

**VALLEY CENTER MUNICIPAL WATER DISTRICT**  
**APPROVED MATERIALS LIST**

*Last Update March 2020*

SIZE	DESCRIPTION	MANUFACTURER & MODEL NUMBER	NOTES
<b>CORPORATION STOPS</b>			
¾" and 1"	MIP x COMP Comp ball corp stop	Ford: FB 1100-Q-NL Series AY McDonald: 74704-BQ Jones E-1935SG Mueller B-25028-N	
1 ½" and 2"	MIP x FIP	Ford: FB 1700-7 AY McDonald: 73149-B	
<b>ANGLE METER STOPS</b>			
1"	CTS ball angle meter stop	Ford: BA43-44WQ AY McDonald: 74602-BQ	
1.5"	FIP x flg. ball angle meter stop*	Ford: BFA13-77W AY McDonald: 76101-MW	With elongated holes
2"	FIP x flg. ball angle meter stop*	Ford: BFA13-77W AY McDonald: 76101-MW	With elongated holes
<b>ADAPTERS</b>			
¾" and 1"	MIP x COMP adapter	Ford: C84-44QNL & C84-77QNL McDonald: 74753Q Jones E-2605SG	No lead
1 ½", 2", 3"	MIP x SWT		
3" and up	Companion Flg x FIP		
4" and up	MJ x FLG adapter	Star Tyler	Transition from flange to plain end DIP or PVC
<b>SADDLES</b>			
1", 2", 3" IPT outlet	ACP, DIP	Jones: J-979 McDonald: 3826	Bronze body w/bronze double straps, 250 psi rating

1", 2", 3" IPT outlet	PVC C900 & C909	250psi rating: Ford: 202BS, AY Mcdonald: 3846 150psi or less rating: Jones J-969	Saddle used based on design pressure of system.
<b>COUPLINGS</b>			
1" & below	COMP x COMP	Ford Jones AY	Used on copper tubing where shown or approved by District only
1 ½" & 2"	SWT X SWT		Used on copper where shown or approved by District only
1 ½" & 2"	FIP x FIP	Ford Jones AY	Used on brass nipples where shown only
4" & above	MJ x MJ barrel	Star Tyler	Join plain end DIP and PVC, using MJ glands, restrained where req'd
4" & above	Closure/repair/transition*	Romac: Alpha (restrained), Macro HP Smith Blair: 441 PowerSeal: 3506	ACP/DIP/PVC/Steel To be used only where shown or approved by district
4" & above	Deflection coupling	CertainTeed	Use per manf. Deflection limits
* Submittal Required			
<b>COPPER TUBING</b>			
1" & above	Type "K" soft	Cerro Cambridge-Lee Mueller	1" rolled tubing, 2" and above seamless straight
<b>SMALL FITTINGS</b>			
1" & below	45 & 90 ELL FIP X COMP		
1" & below	45 & 90 ELL COMP X COMP		
1½", 2", 3"	45 & 90 ELL SWT X SWT		
1"- 3"	Brass nipples	Varying lengths	As shown

<b>PLUG VALVES</b>			
3"	3" water service plug valve	Flowserve Nordstrom two bolt cover type	200psi rating
<b>GATE VALVES*</b>			
1" – 3"	Non rising stem, 125lb threads, single wedge, bronz hand wheel	Nibco	200psi rating
4" - 14"	All ductile iron body and bonnet, resilient wedge with factory epoxy with 316 SS or bronze stem, flanged ends. Holiday free.	AVK, Clow, Mueller, AFC	* AWWA C-515 * Mfr date within one year of installation 250PSI rating
*Submittal required			
<b>BUTTERFLY VALVES*</b>			
16" and larger	All flanged, ductile iron body, rubber in the body, with factory epoxy inside. Flanged ends. Holiday free	Pratt, Dezurik	* AWWA C-504 * Mfr date within one year of installation
*Submittal Required			
<b>COMBINATION AIR AND VACUUM VALVES</b>			
1" and 2"	**	Dezurik - 9542898 & 9625863 Apco – 143C.2 & 145C.2 Cla Val Series 33A	Encl: Pipeline Prod. #VCAS 1830 TN w/Blue or Purple 1" wide Band
Submittal Required			
<b>AUTOMATIC CONTROL VALVES</b>			
		Cla-Val	
<b>DETECTOR CHECK VALVES*</b>			
2" - 10"	Valves to be OS&Y	Cla-Val, Febco, Wilkins, Watts, Ames, Conbraco (bypass meter by District)	Double Check Detector Assembly (DCDA)
*Submittal Required			
<b>FIRE HYDRANTS</b>			

Residential Areas	One 4" & one 2 ½" outlets One piece casting	AVK 24-150-70 & 24062X Clow: 2050 Series	Bronze , 8 hole, 7/8" drilling, DI or plastic caps and chains, factory fusion bonded epoxy coated
Multi-Res, Commercial & Industrial Areas	Two 4" & one 2 ½" outlets	Jones: Clow: AVK	Bronze, 8 hole, 7/8" drilling, DI or plastic caps and chains
All	Fire Hydrant Check Valve	AVK: Flowguard II	Required on all hydrants
All	DI Bury Ells, Flg(8 hole) x MJ/PE	Clow Sigma South Bay Foundry	Long radius
All	Fire Hydrant Spools, 8 hole, no break off score, Ductile Iron	Clow Sigma South Bay Foundry	Length TBD in field
<b>METER BOXES</b>			
1" and 3/4" Meter	Plastic #4 ½ 12"x20"x12"	Carson 1220, T lid Black Lid for potable Purple Lid for Recycled	In landscaped areas, outside of traffic areas
	Polymer Concrete #5 ¼ 13" x 24" x 12"	Armorcast B-30 Flared Wall Drop in reader door	In traffic areas
2" Meter	Plastic #6B (20K) 17"x30"x12"	Carson 1730	In landscaped areas, outside of traffic areas
	Polymer Concrete #6B (20K) 17"x30"x12"	Armorcast B-36 Drop in reader door	In traffic areas
<b>TAPPING CONNECTIONS</b>			
Reducing taps on 6" and above, ACP,PVC, DIP	Fabricated steel with fusion epoxy or stainless steel. S.S. nuts and bolts.	Smith-Blair: #622 Mueller MJ: H-619 – ACP Romac: FTS420 <200psi FTS421 > 200psi Smith-Blair: #665 Powerseal: #3490AS	SS plug for test port, used in hot tap applications



Reducing taps on 6" and above, STEEL	Fabricated full wrap nozzles	ASTM A-53B ¼" minimum thickness, mortar lined and coated with AWWA C207 flange	150lb Flange face w/test port, used in hot tap application
Service connections on 6" and above, Steel	Half couplings	ASTM A105, 3000# NPT Threads	1"-3" service connections.
<b>FITTINGS</b>			
PVC/DIP Size as specified	Ductile Iron, double-cement lined, C110* or C153*	Star, Union Foundry, Sigma	Restrained MJ glands unless otherwise specified.
	Joint Restraints*	Star Pipe Products: Pipe Restraints Series 1000 Sigma: PV-LOK Sigma: ONE-LOK Series SLCE for PVC EBAA IRON Mega Lug 1100 Series	FBE coating, zinc-plated bolts. Bolts no-oxide greased. Entire assembly to be wax taped and coated
PVC	Bell/Spigot Restraints*	Star 1100G2C serrated clamps/bars, ReiberLoK or equal,	For bells/spigots where joints restraints req'd per plans
* Submittal Required			
<b>WATER DISTRIBUTION PIPE</b>			
	Ductile Iron Pipe (DIP)*	American Pipe US Pipe	Pressure class and type per approved plans/submittals
	Polyvinyl Chloride (PVC)*	Diamond Plastics JM Eagle North American Pipe VinylTech	Pressure class and type per approved plans/submittals
* Submittal Required			
<b>MISCELLANEOUS</b>			
	Water Valve Lid & Frame	Southbay Foundry 1208N PIP SDR 41 C1100 risers	Lids coated per color code in W-25

	Sewer Cleanout	Southbay Foundary 1257, marked VCMWD Sewer, 14" Dia SCH 40 riser	
	Pipe assembly lube	Phoenix 505 Duck butter	NSF 61 certified
	Tracer wire and 3M DBY-6 Direct Bury Splice Kit (600 Volts)	Use solid single strand wire	12 ga.
	Bolts	Flanged conn: A307-A zinc coated and A307 nuts  Mech Joint bolts/nuts: factory steel	Coated with No Ox Grease
	Anti – Seize Compound	Loctite Nevr Seize	Used on all SS bolts
	Gaskets	Tripac	Ring – under 200psi  Full face – above 200psi
	Valve Stem Extensions	Pipeline Products SX-906 or equal	Galvanized
	Pipe Encasement Wrap	12mil polyethylene sleeve w/10mil tape  8mil thick polyethylene w/10mil tape	Used on buried valves, fittings, pipe  Potable: Clear Purple Recycled Sewer Green
	Buried Protectant	NO-OX Grease Henry's 208	Used on underground fitting, valves, etc.
	Warning Tape	6" metallic, detectable Northtown Hytech	Use appropriate markings for fluid type(potable, recycled, sewer)
	Air Vac/Blowoff Enclosures	Pipeline Prod. #VCAS 1830 TN w/Blue or Purple 1" wide Band	TN w/Blue or Purple or Yellow 1" wide Band
	Blowoff wharf head	Jones J342	Size per plans
	Water Sampling Enclosure	Armorcast P6002010-Hinged	

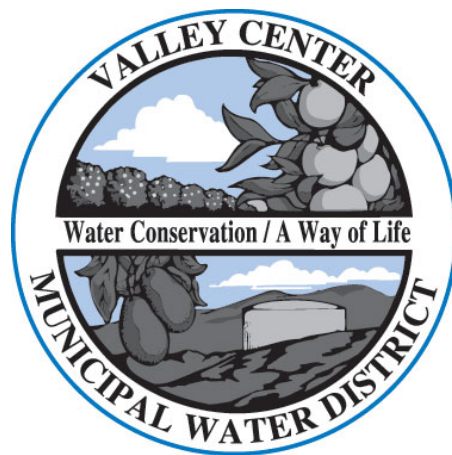
	Paint	Fire Hydrant: Sunburst yellow Bollards: Sunburst yellow Valve can lids: See W-25 Air Vac head: Aluminum Blowoff: Sunburst yellow	Rustoleum
	Concrete	Superior, Robertsons, Mar-Con	
	Pipe Hanger and Pipe Support	KUMAR	
	Casing Spacers and End Seals	Advanced Products and Systems SSI8-030616  CCI Pipeline Systems Model CSS8  CALPICO Model M-Series	

**NOTES:**

1. All materials listed shall be installed in accordance with Project Plans and Specification.
2. All materials shall be approved and inspected prior to installation.
3. All materials shall be utilized only within the pressure rating of the device.
4. All valves shall have factory applied fusion bonded epoxy as follows: gate valves, inside and out; BFV, inside; plug valves, inside.
5. 1" shall be the minimum size water service installed, unless otherwise noted.
6. All brass fittings shall be labeled lead free.
7. All nuts and bolts for service saddles shall be brass, except for PVC saddles, use SS.
8. All corporation stops and angle meter stops shall be full port ball, regardless of pressure class.
9. For PVC pipe, deflection shall be no more than 80% of manufacturer's recommendation.

VALLEY CENTER  
MUNICIPAL WATER DISTRICT

**STANDARD DRAWINGS**  
*Water*



**Latest Revision: MARCH 2020**

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

# Water Standard Drawings

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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		EXISTING GATE VALVE
	THRUST BLOCK		EXISTING FIRE HYDRANT
	COMBINATION AV/BO		STORM DRAIN OR CULVERT
	WATER QUALITY SAMPLING STATION		GAS LINE
	FIRE SERVICE		ELECTRICAL
	WATER DISTRICT BOUNDARY		ELECTRICAL OVERHEAD
	EDGE OF PAVEMENT		TELEPHONE
			POWER POLE
			WELL

APPROVED:

*Wally A. H.* 3/2/2020

District Engineer

Date

3/2/2020

Latest Revision Date



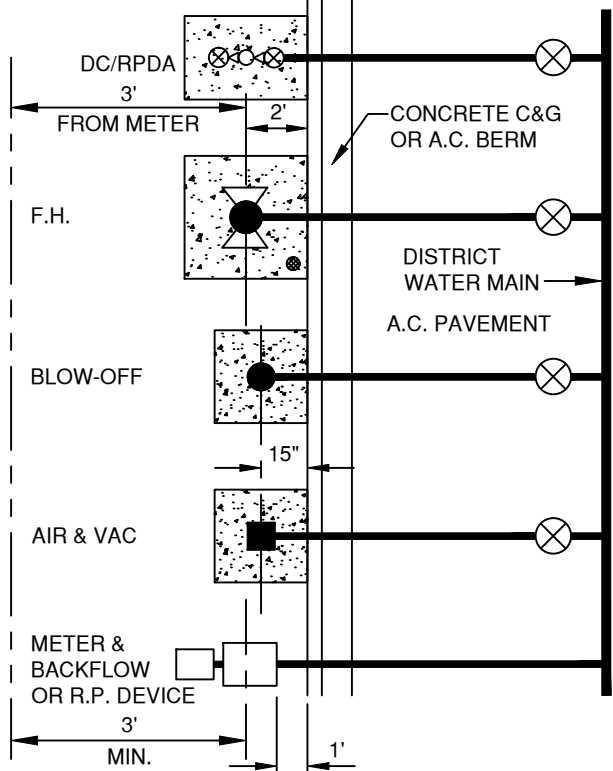
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**STANDARD SYMBOLS FOR  
WATER CONSTRUCTION DRAWINGS**

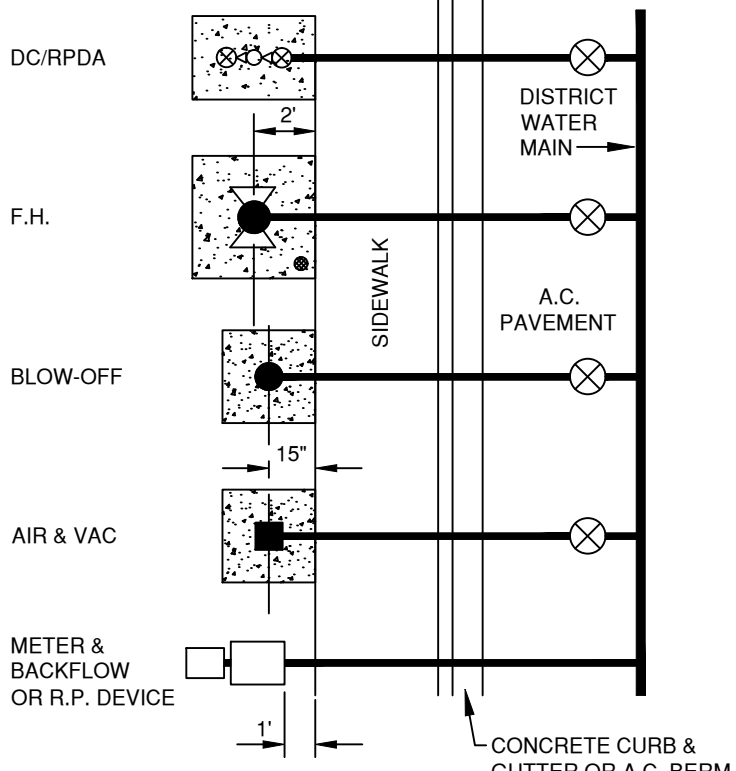
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DWG. NUMBER

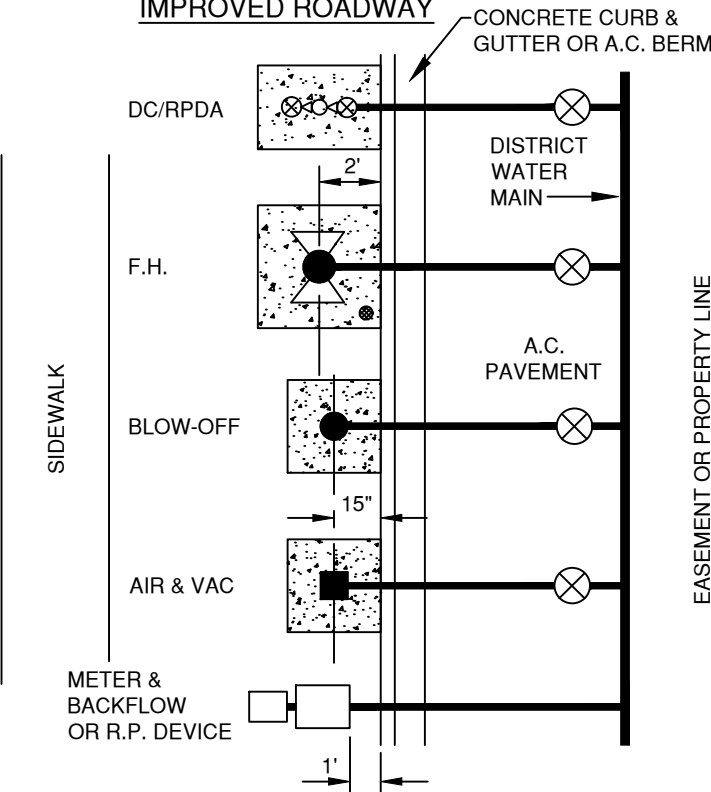
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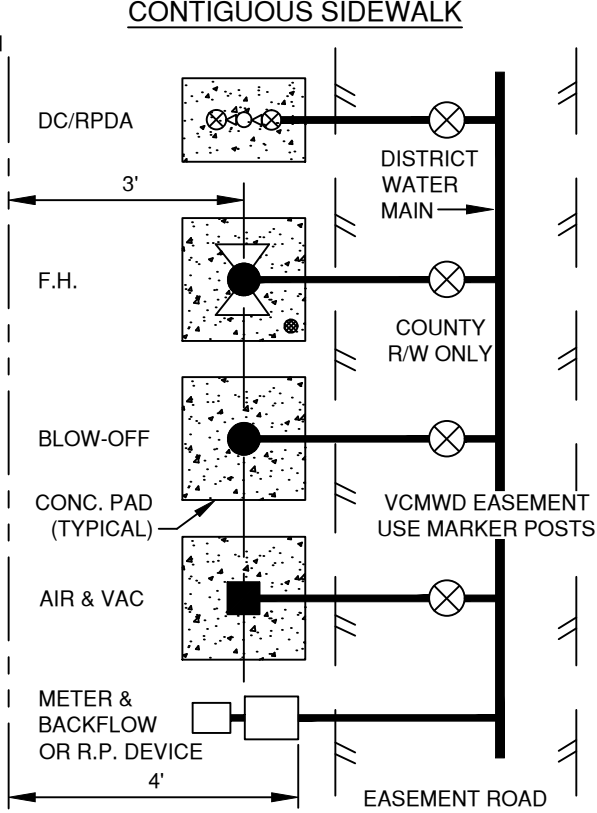
**TYPE "A" INSTALLATION  
IMPROVED ROADWAY**



**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)

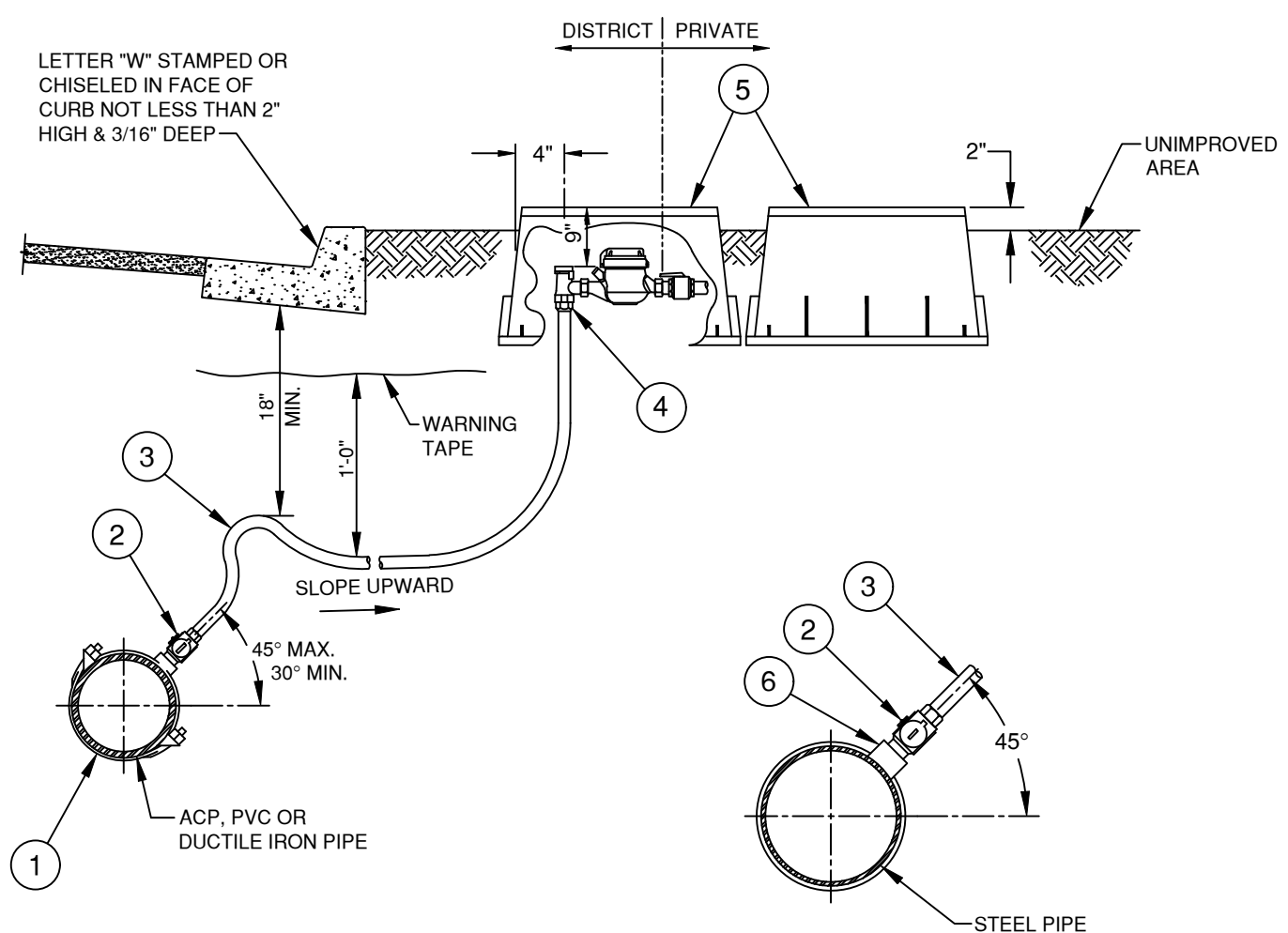
APPROVED:  
*Wally A. ...* 3/2/2020  
District Engineer Date  
3/2/2020  
Latest Revision Date

VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**TYPICAL INSTALLATION FOR  
WATER MAIN APPURTENANCES**


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DWG. NUMBER  
**W-2**






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

CONNECTION TO STEEL PIPE

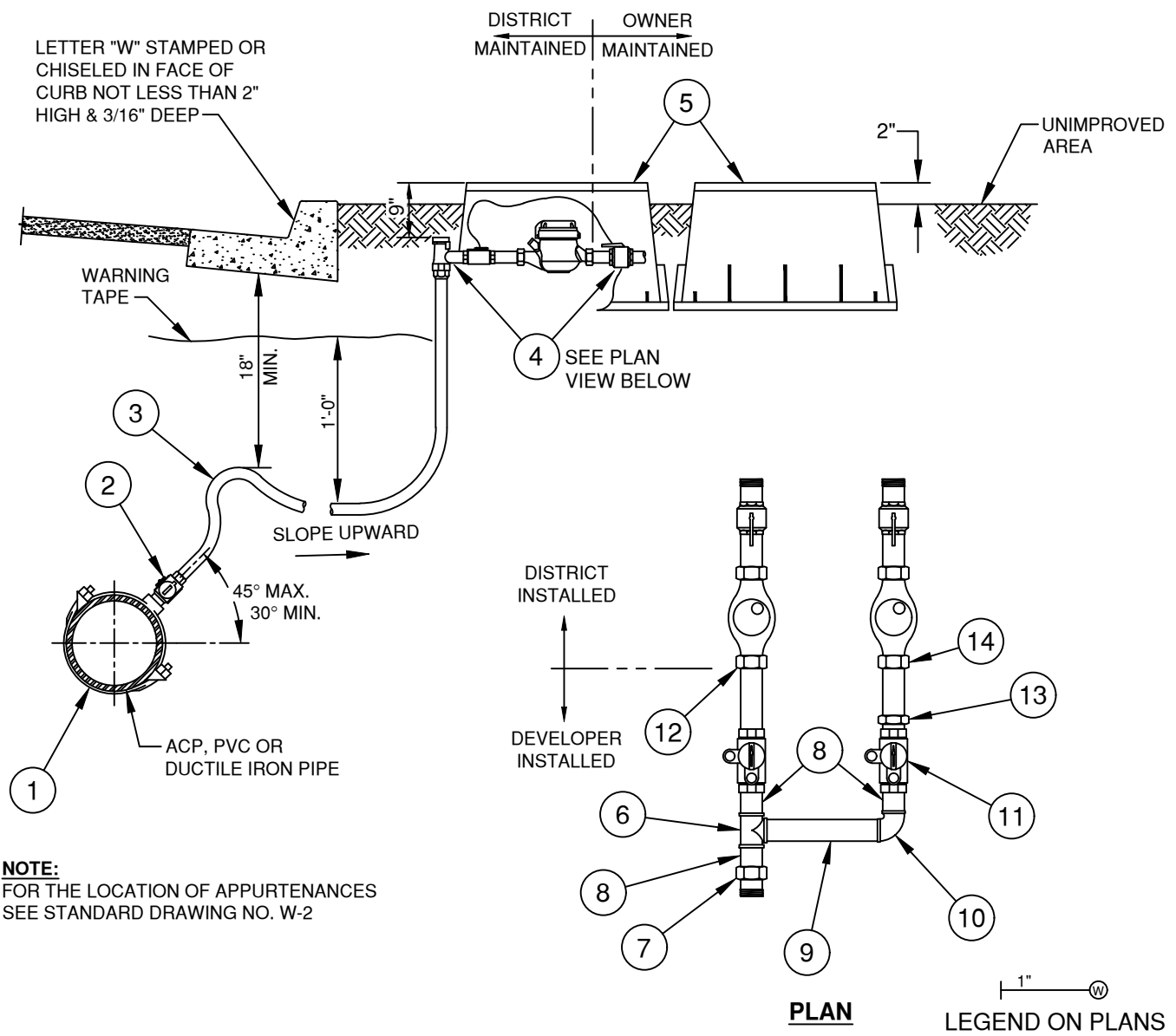
1"   
LEGEND ON PLANS

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 (2)
6	FORGED STEEL HIGH PRESSURE 1/2 COUPLING

**APPROVED:**  
 3/2/2020  
District Engineer Date  
3/2/2020  
Latest Revision Date

 VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING  
**3/4" AND 1" WATER SERVICE**

NOT TO SCALE  
DWG. NUMBER  
**W-3**



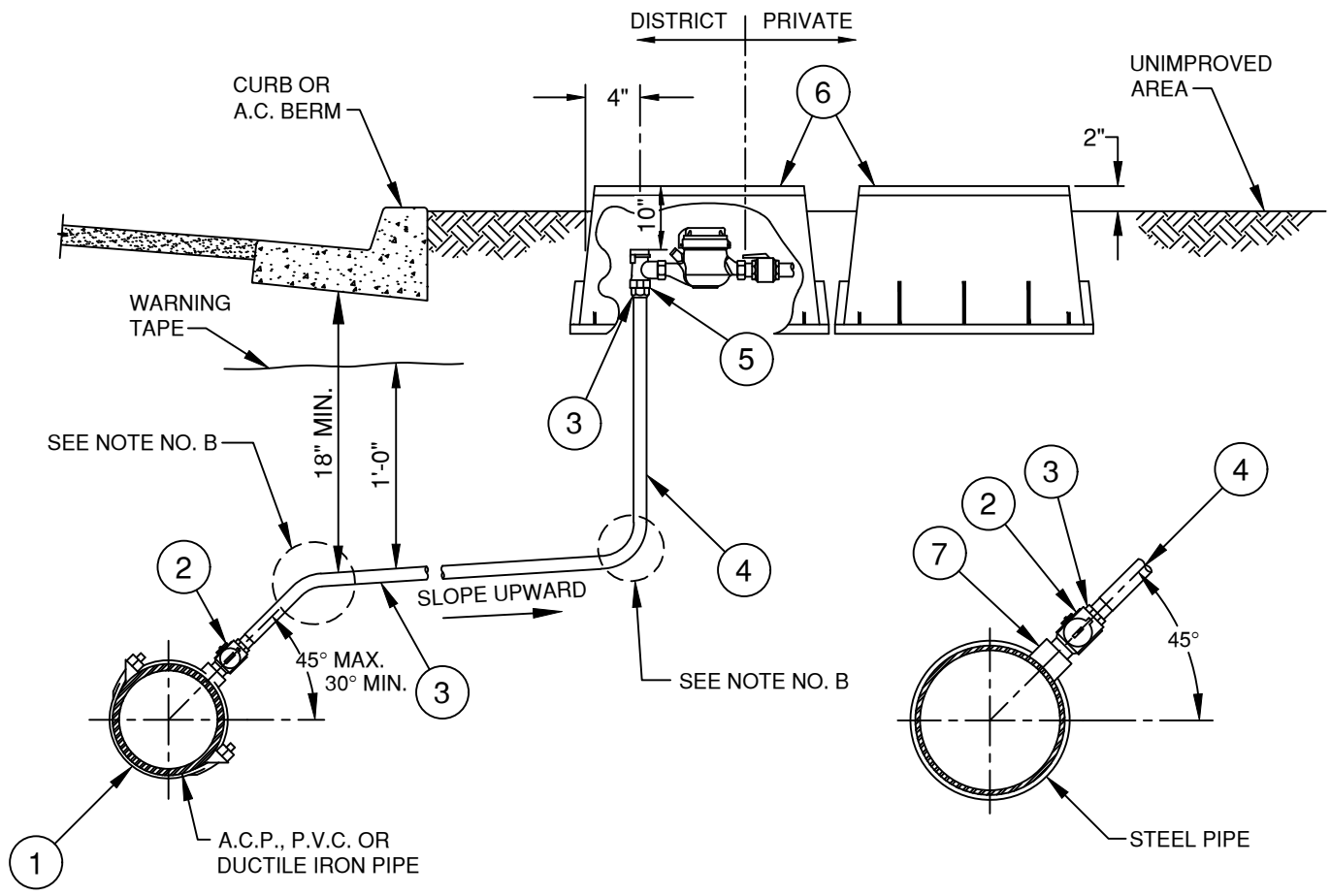
**NOTE:**  
FOR THE LOCATION OF APPURTENANCES  
SEE STANDARD DRAWING NO. W-2

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" x 6" BRASS NIPPLE
3	COPPER TUBING x REQUIRED LENGTH x SERVICE SIZE, TYPE K SOFT COPPER	10	1" 90° BRASS ELBOW
4	BRONZE BALL ANGLE METER STOP w/LOCKWING (1" COMP x METER SWIVEL)	11	1" LOCKWING CURBSTOP (2 EACH)
5	PLASTIC METER BOX (2)	12	1" x 2 1/2" METER COUPLING
6	1" TEE	13	1" x 3/4" BUSHING
7	1" x 1 1/4" METER BUSHING	14	3/4" x 2 1/2" METER COUPLING

APPROVED:  
  
 District Engineer      Date  
 3/2/2020  
 Latest Revision Date

VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**3/4" DOMESTIC &  
 1" FIRE WATER SERVICE**

NOT TO SCALE  
 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.

