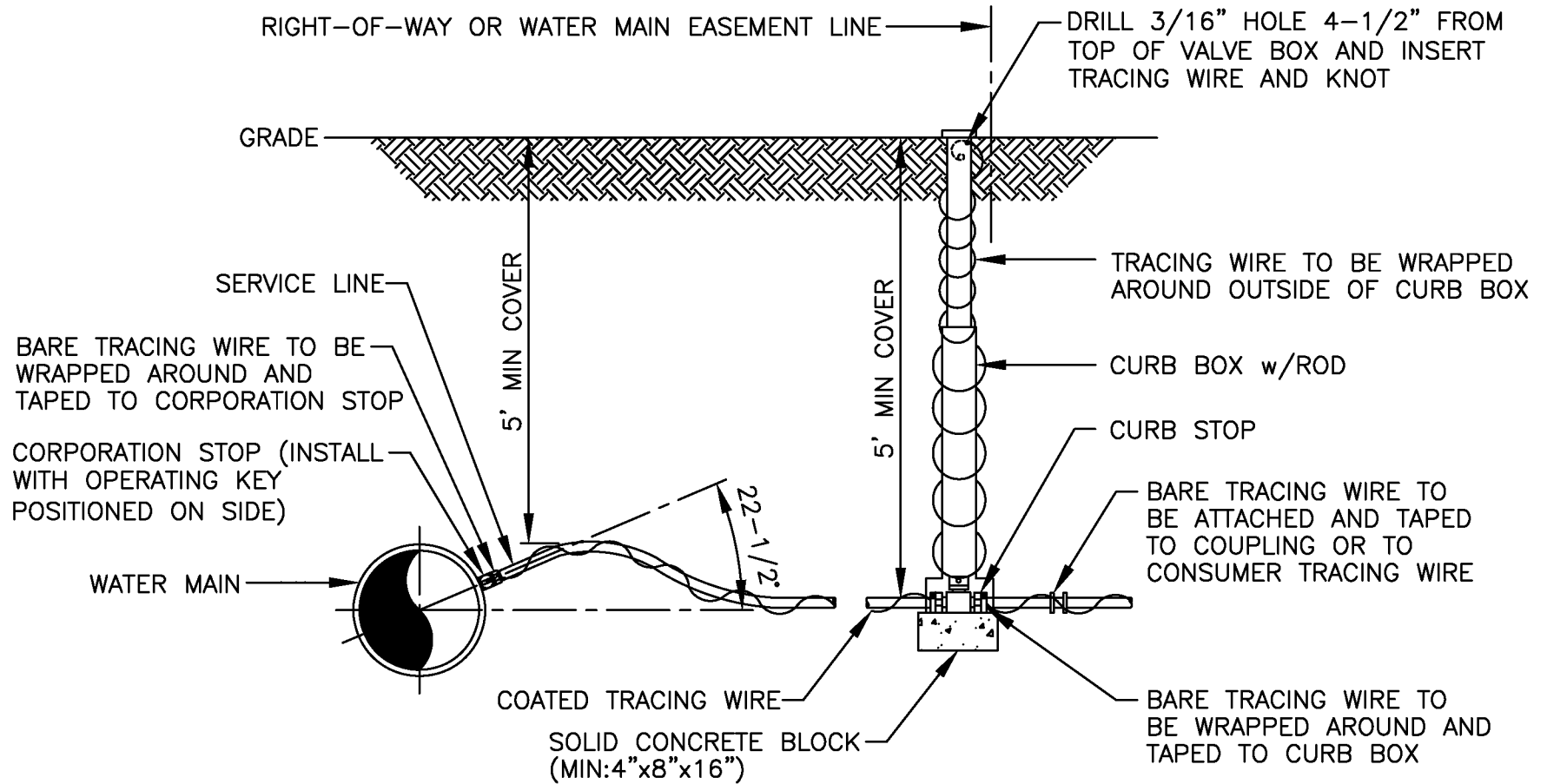
NOT TO SCALE



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DME 16



NOTES:

1. COPPER SERVICE TO BE USED UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. TRACING WIRE TO BE USED WITH POLYETHYLENE SERVICE ONLY.

