

NOTES:

1. THIS STANDARD APPLICABLE FOR ALL WATER AND SEWER MAINS INSTALLED UNDER VDOT ROADWAYS.
2. STEEL CASING TO EXTEND TO BACK OF CURB, DITCH, SIDEWALK, ETC., OR A MINIMUM OF 5' BEYOND THE EDGE OF PAVEMENT. WHERE INSTALLED THROUGH FILL SLOPE, CASING TO BE EXTENDED FAR ENOUGH TO PREVENT SLOPE/ROADWAY DAMAGE OR AS REQUIRED BY VDOT.
3. CASING FOR GRAVITY SEWER MUST SLOPE ACCORDING TO PLANS.
4. RAILROAD CROSSING REQUIREMENTS SHALL BE IN ACCORDANCE WITH RAILROAD STANDARDS AND PERMITS.
5. CARRIER PIPE SHALL BE DUCTILE IRON FOR WATER. CARRIER PIPE SHALL BE C900 THICKNESS CLASS DR-18 OR AS REQUIRED BY ACSA FOR SEWER. ALL CARRIER PIPES SHALL BE MECHANICALLY RESTRAINED. TR FLEX OR AN APPROVED EQUAL IS PERMITTED.

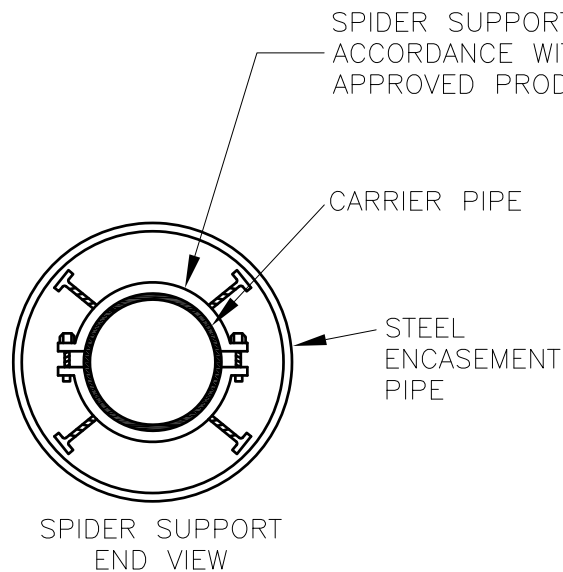
EXTERNAL MECHANICAL RESTRAINT ONLY – NO INTERNAL LOCKING GASKETS (SEE NOTE 5).

SPIDER SUPPORT

END SEAL WITH STAINLESS STEEL CLAMP

SPACING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

WATER OR SEWER CARRIER PIPE. SEE NOTE 5.



AUGUSTA COUNTY SERVICE AUTHORITY VERONA, VIRGINIA	
SCALE: NTS	DRAWN BY: ACSA
DATE: FEB.1996	REVISED: MAR. 2021
TYPICAL SLEEVE UNDER ROADWAY	
DRAWING NUMBER: G-1	PAGE: 1 OF 1

RAILROAD CROSSINGS SHALL BE IN ACCORDANCE WITH
NSCE-8 LATEST REVISION
AND RAILROAD PERMIT

AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA

SCALE: NA

DRAWN BY: ACSA

DATE: FEB.1996

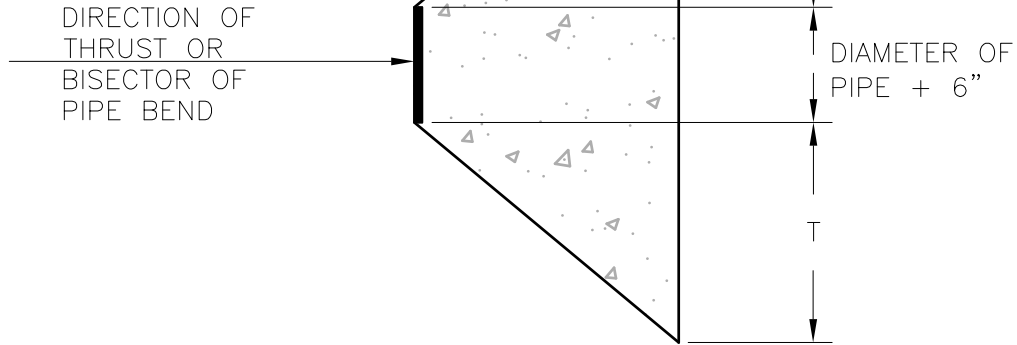
DATE: OCT. 2012

TYPICAL SLEEVE UNDER RAILWAY

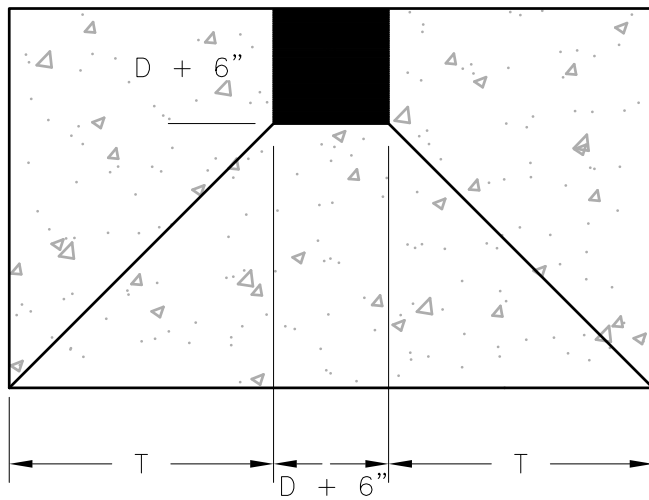
DRAWING NUMBER: G-2

PAGE: 1 OF 1

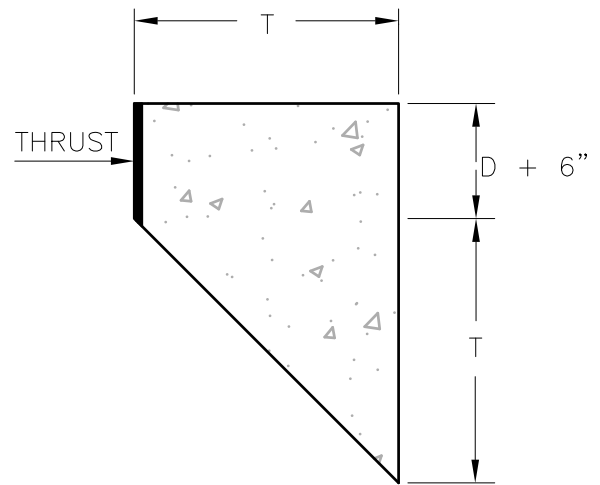
USE TWO LAYERS OF
15 LB. BUILDER'S
FELT ON FITTINGS



PLAN



FRONT



SIDE

NOTES:

1. FITTING FLANGE BOLTS SHALL REMAIN FREE OF CONCRETE.
2. DO NOT BACKFILL UNTIL CONCRETE HAS SET FOR A MINIMUM OF 4 HOURS.
3. PIPELINE SHALL NOT BE CHARGED OR TESTED UNTIL CONCRETE HAS ACHIEVED FULL (5 DAYS) STRENGTH.
4. SEE G-3B FOR "T" VALUES FOR THRUST BLOCKS.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: AUG. 2004

REVISED: MAR. 2021

**TYPICAL THRUST BLOCK DETAIL
FOR HORIZONTAL AND
SAG VERTICAL ANCHORS**

DRAWING NUMBER: G-3A

PAGE: 1 OF 2

Computation of T values for Thrust Blocks

Test pressure (psi) 150

Pipe Diameter (in)	T value in feet				
	90 degree bend	45 degree bend	22.5 degree bend	11.5 degree bend	Dead End
4	0.25	0.25	0.25	0.25	0.5
6	0.5	0.25	0.25	0.25	0.75
8	1	0.5	0.25	0.25	1.25
10	1.25	0.75	0.5	0.25	1.75
12	1.5	1	0.5	0.25	2
14	2	1.25	0.75	0.25	2.5
16	2.25	1.5	0.75	0.5	2.75

Test pressure (psi) 200

Pipe Diameter (in)	T value in feet				
	90 degree bend	45 degree bend	22.5 degree bend	11.5 degree bend	Dead End
4	0.5	0.25	0.25	0.25	0.5
6	0.75	0.5	0.25	0.25	1
8	1.25	0.75	0.25	0.25	1.5
10	1.5	1	0.5	0.25	2
12	2	1.25	0.75	0.5	2.5
14	2.25	1.5	1	0.5	3
16	2.75	1.75	1	0.5	3.5