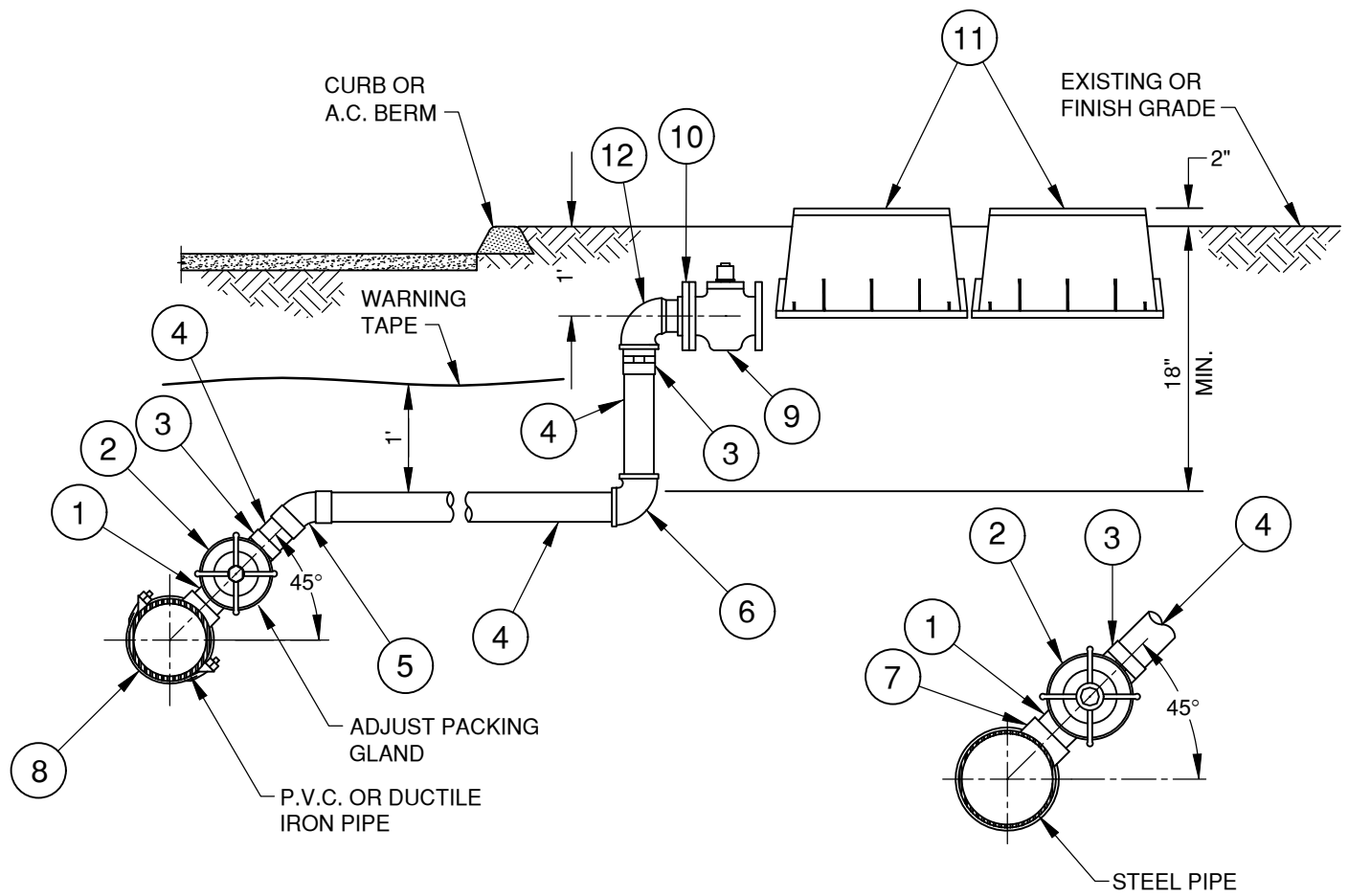
2"   
 LEGEND ON PLANS

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 (2)
7	FORGED STEEL HIGH PRESSURE 1/2 COUPLING

APPROVED:  
 3/2/2020  
 District Engineer Date  
 3/2/2020  
 Latest Revision Date

 VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**1 1/2" OR 2" WATER SERVICE**

NOT TO SCALE  
 DWG. NUMBER  
**W-4**





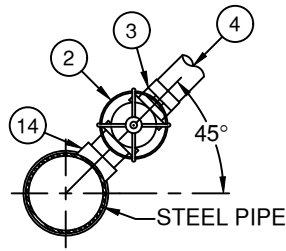
**NOTE:**  
FOR THE LOCATION OF APPURTENANCES  
SEE STANDARD DRAWING NO. W-2.

CONNECTION TO STEEL PIPE

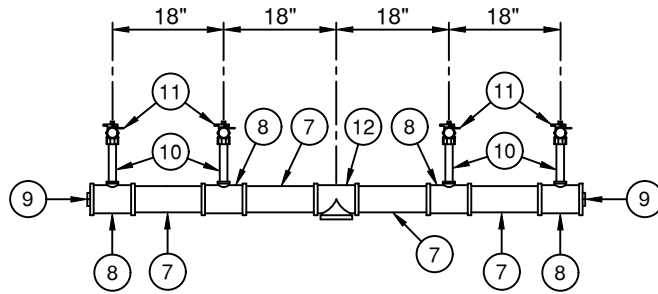
3"   
LEGEND ON PLANS

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 (2)
6	90° COPPER SWT x SWT	12	90° BRASS ST. ELL

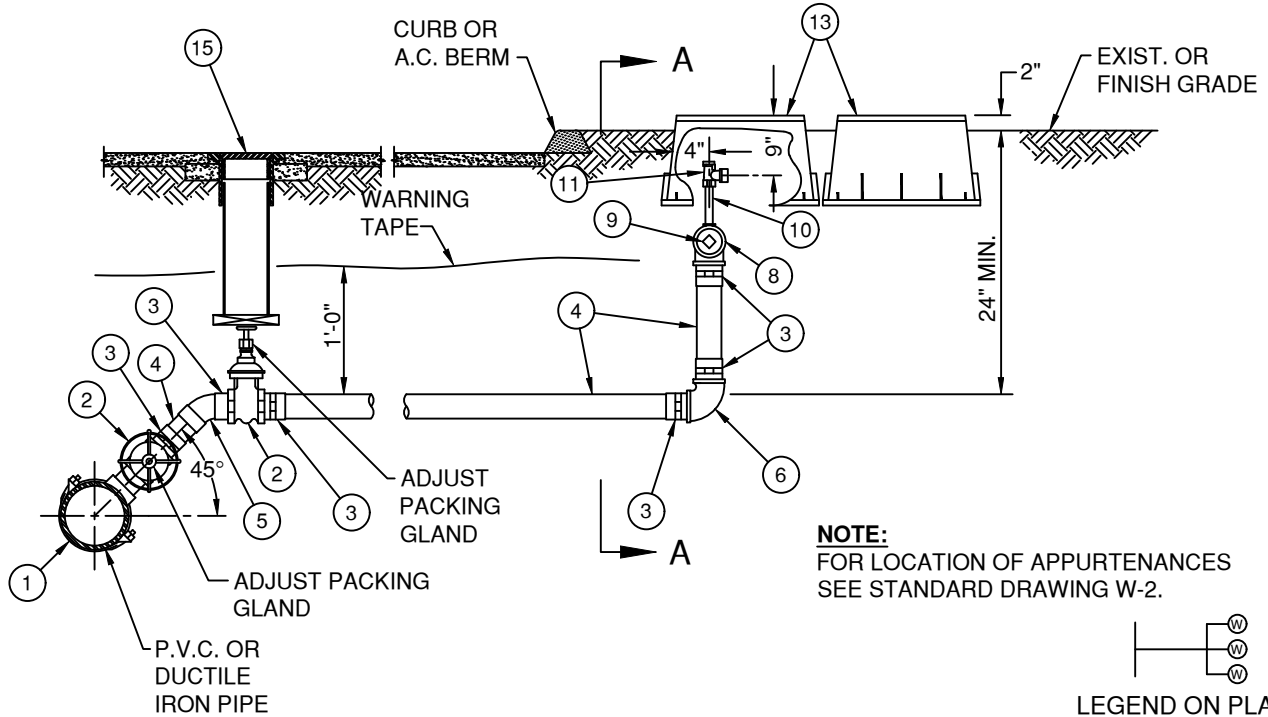
<b>APPROVED:</b>  District Engineer      Date	 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
		DWG. NUMBER
5/16/2019 Latest Revision Date	<b>3" WATER SERVICE</b>	<b>W-5</b>



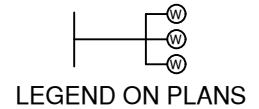
**CONNECTION TO STEEL PIPE**




**SECTION A-A**



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



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

APPROVED:  
  
 District Engineer Date  
 3/2/2020  
 Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

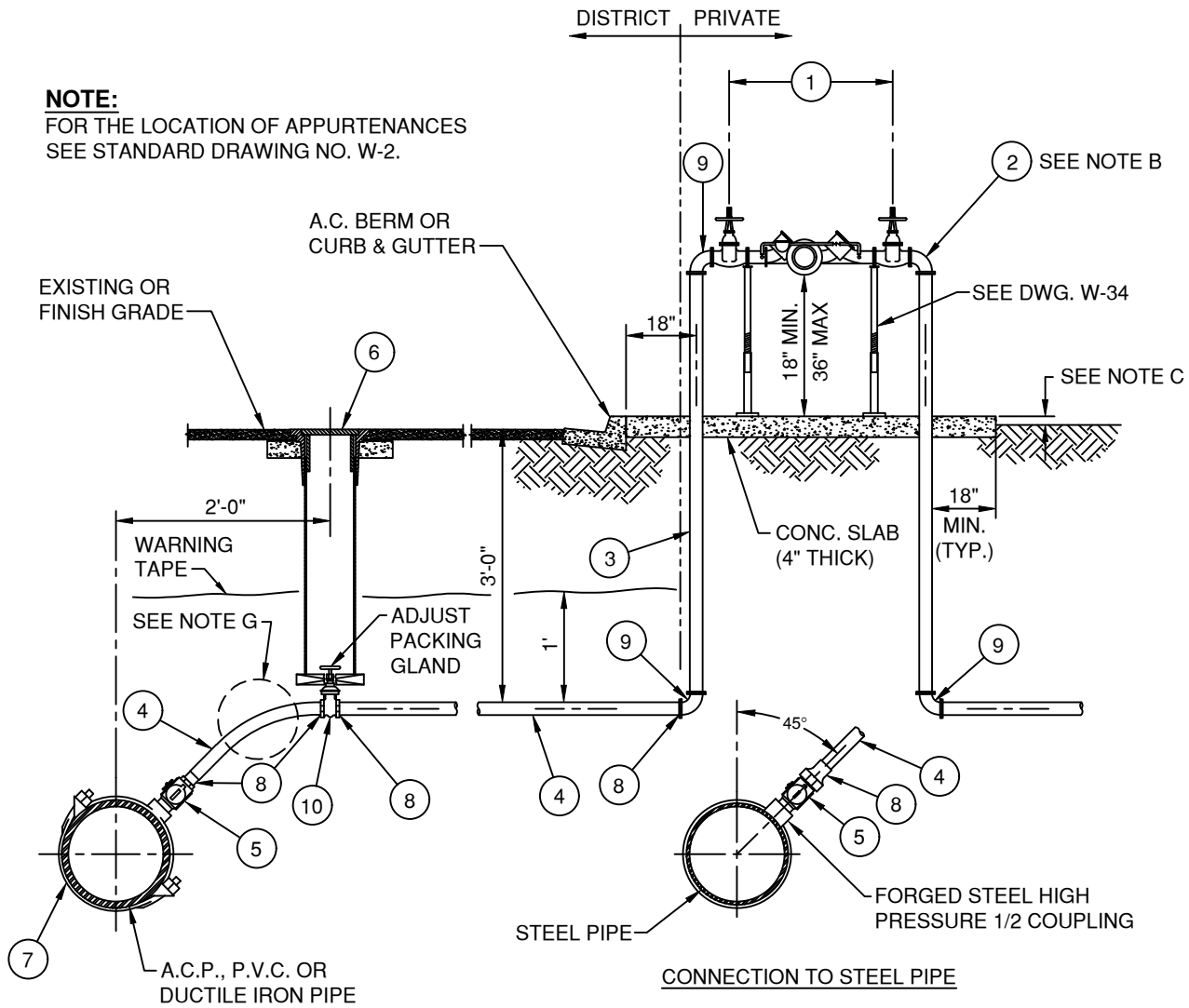
**3" WATER SERVICE  
MANIFOLD ASSEMBLY**

NOT TO SCALE

DWG. NUMBER

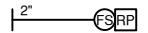
**W-6**

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



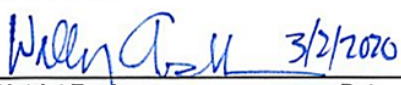
**NOTES:**


- 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.



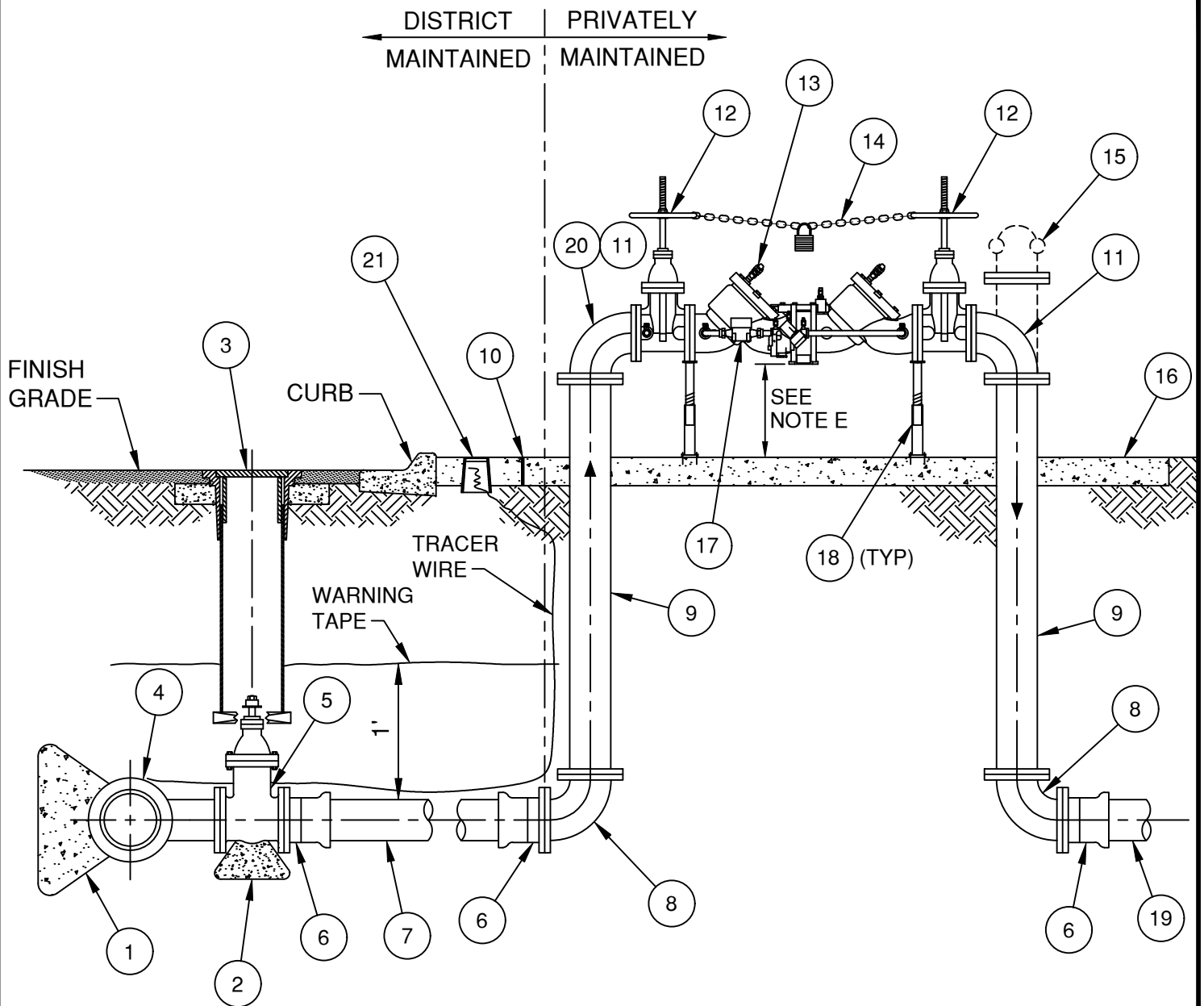
LEGEND ON PLANS

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:  
  
 District Engineer Date  
 3/2/2020  
 Latest Revision Date

 VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**1 1/2" OR 2" FIRE SERVICE**

NOT TO SCALE  
 DWG. NUMBER  
**W-7**



NOTE: ALL CONNECTIONS TO BE RESTRAINED.  
 FOR NOTES REGARDING THE INSTALLATION AND DESCRIPTION OF FIRE SERVICES SEE SHEET 2 OF 2.

4" ——— (FS)RP  
 LEGEND ON PLANS

APPROVED:  
*Wally A. ...* 3/2/2020  
 District Engineer Date  
 3/2/2020  
 Latest Revision Date

VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**4" AND LARGER  
 FIRE SERVICE INSTALLATION**

NOT TO SCALE  
 DWG. NUMBER  
**W-8**  
 SHT 1 of 2



**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.

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		

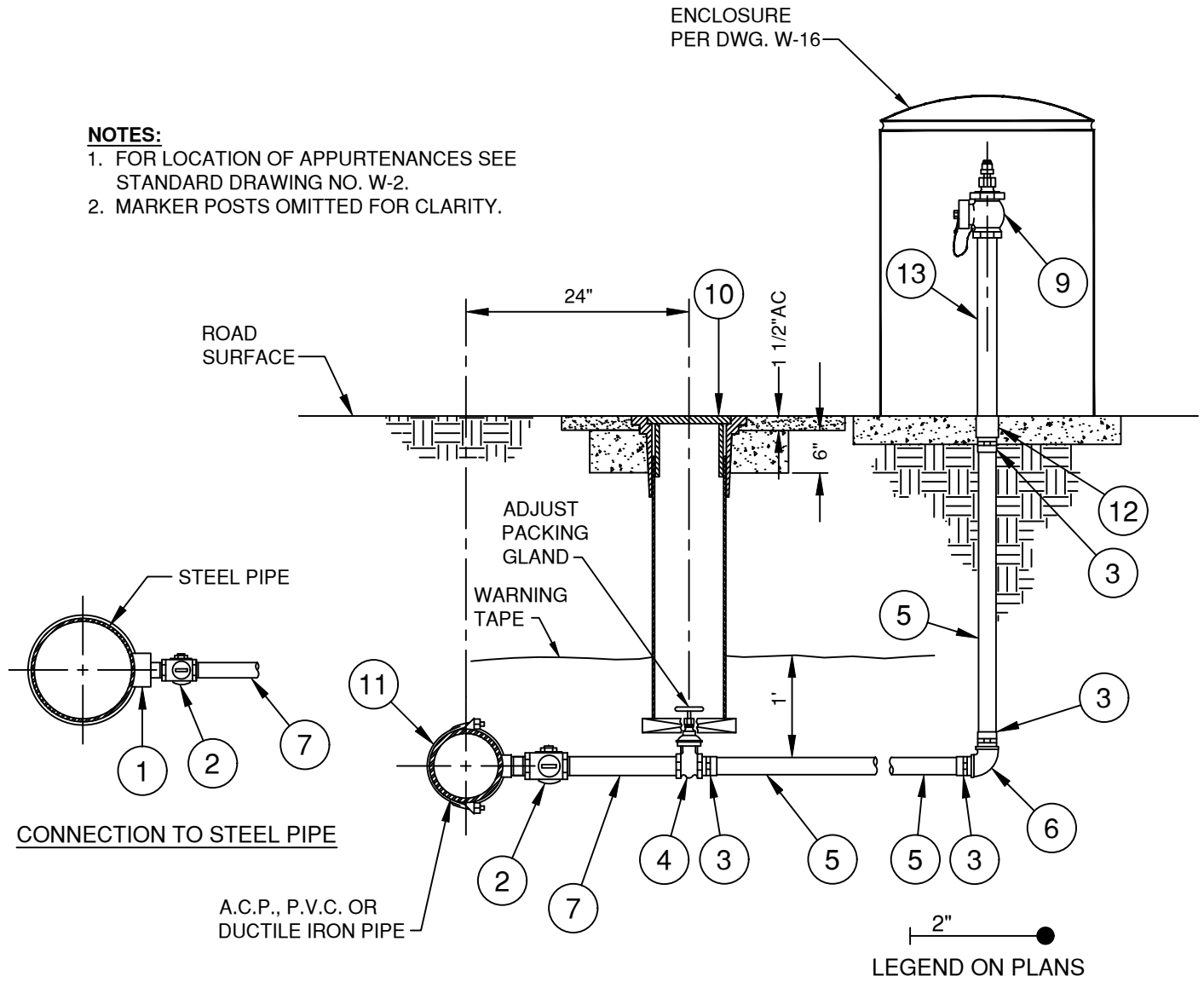
<b>APPROVED:</b>  District Engineer      Date 3/2/2020 Latest Revision Date	 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
		DWG. NUMBER <b>W-8</b> SHT 2 of 2

**4" AND LARGER  
FIRE SERVICE INSTALLATION**



**NOTES:**

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



NO.	DESCRIPTION	NO.	DESCRIPTION
1	FORGED STEEL HIGH PRESSURE 1/2 COUPLING	8	RED BRASS PIPE x REQUIRED LENGTH
2	2" BRONZE BALL CORPORATION STOP M.I.P. x F.I.P. (OPERATING NUT TO BE ON THE RIGHT SIDE)	9	2" x 2 1/2" ANGLE FIRE PLUG VALVE
3	COPPER SWEAT ADAPTOR x M.I.P. THREAD	10	VALVE WELL FRAME, ASSEMBLY AND COVER PER W-25
4	BRONZE GATE VALVE W/ BRONZE HANDWHEEL, F.I.P. x F.I.P. THREAD	11	BRONZE DOUBLE STRAP SADDLE MAIN SIZE x SERVICE SIZE
5	COPPER TUBING x REQUIRED LENGTH	12	2" BRASS COUPLING, EMBEDDED FLUSH W/PAD
6	90° BRONZE F.I.P. x F.I.P. THREAD	13	2" RED BRASS NIPPLE x 18" LONG
7	2" RED BRASS PIPE x REQUIRED LENGTH		

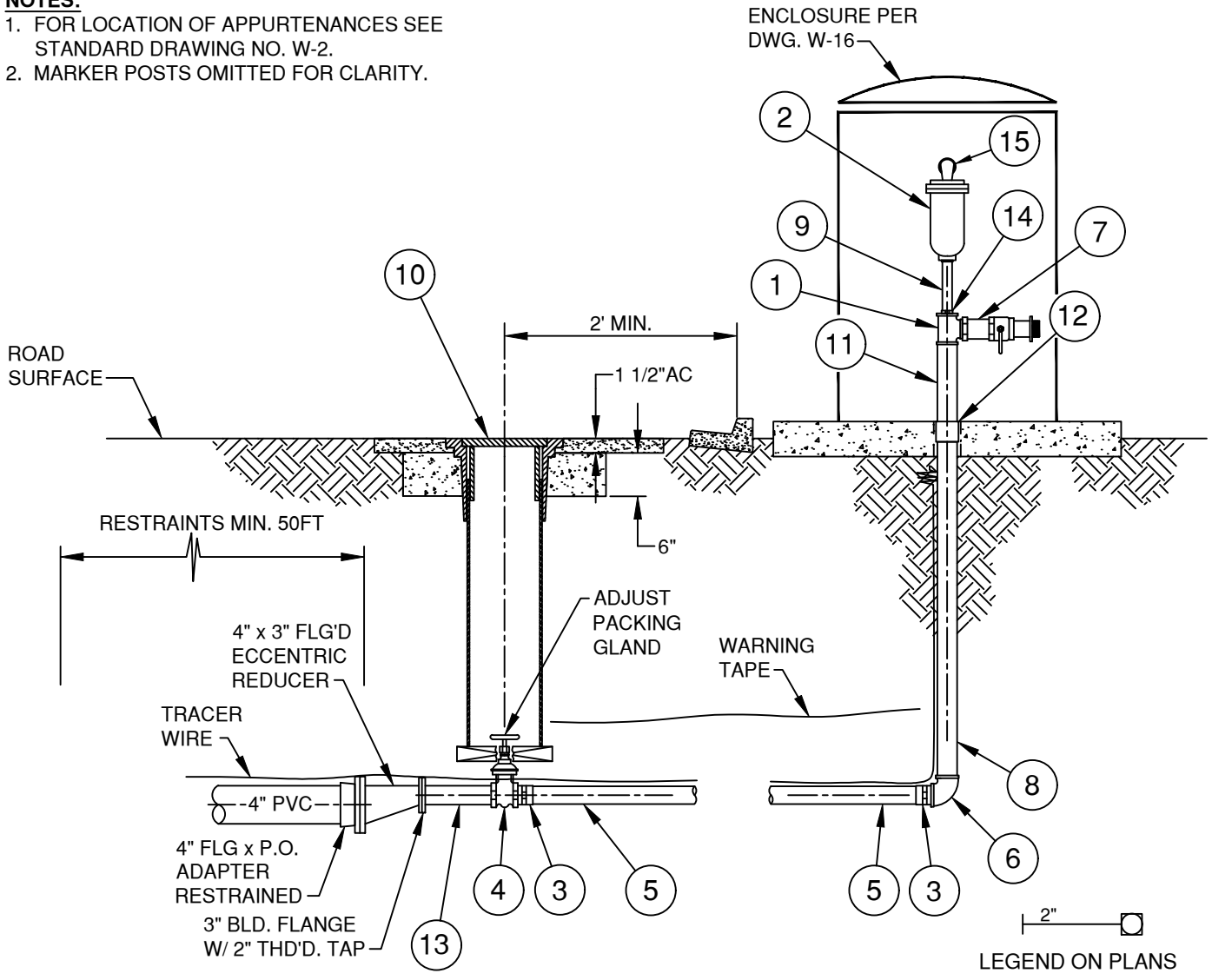
APPROVED:  
*Wally A. Hall* 3/2/2020  
 District Engineer Date  
 3/2/2020  
 Latest Revision Date

VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**2" BLOW OFF ASSEMBLY**


NOT TO SCALE  
 DWG. NUMBER  
**W-9**


**NOTES:**

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

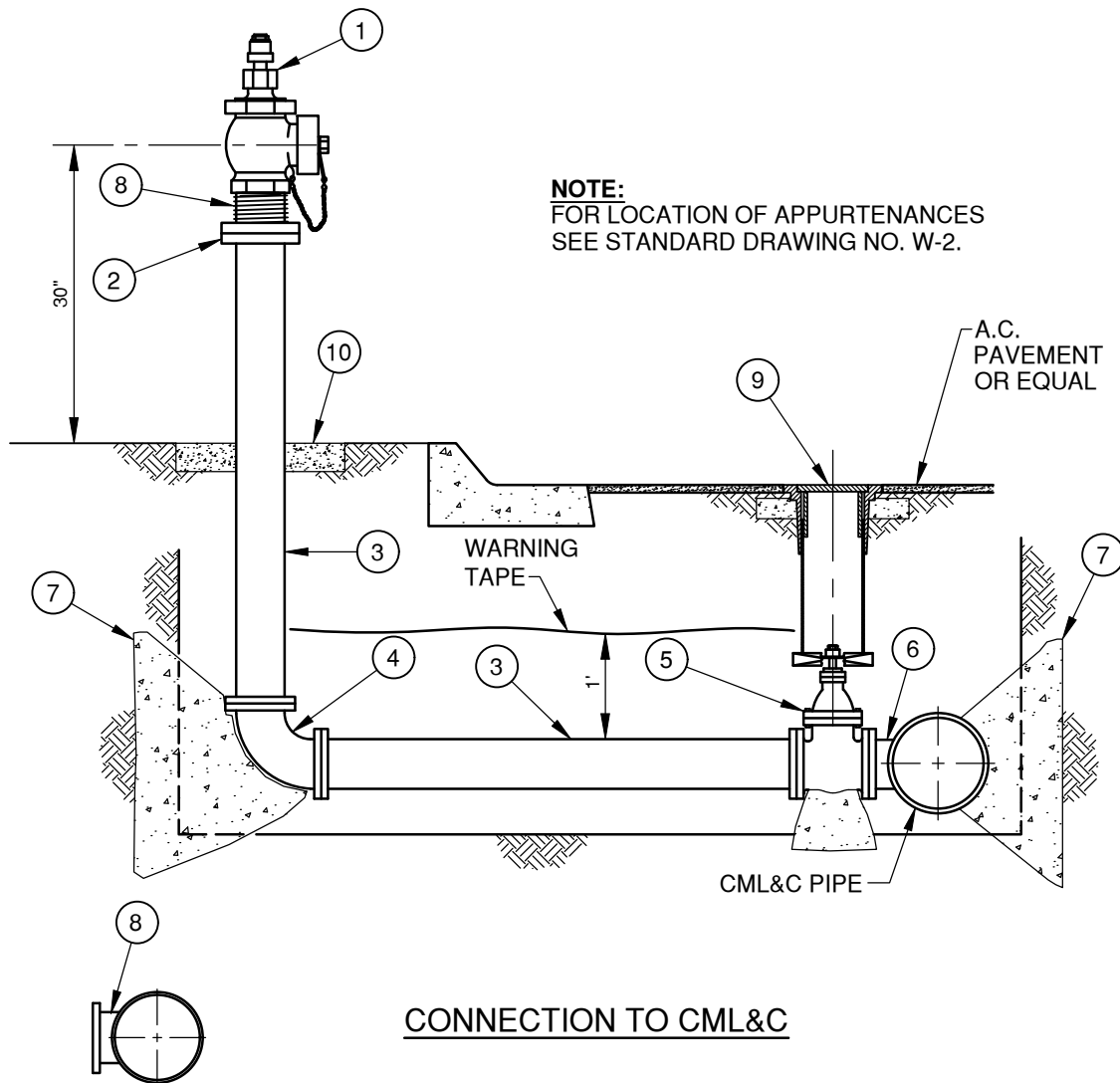


NO.	DESCRIPTION	NO.	DESCRIPTION
1	2" RED BRASS THREADED TEE	9	1" RED BRASS NIPPLE x 6" LONG
2	1" AIR VACUUM RELEASE VALVE	10	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25
3	COPPER SWEAT ADAPTOR x M.I.P. THREAD	11	2" x 6" RED BRASS NIPPLE
4	BRONZE GATE VALVE W/ BRONZE HANDWHEEL, F.I.P. x F.I.P. THREAD	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 W/ SS BUG SCREEN
8	RED BRASS PIPE x REQUIRED LENGTH		

APPROVED:  
  
 District Engineer      Date  
 3/2/2020  
 Latest Revision Date


 VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**1" AIR VACUUM & 2" BLOW OFF  
 COMBINATION**

NOT TO SCALE  
 DWG. NUMBER  
**W-10**




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


CONNECTION TO CML&C

CONNECTION TO PVC & AC

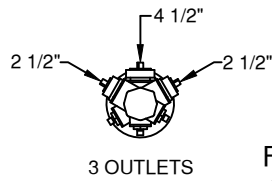
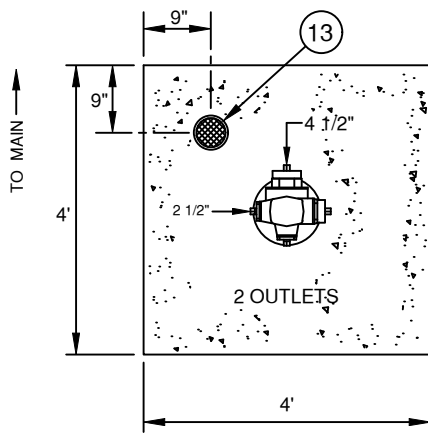
4"  
LEGEND ON PLANS

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:  
  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date

 VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**4" BLOW OFF ASSEMBLY**

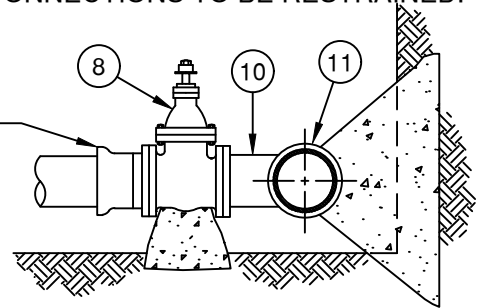
NOT TO SCALE  
 DWG. NUMBER  
**W-11**



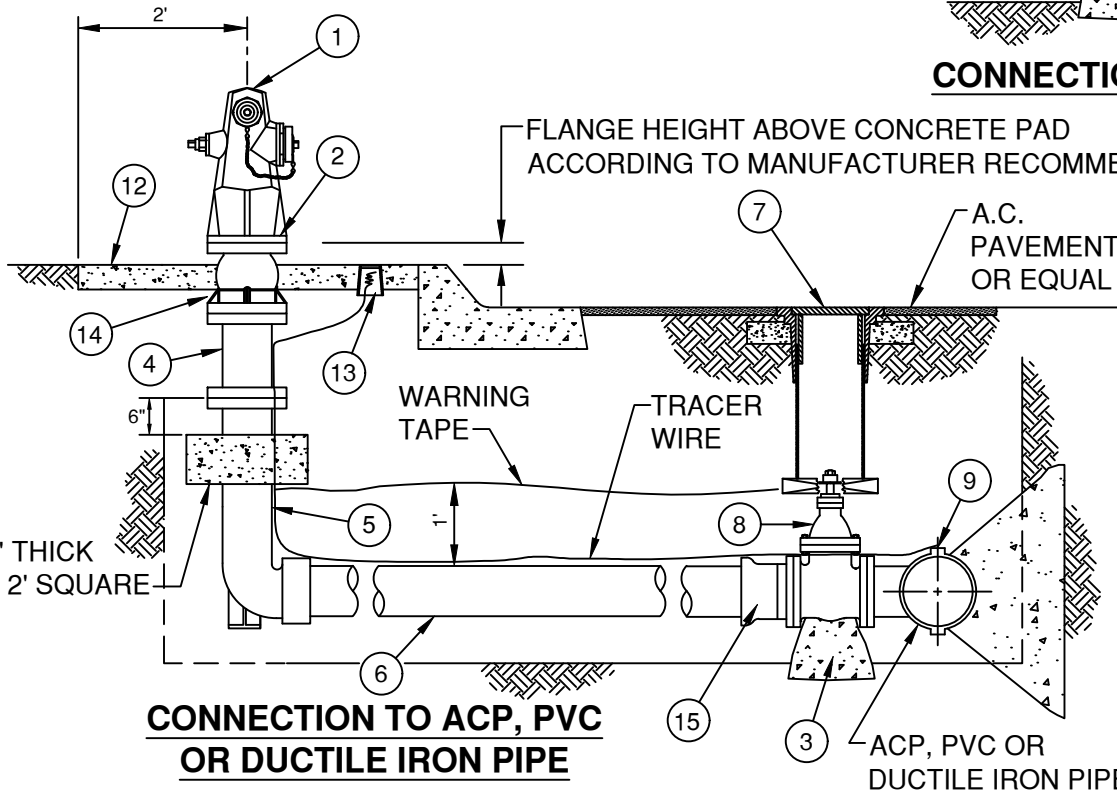
**NOTES:**

- A. FOR LOCATION OF APPURTENANCES SEE STANDARD DRAWING NO. W-2.
- B. ALL MATERIALS USED ON A 6" FIRE HYDRANT ASSEMBLY SHALL BE PER SPECIFIED WORKING PRESSURE.
- C. ALL CONNECTIONS TO BE RESTRAINED.

FLG. x P.O.  
ADAPTER  
(TYPICAL)



**CONNECTION TO STEEL PIPE**



**CONNECTION TO ACP, PVC OR DUCTILE IRON PIPE**

NO.	SIZE & DESCRIPTION	NO.	SIZE & DESCRIPTION
1	6" FIRE HYDRANT, ONE PIECE BODY (8 BOLT PATTERN)	9	MAIN SIZE x 6" D.I. TEE (FLANGED OUTLET)
2	3/4" x 3" HEX. HEAD MACHINE BOLTS & NUTS TYP.	10	6" STEEL FLANGED OUTLET CML&C
3	VALVE SUPPORT, PER W-21	11	STEEL WRAPPER PLATE
4	6" x REQ. LENGTH D.I. SPOOL, 8 HOLE, NO BREAK OFF SCORE (8" MIN. LENGTH)	12	4' x 4' x 3 1/2" CONCRETE PAD
5	6" x REQ. LENGTH C.I. HYD. BURY ELL, FLG. x HUB OR FLG. x FLG. 8 HOLE	13	CARSON 708 TRACER WIRE ACCESS PORT, 4" x 8" LONG SDR SEWER PIPE W/ CAP
6	6" x REQ. LENGTH PVC CLASS 305 PIPE	14	6" AVK FLOWGUARD II CHECK VALVE (8 BOLT HOLE PATTERN)
7	VALVE WELL FRAME, ASSEMBLY, AND COVER PER W-25	15	FLG x PUSH ON ADAPTER
8	6" RESILIENT WEDGE GATE VALVE FLG. x FLG.		

APPROVED:

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



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

NOT TO SCALE

DWG. NUMBER

**6" FIRE HYDRANT ASSEMBLY**

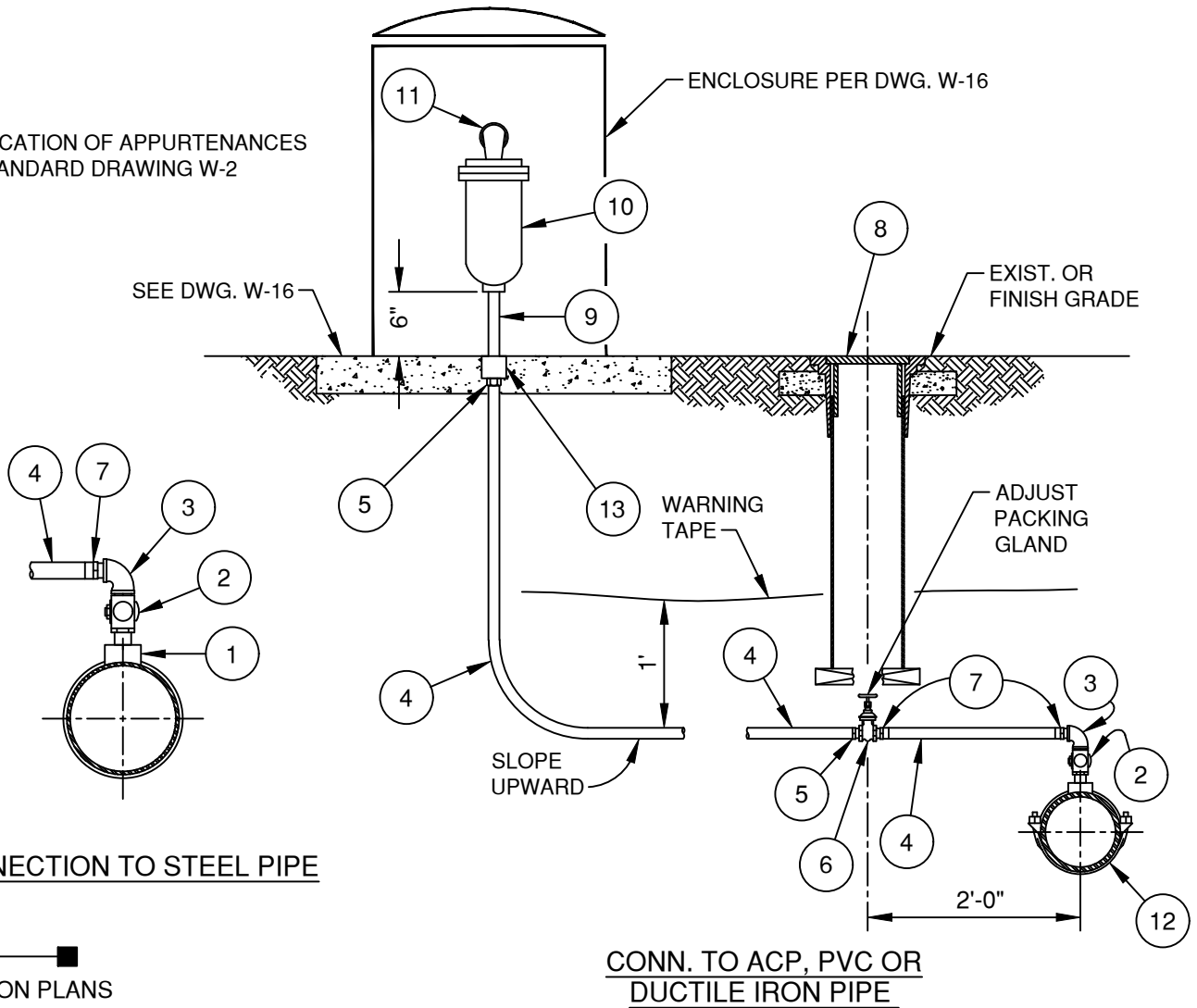
**W-12**

3/2/2020

Latest Revision Date

**NOTE:**

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



CONNECTION TO STEEL PIPE

CONN. TO ACP, PVC OR DUCTILE IRON 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" BRONZE STREET ELLS (2) w/ SS BUG SCREEN
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:  
  
 District Engineer Date  
 3/2/2020  
 Latest Revision Date

VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**1" AIR & VACUUM  
 RELEASE ASSEMBLY**

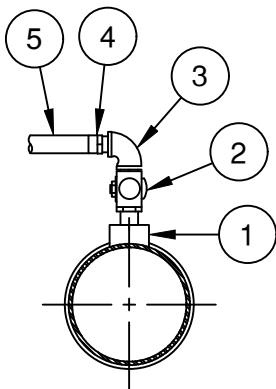
NOT TO SCALE  
 DWG. NUMBER  
**W-13**

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

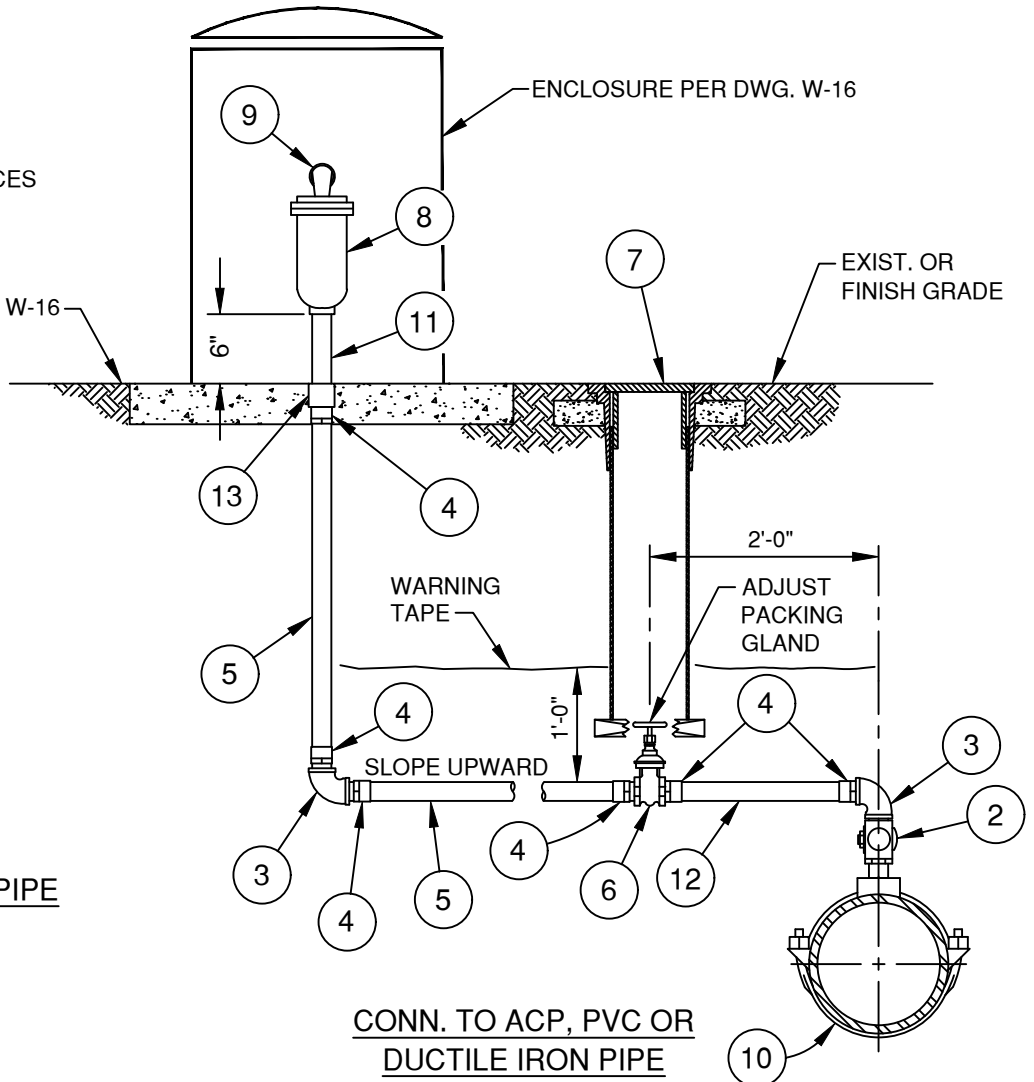
SEE DWG. W-16

ENCLOSURE PER DWG. W-16

EXIST. OR  
FINISH GRADE



CONNECTION TO STEEL PIPE



CONN. TO ACP, PVC OR  
DUCTILE IRON PIPE

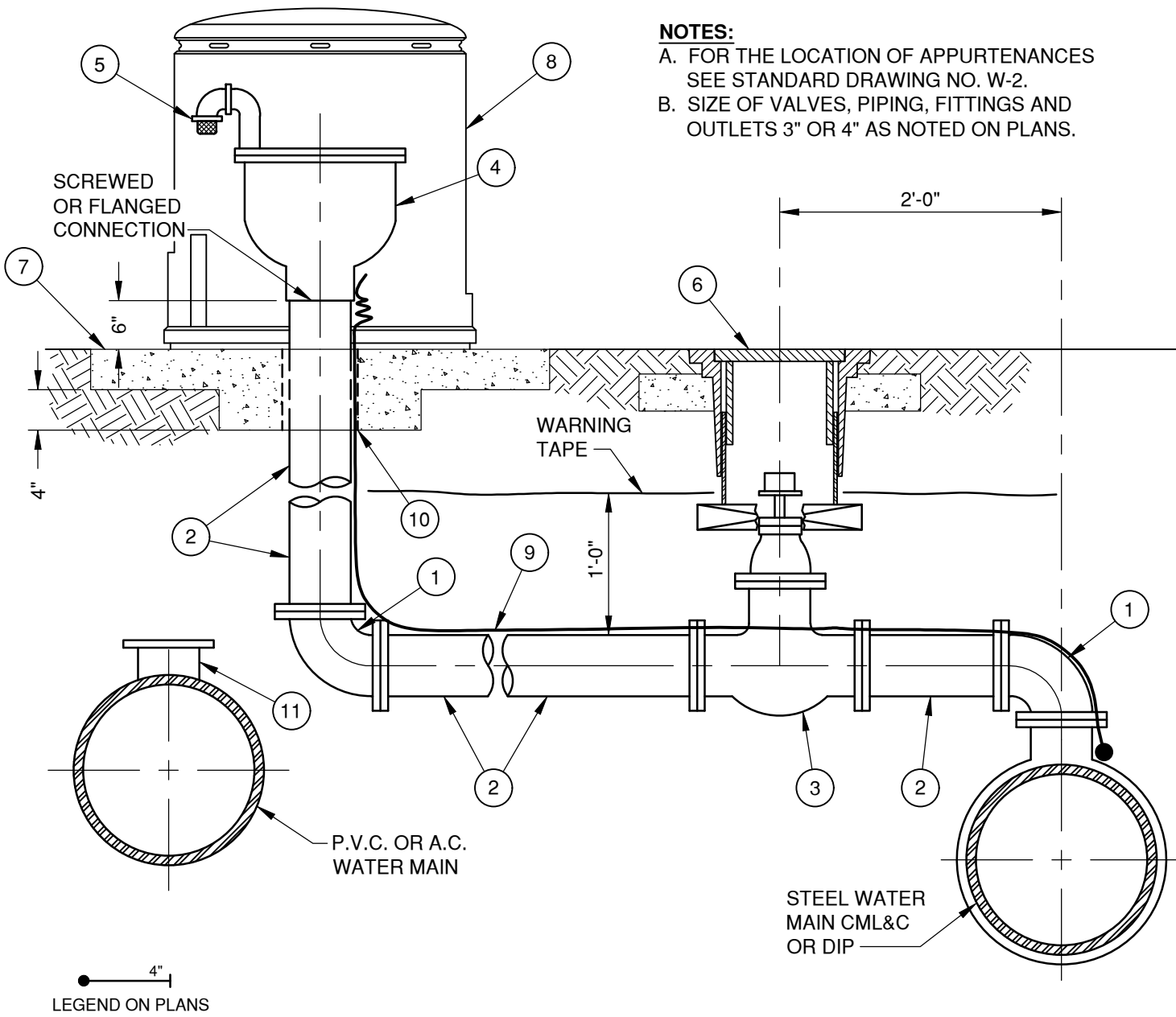
2"  
LEGEND ON PLANS

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" BRONZE STREET ELL (2) W/BUG SCREEN
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 A. Hall* 3/2/2020  
District Engineer Date  
3/2/2020  
Latest Revision Date

VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING  
**2" AIR VACUUM  
RELEASE ASSEMBLY**

NOT TO SCALE  
DWG. NUMBER  
**W-14**



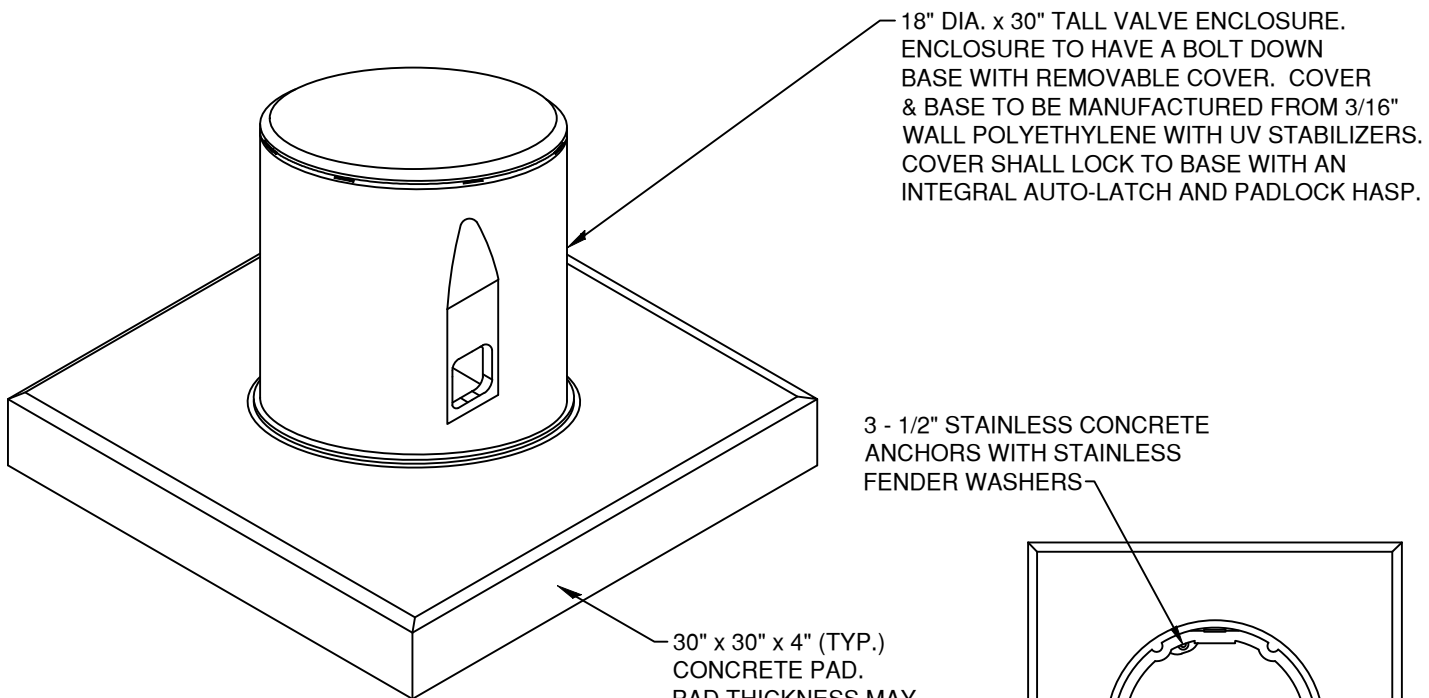
NO.	DESCRIPTION	NO.	DESCRIPTION
1	90° ELL, FLANGED, STEEL CML&C OR CAST IRON CEMENT LINED	7	30" x 30" x 4" CONCRETE PAD
2	STEEL OR DUCTILE IRON PIPE, 12GA. MINIMUM	8	ENCLOSURE, SEE DWG. W-16
3	RESILIENT WEDGE GATE VALVE, FLANGED CLASS TO MATCH PIPE	9	TRACER WIRE
4	AIR & VACUUM RELIEF VALVE	10	3 1/2" 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		

APPROVED:  
*Wally P. ...* 5/16/19  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date

VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**3" OR 4" COMBINATION AIR VALVE  
 OR AIR & VACUUM VALVE ASSEMBLIES**

NOT TO SCALE  
 DWG. NUMBER  
**W-15**

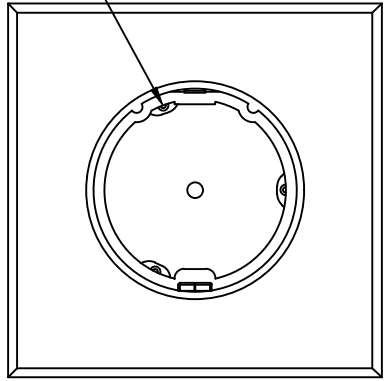




18" DIA. x 30" TALL VALVE ENCLOSURE. ENCLOSURE TO HAVE A BOLT DOWN BASE WITH REMOVABLE COVER. COVER & BASE TO BE MANUFACTURED FROM 3/16" WALL POLYETHYLENE WITH UV STABILIZERS. COVER SHALL LOCK TO BASE WITH AN INTEGRAL AUTO-LATCH AND PADLOCK HASP.

