

TYPICAL TRENCH SECTION

TRENCH WIDTH

PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
16"	2'-4"	3'-4"
20"	2'-8"	3'-8"
24"	4'-0"	5'-0"

NOTES:

- TRENCHES 5 FT DEEP OR GREATER REQUIRE A "PROTECTIVE SYSTEM" AS DEFINED BY OSHA. TRENCHES 20 FT DEEP OR GREATER REQUIRE THAT THE PROTECTIVE SYSTEM BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER.
- OSHA'S STANDARDS REQUIRE THAT TRENCHES BE INSPECTED DAILY AND AS CONDITIONS CHANGE BY A "COMPETENT PERSON" (AS DEFINED BY OSHA) PRIOR TO WORKER ENTRY TO ENSURE ELIMINATION OF EXCAVATION HAZARDS. FOR ADDITIONAL INFORMATION REGARDING OSHA REQUIREMENTS CALL 1-800-321-OSHA.
- MINIMUM COVER OVER PIPE TO BE BELOW OFFICIAL STREET GRADE.
- FOR ASPHALT PATCH DEPTH REFER TO THE REQUIREMENTS IN CHAPTER 9 OF THE STANDARDS AND SPECIFICATIONS.
- FOR PIPE BEDDING REQUIREMENTS REFER TO CHAPTER 9 OF THE STANDARDS AND SPECIFICATIONS.
- PIPE BEDDING SHALL BE PLACED AGAINST UNDISTURBED SOIL IN THE TRENCH BOTTOM, HOWEVER, WHERE ADVERSE SOIL IS ENCOUNTERED IN THE TRENCH BOTTOM, SOIL SHALL BE REMOVED AND TRENCH STABILIZATION MATERIAL SHALL BE PLACED IN ACCORDANCE WITH THE RECOMMENDATIONS OF A GEOTECHNICAL ENGINEER.

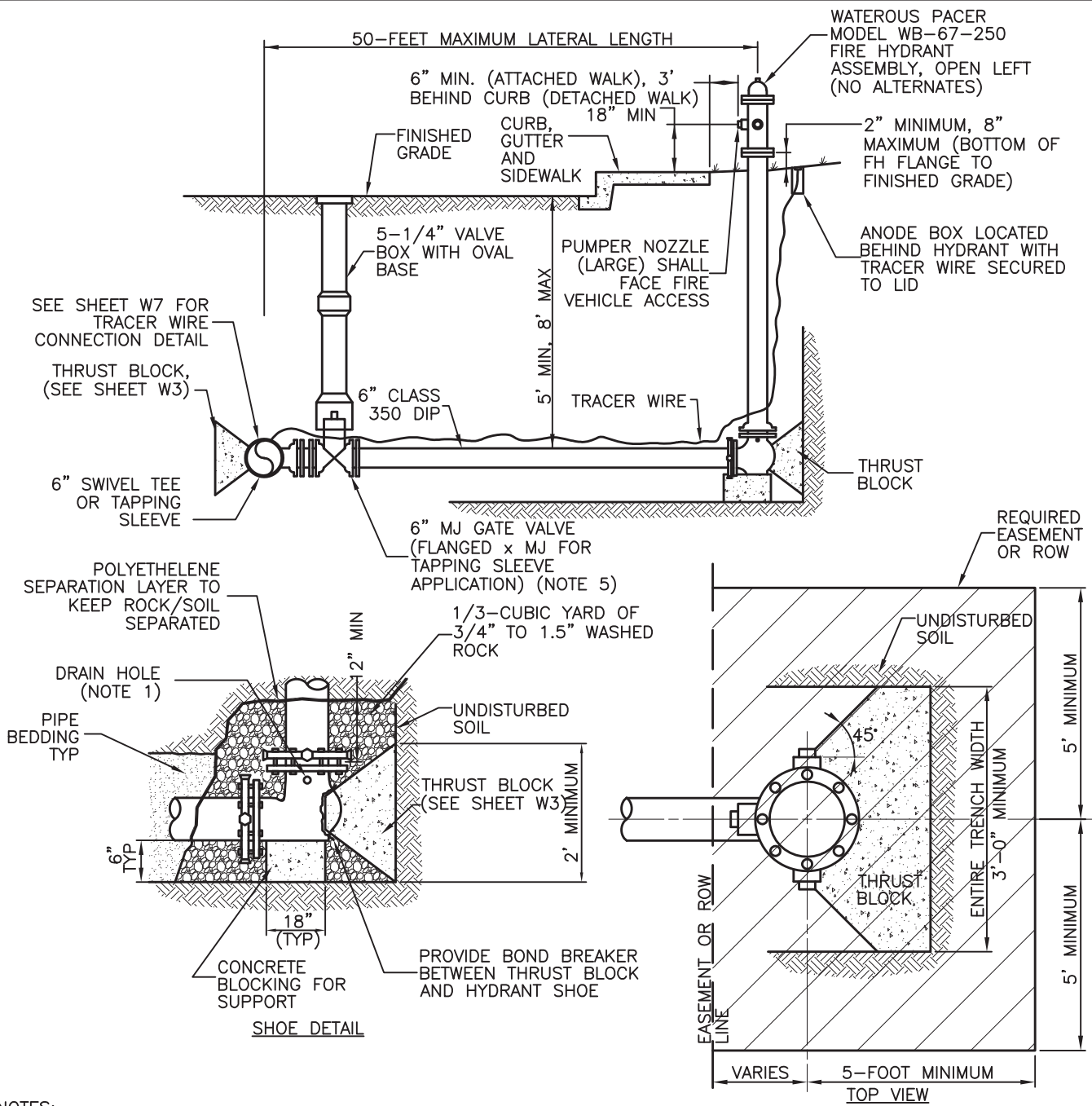


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

TYPICAL TRENCH SECTION
 PIPE PROTECTION

DATE: MARCH 2022

SHEET W1



NOTES:

1. ALL FITTINGS, DI PIPE, AND HYDRANT BARREL SHALL BE POLYETHYLENE WRAPPED PER CITY STANDARD 3.61.02. PROVIDE PERFORATION AT HYDRANT DRAIN HOLES.
2. SEE CITY STANDARD 3.19.00 FOR EASEMENT REQUIREMENTS.
3. THE HYDRANT SHALL BE PUT INTO SERVICE PER CITY STANDARD 3.37.00.
4. THE ENTIRE PIPING ASSEMBLY (HYDRANT SHOE TO CONNECTION AT MAIN) SHALL BE RESTRAINED.
5. THE VALVE NUT SHALL HAVE A MAXIMUM BURIED DEPTH OF 4' FROM FINISHED GRADE.

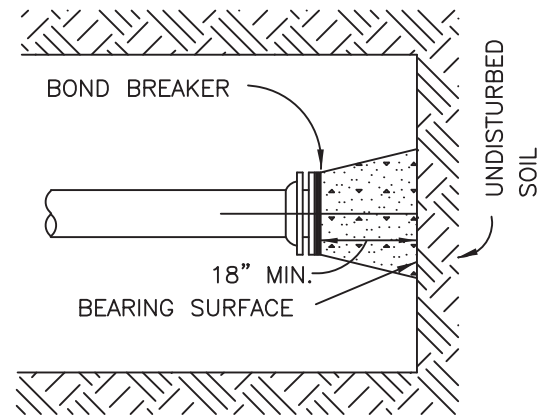
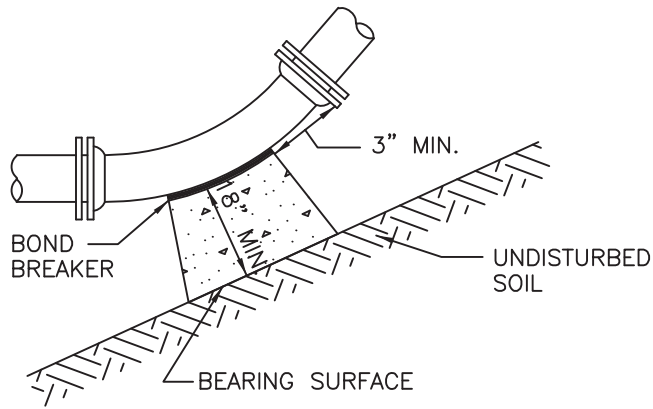


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

**FIRE HYDRANT INSTALLATION
 DETAIL**

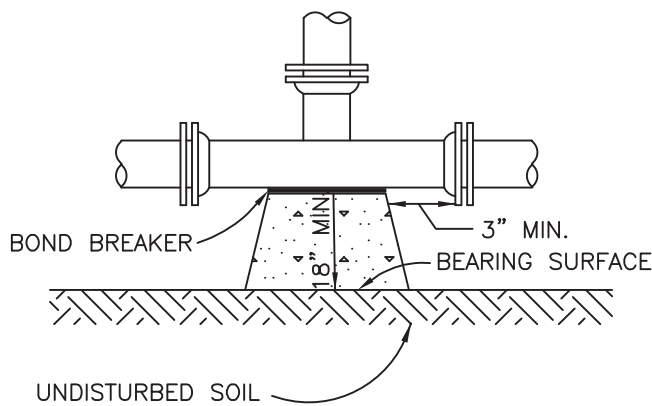
DATE: MARCH 2022

SHEET W2

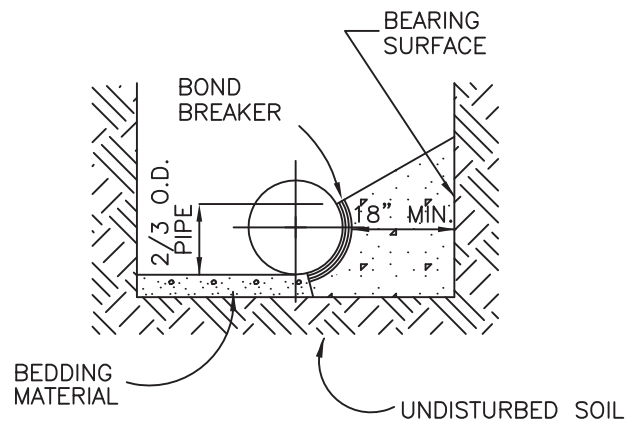


DEAD END

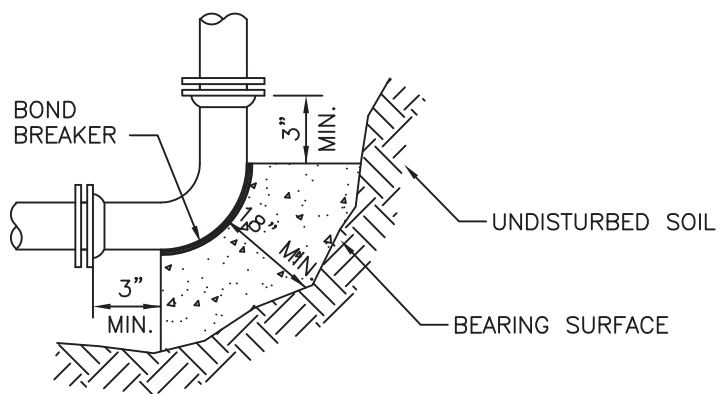
$\frac{11}{4} \frac{1^\circ}{2}$, $\frac{22}{2} \frac{1^\circ}{2}$ AND 45° BENDS



TEE



TYPICAL CROSS SECTION



90° BEND



CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

CONCRETE THRUST BLOCKS
BEARING SURFACES AND INSTALLATION

DATE: MARCH 2022

SHEET W3

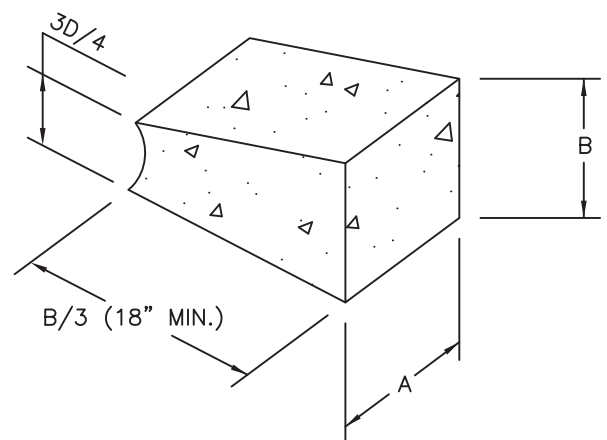
MINIMUM DIMENSIONS FOR THRUST BLOCKS

FITTING SIZE	TEES & PLUGS		90° BEND		45° BENDS & WYES	
	A	B	A	B	A	B
4"	1'-7"	1'-2"	1'-9"	1'-6"	1'-8"	0'-10"
6"	2'-0"	1'-11"	2'-5"	2'-2"	1'-10"	1'-7"
8"	2'-8"	2'-6"	3'-2"	3'-0"	2'-5"	2'-1"
10"	3'-4"	3'-3"	4'-0"	3'-10"	3'-0"	2'-9"
12"	4'-0"	3'-10"	4'-8"	4'-8"	3'-8"	3'-3"
14"	5'-5"	3'-10"	6'-6"	4'-11"	4'-9"	3'-5"
20"	5'-0"	5'-0"	6'-0"	6'-0"	5'-0"	4'-0"
24"	6'-0"	6'-0"	7'-0"	7'-0"	5'-0"	5'-0"
30"	7'-6"	7'-6"	8'-0"	8'-0"	6'-3"	6'-3"

FITTING SIZE	REDUCERS & 22 1/2° BENDS		11 1/4° BENDS	
	A	B	A	B
4"	1'-7"	0'-6"	0'-6"	0'-6"
6"	1'-9"	0'-10"	1'-0"	0'-6"
8"	1'-9"	1'-6"	1'-0"	1'-0"
10"	2'-2"	1'-11"	1'-6"	1'-0"
12"	2'-7"	2'-3"	2'-0"	1'-0"
14"	3'-5"	2'-5"	2'-0"	1'-6"
20"	3'-6"	3'-0"	3'-0"	2'-0"
24"	4'-6"	3'-0"	3'-0"	3'-0"
30"	4'-9"	4'-6"	3'-3"	3'-3"

GENERAL NOTES:

1. BEARING SURFACE AREAS SHOWN IN CHART ARE MINIMUM.
2. BASED ON 150 P.S.I. INTERNAL PIPE PRESSURE.
3. SOIL BEARING CAPACITY = 2000 LB./SQ. FT.
4. ALL FITTINGS TO BE WRAPPED WITH POLYETHYLENE (MINIMUM 8 MIL.) PER CITY STANDARD 3.61.02.



NOT TO SCALE

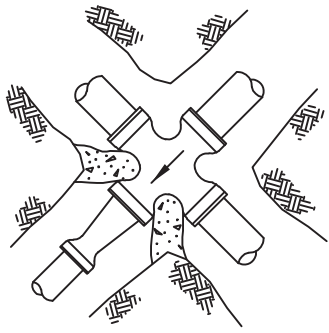


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

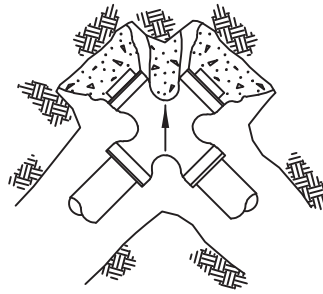
TYPICAL THRUST BLOCK
 DIMENSIONS

DATE: MARCH 2022

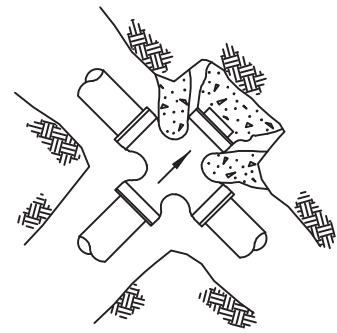
SHEET W4



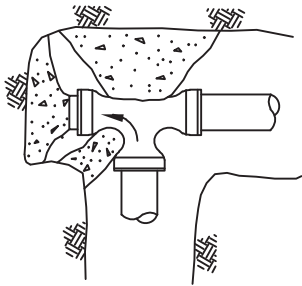
UNBALANCED CROSS



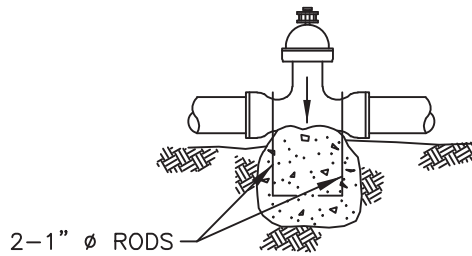
PLUGGED CROSS



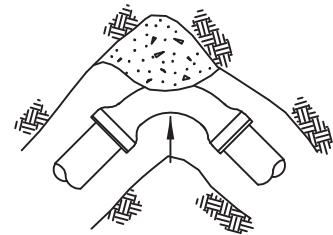
PLUGGED CROSS



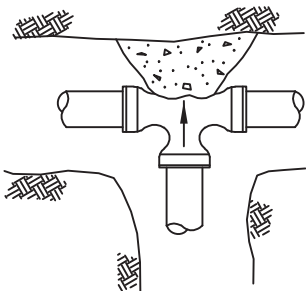
PLUGGED TEE



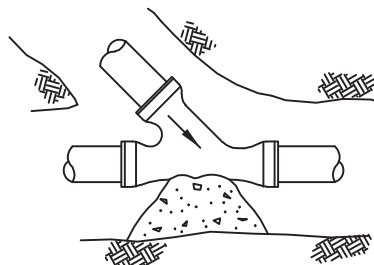
VALVE



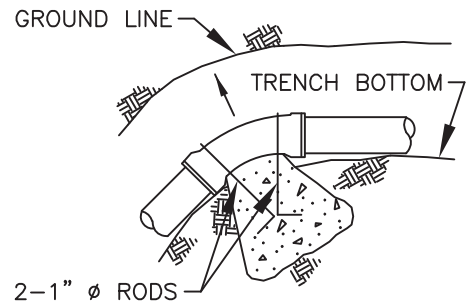
HORIZONTAL BEND



TEE



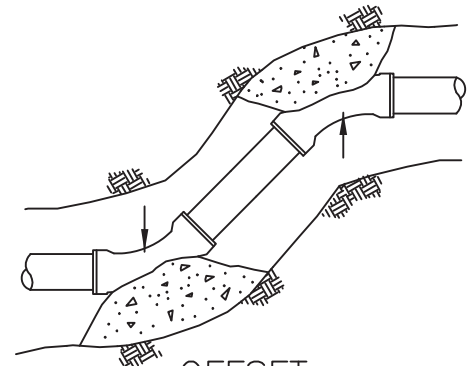
"Y" BRANCH



VERTICAL BEND

NOTES:

1. SIZE OF BLOCK TO BE A MINIMUM OF 18" THICK.
2. ALL BLOCKING TO BE ON UNDISTURBED MATERIAL.



OFFSET

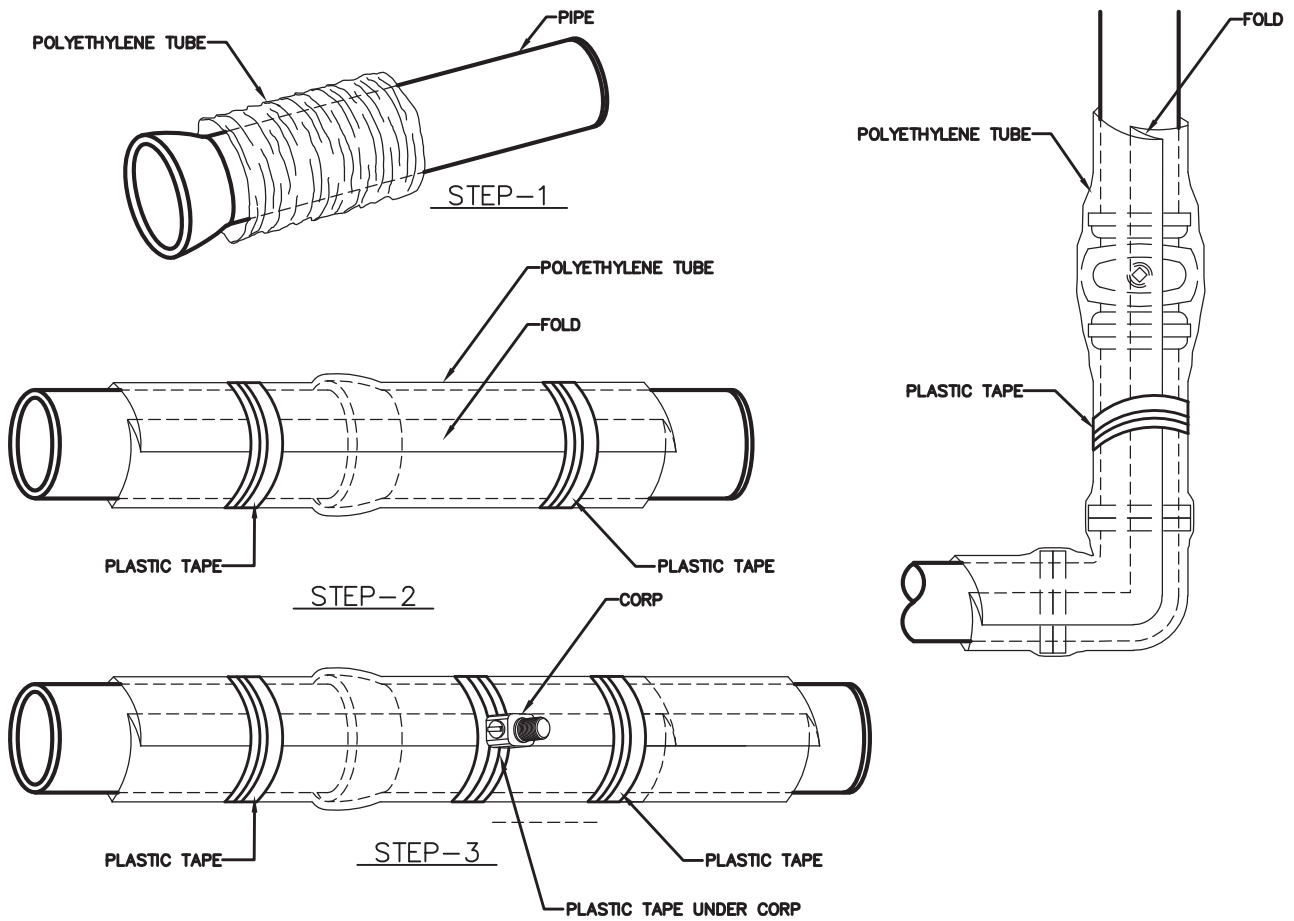


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

CONCRETE THRUST BLOCKING
 FOR UNBALANCED FITTINGS

DATE: MARCH 2022

SHEET W5



FIELD INSTALLATION-POLYETHYLENE WRAP

- STEP-1 PLACE TUBE OF POLYETHYLENE MATERIAL AROUND PIPE PRIOR TO LOWERING PIPE 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.
- 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 THE PIPE AND TAPED IN PLACE.

