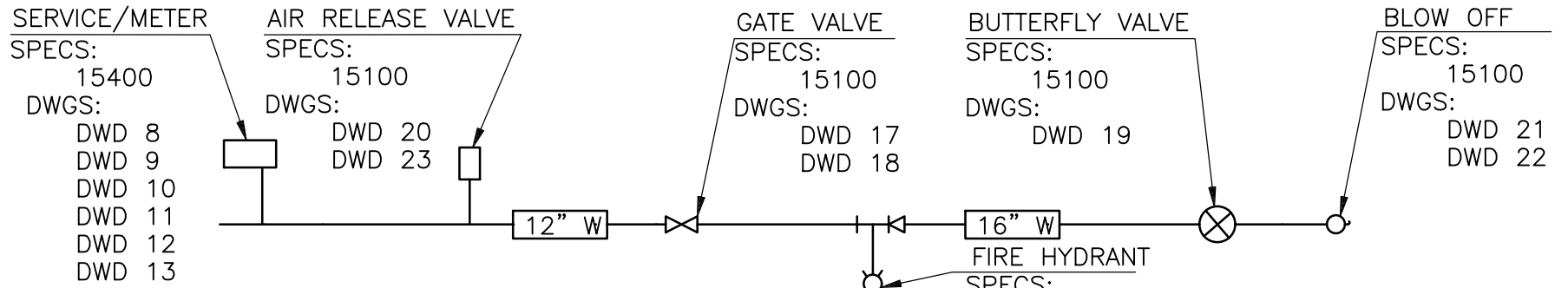
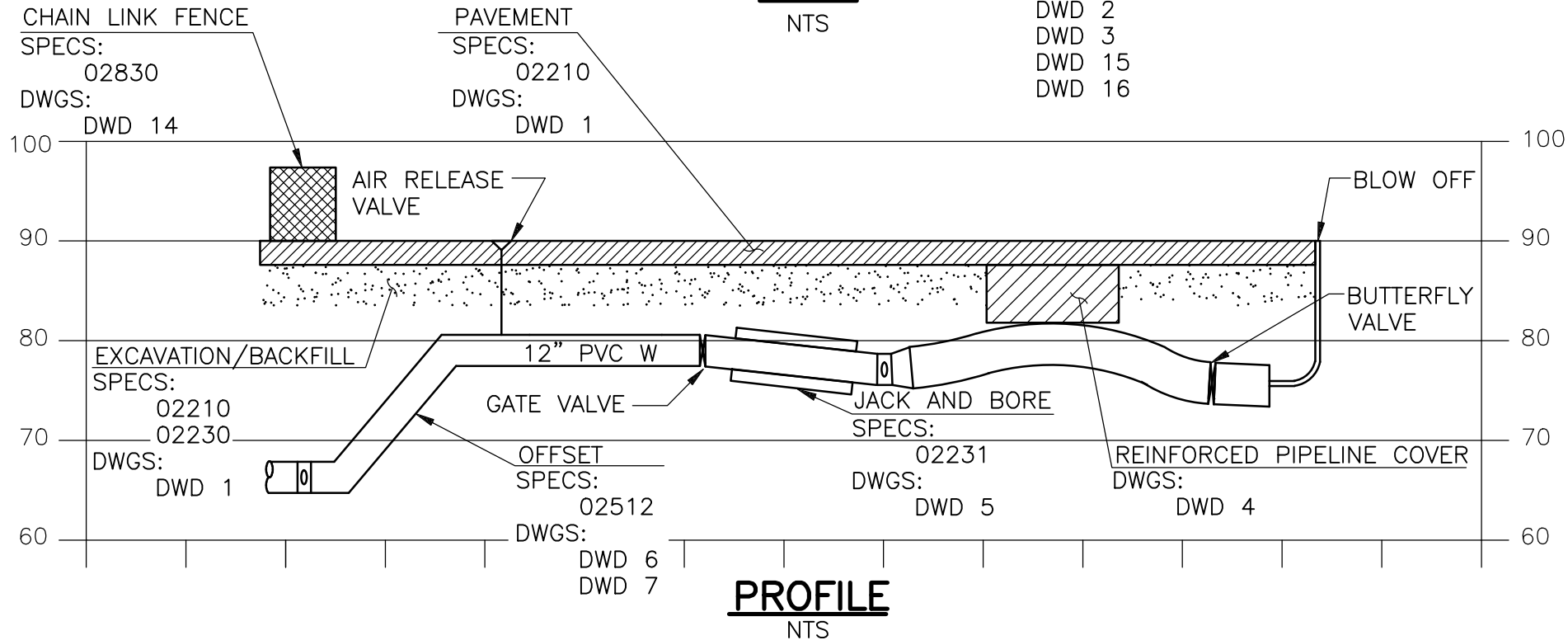


6. Standard Drawings



PLAN
 NTS

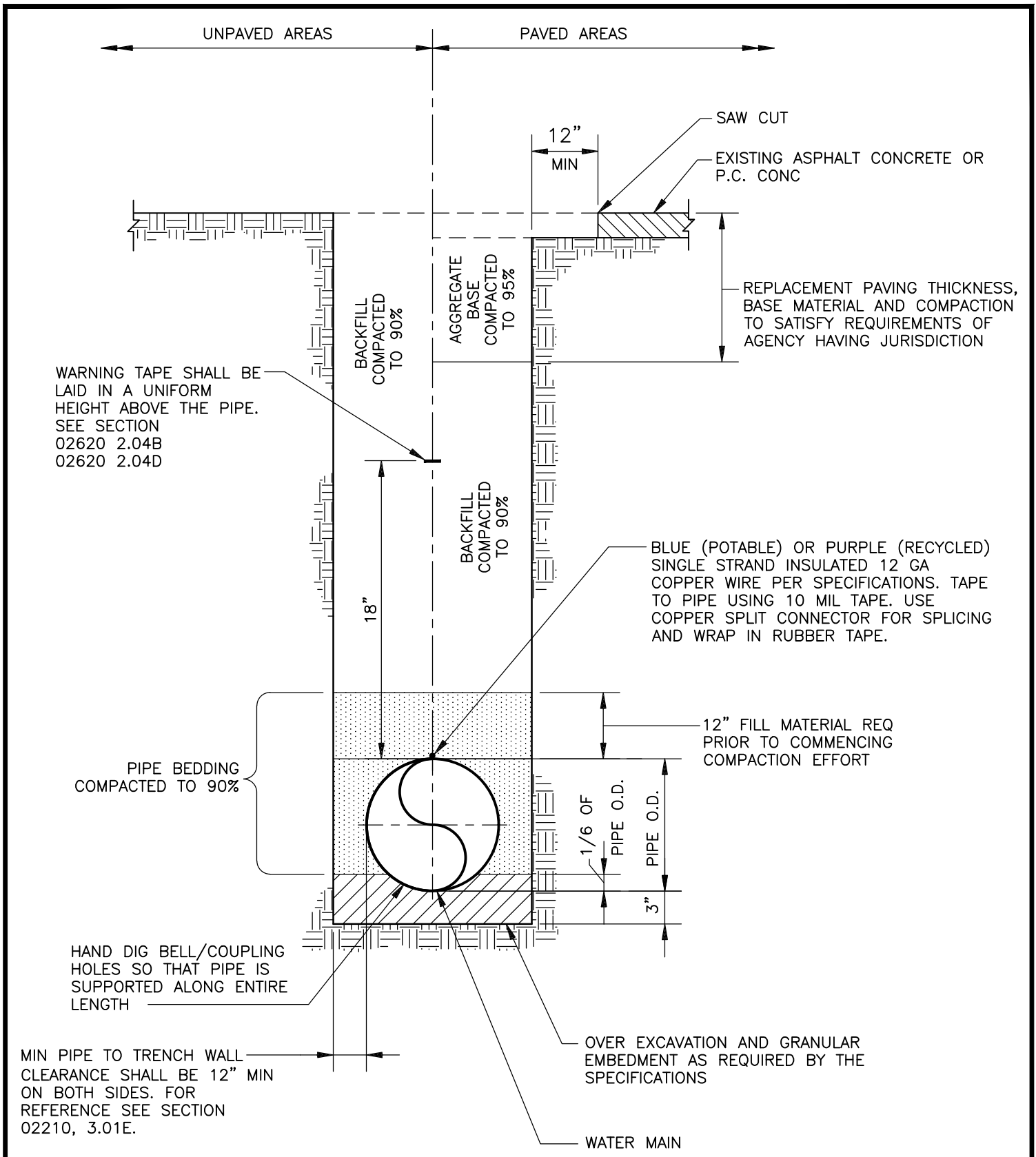


PROFILE
 NTS

DIABLO WATER DISTRICT

STANDARD DRAWING
QUICK REFERENCE GUIDE

DESIGNED WDB DRAWN WKT APPROVED WW DATE OCTOBER, 2022 DWG. NO. **DWD 0**



WARNING TAPE SHALL BE LAID IN A UNIFORM HEIGHT ABOVE THE PIPE. SEE SECTION 02620 2.04B 02620 2.04D

REPLACEMENT PAVING THICKNESS, BASE MATERIAL AND COMPACTION TO SATISFY REQUIREMENTS OF AGENCY HAVING JURISDICTION

BLUE (POTABLE) OR PURPLE (RECYCLED) SINGLE STRAND INSULATED 12 GA COPPER WIRE PER SPECIFICATIONS. TAPE TO PIPE USING 10 MIL TAPE. USE COPPER SPLIT CONNECTOR FOR SPLICING AND WRAP IN RUBBER TAPE.

12" FILL MATERIAL REQ PRIOR TO COMMENCING COMPACTION EFFORT

PIPE BEDDING COMPACTED TO 90%

HAND DIG BELL/COUPLING HOLES SO THAT PIPE IS SUPPORTED ALONG ENTIRE LENGTH

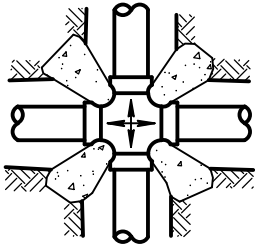
MIN PIPE TO TRENCH WALL CLEARANCE SHALL BE 12" MIN ON BOTH SIDES. FOR REFERENCE SEE SECTION 02210, 3.01E.

OVER EXCAVATION AND GRANULAR EMBEDMENT AS REQUIRED BY THE SPECIFICATIONS

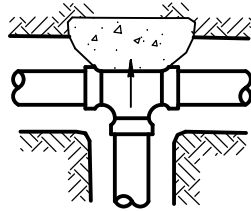
WATER MAIN

NOTES:
1. REFER TO SPEC SECTIONS 02210 & 02230.

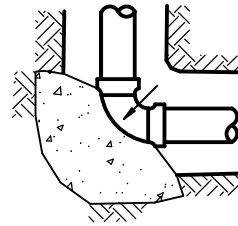
DIABLO WATER DISTRICT		STANDARD DRAWING			
		STANDARD TRENCH SECTION			
DESIGNED <u>WDB</u>	DRAWN <u>WKT</u>	APPROVED <u>WW</u>	DATE <u>OCTOBER, 2022</u>	DWG. NO. DWD 1	



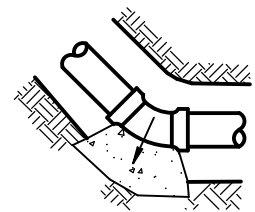
CROSS



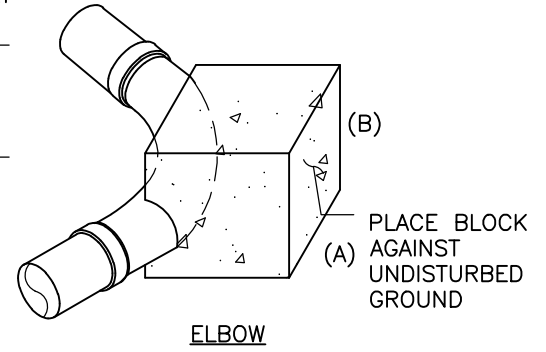
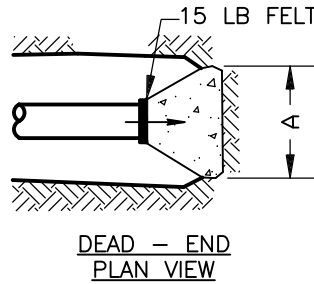
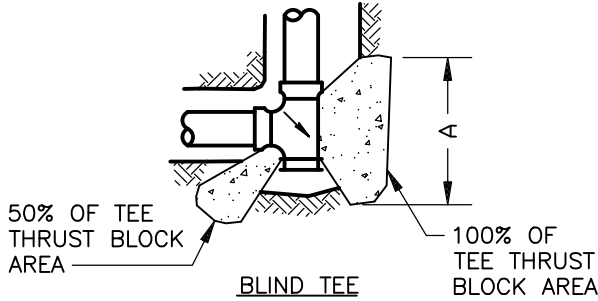
TEE



90° ELL

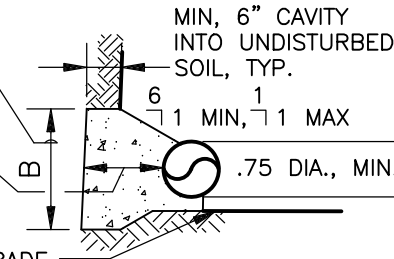


HORIZONTAL BEND

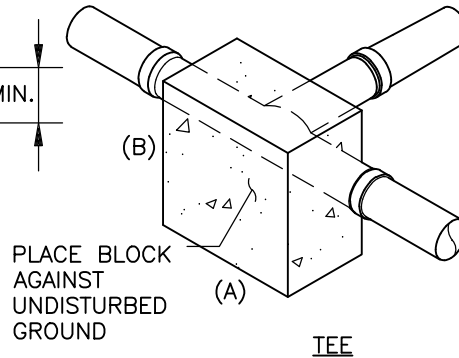


AREA (COMPUTED FROM TABLE)
DIVIDED BY VERTICAL HEIGHT (B)
EQUALS HORIZONTAL WIDTH (A)
OF THRUST BLOCK

SHALL BE GREATER THAN
THE LARGER OF EITHER
A/2 OR B/2. 1' MIN.



THRUST BLOCK AREA OF REQUIRED BEARING (SQ FT)
BASED ON ALLOWABLE SOIL BEARING VALUE OF 2,000 PSF



PIPE SIZE	DEAD END, TEE, BO OR PLUG	CROSS (EA BLOCK)	90° ELBOW	45° ELBOW & WYE	22.5° ELBOW
4"	1.5	1.0	2.0	1.5	1.0
6"	3.0	2.5	4.0	2.5	1.5
8"	5.0	2.5	7.0	4.0	2.0
10"	7.5	4.0	10.5	6.0	3.0
12"	10.5	5.5	15.0	8.0	4.5
14"	14.0	7.0	20.0	11.0	5.5
16"	18.0	9.0	25.5	14.0	7.0
18"	22.5	11.5	32.0	17.5	9.0
20"	27.5	14.0	39.0	21.0	11.0
24"	39.5	20.0	55.5	30.5	15.5

MULTIPLIERS FOR THRUST BLOCK AREAS	
ACTUAL SOIL BEARING VALUE	MULTIPLIER
1,000 PSF	2.0
1,500 PSF	1.33
2,000 PSF	1.0
2,500 PSF	0.8
3,000 PSF	0.67

EXAMPLE:
ACTUAL SOIL BEARING VALUE = 1,000 PSF FOR 8"
BLOW OFF
REQUIRED AREA IS: (2.0)(5.0 SQ FT) = 10.0 SQ FT

NOTES:

1. THRUST BLOCKS SHALL BE CLASS B CONCRETE (5 SACK MIX)
2. MAXIMUM TEST PRESSURE = 150 PSI
3. THRUST BLOCK HORIZONTAL WIDTH (A) SHALL BE AT LEAST TWICE THE VERTICAL HEIGHT (B)
4. TOP OF THRUST BLOCK SHALL NOT BE PLACED WITHIN 2' OF FINISHED GRADE.
5. REFER TO SPEC SECTIONS 03100 AND 03304.

