

# STANDARD DETAILS (SDW)

## WATER DISTRIBUTION

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1. 24 HOUR NOTICE IS REQUIRED PRIOR TO STARTING CONSTRUCTION.
2. A MINIMUM SEPARATION OF 24" OR A CASING PIPE IS REQUIRED AT ANY LOCATION WHERE A WATER LINE CROSSES A SANITARY OR STORM SEWER LINE.
3. WATER/SEWER LINE TRENCHES IN EXISTING DRIVEWAYS OR STREETS SHALL BE BACKFILLED WITH #9 CRUSHED STONE TO THE TOP OF THE TRENCH.
4. 2" PVC ENCASUREMENT PIPE FOR WATER SERVICES CROSSING THE ROAD MUST BE SCHEDULE 80 OR CLASS 160 GASKET WATER PIPE. 3" PVC ENCASUREMENT PIPE IS REQUIRED FOR LENGTHS GREATER THAN 50'. DETECTABLE MYLAR TAPE IS REQUIRED.
5. WATER LINE TRENCHES OUTSIDE EXISTING DRIVEWAYS OR STREETS SHALL BE BEDDED 6" BELOW AND 1' ABOVE THE PIPE WITH GOOD EARTH FREE OF ROCK. THE REMAINDER OF THE TRENCH SHALL BE GOOD EARTH FREE OF ROCK NO LARGER THAN 1 SQUARE FOOT.
6. ALL FITTINGS REQUIRING THRUST BLOCKS SHALL BE FORMED WITH PLYWOOD OR PARTICLE BOARD TO ALLOW ACCESS FOR REMOVAL OF BOLTS AND WRAPPED IN HEAVY PLASTIC (4 MILS MIN.) PRIOR TO PLACEMENT OF CONCRETE.
7. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.
8. WATER LINE PIPE AND FITTINGS MUST BE DUCTILE IRON (CLASS 51).
9. VALVE BOXES SHALL BE TWO PIECE SLIP TYPE (TYLER 6855 SERIES, MODEL NUMBER 562-A OR EQUAL)
10. STEEL ENCASUREMENT PIPE SHALL BE PLACED AT THE LOCATION SHOWN ON THE PLANS IN ACCORDANCE WITH THE NOTED SIZE, LENGTH, AND TYPE OF MATERIAL. THE ENCASUREMENT PIPE SHALL HAVE A MINIMUM WALL THICKNESS OF 1/4" FOR NEW CASING PIPE OR 3/8" FOR SALVAGED CASING PIPE. FOR EXISTING PIPE INSTALLATION, APPLICATIONS, SPLIT STEEL CASING PIPE SHALL CONFORM TO THE ABOVE SPECIFICATIONS EXCEPT THAT IT SHALL BE IN TWO (2) SEMICIRCULAR SECTIONS JOINED BY A CONTINUOUS WELD FROM ONE END TO THE OTHER WITHOUT ANY TRACEABLE VOIDS. THE ENCASUREMENT PIPE MUST BE BITUMINOUS COATED INSIDE AND OUT, AND SEALED ON BOTH ENDS WITH A RUBBER FERRECO END SEAL.
11. DUCTILE IRON RETAINER GLANDS ARE REQUIRED ON ALL MECHANICAL JOINT FITTINGS. (NO EXCEPTIONS)



General Notes (Water)

Scale:

1" = 18"

Date:

Jan. 2004

Dwg. No.:

SDW - 01



**THRUST BLOCK SCHEDULE**  
**MINIMUM REQUIREMENTS FOR ANCHORS**

PIPE SIZE	90° BEND			45° BEND			22 1/2° BENDS			11 1/4° BENDS			TEES & ENDS		
	D	W	L	D	W	L	D	W	L	D	W	L	D	W	L
2"	6"	10"	4"	4"	7"	3"	4"	7"	3"	4"	7"	3"	6"	10"	4"
3"	6"	10"	8"	4"	8"	6"	4"	8"	3"	4"	8"	3"	6"	10"	6"
4"	6"	11"	9"	6"	11"	7"	4"	9"	5"	4"	9"	3"	6"	11"	8"
6"	8"	1'-3"	1'-1"	6"	1'-1"	12"	4"	11"	8"	4"	11"	4"	8"	1'-3"	10"
8"	10"	1'-9"	1'-7"	8"	1'-5"	15"	6"	1'-3"	10"	4"	1'-1"	6"	10"	1'-9"	1'-9"
10"	10"	1'-11"	2'-5"	8"	1'-8"	1'-10"	6"	1'-5"	1'-1"	6"	1'-5"	7"	10"	1'-11"	2'-6"
12"	12"	2'-3"	2'-7"	10"	2'-0"	2'-3"	10"	1'-11"	1'-2"	6"	1'-7"	9"	12"	2'-3"	3'-0"
14"	1'-2"	2'-7"	3'-2"	1'-1"	2'-5"	2'-7"	12"	2'-3"	1'-5"	6"	1'-9"	12"	1'-2"	2'-7"	3'-6"
16"	1'-3"	2'-10"	3'-8"	1'-3"	2'-9"	3'-0"	1'-2"	2'-7"	1'-7"	8"	2'-1"	1'-11"	1'-5"	3'-0"	4'-0"
18"	1'-9"	3'-6"	3'-9"	1'-6"	3'-2"	3'-3"	1'-5"	3'-0"	1'-9"	10"	2'-5"	1'-2"	1'-9"	3'-5"	4'-6"
20"	1'-10"	3'-9"	4'-5"	1'-9"	3'-7"	3'-6"	1'-6"	3'-3"	2'-0"	10"	2'-7"	1'-4"	1'-10"	3'-8"	5'-0"



Thrust Block Schedule

Scale:

1" = 10"

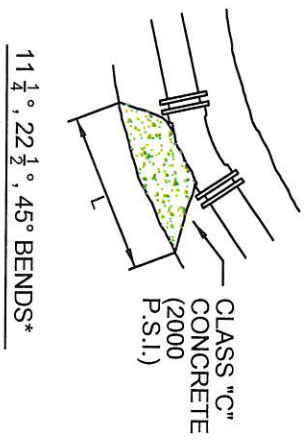
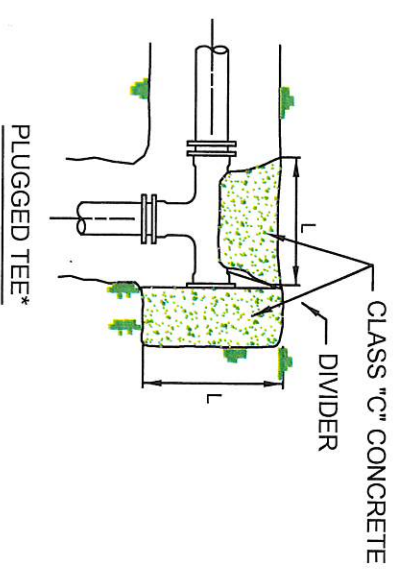
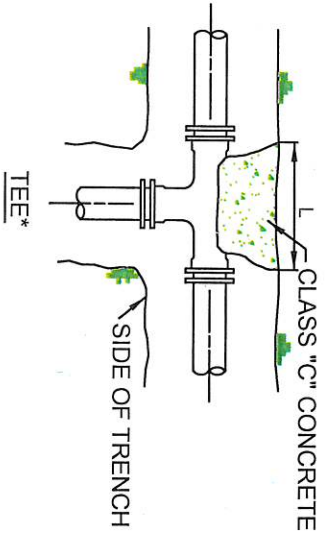
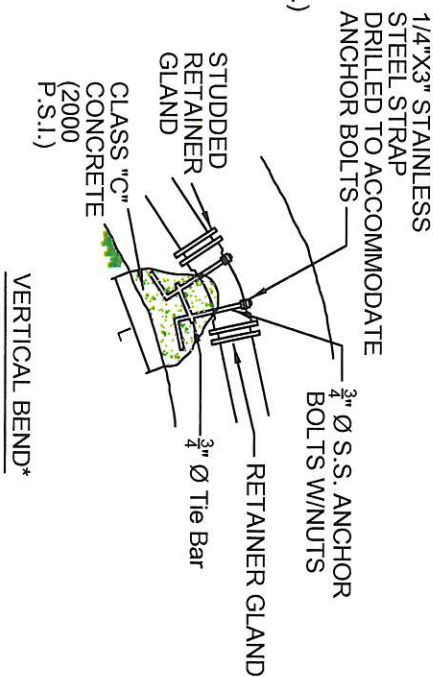
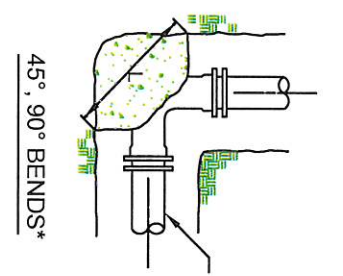
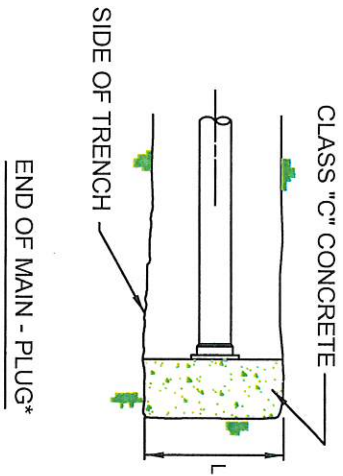
Date:

Jan. 2004

Dwg. No.:

SDW - 02





\*(SEE NOTE 6 & 7, SDW - 01)



# Thrust Block Detail

Scale:

1" = 36"

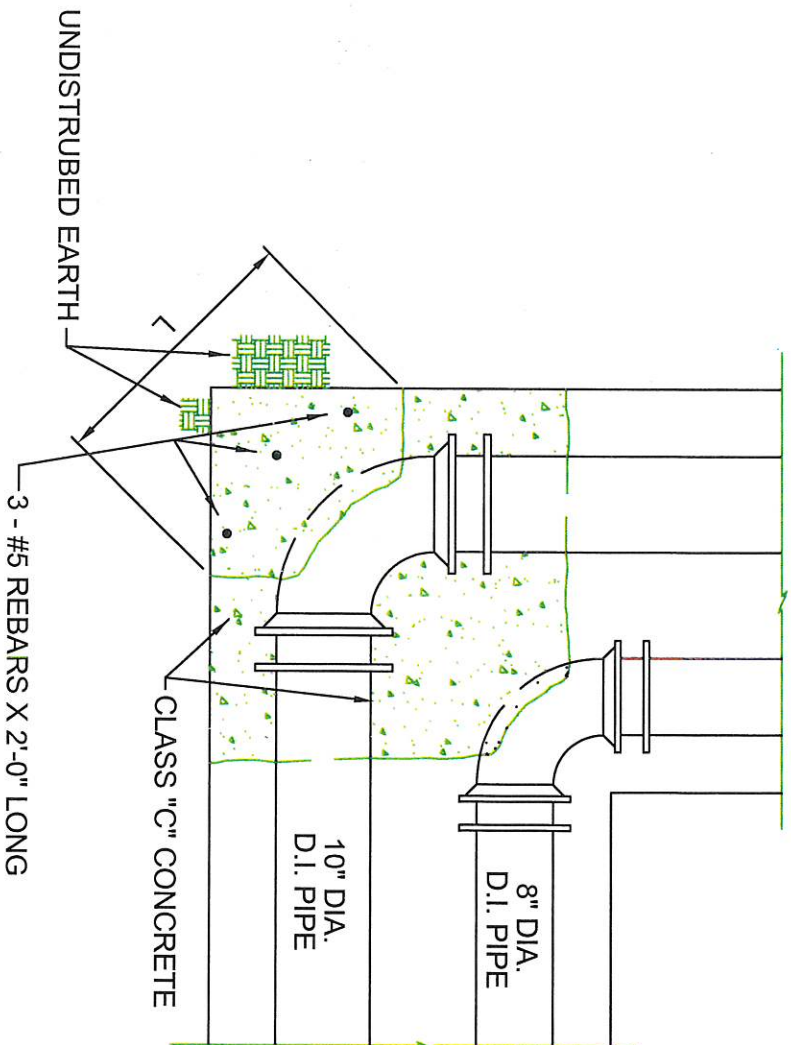
Date:

Jan. 2004

Dwg. No.:

SDW - 03





# Thrust Block Detail (Double Pipes)

Scale:

1" = 12"

Date:

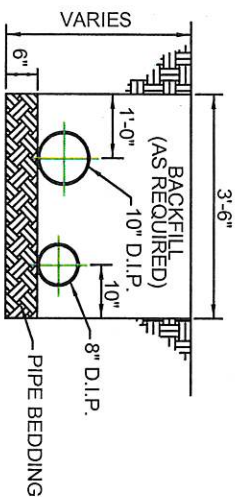
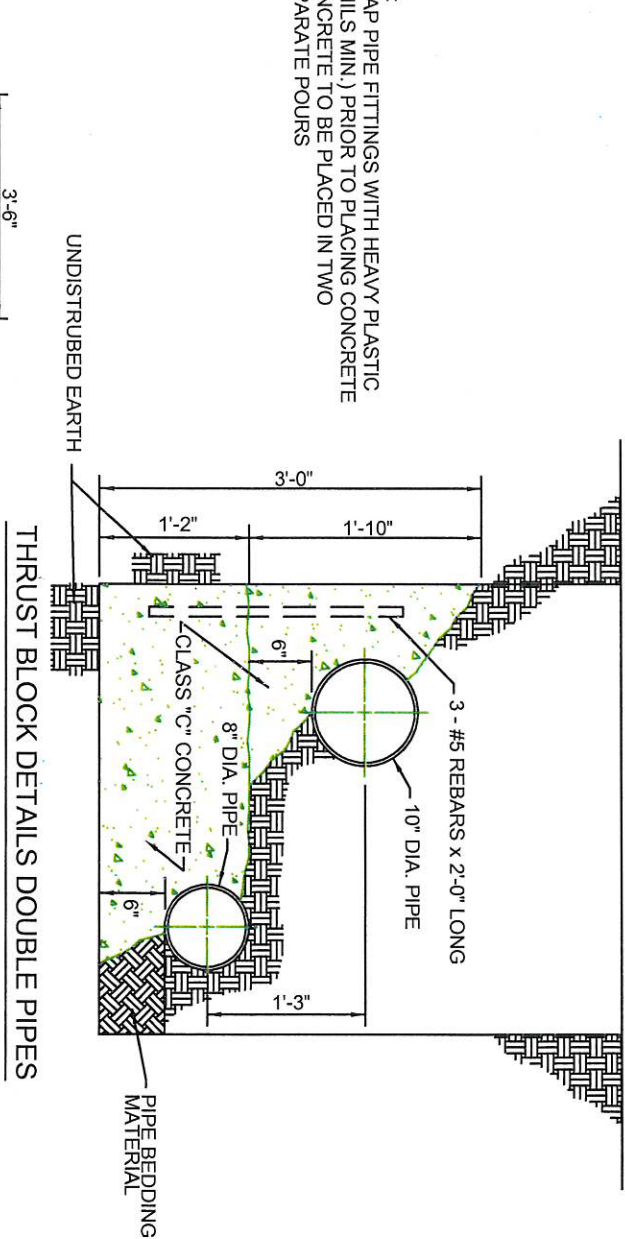
Jan. 2004

Dwg. No.:

SDW - 04



- NOTES:
- 1.) WRAP PIPE FITTINGS WITH HEAVY PLASTIC (4 MILS MIN.) PRIOR TO PLACING CONCRETE
  - 2.) CONCRETE TO BE PLACED IN TWO SEPARATE POURS



Thrust Block Detail Section  
(Double Pipes)

Scale:

1" = 18"

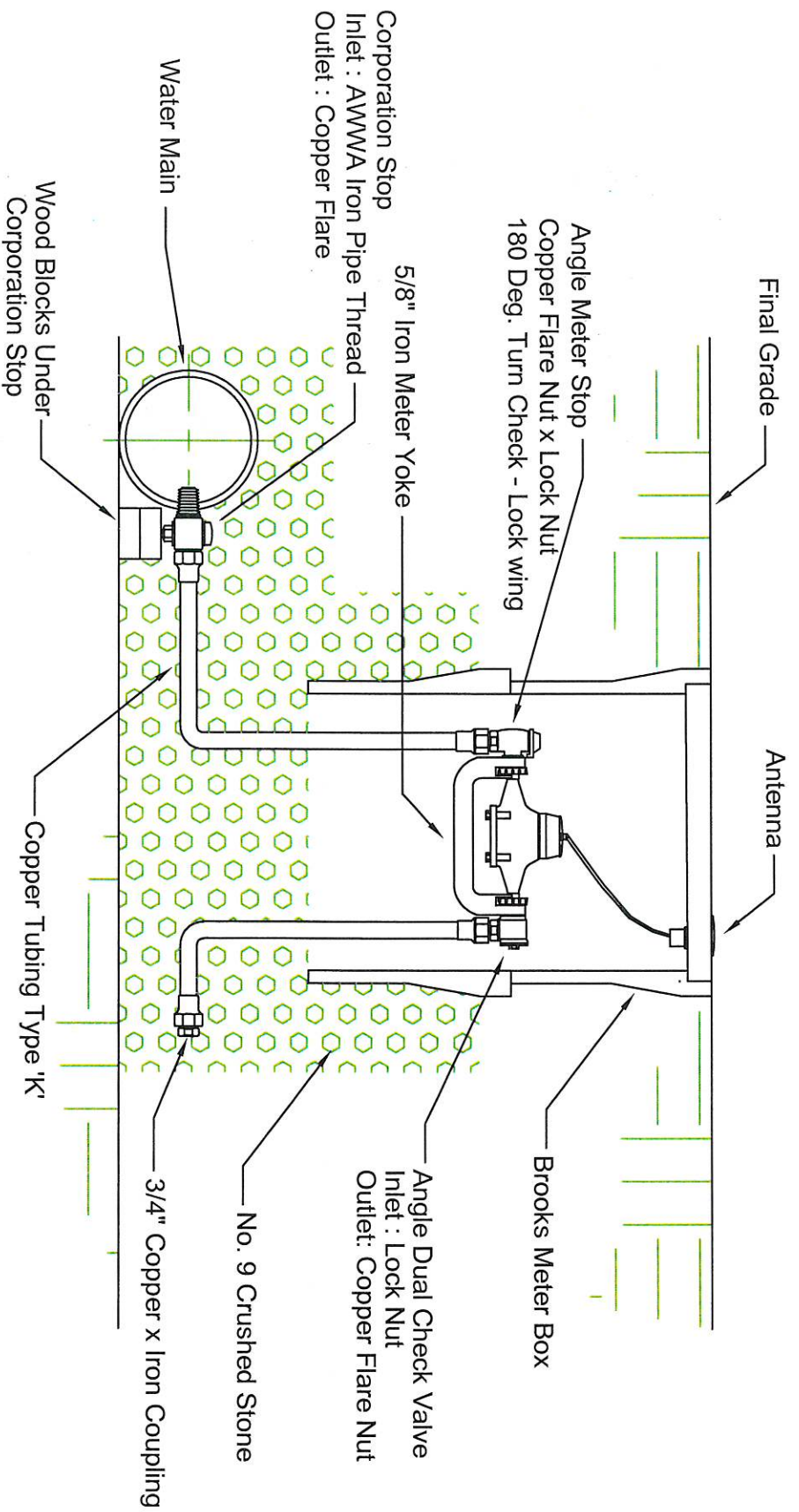
Date:

Jan. 2004

Dwg. No.:

SDW - 05

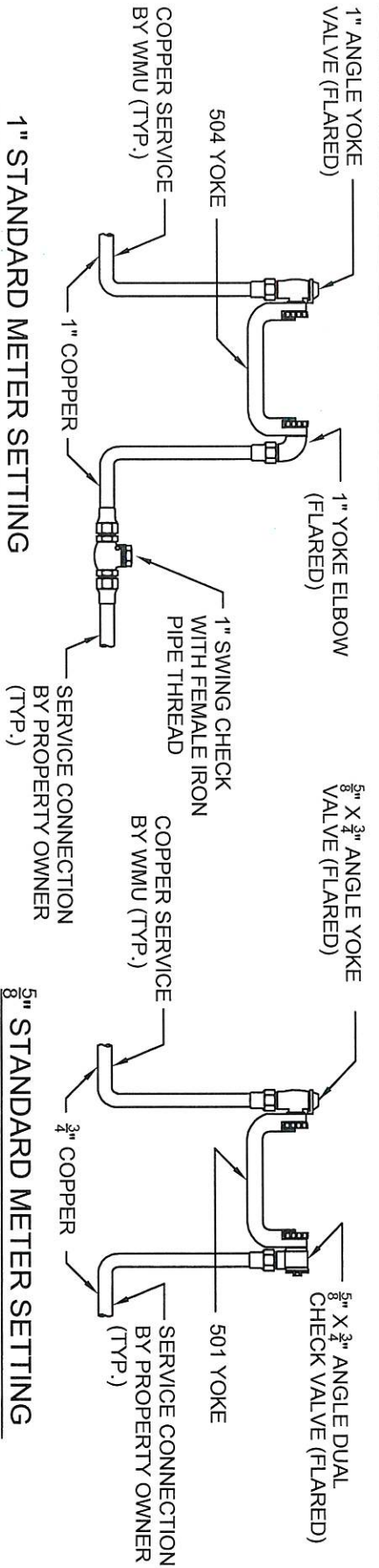




### Typical Meter Setting

Scale:	Date:	Dwg. No.:
1" = 8"	Sep. 2020	SDW - 06

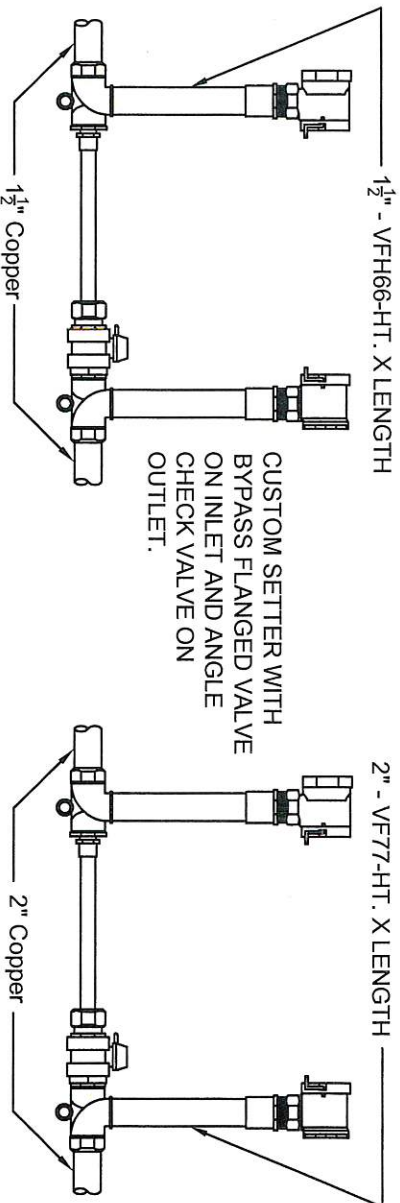




### 1" STANDARD METER SETTING

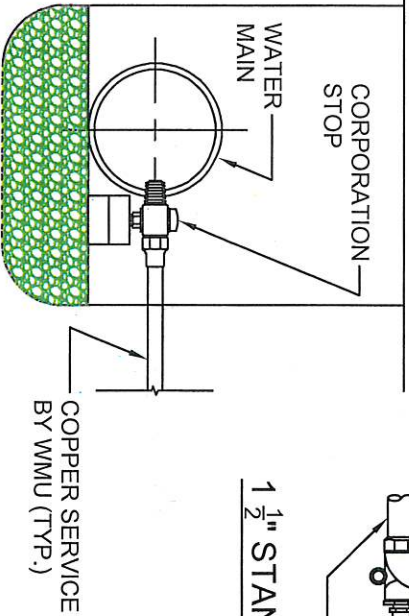
### 5/8" STANDARD METER SETTING

- NOTE:
- ALL FITTINGS ARE BRASS.
  - COPPER TUBING MUST BE TYPE 'K'.
  - TAPS FOR THE 1 1/2" AND 2" STANDARD METER SETTINGS MUST BE MADE WITH A TYPE F202 TAPPING SADDLE AND A TYPE FB500 BALLCORP.
  - TYPE 36H30 CONCRETE METER BOX AND LID TO BE LOCATED AT PROPERTY/EASEMENT LINE.



