

TUOLUMNE UTILITIES DISTRICT

18885 NUGGET BLVD.
SONORA, CALIFORNIA 95370
(209) 532-5536

STANDARD DRAWINGS

**THESE DRAWINGS ARE TO BE REFERENCED ONLY
ON CONSTRUCTION PLANS SUBMITTED FOR
DISTRICT REVIEW. THE LATEST VERSIONS WILL BE
PROVIDED BY T.U.D. AT TIME OF CONSTRUCTION.**

**AUTOCAD DRAWING FILES ARE AVAILABLE
Contact Antonio Ramirez (209) 532-5536 Ext. 511
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SEWER

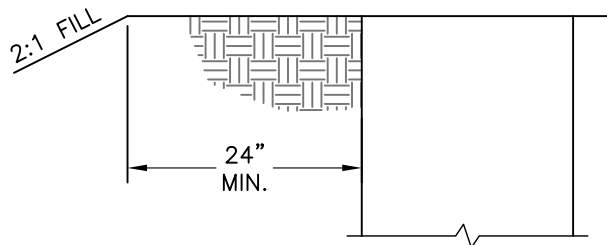
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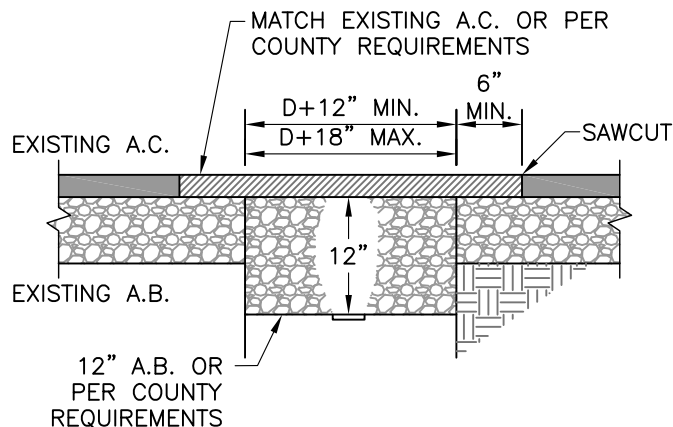
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1. All new work requires prior approval from Tuolumne Utilities District (TUD) and inspection by TUD during construction. All work shall comply with current TUD standards, drawings, and specifications.
2. A reasonable effort has been made to locate and delineate all known underground utilities. The Project Engineer and TUD can assume no responsibility for the completeness or accuracy of the delineation of these utilities nor for the existence of other buried objects or utilities which may be encountered but which are not shown on these plans. Contractor shall be responsible for determining the exact locations of utilities shown and any that may exist and are not shown prior to beginning any work. Contractor shall expose all underground utilities that are to be connected to or that are in the path of the proposed improvements prior to beginning work.
3. Contractor shall contact USA North at 1-800-642-2444, 48 hours prior to any excavation and shall notify the following parties by the time specified prior to beginning work within their jurisdictions:

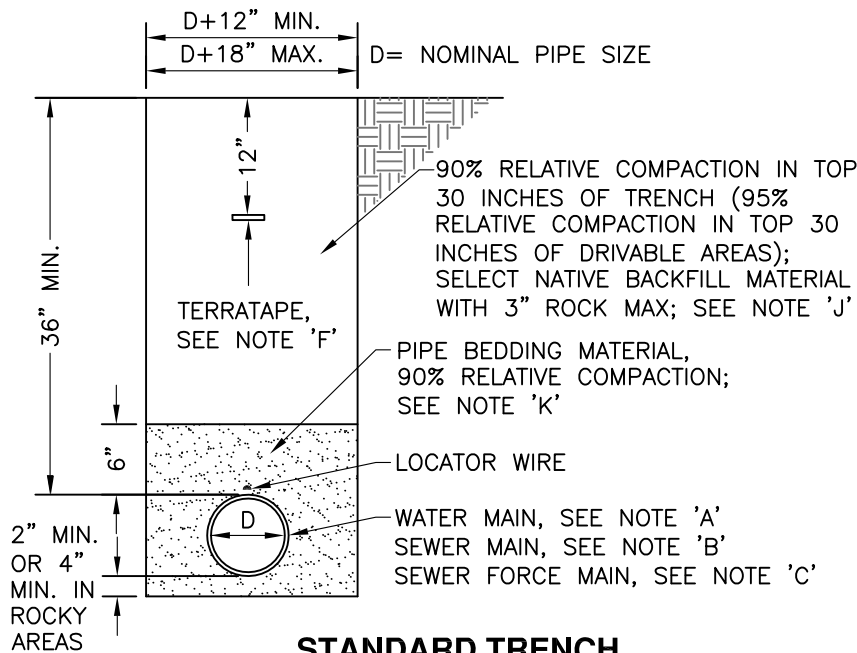
Project Engineer	5 Days
Tuolumne County Department of Public Works	48 Hours
Tuolumne Utilities District Engineering Dept.	48 Hours
Home Owners affected by construction	24 Hours
4. Contractor shall assume sole and complete responsibility for job site conditions during project construction including safety of all persons and property. This requirement shall apply continuously and not be limited to normal working hours. Contractor shall defend, indemnify and hold TUD and the Project Engineer harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of TUD or Project Engineer.
5. Contractor shall excavate in such a manner as to avoid any damage to existing structures and trees if possible. Any damaged structures shall be restored or replaced in a manner acceptable to TUD's District Engineer. Reduced cover over existing pipelines due to Contractor's activities will require reconstruction or protection satisfactory to District Engineer at sole cost of Contractor.
6. All stationing and dimensioning is referenced to the centerline of the pipeline unless otherwise noted.
7. Trenching and paving within any County right-of-way shall conform to the requirements of the Tuolumne County Dept. of Public Works.
8. Contractor shall perform work with a minimal disruption of services and shall notify TUD 48 hours in advance of beginning work in order to give water customers 24 hours notice of any shut-offs.
9. Contractor shall provide Project Engineer with "as-built" notes including measurements to all facilities from at least two permanent objects and all deviations from original plans. Project Engineer shall provide "as-built" plans to TUD prior to project acceptance.
10. All pipeline sections shall be pressure tested to TUD specifications and water mains shall be disinfected to TUD specifications prior to project acceptance.
11. Sewer and water mains shall not be installed in the same trench with electrical (primary or secondary), catv, telephone, gas or other utilities. All other utilities shall cross underneath sewer and water mains. All projects with underground gas pipelines shall have locator wire attached to the pipes and pulled into valve boxes, and shall have locating tape labeled "[type of] GAS BURIED BELOW."
12. Contractor shall conform with all Federal, State, and Local safety regulations. Specifically, attention is directed to trenching, drilling and blasting, confined space, and traffic control. Contractor shall conform with all requirements of Encroachment Permits issued to TUD by Cal-Trans and the Tuolumne County Department of Public Works.
13. Compaction tests shall be required and shall be performed by a qualified, licensed testing laboratory. Compaction characteristics for materials shall be based on California Test Method (CTM) 216. Field tests for compaction density shall be in accordance with ASTM D1556 or ASTM D2922. Contractor shall cooperate with Engineer during field testing by leveling small test areas as directed. Contractor shall be responsible for all costs for compaction tests ordered by Engineer.
14. Contractor shall notify property owners when working within easements or trenching across driveways and shall provide evidence of such notification to TUD.
15. Per Section 64591 of the California Waterworks Standards, all items in contact with potable water shall be certified as meeting the specifications of NSF61-2005.



TRENCH NEAR FILL SLOPE



TRENCH IN TRAFFIC AREA



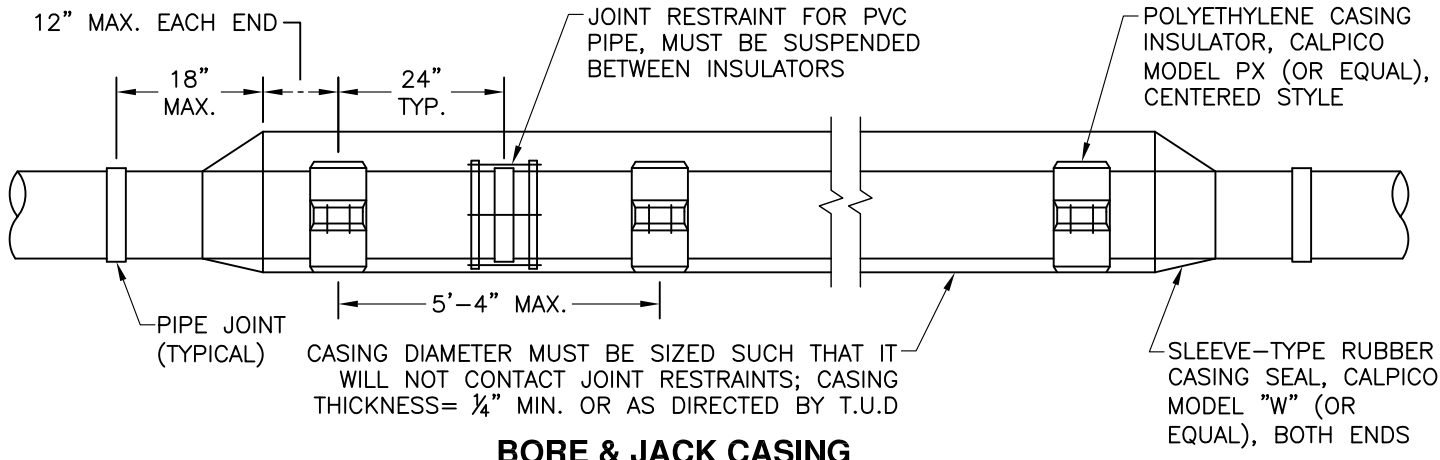
STANDARD TRENCH

SEE NOTE 'L' REGARDING ASBESTOS CONTENT

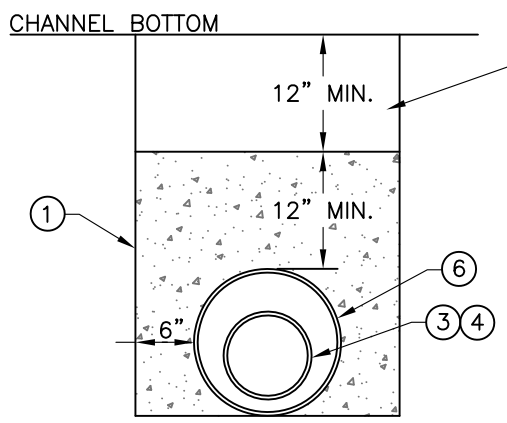
LOCATOR WIRE

- A. WIRE TO BE #12 AWG INSULATED SINGLE STAND COPPER, UF LISTED.
- B. WIRE TO BE CONTINUOUS BETWEEN VALVE BOXES.
- C. STRIP INSULATION FROM WIRE INSIDE VALVE BOX AND AT ALL SPLICES.
- D. BARE WIRE IS NOT TO TOUCH VALVES.
- E. WIRE TO BE TAPED TO TOP OF PIPE AT 5 FT. INTERVALS.
- F. USE 3M DBR/Y-6 SPLICE KIT FOR ALL SPLICES.

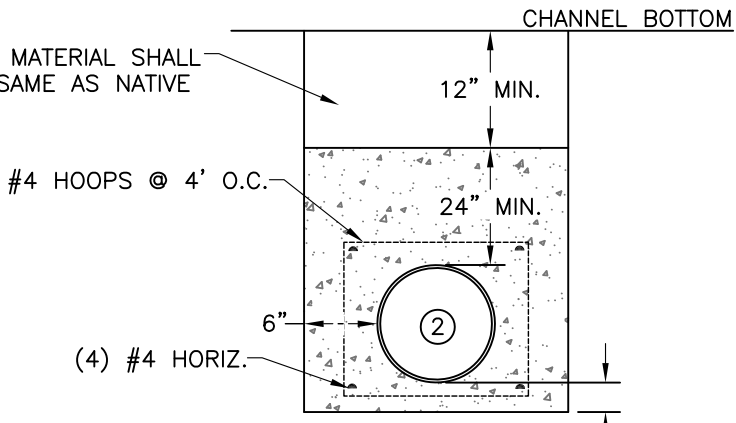
- A. FOR WATER MAINS 4" DIA. TO 12" DIA., PIPE SHALL BE AWWA C900 AND C909 PVC PIPE; CLASS RATING SHALL BE APPROVED BY T.U.D. PRIOR TO INSTALLATION.
- B. FOR GRAVITY SEWER MAINS 4" DIA. TO 15" DIA., PIPE SHALL BE PVC SDR35 AND SHALL MEET ASTM D3034 STANDARDS. RUBBER SEALANT RINGS SHALL MEET ASTM D3212 REQUIREMENTS. CAMERA INSPECTION BY T.U.D. STAFF (OR EQUAL) SHALL BE REQUIRED FOR ALL SEWER LINES.
- C. FOR SEWER FORCE MAINS 4" DIA. OR GREATER, PIPE SHALL BE AWWA C900 CL150 PVC PIPE; HIGHER CLASS RATING MAY BE REQUIRED BY T.U.D. ALL MAINS LESS THAN 4" DIA. MUST BE APPROVED BY DISTRICT ENGINEER.
- D. PRIOR TO INSTALLING GRAVITY SEWER PIPE, BOTTOM OF TRENCH SHALL BE COMPACTED AND INSPECTED.
- E. WATER MAINS SHALL BE PRESSURE TESTED FOR CLASS OF PIPE AT LOWEST POINT IN WATERLINE WITH A 25 PSI MAX. DROP AT HIGH POINT.
- F. TERRATAPE (2" WIDE LOCATING TAPE) TO BE LABELED "BURIED WATERLINE [SEWER LINE] BELOW - TUOLUMNE UTILITIES DISTRICT" (AVAILABLE AT T.U.D. OFFICE AT T.U.D.'S COST).
- G. ALL TRENCHES OVER 5 FT. DEEP SHALL BE SLOPED, SHORED, BRACED, OR OTHERWISE SUPPORTED IN ACCORDANCE WITH CAL-OSHA REQUIREMENTS. T.U.D. ASSUMES NO RESPONSIBILITY FOR THE DESIGN OF SUCH SUPPORT SYSTEMS. IN PAVED AREAS TRENCHES CANNOT BE SIDE-SLOPED.
- H. RELATIVE COMPACTION TO BE 90% OR GREATER IN THE HAUNCH AREA OF THE PIPE FROM THE SPRINGLINE TO THE BOTTOM OF THE PIPE.
- I. GRAVITY SEWER ELBOWS SHALL BE SDR35 PVC "SLOW-BANANA" BEND. OTHER ELBOWS MAY BE USED WITH PRIOR DISTRICT APPROVAL AND SHALL NOT EXCEED 22 1/2' IN ANY CASE. ALL OTHER SEWER FITTINGS SHALL BE CAST IRON.
- J. ALL NATIVE MATERIAL REQUIRES DISTRICT APPROVAL PRIOR TO USE. CONTRACTOR SHALL USE OTHER APPROVED MATERIAL IF NEEDED TO MEET COMPACTION REQUIREMENTS.
- K. USE TYPE "A" MATERIAL (SEE T.U.D. SPECIFICATIONS) UNLESS OTHERWISE APPROVED BY DISTRICT.
- L. ALL IMPORTED MATERIAL FOR AREAS UNDER T.U.D. JURISDICTION SHALL BE ASBESTOS FREE. ALL IMPORTED MATERIAL FOR AREAS UNDER COUNTY JURISDICTION SHALL COMPLY WITH COUNTY AIR POLLUTION CONTROL REQUIREMENTS REGARDING ASBESTOS.



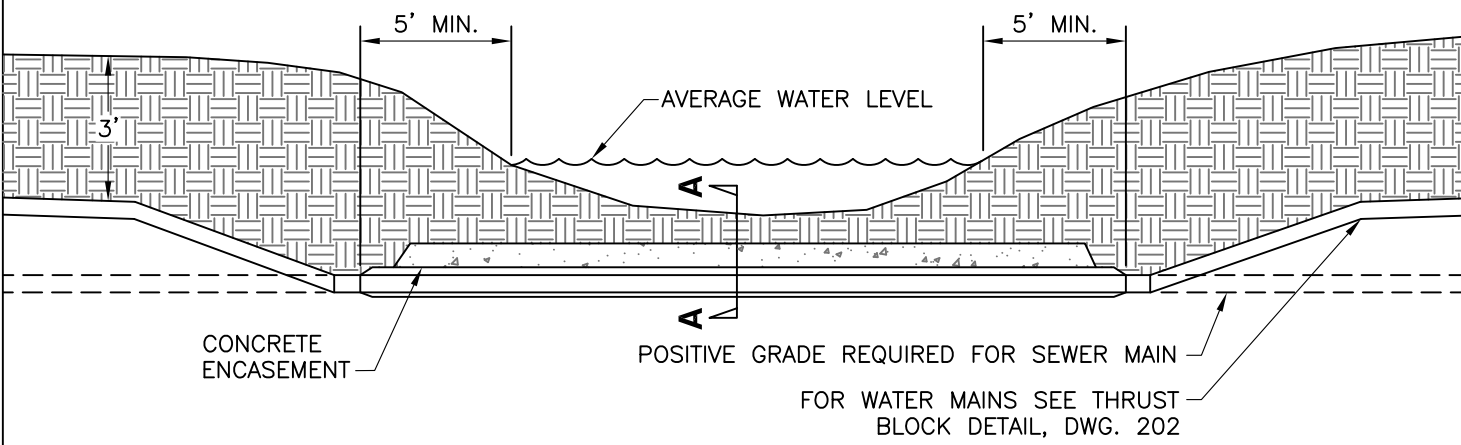
BORE & JACK CASING



SECTION A-A, SEE BORE & JACK CASING DETAIL



SECTION A-A ALTERNATE VERSION (REQUIRES T.U.D. APPROVAL)

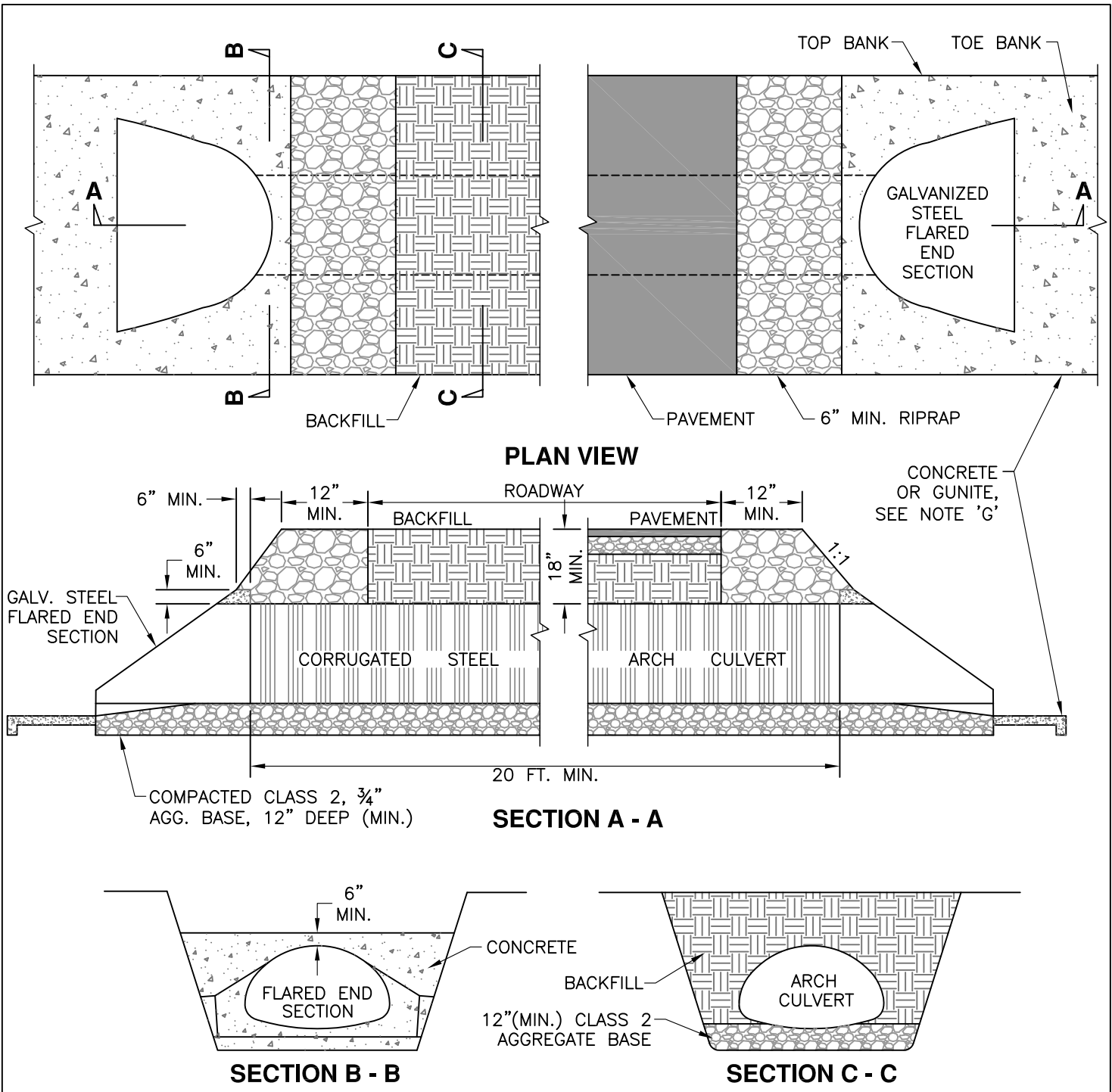


CREEK CROSSING FOR WATER AND SEWER MAINS

ITEM	QTY	DESCRIPTION	REMARKS
①		3-SACK SLURRY MIX	NO LOADS TO BE PLACED ON CONCRETE FOR 7 DAYS
②		DUCTILE IRON PIPE	CEMENT OR PVC LINED; USE CAST IRON FITTINGS AS NEEDED
③		PVC C900-DR18 FOR WATER	USE CAST IRON FITTINGS AS NEEDED
④		SDR35 FOR SEWER	USE CAST IRON FITTINGS AS NEEDED
⑤		6-SACK STRUCTURAL CONCRETE	USE CAST IRON FITTINGS AS NEEDED
⑥		CASING	

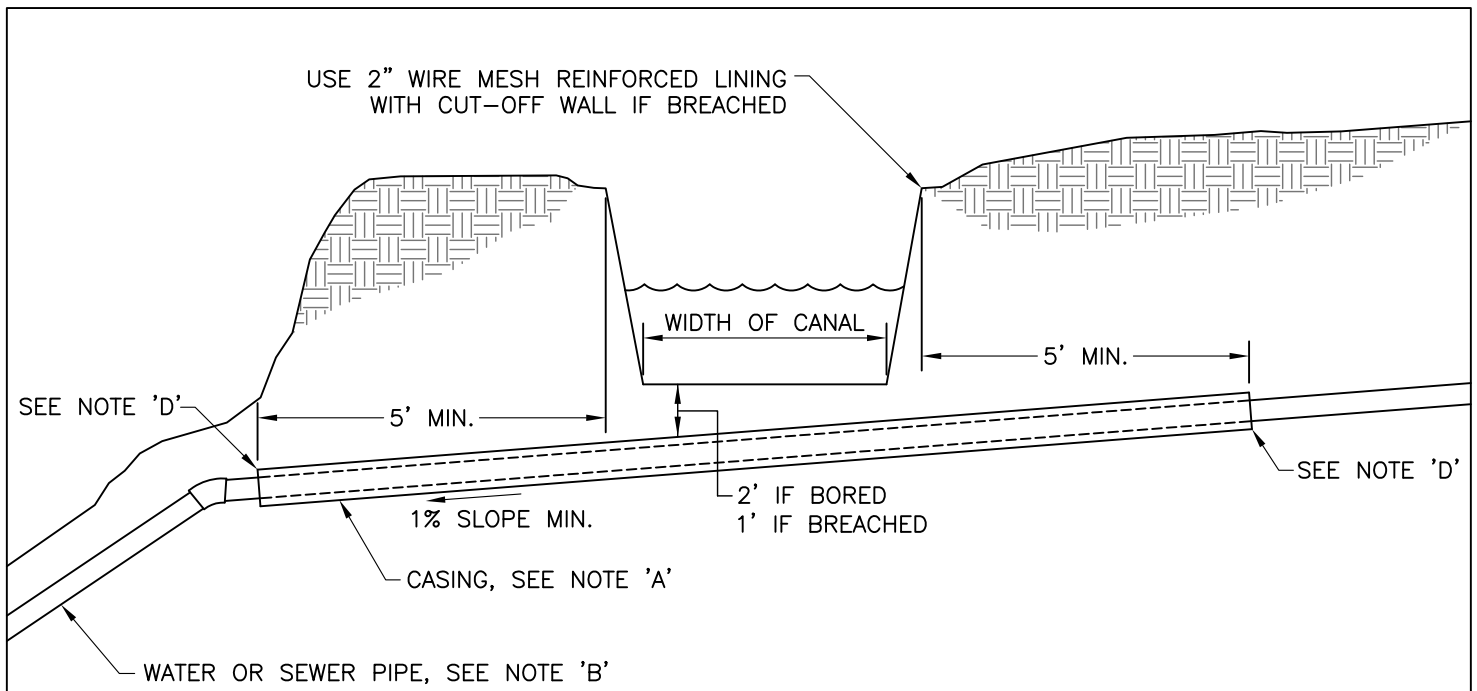
**TUOLUMNE UTILITIES DISTRICT
CREEK CROSSING FOR WATER & SEWER MAINS
AND BORE & JACK CASING**

REV. 10-07-16
STD. DWG. NO.
103

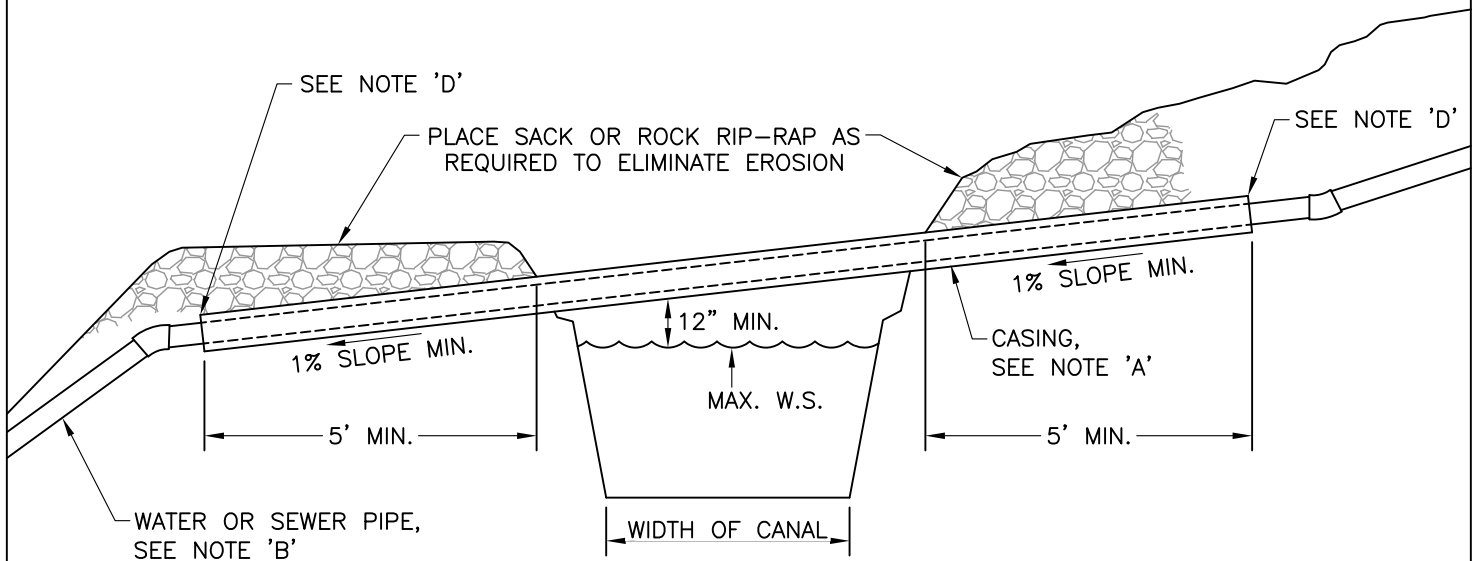


NOTES:

- A. ALL BANDS, JOINTS AND CONNECTIONS IN ARCH CULVERT SHALL BE SEALED WATERTIGHT WITH MANUFACTURERS GASKET, "RAMNECK" SEALANT, OR APPROVED EQUAL. BAND CORRUGATIONS MUST MATCH CULVERT CORRUGATIONS FOR TIGHT SEAL.
- B. BACKFILL AROUND END SECTIONS WITH BAGS OF CONCRETE READYMIX. AS AN ALTERNATIVE, END SECTIONS MAY BE BACKFILLED WITH POURED CONCRETE.
- C. PROPER BACKFILL OF PIPE IS ESSENTIAL. PLACE FILL BY DISTRIBUTING MATERIAL AROUND PIPE IN A UNIFORM 6" LAYER AND COMPACT THOROUGHLY. USE SELECT NATIVE BACKFILL WITH NO VEGETATIVE MATTER, ROOTS OR ROCKS LARGER THAN 2 INCHES.
- D. EXCAVATE DITCH SO THAT INVERT OF PIPE AND FLARED END SECTIONS LAY FLUSH WITH BOTTOM OF CANAL, YET MAINTAIN POSITIVE SLOPE IN DIRECTION OF FLOW.
- E. ARCH PIPE TO BE DESIGNED FOR AN H-20 LOADING, 20 FT. MIN. LENGTH PLUS END SECTIONS, SIZE PER TUOLUMNE UTILITIES DISTRICT REQUIREMENTS.
- F. COORDINATE DRIVEWAY CROSSING CONSTRUCTION WITH T.U.D. PERSONNEL. TWO WEEK MIN. NOTICE IS REQUIRED FOR TEMPORARY DITCH SHUTDOWN.
- G. CONCRETE OR GUNITE SHALL BE EXTENDED 10 FEET FROM EACH FLARED END SECTION ALONG DITCH BOTTOM AND TO TOP OF EACH BANK TO MINIMIZE INFILTRATION, 2 INCH MIN. THICKNESS WITH 6x6x10 GA. WELDED WIRE AND 8"x12" KEYWAY AT EACH END.



