

D-1 = OUTSIDE DIAMETER OF BELL

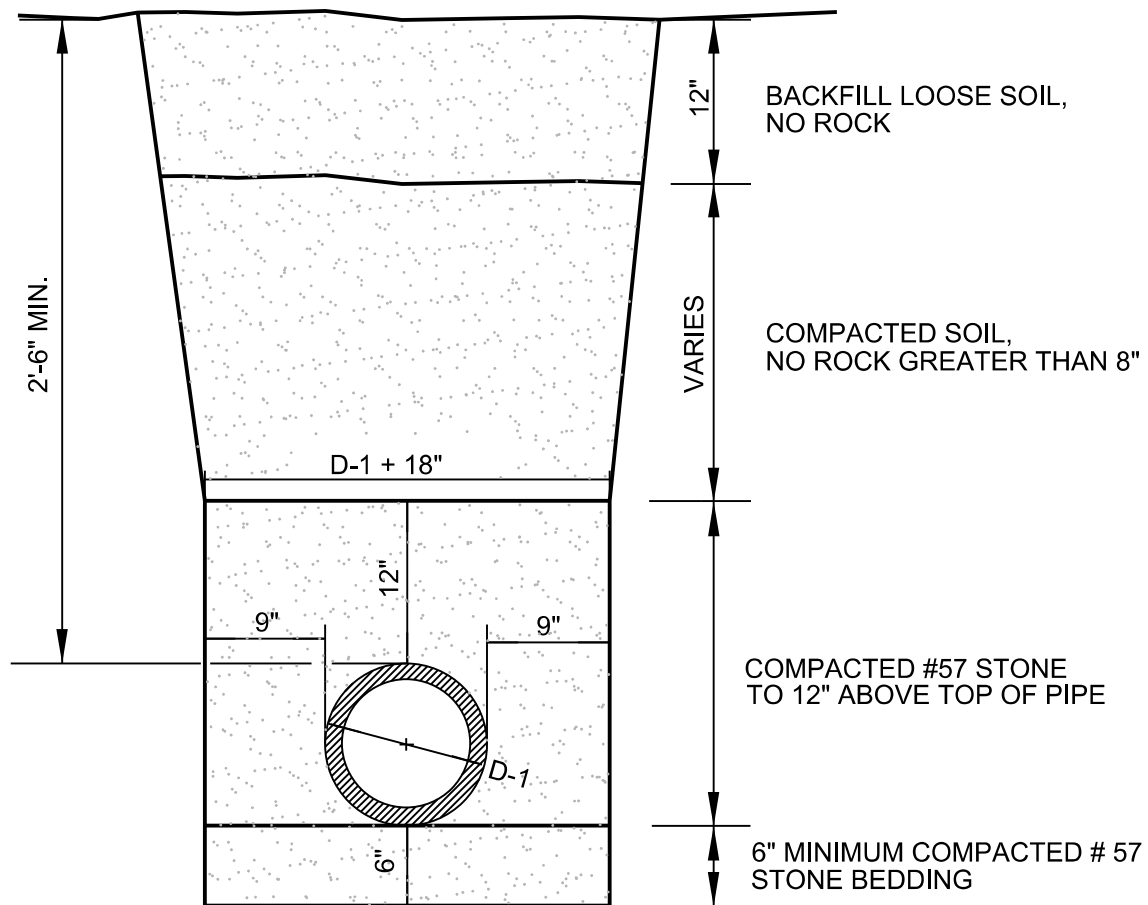


CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

TYPICAL TRENCH  
SECTION IN SOIL  
WATER PIPE

MARCH 2023

*DRAWING NO. W-01A*



D-1 = OUTSIDE DIAMETER OF BELL



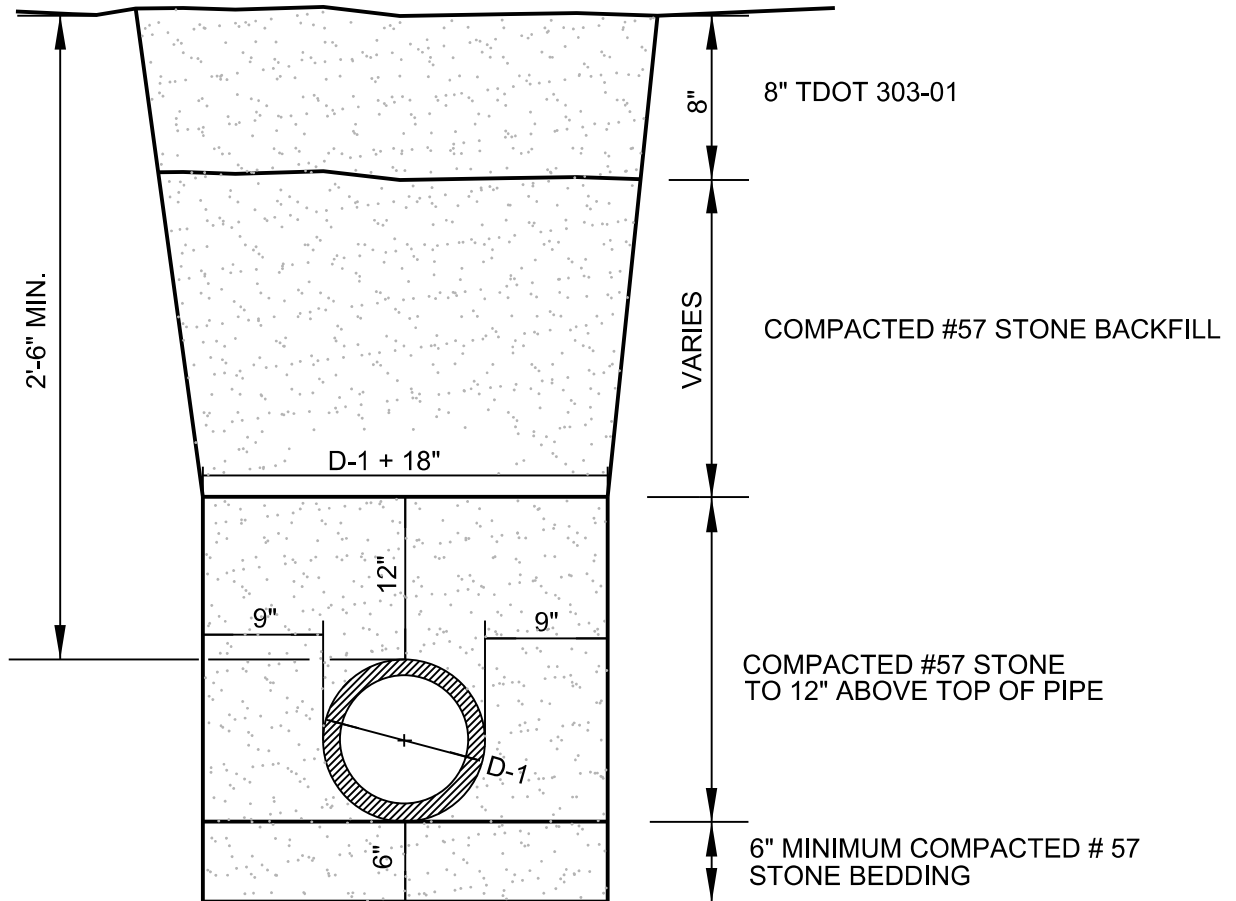
CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

TYPICAL TRENCH  
SECTION IN ROCK  
WATER PIPE

MARCH 2023

*DRAWING NO. W-01B*

NOTE: BACKFILL TO SUBGRADE  
WITH STONE AS PER  
TDOT SPECIFICATIONS  
UNDER PAVED SURFACE



D-1 = OUTSIDE DIAMETER OF BELL

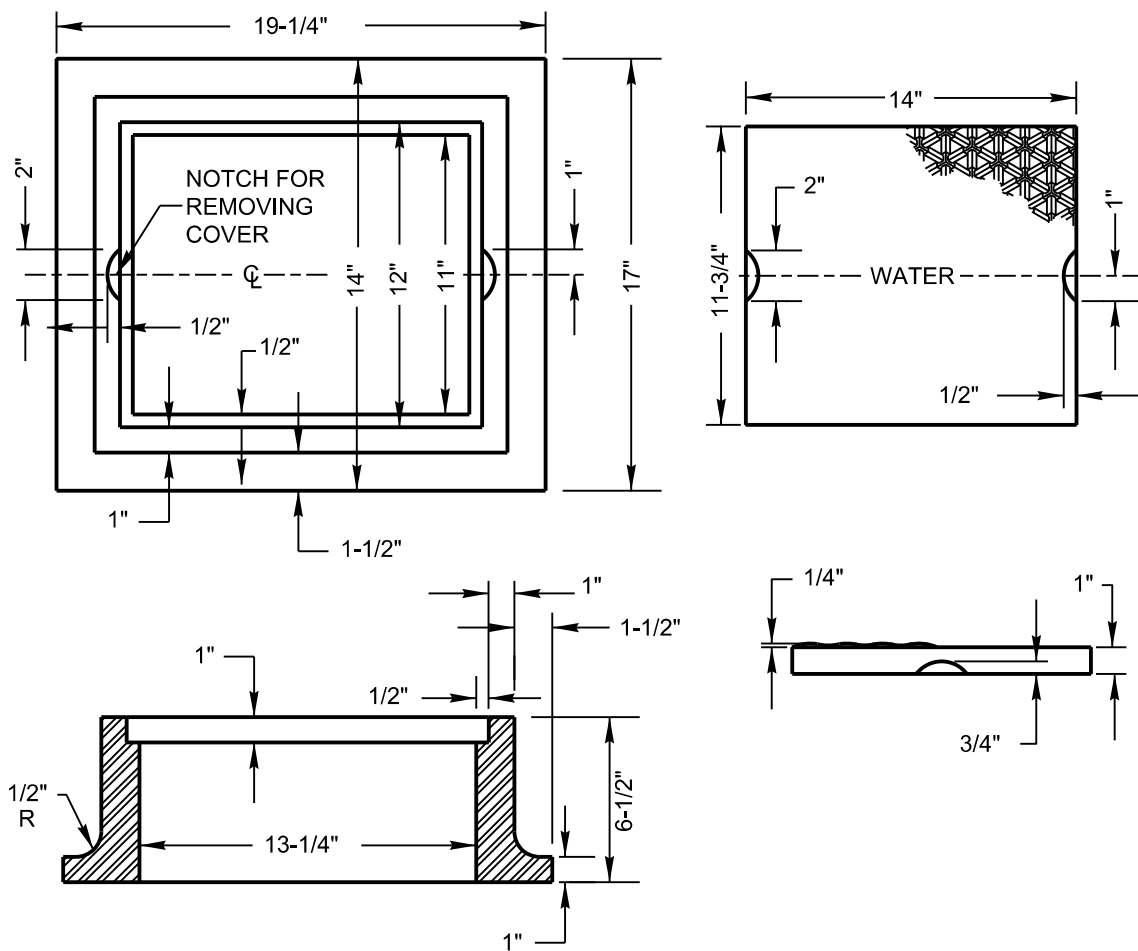


CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

TYPICAL TRENCH  
SECTION IN ROADWAY  
OR PAVED AREAS  
WATER PIPE

MARCH 2023

DRAWING NO. W-01C



### NOTES:

1. NO OPEN SAND CASTINGS, CASTINGS ARE TO BE MADE OF CAST IRON IN ACCORDANCE WITH CURRENT SPECIFICATIONS. COVER MUST FIT EVENLY ON RABBIT OF FRAME IN ORDER TO EQUALLY DISTRIBUTE WEIGHT OF COVER OVER FRAME MINIMUM WEIGHT OF FRAME 150 LBS. MINIMUM WEIGHT OF COVER 45 LBS.

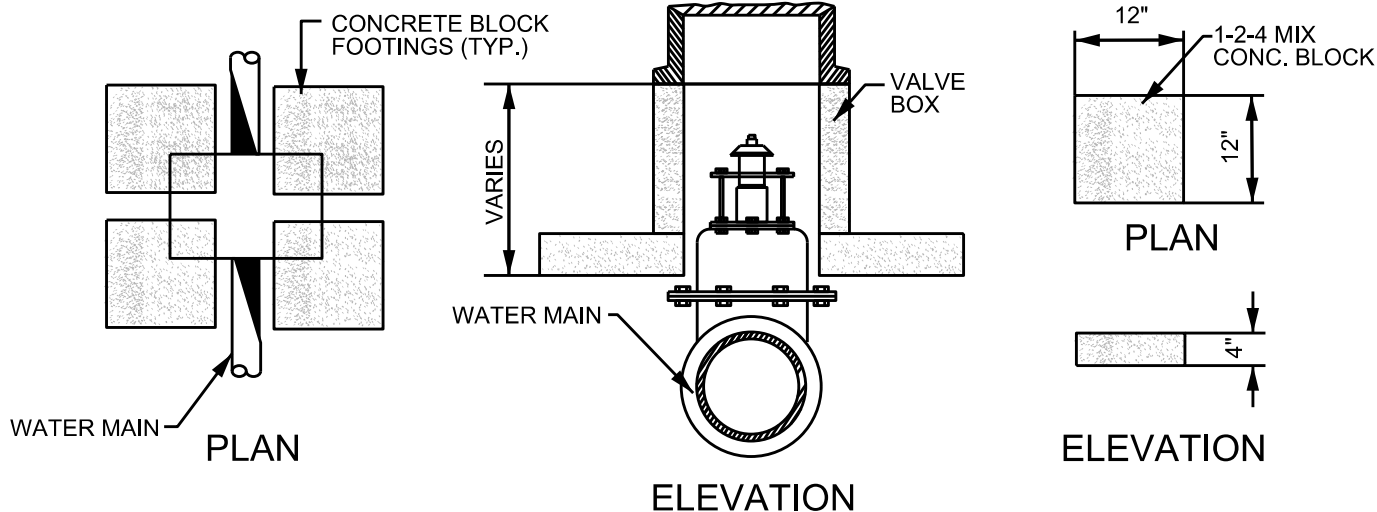


CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

VALVE BOX  
FRAME AND COVER  
2" VALVE & LARGER

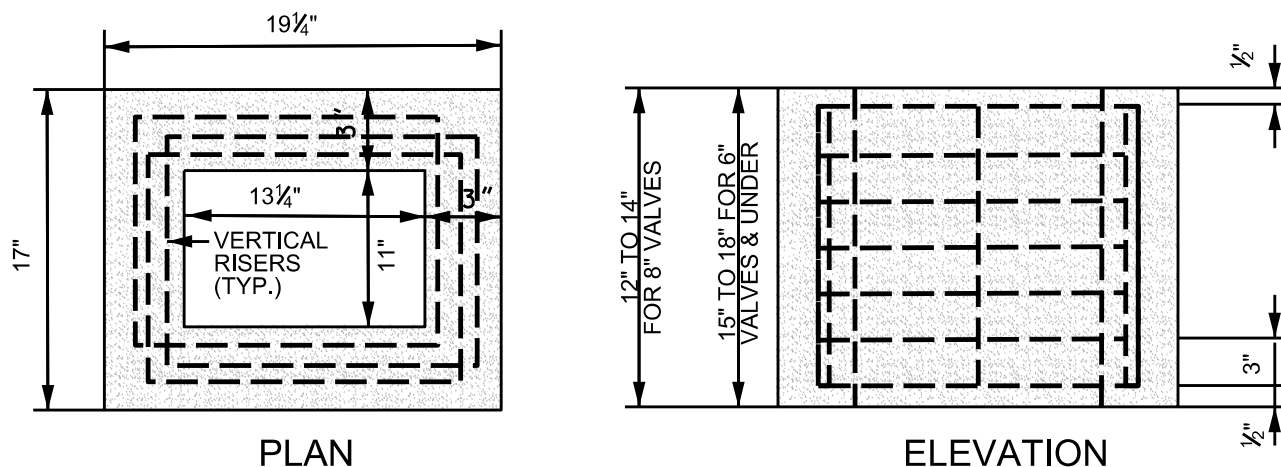
MARCH 2023

DRAWING NO. W-02



NOTES:

