Water Details

City of Camas Water Details ~ INDEX

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WATER CONSTRUCTION NOTES:

1. ALL TRENCH EXCAVATION AND PIPE INSTALLATION SHALL CONFORM TO THE MOST CURRENT A.W.W.A. STANDARDS, AND THE MOST RECENTLY ADOPTED EDITION OF THE W.S.D.O.T. STANDARD SPECIFICATIONS SECTION 7-08.3(1) AND SECTION 7-08.3(2). ALL EXCESS MATERIAL FROM THE TRENCH EXCAVATION SHALL BE LOADED DIRECTLY INTO A DUMP TRUCK AND DISPOSED OF AT AN APPROVED SITE.

2. PIPE BEDDING AND PRE-COVER (PIPE ZONE) MATERIAL SHALL BE 5/8 INCH MINUS CRUSHED ROCK.

3. TRENCH BACKFILL MATERIAL SHALL BE 1-1/4 INCH MINUS CRUSHED ROCK.

4. TRENCH COMPACTION SHALL CONFORM TO THE MOST RECENTLY ADOPTED EDITION OF THE W.S.D.O.T. STANDARD SPECIFICATIONS SECTION 7-08.3(3). CONTRACTOR TO DETERMINE THE TYPE OF EQUIPMENT AND METHOD USED TO ACHIEVE THE REQUIRED COMPACTION AND BE APPROVED BY THE CITY OF CAMAS. EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY THE A.A.S.H.T.O. T-180 TEST METHOD.

5. SETTLEMENT OF THE FINISHED SURFACE WITHIN THE WARRANTY PERIOD SHALL BE CONSIDERED TO BE A RESULT OF IMPROPER COMPACTION AND SHALL BE PROMPTLY REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE CITY.

6. ALL VALVES 10 INCHES OR LESS IN DIAMETER SHALL BE A.W.W.A. APPROVED RESILIENT WEDGE GATE VALVES, BUBBLE TIGHT AT 200PSI, HAVE NON RISING STEMS, AND OPEN BY TURNING TO THE LEFT. PROVIDE A 2 INCH SQUARE NUT TO CONFORM TO A.W.W.A. C-504. ALL VALVES 12 INCHES OR LARGER IN DIAMETER SHALL BE A.W.W.A. APPROVED BUTTERFLY VALVES.

7. ALL WATER PIPE 12 INCHES OR LESS IN DIAMETER SHALL BE DUCTILE IRON CLASS 52 PIPE. ALL WATER PIPE 14 INCHES IN DIAMETER AND LARGER SHALL BE DUCTILE IRON CLASS 51 PIPE. RUBBER GASKET TYPE SHALL BE U.S. PIPE, TYTON OR APPROVED EQUAL. ALL FITTINGS SHALL BE DUCTILE IRON AND SHALL CONFORM TO THE A.W.W.A. STANDARD C-110.

8. ALL TEES, FLANGES, CAPS, BENDS AND OFFSETS, AS WELL AS ALL OTHER APPURTENANCES WHICH ARE SUBJECT TO UNBALANCED THRUST, SHALL BE PROPERLY BRACED BY ONE OF THE FOLLOWING METHODS:

   A. PRIMARY METHOD IS MECHANICAL JOINT RESTRAINT, AS SHOWN IN DETAIL W14 – USE "EBBA IRON SERIES 1100 MEGA LUG" MECHANICAL JOINT THRUST RESTRAINT OR APPROVED EQUAL. CONTRACTOR TO RESTRAIN THE MINIMUM REQUIRED PIPE LENGTH WITH "FIELD-LOK" GASKETS OR APPROVED EQUAL.

   B. ALTERNATE METHOD IS CONCRETE THRUST BLOCKING, AS SHOWN IN DETAIL W15 – BLOCKING SHALL BE 3000 PSI CONCRETE POURED IN PLACE. THRUST BLOCKING SHALL ONLY BE USED WHEN OTHER MEANS OF RESTRAINT CANNOT BE USED, OR EXISTING PIPE BEING CONNECTED IS NOT RESTRAINED.

9. ALL WATER MAINS SHALL BE TESTED AT 200PSI IN ACCORDANCE WITH SECTION 7-09.3(23) OF THE STANDARD SPECIFICATIONS. THE CITY SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF ACCEPTANCE TESTING. MAXIMUM LENGTH OF PIPE TO BE TESTED AT ONE TIME IS 1000 FT.

10. CHLORINATION SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 7-09.3(24) OF THE STANDARD SPECIFICATIONS. CITY INSPECTOR WILL TAKE SAMPLES AND DELIVER TO LABORATORY FOR BACTERIA TESTING, NEGATIVE SAMPLE RESULTS SHALL BE CONFIRMED, PRIOR TO PRESSURE TESTING. DECHLORINATION OR DISPOSAL TO SANITARY MAIN MAY BE REQUIRED.

11. APPROPRIATE DISPOSAL AND OR DECHLORINATION OF FLUSHED WATER DURING BLOWOFF IS THE RESPONSIBILITY OF THE CONTRACTOR. METHOD USED SHALL BE APPROVED BY CITY AND OTHER REGULATING AUTHORITIES.

12. WATER MAIN TO HAVE A MINIMUM COVER OF 30 INCHES. WATER SERVICES TO HAVE A MINIMUM 24" OF COVER.

13. ALL EXISTING VALVES TO BE OPERATED BY CITY OF CAMAS WATER/SEWER DEPARTMENT PERSONNEL ONLY.

14. NO CONNECTIONS TO EXISTING WATER MAINS SHALL BE MADE PRIOR TO SATISFACTORY PRESSURE TESTING, DISINFECTION, AND THE CONFIRMATION OF A NEGATIVE BACTERIA TEST.

15. WATER MAINS SHALL BE LOOPED WHEREVER POSSIBLE.

16. WATER MAINS SHALL BE 8" DIAMETER MINIMUM LINE SIZE. LARGER LINE SIZES MAY BE REQUIRED.

17. SEE IRRIGATION CONSTRUCTION NOTES, DETAIL IR1, FOR APPROVED BACKFLOW PREVENTION DEVICES.

City of Camas WASHINGTON

WATER DETAIL

WATER CONSTRUCTION NOTES

Jan P. Cantler 3-2-22

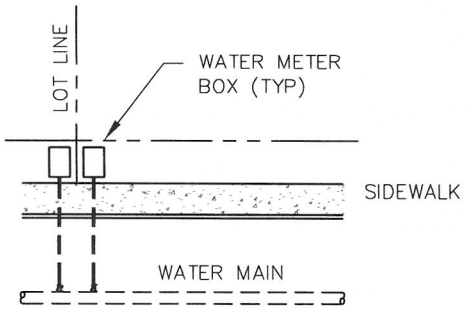
DETAIL APPROVED BY DATE

NOT TO SCALE

REVISION: 7 DATE: 03/02/2022

DETAIL NO. W1

WTR-NOTES.DWG



PLAN VIEW LOCATION OF ADJOINING LOT METER BOXES

PROFILE VIEW

DUCTILE IRON MAIN

6" OR LARGER REQUIRES DIRECT TAP.
4" MAIN – DOUBLE STRAP SADDLE REQUIRED FOR SERVICE CONNECTION

NOTES:

1. METER BOX SHALL BE EITHER OLDCASTLE FIBRELYTE FL12BOX WITH NO MOUSE HOLES OR ARMORCAST ROTOCAST P6000485.
2. COVER SHALL BE OLDCASTLE FIBRELYTE FL12D "WATER" OR ARMORCAST A6000484–H9 WITH OFFSET AMR RADIO READ ANTENNA HOLE FOR NEPTUNE METER
3. INSTALL METER BOX OUTSIDE OF SIDEWALK OR IN PLANTER STRIP, EXCEPT WHERE NOTED IN PLANS.
4. SEE TRENCH SECTION DETAILS G2 OR G3 FOR BACKFILL REQUIREMENTS.
5. METER BOXES FOR ADJOINING LOTS SHALL BE WITHIN 2' OF LOT LINE WHERE POSSIBLE (SEE ABOVE LEFT).
6. WATER METER SHALL BE INSTALLED BY THE CITY.
7. TONING WIRE SHALL BE COPPERHEAD SUPERFLEX 12 AWG 45MIL BLUE HDPE INSULATION, NO SPLICES ALLOWED.
8. SEAL TONING WIRE SPLICE CONNECTIONS WITH COPPERHEAD 12 AWG SNAKEBITE LOCKING CONNECTORS (TYPICAL).
9. NEW WATER MAINS REQUIRE TONING WIRE TO A LOCATE STATION
10. TONING WIRE FROM MAIN TO SERVICE REQUIRES A SNAKEBITE LOCKING CONNECTOR
11. PREFERRED BRASS FITTINGS TO BE USED, IN ORDER:
    1. FORD
    2. AY MCDONALD

City of Camas WASHINGTON

WATER DETAIL

1" WATER SERVICE – NEW

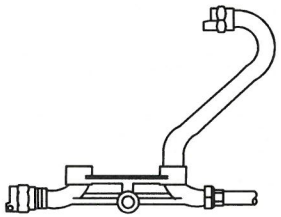
DETAIL APPROVED BY — DATE: 1/3/24

NOT TO SCALE

DETAIL NO. W2

REVISION: 10 DATE: 01/02/2024

WTR–WS1.DWG



METER RISER
SEE NOTE 4

PROFILE VIEW

DUCTILE IRON MAIN

6" OR LARGER REQUIRES DIRECT TAP.
4" MAIN – DOUBLE STRAP SADDLE
REQUIRED FOR SERVICE CONNECTION

NOTES:

1. METER BOX SHALL BE OLDCASTLE FIBRELYTE FL12BOX WITH NO MOUSE HOLES OR ARMORCAST ROTOCAST P6000485.
2. COVER SHALL BE OLDCASTLE FIBRELYTE FL12D "WATER" OR ARMORCAST A6000484–H9 WITH OFFSET AMR RADIO READ ANTENNA HOLE FOR NEPTUNE METER
3. REPLACE ALL SERVICES WHICH MEET ANY OF THE FOLLOWING CONDITIONS:
   – METER BOX IS RELOCATED
   – SUBSTANDARD EITHER BY MATERIALS OR LACK OF COVER
4. IF SERVICE LINE TO HOUSE IS DEEP, HALF OF A METER RISER MAY BE REQUIRED.
5. SEE TRENCH SECTION DETAILS G2 OR G3 FOR BACKFILL REQUIREMENTS. WATER METER SHALL BE INSTALLED BY THE CITY.
6. TONING WIRE SHALL BE COPPERHEAD SUPERFLEX 12 AWG 45MIL BLUE HDPE INSULATION, NO SPLICES ALLOWED.
7. SEAL TONING WIRE SPLICE CONNECTIONS WITH COPPERHEAD 12 AWG SNAKEBITE LOCKING CONNECTORS (TYPICAL).
8. PREFERRED BRASS FITTINGS TO BE USED, IN ORDER:
   1. FORD
   2. AY MCDONALD

City of Camas WASHINGTON

WATER DETAIL

1" WATER SERVICE – REPLACEMENT

1/3/24

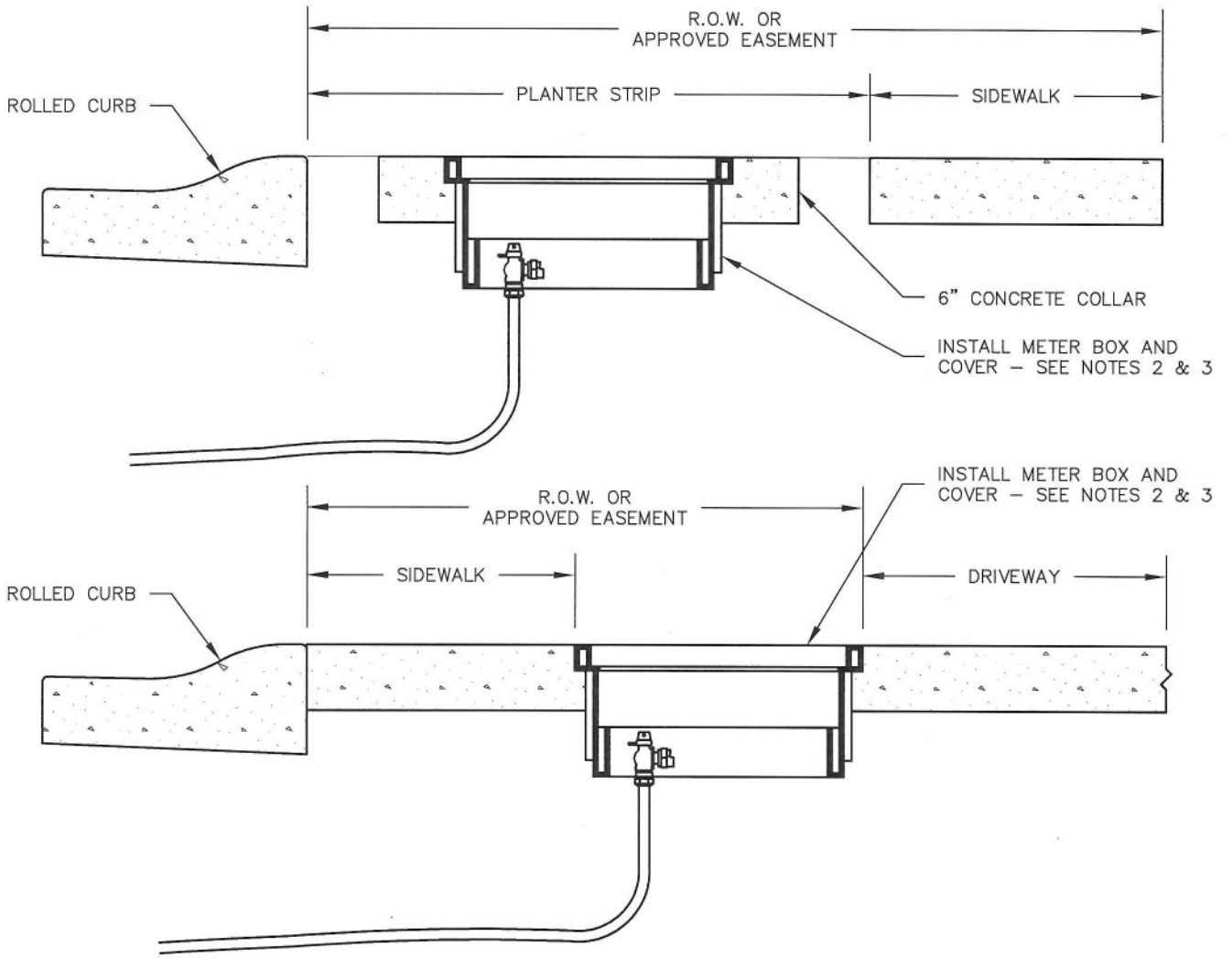
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W3

REVISION: 9 DATE: 01/02/2024

WTR–WS1.DWG



NOTES:

1. FOR INSTALLATIONS BEHIND ROLLED CURBS OR IN DRIVEWAYS WHERE H20 TRAFFIC RATING IS REQUIRED.
2. THE METER BOX SHALL BE SIGMA RAVEN HDPE STRAIGHT WALL BOX, BLACK, WITH NO MOUSE HOLES, M/N RMB132412–SW–B.
3. COVER SHALL BE SIGMA RAVEN POLYETHYLENE LID WITH OFFSET AMR RADIO READ ANTENNA HOLE FOR NEPTUNE METER, M/N N1324BLKWAT–TS.
4. BACKFILL AROUND METER BOX SHALL BE 5/8" MINUS CRUSHED SURFACING TOP COURSE. PLACE 2X6 WOOD SUPPORT ACROSS THE SHORT SIDE IN THE BASE OF BOX, PRIOR TO COMPACTION AROUND THE BOX, TO PREVENT INWARD BOWING.
4. METER BOX SHALL BE SET AT FINISH GRADE PRIOR TO CONCRETE BEING PLACED AROUND THE BOX.
5. METER BOXES SET IN PLANTER STRIPS AND IN HOT–MIX ASPHALT SHALL HAVE A 6 INCH CONCRETE COLLAR POURED AROUND THE METER BOX PRIOR TO PAVING.

City of Camas WASHINGTON

WATER DETAIL

H20 RATED 1" WATER METER BOX

Jan E. Cawthon 6-17-19

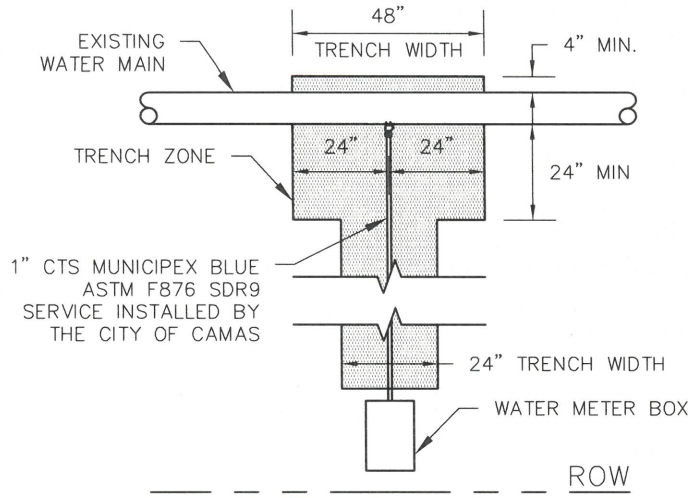
DETAIL APPROVED BY DATE

NOT TO SCALE

REVISION: 1 DATE: 6/11/2019

DETAIL NO. W4

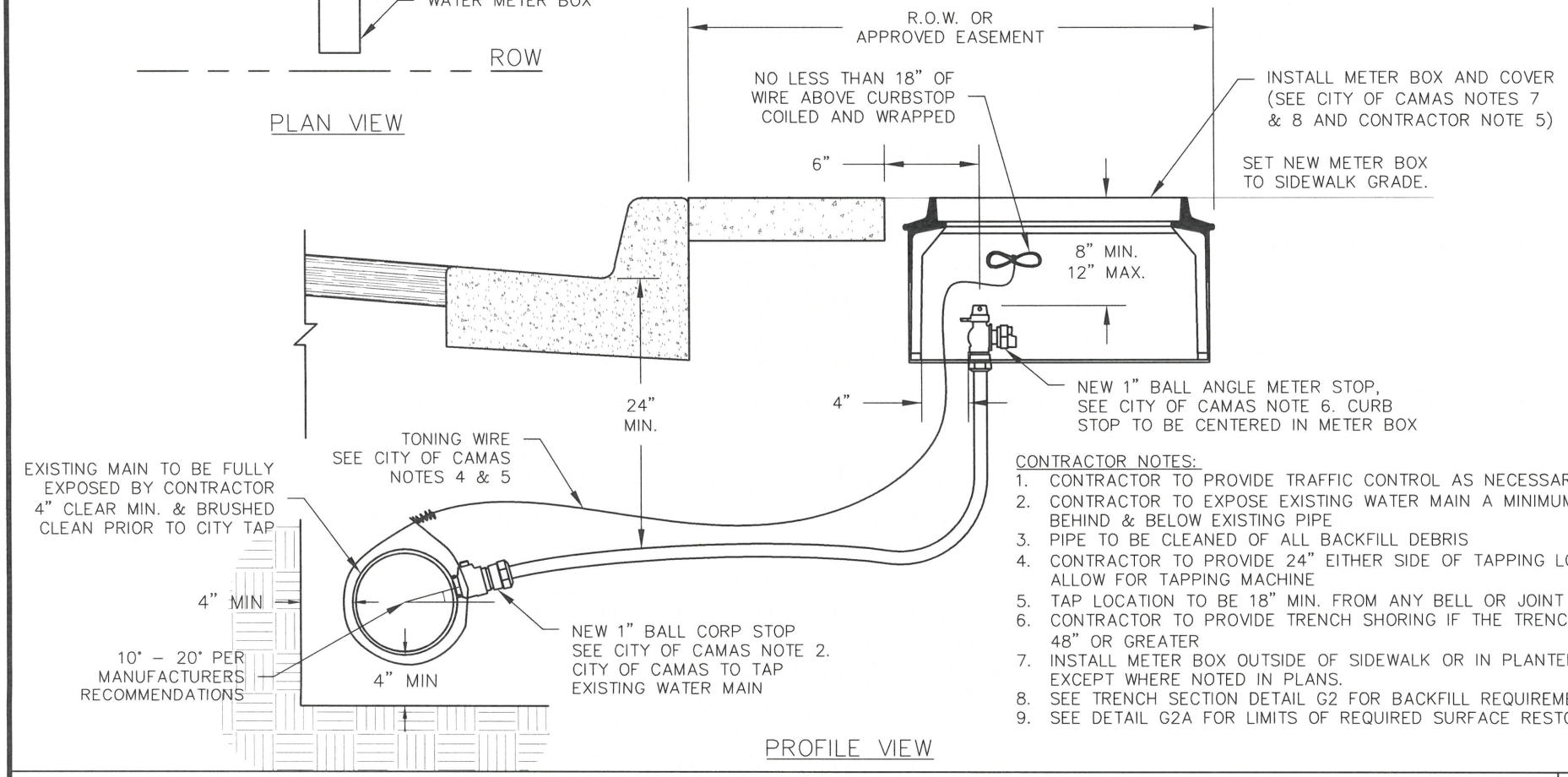
WTR–WS1 2019.DWG



PLAN VIEW

CITY OF CAMAS NOTES:

1. TAPPING OF THE EXISTING WATER MAIN IS TO BE PERFORMED BY THE CITY OF CAMAS.
2. CORP STOP SHALL BE 1" BALL CORP STOP, CC THREAD X COMPRESSION, WITH STIFFENER INSERT 6133T OR EQUIVALENT. PROVIDED AND INSTALLED BY THE CITY OF CAMAS
3. WATER SERVICE SHALL BE 1" CTS MUNICIPEX BLUE ASTM F876 SDR9, PROVIDED AND INSTALLED BY THE CITY OF CAMAS
4. TONING WIRE SHALL BE COPPERHEAD SUPERFLEX 12 AWG 45MIL BLUE HDPE INSULATION, NO SPLICES ALLOWED. PROVIDED AND INSTALLED BY THE CITY OF CAMAS.
5. SEAL TONING WIRE SPLICE CONNECTIONS WITH COPPERHEAD 12 AWG SNAKEBITE LOCKING CONNECTORS (TYP)
6. METER STOP SHALL BE 1" BALL ANGLE METER STOP, COMPRESSION X METER SWIVEL NUT, WITH STIFFENER INSERT 6133T OR EQUIVALENT. PROVIDED AND INSTALLED BY THE CITY OF CAMAS
7. METER BOX SHALL BE OLDCASTLE FIBRELYTE FL12BOX WITH NO MOUSE HOLES. CITY OF CAMAS TO PROVIDE METER BOX, CONTRACTOR TO INSTALL
8. COVER SHALL BE OLDCASTLE FIBRELYTE FL12D "WATER" WITH OFFSET AMR RADIO READ ANTENNA HOLE FOR NEPTUNE METER. CITY OF CAMAS TO PROVIDE COVER, CONTRACTOR TO INSTALL.
9. WATER METER SHALL BE INSTALLED BY THE CITY OF CAMAS



