

SEWER STANDARDS

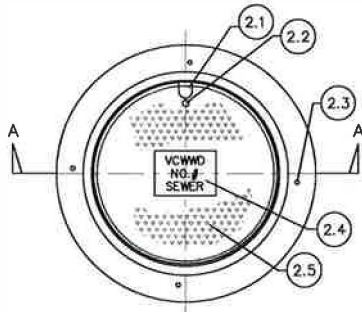
Ventura County Waterworks District ("District") has adopted Section 2, Sewers and Sanitation, of the Standard Plans for Public Works Construction (SPPWC), as the official District standards for sewer construction, with the following modifications:

1. PRECAST CONCRETE SEWER MANHOLE

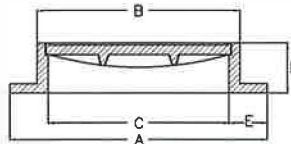
- Only one (1) manhole step shall be installed. The step shall be placed at a max. of 16" from top of manhole lid and project 5" inside the manhole.
- If the soil beneath a concrete manhole base is disturbed, or groundwater exists, a minimum 12" layer of $\frac{3}{4}$ " crushed gravel shall be placed under the base.
- Manholes shall not be placed in sidewalks without prior written approval from District.

2. MANHOLE COVER AND FRAME

- $1\frac{1}{2}$ " lifting slot
- 1" pick hole
- $\frac{5}{8}$ " diameter holes shall be drilled in frame, 4 equidistant places.
- Cast $2\frac{1}{2}$ " letters, raised $\frac{3}{16}$ ", with "VCWWD NO. 1 SEWER", "VCWWD NO. 16 SEWER", or "COUNTY OF VENTURA SEWER".
- Cover shall have $\frac{3}{16}$ " raised diamond tread surface.
- There shall be no other language on outside of manhole frame or cover unless approved by District.



FRAME AND COVER






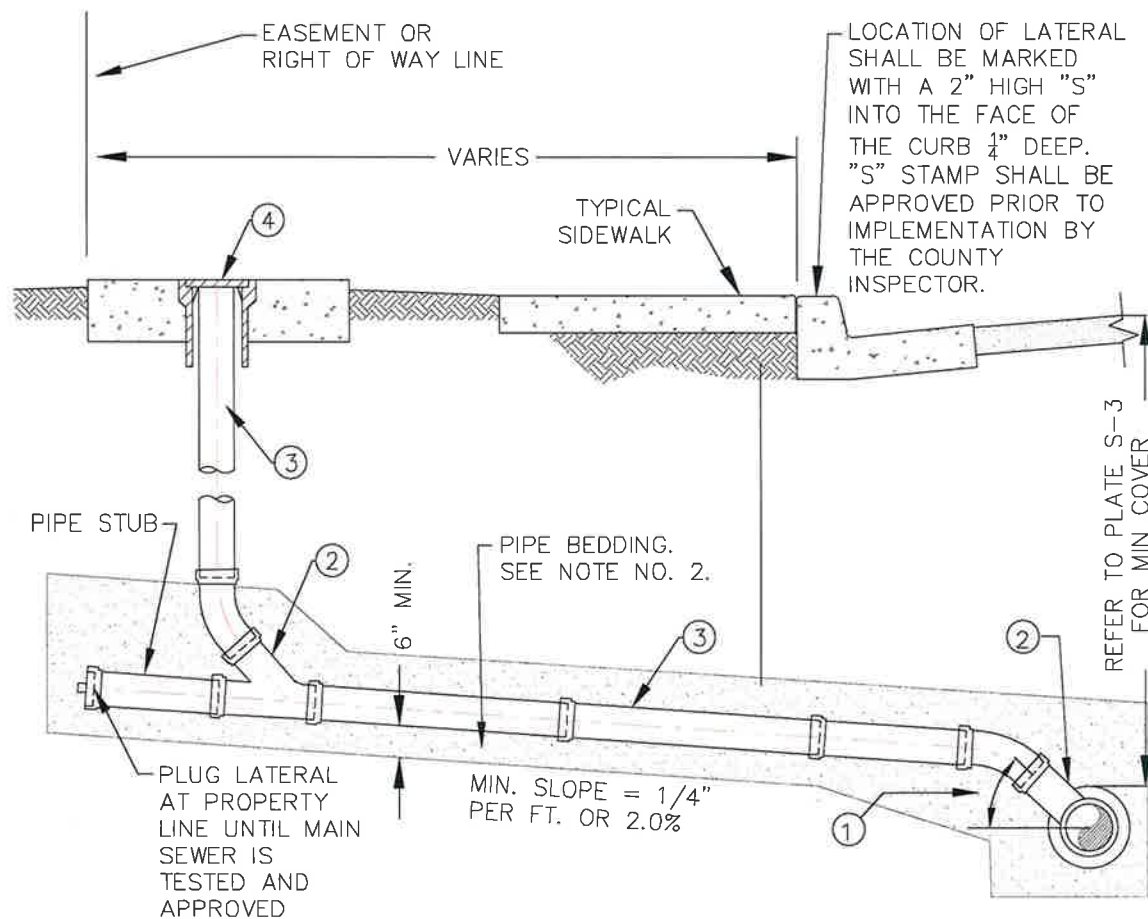
SECTION A-A

FRAME & COVER DIMENSIONS			
SIZE	24	30	36
A	32	38	44
B	27	33	39
C	24	30	36
D	6	6	6
E	4	4	4

3. DROP SEWER MANHOLE

- Install a cross or tee.
- Install clean out and clean out cover at cross or tee connection.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1 & 16. COUNTY SERVICE AREA NO. 29, 30, & 34.			
ADOPTED BOARD OF SUPERVISORS DATE:		SEWER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	
GENERAL NOTES			STANDARD DRAWING NO. S-1






NOTES:

1. LATERAL RISER WHERE REQUIRED SHALL BE INSTALLED WITHIN DEDICATED EASEMENT OR PUBLIC RIGHT OF WAY LINE.
2. LATERAL BEDDING TO BE SAME AS SEWER MAIN.
3. PLUG WYE BRANCH WITH ABS STOPPER.
4. TO CONNECT SIX INCH AND SMALLER SEWER LATERALS TO AN EXISTING SEWER, TAP AND INSTALL SEWER SADDLE IN MAIN SEWER WITH DISTRICT'S PRIOR APPROVAL (SEE DISTRICT APPROVED MATERIAL LIST).
5. LARGE SEWER LATERALS MAY BE REQUIRED TO BE CONNECTED WITH A MANHOLE AT THE DISTRICT'S DISCRETION.

CONSTRUCTION NOTES:

- ①. BRANCHES SHALL BE CONNECTED WITH A WYE AND SHALL BE ROTATED UPWARD FROM HORIZONTAL TO AN ANGLE OF $22\frac{1}{2}^{\circ}$ TO 45° .
- ②. WYE BRANCH FITTING.
- ③. PVC SDR-35 PIPE OR DISTRICT APPROVED EQUAL.
- ④. REFER TO STANDARD DRAWING NO. S-5 FOR CLEANOUT DETAIL.

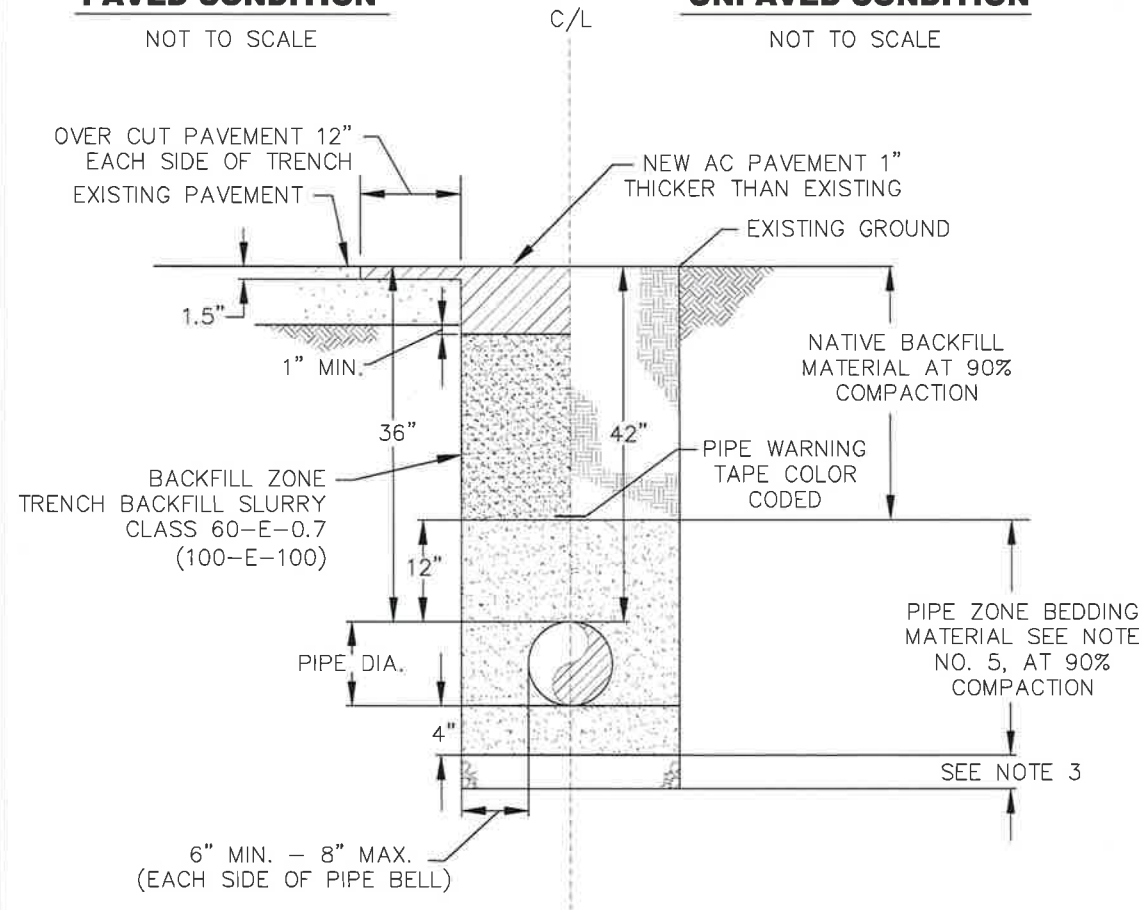
VENTURA COUNTY WATERWORKS DISTRICT NO. 1 & 16. COUNTY SERVICE AREA NO. 29, 30, & 34.			
ADOPTED BOARD OF SUPERVISORS DATE:		SEWER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	SEWER LATERAL DETAIL
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	
			STANDARD DRAWING NO. S-2

PAVED CONDITION

NOT TO SCALE

UNPAVED CONDITION

NOT TO SCALE



NOTES:

1. MAINTAIN 36" MIN. COVER FOR ALL PIPES IN PAVED AREAS (ON ALL SIDES OF PIPE).
2. MAINTAIN 42" MIN. COVER FOR ALL PIPES IN UNPAVED AREAS (ON ALL SIDES OF PIPE).
3. FOUNDATION SHALL BE REQUIRED IF NATIVE MATERIAL IS SOFT, SPONGY OR UNSTABLE. WHERE OVER EXCAVATION IS REQUIRED, DEPTH AND MATERIAL SHALL BE DETERMINED BY THE DISTRICT.
4. COMPACTION SHALL NOT BE ACHIEVED BY THE USE OF FLOODING, PONDING, OR JETTING.
5. BEDDING MATERIAL SHALL BE WASHED CONC. SAND, SE > 30, AND GRANULAR WITH 100% PASSING 3/4" SIEVE, 90% TO 100% PASSING THE 3/8" SIEVE AND NOT MORE THAN 5% PASSING THE 200 SIEVE.
6. PIPE SHALL BE ORIENTED WITH PRODUCT LABEL ON TOP.
7. CONTRACTOR SHALL PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THAT THE WEIGHT OF THE PIPE DOES NOT BEAR ON THE BELL. CONTRACTOR SHALL RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF THE BEDDING.
8. IF EDGE OF ASPHALT TRENCH CAP IS WITHIN 2 FEET OF THE EXISTING EDGE OF PAVEMENT OR LIP OF GUTTER, THE OVERCUT AND PAVING SHALL BE EXTENDED TO THE EDGE OF PAVING OR LIP OF GUTTER.
9. IF DEPTH EXCEEDS 10', SAND BEDDING SHALL BE SUBSTITUTED WITH 3" ROCK.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1 & 16.
COUNTY SERVICE AREA NO. 29, 30, & 34.

ADOPTED BOARD OF SUPERVISORS
DATE:

SEWER CONSTRUCTION STANDARDS

APPROVED BY: *[Signature]*

DIRECTOR OF
PUBLIC WORKS

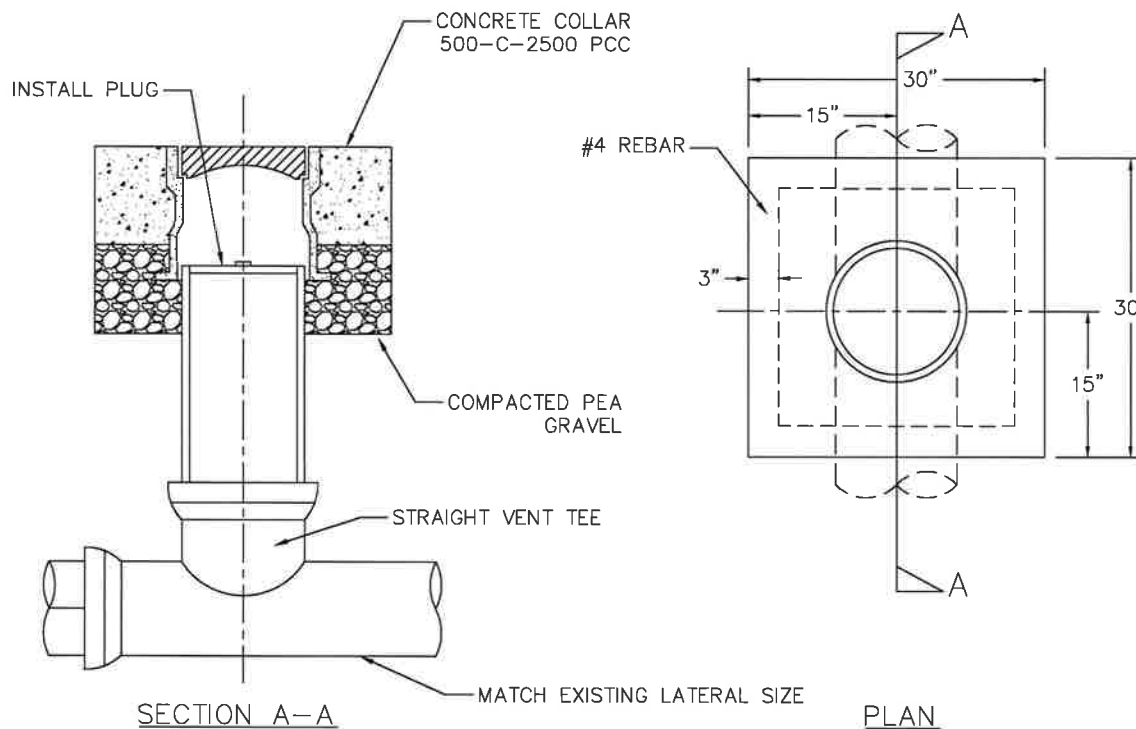
RECOMMENDED BY: *[Signature]*

DIRECTOR OF
WATER AND
SANITATION

SEWER TRENCH
DETAIL






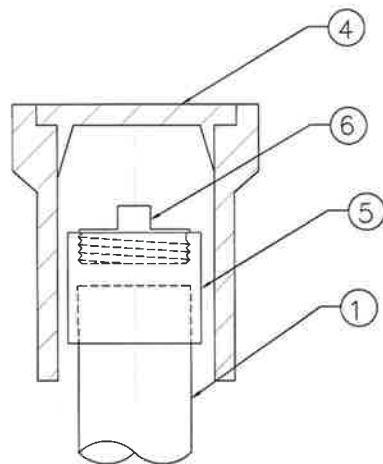
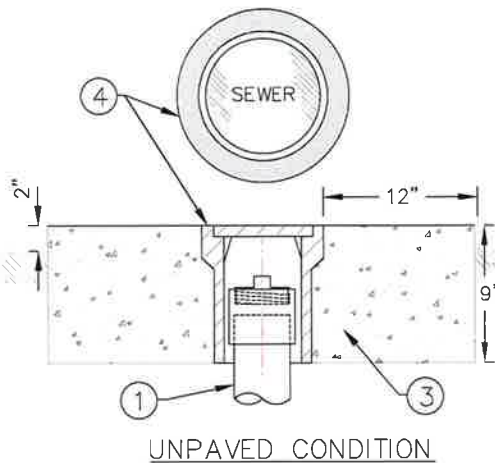
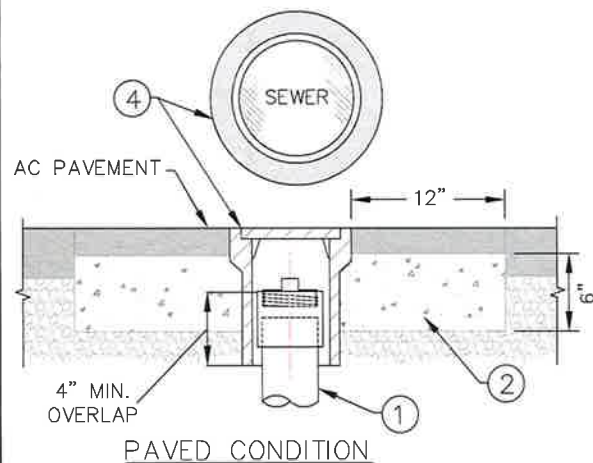
STANDARD
DRAWING
NO.
S-3



NOTES:

1. SAMPLING WELL SHALL BE INSTALLED 18" TO CENTERLINE BEHIND CURB OR SIDEWALK. WHEN NOT POSSIBLE SAMPLING WELL SHALL BE LOCATED AT THE DISTRICT ENGINEER'S DISCRETION.
2. SAMPLING WELL BOX SHALL BE LISTED ON THE APPROVED MATERIALS LIST OR A DISTRICT APPROVED EQUAL. LID SHALL BE MARKED "SEWER".
3. STRAIGHT VENT TEE AND RISER SHALL BE VITRIFIED CLAY. DO NOT USE A WYE IN PLACE OF VENT TEE. TEE AND RISER SHALL BE THE SAME SIZE AS THE LATERAL. RISER SHALL BE VERTICALLY PLUMB.
4. DISTRICT SHALL APPROVE THE LOCATION OF THE SAMPLING WELL, MATERIALS, AND METHODS PRIOR TO INSTALLATION.
5. CONCRETE COLLAR SHALL BE PLACED LEVEL WITH EXISTING PAVEMENT ON PAVED AREAS.