- 1) FOUR (4) CONCRETE BLOCKS OR THE SIZE AND SHAPE SHOWN ARE TO BE PLACED UNDER EACH VALVE BOX, ONE UNDER EACH CORNER.
- 2) NO REINFORCING STEEL IN FOOTING. CONCRETE MIX 1 PART CEMENT, 2 PARTS SAND AND 4 PARTS No. 2 CRUSHED STONE OR GRAVEL. VOLUME FOR ONE BLOCK = 0.333 CU. FT. WEIGHT OF ONE BLOCK = APPROX. 50 LBS. FOR ALL FOUR BLOCKS. WEIGHT = 200 LBS. BEARING AREA ON SOIL = 576 SQ. IN.



- 1) REINFORCING TO BE 1/4" STEEL REINFORCING RODS PLACED HORIZONTALLY IN SQUARES 16-1/4" x 14" AND TO STAGGERED APPROX. AS SHOWN ON THE PLAN VIEW, ONE FOR EVERY 3" OF HEIGHT IN BOX. VERTICAL RISERS ARE TO BE 1" SHORTER THAN THE HEIGHT OF THE BOX AND SHALL BE PLACED IN EACH CORNER OF THE BOX USING 8" RISERS TO THE BOX. TOTAL LENGTH OF REINFORCING ROD FOR EACH BOX IS APPROX. 47 FEET.
- 2) CONCRETE MIXTURE TO BE 1 PART CEMENT, 2 PARTS SAND AND 4 PARTS No. 2 CRUSHED STONE OR GRAVEL. TOTAL VOLUME OF MIXTURE FOR EACH BOX IS APPROX. 2 CUBIC FEET.

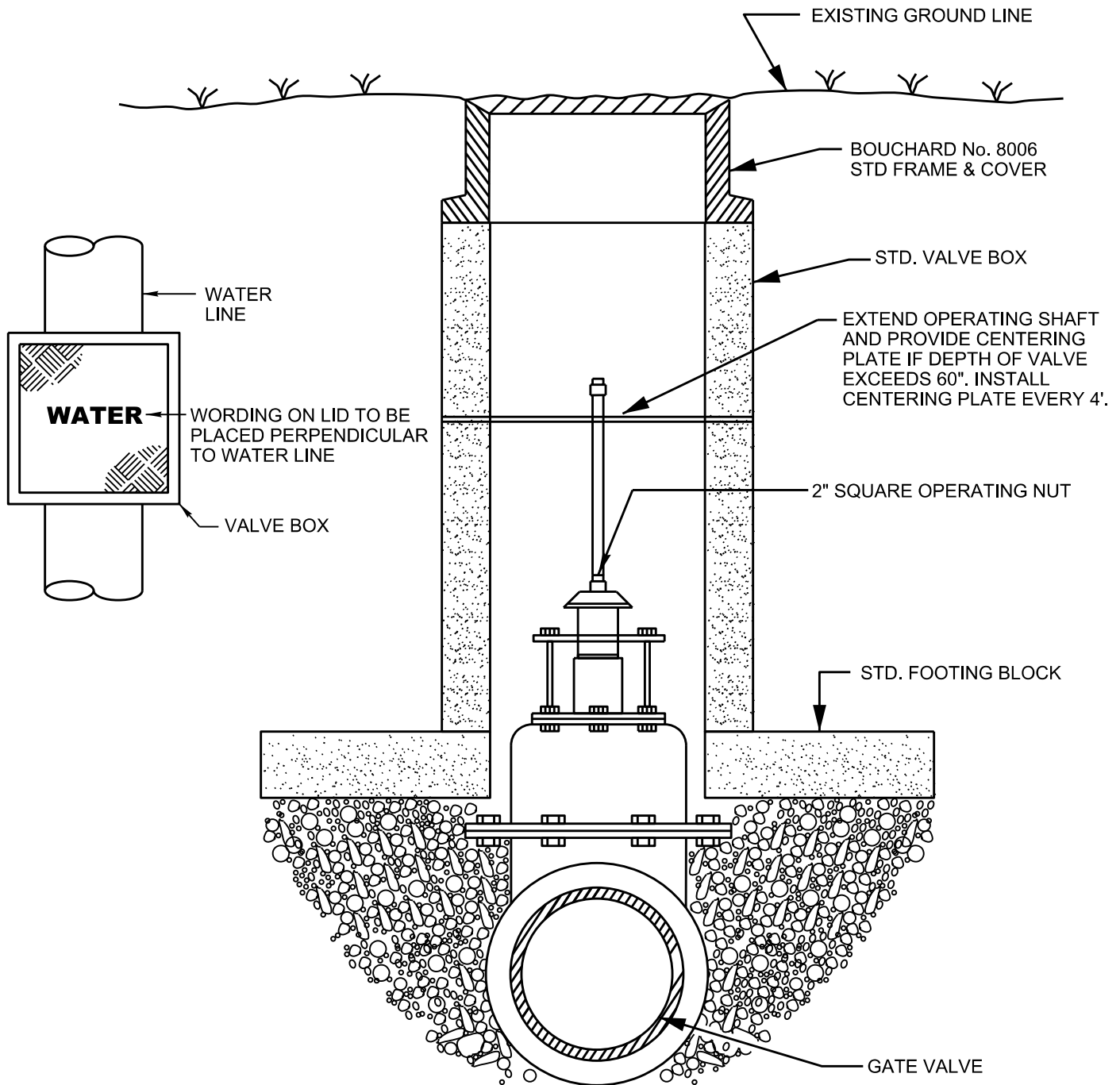


CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

STANDARD CONCRETE  
VALVE BOX

2" VALVE & LARGER  
MARCH 2023

DRAWING NO. W-03



**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

**TYPICAL VALVE BOX  
SETTING**

2" VALVE & LARGER  
MARCH 2023

*DRAWING NO. W-04*

EXISTING GROUND LINE

EXTEND OPERATING STEM AND  
PROVIDE CENTERING PLATE IF  
VALVE IS INSTALLED WITH MORE  
THAN 60" DEPTH. INSTALL  
CENTERING PLATE EVERY 4'.

BUTTERFLY VALVE

STD. FRAME AND COVER

VALVE BOX

STD. FOOTING BLOCK

CRUSHED STONE  
BACKFILL

NOTE: THIS DETAIL SHALL APPLY TO 16"  
AND LARGER BUTTERFLY VALVES  
OR AS SPECIFIED BY THE WSD.



CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

TYPICAL BUTTERFLY  
VALVE - VALVE  
BOX SETTING

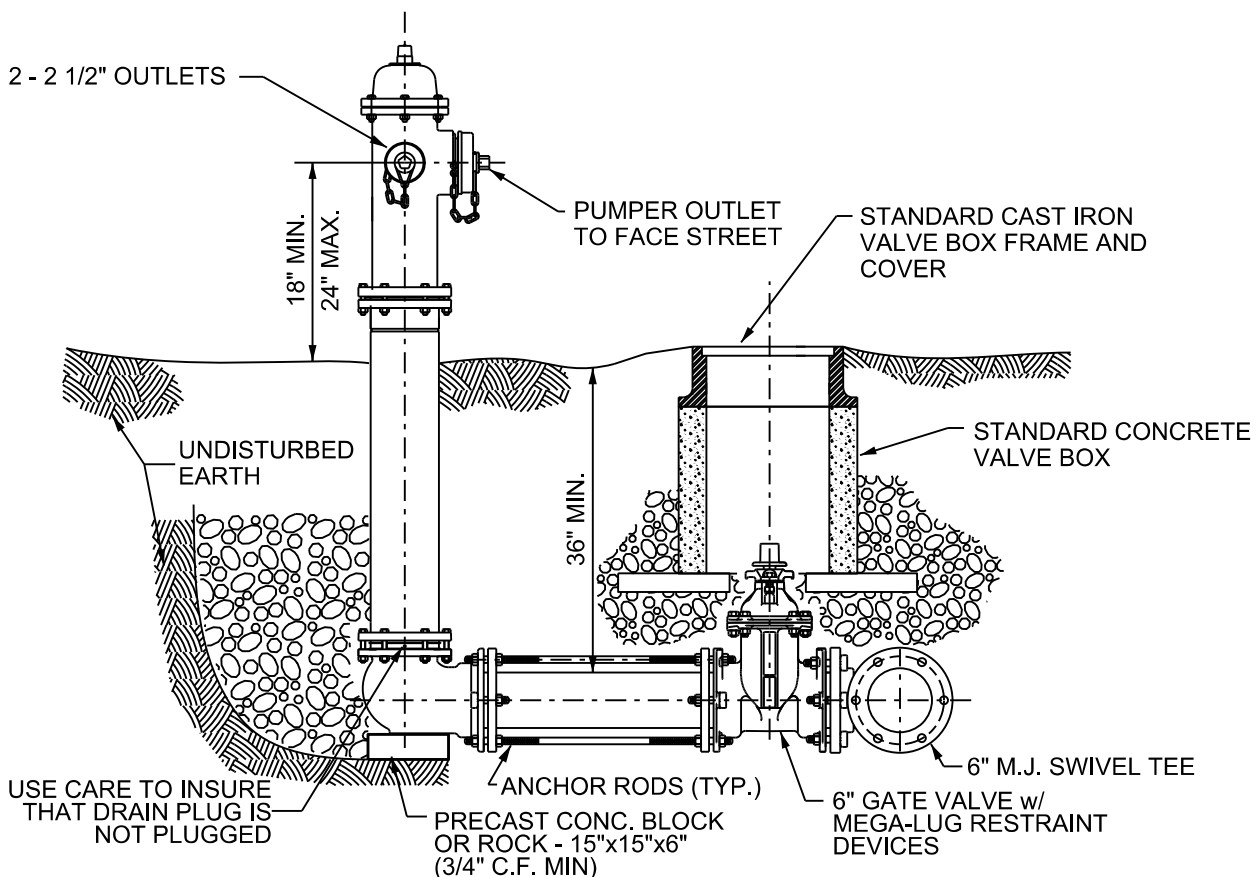
MARCH 2023

*DRAWING NO. W-05*

**NOTES:**

1. HYDRANT SHALL BE SET ON CONCRETE VALVE BOX FOOTING BLOCK. OR POURED CONCRETE (CLASS A)
2. CARE SHALL BE USED TO SET HYDRANT PLUMB. THE FIRE HYDRANT SHALL BE LOCATED NOT LESS THAN 12" OR MORE THAN 18" FROM FACE OF CURB TO FRONT OF HYDRANT.
3. A MINIMUM OF 2 CU. FT. OF CRUSHED STONE SHALL BE PLACED AROUND HYDRANT BASE TO ALLOW FOR DRAINAGE.
4. HYDRANTS TO BE PAINTED PER WSD DIRECTION FOR CITY COLOR CODING OF FIRE HYDRANTS.
5. HYDRANT TEE AND HYDRANT SHOE TO INCLUDE MEGA-LUG RESTRAINT DEVICES.
6. FIRE HYDRANT SHALL NOT SIT CLOSER THAN 5' FROM EDGE OF ANY POWER AND/OR LIGHT POLE.
7. HYDRANT BURY SHALL BE AT LEAST 48" + O.D. IF WATER LINE LOCATED IN ROADWAY AND 36" + O.D. IF LOCATED OUTSIDE ROADWAY.
8. HYDRANT SHALL BE RODDED TO VALVE.
9. ALL OPERATING NUTS SHALL BE PENTAGON SHAPED.
10. ALL DEAD END HYDRANTS SHALL BE PRECEDED BY APPROPRIATE LENGTH OF RESTRAINED JOINT PIPE.
 

DIA.	REST. LENGTH FT
6"	71'
8"	93'
10"	111'
12"	130'
11. ONLY ONE HYDRANT HEIGHT ADJUSTMENT DEVICE IS PERMITTED.
12. HYDRANT SHALL BE MUELLER SUPER CENTURION 250, A-423 OR AMERICAN-DARLING, OR M&H.