CROSSING UNDER CANAL

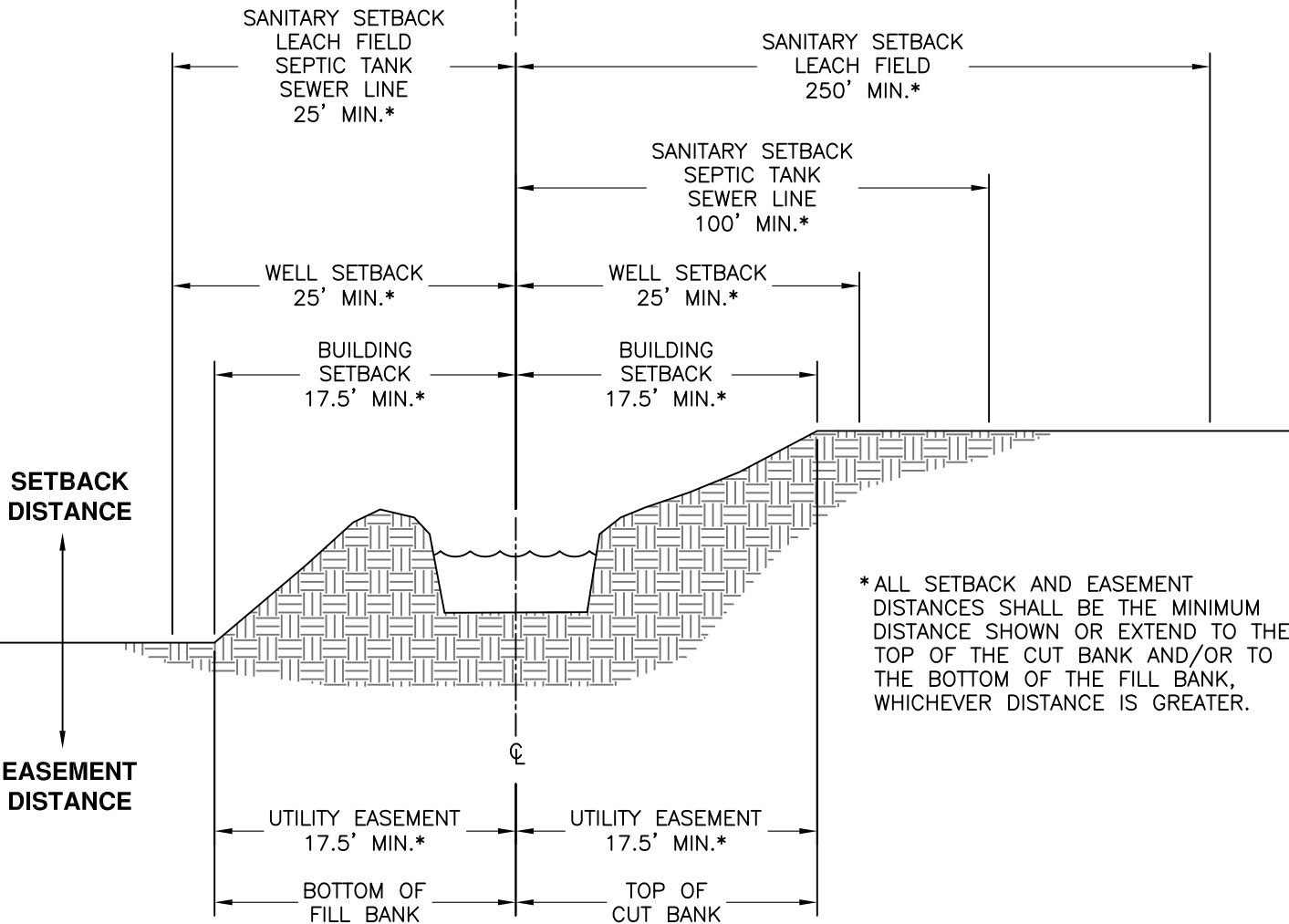


CROSSING OVER CANAL

NOTES:

- A. CASING TO BE DUCTILE IRON PIPE OR 16-GAUGE CMP. DIAMETER TO BE 4 INCHES LARGER THAN THE WATER OR SEWER PIPE. NO JOINTS ALLOWED IN CASING OR CARRY PIPE.
- B. PIPE TYPE PER TUOLUMNE COUNTY BUILDING DEPARTMENT.
- C. IF HOLE FOR CASING PIPE IS HYDRO-AUGERED UNDER CANAL, BORE DIAMETER SHALL NOT BE MORE THAN 2 INCHES LARGER THAN DIAMETER OF THE CASING. IF CANAL IS BREACHED TO INSTALL CASING AND PIPELINE, BACKFILL SHALL BE REPLACED IN 12 INCH LAYERS WITH BACKFILL AT OR NEAR OPTIMUM MOISTURE CONTENT; EACH 12 INCH LAYER SHALL BE PNEUMATICALLY TAMPED.
- D. SEAL BOTH ENDS OF CASING TO MAIN WITH CONCRETE OR SYNTHETIC RUBBER END BUSHING.

FILL BANK ← → CUT BANK



SETBACK TABLE

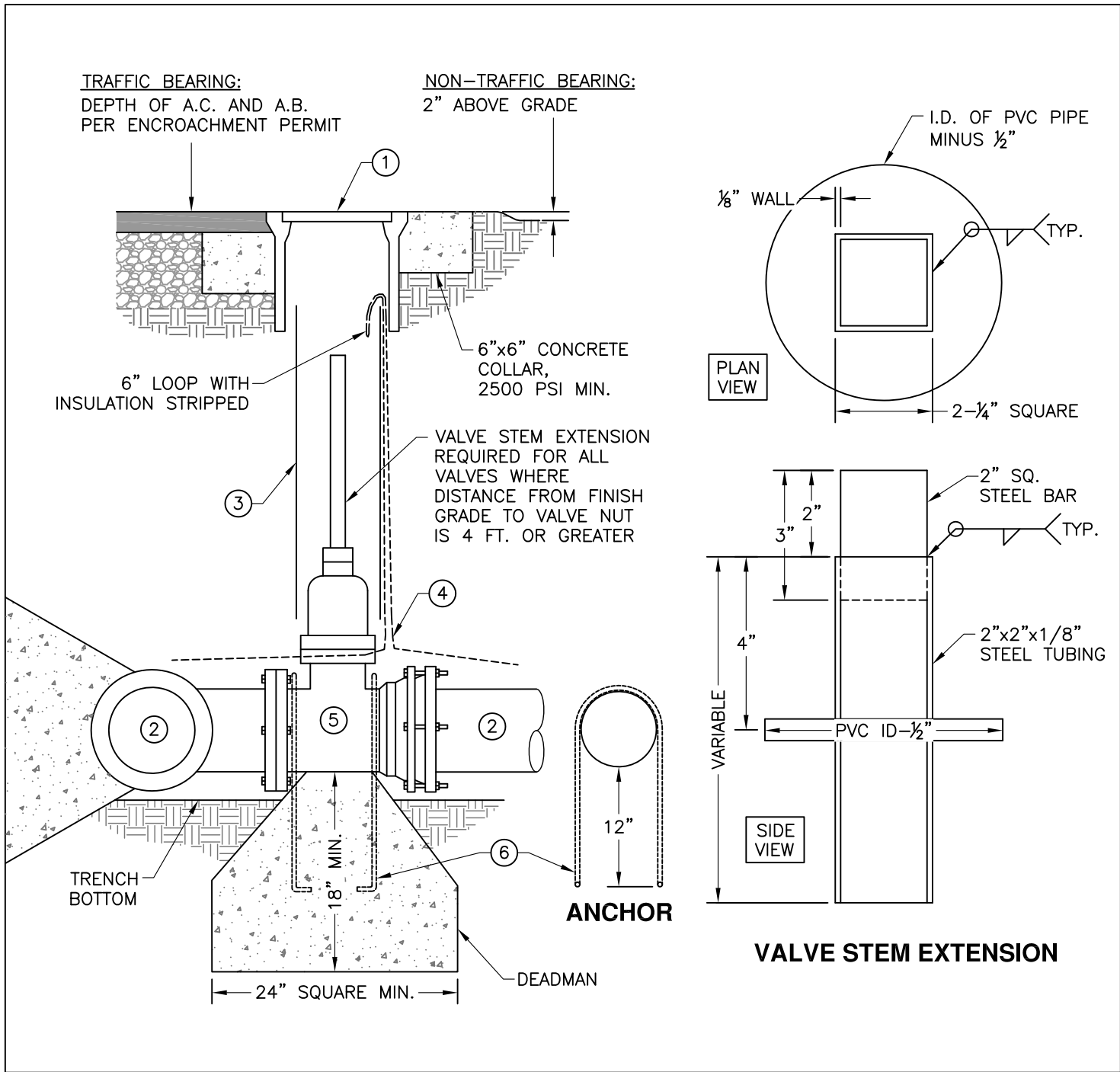
SETBACK TYPE	FILL BANK	CUT BANK
SANITARY-LEACH FIELD	25' MIN.	250' MIN.
SANITARY-SEPTIC TANK	25' MIN.	100' MIN.
SANITARY-SEWER LINE	25' MIN.	100' MIN.
WELL	25' MIN.	25' MIN.
BUILDING	17.5' MIN.	17.5' MIN.
EXTENDED SETBACK*	TO BOTTOM OF FILL	TO TOP OF CUT

UTILITY EASEMENT TABLE

EASEMENT TYPE	FILL BANK	CUT BANK
MINIMUM EASEMENT	17.5' FROM CL	17.5' FROM CL
EXTENDED EASEMENT*	TO BOTTOM OF FILL	TO TOP OF CUT


NOTES

- A UTILITY EASEMENT SHALL BE DEDICATED TO THE DISTRICT FOR ANY NEW DEVELOPMENT WITHIN THE MINIMUM SETBACK AND EASEMENT DISTANCES DESCRIBED ABOVE.
- THE SANITARY SETBACK REQUIREMENTS ARE IN COMPLIANCE WITH TUOLUMNE COUNTY ORDINANCE CODE 13.04.06.
- EXCEPTIONS TO THE BUILDING AND SANITARY SETBACK REQUIREMENTS ARE SUBJECT TO APPROVAL BY THE DISTRICT.
- PROPERTY OWNERS SHALL PREVENT LIVESTOCK FROM DAMAGING AND/OR POLLUTING THE DISTRICT'S RAW WATER CANAL AND RELATED FACILITIES PER THE DISTRICT'S WATER RULES AND REGULATIONS SECTION 14.09.1 AND CALIFORNIA HEALTH AND SAFETY CODE SECTIONS 116985, 116990, AND 116995.



NOTES

- A. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN., AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.
- B. VALVES SHALL BE INSTALLED ON FITTINGS UNLESS OTHERWISE APPROVED BY T.U.D.

ITEM	QTY	DESCRIPTION	REMARKS
①	1	TRAFFIC VALVE BOX WITH LID MARKED "WATER"	CHRISTY G5 W/ G5C LID OR APPROVED EQUAL
②		FLANGED TEE	
③	1	6" OR 8" PVC PIPE	SDR35, PR160, C900 AND C909 ARE ACCEPTABLE
④	1	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER,  SEE DWG. #102
⑤	1	RESILIENT WEDGE GATE VALVE, EPOXY-COATED, NON-RISING STEM, 2" SQUARE NUT FOR ALL VALVES 2" AND LARGER	FLxMJ UNLESS OTHERWISE APPROVED, CLOW, MUELLER, AMERICAN DARLING OR APPROVED EQUAL, SUITABLE CLASS FOR SERVICE PRESSURE
⑥	2	#4 REINFORCING BAR ANCHOR	GRADE 60

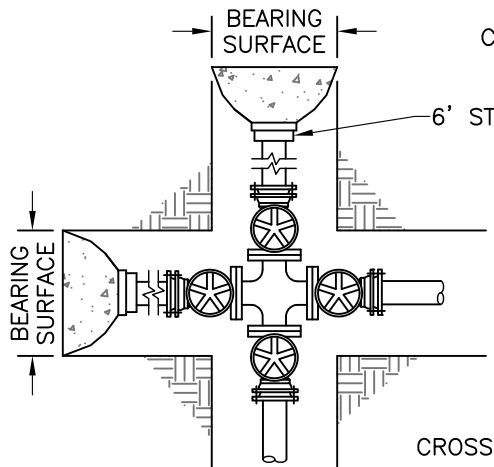


FIGURE 1

CONST. DEADMAN UNDER ALL VALVES, SEE DETAIL #201

6' STUB WITH CAP (TYPICAL)

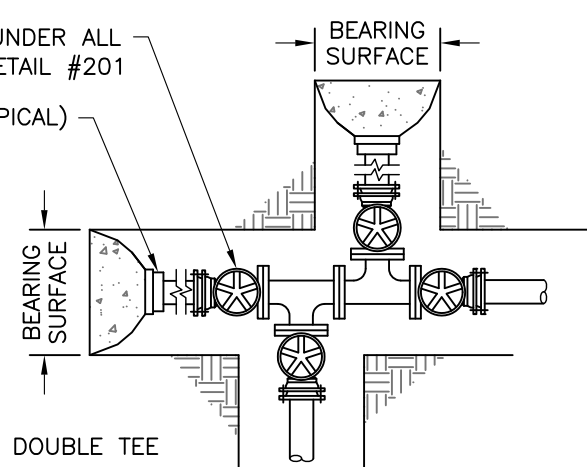


FIGURE 2

VALVE INSTALLATION NOTES

- A. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN., AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.
- B. ALL VALVES AND FITTINGS SHALL BE CAST IRON OR DUCTILE IRON AND SHALL HAVE A PRESSURE RATING EQUAL TO OR GREATER THAN THE WORKING PRESSURE RATING OF THE PIPE.
- C. ALL TEES & CROSSES SHALL BE FLANGED WITH FLxMJ VALVES UNLESS OTHERWISE APPROVED BY T.U.D.
- D. VALVES SHALL BE LOCATED IN-LINE, NOT TO EXCEED 1,320 FEET APART, AND AT ALL TEES AND CROSSES.

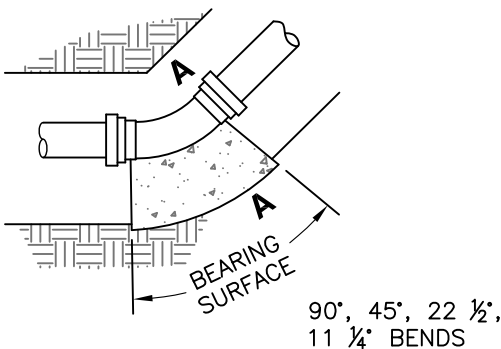
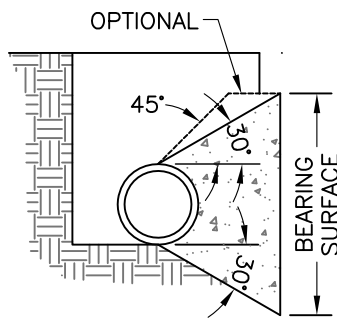


FIGURE 3



SECTION A-A

3/8"x2" STRAPS WITH 5/8" DIA. ANCHOR BOLTS, SEE NOTE 'M'

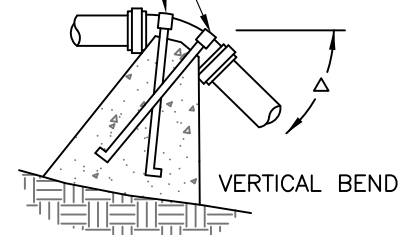


FIGURE 4

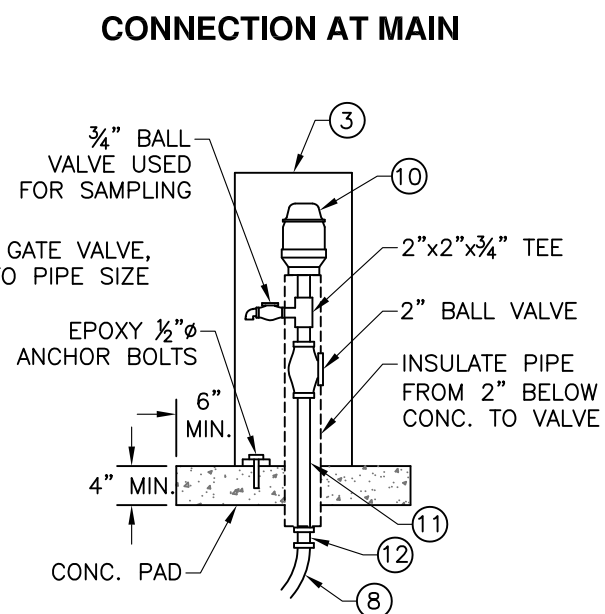
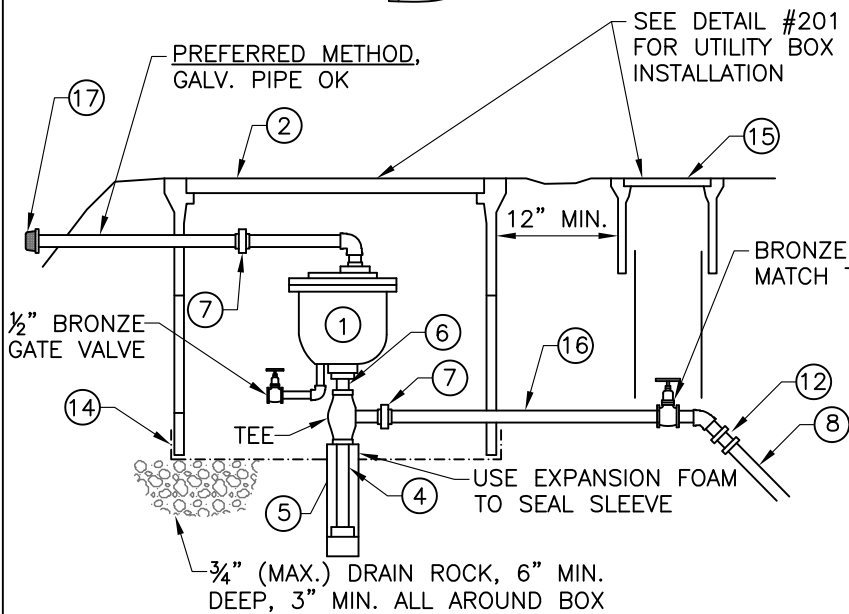
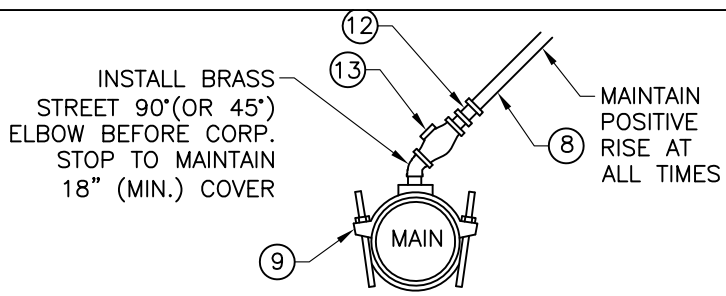
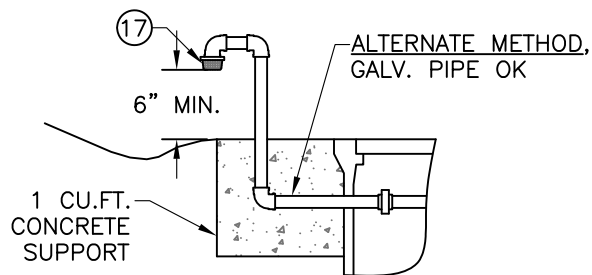
THRUST BLOCKS FOR HORIZONTAL AND VERTICAL BENDS AT UNRESTRAINED JOINTS, 4" TO 12" FITTINGS

SIZE OF PIPE	MIN. BEARING AREA IN SQUARE FEET						CUBIC FEET OF CONCRETE		
	FIG. 1 CROSS	FIG. 2 TEE	FIGURE 3				FIGURE 4		
			90°	45°	22 1/2°	11 1/4°	45°	22 1/2°	11 1/4°
4"	2	2	2	1	1	1	19	19	5
6"	3	3	4	3	2	2	20	20	10
8"	5	5	7	4	2	2	SPECIAL DESIGN REQUIRED		13
10"	8	8	12	6	3	3			30
12"	12	12	16	9	5	5			

GENERALLY, THE BEARING AREA WIDTH TO HEIGHT RATIO SHOULD NOT EXCEED 2 TO 1

THRUST BLOCK NOTES

- F. THRUST BLOCKS ARE TO BE CONSTRUCTED OF 2500 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE. AREAS GIVEN ARE THE MINIMUM REQUIREMENT FOR CLASS 150 PIPE AT TEST PRESSURES OF 150 PSI IN SOIL WITH 2000 PSF BEARING CAPACITY. WITH DIFFERENT PIPE TYPES, WORKING PRESSURES AND/OR SOIL TYPES, ADJUST ACCORDINGLY. VARIANCES ARE SUBJECT TO T.U.D. APPROVAL.
- G. BLOCKS ARE TO BE POURED AGAINST UNDISTURBED SOIL.
- H. THRUST BLOCKS SHALL HAVE A 5-DAY MINIMUM CURE PRIOR TO PRESSURIZATION OF MAINS.
- I. RESTRAINED JOINTS ARE REQUIRED ON AT LEAST 3 JOINTS IN EACH DIRECTION WHEN SITE LIMITATIONS PREVENT STRICT ADHERENCE TO THESE STANDARDS (SUBJECT TO DISTRICT APPROVAL.)
- J. ANCHOR BOLTS TO EXTEND TO 90% OF DEPTH OF BLOCK; COAT ALL EXPOSED METAL WITH BITUMASTIC COATING AFTER INSTALLATION. SPECIAL DESIGN IN FIELD MAY BE REQUIRED FOR 8", 10" AND 12" PIPE.



BELOW-GROUND INSTALLATION

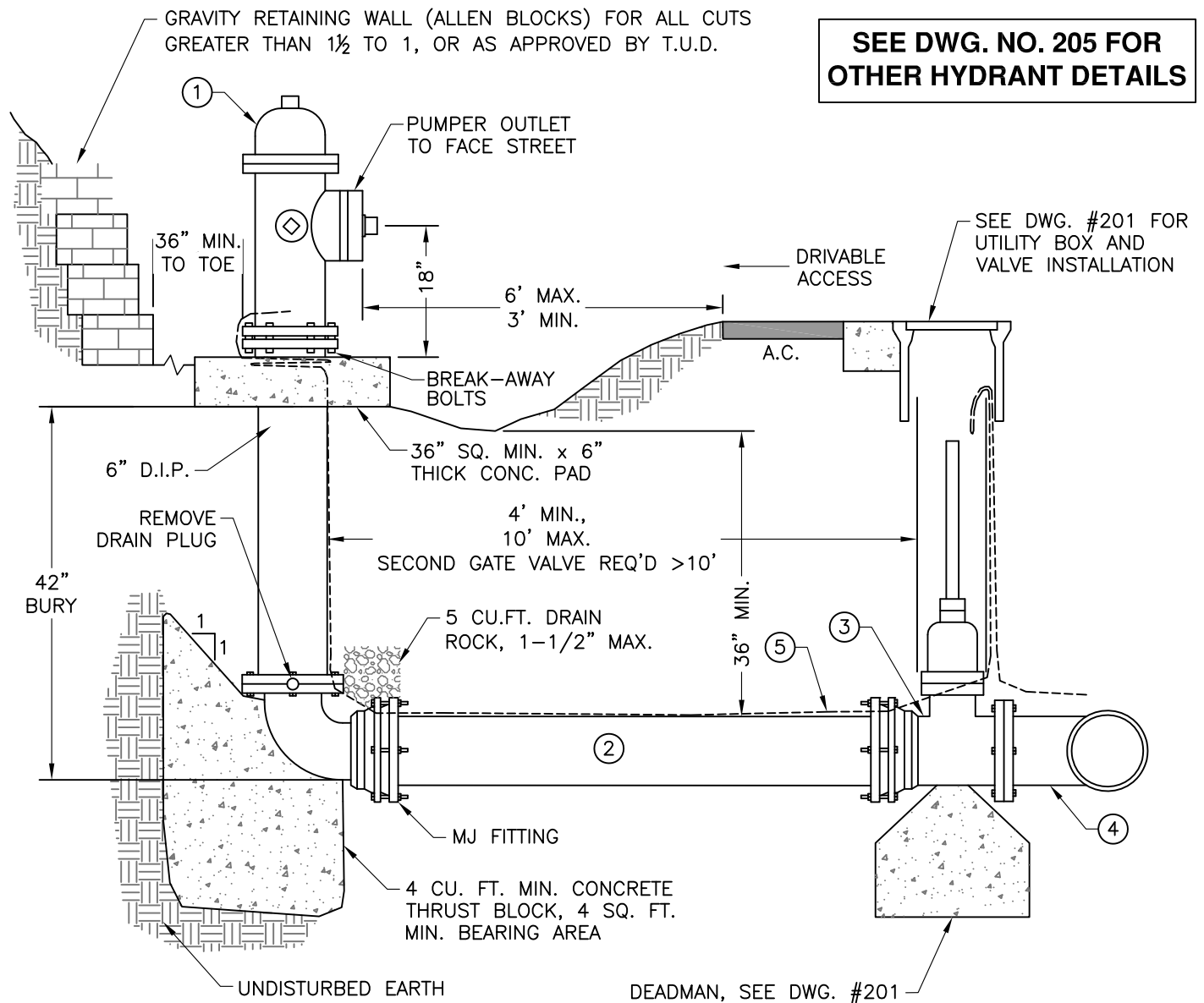
ABOVE-GROUND INSTALLATION
REQUIRES PRIOR T.U.D. APPROVAL

NOTES

- A. GATE VALVES, BRASS UNIONS AND TEES WILL BE A SPECIFIC SIZE ACCORDING TO THE C.A.V. USED.
- B. ALL CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 2500 PSI IN ALL AREAS SHOWN.
- C. ALL COMBINATION AIR VALVES TO BE LOCATED OUT OF TRAFFIC AREAS.
- D. ABOVE-GROUND COMB. AIR VALVES MUST BE PROTECTED FROM TRAFFIC WITH BOLLARDS OR LARGE BOULDERS.
- E. ALL FITTINGS SHALL BE BRASS UNLESS OTHERWISE NOTED.

ITEM	QTY	DESCRIPTION	REMARKS
①	1	COMBINATION AIR VALVE	1" APCO 143C FOR 6" & 8" MAINS, 2" APCO 145C FOR 10" & 12" MAINS, OR APPROVED EQUAL
②	1	UTILITY BOX AND LID, USE EXTENSION(S)	CHRISTY B36 FOR 1" VALVE, CHRISTY B40 FOR 2" VALVE, 61D LID, OR APPROVED EQUAL
③	1	VALVE PEDESTAL, 12"x12"x30"	PLACER WATER WORKS #PW/SJARV-2 OR APPROVED EQUAL
④	1	1"x 8" BRASS NIPPLE WITH BRASS CAP	USE 1"x 2" REDUCER WITH NIPPLE FOR 2" C.A.V.
⑤	1	2"x12" PVC NIPPLE WITH 2" CAP	SCH. 40 PVC
⑥	1	3" LONG BRASS NIPPLE	SIZE PER PIPE
⑦		BRASS UNION	SIZE PER PIPE
⑧	1	1" POLYETHYLENE TUBING FOR 6" & 8" MAINS, 2" TUBING FOR 10" & 12" MAINS	WESTFLEX SP200 PSI (OR APPROVED EQUAL)
⑨	1	1" OR 2" SERVICE SADDLE	FORD FS202 FOR C900 OR C909 PVC, OR APPROVED EQUAL
⑩	1	1" OR 2" COMBINATION AIR VALVE	BERMAD MODEL #4415 OR APPROVED EQUAL
⑪	1	1" OR 2" BRASS NIPPLE, 12" MIN.	EXTEND 6" MIN. BELOW GRADE
⑫	1	FEMALExCTS PACK JOINT COUPLING	FORD C14-44(1"), C14-77(2"), OR APPROVED EQUAL
⑬	1	CORPORATION STOP (MIPxMIP)	FORD FB500-4-NL(1"), FB500-7-NL(2") OR APPROVED EQUAL
⑭		1/4" HARDWARE CLOTH (GALV.)	MUST COVER ALL ACCESS HOLES
⑮	1	TRAFFIC VALVE BOX W/ LID MARKED "WATER"	CHRISTY G5 BOX WITH G5C LID, OR APPROVED EQUAL
⑯	1	36" LONG BRASS NIPPLE	SIZE PER PIPE
⑰	1	AIR VENT CAP #10 MESH	T. CHRISTY #VCI FOR 1" AIR/VAC; #VC2 FOR 2" AIR/VAC

**SEE DWG. NO. 205 FOR
OTHER HYDRANT DETAILS**



NOTES

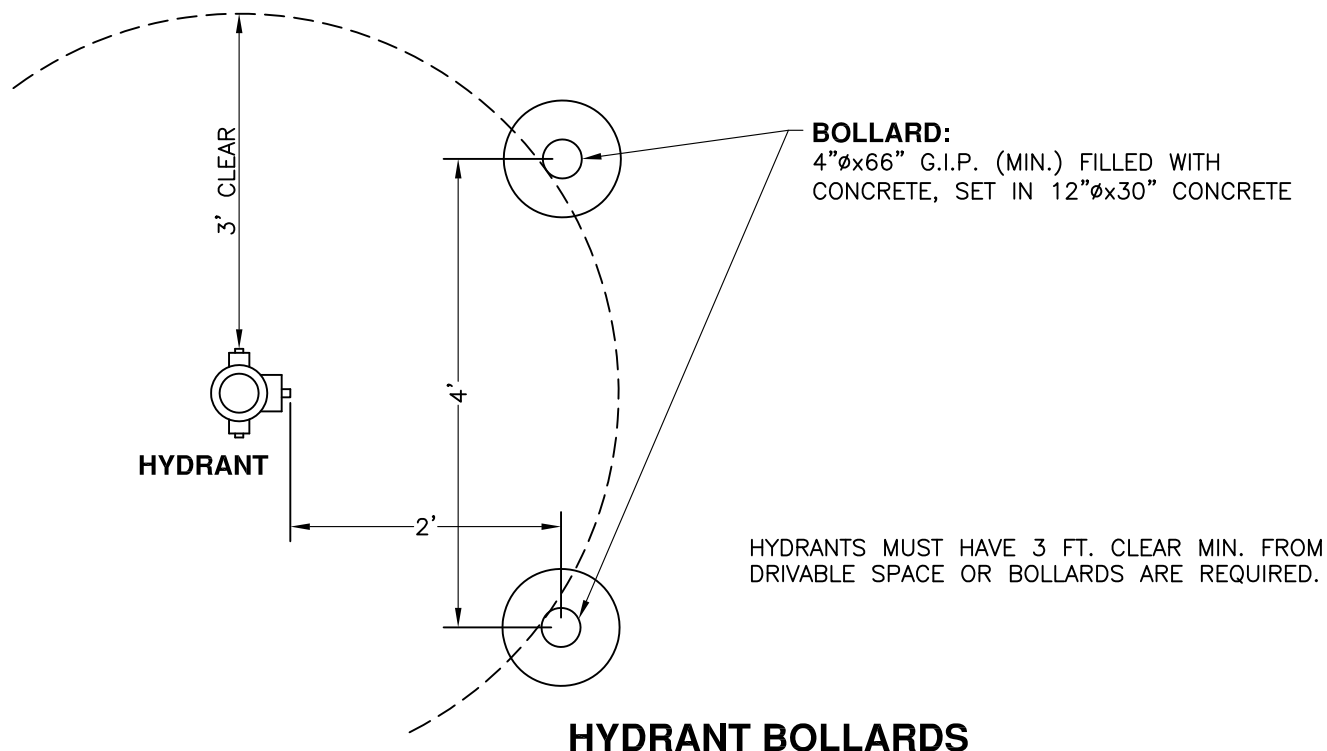
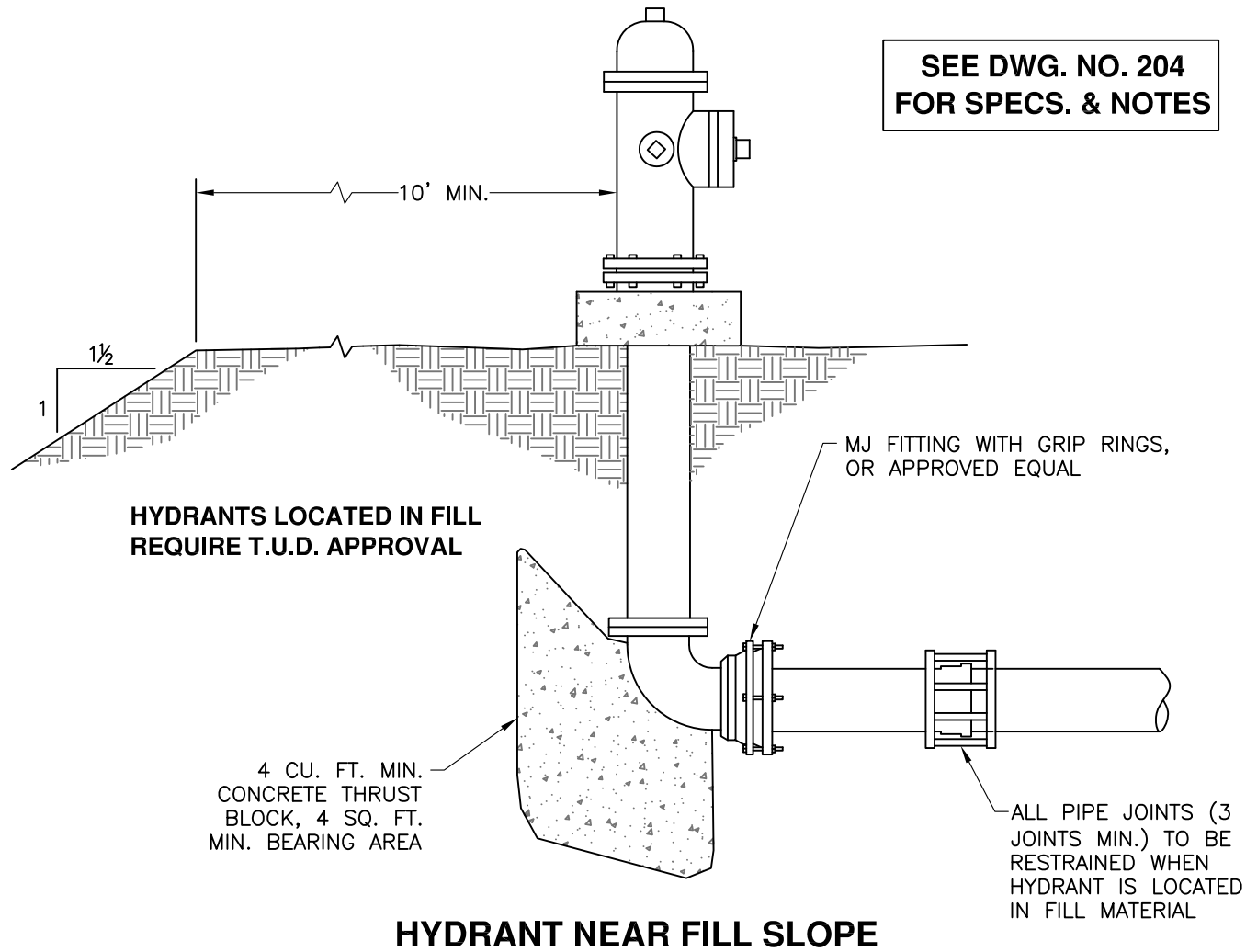
- A. MAXIMUM OPERATING PRESSURE SHALL NOT EXCEED 150 PSI WITHOUT PRIOR T.U.D. APPROVAL.
- B. FIRE HYDRANTS SHALL BE LOCATED NEAR CUT SLOPE WHENEVER POSSIBLE.
- C. CUT SLOPE TO BE STABILIZED IN VICINITY OF HYDRANT.
- D. DRIVABLE ACCESS SHALL NOT BE MORE THAN 6 FT. FROM HYDRANT.
- E. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC #50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN.
- F. FITTINGS, JOINTS, BOLTS AND NUTS ARE TO BE COVERED WITH PLASTIC SHEETING (4 MIL THICK MIN.) PRIOR TO PLACEMENT OF CONCRETE. NO CONCRETE TO BE ALLOWED ON BOLTS.
- G. HYDRANTS MUST HAVE 3' CLEAR MIN. FROM DRIVABLE SPACE OR BOLLARDS ARE REQUIRED; SEE DWG. #206.

