CITY OF CORONA

STANDARD DRAWINGS

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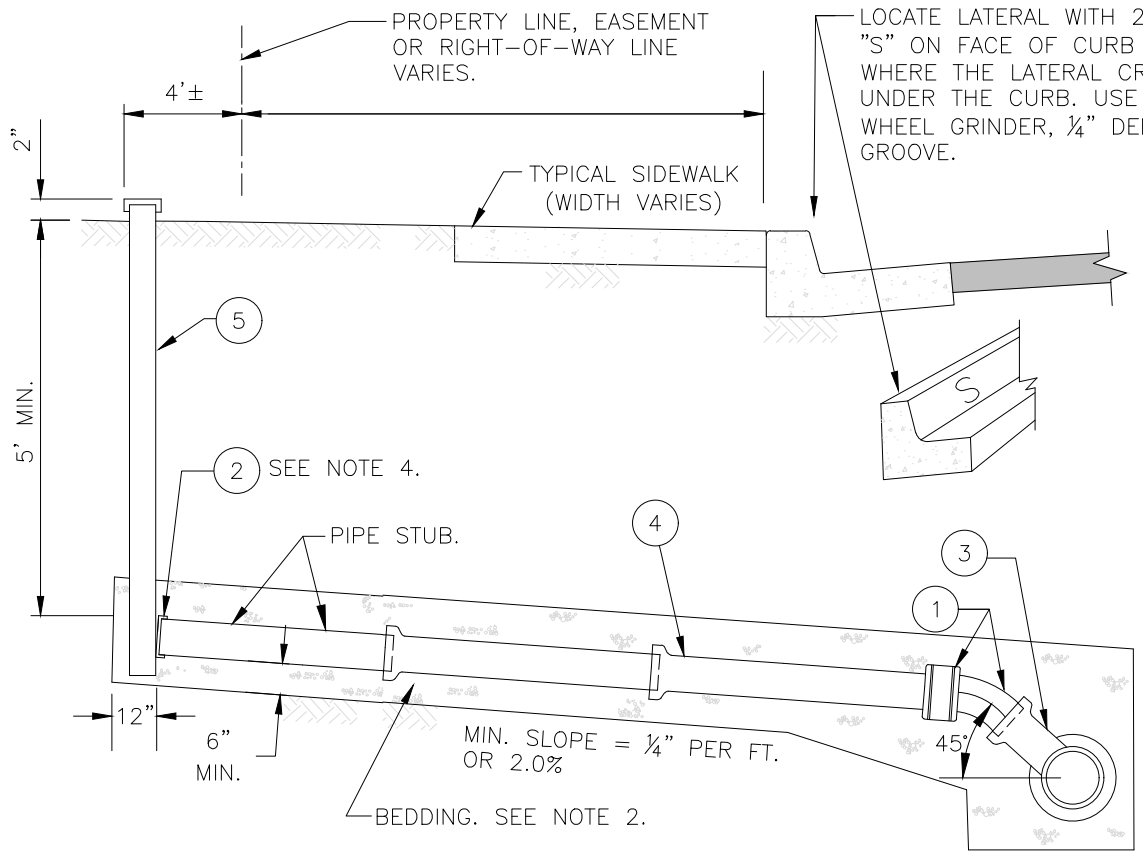


RESIDENTIAL SERVICES

ITEM MATERIALS

1. EXTRA-STRENGTH VCP ⅛ BEND WITH TRANSITION BAND SEAL COUPLING WITH OUTSIDE TYPE 316SS SHEAR RING FOR 4-INCH SINGLE FAMILY OR 6-INCH MULTI-FAMILY RESIDENTIAL SERVICES.
2. PIPE CAP.
3. EXTRA-STRENGTH VCP WYE BRANCH FITTING.
4. 4-INCH PVC SEWER PIPE, SDR-26, FOR SINGLE FAMILY RESIDENTIAL SERVICES.
   6-INCH PVC SEWER PIPE, SDR-26, FOR MULTI-FAMILY RESIDENTIAL SERVICES.
5. 2-INCH PVC SCH. 40 PIPE WITH CAP TO MARK STUB-OUT (REMOVE UPON COMPLETION OF CONNECTION TO ON-SITE SEWER LATERAL).

NOTES:

1. LATERAL SIZE TO BE DETERMINED ON THE BASIS OF TOTAL NUMBER OF FIXTURE UNITS, BUT IN NO CASE SHALL THE LATERAL DIAMETER BE LESS THAN FOUR INCHES FOR SINGLE FAMILY RESIDENTIAL BUILDINGS; NOR LESS THAN SIX INCHES FOR MULTIPLE FAMILY RESIDENTIAL.
2. ¾-INCH CRUSHED ROCK.
3. TRENCH BACKFILL PER CITY STD. DWG. 150.
4. INSTALL CAP AND STUB-OUT MARKER WHERE LATERAL IS NOT YET CONNECTED TO ON-SITE SEWER.

SINGLE FAMILY AND MULTI-FAMILY RESIDENTIAL

NOT TO SCALE

SEWER LATERAL ON NEW SEWER

REVISION		
NO.	APPROVED	DATE
1		10/10/16
2	VRW	07/16/18

APPROVED:

Nelson D Nelson — 7/16/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

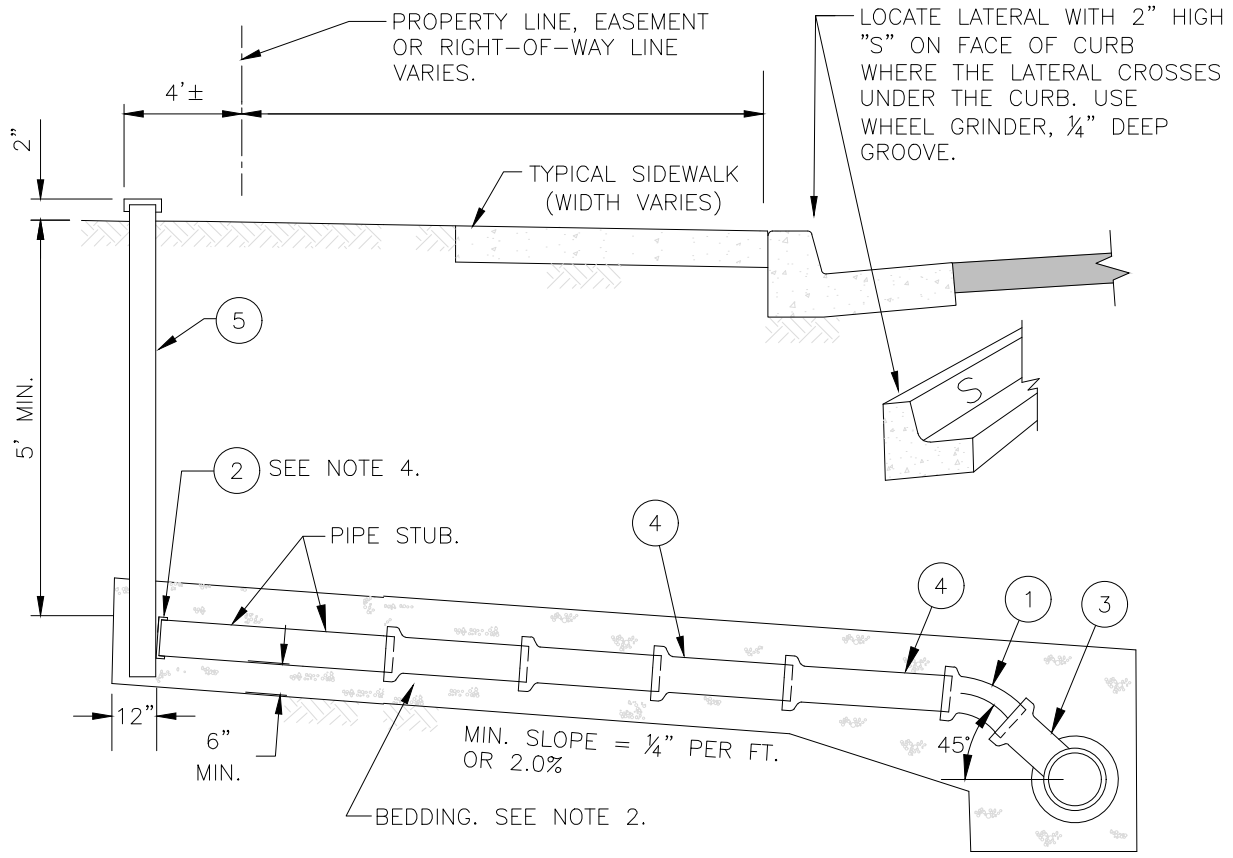
Vernon R. Weisman — 7/16/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 301

SHEET 1 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_301A_REV1.DWG



COMMERCIAL AND INDUSTRIAL SERVICES

ITEM	MATERIALS
1	EXTRA-STRENGTH VCP ⅛ BEND FOR 6-INCH AND LARGER COMMERCIAL AND INDUSTRIAL SERVICES.
2	PIPE CAP.
3	EXTRA-STRENGTH VCP WYE BRANCH FITTING.
4	6-INCH AND LARGER EXTRA-STRENGTH VCP SEWER PIPE FOR COMMERCIAL AND INDUSTRIAL SERVICES.
5	2-INCH PVC SCH. 40 PIPE WITH CAP TO MARK STUB-OUT (REMOVE UPON COMPLETION OF CONNECTION TO ON-SITE SEWER LATERAL).

NOTES:

1. LATERAL SIZE TO BE DETERMINED ON THE BASIS OF TOTAL NUMBER OF FIXTURE UNITS, BUT IN NO CASE SHALL THE LATERAL DIAMETER BE LESS THAN 6 INCHES FOR COMMERCIAL OR INDUSTRIAL BUILDINGS.
2. ¾-INCH CRUSHED ROCK.
3. TRENCH BACKFILL PER CITY STD. DWG. 150.
4. INSTALL CAP AND STUB-OUT MARKER WHERE LATERAL IS NOT YET CONNECTED TO ON-SITE SEWER.

COMMERCIAL AND INDUSTRIAL

NOT TO SCALE

SEWER LATERAL ON NEW SEWER

REVISION		
NO.	APPROVED	DATE
1		10/10/16
2	VRW	07/16/18

APPROVED:

Nelson D Nelson — 7/16/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

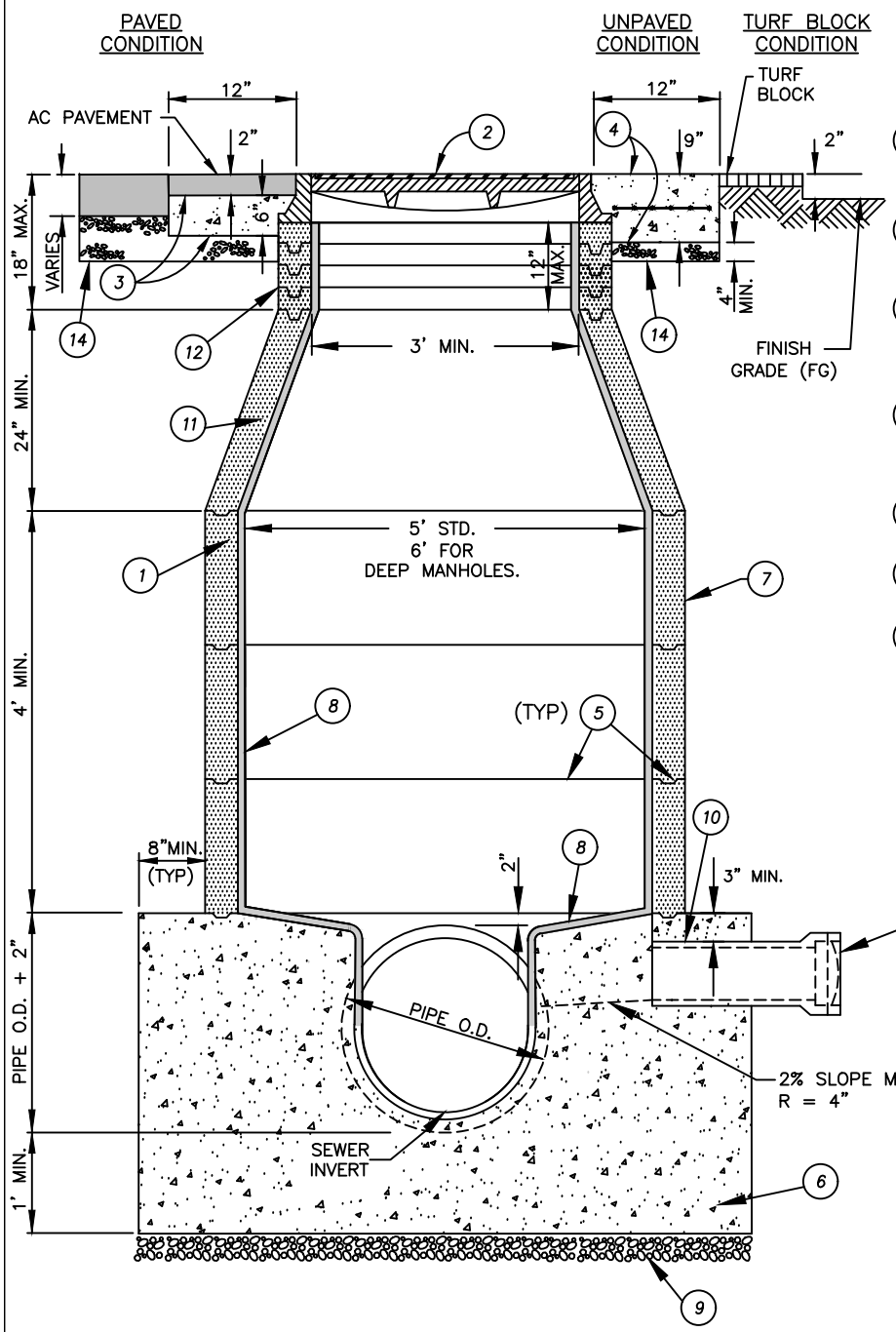
Vernon R. Weisman — 7/16/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

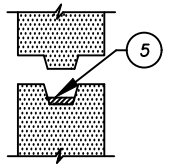
STD 301

SHEET 2 OF 2

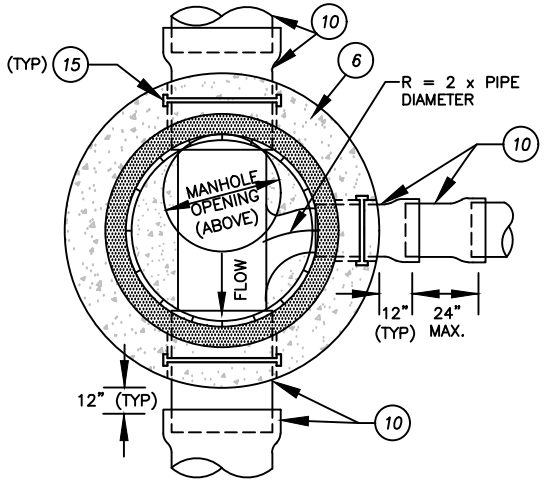
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_301B_REV1.DWG



ITEM	MATERIALS
1	PRECAST CONCRETE MANHOLE SHAFT, MINIMUM WALL THICKNESS AS NOTED BELOW: 60–INCH DIA. MANHOLE – 6–INCH WALL THICKNESS (0–12 FEET FG TO SEWER INVERT) 72–INCH DIA. MANHOLE – 7–INCH WALL THICKNESS (DEEPER THAN 12 FEET FG TO SEWER INVERT)
2	FRAME & COVER. ALHAMBRA #A–1251–6, SOUTH BAY FOUNDRY #SBF 1906, NEENAH #R–1578–A, NATIONAL CASTING CORP #NC–251 OR APPROVED EQUAL. SEE NOTE 8.
3	ROUND 560–C–3250 CONCRETE COLLAR AND AC PAVEMENT.
4	SQUARE 560–C–3250 CONCRETE PAD REINFORCE WITH 6" x 6" W.W.F. 10 GAUGE CENTERED IN CONCRETE.
5	SHAFT JOINT WITH JOINT SEALING COMPOUND. SEE NOTE 5 ON SHEET 2.
6	MANHOLE BASE TO BE CAST–IN–PLACE MONOLITHICALLY USING 560–C–3250 CONCRETE. MINIMUM CHANNEL DEPTH TO BE 1 PIPE DIAMETER FOR SEWER DIAMETERS 10 INCHES AND SMALLER AND 1¼ PIPE DIAMETERS FOR SEWERS 12 INCHES AND LARGER.
7	COAT OUTSIDE OF MANHOLE SHAFT WITH 12–16 MILS OF DEVOE DEVTAR 5A–HS EPOXY.
8	LINE INTERIOR SURFACES OF MANHOLE AND MANHOLE BASE WITH SANCON 100, UTILITHANE, SAUEREISEN SEWERGARD 210, OR EQUAL. APPLY NON–SKID SURFACE ON TOTAL SHELF AREA. PREPARE SURFACE OF MANHOLE FOR APPLICATION OF MANHOLE LINING. SEE NOTE 6 ON SHEET 2.
9	12 INCHES OF ¾–INCH DIA. CRUSHED ROCK.
10	INSTALL MANHOLE CONNECTIONS USING SAME PIPE MATERIAL AS SEWER MAIN.
11	PRECAST CONCRETE ECCENTRIC CONE, SIZE TO MATCH SHAFT. ORIENT AS SHOWN IN THIS DRAWING.
12	GRADE RING.
13	INSTALL TEMPORARY PLUG IN PIPE BELL–JOINT OR CAP ON PIPE STUB.
14	AGGREGATE BASE.
15	FOR PVC SEWER PIPE USE CONCRETE MANHOLE ADAPTER.



SHAFT JOINT



MANHOLE BASE WITH PIPE CONNECTION

NOT TO SCALE

SEE NOTES ON SHEET 2.

STANDARD MANHOLE

REVISION NO.	APPROVED	DATE
5		07/16/18
6		10/19/18
7	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20 DATE
TOM G. KOPER, PE, CITY ENGINEER

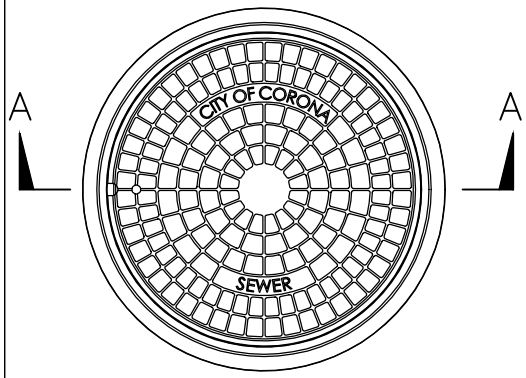
Vernon R. Weisman — 10/01/20 DATE
VERNON R. WEISMAN, PE, DISTRICT ENGINEER

CITY OF CORONA

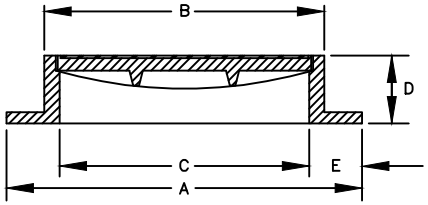
STD 302

SHEET 1 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_302A_REV7.DWG

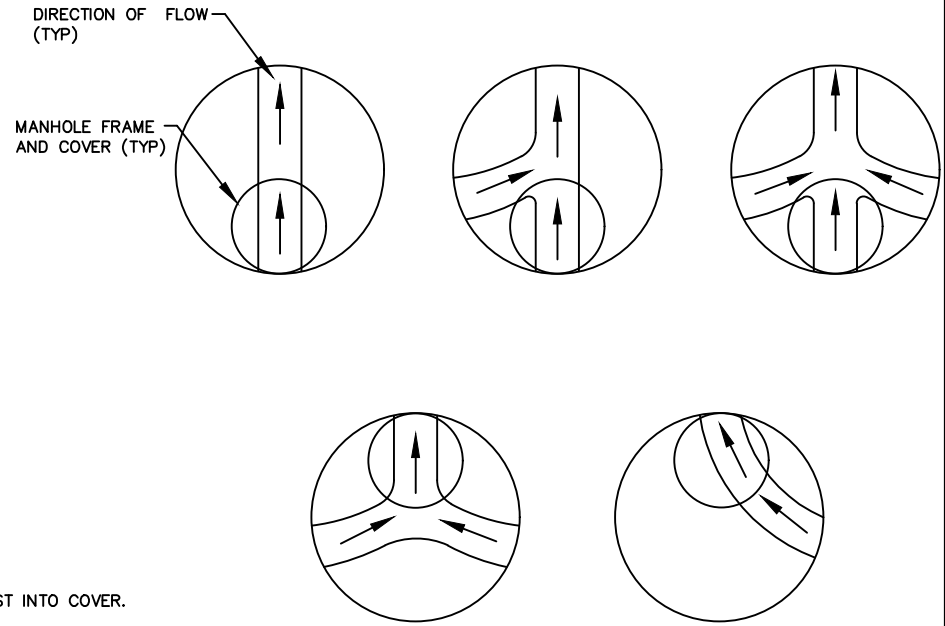


COVER DETAIL



SECTION A–A

FRAME & COVER DIMENSIONS	
A	44"
B	39"
C	36"
D	6"
E	4"



ORIENTATION OF MANHOLE COVER TO MANHOLE BASE

NOTES:

1. ALL MANHOLES SHALL HAVE NOMINAL 36–INCH DIAMETER COVERS WITH "CITY OF CORONA" AND "SEWER" CAST INTO COVER.
2. COAT FRAME AND COVER WITH BITUMASTIC COATING.
3. PLACE PLUGS IN SEWER ON EACH SIDE OF MANHOLE TO KEEP DEBRIS FROM ENTERING SEWER. REMOVE PLUGS PRIOR TO FINAL ACCEPTANCE.
4. CONSTRUCT PRE–CAST REINFORCED CONCRETE MANHOLE SECTIONS IN ACCORDANCE WITH ASTM C–478, CLASS A CONCRETE, NO STEPS.
5. USE PREFORMED COLD–APPLIED READY–TO–USE PLASTIC JOINT SEALING COMPOUND FOR ALL MANHOLE JOINTS. REMOVE EXCESS FROM SURFACES INSIDE MANHOLE PRIOR TO APPLYING MANHOLE LINING.
6. PREPARE SURFACE OF MANHOLE FOR APPLICATION OF MANHOLE LINING IN ACCORDANCE WITH ALL MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS. PREPARATION WORK INCLUDES, BUT IS NOT LIMITED TO, INSTALLATION OF CEMENT MORTAR IN MANHOLE SHAFT, CONE, AND GRADE RING JOINTS, FILLING AIR POCKETS, SMOOTHING SURFACE IMPERFECTIONS, AND OTHER PREPARATION WORK AS REQUIRED. CLEAN SURFACE IN ACCORDANCE WITH LINING MANUFACTURER'S REQUIREMENTS.
7. DO NOT PLACE MANHOLES IN SIDEWALKS OR CROSS GUTTERS WITHOUT PRIOR WRITTEN APPROVAL FROM DWP GENERAL MANAGER OR DESIGNEE.
8. MANHOLES DEEPER THAN 20 FEET TO MANHOLE CHANNEL INVERT SHALL BE STRUCTURALLY DESIGNED BY A REGISTERED CIVIL OR STRUCTURAL ENGINEER.
9. FRAME AND COVER SHALL MEET ASTM A48 CLASS 35B, FOR GRAY IRON CASTINGS, AND H–25 LOADING.

NOT TO SCALE

STANDARD MANHOLE

REVISION		
NO.	APPROVED	DATE
2		04/05/16
3		07/16/18
4	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 302

SHEET 2 OF 2

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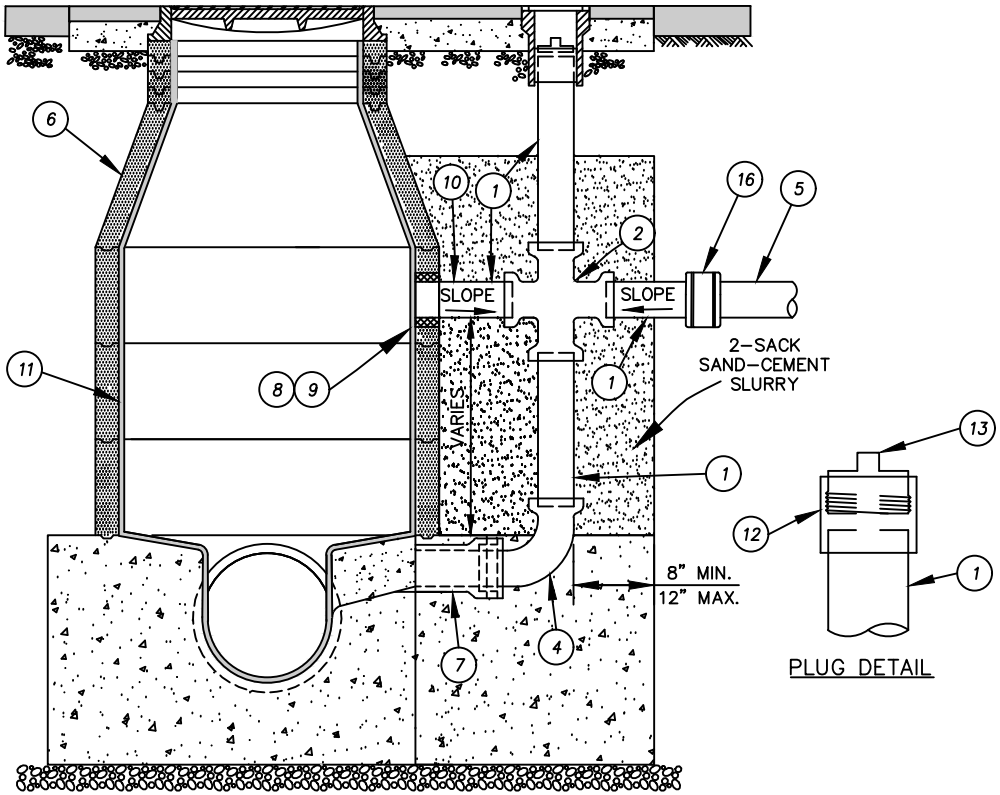
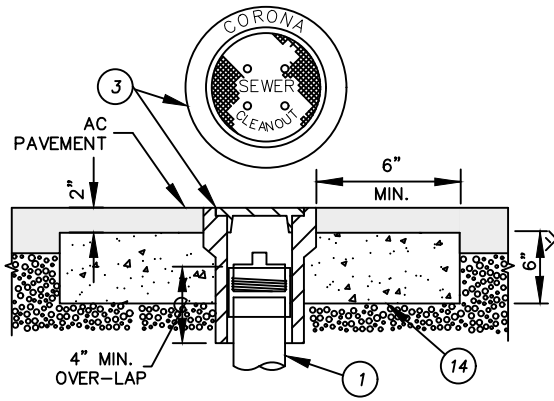


PLUG DETAIL

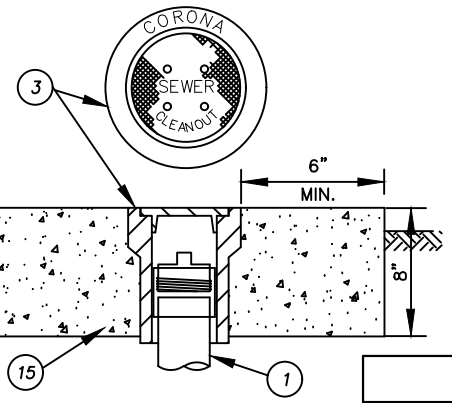
ITEM	MATERIALS
1	SDR-26 PVC PIPE. SIZE AS REQUIRED.
2	SDR-26 PVC CROSS, BELL x BELL. SIZE AS REQUIRED.
3	CLEAN OUT COVER. PRECAST BOX, FRAME AND COVER WITH MARKING AS SHOWN HEREON. ALHAMBRA #A-1240, NEENAH #R-1976, OR APPROVED EQUAL.
4	SDR-26 PVC LONG RADIUS 90 DEGREE BEND BELL x SPIGOT END. SIZE AS REQUIRED.
5	EXTRA-STRENGTH VCP.
6	STANDARD MANHOLE PER CITY STD. DWG. 302.
7	INSTALL SDR-26 PVC PIPE CONNECTION TO MANHOLE BASE PER DETAIL ON CITY STD. DWG. 302.
8	CORE DRILL MANHOLE SHAFT. FILL ANNULAR SPACE WITH DRY PACK GROUT.
9	REPAIR MANHOLE LINING TO THE SATISFACTION OF DWP GENERAL MANAGER OR DESIGNEE.
10	SLOPE PIPE TO FALL ½-INCH TOWARD CROSS.
11	LINE INTERIOR SURFACES OF MANHOLE AND MANHOLE BASE WITH SANCON 100, UTILITHANE, SAUEREISEN SEWERGARD 210, OR EQUAL. APPLY NON-SKID SURFACE ON TOTAL SHELF AREA. PREPARE SURFACE OF MANHOLE FOR APPLICATION OF MANHOLE LINING PER CITY STD. DWG. 302 NOTE 6 ON SHEET 2.
12	SOLVENT WELD x FIPT SCH. 40 ADAPTER.
13	PVC SCH. 40 STOPPER MIPT PLUG WITH MALE SQUARE NUT.
14	560-C-3250 CONCRETE COLLAR (ROUND). SEE NOTE 5.
15	560-C-3250 CONCRETE COLLAR (SQUARE).
16	TRANSITION BAND SEAL COUPLING WITH OUTSIDE TYPE 316SS SHEAR RING.

NOTES:

1. DROP MANHOLE SHALL BE APPROVED BY DWP GENERAL MANAGER OR DESIGNEE ONLY WHEN JUSTIFICATION IS PROVIDED SHOWING NO ALTERNATIVES ARE AVAILABLE.
2. FOR MANHOLE CONSTRUCTION NOTES AND DETAILS NOT SHOWN, SEE CITY STD. DWG. 302.
3. CONSTRUCT CLEANOUTS OF THE SAME DIAMETER (4", 6" OR 8") AND MATERIAL AS THE SEWER LATERAL.
4. IF LOCATED IN CONCRETE PAVEMENT, CONSTRUCT 6-INCH THICK ROUND COLLAR FLUSH WITH PAVEMENT.



PAVED CONDITION



UNPAVED CONDITION

NOT TO SCALE

DROP MANHOLE

REVISION NO.	APPROVED	DATE
4		07/16/18
5		10/19/18
6	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20 DATE
TOM G. KOPER, PE, CITY ENGINEER

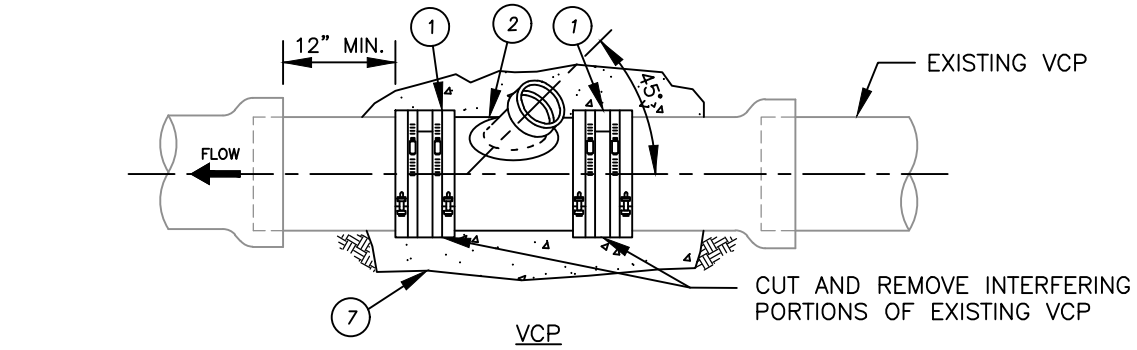
Vernon R. Weisman — 10/01/20 DATE
VERNON R. WEISMAN, PE, DISTRICT ENGINEER

CITY OF CORONA

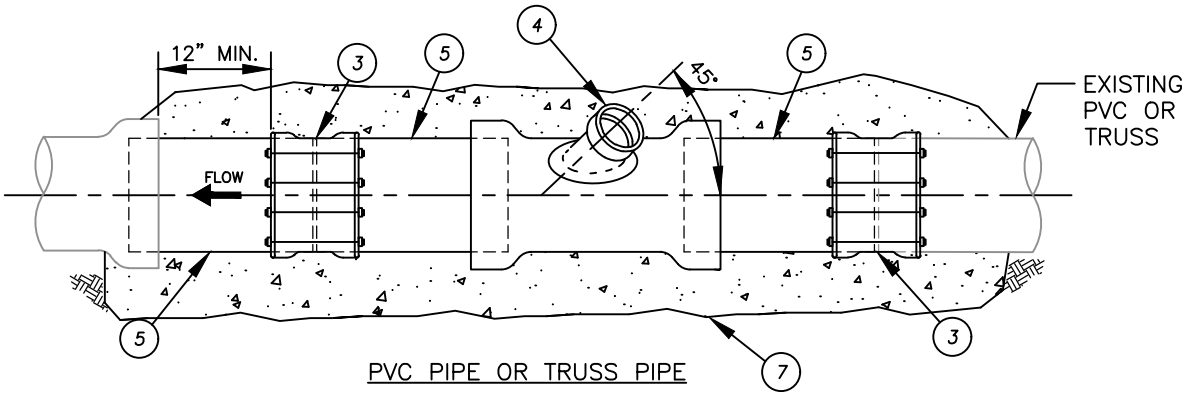
STD 303

SHEET 1 OF 1

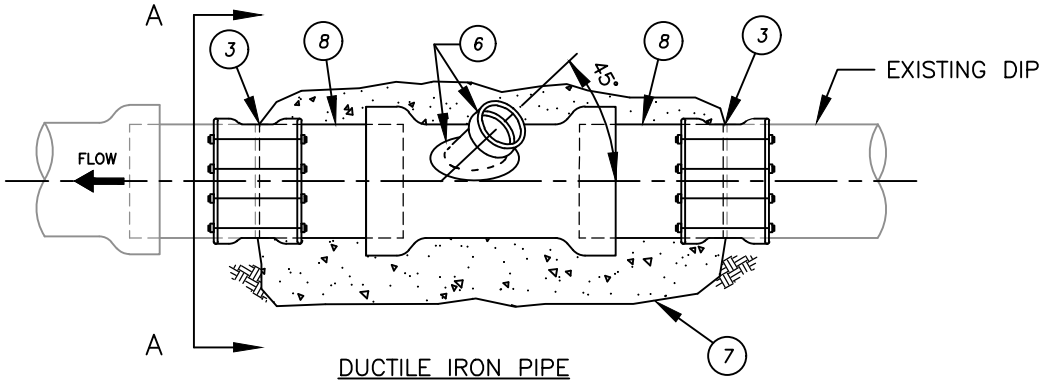
FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_303_REV6.DWG



VCP



PVC PIPE OR TRUSS PIPE



DUCTILE IRON PIPE

PLAN

ITEM	MATERIALS
1	BAND SEAL COUPLING WITH OUTSIDE TYPE 316SS SHEAR RING.
2	EXTRA–STRENGTH VCP WYE FITTING.
3	CONNECTION ON: PVC PIPE – GASKETED SDR 26 REPAIR COUPLING OR MAXADAPTER DIP OR TRUSS PIPE – MAXADAPTER
4	GASKETED PVC WYE FITTING.
5	SDR–26 PVC PIPE (SPOOL) MINIMUM LENGTH 12 INCHES.
6	DUCTILE IRON WYE, CERAMIC EPOXY LINED.
7	2–SACK CEMENT–SAND SLURRY BACKFILL AROUND PIPE AND FITTING.
8	DIP SPOOL, CERAMIC EPOXY LINED, MINIMUM LENGTH 12 INCHES.

NOT TO SCALE

SEWER LATERAL CONNECTION ON EXISTING SEWER

REVISION		
NO.	APPROVED	DATE
1		04/05/16
2		07/16/18
3	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

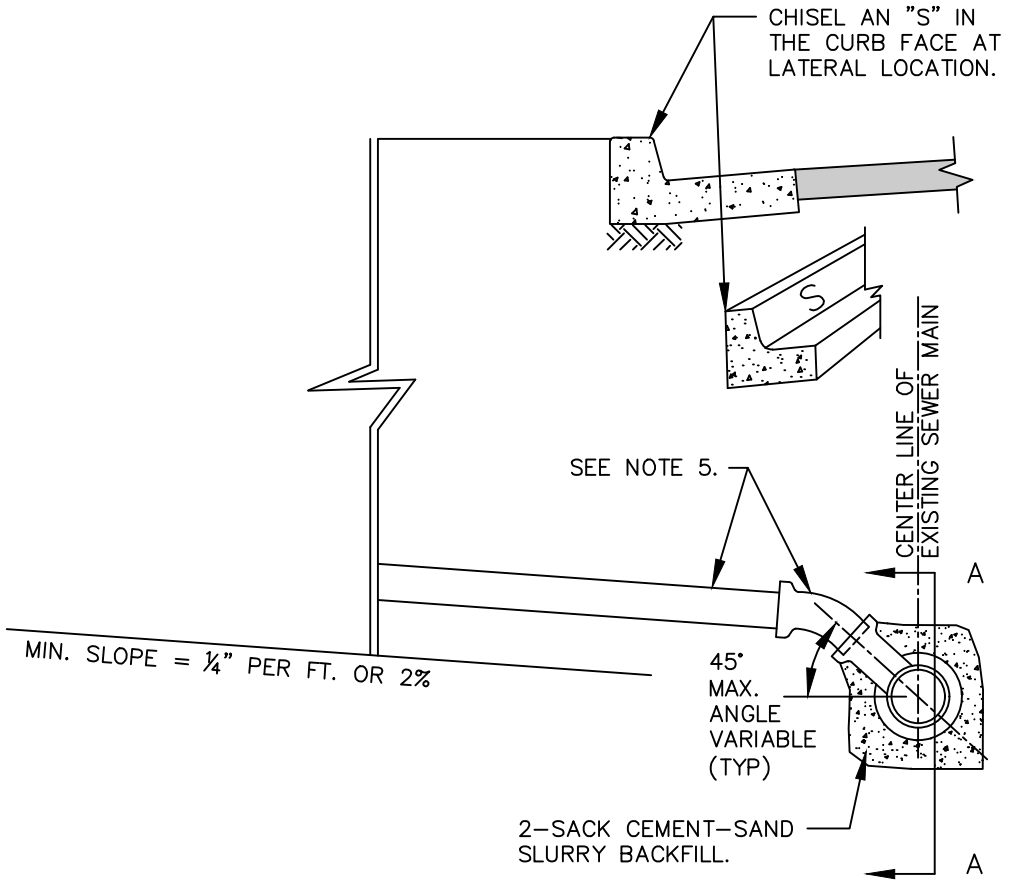
STD 304

SHEET 1 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_304A_REV3.DWG

NOTES:

1. WHEN 12–INCH MINIMUM SPACE BETWEEN EDGE OF COUPLING AND BELL CANNOT BE PROVIDED, CUT–OUT NEAREST BELL JOINT AND INSERT PLAIN–END PIPE.
2. KEEP ALL DEBRIS OUT OF THE SEWER. CLEAN AND BALL THE SEWER MAIN REACH WITH THE NEW LATERAL, IF NECESSARY, AS DIRECTED BY THE DWP GENERAL MANAGER OR DESIGNEE.
3. REPLACE DAMAGED PIPE.
4. ONLY USE SADDLE–TYPE CONNECTIONS FOR SPECIAL SITUATIONS. DO NOT CONSTRUCT WITHOUT PRIOR "WRITTEN APPROVAL" BY DWP GENERAL MANAGER OR DESIGNEE.
5. SEE CITY STD. DWG. 301 FOR LATERAL CONSTRUCTION.
6. 3/8–INCH OR LESS MAXIMUM GAP BETWEEN PIPE ENDS INSIDE OF COUPLINGS.



LATERAL CONNECTION DETAIL

NOT TO SCALE

SEWER LATERAL CONNECTION ON EXISTING SEWER

REVISION		
NO.	APPROVED	DATE
1		04/05/16
2		07/16/18
3	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

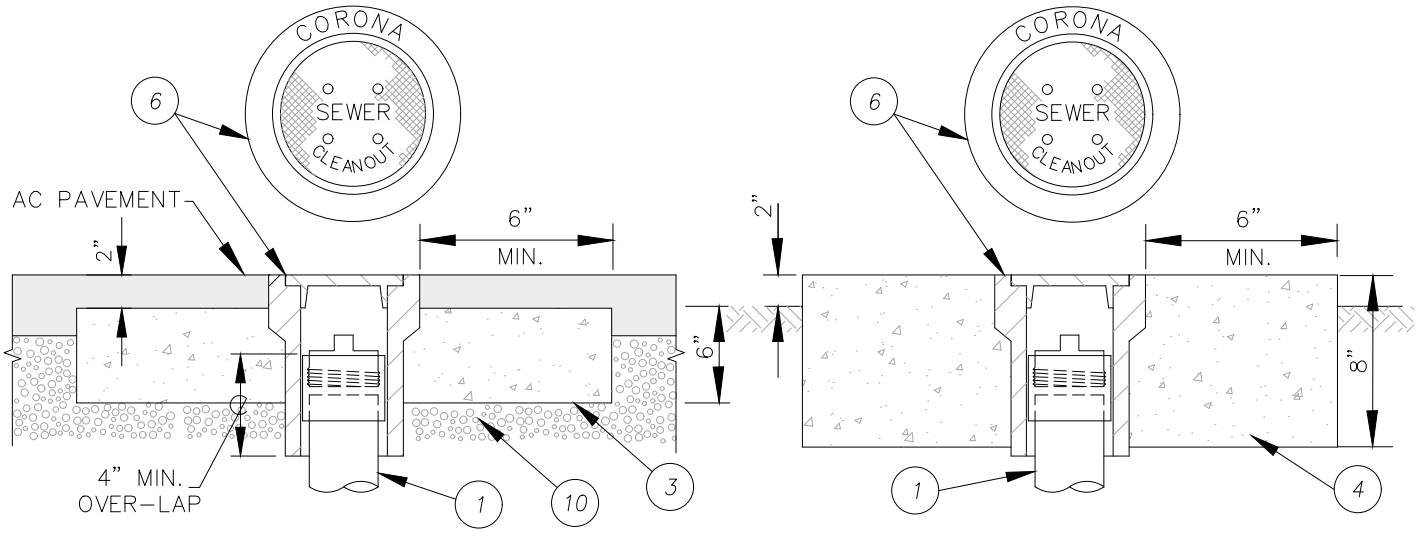
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 304

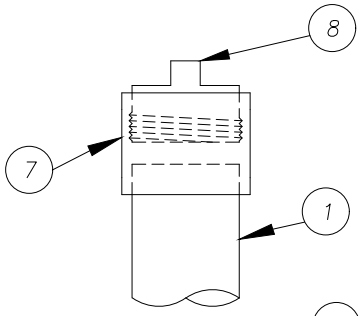
SHEET 2 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_304B_REV3.DWG

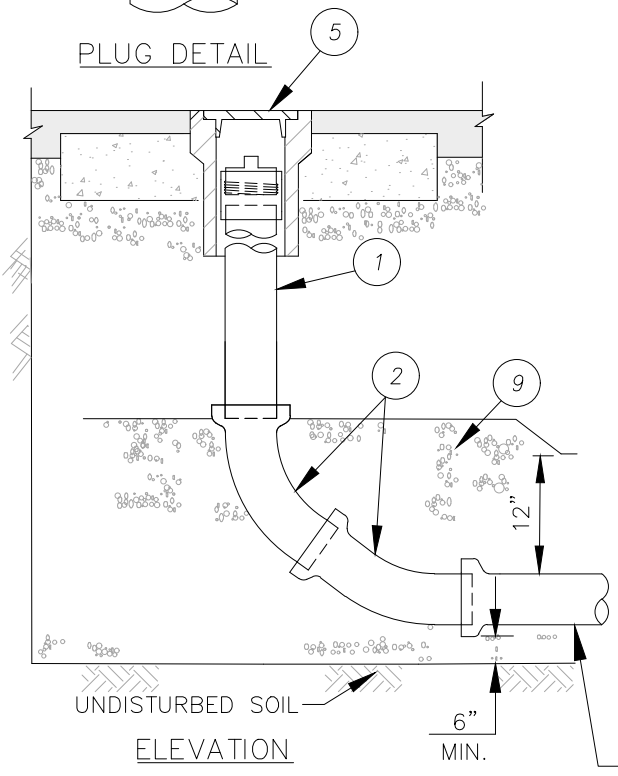


PAVED CONDITION

UNPAVED CONDITION



PLUG DETAIL



ELEVATION

ITEM	MATERIAL
1	CLEAN-OUT RISER, SEE NOTE 1.
2	45 DEGREE BEND, LONG-RADIUS SWEEP.
3	560-C-3250 CONCRETE COLLAR (ROUND). SEE NOTE 3.
4	560-C-3250 CONCRETE COLLAR (SQUARE).
5	CONSTRUCT FRAME, COVER AND CONCRETE COLLAR PER "PAVED" OR "UNPAVED" CONDITION HEREON.
6	PRECAST BOX, FRAME AND COVER WITH MARKING AS SHOWN HEREON. ALHAMBRA #A-1240, NEENAH #R-1976, OR APPROVED EQUAL.
7	SOLVENT WELD x FIPT SCH. 40 ADAPTER.
8	PVC SCH. 40 STOPPER. MIPT PLUG WITH MALE SQUARE NUT.
9	¾-INCH DIA. CRUSHED ROCK.
10	AGGREGATE BASE.

NOTES:

1. CONSTRUCT CLEANOUTS OF THE SAME DIAMETER (4", 6" OR 8") AND MATERIAL AS THE SEWER LATERAL.
2. USE SDR 35 PIPE AND FITTINGS WHERE COVER OVER PIPE EXCEEDS 5 FEET AND SDR 26 WHERE COVER IS 5 FEET OR LESS.
3. IF LOCATED IN CONCRETE PAVEMENT, CONSTRUCT 6-INCH THICK ROUND COLLAR FLUSH WITH PAVEMENT.

NOT TO SCALE

SEWER LATERAL TERMINAL CLEANOUT

REVISION		
NO.	APPROVED	DATE
1	VRW	07/16/18

APPROVED:

Nelson D Nelson — 7/16/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

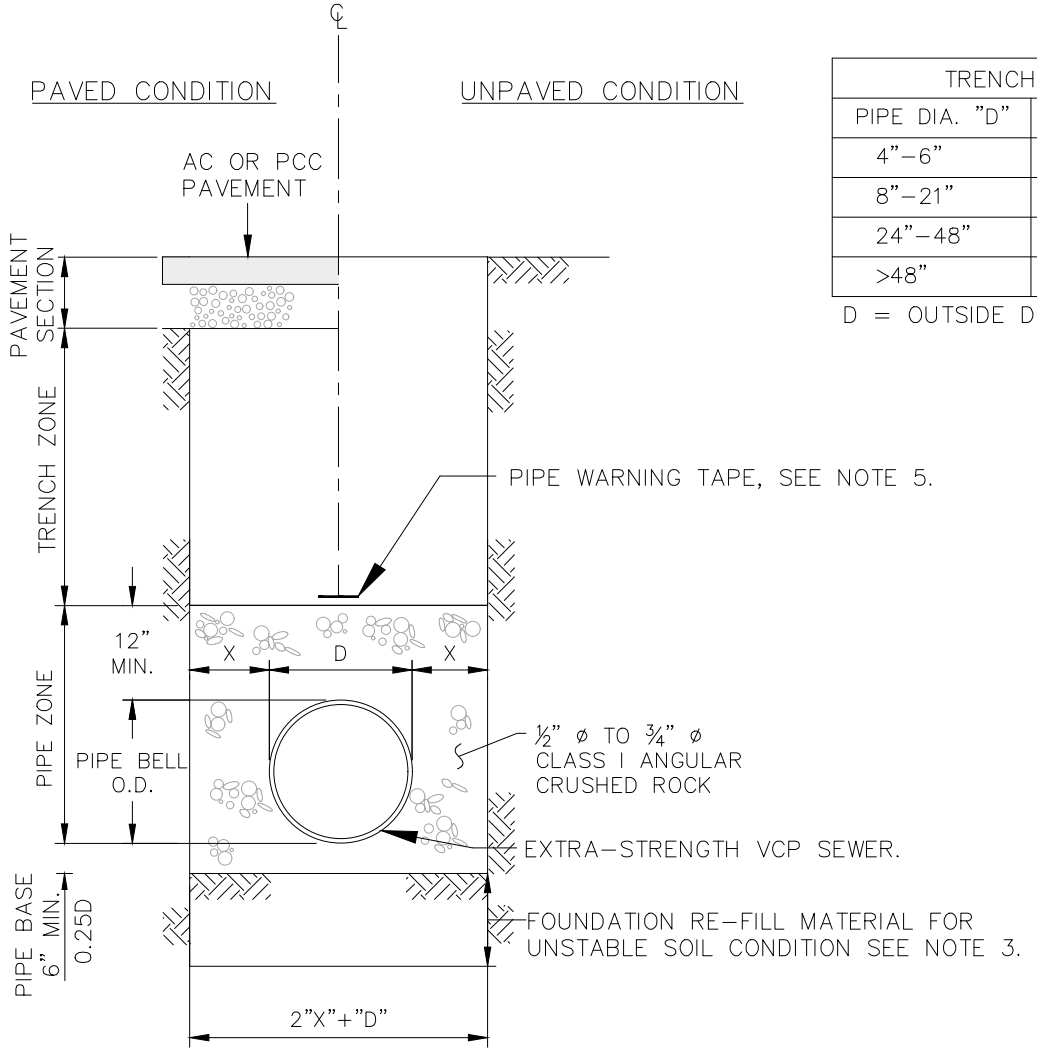
Vernon R. Weisman — 7/16/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 307

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_307.DWG



TRENCH WIDTH DIMENSIONS		
PIPE DIA. "D"	MAXIMUM "X"	MINIMUM "X"
4"–6"	8"	6"
8"–21"	12"	8"
24"–48"	.33D+4"	12"
>48"	20"	12"

D = OUTSIDE DIAMETER OF PIPE BELL

NOTES:

1. CONSTRUCT TRENCH ZONE AND PAVEMENT SECTION PER CITY STD. DWG. 150 OR GOVERNING AGENCY REQUIREMENTS IF OUTSIDE CITY OF CORONA.
2. WHERE CONTRACTOR FAILS TO MAINTAIN PROPER TRENCH WIDTH LIMITS, SPECIAL BACKFILL SUCH AS ONE-SACK SLURRY AND BEDDING WILL BE REQUIRED BY DWP GENERAL MANAGER OR DESIGNEE.
3. IF UNSTABLE SOIL IS ENCOUNTERED, DWP GENERAL MANAGER OR DESIGNEE WILL DETERMINE OVER-EXCAVATION DEPTH AND FOUNDATION RE-FILL MATERIAL.
4. PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THE WEIGHT OF PIPE DOES NOT BEAR ON THE BELL. RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF PIPE BEDDING.
5. INSTALL GREEN 6-INCH WIDE PIPE WARNING TAPE LABELED SEWER ABOVE SEWER PIPE.

NOT TO SCALE

SEWER PIPE BEDDING AND TRENCH DETAILS

REVISION		
NO.	APPROVED	DATE
1		04/05/16
2	VRW	07/16/18

APPROVED:

Nelson D Nelson — 7/16/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

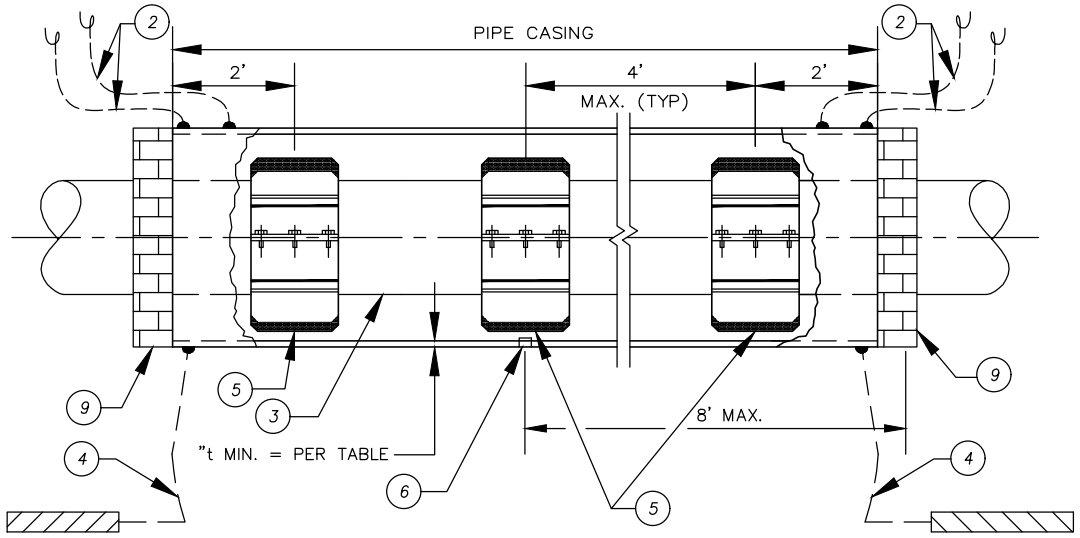
Vernon R. Weisman — 7/16/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

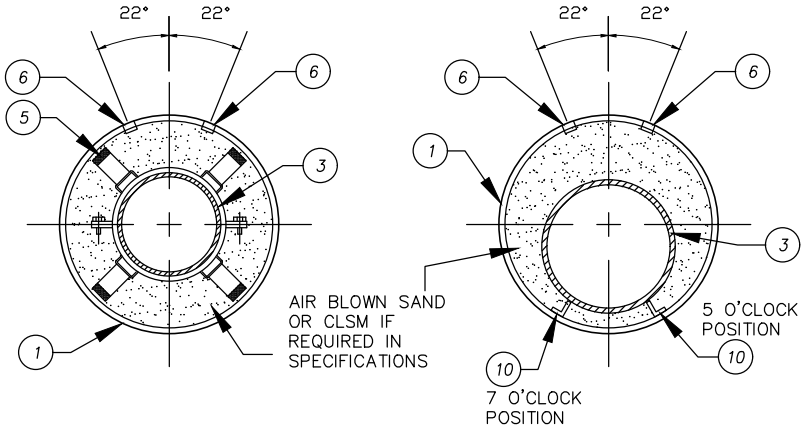
STD 308

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_308_REV1.DWG

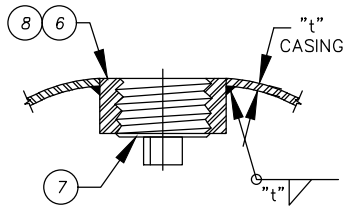


ITEM	MATERIALS
1	STEEL CASING.
2	INSTALL CASING TEST STATION PER CITY STD. DWG 452.
3	EXTRA–STRENGTH BELL–LESS VCP OR HDPE CARRIER PIPE.
4	INSTALL 60 LB. ANODE.
5	STAINLESS STEEL CASING SPACERS WITH HEAVY–DUTY 2–INCH WIDE ANTI–FRICTION RUNNERS. MINIMUM 2 PER PIPE SECTION.
6	GROUT FITTING PER DETAIL HEREON. INSTALL GROUT FITTINGS LONGITUDINALLY AND OFFSET 22 DEGREES FROM VERTICAL, AND ALTERNATE TO THE LEFT AND RIGHT OF THE TOP LONGITUDINAL AXIS OF THE CASING, 8–FOOT O.C.
7	2–INCH NPT THREADED STEEL PLUG WITH RAISED HEAD.
8	2–INCH NPT STD. WT. STL. PIPE HALF COUPLING.
9	BRICK AND MORTAR BULKHEADS.
10	STEEL RAILS WELDED TO CASING INTERIOR. CONSTRUCT RAILS USING STEEL ANGLE SECTIONS AS SHOWN IN DETAIL AND AS NECESSARY TO MAINTAIN GRADE THROUGH CASING.



OPTION A OPTION B

CROSS–SECTION



GROUT FITTING DETAIL

NOTES:

1. INSTALL CASING BY THE BORE, JACK AND/OR TUNNEL METHOD, UNLESS DWP GENERAL MANAGER OR DESIGNEE APPROVES OPEN CUT.
2. SIZE AND THICKNESS OF CASING SHALL BE AS SHOWN IN SCHEDULE. FOR LONG BORES OR SPECIAL SITUATIONS GREATER WALL THICKNESS THAN SHOWN IN SCHEDULE MAY BE REQUIRED.
3. WELD FULL–CIRCUMFERENCE ALL STEEL CASING PIPE FIELD JOINTS.
4. PRESSURE TEST CARRIER PIPE PRIOR TO SEALING ENDS OF CASING.
5. SEAL EACH END OF CASING WITH BRICK AND MORTAR BULKHEADS.
6. BACKFILL CASING IN OPEN CUT PER CITY STD. DWGS. 150 AND 308.
7. PRESSURE GROUT OUTSIDE OF CASING AT GROUT FITTINGS. GROUT PRESSURE SHALL NOT EXCEED FIVE (5) PSIG (34.5KPa) FOR A DURATION SUFFICIENT TO FILL ALL VOIDS OUTSIDE OF CASING.
8. INSTALLATION OF CASING BY BORE, JACK AND/OR TUNNEL METHOD REQUIRES A TUNNEL CLASSIFICATION FROM THE CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH, MINING AND TUNNELING UNIT.
9. INSTALL AIR BLOWN SAND OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) IN ANNULAR SPACE PER PLANS AND SUBJECT TO APPROVAL BY DWP. CLSM SHALL CONSIST OF CELLULAR CONCRETE WITH COMPRESSIVE STRENGTH OF 300 PSI AND 50 TO 80 PCF UNIT WEIGHT, AS MANUFACTURED BY CELL–CRETE CORPORATION, OR EQUAL.
10. OPTION A – INSTALL CASING SPACERS WITH EVEN NUMBER OF RUNNERS.
11. NUMBER AND PLACEMENT OF SPACERS ON CARRIER PIPE PER MANUFACTURER'S RECOMMENDATIONS, BUT NOT LESS THAN REQUIREMENTS OF THIS DETAIL.
12. OPTION B – STEEL RAILS WELDED AT 5 O'CLOCK AND 7 O'CLOCK POSITIONS AT THE GRADE SHOWN ON DESIGN PLANS.

STEEL CASING AND CASING SPACER SCHEDULE

HDPE		VCP		MIN. CASING SIZE, I.D.	MIN. WALL THICKNESS.	MIN. # OF SPACERS/ PIPE SECTION	MAX. CASING SPACERS SPACING
SIZE	O.D.	SIZE	O.D.				
8"	8.625"	8"	11.250"	36"	1/2"	2	6'
10"	10.750"	10"	13.625"	36"	1/2"	2	6'
12"	12.750"	12"	16.125"	36"	1/2"	2	6'
15"	–	15"	19.250"	36"	1/2"	3	4'
16"	17.400"	16"	–	36"	1/2"	3	4'
18"	21.900"	18"	22.375"	36"	1/2"	3	4'
24"	24.000"	24"	29.750"	36"	1/2"	3	4'

CASING SIZE FOR CARRIER PIPE LARGER THAN 18–INCH IS SUBJECT TO APPROVAL BY DWP.

NOT TO SCALE

STEEL CASING FOR GRAVITY OR PRESSURE FLOW SEWER PIPE

REVISION NO.	APPROVED	DATE
2		07/16/18
3		12/28/18
4	VRW	10/01/20

APPROVED:

Tom Koper
TOM G. KOPER, PE, CITY ENGINEER — 10/01/20 DATE

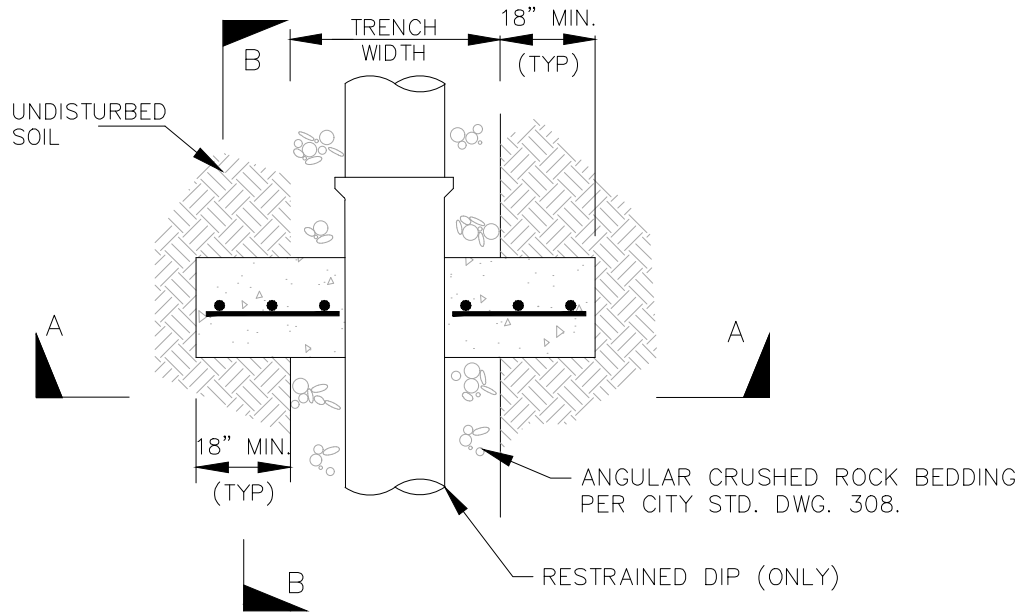
Vernon R. Weisman
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — 10/01/20 DATE

CITY OF CORONA

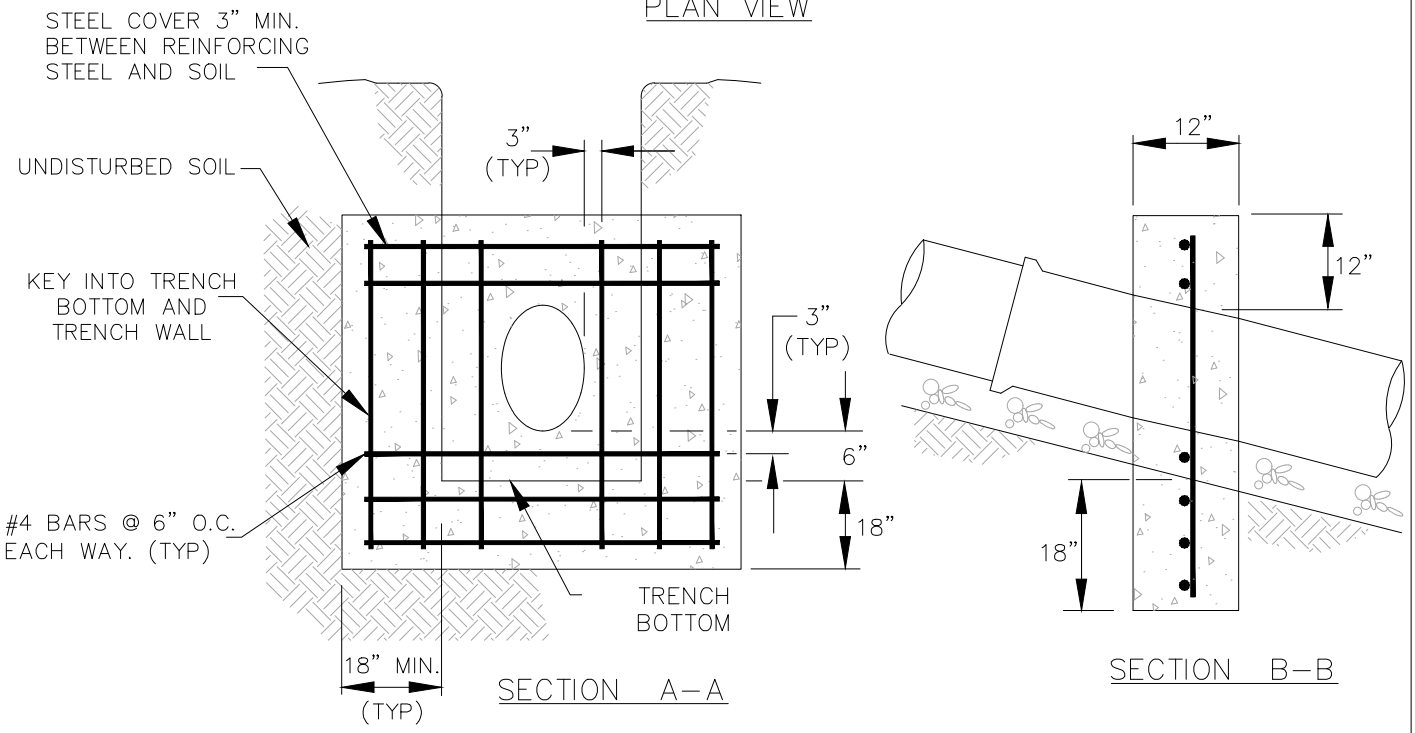
STD 309

SHEET 1 OF 1

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_309_REV4.DWG



PLAN VIEW



SECTION A–A

SECTION B–B

NOTES:

1. PIPE ANCHORS REQUIRED ON ALL SLOPES 3:1 (H:V) OR STEEPER.
2. PLACE ONE ANCHOR PER PIPE LENGTH, NOT TO EXCEED A SLOPE DISTANCE OF 18 FEET.
3. CONCRETE SHALL BE CLASS 560–C–3250 FOR STANDARD PLACEMENT AND 565–C–3250P FOR PUMP PLACEMENT.
4. ANCHORS FOR TRAPEZOIDAL TRENCH SECTIONS WILL CONFORM TO TRENCH CROSS SECTION AND EXTEND A MINIMUM OF 18 INCHES INTO UNDISTURBED SOIL.