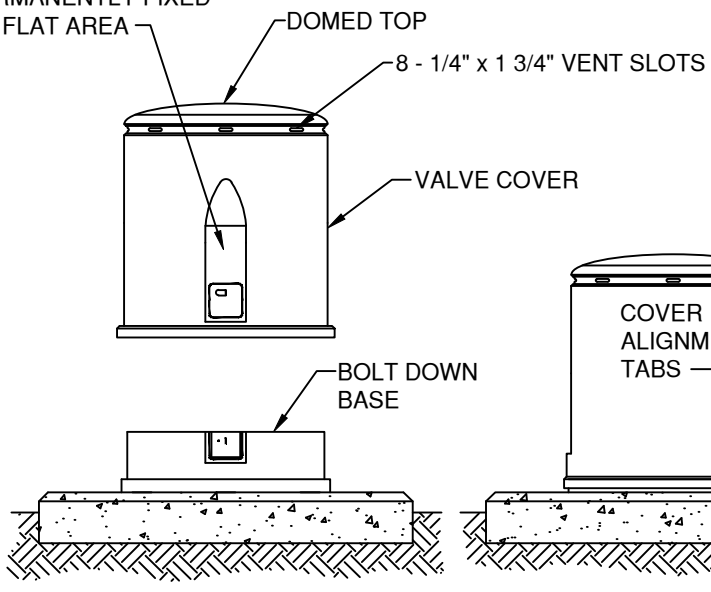
3 - 1/2" STAINLESS CONCRETE ANCHORS WITH STAINLESS FENDER WASHERS

30" x 30" x 4" (TYP.) CONCRETE PAD. PAD THICKNESS MAY VARY DEPENDING ON SLOPE. (TO BE SET LEVEL)



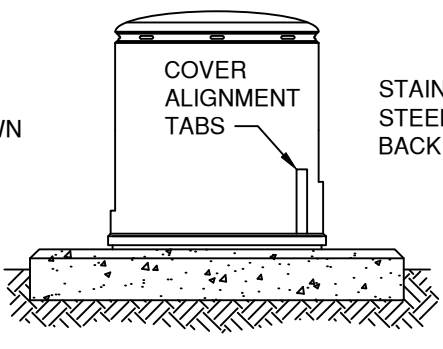
TOP VIEW

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



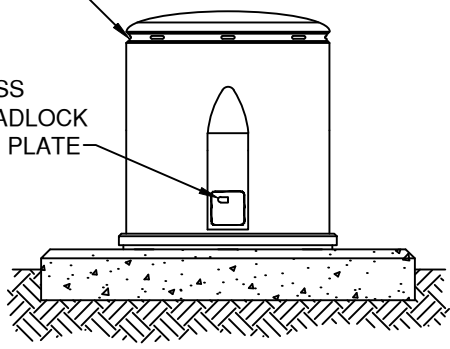
FRONT VIEW (OPENED)

1" REFLECTOR TAPE PER COLOR CODE



SIDE VIEW

STAINLESS STEEL PADLOCK BACKING PLATE



FRONT VIEW

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

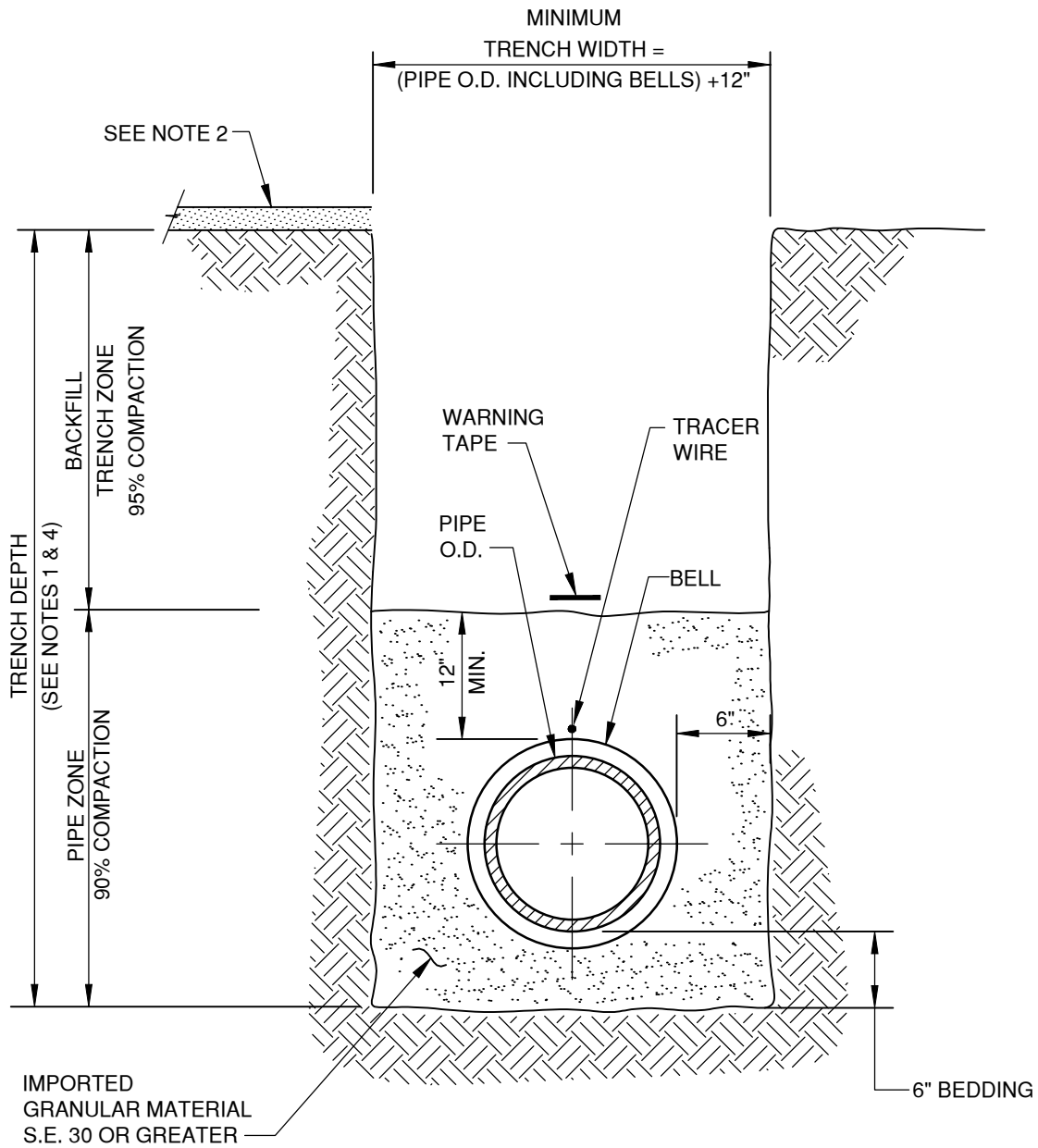
**COLOR CODE:**  
BLUE - POTABLE  
PURPLE - RECYCLED  
GREEN - SEWER  
YELLOW - BLOWOFF

APPROVED:	
<i>Wally A. ...</i>	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
<b>W-16</b>





**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 Paul* 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**

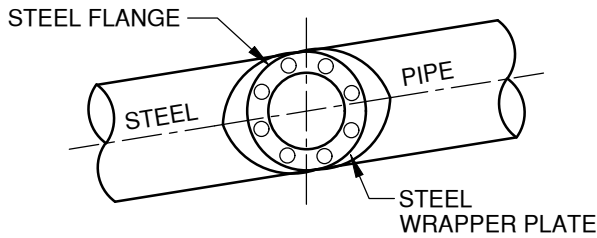
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DWG. NUMBER

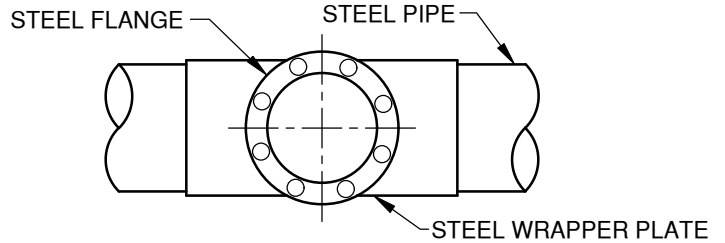
**W-17**

**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.

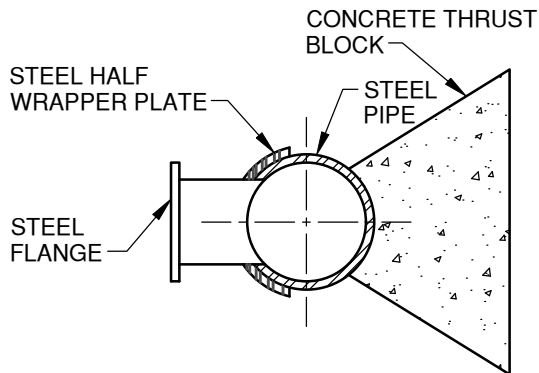


**HALF WRAPPER FRONT VIEW**

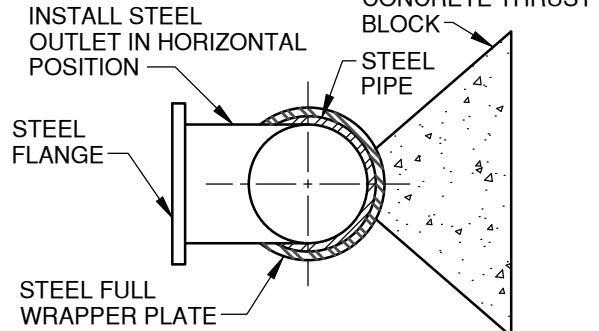


SIZE x SIZE CONNECTIONS REQUIRE A FULL WRAPPER PLATE

**CONNECTION TO STEEL PIPE**

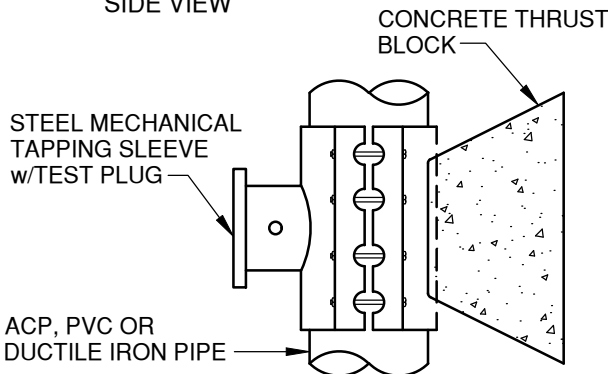


**HALF WRAPPER SIDE VIEW**



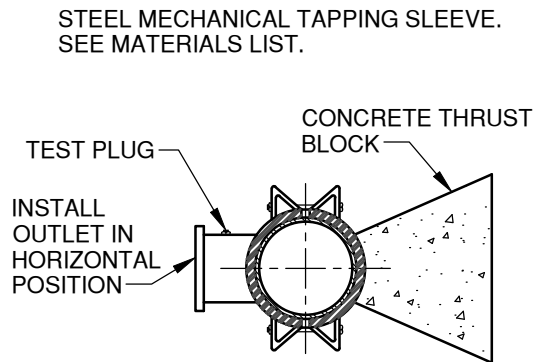
**FULL WRAPPER FRONT VIEW**

**FULL WRAPPER SIDE VIEW**



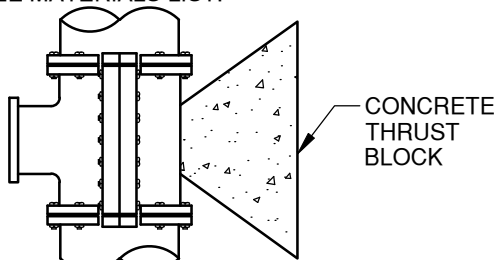
**TOP VIEW**

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

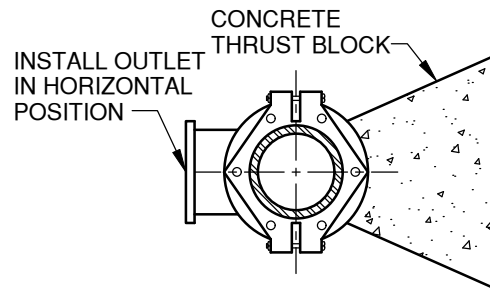


**SIDE VIEW**

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



**TOP VIEW**

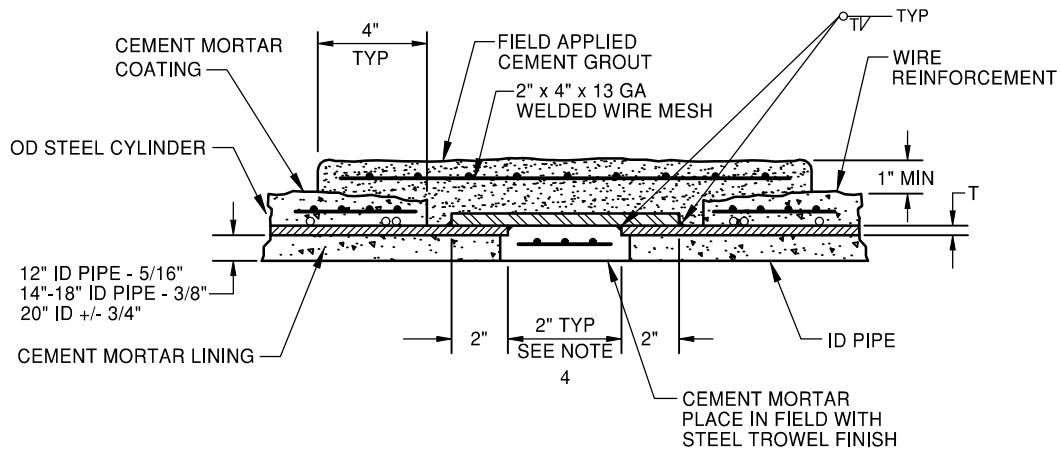


**SIDE VIEW**

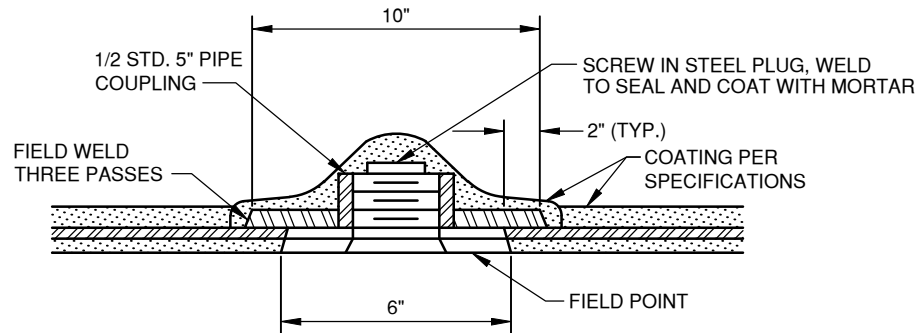
APPROVED:	
<i>Wally Paul</i>	5/16/19
District Engineer	Date
5/16/2019	
Latest Revision Date	

	<b>VALLEY CENTER MUNICIPAL WATER DISTRICT</b> <b>STANDARD DRAWING</b>
<b>TYPICAL CONNECTION DETAILS</b> <b>TO STEEL AND A.C. PIPE</b>	

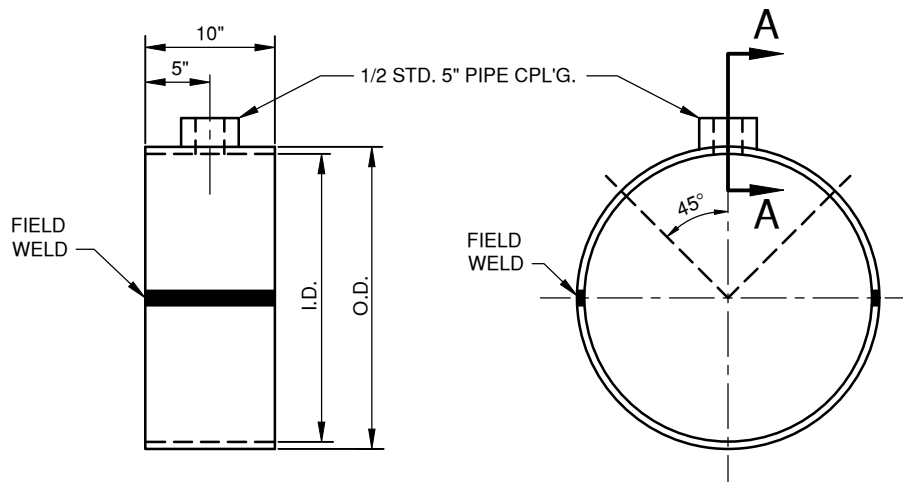
NOT TO SCALE
DWG. NUMBER
<b>W-18</b>



**FIELD WELDED CLOSURE**



**SECTION A-A**  
ENLARGED VIEW



**NOTES:**

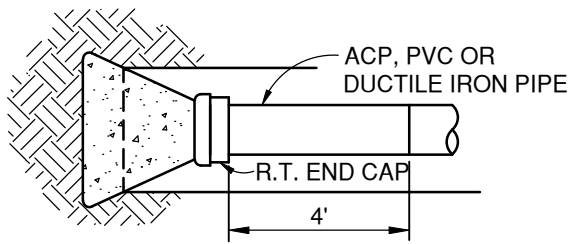
1. STRAP TO BE SHIPPED IN HALVES AND WELDED IN THE FIELD.
2. PLATE THICKNESS SHALL BE EQUAL TO ADJOINING STEEL PIPE EXCEPT THAT MINIMUM THICKNESS SHALL BE 3/16". WHEN PIPE I.D. EXCEEDS 14", PROVIDE TWO HANDHOLES AT 45° FROM VERTICAL.
3. TWO HANDHOLES FOR PIPE ≥ 16" DIAMETER.
4. WHERE ACCESS TO THE PIPE 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.

APPROVED:  
  
 District Engineer  
 5/16/2019  
 Latest Revision Date

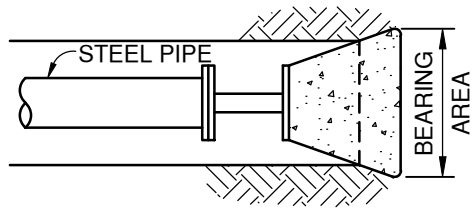
VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**BUTT STRAP CLOSURE**

NOT TO SCALE  
 DWG. NUMBER  
**W-19**

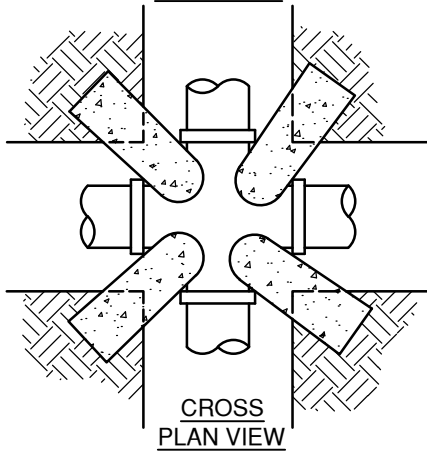
4' PIECE INTO END CAP



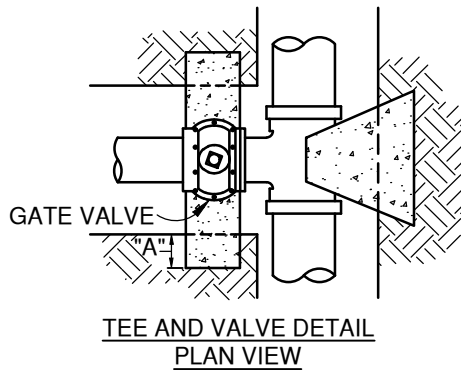
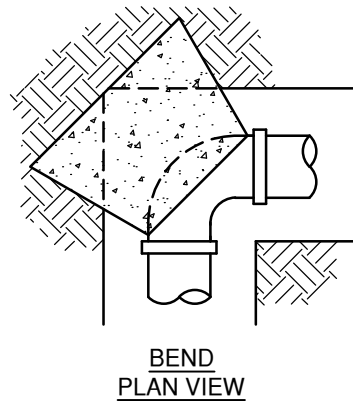
12" x 12" x 1/2" STL. PLATE  
TO 3" x 12" STD. STL. GALV. PIPE  
BLIND FLG. WELDED TO PIPE



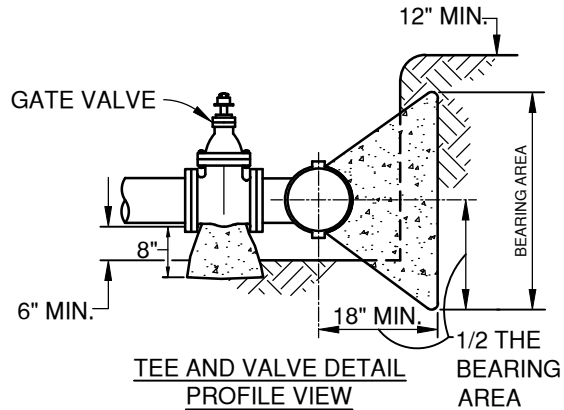
A.C. PIPE END DETAIL  
PLAN VIEW



STEEL PIPE END DETAIL  
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



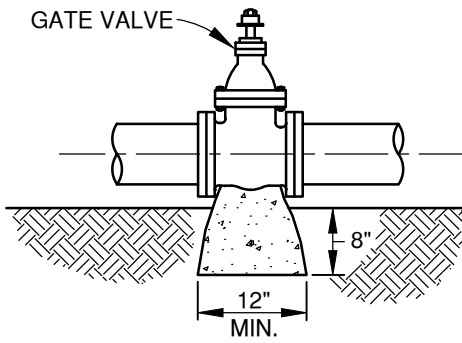
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**CONCRETE THRUST BLOCKS**

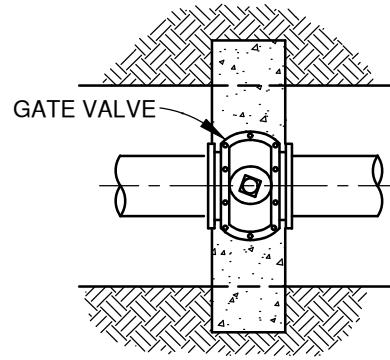
NOT TO SCALE

DWG. NUMBER

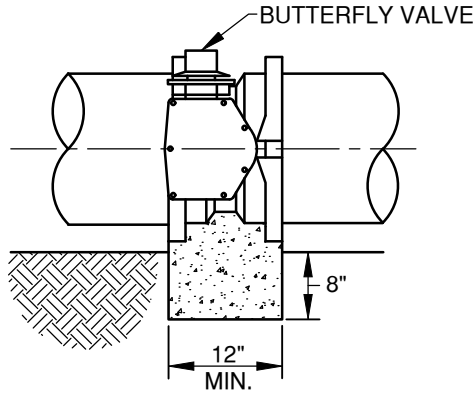
**W-20**



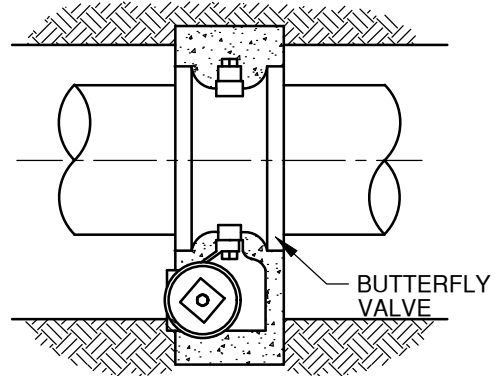
GATE VALVE - ELEVATION



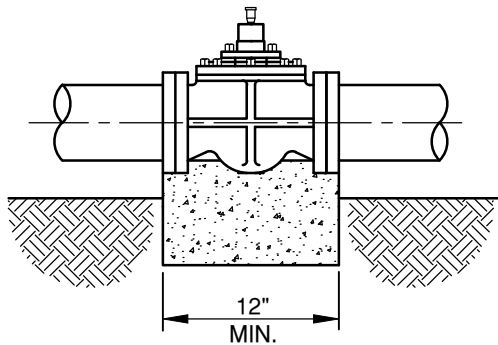
GATE VALVE - PLAN VIEW



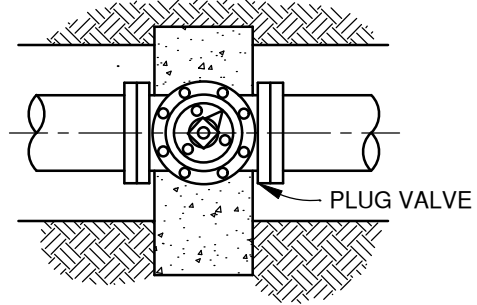
BUTTERFLY VALVE - ELEVATION



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:  
  
 District Engineer      Date  
 5/16/2019  
 Latest Revision Date



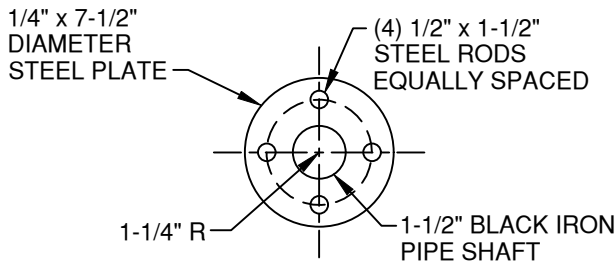
VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING

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

NOT TO SCALE

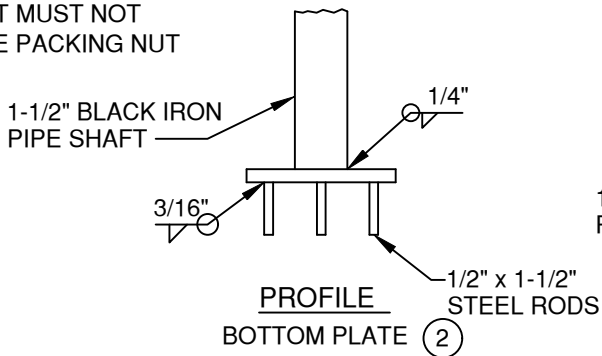
DWG. NUMBER

**W-21**

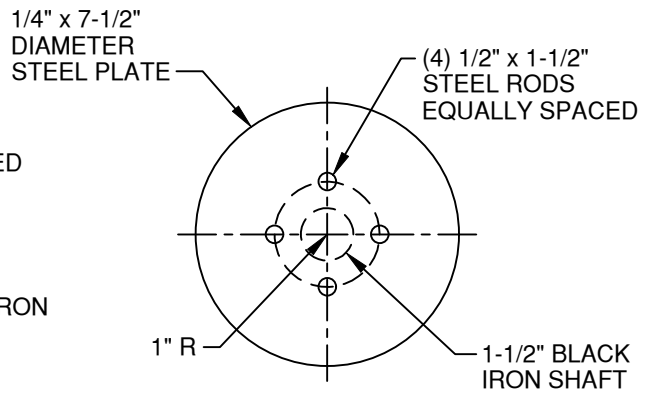


PLAN

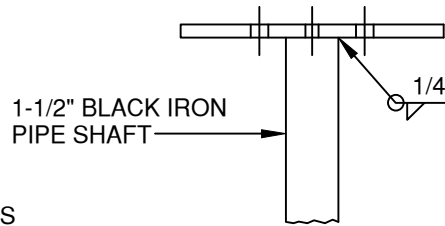
PATTERN OF STEEL RODS  
MUST FIT SNUG IN HAND  
WHEEL BUT MUST NOT  
TOUCH THE PACKING NUT



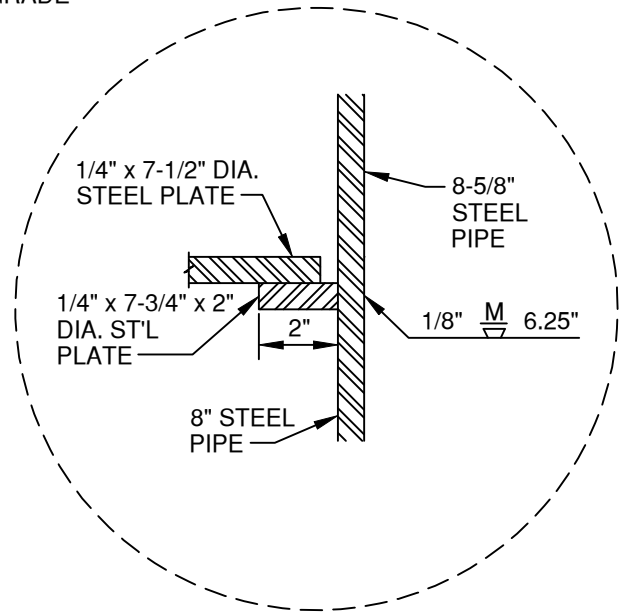
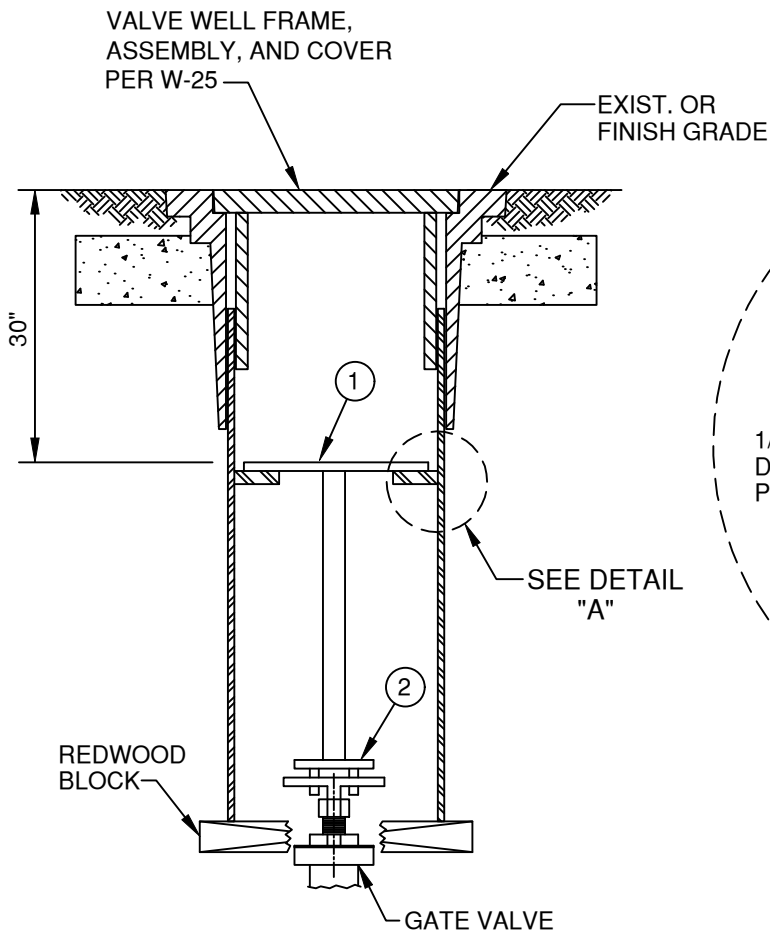
PROFILE  
BOTTOM PLATE ②



PLAN



PROFILE  
TOP PLATE ①



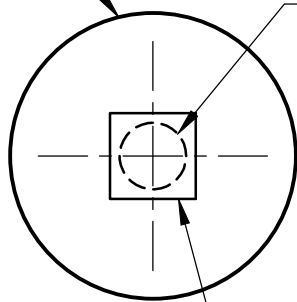
DETAIL "A"