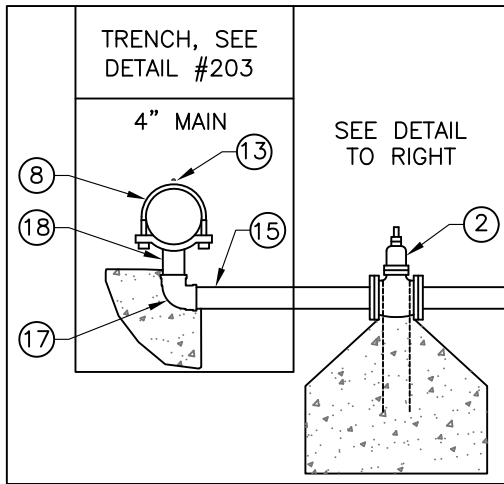
ITEM	QTY	DESCRIPTION	REMARKS
①	1	6" DRY BARREL, TRAFFIC MODEL HYDRANT WITH (2) 2½" NST HOSE OUTLETS, ONE 4½" NST PUMPER OUTLET, AND A 5¼" SEAT OPENING; BASE CONNECTION IS MECHANICAL JOINT, OPEN COUNTERCLOCKWISE	AMERICAN DARLING B-62-B-5 OR KENNEDY-GUARDIAN K81A OR MUELLER-SUPER CENTURION; PAINT BODY CHROME YELLOW
②		6" C900 OR C909 PVC PIPE	SUITABLE CLASS FOR SERVICE PRESSURE
③	1	6" RESILIENT WEDGE GATE VALVE (MJxFL), NON-RISING STEM, 2" SQUARE NUT	CLOW, MUELLER, AMERICAN DARLING OR APPROVED EQUAL, SUITABLE CLASS FOR SERVICE PRESSURE
④	1	CAST IRON OR DUCTILE IRON TEE	SIZE TO SUIT WATER MAIN (6" MIN.)
⑤	1	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102

**TUOLUMNE UTILITIES DISTRICT
FIRE HYDRANT INSTALLATION**

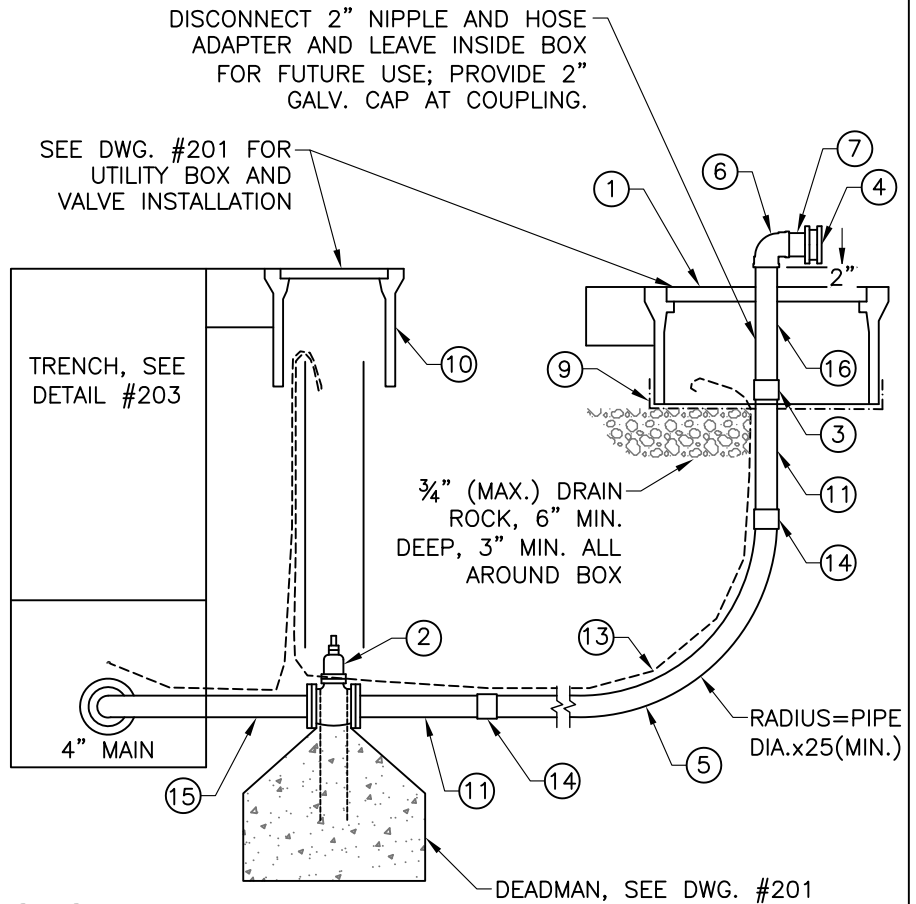
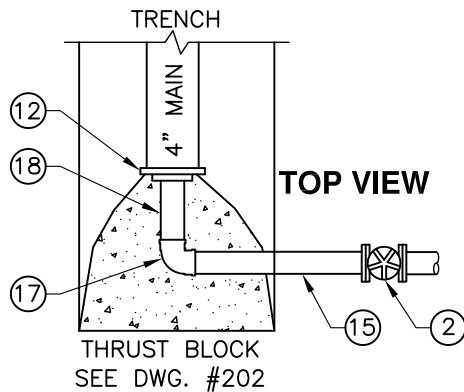
REV. 10-06-17
STD. DWG. NO.
204

**SEE DWG. NO. 204
FOR SPECS. & NOTES**





**IN-LINE LOW-POINT BLOWOFF
(REQUIRES T.U.D. APPROVAL)**



NOTES

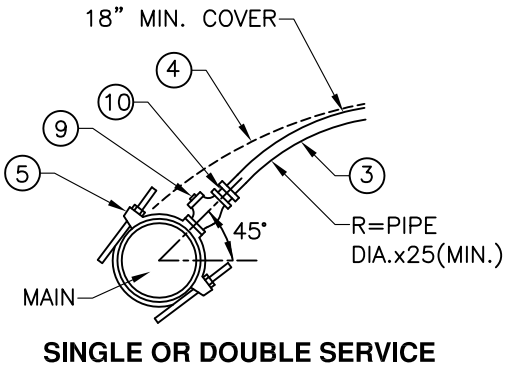
BLOWOFF AT END 4" MAIN

- A. THIS BLOWOFF CONSTRUCTION ALLOWED AT END 6" MAIN WITH PRIOR T.U.D. APPROVAL.
- B. BLOWOFF TO BE INSTALLED AT THE END OF ALL DEAD-END WATER MAINS UNLESS HYDRANT IS WITHIN 20 FT. OF END OF MAIN.
- C. DO NOT LOCATE BLOWOFF IN TRAFFIC AREAS.
- D. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.
- E. FITTINGS, JOINTS, BOLTS AND NUTS ARE TO BE COVERED WITH PLASTIC SHEETING (4 MIL. THICK MIN.) PRIOR TO PLACEMENT OF CONCRETE. NO CONCRETE TO BE ALLOWED ON BOLTS.

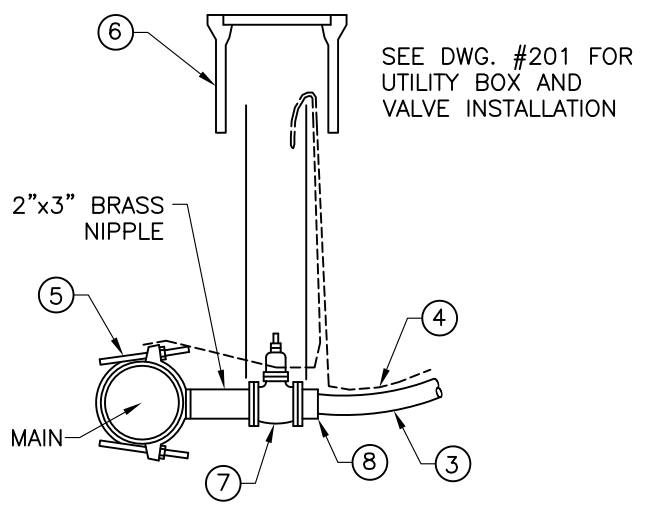
ITEM	QTY	DESCRIPTION	REMARKS
(1)	1	ARMORCAST-ROTOCAST BOX	#P6000492X18-1 W/#A6000489T LID OR APPROVED EQUAL
(2)	1	2" RESILIENT WEDGE GATE VALVE, EPOXY COATED	AMERICAN AVK45 OR APPROVED EQUAL
(3)	1	2" COUPLING WITH 2" PLUG	BRASS
(4)	1	2"x2½" BRASS FIRE HOSE ADAPTER	NH THREAD, PROVIDE W/PROTECTIVE CAP
(5)	1	2" POLYETHYLENE TUBING, "CTS", 200 PSI	CENTENNIAL CENFLOW OR APPROVED EQUAL
(6)	3	2" 90° ELBOW	SCH40 MIP, GALV.
(7)	2	2" SHORT NIPPLE	SCH40, GALV.
(8)	1	2" SERVICE SADDLE WITH DOUBLE-WIDE STRAP	FORD FS202 (FOR C900 PVC)
(9)	1	¼" HARDWARE CLOTH (GALV.)	MUST COVER ALL ACCESS HOLES
(10)	1	TRAFFIC VALVE BOX WITH LID MARKED "WATER"	CHRISTY G5 W/G5C LID OR APPROVED EQUAL
(11)	3	2"x12" NIPPLE	BRASS
(12)	1	CAST IRON CAP, 2" TAP	MECHANICAL JOINT W/GRIP RINGS
(13)	1	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
(14)	2	2" FIP x CTS ADAPTER, BRASS	
(15)	1	2"x18" BRASS NIPPLE	(17) 90° BRASS ELBOW
(16)	1	2"x12" NIPPLE, SCH40, GALV. WITH 2" CAP	(18) 2"x6" BRASS NIPPLE

TUOLUMNE UTILITIES DISTRICT
IN-LINE BLOWOFF & BLOWOFF AT END 4" WATER MAIN
FOR WATER MAINS 6" OR GREATER, INSTALL FIRE HYDRANT PER DETAIL #205

REV. 10-09-17
 STD. DWG. NO.
206

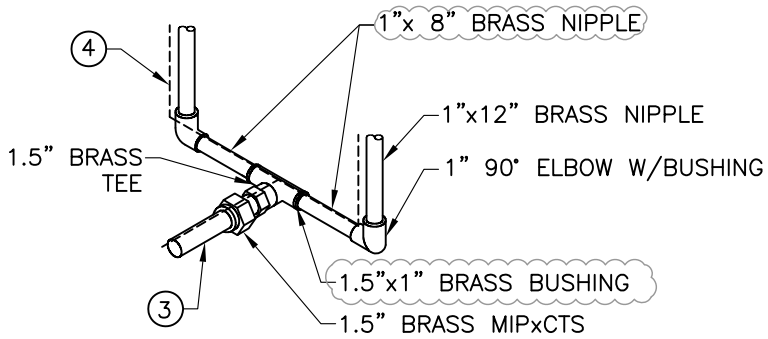


SINGLE OR DOUBLE SERVICE

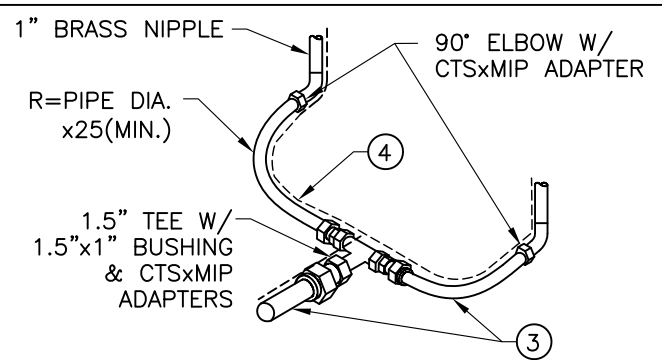


TRIPLE OR QUADRUPLE SERVICE

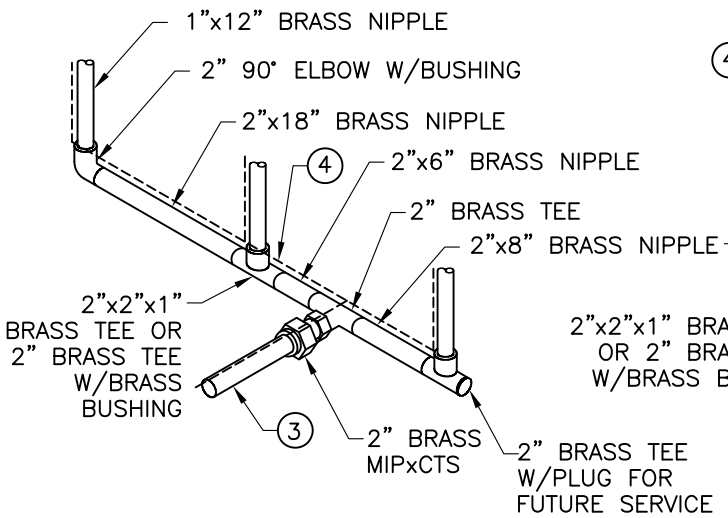
CONNECTION AT MAIN SHALL BE 3 FT. FROM ALL FITTINGS AND JOINTS
CONNECTION AT MAIN



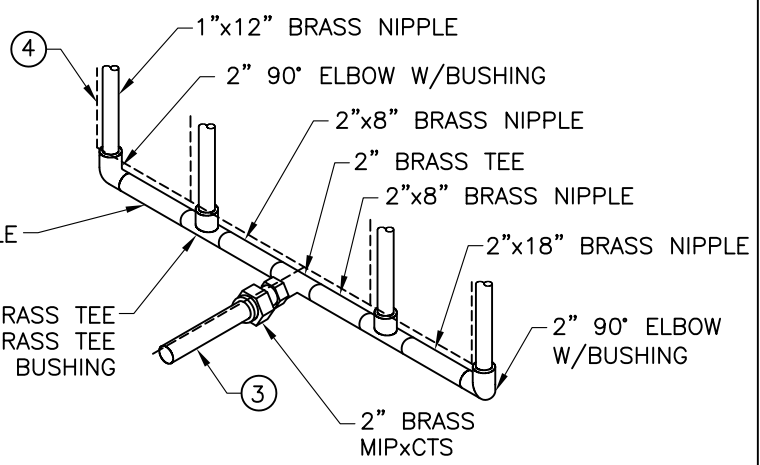
DOUBLE SERVICE



DOUBLE SERVICE
ALTERNATE INSTALLATION
WITH T.U.D. APPROVAL



TRIPLE SERVICE

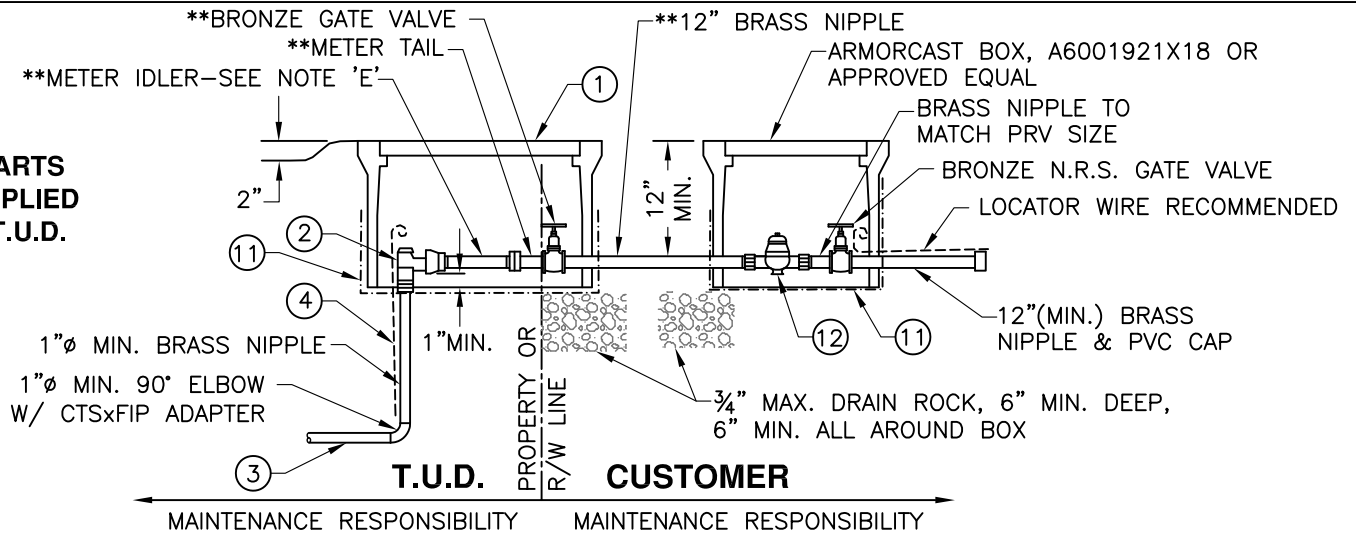


QUADRUPLE SERVICE

CONNECTION AT METER

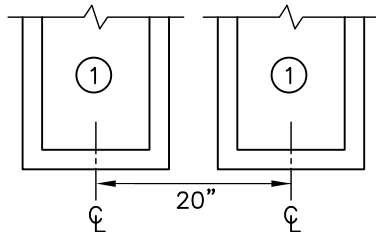
SEE DWG. # 208 FOR NOTES, PARTS LIST & WATER SERVICE BOX DETAIL

**** PARTS
SUPPLIED
BY T.U.D.**

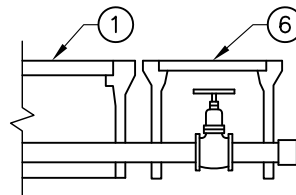


WATER SERVICE AND PRESSURE-REDUCING VALVE

INSTALL SERVICE WITH PRV WHERE CALCULATED STATIC INLET PRESSURE IS 80 PSI OR GREATER.



WATER SERVICE BOX SEPARATION



2" SERVICE

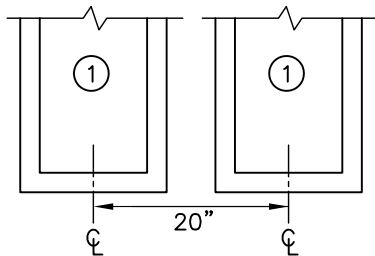
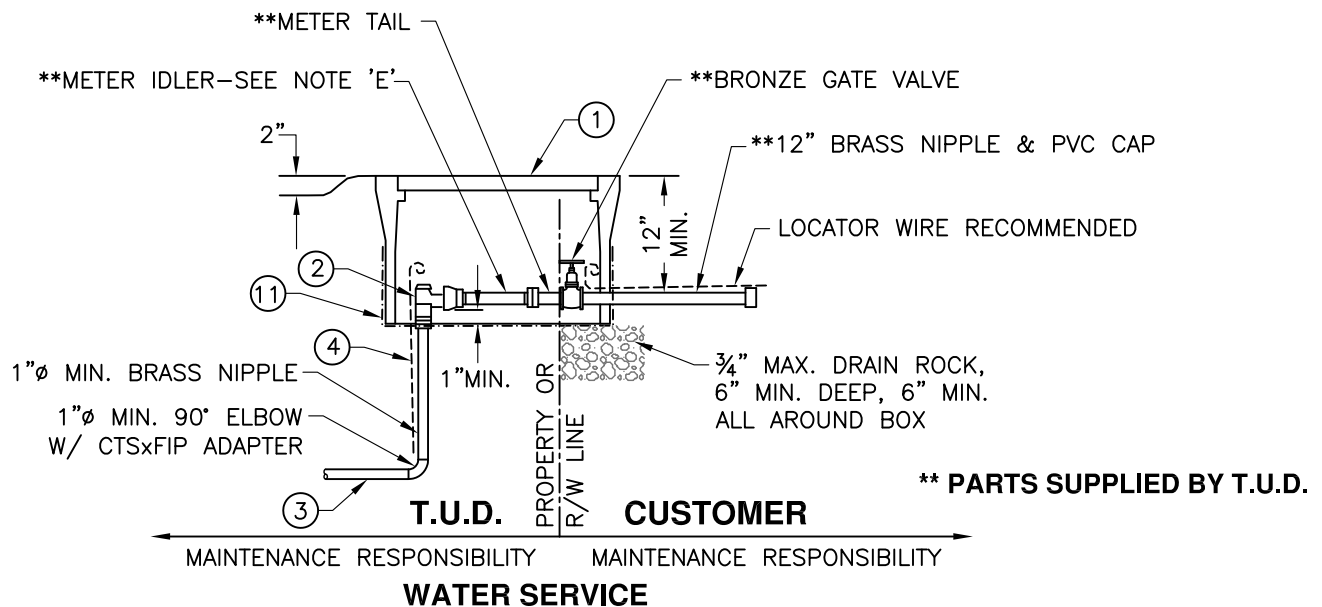
VALVE INSTALLED IN G5
BOX; BOX SUPPLIED
BY CONTRACTOR

NOTES

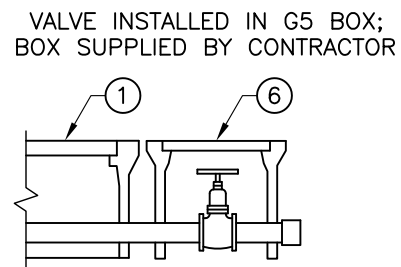
- A. SERVICES SHALL BE LOCATED OUT OF TRAVELED WAY (INCLUDING SHOULDERS) UNLESS APPROVED BY T.U.D.
- B. SERVICES LOCATED WITHIN THE TRAVELED WAY SHALL HAVE A 6" WIDE (MIN.) BY 15" DEEP CONCRETE COLLAR.
- C. ONE METER PER BOX ONLY.
- D. FOR DOUBLE, TRIPLE, OR QUADRUPLE SERVICE, USE BRASS PIPE FOR MANIFOLD BELOW ANGLE STOPS, SAME SIZE AS SERVICE PIPE.
- E. METERS WILL BE SET BY T.U.D. AFTER APPLICATION IS SIGNED AND FEES ARE PAID.
- F. USE POLYETHYLENE SERVICE TUBING CONTINUOUS FROM MAIN TO ANGLE STOP OR GATE VALVE, 1"Ø FOR SINGLE SERVICE, 1½"Ø FOR DOUBLE SERVICE, AND 2"Ø FOR TRIPLE & QUADRUPLE SERVICE.
- G. SERVICE SADDLES SHALL BE 3 FT. MIN. FROM PIPE FITTINGS, JOINTS AND TAPS.
- H. PER SECTION 64591 OF THE CALIFORNIA WATERWORKS STANDARDS, ALL ITEMS IN CONTACT WITH POTABLE WATER SHALL BE CERTIFIED AS MEETING THE SPECIFICATIONS OF NSF61-2005.
- I. CONTRACTOR SHALL BE RESPONSIBLE TO PRESSURE TEST ALL PIPE, VALVES & FITTINGS UP TO THE ANGLE STOP.

ITEM	DESCRIPTION	REMARKS
①	¾" OR 1" METER: ARMORCAST-ROTOCAST BOX P6000492X18-1 W/ARMORCAST LID #A6000489T-CVTY 1½" OR 2" METER: ARMORCAST-ROTOCAST BOX P6001534TX18-1 W/ARMORCAST LID #A6000947T-CVTY	
②	LOCKABLE ANGLE STOP FOR ¾" OR 1" METER: LOCKABLE ANGLE STOP FOR 1½" OR 2" METER:	FORD KV13-444W-NL FORD BFA13-666W-NL OR BFA13-777W-NL
③	POLYETHYLENE SERVICE TUBING,"CTS" 200 PSI MIN.	CENTENNIAL CENFLOW, OR APPROVED EQUAL, SEE NOTE 'F'
④	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
⑤	SERVICE SADDLE, MATCH TUBING SIZE, NOTE 'F'	FORD FS202, JCM404 OR APPROVED EQUAL
⑥	TRAFFIC VALVE BOX MARKED "WATER"	CHRISTY G5 BOX W/G5C LID OR APPROVED EQUAL
⑦	2" RESILIENT WEDGE GATE VALVE, EPOXY COATED	AMERICAN AVK45 OR APPROVED EQUAL (2" SERVICE)
⑧	2" MIP x CTS ADAPTER (BRASS)	MULTIPLE SERVICES ONLY
⑨	CORPORATION STOP, 1"Ø MIN. MATCH TUBING SIZE (MALExMALE)	1" SERVICE: FORD FB500-4-NL OR APPROVED EQUAL 1.5" SERVICE: FORD FB500-6-NL OR APPROVED EQUAL
⑩	FEMALExCTS PACK JOINT COUPLING	1" SERVICE: FORD C14-44 OR APPROVED EQUAL 1.5" SERVICE: FORD C14-66 OR APPROVED EQUAL
⑪	¼" HARDWARE CLOTH (GALV.)	MUST COVER ALL ACCESS HOLES
⑫	PRV W/DOUBLE UNION, SIZE TO MATCH METER, 1" MIN.	1" PRV: WATTS #LFX65BDU OR EQUAL 1.5" OR 2" PRV: WATTS #LFX65BDU OR EQUAL

USE THIS DETAIL FOR T.U.D. PROJECTS WITH EXISTING RESIDENCES



WATER SERVICE BOX SEPARATION

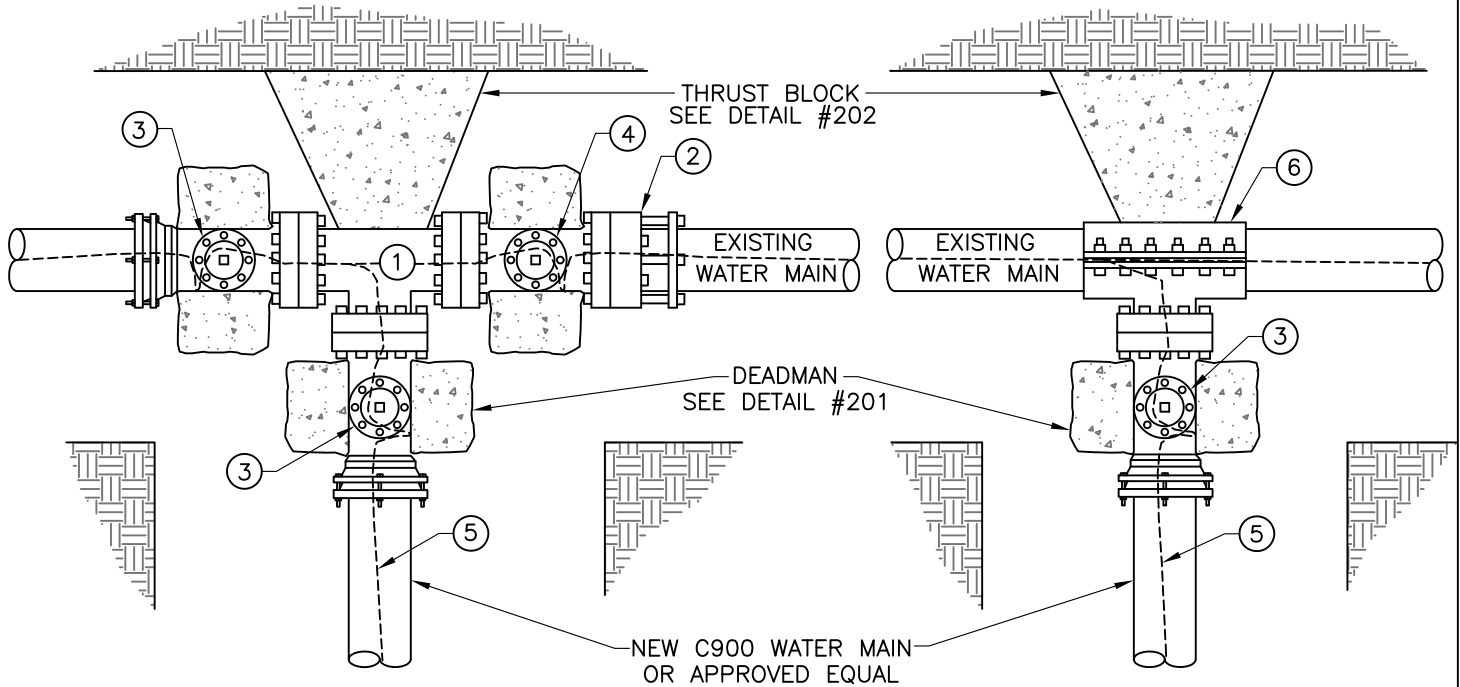


2" SERVICE

NOTES

- A. SERVICES SHALL BE LOCATED OUT OF TRAVELED WAY (INCLUDING SHOULDERS) UNLESS APPROVED BY T.U.D.
- B. SERVICES LOCATED WITHIN THE TRAVELED WAY SHALL HAVE A 6" WIDE BY 6" DEEP CONCRETE COLLAR.
- C. ONE METER PER BOX ONLY.
- D. FOR DOUBLE, TRIPLE, OR QUADRUPLE SERVICE, USE BRASS PIPE FOR MANIFOLD BELOW ANGLE STOPS, SAME SIZE AS SERVICE PIPE.
- E. METERS WILL BE SET BY T.U.D. AFTER APPLICATION IS SIGNED AND FEES ARE PAID.
- F. USE POLYETHYLENE SERVICE TUBING CONTINUOUS FROM MAIN TO ANGLE STOP OR GATE VALVE, 1"Ø FOR SINGLE SERVICE, 1½"Ø FOR DOUBLE SERVICE, AND 2"Ø FOR TRIPLE & QUADRUPLE SERVICE.
- G. SERVICE SADDLES SHALL BE 3 FT. MIN. FROM PIPE FITTINGS, JOINTS AND TAPS.
- H. PER SECTION 64591 OF THE CALIFORNIA WATERWORKS STANDARDS, ALL ITEMS IN CONTACT WITH POTABLE WATER SHALL BE CERTIFIED AS MEETING THE SPECIFICATIONS OF NSF61-2005.
- I. CONTRACTOR SHALL BE RESPONSIBLE TO PRESSURE TEST ALL PIPE, VALVES & FITTINGS UP TO THE ANGLE STOP.