NOTE: POLYETHYLENE MUST MEET CITY STANDARD 3.61.02.



CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

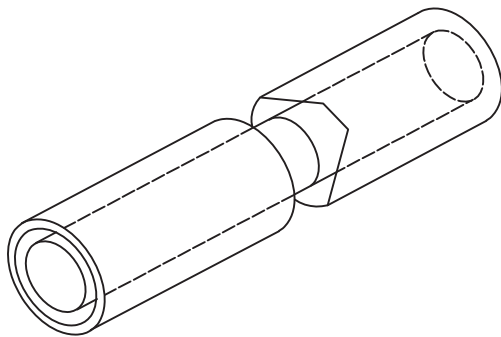
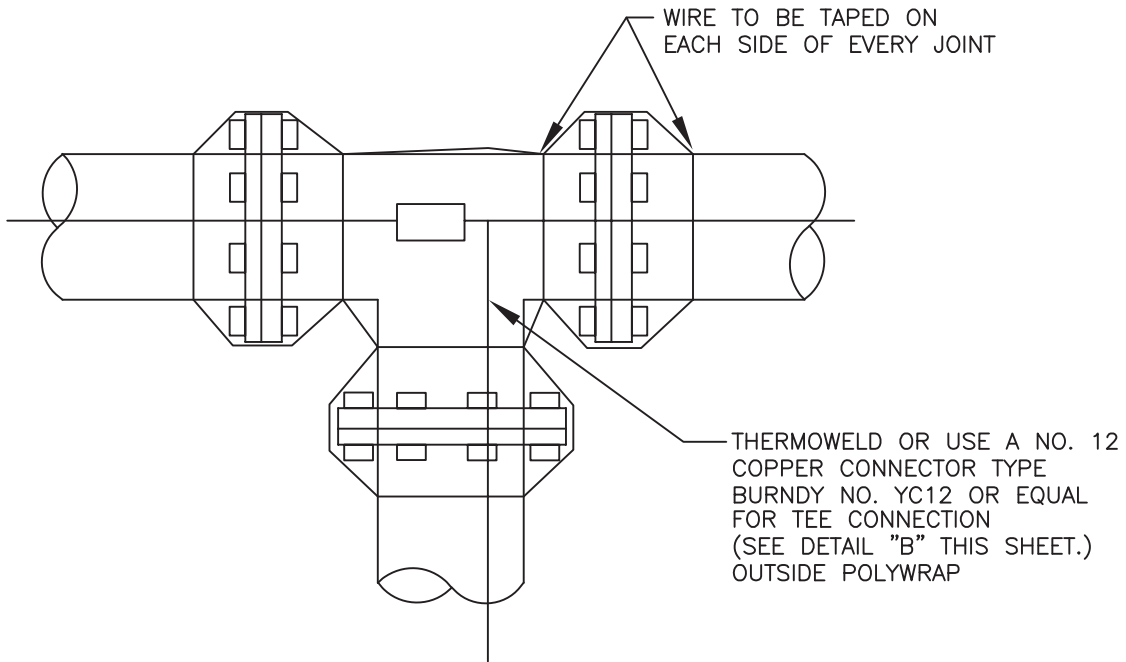
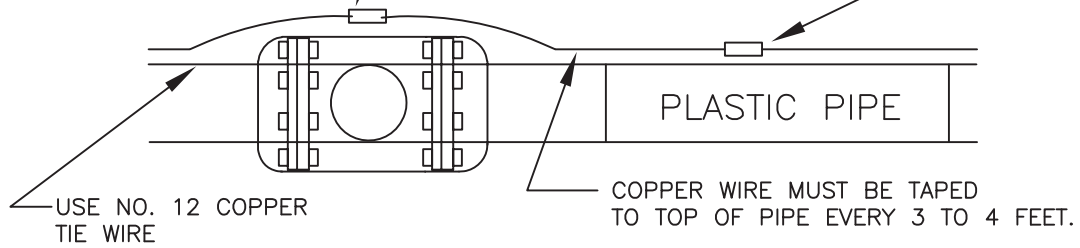
POLYETHYLENE WRAP FOR
 IRON PIPE & FITTINGS

DATE: MARCH 2022

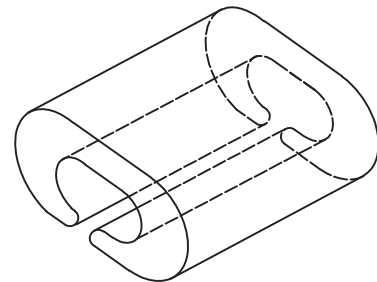
SHEET W6

THERMOWELD OR USE A NO. 12
COPPER CONNECTOR TYPE
BURNDY NO. YC12 OR EQUAL

THERMOWELD OR USE A NO. 12 COPPER CONNECTOR TYPE
DOSSERT NO. DCP2 HOMAC NO. CST OR EQUAL
(SEE DETAIL "A" THIS SHEET)



DETAIL A



DETAIL B

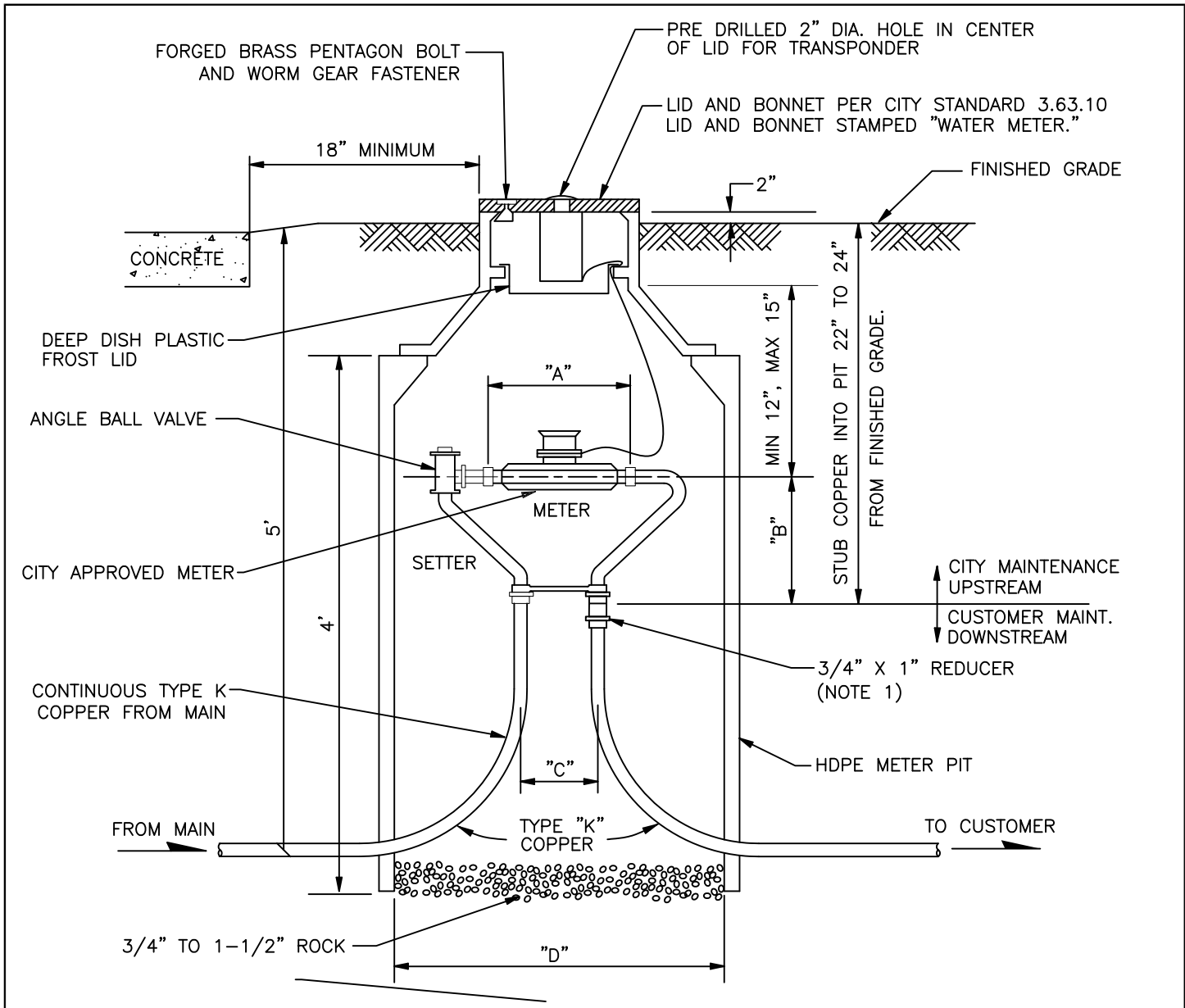


CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

TRACER WIRE
ON PLASTIC PIPE


DATE: MARCH 2022

SHEET W7



METER SIZE	A	B	C	D
3/4"	9-5/16"	9"	5"	20" I.D.
1"	11-1/16"	10"	6"	24" I.D.

- NOTES:
1. UPSIZING OF SERVICE PIPES AFTER THE METER REQUIRES THE APPROVAL OF THE BUILDING DEPARTMENT. FOR SERVICE PIPES UPSIZED FROM 3/4" TO 1", A REDUCER SHALL BE INSTALLED AS SHOWN ON THIS DETAIL. FOR SERVICE PIPES UPSIZED FROM 1" TO 1-1/2", USE THE CITY'S STANDARD DETAIL FOR 1-1/2" AND 2" DOMESTIC METER SETS.
 2. ONLY COMPRESSION FITTINGS WILL BE ALLOWED ON COPPER SERVICE PIPES.
 3. FOR APPROVED MANUFACTURERS AND MODEL NUMBERS OF METERS AND FITTINGS, REFER TO CHAPTER 3 OF THE CITY STANDARDS.
 4. THIS PIT IS NOT INTENDED FOR INSTALLATION IN STREETS, DRIVEWAYS OR CONCRETE AREAS.
 5. METER PIT SHALL BE LOCATED IN A SOD OR MULCH AREA. SEE CITY STANDARD 3.19.00 FOR EASEMENT REQUIREMENTS.
 6. SERVICE LINES SHALL BE INSTALLED PERPENDICULAR TO THE WATER MAIN UNLESS APPROVED OTHERWISE BY PWU.



CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

3/4" AND 1"
 DOMESTIC METER SETS

DATE: MARCH 2022	SHEET W8A
------------------	-----------

GENERAL NOTES

1. NOT FOR INSTALLATION IN ROADWAYS, DRIVEWAYS, PARKING AREAS, SIDEWALKS, OR CONCRETE.
2. IF SURFACE IS NOT TO OFFICIAL GRADE WHEN THE METER IS INSTALLED, THE OWNER MUST RAISE OR LOWER THE PIT, METER SETTER AND ALL OTHER APPURTENANCES TO THE FINAL APPROVED GRADE.
3. METER SHALL BE SET WITHIN PUBLIC R.O.W OR PUBLIC EASEMENT.
4. NO CONCRETE FLOOR TO BE LAID IN METER PIT.
5. METER PIT SHALL BE CONSTRUCTED OF MODIFIED HI-DENSITY POLYETHELENE.
6. ADJUSTMENT RINGS SHALL BE 2", 3", 4" OR 6" IN HEIGHT AND SHALL BE INSERTED BETWEEN THE TWO TOP RINGS.
7. ALL TAPS SHALL BE PAID FOR PRIOR TO THE TAP BEING MADE.
8. ADDRESSES SHALL BE MARKED FOR EACH METER PRIOR TO SETTING THE METER.
9. ANY METER SETTING LOCATED IN A DRIVING SURFACE SHALL BE INSTALLED IN A VAULT IN CONFORMANCE WITH THE CITY'S STANDARD DETAILS.

(PAGE 3 OF 3)



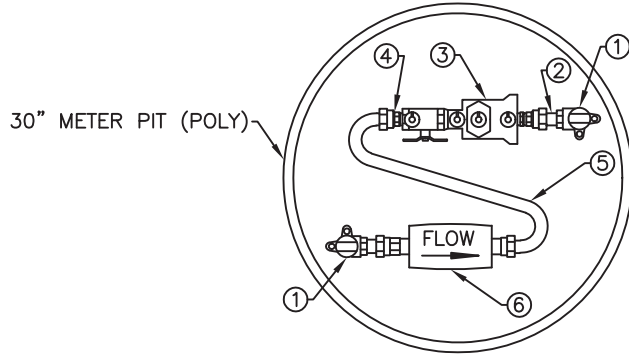
CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

SETTINGS FOR
3/4" AND 1" METERS

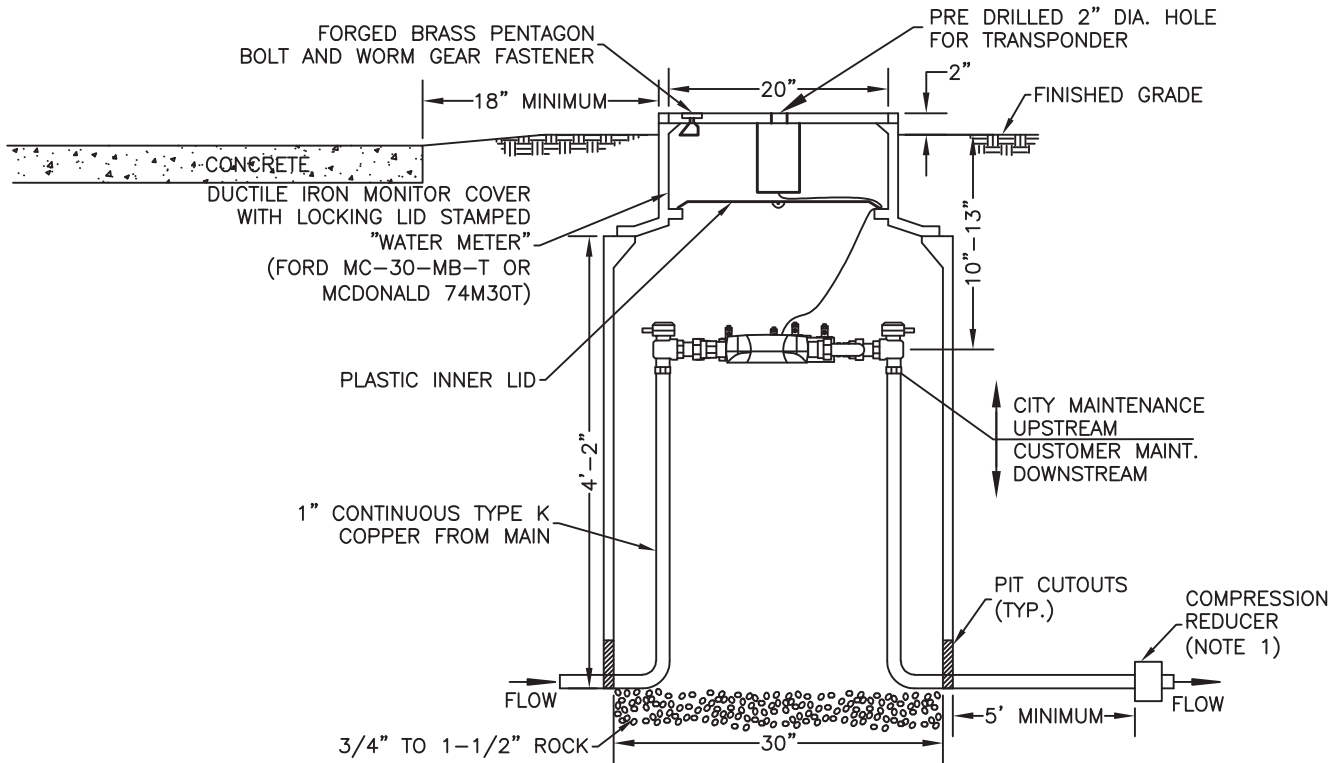
DATE: MARCH 2022

SHEET W8C

PIPING PLAN VIEW



ITEM NUMBER	DESCRIPTION
1	1" COMPRESSION (CTS) ANGLE BALL VALVE WITH LOCK WING AND GRIP JOINT
2	METER ADAPTER (FORD A34-NL, AY MCDONALD 710J34)
3	1" FEBCO 850-QT DC BACKFLOW ASSEMBLY WITH INLET BALL VALVE AND TEST COCK
4	REGULATOR ADAPTER (FORD RA-4-NL, AY MCDONALD 74619-1")
5	1" "S" TUBE (FORD ST4, AY MCDONALD 4619S-1)
6	METER PER CITY STANDARD 3.63.01