VENTURA COUNTY WATERWORKS DISTRICT NO. 1 & 16. COUNTY SERVICE AREA NO. 29, 30, & 34.			
ADOPTED BOARD OF SUPERVISORS DATE:		SEWER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	SAMPLING WELL  STANDARD DRAWING NO. S-4
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	



- | ITEM | CONSTRUCTION NOTES |
|------|--|
| ① | CLEANOUT RISER PIPE TO BE 8" IN DIAMETER. PVC SDR-35 OR DISTRICT APPROVED EQUAL. |
| ② | CLASS "B" CONCRETE COLLAR (ROUND). |
| ③ | CLASS "B" CONCRETE COLLAR (SQUARE). |
| ④ | PRECAST BOX, FRAME AND COVER WITH MARKING AS SHOWN HEREON. |
| ⑤ | SOLVENT WELD X FIPT SCH. 40 COUPLING OR DISTRICT APPROVED EQUAL. |
| ⑥ | PVC SCH. 40 STOPPER. MIPT PLUG WITH MALE SQUARE NUT OR DISTRICT APPROVED EQUAL. |

NOTES

- SEWER LATERALS LARGER THAN 8" SHALL HAVE TERMINAL MANHOLE.

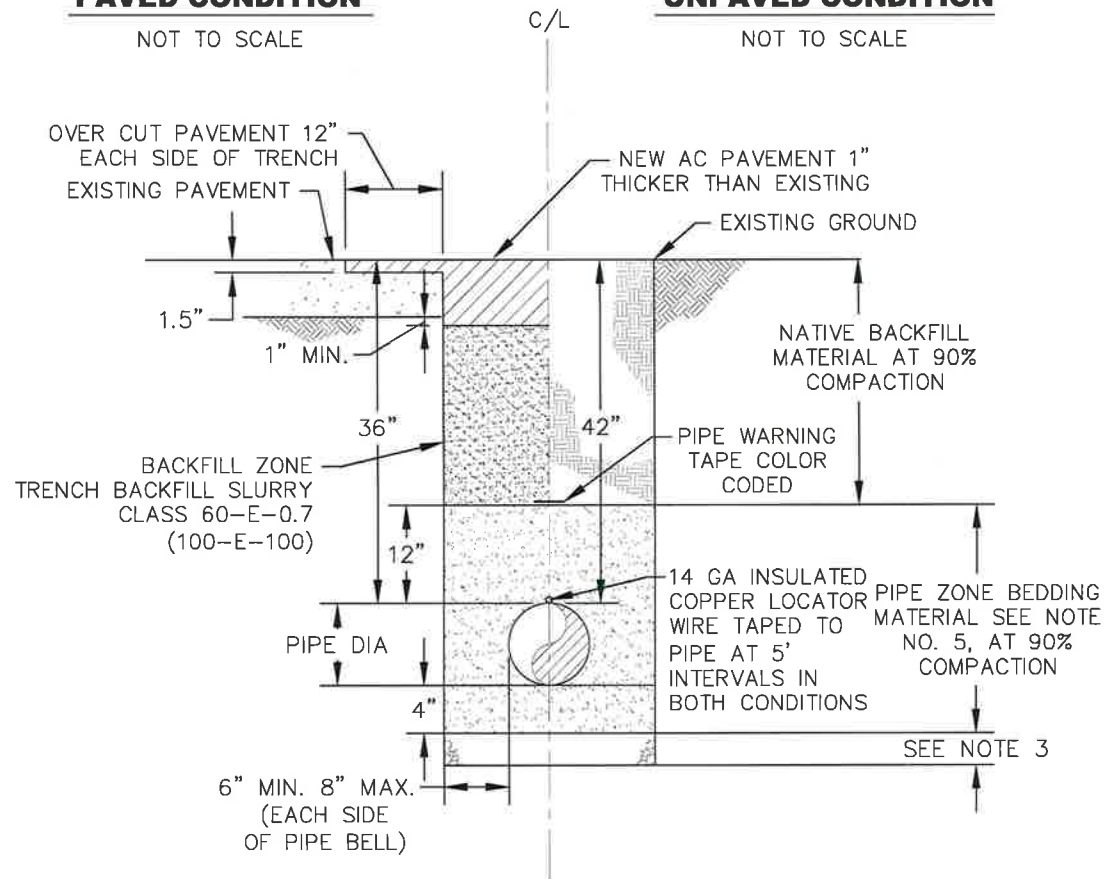
VENTURA COUNTY WATERWORKS DISTRICT NO. 1 & 16. COUNTY SERVICE AREA NO. 29, 30, & 34.			
ADOPTED BOARD OF SUPERVISORS DATE:		SEWER CONSTRUCTION STANDARDS	
APPROVED BY: <i>[Signature]</i>	DIRECTOR OF PUBLIC WORKS	CLEANOUT DETAIL	 STANDARD DRAWING NO. S-5
RECOMMENDED BY: <i>[Signature]</i>	DIRECTOR OF WATER AND SANITATION		

PAVED CONDITION

NOT TO SCALE

UNPAVED CONDITION

NOT TO SCALE

**NOTES:**

1. MAINTAIN 36" MIN. COVER FOR ALL PIPES IN PAVED AREAS (ON ALL SIDES OF PIPE).
2. MAINTAIN 42" MIN. COVER FOR ALL PIPES IN UNPAVED AREAS (ON ALL SIDES OF PIPE).
3. FOUNDATION SHALL BE REQUIRED IF NATIVE MATERIAL IS SOFT, SPONGY OR UNSTABLE. WHERE OVER EXCAVATION IS REQUIRED, DEPTH AND MATERIAL SHALL BE DETERMINED BY THE DISTRICT.
4. COMPACTION SHALL NOT BE ACHIEVED BY THE USE OF FLOODING, PONDING, OR JETTING UNLESS RECOMMENDED BY SOILS ENGINEER.
5. BEDDING MATERIAL SHALL BE WASHED CONC. SAND, SE > 30, AND GRANULAR WITH 100% PASSING 3/4" SIEVE, 90% TO 100% PASSING THE 3/8" SIEVE AND NOT MORE THAN 5% PASSING THE 200 SIEVE.
6. PIPE SHALL BE ORIENTED WITH PRODUCT LABEL ON TOP.
7. CONTRACTOR SHALL PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THAT THE WEIGHT OF THE PIPE DOES NOT BEAR ON THE BELL. CONTRACTOR SHALL RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF THE BEDDING.
8. IF EDGE OF ASPHALT TRENCH CAP IS WITHIN 2 FEET OF THE EXISTING EDGE OF PAVEMENT OR LIP OF GUTTER, THE OVERCUT AND PAVING SHALL BE EXTENDED TO THE EDGE OF PAVING OR LIP OF GUTTER.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

WATER CONSTRUCTION STANDARDS

APPROVED BY:

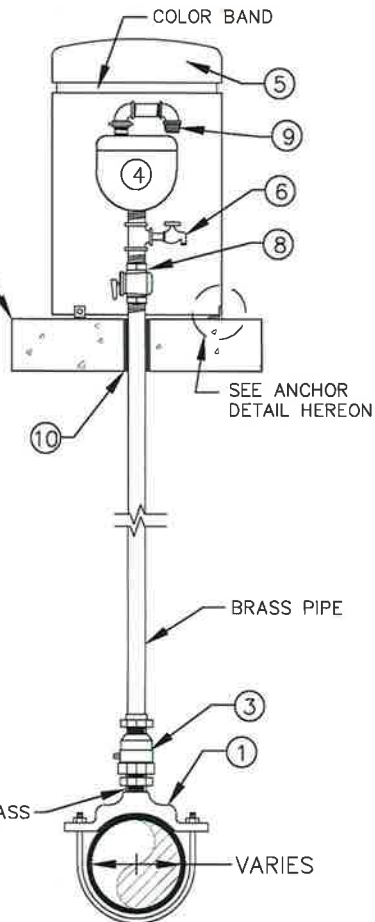
DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY:

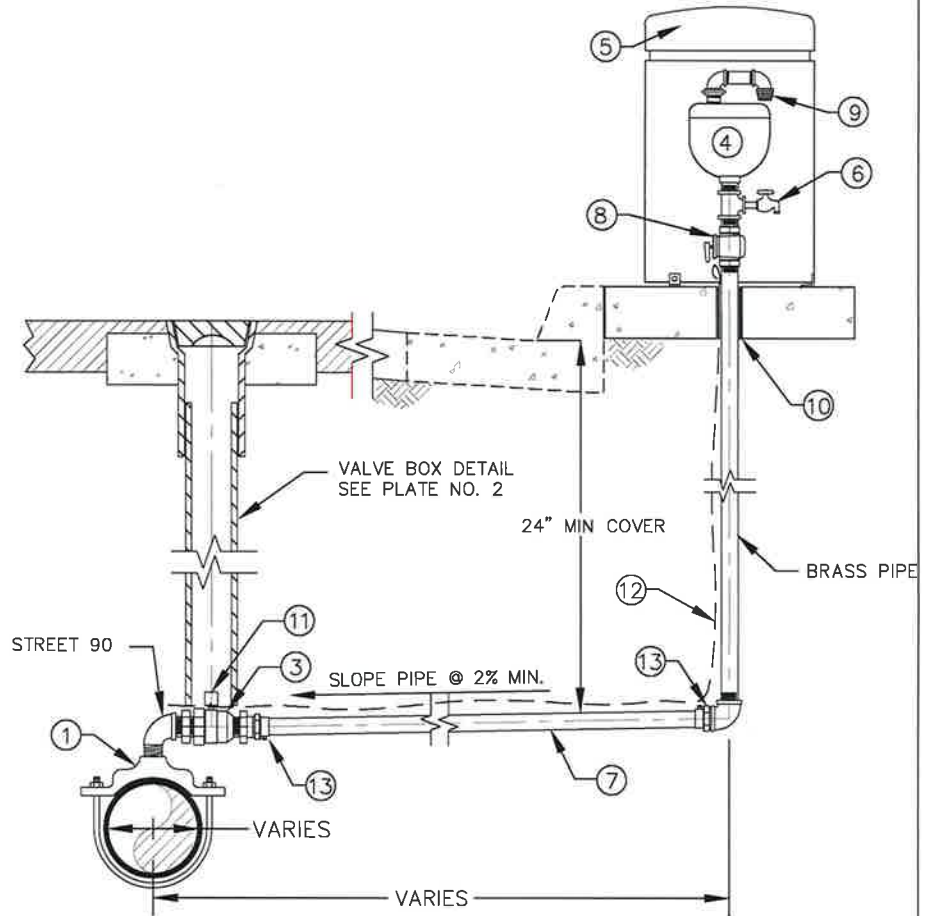
DIRECTOR OF
WATER AND
SANITATIONTRENCH
DETAILSSTANDARD
PLAN
W-1

POTABLE WATER SHALL HAVE A BLUE "COLOR BAND" AROUND THE TOP OF THE CAN AND RECYCLED WATER SHALL HAVE A PURPLE "COLOR BAND" AROUND TOP OF CAN AND

CONC. WALK OR
3'x3'x4" CONC. PAD



ALT "A"



ALT "B"

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY: *[Signature]*

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY: *[Signature]*

DIRECTOR OF
WATER AND
SANITATION

WATER CONSTRUCTION STANDARDS

AIR AND VACUUM
VALVE INSTALLATION
1" AND 2"

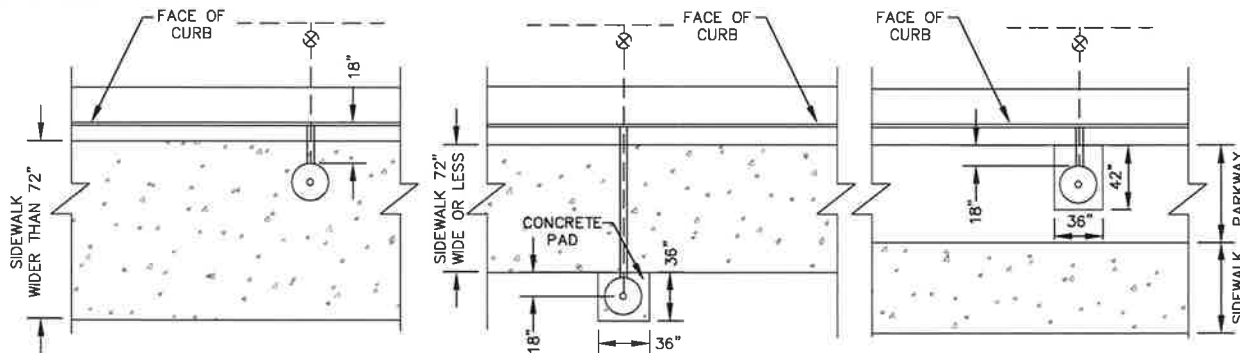


STANDARD
PLAN
W-3
1 OF 2

ANCHOR DETAIL

CONSTRUCTION NOTES:

- ①. WATER MAIN TAP SHALL BE WITH AN APPROVED SERVICE SADDLE ON P.V.C. OR D.I. PIPE OR A WELDED COUPLING ON STEEL PIPE. (ALT "B" ONLY)
- ②. IF AIR VALVE IS ANCHORED TO STRUCTURE, COVER SHALL BE OMITTED.
- ③. BALL VALVE, SIZE SHALL BE 1" FOR 10" OR SMALLER PIPE SIZE. BALL VALVE SIZE SHALL BE 2" FOR 12" OR LARGER PIPE SIZE OR AS DIRECTED BY DISTRICT ENGINEER.
- ④. USE AIR RELEASE/VACUUM BREAKER VALVE FROM CURRENT MATERIAL LIST. (PAINTED PURPLE FOR RECLAIMED WATER)
- ⑤. VALVE COVER SHALL BE LOCATED PER APPLICABLE CASE 1, 2, OR 3, AS SHOWN HEREON. VALVE COVER SHALL BE COMPOSITE OR APPROVED EQUAL. FOR POTABLE WATER, COVER MUST HAVE A BLUE "COLOR BAND" AROUND TOP. FOR RECLAIMED WATER, COVER MUST HAVE PURPLE "COLOR BAND" AROUND TOP.
- ⑥. INSTALL 3/4" BRASS HOSE BIB.
- ⑦. COPPER PIPE (CTS) & RED BRASS FITTINGS. SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE. BRASS PIPE SHALL BE SAME SIZE AS AIR/VAC VALVE.
- ⑧. BRASS BALL VALVE WITH LEVER HANDLE ONLY.
- ⑨. USE BRASS FITTINGS WITH STAINLESS STEEL 1/8" MESH SCREEN.
- ⑩. USE 30 POUND FELT OR POLYSTYRENE BOND BREAKER.
- ⑪. 1" OR 2" ORISEAL BALL VALVE WITHOUT "STOPS" AND WITH 2" SQUARE OPERATING NUT ADAPTOR ATTACHED WITH STAINLESS STEEL BOLT AND NUT.
- ⑫. WARNING TAPE.
- ⑬. CTS X MIPT ADAPTOR WITH FIPT 90° ELBOW.
- ⑭. 2500 PSI CONCRETE MIX.






