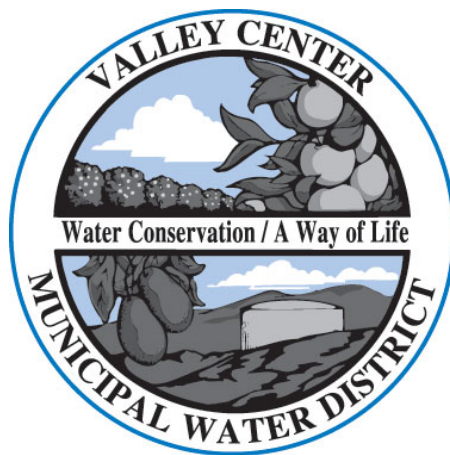


VALLEY CENTER  
MUNICIPAL WATER DISTRICT

# STANDARD DRAWINGS

## *Water*



**Latest Revision: APRIL 2022**

29300 Valley Center Road - P.O. Box 67  
Valley Center, CA 92082 (760) 735-4500

# Water Standard Drawings

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### APRIL 2022

#### Latest Revision

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


















# Water Standard Drawings

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## STANDARD LEGEND

	RECYCLED WATER MAIN		EXISTING RECYCLED WATER MAIN
	RECYCLED WATER SERVICE		EXISTING RECYCLED WATER SERVICE
	WATER MAIN		EXISTING WATER MAIN
	WATER SERVICE		EXISTING WATER SERVICE
	BLOW OFF		EXISTING BLOW OFF
	AIR & VACUUM RELEASE		EXISTING AIR & VACUUM RELEASE
	CHECK VALVE		EXISTING GATE VALVE
	FIRE HYDRANT		EXISTING FIRE HYDRANT
	GATE VALVE		STORM DRAIN OR CULVERT
	ALL CLOSED GATES		GAS LINE
	THRUST BLOCK		ELECTRICAL
	COMBINATION AV/BO		ELECTRICAL OVERHEAD
	WATER QUALITY SAMPLING STATION		TELEPHONE
	FIRE SERVICE		POWER POLE
	WATER DISTRICT BOUNDARY		WELL
	EDGE OF PAVEMENT		

APPROVED:

 3/2/2020

District Engineer

Date

3/2/2020

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

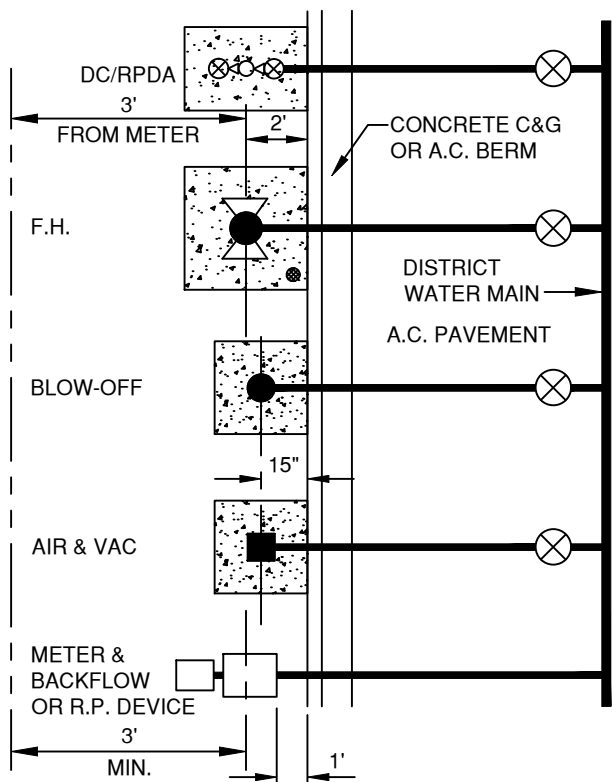
**STANDARD SYMBOLS FOR  
WATER CONSTRUCTION DRAWINGS**

NOT TO SCALE

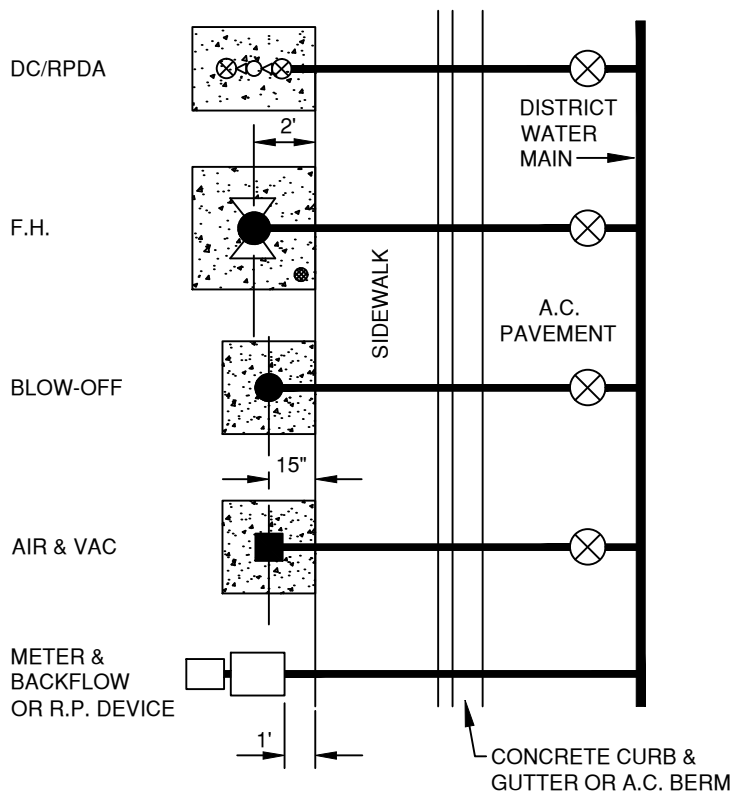
DWG. NUMBER

**W-1**

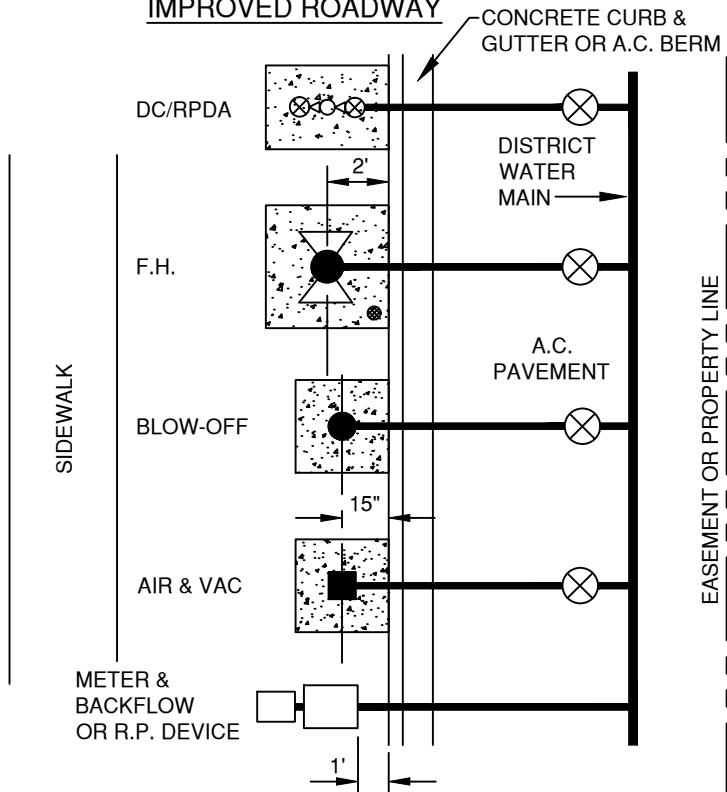




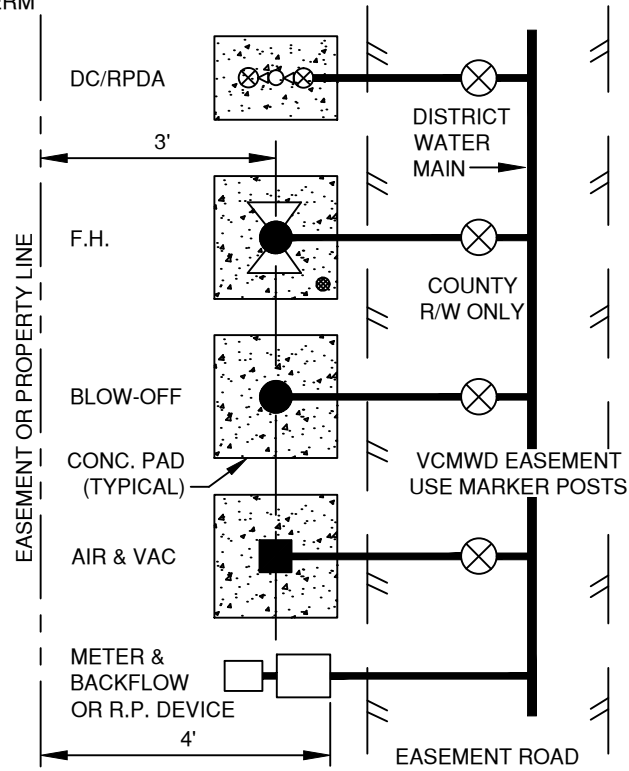
**TYPE "A" INSTALLATION  
IMPROVED ROADWAY**



**TYPE "B" INSTALLATION  
CONTIGUOUS SIDEWALK**



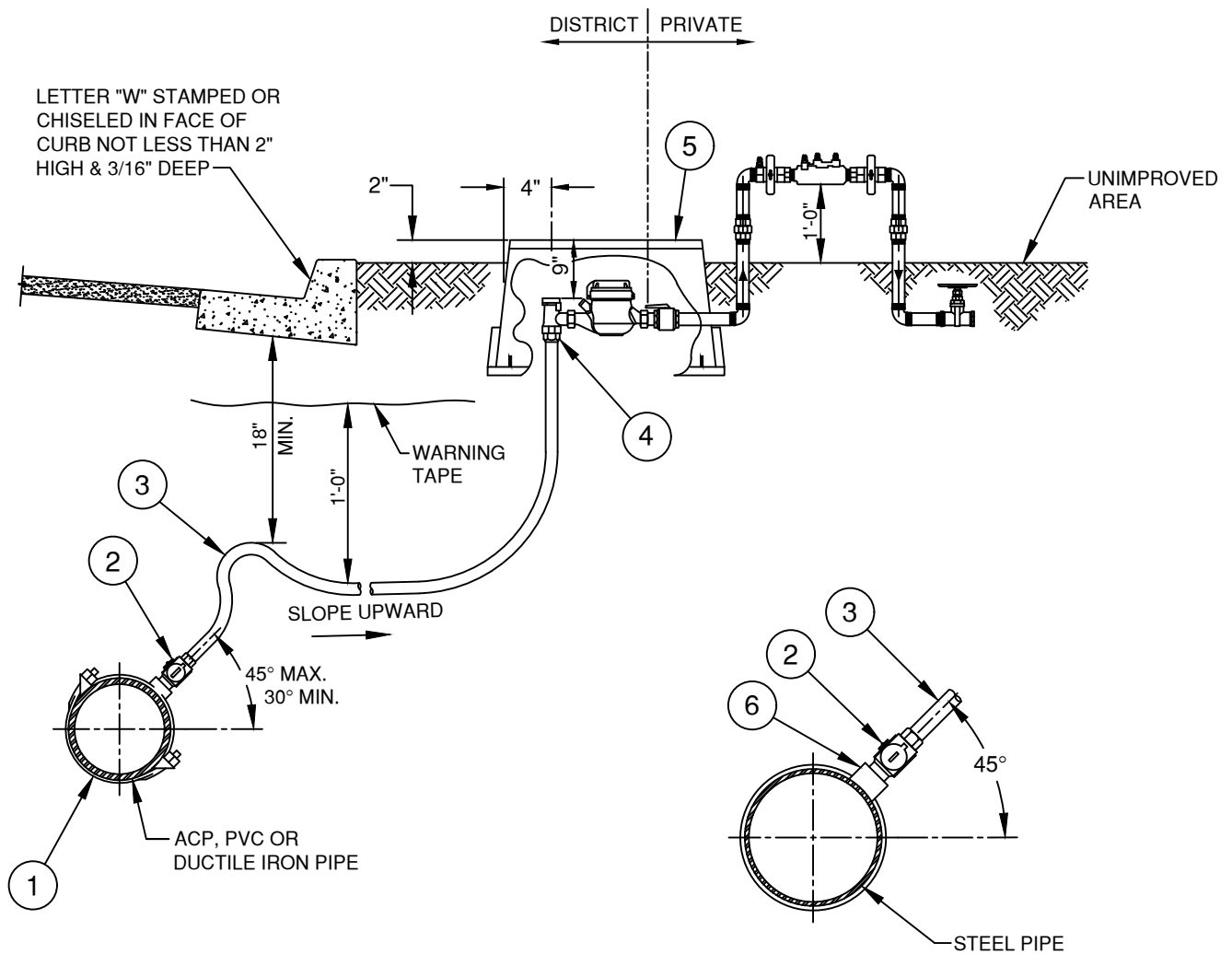
**TYPE "C" INSTALLATION  
NON-CONTIGUOUS SIDEWALK**



**TYPE "D" INSTALLATION  
UNIMPROVED AREA**

**NOTE:**  
FIELD CONDITIONS MAY REQUIRE  
ADJUSTMENT IN APPURTENANCE  
LOCATIONS (SUBJECT TO  
VCMWD APPROVAL)


<p>APPROVED:</p> <p><i>Wally G. Hall</i> 3/2/2020</p> <p>District Engineer Date</p> <p>3/2/2020</p> <p>Latest Revision Date</p>	<p>VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING</p> <p><b>TYPICAL INSTALLATION FOR WATER MAIN APPURTENANCES</b></p>	<p>NOT TO SCALE</p> <p>DWG. NUMBER</p> <p><b>W-2</b></p>
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CONNECTION TO STEEL PIPE

**NOTE:**

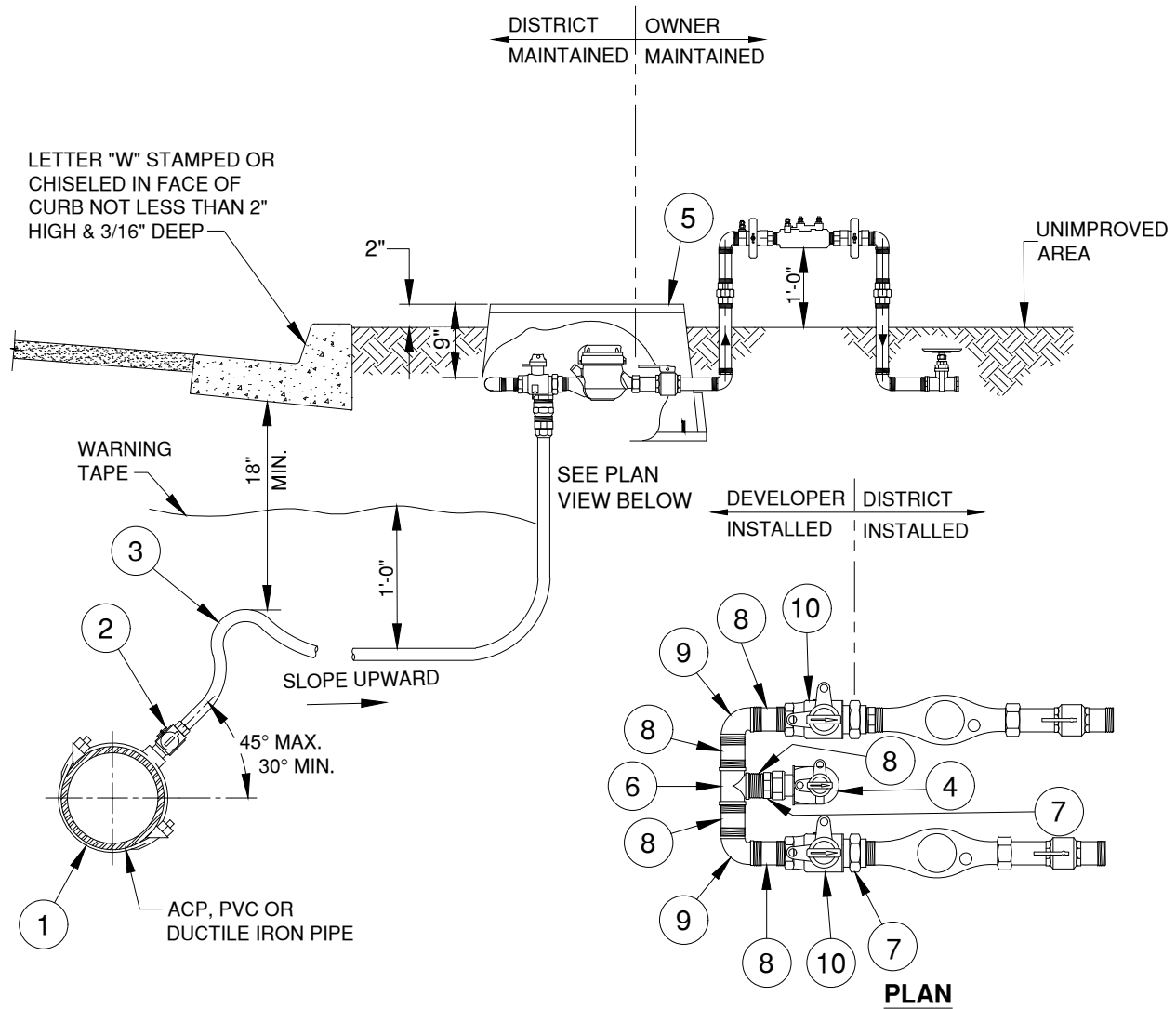
1. FOR THE LOCATION OF APPURTENANCES SEE STANDARD DRAWING NO. W-2
2. DISTRICT INSTALLED BACKFLOW AREA TO REMAIN CLEAR.

1"   
LEGEND ON PLANS

NO.	DESCRIPTION
1	MAIN SIZE x SERVICE SIZE, BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR PVC
2	BRONZE BALL CORPORATION STOP M.I.P. x COMP (OPERATING NUT TO BE POSITIONED ON RIGHT SIDE)
3	COPPER TUBING x REQUIRED LENGTH x SERVICE SIZE, TYPE K SOFT COPPER
4	BRONZE BALL ANGLE METER STOP w/LOCKWING (1" COMP x METER SWIVEL)
5	PLASTIC METER BOX
6	FORGED STEEL HIGH PRESSURE 1/2 COUPLING

<b>APPROVED:</b>  11.20.2021		 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
District Engineer 10/20/2021 Latest Revision Date	Date		DWG. NUMBER <b>W-3</b>

**3/4" AND 1" WATER SERVICE**



**NOTE:**

1. FOR THE LOCATION OF APPURTENANCES SEE STANDARD DRAWING NO. W-2
2. DISTRICT INSTALLED BACKFLOW AREA TO REMAIN CLEAR.

NO.	DESCRIPTION	NO.	DESCRIPTION
1	MAIN SIZE x SERVICE SIZE, BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR PVC	8	1" x SHORT BRASS NIPPLE
2	BRONZE BALL CORPORATION STOP M.I.P. x COMP (OPERATING NUT TO BE POSITIONED ON RIGHT SIDE)	9	1" 90° BRASS ELBOW
3	COPPER TUBING x REQUIRED LENGTH x SERVICE SIZE, TYPE K SOFT COPPER	10	STRAIGHT BALL METER STOP w/LOCKWING (1" F.N.P.T BY METER SWIVEL)
4	BRONZE BALL ANGLE METER STOP w/LOCKWING (1" COMP x METER SWIVEL)	11	NOT USED
5	PLASTIC METER BOX	12	NOT USED
6	1" TEE	13	NOT USED
7	1" x 1 1/4" FIRE METER BUSHING	14	NOT USED

APPROVED:

*Wally Trask* 1/24/22



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

NOT TO SCALE

District Engineer

Date

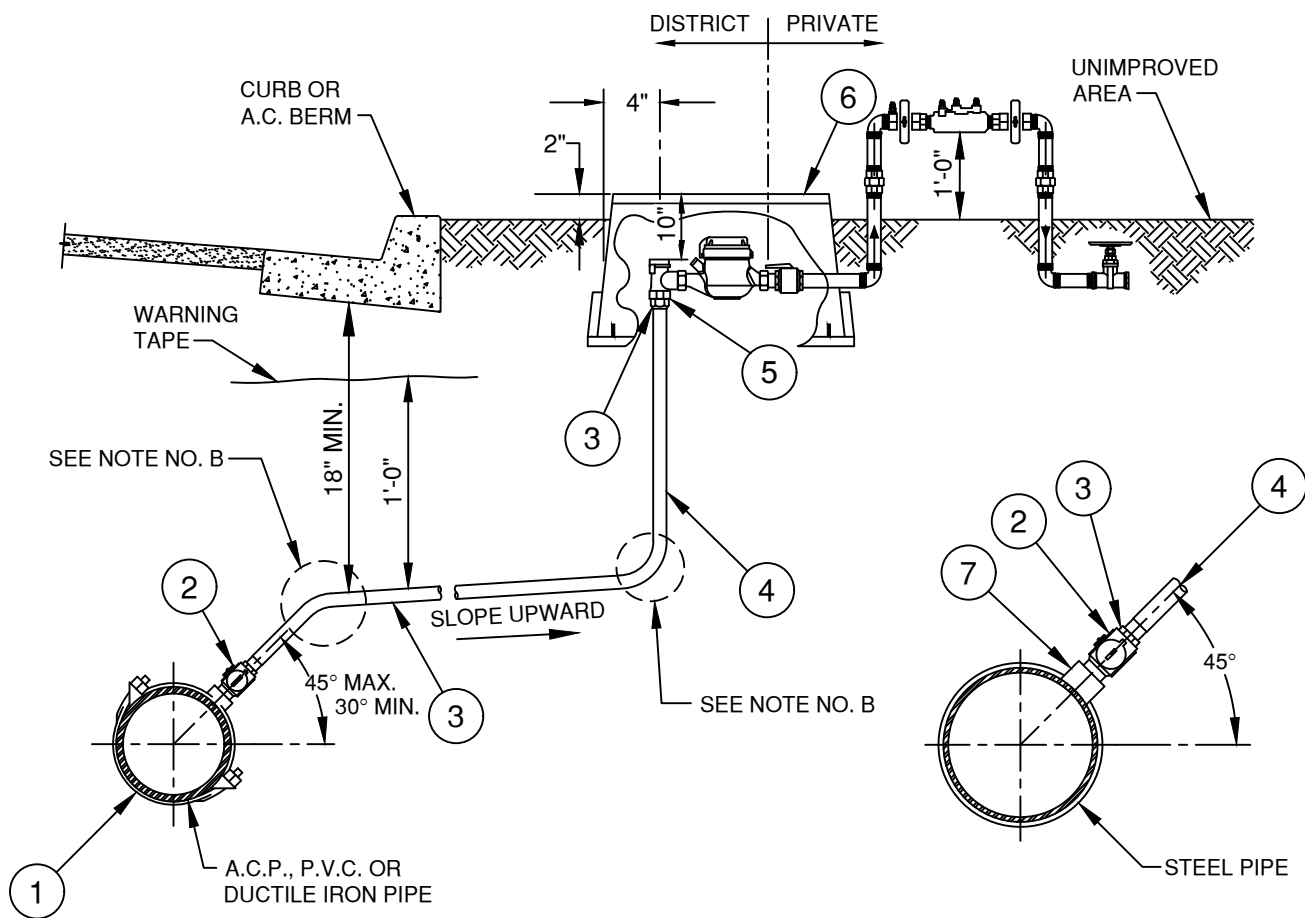
1/24/22

Latest Revision Date

**3/4" DOMESTIC &  
1" FIRE WATER SERVICE**

DWG. NUMBER


**W-3A**



CONNECTION TO STEEL PIPE

**NOTE:**

- A. FOR THE LOCATION OF APPURTENANCES  
SEE STANDARD DRAWING NO. W-2.
- B. A 90° OR 45° COPPER SWEAT ELL x LONG  
RADIUS MAY BE USED FOR SHALLOW  
INSTALLATIONS.
- C. DISTRICT INSTALLED BACKFLOW AREA TO REMAIN  
CLEAR.

2"   
LEGEND ON PLANS

NO.	DESCRIPTION
1	MAIN SIZE x SERVICE SIZE, BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR PVC
2	BRONZE BALL CORPORATION STOP M.I.P. x F.I.P. (OPERATING NUT TO BE POSITIONED ON THE RIGHT SIDE)
3	COPPER SWEAT x M.I.P. ADAPTER
4	COPPER TUBING x REQUIRED LENGTH
5	FLANGED BRONZE ANGLE METER STOP w/LOCKWING, FIP x FLANGE
6	PLASTIC METER BOX
7	FORGED STEEL HIGH PRESSURE 1/2 COUPLING

APPROVED:

*Wally G. ...* 11.20.2021



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

NOT TO SCALE

District Engineer

Date

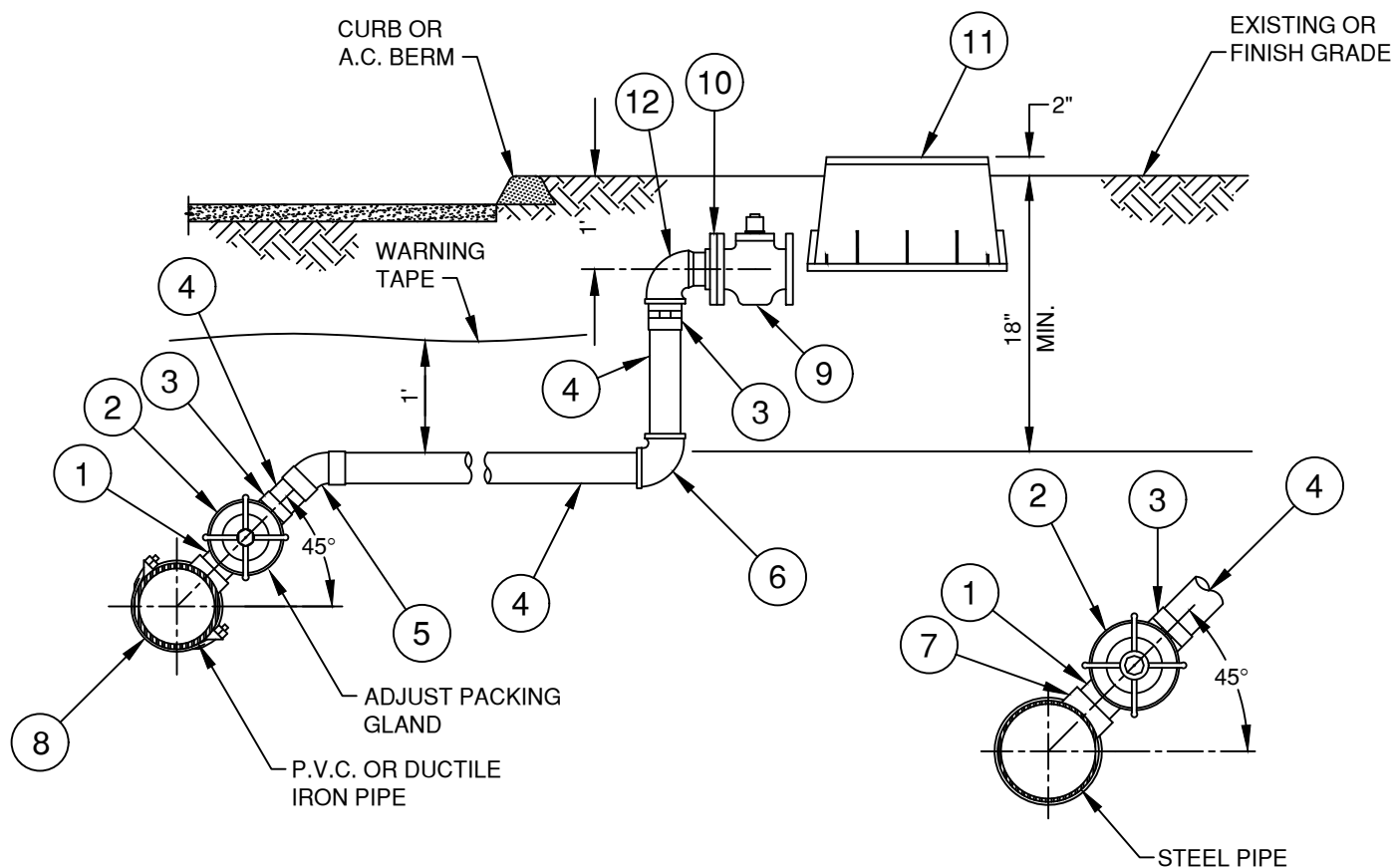
10/20/2021

Latest Revision Date

**1 1/2" OR 2" WATER SERVICE**

DWG. NUMBER


**W-4**





**NOTE:**

1. FOR THE LOCATION OF APPURTENANCES SEE STANDARD DRAWING NO. W-2
2. DISTRICT INSTALLED BACKFLOW AREA TO REMAIN CLEAR.

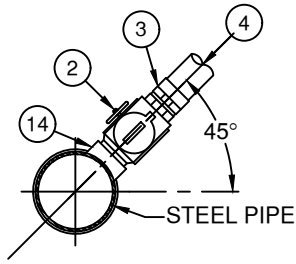
CONNECTION TO STEEL PIPE

3"   
LEGEND ON PLANS

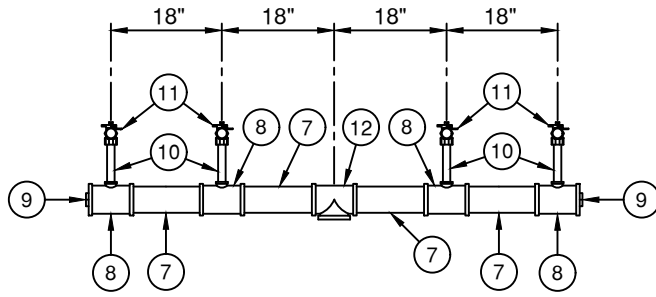
NO.	DESCRIPTION	NO.	DESCRIPTION
1	BRASS NIPPLE, CLOSE OR SHORT MIP x MIP	7	FORGED STEEL HIGH PRESSURE 1/2 COUPLING
2	BRONZE GATE VALVE w/BRONZE HANDWHEEL, F.I.P. x F.I.P. THREAD W/ SS NUT	8	CAST IRON DOUBLE STRAP SADDLE x MAIN SIZE FOR A.C. & D.I.P., SS DOUBLE STRAP FOR P.V.C.
3	COPPER SWEAT ADAPTOR x M.I.P. THREAD	9	FLANGED PLUG VALVE w/OPERATOR NUT
4	COPPER TUBING x REQ'D. LENGTH	10	COMPANION FLANGE x F.I.P. THREAD
5	45° COPPER SWEAT COUPLING	11	PLASTIC METER BOX
6	90° COPPER SWT x SWT	12	90° BRASS ST. ELL

<b>APPROVED:</b>  11.20.2021		 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
District Engineer 10/20/2021 Latest Revision Date	Date		DWG. NUMBER <b>W-5</b>

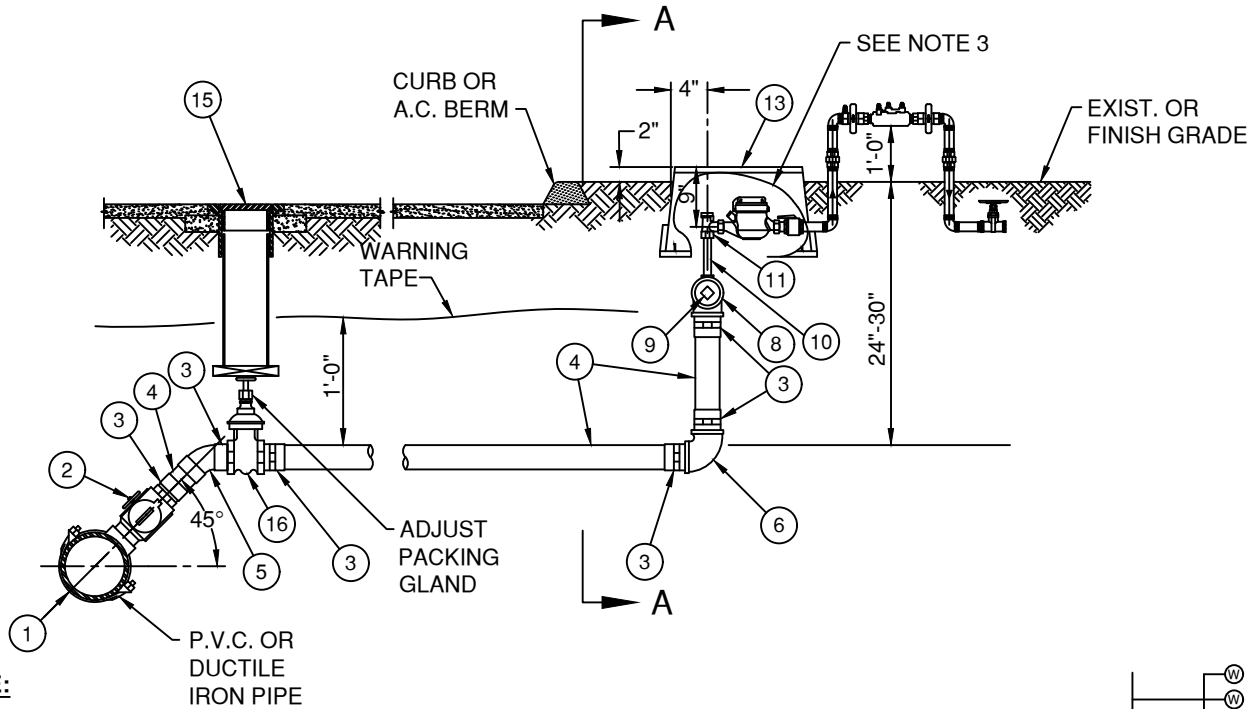
**3" WATER SERVICE**



**CONNECTION TO STEEL PIPE**



**SECTION A-A**



**NOTE:**

1. FOR THE LOCATION OF APPURTENANCES SEE STANDARD DRAWING NO. W-2
2. DISTRICT INSTALLED BACKFLOW AREA TO REMAIN CLEAR.
3. REFERENCE W-3A FOR FIRE METER CONFIGURATION.