ITEM	DESCRIPTION	REMARKS
①	¾" OR 1" METER: ARMORCAST-ROTOCAST BOX P6000492X18-1 W/ARMORCAST LID #A6000489T-CVTY 1½" OR 2" METER: ARMORCAST-ROTOCAST BOX P6001534TX18-1 W/ARMORCAST LID #A6000947T-CVTY	
②	LOCKABLE ANGLE STOP FOR ¾" OR 1" METERS: LOCKABLE ANGLE STOP FOR 1½" OR 2" METERS:	FORD KV13-444W-NL FORD BFA13-666W-NL OR BFA13-777W-NL
③	POLYETHYLENE SERVICE TUBING,"CTS" 200 PSI MIN.	CENTENNIAL CENFLOW, OR APPROVED EQUAL, SEE NOTE 'F'
④	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
⑤	SERVICE SADDLE, MATCH TUBING SIZE, NOTE 'F'	FORD FS202, JCM404 OR APPROVED EQUAL
⑥	TRAFFIC VALVE BOX MARKED "WATER"	CHRISTY G5 BOX W/G5C LID OR APPROVED EQUAL
⑦	2" RESILIENT WEDGE GATE VALVE, EPOXY COATED	AMERICAN AVK45 OR APPROVED EQUAL (2" SERVICE)
⑧	2" MIP x CTS ADAPTER (BRASS)	MULTIPLE SERVICES ONLY
⑨	CORPORATION STOP, 1"Ø MIN. MATCH TUBING SIZE (MALExMALE)	1" SERVICE: FORD FB500-4-NL OR APPROVED EQUAL 1.5" SERVICE: FORD FB500-6-NL OR APPROVED EQUAL
⑩	FEMALExCTS PACK JOINT COUPLING	1" SERVICE: FORD C14-44 OR APPROVED EQUAL 1.5" SERVICE: FORD C14-66 OR APPROVED EQUAL
⑪	¼" HARDWARE CLOTH (GALV.)	MUST COVER ALL ACCESS HOLES



CUT-IN-TEE

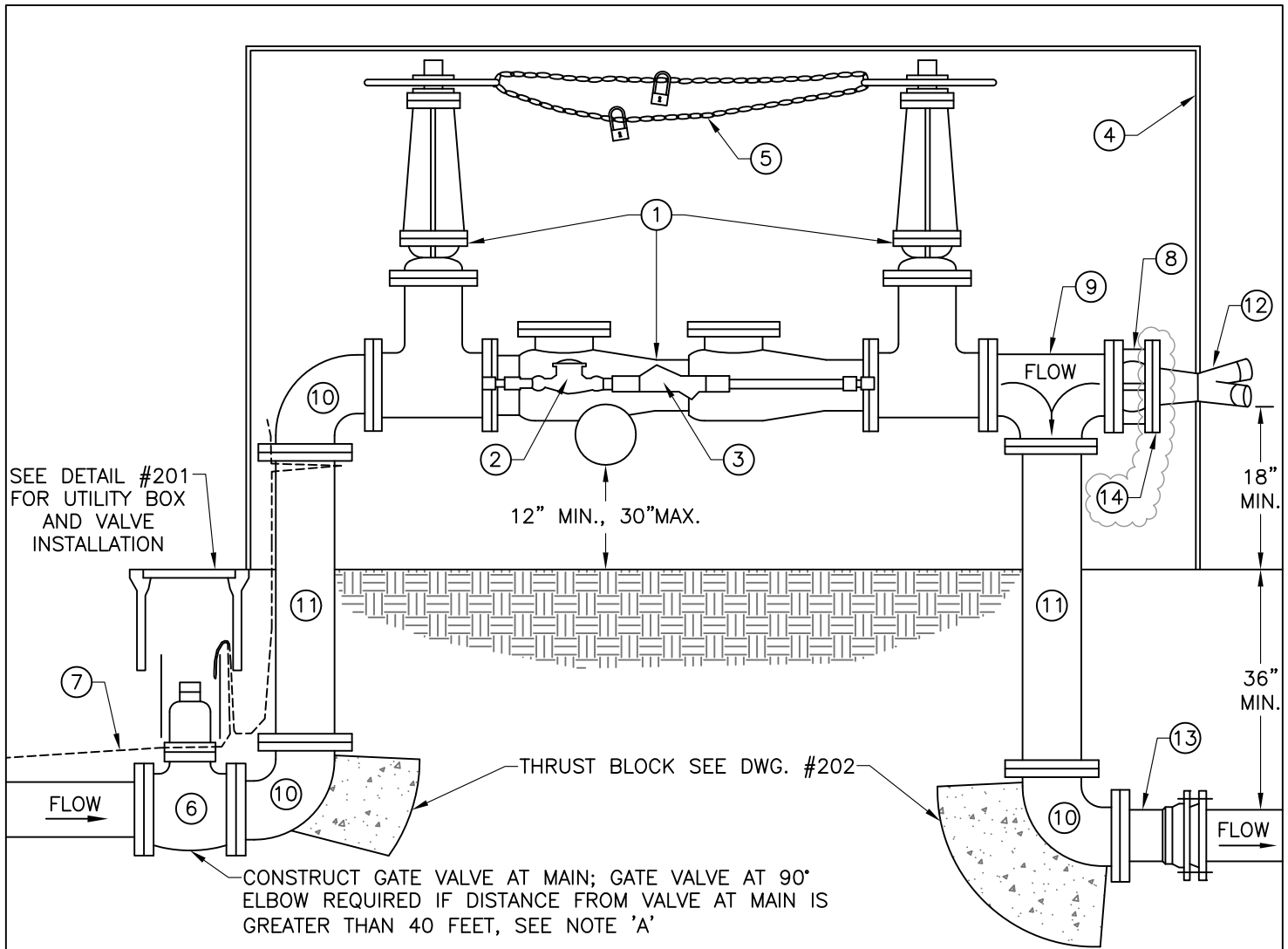
T.U.D. APPROVAL REQUIRED.
MAIN LINE SHUTDOWN REQUIRED.

HOT-TAP

NOTES

- A. UNLESS OTHERWISE APPROVED, ALL CONNECTIONS TO EXISTING T.U.D. MAINS SHALL BE BY "HOT-TAP" WITH APPROVED TAPPING SLEEVE.
- B. WATER AND FIRE PROTECTION SERVICE SHALL NOT BE DISRUPTED WITHOUT PRIOR APPROVAL BY T.U.D.
- C. NOTIFICATION TO CUSTOMERS OF WATER OUTAGE SHALL FIRST BE MADE BY T.U.D.; 48 HOURS NOTICE IS REQUIRED PRIOR TO WORK BEING PERFORMED BY THE CONTRACTOR.
- D. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DRAIN AND DISPOSE OF WATER FROM THE EXISTING MAIN UNDER THE SUPERVISION OF T.U.D.
- E. T.U.D. IS RESPONSIBLE FOR FLUSHING AND PURGING THE EXISTING MAIN AFTER THE CONNECTION HAS BEEN MADE.
- F. VALVES ARE TO REMAIN CLOSED FOR A MINIMUM OF 5 DAYS TO ALLOW THE CONCRETE THRUST BLOCK TO CURE.
- G. ALL FITTINGS INSTALLED ON EXISTING WATER MAIN SHALL BE 3 FT. MIN. FROM JOINTS, FITTINGS OR TAPS.
- H. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.

ITEM	QTY	DESCRIPTION	REMARKS
①	1	FLANGED TEE	
②	1	FLANGED COUPLING ADAPTER	FORD STYLE FFCA OR APPROVED EQUAL
③	3	RESILIENT WEDGE VALVE	FLANGE x MJ UNLESS OTHERWISE APPROVED, SEE DWG. #201
④	1	RESILIENT WEDGE VALVE	FLANGE x FLANGE
⑤		#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG.#102
⑥	1	STAINLESS STEEL TAPPING SLEEVE	ROMAC "SST", JCM432, FORD "FAST" OR APPROVED EQUAL



NOTES

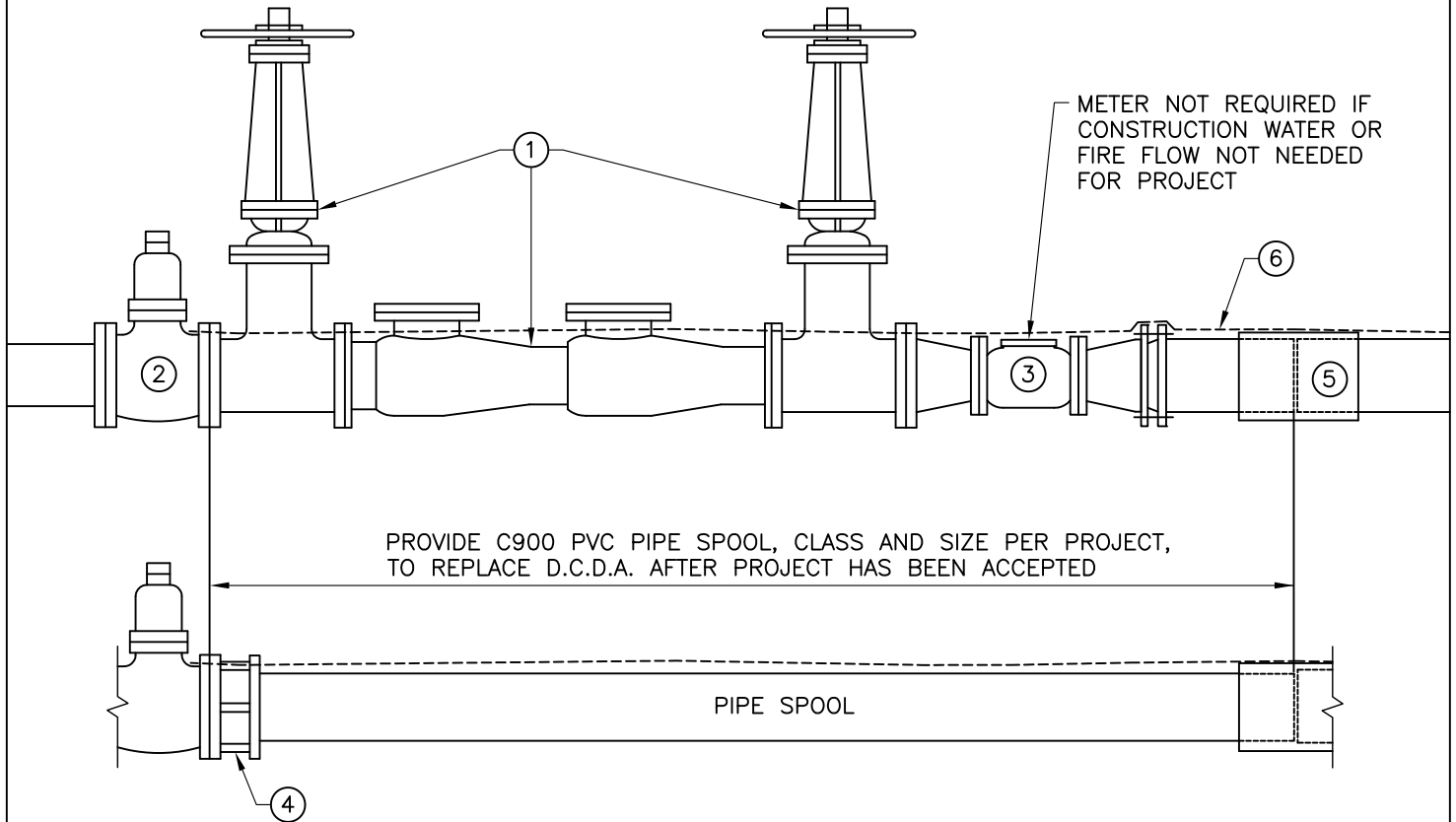
- A. ALL MAINTENANCE, LIABILITY AND TESTING OF THE DOUBLE CHECK DETECTOR ASSEMBLY (D.C.D.A.) SHALL BE SOLELY BY CUSTOMER, PER T.U.D. REGULATIONS, STARTING AT THE VALVE CLOSEST TO THE D.C.D.A.
- B. EXPOSED MAIN AND BYPASS PIPE ABOVE GROUND SHALL BE WRAPPED WITH INSULATION WHEREVER IT DOES NOT INTERFERE WITH OPERATION OF THE D.C.D.A.
- C. D.C.D.A. SHALL BE ON THE CURRENT STATE APPROVED LIST.
- D. CHECK WITH THE APPROPRIATE FIRE DEPARTMENT FOR SPECIFIC ADDITIONAL REQUIREMENTS.
- E. WHERE ANY SUBSTANCES WILL BE INJECTED INTO THE FIRE SPRINKLER SYSTEM (OR UNDER CERTAIN CONDITIONS), A REDUCED PRESSURE DETECTOR ASSEMBLY SHALL BE INSTALLED AND MUST BE ON THE STATE-APPROVED LIST.
- F. FIRE DEPARTMENT CONNECTION SHALL BE LOCATED SO THAT HOSE LINES CAN BE READILY ATTACHED WITHOUT INTERFERENCE FROM NEARBY OBJECTS INCLUDING BUILDINGS, FENCES OR OTHER FIRE DEPT. CONNECTIONS.
- G. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.

ITEM	QTY	DESCRIPTION
①	1	DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) WITH OS & Y VALVES OUTSIDE STEM AND YOLK. SEE NOTE 'C'.
②	1	BYPASS METER MUST READ IN CUBIC FT.
③	1	DOUBLE CHECK BACKFLOW PREVENTER
④	1	WEATHERGUARD BLANKET (OR EQUAL) OR APPROVED ENCLOSURE
⑤	1	¼" GALV. STEEL CHAIN W/2 KEYED PADLOCKS: ONE FOR T.U.D AND ONE FOR FIRE DEPT./CDF
⑥	1	RESILIENT WEDGE GATE VALVE, SEE DWG. NO. 201
⑦	1	#12 AWG INSULATED LOCATOR WIRE, SINGLE STRAND COPPER, SEE DWG. #102
⑧	1	WAFER CHECK VALVE, VAL-MATIC SERIES 1400, FLOMATIC #888, OR APPROVED EQUAL
⑨	1	DUCTILE IRON FLANGED TEE
⑩	3	DUCTILE IRON 90° FLANGED ELBOW
⑪	2	DUCTILE IRON FLANGED RISER
⑫	1	FIRE DEPARTMENT CONNECTION (THREADED)
⑬	2	FLANGExMJ FITTING
⑭	1	THREADED COMPANION FLANGE

**TUOLUMNE UTILITIES DISTRICT
DOUBLE CHECK DETECTOR ASSEMBLY**

REV. 01-19-18
STD. DWG. NO.
210

INSTALLATION OF TEMPORARY DOUBLE CHECK DETECTOR ASSEMBLY REQUIRED PRIOR TO CONSTRUCTION OF NEW WATER FACILITIES



NOTES

- A. DETECTOR CHECK DETECTOR ASSEMBLY (D.C.D.A.) SHALL BE ON THE CURRENT STATE-APPROVED LIST. SEE T.U.D. FOR LIST.
- B. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.
- C. CONTRACTOR IS RESPONSIBLE FOR SUPPORTING AND PROTECTING D.C.D.A. AND METER UNTIL PROJECT HAS BEEN COMPLETED AND ACCEPTED BY T.U.D.

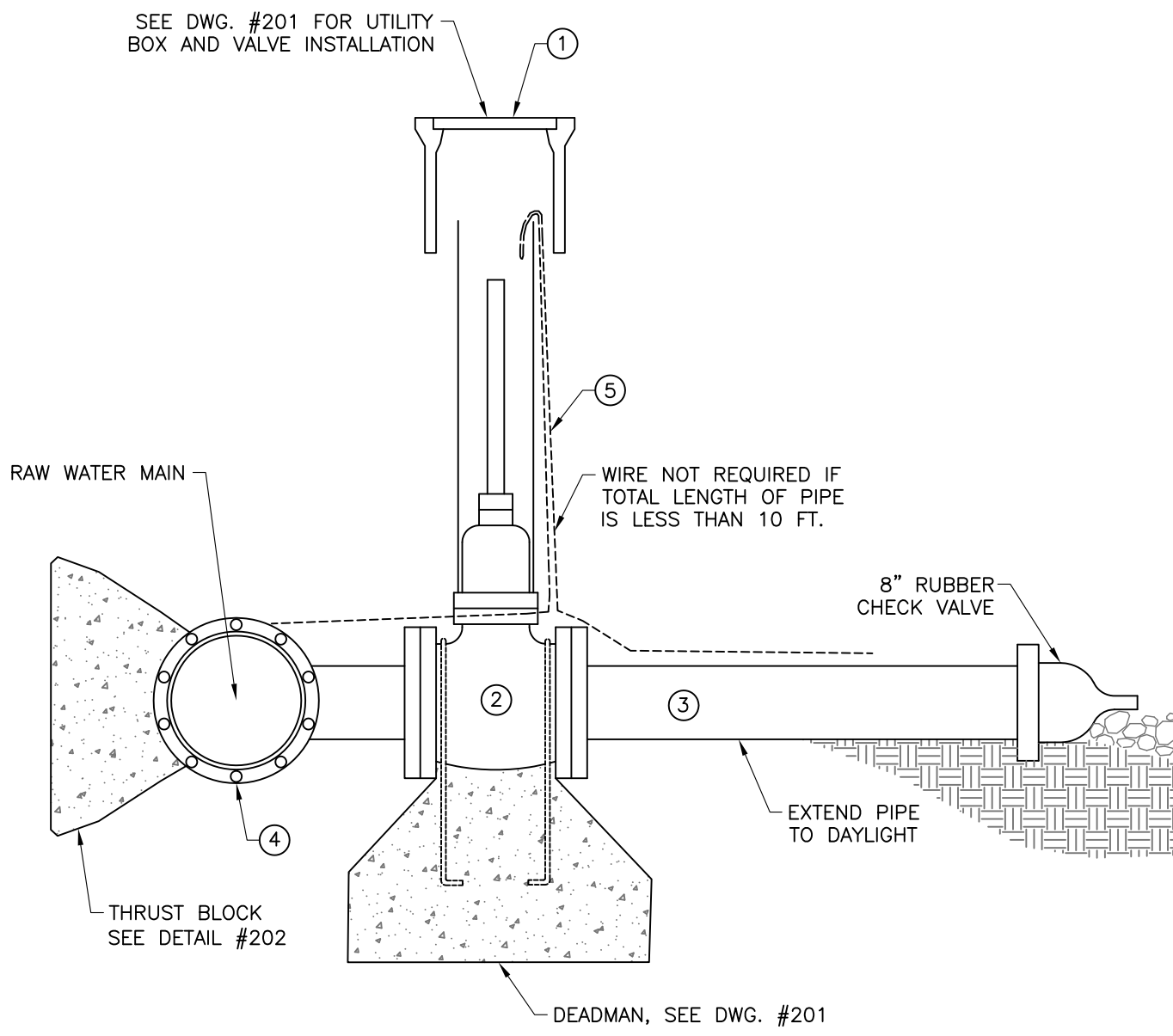
ITEM	QTY	DESCRIPTION
①	1	APPROVED DOUBLE CHECK DETECTOR ASSEMBLY
②	1	RESILIENT WEDGE GATE VALVE, SEE DWG. #201
③	1	4" TURBINE METER WITH 6"x4" FLxFL REDUCER & 4"x8" FLxMJ REDUCER
④	1	FLANGExCOUPLING ADAPTER
⑤	1	C900 COUPLING
⑥		#12 AWG INSULATED LOCATOR WIRE, SINGLE STRAND COPPER, SEE DWG. #102

**TUOLUMNE UTILITIES DISTRICT
DOUBLE CHECK DETECTOR ASSEMBLY
FOR PROJECT UNDER CONSTRUCTION**

REV. 01-22-18

STD. DWG. NO.

211



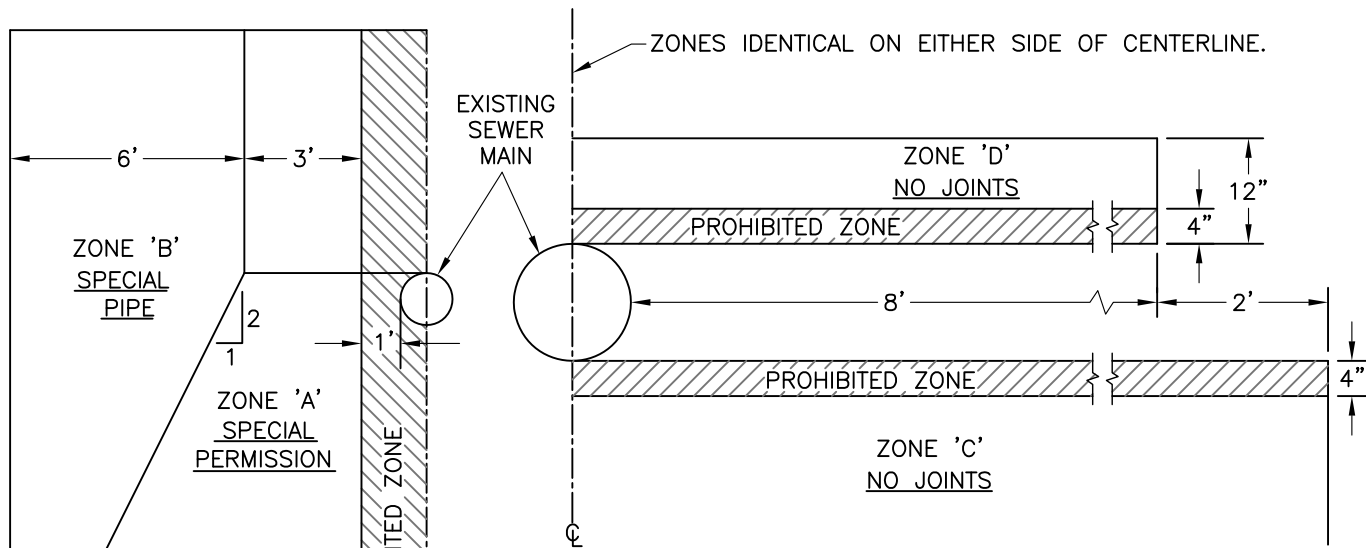
NOTES

- A. EXTEND OUTLET PIPE INTO DRAINAGE AREA TO AVOID EROSION PROBLEMS AT OUTLET. SUPPORT SHALL BE HANDLED ON A CASE BY CASE BASIS. INSTALL 6" MIN. STONE RIPRAP TO DISSIPATE ENERGY.
- B. ROTATE BLOWOFF DOWNHILL MAKING SURE VALVE IS EASILY ACCESSIBLE.
- C. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.

ITEM	QTY	DESCRIPTION	REMARKS
①	1	TRAFFIC VALVE BOX W/LID MARKED "WATER"	CHRISTY G5 W/ G5C LID
②	1	RESILIENT WEDGE GATE VALVE, 2" SQUARE NUT	SEE DETAIL #201
③	1	C900 PVC DR18	PIPE SIZE SHALL BE 1/2Ø OF MAIN LINE OR 4"Ø MIN.
④	1	FLANGED TEE TO MATCH MAIN LINE AND OUTLET SIZE	CAST IRON, CLASS 150, OR AS APPROVED BY T.U.D.
⑤		#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102

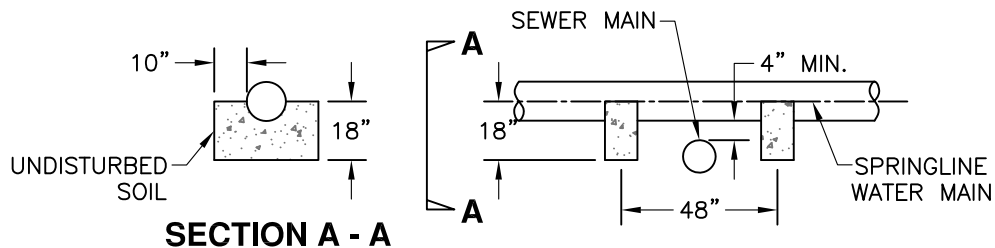
**TUOLUMNE UTILITIES DISTRICT
RAW WATER MAIN LOW-POINT BLOWOFF**

REV. 10-06-17
STD. DWG. NO.
212



WATER MAIN PARALLEL TO EXISTING SEWER MAIN

WATER MAIN CROSSING EXISTING SEWER MAIN



CONCRETE PIPE SUPPORT

REQUIRED IF 12" OR LESS SEPARATION

SPECIAL CONSTRUCTION REQUIRED FOR WATER MAIN

- ZONE A: WATER MAIN PARALLEL TO SEWER FORCE-MAIN SHALL NOT BE PERMITTED IN THIS ZONE WITHOUT APPROVAL FROM THE CALIFORNIA STATE DEPARTMENT OF HEALTH SERVICES AND T.U.D.
- ZONE B: WATER MAIN PARALLEL TO SEWER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH INTERIOR CEMENT COATING OR C900, CLASS 200 PVC PIPE (DR14).
- ZONE C: WATER MAIN CROSSING UNDER SEWER MAIN SHALL HAVE NO JOINTS WITHIN 10 FEET AND SHALL BE CONSTRUCTED WITH ONE OF THE TWO MATERIALS LISTED UNDER ZONE B.
- ZONE D: WATER MAIN CROSSING OVER SEWER MAIN SHALL HAVE NO JOINTS WITHIN 8 FEET OF SEWER MAIN AND SHALL BE CONSTRUCTED OF ZONE 'B' MATERIALS.

NOTES

- A. WATER MAIN PARALLEL TO SEWER FORCE-MAIN SHALL HAVE A HORIZONTAL SEPARATION OF 10 FT. MIN.
- B. WATER MAIN CROSSING OVER SEWER FORCE-MAIN SHALL BE AS CLOSE TO PERPENDICULAR AS PRACTICAL AND AT LEAST ONE FOOT ABOVE FORCE-MAIN. WATER MAIN SHALL HAVE NO JOINTS WITHIN 10 FEET EITHER SIDE OF FORCE-MAIN AND BE CONSTRUCTED OF ZONE 'B' MATERIAL.
- C. WATER MAIN PARALLEL TO STORM DRAIN SHALL HAVE A HORIZONTAL SEPARATION OF 4 FEET AND A VERTICAL SEPARATION OF ONE FOOT. VERTICAL SEPARATION IS REQUIRED ONLY WHEN HORIZONTAL SEPARATION IS 10 FEET OR LESS.
- D. ALL DRY UTILITIES SHALL MAINTAIN 5 FEET HORIZONTAL SEPARATION WHEN PARALLEL, 1 FOOT VERTICAL SEPARATION WHEN CROSSING, AND SHALL BE LOCATED UNDER EXISTING WATER AND SEWER. DRY UTILITIES MAY ONLY BE LOCATED OVER EXISTING WATER AND SEWER WITH PRIOR DISTRICT APPROVAL AND SHALL MAINTAIN 6 INCHES OF VERTICAL SEPARATION. A PROTECTIVE CONCRETE OR 3 SACK SLURRY CAP (6" MIN. THICK) SHALL BE PLACED OVER ALL CONDUITS.

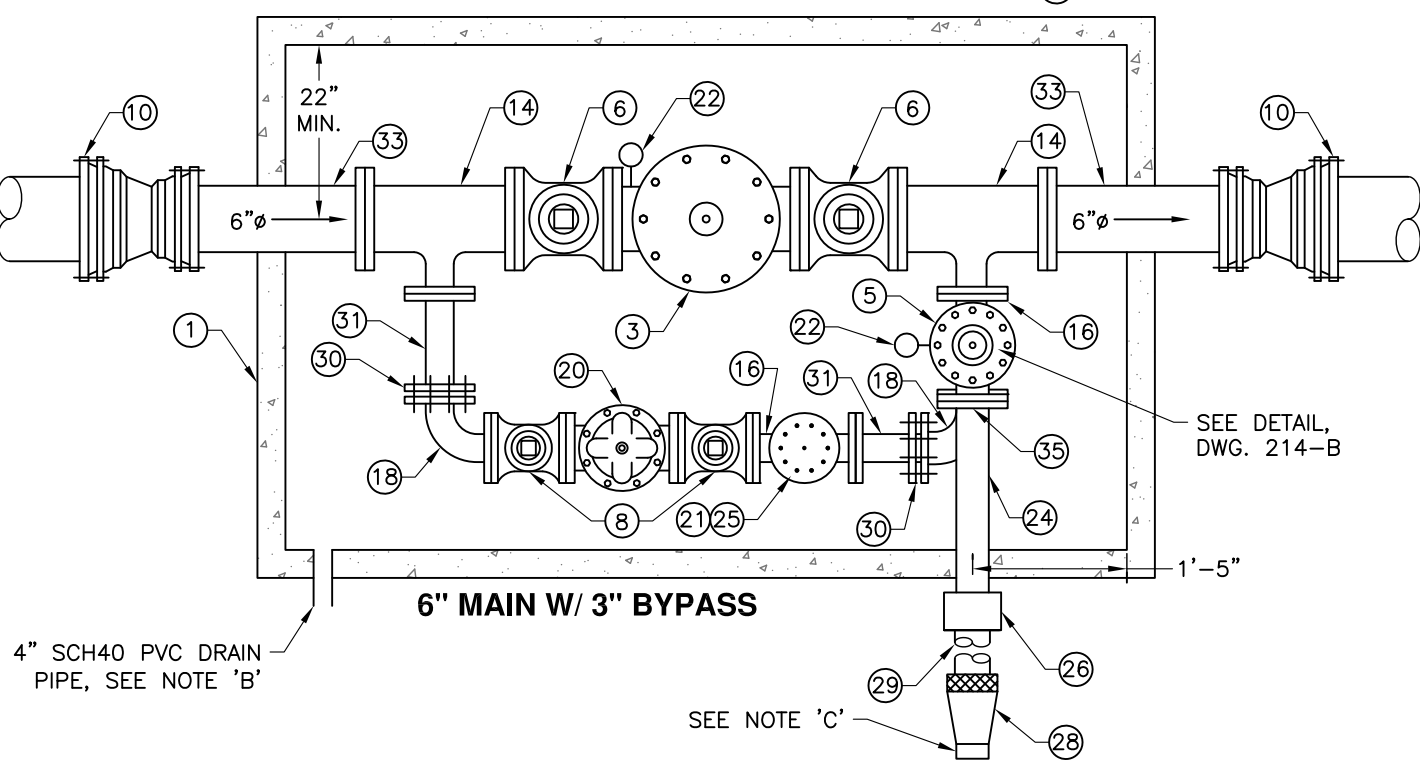
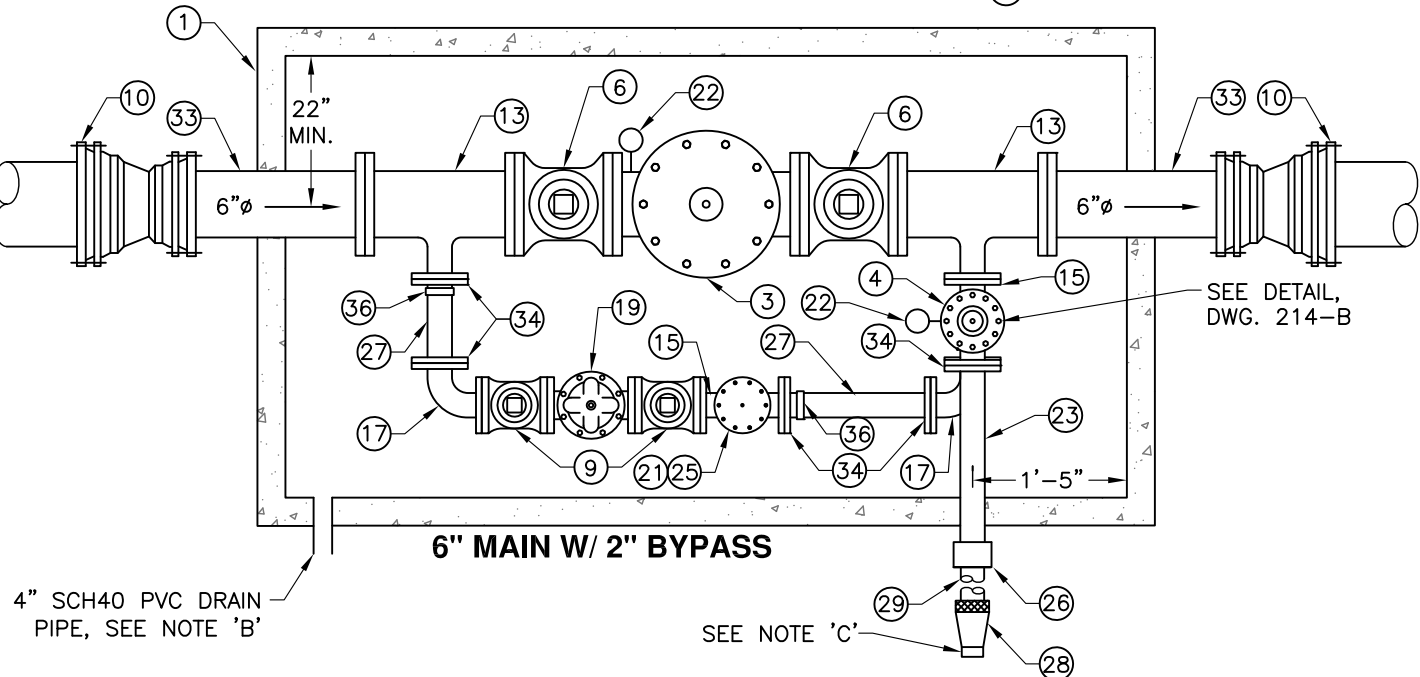
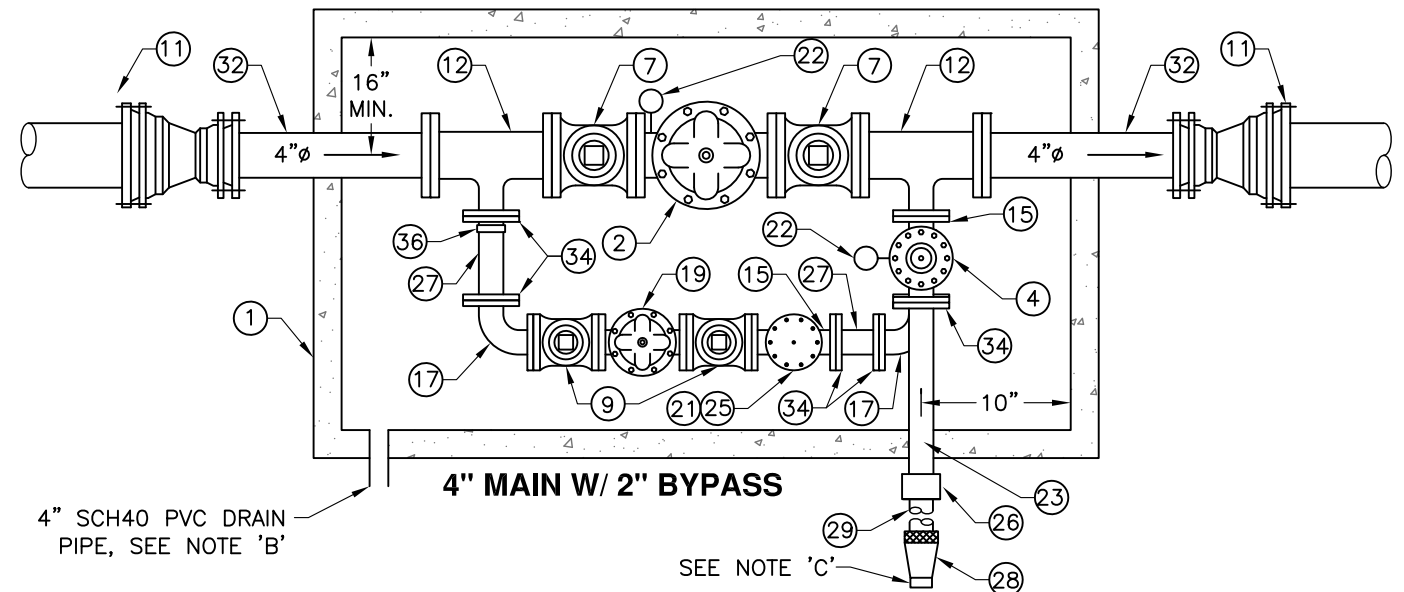
① VAULT: "COOK CONCRETE PRODUCTS" OR EQUAL: 2500 PSI MIN.