CASE 1

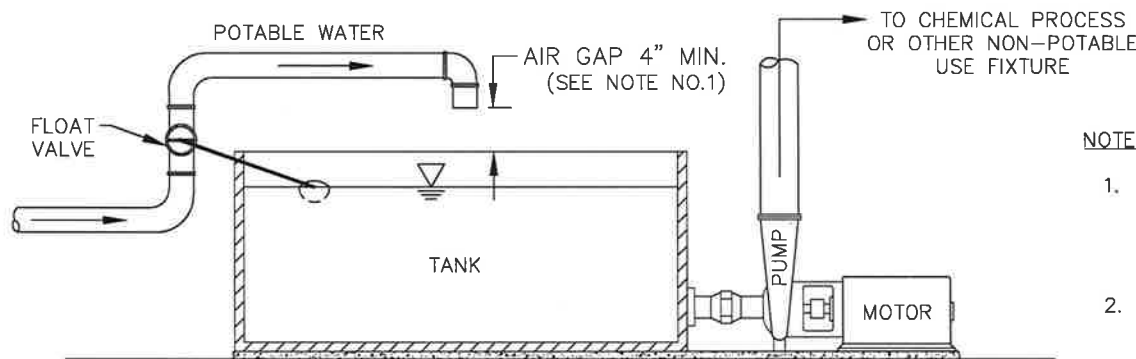
CASE 2

CASE 3

NOTES:

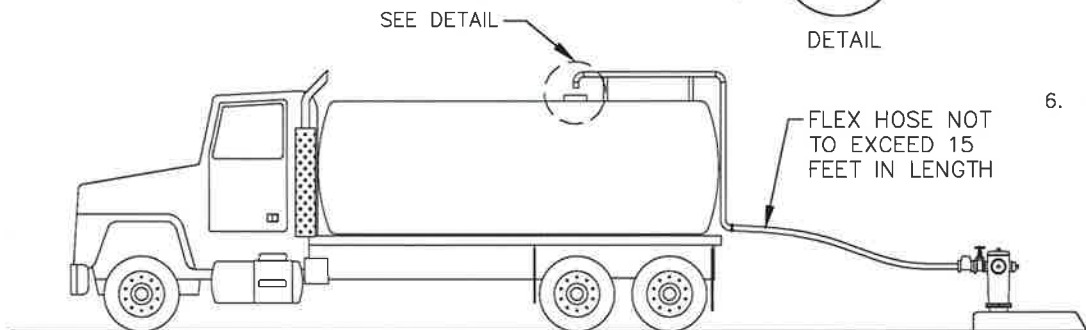
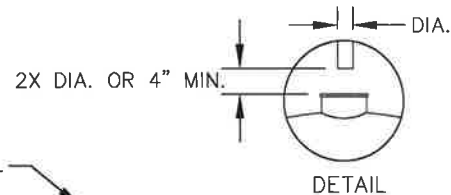
1. DISTRICT WILL DETERMINE IF 1" OR 2" ASSEMBLY IS TO BE INSTALLED. REFER TO PROJECT PLANS.
2. FILL ANNULAR SPACE WITH SAND AND COMPACT. JETTING SHALL NOT BE PERMITTED.
3. CURRENT MATERIAL LIST IS AVAILABLE AT THE DISTRICT OFFICE.
4. BARRICADE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 306-10.5


VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		AIR AND VACUUM VALVE INSTALLATION 1" AND 2"	 STANDARD PLAN W-3 2 OF 2
RECOMMENDED BY:			
	DIRECTOR OF PUBLIC WORKS		
	DIRECTOR OF WATER AND SANITATION		

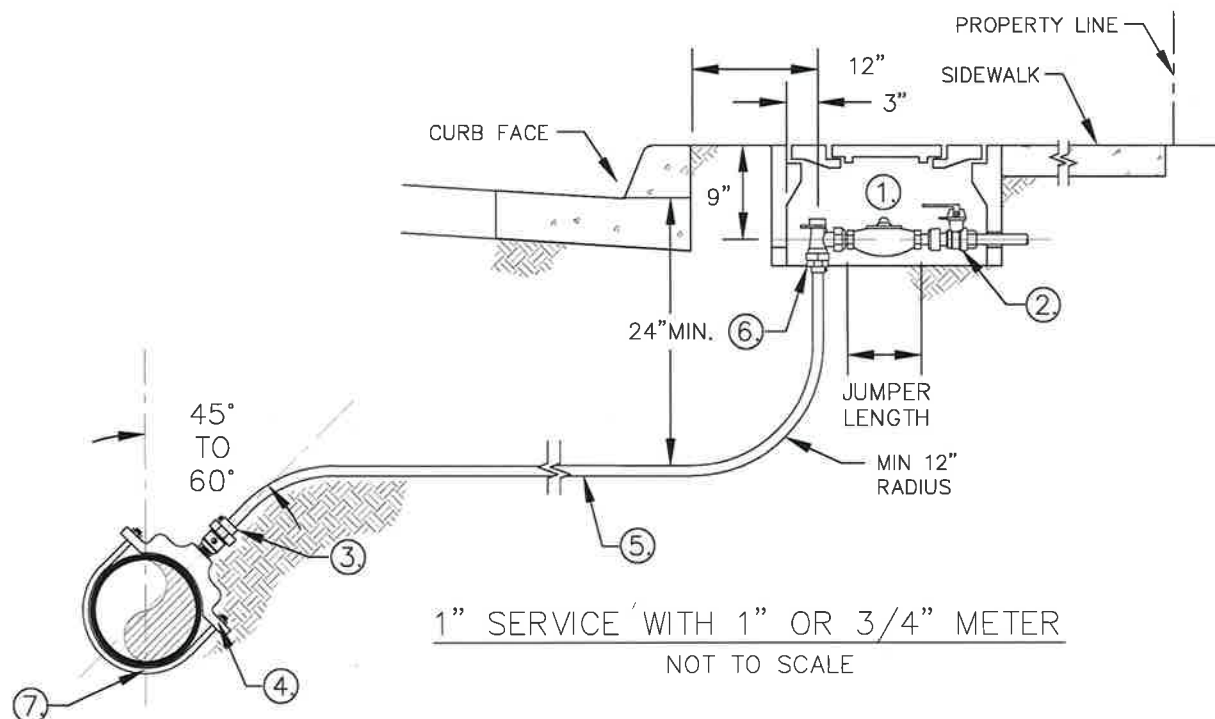


NOTES:

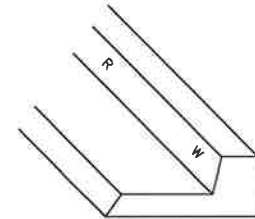
1. ALL WATER TANKS SHALL BE EQUIPPED WITH AN APPROVED AIR GAP. THE AIR GAP SHALL BE AT LEAST TWICE (2X) THE DIAMETER OF THE SUPPLY PIPE AND IN NO CASE LESS THAN 1".
2. PIPE LINE BETWEEN METER AND AIR GAP SHALL BE EXPOSED WITH NO CONNECTIONS BETWEEN METER AND AIR GAP.
3. APPROVED RP DEVICE SHALL BE INSTALLED IF AIR GAP CANNOT BE MADE.
4. ALL HOSES USED TO CONNECT PUBLIC WATER SYSTEM TO WATER TANKS SHALL BE KEPT IN SANITARY CONDITION AT ALL TIMES.
5. WHERE ELEVATED TANKS ARE HOOKED DIRECTLY TO FIRE HYDRANTS, AN AUTOMATIC VALVE SHALL BE REQUIRED THAT SHALL OPEN AND CLOSE AT A RATE THAT SHALL NOT CAUSE AN EXCESSIVE "HAMMER" TO THE SYSTEM.
6. USE GATE VALVES OR HYDRANT TO OPERATE WATER. BALL VALVES ARE NOT ALLOWED.



VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:	<i>John Pelt</i>	AIR GAP DETAIL	 STANDARD PLAN W-4
RECOMMENDED BY:	<i>M. Brown</i>		
	DIRECTOR OF PUBLIC WORKS		
	DIRECTOR OF WATER AND SANITATION		



LOCATION OF LATERAL SHALL BE MARKED WITH A 2" HIGH "W" FOR POTABLE WATER OR "R" FOR RECYCLED WATER STAMPED INTO THE FACE OF THE CURB $\frac{1}{4}$ " DEEP. A WHEEL GRINDER CAN BE USED TO MAKE THE MARK WITH PRIOR COUNTY INSPECTOR APPROVAL.






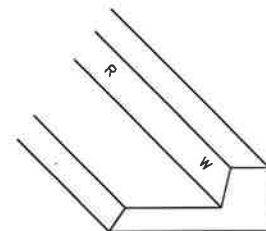
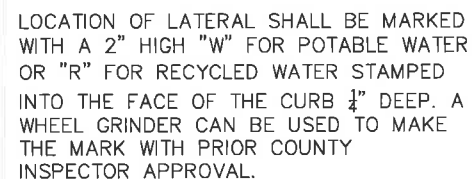
NOTES:

1. JUMPER SHALL BE SUPPLIED BY THE DISTRICT AND INSTALLED BY THE OWNER'S CONTRACTOR.
2. FOR PARKWAY AND SIDEWALK CONSTRUCTION, DISTANCE TO R/W OR WHEN SLOPE INTERFERENCE EXISTS ANGLE METER STOP SHALL BE SET 12" BEHIND CURB ON 1" SERVICE.
3. SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE.
4. CURRENT MATERIAL LIST AVAILABLE AT THE DISTRICT OFFICE.
5. COPPER PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
6. LOCATOR TAPE SHALL BE LAID ON TOP OF BEDDING MATERIAL.
7. METER BOX LID MUST ACCEPT AMR ANTENNAS.
8. NEW SERVICE SHALL BE 18" FROM OTHER SERVICES OR APPURTENANCES

CONSTRUCTION NOTES:

- ① WATER METER FURNISHED BY DISTRICT.
- ② CUSTOMER HAND VALVE WITH HANDLE.
- ③ 1" MIP THREAD X COMPRESSION BALL CORP.
- ④ SERVICE SADDLE TO BE ANGLED BETWEEN 30° AND 45°.
- ⑤ 1" TYPE K COPPER SERVICE LINE.
- ⑥ 3/4" OR 1" X COMP. ANGLE METER STOP.
- ⑦ DO NOT OVEREXCAVATE MAIN PIPELINE




VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		1" WATER METER SERVICE INSTALLATION	 STANDARD PLAN W-5
RECOMMENDED BY:			
	DIRECTOR OF PUBLIC WORKS		
	DIRECTOR OF WATER AND SANITATION		

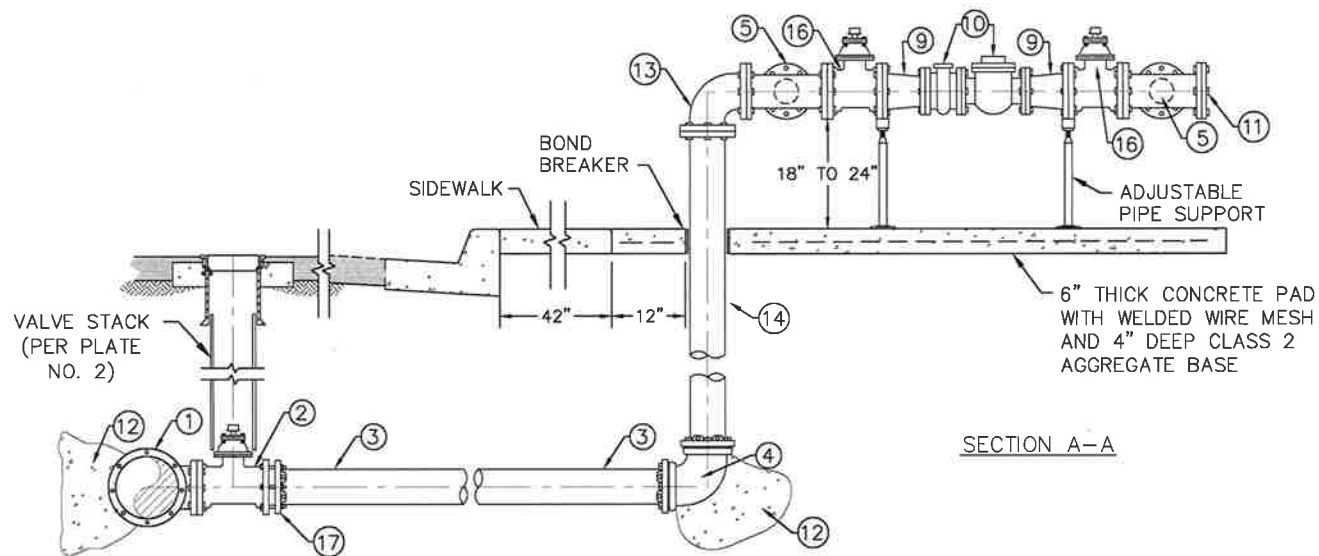
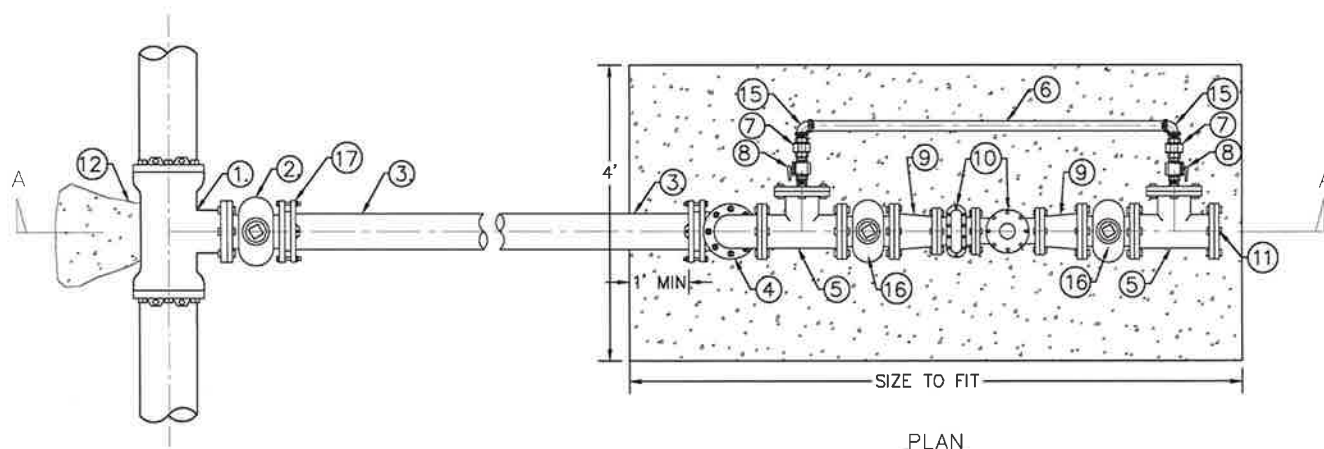





NOTES:

1. JUMPER SHALL BE SUPPLIED BY THE DISTRICT AND INSTALLED BY THE OWNER'S CONTRACTOR.
2. FOR PARKWAY AND SIDEWALK CONSTRUCTION, DISTANCE TO R/W OR WHEN SLOPE INTERFERENCE EXISTS ANGLE METER STOP SHALL BE SET 18" BEHIND CURB ON 2" SERVICE.
3. SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE.
4. CURRENT MATERIAL LIST AVAILABLE AT THE DISTRICT OFFICE.
5. NO METER BOX SHALL BE LOCATED WITHIN SIDEWALK AREA.
6. COPPER PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
7. LOCATOR TAPE SHALL BE LAID ON TOP OF BEDDING MATERIAL.
8. METER BOX MUST ACCEPT AMR ANTENNAS.
9. NEW SERVICE SHALL BE 18" FROM OTHER SERVICES OR APPURTENANCES.