### 1 1/2" STANDARD METER SETTING

### 2" STANDARD METER SETTING



### Water Service Connections

Scale:

1" = 12"

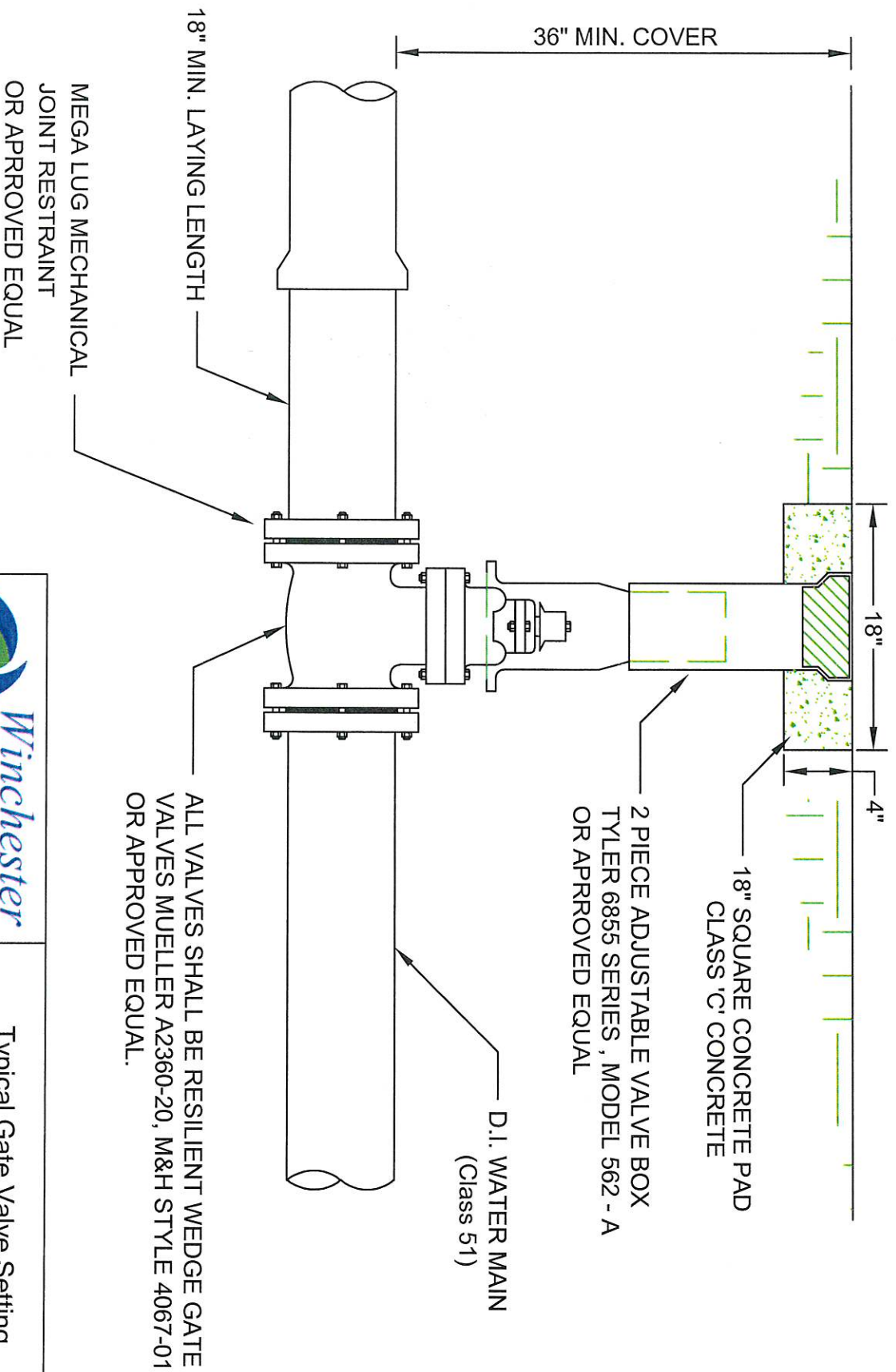
Date:

Jan. 2004

Dwg. No.:

SDW - 07





# Typical Gate Valve Setting

Scale:

1" = 12"

Date:

Sep. 2020

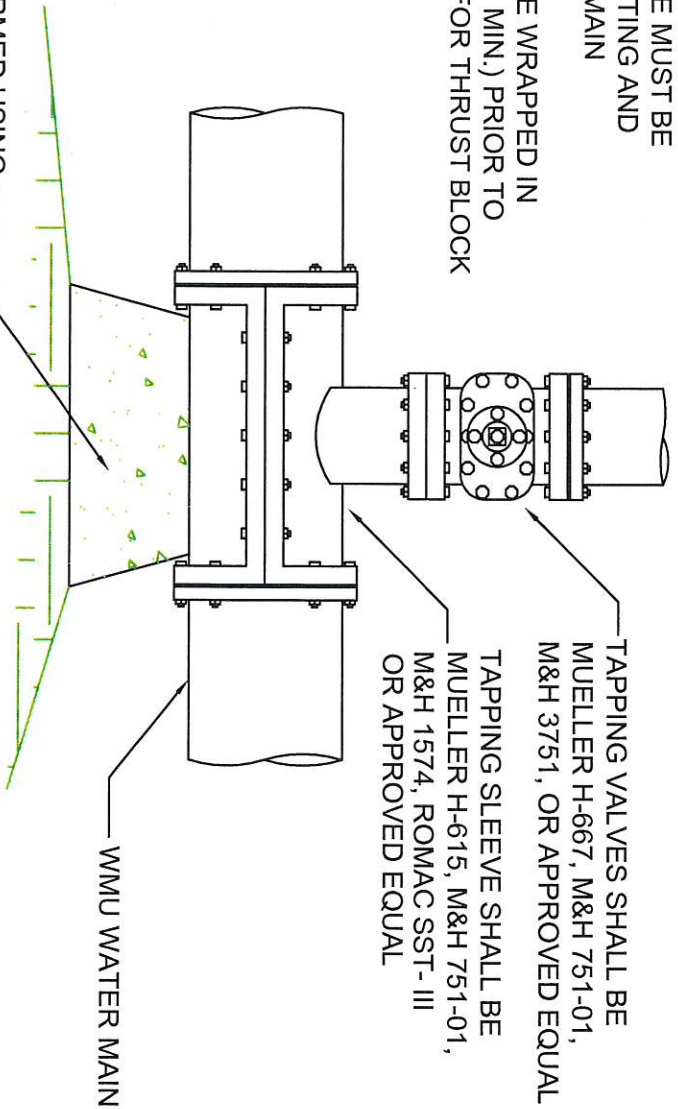
Dwg. No.:

SDW - 08



NOTES:

- 1.) ASSEMBLED TAPPING SLEEVE AND VALVE MUST BE PRESSURE TESTED AT 150 PSI FOR 30 MINUTES PRIOR TO WET TAPPING THE WATER MAIN
- 2.) WMU REPRESENTATIVE MUST BE PRESENT DURING TESTING AND THE WET TAP TO THE MAIN
- 3.) TAPPING SLEEVE TO BE WRAPPED IN THICK PLASTIC (4 MILS MIN.) PRIOR TO POURING CONCRETE FOR THRUST BLOCK



CONCRETE THRUST BLOCK FORMED USING PLYWOOD OR PARTICLE BOARD POURED TO UNDISTURBED EARTH



Typical Tapping Sleeve and Valve

Scale:

1" = 12"

Date:

Sep. 2020

Dwg. No.:

SDW - 09



2-5/8" Ø ANCHOR BOLTS WITH  
NUTS SET IN CONCRETE

Diagram illustrating a cross-section of a concrete slab. A green reinforcement grid is shown within the slab. A green pipe, labeled "TS WITH REINTE", is shown passing through the slab, with a green box indicating the area of reinforcement around the pipe.

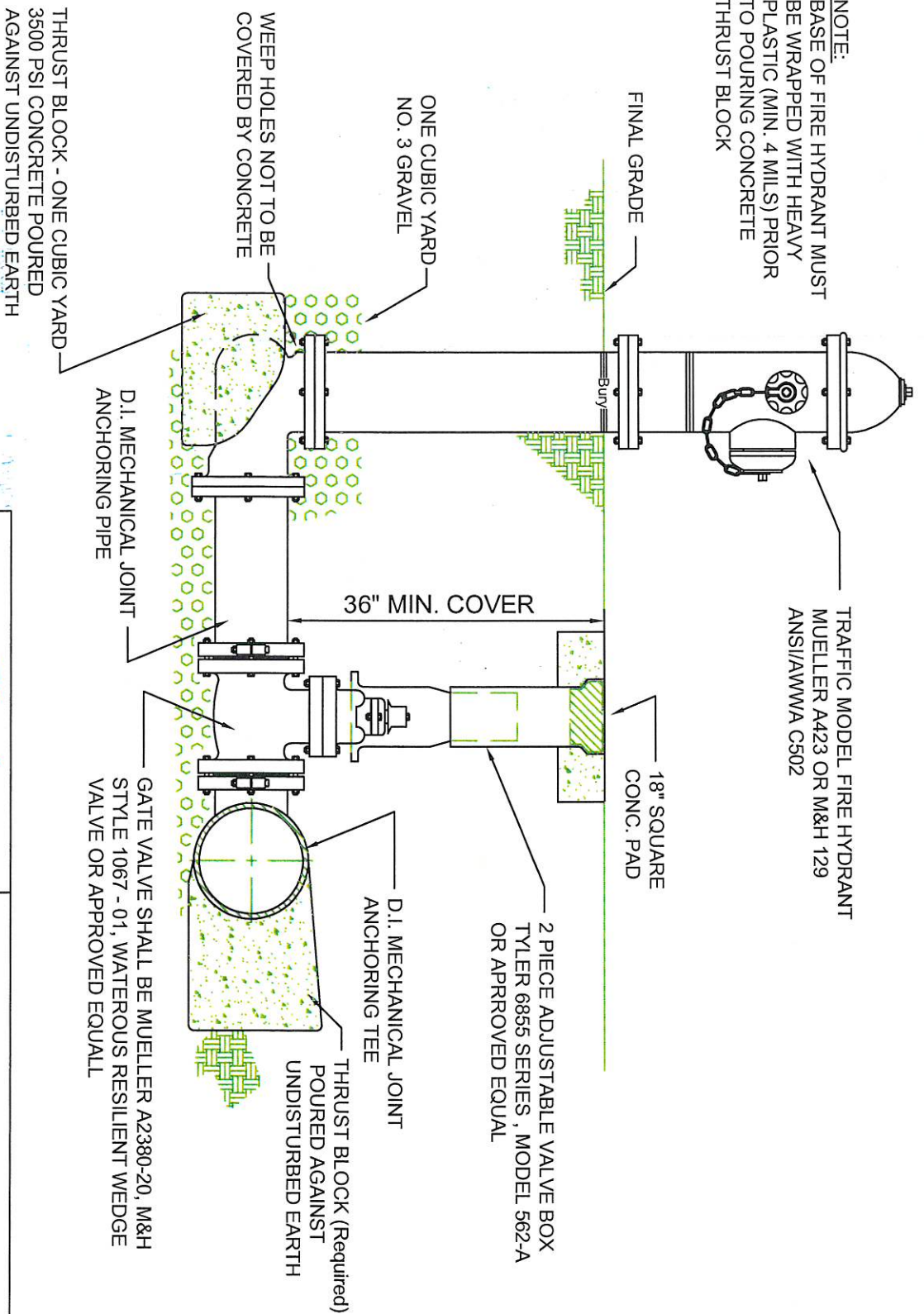


Dwg. No.:

SDW - 10



**NOTE:**  
 BASE OF FIRE HYDRANT MUST  
 BE WRAPPED WITH HEAVY  
 PLASTIC (MIN. 4 MILS) PRIOR  
 TO POURING CONCRETE  
 THRUST BLOCK



# Typical Fire Hydrant Assembly

Scale:	Date:	Dwg. No.:
1" = 18"	Feb. 2021	SDW - 11



THRUST BLOCK - ONE CUBIC YARD  
3500 PSI CONCRETE POURED AGAINST  
UNDISTURBED EARTH.

TRAFFIC MODEL FIRE HYDRANT  
MUELLER A423 OR M&H 129

ONE CUBIC YARD  
NO. 3 GRAVEL

D.I. MECHANICAL JOINT  
ANCHOR COUPLING

D.I. MECHANICAL JOINT  
ANCHORING TEE

GATE VALVE SHALL BE MUELLER  
A2380-20, M&H STYLE 1067-01,  
WATEROUS RESILIENT WEDGE  
VALVE OR APPROVED EQUAL.

18" MIN. LAYING LENGTH

DUCTILE IRON PIPE  
(CLASS 51 MIN.)

THRUST BLOCK (Required)  
POURED AGAINST  
UNDISTURBED EARTH.

# **NOTES:**

- 1.) BASE OF FIRE HYDRANT TO BE WRAPPED WITH HEAVY PLASTIC (4 mils min.) PRIOR TO POURING CONCRETE.
- 2.) FIRE HYDRANT WEEP HOLES NOT TO BE COVERED BY CONCRETE.
- 3.) CONCRETE THRUST BLOCKS SHALL BE FORMED WITH PLYWOOD OR PARTICLE BOARD POURED TO UNDISTURBED EARTH.
- 4.) ALL FITTINGS REQUIRING THRUST BLOCKS SHALL BE WRAPPED IN HEAVY PLASTIC (4 MILS MIN.) PRIOR TO POURING CONCRETE THRUST BLOCK.