LEGEND ON PLANS

NO.	DESCRIPTION	NO.	DESCRIPTION
1	BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR PVC	9	LAT. SIZE BRASS PLUG, M.I.P. THREAD x MANIFOLD SIZE
2	LAT. SIZE MIP X FIP BRONZE CORPORATION STOP. FOR 3" APPLICATIONS USE 3" BRONZE GATE VALVE	10	6" BRASS NIPPLE x SERVICE SIZE
3	LAT. SIZE COPPER SWEAT ADAPTOR x M.I.P. THREAD	11	BRONZE ANGLE METER STOP F.I.P. x METER COUPLING
4	LAT. SIZE COPPER TUBING x REQUIRED LENGTH	12	LAT. SIZE BRASS TEE, F.I.P. x MANIFOLD SIZE
5	LAT. SIZE 45° COPPER SWEAT ELL	13	PLASTIC METER BOX
6	LAT. SIZE 90° BRASS F.I.P. x F.I.P.	14	LAT. SIZE FORGED STEEL HIGH PRESSURE 1/2 COUPLING
7	LAT. SIZE RED BRASS REQ'D LENGTH	15	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25
8	LAT. SIZE BRASS TEE x F.I.P. THREAD (MANIFOLD SIZE x SERVICE SIZE), MIN. 1" RISER	16	LAT. SIZE BRONZE GATE VALVE

APPROVED:

*Daily* 11.20.2021



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

NOT TO SCALE

District Engineer

Date

10/20/2021

Latest Revision Date

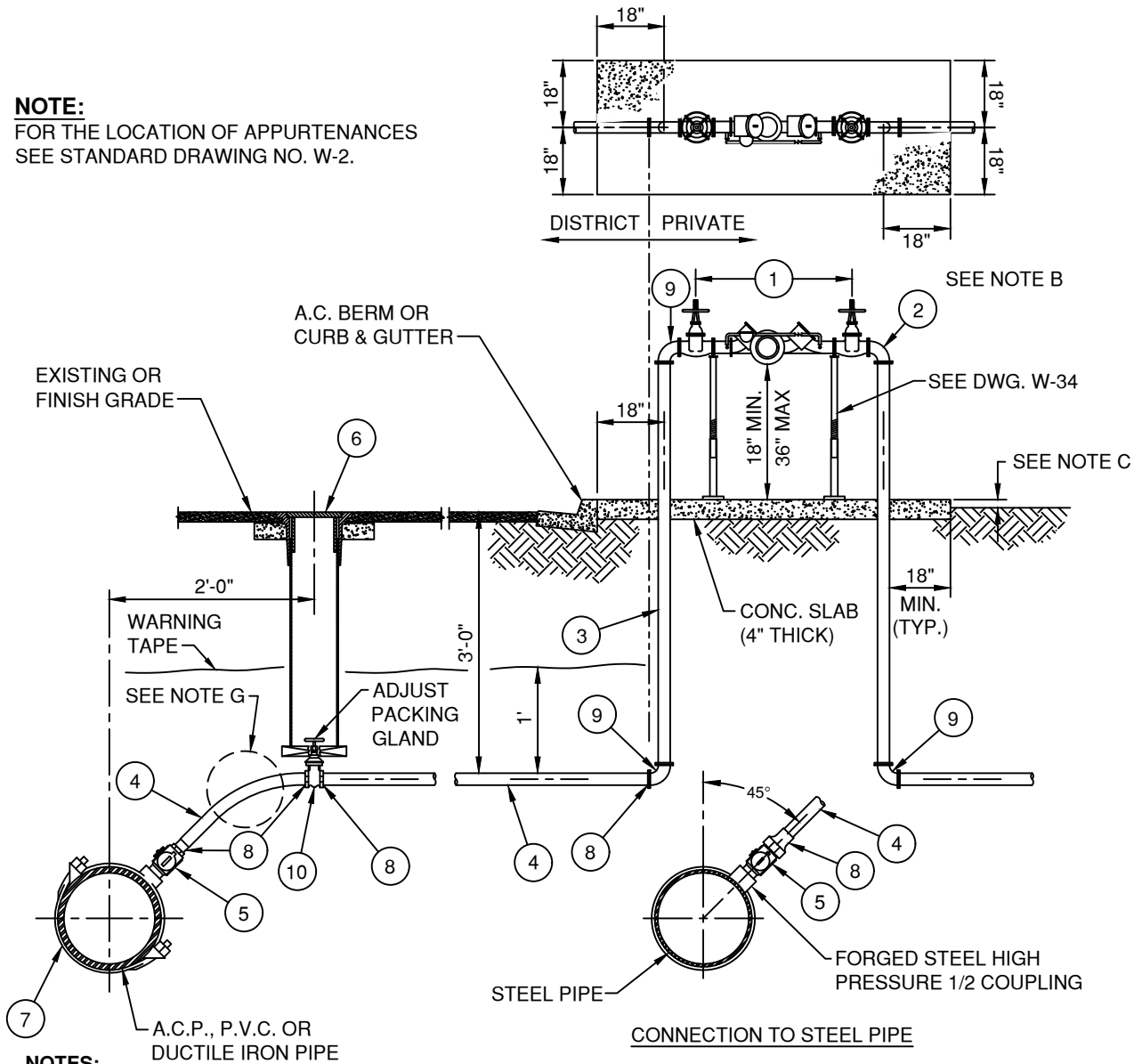
**1 1/2", 2" & 3" WATER SERVICE  
MANIFOLD ASSEMBLY**

DWG. NUMBER

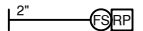
**W-6**

**NOTE:**

FOR THE LOCATION OF APPURTENANCES  
SEE STANDARD DRAWING NO. W-2.

**NOTES:**

- A. BACKFLOW PREVENTOR ASSEMBLY SHALL BE TESTED UPON INSTALLATION BY A CERTIFIED BACKFLOW ASSEMBLY TESTER. CONTRACTOR SHALL PROVIDE THE ENGINEER WITH WRITTEN TEST RESULTS COMPLETED BY A CERTIFIED BACKFLOW TESTER PRIOR TO BACKFLOW PREVENTOR ASSEMBLY ACCEPTANCE BY THE ENGINEER.
- B. ELBOW MAY BE REPLACED WITH FIRE DEPARTMENT CONNECTION AS REQUIRED BY THE FIRE DEPARTMENT.
- C. CONCRETE PAD TO BE AT GRADE UNLESS INSTALLED IN UNIMPROVED AREAS WHERE IT WILL BE 2" ABOVE GRADE.
- D. VALVE SUPPORTS AS REQUIRED.
- E. MAKE/MODEL OF BACKFLOW MUST BE ON CURRENT STATE APPROVED LIST.
- F. BACKFLOW DEVICE BASED ON DEGREE OF HAZARD (RPDA/DCDA).
- G. A 90° OR 45° COPPER SWEAT ELL x LONG RADIUS MAY BE USED FOR SHALLOW INSTALLATIONS.



LEGEND ON PLANS

NO.	DESCRIPTION	NO.	DESCRIPTION
1	REDUCED PRESSURE PRINCIPLE DETECTION ASSEMBLY (RPDA) / DOUBLE CHECK DETECTOR ASSEMBLY (DCDA)	6	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25
2	90° RED BRASS F.I.P. x F.I.P.	7	SERVICE SADDLE; MAIN SIZE x SERVICE SIZE
3	RED BRASS M.I.P. x M.I.P. x REQD LENGTH	8	COPPER SWEAT ADAPTER M.I.P. x SWT
4	TYPE K SOFT COPPER x REQD LENGTH	9	90° BRASS OR COPPER x F.I.P. x F.I.P.
5	BRONZE BALL CORPORATION STOP M.I.P. x F.I.P. (OPERATING NUT TO BE POSITIONED ON THE RIGHT SIDE)	10	BRONZE GATE VALVE W/ BRONZE HANDWHEEL F.I.P. x F.I.P. W/ STAINLESS STEEL NUT

APPROVED:

*Wally G. Lee* 11.20.2021



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

NOT TO SCALE

District Engineer

Date

10/20/2021

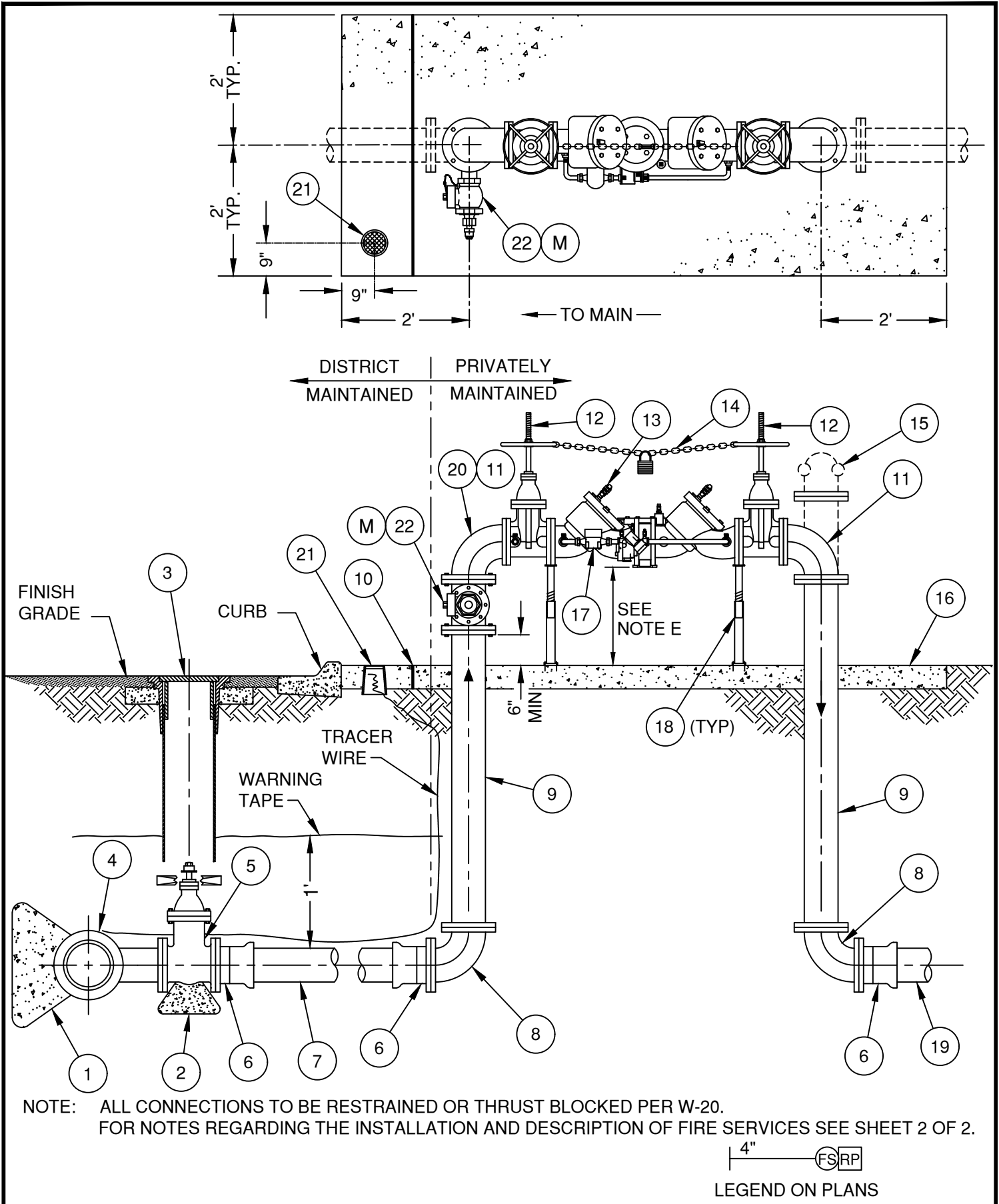
Latest Revision Date

**1 1/2" OR 2" FIRE SERVICE**

DWG. NUMBER

**W-7**





<p>APPROVED:</p> <p><i>Wally G...</i> 11-20-2021</p> <p>District Engineer Date</p> <p>10/20/2021</p> <p>Latest Revision Date</p>	<p>VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING</p> <p><b>4" AND LARGER FIRE SERVICE INSTALLATION</b></p>	<p>NOT TO SCALE</p> <p>DWG. NUMBER <b>W-8</b> SHT 1 of 2</p>
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**FOR DRAWING OF FIRE SERVICE INSTALLATION SEE SHEET 1 OF 2**

**NOTES:**

- A. INSTALL WARNING/IDENTIFICATION TAPE.
- B. LOCATION OF FIRE SERVICES SHALL BE AS DIRECTED BY THE FIRE DEPARTMENT OF JURISDICTION. FIRE SERVICES SHOULD BE LOCATED IN SUCH A MANNER THAT WILL ALLOW THE DEVICE TO BE READILY ACCESSIBLE FOR INSPECTION, REPAIR, AND USAGE.
- C. TAMPER SWITCH, AUTOMATIC RESET, CHAIN WITH KNOX LOCK, AND FIRE DEPARTMENT CONNECTION ("FDC") SHALL BE AS REQUIRED BY THE FIRE DEPARTMENT OF JURISDICTION.
- D. BALL VALVE TEST COCKS SHALL BE PROVIDED AND LOCATED PER THE MANUFACTURERS RECOMMENDATIONS AND THE DISTRICT.
- E. INSTALL FIRE SERVICES SO THAT THE DISTANCE BETWEEN THE BOTTOM OF THE RELIEF DIAPHRAGM AND THE CONCRETE SLAB OR FINISH GRADE IS 18" MIN. AND 36" MAX.
- F. INSTALL AN ANGLE PRESSURE REDUCING VALVE IN LIEU OF THE FIRST 90° BEND WHEN SYSTEM STATIC PRESSURE EXCEEDS 175psi OR WHEN RECOMMENDED BY THE BACKFLOW MANUFACTURER.
- G. ABOVE GROUND APPURTENANCE SHALL BE PAINTED AND IDENTIFIED AS CALLED FOR BY THE FIRE DEPARTMENT OF JURISDICTION.
- H. ACCEPTABLE TESTING BY A DISTRICT APPROVED BACKFLOW TESTER TURNED INTO THE DISTRICT PRIOR TO FINAL ACCEPTANCE.
- I. MATERIALS SHALL BE SELECTED FROM THE APPROVED MATERIALS LIST AND MUST BE APPROVED BY THE FIRE DEPARTMENT OF JURISDICTION.
- J. DISTRICT EASEMENT WILL BE REQUIRED FOR ACCESSIBILITY OF THE TATTLETALE METER.
- K. WHEN TAPPING EXISTING MAIN, POTHOLE TO VERIFY AT MINIMUM NO JOINTS EXIST WITHIN 36" OF CONNECTION POINT.
- L. SEE PREVIOUS SHEET FOR RESTRAINED CONNECTION.
- M. 4" WHARF HEAD TO BE INSTALLED UPON FIRE DEPARTMENT REQUEST.

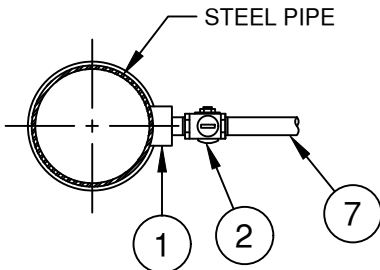
NO.	DESCRIPTION	NO.	DESCRIPTION
1	CONCRETE THRUST BLOCK, PER W-20	12	FLANGED OS&Y RESILIENT WEDGE GATE VALVE W/ HAND WHEEL AND RISING STEM
2	VALVE SUPPORT, PER W-21	13	RPDA, SEE NOTE D ABOVE
3	VALVE WELL FRAME, ASSEMBLY, AND COVER, PER W-25	14	CHAIN WITH LOCK, SEE NOTE C ABOVE
4	SIZE x SIZE TEE (FLG OUTLET)	15	FLANGED TEE WITH "FDC", SEE NOTE C ABOVE
5	FLG x FLG RESILIENT WEDGE GATE VALVE	16	CONCRETE SLAB, 4" THICK x 48" WIDE, 520-C-2500 LENGTH DETERMINED BY LENGTH OF DEVICE
6	FLG x MJ/PO ADAPTER (IF REQUIRED)	17	3/4" BYPASS, DISTRICT OWNED TATTLETALE METER IN CUBIC FEET
7	D.I. OR P.V.C.	18	ADJUSTABLE PIPE SUPPORT, PER W-34
8	FLG x FLG 90° BEND	19	DUCTILE IRON PIPE
9	FLANGED x FLANGED x REQ'D LENGTH DUCTILE IRON PIPE	20	FLANGED ANGLE PRESSURE REDUCING VALVE SEE NOTE F ABOVE
10	1/2" EXPANSION JOINT	21	CARSON 708 TRACER WIRE BOX
11	FLANGED 90° BEND, SEE NOTE F ABOVE	22	D.I. TEE REQ SIZE W/4" WHARFHEAD



<b>APPROVED:</b>  11-20-2021		 <b>VALLEY CENTER MUNICIPAL WATER DISTRICT</b> STANDARD DRAWING	NOT TO SCALE
District Engineer	Date		DWG. NUMBER
10/20/2021			<b>W-8</b>
Latest Revision Date			SHT 2 of 2

**4" AND LARGER  
FIRE SERVICE INSTALLATION**

Diagram of the water pump assembly. Callout 9 points to the pump head, and callout 13 points to the vertical discharge pipe.

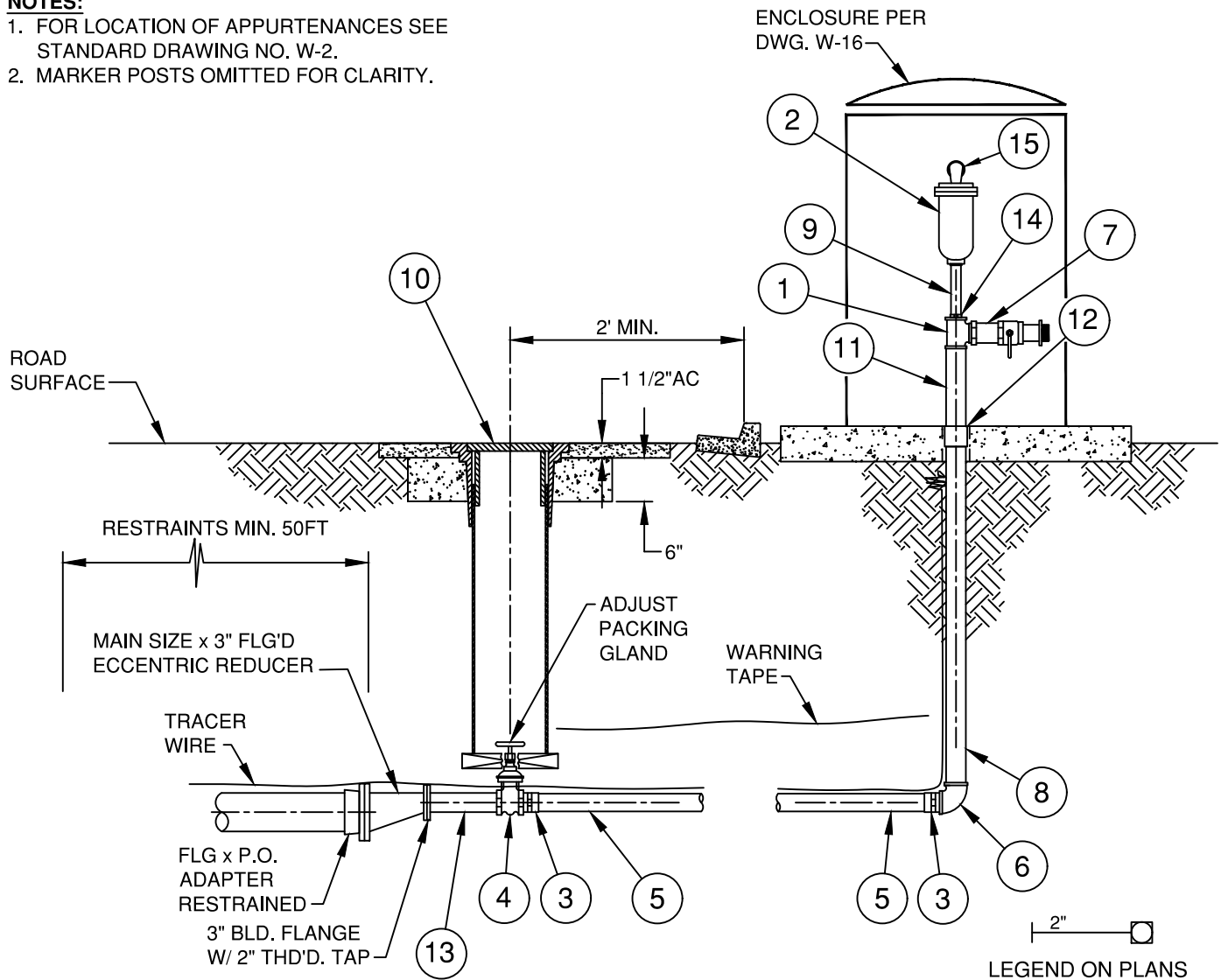
1. FOR LOCATION OF APPURTENANCES SEE STANDARD DRAWING NO. W-2.
2. MARKER POSTS OMITTED FOR CLARITY.



APPROVED:	 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
 3/2/2020 District Engineer Date 3/2/2020 Latest Revision Date		DWG. NUMBER <b>W-9</b>
<b>2" BLOW OFF ASSEMBLY</b>		

**NOTES:**

1. FOR LOCATION OF APPURTENANCES SEE STANDARD DRAWING NO. W-2.
2. MARKER POSTS OMITTED FOR CLARITY.



NO.	DESCRIPTION	NO.	DESCRIPTION
1	2" RED BRASS THREADED TEE	9	1" RED BRASS NIPPLE x 2" LONG
2	1" AIR VACUUM RELEASE VALVE	10	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25
3	COPPER SWEAT ADAPTOR x M.I.P. THREAD	11	2" x 12" RED BRASS NIPPLE
4	BRONZE GATE VALVE W/ BRONZE HANDWHEEL, F.I.P. x F.I.P. THREAD	12	BRASS COUPLING, EMBEDDED FLUSH W/PAD
5	COPPER TUBING x REQUIRED LENGTH	13	2" x 12" RED BRASS NIPPLE
6	90° BRONZE F.I.P. x F.I.P.	14	2" x 1" BRASS BUSHING
7	2" M.I.P. x F.I.P. BALL VALVE W/ 2.5" FIRE HOSE ADAPTER	15	1" BRASS STREET ELL, 1" x 3" BRASS NIPPLE, 1" BRASS 90 W/ SS BUG SCREEN FACING DOWNWARD
8	RED BRASS PIPE x REQUIRED LENGTH		

APPROVED:



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

NOT TO SCALE

District Engineer

Date

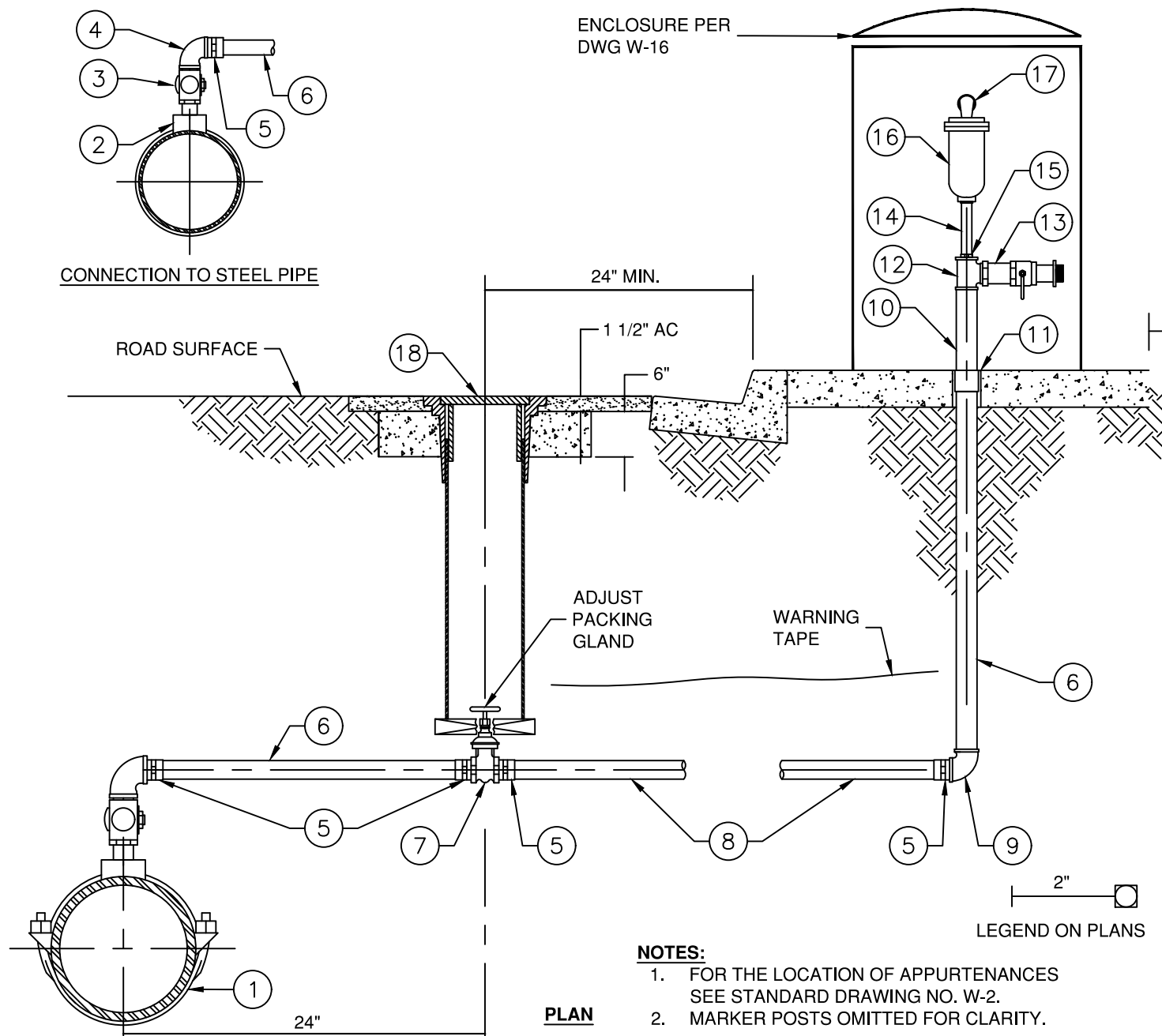
1/24/22

Latest Revision Date

**END OF LINE 1" AIR VACUUM  
& 2" BLOW OFF COMBINATION**

DWG. NUMBER

**W-10**



NO.	DESCRIPTION	NO.	DESCRIPTION
1	BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR PVC	10	2"x12" RED BRASS NIPPLE
2	2" HIGH PRESSURE STEEL 1/2 COUPLING	11	2" BRASS COUPLING, EMBEDDED FLUSH W/ PAD
3	2" BRONZE CORPORATION STOP, M.I.P. THREAD x M.I.P. THREAD	12	2" RED BRASS THREADED TEE
4	2" BRONZE 90° F.I.P x F.I.P	13	2" M.I.P. x F.I.P. BALL VALVE W/ 2.5" FIRE HOSE ADAPTER
5	2" COPPER SWEAT ADAPTOR x M.I.P. THREAD	14	1" RED BRASS NIPPLE x 2" LONG
6	2" RED BRASS TUBING x REQ. LENGTH	15	2"x1" BRASS BUSHING
7	2" BRONZE GATE VALVE W/ BRONZE HANDWHEEL, F.I.P. x F.I.P. THREAD	16	1" AIR VACUUM RELEASE VALVE
8	2" COPPER TUBING x REQ. LENGTH	17	1" BRASS STEEL ELL, 1"x3" BRASS NIPPLE, 1" BRASS 90 W/ SS BUG SCREEN FACING DOWNWARD
9	90° BRONZE F.I.P. x F.I.P.	18	VALVE WELL FRAME, ASSEMBLY & COVER PER W-25