PROFILE VIEW

CONTRACTOR NOTES:

1. CONTRACTOR TO PROVIDE TRAFFIC CONTROL AS NECESSARY
2. CONTRACTOR TO EXPOSE EXISTING WATER MAIN A MINIMUM OF 4" BEHIND & BELOW EXISTING PIPE
3. PIPE TO BE CLEANED OF ALL BACKFILL DEBRIS
4. CONTRACTOR TO PROVIDE 24" EITHER SIDE OF TAPPING LOCATION TO ALLOW FOR TAPPING MACHINE
5. TAP LOCATION TO BE 18" MIN. FROM ANY BELL OR JOINT
6. CONTRACTOR TO PROVIDE TRENCH SHORING IF THE TRENCH DEPTH IS 48" OR GREATER
7. INSTALL METER BOX OUTSIDE OF SIDEWALK OR IN PLANTER STRIP, EXCEPT WHERE NOTED IN PLANS.
8. SEE TRENCH SECTION DETAIL G2 FOR BACKFILL REQUIREMENTS.
9. SEE DETAIL G2A FOR LIMITS OF REQUIRED SURFACE RESTORATION

City of Camas WASHINGTON

WATER DETAIL

1" WATER SERVICE – INFILL LOT

5-9-22

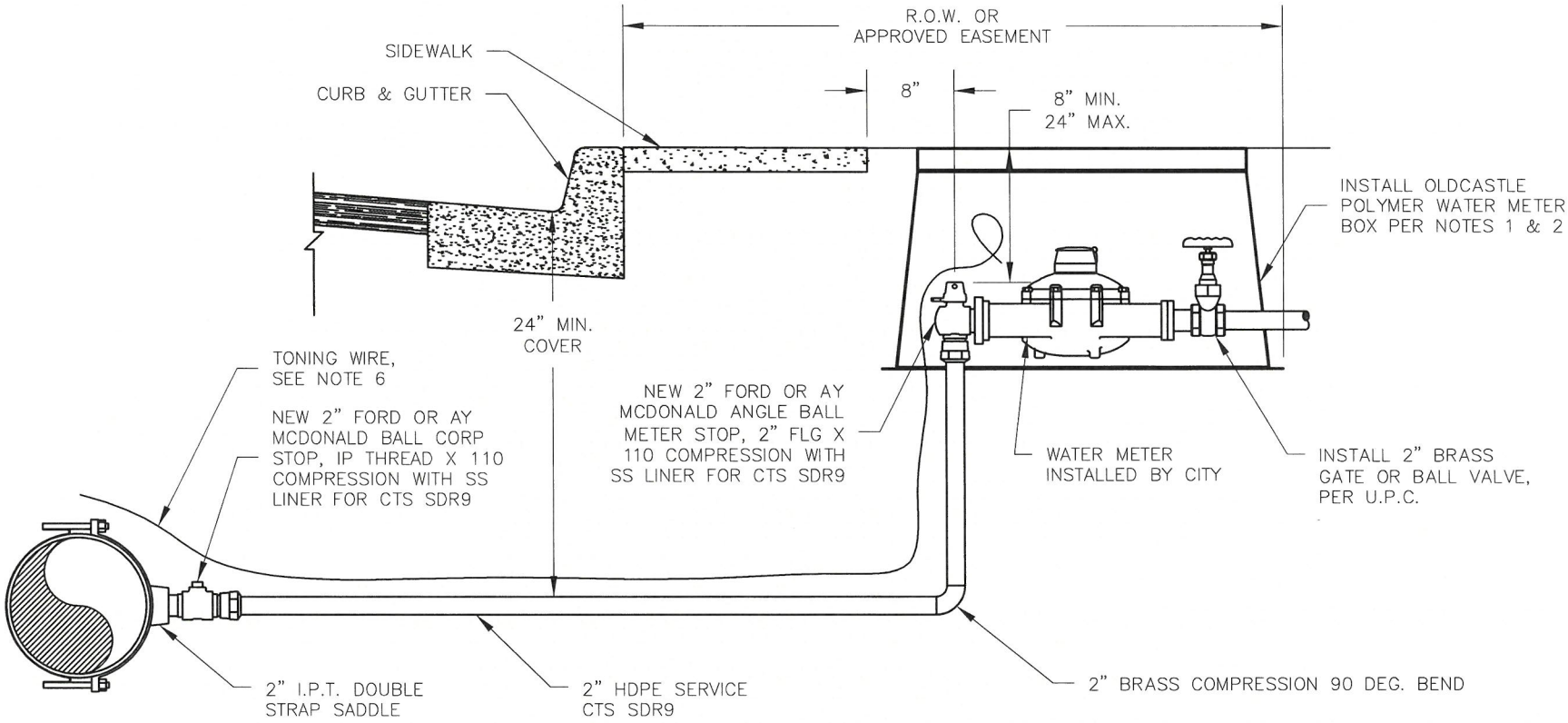
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W5

REVISION: 1 DATE: 05/09/2022

WTR – WS1.DWG



NOTES:

1. METER BOX SHALL BE OLDCASTLE FIBRELYTE FL36BOX18. INSTALL FL36X6 OR FL36X8 BASE EXTENSIONS AS REQUIRED.
2. COVER SHALL BE OLDCASTLE FIBRELYTE FL36 P "WATER" WITH OFFSET AMR RADIO READ ANTENNA HOLE FOR NEPTUNE METER
3. REPLACE ALL SERVICES WHICH MEET ANY OF THE FOLLOWING CONDITIONS:
   - METER BOX IS RELOCATED
   - SUBSTANDARD EITHER BY MATERIALS OR LACK OF COVER
4. SEE TRENCH SECTION DETAILS G2 OR G3 FOR BACKFILL REQUIREMENTS.
5. AFTER FEES HAVE BEEN PAID WATER METER SHALL BE ORDERED AND INSTALLED BY THE CITY.
6. TONING WIRE IS REQUIRED AND SHALL BE COPPERHEAD SUPERFLEX 12 AWG 45MIL BLUE HDPE INSULATION, NO SPLICES ALLOWED.

City of Camas WASHINGTON

WATER DETAIL

2" WATER SERVICE

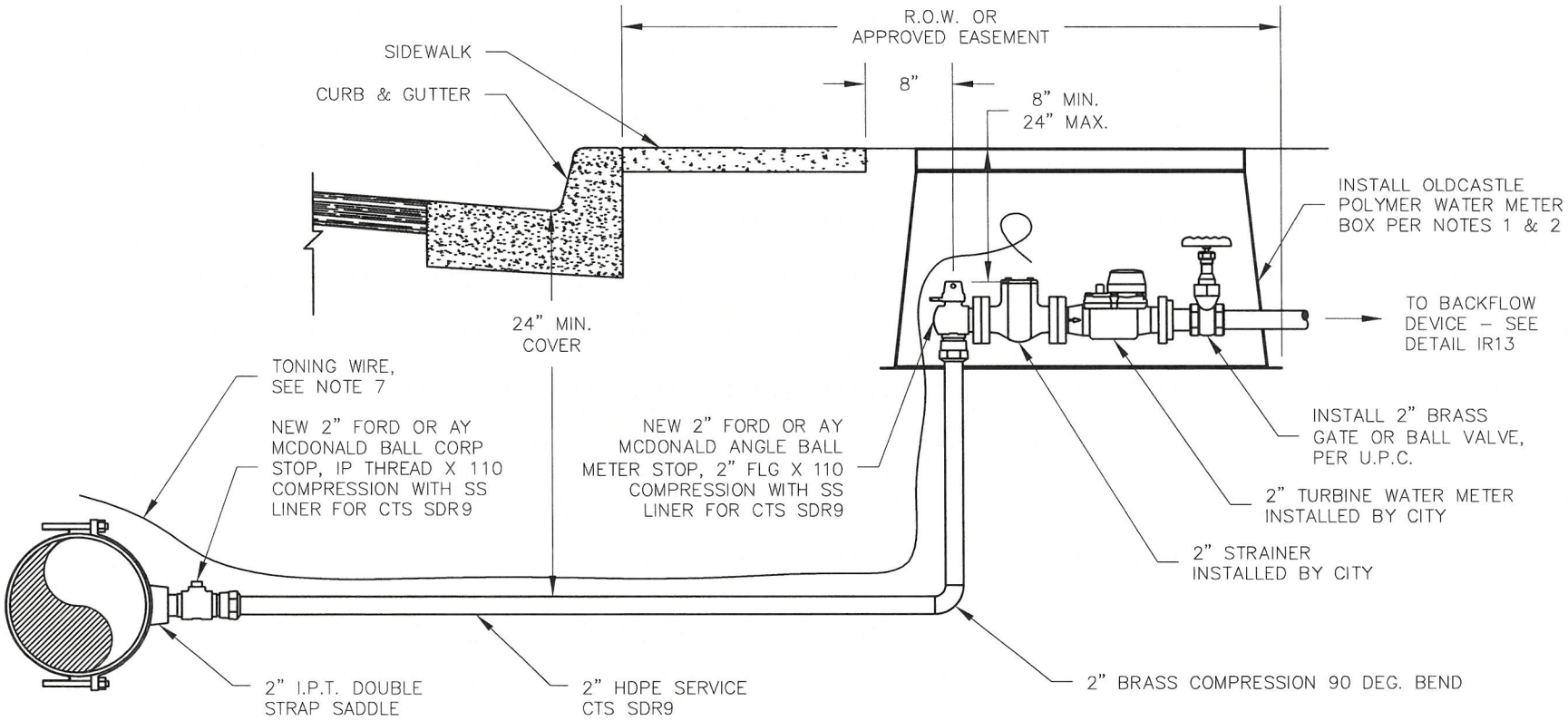
DETAIL APPROVED BY — DATE 5/20/24

NOT TO SCALE

DETAIL NO. W6

REVISION: 10 DATE: 05/20/2024

WTR-WS2.DWG



NOTES:

1. METER BOX SHALL BE OLDCASTLE FIBRELYTE FL36BOX18. INSTALL FL36X6 OR FL36X8 BASE EXTENSIONS AS REQUIRED.
2. COVER SHALL BE OLDCASTLE FIBRELYTE FL36 P "WATER" WITH OFFSET AMR RADIO READ ANTENNA HOLE FOR NEPTUNE METER
3. REPLACE ALL SERVICES WHICH MEET ANY OF THE FOLLOWING CONDITIONS:
   - METER BOX IS RELOCATED
   - SUBSTANDARD EITHER BY MATERIALS OR LACK OF COVER
4. SEE TRENCH SECTION DETAILS G2 OR G3 FOR BACKFILL REQUIREMENTS.
5. AFTER FEES HAVE BEEN PAID WATER METER SHALL BE ORDERED AND INSTALLED BY THE CITY.
6. 1–1/2" METER WILL REQUIRE A 2" X 1–1/2" REDUCER FITTING AND MAY REQUIRE ADDITIONAL METER BOX, OR SEPARATE VALVE BOX FOR GATE VALVE.
7. TONING WIRE IS REQUIRED AND SHALL BE COPPERHEAD SUPERFLEX 12 AWG 45MIL BLUE HDPE INSULATION, NO SPLICES ALLOWED.

City of Camas WASHINGTON

WATER DETAIL

2" WATER SERVICE FOR IRRIGATION

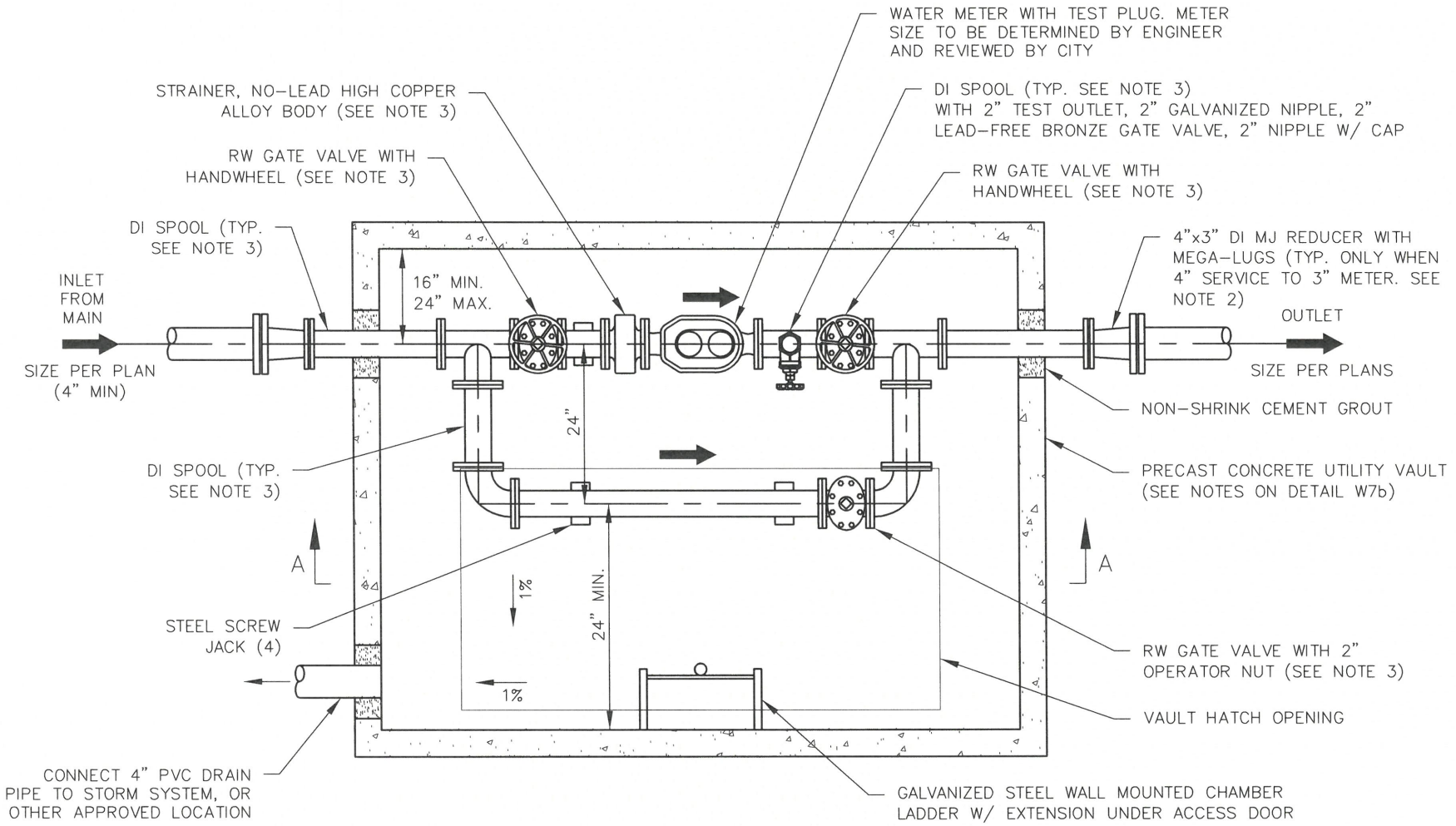
DETAIL APPROVED BY — DATE: 5/20/24

NOT TO SCALE

DETAIL NO. W6A

REVISION: 4 DATE: 05/20/2024

WTR–WS2.DWG



PLAN VIEW

WATER METER NOTES:

1. FOR NEW MAINS, INSTALL MAIN SIZE MJ x NEW SERVICE FL TEE (4" MIN). FOR EXISTING MAINS, LIVE TAP TO BE PERFORMED BY APPROVED TAPPING CONTRACTOR.
2. ALL COMPONENTS TO MATCH METER SIZE.
3. PROVIDE FLANGED CONNECTIONS FOR ALL JOINTS ON 3" DUCTILE IRON PIPE AND FITTINGS; FOR 4" AND BIGGER PROVIDE APPROVED JOINT RESTRAINT FOR ALL JOINTS.
4. CONSTRUCTION AND MAINTENANCE WITHIN VAULTS MAY BE SUBJECT TO CONFINED SPACE ENTRY PERMITTING REQUIREMENTS AND/OR SAFETY PRECAUTIONS.
5. WATER METER TO BE ORDERED, PAID, AND INSTALLED BY CONTRACTOR. BRAND AND TYPE TO BE APPROVED BY WATER DEPARTMENT.

City of Camas WASHINGTON

WATER DETAIL

3" – 8" WATER SERVICE

Jan E. Cavaletto 3-24-22

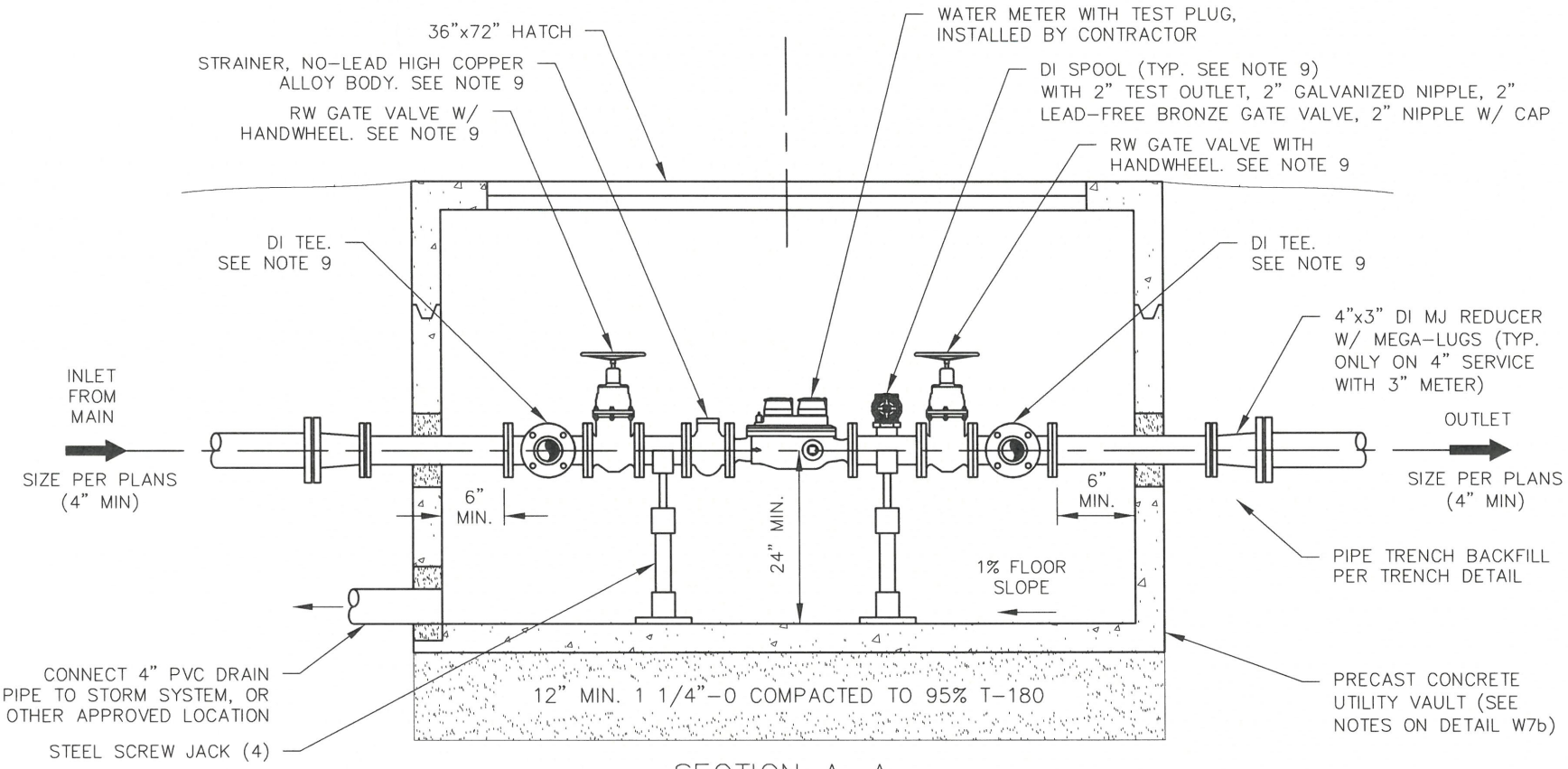
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W7A

REVISION: 4 DATE: 03/22/2022

WTR-WS3.DWG



SECTION A-A

(BY-PASS LINE REMOVED FOR CLARITY)

VAULT CONSTRUCTION NOTES:

1. VAULT SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
2. VAULTS SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
3. APPROVED VAULT SHALL BE RATED FOR H20 LOADING AND INCLUDE AN EXTENSION LADDER, MINIMUM INSIDE DIMENSIONS 8'Lx6'Wx5'H.
4. VAULT SHALL BE SET FOR 1% SLOPE TO DRAIN.
5. ALL BACKFILL SHALL BE APPROVED GRANULAR MATERIAL.
6. HATCH SHALL BE AN H20 RATED, 36"x72" SPRING ASSISTED, HOT DIPPED GALVANIZED DIAMOND PLATE DOUBLE DOOR. FOR TRAFFIC INSTALLATIONS A 30" MANHOLE LID SHALL BE USED INSTEAD OF A HATCH.
7. SUMP PUMP MAY BE REQUIRED ON INSTALLATIONS WHERE DRAIN PIPE CANNOT BE CONNECTED TO ADEQUATE STORM DRAIN SYSTEM. THE APPROVED SUMP PUMP SHALL BE A COMMERCIAL GRADE WATER POWERED VENTURI DESIGN WITH BACKFLOW PREVENTION, SIZED TO PROVIDE 10GPM AT 10 FEET OF HEAD AT THE AVAILABLE SYSTEM WATER PRESSURE. BACKFLOW DEVICE SHALL BE CERTIFIED BY WASHINGTON STATE CERTIFIED BACKFLOW TESTER AFTER INSTALLATION AND PRIOR TO ACCEPTANCE. TEST RESULTS SHALL BE SENT TO CITY OF CAMAS WATER DEPARTMENT.
8. CONSTRUCTION AND MAINTENANCE WITHIN VAULTS MAY BE SUBJECT TO CONFINED SPACE ENTRY PERMITTING REQUIREMENTS AND/OR SAFETY PRECAUTIONS.
9. PROVIDE FLANGED CONECTIONS FOR ALL JOINTS 3" DI PIPE AND FITTINGS; FOR 4" AND BIGGER PROVIDE APPROVED JOINT RESTRAINTS.