Test pressure (psi) 250

Pipe Diameter (in)	T value in feet				
	90 degree bend	45 degree bend	22.5 degree bend	11.5 degree bend	Dead End
4	0.5	0.25	0.25	0.25	0.75
6	1	0.5	0.25	0.25	1.25
8	1.5	1	0.5	0.25	1.75
10	1.75	1.25	0.75	0.25	2.25
12	2.25	1.5	1	0.5	2.75
14	2.75	1.75	1	0.5	3.5
16	3.25	2	1.25	0.75	4

Test pressure (psi) 300

Pipe Diameter (in)	T value in feet				
	90 degree bend	45 degree bend	22.5 degree bend	11.5 degree bend	Dead End
4	0.5	0.25	0.25	0.25	0.75
6	1	0.75	0.25	0.25	1.5
8	1.5	1	0.5	0.25	2
10	2	1.25	0.75	0.5	2.75
12	2.5	1.75	1	0.5	3.25
14	3	2	1.25	0.75	3.75
16	3.5	2.25	1.5	0.75	4.25

Thrust = 2PAsin(delta/2)

P = pressure in PSI

A = pipe cross sectional area

Assume soil bearing capacity = 2000 psf

Bearing Area = $2T^2 + 3T(D+6") + (D+6")^2$

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NA

DRAWN BY: ACSA

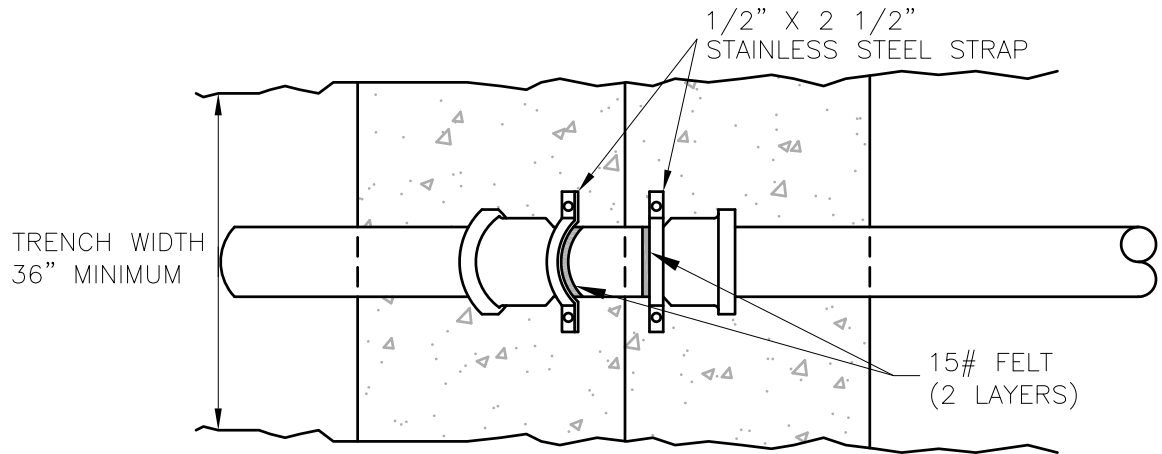
DATE: AUG. 2004

REVISED: OCT. 2012

**TYPICAL THRUST BLOCK DETAIL (GENERAL)
FOR HORIZONTAL AND
SAG VERTICAL ANCHORS**

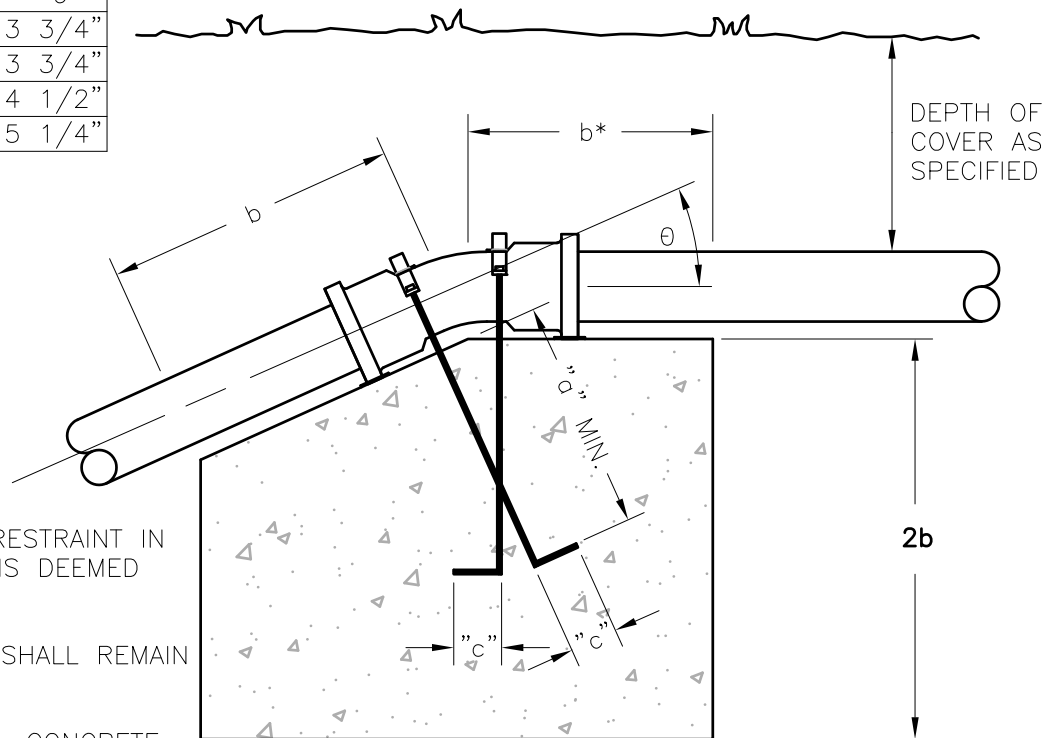
DRAWING NUMBER: G-3B

PAGE: 2 OF 2



PLAN

STEEL ANCHOR BOLT SIZE			
b	dia.	a	c
0 to 1'-0"	5/8"	8"	3 3/4"
1'-1" to 2'-6"	5/8"	12"	3 3/4"
2'-7" to 3'-0"	3/4"	12"	4 1/2"
3'-1" to 3'-5"	7/8"	12"	5 1/4"



PROFILE

NOTES:

- FOR USE ONLY WHEN RESTRAINT IN ACCORDANCE WITH W-11 IS DEEMED TO BE NON-APPLICABLE.
- FITTING FLANGE BOLTS SHALL REMAIN FREE OF CONCRETE.
- DO NOT BACKFILL UNTIL CONCRETE HAS SET FOR A MINIMUM OF 4 HOURS.
- PIPELINE SHALL NOT BE CHARGED OR TESTED UNTIL CONCRETE HAS ACHIEVED FULL STRENGTH.
- SEE G-4B FOR "b" VALUES FOR THRUST BLOCKS.
- REDUCE "b" DIMENSION IN SOLID ROCK AS APPROVED BY ENGINEER.
- EXPOSED BOLTS, STRAPS, AND NUTS SHALL BE PAINTED WITH APPROVED BITUMASTIC PAINT.
- PLACE TWO LAYERS OF 15 LB. BUILDERS FELT BETWEEN FITTING/BOLTS AND CONCRETE AND BETWEEN STAINLESS STEEL STRAPS AND PIPE FITTING.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: AUG. 2004

REVISED: MAR. 2021

**TYPICAL THRUST BLOCK DETAIL
VERTICAL CREST ANCHORS**

DRAWING NUMBER: G-4A

PAGE: 1 OF 2

VALUES OF b IN FEET FOR VERTICAL PIPE ANCHORS

Trench Width = 3.0' Depth of Cover = 42"

b as shown	Size	Test Pressure					
		50	100	150	200	250	300
<u>Angle=45 degrees</u>	4 In.	0.50	0.65	0.85	1.01	1.15	1.27
	6 In.	0.70	1.07	1.35	1.58	1.78	1.95
	8 In.	0.99	1.47	1.83	2.13	2.39	2.63
	10 In.	1.27	1.86	2.31	2.68	3.01	3.30
	12 In.	1.55	2.25	2.78	3.23	3.62	3.97
	14 In.	1.80	2.50	3.10	3.50	3.90	4.30
	16 In.	2.00	2.90	3.50	4.00	4.50	4.90
<u>Angle=22.5 degrees</u>	4 In.	0.50	0.50	0.52	0.64	0.74	0.82
	6 In.	0.50	0.68	0.88	1.04	1.18	1.30
	8 In.	0.61	0.96	1.21	1.42	1.60	1.76
	10 In.	0.81	1.23	1.54	1.80	2.02	2.22
	12 In.	1.00	1.49	1.86	2.17	2.44	2.68
	14 In.	1.30	1.90	2.30	2.60	2.90	3.20
	16 In.	1.50	2.10	2.60	3.00	3.33	3.60
<u>Angle=11.25 degrees</u>	4 In.		0.50	0.50	0.50	0.50	0.51
	6 In.	0.50	0.50	0.55	0.67	0.77	0.86
	8 In.	0.50	0.60	0.79	0.94	1.08	1.19
	10 In.	0.50	0.81	1.02	1.21	1.37	1.51
	12 In.	0.61	0.98	1.25	1.47	1.66	1.83
	14 in.	1.00	1.30	1.60	1.90	2.10	2.30
	16 in.	1.10	1.50	1.90	2.10	2.40	2.60

