

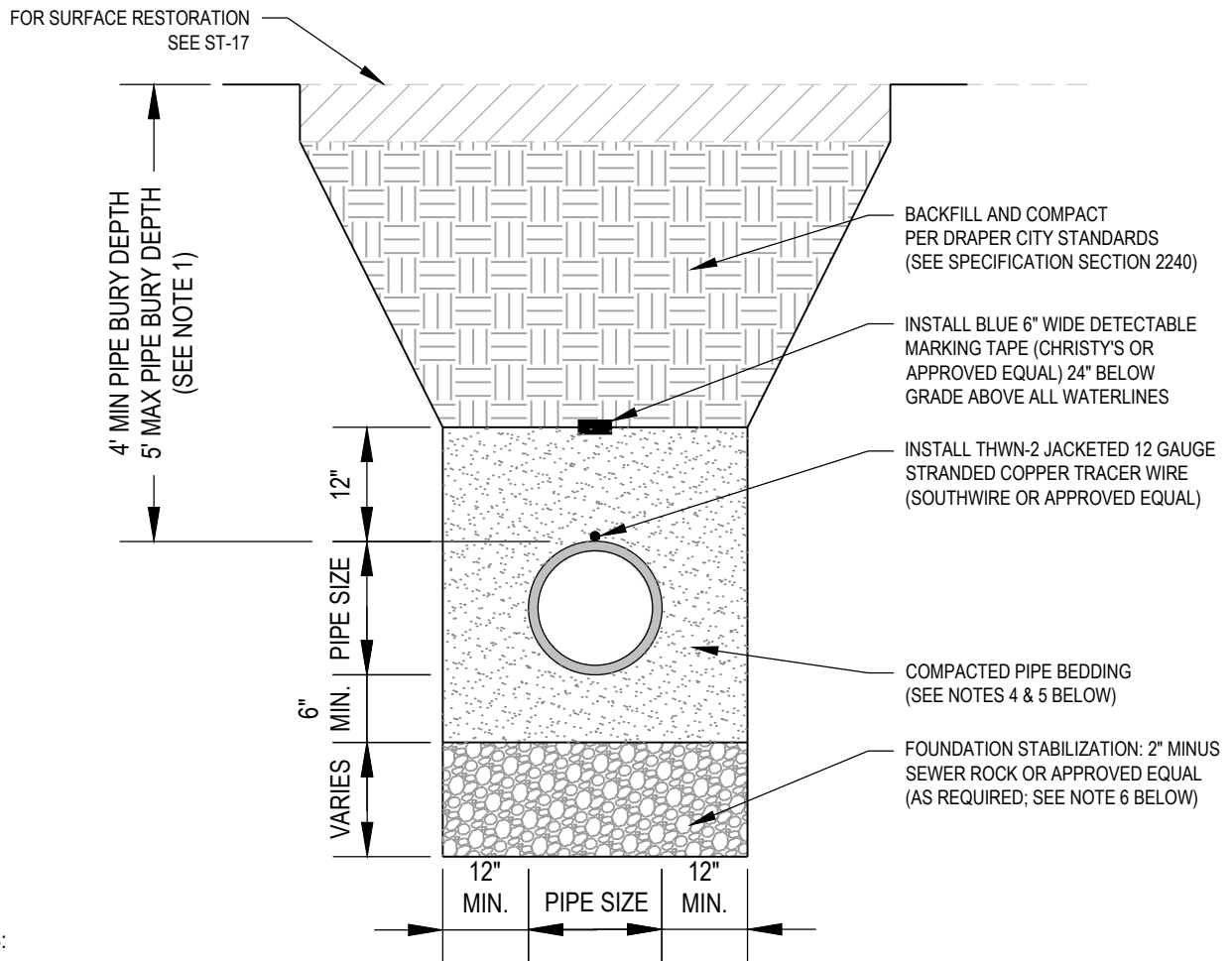
# ***CULINARY STANDARD DETAILS***

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1	APPROVED BY C.C.		DEC. 2025		<b><u>CULINARY STANDARD DETAILS</u></b>	<b>WT-00</b>
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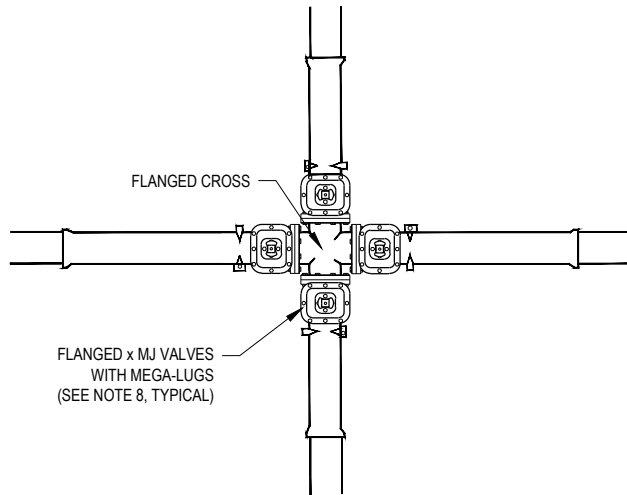
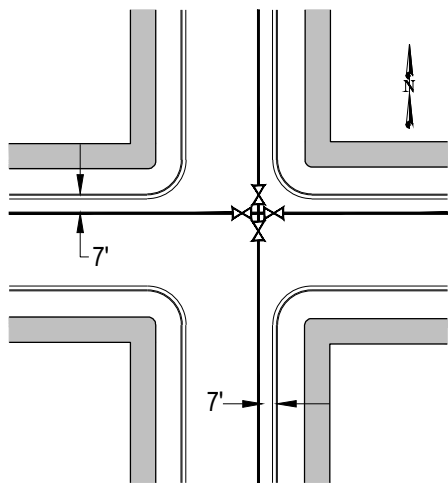
N:\Engineering\General Documents\~Approved Draper City Standards\Culinary Standard Details\WT-01.dwg, 12/8/2025 2:50:04 PM



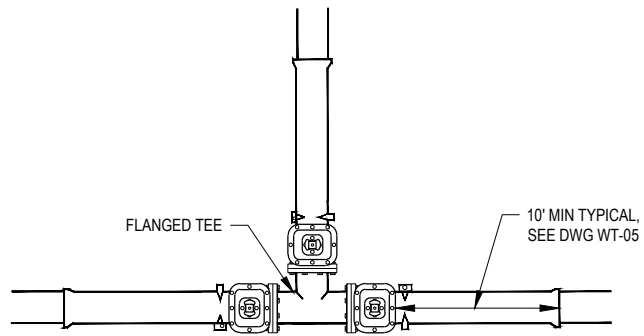
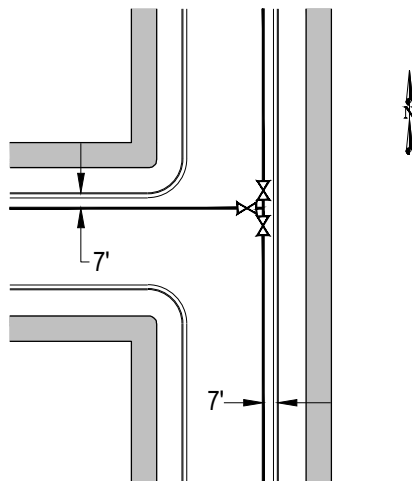
NOTES:

1. AVOID HIGH POINTS ALONG MAINLINE PIPE INSTALLATIONS. WHERE HIGH POINTS ARE UNAVOIDABLE, COORDINATE WITH CITY ENGINEER TO DETERMINE IF AN AIR VALVE INSTALLATION IS NECESSARY.
2. STANDARD MAINLINE PIPE MATERIALS:  
DIA.  $\leq$  12" AWWA C900 PVC PIPE  
DIA.  $>$  12" AWWA C151 D.I. PIPE  
D.I. = CLASS 52 DUCTILE IRON PIPE  
C900 = CLASS 305 C900 PVC PIPE (DR-14)
3. ALL METAL PIPE SHALL BE WRAPPED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE. METAL FITTINGS, VALVES, HARDWARE, AND NUTS & BOLTS SHALL BE COATED WITH TRENTON WAX TAPE PRIMER, WRAPPED WITH TRENTON WAX TAPE PER AWWA C105, AND COVERED WITH 8-MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
4. PIPE BEDDING SHALL BE: SAND PER SPECIFICATION 2230-2.02.
5. CONTRACTOR SHALL COMPACT BEDDING MATERIAL TO A MIN. 95% OF THE MAXIMUM DRY DENSITY PER CURRENT ASTM D-1557. IF NATIVE SOILS DO NOT PROVIDE A FIRM, STABLE FOUNDATION, AS DETERMINED BY ENGINEER, OVER EXCAVATE BELOW BOTTOM OF TRENCH AND BACKFILL WITH TRENCH STABILIZATION MATERIAL AS SHOWN.
6. SEE SECTION 2220-3.02 FOR TRENCH EXCAVATION AND STABILIZATION SPECIFICATIONS.

