

CAL-AM NORTHERN DIVISION STANDARD DETAILS

WATER SYSTEM DETAILS - W100'S

DRAWING NUMBER	TITLE
CAW-ND-W101A	GENERAL NOTES
CAW-ND-W101B	GENERAL NOTES
CAW-ND-W101C	GENERAL NOTES (SKETCHES)
CAW-ND-W102	PIPE TRENCH AND BACKFILL
CAW-ND-W103	WARNING IDENTIFICATION TAPE AND TRACER WIRE
CAW-ND-W104	SEPARATION REQUIREMENTS
CAW-ND-W105	VALVE BOX AND RISER
CAW-ND-W106A	CONCRETE THRUST RESTRAINT
CAW-ND-W106B	CONCRETE THRUST RESTRAINT
CAW-ND-W107A	PIPE AND JOINT THRUST RESTRAINT
CAW-ND-W107B	PIPE AND JOINT THRUST RESTRAINT

WATER AND FIRE SERVICE DETAILS - W200'S

DRAWING NUMBER	TITLE
CAW-ND-W201	1-INCH AND LESS SERVICE
CAW-ND-W202	1.5-INCH AND 2-INCH SERVICE
CAW-ND-W203	3-INCH AND LARGER SERVICE
CAW-ND-W204	2-INCH AND LESS RP BACKFLOW PREVENTION DEVICE
CAW-ND-W205	3-INCH AND LARGER RP BACKFLOW PREVENTION DEVICE
CAW-ND-W206	WATER SERVICE MINIMUM SEPARATION
CAW-ND-W207	FIRE HYDRANT
CAW-ND-W208	PRIVATE FIRE SERVICE RPDA

APPURTENANCE DETAILS - W300'S

DRAWING NUMBER	TITLE
CA-ND-W301A	2-INCH BLOW-OFF (END OF MAIN)
CAW-ND-W301B	2-INCH BLOW-OFF (LOW POINT)
CAW-ND-W302	4-INCH AND 6-INCH BLOW-OFF
CAW-ND-W303	1-INCH AND 2-INCH AIR VACUUM RELEASE VALVE
CAW-ND-W304	PRESSURE REDUCING STATION
CAW-ND-W305	SAMPLING STATION

MISCELLANEOUS DETAILS - W400'S

DRAWING NUMBER	TITLE
CAW-ND-W401	ABANDON EXISTING WATER MAIN
CAW-ND-W402	PIPE CASING AND CARRIER PIPE
CAW-ND-W403	GUARD POST
CAW-ND-W404A	CONNECTION DETAILS
CAW-ND-W404B	CONNECTION DETAILS - TEE
CAW-ND-W404C	CONNECTION DETAILS - TEE WITH INCREASING MAIN
CAW-ND-W404D	CONNECTION DETAILS - CROSS
CAW-ND-W404E	CONNECTION DETAILS - HDPE TRANSITION


SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	TABLE OF CONTENTS	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W000
COMMITTEE APPROVAL 04/12/2023		

GENERAL NOTES:

1. ALL WATER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MOST CURRENT CALIFORNIA AMERICAN WATER COMPANY (CAL-AM) STANDARD SPECIFICATIONS AND DETAILS, AND AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS. THE CONTRACTOR SHALL HAVE A CURRENT COPY OF CAL-AM STANDARD SPECIFICATIONS AND DETAILS AT THE JOB SITE AT ALL TIMES.
2. CAL-AM APPROVAL OF THE DRAWINGS DOES NOT CONSTITUTE A COMMITMENT FOR SERVICE OR AN AUTHORIZATION TO START CONSTRUCTION. THE APPLICANT/CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM ANY FEDERAL, STATE, AND/OR LOCAL PERMIT AUTHORITY HAVING JURISDICTION OVER ANY PHASE OF CONSTRUCTION ASSOCIATED WITH THE INSTALLATION OF THE WATER SYSTEM.
3. CAL-AM IS ONLY RESPONSIBLE FOR MARKING EXISTING WATER FACILITIES OWNED BY CAL-AM AND SHALL NOT BE RESPONSIBLE FOR MARKING OTHER FACILITIES INCLUDING THOSE NEWLY INSTALLED BUT NOT YET ACCEPTED BY, AND CONVEYED TO, CAL-AM. THE APPLICANT/CONTRACTOR IS RESPONSIBLE FOR MARKING NEW FACILITIES UNTIL CAL-AM ACCEPTS OWNERSHIP. ANY AND ALL DAMAGE TO WATER FACILITIES TO BE OWNED BY CAL-AM MUST BE REPORTED TO CAL-AM IMMEDIATELY AND CAL-AM MUST BE ALLOWED TO INSPECT AND APPROVE REPAIRS OR REPLACEMENTS. ANY UNMARKED OR INACCURATE MARKINGS OF OTHER UTILITIES ARE NOT THE RESPONSIBILITY OF CAL-AM.
4. THE APPLICANT/CONTRACTOR SHALL TAKE VIDEO AND PHOTOS TO DOCUMENT EXISTING FIELD CONDITIONS AND SUBMIT TO CAL-AM PRIOR TO START OF CONSTRUCTION.
5. THE APPLICANT/CONTRACTOR SHALL HAVE CURB AND GUTTER INSTALLED OR STAKED PRIOR TO START OF CONSTRUCTION OF WATER MAIN, FIRE HYDRANTS, SERVICES, ETC.
6. THE APPLICANT/CONTRACTOR SHALL MAKE SUBGRADE PRIOR TO START OF CONSTRUCTION OF WATER MAIN, FIRE HYDRANTS, SERVICES, ETC.
7. THE APPLICANT/CONTRACTOR IS REQUIRED TO SUBMIT MATERIALS TO CAL-AM FOR APPROVAL PRIOR TO CONSTRUCTION. THE APPLICANT/CONTRACTOR SHALL SCHEDULE AND ATTEND AN ON-SITE PRE-CONSTRUCTION MEETING A MINIMUM OF FIVE (5) BUSINESS DAYS PRIOR TO CONSTRUCTION.
8. THE APPLICANT/CONTRACTOR SHALL NOTIFY CAL-AM FIVE (5) BUSINESS DAYS PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) A MINIMUM OF 48 HOURS PRIOR TO ANY CONSTRUCTION.
9. THE APPLICANT/CONTRACTOR SHALL HAVE ALL PERMITS PRIOR TO START OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO LOCAL, CITY, COUNTY, AND DIVISION OF DRINKING WATER (DDW).
10. SEPARATION REQUIREMENTS FOR WATER MAINS SHALL BE IN COMPLIANCE WITH TITLE 22. OTHERWISE A VARIANCE FROM CALIFORNIA DIVISION OF DRINKING WATER (DDW) MUST COORDINATED THROUGH CAL-AM. DDW APPROVAL SHALL BE OBTAINED PRIOR TO START OF CONSTRUCTION.
11. THE APPLICANT/CONTRACTOR SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THAT THE PUBLIC IS PROTECTED. THE CONTRACTOR SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH REGULATIONS OF THE U.S. DEPARTMENT OF LABOR AND THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS.
12. CAL-AM CANNOT GUARANTEE A COMPLETE SHUT-DOWN OF EXISTING WATER MAINS BECAUSE OF THE AGE AND CONDITION OF EXISTING VALVES. CAL-AM WILL ATTEMPT TO SHUT DOWN MAINS AS COMPLETELY AS POSSIBLE; HOWEVER, THE APPLICANT/CONTRACTOR SHALL BE RESPONSIBLE FOR DE-WATERING AND ISOLATION OF CONSTRUCTION FOR TESTING PURPOSES AT THE APPLICANT/CONTRACTOR'S EXPENSE.
13. THE APPLICANT/CONTRACTOR SHALL REQUEST TO SCHEDULE A SHUTDOWN THROUGH CAL-AM'S INSPECTOR A MINIMUM OF FIVE (5) BUSINESS DAYS PRIOR TO THAT SCHEDULED SHUT-DOWN. SHUT DOWN TIME SHALL NOT EXCEED FOUR (4) HOURS WITHOUT SPECIAL CAL-AM APPROVAL.
14. ACTUAL FIELD CONDITIONS MAY VARY FROM THOSE SHOWN ON THE DRAWINGS AND CAL-AM ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE DRAWINGS. THE APPLICANT/CONTRACTOR SHALL POT HOLE ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION AT THE CONTRACTORS EXPENSE. THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATION, SIZE, DEPTH, MATERIAL, AND TYPE OF ALL EXISTING UTILITIES AND INTERFERENCES WITHIN THE PROPOSED CONSTRUCTION AREA PRIOR TO EXCAVATION, FABRICATION AND INSTALLATION. THE CONTRACTOR SHALL PROTECT ALL IMPROVEMENTS AND UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY CAL-AM OF ANY CONFLICTS AND RECEIVE AUTHORIZATION PRIOR TO CONTINUING WORK.
15. THE APPLICANT/CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES (I.E. ELECTRICAL, TELEPHONE, WATER, SEWER, STORM, GAS, OIL, FIBER OPTIC, IRRIGATION, AND MANHOLES, ETC.) IN PLACE.
16. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST PUBLICATION "STATE OF CALIFORNIA MANUAL OF TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE WORK ZONES". FLAGGERS SHALL BE STATE CERTIFIED, WHEN REQUIRED.
17. THE APPLICANT/CONTRACTOR SHALL RESTORE OR REPLACE IN KIND ALL EXISTING IMPROVEMENTS DISTURBED DURING CONSTRUCTION.
18. AT THE END OF EACH WORKING DAY AND AT THE TIMES WHEN CONSTRUCTION OPERATION IS SUSPENDED FOR ANY REASONS, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, VEHICLES, MATERIALS, TRAFFIC CONTROL DEVICES, STOCKPILE OR ANY OTHER FORM OF OBSTRUCTION FROM THE STREET RIGHT-OF-WAY. THE CONTRACTOR SHALL EITHER BACKFILL AND PLACE BASE PAVEMENT OR THE TRENCH SHALL HAVE HYDRAULIC SHORING AND PLYWOOD BACKING WITH RECESSED NON-SKID STEEL PLATES. WHEN MORE THAN ONE STEEL PLACE IS USED, EACH PLATE SHALL HAVE THREE 3-INCH TACK WELDS AND CORNERS PINNED.


SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER COMMITTEE APPROVAL 04/12/2023	GENERAL NOTES	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W101A

GENERAL NOTES:

19. THE APPLICANT/CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
20. THE APPLICANT/CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED SURVEYING AND STAKING, SHOWING THE LOCATION AND GRADES FOR INSTALLING THE WATER SYSTEM. THE APPLICANT/CONTRACTOR IS RESPONSIBLE FOR PROTECTING AND MAINTAINING ALL SURVEY MONUMENTS AND STAKING WHETHER EXISTING OR DISCOVERED DURING CONSTRUCTION.
21. THE APPLICANT/CONTRACTOR IS RESPONSIBLE TO HIRE A THIRD PARTY STATE CERTIFIED INDEPENDENT SOILS TESTING SERVICE TO PROVIDE BACKFILL MATERIAL INSPECTION AND COMPACTION TESTING. COMPACTION TESTS DOCUMENTING COMPLIANCE WITH MINIMUM COMPACTION REQUIREMENTS WILL BE TAKEN AT 50-FT INTERVALS OR PER THE MINIMUM LOCAL AGENCY REQUIREMENTS, WHICHEVER IS MORE FREQUENT. ALL TESTING REPORTS SHALL BE SUBMITTED TO CAL-AM FOR REVIEW AND APPROVAL WITHIN 24 HOURS. TESTING RESULTS FROM A CERTIFIED COUNTY OR CITY REPRESENTATIVE IS PERMITTED WHERE JURISDICTIONAL REQUIREMENTS PROVIDE SUCH COMPACTION TESTING.
22. REDUCED PRESSURE BACKFLOW PREVENTION DEVICES ARE REQUIRED ON ALL COMMERCIAL, NON-SINGLE FAMILY HOMES, SINGLE FAMILY HOMES WITH GROUNDWATER WELL, WHERE A OR A PUMPING / PRESSURIZED SYSTEM EXISTS., OR WHERE A PASSIVE PURGE FIRE SUPPRESSION SYSTEM IS NOT IN USE. THE APPLICANT/CONTRACTOR SHALL BE RESPONSIBLE FOR OWNERSHIP AND MAINTENANCE OF BACKFLOW PREVENTION DEVICES.
23. ALL PUBLIC FIRE HYDRANTS SHALL BE PAINTED WHITE. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED UNLESS DIRECTED OTHERWISE BY THE LOCAL FIRE DISTRICT. ALL FIRE HYDRANTS SHALL BE COATED WITH AN APPROVED EPOXY PAINT IN ACCORDANCE WITH THE COATING MANUFACTURER'S SPECIFICATIONS. FIRE HYDRANT BASE FLANGE TO BE A MINIMUM OF 2-INCHES AND A MAXIMUM OF 4-INCHES ABOVE FINISH GRADE. BREAKAWAY CHECK VALVES SHALL BE REQUIRED ON ALL HYDRANTS.
24. FIRE HYDRANTS SHALL BE LOCATED 2-FOOT MINIMUM OUTSIDE OF CURB RADIUS AND 2-FOOT MINIMUM OUTSIDE OF ACCESSIBLE RAMPS AND IN ACCORDANCE WITH THE LOCAL FIRE DEPARTMENT.
25. METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, 2-FOOT MINIMUM OUTSIDE OF CURB RADIUS, AND 2-FOOT MINIMUM OUTSIDE OF ACCESSIBLE RAMPS.
26. CONCRETE THRUST BLOCKS SHALL BE INSTALLED AT ALL ANGLE, TEE, CROSS FITTINGS.
27. ALL FITTINGS SHALL BE RESTRAINED.
28. THE APPLICANT/CONTRACTOR SHALL FURNISH TESTING EQUIPMENT AND PERFORM THE FOLLOWING TESTS, WITNESSED BY A CAL-AM INSPECTOR AND REPORTED BY THE APPLICANT'S ENGINEER OR AGENT: CHLORINE RESIDUAL, BACTERIAL AND HYDROSTATIC. TEST RESULTS MUST BE REPORTED TO CAL-AM FOR APPROVAL PRIOR TO ANY WATER CONVEYANCE. A MAXIMUM OF 2,000 FOOT PIPE SECTIONS ALLOWED FOR BAC-T AND STATIC PRESSURE TESTING.
29. THE APPLICANT/CONTRACTOR SHALL HAVE QUALIFIED/EXPERIENCED PERSONNEL AND USE CHLORINATOR TO CHLORINATE AND DE-CHLORINATE WATER MAINS. IF THE APPLICANT/CONTRACTOR DOES NOT HAVE QUALIFIED/EXPERIENCED STAFF, THE CONTRACTOR SHALL HIRE AN INDEPENDENT THIRD PARTY CHLORINATION COMPANY TO CHLORINATE AND DE-CHLORINATE WATER MAINS.
30. THE APPLICANT/CONTRACTOR IS REQUIRED TO OBTAIN PERMITS TO DISCHARGE TO ANY WATER TO STORM OR SEWER SYSTEMS.
31. WATER MAINS SHALL HAVE A MINIMUM OF 36-INCHES OF COVER, MAXIMUM OF 58-INCHES OF COVER, UNLESS APPROVED BY CAL-AM. WATER MAINS 12-INCH DIAMETER AND SMALLER SHALL BE PVC DR-14 AWWA C-900 OR DUCTILE IRON CLASS 52, AWWA STANDARD C-151. WATER MAINS LARGER THAN 12-INCH DIAMETER SHALL BE DUCTILE IRON CLASS 51, AWWA, C151.
32. ALL DUCTILE IRON PIPE, FITTINGS, AND VALVES SHALL BE WRAPPED WITH 10 MIL PLASTIC WITH 10 MIL TAPE. ALL UNDERGROUND BURIED BOLTS SHALL BE COATED IN BITUMASTIC NUMBER 50.
33. FINAL AS-BUILTS DRAWINGS DEPICTING FINAL CONDITIONS AND ANY FIELD CHANGES SHALL BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER AND SHALL BE SUBMITTED TO CAL-AM PRIOR TO PROJECT COMPLETION.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	GENERAL NOTES	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W101B
COMMITTEE APPROVAL 04/12/2023		

SKETCHES:

APPROVAL SIGNATURE BLOCK

REQUIRED ON COVER SHEET AND WATER PLAN SHEET

CALIFORNIA AMERICAN WATER APPROVAL	
File No.	Expires one (1) Year from date of signature
WBS No.	
NORTHERN DIVISION	DATE

INSPECTOR OF RECORD

REQUIRED ON COVER SHEET AND WATER PLAN SHEET

CALIFORNIA AMERICAN WATER
INSPECTOR OF RECORD

INSTALLATION / RETIREMENT TABLE (EXAMPLE)

REQUIRED ON WATER PLAN SHEET

CALIFORNIA AMERICAN WATER DEVELOPER FUNDED PUBLIC FACILITIES INSTALLATION / RETIREMENT TABLE
INSTALL: A. 100 LF 16" DIP CL-50 WATER MAIN B. 100 LF 12" PVC C-900 DR-14 WATER MAIN C. 7 EA. 16" BUTTERFLY VALVE D. 3 EA. 12" GATE VALVE E. 1 EA. 2" BLOW-OFF VALVE F. 1 EA. 1½" IRRIGATION SERVICE & METER G. 2 EA. 6" DOMESTIC SERVICE W/ VALVE & METER H. 3 EA. 2" DOMESTIC SERVICE W/ 2" METER I. 2 EA. 12" FIRE SERVICE W/ VALVE J. 5 EA. FIRE HYDRANT W/ 6" GATE VALVE RETIRE: A. 2 EA. 2" BLOW-OFF VALVE B. 24 LF 8" AC WATER MAIN C. 1 EA. 8" GATE VALVE

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST



**CALIFORNIA
AMERICAN WATER**

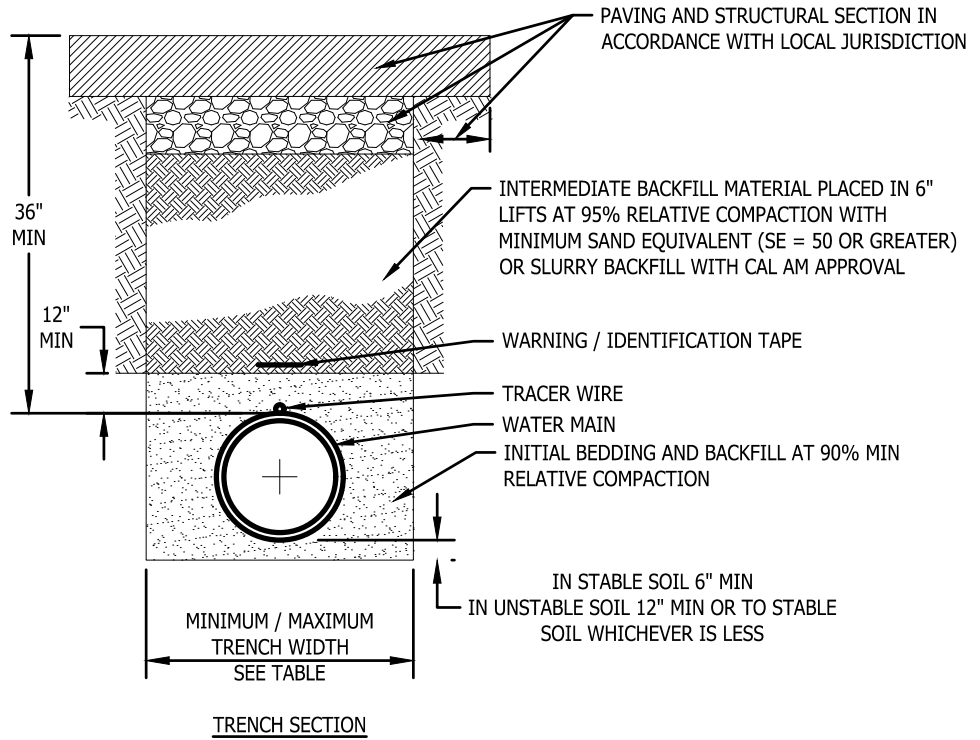
COMMITTEE APPROVAL 09/28/2022

GENERAL NOTES (SKETCHES)

**CALIFORNIA AMERICAN WATER
NORTHERN DIVISION**

STANDARD DRAWING NUMBER

CAW-ND-W101C



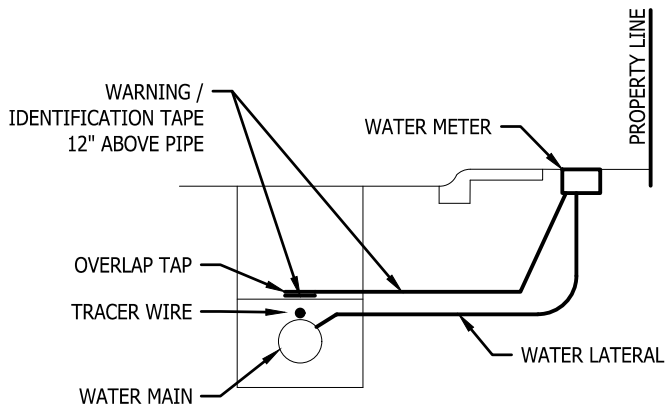
MINIMUM TRENCH WIDTH

NOMINAL PIPE DIAMETER (IN)	MINIMUM TRENCH WIDTH (IN)	MAXIMUM TRENCH WIDTH (IN)
4" & SMALLER	18"	28"
6" & 8"	24"	32"
10" & 12"	28"	36"
16" THRU 36"	OD PLUS 24"	OD PLUS 36"

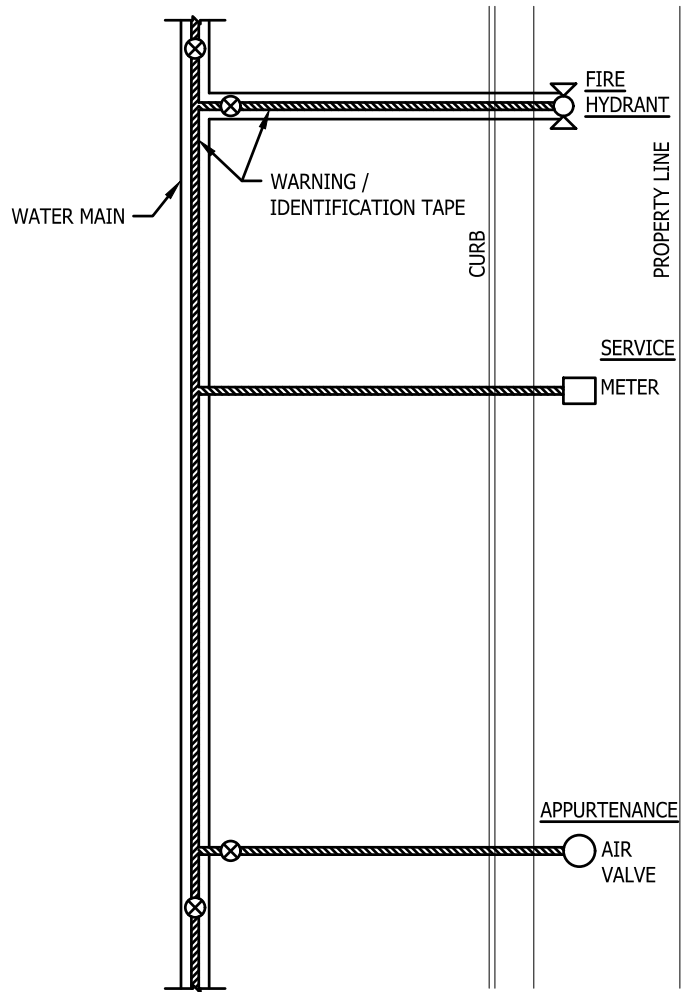
NOTES:

1. THE PAVEMENT AND STRUCTURAL SECTION MATERIALS AND CONSTRUCTION SHALL BE INSPECTED AND APPROVED BY LOCAL JURISDICTION.
2. THE CONTRACTOR SHALL SUBMIT PROPOSED BEDDING AND BACKFILL MATERIALS TO CAL-AM FOR APPROVAL.
3. BEDDING AND INITIAL BACKFILL SHALL BE SAND (SAND EQUIVALENT, SE = 50 OR GREATER) PLACED IN 6" LAYERS AND TAMPED TO THE SPRING LINE OF THE PIPE. THE INITIAL BACKFILL AND BEDDING MATERIAL SHALL BE GRADUATED SO THAT 100% WILL PASS THE NO 4 SIEVE AND NOT MORE THAN 5% WILL PASS THE NUMBER 200 SIEVE.
4. FOR INSTALLATIONS WHERE THE TRENCH BOTTOM IS COBBLED OR ROCKY, THE UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH FINELY CRUSHED ROCK, GRAVEL OR SAND WITH A MINIMUM SE 50.
5. COMPACTION SHALL BE BY MECHANICAL TAMPING, NO JETTING SHALL BE ALLOWED.
6. OVER EXCAVATION SHALL BE BACKFILLED WITH APPROVED BEDDING MATERIAL.
7. ALL WORK SHALL COMPLY WITH OSHA AND TRENCH DEPTHS EXCEEDING 5 FEET REQUIRE A TRENCH SAFETY PLAN.
8. MINIMUM TRENCH WIDTH REQUIREMENTS SHOWN ABOVE WILL BE ENFORCED AND IN NO CASE SHALL THE MINIMUM WIDTH BE NARROWER THAN 18 INCHES.
9. CONTRACTOR SHALL HIRE A THIRD PARTY CERTIFIED SOILS TESTING SERVICE TO INSPECT MATERIALS AND TRENCH COMPACTION AT MINIMUM 50-FOOT INTERVALS.
10. USE FILTER FABRIC WITH MINIMUM 18" OVERLAP IN WET GROUND CONDITIONS.
11. INSTALL WARNING IDENTIFICATION TAPE AND TRACER WIRE AS SHOWN ON STANDARD DRAWING CAW-ND-W103.
SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

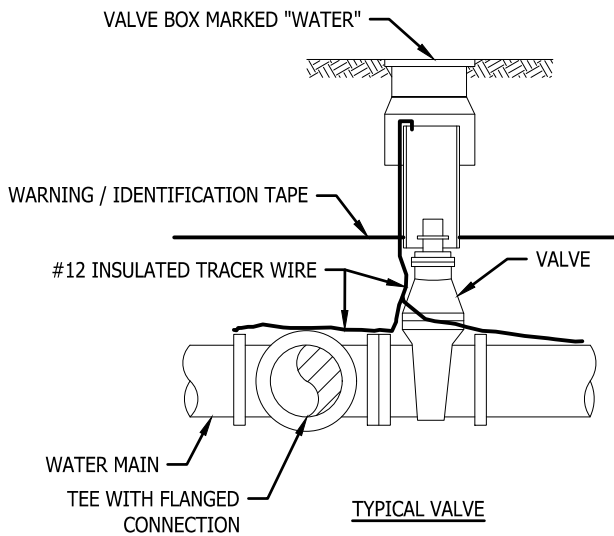
 CALIFORNIA AMERICAN WATER COMMITTEE APPROVAL 09/28/2022	PIPE TRENCH AND BACKFILL	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W102



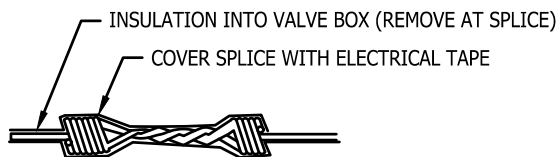
TYPICAL SECTION AT LATERALS



TYPICAL PLAN



TYPICAL VALVE



TRACER WIRE SPLICE DETAIL

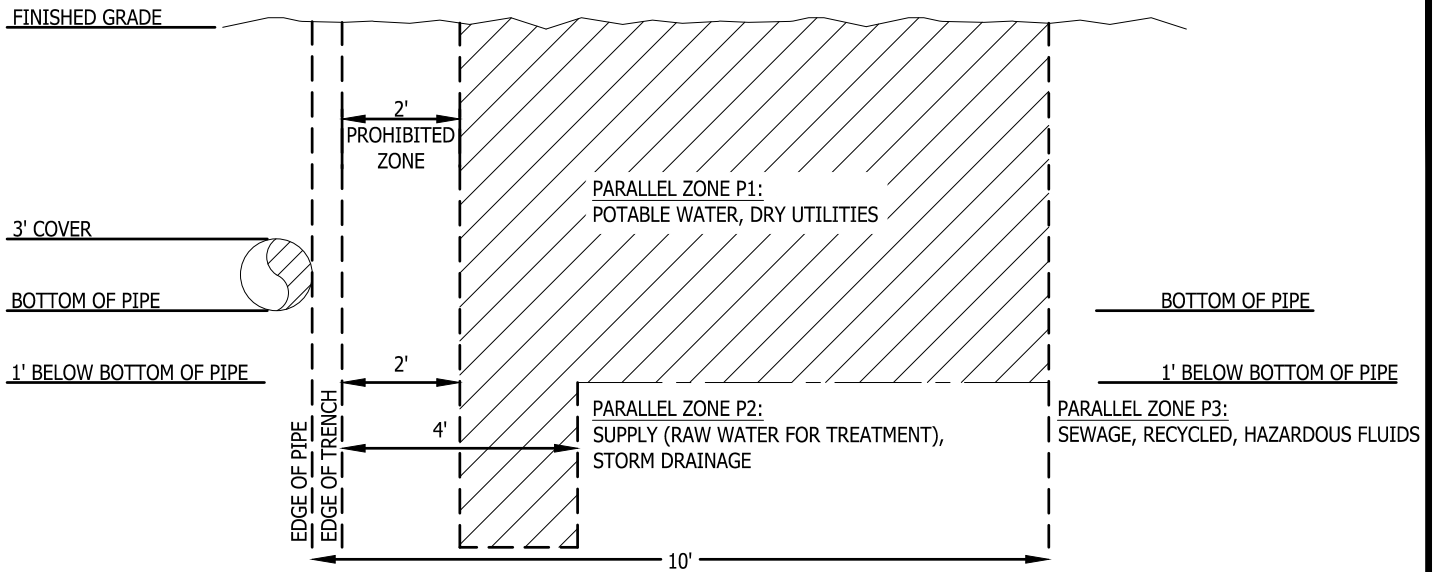
NOTES:

1. TRACER WIRE TO RUN CONTINUOUSLY ALONG THE ENTIRE LENGTH OF WATER MAINS. WIRE SHALL BE SECURED ALONG TOP OF PIPE ALONG CENTERLINE AND MAINTAINED DURING TRENCH BACKFILL.
2. TRACER WIRE SHALL BE TAPED TO PIPE EVERY 5 FEET WITH 10 MIL TAPE.
3. TRACER WIRE LOOPS ARE TO BE BROUGHT UP AT ALL VALVES, HYDRANTS, CURB STOP BOXES, METERS, BLOW-OFFS, AND AIR VALVES.
4. TRACER WIRE SHALL BE TESTED FOR CONDUCTIVITY PRIOR TO ACCEPTANCE BY CAL-AM.
5. WARNING / IDENTIFICATION TAPE SHALL BE INSTALLED 12-INCHES ABOVE THE PIPE AND RUN CONTINUOUSLY ALONG THE ENTIRE LENGTH OF THE PIPE AND ALL RELATED APPURTENANCES.
6. WARNING / IDENTIFICATION TAPE SHALL BE 4" TO 6" WIDE AND DETECTIBLE TYPE.
7. INSTALL PIPE TRENCH AND BACKFILL AS SHOWN ON STANDARD DRAWING CAW-ND-W102.
8. INSTALL VALVE BOX AND RISER WELL AS SHOWN ON STANDARD DRAWING CAW-ND-W105.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	WARNING IDENTIFICATION TAPE AND TRACER WIRE	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W103
COMMITTEE APPROVAL 09/28/2022		

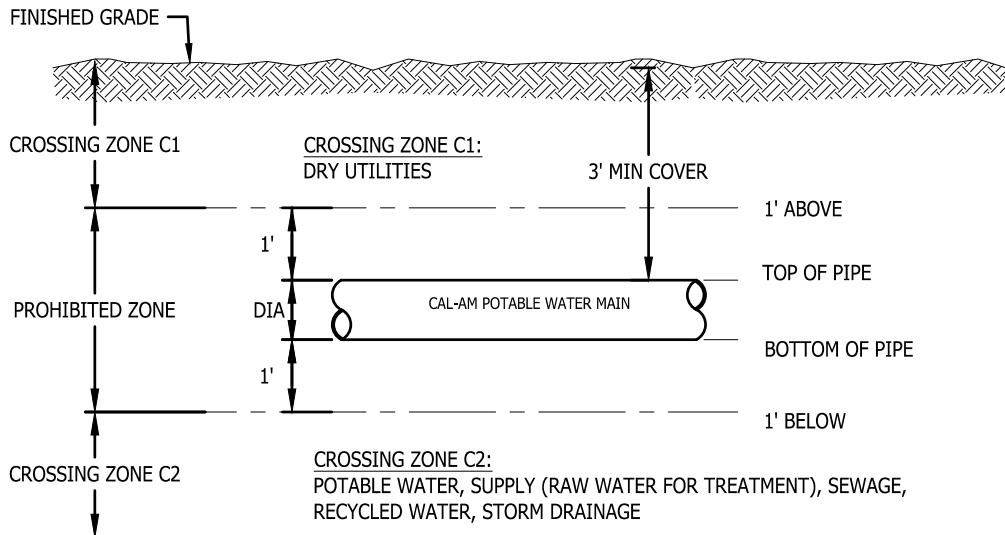
PARALLEL SEPARATION REQUIREMENTS



NOTES:

1. WATER MAINS SHALL NOT BE INSTALLED WITHIN 100 FEET OF THE NEAREST EDGE OF ANY SANITARY LANDFILLS, WASTEWATER DISPOSAL POND, HAZARDOUS WASTE DISPOSAL SITE.
2. WATER MAINS SHALL NOT BE INSTALLED WITHIN 25 FEET OF THE NEAREST EDGE OF ANY CESSPOOL, SEPTIC TANK, SEWAGE LEACH FIELD, SEWAGE PIT, UNDERGROUND HAZARDOUS MATERIAL STORAGE TANK, OR GROUNDWATER RECHARGE PROJECT SITE.
3. SEPARATION DISTANCES ARE FROM THE NEAREST OUTSIDE PIPE DIAMETER.
4. EXCEPTIONS FROM THESE SEPARATIONS MAY BE ALLOWED ON A CASE BY CASE BASIS WITH CAL-AM APPROVAL AND DIVISION OF DRINKING WATER APPROVAL. A STATE WAIVER IS REQUIRED IF THE CONDITIONS ABOVE CANNOT BE MET AND SPECIAL WRITTEN PERMISSION MUST BE OBTAINED FROM STATE WATER RESOURCES CONTROL BOARD DIVISION OF DRINKING WATER (CA SWRCB-DDW). FOR DESIGN REQUIREMENTS REFER TO CA SWRCB-DDW TITLE 22, ARTICLE 4 64572. CAL-AM REQUIRES SPECIAL WATER MAIN CONSTRUCTION SHALL BE PRESSURE CLASS 350 DUCTILE IRON PIPE WITH RESTRAINED JOINTS.

CROSSING WATER MAIN REQUIREMENTS



NOTES:

1. PIPES SHALL CROSS AT MINIMUM OF 45 DEGREES HORIZONTAL. PERPENDICULAR CROSSINGS PREFERRED.
2. ALL NEW PIPES SHALL HAVE NOT JOINTS WITHIN 8 FEET OF THE CROSSING.
3. EXCEPTIONS FROM THESE SEPARATIONS MAY BE ALLOWED ON A CASE BY CASE BASIS WITH CAL-AM APPROVAL AND DIVISION OF DRINKING WATER APPROVAL. A STATE WAIVER IS REQUIRED IF THE CONDITIONS ABOVE CANNOT BE MET AND SPECIAL WRITTEN PERMISSION MUST BE OBTAINED FROM STATE WATER RESOURCES CONTROL BOARD DIVISION OF DRINKING WATER (CA SWRCB-DDW). FOR DESIGN REQUIREMENTS REFER TO CA SWRCB-DDW TITLE 22, ARTICLE 4 64572. CAL-AM REQUIRES SPECIAL WATER MAIN CONSTRUCTION SHALL BE PRESSURE CLASS 350 DUCTILE IRON PIPE WITH RESTRAINED JOINTS.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

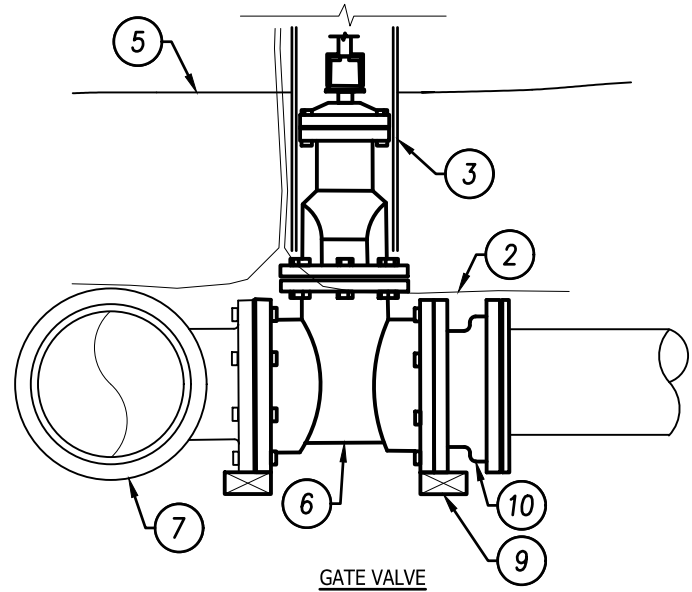
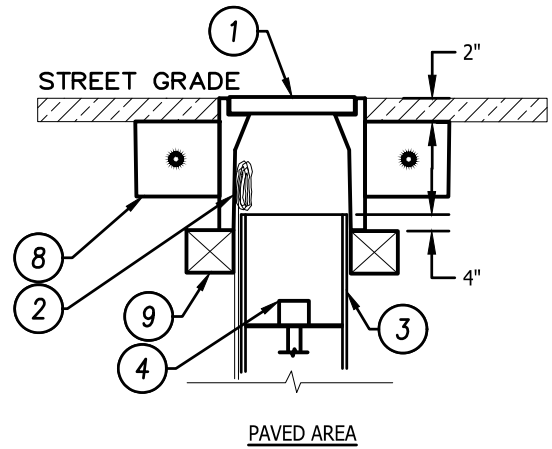
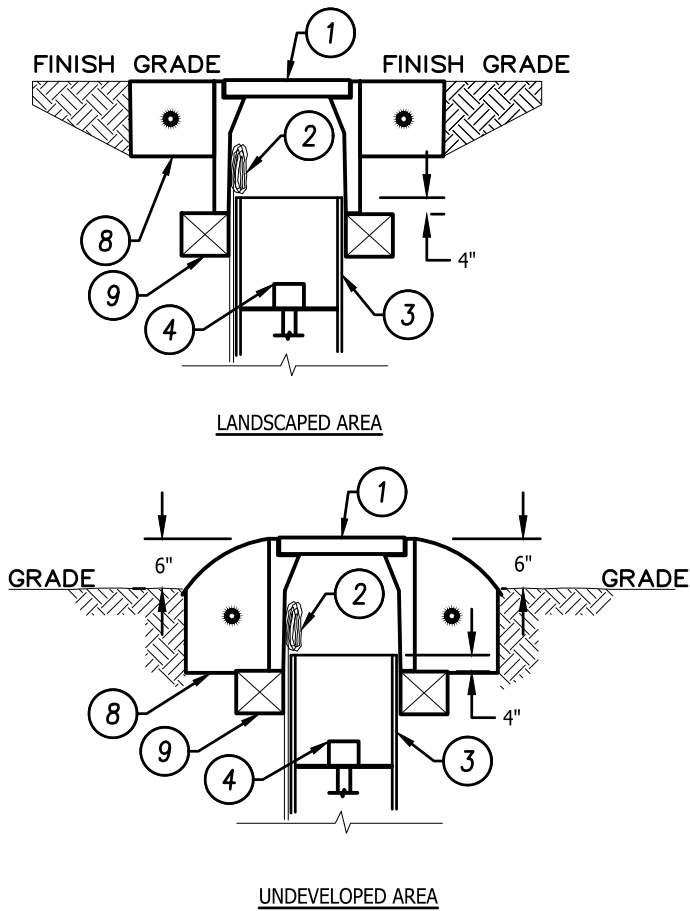
COMMITTEE APPROVAL 09/28/2022

SEPARATION REQUIREMENTS

CALIFORNIA AMERICAN WATER NORTHERN DIVISION

STANDARD DRAWING NUMBER

CAW-ND-W104



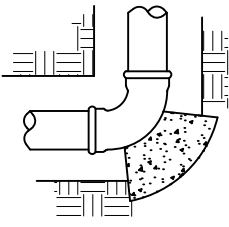
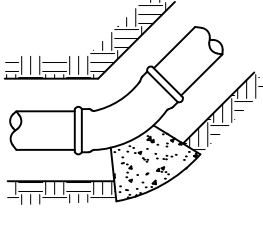
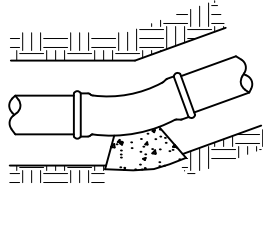
ITEM DESCRIPTION:

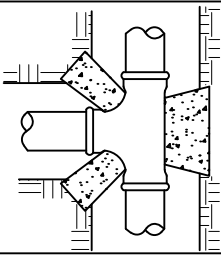
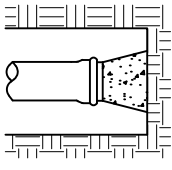
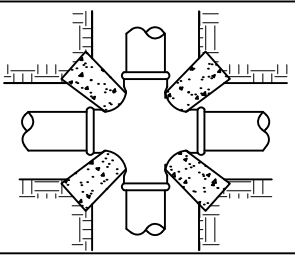
- | | | | | | |
|---|---------------------------|---|---|----|------------------|
| 1 | VALVE BOX MARKED "WATER" | 5 | WARNING / IDENTIFICATION TAPE | 9 | BLOCKING |
| 2 | #12 INSULATED TRACER WIRE | 6 | GATE VALVE | 10 | FLG X MJ ADAPTER |
| 3 | 8" RISER (PVC SDR 35) | 7 | DUCTILE IRON TEE | | |
| 4 | VALVE NUT | 8 | 21" OD X 6" THICK CONCRETE COLLAR W/ #4 REBAR | | |

NOTES:

- TRACER WIRE SHALL BE SPLICED INSIDE THE VALVE BOX WITH LOOP INSIDE THE VALVE BOX WITH 18" OF SLACK WIRE.
- OPERATOR NUTS DEEPER THAN 48 INCHES BELOW FINISH GRADE SHALL REQUIRE A VALVE NUT EXTENSION 2 FEET MINIMUM IN LENGTH.
- VALVE BOXES LOCATED IN A PAVED AREA SHALL BE PLACED IN A 6" X 6" CONCRETE COLLAR A MINIMUM OF 2" BELOW PAVEMENT.
- VALVE BOXES LOCATED IN A LANDSCAPED AREA SHALL BE PLACED IN A 6" X 6" CONCRETE COLLAR AT FINISHED GRADE
- VALVE BOXES LOCATED IN AN UNDEVELOPED AREA SHALL BE PLACED IN A 12" DEEP BY 6" WIDE CONCRETE COLLAR 6" ABOVE GRADE.
- CONCRETE SHALL BE 4,000 PSI MINIMUM.
- VALVES AND FITTING SHALL BE WRAPPED AND SEALED IN 10 MIL POLYETHYLENE AND TAPED.
- RISER SHALL BE A MINIMUM OF 4" INSIDE VALVE BOX.
- INSTALL WARNING / IDENTIFICATION TAPE AND TRACER WIRE AS SHOWN ON STANDARD CAW-ND-W104.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

FITTING		90° BEND	45° BEND	22 1/2° OR 11 1/4° BEND
TYPICAL INSTALLATION				
REQUIRED BEARING - TOTAL SQUARE FEET				
PIPE DIAMETER	4" & 6"	4.0	2.2	1.1
	8"	6.9	3.7	1.9
	10" & 12"	16.1	8.7	4.4

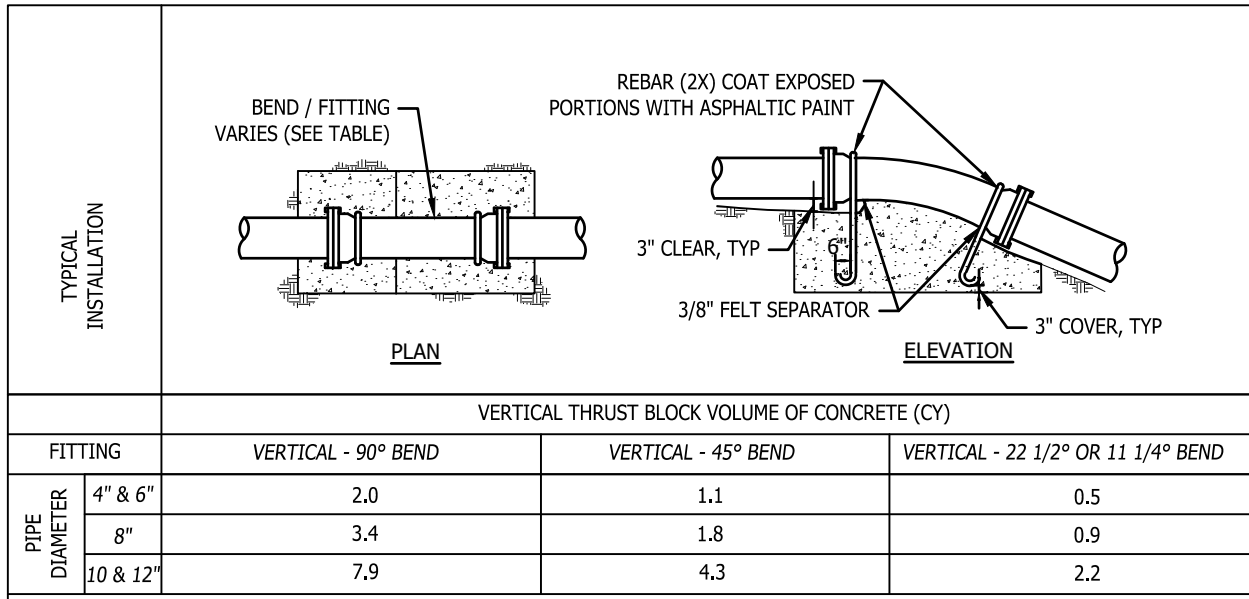
FITTING		TEE	END OF LINE	CROSS
TYPICAL INSTALLATION				
REQUIRED BEARING - TOTAL SQUARE FEET				
PIPE DIAMETER	4" & 6"	2.8	2.8	2.8
	8"	4.9	4.9	4.9
	10" & 12"	11.4	11.0	11.4