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NONE

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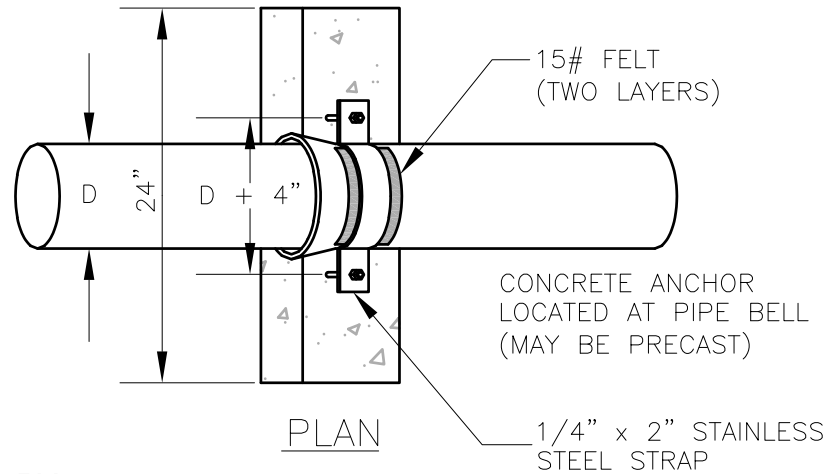
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REVISED: MAR. 2021

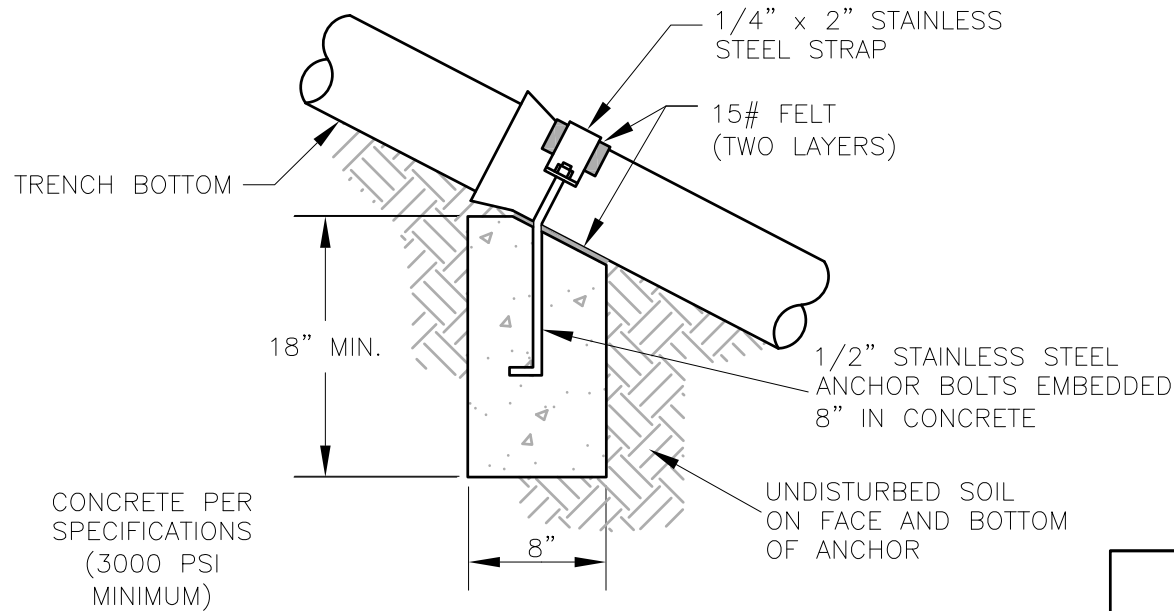
**TYPICAL THRUST BLOCK DETAIL
VERTICAL CREST ANCHORS**

DRAWING NUMBER: G-4B

PAGE: 2 OF 2



PROFILE



PIPE SLOPE (%)	MAXIMUM ANCHOR SPACING
20% TO 40%	EVERY THIRD BELL
>40% TO 60%	EVERY SECOND BELL
>60% OR HIGHER	EVERY BELL

ADDITIONAL ANCHORS MAY BE REQUIRED IF SHOWN ON THE PLANS.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

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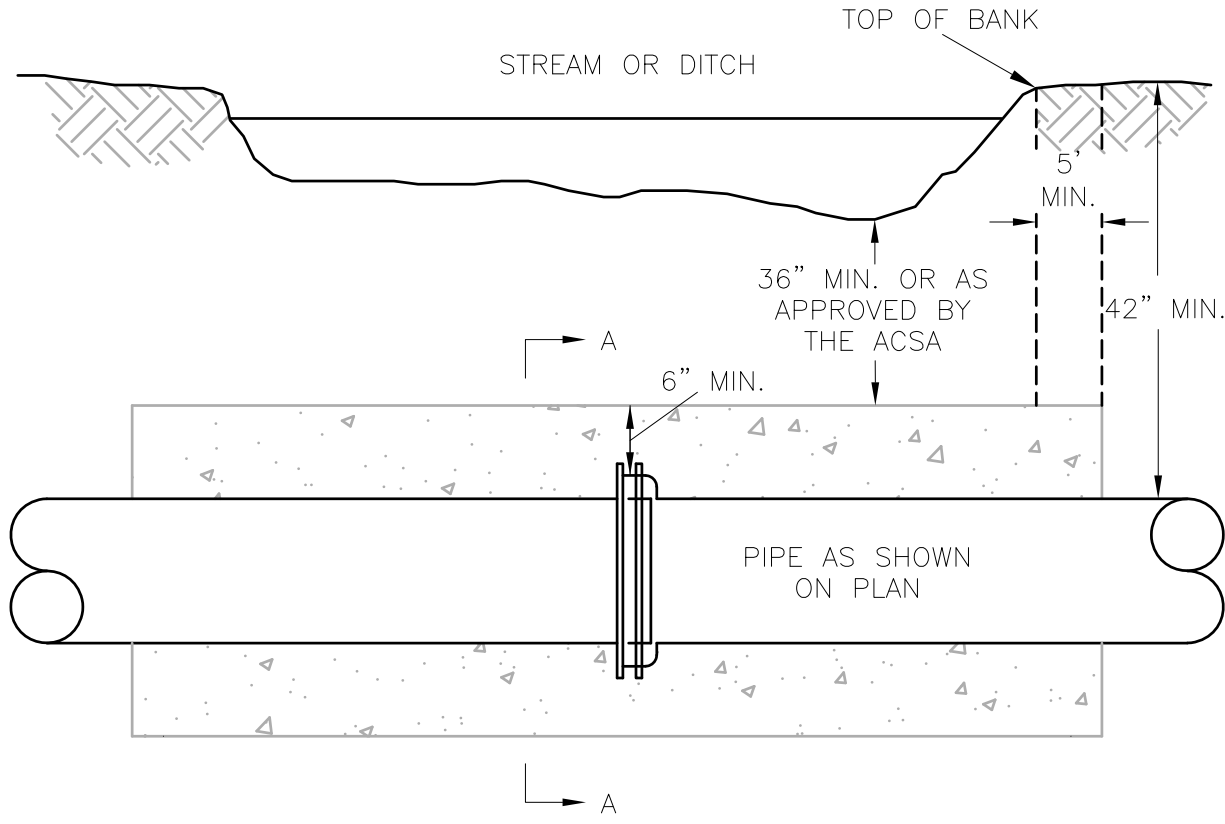
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REVISED: MAR. 2021

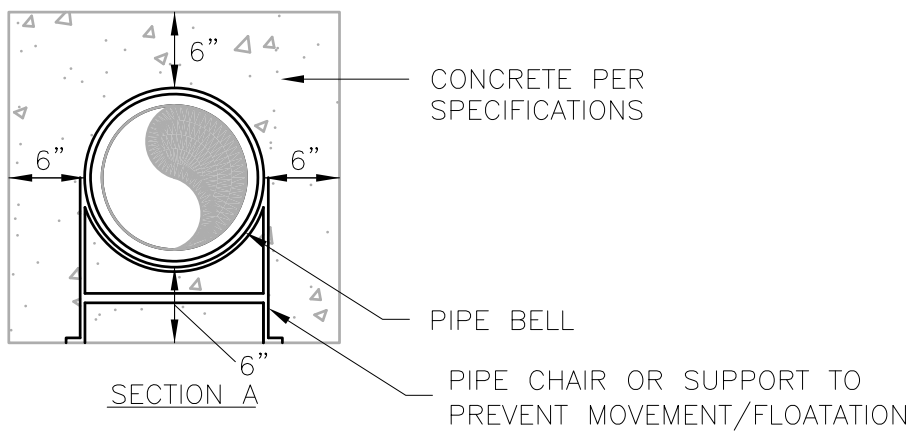
**TYPICAL RESTRAINT DETAIL
FOR SLOPES OVER 20%**