**SERVICE INSTALLATION**

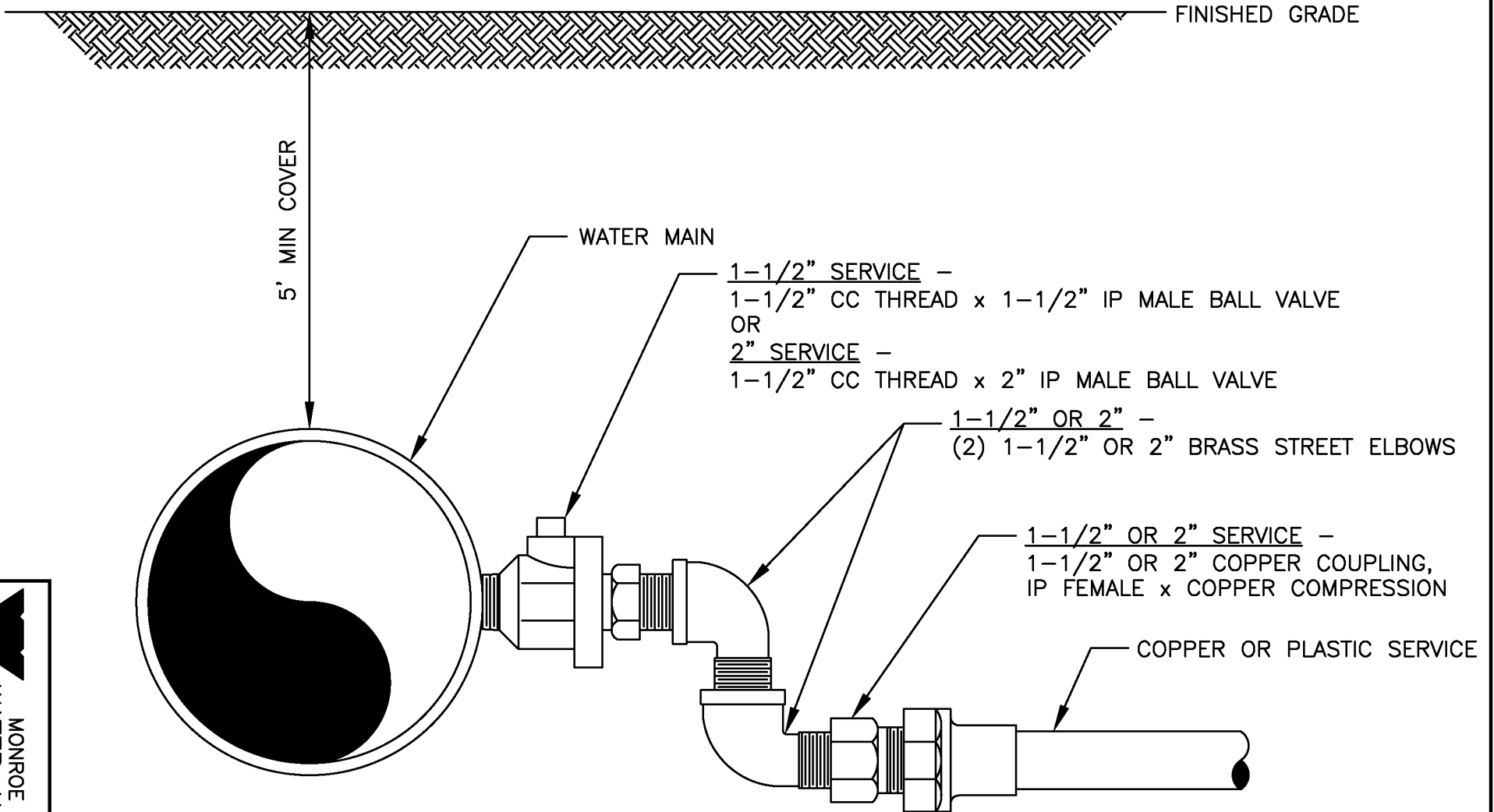
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NOTES:

1. CORPORATION SWING JOINT ASSEMBLY INSTALLED PARALLEL WITH WATER MAIN (ROTATE ELBOWS).
2. TAPPING SADDLES ARE REQUIRED FOR ALL 1-1/2" AND 2" TAPS MADE ON A 4" THROUGH 12" DUCTILE IRON AND CAST IRON MAINS AND ALL SIZES OF PVC AND ASBESTOS MAINS

**1-1/2" AND 2" SERVICE INSTALLATION**

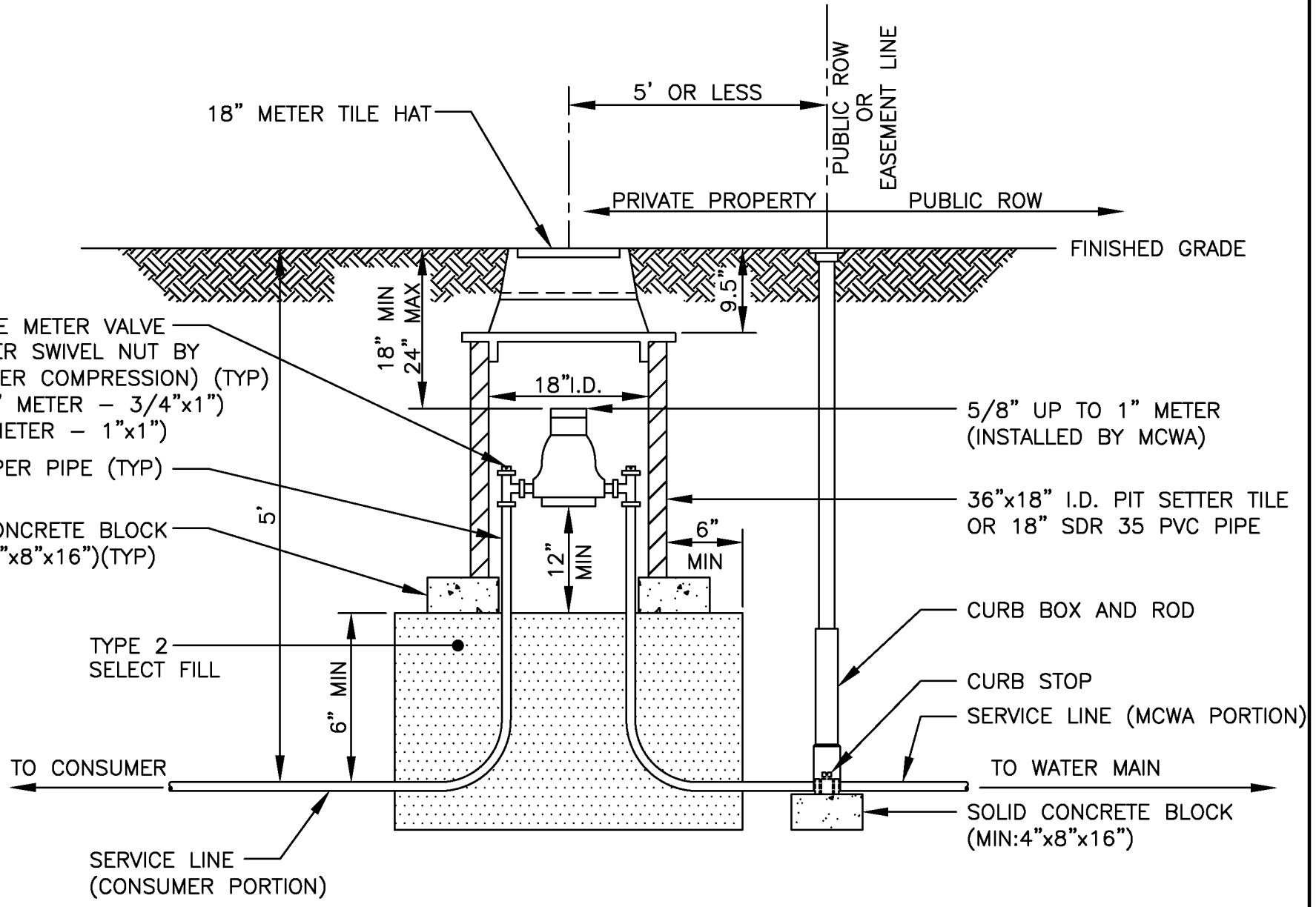
NOT TO SCALE



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### METER IN TILE INSTALLATION

