

**SPECIAL DISTRICTS DEPARTMENT  
COUNTY OF SAN BERNARDINO**

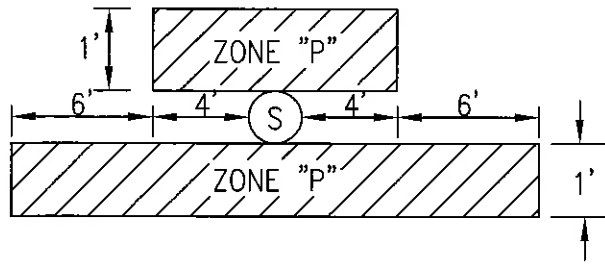
**TABLE OF CONTENTS**

**DIVISION "H"  
STANDARD DRAWINGS**

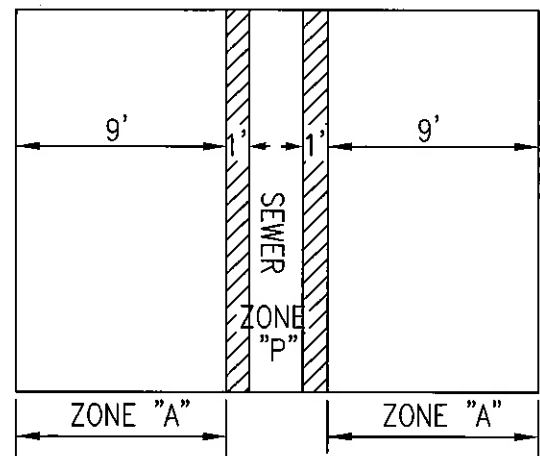
**WATER  
REVISED 4-14-2020**

**Drawing  
No.**

H-1	PROTECTION OF UTILITY WATER LINES FROM SANITARY SEWERS
H-2A	5 ¼" FIRE HYDRANT ASSEMBLY 6" VALVE OPENING P.V.C. MAIN
H-2B	6" FIRE HYDRANT ASSEMBLY STEEL MAIN
H-3A	THRUST BLOCKS
H-3B	THRUST BLOCKS
H-3C	PIPE RESTRAINTS
H-3D	PIPE RESTRAINTS
H-4A	1.25" DUAL METER CONNECTION MUNICIPAL
H-4B	2" DUAL METER CONNECTION MUNICIPAL
H-5	FIRE DETECTOR CHECK VALVE ASSEMBLY
H-6	AIR AND VACUUM VALVE ASSEMBLY
H-7A	4" & 6" BLOWOFF ASSEMBLY – P.V.C. MAINS
H-7B	4" & 6" BLOWOFF ASSEMBLY – STEEL MAIN
H-8A	4" & 6" FLUSH-OUT ASSEMBLY – A.C. AND P.V.C. MAINS
H-8B	4" & 6" FLUSH-OUT ASSEMBLY – STEEL MAIN
H-9	SERVICE CONNECTIONS TO WATER MAINS
H-10A	8" PRESSURE REDUCING STATION
H-10B	6" PRESSURE REDUCING STATION
H-11	VALVE BOX
H-12	CONCRETE BLANKET
H-13	DOUBLE CHECK VALVE ASSEMBLY
H-14	REDUCED PRESSURE PRINCIPLE BACKFLOW DEVICE
H-15	TRENCH REPAIR IN ROADWAYS
H-16	TYPICAL TRENCH DETAIL
H-17	WATER MAIN DROP SECTION DETAIL
H-18	BACKFILL STABILIZER DETAIL
H-19	CHAIN LINK FENCE DETAIL
H-20	CHAIN LINK GATE DETAIL



PROFILE VIEW  
CROSSING SANITARY SEWERS  
AND UTILITY WATER LINES



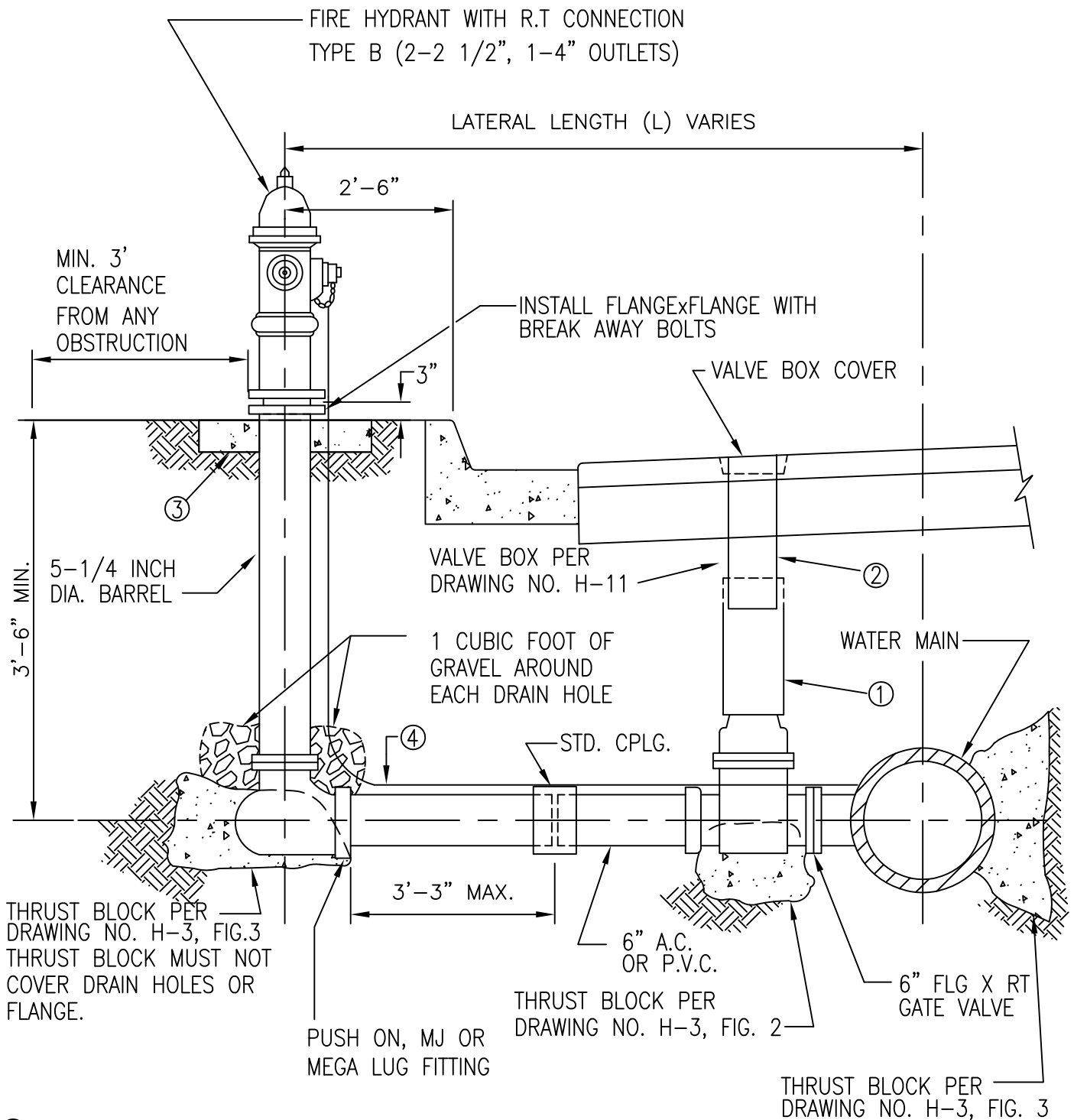
PLAN VIEW  
PARALLEL SANITARY SEWERS  
AND UTILITY WATER LINES

ZONE "P"	WATER MAIN CONSTRUCTION IN THIS ZONE IS PROHIBITED.
ZONE "A"	NO WATER MAINS SHALL BE CONSTRUCTED IN THIS ZONE WITHOUT APPROVAL FROM THE HEALTH AGENCY.

SPECIAL PIPE ALTERNATIVES NEED SWRCB APPROVAL.

TECH. SPEC. REFERENCE  
CLEARANCE FROM SEWER LINE  
SECTION 1.7

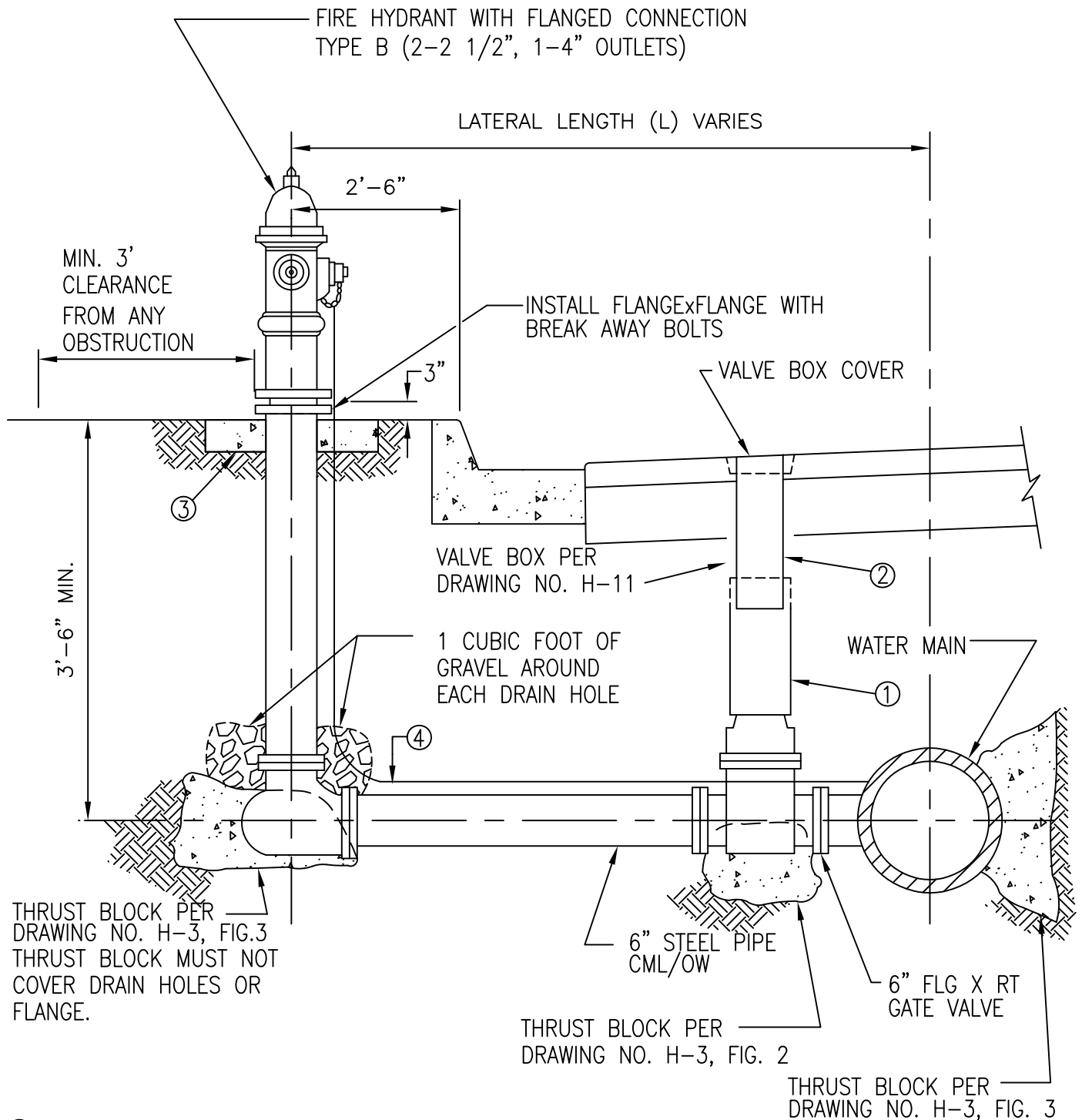
	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	PROTECTION OF UTILITY WATER LINES FROM SANITARY SEWERS	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN	11-7-16
	DISTRICT ENGINEER	DATE
REVISED	H-1	



- ① VALVE BOX 6" O.D. SDR35
- ② 6 5/8" O.D., VALVE BOX TOP 10 GAGE STEEL 6"x18" SLIDER
- ③ 3'x3'x6" CONCRETE PAD BROOM BRUSHED
- ④ 14 GAGE COATED SOUNDING WIRE

TECH. SPEC. REFERENCE  
 FIRE HYDRANT ASSEMBLIES-  
 SECTION 4.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>5 1/4" FIRE HYD. ASSY 6" VALVE OPENING P.V.C. MAIN</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		<b>H-2A</b>



- ① VALVE BOX 6"O.D. SDR35
- ② 6 5/8" O.D., VALVE BOX TOP  
10 GAGE STEEL 6"x18" SLIDER
- ③ 3'x3'x6" CONCRETE PAD  
BROOM BRUSHED
- ④ 14 GAGE COATED SOUNDING WIRE

TECH. SPEC. REFERENCE  
FIRE HYDRANT ASSEMBLIES-  
SECTION 4.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>6" FIRE HYDRANT ASSEMBLY STEEL MAIN</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-2B

JOINT SHALL CONSIST OF PURE ASBESTOS AND LEAD THOROUGHLY CAULKED, OR RUBBER RING FURNISHED BY PIPE MANUFACTURE

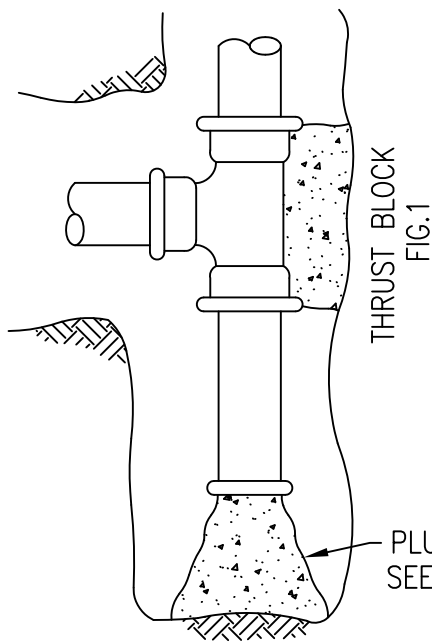
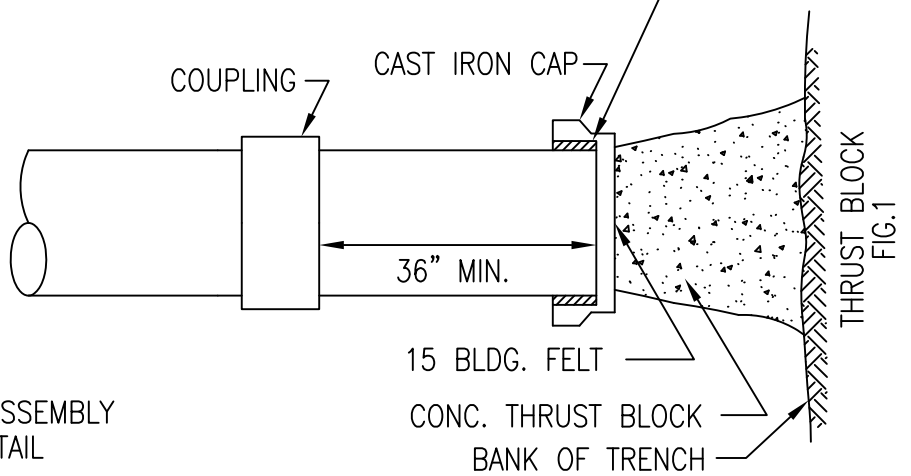


FIG. 1  
PLAN VIEW



PLUG ASSEMBLY DETAIL

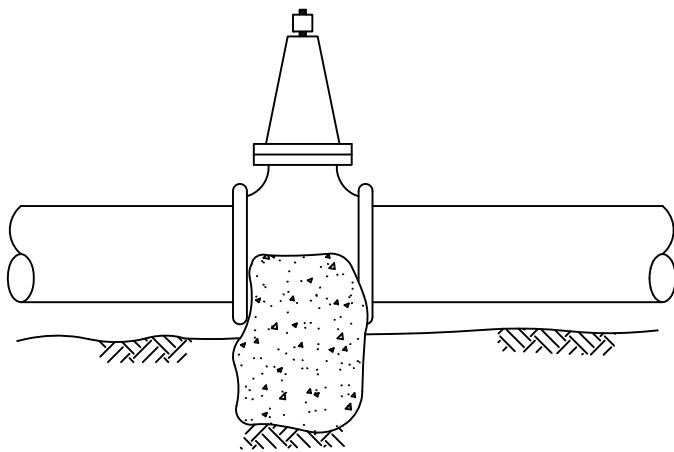


FIG. 2  
ELEV. VIEW

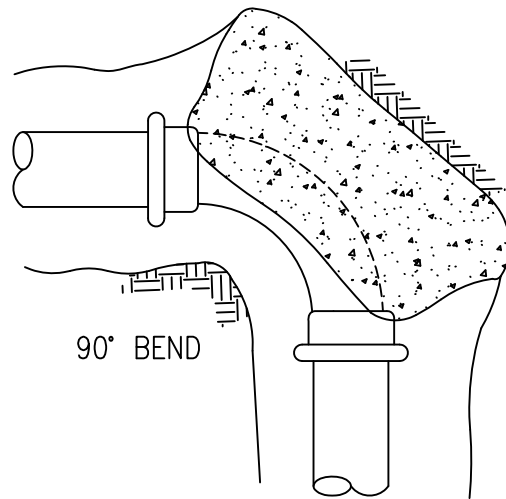


FIG. 3  
PLAN VIEW

MIN 12" FROM FITTING TO BEARING WALL

10 MIL PLASTIC AT ALL FITTING IN CONTACT WITH CONCRETE

WHEN HOT TAPPING USE FIG NO. 1 AND FIG NO. 2

SIZE OF PIPE	BEARING AREA—SQ. FEET CLASS 150		VOL.—CUBIC FEET CLASS 150
	FIG. 1	FIG. 3	FIG. 2
4"	3	3	AS DIRECTED BY ENGINEER
6"	5	6	
8"	8	10	
10"	12	16	
12"	17	22	

NOTE:

SPECIAL DESIGN REQUIRED FOR BEARING AREAS FOR CLASS OF PIPE HIGHER THAN 150.