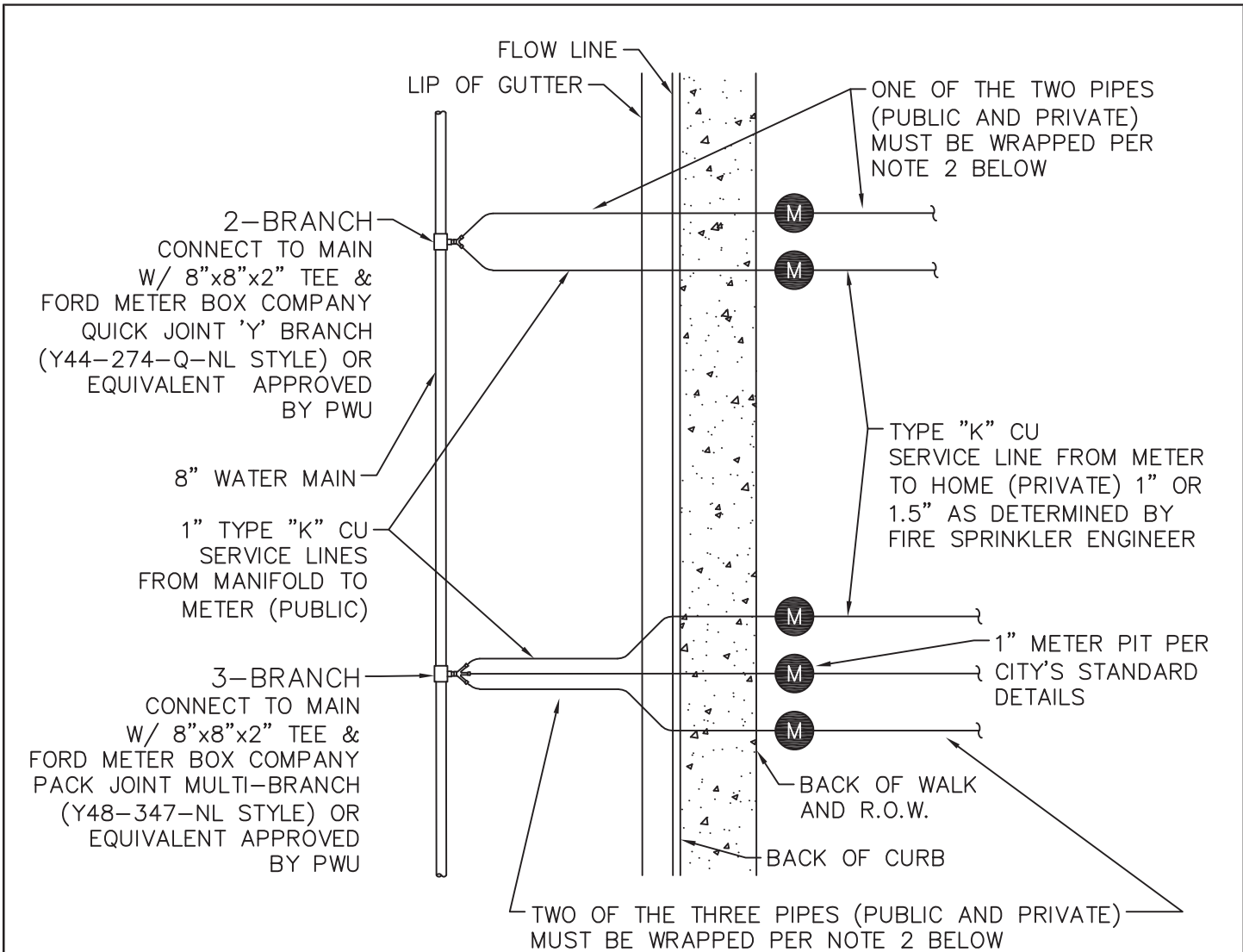
NOTES:

1. UPSIZING OF SERVICE PIPES AFTER THE METER REQUIRES THE APPROVAL OF THE BUILDING DEPARTMENT. FOR SERVICE PIPES UPSIZED FROM 1" TO 1-1/2", A REDUCER SHALL BE INSTALLED AS SHOWN ON THIS DETAIL.
2. ONLY COMPRESSION FITTINGS WILL BE ALLOWED ON COPPER SERVICE PIPES. FOR APPROVED MANUFACTURERS AND MODEL NUMBERS OF FITTINGS, REFER TO CHAPTER 3 OF THE CITY STANDARDS.
3. THIS DETAIL IS NOT INTENDED FOR INSTALLATION IN STREETS, DRIVEWAYS, OR CONCRETE AREAS PRONE TO TRAFFIC.
4. METER PIT SHALL BE LOCATED IN A SOD OR MULCH AREA. SEE CITY STANDARD 3.19.00 FOR EASEMENT REQUIREMENTS.
5. SERVICE LINES TO THE METER PIT SHALL BE INSTALLED PERPENDICULAR TO THE WATER MAIN.



CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

1" METER WITH DOUBLE CHECK VALVE ASSEMBLY
 (RESIDENTIAL REQUIRED FIRE SPRINKLER SYSTEM)



GENERAL NOTES:

1. METER PITS SHALL BE IN CONFORMANCE WITH THE CITY'S STANDARD DETAILS.
2. INDIVIDUAL PIPES (PUBLIC AND PRIVATE) SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT TUBING (8 MIL MIN THICKNESS) USING DIFFERENT COLOR FOR EACH LINE IN THE SAME CLUSTER. PURPLE COLOR NOT ACCEPTED.
3. A CHEMICAL AND WEATHER RESISTANT PLACARD IDENTIFYING THE ADDRESS OF EACH COLOR SHALL BE PLACED IN A VISIBLE LOCATION WITHIN THE METER PIT PRIOR TO SETTING THE METER. PLACARD SHALL BE 40 MIL ALUMINUM WITH BLACK BACKGROUND AND WHITE NUMBERS. MINIMUM 7" X 10" IN SIZE. TOP OF PLACARD SHALL BE MINIMUM 8", MAXIMUM 12" FROM INSIDE OF LID.
4. REINSPECTION FEE PER SERVICE RULES.
5. ANY METER SETTING LOCATED IN A DRIVING SURFACE SHALL BE INSTALLED IN A VAULT IN CONFORMANCE WITH THE CITY'S STANDARD DETAILS.

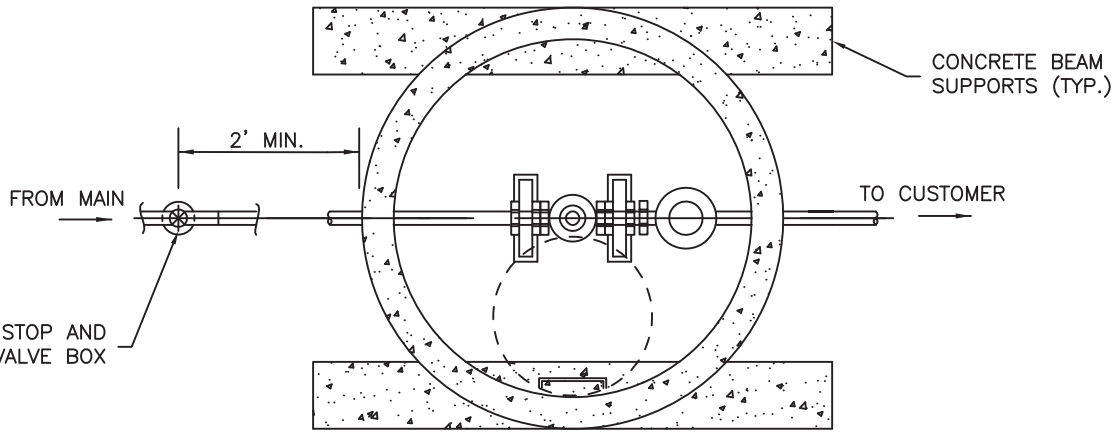


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

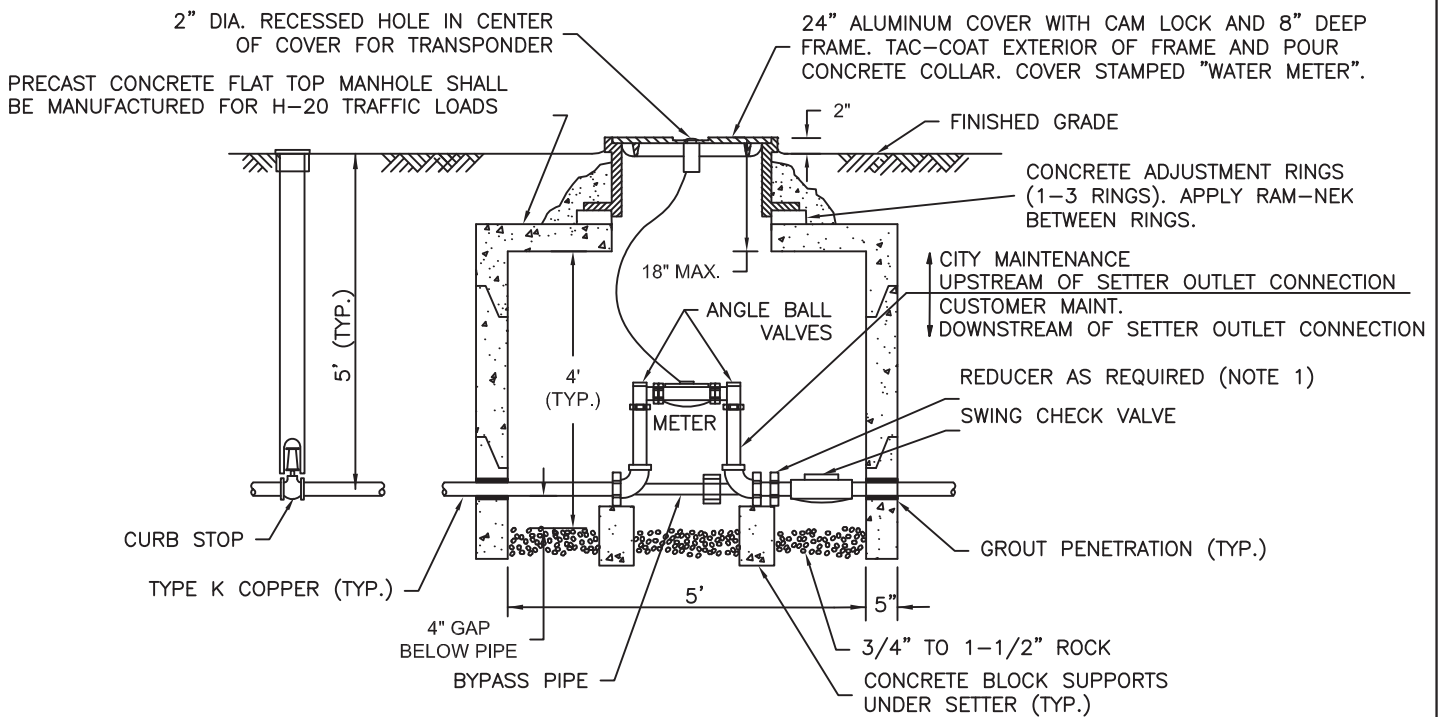
MULTIPLE METER SETTINGS
 (FOR RESIDENTIAL ONLY WITH APPROVAL OF PWU)

DATE: FEBRUARY 2023

SHEET W9B



PLAN VIEW



ELEVATION SECTION

NOTES:

1. UPSIZING OF SERVICE PIPES AFTER THE METER REQUIRES THE APPROVAL OF THE BUILDING DEPT. FOR SERVICE PIPES UPSIZED FROM 1" TO 1 1/2" OR 1 1/2" TO 2" A REDUCER SHALL BE INSTALLED AS SHOWN ON THIS DETAIL. UPSIZING FROM 2" TO 3" REQUIRES APPROVAL FROM PWU.
2. FOR APPROVED MANUFACTURERS AND MODEL NUMBERS OF FITTINGS, REFER TO CHAPTER 3 OF THE CITY STANDARDS.
3. METER MANHOLE SHALL BE SURVEYED SO THAT THE COVER CAN BE PROPERLY LOCATED 2" ABOVE FINISHED GRADE PRIOR TO BACKFILLING.
4. A BYPASS IS REQUIRED TO BE INSTALLED ON POTABLE WATER SETTINGS.
5. ONLY COMPRESSION FITTINGS WILL BE ALLOWED ON COPPER SERVICE PIPES.
6. MANHOLE STEPS SHALL BE PLACED 12" ON CENTER AND 18" MAX. FROM THE TOP OF THE FRAME TO THE FIRST STEP.
7. METER MANHOLE AND CURB STOP SHALL BE LOCATED IN A SOD OR MULCH AREA. SEE CITY STANDARD 3.19.00 FOR EASEMENT REQUIREMENTS.
8. PLACEMENT IN ANY AREA THAT IS NOT SOD OR MULCH REQUIRES WRITTEN APPROVAL FROM PWU.
9. SERVICE LINES SHALL BE INSTALLED PERPENDICULAR TO THE WATER MAIN.

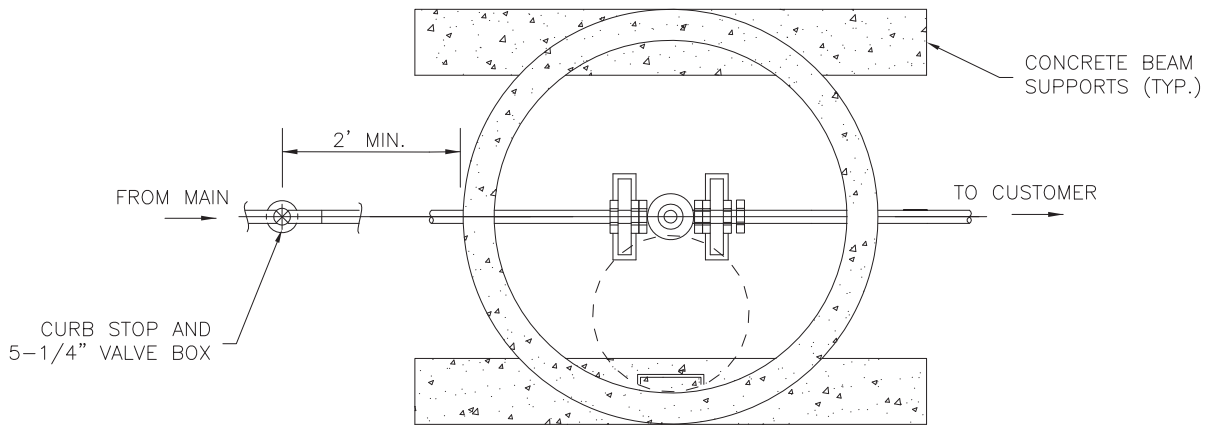


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

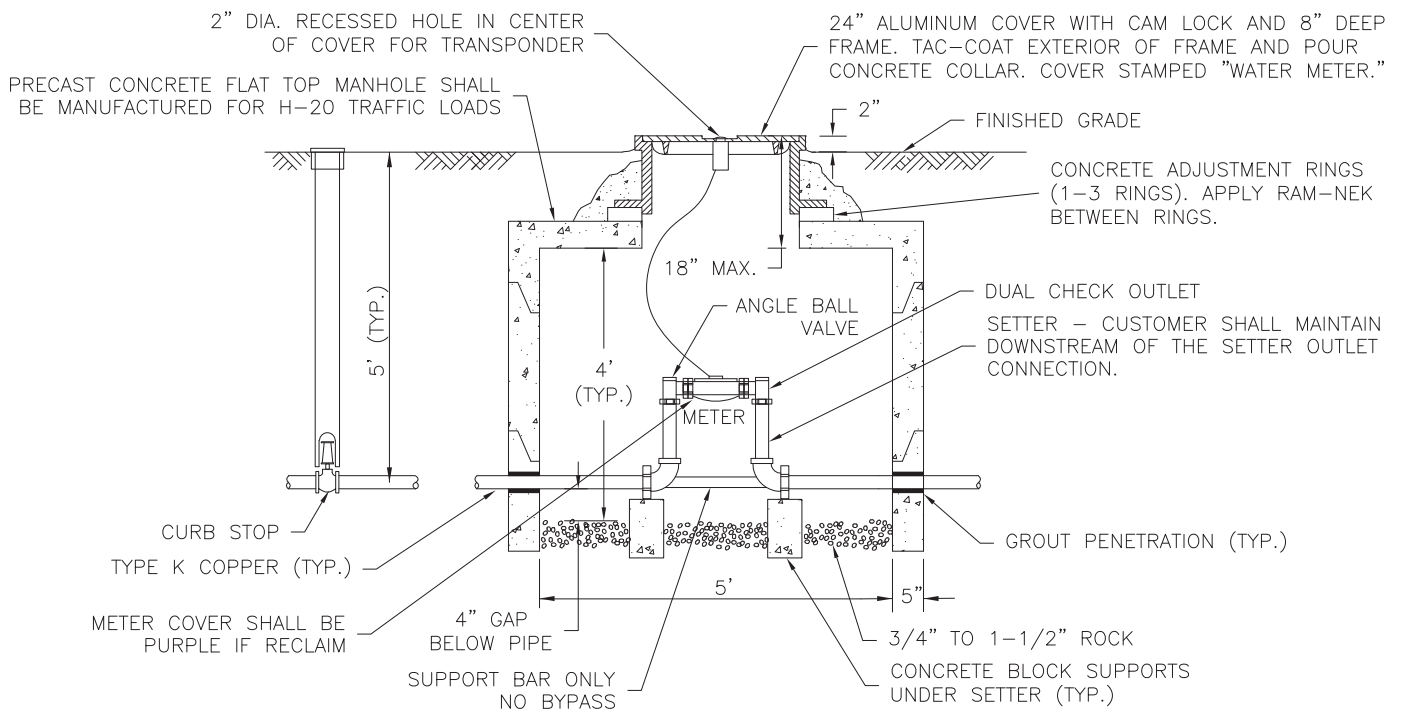
1-1/2" AND 2" DOMESTIC METER SETS
 (ALSO FOR SERVICE PIPES UPSIZED FROM
 1" TO 1-1/2" AND 1-1/2" TO 2")

DATE: MARCH 2022

SHEET W10A



PLAN VIEW



ELEVATION SECTION

NOTES:

1. FOR APPROVED MANUFACTURERS AND MODEL NUMBERS OF FITTINGS, REFER TO CHAPTER 3 OF THE CITY STANDARDS.
2. METER MANHOLE SHALL BE SURVEYED SO THAT THE COVER CAN BE PROPERLY LOCATED 2" ABOVE FINISHED GRADE PRIOR TO BACKFILLING.
3. ONLY COMPRESSION FITTINGS WILL BE ALLOWED ON COPPER SERVICE PIPES.
4. MANHOLE STEPS SHALL BE PLACED 12" ON CENTER AND 18" MAX. FROM THE TOP OF THE FRAME TO THE FIRST STEP.
5. METER MANHOLE AND CURB STOP SHALL BE LOCATED IN A SOD OR MULCH AREA WITH A 10' MIN. WIDTH UTILITY EASEMENT. NO TREES, SHRUBS OR STRUCTURES SHALL BE LOCATED IN THE EASEMENT.
6. THIS MANHOLE IS NOT INTENDED FOR INSTALLATION IN STREETS, DRIVEWAYS OR CONCRETE AREAS.
7. SERVICE LINES UP TO THE METER SHALL BE INSTALLED PERPENDICULAR TO THE WATER MAIN.
8. A BACKFLOW PREVENTION DEVICE INSTALLED DOWNSTREAM OF THE METER PIT SHALL BE USED IN CONJUNCTION WITH THIS METER PIT.