DIABLO WATER DISTRICT

STANDARD DRAWING
CONCRETE THRUST BLOCKS

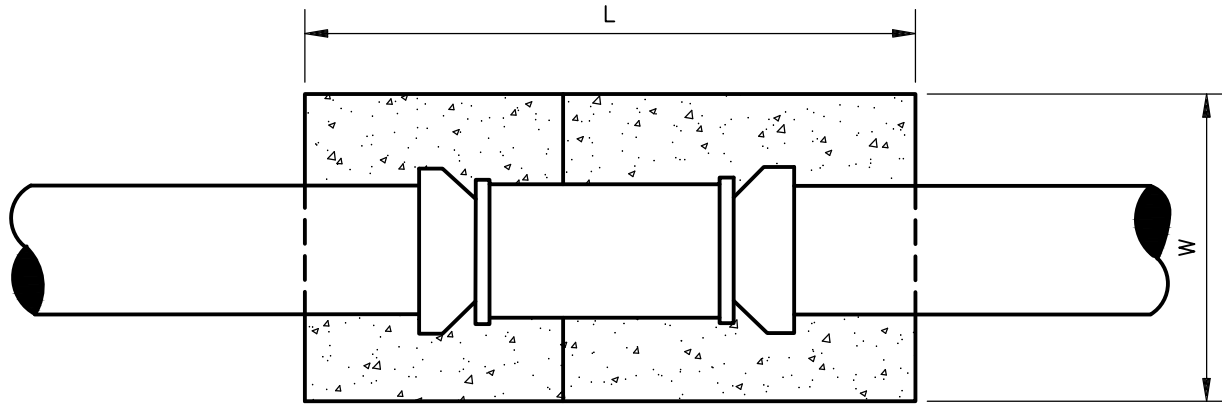
DESIGNED WDB

DRAWN WKT

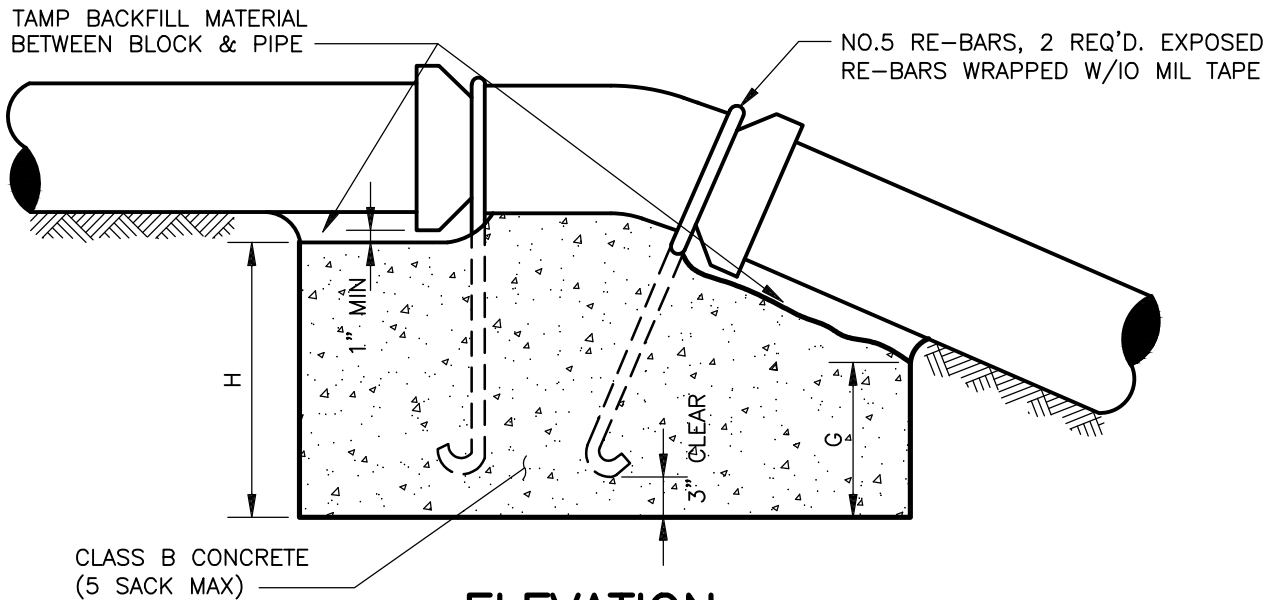
APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 2



PLAN



ELEVATION

THRUST BLOCK DIMENSIONS ~ UPWARD THRUST

PIPE SIZE	11-¼° BEND				22-½° BEND				45° BEND			
	L	W	H	G	L	W	H	G	L	W	H	G
4"	2'-0"	2'-0"	11"	9"	2'-0"	2'-0"	1'-2"	9"	3'-0"	2'-0"	2'-8"	1'-6"
6"	2'-0"	2'-0"	1'-3"	1'-0"	3'-0"	2'-0"	2'-8"	1'-0"	4'-0"	2'-6"	3'-11"	2'-6"
8"	3'-0"	2'-0"	2'-0"	1'-9"	4'-0"	2'-0"	3'-4"	2'-6"	5'-0"	3'-0"	5'-4"	3'-6"
10"	3'-6"	2'-6"	2'-2"	1'-9"	5'-0"	3'-0"	3'-6"	2'-6"	6'-0"	3'-0"	6'-8"	4'-6"
12"	4'-0"	3'-0"	2'-11"	2'-6"	6'-0"	3'-0"	3'-8"	2'-6"	7'-0"	3'-6"	8'-0"	5'-6"
14"	5'-0"	3'-4"	2'-6"	2'-0"	7'-6"	3'-5"	3'-5"	2'-8"	15'-10"	3'-6"	5'-4"	3'-10"
16"	6'-6"	3'-6"	2'-8"	2'-0"	9'-10"	3'-10"	3'-8"	2'-10"	15'-10"	3'-6"	5'-4"	3'-10"
18"	6'-10"	4'-0"	2'-11"	2'-4"	10'-10"	4'-0"	4'-4"	3'-4"	16'-4"	4'-0"	5'-10"	4'-4"
20"	7'-6"	4'-6"	3'-0"	2'-4"	11'-6"	4'-6"	4'-7"	3'-6"	17'-0"	4'-6"	6'-5"	4'-10"
24"	9'-4"	5'-0"	3'-5"	2'-6"	12'-0"	5'-0"	6'-2"	5'-0"	20'-0"	5'-0"	7'-6"	5'-6"

NOTES:
1. REFER TO SPEC SECTION 03304.

DIABLO WATER DISTRICT

STANDARD DRAWING
CONCRETE THRUST BLOCKS
FOR VERTICAL BENDS

DESIGNED WDB DRAWN WKT APPROVED WW DATE OCTOBER, 2022 DWG. NO. **DWD 3**

WARNING TAPE,
SEE SECTION
02620 2.04B
02620 2.04D

MIN 6" AC ABOVE SLAB

SAWCUT OR GRIND FULL DEPTH OF
EXIST AC MIN 12" FROM EDGE OF
SLAB FOR FINAL PAVING. REPLACE
STREET SECTION FOR MIN 12"
FROM EDGE OF SLAB

MIN 6" CL 2 AB OR PIPE
BEDDING SAND, COMPACT TO
MIN 95% REL COMPACTION

CL 2 AB OR PIPE BEDDING
SAND, COMPACT TO MIN
90% REL COMPACTION

MIN PIPE TO TRENCH WALL
CLEARANCE SHALL BE 12" MIN
ON BOTH SIDES

#5@12" OC CONT

MIN 10" THICK SLAB W/
#6@12" OC W/ STD HOOKS EACH END (TOP)
#6@6" OC W/OUT STD HOOKS (BOT)

3/2" CLEAR (TYP)

MIN 1'-0"
(TYP)

DISTANCE VARIES, MIN 8"

EDGE OF PIPE TRENCH

OVER EXCAVATION AS DIRECTED BY ENGINEER, TO
MIN 12". FILL W/ DRAIN ROCK OR CL 2 AB
COMPACTED TO 90% MIN REL COMPACTION AND
GEOFABRIC AS DIRECTED BY ENGINEER

NOTES:

1. CONCRETE REINFORCED PIPELINE COVER SECTION SHALL NOT BE SUBSTITUTED FOR INADEQUATE PIPELINE COVER WITHOUT DISTRICT APPROVAL.
2. CONCRETE SHALL BE CLASS B (5 SACK MIX)
3. REFER TO SPEC SECTIONS 02210, 02230, & 03304.

DIABLO WATER DISTRICT

STANDARD DRAWING

CONCRETE REINFORCED PIPELINE COVER SECTION

DESIGNED WDB

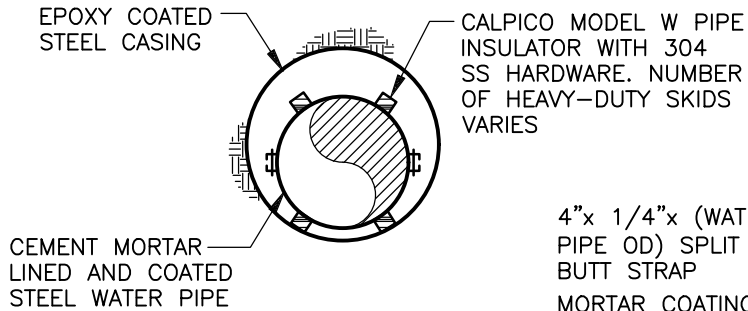
DRAWN WKT

APPROVED WW

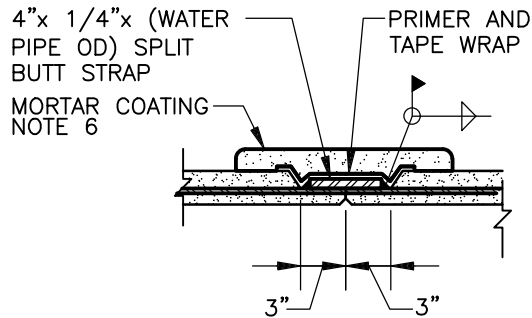
DATE OCTOBER, 2022

DWG. NO. DWD 4

NOMINAL WATER PIPE SIZE	ACTUAL WATER PIPE OD	MIN WATER PIPE WALL THICKNESS	WATER PIPE CEMENT MORTAR LINING THICKNESS	WATER PIPE CEMENT MORTAR COATING THICKNESS	MIN CASING OD	MIN CASING WALL THICKNESS	PIPE INSULATOR WIDTH	NO. OF SKIDS PER PIPE INSULATOR
8"	8.625"	0.322"	3/8"	3/4"	16"	0.375"	8"	4
12"	14.00"	0.375"	3/8"	1"	24"	0.375"	12"	4
16"	18.00"	0.375"	1/2"	1"	30"	0.375"	12"	6
18"	20.00"	0.375"	1/2"	1"	30"	0.375"	12"	6



SECTION 1
NTS



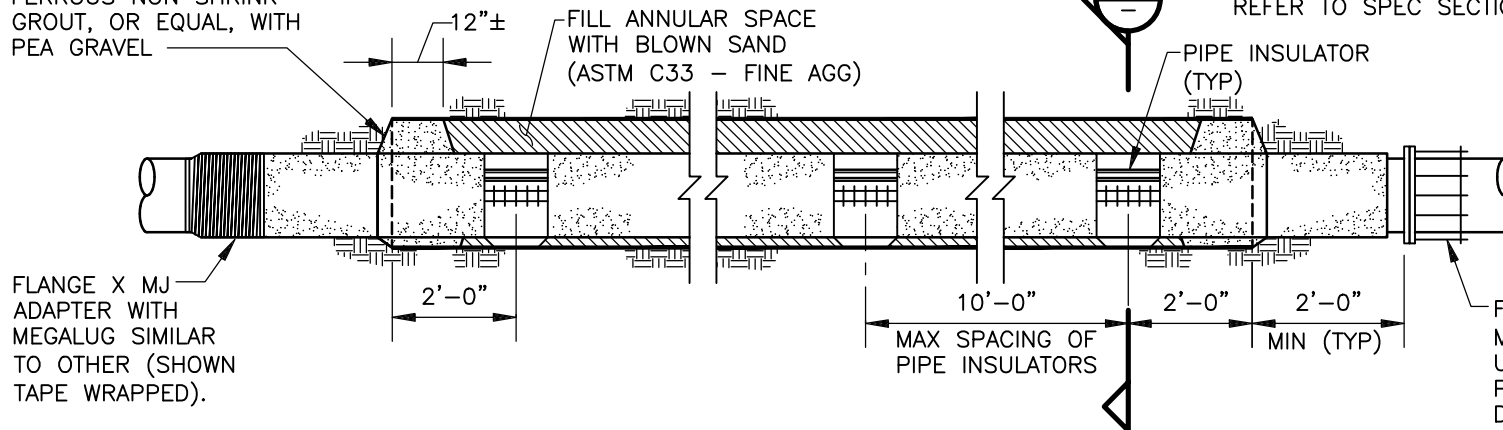
SPLIT BUTT STRAP DETAIL

NTS

NOTES:

- RAILROAD, CALTRANS, OR OTHER AGENCY REQUIREMENT MAY SUPERSEDE THESE DETAILS. NOTIFY DIABLO WATER DISTRICT SHOULD THIS BE THE CASE.
- ALL CASING JOINTS ARE TO BE WELDED WATERTIGHT. CONDUIT TO SLOPE SLIGHTLY IN ONE DIRECTION.
- WATER PIPE SHALL BE JOINED WITH SPLIT BUTT STRAPS.
- OPTIONAL AIR TEST. AFTER WATER PIPE IS INSTALLED WITHIN THE AIR CASING, THE CONTRACTOR HAS THE OPTION TO PERFORM A PRESSURIZED AIR TEST PRIOR TO THE REQUIRED HYDROSTATIC TEST. THE PRESSURE AND DURATION OF THE AIR TEST SHALL BE DETERMINED BY THE CONTRACTOR.
- NOTE TEST RESULTS FOR BLOWN SAND PER SECTION 16640.
- MORTAR COATING SHALL BE 2 PARTS SAND:1 PART CEMENT. MORTAR DIAPERS WILL NOT BE ALLOWED. REFER TO SPEC SECTIONS 02231 & 02512.