TECH. SPEC. & FURTHER NOTES  
CONCRETE THRUST BLOCKS, CRADLES, ENCASUREMENTS AND BLANKETS - SECTION 10.0

OFFICE OF SPECIAL DISTRICTS  
COUNTY OF SAN BERNARDINO

THRUST BLOCKS

APPROVAL

GARY MARTIN  
DISTRICT ENGINEER

3-6-2012  
DATE

DRAWING NUMBER

H-3A

REVISED

2-1/2" DIAMETER RODS OR STRAPS  
WITH 2 NUTS ON EACH END.

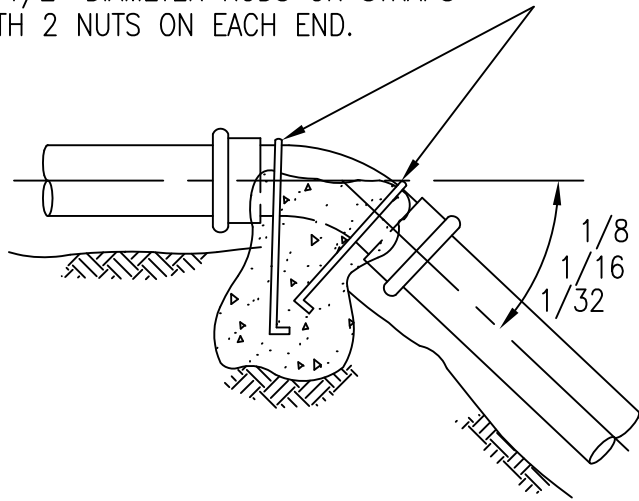


FIG. 4  
ELEV. VIEW

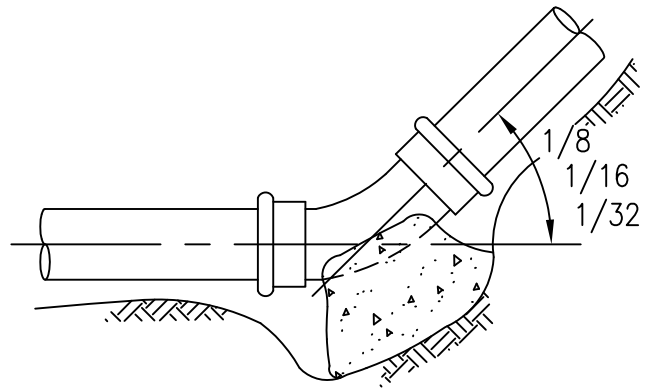


FIG. 5  
ELEV. VIEW

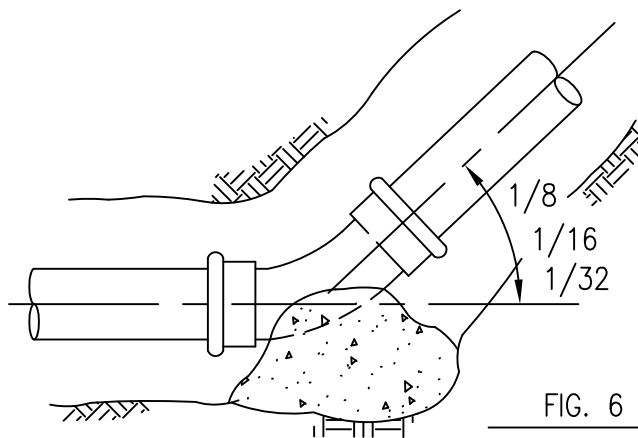


FIG. 6  
PLAN VIEW

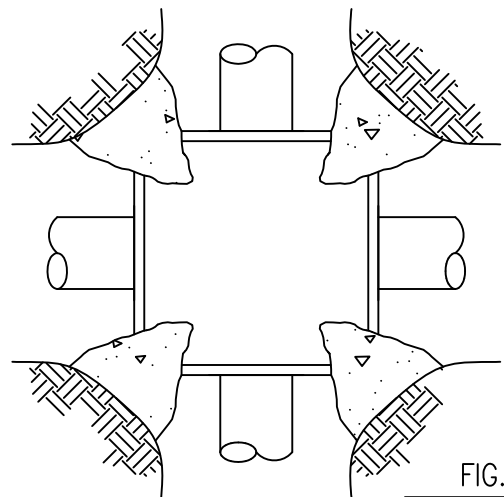


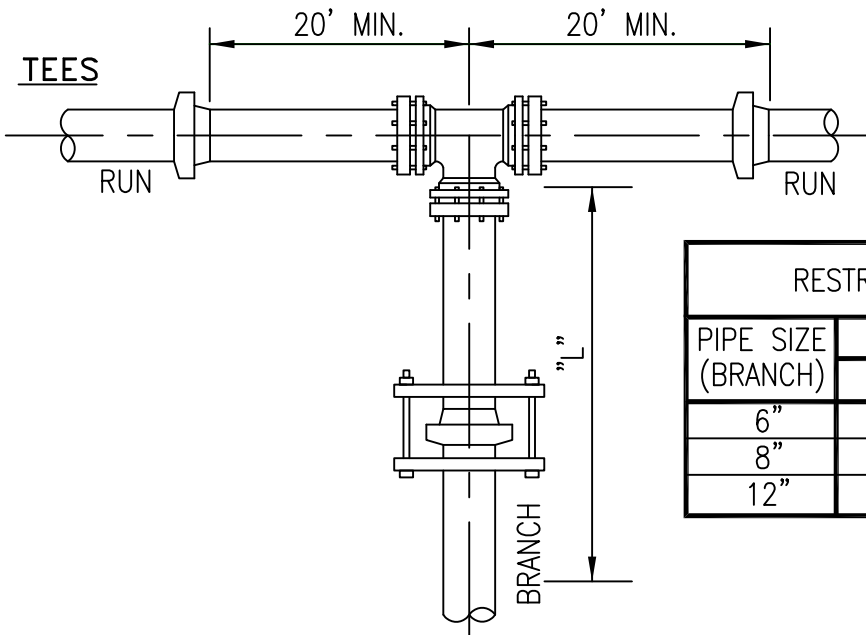
FIG. 7  
PLAN VIEW

SIZE OF PIPE	VOLUME - CUBIC FEET CLASS 150			BEARING AREA - SQ. FEET CLASS 150					
	FIG. 4			FIG. 5			FIG. 6		
	1/8	1/16	1/32	1/8	1/16	1/32	1/8	1/16	1/32
4"	8	3	3	2	1	0	2	1	0
6"	22	5	3	4	2	1	4	2	1
8"		14	3	6	3	1	6	3	1
10"		29	3	9	5	2	9	5	2
12"			6	13	7	3	13	7	3

NOTE:  
SPECIAL DESIGN REQUIRED FOR  
BEARING AREAS FOR CLASS OF  
PIPE HIGHER THAN 150.

TECH. SPEC. REFERENCE  
CONCRETE THRUST BLOCKS AND BLANKETS-  
SECTION 10.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	THRUST BLOCKS	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-3B

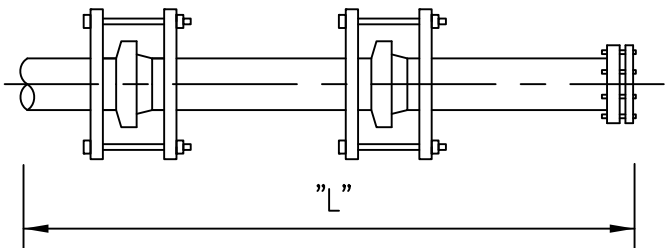


RESTRAINED LENGTHS "L" IN FEET		
PIPE SIZE (BRANCH)	PIPE SIZE RUN	
	8"	12"
6"	14	*
8"	90	35
12"		165

\* FOR THIS CONDITION NEED ONLY RESTRAIN THE BRANCH OUTLET OF THE TEE. IF VALVES ARE PROPOSED ON THE TEE (BRANCH OR RUN) THEN RESTRAINT LENGTHS OBTAIN FROM "DEAD ENDS AND EACH SIDE OF VALVES" WILL BE USED ON THE BRANCH AND/OR RUN.

**DEAD ENDS AND EACH SIDE OF VALVES**

RESTRAINED LENGTHS "L" IN FEET		
PIPE SIZE RUN		
6"	8"	12"
146	190	267

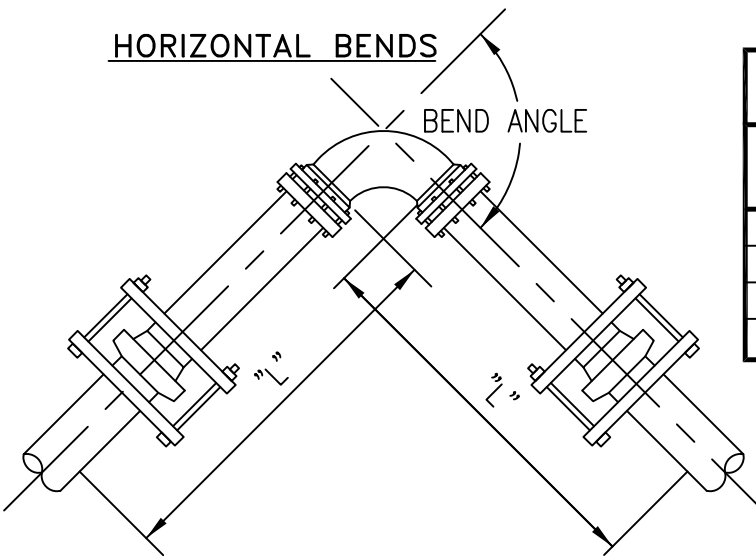


**GENERAL NOTES:**

1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED.
2. FOR TEE RESTRAINT INSTALL A FULL LENGTH OF PIPE ON EACH SIDE OF BRANCH.
3. ASSUMES THIRTY-SIX (36) INCHES MINIMUM DEPTH OF COVER.
4. ASSUMES A SAFETY FACTOR OF 1.5.
5. SOIL TYPE ML PER UNITED SOIL CLASSIFICATION ASTM D 2467.
6. PIPE BEDDING PER DISTRICT STANDARDS.
7. TEST PRESSURE 225 PSI.
8. IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINT LENGTH CANNOT BE MET, THE RESTRAINED LENGTH SHALL BE DETERMINED BY THE DESIGN ENGINEER AND APPROVED BY THE DISTRICT.

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	STANDARD RESTRAINT TEES. DEAD ENDS & BENDS FOR PVC C-900	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN	8-22-2013
	DISTRICT ENGINEER	DATE
REVISED		H-3C

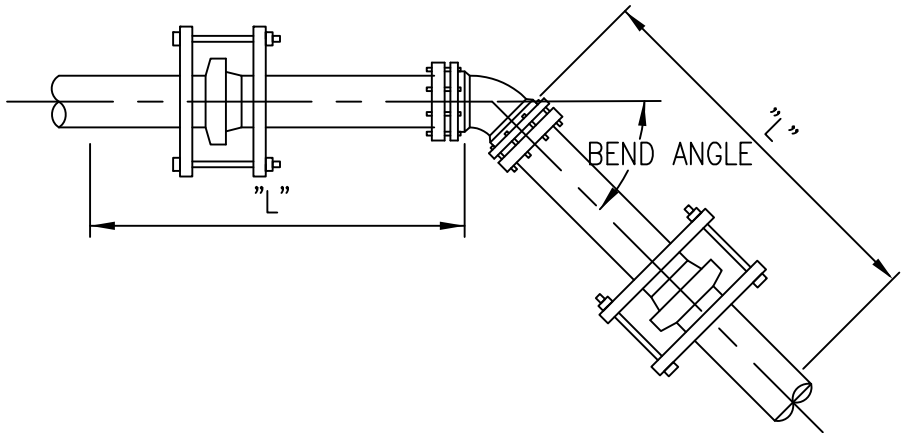
**HORIZONTAL BENDS**



RESTRAINED LENGTHS "L" IN FEET		
BEND ANGLE	PIPE SIZE	
	8"	12"
11.25°	6	8
22.5°	12	17
45°	26	35
90°	62	85

**VERTICAL BENDS**

RESTRAINED LENGTHS "L" IN FEET		
BEND ANGLE	PIPE SIZE	
	8"	12"
11.25°	19	26
22.5°	38	53
45°	79	111

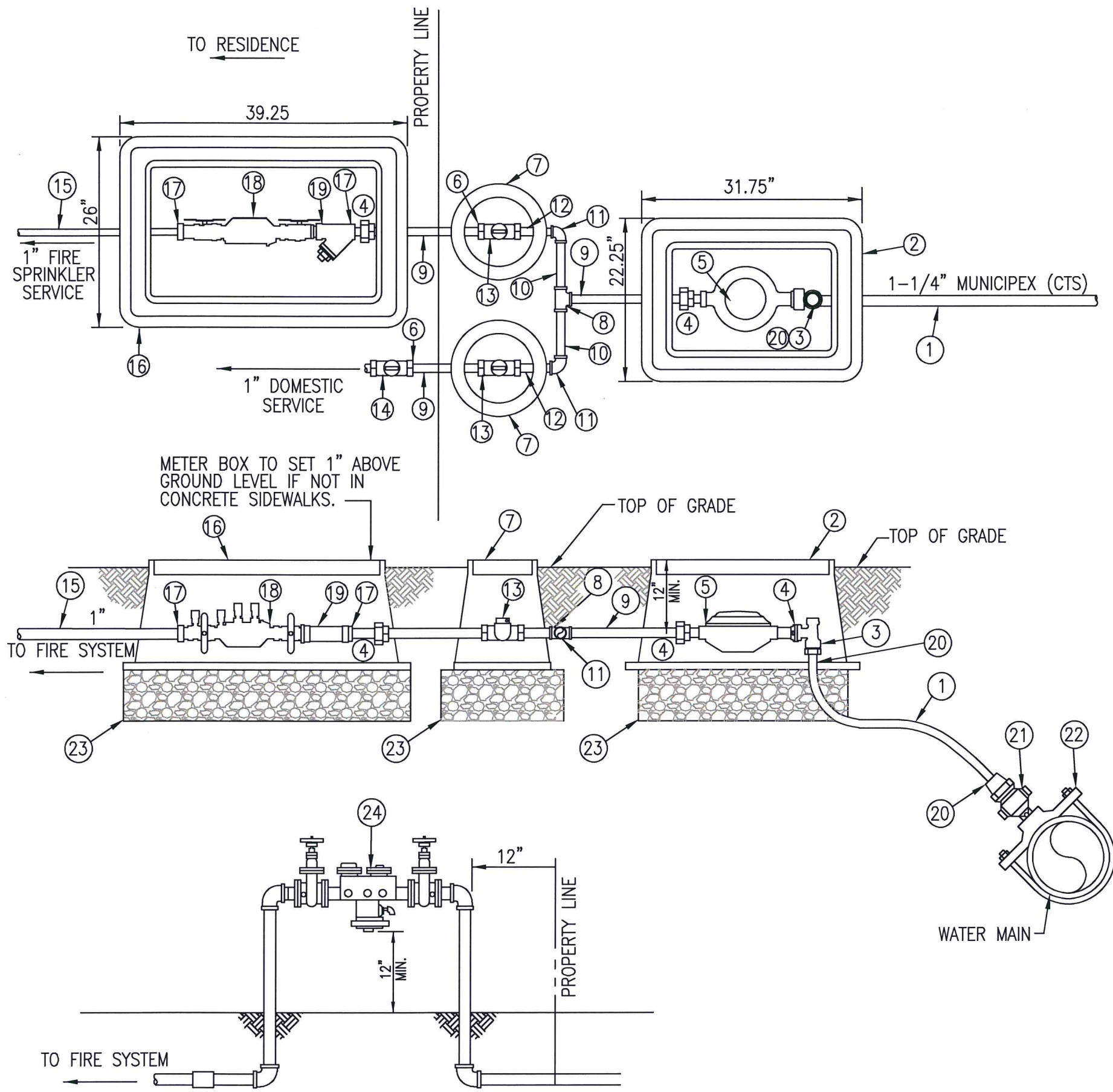


**GENERAL NOTES:**

1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED.
2. FOR TEE RESTRAINT INSTALL A FULL LENGTH OF PIPE ON EACH SIDE OF BRANCH.
3. ASSUMES THIRTY-SIX (36) INCHES MINIMUM DEPTH OF COVER.
4. ASSUMES A SAFETY FACTOR OF 1.5.
5. SOIL TYPE ML PER UNITED SOIL CLASSIFICATION ASTM D 2467.
6. PIPE BEDDING PER DISTRICT STANDARDS.
7. TEST PRESSURE 225 PSI.
8. IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINT LENGTH CANNOT BE MET, THE RESTRAINT LENGTH SHALL BE DETERMINED BY THE DESIGN ENGINEER AND APPROVED BY THE DISTRICT.