DRAWING NUMBER: G-5

PAGE: 1 OF 1

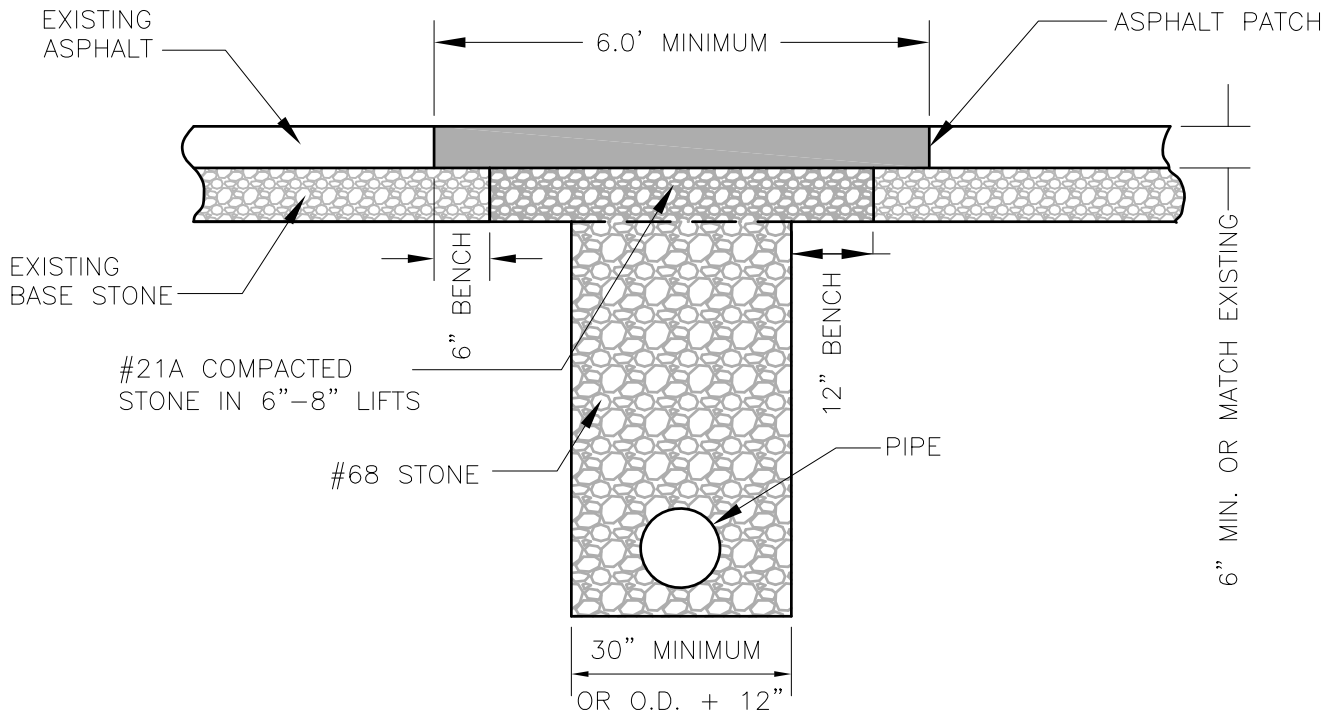


PLAN



NOTES:
 ALL JOINTS IN ENCASEMENT SHALL BE
 MECHANICALLY RESTRAINED

AUGUSTA COUNTY SERVICE AUTHORITY VERONA, VIRGINIA	
SCALE: NTS	DRAWN BY: ACSA
DATE: AUG. 2004	REVISED: APRIL 2021
TYPICAL CONCRETE ENCASEMENT	
DRAWING NUMBER: G-6	PAGE: 1 OF 1



NOTES:

1. REPAIRED SURFACE TO BE AT LEAST AS GOOD AS ORIGINAL SURFACE. FINISHED ASPHALT PATCH SHALL BE OF MATERIAL EQUIVALENT TO EXISTING.
2. ASPHALT TO BE PLACED WITHIN 10 WORKING DAYS OF UTILITY INSTALLATION OR REPAIR. (STONE TO BE BROUGHT UP TO STREET SURFACE AND MAINTAINED DURING 10 DAY INTERIM.)
3. NEATLY SAW CUT ALL ASPHALT EDGES PRIOR TO PLACING ASPHALT PATCH.
4. TRAFFIC SAFETY MEASURES ARE REQUIRED IN ACCORDANCE WITH THE LATEST VERSION OF THE VA WORK AREA PROTECTION MANUAL.
5. DURING COLD WEATHER, COLD MIX TO BE USED AS TEMPORARY MEASURE. PERMANENT SM-2A PAVING TO BE PLACED WITHIN 3 WEEKS OF START UP OF HOT MIX PLANTS. CHECK STONE AND REFILL/TAMP AS NECESSARY, AT LEAST WEEKLY, UNTIL RESURFACED.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

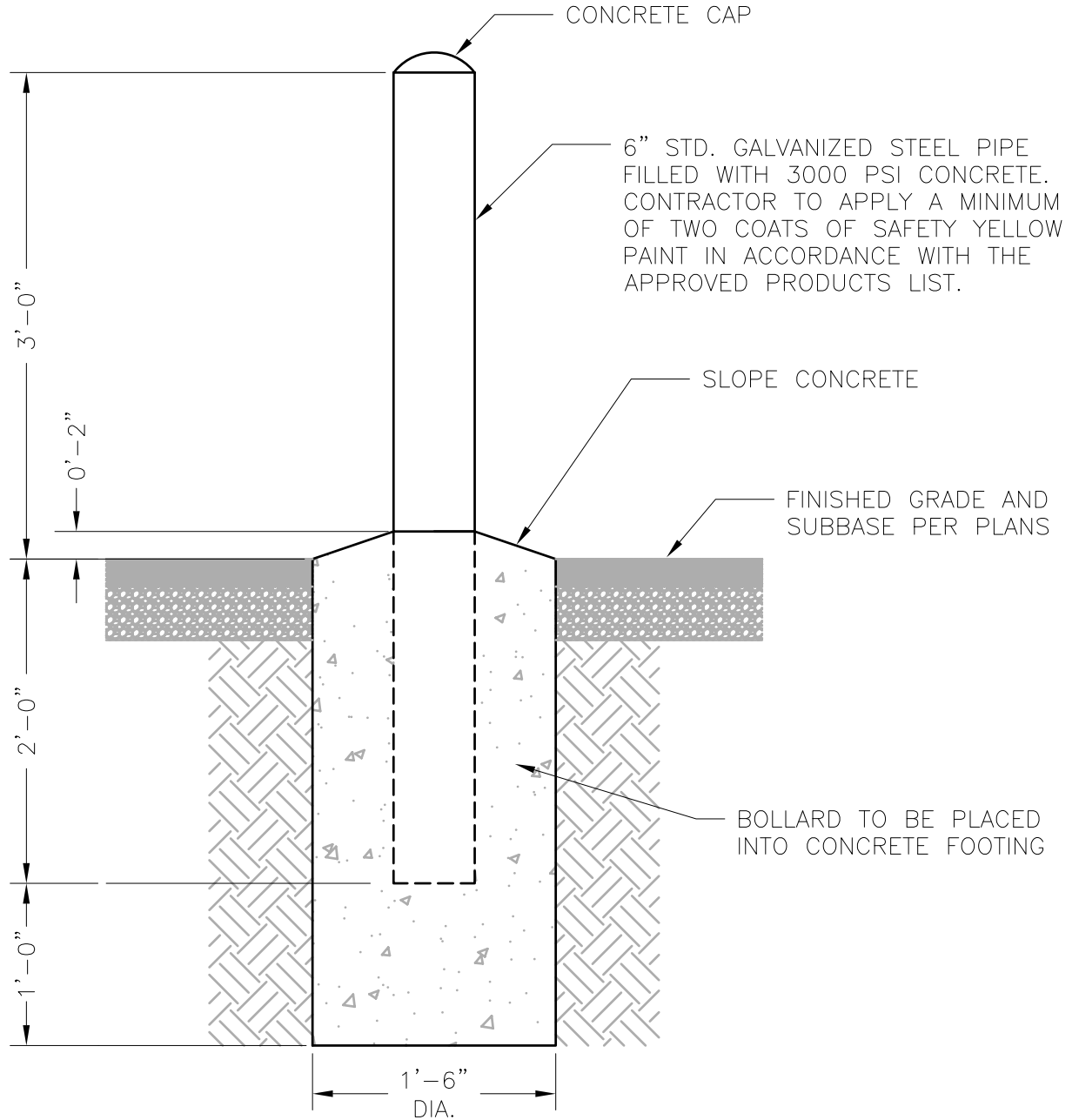
DATE: NOV. 2014

REVISED: MAR. 2021

**TYPICAL PAVEMENT PATCH
FOR PRIVATE PAVED ROADS**

DRAWING NUMBER: G-7

PAGE: 1 OF 1



NOTES:

1. WIRE BRUSH PIPE PRIOR TO PAINTING.
2. REMOVE ANY OIL, GREASE OR OTHER DEBRIS PRIOR TO PAINTING.
3. VIBRATE OR HAND ROD THE CONCRETE TO REMOVE ANY POTENTIAL AIR FROM THE BOLLARD.
4. THE BOLLARD SHALL REMAIN 5' FROM ANY FIRE HYDRANT.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

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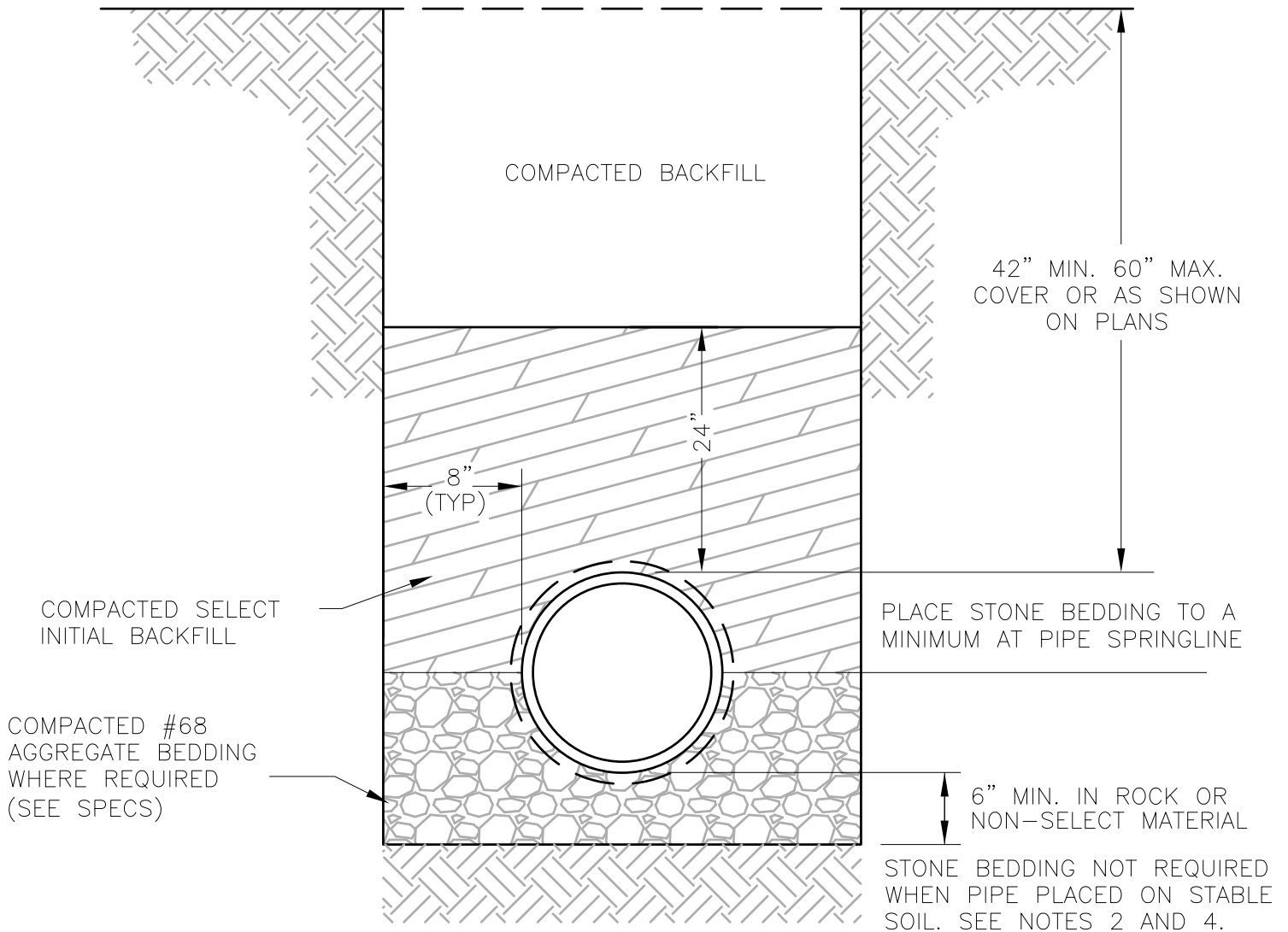
DATE: NOV. 2020

REVISED:

TYPICAL PIPE BOLLARD

DRAWING NUMBER: G-8

PAGE: 1 OF 1



NOTES:

1. SELECT BACKFILL SHALL BE COMPACTED IN 6" LIFTS.
2. IF PREFERRED MATERIAL IS NOT AVAILABLE ON SITE, IT IS TO BE BROUGHT IN.
3. WHEN SELECT BACKFILL NOT AVAILABLE - 6" OF #68 STONE REQ'D ABOVE PIPE.
4. BELL HOLES WHERE APPLICABLE SHALL BE PROVIDED FOR EACH JOINT TO ALLOW JOINT ASSEMBLY AND TO ENSURE THAT THE PIPE BARREL WILL BE FLAT ON TRENCH BOTTOM.
5. THIS DETAIL APPLICABLE FOR DEPTHS LESS THAN 14 FEET. SEE PLANS FOR MODIFICATIONS IN DEEPER TRENCHES.
6. WHEN PIPE PLACED ON STABLE SOIL, SCRAPE THE BOTTOM OF THE TRENCH, REMOVE ALL STONES TO ENSURE THE PIPE DOES NOT REST ON ROCK, THEN COMPACT THE SOIL.

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VERONA, VIRGINIA**

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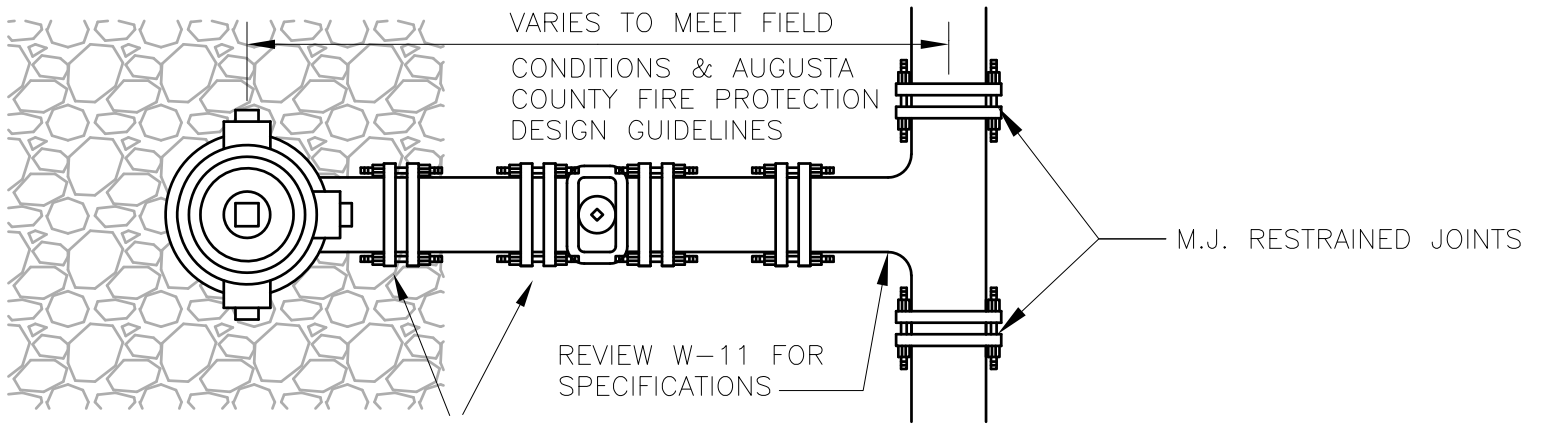
DATE: FEB. 1996