IN TRAFFIC AREAS

OUT OF TRAFFIC AREAS

- | | | |
|--------------------------------------|----------------------------|---|
| 4" MAIN W/2" BYPASS: 4'x7'x4'DEEP*** | CHRISTY R37-52HT OR EQUAL* | USF MODEL AHD 48"x42" CLR. OPNG. OR EQ.** |
| 6" MAIN W/2" BYPASS: 5'x8'x4'DEEP*** | PER DISTRICT ENGINEER | USF MODEL AHD 48"x60" CLR. OPNG. OR EQ.** |
| 6" MAIN W/3" BYPASS: 5'x8'x4'DEEP*** | PER DISTRICT ENGINEER | USF MODEL AHD 48"x60" CLR. OPNG. OR EQ.** |
- * SET HATCH ON VAULT AND DRY PACK TO ALLOW FOR FUTURE GRADE ADJUSTMENT.
 ** HATCH TO BE CAST INTO TOP CONCRETE SLAB BY VAULT MANUFACTURER.
 *** CLEAR INSIDE DIMENSIONS

CONSTRUCT VAULT ON 6" OF 3/4" A.B. (COMPACTED). IF REQUIRED BY TUD, BOLLARDS SHALL BE INSTALLED PER DETAIL, SEE DWG. 214-B.

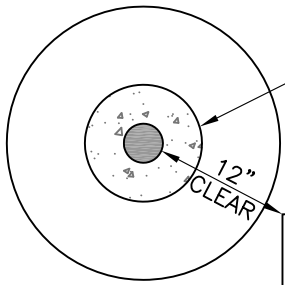


QTY	ITEM	NOTES
②	1 4" P.R.V. W/STAINLESS STEEL TRIM (FL)	CLA-VAL 90-01AB OR EQ., SELECT SPRING BASED ON PRESSURE
③	1 6" P.R.V. W/STAINLESS STEEL TRIM (FL)	CLA-VAL 90-01AB OR EQ., SELECT SPRING BASED ON PRESSURE
④	1 2" PRESSURE RELIEF VALVE W/ STAINLESS STEEL TRIM, ANGLE STYLE (FL)	CLA-VAL 50-01 OR EQ., SELECT SPRING BASED ON PRESSURE, CAN ROTATE 90° AS NEEDED, SEE DWG. #214-B
⑤	1 3" PRESSURE RELIEF VALVE W/ STAINLESS STEEL TRIM, ANGLE STYLE (FL)	CLA-VAL 50-01 OR EQ., SELECT SPRING BASED ON PRESSURE, CAN ROTATE 90° AS NEEDED, SEE DWG. #214-B
⑥	2 6" GATE VALVE, (FL)	
⑦	2 4" GATE VALVE, (FL)	
⑧	3 3" GATE VALVE, (FL)	SEE DWG. #214-B
⑨	3 2" GATE VALVE, (FL)	SEE DWG. #214-B
⑩	2 -"x6" MJxMJ REDUCER	
⑪	2 -"x4" MJxMJ REDUCER	
⑫	2 4"x4"x2" TEE, DUCTILE IRON, (FL)	
⑬	2 6"x6"x2" TEE, DUCTILE IRON, (FL)	
⑭	2 6"x6"x3" TEE, DUCTILE IRON, (FL)	
⑮	2 2"x2"x2" TEE, DUCTILE IRON, (FL)	SEE DWG. #214-B
⑯	2 3"x3"x3" TEE, DUCTILE IRON, (FL)	SEE DWG. #214-B
⑰	2 2" 90° ELBOW, (FL)	
⑱	2 3" 90° ELBOW, (FL)	
⑲	1 2" P.R.V. W/SS TRIM & KO KIT (FL)	CLA-VAL 90-01AS OR EQ.
⑳	1 3" P.R.V. W/SS TRIM & KO KIT (FL)	CLA-VAL 90-01AS OR EQ.
㉑	1 COMBINATION AIR VALVE, (AS NEEDED), SEE DWG. #203	1" APCO 143C FOR 6" & 8" MAINS, 2" APCO 145C FOR 10" & 12" MAINS, OR EQ.
㉒	2 PRESSURE GAUGE, OIL FILLED (1/4" MPT)	SEE DWG. #214-B
㉓	1 2"x30" BRASS NIPPLE	
㉔	1 3"x36" BRASS NIPPLE	
㉕	1 -" BLIND FLANGE	TAP AS NEEDED FOR PRESSURE GAUGE, CAVV, SAMPLE POINTS
㉖	1 -" PVC ADAPTER	
㉗	2 2" BRASS NIPPLE, THREADED x -	FIELD FIT
㉘	1 -" RUBBER CHECK VALVE (SLIP)	PROCO MDL 730 OR EQ.
㉙	1 -" PVC SCH40	FIELD FIT LENGTH
㉚	2 3" UNIFLANGE ADAPTER	
㉛	2 3"x-" DUCTILE IRON SPOOL (FLxPE)	FIELD FIT LENGTH
㉜	2 4"x30"LONG MIN. DUCTILE IRON SPOOL (FLxPE)	FIELD FIT LENGTH
㉝	2 6"x30"LONG MIN. DUCTILE IRON SPOOL (FLxPE)	FIELD FIT LENGTH
㉞	5 2" THREADED COMPANION FLANGE	
㉟	1 3" THREADED COMPANION FLANGE	
㊱	1-2 2" MIPxPACK JOINT	FORD C85-77 OR EQ.

- A. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.
- B. DRAIN TO DAYLIGHT; FIELD LOCATE PENETRATION; LENGTH AND ORIENTATION OF DRAIN PIPE TO BE DETERMINED IN FIELD; ATTACH RODENT SCREEN TO END OF PIPE.
- C. RELIEF PIPELINE, DRAIN TO DAYLIGHT, PLACE MIN. 3'x6' RIPRAP APRON AT DISCHARGE POINT.

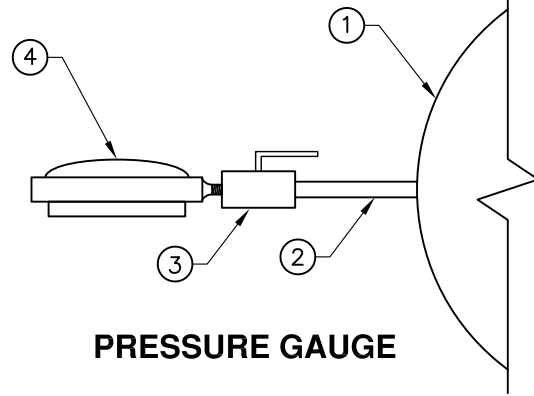
TUOLUMNE UTILITIES DISTRICT
PRESSURE REDUCING STATION FOR 6" & 4" MAIN
W/2" OR 3" BYPASS

REV. 01-22-18
 STD. DWG. NO.
214-A

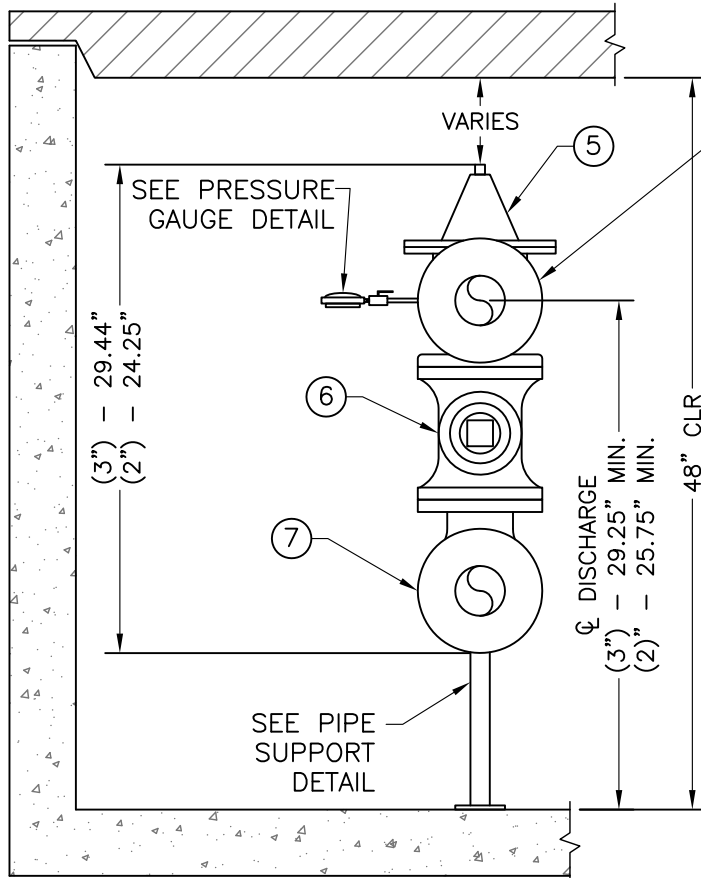


BOLLARD:
 4"Øx66" G.I.P. MIN. FILLED
 WITH CONCRETE, SET IN
 12"Øx30" CONCRETE

Vault

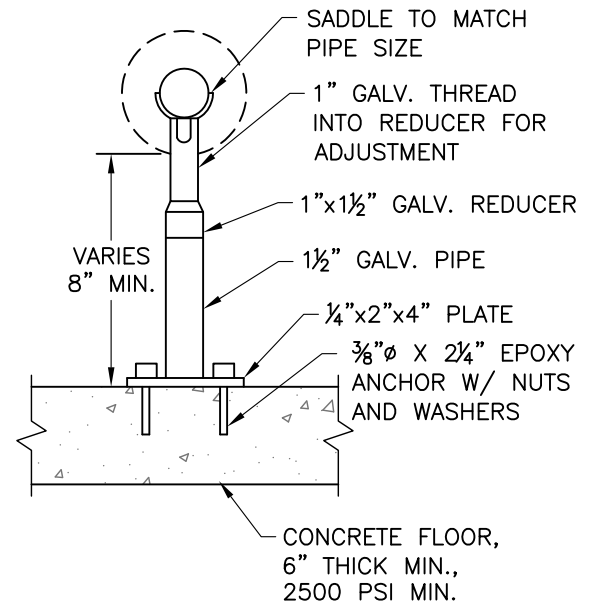


PRESSURE GAUGE



PRESSURE RELIEF DETAIL

NOTE: FIELD FIT PILOT SYSTEM TO
 PROVIDE CLEARANCE FROM VAULT LID.
 VALVE DISCHARGE CAN ROTATE 90° IF
 FIELD CONDITIONS REQUIRE.



PIPE SUPPORT

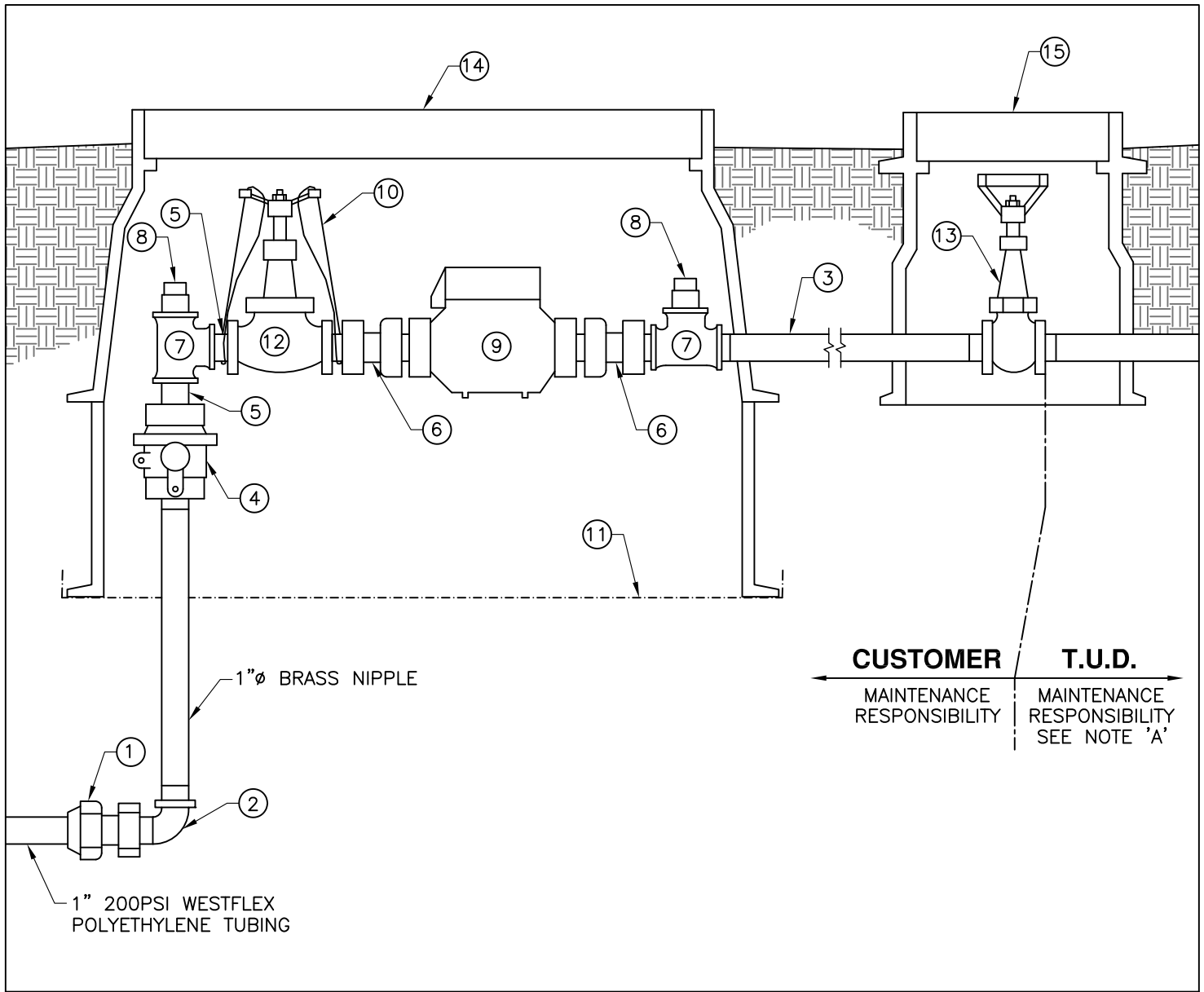
* QUANTITIES LISTED ON STD. DWG 214-A

A. RELIEF PIPELINE, DRAIN TO DAYLIGHT, PLACE MIN. 3'x6' RIPRAP APRON AT DISCHARGE POINT.
 B. EPOXY SET PIPE SUPPORT ANCHORS.

①	*	FACTORY TAP ON VALVE BODY
②	*	1/4" BRASS NIPPLE
③	*	1/4" BALL VALVE
④	*	PRESSURE GAUGE (OIL FILLED)
⑤	*	_ " PRESSURE RELIEF VALVE, CLA-VAL 50A-01BKC
⑥	*	_ " GATE VALVE, (FL)
⑦	*	_ "x_ "x_ " TEE

**TUOLUMNE UTILITIES DISTRICT
 PRESSURE REDUCING STATION DETAILS**

REV. 01-22-18
 STD. DWG. NO.
214-B



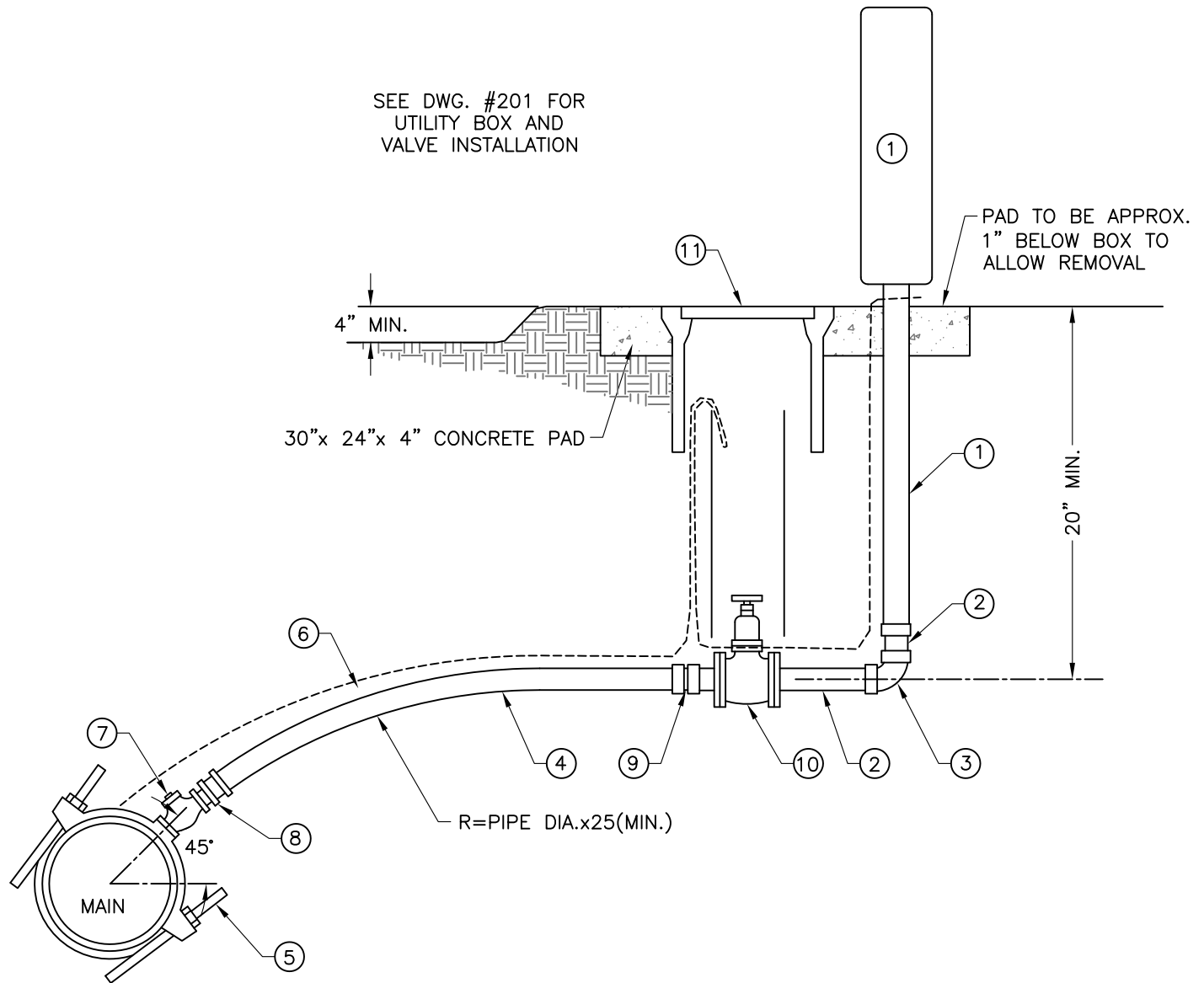
CUSTOMER **T.U.D.**
 ← MAINTENANCE RESPONSIBILITY MAINTENANCE RESPONSIBILITY SEE NOTE 'A' →

NOTES

A. CUSTOMER TO PROVIDE PRVs AND Y-STRAINER IF NECESSARY.

ITEM	QTY	DESCRIPTION	REMARKS
①	1	1" CTS TO 1" MALE IPS (PACK JOINT)	FORD #C84-44 OR APPROVED EQUAL
②	1	1" BRASS STREET 90° ELBOW	
③	2	1" STEEL NIPPLE, 18" LONG	GALV. SCH40
④	1	1" CURB-STOP (BALL VALVE) W/PADLOCK WING	FORD #B11-444 OR APPROVED EQUAL
⑤	2	1" STEEL CLOSE NIPPLE	GALV. SCH40
⑥	2	METER COUPLING 1" MALE IPS TO 5/8"x3/4" METER THD.	FORD #38-24-2.5
⑦	2	1" TEE	GALV. 150# MI
⑧	2	1" PIPE PLUG W/SQ. HEAD	GALV.
⑨	1	METERED ACCOUNTS: 5/8"x3/4" METER UNMETERED ACCOUNTS: 7/2" METER IDLER	FORD NO. 2
⑩	2	PG&E WIRE SECURITY TIES	TO PREVENT TAMPERING
⑪	1	1 1/4" HARDWARE CLOTH (GALV.)	MUST COVER ACCESS HOLES
⑫	1	1" GLOBE VALVE CL150 BRONZE, TEFLON SEAT SCREWED	STOCKHAM B-22T
⑬	1	GATE VALVE, CLASS 150 BRONZE, SCREWED	STOCKHAM B-120
⑭	1	"FIBRELYTE" BOX	CHRISTY FL30 W/FL30D LID OR APPROVED EQUAL
⑮	1	"FIBRELYTE" BOX	CHRISTY FL8 W/FL8D LID OR APPROVED EQUAL

SEE DWG. #201 FOR
UTILITY BOX AND
VALVE INSTALLATION



NOTES

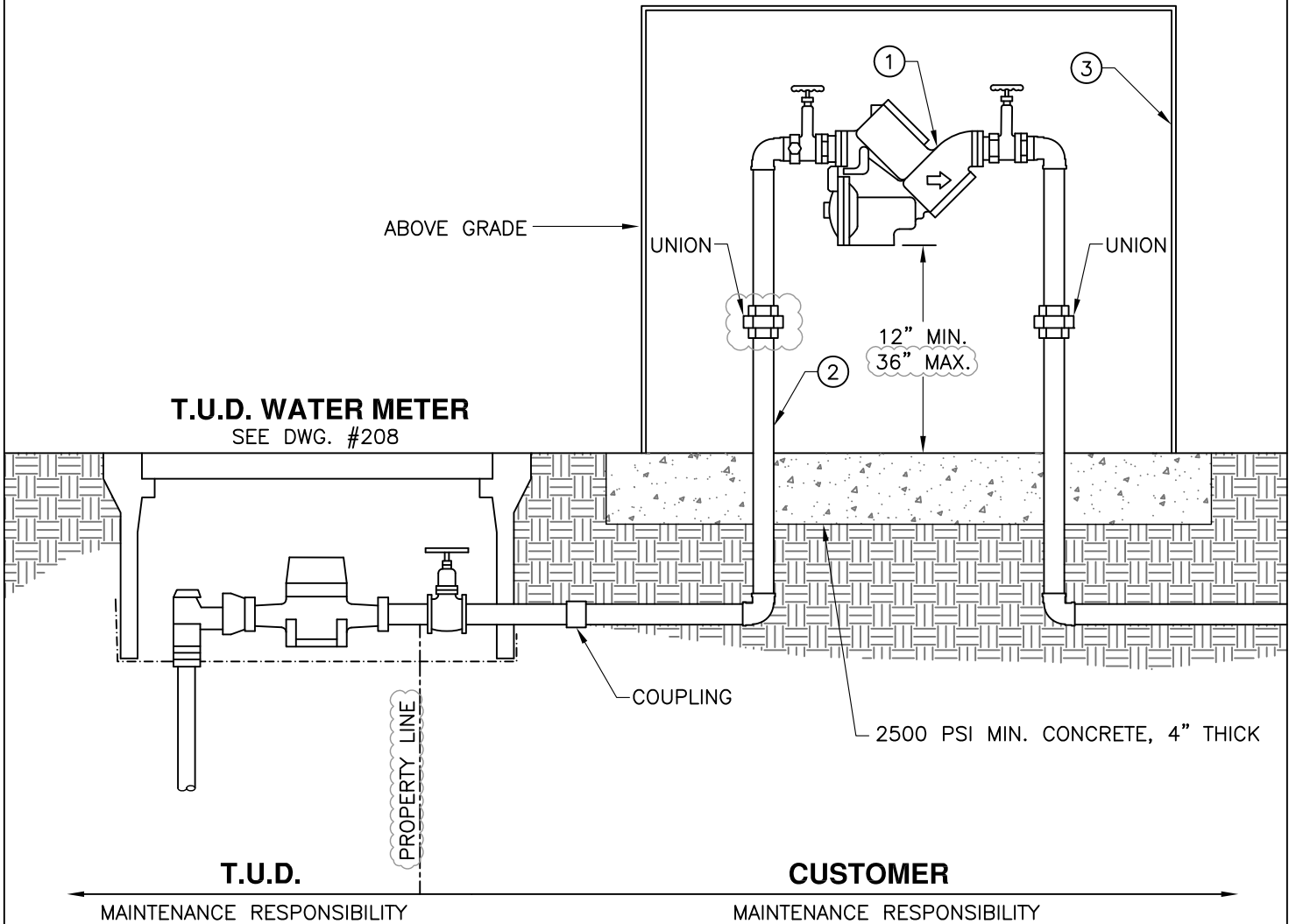
- A. SAMPLE STATION SHALL BE LOCATED NEAR THE PROPERTY LINE OR EASEMENT IN AN EASILY ACCESSIBLE AREA THAT IS NOT SUBJECT TO TRAFFIC. BOLLARDS MAY BE REQUIRED.
- B. SERVICE SADDLES SHALL BE 3 FEET MIN. FROM PIPE FITTINGS, JOINTS AND TAPS.
- C. INSULATE ABOVE-GROUND PIPE WITH 3/8" THICK FOAM PIPE INSULATION.

①	1	PREFABRICATED SAMPLE STATION	AMERICAN MACHINE AND CONVEYOR MODEL EZ-02FCW, 24"-44" HIGH, COLOR" GREEN OR APPROVED EQUAL
②	1	3/4" BRASS NIPPLE	
③	1	3/4" BRASS 90° ELBOW	
④	1	3/4" POLYETHYLENE SERVICE TUBING	WESTFLEX, OR APPROVED EQUAL, 200 PSI MIN.
⑤	1	3/4" SERVICE SADDLE	FORD FS202 STAINLESS STEEL BAND
⑥	1	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
⑦	1	CORPORATION STOP (MALExMALE)	FORD F500-4/C14-44-3/4"
⑧	1	3/4" FIP x CTS PACK JOINT	
⑨	1	3/4" MIP x CTS PACK JOINT	
⑩	1	3/4" GATE VALVE	RED & WHITE WITH HAND WHEEL
⑪	1	TRAFFIC VALVE BOX WITH LID MARKED "WATER"	CHRISTY G5 W/ G5C LID OR APPROVED EQUAL

COMMON REDUCED-PRESSURE BACKFLOW DEVICES
(MUST BE CERTIFIED LEAD FREE):

FEBCO-825Y
WATTS-LF009 SERIES
WILKINS-975XL

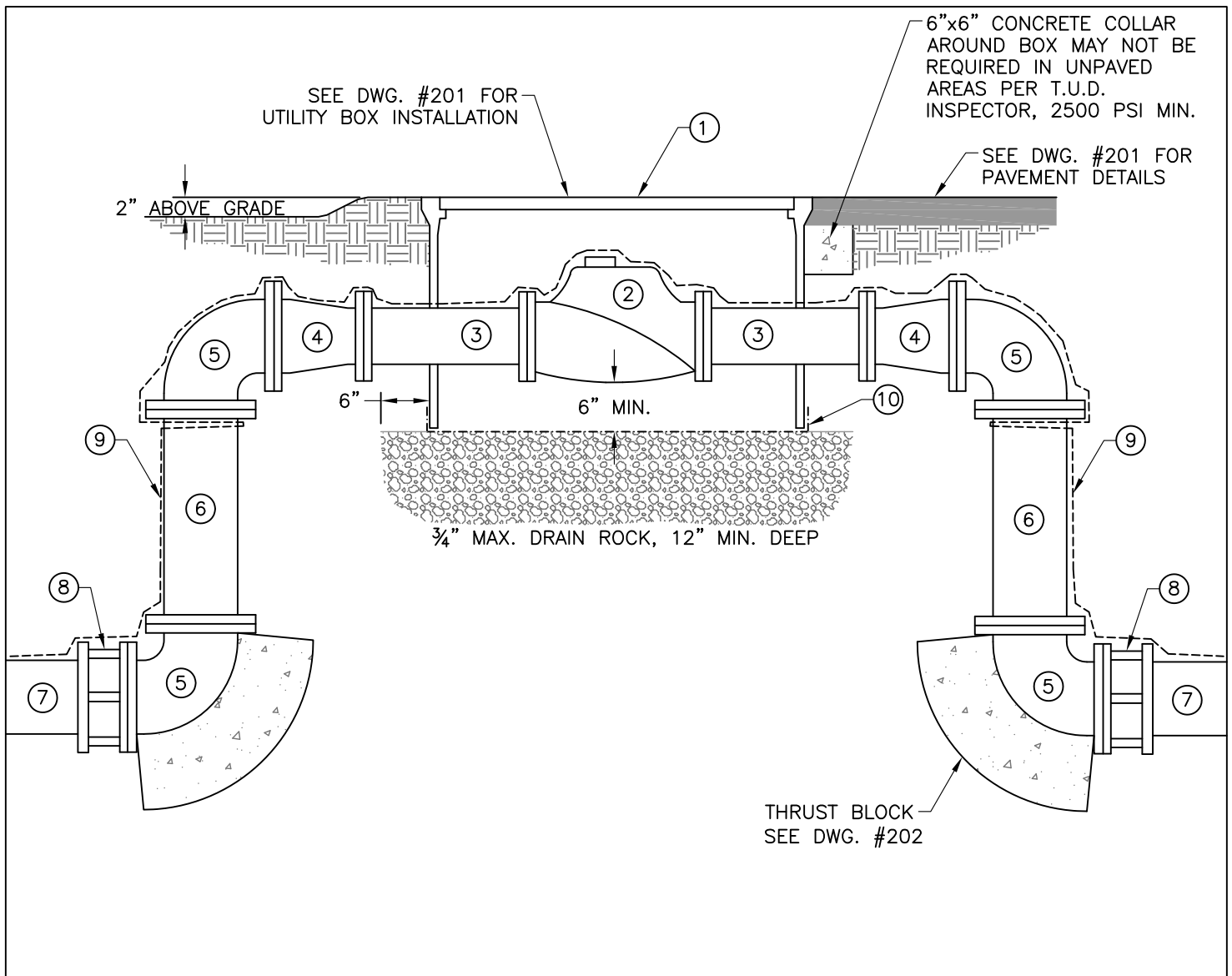
REDUCED-PRESSURE BACKFLOW DEVICE



NOTES

- A. REDUCED-PRESSURE BACKFLOW ASSEMBLY SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE T.U.D. WATER METER WITH NO TEES OR CONNECTIONS BETWEEN THEM.
- B. FITTINGS, JOINTS, BOLTS AND NUTS ARE TO BE COVERED WITH PLASTIC SHEETING (4 MIL THICK MIN.) OR 10 MIL. TAPE PRIOR TO PLACEMENT OF CONCRETE. NO CONCRETE TO BE ALLOWED ON BOLTS OR PIPE.
- C. WRAP ALL UNDERGROUND GALVANIZED PIPE WITH 10 MIL. TAPE.
- D. IF SOLID ENCLOSURE IS USED, MAINTAIN 12" MIN. CLEARANCE AROUND TEST-COCKS.