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	STANDARD RESTRAINT TEES. DEAD ENDS & BENDS FOR PVC C-900	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN	8-22-2013
	DISTRICT ENGINEER	DATE
REVISED		H-3D





**MATERIAL LIST:**

NOTE: ALL PARTS OR MATERIAL TO BE "OR APPROVED EQUAL"

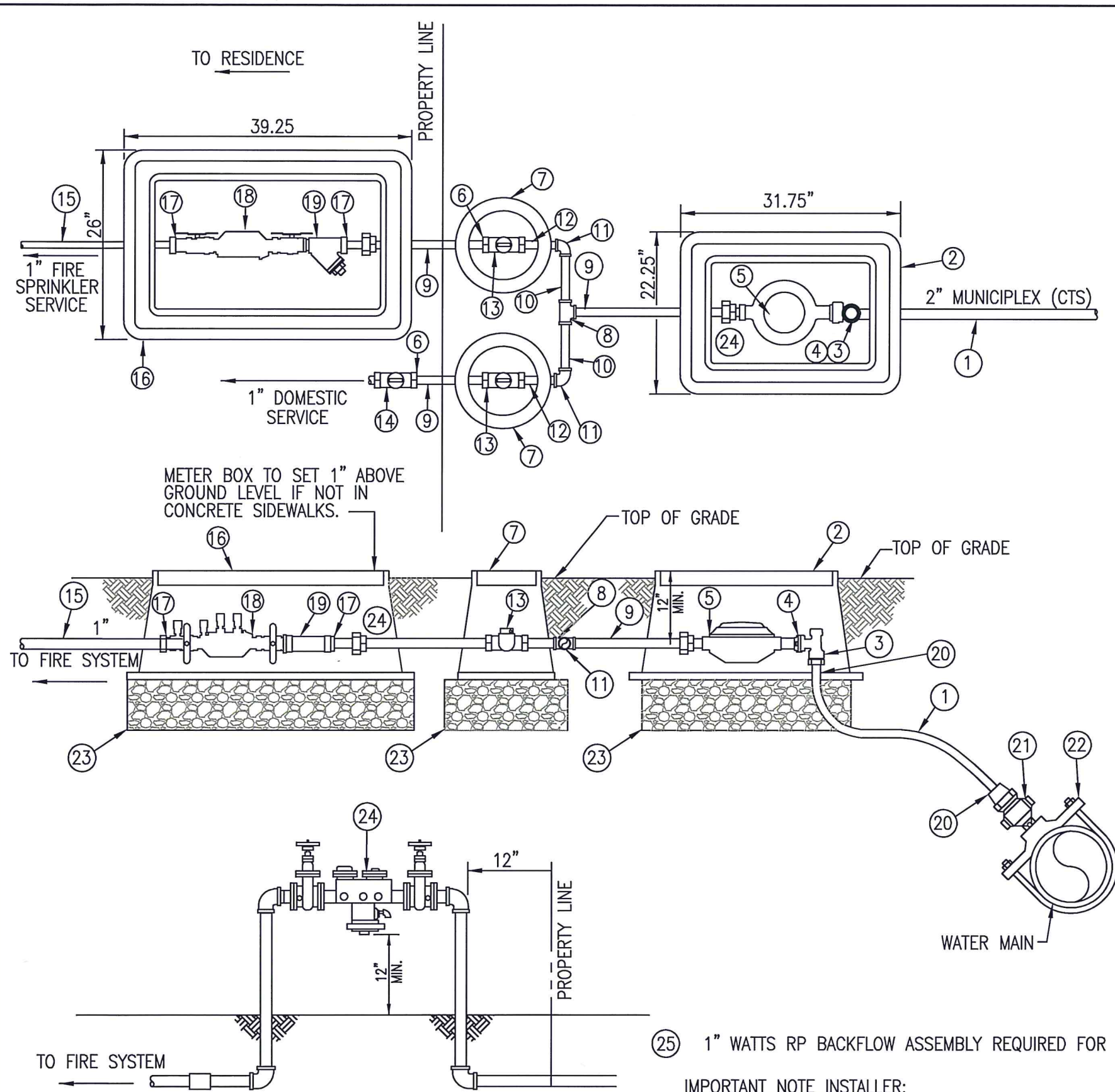
- ① 1-1/4" CTS MUNICIPEX POLY TUBE PIPE (1.069 ID & 1.375 OD)(250 PSI W.P.)
- ② SERVICE METER BOX SHALL BE APPLIED ENGINEERING PRODUCTS SERIES 1324-15P2P (13X24X15) OR EQUAL.
- ③ 1" IPS MUELLER 110 COMPRESSION ANGLE METER STOP. H-14259 W/SWIVEL NUT.
- ④ 1" BRASS FNPT UNION
- ⑤ 1" BADGER WATER METER, E55 SS HR-E LCD ENCODER, ILC, E-SERIES
- ⑥ 1" PVC FEMALE ADAPTER
- ⑦ 10" ROUND HAND HOLE (AEP 910L-1G2G)
- ⑧ 1" TEE-BRASS
- ⑨ 1"X12" NIPPLE-BRASS
- ⑩ 1"X8" NIPPLE-BRASS
- ⑪ 1"90°-BRASS
- ⑫ 1"X6" NIPPLE-BRASS
- ⑬ 1" MUELLER DUAL LOCKABLE WING BALL VALVE (FIPx FIP) CAT NO. B-20200N-08
- ⑭ 1" PVC BALL SHUTOFF VALVE (OPTIONAL CUSTOMER SUPPLIED AND INSTALLED)
- ⑮ 1" PVC PLASTIC TUBING
- ⑯ SERVICE METER BOX SHALL BE APPLIED ENGINEERING PRODUCTS SERIES 1730-15B2B (17X30X15) OR EQUAL.
- ⑰ 1" PVC MALE ADAPTER
- ⑱ 1" WILKINS MODEL 350 DOUBLE CHECK VALVE ASSEMBLY (SEE DETAIL 1 BELOW)
- ⑲ 1" WILKINS MODEL SXL LEAD FREE "Y" TYPE STRAINER.
- ⑳ 1" IPS S.S. COMPRESSION INSERT FOR 1-1/4" MUNICIPEX POLY TUBE
- ㉑ 1" MUELLER IPS CORP STOP H-15029N COMPRESSION CONNECTION .
- ㉒ 1" BRONZE DOUPLE STRAP SADDLE, 1" IP TAP, MUELLER BR2B SERIES
- ㉓ 3/4-IN CRUSHED ROCK BED. (Pipe & Parts must be raised min. 3" above rock)
- ㉔ 1" WATTS RP BACKFLOW ASSEMBLY REQUIRED FOR FIRE SYSTEMS WITH GLYCOL

**DETAIL 1**

RP BACKFLOW ASSEMBLY REQUIRED FOR ALL SPRINKLER SYSTEMS USING GLYCOL ANTI-FREEZE

OFFICE OF SPECIAL DISTRICTS		
1-1/4" MUNICIPEX POLY SERVICE FOR 1" METER & FIRE SPRINKLER CONNECTION FROM MAIN		
APPROVAL		
<i>Gary Martin</i>	1/25/18	
DISTRICT ENGINEER	DATE	DRAWING NUMBER
		H-4A





**MATERIAL LIST:**

NOTE: ALL PARTS OR MATERIAL TO BE "OR APPROVED EQUAL"

- ① 2" CTS MUNICIPAL POLY TUBE (1.653" ID & 2.125" OD) (200 PSI MAX.)
- ② SERVICE METER BOX SHALL BE APPLIED ENGINEERING PRODUCTS SERIES 1324-15P2P (13X24X15) OR EQUAL.
- ③ 2" CTS MUELLER BALL ANGLE VA (COMP X 2" METER FLANGE, MUELLER B-24276N)
- ④ METER CPL/ADAP, 1" FEMALE METER SWIVEL NUT x 2" FLG, AY McDONALD 710J47
- ⑤ 1" BADGER WATER METER, E55 SS HR-E LCD ENCODER, ILC, E-SERIES
- ⑥ 1" PVC FEMALE ADAPTER
- ⑦ 10" ROUND HAND HOLE (AEP 910L-1G2G)
- ⑧ 1" TEE-BRASS
- ⑨ 1"x12" NIPPLE-BRASS
- ⑩ 1"x8" NIPPLE-BRASS
- ⑪ 1"90°-BRASS
- ⑫ 1"x6" NIPPLE-BRASS
- ⑬ 1" MUELLER DUAL LOCKABLE WING BALL VALVE (FIPxFIP) CAT NO. B-20200N-08
- ⑭ 1" PVC BALL SHUTOFF VALVE (OPTIONAL CUSTOMER SUPPLIED AND INSTALLED)
- ⑮ 1" PVC PLASTIC TUBING
- ⑯ SERVICE METER BOX SHALL BE APPLIED ENGINEERING PRODUCTS SERIES 1730-15B2B (17X30X15) OR EQUAL.
- ⑰ 1" PVC MALE ADAPTER
- ⑱ 1" WILKINS MODEL 350 DOUBLE CHECK VALVE ASSEMBLY
- ⑲ 1" WILKINS MODEL SXL LEAD FREE "Y" TYPE STRAINER.
- ⑳ 2" CTS S.S. COMPRESSION INSERT
- ㉑ 2" MUELLER CORP STOP B-25028N COMPRESSION BALL VALVE.
- ㉒ 1" BRONZE DOUPLE STRAP SADDLE, 2" IP TAP, MUELLER BR2B SERIES
- ㉓ 3/4-IN CRUSHED ROCK BED. (Pipe & Parts must be raised min. 3" above rock)
- ㉔ 1" NPT BRASS UNION

②⑤ 1" WATTS RP BACKFLOW ASSEMBLY REQUIRED FOR FIRE SYSTEMS WITH GLYCOL

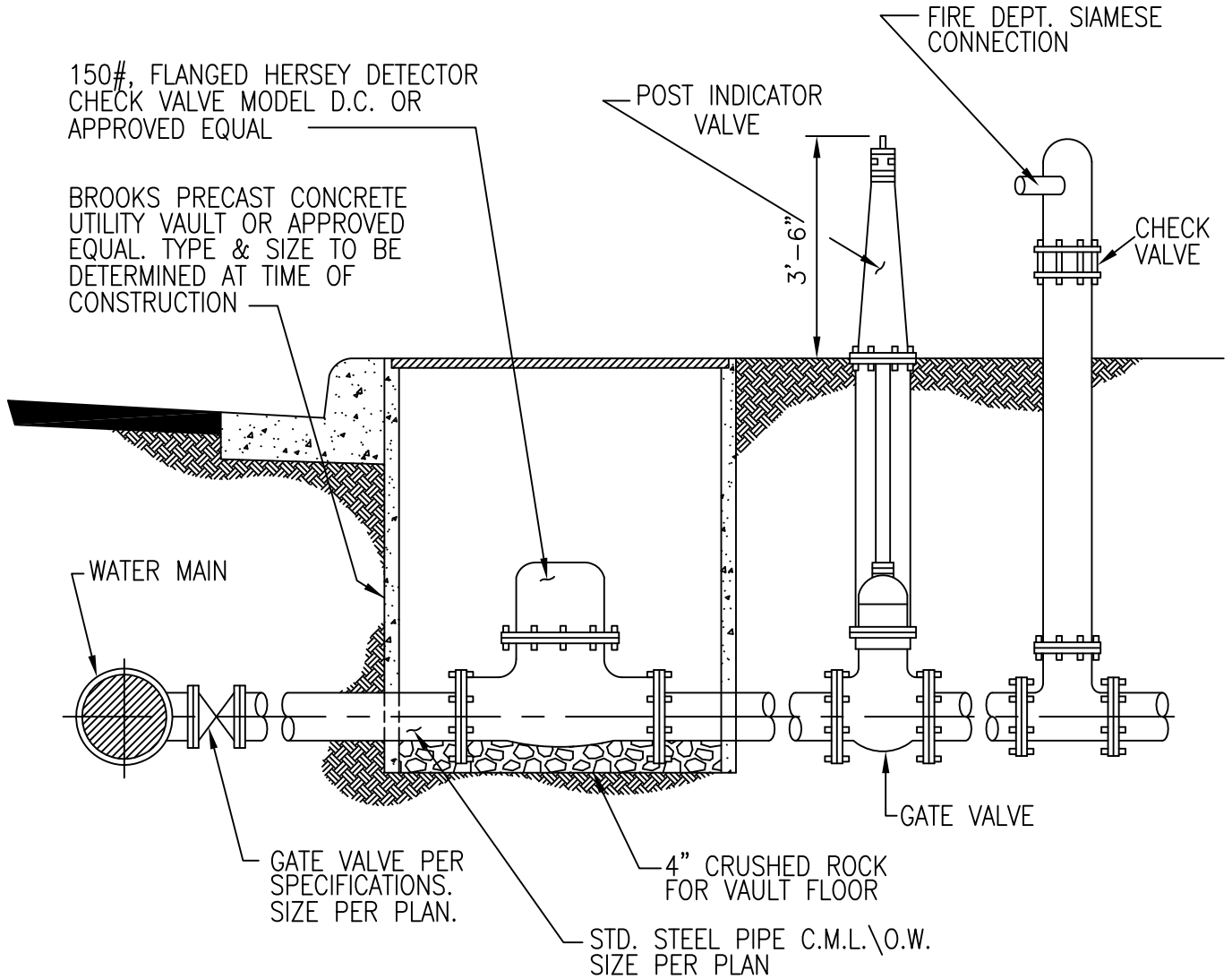
**IMPORTANT NOTE INSTALLER:**

DOUBLE CHECK VA BF ASSEMBLY OR RP BACKFLOW ASSEMBLY TO BE SPECIFIED  
 REDUCED PRESSURE BACKFLOW ASSEMBLY TO BE SPECIFIED & APPROVED BY  
 OPERATIONS BEFORE THE TIME OF INSTALLATION DEPENDING ON TYPE OF SPRINKLERS  
 TO BE INSTALLED BY THE OWNER.

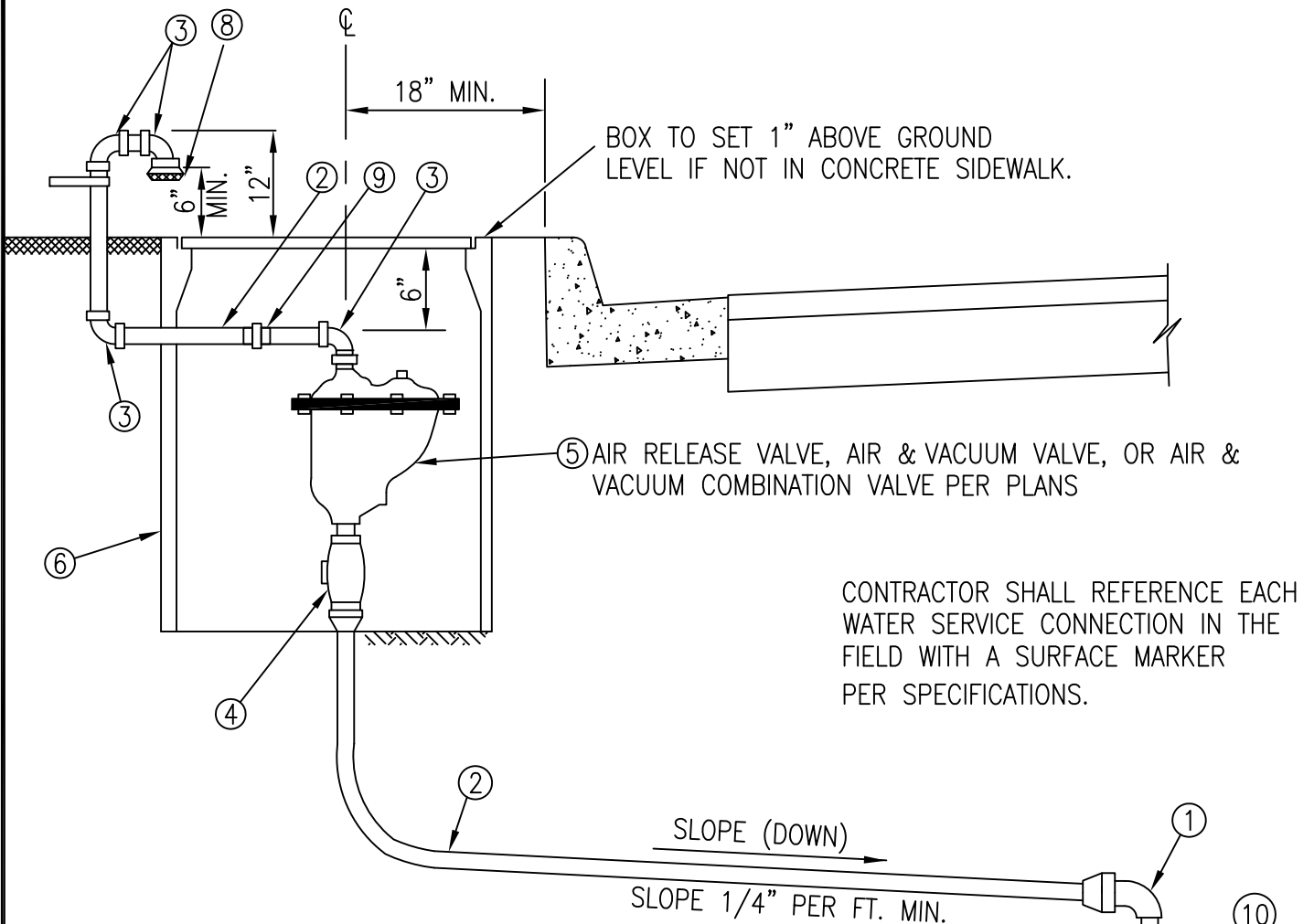


OFFICE OF SPECIAL DISTRICTS	
2" DUAL SERVICE METER & FIRE SPRINKLER CONNECTION FROM MAIN	
APPROVAL	DRAWING NUMBER
<i>Gary Martin</i> 3-5-18	H-4B
DISTRICT ENGINEER	DATE

NOTE: VAULT LOCATION AS FOLLOWS:  
 A. STANDARD CURB AS SHOWN  
 B. SIDEWALK ADJACENT TO CURB OR ROLLED CURB WITH SIDEWALK ADJACENT - VAULT BEHIND SIDEWALK.