APPROVED:

*Wally G. [Signature]* 1/24/22



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

NOT TO SCALE

District Engineer

Date

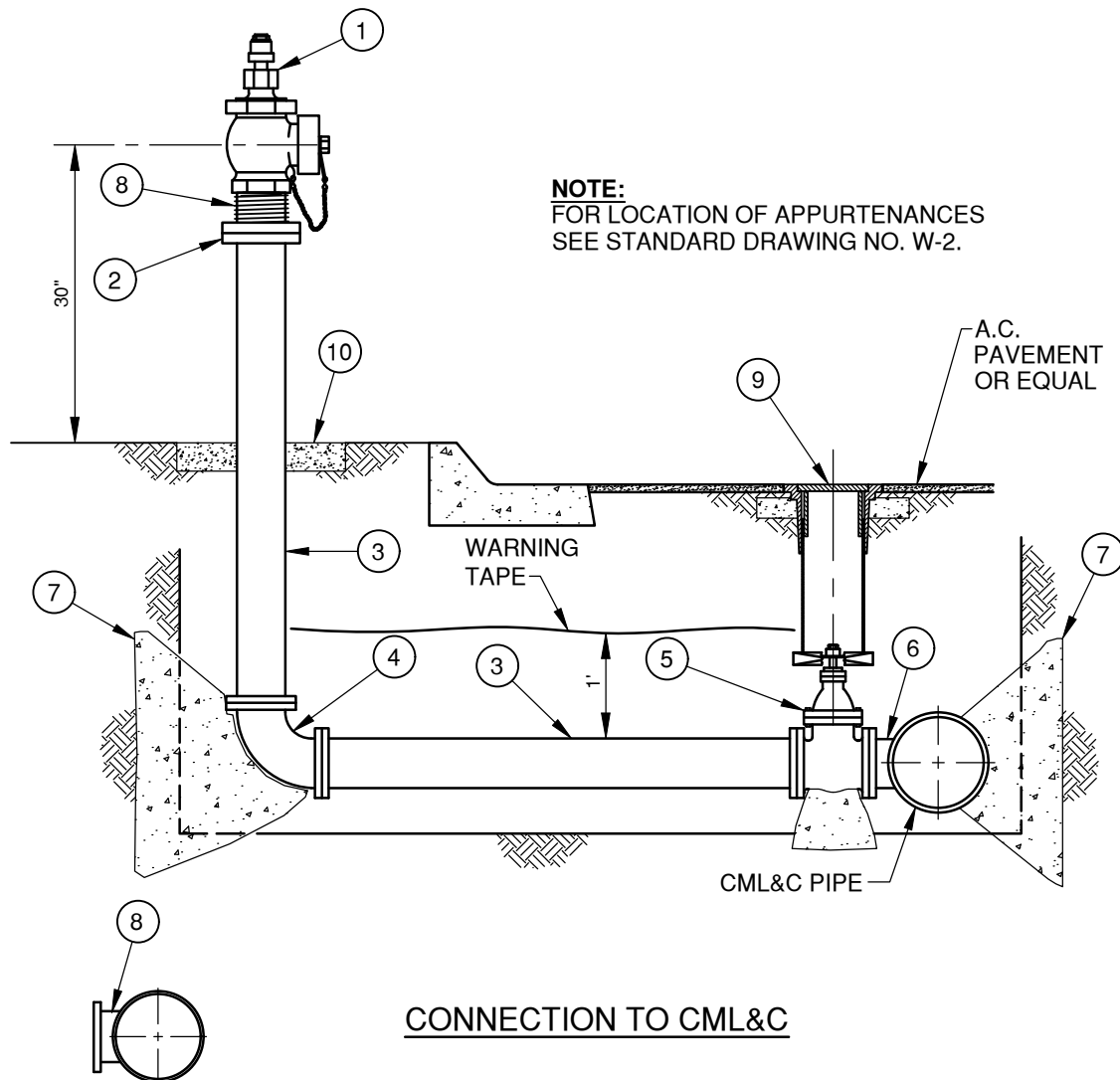
1/24/22

Latest Revision Date

**1" AIR VACUUM & 2" BLOW OFF  
COMBINATION**

DWG. NUMBER

**W-10A**



CONNECTION TO CML&C

CONNECTION TO PVC & AC

4"  
LEGEND ON PLANS

NO.	SIZE & DESCRIPTION	NO.	SIZE & DESCRIPTION
1	4" x 2-1/2" ANGLE FIRE PLUG VALVE	6	4" STEEL FLANGE OUTLET
2	4" COMPANION FLANGE	7	CONCRETE THRUST BLOCK, PER W-20
3	4" CML&C x REQUIRED LENGTH	8	MAIN SIZE x 4" C.I. TEE W/ FLG OUTLET
4	4" FLG. x FLG. 90° BEND	9	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25
5	4" RESILIENT SEATED GATE VALVE (FLG. x FLG. OR SEE SPEC.)	10	30" x 30" x 4" CONCRETE PAD

APPROVED:

*Wally P. ...* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**4" BLOW OFF ASSEMBLY**

NOT TO SCALE

DWG. NUMBER

**W-11**

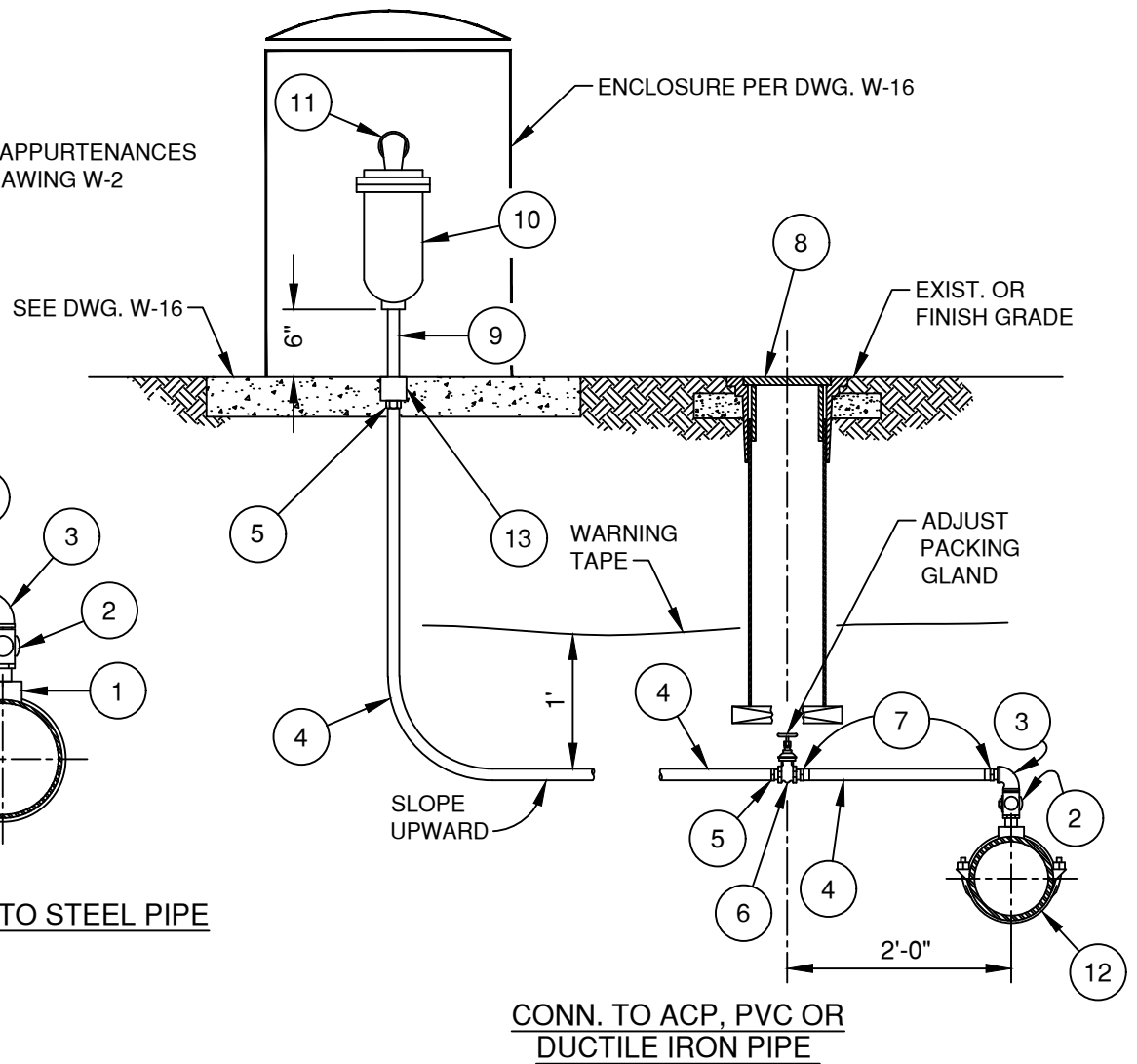
**W-12**

**NOTE:**

A. FOR LOCATION OF APPURTENANCES  
SEE STANDARD DRAWING W-2

**CONNECTION TO STEEL PIPE**

1"  
LEGEND ON PLANS



NO.	DESCRIPTION	NO.	DESCRIPTION
1	1" HIGH PRESSURE STEEL 1/2 COUPLING	8	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25
2	1" BRONZE CORPORATION STOP, M.I.P. THREAD x M.I.P. THREAD	9	1" RED BRASS NIPPLE x 6" LONG
3	1" BRONZE 90° F.I.P. x F.I.P.	10	1" AIR & VACUUM RELEASE VALVE
4	1" COPPER TUBING x REQ. LENGTH	11	1" BRASS STREET ELL, 1" x 3" BRASS NIPPLE, 1" BRASS 90 W/ SS BUG SCREEN FACING DOWNWARD
5	1" ADAPTER M.I.P. x COMP	12	BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR PVC
6	1" BRONZE GATE VALVE x F.I.P. THREAD WITH BRONZE HANDWHEEL	13	1" BRASS COUPLING, EMBEDDED FLUSH W/PAD
7	1" ADAPTER (SWEAT x M.I.P.)		

APPROVED:

*Wally G. Hall* 3/2/2020  
District Engineer Date

9/14/2020

Latest Revision Date

1

Rev. No.



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

# 1" AIR & VACUUM RELEASE ASSEMBLY

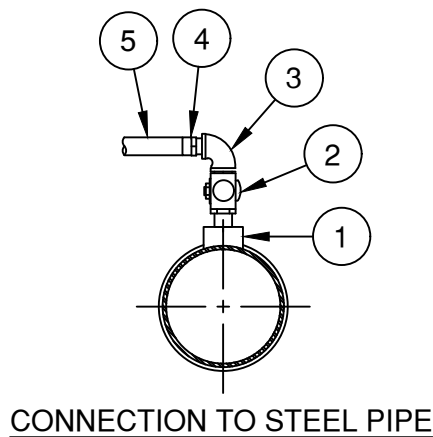
NOT TO SCALE

DWG. NUMBER

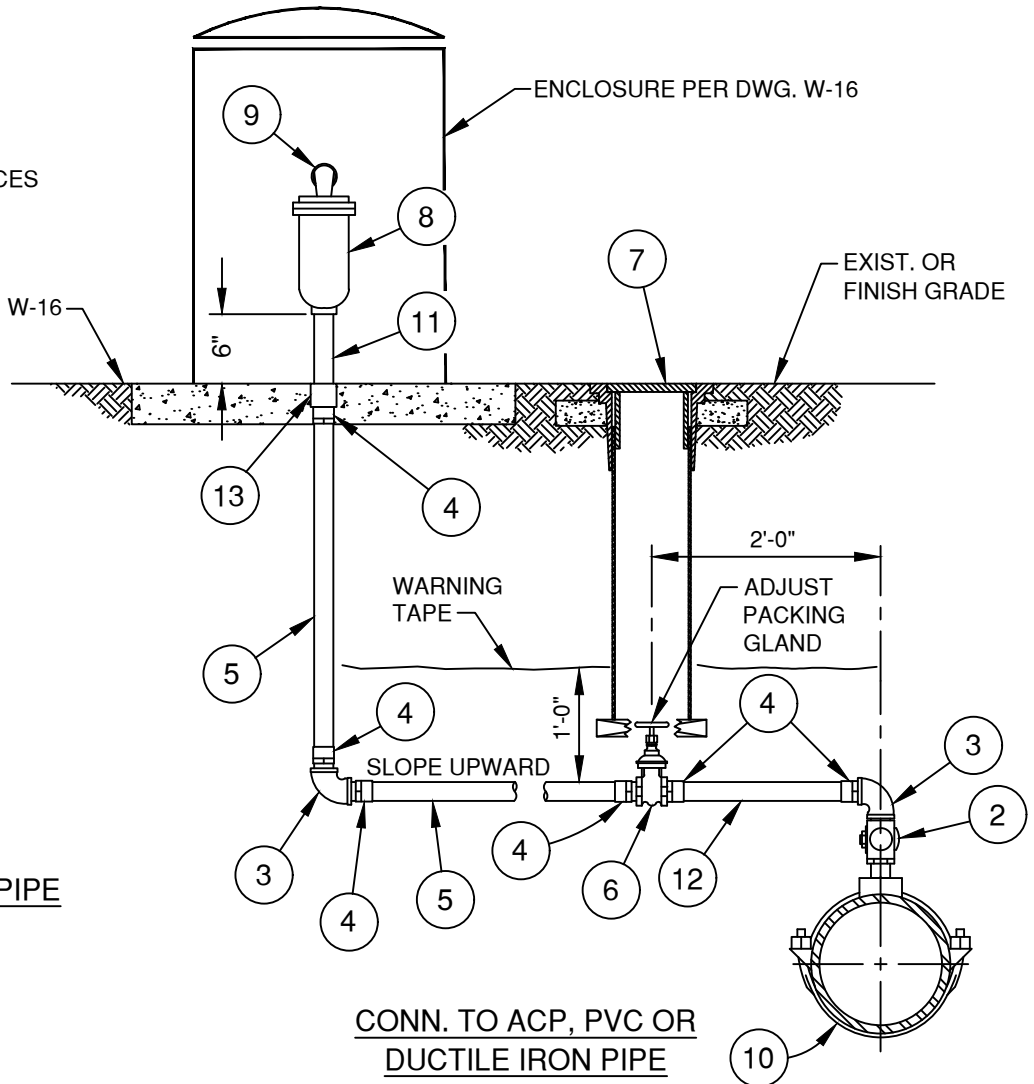
**W-13**



**NOTE:**  
FOR LOCATION OF APPURTENANCES  
SEE STANDARD DRAWING W-2.



2"  
LEGEND ON PLANS



NO.	DESCRIPTION	NO.	DESCRIPTION
1	2" HIGH PRESSURE STEEL 1/2 COUPLING	8	2" AIR & VACUUM RELEASE VALVE
2	2" BRONZE CORPORATION STOP, M.I.P. THREAD x F.I.P. THREAD	9	2" BRASS STREET ELL, 2" x 4" BRASS NIPPLE, 2" BRASS 90 W/ SS BUG SCREEN FACING DOWNWARD
3	2" BRONZE 90° SWEAT ELL	10	BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR PVC
4	2" COPPER SWEAT ADAPTER x M.I.P. THREAD	11	2" RED BRASS NIPPLE x 6" LONG
5	2" COPPER TUBING x REQ'D LENGTH	12	2" COPPER x REQ'D LENGTH
6	2" BRONZE GATE VALVE x F.I.P. THREAD WITH BRONZE HANDWHEEL	13	2" BRASS COUPLING, EMBEDDED FLUSH W/PAD
7	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25	14	2" RED BRASS NIPPLE x 18" LONG

APPROVED:

*Wally G. Hall* 3/2/2020

District Engineer Date

9/14/2020 1

Latest Revision Date Rev. No.



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

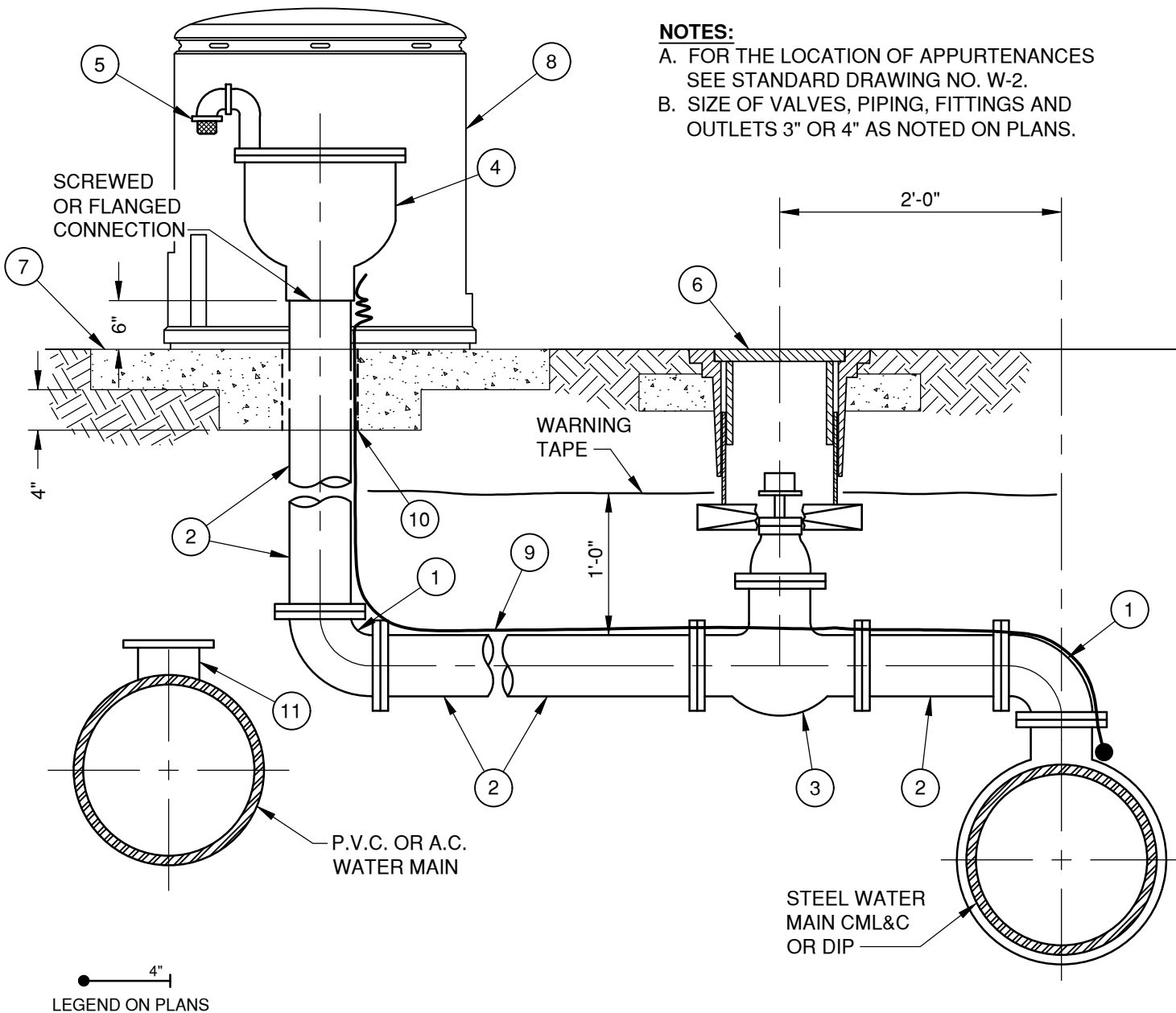
**2" AIR VACUUM  
RELEASE ASSEMBLY**

NOT TO SCALE



DWG. NUMBER

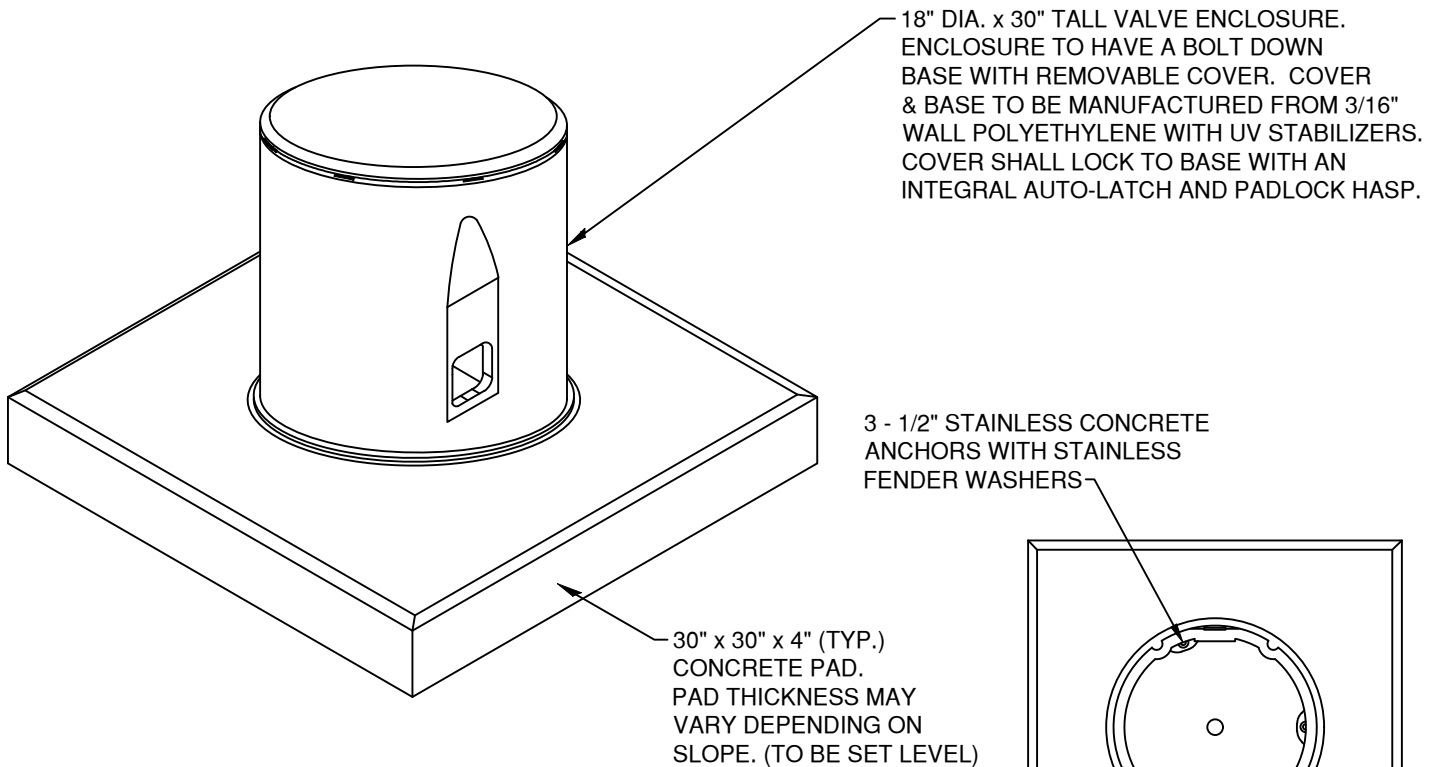
**W-14**



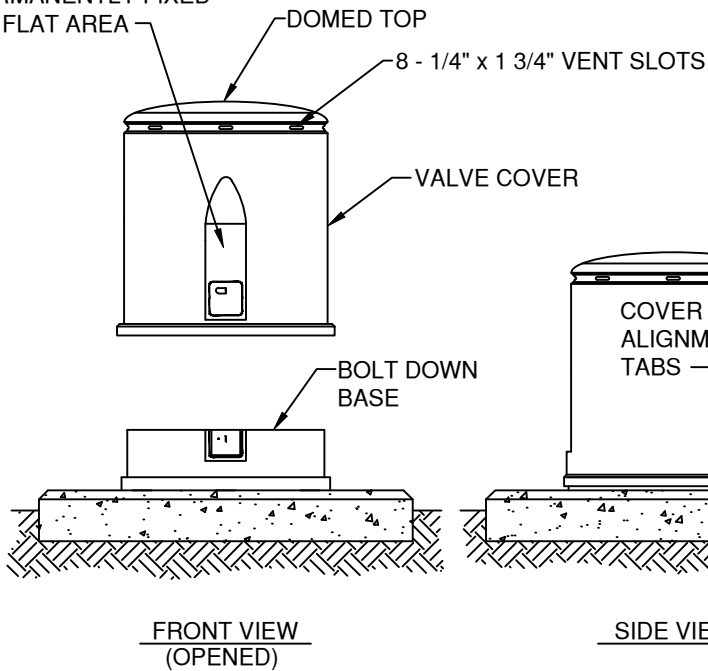


NO.	DESCRIPTION	NO.	DESCRIPTION
1	90° ELL, FLANGED, STEEL CML&C OR CAST IRON CEMENT LINED	7	30" x 30" x 4" CONCRETE PAD
2	STEEL OR DUCTILE IRON PIPE, 12GA. MINIMUM	8	ENCLOSURE, SEE DWG. W-16
3	RESILIENT WEDGE GATE VALVE, FLANGED CLASS TO MATCH PIPE	9	TRACER WIRE
4	AIR & VACUUM RELIEF VALVE	10	3 1/2" OR 4 1/2" I.D. PVC SLEEVE
5	90° STREET ELLS, REQ'D. SIZE W/ SS BUG SCREEN	11	MAIN SIZE x 3" OR 4" C.I. TEE W/ FLG OUTLET
6	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25		

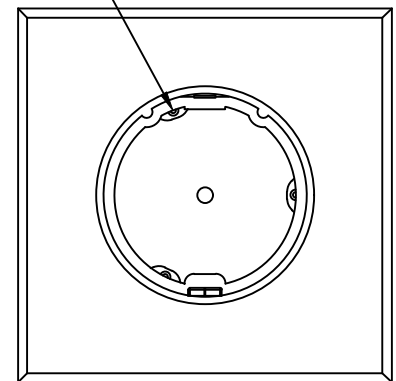
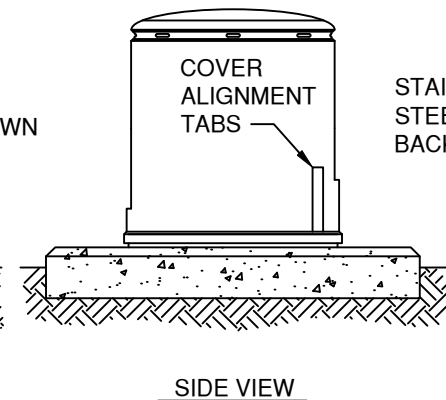
<b>APPROVED:</b>  5/16/19 District Engineer Date		 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING		NOT TO SCALE	
5/16/2019 Latest Revision Date		<b>3" OR 4" COMBINATION AIR VALVE  OR AIR &amp; VACUUM VALVE ASSEMBLIES</b>		DWG. NUMBER <b>W-15</b>	



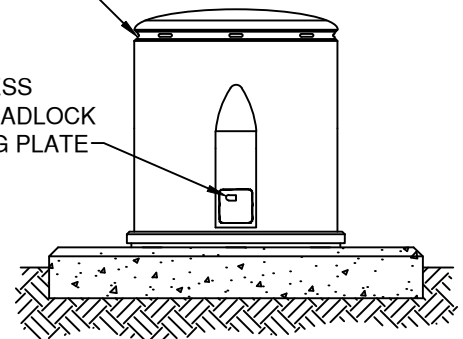
"VCMWD 760-735-4500" PERMANENTLY FIXED TO FLAT AREA



1" REFLECTOR TAPE PER COLOR CODE



STAINLESS STEEL PADLOCK BACKING PLATE



**NOTE:**  
FOR THE LOCATION OF APPURTENANCES  
SEE STANDARD DRAWING NO. W-2.

**COLOR CODE:**  
BLUE - POTABLE  
PURPLE - RECYCLED  
GREEN - SEWER  
YELLOW - BLOWOFF

APPROVED:

*Wally G. Hall* 3/2/2020

District Engineer

Date

3/2/2020

Latest Revision Date



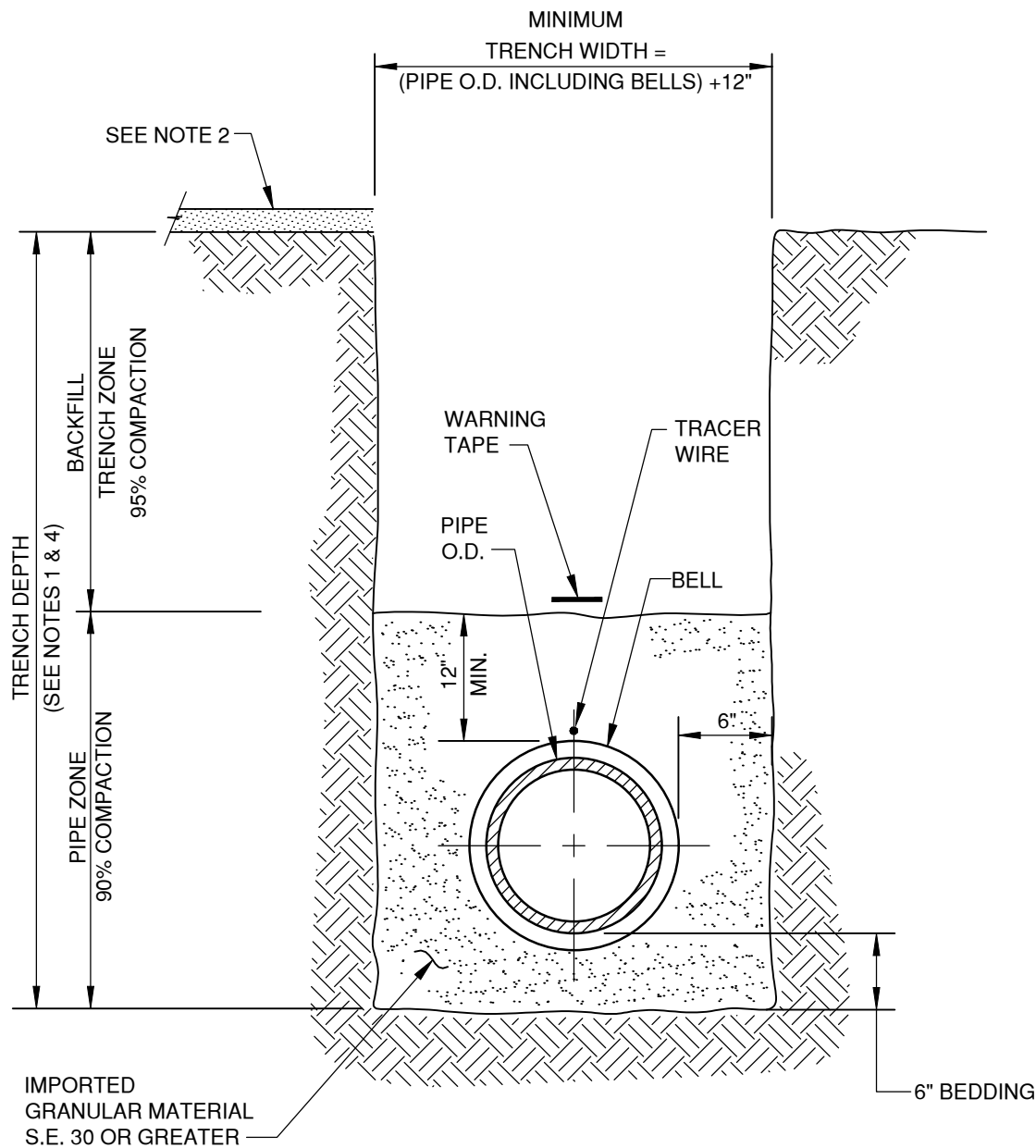
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**ABOVE GROUND ENCLOSURE**

NOT TO SCALE

DWG. NUMBER

**W-16**



**NOTES:**

1. REFER TO BACKFILLING SECTION OF THE SPECIFICATIONS FOR DETAILS.
2. PAVING OR PAVEMENT REPAIR TO BE DONE IN ACCORDANCE WITH SDRSD DETAIL G-24A.
3. EXCAVATE BELL HOLES AT EACH PIPE JOINT TO PERMIT PROPER ASSEMBLY AND INSPECTION OF THE ENTIRE JOINT.
4. ON CITY, COUNTY OR STATE RIGHT OF WAYS, ITS AGENCY STANDARDS SHALL APPLY.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**STANDARD PIPE ZONE  
AND TRENCH BACKFILL**

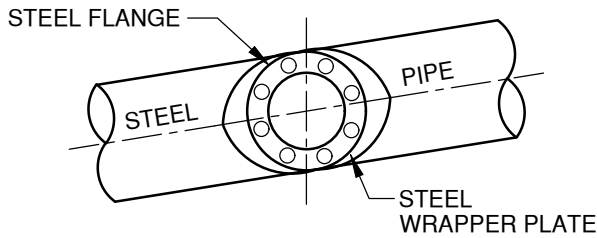
NOT TO SCALE

DWG. NUMBER

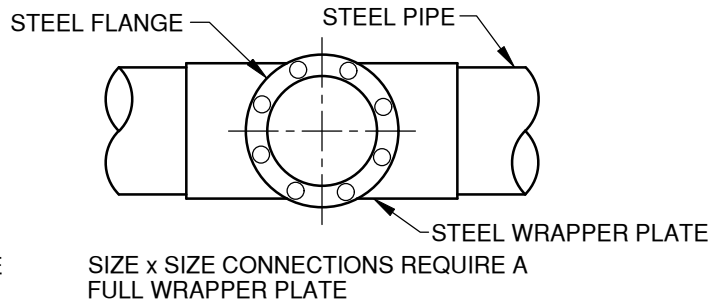
**W-17**

**NOTE:** INSTALL FLANGE WITH TOP 2 BOLT HOLES IN THE HORIZONTAL POSITION (TYPICAL). FLANGES EQUAL TO THE WORKING PRESSURE OF NEW PIPE BEING CONSTRUCTED.