City of Camas WASHINGTON

WATER DETAIL

3" – 8" WATER SERVICE

Jim C. Carothers 3-24-22

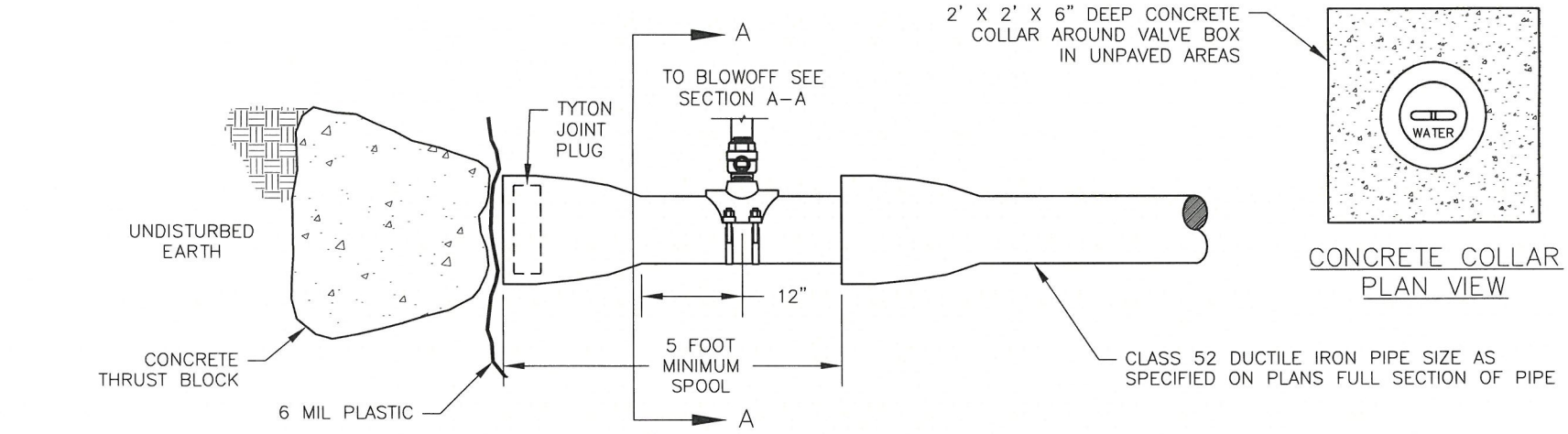
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W7B

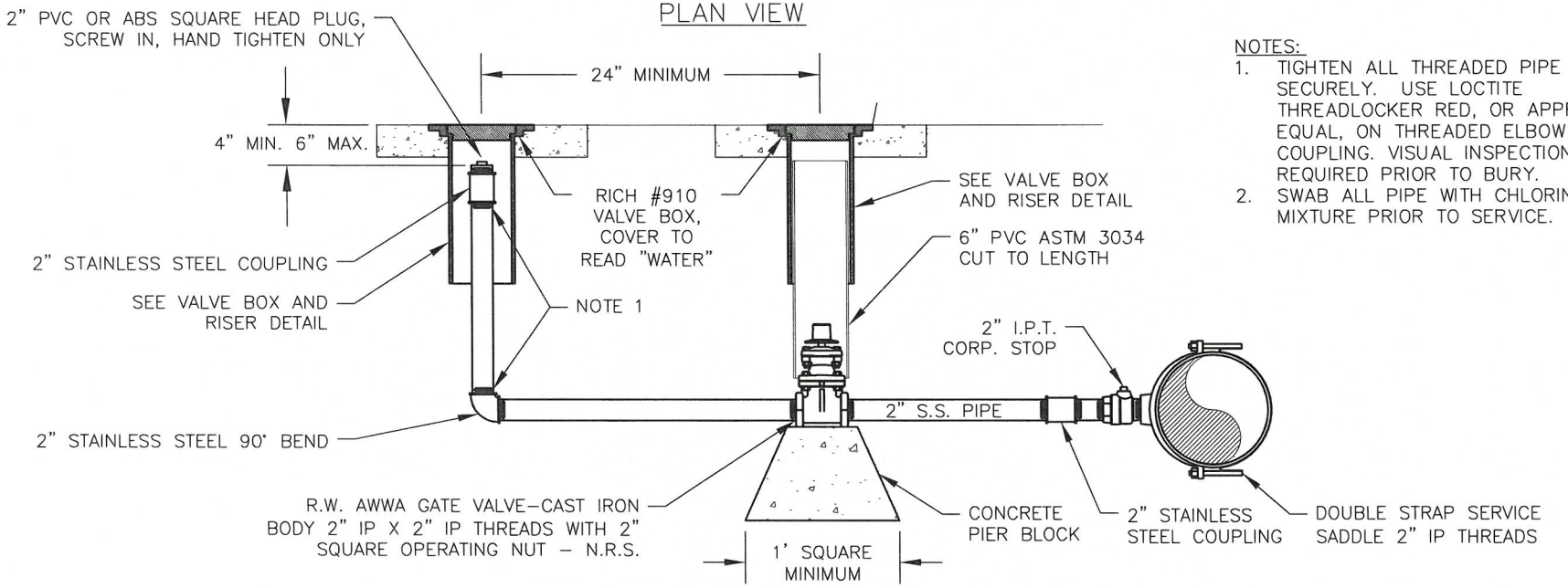
REVISION: 4 DATE: 03/22/2022

WTR-WS3.DWG



PLAN VIEW

CONCRETE COLLAR PLAN VIEW



SECTION A–A

NOTES:
1. TIGHTEN ALL THREADED PIPE JOINTS SECURELY. USE LOCTITE THREADLOCKER RED, OR APPROVED EQUAL, ON THREADED ELBOW AND COUPLING. VISUAL INSPECTION REQUIRED PRIOR TO BURY.
2. SWAB ALL PIPE WITH CHLORINE MIXTURE PRIOR TO SERVICE.

City of Camas WASHINGTON

WATER DETAIL

2" STANDARD BLOWOFF

1/3/24

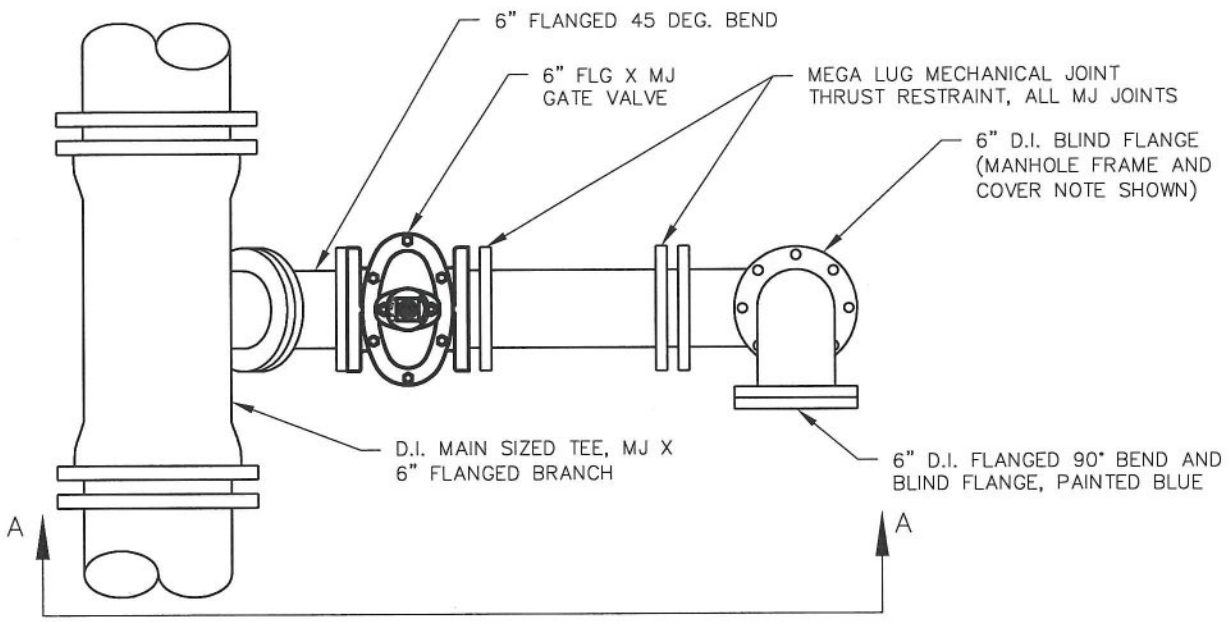
DETAIL APPROVED BY DATE

NOT TO SCALE

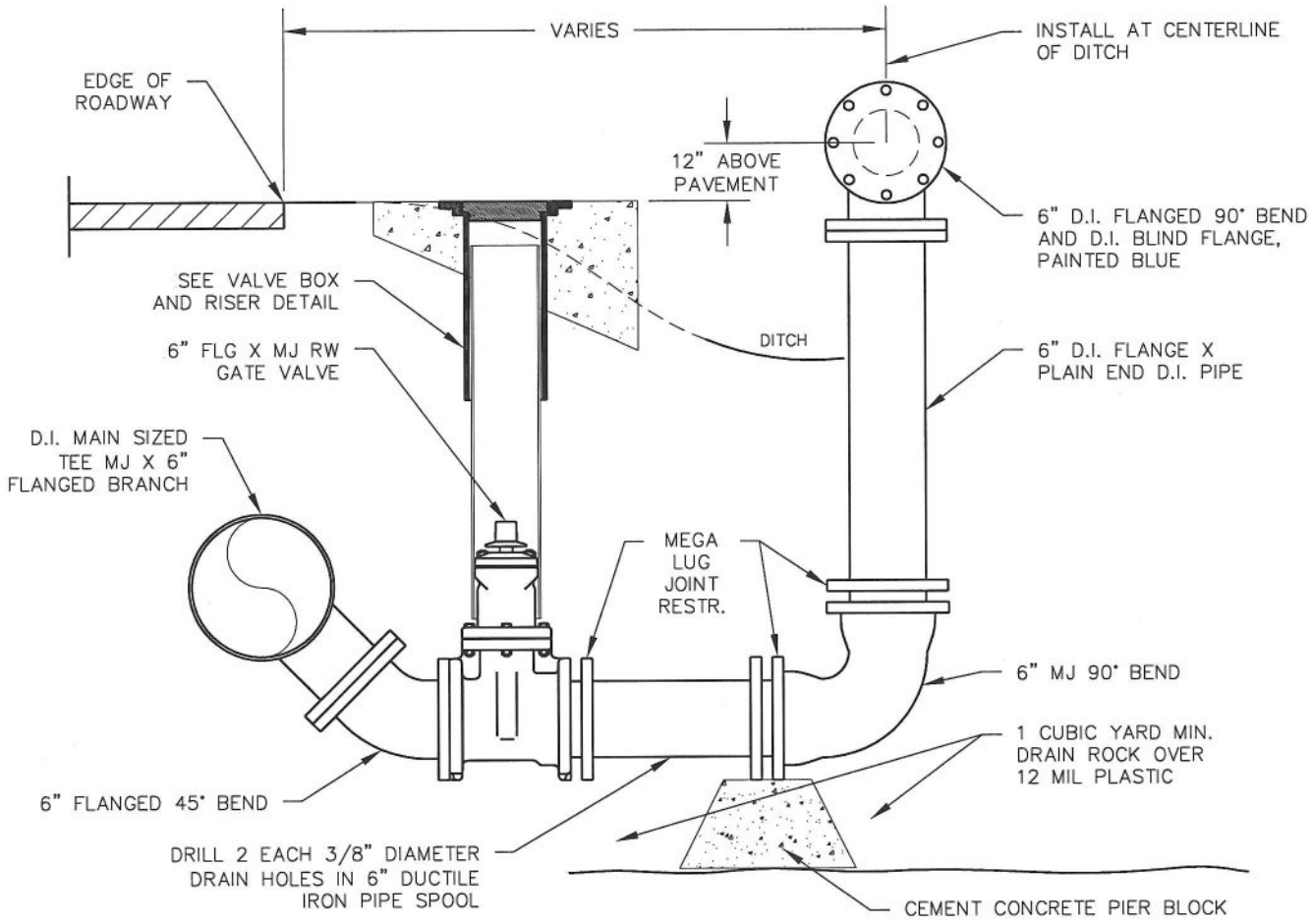
DETAIL NO. W8

REVISION: 7 DATE: 01/02/2024

WTR–BLOWOFF.DWG



PLAN VIEW



SECTION VIEW A–A

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

6" LOW POINT BLOW OFF – DITCH

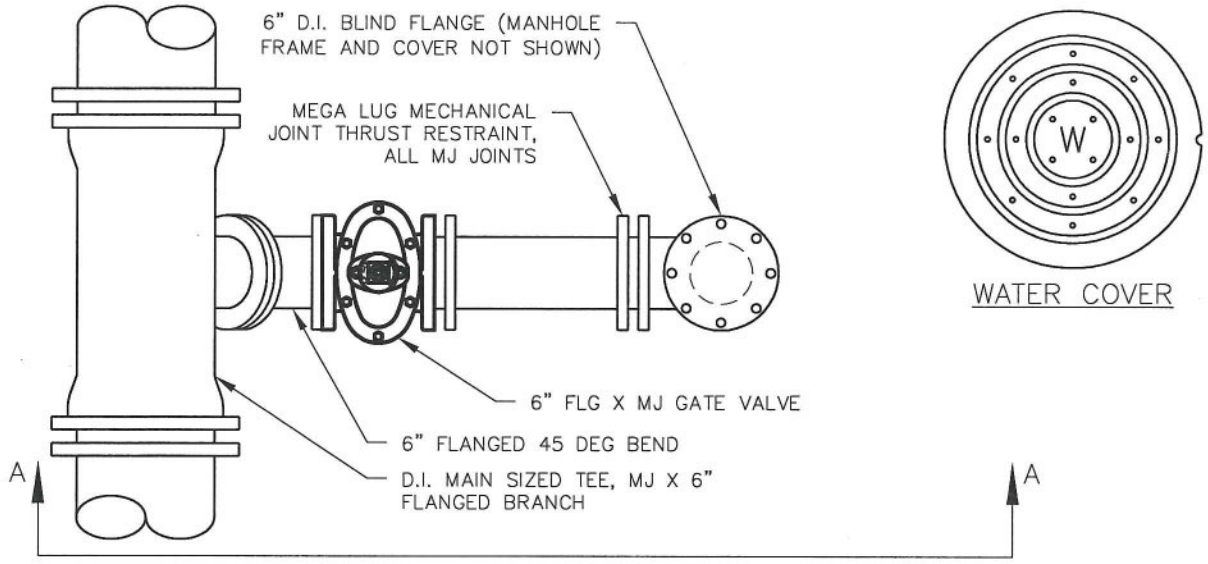
Jan E Carothers 1-4-11

DETAIL APPROVED BY DATE

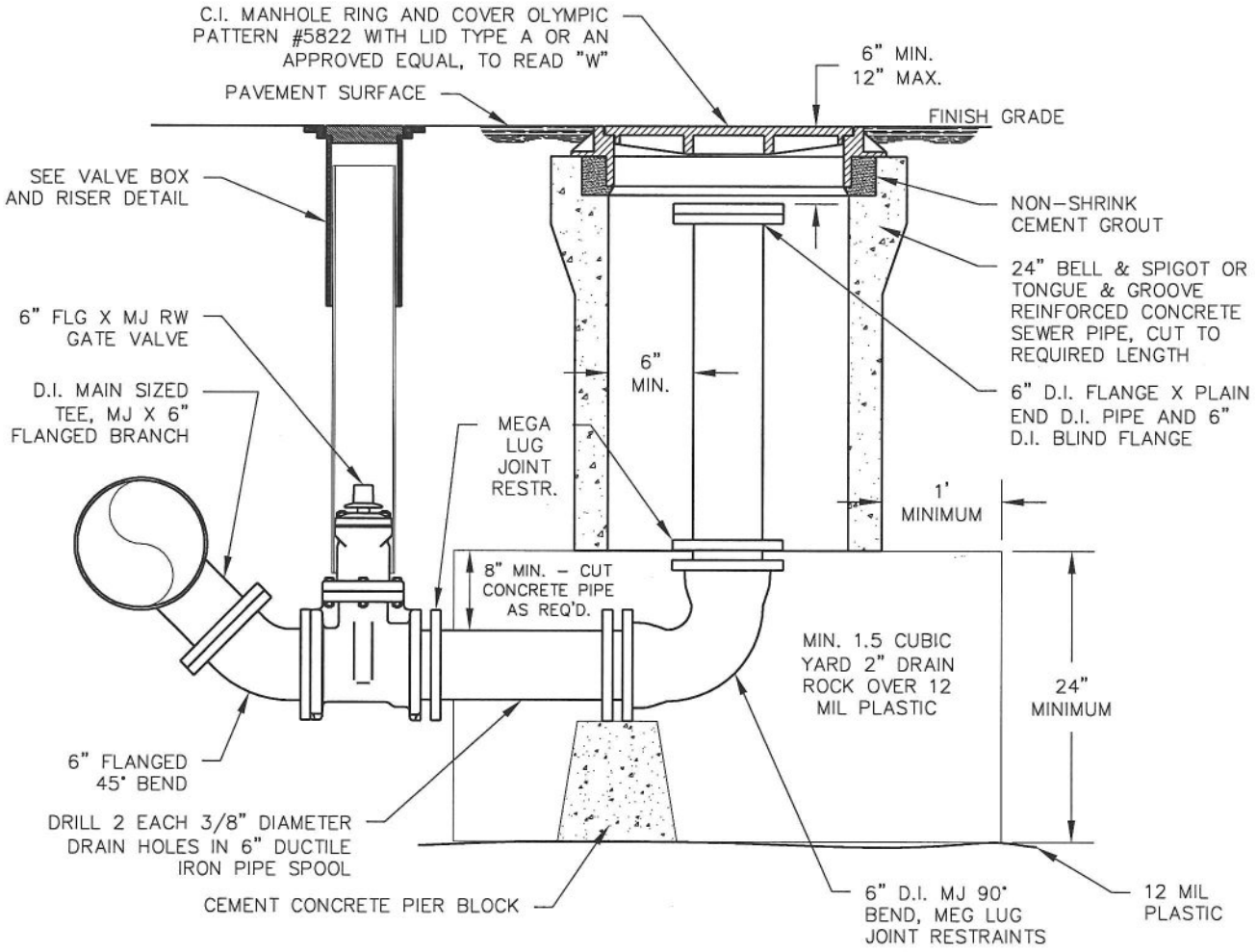
NOT TO SCALE

DETAIL NO. W9

WTR–6BLOWOFF.DWG



PLAN VIEW



SECTION VIEW A-A

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

6" LOW POINT BLOW OFF - STREET

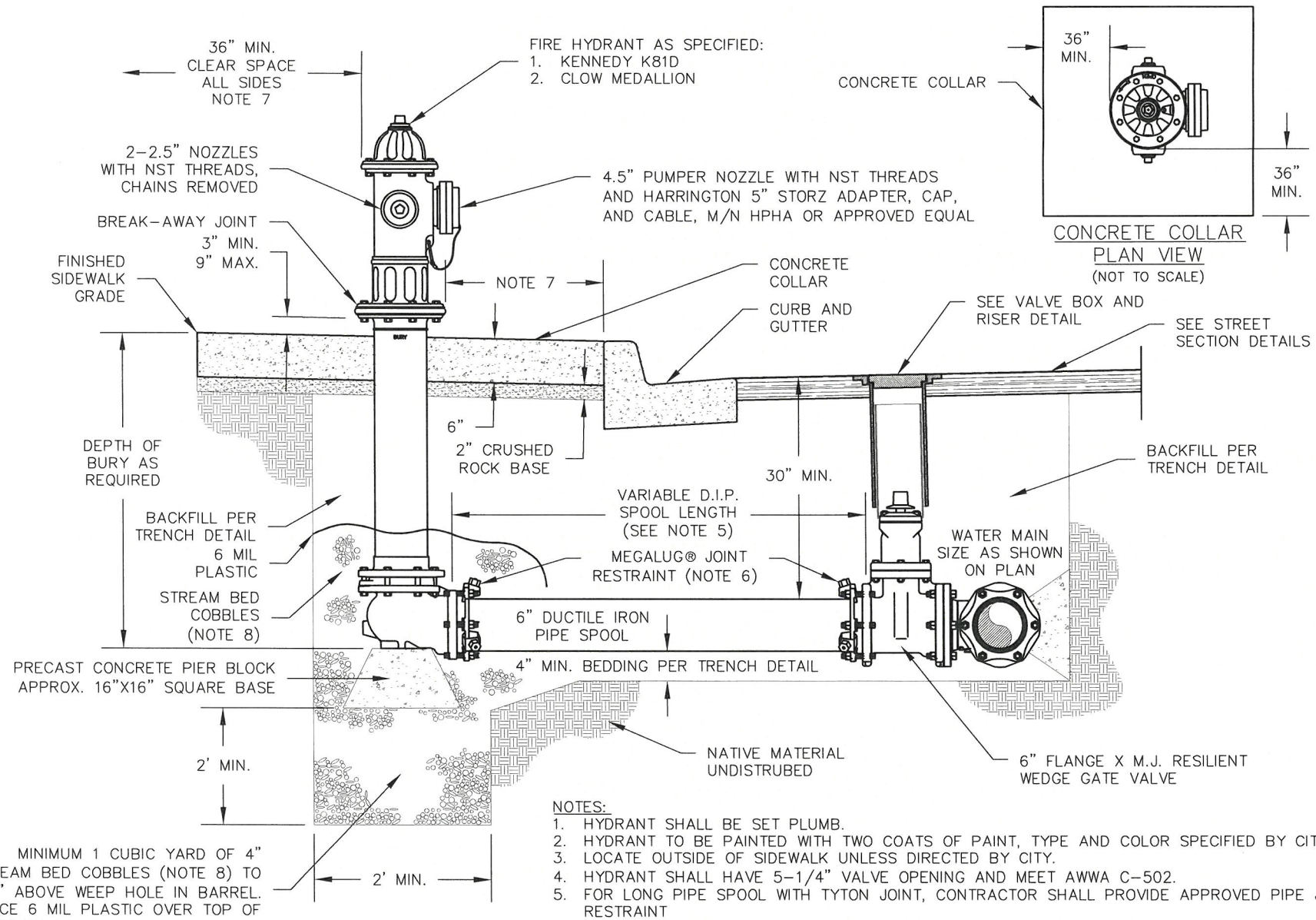
Jon P. Carothers 1-4-11

DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W10

WTR-6BLOWOFF.DWG



NOTES:

1. HYDRANT SHALL BE SET PLUMB.
2. HYDRANT TO BE PAINTED WITH TWO COATS OF PAINT, TYPE AND COLOR SPECIFIED BY CITY.
3. LOCATE OUTSIDE OF SIDEWALK UNLESS DIRECTED BY CITY.
4. HYDRANT SHALL HAVE 5-1/4" VALVE OPENING AND MEET AWWA C-502.
5. FOR LONG PIPE SPOOL WITH TYTON JOINT, CONTRACTOR SHALL PROVIDE APPROVED PIPE JOINT RESTRAINT
6. EBAA IRON SERIES 1100 MEGALUG® MECHANICAL JOINT THRUST RESTRAINT.
7. 36" MINIMUM CLEARANCE ON ALL SIDES (MAY INCLUDE SIDEWALK), 20" MINIMUM ONLY ON CURB SIDE
8. 4 INCH STREAM BED COBBLES PER WSDOT SPEC WSDOT 9-03.11(2)

City of Camas WASHINGTON

WATER DETAIL

FIRE HYDRANT

DETAIL APPROVED BY

1/3/24

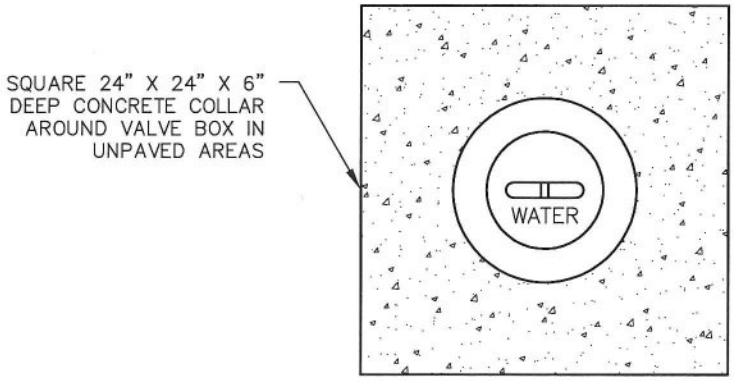
DATE

NOT TO SCALE

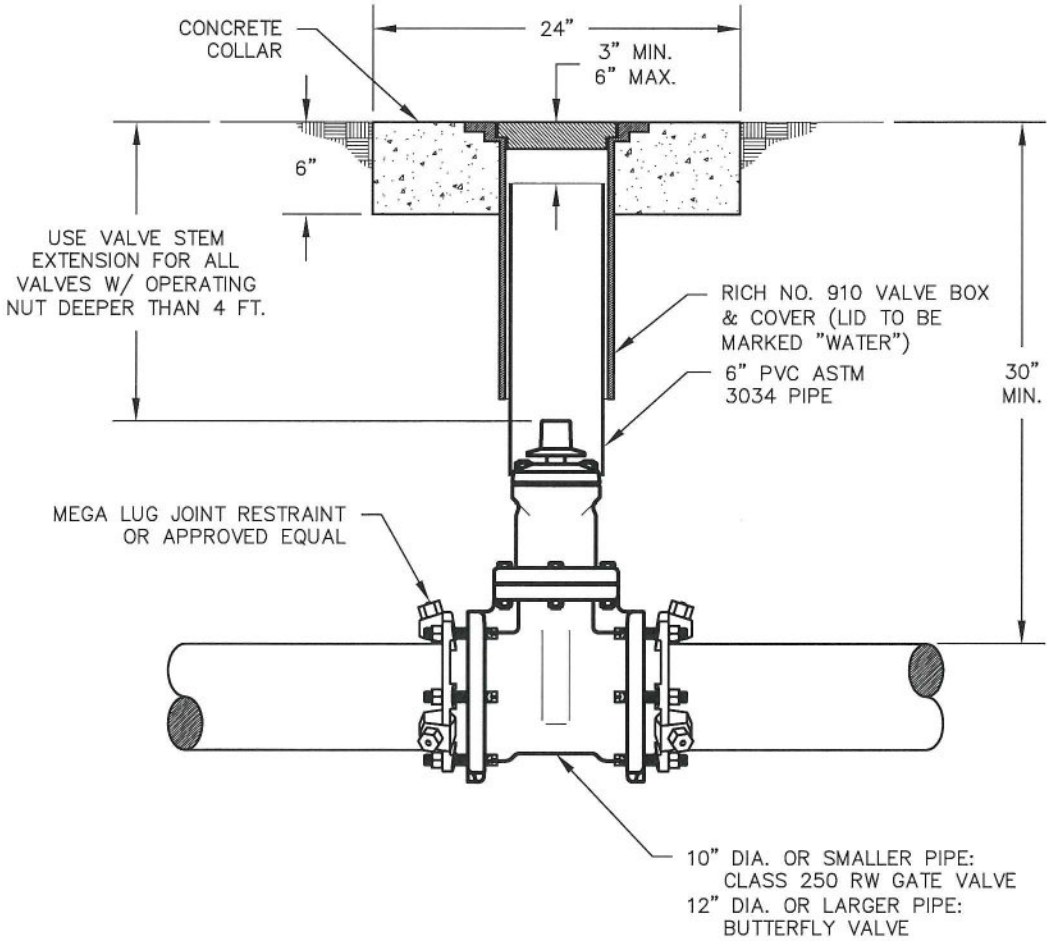
DETAIL NO. W11

REVISION: 8 DATE: 01/02/2024

WTR-FHYD.DWG



CONCRETE COLLAR PLAN VIEW



REV. NO.	DATE	BY	APPR.
1	7/17/06	SCD	RES1076
2	5/1/07	SCD	JC
3	1/1/11	SCD	JC
4	10/21/14	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

VALVE BOX AND RISER

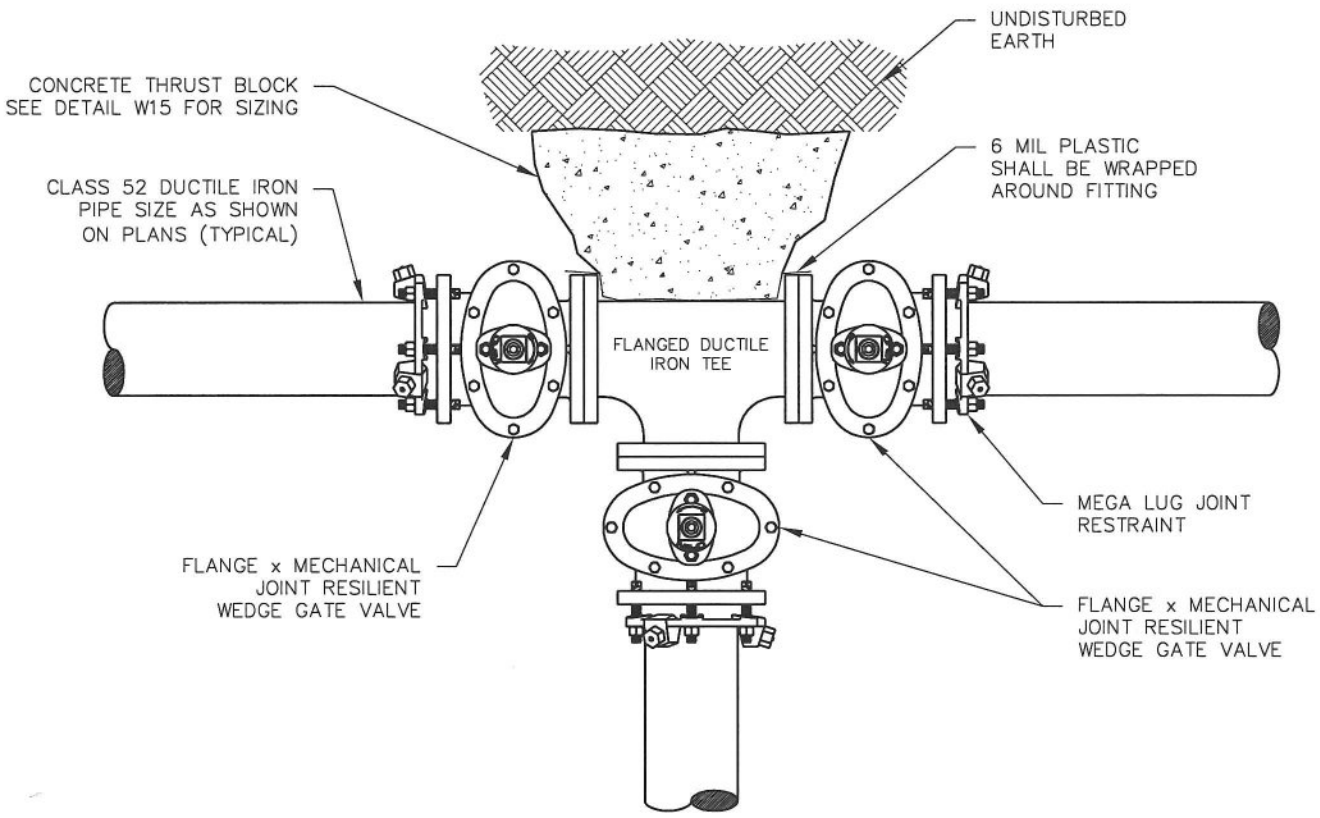
10-21-14

DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W12

WTR-RISER.DWG



NOTES:

1. VALVES TO BE INSTALLED AT ALL BRANCHES. FOR LONG MAIN LINE RUNS, INLINE VALVE SPACING NOT TO EXCEED 500'. LOOP WATER SYSTEM WHEREVER POSSIBLE. KEEP DEAD ENDS TO A MINIMUM.
2. MECHANICAL THRUST RESTRAINT MAY BE USED DUE TO UNSTABLE SOILS OR THE ENGINEER'S DISCRETION.
3. SEE DETAIL W15 FOR THRUST BLOCK REQUIREMENTS.

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

WATER MAIN LINE AND VALVE

Jan E. Cauthorn 1-4-11

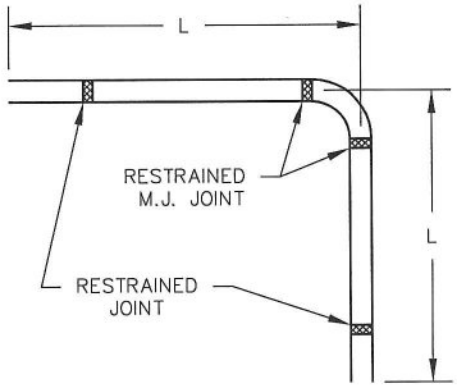
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W13

WTR-VALVE.DWG

FOR HORIZONTAL BENDS:



MINIMUM REQUIRED PIPE LENGTHS FOR RESTRAINED JOINTS

BEND IN DEGREES	PIPE DIAMETER 6"	8"	10"	12"
90°	25'	33'	39'	45'
45°	10'	13'	16'	19'
22 1/2°	5'	6'	8'	9'
11 1/2°	3'	3'	4'	4'

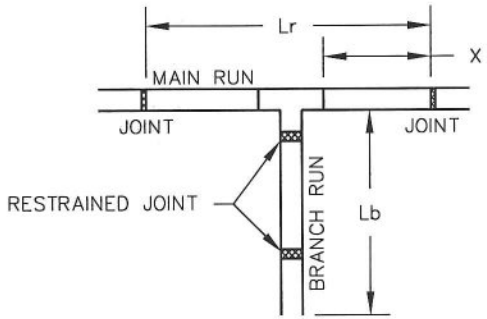
NOTE: CHART USES WORKING PRESSURE OF 200 PSI

FOR PRESSURES OTHER THAN 200 PSI USE:

$$\frac{(L) \times (\text{PRESSURE})}{200}$$

NOTE:
FIELD–LOCK GASKETS ARE APPROVED FOR RESTRAINED JOINT INSTALLATION.

FOR TEES:



MINIMUM REQUIRED PIPE LENGTHS FOR RESTRAINED JOINTS

FOR 6" TEES USE FORMULA
Lb= 50 – 1.63 (Lr)

WHERE:
Lb= THE MINIMUM REQUIREDRESTRAINED PIPE (IN FEET)ON THE BRANCH LINE
Lr= THE TOTAL LENGTH (IN FEET) BETWEEN THE FIRST JOINTS ON EITHER SIDE OF THE TEE ON THE MAIN RUN.

NOTE:
CONDITIONS TO BE FIELD VERIFIED BY ENGINEER.

IF (X) IS LESS THAN 5 FEET THEN PIPE MUST BE RESTRAINED TWO FULL LENGTHS.

FOR 8" TEE USE FORMULA
Lb= 64 – 1.65(Lr)

FOR 12" TEE USE FORMULA
Lb= 90 –1.67(Lr)

REV. NO.	DATE	BY	APPR.
1	7/17/06	SCD	RES1071
2	5/1/07	SCD	JC
3	1/1/11	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

PIPE JOINT RESTRAINT

Jon E. Cauthen 1-4-11
DETAIL APPROVED BY DATE

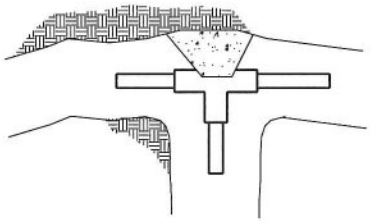
NOT TO SCALE

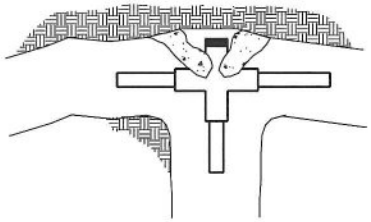
DETAIL NO.
W14

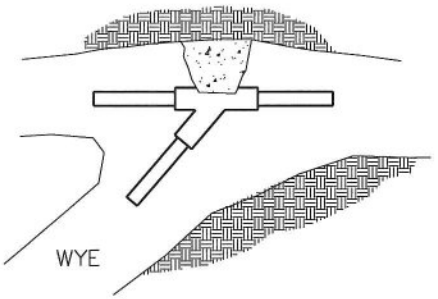
WTR–THRUST.DWG

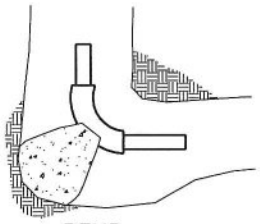
FITTING SIZE	TEE, WYE, PLUG OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED ON RUN		45° BEND	22 1/2° BEND	11 1/2° BEND
			A1	A2			
4	1.0	1.4	1.9	1.4	1.0	--	--
6	2.1	3.0	4.3	3.0	1.6	1.0	--
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.4	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3
16	15.0	21.3	30.0	21.3	11.6	6.0	3.0
18	19.0	27.0	38.0	27.0	14.6	7.6	3.8
20	23.5	33.3	47.0	33.3	18.1	9.4	4.7
24	34.0	48.0	68.0	48.0	26.2	13.6	6.8

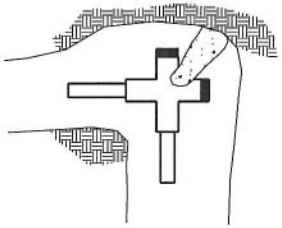
NOTES:
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH
2. KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES.
3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCIRCLED ON THE PLANS. e.g. (15) INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
4. IF NOT SHOWN ON PLANS THE REQUIRED BEARING AREAS AT FITTINGS SHALL BE AS INDICATED IN TABLE, ADJUSTED IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWED SOIL BEARING STRESS(ES) STATED IN THE SPECIAL SPECIFICATIONS.
5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.
6. ALL FITTINGS SHALL BE WRAPPED IN 6 MIL PLASTIC PRIOR TO THRUST BLOCK PLACEMENT MAKING SURE THE BOLTS AND NUTS ARE PROTECTED.
7. THRUST BLOCKS SHALL BE GIVEN 72 HOURS TO SET UP PRIOR TO PRESSURIZING LINE OR AS DIRECTED BY CITY INSPECTOR.

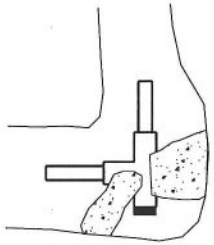

TEE

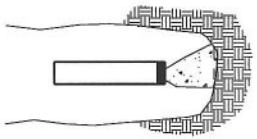

PLUGGED CROSS


WYE


BEND


PLUGGED CROSS


PLUGGED TEE


PLUG OR CAP

NOTES:
1. ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 2,000 LBS. PER SQUARE FOOT.
2. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES USE THE FOLLOWING EQUATION:
   BEARING AREA=(TEST PRESSURE/150)x(2000/SOIL BEARING STRESS)x(TABLE VALUE)
3. EACH AREA IS 1/2 OF REQUIRED TOTAL AREA

REV. NO.	DATE	BY	APPR.
1	7/17/06	SCD	RES1071
2	5/1/07	SCD	JC
3	1/1/11	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

THRUST BLOCKS

Jan E Carothers 1-4-11

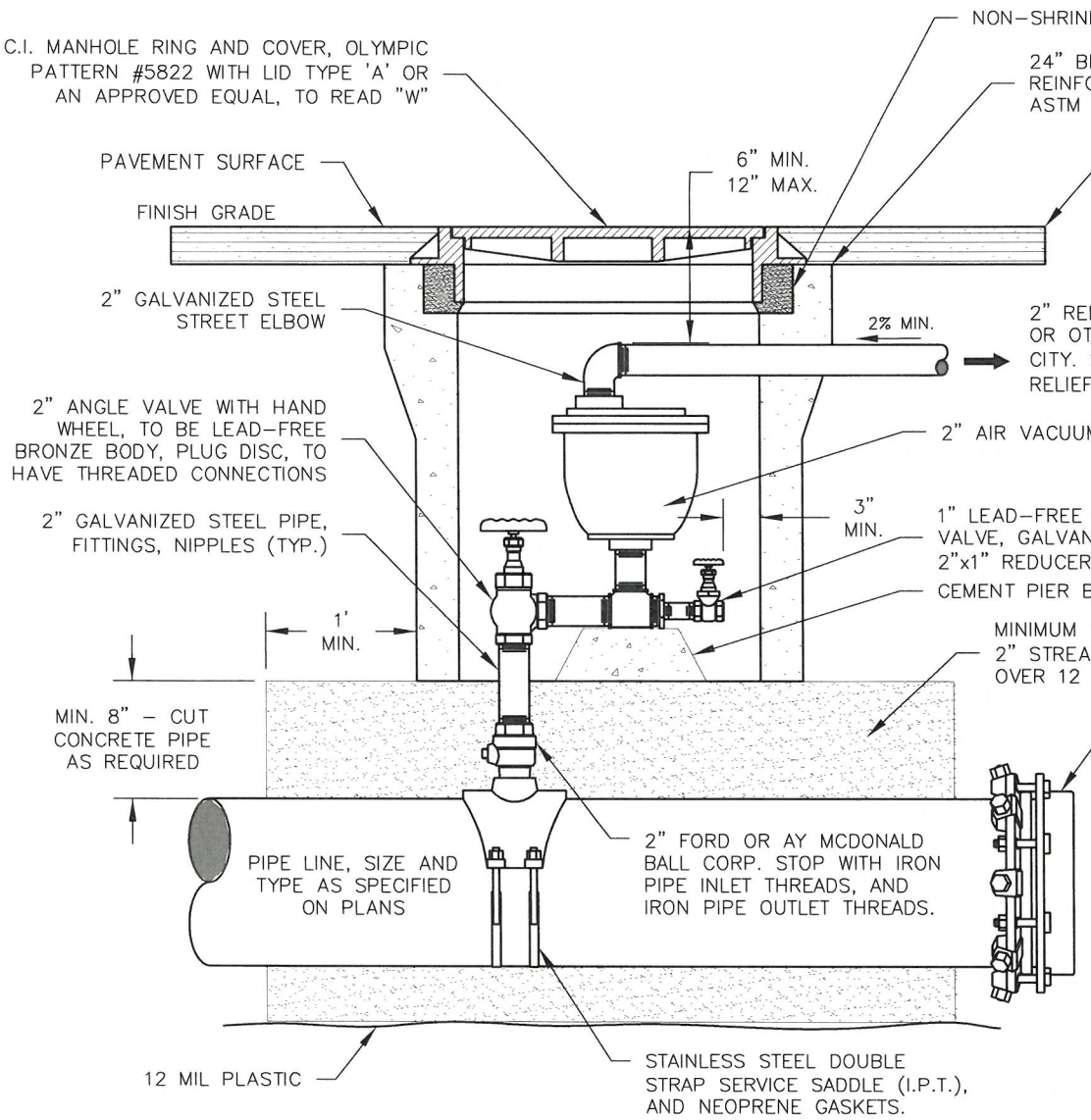
DETAIL APPROVED BY DATE

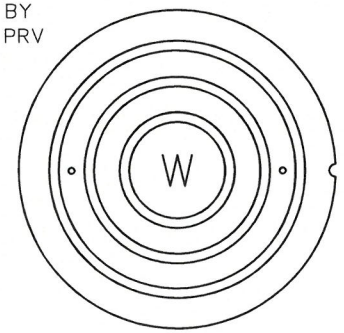
NOT TO SCALE

DETAIL NO.

W15

WTR-THRUST.DWG





WATER COVER

NOTES:

1. THIS INSTALLATION ONLY TO BE USED AT HIGH-POINT DEAD END ROADS WHERE THE MAIN WILL BE EXTENDED IN THE FUTURE.
2. CORPORATION STOP, ANGLE VALVE, AND CONNECTING PIPE SHALL BE THE SAME DIAMETER AS THE AIR INLET.
3. USE APPROVED JOINTING COMPOUND ON ALL THREADED CONNECTIONS.
4. ROTATE AIR/VACUUM VALVE TO PROVIDE MAXIMUM CLEARENCE FOR ACCESS TO ANGLE VALVE.
5. AIR/VACUUM VALVE TO BE EQUAL TO APCO HEAVY DUTY COMBINATION AIR RELEASE VALVE, MODEL #145C.
6. ALL PIPE SHALL BE SCHEDULE 40 GALV. STEEL PIPE CONFORMING TO ASTM A 120.
7. DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER THIS STANDARD DETAIL.
8. AIR/VAC ASSEMBLY MAY BE LOCATED ADJACENT TO MAIN LOCATION AT THE DISCRETION OF ENGINEER.