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CROSS-TYPICAL CONNECTIONS

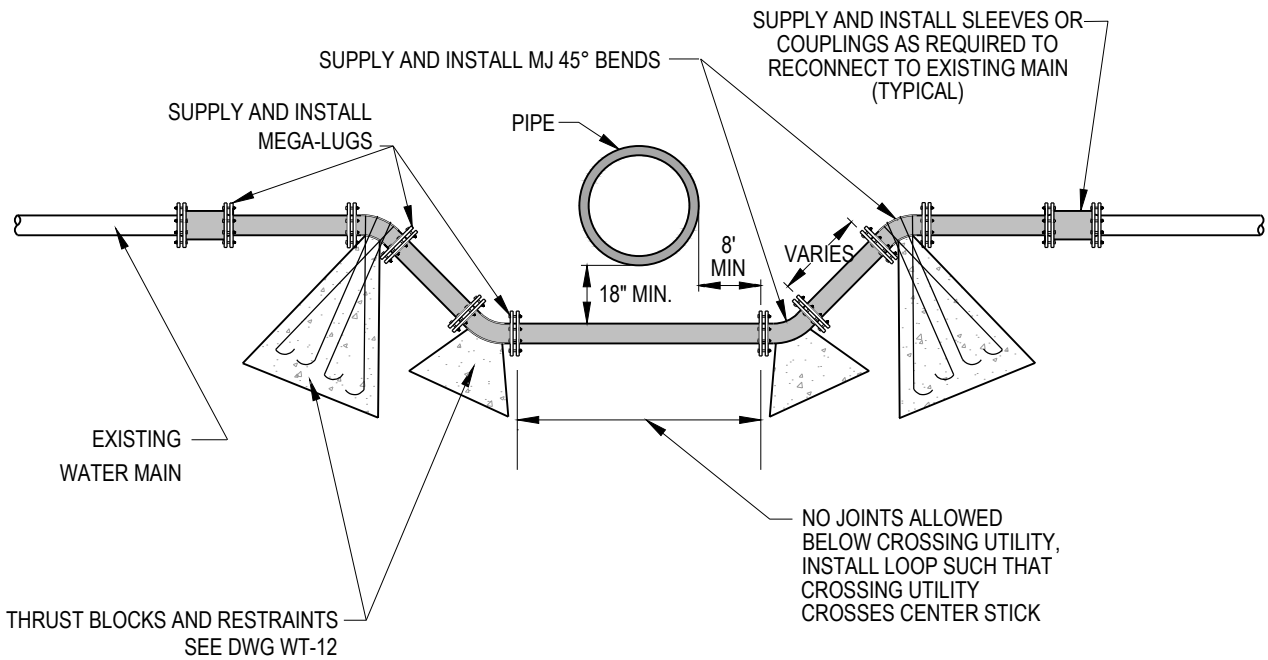


TEE-TYPICAL CONNECTIONS

NOTES:

1. VALVES SHALL GENERALLY BE LOCATED ON EACH BRANCH OF WATER MAIN INTERSECTIONS. WHERE RELATIVELY SHORT LINES LESS THAN 500 FEET IN LENGTH ARE INVOLVED, ONE OF THE TWO VALVES BETWEEN INTERSECTIONS MAY BE OMITTED AT THE DIRECTION OF THE CITY ENGINEER.
2. SEE DWG WT-12 FOR ANCHOR BLOCK AND THRUST BLOCK DETAILS.
3. SEE DWG WT-04 FOR VALVE BOX DETAILS.
4. ALL METAL PIPE SHALL BE WRAPPED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE. METAL FITTINGS, VALVES, HARDWARE, AND NUTS & BOLTS SHALL BE COATED WITH TRENTON WAX TAPE PRIMER, WRAPPED WITH TRENTON WAX TAPE PER AWWA C105, AND COVERED WITH 8-MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
5. ALL WATER LINES SHALL BE INSTALLED ON NORTH AND EAST SIDES OF THE STREET AND SHALL BE LOCATED 7' OFFSET FROM TBC.
6. ALL VALVES SHALL BE FLANGED WHEN CONNECTED TO TEES AND CROSSES. OTHERWISE ALL TEES AND CROSSES SHALL BE MJ WITH THRUST RESTRAINT. (MEGA-LUGS AND THRUST BLOCKS).
7. ALL BUTTERFLY GEAR/OPERATOR ASSEMBLY TO BE ON NORTH OR EAST SIDE OF WATER LINE.
8. ALL VALVES SHALL BE NSF 61 CERTIFIED AND COATED INSIDE AND OUT WITH FUSION BONDED EPOXY:  
VALVES  $\leq 12"$  SHALL BE AWWA C509 CAST IRON BODIED RESILIENT WEDGE GATE VALVES (VALVE MANUFACTURER SHALL BE CLOW OR AMERICAN).  
VALVES  $> 12"$  SHALL BE AWWA C504 DOUBLE OFFSET BUTTERFLY VALVES (VALVE MANUFACTURER SHALL BE AV-TEK).

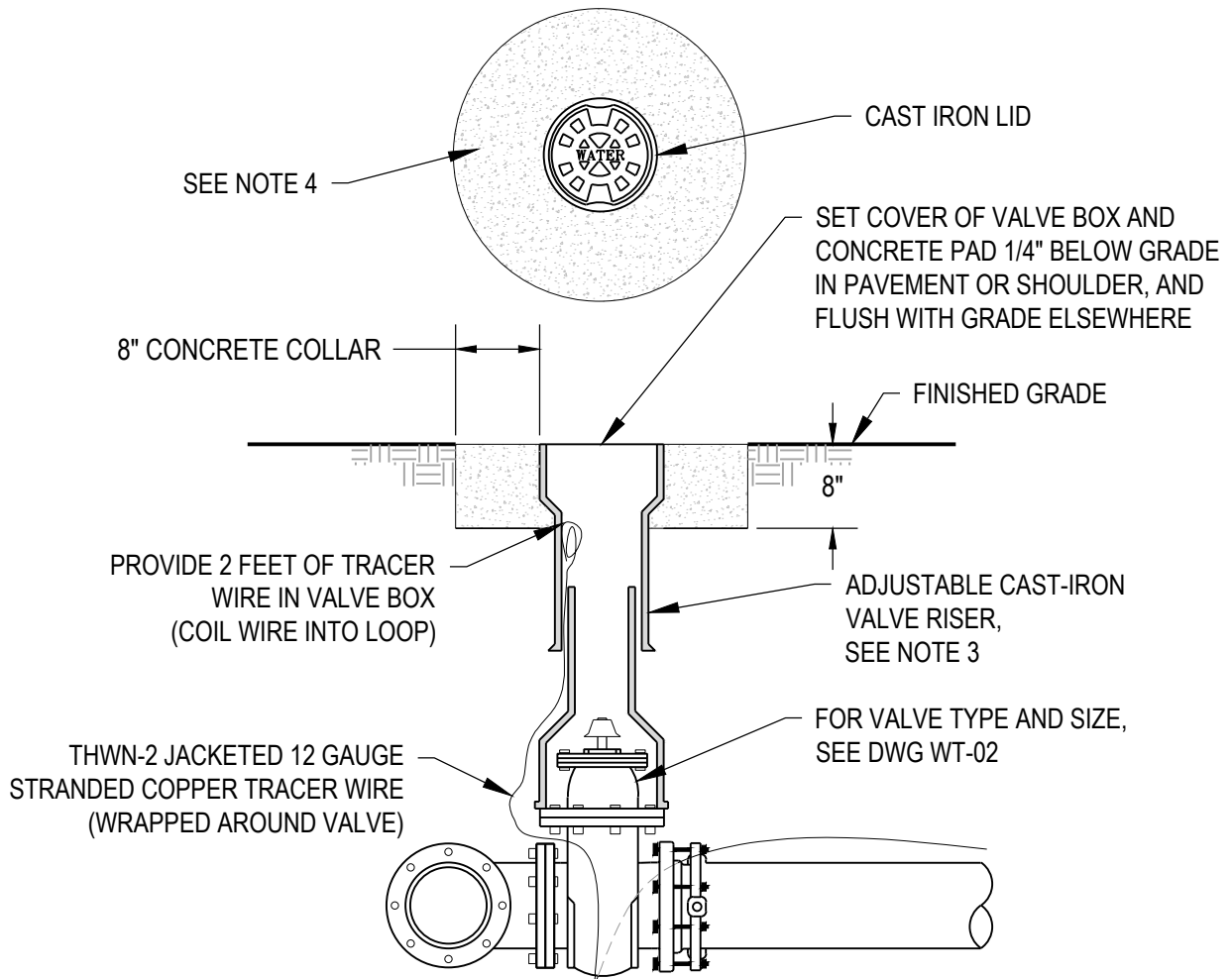
1	APPROVED BY C.C.		DEC. 2025		<u>WATER MAIN CONNECTIONS</u> <u>AT</u> <u>INTERSECTIONS</u>	WT-02
NO.	AUTHORIZED BY	REVISIONS	DATE			



## NOTES

1. INSPECTION: INSPECTION OF INSTALLATION BY ENGINEER REQUIRED BEFORE BACKFILLING TRENCH.
2. BACK FILL: INSTALL BACK FILL IN LIFTS NOT EXCEEDING 8" BEFORE COMPACTION. COMPACT EACH LIFT TO A MIN. DRY DENSITY OF 95% MODIFIED PROCTOR ASTM D-1557.
3. PROVIDE DUCTILE IRON PIPE AND FITTINGS WITH MEGA LUGS ACCORDING TO AWWA M-41 SPECIFICATIONS.
4. SEE DWG WT-08 FOR AIRVAC REQUIREMENTS.
5. ALL METAL PIPE SHALL BE WRAPPED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE. METAL FITTINGS, VALVES, HARDWARE, AND NUTS & BOLTS SHALL BE COATED WITH TRENTON WAX TAPE PRIMER, WRAPPED WITH TRENTON WAX TAPE PER AWWA C105, AND COVERED WITH 8-MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
6. ISOLATION VALVES AND/OR AIR VALVES SHALL BE INSTALLED AT WATERWAY AND RAILROAD CROSSINGS AT DIRECTION OF CITY ENGINEER.