NOT TO SCALE

CONCRETE SLOPE ANCHORS

REVISION		
NO.	APPROVED	DATE
1		04/05/16
2	VRW	07/16/18

APPROVED:

Nelson D Nelson — 7/16/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

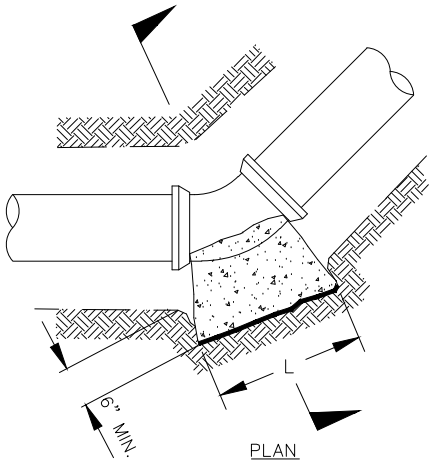
Vernon R. Weisman — 7/16/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

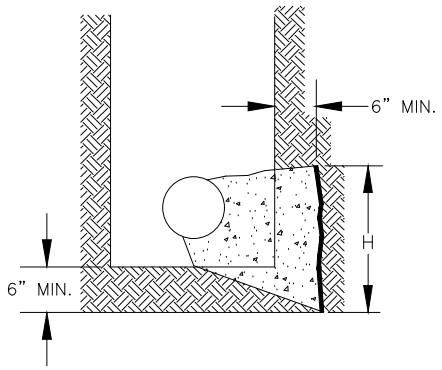
STD 310

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_310_REV1.DWG

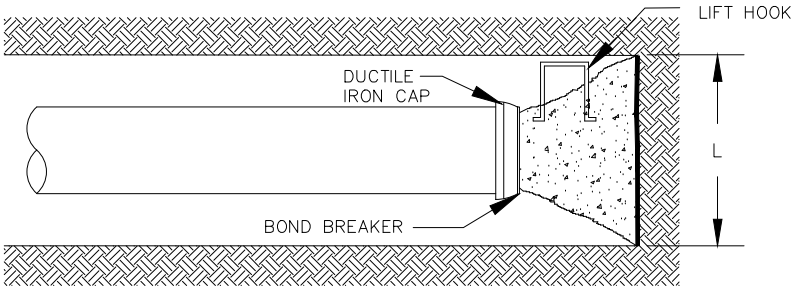


PLAN



SECTION

HORIZONTAL BEND



END OF LINE

GENERAL NOTES:

1. INSTALL CONCRETE THRUST BLOCKS ONLY WHEN APPROVED BY DWP GENERAL MANAGER OR DESIGNEE.
2. THRUST BLOCK BEARING AREA BASED ON ALLOWABLE SOIL BEARING VALUE OF 1500 PSF PRESSURE, 200 PSI LINE PRESSURE WITH 3 FEET COVER MINIMUM, AND A MINIMUM SAFETY FACTOR OF 1.5.
   FOR BEARING = 2000 PSF, 0.75 x AREA SHOWN
   FOR BEARING = 1000 PSF, 1.5 x AREA SHOWN
   FOR BEARING = 500 PSF, 3.0 x AREA SHOWN
3. ALL THRUST BLOCKS SHALL BE PORTLAND CEMENT CONCRETE MIX 560-C-3250 PLACED AGAINST UNDISTURBED SOIL AND CENTERED VERTICALLY AND HORIZONTALLY ABOUT THE DIRECTION OF THRUST.
4. KEY THRUST BLOCKS ON REDUCERS INTO THE TRENCH BOTTOM AS SHOWN.
5. DO NOT EXTEND CONCRETE ONTO FLANGE OR ADJOINING PIPE.
6. DO NOT COVER FITTING BOLTS WITH CONCRETE.
7. WHEN VALVES ARE FLANGED TO FITTINGS AVOID PLACING CONCRETE ON ANY PART OF THE VALVE BONNET OR VALVE OPERATOR.
8. COAT REBAR WITH 80 MILS OF COLD-APPLIED BITUMASTIC WATER-PROOFING COMPOUND. WRAP EXTERIOR OF VALVE, ACTUATOR AND FITTING WITH 2 LAYERS OF 8 MIL POLYETHYLENE SHEETING AND TAPE.
9. PROVIDE 3-INCH MINIMUM CONCRETE COVER OVER REBAR.
10. DO NOT PLACE CONCRETE ON VALVE OR PIPE JOINT.
11. YIELD STRENGTH OF STEEL BARS IS ASSUMED TO BE 36 KSI.
12. CONSULT STRUCTURAL ENGINEER FOR CASES NOT SHOWN.
13. THRUST BLOCK REQUIREMENTS FOR PIPE LARGER THAN 18-INCH OR OPERATING PRESSURE GREATER THAN 200 PSI REQUIRE SUBMITTAL OF DETAIL CALCULATIONS TO DWP GENERAL MANAGER OR DESIGNEE FOR APPROVAL.
14. FORM ALL CONCRETE THRUST BLOCKS.

PIPE SIZE	11¼° BEND				22½° BEND				45° BEND				90° BEND				END OF LINE			
	L (IN)	H (IN)	AREA (FT²)	THRUST (LBS)	L (IN)	H (IN)	AREA (FT²)	THRUST (LBS)	L (IN)	H (IN)	AREA (FT²)	THRUST (LBS)	L (IN)	H (IN)	AREA (FT²)	THRUST (LBS)	L (IN)	H (IN)	AREA (FT²)	THRUST (LBS)
4"	13	8	0.7	1064	18	11	1.4	2118	25	16	2.8	4155	34	22	5.1	7677	29	18	3.6	5429
6"	18	12	1.5	2199	26	16	2.9	4377	36	23	5.7	8586	49	31	10.6	15864	41	26	7.5	11218
8"	24	15	2.5	3782	34	22	5.0	7530	47	30	9.8	14771	64	41	18.2	27291	54	34	12.9	19298
10"	29	19	3.8	5690	41	26	7.6	11328	58	37	14.8	22220	78	50	27.4	41055	66	42	19.4	29031
12"	35	22	5.4	8047	49	31	10.7	16019	69	44	20.9	31423	93	60	38.7	58059	78	50	27.4	41054
16"	46	29	9.3	13982	65	41	18.6	27835	90	58	36.4	54601	123	79	67.3	100884	103	66	47.6	71336
18"	51	33	11.7	17561	72	46	23.3	34960	101	65	45.7	68576	138	88	84.5	126705	116	74	59.7	89595

NOT TO SCALE

CONCRETE THRUST BLOCK DETAILS

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

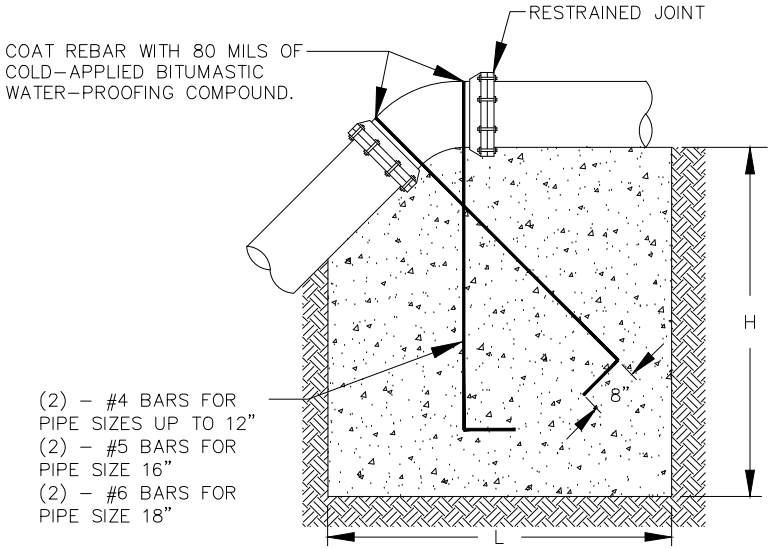
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 401

SHEET 1 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_401A_REV1.DWG



SECTION

VERTICAL BEND ANCHOR

VERTICAL BEND ANCHOR												
PIPE SIZE	11¼° BEND L,H, AND W(IN)	VOLUME (YD^3)	THRUST (LBS)	22½° BEND L,H, AND W(IN)	VOLUME (YD^3)	THRUST (LBS)	45° BEND L,H, AND W(IN)	VOLUME (YD^3)	THRUST (LBS)	90° BEND L,H, AND W(IN)	VOLUME (YD^3)	THRUST (LBS)
4"	23	0.3	1064	29	0.5	2118	36	1.0	4155	40	1.4	7677
6"	30	0.6	2199	37	1.1	4377	46	2.0	8586	51	2.9	15864
8"	36	1.0	3782	45	1.9	7530	55	3.5	14771	61	5.0	27291
10"	41	1.5	5690	51	2.9	11328	63	5.3	22220	70	7.5	41055
12"	46	2.1	8047	57	4.0	16019	70	7.5	31423	79	10.6	58059
16"	55	3.6	13982	69	7.0	27835	85	13.0	54601	95	18.3	100884
18"	59	4.5	17561	74	8.8	34960	91	16.3	68576	102	23.0	126705

NOT TO SCALE

INSTALL CONCRETE THRUST BLOCKS ONLY WHEN APPROVED BY DWP GENERAL MANAGER OR DESIGNEE.

CONCRETE THRUST BLOCK DETAILS

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

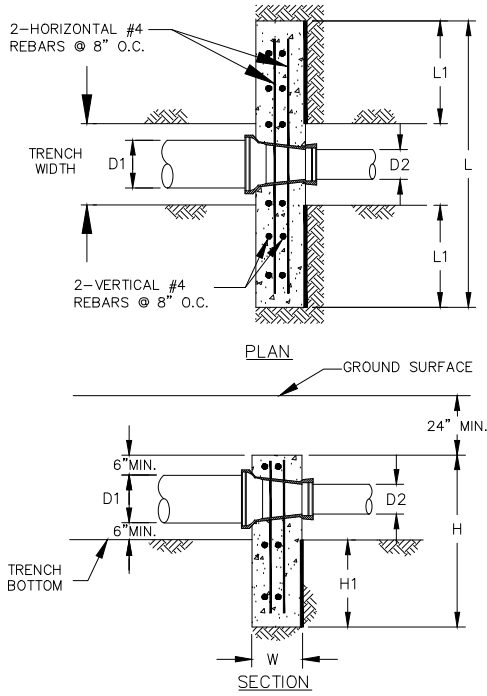
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

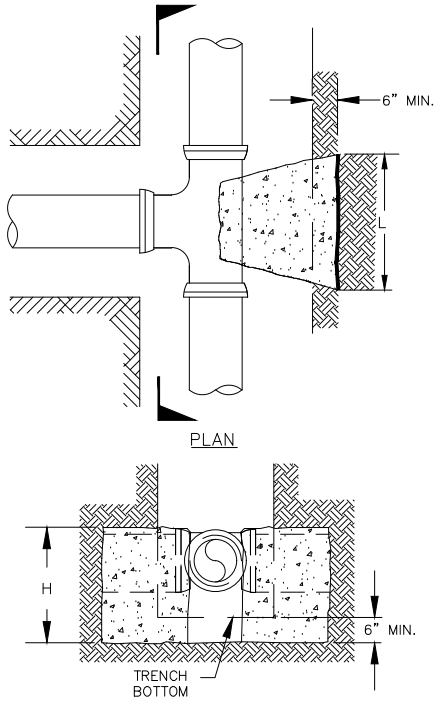
STD 401

SHEET 2 OF 4

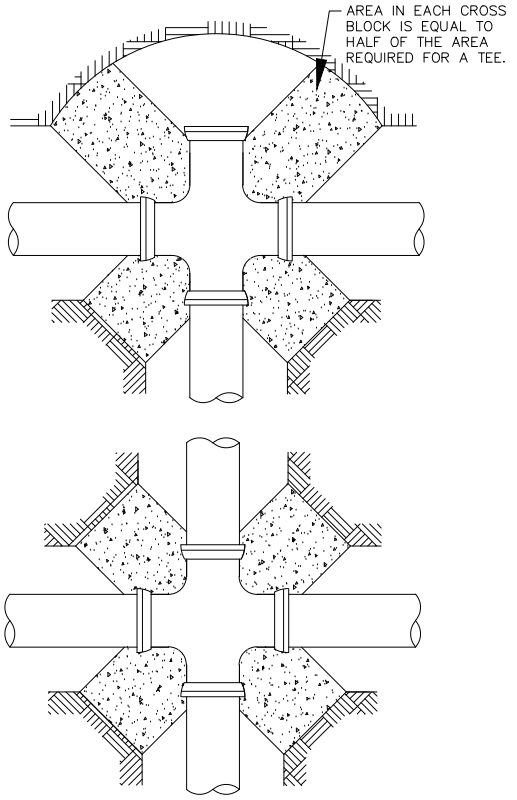
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_401B_REV1.DWG



REDUCER



TEE



CROSS BLOCKING

D1xD2 (IN)	REDUCER								
	TRENCH WIDTH* (IN)	L (IN)	H (IN)	H1 (IN)	L1 (IN)	W (IN)	TOTAL AREA INCLD. TRENCH (FT^2)	MIN. BEARING AREA** (FT^2)	THRUST (LBS)
18x16	36	66	44	12	15	16	20	12.2	18258
18x12	36	93	62	30	29	16	40	32.4	48540
18x10	36	102	68	36	33	16	48	40.4	60564
18x8	36	109	73	41	36	14	55	46.9	70297
16x12	36	77	52	22	21	14	28	20.2	30282
16x10	36	88	59	29	26	14	36	28.2	42306
16x8	36	95	64	34	30	12	42	34.7	52038
12x10	30	54	36	10	12	12	13	8.0	12024
12x8	30	66	44	18	18	12	20	14.5	21757
12x6	30	74	49	23	22	12	25	19.9	29837
12x4	30	79	53	27	25	10	29	23.8	35626
10x8	30	50	33	9	10	10	11	6.5	9733
10x6	30	60	40	16	15	10	17	11.9	17813
10x4	30	67	45	21	18	10	21	15.7	23602
8x6	24	44	29	7	10	10	9	5.4	8080
8x4	24	53	35	13	14	8	13	9.2	13869
6x4	24	39	26	6	8	8	7	3.9	5789

* IF A DIFFERENT TRENCH WIDTH IS USED, THE THRUST BLOCK SHALL MAINTAIN THE MINIMUM BEARING AREA SHOWN.
** BEARING AREA REQUIRED ON UNDISTURBED SOIL OUTSIDE OF TRENCH.

PIPE SIZE	TEE			
	L (IN)	H (IN)	AREA (FT^2)	THRUST (LBS)
4"	29	18	3.6	5429
6"	41	26	7.5	11218
8"	54	34	12.9	19298
10"	66	42	19.4	29031
12"	78	50	27.4	41054
16"	103	66	47.6	71336
18"	116	74	59.7	89595

INSTALL CONCRETE THRUST BLOCKS ONLY WHEN APPROVED BY DWP GENERAL MANAGER OR DESIGNEE.

NOT TO SCALE

CONCRETE THRUST BLOCK DETAILS

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

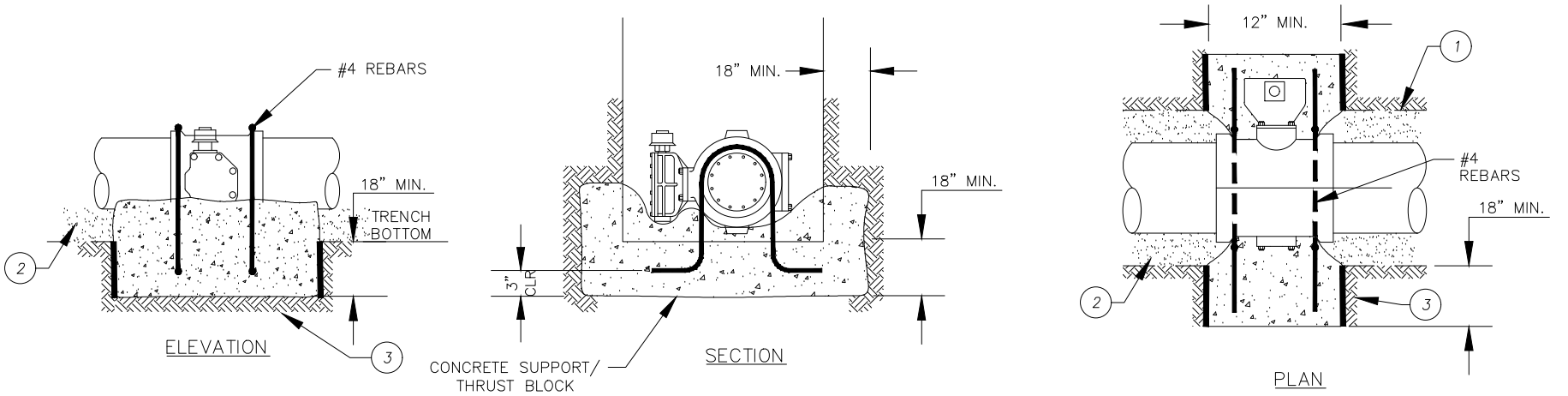
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

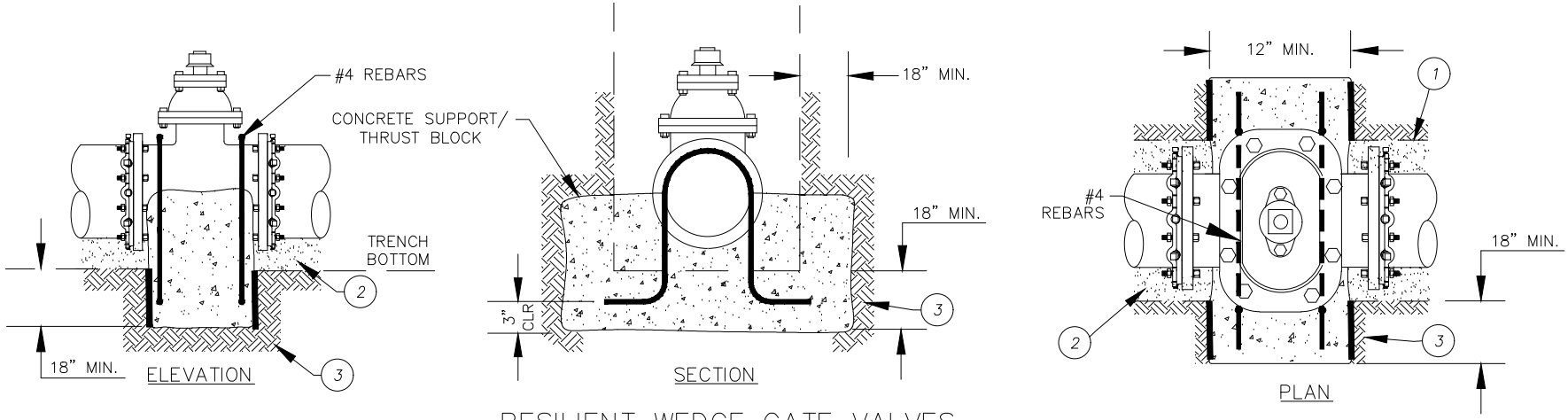
STD 401

SHEET 3 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_401C_REV1.DWG



BUTTERFLY VALVES



RESILIENT WEDGE GATE VALVES

NOTES:

1. PROVIDE CONCRETE SUPPORT THRUST BLOCK FOR ALL BURIED VALVES.
2. ENGINEER SHALL PROVIDE CALCULATIONS FOR SIZING ANCHORS LARGER THAN 8 INCHES OR PIPELINES EXCEEDING 200 PSI OPERATING PRESSURE.
3. COAT REBAR WITH 80 MILS OF COLD-APPLIED BITUMASTICS WATER-PROOFING COMPOUND.

ITEM	MATERIALS
1	BOUNDARY OF TRENCH.
2	PIPE BEDDING PER CITY STD. DWG. 406.
3	UNDISTURBED EARTH WITH MINIMUM 1500 LB/SF BEARING CAPACITY.

NOT TO SCALE

INSTALL CONCRETE THRUST BLOCKS ONLY WHEN APPROVED BY DWP GENERAL MANAGER OR DESIGNEE.

CONCRETE THRUST BLOCK DETAILS

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

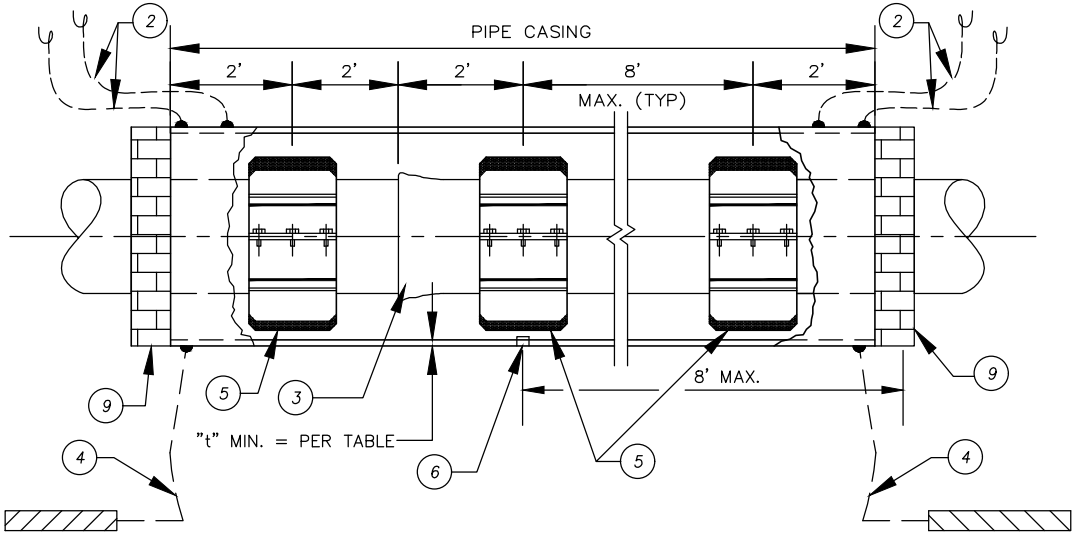
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

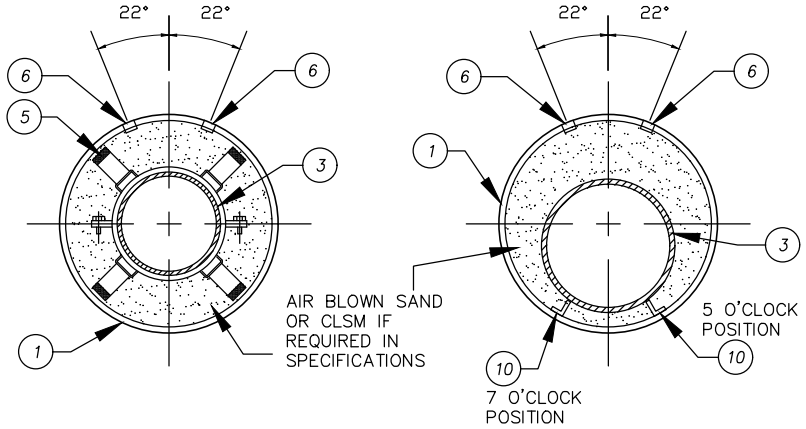
STD 401

SHEET 4 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_401D_REV1.DWG

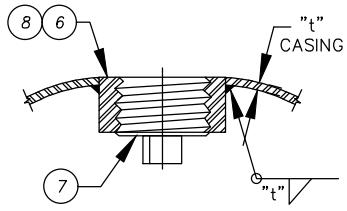


ITEM	MATERIALS
1	STEEL CASING.
2	INSTALL CASING TEST STATION PER CITY STD. DWG 452.
3	RESTRAINED JOINT CARRIER PIPE.
4	INSTALL 60 LB. ANODE.
5	STAINLESS STEEL CASING SPACERS WITH HEAVY-DUTY 2-INCH WIDE ANTI-FRICTION RUNNERS. MINIMUM 2 PER PIPE SECTION.
6	GROUT FITTING PER DETAIL HEREON. INSTALL GROUT FITTINGS LONGITUDINALLY AND OFFSET 22 DEGREES FROM VERTICAL, AND ALTERNATE TO THE LEFT AND RIGHT OF THE TOP LONGITUDINAL AXIS OF THE CASING, 8-FOOT O.C.
7	2-INCH NPT THREADED STEEL PLUG WITH RAISED HEAD.
8	2-INCH NPT STD. WT. STL. PIPE HALF COUPLING.
9	BRICK AND MORTAR BULKHEADS.
10	STEEL RAILS WELDED TO CASING INTERIOR. CONSTRUCT RAILS USING STEEL ANGLE SECTIONS AS SHOWN IN DETAIL AND AS NECESSARY TO MAINTAIN GRADE THROUGH CASING.



OPTION A OPTION B

CROSS-SECTION



GROUT FITTING DETAIL

NOTES:

1. INSTALL CASING BY THE BORE, JACK AND/OR TUNNEL METHOD, UNLESS DWP GENERAL MANAGER OR DESIGNEE APPROVES OPEN CUT.
2. SIZE AND THICKNESS OF CASING SHALL BE AS SHOWN IN SCHEDULE. FOR LONG BORES OR SPECIAL SITUATIONS GREATER WALL THICKNESS THAN SHOWN IN SCHEDULE MAY BE REQUIRED.
3. WELD FULL-CIRCUMFERENCE ALL STEEL CASING PIPE FIELD JOINTS.
4. PRESSURE TEST CARRIER PIPE PRIOR TO SEALING ENDS OF CASING.
5. SEAL EACH END OF CASING WITH BRICK AND MORTAR BULKHEADS.
6. BACKFILL CASING IN OPEN CUT PER CITY STD. DWGS. 150 AND 406.
7. PRESSURE GROUT OUTSIDE OF CASING AT GROUT FITTINGS. GROUT PRESSURE SHALL NOT EXCEED FIVE (5) PSIG (34.5KPa) FOR A DURATION SUFFICIENT TO FILL ALL VOIDS OUTSIDE OF CASING.
8. INSTALLATION OF CASING BY BORE, JACK AND/OR TUNNEL METHOD REQUIRES A TUNNEL CLASSIFICATION FROM THE CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH, MINING AND TUNNELING UNIT.
9. INSTALL AIR BLOWN SAND OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) IN ANNULAR SPACE PER PLANSAND SUBJECT TO APPROVAL BY DWP. CLSM SHALL CONSIST OF CELLULAR CONCRETE WITH COMPRESSIVE STRENGTH OF 300 PSI AND 50 TO 80 PCF UNIT WEIGHT, AS MANUFACTURED BY CELL-CRETE CORPORATION, OR EQUAL. .
10. OPTION A – INSTALL CASING SPACERS WITH EVEN NUMBER OF RUNNERS.
11. NUMBER AND PLACEMENT OF SPACERS ON CARRIER PIPE PER MANUFACTURER'S RECOMMENDATIONS, BUT NOT LESS THAN REQUIREMENTS OF THIS DETAIL.
12. OPTION B – FOR HDPE PIPE, STEEL RAILS WELDED AT 5 O'CLOCK AND 7 O'CLOCK POSITIONS AT THE GRADE SHOWN ON DESIGN PLANS.

STEEL CASING AND CASING SPACER SCHEDULE					
DIP SIZE	BELL O.D.	MIN. CASING SIZE, I.D.	MIN. WALL THICKNESS.	MIN. # OF SPACERS/ PIPE SECTION	MAX. CASING SPACERS SPACING
8"	10.8"	36"	1/2"	2	6'
10"	12.9"	36"	1/2"	2	6'
12"	15.1"	36"	1/2"	2	6'
16"	19.7"	36"	1/2"	3	4'
18"	21.9"	36"	1/2"	3	4'
20"	24.0"	36"	1/2"	3	4'
24"	28.1"	36"	1/2"	3	4'

CASING SIZE FOR CARRIER PIPE LARGER THAN 24-INCH IS SUBJECT TO APPROVAL BY DWP.

NOT TO SCALE

STEEL CASING FOR PRESSURE FLOW PIPE

REVISION NO.	APPROVED	DATE
1		12/28/18
2	VRW	10/01/20

APPROVED:

Tom Koper
TOM G. KOPER, PE, CITY ENGINEER — 10/01/20 DATE

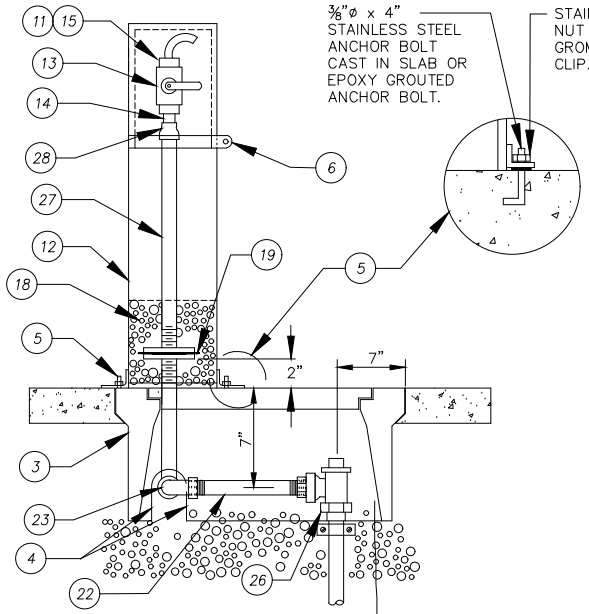
Vernon R. Weisman
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — 10/01/20 DATE

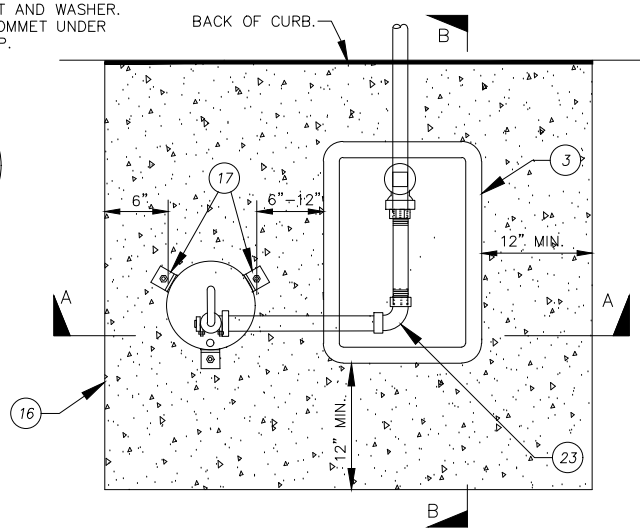
CITY OF CORONA

STD 402

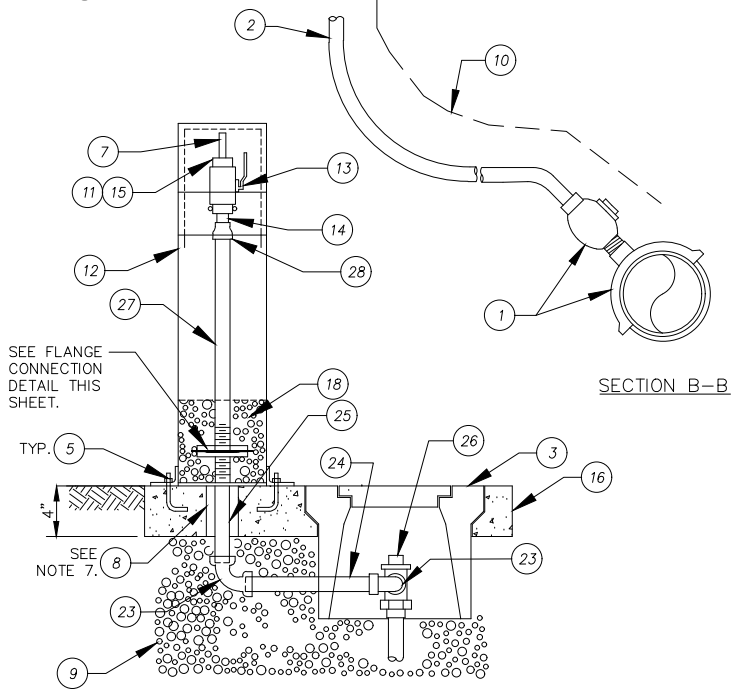
SHEET 1 OF 1

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_402_REV2.DWG



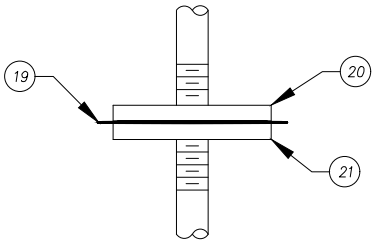


PLAN



SECTION A–A

SECTION B–B



FLANGE CONNECTION

ITEM	MATERIALS
1	1–INCH SERVICE CONNECTION (DOUBLE STRAP LEAD–FREE SADDLE AND CORPORATION STOP) PER CITY STD. DWG. 414.
2	1–INCH COPPER TUBING TYPE "K" PER CITY STD. DWG. 414.
3	J&R P–W5 ¼ POLYMER CONCRETE METER BOX. READING LID AND QUICK READ PORT NOT REQUIRED.
4	SAWCUT OR CORE DRILL METERBOX FOR 1–INCH PIPE.
5	⅜" DIA. x 4" LONG STAINLESS STEEL J ANCHOR BOLT CAST IN SLAB OR EPOXY GROUTED ANCHOR BOLTS (3 EACH AT 120–DEGREES APART WITH STAINLESS STEEL NUTS AND WASHERS) INSTALL WITH RUBBER GROMMET UNDER ANCHOR CLIPS TO PROVIDE ¼–INCH GAP.
6	LOCK HASP.
7	⅜–INCH TYPE 316SS TUBING SPIGOT BEND TO 120–DEGREES FOR DOWNWARD OPENING.
8	2–INCH SCH. 80 PVC SLEEVE.
9	¾–INCH CRUSHED ROCK PLACE TO DEPTH 6 INCHES BELOW CONCRETE METER BOX.
10	6–INCH BLUE WARNING TAPE LABELED "POTABLE WATER" 12 INCHES ABOVE SAMPLE SERVICE LATERAL.
11	⅜" x ½" COPPER TUBE FLARE NUT x MIPT ADAPTER.
12	LINEAR LOW DENSITY POLYETHYLENE SAMPLE STATION PAINTED HUNTER GREEN. 12" DIA. x 30" HIGH WITH CORONA LOGO DECAL LABELED "POTABLE."
13	½–INCH STAINLESS STEEL TEFLON SEATED BALL VALVE, FIPT x FIPT (ORIENT VALVE HANDLE TOWARD FRONT OF SAMPLE STATION.)
14	½–INCH TYPE 316SS THREADED NIPPLE.
15	½–INCH MIPT x FEMALE FLARE FITTING.
16	4–INCH THICK 560–C–3250 CONCRETE.
17	3 ANCHOR CLIPS WITH ½–INCH HOLES AT 120–DEGREE SPACING.
18	¾–INCH GRAVEL PLACE TO DEPTH 12 INCHES DEEP IN BOTTOM OF SAMPLE STATION.
19	FLANGE INSULATING KIT PER CITY STD. DWG. 458.
20	1–INCH TYPE 316SS COMPANION FLANGE (FLG x FIPT).
21	1–INCH BRASS COMPANION FLANGE (FLG x FIPT).
22	1–INCH RED BRASS NIPPLE, THREADED BOTH ENDS, 6 INCHES LONG.
23	1–INCH BRASS 90–DEGREE BEND (FIPT x FIPT).
24	1–INCH RED BRASS NIPPLE, THREADED BOTH ENDS.
25	1–INCH RED BRASS NIPPLE, THREADED BOTH ENDS, 10 INCHES LONG.
26	1–INCH ANGLE BALL VALVE (CTS x MSN): JONES E–1963WSG, FORD BA43–444W–NL, MUELLER B–24258N OR A.Y.MCDONALD 74602BQ.
27	1–INCH TYPE 316SS THREADED NIPPLE.
28	½" x 1" TYPE 316SS REDUCER COUPLING (FIPT x FIPT).

NOT TO SCALE

SEE WATER SAMPLE LOCATION PLANS AND NOTES ON SHEET 2.

POTABLE WATER SAMPLE STATION

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

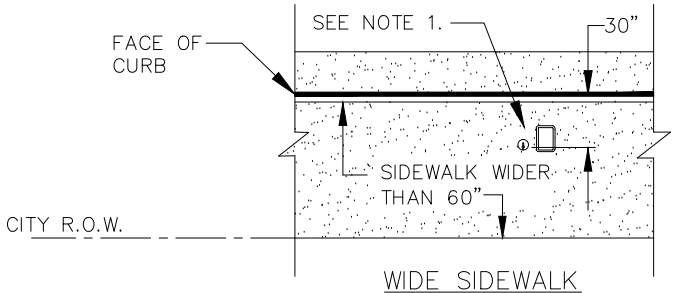
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

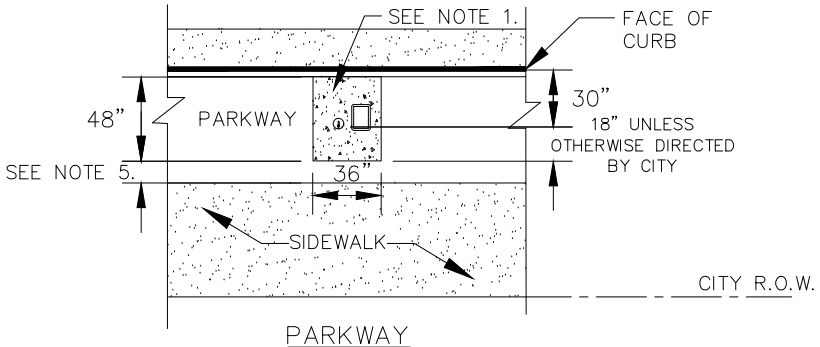
STD 404

SHEET 1 OF 2

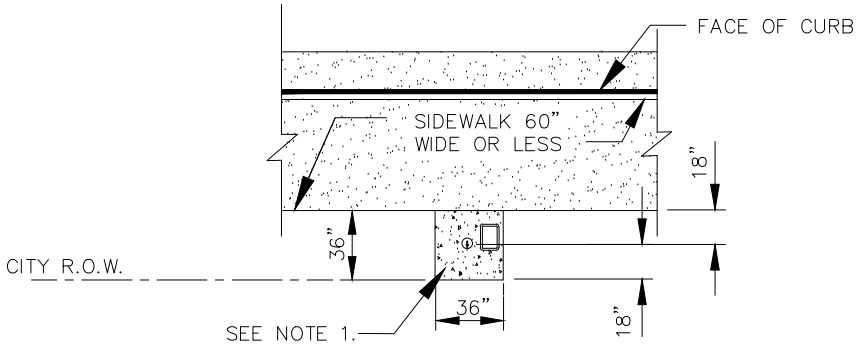
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_404A_REV1.DWG



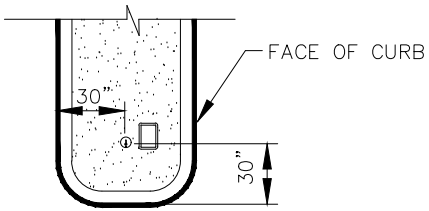
WIDE SIDEWALK
CONDITION 1
(ONLY BY WRITTEN APPROVAL OF DWP GENERAL MANAGER OR DESIGNEE)



PARKWAY
CONDITION 3



NARROW SIDEWALK
CONDITION 2



MEDIAN
CONDITION 4

WATER SAMPLE STATION LOCATION PLANS

NOTES:

1. REPLACE SIDEWALK PER CITY STD. 142 OR CONSTRUCT 48" x 36" x 6" THICK CONCRETE PAD WITHIN PARKWAY. SEE WATER SAMPLE STATION LOCATION PLANS ABOVE FOR APPLICABLE CONDITION.
2. DO NOT CONSTRUCT WATER SAMPLE STATION CLOSER THAN 10 FEET TO DRIVEWAY RETURN WITHOUT PRIOR APPROVAL BY DWP GENERAL MANAGER OR DESIGNEE.
3. CONSTRUCT WATER SAMPLE STATION WITHIN CITY RIGHT-OF-WAY (R.O.W.) OR EASEMENT UNLESS EXCEPTION IS PROVIDED IN WRITING BY DWP GENERAL MANAGER OR DESIGNEE.
4. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.
5. EXTEND SAMPLING STATION CONCRETE PAD TO SIDEWALK IF SEPARATION IS LESS THAN 24 INCHES.
6. PROVIDE 10-FOOT SEPARATION FROM ALL SEWER AND RECLAIMED WATER FACILITIES.
7. FILL ANNULAR SPACE IN SLAB SLEEVE WITH SAND.
8. ALL HARDWARE SHALL BE TYPE 316SS.

NOT TO SCALE

POTABLE WATER SAMPLE STATION

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

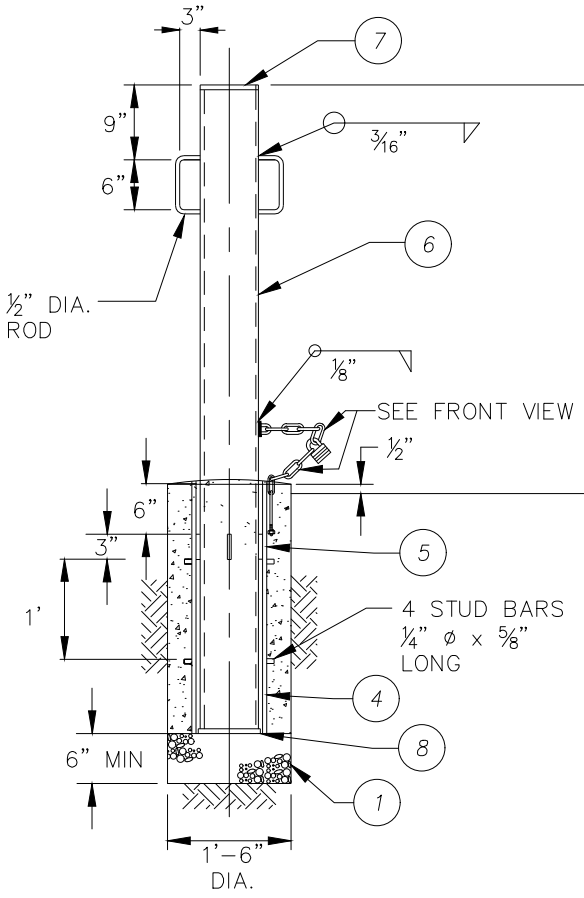
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

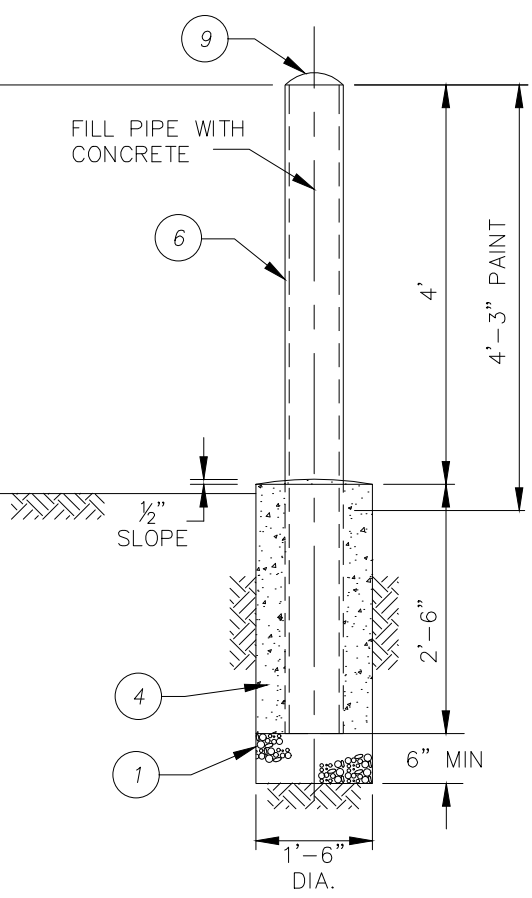
STD 404

SHEET 2 OF 2

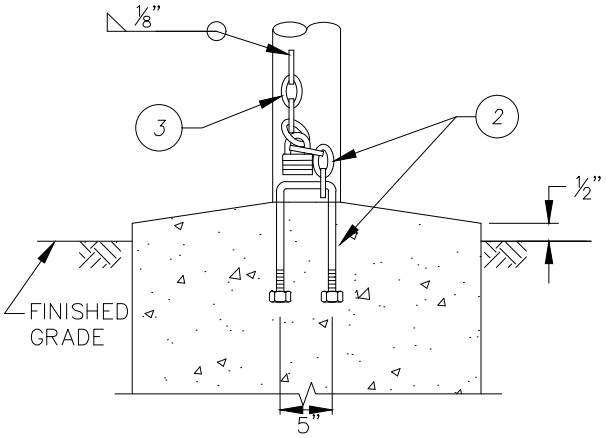
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_404B_REV1.DWG



REMOVABLE GUARD POST



STATIONARY GUARD POST



FRONT VIEW

NOTES:

1. ORIENTATE GUARD POST AS SHOWN ON PROJECT PLANS.
2. TROWEL CONCRETE POST ANCHOR SURFACE TO DRAIN AWAY FROM STEEL SLEEVE. SHAPE THE U-BOLT SWALE TO MINIMIZE THE PROTRUSION ABOVE THE ADJACENT CONCRETE TO ELIMINATE TRIPPING HAZARD.

ITEM	MATERIALS
1	3/4-INCH CRUSHED ROCK.
2	EMBED 3/8-INCH DIA. 5-INCH WIDE STAINLESS STEEL U-BOLT W/NUTS INTO CONCRETE. LOOP 5 LINK STAINLESS CHAIN SEGMENT OF 3/8-INCH GRADE 80 CHAIN ONTO U-BOLT AS SHOWN IN DETAIL. SEE NOTE 2.
3	3/8-INCH DIA. GRADE 80 STAINLESS STEEL CHAIN WITH 4 1/2 LINKS. CITY TO SUPPLY LOCK.
4	560-C-3250 CONCRETE.
5	FABRICATE SLEEVE FROM 8-INCH SCH. 40 STEEL PIPE. WELD STUDS AS SHOWN.
6	6-INCH DIA. SCH. 40 HOT DIP GALVANIZED STEEL PIPE, PRIME AND FINISH WITH RUST-O-LEUM SAFETY YELLOW.
7	WELD 1/4-INCH PLATE CAP TO TOP AND GRIND EDGE SMOOTH.
8	WELD 1/4-INCH PLATE TO BOTTOM OF SLEEVE. DRILL TWO 1/2-INCH DRAIN HOLES IN PLATE.
9	ROUND OFF CONCRETE.

NOT TO SCALE

GUARD POST DETAILS

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

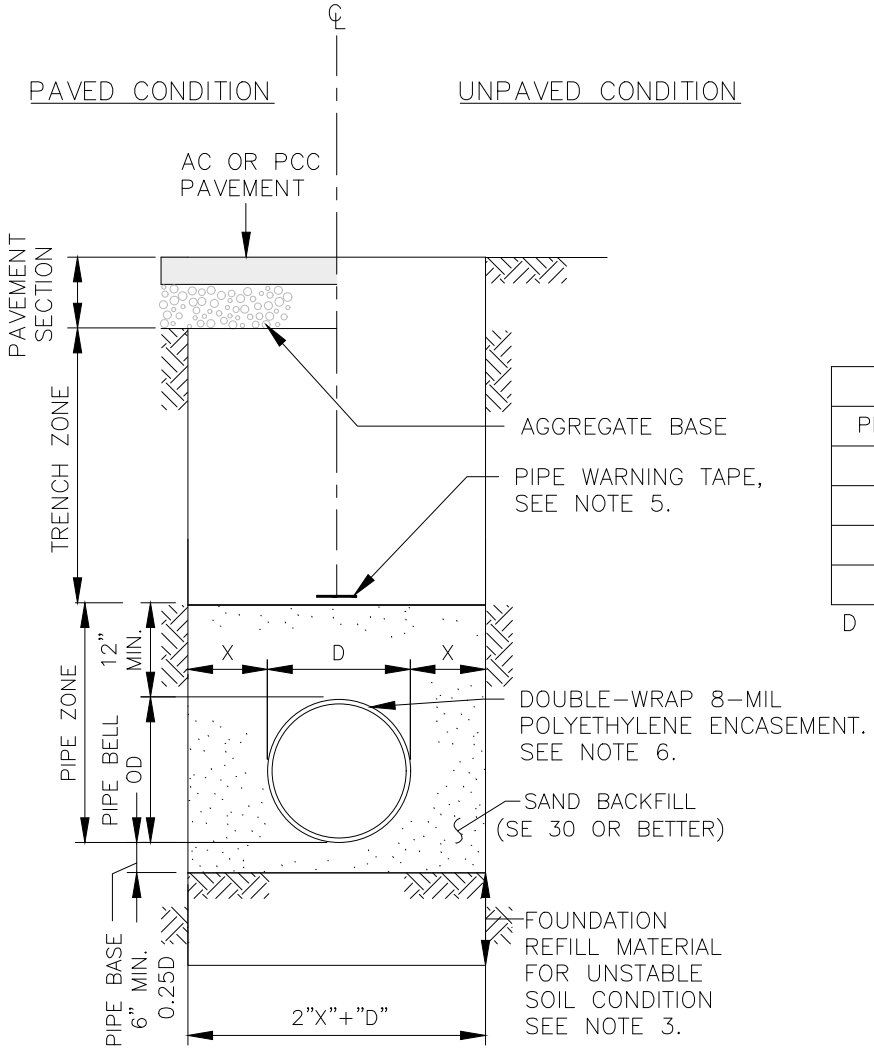
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 405

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_405_REV1.DWG



TRENCH WIDTH DIMENSIONS		
PIPE DIA. "D"	MAXIMUM "X"	MINIMUM "X"
4"–6"	8"	6"
8"–21"	12"	8"
24"–48"	.33D+4"	12"
>48"	20"	12"

D = OUTSIDE DIAMETER OF PIPE BELL

NOTES:

1. CONSTRUCT TRENCH ZONE AND PAVEMENT SECTION PER STD. DWG. 150 OR GOVERNING AGENCY REQUIREMENTS IF OUTSIDE CITY OF CORONA.
2. WHERE CONTRACTOR FAILS TO MAINTAIN PROPER TRENCH WIDTH LIMITS, SPECIAL BACKFILL SUCH AS ONE-SACK SLURRY AND BEDDING WILL BE REQUIRED BY THE DWP GENERAL MANAGER OR DESIGNEE.
3. IF UNSTABLE SOIL IS ENCOUNTERED, THE DWP GENERAL MANAGER OR DESIGNEE WILL DETERMINE OVER-EXCAVATION DEPTH AND FOUNDATION RE-FILL MATERIAL REQUIREMENTS.
4. PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THE WEIGHT OF PIPE DOES NOT BEAR ON THE BELL. RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF PIPE BEDDING.
5. INSTALL BLUE 6-INCH WIDE PIPE WARNING TAPE LABELED POTABLE WATER ABOVE POTABLE WATER PIPE. INSTALL PURPLE 6-INCH WIDE PIPE WARNING TAPE LABELED RECLAIMED WATER ABOVE RECLAIMED WATER PIPE.
6. BLUE POLYETHYLENE ENCASEMENT FOR POTABLE WATER PIPING. PURPLE POLYETHYLENE ENCASEMENT FOR RECLAIMED WATER PIPING.

NOT TO SCALE

POTABLE AND RECLAIMED WATER PIPE BEDDING AND TRENCH DETAILS

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper
TOM G. KOPER, PE,
CITY ENGINEER

1/7/2019
DATE

Vernon R. Weisman
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER

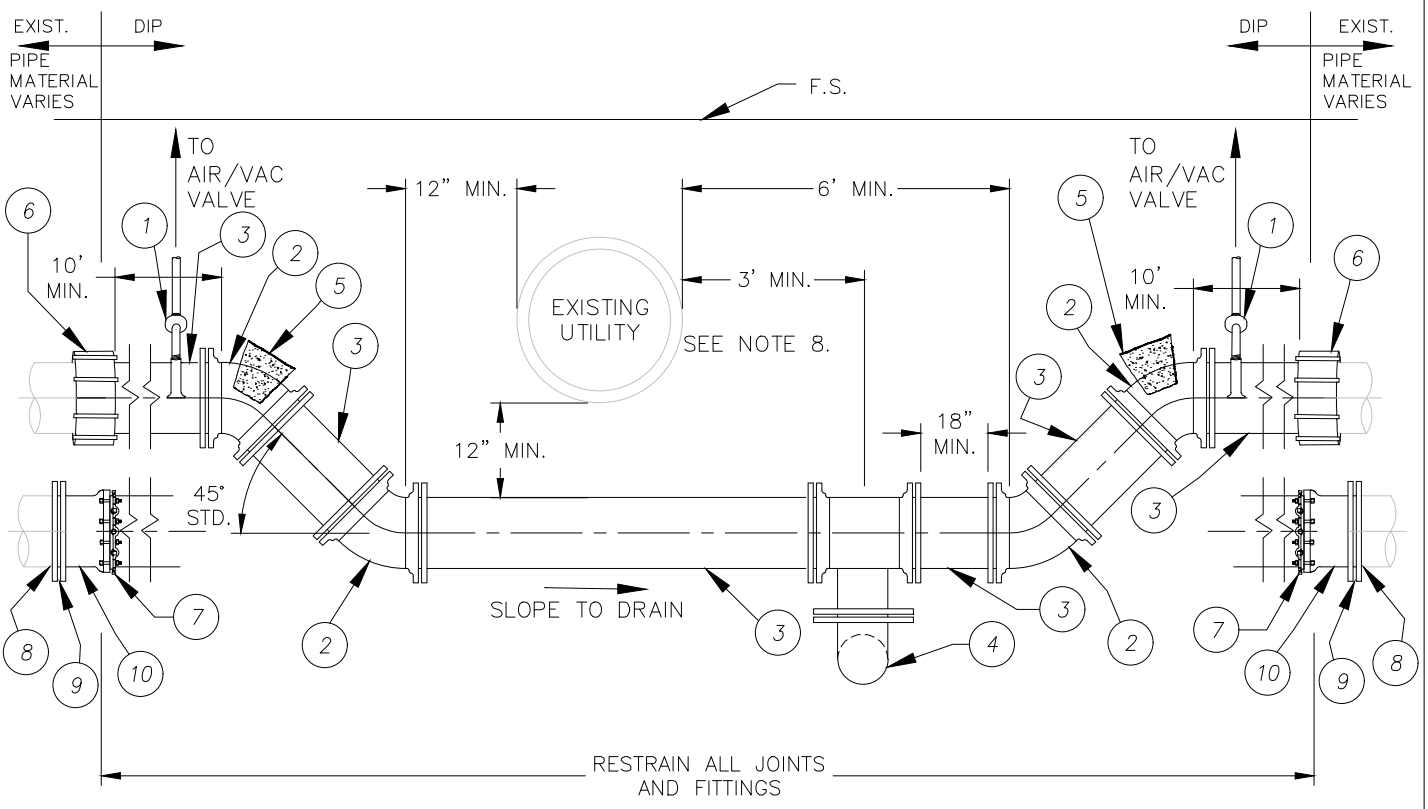
1/7/2019
DATE

CITY OF CORONA

STD 406

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_406_REV1.DWG



NOTES:

1. SEE CITY STD. DWG. 419 FOR ADDITIONAL REQUIREMENTS WHEN CROSSING UNDER SEWER LINES.
2. CONNECT TO EXISTING WATERLINE WITH FLEX COUPLINGS OR FLANGES WITH SLIP–ON FLANGE WELDED TO EXISTING STEEL PIPE, IF REQUIRED.
3. NEW DUCTILE IRON WATERLINE SHALL BE RESTRAINED MECHANICAL JOINTS ("MEGA–LUG" TYPE OR EQUAL) WITH A DOUBLE WRAP 8–MIL BLUE POLYETHYLENE WRAP.
4. NUTS, BOLTS, AND WASHERS SHALL BE TYPE 316SS.
5. IF EXISTING WATERLINE IS ASBESTOS CEMENT PIPE (ACP), BACKFILL TRENCH UNDER ACP WITH ONE–SACK SLURRY.
6. PROVIDE ANCHOR BLOCKS OR ADDITIONAL THRUST RESTRAINTS AS REQUIRED. SUBMIT ENGINEERING CALCULATIONS.
7. CONCRETE THRUST BLOCK NOT REQUIRED IF PIPE IS SUFFICIENTLY RESTRAINED OUTSIDE OF WATER LINE UNDERCROSSING. PROVIDE ENGINEERING CALCULATIONS TO DEMONSTRATE RESTRAINT PROVIDED BY RESTRAINED JOINT PIPE.
8. SUPPORT EXISTING UTILITY EXPOSED IN TRENCH AS NECESSARY TO PROTECT IN PLACE.
9. IF CROSSING UNDER GAS LINE WITH CATHODIC PROTECTION, BOND JOINTS AND CONSTRUCT CP TEST STATION AS DIRECTED BY DWP GENERAL MANAGER OR DESIGNEE.
10. 11¼ AND 22½ DEGREE BENDS MAY BE USED WHERE FIELD CONDITIONS WARRANT THEIR USE PENDING APPROVAL BY DWP GENERAL MANAGER OR DESIGNEE.
11. AIR/VAC VALVE REQUIRED AT HIGH POINTS IN THE WATER SYSTEM.
12. ALL FITTINGS, PIPES, VALVES AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

ITEM	MATERIALS
1	AIR/VAC VALVE PER CITY STD. DWG. 413. SEE NOTE 11.
2	DIP MJ 45–DEGREE BEND. SEE NOTE 10.
3	DIP SPOOL.
4	BLOWOFF HYDRANT AT LOW POINT PER CITY STD. DWG. 416.
5	CONCRETE THRUST BLOCK PER CITY STD. DWG. 401. SEE NOTE 7.
6	FLEXIBLE PIPE TRANSITION COUPLING, REQUIRED BETWEEN DISSIMILAR PIPE MATERIALS. FUSION BONDED EPOXY COATING WITH STAINLESS STEEL HARDWARE.
7	MECHANICAL JOINT RETAINER GLAND, EBAA IRON MEGALUG SERIES 1100.
8	CUT EXISTING CML&C STEEL PIPE AND WELD ON FLANGE.
9	FLANGE INSULATING KIT PER CITY STD, DWG. 458.
10	DI MJ x FLG ADAPTER.

NOT TO SCALE

POTABLE WATER LINE CROSSING UNDER EXISTING UTILITY

REVISION		
NO.	APPROVED	DATE
1	VRW	05/30/18

APPROVED:

Nelson D. Nelson — 5/31/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

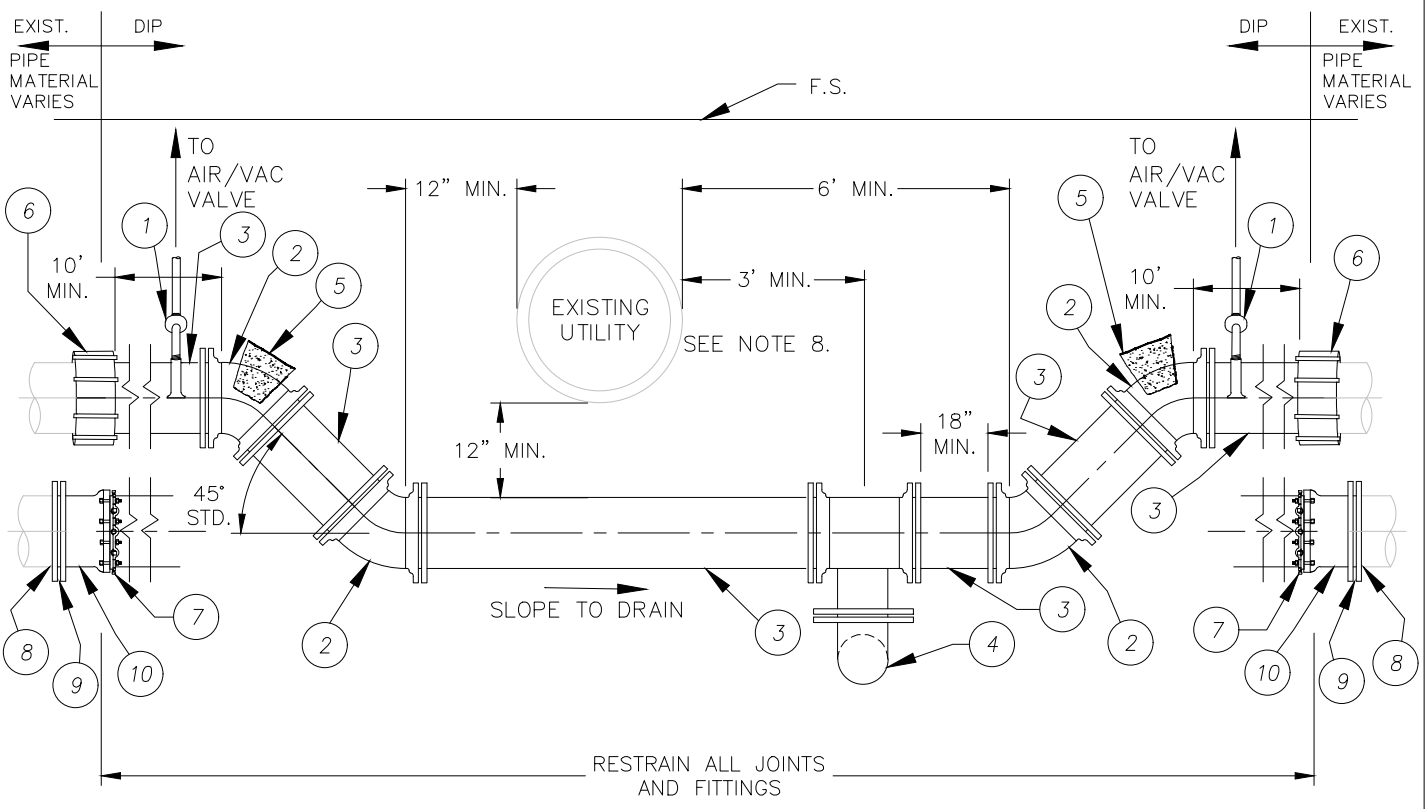
Vernon R. Weisman — 5/31/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 407

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_407_REV1.DWG



NOTES:

1. SEE CITY STD. DWG. 419 FOR ADDITIONAL REQUIREMENTS WHEN CROSSING UNDER SEWER LINES.
2. CONNECT TO EXISTING WATERLINE WITH FLEX COUPLINGS OR FLANGES WITH SLIP–ON FLANGE WELDED TO EXISTING STEEL PIPE, IF REQUIRED.
3. NEW DUCTILE IRON WATERLINE SHALL BE RESTRAINED MECHANICAL JOINTS ("MEGA–LUG" TYPE OR EQUAL) WITH A DOUBLE WRAP 8–MIL PURPLE POLYETHYLENE WRAP.
4. NUTS, BOLTS, AND WASHERS SHALL BE TYPE 316SS.
5. IF EXISTING WATERLINE IS ASBESTOS CEMENT PIPE (ACP), BACKFILL TRENCH UNDER ACP WITH ONE–SACK SLURRY.
6. PROVIDE ANCHOR BLOCKS OR ADDITIONAL THRUST RESTRAINTS AS REQUIRED. SUBMIT ENGINEERING CALCULATIONS.
7. CONCRETE THRUST BLOCK NOT REQUIRED IF PIPE IS SUFFICIENTLY RESTRAINED OUTSIDE OF WATER LINE UNDERCROSSING. PROVIDE ENGINEERING CALCULATIONS TO DEMONSTRATE RESTRAINT PROVIDED BY RESTRAINED JOINT PIPE.
8. SUPPORT EXISTING UTILITY EXPOSED IN TRENCH AS NECESSARY TO PROTECT IN PLACE.
9. IF CROSSING UNDER GAS LINE WITH CATHODIC PROTECTION, BOND JOINTS AND CONSTRUCT CP TEST STATION AS DIRECTED BY DWP GENERAL MANAGER OR DESIGNEE.
10. 11¼ AND 22½ DEGREE BENDS MAY BE USED WHERE FIELD CONDITIONS WARRANT THEIR USE PENDING APPROVAL BY DWP GENERAL MANAGER OR DESIGNEE.
11. AIR/VAC VALVE REQUIRED AT HIGH POINTS IN THE WATER SYSTEM.
12. ALL FITTINGS, PIPES, VALVES AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

ITEM	MATERIALS
1	AIR/VAC VALVE PER CITY STD. DWG. 413R. SEE NOTE 11.
2	DIP MJ 45–DEGREE BEND. SEE NOTE 10.
3	DIP SPOOL.
4	BLOWOFF HYDRANT AT LOW POINT PER CITY STD. DWG. 416R.
5	CONCRETE THRUST BLOCK PER CITY STD. DWG. 401. SEE NOTE 7.
6	FLEXIBLE PIPE TRANSITION COUPLING, REQUIRED BETWEEN DISSIMILAR PIPE MATERIALS. FUSION BONDED EPOXY COATING WITH STAINLESS STEEL HARDWARE.
7	MECHANICAL JOINT RETAINER GLAND, EBAA IRON MEGALUG SERIES 1100.
8	CUT EXISTING CML&C STEEL PIPE AND WELD ON FLANGE.
9	FLANGE INSULATING KIT PER CITY STD, DWG. 458.
10	DI MJ x FLG ADAPTER.