City of Camas WASHINGTON

WATER DETAIL

2" AIR/VACUUM RELEASE VALVE

1/3/24

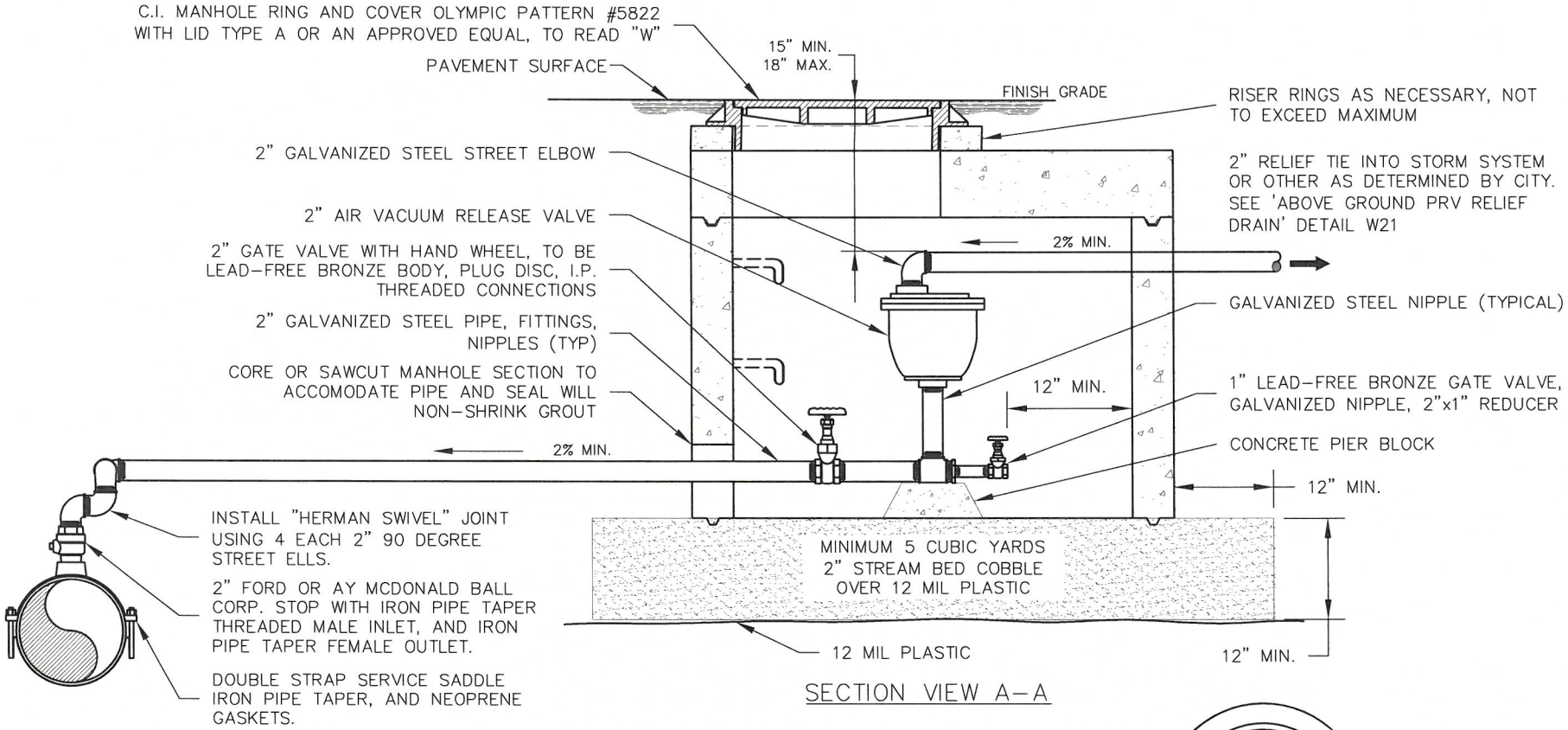
DETAIL APPROVED BY DATE

NOT TO SCALE

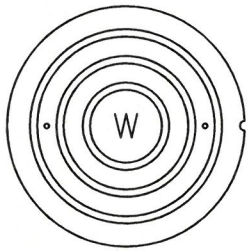
DETAIL NO. W16

REVISION: 7 DATE: 01/02/2024

WTR-2VACVLV.DWG



SECTION VIEW A-A



WATER COVER

WATER NOTES:

1. MANHOLE SECTION SHALL BE LOCATED WITHIN ONE TRAVEL LANE WITH MANHOLE FRAME CENTERED IN THE TRAVEL LANE.
2. CORPORATION STOP, GATE VALVE, AND CONNECTING PIPE SHALL BE THE SAME DIAMETER AS THE AIR INLET.
3. USE APPROVED JOINTING COMPOUND ON ALL THREADED CONNECTIONS.
4. LOCATE AIR/VACUUM VALVE TO PROVIDE MAXIMUM CLEARANCE FOR ACCESS TO GATE VALVE.
5. AIR/VACUUM VALVE TO BE EQUAL TO APCO HEAVY DUTY COMBINATION AIR RELEASE VALVE, MODEL #145C.
6. ALL PIPE SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE CONFORMING TO ASTM A 120.
7. DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER THIS STANDARD DETAIL.
8. AIR/VAC ASSEMBLY MAY BE LOCATED ADJACENT TO MAIN LOCATION AT THE DISCRETION OF ENGINEER.
9. MANHOLES SHALL CONFORM TO ASTM C-478.
10. NON-SHRINK GROUT SHALL BE USED BETWEEN FRAME, RISER RINGS, AND MANHOLE.
11. 3" TALL FRAME IS STANDARD, 7" TALL FRAME (NOT SHOWN) IS OPTIONAL.
12. ANY COMBINATION OF RISER RING THICKNESS, GROUT, AND FRAME SHALL BE USED TO ACHIEVE THE 12" MAXIMUM DEPTH FROM FINISH GRADE TO TOP OF CONE OR FLAT TOP.

City of Camas WASHINGTON

WATER DETAIL

2" AIR/VACUUM RELEASE VALVE IN 48" MANHOLE

Kl 2 1/3/24

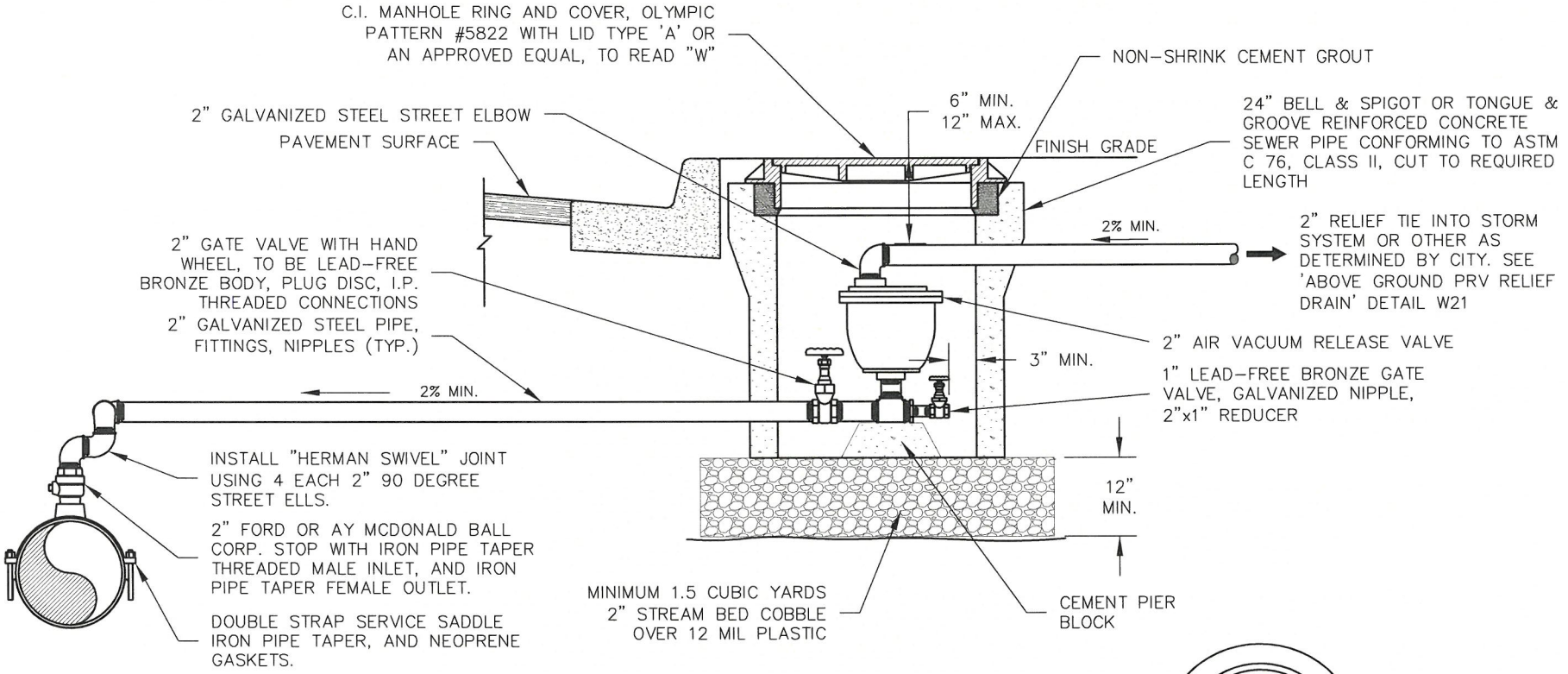
DETAIL APPROVED BY DATE

NOT TO SCALE

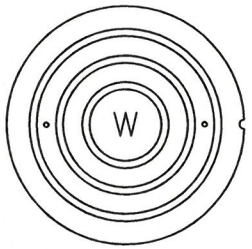
DETAIL NO. W17

REVISION: 4 DATE: 01/02/2024

WTR-2VACVLV.DWG



SECTION VIEW A-A



WATER COVER

WATER NOTES:

1. AIR/VACUUM VAULT SHALL BE LOCATED WITHIN THE PLANTER STRIP OR BEHIND THE SIDEWALK. PART OF THE MANHOLE COVER MAY BE IN THE SIDEWALK IF NEEDED.
2. CORPORATION STOP, GATE VALVE, AND CONNECTING PIPE SHALL BE THE SAME DIAMETER AS THE AIR INLET.
3. USE APPROVED JOINTING COMPOUND ON ALL THREADED CONNECTIONS.
4. LOCATE AIR/VACUUM VALVE TO PROVIDE MAXIMUM CLEARANCE FOR ACCESS TO GATE VALVE.
5. AIR/VACUUM VALVE TO BE EQUAL TO APCO HEAVY DUTY COMBINATION AIR RELEASE VALVE, MODEL #145C.
6. ALL PIPE SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE CONFORMING TO ASTM A 120.
7. DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER THIS STANDARD DETAIL.
8. AIR/VAC ASSEMBLY MAY BE LOCATED ADJACENT TO MAIN LOCATION AT THE DISCRETION OF ENGINEER.

City of Camas WASHINGTON

WATER DETAIL

2" AIR/VACUUM RELEASE VALVE OUTSIDE OF CURB

1/3/24

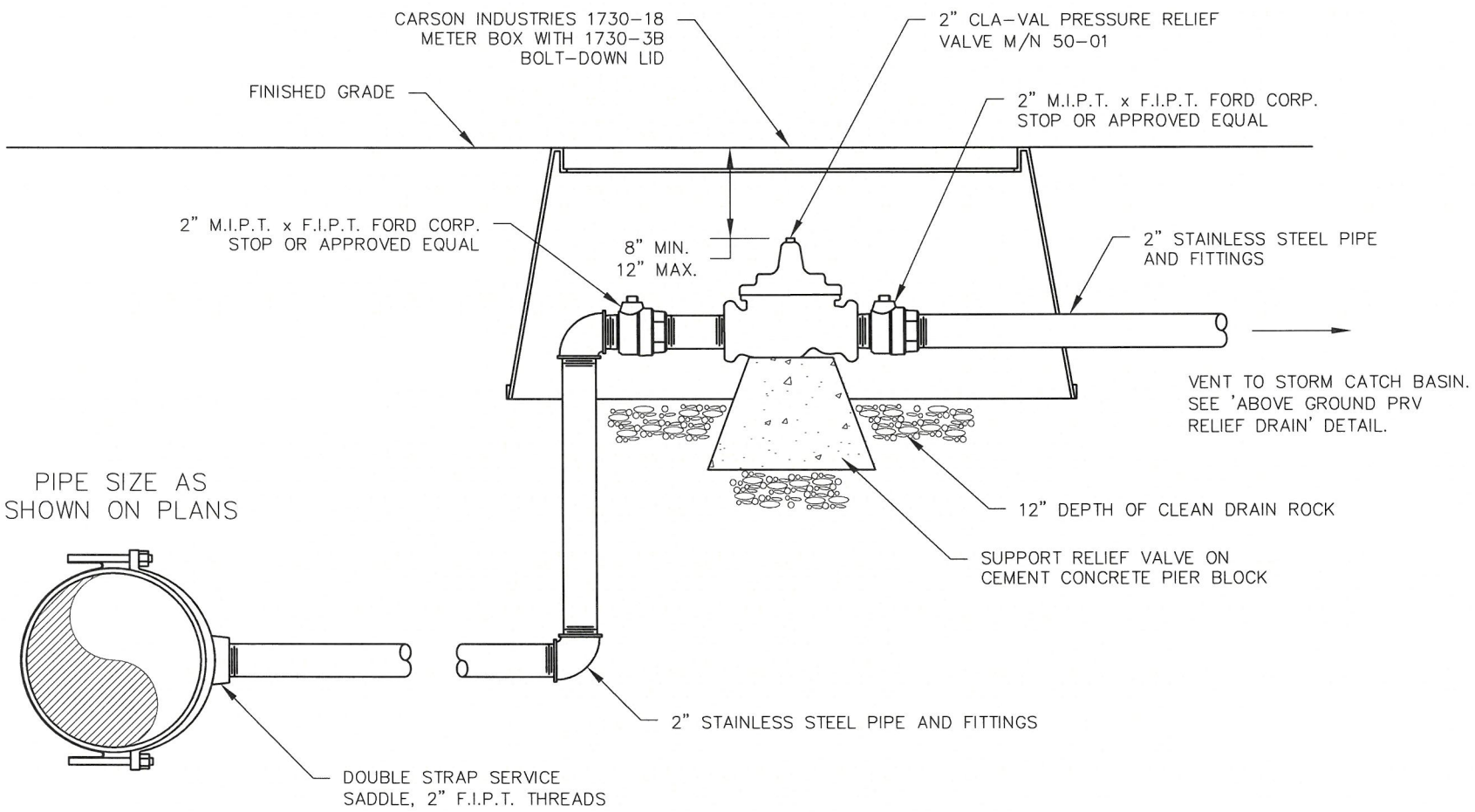
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W17A

REVISION: 4 DATE: 01/02/2024

WTR-2VACVLV.DWG



City of Camas WASHINGTON

WATER DETAIL

2" PRESSURE RELIEF VALVE ASSEMBLY

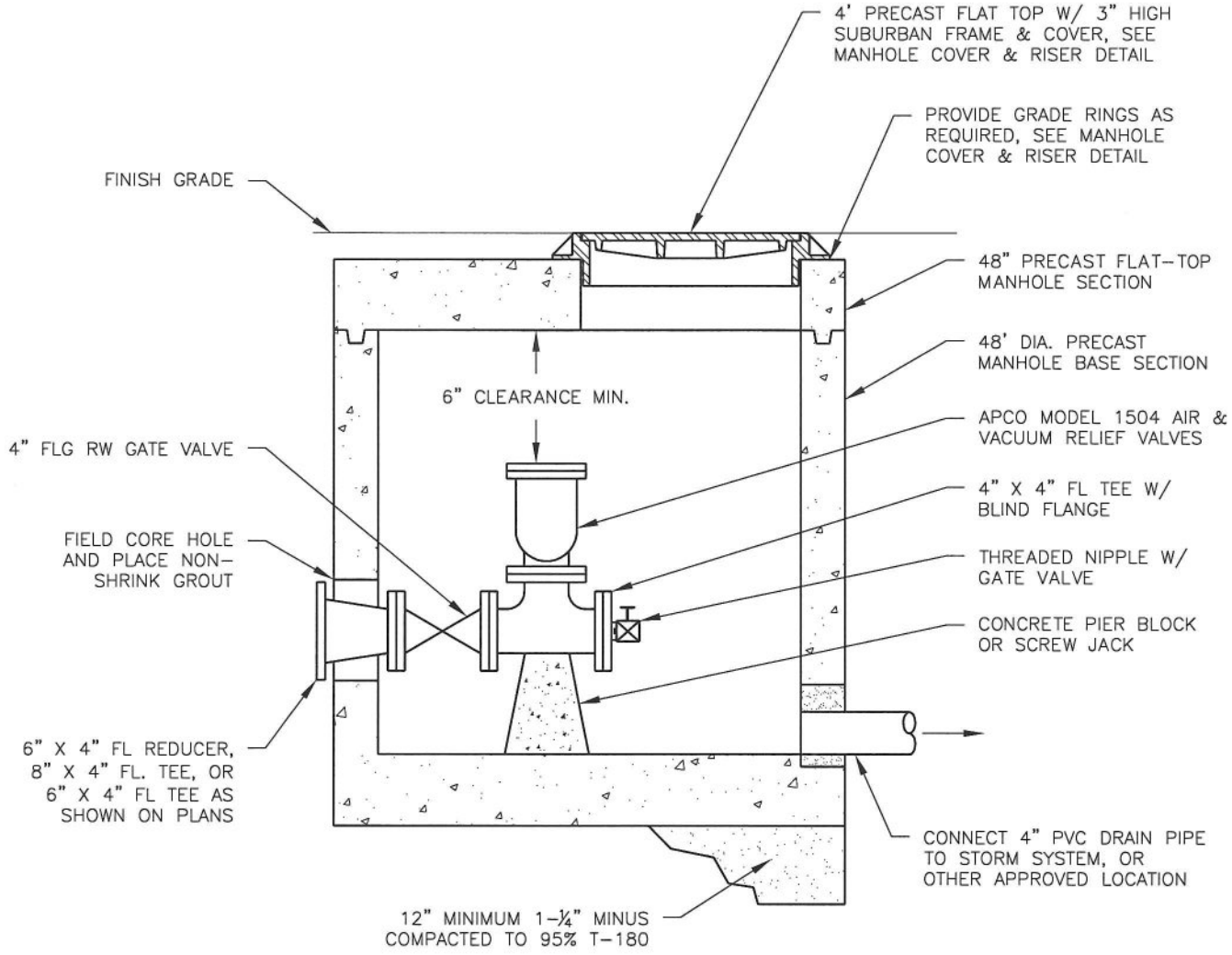
DETAIL APPROVED BY 1/3/24 DATE

NOT TO SCALE

DETAIL NO. W18

REVISION: 4 DATE: 01/02/2024

2PRV.DWG



NOTES:

1. MANHOLE SHALL CONFORM TO ASTM C-478.
2. MASTIC SEAL REQUIRED ON ALL KEYLOCK JOINTS.
3. VAULT SHALL BE SET FOR 1% SLOPE TO DRAIN.
4. ALL BACKFILL SHALL BE APPROVED GRANULAR MATERIAL.
5. SUMP PUMP MAY BE REQUIRED ON INSTALLATIONS WHERE DRAIN PIPE CANNOT BE CONNECTED TO ADEQUATE STORM DRAIN SYSTEM. THE APPROVED SUMP PUMP SHALL BE A COMMERCIAL GRADE WATER POWERED VENTURI DESIGN WITH BACKFLOW PREVENTION, SIZED TO PROVIDE 10GPM AT 10 FEET OF HEAD AT THE AVAILABLE SYSTEM WATER PRESSURE. BACKFLOW DEVICE SHALL BE CERTIFIED BY WASHINGTON STATE CERTIFIED BACKFLOW TESTER AFTER INSTALLATION AND PRIOR TO ACCEPTANCE. TEST RESULTS SHALL BE SENT TO CITY OF CAMAS WATER DEPARTMENT.