1	APPROVED BY C.C.		DEC. 2025		<b>TYPICAL WATERLINE LOOP</b>	<b>WT-03</b>
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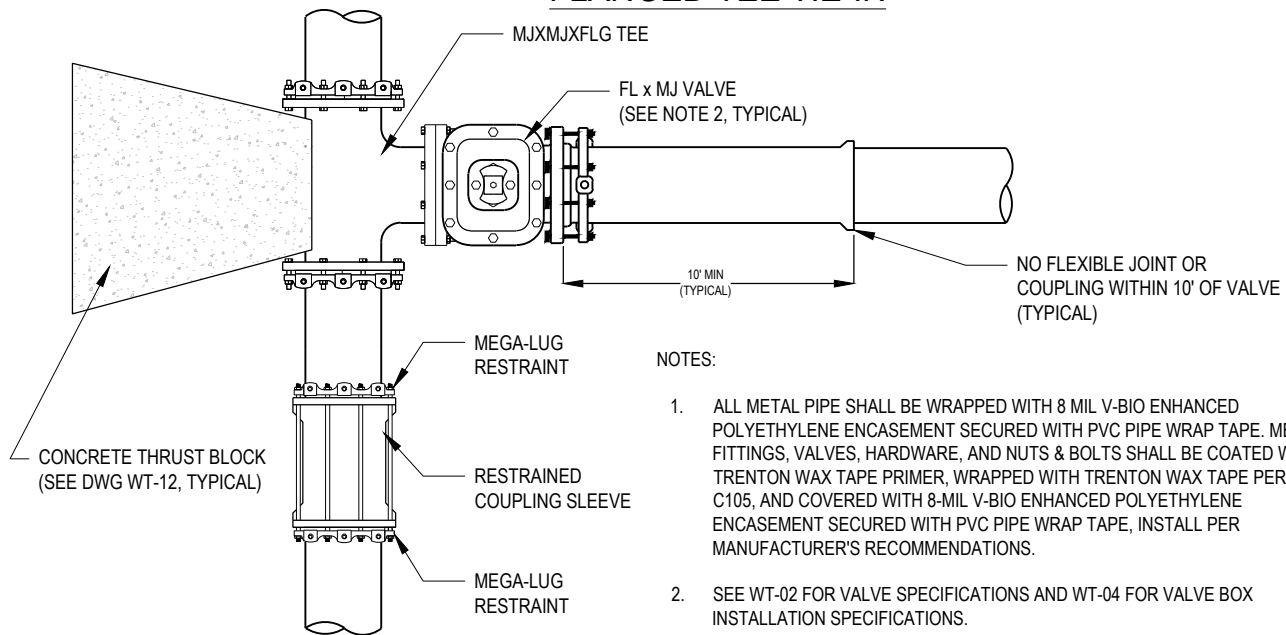


NOTES:

1. INSPECTION OF INSTALLATION BY ENGINEER REQUIRED PRIOR TO BACKFILLING.
2. ALL METAL PIPE SHALL BE WRAPPED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE. METAL FITTINGS, VALVES, HARDWARE, AND NUTS & BOLTS SHALL BE COATED WITH TRENTON WAX TAPE PRIMER, WRAPPED WITH TRENTON WAX TAPE PER AWWA C105, AND COVERED WITH 8-MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
3. VALVE BOX SHALL BE D&L M-8040 THRU M-8064 ADJUSTABLE CAST IRON RISER OR APPROVED EQUAL.
4. FURNISH AND INSTALL 8" CONCRETE COLLAR. SEE DWG ST-15 FOR CONCRETE COLLAR DETAILS.

1	APPROVED BY C.C.		DEC. 2025		<u>VALVE BOX</u> <u>INSTALLATION</u>	<b>WT-04</b>
NO.	AUTHORIZED BY	REVISIONS	DATE			

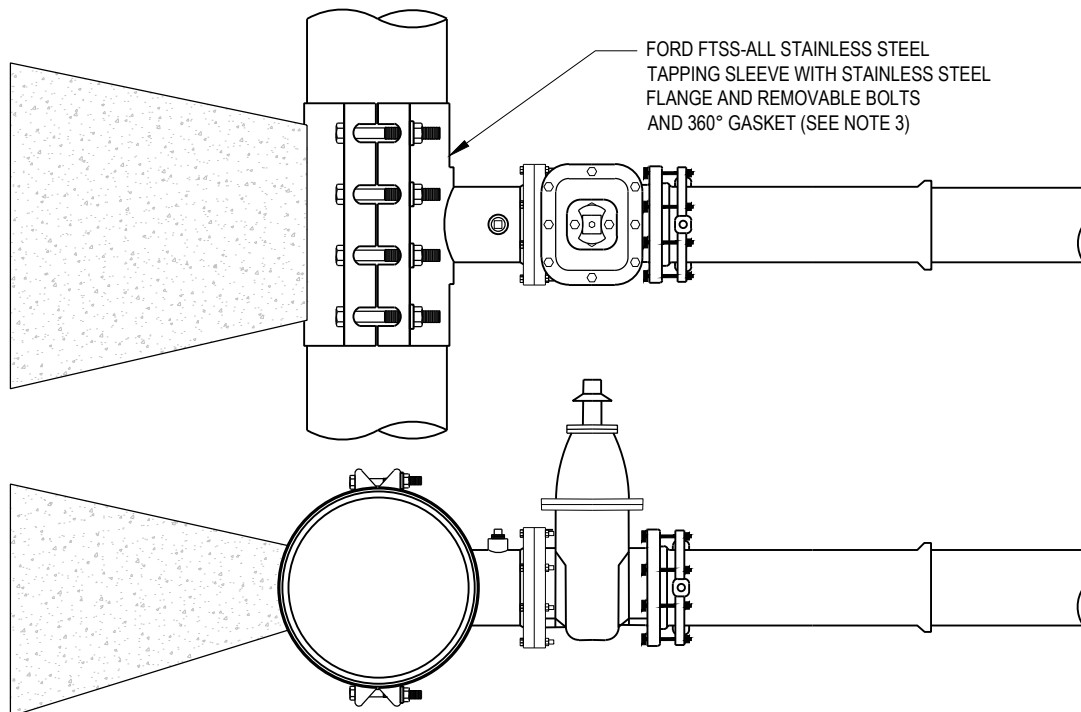
## FLANGED TEE TIE-IN



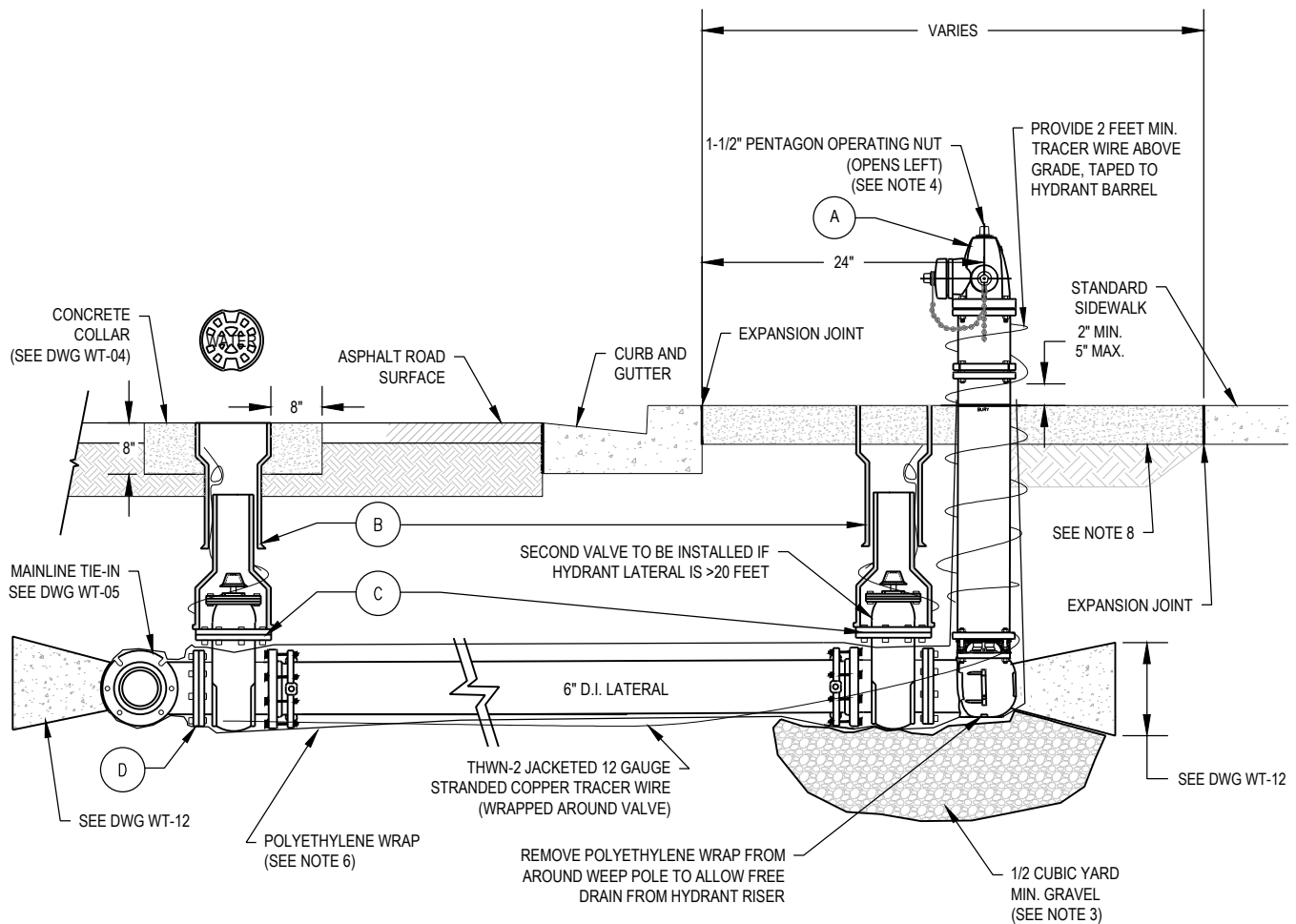
### NOTES:

1. ALL METAL PIPE SHALL BE WRAPPED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASMENT SECURED WITH PVC PIPE WRAP TAPE. METAL FITTINGS, VALVES, HARDWARE, AND NUTS & BOLTS SHALL BE COATED WITH TRENTON WAX TAPE PRIMER, WRAPPED WITH TRENTON WAX TAPE PER AWWA C105, AND COVERED WITH 8-MIL V-BIO ENHANCED POLYETHYLENE ENCASMENT SECURED WITH PVC PIPE WRAP TAPE, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
2. SEE WT-02 FOR VALVE SPECIFICATIONS AND WT-04 FOR VALVE BOX INSTALLATION SPECIFICATIONS.
3. NO SIZE ON SIZE TAPS SHALL BE ALLOWED.

## TAPPING SLEEVE TIE-IN



1	APPROVED BY C.C.		DEC. 2025		<b>MAIN LINE TIE-IN</b>	<b>WT-05</b>
NO.	AUTHORIZED BY	REVISIONS	DATE			



NOTES:

1. INSPECTION AND APPROVAL OF INSTALLATION BY ENGINEER REQUIRED BEFORE BACKFILLING TRENCH.

2. IF NOT IN SERVICE, HYDRANT MUST BE TAGGED, "NOT IN SERVICE".

3. PROVIDE 1/2 CUBIC YARD MIN. OF 3/4" CLEAN CRUSHED ROCK AROUND DRAIN HOLE AT BASE OF HYDRANT. PLACE MIRAFI FABRIC UNDER ROCK TO MINIMIZE SILTING.

4. POINT THE 4-1/2" STEAMER NOZZLE TOWARDS THE STREET.

5. PLACE FIRE HYDRANTS SO SIDEWALK FLANGE IS 2" MIN. OR 5" MAX. ABOVE GRADE.

6. ALL METAL PIPE SHALL BE WRAPPED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE. METAL FITTINGS, VALVES, HARDWARE, AND NUTS & BOLTS SHALL BE COATED WITH TRENTON WAX TAPE PRIMER, WRAPPED WITH TRENTON WAX TAPE PER AWWA C105, AND COVERED WITH 8-MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

7. PROVIDE A FLAT (2% SLOPE MAX.) 4 FOOT DIAMETER CLEAR WORKING SPACE AROUND HYDRANT.
8. PROVIDE A 5'x5'x5" MIN. THICK CONCRETE PAD WITH 6" COMPACTED ROAD BASE; OR AS PER CITY ENGINEER. (SEE SPECIFICATION SECTION 3000).

9. VALVE CANNOT BE LOCATED WITHIN CURB & GUTTER.

10. NO WATER SERVICE CONNECTIONS SHALL BE ALLOWED ON FIRE LINES.

11. HYDRANT SHALL BE NEW.

12. ALL PERMANENT END OF WATERLINE TERMINATIONS SHALL BE A FIRE HYDRANT.

LEGEND		
No.	ITEM	DESCRIPTION
(A)	FIRE HYDRANT	RED IN COLOR, FLANGED WITH BREAK-AWAY BOLTS, WATEROUS PACER PER AWWA C502
(B)	2 PC CAST IRON VALVE BOX	SEE DWG WT-04
(C)	GATE VALVE WITH 2" X 2" OPERATING NUT	SEE DWG WT-04
(D)	MAINLINE CONNECTION MJ x MJ x FLG TEE	WITH MEGA-LUGS RESTRAINTS, SEE DWG WT-05

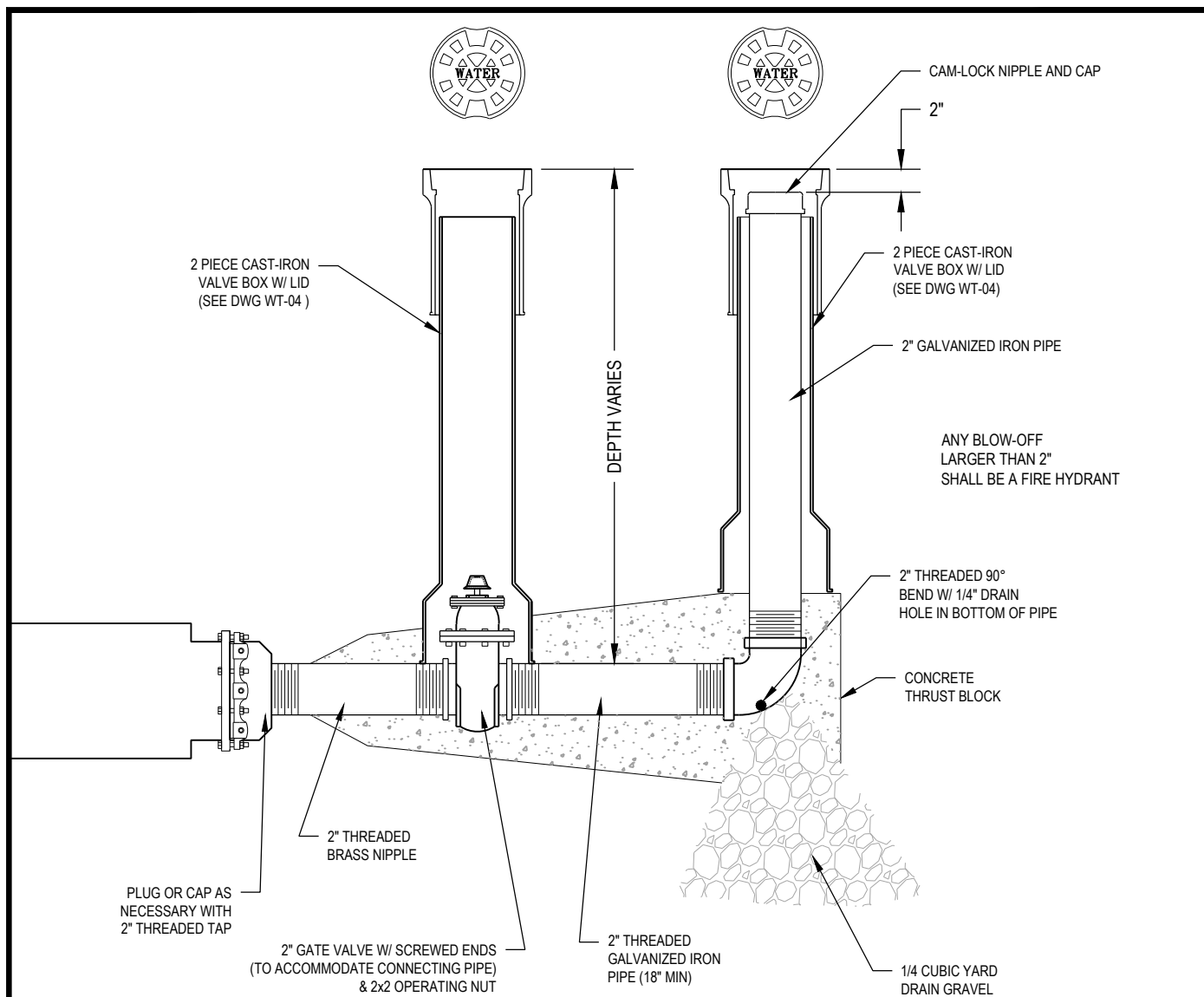
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**FIRE HYDRANT  
DETAIL**

**WT-06**





NOTES:

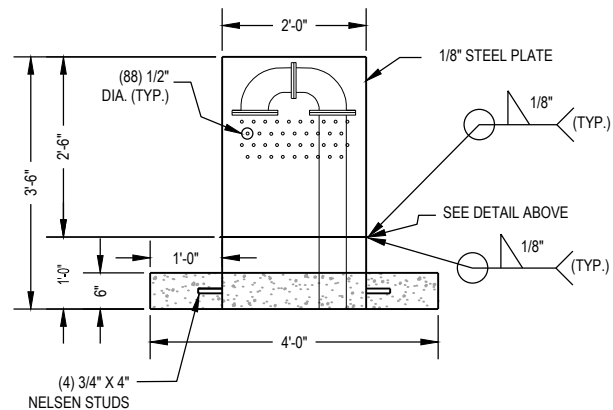
1. USE IN TEMPORARY CONDITIONS BY APPROVAL ONLY. IF INSTALLED WITHOUT APPROVAL, TEMPORARY CONNECTION TO BE REMOVED AT CONTRACTOR'S EXPENSE.
2. ALL PERMANENT END OF WATERLINE TERMINATIONS SHALL BE A FIRE HYDRANT.
3. CONCRETE: 2000 P.S.I. SEE DWG WT-12 FOR DETAILS. POUR CONCRETE AGAINST UNDISTURBED SOIL. CONCRETE THRUST BOCKS SHALL NOT TOUCH PIPELINE END PLUG OR CAP.
4. APPLY PVC PIPE WRAP TAPE TO THE EXTERIOR OF ALL GALVANIZED PIPE PER AWWA C209.
5. DRAINAGE: AFTER INSTALLATION OF WASHOUT ASSEMBLY, VERIFY VALVE RISER DRAINS TO GRAVEL.
6. INSPECTION AND APPROVAL OF INSTALLATION BY ENGINEER IS REQUIRED BEFORE BACKFILLING TRENCH.
7. BACKFILL: SEE SPECIFICATION SECTION 2240 FOR REQUIREMENTS.