## **Fire Hydrant and Anchor Tee**

Scale:

1" = 18"

Date:

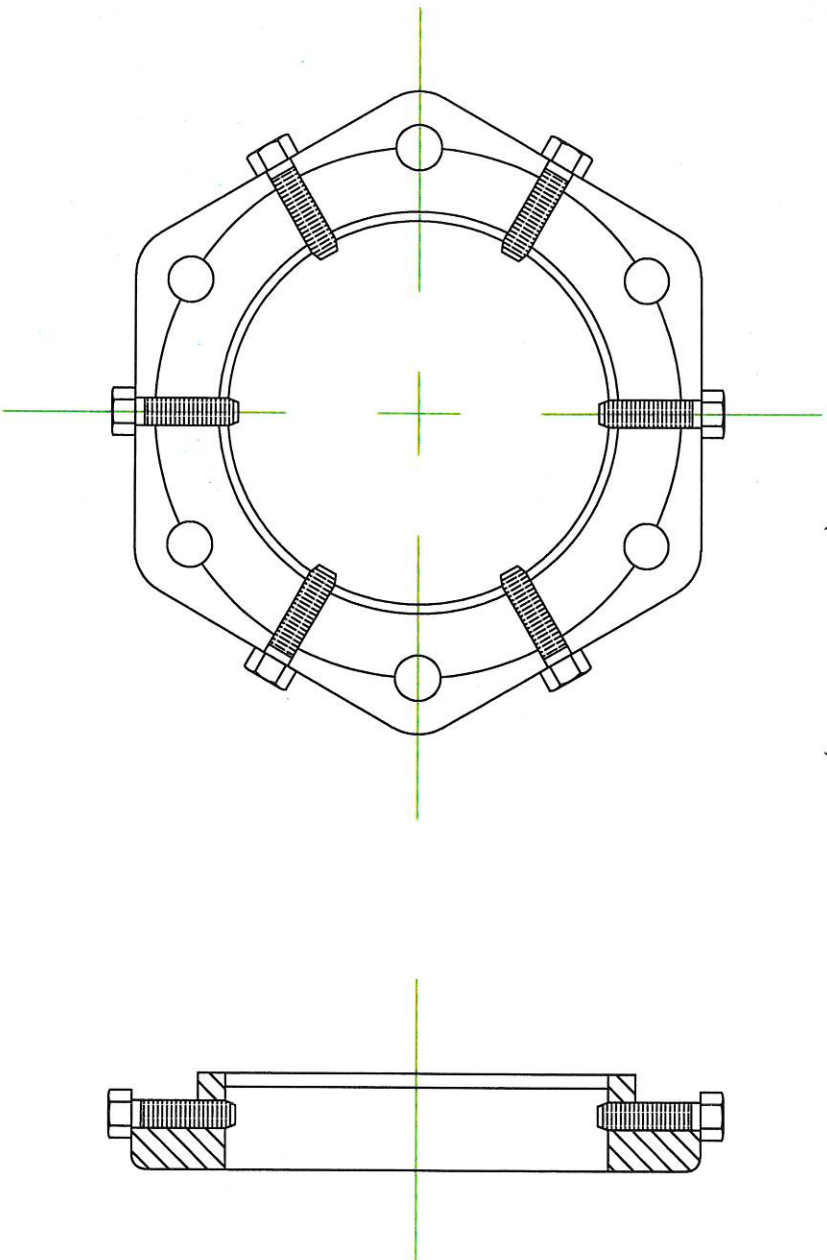
Jan. 2004

Dwg. No.:

SDW - 12



D.I. MECHANICAL JOINT RETAINER GLANDS SHALL BE  
USED FOR ALL MECHANICAL JOINT FITTINGS.  
(NO EXCEPTIONS)



Mega - Lug Retainer Gland

Scale:

1" = 3"

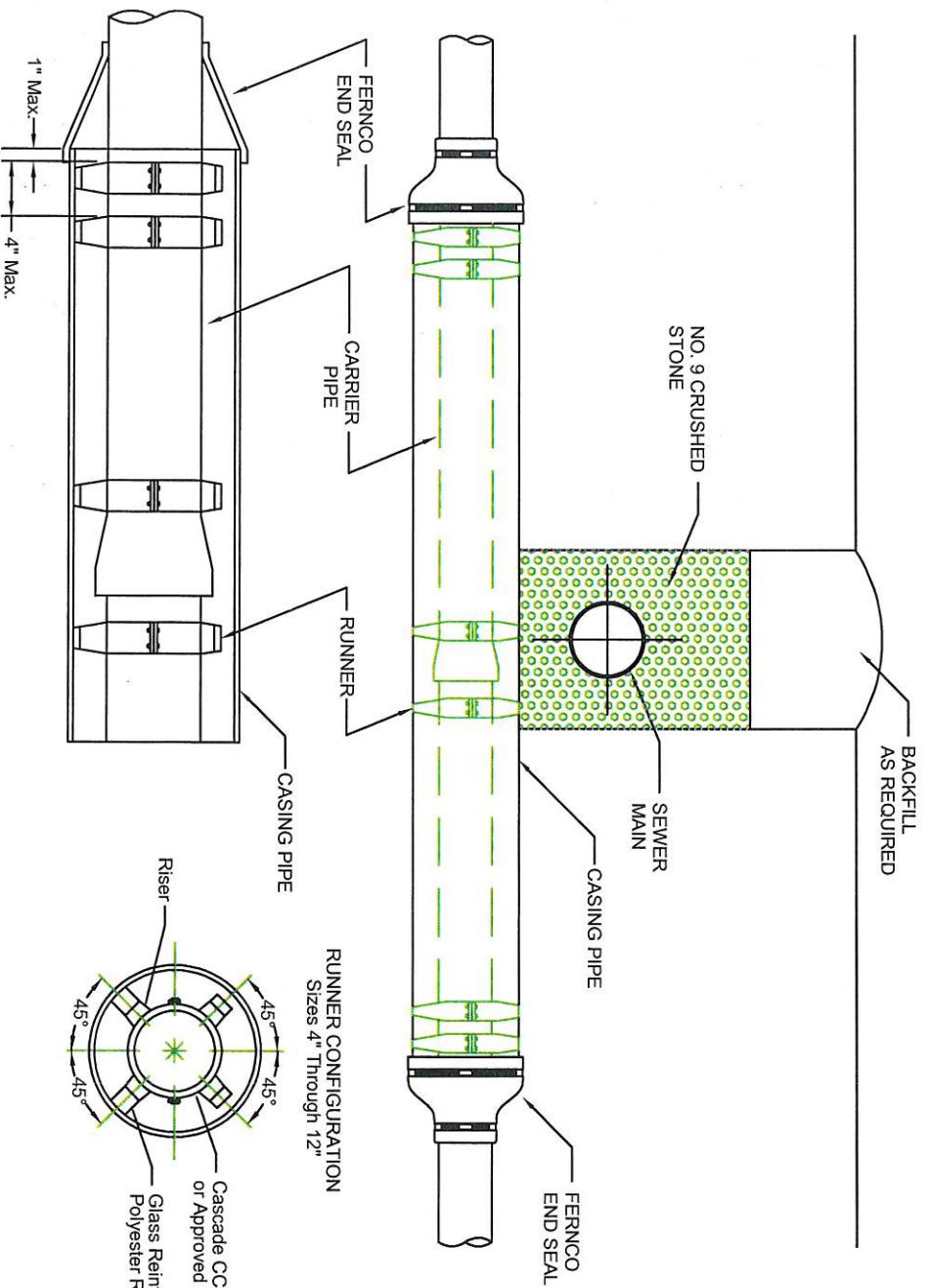
Date:

Jan. 2004

Dwg. No.:

SDW - 13





\* SEE NOTES 2 & 10, SDW - 1



# Water Line Encasement Detail

Scale:

1" = 12"

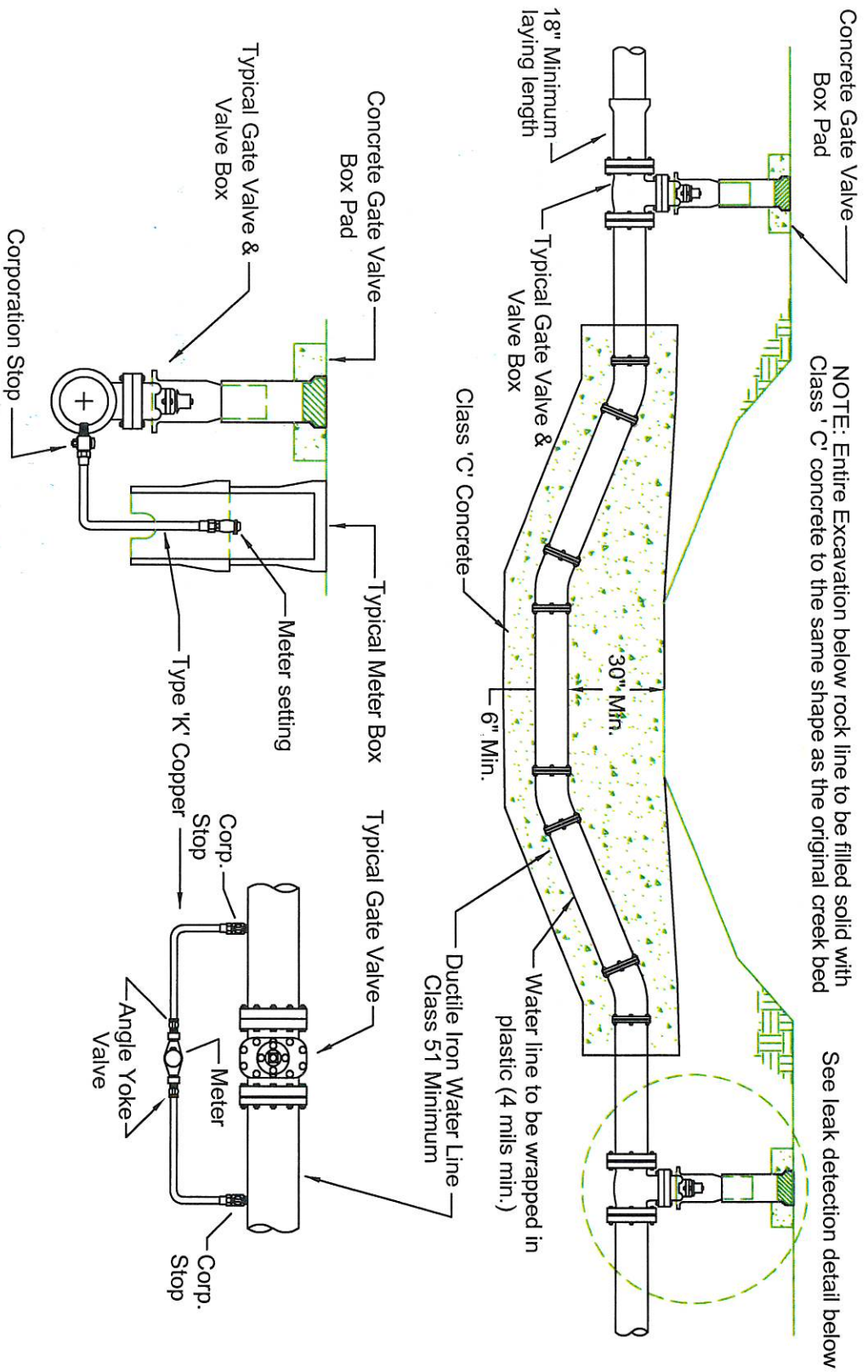
Date:

Sep. 2020

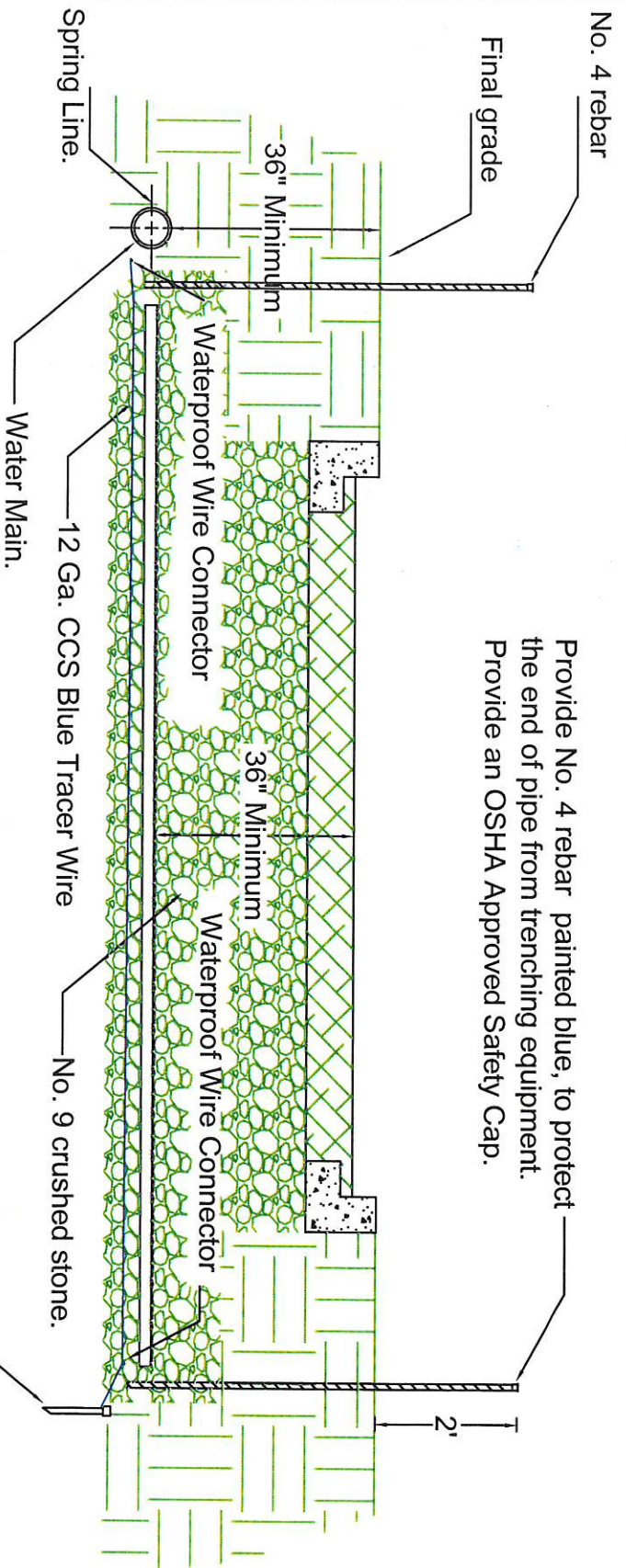
Dwg. No.:

SDW - 14









#### NOTES

- 1.) 2" Or 3" PVC, Schedule 80, bell and spigot pipe.
- 2.) Max. Laying length for 2" is 50 feet.
- 3.) Lines extending beyond 50 feet shall be 3" PVC, Schedule 80, bell and spigot pipe.
- 4.) Conduits shall be laid from the spring line of the water main at a minimum depth of 36".
- 5.) Detectable mylar tape is required 12" above pipe.



#### Water Service Conduits

Scale:

1" = 30"

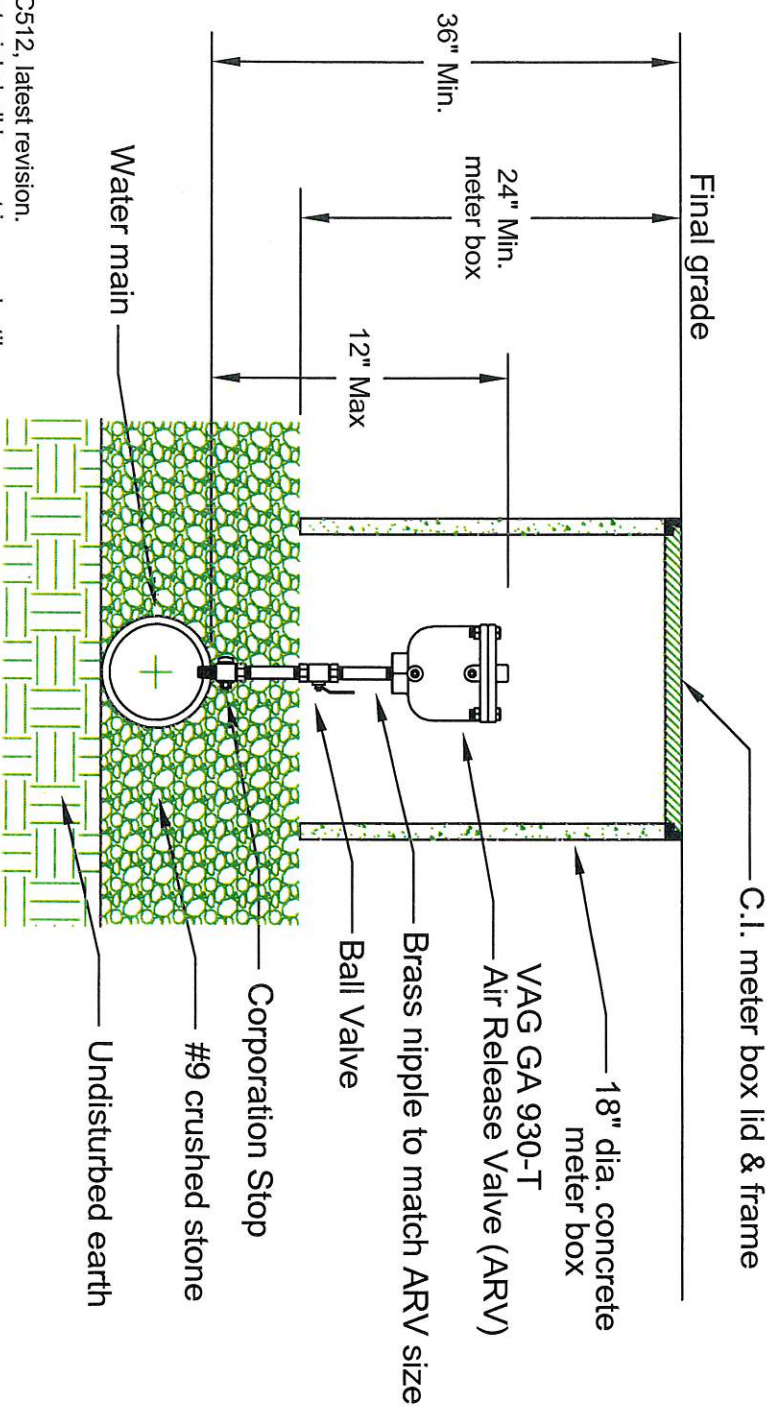
Date:

Sep. 2020

Dwg. No.:

SDW - 16





#### AIR RELEASE VALVE

- A) Shall meet or exceed AWWA C512, latest revision.
- B) The body, cover, and baffle material shall be cast iron or ductile iron conforming to ASTM A126 or A536.
- C) The float and trim material shall be stainless steel.
- D) The resilient seat material shall be chloramine resistant.
- E) Air release shall automatically release small pockets of air from the pipeline while in operation and under pressure.
- F) The valve shall have a 3/32" orifice for a minimum working pressure of 150 PSI.
- G) The valve inlet and outlet shall be threaded.
- H) Combination Air/Vacuum Valves are not acceptable.
- I) Except where otherwise specified, interior ferrous surfaces, exclusive of stainless steel surfaces, of all valves shall be coated with two part thermosetting epoxy coating or fusion bonded epoxy coating. Flange faces of valves shall not be epoxy coated. Exterior surfaces shall be coated with primer. The epoxy shall be suitable for use with potable water.



#### Air Release Valve (ARV)

Scale:

1" = 12"

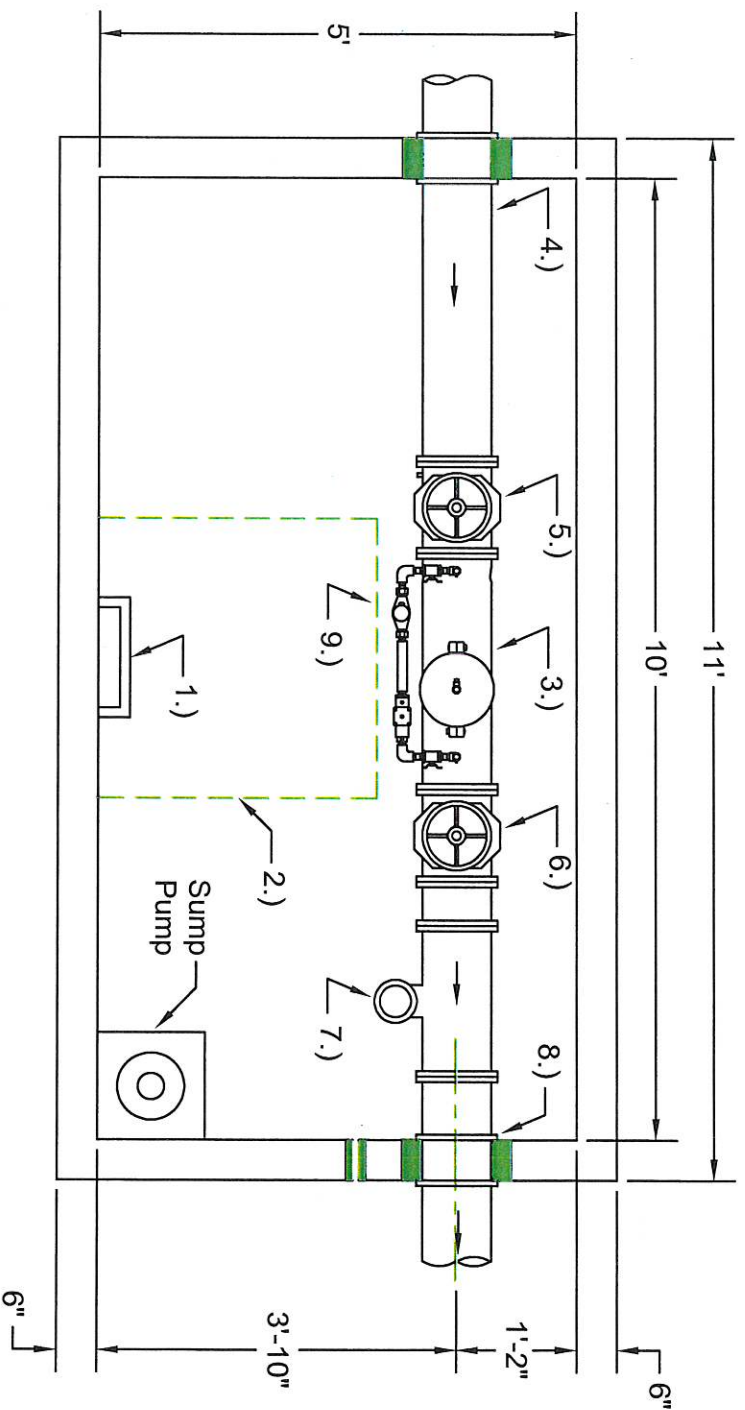
Date:

Sep. 2020

Dwg. No.:

SDW - 17





# **LEGEND**

- 1.) Alum. ladder secured to wall w/ non corrosive expansion anchor bolts.
- 2.) EJ 3'-6" x 3'-6" alum. single hatch & frame w/ removable key wrench w/fall protection. Drill to accommodate Remote Meter Antenna.
- 3.) Backflow prevention device w/ detector meter.
- 4.) Class 51 DIP (min.) water main.
- 5.) Gate valve(NRS) w/ tamper switch.
- 6.) Gate valve(NRS).
- 7.) 4" Galvanized pipe up to FDC.
- 8.) Ductile iron retainer gland.
- 9.) NECO T-10 E-Coder R900i Integrated RF Meter

**PLAN VIEW**  
Not to Scale



**Fire Protection Vault (Plan View)**

Scale:

1" = 24"