*DISTANCE FROM SIDEWALK IF NO PARKWAY STRIP

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	
2" WATER METER SERVICE INSTALLATION			STANDARD PLAN W-6



VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		3" OR 4" METER ASSEMBLY PLAN AND PROFILE	 STANDARD PLAN W-7 1 OF 2
RECOMMENDED BY:			
	DIRECTOR OF PUBLIC WORKS		
	DIRECTOR OF WATER AND SANITATION		




CONSTRUCTION NOTES:

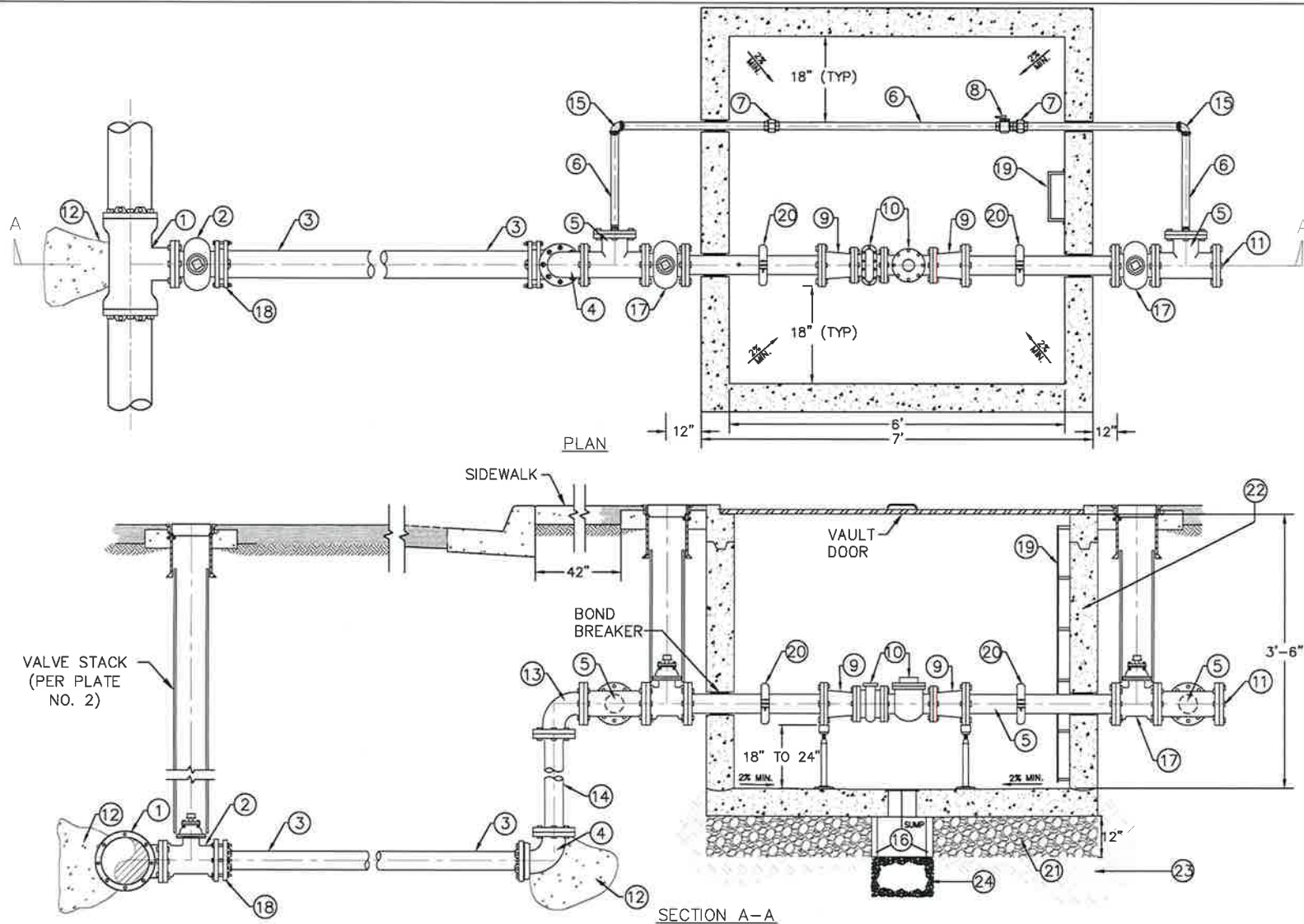
- ① (MAIN SIZE) MJ X 4" FLG DI TEE.
- ② 4" RESILIENT WEDGE GATE VALVE, FLG X MJ.
- ③ 4" DI PIPE, CLASS 350.
- ④ 4" DI 90° ELBOW, MJ X MJ.
- ⑤ 4" FLG TEE, W/ 4" X 2" COMPANION FLG.
- ⑥ 2" BRASS PIPE, BYPASS ASSEMBLY.
- ⑦ 2" BRASS UNION, FIPT X FIPT.
- ⑧ 2" BRASS BALL VALVE WITH LOCKING HANDLE.
- ⑨ 4" X 3" DI REDUCER, FLG X FLG FOR 3" ASSEMBLY ONLY.
- ⑩ WATER METER AND STRAINER ASSY. SIZE TO BE DETERMINED BY THE DISTRICT.
- ⑪ 4" BLIND FLANGE, CONNECT TO DOUBLE DETECTOR CHECK VALVE PER PLATE NO. W-13.
- ⑫ INSTALL THRUST BLOCK PER PLATE NO. W-19
- ⑬ 4" DI 90° FLG ELBOW FLG X FLG
- ⑭ 4" DI FLG SPOOL
- ⑮ 2" BRASS 90° ELBOW FIPT X FIPT
- ⑯ 4" RESILIENT WEDGE GATE VALVE, FLG X FLG.
- ⑰ 4" DI RESTRAINED FLANGE ADAPTOR.

NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. METER SIZE AND TYPE SHALL BE DETERMINED BY THE DISTRICT.
3. METER INSTALLATION IMPROVEMENTS BEYOND DISTRICT RIGHT-OF-WAY REQUIRE AN EASEMENT AS DIRECTED BY THE DISTRICT.
4. WHEN RETAINING WALL IS REQUIRED TO ACCOMMODATE GRADE VARIATIONS THE WALL SHALL BE CONSTRUCTED PER SSPWC STANDARDS AND SHOULD PROVIDE PROPER CLEARANCE FROM THE IMPROVEMENTS.
5. CURRENT MATERIAL LIST IS AVAILABLE AT THE DISTRICT OFFICE.
6. ABOVE GROUND PORTION OF ASSEMBLY SHALL BE PAINTED FOREST GREEN.
7. ABOVE GROUND FITTINGS SHALL BE BRASS/STAINLESS

METER SIZE	STRAINER LENGTH	METER LENGTH
3"	7"	12"
4"	9"	14"

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY: 	DIRECTOR OF PUBLIC WORKS	3" OR 4" METER ASSEMBLY PLAN AND PROFILE	 STANDARD PLAN W-7 2 OF 2
RECOMMENDED BY: 	DIRECTOR OF WATER AND SANITATION		



VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY:

John Pelt

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY:

M. Brown

DIRECTOR OF
WATER AND
SANITATION

WATER CONSTRUCTION STANDARDS

3" OR 4" METER
ASSEMBLY
PLAN AND PROFILE
(VAULT)



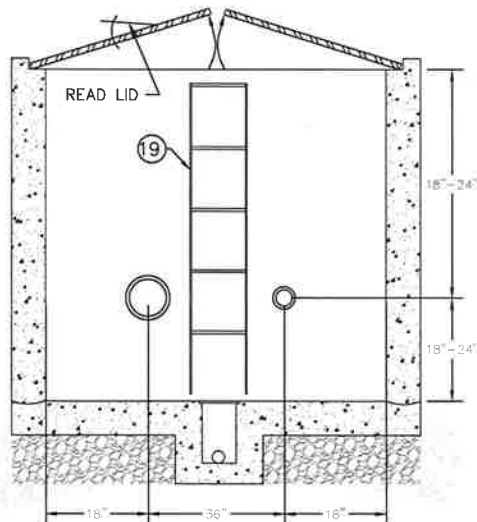
STANDARD
PLAN

W-8
1 OF 2

NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. METER SIZE AND TYPE SHALL BE DETERMINED BY THE DISTRICT.
3. METER INSTALLATION IMPROVEMENTS BEYOND DISTRICT RIGHT-OF-WAY REQUIRE AN EASEMENT AS DIRECTED BY THE DISTRICT.
4. WHEN RETAINING WALL IS REQUIRED TO ACCOMMODATE GRADE VARIATIONS THE WALL SHALL BE CONSTRUCTED PER SSPWC STANDARDS AND SHOULD PROVIDE PROPER CLEARANCE FROM THE IMPROVEMENTS.
5. CURRENT MATERIAL LIST IS AVAILABLE AT THE DISTRICT OFFICE.
6. ASSEMBLY SHALL BE FOREST GREEN.
7. 4" INSTALLATION MAY REQUIRE A SHORT SPOOL TO ADAPT TO ASSEMBLY.

METER SIZE	STRAINER LENGTH	METER LENGTH	PRECAST VAULT INSIDE DIMENSION
3"	7"	12"	6' X 6'
4"	9"	14"	6' X 6'



CONSTRUCTION NOTES:

1. (MAIN SIZE) X 4" MJ X FLG CI TEE.
2. 4" RW GATE VALVE, FLG X MJ.
3. 4" DI PIPE, CLASS 52.
4. 4" CI 90° ELBOW, FLG X MJ.
5. 4" TEE, FLG X FLG W/ 4" X 2" COMPANION FLG.
6. 2" BRASS PIPE, BYPASS ASSEMBLY.
7. 2" BRASS UNION, FIPT X FIPT.
8. 2" BRASS BALL VALVE WITH LOCKING HANDLE.
9. 4" X 3" CI REDUCER, FLG X FLG FOR 3" ASSEMBLY ONLY.
10. WATER METER AND STRAINER ASSY. SIZE TO BE DETERMINED BY THE DISTRICT.
11. 4" BLIND FLANGE, CONNECT TO DOUBLE DETECTOR CHECK VALVE PER PLATE NO.W-12.
12. INSTALL THRUST BLOCK PER (500-C-2500 PCC).
13. 4" CI 90° ELBOW FLG X FLG
14. 4" DI SPOOL FLG X FLG
15. 2" BRASS 90° ELBOW FIPT X FIPT
16. INSTALL 24" x 24" CONCRETE BOX FOR FLOOR DRAIN.
17. 4" RW GATE VALVE, FLG X FLG.
18. 4" DI FLEX COUPLING OR MJ SLEEVE.
19. STAINLESS STEEL LADDER.
20. 4" VICTAULIC COUPLING.
21. 3/4" CRUSHED AGGREGATE BASE @ 95% COMPACTION.
22. SUBMIT PRECAST VAULT OR ENGINEERED VAULT DESIGN FOR APPROVAL.
23. OVEREXCAVATE 12" AND COMPACT TO 90% AT LEAST 1' OUTSIDE OF THE VAULT FOOTPRINT
24. 3/4" LOOSE CRUSHED AGGREGATE BASE.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

WATER CONSTRUCTION STANDARDS

APPROVED BY:

[Signature]

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY:

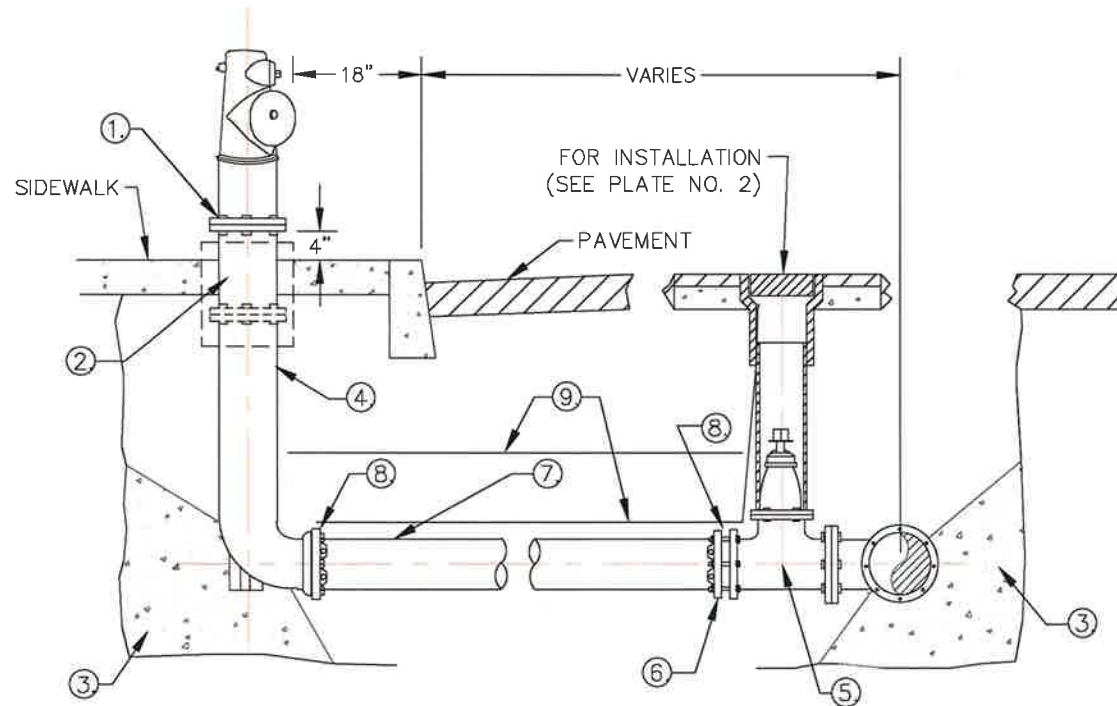
[Signature]

DIRECTOR OF
WATER AND
SANITATION

3" OR 4" METER
ASSEMBLY
PLAN AND PROFILE
(VAULT)



STANDARD
PLAN
W-8
2 OF 2




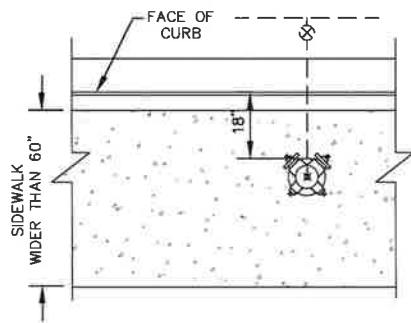
CONSTRUCTION NOTES:

- ① USE ZINK PLATED, DRILLED BREAK-AWAY BOLTS (BOLT FACING UP) WITH SILICONE SEALANT. HYDRANT GASKETS SHALL BE FULL FACE AND RUBBER COMPOSITION.
- ② DO NOT USE BREAK-AWAY SPOOLS OR BOLTS IN CONCRETE IF ADJUSTING SPOOLS ARE NEEDED.
- ③ INSTALL THRUST BLOCK PER PLATE NO. W-19.
- ④ INSTALL 6" FLG X MJ DI BURY.
- ⑤ INSTALL 6" FLG RESILIENT WEDGE GATE VALVE.
- ⑥ RESTRAINED FLANGE ADAPTOR.
- ⑦ IF THE STATIC WATER PRESSURE AT THE POINT OF HYDRANT INSTALLATION EXCEEDS 130 PSIG, PIPE SHALL BE CLASS 350 D.I.P.
- ⑧ ALL JOINTS AND FITTINGS SHALL BE RESTRAINED.
- ⑨ LOCATING WIRE AND MARKING TAPE SHALL BE USED PER VCWWD STD. PLATE W-1.

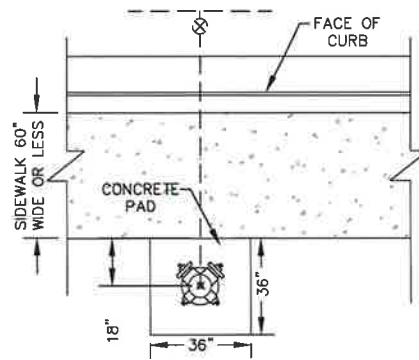
NOTES:

1. FIRE HYDRANT CAPS AND OPERATOR STEMS SHALL BE EQUIPPED WITH OPERATOR NUTS MEASURING 1-3/4" POINT TO FLAT.
2. FIRE HYDRANT SHALL BE PAINTED SAFETY YELLOW.
3. NO PART OF THE HYDRANT FLANGE, BURY FLANGE OR ADJUSTING SPOOL FLANGE SHALL BE WITHIN THE CONCRETE SIDEWALK.
4. CURRENT MATERIAL LIST FOR APPROVED HYDRANTS AND APPURTENANCES ARE AVAILABLE AT THE DISTRICT OFFICE.
5. 4" OUTLET SHALL BE PERPENDICULAR TO THE CURB LINE.
6. INSTALLATION IN AREAS NOT IN SIDEWALK REQUIRE
7. 42" X 42" X 4" CONCRETE PAD.
8. ALL SUB-GRADE INSTALLATIONS SHALL BE WRAPPED IN 10 MIL. POLYETHYLENE WRAP.