	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>FIRE DETECTOR CHECK VALVE ASSEMBLY</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-5

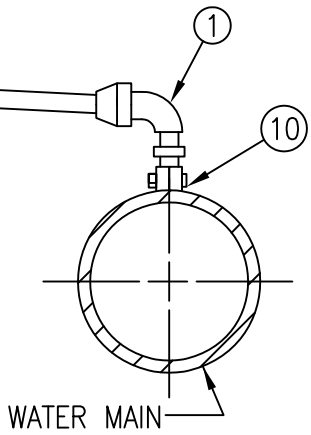


BOX TO SET 1" ABOVE GROUND LEVEL IF NOT IN CONCRETE SIDEWALK.

⑤ AIR RELEASE VALVE, AIR & VACUUM VALVE, OR AIR & VACUUM COMBINATION VALVE PER PLANS

CONTRACTOR SHALL REFERENCE EACH WATER SERVICE CONNECTION IN THE FIELD WITH A SURFACE MARKER PER SPECIFICATIONS.

SLOPE (DOWN)  
SLOPE 1/4" PER FT. MIN.

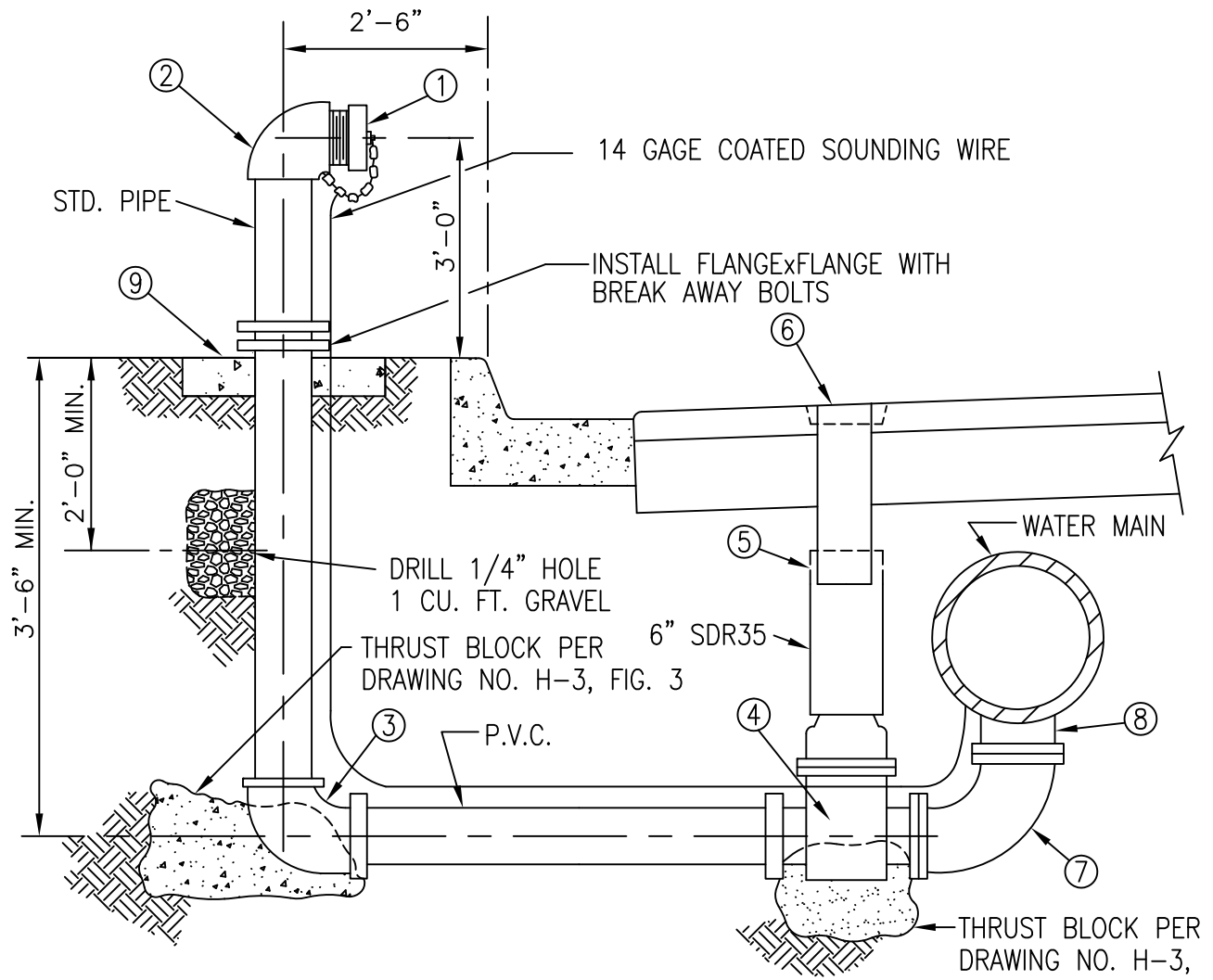


- ① CORPORATION STOP WITH 90° BRASS FITTING AND 1" COMPRESSION ADAPTOR
- ② 1" GALV. PIPE
- ③ 90° GALV. ELL
- ④ CORP STOP MUELLER COMPRESSION CTS OR APPROVED EQUAL
- ⑤ PER PLANS (2" MAX. SIZE)
- ⑥ VAULT & LID
- ⑦ 1" MUELLER THREADED CORPORATION STOP OR APPROVED EQUAL
- ⑧ SCREEN WITH PIPE THREAD
- ⑨ UNION GALVANIZED
- ⑩ CONNECTION PER DRAWING NO. H-9 OR H-9B

NOTE:  
SIZE OF PIPE, FITTINGS, & VALVES SHALL CONFORM TO THE SIZE OF THE AIR AND VACUUM VALVE.

TECH. SPEC. REFERENCE  
AIR & VACUUM & AIR RELEASE  
ASSEMBLIES- SECTION 8.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>AIR AND VACUUM VALVE ASSEMBLY</b>	
	APPROVAL <u>GARY MARTIN</u> DISTRICT ENGINEER	3-6-2012 DATE
REVISED		DRAWING NUMBER <b>H-6</b>



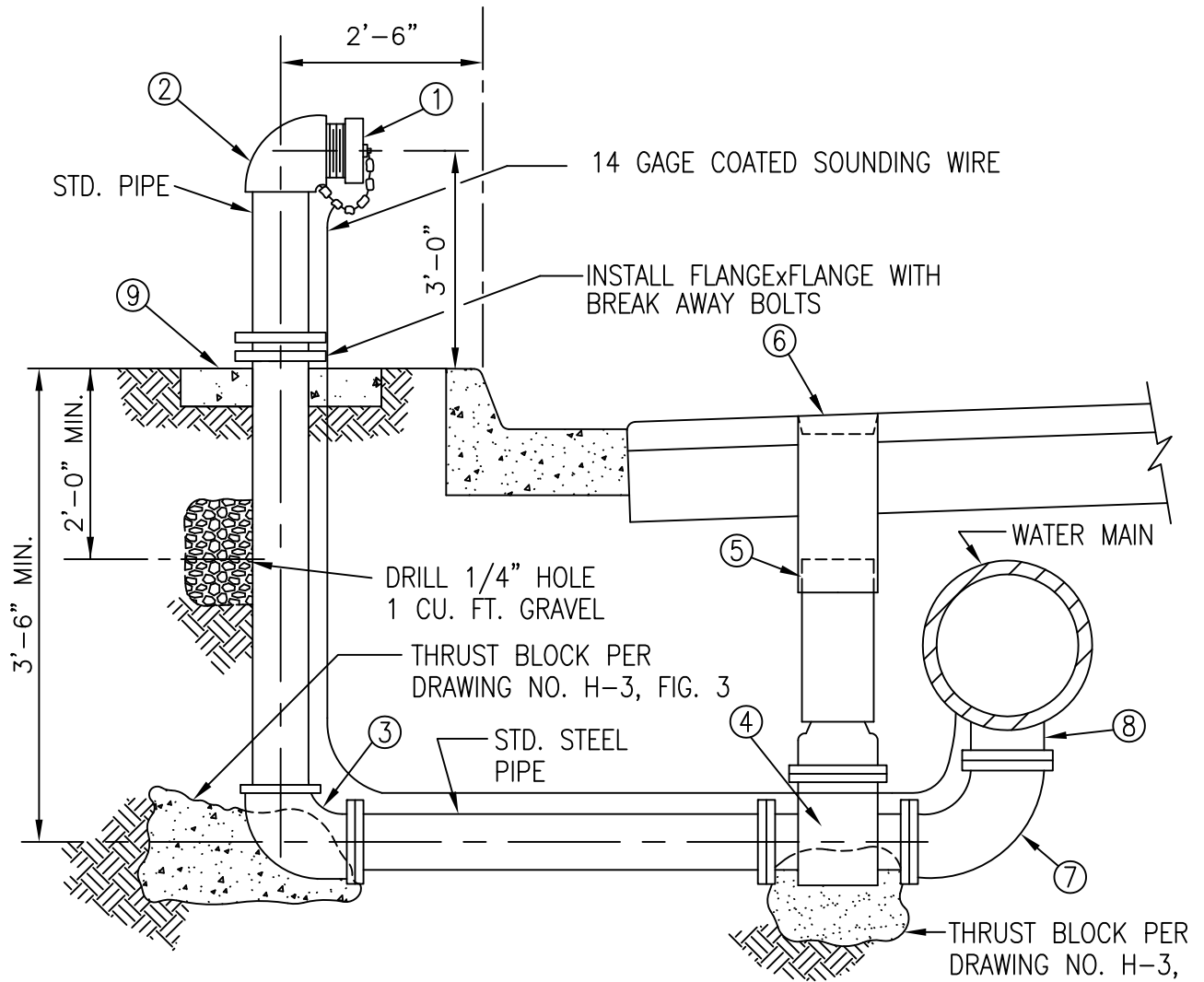
NOTE:

1. 6" BLOWOFF WILL BE REQUIRED FOR 10", 12" AND 14" DIAMETER WATER MAINS.
2. THE MIN. INSIDE DIAMETER OF ALL PIPE, VALVES AND FITTINGS ON ANY BLOWOFF SHALL BE EITHER 4" OR 6".

- ① BRASS THREADED REDUCER AND CAP WITH CHAIN
- ② SCR. ELL.
- ③ FLGxMJ ELBOW WITH RESTRAINTS
- ④ GATE VALVE-FIG. x R.T. -MUELLER RESILIENT SEAT
- ⑤ VALVE BOX PER DRAWING H-11
- ⑥ 6"x18" GALVANIZED SLIP CAN
- ⑦ FLG.xMJ ELBOW WITH RESTRAINTS
- ⑧ TEE
- ⑨ 3'x3'x6" NON SLIP CONCRETE PAD  
CONCRETE PAD

TECH. SPEC. REFERENCE:  
FLUSHOUT AND BLOWOFF ASSEMBLIES-  
SECTION 5.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>4" &amp; 6" BLOWOFF ASSEMBLY A.C. &amp; P.V.C. MAINS</b>	
	APPROVAL <u>GARY MARTIN</u> DISTRICT ENGINEER	DATE <u>3-6-2012</u>
		DRAWING NUMBER <b>H-7A</b>
REVISED		



NOTE:

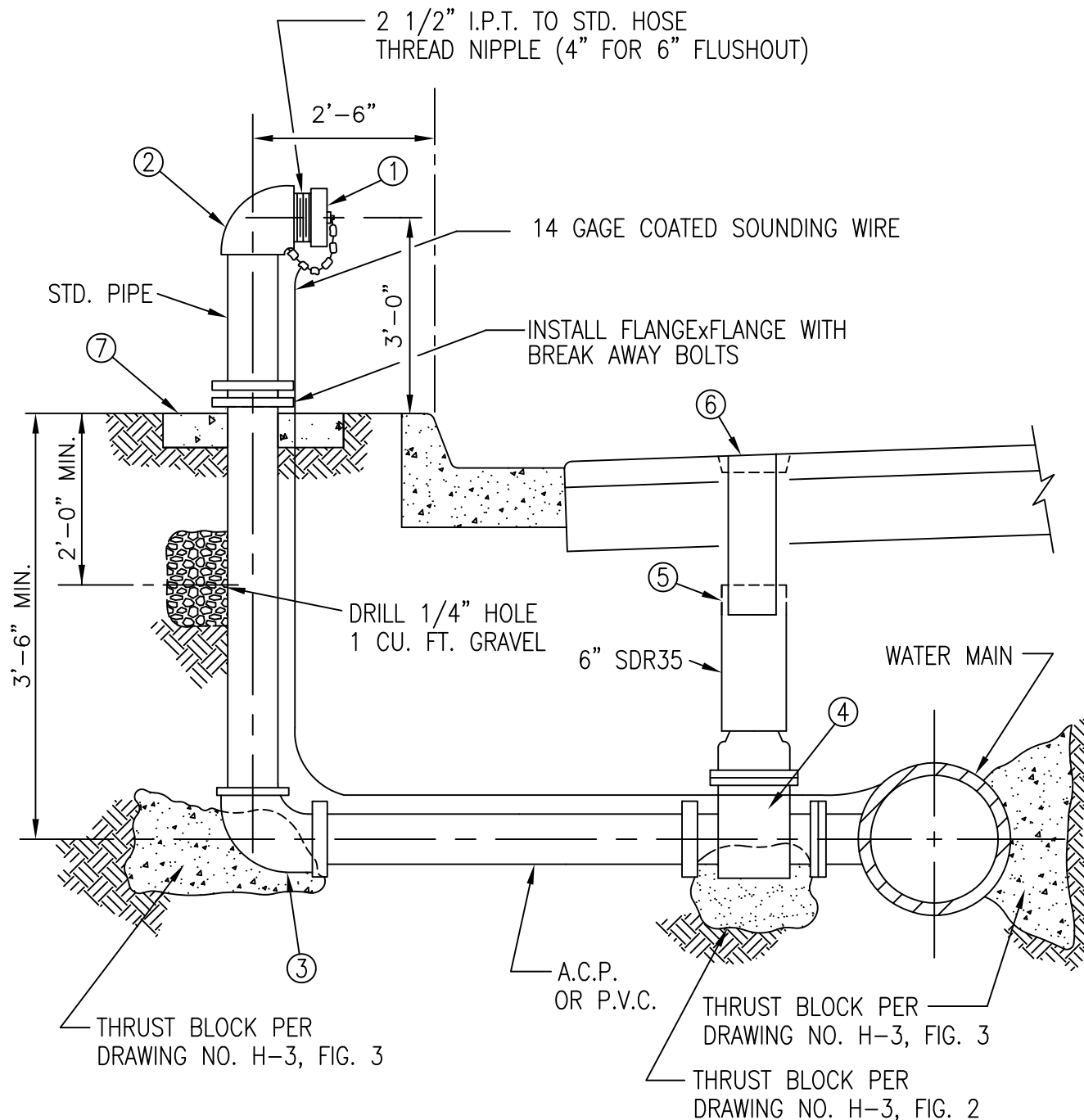
1. 6" BLOWOFF WILL BE REQUIRED FOR 10", 12" AND 14" DIAMETER WATER MAINS.
2. THE MIN. INSIDE DIAMETER OF ALL PIPE, VALVES AND FITTINGS ON ANY BLOWOFF SHALL BE EITHER 4" OR 6".