DIMENSIONS OF STEEL WRAPPER PLATES PER AWWA C208, 1/4" MIN. THICKNESS.

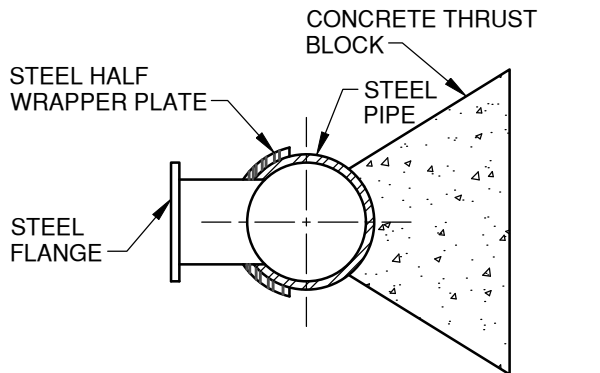


**HALF WRAPPER**  
FRONT VIEW

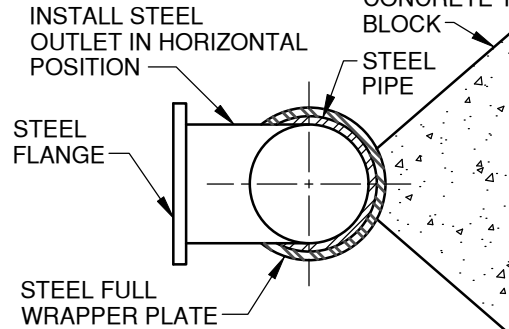


**FULL WRAPPER**

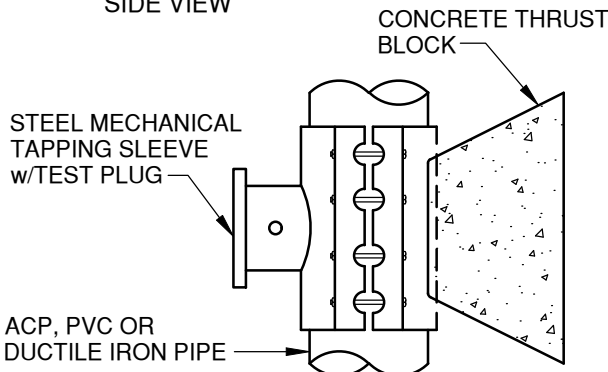
FRONT VIEW  
CONCRETE THRUST BLOCK



**HALF WRAPPER**  
SIDE VIEW

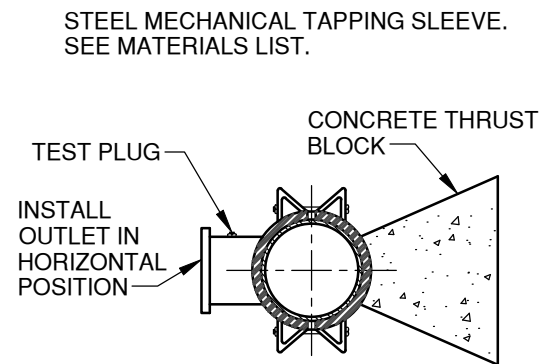


**FULL WRAPPER**  
SIDE VIEW



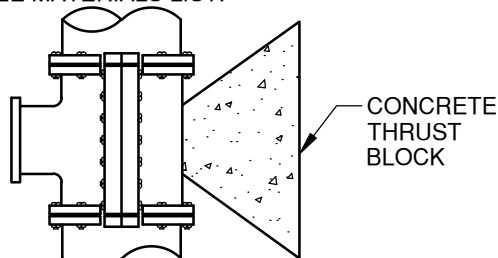
**TOP VIEW**

**HOT TAP CONNECTION TO ACP, PVC OR D.I. PIPE**

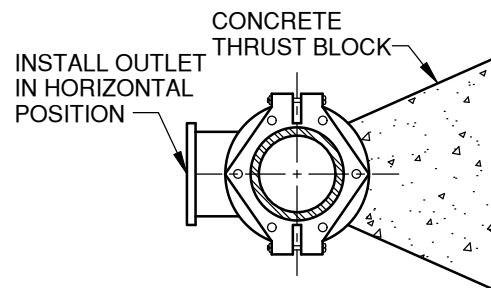


**SIDE VIEW**

EPOXY COATED CAST IRON MECHANICAL TAPPING SLEEVE. SEE MATERIALS LIST.



**TOP VIEW**



**SIDE VIEW**

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

## TYPICAL CONNECTION DETAILS TO STEEL AND A.C. PIPE

NOT TO SCALE

DWG. NUMBER

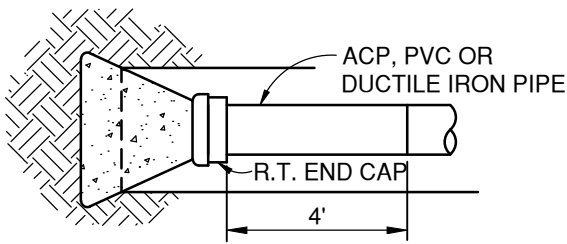
**W-18**



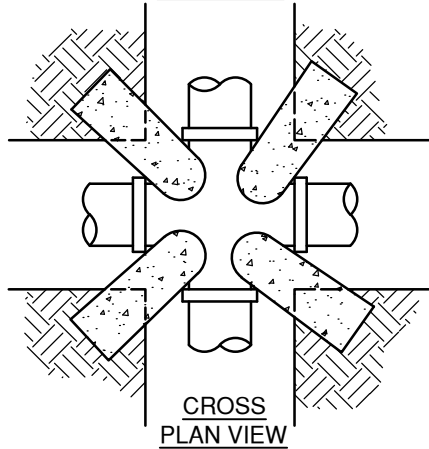
1. STRAP TO BE SHIPPED IN HALVES AND WELDED IN THE FIELD.
2. PLATE THICKNESS SHALL BE EQUAL TO ADJOINING STEEL PIPE EXCEPT THAT MINIMUM THICKNESS SHALL BE 3/16". WHEN PIPE I.D. EXCEEDS 14", PROVIDE TWO HANDHOLES AT 45° FROM VERTICAL.
3. TWO HANDHOLES FOR PIPE  $\geq 16"$  DIAMETER.
4. WHERE ACCESS TO THE PIPE INTERIOR FOR MORTAR LINING IS NOT POSSIBLE, INSTALL 5" DIAMETER HANDHOLES WITH THREADED PLUG WHICH IS TO BE SEAL WELDED UPON COMPLETION OF FIELD MORTAR LINING. AT LEAST TWO HANDHOLES WILL BE REQUIRED FOR 18" DIAMETER AND LARGER PIPE.

# W-19

4' PIECE INTO END CAP

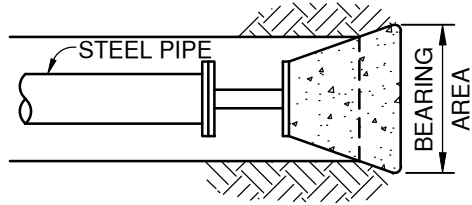


A.C. PIPE END DETAIL  
PLAN VIEW

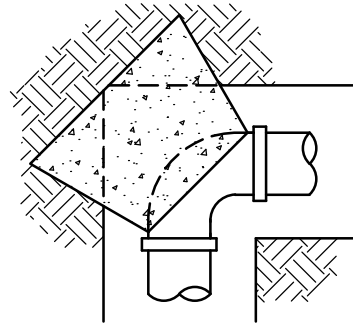


CROSS  
PLAN VIEW

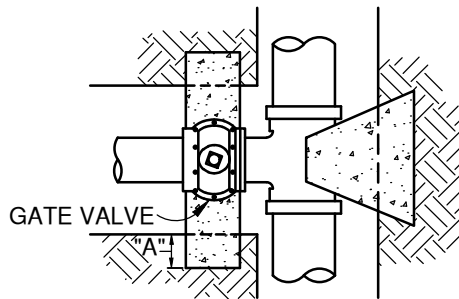
12" x 12" x 1/2" STL. PLATE  
TO 3" x 12" STD. STL. GALV. PIPE  
BLIND FLG. WELDED TO PIPE



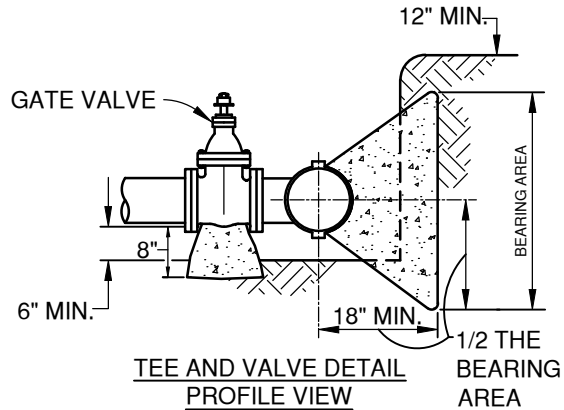
STEEL PIPE END DETAIL  
PLAN VIEW



BEND  
PLAN VIEW



TEE AND VALVE DETAIL  
PLAN VIEW



TEE AND VALVE DETAIL  
PROFILE VIEW

MINIMUM BEARING AREAS IN SQ.FT. FOR CLASS 150 PIPE

MAIN SIZE	TEES, P.E.	90° BEND	45° BEND	22-1/2° BEND
6"	6	8	5	3
8"	10	14	8	4
10"	17	23	13	7
12"	23	33	18	9
14"	31	44	24	12
16"	40	57	31	16
18"	52	75	40	21

FOR CLASS 165 MULTIPLY BY 1.3  
FOR CLASS 235 MULTIPLY BY 1.7  
FOR CLASS 305 MULTIPLY BY 2.0

**NOTE:**  
SEE DWG NO. W-21 FOR VALVE SUPPORT DETAIL

APPROVED:

*Wally P. 5/16/19*

District Engineer

Date

5/16/2019

Latest Revision Date



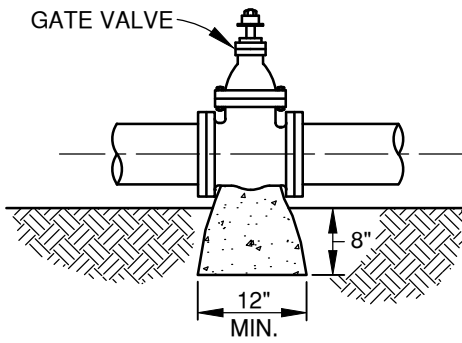
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**CONCRETE THRUST BLOCKS**

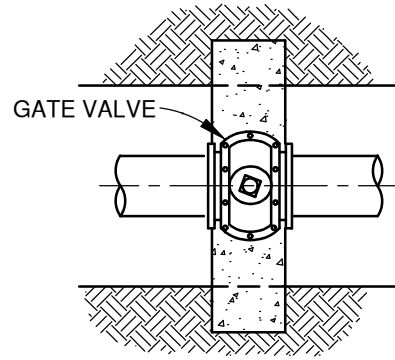
NOT TO SCALE

DWG. NUMBER

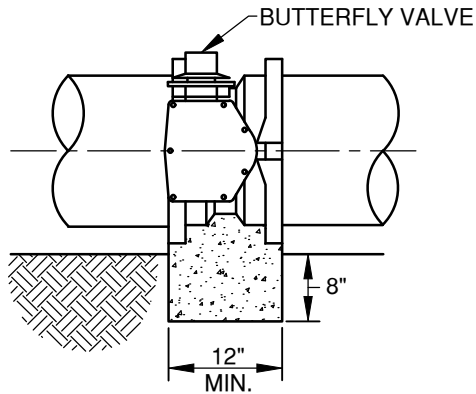
**W-20**



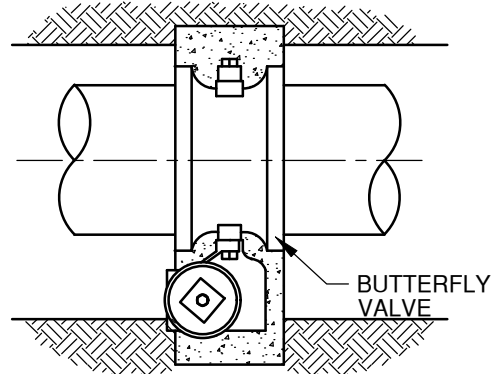
GATE VALVE - ELEVATION



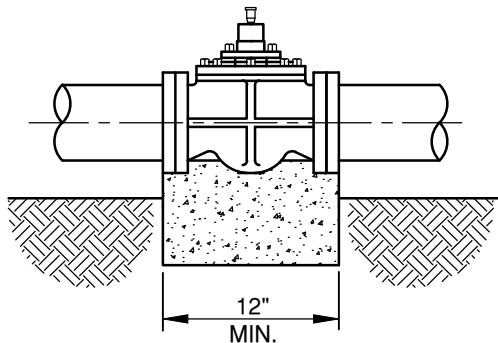
GATE VALVE - PLAN VIEW



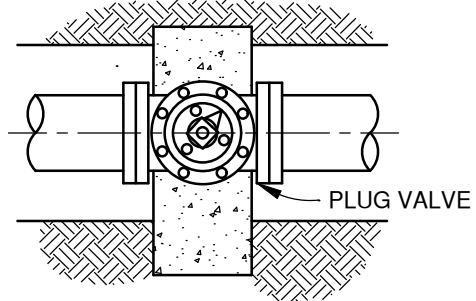
BUTTERFLY VALVE - ELEVATION



BUTTERFLY VALVE - PLAN VIEW



PLUG VALVE - ELEVATION



PLUG VALVE - PLAN VIEW

**NOTES :**

1. ALL VALVE SUPPORTS ARE TO BE PLACED AGAINST UNDISTURBED SOIL.
2. ALL VALVES, NUTS AND BOLTS SHALL BE COATED AND COVERED WITH VISQUEEN. (5 MIL. MIN.)

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

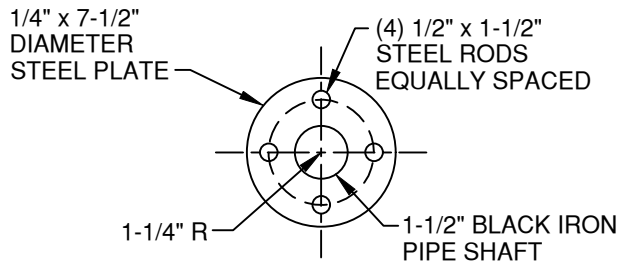
**CONCRETE VALVE SUPPORTS  
FOR IN-LINE VALVES**

NOT TO SCALE

DWG. NUMBER

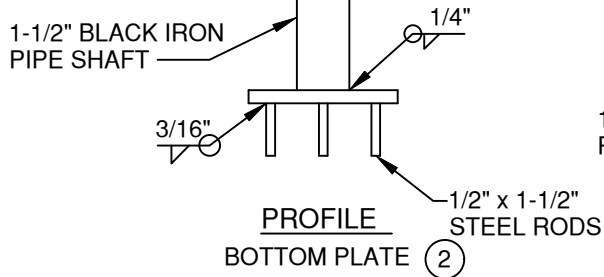
**W-21**



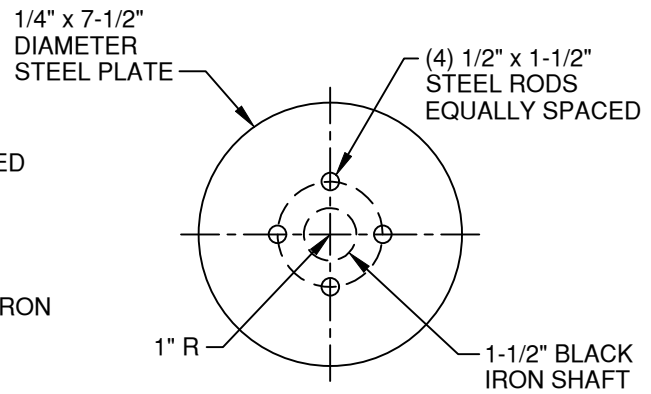


PLAN

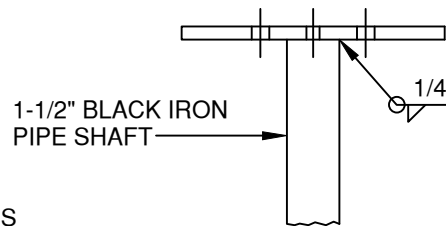
PATTERN OF STEEL RODS  
MUST FIT SNUG IN HAND  
WHEEL BUT MUST NOT  
TOUCH THE PACKING NUT



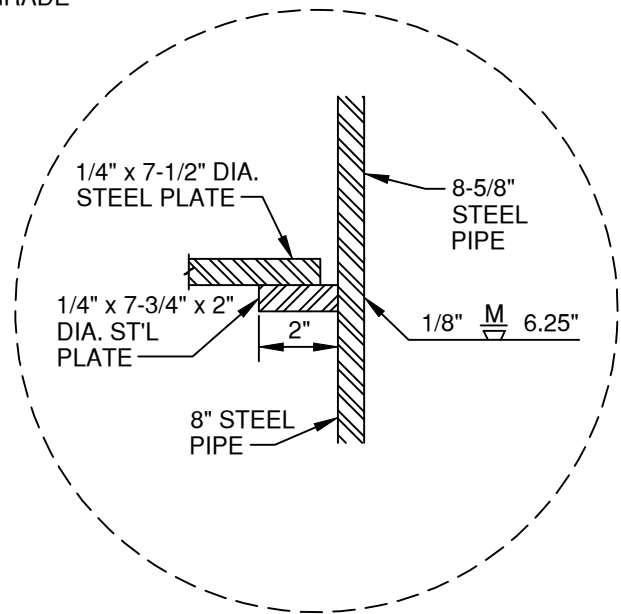
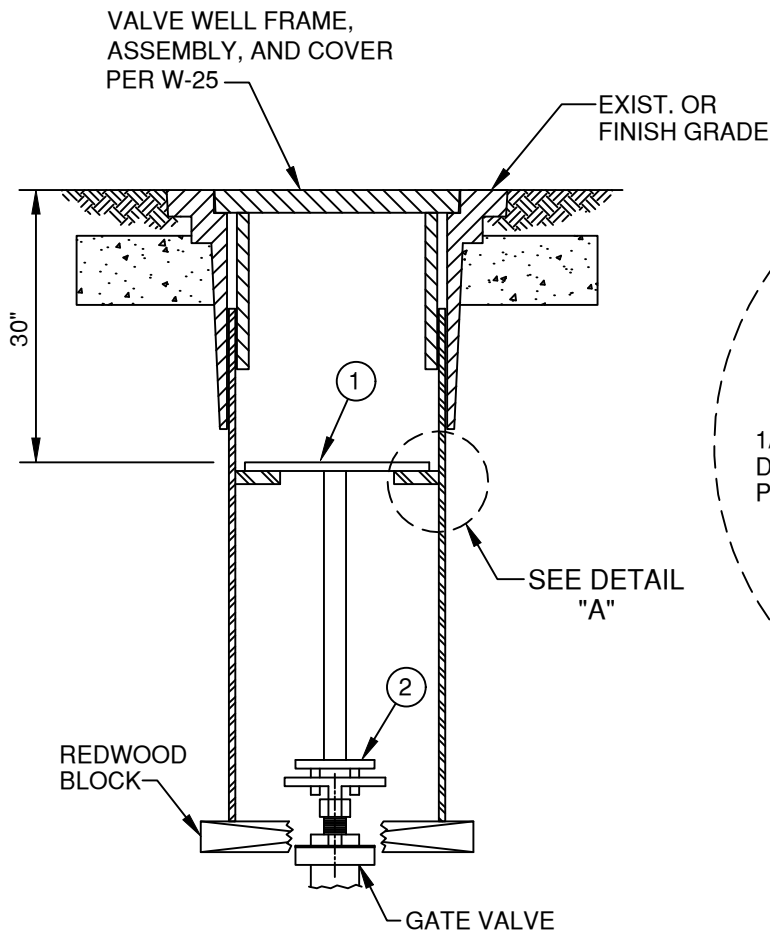
PROFILE  
BOTTOM PLATE ②



PLAN



PROFILE  
TOP PLATE ①



DETAIL "A"

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

## VALVE STEM EXTENSION GATE VALVES 3" OR SMALLER

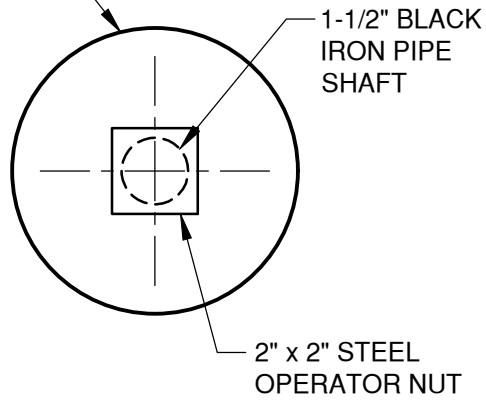
NOT TO SCALE

DWG. NUMBER

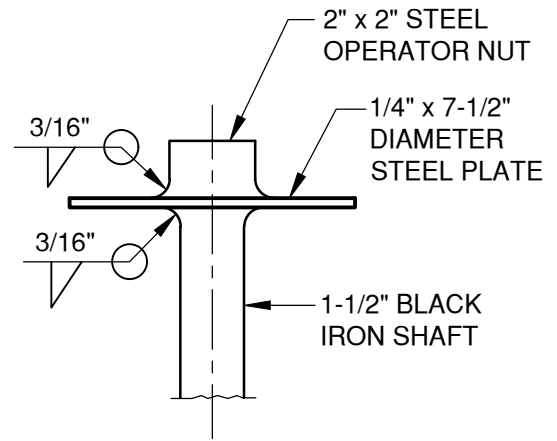
**W-23**



1/4" x 7-1/2"  
DIAMETER  
STEEL PLATE



PLAN

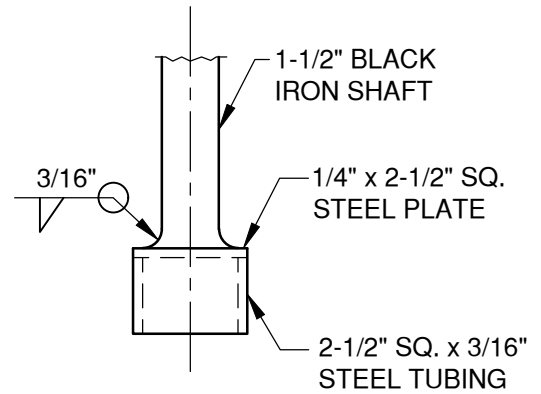
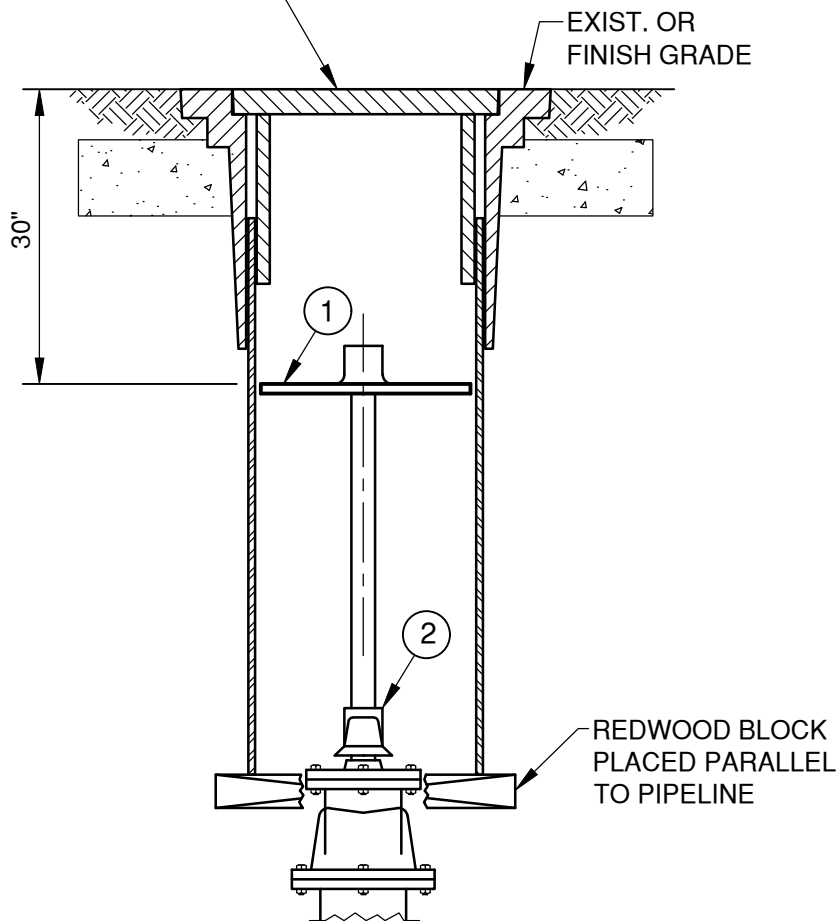


PROFILE

VALVE WELL FRAME,  
ASSEMBLY, AND COVER  
PER W-25.