PACK ANNULAR SPACE WITH MORTAR TO SEAL CASING (TYP) BURKE NON FERROUS NON SHRINK GROUT, OR EQUAL, WITH PEA GRAVEL



DIABLO WATER DISTRICT

STANDARD DRAWING
PARTIAL BORE AND CASE REQUIREMENTS

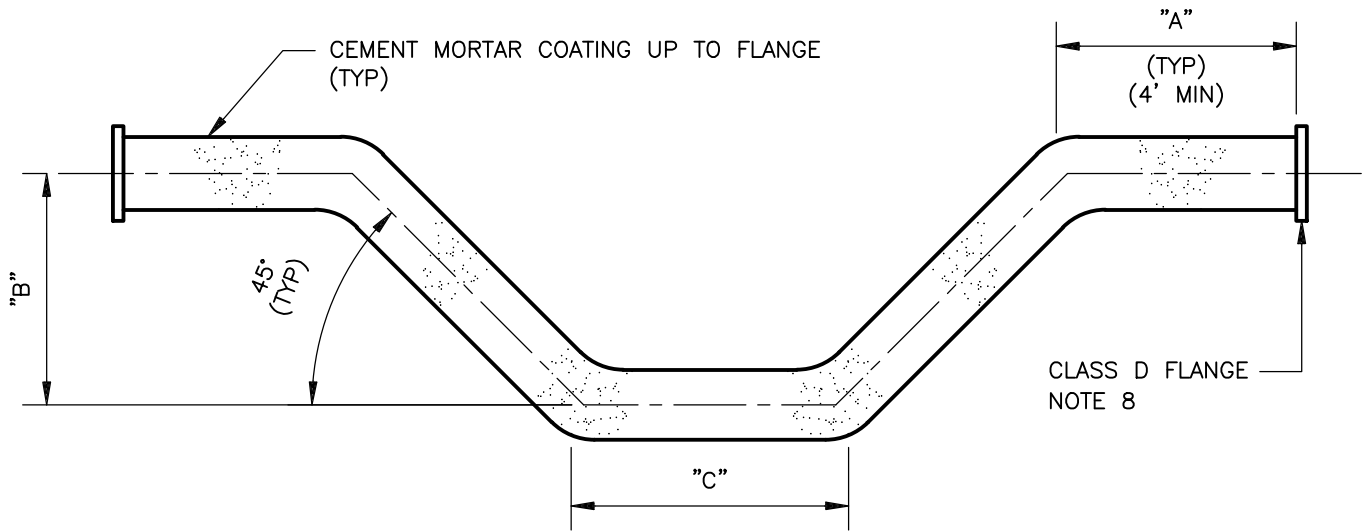
DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 5



NOTES:

1. NOMINAL STEEL PIPE DIMENSIONS ON DRAWINGS REPRESENT THE MINIMUM PIPE INSIDE DIAMETER AFTER LINING.
2. STEEL PIPE SHALL CONFORM TO AWWA C200. LININGS AND COATINGS SHALL CONFORM TO AWWA C205. COATING ON FLANGED ENDS SHALL REACH EDGE OF FLANGE.
3. DOUBLE OFFSET TO BE FABRICATED BY WELDING USING FOUR 45° BUTT WELDING LONG RADIUS ELBOWS. MITRED ELBOWS CONFORMING TO AWWA C208 MAY BE USED ON 16" AND 18" OFFSETS.
4. "C" DIMENSIONS AS REQUIRED, 4'-0" MINIMUM LENGTH.
5. "A" AND "B" DIMENSIONS AS REQUIRED.
6. CEMENT MORTAR LINING SHALL BE SHOP APPLIED AND BE FINISHED SQUARE AND UNIFORM AT THE ENDS OF THE PIPE.
7. OFFSETS MAY BE FABRICATED IN PIECES TO AID INSTALLATION IN THE FIELD. SUCH PIECES TO BE JOINED WITH A WELDED 4" WIDE BY 0.25" THICK (MIN) STEEL BUTTSTRAP. BUTTSTRAP JOINTS TO BE COATED WITH TAPE AND BITUMEN BEFORE BACKFILLING. ALTERNATELY, PIECES MAY BE JOINED BY FLANGES. FLANGES TO BE COATED WITH BITUMEN & TAPE AFTER INSTALLATION.
8. FLANGE PATTERN TO MATCH CONNECTING FITTING. FLANGE TO PIPE WELD SHALL CONFORM TO AWWA C207. FLANGES SHALL BE EPOXY COATED.
9. REFER TO SPEC SECTIONS 02512 & 02675.
10. 1 1/2" COUPLING WITH CP BUSHING TO BE USED.

NOMINAL PIPE SIZE (MIN ID AFTER LINING)	STANDARD PIPE OD TO ACHIEVE REQD MIN ID	TYP PIPE ID AFTER LINING OF STANDARD PIPE SIZES	PIPE MINIMUM WALL THICKNESS	CEMENT MORTAR LINING THICKNESS	CEMENT MORTAR COATING THICKNESS	"A"
6"	8.625"	7.481"	0.322"	1/4"	3/4"	4'-0"
8"	10.75"	9.520"	0.365"	1/4"	3/4"	4'-0"
10"	12.75"	11.375"	0.375"	5/16"	3/4"	4'-0"
12"	14.0"	12.625"	0.375"	5/16"	3/4"	4'-0"
16"	18.0"	16.625"	0.375"	5/16"	3/4"	4'-0"
18"	20.0"	18.625"	0.375"	5/16"	3/4"	4'-0"
20"	22.0"	20.50"	0.375"	3/8"	3/4"	4'-0"
24"	26.0"	24.50"	0.375"	3/8"	3/4"	4'-0"

DIABLO WATER DISTRICT

STANDARD DRAWING
DOUBLE OFFSET STEEL PIPE, CEMENT MORTAR LINED AND COATED, 6" TO 24"

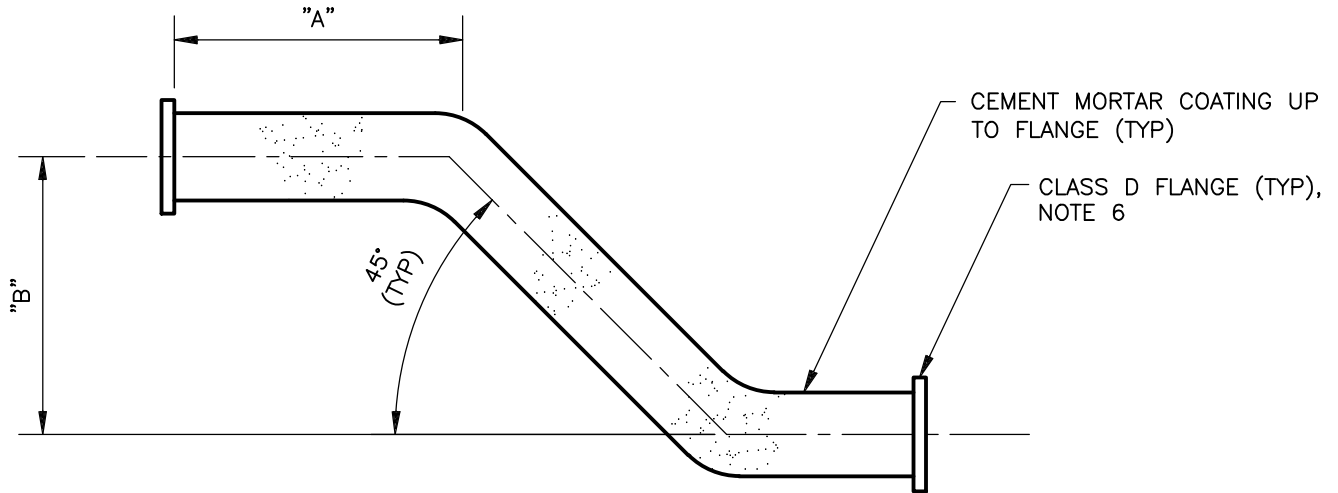
DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. **DWD 6**



NOTES:

1. NOMINAL STEEL PIPE DIMENSIONS ON DRAWINGS REPRESENT THE MINIMUM PIPE INSIDE DIAMETER AFTER LINING.
2. STEEL PIPE SHALL CONFORM TO AWWA C200. LININGS AND COATINGS SHALL CONFORM TO AWWA C205.
3. SINGLE OFFSET TO BE FABRICATED BY WELDING USING TWO 45° BUTT WELDING LONG RADIUS ELBOWS. MITRED ELBOWS CONFORMING TO AWWA C208 MAY BE USED ON 16" AND 18" OFFSETS.
4. "B" DIMENSION AS REQUIRED.
5. CEMENT MORTAR LINING SHALL BE SHOP APPLIED AND BE FINISHED SQUARE AND UNIFORM AT THE ENDS OF THE PIPE.
6. FLANGE PATTERN TO MATCH CONNECTING FITTING. FLANGE TO PIPE WELD SIZE SHALL CONFORM TO AWWA C207. FLANGES SHALL BE EPOXY COATED.
7. REFER TO SPEC SECTIONS 02512 & 02675.

NOMINAL PIPE SIZE (MIN ID AFTER LINING)	STANDARD PIPE OD TO ACHIEVE REQD MIN ID	TYP PIPE ID AFTER LINING OF STANDARD PIPE SIZES	PIPE MINIMUM WALL THICKNESS	CEMENT MORTAR LINING THICKNESS	CEMENT MORTAR COATING THICKNESS	"A"
6"	8.625"	7.481"	0.322"	1/4"	3/4"	4'-0"
8"	10.75"	9.520"	0.365"	1/4"	3/4"	4'-0"
10"	12.75"	11.375"	0.375"	5/16"	3/4"	4'-0"
12"	14.0"	12.625"	0.375"	5/16"	3/4"	4'-0"
16"	18.0"	16.625"	0.375"	5/16"	3/4"	4'-0"
18"	20.0"	18.625"	0.375"	5/16"	3/4"	4'-0"
20"	22.0"	20.50"	0.375"	3/8"	3/4"	4'-0"
24"	26.0"	24.50"	0.375"	3/8"	3/4"	4'-0"

DIABLO WATER DISTRICT

STANDARD DRAWING
SINGLE OFFSET STEEL PIPE, CEMENT MORTAR LINED AND COATED, 6" TO 24"

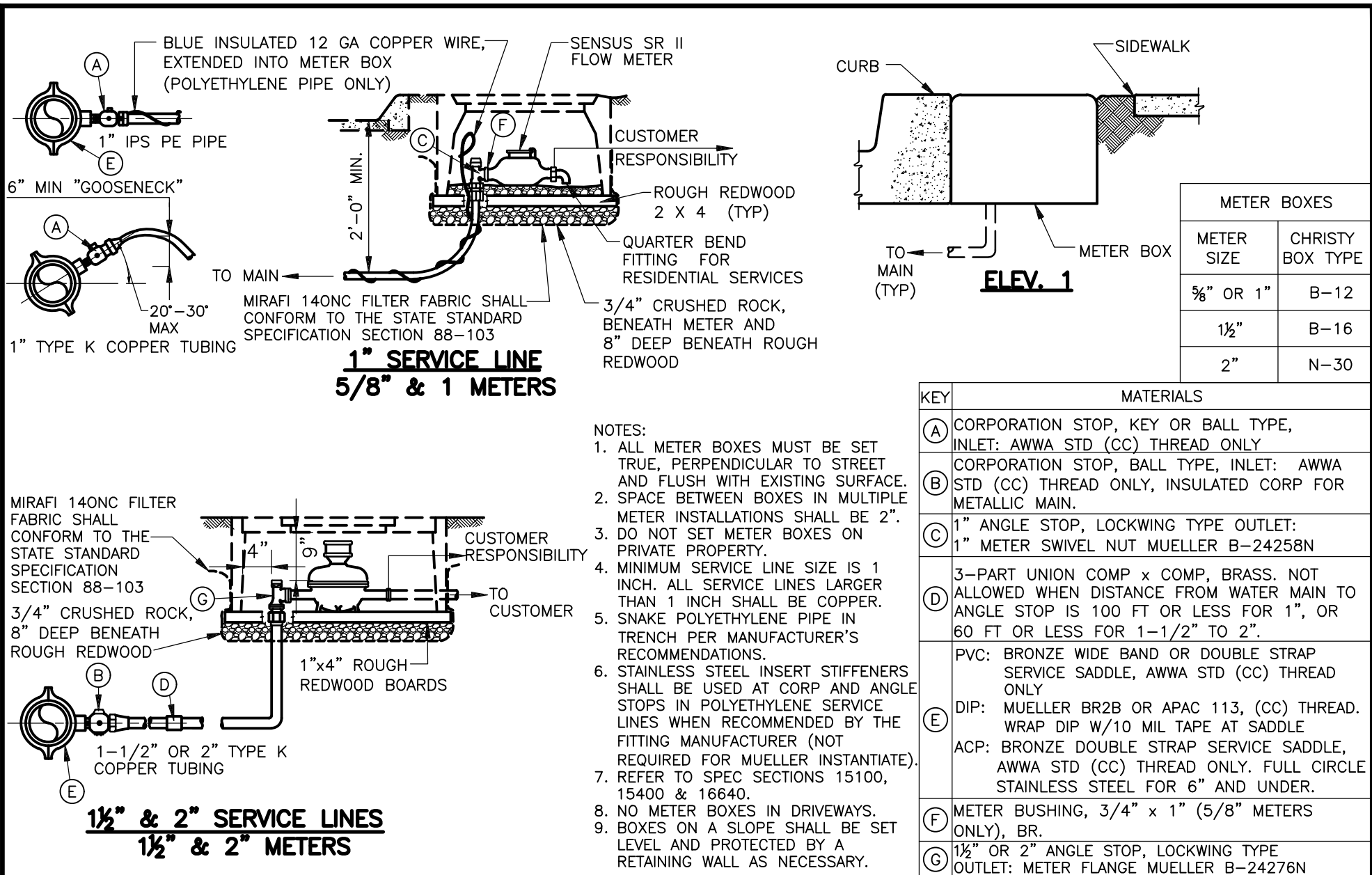
DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. **DWD 7**



DIABLO WATER DISTRICT

STANDARD DRAWING

SERVICE AND METER BOX INSTALLATIONS, 5/8" TO 2"

DESIGNED <u>WDB</u>	DRAWN <u>WKT</u>	APPROVED <u>WW</u>	DATE <u>OCTOBER, 2022</u>	DWG. NO. <u>DWD 8</u>
---------------------	------------------	--------------------	---------------------------	-----------------------

CHRISTY B44 UTILITY
BOX W/B44-62D
GALV LID.
USE POLYLITE LID IF
NO TRAFFIC AS
DIRECTED BY DWD.

4" ELBOW
4" SERVICE
THRUST BLOCK AS
DIRECTED BY DIABLO
WATER DISTRICT

4" SENSUS COMPOUND
METER WITH STRAINER.
CENTER IN BOX

PLAN
NTS

SLOPE SLAB TO DRAIN

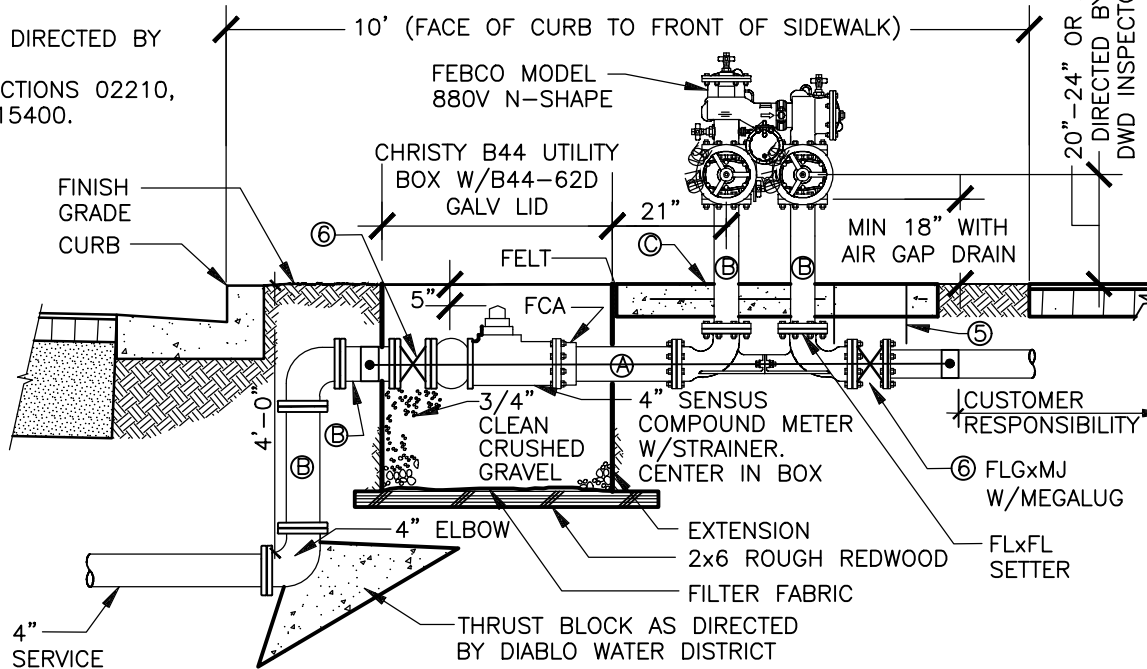
CUSTOMER'S
PIPING

2" BYPASS

MAINTAINED BY | MAINTAINED BY
DWD | CUSTOMER

NOTES:

1. OMIT 2" BYPASS IF DIRECTED BY DWD.
2. REFER TO SPEC SECTIONS 02210, 03304, 03600, & 15400.



ITEM	DESCRIPTION
①	BRONZE MUELLER SADDLE WITH 2" OUTLET
②	2"-H-15014N MUELLER CC THREAD CORPORATION VALVE WITH F.I.P. THREADED OUTLET.
③	2"-H-15531N MUELLER QUARTER BEND COUPLING, COMPRESSION CONNECTION FOR CTS O.D. TUBING X M.I.P.
④	2" COPPER TUBING
⑤	G5 CHRISTY VALVE BOX
⑥	MUELLER 4" GATE VALVE
⑦	MUELLER 300 BALL CURB VALVE B-25209N-2" CTS IN B9 BOX.
A	4" - DIP FLxPE SPOOL LENGTH AS REQUIRED, C-104.
B	4" - DIP FLxFL SPOOL LENGTH AS REQUIRED, C-104.
C	6' WIDE - 4" THICK CONCRETE CENTERED W/#4 BARS @ 12" O.C. EACH WAY. ALL JOINTS FLANGED WITH 304 SS BOLTS.