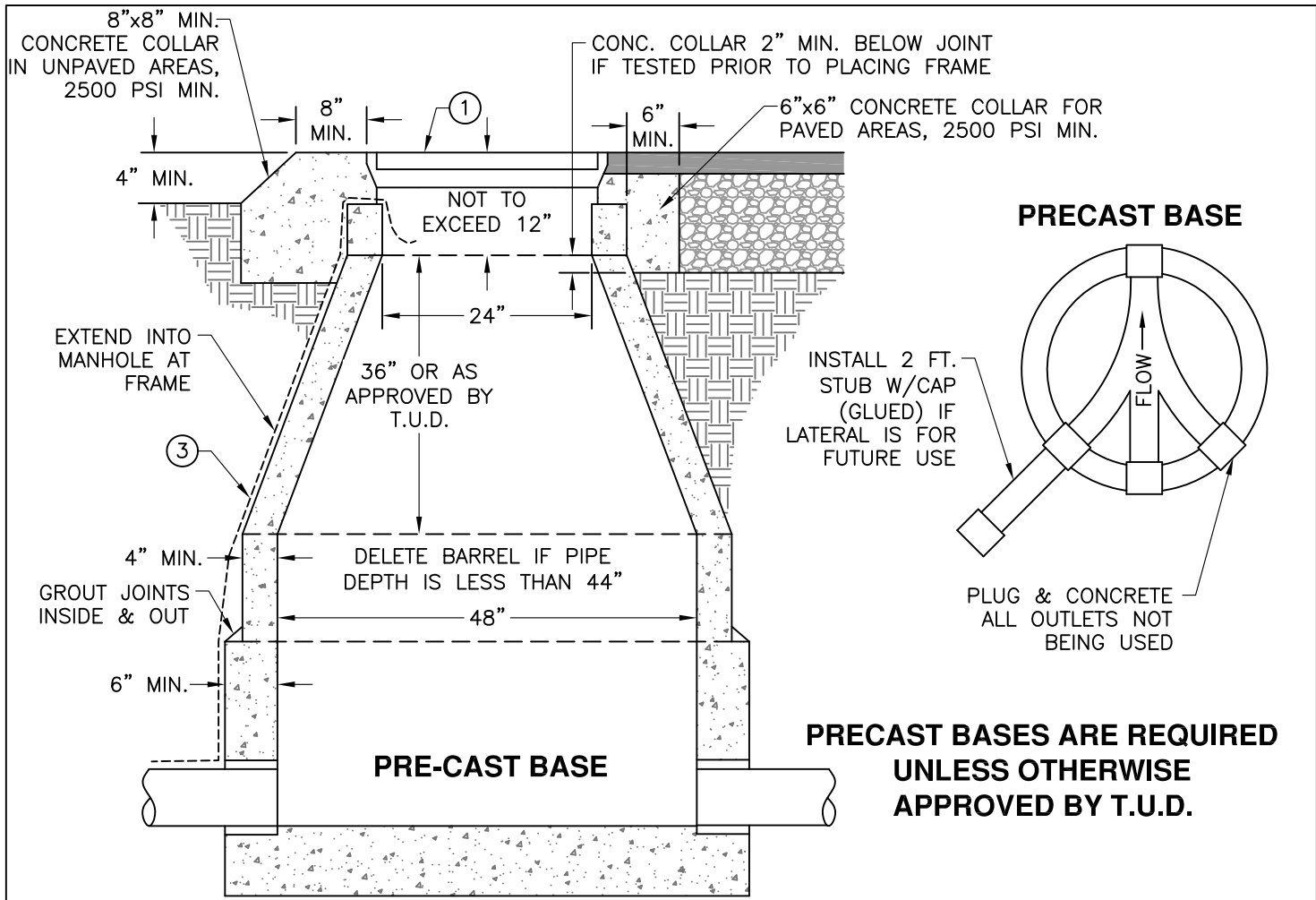
ITEM	QTY	DESCRIPTION	REMARKS
①	1	REDUCED-PRESSURE BACKFLOW PREVENTION ASSEMBLY	BRAND/MODEL PER STATE WATER BOARD SPECIFICATIONS
②	1	BRASS OR GALVANIZED IRON PIPE	SIZE VARIES, SEE NOTE 'C'
③	1	INSULATED PROTECTIVE ENCLOSURE	WEATHERGUARD BLANKET OR EQUAL, SEE NOTE 'D'



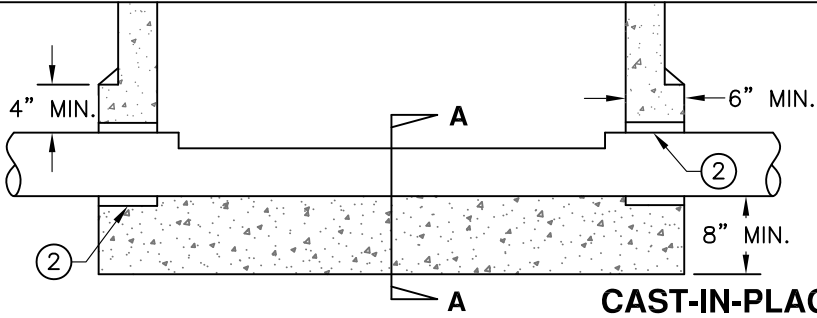
NOTES

- A. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.
- B. ALL EXPOSED PIPING SHALL BE PAINTED PANTONE PURPLE.

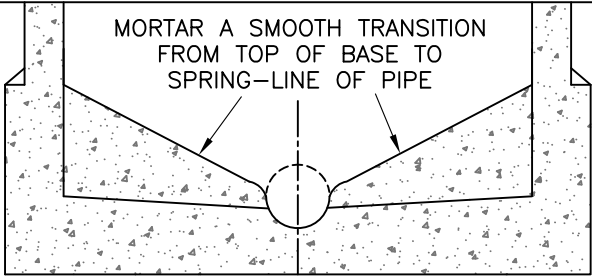
ITEM	QTY	DESCRIPTION	REMARKS
①	1	B48 BOX	W/ TRAFFIC RATED STEEL LID
②	1	6" TURBINE OR MAG METER	AS DIRECTED BY T.U.D.
③	2	6" DUCTILE IRON SPOOL	FLANGE x FLANGE
④	2	6"x8" DUCTILE IRON REDUCER	FLANGE x FLANGE
⑤	4	8" DUCTILE IRON 90° ELBOW	FLANGE x FLANGE
⑥	2	8" DUCTILE IRON RISER	FLANGE x FLANGE, LENGTH AS NECESSARY
⑦		8" C900 WATERLINE	
⑧	2	FLANGE x MJ ADAPTER	
⑨		#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
⑩		1/4" HARDWARE CLOTH (GALV.)	MUST COVER ALL ACCESS HOLES
⑪			
⑫			
⑬			
⑭			



PRECAST BASES ARE REQUIRED UNLESS OTHERWISE APPROVED BY T.U.D.



CAST-IN-PLACE BASE

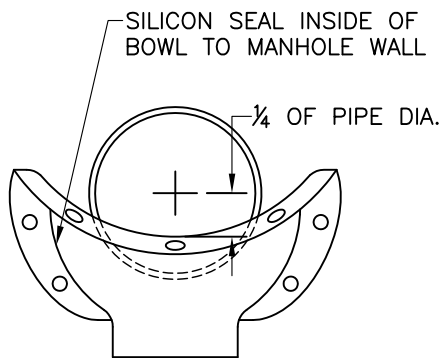


SECTION A-A

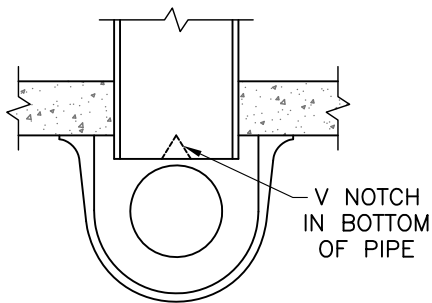
NOTES

- A. USE 2500 PSI CONCRETE MIN. FOR CAST-IN PLACE BASE. PIPES ARE TO BE CONTINUOUS THROUGH MANHOLE WITH THE TOP CUT AWAY AFTER BASE CURES.
- B. PRECAST BASE TO HAVE FITTINGS FOR PVC PIPE (TEICHERT OR EQUAL), 2, 3 OR 4-WAY AS REQUIRED; ALL CHANNELS TO MATCH LARGEST PIPE.
- C. "T.U.D." AND "SEWER" TO BE WELDED ON COVER; USE 1/8" BEAD.
- D. PRECAST CONES AND BARREL SECTIONS SHALL CONFORM TO ASTM SPEC. C-478.
- E. POLYETHYLENE MANHOLES, "ADS" OR APPROVED EQUAL ARE ACCEPTABLE WITH T.U.D. APPROVAL.
- F. ALL MANHOLE JOINTS SHALL BE SEALED WITH RAM-NECK, KENT-SEAL #2 OR APPROVED EQUAL. TRIM AND MORTAR INSIDE JOINTS TO A SMOOTH FINISH. COAT MANHOLE EXTERIOR WITH AN APPROVED WATERTIGHT SEALER. IF HIGH GROUNDWATER IS EXPERIENCED, COAT EXTERIOR OF MANHOLE WITH BITUMASTIC SEALER.
- G. MANHOLE MUST PASS VACUUM TEST OF 10 HG; PRE-TESTING PRIOR TO BACKFILLING IS SUGGESTED. IF PRE-TESTED, CONCRETE COLLAR SHALL EXTEND 2" BELOW TOP OF CONE.
- H. BACKFILL MANHOLE WITH SELECT MATERIAL COMPACTED TO 95% RELATIVE DENSITY IN TRAFFIC AREAS, 90% IN ALL OTHER AREAS.

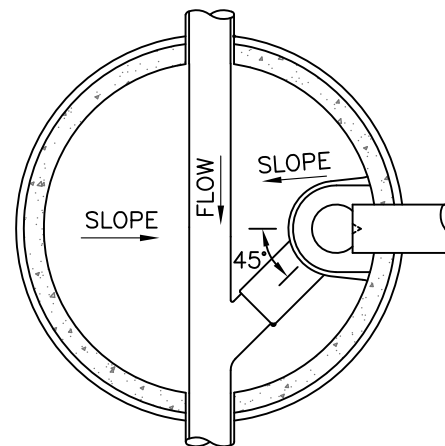
ITEM	QTY	DESCRIPTION	REMARKS
①	1	25 5/16" COVER & 4 1/2" FRAME	SOUTH BAY FOUNDRY #1900 CHP (OR APPROVED EQUAL) IN TRAFFIC AREAS; CERTAINTIED PAMREX CDPA60EHSEW W/PENTA LOCK C14 OUTSIDE TRAFFIC AREAS
②	2	MANHOLE ADAPTOR, SILICONE COATED	GPK OR APPROVED EQUAL, GROUT IN PLACE
③		#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102



**DROP BOWL
MOUNTING POSITION
FRONT VIEW**



**DROP BOWL
MOUNTING POSITION
TOP VIEW**

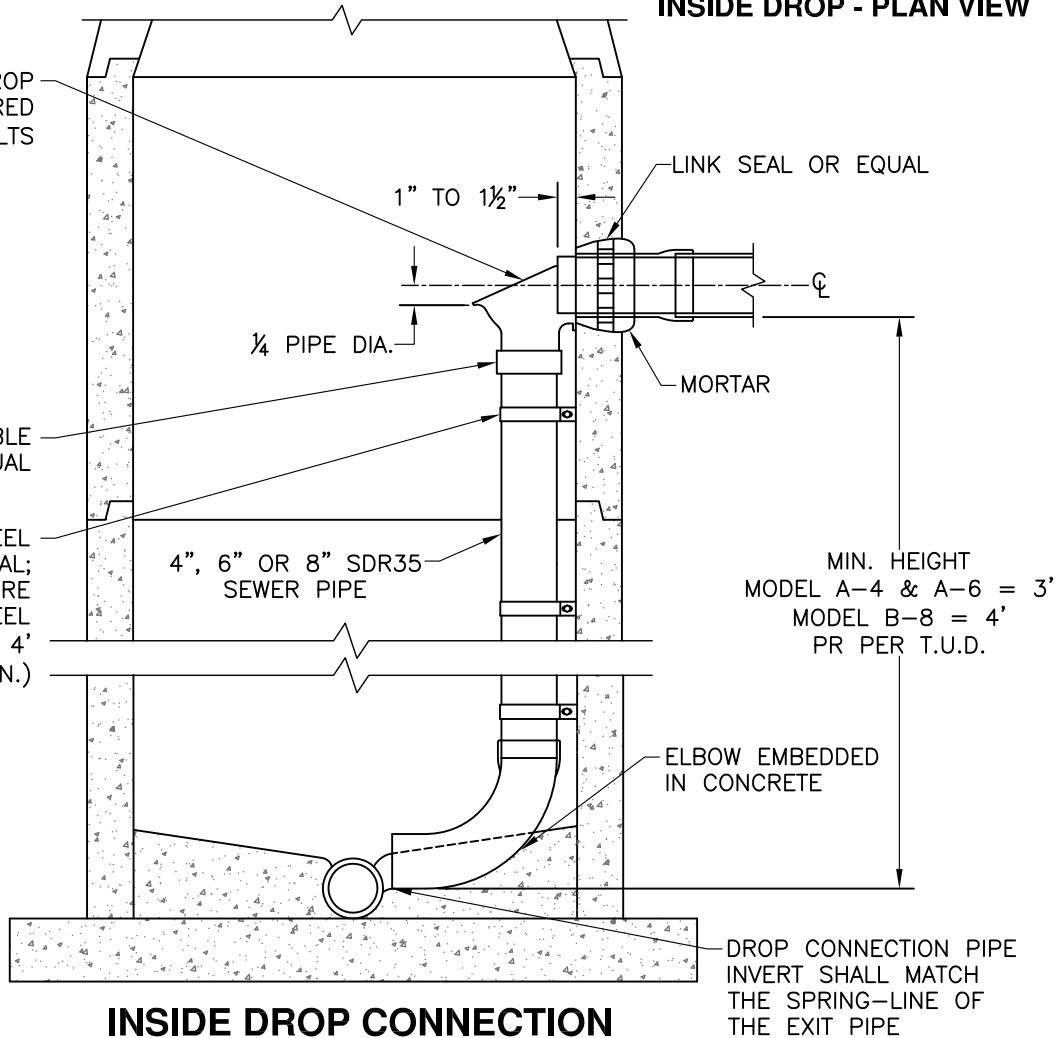


INSIDE DROP - PLAN VIEW

RELINER INSIDE DROP BOWL SECURED W/STAINLESS STEEL BOLTS

FERNCO FLEXIBLE COUPLING OR EQUAL

RELINER STAINLESS STEEL STRAPS OR EQUAL; SECURE TO STRUCTURE WITH 2 STAINLESS STEEL BOLTS, STRAP AT 4' INTERVALS (2 MIN.)

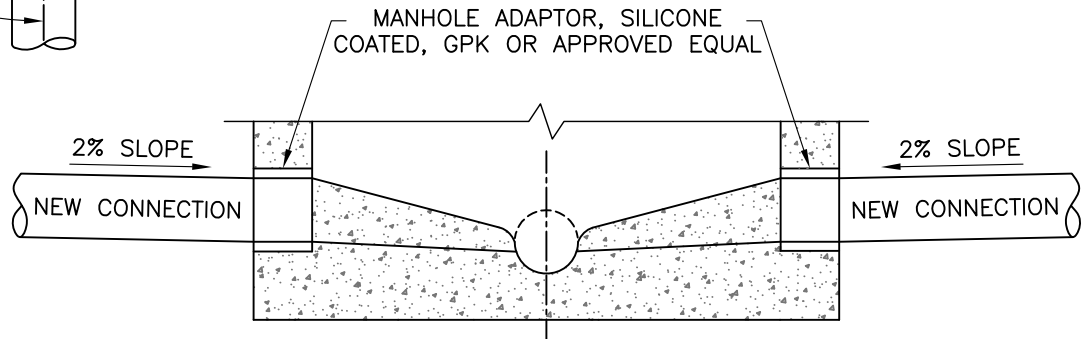
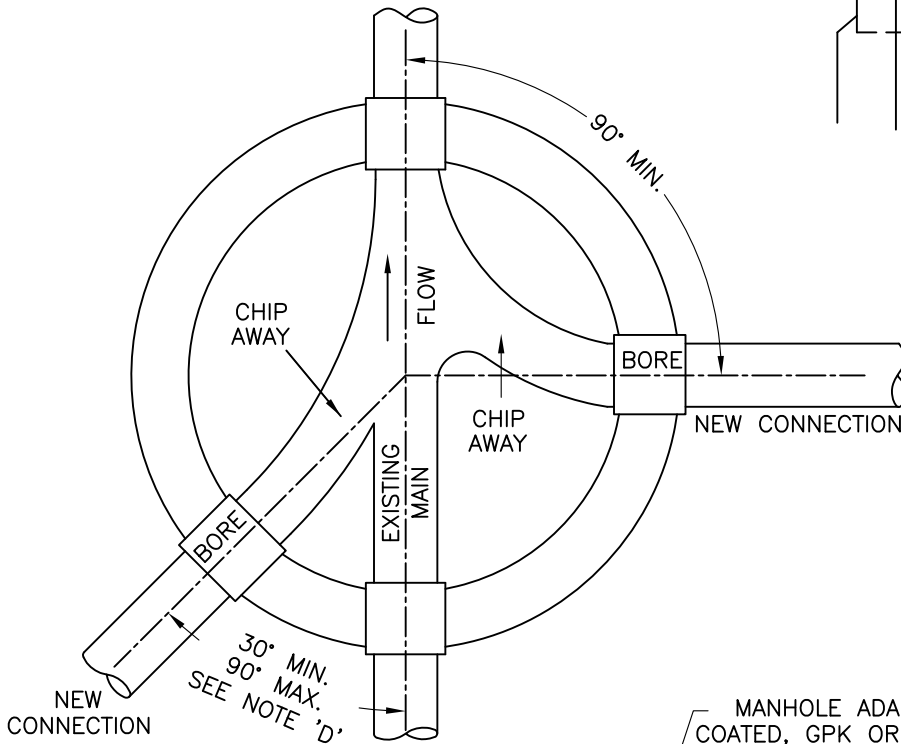
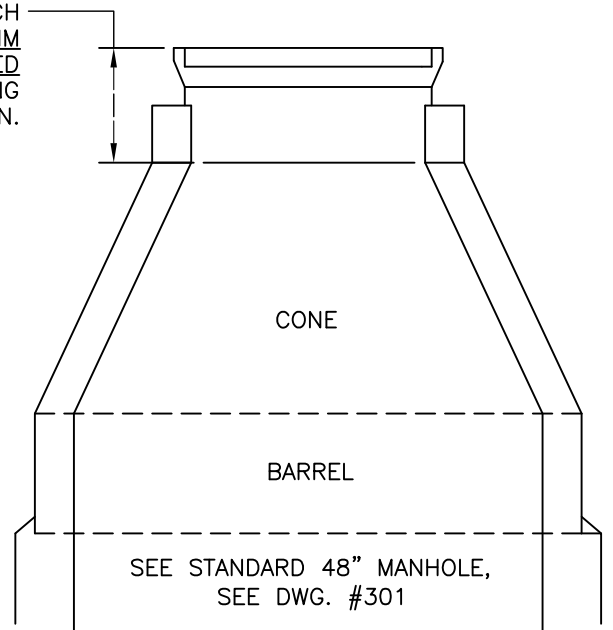


INSIDE DROP CONNECTION

NOTES

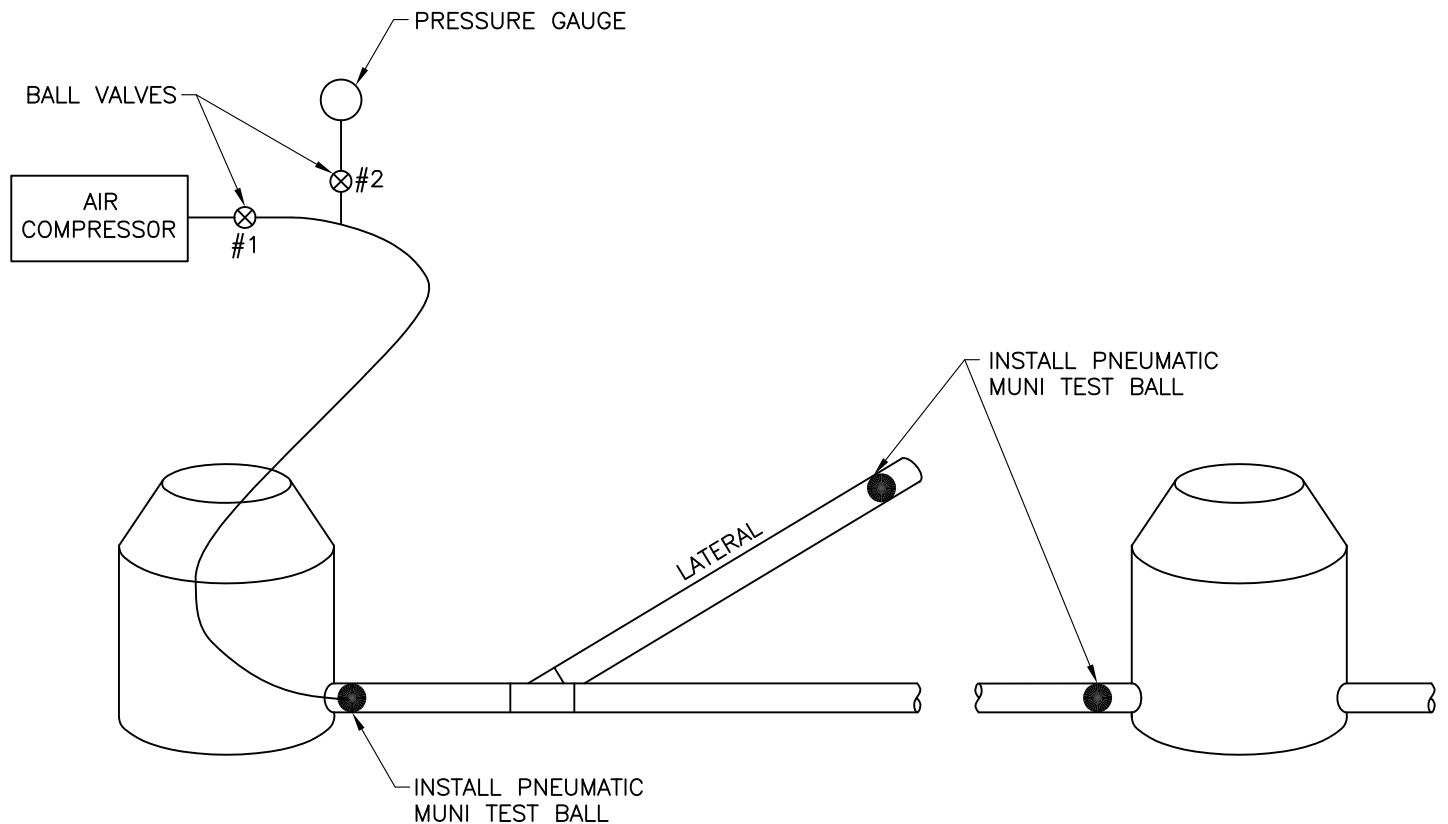
- A. ALL INSIDE DROP CONNECTIONS FOR SERVICES AND COLLECTOR SEWERS SHALL USE THE DROP BOWL AS PRODUCED BY RELINER-DURAN, 53 MT. ARCHER RD., LYME, CT 06371, 860-434-0277, 860-434-3195 (FAX), WWW.RELINER.COM
- B. DROP BOWL MODEL A-4 SHALL BE USED FOR ALL LINES UP THROUGH FULL 6" INLETS. DROP BOWL MODEL A-6 SHALL BE USED FOR ALL 8" INLETS. DROP BOWL MODEL B-8 SHALL BE USED FOR ALL 10" INLETS. LINES LARGER THAN 10" SHALL BE AS DIRECTED BY T.U.D.
- C. THE FORCE LINE HOOD SHALL BE ATTACHED ON MODELS A-4 AND A-6 WHEN THE INCOMING LINE IS FROM A FORCE MAIN OR WHEN INCOMING FLOWS CANNOT BE FULLY CONTAINED.
- D. SECURE DROP PIPE TO MANHOLE WALL WITH RELINER-DURAN STAINLESS STEEL ADJUSTABLE CLAMPING BRACKETS #4SS35 (SEE WEBSITE) OR APPROVED EQUAL.
- E. ATTACH THE DROP BOWL AND EACH CLAMPING BRACKET TO THE MANHOLE WALL WITH 3/8"x 3 3/4" RAMSET/RED-HEAD BOLTS. PRE-ROTO DRILL AND SET BOLTS IN PLACE WITH EPOXY PASTE. EPOXY PASTE SHALL BE SIKADUR 31 HI-MOD GEL BY SIKA CORP. (PHONE: 592-941-0231), OR APPROVED EQUAL, IN ACCORDANCE WITH ASTM D695, ASTM D638 AND ASTM C882.

WHEN RAISING EXISTING MANHOLE TO MATCH FINISHED GRADE, THE DISTANCE BETWEEN THE RIM AND TOP OF CONE SECTION SHALL NOT EXCEED 12". RAISING THE RIM MUST BE DONE BY ADDING BARRELS OR USING A TALLER CONE SECTION.



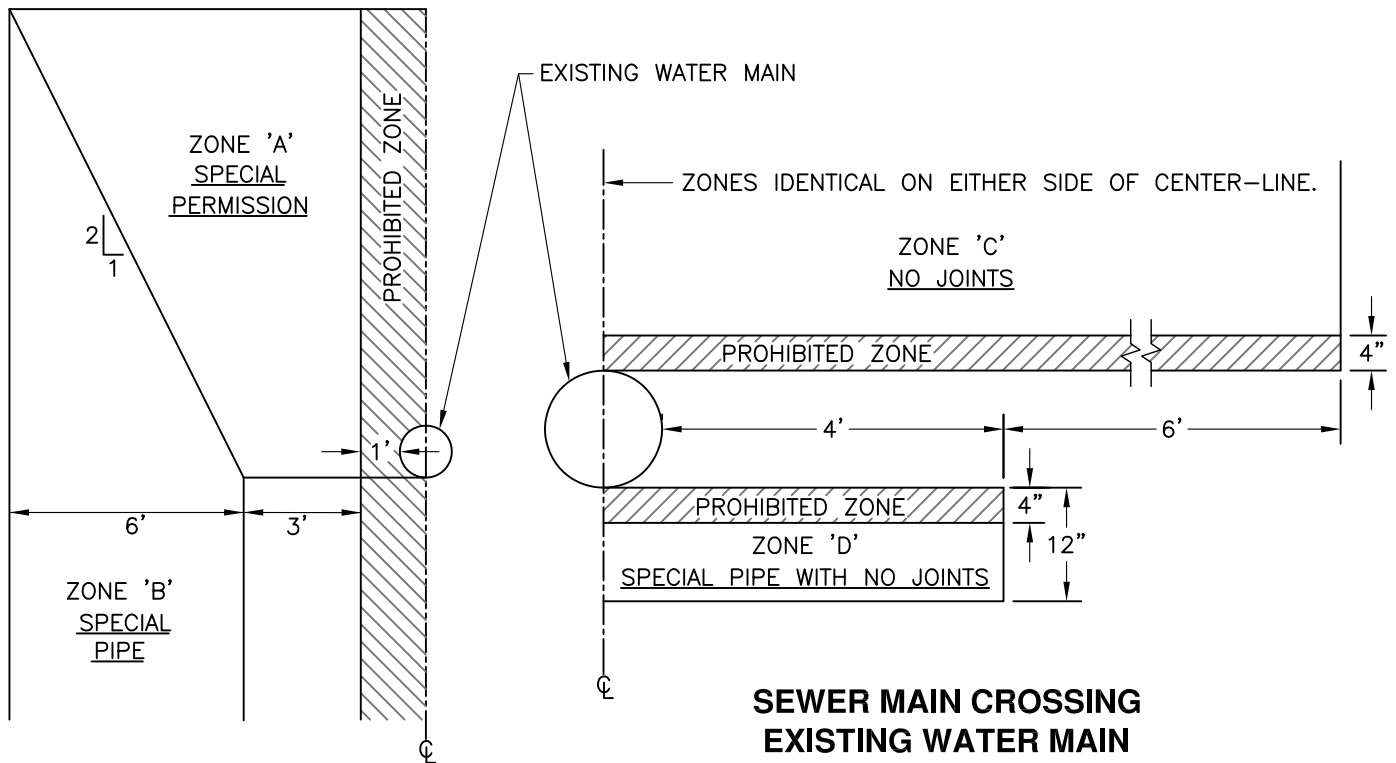
NOTES

- A. NEW CONNECTIONS TO BE BORED 2" LARGER THAN THE PIPE DIAMETER.
- B. NEW CONNECTIONS WILL HAVE A MINIMUM SLOPE OF 2%.
- C. FLOW CHANNEL FROM THE NEW CONNECTION TO THE EXISTING MAIN SHALL BE CHIPPED AWAY AND MORTARED TO A SMOOTH FINISH.
- D. IF TIGHTER ENTRANCE ANGLES ARE REQUIRED DUE TO SITE CONSTRAINTS, USE LONG RADIUS BEND OUTSIDE OF MANHOLE.
- E. CONTRACTOR IS RESPONSIBLE FOR DEBRIS REMOVAL AND PREVENTION OF FLOW BLOCKAGE WHILE UNDER CONSTRUCTION.
- F. CONTRACTOR SHALL COMPLY WITH ALL CONFINED-SPACE REQUIREMENTS PER CAL-OSHA.



NOTES

- A. ALL LINES TO BE BACKFILLED AND COMPACTED.
- B. BALL AND FLUSH TO BE COMPLETED.
- C. PLUG ALL LATERALS AND CLEANOUTS WITH COMPRESSION-TYPE PLUGS.
- D. INSTALL PNEUMATIC PLUGS IN EACH END OF THE MAIN LINE; ONE WILL NEED A MUNI TEST BALL TYPE PLUG SETUP FOR AIR HOSE CONNECTION TO THE TAPPED CENTER HOLE.
- E. PRESSURIZE SEWER LINE BY CLOSING BALL VALVE #2; THIS PROTECTS GAUGE. THEN OPEN VALVE #1; ALTERNATE THESE VALVES TO CHECK PRESSURE IN THE LINE AS IT PRESSURIZES.
- F. LINE MUST PASS PRESSURE TEST IN ACCORDANCE WITH STANDARD T.U.D. PROCEDURES AS OUTLINED IN SPECIFICATIONS.