NOT TO SCALE

RECLAIMED WATER LINE CROSSING UNDER EXISTING UTILITY

REVISION		
NO.	APPROVED	DATE
1	VRW	05/30/18

APPROVED:

Nelson D Nelson — 5/31/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

Vernon R. Weisman — 5/31/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

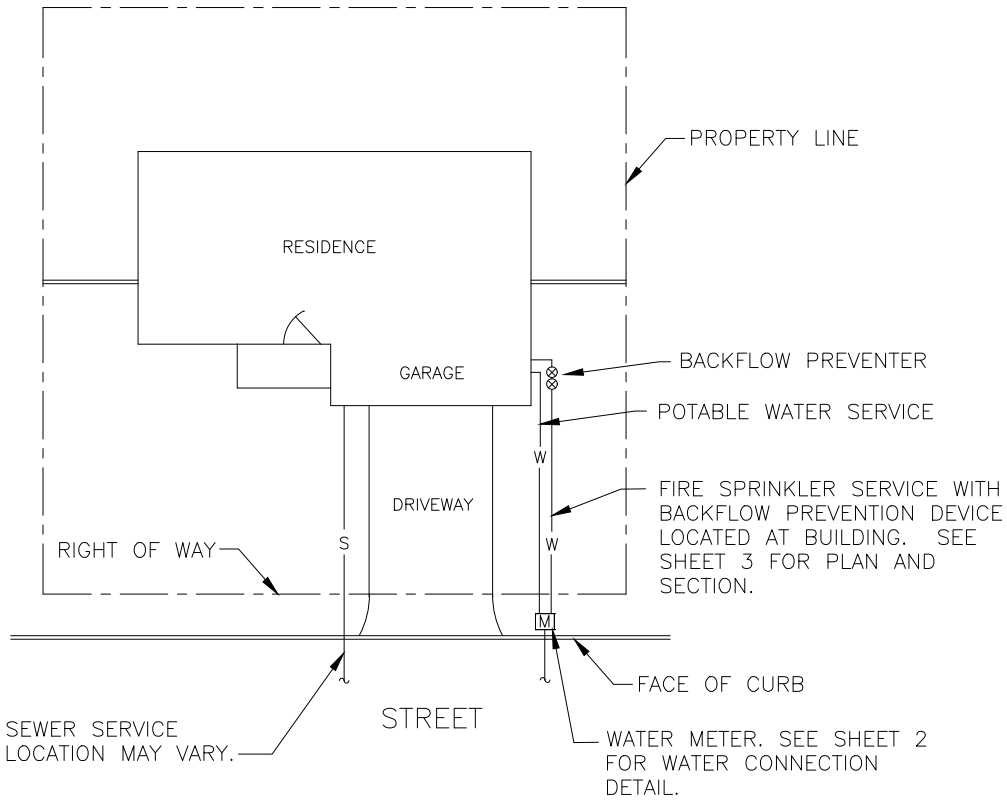
STD 407R

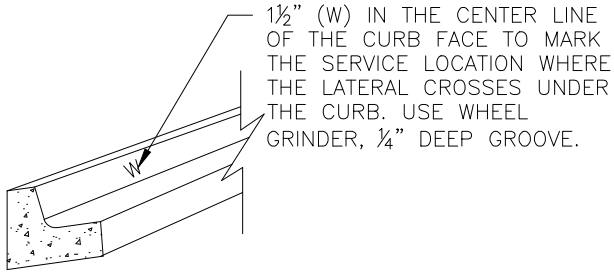
SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_407R_REV1.DWG

GENERAL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE SERVICE CONNECTION AS SHOWN ON THIS STANDARD DRAWING EXCEPT FOR THE WATER METER. THE CITY WILL PROVIDE AND INSTALL THE WATER METER.
2. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
3. ALL DUAL PLUMBED SERVICES WITH A FIRE SERVICE ARE REQUIRED TO HAVE A DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY INSTALLED AND TESTED PRIOR TO SERVICE BEING TURNED ON. PROVIDE ACCESS TO BACKFLOW PREVENTER FOR TESTING.
4. LOCATIONS SHOWN FOR WATER METER BOX, POTABLE WATER SERVICE, AND FIRE SPRINKLER SERVICE ARE DIAGRAMMATIC AND MAY BE REVISED TO SUIT EACH PROPERTY.
5. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.





NOT TO SCALE

1" POTABLE WATER SERVICE CONNECTION DETAIL WITH FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
2		04/28/14
3		05/04/18
4	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

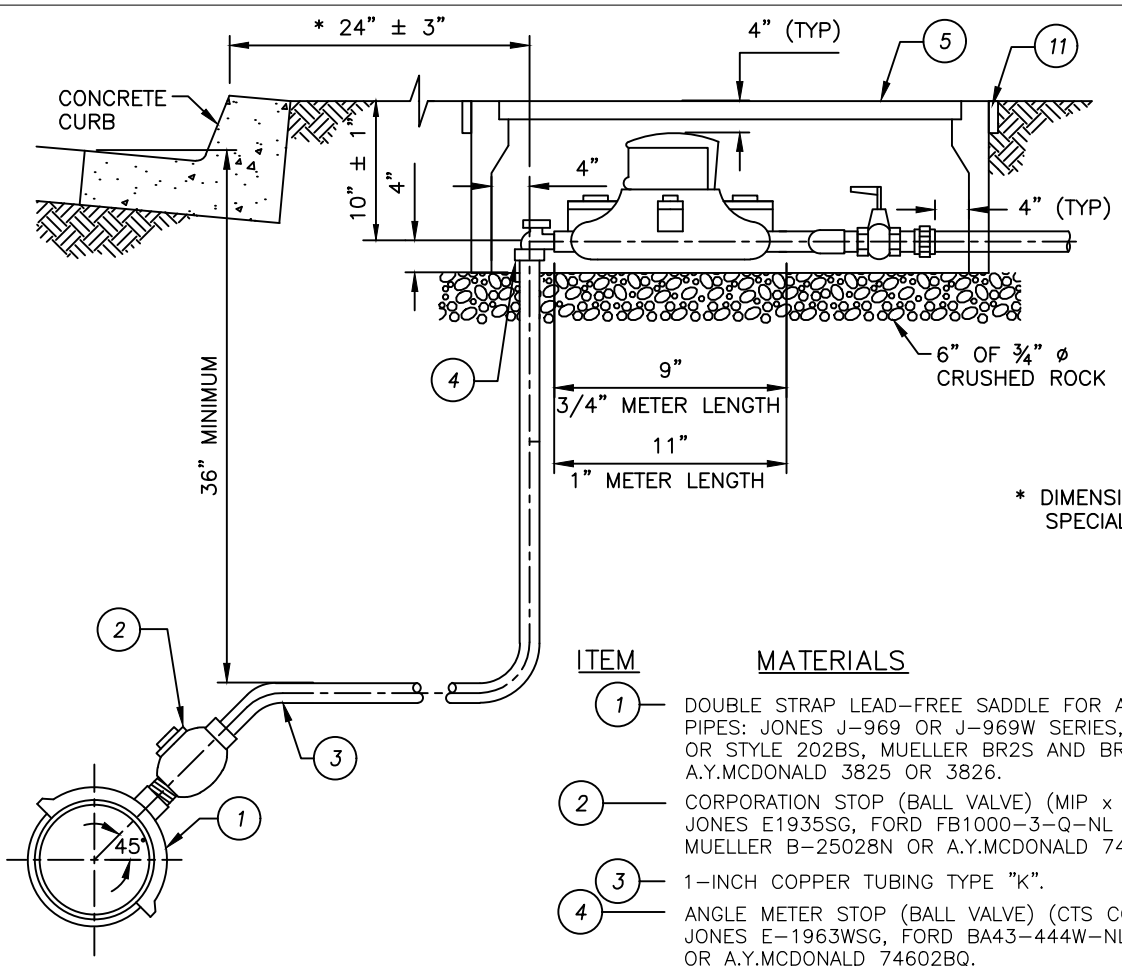
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 408

SHEET 1 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_408A_REV5.DWG



* DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.

ITEM	MATERIALS
1	DOUBLE STRAP LEAD–FREE SADDLE FOR AC, CIP, DIP AND PVC PIPES: JONES J–969 OR J–969W SERIES, FORD STYLE 202BSD OR STYLE 202BS, MUELLER BR2S AND BR2W SERIES, OR A.Y.MCDONALD 3825 OR 3826.
2	CORPORATION STOP (BALL VALVE) (MIP x CTS COMPRESSION): JONES E1935SG, FORD FB1000–3–Q–NL OR FB1000–4–Q–NL, MUELLER B–25028N OR A.Y.MCDONALD 74704BQ.
3	1–INCH COPPER TUBING TYPE "K".
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x MSN): JONES E–1963WSG, FORD BA43–444W–NL, MUELLER B–24258N OR A.Y.MCDONALD 74602BQ.
5	DFW DFWPW6C4–12–4F LLDPE METER BOX AND HDPE COVER WITH READING LID H–20 RATING LABELED "WATER" 16 5/16" x 31¾" x 12" INSIDE DIMENSIONS.
11	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

CONSTRUCTION NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 12 INCHES OF VALVE, COUPLING, JOINT, OR FITTING.
2. DOUBLE–WRAP ALL PIPING BELOW GRADE IN A BLUE COLORED 8–MIL POLYETHYLENE SLEEVE LABELED POTABLE WATER. EXTEND POLYETHYLENE SLEEVE 2 INCHES MINIMUM ABOVE FINISH GRADE. SECURE WITH 10–MIL TAPE.
3. CONSTRUCT WATER SERVICE PIPE IN SAND BEDDING (SE 30 MINIMUM) FROM CORP STOP TO METER BOX.
4. ALL CONNECTIONS TO COPPER TUBING SHALL BE COMPRESSION TYPE AND SERVICE MUST BE CONTINUOUS AND UNCUT. NO SWEAT TYPE FITTINGS ALLOWED.
5. CONNECTIONS TO STEEL WATER MAINS SHALL BE WITH A WELDED 3000 POUND HALF COUPLING AND DIELECTRIC INSULATING BUSHING. ALL STEEL SURFACES SHALL BE COVERED WITH CEMENT MORTAR.
6. ROUND AND DE–BURR ALL COPPER PIPE PRIOR TO INSTALLATION.
7. WRAP SERVICE SADDLE WITH TWO LAYERS OF 8–MIL POLYETHYLENE.
8. INSTALL BRASS PIPING AND FITTINGS INSIDE METER BOX BETWEEN ANGLE METER STOP AND BRASS UNIONS.
9. PROVIDE METER BOXES IN UNIMPROVED STREETS AND BEHIND ROLLED CURBS WITH COVERS AND BOXES RATED FOR H–20 TRAFFIC LOADS.

NOT TO SCALE

1" POTABLE WATER SERVICE CONNECTION DETAIL WITH FIRE SPRINKLER SERVICE

REVISION NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

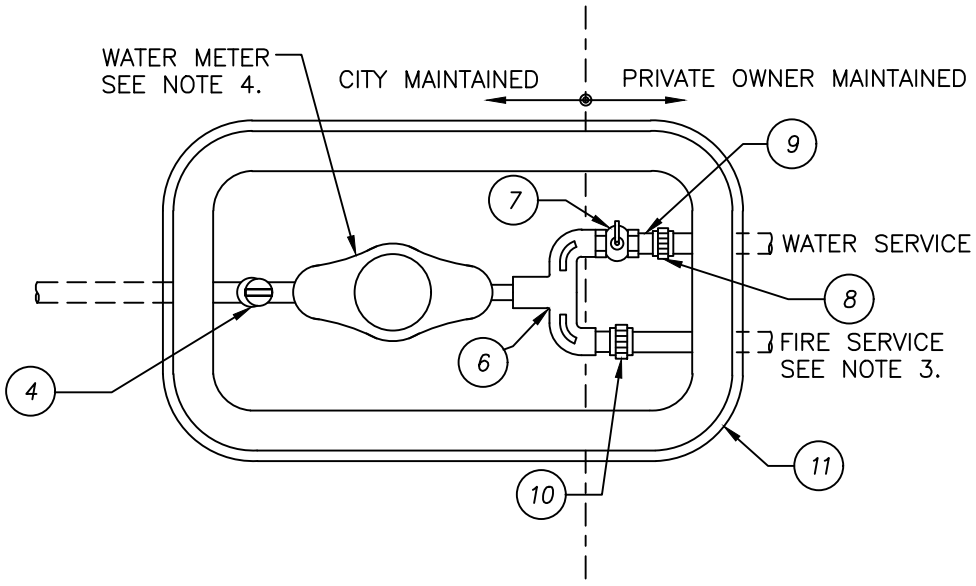
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 408

SHEET 2 OF 4

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_408B_REV5.DWG



CONSTRUCTION NOTES:

1. SEE CONSTRUCTION NOTES ON SHEET 2.
2. INSTALL A "LOCK OFF" STYLE BALL VALVE FOR THE DOMESTIC WATER SERVICE.
3. INSTALL FIRE SERVICE PER UNDERGROUND FIRE PLANS (MINIMUM 1-INCH DIA.).
4. THE CITY WILL PROVIDE AND INSTALL A NEPTUNE T-10 METER (MIP X MIP). REQUEST THE METER INSTALLATION FROM THE PUBLIC WORKS INSPECTOR OR THE BUILDING INSPECTOR WHEN THERE IS NO PUBLIC IMPROVEMENT PLAN.
5. A REDUCER FITTING CAN BE INSTALLED BETWEEN THE ANGLE METER STOP VALVE AND THE METER, AND PAST THE BRASS UNION WITHIN THE PRIVATE OWNER MAINTAINED AREA.

ITEM	MATERIALS
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x MSN): JONES E-1963WSG, FORD BA43-444W-NL, MUELLER B-24258N OR A.Y.MCDONALD 74602BQ.
6	FIRE AND DOMESTIC LABEL ENGRAVED U-BRANCH (MSN x MIP): JONES E-2632, FORD U3MM-44-5-NL OR MUELLER H15375N.
7	METER VALVE (FIP x MSN): JONES STYLE E-1903W, FORD STYLE B13-344W-NL OR STYLE B13-444W-NL, MUELLER B24351N OR A.Y.MCDONALD 76101MW WITH "LOCK OFF" HANDLE.
8	BRASS UNION (FIP x FIP).
9	RED BRASS NIPPLE (MIP x MIP), THREADED BOTH ENDS, 1-1/2-INCH LENGTH.
10	BRASS METER COUPLING (MSN x MIP): JONES E-130, FORD C38-44-2-625-NL, MUELLER H-10890N OR A.Y. MCDONALD 74620.
11	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

NOT TO SCALE

1" POTABLE WATER SERVICE CONNECTION DETAIL WITH FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

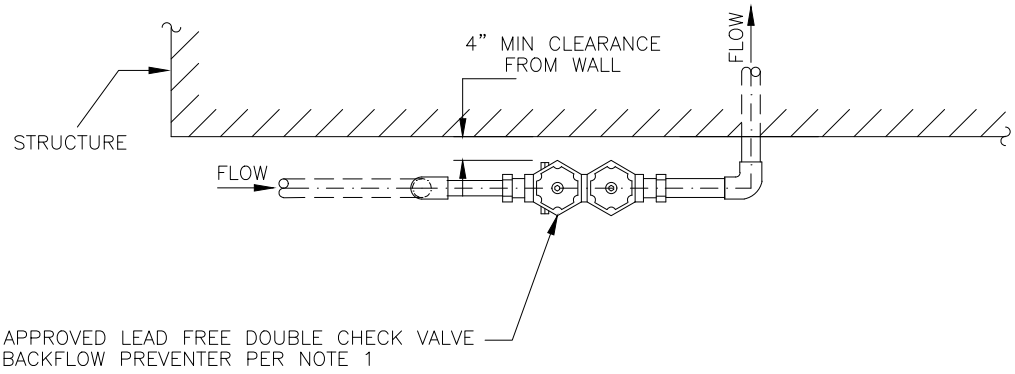
STD 408

SHEET 3 OF 4

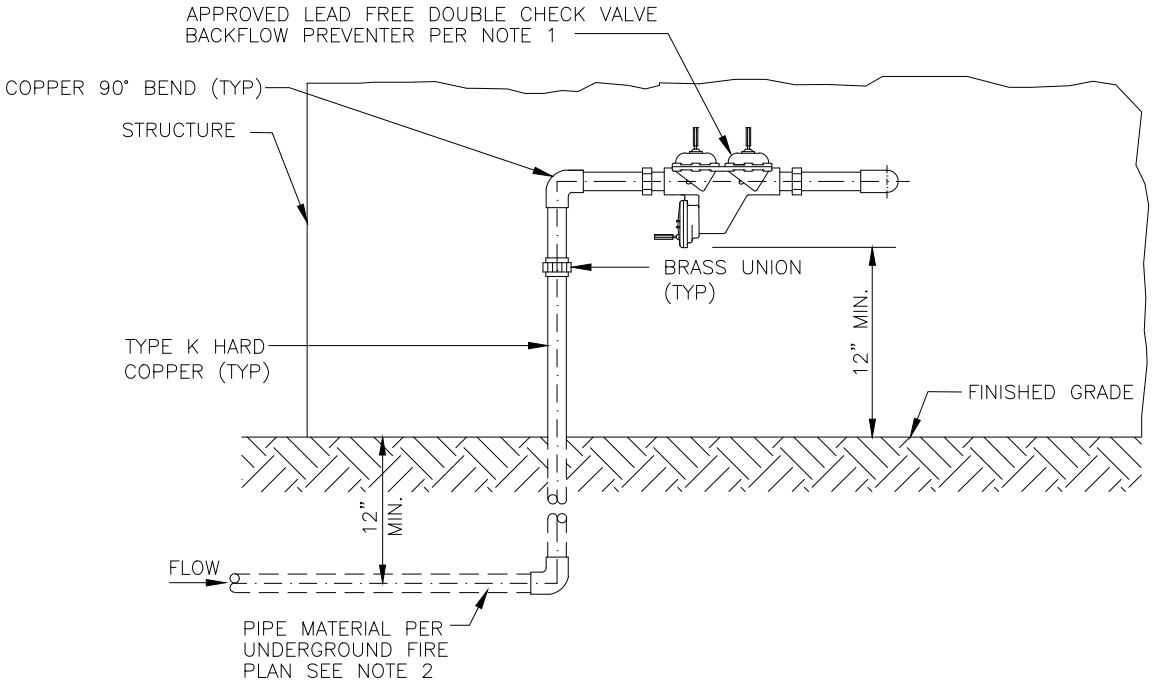
FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_408C_REV5.DWG

CONSTRUCTION NOTES:

1. INSTALL APPROVED LEAD FREE DOUBLE CHECK VALVE BACKFLOW PREVENTION DEVICES LISTED IN THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
2. INSTALL FIRE SERVICE PER UNDERGROUND FIRE PLANS (MINIMUM 1–INCH DIA.).
3. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.



PLAN



SECTION

NOT TO SCALE

1" POTABLE WATER SERVICE CONNECTION DETAIL WITH FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
1		02/13/14
2		04/28/14
3	VRW	05/04/18

APPROVED:

Nelson D Nelson — 5/8/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

Vernon R. Weisman — 5/8/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

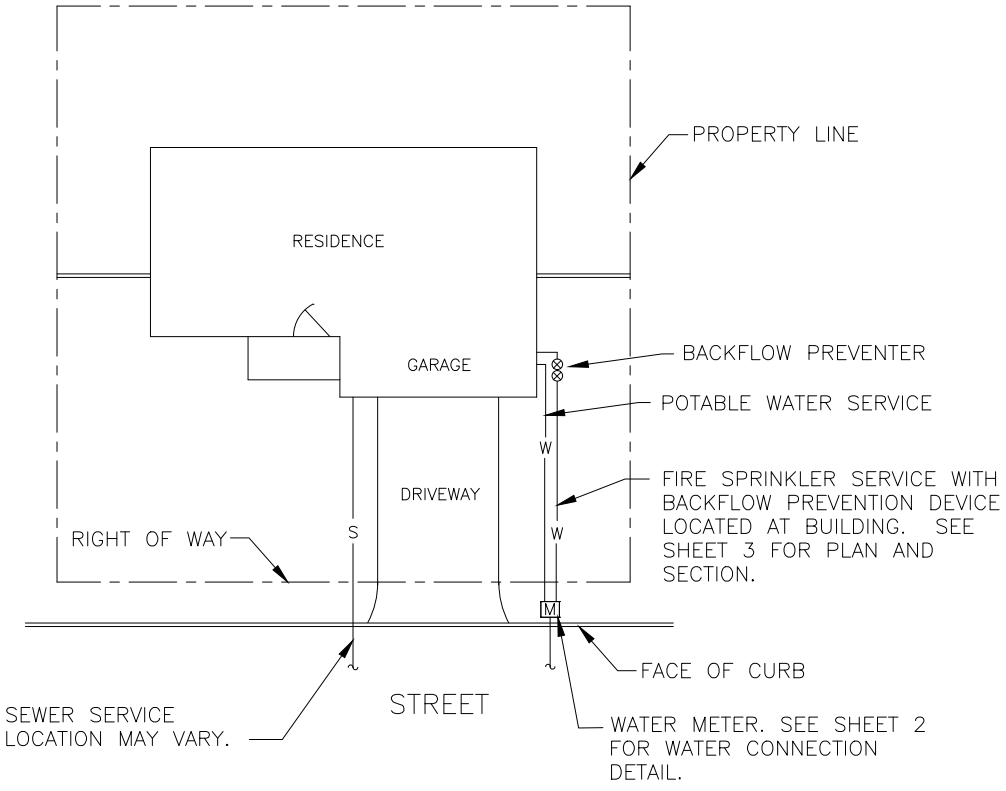
STD 408

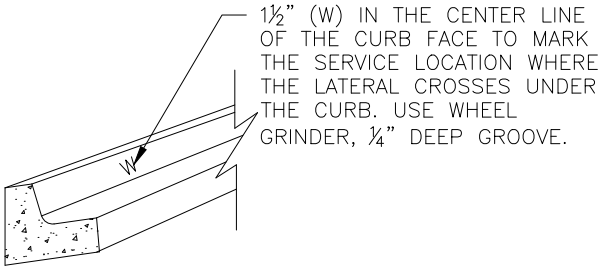
SHEET 4 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_408D_REV4.DWG

GENERAL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE SERVICE CONNECTION AS SHOWN ON THIS STANDARD DRAWING EXCEPT FOR THE WATER METER. THE CITY WILL PROVIDE AND INSTALL THE WATER METER.
2. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
3. ALL DUAL PLUMBED SERVICES WITH A FIRE SERVICE ARE REQUIRED TO HAVE A DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY INSTALLED AND TESTED PRIOR TO SERVICE BEING TURNED ON. PROVIDE ACCESS TO BACKFLOW PREVENTER FOR TESTING.
4. LOCATIONS SHOWN FOR WATER METER BOX, POTABLE WATER SERVICE, AND FIRE SPRINKLER SERVICE ARE DIAGRAMMATIC AND MAY BE REVISED TO SUIT EACH PROPERTY.
5. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.





NOT TO SCALE

1–1/2" AND 2" POTABLE WATER SERVICE CONNECTION DETAIL WITH FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
2		04/28/14
3		05/04/18
4	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

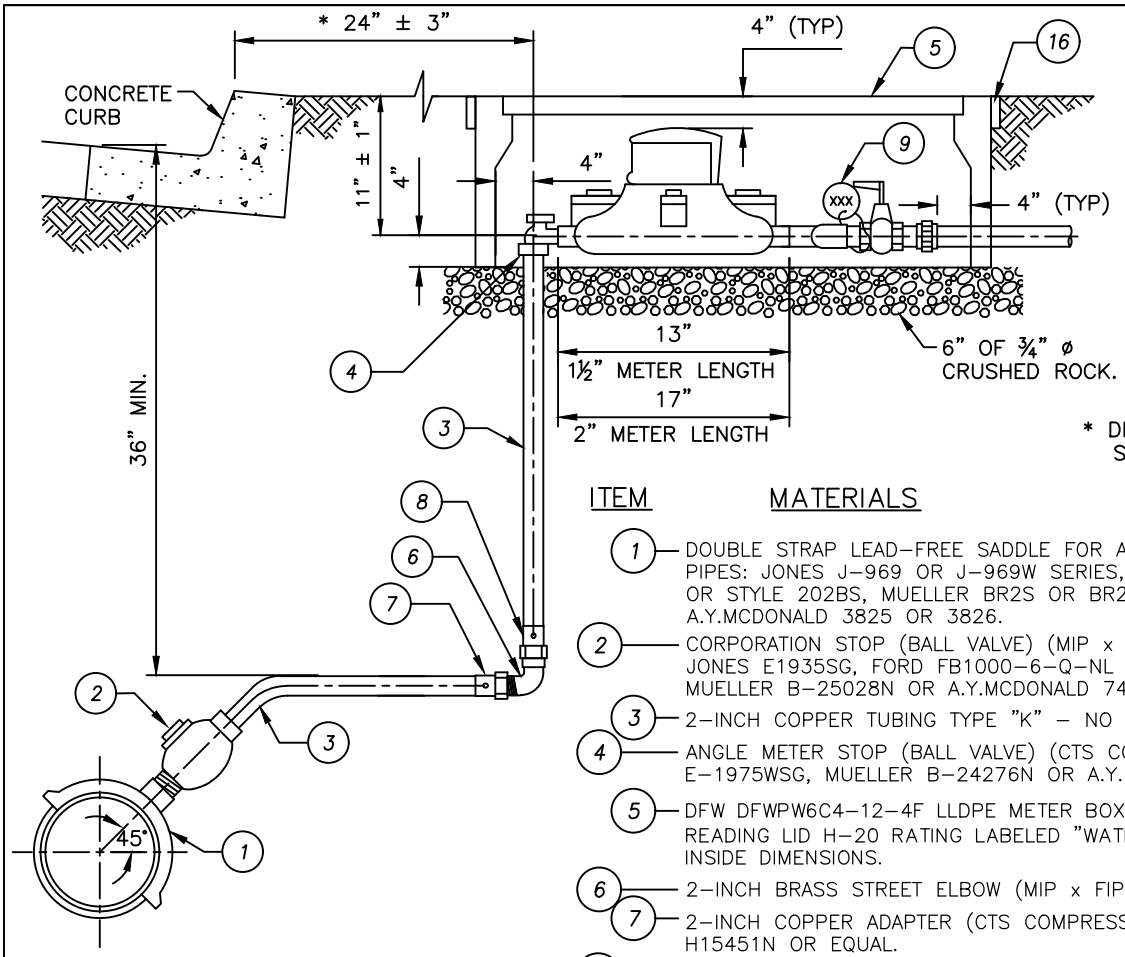
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 409

SHEET 1 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_409A_REV5.DWG



* DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.

ITEM	MATERIALS
1	DOUBLE STRAP LEAD–FREE SADDLE FOR AC, CIP, DIP AND PVC PIPES: JONES J–969 OR J–969W SERIES, FORD STYLE 202BSD OR STYLE 202BS, MUELLER BR2S OR BR2W SERIES, OR A.Y.MCDONALD 3825 OR 3826.
2	CORPORATION STOP (BALL VALVE) (MIP x CTS COMPRESSION): JONES E1935SG, FORD FB1000–6–Q–NL OR FB1000–7–Q–NL, MUELLER B–25028N OR A.Y.MCDONALD 74704BQ.
3	2–INCH COPPER TUBING TYPE "K" – NO COILS ALLOWED.
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x FLG): JONES E–1975WSG, MUELLER B–24276N OR A.Y.MCDONALD 74602BCSQ.
5	DFW DFWPW6C4–12–4F LLDPE METER BOX AND HDPE COVER WITH READING LID H–20 RATING LABELED "WATER" 16 5/16" x 31¾" x 12" INSIDE DIMENSIONS.
6	2–INCH BRASS STREET ELBOW (MIP x FIP).
7	2–INCH COPPER ADAPTER (CTS COMPRESSION x FIP) MUELLER H15451N OR EQUAL.
8	2–INCH COPPER ADAPTER (MIP X CTS COMPRESSION).
9	BRASS TAG WITH STAINLESS STEEL BALL CHAIN LABELED "FIRE" FOR THE FIRE SERVICE AND "DOMESTIC" FOR THE DOMESTIC SERVICE.
16	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

CONSTRUCTION NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 12 INCHES OF VALVE, COUPLING, JOINT, OR FITTING.
2. DOUBLE–WRAP ALL PIPING BELOW GRADE IN A BLUE COLORED 8–MIL POLYETHYLENE SLEEVES LABELED POTABLE WATER. EXTEND POLYETHYLENE SLEEVES 2 INCHES MINIMUM ABOVE FINISH GRADE. SECURE WITH 10–MIL TAPE.
3. CONSTRUCT WATER SERVICE PIPE IN SAND BEDDING (SE 30 MINIMUM) FROM CORP STOP TO METER BOX.
4. ALL CONNECTIONS TO COPPER TUBING SHALL BE COMPRESSION TYPE AND SERVICE MUST BE CONTINUOUS AND UNCUT. NO SWEAT TYPE FITTINGS ALLOWED.
5. CONNECTIONS TO STEEL WATER MAINS SHALL BE WITH A WELDED 3000 POUND HALF COUPLING AND DIELECTRIC INSULATING BUSHING. ALL STEEL SURFACES SHALL BE COVERED WITH CEMENT MORTAR.
6. ROUND AND DE–BURR ALL COPPER PIPE PRIOR TO INSTALLATION.
7. WRAP SERVICE SADDLE WITH TWO LAYERS OF 8–MIL POLYETHYLENE.
8. INSTALL BRASS PIPING AND FITTINGS INSIDE METER BOX BETWEEN ANGLE METER STOP AND BRASS UNIONS.
9. PROVIDE METER BOXES IN UNIMPROVED STREETS AND BEHIND ROLLED CURBS WITH COVERS AND BOXES RATED FOR H–20 TRAFFIC LOADS.

NOT TO SCALE

1–1/2" AND 2" POTABLE WATER SERVICE CONNECTION DETAIL WITH FIRE SPRINKLER SERVICE

REVISION NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

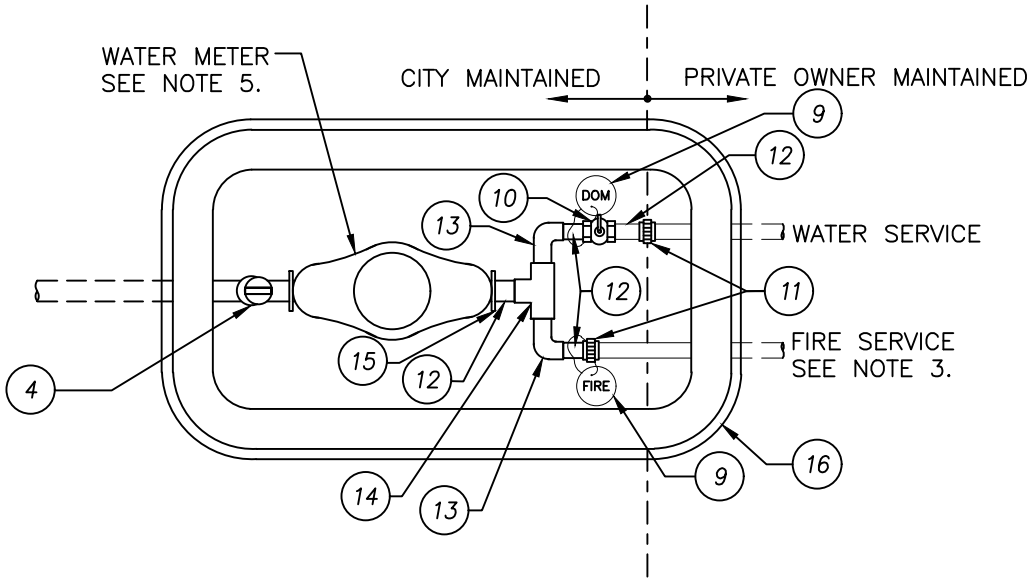
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 409

SHEET 2 OF 4

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_409B_REV5.DWG



CONSTRUCTION NOTES:

1. SEE CONSTRUCTION NOTES ON SHEET 2.
2. INSTALL A "LOCK OFF" STYLE BALL VALVE FOR THE DOMESTIC WATER SERVICE.
3. INSTALL FIRE SERVICE PER UNDERGROUND FIRE PLANS (MINIMUM 1–INCH DIA.).
4. 1½–INCH AND 2–INCH METERS ARE FLANGED.
5. THE CITY WILL PROVIDE AND WILL INSTALL A NEPTUNE T–10 METER (FLG X FLG). REQUEST THE METER INSTALLATION FROM THE PUBLIC WORKS INSPECTOR OR THE BUILDING INSPECTOR WHEN THERE IS NO PUBLIC IMPROVEMENT PLAN.
6. A REDUCER FITTING CAN BE INSTALLED BETWEEN THE ANGLE METER STOP VALVE AND THE METER, AND PAST THE BRASS UNION WITHIN THE PRIVATE OWNER MAINTAINED AREA.

ITEM	MATERIALS
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x FLG): JONES E–1975WSG, MUELLER B–24276N OR A.Y.MCDONALD 74602BCSQ.
9	BRASS TAG WITH STAINLESS STEEL BALL CHAIN LABELED "FIRE" FOR THE FIRE SERVICE AND "DOMESTIC" FOR THE DOMESTIC SERVICE.
10	METER VALVE (FIP x FIP). USE JONES STYLE E–1900W OR MUELLER B–20200N WITH "LOCK OFF" HANDLE.
11	BRASS UNION (FIP X FIP).
12	RED BRASS NIPPLE (MIP X MIP), THREADED BOTH ENDS, 2–INCH LENGTH.
13	BRASS STREET 90–DEGREE BEND (FIP X FIP).
14	BRASS TEE (FIP X FIP).
15	BRASS METER FLANGE (FLG X FIP).
16	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

NOT TO SCALE

1–1/2" AND 2" POTABLE WATER SERVICE CONNECTION DETAIL WITH FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

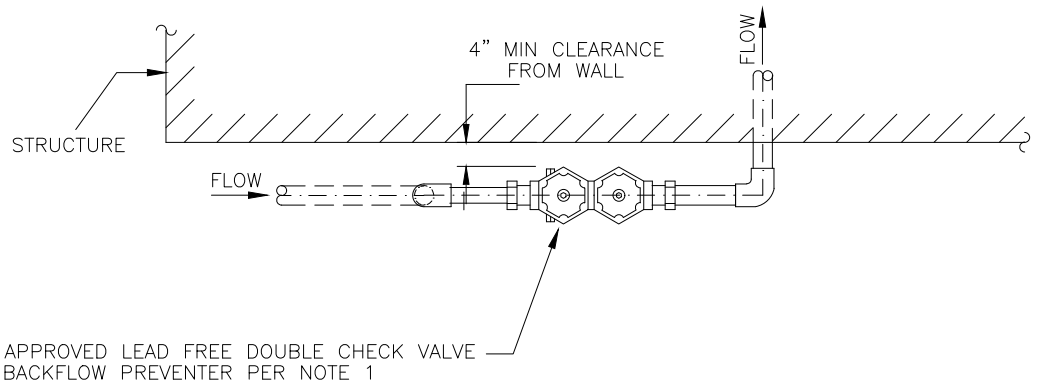
STD 409

SHEET 3 OF 4

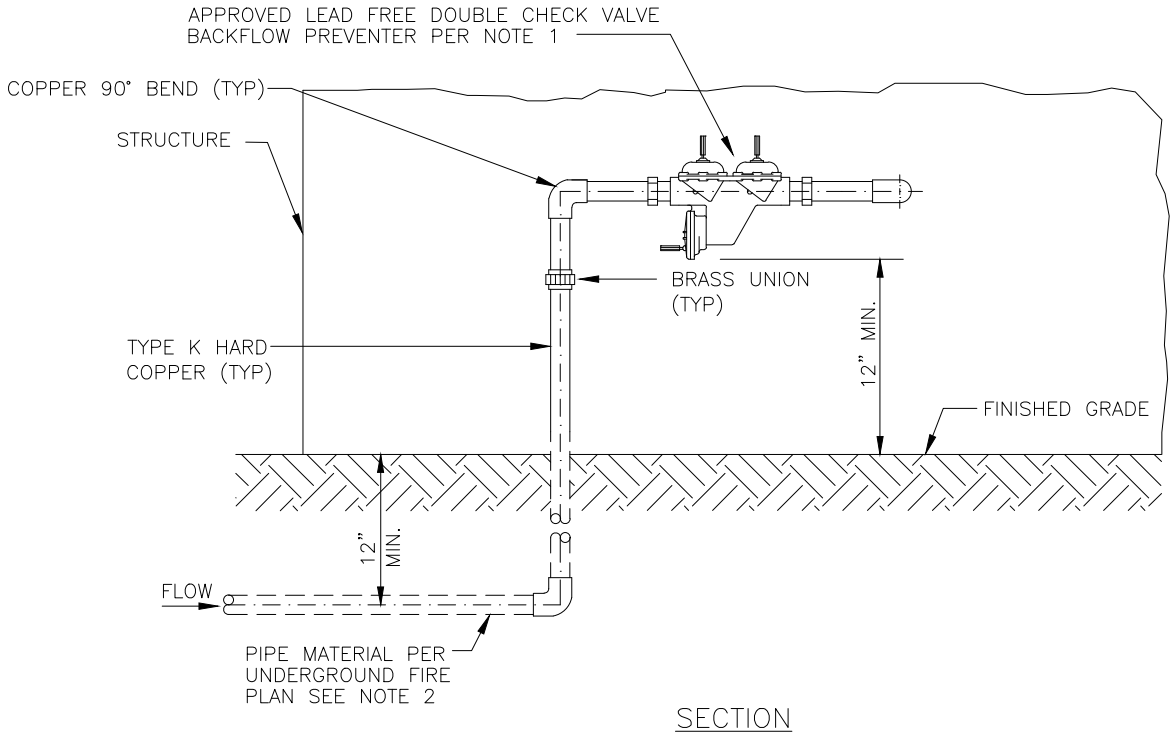
FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_409C_REV5.DWG

CONSTRUCTION NOTES:

1. INSTALL APPROVED LEAD FREE DOUBLE CHECK VALVE BACKFLOW PREVENTION DEVICES LISTED IN THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
2. INSTALL FIRE SERVICE PER UNDERGROUND FIRE PLANS (MINIMUM 1–INCH DIA.).
3. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.



PLAN



SECTION

NOT TO SCALE

1–1/2" AND 2" POTABLE WATER SERVICE CONNECTION DETAIL WITH FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
1		02/13/14
2		04/28/14
3	VRW	05/04/18

APPROVED:

Nelson D Nelson — 5/8/2018
NELSON D. NELSON, PE,
PUBLIC WORKS DIRECTOR — DATE

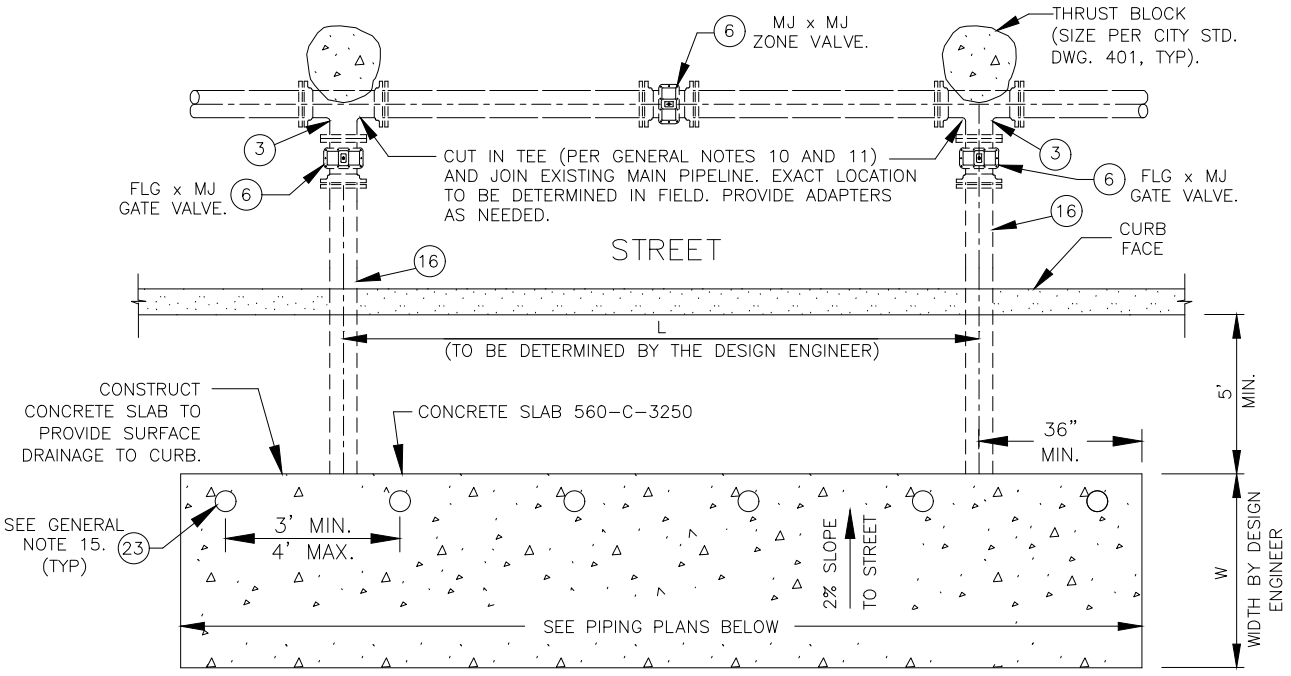
Vernon R. Weisman — 5/8/2018
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER — DATE

CITY OF CORONA

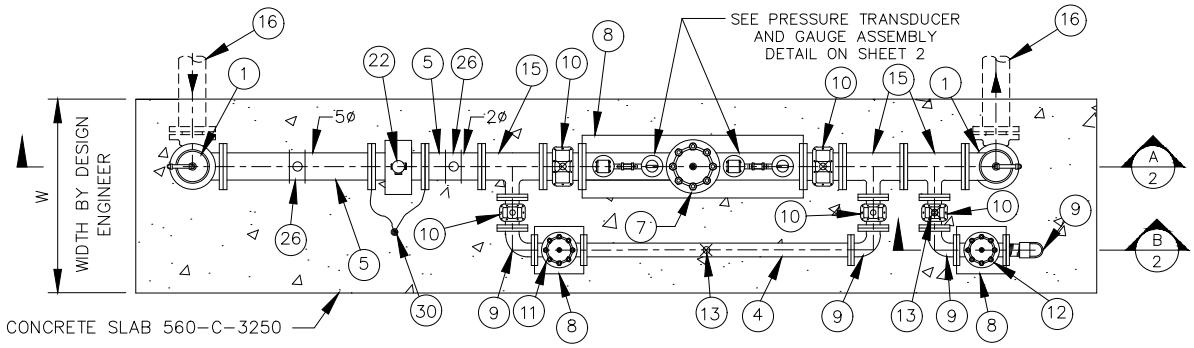
STD 409

SHEET 4 OF 4

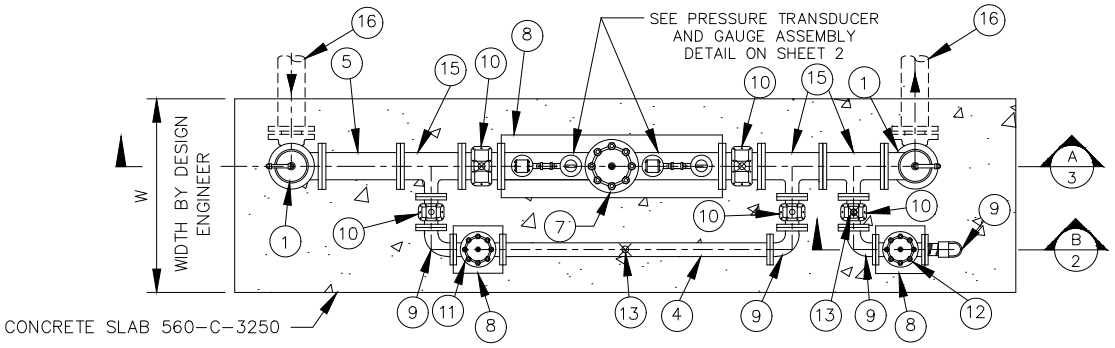
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_409D_REV4.DWG



SITE PLAN



PIPING PLAN – OPTION 1 (WITH FLOW METER)



PIPING PLAN – OPTION 2 (WITHOUT FLOW METER)

SEE GENERAL NOTES ON SHEET 3.

NOT TO SCALE

PRESSURE REGULATING STATION

REVISION		
NO.	APPROVED	DATE
1	VRW	06/18/18

APPROVED:

Nelson D Nelson — 6/21/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

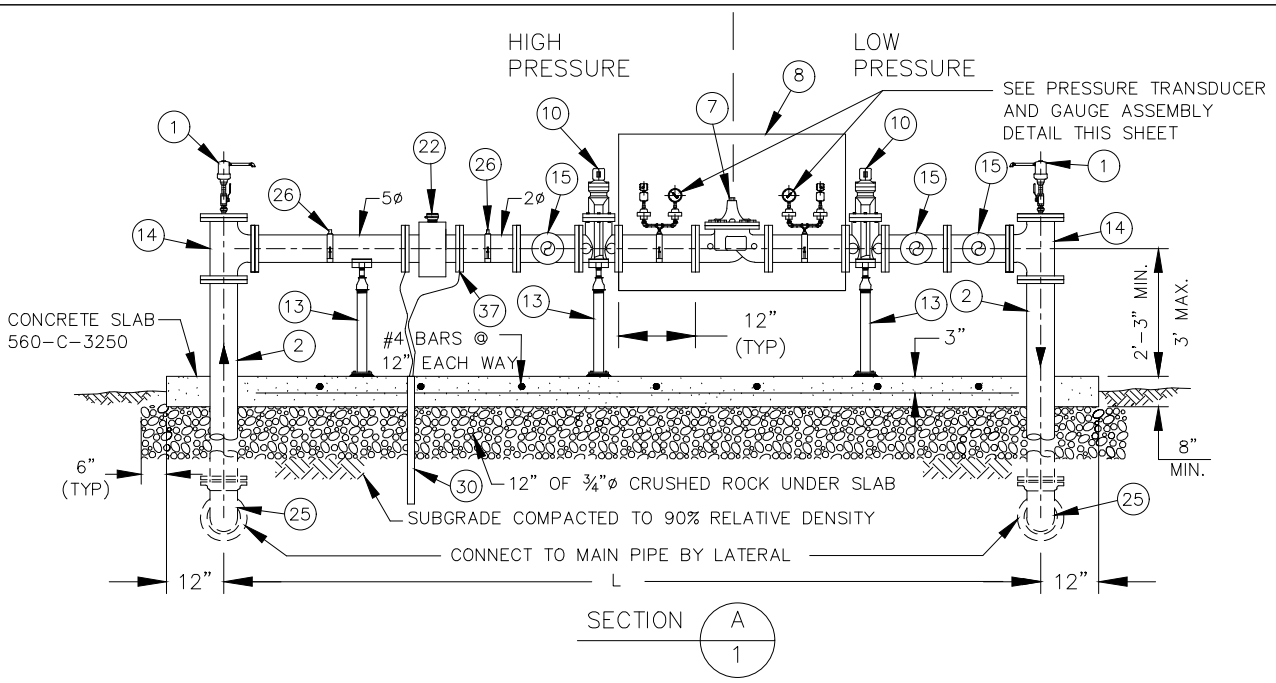
Vernon R. Weisman — 6/21/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 410

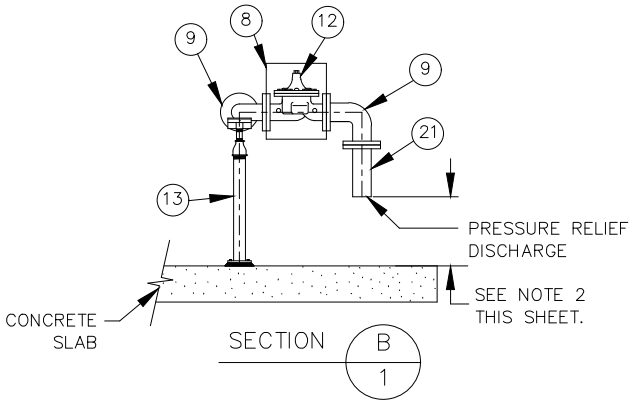
SHEET 1 OF 5

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_410A_REV2.DWG

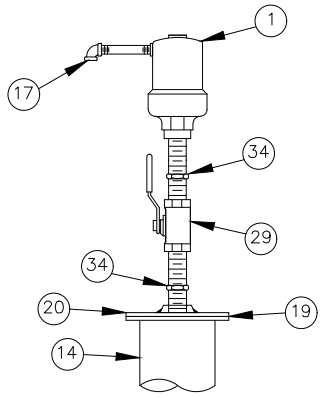


SECTION A/1

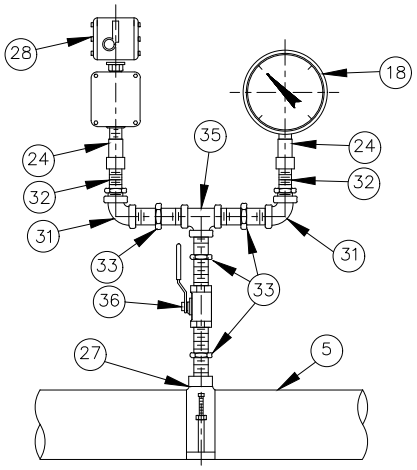
PIPING PLAN – OPTION 1 (WITH FLOW METER)



SECTION B/1



AIR RELEASE ASSEMBLY DETAIL



PRESSURE TRANSDUCER AND GAUGE ASSEMBLY DETAIL

NOTES:

1. COAT ALL PIPES, FITTINGS, AND EQUIPMENT ABOVE GROUND, EXCEPT BRASS, BRONZE AND STAINLESS STEEL, WITH TNEMEC EPOXY; PRIMED WITH SERIES 66 OR 69 HI-BUILD EPOXOLINE 3 TO 5 MILS THICK, AND FINISHED WITH SERIES 73, 74, OR 75 ENDURE-SHIELD 2 OR 3 MILS THICK, COLOR TO BE GREEN IF IN AN AREA WHERE LANDSCAPING LIKELY, OTHERWISE COLOR SHALL BE BLUE.

2. THE GREATER OF THE FOLLOWING: 2X DIAMETER OF OVERFLOW (MIN.) OR 18 INCHES (MIN.).

NOT TO SCALE

PRESSURE REGULATING STATION

REVISION		
NO.	APPROVED	DATE
1	VRW	06/18/18

APPROVED:

Nelson D Nelson — 6/21/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

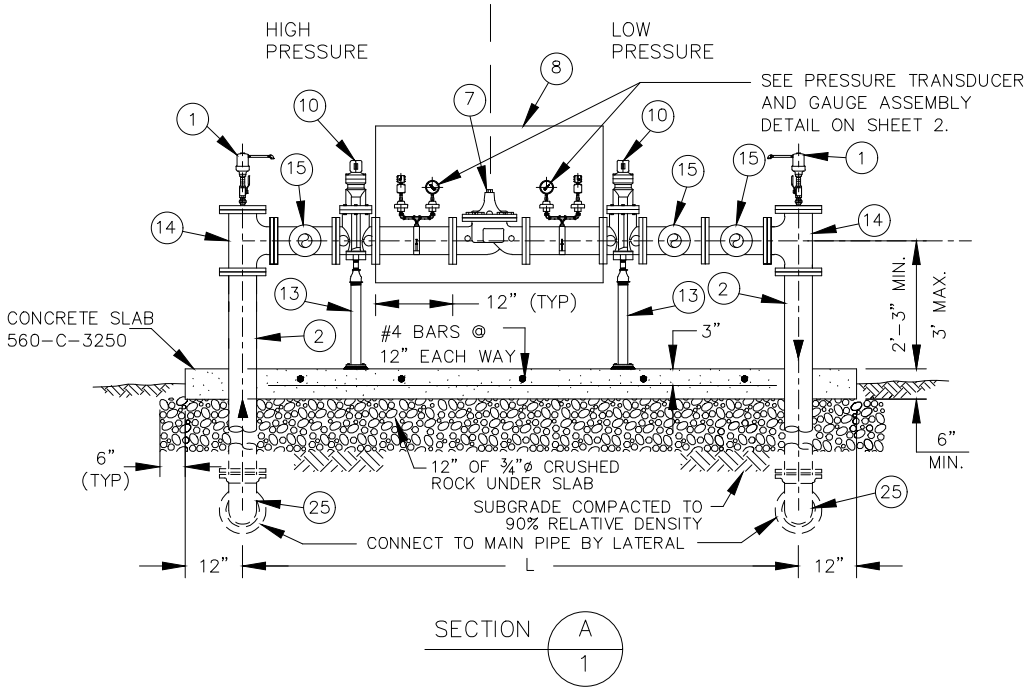
Vernon R. Weisman — 6/21/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 410

SHEET 2 OF 5

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_410B_REV2.DWG



SECTION A/1

PIPING PLAN – OPTION 2 (WITHOUT FLOW METER)

GENERAL NOTES:

1. PROVIDE CALCULATIONS AND CAPACITY/PRESSURES TO THE DEPARTMENT OF WATER AND POWER.
2. ALL MATERIALS, MATERIALS TESTING, AND INSPECTION SHALL BE IN ACCORDANCE WITH CITY STANDARD REQUIREMENTS.
3. NOTIFY CITY AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL SHORE ALL EXCAVATIONS IN ACCORDANCE WITH CAL-OSHA REQUIREMENTS.
5. ALL MATERIALS USED FOR POTABLE WATER APPLICATIONS SHALL BE NSF 61 APPROVED AND IN COMPLIANCE WITH THE MOST RECENT CALIFORNIA VOLATILE ORGANIC COMPOUNDS (VOC) REGULATIONS.
6. BELOW GROUND FITTINGS SHALL BE MECHANICAL JOINT WITH "MEGA-LUG" TYPE RESTRAINTS RATED FOR THE TEST PRESSURE OF THE PIPE.
7. PROVIDE 100A ELECTRICAL SERVICE TO PRESSURE REGULATING STATION.
8. INSTALL CONDUITS AND WIRING TO ALL DEVICES REQUIRING POWER AND SCADA COMMUNICATIONS. CONNECT WIRING TO ALL DEVICES, ELECTRICAL PANEL, AND RADIO/SCADA PANEL. CITY WILL FURNISH RADIO/SCADA PANEL.
9. RESTRAIN ALL JOINTS BETWEEN WATER MAIN AND PRESSURE REGULATING STATION (BOTH UPSTREAM AND DOWNSTREAM).
10. IF EXISTING MAIN LINE IS ACP, REMOVE WHOLE STICKS OF PIPE AND DISPOSE OF LEGALLY. USE TRANSITION COUPLINGS AND DUCTILE IRON RESTRAINED MECHANICAL JOINT PIPE AND FITTINGS (MEGA-LUG TYPE OR EQUAL) AS NEEDED.
11. IF EXISTING MAIN LINE IS STEEL JOIN MAINLINE WITH NOZZLE AND FULLY WELDED FULL WRAPPER. REPAIR LINING AND COATING PER APPLICABLE AWWA STANDARDS IN KIND.
12. MATERIALS LIST MAY VARY DEPENDING ON FINAL DESIGN.
13. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.
14. THE DESIGN ENGINEER MUST SUBMIT TO THE DWP GENERAL MANAGER OR DESIGNEE A SPECIFIC DESIGN BASED ON THE TYPICAL LAYOUT FOR EACH INSTALLATION FOR REVIEW AND WRITTEN APPROVAL PRIOR TO CONSTRUCTION. THE PRESSURE CLASS, ALONG WITH THE SYMMETRICAL DESIGN SHOWN, SHALL BE MODIFIED ACCORDINGLY BY THE DWP GENERAL MANAGER OR DESIGNEE.
15. PROVIDE MINIMUM 3-FOOT CLEARANCE BETWEEN GUARD POSTS AND ABOVE GROUND PIPING AND EQUIPMENT.

NOT TO SCALE

PRESSURE REGULATING STATION

REVISION		
NO.	APPROVED	DATE
1	VRW	06/18/18

APPROVED:

Nelson D Nelson — 6/21/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

Vernon R. Weisman — 6/21/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 410

SHEET 3 OF 5

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_410C_REV3.DWG

MATERIALS LIST

	EQUIPMENT	SIZE	MATERIALS/MAKE/MODEL
1	COMBINATION AIR/VAC VALVE ASSEMBLY	1"	ARI D-040-C
2	PIPE	8"	DI, FLG x PE, AWWA C115
3	TEE ON WATER MAIN	MAINSIZE X 8"	DI, MJ x FLG, CL 350
4	PIPE	4"	DI, FLG, AWWA C115
5	PIPE	8"	DI, FLG, AWWA C115
6	RW GATE VALVE WITH 2" OPERATING NUT AND VALVE CAN, FLG x MJ OR MJ x MJ RESTRAINT GLAND. SEE SHEET 1.	AS REQ'D	PER CITY STD. DWGS. 420, 421, AND 422
7	LARGE PRESSURE REDUCING VALVE-SIZE SUBJECT TO CITY APPROVAL	8"	CLA-VAL MODEL 90-01BPSVYKCX (FLG) WITH STAINLESS STEEL PILOT SYSTEM FITTED WITH WYE STRAINERS AND BALL VALVE FLUSHING POINTS. WORKING PRESSURE 0-150 PSI. VALVE ADJUSTMENT RANGE 30 TO 300 PSI. OPERATING PRESSURE TO BE SET AS DIRECTED BY THE CITY.
8	TYPE 316SS CAGE WITH EXPANDED METAL	-	PAINTED SAME AS ABOVE-GROUND PIPING
9	90° ELBOW	4"	DI, FLG, AWWA C153
10	RW GATE VALVE WITH 2" OPERATING NUT AND LOCKING COVER FOR ABOVE GROUND	AS REQ'D	AWWA C515, FLG
11	SMALL PRESSURE REDUCING VALVE	4"	CLA-VAL MODEL 90-01BPDVYKCX (FLG) WITH STAINLESS STEEL PILOT SYSTEM FITTED WITH WYE STRAINERS AND BALL VALVE FLUSHING POINTS. WORKING PRESSURE 0-150 PSI. VALVE ADJUSTMENT RANGE 30 TO 300 PSI. OPERATING PRESSURE TO BE SET AS DIRECTED BY THE CITY.
12	PRESSURE RELIEF VALVE	4"	CLA-VAL MODEL 50G-01BPKCX WITH STAINLESS STEEL PILOT SYSTEM FITTED WITH WYE STRAINERS AND BALL VALVE FLUSHING POINTS. WORKING PRESSURE 0-150 PSI. VALVE ADJUSTMENT RANGE 30 TO 300 PSI.
13	ADJUSTABLE PIPE SUPPORT	3" DIA.	CITY STD. DWG. 418
14	TEE	8"	DI, FLG, AWWA C153
15	TEE	8" x 4"	DI, FLG, AWWA C153
16	LATERAL PIPE	8"	DIP, CLASS 350, RESTRAIN ALL JOINTS
17	SCREEN	-	THREADED TYPE 316SS
18	LIQUID FILLED PRESSURE GAUGE	4½" DIAL	0-300 PSI, ASHCROFT TYPE 1009, STAINLESS STEEL
19	FLANGE INSULATING KIT	-	CITY STD. DWG. 458
20	BLIND FLANGE	8"	TYPE 316SS WITH 1" WELDED HEAVY DUTY HALF COUPLING
21	PIPE	4"	DI, FLG X PE, AWWA C115

PRESSURE REGULATING STATION

REVISION		
NO.	APPROVED	DATE
1	VRW	06/18/18

APPROVED:

Nelson D Nelson — 6/21/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

Vernon R. Weisman — 6/21/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 410

SHEET 4 OF 5

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_410D_REV3.DWG

MATERIALS LIST (CONT.)