* INSTALLATION AS SHOWN IS FOR 4-INCH METER. REDUCE PIPES AND VALVES TO 3-INCH FOR 3-INCH METER INSTALLATION.

SENSUS 4" COMPOUND METER INSTALLATION (NTS)
SHOWN W/ FEBCO MODEL LF880V N-SHAPE REDUCED PRESSURE ASSEMBLY

DIABLO WATER DISTRICT

STANDARD DRAWING

3" AND 4" COMPOUND METER INSTALLATION

DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. **DWD 9**

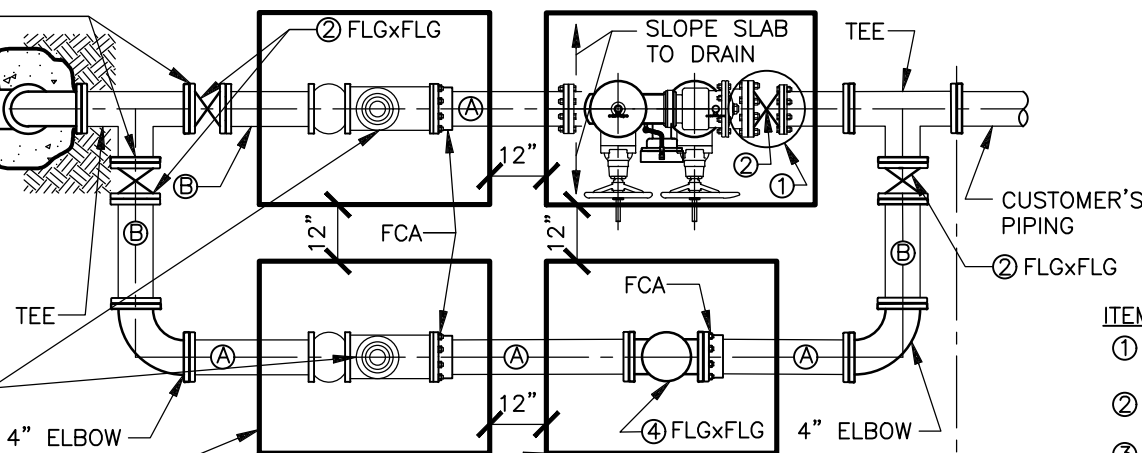
REDUCERS LOCATED
HERE, IF NEEDED

4" SERVICE LINE

THRUST BLOCK AS
DIRECTED BY DIABLO
WATER DISTRICT

4" SENSUS COMPOUND
METER WITH STRAINER.
CENTER IN BOX (TYP)

CHRISTY B44 UTILITY BOX
W/B44-62D GALV LID.
USE POLYLITE LID IF NO TRAFFIC
AS DIRECTED BY DWD. (TYP 3)

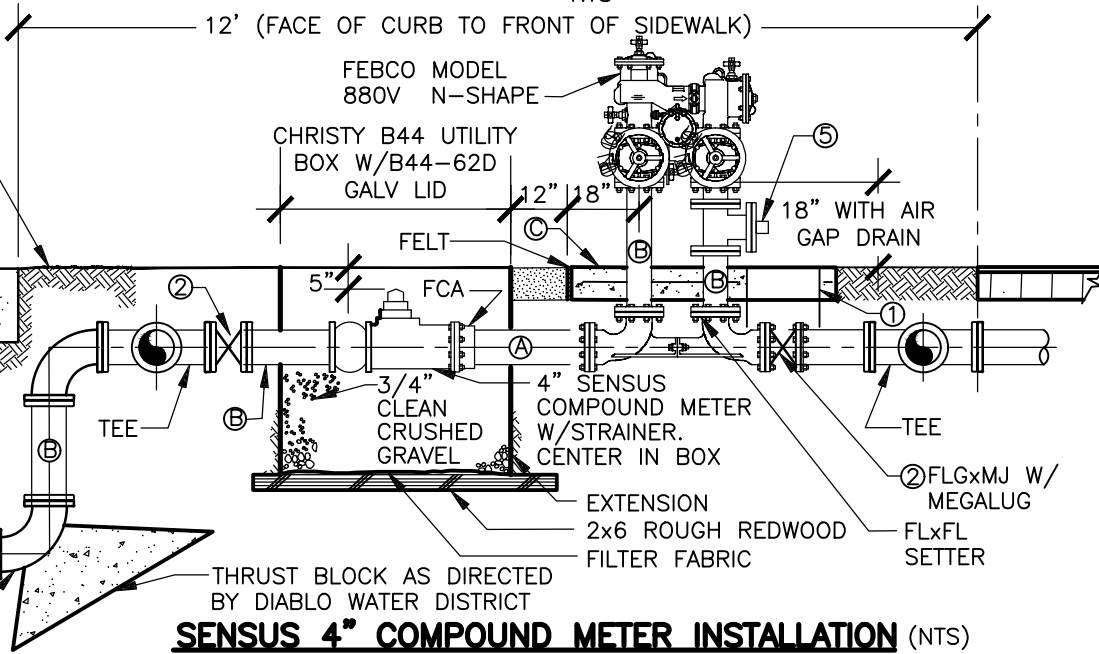


PLAN
NTS

OWNED BY DWD | OWNED BY CUSTOMER

- | ITEM | DESCRIPTION |
|------|---|
| ① | G5 CHRISTY VALVE BOX. |
| ② | MUELLER 4" GATE VALVE. |
| ③ | MUELLER 300 BALL CURB VALVE B-25209N-2" CTS. |
| ④ | MUELLER 851A 4" CHECK VALVE W/ EPDM FLEXIBLE DISC. |
| ⑤ | 4" FLG x 2" TAP FOR TEMPORARY WATER CONNECTION BY DWD. |
| Ⓐ | 4" - DIP FLxPE SPOOL LENGTH AS REQUIRED, AWWA C104. |
| Ⓑ | 4" - DIP FLxFL SPOOL LENGTH AS REQUIRED, AWWA C104. |
| Ⓒ | 6' WIDE - 4" THICK CONCRETE CENTERED W/#4 BARS @ 12" O.C. EACH WAY. ALL JOINTS FLANGED WITH 304 SS BOLTS. |

NOTES:
1. REFER TO SPEC SECTIONS
02210, 03304, 03600, &
15400.



SENSUS 4" COMPOUND METER INSTALLATION (NTS)
SHOWN W/ FEBCO MODEL LF880V N-SHAPE REDUCED PRESSURE ASSEMBLY

* INSTALLATION AS SHOWN IS FOR 4-INCH METER. REDUCE PIPES AND VALVES TO 3-INCH FOR 3-INCH METER INSTALLATION.

DIABLO WATER DISTRICT

STANDARD DRAWING

3" AND 4" COMPOUND METER INSTALLATION WITH BYPASS

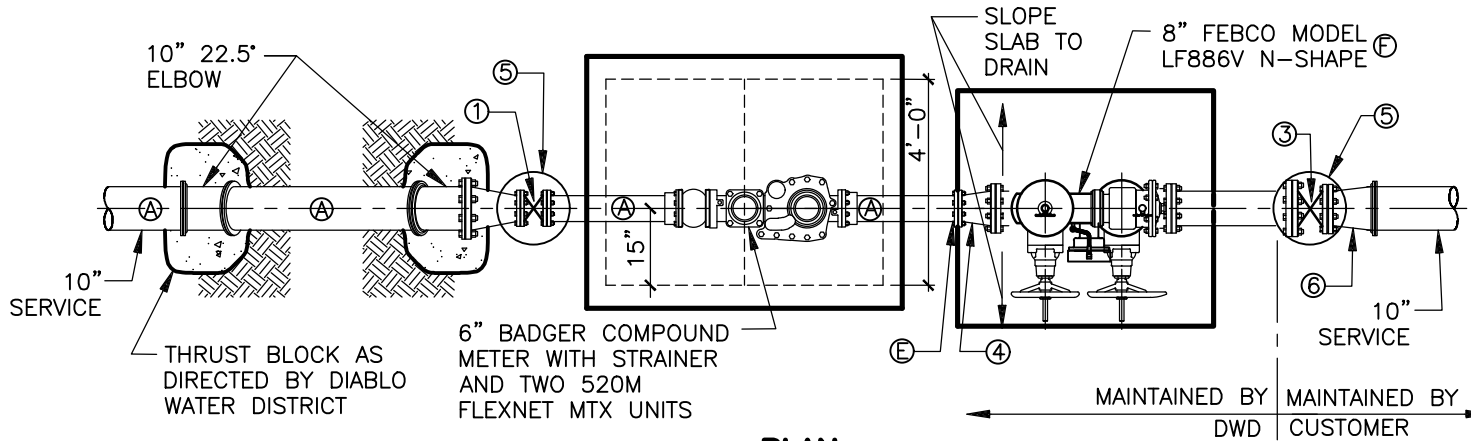
DESIGNED WDB

DRAWN KBR

APPROVED WW

DATE OCTOBER, 2022

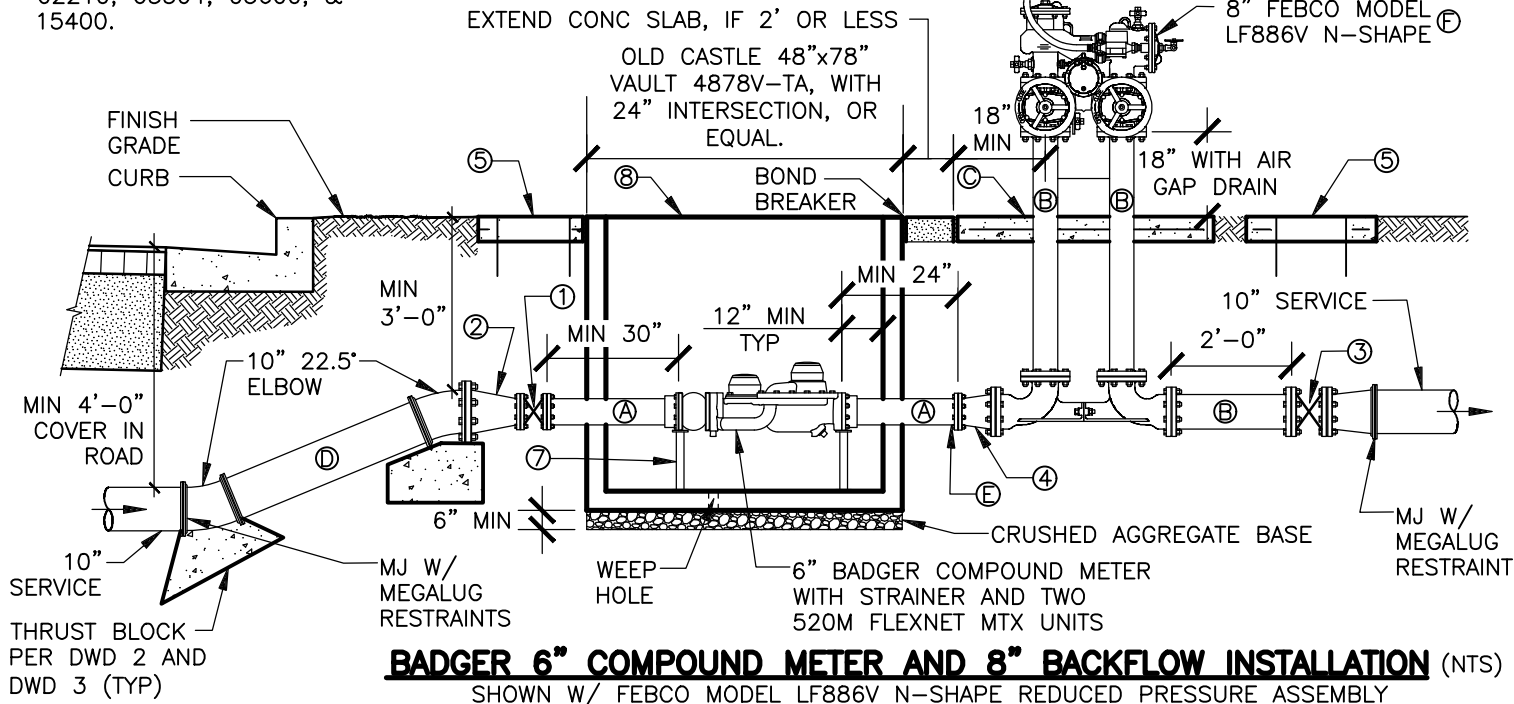
DWG. NO. **DWD 9A**



PLAN
NTS

NOTES:
1. REFER TO SPEC SECTIONS
02210, 03304, 03600, &
15400.

- | ITEM | DESCRIPTION |
|------|--|
| ① | MUELLER 6" GATE VALVE |
| ② | 10" X 6" REDUCER |
| ③ | MUELLER 8" GATE VALVE |
| ④ | 6" X 8" REDUCER |
| ⑤ | G5 CHRISTY VALVE BOX |
| ⑥ | 8" X 10" REDUCER |
| ⑦ | ADJUSTABLE PIPE SUPPORT |
| ⑧ | NON-TRAFFIC RATED DOUBLE LEAF GALV STEEL HATCH WITH SPRING ASSIST; LOCKABLE WITH RECESSED PADLOCK COVER. |



BADGER 6" COMPOUND METER AND 8" BACKFLOW INSTALLATION (NTS)

SHOWN W/ FEBCO MODEL LF886V N-SHAPE REDUCED PRESSURE ASSEMBLY

- | | |
|---|---|
| Ⓐ | DIP FLxPE SPOOL LENGTH AS REQUIRED, W/ FCA, C-104. |
| Ⓑ | DIP FLxFL SPOOL LENGTH AS REQUIRED, C-104. |
| Ⓒ | 6' WIDE - 4" THICK CONCRETE CENTERED W/#4 BARS @ 12" O.C. EACH WAY. ALL JOINTS FLANGED WITH 304 SS BOLTS. |
| Ⓓ | DIP PExPE SPOOL W/ MEGALUG RESTRAINTS LENGTH AS REQUIRED, C-104. |
| Ⓔ | A HORIZONTAL BEND CAN BE INSTALLED UPSTREAM OF THE REDUCER IF NEEDED TO ACCOMMODATE SURFACE LAYOUT. |
| Ⓕ | PROVIDE WITH SENSUS SR2 METER AND 520M FLEXNET MTX UNIT. |