TOP PLATE

①



VALVE OPERATOR

②

APPROVED:

*Wally G. ...* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



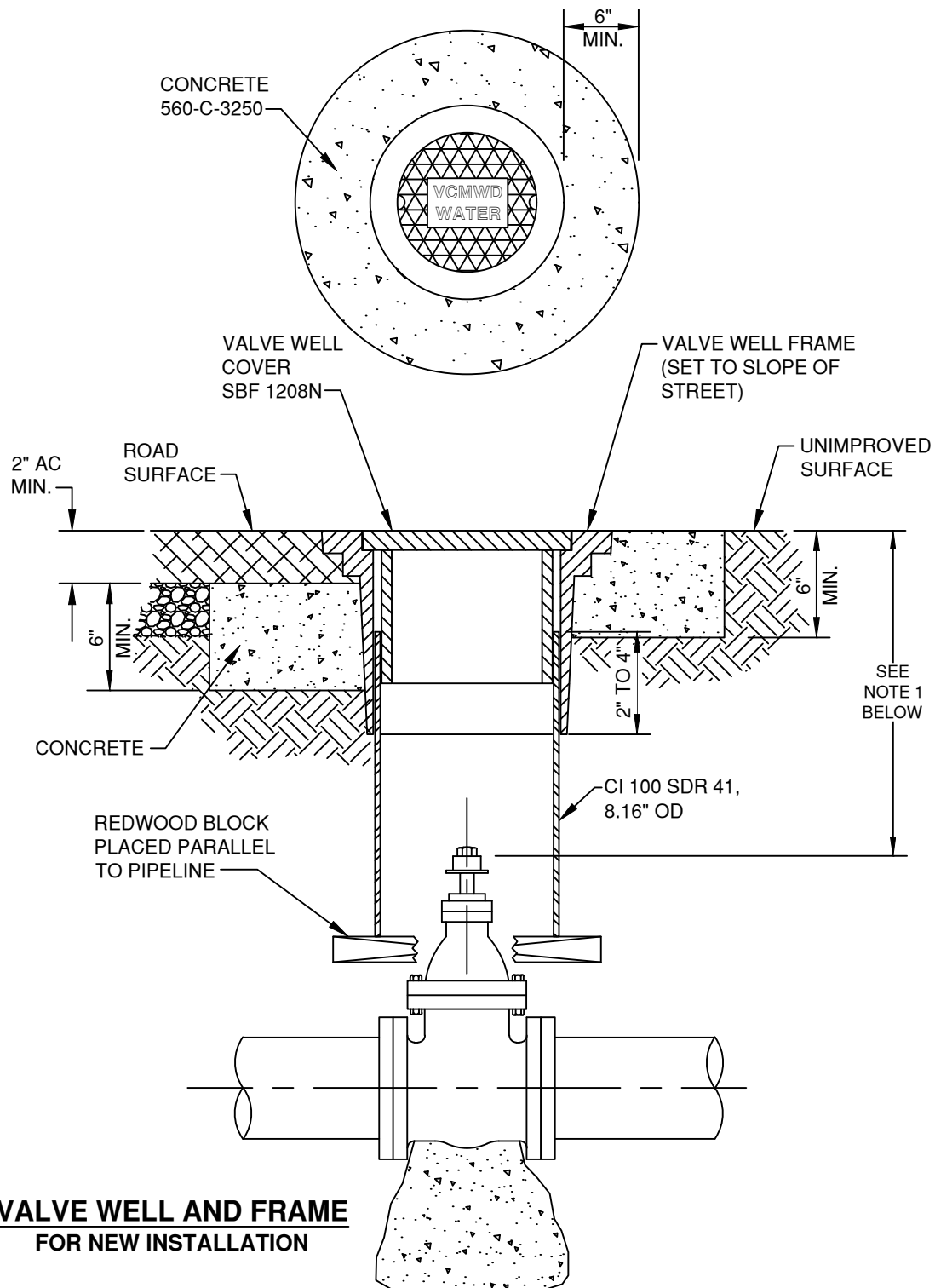
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**VALVE STEM EXTENSION  
GATE VALVES 4" AND LARGER**

NOT TO SCALE

DWG. NUMBER

**W-24**



**NOTES:**

1. PROVIDE VALVE KEY EXTENSION WHERE THIS DIMENSION EXCEEDS 72".
2. THE SURFACE OF THE VALVE WELL COVER SHALL MATCH THE STREET CROSS SLOPE AND PROFILE.
3. SEE STANDARD DRAWING W-23 AND W-24 FOR VALVE WELL EXTENSION WHEN REQUIRED.
4. RAISE VALVE LID(S) TO FINISHED SURFACE AFTER FINAL PAVING IS COMPLETE.
5. LID TO SAY "VCMWD SEWER" IF USED FOR LPS-7.

**VALVE CAN LID PAINT COLORS**

MAIN LINE VALVES	B.O.'s & F.H.'s	A.V.	FIRE SERVICE VALVES	BYPASS VALVES	MANIFOLD ASSEMBLY
RED	YELLOW	WHITE	BLUE	BLUE	BLUE

CLOSED VALVES = PAINTED "X"

APPROVED:

*Wally G. Hall* 3/2/2020  
District Engineer Date

3/2/2020  
Latest Revision Date



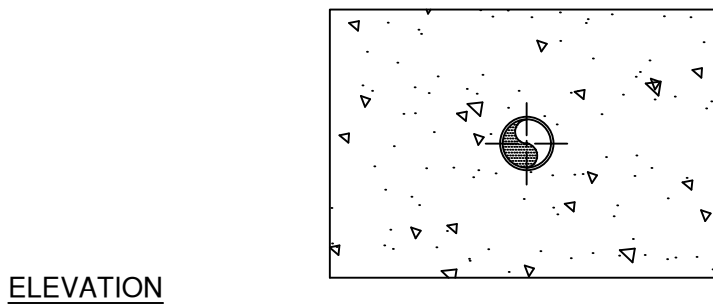
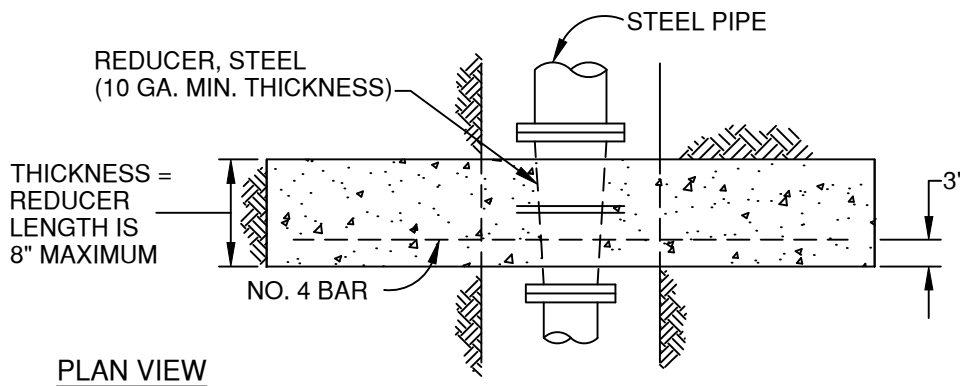
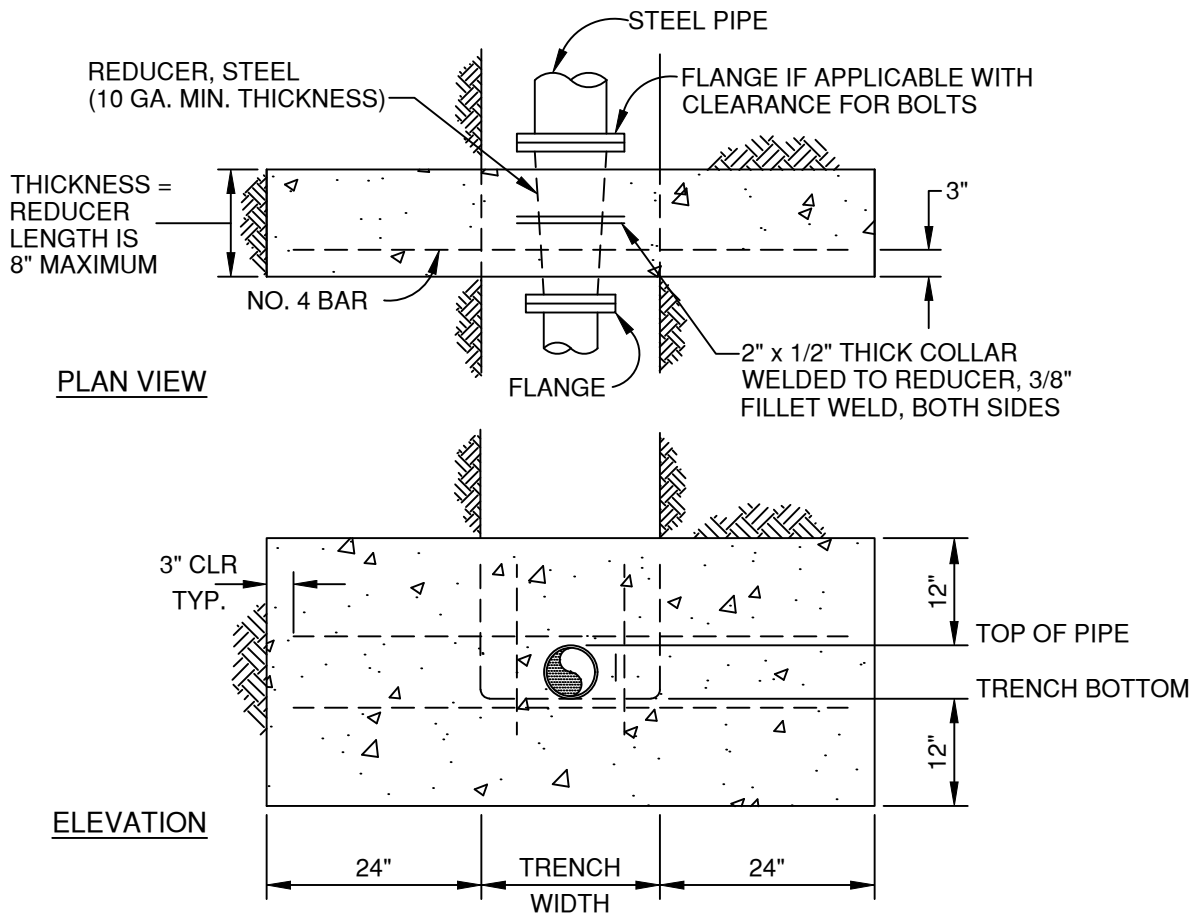
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**VALVE WELL CAP  
AND CAN INSTALLATION**

NOT TO SCALE

DWG. NUMBER

**W-25**



APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



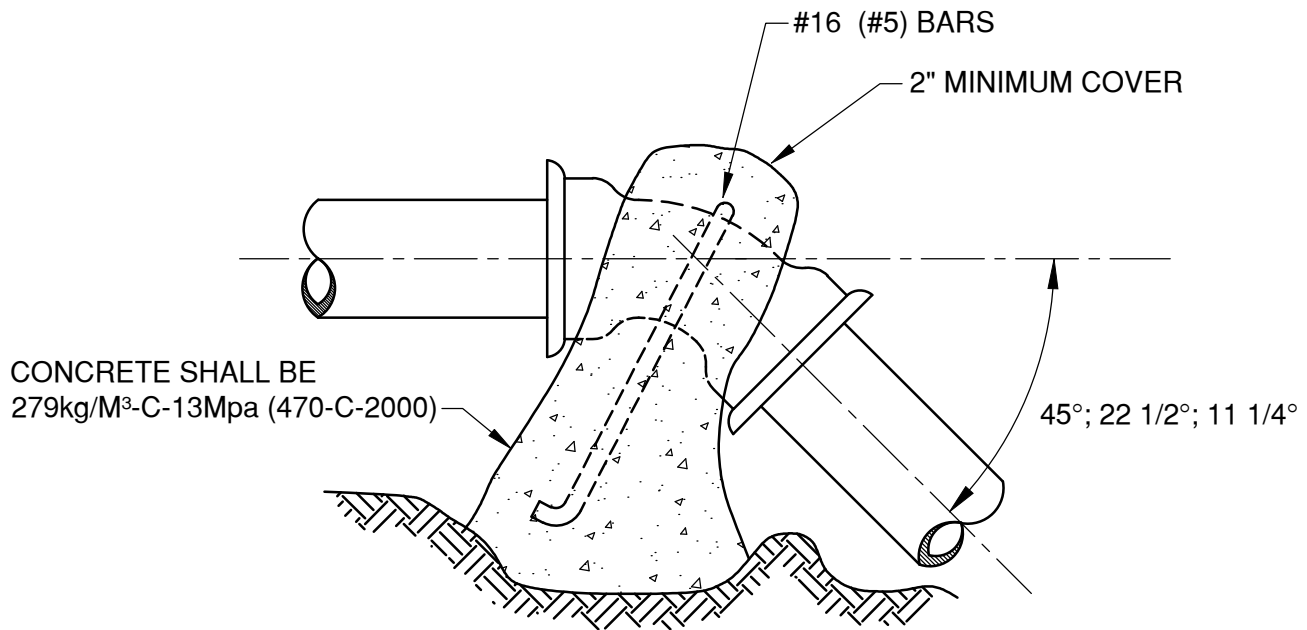
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**ANCHOR BLOCK DETAILS FOR IN  
LINE REDUCERS (16" PIPE MAX.)**

NOT TO SCALE

DWG. NUMBER

**W-26**



PIPE NOMINAL DIA.	CUBIC FT. OF CONCRETE REQUIRED PER 100 P.S.I. PRESSURE *		
	45°	22 1/2°	11 1/4°
4	7	4	2
6	15	8	4
8	27	14	7
10	* *	21	11
12	* *	* *	16

- \* INCREASE VOLUMES SHOWN IN PROPORTION TO PRESSURES  
EXISTING WHEN PRESSURE TESTING PIPELINE.
- \* \* SPECIAL DESIGN REQUIRED.

APPROVED:

*Wally P. S.* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



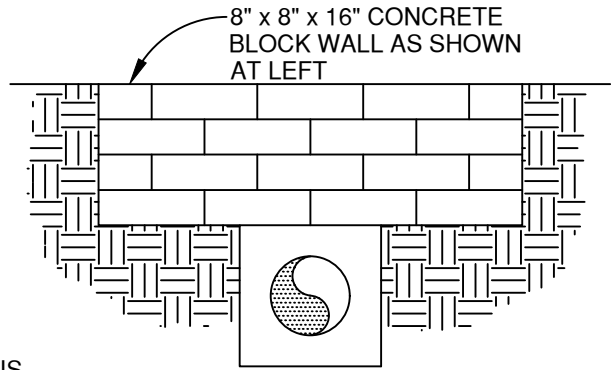
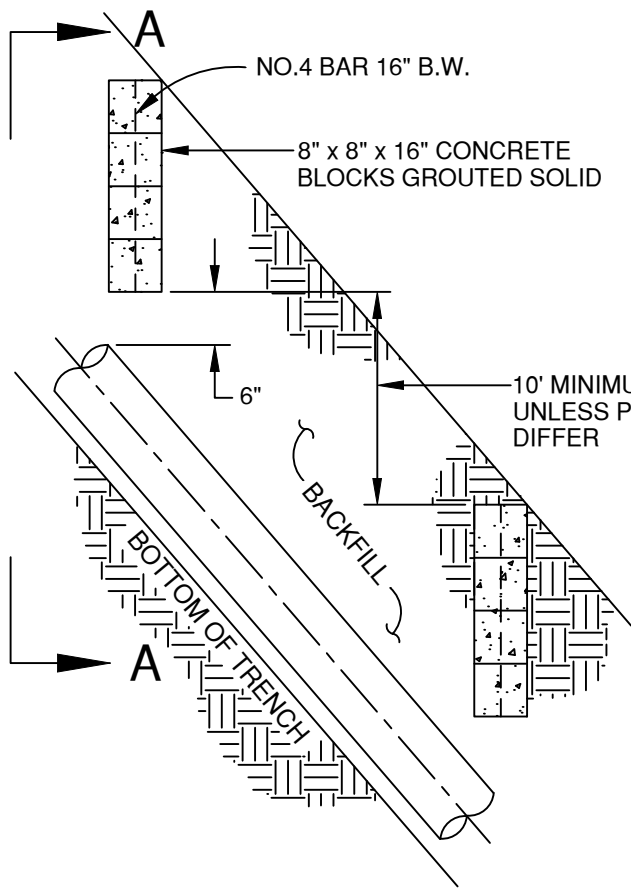
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**VERTICAL ANCHOR BLOCK**

NOT TO SCALE

DWG. NUMBER

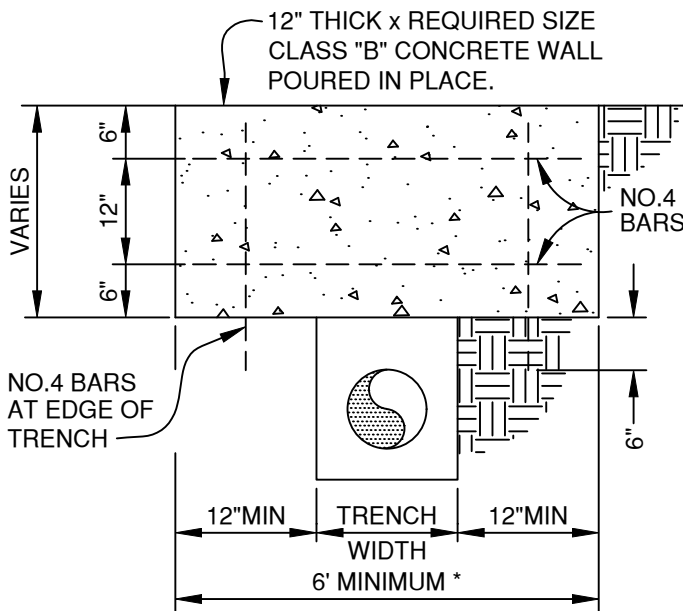
**W-27**



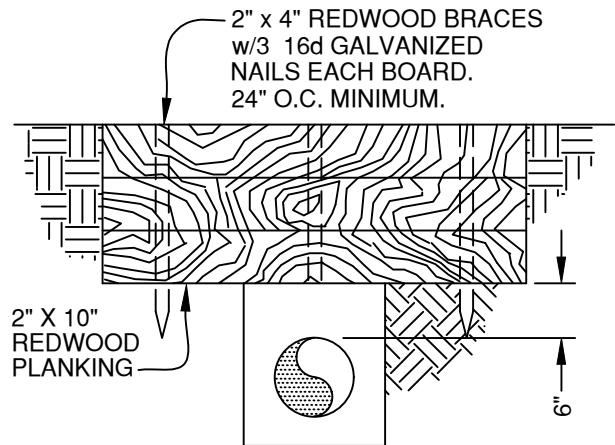
TYPE "A"

NOTE: SLOPES BETWEEN 15% & 30% SHALL BE PROTECTED WITH HAY, SEED AND DIAGONAL DITCHES AT 50' INTERVALS. SLOPES IN EXCESS OF 30% WILL REQUIRE CUT-OFF WALLS IN ADDITION TO HAY AND SEED.

\* CUT-OFF WALLS TO BE KEYED 12" MINIMUM INTO UNDISTURBED SOIL. EASEMENT ROADS IN EXCESS OF 13% SHALL RECEIVE 2" A.C. PAVEMENT.



TYPE "B"



TYPE "C"

## SECTION A-A

**NOTE:**

1. WIDTH DIMENSIONS SHOWN ON TYPE "B" CUT-OFF WALL TYPICAL TO ALL INSTALLATIONS.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



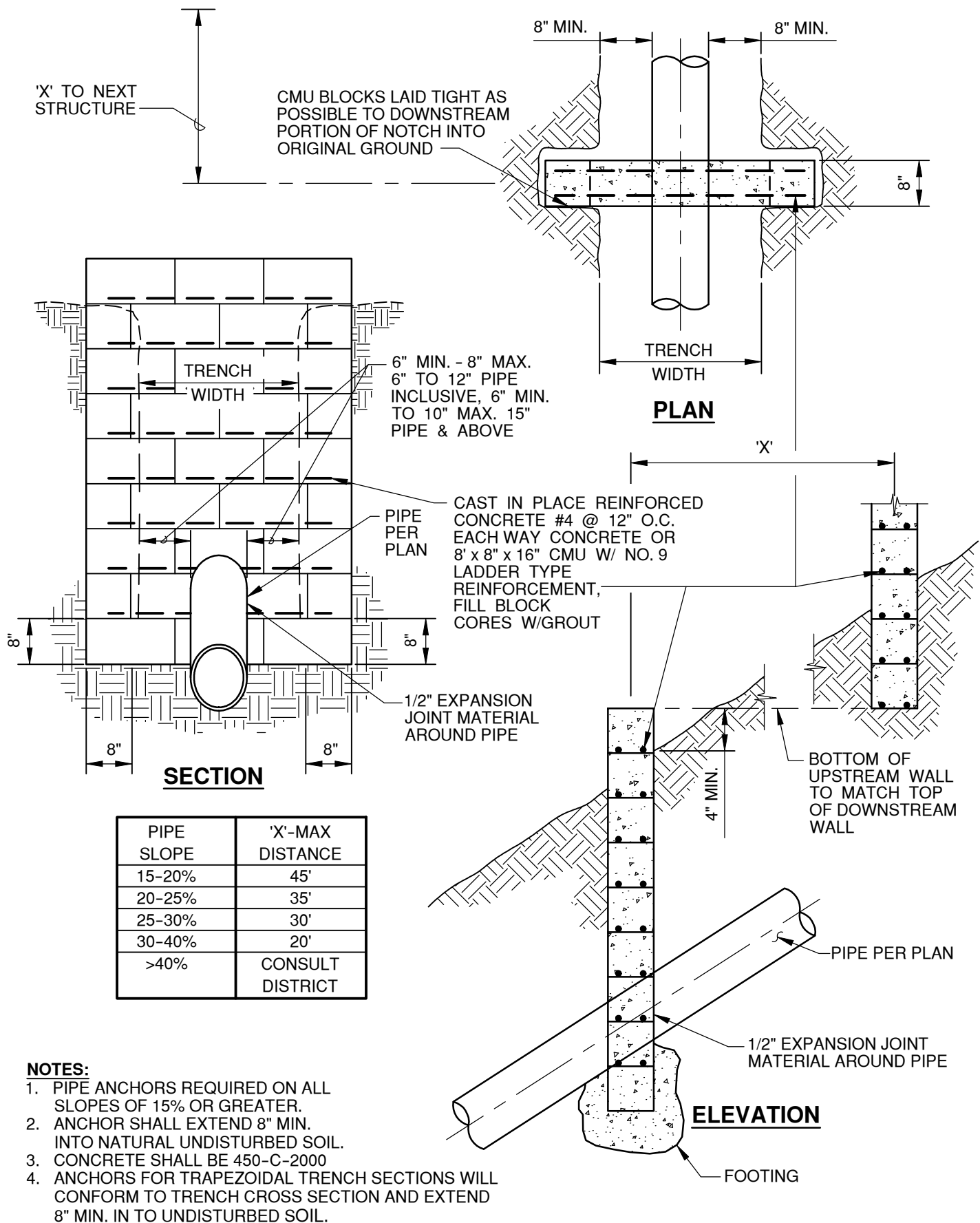
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**SLOPE PROTECTION FOR  
GRADES OF 30% OR LARGER**

NOT TO SCALE

DWG. NUMBER

**W-28**



APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



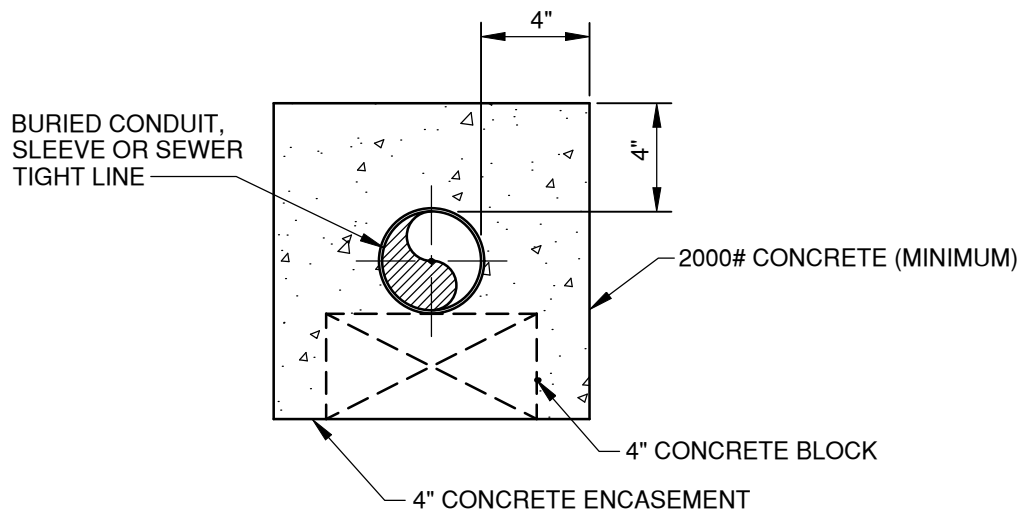
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**STANDARD CUTOFF WALL**

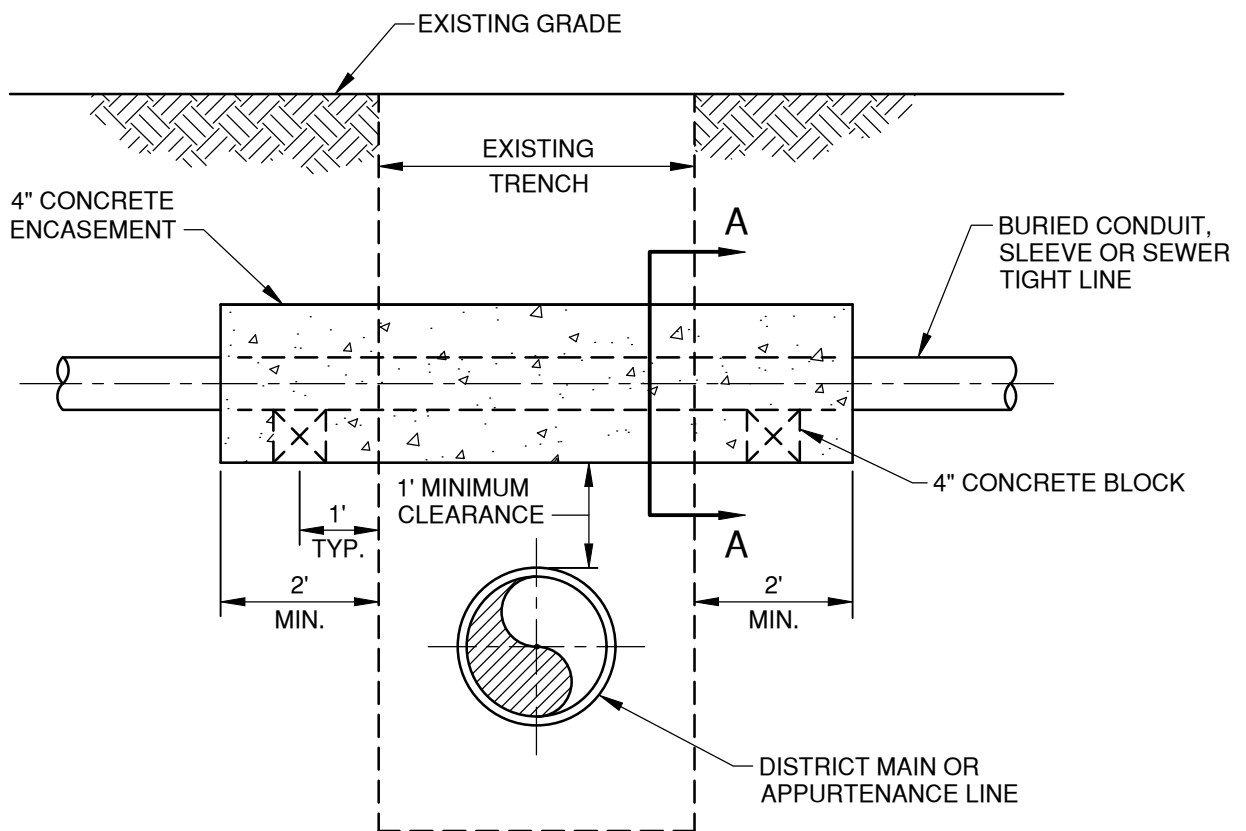
NOT TO SCALE

DWG. NUMBER

**W-29**



## SECTION A-A



## TYPICAL SECTION

### NOTES :

1. AN ENCROACHMENT PERMIT MUST BE OBTAINED FROM THE DISTRICT PRIOR TO CONSTRUCTION OVER DISTRICT FACILITIES.
2. 2 SACK SLURRY BACKFILL MAY BE SUBSTITUTED FOR CONCRETE ENCASEMENT.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**CONCRETE ENCASEMENT DETAIL FOR U.G.  
ELECT., TEL., & SEWER TIGHT LINES OVER  
DISTRICT MAINS & APPURTENANCES**

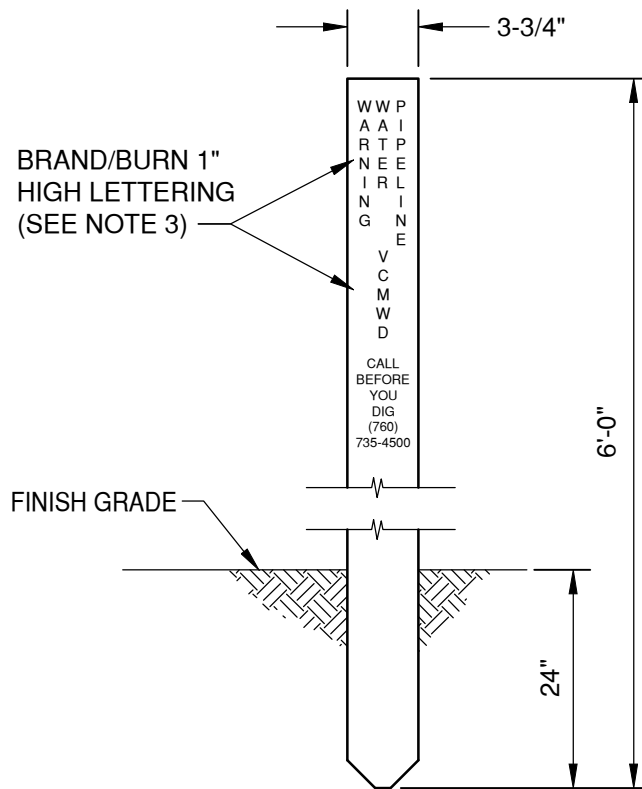
NOT TO SCALE

DWG. NUMBER

**W-30**







### **MARKER POSTS**

POST SHALL BE INSTALLED A MAXIMUM  
OF 200' APART OR IN LINE OF SITE

COLOR	MARKER POSTS USED FOR:
BLUE	POTABLE WATER MAINS
GREEN	SEWER MAINS
PURPLE	RECYCLED WATER MAINS
WHITE	GENERAL USE
YELLOW	ELECTRICAL UTILITIES

### **UTILITY MARKER COLORS**

#### **NOTES:**

1. EASEMENT/UTILITY MARKER POST SHALL BE INSTALLED WHERE CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. EASEMENT/UTILITY MARKER POST SHALL BE INSTALLED ALONG THE CENTERLINE OF THE PIPELINE.
3. MARKER SHALL INCORPORATE 1" HIGH LETTERING BRANDED/BURNED INTO PADDLE. LETTERING SHALL INCLUDE THE AGENCY OF JURISDICTION ALONG WITH THE UTILITY IDENTIFIED. THE COLOR OF THE PADDLE SHALL BE AS SHOWN ABOVE.