NOT TO SCALE

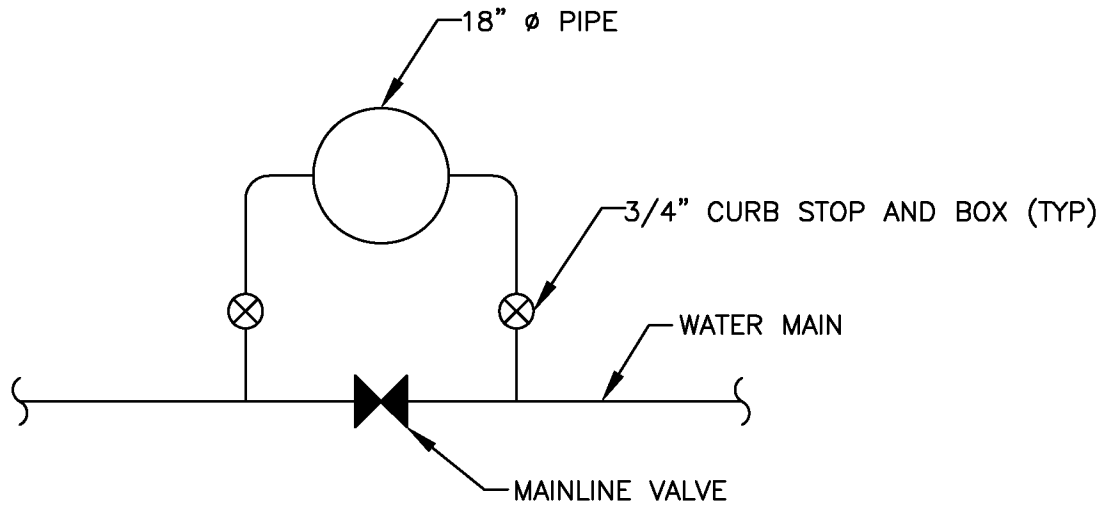
Revised 6/6/17



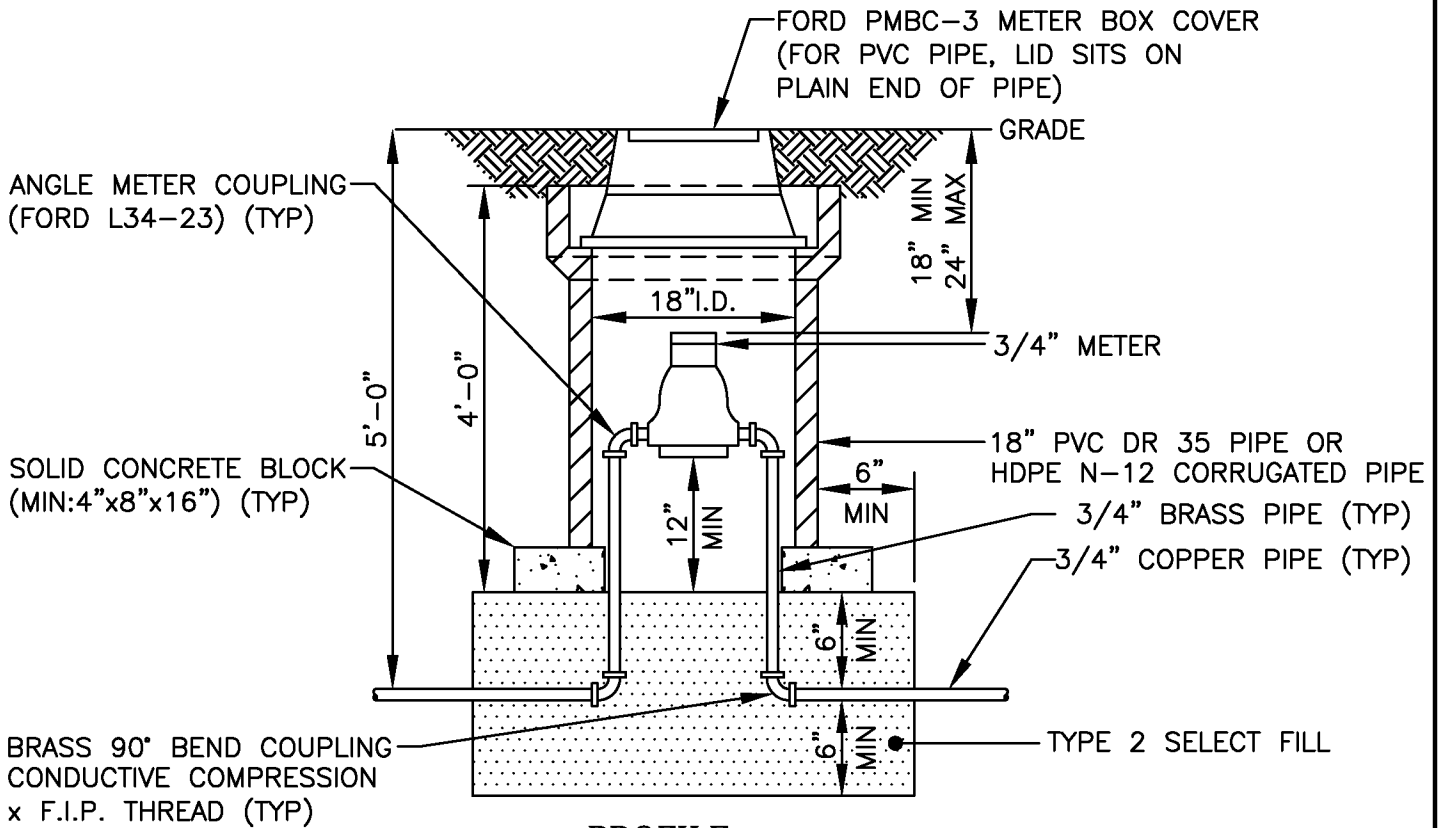
MONROE COUNTY  
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PLAN



