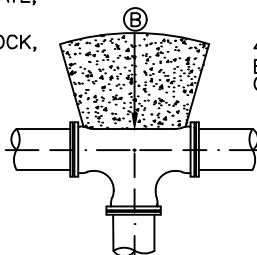
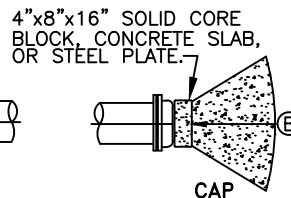


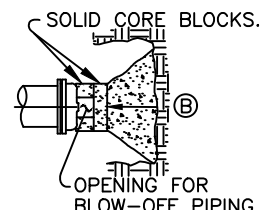
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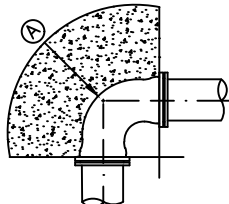
TEE



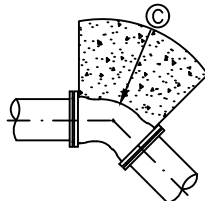
CAP



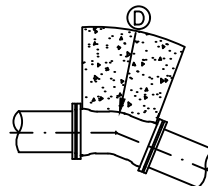
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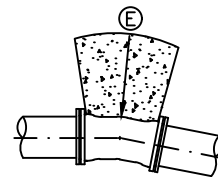
90° BEND



45° BEND



22½° BEND



11¼° BEND

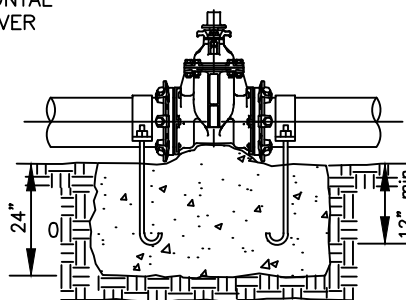
THRUST BLOCK SIZING FOR 250 PSI PRESSURE

MIN. BEARING AREA AGAINST UNDISTURBED SOIL IN SQUARE FEET.

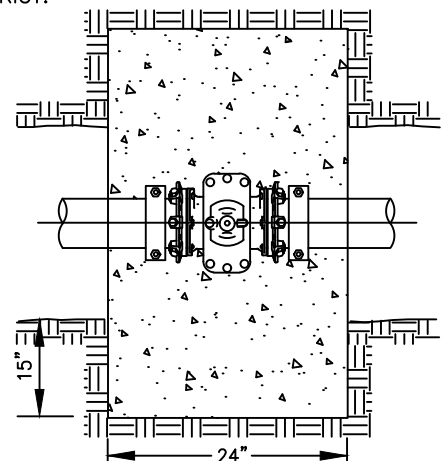
PIPE SIZE	(A)	(B)	(C)	(D)	(E)
4"	3/(2)	2/(1)	2/(1)	1/(1)	1/(1)
6"	6/(4)	4/(3)	3/(2)	2/(1)	1/(1)
8"	10/(7)	7/(5)	5/(4)	3/(2)	2/(1)
10"	15/(10)	11/(7)	8/(5)	4/(3)	2/(2)
12"	22/(14)	15/(10)	12/(8)	6/(4)	3/(2)
14"	29/(20)	21/(14)	16/(11)	8/(5)	4/(3)
16"	38/(26)	27/(18)	21/(14)	11/(7)	5/(4)
18"	48/(32)	34/(23)	26/(18)	13/(9)	7/(5)
20"	60/(40)	42/(28)	32/(22)	17/(11)	8/(6)
24"	86/(58)	61/(41)	47/(31)	24/(16)	12/(8)

SAFE BEARING LOADS IN LBS./SQ. FT.
THE SAFE BEARING LOADS GIVEN IN THE FOLLOWING TABLE ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET.

SOIL	SAFE SOIL BEARING LOAD
*MUCK, PEAT, ETC.	SEE GENERAL NOTE #7
SOFT CLAY	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED W/CLAY	4,000
HARD SHALE	10,000



INLINE VALVE - PROFILE



INLINE VALVE - PLAN

NOTES:

1. CONCRETE BLOCKING AREA IS BASED ON 250 PSI WATER PRESSURE AND 2500 PSI CONCRETE STRENGTH.
2. HARDWARE NOT EMBEDDED IN CONCRETE SHALL BE CLEANED AND COATED WITH COAL TAR EPOXY.
3. IN-LINE VALVE SHALL BE M.J.xM.J. AND BE RESTRAINED WITH MEGA-LUGS, OR EQUAL.
4. RESTRAINING HARDWARE SHALL BE PER NUD STANDARD WATER DETAIL #2 FOR VERTICAL BLOCKING.

CONCRETE BLOCKING - HORIZONTAL

NOT TO SCALE

DETAIL APPROVALS

EDITOR TDC

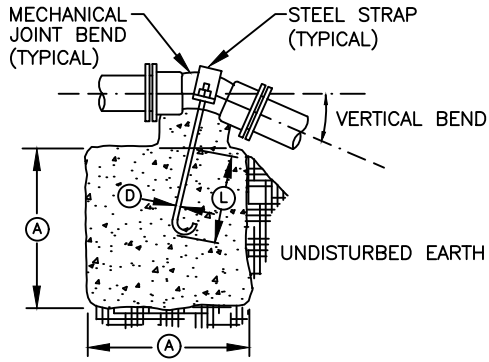
MANAGER DPK

NORTHSHORE UTILITY DISTRICT

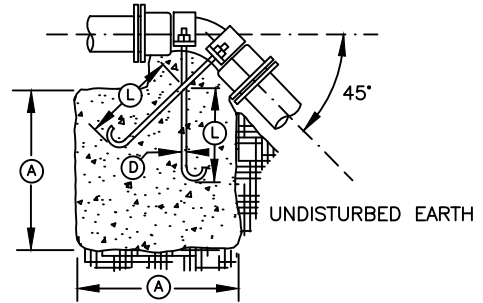
2023 STANDARD WATER DETAILS

1

LAST UPDATED
FEBRUARY 2018



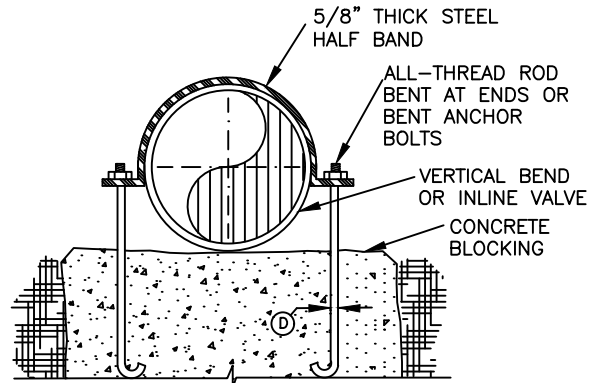
BLOCKING FOR 11-1/4°, 22-1/2° & 30° VERTICAL BENDS



BLOCKING FOR 45° VERTICAL BENDS

VERTICAL BLOCKING

PIPE SIZE	VERT. BEND	CU.FT.	(A)	(D)	(L)
4"	11-1/4°	8	2.0'	3/4"	1.5'
	22-1/2°	11	2.2'	3/4"	2.0'
	30°	17	2.6'	3/4"	2.0'
	45°	30	3.1'	3/4"	2.0'
6"	11-1/4°	11	2.2'	3/4"	2.0'
	22-1/2°	25	2.9'	3/4"	2.0'
	30°	41	3.5'	3/4"	2.0'
	45°	68	4.1'	3/4"	2.0'
8"	11-1/4°	16	2.5'	3/4"	2.0'
	22-1/2°	47	3.6'	3/4"	2.5'
	30°	70	4.1'	3/4"	2.5'
	45°	123	5.0'	3/4"	2.0'
12"	11-1/4°	32	3.2'	3/4"	2.0'
	22-1/2°	88	4.5'	7/8"	3.0'
	30°	132	5.1'	7/8"	2.5'
	45°	232	6.1'	3/4"	2.5'
16"	11-1/4°	70	4.1'	7/8"	3.0'
	22-1/2°	184	5.7'	1-1/8"	4.0'
	30°	275	6.5'	1-1/4"	4.0'
	45°	478	7.8'	1-1/8"	4.0'
20"	11-1/4°	91	4.5'	7/8"	3.0'
	22-1/2°	225	6.1'	1-1/4"	4.0'
	30°	330	6.9'	1-3/8"	4.5'
	45°	560	8.2'	1-1/4"	4.0'
24"	11-1/4°	128	5.0'	1"	3.5'
	22-1/2°	320	6.8'	1-3/8"	4.5'
	30°	480	7.9'	1-5/8"	5.5'
	45°	820	9.4'	1-3/8"	4.5'



TYPICAL CROSS-SECTION

NOTES:

1. CONCRETE BLOCKING AREA IS BASED ON 250 PSI WATER PRESSURE AND 2,500 PSI CONCRETE STRENGTH.
2. BOLTS AND NUTS NOT EMBEDDED IN CONCRETE SHALL BE CLEANED AND COATED WITH COAL TAR EPOXY.
3. POLYETHYLENE WRAP NOT SHOWN FOR CLARITY.
4. HARDWARE SHALL BE TWO CARBON STEEL HALF BANDS (5/8" THICK) EQUAL TO 595 SOCKET CLAMP FROM ANVIL INTERNATIONAL. RODS SHALL BE ALL-THREAD, BENT AT THE ENDS OR BENT ANCHOR BOLTS, WITH 12" MIN. EMBEDMENT FOR INLINE VALVES, OR AS SHOWN ON VERTICAL BLOCKING TABLE.

CONCRETE BLOCKING - VERTICAL

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

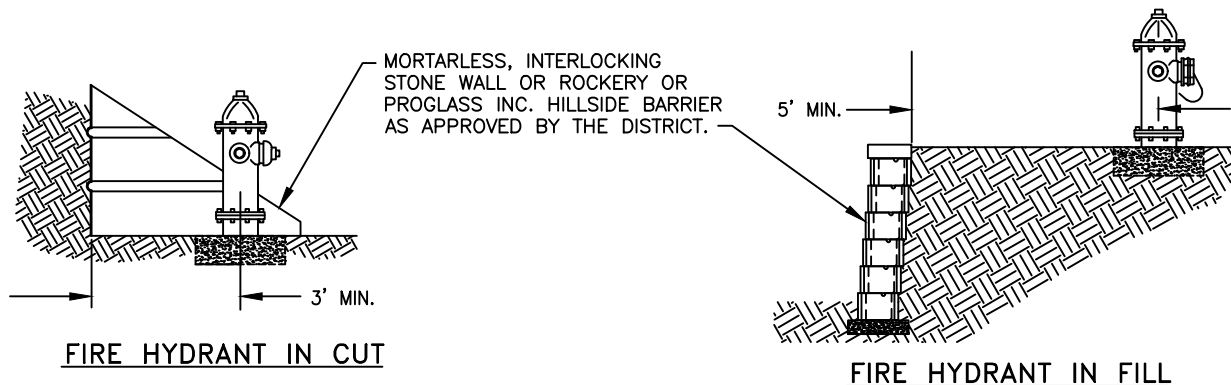
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

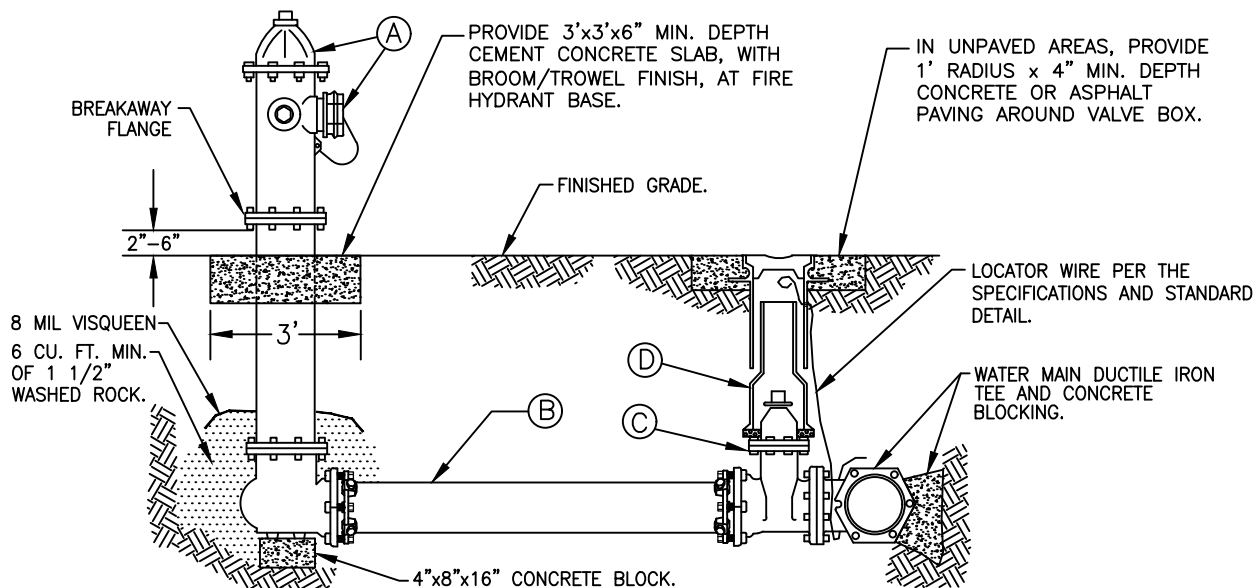
2023 STANDARD WATER DETAILS

2

LAST UPDATED
FEBRUARY 2020



FIRE HYDRANT LOCATION IN CUT OR FILL



MATERIALS LIST

ITEM DESCRIPTION

- (A) HYDRANT: SHALL BE MUELLER SUPER CENTURION, AMERICAN DARLING B-62-B, CLOW MEDALLION, M&H 129 OR 129S, OR EAST JORDAN IRON WORKS WATERMASTER 5CD250 IN CONFORMANCE WITH AWWA STANDARD SPECIFICATION C-502. PROVIDE STORZ ADAPTERS (INTEGRAL OR NON-INTEGRAL) AS FOLLOWS: 4" FOR ALL LOCATIONS, EXCEPT FOR WITHIN KIRKLAND WHERE 5" IS REQUIRED. HYDRANT SHALL BE FACTORY PRIME COATED. TOP COAT SHALL BE TWO BRUSH COATS OF SHERWIN WILLIAMS WHITE INDUSTRIAL ENAMEL #B54W101.
- (B) 6" CL. 52 D.I. PIPE, 3' MIN. AND 50' MAX. WITH RESTRAINED JOINTS.
- (C) 6" R.W. GATE VALVE, F.L.xR.J.: SHALL BE PER THE SPECIFICATIONS. FOR VALVE OPERATING NUT DEPTHS, SEE STANDARD WATER DETAIL #11
- (D) TWO-PIECE VALVE BOX AND ETHAFOAM RING PER THE SPECIFICATIONS AND STANDARD WATER DETAIL #11.

NOTES:

1. HYDRANT SHALL BE ORIENTED PER FIRE MARSHALL AND HAVE 3' MIN. CLEARANCE AROUND CENTERLINE.
2. BOLLARDS REQUIRED ONLY ON PRIVATE PROPERTY.
3. IF HYDRANT RUN IS LONGER THAN 50', PIPE SIZE WILL BE DETERMINED BY DISTRICT
4. HYDRANT EXTENSIONS ARE NOT ALLOWED.