	EQUIPMENT	SIZE	MATERIALS/MAKE/MODEL
(22)	MAGNETIC FLOW METER	8"	ELECTROMAGNETIC FLOW METER ENDRESS+HAUSER PROLINE PROMAG W400 5W4C2H WITH GROUNDING RINGS
(23)	REMOVABLE GUARD POST	–	PER CITY STD. DWG. 405
(24)	PRESSURE SNUBBER	½"	TYPE 316SS, OMEGA MOD. PS–4E, NOSHOK MOD, 5050
(25)	90° ELBOW	AS REQ'D	DI, MJ, AWWA C153
(26)	PITOT TUBE INSERTION POINT	1"	TYPE 316SS, DOUBLE STRAP SADDLE TAP, CLOSE NIPPLE, FULL PORT BALL VALVE, THREADED PLUG
(27)	SADDLE TAP	¾"	TYPE 316SS, DOUBLE STRAP
(28)	PRESSURE TRANSDUCER	0–300 PSI	ENDRESS+HAUSER CERABAR SPMC71
(29)	BALL VALVE W/ LOCKABLE HANDLE	1"	TYPE 316SS, FIPT
(30)	GROUND ROD	10' LONG (MINIMUM)	COPPER CLAD STEEL GROUND ROD, HARDENED STEEL POINT.
(31)	REDUCING 90° ELBOW	¾" X ½"	TYPE 316SS
(32)	EXTRA HEAVY HEX HEAD PIPE NIPPLE	½"	TYPE 316SS
(33)	EXTRA HEAVY HEX HEAD PIPE NIPPLE	¾"	TYPE 316SS
(34)	EXTRA HEAVY HEX HEAD PIPE NIPPLE	1"	TYPE 316SS
(35)	TEE	¾"	TYPE 316SS, FIPT
(36)	BALL VALVE	¾"	TYPE 316SS, FIPT
(37)	GROUNDING RINGS WITH GROUND CABLE. CONNECT GROUND CABLE TO GROUND ROD	–	AWG9 (MIN.) GROUND CABLE

PRESSURE REGULATING STATION

REVISION		
NO.	APPROVED	DATE
1	VRW	06/18/18

APPROVED: Nelson D Nelson — 6/21/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

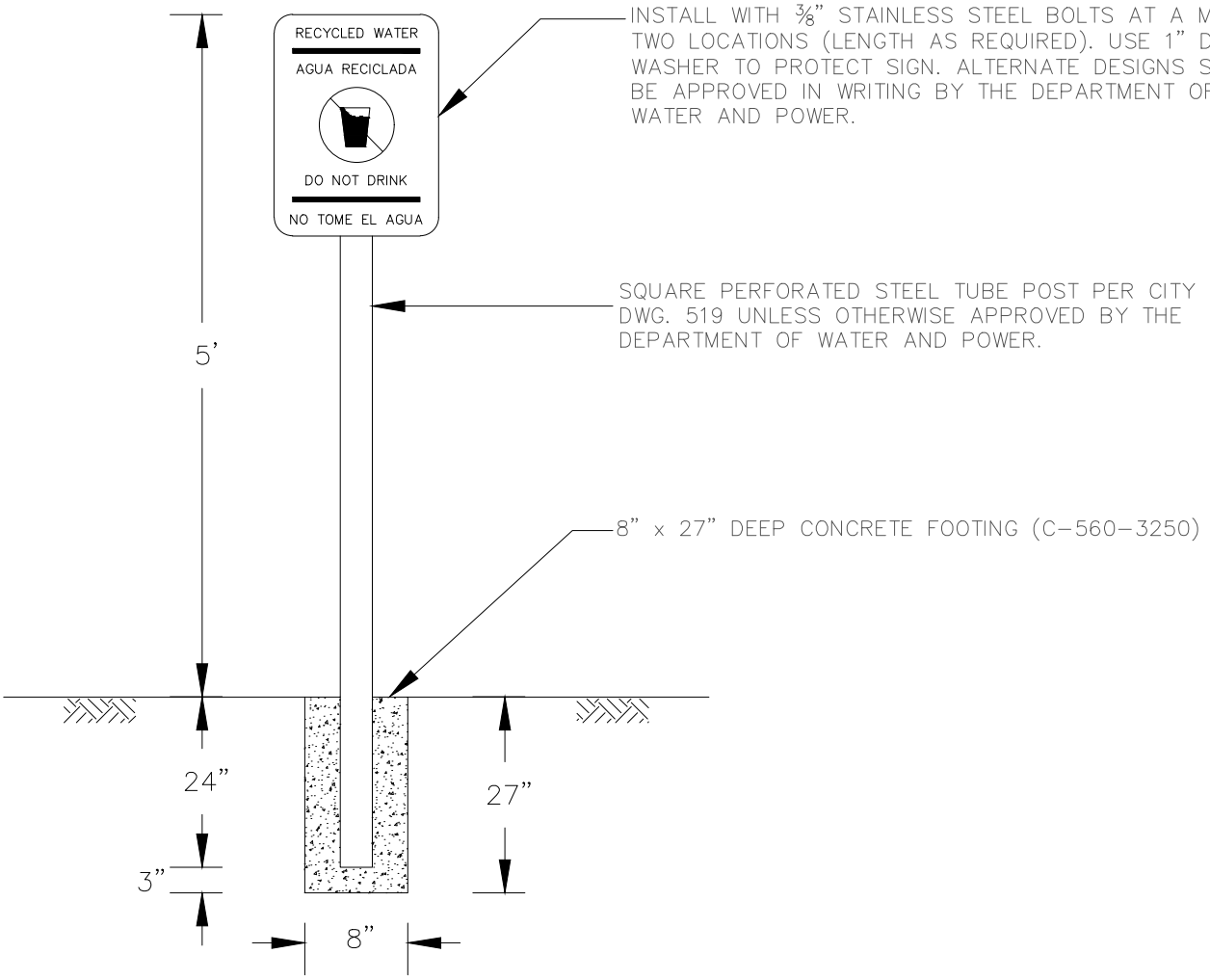
Vernon R. Weisman — 6/21/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 410

SHEET 5 OF 5

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_410E_REV3.DWG



NOTES:

1. ALL NEW COMMON AREAS WHERE RECYCLED WATER IS USED AND THAT ARE ACCESSIBLE TO THE GENERAL PUBLIC SHALL BE POSTED WITH CONSPICUOUS PERMANENT SIGNS IN A SIZE NO LESS THAN 4 INCHES HIGH BY 8 INCHES WIDE. THE COLOR OF THE SIGN SHALL BE PANTONE PURPLE. IMPRINTING SHALL BE PERMANENT AND WHITE IN COLOR. TEXT HEIGHT SHALL BE NO MORE THAN 2 INCHES AND NO LESS THAN 5/8-INCH.
2. SIGNS SHALL BE INSTALLED BEHIND THE SIDEWALK IN A LANDSCAPE AREA. ALL SIGN LOCATIONS SHALL BE SHOWN ON THE LANDSCAPE PLANS AND SHALL BE APPROVED BY THE DEPARTMENT OF WATER AND POWER.
3. SIGNS SHALL BE PLACED UPRIGHT WITH NO OBSTRUCTION AND IN A DIRECTION APPROVED BY THE DEPARTMENT OF WATER AND POWER. SIGNS SHALL NOT OBSTRUCT ANY EXISTING TRAFFIC SIGNAGE, COMMERCIAL SIGNAGE, OR RESIDENTIAL VIEWS.
4. SIGN FOOTINGS SHALL BE PLACED A MINIMUM OF: 10 FEET FROM ALL DRIVEWAY APPROACH SCORE LINES, 5 FEET FROM STREET TREES, 4 FEET FROM FIRE HYDRANTS, AND 3 FEET FROM WATER, SEWER, OR STORM PIPES (FROM THE EDGE OF THE FOOTING TO THE EDGE OF THE PIPE).
5. SIGN POST SHALL BE INSTALLED A MINIMUM OF 2½ FEET BEHIND THE BACK OF THE CURB IN PRIVATE PARKING AREAS TO ALLOW FOR VEHICLE OVERHANG.

NOT TO SCALE

RECLAIMED WATER IRRIGATION SIGN

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper
TOM G. KOPER, PE,
CITY ENGINEER

1/7/2019
DATE

Vernon R. Weisman
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER

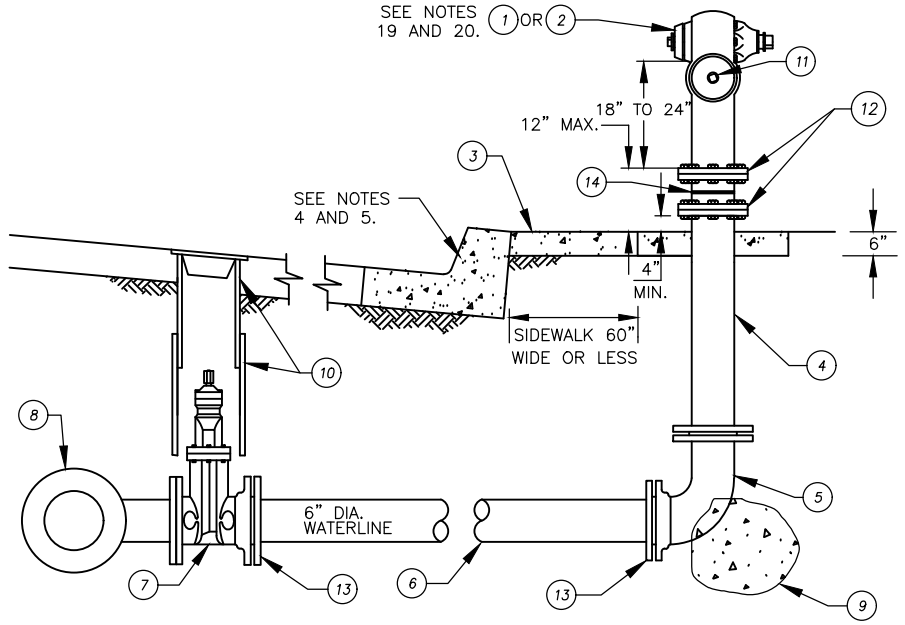
1/7/2019
DATE

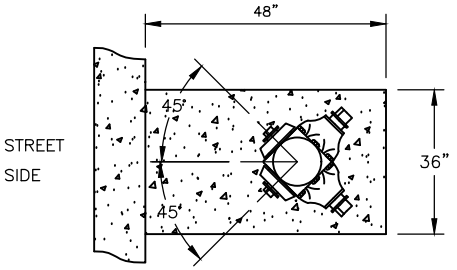
CITY OF CORONA

STD 411R

SHEET 1 OF 1

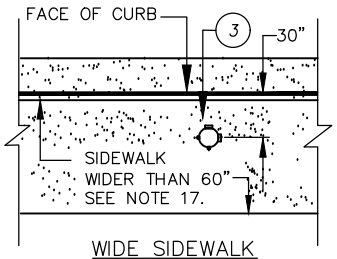
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_411R.DWG



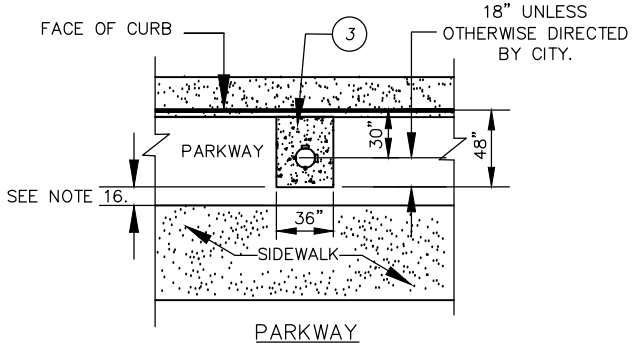


FIRE HOSE OUTLET ORIENTATION

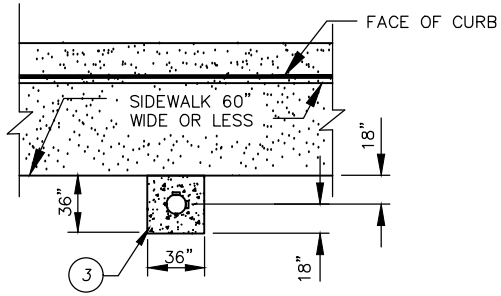
ITEM	MATERIALS
1	STANDARD HYDRANT, 8–HOLE PATTERN, WITH (1) 4–INCH AND (1) 2½–INCH FIRE HOSE OUTLETS, CLOW 850 OR 2050, OR JAMES JONES 3710 OR 4040B. PAINT FIRE HYDRANT AND CAPS SAFETY YELLOW.
2	SUPER HYDRANT, 8–HOLE PATTERN, WITH (2) 4–INCH AND (1) 2½–INCH FIRE HOSE OUTLETS, CLOW 865, OR JAMES JONES 3775, OR 4065. PAINT FIRE HYDRANT AND CAPS RUST–O–LEUM OLD CAT YELLOW – 76486.
3	REPLACE SIDEWALK PER CITY STD. 142 OR CONSTRUCT 48" x 36" x 6" THICK CONCRETE PAD WITHIN PARKWAY. SEE HYDRANT LOCATION PLANS BELOW FOR APPLICABLE CONDITION.
4	6–INCH DIA. FLG x FLG DI SPOOL, AWWA C115.
5	6–INCH DIA. FLG x MJ DI 90–DEGREE BEND, RESTRAINED.
6	6–INCH DIA. DI PIPE, CLASS 350, RESTRAINED JOINT.
7	6–INCH RESILIENT WEDGE GATE VALVE FLG x MJ RESTRAINED PER CITY STD. DWG. 420.
8	MAINLINE SIZE x 6–INCH MJ x MJ x FLG DI TEE WITH RESTRAINED JOINTS. INSTALL CONCRETE THRUST BLOCK PER CITY STD. DWG. 401 ON NON–RESTRAINED JOINT WATERLINES.
9	CONCRETE THRUST BLOCK PER CITY STD. DWG. 401.
10	VALVE BOX PER CITY STD. DWG. 422.
11	FIRE HYDRANT CAPS, PLASTIC W/O CHAINS.
12	BREAK–OFF BOLTS. ⅝" x 3" W/ BOLTS UP. 8–HOLE PATTERN, PRE–FILLED BOLTS WITH SILICONE INSTALLED UP.
13	MJ PIPE RESTRAINT, EBBA IRON MEGALUG SERIES 1100.
14	6–INCH DIA. DI SPOOL WITH ¼–INCH V (SINGLE OR DOUBLE) BREAK OFF GROOVE.



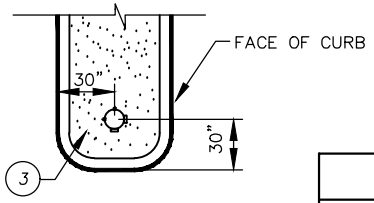
WIDE SIDEWALK CONDITION 1
(ONLY BY WRITTEN APPROVAL OF DWP GENERAL MANAGER OR DESIGNEE)



PARKWAY CONDITION 3



NARROW SIDEWALK CONDITION 2



MEDIAN CONDITION 4

HYDRANT LOCATION PLANS

SEE NOTES ON SHEET 2.

NOT TO SCALE

6" POTABLE WATER FIRE HYDRANT INSTALLATION

REVISION NO.	APPROVED	DATE
2		05/30/18
3		12/28/18
4	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20 DATE
TOM G. KOPER, PE, CITY ENGINEER

Vernon R. Weisman — 10/01/20 DATE
VERNON R. WEISMAN, PE, DISTRICT ENGINEER

CITY OF CORONA

STD 412

SHEET 1 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_412A_REV4.DWG

NOTES:

1. FLANGE NUTS, BOLTS, AND WASHERS SHALL BE TYPE 316SS. LUBRICATE BOLTS WITH ANTI-SEIZE LUBRICANT.
2. CONSTRUCT CONCRETE THRUST BLOCK ON MAINLINE TEE PER CITY STD. DWG. 401 WHERE WATER MAIN IS NOT OTHERWISE FULLY RESTRAINED.
3. DIMENSIONS MAY VARY FOR SPECIAL CIRCUMSTANCES; CUL-DE-SACS, PRIVATE STREETS, SIDEWALKS ADJACENT TO CURBS, ETC. WHERE SPECIFICALLY REQUIRED ON THE APPROVED PLANS.
4. CHISEL A 1½-INCH TALL "V" IN THE CURB FACE TO INDICATE LOCATION OF VALVE.
5. CHISEL (2) "X"'S AND THEIR RESPECTIVE DISTANCES IN THE CURB TO BE USED AS "TIE" LOCATIONS FOR VALVE CAN.
6. 6-INCH LATERAL PIPELINE (FULLY RESTRAINED) SHALL MATCH THE CLASS OF THE ADJACENT MAIN LINE PIPE.
7. VALVE SHALL BE ACCESSIBLE AT ALL TIMES.
8. DEVELOPER/INSTALLER SHALL SUPPLY AND PLACE BLUE-DOT REFLECTING RAISED ROADWAY MARKERS PER CITY STD. DWG. 531.
9. BORE UNDER CURB & GUTTER FOR CONSTRUCTION OF HYDRANT LATERAL.
10. PROVIDE 3-FOOT MINIMUM HORIZONTAL CLEARANCE BETWEEN FIRE HYDRANT AND ALL OTHER ADJACENT ABOVE GROUND IMPROVEMENTS.
11. PROVIDE 1½-INCH OPERATING NUTS ON ALL FIRE HYDRANT OPERATORS.
12. WRAP PIPE AND VALVE WITH A DOUBLE LAYER OF 8-MIL BLUE POLYETHYLENE.
13. ALL FITTINGS, PIPE, VALVES, AND FITTINGS SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.
14. DO NOT CONSTRUCT FIRE HYDRANT CLOSER THAN 10-FEET TO DRIVEWAY RETURN WITHOUT PRIOR APPROVAL BY DWP GENERAL MANAGER OR DESIGNEE.
15. CONDITIONS 2 AND 3 ARE STANDARD CITY CONFIGURATION.
16. EXTEND PAD TO SIDEWALK IF END OF PAD IS 24-INCH OR CLOSER TO SIDEWALK.
17. FOR ALTERNATIVE TO WIDE SIDEWALK CONDITION 1 HYDRANT LOCATION, SEE CITY STD. 144.
18. CONSTRUCT FIRE HYDRANT WITHIN THE CITY RIGHT-OF-WAY OR EASEMENT UNLESS EXCEPTION IS PROVIDED IN WRITING BY DWP GENERAL MANAGER OR DESIGNEE.
19. WHEN A FIRE FLOW OF 3500 GPM OR GREATER IS REQUIRED BY THE FIRE DEPARTMENT, A SUPER HYDRANT SHALL BE REQUIRED.
20. HYDRANT SPACING WILL BE AS MEASURED BY AN APPROVED EMERGENCY ACCESS ROUTE. ONE- & TWO-FAMILY DWELLINGS ALLOW 300-FOOT HYDRANT SPACING. WHEN APPROVED BY THE FIRE CHEIF, HYDRANT SPACING MAY BE INCREASED TO 500-FEET WHEN HOMES DO NOT FRONT ON THE EMERGENCY ACCESS ROADWAY. ALL OTHER BUILDINGS ALLOW 250-FOOT HYDRANT SPACING.

6" POTABLE WATER FIRE HYDRANT INSTALLATION

REVISION		
NO.	APPROVED	DATE
1		02/13/14
2	VRW	05/30/18

APPROVED:

Nelson D Nelson — 5/31/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

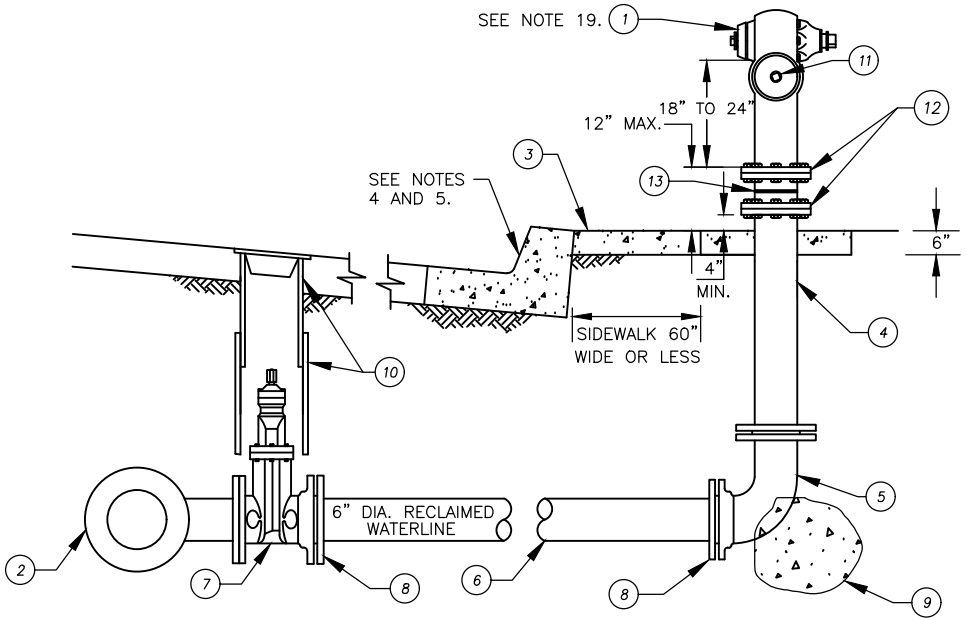
Vernon R. Weisman — 5/31/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

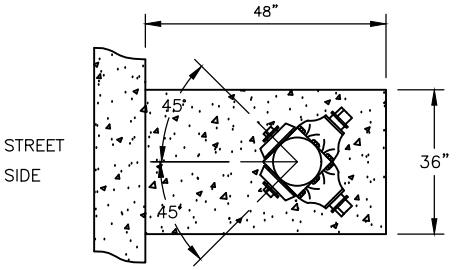
CITY OF CORONA

STD 412

SHEET 2 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_412B_REV2.DWG





FIRE HOSE OUTLET ORIENTATION

ITEM	MATERIALS
1	STANDARD HYDRANT, 8–HOLE PATTERN, WITH (1) 4–INCH AND (1) 2½–INCH FIRE HOSE OUTLETS, CLOW 850 OR 2050, OR JAMES JONES 3710 OR 4040B. PAINT FIRE HYDRANT AND CAPS PURPLE PANTONE 512C.
2	MAINLINE SIZE x 6–INCH MJ x MJ x FLG DI TEE WITH RESTRAINED JOINTS. INSTALL CONCRETE THRUST BLOCK PER CITY STD. DWG. 401 ON NON–RESTRAINED JOINT WATERLINES.
3	REPLACE SIDEWALK PER CITY STD. 142 OR CONSTRUCT 48" x 36" x 6" THICK CONCRETE PAD WITHIN PARKWAY. SEE HYDRANT LOCATION PLANS BELOW FOR APPLICABLE CONDITION.
4	6–INCH DIA. FLG x FLG DI SPOOL, AWWA C115.
5	6–INCH DIA. FLG x MJ DI 90–DEGREE BEND, RESTRAINED.
6	6–INCH DIA. DI PIPE, CLASS 350, RESTRAINED JOINT.
7	6–INCH RESILIENT WEDGE GATE VALVE FLG x MJ RESTRAINED PER CITY STD. DWG. 420.
8	MJ PIPE RESTRAINT, EBBA IRON MEGALUG SERIES 1100.
9	CONCRETE THRUST BLOCK PER CITY STD. DWG. 401.
10	VALVE BOX PER CITY STD. DWG. 422.
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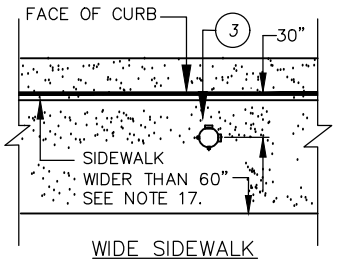
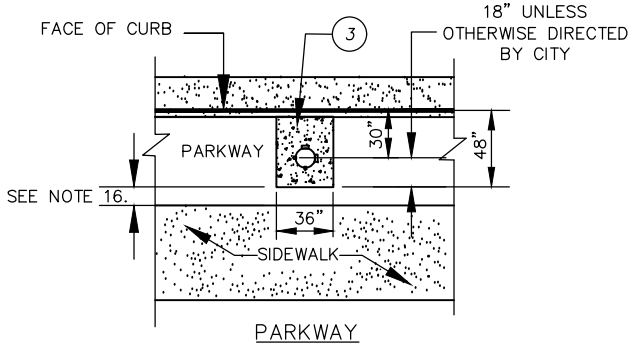
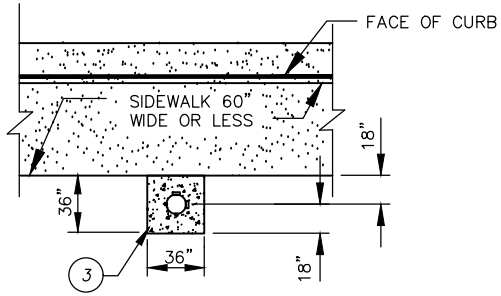
12	BREAK–OFF BOLTS. ⅝" x 3" W/ BOLTS UP. 8–HOLE PATTERN, PRE–FILLED BOLTS WITH SILICONE INSTALLED UP.
13	6–INCH DIA. DI SPOOL WITH ¼–INCH V (SINGLE OR DOUBLE) BREAK OFF GROOVE.



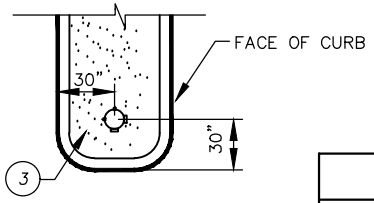
WIDE SIDEWALK CONDITION 1
(ONLY BY WRITTEN APPROVAL OF DWP GENERAL MANAGER OR DESIGNEE)



PARKWAY CONDITION 3



NARROW SIDEWALK CONDITION 2



MEDIAN CONDITION 4

HYDRANT LOCATION PLANS

SEE NOTES ON SHEET 2.

NOT TO SCALE

6" RECLAIMED WATER FIRE HYDRANT INSTALLATION

REVISION NO.	APPROVED	DATE
2		05/30/18
3		12/28/18
4	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20 DATE
TOM G. KOPER, PE, CITY ENGINEER

Vernon R. Weisman — 10/01/20 DATE
VERNON R. WEISMAN, PE, DISTRICT ENGINEER

CITY OF CORONA

STD 412R

SHEET 1 OF 2

NOTES:

1. FLANGE NUTS, BOLTS, AND WASHERS SHALL BE TYPE 316SS. LUBRICATE BOLTS WITH ANTI-SEIZE LUBRICANT.
2. CONSTRUCT CONCRETE THRUST BLOCK ON MAINLINE TEE PER CITY STD. DWG. 401 WHERE WATER MAIN IS NOT OTHERWISE FULLY RESTRAINED.
3. DIMENSIONS MAY VARY FOR SPECIAL CIRCUMSTANCES; CUL-DE-SACS, PRIVATE STREETS, SIDEWALKS ADJACENT TO CURBS, ETC. WHERE SPECIFICALLY REQUIRED ON THE APPROVED PLANS.
4. CHISEL A 1½-INCH TALL "V" IN THE CURB FACE TO INDICATE LOCATION OF VALVE.
5. CHISEL (2) "X"'S AND THEIR RESPECTIVE DISTANCES IN THE CURB TO BE USED AS "TIE" LOCATIONS FOR VALVE CAN.
6. 6-INCH LATERAL PIPELINE (FULLY RESTRAINED) SHALL MATCH THE CLASS OF THE ADJACENT MAIN LINE PIPE.
7. VALVE SHALL BE ACCESSIBLE AT ALL TIMES.
8. DEVELOPER/INSTALLER SHALL SUPPLY AND PLACE BLUE-DOT REFLECTING RAISED ROADWAY MARKERS PER CITY STD. DWG. 531.
9. BORE UNDER CURB & GUTTER FOR CONSTRUCTION OF HYDRANT LATERAL.
10. PROVIDE 3-FOOT MINIMUM HORIZONTAL CLEARANCE BETWEEN FIRE HYDRANT AND ALL OTHER ADJACENT ABOVE GROUND IMPROVEMENTS.
11. PROVIDE 1½-INCH OPERATING NUTS ON ALL FIRE HYDRANT OPERATORS.
12. WRAP PIPE AND VALVE WITH A DOUBLE LAYER OF 8-MIL PURPLE POLYETHYLENE.
13. ALL FITTINGS, PIPE, VALVES, AND FITTINGS SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.
14. DO NOT CONSTRUCT FIRE HYDRANT CLOSER THAN 10-FEET TO DRIVEWAY RETURN WITHOUT PRIOR APPROVAL BY DWP GENERAL MANAGER OR DESIGNEE.
15. CONDITIONS 2 AND 3 ARE STANDARD CITY CONFIGURATION.
16. EXTEND PAD TO SIDEWALK IF END OF PAD IS 24-INCH OR CLOSER TO SIDEWALK.
17. FOR ALTERNATIVE TO WIDE SIDEWALK CONDITION 1 HYDRANT LOCATION, SEE CITY STD. 144.
18. CONSTRUCT FIRE HYDRANT WITHIN THE CITY RIGHT-OF-WAY OR EASEMENT UNLESS EXCEPTION IS PROVIDED IN WRITING BY DWP GENERAL MANAGER OR DESIGNEE.
19. HYDRANT SPACING WILL BE AS MEASURED BY AN APPROVED EMERGENCY ACCESS ROUTE. ONE- & TWO-FAMILY DWELLINGS ALLOW 300-FOOT HYDRANT SPACING. WHEN APPROVED BY THE FIRE CHEIF, HYDRANT SPACING MAY BE INCREASED TO 500-FEET WHEN HOMES DO NOT FRONT ON THE EMERGENCY ACCESS ROADWAY. ALL OTHER BUILDINGS ALLOW 250-FOOT HYDRANT SPACING.

6" RECLAIMED WATER FIRE HYDRANT INSTALLATION

REVISION		
NO.	APPROVED	DATE
1		02/13/14
2	VRW	05/30/18

APPROVED:

Nelson D Nelson — 5/31/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

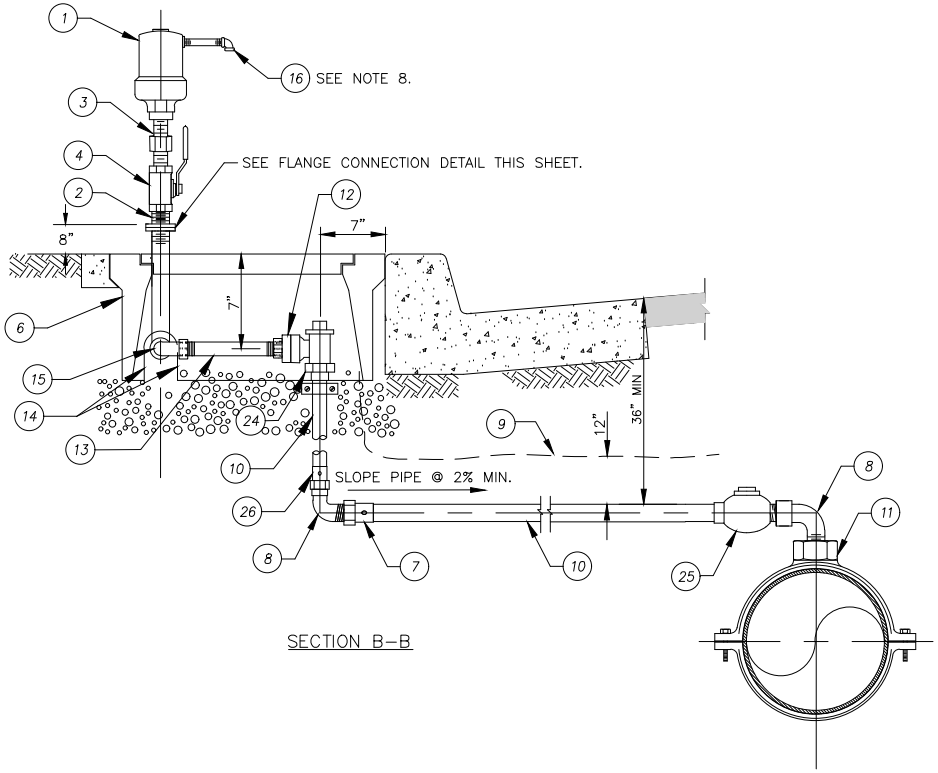
Vernon R. Weisman — 5/31/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

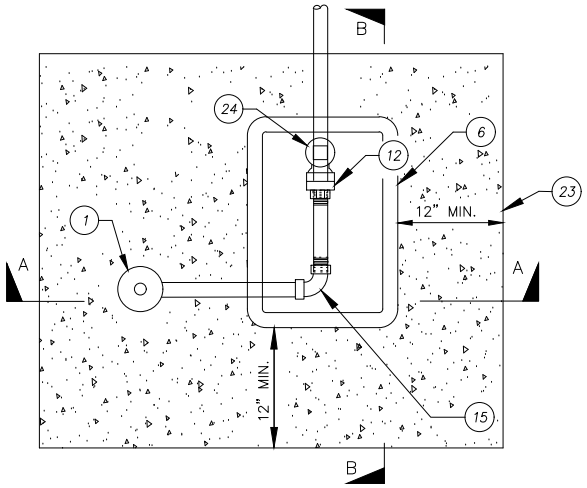
STD 412R

SHEET 2 OF 2

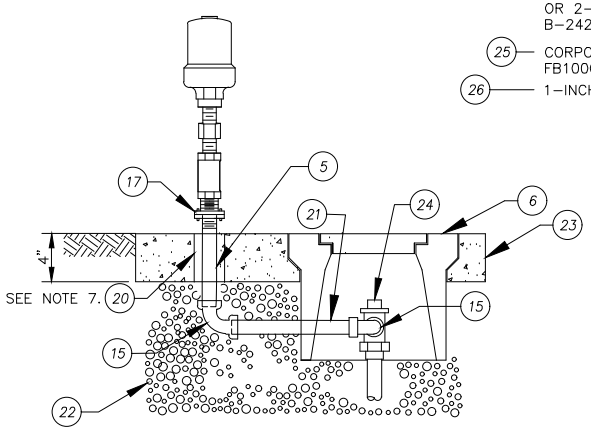
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_412RB_REV1.DWG



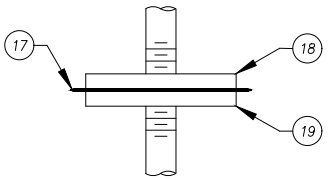
SECTION B–B



PLAN



SECTION A–A



FLANGE CONNECTION

ITEM	MATERIALS
1	1–INCH OR 2–INCH COMBINATION AIR & VACUUM RELIEF VALVE, ROLLING SEAL STYLE ARI D–040C.
2	1–INCH OR 2–INCH TYPE 316SS NIPPLE (MIPT x MIPT).
3	1–INCH OR 2–INCH TYPE 316SS UNION (FIPT x FIPT).
4	1–INCH OR 2–INCH TYPE 316SS BALL VALVE W/ LOCKABLE HANDLE (FIPT x MIPT).
5	1–INCH OR 2–INCH BRASS NIPPLE (MIPT x MIPT).
6	J&R P–W5 ¼ POLYMER CONCRETE METER BOX. READING LID AND QUICK READ PORT NOT REQUIRED.
7	1–INCH OR 2–INCH COPPER ADAPTER (CTS X FIPT) MUELLER H15451N OR EQUAL.
8	1–INCH OR 2–INCH BRASS STREET ELBOW (MIPT x FIPT).
9	6–INCH BLUE WARNING TAPE LABELED "POTABLE WATER" ABOVE AIR/VAC SERVICE LATERAL.
10	1–INCH OR 2–INCH COPPER SERVICE PIPE, TYPE "K" RIGID. PRIOR TO INSTALLATION, COPPER PIPE SHALL BE ROUNDED AND DE–BURRED.
11	DOUBLE STRAP LEAD–FREE SADDLE FOR AC, CIP, DIP AND PVC PIPES: JONES J–969 SERIES, FORD STYLE 202BSD, MUELLER BR2S AND BR2W SERIES, OR A.Y.MCDONALD 3825.
12	2–INCH FIPT x FLG ADAPTER (NOT USED FOR 1–INCH ASSEMBLY).
13	1–INCH OR 2–INCH BRASS NIPPLE, THREADED BOTH ENDS, 6–INCHES LONG.
14	SAWCUT OR CORE DRILL METER BOX FOR 2–INCH PIPE.
15	1–INCH OR 2–INCH BRASS 90–DEGREE BEND (FIPT x FIPT).
16	TYPE 316SS SCREEN.
17	FLANGE INSULATING KIT PER CITY STD. DWG. 458.
18	1–INCH OR 2–INCH TYPE 316SS COMPANION FLANGE (FLG x FIPT).
19	1–INCH OR 2–INCH BRASS COMPANION FLANGE (FIPT x FLG).
20	3–INCH SCH. 80 PVC SLEEVE.
21	1–INCH OR 2–INCH BRASS NIPPLE, THREADED BOTH ENDS.
22	3/4–INCH CRUSHED ROCK PLACE TO DEPTH 6–INCHES BELOW CONCRETE METER BOX.
23	4–INCH THICK 560–C–3250 CONCRETE.
24	1–INCH ANGLE BALL VALVE (CTS X MSN): JONES E–1963WSG, FORD BA43–444W–NL, MUELLER B–24258N OR A.Y.MCDONALD 74602BQ. OR 2–INCH ANGLE METER STOP (BALL VALVE) (CTS x FLG): JONES E–1975WSG, MUELLER B–24276N OR A.Y.MCDONALD 74602BCSQ.
25	CORPORATION STOP (BALL VALVE) (MIP x CTS): JONES E1935SG, FORD FB1000–4–Q–NL OR FB1000–7–Q–NL, MUELLER B–25028N OR A.Y.MCDONALD 74704BQ.
26	1–INCH OR 2–INCH COPPER ADAPTER (MIP x CTS).

NOT TO SCALE

SEE AIR AND VACUUM RELEASE LOCATION PLANS AND NOTES ON SHEET 2.

1" OR 2" POTABLE WATER COMBINATION AIR AND VACUUM RELEASE

REVISION NO.	APPROVED	DATE
2		04/30/14
3		05/30/18
4	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

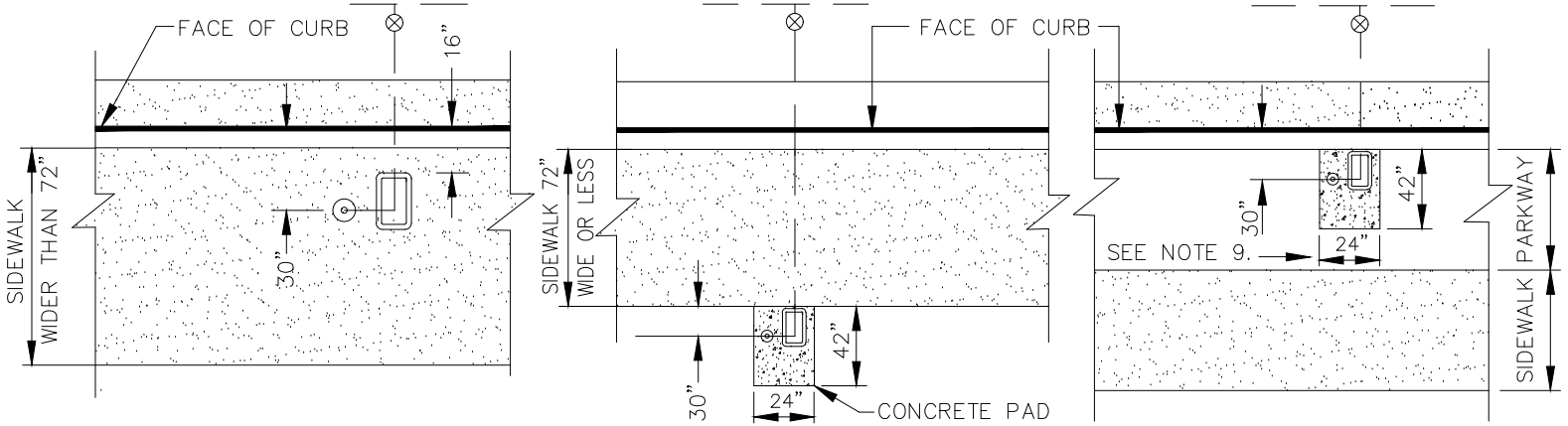
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 413

SHEET 1 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_413A_REV4.DWG



CASE 1

(ONLY BY WRITTEN APPROVAL OF DWP GENERAL MANAGER OR DESIGNEE)

CASE 2

CASE 3

NOTES:

1. WRAP SERVICE SADDLE AND CORP STOP WITH TWO LAYERS OF 8-MIL BLUE POLYETHYLENE.
2. PAINT ABOVE GRADE PORTION OF AIR/VAC ASSEMBLY HUNTER GREEN.
3. ENCASE COPPER AND BRASS PIPING SERVICE TO ½-INCH ABOVE FINISH GRADE WITH TWO 8-MIL BLUE POLYETHYLENE SLEEVES (DOUBLE-WRAP).
4. POSITION ASSEMBLY PER APPLICABLE CASE 1, 2 OR 3 AS SHOWN HEREON.
5. THE CITY WILL DETERMINE IF 1-INCH OR 2-INCH ASSEMBLY IS TO BE INSTALLED. REFER TO PROJECT PLANS.
6. MARK VALVE LOCATION AND DISTANCES TO TWO POINTS ON ADJACENT CURB USING A 4-INCH WHEEL GRINDER.
7. FILL ANNULAR SPACE IN SLEEVE WITH SAND.
8. INCREASE THE DISTANCE BETWEEN THE AIR/VAC VALVE AND SCREEN TO EXTEND FARTHER THAN THE FLANGE.
9. EXTEND PAD TO SIDEWALK IF END OF PAD IS 24 INCHES OR CLOSER TO SIDEWALK.
10. CONSTRUCT AIR/VAC VALVE ASSEMBLY IN CITY RIGHT-OF-WAY OR EASEMENT UNLESS EXCEPTION IS PROVIDED IN WRITING BY DWP GENERAL MANAGER OR DESIGNEE.
11. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

NOT TO SCALE

1" OR 2" POTABLE WATER COMBINATION AIR AND VACUUM RELEASE

REVISION		
NO.	APPROVED	DATE
2		04/30/14
3		05/30/18
4	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

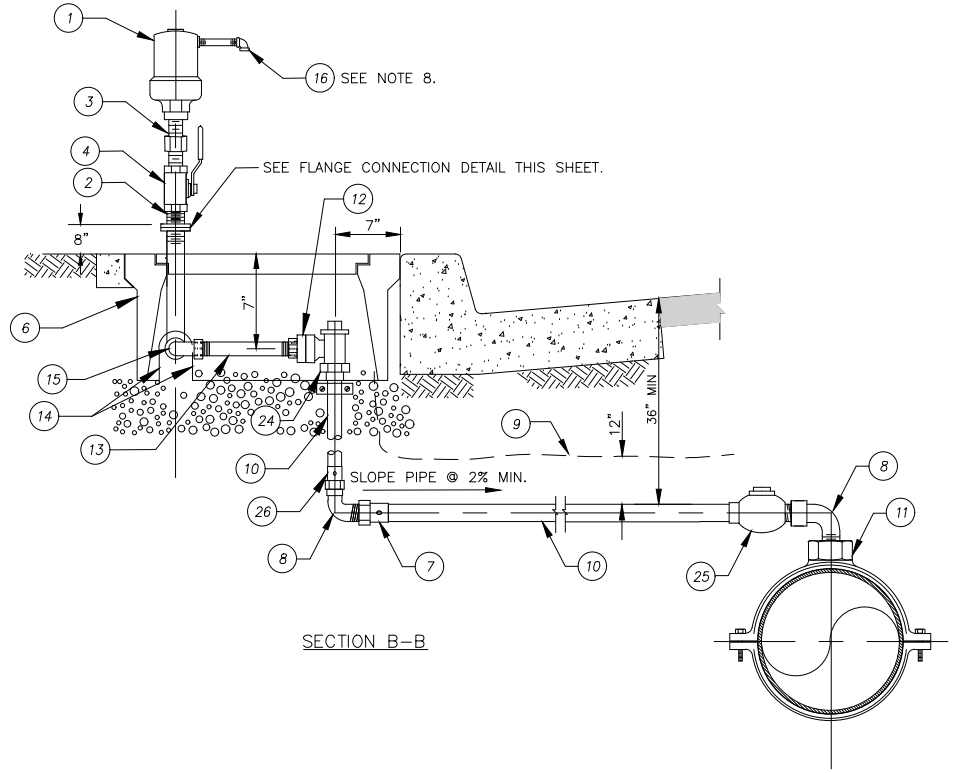
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

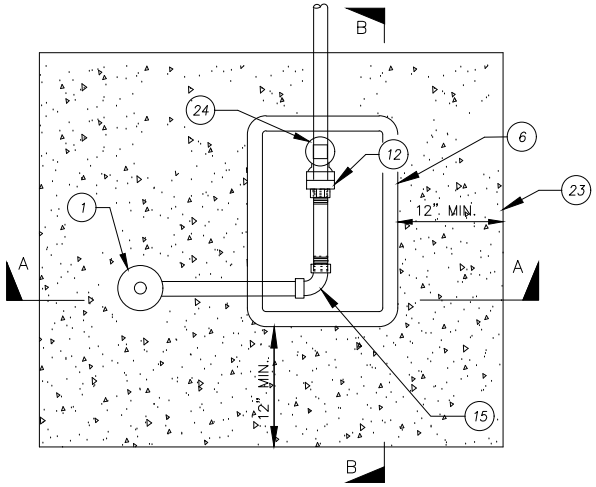
STD 413

SHEET 2 OF 2

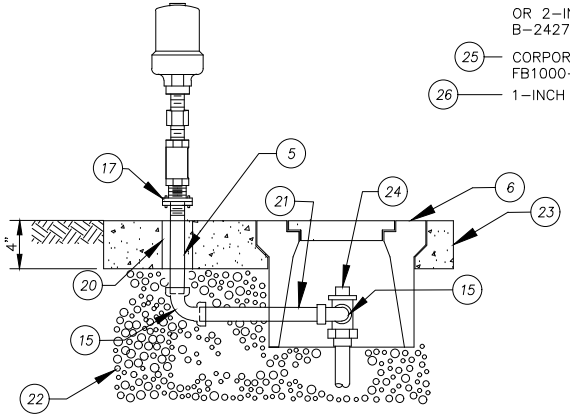
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_413B_REV4.DWG



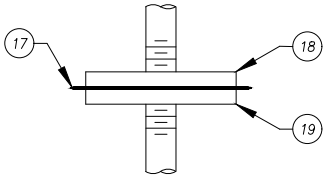
SECTION B–B



PLAN



SECTION A–A



FLANGE CONNECTION

ITEM	MATERIALS
1	1–INCH OR 2–INCH COMBINATION AIR & VACUUM RELIEF VALVE, ROLLING SEAL STYLE ARI D–040C.
2	1–INCH OR 2–INCH TYPE 316SS NIPPLE (MIPT x MIPT).
3	1–INCH OR 2–INCH TYPE 316SS UNION (FIPT x FIPT).
4	1–INCH OR 2–INCH TYPE 316SS BALL VALVE W/ LOCKABLE HANDLE (FIPT x MIPT).
5	1–INCH OR 2–INCH BRASS NIPPLE (MIPT x MIPT).
6	J&R P–W5 ¼ POLYMER CONCRETE METER BOX. READING LID AND QUICK READ PORT NOT REQUIRED.
7	1–INCH OR 2–INCH COPPER ADAPTER (CTS X FIPT) MUELLER H15451N OR EQUAL.
8	1–INCH OR 2–INCH BRASS STREET ELBOW (MIPT x FIPT).
9	6–INCH PURPLE WARNING TAPE LABELED "RECLAIMED WATER" ABOVE AIR/VAC SERVICE LATERAL.
10	1–INCH OR 2–INCH COPPER SERVICE PIPE, TYPE "K" RIGID. PRIOR TO INSTALLATION, COPPER PIPE SHALL BE ROUNDED AND DE–BURRED.
11	DOUBLE STRAP LEAD–FREE SADDLE FOR AC, CIP, DIP AND PVC PIPES: JONES J–969 SERIES, FORD STYLE 202BSD, MUELLER BR2S AND BR2W SERIES, OR A.Y.MCDONALD 3825.
12	2–INCH FIPT x FLG ADAPTER (NOT USED FOR 1–INCH ASSEMBLY).
13	1–INCH OR 2–INCH BRASS NIPPLE, THREADED BOTH ENDS, 6–INCHES LONG.
14	SAWCUT OR CORE DRILL METER BOX FOR 2–INCH PIPE.
15	1–INCH OR 2–INCH BRASS 90–DEGREE BEND (FIPT x FIPT).
16	TYPE 316SS SCREEN.
17	FLANGE INSULATING KIT PER CITY STD. DWG. 458.
18	1–INCH OR 2–INCH TYPE 316SS COMPANION FLANGE (FLG x FIPT).
19	1–INCH OR 2–INCH BRASS COMPANION FLANGE (FIPT x FLG).
20	3–INCH SCH. 80 PVC SLEEVE.
21	1–INCH OR 2–INCH BRASS NIPPLE, THREADED BOTH ENDS.
22	3/4–INCH CRUSHED ROCK PLACE TO DEPTH 6–INCHES BELOW CONCRETE METER BOX.
23	4–INCH THICK 560–C–3250 CONCRETE.
24	1–INCH ANGLE BALL VALVE (CTS X MSN): JONES E–1963WSG, FORD BA43–444W–NL, MUELLER B–24258N OR A.Y.MCDONALD 74602BQ. OR 2–INCH ANGLE METER STOP (BALL VALVE) (CTS x FLG): JONES E–1975WSG, MUELLER B–24276N OR A.Y.MCDONALD 74602BCSQ.
25	CORPORATION STOP (BALL VALVE) (MIP x CTS): JONES E1935SG, FORD FB1000–4–Q–NL OR FB1000–7–Q–NL, MUELLER B–25028N OR A.Y.MCDONALD 74704BQ.
26	1–INCH OR 2–INCH COPPER ADAPTER (MIP x CTS).

NOT TO SCALE

SEE AIR AND VACUUM RELEASE LOCATION PLANS ON SHEET 2

1" OR 2" RECLAIMED WATER COMBINATION AIR AND VACUUM RELEASE

REVISION NO.	APPROVED	DATE
2		04/30/14
3		05/30/18
4	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

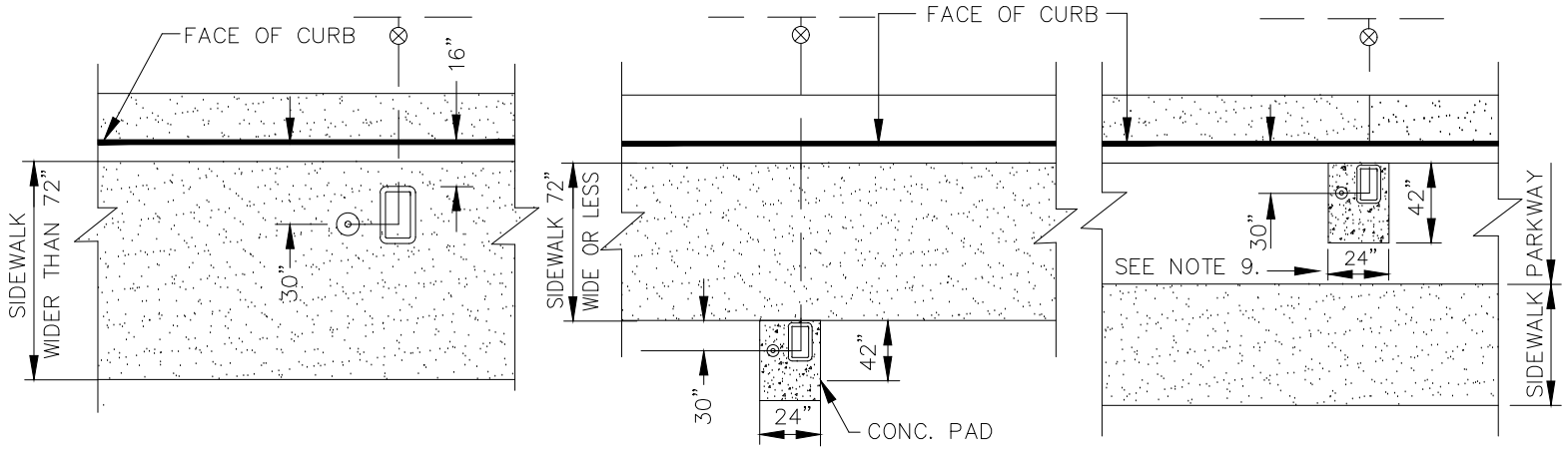
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 413R

SHEET 1 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_413RA_REV5.DWG



CASE 1

(ONLY BY WRITTEN APPROVAL OF DWP GENERAL MANAGER OR DESIGNEE)

CASE 2

CASE 3

NOTES:

1. WRAP SERVICE SADDLE AND CORP STOP WITH TWO LAYERS OF 8-MIL PURPLE POLYETHYLENE.
2. PAINT ABOVE GRADE PORTION OF AIR/VAC ASSEMBLY PURPLE PANTONE 512C.
3. ENCASE COPPER AND BRASS PIPING SERVICE TO ½-INCH ABOVE FINISH GRADE WITH TWO 8-MIL PURPLE POLYETHYLENE SLEEVES (DOUBLE-WRAP).
4. POSITION ASSEMBLY PER APPLICABLE CASE 1, 2 OR 3 AS SHOWN HEREON.
5. THE CITY WILL DETERMINE IF 1-INCH OR 2-INCH ASSEMBLY IS TO BE INSTALLED. REFER TO PROJECT PLANS.
6. MARK VALVE LOCATION AND DISTANCES TO TWO POINTS ON ADJACENT CURB USING A 4-INCH WHEEL GRINDER.
7. FILL ANNULAR SPACE IN SLEEVE WITH SAND.
8. INCREASE THE DISTANCE BETWEEN THE AIR/VAC VALVE AND SCREEN TO EXTEND FARTHER THAN THE FLANGE.
9. EXTEND PAD TO SIDEWALK IF END OF PAD IS 24 INCHES OR CLOSER TO SIDEWALK.
10. CONSTRUCT AIR/VAC VALVE ASSEMBLY IN CITY RIGHT-OF-WAY OR EASEMENT UNLESS EXCEPTION IS PROVIDED IN WRITING BY DWP GENERAL MANAGER OR DESIGNEE.
11. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

NOT TO SCALE

1" OR 2" RECLAIMED WATER COMBINATION AIR AND VACUUM RELEASE

REVISION		
NO.	APPROVED	DATE
1		02/13/14
2		04/30/14
3	VRW	05/30/18

APPROVED:

Nelson D. Nelson — 5/31/2018

NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

Vernon R. Weisman — 5/31/2018

VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

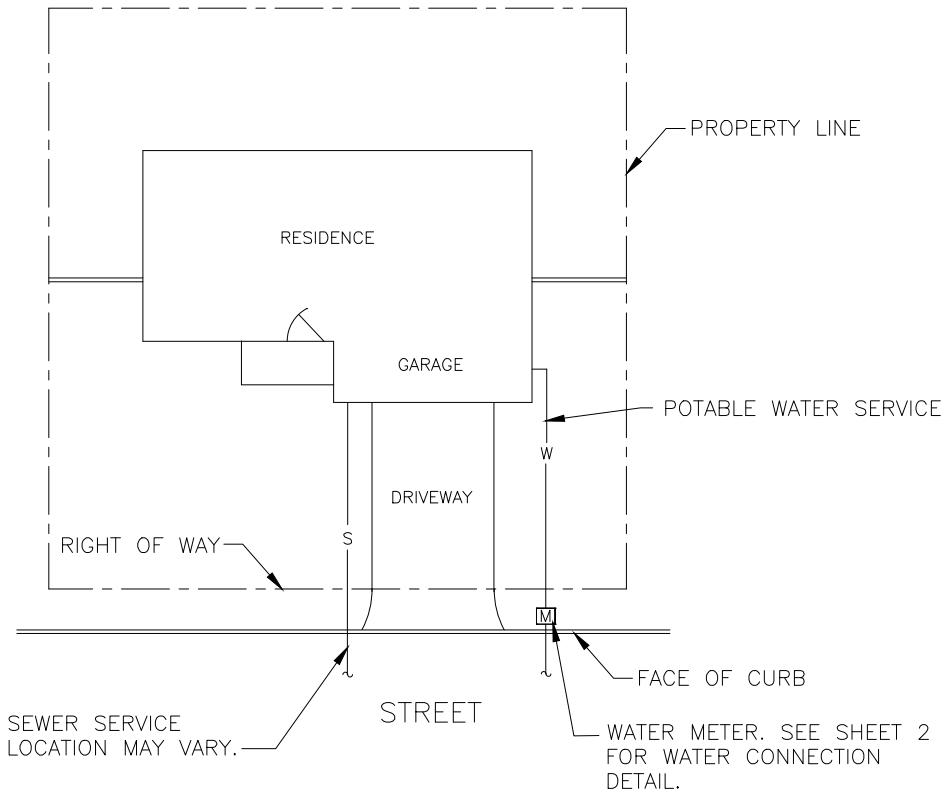
STD 413R

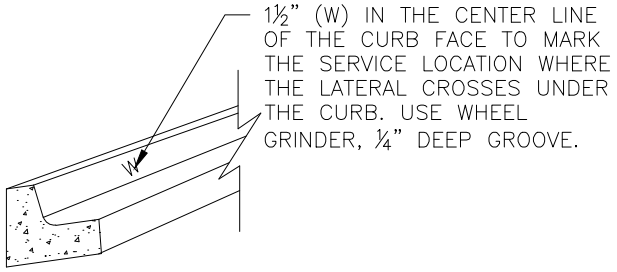
SHEET 2 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_413RB_REV4.DWG

GENERAL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE SERVICE CONNECTION AS SHOWN ON THIS STANDARD DRAWING EXCEPT FOR THE WATER METER. THE CITY WILL PROVIDE AND INSTALL THE WATER METER.
2. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
3. LOCATIONS SHOWN FOR WATER METER BOX, POTABLE WATER SERVICE, AND FIRE SPRINKLER SERVICE ARE DIAGRAMMATIC AND MAY BE REVISED TO SUIT EACH PROPERTY.
4. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.





NOT TO SCALE

1" POTABLE WATER SERVICE CONNECTION DETAIL WITHOUT FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
2		04/30/14
3		05/04/18
4	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

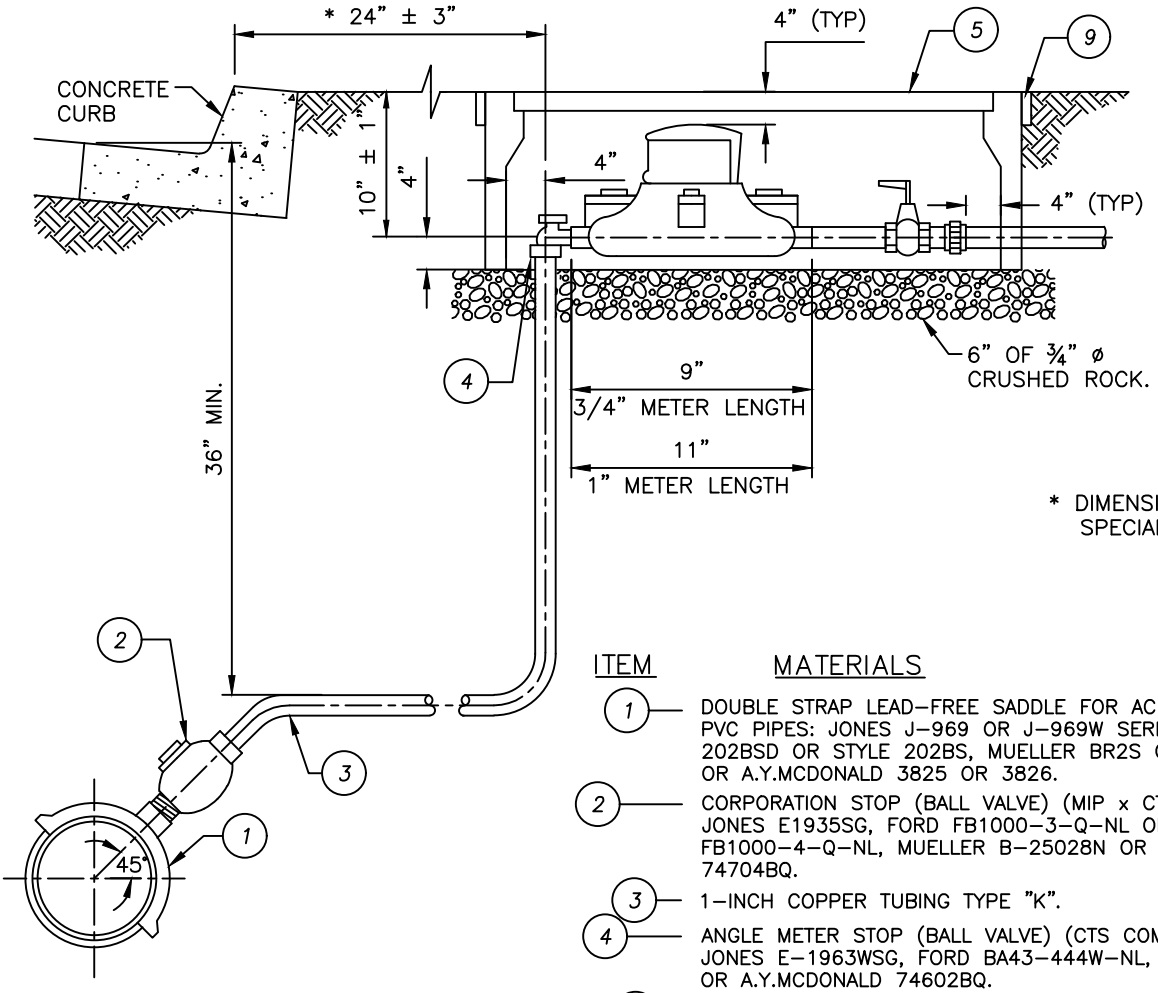
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 414

SHEET 1 OF 3

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_414A_REV4.DWG



* DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.

ITEM	MATERIALS
1	DOUBLE STRAP LEAD–FREE SADDLE FOR AC, CIP, DIP AND PVC PIPES: JONES J–969 OR J–969W SERIES, FORD STYLE 202BSD OR STYLE 202BS, MUELLER BR2S OR BR2W SERIES, OR A.Y.MCDONALD 3825 OR 3826.
2	CORPORATION STOP (BALL VALVE) (MIP x CTS COMPRESSION): JONES E1935SG, FORD FB1000–3–Q–NL OR FB1000–4–Q–NL, MUELLER B–25028N OR A.Y.MCDONALD 74704BQ.
3	1–INCH COPPER TUBING TYPE "K".
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x MSN): JONES E–1963WSG, FORD BA43–444W–NL, MUELLER B–24258N OR A.Y.MCDONALD 74602BQ.
5	DFW DFWPW6C4–12–4F LLDPE METER BOX AND HDPE COVER WITH READING LID H–20 RATING LABELED "WATER" 16 5/16" x 31¾" x 12" INSIDE DIMENSIONS.
9	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

CONSTRUCTION NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 12 INCHES OF VALVE, COUPLING, JOINT, OR FITTING.
2. DOUBLE–WRAP ALL PIPING BELOW GRADE IN BLUE COLORED 8–MIL POLYETHYLENE SLEEVES LABELED POTABLE WATER. EXTEND POLYETHYLENE SLEEVES 2 INCHES MINIMUM ABOVE FINISH GRADE. SECURE WITH 10–MIL TAPE.
3. CONSTRUCT WATER SERVICE PIPE IN SAND BEDDING (SE 30 MINIMUM) FROM CORP STOP TO METER BOX.
4. ALL CONNECTIONS TO COPPER TUBING SHALL BE COMPRESSION TYPE AND SERVICE MUST BE CONTINUOUS AND UNCUT. NO SWEAT TYPE FITTINGS ALLOWED.
5. CONNECTIONS TO STEEL WATER MAINS SHALL BE WITH A WELDED 3000 POUND HALF COUPLING AND DIELECTRIC INSULATING BUSHING. ALL STEEL SURFACES SHALL BE COVERED WITH CEMENT MORTAR.
6. ROUND AND DE–BURR ALL COPPER PIPE PRIOR TO INSTALLATION.
7. WRAP SERVICE SADDLE WITH TWO LAYERS OF 8–MIL POLYETHYLENE.
8. INSTALL BRASS PIPING AND FITTINGS INSIDE METER BOX BETWEEN ANGLE METER STOP AND BRASS UNIONS.
9. PROVIDE METER BOXES IN UNIMPROVED STREETS AND BEHIND ROLLED CURBS WITH COVERS AND BOXES RATED FOR H–20 TRAFFIC LOADS.

NOT TO SCALE

1" POTABLE WATER SERVICE CONNECTION DETAIL WITHOUT FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

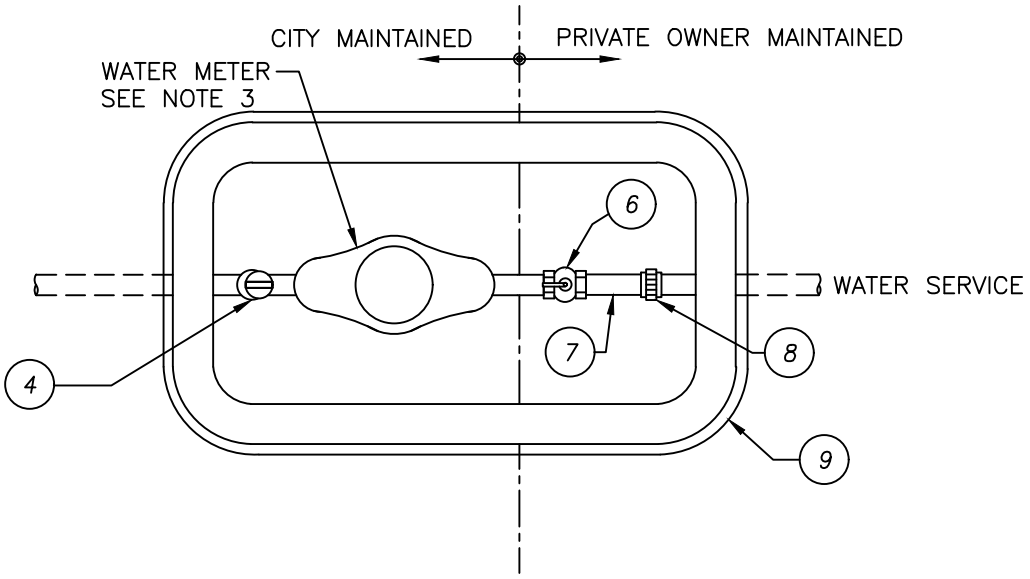
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 414

SHEET 2 OF 3

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_414B_REV5.DWG



CONSTRUCTION NOTES:

1. SEE CONSTRUCTION NOTES ON SHEET 2.
2. INSTALL A "LOCK OFF" STYLE BALL VALVE FOR THE DOMESTIC WATER SERVICE.
3. THE CITY WILL PROVIDE AND INSTALL A NEPTUNE T-10 METER. REQUEST THE METER INSTALLATION FROM THE PUBLIC WORKS INSPECTOR OR THE BUILDING INSPECTOR WHEN THERE IS NO PUBLIC IMPROVEMENT PLAN.
4. A REDUCER FITTING CAN BE INSTALLED BETWEEN THE ANGLE METER STOP VALVE AND THE METER, AND PAST THE BRASS UNION WITHIN THE PRIVATE OWNER MAINTAINED AREA.