PROFILE

3/4" METER-IN-TILE TEST CONNECTION

NOT TO SCALE

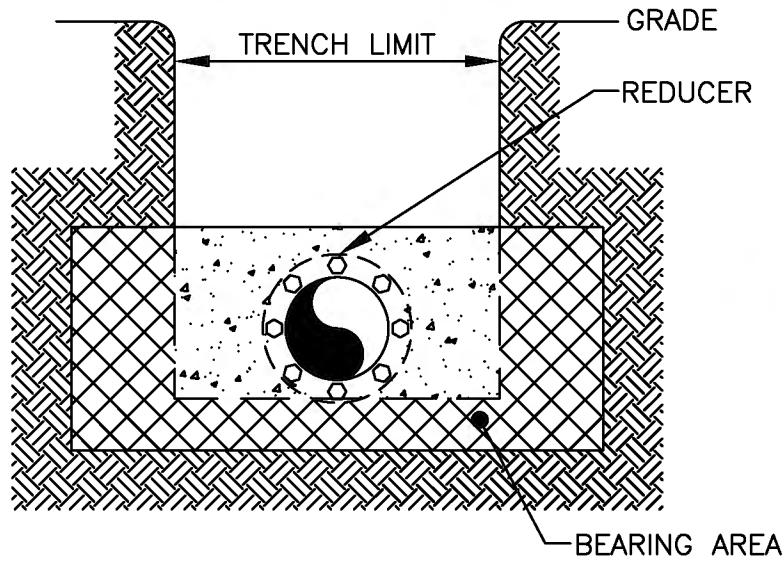
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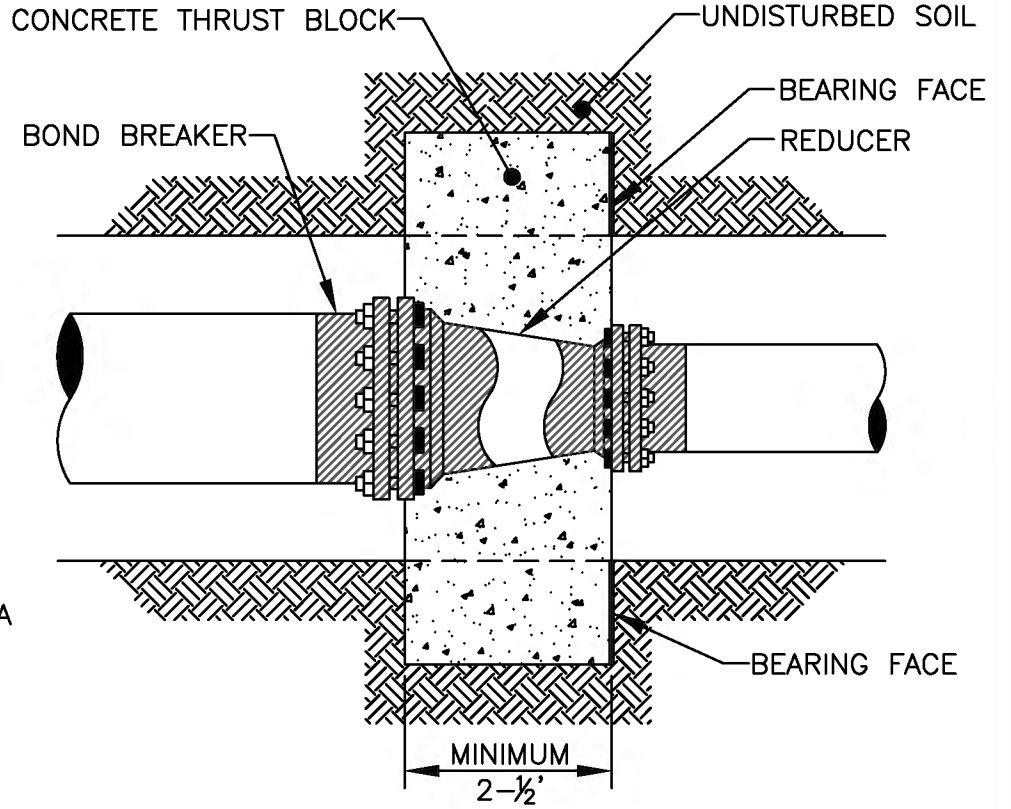
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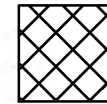
DME 20



SECTION



PLAN



= BEARING AREA OF THRUST BLOCK  
OUTSIDE TRENCH LIMITS IN  
UNDISTURBED SOIL

REDUCER	MINIMUM REQUIRED BEARING AREA (SQ FT)