APPROVED:

*Wally P. J. 5/16/19*

District Engineer

Date

5/16/2019

Latest Revision Date



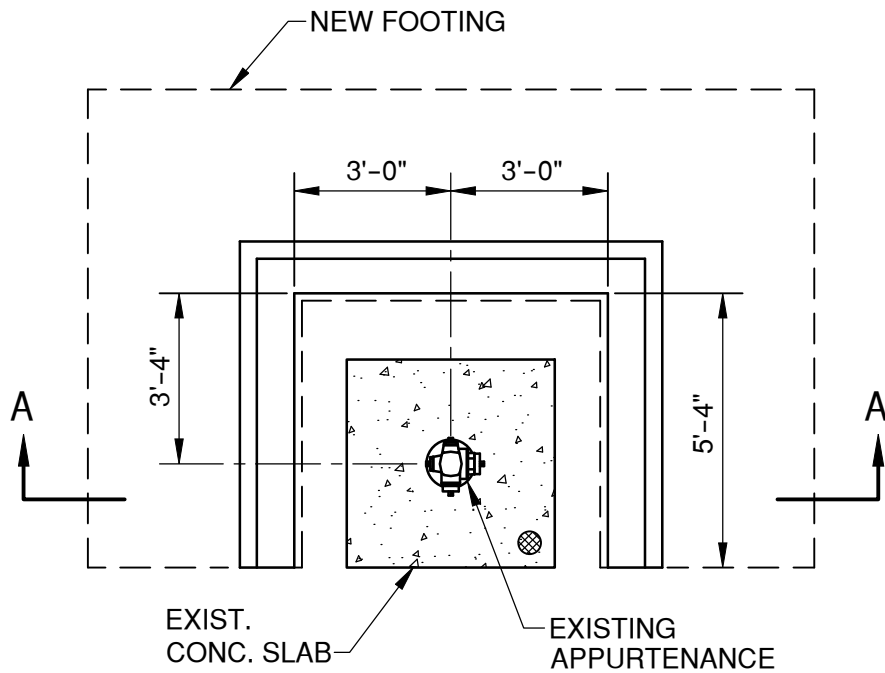
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

### **UTILITY MARKER POST INSTALLATION**

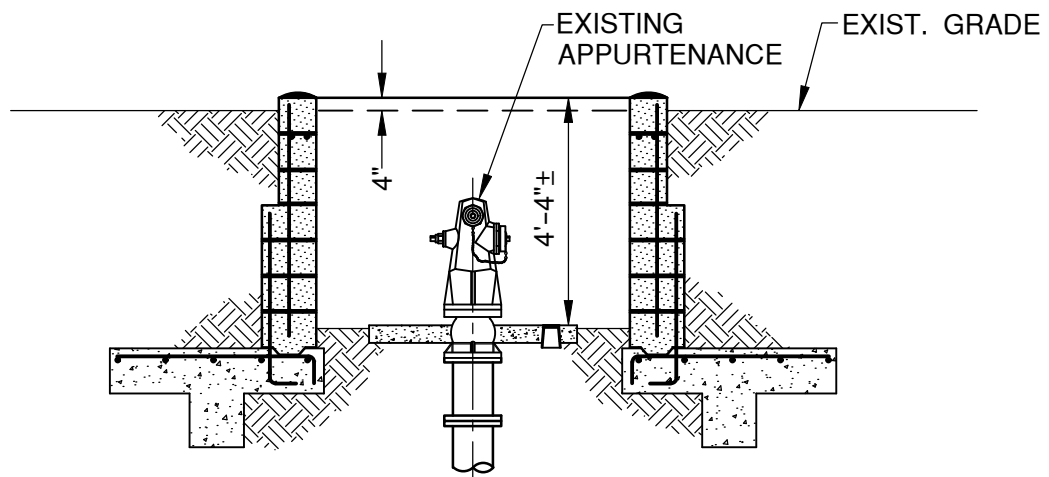
NOT TO SCALE

DWG. NUMBER

**W-32**



**PLAN**



**SECTION A-A**

**NOTES:**

1. SEE SDRSD C-4, C-7 AND C-8 FOR ADDITIONAL DETAILS AND NOTES.
2. MASONRY BLOCK TYPE 1 SHALL CONFORM TO ASTM C90. SIZE SHALL BE 16" x 8" x 8" AND 16" x 12" x 8". UNITS SHALL BE SLUMP BLOCK. COLOR SHALL BE ADOBE.
3. FOR WALLS LESS THAN 30" IN HEIGHT, 16" x 8" x 8" STACKABLE BLOCKS MAY BE USED WITH DISTRICT ENGINEER APPROVAL.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



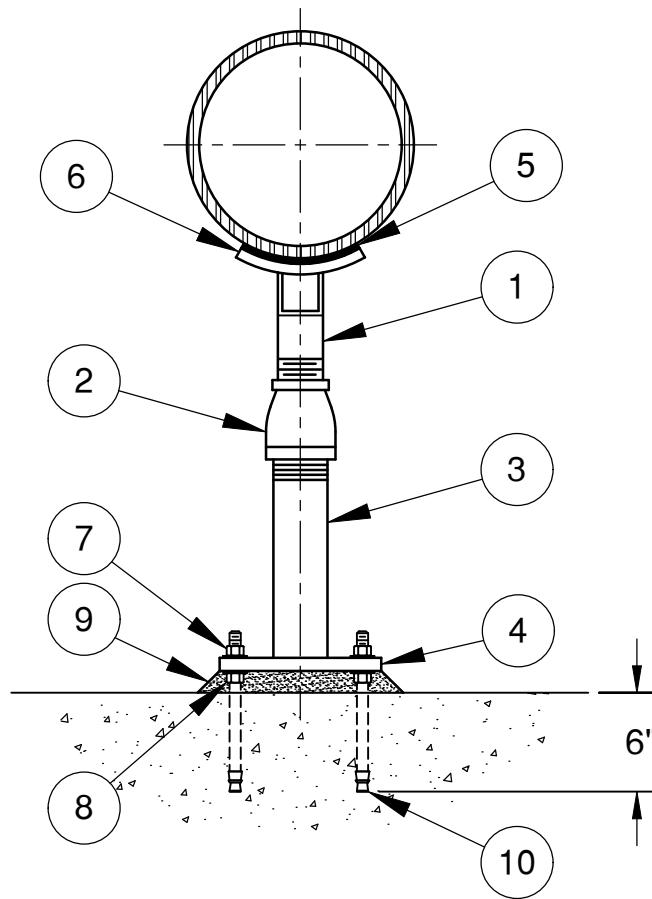
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**APPURTENANCE RETAINING WALL**

NOT TO SCALE

DWG. NUMBER

**W-33**





## ELEVATION

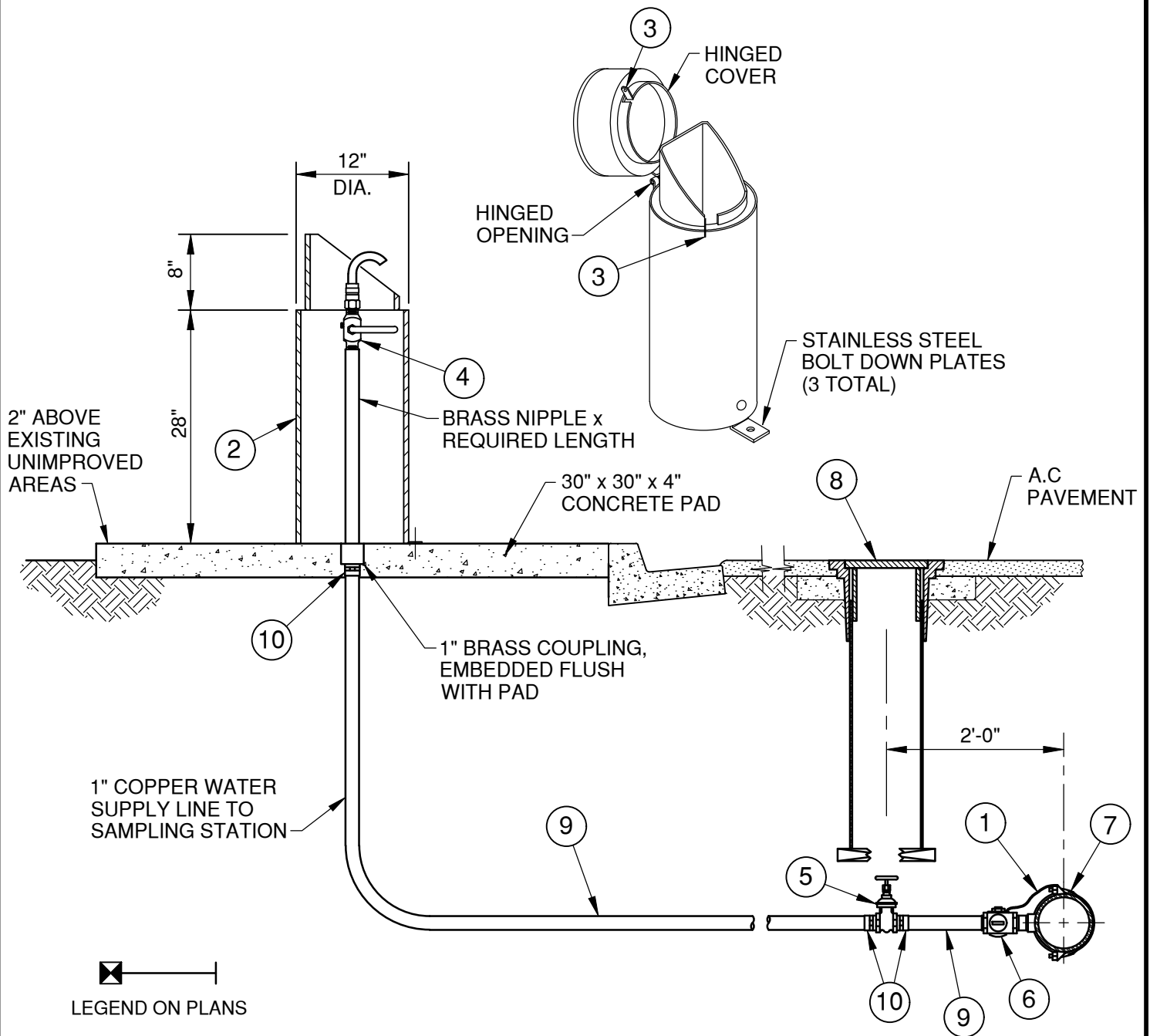
### NOTES:

1. CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO PURCHASE AND FABRICATION.
2. PAINT PER DISTRICT SPECIFICATIONS AFTER FABRICATION.

NO.	DESCRIPTION	NO.	DESCRIPTION
1	2 1/2" GALVANIZED STEEL PIPE	6	SADDLE TYPE PIPE SUPPORT
2	ADJUSTABLE THREADED COLLAR, GALVANIZED	7	STAINLESS STEEL 316 NUT AND WASHER (4 REQUIRED)
3	3" GALVANIZED STEEL PIPE, WELDED TO BASE	8	STAINLESS STEEL 316 LEVELING NUT AND WASHER (4 REQUIRED)
4	9" x 9" x 1/2" GALVANIZED STEEL BASE PLATE w/4 BOLT HOLES	9	1" THICK MIN. NON-SHRINK GROUT
5	1/4" THICK NEOPRENE LINER	10	1/2" DIA. STAINLESS STEEL 316 ANCHOR BOLT (4 REQUIRED)

APPROVED:  5/16/19		 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
District Engineer	Date		DWG. NUMBER
5/16/2019		ADJUSTABLE PIPE SUPPORT DETAIL	W-34
Latest Revision Date			

## ADJUSTABLE PIPE SUPPORT DETAIL



NO.	DESCRIPTION	NO.	DESCRIPTION
1	TRACER WIRE, MECHANICALLY BONDED TO CORP. STOP	6	1" BRONZE BALL CORP. STOP M.I.P. x COMP (OPERATING NUT TO BE ON THE RIGHT SIDE)
2	ARMOLITE POLYETHYLENE ENCLOSURE WITH HINGED COVER (W/ GRANITE FINISH)	7	1" BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR PVC
3	PADLOCK HASP	8	VALVE WELL FRAME, ASSEMBLY, AND COVER, PER W-25
4	BALL VALVE, 1/2" x 3/8", 400 P.S.I.	9	1" COPPER TUBING x REQ. LENGTH
5	1" BRONZE GATE VALVE w/BRONZE HANDWHEEL, F.I.P. x F.I.P. THREAD	10	1" COPPER COMP ADAPTER x M.I.P. THREAD

APPROVED:

*Wally G. ...* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



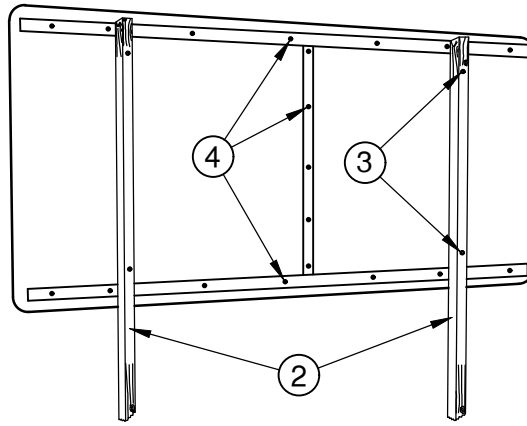
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

## WATER QUALITY SAMPLING STATION

NOT TO SCALE


DWG. NUMBER

**W-35**



**BACK OF SIGN**

1



## Facilities Construction

### Project Name and Location

---



**Contractor:**  
\_\_\_\_\_  
\_\_\_\_\_

**Project Cost:**  
\$ \_\_\_\_\_

Part of Valley Center Municipal Water District's  
Capital Improvement Program

**Construction Approx. \_\_\_\_\_ thru \_\_\_\_\_**

**For More Information: (760) 735-4500**



DARK BLUE

LIGHT BLUE

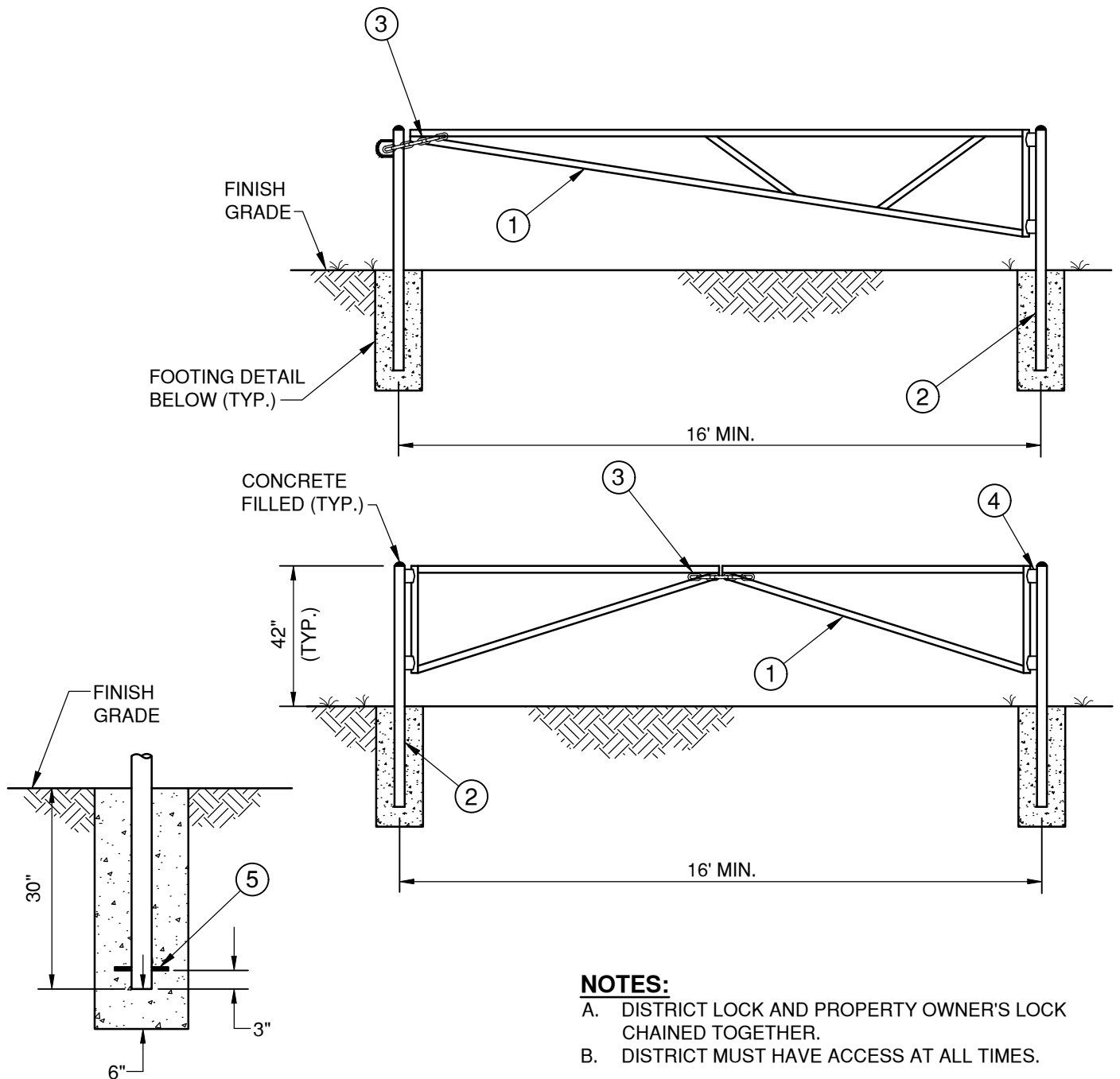
2

**SAMPLE SIGN**



NO.	DESCRIPTION	NO.	DESCRIPTION
1	48" x 96" ALUMINUM PROJECT SIGN W/REFLECTIVE BACK & NON REFLECTIVE BLUE TEXT	3	BOLT SIGN TO POSTS (MIN. 2 PER POST)
2	4" x 4" x 12' REDWOOD POSTS, PRESSURE TREATED	4	ATTACH METAL STIFFENERS TO BACK OF SIGN

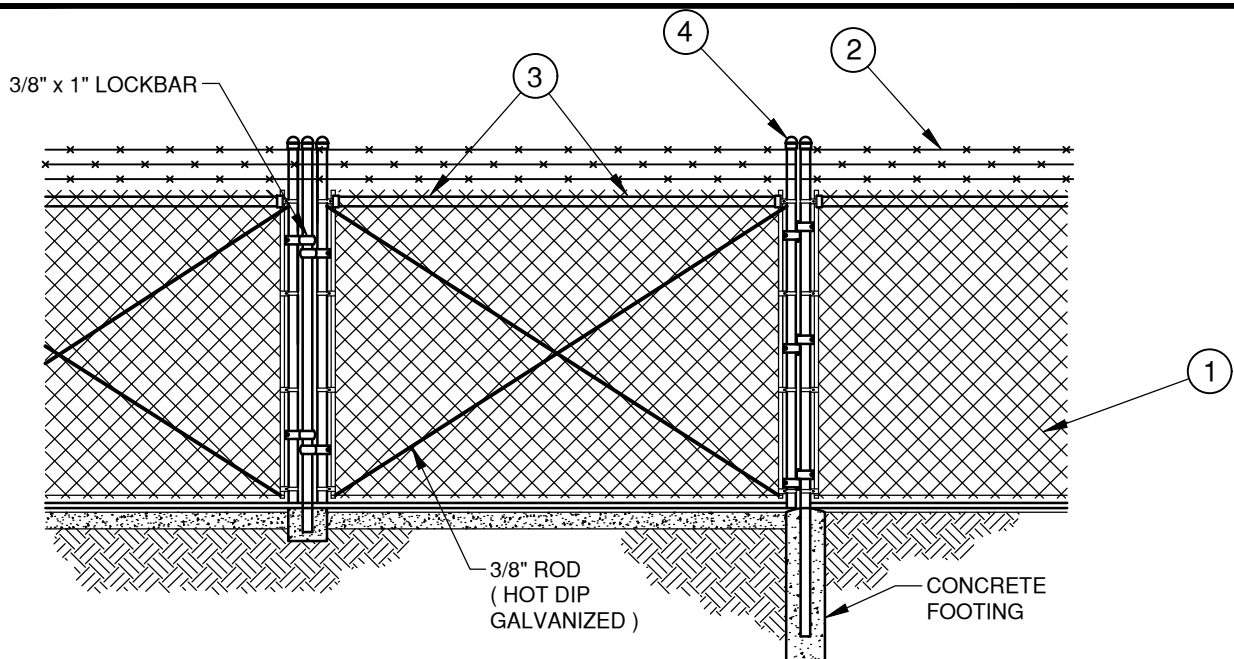
APPROVED:  5/16/19		 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
District Engineer	Date		DWG. NUMBER
5/16/2019		PROJECT INFORMATION SIGN	W-36
Latest Revision Date			

**PROJECT INFORMATION SIGN**

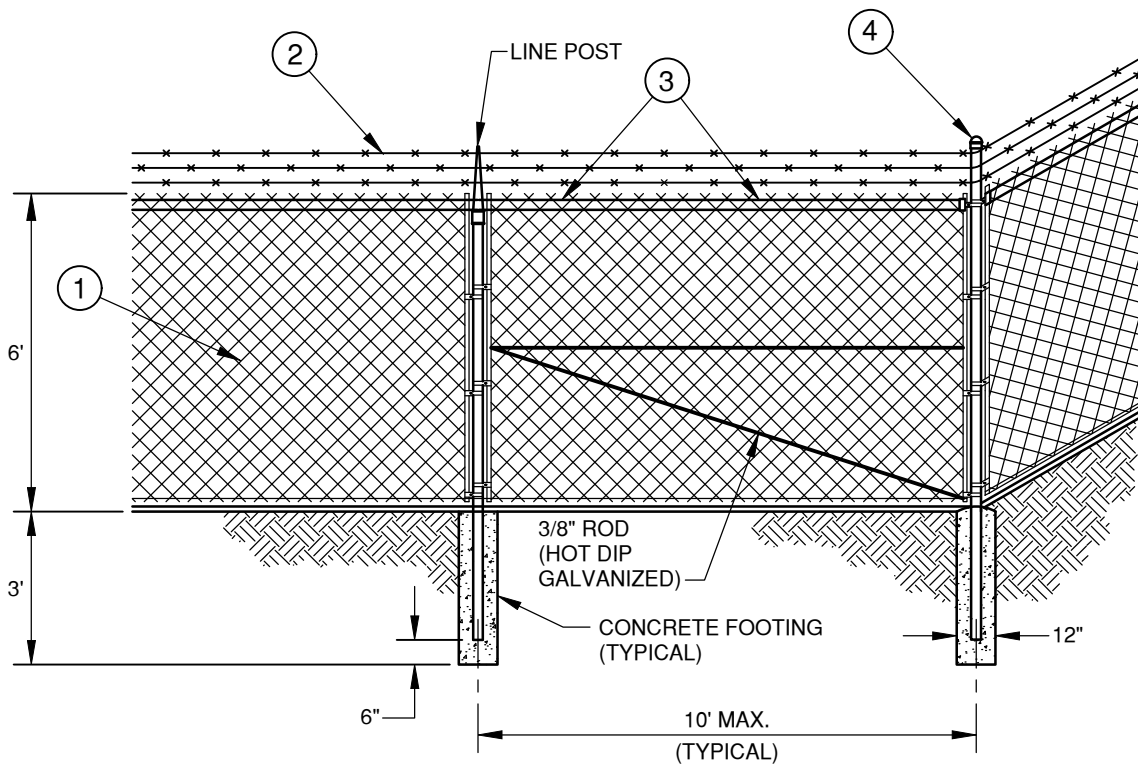


NO.	DESCRIPTION	NO.	DESCRIPTION
1	2" STEEL PIPE OR SQUARE STOCK SCH. 20 OR 40	4	HINGES MUST OPERATE FREELY
2	3" STEEL POST	5	1/2" REBAR THROUGH POST
3	CHAIN WITH DISTRICT & PROPERTY OWNER'S LOCK	6	NOT USED

<b>APPROVED:</b>  5/16/19 District Engineer Date		 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING		NOT TO SCALE
5/16/2019 Latest Revision Date		<b>TYPICAL PIPE GATE</b>		DWG. NUMBER <b>W-37</b>



GATE



NO.	DESCRIPTION	NO.	DESCRIPTION
1	CHAIN LINK FABRIC 9 GAUGE	3	SCHEDULE 20, 2 3/8" GALV POST
2	BARBED WIRE, HT. MIN. 7', (4PT 12 GAUGE)	4	SCHEDULE 20, 2 7/8" GALV POST

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



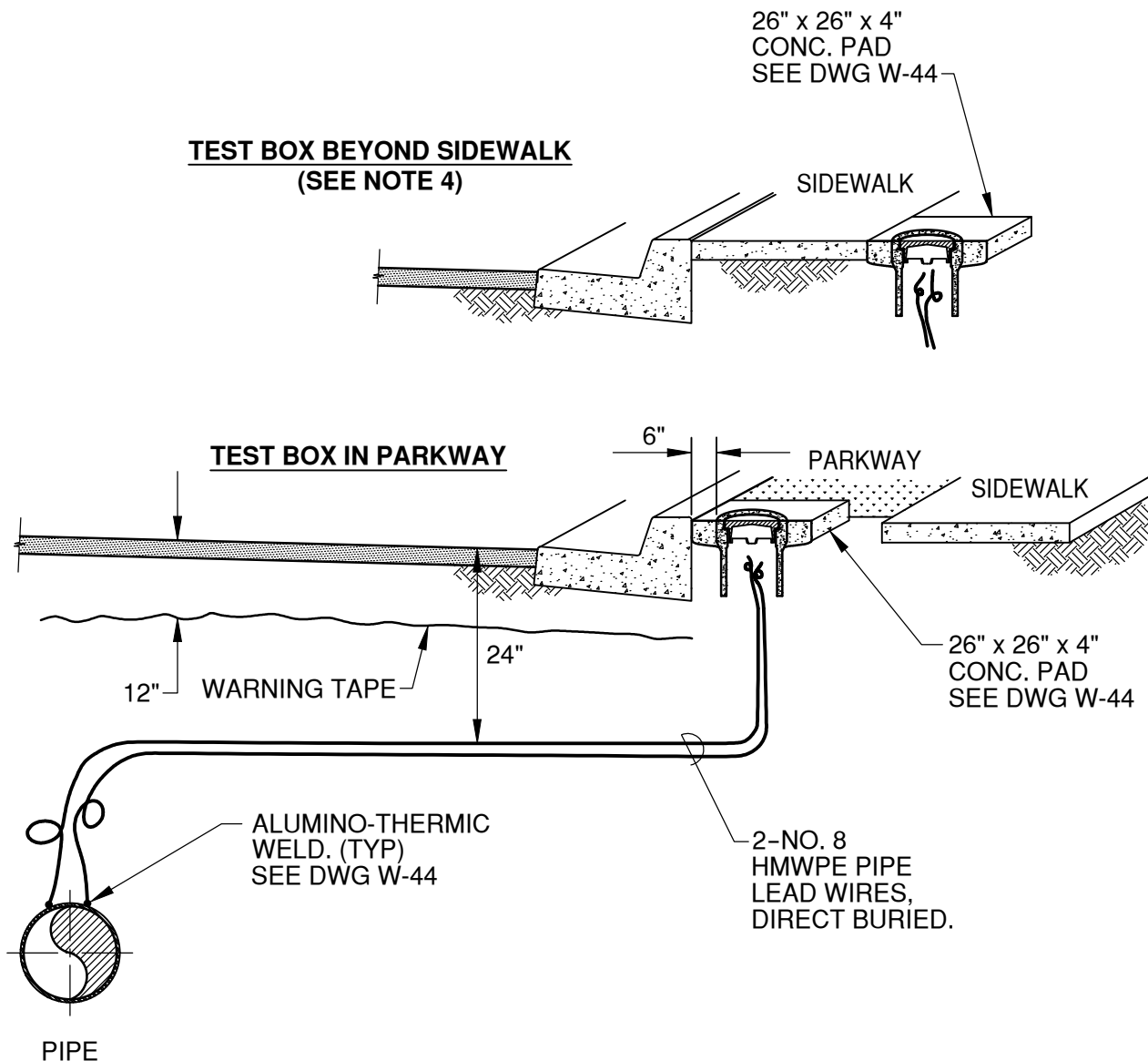
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

## CHAIN LINK FENCE DETAILS

NOT TO SCALE

DWG. NUMBER

**W-38**



#### NOTES:

1. PROVIDE 18" SLACK WIRE AT WELD AND COILED IN TEST BOX.
2. WIRE TRENCH SHALL BE 24" DEEP MIN. PLACE 3" OF SAND OR D.G. BEDDING IN TRENCH BEFORE PLACING WIRES. COVER WIRES WITH 6" OF SAND OR D.G. COMPACT WIRE TRENCH FILL PER VCMWD STANDARD.
3. USE 6" WIDE, 4 MIL THICK INERT PLASTIC TAPE PRINTED WITH "CAUTION: CATHODIC PROTECTION CABLE BELOW". PLACE 12" BELOW GRADE.
4. TEST BOX TO BE PLACED BEHIND CURB IN SIDEWALK, BEYOND EDGE OF SIDEWALK, OR IN PLANTER AS SHOWN PER ENGINEER'S DIRECTION. IF NO CURB EXISTS, LOCATE TEST BOX JUST OFF PAVED SURFACE. IN UNPAVED AREAS OR PARKING LOTS, LOCATE TEST BOX OVER PIPE BUT NOT DIRECTLY IN PARKING SPACE. (SEE DWG W-40)

APPROVED:

*Wally P. J.* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

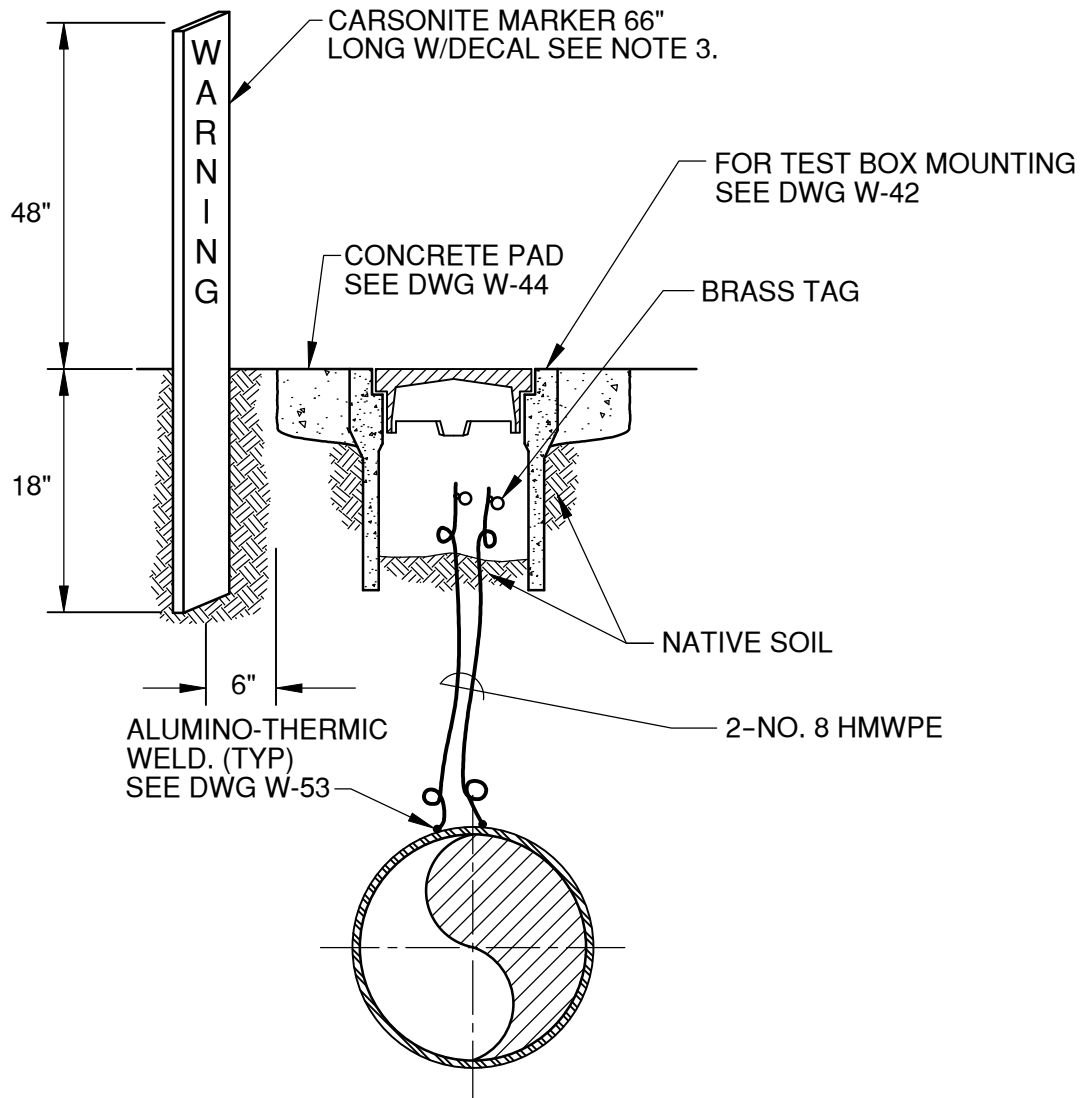
**2 - WIRE TEST STATION  
(PAVED STREET)**

NOT TO SCALE

DWG. NUMBER

**W-39**





#### NOTES:

1. PROVIDE 18" SLACK WIRE AT WELD AND COILED IN TEST BOX.
2. WIRE TRENCH SHALL BE 24" DEEP MIN. PLACE 3" OF SAND OR D.G. BEDDING IN TRENCH BEFORE PLACING WIRES. COVER WIRES WITH 6" OF SAND OR D.G. COMPACT WIRE TRENCH FILL PER VCMWD STANDARD.
3. USE 6" WIDE, 4 MIL THICK INERT PLASTIC TAPE PRINTED WITH "CAUTION: CATHODIC PROTECTION CABLE BELOW". PLACE 12" BELOW GRADE.
4. TEST BOX TO BE PLACED BEHIND CURB IN SIDEWALK, BEYOND EDGE OF SIDEWALK, OR IN PLANTER AS SHOWN PER ENGINEER'S DIRECTION. IF NO CURB EXISTS, LOCATE TEST BOX JUST OFF PAVED SURFACE. IN UNPAVED AREAS OR PARKING LOTS, LOCATE TEST BOX OVER PIPE BUT NOT DIRECTLY IN PARKING SPACE.
5. PLACE TEST STATION DIRECTLY OVER PIPE IF POSSIBLE.
6. CARSONITE MODEL R-845, YELLOW WITH BLACK CHARACTERS WITH "VALLEY CENTER MUNICIPAL WATER DISTRICT, UNDERGROUND CABLES, WARNING, BEFORE DIGGING CALL (760) 735-4500."