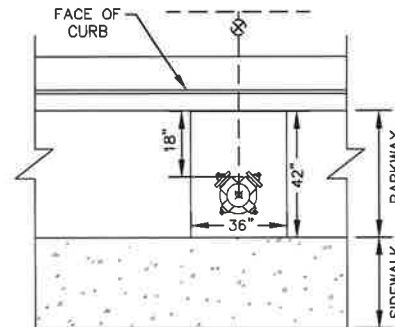
VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY: <i>[Signature]</i>	DIRECTOR OF PUBLIC WORKS	FIRE HYDRANT INSTALLATION	 STANDARD PLAN W-9 1 OF 2
RECOMMENDED BY: <i>[Signature]</i>	DIRECTOR OF WATER AND SANITATION		



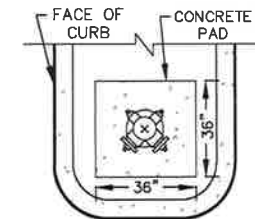
CONDITION 1



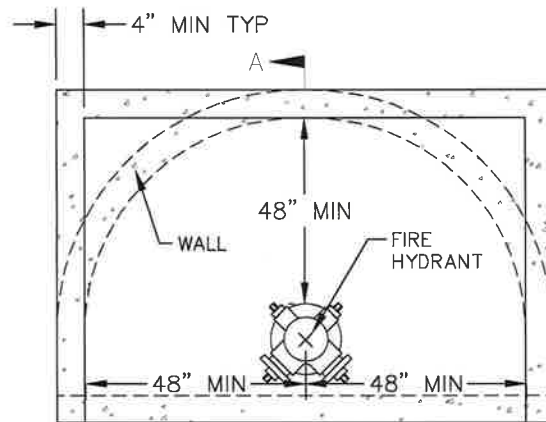
CONDITION 2



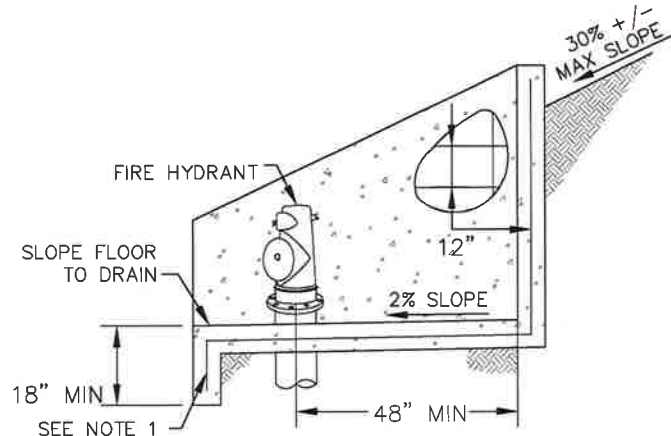
CONDITION 3



CONDITION 4

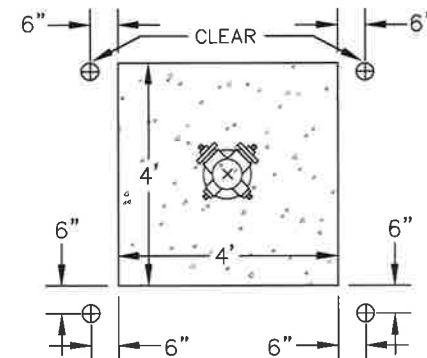


PLAN



SECTION A-A




CONCRETE (OR BLOCK) RETAINING WALL
(TO BE USED WHERE GROUND SLOPE
EXCEEDS 30% OR AS REQUIRED)



BARRICADE PLACEMENT
(WHEN SPECIFIED)




NOTES:

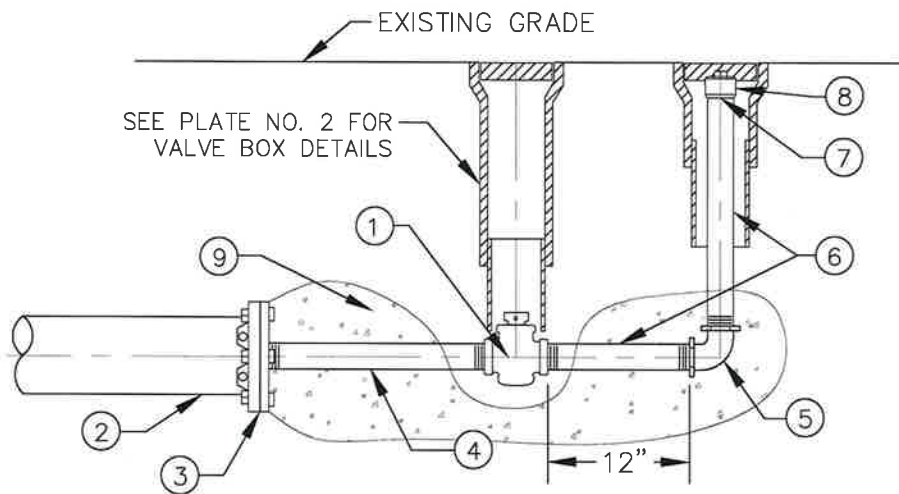
1. ALL REBAR SHALL BE NO. 4 @ 12" O.C., CONCRETE BLOCK MAY BE SUBSTITUTED FOR WALL SECTION. CONSULT LOCAL BUILDING AND SAFETY FOR ALL WALLS HIGHER THAN 30". CONSULT LOCAL AUTHORITY FOR SIDEWALK BUMP-OUT IN CONDITION 2.
2. BARRICADES SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 306-10.5
3. LOCATION OF FRONT BARRICADES SHALL BE ADJUSTED TO PROVIDE CLEARANCE FOR DISCHARGE PIPING.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	
		FIRE HYDRANT INSTALLATION DETAILS	STANDARD PLAN W-9 2 OF 2



1. FOR DEAD END BLOW-OFF USE 4" REDUCER IN PLACE OF TEE. FOR ROADS WITHOUT CURBS, BLOW-OFFS SHALL BE LOCATED WITHIN THE ROAD RIGHT-OF-WAY, ONE FOOT CLEAR FROM PROPERTY LINE.
2. HYDRANT AND RISER SHALL BE PAINTED WITH DESERT TAN IN ACCORDANCE VCWWD STANDARD SPECS.
3. NO PART OF THE BLOW-OFF FLANGE OR ADJUSTING SPOOL FLANGE SHALL BE WITHIN THE CONCRETE SIDEWALK.
4. PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
5. LOCATOR TAPE SHALL BE LAID ON TOP OF SHADING MATERIAL.
6. CURRENT MATERIAL LIST AVAILABLE AT DISTRICT OFFICE.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	 STANDARD PLAN W-10
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	






2" BLOW-OFF

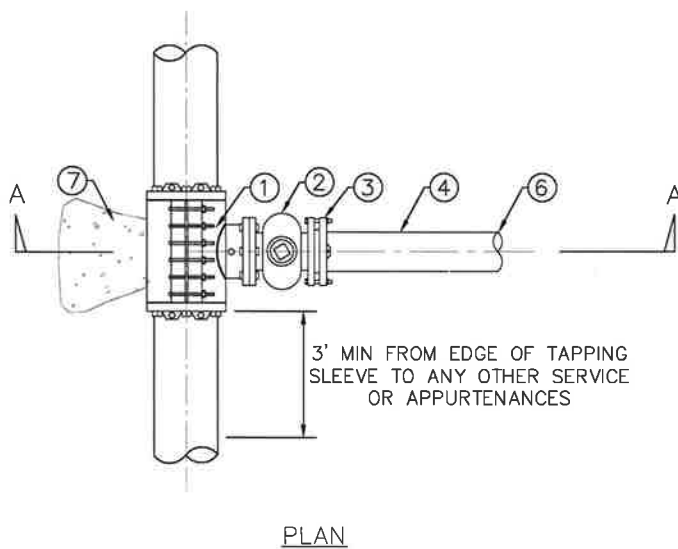
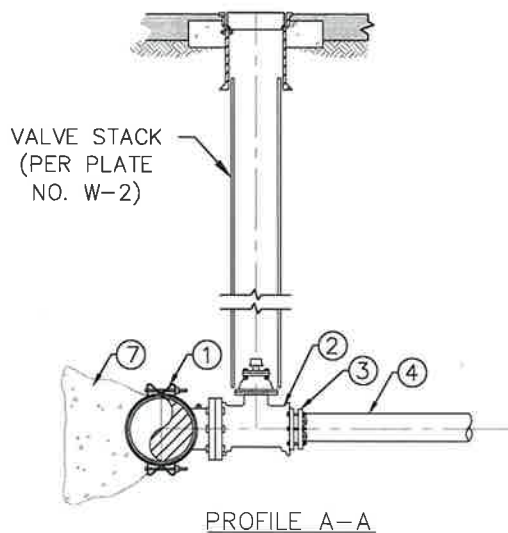
CONSTRUCTION NOTES:

- ① 2" ORISEAL VALVE, FIPT X FIPT.
- ② WATER MAINLINE, SIZE VARIES.
- ③ RESTRAINED MJ CAP WITH 2" FIPT TAP.
- ④ 2" BRASS NIPPLE THROUGH CONCRETE (NOTE: DO NOT ENCASE THE ORISEAL VALVE IN CONCRETE.
- ⑤ 2" 90° BRASS ELBOW, FIPT X FIPT.
- ⑥ 2" BRASS NIPPLE.
- ⑦ 2" BRASS COUPLING, FIPT X FIPT.
- ⑧ 2" BRASS SQUARE HEAD PLUG, MIPT
- ⑨ INSTALL THRUST BLOCK PER PLATE NO. W-19.

NOTES:

1. FOR ROADS WITHOUT CURBS, BLOW-OFFS SHALL BE LOCATED WITHIN THE ROAD RIGHT-OF-WAY, ONE FOOT CLEAR FROM PROPERTY LINE.
2. PIPE SHALL BE WRAPPED WITH POLYETELYNE CASING (10 MIL.)
3. CURRENT MATERIAL LIST AVAILABLE AT DISTRICT OFFICE.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	TEMPORARY 2" BLOW OFF INSTALLATION 
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	
			STANDARD PLAN W-11



CONSTRUCTION NOTES:

- ① MECHANICAL JOINT TAPPING SLEEVE.
- ② GATE VALVE, FLG. X MJ.
- ③ MJ GLAND WITH RESTRAINER.
- ④ 3-FOOT SECTION OF DI. PIPE CLASS 350.
- ⑤ FLEXIBLE COUPLING.
- ⑥ PROPOSED PIPE RUN.
- ⑦ CONCRETE THRUST BLOCK PER PLATE NO. W-19.

NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. USE ONLY WHEN TAP IS ONE-HALF THE DIAMETER OR LESS THAN THE MAINLINE.
3. MECHANICAL TAPPING SLEEVE TO BE TESTED AT 150 PSI PRIOR TO ACTUAL TAPPING.
4. ALL SUB-GRADE INSTALLATIONS SHALL BE WRAPPED IN 10 MIL. POLYETHYLENE WRAP.
5. CURRENT MATERIAL LIST IS AVAILABLE AT THE DISTRICT OFFICE.
6. POTHOLES REQUIRED PRIOR TO CONSTRUCTION. POTHOLE REPORT TO BE SUBMITTED TO THE DISTRICT 48 HOURS PRIOR TO TAPPING THE MAIN.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY: *[Signature]*

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY: *[Signature]*

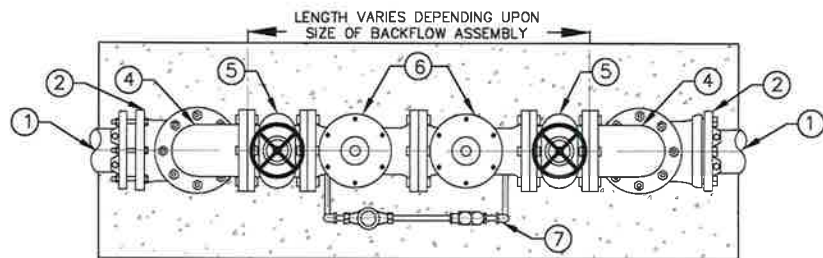
DIRECTOR OF
WATER AND
SANITATION

WATER CONSTRUCTION STANDARDS

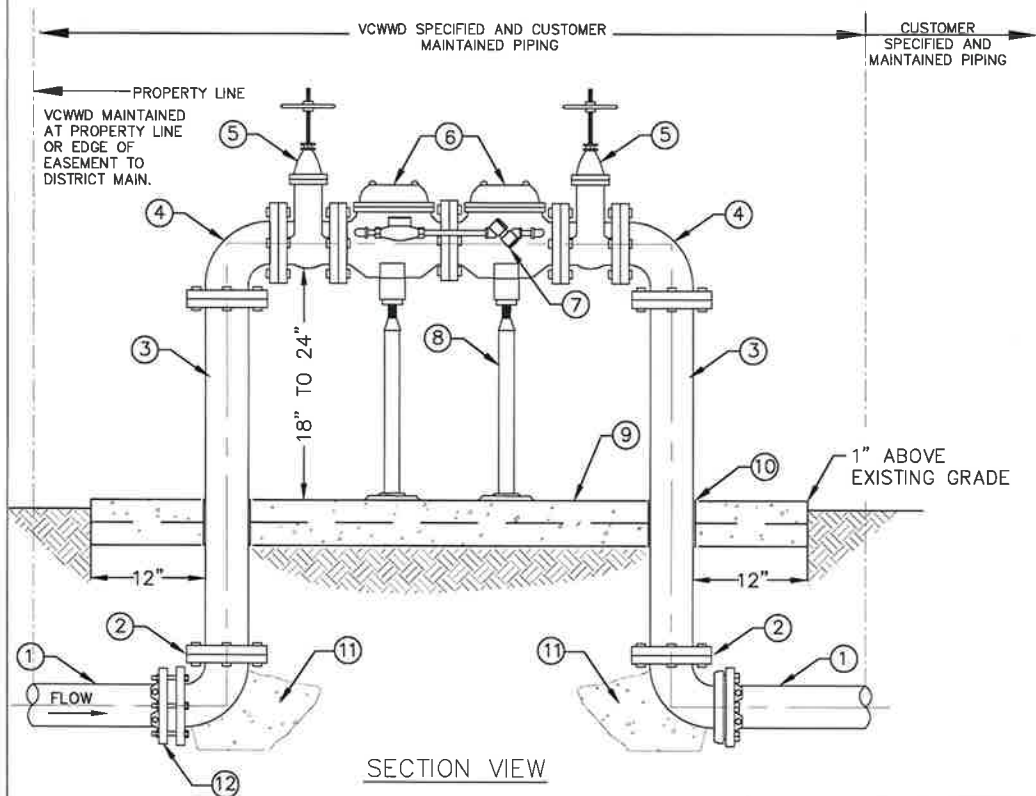
MECHANICAL
TAPPING SLEEVE
DETAIL



STANDARD
PLAN
W-12



PLAN VIEW



SECTION VIEW

CONSTRUCTION NOTES:

- ① DI CL-350 PIPE.
- ② DI 90° ELBOW, FLG X MJ.
- ③ DI SPOOL, LENGTH TO FIT.
- ④ DI 90° ELBOW, FLG.
- ⑤ RESILIENT WEDGE GATE VALVE, RISING STEM.
- ⑥ DOUBLE DETECTOR CHECK VALVE ASSEMBLY.
- ⑦ FACTORY INSTALLED BY-PASS ASSEMBLY CONSISTING OF APPROVED POSITIVE DISPLACEMENT METER, DOUBLE CHECK VALVE AND ASSORTED PIPING.
- ⑧ ADJUSTABLE PIPE SUPPORT WITH ANCHORS.
- ⑨ 6" THICK CONCRETE PAD, 12" OUTSIDE ASSEMBLY.
- ⑩ EXPANSION JOINT, USE POLYSTYRENE BOND BREAKER.
- ⑪ CONCRETE THRUST BLOCK PER PLATE NO. W-19.
- ⑫ DI RESTRAINED FLANGE ADAPTOR

NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION
2. TESTING SHALL BE DONE BY A VENTURA COUNTY CERTIFIED DDCV ASSEMBLY TESTER AFTER INSTALLATION.
3. DDCV ASSEMBLY SHALL BE INSPECTED AND APPROVED BY THE DISTRICT PRIOR TO ACCEPTANCE.
4. ALL SUB-GRADE INSTALLATIONS SHALL BE WRAPPED IN 10 MIL. POLYETHYLENE WRAP.
5. CURRENT MATERIAL LIST IS AVAILABLE AT DISTRICT OFFICE.
6. ABOVE GROUND PORTION OF ASSEMBLY SHALL BE PAINTED FOREST GREEN.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY: *[Signature]*