NOTES:

1. CONCRETE SHALL BE 2,500 PSI MINIMUM.
2. THRUST BLOCK AREA IS BASED ON TEST PRESSURE OF 150 PSI IN SOIL WITH 2,000 PSF BEARING CAPACITY. ADJUSTMENTS TO SOIL BEARING PRESSURE ARE SUBJECT TO CAL-AM APPROVAL.
3. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL.
4. JOINTS, FACE OF PLUGS, NUTS AND BOLTS SHALL BE KEPT CLEAR OF CONCRETE AND MUST BE OPERABLE WITHOUT DISTURBING THRUST BLOCK.
5. THRUST BLOCKS TO BE IN PLACE 7 (SEVEN) DAYS PRIOR TO TESTING.
6. ALL PLUGS SHALL BE SECURED WITH THRUST BLOCKS.
7. THRUST BLOCK DESIGN FOR PIPES GREATER THAN 12-INCH DIAMETER REQUIRE SPECIAL DESIGN, SUBJECT TO CAL-AM APPROVAL.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	CONCRETE THRUST RESTRAINT	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W106A
COMMITTEE APPROVAL 09/28/2022		



REBAR SIZES		
PIPE DIAMETER	VERTICAL BEND	REBAR
4", 6" & 8"	0° - 45°	#5
10" & 12"	0° - 22 1/2°	#5
10" & 12"	45°	#7
10" & 12"	90°	#8

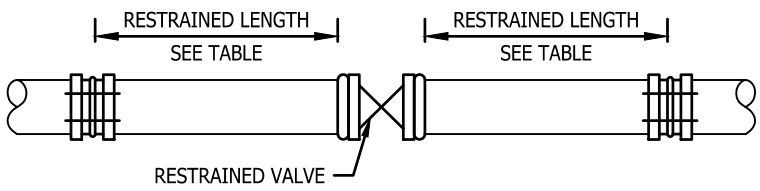
NOTES:

1. CONCRETE SHALL BE 2,500 PSI MINIMUM.
2. CONCRETE SHALL BE PLACED SO THAT FITTINGS AND VALVES WILL BE ACCESSIBLE FOR REPAIRS OR REPLACEMENT.
3. ANCHOR BLOCK EXCAVATIONS SHALL BE KEYED A MINIMUM OF 12-INCHES INTO UNDISTURBED SOIL.
4. ANCHOR BLOCK VOLUME BASED 1.5:1 FACTOR OF SAFETY, TEST PRESSURE OF 235 PSI & CONCRETE WEIGHT OF 140 LBS/CF.
5. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL.
6. JOINTS, FACE OF PLUGS, NUTS AND BOLTS SHALL BE KEPT CLEAR OF CONCRETE AND MUST BE OPERABLE WITHOUT DISTURBING THRUST BLOCK.
7. THRUST BLOCKS TO BE IN PLACE 7 (SEVEN) DAYS PRIOR TO TESTING.
8. ALL PLUGS SHALL BE SECURED WITH THRUST BLOCKS.
9. THRUST BLOCK DESIGN FOR PIPES GREATER THAN 12-INCH DIAMETER REQUIRE SPECIAL DESIGN, SUBJECT TO CAL-AM APPROVAL.

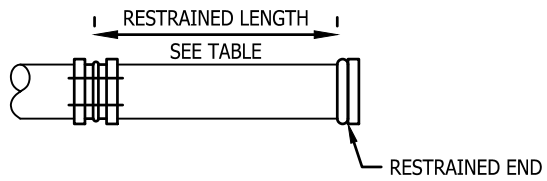
SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER COMMITTEE APPROVAL 09/28/2022	CONCRETE THRUST RESTRAINT	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W106B

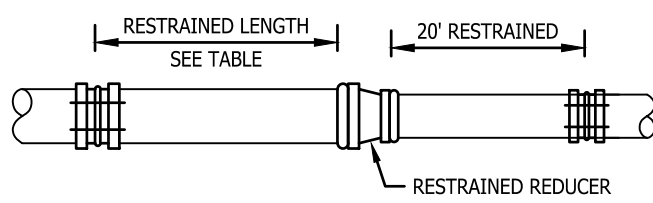
FITTING		VALVE	
		RESTRAINED LENGTH - FEET	
PIPE DIAMETER	4"	85	
	6"	120	
	8"	160	
	10"	190	
	12"	220	



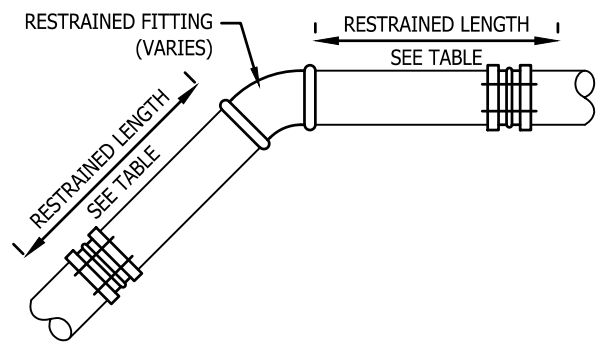
FITTING		DEAD END / END OF LINE	
		RESTRAINED LENGTH - FEET	
PIPE DIAMETER	4"	85	
	6"	120	
	8"	160	
	10"	190	
	12"	220	



FITTING		REDUCER			
		SIZE X 4"	SIZE X 6"	SIZE X 8"	SIZE X 10"
PIPE DIAMETER	4"	--	--	--	--
	6"	65	--	--	--
	8"	115	70	--	--
	10"	155	115	65	--
	12"	195	160	120	65



FITTING		HORIZONTAL BENDS			
		90°	45°	22 1/2°	11 1/4°
PIPE DIAMETER	4"	25	10	5	5
	6"	35	15	10	5
	8"	40	20	10	5
	10"	50	20	10	5
	12"	55	25	15	10



NOTES:

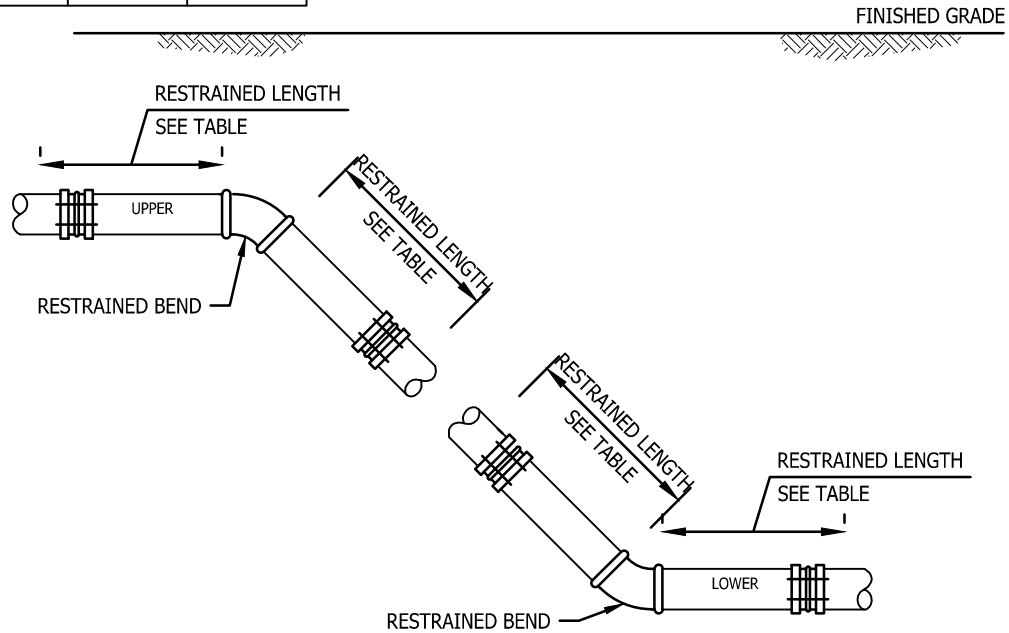
1. RESTRAINED LENGTHS BASED ON A TEST PRESSURE OF 150 PSI, SAFETY FACTOR OF 2:1, DEPTH OF BURY OF 3 FEET.
2. IF RESTRAINED JOINT LENGTH CANNOT BE ACHIEVED DUE TO PROJECT CONSTRAINTS OR IMPRACTICAL THEN CONTRACTOR SHALL USE CONCRETE THRUST BLOCKS.
3. IF THE DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, RESTRAIN ALL JOINTS BETWEEN THOSE FITTINGS.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER COMMITTEE APPROVAL 09/28/2022	PIPE AND JOINT THRUST RESTRAINT CALIFORNIA AMERICAN WATER NORTHERN DIVISION	STANDARD DRAWING NUMBER CAW-ND-W107A
---	--	--

FITTING		TEE		FITTING		TEE WITH VALVE	
		RESTRAINED LENGTH				RESTRAINED LENGTH	
PIPE DIAMETER	4" x 4"	20		PIPE DIAMETER	4" x 4"	85	
	6" x 6"	20			6" x 6"	120	
	8" x 8"	20			8" x 8"	160	
	10" x 10"	20			10" x 10"	190	
	12" x 12"	20			12" x 12"	220	

FITTING		VERTICAL BENDS		
		45°	22-1/2°	11-1/4°
PIPE DIAMETER	4"	35	20	10
	6"	50	25	15
	8"	65	35	20
	10"	80	40	20
	12"	95	45	25



90° VERTICAL OFFSET NOT ALLOWED (45° MAX).

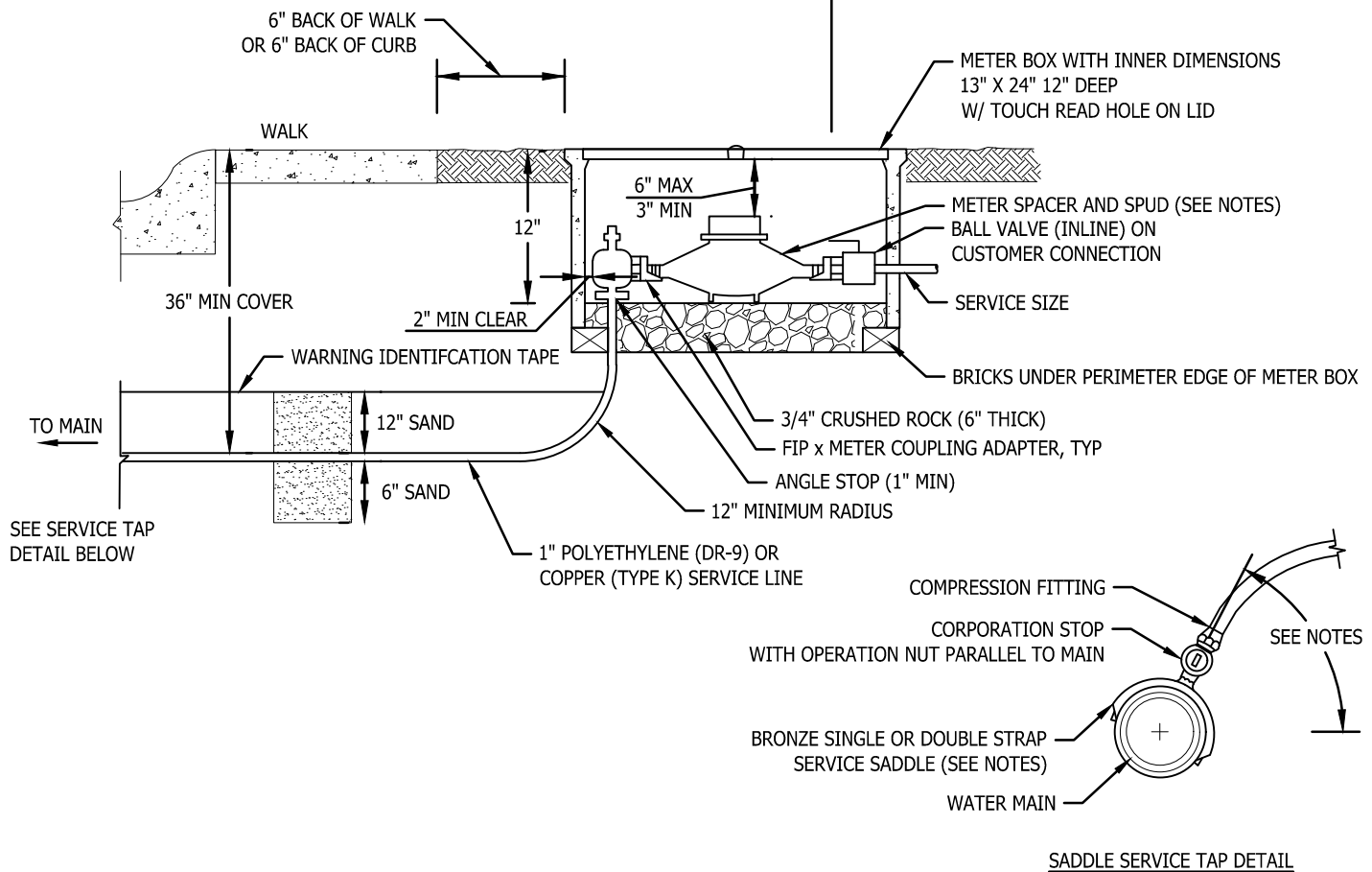
NOTES:

1. RESTRAINED LENGTHS BASED ON A TEST PRESSURE OF 150 PSI, SAFETY FACTOR OF 2:1, DEPTH OF BURY OF 3 FEET.
2. IF RESTRAINED JOINT LENGTH CANNOT BE ACHIEVED DUE TO PROJECT CONSTRAINTS OR IMPRACTICAL THEN CONTRACTOR SHALL USE CONCRETE THRUST BLOCKS.
3. IF THE DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, RESTRAIN ALL JOINTS BETWEEN THOSE FITTINGS.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 COMMITTEE APPROVAL 09/28/2022	PIPE AND JOINT THRUST RESTRAINT CALIFORNIA AMERICAN WATER NORTHERN DIVISION	STANDARD DRAWING NUMBER CAW-ND-W107B
--	--	--

CAL-AM RESPONSIBILITY | CUSTOMER RESPONSIBILITY



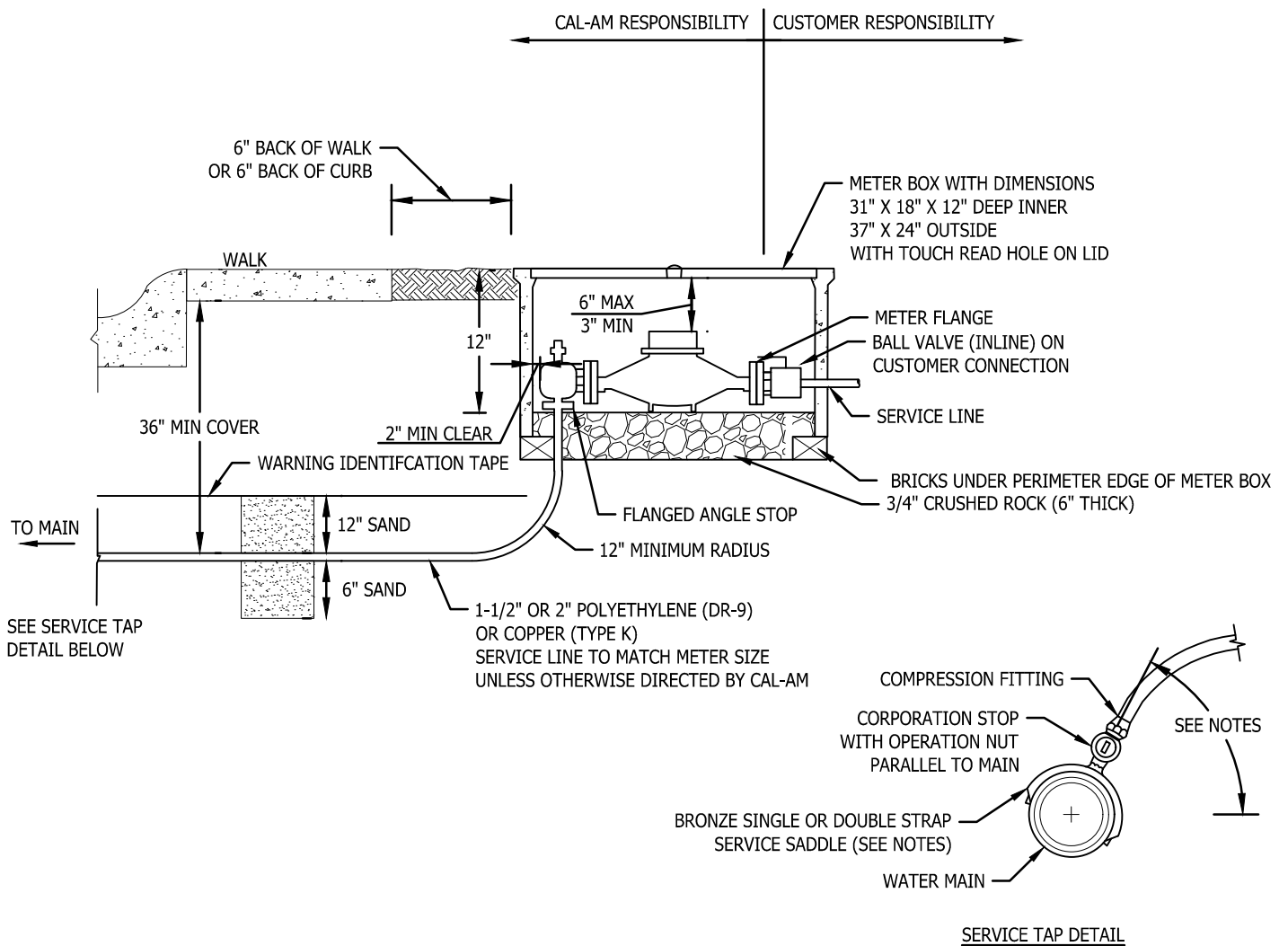
NOTES:

1. METER BOXES SHALL NOT BE LOCATED IN DRIVEWAYS AND SHALL BE 2-FOOT MINIMUM OUTSIDE CURB RETURNS AND/OR ACCESSIBLE WALKS. LOCATE NEW WATER METER BOX AS SHOWN ON DRAWING OR AS DIRECTED BY CAL-AM REPRESENTATIVE. TYPICAL LOCATION IS 6" BEHIND BACK OF SIDEWALK OR 6" BEHIND BACK OF CURB IF SIDEWALK IS NOT PROPOSED.
2. METER BOX SHALL BE LEVEL AND FLUSH WITH FINISHED GRADE.
3. CONTRACTOR TO PROVIDE METER SPACER AND SPUD:

5/8" SERVICE	7-1/2" METER SPACER AND SPUD
3/4" SERVICE	9" METER SPACER AND SPUD
1" SERVICE	11" METER SPACER AND SPUD
4. CAL-AM WILL PROVIDE AND INSTALL METER.
5. WHEN REPLACING COMPOUND METERS, ANY BYPASS PIPING SHALL BE REMOVED AT CAL-AM DISCRETION.
6. INSTALL BRONZE DOUBLE STRAP SERVICE SADDLE ON ALL ACP AND DIP MAINS.
7. INSTALL BRONZE SINGLE STRAP SERVICE SADDLE ON ALL PVC MAINS.
8. NO GALVANIZED PIPING MATERIALS SHALL BE ALLOWED.
9. SERVICE SHALL BE INSTALLED AT 0 DEGREES (HORIZONTAL). SERVICE INSTALLATION AT 45 DEGREES UPON DISCRETION OF CAL-AM.
10. SEE PIPE TRENCH AND BACKFILL STANDARD DRAWING CAW-ND-W102.
11. SEE WARNING / IDENTIFICATION TAPE AND TRACER WIRE STANDARD DRAWING CAW-ND-W103.
12. SEE REDUCED PRESSURE (RP) PRINCIPLE BACKFLOW ASSEMBLY STANDARD DRAWING CAW-ND-W204.
13. SEE WATER SERVICE MINIMUM SEPARATION STANDARD DRAWING CAW-ND-W206.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	1-INCH AND LESS SERVICE	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W201
COMMITTEE APPROVAL 04/12/2023		