REVISED: OCT. 2020

**TYPICAL DUCTILE IRON PIPE INSTALLATION
AND BEDDING REQUIREMENTS**

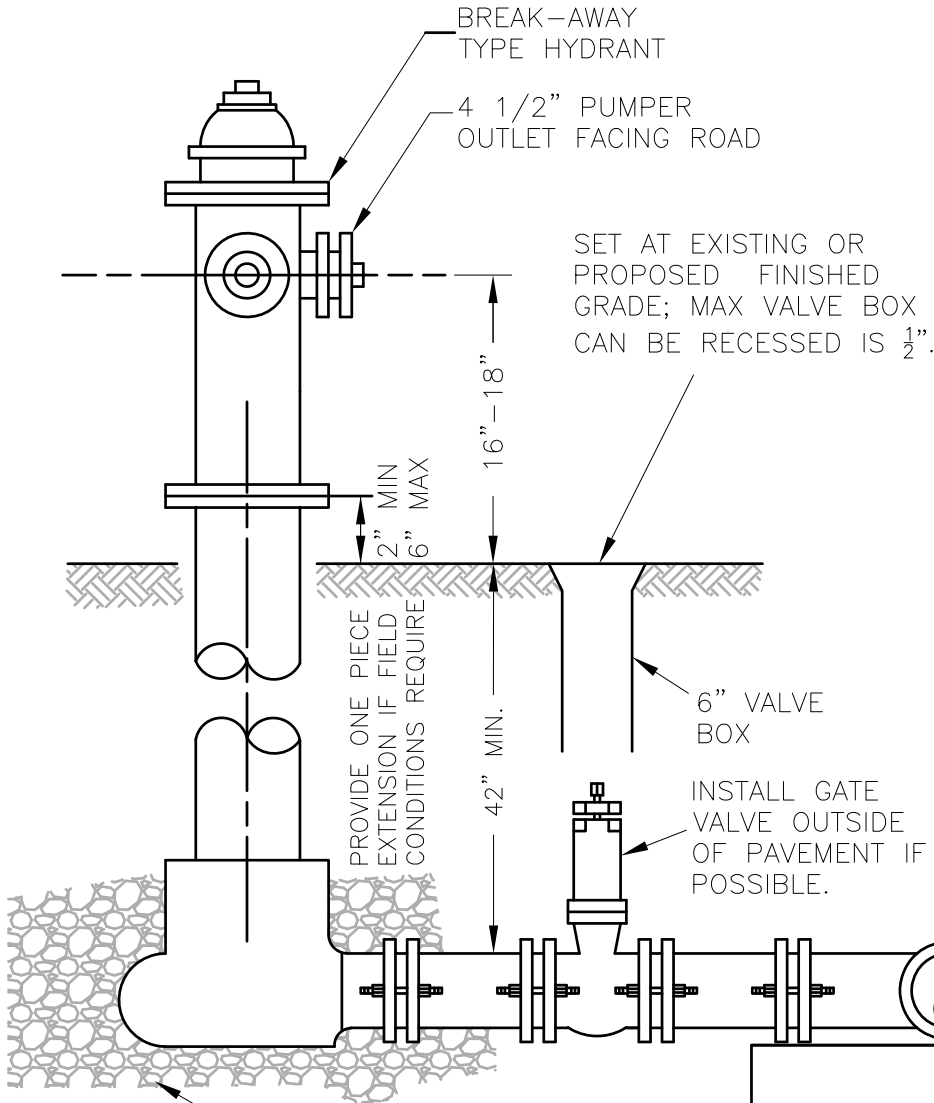
DRAWING NUMBER: W-1

PAGE: 1 OF 1



ALL PIPE & FITTINGS SHALL BE MECHANICALLY RESTRAINED.

PLAN



SEE NOTE 2.

PROFILE

NOTES:

1. IF DRAIN HOLE WILL BE BELOW GROUND WATER LEVELS, CONTRACTOR SHALL CONSULT ACSA ON-SITE REPRESENTATIVE PRIOR TO INSTALLATION.
2. KEEP DRAIN CLEAR AND SURROUND WITH MIN. 0.5 CU. YDS. CLEAN #57 or #68 STONE FOR DRAINAGE.
3. CONTRACTOR TO APPLY PAINT IN ACCORDANCE WITH THE SPECIFICATIONS.
4. BOLLARDS MAY BE REQUIRED WHEN THE HYDRANT LOCATION IS NOT BEHIND A CURB, DITCH OR OTHER PHYSICAL BARRIER.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

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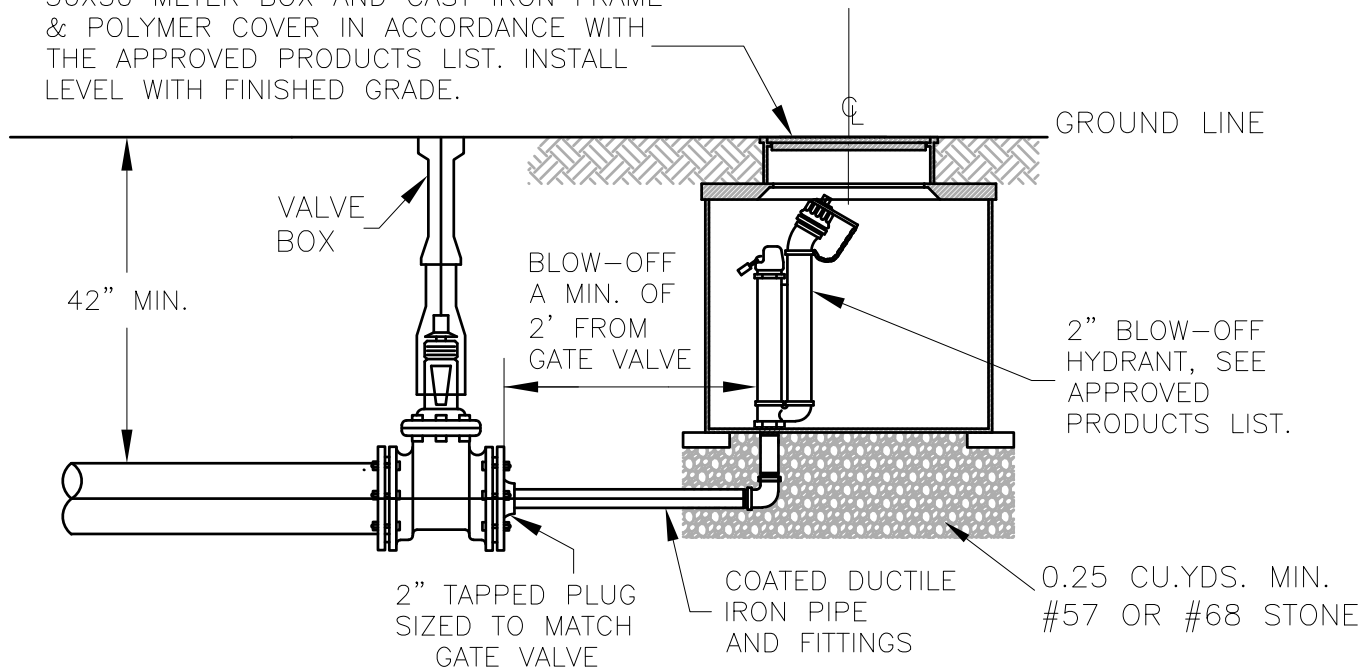
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DATE: FEB. 1996