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY: *[Signature]*

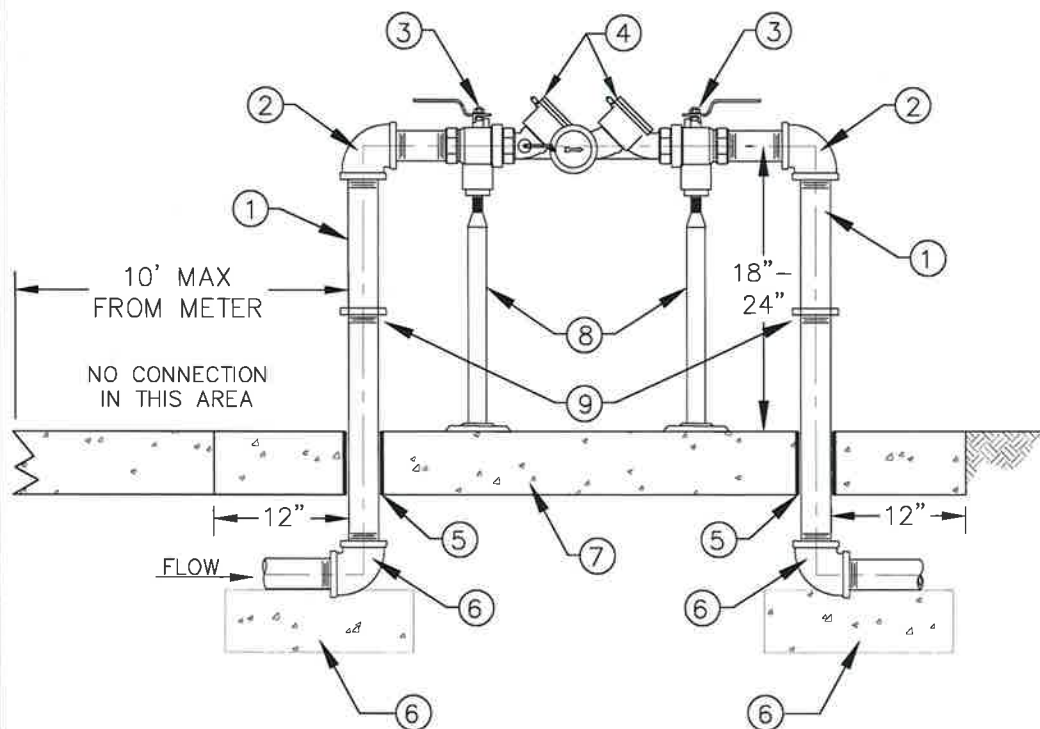
DIRECTOR OF
WATER AND
SANITATION

WATER CONSTRUCTION STANDARDS

DOUBLE DETECTOR
CHECK VALVE



STANDARD
PLAN
W-13



CONSTRUCTION NOTES:

- ① RIDGED BRASS PIPE.
- ② 90° BRASS ELBOW, FIPT X FIPT.
- ③ BALL VALVE, FIPT X FIPT.
- ④ REDUCED PRESSURE BACKFLOW DEVICE.
- ⑤ POLYSTYRENE BOND BREAKER
- ⑥ 12"x12"x6" THICK CONCRETE SUPPORT (500-C-2500 PCC).
- ⑦ 6" THICK CONCRETE PER PLATE NO. W-19.
- ⑧ ADJUSTABLE PIPE SUPPORTS WITH 304 STAINLESS STEEL ANCHORS, FOR 2" AND ABOVE IF DETERMINED BY THE FIELD REPRESENTATIVE.
- ⑨ BRASS UNION FITTING

NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. METER SIZE AND TYPE SHALL BE DETERMINED BY THE DISTRICT.
3. THE DEVICE SHALL BE TESTED BY AN APPROVED TESTER PRIOR TO ACCEPTANCE.
4. MAINTAIN 18" CLEARANCE FROM REDUCED PRESSURE BACKFLOW DEVICE RELIEF OUTLET TO CONCRETE PAD.
5. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB, OR SIDEWALK.
6. SEE VCWWD SPECIFICATIONS FOR COLOR COATINGS.
7. BRASS PLUGS SHALL BE PLACED IN ALL TEST VALVE OUTLETS.
8. ALL SUB-GRADE INSTALLATIONS SHALL BE WRAPPED IN 10 MIL. POLYETHYLENE CASING.
9. CURRENT MATERIAL LIST IS AVAILABLE AT THE DISTRICT OFFICE.
10. MULTIPLE BACKFLOW DEVICES IN THE SAME VICINITY SHALL BE THE SAME HEIGHT
11. ABOVE GROUND PORTION OF ASSEMBLY SHALL BE PAINTED FOREST GREEN.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY:

John Pelt

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY:

M. Brown

DIRECTOR OF
WATER AND
SANITATION

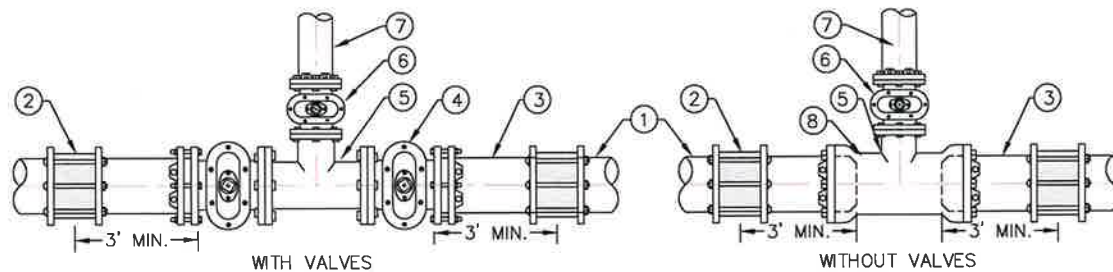
WATER CONSTRUCTION STANDARDS

1" OR 2"
REDUCED PRESSURE
BACKFLOW DEVICE



STANDARD
PLAN

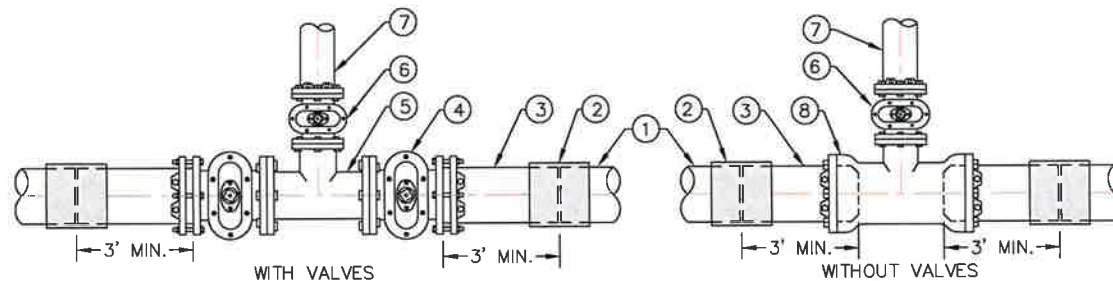
W-14



CONDITION NO. 1
TEE - TYPICAL CONNECTION FOR AC PIPE

CONDITION # 1
CONSTRUCTION NOTES:

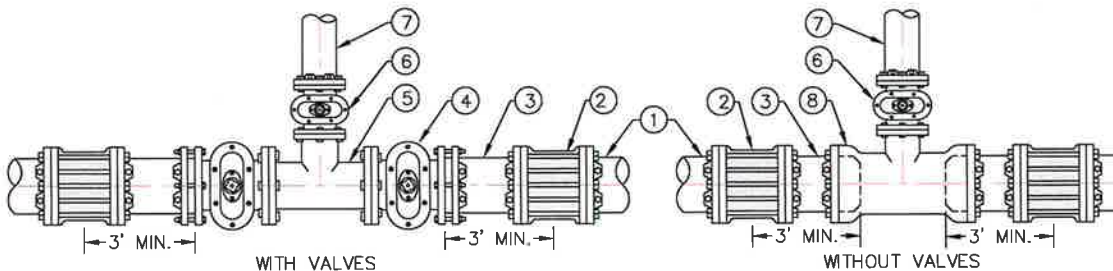
- ① EXISTING PIPE.
- ② TRANSITION COUPLING (ROMAC OR EQUIVALENT)
- ③ 3' SECTION, PVC C-900 DR 14 (NO BEVEL END).
- ④ MAIN SIZE-IN LINE VALVE, FLG X MJ WITH RESTRAINER.
- ⑤ TEE, MAIN SIZE X LATERAL SIZE, FLG X FLG.
- ⑥ LATERAL VALVE, FLG X MJ.
- ⑦ LATERAL PIPE
- ⑧ TEE, MAIN SIZE X LATERAL SIZE, MJ X FLG.



CONDITION NO. 2
TEE - TYPICAL CONNECTION FOR PVC

CONDITION # 2
CONSTRUCTION NOTES:

- ① EXISTING PIPE.
- ② PVC SLIP COUPLING, PIPE SIZE.
- ③ 3' SECTION - MILLED END, PVC C-900 DR 14.
- ④ MAIN SIZE-IN LINE VALVE, FLG X MJ WITH RESTRAINER.
- ⑤ TEE, MAIN SIZE X LATERAL SIZE, FLG X FLG.
- ⑥ LATERAL VALVE, FLG X MJ.
- ⑦ LATERAL PIPE
- ⑧ TEE, MAIN SIZE X LATERAL SIZE, MJ X FLG.



CONDITION NO. 3
TEE - TYPICAL CONNECTION FOR DUCTILE IRON PIPE

CONDITION # 3
CONSTRUCTION NOTES:

- ① EXISTING PIPE.
- ② SOLID DUCTILE IRON MJ SLEEVE WITH RESTRAINER.
- ③ 3' SECTION - DUCTILE IRON CLASS 350.
- ④ MAIN SIZE-IN LINE VALVE, FLG X MJ WITH RESTRAINER.
- ⑤ TEE, MAIN SIZE X LATERAL SIZE, FLG X FLG.
- ⑥ LATERAL VALVE, FLG X MJ.
- ⑦ LATERAL PIPE
- ⑧ TEE, MAIN SIZE X LATERAL SIZE, MJ X FLG.

NOTES:

1. WATER MAINS IN PUBLIC STREETS SHALL BE LOCATED PARALLEL TO AND 5 FT NORTH OR WEST OF THE CENTER LINE OF THE STREET.
2. WRAP ALL METALLIC APPURTENANCES WITH 10 MIL. POLYETHYLENE ENCASEMENT PER VCWWD CONSTRUCTION STANDARDS.
3. SEE PLATE NO. 19 FOR ANCHOR BLOCKS AND THRUST BLOCK DETAILS.
4. SEE PLATE NO. 2 FOR VALVE BOX DETAILS.
5. COUPLINGS SHALL BE A MINIMUM OF 18" AWAY FROM ANY SERVICE OR APPURTENANCE.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY: *[Signature]*

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY: *[Signature]*

DIRECTOR OF
WATER AND
SANITATION

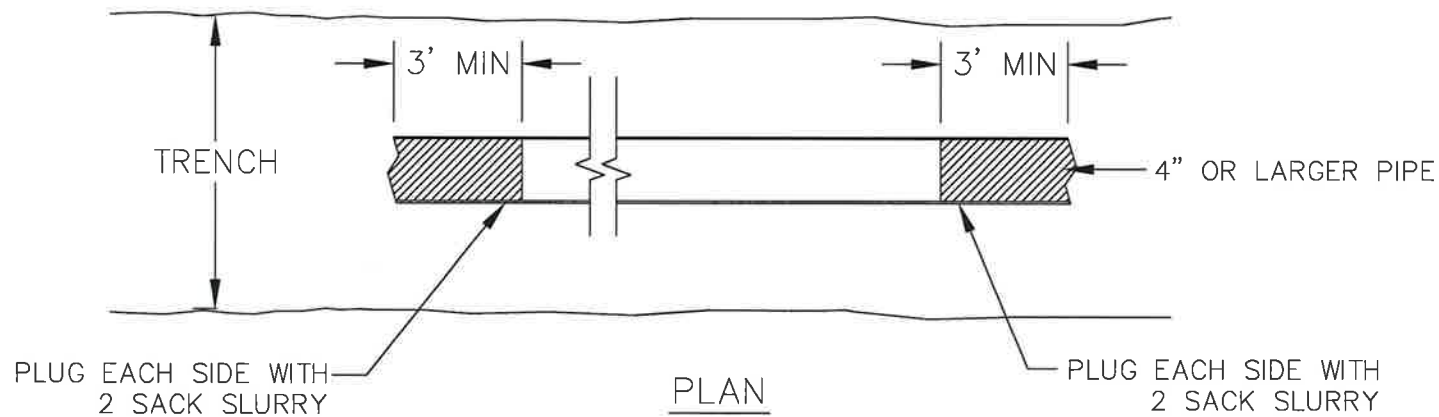
WATER CONSTRUCTION STANDARDS

CUT-IN TEE FOR
PVC, AC, AND
DI PIPE



STANDARD
PLAN




W-15



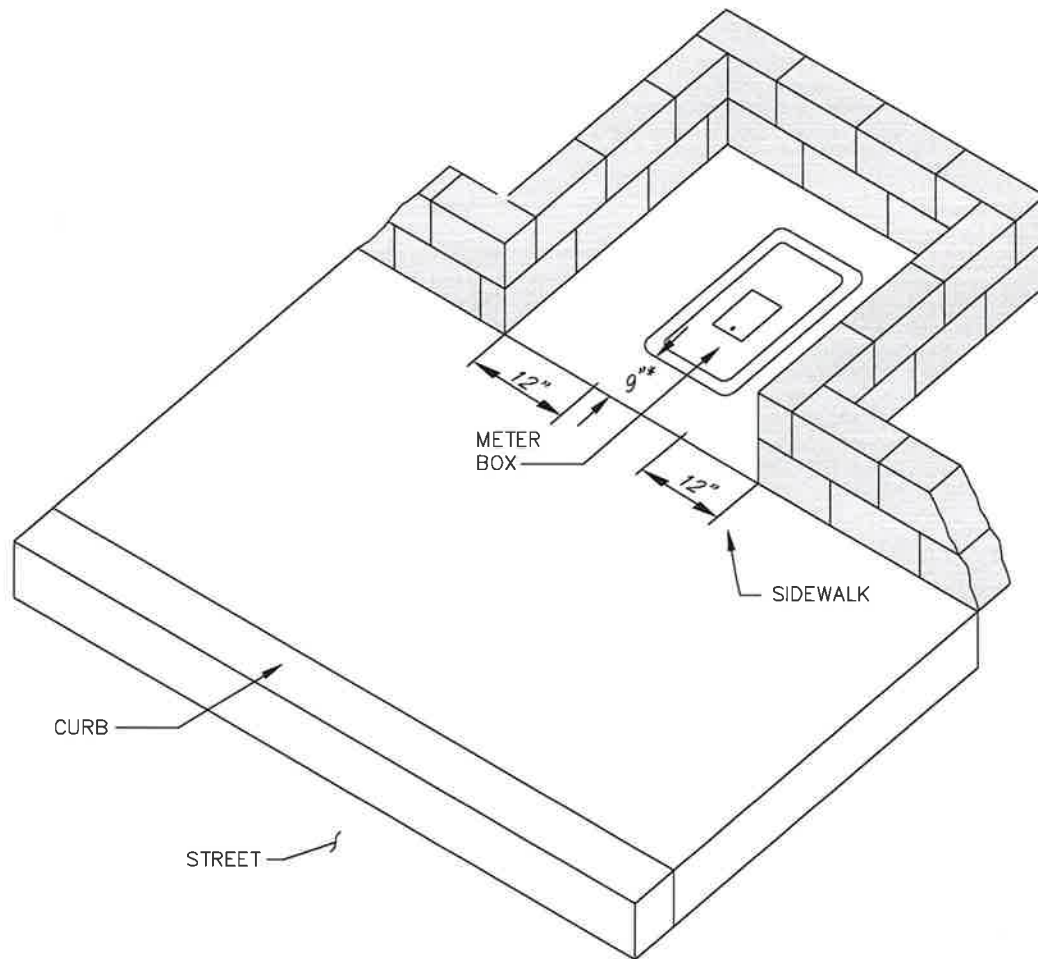
DETAIL FOR CUTTING AND PLUGGING
ABANDONED WATER MAINS

NOTES:

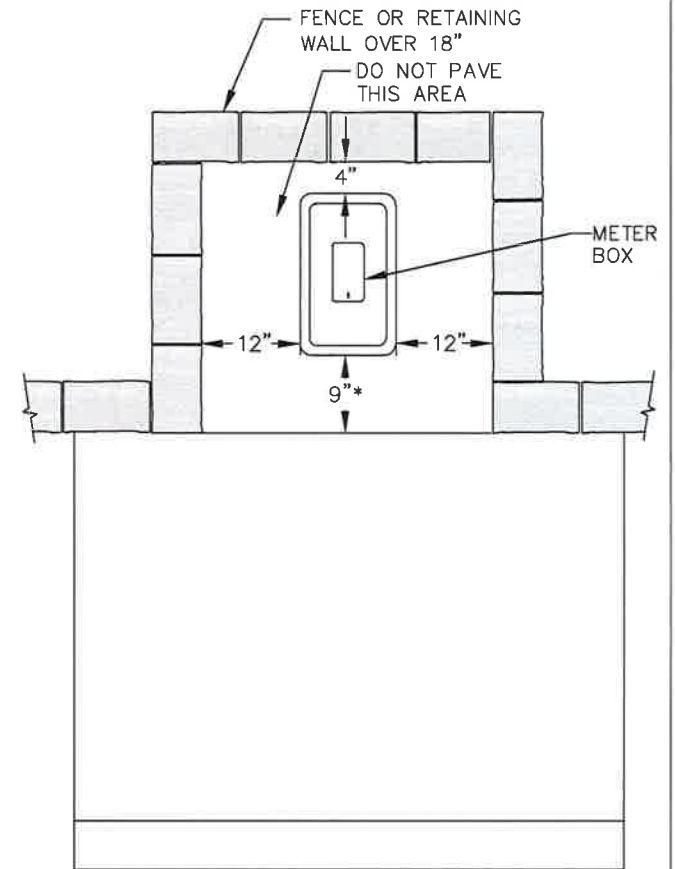
1. FOR PIPES SMALLER THAN 4" — CRIMP ENDS AND ABANDON IN PLACE

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	 STANDARD PLAN W-16
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	