APPROVED:  
*Wally Paul* 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

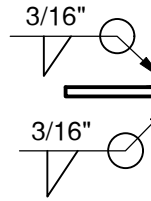


1-1/2" BLACK  
IRON PIPE  
SHAFT

2" x 2" STEEL  
OPERATOR NUT

PLAN

2" x 2" STEEL  
OPERATOR NUT



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

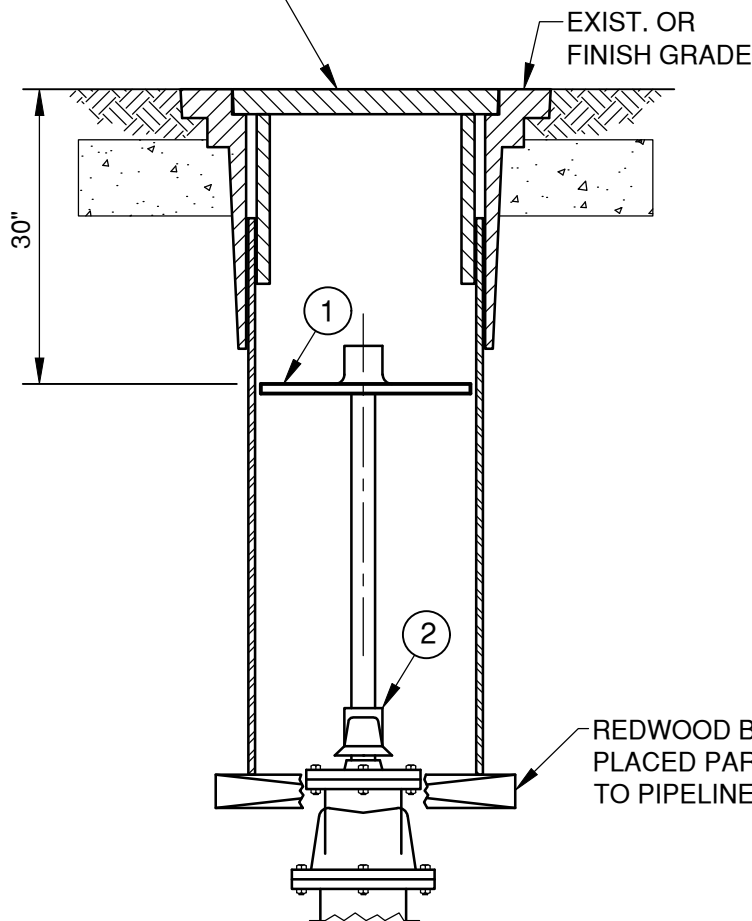
1-1/2" BLACK  
IRON SHAFT

PROFILE

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

TOP PLATE

①



30"

EXIST. OR  
FINISH GRADE

①

②

REDWOOD BLOCK  
PLACED PARALLEL  
TO PIPELINE

1-1/2" BLACK  
IRON SHAFT

1/4" x 2-1/2" SQ.  
STEEL PLATE

2-1/2" SQ. x 3/16"  
STEEL TUBING

VALVE OPERATOR

②

APPROVED:

*Wally Paul* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



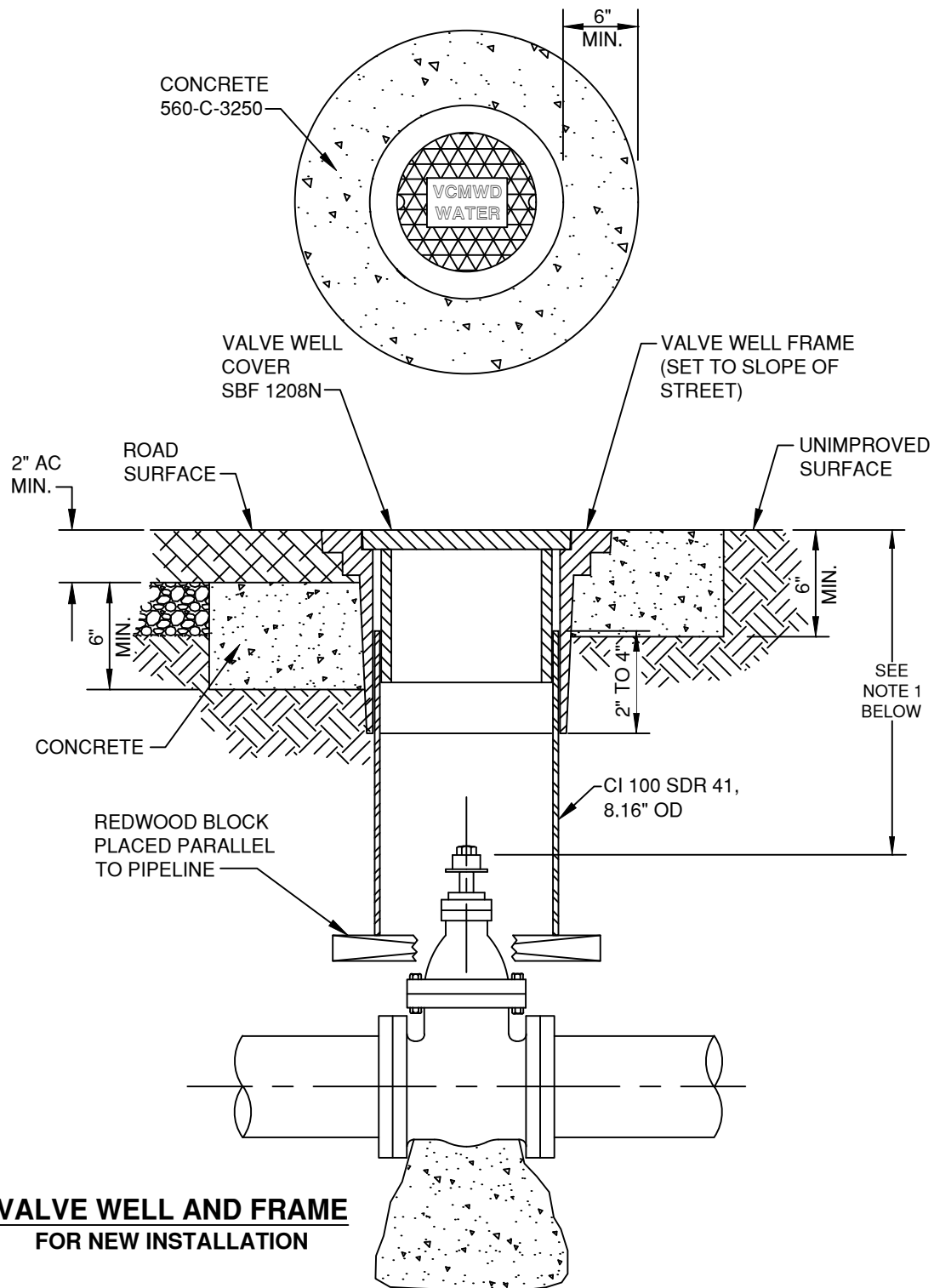
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

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

NOT TO SCALE

DWG. NUMBER

**W-24**



**VALVE WELL AND FRAME  
FOR NEW INSTALLATION**

**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. Hill* 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**

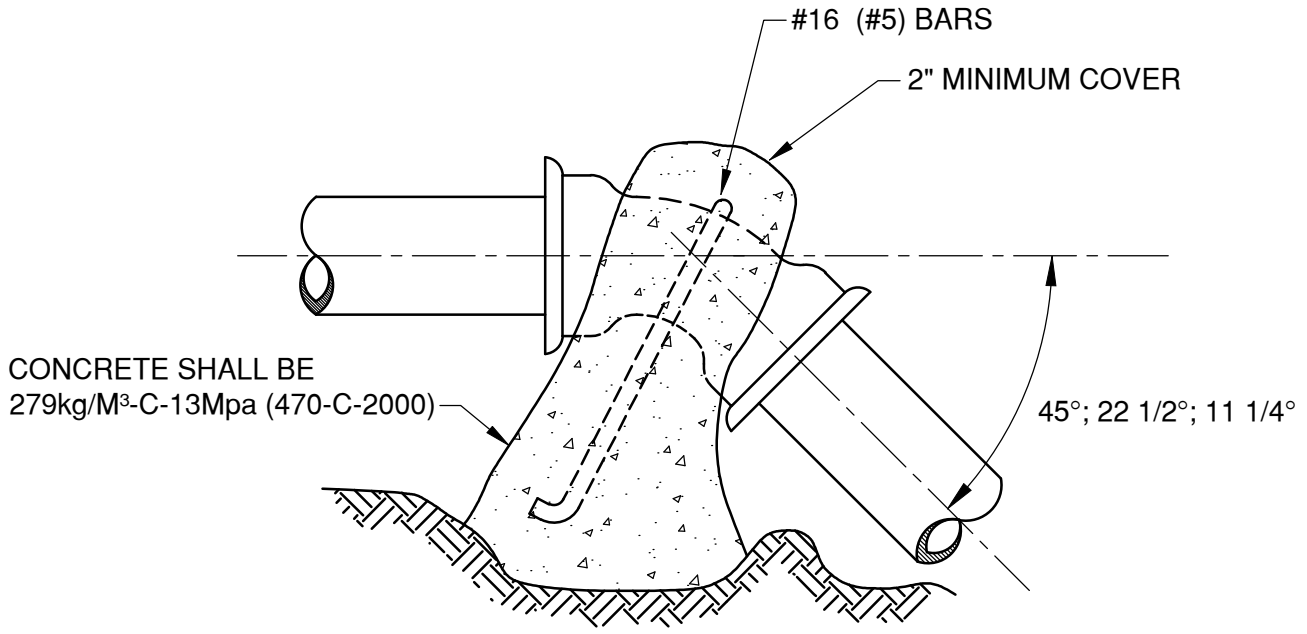
NOT TO SCALE

DWG. NUMBER

**W-25**







CONCRETE SHALL BE  
279kg/M<sup>3</sup>-C-13Mpa (470-C-2000)

45°; 22 1/2°; 11 1/4°

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

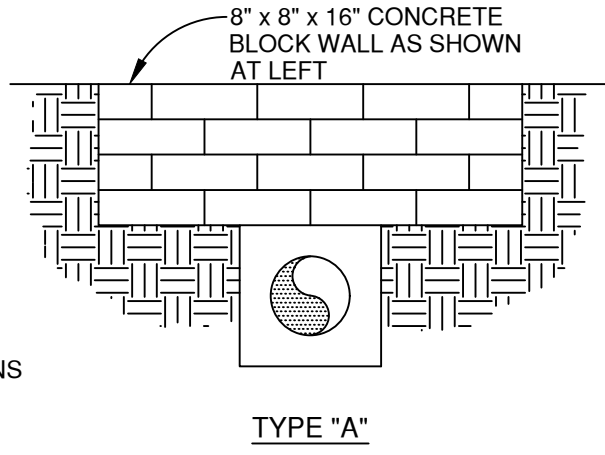
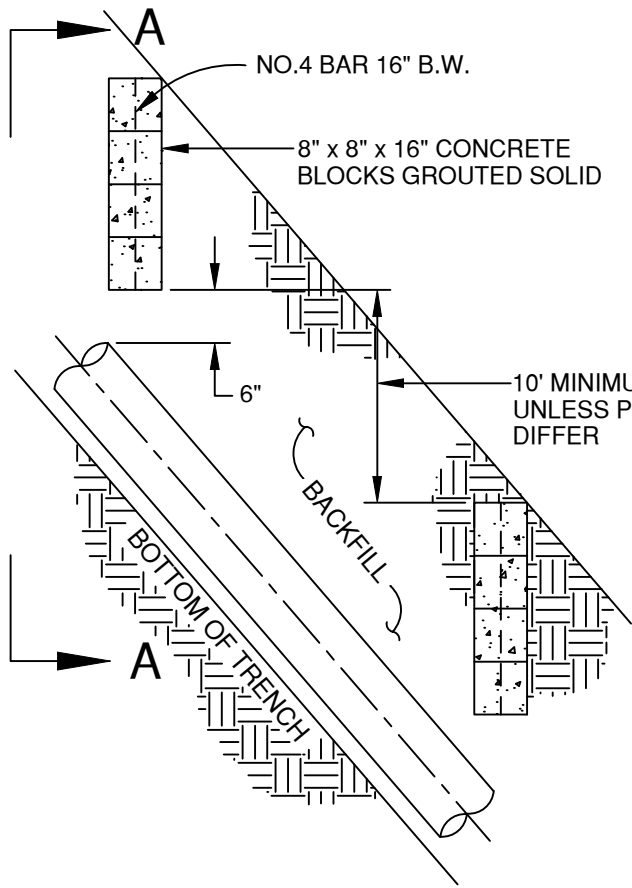
\* INCREASE VOLUMES SHOWN IN PROPORTION TO PRESSURES  
EXISTING WHEN PRESSURE TESTING PIPELINE.  
\* \* SPECIAL DESIGN REQUIRED.

APPROVED:  
*Wally P. ...* 5/16/19  
District Engineer Date  
5/16/2019  
Latest Revision Date

 VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

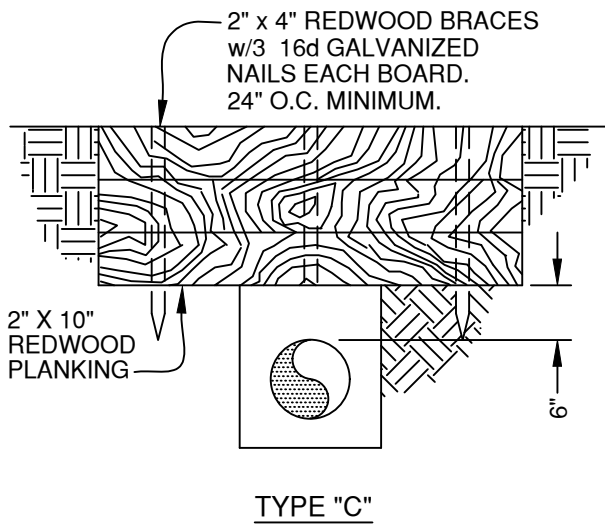
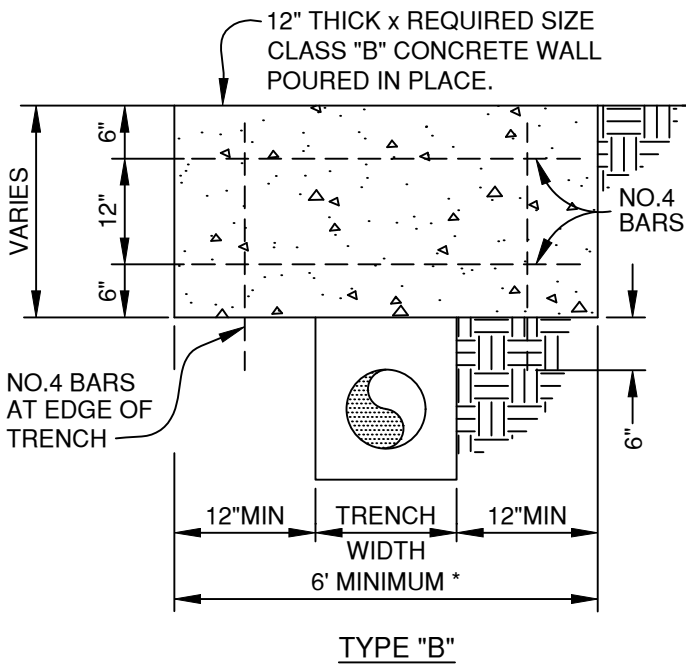
**VERTICAL ANCHOR BLOCK**

NOT TO SCALE  
DWG. NUMBER  
**W-27**



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.



**SECTION A-A**

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

APPROVED:  
*Wally P. ...* 5/16/19  
District Engineer Date  
5/16/2019  
Latest Revision Date

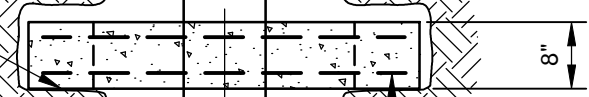
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING  
**SLOPE PROTECTION FOR GRADES OF 30% OR LARGER**

NOT TO SCALE  
DWG. NUMBER  
**W-28**

'X' TO NEXT STRUCTURE

CMU BLOCKS LAID TIGHT AS POSSIBLE TO DOWNSTREAM PORTION OF NOTCH INTO ORIGINAL GROUND

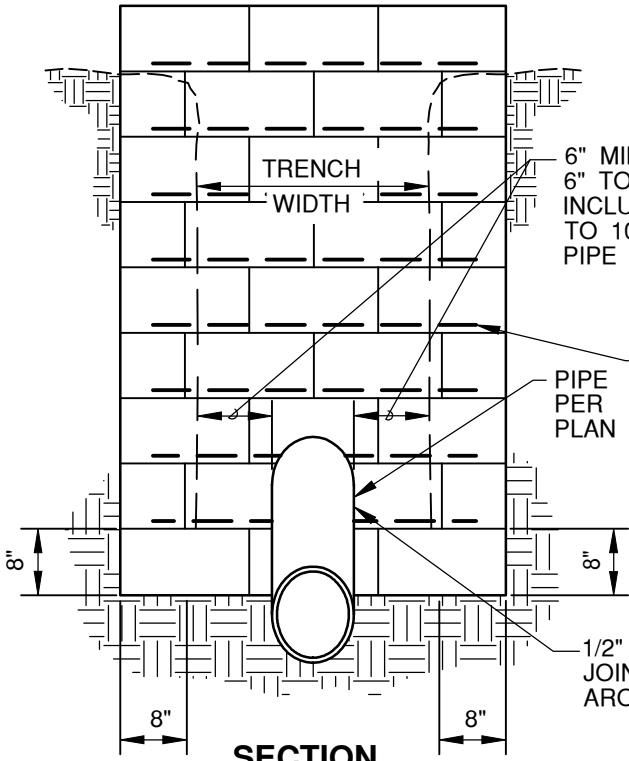
8" MIN. 8" MIN.



TRENCH WIDTH

**PLAN**

'X'

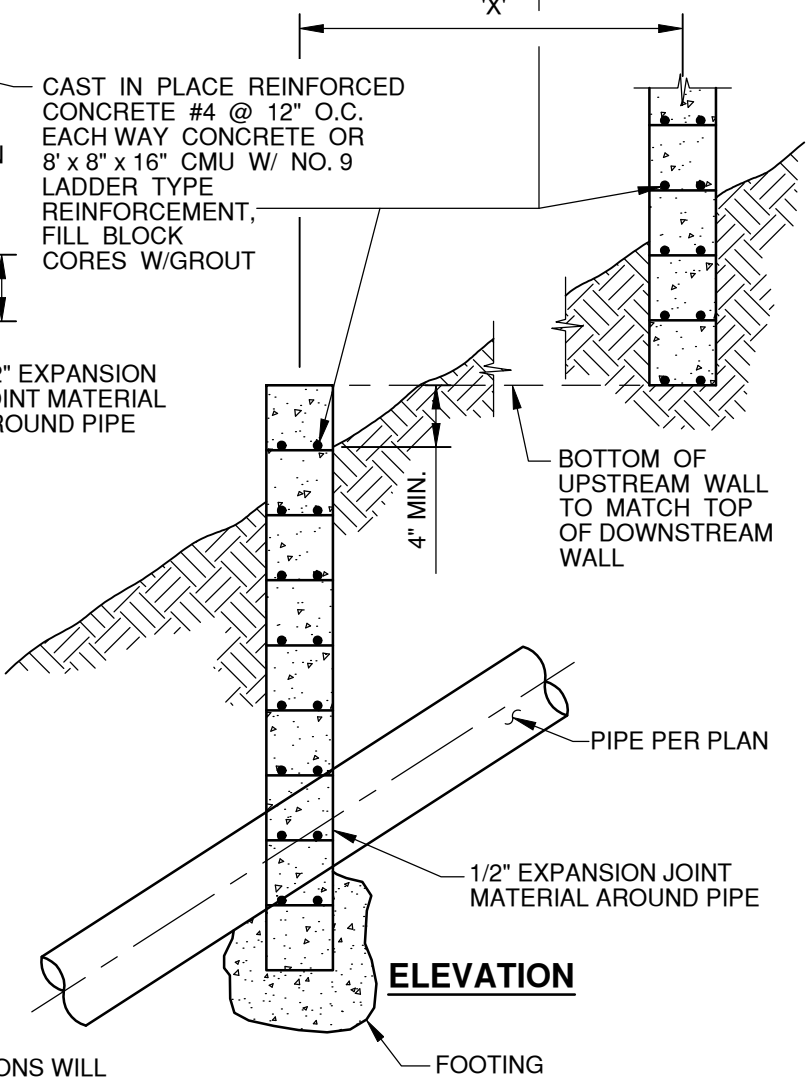


**SECTION**

6" MIN. - 8" MAX. 6" TO 12" PIPE INCLUSIVE, 6" MIN. TO 10" MAX. 15" PIPE & ABOVE

CAST IN PLACE REINFORCED CONCRETE #4 @ 12" O.C. EACH WAY CONCRETE OR 8' x 8" x 16" CMU W/ NO. 9 LADDER TYPE REINFORCEMENT, FILL BLOCK CORES W/GROUT

1/2" EXPANSION JOINT MATERIAL AROUND PIPE



**ELEVATION**

BOTTOM OF UPSTREAM WALL TO MATCH TOP OF DOWNSTREAM WALL

PIPE SLOPE	'X'-MAX DISTANCE
15-20%	45'
20-25%	35'
25-30%	30'
30-40%	20'
>40%	CONSULT DISTRICT

**NOTES:**

1. PIPE ANCHORS REQUIRED ON ALL SLOPES OF 15% OR GREATER.
2. ANCHOR SHALL EXTEND 8" MIN. INTO NATURAL UNDISTURBED SOIL.
3. CONCRETE SHALL BE 450-C-2000
4. ANCHORS FOR TRAPEZOIDAL TRENCH SECTIONS WILL CONFORM TO TRENCH CROSS SECTION AND EXTEND 8" MIN. IN TO UNDISTURBED SOIL.

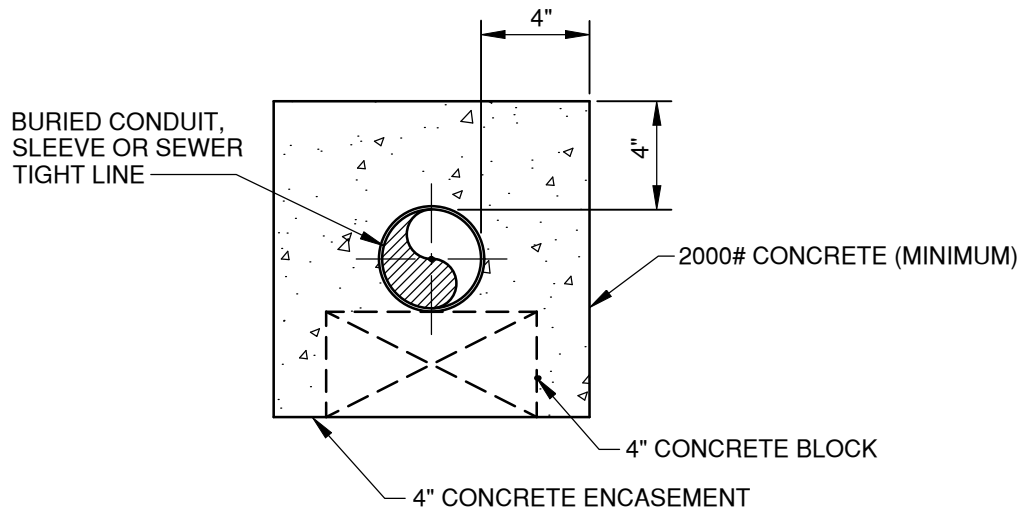
APPROVED:  
*Wally Paul* 5/16/19  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date



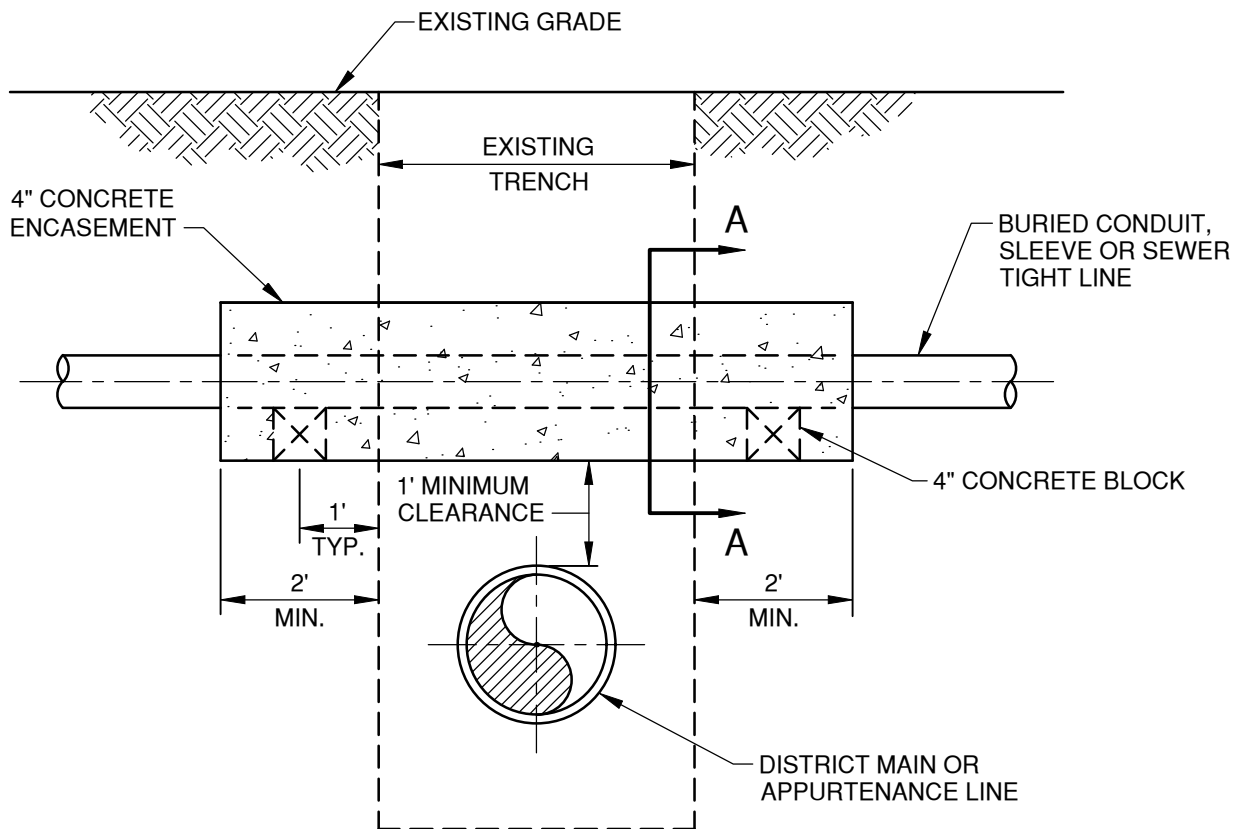
VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING

**STANDARD CUTOFF WALL**

NOT TO SCALE  
 DWG. NUMBER  
**W-29**



## SECTION A-A

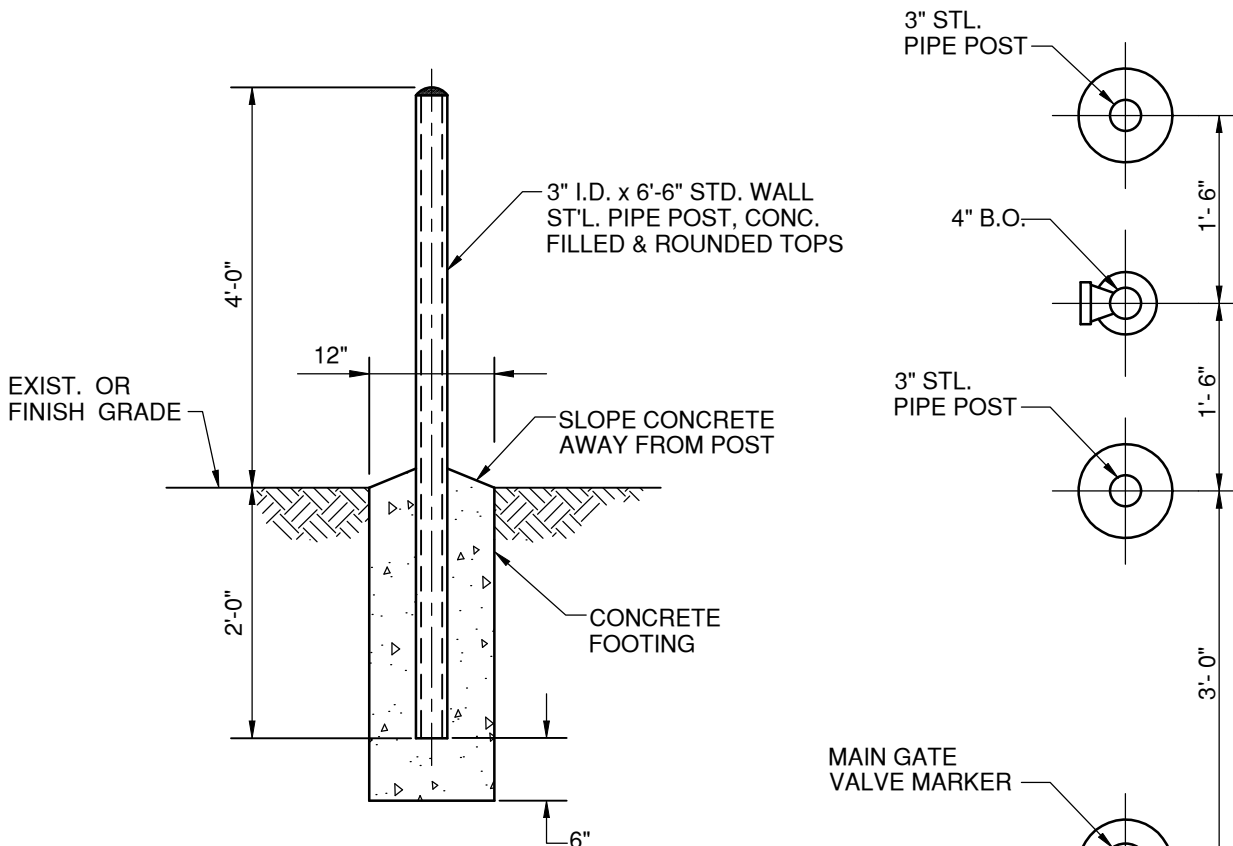


## TYPICAL SECTION

**NOTES :**

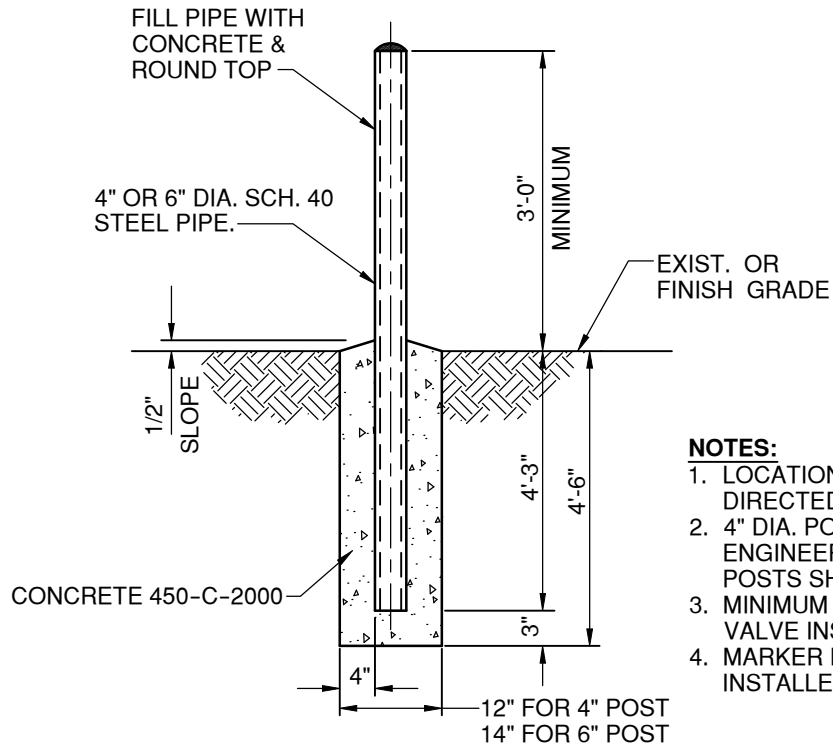
1. AN ENCROACHMENT PERMIT MUST BE OBTAINED FROM THE DISTRICT PRIOR TO CONSTRUCTION OVER DISTRICT FACILITIES.
2. 2 SACK SLURRY BACKFILL MAY BE SUBSTITUTED FOR CONCRETE ENCASEMENT.