ITEM	MATERIALS
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x MSN): JONES E-1963WSG, FORD BA43-444W-NL, MUELLER B-24258N OR A.Y.MCDONALD 74602BQ.
6	METER VALVE (FIP x MSN): JONES STYLE E-1903W, FORD STYLE B13-344W-NL OR STYLE B13-444W-NL, MUELLER B24351N OR A.Y.MCDONALD 76101MW WITH "LOCK OFF" HANDLE.
7	RED BRASS NIPPLE (MIP x MIP), THREADED BOTH ENDS, 1-1/2-INCH LENGTH.
8	BRASS UNION (FIP x FIP).
9	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

NOT TO SCALE

1" POTABLE WATER SERVICE CONNECTION DETAIL WITHOUT FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

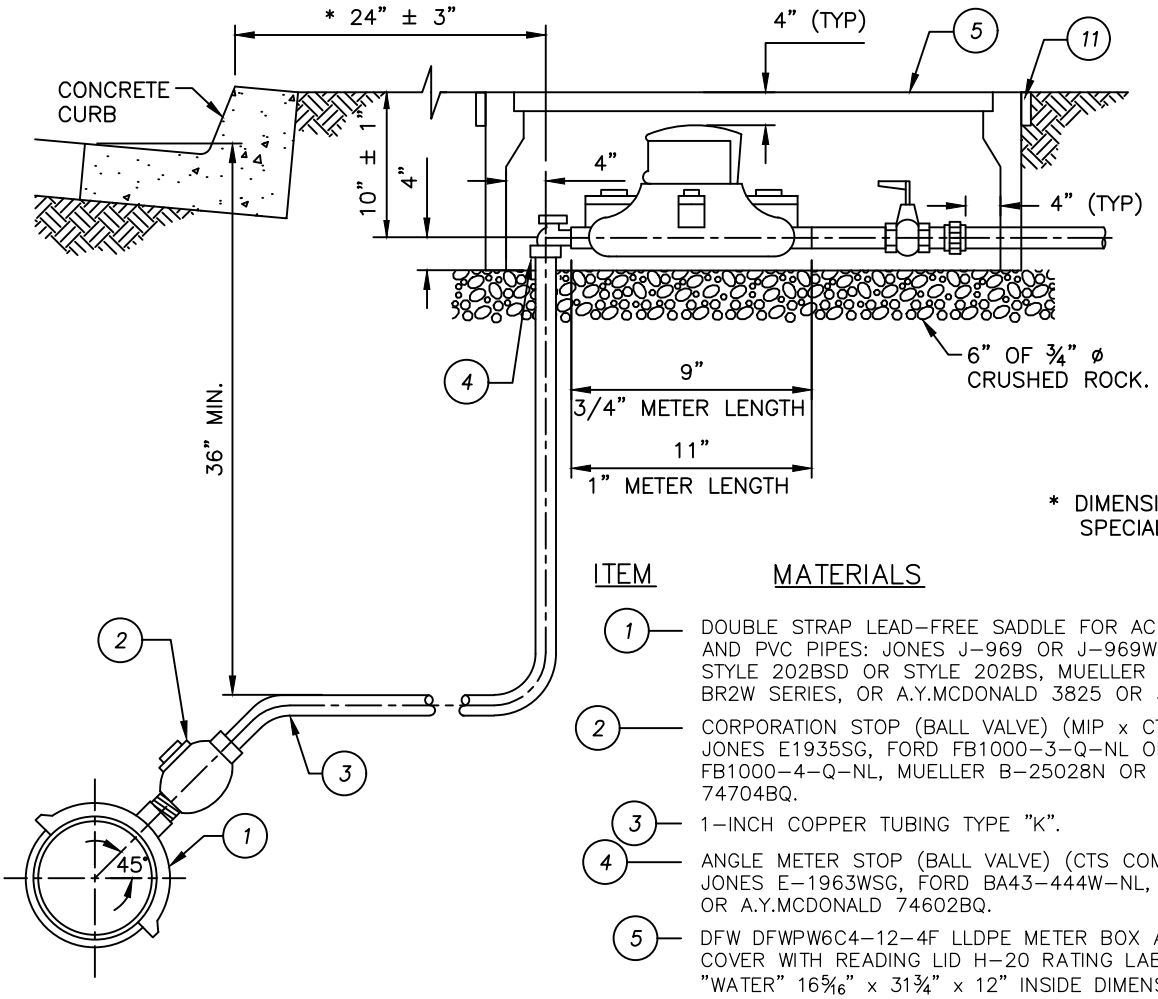
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 414

SHEET 3 OF 3

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_414C_REV5.DWG



* DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.

ITEM	MATERIALS
1	DOUBLE STRAP LEAD–FREE SADDLE FOR AC, CIP, DIP AND PVC PIPES: JONES J–969 OR J–969W SERIES, FORD STYLE 202BSD OR STYLE 202BS, MUELLER BR2S OR BR2W SERIES, OR A.Y.MCDONALD 3825 OR 3826.
2	CORPORATION STOP (BALL VALVE) (MIP x CTS COMPRESSION): JONES E1935SG, FORD FB1000–3–Q–NL OR FB1000–4–Q–NL, MUELLER B–25028N OR A.Y.MCDONALD 74704BQ.
3	1–INCH COPPER TUBING TYPE "K".
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x MSN): JONES E–1963WSG, FORD BA43–444W–NL, MUELLER B–24258N OR A.Y.MCDONALD 74602BQ.
5	DFW DFWPW6C4–12–4F LLDPE METER BOX AND HDPE COVER WITH READING LID H–20 RATING LABELED "WATER" 16 5/16" x 31¾" x 12" INSIDE DIMENSIONS.
9	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

CONSTRUCTION NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 12 INCHES OF VALVE, COUPLING, JOINT, OR FITTING.
2. DOUBLE–WRAP ALL PIPING BELOW GRADE IN PURPLE COLORED 8–MIL POLYETHYLENE SLEEVES LABELED RECLAIMED WATER. EXTEND POLYETHYLENE SLEEVES 2 INCHES MINIMUM ABOVE FINISH GRADE. SECURE WITH 10–MIL TAPE.
3. CONSTRUCT WATER SERVICE PIPE IN SAND BEDDING (SE 30 MINIMUM) FROM CORP STOP TO METER BOX.
4. ALL CONNECTIONS TO COPPER TUBING SHALL BE COMPRESSION TYPE AND SERVICE MUST BE CONTINUOUS AND UNCUT. NO SWEAT TYPE FITTINGS ALLOWED.
5. CONNECTIONS TO STEEL WATER MAINS SHALL BE WITH A WELDED 3000 POUND HALF COUPLING AND DIELECTRIC INSULATING BUSHING. ALL STEEL SURFACES SHALL BE COVERED WITH CEMENT MORTAR.
6. ROUND AND DE–BURR ALL COPPER PIPE PRIOR TO INSTALLATION.
7. WRAP SERVICE SADDLE WITH TWO LAYERS OF 8–MIL PURPLE POLYETHYLENE.
8. INSTALL BRASS PIPING AND FITTINGS INSIDE METER BOX BETWEEN ANGLE METER STOP AND BRASS UNIONS.
9. PROVIDE METER BOXES IN UNIMPROVED STREETS AND BEHIND ROLLED CURBS WITH COVERS AND BOXES RATED FOR H–20 TRAFFIC LOADS.
10. AMI (ADVANCE METERING INFRASTRUCTURE) METERS ARE REQUIRED WHEN THE METER WILL BE READ VIA RADIO SIGNAL. CONTACT A PUBLIC WORKS ENGINEER TO DETERMINE IF THE METER(S) FOR THE PROJECT ARE REQUIRED TO BE AMI.

NOT TO SCALE

1" RECLAIMED WATER SERVICE CONNECTION DETAIL

REVISION NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

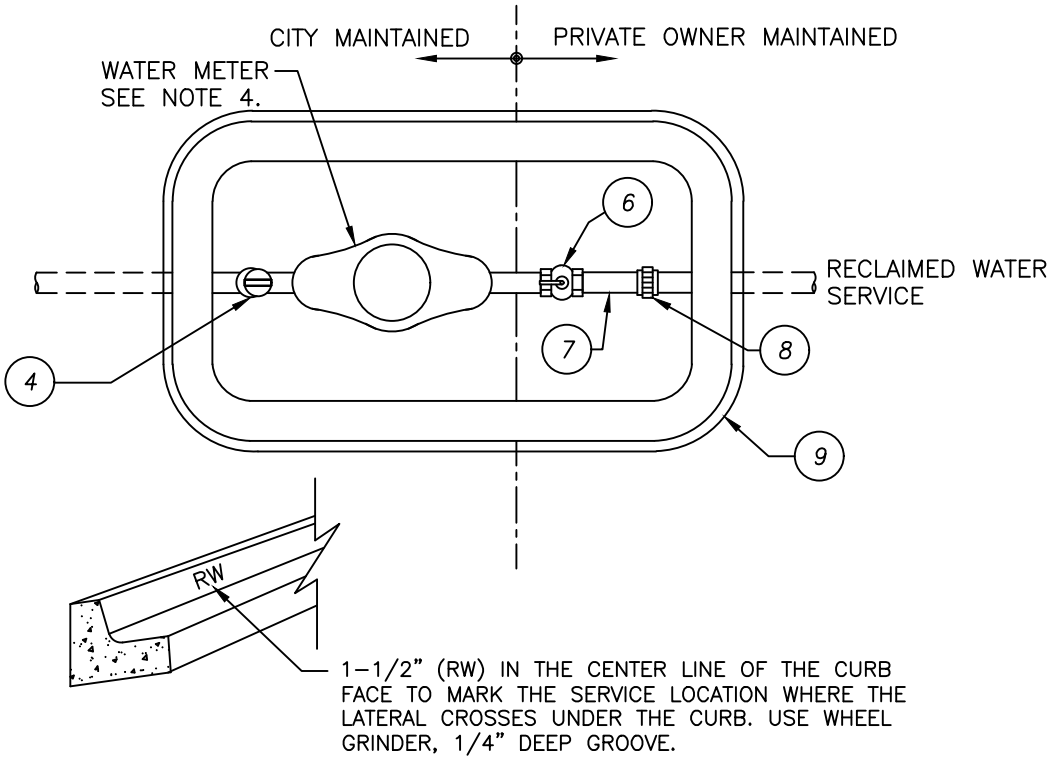
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 414R

SHEET 1 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_414RA_REV5.DWG



CONSTRUCTION NOTES:

1. SEE CONSTRUCTION NOTES ON SHEET 1.
2. INSTALL A "LOCK OFF" STYLE BALL VALVE FOR THE RECLAIMED WATER SERVICE.
3. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE SERVICE CONNECTION AS SHOWN ON THIS STANDARD PLAN EXCEPT FOR THE WATER METER. CITY WILL PROVIDE AND INSTALL A NEPTUNE T–10 METER. REQUEST THE METER INSTALLATION FROM THE PUBLIC WORKS INSPECTOR OR THE BUILDING INSPECTOR WHEN THERE IS NO PUBLIC IMPROVEMENT PLAN.
5. A REDUCER FITTING CAN BE INSTALLED BETWEEN THE ANGLE METER STOP VALVE AND THE METER, AND PAST THE BRASS UNION WITHIN THE PRIVATE OWNER MAINTAINED AREA.
6. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

ITEM	MATERIALS
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x MSN): JONES E–1963WSG, FORD BA43–444W–NL, MUELLER B–24258N OR A.Y.MCDONALD 74602BQ.
6	METER VALVE (FIP x MSN): JONES STYLE E–1903W, FORD STYLE B13–344W–NL OR STYLE B13–444W–NL, MUELLER B24351N OR A.Y.MCDONALD 76101MW WITH "LOCK OFF" HANDLE.
7	RED BRASS NIPPLE (MIP x MIP), THREADED BOTH ENDS, 1–1/2–INCH LENGTH.
8	BRASS UNION (FIP x FIP).
9	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

NOT TO SCALE

1" RECLAIMED WATER SERVICE CONNECTION DETAIL

REVISION		
NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

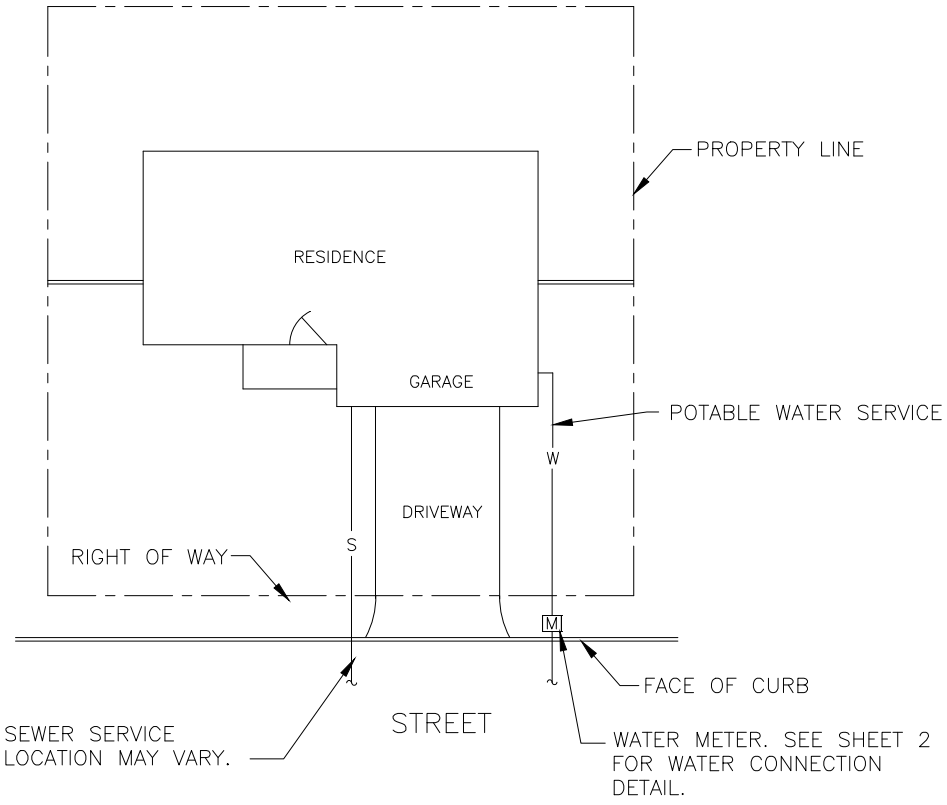
STD 414R

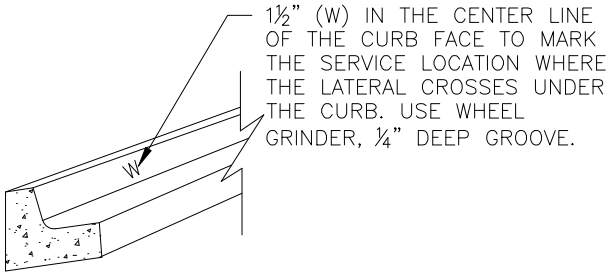
SHEET 2 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_414RB_REV5.DWG

GENERAL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE SERVICE CONNECTION AS SHOWN ON THIS STANDARD DRAWING EXCEPT FOR THE WATER METER. THE CITY WILL PROVIDE AND INSTALL THE WATER METER.
2. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
3. LOCATIONS SHOWN FOR WATER METER BOX AND POTABLE WATER SERVICE ARE DIAGRAMMATIC AND MAY BE REVISED TO SUIT EACH PROPERTY.
4. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.





NOT TO SCALE

1–1/2" AND 2" POTABLE WATER SERVICE CONNECTION DETAIL WITHOUT FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
2		04/30/14
3		05/04/18
4	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

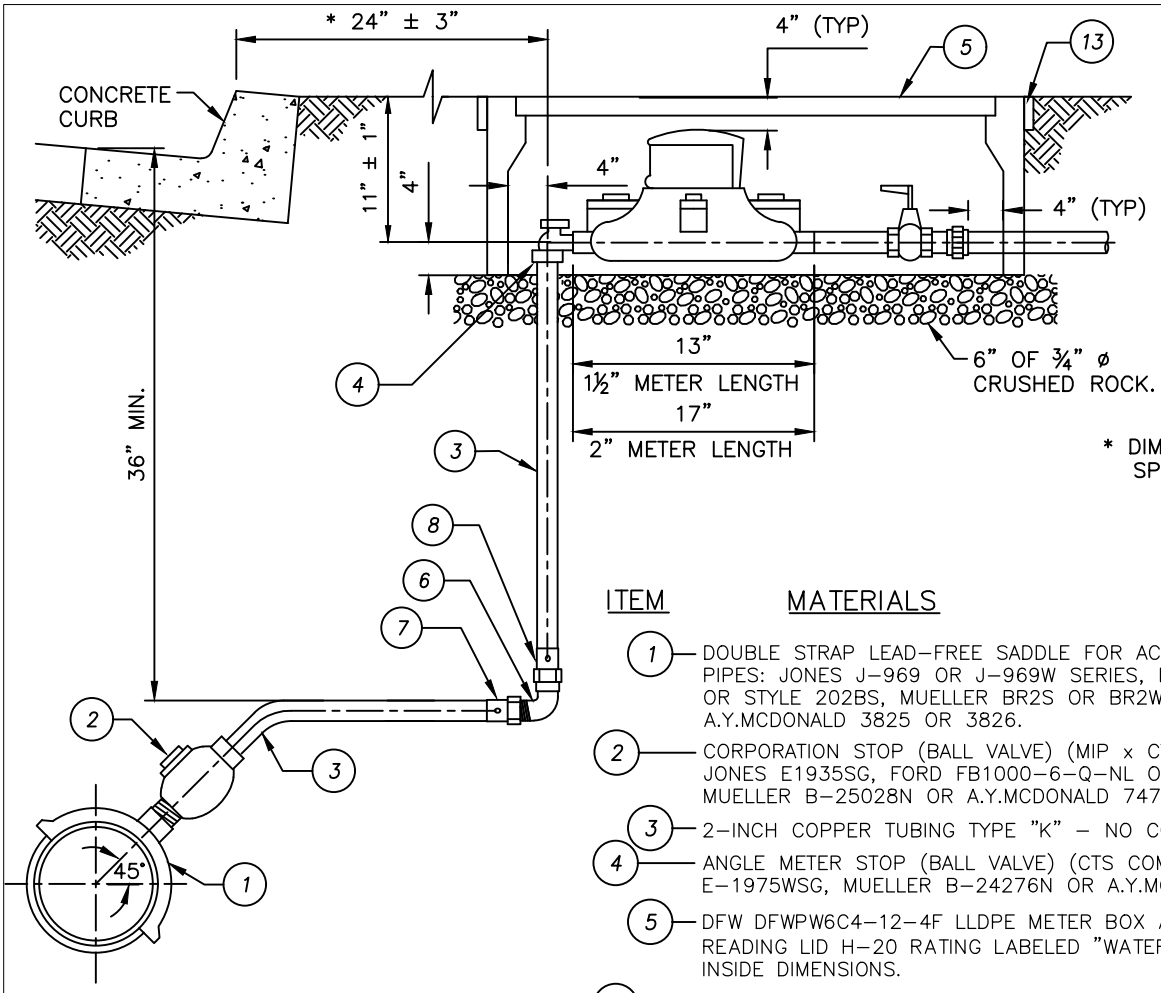
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 415

SHEET 1 OF 3

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_415A_REV4.DWG



* DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.

ITEM	MATERIALS
1	DOUBLE STRAP LEAD–FREE SADDLE FOR AC, CIP, DIP AND PVC PIPES: JONES J–969 OR J–969W SERIES, FORD STYLE 202BSD OR STYLE 202BS, MUELLER BR2S OR BR2W SERIES, OR A.Y.MCDONALD 3825 OR 3826.
2	CORPORATION STOP (BALL VALVE) (MIP x CTS COMPRESSION): JONES E1935SG, FORD FB1000–6–Q–NL OR FB1000–7–Q–NL, MUELLER B–25028N OR A.Y.MCDONALD 74704BQ.
3	2–INCH COPPER TUBING TYPE "K" – NO COILS ALLOWED.
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x FLG): JONES E–1975WSG, MUELLER B–24276N OR A.Y.MCDONALD 74602BCSQ.
5	DFW DFWPW6C4–12–4F LLDPE METER BOX AND HDPE COVER WITH READING LID H–20 RATING LABELED "WATER" 16 5/16" x 31¾" x 12" INSIDE DIMENSIONS.
6	2–INCH BRASS STREET ELBOW (MIP x FIP).
7	2–INCH COPPER ADAPTER (CTS COMPRESSION x FIP) MUELLER H15451N OR EQUAL.
8	2–INCH COPPER ADAPTER (MIP x CTS COMPRESSION).
13	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

CONSTRUCTION NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 12 INCHES OF VALVE, COUPLING, JOINT, OR FITTING.
2. DOUBLE–WRAP ALL PIPING BELOW GRADE IN A BLUE COLORED 8–MIL POLYETHYLENE SLEEVES LABELED POTABLE WATER. EXTEND POLYETHYLENE SLEEVES 2 INCHES MINIMUM ABOVE FINISH GRADE. SECURE WITH 10–MIL TAPE.
3. CONSTRUCT WATER SERVICE PIPE IN SAND BEDDING (SE 30 MINIMUM) FROM CORP STOP TO METER BOX.
4. ALL CONNECTIONS TO COPPER TUBING SHALL BE COMPRESSION TYPE AND SERVICE MUST BE CONTINUOUS AND UNCUT. NO SWEAT TYPE FITTINGS ALLOWED.
5. CONNECTIONS TO STEEL WATER MAINS SHALL BE WITH A WELDED 3000 POUND HALF COUPLING AND DIELECTRIC INSULATING BUSHING. ALL STEEL SURFACES SHALL BE COVERED WITH CEMENT MORTAR.
6. ROUND AND DE–BURR ALL COPPER PIPE PRIOR TO INSTALLATION.
7. WRAP SERVICE SADDLE WITH TWO LAYERS OF 8–MIL POLYETHYLENE.
8. INSTALL BRASS PIPING AND FITTINGS INSIDE METER BOX BETWEEN ANGLE METER STOP AND BRASS UNIONS.
9. PROVIDE METER BOXES IN UNIMPROVED STREETS AND BEHIND ROLLED CURBS WITH COVERS AND BOXES RATED FOR H–20 TRAFFIC LOADS.

NOT TO SCALE

1–1/2" AND 2" POTABLE WATER SERVICE CONNECTION DETAIL WITHOUT FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

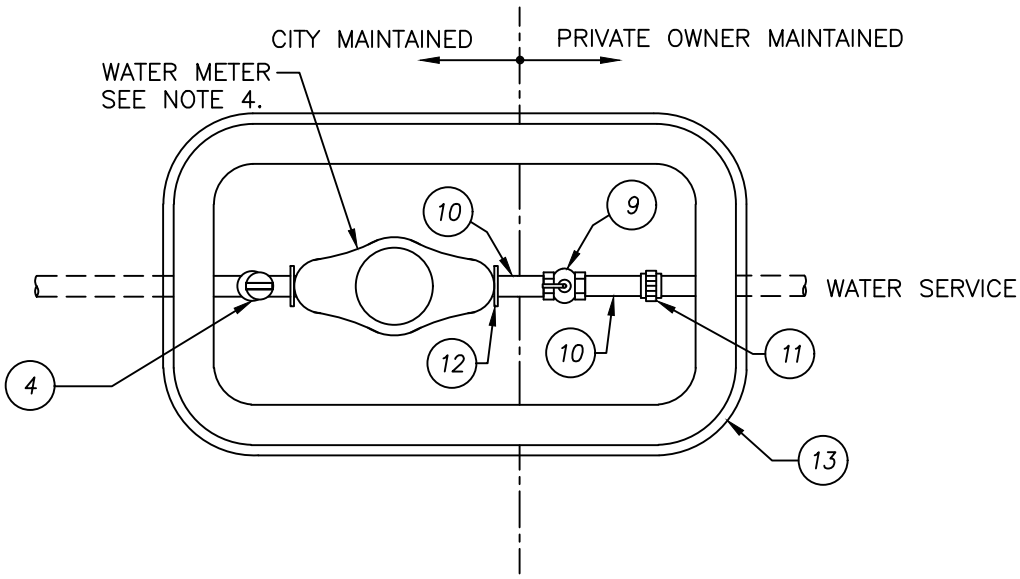
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 415

SHEET 2 OF 3

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_415B_REV5.DWG



CONSTRUCTION NOTES:

1. SEE CONSTRUCTION NOTES ON SHEET 2.
2. INSTALL A "LOCK OFF" STYLE BALL VALVE FOR THE DOMESTIC WATER SERVICE.
3. 1½–INCH AND 2–INCH METERS ARE FLANGED.
4. THE CITY WILL PROVIDE AND INSTALL A NEPTUNE T–10 METER. REQUEST THE METER INSTALLATION FROM THE PUBLIC WORKS INSPECTOR OR THE BUILDING INSPECTOR WHEN THERE IS NO PUBLIC IMPROVEMENT PLAN.
5. A REDUCER FITTING CAN BE INSTALLED BETWEEN THE ANGLE METER STOP VALVE AND THE METER, AND PAST THE BRASS UNION WITHIN THE PRIVATE OWNER MAINTAINED AREA.

ITEM	MATERIALS
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x FLG): JONES E–1975WSG, MUELLER B–24276N OR A.Y.MCDONALD 74602BCSQ.
9	METER VALVE (FIP x FIP). USE JONES STYLE E–1900W OR MUELLER B–20200N WITH "LOCK OFF" HANDLE.
10	RED BRASS NIPPLE (MIP x MIP), THREADED BOTH ENDS, 2–INCH LENGTH.
11	BRASS UNION (FIP x FIP).
12	BRASS METER FLANGE (FLG x FIP).
13	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

NOT TO SCALE

1–1/2" AND 2" POTABLE WATER SERVICE CONNECTION DETAIL WITHOUT FIRE SPRINKLER SERVICE

REVISION		
NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

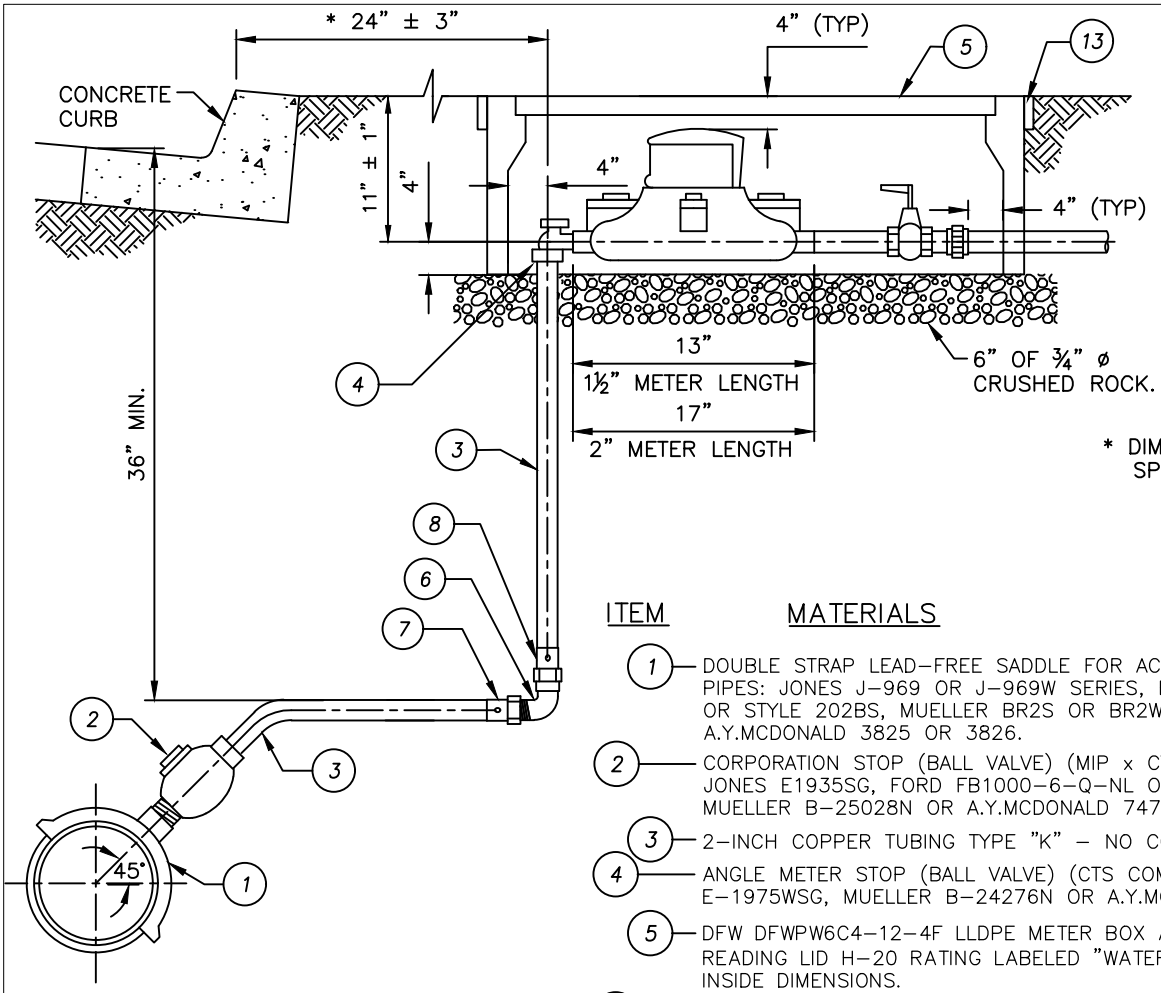
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 415

SHEET 3 OF 3

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_415C_REV5.DWG



* DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.

ITEM	MATERIALS
1	DOUBLE STRAP LEAD–FREE SADDLE FOR AC, CIP, DIP AND PVC PIPES: JONES J–969 OR J–969W SERIES, FORD STYLE 202BSD OR STYLE 202BS, MUELLER BR2S OR BR2W SERIES, OR A.Y.MCDONALD 3825 OR 3826.
2	CORPORATION STOP (BALL VALVE) (MIP x CTS COMPRESSION): JONES E1935SG, FORD FB1000–6–Q–NL OR FB1000–7–Q–NL, MUELLER B–25028N OR A.Y.MCDONALD 74704BQ.
3	2–INCH COPPER TUBING TYPE "K" – NO COILS ALLOWED.
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x FLG): JONES E–1975WSG, MUELLER B–24276N OR A.Y.MCDONALD 74602BCSQ.
5	DFW DFWPW6C4–12–4F LLDPE METER BOX AND HDPE COVER WITH READING LID H–20 RATING LABELED "WATER" 16 5/16" x 31¾" x 12" INSIDE DIMENSIONS.
6	2–INCH BRASS STREET ELBOW (MIP x FIP).
7	2–INCH COPPER ADAPTER (CTS COMPRESSION x FIP) MUELLER H15451N OR EQUAL.
8	2–INCH COPPER ADAPTER (MIP x CTS COMPRESSION).
13	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

CONSTRUCTION NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 12 INCHES OF VALVE, COUPLING, JOINT, OR FITTING.
2. DOUBLE–WRAP ALL PIPING BELOW GRADE IN PURPLE COLORED 8–MIL POLYETHYLENE SLEEVES LABELED RECLAIMED WATER. EXTEND POLYETHYLENE SLEEVES 2 INCHES MINIMUM ABOVE FINISH GRADE. SECURE WITH 10–MIL TAPE.
3. CONSTRUCT WATER SERVICE PIPE IN SAND BEDDING (SE 30 MINIMUM) FROM CORP STOP TO METER BOX.
4. ALL CONNECTIONS TO COPPER TUBING SHALL BE COMPRESSION TYPE AND SERVICE MUST BE CONTINUOUS AND UNCUT. NO SWEAT TYPE FITTINGS ALLOWED.
5. CONNECTIONS TO STEEL RECLAIMED WATER MAINS SHALL BE WITH A WELDED 3000 POUND HALF COUPLING AND DIELECTRIC INSULATING BUSHING. ALL STEEL SURFACES SHALL BE COVERED WITH CEMENT MORTAR.
6. ROUND AND DE–BURR ALL COPPER PIPE PRIOR TO INSTALLATION.
7. WRAP SERVICE SADDLE WITH TWO LAYERS OF 8–MIL PURPLE POLYETHYLENE.
8. INSTALL BRASS PIPING AND FITTINGS INSIDE METER BOX BETWEEN ANGLE METER STOP AND BRASS UNIONS.
9. PROVIDE METER BOXES IN UNIMPROVED STREETS AND BEHIND ROLLED CURBS WITH COVERS AND BOXES RATED FOR H–20 TRAFFIC LOADS.

NOT TO SCALE

1–1/2" AND 2" RECLAIMED WATER SERVICE CONNECTION DETAIL

REVISION		
NO.	APPROVED	DATE
3		05/04/18
4		12/28/18
5	VRW	10/01/20

APPROVED:

Tom Koper — 10/01/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

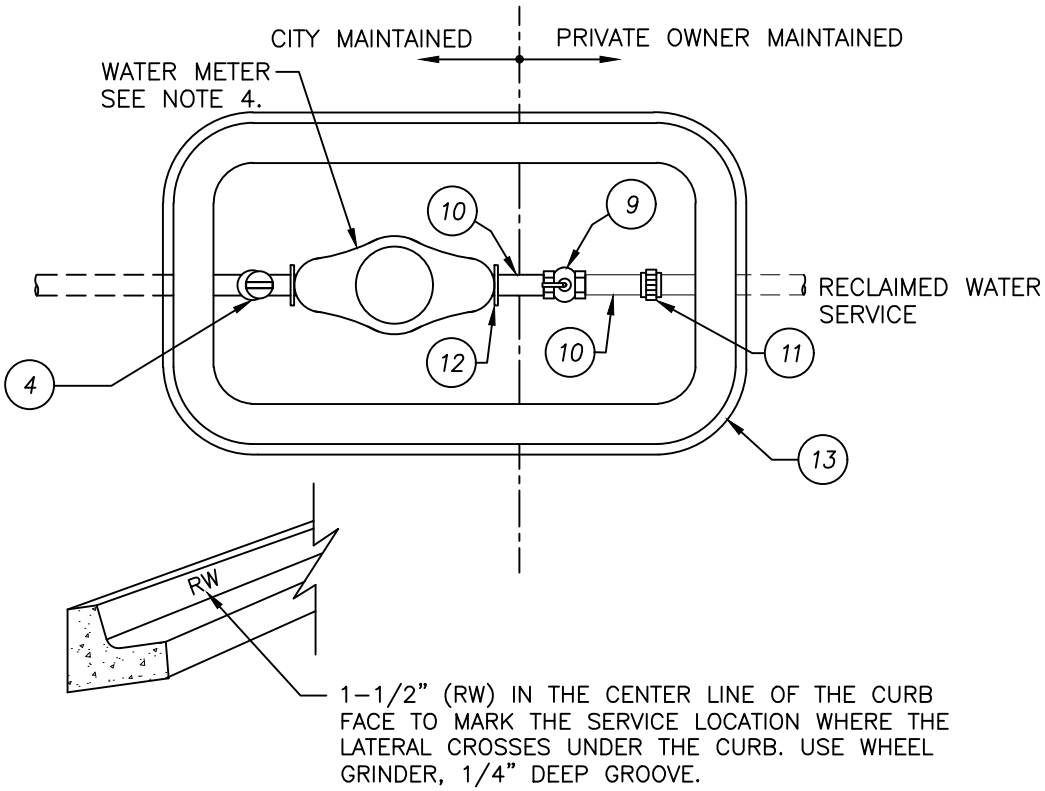
Vernon R. Weisman — 10/01/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 415R

SHEET 1 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_415RA_REV5.DWG



CONSTRUCTION NOTES:

1. SEE CONSTRUCTION NOTES ON SHEET 1.
2. INSTALL A "LOCK OFF" STYLE BALL VALVE FOR THE RECLAIMED WATER SERVICE.
3. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE SERVICE CONNECTION AS SHOWN ON THIS STANDARD PLAN EXCEPT FOR THE WATER METER. CITY WILL PROVIDE AND INSTALL A NEPTUNE T–10 METER. REQUEST THE METER INSTALLATION FROM THE PUBLIC WORKS INSPECTOR OR THE BUILDING INSPECTOR WHEN THERE IS NO PUBLIC IMPROVEMENT PLAN.
5. A REDUCER FITTING CAN BE INSTALLED BETWEEN THE ANGLE METER STOP VALVE AND THE METER, AND PAST THE BRASS UNION WITHIN THE PRIVATE OWNER MAINTAINED AREA.
6. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

ITEM	MATERIALS
4	ANGLE METER STOP (BALL VALVE) (CTS COMPRESSION x FLG): JONES E–1975WSG, MUELLER B–24276N OR A.Y.MCDONALD 74602BCSQ.
9	METER VALVE (FIP x FIP). USE JONES STYLE E–1900W OR MUELLER B–20200N WITH "LOCK OFF" HANDLE.
10	RED BRASS NIPPLE (MIP x MIP), THREADED BOTH ENDS, 2–INCH LENGTH.
11	BRASS UNION (FIP x FIP).
12	BRASS METER FLANGE (FLG x FIP).
13	½" THICK FLEXIBLE VINYL (PVC) EXPANSION JOINT WITH A MINIMUM 2" DEPTH. INSTALL EXPANSION JOINT WHEN METER BOX IS CAST IN CONCRETE. DO NOT USE FABRIC OR FELT.

NOT TO SCALE

1–1/2" AND 2" RECLAIMED WATER SERVICE CONNECTION DETAIL

REVISION NO.	APPROVED	DATE
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TOM G. KOPER, PE, CITY ENGINEER — DATE

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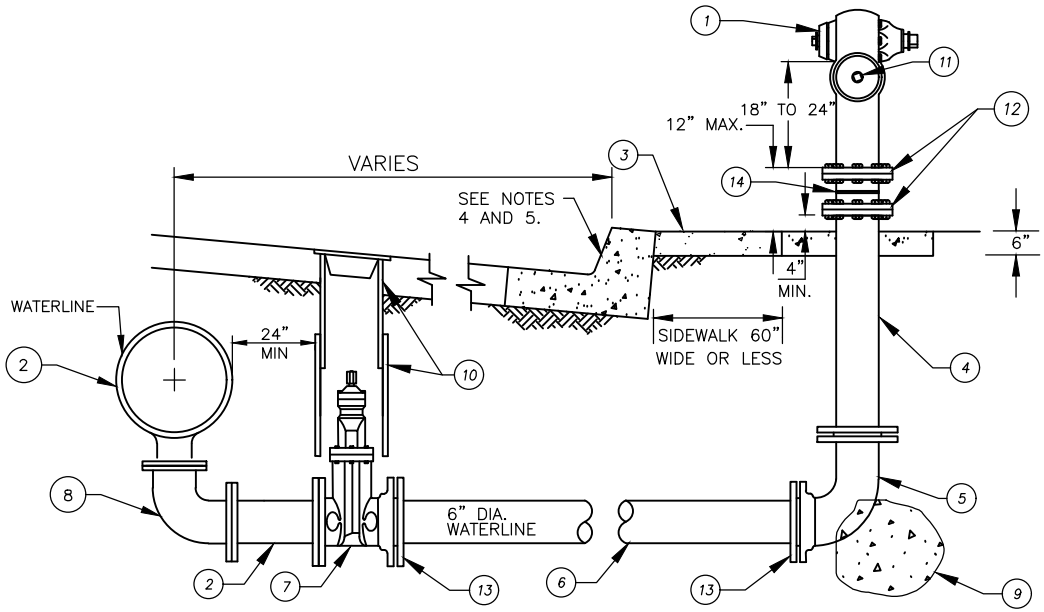
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

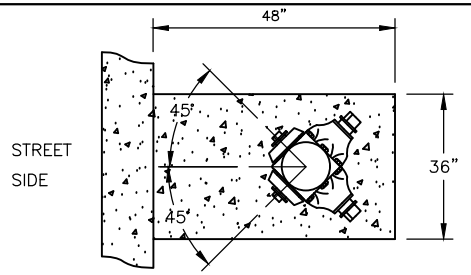
CITY OF CORONA

STD 415R

SHEET 2 OF 2

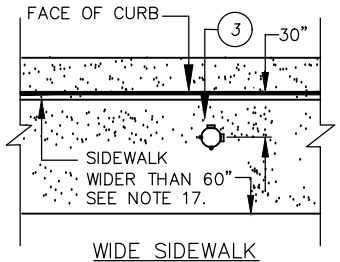
FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_415RB_REV5.DWG



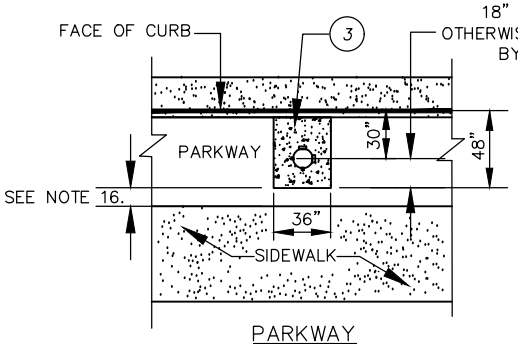


FIRE HOSE OUTLET ORIENTATION

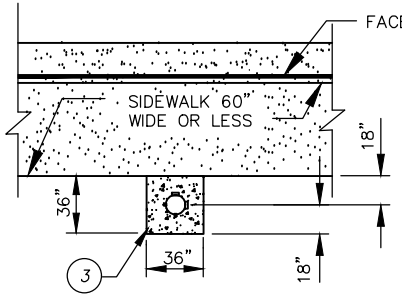
ITEM	MATERIALS
1	STANDARD HYDRANT, 8–HOLE PATTERN, WITH (1) 4–INCH AND (1) 2½–INCH FIRE HOSE OUTLETS, CLOW 850 OR 2050, OR JAMES JONES 3710 OR 4040B. PAINT FIRE HYDRANT AND CAPS RUST–O–LEUM OLD CAT YELLOW – 76486.
2	MAINLINE SIZE x 6–INCH MJ x MJ x FLG DI TEE WITH RESTRAINED JOINTS. INSTALL CONCRETE THRUST BLOCK PER CITY STD. DWG. 401 ON NON–RESTRAINED JOINT WATERLINES.
3	REPLACE SIDEWALK PER CITY STD. 142 OR CONSTRUCT 48" x 36" x 6" THICK CONCRETE PAD WITHIN PARKWAY. SEE HYDRANT LOCATION PLANS BELOW FOR APPLICABLE CONDITION.
4	6–INCH DIA. FLG x FLG DI SPOOL, AWWA C115.
5	6–INCH DIA. FLG x MJ DI 90–DEGREE BEND, RESTRAINED.
6	6–INCH DIA. DI PIPE, CLASS 350, RESTRAINED JOINT.
7	6–INCH RESILIENT WEDGE GATE VALVE FLG x MJ RESTRAINED PER CITY STD. DWG. 420.
8	6–INCH DIA. FLANGE DI 90–DEGREE BEND.
9	CONCRETE THRUST BLOCK PER CITY STD. DWG. 401.
10	VALVE BOX PER CITY STD. DWG. 422.
11	FIRE HYDRANT CAPS, PLASTIC W/O CHAINS.
12	BREAK–OFF BOLTS. ⅝" x 3" W/ BOLTS UP. 8–HOLE PATTERN, PRE–FILLED BOLTS WITH SILICONE INSTALLED UP.
13	MJ PIPE RESTRAINT, EBBA IRON MEGALUG SERIES 1100.
14	6–INCH DIA. DI SPOOL WITH ¼–INCH V (SINGLE OR DOUBLE) BREAK OFF GROOVE.



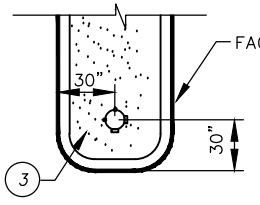
WIDE SIDEWALK CONDITION 1
(ONLY BY WRITTEN APPROVAL OF DWP GENERAL MANAGER OR DESIGNEE)



PARKWAY CONDITION 3



NARROW SIDEWALK CONDITION 2



MEDIAN CONDITION 4

HYDRANT LOCATION PLANS

SEE NOTES ON SHEET 2.

NOT TO SCALE

6" POTABLE WATER FIRE HYDRANT BLOW–OFF ASSEMBLY

REVISION NO.	APPROVED	DATE
1		05/30/18
2		12/28/18
3	VRW	10/01/20

APPROVED:

Tom Koper — TOM G. KOPER, PE, CITY ENGINEER — 10/01/20 DATE

Vernon R. Weisman — VERNON R. WEISMAN, PE, DISTRICT ENGINEER — 10/01/20 DATE

CITY OF CORONA

STD 416

SHEET 1 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_416A_REV3.DWG

NOTES:

1. FLANGE NUTS, BOLTS, AND WASHERS SHALL BE TYPE 316SS. LUBRICATE BOLTS WITH ANTI-SEIZE LUBRICANT.
2. CONSTRUCT CONCRETE THRUST BLOCK ON MAINLINE TEE PER CITY STD. DWG. 401 WHERE WATER MAIN IS NOT OTHERWISE FULLY RESTRAINED.
3. DIMENSIONS MAY VARY FOR SPECIAL CIRCUMSTANCES; CUL-DE-SACS, PRIVATE STREETS, SIDEWALKS ADJACENT TO CURBS, ETC. WHERE SPECIFICALLY REQUIRED ON THE APPROVED PLANS.
4. CHISEL A 1½-INCH TALL "V" IN THE CURB FACE TO INDICATE LOCATION OF VALVE.
5. CHISEL (2) "X"'S AND THEIR RESPECTIVE DISTANCES IN THE CURB TO BE USED AS "TIE" LOCATIONS FOR VALVE CAN.
6. 6-INCH LATERAL PIPELINE (FULLY RESTRAINED) SHALL MATCH THE CLASS OF THE ADJACENT MAIN LINE PIPE.
7. VALVE SHALL BE ACCESSIBLE AT ALL TIMES.
8. DEVELOPER/INSTALLER SHALL SUPPLY AND PLACE BLUE-DOT REFLECTING RAISED ROADWAY MARKERS PER CITY STD. DWG. 531.
9. BORE UNDER CURB & GUTTER FOR CONSTRUCTION OF HYDRANT LATERAL.
10. PROVIDE 3-FOOT MINIMUM HORIZONTAL CLEARANCE BETWEEN FIRE HYDRANT AND ALL OTHER ADJACENT ABOVE GROUND IMPROVEMENTS.
11. PROVIDE 1½-INCH OPERATING NUTS ON ALL FIRE HYDRANT OPERATORS.
12. WRAP PIPE AND VALVE WITH A DOUBLE LAYER OF 8-MIL BLUE POLYETHYLENE.
13. ALL FITTINGS, PIPE, VALVES, AND FITTINGS SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.
14. DO NOT CONSTRUCT FIRE HYDRANT CLOSER THAN 10 FEET TO DRIVEWAY RETURN WITHOUT PRIOR APPROVAL BY DWP GENERAL MANAGER OR DESIGNEE.
15. CONDITIONS 2 AND 3 ARE STANDARD CITY CONFIGURATION.
16. EXTEND PAD TO SIDEWALK IF END OF PAD IS 24-INCH OR CLOSER TO SIDEWALK.
17. FOR ALTERNATIVE TO WIDE SIDEWALK CONDITION 1 HYDRANT LOCATION, SEE CITY STD. 144.
18. CONSTRUCT FIRE HYDRANT WITHIN THE CITY RIGHT-OF-WAY OR EASEMENT UNLESS EXCEPTION IS PROVIDED IN WRITING BY DWP GENERAL MANAGER OR DESIGNEE.

6" POTABLE WATER FIRE HYDRANT BLOW-OFF ASSEMBLY

REVISION		
NO.	APPROVED	DATE
1	VRW	05/30/18

APPROVED:

Nelson D Nelson — 5/31/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

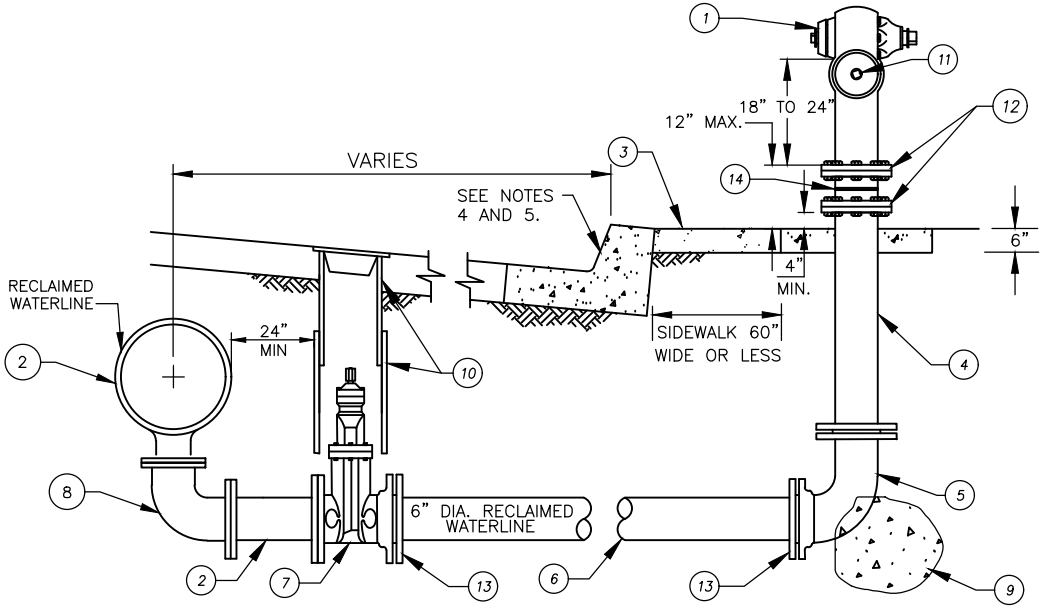
Vernon R. Weisman — 5/31/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

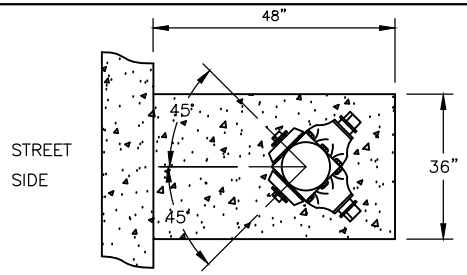
CITY OF CORONA

STD 416

SHEET 2 OF 2

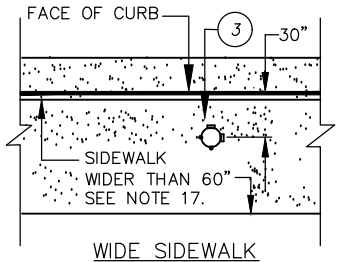
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_416B_REV1.DWG



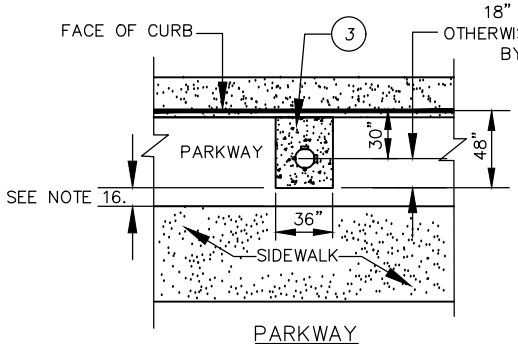


FIRE HOSE OUTLET ORIENTATION

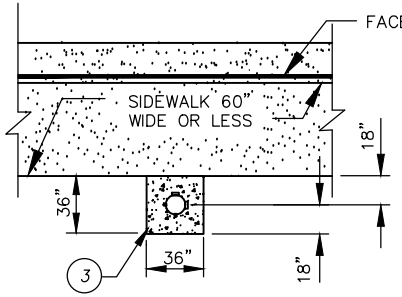
ITEM	MATERIALS
1	STANDARD HYDRANT, 8–HOLE PATTERN, WITH (1) 4–INCH AND (1) 2½–INCH FIRE HOSE OUTLETS, CLOW 850 OR 2050, OR JAMES JONES 3710 OR 4040B. PAINT FIRE HYDRANT AND CAPS PURPLE PANTONE 512C OR SHERWIN WILLIAMS PURPLE SAFETY.
2	MAINLINE SIZE x 6–INCH MJ x MJ x FLG DI TEE WITH RESTRAINED JOINTS. INSTALL CONCRETE THRUST BLOCK PER CITY STD. DWG. 401 ON NON–RESTRAINED JOINT WATERLINES.
3	REPLACE SIDEWALK PER CITY STD. 142 OR CONSTRUCT 48" x 36" x 6" THICK CONCRETE PAD WITHIN PARKWAY. SEE HYDRANT LOCATION PLANS BELOW FOR APPLICABLE CONDITION.
4	6–INCH DIA. FLG x FLG DI SPOOL, AWWA C115.
5	6–INCH DIA. FLG x MJ DI 90–DEGREE BEND, RESTRAINED.
6	6–INCH DIA. DI PIPE, CLASS 350, RESTRAINED JOINT.
7	6–INCH RESILIENT WEDGE GATE VALVE FLG x MJ RESTRAINED PER CITY STD. DWG. 420.
8	6–INCH DIA. FLANGE DI 90–DEGREE BEND.
9	CONCRETE THRUST BLOCK PER CITY STD. DWG. 401.
10	VALVE BOX PER CITY STD. DWG. 422.
11	FIRE HYDRANT CAPS, PLASTIC W/O CHAINS.
12	BREAK–OFF BOLTS. ⅝" x 3" W/ BOLTS UP. 8–HOLE PATTERN, PRE–FILLED BOLTS WITH SILICONE INSTALLED UP.
13	MJ PIPE RESTRAINT, EBBA IRON MEGALUG SERIES 1100.
14	6–INCH DIA. DI SPOOL WITH ¼–INCH V (SINGLE OR DOUBLE) BREAK OFF GROOVE.



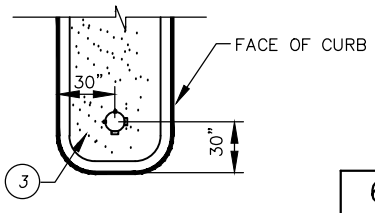
WIDE SIDEWALK CONDITION 1
(ONLY BY WRITTEN APPROVAL OF DWP GENERAL MANAGER OR DESIGNEE)



PARKWAY CONDITION 3



NARROW SIDEWALK CONDITION 2



MEDIAN CONDITION 4

HYDRANT LOCATION PLANS

SEE NOTES ON SHEET 2.

NOT TO SCALE

6" RECLAIMED WATER FIRE HYDRANT BLOW–OFF ASSEMBLY

REVISION NO.	APPROVED	DATE
1		05/30/18
2		12/28/18
3	VRW	10/01/20

APPROVED:

Tom Koper — TOM G. KOPER, PE, CITY ENGINEER — 10/01/20 DATE

Vernon R. Weisman — VERNON R. WEISMAN, PE, DISTRICT ENGINEER — 10/01/20 DATE

CITY OF CORONA

STD 416R

SHEET 1 OF 2

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_416RA_REV3.DWG

NOTES:

1. FLANGE NUTS, BOLTS, AND WASHERS SHALL BE TYPE 316SS. LUBRICATE BOLTS WITH ANTI-SEIZE LUBRICANT.
2. CONSTRUCT CONCRETE THRUST BLOCK ON MAINLINE TEE PER CITY STD. DWG. 401 WHERE WATER MAIN IS NOT OTHERWISE FULLY RESTRAINED.
3. DIMENSIONS MAY VARY FOR SPECIAL CIRCUMSTANCES; CUL-DE-SACS, PRIVATE STREETS, SIDEWALKS ADJACENT TO CURBS, ETC. WHERE SPECIFICALLY REQUIRED ON THE APPROVED PLANS.
4. CHISEL A 1½-INCH TALL "V" IN THE CURB FACE TO INDICATE LOCATION OF VALVE.
5. CHISEL (2) "X"'S AND THEIR RESPECTIVE DISTANCES IN THE CURB TO BE USED AS "TIE" LOCATIONS FOR VALVE CAN.
6. 6-INCH LATERAL PIPELINE (FULLY RESTRAINED) SHALL MATCH THE CLASS OF THE ADJACENT MAIN LINE PIPE.
7. VALVE SHALL BE ACCESSIBLE AT ALL TIMES.
8. DEVELOPER/INSTALLER SHALL SUPPLY AND PLACE BLUE-DOT REFLECTING RAISED ROADWAY MARKERS PER CITY STD. DWG. 531.
9. BORE UNDER CURB & GUTTER FOR CONSTRUCTION OF HYDRANT LATERAL.
10. PROVIDE 3-FOOT MINIMUM HORIZONTAL CLEARANCE BETWEEN FIRE HYDRANT AND ALL OTHER ADJACENT ABOVE GROUND IMPROVEMENTS.
11. PROVIDE 1½-INCH OPERATING NUTS ON ALL FIRE HYDRANT OPERATORS.
12. WRAP PIPE AND VALVE WITH A DOUBLE LAYER OF 8-MIL PURPLE POLYETHYLENE.
13. ALL FITTINGS, PIPE, VALVES, AND FITTINGS SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.
14. DO NOT CONSTRUCT FIRE HYDRANT CLOSER THAN 10 FEET TO DRIVEWAY RETURN WITHOUT PRIOR APPROVAL BY DWP GENERAL MANAGER OR DESIGNEE.
15. CONDITIONS 2 AND 3 ARE STANDARD CITY CONFIGURATION.
16. EXTEND PAD TO SIDEWALK IF END OF PAD IS 24-INCH OR CLOSER TO SIDEWALK.
17. FOR ALTERNATIVE TO WIDE SIDEWALK CONDITION 1 HYDRANT LOCATION, SEE CITY STD. 144.
18. CONSTRUCT FIRE HYDRANT WITHIN THE CITY RIGHT-OF-WAY OR EASEMENT UNLESS EXCEPTION IS PROVIDED IN WRITING BY DWP GENERAL MANAGER OR DESIGNEE.

6" RECLAIMED WATER FIRE HYDRANT BLOW-OFF ASSEMBLY

REVISION		
NO.	APPROVED	DATE
1	VRW	05/30/18

APPROVED:

Nelson D Nelson — 5/31/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

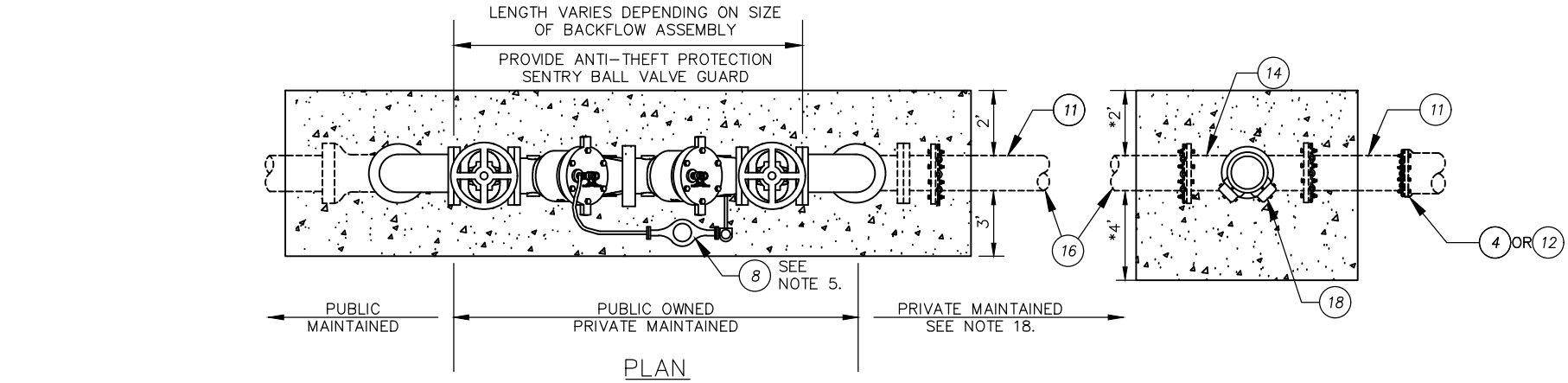
Vernon R. Weisman — 5/31/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 416R

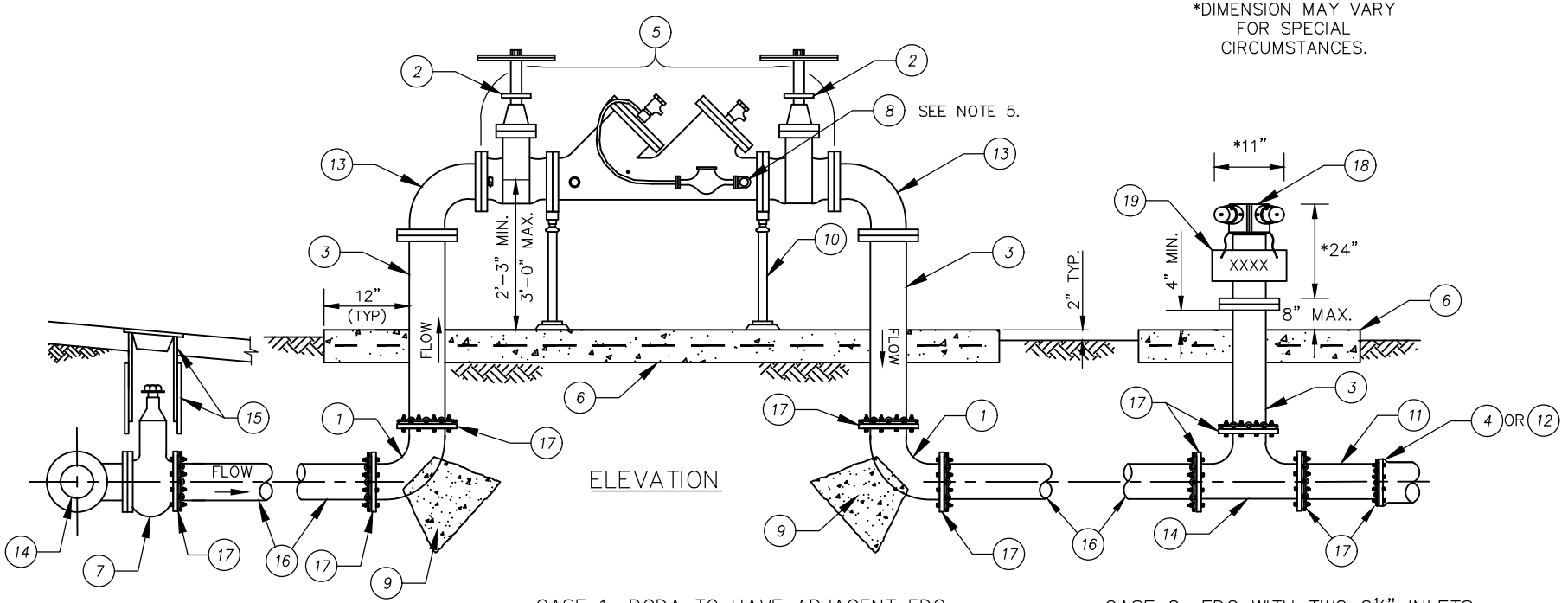
SHEET 2 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_416RB_REV2.DWG



PLAN

*DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.



ELEVATION

CASE 1: DCDA TO HAVE ADJACENT FDC CONNECTION. SEE NOTE 13.

CASE 2: FDC WITH TWO 2½" INLETS.

NOT TO SCALE

REFER TO SHEET 4 FOR MATERIALS LIST AND NOTES.