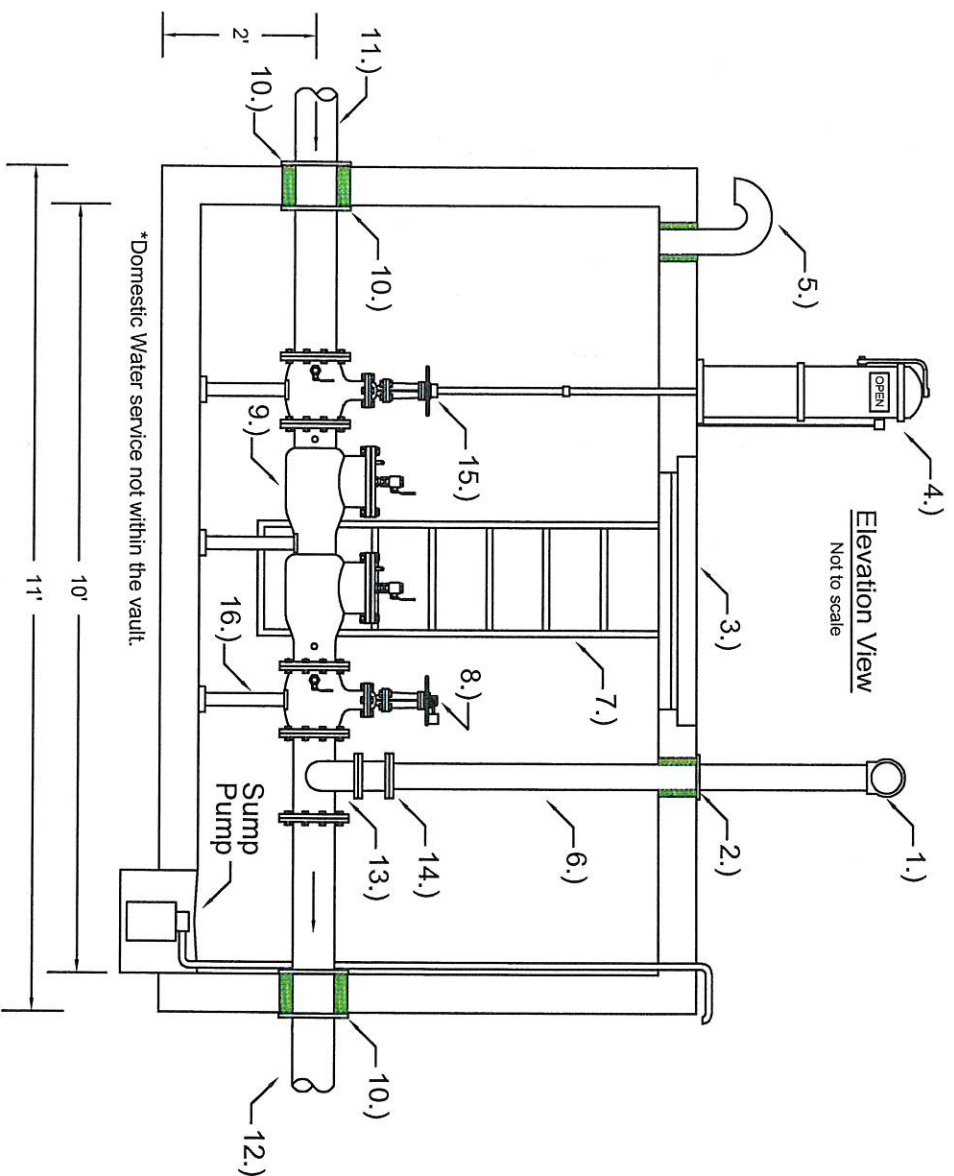
Date:

Sep. 2020

Dwg. No.:

SDW - 18





#### LEGEND

- 1.) 4" X 4.5" FDC w/ caps.
- 2.) PDC Wall Plate.
- 3.) 3-6"x 3-6" Alum. single hatch and frame w/ removable key wrench.
- 4.) PIV top w/tamper switch.
- 5.) 4" PVC vent w/ rodent screen.
- 6.) 4" Galvanized pipe up to FDC.
- 7.) Alum. ladder secured to wall w/ non-corrosive expansion anchor bolts.
- 8.) Gate valve w/ tamper switch.
- 9.) Backflow prevention device.
- 10.) Ductile iron retainer gland.
- 11.) Class 51 DIP (min.) water main.
- 12.) Class 51 DIP (min.) fire protection line.
- 13.) Flanged Tee.
- 14.) 4" Check Valve
- 15.) Gate valve.
- 16.) 2" pipe stands.

#### GENERAL NOTES

- 1.) Vault may have gravity drain to daylight where feasible.
- 2.) All seams and any lift holes inside the vault shall be grouted.
- 3.) All pipes entering the vault must be grouted in place.



#### Fire Protection Vault (Elev. View)

Scale:

1" = 30"

Date:

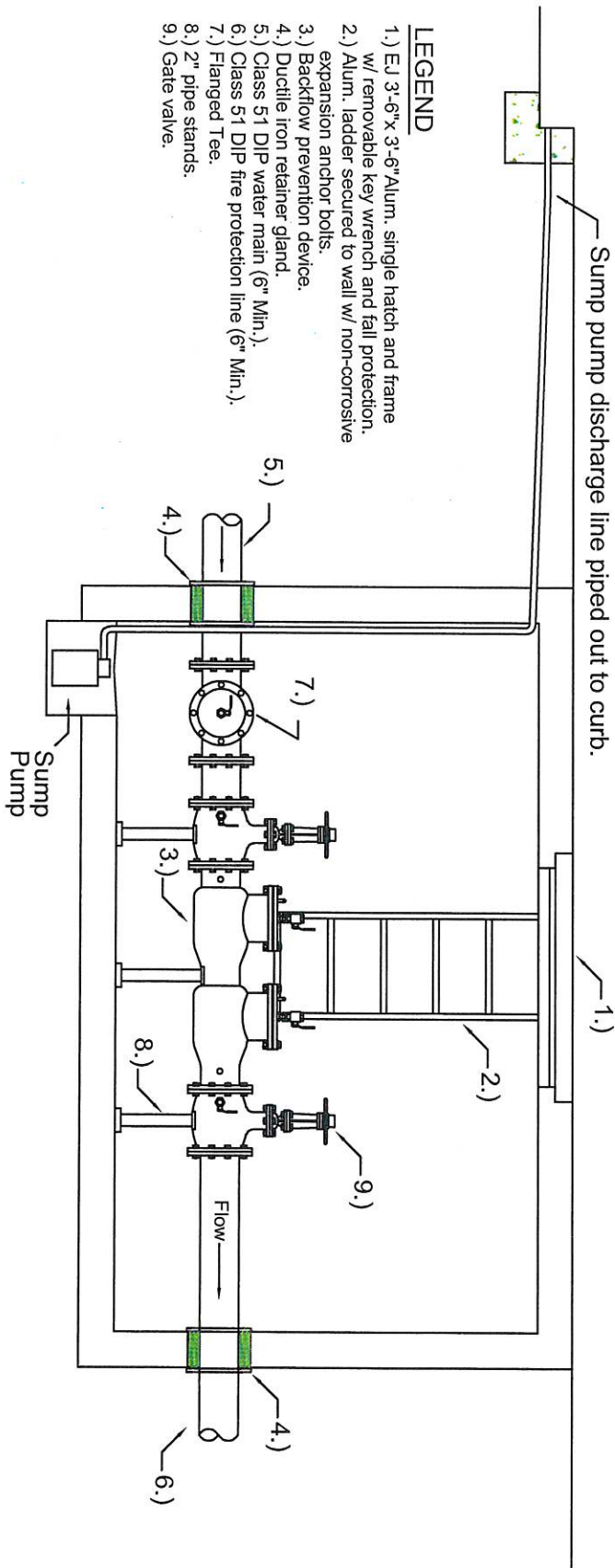
Sep. 2020

Dwg. No.:

SDW - 19



# Elevation View Not to scale



## LEGEND

- 1.) EJ 3'-6"x 3'-6" Alum. single hatch and frame w/ removable key wrench and fall protection.
- 2.) Alum. ladder secured to wall w/ non-corrosive expansion anchor bolts.
- 3.) Backflow prevention device.
- 4.) Ductile iron retainer gland.
- 5.) Class 51 DIP water main (6" Min.).
- 6.) Class 51 DIP fire protection line (6" Min.).
- 7.) Flanged Tee.
- 8.) 2" pipe stands.
- 9.) Gate valve.

## GENERAL NOTES

- 1.) Vault may have gravity drain to daylight where feasible.
- 2.) All seams and any lift holes inside the vault shall be grouted.
- 3.) All pipes entering the vault must be grouted in place.



Fire Protection Vault (Elev. View)

Scale:

1" = 30"

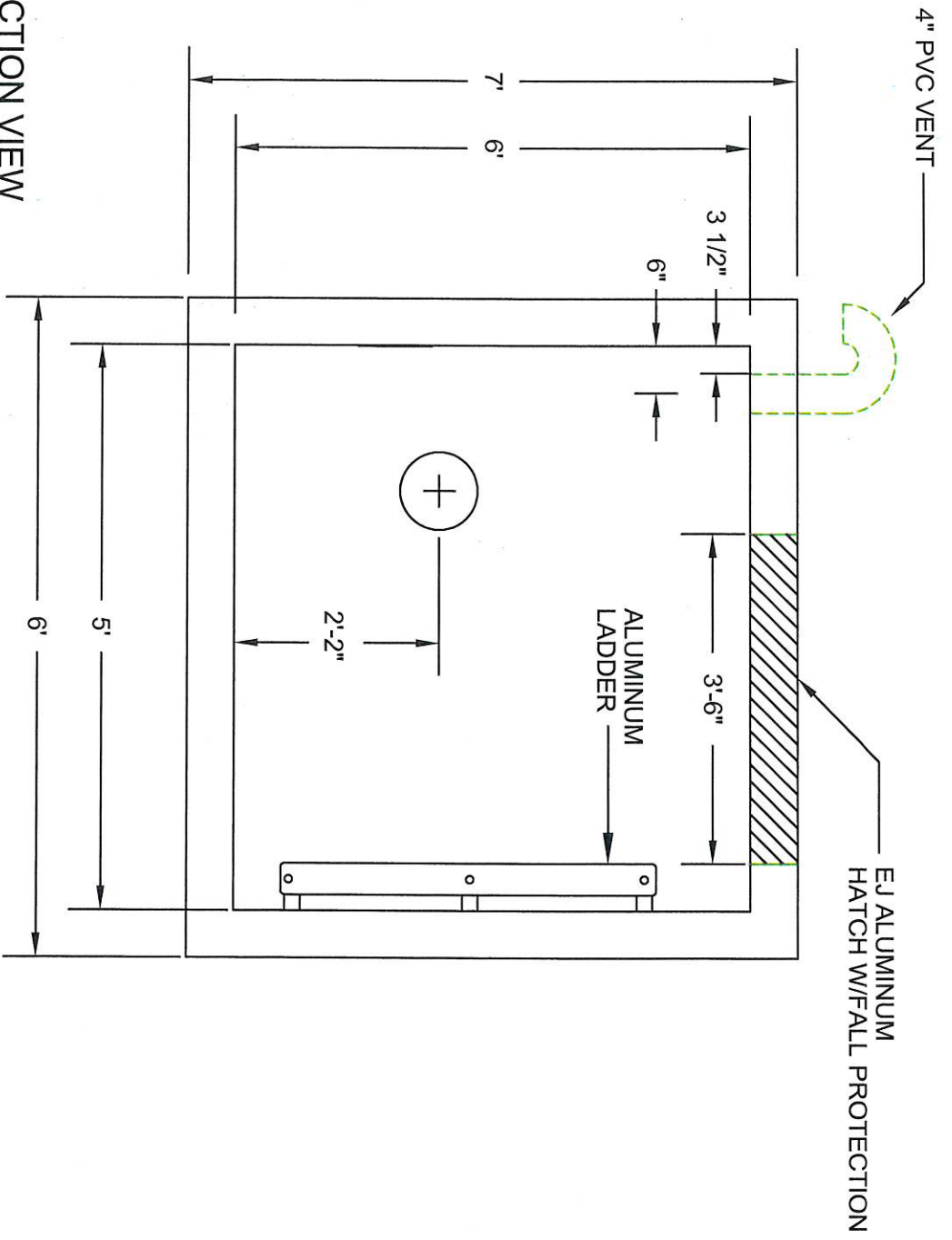
Date:

Sep. 2020

Dwg. No.:

SDW - 19A





VAULT SECTION VIEW



Fire Protection Vault (Section View)

Scale:

1" = 24"