1	APPROVED BY C.C.		DEC. 2025		<b>TEMPORARY 2" BLOW-OFF BY APPROVAL ONLY</b>	<b>WT-07</b>
NO.	AUTHORIZED BY	REVISIONS	DATE			



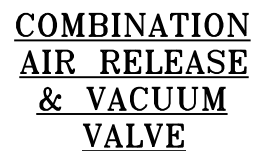
NO.	DESCRIPTION	FITTING
A	2" MIN HEAVY-DUTY COMBINATION AIR/VACUUM RELIEF VALVE DeZURIK "APCO" CAV MODEL S-145C OR APPROVED EQUAL*	THR.
B	BALL VALVE**	THR.
C	BRASS SERVICE SADDLE** FORD 202B (DIP) OR FORD 202BSD (C900)	-
D	BRASS PIPE**	THR.
E	BRASS 90° ELBOW**	THR.
F	BRASS UNION**	THR.
G	BRASS PIPE**	THR.
H	SCH 80 PVC**	THR.
I	SCH 80 PVC ELBOW**	THR.
J	SCH 80 PVC UNION**	THR.

**\*\*SIZE ALL PIPING AND FITTINGS TO MATCH AIR VALVE SIZE.**

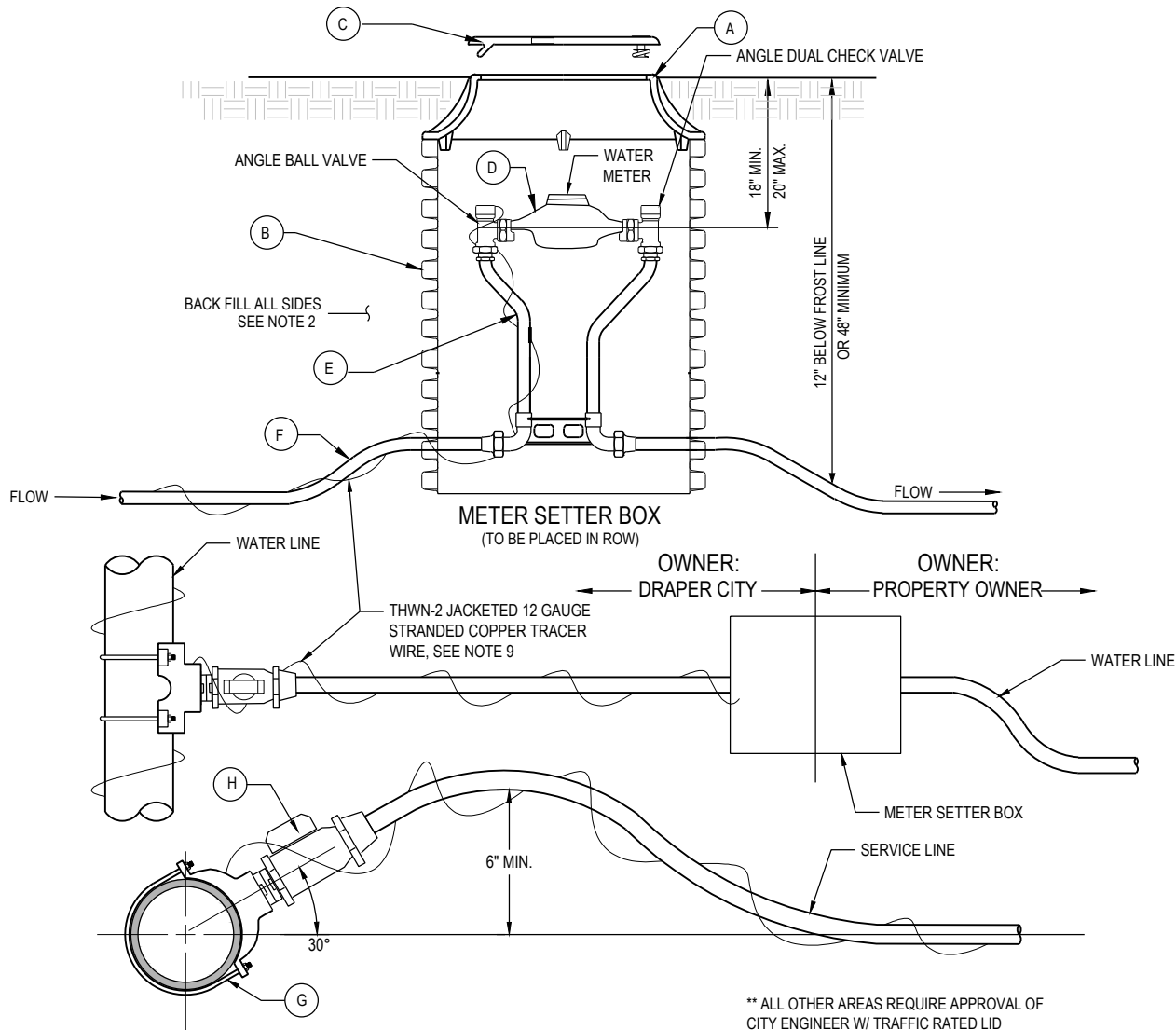


1. ALL COMPONENTS SHALL BE NSF 61 CERTIFIED FOR DRINKING WATER USE, WHERE CONNECTED TO POTABLE WATERMAIN.
2. ALL BRASS COMPONENTS SHALL BE RATED FOR OUTDOOR USE.
3. ALL HOLES SHALL BE AT OR ABOVE TOP OF CONCRETE COLLAR.
4. CONCRETE SHALL BE CONTINUOUS THROUGH ENCLOSED AIR VENT STAND PIPE.

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WT-08



LEGEND		
No.	ITEM	DESCRIPTION
(A)	CAST IRON RING	D & L L-2244 OR APPROVED EQUAL (SEE NOTE 8 FOR TRAFFIC RATED RING)
(B)	METER BOX (21" X 36")	A2000 METER BOX WHITE IN COLOR OR APPROVED EQUAL IN IMPERVIOUS AND/OR DRIVABLE AREAS CORRUGATED HDPE METER BOX OR APPROVED EQUAL IN PARKSTRIP
(C)	2" TAP IN LID FOR RADIO READ SENSOR OF METER	D & L L-2242 OR APPROVED EQUAL (SEE NOTE 8 FOR TRAFFIC RATED LID)
(D)	METER	PROVIDED BY CITY
(E)	1" METER YOKE W/ DUAL CHECK IN SETTER	FORD VBHC74-21W-11-44-NL
(F)	COPPER PIPE (TYPE K - SOFT) OR 1" POLY PIPE (CTS)	INSTALL WITH THWN-2 JACKETED 12 GAUGE STRANDED COPPER TRACER WIRE
(G)	BRASS SERVICE SADDLE	FORD 202B (DIP) OR FORD 202BSD (C900)
(H)	CORP STOP COMPRESSION FITTING OR EQUAL	FORD FB1100-4-Q-NL OR APPROVED EQUAL

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**METER SETTER  
& METER BOX  
1-INCH  
SERVICE**

**WT-09  
1 OF 2**

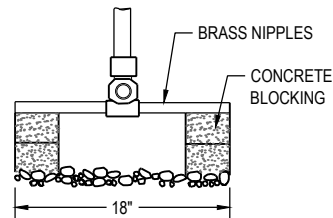
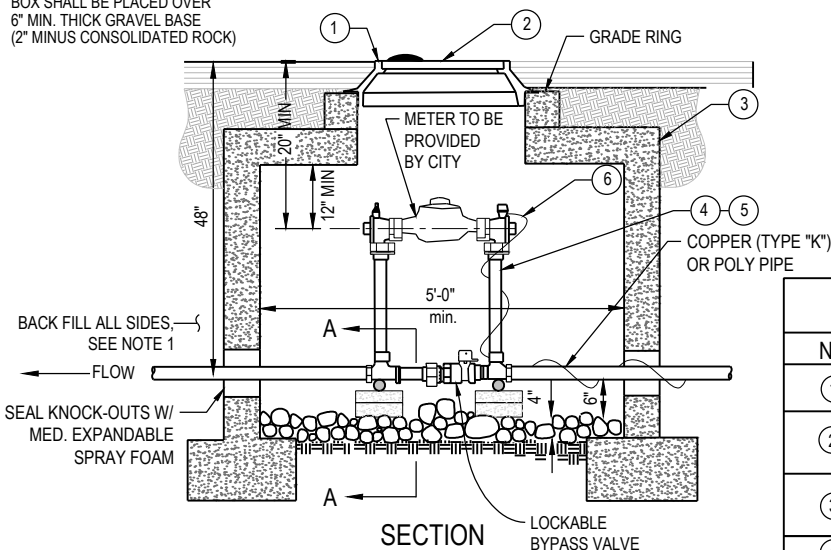
## NOTES