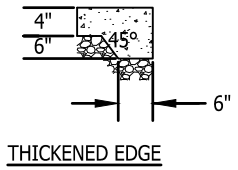
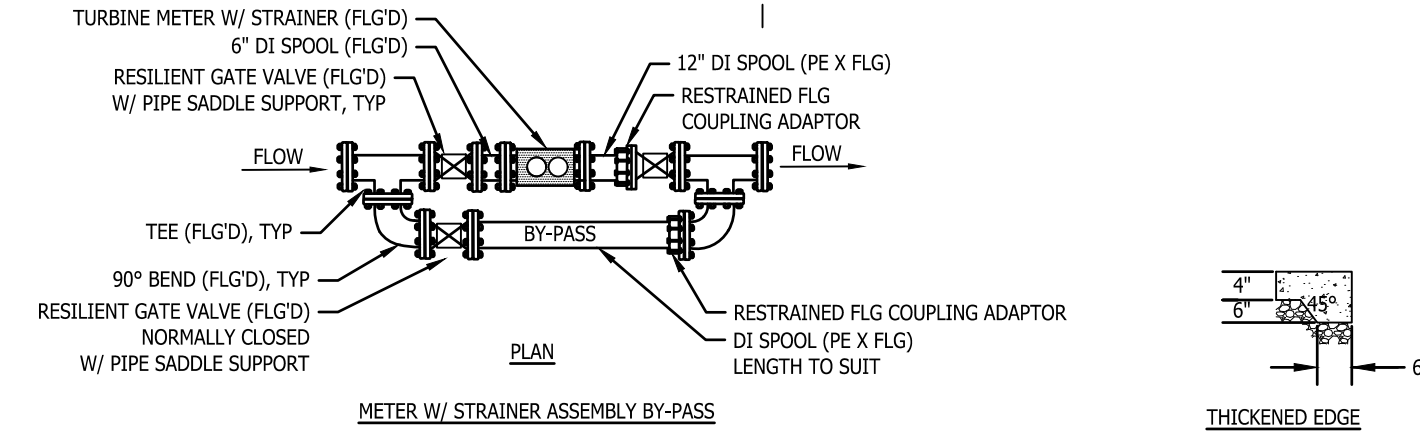
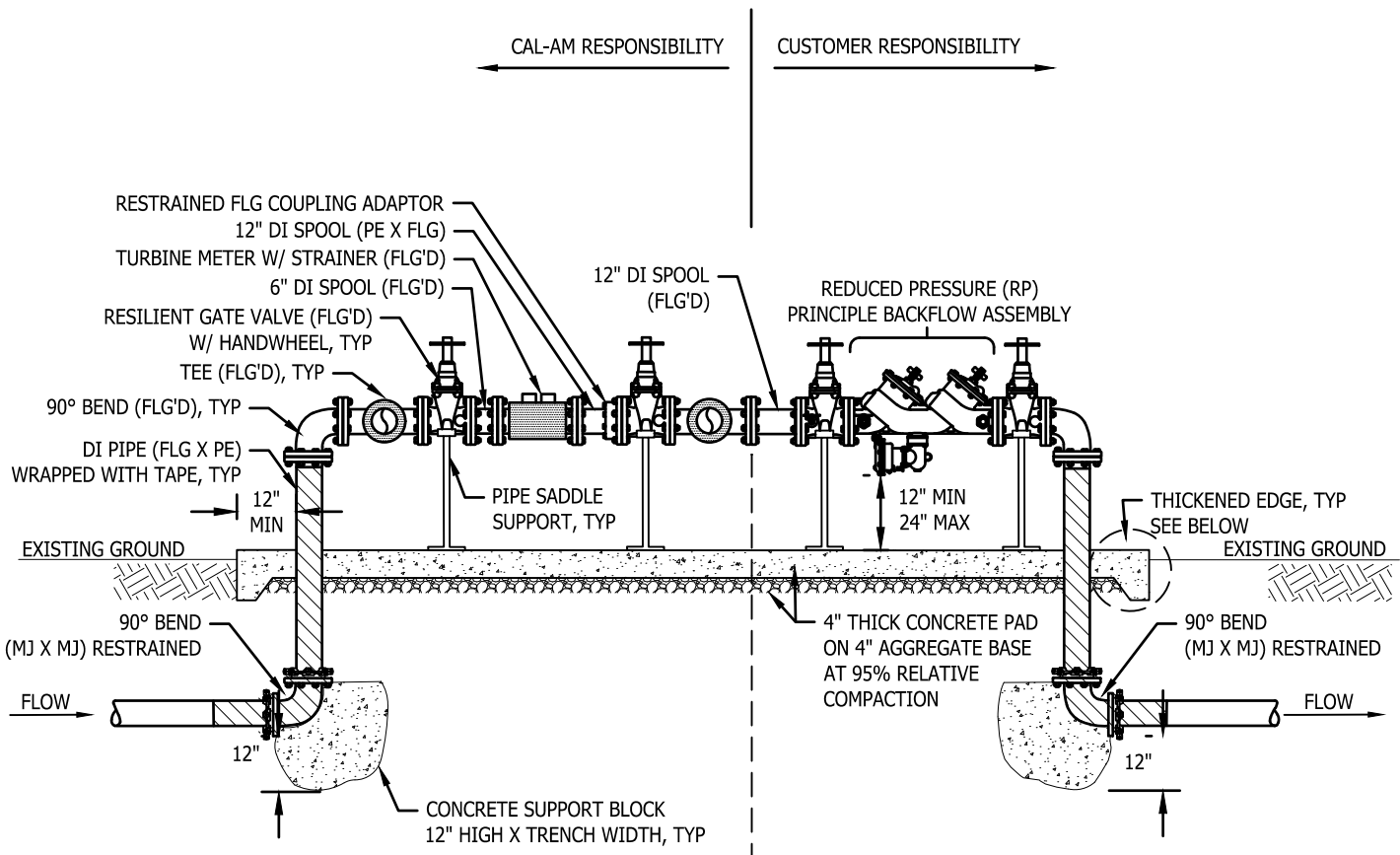


NOTES:

1. METER BOXES SHALL NOT BE LOCATED IN DRIVEWAYS, AND SHALL BE 2-FOOT MINIMUM OUTSIDE CURB RETURNS AND ACCESSIBLE WALKS. LOCATE NEW WATER METER BOX AS SHOWN ON DRAWING OR AS DIRECTED BY CAL-AM REPRESENTATIVE. TYPICAL LOCATION IS 6" BEHIND BACK OF SIDEWALK OR 6" BEHIND BACK OF CURB IF SIDEWALK IS NOT PROPOSED.
2. METER BOX SHALL BE LEVEL AND FLUSH WITH FINISHED GRADE.
3. CONTRACTOR TO PROVIDE A FLANGED METER SPACER :
 1-1/2" SERVICE 13" METER SPACER
 2" SERVICE 17-1/4" METER SPACER
4. CAL-AM WILL PROVIDE AND INSTALL METER.
6. WHEN REPLACING COMPOUND METERS, ANY BYPASS PIPING SHALL BE REMOVED AT CAL-AM DISCRETION.
7. INSTALL BRONZE DOUBLE STRAP SERVICE SADDLE ON ALL ACP AND DIP MAINS.
8. INSTALL BRONZE SINGLE STRAP SERVICE SADDLE ON ALL PVC MAINS.
9. NO GALVANIZED PIPING MATERIALS SHALL BE ALLOWED.
10. SERVICE SHALL BE INSTALLED AT 0 DEGREES (HORIZONTAL). SERVICE INSTALLATION AT 45 DEGREES UPON DISCRETION OF CAL-AM.
11. SEE PIPE TRENCH AND BACKFILL STANDARD DRAWING CAW-ND-W102.
12. SEE WARNING / IDENTIFICATION TAPE AND TRACER WIRE STANDARD DRAWING CAW-ND-W103.
13. SEE REDUCED PRESSURE (RP) PRINCIPLE BACKFLOW ASSEMBLY STANDARD DRAWING CAW-ND-W204.
14. SEE WATER SERVICE MINIMUM SEPARATION STANDARD DRAWING CAW-ND-W206.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	1.5-INCH AND 2-INCH SERVICE	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W202
COMMITTEE APPROVAL 04/12/2023		



NOTES:

1. LOCATE NEW WATER METER AS SHOWN ON DRAWING OR AS DIRECTED BY CAL-AM REPRESENTATIVE.
2. CAL-AM WILL PROVIDE AND INSTALL METER.
3. CONCRETE PAD SHALL BE 4,000 PSI MINIMUM AND EXTEND A MINIMUM OF 12 INCHES BEYOND THE INSTALLATION ON EACH SIDE (WIDTH AND LENGTH).
4. METER SHALL READ IN CUBIC FEET.
5. JOINTS, FACE OF PLUGS, NUTS AND BOLTS TO BE KEPT CLEAR OF CONCRETE AND MUST BE OPERABLE WITHOUT DISTURBING THRUST BLOCK.
6. LIST OF USC APPROVED BACKFLOW PREVENTION ASSEMBLIES AND CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTERS ARE AVAILABLE AT LOCAL CAL-AM OFFICE.
7. INSTALL PIPE SUPPORTS (5 TOTAL) IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8. INSTALL WARNING / IDENTIFICATION TAPE AND TRACER WIRE AS SHOWN ON STANDARD DRAWING CAW-ND-W103.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

COMMITTEE APPROVAL 09/28/2022

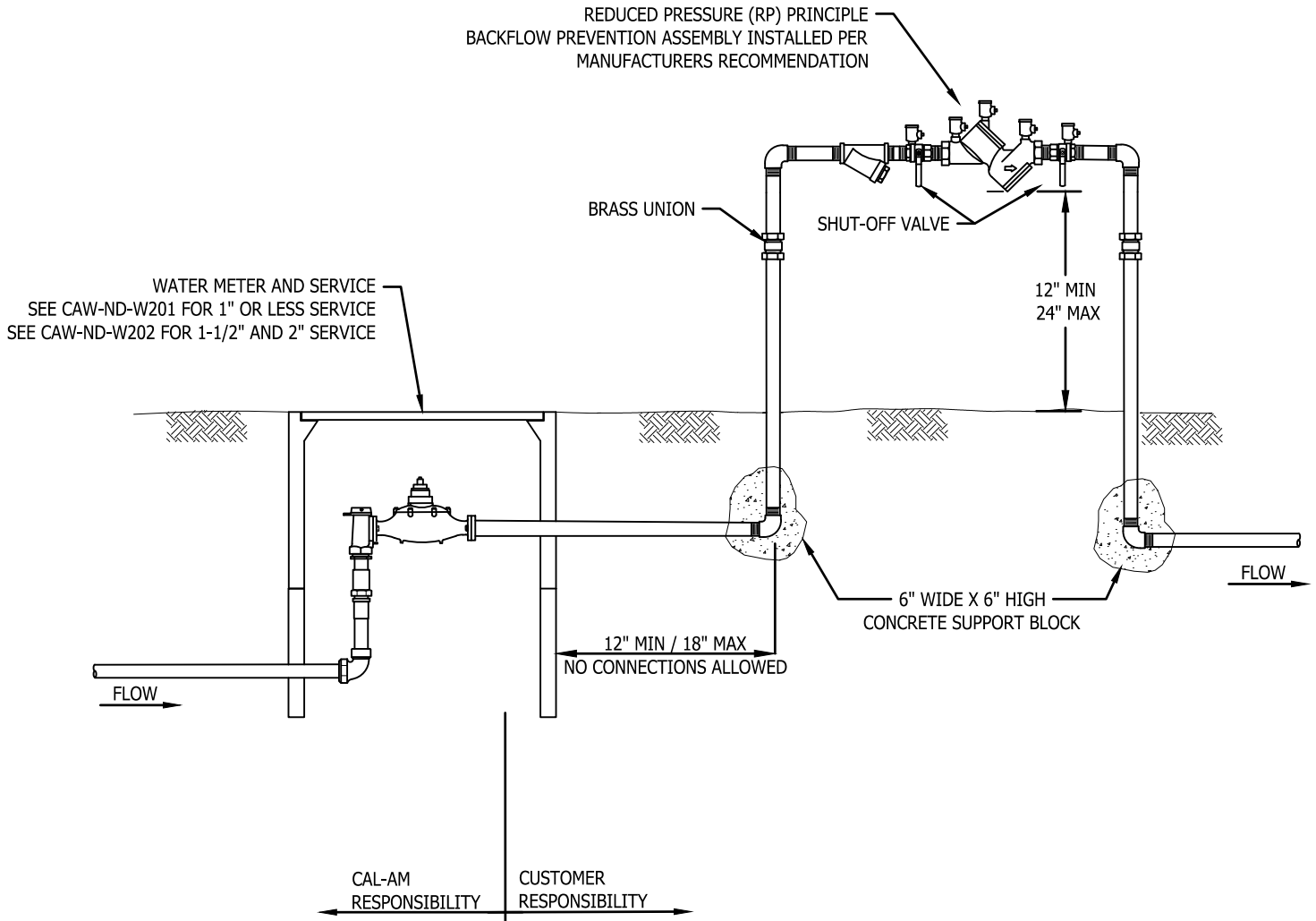
3-INCH AND LARGER SERVICE

CALIFORNIA AMERICAN WATER

NORTHERN DIVISION

STANDARD DRAWING NUMBER

CAW-ND-W203

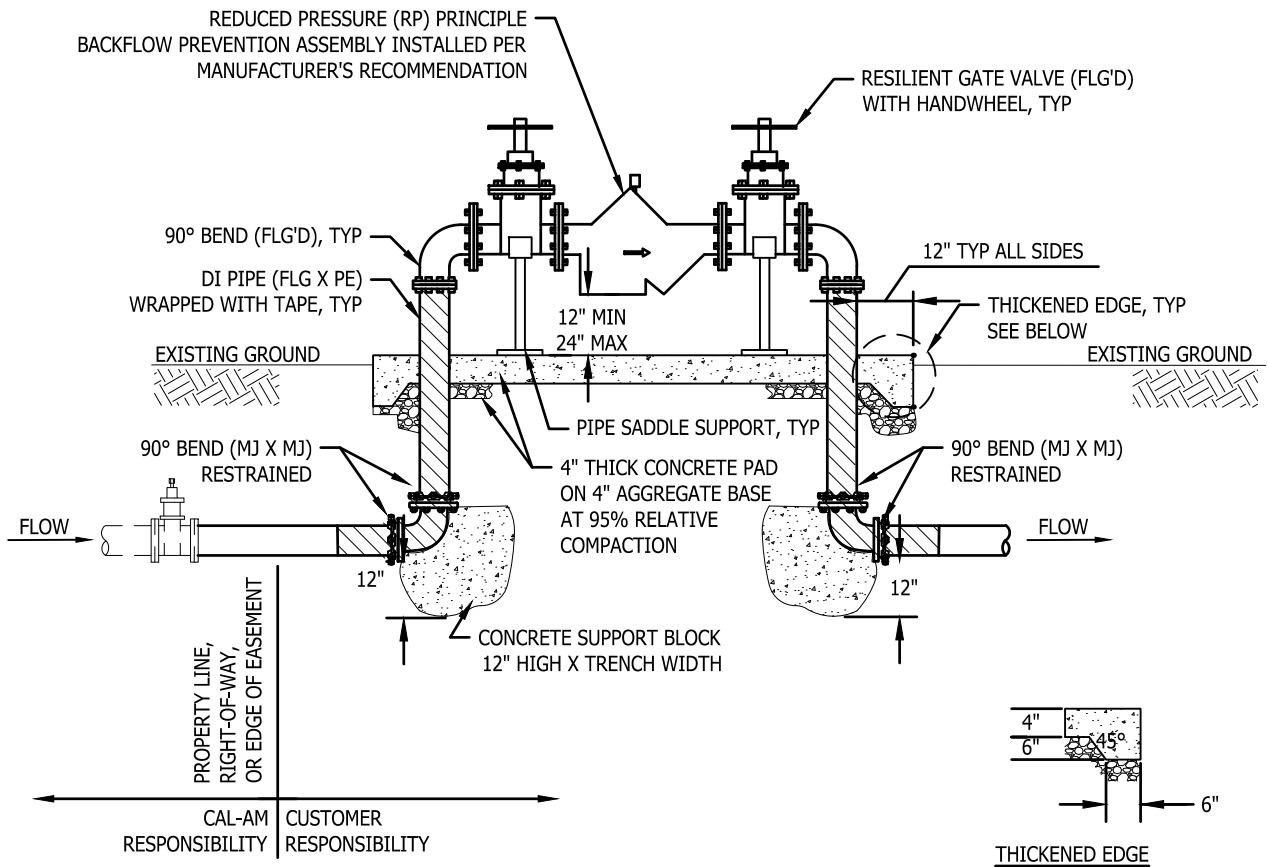


NOTES:

1. POINT OF SERVICE SHALL BE BACK OF METER.
2. BACKFLOW PREVENTION ASSEMBLIES SHALL BE INSTALLED ABOVE GROUND IN HORIZONTAL AND LEVEL POSITION. THE ASSEMBLY SHALL BE LOCATED ON THE CUSTOMER'S SIDE AND NO FURTHER THAN TWELVE (12) INCHES, WITH A MAXIMUM OF EIGHTEEN (18) INCHES, FROM THE POINT OF SERVICE OR THE METER, UNLESS OTHERWISE APPROVED BY CAL-AM.
3. REDUCED PRESSURE (RP) BACKFLOW PREVENTION ASSEMBLIES MUST BE CONNECTED AND TESTED PRIOR TO BEING PLACED INTO SERVICE.
4. LIST OF USC APPROVED BACKFLOW PREVENTION ASSEMBLIES AND CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTERS ARE AVAILABLE AT LOCAL CAL-AM OFFICE.
5. NO OUTLET, TAP, TEE OR CONNECTION BETWEEN THE WATER MAIN AND BACKFLOW PREVENTER IS ALLOWED.
6. ALL ABOVE GROUND PIPING, UNIONS, ELBOWS, AND NIPPLES SHALL BE SOLDERED OR THREADED BRASS.
7. CONCRETE PAD IS RECOMMENDED IF ASSEMBLY IS PLACED WITHIN A PROTECTIVE ENCLOSURE.
8. FREEZE PROTECTION IS RECOMMENDED IN LOCATIONS WITH FREEZING TEMPERATURES.
9. NO GALVANIZED PIPING MATERIALS SHALL BE ALLOWED.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	2-INCH AND LESS RP BACKFLOW PREVENTION DEVICE	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W204
COMMITTEE APPROVAL 09/28/2022		



NOTES:

1. CONCRETE PAD SHALL BE 4,000 PSI MINIMUM AND SHALL EXTEND A MINIMUM OF 12 INCHES BEYOND THE INSTALLATION ON EACH SIDE (WIDTH AND LENGTH).
2. JOINTS, FACE OF PLUGS, NUTS AND BOLTS TO BE KEPT CLEAR OF CONCRETE AND MUST BE OPERABLE WITHOUT DISTURBING THRUST BLOCK.
3. LIST OF USC APPROVED BACKFLOW PREVENTION ASSEMBLIES AND CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTERS ARE AVAILABLE AT LOCAL CAL-AM OFFICE.
4. INSTALL PIPE SUPPORTS (2 TOTAL) IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. INSTALL WARNING / IDENTIFICATION TAPE AND TRACER WIRE AS SHOWN ON STANDARD DRAWING CAW-ND-W103.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