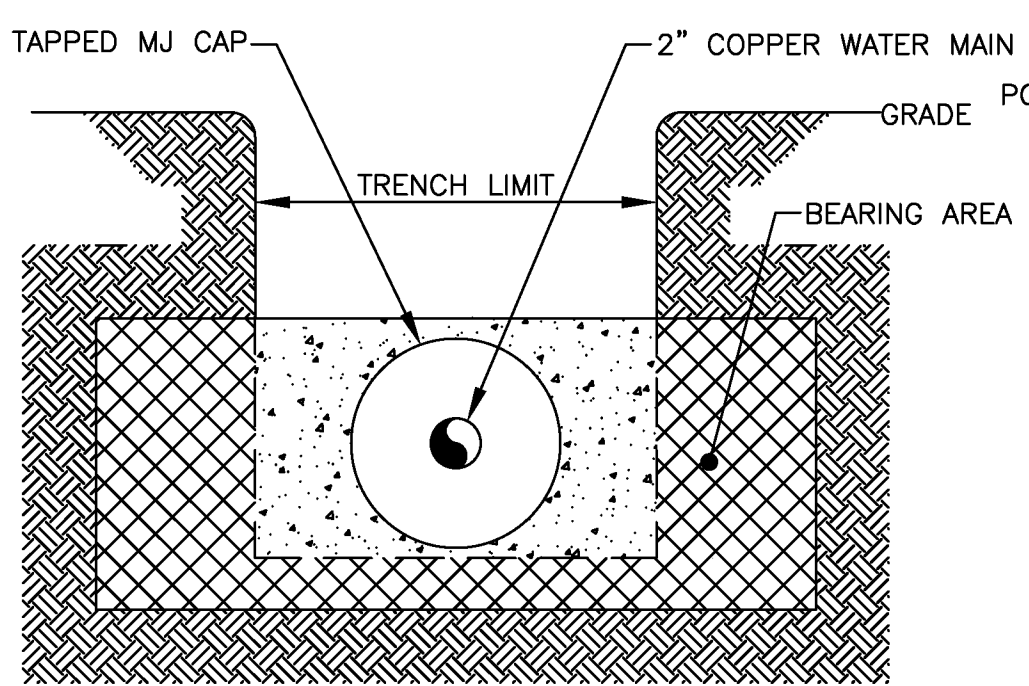
REDUCER  
NOT TO SCALE



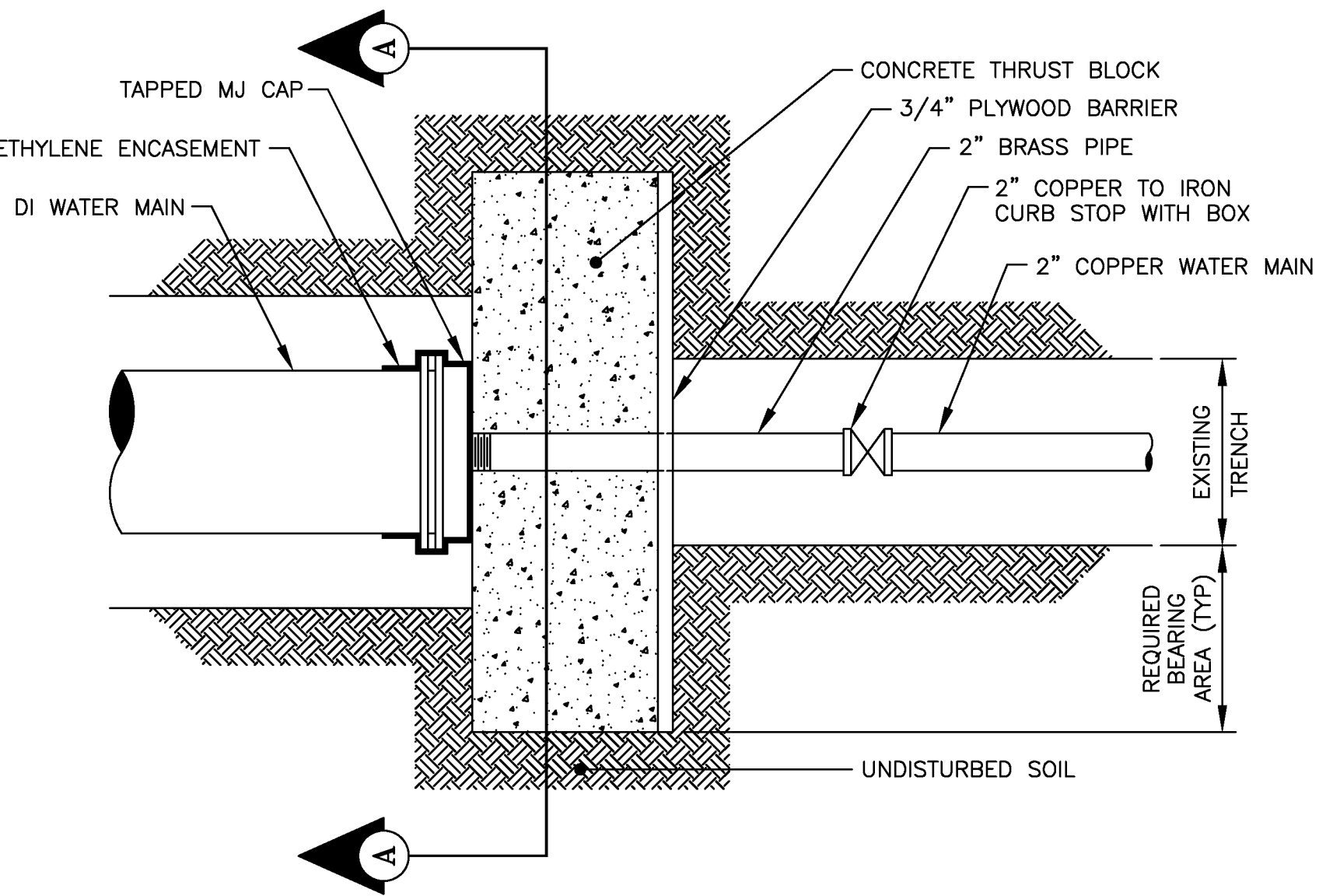
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**SECTION**



**PLAN**

REDUCER	MINIMUM REQUIRED BEARING AREA (SQ FT)