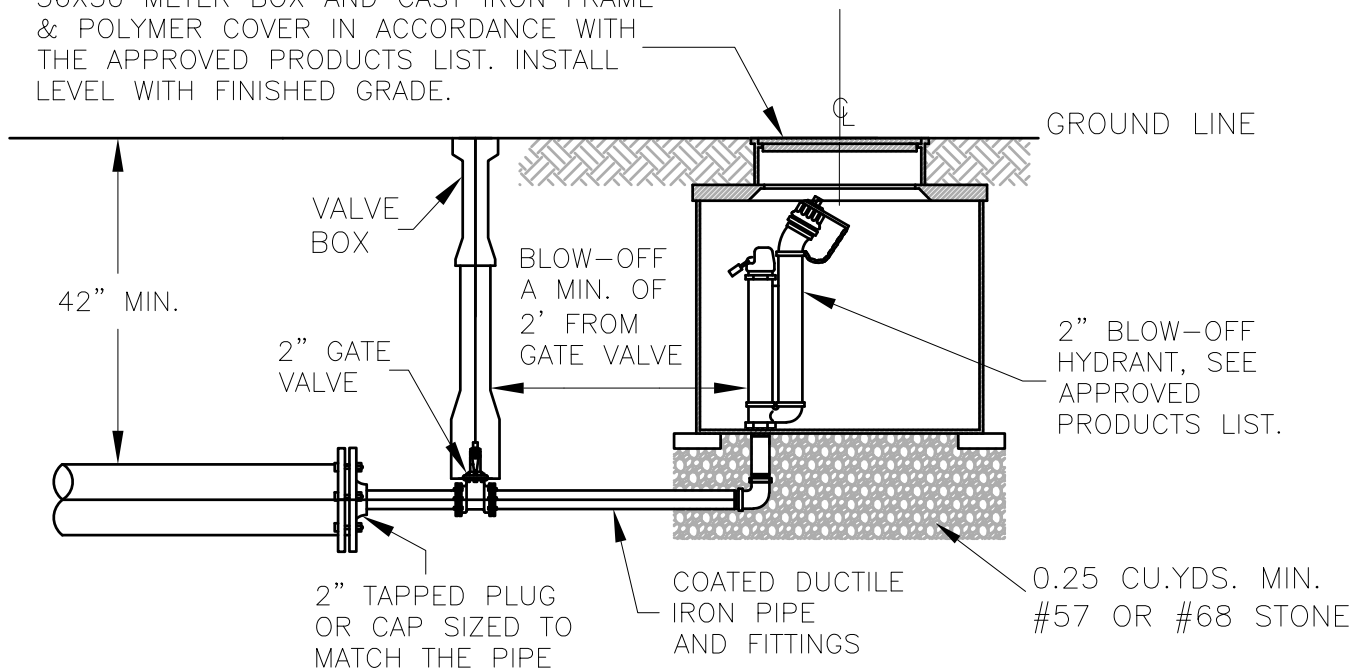
REVISED: OCT. 2020

TYPICAL FIRE HYDRANT INSTALLATION

36X30 METER BOX AND CAST IRON FRAME & POLYMER COVER IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST. INSTALL LEVEL WITH FINISHED GRADE.



36X30 METER BOX AND CAST IRON FRAME & POLYMER COVER IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST. INSTALL LEVEL WITH FINISHED GRADE.



NOTE:
IF DRAIN HOLE WILL BE BELOW GROUND WATER LEVELS, CONTRACTOR SHALL CONSULT ON-SITE REPRESENTATIVE PRIOR TO INSTALLATION.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

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DATE: NOV. 2020

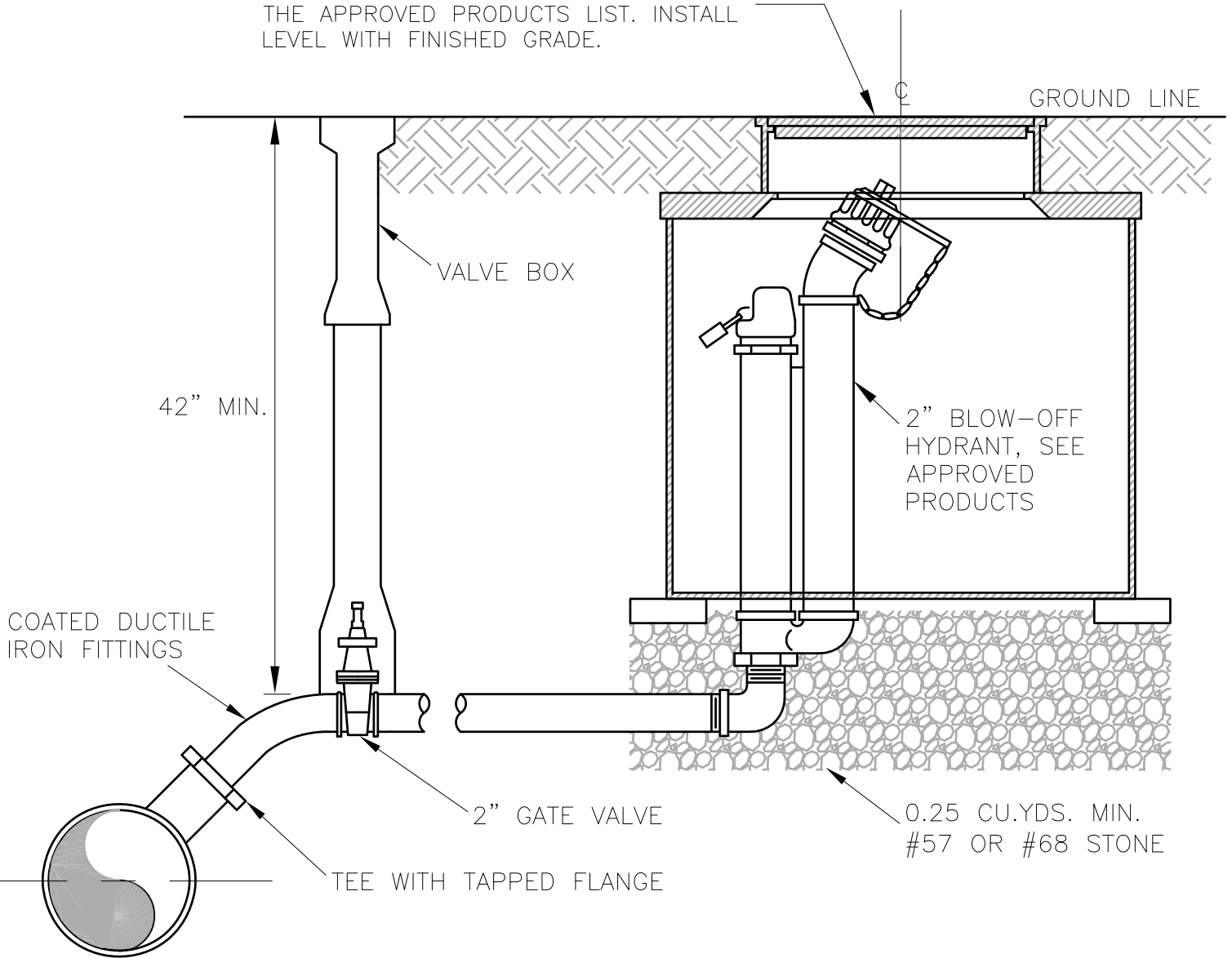
REVISED:

**TYPICAL BLOW-OFF ASSEMBLY
AT END OF GATE VALVE OR PIPE**

DRAWING NUMBER: W-3A

PAGE: 1 OF 1

36X30 METER BOX AND CAST IRON FRAME
& POLYMER COVER IN ACCORDANCE WITH
THE APPROVED PRODUCTS LIST. INSTALL
LEVEL WITH FINISHED GRADE.



NOTE:
IF DRAIN HOLE WILL BE BELOW GROUND WATER
LEVELS, CONTRACTOR SHALL CONSULT ON-SITE
REPRESENTATIVE PRIOR TO INSTALLATION.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: FEB. 1996

REVISED: OCT. 2020

**TYPICAL BLOW-OFF
ASSEMBLY**

DRAWING NUMBER: W-3B

PAGE: 1 OF 1

CONNECT PIPE OR COPPER TUBING TO OUTLET TO EXTEND UP 6". USE FITTINGS AS REQUIRED. PROVIDE SCREENED, DOWNWARD-FACING ELBOW AND PIPE.

36X30 METER BOX AND CAST IRON FRAME & POLYMER COVER IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST. INSTALL LEVEL WITH FINISHED GRADE.