PIPE
ABANDONMENT






FOR FENCES OR RETAINING WALLS

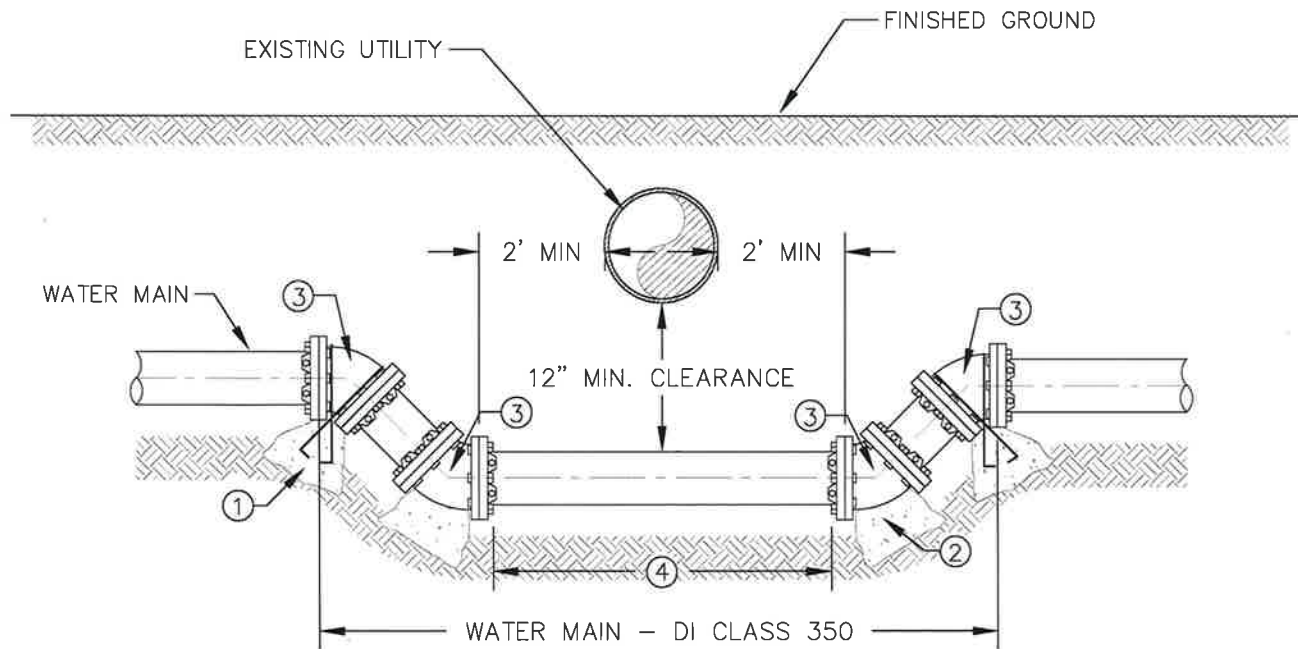


PLAN VIEW

NOTES:

- * DIMENSION IS APPROXIMATE. INSTALL ACCORDING TO WATER METER PLATE.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	METER BOX CLEARANCE DETAILS
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	
			STANDARD PLAN W-17




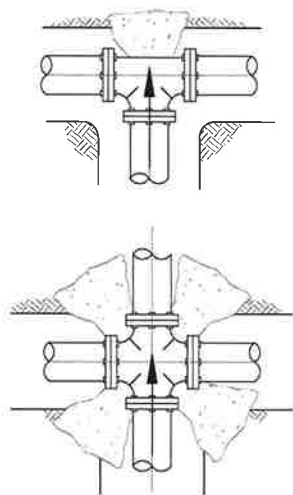
NOTES:

1. USE DUCTILE IRON (RETAINER TYPE) MECHANICAL JOINT
2. USE DUCTILE IRON PIPE, CLASS 350 THROUGHOUT.
3. SEPARATION DISTANCE IS DETERMINED BY THE TYPE OF OBSTRUCTION BEING CROSSED, REFER TO STATE WATER RESOURCE CONTROL BOARD WATER AND SEWER SEPARATION REQUIREMENTS.
4. SEE PLATE NO. W-1 FOR TRENCH DETAILS.
5. AIR RELEASE AND VACUUM BREAKER VALVE AND/OR BLOW-OFF MAY BE REQUIRED AT THE DISTRICT'S DISCRETION.
6. CURRENT MATERIAL LIST IS AVAILABLE AT THE DISTRICT OFFICE.
7. PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).

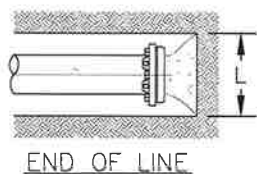
CONSTRUCTION NOTES:

- ① INSTALL ANCHOR BLOCK PER STD. PLATE NO. 19 (TYP. 2 PLACES).
- ② INSTALL THRUST BLOCK PER STD. PLATE NO. 19 (TYP. 2 PLACES).
- ③ INSTALL 45° ELBOW, MJ X MJ WITH RESTRAINER GLAND (TYP. 4 PLACES).
- ④ LENGTH PER STATE WATER RESOURCE CONTROL BOARD REQUIREMENTS.

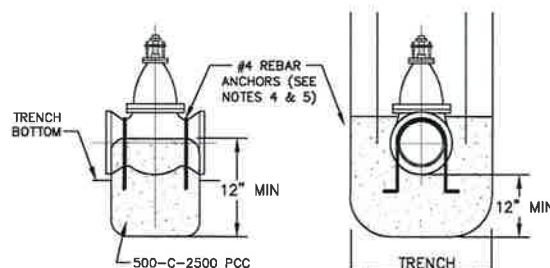
VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:	<i>John Pelt</i>	UTILITY UNDERCROSSING DETAIL	 STANDARD PLAN W-18
RECOMMENDED BY:	<i>M. Brown</i>		
	DIRECTOR OF PUBLIC WORKS		
	DIRECTOR OF WATER AND SANITATION		



THRUST BLOCKING

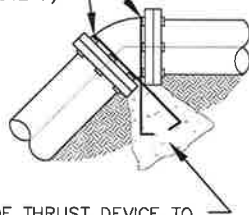


END OF LINE



VALVE ANCHOR

#4 REINFORCING BARS
IMBEDDED 6" MIN
(SEE NOTE 7)



AREA OF THRUST DEVICE TO
BE APPROVED BY THE DISTRICT
ENGINEER FOR THIS TYPE OF
APPLICATION

ANCHOR BLOCK

NOTES:

1. BEARING AREA SHOWN ABOVE BASED ON SOIL CONSISTING OF SAND AND GRAVEL CEMENTED WITH CLAY - SAFE BEARING LOAD = 2000 PSF.
2. FOR SOFT CLAY MULTIPLY AREA X 4.0. FOR SAND MULTIPLY AREA X 2.0.
3. FOR SAND AND GRAVEL MULTIPLY AREA X 1.5. FOR SHALE, SANDSTONE, OR CONGLOMERATE MULTIPLY AREA X 0.4.
4. IN NO CASE SHALL THE THRUST BLOCK CONTAIN LESS THAN 3 CUBIC FEET OF CONCRETE. THRUST BLOCK SHALL BEAR ON UNDISTURBED EARTH.
5. DO NOT INTERPOLATE BEARING AREA FOR FITTINGS NOT SHOWN.
6. ANCHOR IS NOT REQUIRED FOR 6" VALVES OR SMALLER.
7. COAT REBARS WITH APPROVED BITUMASTIC COMPOUND.
8. FOR FLANGED AND MECHANICAL VALVES, KEEP CONCRETE OFF BOLTS.
9. CONCRETE SHALL BE 500-C-2500PCC
10. RESTRAIN ALL JOINTS FOR SLOPES 30 DEGREES OR STEEPER.
11. DEAD ENDS SHALL HAVE A 3' PUP WITH AN MJ CAP.
12. THRUST BLOCK BEARING AREA BASED ON 225 PSI LINE PRESSURE WITH 3'-0" COVER MINIMUM.

VERTICAL BEND ANCHOR						
PIPE SIZE	22 1/2" BEND L, H, AND W (IN)	VOLUME (YD³)	THRUST (LBS)	45° BEND L, H, AND W (IN)	VOLUME (YD³)	THRUST (LBS)
4"	26	0.4	1104	32	0.7	2165
6"	34	0.8	2483	42	1.6	4871
8"	41	1.5	4414	51	2.8	8659
10"	47	2.2	6897	59	4.4	13529
12"	53	3.2	9932	67	6.4	19482
16"	64	5.6	17657	81	11.4	34635
18"	70	7.4	22347	87	14.1	43835

PIPE SIZE	11 1/4" BEND				22 1/2" BEND				45° BEND				90° BEND / CROSSES				END OF LINE / TEES			
	L (IN)	H (IN)	AREA (IN ²)	THRUST (LBS)	L (IN)	H (IN)	AREA (IN ²)	THRUST (LBS)	L (IN)	H (IN)	AREA (IN ²)	THRUST (LBS)	L (IN)	H (IN)	AREA (IN ²)	THRUST (LBS)	L (IN)	H (IN)	AREA (IN ²)	THRUST (LBS)
4"	12	6	72	554	16	8	128	1104	23	12	276	2165	31	16	496	4000	26	13	338	2828
6"	17	9	153	1248	24	12	288	2483	34	17	578	4871	46	23	1058	9000	39	20	780	6364
8"	23	12	276	2218	32	16	512	4414	45	23	1035	8659	61	31	1891	15999	52	26	1352	11313
10"	29	15	435	3465	40	20	800	6897	56	28	1568	13529	76	38	2888	24999	64	32	2048	17677
12"	34	17	578	4990	48	24	1152	9932	67	34	2278	19482	92	46	4232	35999	77	39	3003	25455
16"	46	23	1058	8871	64	32	2048	17657	90	45	4050	34635	122	61	7442	63998	103	52	5356	45253
18"	51	26	1326	11228	72	36	2592	22347	101	51	5151	43835	137	69	9453	80997	115	58	6670	57274

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY:

John Pelt

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY:

M. Brown

DIRECTOR OF
WATER AND
SANITATION

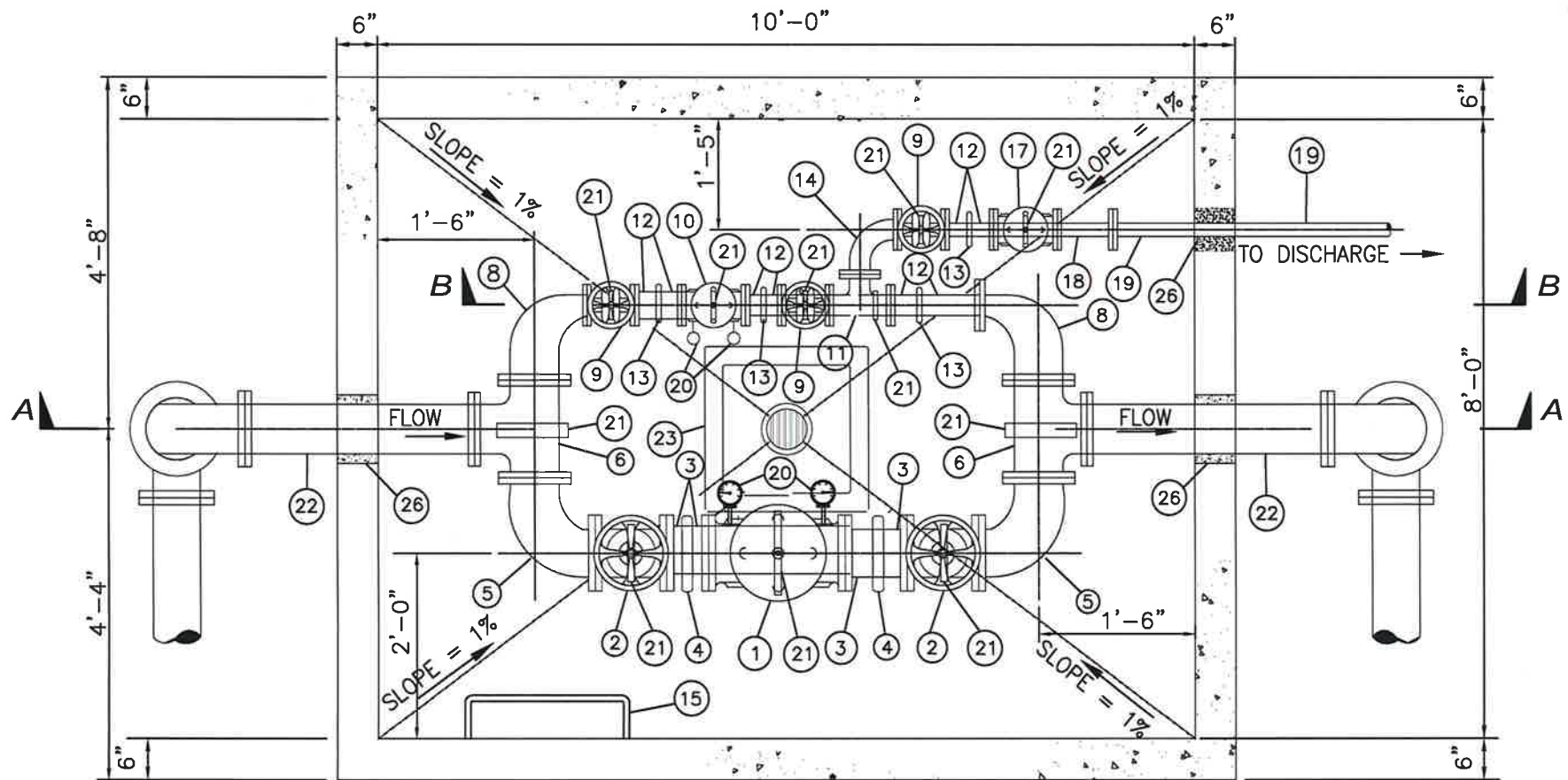
WATER CONSTRUCTION STANDARDS

THRUST AND ANCHOR BLOCK DETAILS



STANDARD
PLAN

W-19






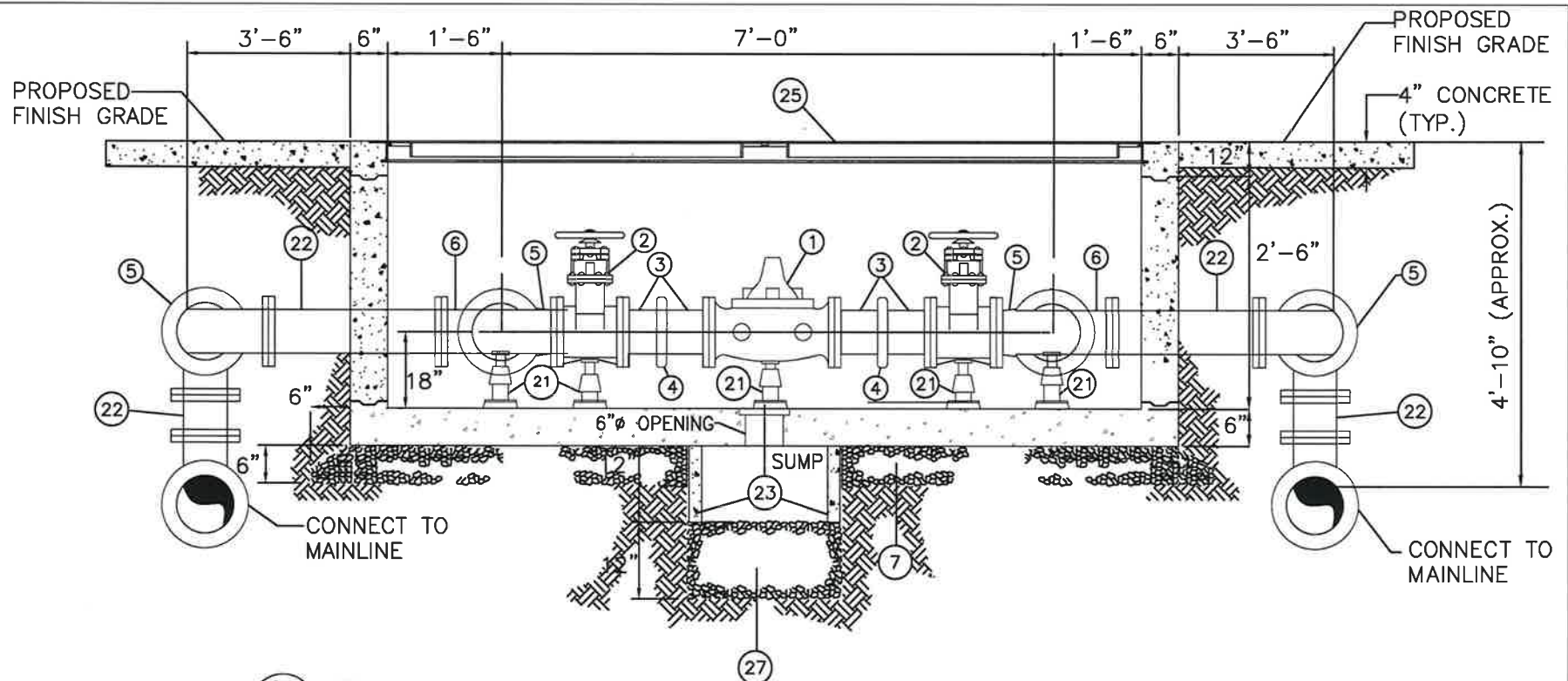
PRESSURE REDUCING STATION PLAN

NOT TO SCALE

NOTES:

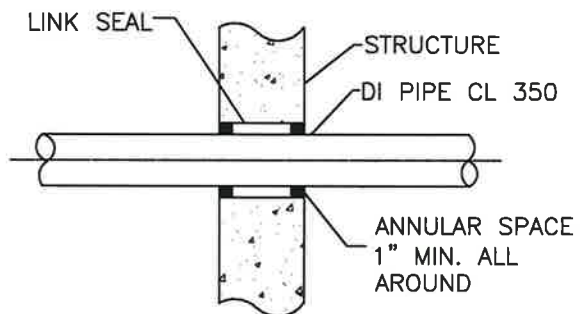
- CONTRACTOR TO VERIFY LAY LENGTH AND SIZE OF FITTINGS
- ASSURE PRESSURE RELIEF DISCHARGE LINE WITHIN VAULT WILL DRAIN TO THE LOWEST ELEVATION.