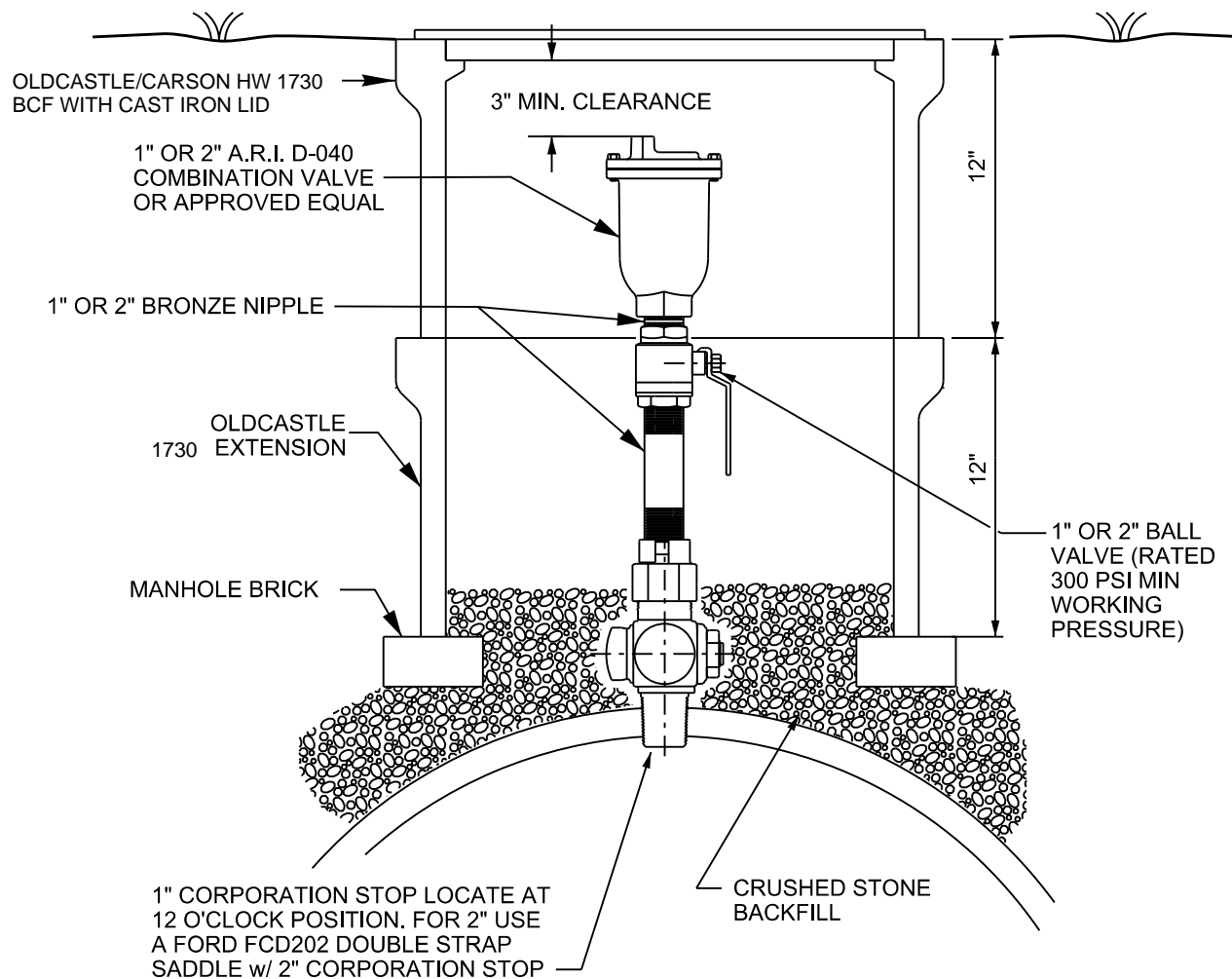
**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

**TYPICAL  
FIRE HYDRANT**

MARCH 2023

*DRAWING NO. W-06*





**NOTES:**

1. ARV TO BE PLACED AT HIGH POINT IN PROFILE OR AS DIRECTED BY WSD
2. OLDCASTLE/CARSON HW 1730 BCF AND 1730 EXTENSIONS WITH CAST IRON LID AND READER OPENING.
3. IF PIPE IS LOCATED IN TRAFFIC AREAS, THEN THE ARV ASSEMBLY SHALL BE INSTALLED OUTSIDE TRAFFIC AREAS AND 1" OR 2" ~~TYPE K COPPER OR PEXa~~ PIPE SHALL BE RUN TO THE TAP ON THE WATER LINE. 1" OR 2" LINE SHALL BE INSTALLED TO MAINTAIN AN UPHILL GRADIENT TO THE ARV. NO DIPS OR SAGS ARE ALLOWED.

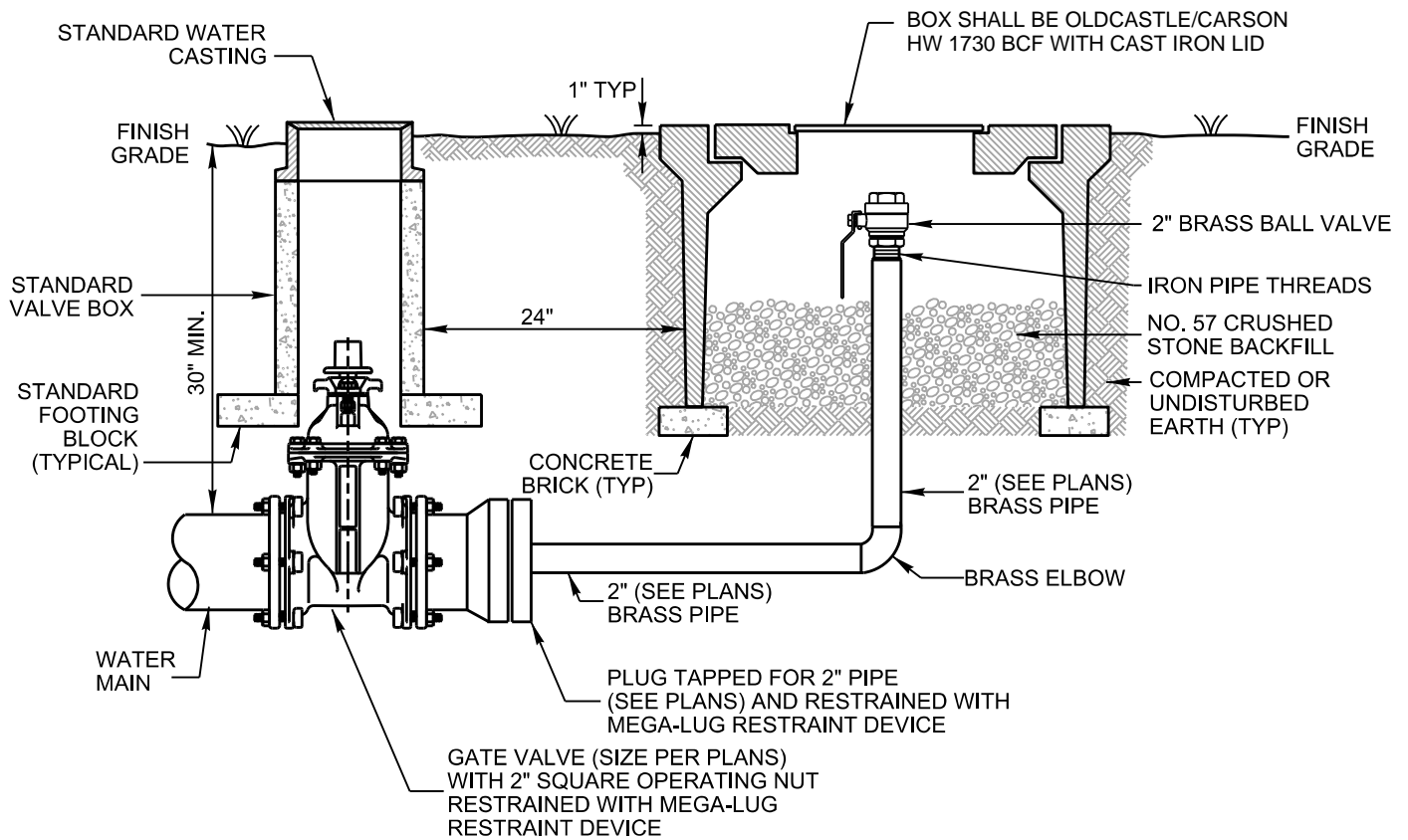


**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

**1" OR 2" AUTOMATIC  
COMBINATION  
VALVE ASSEMBLY**

MARCH 2023

*DRAWING NO. W-07*



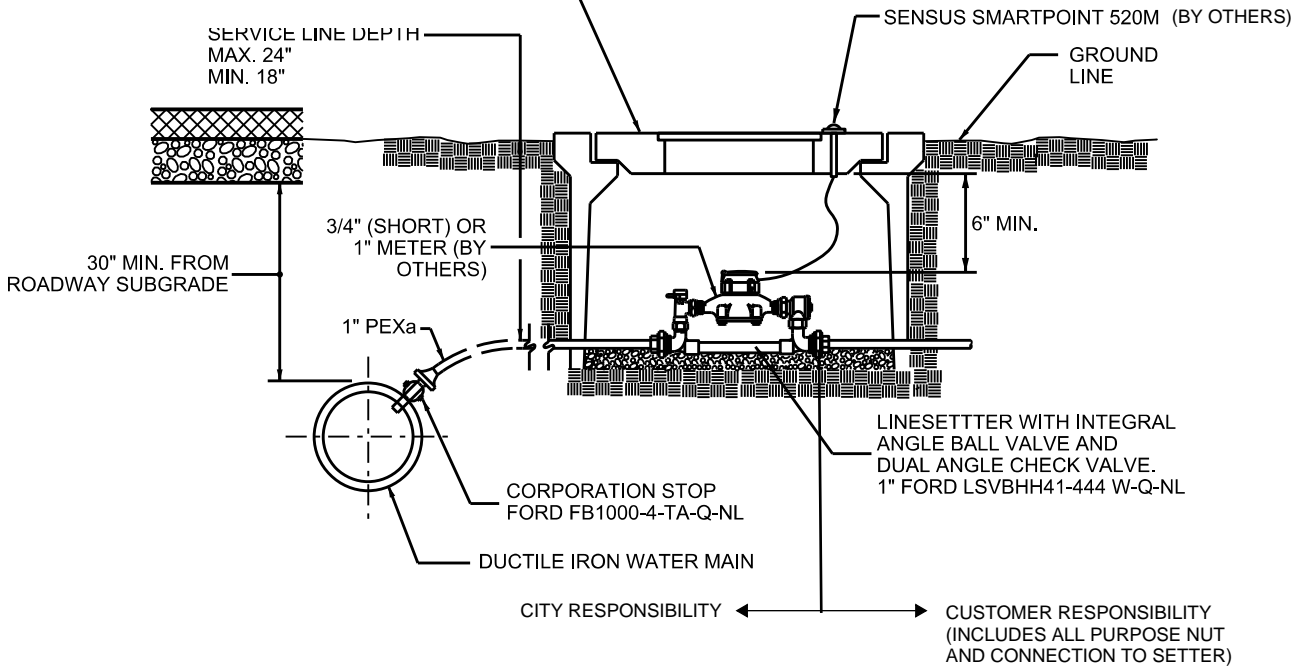
CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

2"  
BELOW - GROUND  
BLOW-OFF ASSEMBLY

MARCH 2023


DRAWING NO. W-08

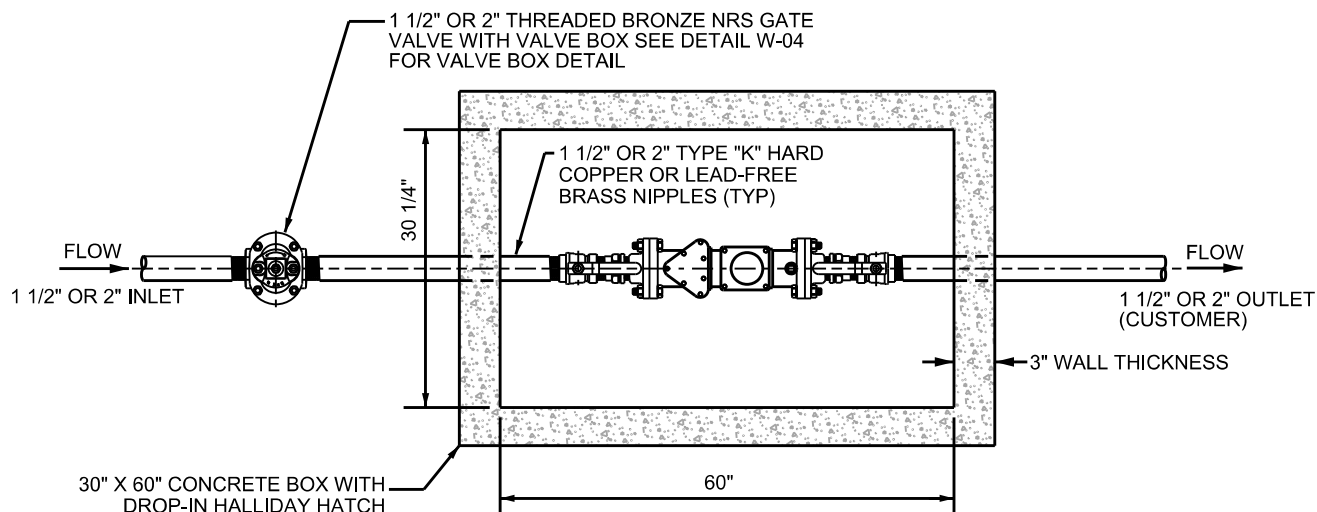
TYPICAL OLDCASTLE/CASRON HEAVYWALL 1324 BCF  
METER BOX AND FIBERLYTE LID (FL30) WITH AMI/TR  
THRU HOLE FOR SENSUS SMARTPOINT 520M.