SEWER MAIN PARALLEL TO EXISTING WATER MAIN

SEWER MAIN CROSSING EXISTING WATER MAIN

SPECIAL CONSTRUCTION REQUIRED FOR SEWER

ZONE A: SEWER MAIN PARALLEL TO WATER MAIN SHALL NOT BE PERMITTED IN THIS ZONE WITHOUT APPROVAL FROM THE CALIFORNIA STATE DEPARTMENT OF HEALTH SERVICES, SANITARY ENGINEERING BRANCH, AND TUOLUMNE UTILITIES DISTRICT.

ZONE B: SEWER MAIN PARALLEL TO WATER MAIN SHALL BE CONSTRUCTED OF:
 (1) PVC SEWER PIPE WITH RUBBER RING JOINTS (ASTM D3034, SDR 35 OR EQUAL) OR
 (2) CAST IRON OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS. PIPE TYPE SHALL BE CONTINUOUS FROM MANHOLE TO MANHOLE.

ZONE C: SEWER MAIN CROSSING OVER WATER MAIN SHALL BE CONSTRUCTED OF:
 (1) DUCTILE IRON PIPE WITH HOT DIP BITUMASTIC COATING AND MECHANICAL JOINTS, OR
 (2) A CONTINUOUS SECTION OF C900, CLASS 200 PVC PIPE (DR14) CENTERED OVER PIPE BEING CROSSED, OR
 (3) SDR35 PIPE IN A CONTINUOUS C900, CLASS 150 OR DUCTILE IRON SLEEVE EXTENDING 10 FT. EACH SIDE OF THE WATER PIPE.

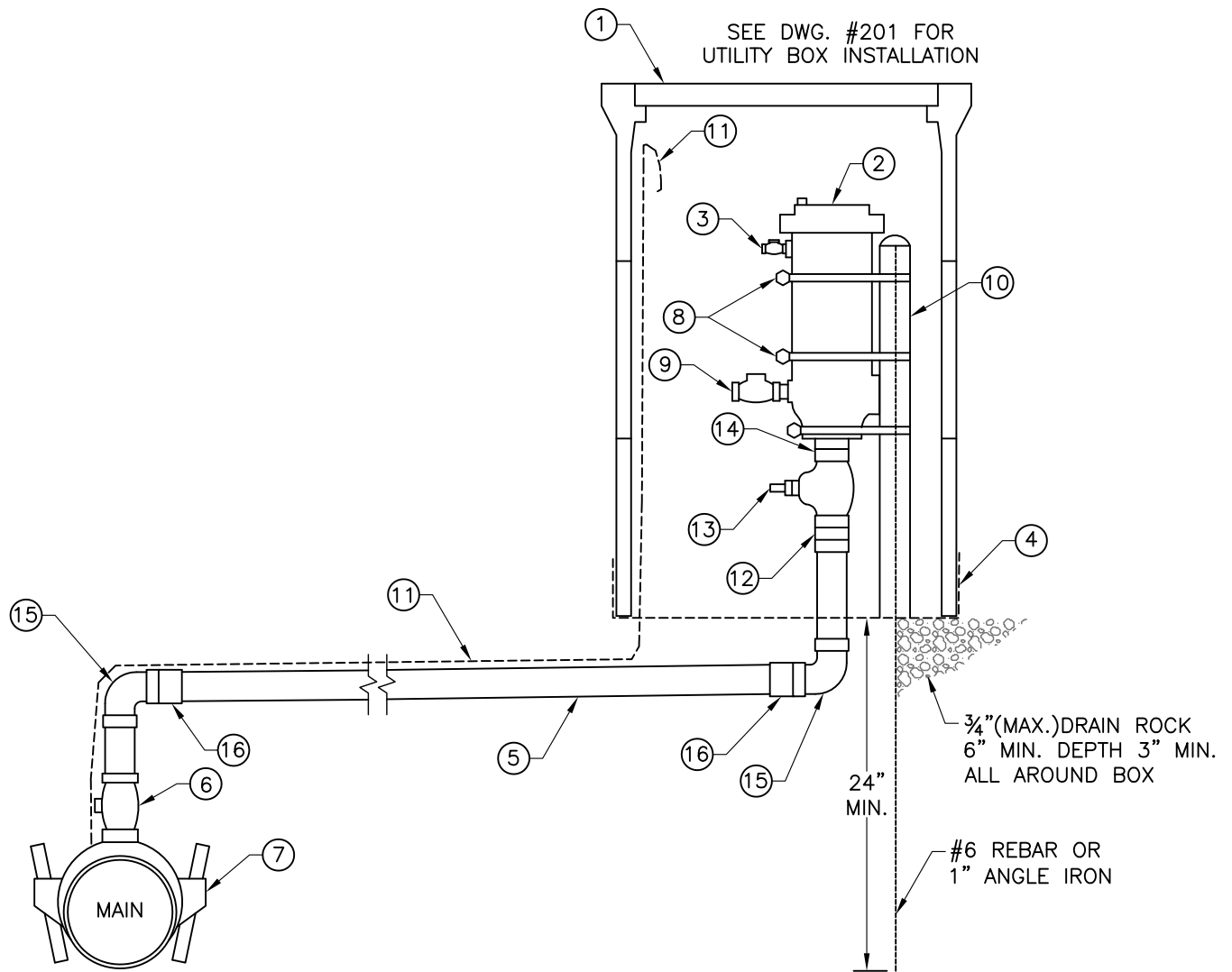
PIPE TYPE SHALL BE CONTINUOUS FROM MANHOLE TO MANHOLE.

ZONE D: SEWER MAIN CROSSING UNDER WATER MAIN SHALL BE CONSTRUCTED OF ZONE 'C' MATERIALS.

SEWER FORCE-MAIN INSTALLATION NOTES

- A. PARALLEL INSTALLATION: SEWER FORCE MAIN SHALL NOT BE INSTALLED WITHIN 10 FT. HORIZONTALLY OF WATER MAIN.
- B. CROSSING UNDER WATER MAIN: SEWER FORCE MAIN MUST BE AS CLOSE TO PERPENDICULAR AS PRACTICAL AND AT LEAST ONE FOOT BELOW WATER MAIN.
- C. CROSSING UNDER WATER MAIN IN ZONE 'D': SEWER FORCE MAIN WITHIN 8 FT. HORIZONTALLY OF WATER MAIN SHALL BE ENCLOSED IN A CONTINUOUS C900, CLASS 150 OR DUCTILE IRON SLEEVE.

D. ALL DRY UTILITIES SHALL MAINTAIN 5 FEET HORIZONTAL SEPARATION WHEN PARALLEL, 1 FOOT VERTICAL SEPARATION WHEN CROSSING, AND SHALL BE LOCATED UNDER EXISTING WATER AND SEWER. DRY UTILITIES MAY ONLY BE LOCATED OVER EXISTING WATER AND SEWER WITH PRIOR DISTRICT APPROVAL AND SHALL MAINTAIN 6 INCHES OF VERTICAL SEPARATION. A PROTECTIVE CONCRETE OR 3 SACK SLURRY CAP (6" MIN. THICK) SHALL BE PLACED OVER ALL CONDUITS.

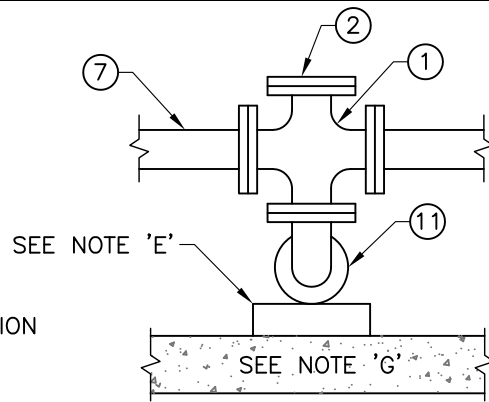


NOTES

- A. 2" POLYETHYLENE SERVICE TUBING MUST HAVE A POSITIVE, CONTINUOUS RISE FROM THE SEWER MAIN TO THE AIR/VAC VALVE.
- B. SEWER AIR/VAC VALVE TO BE LOCATED OUT OF TRAFFIC AREAS.

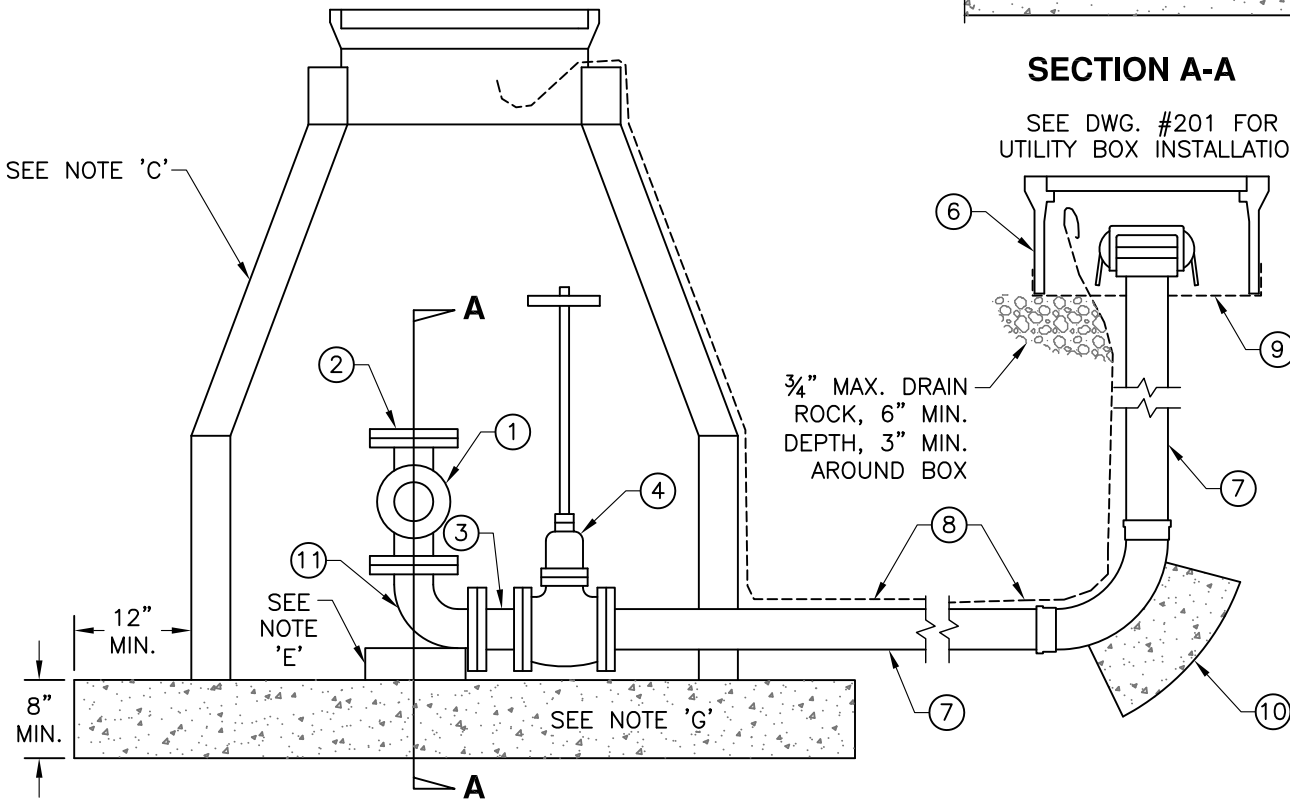
ITEM	QTY	DESCRIPTION	REMARKS
①	1	UTILITY BOX AND EXTENSIONS AS REQUIRED	CHRISTY B24 W/B24-61D LID, B24 EXTENSIONS
②	1	SEWER AIR/VAC VALVE	APCO #401 OR APPROVED EQUAL
③	2	1/2" BALL VALVE	BRONZE BODY
④	1	GALV. STEEL WIRE	WIRE DIA.=0.105", COVER ACCESS HOLES
⑤	2	2" 200 PSI POLYETHYLENE SERVICE TUBING	C.T.S. WESFLEX OR EQUAL, MAINTAIN POSITIVE SLOPE
⑥	1	2" X P.E. C.T.S. CORP. STOP	FORD FB1000
⑦	1	2" SADDLE	FORD FS202, STAINLESS STEEL STRAP
⑧	3	CLAMPS	STAINLESS STEEL
⑨	1	1" BALL VALVE	BRONZE BODY
⑩	1	2" PIPE WITH CAP	GALVANIZED
⑪	1	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, <u>UF LISTED</u> , SEE DWG. #102
⑫	1	2" UNION	BRONZE, SCREWED TO AIR/VAC VALVE & TUBING
⑬	1	2" BALL VALVE	BRONZE BODY
⑭	1	2" NIPPLE	BRASS
⑮	2	2" 90° STREET ELBOW	BRASS FIPxMIP
⑯	2	MIPxCTS ADAPTER	

SEE DWG. #301 FOR STANDARD MANHOLE CONSTRUCTION



SECTION A-A

SEE DWG. #201 FOR UTILITY BOX INSTALLATION



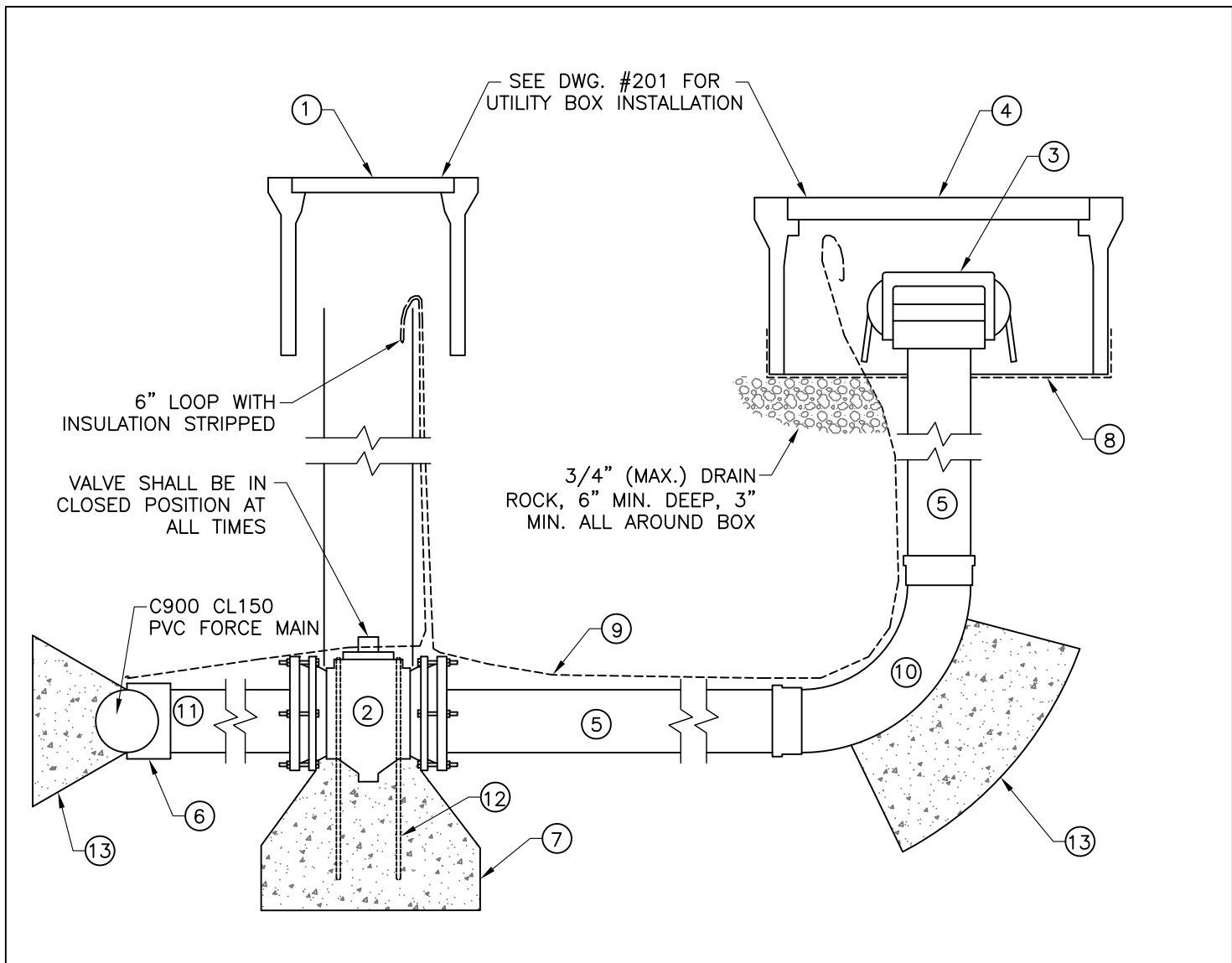
NOTES

- A. BLOWOFF VAULT WILL BE LOCATED OUTSIDE TRAFFIC AREAS WHENEVER POSSIBLE.
- B. FOR SPECIFIC MANHOLE REQUIREMENTS SEE STANDARD MANHOLE DETAIL #303.
- C. EXTERIOR OF MANHOLE SURFACE WILL BE COATED WITH BITUMASTIC SEALANT OR APPROVED EQUAL.
- D. ALL PIPES AND FITTINGS WITHIN MANHOLE WALLS SHALL BE PRIMED AND COATED WITH ENAMEL OR WRAPPED IN 10 MIL PVC TAPE.
- E. TEE SUPPORT SHALL BE A 12" DIAMETER PIPE FILLED WITH 2500 PSI (MIN.) CONCRETE OR STEEL SUPPORT APPROVED BY DISTRICT.
- F. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.
- G. MANHOLE SLAB BASE SHALL BE 2500 PSI (MIN.) CONCRETE.

①	1	CROSS, SIZE PER MAIN LINE	4" TAPPED AND THREADED
②	1	BLIND FLANGE	CLASS 125
③	1	DUCTILE IRON UNION	CORROSION PROTECTIVE COATING
④	1	4" RESILIENT WEDGE VALVE, STEM 3 FT. FROM LID	AMERICAN, CLAY OR APPROVED EQUAL
⑤	1	FPD PLUG W/ DUST CAP	CAMLOCK OR APPROVED EQUAL
⑥	1	CONCRETE UTILITY BOX	CHRISTY B16 W/B1661D LID OR APPROVED EQUAL
⑦	1	4" DUCTILE IRON PIPE	CEMENT MORTAR LINING
⑧	1	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
⑨	1	GALV. STEEL WIRE	WIRE DIA.=0.105", COVER ACCESS HOLES
⑩		THRUST BLOCK	2500 PSI CONC. MIN., SEE DETAIL #202
⑪	1	90° ELBOW, SIZE PER MAIN LINE	4" TAPPED AND THREADED

TUOLUMNE UTILITIES DISTRICT
SEWER FORCE MAIN LOW-POINT VAULT

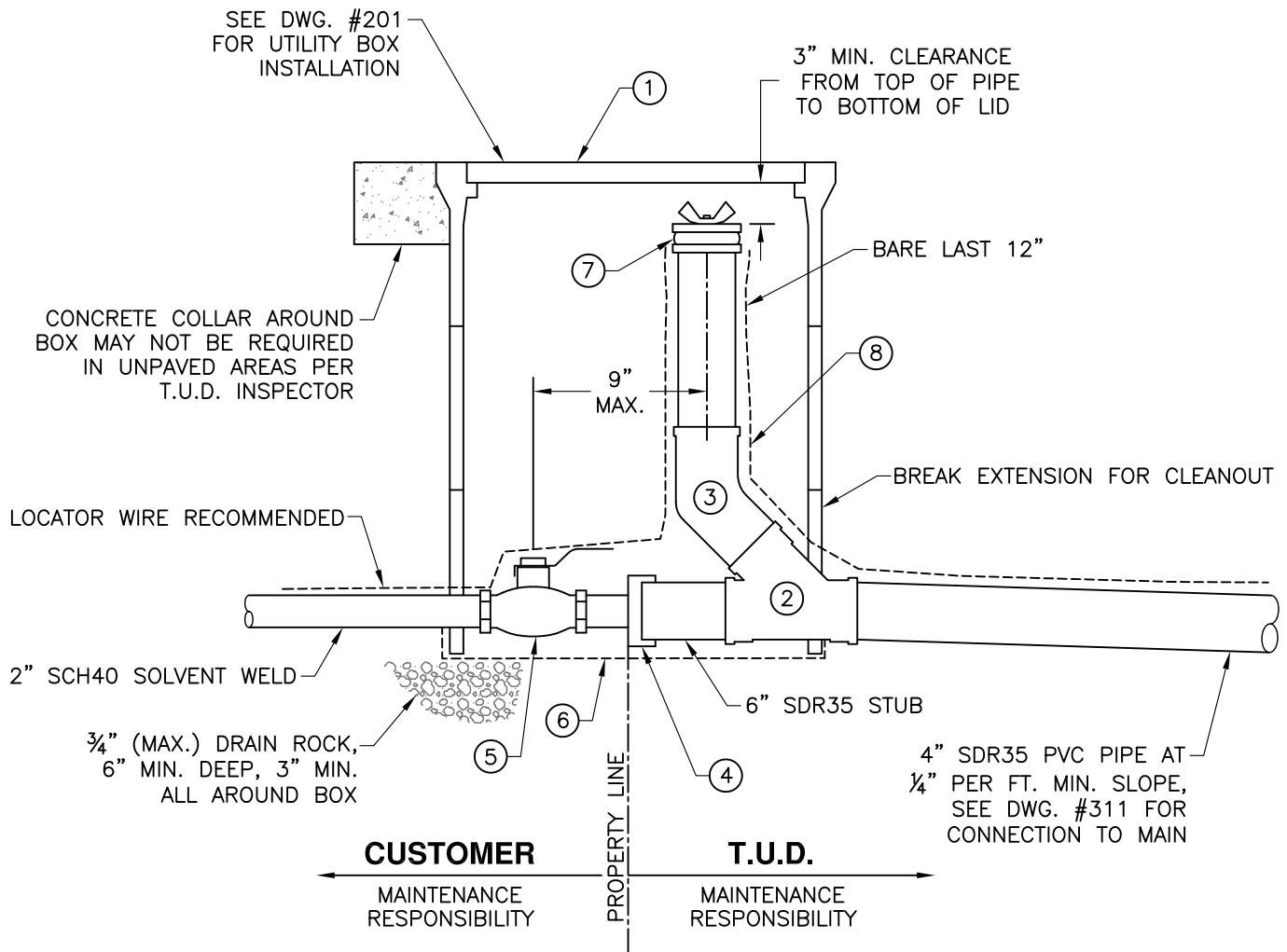
REV. 01-22-18
 STD. DWG. NO.
307



NOTES

- A. STEM EXTENSION REQUIRED FOR ALL VALVES WHERE DISTANCE FROM FINISH GRADE TO VALVE NUT IS 4 FT. OR GREATER, SEE DETAIL #201.
- B. MAXIMUM OPERATING PRESSURE IS 150 PSI WORKING PRESSURE.
- C. COAT NON-BRASS BURIED EXPOSED THREADS WITH KOPPERS BITUMASTIC NO. 5, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MIL. PVC TAPE, 3 WRAPS MIN.
- D. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.

ITEM	QTY	DESCRIPTION	REMARKS
①	1	TRAFFIC BOX WITH LID	CHRISTY G5 BOX W/G5C LID (MARKED "SEWER")
②	1	4" FULL PORT ECCENTRIC PLUG VALVE	MILLCENTRIC OR EQUAL, 2" OPERATING NUT (MJxMJ)
③	1	FPD PLUG WITH DUST CAP	CAMLOCK OR APPROVED EQUAL
④		CONCRETE VALVE BOX, LID MARKED "SEWER"	CHRISTY B16 W/B1661D LID OR APPROVED EQUAL
⑤	3	4" DIA. PIPE	SCH40 PVC
⑥	1	4"x4"x4" C.I. WYE	MJ x MJ x MJ
⑦	1	DEADMAN	2500 PSI CONC. MIN., SEE DETAIL #201
⑧	1	GALV. STEEL WIRE	WIRE DIA.=0.105", COVER ACCESS HOLES
⑨		#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
⑩	1	4" ELBOW, 90°	SCH 40 PVC LONG SWEEP
⑪	1	C900 CL150 PVC PIPE	LENGTH AS REQUIRED
⑫	2	#4 REBAR ANCHOR	GRADE 60, SEE DETAIL #201
⑬	2	THRUST BLOCK	2500 PSI CONC. MIN., SEE DETAIL #202



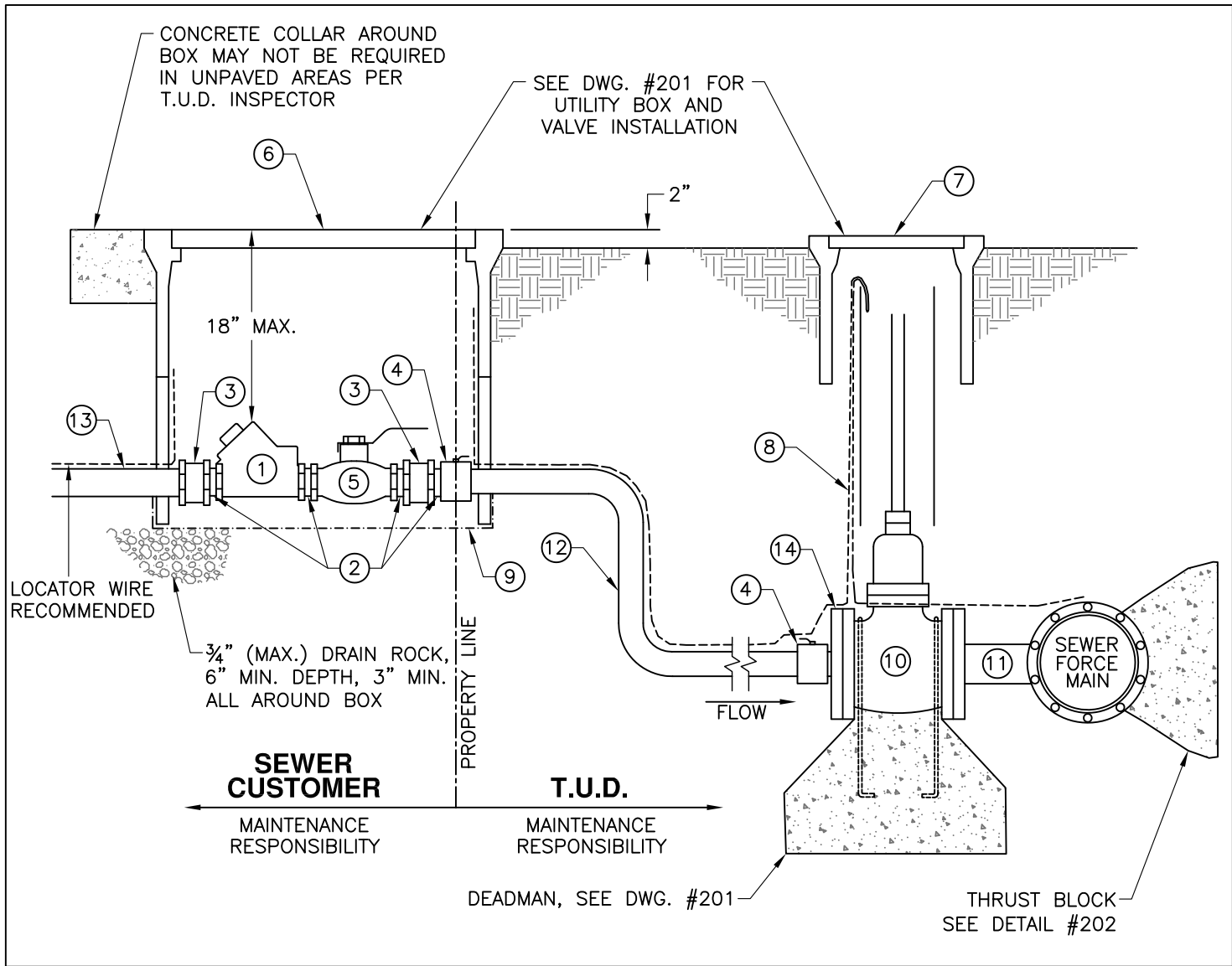
NOTES

- T.U.D. IS RESPONSIBLE FOR MAINTAINING THE SEWER LATERAL TO THE CLEANOUT.
- PRIVATE LIFT STATIONS, PUMPS, SUMPS, TANKS, ETC. WILL BE T.U.D. APPROVED AND INSPECTED.
- SEE DETAIL #203 FOR PIPE BEDDING MATERIAL.
- LOCATE CLEANOUTS OUTSIDE TRAFFIC AREAS.
- ALL FITTINGS SHALL BE SDR35 PVC PIPE, RING-TITE OR APPROVED EQUAL.
- PVC JOINT ADHESIVE IS "WELD-ON" JM7-21 BLUE WITH JMP PRIMER OR T.U.D. APPROVED EQUAL.
- ALL FITTINGS TO HAVE RATING OF 150 PSI WORKING PRESSURE AT 73°F.

ITEM	QTY	DESCRIPTION	REMARKS
①	1	UTILITY BOX AND LID, USE EXTENSION(S)	CHRISTY B30 BOX W/61D LID
②	1	WYE	SDR35, RING-TITE OR APPROVED EQUAL
③	1	45° STREET ELBOW	SDR35, RING-TITE OR APPROVED EQUAL
④	1	2" X 4" ADAPTER	PVC
⑤	1	2" BALL VALVE	BRONZE, 150 LB
⑥	1	1/2" GALV. STEEL WIRE MESH	WIRE DIA.=0.105", COVER ACCESS HOLES
⑦	1	EXPANSION PLUG WITH LIP	PASCO HAND-TIGHT OR APPROVED EQUAL
⑧	1	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102

TUOLUMNE UTILITIES DISTRICT
PRIVATE PUMP SYSTEM TO GRAVITY SEWER MAIN

REV. 01-22-18
 STD. DWG. NO.
309



NOTES

- A. PRIVATE LIFT STATIONS, PUMPS, SUMPS, TANKS ETC. WILL BE T.U.D. APPROVED AND INSPECTED.
- B. SEE DWG. #203 FOR PIPE BEDDING MATERIAL.
- C. PVC JOINT ADHESIVE IS "WELD-ON" JM7-21 BLUE WITH JMP PRIMER OR T.U.D. APPROVED EQUAL.
- D. ALL FITTINGS TO HAVE RATING OF 150 PSI WORKING PRESSURE AT 73°F.