DOUBLE CHECK DETECTOR ASSEMBLY

REVISION NO.	APPROVED	DATE
1		12/28/18
2		10/01/20
3	VRW	10/26/20

APPROVED:

Tom Koper — 10/26/20 DATE
TOM G. KOPER, PE, CITY ENGINEER

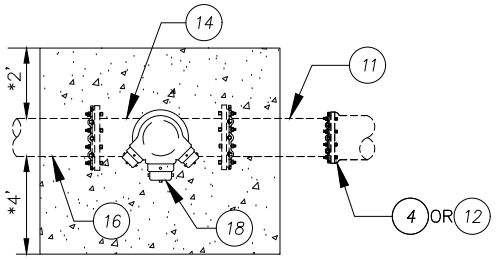
Vernon R. Weisman — 10/26/20 DATE
VERNON R. WEISMAN, PE, DISTRICT ENGINEER

CITY OF CORONA

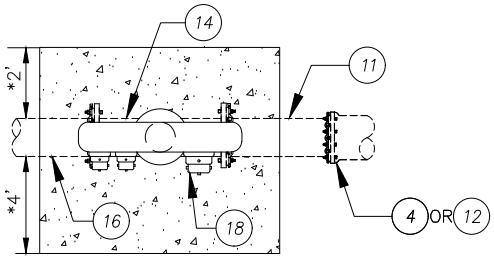
STD 417

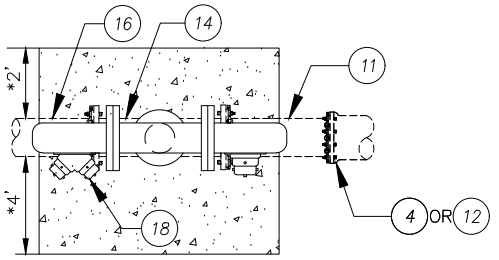
SHEET 1 OF 4

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_417A_REV3.DWG

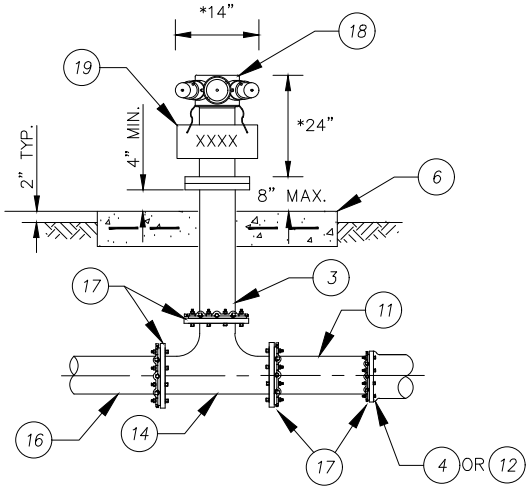


*DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.

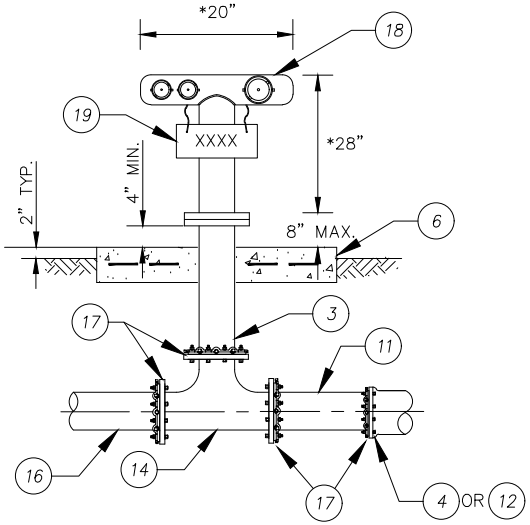




PLAN

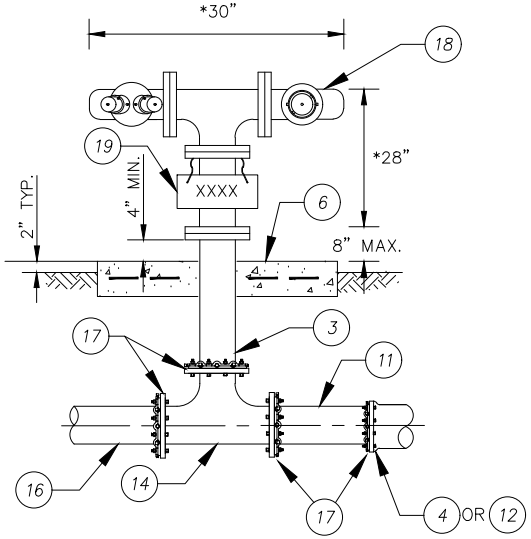


CASE 3: FDC WITH TWO 2½" INLETS & ONE 4" INLET.



ELEVATION

CASE 4: FDC WITH TWO 2½" INLETS & ONE 4" INLET.



CASE 5: FDC WITH TWO 2½" INLETS & ONE 4" INLET.

NOT TO SCALE

REFER TO SHEET 1 FOR CONSTRUCTION OF THE DCDA.

REFER TO SHEET 4 FOR MATERIALS LIST NOTES.

DOUBLE CHECK DETECTOR ASSEMBLY

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

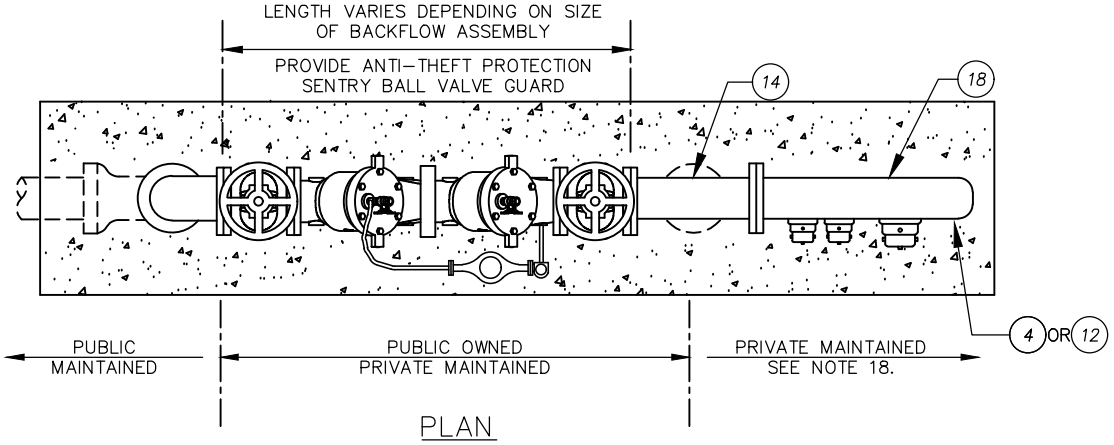
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 417

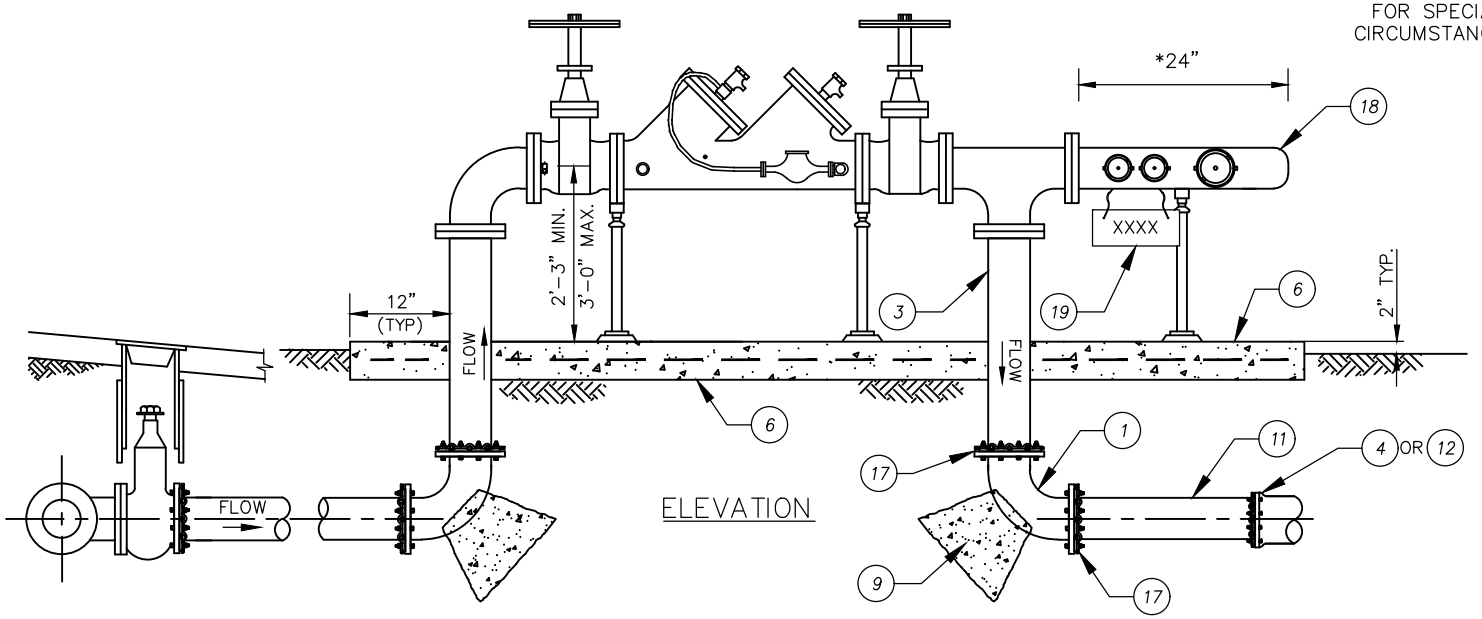
SHEET 2 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_417B_REV4.DWG



PLAN

*DIMENSION MAY VARY FOR SPECIAL CIRCUMSTANCES.



ELEVATION

CASE 6: FDC WITH TWO 2½" INLETS & ONE 4" INLET ATTACHED TO DCDA.

NOT TO SCALE

REFER TO SHEET 1 FOR CONSTRUCTION OF THE DCDA.

REFER TO SHEET 4 FOR MATERIALS LIST AND NOTES.

DOUBLE CHECK DETECTOR ASSEMBLY

REVISION NO.	APPROVED	DATE
1		10/01/20
2	VRW	10/26/20

APPROVED:
Tom Koper — 10/26/20 DATE
TOM G. KOPER, PE, CITY ENGINEER
Vernon R. Weisman — 10/26/20 DATE
VERNON R. WEISMAN, PE, DISTRICT ENGINEER

CITY OF CORONA

STD 417

SHEET 3 OF 4

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_417C_REV2.DWG

ITEM	MATERIALS
1	DI 90–DEGREE BEND, MJ.
2	RW O.S.&Y GATE VALVE FLG X FLG. O.S.&Y VALVES TO BE LOCKED IN OPEN POSITION WITH CHAIN AND BREAKAWAY PADLOCK.
3	DI SPOOL FLG X PE (LENGTH AS REQUIRED).
4	RESTRAINED TRANSITION COUPLING. (BY OTHERS, FOR ON–SITE CONNECTION WHEN ON–SITE PIPING EXISTS.)
5	DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTION ASSEMBLY (DCDA) WITH RISING STEM RESILIENT WEDGE GATE VALVES, VALVES SHALL BE PROVIDED AS AN INTEGRAL PART OF BACKFLOW ASSEMBLY. INSTALL LEAD FREE DEVICES LISTED IN THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
6	8–INCH THICK CONCRETE SLAB, 560–C–3250, REINFORCE WITH #4 REBAR @ 12 INCHES EACH WAY.
7	RESILIENT WEDGE GATE VALVE FLG X MJ PER CITY STD. DWG. 420.
8	FACTORY INSTALLED BY–PASS METER ASSEMBLY. METER TO BE USED FOR FIRE SYSTEMS ONLY. METER READS IN CUBIC FEET.
9	THRUST BLOCK PER CITY STD. DWG. 401.
10	ADJUSTABLE PIPE SUPPORT FOR ASSEMBLIES 6–INCH DIAMETER AND LARGER PER CITY STD. DWG. 418.
11	DIP SECTION, CL. 350, 48 INCHES LONG.
12	DI END CAP. MJ WITH RESTRAINED RETAINER GLAND.
13	DI 90–DEGREE BEND FLG FOR 3–INCH DOUBLE CHECK DETECTOR BACKFLOW PREVENTION ASSEMBLY USE 4" x 3" DI 90–DEGREE REDUCING BEND FLG.
14	DI TEE, MJ.
15	VALVE BOX PER CITY STD. DWG. 422.
16	DIP, CLASS 350, RESTRAINED JOINT.
17	MJ RESTRAINED JOINTS, EBAA IRON MEGALUG SERIES 1100. CONSTRUCT CONCRETE THRUST BLOCK WHEN REQUIRED PER CITY STD. DWG. 401.
18	FIRE DEPARTMENT CONNECTION (FDC) PER NOTE 11, 12, 13, 14, 15, AND 16.
19	ADDRESS SIGN PER NOTE 17.

NOTES:

1. NOTIFY CITY PRIOR TO INSTALLATION OF BACKFLOW DEVICE.
2. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36 INCHES FROM ANY STRUCTURE, CURB OR SIDE WALK.
3. BACKFLOW ASSEMBLY AND CITY PIPING SHALL BE WITHIN A DEDICATED CITY EASEMENT OR PUBLIC RIGHT–OF–WAY.
4. PLACE BRASS PLUGS IN ALL TEST VALVE OUTLETS.
5. BY–PASS METER TO BE USED FOR FIRE SYSTEMS ONLY. INSTALL APPROVED LEAD FREE BYPASS METER PER THE USC LIST AND READS IN CUBIC FEET. DO NOT INSTALL BY–PASS METERS WHERE SUPPLY TO DEVICE IS ALREADY METERED.
6. FLANGED JOINTS SHALL HAVE TYPE 316SS NUTS, BOLTS, AND WASHERS. APPLY ANTI–SEIZE COMPOUND TO THREADS.
7. RESTRAIN ALL PIPING, JOINTS, AND FITTINGS BETWEEN THE MAIN AND THE CUSTOMER CONNECTION.
8. MECHANICAL JOINTS SHALL BE RESTRAINED WITH "MEGA–LUG" TYPE RESTRAINTS.
9. WRAP PIPE AND VALVE WITH A DOUBLE LAYER OF 8–MIL BLUE POLYETHYLENE.
10. DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) SHALL BE PAINTED OSHA SAFETY RED.
11. APPROVED FIRE DEPARTMENT CONNECTIONS (FDC) SHALL BE LOCATED WITHIN 150' OF A PUBLIC FIRE HYDRANT. A RETAINING WALL SHALL BE ADDED IF THERE IS A SLOPE, TO PROTECT THE FDC. FIRE DEPARTMENT INLET CONNECTIONS SHALL BE PAINTED OSHA SAFETY RED.
12. THE FDC SHALL BE ON THE ADDRESS SIDE OF THE BUILDING AND LOCATED IMMEDIATELY ADJACENT TO THE APPROVED FIRE DEPARTMENT ACCESS ROAD. THE FDC SHALL BE IN A POSITION ALLOWING HOSE LINES TO BE READILY AND CONVENIENTLY ATTACHED.
13. THE FDC SHALL CONTAIN A MINIMUM OF TWO 2½" INLETS. SITES CONTAINING PRIVATE HYDRANTS SHALL HAVE AN FDC WITH A MINIMUM OF TWO 2½" INLETS AND ONE 4" INLET. WHERE REQUIRED BY THE FIRE CODE OFFICIAL, ONSITE HYDRANTS SHALL BE INSTALLED FOR COMMERCIAL, INDUSTRIAL, MULTIFAMILY, AND MULTISTORY DEVELOPMENTS WITH AN FDC OF TWO 2½" AND ONE 4" INLETS.
14. THE FDC SHALL BE CONSTRUCTED WITHIN AN EASEMENT AND HAVE A 3 FT CLEARANCE IN ALL DIRECTIONS. MINIMUM SIZE REQUIREMENT FOR THE EASEMENT SHALL BE 20' x 20'.
15. THE USE OF DCDA STANDARD CASE 6 WITH FDC ATTACHED SHALL BE APPROVED BY THE FIRE CODE OFFICIAL, PRIOR TO DESIGN SUBMITTAL.
16. THE FDC SHALL BE UL LISTED OR FM APPROVED.
17. PERMANENT SIGNAGE SHALL BE REQUIRED IDENTIFYING THE ADDRESS AND/OR RISER FOR WHICH THE FDC IS SERVING. MINIMUM OF 1–INCH LETTER HEIGHT; ALL UPPER CASE LETTERS. THE PERMANENT SIGN SHALL HAVE REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT. METAL SIGNS PERMANENTLY ATTACHED WITH CHAIN OR DURABLE ADHESIVE MATERIALS MAY MEET THIS REQUIREMENT.
18. PRIVATE UNDERGROUND FIRE LINE PLANS SHALL BE SUBMITTED SEPARATELY TO BUILDING DEPARTMENT FOR REVIEW AND APPROVAL.
19. A HIGH RISE BUILDING SHALL REQUIRE SEPARATE REVIEW AND APPROVAL.
20. ALL FITTINGS, PIPES, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.
21. PAINT ALL BRASS AND COPPER PIPING, FITTINGS, VALVES AND APPURTENANCES WITHIN 24 HOURS OF INSTALLATION.

DOUBLE CHECK DETECTOR ASSEMBLY

REVISION NO.	APPROVED	DATE
1		10/01/20
2	VRW	10/26/20

APPROVED:

Tom Koper — 10/26/20
TOM G. KOPER, PE, CITY ENGINEER — DATE

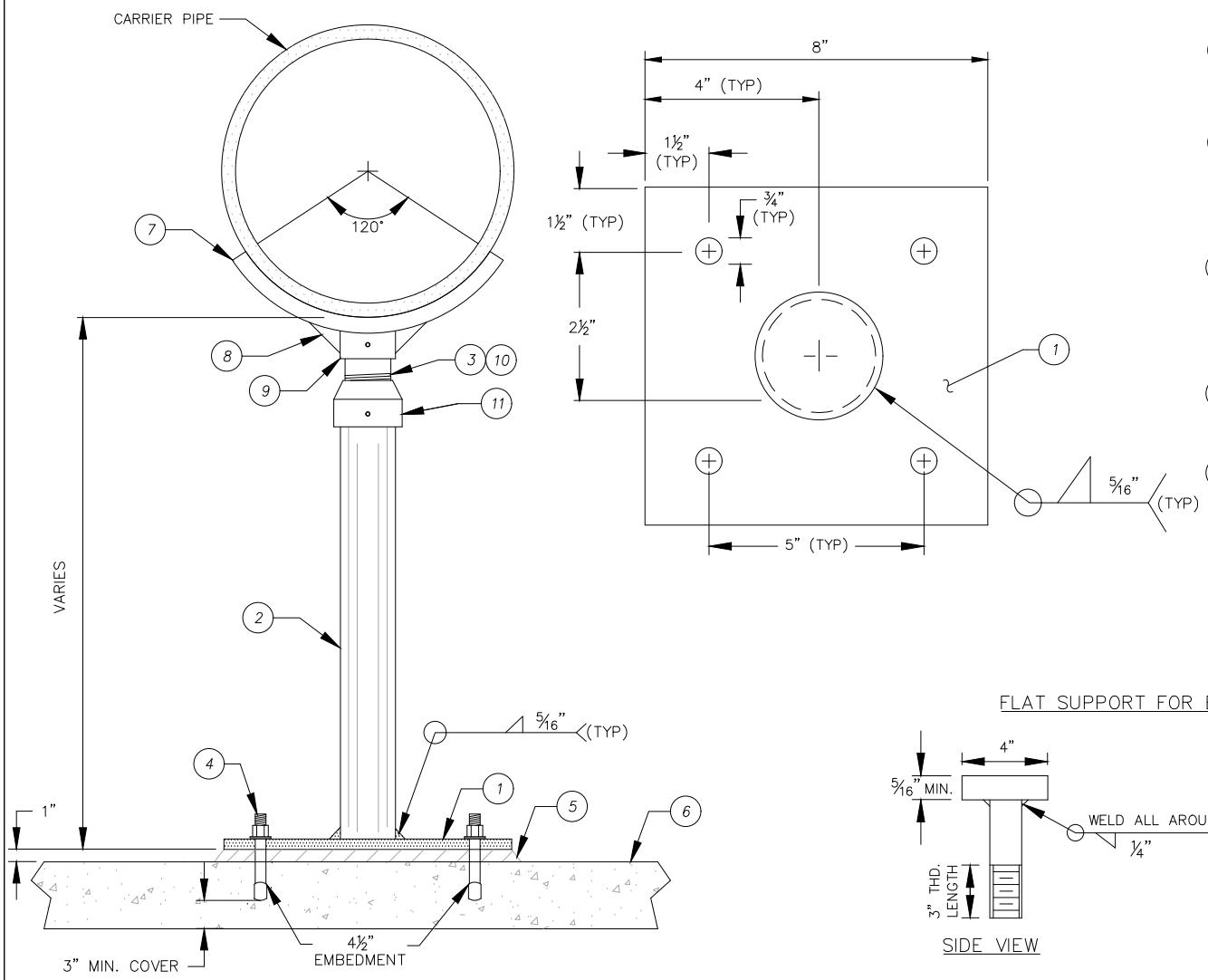
Vernon R. Weisman — 10/26/20
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 417

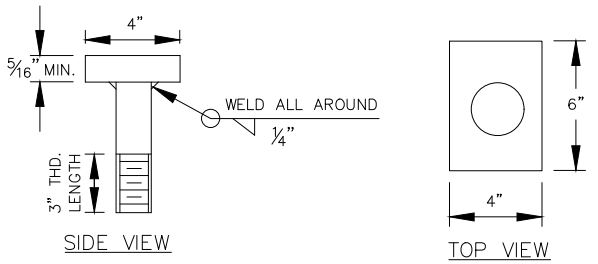
SHEET 4 OF 4

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_417D_REV2.DWG



ITEM	MATERIALS
1	8" x 8" x ½" BASE PLATE WITH (4) ¾–INCH DIAMETER BOLT HOLES.
2	3–INCH DIAMETER SCH. 40 PIPE WELDED TO BASE PLATE, TO BE CUT TO LENGTH IN THE FIELD.
3	COAT THREADS WITH LIBERAL AMOUNTS OF ANTI–SEIZE COMPOUND.
4	⅝–INCH DIAMETER ANCHOR BOLT WITH ⅝ –INCH DIAMETER HEX HEAD NUT AND 1" x ⅝" HEAVY WASHER. DRILL AND EPOXY GROUT INTO CONCRETE PAD OR VAULT FLOOR.
5	1–INCH THICK NON–SHRINK DRY–PACK GROUT LEVELING COURSE.
6	8–INCH THICK CONCRETE PAD OR STRUCTURE FLOOR.
7	⅜" THICK x 4" WIDE SADDLE ASSEMBLY. PRE–COAT WITH POLYURETHANE SPRAY COATING. 40 MILS THICK. TOP AND SIDE SURFACES ONLY. SADDLE ROLLED TO MATCH RADIUS OF PIPE OR FLANGE.
8	⅜–INCH GUSSET THICK GUSSET PLATE.
9	3–INCH DIAMETER SCH. 80 RECEIVER TUBE WITH ½–INCH ALLEN SET SCREW.
10	2½–INCH DIAMETER SCH. 40 THREADED RISER, PROVIDE APPROX. 6–INCHES OF ADJUSTMENT.
11	3–INCH DIAMETER HEAVY THREADED ADJUSTMENT COUPLING WITH ½–INCH DIAMETER SET SCREW.

FLAT SUPPORT FOR EQUIPMENT



NOT TO SCALE

NOTES:

1. ALL PIPE SUPPORT COMPONENTS, MOUNTING HARDWARE, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE TYPE 316SS.
2. PROVIDE CUSTOM DESIGN FOR CARRIER PIPES LARGER THAN 12–INCH DIAMETER.

ADJUSTABLE PIPE SUPPORT

REVISION NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 418

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_418_REV2.DWG

IF ANY TERTIARY TREATED RECLAIMED WATER OR NEW RAW WATER LINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE INDICATED ZONES AS SHOWN, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE TERTIARY TREATED RECLAIMED WATER OR RAW WATER

PARALLEL PIPES:

A. DO NOT LOCATE ANY PARALLEL NEW TERTIARY TREATED RECLAIMED WATER OR NEW RAW WATER LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.

CROSSING PIPES:

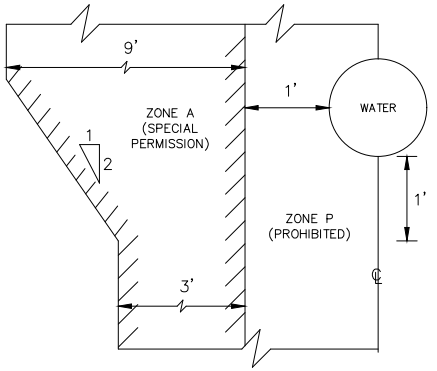
C&D. IF THE EXISTING POTABLE WATER LINE CROSSING THE NEW TERTIARY TREATED RECLAIMED WATER OR NEW RAW WATER LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

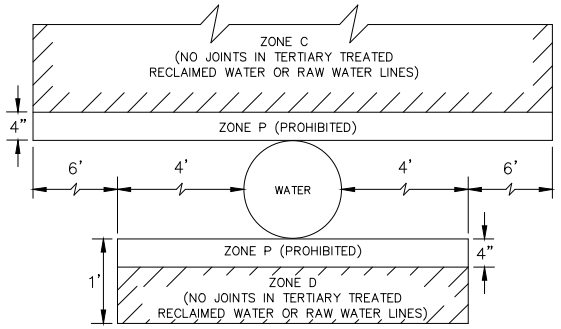
THEN CONSTRUCT THE NEW TERTIARY TREATED RECLAIMED WATER OR NEW RAW WATER LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15); OR
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING CENTERED OVER OR UNDER THE PIPE BEING CROSSED.

P. PROHIBITED ZONE PER SECTION 64572, CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16.



PARALLEL CONSTRUCTION



PERPENDICULAR CROSSING

LOCATION OF NEW TERTIARY TREATED RECLAIMED WATER AND NEW RAW WATER LINES TO EXISTING POTABLE WATER LINES

NOT TO SCALE

SEE BASIC SEPARATION STANDARDS AND GENERAL NOTES ON SHEET 7.

PIPELINE SEPARATION REQUIREMENTS

NEW TERTIARY TREATED RECLAIMED WATER OR NEW RAW WATER

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 419

SHEET 1 OF 7

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_419A_REV1.DWG

IF ANY STORM DRAIN LINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE INDICATED ZONES AS SHOWN, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE STORM DRAIN

PARALLEL PIPES:

A. DO NOT LOCATE ANY PARALLEL NEW STORM DRAIN LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.

B. IF THE EXISTING POTABLE WATER LINE PARALLELING THE NEW STORM DRAIN LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200, TYPE II, ASBESTOS–CEMENT PRESSURE PIPE;
5. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
6. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

THEN CONSTRUCT THE NEW STORM DRAIN LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);OR
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. RUBBER GASKETED REINFORCED CONCRETE PIPE; OR
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

CROSSING PIPES:

IF THE EXISTING POTABLE WATER LINE CROSSING THE NEW STORM DRAIN LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

C. THEN CONSTRUCT THE NEW STORM DRAIN LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING CENTERED OVER THE PIPE BEING CROSSED; OR
3. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

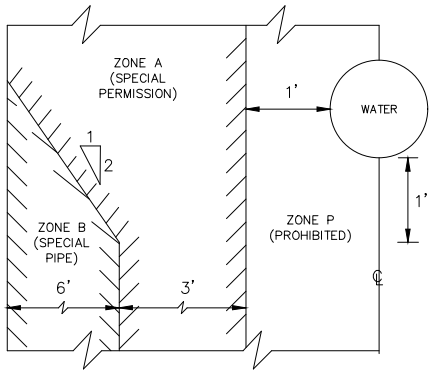
D. THEN CONSTRUCT THE NEW STORM DRAIN LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING CENTERED UNDER THE PIPE BEING CROSSED;
3. RUBBER GASKETED REINFORCED CONCRETE PIPE CENTERED UNDER THE PIPE BEING CROSSED; OR
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

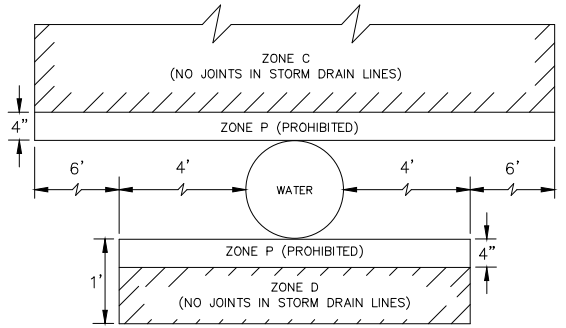
P. PROHIBITED ZONE PER SECTION 64572, CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16.

LOCATION OF NEW STORM DRAIN LINES TO EXISTING POTABLE WATER LINES

SEE BASIC SEPARATION STANDARDS AND GENERAL NOTES ON SHEET 7.



PARALLEL CONSTRUCTION



PERPENDICULAR CROSSING

NOT TO SCALE

PIPELINE SEPARATION REQUIREMENTS

NEW STORM DRAIN

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KÖPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 419

SHEET 2 OF 7

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_419B.DWG

IF ANY SEWER FORCE MAIN LINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE INDICATED ZONES AS SHOWN, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE SEWER FORCE MAIN

PARALLEL PIPES:

A. DO NOT LOCATE ANY PARALLEL NEW SEWER FORCE MAIN LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.

CROSSING PIPES:

C. USE ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15) INSTALLED INSIDE HDPE SLEEVE (CASING) WITH FUSION–WELDED JOINTS (PER AWWA C906–15) EXTENDING TO NOT LESS THAN 10 FEET FROM PIPE BEING CROSSED; OR

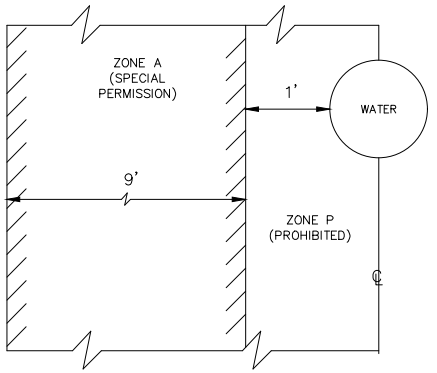
2. CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING INSTALLED INSIDE HDPE SLEEVE (CASING) WITH FUSION–WELDED JOINTS (PER AWWA C906–15) OR STEEL CASING EXTENDED TO NOT LESS THAN 10 FEET FROM PIPE BEING CROSSED.

D. USE ONE OF THE FOLLOWING:

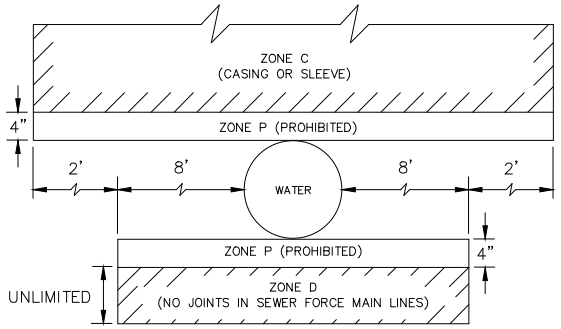
1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15); OR

2. CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING CENTERED UNDER AND NO JOINTS WITHIN 8 FEET OF THE PIPE BEING CROSSED.

P. PROHIBITED ZONE PER SECTION 64572, CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16.



PARALLEL CONSTRUCTION



PERPENDICULAR CROSSING

NOT TO SCALE

LOCATION OF NEW SEWER FORCE MAIN LINES TO EXISTING POTABLE WATER AND TERTIARY TREATED RECLAIMED WATER LINES

SEE BASIC SEPARATION STANDARDS AND GENERAL NOTES ON SHEET 7.

PIPELINE SEPARATION REQUIREMENTS

NEW SEWER FORCE MAIN

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper 1/7/2019

TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman 1/7/2019

VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 419

SHEET 3 OF 7

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_419C.DWG

IF ANY SANITARY SEWER LINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE INDICATED ZONES AS SHOWN, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE SANITARY SEWER

PARALLEL PIPES:

A. DO NOT LOCATE ANY PARALLEL NEW SANITARY SEWER LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.

B. IF THE EXISTING POTABLE WATER LINE PARALLELING THE NEW SANITARY SEWER LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200, TYPE II, ASBESTOS–CEMENT PRESSURE PIPE;
5. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
6. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

THEN CONSTRUCT THE NEW SANITARY SEWER LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS;
3. PVC SEWER PIPE WITH RUBBER RING JOINTS (PER ASTM D3034) OR EQUIVALENT; OR
4. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING.

CROSSING PIPES:

IF THE EXISTING POTABLE WATER LINE CROSSING THE NEW SANITARY SEWER LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

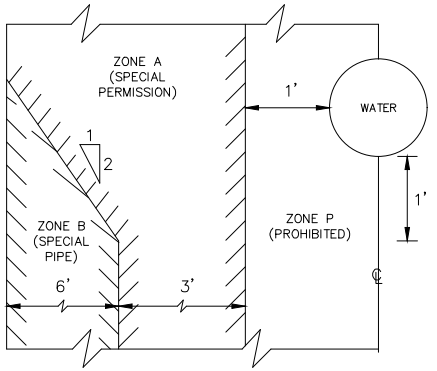
C. THEN CONSTRUCT THE NEW SANITARY SEWER LINE USING ONE OF THE FOLLOWING:

1. CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT BITUMINOUS COATING CENTERED OVER THE PIPE BEING CROSSED;
2. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
3. CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900–07) PVC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED; OR
4. ANY SANITARY SEWER LINE WITHIN A CONTINUOUS SLEEVE.

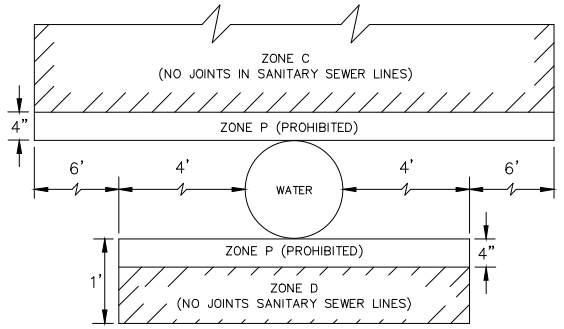
D. THEN CONSTRUCT THE NEW SANITARY SEWER LINE USING ONE OF THE FOLLOWING WITH NO JOINTS WITHIN 4 FEET FROM EITHER SIDE OF THE POTABLE WATER LINE:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING AND MECHANICAL JOINTS (GASKETED, BOLTED JOINTS) CENTERED UNDER THE PIPE BEING CROSSED;
3. CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900–07) PVC PIPE OR EQUIVALENT, CENTERED UNDER THE PIPE BEING CROSSED; OR
4. ANY SANITARY SEWER LINE WITHIN A CONTINUOUS SLEEVE.

P. PROHIBITED ZONE PER SECTION 64572, CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16.



PARALLEL CONSTRUCTION



PERPENDICULAR CROSSING

NOT TO SCALE

LOCATION OF NEW SANITARY SEWER LINES TO EXISTING POTABLE WATER LINES

SEE BASIC SEPARATION STANDARDS AND GENERAL NOTES ON SHEET 7.

PIPELINE SEPARATION REQUIREMENTS

NEW SANITARY SEWER

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 419

SHEET 4 OF 7

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_419D.DWG

IF ANY POTABLE WATER, RAW WATER, OR TERTIARY TREATED RECLAIMED WATER LINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE INDICATED ZONES AS SHOWN, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE POTABLE WATER, RAW WATER, OR TERTIARY TREATED RECLAIMED WATER

PARALLEL PIPES:

A. DO NOT LOCATE ANY PARALLEL NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.

B. IF THE EXISTING SANITARY SEWER LINE PARALLELING THE NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS;
3. PVC SEWER PIPE WITH RUBBER RING JOINTS (PER ASTM D3034) OR EQUIVALENT.

THEN CONSTRUCT THE NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

CROSSING PIPES:

IF THE EXISTING SANITARY SEWER LINE CROSSING THE NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT BITUMINOUS COATING CENTERED OVER OR UNDER THE PIPE BEING CROSSED;
2. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
3. CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900–07) PVC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED; OR
4. ANY SANITARY SEWER LINE WITHIN A CONTINUOUS SLEEVE.

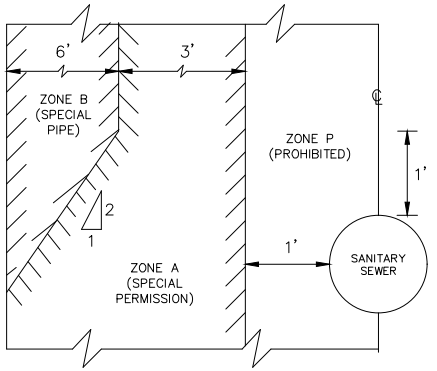
C. THEN CONSTRUCT THE NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

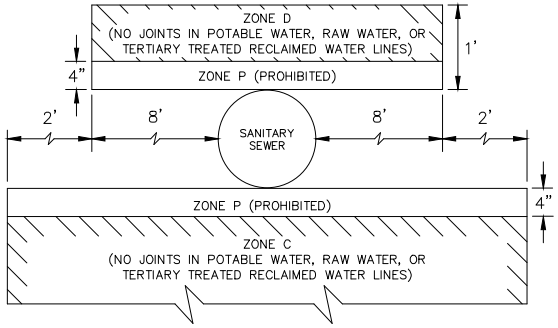
D. THEN CONSTRUCT THE NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

P. PROHIBITED ZONE PER SECTION 64572, CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16.



PARALLEL CONSTRUCTION



NOTE: INSTALLATION OF NEW WATER LINES INSIDE HDPE SLEEVES OR STEEL CASINGS WILL MEET THE INTENT OF TITLE 22 REQUIREMENTS.

PERPENDICULAR CROSSING

NOT TO SCALE

LOCATION OF NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINES TO EXISTING SANITARY SEWER LINES

SEE BASIC SEPARATION STANDARDS AND GENERAL NOTES ON SHEET 7.

PIPELINE SEPARATION REQUIREMENTS – NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 419

SHEET 5 OF 7

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_419E.DWG

IF ANY POTABLE WATER, RAW WATER, OR TERTIARY TREATED RECLAIMED WATER LINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE INDICATED ZONES AS SHOWN, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE POTABLE WATER, RAW WATER, OR TERTIARY TREATED RECLAIMED WATER

PARALLEL PIPES:

A. DO NOT LOCATE ANY PARALLEL NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.

CROSSING PIPES:

C. CONSTRUCT THE NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

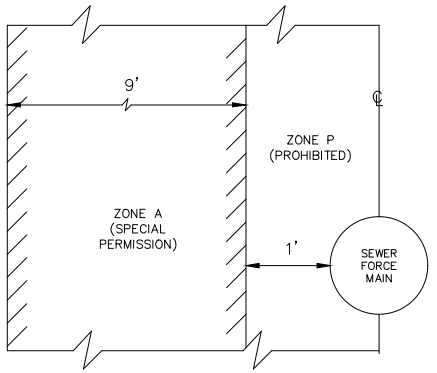
D. CONSTRUCT THE NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINE USING ONE OF THE FOLLOWING:

1. HDPE WITH FUSION–WELDED JOINTS (PER AWWA C906–15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. DIPPED AND WRAPPED ¼–INCH THICK WELDED STEEL PIPE;
4. CLASS 200 PRESSURE RATED PVC WATER PIPE (DR 14 PER AWWA C900–07 & C905–10 OR EQUIVALENT); OR
5. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300–11 OR C302–11 OR C303–17).

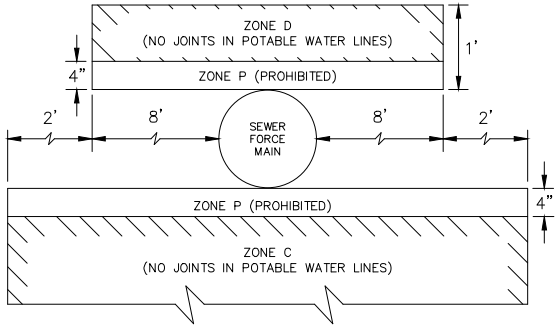
P. PROHIBITED ZONE PER SECTION 64572, CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16.

LOCATION OF NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER LINES TO EXISTING SEWER FORCE MAIN LINES

SEE BASIC SEPARATION STANDARDS AND GENERAL NOTES ON SHEET 7.



PARALLEL CONSTRUCTION



NOTE: INSTALLATION OF NEW WATER LINES INSIDE HDPE SLEEVES OR STEEL CASINGS WILL MEET THE INTENT OF TITLE 22 REQUIREMENTS.

PERPENDICULAR CROSSING

NOT TO SCALE

PIPELINE SEPARATION REQUIREMENTS – NEW POTABLE WATER, NEW RAW WATER, OR NEW TERTIARY TREATED RECLAIMED WATER

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 419

SHEET 6 OF 7

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_419F.DWG

IF ANY STORM DRAIN LINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE INDICATED ZONES AS SHOWN, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE STORM DRAIN

PARALLEL PIPES:

A. DO NOT LOCATE ANY PARALLEL NEW STORM DRAIN LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.

B. IF THE EXISTING SANITARY SEWER LINE PARALLELING THE NEW STORM DRAIN LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. HDPE WITH FUSION-WELDED JOINTS (PER AWWA C906-15);
2. EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS;
3. PVC SEWER PIPE WITH RUBBER RING JOINTS (PER ASTM D3034) OR EQUIVALENT.

THEN CONSTRUCT THE NEW STORM DRAIN LINE OF ONE OF THE FOLLOWING:

1. HDPE WITH FUSION-WELDED JOINTS (PER AWWA C906-15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. RUBBER GASKETED REINFORCED CONCRETE PIPE; OR
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300-11 OR C302-11 OR C303-17).

CROSSING PIPES:

IF THE EXISTING SANITARY SEWER LINE CROSSING THE NEW STORM DRAIN LINE IS NOT CONSTRUCTED OF ANY OF THE FOLLOWING:

1. CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT BITUMINOUS COATING CENTERED OVER OR UNDER THE PIPE BEING CROSSED;
2. HDPE WITH FUSION-WELDED JOINTS (PER AWWA C906-15);
3. CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900-07) PVC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED; OR
4. ANY SANITARY SEWER LINE WITHIN A CONTINUOUS SLEEVE.

C. THEN CONSTRUCT THE NEW STORM DRAIN LINE USING ONE OF THE FOLLOWING:

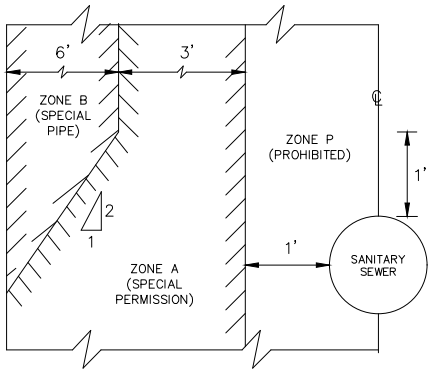
1. HDPE WITH FUSION-WELDED JOINTS (PER AWWA C906-15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING CENTERED UNDER THE PIPE BEING CROSSED; OR
3. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300-11 OR C302-11 OR C303-17).

D. THEN CONSTRUCT THE NEW STORM DRAIN LINE USING ONE OF THE FOLLOWING:

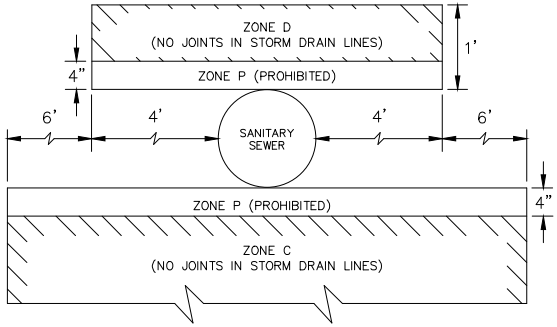
1. HDPE WITH FUSION-WELDED JOINTS (PER AWWA C906-15);
2. DUCTILE IRON PIPE WITH COMPRESSION JOINTS AND HOT DIP BITUMINOUS COATING;
3. RUBBER GASKETED REINFORCED CONCRETE PIPE; OR
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300-11 OR C302-11 OR C303-17).

P. PROHIBITED ZONE PER SECTION 64572, CALIFORNIA CODE OF REGULATIONS, TITLE 22, DIVISION 4, CHAPTER 16.

LOCATION OF NEW STORM DRAIN LINES TO EXISTING SANITARY SEWER LINES



PARALLEL CONSTRUCTION



NOTE: CONCRETE ENCASEMENT WITHIN ZONE C WILL MEET THE INTENT OF TITLE 22 REQUIREMENTS.

PERPENDICULAR CROSSING

BASIC SEPARATION STANDARDS

1. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN POTABLE WATER, RAW WATER, TERTIARY TREATED RECLAIMED WATER LINES, STORM DRAIN LINES, AND SANITARY SEWER LINES SHALL BE AT LEAST 10 FEET, OUTSIDE OF PIPE TO OUTSIDE OF PIPE, UNLESS BASIC SEPARATION STANDARDS CANNOT BE ATTAINED AND ALTERNATIVE CONSTRUCTION CRITERIA ARE MET.
2. PERPENDICULAR CONSTRUCTION (CROSSING): WATER LINES SHALL BE AT LEAST ONE FOOT ABOVE SANITARY SEWER LINES, RAW WATER, TERTIARY TREATED RECLAIMED WATER LINES, AND STORM DRAIN LINES WHERE THESE LINES MUST CROSS.
3. SPECIAL PROVISIONS: WHERE THE BASIC SEPARATION STANDARDS CANNOT BE ATTAINED ALTERNATIVE CONSTRUCTION CRITERIA ARE MET.

GENERAL NOTES:

1. SEPARATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH LATEST UPDATE FROM STATE OF CALIFORNIA, DEPT. OF HEALTH SERVICES, SAN DIEGO OFFICE.
2. PVC PRESSURE PIPE NOT ALLOWED IN CITY OF CORONA FOR CONSTRUCTION OF DOMESTIC WATER AND RECLAIMED WATER MAINS WITHOUT PRIOR APPROVAL BY THE DWP GENERAL MANAGER.

NOT TO SCALE

PIPELINE SEPARATION REQUIREMENTS – NEW STORM DRAIN, BASIC SEPARATION STANDARDS AND GENERAL NOTES

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

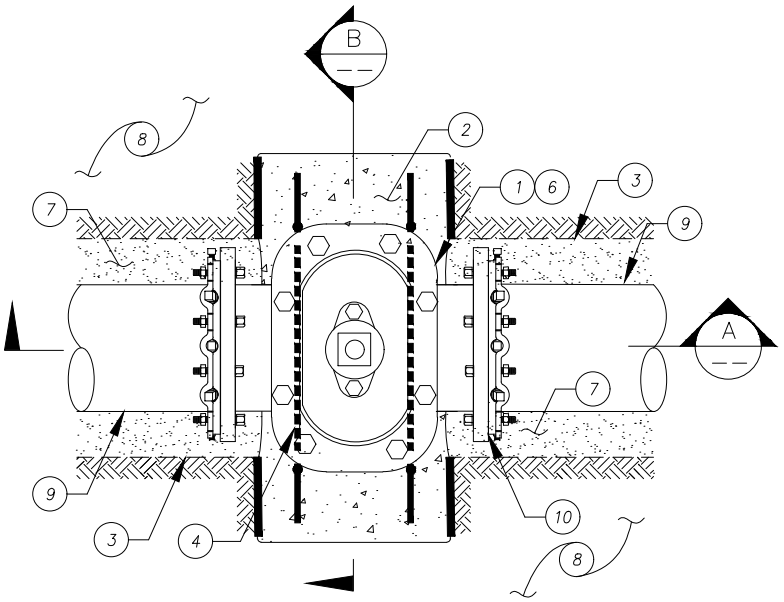
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 419

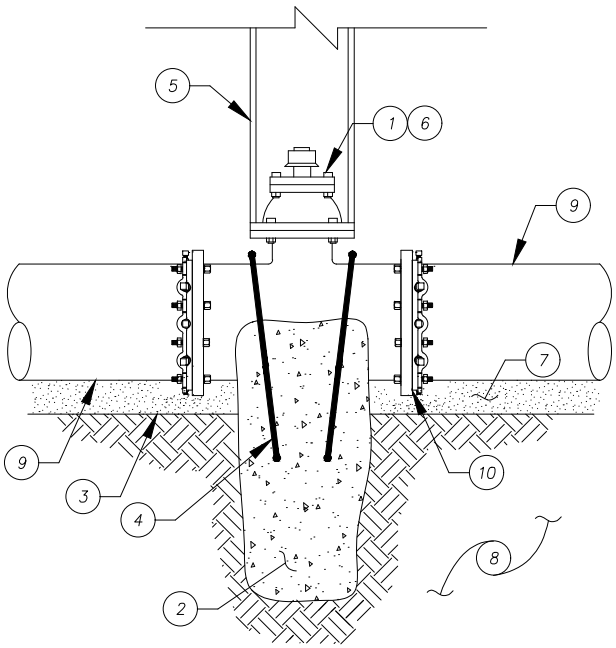
SHEET 7 OF 7

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_419G.DWG



PLAN
NO SCALE

ITEM	MATERIALS
1	RESILIENT WEDGE GATE VALVE, MJ, PER AWWA C515. INSTALL TYPE 316SS BONNET BOLTS AND NUTS.
2	CONCRETE SUPPORT/THRUST BLOCK PER CITY STD. DWG. 401.
3	TRENCH BOUNDARY.
4	#4 REBAR ANCHORS (MIN.) PER CITY STD. DWG. 401.
5	VALVE CAN AND RISER PER CITY STD. DWG. 422.
6	WRAP VALVES WITH TWO LAYERS OF 8-MIL POLYETHYLENE PRIOR TO CONCRETE PLACEMENT.
7	PIPE BEDDING PER CITY STD. DWG. 406.
8	UNDISTURBED EARTH.
9	PIPE PER PLANS.
10	RESTRAINED MECHANICAL JOINT, EBAA IRON MEGALUG SERIES 1100, TYPE 316SS MOUNTING HARDWARE.



SECTION A
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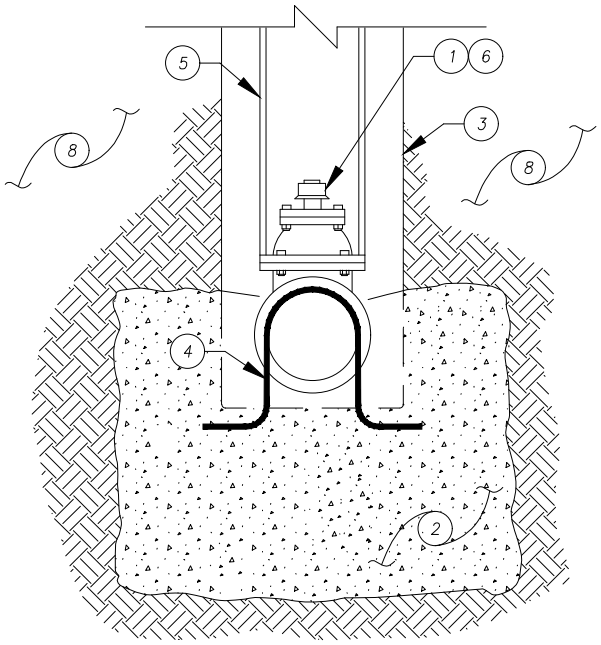


SECTION B
NO SCALE

NOT TO SCALE

RESILIENT WEDGE GATE VALVE INSTALLATION

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

Tom Koper
TOM G. KOPER, PE,
CITY ENGINEER

1/7/2019
DATE

Vernon R. Weisman
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER

1/7/2019
DATE

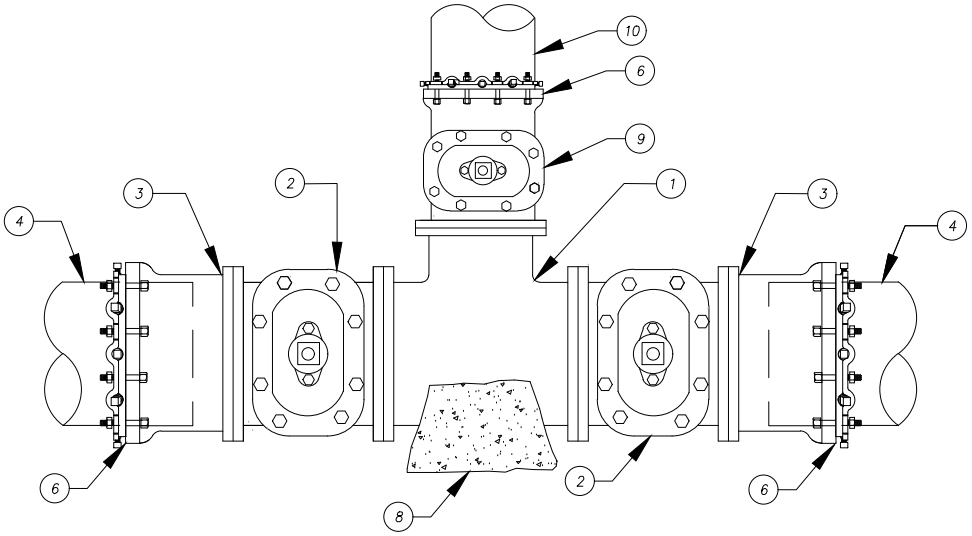
CITY OF CORONA

STD 420

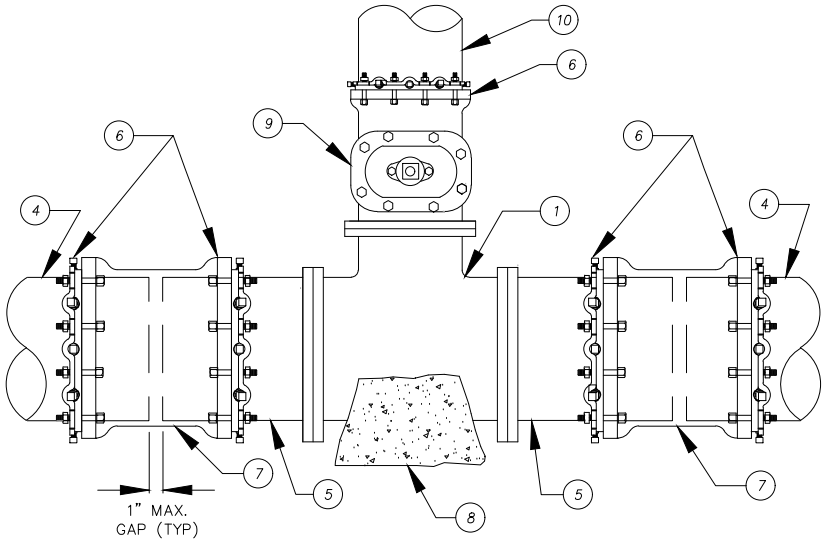
SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_420_REV1.DWG

PVC WATER MAIN



WITH VALVES ON MAIN



WITHOUT VALVES ON MAIN

ITEM	MATERIALS
1	DI TEE, FLG.
2	RW GATE VALVE FLG.
3	DI FLANGED COUPLING ADAPTER WITH TYPE 316SS NUTS, BOLTS AND WASHERS (PVC BY DIP).
4	EXISTING PVC MAIN LINE.
5	DI, FLG x PE, CLASS 53 (MIN. LENGTH IS 24 INCHES).

ITEM	MATERIALS
6	MECHANICAL JOINT RETAINER GLAND WITH TYPE ASTM A242 "WEATHERING" STEEL T-BOLTS, NUTS AND WASHERS, EBAA IRON MEGA-LUG.
7	SOLID DUCTILE IRON MECHANICAL JOINT SLEEVE.
8	THRUST BLOCK PER CITY STD DWG 401.
9	RW GATE VALVE FLG x MJ.
10	DIP, PE, CLASS 350.

NOTE:

1. DOUBLE WRAP ALL METALLIC PARTS WITH 8 MIL POLYETHYLENE ENCASEMENT PER AWWA C105.

NOT TO SCALE

CUT-IN TEE

REVISION NO.	APPROVED	DATE
1		04/22/14
2	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

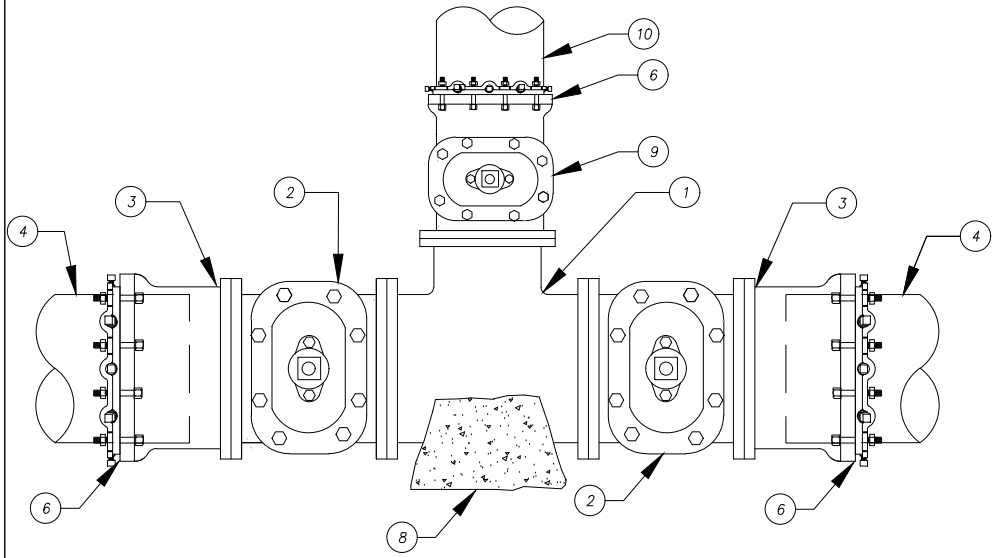
CITY OF CORONA

STD 421

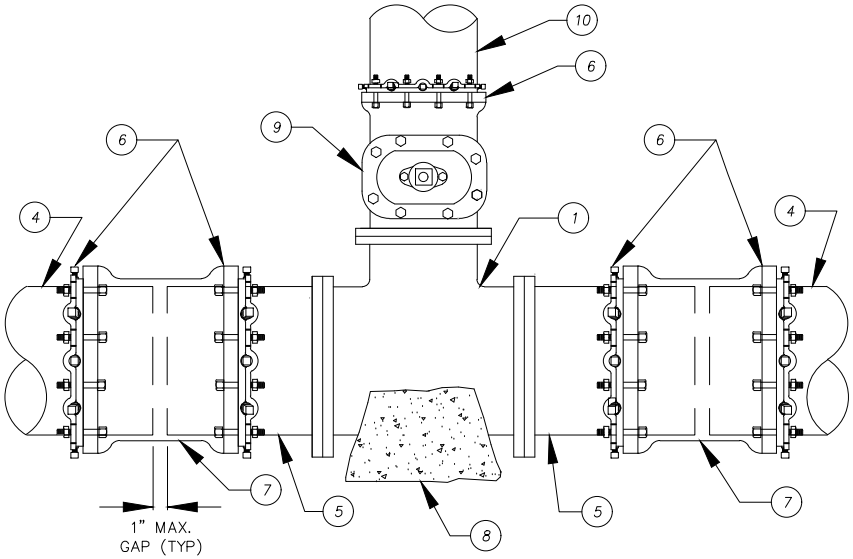
SHEET 1 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_421A_REV3.DWG

DIP WATER MAIN



WITH VALVES ON MAIN



WITHOUT VALVES ON MAIN

ITEM	MATERIALS
1	DI TEE, FLG.
2	RW GATE VALVE FLG.
3	DI FLANGED RESTRAINED COUPLING WITH TYPE 316SS NUTS, BOLTS AND WASHERS.
4	EXISTING DIP. MAINLINE.
5	DIP, CLASS 53 (LENGTH = 24 INCHES).

NOTE:

1. DOUBLE WRAP ALL METALLIC PARTS WITH 8 MIL. POLYETHYLENE ENCASEMENT PER AWWA C105.

ITEM	MATERIALS
6	MECHANICAL JOINT RETAINER GLAND WITH TYPE ASTM A242 "WEATHERING" STEEL T-BOLTS, NUTS AND WASHERS, EBAA IRON MEGA-LUG.
7	SOLID DUCTILE IRON MECHANICAL JOINT SLEEVE.
8	CONCRETE THRUST BLOCK PER CITY STD DWG 401.
9	RW GATE VALVE FLG x MJ.
10	DIP, PE, CLASS 350.

NOT TO SCALE

CUT-IN TEE

REVISION		
NO.	APPROVED	DATE
1		04/22/14
2	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

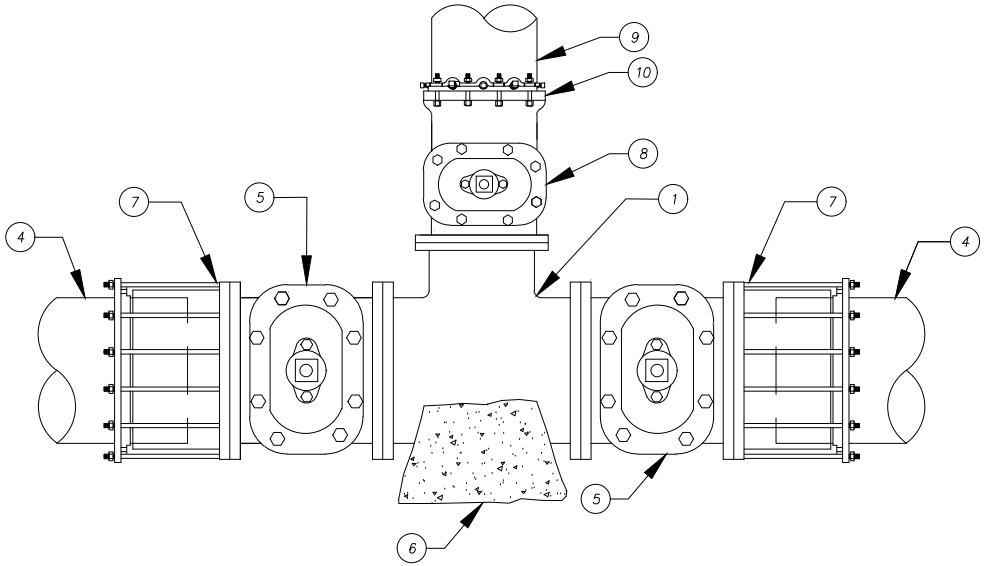
CITY OF CORONA

STD 421

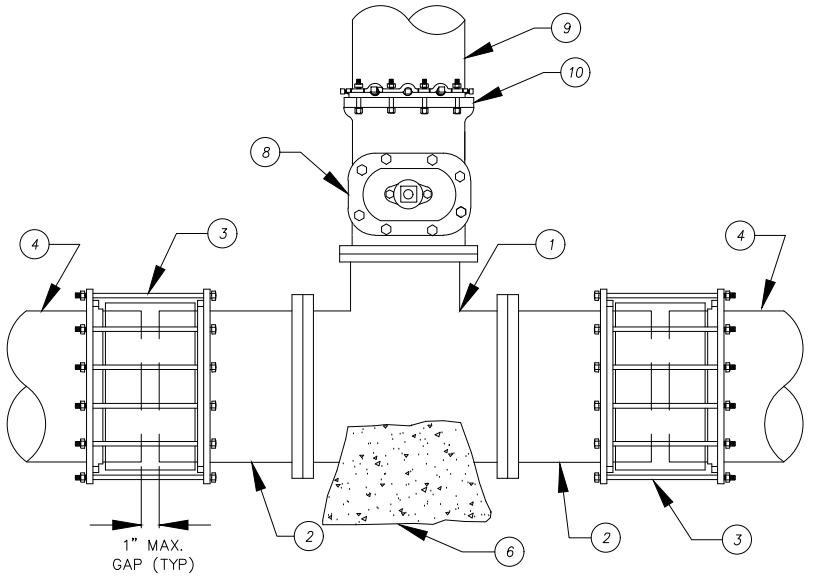
SHEET 2 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_421B_REV3.DWG

ASBESTOS CEMENT PIPE (ACP) WATER MAIN



WITH VALVES ON MAIN



WITHOUT VALVES ON MAIN

ITEM	MATERIALS
1	DI TEE, FLG.
2	DIP, FLG x PE, CLASS 53 (MIN. LENGTH IS 24 INCHES).
3	PIPE COUPLING ADAPTER (ACP ROUGH BARREL BY DIP) WITH TYPE 316SS NUTS, BOLTS AND WASHERS (MIN. CENTER SLEEVE LENGTH OF 12 INCHES).
4	EXISTING ACP MAIN LINE.
5	RW GATE VALVE FLG.

NOTES:

1. REMOVE MACHINED–END FROM ACP AND CONNECT TO EXISTING ROUGH BARREL.
2. DOUBLE WRAP ALL METALLIC PARTS WITH 8 MIL. POLYETHYLENE ENCASEMENT PER AWWA C105.

ITEM	MATERIALS
6	CONCRETE THRUST BLOCK PER CITY STD DWG 401.
7	FLANGED COUPLING ADAPTER WITH TYPE 316SS NUTS, BOLTS AND WASHERS.
8	RW GATE VALVE FLG x MJ.
9	DIP, PE, CLASS 350.
10	MECHANICAL JOINT RETAINER GLAND WITH TYPE ASTM A242 "WEATHERING" STEEL T–BOLTS, NUTS AND WASHERS, EBAA IRON MEGALUG.