- ① BRASS THREADED REDUCER AND CAP WITH CHAIN
- ② SCR. ELL.
- ③ FLG x MJ ELBOW WITH RESTRAINTS
- ④ GATE VALVE - FIG. x R.T. - MUELLER RESILIENT SEAT
- ⑤ VALVE BOX PER DRAWING H-11
- ⑥ 6" x 18" GALVANIZED SLIP CAN
- ⑦ FLG. x MJ ELBOW WITH RESTRAINTS
- ⑧ TEE
- ⑨ 3' x 3' x 6" NON SLIP CONCRETE PAD

TECH. SPEC. REFERENCE:

FLUSHOUT AND BLOWOFF ASSEMBLIES -  
SECTION 5.0

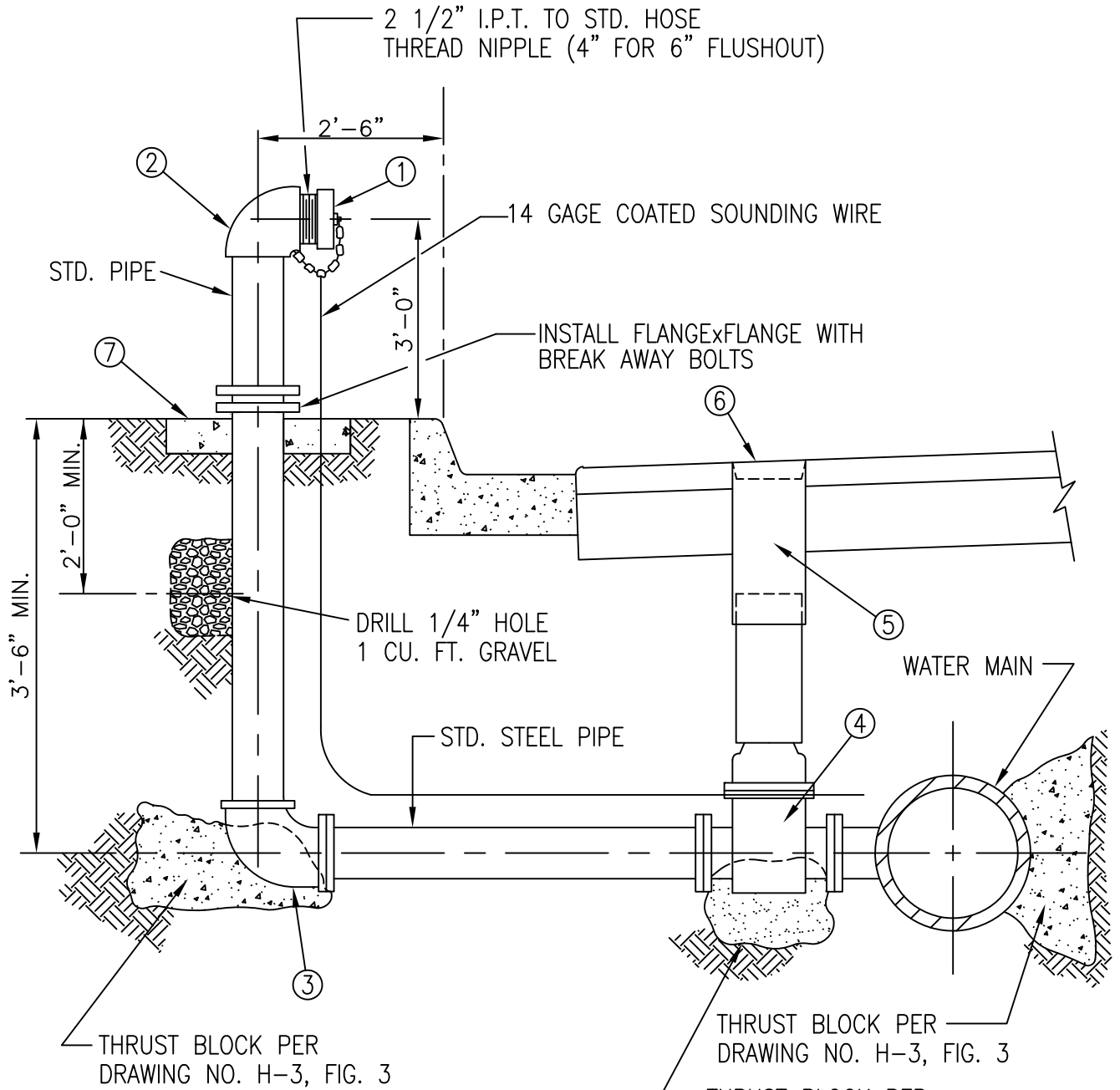
	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>4" &amp; 6" BLOWOFF ASSEMBLY STEEL MAIN</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE H-7B
REVISED		



- ① BRASS THREADED REDUCER AND CAP WITH CHAIN
- ② SCR. ELL.
- ③ FLGxMJ ELBOW WITH RESTRAINTS
- ④ GATE VALVE—FIG. x R.T. —MUELLER RESILIENT SEAT
- ⑤ VALVE BOX PER DRAWING H-11
- ⑥ 6"x18" GALVANIZED SLIP CAN
- ⑦ 3'x3'x6" NON SLIP CONCRETE PAD

TECH. SPEC. REFERENCE  
 FLUSHOUT AND BLOWOFF  
 ASSEMBLIES—SECTION 5.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>4" &amp; 6" FLUSHOUT ASSEMBLY A.C. &amp; P.V.C. MAINS</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-8A

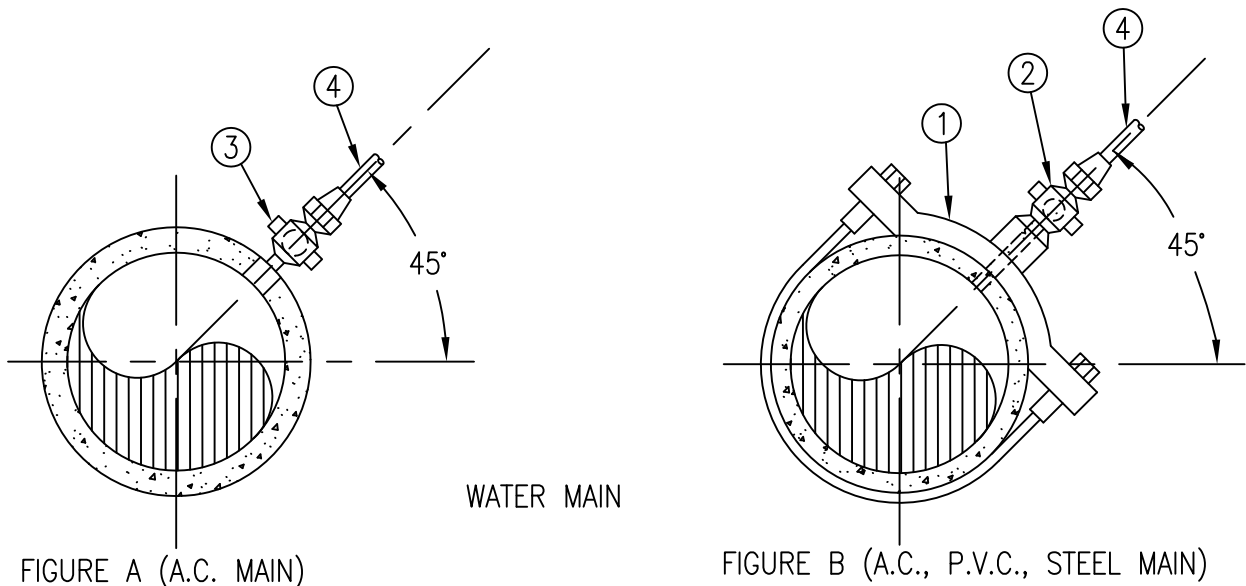


- ① HOSE CAP WITH CHAIN.
- ② RED ELL
- ③ C.I. ELL SCR. x FLG.
- ④ GATE VALVE FLG.
- ⑤ VALVE BOX PER DRAWING H-11
- ⑥ VALVE BOX COVER.
- ⑦ 3'X3'X6" NON SLIP CONCRETE PAD

TECH. SPEC. REFERENCE  
 FLUSHOUT AND BLOWOFF  
 ASSEMBLIES-SECTION 5.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>4" &amp; 6" FLUSHOUT ASSEMBLY STEEL MAIN</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-8B





- ① SERVICE CLAMP
- ② CORPORATION STOP, (I.P.T.) INLET
- ③ CORPORATION STOP, C.S.T. INLET
- ④ SERVICE TUBING

CONNECTION REQUIREMENTS

SERVICE OUTLET	SIZE OF A.C. MAIN			
	4"	6"	8"	10" & OVER
1"	FIG. B	FIG. B	FIG. B	FIG. A
1 1/4"	NOT PERMITTED	FIG. B	FIG. B	FIG. B
1 1/2"	NOT PERMITTED	FIG. B	FIG. B	FIG. B
2"	NOT PERMITTED	NOT PERMITTED	FIG. B	FIG. B

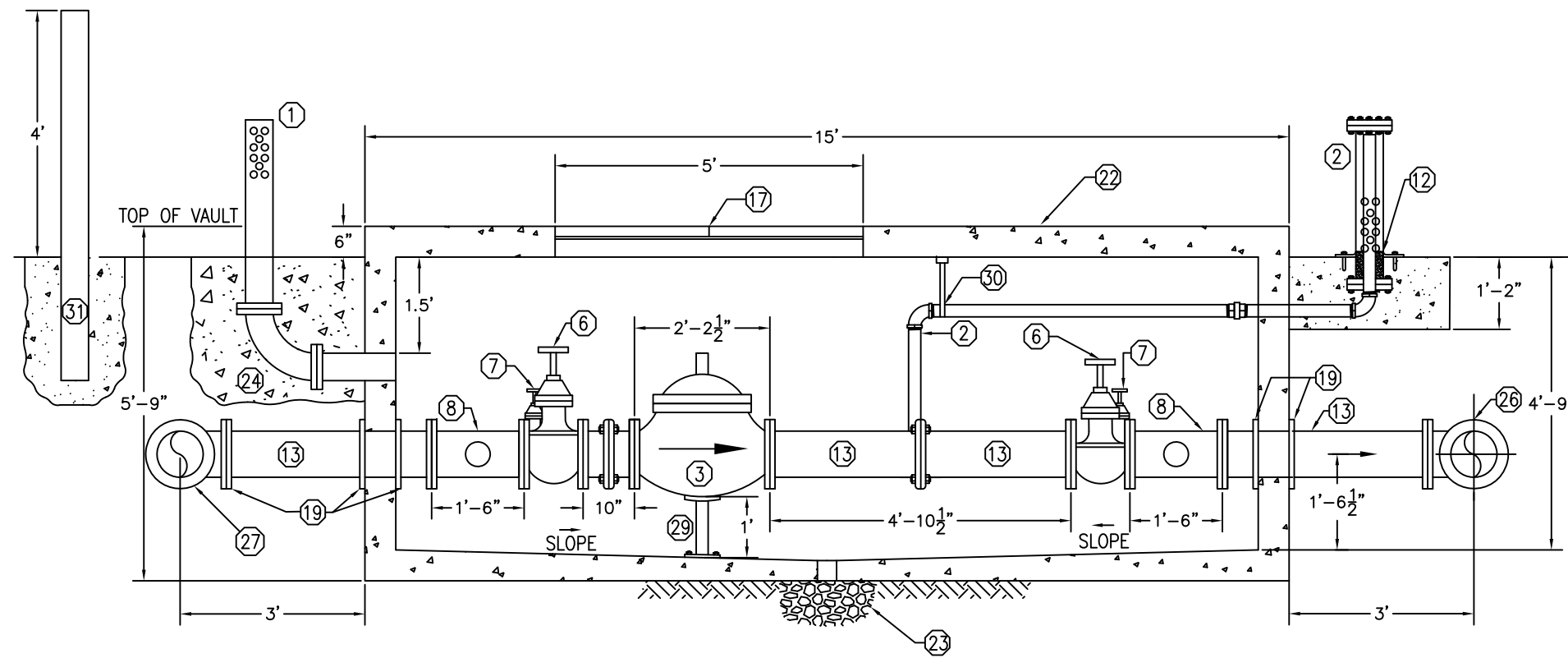
NOTES:

1. IF TWO TAPS ARE MADE, ONE ON EACH SIDE OF THE MAIN, THEY SHALL BE SEPARATED BY A MINIMUM OF TWO (2) FEET (MEASURED ALONG THE PIPE LENGTH). MAKE TAP A MINIMUM OF TWO (2) FEET FROM THE END OF THE PIPE.

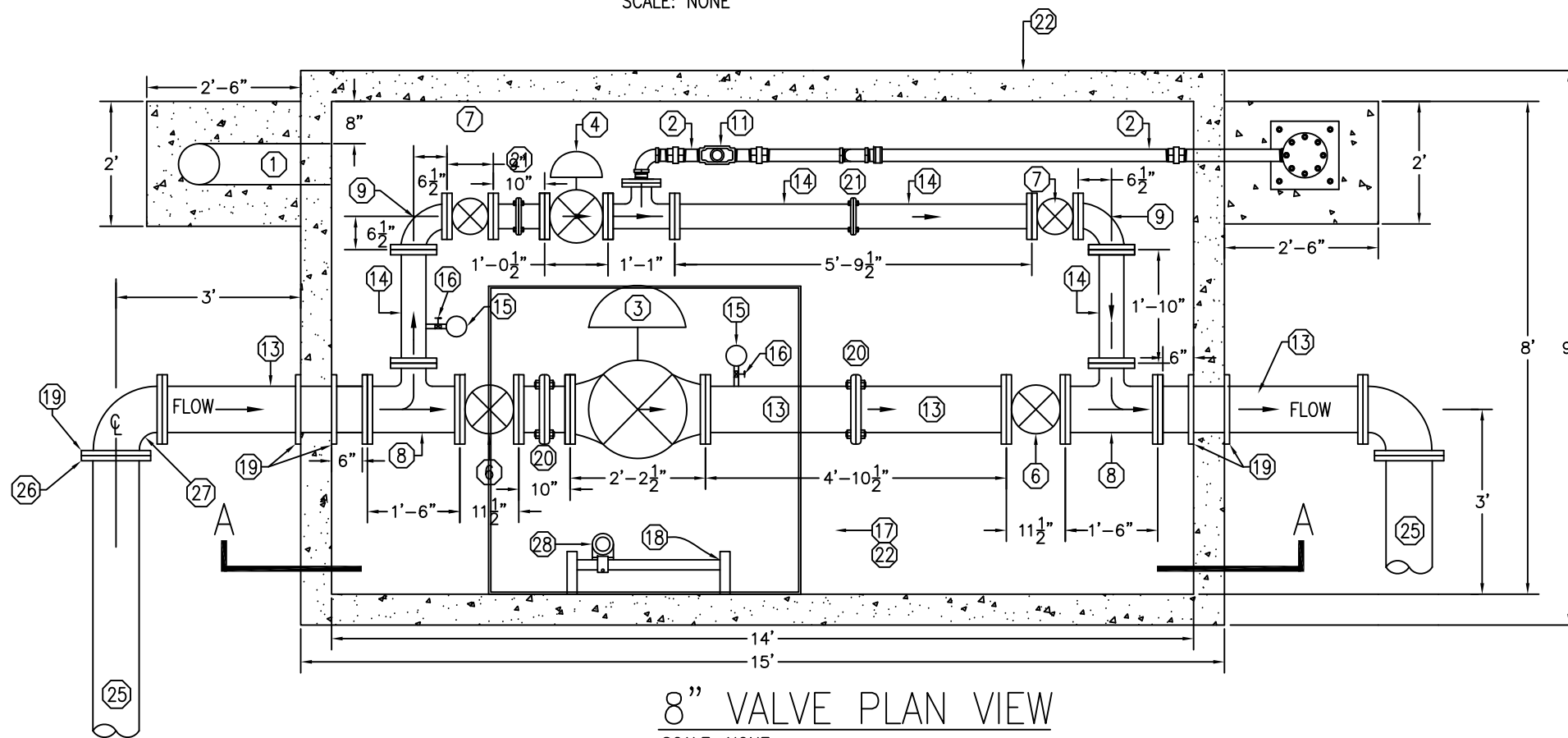
2. PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.

TECH. SPEC. REFERENCE  
WATER SERVICES – SECTION 7.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>SERVICE CONNECTIONS TO WATER MAINS</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-9