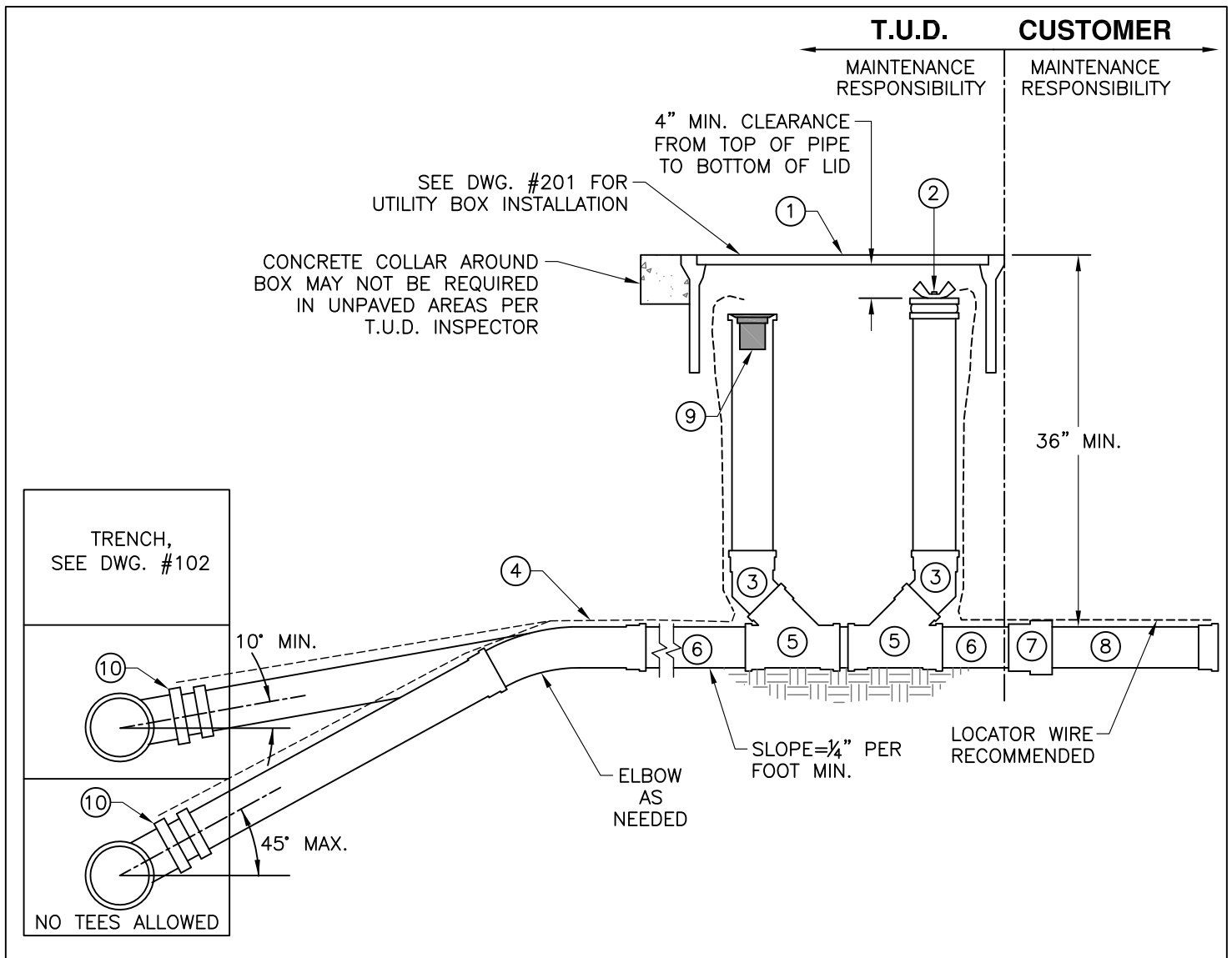
ITEM	QTY	DESCRIPTION	REMARKS
①	1	2" SWING CHECK VALVE	150 LB, BRONZE
②	4	CLOSE NIPPLE	P.V.C. OR BRASS
③	2	UNION	P.V.C. OR BRASS
④	2	2" MTP x CTS ADAPTER	BRASS
⑤	1	2" BALL VALVE	BRONZE, 150 LB
⑥	1	UTILITY BOX AND LID, USE EXTENSION(S)	CHRISTY B30 BOX W/61D LID
⑦	1	TRAFFIC VALVE BOX WITH LID MARKED "SEWER"	CHRISTY G5 W/G5C LID OR APPROVED EQUAL
⑧	1	#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
⑨	1	1/4" HARDWARE CLOTH (GALV.)	MUST COVER ACCESS HOLES
⑩	1	4" RESILIENT WEDGE GATE VALVE, 2" SQUARE NUT	CLASS 150, NONRISING STEM, FLxFL
⑪	1	STAINLESS STEEL TAPPING SLEEVE	FOR HOT TAP ONLY, SEE DWG. #209
⑫		2" POLYETHYLENE	WRAP PIPE WITH "T.U.D. SEWER TAPE"
⑬		2" SCH40 SOLVENT WELD	
⑭	1	2" x 9" REDUCING FLANGE	

**TUOLUMNE UTILITIES DISTRICT
PRIVATE PUMP SYSTEM TO FORCE MAIN
OR PRESSURIZED INTERCEPTOR**

REV. 01-22-18

STD. DWG. NO.

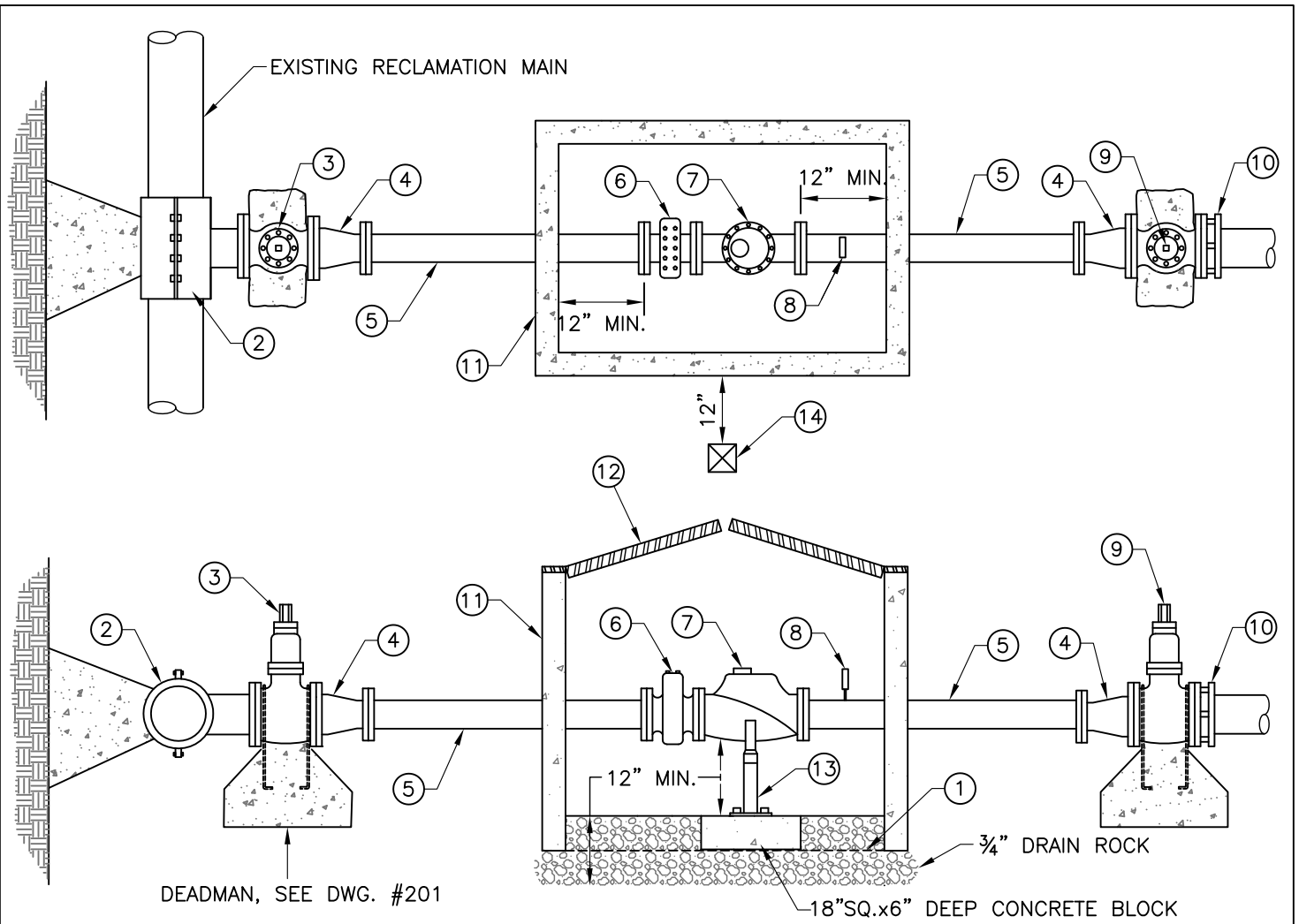
310



NOTES

- A. LOCATE CLEANOUTS OUTSIDE TRAFFIC AREAS IF POSSIBLE.
- B. BACKFLOW PREVENTION IS REQUIRED FOR CLEANOUT AT PROPERTY, RIGHT-OF-WAY OR EASEMENT LINE.
- C. PLACE 1 CU.FT. MIN. OF CONCRETE OR 2 CU.FT. OF WELL-COMPACTED BEDDING MATERIAL UNDER THE ENTIRE LENGTH OF THE WYE BRANCH, FITTING OR ANY UNSUPPORTED PIPE. WHEN BEDDING MATERIAL IS USED, PLACE ADDITIONAL MATERIAL TO TOP OF BEND FOR THE FULL WIDTH OF THE TRENCH.
- D. A "CARSON" PLASTIC BOX CAN BE USED IN PLANTER AREAS WITH PRIOR T.U.D. APPROVAL.
- E. A 4-INCH LATERAL IS ACCEPTABLE FOR A DOUBLE SERVICE.
- F. FLUSHING BRANCH SHALL BE END-OF-LINE CLEANOUT, SAME SIZE AS MAIN, WITH STREET 90° OR (2) 45° ELBOWS.

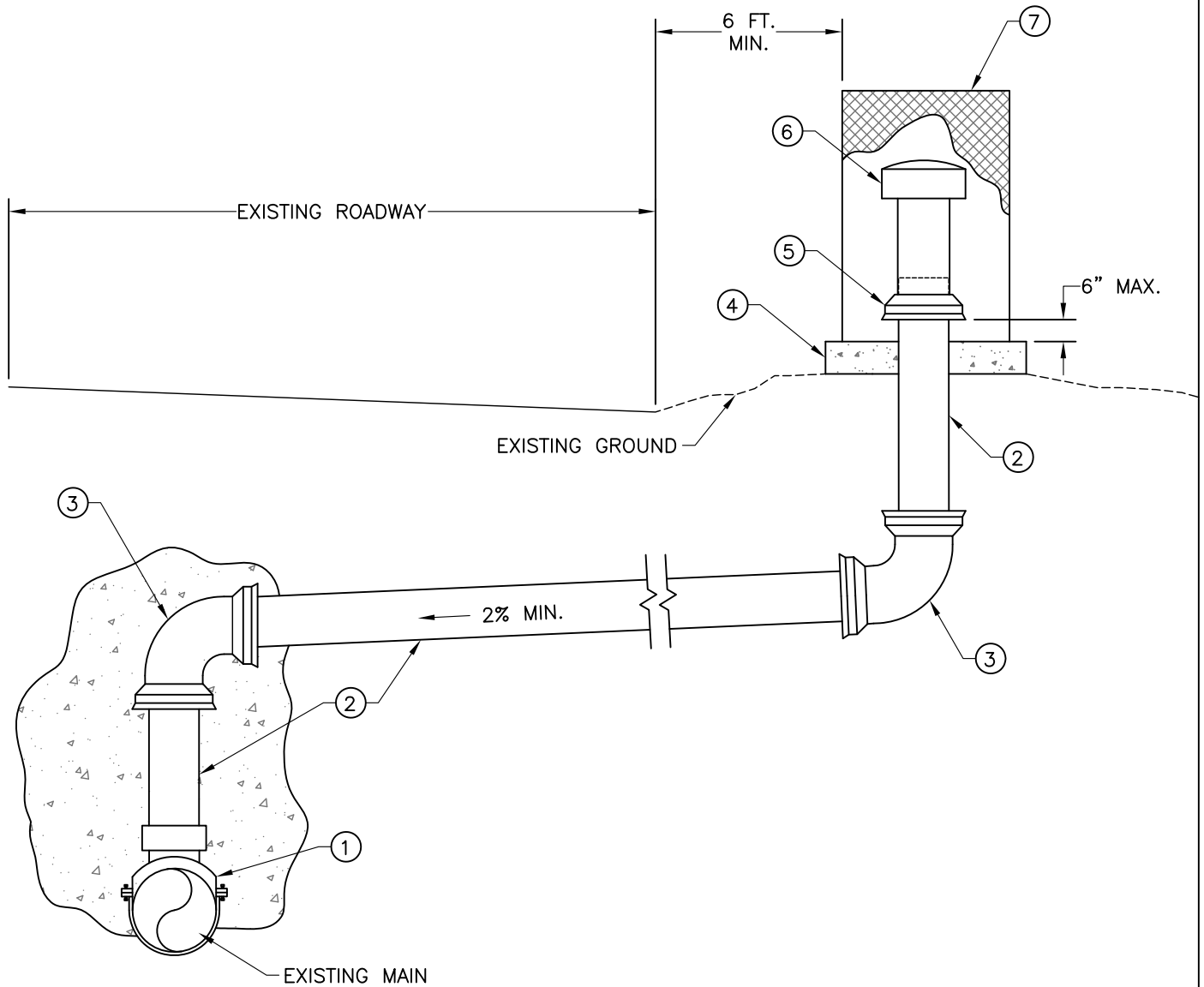
ITEM	QTY	DESCRIPTION	REMARKS
①	1	UTILITY BOX WITH LID MARKED "SEWER"	CHRISTY B30 OR (2) G5, SEE NOTE 'D'
②	1	EXPANSION PLUG	PASCO HAND-TIGHT OR APPROVED EQUAL, SEE NOTE 'C'
③	2	STREET 45°	SDR35 PVC PIPE
④		#12 AWG INSULATED LOCATOR WIRE	SINGLE STRAND COPPER, SEE DWG. #102
⑤	2	WYE	SDR35 PVC PIPE
⑥		SINGLE SERVICE: 4" MIN., DOUBLE SERVICE: 4" MIN., MAIN-LINE CLEANOUT: SAME SIZE AS MAIN	SDR35 PVC PIPE
⑦	1	4"x4" SWRxDWV REDUCER	PTI #P657, USE ABS TO SDR GLUE
⑧	1	2 FT. STUB WITH GLUED CAP	ABS-DWV OR OTHER BUILDING CODE APPROVED MATERIAL
⑨	1	SEWER RELIEF POPPER (SEE NOTE 'B')	PLUMBEST (POPPER), UHS (HOMESAVER FLIP TOP) OR APPROVED EQUAL
⑩	1	PVC OR SADDLE WYE, DFW/HPI, FLEXIBLE RUBBER, REQUIRED IF EXISTING WYE NOT FOUND	



NOTES

- A. UNLESS OTHERWISE APPROVED, ALL CONNECTIONS TO EXISTING T.U.D. MAINS SHALL BE BY "HOT-TAP" WITH APPROVED TAPPING SLEEVE. T.U.D. CAN ONLY HOT-TAP 4-INCH AND 6-INCH SEWER LINES.
- B. BOTH 4-INCH AND 6-INCH SERVICES SHALL USE 4-INCH STRAINERS AND METERS.
- C. VALVE IS TO REMAIN CLOSED FOR A MINIMUM OF 5 DAYS TO ALLOW THE CONCRETE THRUST BLOCK TO CURE.
- D. ALL FITTINGS INSTALLED ON EXISTING RECLAMATION MAIN SHALL BE 3 FT. MIN. FROM JOINTS, FITTINGS, OR TAPS.
- E. COAT BURIED NUTS & BOLTS WITH KOPPERS BITUMASTIC NO. 50, NAPA #MAC8400 RUBBERIZED UNDERCOAT, OR TAPE WITH 10 MILS PVC TAPE, 3 WRAPS MIN. AND COVER WITH PLASTIC SHEETING, 4 MIL THICK MIN. BOLTS MUST BE ACCESSIBLE.
- F. ALL EXPOSED PIPING SHALL BE PAINTED PANTONE PURPLE.

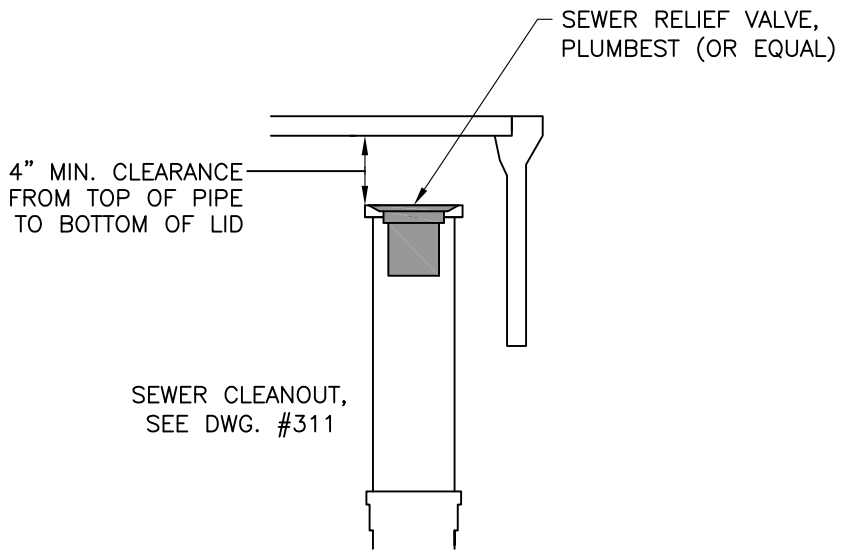
ITEM	QTY	DESCRIPTION	REMARKS
①	1	½" GALV. STEEL WIRE MESH	WIRE DIA.=0.105"
②	1	STAINLESS STEEL TAPPING SLEEVE	ROMAC "SST", ROCKWELL 622, FORD "FAST" OR APPROVED EQUAL
③	1	RESILIENT WEDGE VALVE	FLxFL W/2" OPERATING NUT, SEE DETAIL #201, SIZE TO MATCH SERVICE
④	2	4"x6" REDUCER	FLxFL (ONLY USE WITH 6" SERVICES) (SEE NOTE C.)
⑤	2	4" D.I.P. SPOOL	FLxFL (48" LONG)
⑥	1	4" METER STRAINER	FLxFL (NEPTUNE OR APPROVED EQUAL)
⑦	1	4" TURBINE METER	FLxFL (NEPTUNE OR APPROVED EQUAL)
⑧	1	PRESSURE GAUGE	W/ ¼" TAP (PRESSURE RANGE PER T.U.D.)
⑨	1	RESILIENT WEDGE VALVE	FLxMJ W/2" OPERATING NUT, SEE DETAIL #201, SIZE TO MATCH SERVICE
⑩	1	MECHANICAL JOINT W/ GRIP RINGS	OR APPROVED EQUAL
⑪	1	PRECAST 3'x5' VAULT	CHRISTY R17 PIT OR APPROVED EQUAL
⑫	1	STEEL HINGED TORSION-ASSIST LID	TRAFFIC-RATED CHRISTY R27-52HT
⑬	1	ADJUSTABLE PIPE SUPPORT	SEE DETAIL #214
⑭	1	4"x4" POST	PRESSURE-TREATED, 4 FT. HIGH, PAINT PURPLE



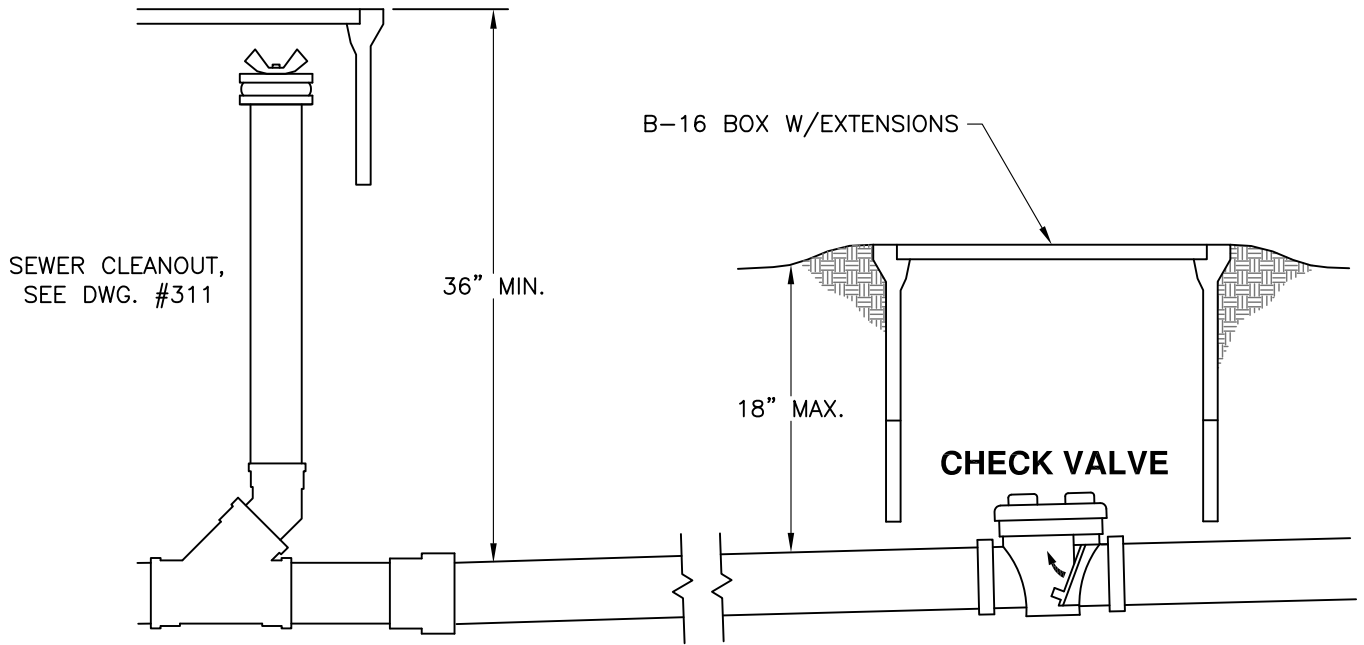
NOTES

- A. LOCATE CONNECTION TO MAIN UPSTREAM OF INVERTED SIPHON, BUT PRIOR TO ANY SERVICES OR MANHOLES IF POSSIBLE. SELECT A LOCATION THAT WILL NEVER BE SUBJECT TO PRESSURIZED CONDITIONS DURING A HIGH FLOW EVENT.
- B. LOCATE THE CB SADDLE AS CLOSE TO THE CROWN OF THE PIPE AS POSSIBLE.
- C. MAINTAIN POSITIVE SLOPE FROM THE MAIN TO THE VENT.
- D. ENCASE CB SADDLE WITH SLURRY OR PROVIDE 95% RELATIVE COMPACTION AROUND PIPE.
- E. LOCATE ENCLOSURE IN AN AREA THAT MINIMIZES POTENTIAL DAMAGE FROM VEHICLES.

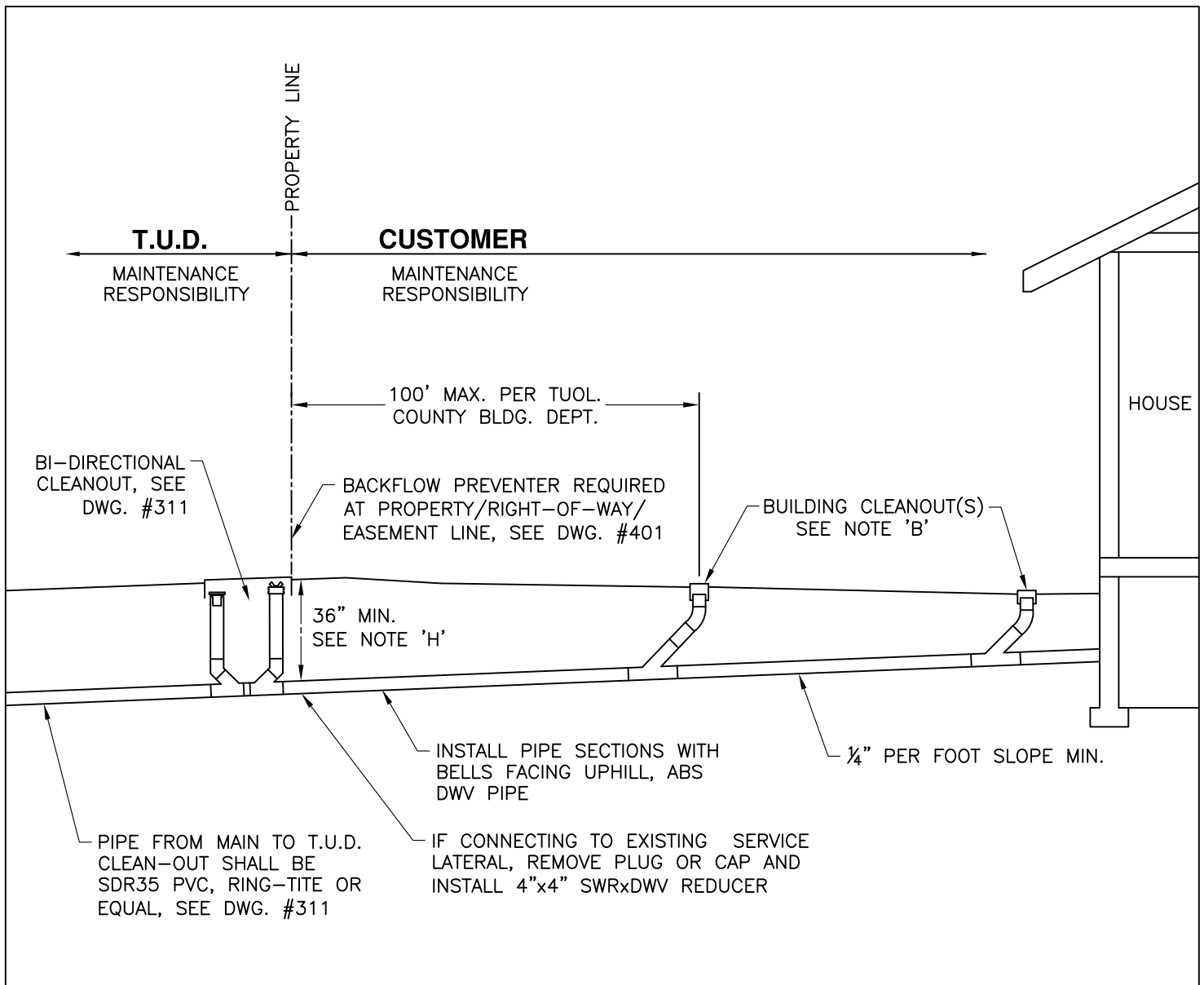
ITEM	QTY	DESCRIPTION	REMARKS
①	1	CB SADDLE W/ SDR-35 OUTLET	ROMAC (OR EQUAL), SADDLE TO MATCH MAIN SIZE
②		SDR 35 PIPE	SIZE TO MATCH VENT SIZE
③	2	90° ELBOW	SDR35 (GxG)
④	1	CONCRETE PAD	4"x28"x28"
⑤	1	ADAPTER SLEEVE	DWV S x SWR G
⑥	1	SWEET AIR VENT	6" RATED AT 97 CFM, 8" RATED AT 188 CFM
⑦	1	ENCLOSURE (SEE NOTE 'E')	PLACER WATERWORKS PW/SJARVS-4 WITH EXPANDED STEEL BODY FOR VENTILATION (NO INSULATION)



**SEWER RELIEF VALVE
RECOMMENDED INSTALLATION**

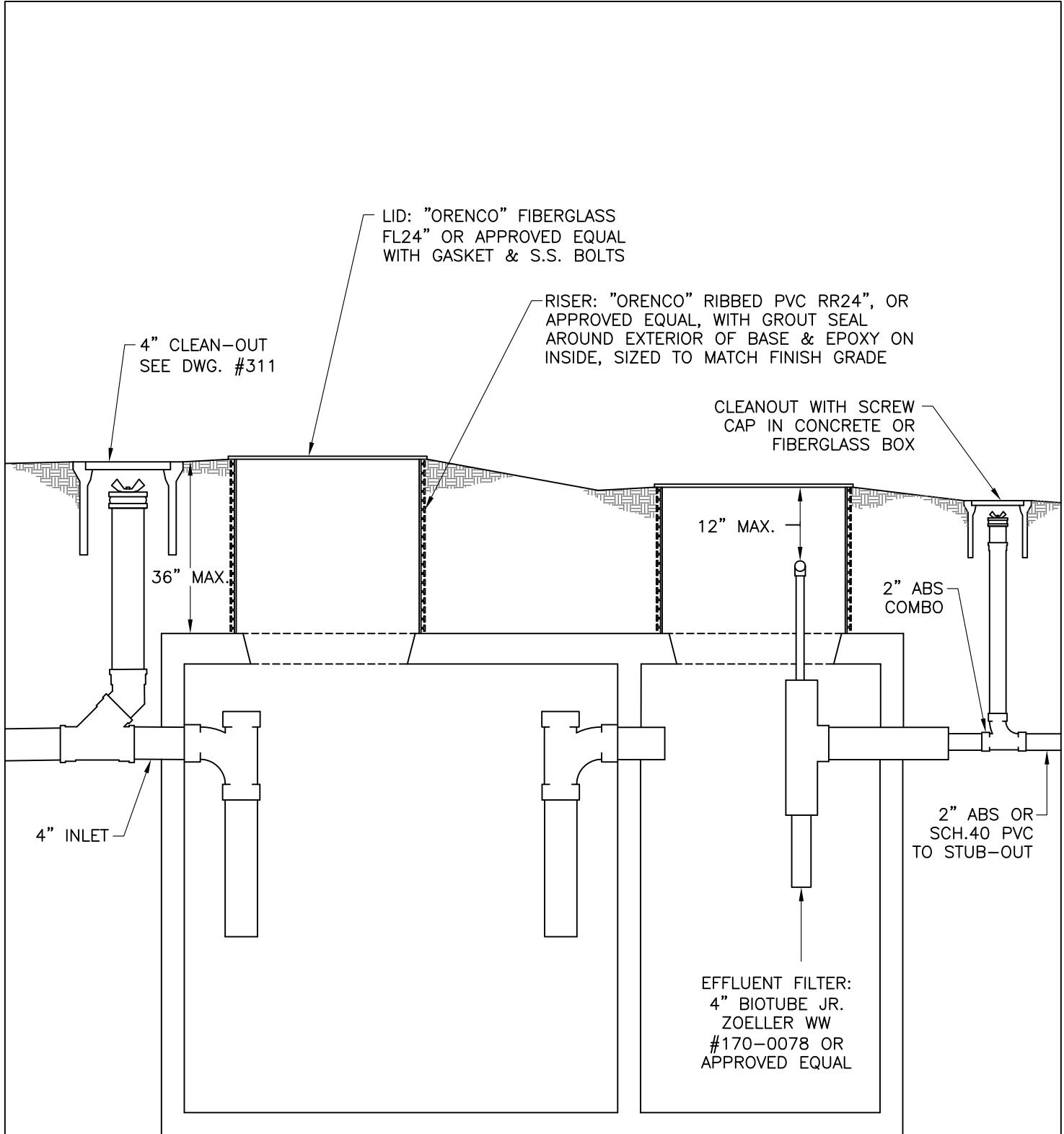


**CHECK VALVE ON CUSTOMER'S LINE
NOT TYPICALLY USED**



NOTES

- A. CUSTOMER SHALL PROVIDE A 4" CLEANOUT AT THE RESIDENCE, THE PROPERTY LINE, AND AT ALL FITTINGS GREATER THAN 45". MAXIMUM SPACING BETWEEN CLEANOUTS SHALL NOT EXCEED 100 FT. PER COUNTY ORDINANCE.
- B. SEWER CONNECTIONS AND PIPE INSTALLATION MUST BE INSPECTED BY T.U.D. AND THE COUNTY BUILDING DEPARTMENT PRIOR TO TRENCH BACKFILL. 24-HOUR NOTICE IS REQUIRED PRIOR TO INSPECTION. IF SEWER CONNECTION REQUIRES A PUMP, CONTACT BUILDING DEPARTMENT (533-5940).
- C. ALL WORK INSIDE AND OUTSIDE OF RESIDENCE MUST CONFORM TO BUILDING DEPARTMENT SPECIFICATIONS AND ALL APPLICABLE COUNTY CODES.
- D. WHERE A SEWER LATERAL HAS NOT BEEN STUBBED OUT TO THE PROPERTY LINE, CUSTOMER SHALL BE RESPONSIBLE FOR ALL COSTS AND ENCROACHMENT PERMIT FOR WORK DONE WITHIN THE RIGHT-OF-WAY.
- E. OWNERS OF EXISTING RESIDENCES WITH SEPTIC SYSTEMS MUST HAVE THE SEPTIC TANK PUMPED AND FILLED WITHIN ONE WEEK OF CONNECTING TO T.U.D. SEWER MAIN. ABANDONED SEPTIC TANK MUST BE INSPECTED BY THE COUNTY HEALTH DEPT.
- F. BACKFILL MUST CONFORM TO T.U.D. SPECIFICATIONS.
- G. APPLICATION AND CONNECTION FEES MUST BE SUBMITTED TO T.U.D. PRIOR TO CONNECTION.
- H. IF T.U.D. LATERAL IS LESS THAN 36" DEEP, USE MIN. SLOPE OF 1/4" PER FOOT FOR COVER.



1200 GAL. (MIN.) CONCRETE SEPTIC TANK

**PROPERTY OWNER TO PROVIDE T.U.D. WITH
ACCESS ROUTE FOR MAINTENANCE PURPOSES**

**TUOLUMNE UTILITIES DISTRICT
APPLE VALLEY ESTATES AND
ROGUE RIVER COURT SEWER CONNECTION**

REV. 09-14-12
STD. DWG. NO.
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