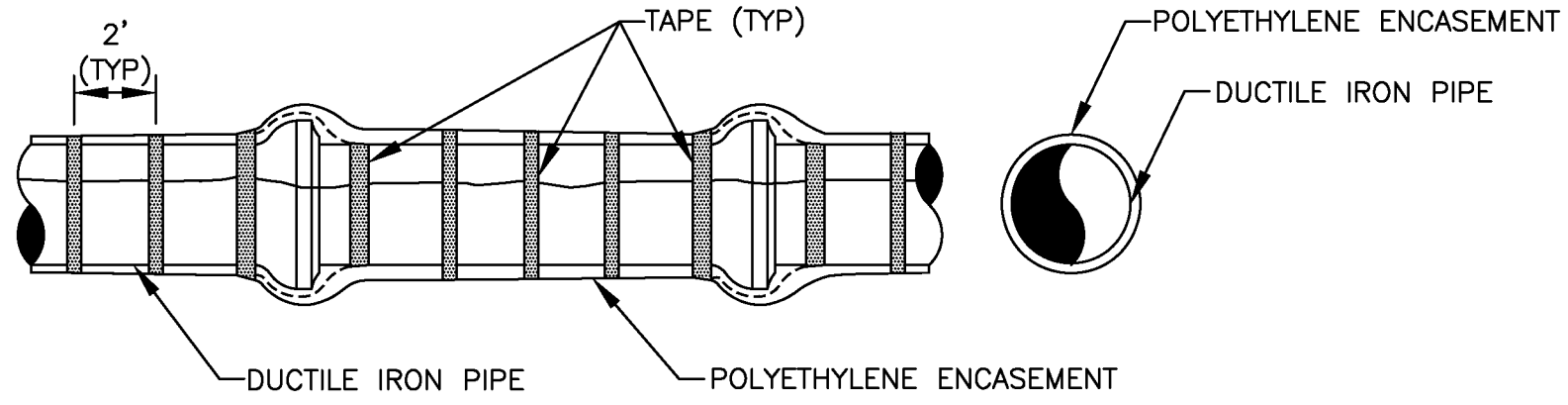
 = BEARING AREA OF THRUST BLOCK  
OUTSIDE TRENCH LIMITS IN UNDISTURBED SOIL

**REDUCER FROM  $\geq 4"$  TO 2"**

NOT TO SCALE  
STND 01/13

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**POLYETHYLENE ENCASEMENT**

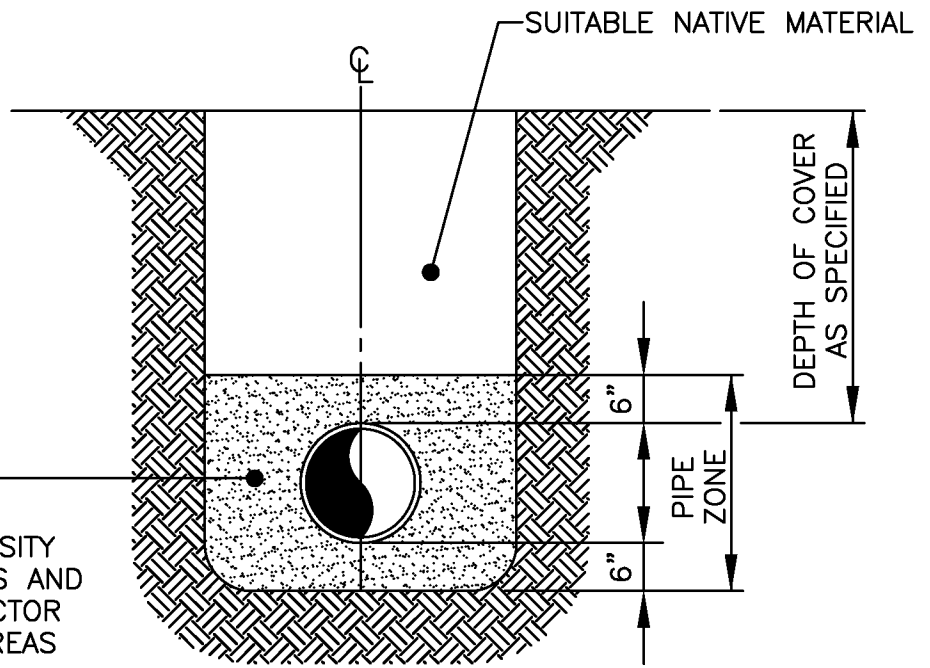
NOT TO SCALE  
STND 02/15



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DME 23

TYPE 4 SELECT FILL,  
COMPACT TO 85% MAX  
STANDARD PROCTOR DENSITY  
IN NON-PAVEMENT AREAS AND  
95% MAX MODIFIED PROCTOR  
DENSITY IN PAVEMENT AREAS