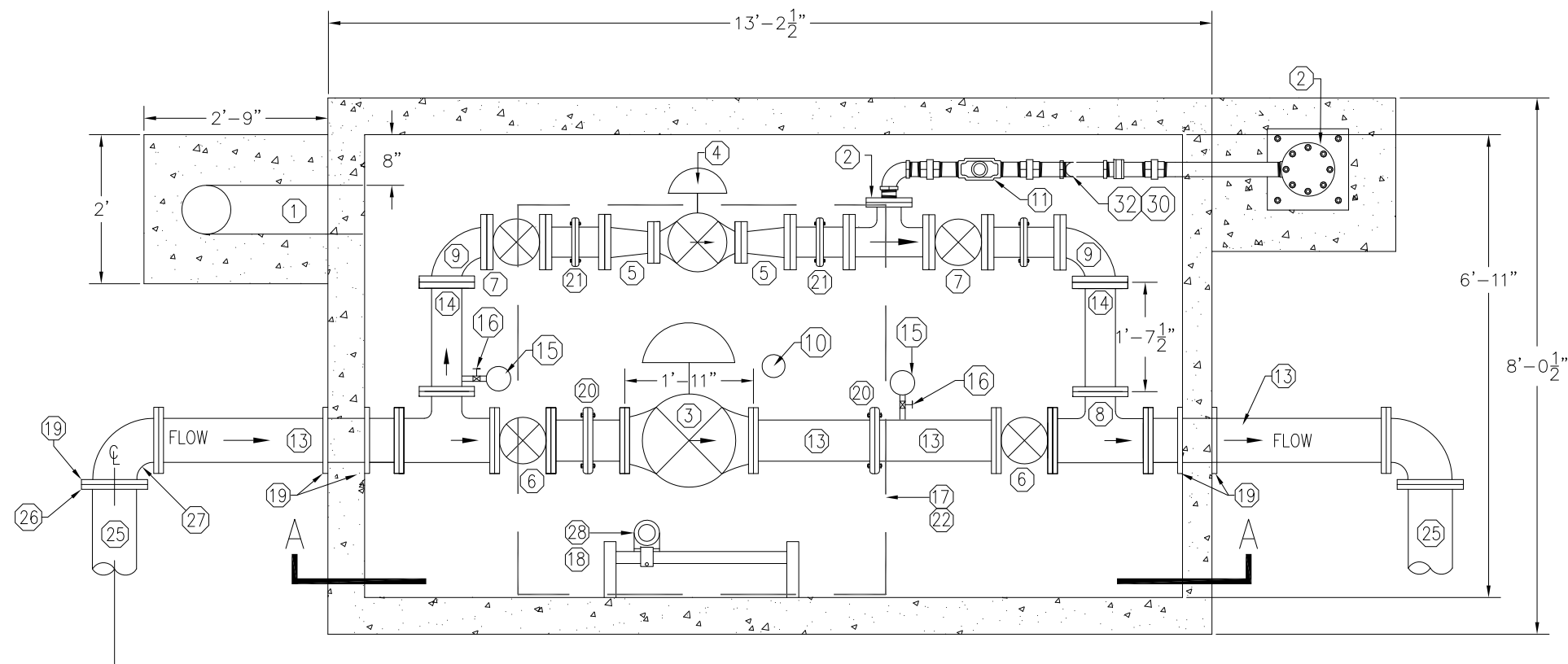
SECTION A-A  
SCALE: NONE



8" VALVE PLAN VIEW  
SCALE: NONE

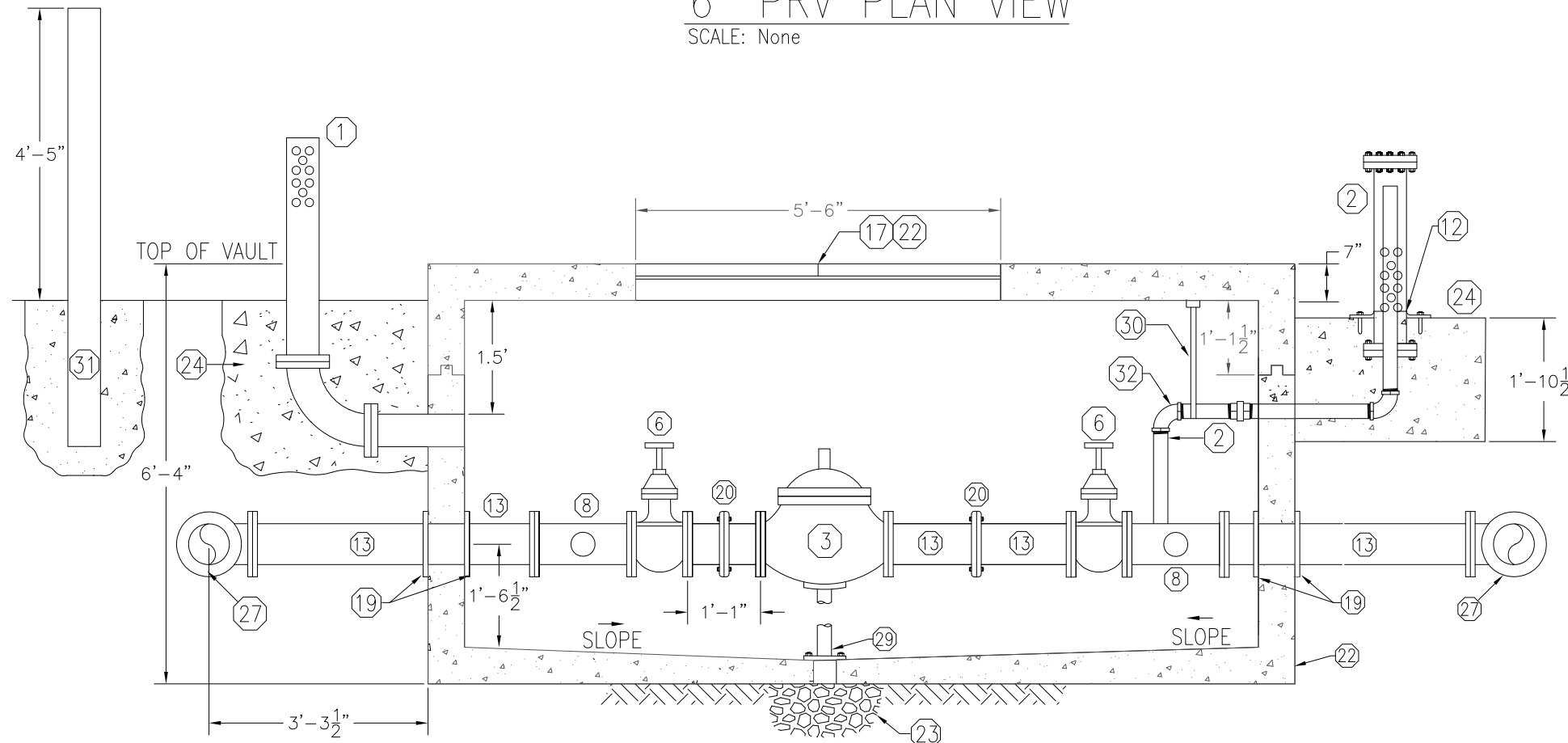
- ① 6" GALV. FLG. AIR VENT ALHAMBRA FOUNDRY # A-2153
- ② 2" GALV. STEEL PRESSURE RELIEF DRAIN LINE WITH 6 INCH SCH 40 PIPE & FLG'D CAP EMBEDDED IN CONCRETE.
- ③ 8" FLANGED PRESSURE REDUCER CLAY-VAL VALVE, CLAY-VAL MODEL 90-01-GG-ABCD5 WITH X42 "Y" STRAINER 150# CLASS FLANGE, CRD 30-300
- ④ 4" FLANGED PRESSURE REDUCER CLAY-VAL VALVE (CRD 30-300) 90-01BVKC D/B 150# CLASS FLANGE WITH X42 "Y" STRAINER
- ⑤ 4" STEEL POST SET IN CONCRETE W/SS STRAP
- ⑥ 8" FLANGED 150# GATE VALVE
- ⑦ 4" FLANGED 150# GATE VALVE
- ⑧ 8"x4" FLANGED D.I. 150# RED. TEE
- ⑨ 4" FLANGED D.I. 150# 90 DEG. ELBOW
- ⑩ 4" FLANGED D.I. 150# 90 DEG. ELBOW
- ⑪ 2" CLAYTON 50G-KCD/B THREADED ENDS PRESSURE RELIEF VALVE WITH CRL 20-200 FILET WELD PIPE TO 1/2-IN STEEL PLATE CONC. SLURRY BOTTOM TO DRAIN HOLES.
- ⑫ 8" DIA. CLASS 50 D.I. PIPE
- ⑬ 4" DIA. CLASS 50 D.I. PIPE
- ⑭ 6" DIA (0-200) P.S.I. S.S. PRESSURE GAUGE
- ⑮ 316 STAINLESS STEEL ISOLATION BALL VA. FOR PRESSURE GAUGE
- ⑯ 5'x5' GALV. PAD LOCKABLE DOUBLE DOOR BY USF FABRICATION, INC. TYPE THD AASHTO H-20 SPRING ASSISTED HINGED DOORS
- ⑰ GALV. STEEL LADDER BY ALHAMBRA
- ⑱ THRUST BRACE- 8"- D.I. FLANGE ADAPTER SERIES 200 WITH 50 FT-LB TORQUE FOR BOLTS
- ⑲ 8" VICTAULIC COUPLING
- ⑲ 4" VICTAULIC COUPLING
- ⑲ UTILITY VAULT CO. VAULT WITH TRAFFIC RATED DOORS AND LID
- ⑲ 3/4-INCH GRAVEL DRAIN PIT 4'x4'x3' DEEP
- ⑲ 2500 PSI CONCRETE AIR VENT SUPPORT
- ⑲ 8 INCH C-900 CL 150 PVC PIPE
- ⑲ 8 INCH UNI-FLANGE SERIES 900 FLG. ADAPTER FOR PVC PIPE
- ⑲ 8-INCH D.I. 150# 90 DEG. ELBOW
- ⑲ DURA-RED SAFETY POST OR EQUAL MOUNTED TO GALVANIZED LADDER
- ⑲ GALVANIZED ADJUSTABLE PIPE SUPPORTS (6 TOTAL)
- ⑲ GALVANIZED ADJUSTABLE PIPE HANGER
- ⑲ 4" DIA. BALLARDS - 4 TOTAL
- ⑲ 2" DIA. GALV. PIPE WITH 90 DEG. ELBOW & COUPLINGS FOR PRESSURE RELIEF VALVE PIPING.

OFFICE OF SPECIAL DISTRICTS		
8" PRESSURE REDUCING STATION		
APPROVAL		DRAWING NUMBER
GARY MARTIN	6-18-12	H-10A
DISTRICT ENGINEER	DATE	



6" PRV PLAN VIEW

SCALE: None

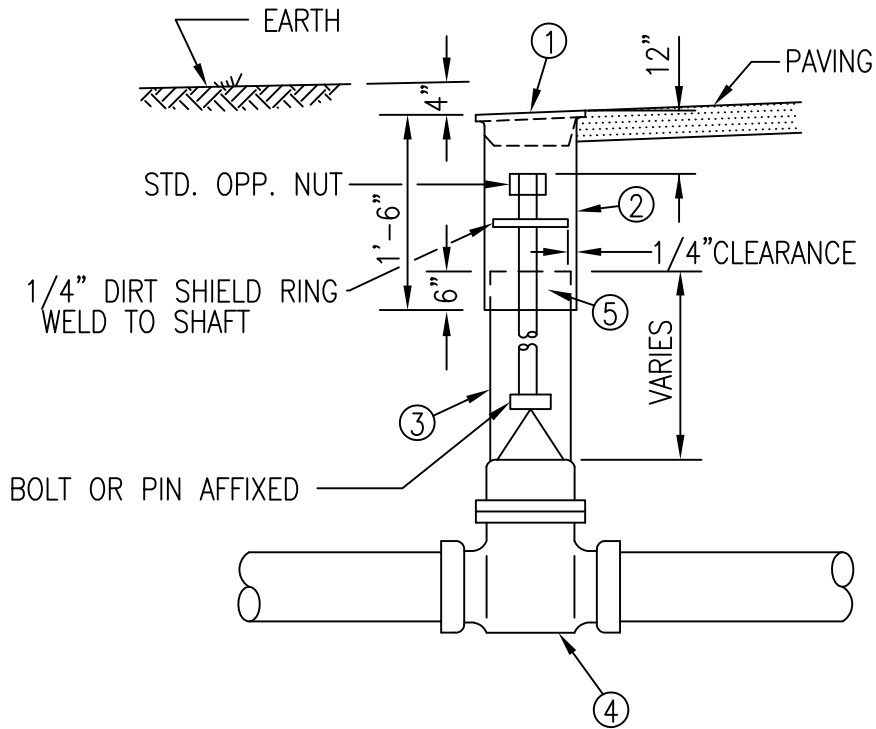


SECTION A-A

SCALE: None

- ① 6" GALV. FLG. AIR VENT ALHAMBRA FOUNDRY # A-2153
- ② 2" GALV. STEEL PRESSURE RELIEF DRAIN LINE WITH 6 INCH SCH 40 PIPE & FLG'D CAP EMBEDDED IN CONCRETE.
- ③ 6" FLANGED PRESSURE REDUCER CLAY-VAL VALVE, CLAY-VAL MODEL 90-01BVYKC D/B WITH X42 "Y" STRAINER 150# CLASS FLANGE, CRD 30-300 PRESSURE REDUCER VALVE
- ④ 3" FLANGED PRESSURE REDUCER CLAY-VAL VALVE (CRD 30-300) 90-01BVYKC D/B 150# CLASS FLANGE WITH X42 "Y" STRAINER BY PASS SECONDARY PRESSURE REDUCING VALVE
- ⑤ 4X3 DI FLANGED 150# REDUCING 90 DEG. ELBOW
- ⑥ 6" FLANGED 150# GATE VALVE
- ⑦ 4" FLANGED 150# GATE VALVE
- ⑧ 6"x4" FLANGED D.I. 150# RED. TEE
- ⑨ 4" FLANGED D.I. 150# 90 DEG. ELBOW
- ⑩ 4" VAULT DRAIN
- ⑪ 2" CLAYTON 50G-KCD/B THREADED ENDS PRESSURE RELIEF VALVE WITH CRL 20-200
- ⑫ FILET WELD PIPE TO 1/2-IN STEEL PLATE CONC. SLURRY BOTTOM TO DRAIN HOLES.
- ⑬ 6" DIA. CLASS 50 D.I. PIPE
- ⑭ 4" DIA. CLASS 50 D.I. PIPE
- ⑮ 6" DIA (0-200) P.S.I. S.S. PRESSURE GAUGE
- ⑯ 316 STAINLESS STEEL ISOLATION BALL VA. FOR PRESSURE GAUGE
- ⑰ 5'x5' GALV. PAD LOCKABLE DOUBLE DOOR BY USF FABRICATION, INC. TYPE THD AASHTO H-20 SPRING ASSISTED HINGED DOORS
- ⑱ GALV. STEEL LADDER BY ALHAMBRA
- ⑲ THRUST BRACE- 8"- D.I. FLANGE ADAPTER SERIES 200 WITH 50 FT-LB TORQUE FOR BOLTS
- ⑳ 6" VICTAULIC COUPLING
- ㉑ 4" VICTAULIC COUPLING
- ㉒ UTILITY VAULT CO. VAULT WITH TRAFFIC RATED DOORS AND LID
- ㉓ 3/4-INCH GRAVEL DRAIN PIT 4'x4'x3' DEEP
- ㉔ 2500 PSI CONCRETE AIR VENT SUPPORT
- ㉕ 6 INCH C-900 CL 150 PVC PIPE
- ㉖ 6 INCH UNI-FLANGE SERIES 900 FLG. ADAPTER FOR PVC PIPE
- ㉗ 6-INCH D.I. 150# 90 DEG. ELBOW
- ㉘ DURA-RED SAFETY POST OR EQUAL MOUNTED TO GALVANIZED LADDER
- ㉙ GALVANIZED ADJUSTABLE PIPE SUPPORTS (6 TOTAL)
- ㉚ GALVANIZED ADJUSTABLE PIPE HANGER
- ㉛ 4" DIA. BALLARDS - 4 TOTAL
- ㉜ 2" DIA. GALV. PIPE WITH 90 DEG. ELBOW & COUPLINGS FOR PRESSURE RELIEF VALVE PIPING.

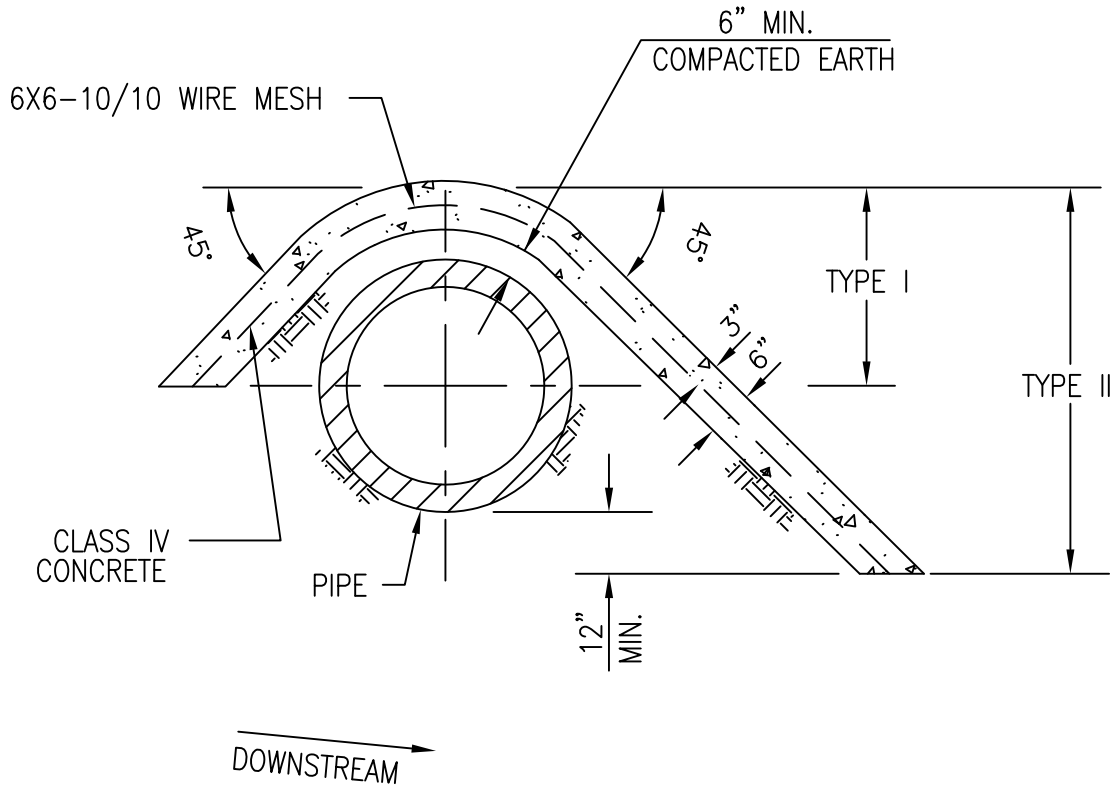
OFFICE OF SPECIAL DISTRICTS		
6" PRESSURE REDUCING STATION		
APPROVAL	6-12-12	DRAWING NUMBER
GARY MARTIN DISTRICT ENGINEER	DATE	H-10B



- ① VALVE BOX COVER
- ② 6 5/8" O.D., 10 GAGE STEEL VALVE BOX TOP. (SLIDER INSTALLS INSIDE SDR 35)
- ③ 6" SDR 35 PIPE. CUT TO LENGTH TO MEET FIELD CONDITIONS
- ④ VALVE
- ⑤ FABRICATED EXTENSION STEM(REQUIRED IF VALVE NUT MORE THAN 36" BELOW SURFACE).

TECH. SPEC. REFERENCE  
 GATE VALVES, VALVE BOXES  
 AND COVERS-SECTION 6.0

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	VALVE BOX	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-11



NOTES:

1. THE DOWNSTREAM TOE OF TYPE I CONCRETE BLANKET ENDS AT THE CENTER OF PIPE AS SHOWN ABOVE.
2. THE DOWNSTREAM TOE OF TYPE II CONCRETE BLANKET ENDS 12" BELOW THE BOTTOM OF PIPE AS SHOWN ABOVE.