NOT TO SCALE

CUT–IN TEE

REVISION		
NO.	APPROVED	DATE
1		04/22/14
2	VRW	12/28/18

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

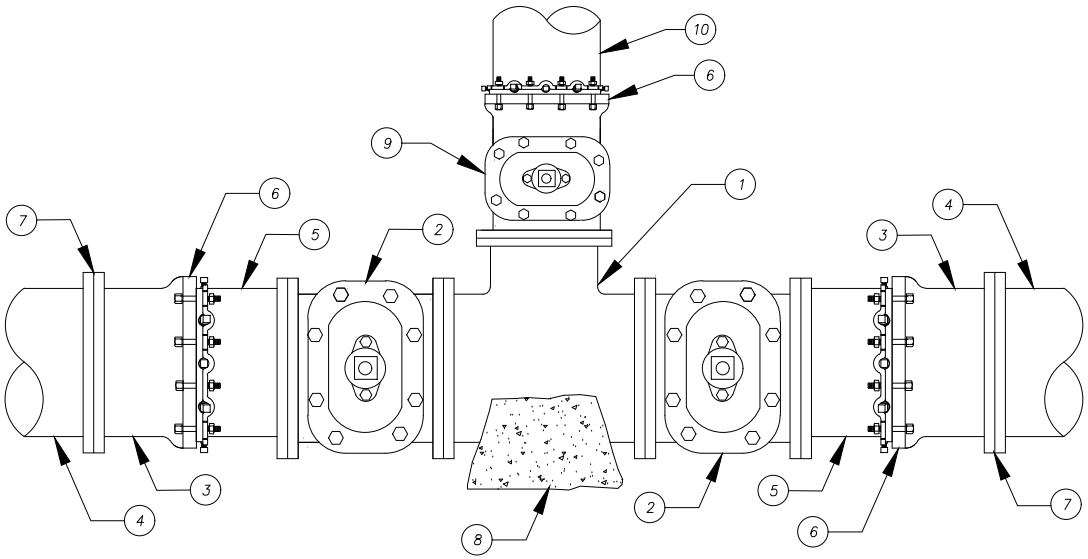
CITY OF CORONA

STD 421

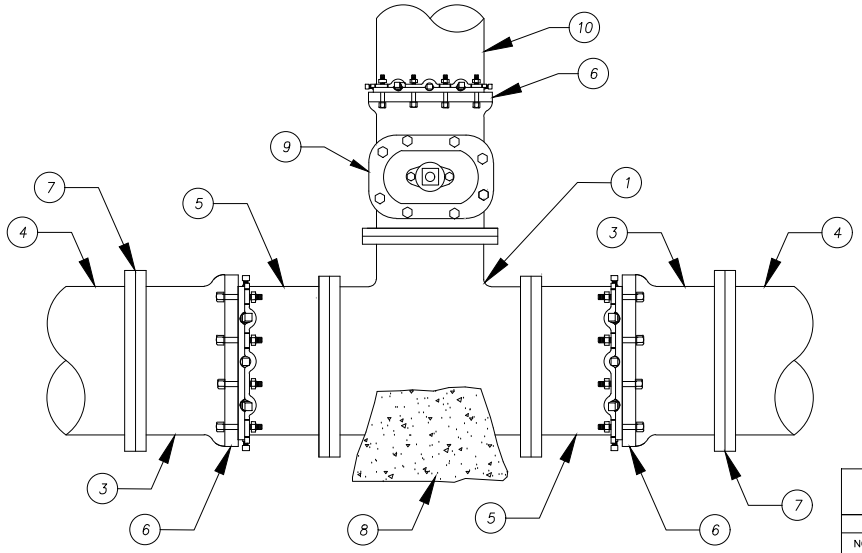
SHEET 3 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_421C_REV2.DWG

CML&C STEEL WATER MAIN



WITH VALVES ON MAIN



WITHOUT VALVES ON MAIN

ITEM	MATERIALS
1	DI TEE, FLG.
2	RW GATE VALVE FLG.
3	DI FLANGED RESTRAINED COUPLING WITH TYPE 316SS NUTS, BOLTS AND WASHERS (CML&C STEEL BY DIP).
4	EXISTING CML&C STEEL MAINLINE.
5	DIP FLG x PL SPOOL, CLASS 53 (LENGTH = 24 INCHES). CEMENT MORTAR LINING AND ENCASED. SEE NOTE 1.
6	MECHANICAL JOINT RETAINER GLAND WITH TYPE ASTM A242 "WEATHERING" STEEL T-BOLTS, NUTS AND WASHERS, EBAA IRON MEGA-LUG.
7	FURNISH AND INSTALL FLANGE INSULATING KIT PER CITY STD DWG. 458. EPOXY COAT EXPOSED STEEL USING NSF 61 COMPLIANT EPOXY.
8	CONCRETE THRUST BLOCK PER CITY STD DWG 401.
9	RW GATE VALVE FLG x MJ.
10	DIP, PE, CLASS 350.

NOTE:

1. DOUBLE WRAP ALL METALLIC PARTS WITH 8 MIL. POLYETHYLENE ENCASEMENT PER AWWA C105.

NOT TO SCALE

CUT-IN TEE

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

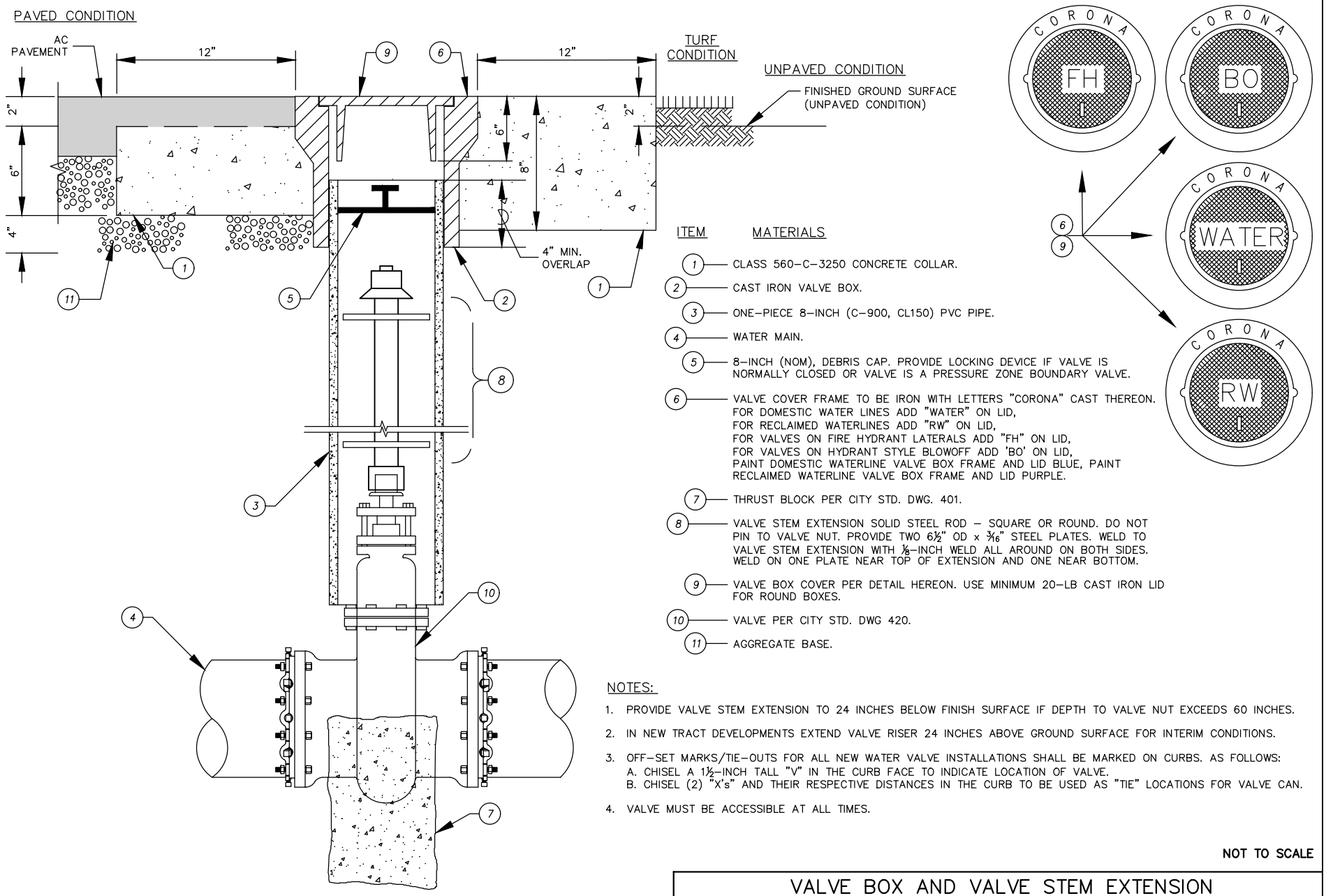
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 421

SHEET 4 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_421D.DWG



ITEM	MATERIALS
1	CLASS 560-C-3250 CONCRETE COLLAR.
2	CAST IRON VALVE BOX.
3	ONE-PIECE 8-INCH (C-900, CL150) PVC PIPE.
4	WATER MAIN.
5	8-INCH (NOM), DEBRIS CAP. PROVIDE LOCKING DEVICE IF VALVE IS NORMALLY CLOSED OR VALVE IS A PRESSURE ZONE BOUNDARY VALVE.
6	VALVE COVER FRAME TO BE IRON WITH LETTERS "CORONA" CAST THEREON. FOR DOMESTIC WATER LINES ADD "WATER" ON LID, FOR RECLAIMED WATERLINES ADD "RW" ON LID, FOR VALVES ON FIRE HYDRANT LATERALS ADD "FH" ON LID, FOR VALVES ON HYDRANT STYLE BLOWOFF ADD 'BO' ON LID, PAINT DOMESTIC WATERLINE VALVE BOX FRAME AND LID BLUE, PAINT RECLAIMED WATERLINE VALVE BOX FRAME AND LID PURPLE.
7	THRUST BLOCK PER CITY STD. DWG. 401.
8	VALVE STEM EXTENSION SOLID STEEL ROD – SQUARE OR ROUND. DO NOT PIN TO VALVE NUT. PROVIDE TWO 6½" OD x 3/16" STEEL PLATES. WELD TO VALVE STEM EXTENSION WITH ⅛-INCH WELD ALL AROUND ON BOTH SIDES. WELD ON ONE PLATE NEAR TOP OF EXTENSION AND ONE NEAR BOTTOM.
9	VALVE BOX COVER PER DETAIL HEREON. USE MINIMUM 20-LB CAST IRON LID FOR ROUND BOXES.
10	VALVE PER CITY STD. DWG 420.
11	AGGREGATE BASE.

NOTES:

1. PROVIDE VALVE STEM EXTENSION TO 24 INCHES BELOW FINISH SURFACE IF DEPTH TO VALVE NUT EXCEEDS 60 INCHES.
2. IN NEW TRACT DEVELOPMENTS EXTEND VALVE RISER 24 INCHES ABOVE GROUND SURFACE FOR INTERIM CONDITIONS.
3. OFF-SET MARKS/TIE-OUTS FOR ALL NEW WATER VALVE INSTALLATIONS SHALL BE MARKED ON CURBS. AS FOLLOWS:
   A. CHISEL A 1½-INCH TALL "V" IN THE CURB FACE TO INDICATE LOCATION OF VALVE.
   B. CHISEL (2) "X's" AND THEIR RESPECTIVE DISTANCES IN THE CURB TO BE USED AS "TIE" LOCATIONS FOR VALVE CAN.
4. VALVE MUST BE ACCESSIBLE AT ALL TIMES.

NOT TO SCALE

VALVE BOX AND VALVE STEM EXTENSION

REVISION NO.	APPROVED	DATE
1		12/28/18
2	VRW	10/01/20

APPROVED:

Tom Koper
TOM G. KOPER, PE,
CITY ENGINEER
10/01/20
DATE

Vernon R Weisman
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER
10/01/20
DATE

CITY OF CORONA

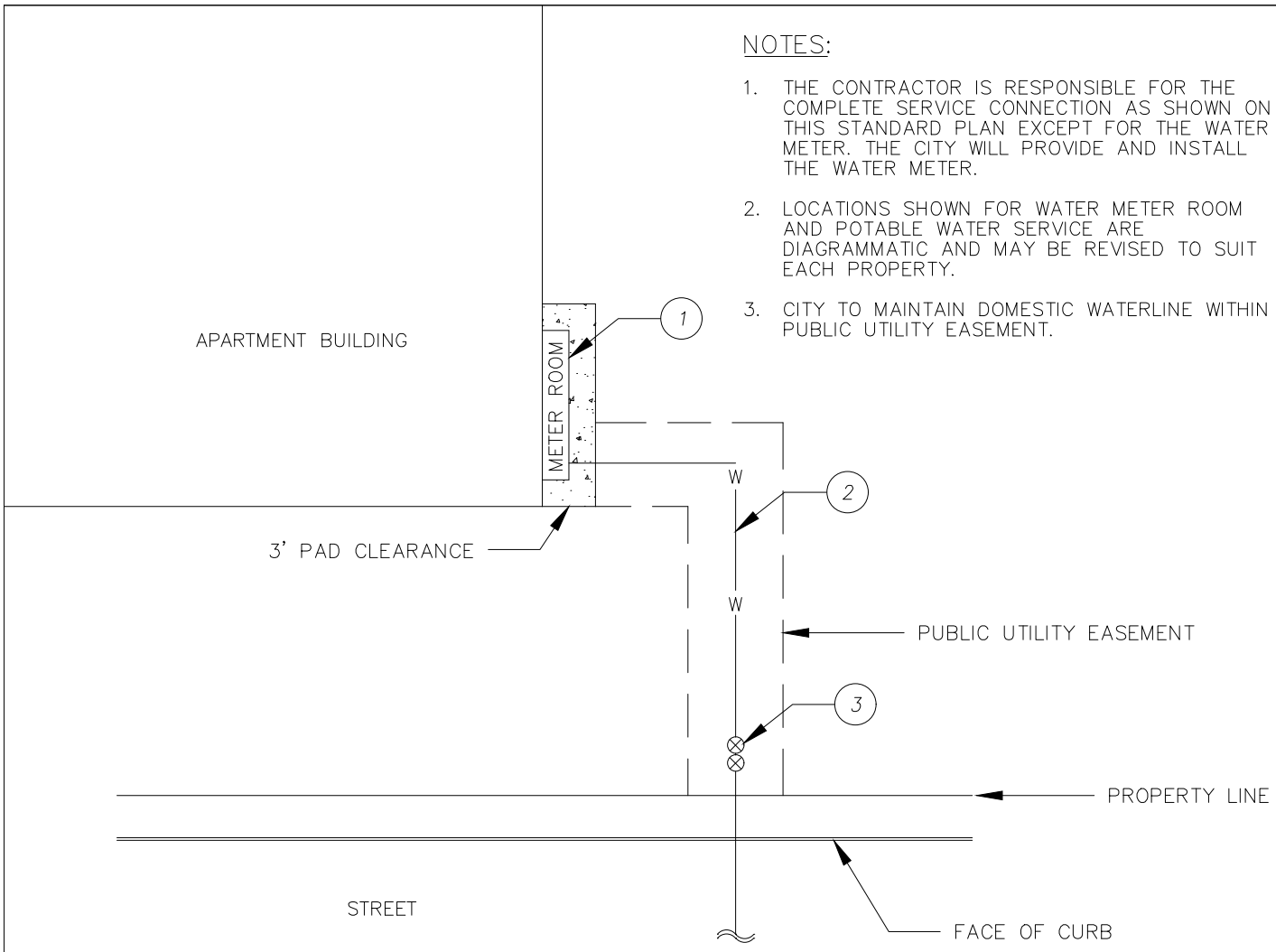
STD 422

SHEET 1 OF 1

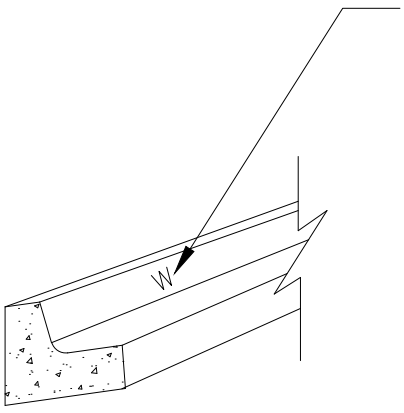
FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_422A_REV2.DWG

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE SERVICE CONNECTION AS SHOWN ON THIS STANDARD PLAN EXCEPT FOR THE WATER METER. THE CITY WILL PROVIDE AND INSTALL THE WATER METER.
2. LOCATIONS SHOWN FOR WATER METER ROOM AND POTABLE WATER SERVICE ARE DIAGRAMMATIC AND MAY BE REVISED TO SUIT EACH PROPERTY.
3. CITY TO MAINTAIN DOMESTIC WATERLINE WITHIN PUBLIC UTILITY EASEMENT.



ITEM	MATERIALS
1	WATER METER ROOM SEE FOLLOWING SHEETS FOR FRONT AND SECTION VIEW DETAILS.
2	POTABLE WATER SERVICE. DUCTILE IRON, CEMENT MORTAR LINED AND ENCASED WITH A DOUBLE LAYER OF 8-MIL BLUE POLYETHYLENE. PRESSURE OR THICKNESS CLASS TO BE DETERMINED BY THE DESIGN ENGINEER.
3	REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY PER CITY STD. DWG. 428.



1½" (W) IN THE CENTER LINE OF THE CURB FACE TO MARK THE SERVICE LOCATION WHERE THE LATERAL CROSSES UNDER THE CURB. USE WHEEL GRINDER, ¼" DEEP GROOVE.

NOT TO SCALE

METER ROOM POTABLE WATER SERVICE CONNECTION DETAIL

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

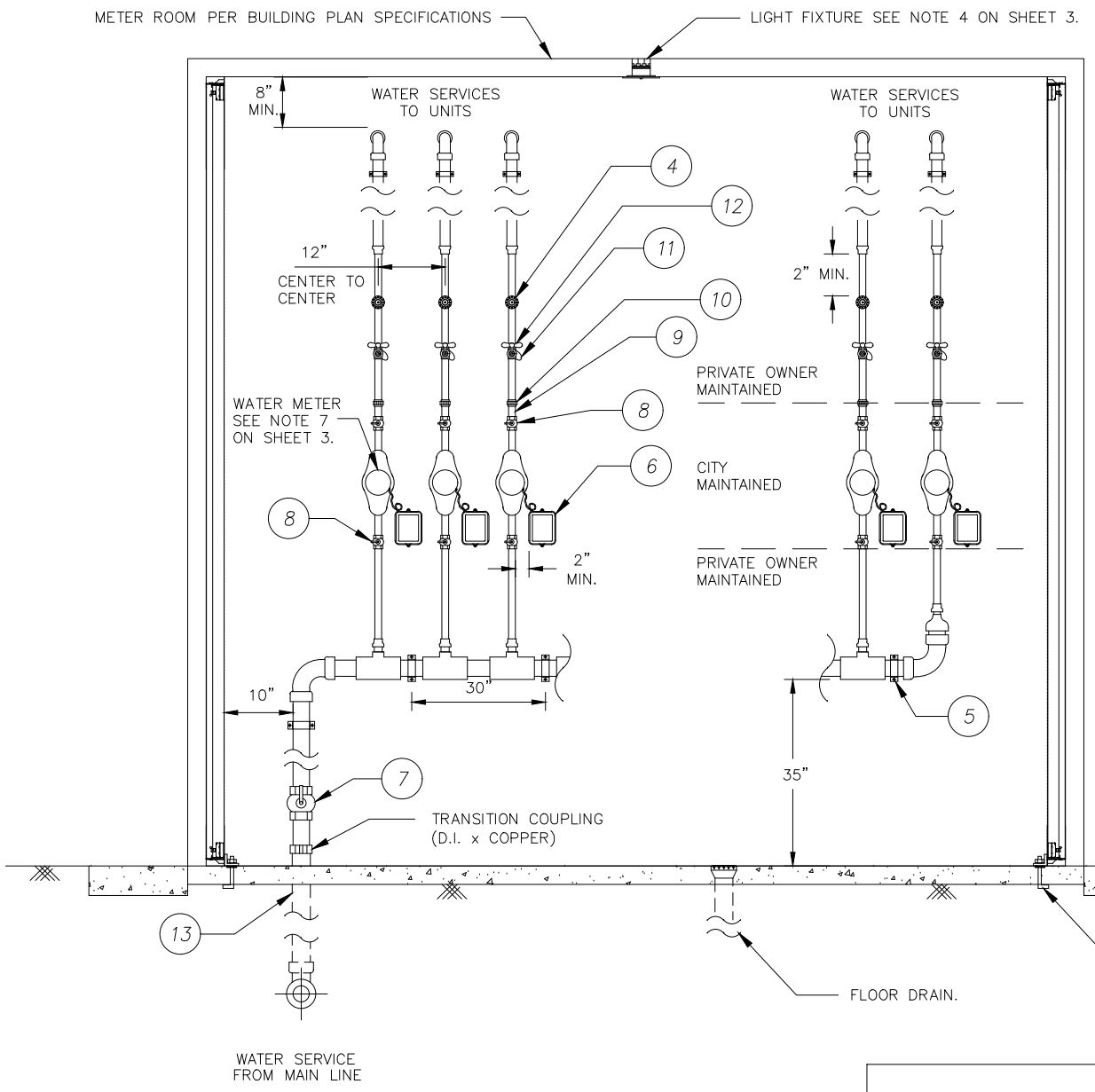
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 424

SHEET 1 OF 3

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_424A.DWG



FRONT VIEW

ITEM	MATERIALS
4	INDIVIDUAL PRESSURE REGULATOR (IF REQUIRED).
5	STAINLESS STEEL PIPE BRACING.
6	AMI METER ELECTRICAL EQUIPMENT BY THE CITY.
7	LEAD FREE BRASS BALL VALVE "LOCK ON" STYLE.
8	STRAIGHT BALL VALVE (FIP x FIP OR MSN): JONES STYLE E-1900W, FORD STYLE B13-344W-NL OR STYLE B13-444W-NL, MUELLER B24351N OR A.Y.MCDONALD 76101MW WITH "LOCK OFF" HANDLE.
9	RED BRASS NIPPLE (MIP x MIP), THREADED BOTH ENDS, 1½-INCH LENGTH.
10	BRASS UNION (FIP x FIP).
11	BRASS TAG WITH STAINLESS STEEL BALL CHAIN TO LABEL EACH APARTMENT UNIT.
12	HOSE BIB.
13	DI PIPE.

NOT TO SCALE

SEE NOTES ON SHEET 3.

METER ROOM CONNECTION DETAIL

REVISION NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019 (DATE)
TOM G. KOPER, PE, CITY ENGINEER

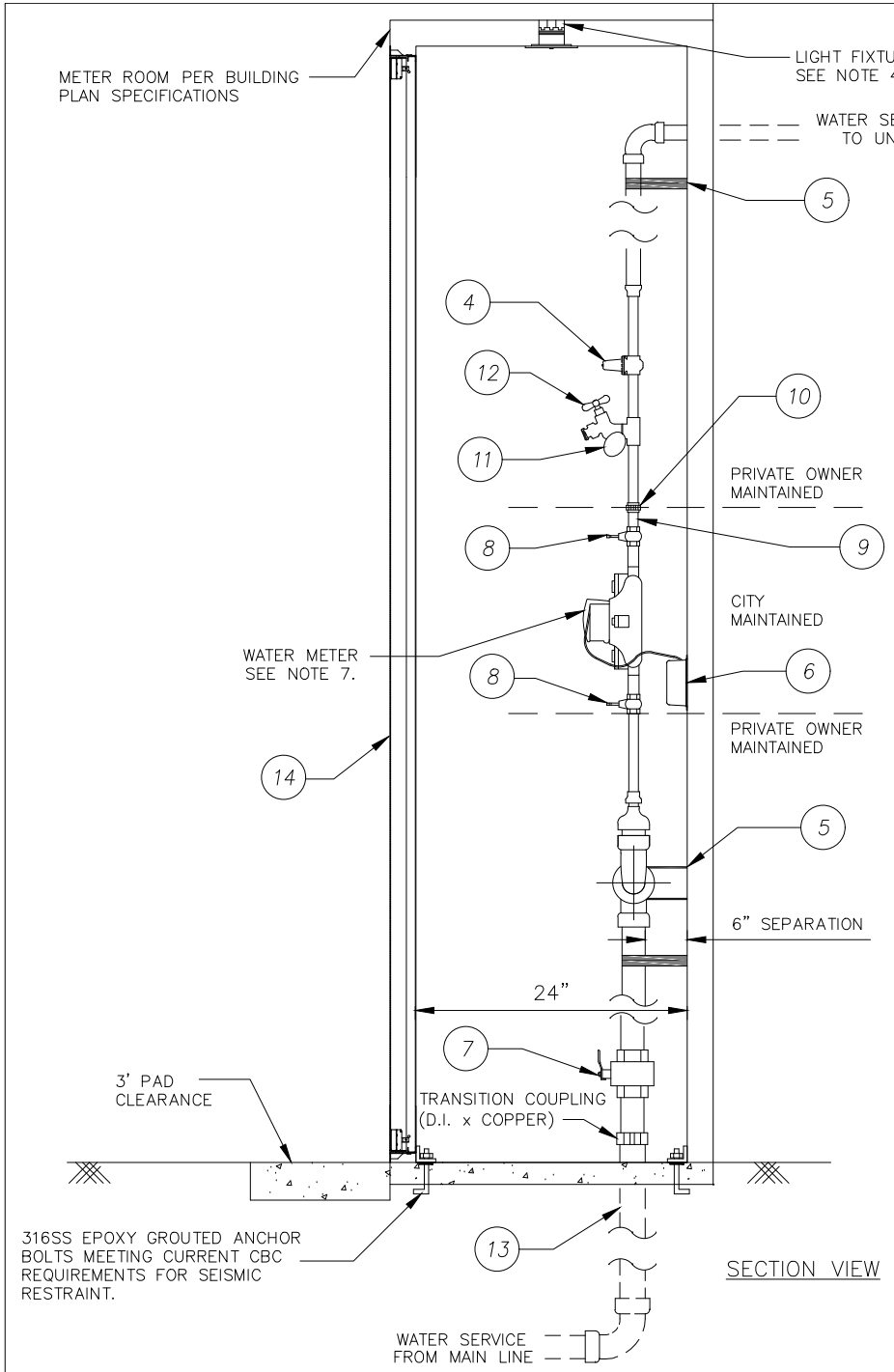
Vernon R. Weisman — 1/7/2019 (DATE)
VERNON R. WEISMAN, PE, DISTRICT ENGINEER

CITY OF CORONA

STD 424

SHEET 2 OF 3

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_424B.DWG



SECTION VIEW

ITEM	MATERIALS
4	INDIVIDUAL PRESSURE REGULATOR (IF REQUIRED).
5	STAINLESS STEEL PIPE BRACING.
6	AMI METER ELECTRICAL EQUIPMENT BY THE CITY.
7	LEAD FREE BRASS BALL VALVE "LOCK ON" STYLE.
8	STRAIGHT BALL VALVE (FIP x FIP OR MSN): JONES STYLE E-1900W, FORD STYLE B13-344W-NL OR STYLE B13-444W-NL, MUELLER B24351N OR A.Y.MCDONALD 76101MW WITH "LOCK OFF" HANDLE.
9	RED BRASS NIPPLE (MIP x MIP), THREADED BOTH ENDS, 1½-INCH LENGTH.
10	BRASS UNION (FIP x FIP).
11	BRASS TAG WITH STAINLESS STEEL BALL CHAIN TO LABEL EACH APARTMENT UNIT.
12	HOSE BIB.
13	DI PIPE.
14	FIRE RATED, SELF CLOSING, METAL ACCESS PANEL. PROVIDE KEYED LOCK AS APPROVED BY THE CITY.

NOTES:

1. ALL CONNECTIONS TO COPPER TUBING SHALL BE COMPRESSION TYPE AND SERVICE MUST BE CONTINUOUS AND UNCUT. NO SWEAT TYPE FITTINGS ALLOWED.
2. ROUND AND DE-BURR ALL COPPER PIPE PRIOR TO INSTALLATION.
3. INSTALL BRASS OR RIGID COPPER PIPING AND FITTINGS INSIDE METER CABINET BETWEEN THE STRAIGHT BALL VALVE AND BRASS UNION.
4. INSTALL APPROPRIATE AUTOMATIC LIGHTING WHEN DOORS OPEN OR ACCESSIBLE LOCATION FOR LIGHT SWITCH.
5. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.
6. PLUMBING SHALL NOT BE INSTALLED WITHIN THE VICINITY OF THE METER THAT WILL PREVENT THE CITY FROM MAINTAINING OR REPLACING THE METER.
7. THE CITY WILL PROVIDE AND INSTALL A NEPTUNE T-10 METER (MIP x MIP). REQUEST THE METER INSTALLATION FROM THE PUBLIC WORKS INSPECTOR OR THE BUILDING INSPECTOR WHEN THERE IS NO PUBLIC IMPROVEMENT PLAN. THE WATER METER SHALL BE CENTERED TO THE CABINET OPENING.

NOT TO SCALE

METER ROOM POTABLE WATER SERVICE CONNECTION DETAIL

REVISION NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

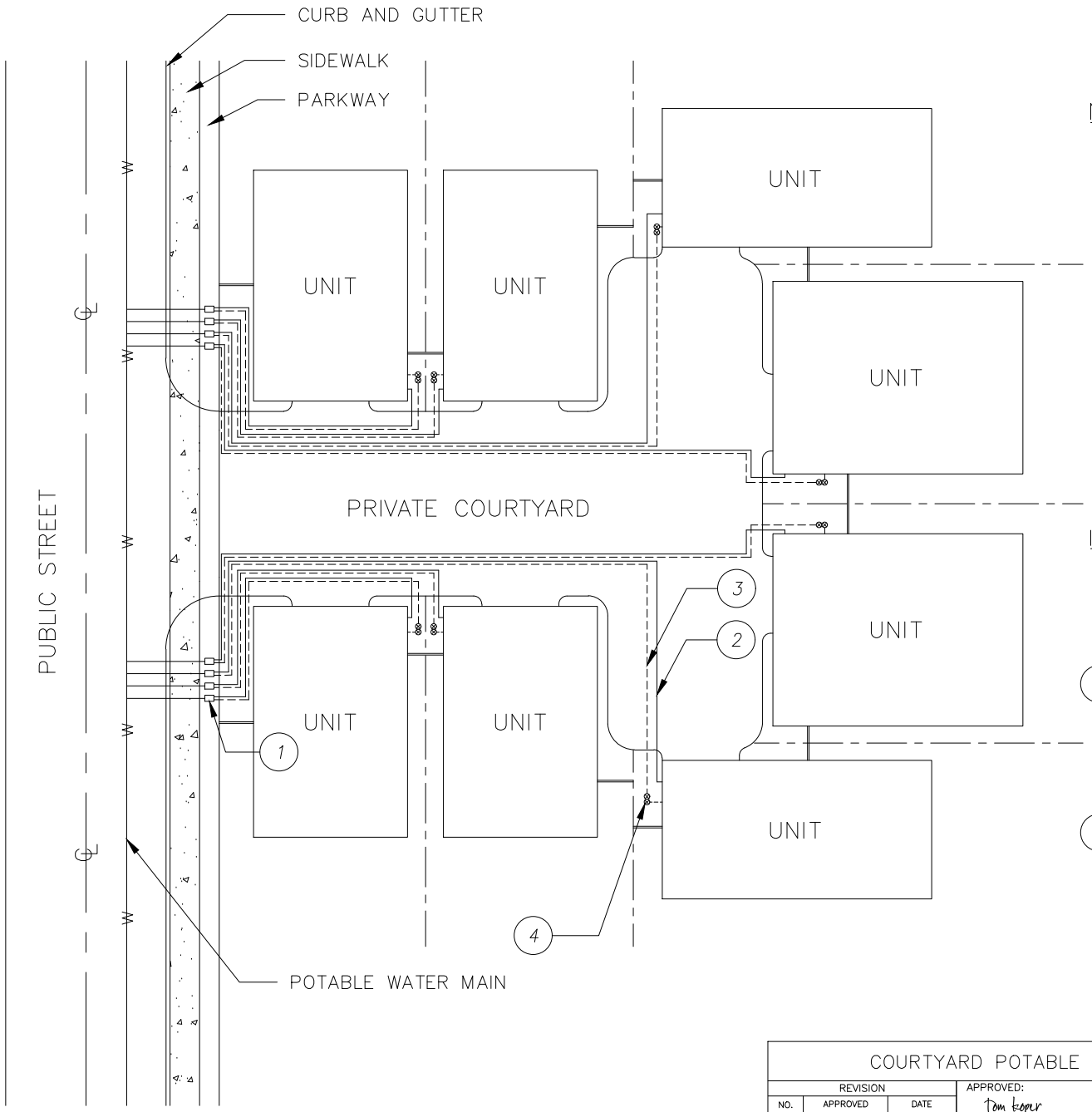
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 424

SHEET 3 OF 3

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_424C.DWG



NOTES:

1. APPROVED LEAD FREE DOUBLE CHECK VALVE DEVICES ARE LISTED IN THE USC LIST OF APPROVED DOUBLE CHECK VALVE ASSEMBLIES. INSTALLATION OF THE DEVICE SHALL BE IN A LOCATION ACCESSIBLE BY THE CITY.
2. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

ITEM	MATERIALS
1	WATER METER. SEE STD 408 FOR A 1–INCH WATER CONNECTION DETAIL, STD 409 FOR A 1½–INCH OR 2–INCH WATER CONNECTION DETAIL.
2	DOMESTIC WATER SERVICE TO INDIVIDUAL UNITS PER SEPARATE BUILDING PLAN SUBMITTAL.
3	FIRE SERVICE TO INDIVIDUAL UNITS PER SEPARATE UNDERGROUND FIRE PLAN.
4	APPROVED DOUBLE CHECK VALVE PER NOTE 1.

NOT TO SCALE

COURTYARD POTABLE WATER SERVICE CONNECTION DETAIL

REVISION NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019 (DATE)
TOM G. KOPER, PE, CITY ENGINEER

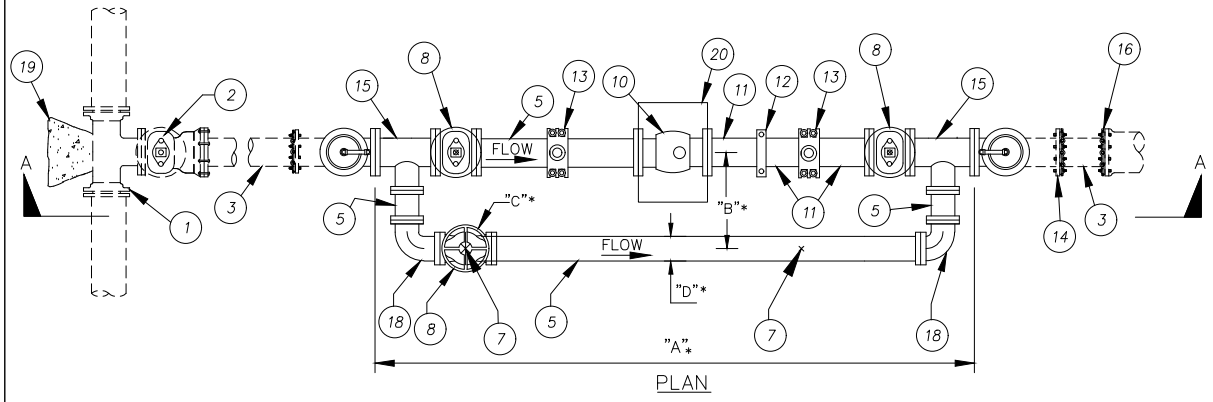
Vernon R. Weisman — 1/7/2019 (DATE)
VERNON R. WEISMAN, PE, DISTRICT ENGINEER

CITY OF CORONA

STD 425

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_425.DWG



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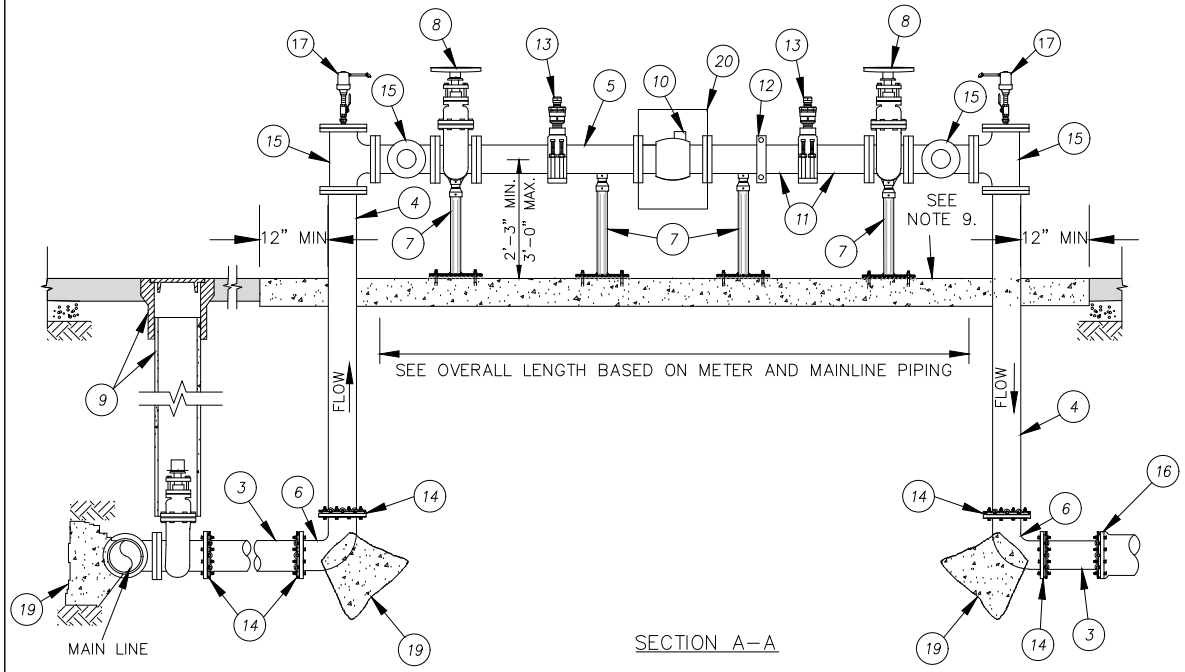


SECTION A–A

ITEM	MATERIALS
1	MAIN LINE SIZE X 6–INCH OR 4–INCH DI TEE ON NEW WATER MAINS. CUT TEE INTO EXISTING WATER MAIN PER CITY STD. DWG. 421.
2	RW GATE VALVE FLG X MJ PER CITY STD. DWG 420.
3	DIP, CLASS 350, RESTRAINED JOINT.
4	DIP SPOOL FLGxPE (LENGTH AS REQUIRED).
5	DIP SPOOL, FLG.
6	90–DEGREE DI BEND, MJ.
7	PIPE SUPPORT PER CITY STD. DWG. 418.
8	RW O.S.&Y GATE VALVE FLG W/ HAND WEEL, SIZE AS REQUIRED.
9	VALVE BOX, PER CITY STD. DWG. 422.
10	COMPOUND FLOW METER, NEPTUNE TRU/FLO.
11	DIP SPOOL, FLG X VIC.
12	VICTAULIC COUPLING STYLE 31.
13	PITOT TUBE INSERTION POINT – TYPE 316SS, 1–INCH DOUBLE–STRAP SADDLE, CLOSE NIPPLE, FULL–PORT BALL VALVE, THREADED PLUG.
14	MJ RESTRAINT GLAND, EBAA, IRON MEGALUG SERIES 100 (TYP).
15	DI TEE, FLG (SEE NOTE 8).
16	DI END CAP. MJ WITH RESTRAINED RETAINER GLAND (WHERE ON–SITE PIPING IS NOT CONNECTED).
17	AIR/VAC VALVE. SEE STD. DWG. 413.
18	DI 90–DEGREE BEND FLG.
19	THRUST BLOCK SIZED PER CITY STD. DWG. 401 (TYP).
20	TYPE 316SS CAGE WITH EXPANDED METAL PAINTED SAME AS ABOVE–GROUND PIPING.

DIMENSIONS	METER AND MAINLINE PIPING			
SIZE (INCHES)	3"	4"	6"	8"
A. OVERALL LENGTH	70	82	95	148
B. ℄–℄ PIPES	22	24	29	76
C. BYPASS VALVE SIZE	3	3	4	6
D. BYPASS PIPING SIZE	3	3	4	6

*ALL DIMENSIONS ARE IN INCHES

NOT TO SCALE

CONDITION 1: WITH BYPASS

SEE NOTES ON SHEET 4.

POTABLE WATER COMPOUND FLOW METER

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

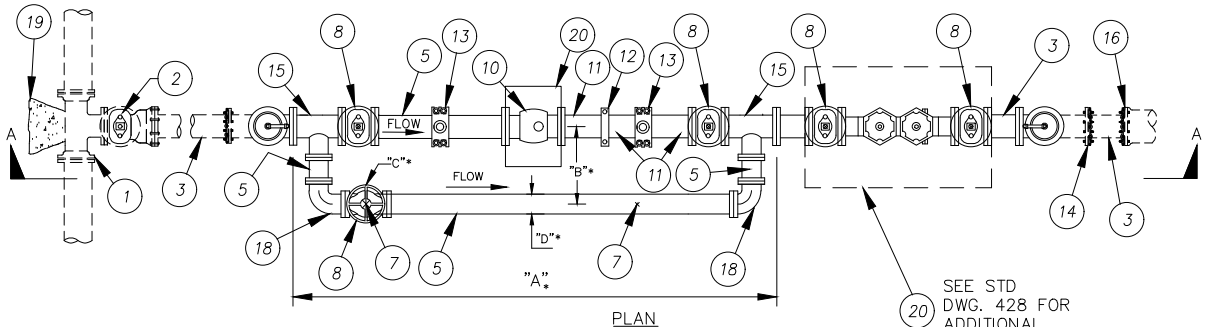
Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

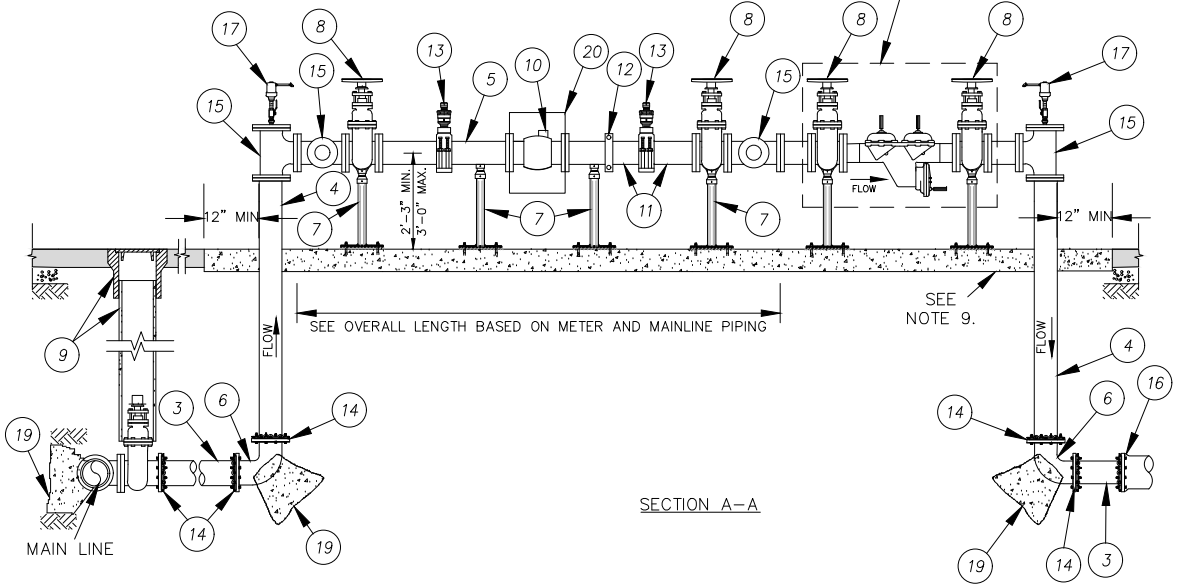
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 426

SHEET 1 OF 4





ITEM MATERIALS

1. MAIN LINE SIZE X 6-INCH OR 4-INCH DI TEE ON NEW WATER MAINS. CUT TEE INTO EXISTING WATER MAIN PER CITY STD. DWG. 421.
2. RW GATE VALVE FLG X MJ PER CITY STD. DWG 420.
3. DIP, CLASS 350, RESTRAINED JOINT.
4. DIP SPOOL FLGxPE (LENGTH AS REQUIRED).
5. DIP SPOOL, FLG.
6. 90-DEGREE DI BEND, MJ.
7. PIPE SUPPORT PER CITY STD. DWG. 418.
8. RW O.S.&Y GATE VALVE FLG W/ HAND WEEL, SIZE AS REQUIRED.
9. VALVE BOX, PER CITY STD. DWG. 422.
10. COMPOUND FLOW METER, NEPTUNE TRU/FLO.
11. DIP SPOOL, FLG X VIC.
12. VICTAULIC COUPLING STYLE 31.
13. PITOT TUBE INSERTION POINT – TYPE 316SS, 1-INCH DOUBLE-STRAP SADDLE, CLOSE NIPPLE, FULL-PORT BALL VALVE, THREADED PLUG.
14. MJ RESTRAINT GLAND, EBAA, IRON MEGALUG SERIES 100 (TYP).
15. DI TEE, FLG (SEE NOTE 8).
16. DI END CAP. MJ WITH RESTRAINED RETAINER GLAND (WHERE ON-SITE PIPING IS NOT CONNECTED).
17. AIR/VAC VALVE. SEE STD. DWG. 413.
18. DI 90-DEGREE BEND FLG.
19. THRUST BLOCK SIZED PER CITY STD. DWG. 401 (TYP).
20. TYPE 316SS CAGE WITH EXPANDED METAL PAINTED SAME AS ABOVE-GROUND PIPING.

DIMENSIONS	METER AND MAINLINE PIPING			
SIZE (INCHES)	3"	4"	6"	8"
A. OVERALL LENGTH	70	82	95	148
B. ℄-℄ PIPES	22	24	29	76
C. BYPASS VALVE SIZE	3	3	4	6
D. BYPASS PIPING SIZE	3	3	4	6

*ALL DIMENSIONS ARE IN INCHES

NOT TO SCALE

CONDITION 2: WITH BYPASS AND REDUCED PRESSURE BACKFLOW ASSEMBLY

SEE NOTES ON SHEET 4.

POTABLE WATER COMPOUND FLOW METER

REVISION		
NO.	APPROVED	DATE
1	VRW	12/28/18

APPROVED:

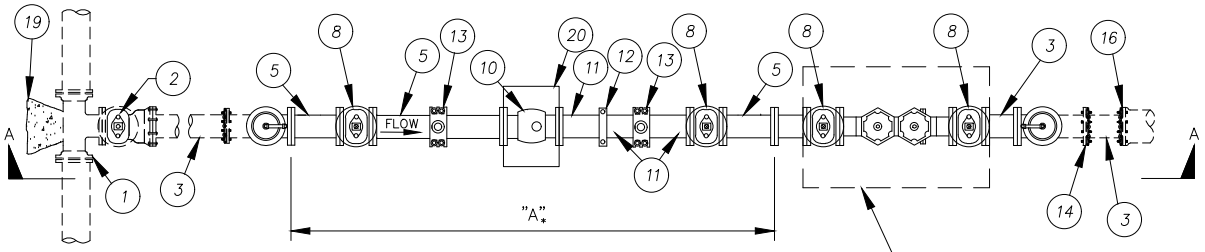
Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 426

SHEET 2 OF 4



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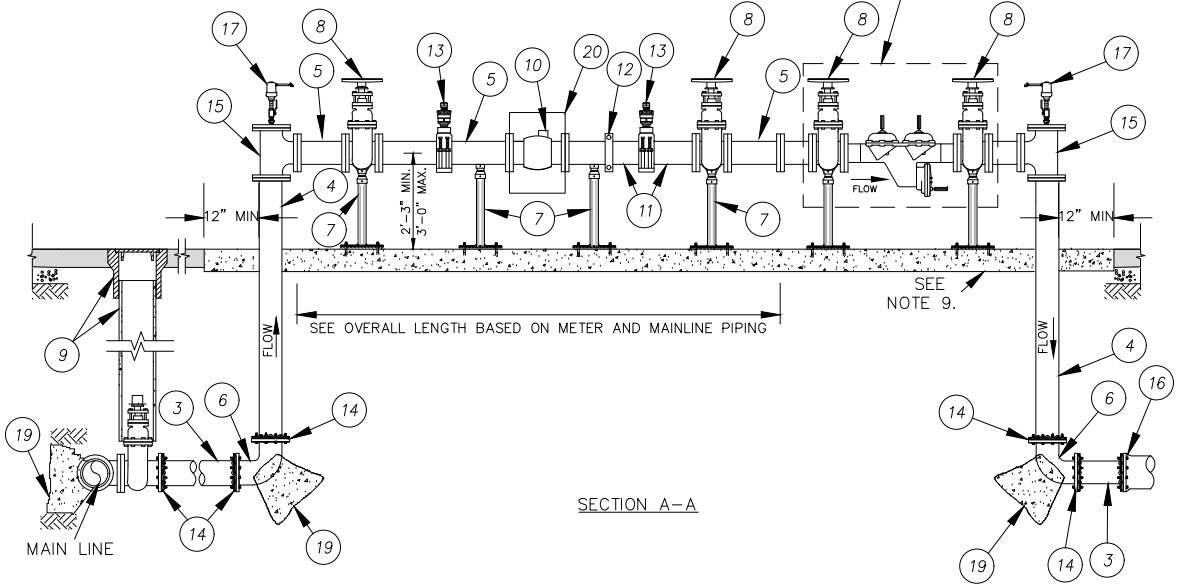


SECTION A–A

ITEM	MATERIALS
1	MAIN LINE SIZE X 6–INCH OR 4–INCH DI TEE ON NEW WATER MAINS. CUT TEE INTO EXISTING WATER MAIN PER CITY STD. DWG. 421.
2	RW GATE VALVE FLG X MJ PER CITY STD. DWG 420.
3	DIP, CLASS 350, RESTRAINED JOINT.
4	DIP SPOOL FLGxPE (LENGTH AS REQUIRED).
5	DIP SPOOL, FLG.
6	90–DEGREE DI BEND, MJ.
7	PIPE SUPPORT PER CITY STD. DWG. 418.
8	RW O.S.&Y GATE VALVE FLG W/ HAND WEEL, SIZE AS REQUIRED.
9	VALVE BOX, PER CITY STD. DWG. 422.
10	COMPOUND FLOW METER, NEPTUNE TRU/FLO.
11	DIP SPOOL, FLG X VIC.
12	VICTAULIC COUPLING STYLE 31.
13	PITOT TUBE INSERTION POINT – TYPE 316SS, 1–INCH DOUBLE–STRAP SADDLE, CLOSE NIPPLE, FULL–PORT BALL VALVE, THREADED PLUG.
14	MJ RESTRAINT GLAND, EBAA, IRON MEGALUG SERIES 100 (TYP).
15	DI TEE, FLG (SEE NOTE 8).
16	DI END CAP. MJ WITH RESTRAINED RETAINER GLAND (WHERE ON–SITE PIPING IS NOT CONNECTED).
17	AIR/VAC VALVE. SEE STD. DWG. 413.
19	THRUST BLOCK SIZED PER CITY STD. DWG. 401 (TYP).
20	TYPE 316SS CAGE WITH EXPANDED METAL PAINTED SAME AS ABOVE–GROUND PIPING.

DIMENSIONS	METER AND MAINLINE PIPING			
SIZE (INCHES)	3"	4"	6"	8"
A. OVERALL LENGTH*	70	82	95	148

*ALL DIMENSIONS ARE IN INCHES

NOT TO SCALE

CONDITION 3: WITHOUT BYPASS AND WITH REDUCED PRESSURE BACKFLOW ASSEMBLY

SEE NOTES ON SHEET 4.

POTABLE WATER COMPOUND FLOW METER

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 426

SHEET 3 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_426C_REV2.DWG

NOTES:

1. EASEMENT NOTE: METER INSTALLATION IMPROVEMENTS OUTSIDE THE CITY/COUNTY RIGHT-OF-WAY REQUIRE A DEDICATED EASEMENT IN A FORM REQUIRED BY THE CITY.
2. RETAINING WALL (UP TO 6 FEET) : WHEN RETAINING WALL IS REQUIRED TO ACCOMMODATE GRADE VARIATIONS THE WALL SHALL BE CONSTRUCTED PER SSPWC STD. PLAN 618-3 AND PROVIDE MINIMUM 3 FEET CLEARANCE FROM THE IMPROVEMENTS. RETAINING WALLS TALLER THAN 6 FEET REQUIRE A CUSTOM DESIGN PREPARED BY CALIFORNIA REGISTERED CIVIL OR STRUCTURAL ENGINEER.
3. METER SHALL READ IN CUBIC FEET.
4. SEE APPROVED LIST OF MATERIALS FOR RESILIENT WEDGE GATE VALVE MANUFACTURER'S.
5. ELBOWS, TEES, AND REDUCERS SHALL BE A MINIMUM OF FIVE (5) PIPE DIAMETERS UPSTREAM OF FLOW METERS AND THREE (3) PIPE DIAMETERS DOWNSTREAM OF METER.
6. CHECK VALVES OR PRESSURE REDUCING DEVICES SHALL NOT BE INSTALLED LESS THAN TEN (10) PIPE DIAMETERS UPSTREAM OF METER AND FIVE (5) PIPE DIAMETERS DOWNSTREAM OF METER.
7. CITY SHALL ORDER METER. DEVELOPER SHALL PICKUP METER FROM CITY WAREHOUSE AND REIMBURSE THE CITY FOR COST OF METER.
8. INSTALL REDUCING TEES WHERE REQUIRED TO REDUCE PIPE SIZE FROM 8-INCH TO 6-INCH, 6-INCH TO 4-INCH, OR 4-INCH TO 3-INCH, SEE MATERIALS LIST ITEM 15.
9. CONSTRUCT 8-INCH THICK 560-C-3250 REINFORCED CONCRETE HOUSEKEEPING PAD MINIMUM 12-INCHES OUTSIDE OF PIPING AND APPURTENANCES IN ALL DIRECTIONS.
10. THE PIPING BETWEEN THE MAIN AND THE ASSEMBLY (BOTH UPSTREAM AND DOWNSTREAM) SHALL BE RESTRAINED (ALL JOINTS AND FITTINGS).
11. EPOXY LINE AND COAT ABOVE GROUND DI PIPE AND FITTINGS, VALVES, AND COUPLINGS.
12. PAINT ABOVE GROUND PIPE AND FITTINGS, VALVES AND COUPLINGS HUNTER GREEN.
13. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

POTABLE WATER COMPOUND FLOW METER

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

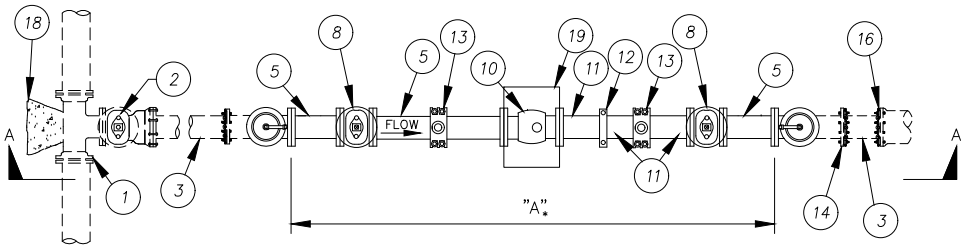
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

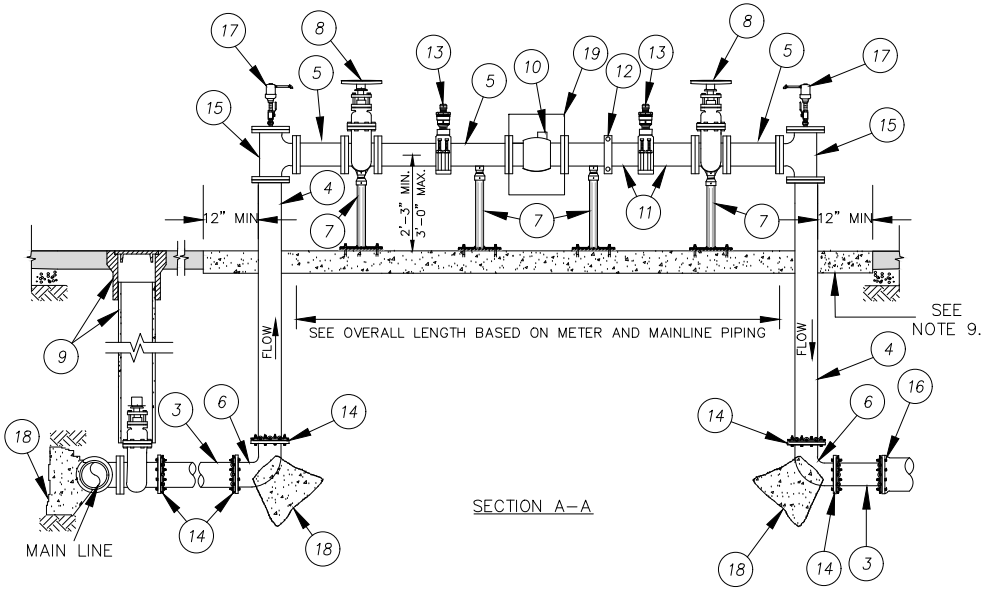
STD 426

SHEET 4 OF 4

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_426D_REV1.DWG



PLAN



SECTION A–A

ITEM	MATERIALS
1	MAIN LINE SIZE X 6–INCH OR 4–INCH DI TEE ON NEW WATER MAINS. CUT TEE INTO EXISTING WATER MAIN PER CITY STD. DWG. 421.
2	RW GATE VALVE FLG X MJ PER CITY STD. DWG 420.
3	DIP, CLASS 350, RESTRAINED JOINT.
4	DIP SPOOL FLGxPE (LENGTH AS REQUIRED).
5	DIP SPOOL, FLG.
6	90–DEGREE DI BEND, MJ.
7	PIPE SUPPORT PER CITY STD. DWG. 418.
8	RW O.S.&Y GATE VALVE FLG W/ HAND WEEL, SIZE AS REQUIRED.
9	VALVE BOX, PER CITY STD. DWG. 422.
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13	PITOT TUBE INSERTION POINT – TYPE 316SS, 1–INCH DOUBLE–STRAP SADDLE, CLOSE NIPPLE, FULL–PORT BALL VALVE, THREADED PLUG.
14	MJ RESTRAINT GLAND, EBAA, IRON MEGALUG SERIES 100 (TYP).
15	DI TEE, FLG.
16	DI END CAP. MJ WITH RESTRAINED RETAINER GLAND (WHERE ON–SITE PIPING IS NOT CONNECTED).
17	AIR/VAC VALVE. SEE STD. DWG. 413.
18	THRUST BLOCK SIZED PER CITY STD. DWG. 401 (TYP).
19	TYPE 316SS CAGE WITH EXPANDED METAL PAINTED SAME AS ABOVE–GROUND PIPING.

DIMENSIONS	METER AND MAINLINE PIPING			
SIZE (INCHES)	3"	4"	6"	8"
A. OVERALL LENGTH*	70	82	95	148

*ALL DIMENSIONS ARE IN INCHES

NOT TO SCALE

SEE NOTES ON SHEET 2.

RECLAIMED WATER COMPOUND FLOW METER

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 426R

SHEET 1 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_426RA_REV1.DWG

NOTES:

1. EASEMENT NOTE: METER INSTALLATION IMPROVEMENTS OUTSIDE THE CITY/COUNTY RIGHT-OF-WAY REQUIRE A DEDICATED EASEMENT IN A FORM REQUIRED BY THE CITY.

2. RETAINING WALL (UP TO 6 FEET) : WHEN RETAINING WALL IS REQUIRED TO ACCOMMODATE GRADE VARIATIONS THE WALL SHALL BE CONSTRUCTED PER SSPWC STD. PLAN 618-3 AND PROVIDE MINIMUM 3 FEET CLEARANCE FROM THE IMPROVEMENTS. RETAINING WALLS TALLER THAN 6 FEET REQUIRE A CUSTOM DESIGN PREPARED BY CALIFORNIA REGISTERED CIVIL OR STRUCTURAL ENGINEER.

3. METER SHALL READ IN CUBIC FEET.

4. SEE APPROVED LIST OF MATERIALS FOR RESILIENT WEDGE GATE VALVE MANUFACTURER'S.

5. ELBOWS, TEES, AND REDUCERS SHALL BE A MINIMUM OF FIVE (5) PIPE DIAMETERS UPSTREAM OF FLOW METERS AND THREE (3) PIPE DIAMETERS DOWNSTREAM OF METER.

6. CHECK VALVES OR PRESSURE REDUCING DEVICES SHALL NOT BE INSTALLED LESS THAN TEN (10) PIPE DIAMETERS UPSTREAM OF METER AND FIVE (5) PIPE DIAMETERS DOWNSTREAM OF METER.

7. CITY SHALL ORDER METER. DEVELOPER SHALL PICKUP METER FROM CITY WAREHOUSE AND REIMBURSE THE CITY FOR COST OF METER.

8. INSTALL REDUCING TEES WHERE REQUIRED TO REDUCE PIPE SIZE FROM 8-INCH TO 6-INCH, 6-INCH TO 4-INCH, OR 4-INCH TO 3-INCH, SEE MATERIALS LIST ITEM 15.

9. CONSTRUCT 8-INCH THICK 560-C-3250 REINFORCED CONCRETE HOUSEKEEPING PAD MINIMUM 12-INCHES OUTSIDE OF THE PIPING AND APPURTENANCES IN ALL DIRECTIONS.

10. THE PIPING BETWEEN THE MAIN AND THE ASSEMBLY (BOTH UPSTREAM AND DOWNSTREAM) SHALL BE RESTRAINED (ALL JOINTS AND FITTINGS).