CALIFORNIA
AMERICAN WATER

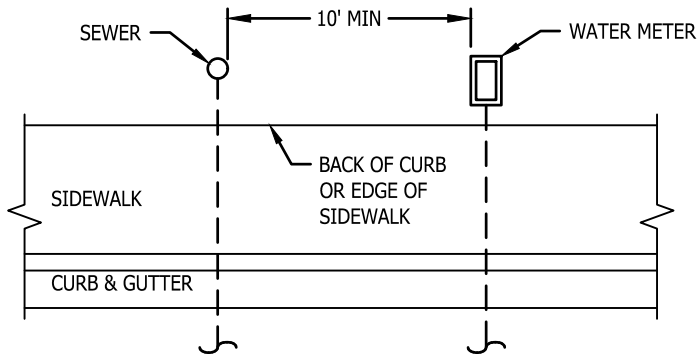
COMMITTEE APPROVAL 09/28/2022

**3-INCH AND LARGER RP
BACKFLOW PREVENTION DEVICE**

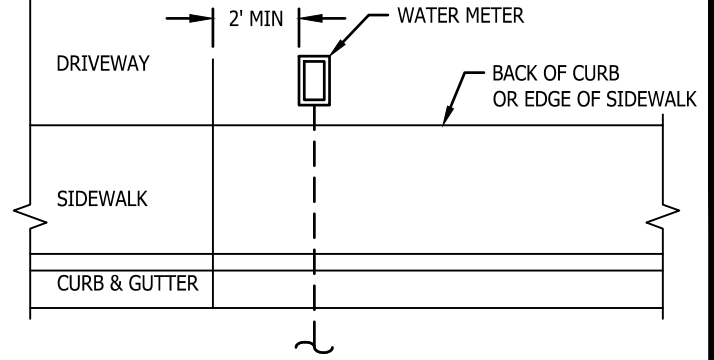
**CALIFORNIA AMERICAN WATER
NORTHERN DIVISION**

STANDARD DRAWING NUMBER

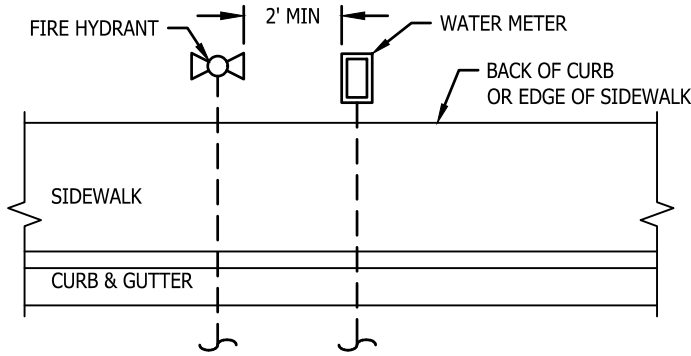
CAW-ND-W205



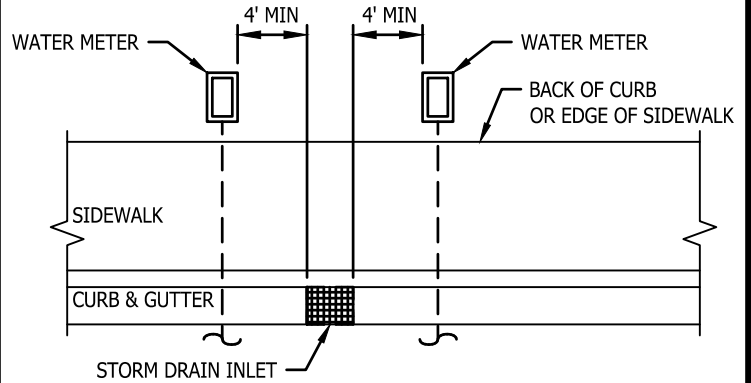
SEWER



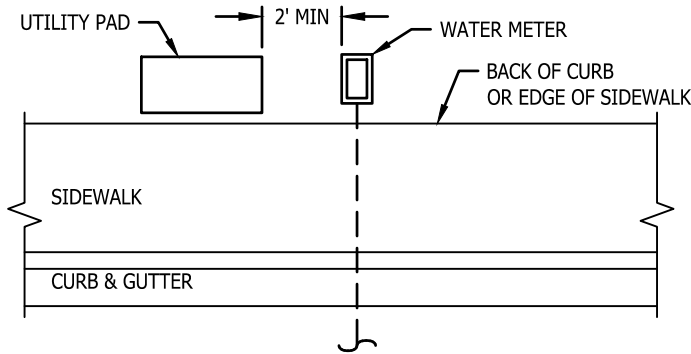
DRIVEWAY



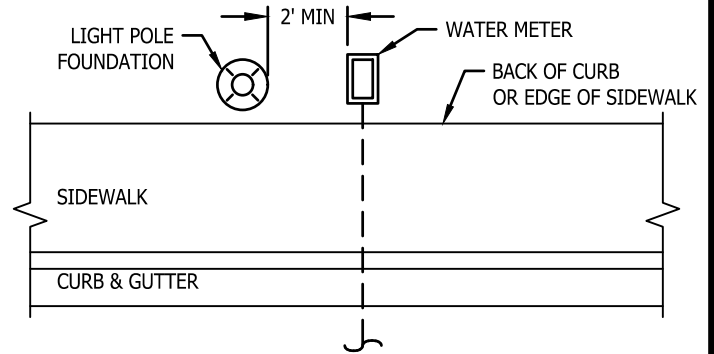
FIRE HYDRANT



STORM DRAIN DROP INLET



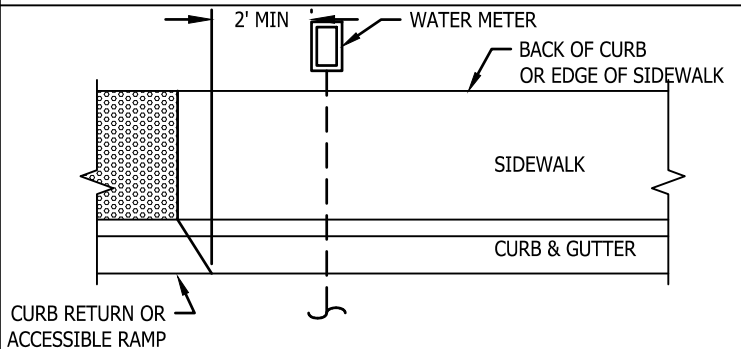
UTILITY PAD



LIGHT POLE

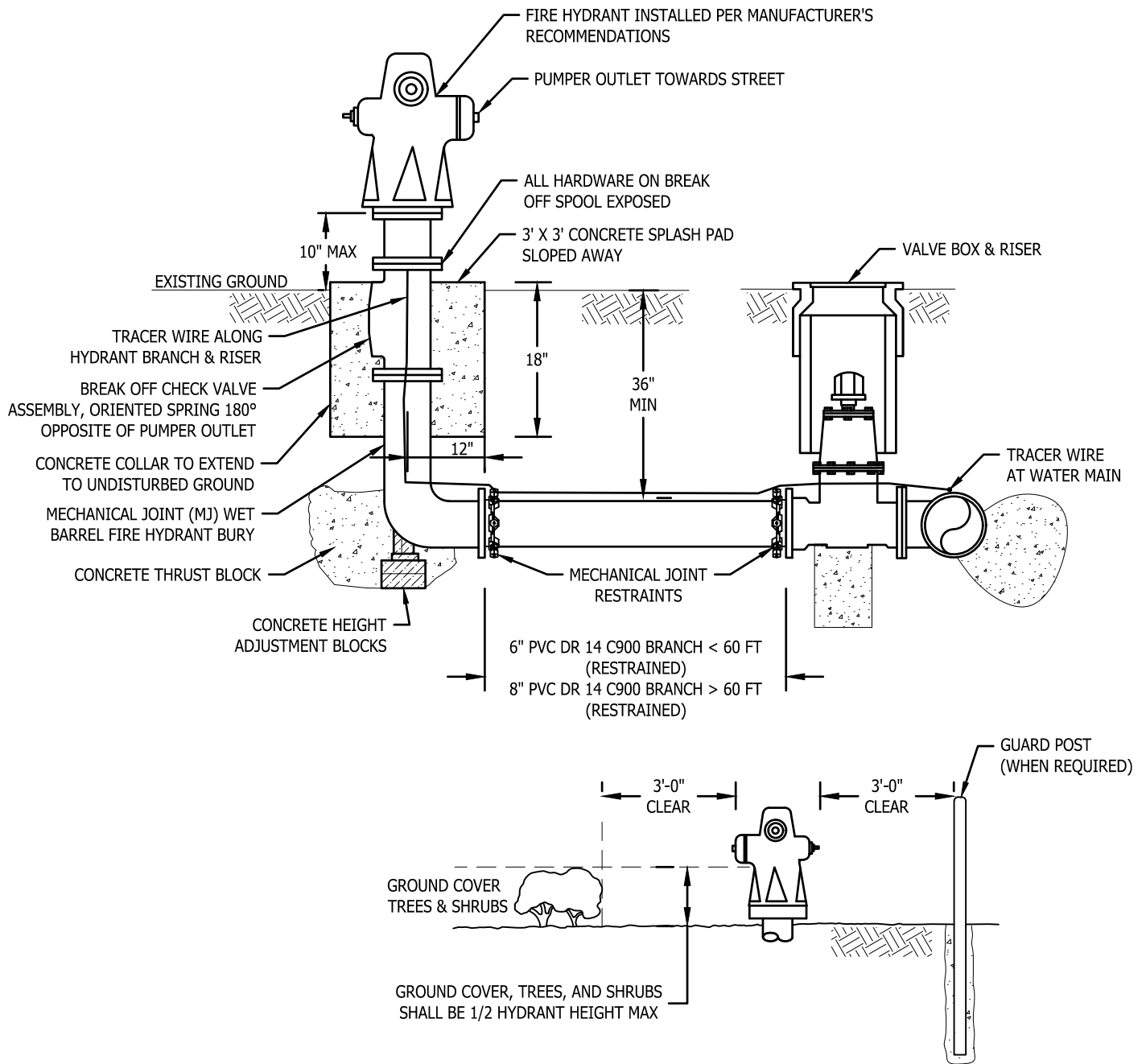
NOTES:

1. WATER SERVICES LINES AND METER BOXES ARE NOT ALLOWED IN DRIVEWAYS.
2. WATER METER BOXES ARE NOT ALLOWED IN SIDEWALKS.
3. ALL WATER SERVICE LATERALS SHALL BE A MINIMUM OF 2-Feet FROM ALL UNDERGROUND OR ABOVE GROUND STRUCTURES, DRIVEWAYS, ACCESSIBLE RAMPS, AND CURB RETURNS.



CURB RETURN AND ACCESSIBLE RAMP


SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

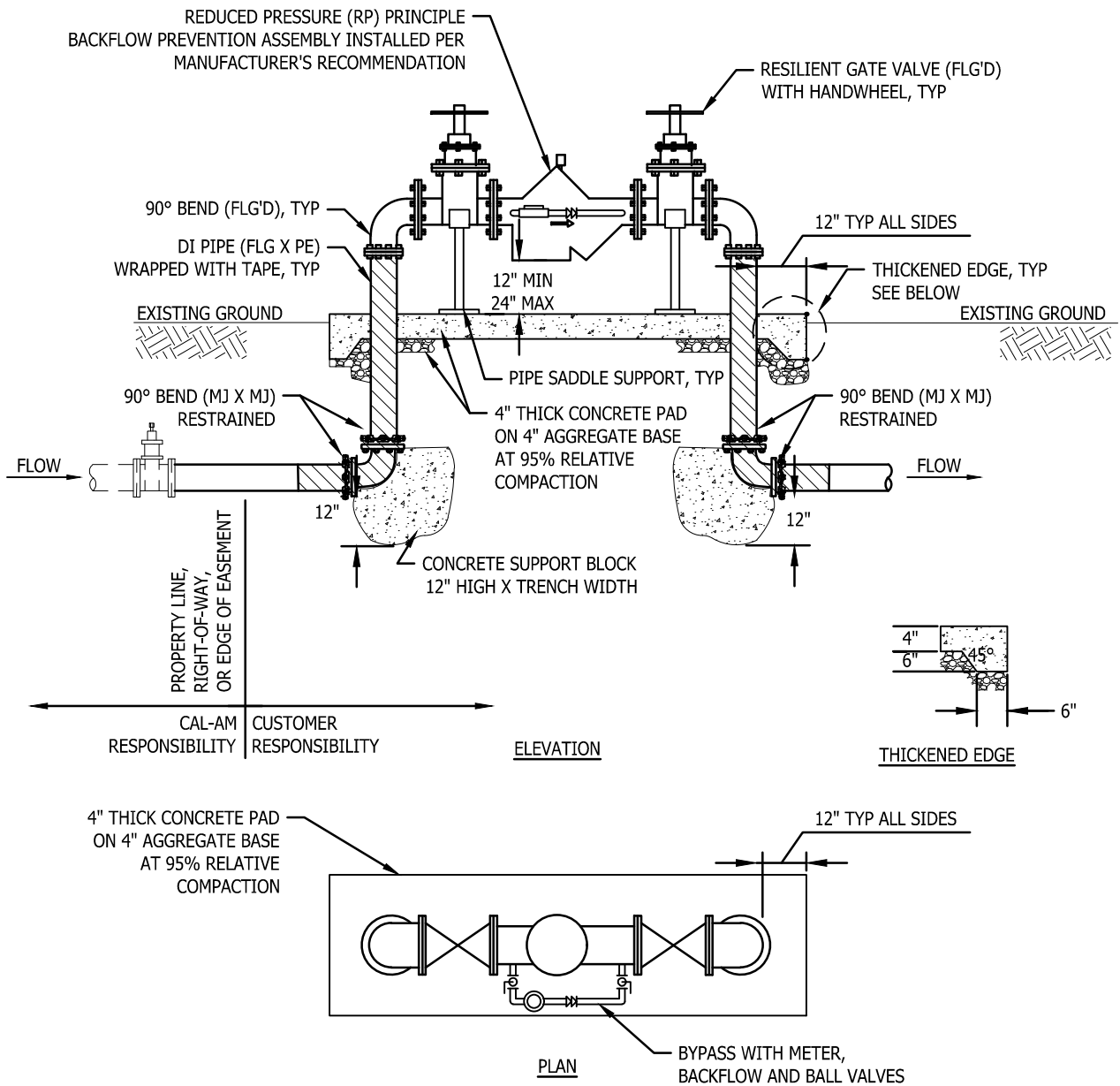


NOTES:

1. HYDRANTS SHALL BE WET BARREL FOR ALL NORTHERN DISTRICTS WITH THE EXCEPTION OF RAYMOND, COARSEGOLD, OAKHURST, AND GOLDSIDE. THESE FOUR DISTRICTS SHALL HAVE DRY BARREL HYDRANTS.
2. HYDRANT TO BE INSTALLED WITH 4-1/2" OUTLET FACING THE ROAD UNLESS OTHERWISE DIRECTED BY THE FIRE DEPARTMENT.
3. HYDRANT SHALL BE LOCATED 2-FOOT MINIMUM OUTSIDE OF CURB RADIUS AND 2-FOOT MINIMUM OUTSIDE OF ACCESSIBLE RAMP AND IN ACCORDANCE WITH LOCAL FIRE DEPARTMENT.
4. COVER HYDRANT WITH PLASTIC WRAP UNTIL PLACED INTO SERVICE.
5. CONCRETE PLACEMENT FOR THRUST BLOCKS AND COLLAR SHALL BE SCHEDULED SEPARATELY (TWO SEPARATE POURS REQUIRED).
6. CONCRETE SPLASH PAD SHALL BE 4,000 PSI MINIMUM.
7. A 8" X 6" REDUCER IS REQUIRED FOR 8" HYDRANT BRANCH.
8. ALL DUCTILE IRON PIPING, FITTINGS, AND VALVES SHALL BE POLYWRAPPED AND TAPED WITH 10 MIL TAPE.
9. ALL JOINTS SHALL BE RESTRAINED.
10. INSTALL THRUST BLOCKS AS SHOWN ON STANDARD DRAWING CAW-ND-W106.
11. INSTALL GUARD POST (WHEN REQUIRED) AS SHOWN ON STANDARD DRAWING CAW-ND-W403.
12. INSTALL WARNING / IDENTIFICATION TAPE AND TRACER WIRE AS SHOWN ON STANDARD DRAWING CAW-ND-W103.
13. INSTALL VALVE BOX AND RISER AS SHOWN ON STANDARD DRAWING CAW-ND-W105.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	FIRE HYDRANT	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W207
COMMITTEE APPROVAL 09/28/2022		



NOTES:

1. CONCRETE PAD SHALL BE 4,000 PSI MINIMUM AND SHALL EXTEND A MINIMUM OF 12 INCHES BEYOND THE INSTALLATION ON EACH SIDE (WIDTH AND LENGTH).
2. JOINTS, FACE OF PLUGS, NUTS AND BOLTS TO BE KEPT CLEAR OF CONCRETE AND MUST BE OPERABLE WITHOUT DISTURBING THRUST BLOCK.
3. LIST OF USC APPROVED BACKFLOW PREVENTION ASSEMBLIES AND CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTERS ARE AVAILABLE AT LOCAL CAL-AM OFFICE.
4. INSTALL PIPE SUPPORTS (2 TOTAL) IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. INSTALL WARNING / IDENTIFICATION TAPE AND TRACER WIRE AS SHOWN ON STANDARD DRAWING CAW-ND-W103.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST



CALIFORNIA
AMERICAN WATER

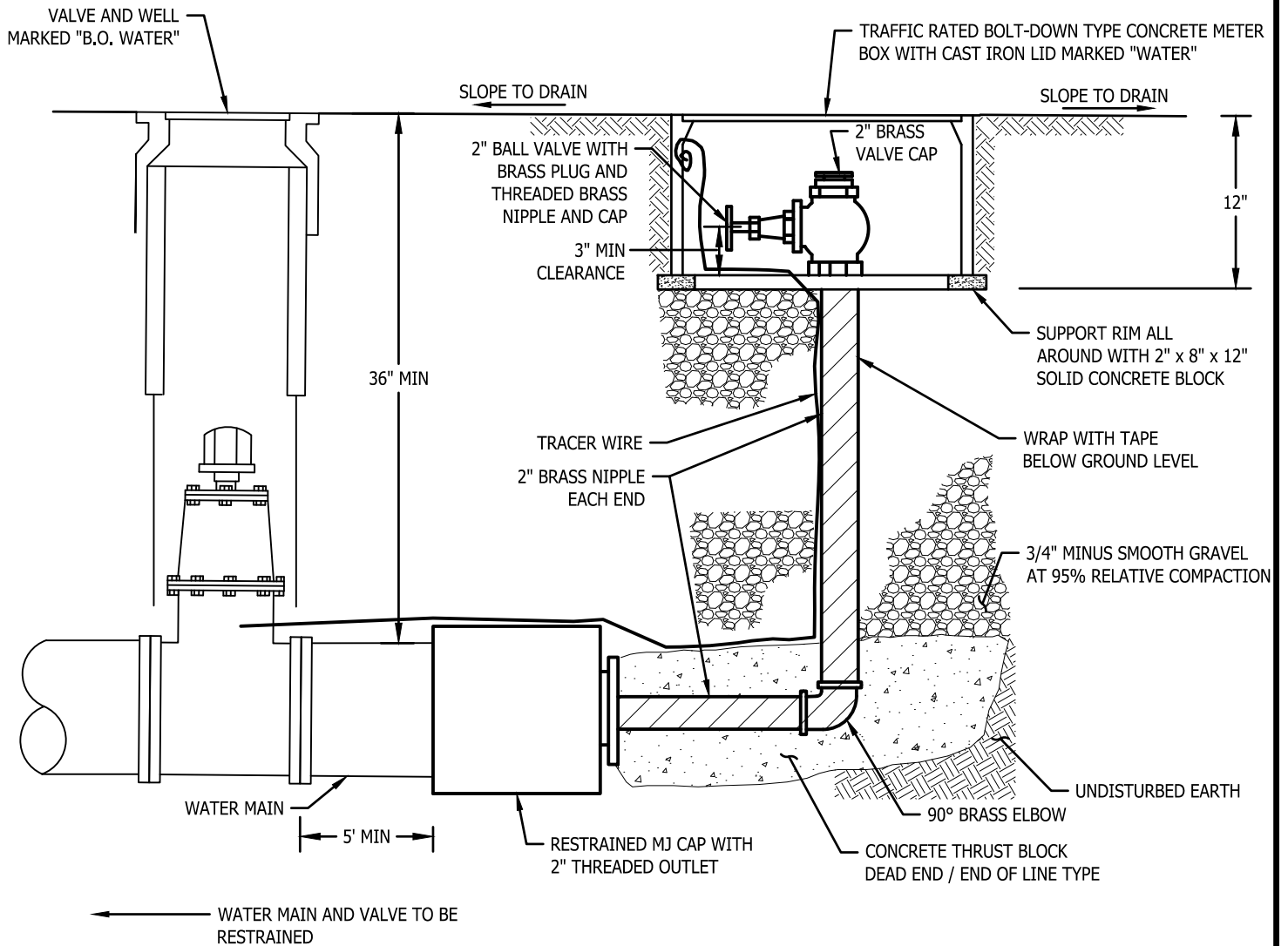
COMMITTEE APPROVAL 04/12/2023

PRIVATE FIRE SERVICE RPDA

**CALIFORNIA AMERICAN WATER
NORTHERN DIVISION**

STANDARD DRAWING NUMBER

CAW-ND-W208



NOTES:

1. SET METER BOX FLUSH WITH SIDEWALK, CURB OR FINISHED GRADE.
2. LOCATE BLOW-OFF AS SHOWN ON DRAWINGS.
3. SEE PIPE TRENCH AND BACKFILL STANDARD DRAWING CAW-ND-W102.
4. SEE WARNING / IDENTIFICATION TAPE AND TRACER WIRE STANDARD DRAWING CAW-ND-W103.
5. SEE VALVE BOX AND RISER STANDARD DRAWING CAW-ND-W106.
6. SEE CONCRETE THRUST RESTRAINT STANDARD DRAWING CAW-ND-W106.
7. SEE PIPE AND JOINT RESTRAINT STANDARD DRAWING CAW-ND-W107.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST



CALIFORNIA
AMERICAN WATER

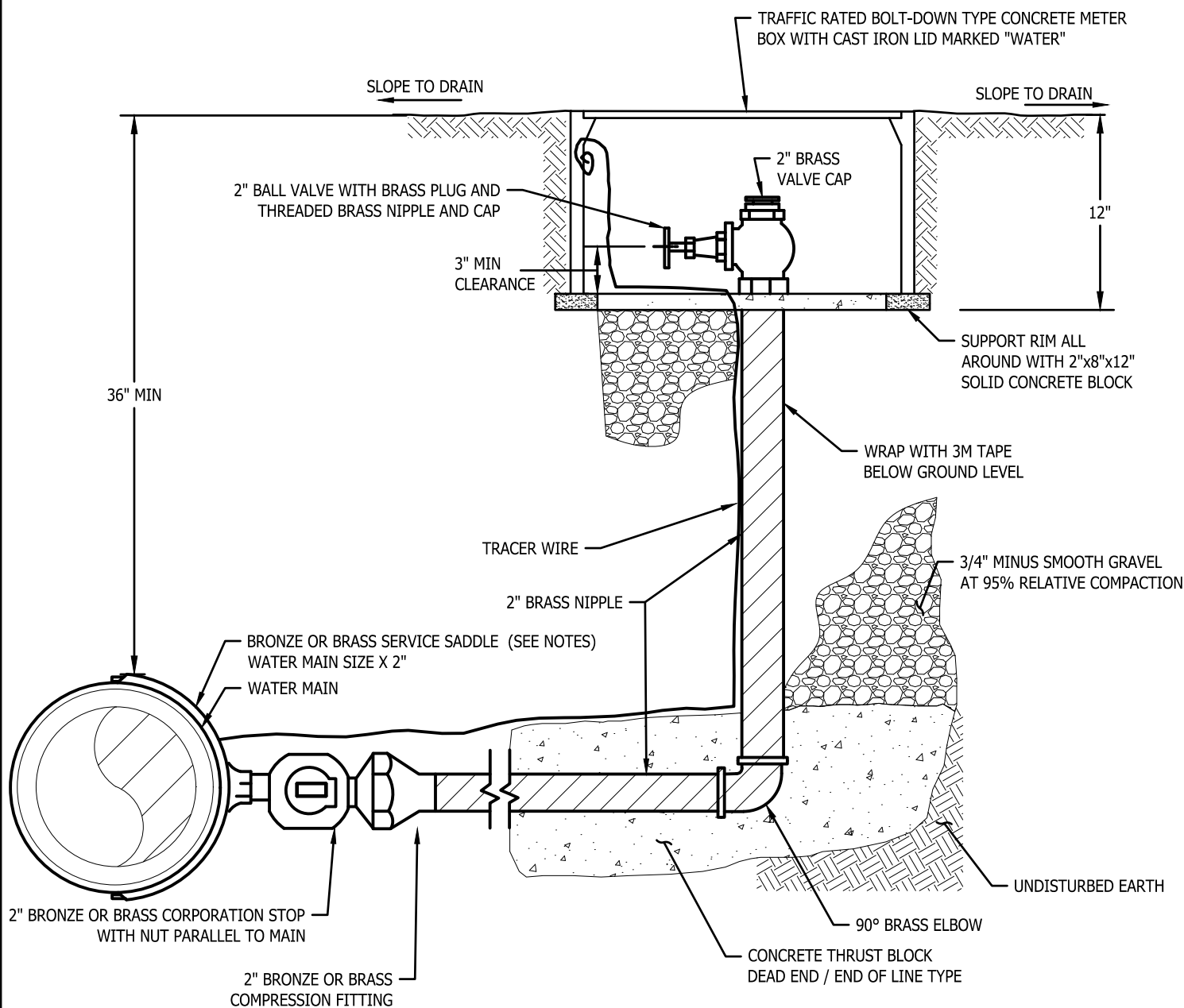
COMMITTEE APPROVAL 09/28/2022

2-INCH BLOW-OFF (END OF MAIN)

**CALIFORNIA AMERICAN WATER
NORTHERN DIVISION**

STANDARD DRAWING NUMBER

CA-ND-W301A



NOTES:

1. SET METER BOX LEVEL AND FLUSH WITH SIDEWALK, CURB OR FINISHED GRADE AND SHALL HAVE POSITIVE DRAINAGE AWAY FROM BLOW-OFF AND IMPROVEMENTS.
2. LOCATE BLOW-OFF AS SHOWN ON DRAWINGS.
3. INSTALL BRONZE DOUBLE STRAP SERVICE TAP SADDLE ON ALL ACP AND DIP MAINS.
4. INSTALL BRONZE SINGLE STRAP SERVICE TAP SADDLE ON ALL PVC MAINS.
5. SEE PIPE TRENCH AND BACKFILL STANDARD DRAWING CAW-ND-W102.
6. SEE WARNING / IDENTIFICATION TAPE AND TRACER WIRE STANDARD DRAWING CAW-ND-W103.
7. SEE CONCRETE THRUST RESTRAINT STANDARD DRAWING CAW-ND-W106.
8. SEE PIPE AND JOINT RESTRAINT STANDARD DRAWING CAW-ND-W107.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST



**CALIFORNIA
AMERICAN WATER**

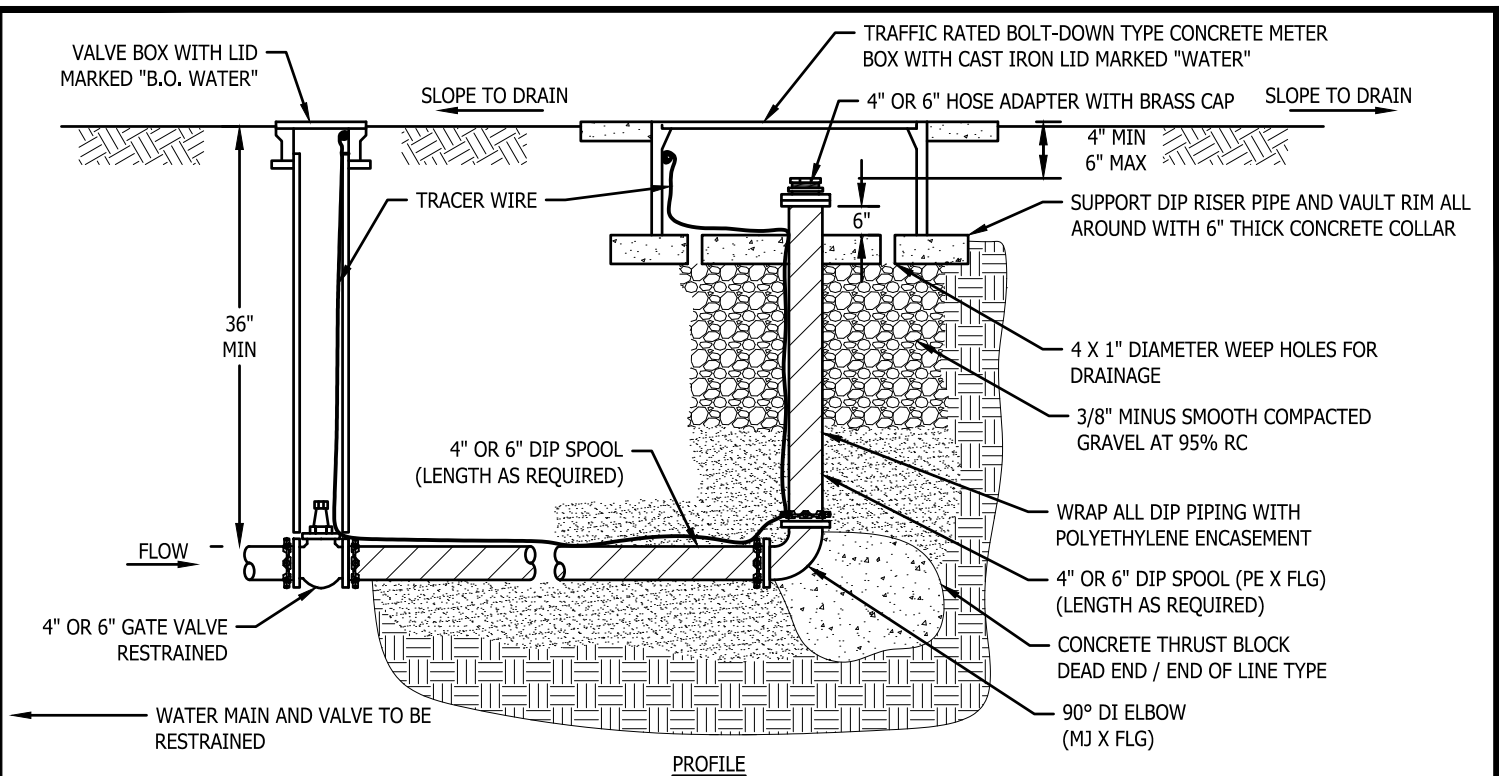
COMMITTEE APPROVAL 09/28/2022

2-INCH BLOW-OFF (LOW POINT)

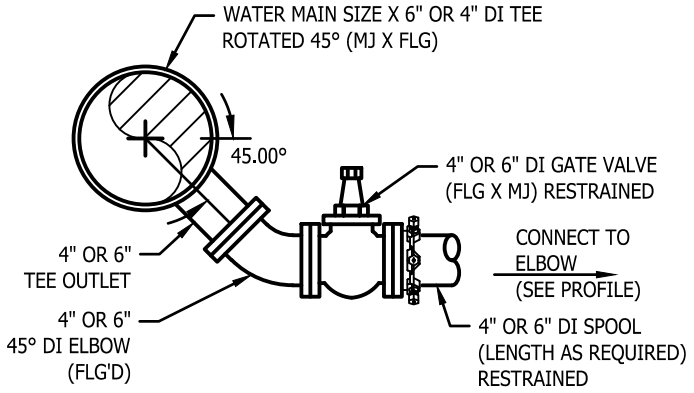
**CALIFORNIA AMERICAN WATER
NORTHERN DIVISION**

STANDARD DRAWING NUMBER

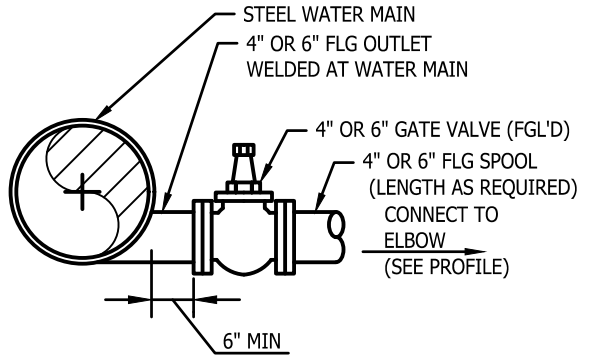
CAW-ND-W301B



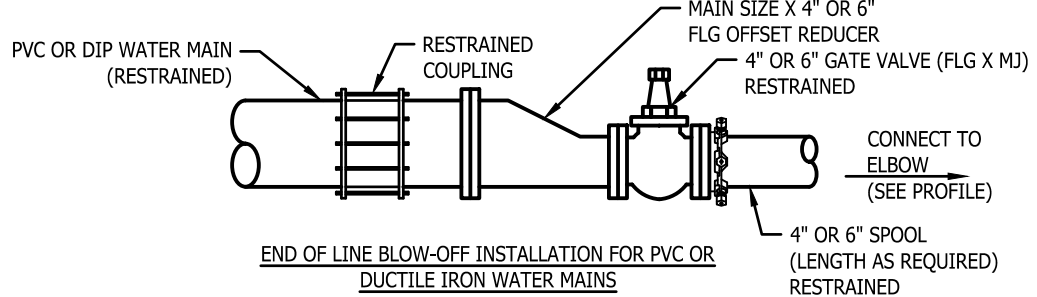
PROFILE



LATERAL BLOW-OFF INSTALLATION FOR PVC OR DUCTILE IRON WATER MAINS



LATERAL BLOW-OFF INSTALLATION FOR STEEL WATER MAINS



END OF LINE BLOW-OFF INSTALLATION FOR PVC OR DUCTILE IRON WATER MAINS

NOTES:

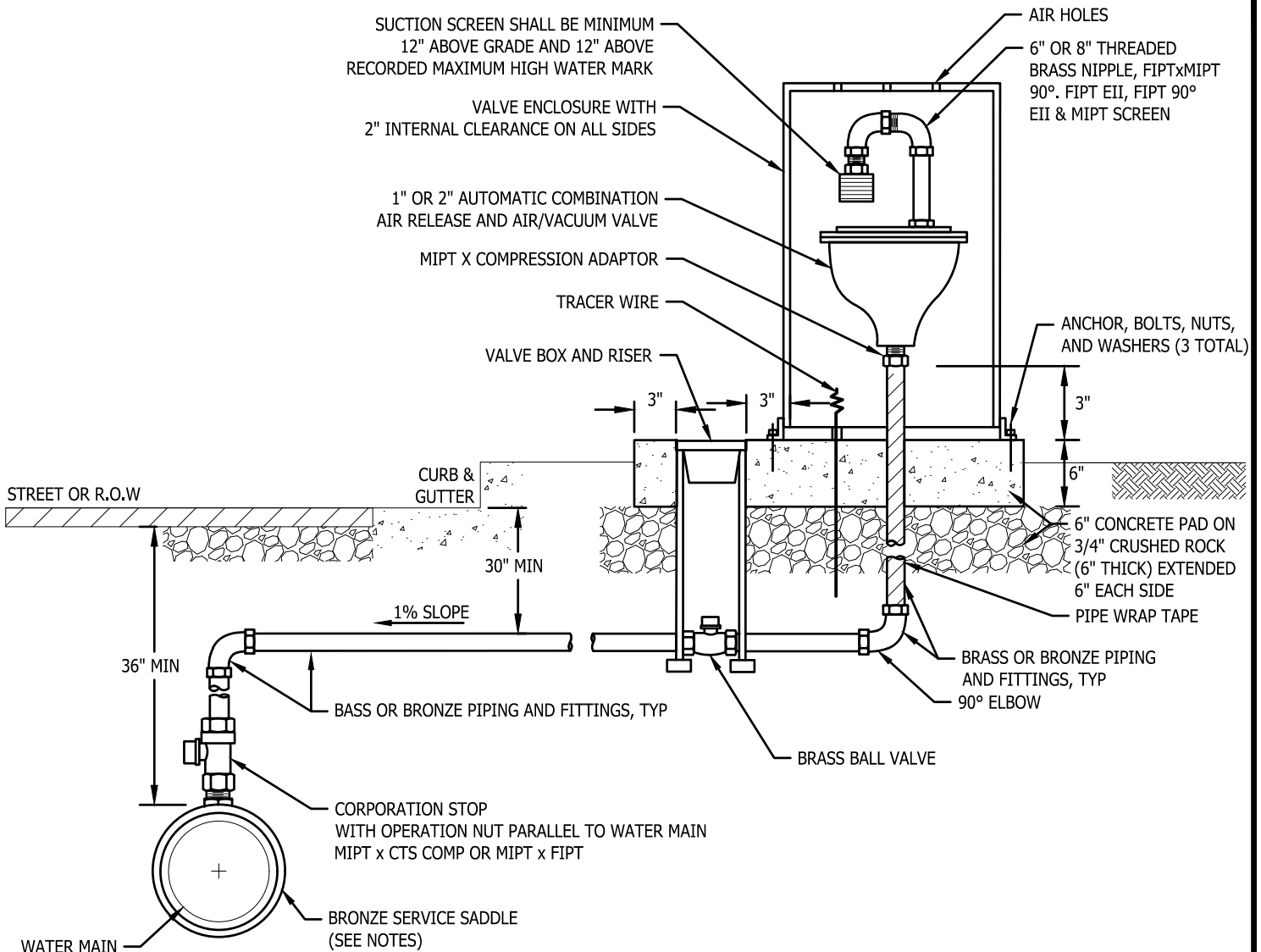
1. TOP OF BOX SET FLUSH WITH SIDEWALK, CURB OR FINISHED GRADE.
2. BLOW-OFF SHALL BE LOCATED AS SHOWN ON DRAWINGS.
3. SEE PIPE TRENCH AND BACKFILL STANDARD DRAWING CAW-ND-W102.
4. SEE WARNING / IDENTIFICATION TAPE AND TRACER WIRE STANDARD DRAWING CAW-ND-W103.
5. SEE VALVE BOX AND RISER STANDARD DRAWING CAW-ND-W106.
6. SEE CONCRETE THRUST RESTRAINT STANDARD DRAWING CAW-ND-W106.
7. SEE PIPE AND JOINT RESTRAINT STANDARD DRAWING CAW-ND-W107.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

CALIFORNIA AMERICAN WATER
COMMITTEE APPROVAL 09/28/2022

4-INCH AND 6-INCH BLOW-OFF
CALIFORNIA AMERICAN WATER
NORTHERN DIVISION

STANDARD DRAWING NUMBER
CAW-ND-W302



NOTES:

1. LOCATE AT HIGH POINT ON MAIN AS SHOWN ON DRAWINGS OR AS DIRECTED BY CAL-AM REPRESENTATIVE.
2. NO DIPS OR LOW POINTS ARE ALLOWED ON PIPING INSTALLATION.
3. CONCRETE SHALL BE MINIMUM 4,000 PSI.
4. INSTALL BRONZE DOUBLE STRAP SERVICE SADDLE ON ALL ACP AND DIP MAINS.
5. INSTALL BRONZE SINGLE STRAP SERVICE SADDLE ON ALL PVC MAINS.
6. ALL PIPING AND FITTINGS SHALL BE BRASS OR BRONZE.
7. INSTALL VALVE ENCLOSURE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8. SEE WARNING / IDENTIFICATION TAPE AND TRACER WIRE STANDARD DRAWING CAW-ND-W103.
9. SEE VALVE BOX AND RISER STANDARD DRAWING CAW-ND-W105.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

**CALIFORNIA
AMERICAN WATER**

COMMITTEE APPROVAL 09/28/2022

**1-INCH AND 2-INCH AIR VACUUM
RELEASE VALVE**

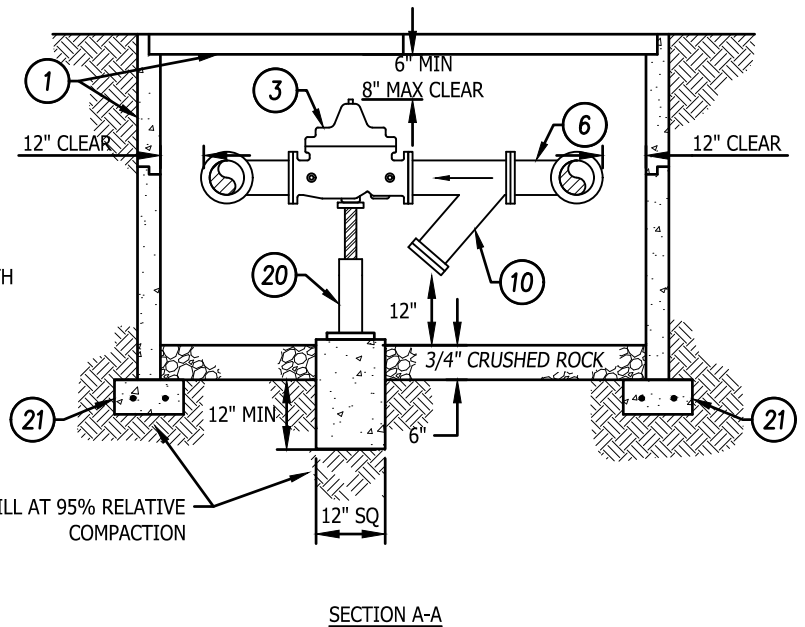
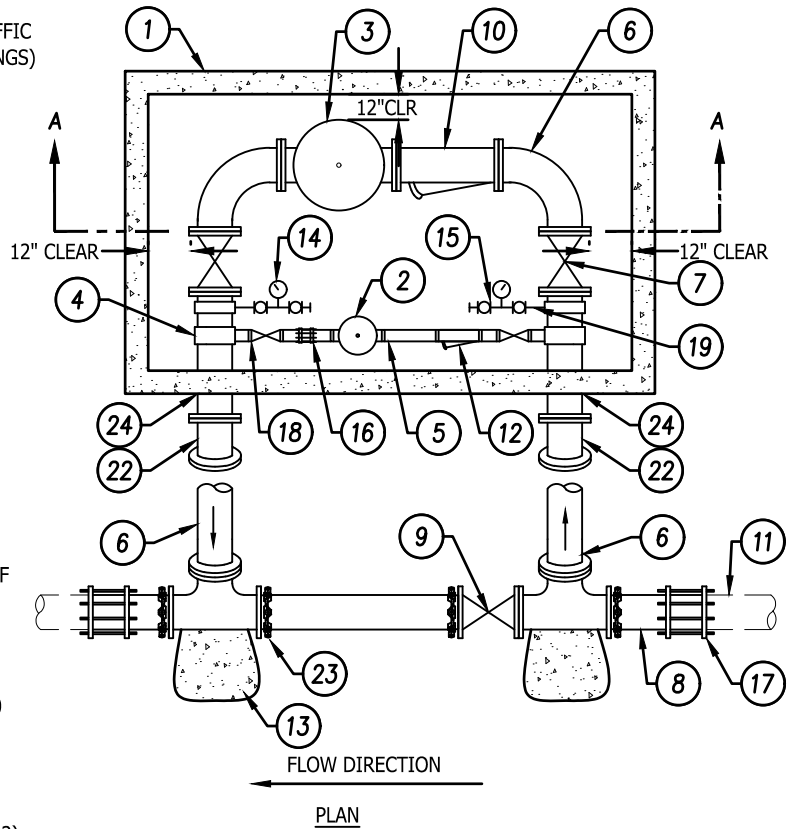
**CALIFORNIA AMERICAN WATER
NORTHERN DIVISION**

STANDARD DRAWING NUMBER

CAW-ND-W303

KEYNOTES


- ① CONCRETE UTILITY VAULT (H2O) WITH SPRING-LOADED, HINGED TRAFFIC RATED LID (EPOXY GROUP ALL VAULTS JOINTS AND BULKHEAD OPENINGS)
- ② 2" PRESSURE REDUCING VALVE
- ③ MAIN SIZE PRESSURE REDUCING VALVE
- ④ 2" BRONZE SERVICE SADDLE WITH 2" GATE VALVE, (TYP OF 2)
- ⑤ 2" BRASS PIPING WITH SCREWED CONNECTIONS
- ⑥ MAIN SIZE DUCTILE IRON PIPING AND FITTINGS WITH FLANGED CONNECTIONS
- ⑦ MAIN SIZE RESILIENT GATE VALVE WITH HAND WHEEL, (TYP OF 2)
- ⑧ MAIN SIZE SPOOL PIECE (PE X PE)
- ⑨ MAIN SIZE RESILIENT GATE VALVE (FLX X MJ) RESTRAINED (NORMALLY CLOSED)
- ⑩ MAIN SIZE Y-STRAINER WITH 2" THREADED BALL VALVE FOR BLOW OFF (150#) WITH PVC PLUGS
- ⑪ EXISTING MAIN SIZE
- ⑫ 2" Y-STRAINER WITH 2" THREADED BALL VALVE FOR BLOW OFF (150#) WITH PVC PLUGS
- ⑬ CONCRETE THRUST BLOCK, (TYP OF 2)
- ⑭ MAIN SIZE BRONZE SADDLE WITH 1/4" LIQUID FILLED GAUGE (TYP OF 2)
- ⑮ 1/4" BALL VALVE, (TYP OF 4)
- ⑯ 2" RESTRAINED COUPLING
- ⑰ MAIN SIZE RESTRAINED COUPLING, (TYP OF 2)
- ⑱ 2" GATE VALVE (TYP OF 2)
- ⑲ 1/4" BRASS PIPE, TYP
- ⑳ GALVANIZED STEEL ADJUSTABLE SUPPORTS ON CONCRETE BASE WITH STAINLESS STEEL ANCHORS
- ㉑ CONTINUOUS 12"X6" REINFORCED CONCRETE SUPPORT (2-#4 BARS CONTINUOUS)
- ㉒ MAIN SIZE DI BEND (FLG'D) (ANGLE TO BE DETERMINED IN FIELD)
- ㉓ MJ RESTRAINTS, TYP
- ㉔ WATER TIGHT MECHANICAL PIPE PENETRATION, (TYP OF 2)

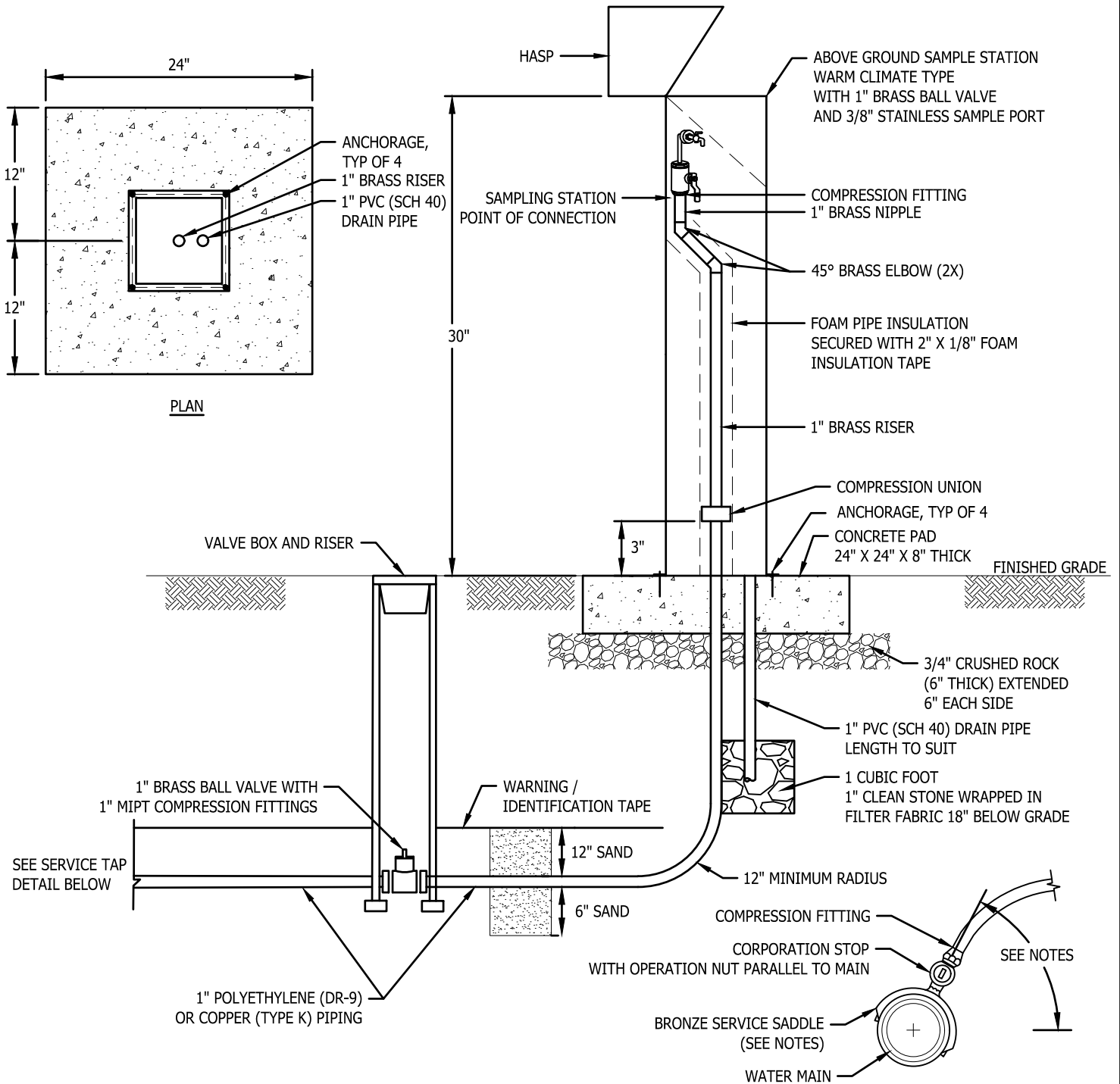


NOTES:

- 1. LOCATE PRESSURE REDUCING STATION AS SHOWN ON DRAWINGS OR AS DIRECTED BY CAL-AM REPRESENTATIVE.
- 2. CONCRETE SHALL BE MINIMUM 4,000 PSI .
- 3. INSTALL PIPE SUPPORTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 4. INSTALL TRAFFIC RATED LID IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 5. JOINTS, FACE OF PLUGS, NUTS AND BOLTS TO BE KEPT CLEAR OF CONCRETE AND MUST BE OPERABLE WITHOUT DISTURBING THRUST BLOCK.
- 6. SEE WARNING / IDENTIFICATION TAPE AND TRACER WIRE STANDARD DRAWING CAW-ND-W103.
- 7. SEE VALVE BOX AND RISER STANDARD DRAWING CAW-ND-W105.
- 8. SEE CONCRETE THRUST RESTRAINT STANDARD DRAWING CAW-ND-W106.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	PRESSURE REDUCING STATION	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W304
COMMITTEE APPROVAL 09/28/2022		



NOTES:

1. SAMPLE STATION SHALL BE ALUMINUM BODY, ALUMINUM BASE PLATE, LOCKABLE WITH MANUFACTURER COATED GREEN FINISH COLOR AND STAINLESS STEEL HARDWARE.
2. LOCATE AS SHOWN ON DRAWINGS OR AS DIRECTED BY CAL-AM REPRESENTATIVE.
3. CONCRETE PAD SHALL NOT INTERFERE WITH PEDESTRIAN TRAVEL.
4. CONCRETE SHALL BE MINIMUM 4,000 PSI.
5. SERVICE SHALL BE INSTALLED AT 0 DEGREES (HORIZONTAL). SERVICE INSTALLATION AT 45 DEGREES UPON DISCRETION OF CAL-AM.
6. INSTALL BRONZE DOUBLE STRAP SERVICE SADDLE ON ALL ACP AND DIP MAINS.
7. INSTALL BRONZE SINGLE STRAP SERVICE SADDLE ON ALL PVC MAINS.
8. INSTALL SAMPLE STATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
9. SEE WARNING / IDENTIFICATION TAPE AND TRACER WIRE STANDARD DRAWING CAW-ND-W103.
10. SEE VALVE BOX AND RISER STANDARD DRAWING CAW-ND-W105.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