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

4" VACUUM RELIEF VALVE

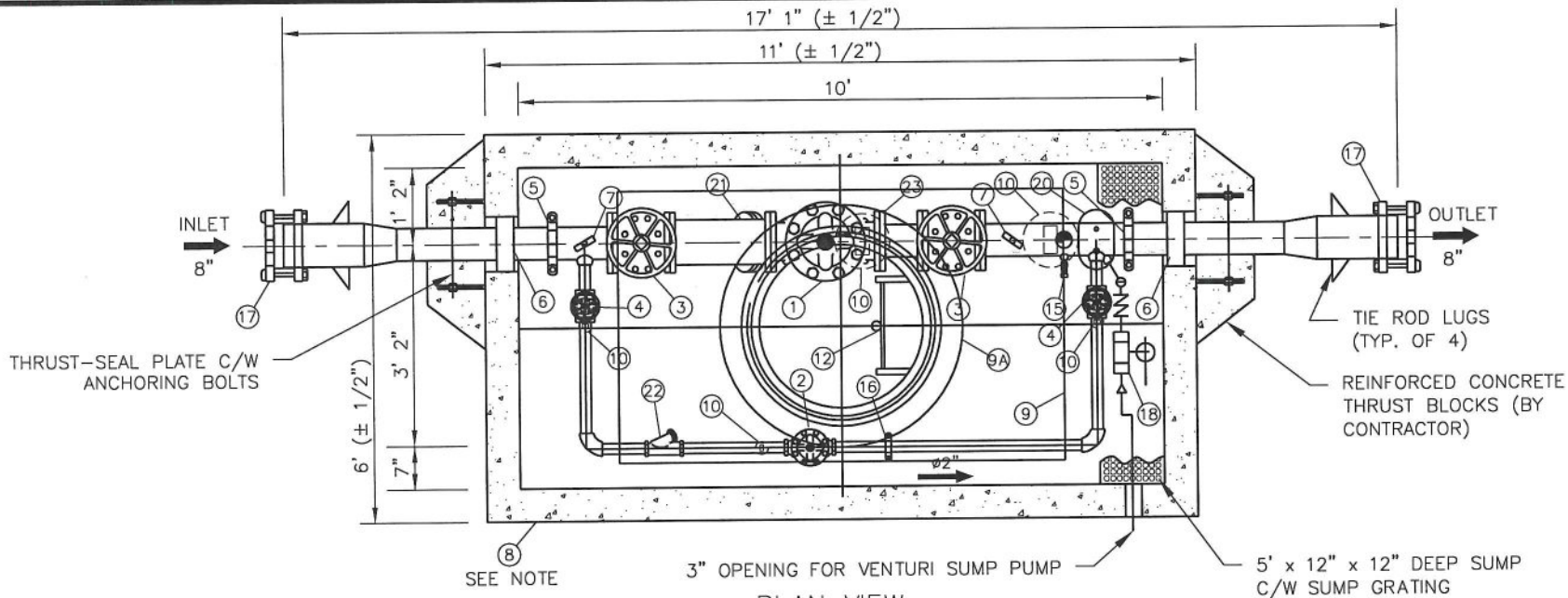
Jim C. Carothers 1-4-11

DETAIL APPROVED BY DATE

NOT TO SCALE

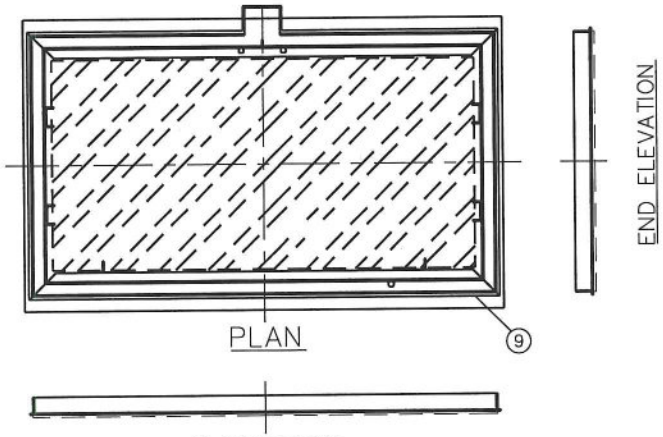
DETAIL NO. W19

WTR-4ARV.DWG



PLAN VIEW

50" x 82" OPENING FOR
36" x 72" ALUMINUM HATCH



36" x 72" ALUMINUM HATCH
(30"ø MANHOLE SHALL BE USED
AS APPROVED BY CITY OF CAMAS)

NOTES:
1. PRV STATION SHALL BE A PRE-ASSEMBLED, PRE-TESTED, PACKAGED UNIT BY GC SYSTEMS, INC., OR APPROVED EQUAL.
2. VAULT #10565 (H20 LOADING) INSIDE DIMENSIONS 10'LX5'WX6'6"H.

STANDARD FABRICATION & FINISHING SPECIFICATION:
ALL 2" AND SMALLER PIPE TO BE THREADED BRASS. ALL 3" AND LARGER PIPE, INSIDE WETTED SURFACES TO BE SANDBLASTED, EPOXY LINED AND COATED TO AWWA C-210 AND NSF-61 SPECIFICATION. FINISH COATING WILL BE BLUE ENAMEL.

FABRICATED STEEL PIPE & FITTINGS TO BE SCHEDULE NO. 40 STEEL PIPE FOR SIZES TO 10" AND ⅜" WALL FOR 12" AND LARGER.

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

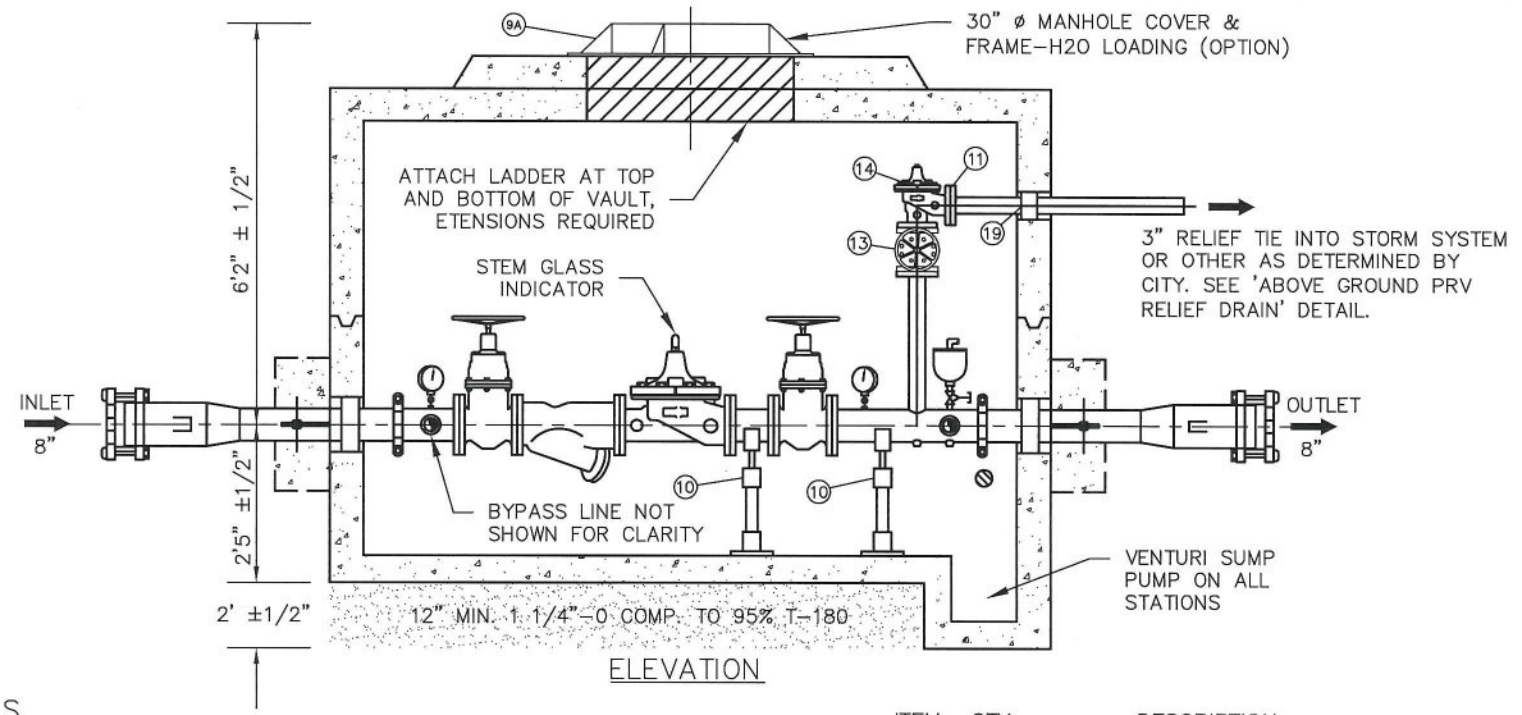
6"X2" PRV STATION W/ 3" RELIEF

Jan E. Cauthen 1-4-11
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO.
W20A

WTR-PRV3RELIEF.DWG



ELEVATION

MATERIALS

ITEM	QTY.	DESCRIPTION
1	1	6" CLA–VAL 90–01YBCS PRESSURE REDUCING VALVE
		C/W X 101 POSITION INDICATOR, DIBT–#150 FLG (15–75PSI)
2	1	2" CLA–VAL 90–01YBCS PRESSURE REDUCING VALVE
		C/W X 101 POSITION INDICATOR, DIBT–THREADED (15–75 PSI)
3	2	6" MUELLER A2360–6W41 NRS GATE VALVE C/W HANDWHEEL –#125 FLGD
4	2	2" MUELLER A2360–8 RW NRS GATE VALVE C/W HANDWHEEL–THREADED
5	2	6" VICTAULIC #07 COUPLING
6	2	6" PIPE SEAL ASSEMBLY
7	2	4" WIKA (0–200PSI) PRESSURE GAUGE C/W GAUGE COCK
8	1	#10565 PRECAST CONCRETE VAULT C/W WHITE INTERIOR, BLACK EXTERIOR
9	1	36"x72" ALUMINUM HATCH W/ SPRING ASSIST
10	5	ADJUSTABLE PIPE SUPPORTS
11	1	3" VICTAULIC #741 FLANGE ADAPTER ADAPTOR
12	1	ALUMINUM LADDER WITH LADDER–UP ASSEMBLY
13	1	3" MUELLER A2360–6W41 NRS GATE VALVE C/W HANDWHEEL–#125 FLGD.
14	1	3" CLA–VAL 50A–01B PRESSURE RELIEF VALVE C/W DIBT–150# FLG (20–200 PSI)
15	1	3/4" HOSE BIB ASSEMBLY
16	1	2" VICTAULIC #07 COUPLING
17	1	8" SMITH BLAIR ST X DI TRANSITION COUPLING
18	1	VENTURI SUMP PUMP
19	1	3" PIPE SEAL ASSEMBLY
20	1	1" APCO 143C.1 COMB. A.R.V. C/W ISOLATION VALVE
21	1	6" MUELLER 758 Y–STRAINER – #125 FLGD
22	1	2" MUELLER 351M Y–STRAINER – THD
23	1	6" VICTAULIC #741 FLANGE ADAPTOR

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC
3	10/21/14	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

6"X2" PRV STATION W/ 3" RELIEF

Jan E. Castleton 10-21-14

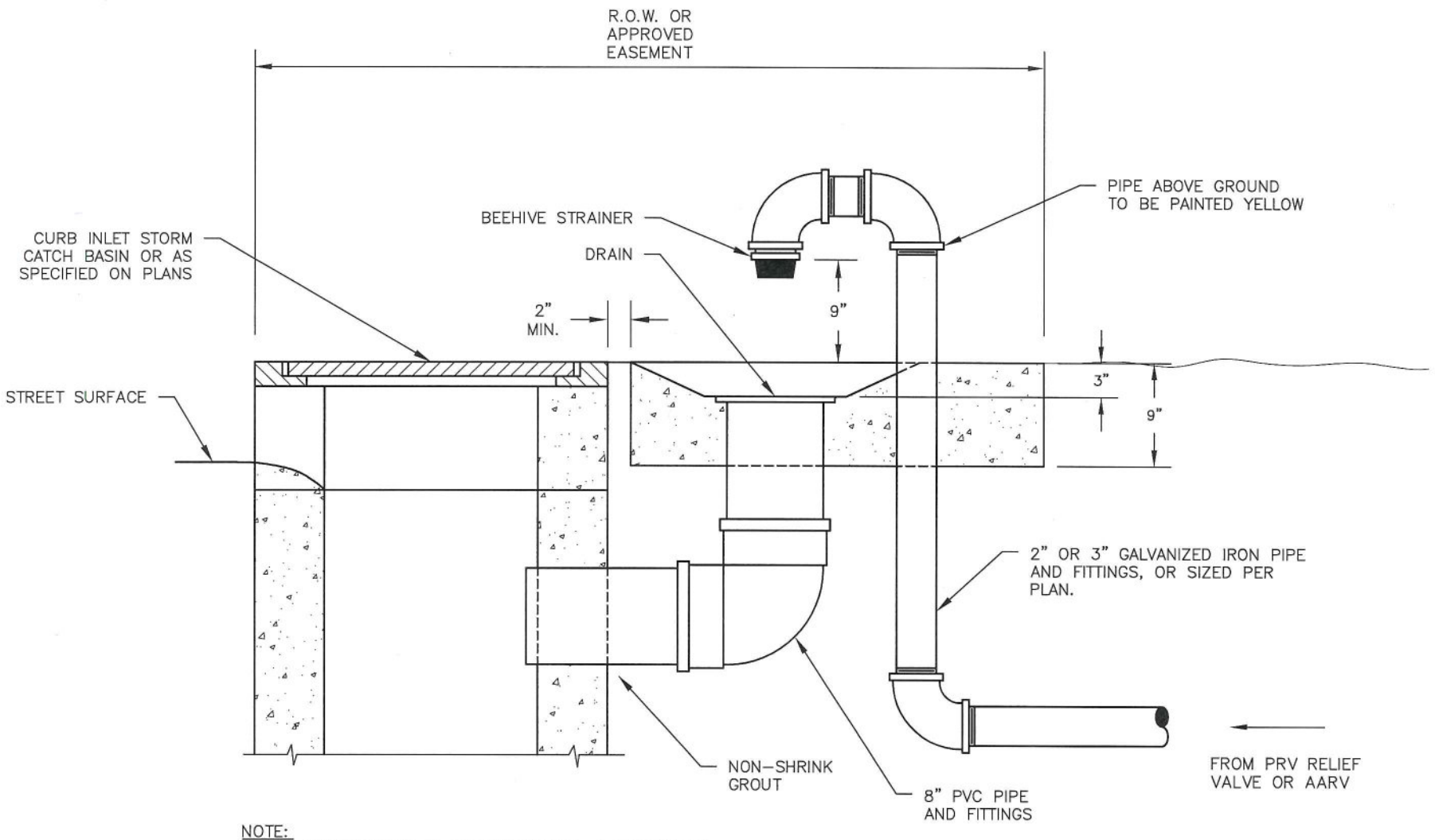
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO.

W20B

WTR–PRV3RELIEF.DWG



NOTE:
1. IF CATCH BASIN IS NOT AVAILABLE, A DEDICATED STORM LATERAL MAY BE REQUIRED.

City of Camas WASHINGTON

WATER DETAIL

ABOVE GROUND PRV RELIEF DRAIN

5-16-19

DETAIL APPROVED BY DATE

NOT TO SCALE

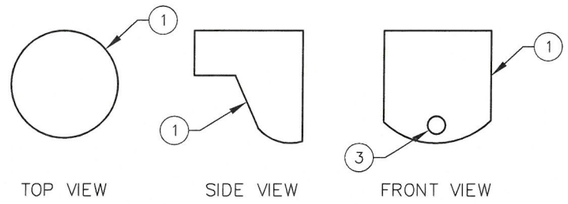
DETAIL NO. W21

REVISION: 4 DATE: 5/16/2019

WTR-RELIEFDRN.DWG

KORALEEN WATER QUALITY SAMPLING STATION:

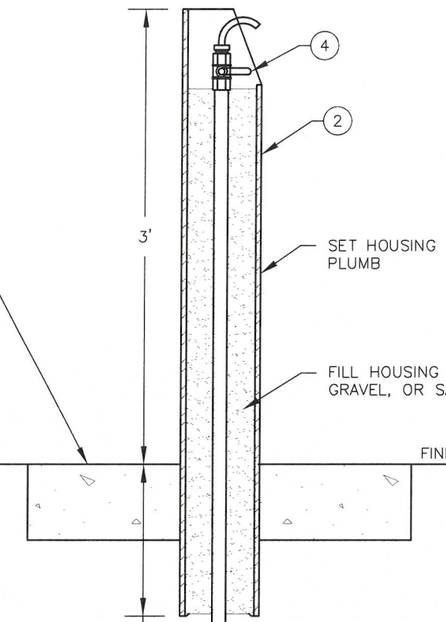
1.	ALUMINUM LID – 6" DIA. I.D.
2.	ALUMINUM HOUSING – 6" DIA. O.D.
3.	FLUSH MOUNTED LOCK
4.	½" X 1" BALL VALVE

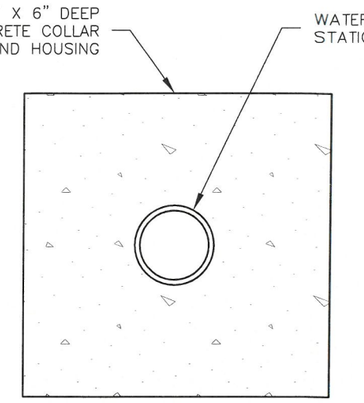


TOP VIEW SIDE VIEW FRONT VIEW

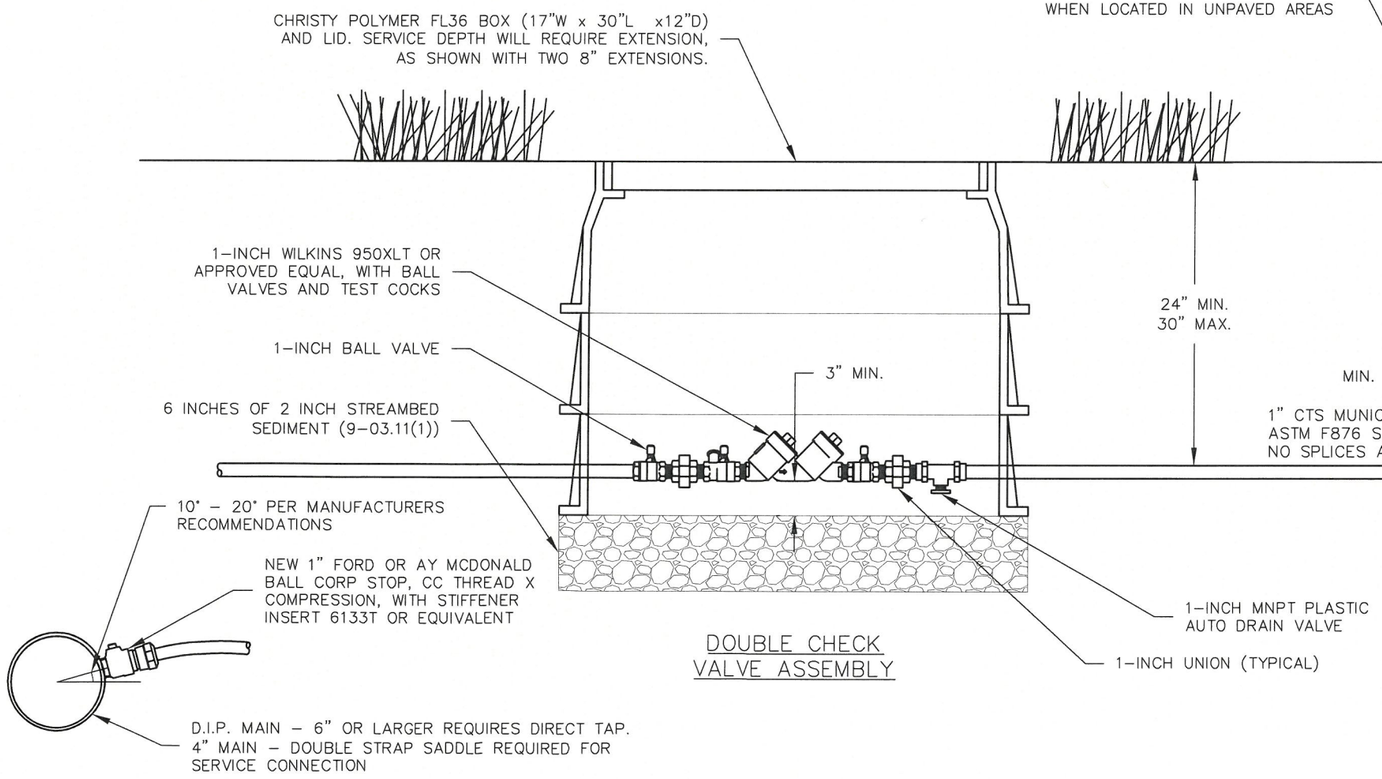
ALUMINUM LID

SAMPLING STATION





CONCRETE COLLAR DETAIL
PLAN VIEW
N.T.S.



DOUBLE CHECK
VALVE ASSEMBLY

NOTES:

1. THE DOUBLE CHECK VALVE ASSEMBLY (DCVA) SHALL LAY HORIZONTAL ONLY. DO NOT INSTALL IN AN AREA SUBJECT TO FLOODING.
2. THE DCVA MUST BE ACCESSIBLE TO ALLOW FOR ANNUAL TESTING.
3. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE DCVA.
4. THE DCVA SHALL BE INSTALLED WITHIN THE RIGHT–OF–WAY, WITHIN AN EASEMENT, OR AT A LOCATION APPROVED BY CITY OF CAMAS WATER DEPARTMENT.
5. THE DCVA SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE,
6. ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

TYPICAL MAIN CONNECTION

City of Camas WASHINGTON

WATER DETAIL

WATER SAMPLING STATION

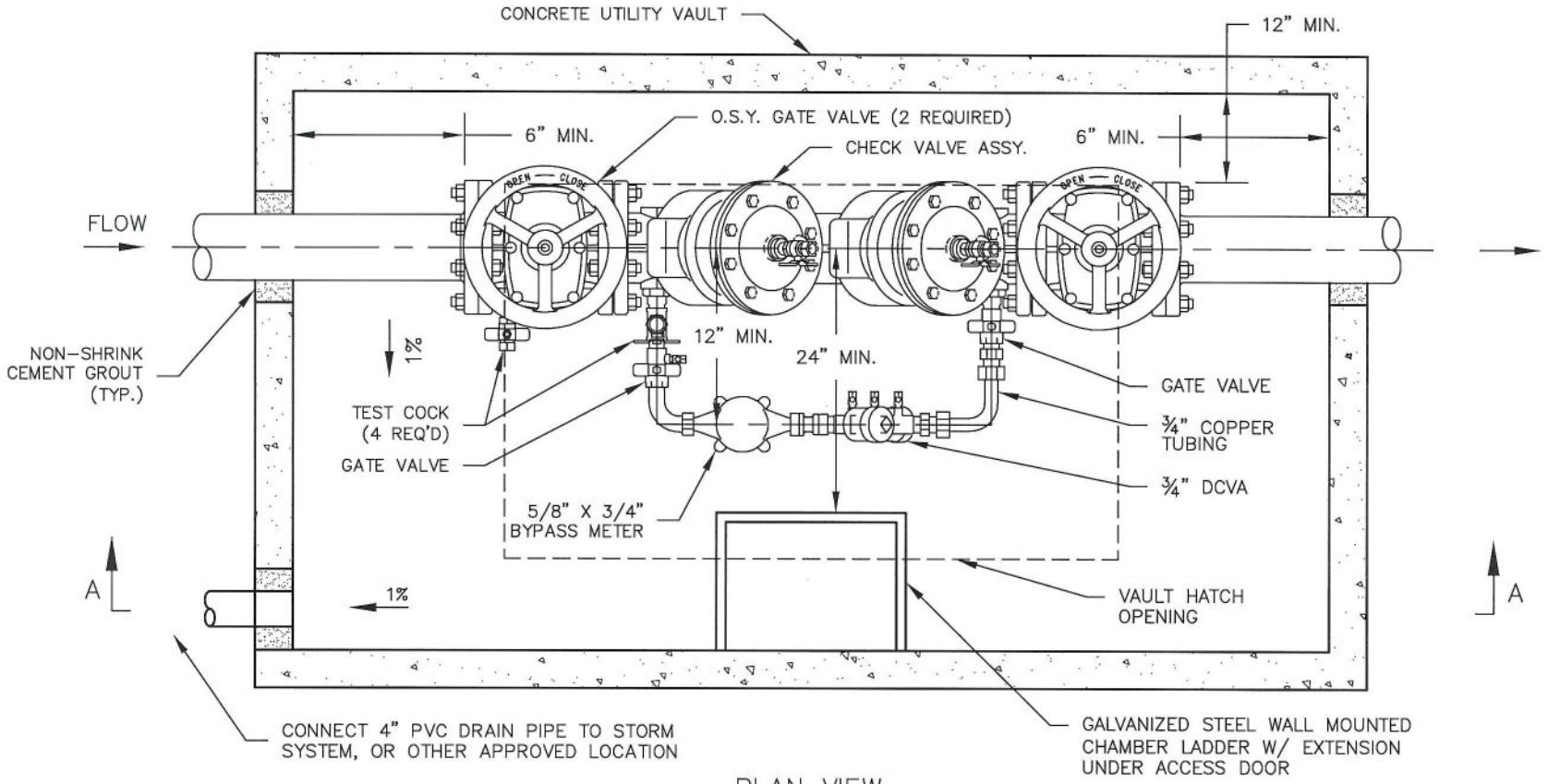
DETAIL APPROVED BY 1/3/24 DATE

NOT TO SCALE

DETAIL NO. W22

REVISION: 5 DATE: 01/02/2024

WTR–WQSMPL.DWG



PLAN VIEW

DOUBLE CHECK DETECTOR VALVE ASSY. NOTES:

1. APPROVED DOUBLE CHECK DETECTOR VALVE ASSEMBLY TO LAY HORIZONTAL WITH THE GROUND, SHALL BE INSTALLED ON FIRE PROTECTION SYSTEMS WHEN CONNECTED TO POTABLE WATER SUPPLY. THE ASSEMBLY SHALL BE A COMPLETE ASSEMBLY INCUDING UL LISTED RESILIENT SEATED OSY SHUTOFF VALVES AND TEST COCKS. THE UNIT SHALL BE UL/FM APPROVED WITH UL/FM APPROVED OSY SHUTOFF VALVES. THE AUXILIARY LINE SHALL CONSIST OF AN APPROVED BACKFLOW PREVENTER AND WATER METER. THE ASSEMBLY SHALL MEET THE BASIC REQUIREMENTS OF ASSE 1048; AWWA STD. C510 FOR DOUBLE CHECK VALVES, AND BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA. THE DOUBLE CHECK DETECTOR VALVE ASSEMBLY SHALL BE A ZURN WILKINS MODEL 950DA OR APPROVED EQUAL.
2. SYSTEM SHALL BE DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
5. THE WATER LINE SHALL BE DISINFECTED, FLUSHED, AND PRESSURE TESTED PRIOR TO INSTALLING THE BACKFLOW ASSEMBLY. THE BACKFLOW ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND FLOODING.
4. ALL PIPE, VALVE, AND FITTING JOINTS FROM THE SUPPLY MAIN SHALL BE FLANGED AND RESTRAINED. MINIMUM COVER 30". GROUT PIPE ENTRANCE AND EXIT IN VAULT WITH WATER TIGHT GROUT.
5. THE BACKFLOW ASSEMBLY SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE AND ALSO YEARLY THEREAFTER BY A WASHINGTON STATE CERTIFIED BACKFLOW TESTER. TEST RESULTS SHALL BE SENT TO THE CITY OF CAMAS WATER DEPARTMENT.
6. ALL BACKFILL SHALL BE APPROVED GRANULAR MATERIAL.