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY: 	DIRECTOR OF PUBLIC WORKS	8" PRESSURE REDUCING STATION ASSEMBLY	
RECOMMENDED BY: 	DIRECTOR OF WATER AND SANITATION		






A SECTION

NOT TO SCALE



PIPE PENETRATION DETAIL

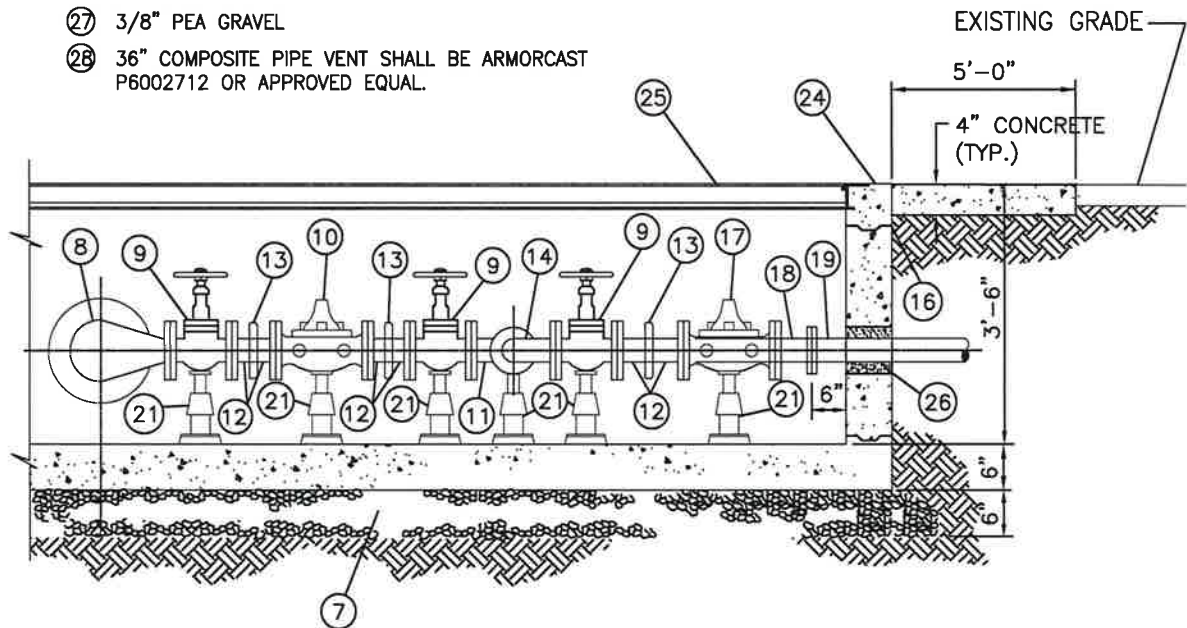
NOT TO SCALE

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38			
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS	
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	<div>8" PRESSURE REDUCING STATION ASSEMBLY</div> <div>  </div>
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION	
			STANDARD PLAN W-20 2 OF 4

CONSTRUCTION NOTES:

- ① 8" PRESSURE REDUCING VALVE
- ② 8" FLG. GATE VALVE
- ③ 8" SPOOL FLG. x GROOVED END
- ④ 8" VICTAULIC COUPLING
- ⑤ 8" 90° FLG. ELBOW
- ⑥ 8" FLG. TEE
- ⑦ 3/4" CRUSHED AGGREGATE BASE @ 95% COMPACTION
- ⑧ 8" x 4" 90° FLG. REDUCING ELBOW
- ⑨ 4" FLG. GATE VALVE
- ⑩ 4" PRESSURE REDUCING VALVE
- ⑪ 4" FLG. TEE
- ⑫ 4" FLG. X GROOVED END
- ⑬ 4" VICTAULIC COUPLING
- ⑭ 4" 90° FLG. ELBOW
- ⑮ STAINLESS STEEL STEPS PER APWA STD. PLAN 635-3
- ⑯ CONSTRUCTION JOINT
- ⑰ 4" PRESSURE RELIEF VALVE (CLA-VAL)
- ⑱ 4" FLG. SPOOL
- ⑲ 4" BRASS PIPE SCH. 40




- ⑳ GLYCERIN FILLED PRESSURE GAUGE 0-200 PSI WITH 1/4 GA. COCK
- ㉑ ADJUSTABLE PIPE SUPPORT FOR ALL VALVES AND TEES
- ㉒ 8" D.I. CL. 350 FLG. SPOOL
- ㉓ 24" x 24" CONCRETE BOX
- ㉔ PRECAST CONCRETE VAULT - 10'-0" X 8'-0" X 3'-6" (INSIDE DIMENSIONS)
- ㉕ ALUMINUM ACCESS COVER (2 PC. 10'-0" X 8'-0")
U.S.F FABRICATION, INC. WITH STAINLESS STEEL NUTS & BOLTS, HINGES
AND HOLD OPEN ARM. STAPLE FOR DOOR PADLOCK. DIAMOND PLATE 1/4
- 300 PSF.(OR APPROVED EQUAL)
- ㉖ CONCRETE KNOCKOUT (TO BE GROUTED SOLID
AFTER PIPE INSTALLATION)
- ㉗ 3/8" PEA GRAVEL
- ㉘ 36" COMPOSITE PIPE VENT SHALL BE ARMORCAST
P6002712 OR APPROVED EQUAL.

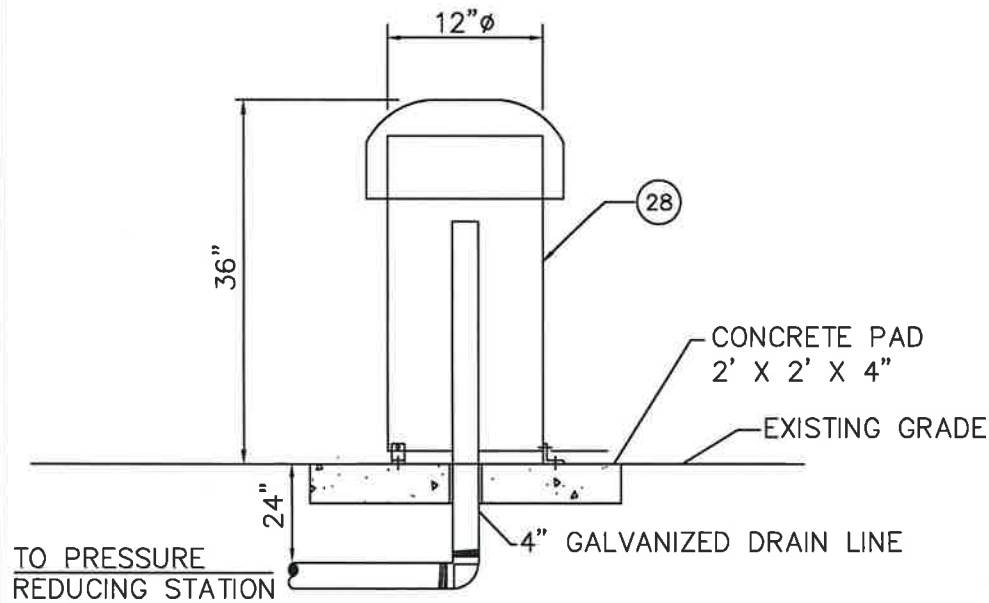


NOTE: PLAN SHALL SERVE AS A DESIGN GUIDE FOR ALTERNATIVE PRESSURE REDUCING STATIONS OF SMALLER OR LARGER SIZE THAN THE 8" ASSEMBLY DEPICTED.

B SECTION

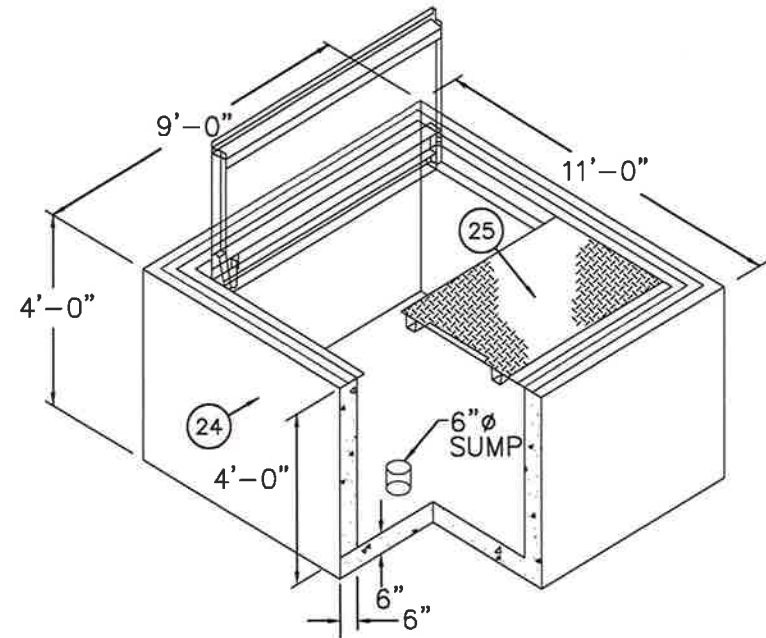
NOT TO SCALE

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38					
ADOPTED BOARD OF SUPERVISORS DATE:		WATER CONSTRUCTION STANDARDS			
APPROVED BY:		DIRECTOR OF PUBLIC WORKS	8" PRESSURE REDUCING STATION ASSEMBLY		STANDARD PLAN W-20 3 OF 4
RECOMMENDED BY:		DIRECTOR OF WATER AND SANITATION			



DRAIN DISCHARGE ASSEMBLY DETAIL
(INSTALL BEHIND CURB)

NOT TO SCALE



8'-0" x 10'-0" x 3'-6"
PRESSURE REDUCING VAULT

NOT TO SCALE

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY: *[Signature]*

DIRECTOR OF
PUBLIC WORKS

RECOMMENDED BY: *[Signature]*

DIRECTOR OF
WATER AND
SANITATION

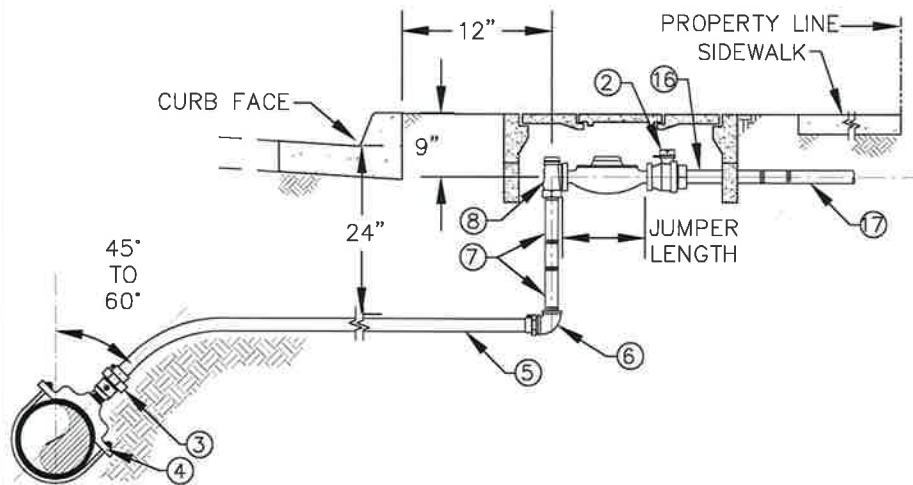
WATER CONSTRUCTION STANDARDS

8" PRESSURE
REDUCING STATION
ASSEMBLY

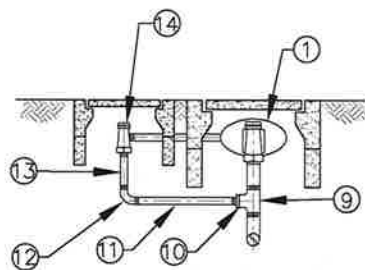


STANDARD
PLAN

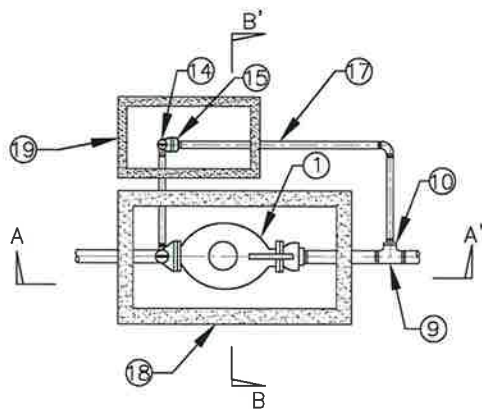
W-20
4 OF 4



SECTION A-A'
NTS



SECTION B-B'
NTS



PLAN
NTS

NOTES:

1. JUMPER SHALL BE SUPPLIED BY THE DISTRICT AND INSTALLED BY THE OWNER'S CONTRACTOR.
2. FOR PARKWAY AND SIDEWALK CONSTRUCTION, DISTANCE TO R/W OR WHEN SLOPE INTERFERENCE EXISTS ANGLE METER STOP SHALL BE SET 18" BEHIND CURB ON 2" SERVICE.
3. SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE.
4. CURRENT MATERIAL LIST AVAILABLE AT THE DISTRICT OFFICE.
5. NO METER BOX SHALL BE LOCATED WITHIN SIDEWALK AREA.
6. COPPER PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
7. LOCATOR TAPE SHALL BE LAID ON TOP OF BEDDING MATERIAL.
8. METER BOX MUST ACCEPT AMR ANTENNAS.
9. NEW SERVICE SHALL BE 18" FROM OTHER SERVICES OR APPURTENANCES.

CONSTRUCTION NOTES:

1. WATER METER FURNISHED BY DISTRICT.
2. CUSTOMER HAND VALVE WITH HANDLE.
3. IP THREAD X COMPRESSION BALL CORPORATION STOP.
4. SERVICE SADDLE TO BE ANGLED BETWEEN 60° AND 45°.
5. 2" TYPE K COPPER SERVICE LINE.
6. 2" MIPT X COMPRESSION ADAPTOR (TYP) WITH IP BRASS 90° ELBOW.
7. 2" THREADED BRASS NIPPLE (UPPER - 6", LOWER - LENGTH TO FIT).
8. 2" FIPT ANGLE METER STOP
9. 2" TEE
10. 2" X 1" BUSHING
11. 16" X 1" BRASS NIPPLE
12. 1" FIPT X FIPT BRASS 90 ELBOW.
13. 8" X 1" BRASS NIPPLE
14. 1" FIPT ANGLE METER STOP.
15. 1" X 1" FIPT MAS W/METER NUT ADAPTER X NPT
16. 4" X 2" BRASS NIPPLE
17. CUSTOMER SIDE PIPING - COPPER/BRASS/STAINLESS STEEL
18. 2" METER BOX
19. 1" METER BOX

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 17, 19, & 38

ADOPTED BOARD OF SUPERVISORS
DATE:

APPROVED BY:

RECOMMENDED BY:

DIRECTOR OF
PUBLIC WORKS

DIRECTOR OF
WATER AND
SANITATION

WATER CONSTRUCTION STANDARDS

1"-2" COMMERCIAL/
INDUSTRIAL WATER
METER



STANDARD
PLAN

W-21