<p>APPROVED:</p> <p><i>Wally P. [Signature]</i> 5/16/19</p> <p>District Engineer      Date</p>	<p>VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING</p>	<p>NOT TO SCALE</p>
<p>5/16/2019</p> <p>Latest Revision Date</p>	<p><b>CONCRETE ENCASEMENT DETAIL FOR U.G. ELECT., TEL., &amp; SEWER TIGHT LINES OVER DISTRICT MAINS &amp; APPURTENANCES</b></p>	<p>DWG. NUMBER</p> <p><b>W-30</b></p>



**MARKER POST INSTALLATION**

**PLAN**

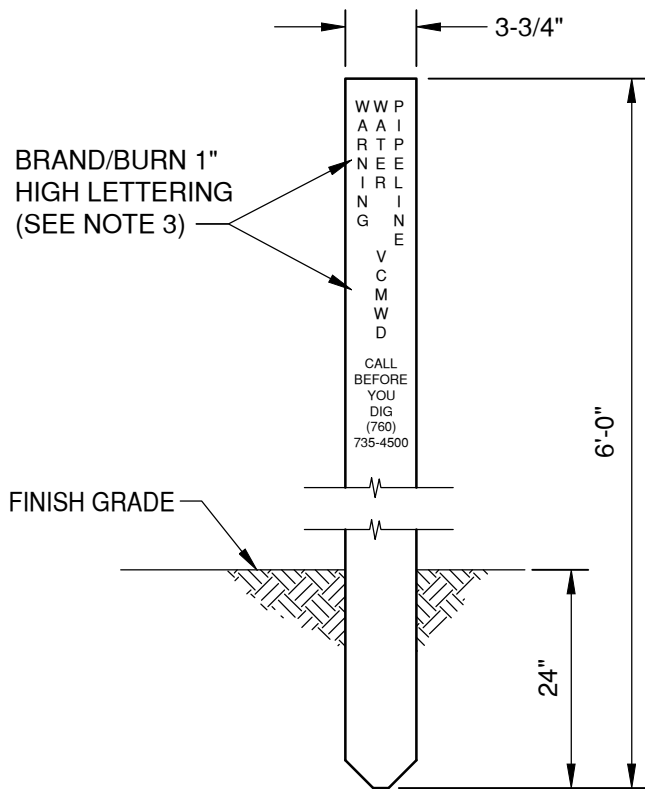


**NOTES:**

1. LOCATION SHALL BE AS SHOWN ON PLAN VIEW OR AS DIRECTED IN THE FIELD BY DISTRICT ENGINEER.
2. 4" DIA. POSTS SHALL BE APPROVED BY DISTRICT ENGINEER. FOR SPEED GREATER THAN 30 MPH, 6" DIA. POSTS SHALL BE USED.
3. MINIMUM OF TWO MARKER POSTS REQUIRED FOR EACH VALVE INSTALLED.
4. MARKER POSTS AND GUARD POSTS SHALL NOT BE INSTALLED WITHIN COUNTY RIGHT OF WAY.

**GUARD POST INSTALLATION**

<p>APPROVED:</p> <p><i>Wally Paul</i> 5/16/19</p> <p>District Engineer Date</p> <p>5/16/2019</p> <p>Latest Revision Date</p>	<p style="text-align: center;">                VALLEY CENTER MUNICIPAL WATER DISTRICT              STANDARD DRAWING    <b>GUARD &amp; MARKER POST              INSTALLATION</b> </p>	<p>NOT TO SCALE</p> <p>DWG. NUMBER</p> <p style="font-size: 24pt; font-weight: bold;">W-31</p>
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**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**

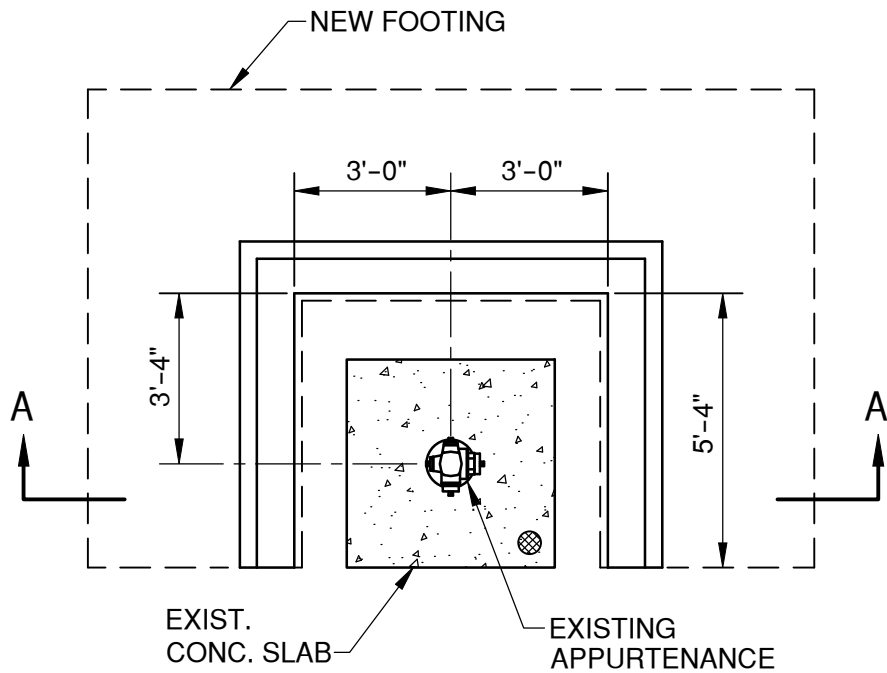
**NOTES:**

- EASEMENT/UTILITY MARKER POST SHALL BE INSTALLED WHERE CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- EASEMENT/UTILITY MARKER POST SHALL BE INSTALLED ALONG THE CENTERLINE OF THE PIPELINE.
- 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.

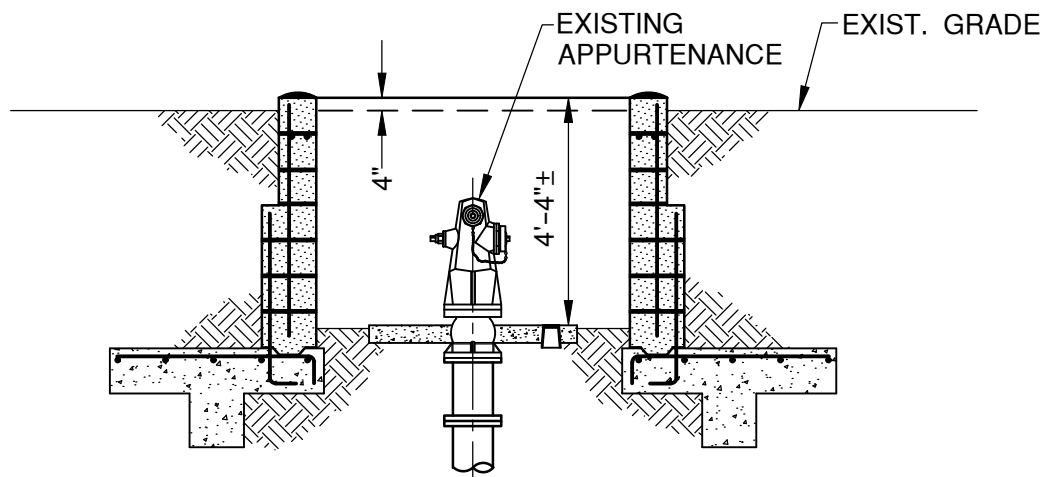
APPROVED:  
  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date

 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. ...* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

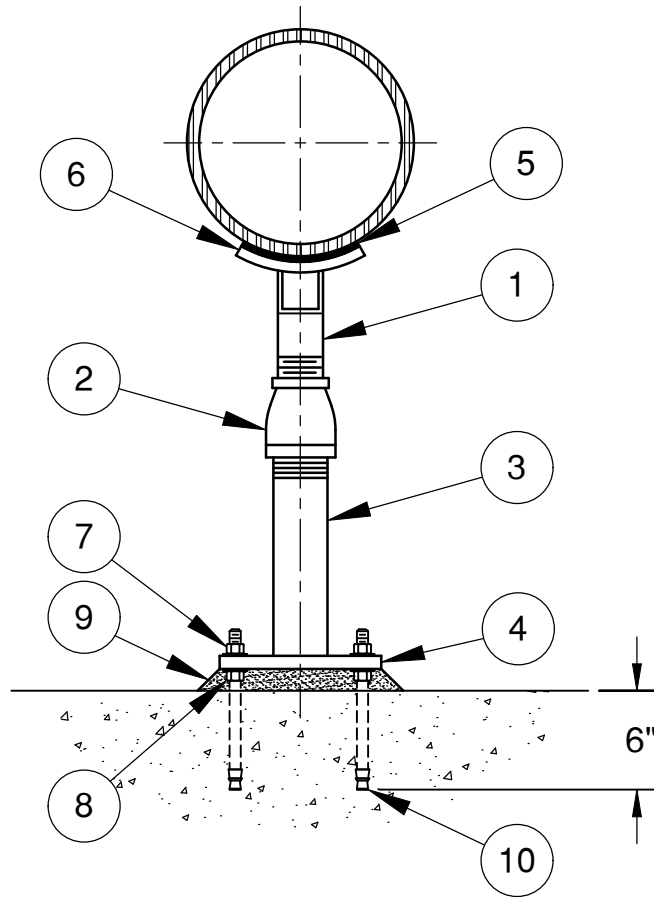
**APPURTENANCE RETAINING WALL**

NOT TO SCALE

DWG. NUMBER

**W-33**





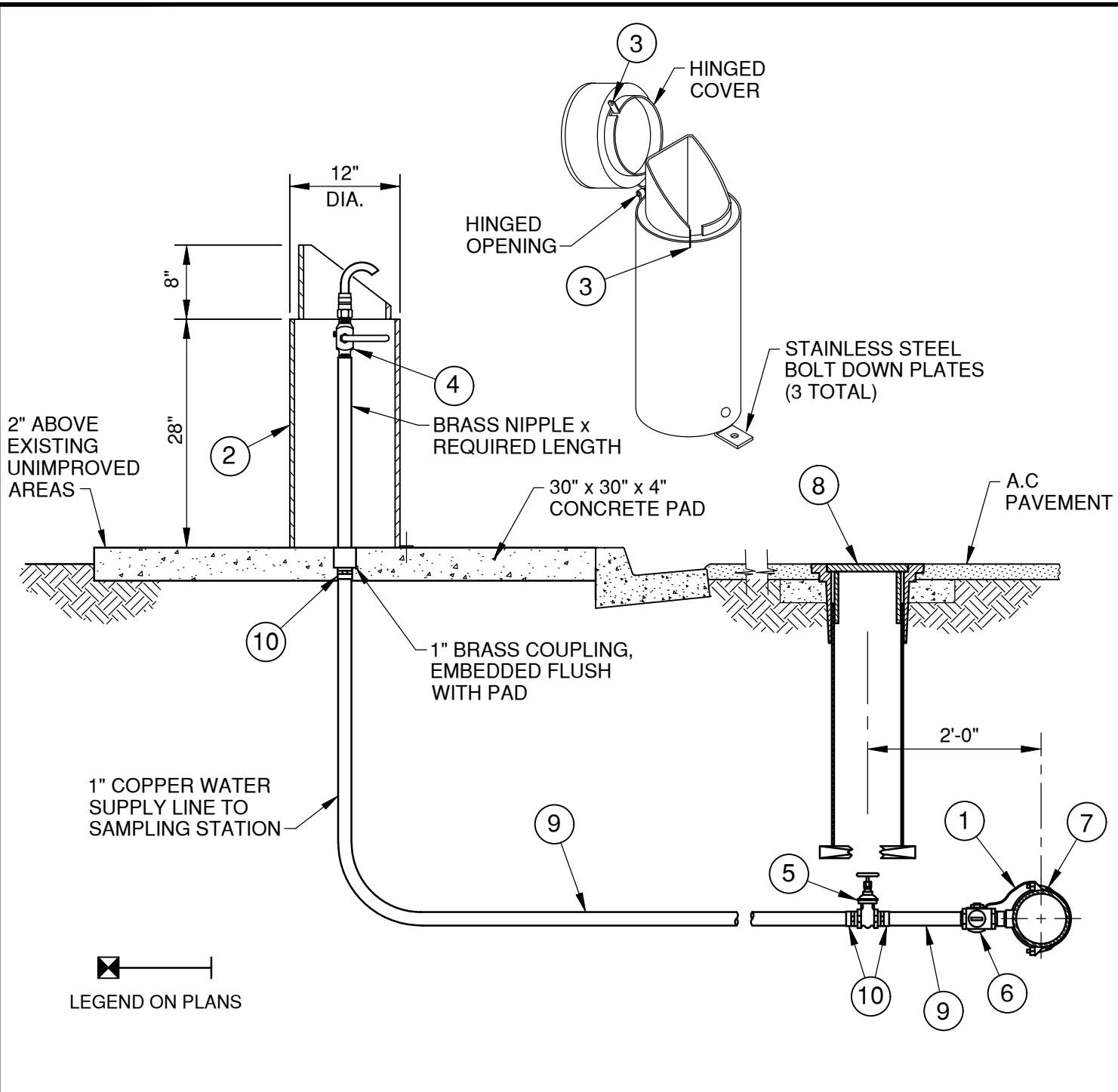
## ELEVATION

### 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:  District Engineer      Date 5/16/2019 Latest Revision Date	VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE DWG. NUMBER <b style="font-size: 1.2em;">W-34</b>
ADJUSTABLE PIPE SUPPORT DETAIL		

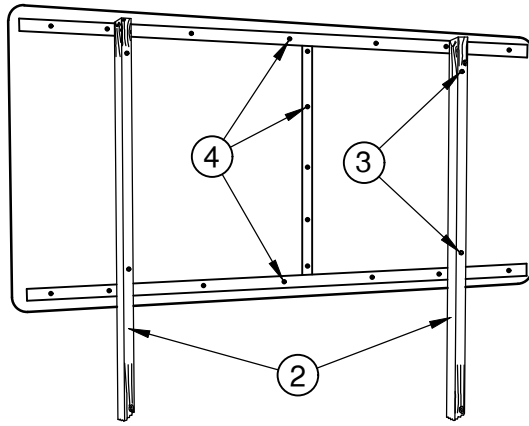


NO.	DESCRIPTION	NO.	DESCRIPTION
1	TRACER WIRE, MECHANICALLY BONDED TO CORP. STOP	6	1" BRONZE BALL CORP. STOP M.I.P. x COMP (OPERATING NUT TO BE ON THE RIGHT SIDE)
2	ARMOLITE POLYETHYLENE ENCLOSURE WITH HINGED COVER (W/ GRANITE FINISH)	7	1" BRONZE DOUBLE STRAP SADDLE FOR ACP & DIP, SS DOUBLE STRAP FOR 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 Paul* 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

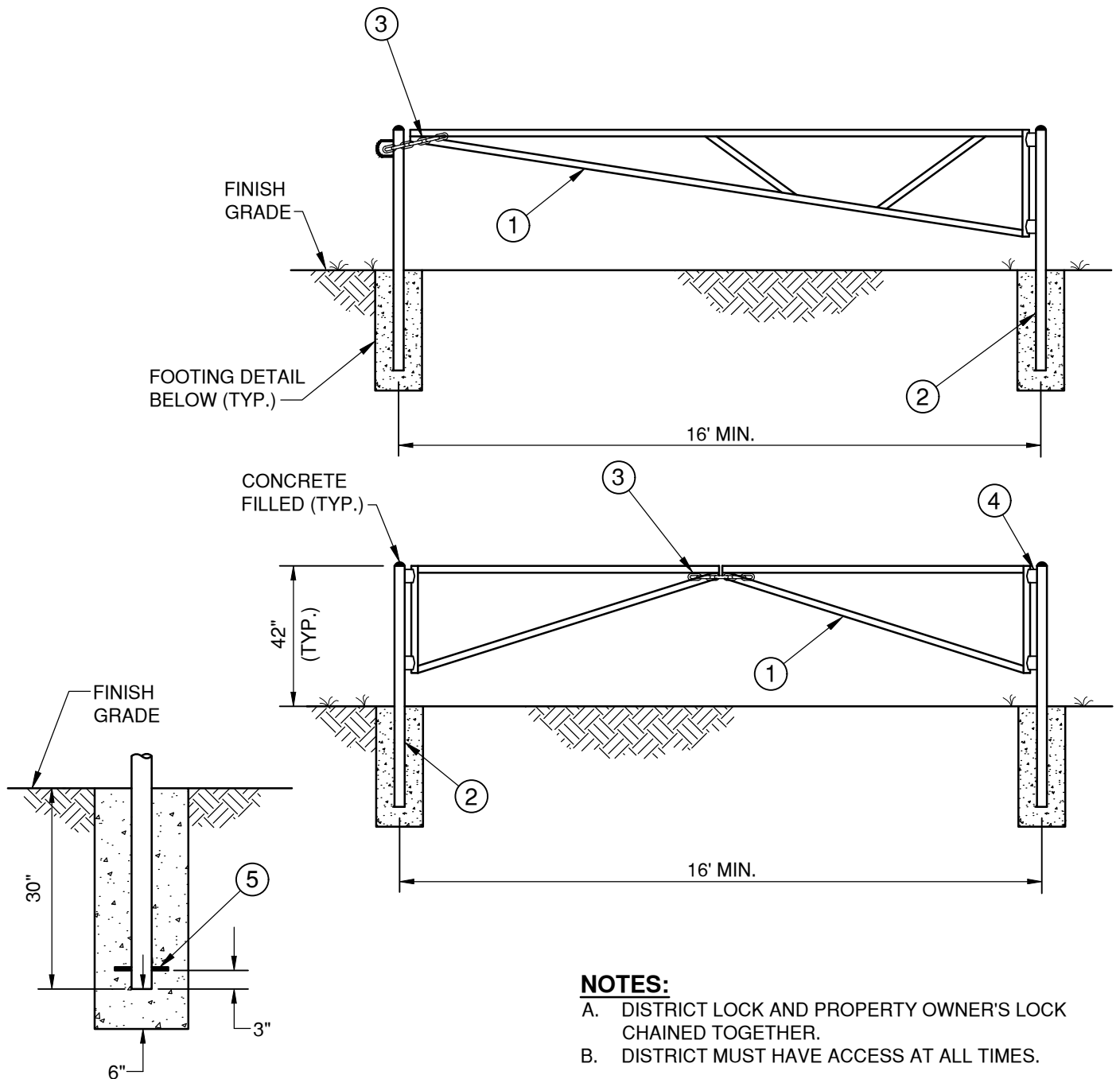
**SAMPLE SIGN**

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:**  
  
 District Engineer      Date  
 5/16/2019  
 Latest Revision Date

VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**PROJECT INFORMATION SIGN**

NOT TO SCALE  
 DWG. NUMBER  
**W-36**



**NOTES:**

- A. DISTRICT LOCK AND PROPERTY OWNER'S LOCK CHAINED TOGETHER.
- B. DISTRICT MUST HAVE ACCESS AT ALL TIMES.

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

APPROVED:  
*Wally P. ...* 5/16/19  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date



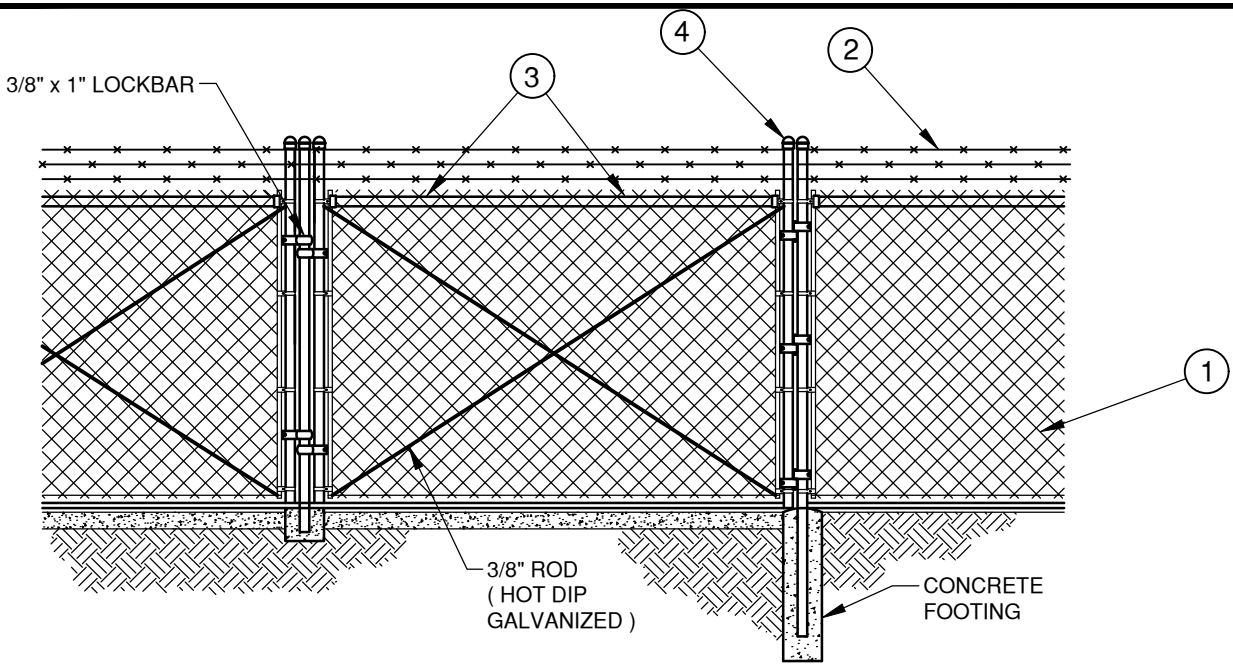
VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING

**TYPICAL PIPE GATE**

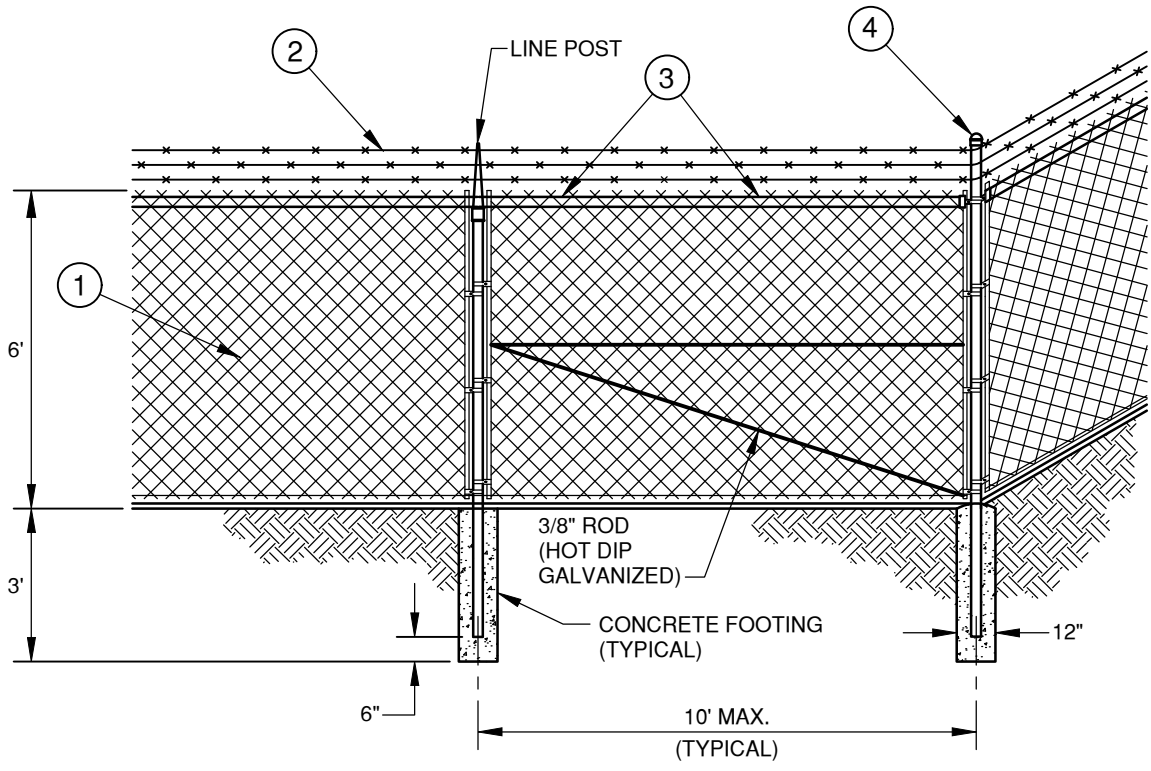
NOT TO SCALE

DWG. NUMBER

**W-37**



GATE

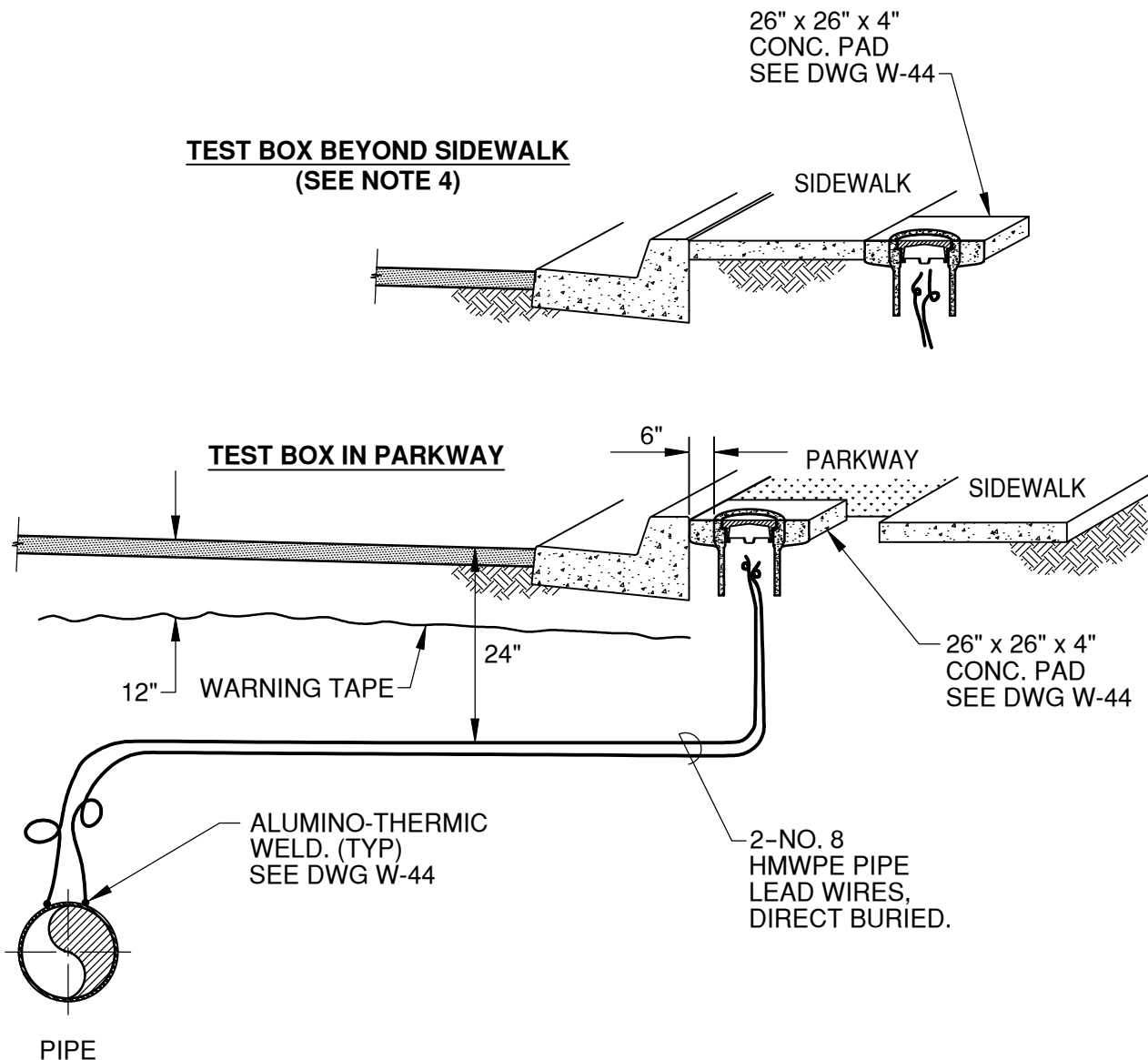


NO.	DESCRIPTION	NO.	DESCRIPTION
1	CHAIN LINK FABRIC 9 GAUGE	3	SCHEDULE 20, 2 3/8" GALV POST
2	BARBED WIRE, HT. MIN. 7', (4PT 12 GAUGE)	4	SCHEDULE 20, 2 7/8" GALV POST