TECH. SPEC. REFERENCE:  
 CONCRETE-SECTION 2.0  
 CONC. BLANKET-SECTION 10.0

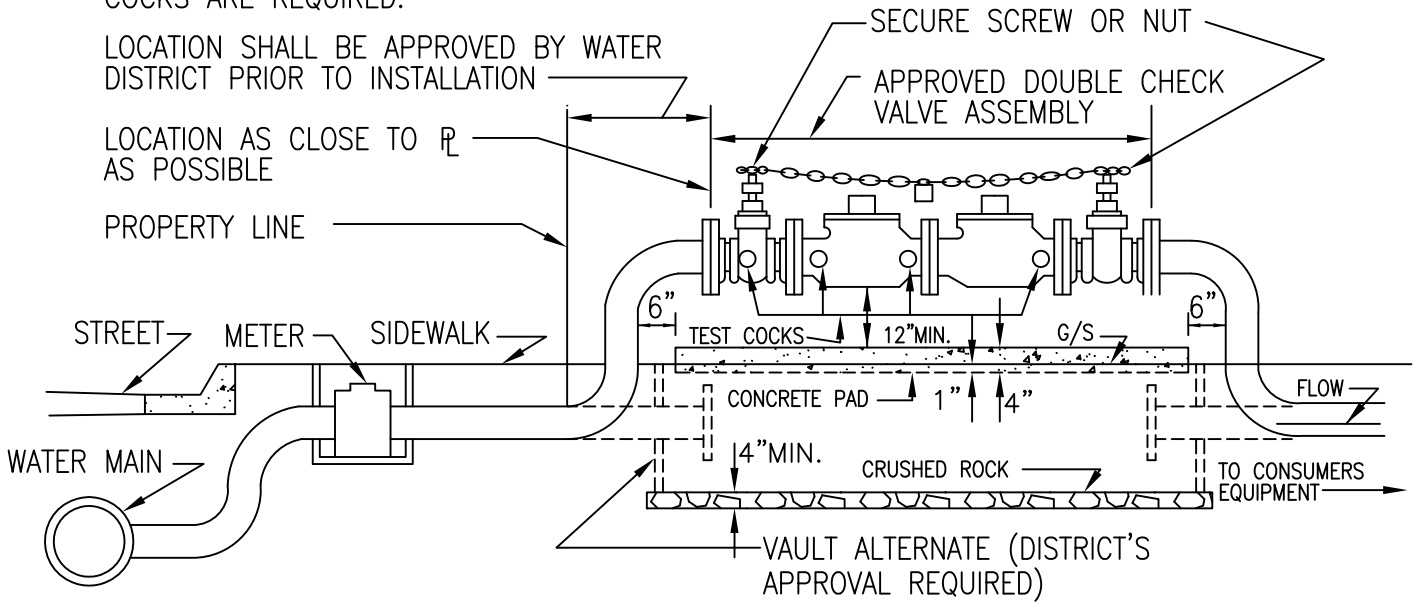
	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>CONCRETE BLANKET</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-12

NOTE:  
 PLACE BOTTOM OF VALVE 12" OR MORE ABOVE FINISHED GRADE & SURROUNDING  
 GROUND OR IN A VAULT PER DISTRICTS REQUIREMENTS. GATE VALVES AND TEST  
 COCKS ARE REQUIRED.

LOCATION SHALL BE APPROVED BY WATER  
 DISTRICT PRIOR TO INSTALLATION

LOCATION AS CLOSE TO R<sub>L</sub>  
 AS POSSIBLE

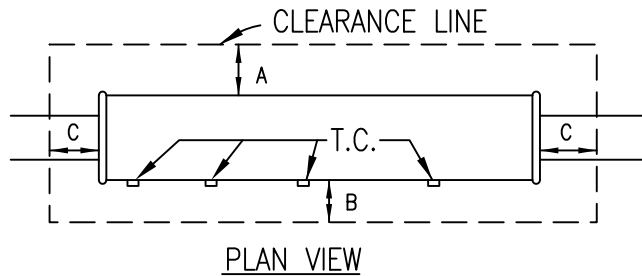
PROPERTY LINE



DISTRICT WATER SUPPLY – NO CONNECTIONS OR TEES BETWEEN METER & DEVICE

MIN. CLEARANCE  
 (ABOVE OR BELOW G.S.)

SIZE	A	B	C
1"-3"	6"	18"	6"
4"-& UP	24"	24"	6"



PLAN VIEW

NOTES:

- 1) THE "APPROVED" DOUBLE CHECK VALVE ASSEMBLY SHALL BE LOCATED AND INSTALLED SUBJECT TO THE APPROVAL OF THE DISTRICT ENGINEER.
- 2) A PRESSURE RELIEF VALVE SHALL BE INSTALLED PER SECTION 1007 UNIFORM PLUMBING CODE.
- 3) THE DEVICE MUST BE INSPECTED AND TESTED IMMEDIATELY AFTER INSTALLATION.
- 4) IF DEVICE IS INSTALLED IN A VAULT, BOTTOM OF DEVICE SHALL BE A MIN. OF 12" FROM TOP OF CRUSHED ROCK.

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>DOUBLE CHECK VALVE ASSEMBLY</b>	
	APPROVAL GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		DRAWING NUMBER H-13

NOTE:  
 PLACE BOTTOM OF VALVE 12" OR MORE ABOVE FINISHED GRADE & SURROUNDING GROUND. GATE VALVES AND TEST CLOCKS ARE REQUIRED.

LOCATION SHALL BE APPROVED BY WATER DISTRICT PRIOR TO INSTALLATION

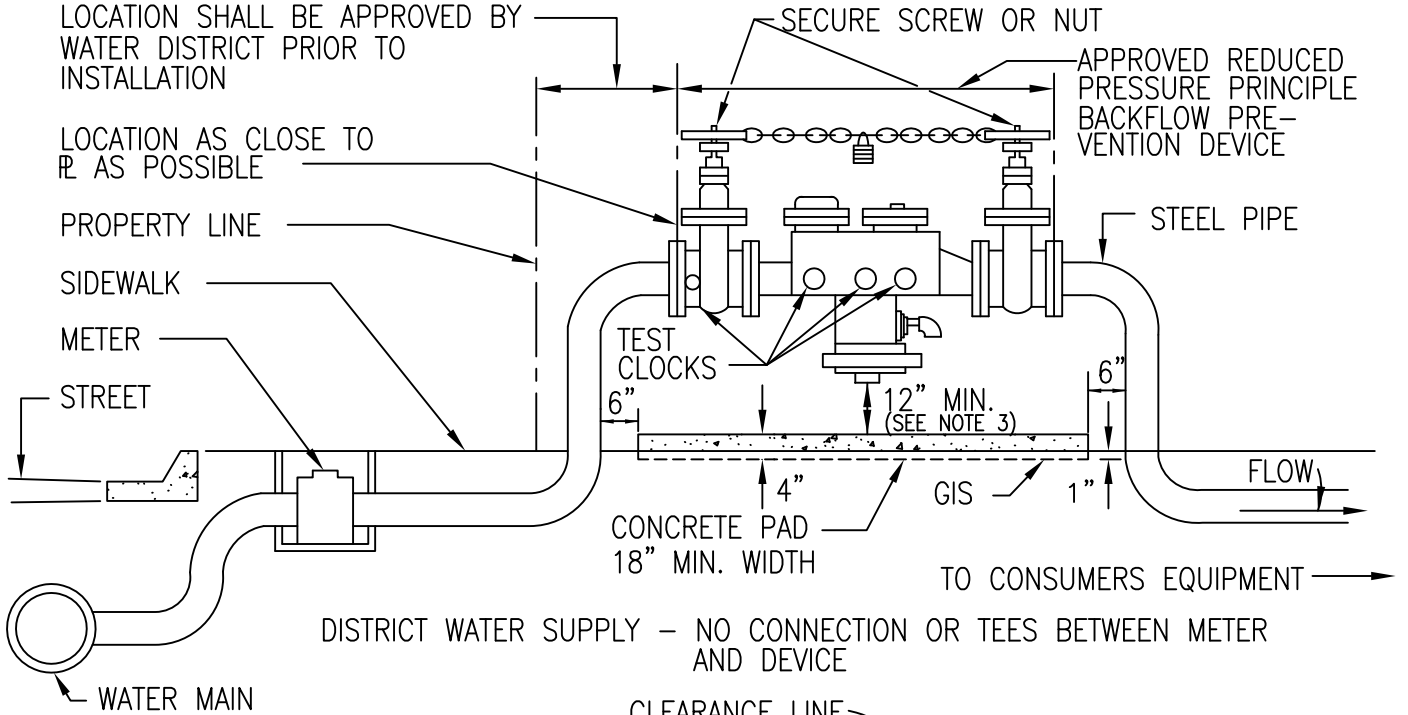
LOCATION AS CLOSE TO RE AS POSSIBLE

PROPERTY LINE

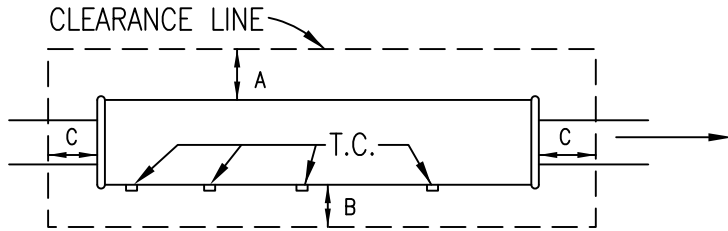
SIDEWALK

METER

STREET



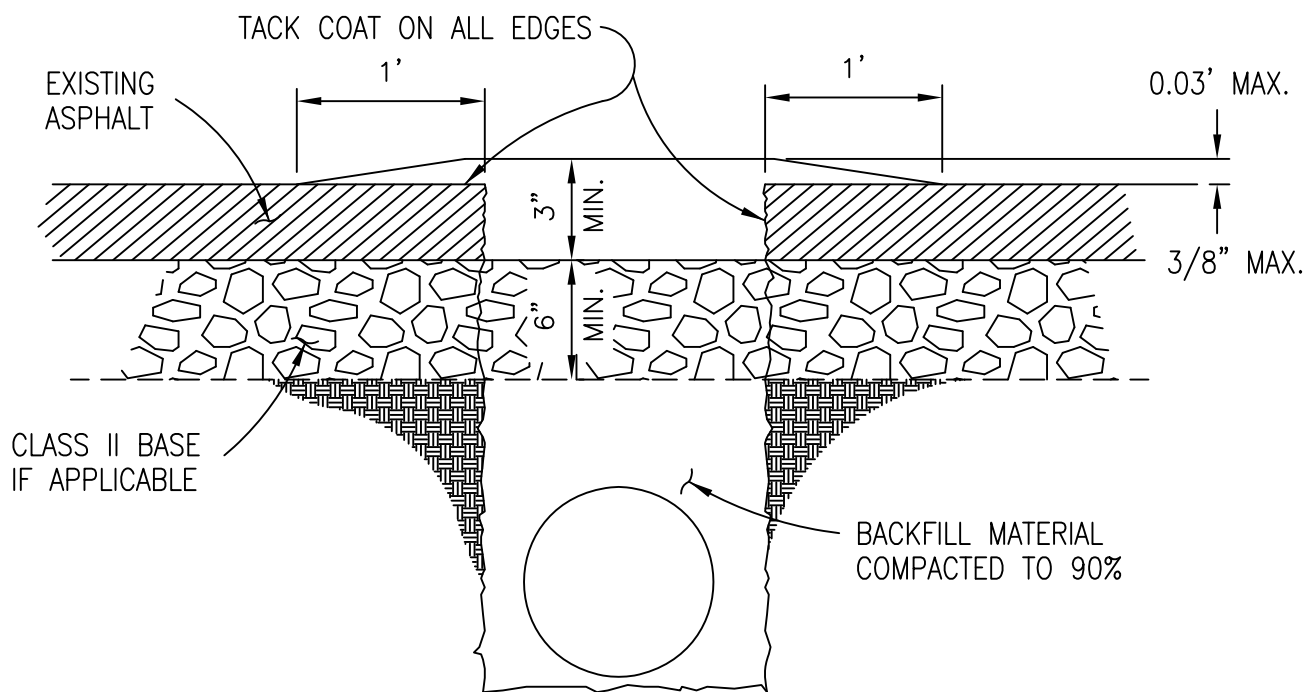
MIN. CLEARANCE			
SIZE	A	B	C
1"-3"	12"	18"	12"
4"-& UP	24"	24"	12"



NOTES:

- 1) THE "APPROVED" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICE SHALL BE LOCATED AND INSTALLED SUBJECT TO THE APPROVAL OF THE DISTRICT ENGINEER.
- 2) THE DEVICE MUST BE INSPECTED & TESTED IMMEDIATELY AFTER INSTALLATION.
- 3) BOTTOM OF DEVICE SHALL BE INSTALLED A MINIMUM OF 1" ABOVE TOP OF PLANTER WALLS IF INSTALLED WITHIN A RAISED PLANTER.

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	<b>REDUCED PRESSURE PRINCIPLE BACKFLOW DEVICE</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-14



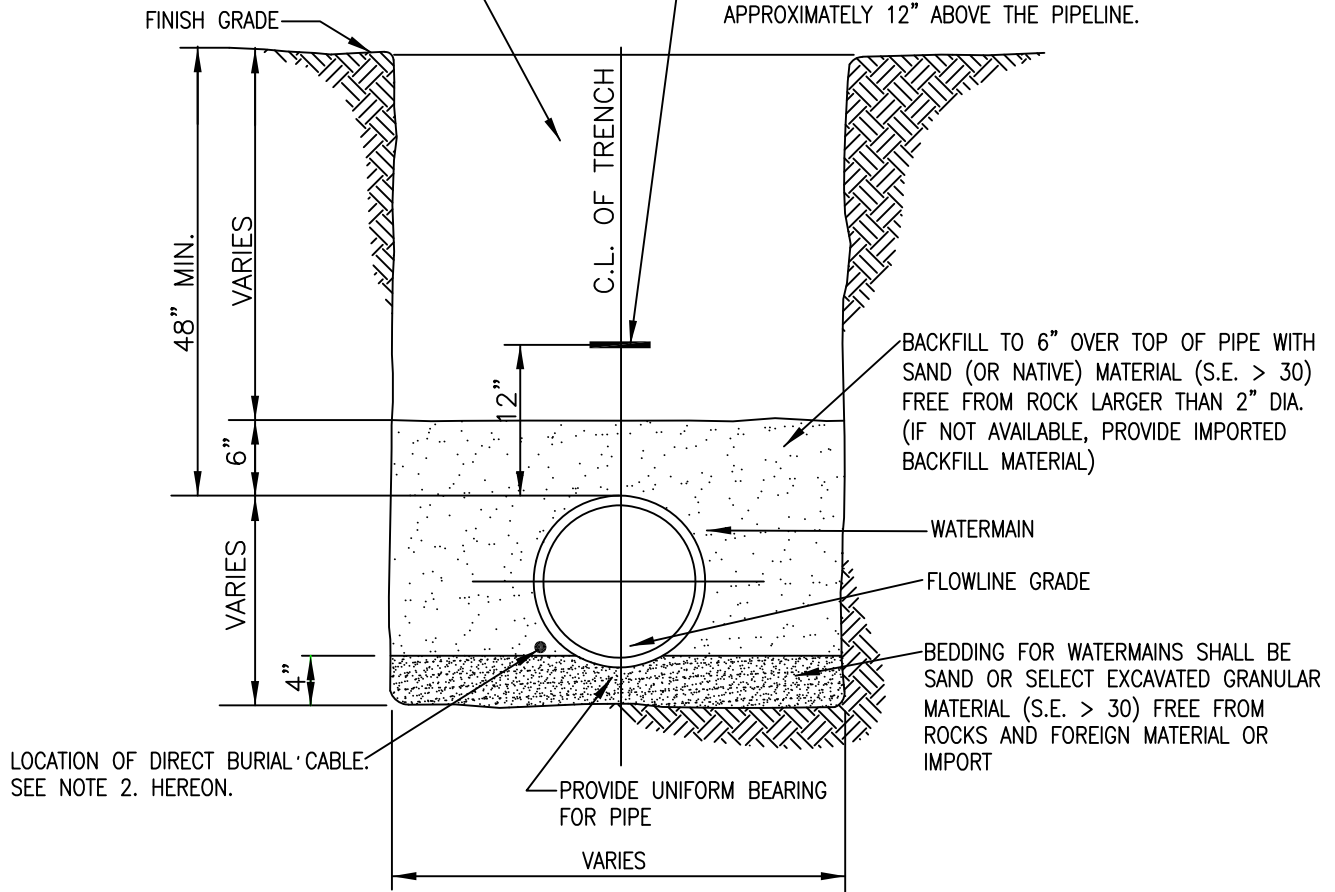
TECH. SPEC. REFERENCE  
 EARTHWORK - SECTION 1.0

	SPECIAL DISTRICTS DIVISION COUNTY OF SAN BERNARDINO	
	TRENCH REPAIR IN ROADWAYS	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-15



BALANCE OF TRENCH TO BE BACKFILLED WITH MATERIAL FROM EXCAVATION IN LAYERS NOT EXCEEDING 3" IN DEPTH; OR AS PER SPECIFICATIONS. MINIMUM RELATIVE COMPACTION SHALL BE 90%