FIRE HYDRANT ASSEMBLY

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

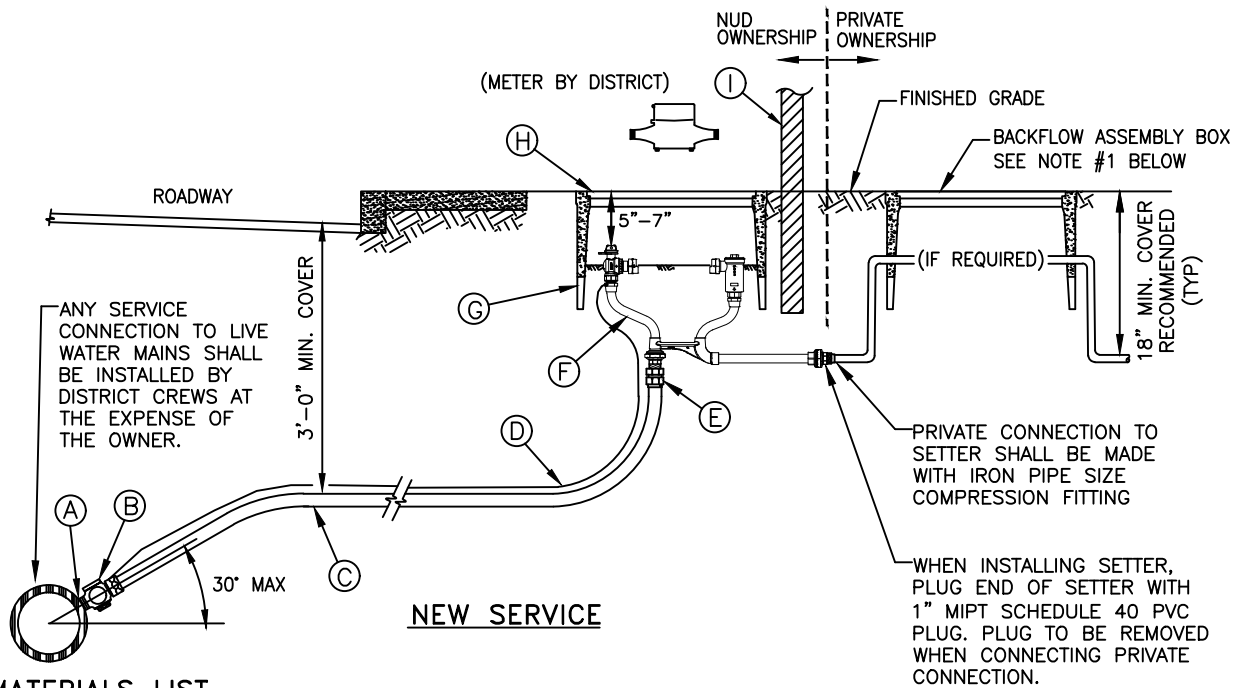
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

3

LAST UPDATED
JANUARY 2023



MATERIALS LIST

ITEM DESCRIPTION

- (A) DIRECT TAP: DIRECT TAP OF DUCTILE IRON OR CAST IRON LARGER THAN 4" DIAMETER IS REQUIRED FOR 1" SERVICES. SADDLES WILL NOT BE ALLOWED ON DUCTILE IRON OR CAST IRON PIPE LARGER THAN 4" DIAMETER.
SADDLE: ALL SADDLES SHALL BE DUCTILE IRON CASTING WITH CC THREADS. FOR ALL PIPE MATERIAL OTHER THAN PVC PIPE, SADDLES SHALL BE SINGLE STRAP TYPE EQUAL TO FORD FC101, ROMAC 101NS, MUELLER DR1S, OR DISTRICT APPROVED EQUAL. FOR PVC PIPE, SADDLES SHALL BE DOUBLE STRAP TYPE EQUAL TO MUELLER DR2S, FORD FCD202, OR ROMAC 202NS.
- (B) 1" CORPORATION STOP, CCxPACK JOINT, FORD F1001 OR APPROVED EQUAL, WITH STAINLESS STEEL STIFFENER, FORD INSERT-53-72 OR MUELLER 505142. CORPORATION STOP SHALL BE ORIENTED SO THAT THE SHUT OFF IS IN THE 12 O'CLOCK POSITION.
- (C) 1 1/4" REHAU MUNICIPEX PEX_a 3306, COPPER TUBE SIZE (CTS), SDR 9, AWWA C904, PER THE SPECIFICATIONS. PIPE SHALL BE CONTINUOUS FROM CORPORATION STOP TO METER SETTER. ALL PEX_a PIPE INSTALLED BY OPEN-CUT CONSTRUCTION SHALL BE BEDDED IN SAND 4" OVER AND UNDER. NATIVE MATERIAL WILL NOT BE ALLOWED FOR BEDDING.
- (D) TRACER WIRE: BLUE 14 GAUGE COPPER, CONTINUOUS, SOLID CORE, POLYETHYLENE INSULATED PER THE SPECIFICATIONS. CONNECTION AT THE METER SETTER SHALL BE MADE WITH AN ALL STAINLESS STEEL HOSE CLAMP. CONNECTION AT THE MAIN LINE WIRE SHALL BE MADE WITH A SPLIT-BOLT CONNECTOR. STRIP COATING PRIOR TO CONNECTION. TRACER WIRE MAY BE REQUIRED FROM SETTER TO HOUSE, CHECK WITH LOCAL JURISDICTION FOR REQUIREMENTS.
- (E) 1" ADAPTER, MIPxPACK JOINT, FORD #C86-44-NL WITH STIFFENER, FORD INSERT-55 OR MUELLER 528707.
- (F) 1" METER SETTER WITH DUAL CHECK VALVE: FORD VBHC74-84W-11-44A-FP-NL, OR MUELLER 390B2588-6A03N
- (G) METER BOX: ARMORCAST, A6001946PCX12-NUD (NO "MOUSE HOLES") OR DFW, DFW1324CNP4-12-BODY
- (H) COVER: ARMORCAST, A6001969-H10-NUD OR DFW, DFW1324C-4MT-SMALL-NS-NHK-LID
- (I) 2"x4"x4', MARKER POST. PAINTED WHITE WITH "WATER" STENCILED ONTO IT IN BLACK.

NOTE:

1. IF REQUIRED FOR PREMISE ISOLATION, AN APPROVED BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER PER DISTRICT STANDARD WATER DETAILS #13, #14a, AND #14b .
2. ALL PEX_a PIPE TO PACK JOINT CONNECTIONS REQUIRE A STIFFENER INSERT.
3. MULTIPLE, ADJACENT DIRECT TAPS ON NEW DI MAINS SHALL BE INSTALLED WITH A MINIMUM 18" HORIZONTAL SEPARATION BETWEEN SERVICES AND FROM PIPE BELLS.

1" WATER SERVICE

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

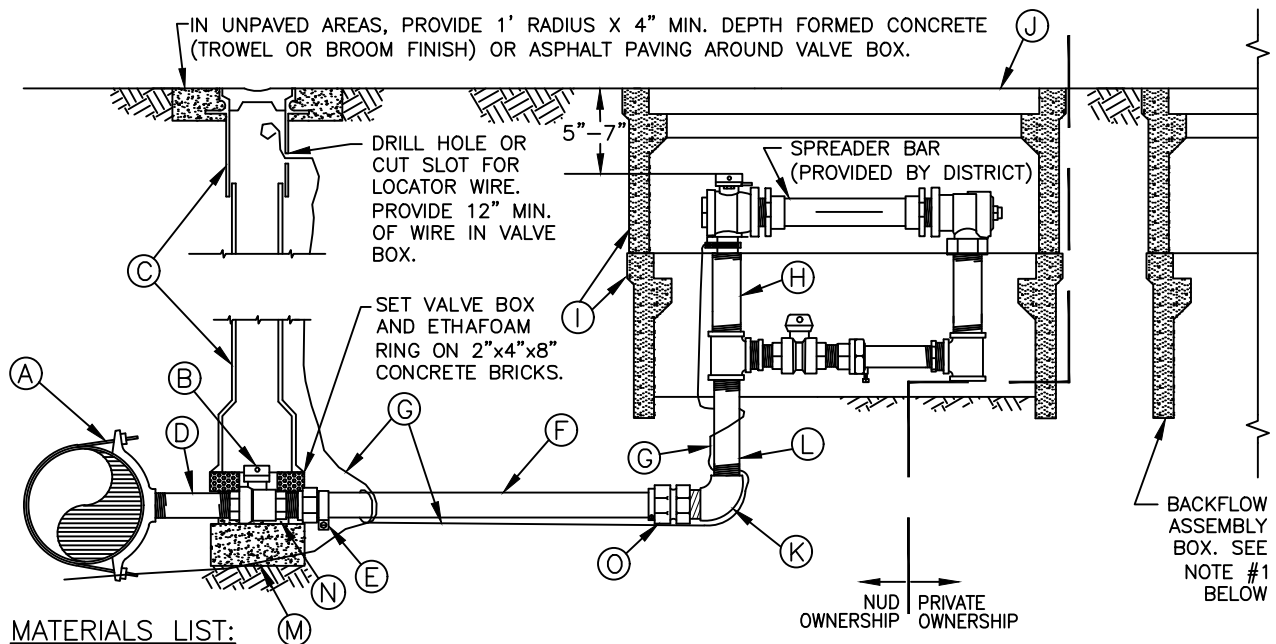
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

4

LAST UPDATED
JANUARY 2023



MATERIALS LIST:

ITEM DESCRIPTION

- (A) SADDLE: ALL SADDLES SHALL BE DUCTILE IRON CASTING WITH IP THREADS. FOR ALL PIPE MATERIAL OTHER THAN PVC PIPE, SADDLES SHALL BE SINGLE STRAP TYPE EQUAL TO FORD FC101, ROMAC 101NS, MUELLER DR1S, OR DISTRICT APPROVED EQUAL. FOR PVC PIPE, SADDLES SHALL BE DOUBLE STRAP TYPE EQUAL TO MUELLER DR2S, FORD FCD202, OR ROMAC 202NS. ANY SERVICE CONNECTION TO LIVE WATER MAINS SHALL BE INSTALLED BY DISTRICT CREWS AT THE EXPENSE OF THE OWNER.
- (B) BALL VALVE, FIPxFIP; FORD #B11-777-NL, WITH 2" OPERATING NUT, FORD #QT-67. FOR VALVE OPERATING NUT DEPTHS, SEE STANDARD WATER DETAIL #11.
- (C) TWO-PIECE CAST IRON VALVE BOX AND ETHAFOAM RING PER THE SPECIFICATIONS AND STANDARD WATER DETAIL #11.
- (D) BRASS CLOSE NIPPLE, MIPxMIP.
- (E) ADAPTER, MIPxPACK JOINT, FORD #C84-77-NL WITH STIFFENER, FORD INSERT-55, OR MUELLER 528707.
- (F) 2" REHAU MUNICIPEX PEX_a 3306, COPPER TUBE SIZE (CTS), SDR 9, AWWA C904, PER THE SPECIFICATIONS. PIPE SHALL BE CONTINUOUS FROM BALL VALVE TO METER SETTER. ALL PEX_a PIPE INSTALLED BY OPEN-CUT CONSTRUCTION SHALL BE BEDDED IN SAND, 4" OVER AND UNDER. NATIVE MATERIAL WILL NOT BE ACCEPTED FOR BEDDING.
- (G) TRACER WIRE: BLUE 14 GAUGE COPPER, CONTINUOUS, SOLID CORE, POLYETHYLENE INSULATED PER THE SPECIFICATIONS. CONNECTION AT THE METER SETTER SHALL BE MADE WITH AN ALL STAINLESS STEEL HOSE CLAMP. CONNECTION AT THE MAIN LINE WIRE SHALL BE MADE WITH A SPLIT-BOLT CONNECTOR. STRIP COATING PRIOR TO CONNECTION.
- (H) 1-1/2" METER SETTER: FORD VBH86-12B-11-66-NL. 2" METER SETTER: FORD VBH87-12B-11-77-NL.
- (I) METER BOX: ARMORCAST, A6001640PCX12-NUD (2 BOXES STACKED, NO "MOUSE HOLES").
- (J) COVER: ARMORCAST, A6001947T-H10-NUD.
- (K) 90° BRASS ELBOW, FIPxFIP. SIZE TO MATCH SETTER.
- (L) BRASS NIPPLE, LENGTH TO FIT. MIPxMIP. SIZE TO MATCH SETTER.
- (M) 4"x8"x16" CONCRETE BLOCK.
- (N) TWO 2"x4"x8" CONCRETE BRICKS, ONE ON EITHER SIDE OF THE BALL VALVE TO SUPPORT ETHAFOAM RING.
- (O) ADAPTER, MIPxPACK JOINT, FORD #C84-67-NL WITH STIFFENER FOR 1 1/2" SETTER AND FORD #C84-77-NL WITH STIFFENER FOR 2" SETTER. STIFFENER, FORD INSERT-55 OR MUELLER 528707.

NOTE:

- FOR PREMISE ISOLATION, AN APPROVED BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER PER DISTRICT STANDARD WATER DETAILS #13, #14a, AND #14b.
- ALL PEX_a PIPE TO PACK JOINT CONNECTIONS REQUIRE A STIFFENER INSERT.

1-1/2" & 2" WATER SERVICE

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

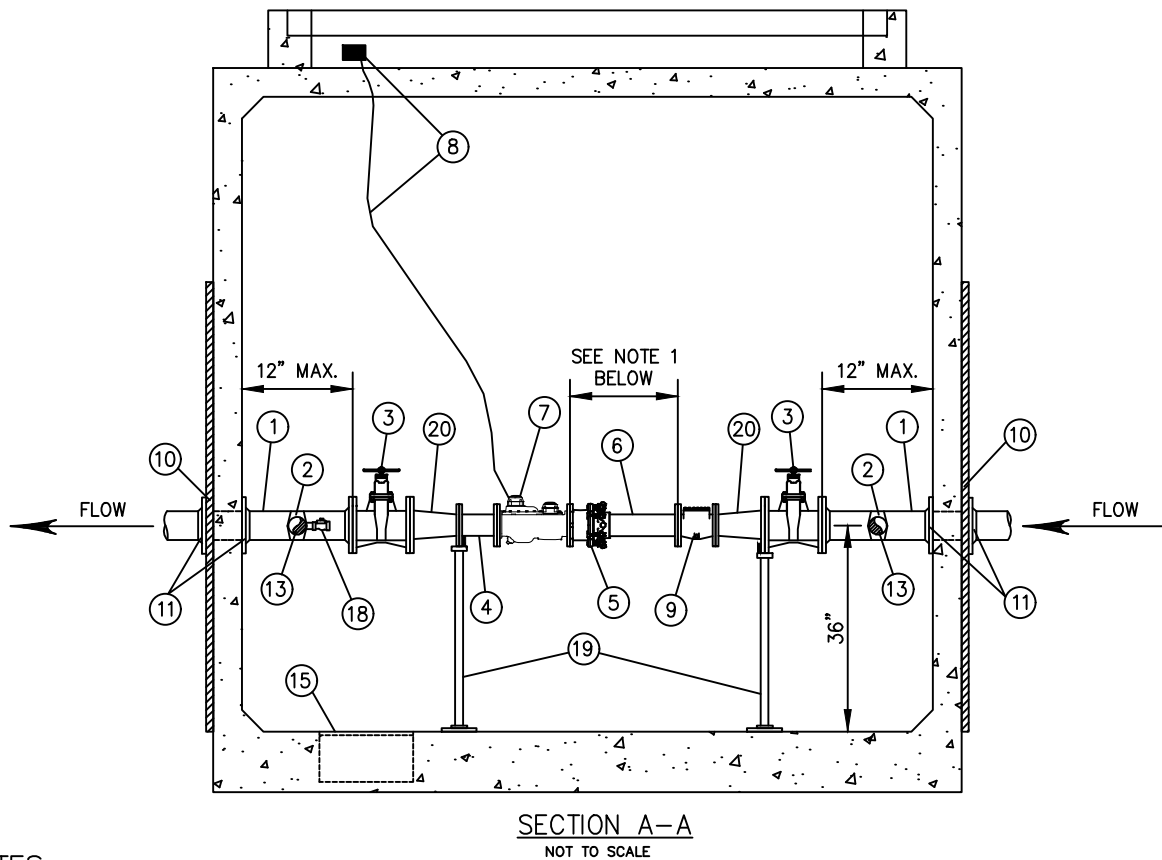
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

5

LAST UPDATED
JANUARY 2023



NOT TO SCALE

LAST UPDATED
APRIL 2021

MATERIALS LIST

ITEM QTY. DESCRIPTION

- | | | |
|---|---|--|
| ① | 2 | D.I. ADAPTER, FLxPE, 3'± LONG. |
| ② | 2 | SADDLE WITH STAINLESS STEEL STRAP, ROMAC 202NS, FORD FCD202, OR MUELLER DR2S; WITH 2" IP TAP. |
| ③ | 2 | RESILIENT SEAT GATE VALVE, NRS, FL, O-RING PACKING WITH HANDWHEEL. VALVE TO BE AMERICAN, MUELLER, M&H, OR CLOW MEETING AWWA C515. |
| ④ | 1 | D.I. SPOOL, FLxFL, LENGTH TO FIT |
| ⑤ | 1 | FLANGED COUPLING ADAPTER TO BE ROMAC FLANGED COUPLING ADAPTER, STYLE RFCA. |
| ⑥ | 1 | D.I. ADAPTER, FLxPE, LENGTH TO BE A MINIMUM OF 15" FOR 3" SERVICES AND 20" FOR 4" SERVICES. |
| ⑦ | 1 | FLANGED SINGLE REGISTER HIGH PERFORMANCE COMPOUND METER, TO BE PROVIDED BY DISTRICT AND INSTALLED BY CONTRACTOR. |
| ⑧ | 1 | METER ENDPOINT AND MOUNTING BRACKET, TO BE PROVIDED AND INSTALLED BY DISTRICT ON HATCH RISER. |
| ⑨ | 1 | FLANGED STRAINER, TO BE PROVIDED BY DISTRICT AND INSTALLED BY CONTRACTOR. |
| ⑩ | 4 | 2"x2"x1/4" MIN. WALL THICKNESS SQUARE STEEL TUBING, 6' MIN. LENGTH. BOLT TO VAULT WALL IN FOUR PLACES WITH STAINLESS STEEL ANCHOR BOLTS. |
| ⑪ | 4 | UNI-FLANGE ADAPTER. |
| ⑫ | 2 | 2" MIPxFIP LOCKABLE BALL VALVE. |
| ⑬ | 5 | 2" BRASS NIPPLE, LENGTH TO FIT. |
| ⑭ | 2 | 2" BRASS 90° BEND. |
| ⑮ | 1 | SUMP PUMP OR GRAVITY DRAIN AS REQUIRED BY SITE CONDITIONS, TO BE DETERMINED BY THE DEVELOPER AND CONTRACTOR AND REVIEWED AND APPROVED BY THE DISTRICT. |

FOR GRAVITY: SUMP DRAIN, ZURN Z-551, THREADED, WITH ZURN Z-1099 BACKWATER VALVE, THREADED x NO-HUB, WITH 4" D.I. PIPE TO 12" MIN. BEYOND VAULT WALL AND 4" D.I., MIN. 1% SLOPE TO DAYLIGHT OR C.B.