1. INSPECTION: PRIOR TO BACK FILLING AROUND METER BOX AND TAPS, SECURE INSPECTION AND APPROVAL OF CITY ENGINEER.
2. BACK FILL: BACK FILL IN LIFTS NOT EXCEEDING 8" AFTER COMPACTION. COMPACT EACH LIFT TO DRY DENSITY OF 95% PER ASTM D-1557 (SEE SPECIFICATION SECTION 2240).
3. PLACEMENT: ALL METERS ARE TO BE INSTALLED IN THE PARK STRIP (PUBLIC ROW) AND MUST BE PLACED WITHIN 2 FEET OF PROPERTY LINE WITH 2 BOXES ADJACENT TO COMMON PROPERTY LINE (WITH 3-4 FEET MINIMUM SEPARATION BETWEEN METER CANS).
4. ALL METER SETTERS MUST HAVE BACK FLOW PREVENTERS.
5. METER BOX MUST BE FREE OF DEBRIS AND WATER, AND BE FREE OF ALL DEFECTS. METER BOXES THAT ARE CRACKED, CHIPPED, BROKEN, OR DEFORMED WILL NOT BE ACCEPTED.
6. METER SETTER MUST BE 18"-20" BELOW LID.
7. COMPRESSION FITTINGS FOR POLY PIPE REQUIRE STAINLESS STEEL INSERTS.
8. TRAFFIC RATED RING AND LID SHALL BE D&L SUPPLY MODEL #B-5021 WITH 2" KNOCK OUT FOR RADIO READ SENSOR OR APPROVED EQUAL.
9. TRACER WIRE TO BE INSTALLED WITH WATER SERVICE LINE AND TERMINATE AT ANGLE STOP VALVE IN METER BOX. PROVIDE 2 FEET MINIMUM EXTRA WIRE. COIL EXCESS AROUND VALVE.

1	APPROVED BY C.C.		DEC. 2025		<b>METER SETTER &amp; METER BOX 1-INCH SERVICE</b>	<b>WT-09 2 OF 2</b>
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# 1-1/2" & 2" SERVICE LINE AND METER

BOX SHALL BE PLACED OVER  
6" MIN. THICK GRAVEL BASE  
(2" MINUS CONSOLIDATED ROCK)



SECTION "A-A"

## LEGEND: SERVICE METER

No.	ITEM	DESCRIPTION
①	CAST IRON RING	D&L A-1180 OR APPROVED EQUAL
②	2" TAP IN LID FOR RADIO READ SENSOR OF METER	D&L A-1180 OR APPROVED EQUAL
③	CONCRETE BOX, 5' X 5' INSIDE DIM. WITH KNOCK-OUTS AND FOOTINGS	H-20 TRAFFIC RATED
④	1 1/2" SETTER	FORD VBHC76-21B-11-66-NL
⑤	2" SETTER	FORD VBHC77-21B-11-77-NL
⑥	TRACER WIRE	THWN-2 JACKETED 12 GAUGE STRANDED COPPER TRACER WIRE, SEE NOTE 6

## NOTES FOR SERVICE LINE AND METER

- INSPECTION: PRIOR TO BACKFILLING AROUND THE METER BOX, SECURE INSPECTION AND APPROVAL OF CITY ENGINEER.
- BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL IN 8" COMPACTED LIFTS. COMPACT LIFTS TO A MINIMUM 95% DENSITY (SEE SPECIFICATION SECTION 2240).
- METER: DRAPER CITY WILL PROVIDE AND INSTALL METER.
- PIPE: INSTALL CTS PIPE OR COPPER (TYPE "K") TO PROPERTY LINE.
- PLACEMENT: DO NOT INSTALL METER BOX UNDER DRIVEWAY APPROACHES, SIDEWALKS, OR CURB & GUTTER. IN NEW CONSTRUCTION, INSTALL METER NEAR CENTER OF LOT IN PARKSTRIP.
- TRACER WIRE: PROVIDE 2 FEET MINIMUM EXTRA WIRE IN METER BOX. COIL EXCESS AROUND ANGLE CONTROL VALVE.

## SERVICE TAP

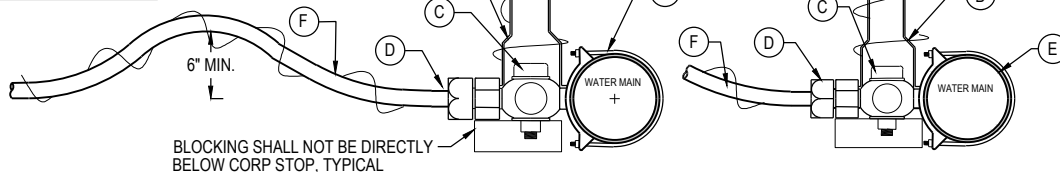
### LEGEND: SERVICE TAP

No.	ITEM	DESCRIPTION
(A)	CONCRETE TRAFFIC BOX	
(B)	2-PC. CAST IRON VALVE BOX WITH LID	SEE DWG WT-04
(C)	CORPORATION STOP	FORD FB1100-6-Q-NL OR FORD FB1100-7-Q-NL
(D)	COMPRESSION FITTING	
(E)	BRASS SERVICE SADDLE	FORD 202B (DIP) OR FORD 202BSD (C900)
(F)	SERVICE LINE	COPPER (TYPE "K") OR POLY PIPE (CTS, AWWA C-901)
(G)	TRACER WIRE*	THWN-2 JACKETED 12 GAUGE STRANDED COPPER TRACER WIRE, SEE NOTE 6

\*TRACER WIRE REQUIRED REGARDLESS OF SERVICE LINE MATERIAL

NOTE: ALL FITTINGS SHALL BE COMPRESSION FITTINGS WITH STAINLESS STEEL INSERTS USED FOR POLY PIPE

CITY ENGINEER APPROVAL  
REQUIRED WHEN  
INSTALLATION IS PLACED  
IN HIGH GROUND WATER AREA



## NOTES FOR SERVICE TAPS

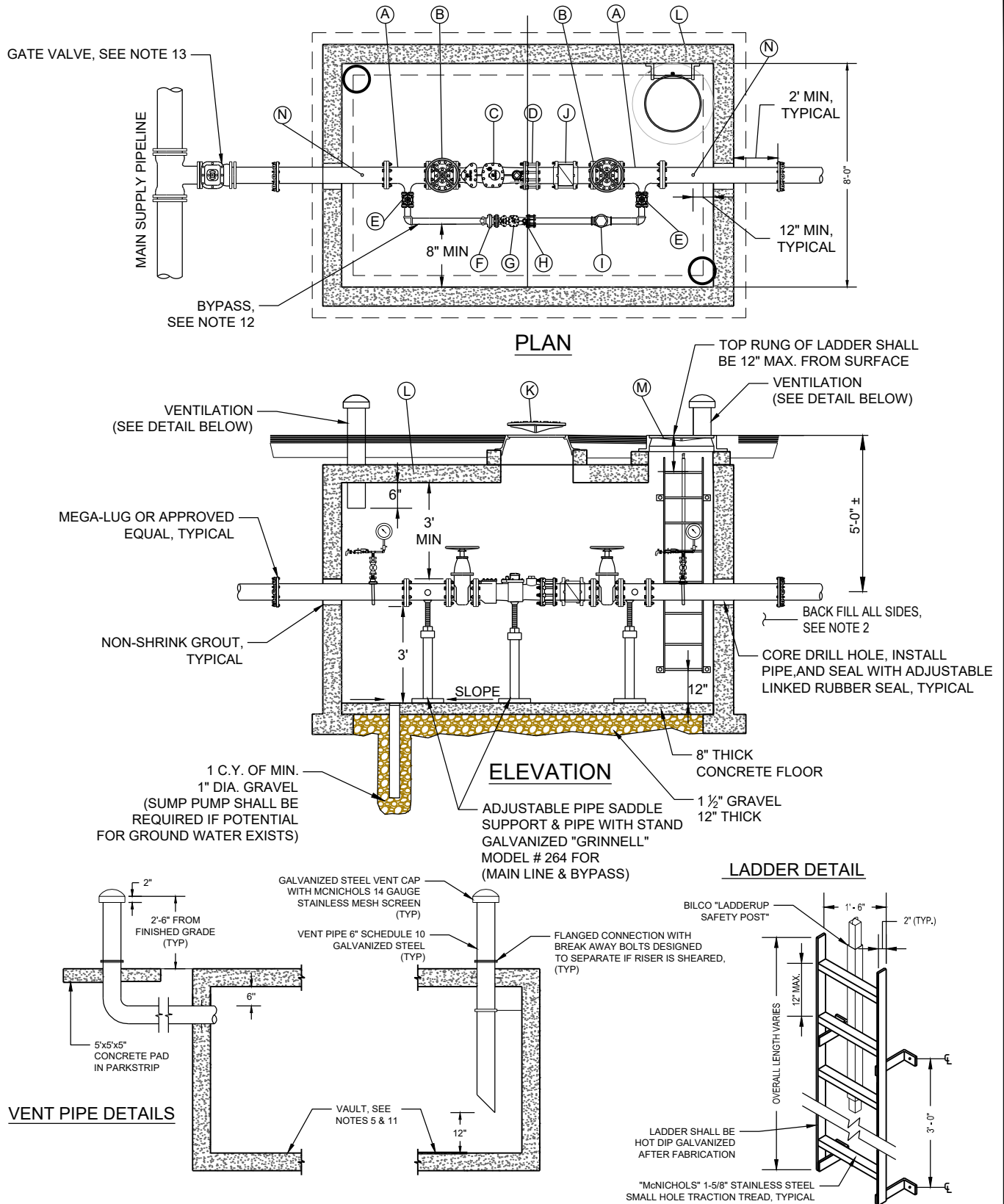
- INSPECTION: PRIOR TO BACKFILLING AROUND THE METER BOX, SECURE INSPECTION AND APPROVAL OF CITY ENGINEER.
- BACKFILL: INSTALL AND COMPACT ALL BACKFILL MATERIAL PER DRAPER CITY SPECIFICATION SECTION 2240.
- TAPPING: PLACE TAPS A MINIMUM OF 36" APART. USE A TAPPING TOOL SIZED TO THE SIZE OF THE SERVICE LINE TO BE INSTALLED. NO TAPS WITHIN 36" OF PIPE JOINT.
- SERVICE SADDLE CLAMP: REQUIRED ON ALL PIPES.
- TEFLON TAPE: REQUIRED ON ALL TAPS.
- TRACER WIRE: PROVIDE 2 FEET MINIMUM COILED EXTRA WIRE IN VALVE BOX.