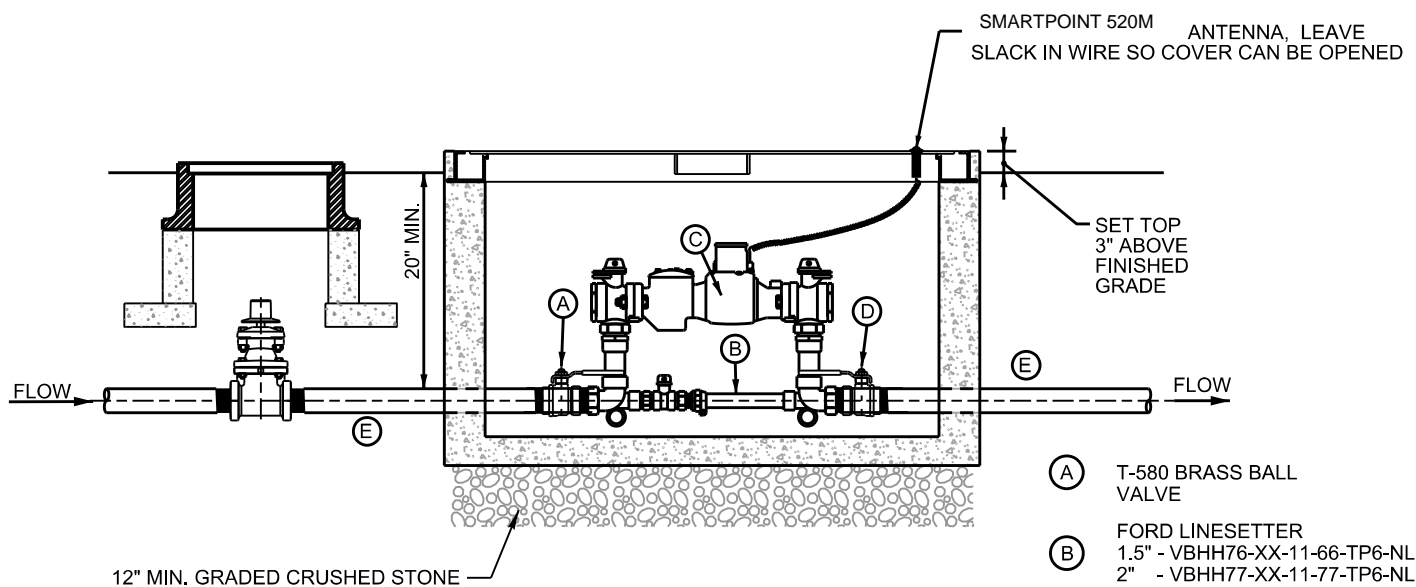
#### NOTES:

1. FOR TAPS IN PVC PIPE USE TAPPING SADDLE. FORD S70 SERIES, STYLE A. DIRECT TAP REQUIRED FOR DUCTILE IRON PIPE.
2. PLACE 3" DEEP OF CLEAN 1/2" TO 3/4" CRUSHED STONE IN BOTTOM OF METER BOX.
3. PEXa SERVICE TUBING SHALL BE INSTALLED WITH 12 GA. SOLID STRAND COPPER WIRE. TRACER WIRE SHALL BE CONNECTED TO THE CORP STOP AND TERMINATED IN THE METER BOX TO ALLOW FOR CONNECTION TO DETECTION EQUIPMENT.
4. ALL METER ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH LATEST EDITION AWWA M6 "SELECTION, INSTALLATION, TESTING & MAINTENANCE"

	<b>CITY OF BRENTWOOD</b> <b>WATER SERVICES</b> <b>STANDARD DETAIL</b>
	<b>3/4" OR 1"</b> <b>METER ASSEMBLY</b> MARCH 2023
	<b>DRAWING NO. W-09</b>



PLAN



ELEVATION

NOTES:

1. ALL COMPOUND METERS ARE TO BE FOLLOWED BY AN APPROVED BACKFLOW PREVENTER DEVICE.

- (A) T-580 BRASS BALL VALVE
- (B) FORD LINESSETTER  
1.5" - VBHH76-XX-11-66-TP6-NL  
2" - VBHH77-XX-11-77-TP6-NL
- (C) SENSUS C<sup>2</sup> COMPOUND METER
- (D) T-580 BRASS BALL VALVE
- (E) BRASS NIPPLE

SIZE TO BE 1 1/2" OR 2" AS REQUIRED.  
ALL ASSEMBLIES TO BE LEAD FREE BRASS.

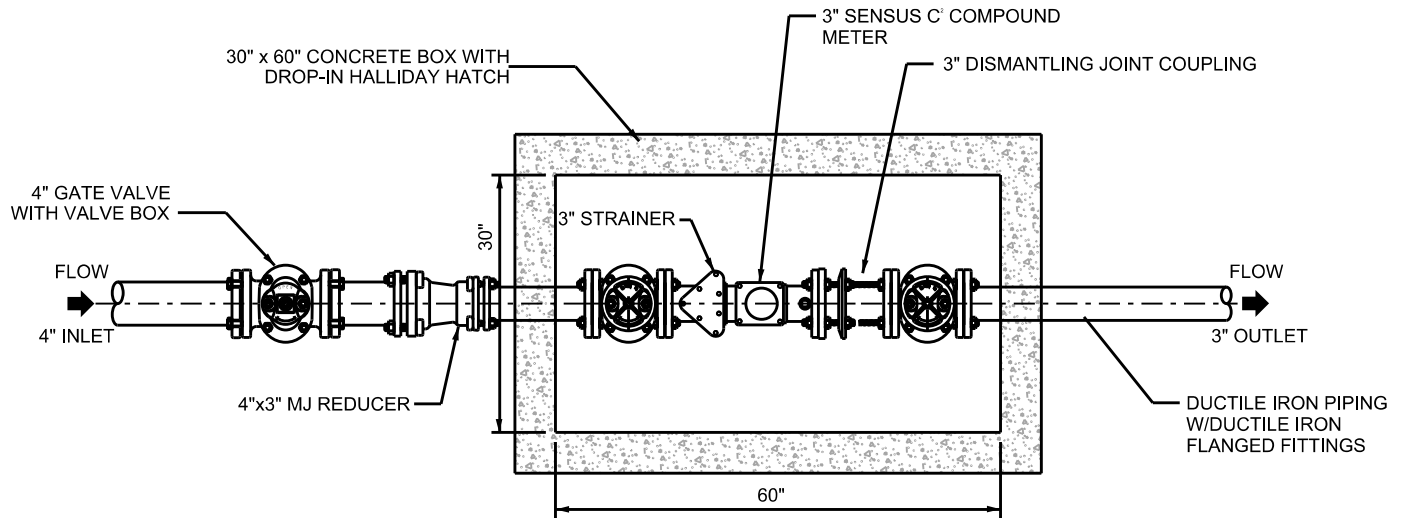


**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

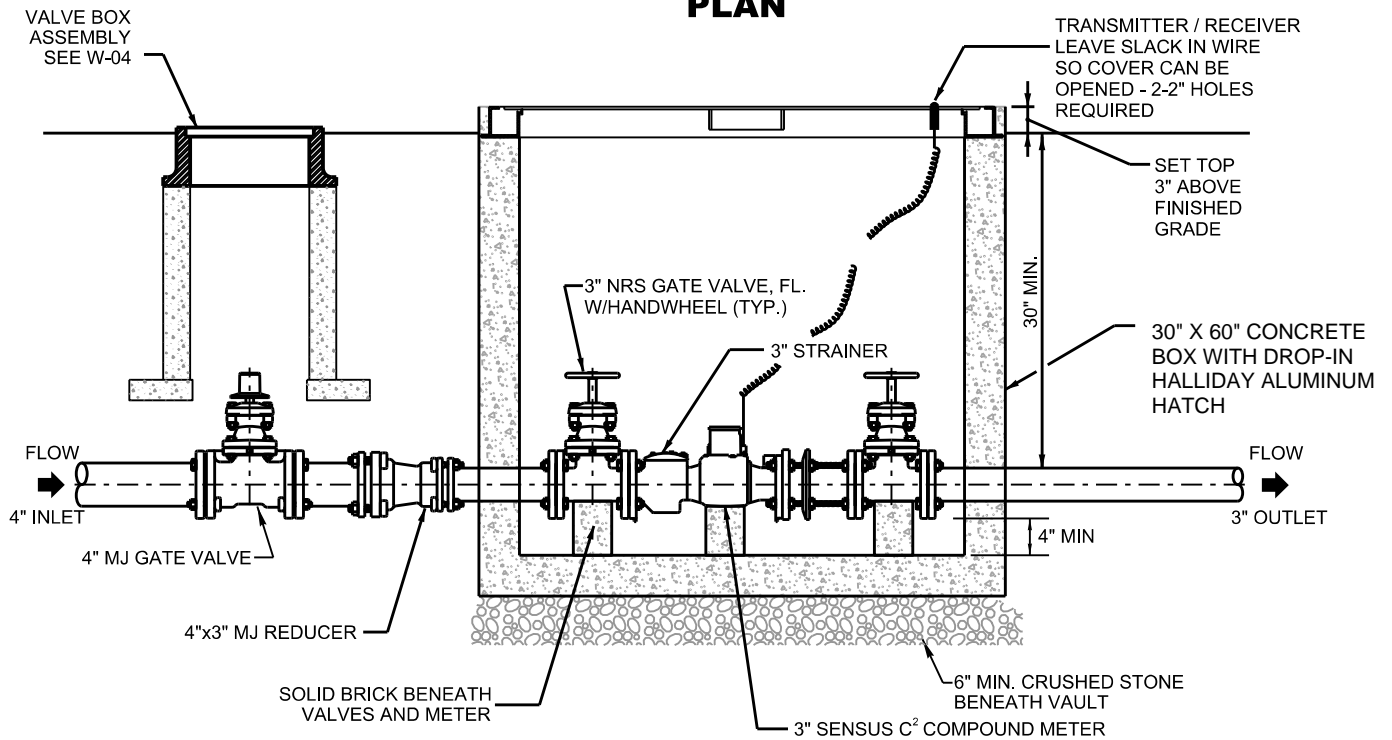
**1 1/2" TO 2" COMPOUND  
DOMESTIC METER  
ASSEMBLY**

MARCH 2023

*DRAWING NO. W-10*



**PLAN**



**ELEVATION**

**NOTES:**

1. ALL COMPOUND METERS ARE TO BE FOLLOWED BY AN APPROVED BACKFLOW PREVENTER DEVICE.



**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

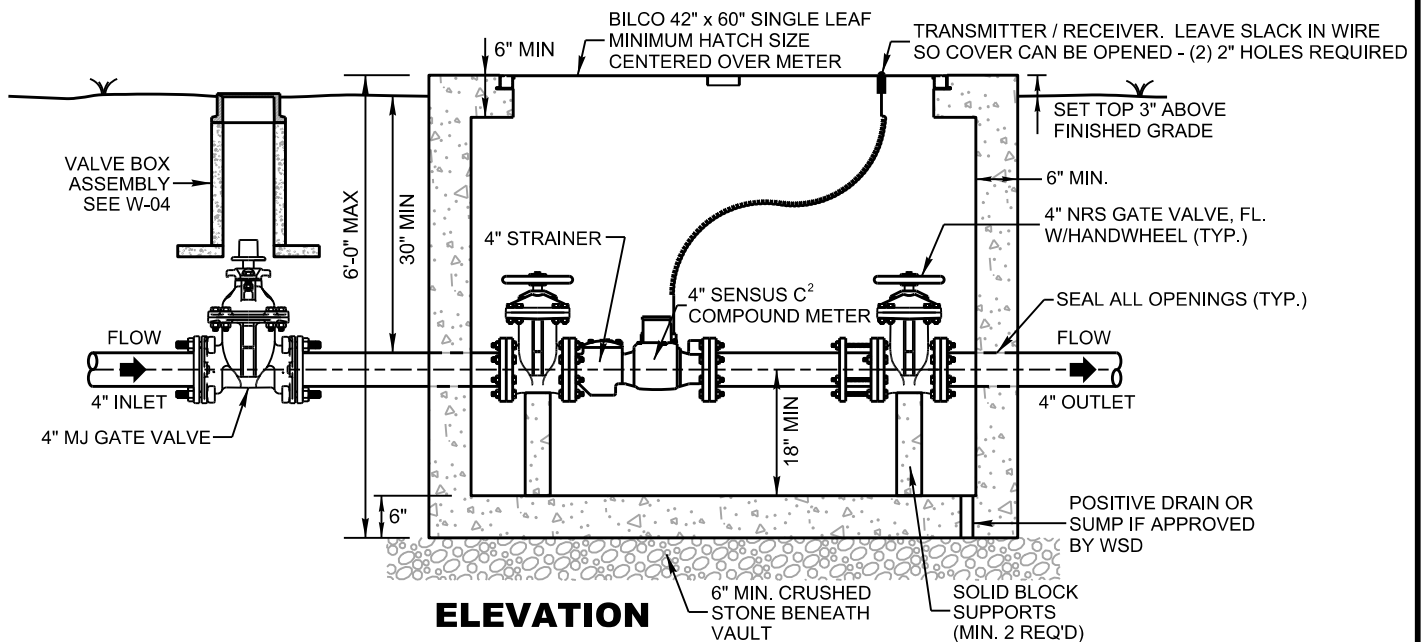
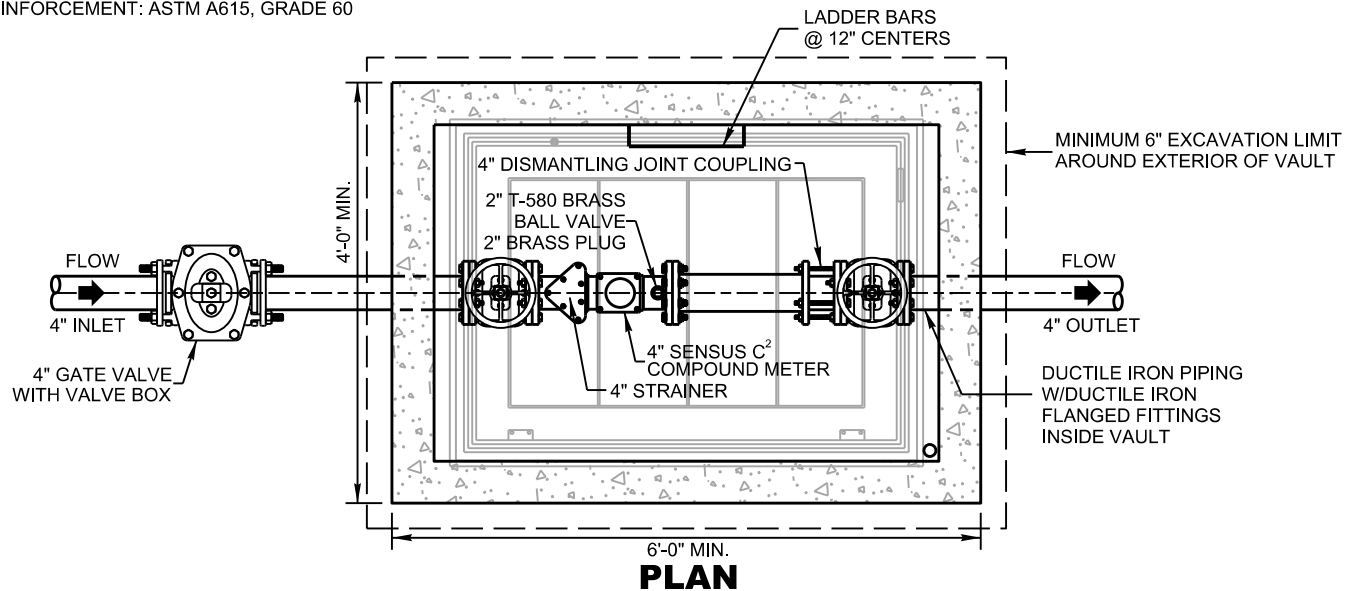
**3" COMPOUND  
DOMESTIC METER  
ASSEMBLY**