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**2 - WIRE TEST STATION  
(UNPAVED AREA)**

NOT TO SCALE

DWG. NUMBER

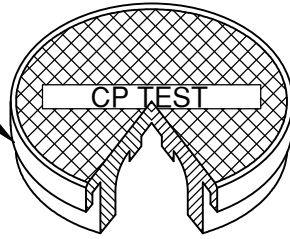
**W-40**



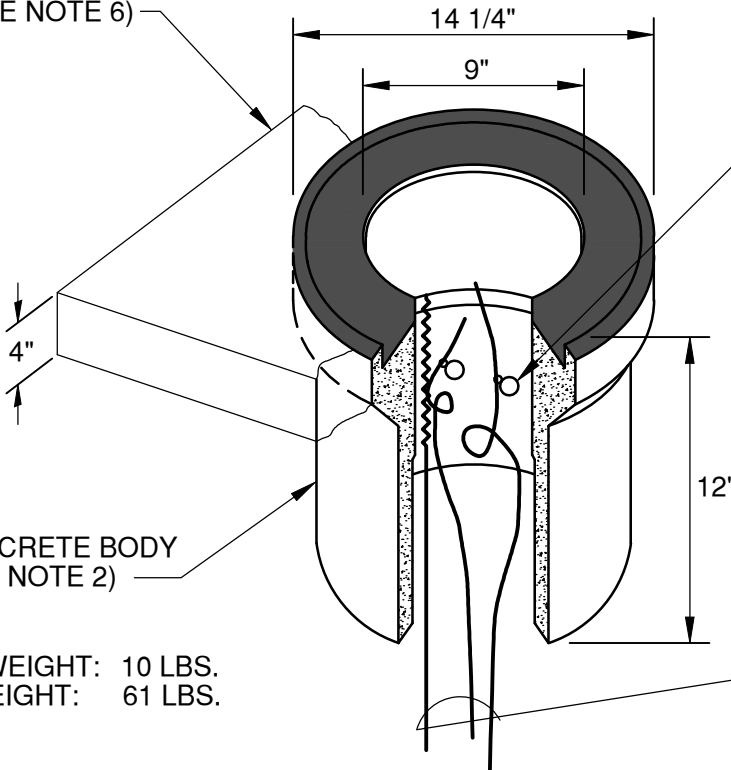
1. INSTALL TEST STATION OVER PIPE IF POSSIBLE. OFFSET POST AS NECESSARY TO PLACE IN PROTECTED AREA AND PUT OF TRAFFIC LANES, BUT NOT OUTSIDE RIGHT OF WAY.
2. FOUR-WIRE TEST STATION SHOWN IS APPLICABLE TO CASING AND INSULATING FLANGE TEST STATIONS (SEE W-43 AND W-45). TWO WIRE TEST STATIONS SIMILAR.
3. EACH WIRE SHALL BE IDENTIFIED WITH A DYMO LABEL AFFIXED TO THE MICARTA PANEL. LABEL WILL IDENTIFY VCMWD, SIZE, MAT'L AND SERVICE (I.E. VCMWD, 14", CML&C, W)

**W-41**

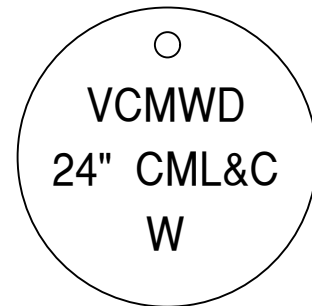
CAST IRON TRAFFIC  
COVER MARKED  
"CP TEST" OR "TRACER"



CONCRETE PAD  
(SEE NOTE 6)



BRASS TAGS 1 1/2"  
DIA. WITH 1/8" HOLE.  
STAMP WITH "VCMWD,  
SIZE, MAT'L, SERVICE"



CONCRETE BODY  
(SEE NOTE 2)

COVER WEIGHT: 10 LBS.  
BODY WEIGHT: 61 LBS.

2-NO. 8 AWG HMWPE  
TEST LEADS AND/OR 1 NO. 8  
AWG HMWPE TRACER WIRE

#### NOTES:

1. SEE DWG W-39 FOR PLACEMENT OF TEST BOX ON PAVED STREETS AND W-40 FOR PLACEMENT IN UNPAVED AREAS.
2. CONCRETE BODY, RATED FOR OCCASIONAL VEHICLE TRAFFIC.
3. ALL WIRES SHALL HAVE 24" MIN. SLACK IN BOX.
4. BOTTOM OF TEST BOX SHALL BE NATIVE SOIL. DO NOT PLACE ROCK, GRAVEL OR SAND IN TEST BOX.
5. FIRMLY STAMP BRASS TAGS (1 1/2" DIA WITH 1/16" DIA. HOLE) "VCMWD, SIZE AND SERVICE" (EXAMPLE: VCMWD, 24" W). USE 1/4" HIGH CHARACTERS. SECURELY ATTACH BRASS TAGS TO TEST LEADS WITH BARE NO. 14 COPPER WIRE.
6. PROVIDE 26" x 26" x 4" THICK CONCRETE PAD AROUND TEST BOXES AT UNPAVED SITES. CONCRETE SHALL BE 560-C-3250.

APPROVED:

*Wally G. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



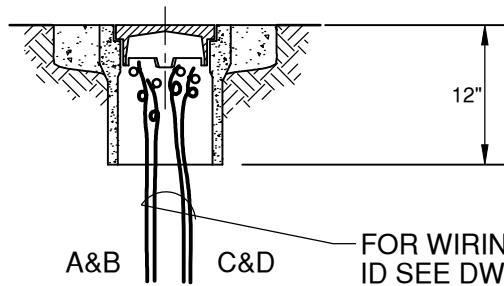
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**AT GRADE TEST BOX**

NOT TO SCALE

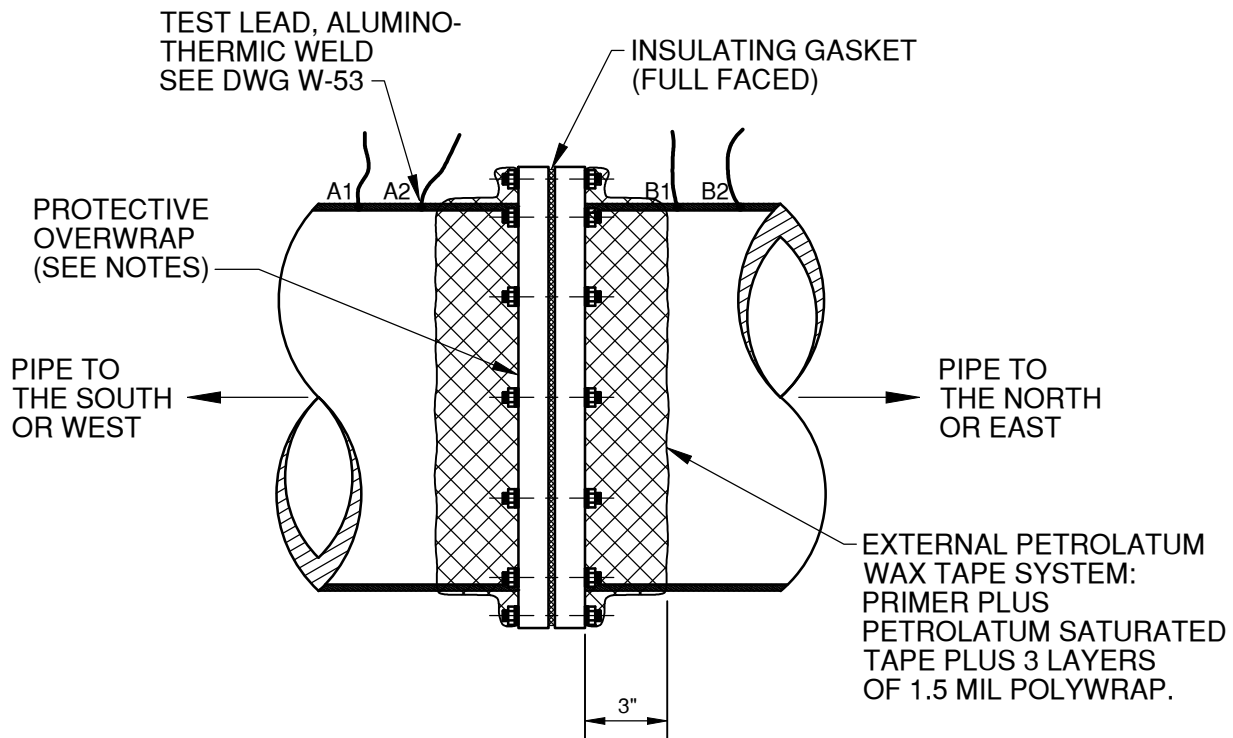
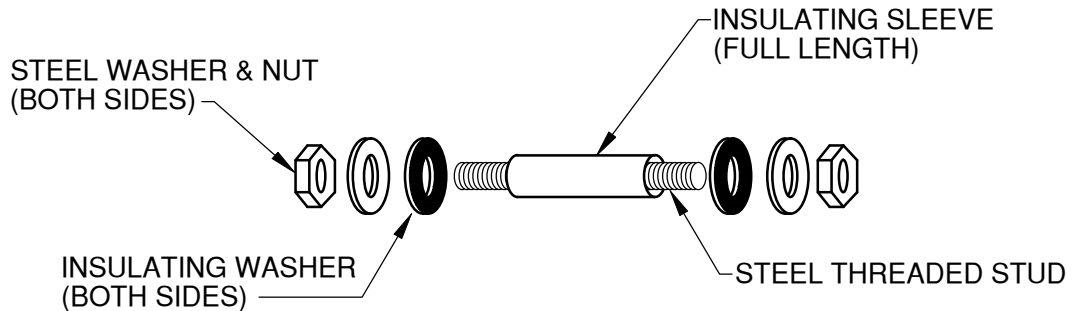
DWG. NUMBER

**W-42**



**INSULATING MATERIALS:**

SEE DRAWING W-46



**NOTES:**

1. CARE SHALL BE TAKEN WHEN BACKFILLING TRENCH TO PREVENT DAMAGE TO WAX TAPE SYSTEM.
2. FLANGES 18" AND LARGER SHALL BE OVERWRAPPED WITH 10 MIL TAPE (2 LAYERS 50% OVERLAP) TO PROTECT WAX TAPE DURING BACKFILLING.
3. FLANGES LESS THAN 18" REQUIRE NO PIPE TAPE PROTECTIVE OVERWRAP.
4. NO TEST LEADS OR TEST STATIONS ARE REQUIRED AT BLOW-OFF INSULATORS.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



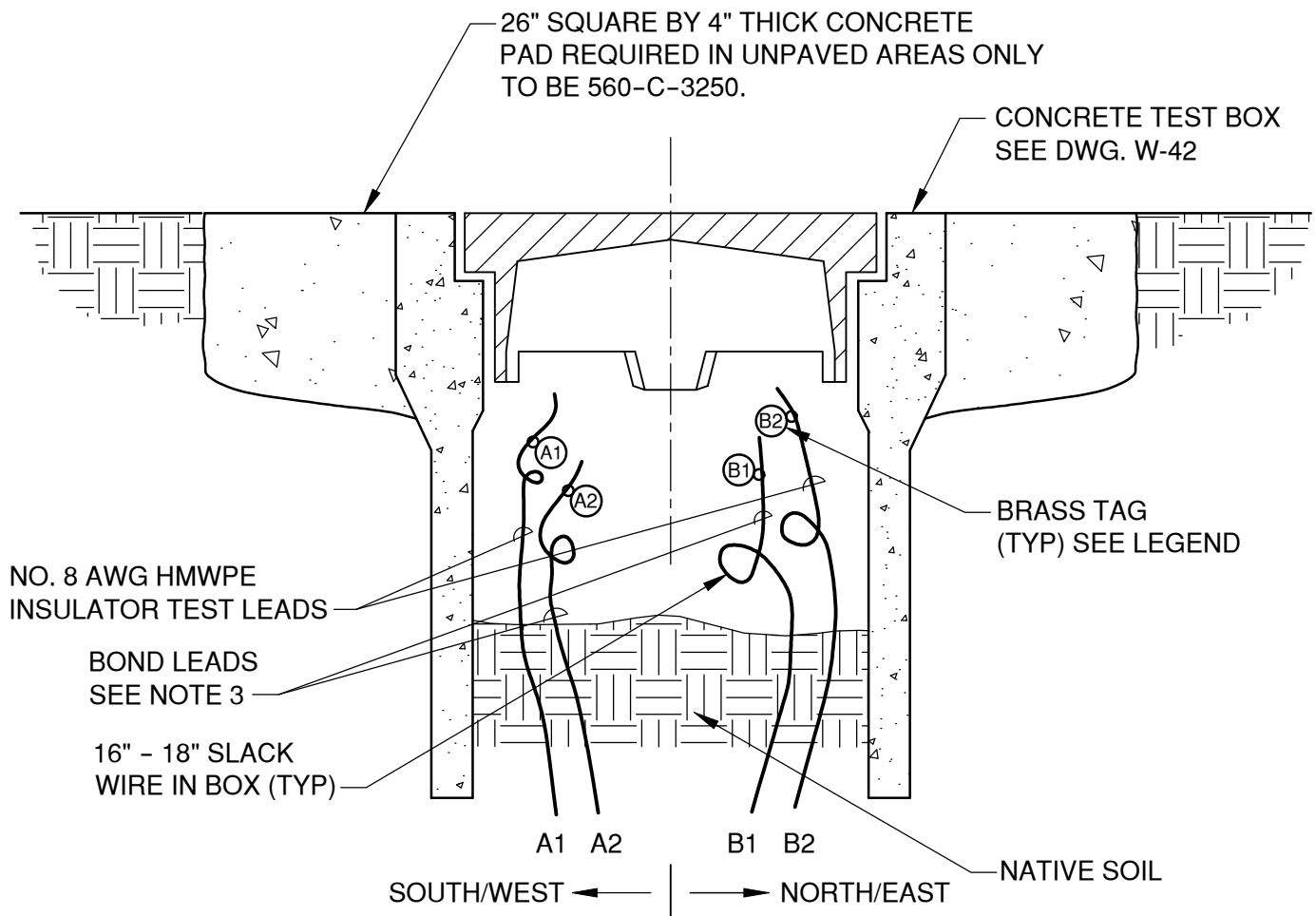
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**BURIED INSULATING FLANGE**

NOT TO SCALE

DWG. NUMBER

**W-43**



### **BRASS TAG LEGEND**

<b><u>WIRE</u></b>	<b><u>SIZE</u></b>	<b><u>ID STAMP</u></b>
A1	NO. 8	"VCMWD, SIZE, MAT'L, SERVICE, SO. OR WT"
A2	SEE NOTE 3	"VCMWD, SIZE, MAT'L, SERVICE, SO. OR WT"
B1	SEE NOTE 3	"VCMWD, SIZE, MAT'L, SERVICE, SO. OR ET"
B2	NO. 8	"VCMWD, SIZE, MAT'L, SERVICE, SO. OR ET"

EXAMPLE: "VCMWD 42" W-ET"

### **NOTES:**

- SEE DWG. W-39 FOR PLACEMENT OF TEST BOX.
- SEE DWG. W-42 FOR MOUNTING AND BRASS ID TAG REQUIREMENTS.
- SECOND WIRE (A2 & B1) ON EACH SIDE OF INSULATOR IS SIZED FOR POSSIBLE FUTURE BOND AS FOLLOWS:

<b><u>WIRE</u></b>	<b><u>PIPE DIA</u></b>	<b><u>SIZE</u></b>
A1 & B1	LESS THAN 12"	NO. 6 AWG HMWPE
	12" TO 18"	NO. 4 AWG HMWPE
	GREATER THAN 18"	NO. 2 AWG HMWPE

APPROVED:

*Wally P. J. 5/16/19*

District Engineer

Date

5/16/2019

Latest Revision Date



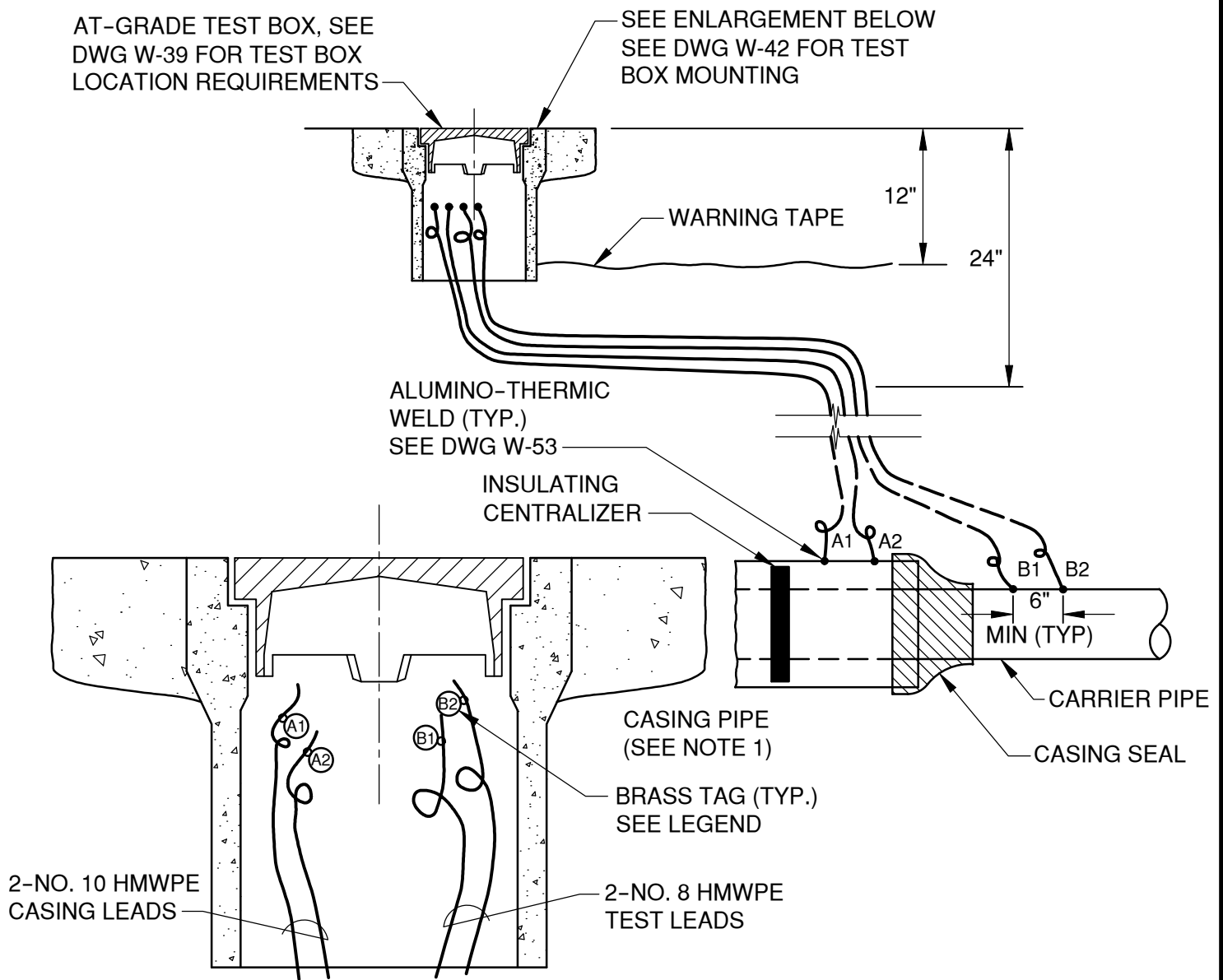
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**BURIED INSULATING FLANGE  
AT - GRADE TEST STATION**

NOT TO SCALE

DWG. NUMBER

**W-44**



### BRASS TAG LEGEND

WIRE	SIZE	ID STAMP
A1	NO. 10	CASING
A2	NO. 10	CASING
B1	NO. 8	VCMWD, SIZE, SERVICE
B2	NO. 8	VCMWD, SIZE, SERVICE

### NOTES:

- ELECTRICAL/METALLIC INSULATION BETWEEN THE CASING AND THE CARRIER PIPE IS REQUIRED.
- PROVIDE 18" SLACK LOOP IN EACH WIRE AT PIPE/CASING WELD AND IN TEST BOX.

APPROVED:

*Wally P. S.* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



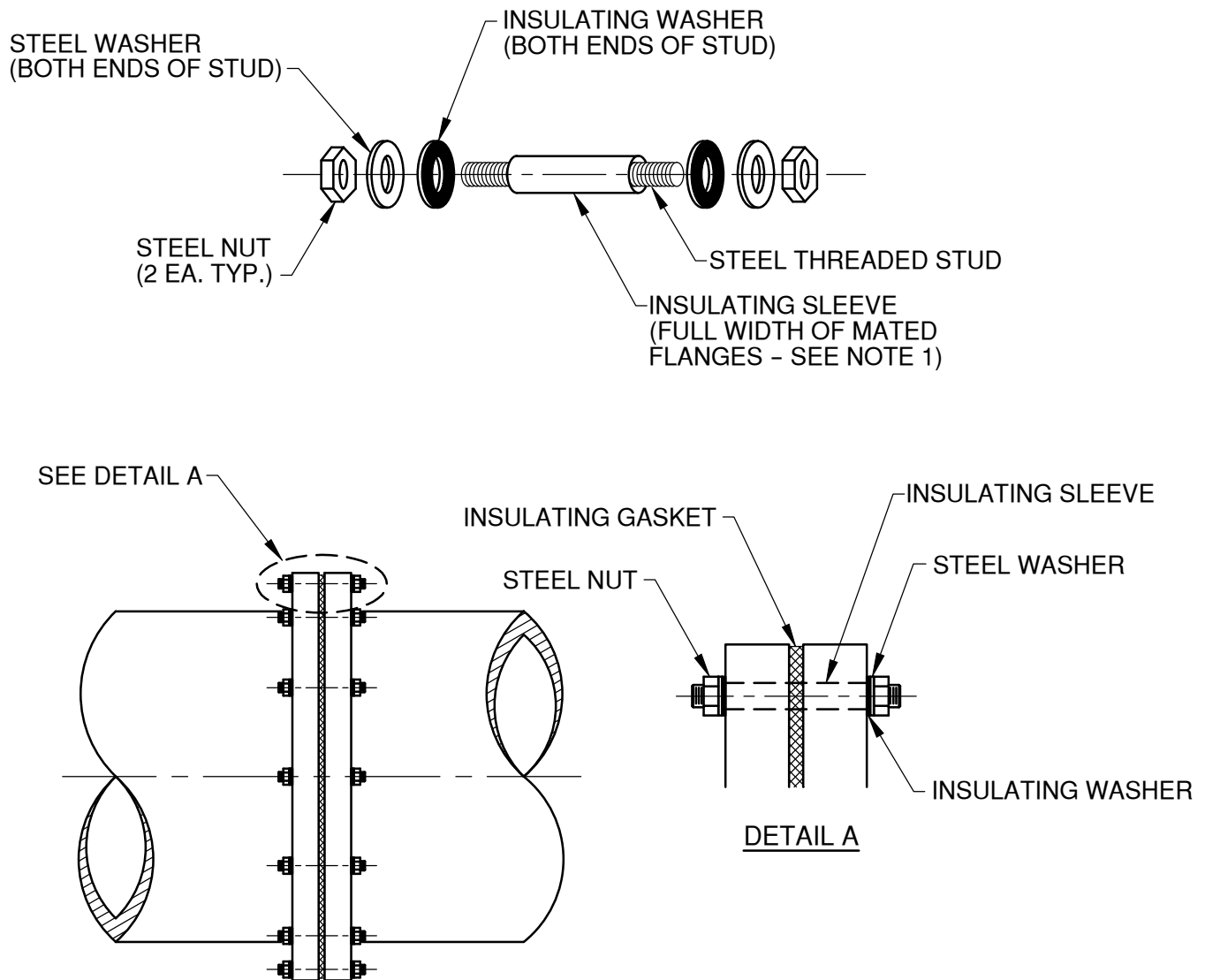
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**4 - WIRE CASING TEST STATION**

NOT TO SCALE

DWG. NUMBER

**W-45**



#### NOTES:

1. USE HALF WIDTH SLEEVES AT THREADED FLANGE BOLTS. (I.E. AT BFV BASE AND BONNET)
2. INSULATING MATERIALS:
  - GASKET - 16" OR GREATER - TYPE "E" FULLFACED PHENOLIC WITH RECTANGULAR NITRILE OR VITON O-RING SEAL.
  - LESS THAN 16" - TYPE "E" FULLFACED NEOPRENE FACED PHENOLIC.
  - SLEEVE - 1/32" THICK, FULL LENGTH TUBE, LAMINATED G-10 GLASS
  - WASHER - 1/8" THICK LAMINATED G-10 GLASS SHEET.
3. ALIGN FLANGE PROPERLY AND FOLLOW GASKET MANUFACTURER BOLT TIGHTENING SEQUENCE INSTRUCTIONS.
4. DO NOT PAINT OUTER SURFACE OF FLANGE WITH METALLIC PIGMENTED OR CONDUCTIVE PAINTS.
5. TEST MATED FLANGE WITH INSULATION CHECKER. THE FLANGE WILL BE ACCEPTED IF THERE IS NO INDICATION OF FULL OR PARTIAL SHORT.