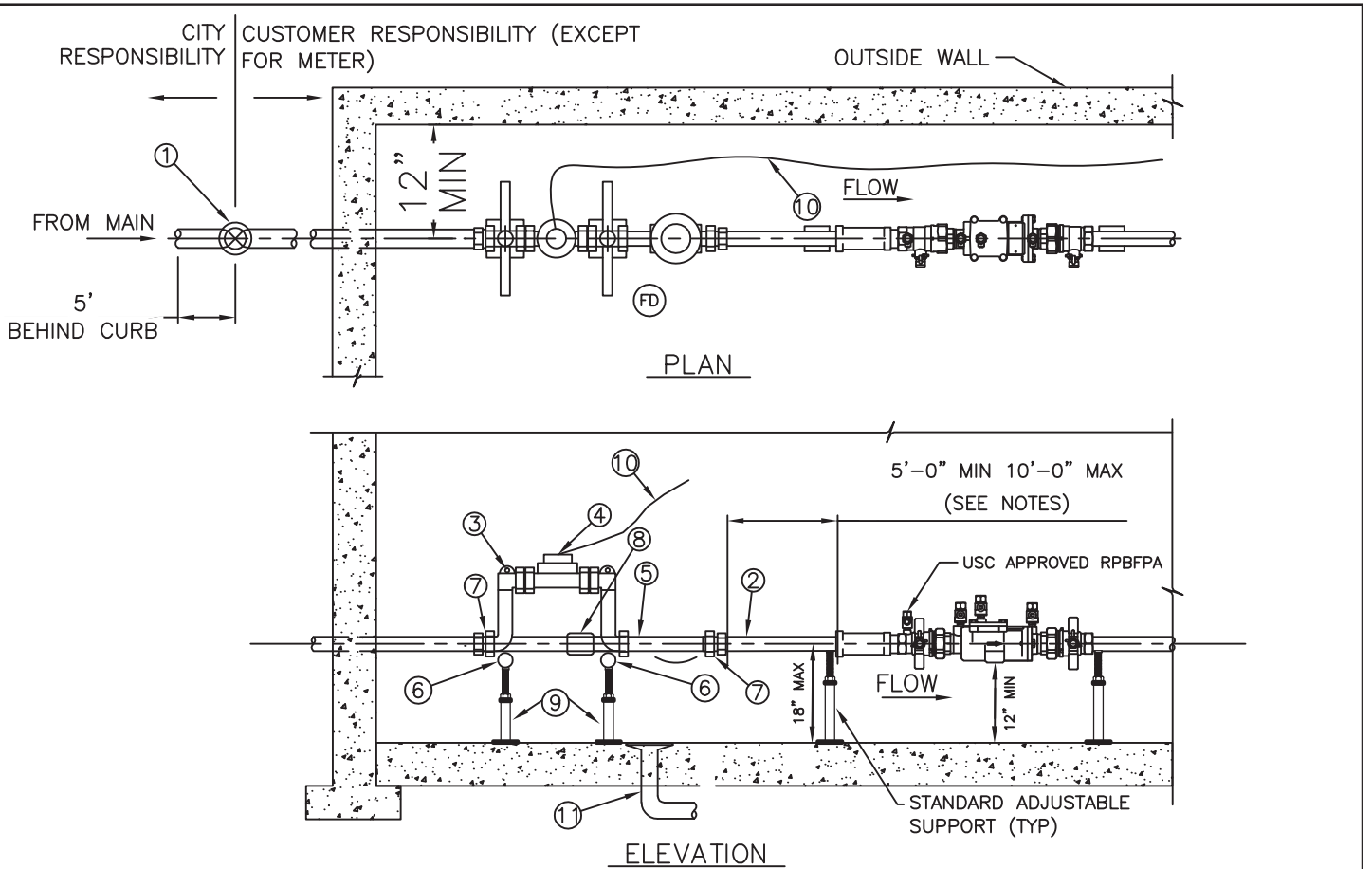


CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

1-1/2" AND 2" IRRIGATION METER SETS

DATE: MARCH 2022

SHEET W10B



NOTES:

1. THE CITY OF WESTMINSTER IS NOT RESPONSIBLE FOR DAMAGE CAUSED FROM, BUT NOT LIMITED TO, LEAKS ON ANY PART OF THE ASSEMBLY DOWNSTREAM OF THE VALVE AT THE CURB.
2. THE METER SHALL REMAIN THE PROPERTY OF THE CITY OF WESTMINSTER.
3. THE METER SHALL BE ACCESSIBLE TO CITY OF WESTMINSTER PERSONAL AT ALL TIMES.
4. BY-PASS LOCK-OUT KEY SHALL BE PROVIDED TO THE CITY OF WESTMINSTER PUBLIC WORKS & UTILITIES DEPARTMENT.
5. INSTALLATION MUST ALLOW FOR FULL ACCESS TO METER & VALVES, & PROVIDE PROTECTION FROM FREEZING.
6. A FLOOR DRAIN (FD) SHALL BE PLACED WITHIN 10' OF THE METER INSTALLATION IN THE SAME ROOM.
7. METER SUPPORT MAY BE EITHER CONCRETE OR STRUCTURAL CHANNEL ATTACHED TO WALL.
8. WALL PENETRATIONS SHALL BE GROUTED WITH CONCRETE.
9. NEW INSIDE METER INSTALLATIONS ARE ALLOWED ONLY BY WRITTEN PERMISSION OF THE CITY OF WESTMINSTER'S PUBLIC WORKS & UTILITIES DEPARTMENT. EXISTING INSTALLATIONS MUST MEET THESE REQUIREMENTS.
10. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY (BPPA) THAT MEETS AMERICAN WATER WORKS ASSOCIATION (AWWA) C511-07. REQUIRED FOR ALL NON-RESIDENTIAL DEVELOPMENT.
11. REFER TO MANUFACTURER REQUIREMENTS, CITY OF WESTMINSTER STANDARDS, AND ADOPTED BUILDING CODE FOR SPECIFIC INSTALLATION INSTRUCTIONS.
12. PROPERTY OWNER IS RESPONSIBLE FOR ALL PIPE AND FITTINGS DOWNSTREAM OF CURB STOP WITH THE EXCEPTION OF THE METER.

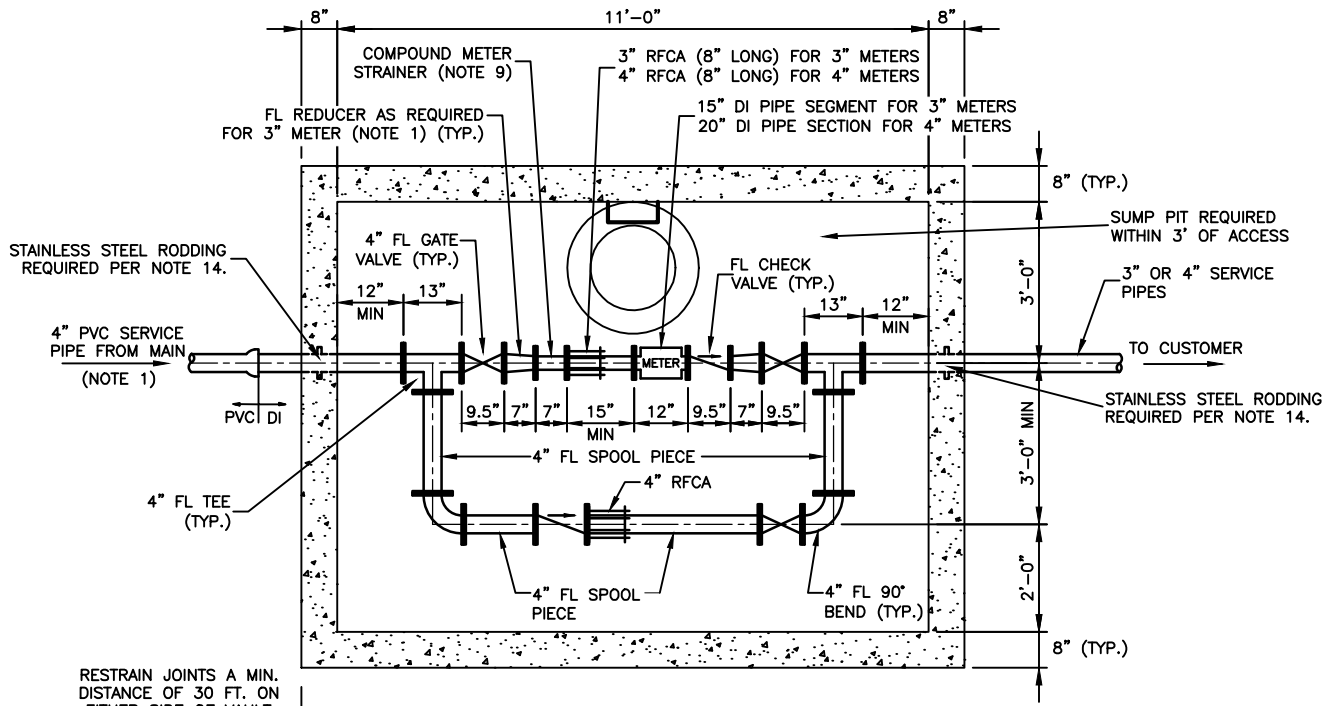
KEY NOTES:

- ① VALVE
- ② TYPE "K" COPPER TUBING
- ③ COPPERSETTER/METER YOKE
- ④ WATER METER WITH ENCODER REGISTER
- ⑤ NIPPLE BETWEEN COPPERSETTER AND CHECK VALVE (IF REQD)
- ⑥ 1"x 18" BSP-40
- ⑦ MALE IRON PIPE TO COMPRESSION COUPLING FROM INLET SIDE OF COPPERSETTER TO OUTLET SIDE
- ⑧ BY-PASS W/VALVE AND LOCK-OUT KEY WILL BE 1" FOR 1-1/2" COPPERSETTERS AND 1-1/2" OR 1-1/4" FOR 2" COPPERSETTERS.
- ⑨ STEEL SUPPORTS
- ⑩ SIGNAL WIRE TO AUTOMATIC METER READING (AMR) DEVICE
- ⑪ FLOOR DRAIN (FD)

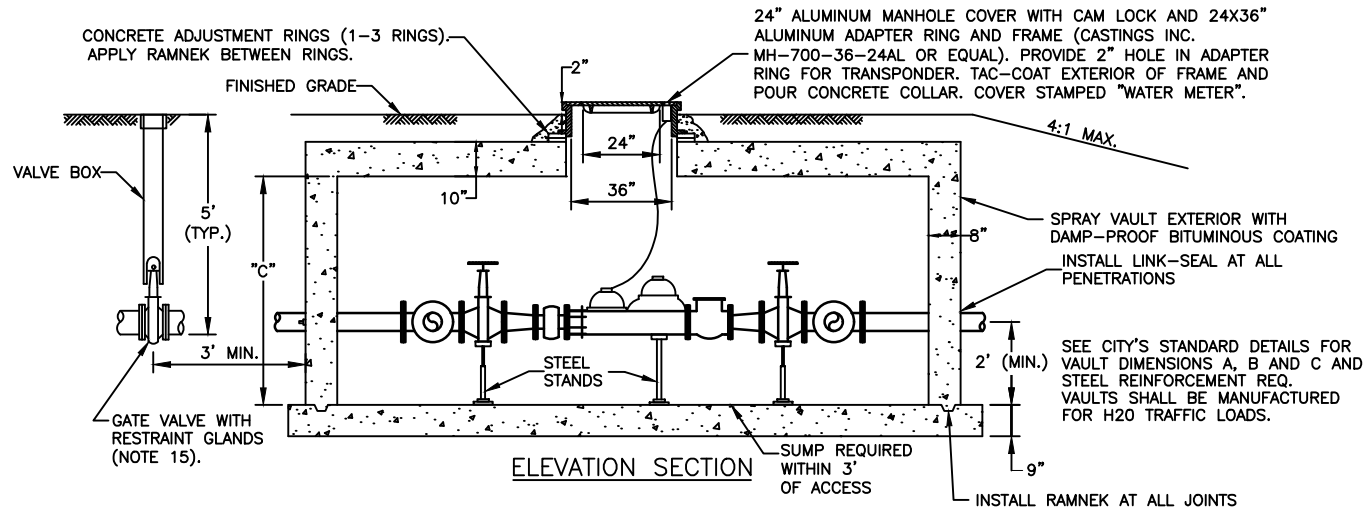


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

INSIDE SETTING FOR 1-1/2" & 2"
 METER & BYPASS
 (PWU APPROVAL ONLY)



PLAN VIEW



ELEVATION SECTION

- NOTES:
- FOR ALL 3" AND 4" METER SETTINGS, 4" PVC SERVICE PIPE SHALL BE REQUIRED FROM THE MAIN TO THE VAULT AS SHOWN ON THIS DETAIL. FOR 3" METER SETTINGS, A REDUCER SHALL BE REQUIRED BEFORE THE METER AND ALSO ON THE BYPASS AS SHOWN (SEE NOTE 2 FOR EXCEPTION).
 - UPSIZING OF THE SERVICE PIPE AFTER THE METER REQUIRES THE APPROVAL OF THE BUILDING DEPT. FOR A SERVICE PIPE UPSIZED FROM 3" TO 4", A REDUCER SHALL BE INSTALLED AFTER THE METER AS SHOWN (REDUCER IS NOT REQUIRED ON BYPASS IN THIS CASE).
 - IN GENERAL, PVC PIPE SHALL BE USED ON THE SERVICE LINE OUTSIDE THE VAULT, EXCEPT WHERE THE DI PIPE STUBS THROUGH THE VAULT WALLS, AND DI PIPE SHALL BE USED INSIDE THE VAULT. FITTINGS INSIDE THE VAULT SHALL BE FLANGED, UNLESS OTHERWISE NOTED. FITTINGS OUTSIDE THE VAULT SHALL BE MECHANICAL JOINT.
 - FOR APPROVED MANUFACTURERS AND MODEL NUMBERS OF FITTINGS, REFER TO CHAPTER 3 OF THESE STANDARDS AND SPECIFICATIONS.
 - METER VAULT SHALL BE SURVEYED SO THAT THE COVER CAN BE PROPERLY LOCATED 2" ABOVE FINISHED GRADE PRIOR TO BACKFILLING.
 - A BYPASS IS REQUIRED TO BE INSTALLED ON ALL POTABLE WATER SETTINGS.
 - MANHOLE STEPS SHALL BE PLACED 12" ON CENTER AND 18" MAX. FROM FINISHED GRADE TO THE FIRST STEP.
 - SERVICE PIPES LARGER THAN 4" WILL REQUIRE SHOP DRAWING SUBMITTAL AND APPROVAL BY PWU.
 - COMPOUND METERS SHALL HAVE STRAINERS UPSTREAM OF THE 15" PIPE SEGMENT. TURBO METERS SHALL HAVE INTEGRAL STRAINERS.
 - STEEL PIPE STANDS SHALL BE REQUIRED: 3 FOR MAIN LINE AND 2 FOR BYPASS LINE (MINIMUM).
 - METER VAULT SHALL BE LOCATED IN A SOD OR MULCH AREA. SEE CITY STANDARD 3.19.00 FOR EASEMENT REQUIREMENTS. VALVE SHALL BE LOCATED IN SOD OR MULCH UNLESS APPROVED IN WRITING BY PWU.
 - THIS VAULT IS NOT INTENDED FOR INSTALLATION IN STREETS, DRIVEWAYS OR CONCRETE AREAS.
 - SERVICE LINES SHALL BE INSTALLED PERPENDICULAR TO THE WATER MAIN.
 - NOTE: VAULT RODDING, NUTS AND WALL PLATES MUST BE STAINLESS STEEL.
 - ALL SERVICE PIPE AND FITTINGS OUTSIDE OF THE VAULT SHALL BE RESTRAINED FOR A MIN. DISTANCE OF 30' ON EITHER SIDE OF VAULT.
 - STAINLESS STEEL NUTS & BOLTS ON ALL FITTINGS WITH ANTI-SEIZE.

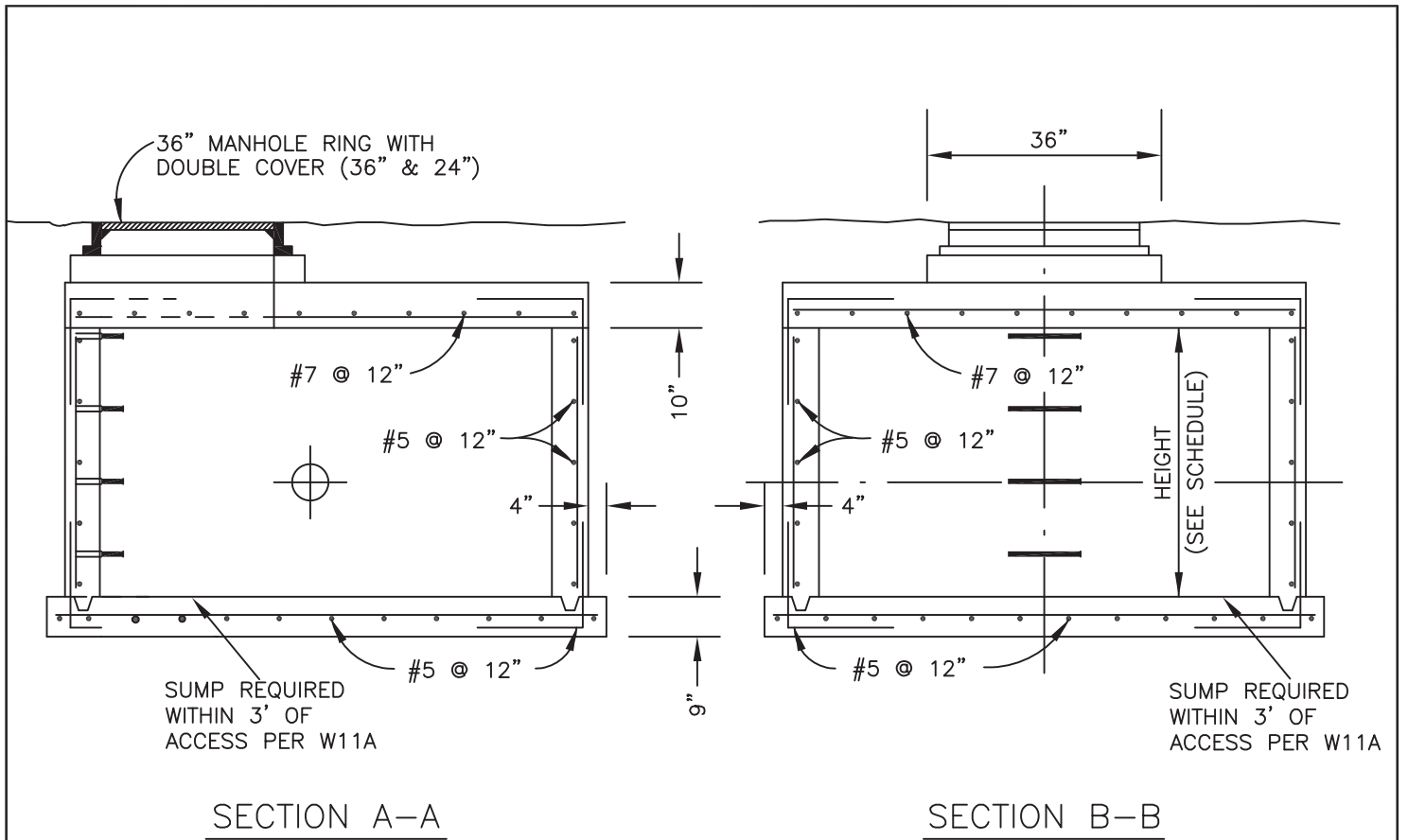


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

3" AND 4" DOMESTIC METER SETS

DATE: MARCH 2022

SHEET W11A



METER VAULT-INSIDE DIMENSION SCHEDULE

METER SIZE	LENGTH	WIDTH	HEIGHT	WALL THICKNESS
3"	11'-0"	8'-0"	7'-0"	8"
4"	11'-0"	8'-0"	7'-0"	8"

NOTE: PRE-CAST VAULTS WILL BE ALLOWED AND SHALL BE DESIGNED TO MEET HS-20 LOADING. SHOP DRAWINGS AND CERTIFICATES OF COMPLIANCE SHALL BE SUBMITTED FOR REVIEW AND WRITTEN APPROVAL BY THE CITY ENGINEER PRIOR TO INSTALLATION.