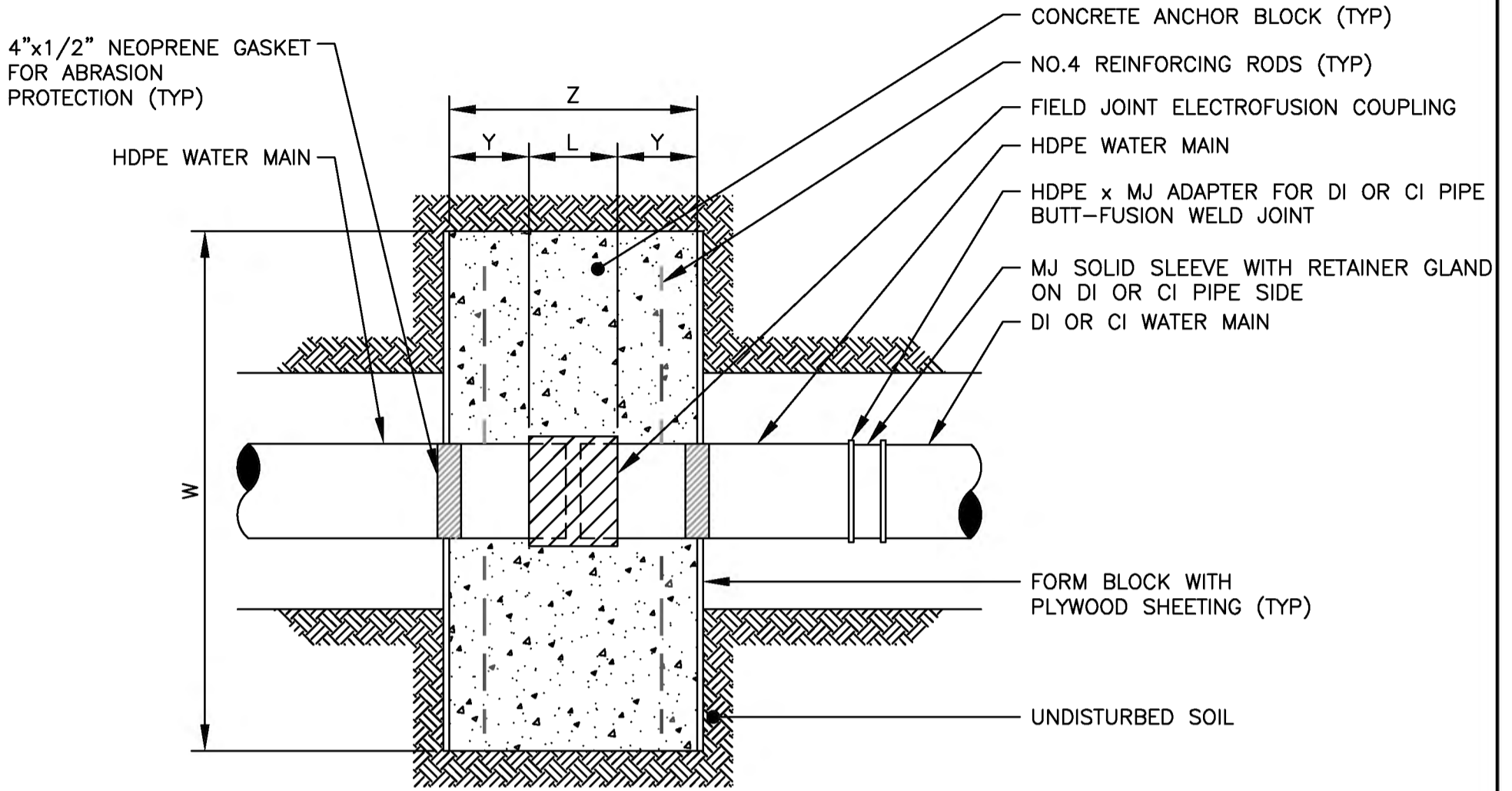
**HDPE TRENCH**  
NOT TO SCALE



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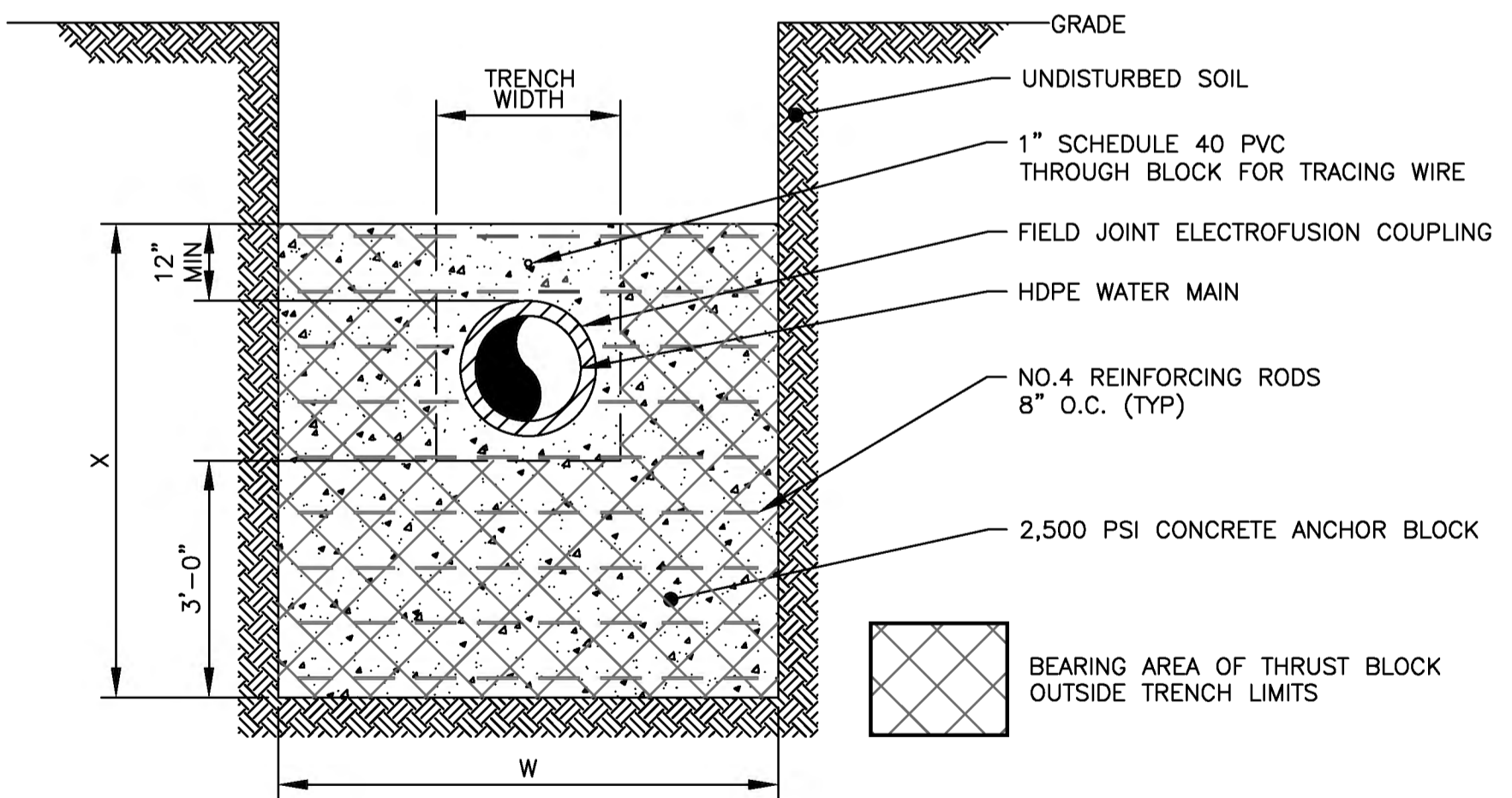
SEPT 2016  
DATE