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC
3	10/21/14	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

STANDARD DOUBLE CHECK DETECTOR VALVE ASSY.

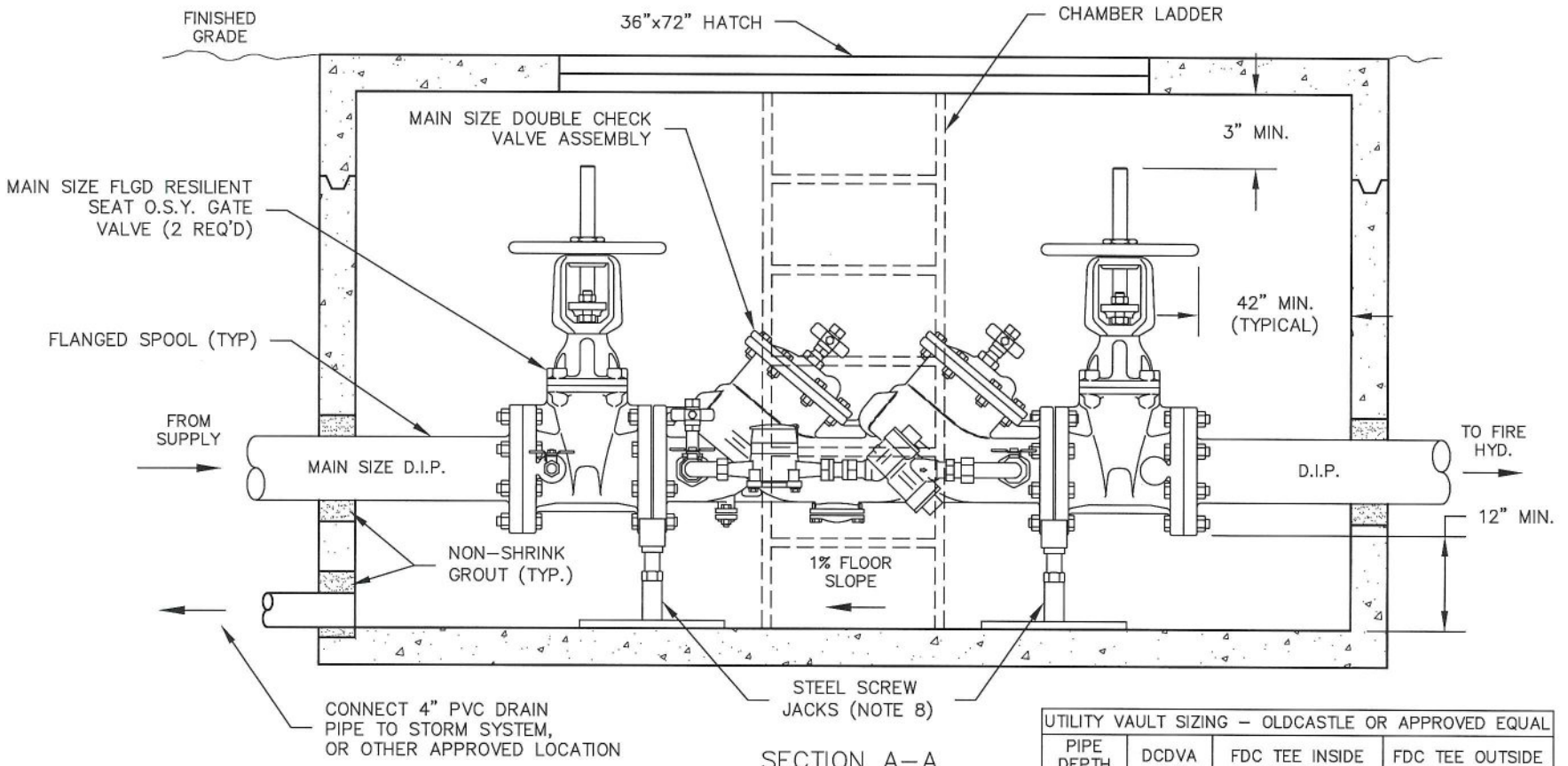
Jan E. Cauthra 10-21-14

DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W23A

WTR-DCDVA.DWG



SECTION A–A

UTILITY VAULT SIZING – OLDCASTLE OR APPROVED EQUAL			
PIPE DEPTH UP TO	DCDVA SIZE	FDC TEE INSIDE VAULT	FDC TEE OUTSIDE VAULT
6'	4"	676–WA	577–WA
4'	6"	687–WA	675–WA
6'	6"	–	676–WA
6'	8"	5106–WA	687–WA
6'	10"	5106–WA	5106–WA

VAULT CONSTRUCTION NOTES:

1. VAULT SHALL BE PRE–APPROVED PRIOR TO INSTALLATION.
2. VAULT SHALL BE INSTALLED AT PROPERTY LINE OR EASEMENT LINE AND ON OWNERS PROPERTY.
3. VAULTS SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
4. APPROVED VAULT SHALL BE RATED FOR H20 LOADING AND INCLUDE AN EXTENSION LADDER
5. VAULT SHALL BE SET FOR 1% SLOPE TO DRAIN.
6. ALL BACKFILL SHALL BE APPROVED GRANULAR MATERIAL.
7. HATCH SHALL BE AN H20 RATED, 36"x72" SPRING ASSISTED, HOT DIPPED GALVANIZED DIAMOND PLATE DOUBLE DOOR. FOR TRAFFIC INSTALLATIONS A 30" MANHOLE LID SHALL BE USED INSTEAD OF A HATCH.
8. SUMP PUMP MAY BE REQUIRED ON INSTALLATIONS WHERE DRAIN PIPE CANNOT BE CONNECTED TO ADEQUATE STORM DRAIN SYSTEM. THE APPROVED SUMP PUMP SHALL BE A COMMERCIAL GRADE WATER POWERED VENTURI DESIGN WITH BACKFLOW PREVENTION, SIZED TO PROVIDE 10GPM AT 10 FEET OF HEAD AT THE AVAILABLE SYSTEM WATER PRESSURE. BACKFLOW DEVICE SHALL BE CERTIFIED BY WASHINGTON STATE CERTIFIED BACKFLOW TESTER AFTER INSTALLATION AND PRIOR TO ACCEPTANCE. TEST RESULTS SHALL BE SENT TO CITY OF CAMAS WATER DEPARTMENT.
9. FOUR (4) STEEL SCREW JACKS REQUIRED FOR SUPPORT OF DOUBLE CHECK VALVE ASSEMBLY AND BYPASS ASSEMBLY.
10. FIRE DEPARTMENT CONNECTION (FDC) MAY BE LOCATED THROUGH THE VAULT LID (NOT SHOWN), OR MAY BE LOCATED OUTSIDE OF THE VAULT DEPENDING UPON SITE.

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC
3	10/21/14	SCD	JC

CITY OF CAMAS ~ WATER DETAIL

STANDARD DOUBLE CHECK DETECTOR VALVE ASSY.

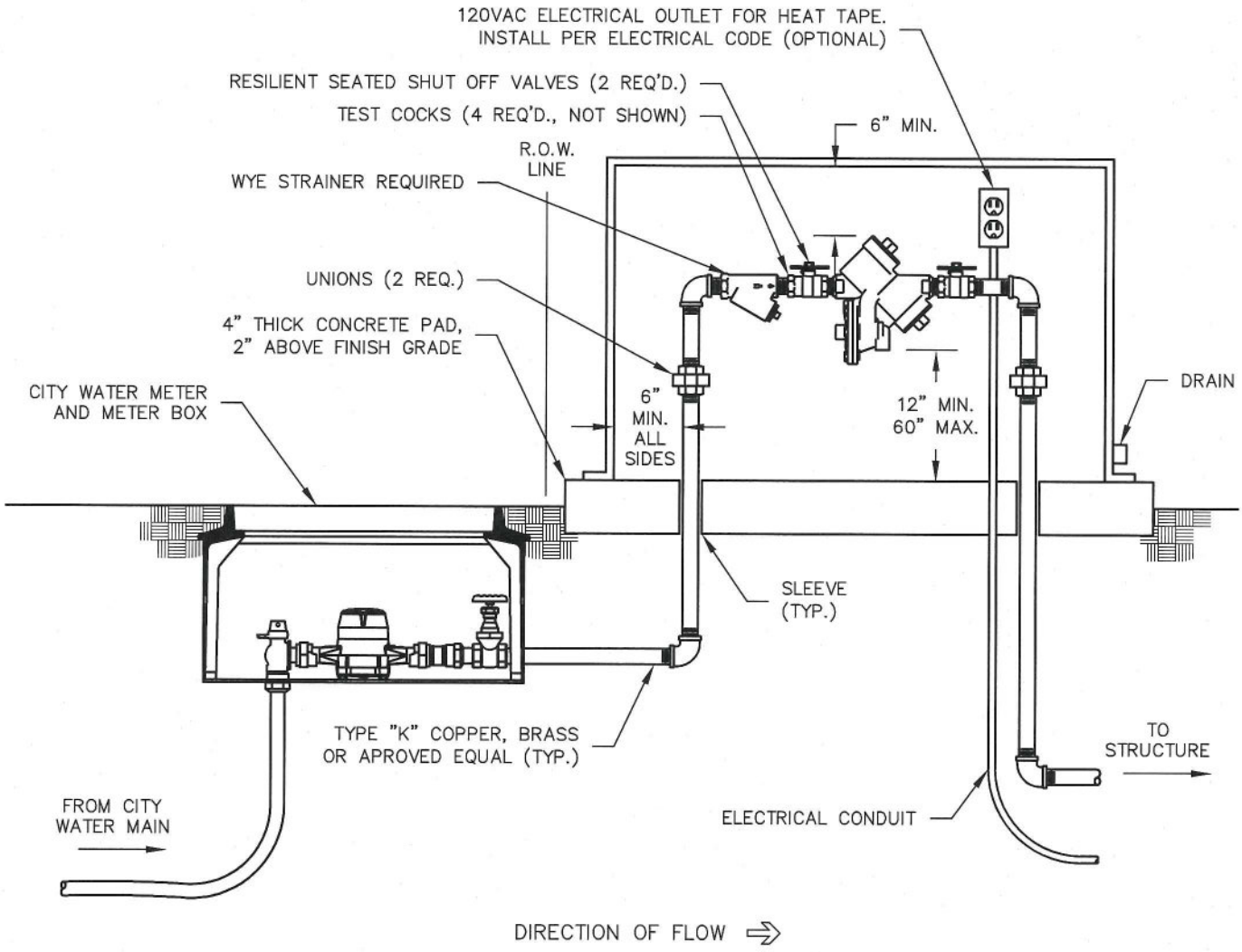
Jan E. Cantlon 10-21-14

DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W23B

WTR–DCDVA.DWG



NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL BE DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE, AND APPROVED BY THE STATE OF WASHINGTON DEPARTMENT OF HEALTH.
2. THE RPBA SHALL LAY HORIZONTAL ONLY (VERTICAL IF APPROVED BY DEPT. OF HEALTH). DO NOT INSTALL IN A PIT, TRENCH OR AN AREA SUBJECT TO FLOODING.
3. THE RPBA MUST BE ACCESSIBLE TO ALLOW FOR ANNUAL TESTING.
4. THE DRAIN SHALL BE SIZED PER THE AWWA CROSS CONTAMINATION CONTROL MANUAL.
5. PLUMBING PERMIT IS REQUIRED – CONTACT THE APPROPRIATE JURISDICTION FOR PERMIT.
6. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE RPBA. THE RPBA SHALL BE PROTECTED FROM FREEZING AND FLOODING.
7. THE RPBA SHALL BE INSTALLED ON OWNER'S PROPERTY AT PROPERTY LINE OR EASEMENT LINE, OR AT A LOCATION APPROVED BY CITY OF CAMAS WATER DEPARTMENT.
8. ALL ENCLOSURES SHALL BE PRE–APPROVED BY THE CITY OF CAMAS WATER DEPARTMENT PRIOR TO INSTALLATION
9. THE RPBA SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE, ALSO YEARLY THEREAFTER BY A WASHINGTON STATE DEPARTMENT OF HEALTH CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO THE CITY OF CAMAS WATER DEPARTMENT.
10. HEAT AND/OR INSULATION SHALL BE PROVIDED TO PREVENT FREEZING.
11. RPBA SHALL BE RETESTED IF MOVED OR REPAIRED.
12. ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

City of Camas WASHINGTON

WATER DETAIL

REDUCED PRESSURE BACKFLOW ASSEMBLY, 1" AND 2"

NOT TO SCALE

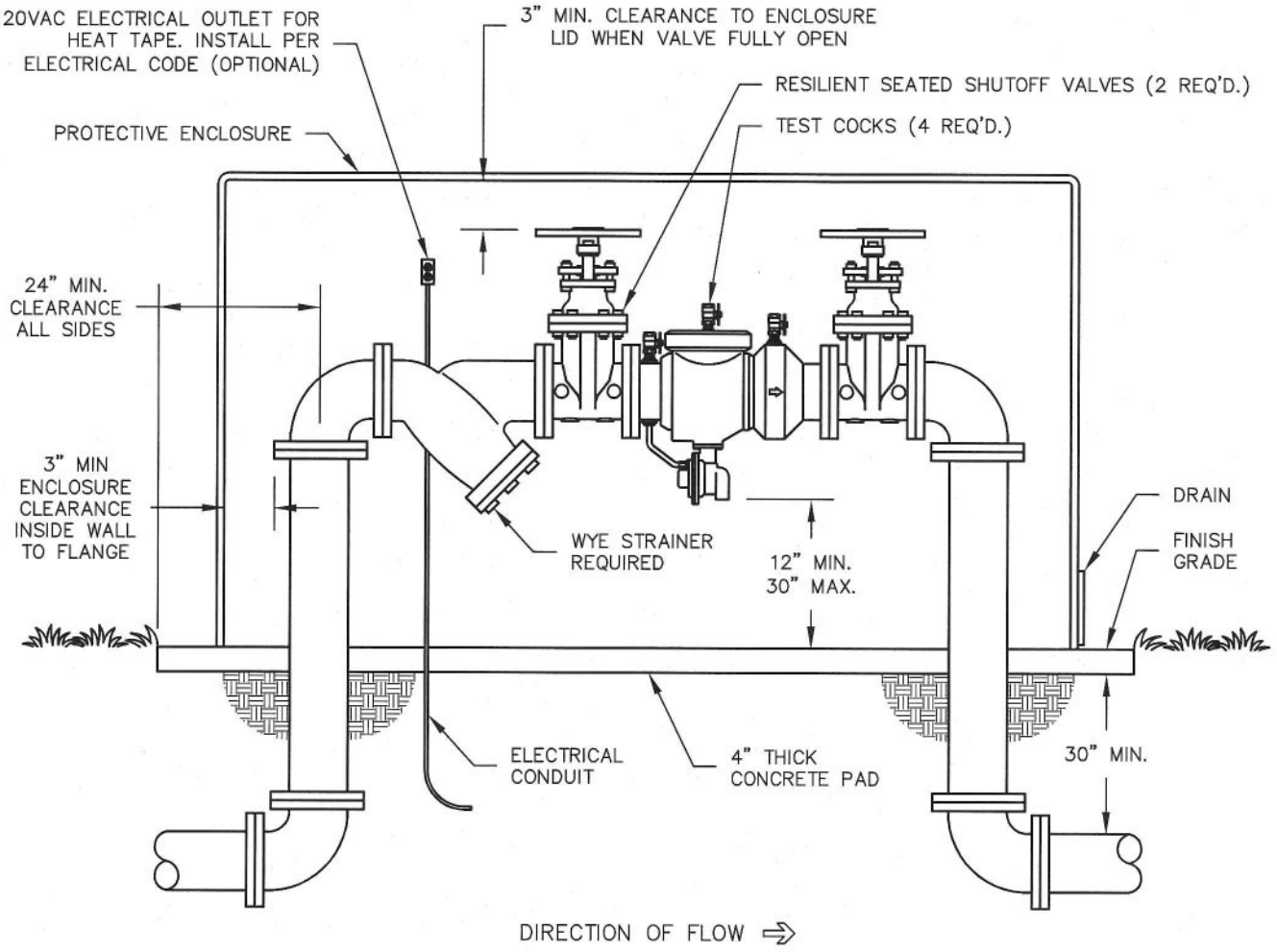
DETAIL NO. W24

Sam Adams 9-28-17

DETAIL APPROVED BY DATE

REVISION: 1 DATE: 09/2017

WTR–RPBA.DWG



NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL BE DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE, AND APPROVED BY THE STATE OF WASHINGTON DEPARTMENT OF HEALTH.
2. THE RPBA SHALL LAY HORIZONTAL ONLY (VERTICAL IF APPROVED BY DEPT. OF HEALTH). DO NOT INSTALL IN A PIT, TRENCH OR AN AREA SUBJECT TO FLOODING.
3. THE RPBA MUST BE ACCESSIBLE TO ALLOW FOR ANNUAL TESTING.
4. THE DRAIN SHALL BE SIZED PER THE AWWA CROSS CONTAMINATION CONTROL MANUAL.
5. PLUMBING PERMIT IS REQUIRED – CONTACT THE APPROPRIATE JURISDICTION FOR PERMIT.
6. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE RPBA. THE RPBA SHALL BE PROTECTED FROM FREEZING AND FLOODING.
7. ALL UNDERGROUND PIPE, VALVES AND FITTING JOINTS SHALL BE RESTRAINED FROM THE SUPPLY MAIN. ALL ABOVE GROUND JOINTS SHALL BE FLANGED.
8. ALL ENCLOSURES SHALL BE PRE–APPROVED BY THE CITY OF CAMAS WATER DEPARTMENT PRIOR TO INSTALLATION.
9. THE RPBA SHALL BE INSTALLED ON OWNER'S PROPERTY AT PROPERTY LINE OR EASEMENT LINE, OR AT A LOCATION APPROVED BY CITY OF CAMAS WATER DEPARTMENT.
10. ADEQUATE GRAVITY DRAINAGE SYSTEM REQUIRED WITH APPROVED AIR GAP.
11. MINIMUM 24" CLEARANCE ON ALL SIDES AROUND RPBA.
12. THE RPBA SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE, ALSO YEARLY THEREAFTER BY A WASHINGTON STATE DEPARTMENT OF HEALTH CERTIFIED BACKFLOW ASSEMBLY TESTER. TEST RESULTS SHALL BE SENT TO THE CITY OF CAMAS WATER DEPARTMENT.
13. HEAT AND/OR INSULATION SHALL BE PROVIDED TO PREVENT FREEZING.
14. RPBA SHALL BE RETESTED IF MOVED OR REPAIRED.
15. ALL NEWLY INSTALLED FITTINGS IN CONTACT WITH WATER SHALL BE IN COMPLIANCE WITH THE REVISED SECTION 1417 OF THE EPA SAFE WATER DRINKING ACT AND CERTIFIED LEAD FREE USING NSF 372 STANDARDS.