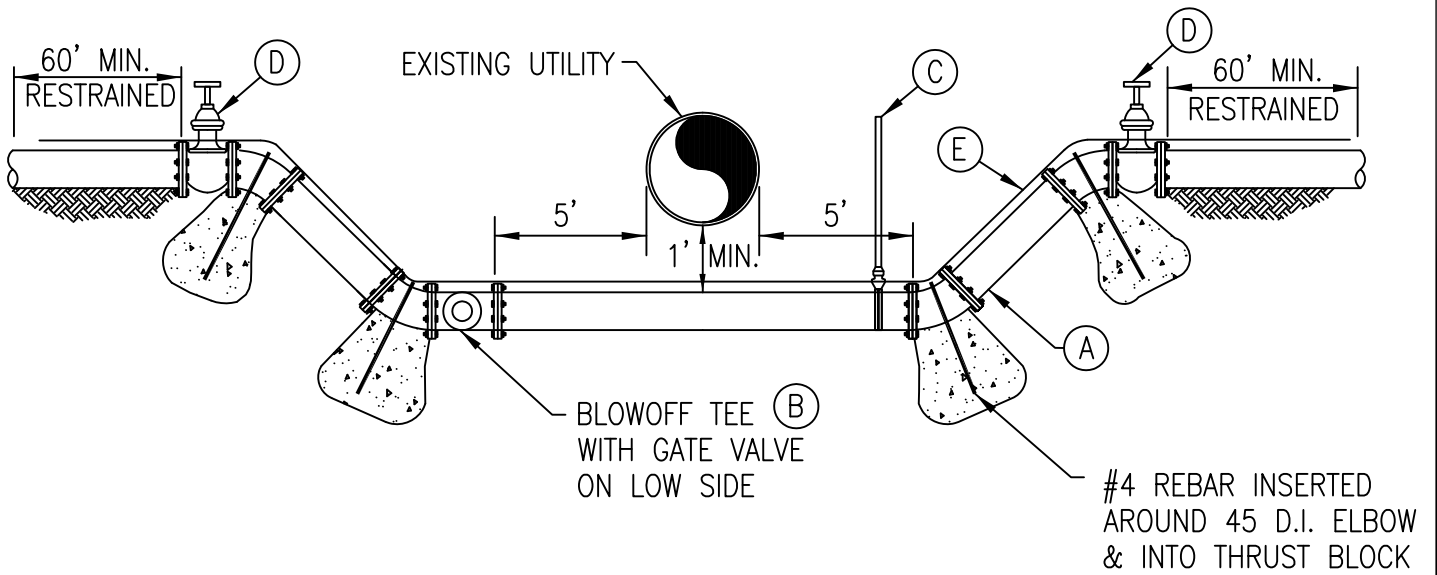
C-900 CL 150 PVC GRAVITY MAIN SHALL BE ACCOMPANIED WITH A REINFORCED DETECTABLE UNDERGROUND MARKING TAPE "TERRA TAPE SENTRY LINE 1350" OR APPROVED EQUAL FOR USE IN THE PROTECTION AND LOCATION OF THE PIPE-LINE. TAPE SHALL BE BLUE IN COLOR IMPRINTED "CAUTION WATER MAIN BURIED BELOW" AND SHALL BE INSTALLED APPROXIMATELY 12" ABOVE THE PIPELINE.



NOTES:

1. WHERE BOTTOM OF EXCAVATION IS IN ROCK WHICH CANNOT BE EXCAVATED TO PROVIDE UNIFORM BEARING FOR THE PIPE. OVEREXCAVATE 6" MINIMUM BELOW DESIGN GRADE, AND REFILL IN 3" THICK COMPACTED LAYERS WITH SELECTED EXCAVATED MATERIAL OR PROVIDE IMPORTED BACKFILL MATERIAL PER SPECIFICATIONS.
2. WHENEVER THE PLANS AND/OR SPECIFICATIONS REQUIRE THAT DIRECT BURIAL CABLE BE INSTALLED, THE CABLE SHALL BE INSTALLED IN THE LOCATION SHOWN ABOVE.

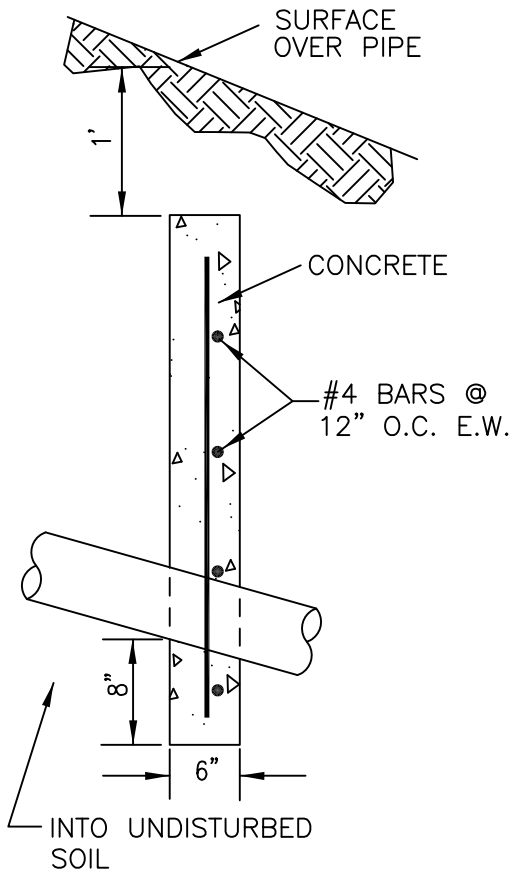
SS/2020	SPECIAL DISTRICTS DIVISION COUNTY OF SAN BERNARDINO	
	TYPICAL TRENCH DETAIL	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-16



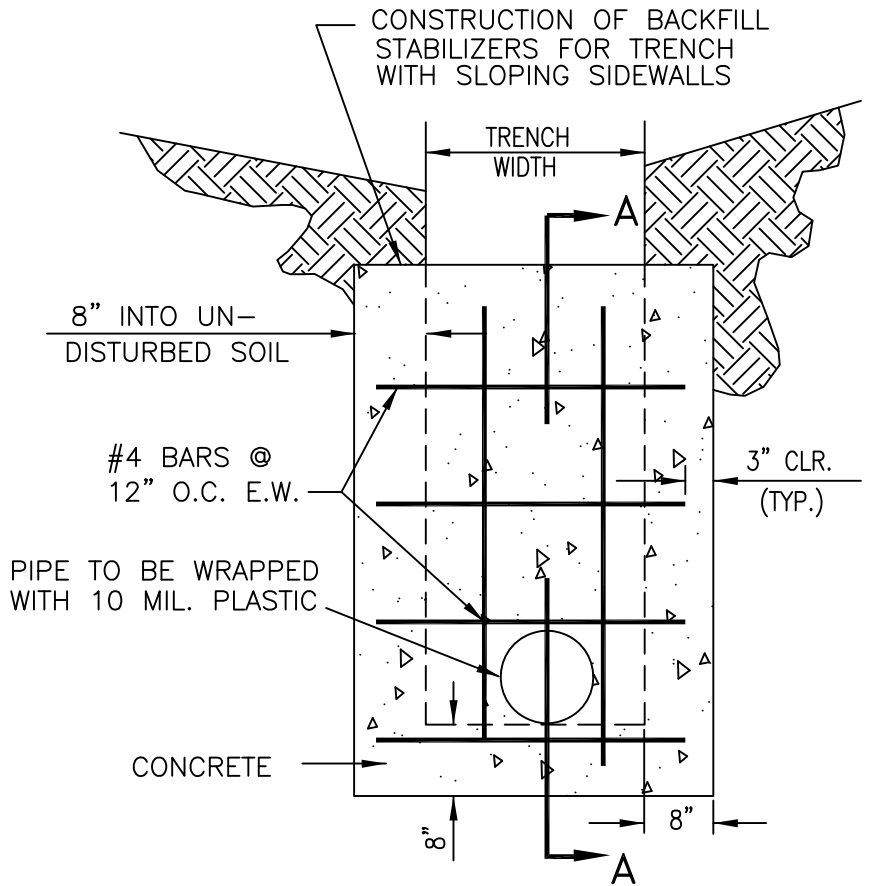
NOTES:

- (A) THE DROP SHALL BE CLASS 50-55 D.I. PIPE WITH FLG. OR M.J. FITTINGS.
- (B) BLOWOFF ASSEMBLY TO BE INSTALLED ON LOW SIDE. SEE BLOWOFF DETAIL H-7B.
- (C) AIR/VAC ASSEMBLY TO BE INSTALLED ON HIGH SIDE. SEE AIR/VAC DETAIL H-6.
- (D) ISOLATION VALVES TO BE DETERMINED BY DISTRICT BASED ON LOCATION OF OTHER LINE VALVES.
- (E) 12 GA. LOCATION WIRE.

	SPECIAL DISTRICTS DIVISION COUNTY OF SAN BERNARDINO	
	<b>WATER MAIN DROP SECTION DETAIL</b>	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		<b>H-17</b>



**SECTION "A-A"**  
N.T.S.

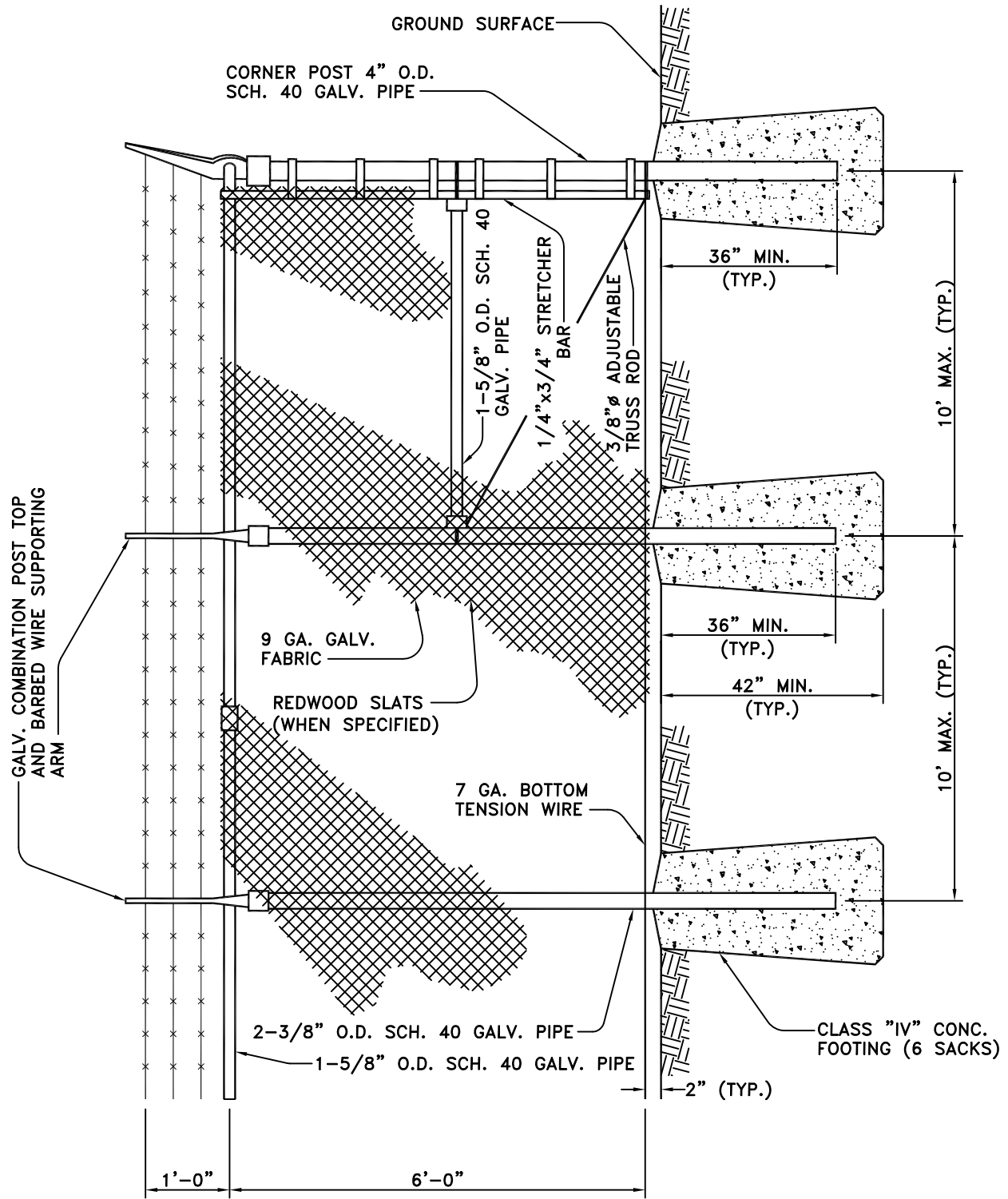


**TRENCH SECTION**  
N.T.S.

	SPECIAL DISTRICTS DIVISION COUNTY OF SAN BERNARDINO	
	BACKFILL STABILIZER	
	APPROVAL	DRAWING NUMBER
	GARY MARTIN DISTRICT ENGINEER	3-6-2012 DATE
REVISED		H-18

**NOTES:**

1. DIAMETER OF CONCRETE FOOTING SHALL BE 3 TIMES O.D. OF POST OR 10" MINIMUM.
2. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SHALL BE APPROVED BY THE DISTRICT.



OFFICE OF SPECIAL DISTRICTS  
COUNTY OF SAN BERNARDINO

**CHAIN LINK FENCE DETAIL**

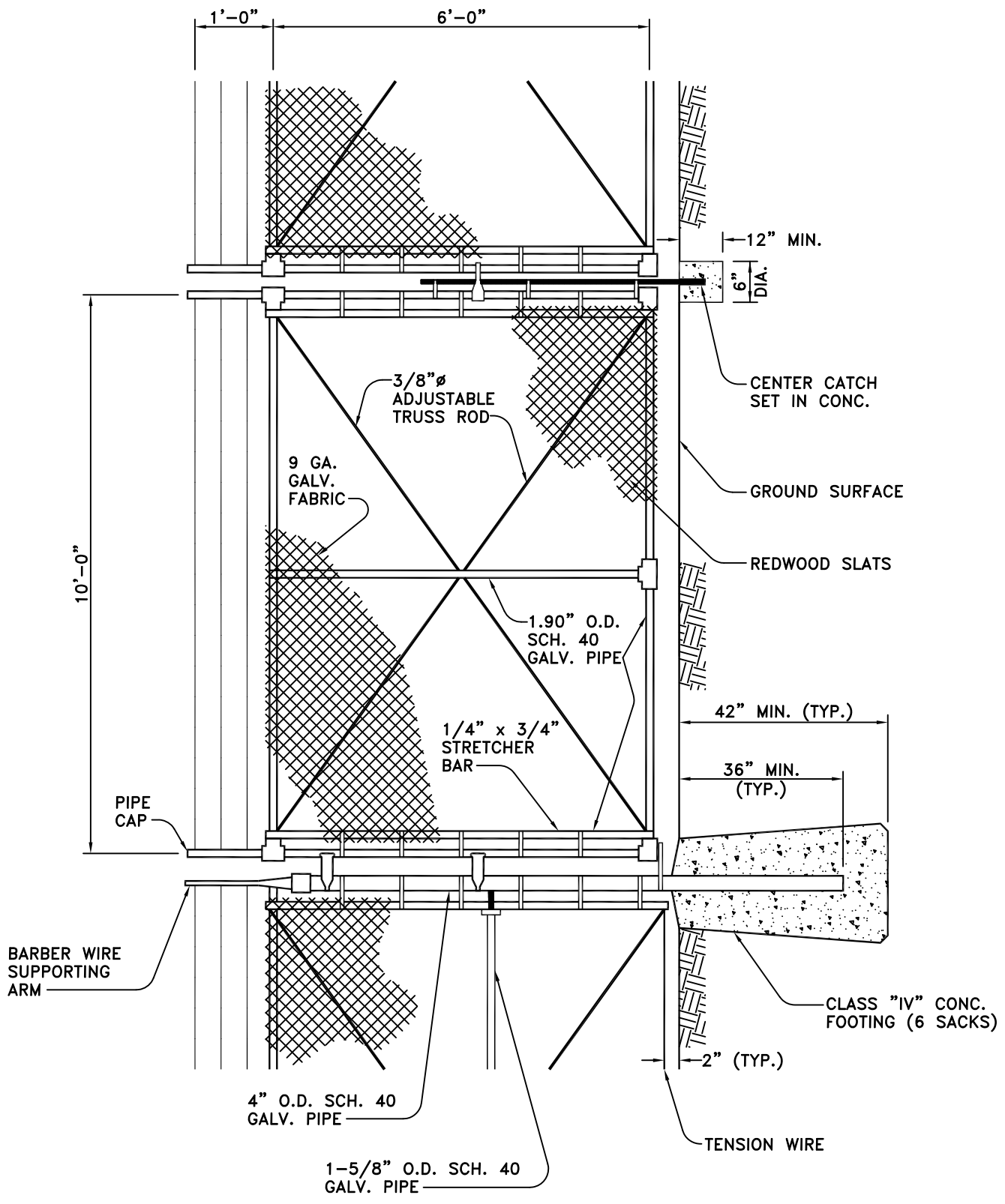
APPROVAL

GARY MARTIN  
DISTRICT ENGINEER

8-20-2013  
DATE

DRAWING  
NUMBER

H-19



OFFICE OF SPECIAL DISTRICTS  
 COUNTY OF SAN BERNARDINO

CHAIN LINK GATE DETAIL

APPROVAL

GARY MARTIN  
 DISTRICT ENGINEER

8-20-2013  
 DATE

DRAWING  
 NUMBER

H-20