APPROVED:  
*Wally Paul* 5/16/19  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date


VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**CHAIN LINK FENCE DETAILS**

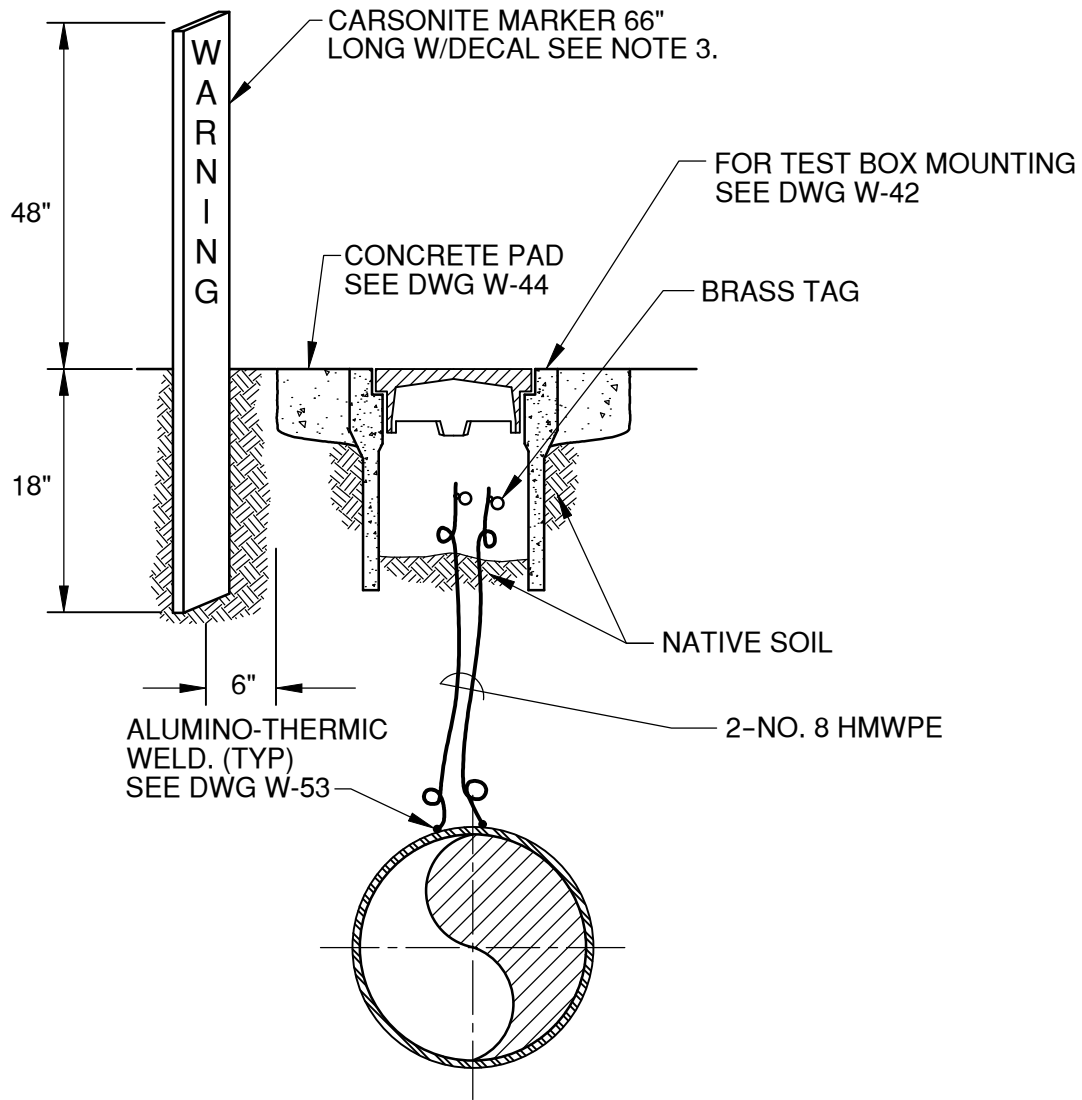
NOT TO SCALE  
 DWG. NUMBER  
**W-38**



**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)

<p>APPROVED:            District Engineer      Date          5/16/2019          Latest Revision Date</p>	<p style="text-align: center;">  <b>VALLEY CENTER MUNICIPAL WATER DISTRICT</b>          STANDARD DRAWING  <b>2 - WIRE TEST STATION</b>  <b>(PAVED STREET)</b></p>	<p style="text-align: center;">         NOT TO SCALE          DWG. NUMBER  <b>W-39</b></p>
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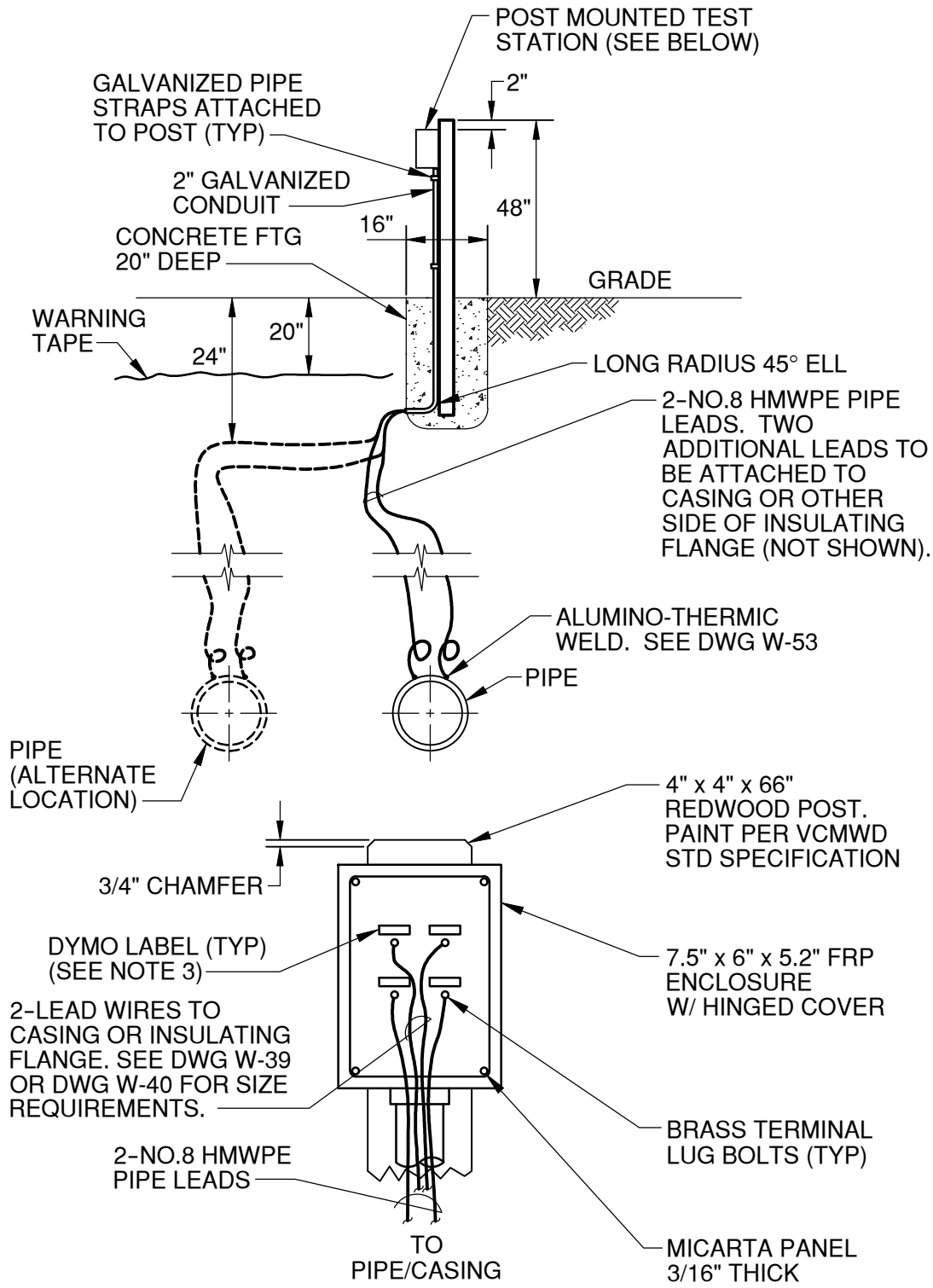


**NOTES:**

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:  District Engineer	 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
Date 5/16/2019 Latest Revision Date	<b>2 - WIRE TEST STATION (UNPAVED AREA)</b>	DWG. NUMBER <b>W-40</b>





**NOTES:**

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)

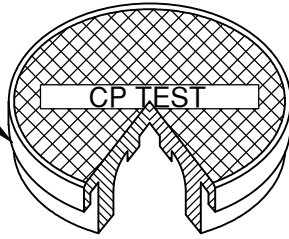
APPROVED:  
*Wally P. ...* 5/16/19  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date


 VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING  
**2 OR 4 - WIRE TEST STATION**

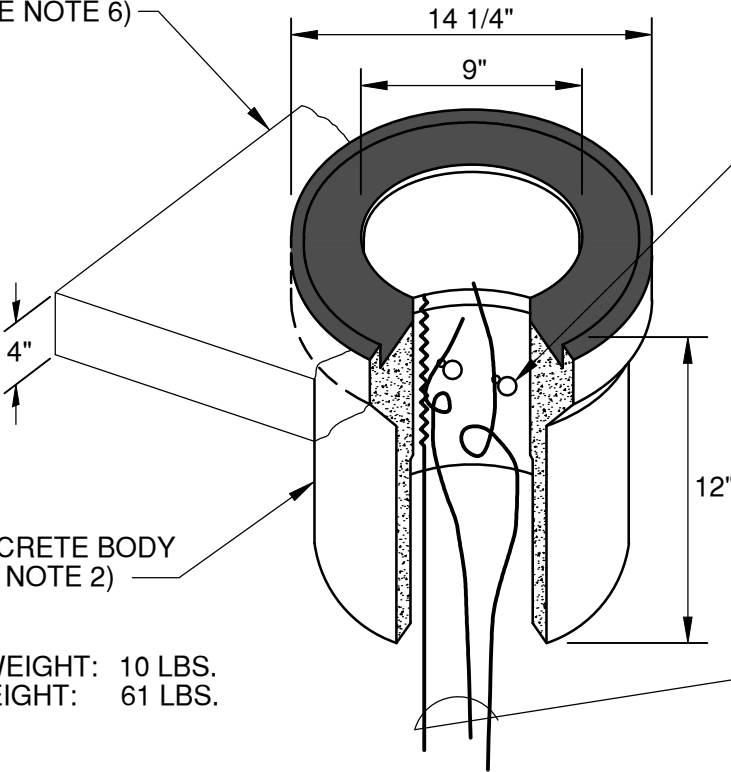
NOT TO SCALE  
 DWG. NUMBER  
**W-41**



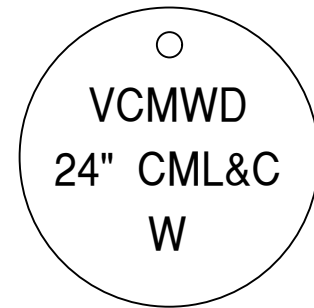
CAST IRON TRAFFIC COVER MARKED "CP TEST" OR "TRACER"



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)

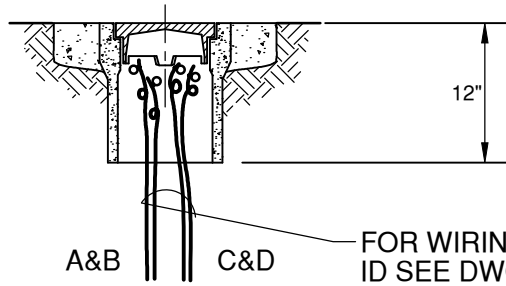
COVER WEIGHT: 10 LBS.  
BODY WEIGHT: 61 LBS.

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

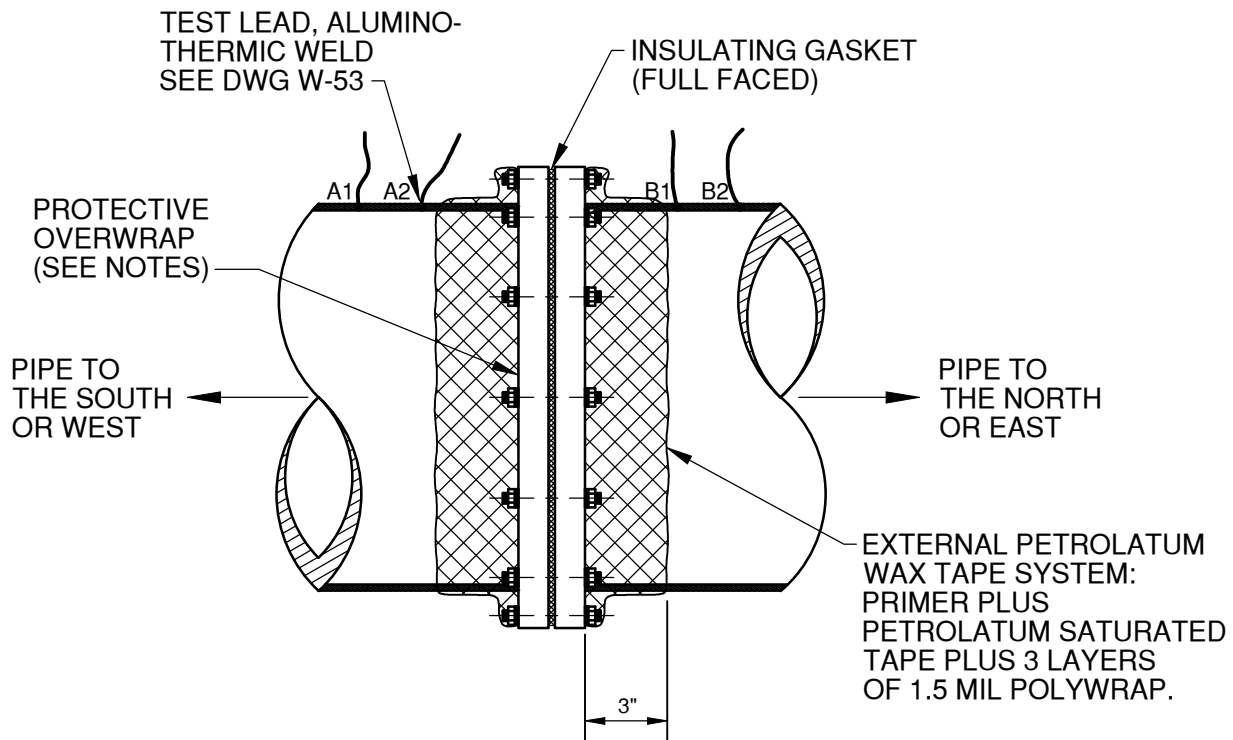
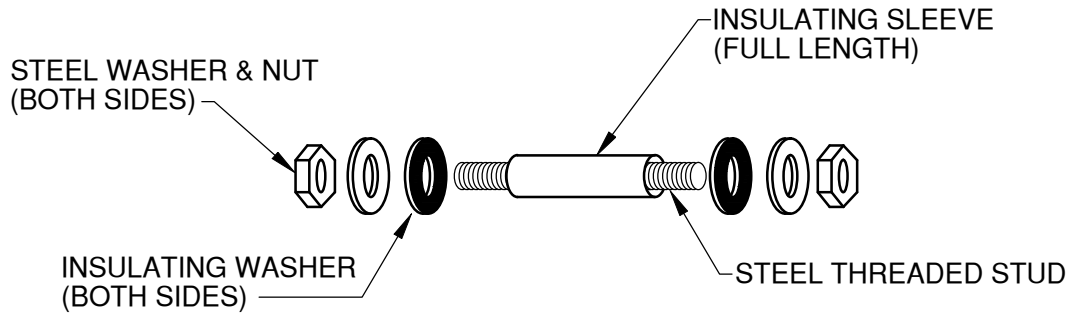
**NOTES:**

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.

<p>APPROVED: <i>Wally P. [Signature]</i> 5/16/19 District Engineer Date 5/16/2019 Latest Revision Date</p>	<p style="text-align: center;"> VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING</p> <p style="text-align: center;"><b>AT GRADE TEST BOX</b></p>	<p>NOT TO SCALE</p> <p>DWG. NUMBER</p> <p style="text-align: center;"><b>W-42</b></p>
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**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



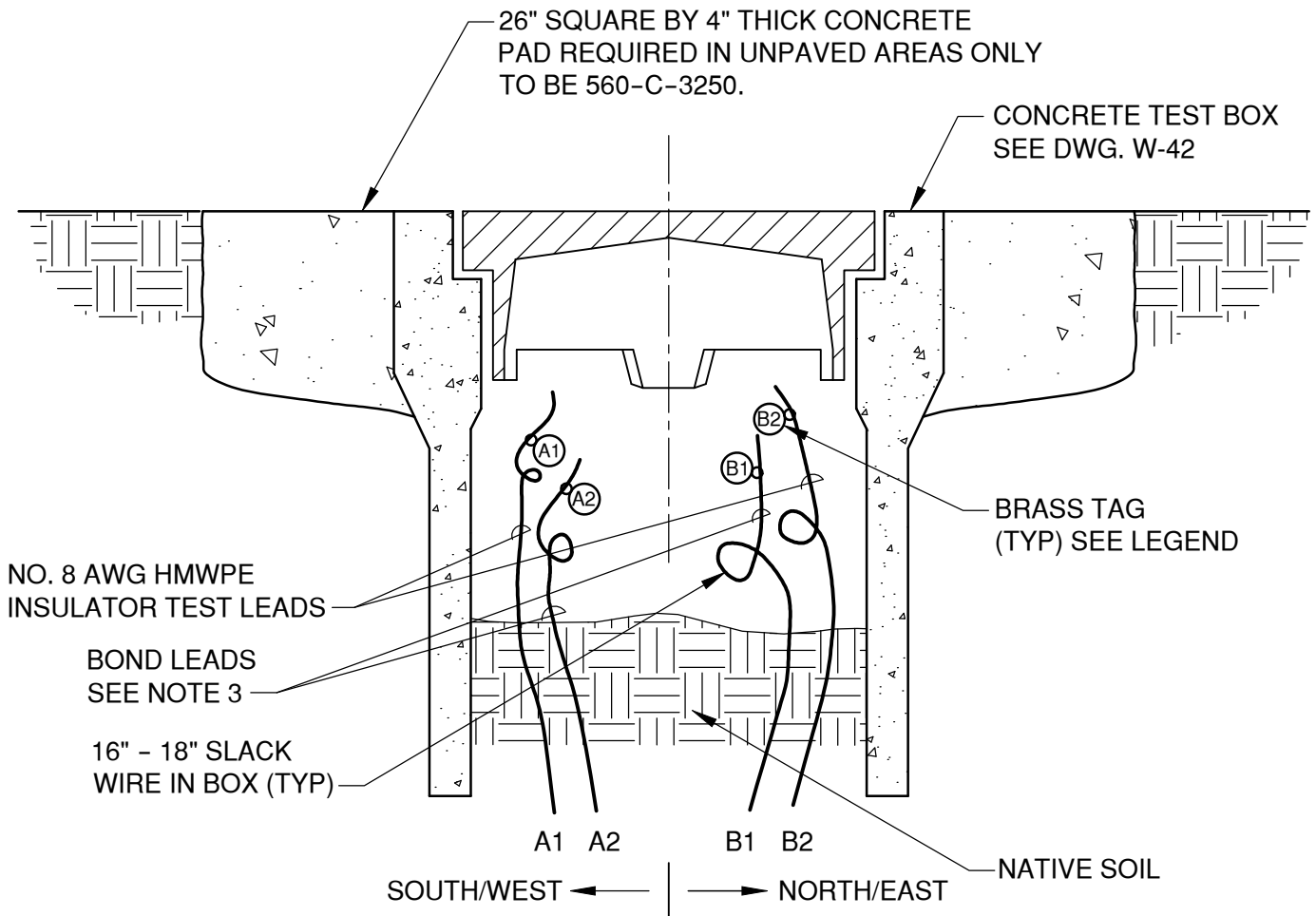
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**BURIED INSULATING FLANGE**

NOT TO SCALE

DWG. NUMBER

**W-43**



**BRASS TAG LEGEND**

<u>WIRE</u>	<u>SIZE</u>	<u>ID STAMP</u>
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:**

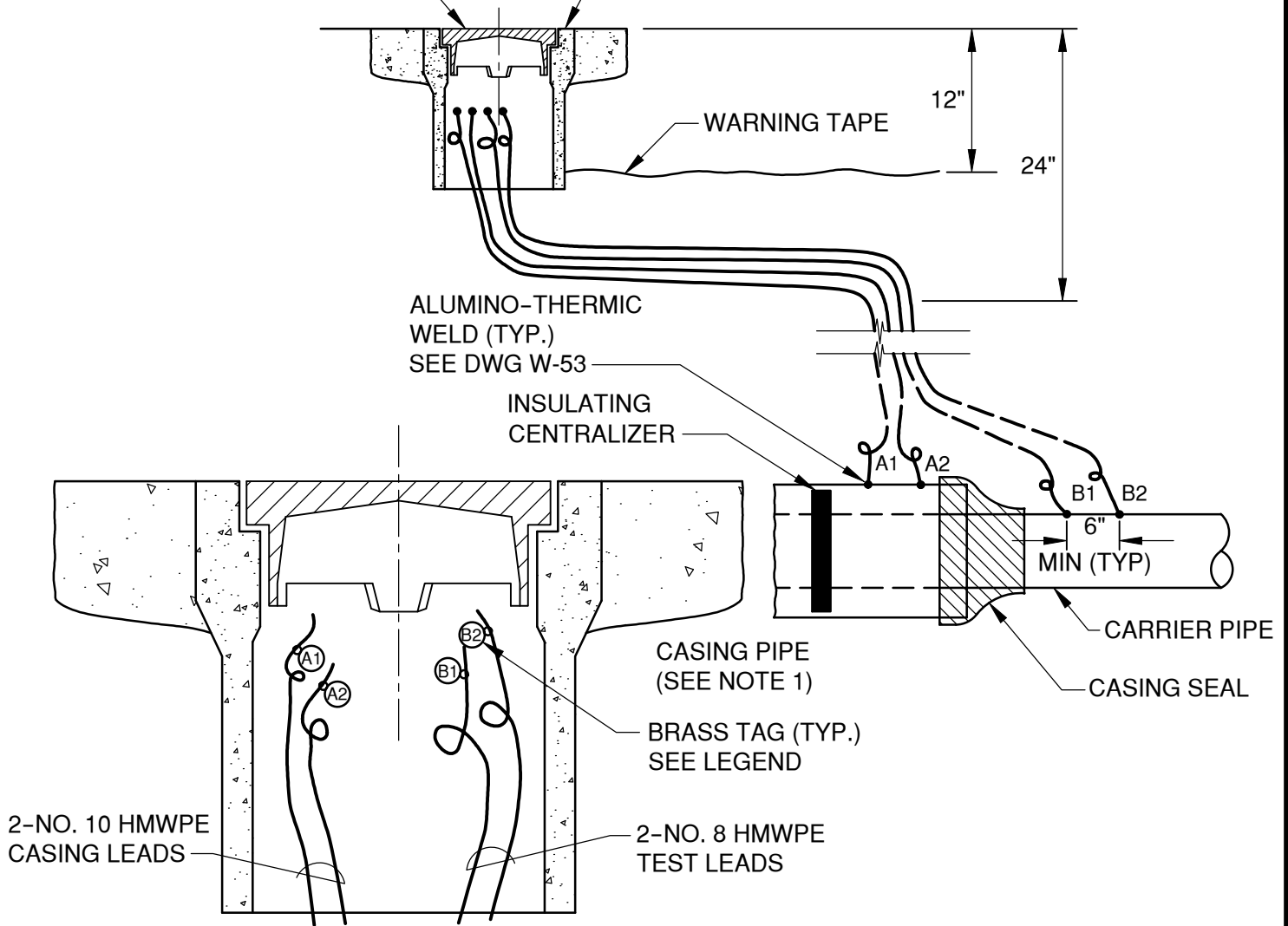
- SEE DWG. W-39 FOR PLACEMENT OF TEST BOX.
- SEE DWG. W-42 FOR MOUNTING AND BRASS ID TAG REQUIREMENTS.
- SECOND WIRE (A2 & B1) ON EACH SIDE OF INSULATOR IS SIZED FOR POSSIBLE FUTURE BOND AS FOLLOWS:

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

APPROVED: District Engineer	VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
5/16/2019 Latest Revision Date	<b>BURIED INSULATING FLANGE          AT - GRADE TEST STATION</b>	DWG. NUMBER <b>W-44</b>

AT-GRADE TEST BOX, SEE DWG W-39 FOR TEST BOX LOCATION REQUIREMENTS

SEE ENLARGEMENT BELOW  
SEE DWG W-42 FOR TEST BOX MOUNTING



**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:**

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

APPROVED:

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

District Engineer Date

5/16/2019

Latest Revision Date



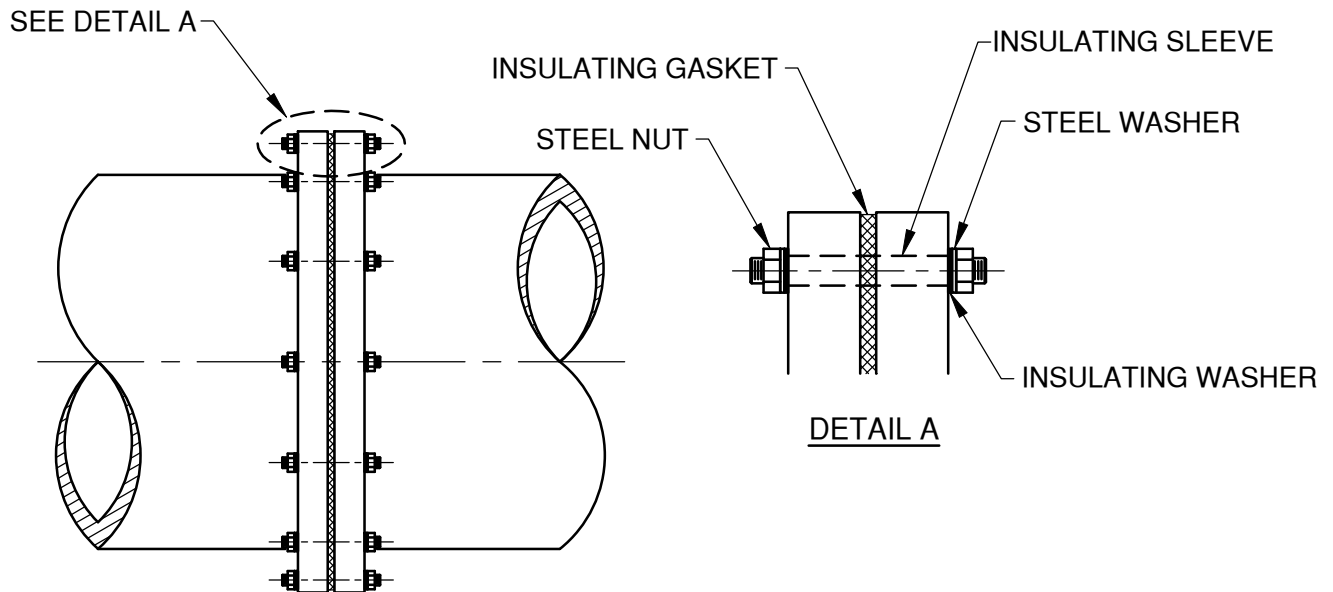
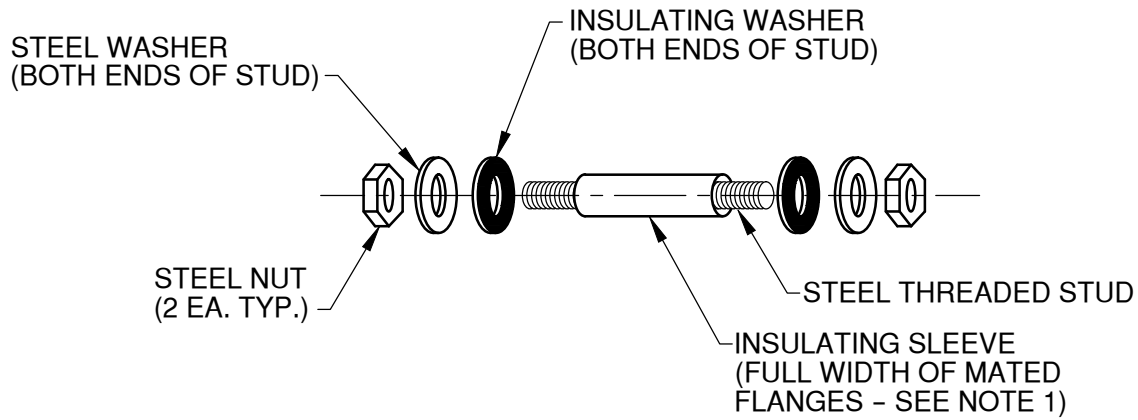
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