DIABLO WATER DISTRICT

STANDARD DRAWING

6" COMPOUND METER AND 8" BACKFLOW INSTALLATION

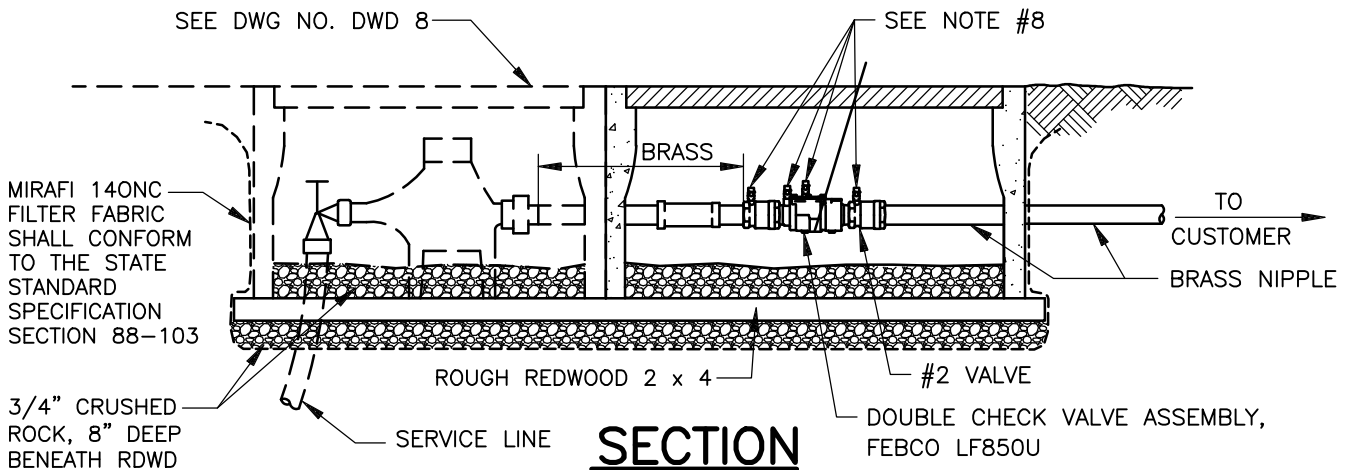
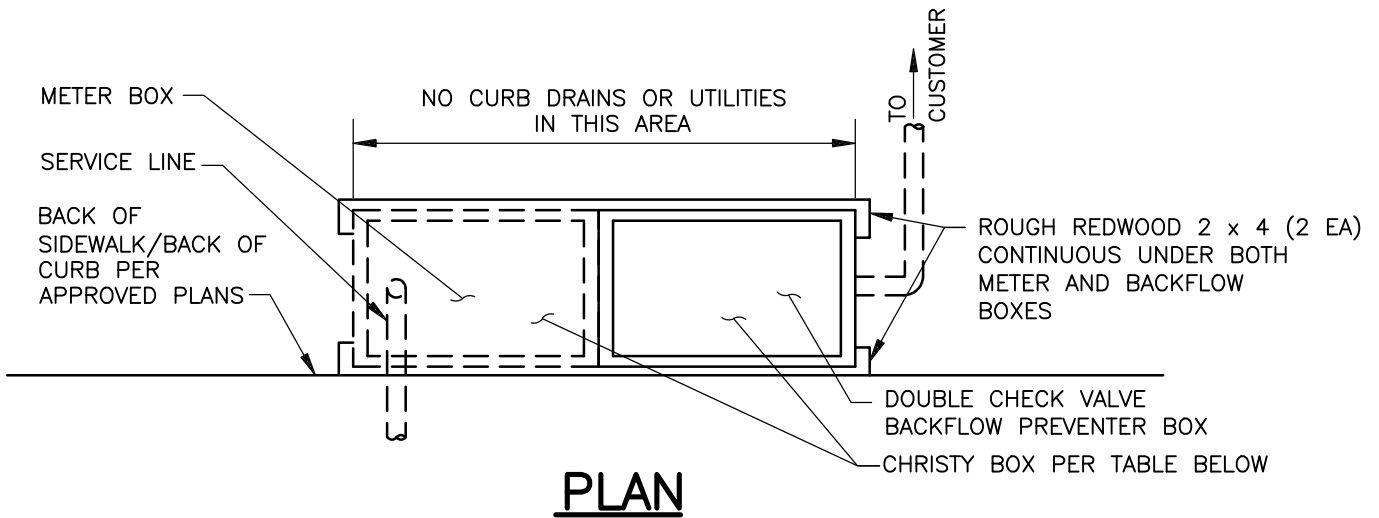
DESIGNED WDB

DRAWN MAR

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 9B



METER SIZE	5/8"	1"	1"*	1 1/2"	2"
BACKFLOW PREVENTER SIZE	1"	1"	1 1/4"	1 1/2"	2"
BOX MINIMUM INSIDE LENGTH	17"	17"	20"	20"	22"
CHRISTY BOX	B-12	B-12	B-16	B-16	B-30

NOTES:

* REQUIRED WITH FIRE SPRINKLER SYSTEMS

- SOME MEANS OF PRESSURE RELIEF MUST BE PROVIDED BY THE CUSTOMER SO THAT EXCESSIVE PRESSURE WILL NOT DISRUPT CUSTOMER'S PIPING OR FIXTURES.
- ALL COMPONENTS SHALL BE BRASS.
- INSTALLATION MUST BE MADE ADJACENT TO METER.
- BACK FLOW PREVENTER BOX SHALL BE LOCATED OUTSIDE OF TRAFFIC AREAS IF FEASIBLE. IF IN TRAFFIC AREA, FURNISH WITH TRAFFIC COVER.
- WATER SERVICES SHALL BE INSTALLED AT LEAST 5 FEET FROM SEWER LATERALS.
- IF CONSUMER'S PIPING IS GALVANIZED IRON, THE UNION BETWEEN THE BACKFLOW PREVENTER AND THE CUSTOMER'S PIPING SHALL BE DIELECTRIC.
- HOUSES WITH FIRE SPRINKLERS SHOULD USE 1" METER WITH 1-1/4" BACKFLOW PREVENTER.
- REFER TO SPEC SECTION 15400.
- CONTRACTOR TO SUPPLY AND INSTALL 1/4" MIP X 1/4" FLARE ADAPTER TEST FITTINGS (TOTAL OF 4).
- WATER UTILITY BOXES SHALL ONLY CONTAIN DWD OWNED FACILITIES.
- SEE SUBMITTAL LOG FOR DETAIL ON METER LID SPECIFICATION.
- METER AND BACKFLOW EACH NEED BE CENTERED IN THEIR BOX.

DIABLO WATER DISTRICT

STANDARD DRAWING
**DOUBLE CHECK VALVE
 BACKFLOW PREVENTER INSTALLATION, 3/4" TO 2"**

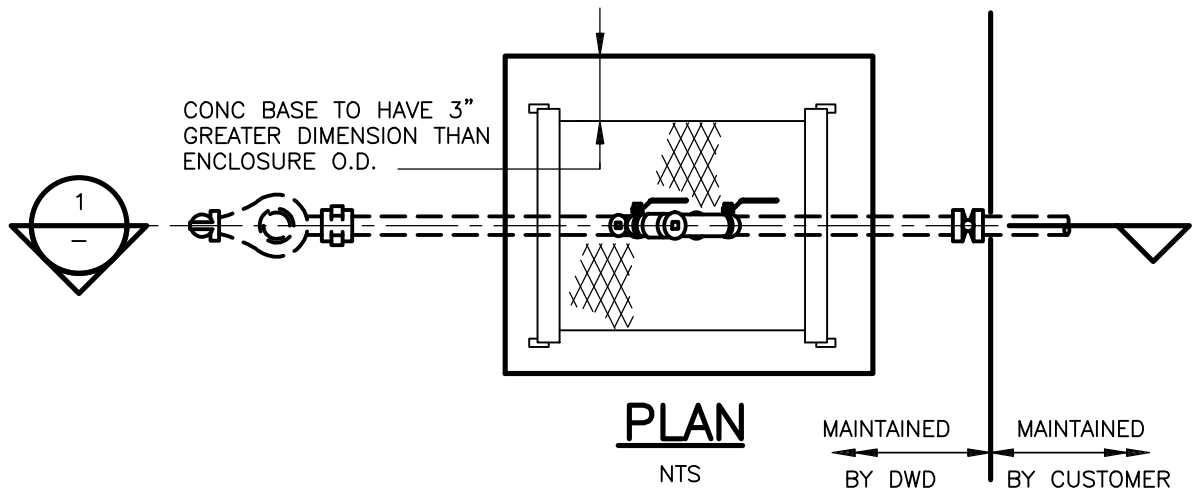
DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. **DWD 10**



FEBCO FREEZE BAG,
OR APPROVED EQUAL

3 1/2" CONC BASE ON 6" OF 3/4"
COMPACTED DRAIN ROCK

PIPE/FITTINGS TO BE THD
BRASS, SIZE TO MATCH RPBP

METER & METER BOX SEE
DWG NO. DWD 8

FEBCO LF825YA RPBP
WITH BALL VALVES, BR.
SIZE TO MATCH METER
(FOR 5/8" METER USE 1" RPBP)

NOTE 5

BPDI GUARDSHACK, HINGED
PROTECTIVE ENCLOSURE WITH
GATE SIZED PER DWD
REQUIREMENTS. FOREST
GREEN, STAINLESS STEEL,
POWDER COATED

HASP (2)

PVC CLASS 200
SLEEVES 2-TYP

HINGES (4)

CHRISTY G5
VALVE BOX, OR
APPROVED EQUAL

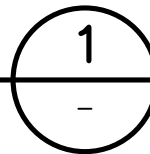
TO CUSTOMER

BRASS PIPE / FITTINGS

INSTALL BRASS BALL
VALVE FOR
CUSTOMER'S USE,
MUELLER B20200 OR
APPROVED EQUAL
(SEE NOTE 3)

SECTION

NTS



NOTES:

1. DO NOT SET REDUCED PRESSURE BACKFLOW PREVENTER (RPBP) ON PRIVATE PROPERTY.
2. IF RPBP IS LOCATED NEAR TRAFFIC AREAS, DWD WILL REQUIRE A MIN OF TWO 4" GALVANIZED STEEL GUARD POSTS TO BE 42" HIGH, EMBEDDED 36" BELOW GROUND IN CONCRETE, AND FILLED WITH CONCRETE.
3. FITTING SHOULD BE DIELECTRIC WHERE JOINING DISSIMILAR METALS.
4. PROTECTIVE ENCLOSURE SHALL BE FOREST GREEN 5. REFER TO SPEC SECTIONS 02210, 02620, 03304, & 15400 FOR FULL DESCRIPTION.
5. CONTRACTOR TO SUPPLY AND INSTALL (4) 1/4" MIP X 1/4" FLARE ADAPTER.

DIABLO WATER DISTRICT

STANDARD DRAWING
REDUCED PRESSURE
BACKFLOW PREVENTER INSTALLATION, 3/4" TO 2"

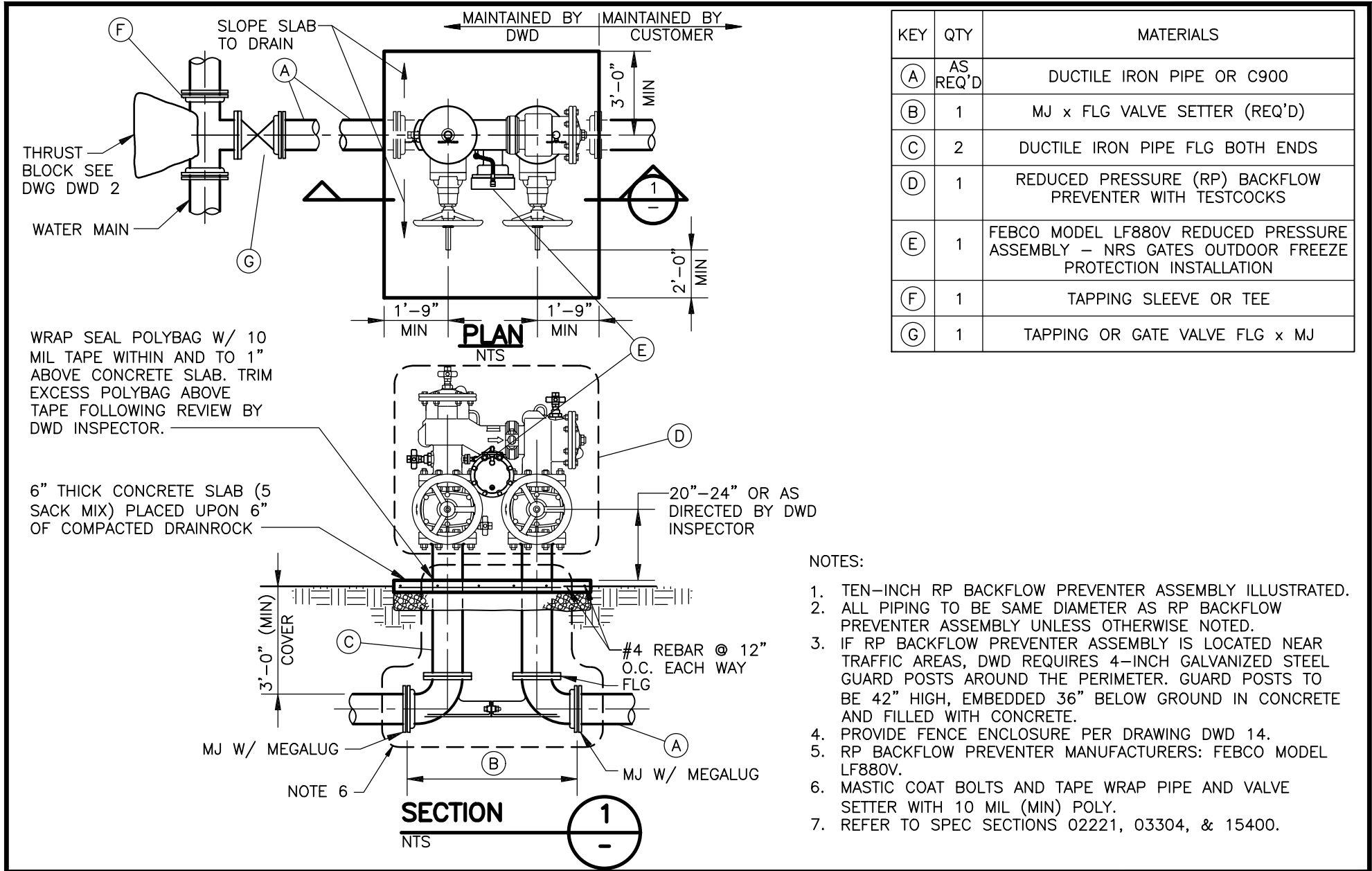
DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 11

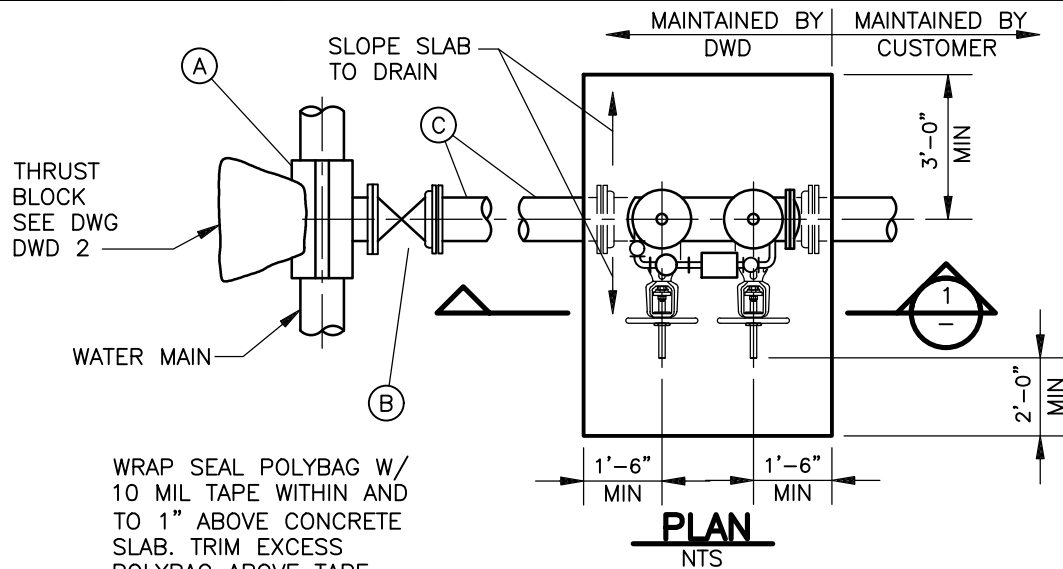


KEY	QTY	MATERIALS
(A)	AS REQ'D	DUCTILE IRON PIPE OR C900
(B)	1	MJ x FLG VALVE SETTER (REQ'D)
(C)	2	DUCTILE IRON PIPE FLG BOTH ENDS
(D)	1	REDUCED PRESSURE (RP) BACKFLOW PREVENTER WITH TESTCOCKS
(E)	1	FEBCO MODEL LF880V REDUCED PRESSURE ASSEMBLY - NRS GATES OUTDOOR FREEZE PROTECTION INSTALLATION
(F)	1	TAPPING SLEEVE OR TEE
(G)	1	TAPPING OR GATE VALVE FLG x MJ

NOTES:

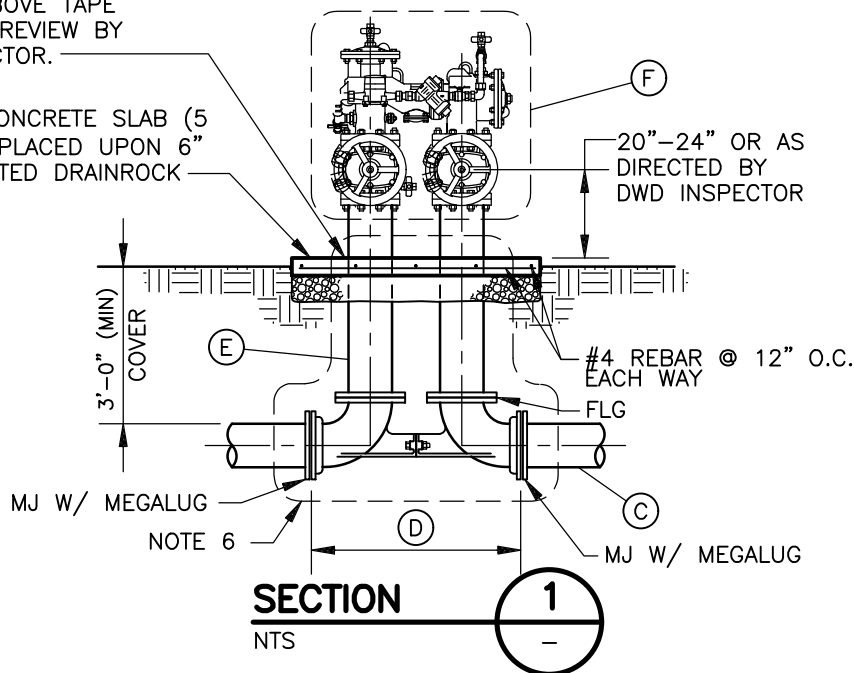
- TEN-INCH RP BACKFLOW PREVENTER ASSEMBLY ILLUSTRATED.
- ALL PIPING TO BE SAME DIAMETER AS RP BACKFLOW PREVENTER ASSEMBLY UNLESS OTHERWISE NOTED.
- IF RP BACKFLOW PREVENTER ASSEMBLY IS LOCATED NEAR TRAFFIC AREAS, DWD REQUIRES 4-INCH GALVANIZED STEEL GUARD POSTS AROUND THE PERIMETER. GUARD POSTS TO BE 42" HIGH, EMBEDDED 36" BELOW GROUND IN CONCRETE AND FILLED WITH CONCRETE.
- PROVIDE FENCE ENCLOSURE PER DRAWING DWD 14.
- RP BACKFLOW PREVENTER MANUFACTURERS: FEBCO MODEL LF880V.
- MASTIC COAT BOLTS AND TAPE WRAP PIPE AND VALVE SETTER WITH 10 MIL (MIN) POLY.
- REFER TO SPEC SECTIONS 02221, 03304, & 15400.

DIABLO WATER DISTRICT		STANDARD DRAWING REDUCED PRESSURE BACKFLOW PREVENTER INSTALLATION, 2 1/2" TO 10"		
DESIGNED WDB	DRAWN WKT	APPROVED WW	DATE OCTOBER, 2022	DWG. NO. DWD 12



WRAP SEAL POLYBAG W/
10 MIL TAPE WITHIN AND
TO 1" ABOVE CONCRETE
SLAB. TRIM EXCESS
POLYBAG ABOVE TAPE
FOLLOWING REVIEW BY
DWD INSPECTOR.

6" THICK CONCRETE SLAB (5
SACK MIX) PLACED UPON 6"
OF COMPACTED DRAINROCK



KEY	QTY	MATERIALS
(A)	1	TAPPING SLEEVE OR TEE
(B)	1	TAPPING OR GATE VALVE FLG x MJ
(C)	AS REQ'D	DUCTILE IRON PIPE OR C900
(D)	1	MJ x FLG VALVE SETTER (REQ'D)
(E)	2	DUCTILE IRON PIPE FLG BOTH ENDS
(F)	1	DOUBLE CHECK DETECTOR VALVE WITH TESTCOCKS

NOTES:

1. TEN-INCH DOUBLE CHECK DETECTOR ASSEMBLY ILLUSTRATED.
2. ALL PIPING TO BE SAME DIAMETER AS DETECTOR CHECK VALVES UNLESS OTHERWISE NOTED.
3. INSTALL FOUR BOLLARDS PER DWD 24 AROUND UNIT. LOCATIONS OF BOLLARDS PER DWD INSPECTOR.
4. PROVIDE FENCE ENCLOSURE PER DRAWING DWD-14.
5. DOUBLE CHECK DETECTOR VALVE MANUFACTURER: FEBCO MODEL LF876VST N-SHAPE.
6. MASTIC COAT BOLTS AND TAPE WRAP PIPE AND VALVE SETTER WITH 10 MIL (MIN) POLY.
7. SENSES SR 2 METER WITH 520M FLEXNET MTX UNIT.
8. REFER TO SPEC SECTIONS 02210, 03304, & 15400.
9. INSTALL FREEZE BAG ON COMPLETED VALVE INSTALLATION.

DIABLO WATER DISTRICT

STANDARD DRAWING
DOUBLE CHECK DETECTOR ASSEMBLY INSTALLATION,
2-1/2" TO 10"

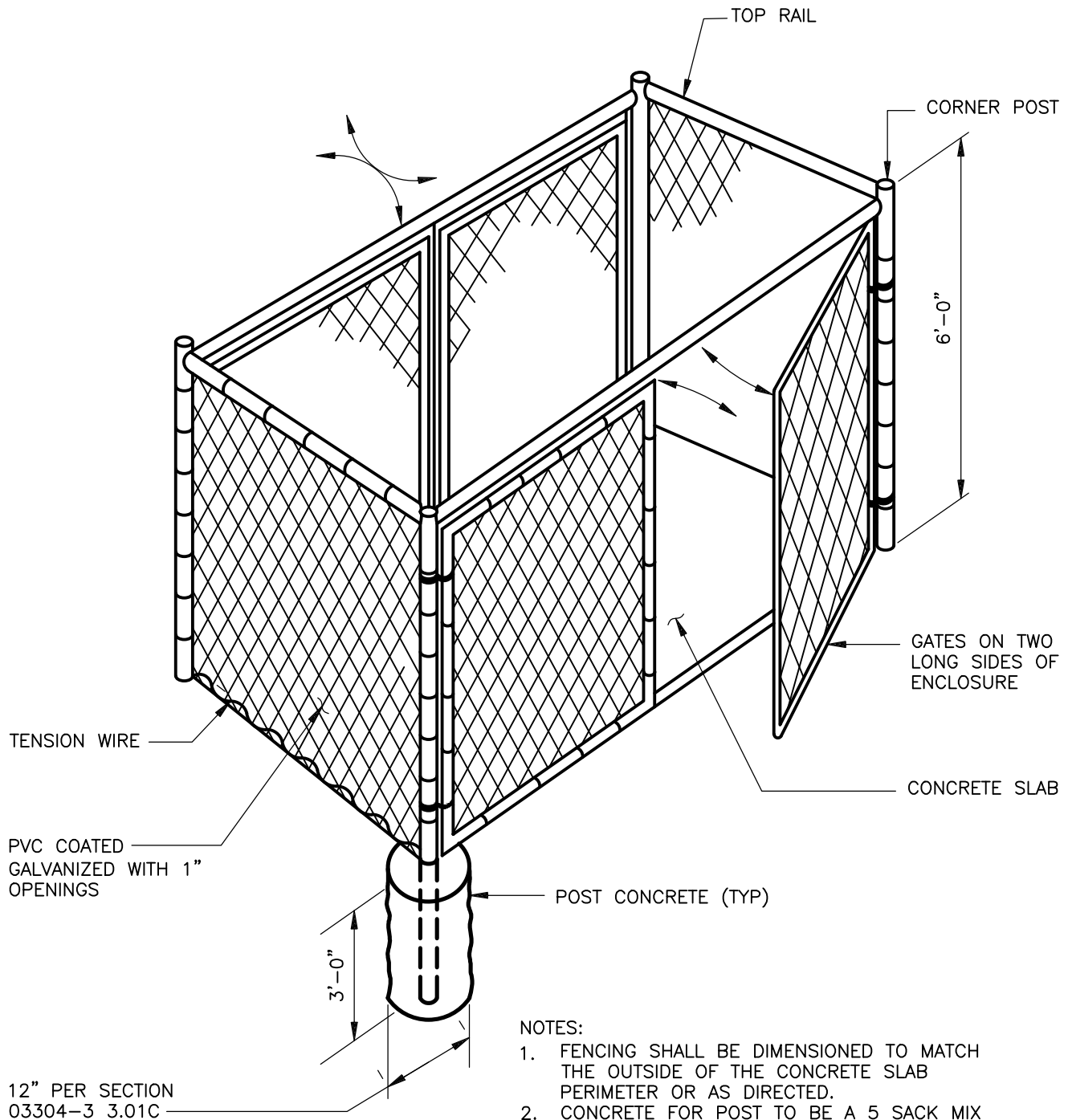
DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 13



NOTES:

1. FENCING SHALL BE DIMENSIONED TO MATCH THE OUTSIDE OF THE CONCRETE SLAB PERIMETER OR AS DIRECTED.
2. CONCRETE FOR POST TO BE A 5 SACK MIX AND SHALL BE PROPERLY MIXED BEFORE PLACING. DRY CONCRETE MIX SHALL NOT BE PLACED INTO POST HOLES.
3. REFER TO SPEC SECTIONS 02830 & 03304.
4. MESH OPENING TO BE DETERMINED AS PER PROJECT REQUIREMENT.

DIABLO WATER DISTRICT

STANDARD DRAWING
CHAIN LINK FENCE ENCLOSURE

DESIGNED WDB

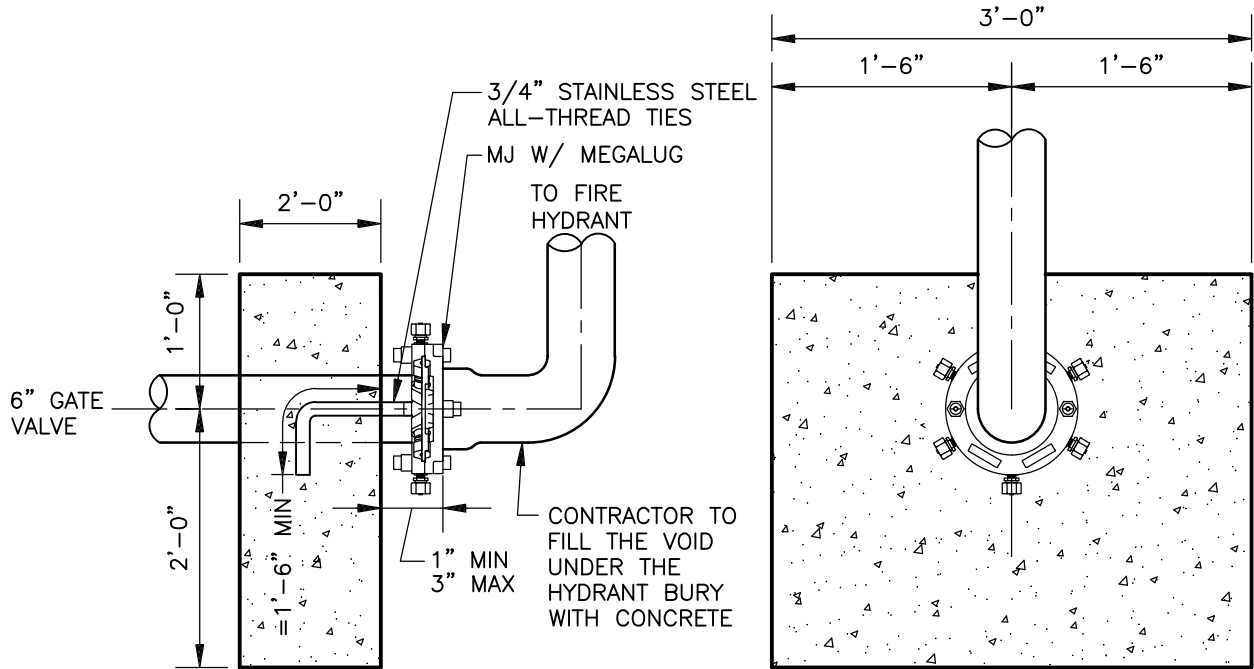
DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO.

DWD 14



NOTE:
 PIPING FROM MAIN TO FH WITHIN 6-FT OF EDGE OF SLOPES
 SHALL BE DIP WITH ALL RESTRAINED JOINTS

DIABLO WATER DISTRICT

STANDARD DRAWING
 REVERSE THRUST BLOCK AT
 FIRE HYDRANT ON EMBANKMENT

DESIGNED WDB

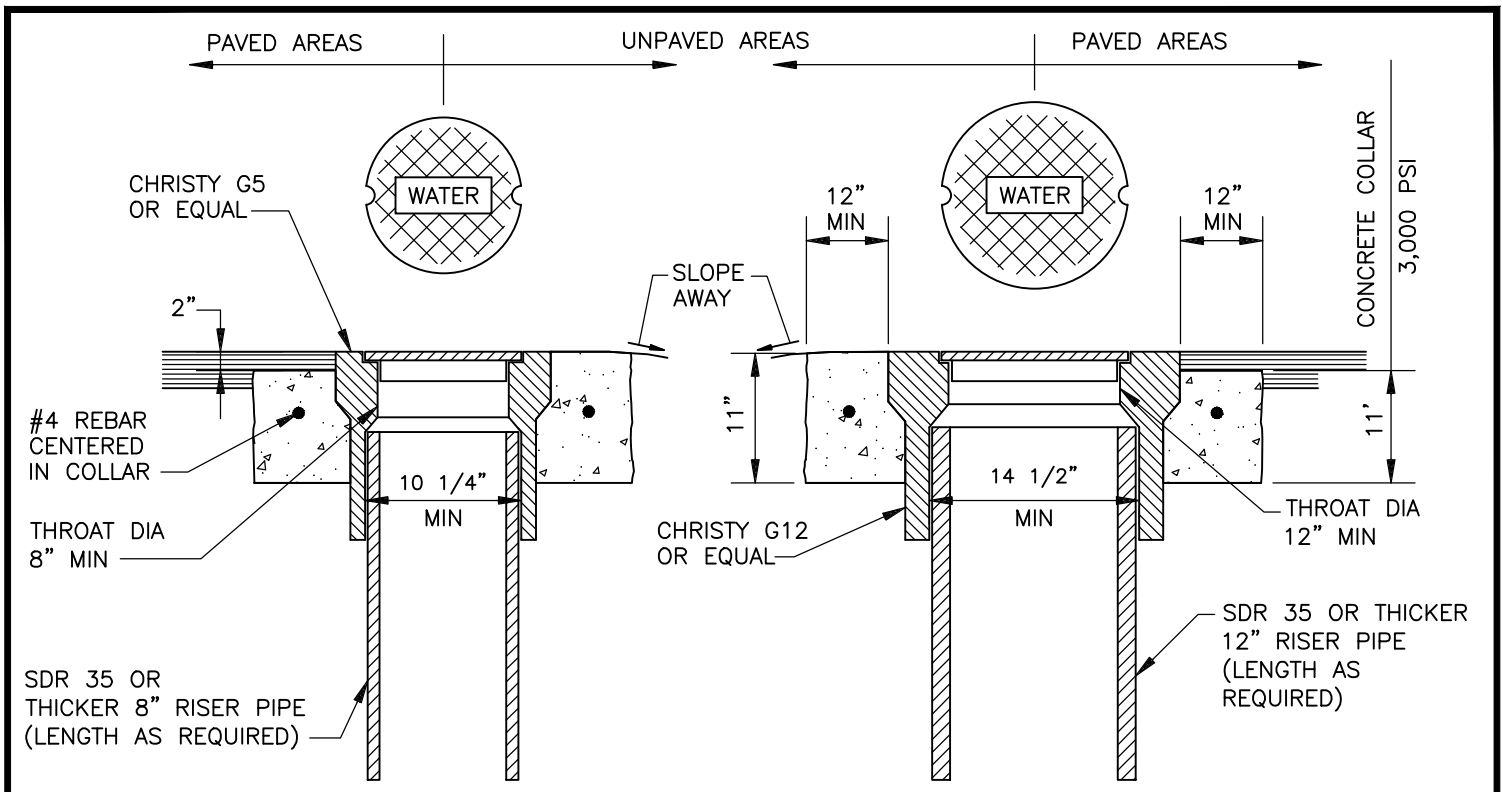
DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