MARCH 2023

*DRAWING NO. W-11*

## NOTES:

1. ALL COMPOUND METERS ARE TO BE FOLLOWED BY AN APPROVED BACKFLOW PREVENTER DEVICE.
2. LOAD FACTOR DESIGN
3. APPLICABLE DESIGN CODES:
  - AASHTO STANDARD SPECIFICATIONS FOR HWY BRIDGE, 17TH EDITION
  - ASTM C857
4. PRECAST RATED FOR UNIFORM 300PSF
5. CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS = 5000 PSI
6. REINFORCEMENT: ASTM A615, GRADE 60

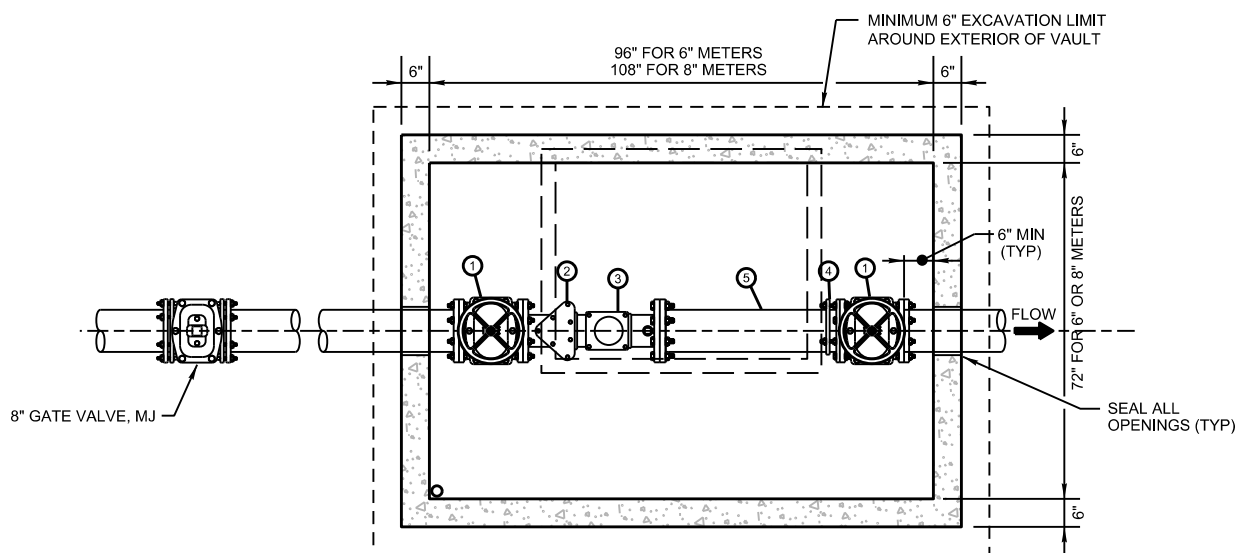


**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

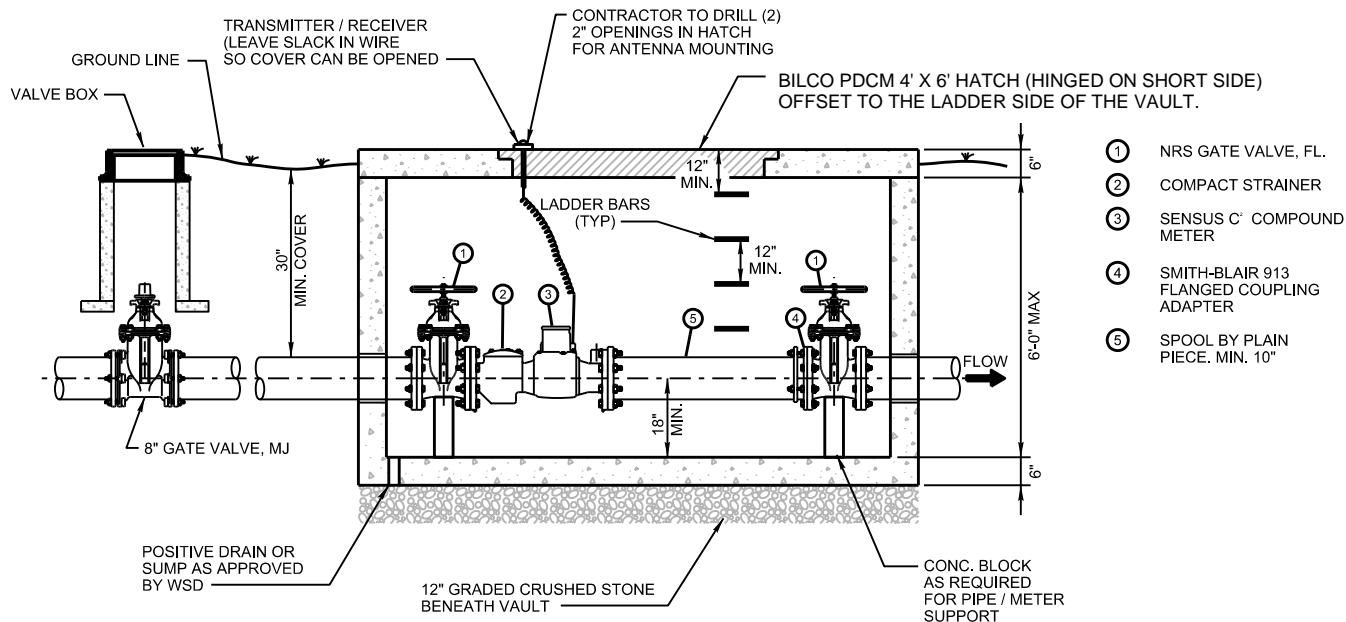
**4" COMPOUND  
DOMESTIC METER  
ASSEMBLY**

MARCH 2023

*DRAWING NO. W-12*



PLAN



ELEVATION

**NOTES:**

1. ALL COMPOUND METERS TO BE IMMEDIATELY FOLLOWED BY AN APPROVED BACKFLOW PREVENTER DEVICE.
2. PRECAST CONCRETE VAULT DESIGN REQUIREMENTS
  - a. MEET ACI 318-11.
  - b. MEET ASTM C857 & AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
  - c. PRECAST RATED FOR 300 PSF.
  - d. CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS = 5000 PSI.
  - e. REINFORCEMENT: ASTM A615, GRADE 60
  - f. JOINT SEALANT: BUTYL RUBBER, CONSEAL CS-102 (CONTINUOUS @ EACH JOINT).
  - g. BROOM FINISH ON TOP SLAB EXTERIOR
  - h. PROVIDE 4 LIFTING RINGS PER SLAB TOP
3. HATCH TO BE H-20 LOAD RATED IF VAULT INSTALLED IN SIDEWALK AREA.



**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

**6" OR 8"  
COMPOUND METER  
ASSEMBLY**

MARCH 2023

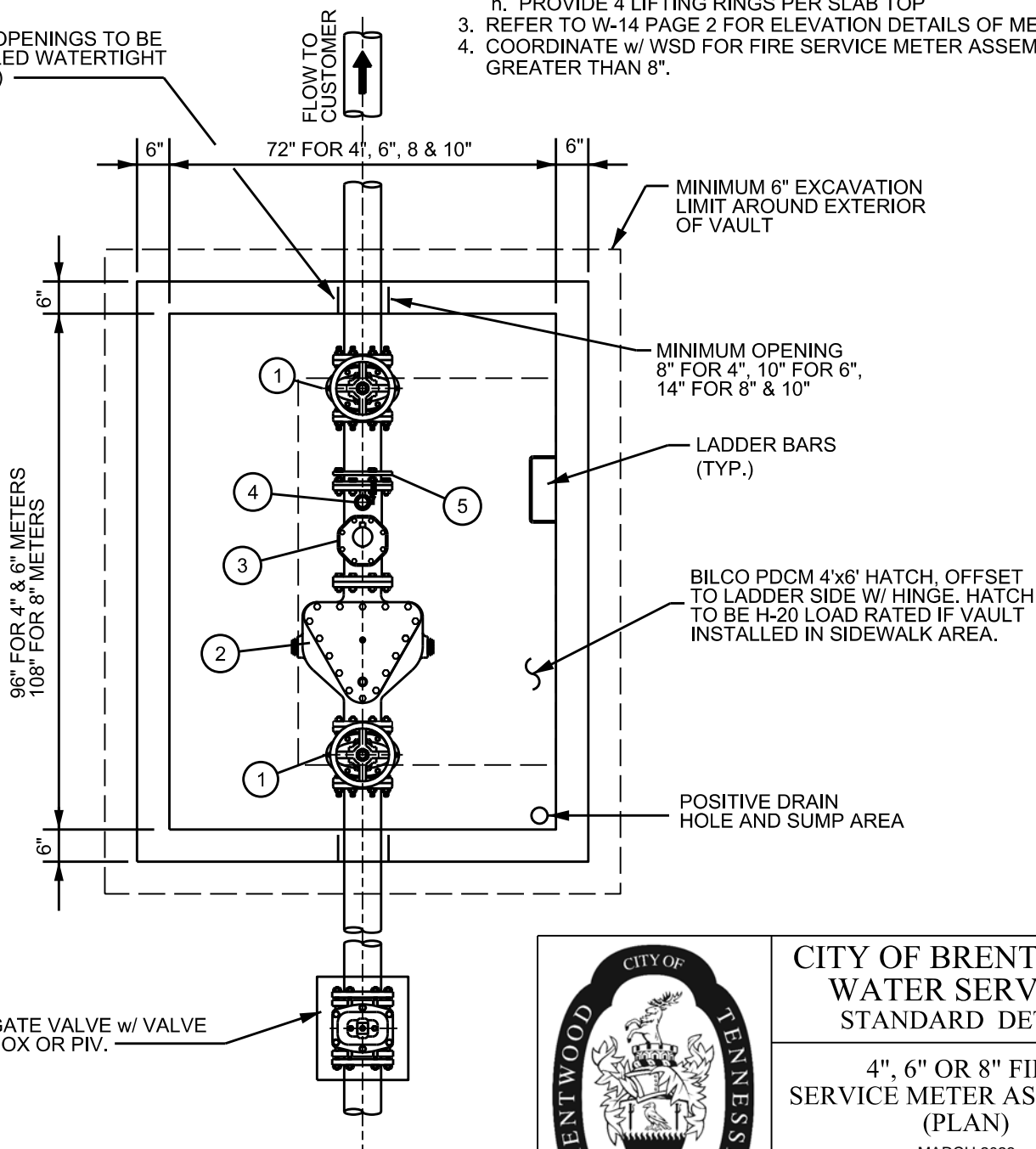
*DRAWING NO. W-13*

- ① N.R.S. GATE VALVE, FL.
- ② STRAINER
- ③ SENSUS OMNI F<sup>2</sup> FIRE SERVICE TURBINE METER, UL / FM RATING
- ④ 2" TEST VALVE
- ⑤ FLANGE COUPLING ADAPTOR

NOTES:

1. ALL FIRE METERS TO BE IMMEDIATELY FOLLOWED BY A DOUBLE CHECK VALVE ASSEMBLY.
2. PRECAST CONCRETE VAULT DESIGN REQUIREMENTS
  - a. MEET ACI 318-11.
  - b. MEET ASTM C857 & AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
  - c. PRECAST RATED FOR 300 PSF.
  - d. CONCRETE COMPRESSIVE STRENGTH @ 28 DAYS = 5000 PSI.
  - e. REINFORCEMENT: ASTM A615, GRADE 60
  - f. JOINT SEALANT: BUTYL RUBBER, CONSEAL CS-102 (CONTINUOUS @ EACH JOINT).
  - g. BROOM FINISH ON TOP SLAB EXTERIOR
  - h. PROVIDE 4 LIFTING RINGS PER SLAB TOP
3. REFER TO W-14 PAGE 2 FOR ELEVATION DETAILS OF METER.
4. COORDINATE w/ WSD FOR FIRE SERVICE METER ASSEMBLIES GREATER THAN 8".