SADDLE SERVICE TAP DETAIL

CALIFORNIA
AMERICAN WATER

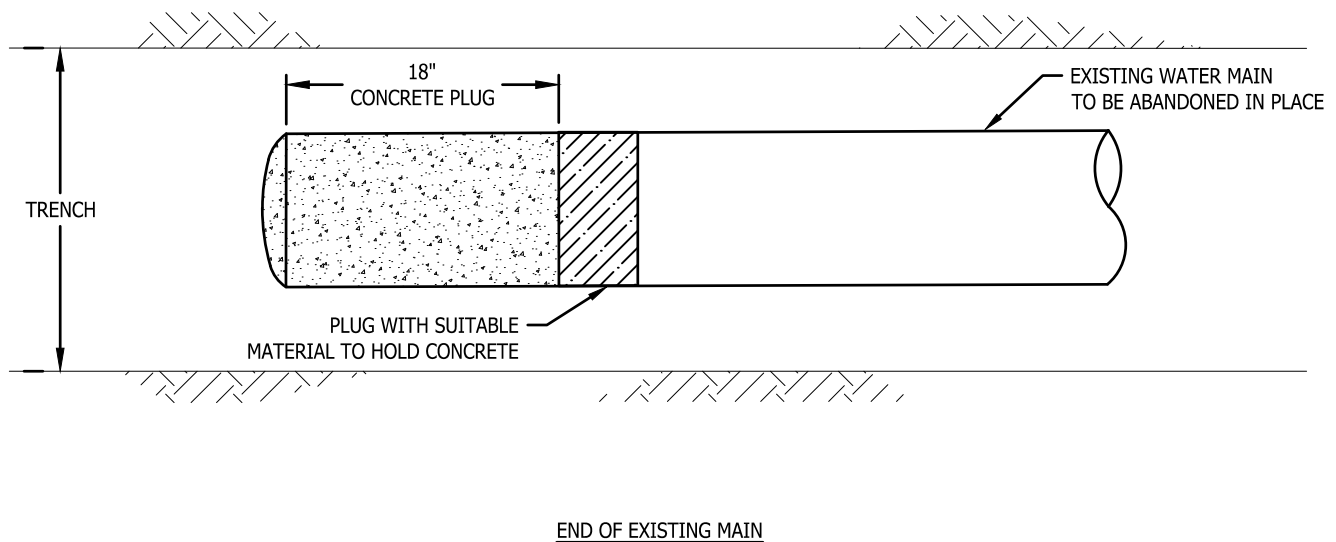
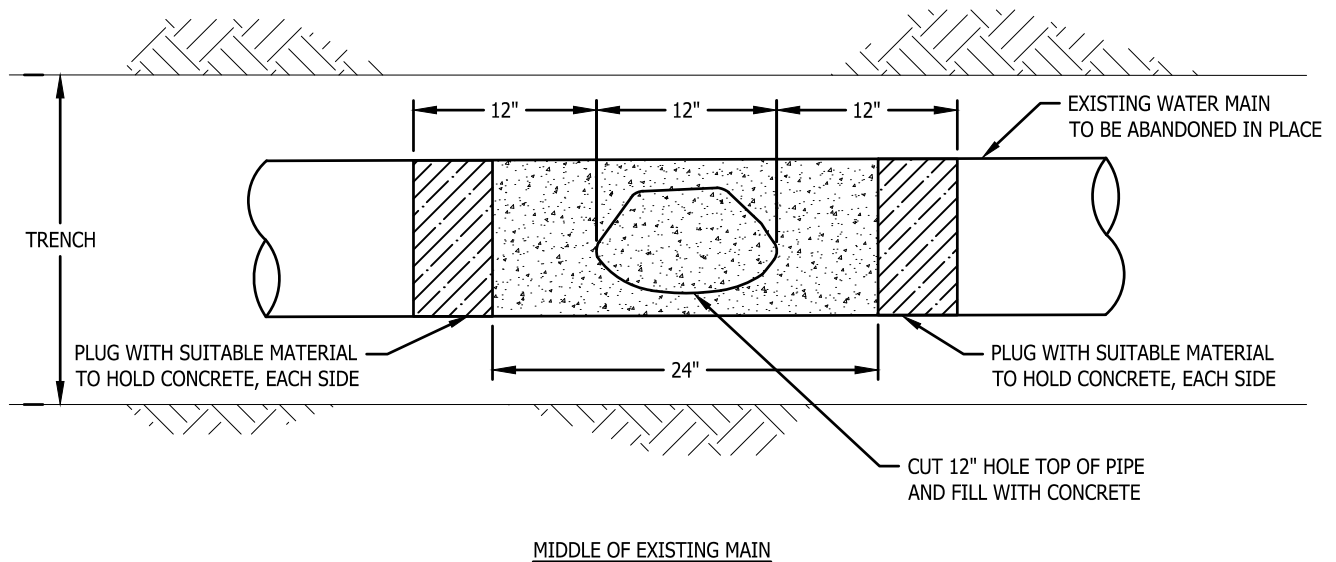
COMMITTEE APPROVAL 09/28/2022

SAMPLING STATION

CALIFORNIA AMERICAN WATER
NORTHERN DIVISION

STANDARD DRAWING NUMBER


CAW-ND-W305

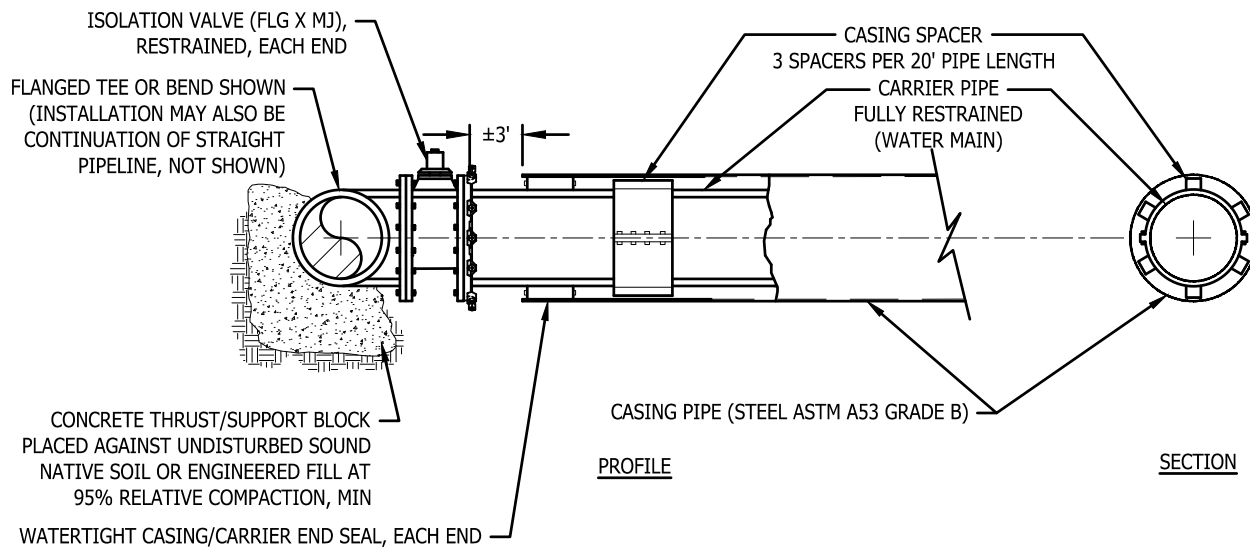


NOTES:

1. WATER MAINS 4" DIAMETER AND SMALLER SHALL HAVE A SHORT SECTION OF PIPE REMOVED AND PIPE ENDS ENCASED IN CONCRETE.
3. EXISTING MAINS 6" AND LARGER REQUIRE THE ENTIRE LENGTH OF THE PIPE TO BE FILLED BY PRESSURE GROUTING OR BY BLOWN SAND.
4. EXISTING MAIN TO BE PLUGGED WITH CONCRETE OR PRESSURE GROUTED AT INTERVALS OF APPROXIMATELY 200' OR AS DIRECTED BY CAL-AM.
5. EXISTING VALVES SHALL BE TURNED TO THE CLOSED POSITION, REMOVE GATE WELL AND REPLACE WITH COMPACTED BACKFILL.
6. SURFACES SHALL BE RESTORED TO MATCH EXISTING WITH STRUCTURAL SECTION AND PAVEMENT OR HARDSCAPE IN ACCORDANCE WITH LOCAL JURISDICTION.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST


 CALIFORNIA AMERICAN WATER	ABANDON EXISTING WATER MAIN	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W401
COMMITTEE APPROVAL 09/28/2022		

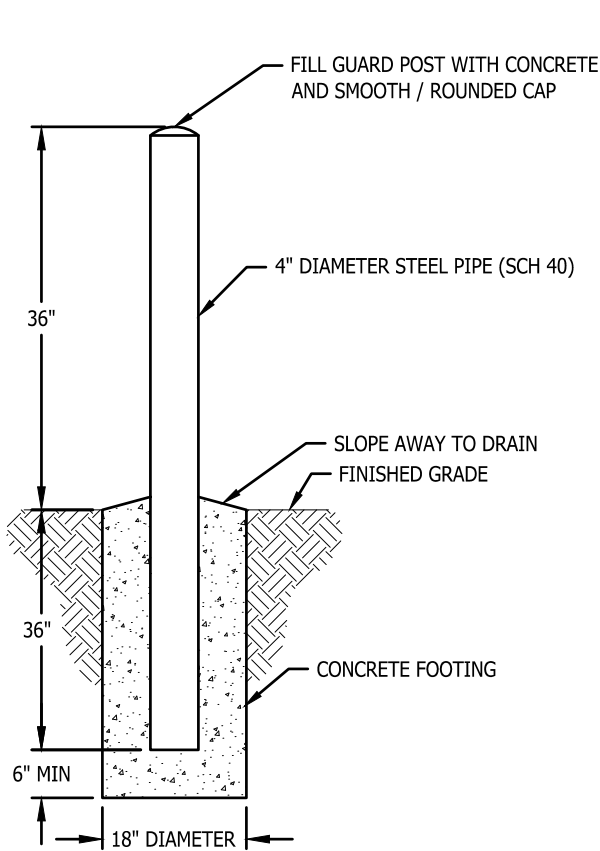


CASING PIPE THICKNESS		
CARRIER PIPE (WATER MAIN) DIAMETER	MINIMUM CASING PIPE DIAMETER	MINIMUM CASING PIPE WALL THICKNESS (INCHES)
8"	24"	0.375
10"	24"	0.375
12"	24"	0.375
16"	30"	0.375
18"	36"	0.50
24"	42"	0.75
36"	54"	0.75

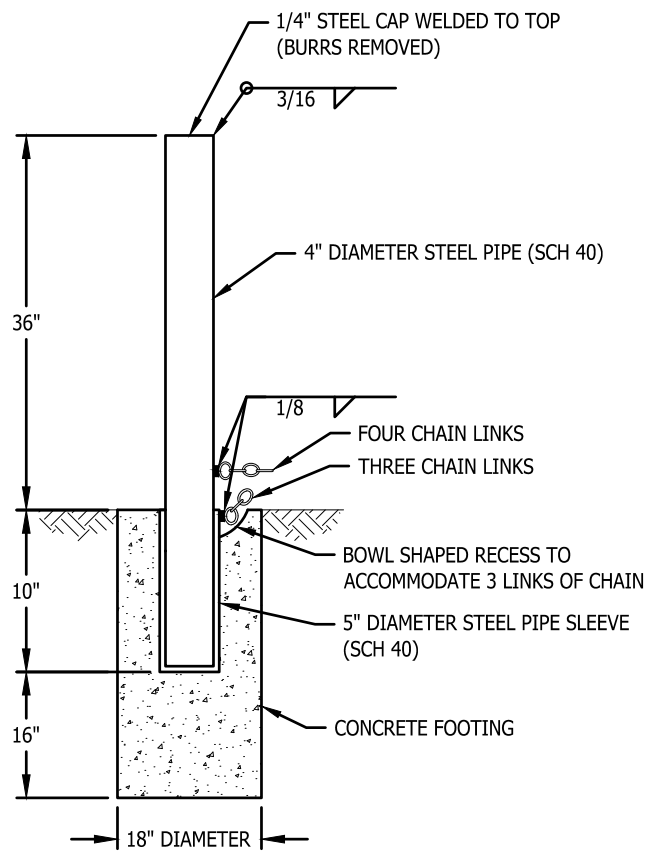
- NOTES:**
1. CARRIER PIPE (WATER MAIN) JOINTS WITHIN THE CASING SHALL BE FULLY RESTRAINED.
 2. PROVIDE CONTINUOUS WELD AT ALL CASING PIPE JOINTS, IN ACCORDANCE WITH AWWA C206-17 (FIELD WELDING OF STEEL PIPE) AND SHALL BE PERFORMED BY WELDER CERTIFIED BY AWS.
 3. SPECIAL INSPECTIONS REQUIRED DURING INSTALLATION; TRENCH EXCAVATION, COMPETENT SUBGRADE, BACKFILL, COMPACTION, STEEL CASING AND WELDS.
 4. THE ANNULAR SPACE BETWEEN THE CARRIER PIPE AND THE CASING SHALL NOT BE FILLED WITH ANY MATERIAL.
 5. INSTALL SPACERS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 6. INSTALL CONCRETE THRUST RESTRAINT AS SHOWN ON STANDARD DRAWING CAW-ND-W106.
 7. INSTALL ISOLATION VALVE BOX AND RISER AS SHOWN ON STANDARD DRAWING CAW-ND-W105.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	PIPE CASING AND CARRIER PIPE	STANDARD DRAWING NUMBER
	CALIFORNIA AMERICAN WATER NORTHERN DIVISION	CAW-ND-W402
COMMITTEE APPROVAL 09/28/2022		



FIXED
GUARD POST



REMOVABLE
GUARD POST

NOTES:

1. GUARD POST SHALL NOT CONFLICT WITH EXISTING OR PROPOSED UTILITIES.
2. WHEN MORE THAN ONE GUARD POST IS REQUIRED, LOCATE 4-FEET ON CENTER AND 3-FEET FROM OBJECT BEING PROTECTED.
3. GUARD POST SHALL NOT OBSTRUCT THE OPERATION OF THE DEVICE BEING PROTECTED.
4. PAINT GUARD POST WITH TWO COATS OF OSHA "SAFETY YELLOW" OR AS REQUIRED BY LOCAL FIRE AUTHORITY.
5. ALL METAL TO BE HOT DIPPED GALVANIZED AFTER FABRICATION.
6. CONCRETE SHALL BE 4,000 PSI MINIMUM.
7. CHAIN TO BE 1/4-INCH PROOF COIL CHAIN GALVANIZED STEEL.
8. DEBURR ALL EDGES PRIOR TO PAINTING.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST



CALIFORNIA
AMERICAN WATER

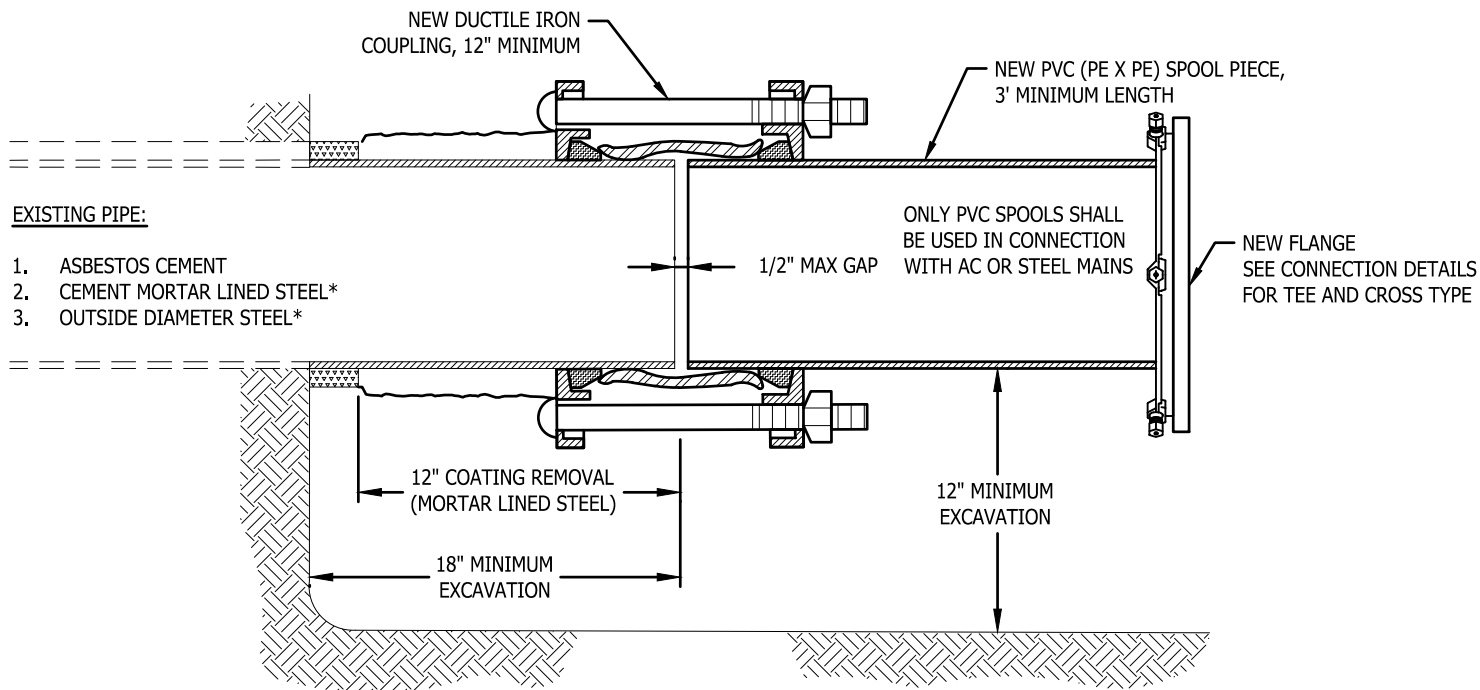
GUARD POST

**CALIFORNIA AMERICAN WATER
NORTHERN DIVISION**

STANDARD DRAWING NUMBER

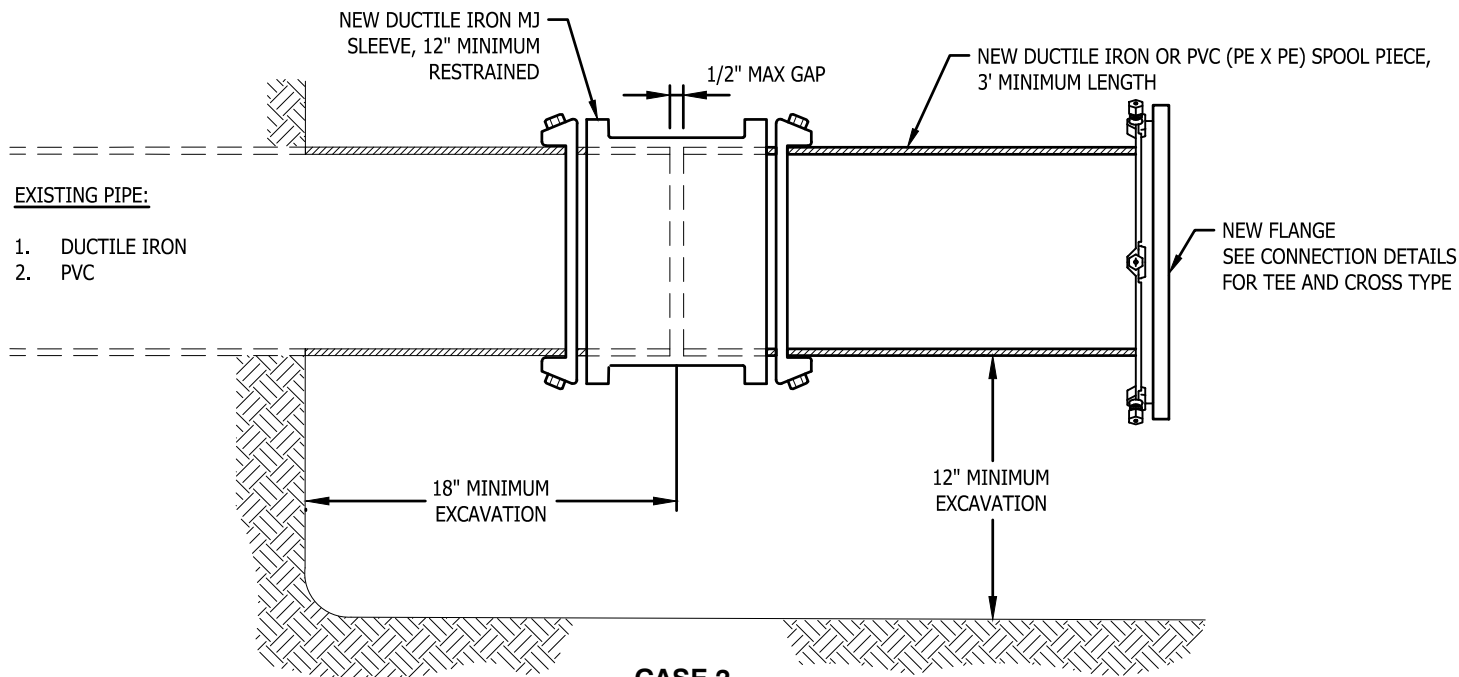
CAW-ND-W403

COMMITTEE APPROVAL 09/28/2022



* PRIMER, MASTIC, AND GROUT ARE REQUIRED

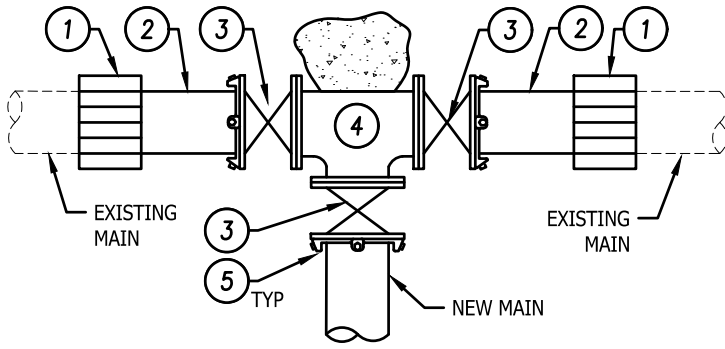
**CASE 1
(EXISTING ACP, CML STEEL, STEEL)**