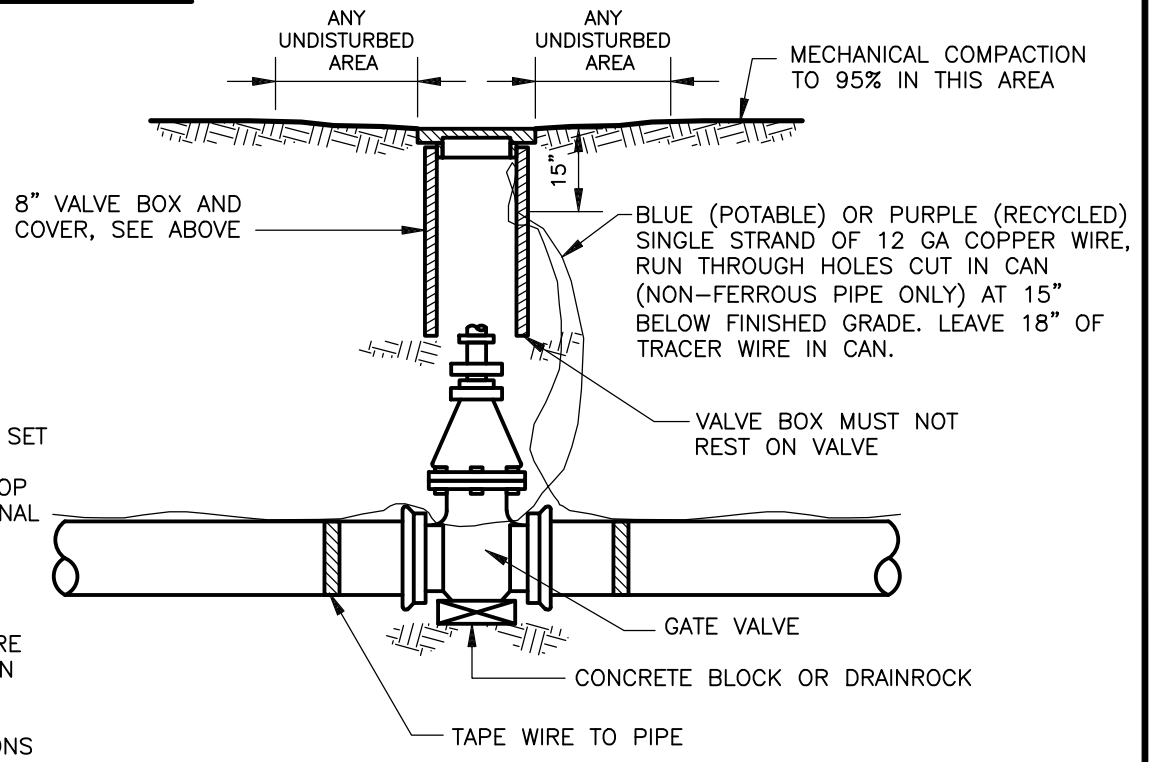
DWG. NO.

DWD 16



8" VALVE BOX WITH CAST IRON TRAFFIC LID

12" VALVE BOX WITH CAST IRON TRAFFIC LID

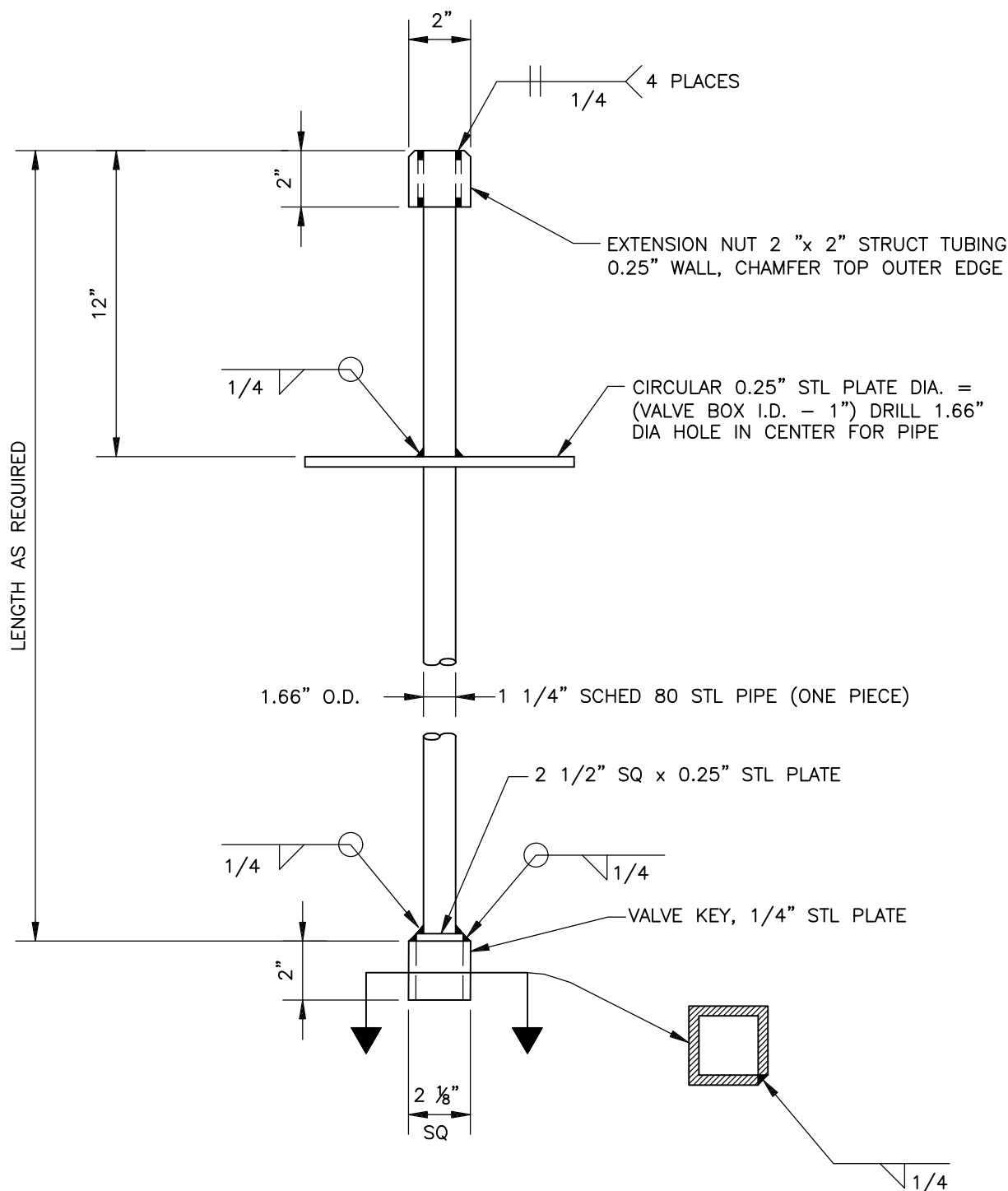


4" TO 12" GATE VALVE

NOTES:

1. VALVE CANS SHALL BE SET SUCH THAT THEIR TOP WILL BE FLUSH WITH TOP OF PAVEMENT AFTER FINAL PAVING IS COMPLETE.
2. VALVE OPERATING NUTS NOT WITHIN 24" OF FINISHED GRADE REQUIRE A VALVE NUT EXTENSION PER DRAWING DWD 18.
3. REFER TO SPEC SECTIONS 02230, 03304, 15100, & 16640.

DIABLO WATER DISTRICT		STANDARD DRAWING VALVE BOXES, LIDS AND RISER INSTALLATION, 12" AND SMALLER		
DESIGNED <u>WDB</u>	DRAWN <u>WKT</u>	APPROVED <u>WW</u>	DATE <u>OCTOBER, 2022</u>	DWG. NO. DWD 17



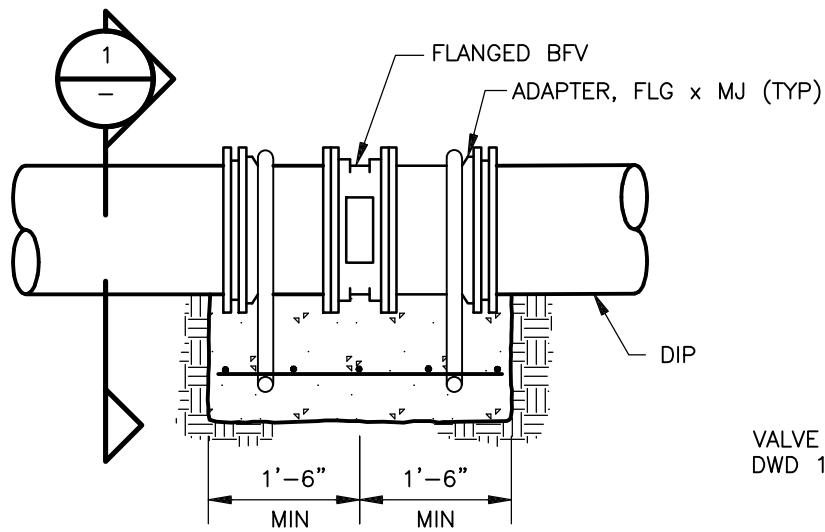
NOTES:

1. LENGTH OF EXTENSION IN INCHES SHALL BE INSCRIBED WITH AN ARC WELD BEAD (MIN 2" IN HEIGHT) ON TOP FACE OF CIRCULAR PLATE.
2. VALVE KEY SHALL FIT OVER STANDARD 2" VALVE OPERATING NUT.
3. EXTENSION NUT AND VALVE KEY TO BE ALIGNMENT WITH EACH OTHER.
4. REFER TO SPEC SECTION 15100.
5. POWDER COATED RED.

DIABLO WATER DISTRICT

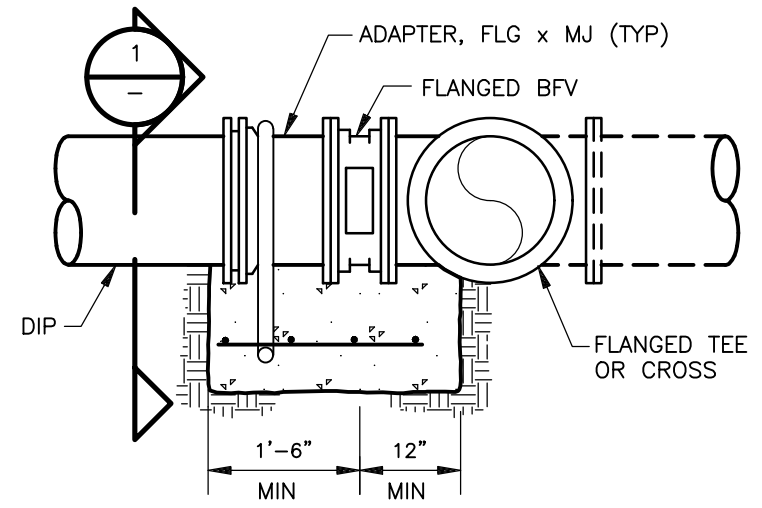
STANDARD DRAWING
VALVE NUT EXTENSION

DESIGNED _____ WDB	DRAWN _____ WKT	APPROVED _____ WW	DATE _____ OCTOBER, 2022	DWG. NO. DWD 18
--------------------	-----------------	-------------------	--------------------------	------------------------



IN-LINE BFV

NTS



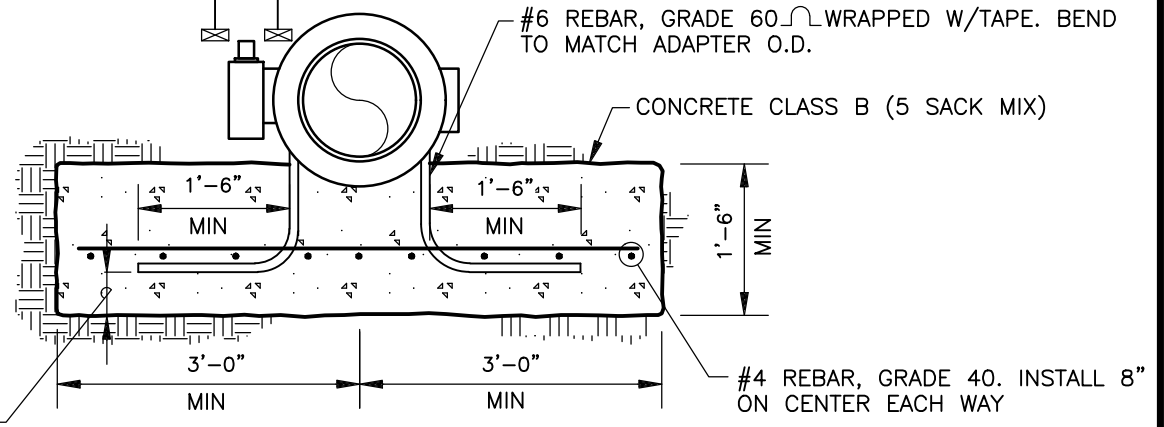
BFV AT TEE OR CROSS

NTS

NOTES:

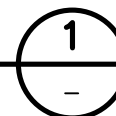
1. ALL REBAR TO HAVE 3" MIN CONCRETE COVER.
2. CONCRETE TO BE PLACED AGAINST UNDISTURBED SOIL OR COMPACTED DRAINROCK.
3. #6 REBAR IS TO BE WRAPPED IN 3M SCOTCHRAP #50 MOULDING TAPE AND COATED WITH BITUMASTIC BEFORE INSTALLATION.
4. REFER TO SPEC SECTIONS 02610, 03304, & 15100.

VALVE BOX SEE DWG DWD 17



SECTION

NTS



DIABLO WATER DISTRICT

STANDARD DRAWING

BUTTERFLY VALVE INSTALLATION, 16" TO 24"

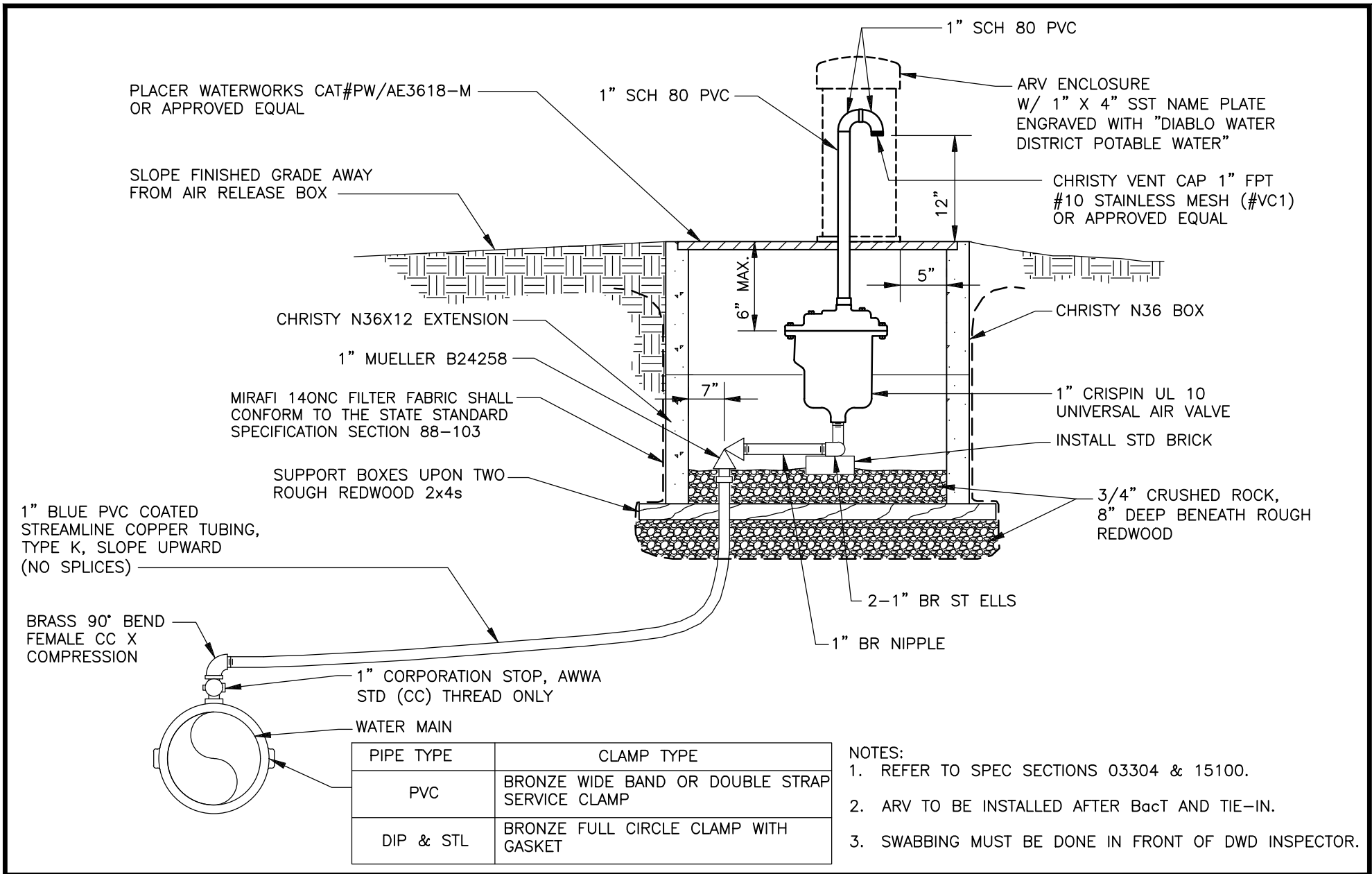
DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 19