ALL OPENINGS TO BE SEALED WATERTIGHT (TYP)



PLAN



CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

4", 6" OR 8" FIRE  
SERVICE METER ASSEMBLY  
(PLAN)

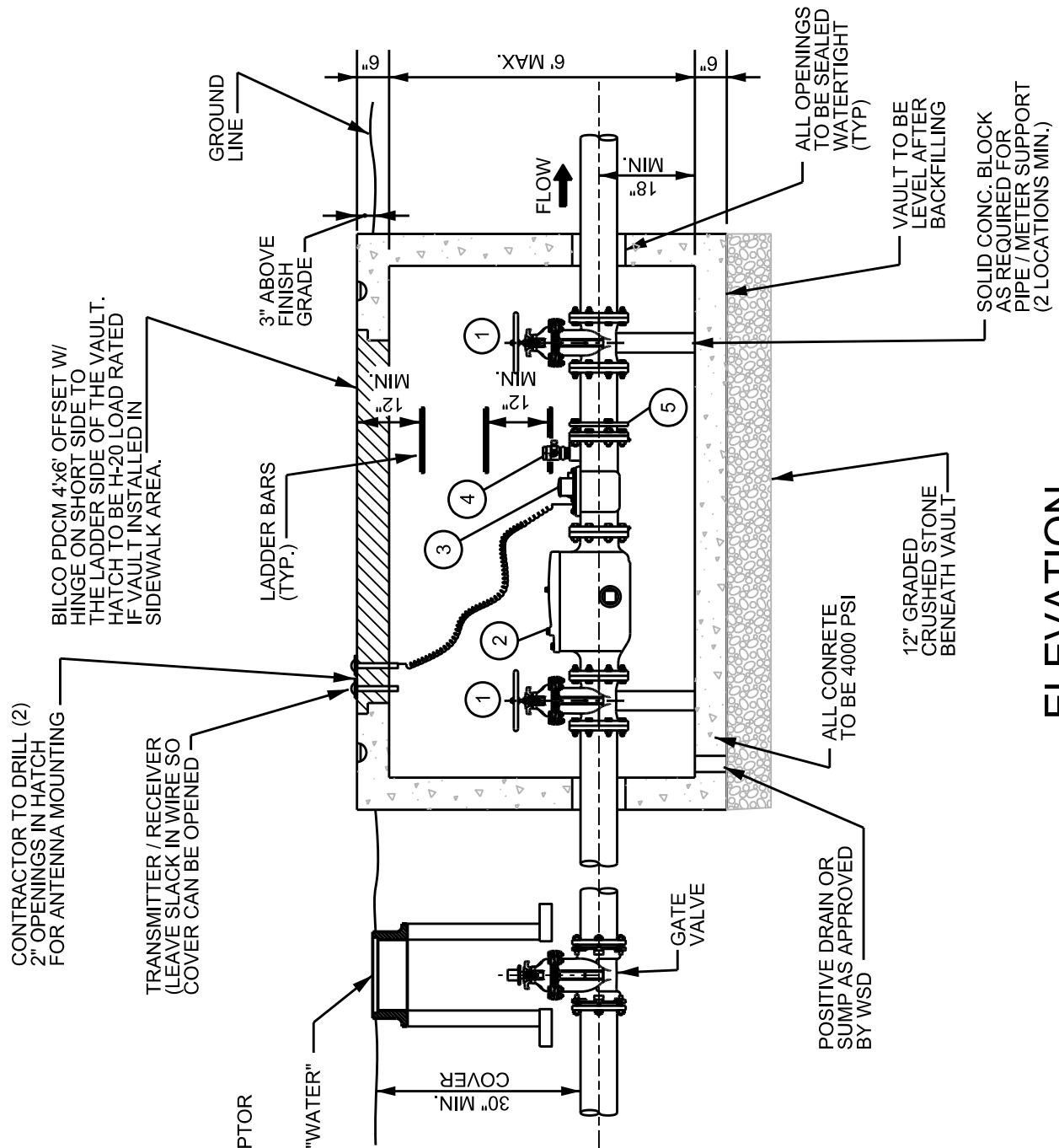
MARCH 2023

DRAWING NO. W-14


PAGE 1 OF 2

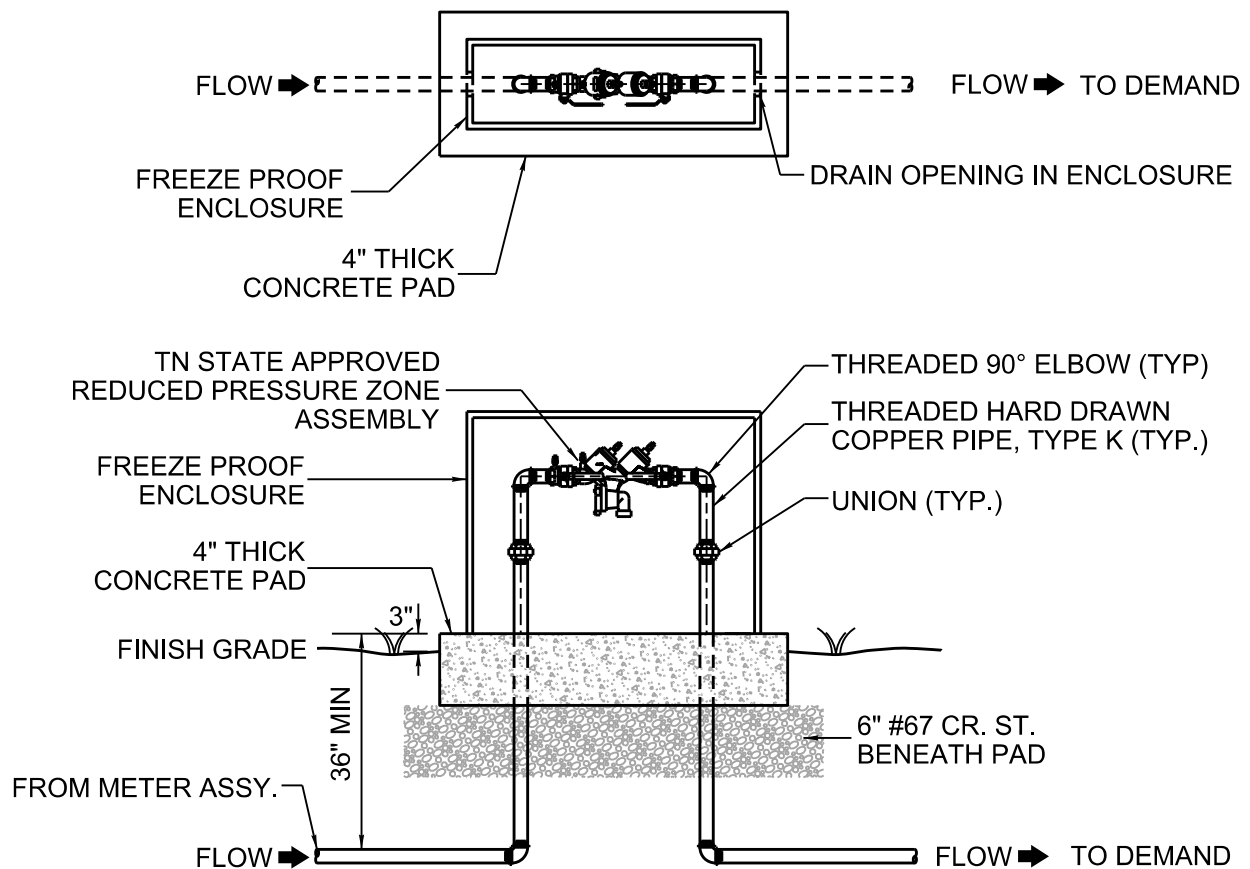


- 1 NRS GATE VALVE, FL.
- 2 STRAINER
- 3 SENSUS OMNI F' FIRE SERVICE TURBINE METER, UL / FM RATING
- 4 2" TEST VALVE
- 5 FLANGE COUPLING ADAPTOR



# ELEVATION

	<p><b>CITY OF BRENTWOOD</b>  <b>WATER SERVICES</b>          STANDARD DETAIL</p>
	<p>4", 6" OR 8" FIRE          SERVICE METER ASSEMBLY          (ELEVATION)</p> <p>MARCH 2023</p>
	<p><i>DRAWING NO. W-14</i>          PAGE 2 OF 2</p>



NOTES:

1. BACKFLOW DEVICE SHALL BE INSTALLED AT PROPERTY LINE OR IN ACCESSIBLE LOCATION AS APPROVED BY THE BRENTWOOD WATER & SEWER DEPARTMENT.
2. NO CONNECTIONS ALLOWED BETWEEN METER AND BACKFLOW PREVENTER.
3. CONCRETE PAD IS OPTIONAL FOR RESIDENTIAL USES.

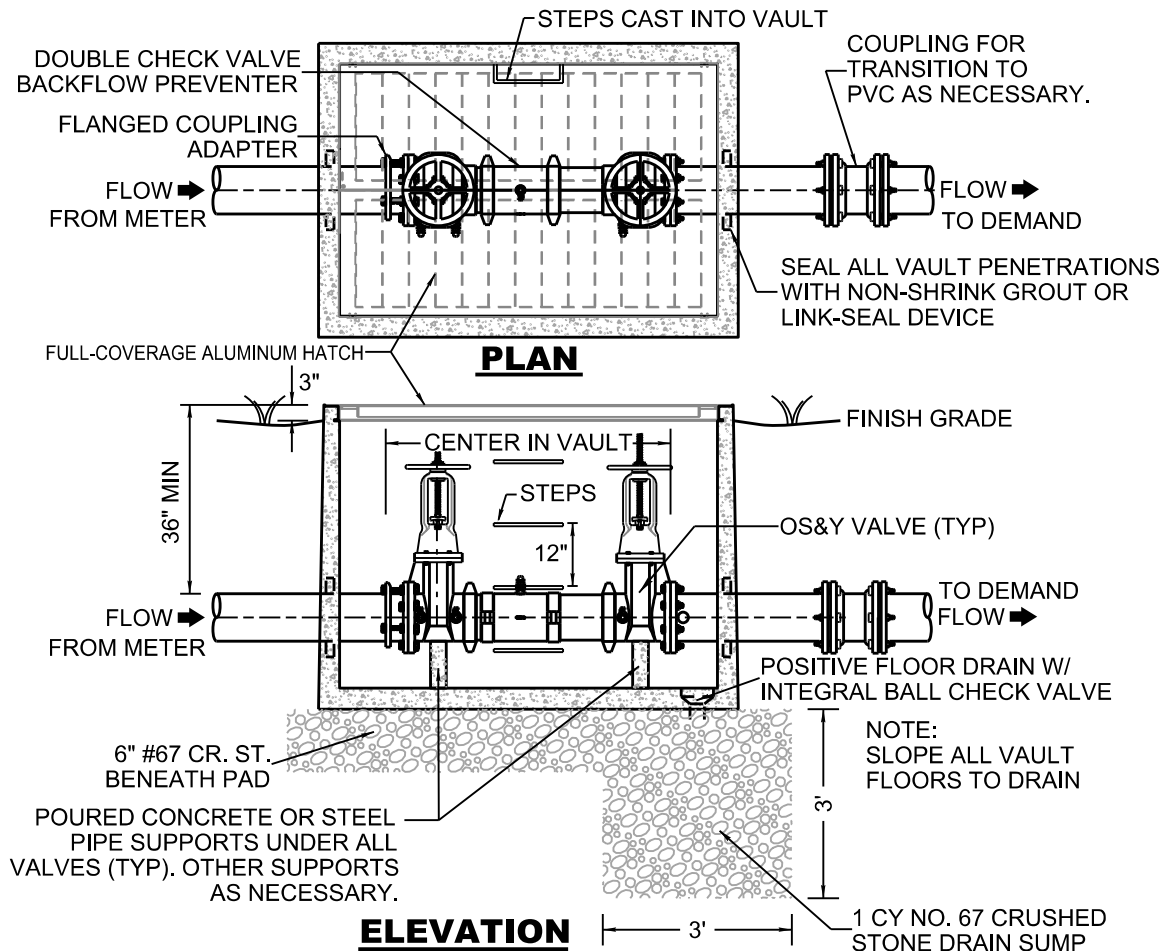


CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

$\frac{3}{4}$ " TO 2" REDUCED  
PRESSURE ZONE BACKFLOW  
PREVENTER ASSEMBLY

MARCH 2023

*DRAWING NO. W-15*



**NOTES:**

1. BACKFLOW DEVICES SHALL BE INSTALLED AT PROPERTY LINE OR IN ACCESSIBLE LOCATION APPROVED BY BRENTWOOD WATER AND SEWER DEPARTMENT.
2. TN STATE APPROVED BACKFLOW DEVICES MAY BE SUBSTITUTED FOR WATTS DEVICES.
3. PROVIDE A REINFORCED ALUMINUM PLATE HATCH COVER IN 2 OR 3 PIECES.