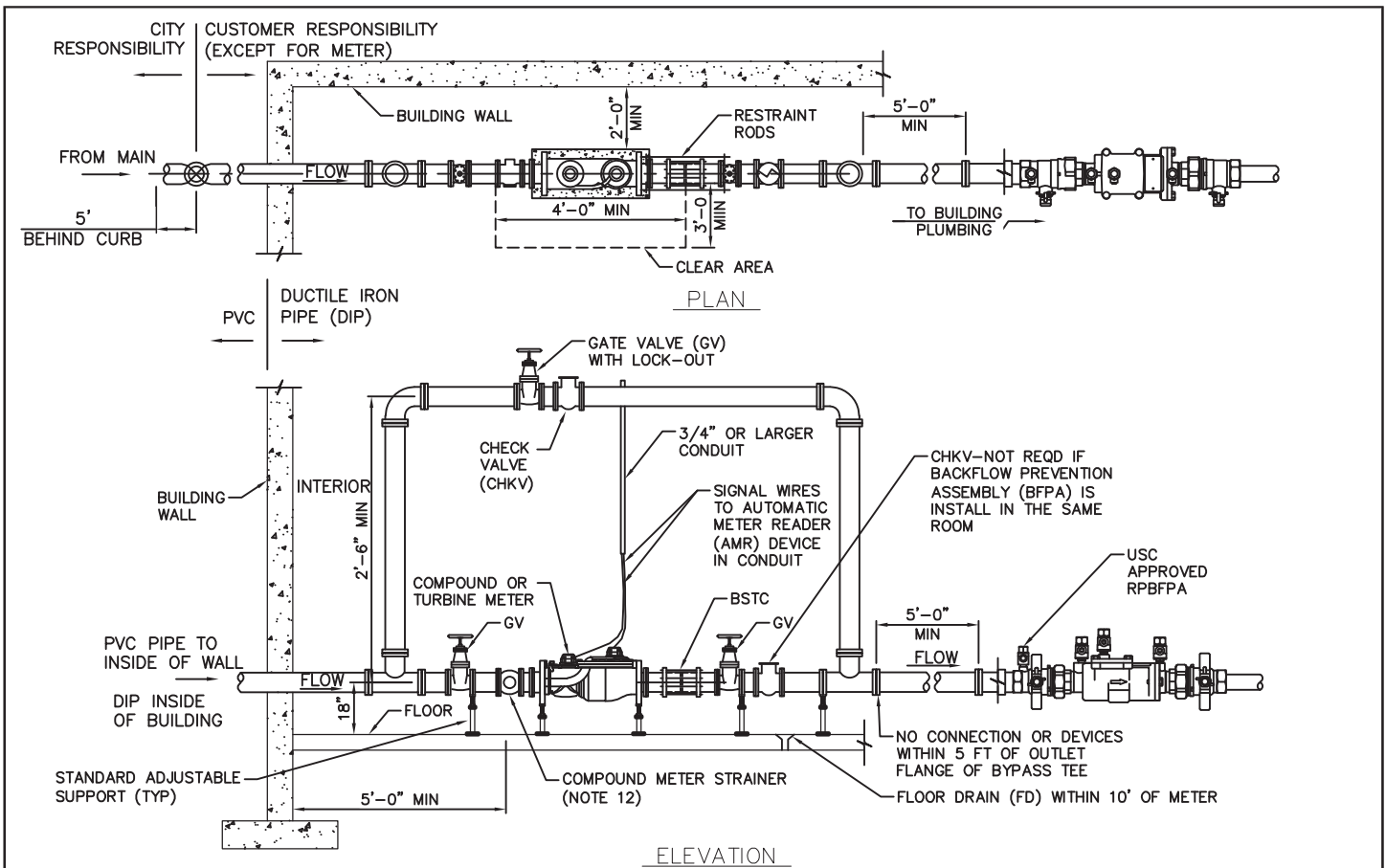


CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

TYPICAL METER VAULT

DATE: MARCH 2022

SHEET W11B



NOTES:

1. THE CITY OF WESTMINSTER IS NOT RESPONSIBLE FOR DAMAGE CAUSED FROM, BUT NOT LIMITED TO, LEAKS ON ANY PART OF THE ASSEMBLY DOWNSTREAM OF THE VALVE AT THE CURB.
2. THE METER SHALL REMAIN THE PROPERTY OF THE CITY OF WESTMINSTER.
3. THE METER SHALL BE ACCESSIBLE TO CITY OF WESTMINSTER PERSONAL AT ALL TIMES.
4. BY-PASS LOCK-OUT KEY SHALL BE PROVIDED TO THE CITY OF WESTMINSTER PUBLIC WORKS & UTILITIES DEPARTMENT.
5. INSTALLATION MUST ALLOW FOR FULL ACCESS TO METER & VALVES, & PROVIDE PROTECTION FROM FREEZING.
6. A FLOOR DRAIN (FD) SHALL BE PLACED WITHIN 10' OF THE METER INSTALLATION IN THE SAME ROOM.
7. METER SUPPORT MAY BE EITHER CONCRETE OR STRUCTURAL CHANNEL ATTACHED TO WALL.
8. WALL PENETRATIONS SHALL BE GROUTED WITH CONCRETE.
9. NEW INSIDE METER INSTALLATIONS ARE ALLOWED ONLY BY WRITTEN PERMISSION OF THE CITY OF WESTMINSTER'S PUBLIC WORKS & UTILITIES DEPARTMENT. EXISTING INSTALLATIONS MUST MEET THESE REQUIREMENTS.
10. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY THAT MEETS AWWA C511-07. REQUIRED FOR ALL NON-RESIDENTIAL DEVELOPMENT.
11. REFER TO MANUFACTURER REQUIREMENTS, CITY OF WESTMINSTER STANDARDS, AND ADOPTED BUILDING CODE FOR SPECIFIC INSTALLATION INSTRUCTIONS.
12. PROPERTY OWNER IS RESPONSIBLE FOR ALL PIPE AND FITTINGS DOWNSTREAM OF GATE VALVE (GV) AT PROPERTY LINE WITH THE EXCEPTION OF THE METER.
13. COMPOUND METERS SHALL HAVE STRAINERS UPSTREAM OF THE 15" PIPE SEGMENT. TURBO METERS SHALL HAVE INTEGRAL STRAINERS.
14. FOR 3" METER, PVC PIPE WILL BE 4" WITH REDUCER DOWNSTREAM OF BYPASS TEE.
15. INTERIOR JOINTS SHALL BE FLANGED. INTERIOR PIPE WILL BE DUCTILE IRON.
16. FOR METERS LARGER THAN 4", PROPERTY OWNER WILL SUBMIT DETAIL DRAWINGS.

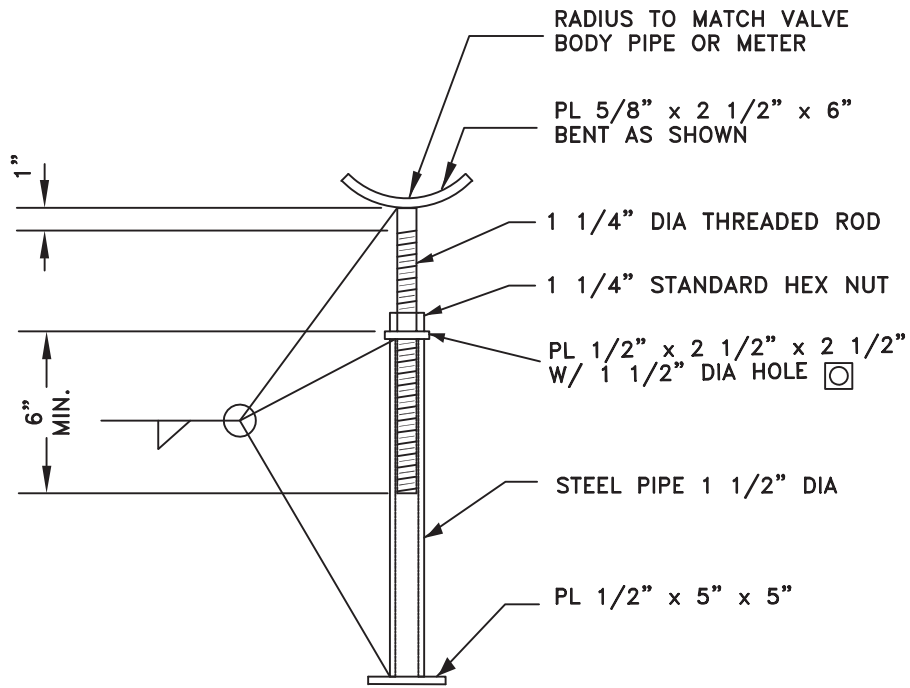


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

INSIDE SETTING FOR 3"
 & LARGER METER
 (PWU APPROVAL ONLY)

DATE: MARCH 2022

SHEET W11C



TYPICAL VALVE SUPPORT

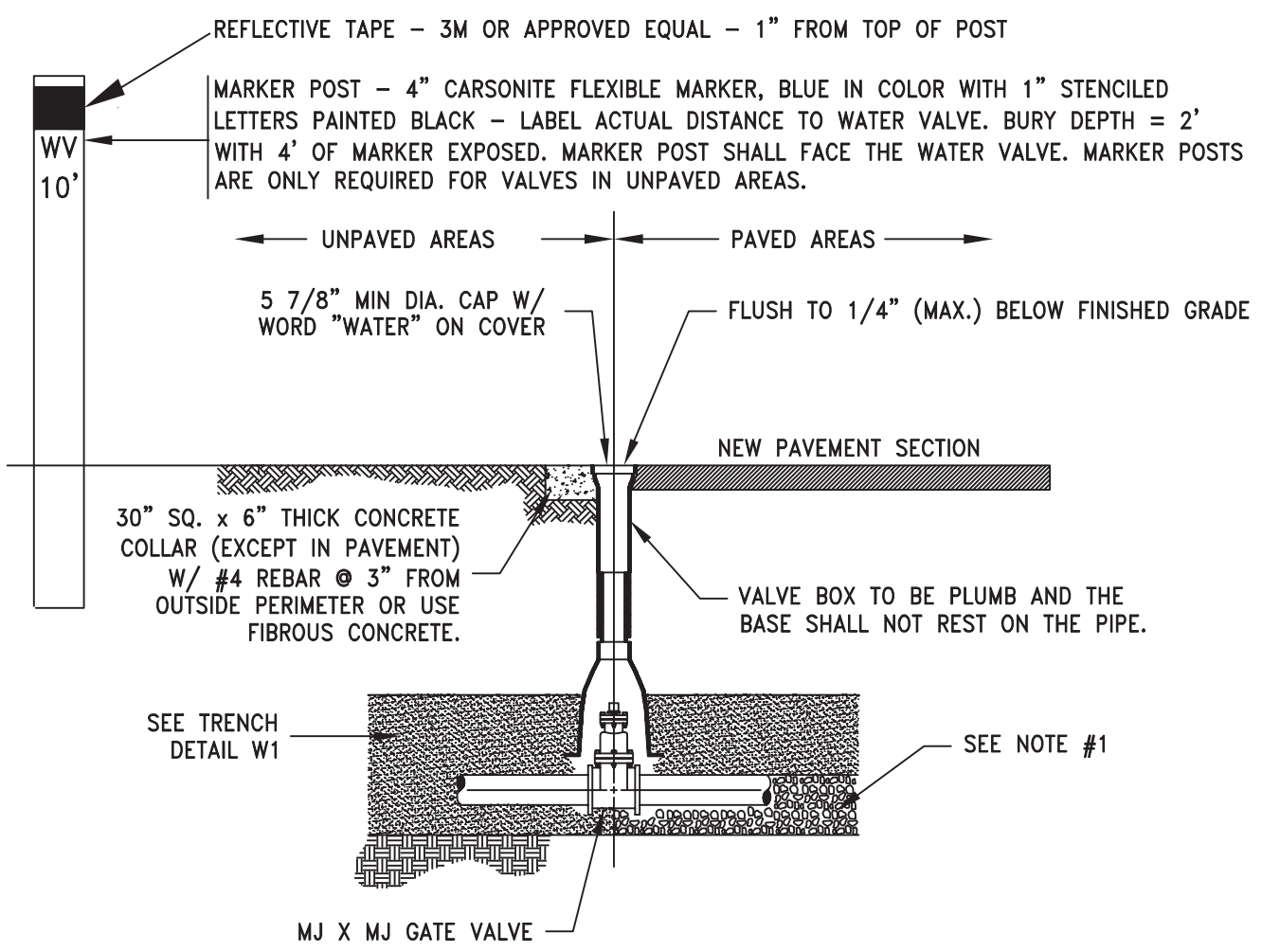


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

VALVE SUPPORT

DATE: MARCH 2022

SHEET W12



NOTES:

1. CARE SHALL BE TAKEN WHEN INSTALLING VALVES TO ASSURE PROPER SUPPORT OF THE VALVE. THE CITY ENGINEER MAY REQUIRE 3/4" CRUSHED ROCK TO BE INSTALLED UNDER THE VALVE TO PROVIDE PROPER SUPPORT.
2. VALVES SHALL NOT BE PLACED IN CONCRETE SIDEWALKS, CROSS PANS, GUTTERS, OR OTHER DRAINAGE WAYS.
3. OPERATING NUTS OR EXTENSIONS SHALL NOT BE SET CLOSER THAN TWO (2) FEET FROM FINAL GRADE. IF THE OPERATING NUT IS DEEPER THAN FIVE (5) FEET FROM FINAL GRADE, PROVIDE A 1 1/4" EXTENSION SHAFT W/ CENTERING RING. OPERATOR EXTENSIONS SHALL BE CONNECTED TO THE VALVE OPERATOR NUT USING A PIN. THE EXTENSION SHAFT SHALL INCLUDE A 1/4" THICK TRASH RING LOCATED 6" BELOW THE NON-RISING PORTION OF THE VALVE BOX. THE DIAMETER OF THE TRASH RING SHALL BE 1/8" LESS THAN THE INSIDE DIAMETER OF THE VALVE BOX.
4. GATE VALVE SHALL BE POLYETHYLENE WRAPPED (8 MIL) PER CITY STANDARD 3.61.02.
5. CONCRETE COLLARS & MARKER POSTS ARE REQUIRED WHEN VALVE IS LOCATED IN AN UNPAVED AREA.
6. VALVE BOXES ARE TO BE BROUGHT UP TO GRADE AT THE TIME OF PAVEMENT PLACEMENT OR OVERLAY. VALVE BOX ADJUSTING RINGS ARE NOT ALLOWED.

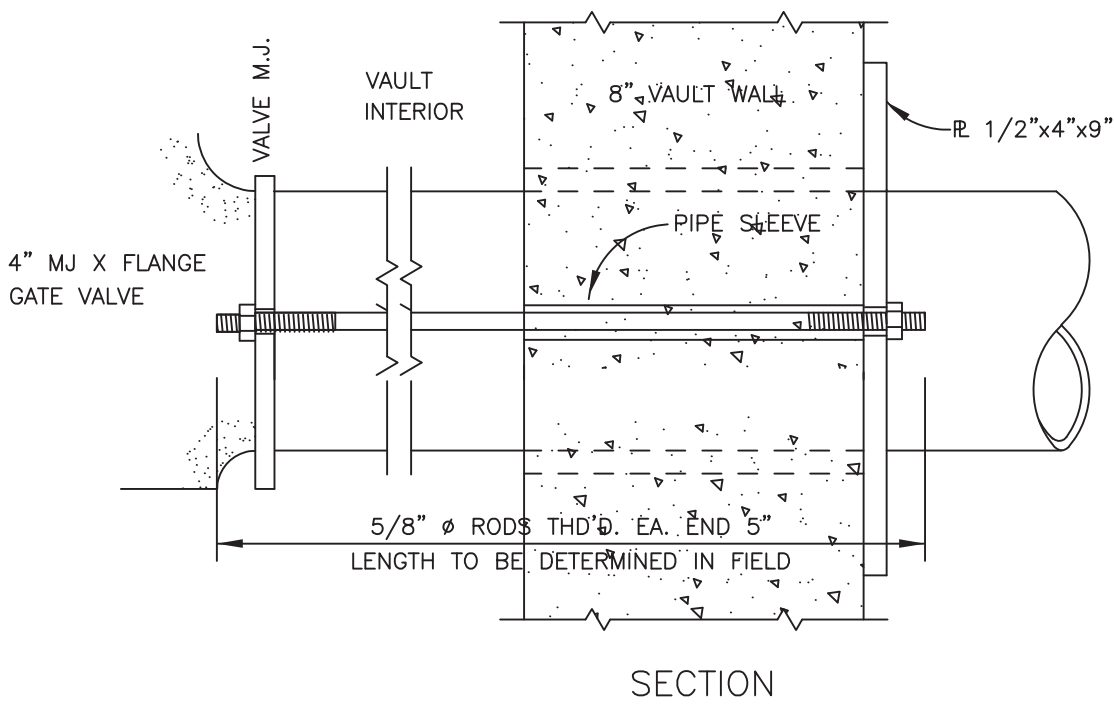
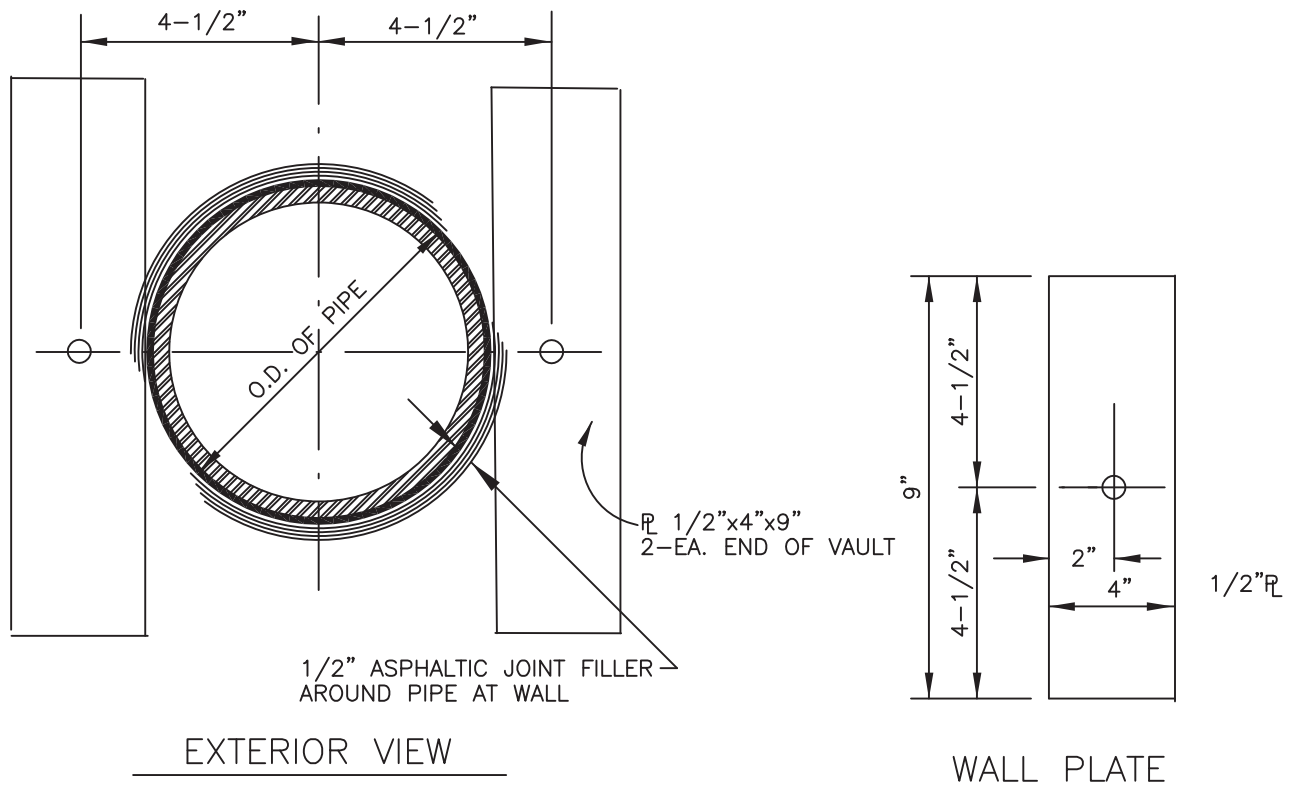