FOR SUMP PUMP: 16" DIAM. x 8" DEEP SUMP WITH ZOELLER MODEL 57 SUMP PUMP WITH SOLID BUOYANT POLYPROPYLENE FLOAT. PROVIDE ELECTRICAL POWER WITHIN 4' MIN.-6' MAX. VERTICAL DISTANCE AND 1' MAX. HORIZONTAL DISTANCE TO SUMP PUMP PER ALL APPLICABLE CODES. CONSTRUCT 1-1/4", SCH. 80 PVC DISCHARGE PIPING, WITH LOCATE WIRE, TO NEAREST CATCH BASIN OR APPROVED LOCATION. DISCHARGE PIPING SHALL BE ATTACHED TO THE INTERIOR VAULT WALL WITH APPROVED FASTENERS AT 3' SPACING. INSTALL A QUICK DISCONNECT COUPLING, CHECK VALVE, AND ISOLATION BALL VALVE ON DISCHARGE PIPING IMMEDIATELY AFTER SUMP PUMP. SEE STANDARD WATER DETAIL #16A FOR PUMP AND PIPING DETAIL.

- | | | |
|---|---|---|
| ⑯ | 1 | 2" BRASS UNION. |
| ⑰ | 1 | 2"x1" BRASS TEE. |
| ⑱ | 1 | 3/4" HOSE BIB. |
| ⑲ | 4 | ADJUSTABLE PIPING SUPPORT, STANDON MODEL #S89, OR EQUAL, SET ON CONCRETE. STANDON MODEL #S92, OR EQUAL, SHALL ONLY BE USED FOR 2" BYPASS. |
| ⑳ | 2 | FOR 3" WATER SERVICES: 4"x3" CONCENTRIC REDUCER, FLxFL. PIPE AND FITTING SIZES BETWEEN GATE VALVES (ITEM NUMBERS 4, 5, 6, 7, AND 9) SHALL MATCH METER SIZE. |

NOTES:

1. PROVIDE SHOP DRAWINGS AND SUBMITTALS FOR ALL MATERIALS TO THE DISTRICT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. VAULT SHALL BE UTILITY VAULT 687-LA (8'Lx6'Wx7'D; INSIDE DIMENSION). SEE DISTRICT STANDARD DETAIL #S 16 AND 16a FOR VAULT DETAIL.
3. ALL PIPE AND CONDUIT PENETRATIONS SHALL BE CORE-DRILLED ON-SITE AND SHALL BE SEALED WATERTIGHT. PROVIDE "LINK-SEAL" FITTINGS AT ALL PENETRATIONS.
4. ALL PIPING AND APPURTENANCES OUTSIDE THE VAULT SHALL BE RESTRAINED JOINT. IN ADDITION TO THE RESTRAINED JOINTS, THRUST BLOCKING AT ALL TEES AND BENDS PER DISTRICT STANDARD WATER DETAIL #S 1 AND 2 SHALL BE REQUIRED.
5. THE CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL PERMITS AND APPROVALS FOR SUMP PUMP INSTALLATIONS.
6. FOR PREMISE ISOLATION, AN APPROVED BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER PER DISTRICT STANDARD WATER DETAIL #14a OR #14b.
7. NUD'S OWNERSHIP WILL BE TO THE DOWNSTREAM OUTSIDE EDGE OF THE VAULT.

3" & 4" WATER SERVICE

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

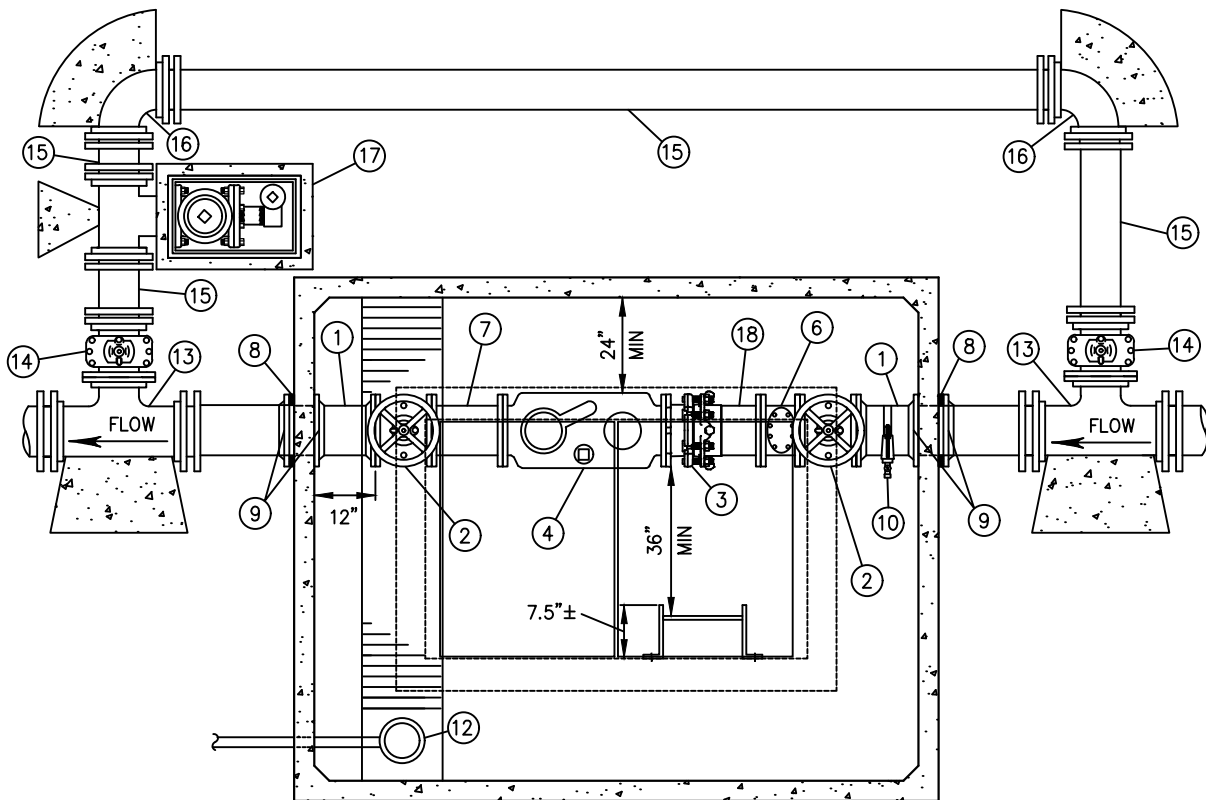
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

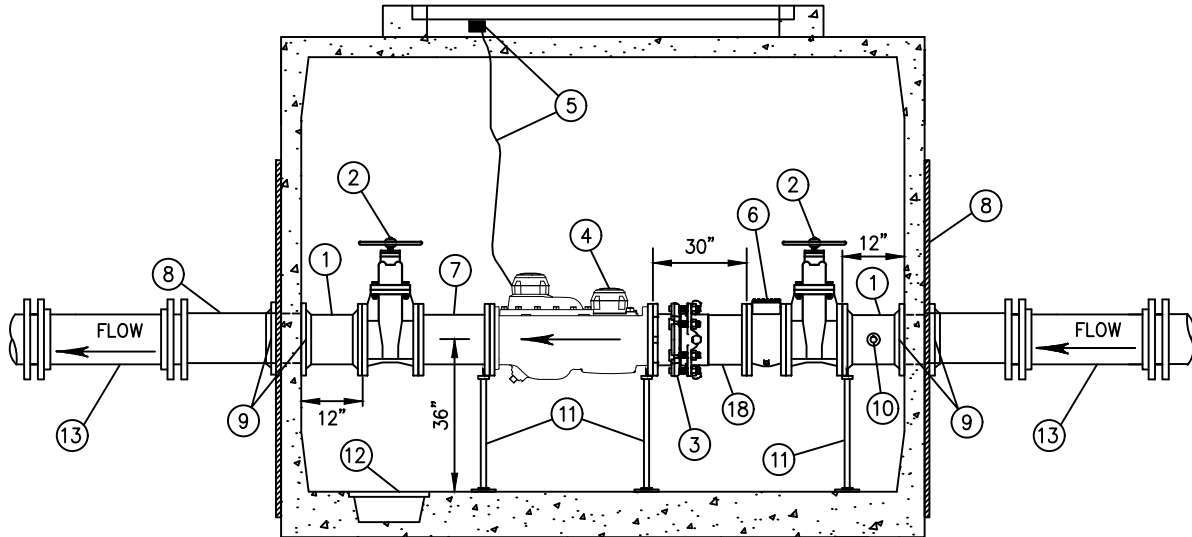
2023 STANDARD WATER DETAILS

6a

LAST UPDATED
FEBRUARY 2022



PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE

NOTES:

1. SEE NUD STANDARD WATER DETAIL #7A FOR MATERIALS LIST AND ADDITIONAL NOTES.
2. SEE NUD STANDARD WATER DETAIL #16 AND #16A FOR VAULT DETAILS.

6" WATER SERVICE

NOT TO SCALE

DETAIL APPROVALS
EDITOR TMC
MANAGER SJD

NORTHSHORE UTILITY DISTRICT
2023 STANDARD WATER DETAILS

7

LAST UPDATED
FEBRUARY 2020

MATERIALS LIST: ALL PIPING & APPURTENANCES TO MATCH METER SIZE

ITEM QTY. DESCRIPTION

- | | | |
|---|---|--|
| ① | 2 | D.I. ADAPTER, FLxPE, 5'± LONG. |
| ② | 2 | RESILIENT SEAT GATE VALVE, NRS, FL, O-RING PACKING WITH HANDWHEEL. VALVE TO BE AMERICAN, MUELLER OR CLOW MEETING AWWA C515. |
| ③ | 1 | FLANGED COUPLING ADAPTER TO BE ROMAC FLANGED COUPLING ADAPTER, STYLE RFCA. |
| ④ | 1 | FLANGED SINGLE REGISTER HIGH PERFORMANCE COMPOUND METER, TO BE PROVIDED BY DISTRICT AND INSTALLED BY CONTRACTOR. |
| ⑤ | 1 | METER ENDPOINT AND MOUNTING BRACKET, TO BE PROVIDED AND INSTALLED BY DISTRICT ON HATCH RISER. |
| ⑥ | 1 | FLANGED STRAINER, TO BE PROVIDED BY DISTRICT AND INSTALLED BY CONTRACTOR. |
| ⑦ | 1 | 12" D.I. SPOOL, FLxFL |
| ⑧ | 4 | 2"x2"x1/4" MIN. WALL THICKNESS SQUARE STEEL TUBING, 6' MIN. LENGTH. BOLT TO VAULT WALL IN FOUR PLACES WITH STAINLESS STEEL ANCHOR BOLTS. |
| ⑨ | 4 | UNI-FLANGE ADAPTER. |
| ⑩ | 1 | SADDLE WITH STAINLESS STEEL STRAP, ROMAC 202NS, FORD FCD202, OR MUELLER DR2S; WITH 1" IP TAP AND 3/4" HOSE BIB. |
| ⑪ | 3 | ADJUSTABLE PIPING SUPPORT, STANDON MODEL #S89, OR EQUAL, SET ON CONCRETE. |
| ⑫ | 1 | SUMP PUMP OR GRAVITY DRAIN AS REQUIRED BY SITE CONDITIONS, TO BE DETERMINED BY THE DEVELOPER AND CONTRACTOR AND REVIEWED AND APPROVED BY THE DISTRICT. |

FOR GRAVITY: SUMP DRAIN, ZURN Z-551, THREADED, WITH ZURN Z-1099 BACKWATER VALVE, THREADED x NO-HUB, WITH 4" D.I. PIPE TO 12" MIN. BEYOND VAULT WALL AND 4" D.I., MIN. 1% SLOPE TO DAYLIGHT OR C.B.

FOR SUMP PUMP: 16" DIAM. x 8" DEEP SUMP WITH ZOELLER MODEL 57 SUMP PUMP WITH SOLID BUOYANT POLYPROPYLENE FLOAT. PROVIDE ELECTRICAL POWER WITHIN 4' MIN.-6' MAX. VERTICAL DISTANCE AND 1' MAX. HORIZONTAL DISTANCE TO SUMP PUMP PER ALL APPLICABLE CODES. CONSTRUCT 1-1/4", SCH. 80 PVC DISCHARGE PIPING, WITH LOCATE WIRE, TO NEAREST CATCH BASIN OR APPROVED LOCATION. DISCHARGE PIPING SHALL BE ATTACHED TO THE INTERIOR VAULT WALL WITH APPROVED FASTENERS AT 3' SPACING. INSTALL A QUICK DISCONNECT COUPLING, CHECK VALVE, AND ISOLATION BALL VALVE ON DISCHARGE PIPING IMMEDIATELY AFTER SUMP PUMP. SEE STANDARD WATER DETAIL #16A FOR PUMP AND PIPING DETAIL.

- | | | |
|---|---|---|
| ⑬ | 2 | D.I. TEE, FLxRJ. |
| ⑭ | 2 | RESILIENT SEAT GATE VALVE, NRS, FLxRJ. VALVE TO BE AMERICAN, MUELLER, M&H, OR CLOW MEETING AWWA C515. VALVE BOX AND OPERATING NUT EXTENSION TO BE PER DISTRICT STANDARD WATER DETAIL #11. |
| ⑮ | 4 | D.I. SPOOLS, LENGTH TO FIT. RJ. |
| ⑯ | 2 | 90° D.I. BENDS, RJ. |
| ⑰ | 1 | 2" BLOW-OFF ASSEMBLY, PER DISTRICT STANDARD WATER DETAIL #10. |
| ⑱ | 1 | 30" D.I. SPOOL, FLxPE. |

NOTES:

1. PROVIDE SHOP DRAWINGS AND SUBMITTALS FOR ALL MATERIALS TO THE DISTRICT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. VAULT SHALL BE UTILITY VAULT 810-LA (10'Lx8'Wx7'D; INSIDE DIMENSION). SEE DISTRICT STANDARD WATER DETAILS #16 AND #16a FOR VAULT DETAIL.
3. ALL PIPE AND CONDUIT PENETRATIONS SHALL BE CORE-DRILLED ON-SITE AND SHALL BE SEALED WATERTIGHT. PROVIDE "LINK-SEAL" FITTINGS AT ALL PENETRATIONS.
4. ALL PIPING AND APPURTENANCES OUTSIDE THE VAULT SHALL BE RESTRAINED JOINT. IN ADDITION TO THE RESTRAINED JOINTS, THRUST BLOCKING AT ALL TEES AND BENDS PER DISTRICT STANDARD WATER DETAILS #1 AND #2 SHALL BE REQUIRED.
5. THE CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL PERMITS AND APPROVALS FOR SUMP PUMP INSTALLATIONS.
6. FOR PREMISE ISOLATION, AN APPROVED BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER PER DISTRICT STANDARD WATER DETAIL #14a OR #14b.
7. NUD'S OWNERSHIP WILL BE TO THE DOWNSTREAM EDGE OF THE DOWNSTREAM TEE.