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**METER SETTER  
AND METER  
BOX  
1-1/2-INCH &  
2-INCH  
SERVICE**

**WT-10**



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**3" TO 8"  
METER VAULT  
WITH BYPASS**

**WT-11  
1 OF 2**

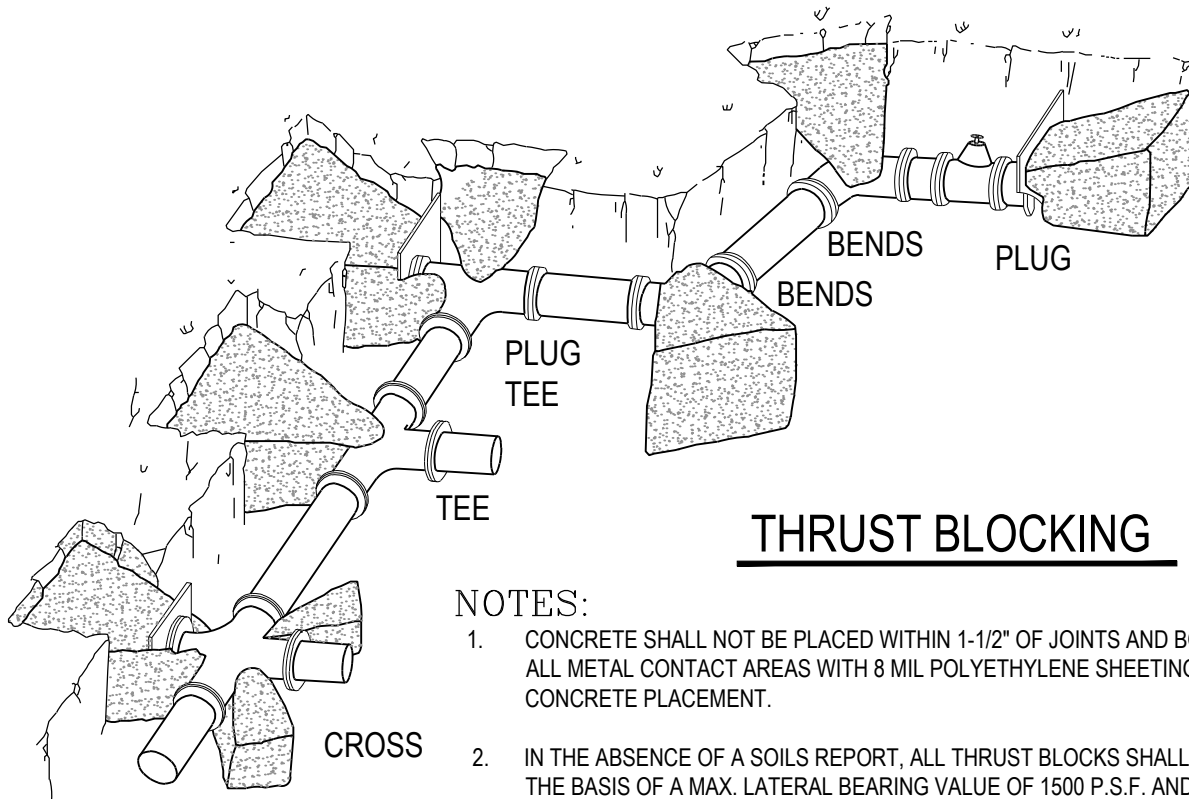
## NOTES:

1. PRIOR TO BACK FILLING AROUND CONCRETE BOX, SECURE INSPECTION AND APPROVAL OF INSTALLATION BY ENGINEER.
2. INSTALL BACK FILL IN LIFTS NOT EXCEEDING 8" AFTER COMPACTION. COMPACT EACH LIFT TO DRY DENSITY OF 96% ± 2% OPTIMUM MOISTURE. SEE SPECIFICATION SECTION 2240.
3. PROVIDE BRASS FITTINGS AND NIPPLES IF NOT SPECIFIED OTHERWISE. DO NOT USE GALVANIZED MATERIALS, EXCEPT WHERE INDICATED.
4. ALL PIPING SHALL BE DUCTILE IRON CLASS 55 AND SHALL BE EPOXY COATED PER AWWA STANDARD C116-09.
5. PRECAST CONCRETE METER VAULT SHALL BE HS-20 TRAFFIC LOADING RATED. FOR METERS LESS THAN OR EQUAL TO 4", VAULT SIZE TO BE 12'X8'. FOR METERS LARGER THAN 4", VAULT SIZE TO BE 14'X8'.
6. ALLOW 1" CLEARANCE AROUND WATERLINE WHERE LINE PASSES CONCRETE WALLS. SEAL OPENING WITH ADJUSTABLE LINKED RUBBER SEAL.
7. INSTALL VALVE WITH VALVE BOX ADJACENT TO MAIN.
8. ALL METAL PIPE SHALL BE WRAPPED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE. METAL FITTINGS, VALVES, HARDWARE, AND NUTS & BOLTS SHALL BE COATED WITH TRENTON WAX TAPE PRIMER, WRAPPED WITH TRENTON WAX TAPE PER AWWA C105, AND COVERED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT SECURED WITH PVC PIPE WRAP TAPE, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
9. 10" AND LARGER METERS SHALL BE ENGINEERED AND SUBMITTED TO CITY FOR APPROVAL BY CITY ENGINEER.
10. ALL COMPONENTS SHALL BE NSF 61 CERTIFIED FOR DRINKING WATER USE, WHERE CONNECTED TO POTABLE WATERMAIN. ALL BRONZE/BRASS COMPONENTS SHALL BE RATED FOR OUTDOOR USE.
11. FLUID-APPLIED WATERPROOFING SHALL BE APPLIED TO ALL EXTERIOR BURIED CONCRETE VAULT SURFACES.
12. BYPASS SHALL BE HALF THE SIZE OF THE MAIN IN DIAMETER, 2" MINIMUM.
13. SEE WT-02 FOR VALVE SPECIFICATIONS, WT-04 FOR VALVE BOX INSTALLATION SPECIFICATIONS, AND WT-05 FOR TIE-IN SPECIFICATIONS.

LEGEND		
ITEM	DESCRIPTION	REQUIREMENTS
(A)	FLANGED TEE	
(B)	GATE VALVE W/ HANDWHEEL	AWWA C515 RESILIENT WEDGE GATE VALVES (CLOW OR AMERICAN, NSF 61 CERTIFIED, AND FUSION BONDED EPOXY COATED INSIDE AND OUT)
(C)	SENSUS METER	SENSUS OMNI C2 W/ RADIO READ FOR MASTER METER APPLICATIONS SENSUS OMNI F2 W/ RADIO READ FOR FIRE APPLICATIONS
(D)	FLANGED COUPLING ADAPTER	
(E)	GATE VALVE	
(F)	LOK-PAK TYPE OF METER FLANGE	
(G)	SENSUS METER	SENSUS OMNI C2 W/ RADIO READ
(H)	FLANGED COUPLING ADAPTER	
(I)	CHECK VALVE	
(J)	VAL-MATIC TILTED DISC CHECK VALVE	SEE MANUFACTURER'S REQUIREMENTS FOR REQUIRED VALVE SPACING FROM METER
(K)	36" MANHOLE RING AND COVER	
(L)	PRECAST CONCRETE METER VAULT, SEE NOTE 5	TO BE SIZED PER APPLICATION AND PIPE SIZE
(M)	24" MANHOLE RING AND COVER	
(N)	SMOOTH SAMPLE TAP AND PRESSURE GAUGE ASSEMBLY	PRESSURE GAUGE ASSEMBLY SHALL HAVE TYPE 316 STAINLESS STEEL BUSHINGS, VALVES, NIPPLES, PIPE, AND OTHER FITTINGS. SMOOTH SAMPLE TAP SHALL HAVE VAC BREAKER AND BE ACCOMPANIED BY SHUT-OFF VALVE WITH SCH 80 STEEL NIPPLE AND DIELECTRIC UNION, ASSEMBLY CONNECTED TO PIPE WITH FORD 202B (DIP) OR FORD 202BSD (C900) SADDLE.