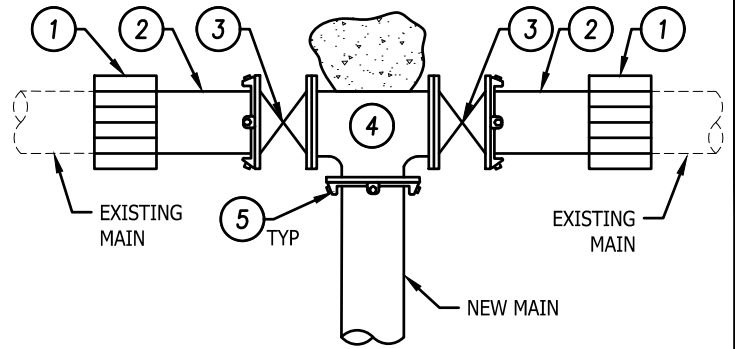
**CASE 2
(EXISTING DUCTILE IRON, PVC)**

NOTES:

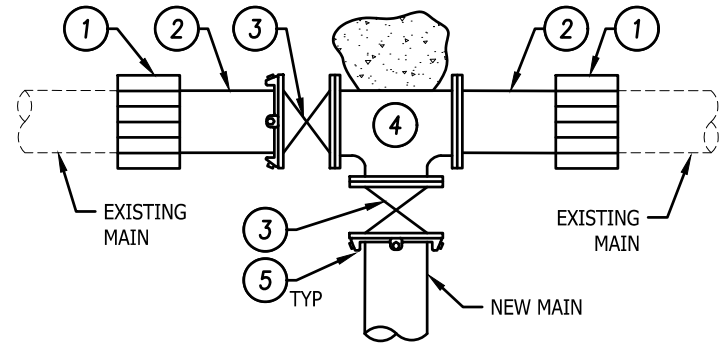
1. CONTRACTOR TO FIELD LOCATE AND VERIFY EXISTING MATERIAL, SIZE AND DEPTH.
2. PIPE CUTTING SHALL BE IN CONFORMANCE WITH CAL-AM AND OSHA REQUIREMENTS.
3. ALL DUCTILE IRON PIPING, FITTINGS, AND VALVES SHALL BE POLYWRAPPED AND TAPED.
4. ALL JOINTS SHALL BE RESTRAINED.
5. ONLY PVC SPOOLS SHALL BE USED IN CONNECTION WITH AC OR STEEL MAINS.
6. INSTALL PIPE TRENCH AS SHOWN ON STANDARD DRAWING CAW-ND-W102.
7. SEE CONNECTION DETAILS CAW-ND-W404B (TEE), CAW-ND-W404C (TEE WITH INCREASING MAIN), CAW-ND-W404D (CROSS). SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST



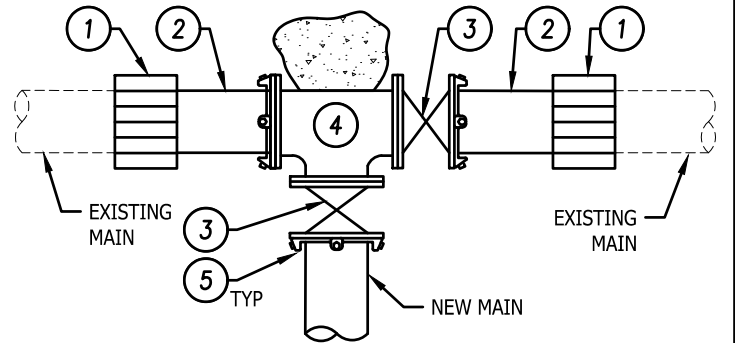
CASE 1



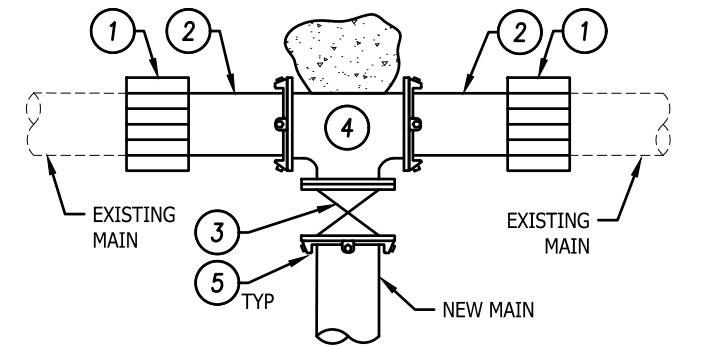
CASE 2



CASE 3



CASE 4



CASE 5

NOTES:

1. TEE OR CROSS SHALL BE SIZED TO MATCH THE LARGEST SIZE MAIN CONNECTING TO IT.
2. ALL DUCTILE IRON PIPING, FITTINGS, AND VALVES SHALL BE POLYWRAPPED AND TAPED.
3. ALL JOINTS SHALL BE RESTRAINED.
4. ONLY PVC SPOOLS SHALL BE USED IN CONNECTION WITH AC OR STEEL MAINS.
5. INSTALL CONNECTION AS SHOWN ON CAW-ND-W404A.
6. INSTALL PIPE TRENCH AS SHOWN ON STANDARD DRAWING CAW-ND-W102.
7. INSTALL THRUST RESTRAINT AS SHOWN ON STANDARD DRAWING CAW-ND-W106.
8. INSTALL VALVE BOX AND RISER AS SHOWN ON STANDARD DRAWING CAW-ND-W105.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

KEYNOTES

- 1 NEW DUCTILE IRON COUPLING OR DUCTILE IRON MJ SLEEVE
- 2 NEW DI OR PVC (PE X PE) SPOOL PIECE, 3' MIN LENGTH
- 3 NEW DI VALVE (FLG X MJ)
- 4 NEW DI TEE
- 5 NEW MJ RESTRAINT

COMMITTEE APPROVAL 09/28/2022

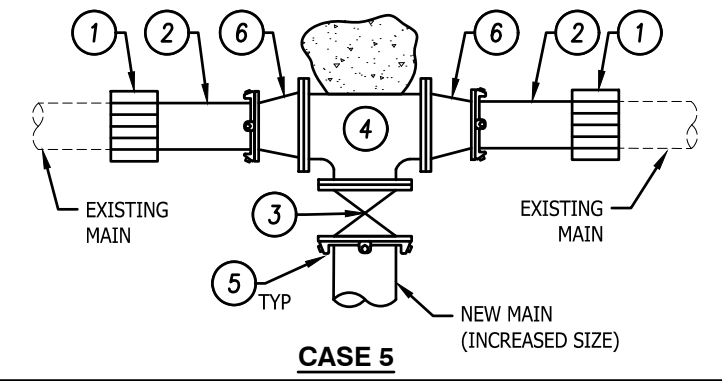
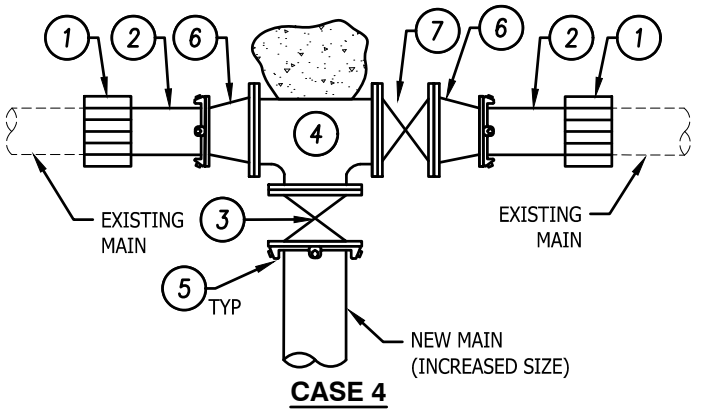
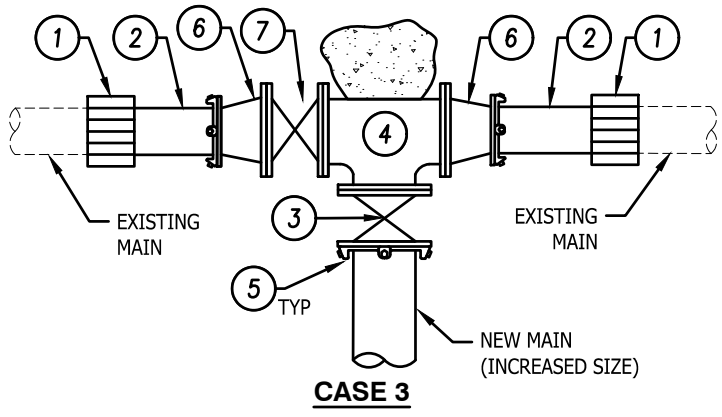
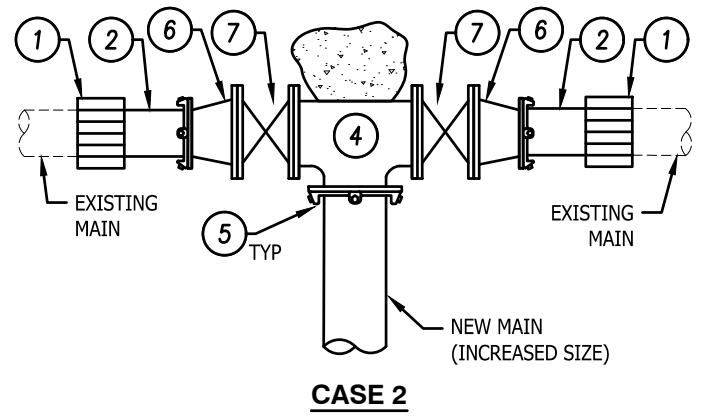
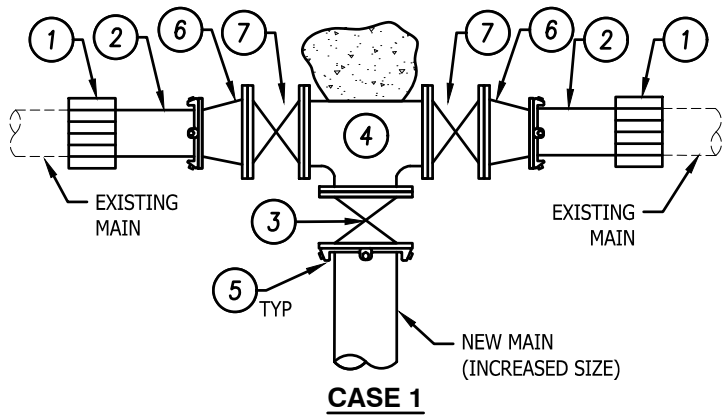
CONNECTION DETAILS - TEE

CALIFORNIA AMERICAN WATER

NORTHERN DIVISION

STANDARD DRAWING NUMBER

CAW-ND-W404B



NOTES:

1. TEE OR CROSS SHALL BE SIZED TO MATCH THE LARGEST SIZE MAIN CONNECTING TO IT.
2. ALL DUCTILE IRON PIPING, FITTINGS, AND VALVES SHALL BE POLYWRAPPED AND TAPED.
3. ALL JOINTS SHALL BE RESTRAINED.
4. ONLY PVC SPOOLS SHALL BE USED IN CONNECTION WITH AC OR STEEL MAINS.
5. INSTALL CONNECTION AS SHOWN ON CAW-ND-W404A.
6. INSTALL PIPE TRENCH AS SHOWN ON STANDARD DRAWING CAW-ND-W102.
7. INSTALL THRUST RESTRAINT AS SHOWN ON STANDARD DRAWING CAW-ND-W106.
8. INSTALL VALVE BOX AND RISER AS SHOWN ON STANDARD DRAWING CAW-ND-W105.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

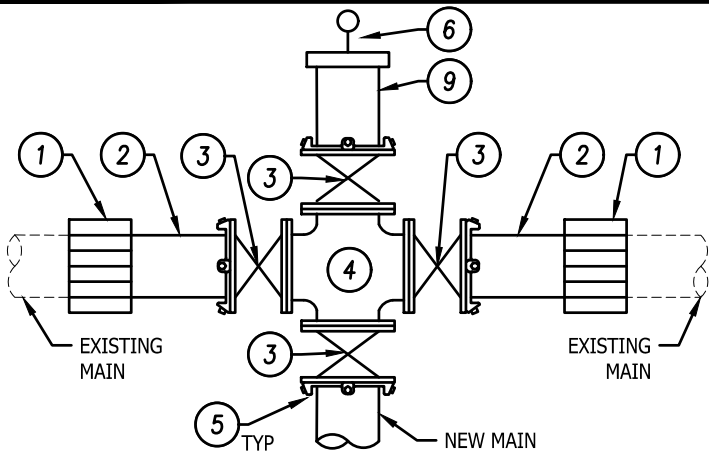
KEYNOTES

- 1 NEW DUCTILE IRON COUPLING OR DUCTILE IRON MJ SLEEVE
- 2 NEW DI OR PVC (PE X PE) SPOOL PIECE, 3' MIN LENGTH
- 3 NEW DI VALVE (FLG X MJ)
- 4 NEW DI TEE
- 5 NEW MJ RESTRAINT
- 6 NEW DI REDUCER (FLG X MJ)
- 7 NEW DI VALVE (FLG X FLG)

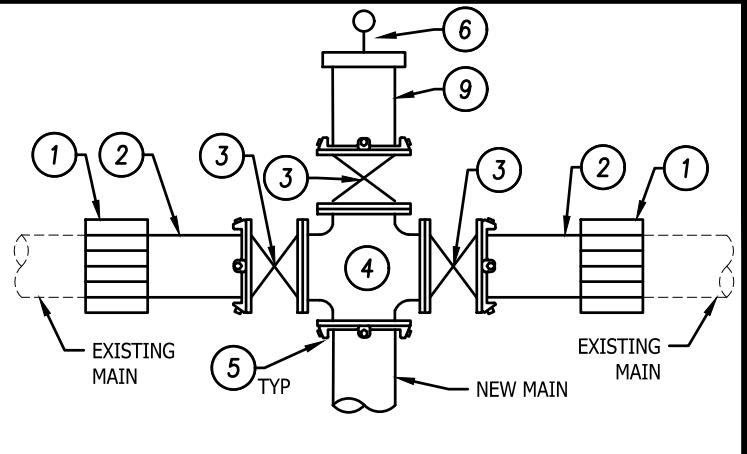
COMMITTEE APPROVAL 09/28/2022

CONNECTION DETAILS - TEE WITH INCREASING MAIN
CALIFORNIA AMERICAN WATER
NORTHERN DIVISION

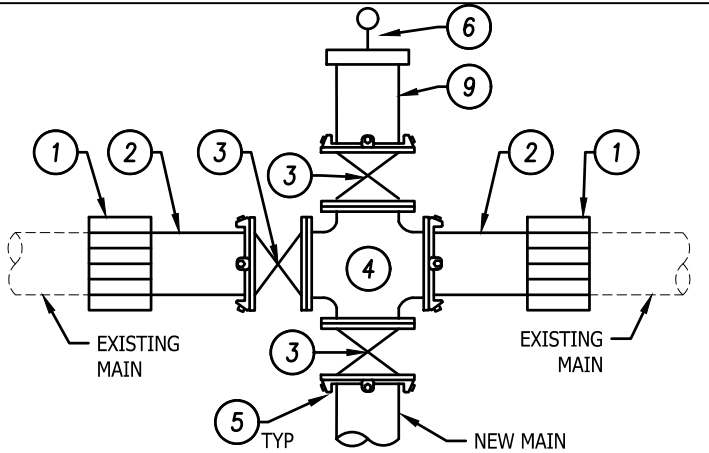
STANDARD DRAWING NUMBER
CAW-ND-W404C



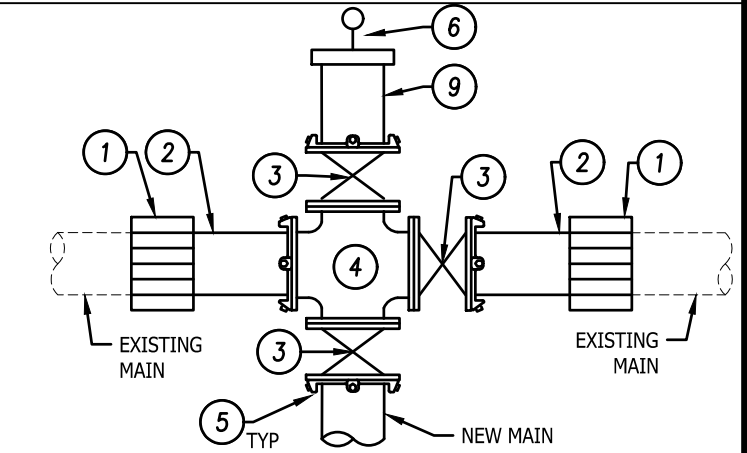
CASE 1



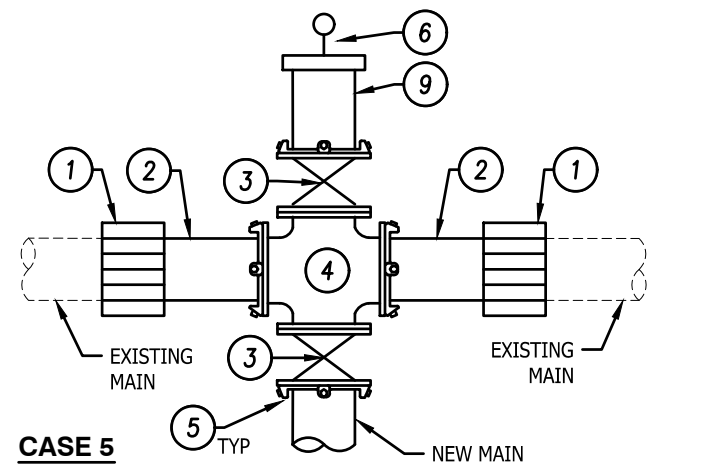
CASE 2



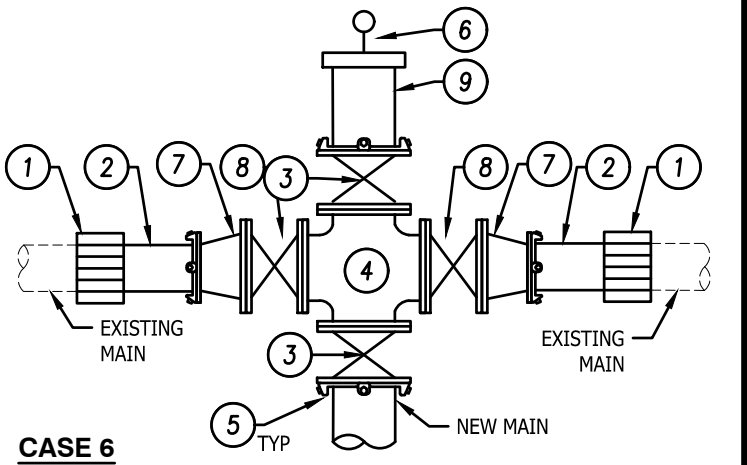
CASE 3



CASE 4



CASE 5



CASE 6

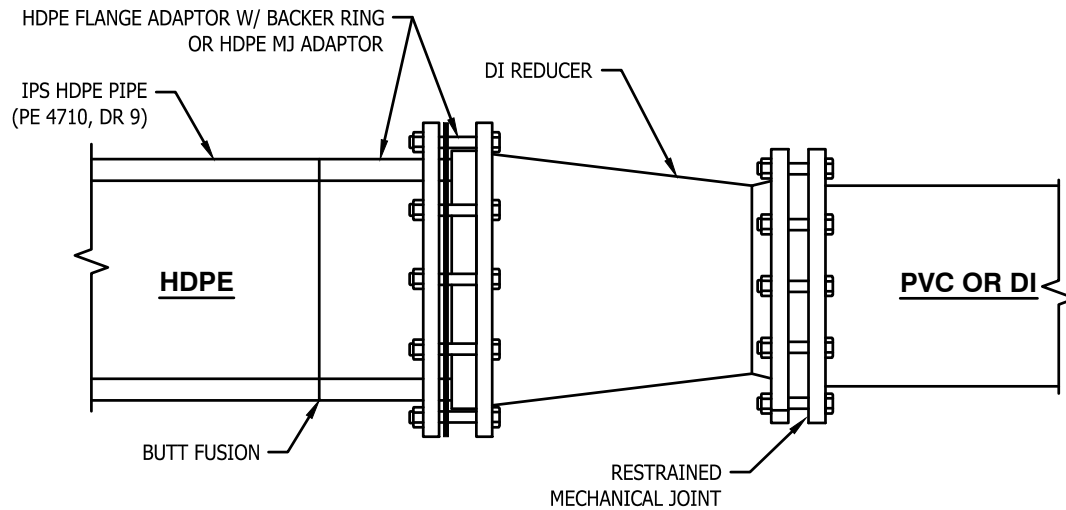
NOTES:

1. TEE OR CROSS SHALL BE SIZED TO MATCH THE LARGEST SIZE MAIN CONNECTING TO IT.
2. ALL DUCTILE IRON PIPING, FITTINGS, AND VALVES SHALL BE POLYWRAPPED AND TAPED.
3. ALL JOINTS SHALL BE RESTRAINED.
4. ONLY PVC SPOOLS SHALL BE USED IN CONNECTION WITH AC OR STEEL MAINS.
5. INSTALL CONNECTION AS SHOWN ON CAW-ND-W404A.
6. INSTALL PIPE TRENCH AS SHOWN ON STANDARD DRAWING CAW-ND-W102.
7. INSTALL THRUST RESTRAINT AS SHOWN ON STANDARD DRAWING CAW-ND-W106.
8. INSTALL VALVE BOX AND RISER AS SHOWN ON STANDARD DRAWING CAW-ND-W105.
9. INSTALL BLOW-OFF AS SHOWN ON STANDARD DRAWING CAW-ND-301A.

KEYNOTES

- | | |
|---|--|
| 1 NEW DUCTILE IRON COUPLING OR DUCTILE IRON MJ SLEEVE | 5 NEW MJ RESTRAINT |
| 2 NEW DI OR PVC (PE X PE) SPOOL PIECE, 3' MIN LENGTH | 6 NEW END CAP WITH BLOW-OFF |
| 3 NEW DI VALVE (FLG X MJ) | 7 NEW DI REDUCER (FLG X MJ) |
| 4 NEW DI CROSS | 8 NEW DI VALVE (FLG X FLG) |
| | 9 NEW PVC (PE X PE) SPOOL PIECE, 5' MIN LENGTH |

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST



HDPE PIPE TRANSITION TO DI OR PVC PIPE

NOTES:

1. ALL HDPE PIPE AND FITTINGS SHALL BE PE 4710, DR 9.
2. ALL DUCTILE IRON PIPING, FITTINGS, AND VALVES SHALL BE POLYWRAPPED AND TAPED.
3. ALL JOINTS SHALL BE RESTRAINED.
4. INSTALL PIPE TRENCH AS SHOWN ON STANDARD DRAWING CAW-ND-W102.

SEE CAL-AM NORTHERN DIVISION SPECIFICATIONS FOR APPROVED MATERIALS LIST

 CALIFORNIA AMERICAN WATER	CONNECTION DETAILS -		STANDARD DRAWING NUMBER
	HDPE TRANSITION		CAW-ND-W404E
COMMITTEE APPROVAL 09/28/2022	CALIFORNIA AMERICAN WATER		
	NORTHERN DIVISION		