6" WATER SERVICE

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

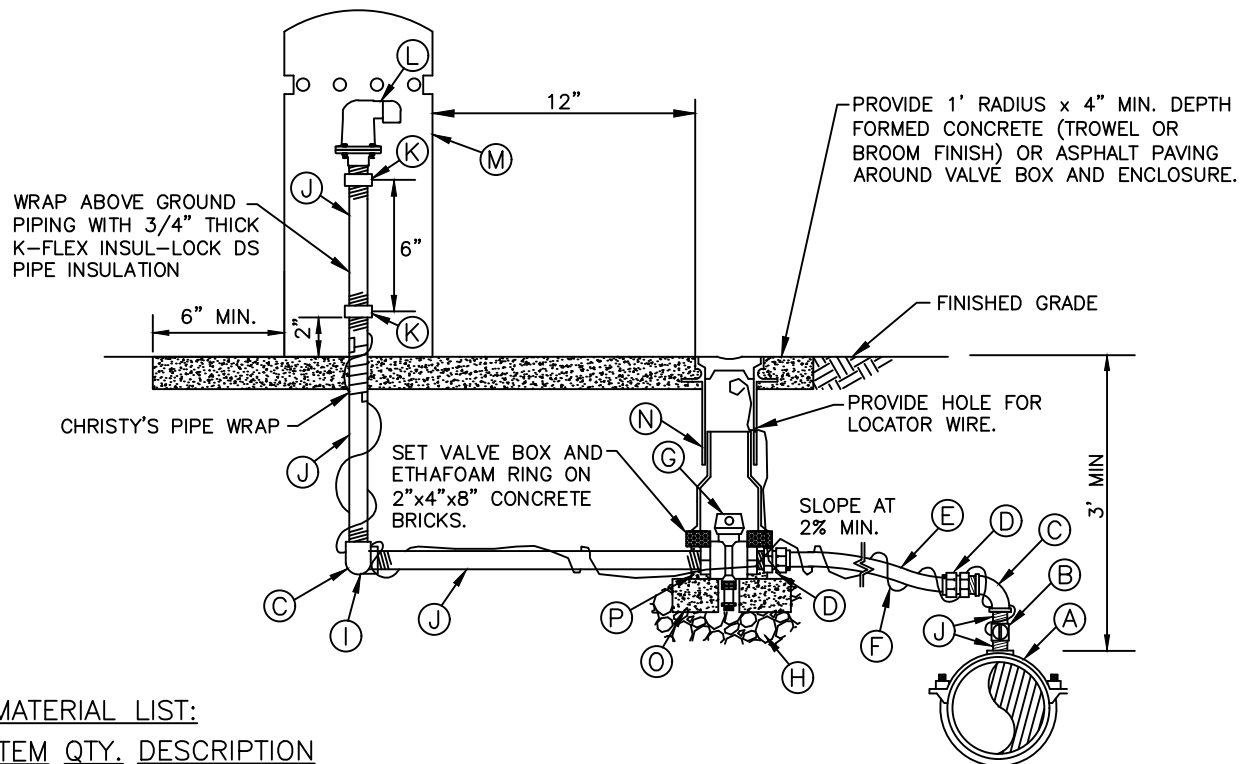
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

7a

LAST UPDATED
FEBRUARY 2022



MATERIAL LIST:

ITEM QTY. DESCRIPTION

- | | | |
|-----|---|--|
| (A) | 1 | SADDLE: ALL SADDLES SHALL BE DUCTILE IRON CASTING WITH IP THREADS. FOR ALL PIPE MATERIAL OTHER THAN PVC PIPE, SADDLES SHALL BE SINGLE STRAP TYPE EQUAL TO FORD FC101, ROMAC 101NS, MUELLER DR1S, OR DISTRICT APPROVED EQUAL. FOR PVC PIPE, SADDLES SHALL BE DOUBLE STRAP TYPE EQUAL TO MUELLER DR2S, FORD FCD202, OR ROMAC 202NS. |
| (B) | 1 | 2" BALL VALVE FIPxFIP, FORD #B11-777-NL OR EQUAL. |
| (C) | 2 | 2" 90° BRASS ELBOW, FIPxFIP. |
| (D) | 2 | 2" ADAPTER, MIPxPACK JOINT, FORD #C84-77-NL WITH STIFFENER, FORD INSERT-55 OR MUELLER 528707. |
| (E) | 1 | 2" REHAU MUNICIPEX PEX _a 3306, COPPER TUBE SIZE (CTS), SDR 9, AWWA C904, PER THE SPECIFICATIONS, LENGTH TO FIT. ALL PEX _a PIPE INSTALLED BY OPEN-CUT CONSTRUCTION SHALL BE BEDDED IN SAND, 4" OVER AND UNDER. IF THE DISTANCE BETWEEN BALL VALVES IS LESS THAN 5', A BRASS NIPPLE, LENGTH TO FIT, WITH BRASS FITTINGS, AS REQUIRED, WILL BE ALLOWED. |
| (F) | 1 | TRACER WIRE PER THE SPECIFICATIONS. BLUE 14 GAUGE POLYETHYLENE INSULATED COPPER. CONTINUOUS FROM MAINLINE. |
| (G) | 1 | 2" BALL VALVE, FIPxFIP, CAMBRIDGE BRASS #203NL-F7F7W WITH 2" OPERATING NUT, FORD #QT-67. FOR VALVE OPERATING NUT DEPTHS, SEE STANDARD WATER DETAIL #11. |
| (H) | | 1 1/2" WASHED ROCK, PASSING 1 1/2" AND RETAINED ON 1/4" MESH. |
| (I) | 1 | STREET ELBOW, FIPxMIP. |
| (J) | 5 | 2" BRASS NIPPLE, LENGTH TO FIT. |
| (K) | 1 | 2" BRASS COUPLING, FIPxFIP. |
| (L) | 1 | AIR/VACUUM RELIEF VALVE, A.R.I. #D-040-C-2". |
| (M) | 1 | AIR/VACUUM ENCLOSURE, ARMORCAST P60002003B OR DEKORRA 301-GT-C3 (GREEN). |
| (N) | 1 | TWO-PIECE, CAST IRON VALVE BOX AND ETHAFOAM RING PER THE SPECIFICATIONS AND STANDARD WATER DETAIL #11. |
| (O) | 2 | 4"x8"x16" CONCRETE BLOCK. |
| (P) | 2 | 2"x4"x8" CONCRETE BRICK, ONE ON EITHER SIDE OF THE BALL VALVE TO SUPPORT ETHAFOAM RING. |

NOTES:

1. THE LOCATION OF THE ASSEMBLY AS SHOWN ON THE PLANS IS APPROXIMATE ONLY. THE FINAL LOCATION SHALL BE AT THE LOCAL HIGH POINT OF THE WATER MAIN AS DIRECTED BY THE DISTRICT IN THE FIELD DURING CONSTRUCTION.
2. 2" BALL VALVE SHALL BE INSTALLED PER THE DIRECTIONAL ARROW STAMPED ON VALVE BODY. THE DRAIN PORT IS TO DISCHARGE INTO THE WASHED ROCK.
3. ALL PEX_a PIPE TO PACK JOINT CONNECTIONS REQUIRE A PIPE STIFFENER.
4. FOR SHALLOW INSTALLS AS DETERMINED BY THE DISTRICT, PROVIDE 3" WIDE, BLUE METALLIC WATER DETECTOR TAPE 6"-12" ABOVE PIPE, FROM MAIN TO VALVE BOX.

2" AIR & VACUUM RELIEF VALVE ASSEMBLY

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

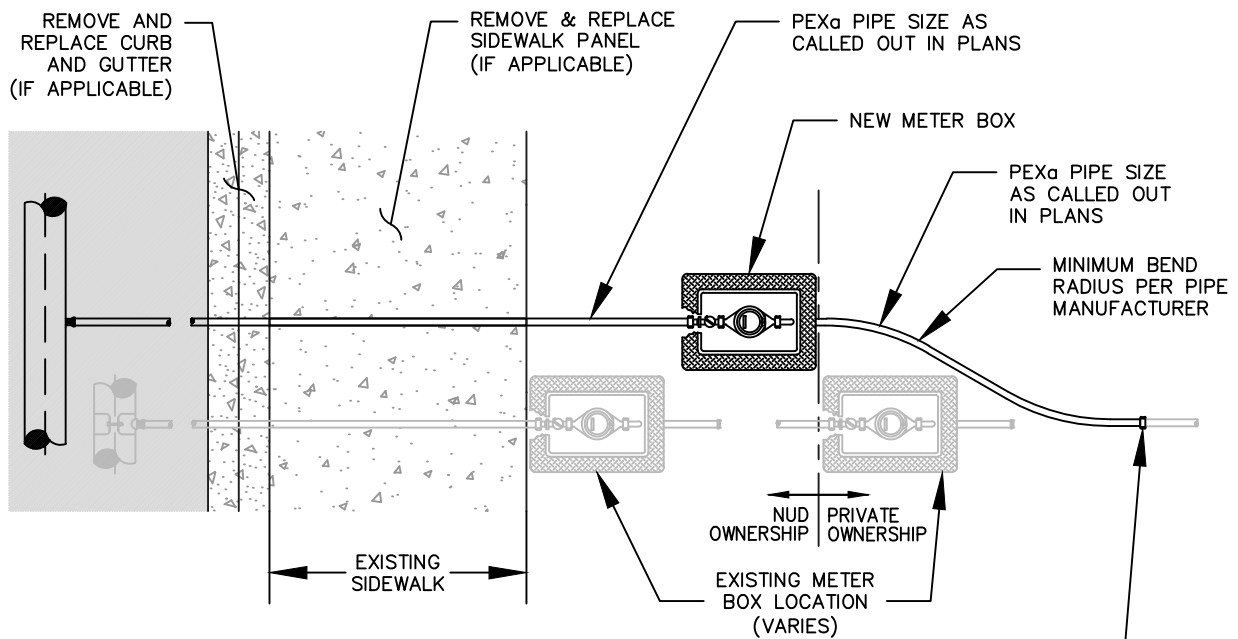
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

8

LAST UPDATED
JANUARY 2023



LOCATE AND CONNECT TO EXISTING WATER SERVICE LINE. PROVIDE ALL BRASS INSTA-TITE OR COMPRESSION PACK JOINT STYLE FITTINGS. CONFIRM FITTINGS REQUIRED PRIOR TO DISRUPTING EXISTING WATER SERVICE AND COMMENCING RECONNECTION CONSTRUCTION. SEE NOTE 4.

NOTES:

1. WATER SERVICE PER NUD STANDARD WATER DETAILS, #4 OR #5.
2. NEW METER TO BE RELOCATED TO LOCATION SHOWN ON PLANS.
3. MEASURE AND RECORD EXISTING WATER PRESSURE AT BUILDING PRIOR TO RECONNECTION AND AFTER REESTABLISHMENT OF SERVICE. IF PRESSURE READINGS DIFFER BY MORE THAN 5 PSI, THE CONTRACTOR SHALL LOCATE AND CORRECT THE ISSUE AT THE PRIVATE PRV. IF A PRIVATE PRV IS REMOVED DURING NEW SERVICE INSTALLATION, ADD A NEW PRV DIRECTLY BEHIND METER BOX.
4. ALL PIPE FITTINGS SHALL BE BRASS. PRIOR TO MAKING THE CONNECTION, THE CONTRACTOR SHALL POT-HOLE THE EXISTING SERVICE LINE TO DETERMINE THE LOCATION, SIZE, AND TYPE OF EXISTING PIPE AND TO CONFIRM THE PIPE AND FITTINGS REQUIRED TO MAKE THE CONNECTION. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED PIPE AND FITTINGS ON-SITE PRIOR TO DISRUPTING WATER SERVICE AND COMMENCING CONSTRUCTION. NO EXISTING WATER SERVICE SHALL BE DISRUPTED FOR MORE THAN TWO HOURS IN ONE DAY.
5. ALL PEXa PIPE TO PACK JOINT CONNECTIONS REQUIRE A STIFFENER INSERT.
6. FLUSH ALL NEW WATER SERVICE PIPING IN THE PRESENCE OF THE DISTRICT.
7. COORDINATE WITH THE DISTRICT TO SALVAGE THE EXISTING METER AND FOR INSTALLATION OF THE METER INTO THE NEW SERVICE SETTER. LOCATE AND RECONNECT THE EXISTING SERVICE LINE ON THE BACK OF THE METER. ALL PIGTAIL AND PRIVATE WATER SERVICE CONNECTIONS SHALL BE TESTED AT LINE PRESSURE AND SHALL BE VISUALLY INSPECTED BY THE DISTRICT.
8. REMOVE AND REPLACE EXISTING METER BOX AND SETTER.
9. RESTORE THE SITE TO A CONDITION EQUAL TO OR BETTER THAN EXISTED PRIOR TO CONSTRUCTION.

EXISTING WATER SERVICE RE-CONNECTION

NOT TO SCALE

DETAIL APPROVALS

EDITOR *TMC*

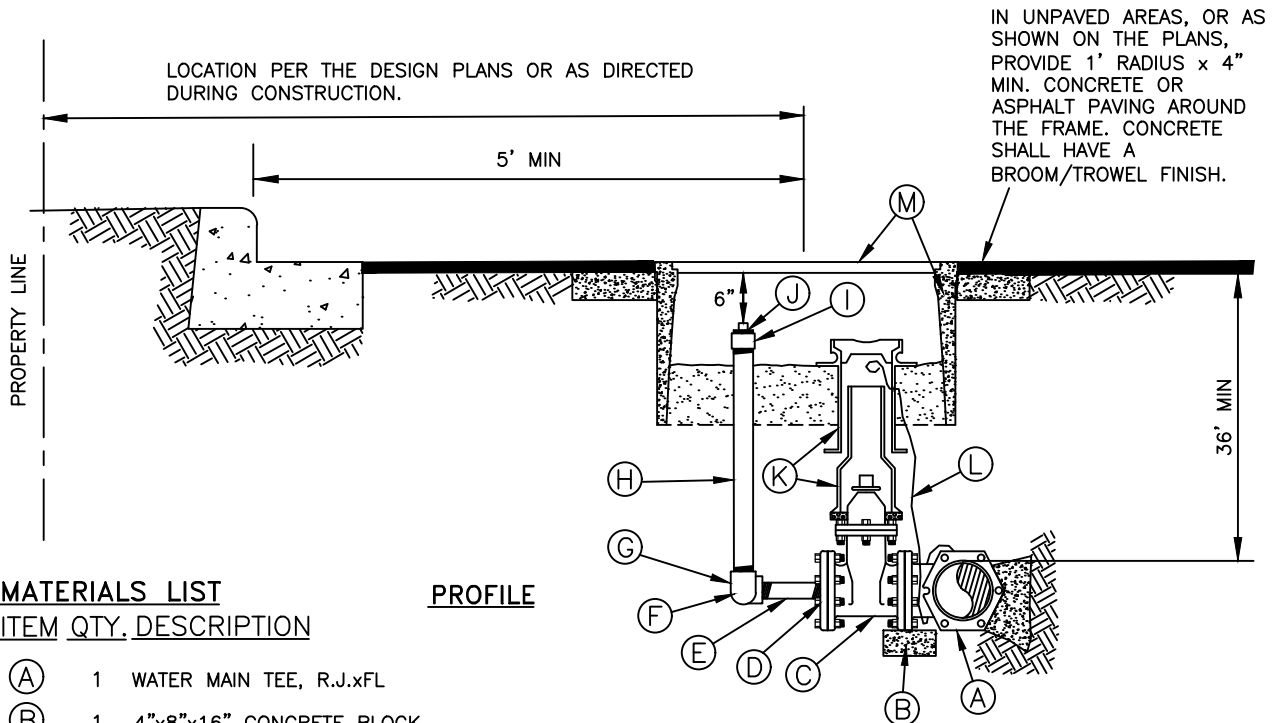
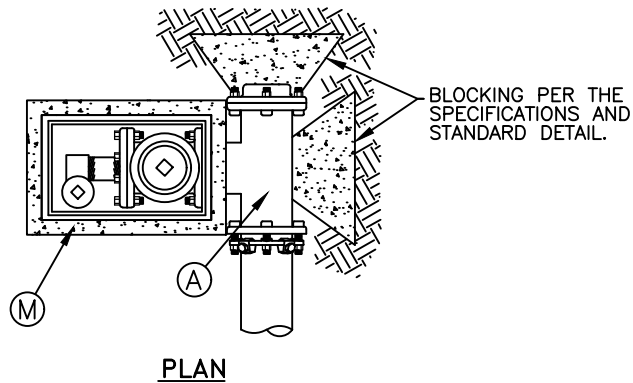
MANAGER *SJD*

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

9

LAST UPDATED
FEBRUARY 2022



MATERIALS LIST

ITEM QTY. DESCRIPTION

- (A) 1 WATER MAIN TEE, R.J.xFL
- (B) 1 4"x8"x16" CONCRETE BLOCK.
- (C) 1 4" GATE VALVE, FLxFL.
- (D) 1 4" COMPANION FLANGE WITH 2" IPS TAP.
- (E) 1 2"x4" GALVANIZED IRON PIPE NIPPLE.
- (F) 1 2" 90° GALVANIZED ELBOW, FIPxFIP.
- (G) 1 2" STREET ELBOW, FIPxMIP
- (H) 1 2" GALVANIZED IRON PIPE, LENGTH TO FIT.
- (I) 1 2" BRASS COUPLING, FIPxFIP.
- (J) 1 2" PVC PLUG.
- (K) 1 TWO-PIECE CAST IRON VALVE BOX AND ETHAFOAM RING PER THE SPECIFICATIONS AND STANDARD WATER DETAIL 11.
- (L) 1 TRACER WIRE: BLUE 14 GAUGE COPPER, CONTINUOUS, SOLID CORE, POLYETHYLENE INSULATED PER THE SPECIFICATIONS. CONTINUOUS FROM MAINLINE.
- (M) 1 ARMORCAST METER BOX, A6001640PCX12-NUD (WITH NO "MOUSE HOLES") AND ARMORCAST COVER, A6001947T-NUD, OR DFW METER BOX, DFW1730CNP4-12-BODY AND DFW COVER DFW1730C-4M-BLANK-NS-NHK-LID.