City of Camas WASHINGTON

WATER DETAIL

REDUCED PRESSURE BACKFLOW ASSEMBLY, 2.5" & LARGER

NOT TO SCALE

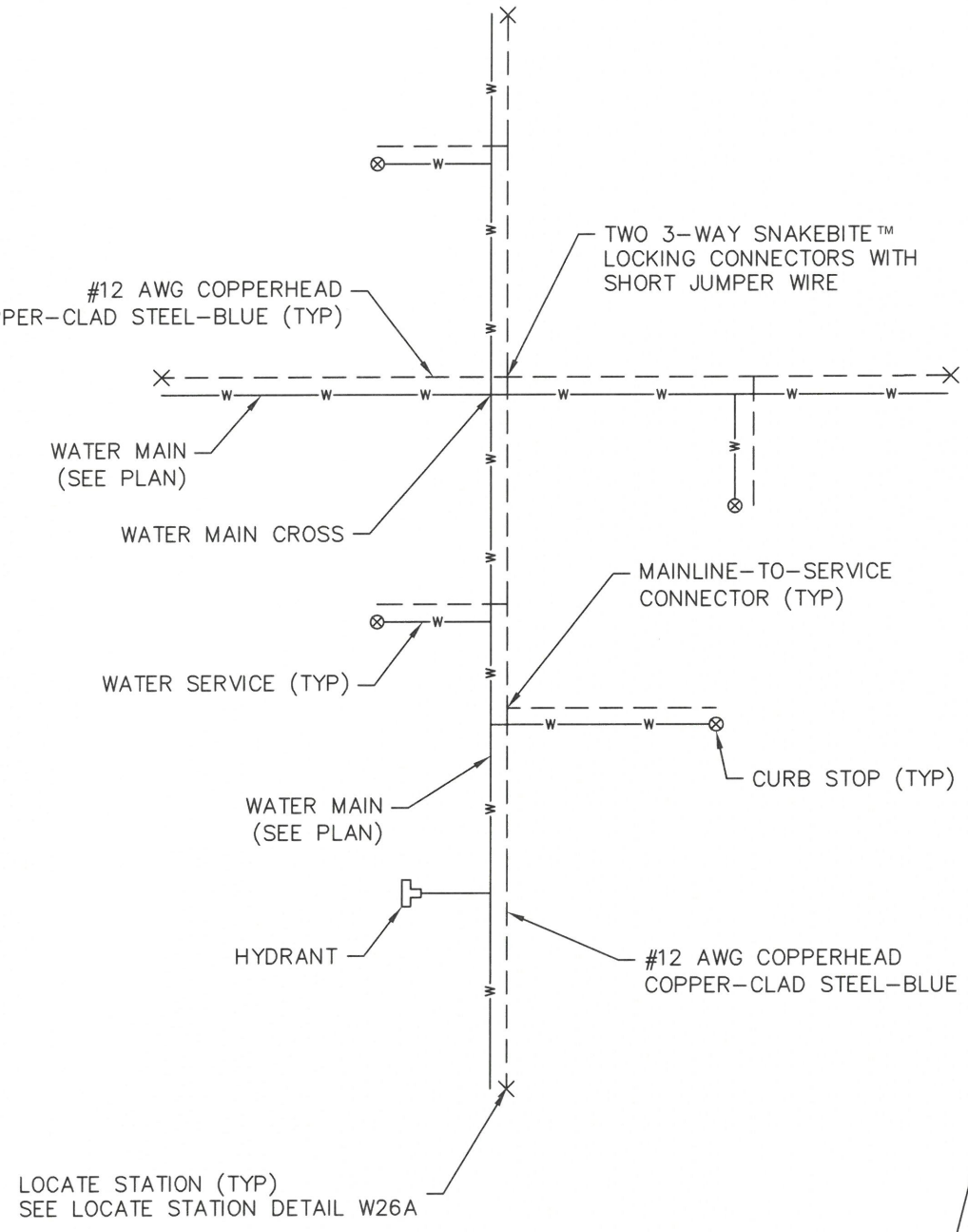
DETAIL NO. W25

Steve Adams 9-28-17

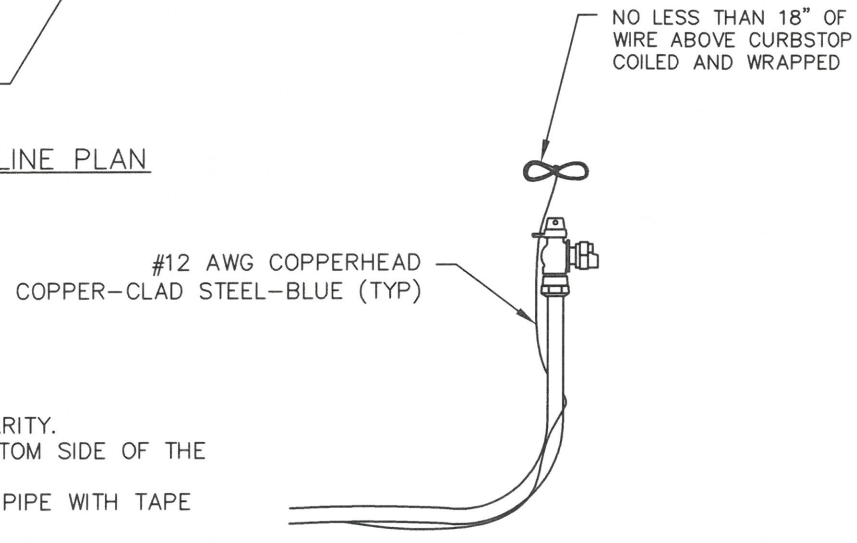
DETAIL APPROVED BY DATE

REVISION: 1 DATE: 09/2017

WTR–RPBA.DWG



WATERLINE PLAN



WATER SERVICE

NOTES:

1. WIRE SHOWN AWAY FROM PIPE FOR CLARITY.
2. WIRE SHALL BE INSTALLED ON THE BOTTOM SIDE OF THE PIPE, BELOW THE SPRING LINE.
3. THE WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 10' INTERVALS.
4. LOCATE STATIONS TO BE LOCATED AT 1000' INTERVALS OR AS DIRECTED BY THE CITY OF CAMAS

City of Camas WASHINGTON

SANITARY SEWER DETAIL

WATER LOCATE STATION PLAN

3-28-22

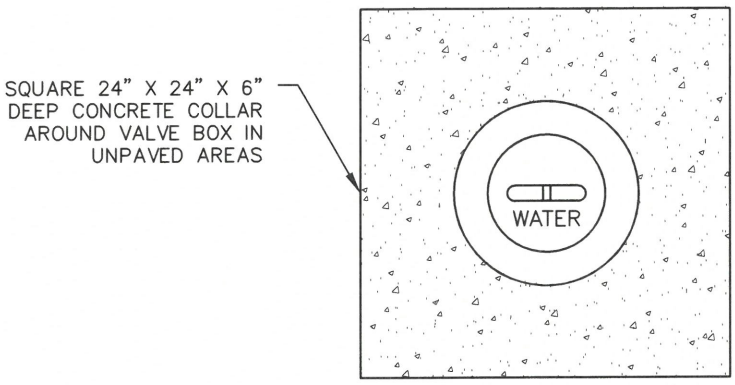
DETAIL APPROVED BY DATE

NOT TO SCALE

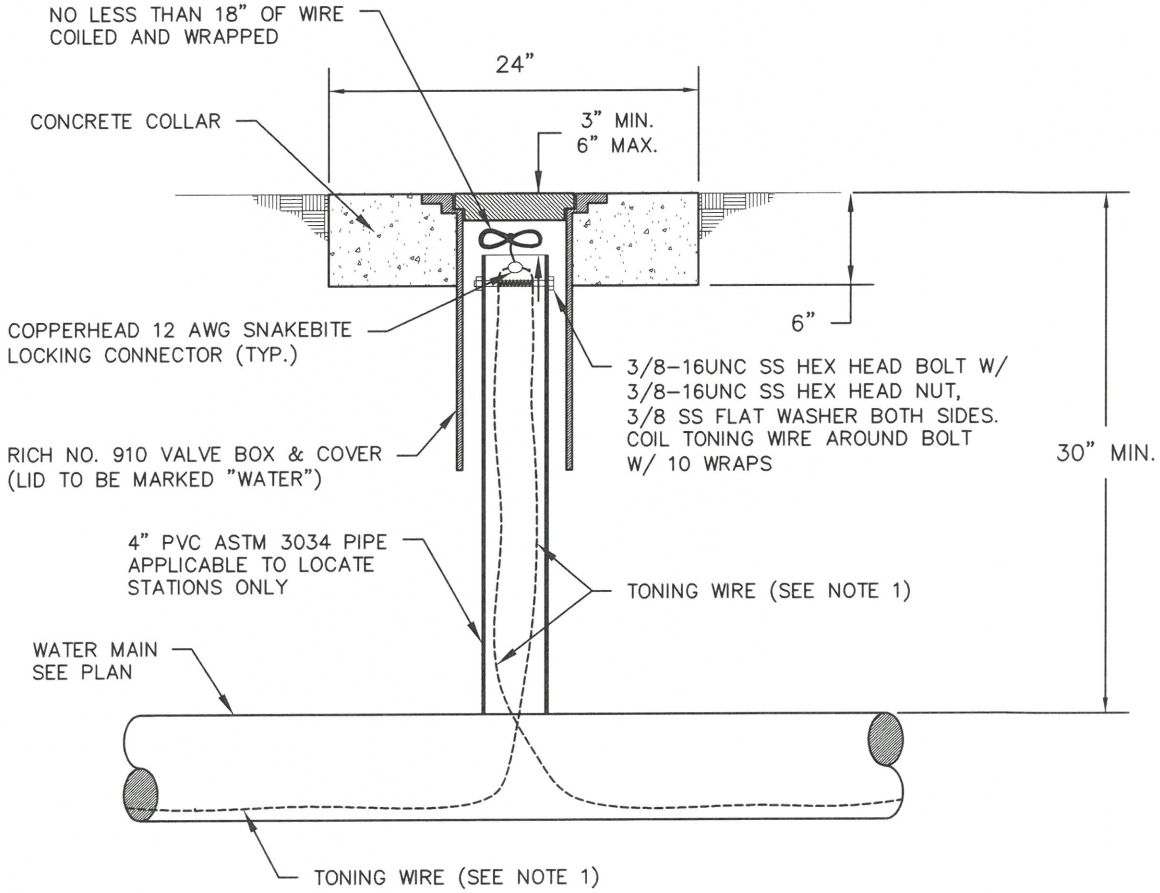
DETAIL NO. W26

REVISION: 1 DATE: 03/28/2022

WTR-RISER.DWG



CONCRETE COLLAR PLAN VIEW



NOTES:
1. TONING WIRE SHALL BE COPPERHEAD SUPERFLEX 12 AWG 45MIL BLUE HDPE INSULATION, NO SPLICES ALLOWED.
2. SEAL TONING WIRE SPLICE CONNECTIONS WITH COPPERHEAD 12 AWG SNAKEBITE LOCKING CONNECTORS (TYPICAL)
3. WIRE SHALL BE INSTALLED ON THE BOTTOM SIDE OF THE PIPE, BELOW THE SPRING LINE.
4. THE WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 10' INTERVALS.
5. LOCATE STATIONS TO BE LOCATED AT 1000' INTERVALS OR AS DIRECTED BY THE CITY OF CAMAS

City of Camas WASHINGTON

SANITARY SEWER DETAIL

LOCATE STATION FOR WATER

3-28-22

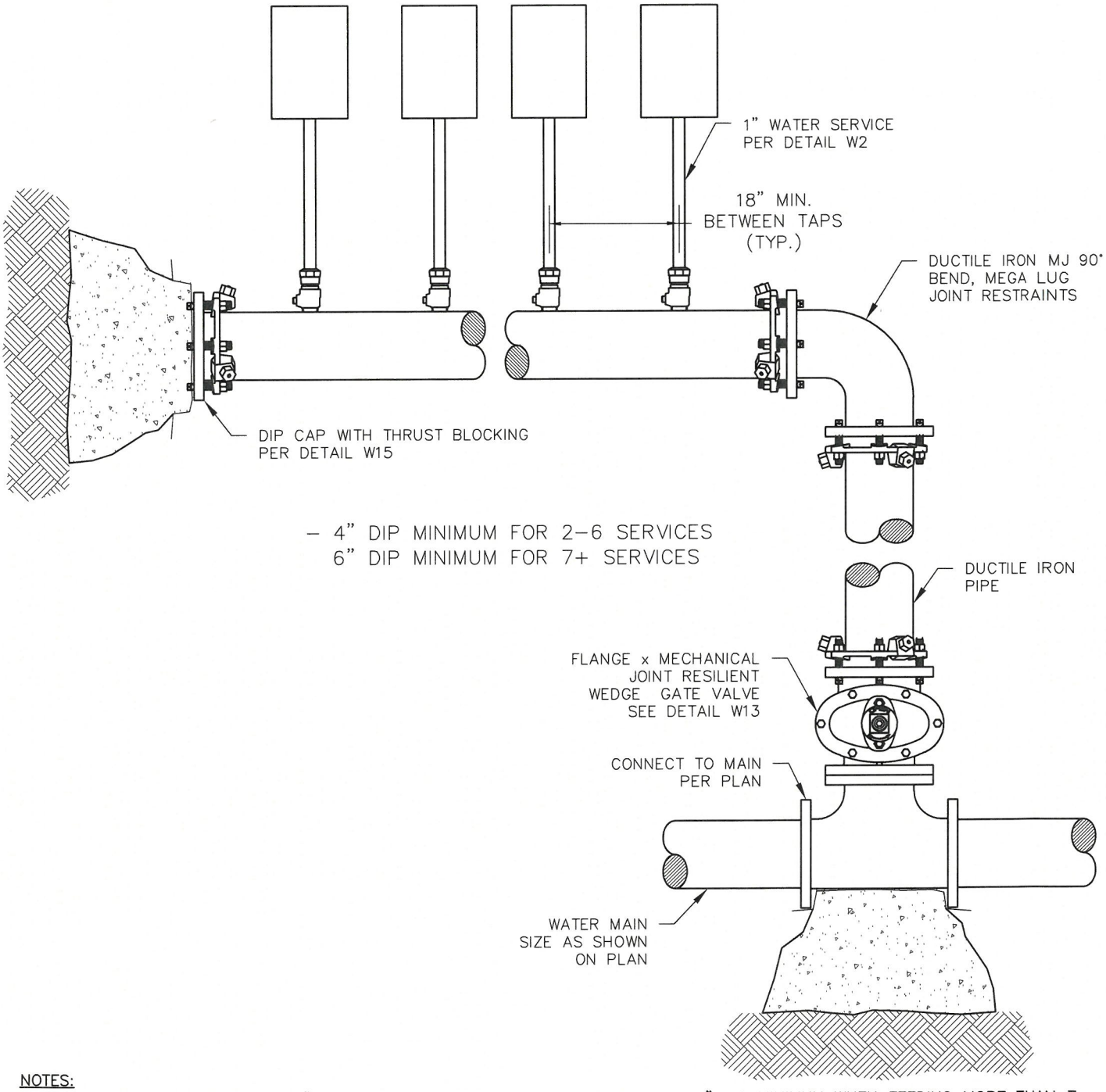
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W26A

REVISION: 1 DATE: 03/28/2022

WTR-RISER.DWG



NOTES:

1. WATERLINE MANIFOLD TO BE 4" DIP MINIMUM WHEN FEEDING 2–6 SERVICES, 6" DIP MINIMUM WHEN FEEDING MORE THAN 7 SERVICES
2. MANIFOLD LEG TO BE LOCATED UNDER PLANTER STRIP OR BEHIND SIDEWALK, AVOID PLACING UNDER IMPERVIOUS SURFACE.
3. MANIFOLD LEG TO BE AT A DEPTH OF 24" MIN/48" MAX.
4. NEW WATERLINE MANIFOLDS REQUIRE TONING WIRE, PLACED ON THE BOTTOM SIDE OF THE PIPE, BELOW THE SPRING LINE.
5. TONING WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 10' INTERVALS.
6. TONING WIRE SHALL BE COPPERHEAD SUPERFLEX 12 AWG 45MIL BLUE HDPE INSLATION, NO SPLICES ALLOWED.
7. SEAL TONING WIRE SPLICE CONNECTIONS WITH COPPERHEAD 12 AWG SNAKEBITE LOCKING CONNECTORS (TYPICAL)
8. WATER SERVICES TO BE SPACED 18" MINIMUM AND INSTALLED PER DETAIL W2
9. METER BOXES TO BE LOCATED OUTSIDE OF SIDEWALK OR IN PLANTER STRIP, EXCEPT WHERE NOTED IN PLANS
10. TONING WIRE FROM THE MANIFOLD TO SERVICE REQUIRES A SNAKEBITE LOCKING CONNECTOR
11. PREFERRED BRASS FITTINGS TO BE USED, IN ORDER: 1) FORD 2) AY MCDONALD

City of Camas WASHINGTON

WATER DETAIL

WATER METER MANIFOLD ASSEMBLY

1/3/24

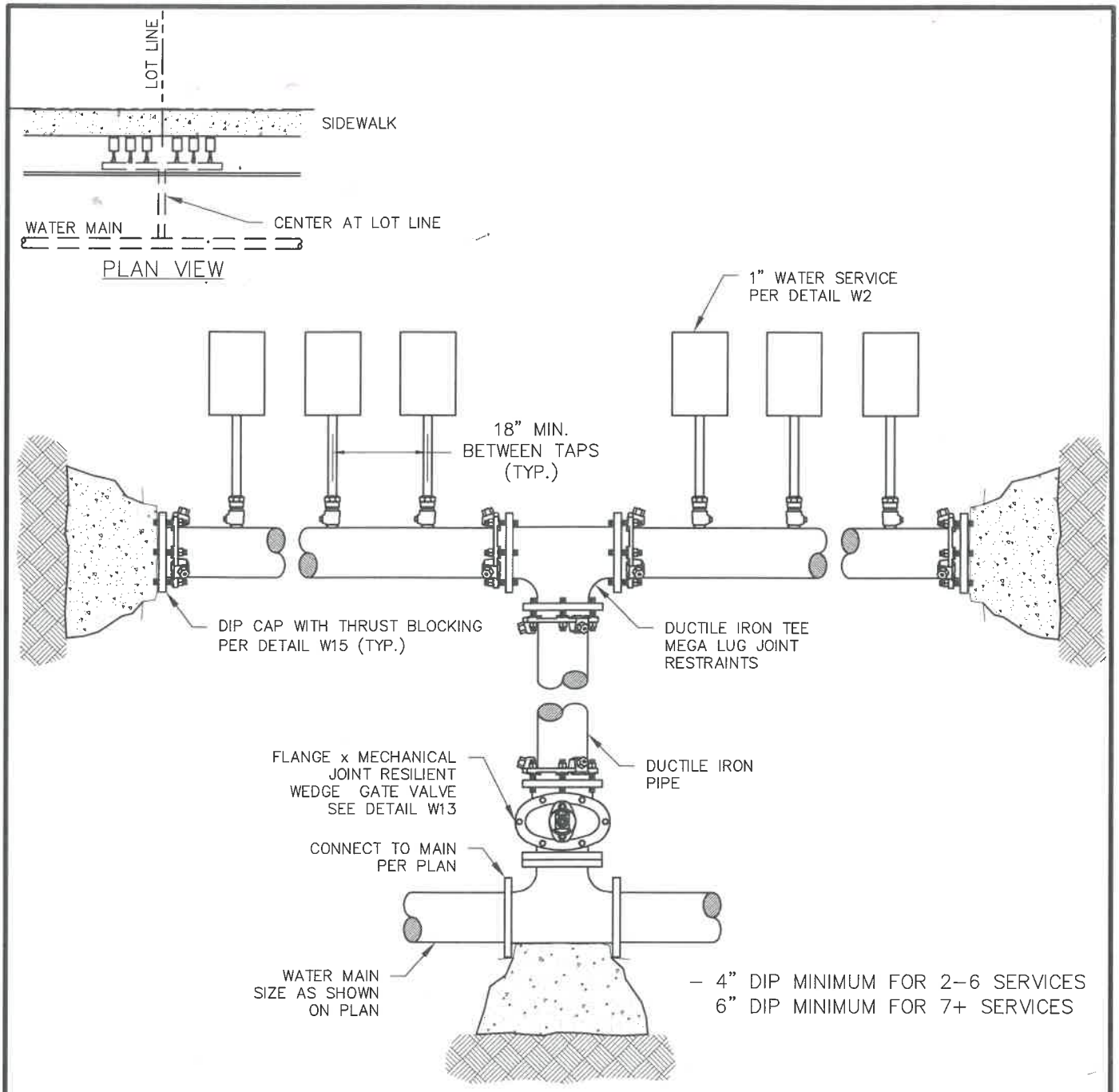
DETAIL APPROVED BY DATE

NOT TO SCALE

DETAIL NO. W27

REVISION: 2 DATE: 01/02/2024

WTR-MNFLD.DWG



NOTES:

1. WATERLINE MANIFOLD TO BE 4" DIP MINIMUM WHEN FEEDING 2–6 SERVICES, 6" DIP MINIMUM WHEN FEEDING MORE THAN 7 SERVICES
2. MANIFOLD LEG TO BE LOCATED UNDER PLANTER STRIP OR BEHIND SIDEWALK, AVOID PLACING UNDER IMPERVIOUS SURFACE.
3. MANIFOLD LEG TO BE AT A DEPTH OF 24" MIN/48" MAX.
4. NEW WATERLINE MANIFOLDS REQUIRE TONING WIRE, PLACED ON THE BOTTOM SIDE OF THE PIPE, BELOW THE SPRING LINE.
5. TONING WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 10' INTERVALS.
6. TONING WIRE SHALL BE COPPERHEAD SUPERFLEX 12 AWG 45MIL BLUE HDPE INSLATION, NO SPLICES ALLOWED.
7. SEAL TONING WIRE SPLICE CONNECTIONS WITH COPPERHEAD 12 AWG SNAKEBITE LOCKING CONNECTORS (TYPICAL)
8. WATER SERVICES TO BE SPACED 18" MINIMUM AND INSTALLED PER DETAIL W2
9. METER BOXES TO BE LOCATED OUTSIDE OF SIDEWALK OR IN PLANTER STRIP, EXCEPT WHERE NOTED IN PLANS
10. TONING WIRE FROM THE MANIFOLD TO SERVICE REQUIRES A SNAKEBITE LOCKING CONNECTOR
11. PREFERRED BRASS FITTINGS TO BE USED, IN ORDER: 1) FORD 2) AY MCDONALD

City of Camas WASHINGTON

WATER DETAIL

WATER METER MANIFOLD ASSEMBLY

DETAIL APPROVED BY

2/12/2026

DATE

NOT TO SCALE

DETAIL NO. W27a

REVISION: 1 DATE: 02/10/2026

WTR-MNFLD.DWG