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

VALVE BOX

DATE: MARCH 2022

SHEET W13

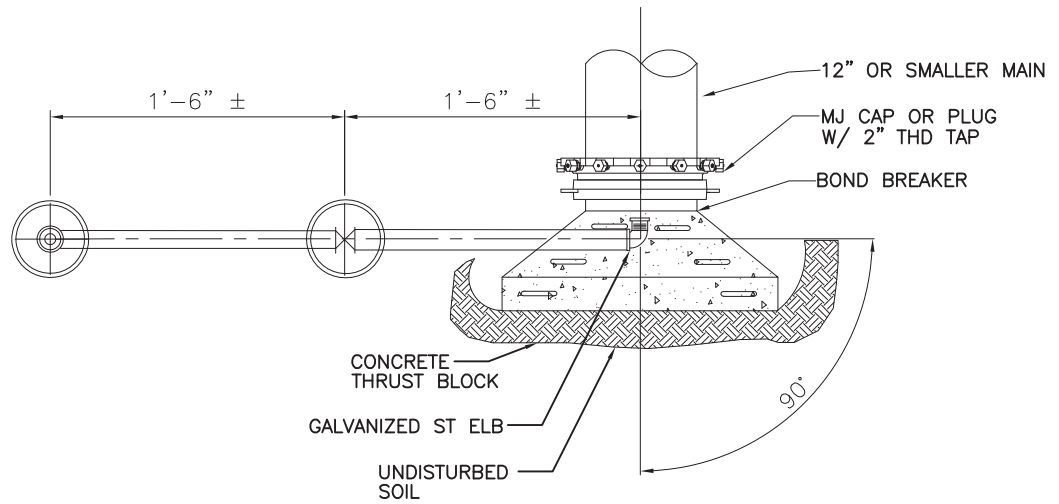


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

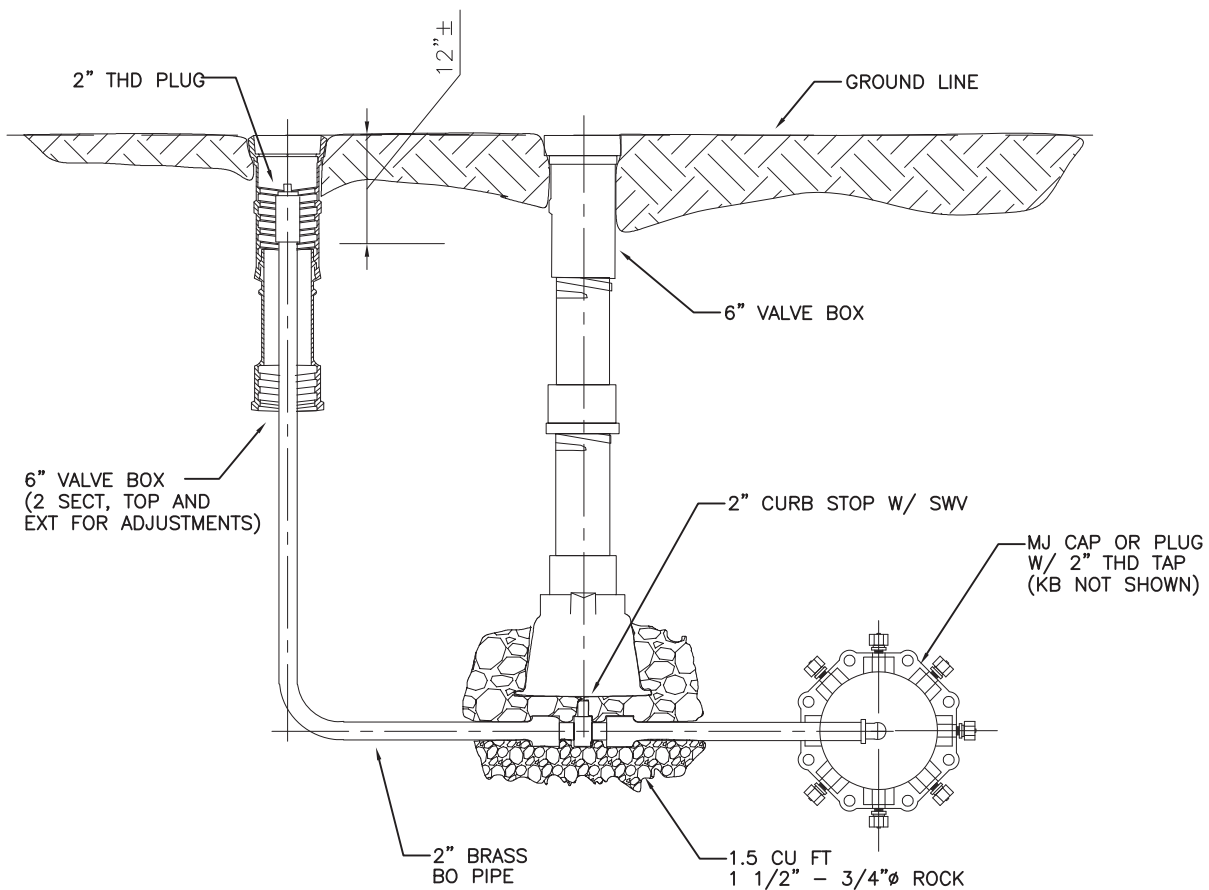
WALL CLAMP

DATE: MARCH 2022

SHEET W14



PLAN



ELEVATION

NOTES:

1. CAP OR PLUG SHALL BE MECHANICALLY RESTRAINED (SHOWN AS A SPIGOT WITH A CAP)
2. REQUIRED AT ALL FUTURE STUB-OUT INSTALLATIONS.

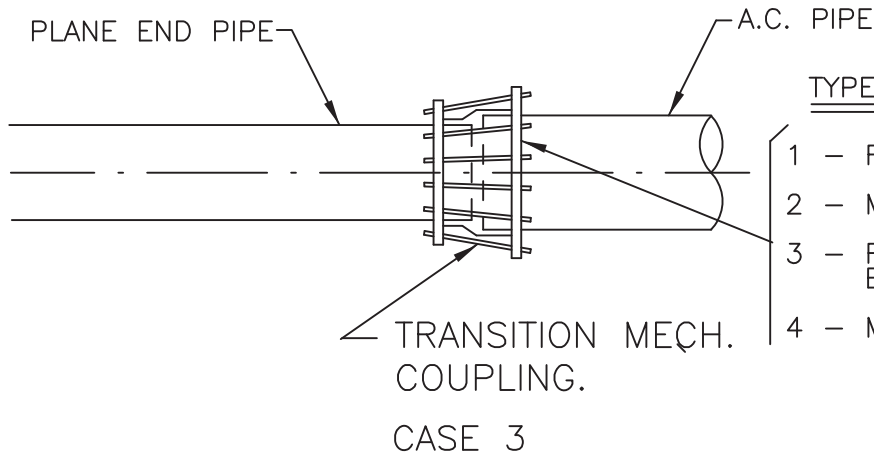
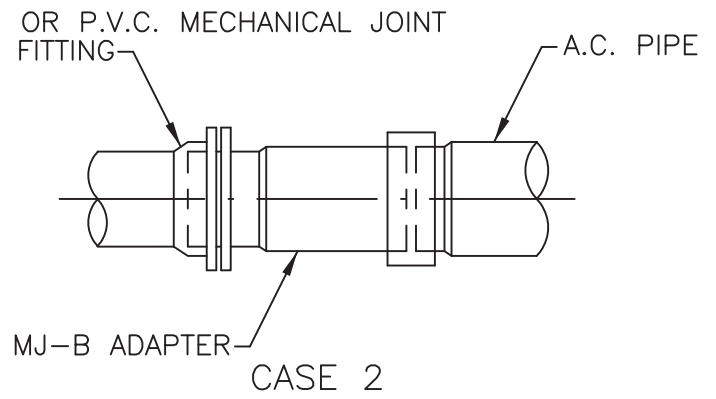
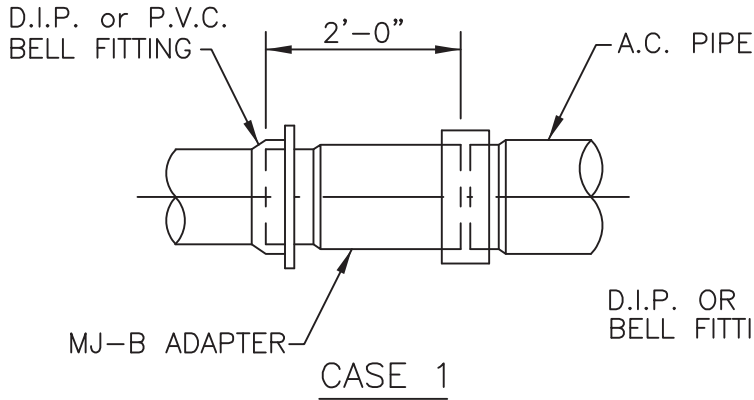


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

STANDARD BLOWOFF ASSEMBLY
12" AND SMALLER WATERLINES

DATE: MARCH 2022

SHEET W15



TYPES OF COUPLINGS

- 1 - ROUGH BARREL TO D.I.
- 2 - MOA TO D.I.
- 3 - ROUGH BARREL TO ROUGH BARREL.
- 4 - MEE TO ROUGH BARREL.

MOA = MACHINED OVER ALL.
 MEE = MACHINED EACH END.
 MJ = MECHANICAL JOINT.
 MJ-B = MECHANICAL JOINT-BELL ADAPTER.

NOTE:
 THE CONTRACTOR SHALL
 POTHOLE THE HOST PIPE AND
 MEASURE THE OUTSIDE
 DIAMETER PRIOR TO ORDERING
 PARTS OR CUTTING THE PIPE.

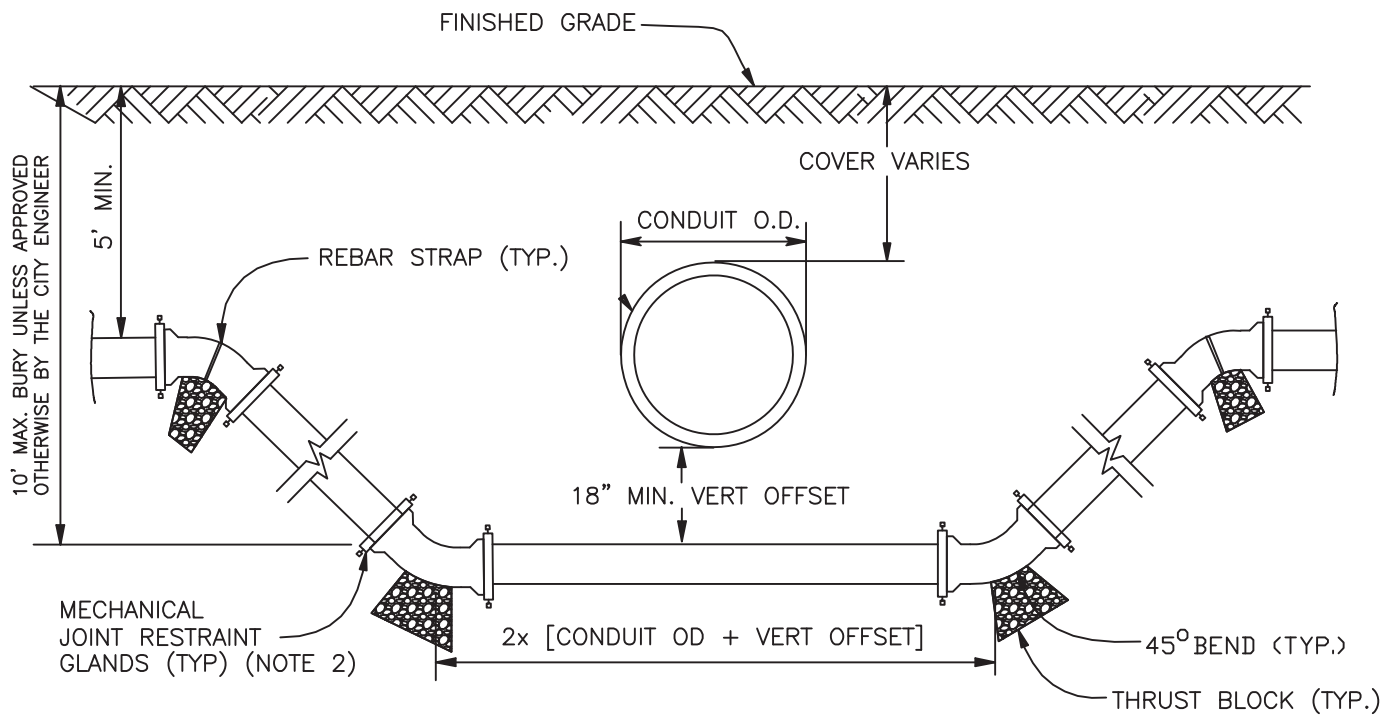


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

A.C. PIPE ADAPTER DETAILS

DATE: MARCH 2022

SHEET W16



NOTES:

1. REFER TO SECTION 3.18.00 OF THESE STANDARDS AND SPECIFICATIONS FOR CONDUIT CROSSING REQUIREMENTS.
2. MECHANICAL JOINT RESTRAINTS SHALL BE PROVIDED AT ALL JOINTS IN THE LOWERING AND FOR THE SPECIFIED DISTANCE BACK FROM THE LOWERING AS DESIGNED BY THE ENGINEER OF RECORD AND IN ACCORDANCE WITH CHAPTER 3 OF THESE STANDARDS AND SPECIFICATIONS. THRUST BLOCKS SHALL ALSO BE INSTALLED AT ALL FITTINGS IN ACCORDANCE WITH THE CITY'S STANDARD DETAILS AND DRAWINGS.
3. WATER MAINS CROSSING CULVERTS THAT ARE EXPOSED TO THE ELEMENTS SHOULD BE EVALUATED FOR FREEZE POTENTIAL.
4. A BORED CROSSING MAY BE REQUIRED BELOW EXISTING CONDUITS.
5. CATHODIC PROTECTION MAY BE REQUIRED FOR DUCTILE IRON AND STEEL WATER MAINS AS SPECIFIED BY THE ENGINEER.
6. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE IN ACCORDANCE WITH THE CITY'S STANDARD DETAILS AND DRAWINGS.

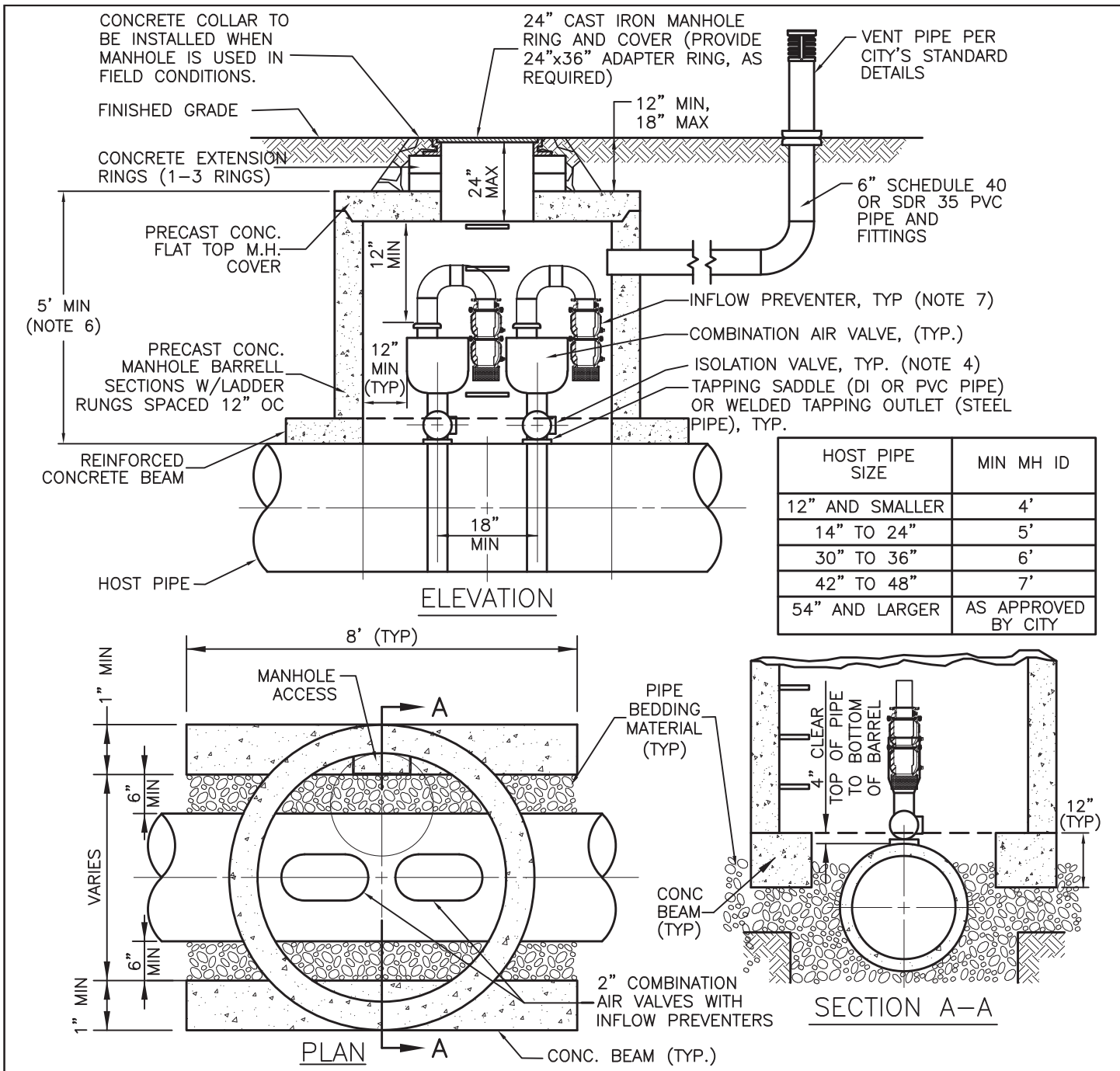


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

CONDUIT CROSSING

DATE: MARCH 2022

SHEET W17



NOTES:

- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF VAULT LAYOUT AND FITTINGS FOR APPROVAL BY THE CITY REPRESENTATIVE.
- AIR VALVES SHALL BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- FOR APPROVED MANUFACTURER'S AND MODEL NUMBERS OF FITTINGS, REFER TO CITY STANDARD 3.65.00.
- ISOLATION VALVES SHALL BE FULL PORT BRONZE BALL STYLE WITH HAND LEVER. TWO INCH VALVES SHALL BE CORPORATION TYPE AND THREE INCH AND LARGER VALVES SHALL INCORPORATE FLANGE FITTINGS TO MATE WITH FLANGED AIR VALVES.
- ALL COMPONENTS OF MANHOLE STRUCTURE SHALL MEET AASHTO H20 LOAD RATING.
- CHECK HEIGHT OF AIR VALVE AND ASSOC. PLUMBING AND ENSURE PROPER CLEARANCES FROM VAULT PRIOR TO ESTABLISHING HOST PIPE DEPTH.
- VAL-MATIC FLOODSAFE SERIES 1300 INFLOW PREVENTOR OR OTHER PWU APPROVED DEVICE.



CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

COMBINATION AIR VALVE INSTALLATION

DATE: MARCH 2022

SHEET W18

RESERVED FOR CITY USE

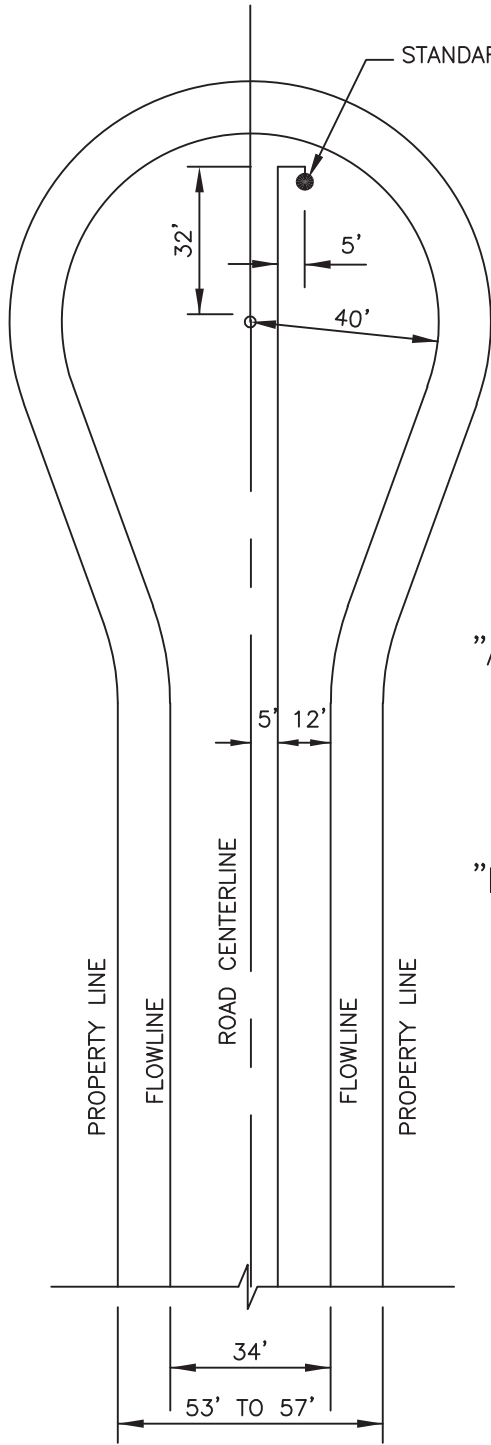


CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

BUTTERFLY VALVE INSTALLATION
IN WATERLINES LARGER
THAN 16"

DATE: MARCH 2022

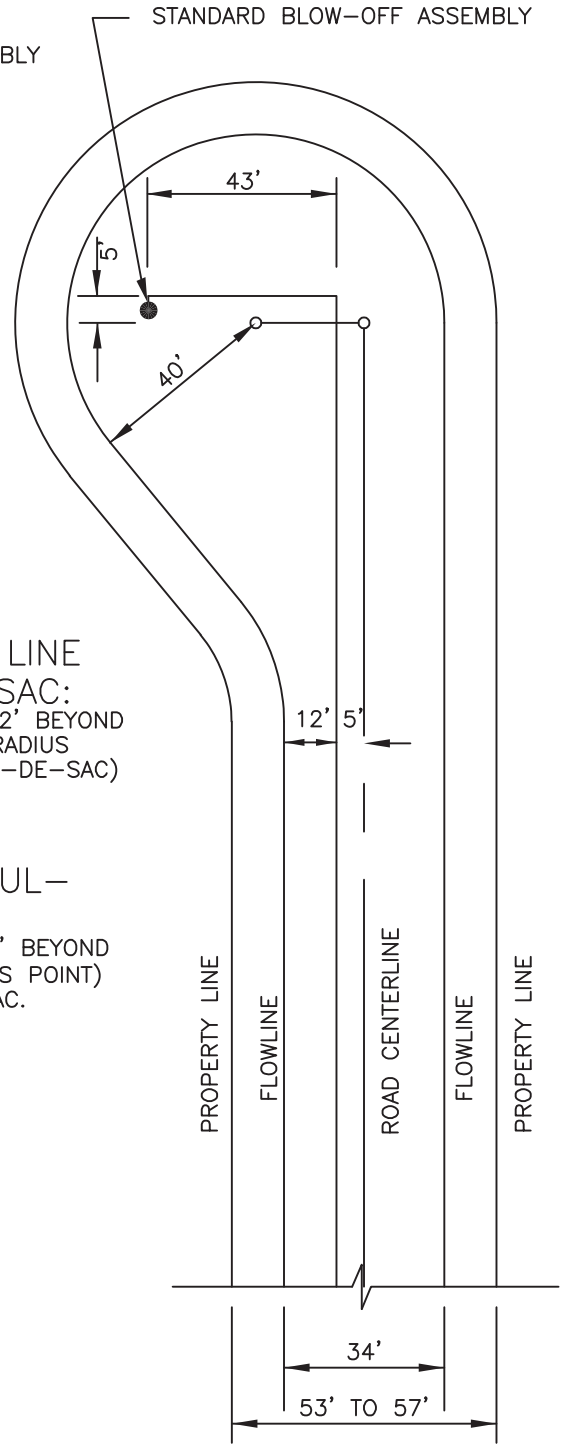
SHEET W19



"A"

"A" - STRAIGHT LINE
 CUL-DE-SAC:
 LAY PIPE TO 32' BEYOND
 THE CENTER (RADIUS
 POINT) OF CUL-DE-SAC

"B" - OFFSET CUL-
 DE-SAC:
 LAY PIPE TO 5' BEYOND
 CENTER (RADIUS
 POINT) OF CUL-DE-SAC.



"B"



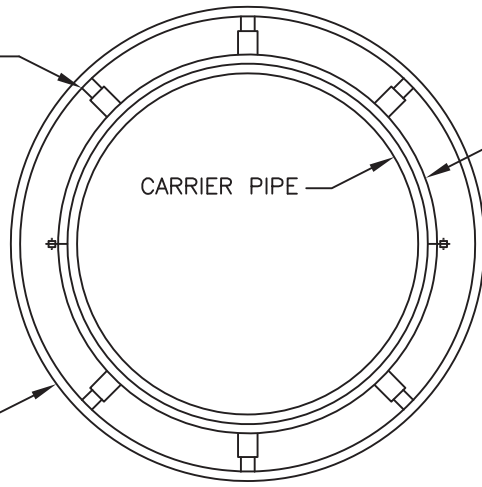
CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

WATER DISTRIBUTION SYSTEM
 TYPICAL PLAN FOR CUL-DE SACS

DATE: MARCH 2022

SHEET W20

THE NUMBER OF RUNNERS ON EACH SPACER DEPENDS ON THE PIPE DIAMETER. THE GAP ON THE TOP SPACERS SHALL NOT EXCEED 3/4"

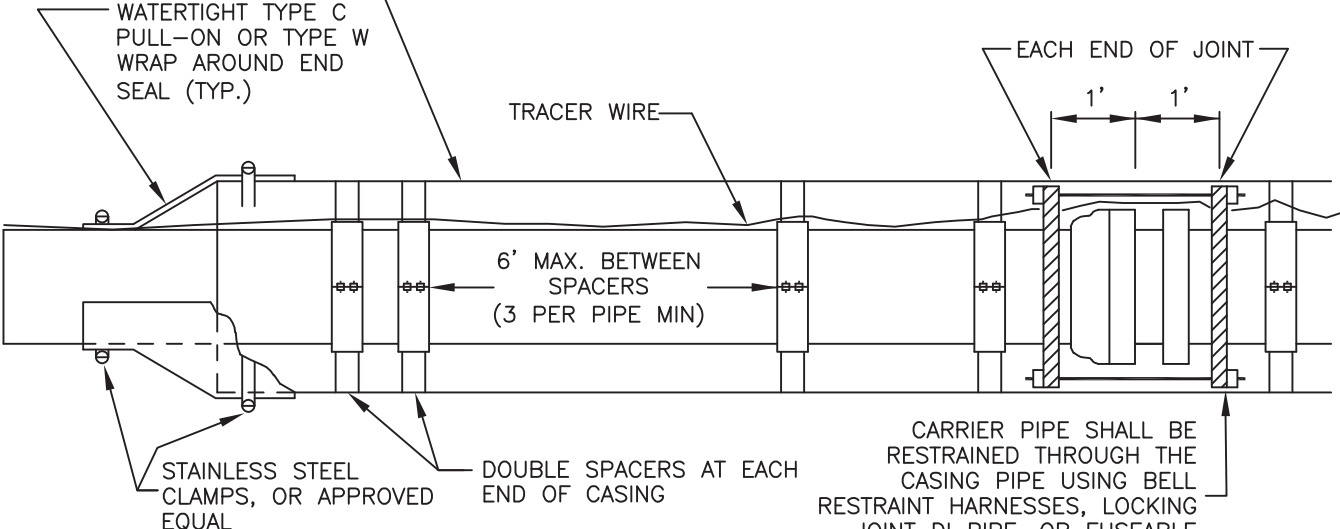


NEOPRENE, EPDM RUBBER OR PVC SPACERS SHALL BE ELECTRICALLY ISOLATED FROM THE CASING PIPE

STEEL CASING PIPE (SEE TABLE FOR WALL THICKNESS)

SECTION VIEW

WATERTIGHT TYPE C PULL-ON OR TYPE W WRAP AROUND END SEAL (TYP.)



TRACER WIRE

6' MAX. BETWEEN SPACERS (3 PER PIPE MIN)

EACH END OF JOINT 1' 1'

STAINLESS STEEL CLAMPS, OR APPROVED EQUAL

DOUBLE SPACERS AT EACH END OF CASING

CARRIER PIPE SHALL BE RESTRAINED THROUGH THE CASING PIPE USING BELL RESTRAINT HARNESSSES, LOCKING JOINT DI PIPE, OR FUSEABLE PVC PIPE, AS APPROVED

SIDE VIEW

CARRIER PIPE NOMINAL ϕ	CASING PIPE	
	MIN OD	MIN WALL THICKNESS
4"	12"	0.188"
6"	16"	0.25"
8"	18"	0.282"
12"	22"	0.344"
16"	28"	0.406"
20"	32"	0.469"

NOTE: THE ANNULAR SPACE BETWEEN THE CASING AND CARRIER PIPES SHALL NOT BE FILLED WITH ANY MATERIAL.



CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

BORING DETAIL

DATE: MARCH 2022

SHEET W21

RESERVED FOR CITY USE

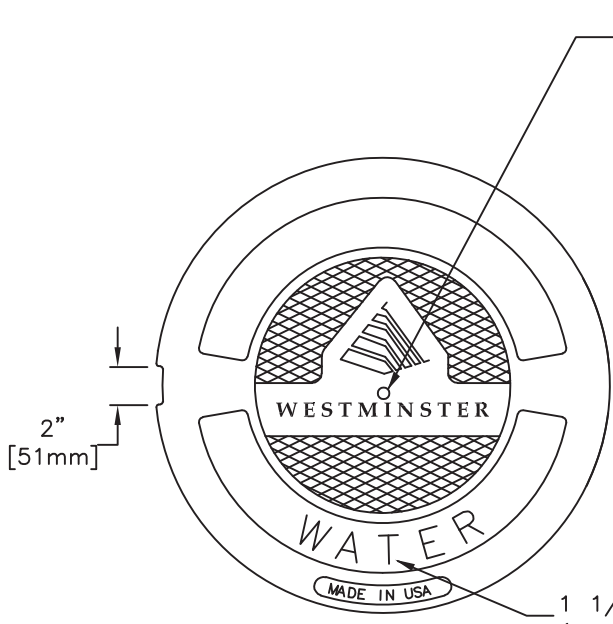


CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

TRANSMISSION MAIN
BLOW-OFF INSTALLATION

DATE: MARCH 2022

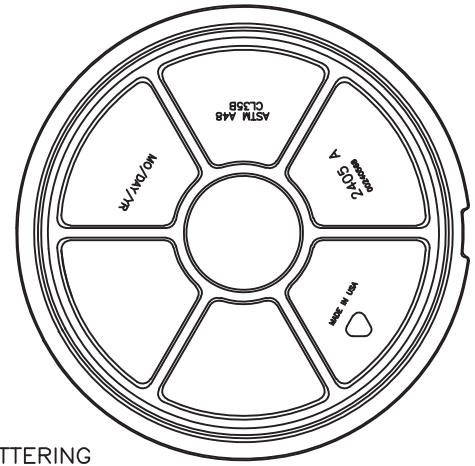
SHEET W22



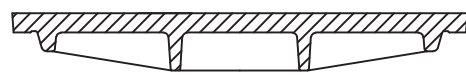
COVER TOP

2" DIAMETER
RECESSED HOLE IN
CENTER FOR
TRANSPONDER WHEN
USED WITH METER
VAULT.

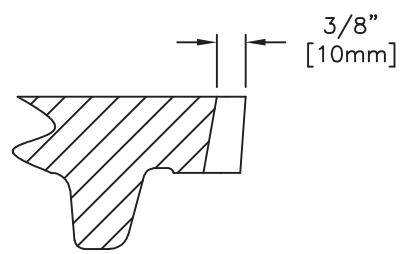
1 1/2" (38mm) LETTERING
(RECESSED FLUSH)



COVER BOTTOM



SECTION



PICKSLOT DETAIL

NOTE: DIMENSIONS PER CITY STANDARD 3.57.02

NOTE: SEE CITY STANDARD 3.57.02

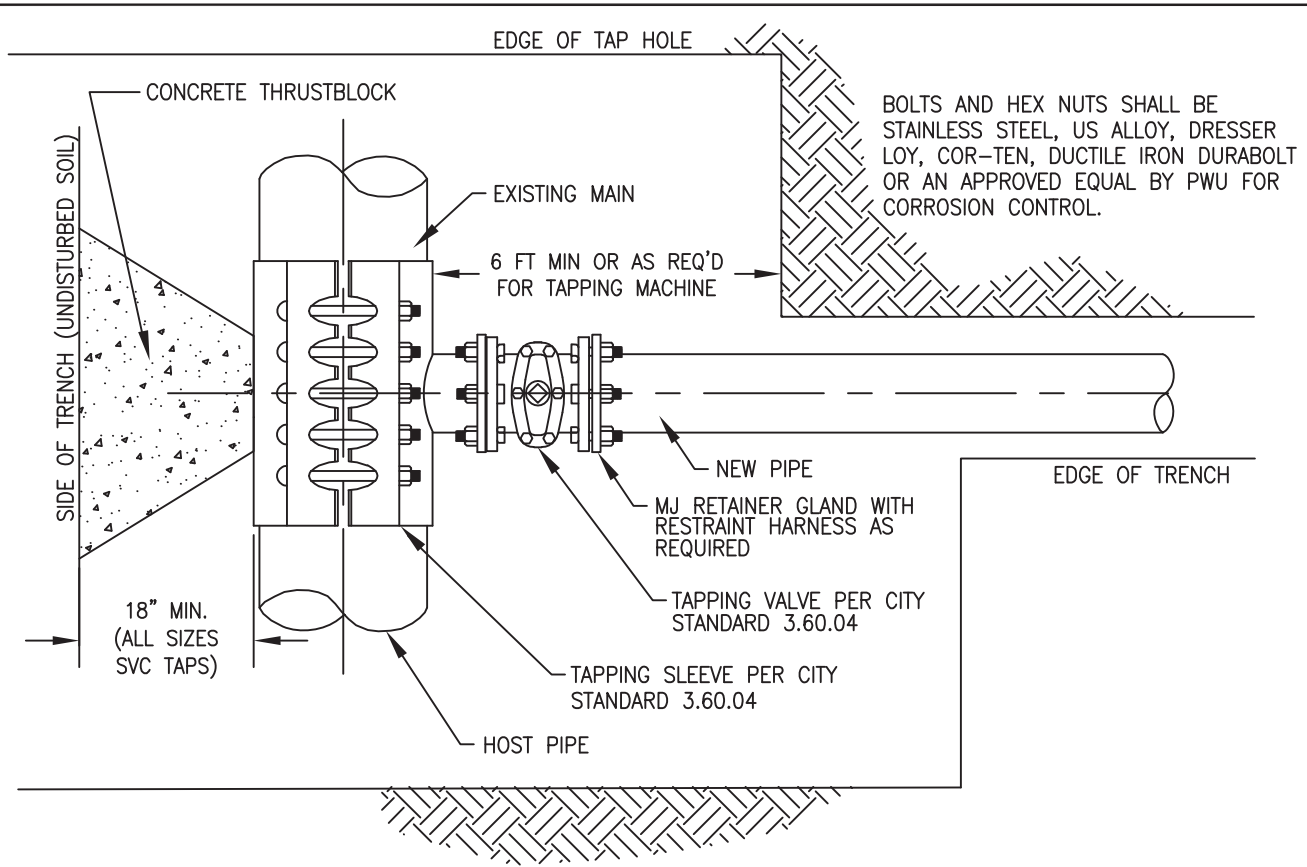


CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

WATER VAULT LID

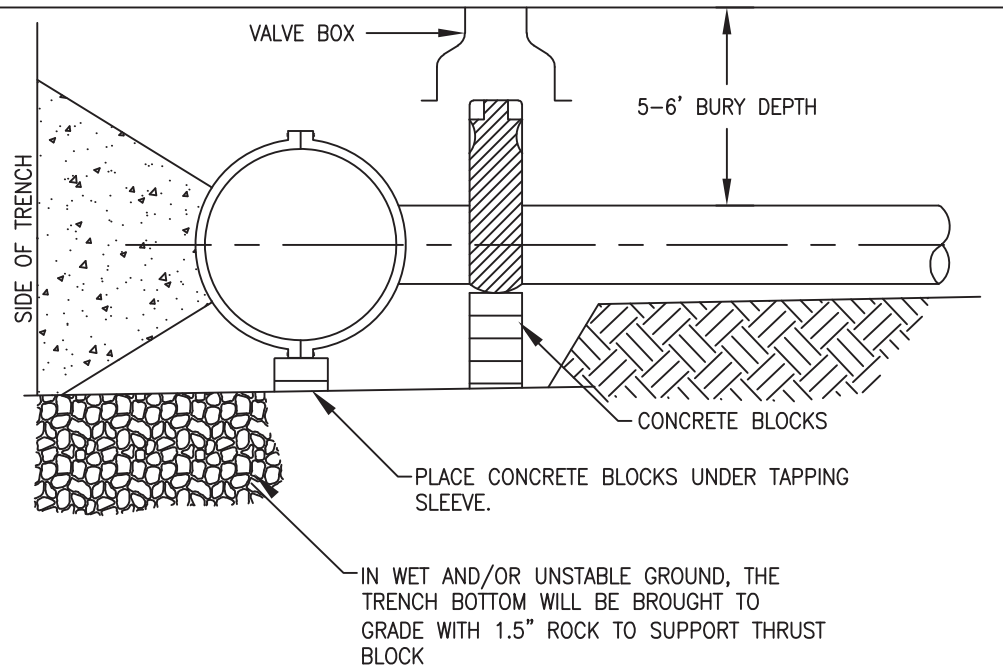
DATE: MARCH 2022

SHEET W23



BOLTS AND HEX NUTS SHALL BE STAINLESS STEEL, US ALLOY, DRESSER LOY, COR-TEN, DUCTILE IRON DURABOLT OR AN APPROVED EQUAL BY PWU FOR CORROSION CONTROL.

18" MIN. (ALL SIZES SVC TAPS)



NOTES:

1. THE CITY SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO TAPPING. THE CITY'S REPRESENTATIVE SHALL BE ON SITE DURING TAPPING.
2. ALL CAST IRON / DUCTILE IRON FITTINGS TO RECEIVE DOUBLE POLY WRAP PER CITY STANDARD 3.61.02.