2" BLOW-OFF ASSEMBLY

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

MANAGER SJD

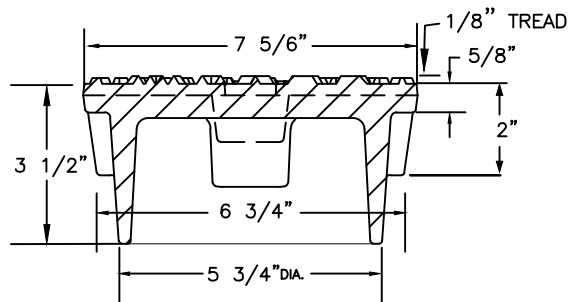
NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

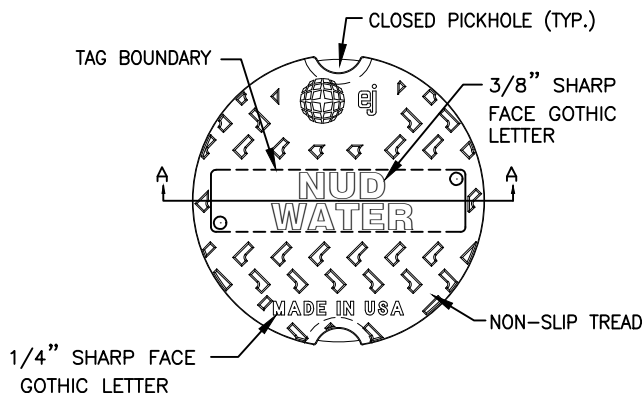
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APRIL 2021

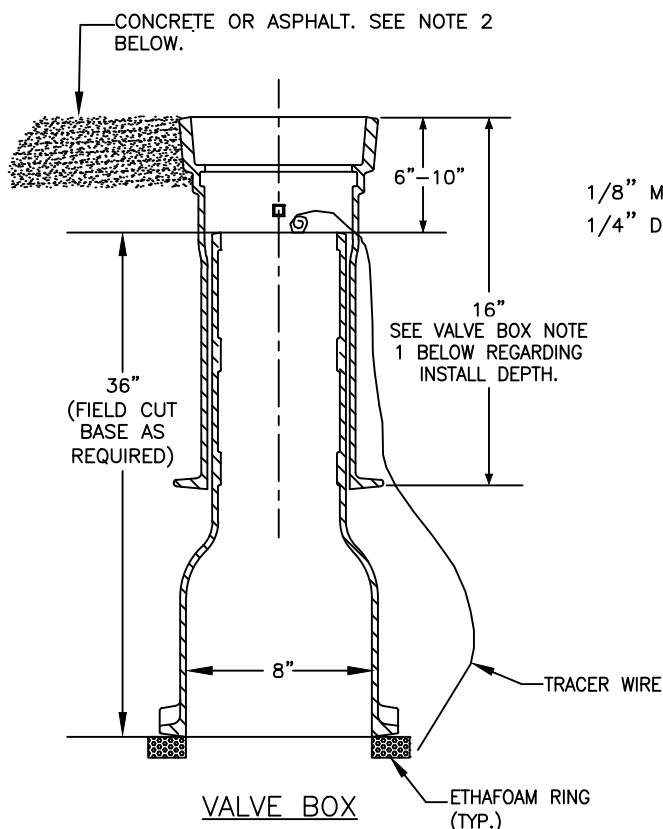
VALVE BOX COVER



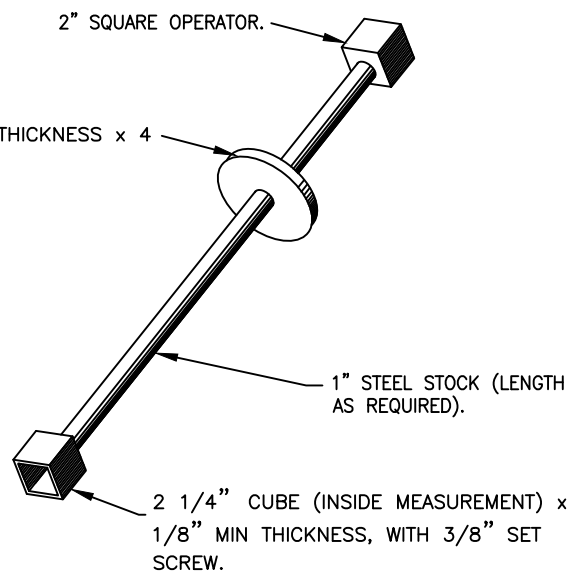
SECTION A-A



PLAN



VALVE BOX



VALVE OPERATING NUT EXTENSION

VALVE BOX NOTES:

1. CAST-IRON VALVE BOX AND COVER SHALL BE EAST JORDAN IRON WORKS: VALVE BOX COVER 06800209, VALVE BOX TOP 85557016U, AND VALVE BOX BOTTOM 85556036U. FOR SHALLOW OR DEEP INSTALLS, VALVE BOX TOP SHALL BE DETERMINED BY THE DISTRICT.
2. IF VALVE BOX IS IN AN UNPAVED AREA, PROVIDE 1' RADIUS x 4" MINIMUM DEPTH CONCRETE OR ASPHALT PAVING AROUND VALVE BOX. CONCRETE SHALL HAVE A BROOM/TROWEL FINISH.
3. INSTALL ETHAFOAM RING BETWEEN BASE OF VALVE BOX AND GATE VALVES OR ON CONCRETE BRICKS FOR BALL VALVES. ETHAFOAM RING TO BE 2" IN THICKNESS.

VALVE OPERATING NUT EXTENSION NOTES:

1. VALVE OPERATING NUT EXTENSIONS ARE REQUIRED WHEN VALVE NUT IS MORE THAN 5' BELOW FINISHED GRADE.
2. LENGTH AS REQUIRED TO PUT OPERATING NUT TWO (2) FEET FROM FINISHED GRADE.
3. EXTENSIONS TO BE A MINIMUM OF TWO (2) FEET LONG.
4. ONE (1) EXTENSION PER VALVE.
5. NO ADJUSTABLE VALVE EXTENSIONS ALLOWED.
6. WHEN AN EXTENSION IS REQUIRED, USE A SOILS PIPE BETWEEN VALVE BOX TOP AND VALVE BOX BOTTOM. LENGTH TO FIT.

VALVE BOX & OPERATING NUT EXTENSION

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

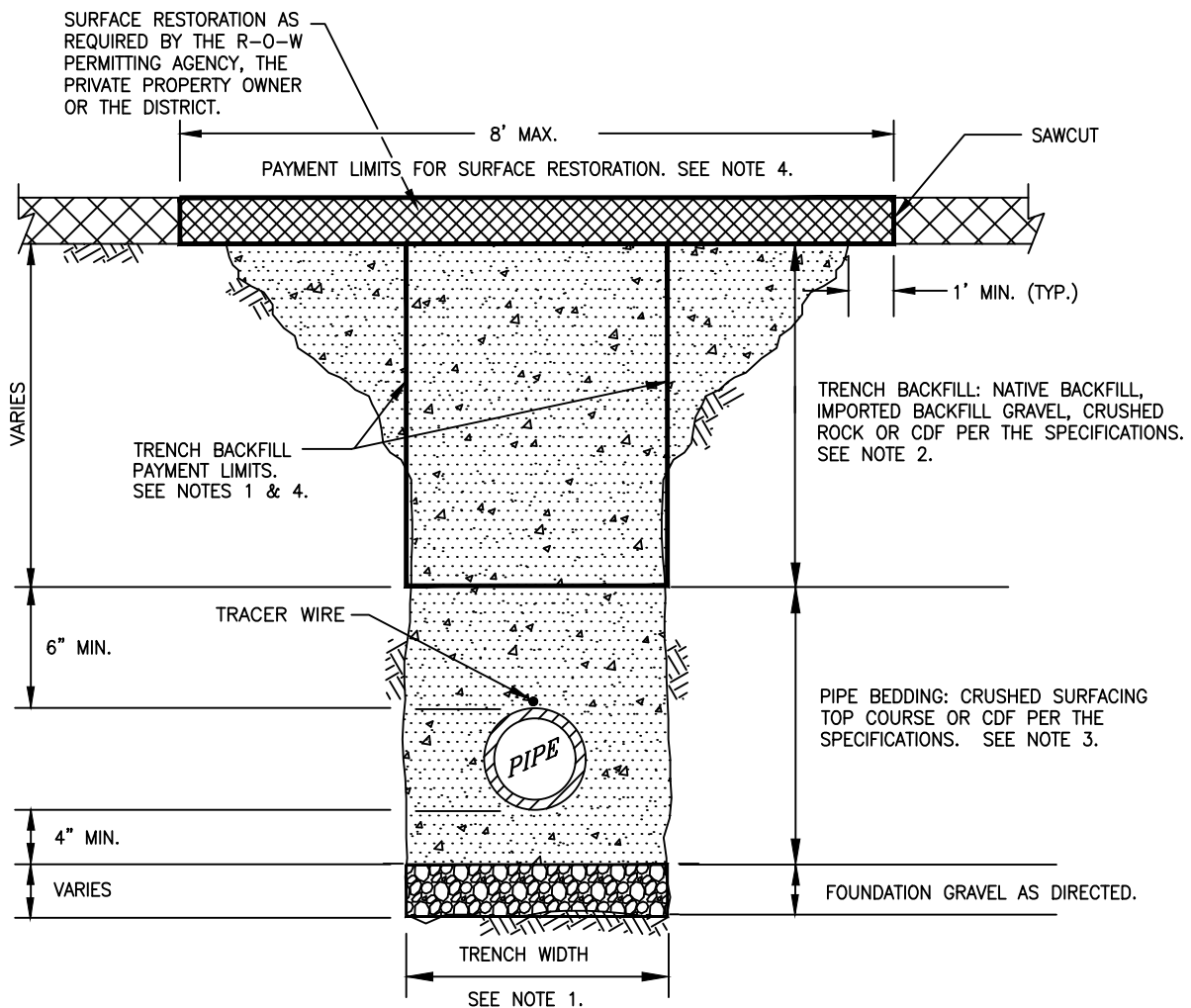
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

11

LAST UPDATED
FEBRUARY 2022



NOTES:

1. TRENCH WIDTH:

MINIMUM: PIPE O.D. + 24" (12" EACH SIDE OF PIPE).

MAXIMUM: 40" FOR 15"Ø PIPE AND SMALLER.

(1 1/2" X I.D.) + 18" FOR 18"Ø PIPE AND LARGER.

THE NEAT-LINE PAYMENT LIMITS FOR TRENCH BACKFILL MATERIALS SHALL BE BASED UPON THE MAXIMUM ALLOWABLE TRENCH WIDTH AS SHOWN ABOVE.

2. NATIVE MATERIAL, IF ALLOWED FOR TRENCH BACKFILL, SHALL MEET THE REQUIREMENTS OF SELECT BORROW PER THE SPECIFICATIONS. TRENCH BACKFILL SHALL BE COMPACTED TO A MINIMUM OF NINETY-FIVE PERCENT (95%) OF MODIFIED PROCTOR IN THE RIGHT-OF-WAY AND IMPROVED EASEMENTS AND TO NINETY PERCENT (90%) IN UNIMPROVED EASEMENT AREAS. SEE THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

3. NATIVE MATERIAL WILL NOT BE ALLOWED AS PIPE BEDDING.

4. THE NEAT-LINE LIMITS SHOWN WILL BE USED TO CALCULATE THE MAXIMUM QUANTITY OF TRENCH BACKFILL AND SURFACE RESTORATION MATERIALS ALLOWED. PAYMENT FOR BEDDING GRAVEL WILL BE CONSIDERED INCIDENTAL TO PAYMENT MADE FOR PIPE. PAYMENT FOR FOUNDATION ROCK WILL BE BASED UPON THE QUANTITIES USED AS DIRECTED BY THE DISTRICT. SEE THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.

5. RECYCLED CONCRETE WILL NOT BE ALLOWED AS PIPE BEDDING OR TRENCH BACKFILL.

6. ALL DUCTILE IRON PIPE REQUIRES POLYETHYLENE ENCASEMENT. SEE THE DISTRICTS MATERIALS OF CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.

TYPICAL TRENCH SECTION & PAYMENT LIMITS

NOT TO SCALE

DETAIL APPROVALS

EDITOR *TMC*

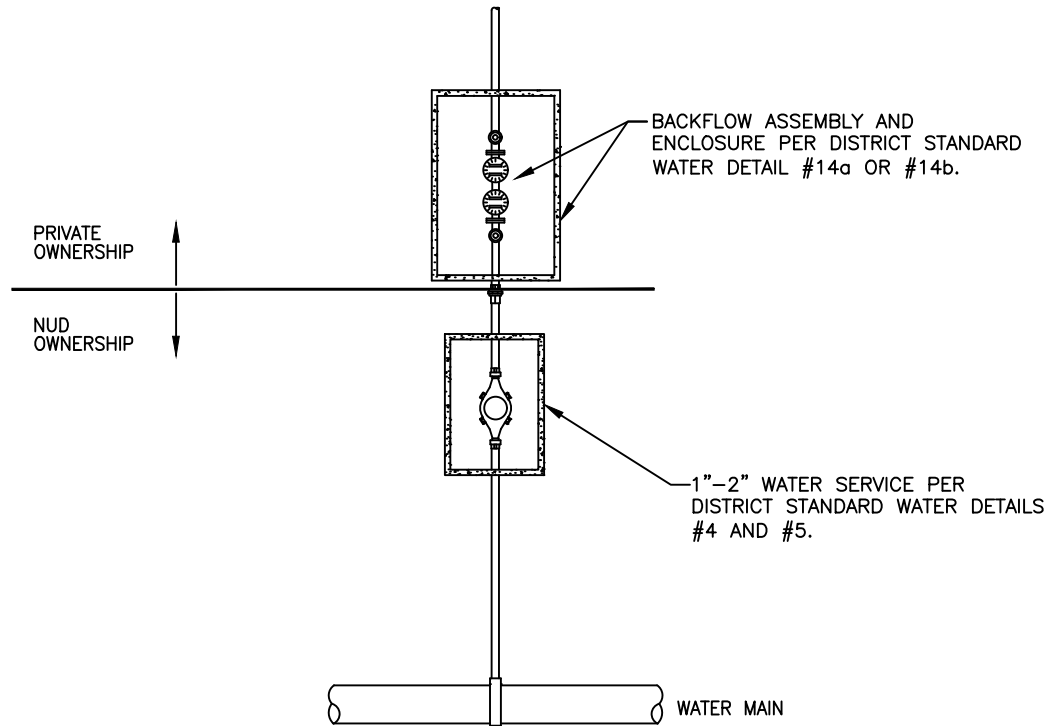
MANAGER *SJD*

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

12

LAST UPDATED
JANUARY 2023



PLAN

NOTES :

1. INSTALLATION OF BACKFLOW ASSEMBLIES ARE TO PROTECT THE PUBLIC WATER SYSTEM AND SHALL BE INSTALLED IF ANY OF THE FOLLOWING ARE MET:
 - IRRIGATION SYSTEMS
 - NON-FLOW THROUGH FIRE SPRINKLER SYSTEMS
 - WHEN THE ELEVATION BETWEEN THE METER AND HIGHEST FIXTURE EXCEEDS 30 FEET, OR IF THE STRUCTURE IS 3 ASCENDING FLOORS, WHICHEVER IS LESS.
 - OR AS DETERMINED BY THE DISTRICT.
2. FOR ALL PROPERTIES REQUIRING FIRE SPRINKLERS, THE APPLICANT'S FIRE PROTECTION SYSTEM DESIGNER SHALL SIZE THE WATER METER AND WATER SERVICE SUPPLY LINES. FLOW THROUGH SYSTEMS DO NOT REQUIRE PREMISE ISOLATION BUT MUST USE POTABLE WATER/NSF RATED MATERIALS AND TERMINATE AT THE FURTHEST REGULARLY USED FIXTURE.
3. FOR ALL PROPERTIES REQUIRING IRRIGATION SYSTEMS, THE APPLICANT'S IRRIGATION SYSTEM DESIGNER SHALL SIZE THE WATER METER AND WATER SERVICE SUPPLY LINES.
4. THE PREMISE ISOLATION BACKFLOW ASSEMBLY USED, EITHER A DOUBLE CHECK VALVE ASSEMBLY OR REDUCED PRESSURE BACKFLOW ASSEMBLY (BACKFLOW ASSEMBLY), SHALL MEET WAC 246-290-490 "CROSS-CONNECTION CONTROL" AND BE AN APPROVED ASSEMBLY AS SHOWN ON THE WASHINGTON STATE APPROVAL LISTING.
5. THE BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER. INSTALLATION OF THE BACKFLOW ASSEMBLY INTERNAL TO THE BUILDING WILL NOT BE ALLOWED.
6. THE BACKFLOW ASSEMBLY IS TO BE TESTED AT INSTALLATION AND ANNUALLY THEREAFTER. THE TEST SHALL BE PERFORMED BY A CERTIFIED WASHINGTON STATE BACKFLOW ASSEMBLY TESTER. FOR A LIST OF CERTIFIED TESTERS, PLEASE VISIT OUR WEBSITE AT WWW.NUD.NET/INFORMATION/CROSS-CONNECTION-BACKFLOW-PREVENTION AND SEE THE FAQ AT THE BOTTOM OF THE PAGE, "WHO CAN TEST MY BACKFLOW ASSEMBLY?". A COPY OF THE TEST REPORT SHALL BE SUBMITTED BY THE BACKFLOW ASSEMBLY TESTER TO THE FOLLOWING WEB ADDRESS:

[HTTPS://NORTHSHOREWA.C3SWIFT.COM](https://NORTHSHOREWA.C3SWIFT.COM)
7. FOLLOWING INSTALLATION OF THE WATER METER, THE DISTRICT WILL PADLOCK THE METER UNTIL NOTIFIED 24 HOURS IN ADVANCE BY THE OWNER/ INSTALLER THAT THE BACKFLOW ASSEMBLY IS READY TO TEST. UPON RECEIPT OF THE BACKFLOW ASSEMBLY TEST REPORT, THE DISTRICT WILL REMOVE THE PADLOCK.