NOT TO SCALE

DWG. NUMBER

**4 - WIRE CASING TEST STATION**

**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 Paul* 5/16/19  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date



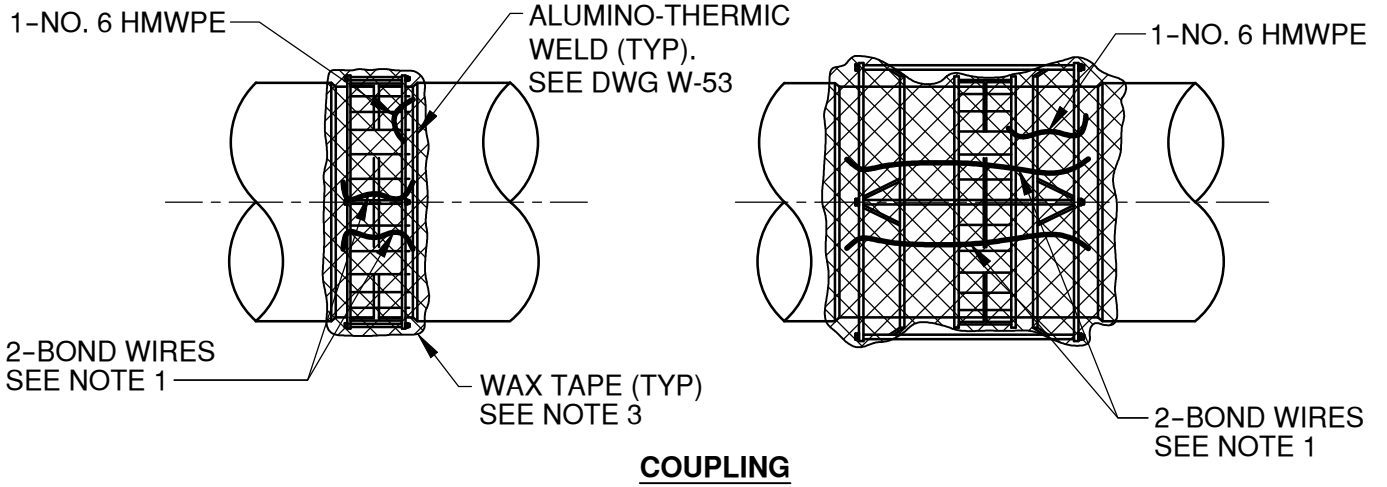
VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING

**ABOVE - GRADE  
 INSULATING FLANGE**

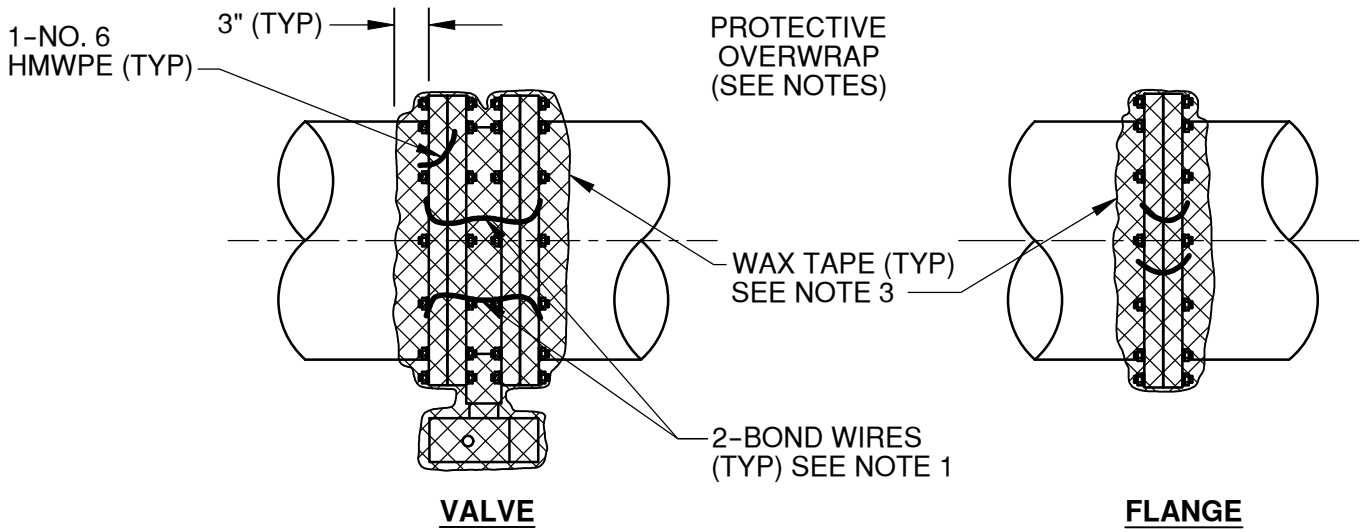
NOT TO SCALE

DWG. NUMBER

**W-46**



**COUPLING**



**VALVE**

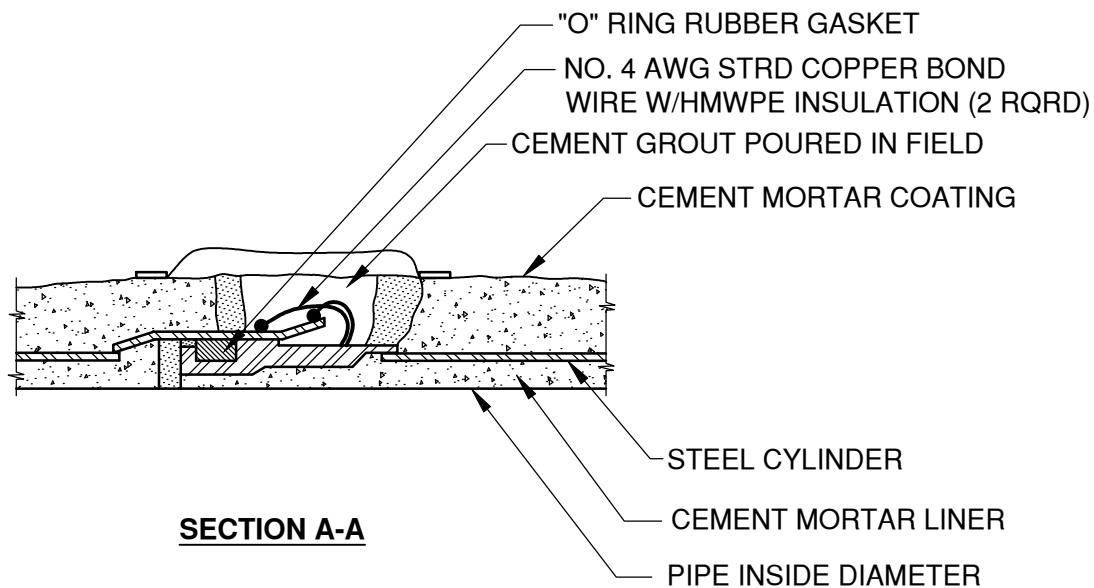
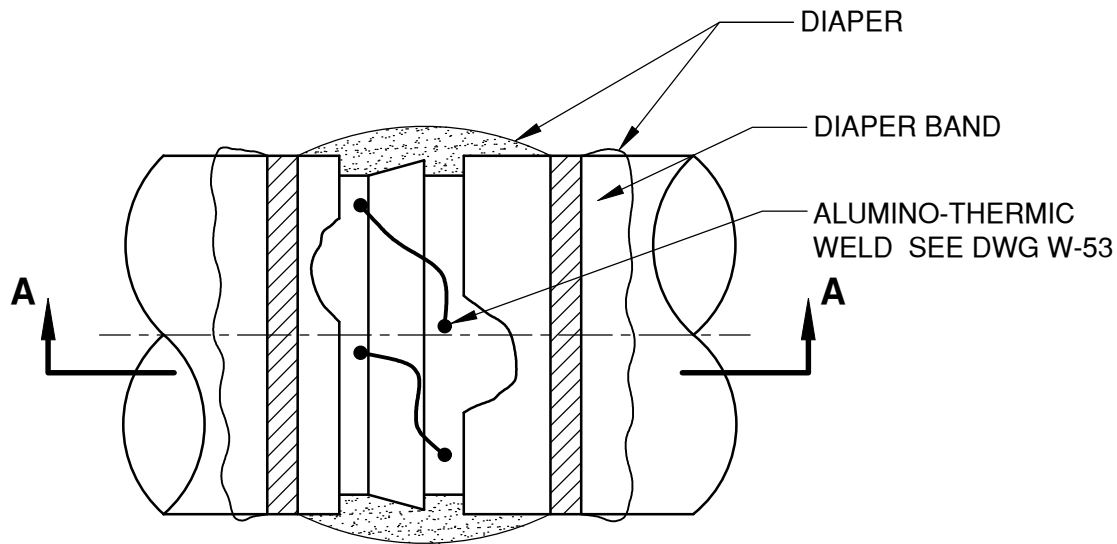
**FLANGE**

**NOTES:**

1. BOND WIRE SIZE:
 

<b>PIPE DIA</b>	<b>SIZE</b>
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: District Engineer <span style="float: right;">Date</span> 5/16/2019 Latest Revision Date	VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE DWG. NUMBER <b>W-47</b>
MECHANICAL JOINT BOND		

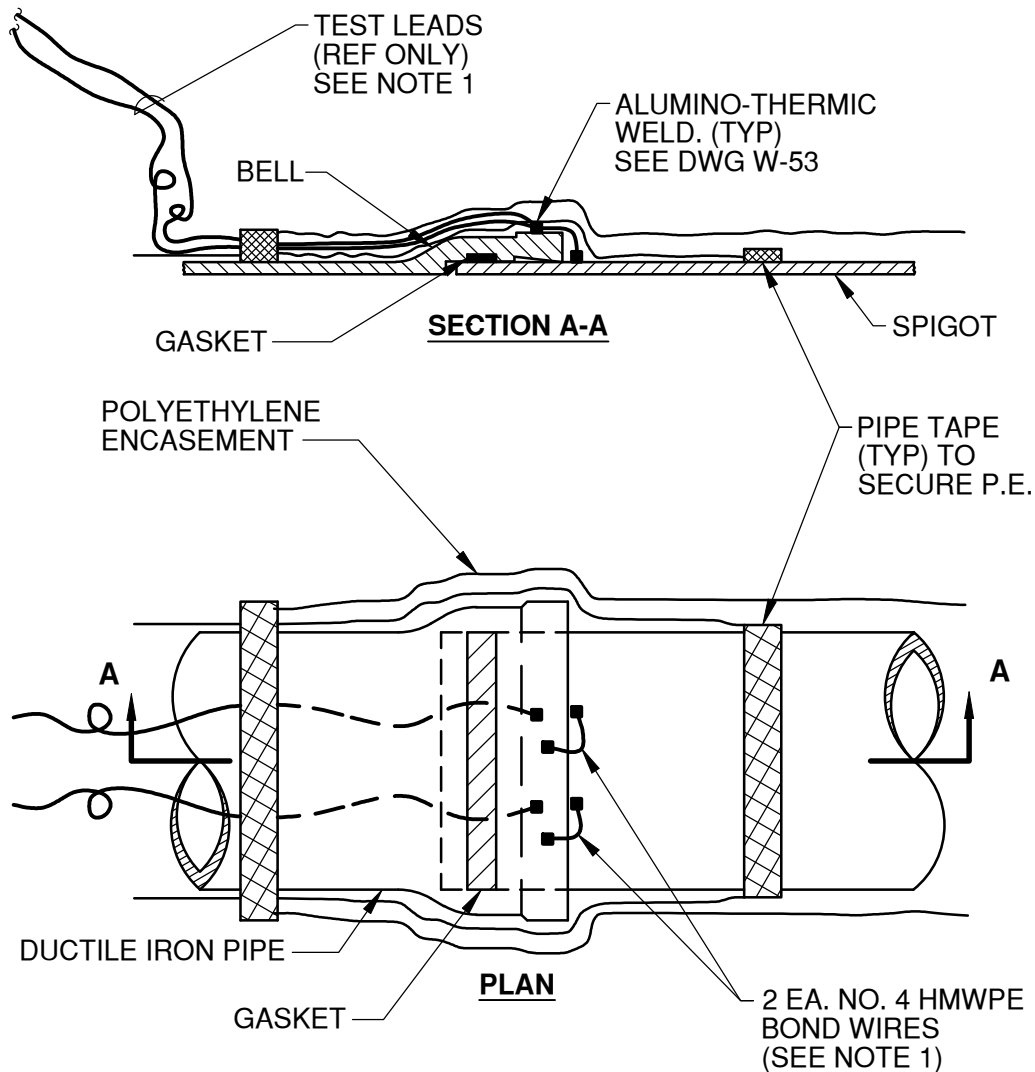


**NOTES:**

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.

<p>APPROVED:</p> <p><i>Wally P. [Signature]</i> 5/16/19</p> <p>District Engineer Date</p> <p>5/16/2019</p> <p>Latest Revision Date</p>	<p style="text-align: center;">              VALLEY CENTER MUNICIPAL WATER DISTRICT            STANDARD DRAWING    <b>CML&amp;C STEEL PIPE            JOINT BOND (WIRE JUMPER)</b> </p>	<p>NOT TO SCALE</p> <hr/> <p>DWG. NUMBER</p> <p style="font-size: 24pt; font-weight: bold;">W-48</p>
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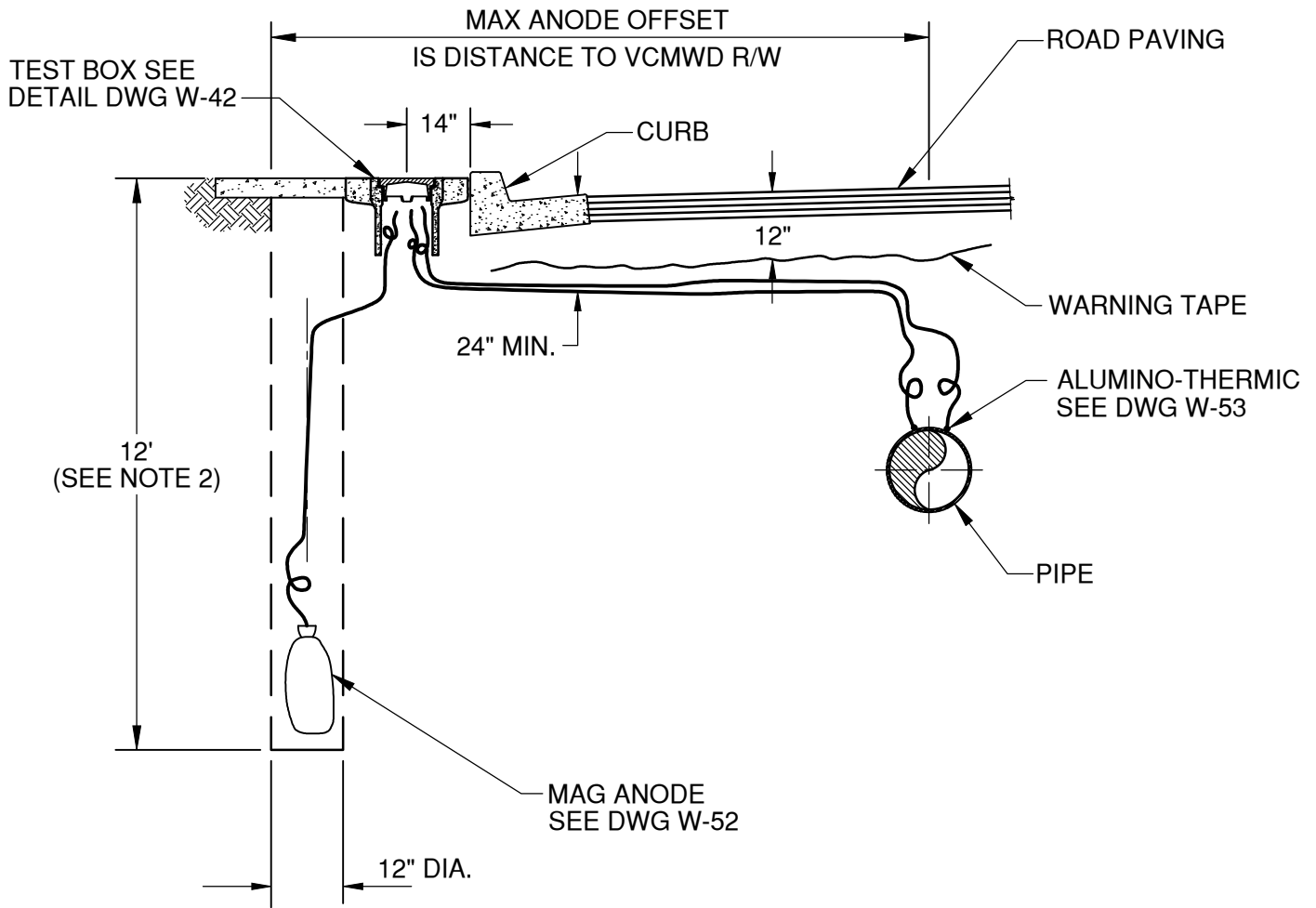


**NOTES:**

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.

<p>APPROVED:            District Engineer      Date          5/16/2019          Latest Revision Date</p>	<p style="text-align: center;">          VALLEY CENTER MUNICIPAL WATER DISTRICT          STANDARD DRAWING  <b>DIP JOINT BONDING          AND TEST LEAD CONNECTIONS</b> </p>	<p style="text-align: center;">         NOT TO SCALE          DWG. NUMBER  <b>W-49</b> </p>
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**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 Paul* 5/16/19

District Engineer

Date

5/16/2019

Latest Revision Date



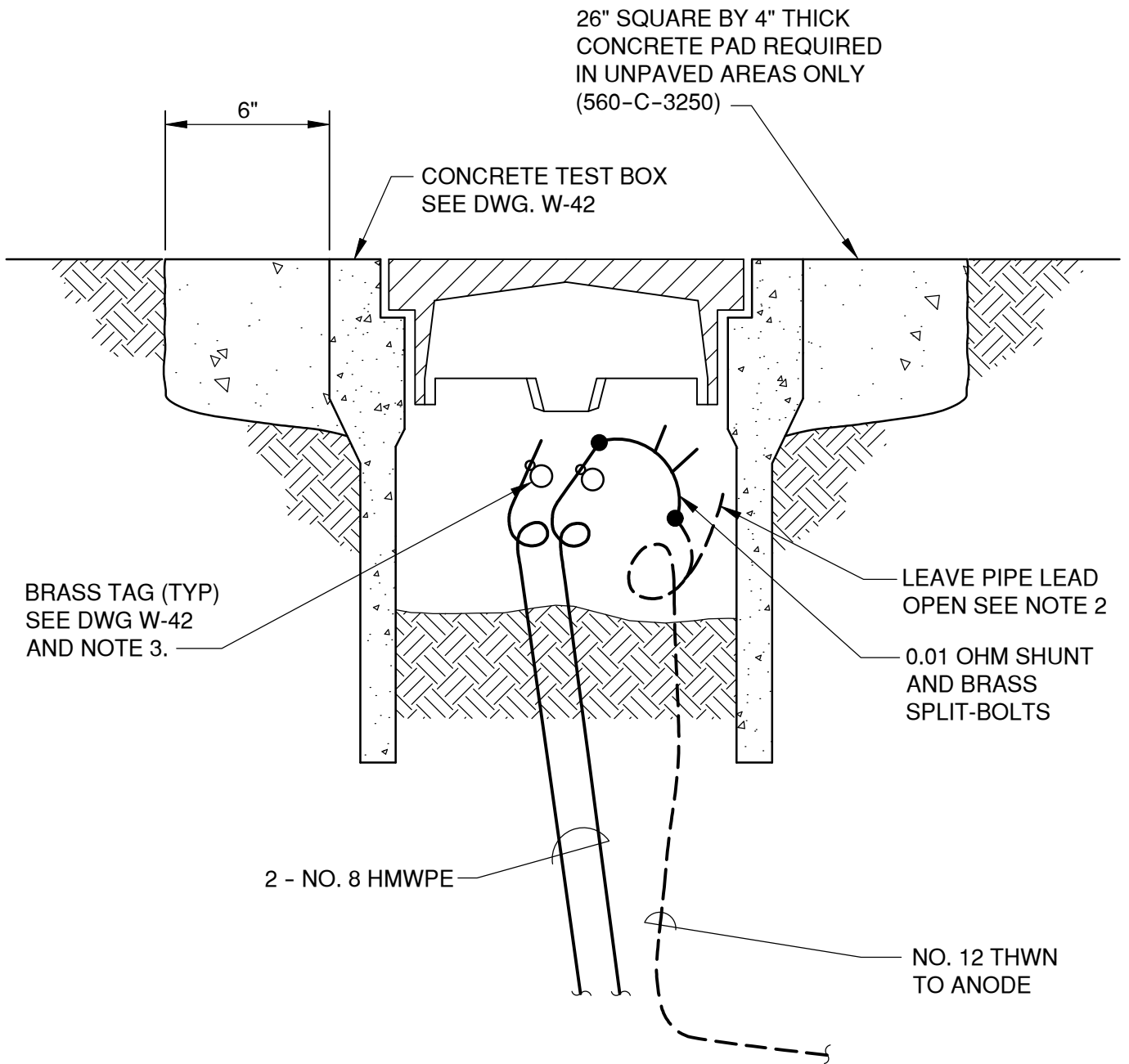
VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**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 Paul* 5/16/19  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date



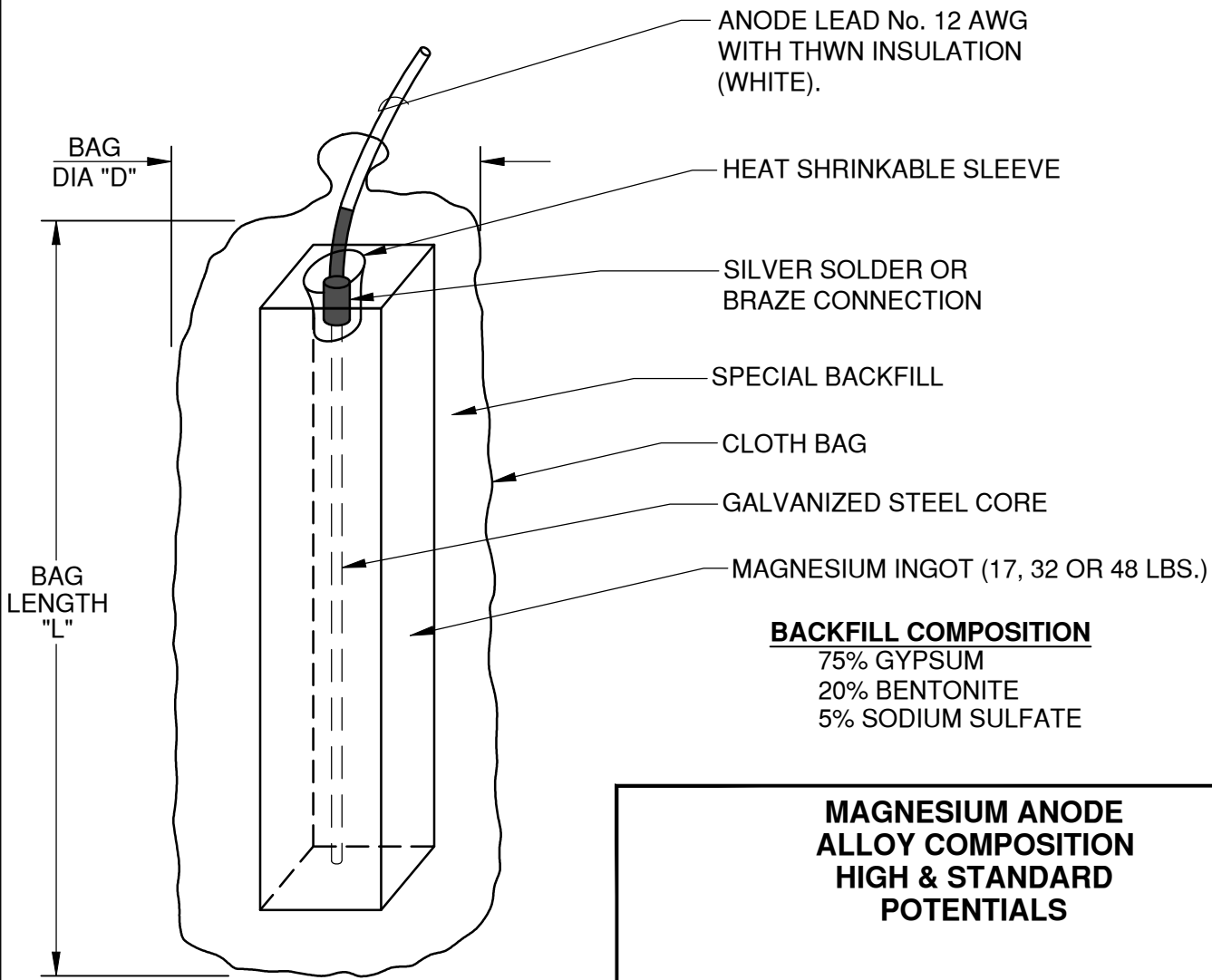
VALLEY CENTER MUNICIPAL WATER DISTRICT  
 STANDARD DRAWING

**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	STANDARD POTENTIAL
	Weight %	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.

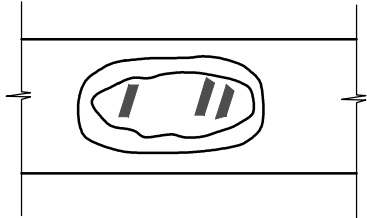
INGOT WT	"D"	"L"	TOTAL WT
17	6-1/2	29	45
32	8-1/2	28	70
48	7-1/2	38	105

**NOTE:**

1. APPROX DIMENSIONS AND WEIGHTS IN INCHES AND POUNDS.

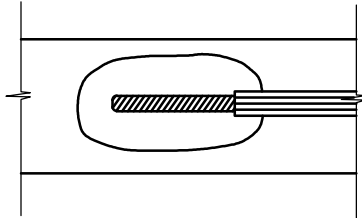
APPROVED:  District Engineer 5/16/2019 Latest Revision Date	 VALLEY CENTER MUNICIPAL WATER DISTRICT STANDARD DRAWING	NOT TO SCALE
		DWG. NUMBER <b>W-52</b>

**STEP 1**



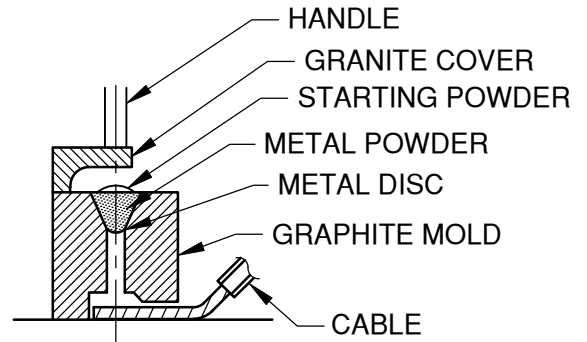
CHIP OUT MORTAR (CML&C) AND/OR FILE SURFACE TO BRIGHT METAL AND CLEAN

**STEP 2**



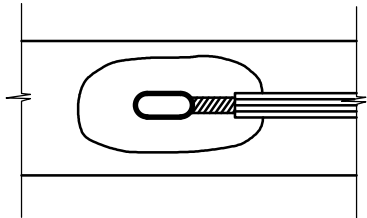
STRIP INSULATION FROM WIRE

**STEP 3**



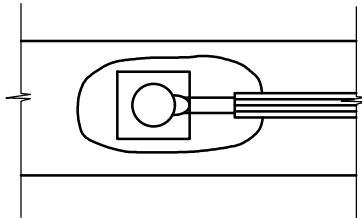
HOLD WELDER FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE STARTING POWDER

**STEP 4**



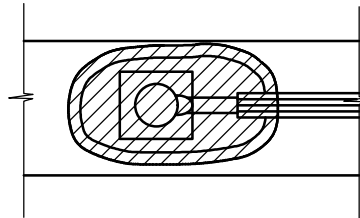
REMOVE SLAG FROM CONNECTION

**STEP 5**



APPLY 2 COATS OF PRIMER AND COVER CONNECTION WITH A PREFORMED WELD CAP


**STEP 6**



COAT AREA WITH BITUMEN. PATCH MORTAR. SEE NOTE 5.

**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:  
  
 District Engineer Date  
 5/16/2019  
 Latest Revision Date



VALLEY CENTER MUNICIPAL WATER DISTRICT  
STANDARD DRAWING

**ALUMINO - THERMIC WELD**

NOT TO SCALE

DWG. NUMBER

**W-53**