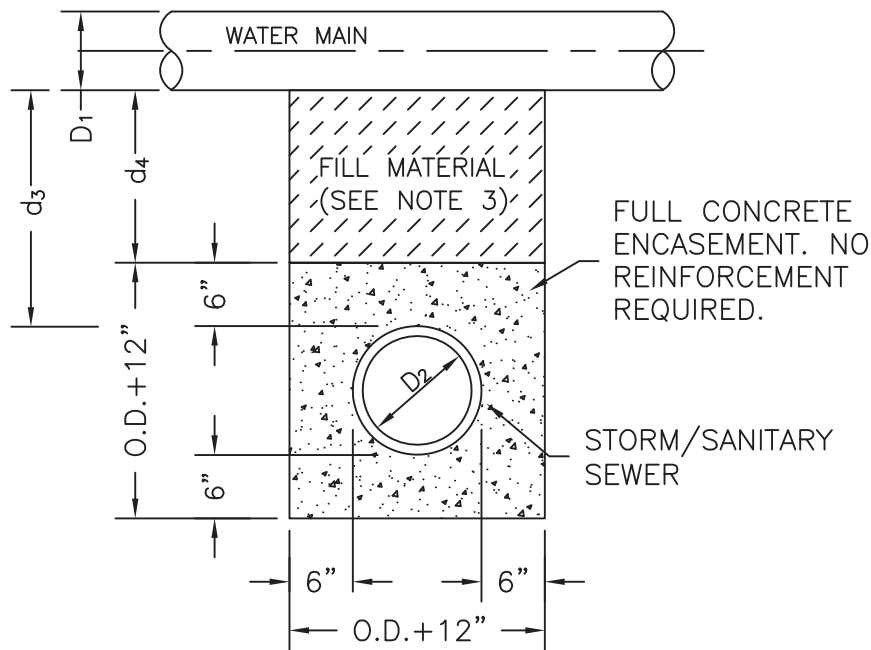


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

WET TAP CONNECTION
 4" AND LARGER TAP

DATE: MARCH 2022

SHEET W24

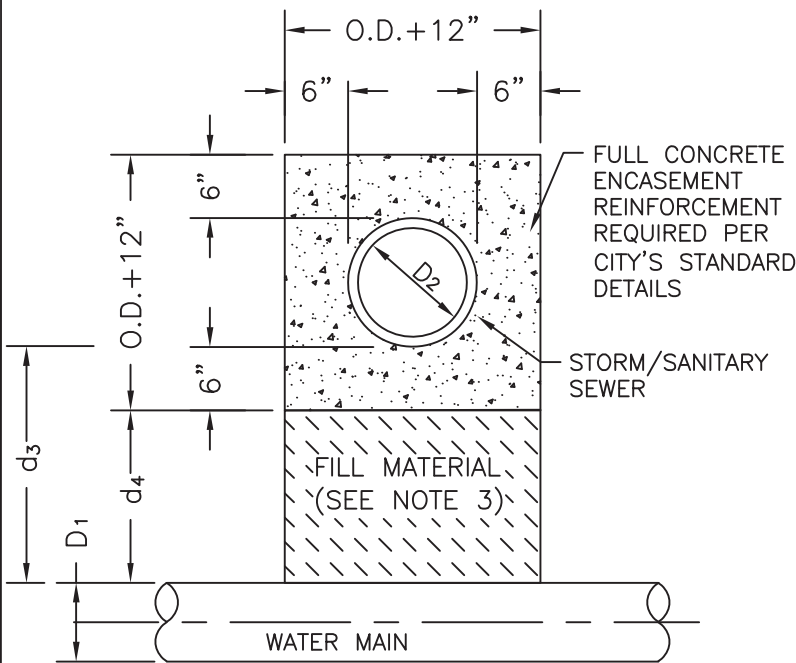


STORM OR SANITARY SEWER CROSSING UNDER WATER MAIN

IF $d_3 > 18"$ AN ENCASEMENT IS NOT REQUIRED

NOTES:

1. CONCRETE TO BE CAST AGAINST UNDISTURBED SOIL OR SHORING.
2. LENGTH OF JOINT ENCASEMENT SHALL EXTEND AT LEAST 9- FEET EACH SIDE OF WATER MAIN.
3. FILLER MATERIAL BETWEEN CONDUITS TO BE FLOWFILL OR OTHER PWU APPROVED MATERIAL.
4. SHORING OR SHEETING, IF USED, TO BE CUT OFF AT TOP OF ENCASEMENT.
5. A REINFORCED ENCASEMENT IS REQUIRED FOR ALL CONDUITS CROSSING OVER WATERMAINS BUT ENCASEMENTS ARE NOT REQUIRED TO BE REINFORCED IF CROSSING UNDER WATERMAINS.
6. INSULATION REQUIRED PER CITY STANDARD 3.18.



STORM OR SANITARY SEWER CROSSING OVER TOP OF WATER MAIN

REINFORCED ENCASEMENT REQUIRED REGARDLESS OF DIMENSION d_3

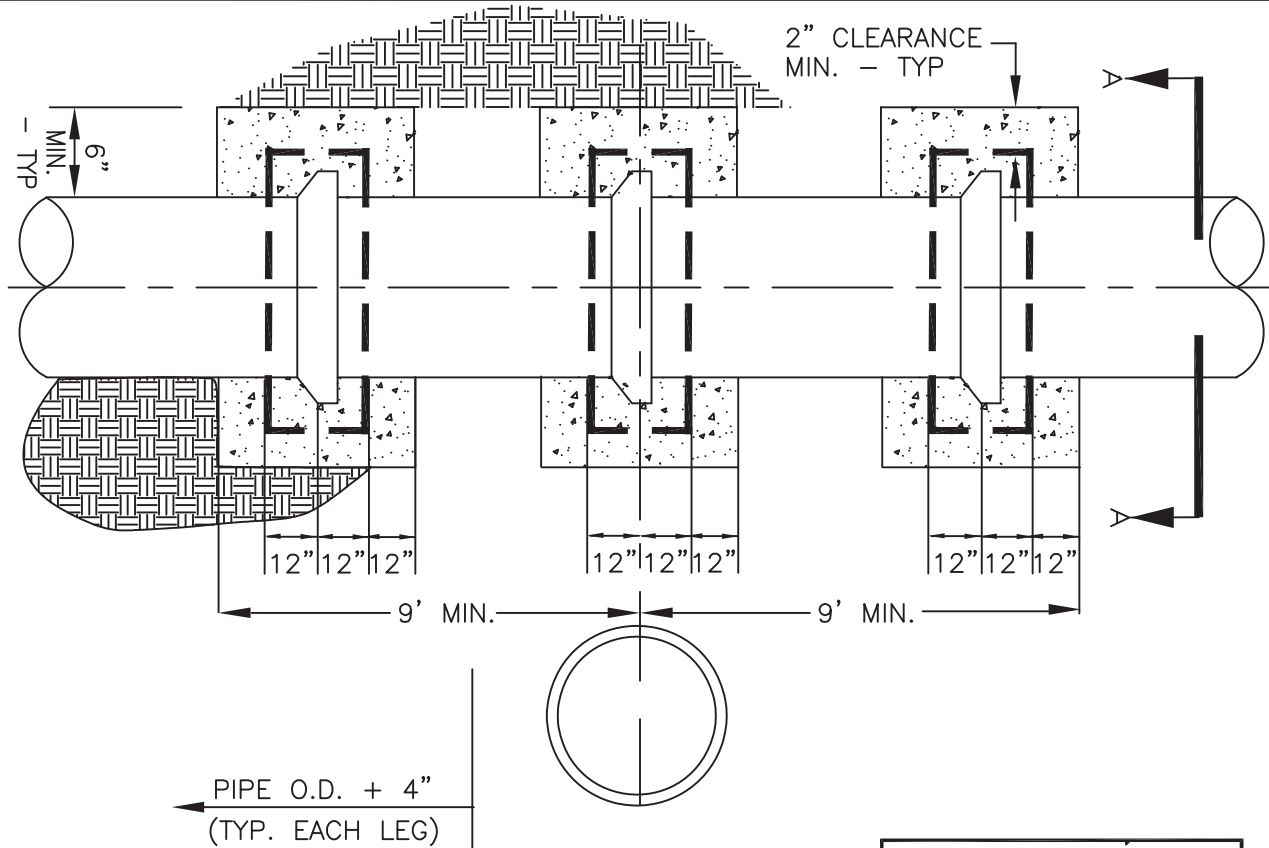


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

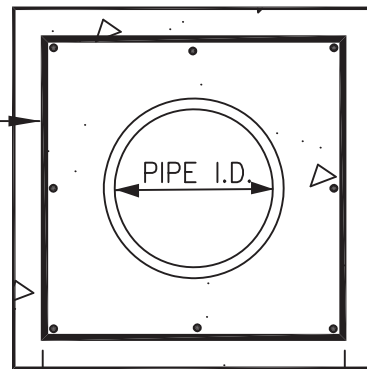
ENCASEMENT FOR
 CONDUIT CROSSINGS

DATE: MARCH 2022

SHEET W25



#4 @ 12" (TYP)



2" CLEARANCE MIN - TYP

PIPE I.D.	NO. OF LONGITUDINAL BARS & LOCATION	
6" TO 8"	4 - #4 BARS	1 EACH CORNER
10" TO 18"	8 - #4 BARS	3 EACH SIDE
21" TO 33"	12 - #4 BARS	4 EACH SIDE
36"	16 - #4 BARS	5 EACH SIDE

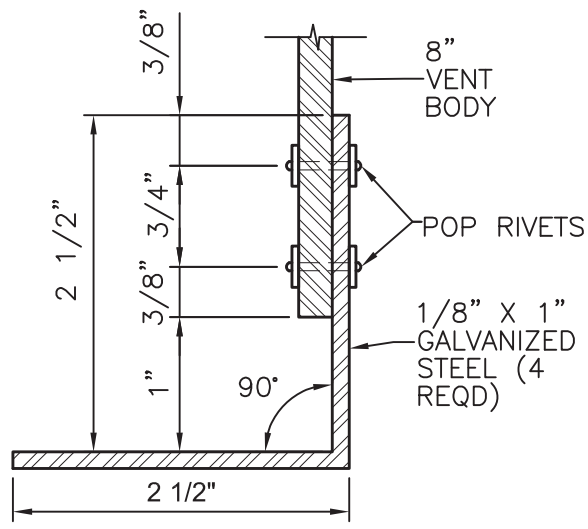


CITY of WESTMINSTER
 4800 WEST 92ND AVENUE
 WESTMINSTER, COLO. 80031

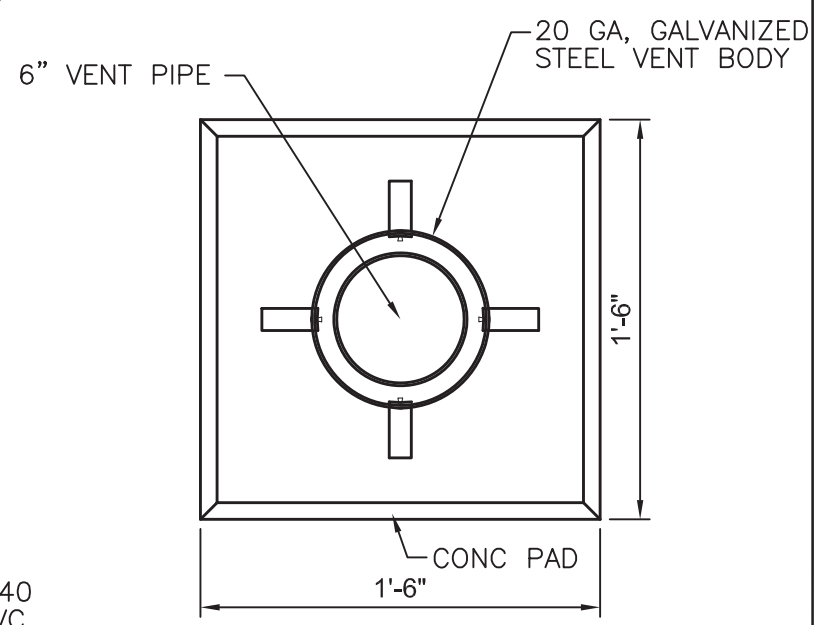
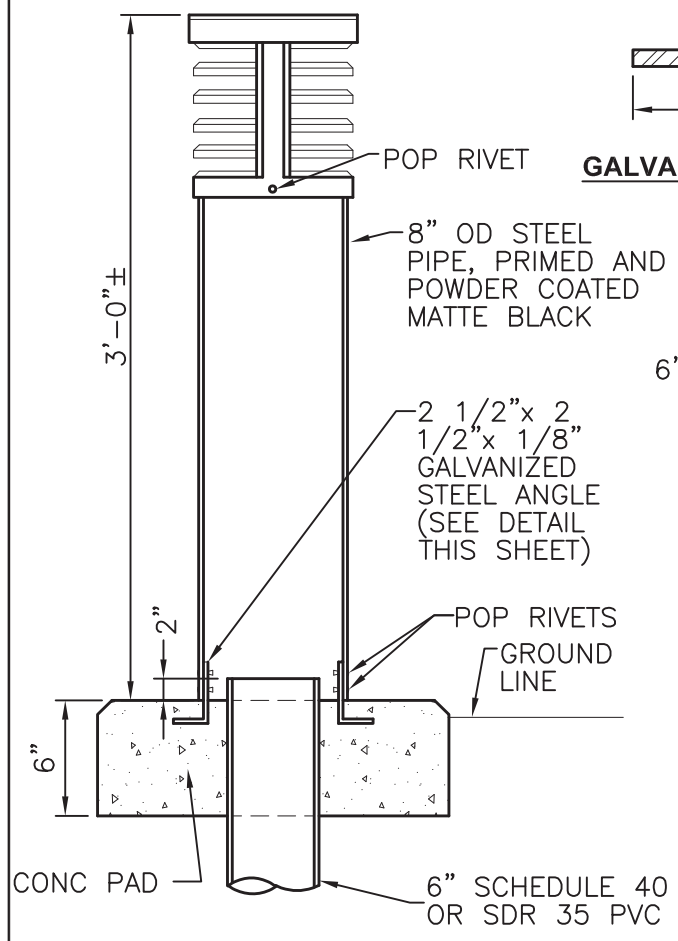
CONCRETE ENCASEMENT
 REINFORCEMENT DETAIL

DATE: MARCH 2022

SHEET W26



GALVANIZED STEEL ANGLE DETAIL
NOT TO SCALE



NOTE:

1. LOCATE VENT OUT OF TRAFFIC AREAS AND AS APPROVED BY THE CITY REPRESENTATIVE.
2. VENTS SHALL HAVE FINE MESH SCREEN INSTALLED IN INTERIOR TO PREVENT INSECTS ENTERING THE VENT PIPE.

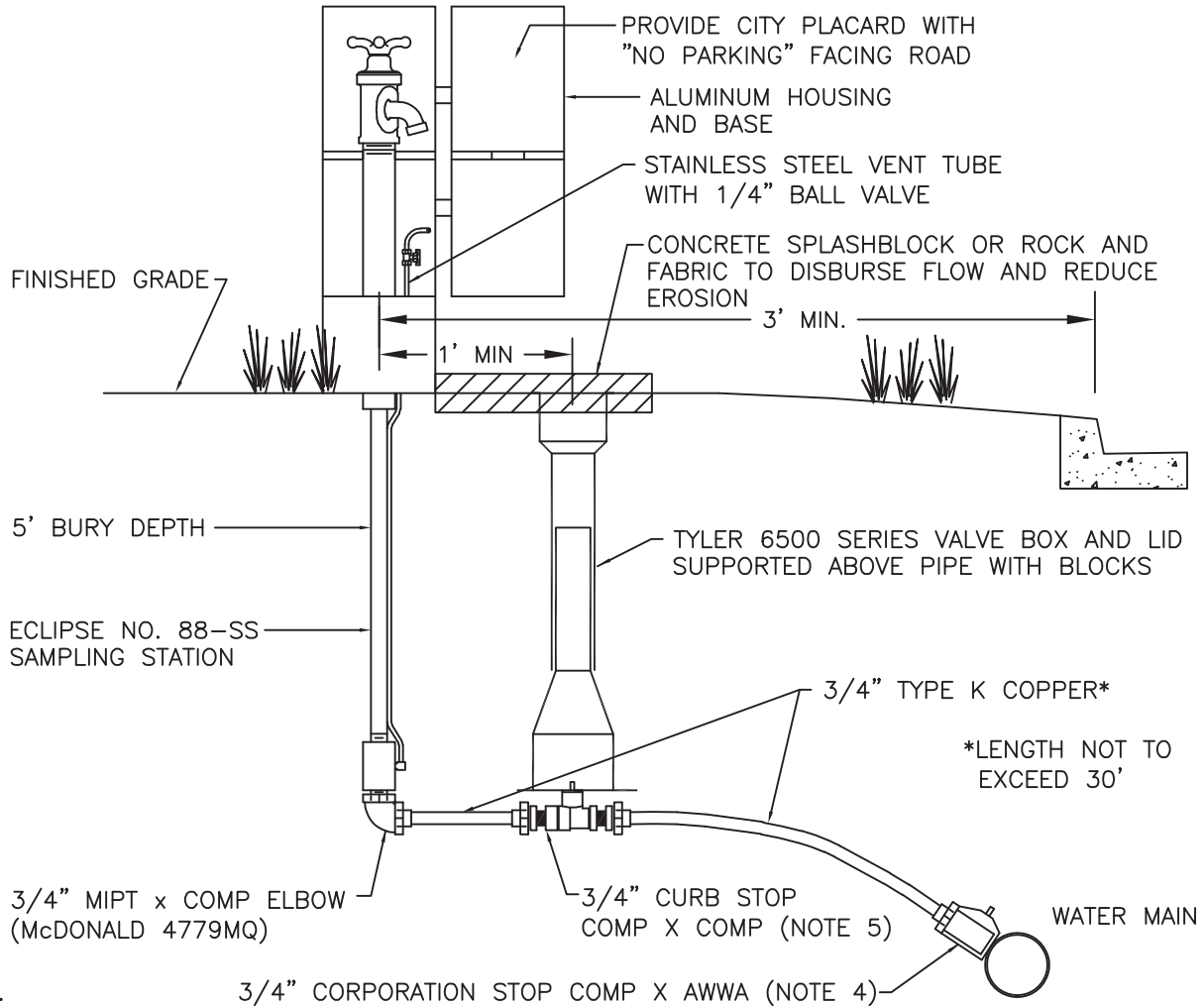


CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

VAULT VENT DETAIL


DATE: MARCH 2022

SHEET W27



NOTES:

1. SAMPLING STATIONS SHALL BE ECLIPSE NO. 88-SS (MANUFACTURED BY KUPFERLE FOUNDRY) WITH 5' BURY DEPTH, 3/4" FIPT INLET AND 3/4" UNTHREADED NOZZLE. STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NONREMOVABLE ALUMINUM-CAST HOUSING.
2. VENT TUBE WILL ENABLE EACH STATION TO BE PUMPED FREE OF STANDING WATER TO PREVENT FREEZING AND TO MINIMIZE BACTERIA GROWTH.
3. SAMPLING STATION LOCATION SHALL BE PER THE DIRECTION OF PWU.
4. ACCEPTABLE CORPORATION STOPS INCLUDE: FORD FB10003G; McDONALD 4701BQ; MUELLER B25008.
5. ACCEPTABLE CURB STOPS INCLUDE: FORD B44-333-G; McDONALD 6100Q; MUELLER B25209.
6. STATION, INCLUDING ELBOW, SHALL BE SUPPLIED BY THE CONTRACTOR. CONTRACTOR SHALL INSTALL AND PROVIDE ALL MATERIAL AND RESTORE SITE TO ITS ORIGINAL CONDITION.
7. ALL COPPER CONNECTIONS TO BE COMPRESSION ONLY WITH STAINLESS STEEL GRIPPER RING.
8. WITH PWU APPROVAL, A CONCRETE FILLED STEEL BOLLARD SHALL BE INSTALLED TO PROTECT SAMPLING STATIONS FROM TRAFFIC IN NON-RESIDENTIAL AREAS. BOLLARDS SHALL BE 4" IN DIAMETER, 3' TALL, AND SET IN CONCRETE AND SHALL BE LOCATED 30' CLEAR AND IN FRONT OF THE SAMPLE STATION AT A 45 DEGREE ANGLE FROM A LINE DRAWN FROM THE STREET TO THE STATION. BOLLARDS SHALL NOT RESTRICT ACCESS TO THE STATION.

	<p>CITY of WESTMINSTER 4800 WEST 92ND AVENUE WESTMINSTER, COLO. 80031</p>	<p>POTABLE WATER SAMPLING STATION</p>	
		<p>DATE: MARCH 2022</p>	<p>SHEET W28</p>