1" - 2" PREMISE ISOLATION

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

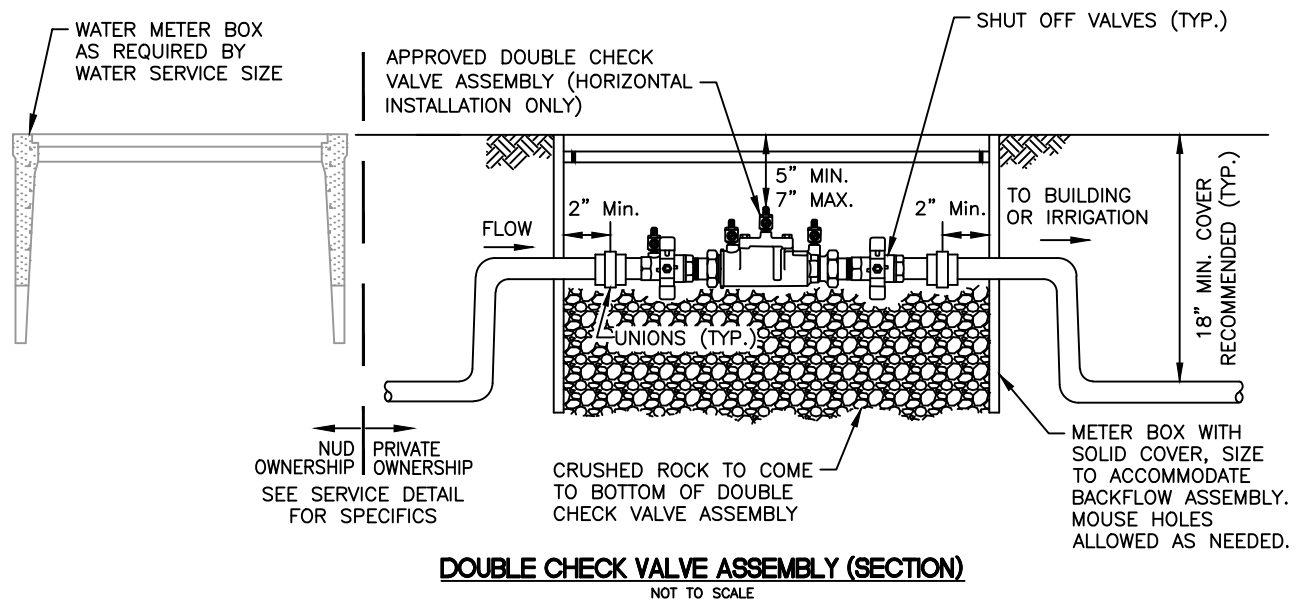
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

13

LAST UPDATED
JANUARY 2023



NOTES:

1. THE BACKFLOW ASSEMBLY SHALL BE AN APPROVED ASSEMBLY AS SHOWN ON THE WASHINGTON STATE APPROVAL LISTING.
2. BACKFLOW ASSEMBLY INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND MEET THE MINIMUM STANDARDS OF THE UNIFORM PLUMBING CODE.
3. BACKFLOW ASSEMBLY SHALL BE CENTERED WITHIN THE ENCLOSURE AND PROVIDE MINIMUM HORIZONTAL AND VERTICAL CLEARANCE AS REQUIRED.
4. THE BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER. INSTALLATION OF THE BACKFLOW ASSEMBLY INTERNAL TO THE BUILDING WILL NOT BE ALLOWED. SEE DISTRICT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. THE BACKFLOW ASSEMBLY IS TO BE TESTED AT INSTALLATION AND ANNUALLY THEREAFTER. THE TEST SHALL BE PERFORMED BY A CERTIFIED WASHINGTON STATE BACKFLOW ASSEMBLY TESTER. FOR A LIST OF CERTIFIED TESTERS, PLEASE VISIT OUR WEBSITE AT WWW.NUD.NET/INFORMATION/CROSS-CONNECTION-BACKFLOW-PREVENTION AND SEE THE FAQ AT THE BOTTOM OF THE PAGE, "WHO CAN TEST MY BACKFLOW ASSEMBLY?". A COPY OF THE TEST REPORT SHALL BE SUBMITTED BY THE BACKFLOW ASSEMBLY TESTER TO THE FOLLOWING WEB ADDRESS:

[HTTPS://NORTHSHOREWA.C3SWIFT.COM](https://northshorewa.c3swift.com)

7. BOXES LOCATED IN TRAFFIC LANES ARE TO BE TRAFFIC RATED.

DOUBLE CHECK VALVE ASSEMBLY GENERAL INSTALLATION GUIDELINES

NOT TO SCALE

DETAIL APPROVALS

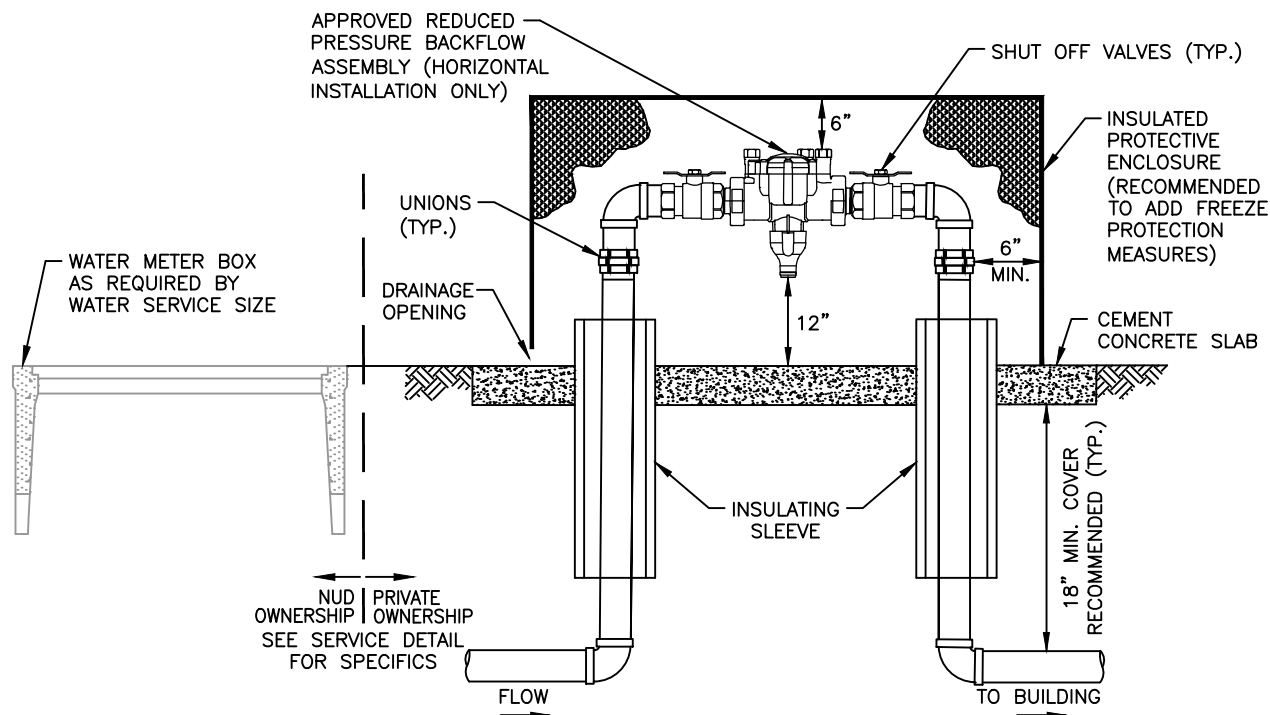
EDITOR *TMC*

MANAGER *SJD*

NORTHSHORE UTILITY DISTRICT
2023 STANDARD WATER DETAILS

14a

LAST UPDATED
JANUARY 2023



REDUCED PRESSURE BACKFLOW ASSEMBLY (SECTION)

NOT TO SCALE

NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLIES ARE REQUIRED FOR CONNECTIONS WITH "SEVERE AND HIGH HEALTH CROSS-CONNECTION HAZARDS" AS LISTED IN TABLE 13 OF WASHINGTON ADMINISTRATIVE CODE (WAC) 246-290-490.
2. THE BACKFLOW ASSEMBLY SHALL BE AN APPROVED ASSEMBLY AS SHOWN ON THE WASHINGTON STATE APPROVAL LISTING.
3. BACKFLOW ASSEMBLY INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND MEET THE MINIMUM STANDARDS OF THE UNIFORM PLUMBING CODE.
4. BACKFLOW ASSEMBLY SHALL BE CENTERED WITHIN THE ENCLOSURE AND PROVIDE MINIMUM HORIZONTAL AND VERTICAL CLEARANCE AS REQUIRED.
5. THE BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER. INSTALLATION OF THE BACKFLOW ASSEMBLY INTERNAL TO THE BUILDING WILL NOT BE ALLOWED. SEE DISTRICT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. THE BACKFLOW ASSEMBLY IS TO BE TESTED AT INSTALLATION AND ANNUALLY THEREAFTER. THE TEST SHALL BE PERFORMED BY A CERTIFIED WASHINGTON STATE BACKFLOW ASSEMBLY TESTER. FOR A LIST OF CERTIFIED TESTERS, PLEASE VISIT OUR WEBSITE AT WWW.NUD.NET/INFORMATION/CROSS-CONNECTION-BACKFLOW-PREVENTION AND SEE THE FAQ AT THE BOTTOM OF THE PAGE, "WHO CAN TEST MY BACKFLOW ASSEMBLY?". A COPY OF THE TEST REPORT SHALL BE SUBMITTED BY THE BACKFLOW ASSEMBLY TESTER TO THE FOLLOWING WEB ADDRESS:

[HTTPS://NORTHSHOREWA.C3SWIFT.COM](https://NORTHSHOREWA.C3SWIFT.COM)

REDUCED PRESSURE BACKFLOW ASSEMBLY GENERAL INSTALLATION GUIDELINES

NOT TO SCALE

DETAIL APPROVALS

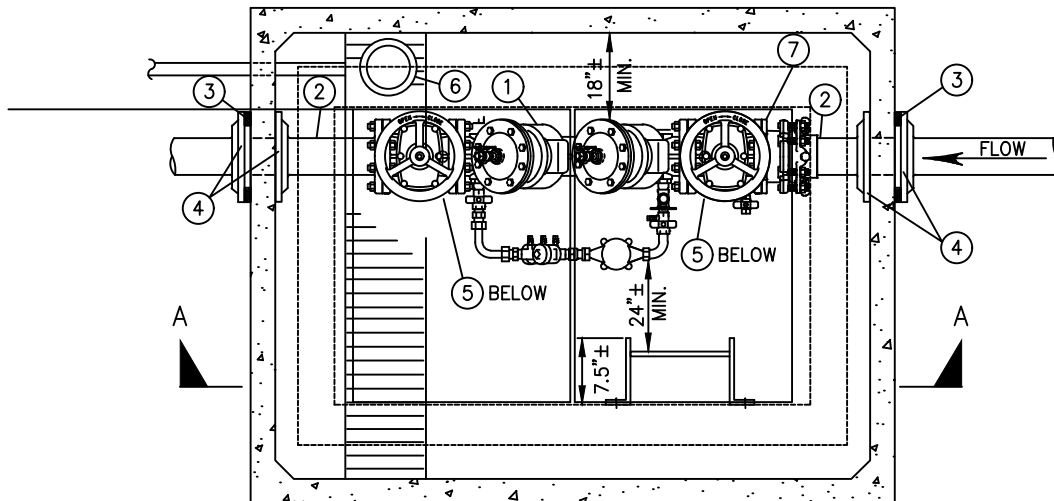
EDITOR TMC

MANAGER SJD

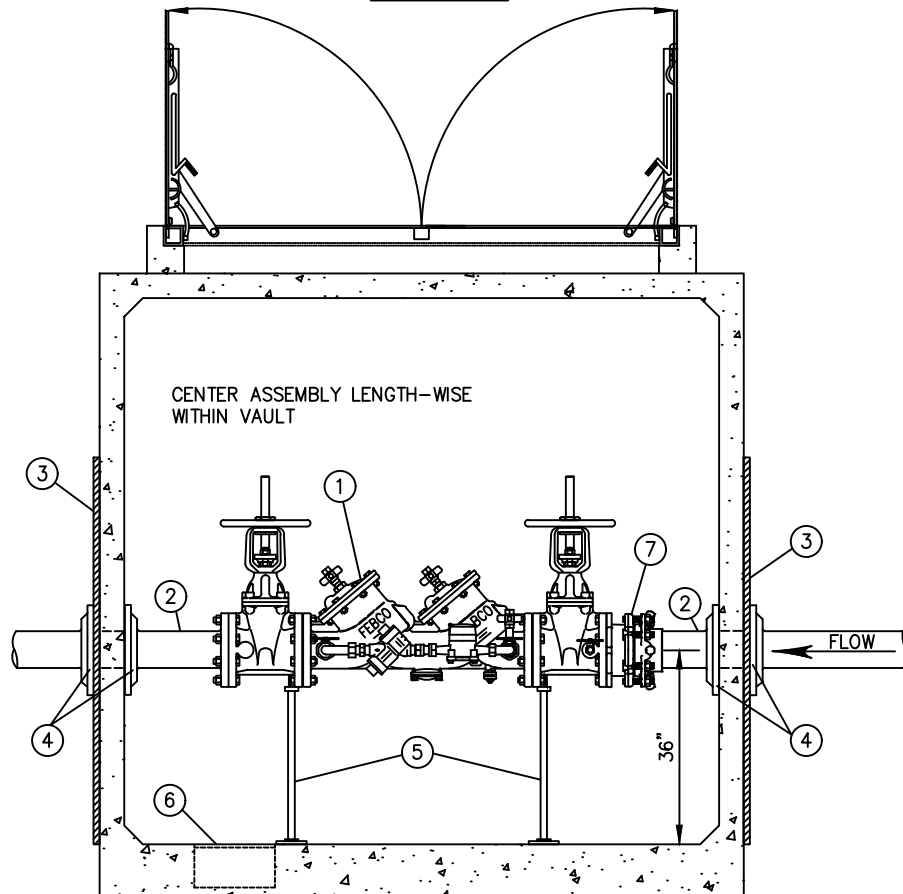
NORTHSHORE UTILITY DISTRICT
2023 STANDARD WATER DETAILS

14b

LAST UPDATED
JANUARY 2023



PLAN VIEW



SECTION A-A

NOTES:

1. SEE NUD STANDARD WATER DETAIL #15A FOR MATERIALS LIST AND ADDITIONAL NOTES.
2. SEE NUD STANDARD WATER DETAIL #16 AND #16A FOR VAULT DETAILS.

2 1/2" - 8" DOUBLE CHECK DETECTOR ASSEMBLY

NOT TO SCALE

DETAIL APPROVALS

EDITOR *TMC*

MANAGER *SJD*

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

15

LAST UPDATED
FEBRUARY 2020

MATERIALS LIST: ALL PIPING AND APPURTENANCES TO MATCH DCDA SIZE

ITEM QTY. DESCRIPTION

- ① 1 DOUBLE CHECK DETECTOR ASSEMBLY SHALL BE FEBCO MODEL 856, WILKINS MODEL 350 DA, WATTS SERIES 757 DCDA, OR DISTRICT APPROVED EQUAL MEETING THE AWWA STANDARD C-510 AND BE WASHINGTON STATE APPROVED. TEST COCKS SHALL BE CAPPED WITH PLASTIC CAPS. BYPASS METER TO BE BADGER, M35 SHORT.
- ② 2 D.I. ADAPTER, FL x PE, 5'± LONG.
- ③ 4 2" X 2" X 1/4" MIN. WALL THICKNESS SQUARE STEEL TUBING, 6' MIN. LENGTH. BOLT TO VAULT WALL IN FOUR PLACES WITH STAINLESS STEEL ANCHOR BOLTS.
- ④ 4 UNI-FLANGE ADAPTER.
- ⑤ 2 ADJUSTABLE PIPING SUPPORT, STANDON MODEL #S89, OR EQUAL.
- ⑥ 1 SUMP PUMP OR GRAVITY DRAIN AS REQUIRED BY SITE CONDITIONS, TO BE DETERMINED BY THE DEVELOPER AND CONTRACTOR AND REVIEWED AND APPROVED BY THE DISTRICT.

FOR GRAVITY: SUMP DRAIN, ZURN Z-551, THREADED, WITH ZURN Z-1099 BACKWATER VALVE, THREADED x NO-HUB, WITH 4" D.I. PIPE TO 12" MIN. BEYOND VAULT WALL AND 4" D.I., MIN. 1% SLOPE TO DAYLIGHT OR C.B.

FOR SUMP PUMP: 16" DIAM. x 8" DEEP SUMP WITH ZOELLER MODEL 57 SUMP PUMP WITH SOLID BUOYANT POLYPROPYLENE FLOAT. PROVIDE ELECTRICAL POWER WITHIN 4' MIN.-6' MAX. VERTICAL DISTANCE AND 1' MAX. HORIZONTAL DISTANCE TO SUMP PUMP PER ALL APPLICABLE CODES. CONSTRUCT 1-1/4", SCH. 80 PVC DISCHARGE PIPING, WITH LOCATE WIRE, TO NEAREST CATCH BASIN OR APPROVED LOCATION. DISCHARGE PIPING SHALL BE ATTACHED TO THE INTERIOR VAULT WALL WITH APPROVED FASTENERS AT 3' SPACING. INSTALL A QUICK DISCONNECT COUPLING, CHECK VALVE, AND ISOLATION BALL VALVE ON DISCHARGE PIPING IMMEDIATELY AFTER SUMP PUMP. SEE STANDARD WATER DETAIL #16A FOR PUMP AND PIPING DETAIL.