SIZE	BACKFLOW PREVENTER	VAULT	FLANGED COUPLING ADAPTER
4"	WILKINS 350A	60"x 48" (PRECAST CONCRETE)	SMITH-BLAIR #914 (FxPE) OR EQUAL
6"	WILKINS 350A	72"x 48" (PRECAST CONCRETE)	SMITH-BLAIR #914 (FxPE) OR EQUAL
8"	WILKINS 350A	72"x 48" (PRECAST CONCRETE)	SMITH-BLAIR #914 (FxPE) OR EQUAL



**CITY OF BRENTWOOD  
 WATER SERVICES  
 STANDARD DETAIL**

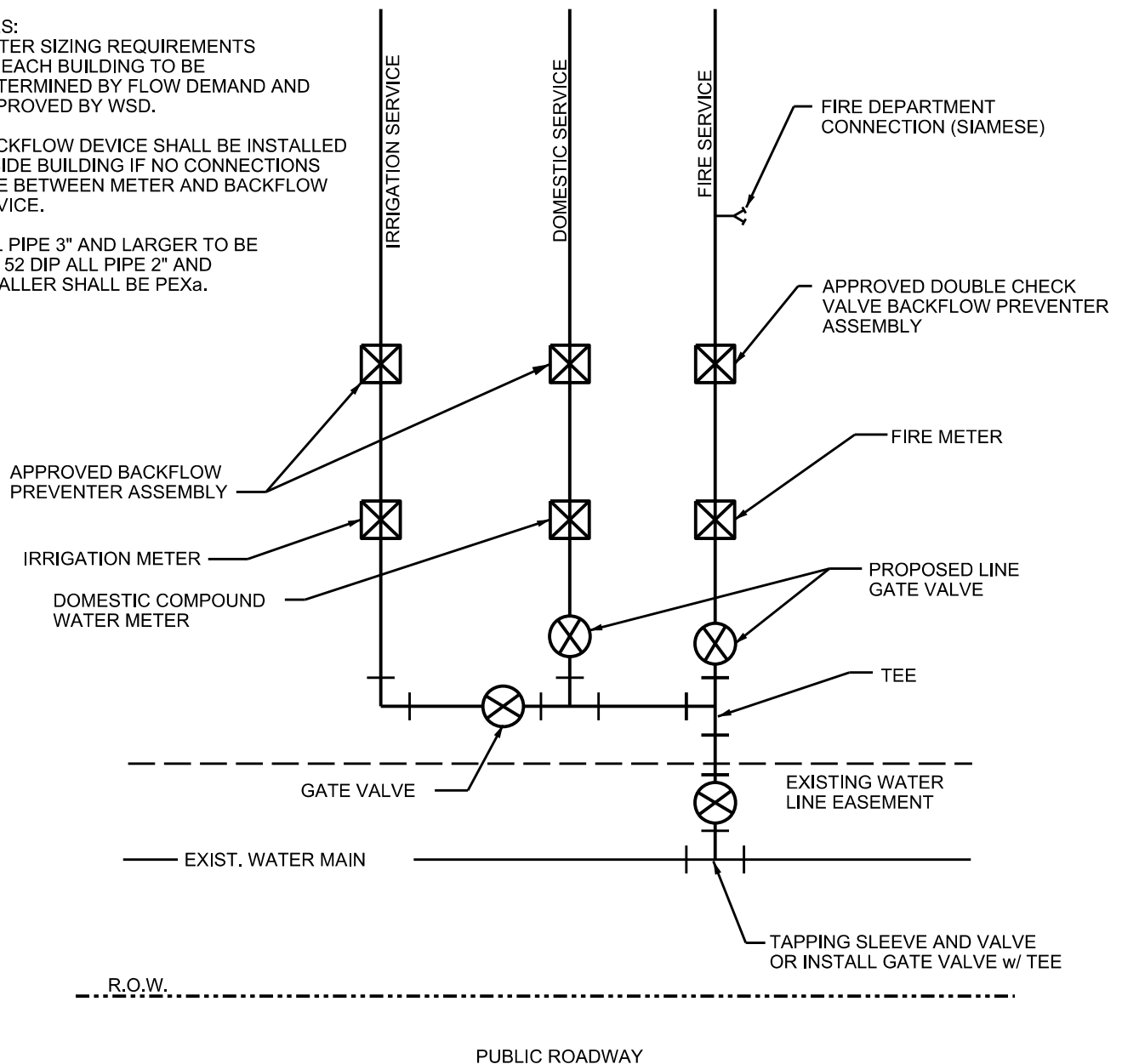
**4", 6" OR 8" DOUBLE  
 CHECK VALVE BACKFLOW  
 PREVENTER ASSEMBLY**

MARCH 2023

*DRAWING NO. W-16*

NOTES:

1. METER SIZING REQUIREMENTS OF EACH BUILDING TO BE DETERMINED BY FLOW DEMAND AND APPROVED BY WSD.
2. BACKFLOW DEVICE SHALL BE INSTALLED INSIDE BUILDING IF NO CONNECTIONS ARE BETWEEN METER AND BACKFLOW DEVICE.
3. ALL PIPE 3" AND LARGER TO BE CL. 52 DIP ALL PIPE 2" AND SMALLER SHALL BE PEXa.

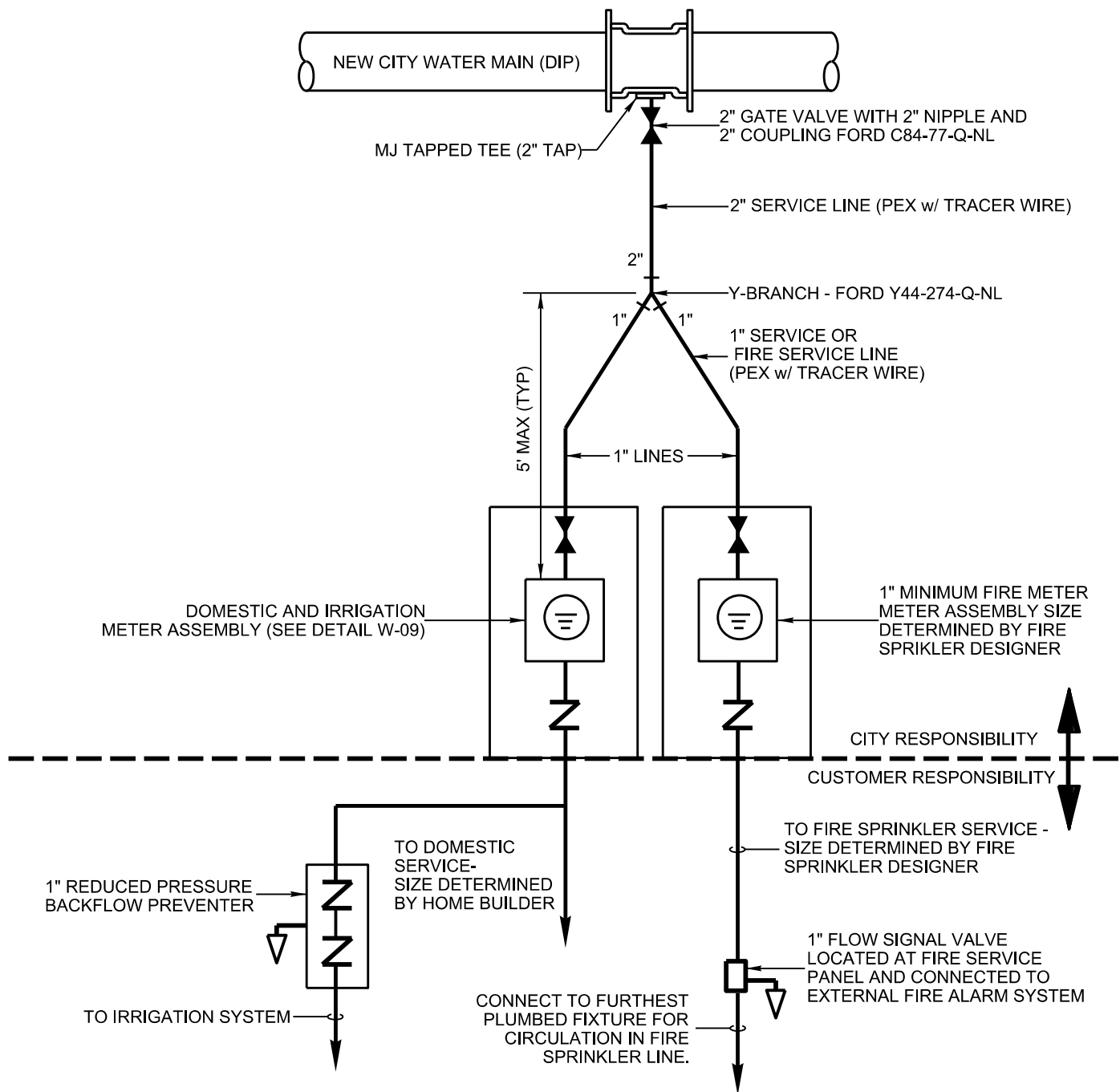


CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

TYPICAL METERING SCHEMATIC  
FOR COMBINED COMMERCIAL,  
DOMESTIC, FIRE SERVICE,  
AND IRRIGATION SERVICE

MARCH 2023

DRAWING NO. W-17

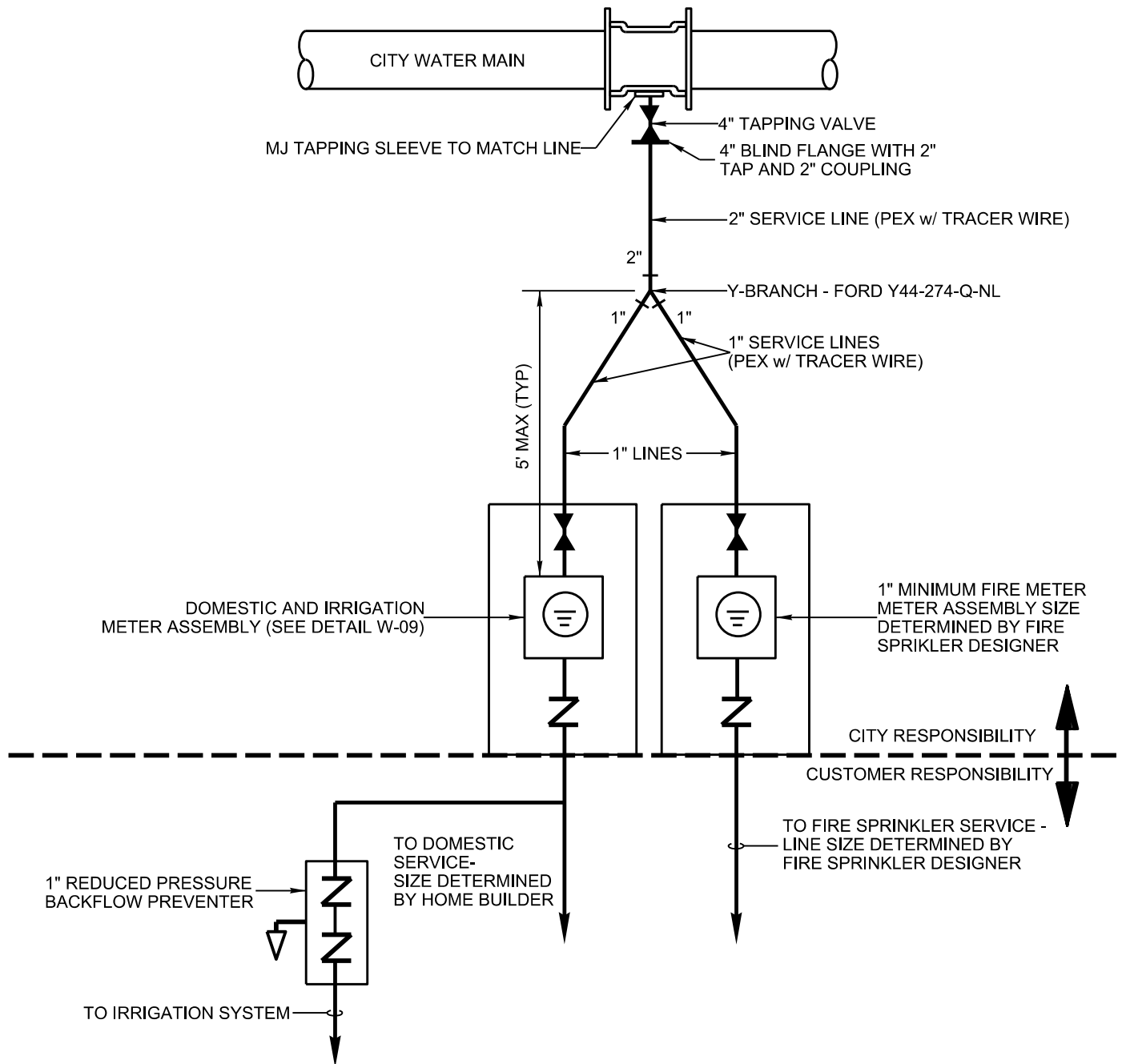


# CITY OF BRENTWOOD WATER SERVICES STANDARD DETAIL

TYPICAL COMBINATION  
RESIDENTIAL & FIRE SPRINKLER  
SCHEMATIC FOR  
NEW MAIN INSTALLATIONS

MARCH 2023

DRAWING NO. W-18A



# CITY OF BRENTWOOD WATER SERVICES STANDARD DETAIL

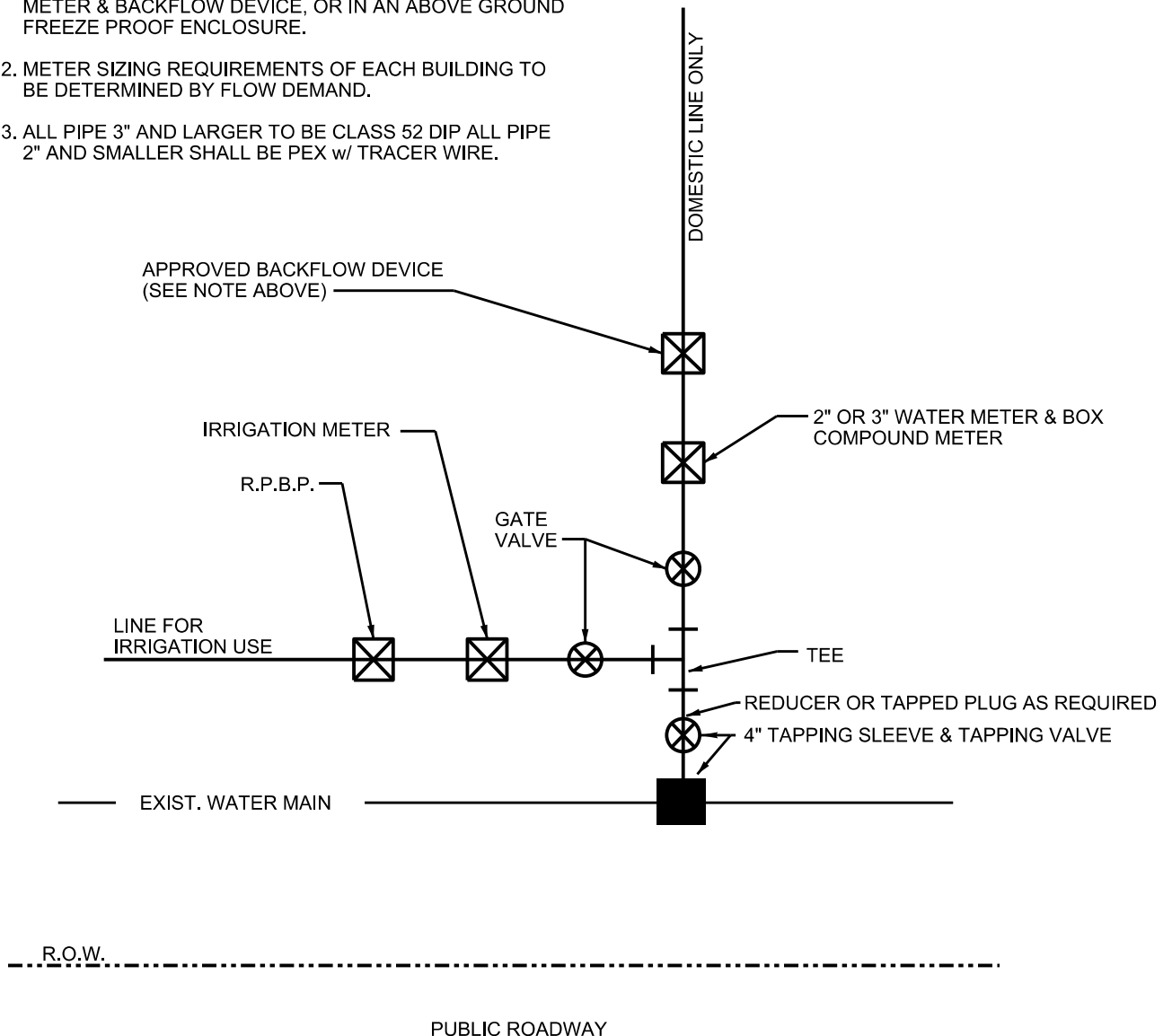
TYPICAL COMBINATION NEW  
RESIDENTIAL & FIRE SPRINKLER  
SCHEMATIC ON EXISTING  
MAIN INSTALLATIONS