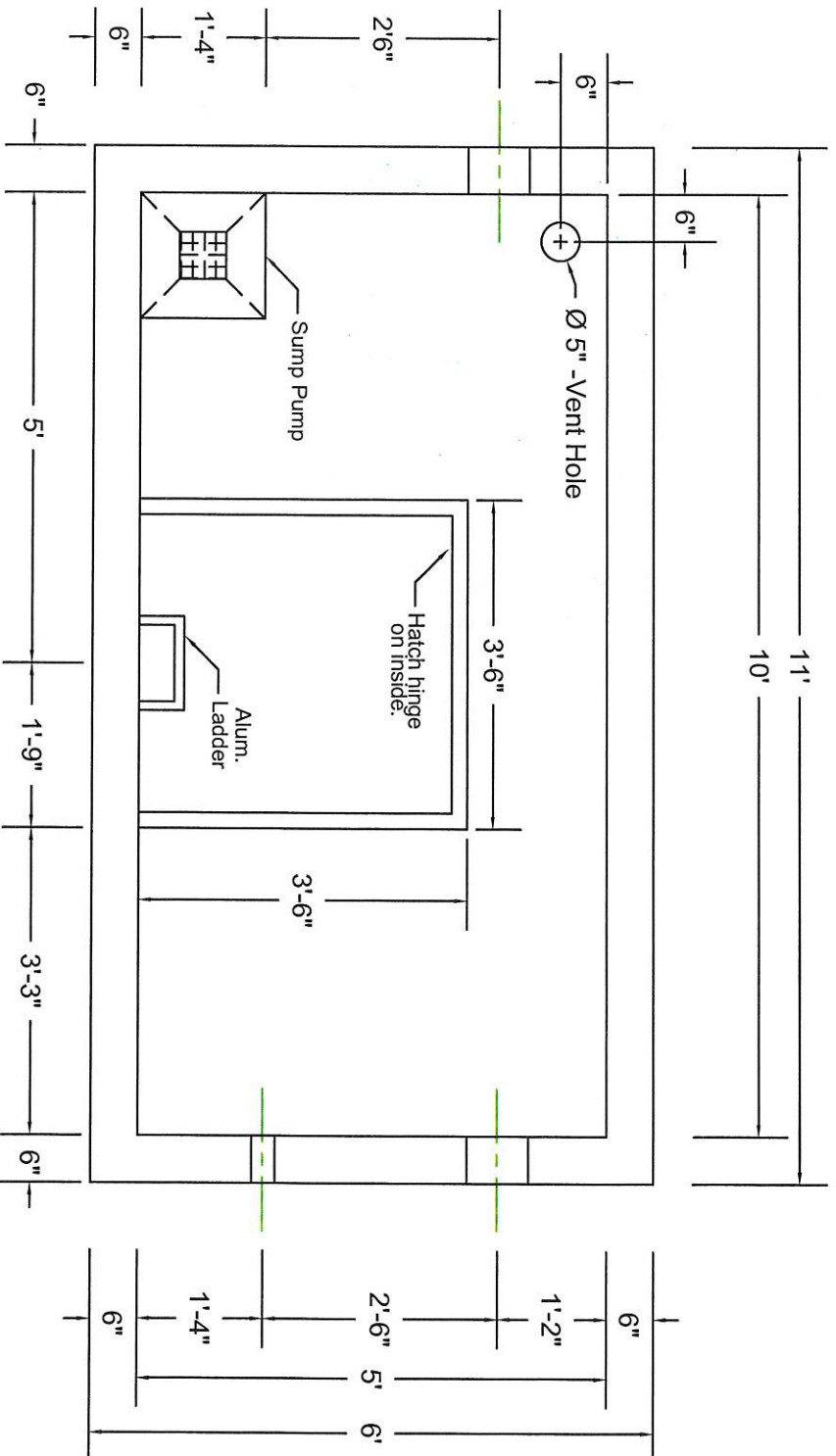
Date:

July 2019

Dwg. No.:

SDW - 20





Vault Top View

### General Notes

- 1.) Vault may have gravity drain to day light where feasible.
- 2.) All seams and any lift holes inside the vault shall be grouted.
- 3.) All pipes entering the vault shall be grouted.
- 4.) The vault floor shall have 1" slope to drain.



### Fire Protection Vault (Top View)

Scale:

1" = 24"

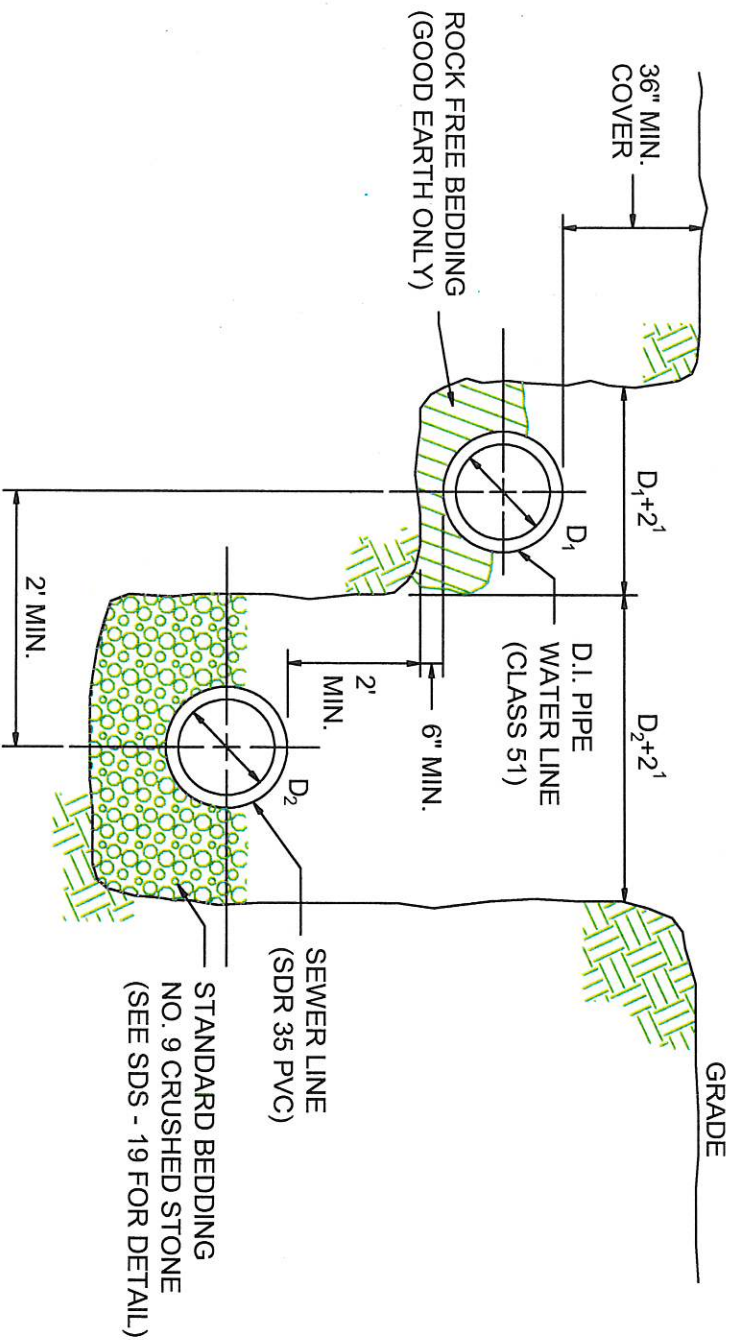
Date:

July 2019

Dwg. No.:

SDW - 21





NOTE:  
WATER LINES AND SEWER LINES LAID ON SAME ELEVATION  
MUST BE SEPERATED A MINIMUM DISTANCE OF 10'.



# Typical Section Through Trench

Scale:

1" = 18"

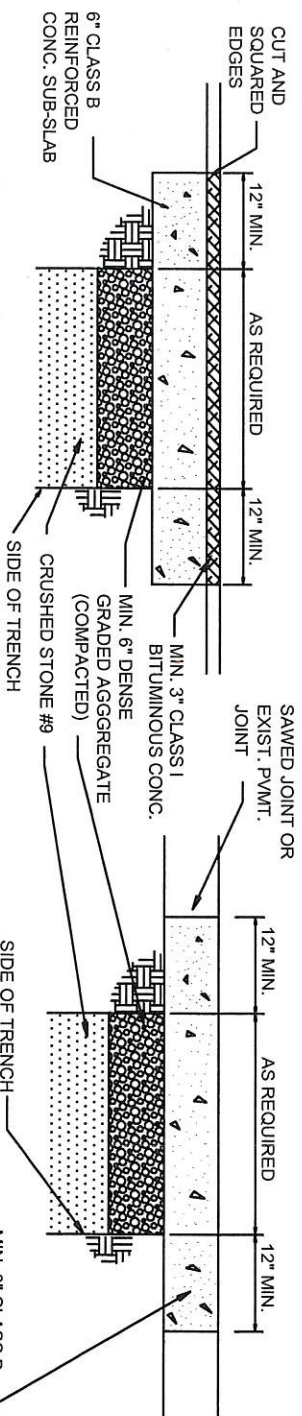
Date:

Apr. 2021

Dwg. No.:

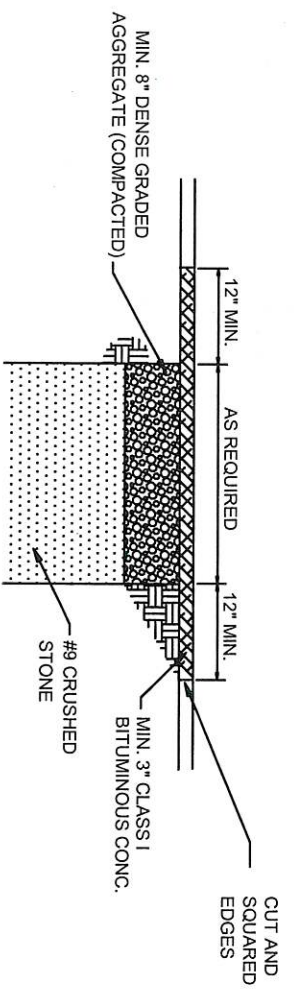
SDW - 22





# HEAVY DUTY BITUMINOUS

# CONCRETE



## NOTE:

Pavement Restoration Requirements of State, County, and City Roadways and Streets will be as dictated by the conditions outlined within the issuing agency's permits.

## LIGHT DUTY BITUMINOUS



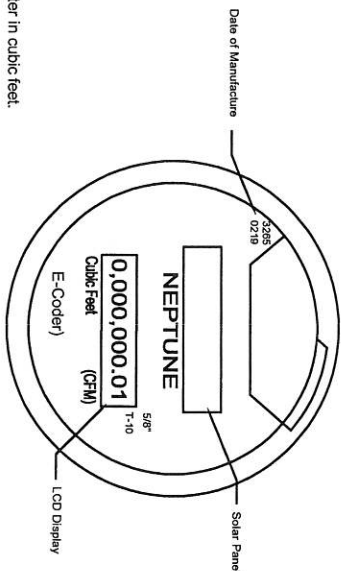
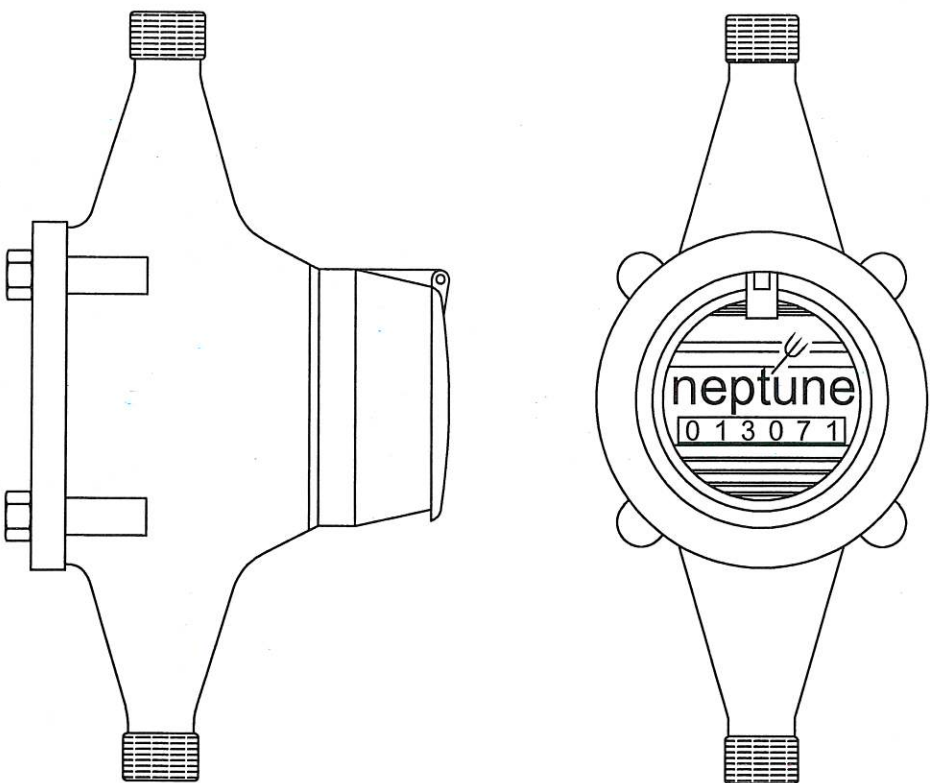
### Pavement Replacement

Scale:	Date:	Dwg. No.:
1" = 24"	Sep. 2020	SDW - 23



# TYPICAL SMALL SIZE METER

5/8" x 3/4", 3/4", 1"



Meter to register in cubic feet.