- ⑦ 1 FLANGED COUPLING ADAPTER TO BE ROMAC FLANGED COUPLING ADAPTER, STYLE RFCA.

NOTES:

1. PROVIDE SHOP DRAWINGS AND SUBMITTALS FOR ALL MATERIALS TO THE DISTRICT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. DOUBLE CHECK DETECTOR ASSEMBLY AND ALL PIPING SHALL BE SIZED BY A LICENSED FIRE SPRINKLER ENGINEER/CONTRACTOR.
3. VAULT SHALL BE UTILITY VAULT 687-LA (8'L x 6'W x 7'D; INSIDE DIMENSION). SEE DISTRICT STANDARD DETAIL #S 16 AND 16a FOR VAULT DETAIL.
4. ALL PIPE AND CONDUIT PENETRATIONS SHALL BE CORE-DRILLED ON-SITE AND SHALL BE SEALED WATERTIGHT. PROVIDE "LINK-SEAL" FITTINGS AT ALL PENETRATIONS.
5. ALL PIPING AND APPURTENANCES OUTSIDE THE VAULT SHALL BE RESTRAINED JOINT. IN ADDITION TO THE RESTRAINED JOINTS, THRUST BLOCKING AT ALL TEES AND BENDS PER DISTRICT STANDARD WATER DETAIL #S 1 AND 2 SHALL BE REQUIRED.
6. THE CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL PERMITS AND APPROVALS FOR SUMP PUMP INSTALLATIONS.
7. THE DCDA SHALL BE INSTALLED OUTSIDE OF THE BUILDING IN A VAULT PER DISTRICT STANDARD DETAIL #S 16 AND 16A. INSTALLATION OF THE DCDA INTERNAL TO THE BUILDING WILL NOT BE ALLOWED UNLESS APPROVED BY THE DISTRICT (SITE SPECIFIC CONDITIONS OR CONSTRAINTS WILL BE CONSIDERED FOR ALTERNATE LOCATION OF THE DCDA).
8. NUD'S OWNERSHIP WILL BE TO THE UPSTREAM EDGE OF THE VAULT, OR IF THE DCDA IS ALLOWED WITHIN A STRUCTURE, UP TO THE FACE OF THE BUILDING.

2 1/2" - 8" DOUBLE CHECK DETECTOR ASSEMBLY

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

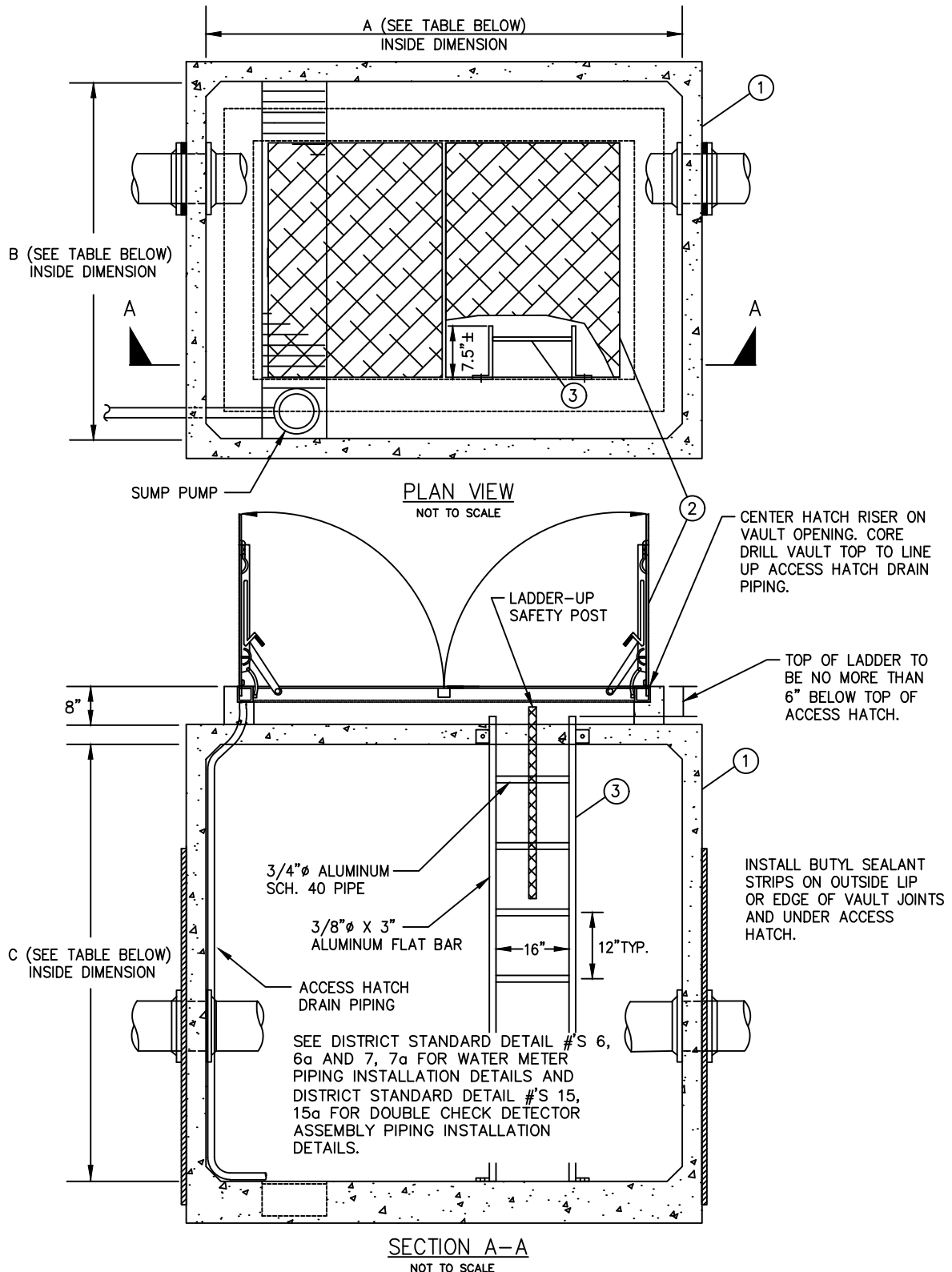
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

15a

LAST UPDATED
FEBRUARY 2020



NOTES:

1. SEE NUD STANDARD WATER DETAIL #16A FOR SUMP PUMP DETAIL.
2. SEE NUD STANDARD WATER DETAIL #16A FOR MATERIALS LIST AND ADDITIONAL NOTES.

VAULT DETAIL

NOT TO SCALE

Vault	Dimension			Use
	A	B	C	
687-LA	8'	6'	7'	3" & 4" Meters, DCDA's
810-LA	10'	8'	7'	6" Meters

DETAIL APPROVALS

EDITOR *TMC*

MANAGER *DPK*

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

16

LAST UPDATED
FEBRUARY 2019

MATERIALS LIST:

ITEM DESCRIPTION

- ① PRECAST CONCRETE UNDERGROUND VAULT SHALL BE 687-LA FOR 3" AND 4" METERS AND DCDA'S, OR 810-LA FOR 6" METERS, MANUFACTURED BY "UTILITY VAULT COMPANY/OLDCASTLE PRECAST".
BASE SECTION: 687-BL OR 810-SB WITH FULL-WIDTH SUMP AND GRATE.
CENTER SECTION: 687-ML OR 810-ML.
TOP SECTION: 687 OR 810 WITH 48"x72" HATCH OPENINGS LOCATED AS SHOWN TO ACCOMMODATE THE CONCRETE COVER, NO. 57 CLX 42S, AND THE 48"x72" DOUBLE LEAF HATCH. CORE DRILL CONCRETE TOP SECTION OF VAULT TO ALIGN WITH ACCESS HATCH DRAIN AND INSTALLATION OF 1-1/2" ACCESS HATCH DRAIN PIPING.

ALL VAULT WALLS SHALL BE SOLID FULL WIDTH WITH NO KNOCK-OUTS OR CHANNELS. THE VAULT MANUFACTURER SHALL ENSURE THAT NO VAULT JOINTS ARE LOCATED WITHIN 6" OF THE EDGE OF CORE-DRILLED PENETRATIONS. SEE NOTES BELOW.

INSTALL BUTYL SEALANT STRIPS BETWEEN VAULT SECTIONS AND UNDER ACCESS HATCH PER MANUFACTURER'S RECOMMENDATIONS AND ENSURE THAT SEALANT IS NOT SQUEEZED INTO VAULT.

PAINTING:
CONCRETE TO DRY FOR 9 DAYS PRIOR TO COATING APPLICATION. SURFACE IS TO BE CLEAN, DRY AND FREE OF CONTAMINANTS.

THE INTERIOR OF THE CONCRETE VAULT SHALL BE PAINTED AT THE VAULT MANUFACTURER WITH ONE COAT OF TNEVEC SERIES N69 HI-BUILD EPOXOLINE II, APPLIED AT 6-8 MILS DFT, COLOR TO BE WHITE.

EXTERIOR BELOW GRADE OF THE CONCRETE VAULT SHALL BE PAINTED WITH ONE COAT TNEVEC SERIES 46H-413 HI-BUILD TNEVE-TAR COAL TAR EPOXY, APPLIED AT 16 TO 20 MILS DFT.

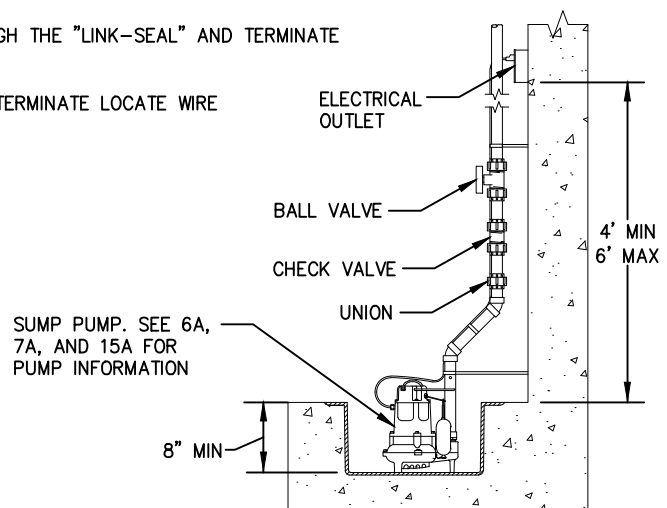
TO FIELD REPAIR ANY DAMAGED COATING, CONTRACTOR SHALL LIGHTLY SAND SURFACE WITH 150 GRIT SAND PAPER TO DEGLOSS AREA TO BE RE-COATED. REAPPLY PAINT PER THE DATA SHEET FOR THE SPECIFIED MATERIAL.

② ACCESS HATCH: "UTILITY VAULT" CONCRETE COVER NO. 57 CLX 42S WITH "LW PRODUCTS" 48"x72" DOUBLE LEAF HATCH, H-20. PROVIDE 1-1/2" SCH. 80 CONDUIT FROM HATCH GUTTER TO VAULT SUMP SECURED TO VAULT WALL WITH APPROVED FASTENERS AT 3' SPACING.

③ ALUMINUM LADDER BOLTED TO VAULT BASE AND HATCH RISER WITH SS HARDWARE. LADDER TO INCLUDE BILCO "LADDER-UP" SAFETY POST.

NOTES:

1. PROVIDE SHOP DRAWINGS AND SUBMITTALS FOR ALL MATERIALS TO THE DISTRICT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. VAULTS FOR WATER METERS AND DOUBLE CHECK DETECTOR ASSEMBLIES 8" AND LARGER WILL BE DETERMINED BY THE DISTRICT AT THE TIME OF PLAN REVIEW.
3. PIPE AND CONDUIT PENETRATIONS SHALL BE CORE-DRILLED ON-SITE AND SHALL BE SEALED WATERTIGHT. PROVIDE "LINK-SEAL" FITTINGS AT ALL PENETRATIONS.
4. SEE DISTRICT STANDARD DETAIL #S 6, 6a AND 7, 7a FOR WATER METER PIPING INSTALLATION DETAILS AND DISTRICT STANDARD DETAIL #S 15, 15a FOR DOUBLE CHECK DETECTOR ASSEMBLY PIPING INSTALLATION DETAILS.
5. TRACER WIRE ON MAINLINE SHALL ENTER THE VAULT THROUGH THE "LINK-SEAL" AND TERMINATE 6" INSIDE VAULT.
6. SUMP PUMP DISCHARGE LINE SHALL HAVE A LOCATE WIRE. TERMINATE LOCATE WIRE INSIDE OF VAULT, 6" FROM LINK-SEAL.



VAULT DETAIL

NOT TO SCALE

SUMP PUMP DETAIL

NOT TO SCALE

DETAIL APPROVALS

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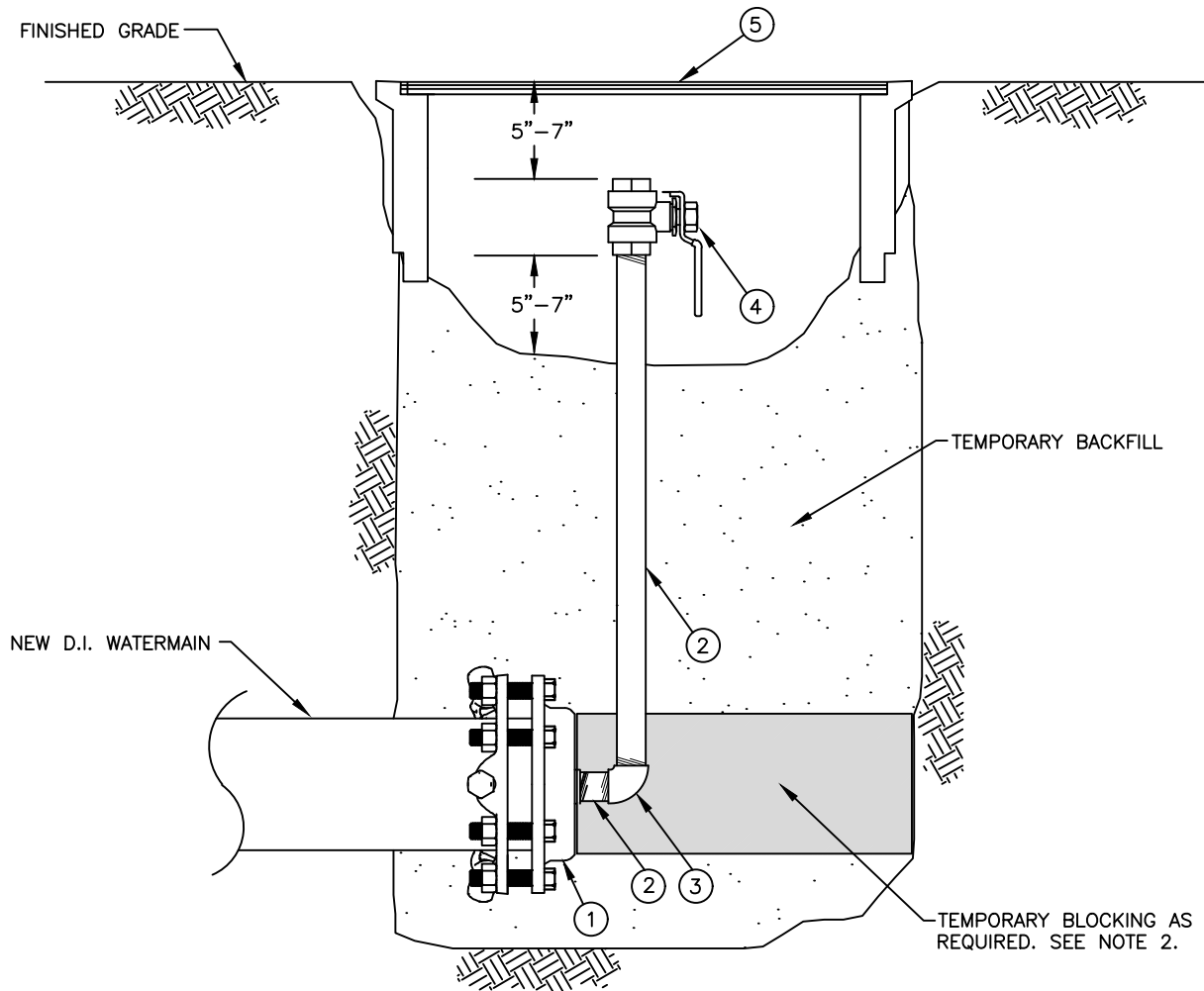
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

16a

LAST UPDATED
FEBRUARY 2020



MATERIALS LIST

ITEM QTY. DESCRIPTION

- | | | |
|---|---|--|
| ① | 1 | TAPPED & THREADED D.I. CAP, RJ WITH 2" IP TAP. |
| ② | 2 | 2" GALVANIZED PIPE, LENGTH TO FIT. |
| ③ | 1 | 2" 90° GALVANIZED ELBOW, FIPxFIP. |
| ④ | 1 | 2" BALL VALVE, FIPxFIP, MATCO 757T08LF OR EQUAL. |
| ⑤ | 1 | TRAFFIC RATED BOX AND COVER, OR EQUAL. |

NOTES:

1. NUMBER AND LOCATION OF THE TEMPORARY BLOW-OFFS WILL BE AS SHOWN ON THE DESIGN PLANS OR AS DIRECTED BY THE DISTRICT IN THE FIELD.
2. PROVIDE TEMPORARY BLOCKING FOR BLOW-OFFS TO RESIST TEST PRESSURES.