11. EPOXY LINE AND COAT ABOVE GROUND DI PIPE AND FITTINGS, VALVES, AND COUPLINGS.

12. PAINT ABOVE GROUND DI PIPE AND FITTINGS, VALVES AND COUPLINGS PURPLE PANTONE 512C.

13. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

RECLAIMED WATER COMPOUND FLOW METER

REVISION		
NO.	APPROVED	DATE

APPROVED:

Tom Koper — 1/7/2019
TOM G. KOPER, PE, CITY ENGINEER — DATE

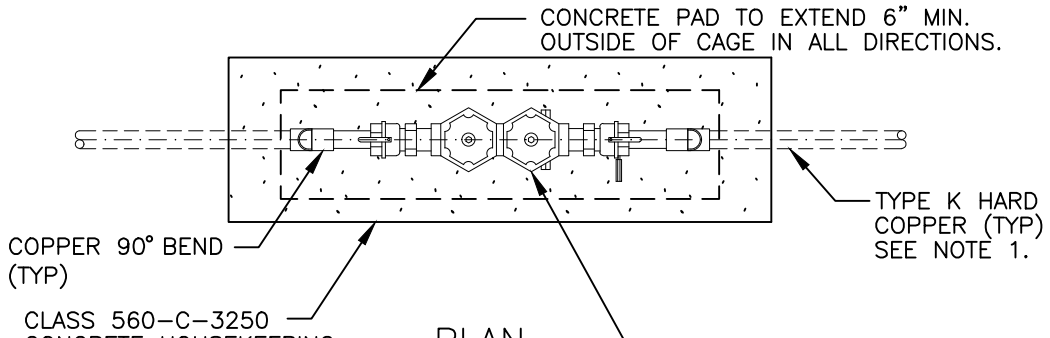
Vernon R. Weisman — 1/7/2019
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

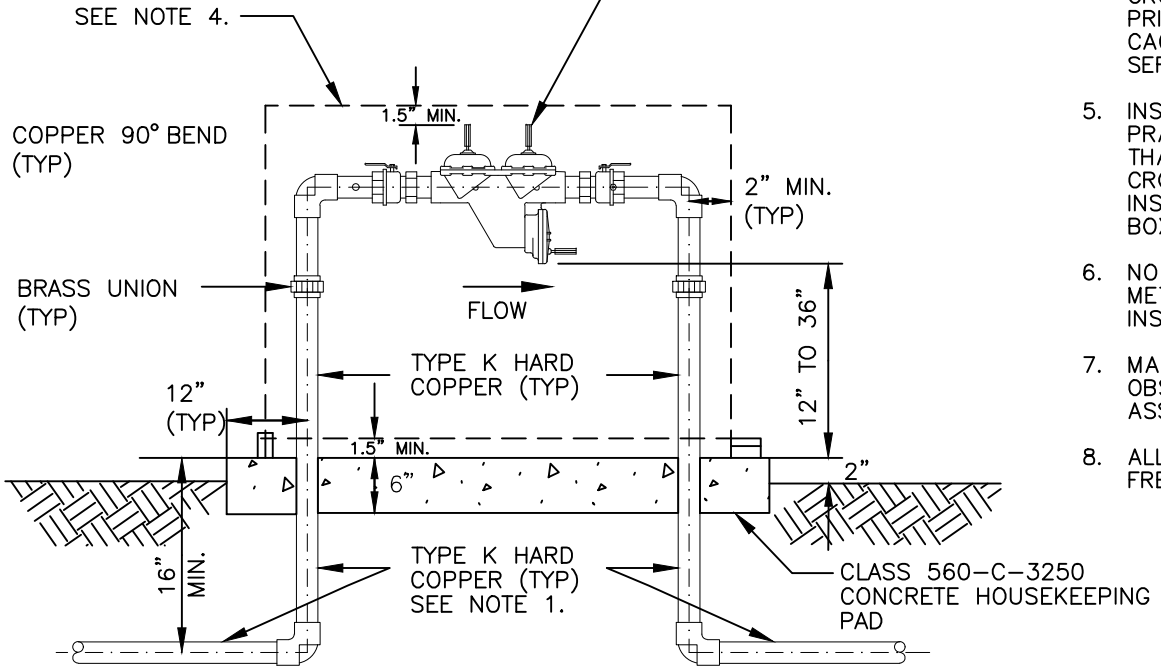
STD 426R

SHEET 2 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_426RB_REV1.DWG



PLAN



SECTION

NOTES:

1. ALL PIPING BELOW GRADE SHALL BE ENCASED IN A BLUE COLORED 8-MIL POLYETHYLENE SLEEVE EXTENDING TO 2 INCHES ABOVE FINISH GRADE.
2. INSTALL APPROVED LEAD FREE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICES LISTED IN THE USC LIST OF APPROVED BACKFLOW PREVENTION ASSEMBLIES.
3. DETAIL APPLICABLE FOR ¾-INCH THRU 2-INCH SERVICE.
4. PROVIDE EXPANDED METAL, TYPE 316SS, SINGLE SWING CAGE AROUND ASSEMBLY, ALLSPEC ENCLOSURES, PIPELINE PRODUCTS BFE, BDM FABRICATION, OR APPROVED EQUAL. PROVIDE COVERED HASP FOR PADLOCK. PROVIDE HINGE ON COVER FOR UNRESTRICTED ACCESS TO ALL FIXTURES AND PIPING FOR REPAIR, REPLACEMENT AND TESTING OF THE BACKFLOW PREVENTION DEVICE, FIXTURES AND PIPING. ATTACH TO CONCRETE HOUSEKEEPING PAD WITH EPOXY GROUTED TYPE 316SS ANCHORS. PAINT CAGE HUNTER GREEN. PRIMED AND PAINTED CARBON STEEL EXPANDED METAL CAGES ALLOWED ON PRIVATELY OWNED AND MAINTAINED SERVICES.
5. INSTALL BACKFLOW PREVENTION ASSEMBLIES AS CLOSE AS PRACTICAL TO THE WATER METER BOX, BUT NO FURTHER THAN 3 FEET. OBTAIN WRITTEN APPROVAL FROM A CDWP CROSS-CONNECTION SPECIALIST FOR BACKFLOW INSTALLATIONS GREATER THAN 3 FEET FROM THE METER BOX.
6. NO OUTLETS, CONNECTIONS, OR TEES ALLOWED BETWEEN THE METER AND BACKFLOW, EXCEPT FOR PARALLEL BACKFLOW INSTALLATION.
7. MAINTAIN A MINIMUM OF 12-INCH CLEARANCE FROM ANY OBSTRUCTIONS ON ALL SIDES OF BACKFLOW PREVENTION ASSEMBLIES.
8. ALL FITTINGS, PIPE, VALVES, AND FIXTURES SHALL BE LEAD FREE IN COMPLIANCE WITH FEDERAL AND STATE LAWS.

NOT TO SCALE

REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY

REVISION NO.	APPROVED	DATE
1		12/28/18
2	VRW	10/01/20

APPROVED:

Tom Koper
TOM G. KOPER, PE,
CITY ENGINEER — 10/01/20 DATE

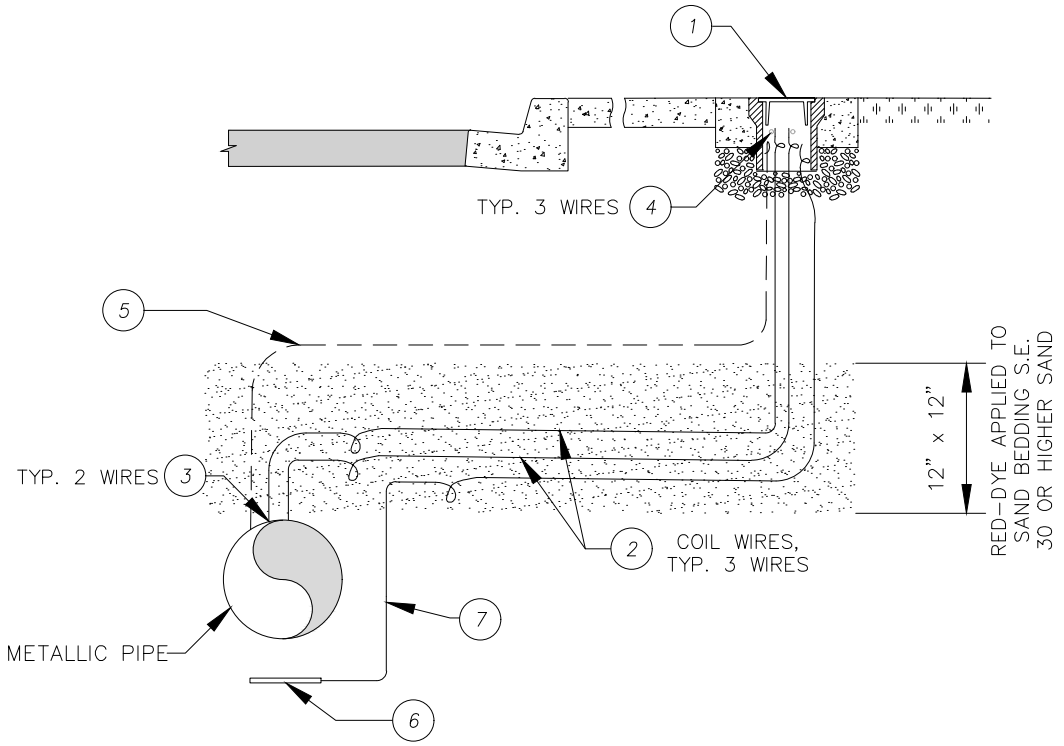
Vernon R. Weisman
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER — 10/01/20 DATE

CITY OF CORONA

STD 428

SHEET 1 OF 1

FILE: G:\ENGINEERING\STANDARDS\2020 DWP STANDARDS\CAD\STD_428_REV2.DWG



ITEM	MATERIALS
1	TEST BOX AND CONCRETE PAD PER CITY STD. DWG. 454.
2	NO. 8 AWG HMWPE COPPER WIRE WITH BLACK INSULATION. COIL BOTH ENDS PER NOTE 1.
3	ALUMINO-THERMIC WELD ON STEEL PIPE AND CEMENT MORTAR LINED DIP OR PIN BRAZING ON CERAMIC EPOXY LINED DIP PER CITY STD. DWG. 456.
4	IDENTIFICATION TAGS PER CITY STD. DWG. 454.
5	6-INCH WIDE RED PLASTIC WARNING TAPE, LABELED CATHODIC PROTECTION.
6	INSTALL PREPACKAGED CU/CUSO4 REFERENCE ELECTRODE 6 INCHES TO 12 INCHES BELOW PIPE (FOR MONITORING AND CONTROLLING THE LEVEL OF CATHODIC PROTECTION).
7	INSTALL NO. 14 RHH/RHW COPPER WIRE WITH YELLOW INSULATION. COIL BOTH ENDS PER NOTE 1.

NOTES:

1. PROVIDE 3 FEET OF COILED SLACK IN EACH WIRE AT EACH END (I.E. AT PIPE AND INSIDE THE TEST STATION BOX).
2. FOR LOCATIONS OF TEST STATIONS IN STREET RIGHT-OF-WAY (R.O.W.) SEE CITY STD. DWG. 455.
3. TEST STATIONS TO BE INSTALLED WITHIN THE R.O.W. AT LOCATIONS SHOWN ON PROJECT PLANS.
4. IMPROVED AREAS – CHIP 1½-INCH HIGH (CTS) IN CENTER LINE OF THE CURB FACE TO MARK THE CATHODIC TEST STATION LOCATION.
5. PRIOR TO ACCEPTANCE BY THE DWP GENERAL MANAGER OR DESIGNEE, THE TEST STATION SHALL BE TESTED FOR CONTINUITY AND BASE LINE DATA. TO SCHEDULE BOTH TESTS, CONTACT THE DWP CONTRACTOR AT (951)903-8037.
6. THE TEST STATION WIRING SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE TEST STATION.
7. INSTALL CP WIRES MINIMUM 36 INCHES BELOW FINISH GRADE.

NOT TO SCALE

TWO WIRE TEST STATION

REVISION		
NO.	APPROVED	DATE
1		02/13/14
2	VRW	07/30/18

APPROVED:

Nelson D Nelson — 7/30/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

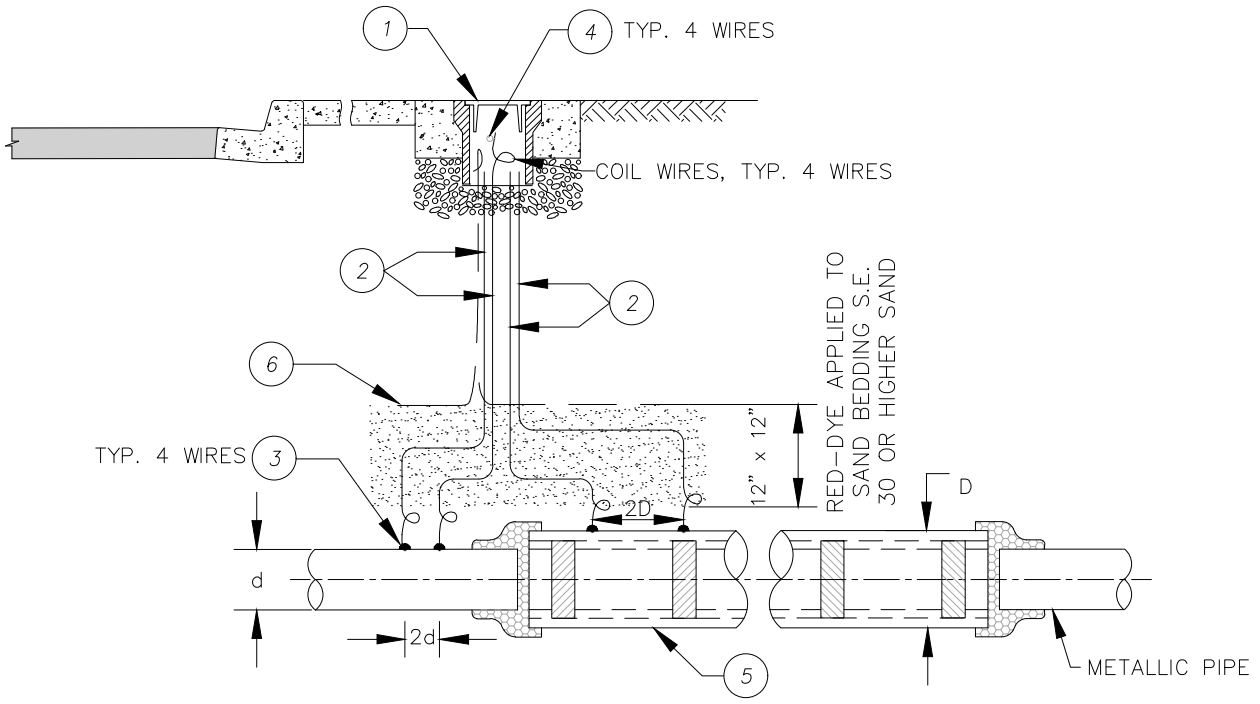
Vernon R. Weisman — 7/30/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 450

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_450_REV3.DWG



ITEM	MATERIALS
1	TEST BOX AND CONCRETE PAD PER CITY STD. DWG. 454.
2	NO. 8 AWG HMWPE COPPER WIRE WITH BLACK INSULATION. COIL BOTH ENDS PER NOTE 1. CONNECT WIRES WITHIN 5 FEET OF END OF CASING.
3	ALUMINO-THERMIC WELD ON STEEL PIPE AND CEMENT MORTAR LINED DIP OR PIN BRAZING ON CERAMIC EPOXY LINED DIP PER CITY STD. DWG. 456.
4	IDENTIFICATION TAGS PER CITY STD. DWG. 454.
5	STEEL CASING PER CITY STD. DWG. 309 AND 402.
6	6-INCH WIDE RED PLASTIC WARNING TAPE, LABELED CATHODIC PROTECTION.

NOTES:

1. PROVIDE 3 FEET OF COILED SLACK IN EACH WIRE AT EACH END (I.E. AT PIPE AND INSIDE THE TEST STATION BOX).
2. FOR LOCATIONS OF TEST STATIONS IN STREET RIGHT-OF-WAY (R.O.W.) SEE CITY STD. DWG. 455.
3. TEST STATIONS TO BE INSTALLED WITHIN THE R.O.W. AT LOCATIONS SHOWN ON PROJECT PLANS.
4. IMPROVED AREAS – CHIP 1½-INCH HIGH (CTS) IN CENTER LINE OF THE CURB FACE TO MARK THE CATHODIC TEST STATION LOCATION.
5. PRIOR TO ACCEPTANCE BY THE DWP GENERAL MANAGER OR DESIGNEE, THE TEST STATION SHALL BE TESTED FOR CONTINUITY AND BASE LINE DATA. TO SCHEDULE BOTH TESTS, CONTACT THE DWP CONTRACTOR AT (951)903-8037.
6. THE TEST STATION WIRING SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE TEST STATION.
7. INSTALL CP WIRES MINIMUM 36 INCHES BELOW FINISH GRADE.

NOT TO SCALE

CASING TEST STATION

REVISION		
NO.	APPROVED	DATE
1		09/04/13
2	VRW	07/30/18

APPROVED:

Nelson D Nelson — 7/30/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

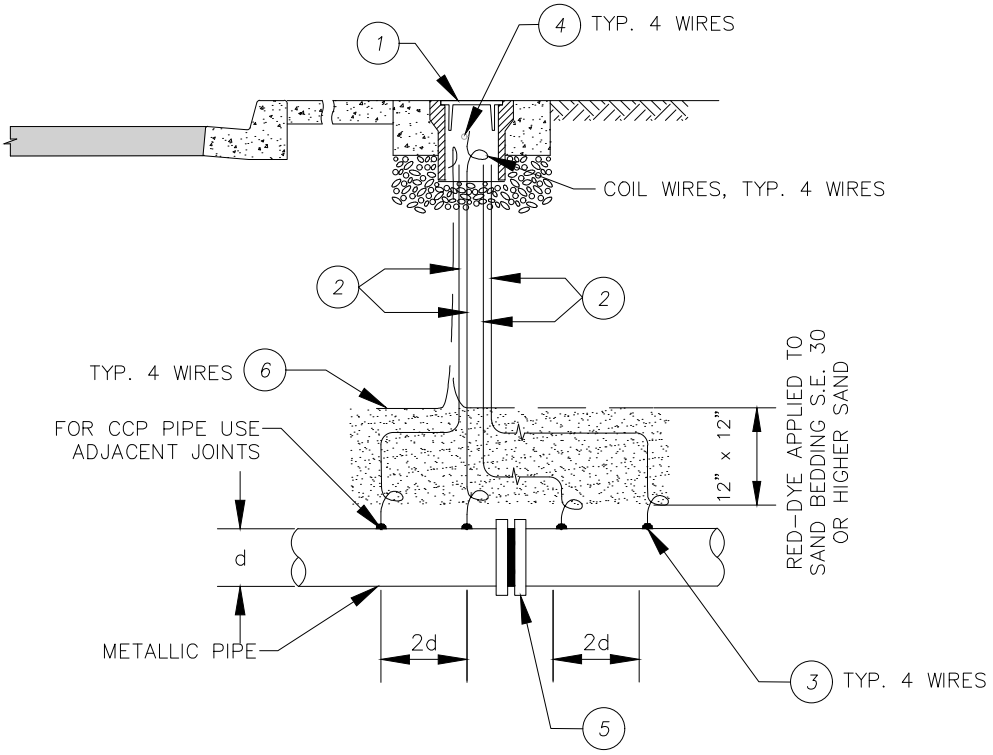
Vernon R. Weisman — 7/30/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 452

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_452_REV3.DWG



ITEM	MATERIALS
1	TEST BOX AND CONCRETE PAD PER CITY STD. DWG. 454.
2	NO. 8 AWG HMWPE COPPER WIRE WITH BLACK INSULATION. COIL BOTH ENDS PER NOTE 1.
3	ALUMINO-THERMIC WELD ON STEEL PIPE AND CEMENT MORTAR LINED DIP OR PIN BRAZING ON CERAMIC EPOXY LINED DIP PER CITY STD. DWG. 456.
4	IDENTIFICATION TAGS PER CITY STD. DWG. 454.
5	FLANGE INSULATING TEST KIT PER CITY STD. DWG. 458.
6	6-INCH WIDE RED PLASTIC WARNING TAPE, LABELED CATHODIC PROTECTION.

NOTES:

1. PROVIDE 3 FEET OF COILED SLACK IN EACH WIRE AT EACH END (I.E. AT PIPE AND INSIDE THE TEST STATION BOX).
2. FOR LOCATIONS OF TEST STATIONS IN STREET RIGHT-OF-WAY (R.O.W.) SEE CITY STD. DWG. 455.
3. TEST STATIONS TO BE INSTALLED WITHIN THE R.O.W. AT LOCATIONS SHOWN ON PROJECT PLANS.
4. IMPROVED AREAS – CHIP 1 ½-INCH HIGH (CTS) IN CENTER LINE OF THE CURB FACE TO MARK THE CATHODIC TEST STATION LOCATION.
5. PRIOR TO ACCEPTANCE BY THE DWP GENERAL MANAGER OR DESIGNEE, THE TEST STATION SHALL BE TESTED FOR CONTINUITY AND BASE LINE DATA. TO SCHEDULE BOTH TESTS, CONTACT THE DWP CONTRACTOR AT (951)903-8037.
6. THE TEST STATION WIRING SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE TEST STATION.
7. INSTALL CP WIRES MINIMUM 36 INCHES BELOW FINISH GRADE.

NOT TO SCALE

INSULATOR TEST STATION

REVISION		
NO.	APPROVED	DATE
1		09/04/13
2	VRW	07/30/18

APPROVED:

Nelson D Nelson — 7/30/2018
NELSON D. NELSON, PE,
PUBLIC WORKS DIRECTOR — DATE

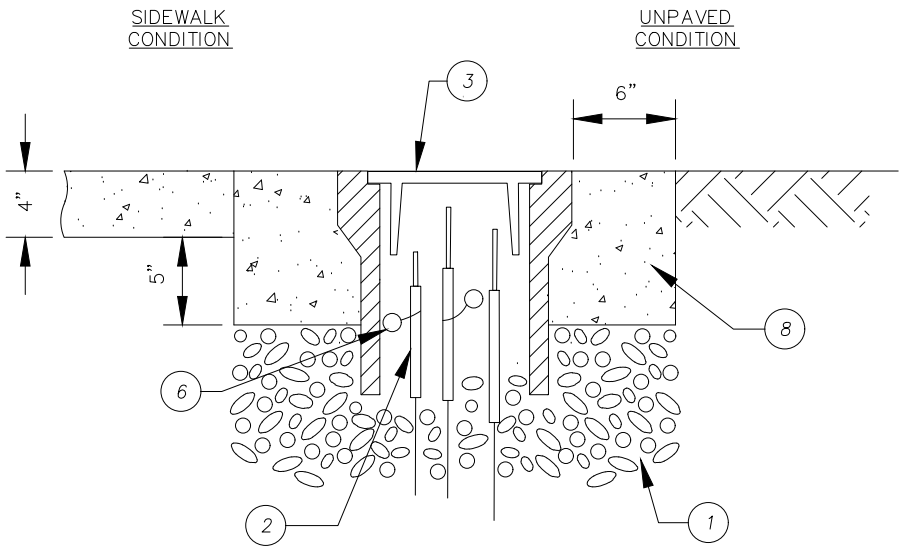
Vernon R. Weisman — 7/30/2018
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER — DATE

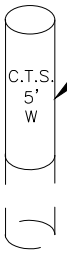
CITY OF CORONA

STD 453

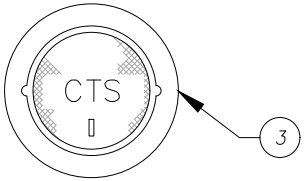
SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_453_REV3.DWG

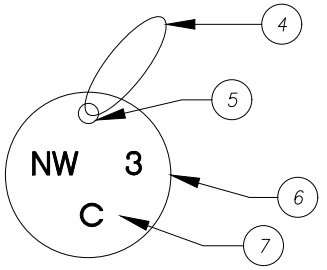




UNIMPROVED AREAS – INSTALL 2" PIPE MARKER POST PAINTED "SAFETY YELLOW" (DOMESTIC WATERLINE) OR "PURPLE" (RECLAIMED WATER). LABEL C.T.S. WITH DISTANCE & DIRECTION TO VALVE CAN. SEE GENERAL NOTE 5. PAD SHALL BE 24" x 24" AND 9" THICK.



COVER



IDENTIFICATION TAG

ITEM	MATERIALS
1	6 INCHES OF ¾–INCH CRUSHED ROCK BEDDING. BRING ADDITIONAL 2 INCHES OF BEDDING INTO BOX.
2	NO. 8 AWG HMWPE COPPER WIRE WITH BLACK INSULATION. COIL BOTH ENDS PER NOTE 2.
3	BROOKS 3–RT TRAFFIC VALVE BOX, USE 6–INCH LONG–SKIRTED CAST IRON LID. PAINT BLUE FOR POTABLE WATER OR PAINT PANTONE PURPLE FOR RECLAIMED WATER.
4	NYLON WIRE.
5	3/16–INCH DIA. HOLE.
6	2–INCH DIA. BRASS TAG WITH STAMPED IDENTIFYING LETTERS AND NUMBERS. DETAIL HEREON. SEE SHEET 2 FOR STATION IDENTIFICATION TAG AND WIRE IDENTIFICATION TAG LABELING STANDARDS.
7	¼–INCH HIGH LETTERS AND NUMBERS.
8	560–C–2150 CONCRETE.

NOTES:

1. INSTALLATION TYPICAL FOR TWO WIRE, FOUR WIRE, INSULATING JOINT AND CASING TEST STATIONS. SEE SHEET 2 FOR LABELING STANDARDS.
2. PROVIDE 3 FEET OF COILED SLACK IN EACH WIRE AT EACH END (I.E. AT PIPE AND INSIDE THE TEST STATION BOX).
3. STRIP INSULATION FROM END OF EACH TEST LEAD. MIN. ¼–INCH, MAX. ½–INCH. INSTALL WIRE NUTS AND ANTI–ARC COMPOUND TO PROTECT BARE WIRE ENDS.

NOT TO SCALE

TEST STATION BOX AND WIRING

REVISION NO.	APPROVED	DATE
1		09/04/13
2	VRW	07/30/18

APPROVED:
Nelson D. Nelson 7/30/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE
Vernon R. Weisman 7/30/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA
STD 454
SHEET 1 OF 2

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_454A_REV3.DWG

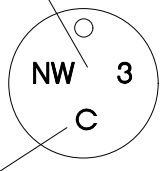
WIRE NUMBER AND DIRECTION

NW = COMPASS DIRECTION THAT WIRE RUNS ON PIPE. ONE OF THE EIGHT PRIMARY DIRECTIONALS; N, E, S, W, NW, NE, SW, SE. USE ALPHA CHARACTER "X" FOR CPTS CONNECTIONS RIGHT AT OR NEAREST TO THE CPTS BOX.

3 = SEQUENTIAL, 1 DIGIT NUMBER ASSIGNED TO EACH TEST STATION WIRE; UNIQUE TO EACH TEST WIRE. LOWEST NUMBERS (1 & 2) ARE TO BE CLOSEST TO THE JOINT OR TEST BOX SITE.

FACILITY IDENTIFIER

P = PIPELINE
C = CASING
A = ANODE
RC = REFERENCE COUPON
IJ = INSULATING JOINT



WIRE IDENTIFICATION LABELING STANDARDS

STATION NUMBER = CP - __ __

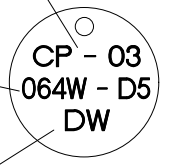
CP = CATHODIC PROTECTION TEST STATION

3 = SEQUENTIAL, 2 DIGIT NUMBER ASSIGNED TO EACH TEST STATION; UNIQUE TO THE ATLAS PAGE. (I.E. START NUMBERING OVER AT 01 ON EACH ATLAS PAGE)

ATLAS PAGE AND QUADRANT CO-ORDINATES

SYSTEM TYPE

DW = DOMESTIC
RW = RECLAIM
UT = UNTREATED
FM = FORCE MAIN
S = SEWER



STATION IDENTIFICATION LABELING STANDARDS

NOT TO SCALE

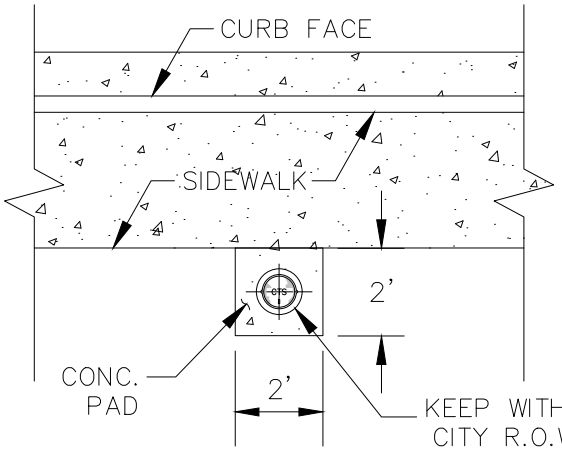
TEST STATION BOX AND WIRING

REVISION		
NO.	APPROVED	DATE
1		09/04/13
2	VRW	07/30/18

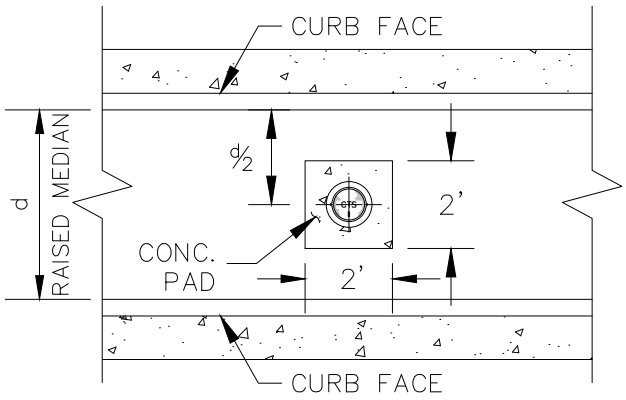
APPROVED:
Nelson D Nelson 7/30/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE
Vernon R. Weisman 7/30/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA
STD 454
SHEET 2 OF 2

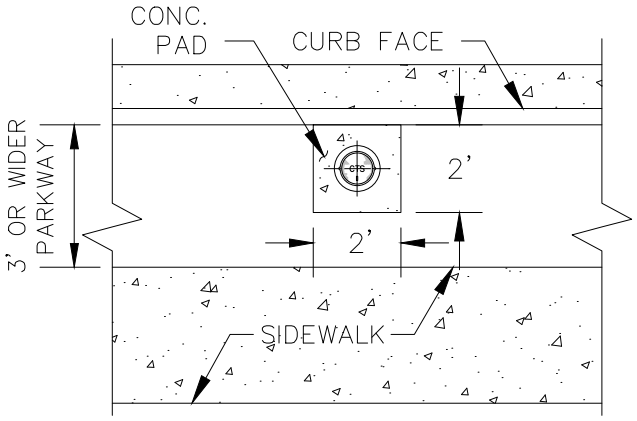
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_454B_REV2.DWG



CASE I – SIDEWALK ADJACENT TO CURB



CASE III – CENTER MEDIAN



CASE II – SIDEWALK NOT ADJACENT TO CURB

NOTES:

1. CENTER TEST BOX AND FRAME BOTH WAYS IN CONCRETE HOUSEKEEPING PAD.
2. USE CASE I OR II FOR PIPE CLOSE TO THE CURB.
3. USE CASE III FOR PIPE CLOSE TO THE CENTER MEDIAN WHERE THE MEDIAN IS RAISED AND d > 10 FEET.
4. CONSTRUCT TEST STATION WITHIN CITY RIGHT-OF-WAY (R.O.W.) OR EASEMENT. IF DIFFERENT FROM THESE THREE CASES, DWP GENERAL MANAGER OR DESIGNEE SHALL DETERMINE THE TEST STATION LOCATION.

NOT TO SCALE

TEST STATION LOCATIONS IN STREET RIGHT-OF-WAY

REVISION		
NO.	APPROVED	DATE
1	VRW	07/30/18

APPROVED:

Nelson D Nelson — 7/30/2018
NELSON D. NELSON, PE, PUBLIC WORKS DIRECTOR — DATE

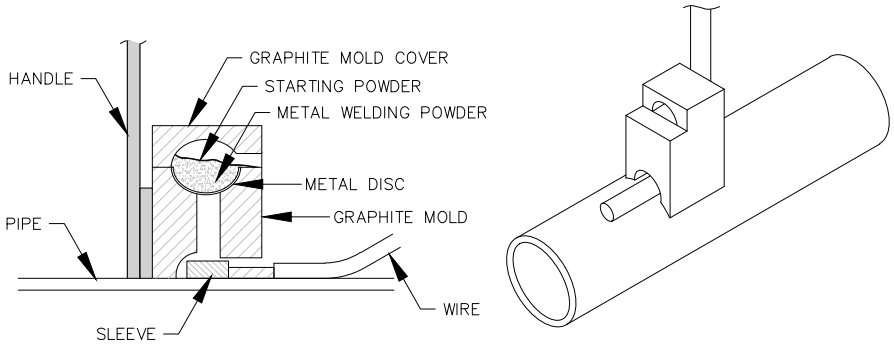
Vernon R. Weisman — 7/30/2018
VERNON R. WEISMAN, PE, DISTRICT ENGINEER — DATE

CITY OF CORONA

STD 455

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_455_REV1.DWG



CAD WELD NOTES:

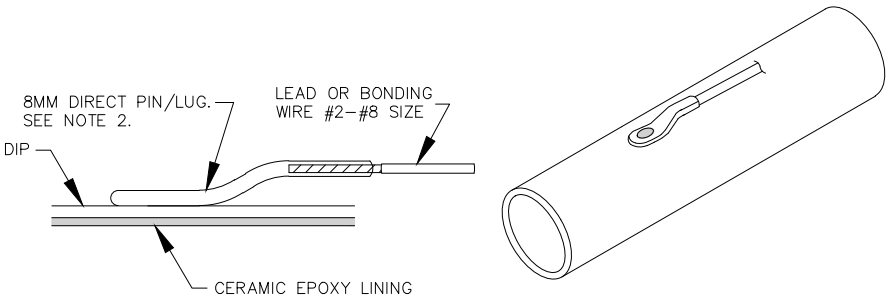
1. ALL WIRE WELDS SHALL BE MINIMUM 6 INCHES APART.
2. CAD–WELD MOLD SHOWN IS FOR HORIZONTAL SURFACES. FOR VERTICAL SURFACES SIDE WELD MOLD IS REQUIRED.
3. BASED ON THE TYPE OF PIPE (STEEL, DUCTILE IRON, OR CAST IRON) TO WHICH THE WIRE IS TO BE WELDED, THE CARTRIDGE TYPE, SIZE AND WEIGHT SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

TABLE A

PIPE MATERIAL	WIRE SIZE	USE/LOCATION
STEEL CML&C	#8 AWG STRANDED	PIPE LEAD
STEEL CYLINDER PIPE	#8 AWG STRANDED	PIPE LEAD
DUCTILE IRON PIPE	#8 AWG STRANDED	PIPE LEAD
STEEL CML&C	#4 AWG STRANDED	JOINT BONDING
STEEL CYLINDER PIPE	#4 AWG STRANDED	JOINT BONDING
DUCTILE IRON PIPE	#4 AWG STRANDED	JOINT BONDING

PIN BRAZING NOTES:

1. ALL PIN BRAZING SHALL BE MINIMUM 6 INCHES APART.
2. USE OF DIRECT STANDARD 8MM PIN BRAZING REQUIRES MINIMUM 0.20 INCH PIPE WALL THICKNESS. USE OF 8MM EXTRA–FLUX PIN BRAZING REQUIRES MINIMUM 0.25 INCH PIPE WALL THICKNESS. STYLE, TYPE, MATERIALS AND PIPE WALL THICKNESS SHALL BE IN ACCORDANCE WITH PIN BRAZING AND PIPE MANUFACTURER'S REQUIREMENTS.



ALUMINO–THERMIC (CAD) WELDING

STEP 1: REMOVE COATING OR ENCASEMENT FROM PIPE.

STEP 2: FILE OR GRIND PIPE SURFACE TO BARE SHINY METAL (EQUIVALENT TO SSPC–10 "NEAR WHITE METAL") TO A MINIMUM SIZE OF AN AREA OF 3–INCH x 3–INCH.

STEP 3: PREHEAT THE AREA TO BE CAD–WELDED WITH A PROPANE TORCH TO REMOVE ANY SURFACE MOISTURE. DO NOT OVER HEAT.

STEP 4: STRIP 1–INCH OF INSULATION FROM END OF CP TEST WIRE.

STEP 5: WRAP TEST LEAD WIRE ONCE AROUND OUTSIDE CIRCUMFERENCE OF PIPE THEN TIE WIRE INTO A "HALF HITCH" KNOT APPROXIMATELY 12 INCHES AWAY FROM CAD–WELD AREA. LEAVE 12 INCHES OR MORE OF WIRE (SLACK) BETWEEN KNOT AND CAD–WELD, THIS WILL HELP PREVENT FUTURE DAMAGE TO CAD–WELD.

STEP 6: INSTALL APPROPRIATE CAD–WELD PROTECTIVE SLEEVE ONTO SPECIFIC AWG WIRE SIZE. REFER TO TABLE A.

STEP 7: SELECT CORRECT CAD–WELD GRAPHITE MOLD AND APPROPRIATE WELDING POWDER FOR THE SIZE AND TYPE OF WIRE AND METALLIC PIPE THAT IS TO BE WELDED. REFER TO TABLE A.

STEP 8: INSPECT AND CLEAN THE GRAPHITE MOLD.

STEP 9: INSERT CAD – WELD DISC IN BOTTOM OF GRAPHITE MOLD, POUR ENTIRE CONTENTS OF SHOT (ALUMINO–THERMIC WELD POWDER AND STARTER) INTO GRAPHITE MOLD.

STEP 10: PLACE WIRE IN THE CENTER OF THE CLEANED AREA SO THAT ALL OF THE STRIPPED WIRE IS IN CONTACT WITH THE PIPE SURFACE.

STEP 11: PLACE LOADED GRAPHITE MOLD OVER WIRE AND HOLD FIRMLY IN PLACE.

STEP 12: POSITION YOURSELF, AND ANY OTHER PERSONNEL, AT LEAST 90 DEGREES AWAY FROM IGNITION PORT OPENING.

STEP 13: HOLD FLINT GUN AT IGNITION PORT AND IGNITE STARTING POWDER.

STEP 14: REMOVE GRAPHITE MOLD FROM PIPE AFTER CAD–WELD COMBUSTION HAS STOPPED.

STEP 15: REMOVE SLAG FROM WELD AREA USING A WELDING PEEN HAMMER.

STEP 16: GRASP WIRE AND APPLY TENSION TO WIRE WHILE STRIKING WELD WITH A 2–POUND HAMMER TO CHECK SOUNDNESS OF WELD. BE CAUTIOUS OF DAMAGE TO INTERIOR OF PIPE LINING.

STEP 17: COAT WIRE, CAD–WELD AND EXPOSED PIPE SURFACE WITH APPROVED "ELASTOMERIC COMPOUND" OR "MASTIC FILLED DOME". BE SURE TO USE MANUFACTURER'S SPECIFIED PRIMER MATERIAL.

STEP 18: REPLACE PIPE COATING AND PLASTIC WRAP OR TAPE IF REQUIRED.

NOT TO SCALE

ALUMINO–THERMIC (CAD) WELDING AND PIN BRAZING

REVISION NO.	APPROVED	DATE
1	VRW	07/30/18

APPROVED:

Nelson D Nelson — 7/30/2018 DATE
NELSON D. NELSON, PE,
PUBLIC WORKS DIRECTOR

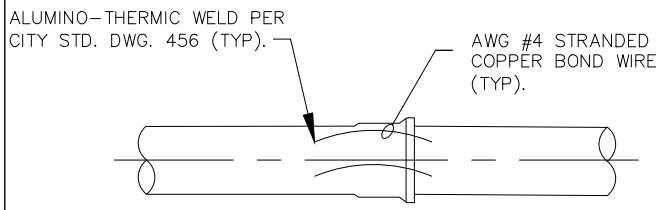
Vernon R. Weisman — 7/30/2018 DATE
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER

CITY OF CORONA

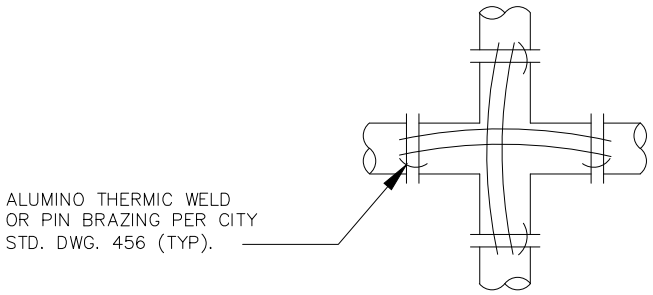
STD 456

SHEET 1 OF 1

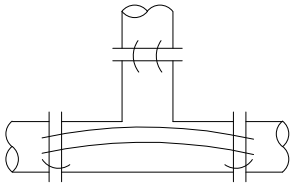
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_456_REV1.DWG



BELL AND SPIGOT PIPE JOINT



CROSS



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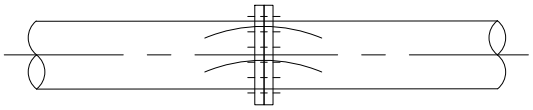
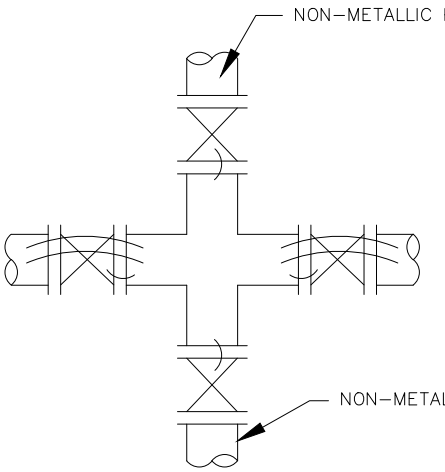
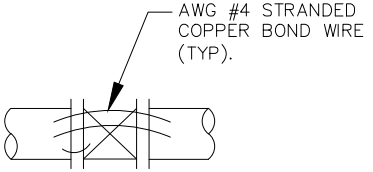


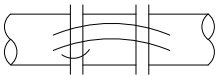
FLANGED OR MECHANICAL PIPE JOINT



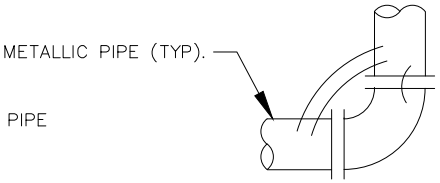
VALVE CROSSING



VALVE



ADAPTER AND FLEXIBLE COUPLING



BEND

NOTES:

1. ALL WIRE WELDS SHALL BE MINIMUM 6 INCHES APART.
2. BOND WIRES SHALL NOT BE INSTALLED ACROSS INSULATING JOINTS.
3. COAT WELD WIRE, CAD-WELD AND EXPOSED PIPE SURFACE WITH APPROVED "ELASTOMERIC COMPOUND" OR "MASTIC FILLED DOME". USE MANUFACTURER'S SPECIFIC PRIMER MATERIAL.
4. THREE BOND WIRES ARE REQUIRED FOR PIPE DIAMETERS 18 INCHES OR LARGER.

NOT TO SCALE

BONDING FOR PIPE JOINTS AND FITTINGS

REVISION		
NO.	APPROVED	DATE
1	VRW	07/30/18

APPROVED:

Nelson D Nelson — 7/30/2018 — DATE
NELSON D. NELSON, PE,
PUBLIC WORKS DIRECTOR

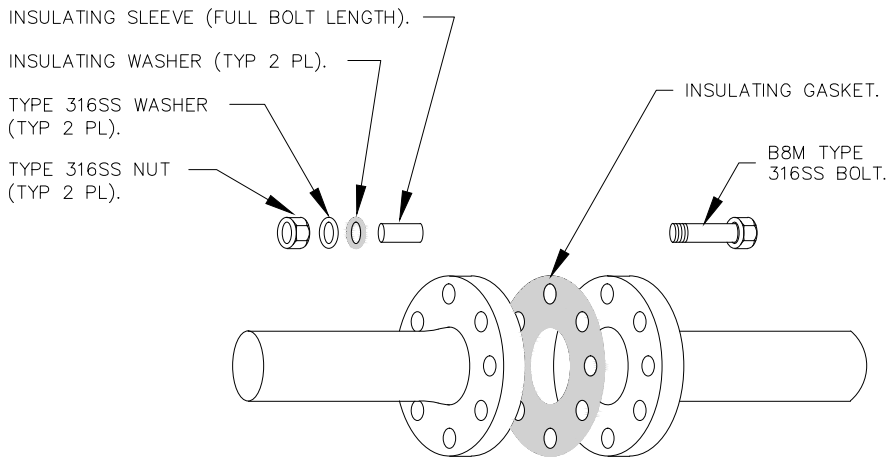
Vernon R. Weisman — 7/30/2018 — DATE
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER

CITY OF CORONA

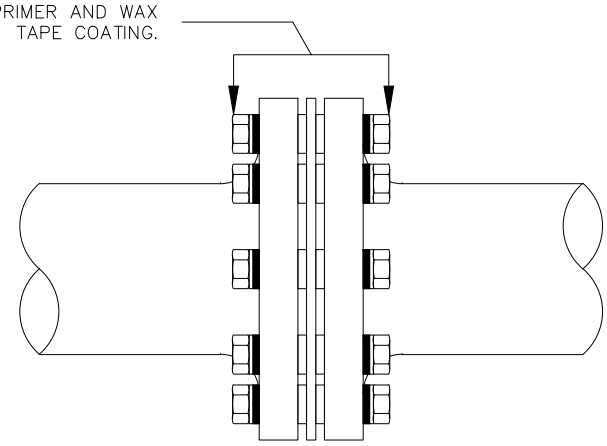
STD 457

SHEET 1 OF 1

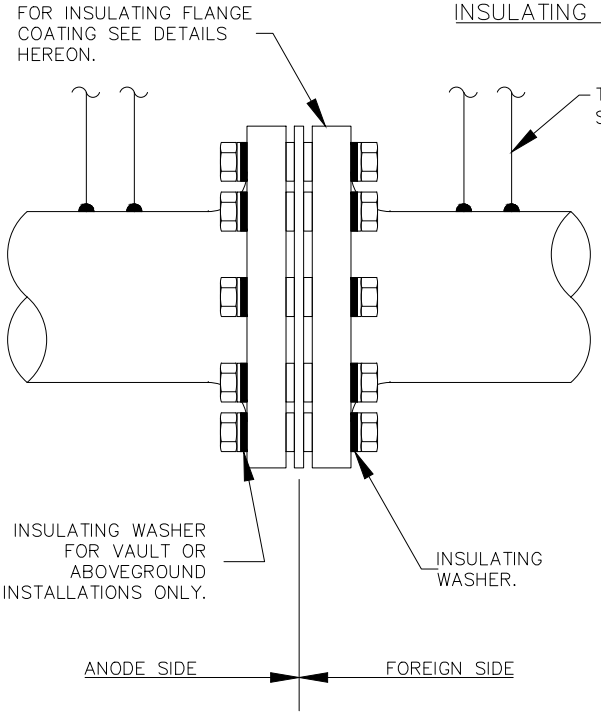
FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_457_REV1.DWG



INSULATING FLANGE KIT

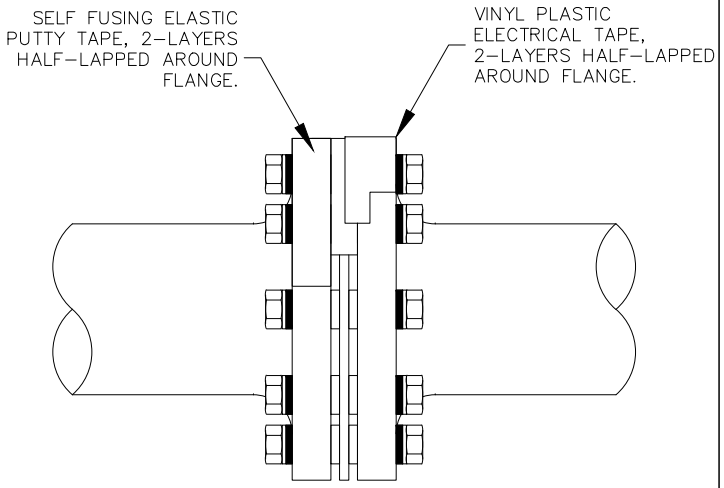


BURIED INSULATING FLANGE COATING



NOTES:

1. HARDWARE QUANTITIES IN INSULATING FLANGE KIT WILL VARY BASED ON GASKET PATTERN AND PIPE SIZE.
2. FOR BELOW GROUND INSTALLATIONS, INSTALL SINGLE–WASHER KITS WITH THE INSULATING WASHERS ONLY ON THE FOREIGN SIDE OF THE FLANGES.
3. THREADED STUD STYLE KITS ARE NOT PERMITTED.
4. INSTALL TYPE 316SS BOLTS, NUTS AND WASHERS.
5. PERFORM OHMMETER TEST TO DEMONSTRATE INSULATION IS FUNCTIONAL.



ABOVE GROUND INSULATING FLANGE COATING

NOT TO SCALE

INSULATING JOINT

REVISION		
NO.	APPROVED	DATE
1	VRW	07/30/18

APPROVED:

Nelson D. Nelson — 7/30/2018 — DATE
NELSON D. NELSON, PE,
PUBLIC WORKS DIRECTOR

Vernon R. Weisman — 7/30/2018 — DATE
VERNON R. WEISMAN, PE,
DISTRICT ENGINEER

CITY OF CORONA

STD 458

SHEET 1 OF 1

FILE: \\VMSTOR2\G_DWP\ENGINEERING\STANDARDS\2018 DWP STANDARDS\CAD\STD_458_REV2.DWG

APPENDIX A

CITY OF CORONA
DEPARTMENT OF WATER AND POWER
APPROVED LIST OF MATERIALS FOR *WATER* FACILITIES

Ductile Iron Pipe and Fittings

Approved Manufacturers:

ITEM	MANUFACTURER/MODEL
Ductile-Iron Pipe	American Cast Iron Pipe
	Clow Water Systems Company
	Griffin Pipe Products
	Pacific States Cast Iron Pipe Co Div. McWane, Inc.
	U.S. Pipe and Foundry
Ductile-Iron Pipe Fittings	American Cast Iron Pipe
	Clow Water Systems Company
	Griffin Pipe Products
	Star Pipe Products
	Tyler Union
	U.S. Pipe and Foundry
Push-on Joints	American Cast Iron Pipe "Fastite"
	Clow Water Systems Company
	Griffin Pipe Products
	Pacific States Cast Iron Pipe Co Div. McWane, Inc.
	U.S. Pipe and Foundry "Tyton"
Restrained Joints – Locking Gasket Type	American Cast Iron Pipe "Fast-Grip"
	Griffin Pipe Products "Talon"
	Pacific States Cast Iron Pipe "Sure-Stop"
	U.S. Pipe and Foundry "Field-Lok"
Restrained Joints – Third-party Follower-Gland-Type Mechanical Joint Restraints for Ductile Iron Pipe	EBAA Iron Series #1100 for use on new MJ fittings (Size 3-48 inches) #1100SD for use on existing MJ fittings (Size 3-48 inches)
	FORD Uni-Flange Series #1300 Restrained End Cap (Size 4-16 inches) #1400 (Size 4-36 inches)
Restrained Joints – Third-party Follower-Gland-Type Mechanical Joint Restraints for Joining Existing PVC Pipe	EBAA Iron Megalug Series 2000 #2000PV for new MJ fittings (Size 4-24 inches) #2000SV for existing MJ fittings (Size 4-24 inches)
	Ford Uni-Flange Series 1500 Circle Lock for MJ Fittings (Size 4-24 inches)
Restrained Joints – Third-party Ductile Iron Pipe Restraint Harness for Push-On Bells (For DIP only. Do not use on PVC)	EBAA Iron #1700 (Size 3-36 inches)
	FORD Uni-Flange Series #1450 Series (Size 3-36 inches)
Flanged Coupling Adapter for Ductile Iron Pipe	Romac Industries (FCA 501)
	Smith Blair, Inc. Style 912 Ductile Iron (Size 3-12 inches) Style 913 Steel (Size 3-24 inches)

Flanged Coupling Adapter for Ductile Iron Pipe (Restrained)	EBAA Iron #2100 Megaflange Restrained Flange Adapter (Size 3-36 inches)
	FORD Uni-Flange Series UFR 1400 (Size 3-24 inches)

Requirements:

Pressure class 350 minimum (Size 3 – 12 inches)

Pressure class 250 minimum (Size 16 inches and larger)

Ductile iron pipe and fittings to be cement mortar lined per ANSI AWWA C104 - A21.4.

Wrap buried pipe, fittings, and connections with 2 layers of 8-mil polyethylene

Gland Kits and accessories shall meet or exceed ANSI AWWA Cl1-A21 .11.

Type 316 stainless steel bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

All products made in USA

Notes:

1. All new pressure pipe shall be constructed using restrained joints and fittings.

C-900 and C-905 PVC Pipe and Fittings

CONSTRUCTION OF NEW PVC PIPE WATERMAINS IS NOT ALLOWED – FITTINGS LISTED BELOW ARE ALLOWED ONLY FOR REPAIRS OR CONNECTIONS TO EXISTING PVC WATERMAINS

Approved Manufacturers:

ITEM	MANUFACTURER/MODEL
PVC Pressure Pipe	Not Allowed
Ductile-Iron Pipe Fittings	American Cast Iron Pipe
	Clow Water Systems Company
	Griffin Pipe Products
	Star Pipe Products
	Tyler Union
	U.S. Pipe and Foundry
Push-on Joints	Not Allowed
Restrained Joints – Third-party Follower-Gland-Type Mechanical Joint Restraints for Joining Existing PVC Pipe	EBAA Iron Series #2000PV for use on new MJ fittings (Size 4-24 inches) #2000SV for use on existing MJ fittings (Size 4-12 inches)
	Ford Uni-Flange Series 1500 Circle Lock for MJ Fittings (Size 4-24 inches)
Flange Coupling Adapter Restraints	EBAA Iron #2100 Megaflange Restrained Flange Adapter (Size 3-36 inches)
	FORD Uni-Flange Series Restrained Flange Adapter (Size 3-24 inches)
Push-On Joint Bell Restraints	Not Allowed

Requirements:

Ductile iron fittings to be cement lined per ANSI AWWA C104 - A21.4.

Wrap buried fittings and connections with 2 layers of 8-mil polyethylene

Gland Kits and accessories shall meet or exceed ANSI AWWA Cl1-A21 .11.

Type 316 stainless steel bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

All products made in USA

Resilient Wedge Gate Valves

Approved Manufacturers:
AMERICAN FLOW CONTROL
CLOW
KENNEDY
M&H
MUELLER

Requirements:

AWWA C-515

NSF-61

Non-Rising Stem with 2-inch AWWA square operating nut

Epoxy Lined and Coated

Ductile iron body

Ductile iron wedge with vulcanized rubber face (potable water); ductile iron with peroxide cured EPDM (reclaimed water)

Ductile iron flanges 0-275 psi pressure - ASME/ANSI B16.42 Class 150

Type 316 stainless steel valve trim kits

Type 316 stainless steel bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

Wrap all buried valves with 2 layers of 8-mil polyethylene.

FLG x FLG, FLG x MJ, or MJ x MJ connections, unless otherwise specified

All products made in USA

Butterfly Valves

Approved Manufacturers:
DEZURIK
PRATT

Requirements:

Buried Service:

DEZURIK BAW

PRATT GROUNDHOG II

Travelling nut actuator with 2-inch AWWA square operating nut for buried service

Wrap all buried valves with 2 layers of 8-mil polyethylene.

Above-Ground Service:

DEZURIK BAW

PRATT MODEL 2FII

Hand lever (up to 4-inch size)

MDT manual actuator with handwheel (larger than 4-inch size)

AWWA C-504

NSF-61

Epoxy Lined and Coated

Cast iron body

Cast iron disc

Peroxide cured EPDM resilient seats secured to valve body

Type 316 stainless steel valve trim kits

Type 316 stainless steel bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

FLG x FLG connections, unless otherwise specified

All products made in USA

Diaphragm-Actuated Control Valves

Approved Manufacturers:
CLA-VAL (No Exceptions)

Requirements:

AWWA C-530

NSF-61

Epoxy Lined and Coated

Ductile iron body for pressures 0-300 psi

Ductile iron disc with Buna-N rubber

300 series stainless steel trim and tubing

Type 316 stainless steel valve trim, disc guide, seat, and cover bearing

Type 316 stainless steel bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

FLG x FLG connections, unless otherwise specified

All products made in USA

Check Valves

Approved Manufacturers/Model:
M&H Swing Check Valve (Size 2-12 inches)
APCO Slanting Disc Check Valve (Size larger than 12 inches)

Requirements:

Swing Check:

AWWA C-508

Outside lever and spring

Slanting Disc:

Top-mounted dashpot

NSF-61

Epoxy Lined and Coated

Cast iron body

Type 316 stainless steel flange bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

FLG x FLG connections, unless otherwise specified

All products made in USA

Stainless Steel Tapping Sleeve

Approved Manufacturers/Model:
SMITH - BLAIR 663
ROMAC SST III

Requirements:

NSF-61

Stainless steel

Type 316 stainless steel mounting hardware

All products made in USA

Notes:

Outlet taps larger than 67% of tapped pipe size not permitted unless specifically approved by the DWP General Manager or designee

Straight and Transition Couplings

Approved Manufacturers/Model:
SMITH - BLAIR 461
HYMAX 2000
ROMAC 501

Requirements:

NSF-61

Epoxy lined and coated ductile iron or steel body

Type 316 stainless steel mounting hardware

All products made in USA

Flanged Coupling Adapters

Approved Manufacturers/Model:
SMITH - BLAIR 912 (Size 3-12 inches)
SMITH-BLAIR 913 (Size 3-24 inches)

Requirements:

NSF-61
Epoxy lined and coated ductile iron or steel body
Type 316 stainless steel mounting hardware
Wrap buried couplings with 2 layers of 8-mil polyethylene

Combination Air Release and Vacuum Relief Valves

Approved Manufacturers/Model:
ARI D-040-C (Size 1-2 inches)
ARI D-015 (Size 3-8 inches)

Requirements:

Rolling seal style
Flanged connection
Type 316 stainless steel mounting hardware
Epoxy coated

Fire Hydrants

Approved Manufacturers/Model:
CLOW
JAMES JONES

Requirements:

8-hole pattern

Standard:	Clow: 850 and 2050
	James Jones: 3710 and 4040B
Super:	Clow: 860, 865, and 2065
	James Jones: 3765, 3775, and 4060B

All products made in USA

Magnetic Flowmeter

Approved Manufacturers/Model:
ENDRESS+HAUSER PROMAG 53W (NO EXCEPTIONS)

Requirements:

3-inches and larger
NSF-61
Epoxy lined and coated steel body
Type 316 stainless steel mounting hardware

Sewer Forcemains

Ductile Iron Pipe and Fittings for Sewer Forcemains

Approved Manufacturers:

ITEM	MANUFACTURER/MODEL
Ductile-Iron Pipe	American Cast Iron Pipe
	Clow Water Systems Company
	Griffin Pipe Products
	Pacific States Cast Iron Pipe Co Div. McWane, Inc.
	U.S. Pipe and Foundry
Ductile-Iron Pipe Fittings	American Cast Iron Pipe
	Clow Water Systems Company
	Griffin Pipe Products
	Star Pipe Products
	Tyler Union
	U.S. Pipe and Foundry
Push-on Joints	American Cast Iron Pipe "Fastite"
	Clow Water Systems Company
	Griffin Pipe Products
	Pacific States Cast Iron Pipe Co Div. McWane, Inc.
	U.S. Pipe and Foundry "Tyton"
Restrained Joints – Locking Gasket Type	American Cast Iron Pipe "Fast-Grip"
	Griffin Pipe Products "Talon"
	Pacific States Cast Iron Pipe "Sure-Stop"
	U.S. Pipe and Foundry "Field-Lok"
Restrained Joints – Third-party Follower-Gland-Type Mechanical Joint Restraints for Ductile Iron Pipe	EBAA Iron Series #1100 for use on new MJ fittings (Size 3-48 inches) #1100SD for use on existing MJ fittings (Size 3-48 inches)
	FORD Uni-Flange Series #1300 Restrained End Cap (Size 4-16 inches) #1400 (Size 4-36 inches)
Restrained Joints – Third-party Follower-Gland-Type Mechanical Joint Restraints for Joining Existing PVC Pipe	EBAA Iron Megalug Series 2000 #2000PV for new MJ fittings (Size 4-24 inches) #2000SV for existing MJ fittings (Size 4-24 inches)
	Ford Uni-Flange Series 1500 Circle Lock for MJ Fittings (Size 4-24 inches)
Restrained Joints – Third-party Ductile Iron Pipe Restraint Harness for Push-On Bells (For DIP only. Do not use on PVC)	EBAA Iron #1700 (Size 3-36 inches)
	FORD Uni-Flange Series #1450 Series (Size 3-36 inches)
Flanged Coupling Adapter for Ductile Iron Pipe	Romac Industries (FCA 501)
	Smith Blair, Inc. Style 912 Ductile Iron (Size 3-12 inches) Style 913 Steel (Size 3-24 inches)

Flanged Coupling Adapter for Ductile Iron Pipe (Restrained)	EBAA Iron #2100 Megaflange Restrained Flange Adapter (Size 3-36 inches)
	FORD Uni-Flange Series UFR 1400 (Size 3-24 inches)

Requirements:

Pressure class 350 minimum (Size 3 – 12 inches)

Pressure class 250 minimum (Size 16 inches and larger)

Ductile iron pipe for sewer force main service to be ceramic epoxy lined – Protecto 401

Wrap buried pipe, fittings, and connections with 2 layers of 8-mil polyethylene

Gland Kits and accessories shall meet or exceed ANSI AWWA Cl1-A21 .11.

Type 316 stainless steel bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

All products made in USA

Notes:

1. All new pressure pipe shall be constructed using restrained joints and fittings.

C-900 and C-905 PVC Pipe and Fittings for Sewer Force Mains

CONSTRUCTION OF NEW PVC PIPE SEWER FORCE MAINS IS NOT ALLOWED – FITTINGS LISTED BELOW ARE ALLOWED ONLY FOR REPAIRS OR CONNECTIONS TO EXISTING PVC SEWER FORCE MAINS

Approved Manufacturers:

ITEM	MANUFACTURER/MODEL
PVC Pressure Pipe	Not Allowed
Ductile-Iron Pipe Fittings	American Cast Iron Pipe Clow Water Systems Company
	Griffin Pipe Products
	Star Pipe Products
	Tyler Union
	U.S. Pipe and Foundry
Push-on Joints	Not Allowed
Mechanical Joint Restraints	EBAA Iron Series #2000 PV for use on new MJ fittings (Size 4-24 inches) #2000 SV for use on existing MJ fittings (Size 4-12 inches)
	FORD Uni-Flange Series Series 1500 Circle Lock for MJ Fittings (Size 4-24 inches)
Flange Adapter Restraints	EBAA Iron #2100 Megaflange Restrained Flange Adapter (Size 3- inches) FORD Uni-Flange Series Restrained Flange Adapter (Size 3-24 inches)
Push-On Joint Bell Restraints	Not Allowed

Requirements:

Ductile iron fittings for sewer service to be ceramic epoxy lined – Protecto 401

Wrap buried fittings and connections with 2 layers of 8-mil polyethylene

Gland Kits and accessories shall meet or exceed ANSI AWWA Cl1-A21 .11.

Type 316 stainless steel bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

All products made in USA

Gravity Sewers

Vitrified Clay Pipe (VCP) and Fittings for Gravity Sewers

Approved Manufacturers:
GLADDING McBEAN
MISSION CLAY PRODUCTS

Requirements:

Extra-strength pipe and fittings

Polyurethane compression joint

All products made in USA

PVC Pipe for Gravity Sewers

Approved Manufacturers:
PW PIPE
CERTAINTEED

Requirements:

SDR-35 (minimum)

SDR-26 (where depths, loading conditions, or other factors exceed the allowable/recommended loading for SDR 35 PVC pipe)

All products made in USA

Ductile Iron Pipe for Gravity Sewers

Approved Manufacturers:

ITEM	MANUFACTURER/MODEL
Ductile-Iron Pipe	American Cast Iron Pipe
	Clow Water Systems Company
	Griffin Pipe Products
	Pacific States Cast Iron Pipe Co Div. McWane, Inc.
	U.S. Pipe and Foundry
Push-on Joints	American Cast Iron Pipe "Fastite"
	Clow Water Systems Company
	Griffin Pipe Products
	Pacific States Cast Iron Pipe Co Div. McWane, Inc.
	U.S. Pipe and Foundry "Tyton"
Push-On Joint Bell Restraints in Steel Casings	EBAA Iron #1700 (Size 4-36 inches)
	FORD Uni-Flange Series #1450 (Size 4-16 inches)
	American Cast Iron Pipe Fastite with Fast-Grip Gasket
	US Pipe Field-Lok Restraint Gasket

Requirements:

Pressure class 350 minimum (Size 4 – 12 inches)

Pressure class 250 minimum (Size 16 inches and larger)

Ductile iron pipe for sewer service to be ceramic epoxy lined – Protecto 401

Wrap buried pipe with 2 layers of 8-mil polyethylene

All products made in USA

Eccentric Plug Valves

Approved Manufacturers/Model:
DEZURIK PEF (Size 3-18 inch)
PRATT BALLCENTRIC (Size 3-18 inch)

Requirements:

Full port

Manual actuator with lever (Size 3-4 inches); handwheel (Size 6-18 inches)

Cast iron body

Epoxy Lined and Coated

Type 316 stainless steel flange bolts, washers, and nuts installed with anti-seize compound (except greater than 250-psi shall be A307 bolts with non-oxide grease).

All buried valves shall be wrapped with 2 layers of 8-mil polyethylene.

Flange x Flange connections, ANSI B16.1 Class 125 unless otherwise specified

Pre-Cast Manholes

Approved Manufacturers/Model:
OLSON PRE-CAST COMPANY
JENSEN PRECAST

Requirements:

Coat exterior with 80-mils of coal tar epoxy to prevent water intrusion

Line interior with polyurethane – Sancon 100

Pre-Cast Manhole Frame and Cover

Approved Manufacturers/Model:
ALHAMBRA #A-1420-6
SOUTH BAY FOUNDRY #SBF 1906
NEENAH #R-1578-A

Requirements:

Cast "City of Corona - Sewer" in cover