APPROVED:

*Wally P. J.* 5/16/19

District Engineer

Date

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STANDARD DRAWING

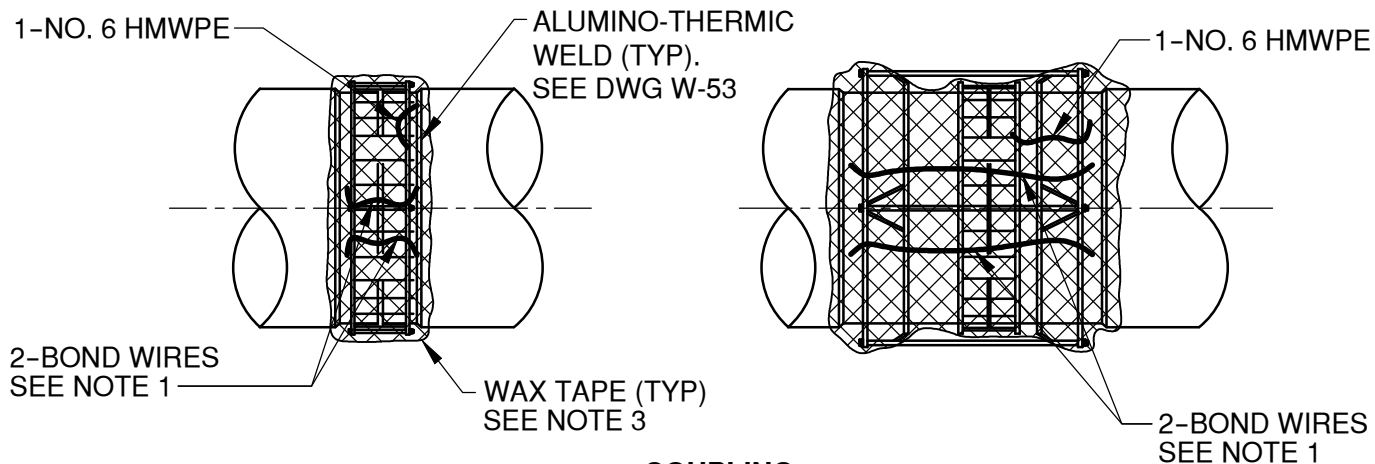
## **ABOVE - GRADE INSULATING FLANGE**

NOT TO SCALE

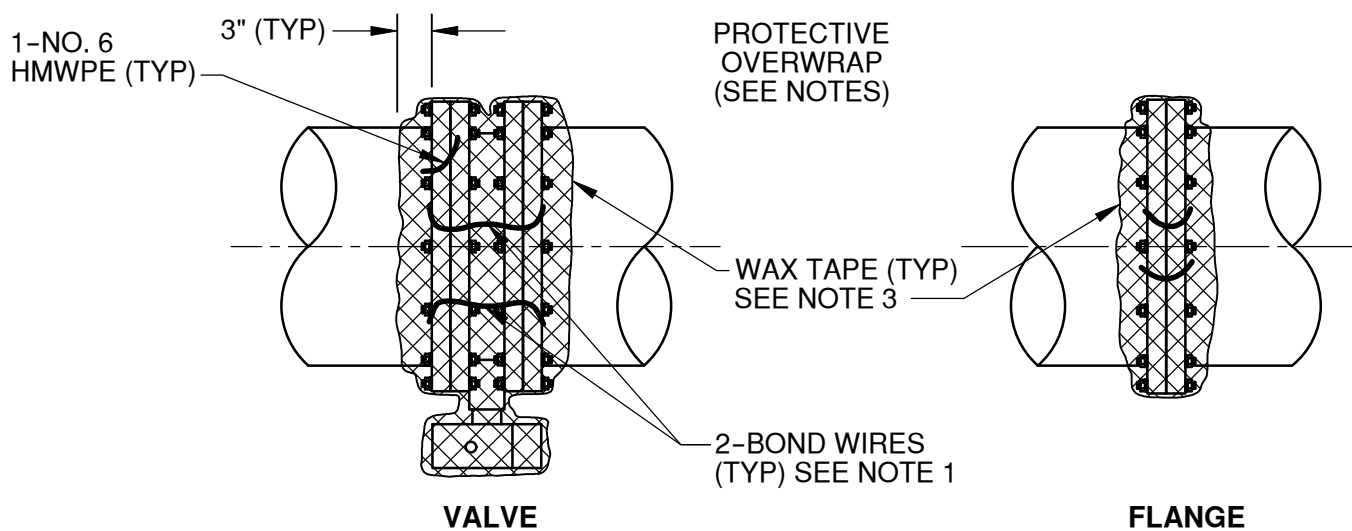
DWG. NUMBER

**W-46**





### COUPLING



### VALVE

### FLANGE

### NOTES:

1. BOND WIRE SIZE:  

PIPE DIA	SIZE
LESS THAN 12"	NO. 6 AWG HMWPE
12" THRU 18"	NO. 4 AWG HMWPE
GREATER THAN 18"	NO. 2 AWG HMWPE
2. WIRES CAN BE WELDED DIRECTLY TO PIPE OR FLANGE. JUMPER FROM PIPE TO VALVE OR FOLLOWER IS NO. 6 HMWPE.
3. ALL NON-MORTAR COATED SURFACES SHALL BE WRAPPED WITH WAX TAPE. INDIVIDUALLY WRAP ALL RODS, BOLTS & IRREGULAR SURFACES.
4. INSTALL BOND WIRES BEFORE WAX TAPE.
5. CARE SHALL BE TAKEN WHEN BACKFILLING TRENCH TO PREVENT DAMAGE TO WAX TAPE SYSTEM.
6. FLANGES (ONLY) 18" AND LARGER SHALL BE OVERWRAPPED WITH 10 MIL PIPE TAPE (2 LAYERS 50% OVERLAP) TO PROTECT WAX TAPE DURING BACKFILLING.
7. FLANGES LESS THAN 18" REQUIRE NO PIPE TAPE PROTECTIVE OVERWRAP.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



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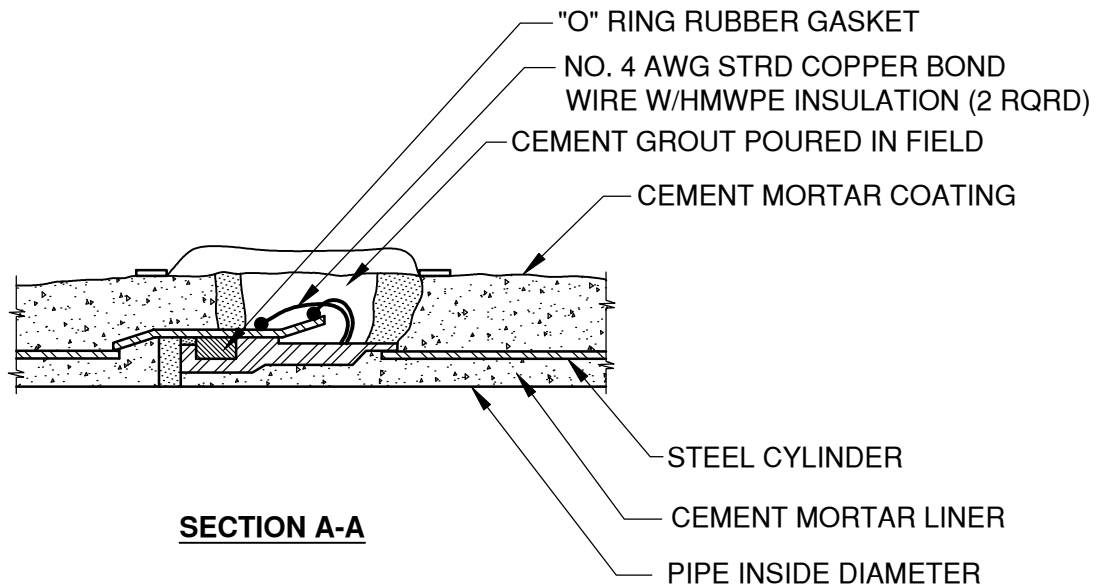
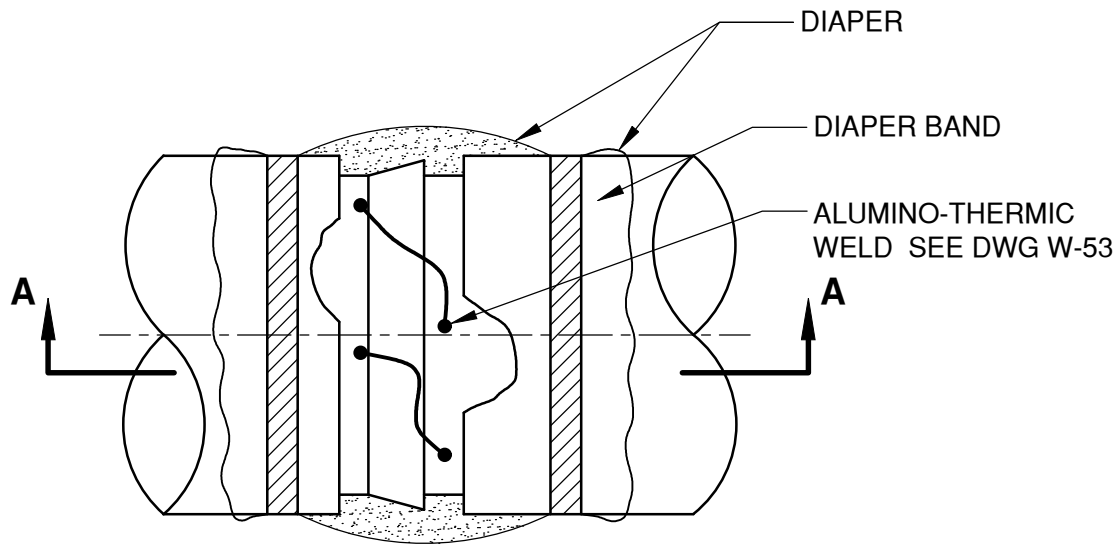
## **MECHANICAL JOINT BOND**

NOT TO SCALE

DWG. NUMBER

**W-47**





**SECTION A-A**

**NOTES:**

1. 2 BOND WIRES PER JOINT. SEE DWG W-46 FOR WIRE SIZE.
2. CHIP OUT MORTAR ONLY AS NECESSARY TO ALLOW WELD MOLD TO SET FLUSH ON CYLINDER OR BELL.
3. BOND WIRES TO BE AS SHORT AS PRACTICAL BUT NOT LESS THAN 6 INCHES.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

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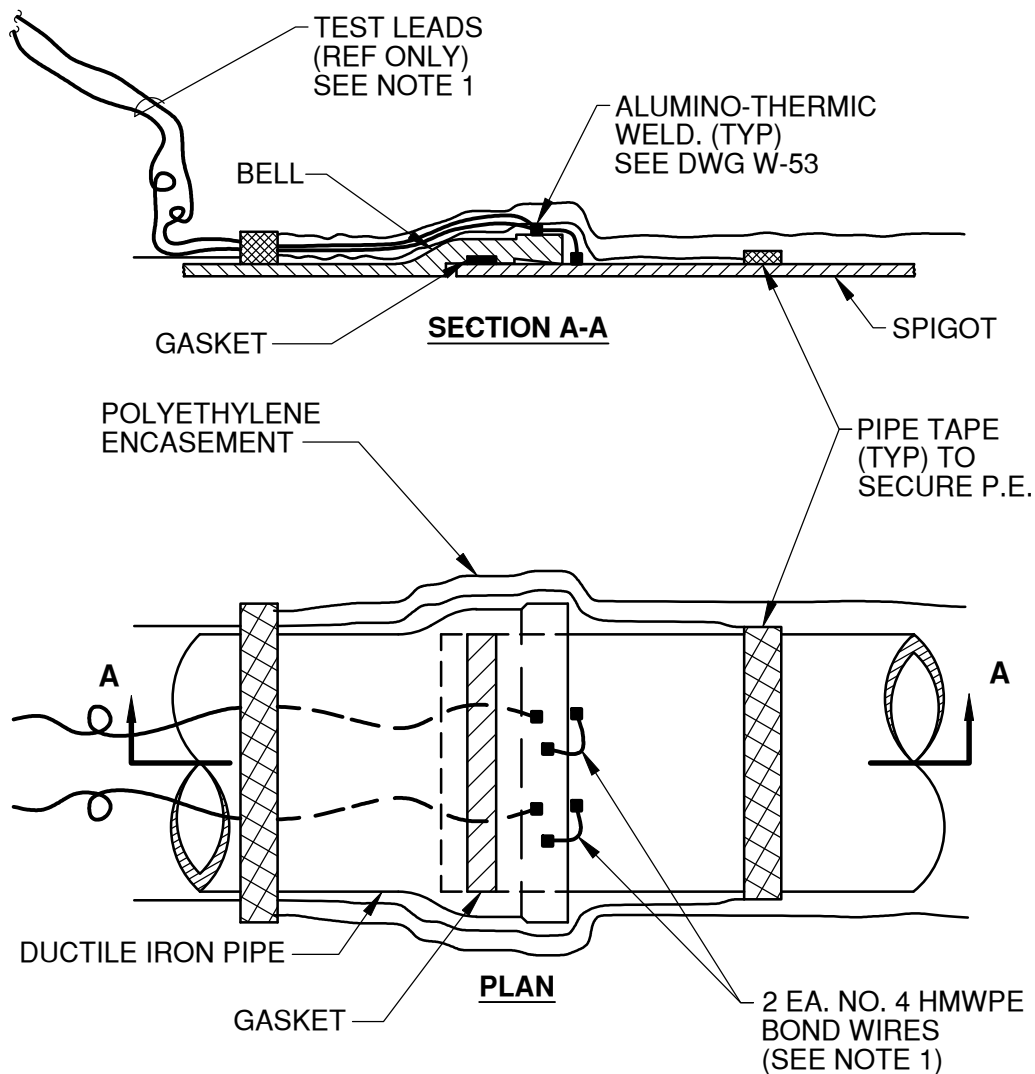
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**CML&C STEEL PIPE  
JOINT BOND (WIRE JUMPER)**

NOT TO SCALE

DWG. NUMBER

**W-48**



**NOTES:**

1. INSTALL BONDS AND TEST LEADS ONLY WHEN DIRECTED BY THE ENGINEER.
2. BOND WIRES SHALL BE OF MINIMUM LENGTH (6" MAX LENGTH) AND LAID FLUSH AGAINST PIPE AND UNDER P.E. ENCASEMENT.
3. TEST ALL WELDS BEFORE BACKFILLING. SEE DWG W-53.
4. WELDS ON BELL MUST BE MADE IN AN AREA BETWEEN THE END OF THE PIPE AND THE JOINT GASKET.
5. COAT WELDS PER DWG W-53.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



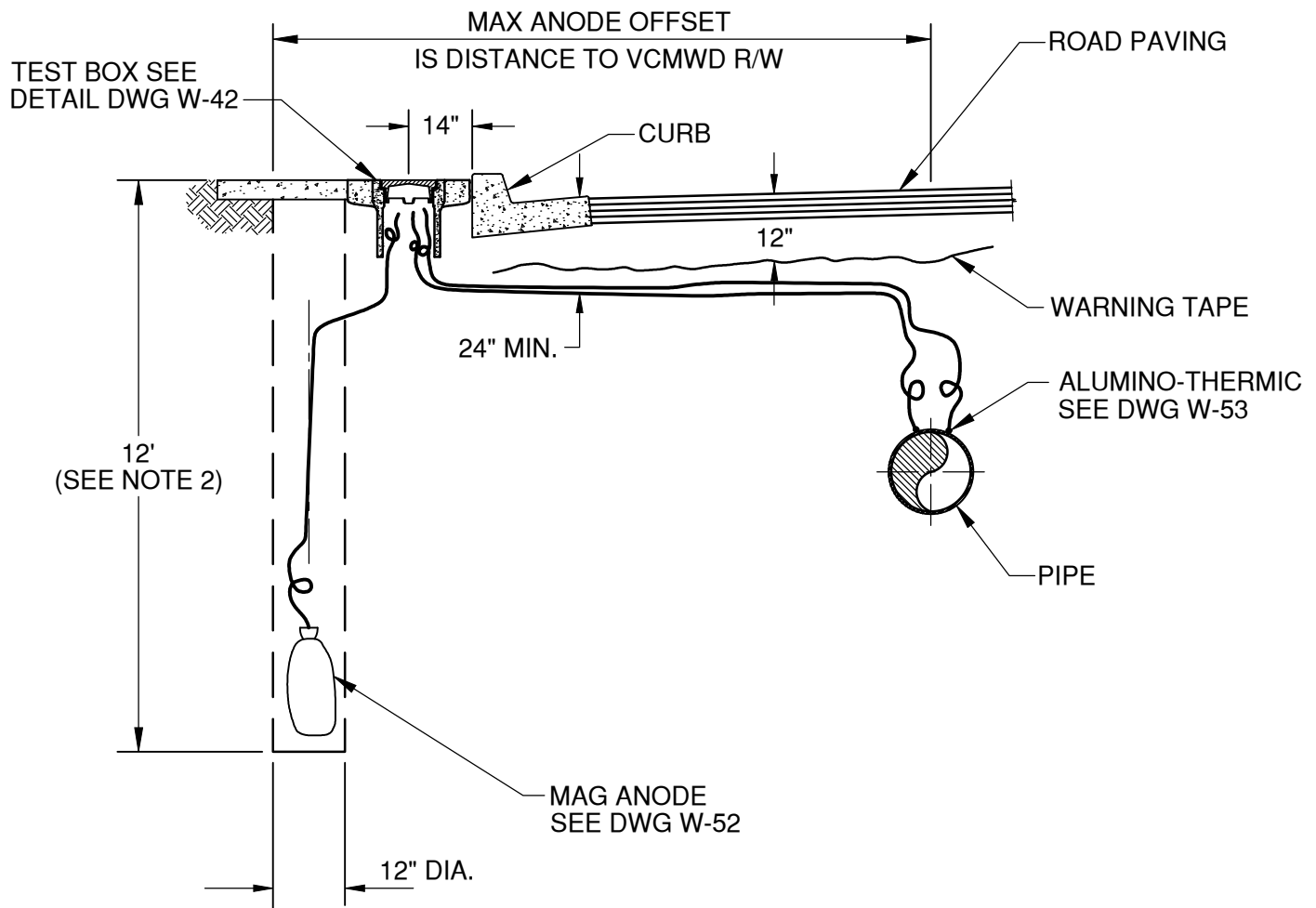
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**DIP JOINT BONDING  
AND TEST LEAD CONNECTIONS**

NOT TO SCALE

DWG. NUMBER

**W-49**



#### NOTES:

1. HORIZONTAL DISTANCES OFF PIPE SHALL BE MAXIMUM WITHIN VCMWD RIGHT-OF-WAY OR AS INDICATED ON PLAN DRAWINGS. DO NOT INSTALL ANODE SUCH THAT A FOREIGN METALLIC PIPELINE EXISTS BETWEEN ANODE AND PIPE.
2. DEPTH IS 12' UNLESS OTHERWISE INDICATED.
3. RELATIVE POSITION OF ANODE, PIPE AND TEST BOX CAN VARY FROM POSITION SHOWN. SEE CP DRAWINGS OR ENGINEER FOR SPECIFIC INSTALLATION REQUIREMENTS.
4. CATHODIC PROTECTION PLAN MUST BE TURNED INTO THE DISTRICT FOR REVIEW AND APPROVAL.

APPROVED:

*Wally G. S.* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



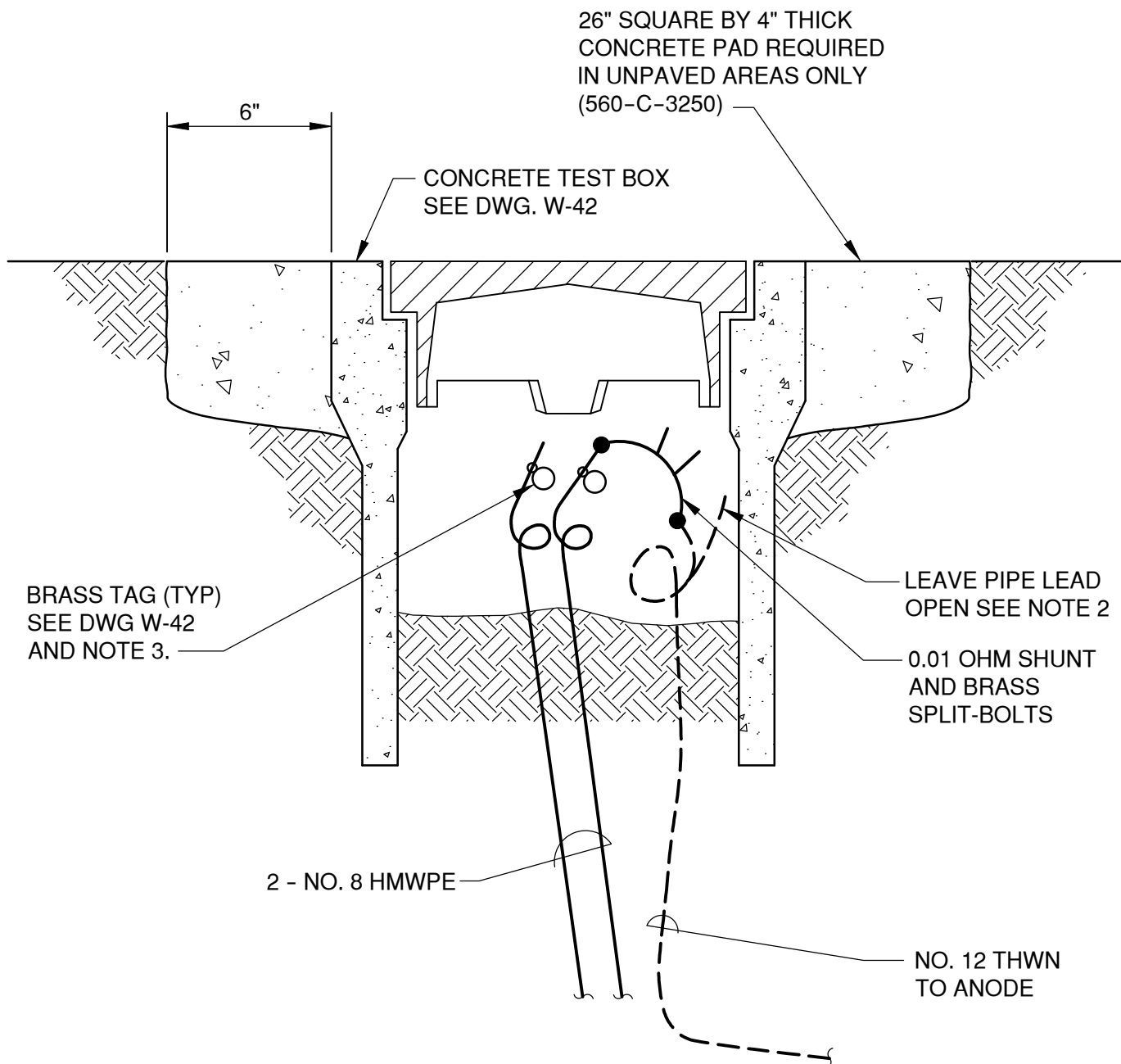
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

## SINGLE ANODE INSTALLATION

NOT TO SCALE

DWG. NUMBER

**W-50**



# **NOTES:**

1. INSTALL TEST BOX AS SHOWN ON DWG W-39 AND W-42.
2. CONTRACTOR TO PLACE ALL CONNECTION HARDWARE (SHUNTS AND SPLIT BOLTS) IN TEST BOX, BUT MAKE UP TEST LEAD-TO-SHUNT CONNECTION ONLY. ATTACH SPLIT BOLT TO OTHER END OF SHUNT, BUT LEAVE ANODE LEAD OPEN. FINAL CONNECTION TO BE MADE AT SYSTEM ACTIVATION.
3. ANODE LEADS ARE NOT TAGGED.

APPROVED:

*Wally P. J.* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



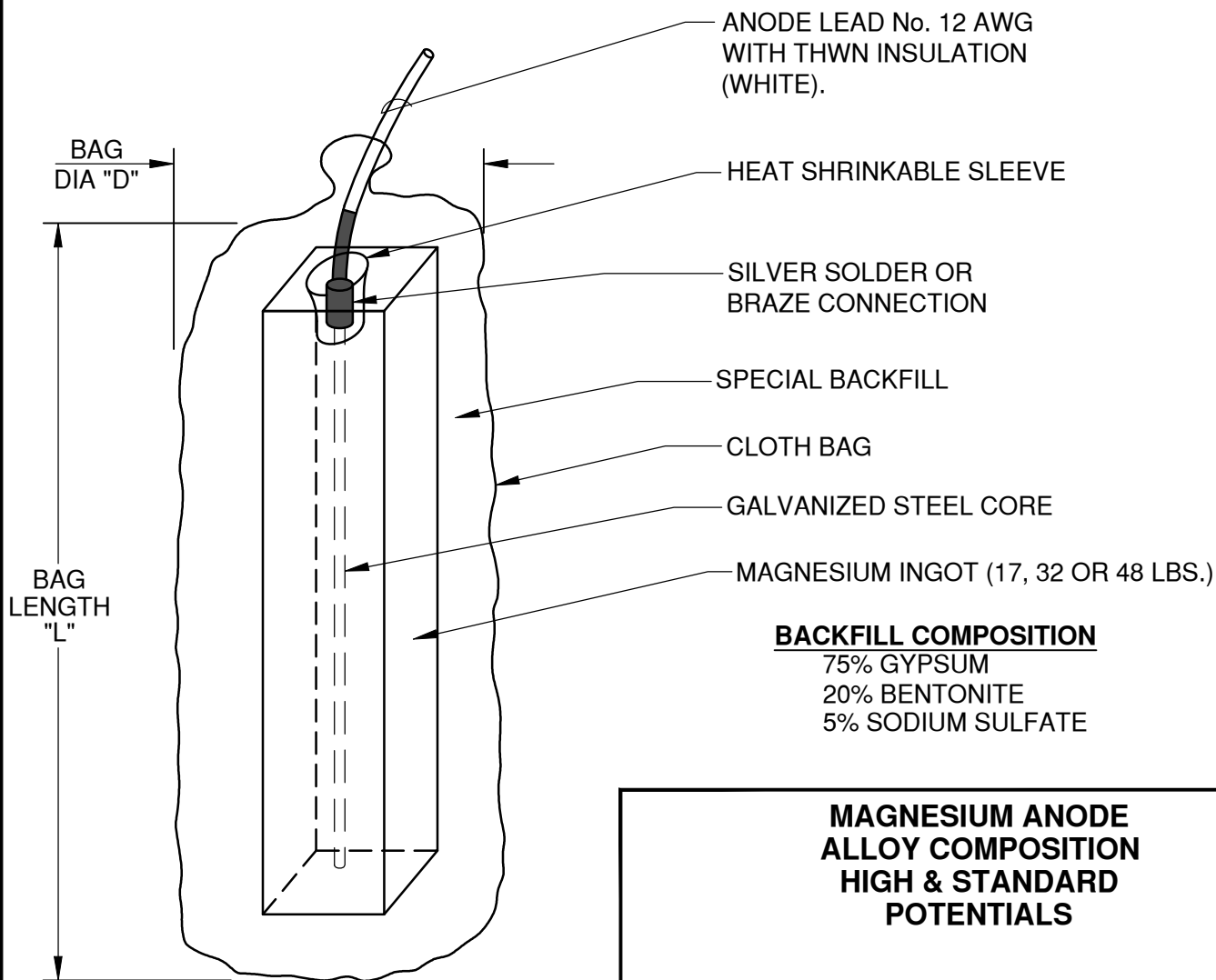
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

## **SINGLE ANODE TEST STATION WIRING**

NOT TO SCALE

DWG. NUMBER

**W-51**



#### **BACKFILL COMPOSITION**

75% GYPSUM  
20% BENTONITE  
5% SODIUM SULFATE

#### **MAGNESIUM ANODE ALLOY COMPOSITION HIGH & STANDARD POTENTIALS**

Element	HIGH POTENTIAL Weight %	STANDARD POTENTIAL Weight %
Al	.01 Max	5.3 to 6.7
Mn	0.05 to 1.3	0.15 to 0.30
Zn	0.002 Max	2.5 to 3.5
Cu	0.02 Max	0.02 Max
Ni	0.001 Max	0.002 Max
Fe	0.025 Max	0.003 Max
Si	0.002 Max	0.10 Max
Other	0.05 each Max and 0.3 Total Max	0.05 each Max and 0.3 Total Max
Mg	Balance	Balance

#### **NOTE:**

USE HIGH OR STD POTENTIAL ANODE ALLOY AND INGOT WEIGHT AS DIRECTED BY ENGINEER OR AS INDICATED IN THE DESIGN DRAWINGS.

INGOT WT	"D"	"L"	TOTAL WT
17	6-1/2	29	45
32	8-1/2	28	70
48	7-1/2	38	105

#### **NOTE:**

- APPROX DIMENSIONS AND WEIGHTS IN INCHES AND POUNDS.

APPROVED:

*Wally P. [Signature]* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



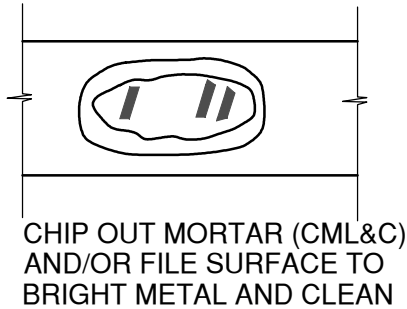
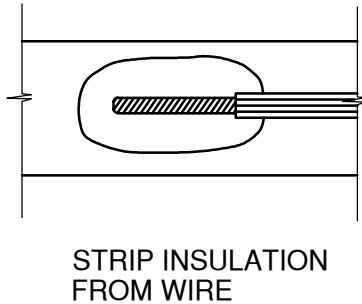
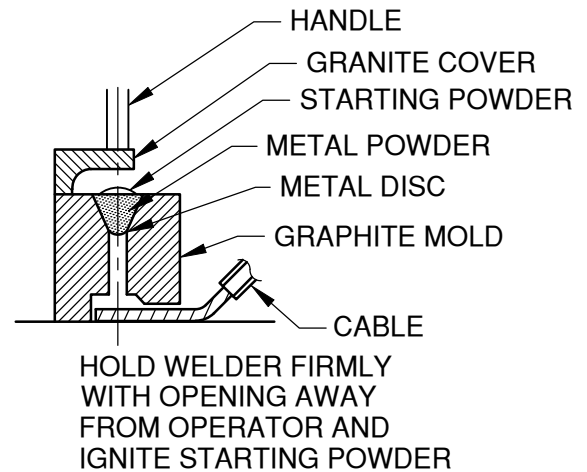
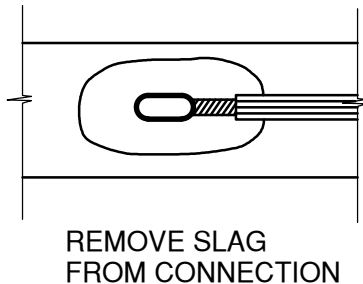
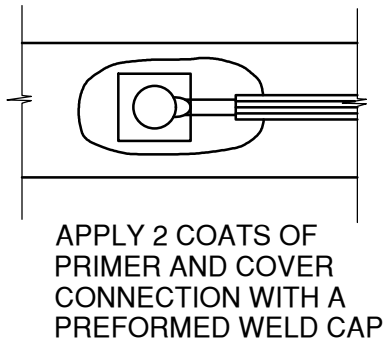
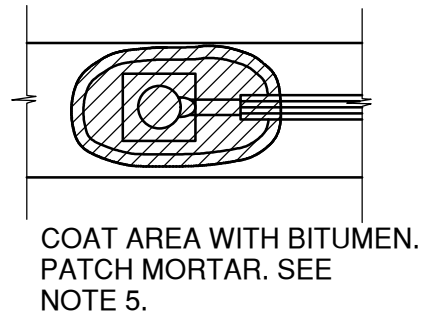
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**PREPACKAGED MAGNESIUM  
ANODE**

NOT TO SCALE

DWG. NUMBER

**W-52**

**STEP 1****STEP 2****STEP 3****STEP 4****STEP 5****STEP 6****NOTES:**

1. WELDER SHOWN IS FOR HORIZONTAL SURFACES. FOR VERTICAL SURFACES SIDE WELDER IS REQUIRED.
2. ALL WIRE WELDS SHALL BE 3 INCHES APART, MINIMUM.
3. STANDARD WELD CARTRIDGES SHALL BE USED FOR DUCTILE IRON AND STEEL SURFACE. FOR CAST IRON, USE XF-19 ALLOY OR EQUIVALENT.
4. TEST ALL WELDS BY STRIKING WITH 2 LB. HAMMER.
5. ALL EXPOSED METAL (STRUCTURE, WIRE & WELD) SHALL BE COVERED WITH 2 COATS OF PRIMER AND AN ELASTOMETRIC WELD CAP.
6. APPLY GENEROUS COAT OF BITUMEN OVER WELD CAP AND EXPOSED METAL AREA UP TO EDGE OF MORTAR (CML&C) OR 3" BEYOND WELD CAP (DIP).
7. PATCH MORTAR COATING WITH QUICK SETTING MORTAR (CML&C).

APPROVED:

*Wally P. J.* 5/16/19

District Engineer

Date

5/16/2019

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VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**ALUMINO - THERMIC WELD**

NOT TO SCALE

DWG. NUMBER

**W-53**