## WATER METER REGISTER DIAL DETAIL

METER SIZE	NORMAL OPERATING RANGE @ 100% ACCURACY (+/- 5%)	AWWA STANDARD	LOW FLOW @ 85% ACCURACY
5/8" X 3/4"	1/2 to 20 GPM	1 to 20 GPM	1/8 GPM
3/4"	3/4 to 30 GPM	2 to 30 GPM	1/4 GPM
1"	1 to 50 GPM	3 to 50 GPM	3/8 GPM



## Typical Small Size Meter

Scale:

1" = 2.5"

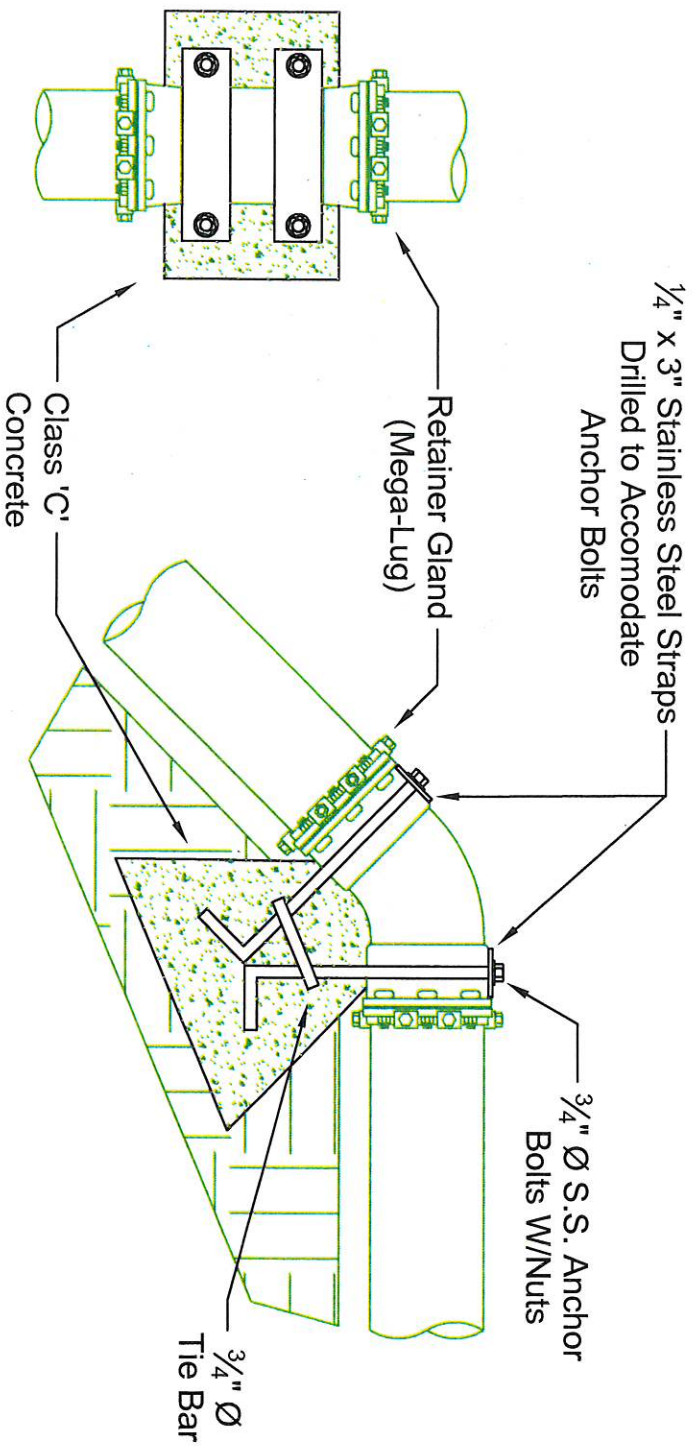
Date:

Apr. 2021

Dwg. No.:

SDW - 24





$$\text{Gravity Block Size (ft}^3\text{)} = \frac{\text{Safety Factor (1.5) x Thrust Force (lb)}}{\text{Density of Block Material (lb/ft}^3\text{)}}$$



### Gravity Thrust Block

Scale:

1" = 12"

Date:

Sept. 04

Dwg. No.:

SDW - 25



- NOTES:

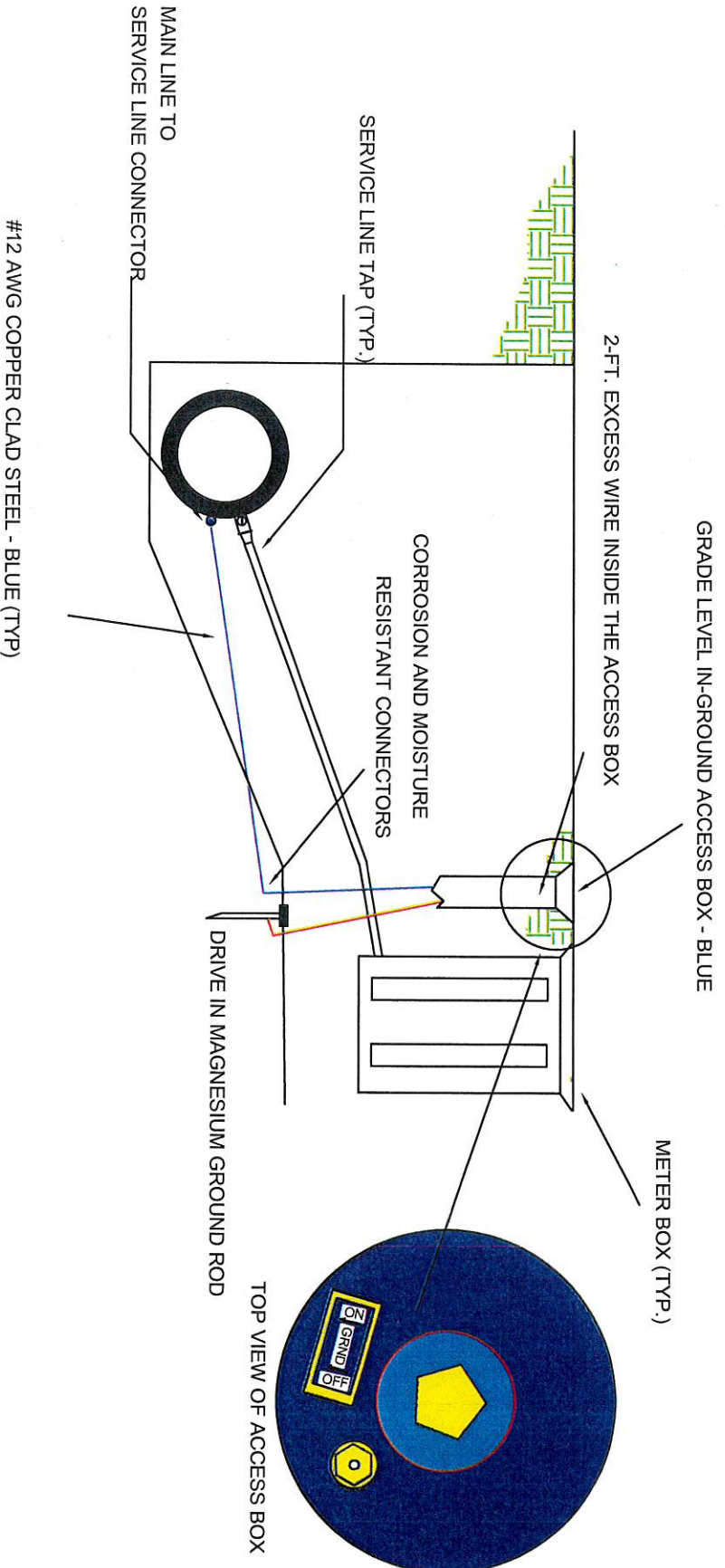


Scale:

Apr.. 2020

SDW - 26





Typical Tracer Wire Detail  
with a Meter Setting

Scale: 1" = 18"	Date: Apr. 2021	Dwg. No.: SDW - 27
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NOTE:  
2- FEET OF EXCESS / SLACK  
AT THE BASE OF THE CONDUIT

FIRE HYDRANT MOUNTED  
ACCESS POINT

FINAL GRADE

Bury

HDPE OR STAINLESS STEEL BRACKET SECURED TO GRADE FLANGE

2 PIECE ADJUSTABLE VALVE BOX  
TYLER 6855 SERIES , MODEL 562-A  
OR APPROVED EQUAL

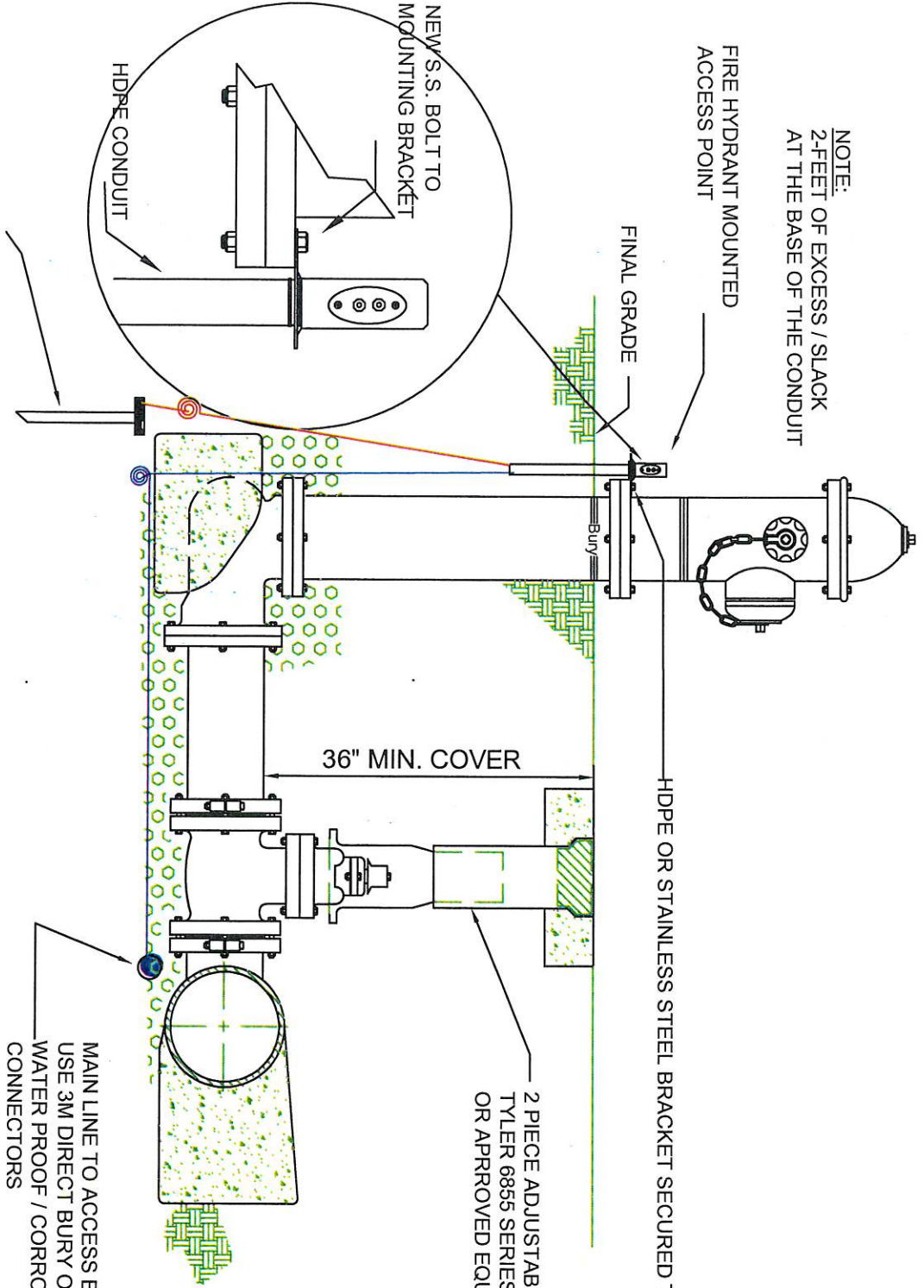
36" MIN. COVER

MAIN LINE TO ACCESS BOX CONNECTOR  
USE 3M DIRECT BURY OR COPPERHEAD  
WATER PROOF / CORROSION RESISTANT  
CONNECTORS

NEW S.S. BOLT TO  
MOUNTING BRACKET

HDPE CONDUIT

DRIVE IN MAGNESIUM  
GROUND ROD



Typical Fire Hydrant Setting  
With Tracer Wire

Scale:

NTS

Date:

Apr. 2021

Dwg. No.:

SDW - 28