TEMPORARY BLOW-OFF ASSEMBLY FOR NEW WATERMAIN

NOT TO SCALE

DETAIL APPROVALS

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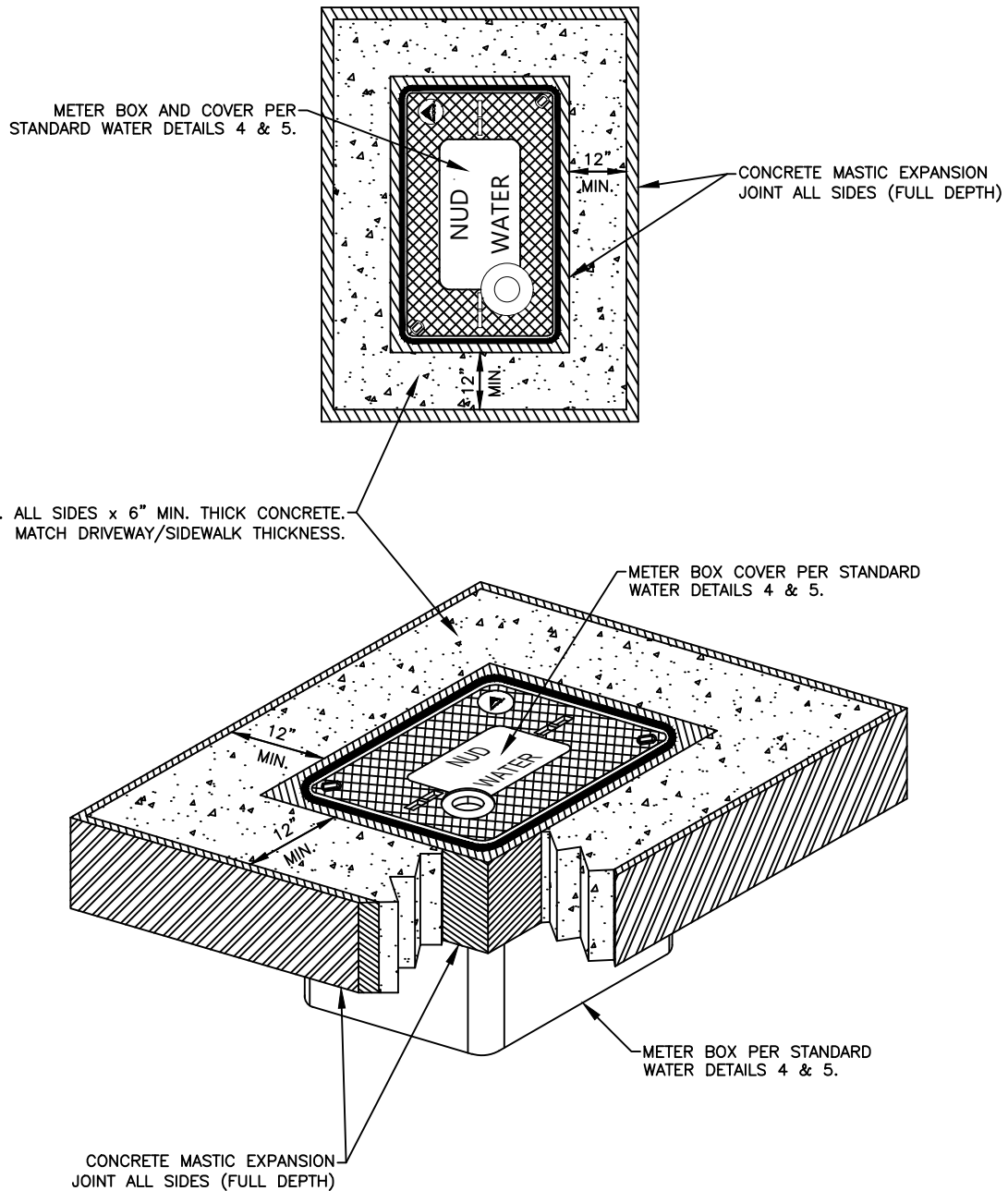
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NORTHSHORE UTILITY DISTRICT

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FEBRUARY 2020



NOTES:

1. METER BOX BLOCK OUT IS ONLY TO BE USED IN CONCRETE DRIVEWAYS OR SIDEWALKS.
2. DISTRICT APPROVAL IS REQUIRED PRIOR TO INSTALLING METER BOX IN DRIVEWAYS.
3. BACKFILL FOR METER BOX BASE IS TO BE COMPACTED 1 1/4" BASE COURSE OR 3/4" TOP COURSE CRUSHED ROCK.
4. CONCRETE FINISH SHALL MATCH ADJACENT CONCRETE DRIVEWAY OR SIDEWALK FINISH.

METER BOX BLOCK OUT FOR DRIVEWAYS AND SIDEWALKS

NOT TO SCALE

DETAIL APPROVALS

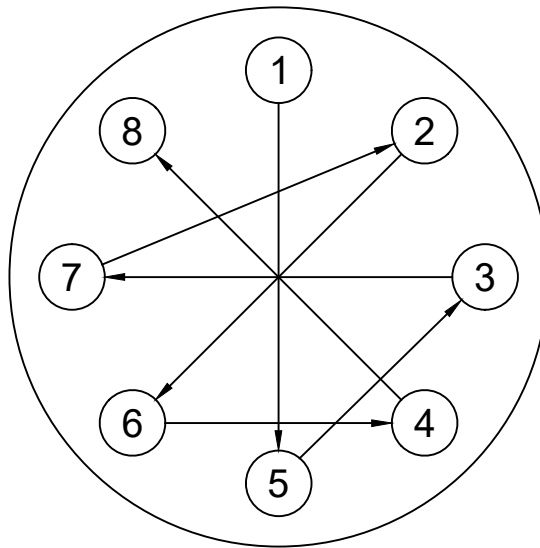
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NORTHSHORE UTILITY DISTRICT
2023 STANDARD WATER DETAILS

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APRIL 2021



8 BOLT EXAMPLE

NO OF BOLTS	NOMINAL FLG SIZE	BOLT NUT TIGHTENING SEQUENCE
8	4", 6", 8"	1, 5, 3, 7, 2, 6, 4, 8
12	10", 12"	1, 7, 4, 10, 2, 8, 5, 11, 3, 9, 6, 12

NOTES:

- BOLTS AND NUTS SHALL BE CLEAN AND DRY (UNLUBRICATED).
 - HAND TIGHTEN ALL NUTS.
 - CONSECUTIVELY NUMBER THE BOLTS AROUND THE FLANGE.
- TIGHTEN BOLTS AND NUTS IN THE SEQUENCE GIVEN IN THE TABLE ABOVE.
 - FIRST: TIGHTEN BOLTS AND NUTS TO ONE-THIRD OF MANUFACTURER'S RECOMMENDED TARGET TORQUE.
 - SECOND: TIGHTEN BOLTS AND NUTS TO TWO-THIRDS OF MANUFACTURER'S RECOMMENDED TARGET TORQUE.
 - LAST: TIGHTEN BOLTS AND NUTS TO FULL MANUFACTURER'S RECOMMENDED TARGET TORQUE.
- SEQUENCE GIVEN IS FOR AWWA C110, AND ANSI CLASS 125 AND 150 FLANGES.

BOLT TIGHTENING SEQUENCE

NOT TO SCALE

DETAIL APPROVALS

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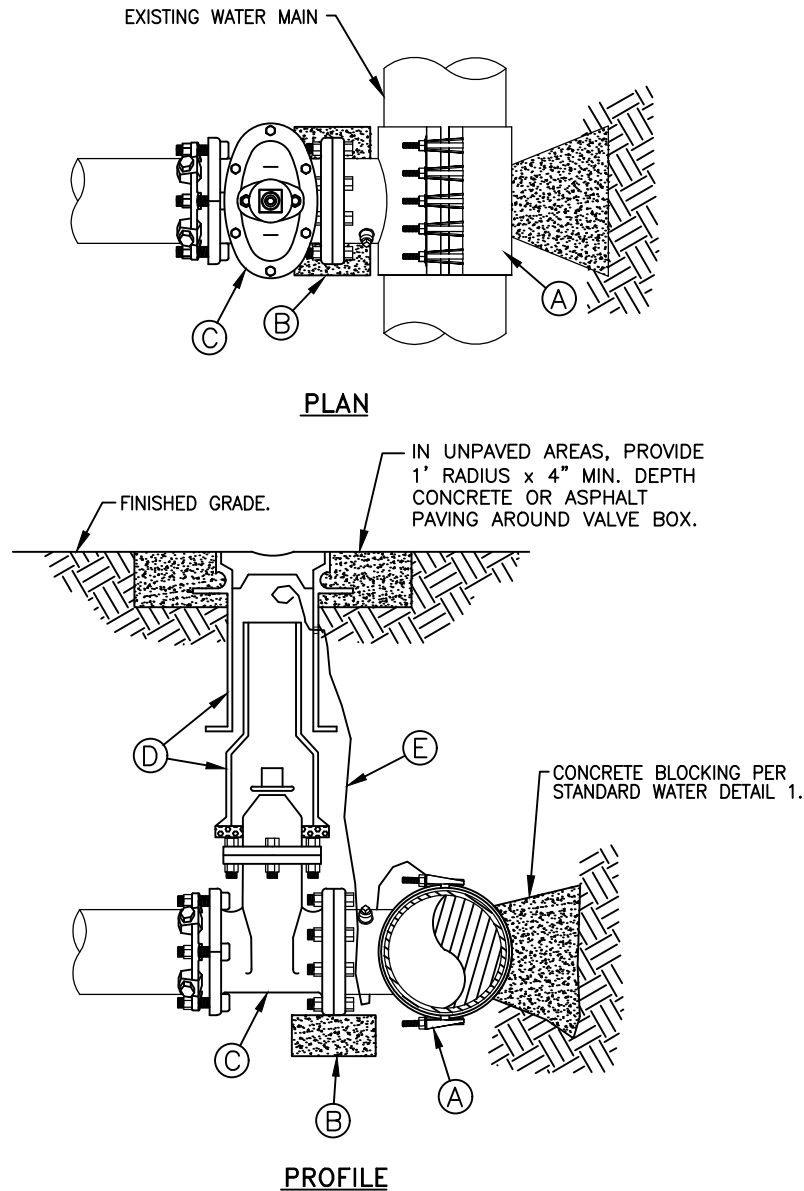
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

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LAST UPDATED
APRIL 2021



MATERIALS LIST

ITEM DESCRIPTION

- (A) STAINLESS STEEL TAPPING TEE WITH DI FLANGE; ROMAC SST, FORD FAST, OR JCM 462.
- (B) PRECAST 4"x8"x16" CONCRETE BLOCK.
- (C) R.W. GATE VALVE, F.L.xR.J.: SHALL BE PER THE SPECIFICATIONS. FOR VALVE OPERATING NUT DEPTHS, SEE STANDARD WATER DETAIL #11
- (D) TWO-PIECE VALVE BOX AND ETHAFOAM RING PER THE SPECIFICATIONS AND STANDARD WATER DETAIL #11.
- (E) TRACER WIRE: BLUE 14 GAUGE COPPER, CONTINUOUS, SOLID CORE, POLYETHYLENE INSULATED PER THE SPECIFICATIONS. CONTINUOUS FROM MAINLINE.

TAPPING TEE AND GATE VALVE

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

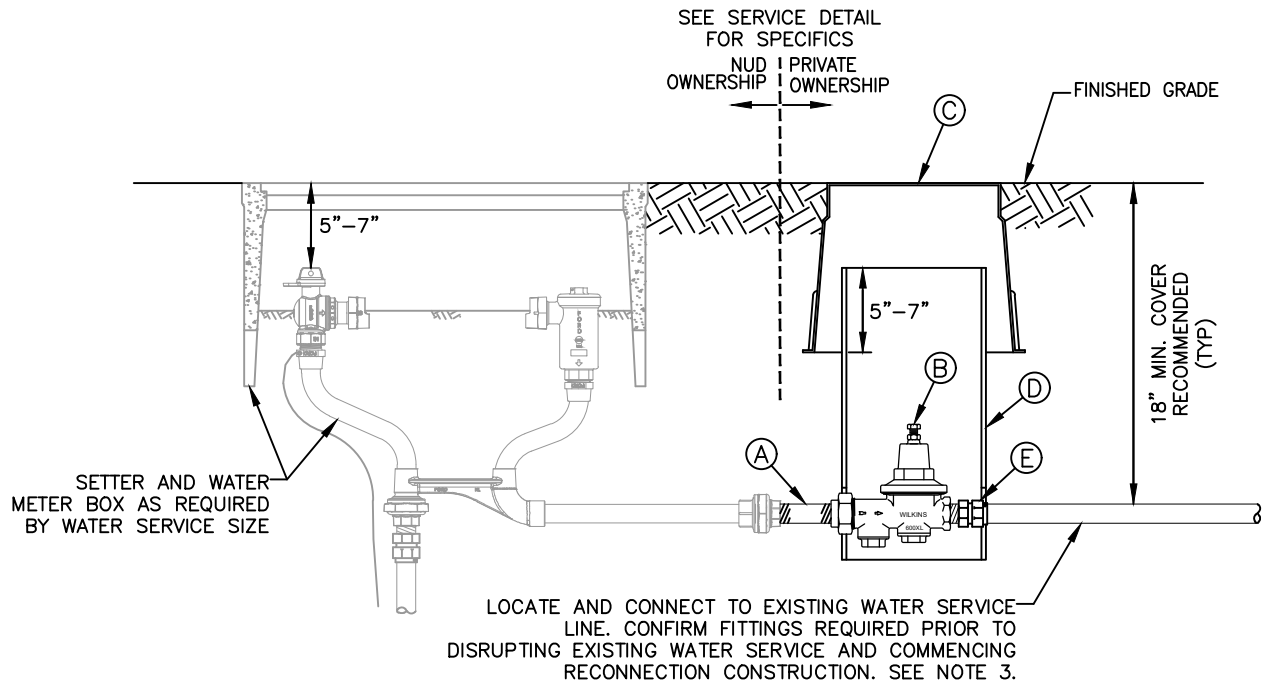
MANAGER SJD

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

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LAST UPDATED
JANUARY 2023



MATERIALS LIST

ITEM DESCRIPTION

- (A) BRASS NIPPLE, LENGTH TO FIT.
- (B) PRV WITH STRAINER, 3/4" - 2", WITH UNION COUPLING ON INLET. PRV SHALL BE WILKINS 600XL, WATTS LF25AUB-Z3, OR APPROVED EQUAL.
- (C) PRV BOX: LANDSCAPE AREAS - 10" DIAMETER, 10" TALL CARSON BOX 910 OR EQUAL. TRAFFIC AREAS - TRAFFIC RATED METER BOX WITH SOLID LID.
- (D) 8" DIAMETER SDR 35 PVC RISER PIPE, LENGTH TO FIT. CUT OUT MOUSE HOLES TO FIT OVER SERVICE PIPE.
- (E) BRASS INSTA-TITE OR COMPRESSION PACK JOINT STYLE FITTING, COMPATIBLE WITH CUSTOMER'S PRIVATE WATER LINE.

NOTES:

1. A NEW PRV SHALL BE INSTALLED IF A PRIVATE PRV IS REMOVED DURING NEW SERVICE INSTALLATION. CONTRACTOR TO DETERMINE SIZE OF NEW PRV.
2. CONTRACTOR TO MEASURE AND RECORD EXISTING WATER PRESSURE AT BUILDING PRIOR TO RECONNECTION AND AFTER REESTABLISHMENT OF SERVICE. IF PRESSURE READINGS DIFFER BY MORE THAN 5 PSI, THE CONTRACTOR SHALL LOCATE AND CORRECT THE ISSUE AT THE PRV.
4. ALL PIPE FITTINGS SHALL BE BRASS. PRIOR TO MAKING THE CONNECTION, THE CONTRACTOR SHALL POT-HOLE THE EXISTING SERVICE LINE TO DETERMINE THE LOCATION, SIZE, AND TYPE OF EXISTING PIPE AND TO CONFIRM THE PIPE AND FITTINGS REQUIRED TO MAKE THE CONNECTION. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED PIPE AND FITTINGS ON-SITE PRIOR TO DISRUPTING WATER SERVICE AND COMMENCING CONSTRUCTION. NO EXISTING WATER SERVICE SHALL BE DISRUPTED FOR MORE THAN TWO HOURS IN ONE DAY.
5. PRV SHALL BE LOCATED DIRECTLY DOWNSTREAM OF THE METER OR BACKFLOW ASSEMBLY, IF INSTALLED. RESPONSIBILITY FOR PROPER INSTALLATION SHALL BE THAT OF THE CONTRACTOR. MAINTENANCE AND OPERATION OF THE VALVE SHALL BE THAT OF THE PROPERTY OWNER.

PRESSURE REDUCING VALVE (PRV)

NOT TO SCALE

DETAIL APPROVALS

EDITOR *TMC*

MANAGER *SJD*

NORTHSHORE UTILITY DISTRICT

2023 STANDARD WATER DETAILS

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LAST UPDATED
FEBRUARY 2022