MARCH 2023

*DRAWING NO. W-18B*

NOTES:

1. BACKFLOW DEVICE MAY BE INSTALLED EITHER INSIDE BUILDING IF NO TEES OR CONNECTIONS ARE BETWEEN METER & BACKFLOW DEVICE, OR IN AN ABOVE GROUND FREEZE PROOF ENCLOSURE.
2. METER SIZING REQUIREMENTS OF EACH BUILDING TO BE DETERMINED BY FLOW DEMAND.
3. ALL PIPE 3" AND LARGER TO BE CLASS 52 DIP ALL PIPE 2" AND SMALLER SHALL BE PEX w/ TRACER WIRE.

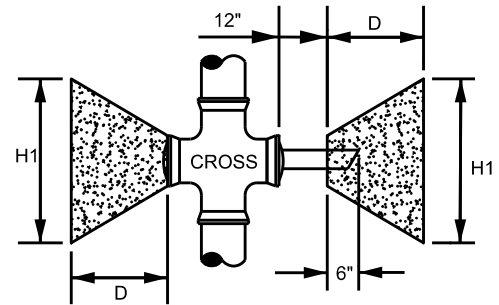
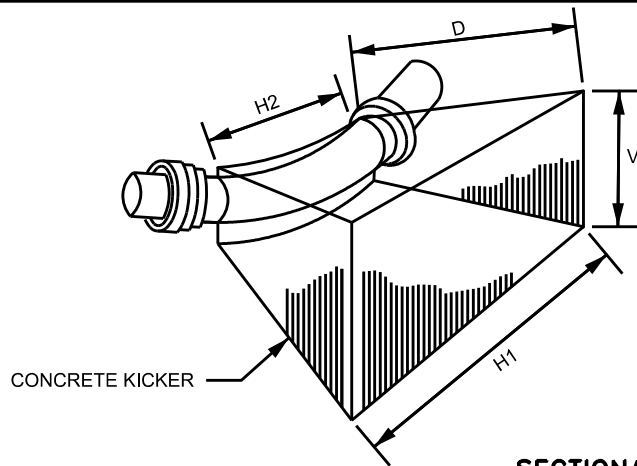


**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

**TYPICAL 2" OR 3" COMMERCIAL,  
DOMESTIC, AND IRRIGATION  
SERVICE SCHEMATIC WITHOUT  
FIRE SERVICE**

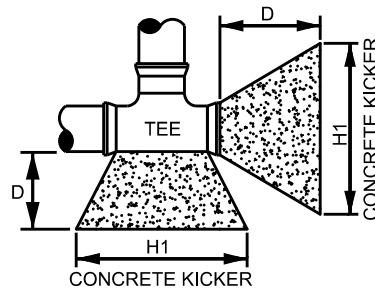
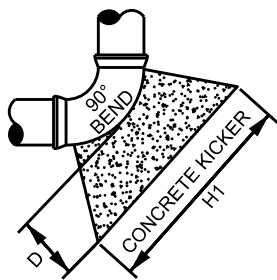
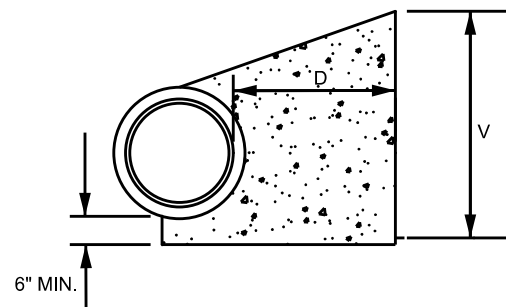
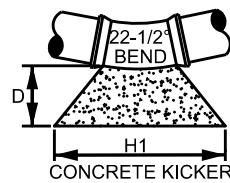
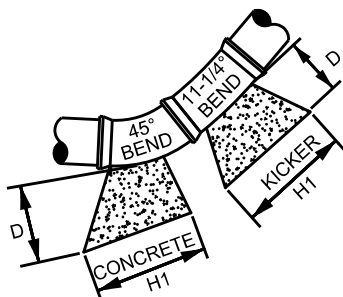
MARCH 2023

*DRAWING NO. W-19*



PLUG PIECE OF 6" PIPE TO BE USED ONLY WHEN SPECIFIED ON LAYOUT SHEET

### SECTIONAL VIEW TEES, CROSSES, & BENDS



TAPPING SLEEVES TEES, CROSSES & PLUGS						90° BENDS					45° BENDS					22½° BENDS					11¼° BENDS					PIPE SIZE
H1	H2	V	D	C. F.		H1	H2	V	D	C. F.	H1	H2	V	D	C. F.	H1	H2	V	D	C. F.	H1	H2	V	D	C. F.	
24"	12"	12"	18"	2.25		24"	12"	12"	18"	2.25	18"	8"	12"	18"	1.60	18"	8"	12"	18"	1.60	18"	8"	12"	18"	1.60	3" & 4"
24"	16"	18"	18"	3.50		30"	16"	18"	18"	4.05	24"	10"	16"	18"	3.20	24"	10"	16"	18"	3.20	24"	10"	16"	18"	3.20	6"
36"	18"	18"	18"	5.05		39"	18"	24"	18"	7.30	30"	12"	18"	18"	3.95	24"	12"	18"	18"	3.95	24"	12"	16"	18"	3.40	8"
48"	24"	18"	24"	7.15		54"	32"	24"	18"	10.25	36"	18"	21"	18"	4.60	24"	18"	21"	18"	4.60	24"	18"	21"	18"	4.60	10"
54"	30"	24"	24"	13.40		54"	36"	24"	18"	18.15	42"	18"	24"	24"	9.60	24"	18"	24"	24"	6.60	24"	18"	21"	24"	6.10	12"
66"	34"	36"	24"	22.50		69"	48"	48"	24"	29.00	48"	30"	36"	24"	17.00	36"	30"	27"	24"	11.80	27"	24"	27"	24"	9.10	16"

#### NOTES:

1. RESTRAINED JOINT PIPE AND FITTINGS IS THE STANDARD REQUIREMENT OF WSD.
2. THIS DETAIL IS ONLY APPLICABLE WHEN RESTRAINED JOINT PIPE AND FITTINGS CANNOT BE UTILIZED AND WHEN APPROVED BY WSD.
3. THRUST BLOCKS ARE REQUIRED AT ALL TAPPING TEES.
4. THRUST BLOCKS MAY BE REQUIRED IN OTHER LOCATIONS WHERE DIRECTED BY THE WATER AND SEWER DEPARTMENT.
5. CONCRETE FOR THRUST BLOCKS SHALL HAVE 4000 PSI COMPRESSIVE STRENGTH.
6. THRUST BLOCKS SHALL NOT BE POURED IN WET OR FROZEN GROUND.
7. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED MATERIAL.
8. PLASTIC SHEETING SHALL BE PROVIDED AT FITTINGS SO AS TO PREVENT COVERING ANCHOR BOLTS WITH CONCRETE.



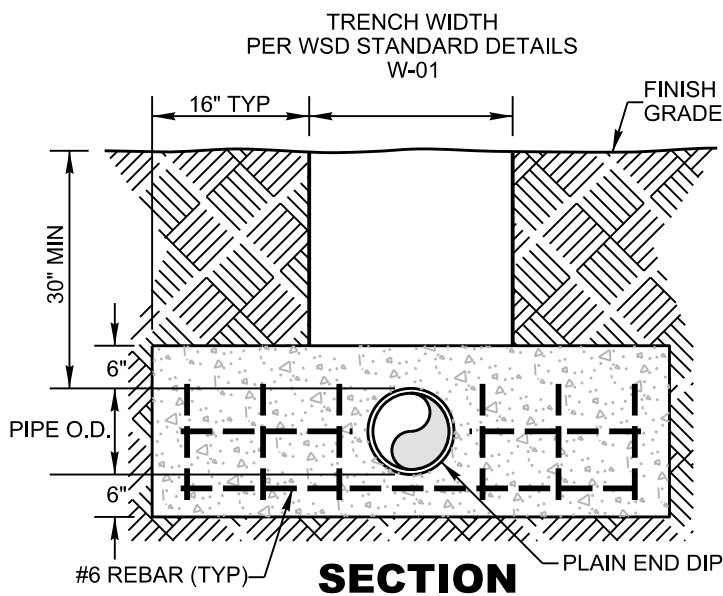
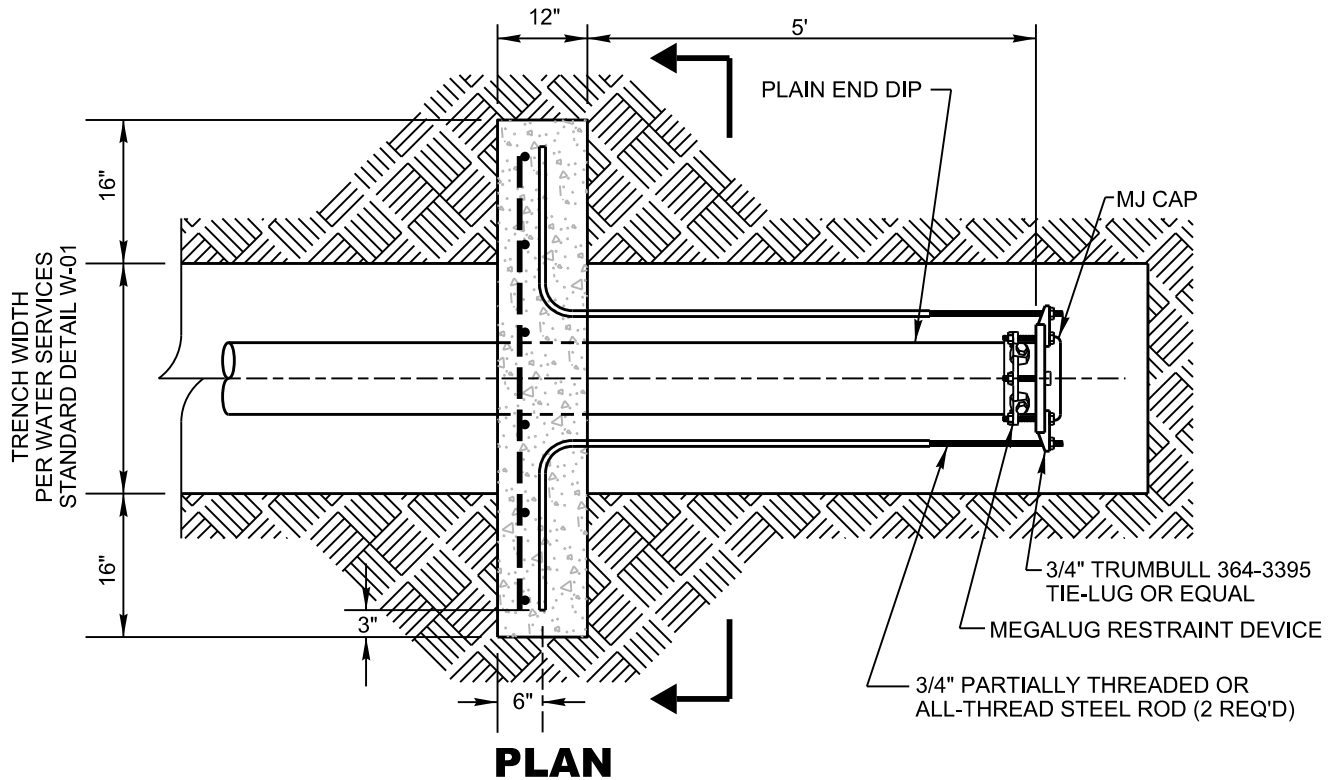
**CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL**

**TYPICAL CONCRETE  
THRUST BLOCK**

MARCH 2023

*DRAWING NO. W-20*





#### NOTES:

1. ANCHOR BLOCK CONCRETE SHALL BE 4000 PSI
2. ALL STEEL RODS, BOLTS, TIES, ETC. IN CONTACT WITH SOIL SHALL BE COATED WITH TNEMEC HB TNEMECOL OR EQUAL OR BE STAINLESS STEEL.
3. CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH
4. DIMENSIONS ARE BASED ON 2000 P.S.F. SOIL BEARING CAPACITY PRESSURE AND 6000 LB. REINFORCING BAR TENSILE STRENGTH



CITY OF BRENTWOOD  
WATER SERVICES  
STANDARD DETAIL

TYPICAL REVERSE  
THRUST BLOCK

MARCH 2023

DRAWING NO. W-21