1	APPROVED BY C.C.		DEC. 2025		<b>3" TO 8" METER VAULT WITH BYPASS</b>	<b>WT-11 2 OF 2</b>
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## THRUST BLOCKING

### NOTES:

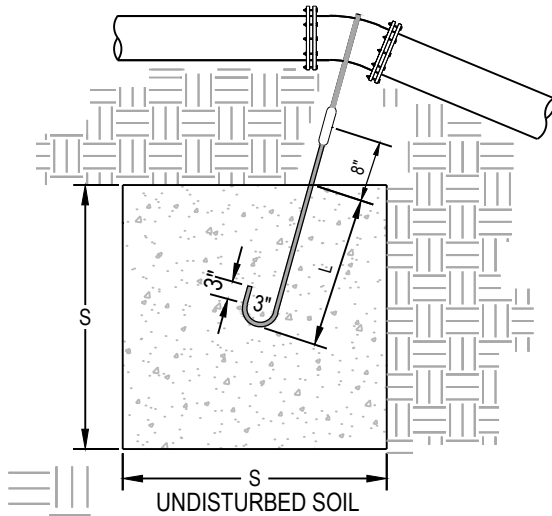
1. CONCRETE SHALL NOT BE PLACED WITHIN 1-1/2" OF JOINTS AND BOLTS. COVER ALL METAL CONTACT AREAS WITH 8 MIL POLYETHYLENE SHEETING PRIOR TO CONCRETE PLACEMENT.
2. IN THE ABSENCE OF A SOILS REPORT, ALL THRUST BLOCKS SHALL BE SIZED ON THE BASIS OF A MAX. LATERAL BEARING VALUE OF 1500 P.S.F. AND A THRUST RESULTING FROM 200% OF THE WATERLINE STATIC TEST PRESSURE.
3. THRUST BLOCKS ARE REQ'D. AT ALL BENDS OF 22-1/2° OR MORE.

		SIZE OF PIPE								
		4"	6"	8"	12"	14"	16"	20"	24"	30"
MINIMUM BEARING AREA IN SQ. FT.	TEES, VALVES DEAD ENDS	4	8	13	28	37	48	74	105	161
	90° BENDS	6	11	19	39	52	68	104	148	228
	45° BENDS	3	6	10	22	29	37	56	80	124
	22 1/2° BENDS	2	4	6	11	15	19	29	41	63
	11 1/4° BENDS	1	2	3	6	8	10	15	21	32

SEE SHEET 3 FOR ADDITIONAL NOTES

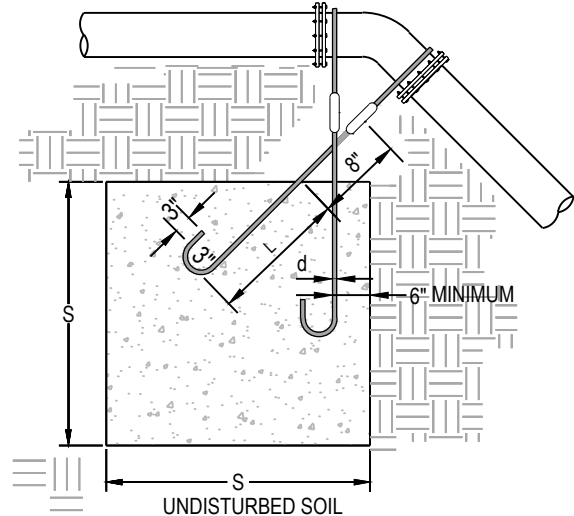
1	APPROVED BY C.C.		DEC. 2025		<u>TIE-DOWN</u> <u>&amp; CONCRETE</u> <u>THRUST</u> <u>RESTRAINTS</u>	<b>WT-12</b>  <b>1 OF 3</b>
NO.	AUTHORIZED BY	REVISIONS	DATE			





**TYPE A BLOCKING**

FOR 11 1/4° - 22 1/2° VERTICAL BENDS



**TYPE B BLOCKING**

FOR 45° VERTICAL BENDS

TYPE A BLOCKING FOR 11 1/4° - 22 1/2° VERT. BENDS					
PIPE SIZE NOMIN. DIAMETER - INCH	VERTICAL BEND DEGREES	NO OF CU FT. OF CONC. BLOCKING	S SIDE OF CUBE FEET	d DIAMETER OF SHACK OR REBAR RODS - INCH	L DEPTH OF RODS IN CONCRETE (FEET)
4"	11 1/4°	9	2.09	#4	1.5
	22 1/2°	16	2.52	#4	2.0
6"	11 1/4°	16	2.52	#4	2.0
	22 1/2°	32	3.18	#4	2.0
8"	11 1/4°	28	3.04	#4	2.0
	22 1/2°	53	3.76	#4	2.0
12"	11 1/4°	57	3.85	#4	2.0
	22 1/2°	111	4.81	#4	3.0
16"	11 1/4°	98	4.62	#5	3.0
	22 1/2°	193	5.78	#5	4.0
20"	11 1/4°	149	5.31	#5	3.5
	22 1/2°	297	6.68	#5	4.0
24"	11 1/4°	211	5.96	#5	4.0
	22 1/2°	422	7.51	#5	4.0
30"	11 1/4°	327	6.89	#5	4.0
	22 1/2°	649	8.66	#5	4.0

TYPE B BLOCKING FOR 45° VERTICAL BENDS				
PIPE SIZE NOMIN. DIAMETER - INCH	NO OF CU FT. OF CONC. BLOCKING	S SIDE OF CUBE FEET	d DIAMETER OF SHACK OR REBAR RODS - INCH	L DEPTH OF RODS IN CONCRETE FEET.
4"	29	3.08	#4	2.0
6"	60	3.92	#4	2.5
8"	102	4.68	#4	3.0
12"	217	6.01	#4	4.0
16"	377	7.23	#5	4.0
20"	581	8.35	#5	4.0
24"	827	9.39	#5	4.0
30"	1273	10.84	#5	4.0

SEE NOTES ON SHEET 3

1	APPROVED BY C.C.		DEC. 2025
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**TIE-DOWN  
& CONCRETE  
THRUST  
RESTRAINTS**

**WT-12  
2 OF 3**

## NOTES:

1. ALL WORK MUST BE INSPECTED AND APPROVED BY ENGINEER PRIOR TO BACK FILLING.
2. THRUST BLOCKS OR RESTRAINTS MUST BE POURED AGAINST UNDISTURBED SOIL.
3. CONCRETE MUST HAVE A MINIMUM OF 2,000 P.S.I. COMPRESSIVE STRENGTH IN 28 DAYS.
4. CONCRETE MUST BE ALLOWED TO CURE FOR 5 DAYS PRIOR TO PRESSURIZING WATER LINES OR HAVE ADDITIONAL APPROVED THRUST RESTRAINTS INSTALLED PRIOR TO PRESSURIZATION OF THE WATER LINE.
5. ALL PIPE JOINTS TO BE LEFT ACCESSIBLE.
6. REINFORCING STEEL BARS TO BE EPOXY COATED A MINIMUM OF 15 MIL THICK.
7. ALL METAL PIPE SHALL BE WRAPPED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASMENT SECURED WITH PVC PIPE WRAP TAPE. METAL FITTINGS, VALVES, HARDWARE, AND NUTS & BOLTS SHALL BE COATED WITH TRENTON WAX TAPE PRIMER, WRAPPED WITH TRENTON WAX TAPE PER AWWA C105, AND COVERED WITH 8 MIL V-BIO ENHANCED POLYETHYLENE ENCASMENT SECURED WITH PVC PIPE WRAP TAPE, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
8. THRUST DESIGN FOR PIPE SIZES OR CONFIGURATIONS NOT SHOWN REQUIRE SPECIAL DESIGN.
9. BEARING AREAS, VOLUMES, AND SPECIAL THRUST BLOCKING OR RESTRAINING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER THIS STANDARD.
10. RESTRAINT SIZING ASSUMES A MAXIMUM OPERATING PRESSURE OF 150 PSI TEST PRESSURES OF 200 P.S.I., AND A MINIMUM 2,000 POUND SOIL BEARING STRESS. OPERATING PRESSURES IN EXCESS OF 150 PSI. OR SOILS WITH LESS THAN 2,000 POUNDS BEARING STRESS WILL REQUIRE A SPECIAL DESIGN.
11. MINIMUM YIELD STRENGTH OF STEEL TIE DOWNS TO BE 70,000 PSI.
12. INSTALL APPROPRIATE SIZED THRUST BLOCKING ON ALL BLIND FLANGES, MJ PLUGS, AND CAPS.
13. LOCKING RESTRAINT DEVICES SHALL BE USED IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.

1	APPROVED BY C.C.		DEC. 2025		<u>TIE-DOWN</u> & <u>CONCRETE</u> <u>THRUST</u> <u>RESTRAINTS</u>	<b>WT-12</b> <b>3 OF 3</b>
NO.	AUTHORIZED BY	REVISIONS	DATE			