DIABLO WATER DISTRICT

STANDARD DRAWING

1" AIR RELEASE VALVE ASSEMBLY

DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 20

12" DIA VALVE BOX AND COVER,
SEE DWG DWD 17

2" PLASTIC CAP

LEAVE 12" OF WIRE IN
CHRISTY BOX

2" NIPPLE BRASS,
LENGTH TO PLACE TOP
END WITHIN 2"-3" OF
FINISHED GRADE

MUELLER H-14204N QUARTER
BEND METER COUPLING, BRASS

2" MUELLER B-24286N 300
BALL ANGLE METER VALVE,
FIP X METER, OR APPROVED
EQUAL

2" NIPPLE, BRASS

2" ELL 90°, BRASS

THRUST BLOCK AGAINST
UNDISTURBED EARTH.
SIZE TO CONFORM TO
DRAWING DWD 2

2"x3" NIPPLE, BRASS

SINGLE STRAND OF 12 GA COATED
COPPER WIRE RUN THROUGH HOLES
CUT 1" BELOW BOTTOM OF CHRISTY
BOX (NON FERROUS MAINS ONLY)

TAPE WIRE TO
TOP OF PIPE

WATER MAIN

CAP W/2" TAP AT INVERT

NOTES:

1. REFER TO SPEC SECTIONS 02620, 03304, 15100, & 16640.

DIABLO WATER DISTRICT

STANDARD DRAWING

2" BLOWOFF ASSEMBLY

DESIGNED WDB

DRAWN E.P.M

APPROVED WW

DATE OCTOBER, 2022

DWG. NO.

DWD 21

12" VALVE BOX ASSEMBLY
SEE DWG DWD 17

8" VALVE BOX ASSEMBLY
SEE DWG DWD 17

4" GALV PLUG WITH 2" NUT
THREAD, HAND TIGHT ONLY.
TOP OF PLUG TO BE 6" TO 9"
BELOW FINISHED GRADE

4" DIP WITH GALV
COMPANION FLANGE,
LENGTH AS REQUIRED

THRUST BLOCK PER
DWG DWD 2

4" GATE VALVE, FLG.

MJ X FLANGE DIP
ADAPTER

MJ W/ MEGALUG

WATER MAIN

FLANGED REDUCER

4" DIP SPOOL, MIN 8" LONG

4" LONG RADIUS 90° ELL, FLG

NOTES:

1. INSTALLATION AS SHOWN IS FOR 4" BLOWOFF. INCREASE PIPES AND VALVES FOR LARGER INSTALLATIONS.
2. PIPING ASSEMBLY SHALL BE WRAPPED IN POLYETHYLENE PRIOR TO PLACING CONCRETE.
3. REFER TO SPEC SECTIONS 02610, 03304, 15100, & 16640.

DIABLO WATER DISTRICT

STANDARD DRAWING

4", 6", & 8" BLOWOFF ASSEMBLY

DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO.

DWD 22

CONC METER BOXES, MIN ID OF 14"x23", WITH ONE PIECE CONC COVER. TRAFFIC COVER REQUIRED IF LOCATED IN TRAFFIC AREA. CUT OUT BOX AROUND PIPING AS REQ'D

SLOPE FINISHED GRADE AWAY FROM AIR RELEASE BOX

CHRISTY N-30 WITH EXTENSION

1" MUELLER B24258

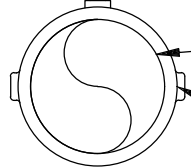
SUPPORT BOXES UPON TWO ROUGH REDWOOD 2x4s

1" BLUE PVC COATED STREAMLINE COPPER TUBING, TYPE K, SLOPE UPWARD

BRASS 90° BEND FEMALE CC X COMPRESSION

1" CORPORATION STOP, AWWA STD (CC) THREAD ONLY

WATER MAIN



PIPE TYPE	CLAMP TYPE
PVC	BRONZE WIDE BAND OR DOUBLE STRAP SERVICE CLAMP
DIP & STL	BRONZE FULL CIRCLE CLAMP WITH GASKET

2" GALV NIPPLE (TYP)

GALV ST ELL, NIPPLE, & UNION. SIZE TO MATCH AIR RELEASE OUTLET, 1/2" MIN

1" AIR RELEASE VALVE

2" GALV ELL & ST ELL

NORTHTOWN HYTECH STAINLESS STL SCREEN & HOSE CLAMP OVER 2" GALV NIPPLE

12" MIN

2" GALV RED TEE

WRAPPED IN 10 MIL TAPE

2" GALV PIPE, MIN 24" LONG

CLASS B CONCRETE (5 SACK MIX)

2" GALV CAP

4" MIN

12" DIA MIN

2-1" BR ST ELLS
1" BR NIPPLE
3/4" CRUSHED ROCK,

NOTE:
1. REFER TO SPEC SECTIONS 03304 & 15100.

DIABLO WATER DISTRICT

STANDARD DRAWING

ALTERNATE 1" AIR RELEASE VALVE ASSEMBLY

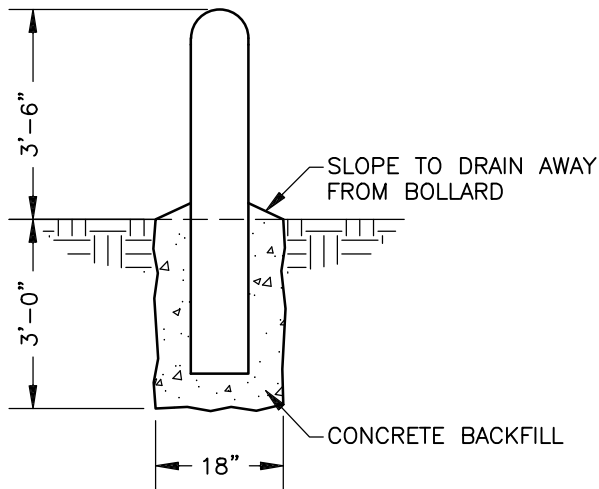
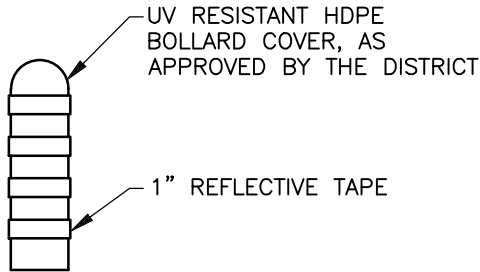
DESIGNED WDB

DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 23



NOTES:

1. 4" G.I.P. FILLED WITH CONCRETE.
2. 1" WIDE SILVER AND RED REFLECTIVE TAPE @ 6" O.C.
3. CONSULT WITH DWD INSPECTOR PRIOR TO INSTALLATION.

BOLLARD DETAILS

NTS

DIABLO WATER DISTRICT

STANDARD DRAWING
BOLLARD INSTALLATION

DESIGNED WDB

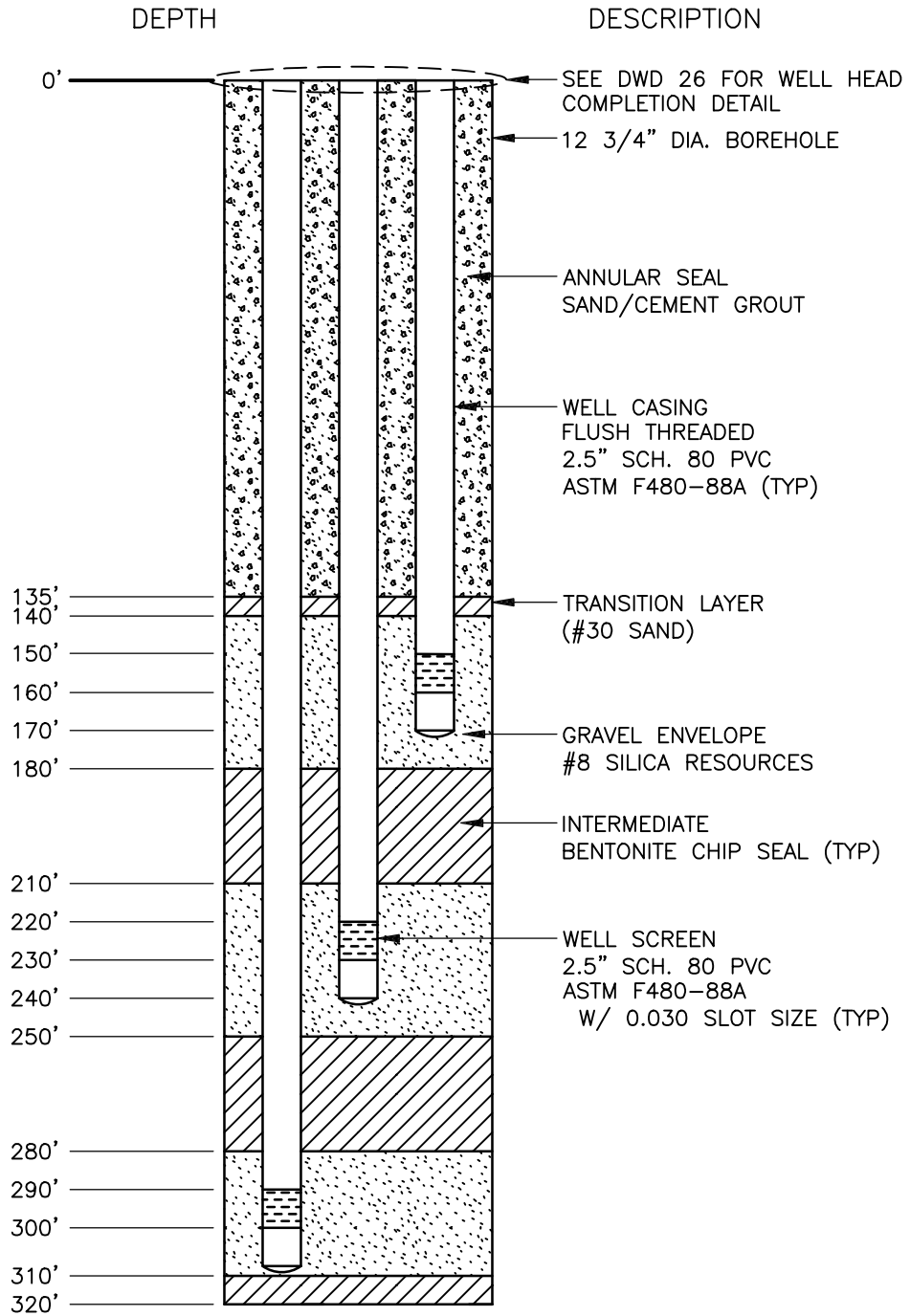
DRAWN WKT

APPROVED WW

DATE OCTOBER, 2022

DWG. NO.

DWD 24



NOT FOR CONSTRUCTION
FOR ILLUSTRATIVE PURPOSES
ONLY

DIABLO WATER DISTRICT

STANDARD DRAWING
CONCEPTUAL MONITORING
WELL PROFILE

DESIGNED ASL

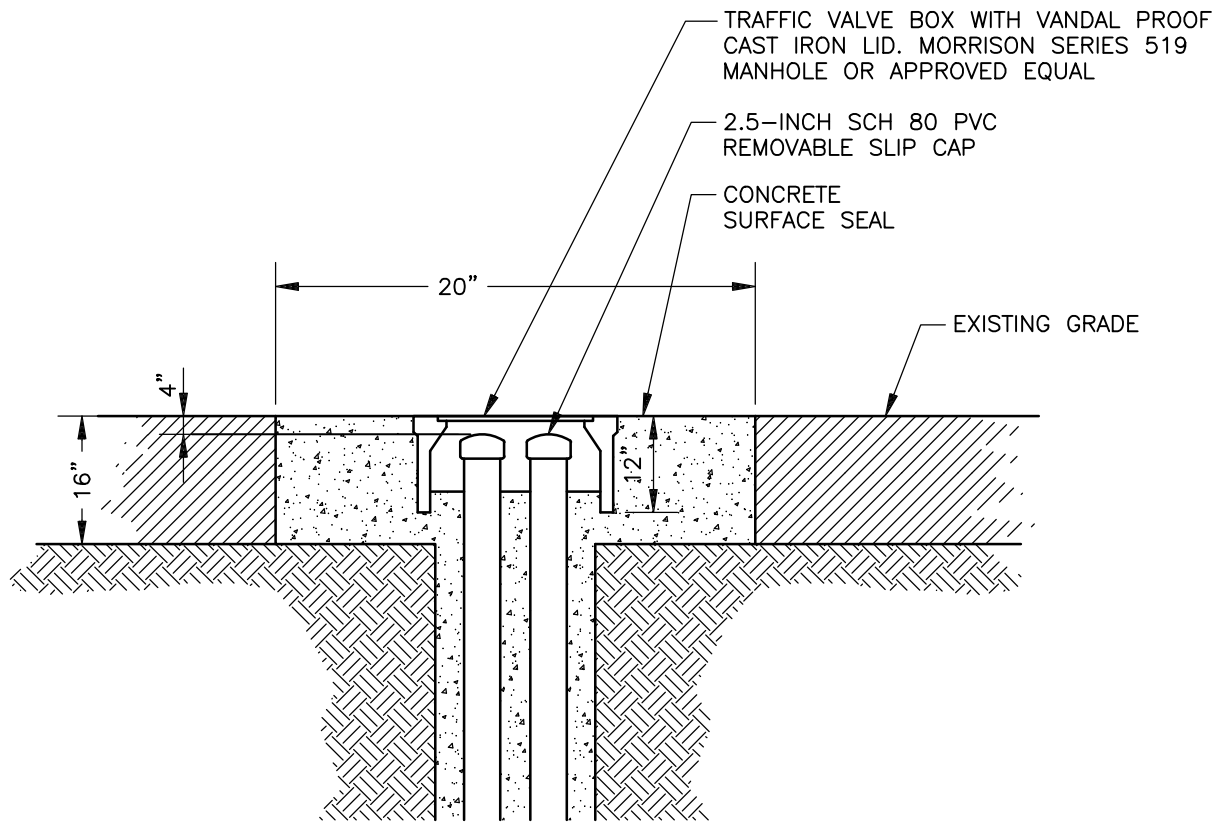
DRAWN ABC

APPROVED WW

DATE OCTOBER, 2022

DWG. NO.

DWD 25



NOTES:

1. TWO WELL HEADS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. ADDITIONAL WELL HEADS MAY BE REQUIRED.

DIABLO WATER DISTRICT

STANDARD DRAWING
TYPICAL MONITORING WELL
FLUSH MOUNT SURFACE COMPLETION

DESIGNED ASL

DRAWN ABC

APPROVED WW

DATE OCTOBER, 2022

DWG. NO. DWD 26