DME 24



**PLAN**

LOCATION	W	X	Y	Z	REQUIRED MINIMUM BEARING AREA
VALVE BLOCK					FT <sup>2</sup>
END BLOCK					FT <sup>2</sup>



**SECTION**

**HDPE TO DIP OR CIP CONNECTION**  
NOT TO SCALE

## 4" AND LARGER WATER SERVICE LINE NOTES

1. Water service lines shall be constructed in accordance with the regulations and specifications of the Water Authority.
2. Water service lines shall have a minimum of five feet of cover from finished grade in lawn areas and six feet of cover from finished grade in paved areas.
3. Water service lines shall be separated at least ten feet, measured from the outside of the pipes, from sewer mains or septic systems.
4. Water service lines shall be identified as:

DESCRIPTION	SIZE	MATERIAL <sup>(a)</sup>	TYPE <sup>(b)</sup>
<b>MCWA</b> Portion: from the water main to and including the control valve on the ROW/property/easement line		D.I.P.*	
<b>Private</b> Portion: from the control valve to the meter		D.I.P.*	

<sup>(a)</sup>Acceptable material is \*Class 52 cement mortar lined Ductile Iron Pipe.

<sup>(b)</sup>Service Types include: Domestic = DS, Fire = FS, or Combined = CMB

5. The Water Authority's portion of the water service line shall be installed prior to the private portion of the service line.
6. Water meter(s) to be located on the interior of exterior walls(s) immediately upon service entrance into the building(s). A by-pass assembly is not required around the installation of 5/8-inch through 1-inch meters. Meter installations greater than 1 inch require a by-pass assembly around the meter.
7. Water service lines sized 4-inches or greater shall be:
  - Pressure tested in accordance with the latest specifications of the Monroe County Water Authority. **A Water Authority representative must witness this test.**
  - Disinfected by using the continuous feed method according to AWWA Standard Specifications. After flushing and disinfecting the service line, water samples shall be collected by the Monroe county Department of Health. Approval and notification by the Health Department of passing health sample test(s) must be received before the service will be activated by the Water Authority.

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	MONROE COUNTY <b>WATER AUTHORITY</b> ROCHESTER, NEW YORK	SEPT 2017 DATE
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# 1", 1-1/2" AND 2" WATER SERVICE LINE NOTES

1. Water service lines shall be constructed in accordance with the regulations and specifications of the Water Authority.
2. Water service lines shall have a minimum of five feet of cover from finished grade in lawn areas and six feet of cover from finished grade in paved areas.
3. Water service lines shall be separated at least ten feet, measured from the outside of the pipes, from sewer mains or septic systems.
4. Water service lines shall be identified as:

DESCRIPTION	SIZE <sup>(a)</sup>	MATERIAL <sup>(b)</sup>	TYPE <sup>(c)</sup>
<b>MCWA</b> Portion = from the water main to and including the control valve on the ROW/property/easement line		Type "K" Copper	
<b>Private</b> Portion = from the control valve to the meter			

<sup>(a)</sup> Minimum size is 1-inch.

<sup>(b)</sup> Acceptable material for private portion is either Type "K" Copper or Polyethylene plastic (PE) #4710, SDR 9, ASTM 2737, NSF-PW, 250 psi (CTS OD)

<sup>(c)</sup> Service Types include: Domestic = DS, Fire = FS, or Combined = CMB

5. The Water Authority's portion of the service line shall be installed after the private portion of service is installed.
6. Water meter(s) to be located on the interior of exterior wall(s) immediately upon service entrance into the building(s), or in a meter tile when conditions warrant. A by-pass assembly is not required around the installation of 5/8-inch through 1-inch meters. Meter installations greater than 1-inch may require a by-pass assembly around the meter.

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DME 27

## PUBLIC WATER SYSTEM NOTES

Water mains and appurtenances to be constructed in accordance with the regulations and specifications of the Water Authority:

### Material:

- Water main(s) shall be \_\_\_\_-inch ductile iron cement-lined Class 52.
- Water service(s) shall be \_\_\_\_-inch Type K Copper from the water main to the curb box and \_\_\_\_-inch (Type K soft Copper or PE #4710) from the curb box to the meter.
- Water meter(s) shall be located on the interior of exterior walls immediately upon service entrance into the building(s). On metered services requiring a 1 1/2-inch or larger meter a bypass around the meter is required.
- All gate valves shall have stainless steel body and bonnet bolts.

### Tests:

- **Soil Test.** The contractor shall provide a soil test evaluation to determine the need for polyethylene encasement per ANSI/AWWA C105/AZ1.5-82 prior to water main installation. Soil testing shall be conducted by an approved soil testing laboratory in accordance with Water Authority standards.
- **Pressure Test.** Water mains to be pressure tested in accordance with the latest Water Authority specifications. **A Water Authority representative must witness this test.**
- **Health Sample.** The water main shall be disinfected equal to AWWA Standard Specifications, designation C-651, by using the continuous feed method. After flushing and disinfecting the water main, water samples shall be collected from the main by the Monroe County Health Department. Fire hydrants are not acceptable sampling points. Approval and notification by the Health Department must be received before the main is placed in service.

### Installation:

- Water mains and all water service lines shall have a minimum of five feet of cover from finished grade in lawn areas and a minimum of six feet of cover from finished grade in paved areas.
- Minimum **vertical** separation between water main and sewer mains shall be 18" measured from the outside of the pipes at the point of crossing. Minimum **horizontal** separation between water mains and sewer mains shall be ten feet measured from the outside of the pipes. One full length of water main shall be centered under or over the sewer so that both joints will be as far from the sewer as possible. Where a water main crosses under a sewer, adequate structural support (compacted selected fill) shall be provided for the sewers to prevent excessive deflection of joints and settling on and breaking the water mains.
- Fire hydrant weep holes (drains) shall be plugged when ground water is encountered within seven feet of the finished grade.
- All mechanical joint fittings (tees, bends, plugs, etc.) shall be backed with 2500 psi concrete thrust blocks of appropriate size to provide thrust restraint.

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