GROUND SURFACE

THREADED OUTLET

AIR RELEASE VALVE AS DETAILED IN SPECIFICATIONS

1" BRONZE BALL VALVE

1" COPPER TUBING

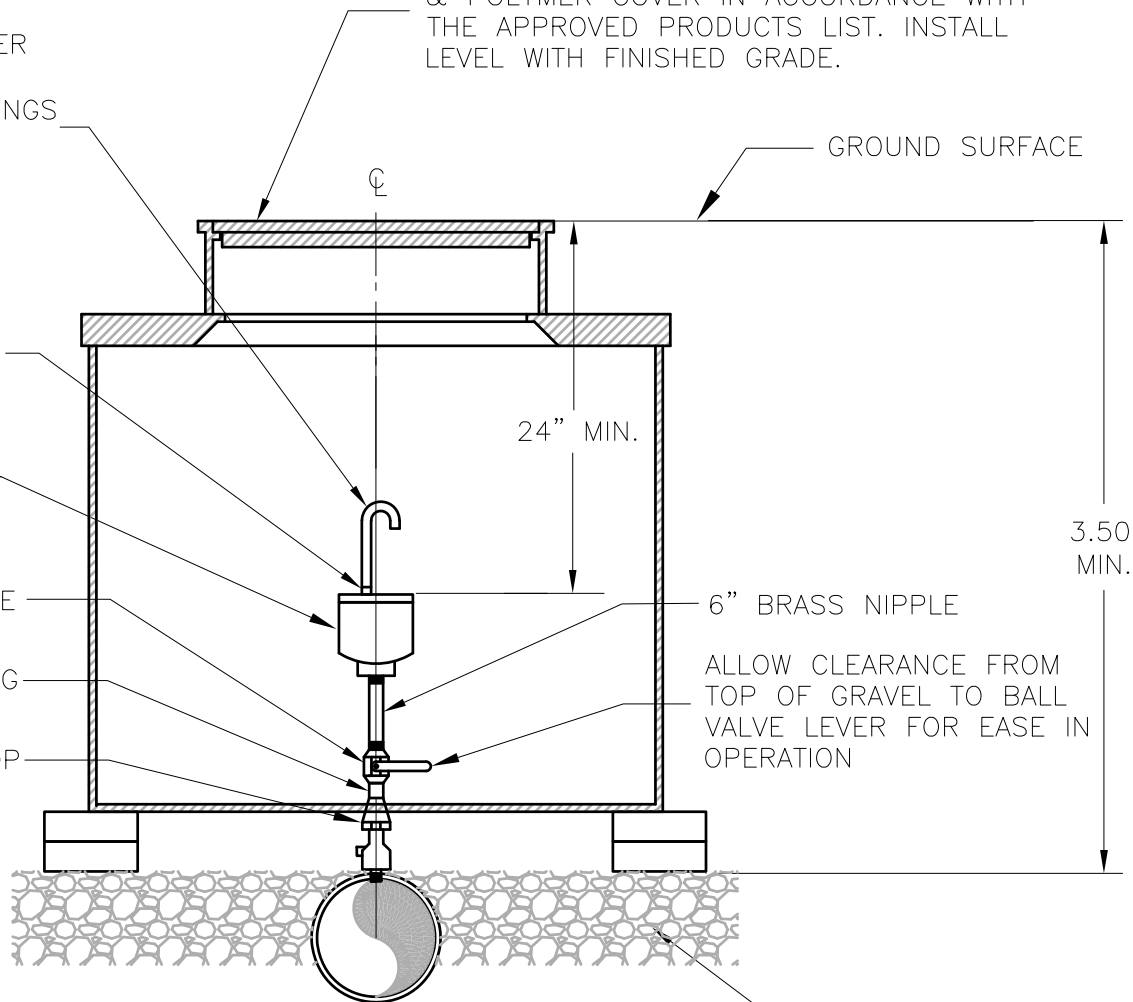
CORPORATION STOP

24" MIN.

6" BRASS NIPPLE

ALLOW CLEARANCE FROM TOP OF GRAVEL TO BALL VALVE LEVER FOR EASE IN OPERATION

3.50' MIN.



#68 STONE TO TOP OF PIPE (SANDSTONE REQUIRED WHERE CONTACT WITH COPPER IS POSSIBLE)

NOTES:
1. SIZE OF AIR RELEASE VALVE AND ORIFICE AS SPECIFIED.

2. THIS DETAIL SHALL NOT BE USED IN AREAS OF HIGH GROUNDWATER. SHOULD EVIDENCE OF HIGH GROUNDWATER BE FOUND DURING CONSTRUCTION, USE 1"X6" NIPPLES TO RAISE THE ELEVATION OF THE DOWNWARD FACING ELBOW AND PIPE.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: FEB. 1996

REVISED: APRIL 2021

TYPICAL AIR RELEASE VALVE INSTALLATION

DRAWING NUMBER: W-4A

PAGE: 1 OF 1

CONNECT PIPE OR COPPER TUBING TO OUTLET TO EXTEND UP 6". USE FITTINGS AS REQUIRED. PROVIDE SCREENED, DOWNWARD-FACING ELBOW AND PIPE.

FRAME AND COVER (LABELED WATER) SHALL BE BOLTED TO THE MANHOLE USING ZINC COATED $\frac{3}{4}$ " WEDGE ANCHORS OR ZINC COATED FLUSH DROP IN STYLE ANCHORS WITH $\frac{3}{4}$ " STAINLESS STEEL ALL THREAD.

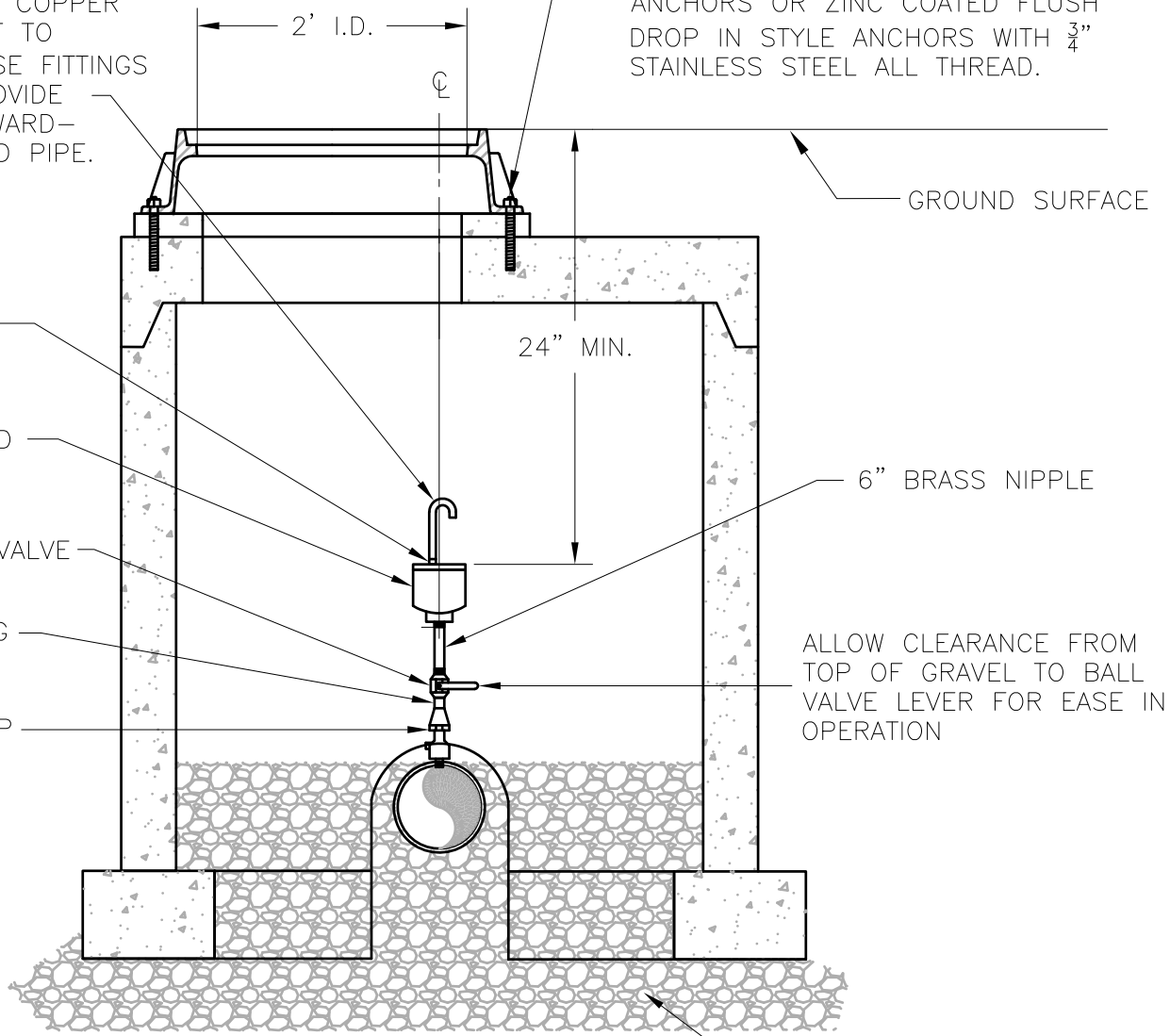
THREADED OUTLET

AIR RELEASE VALVE AS DETAILED IN SPECIFICATIONS

1" BRONZE BALL VALVE

1" COPPER TUBING

CORPORATION STOP



GROUND SURFACE

24" MIN.

6" BRASS NIPPLE

ALLOW CLEARANCE FROM TOP OF GRAVEL TO BALL VALVE LEVER FOR EASE IN OPERATION

#68 STONE TO TOP OF PIPE (SANDSTONE REQUIRED WHERE CONTACT WITH COPPER IS POSSIBLE)

NOTES:

1. SIZE OF AIR RELEASE VALVE AND ORIFICE AS SPECIFIED.
2. VALVE SHALL BE HOUSED IN A DOG-HOUSE MANHOLE WITH A 4' INSIDE DIAMETER. FLAT TOP SHALL BE TRAFFIC RATED (H20).
3. THIS DETAIL SHALL NOT BE USED IN AREAS OF HIGH GROUNDWATER. SHOULD EVIDENCE OF HIGH GROUNDWATER BE FOUND DURING CONSTRUCTION, USE 1"x6" NIPPLES TO RAISE THE ELEVATION OF THE DOWNWARD FACING ELBOW AND PIPE.

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VERONA, VIRGINIA**

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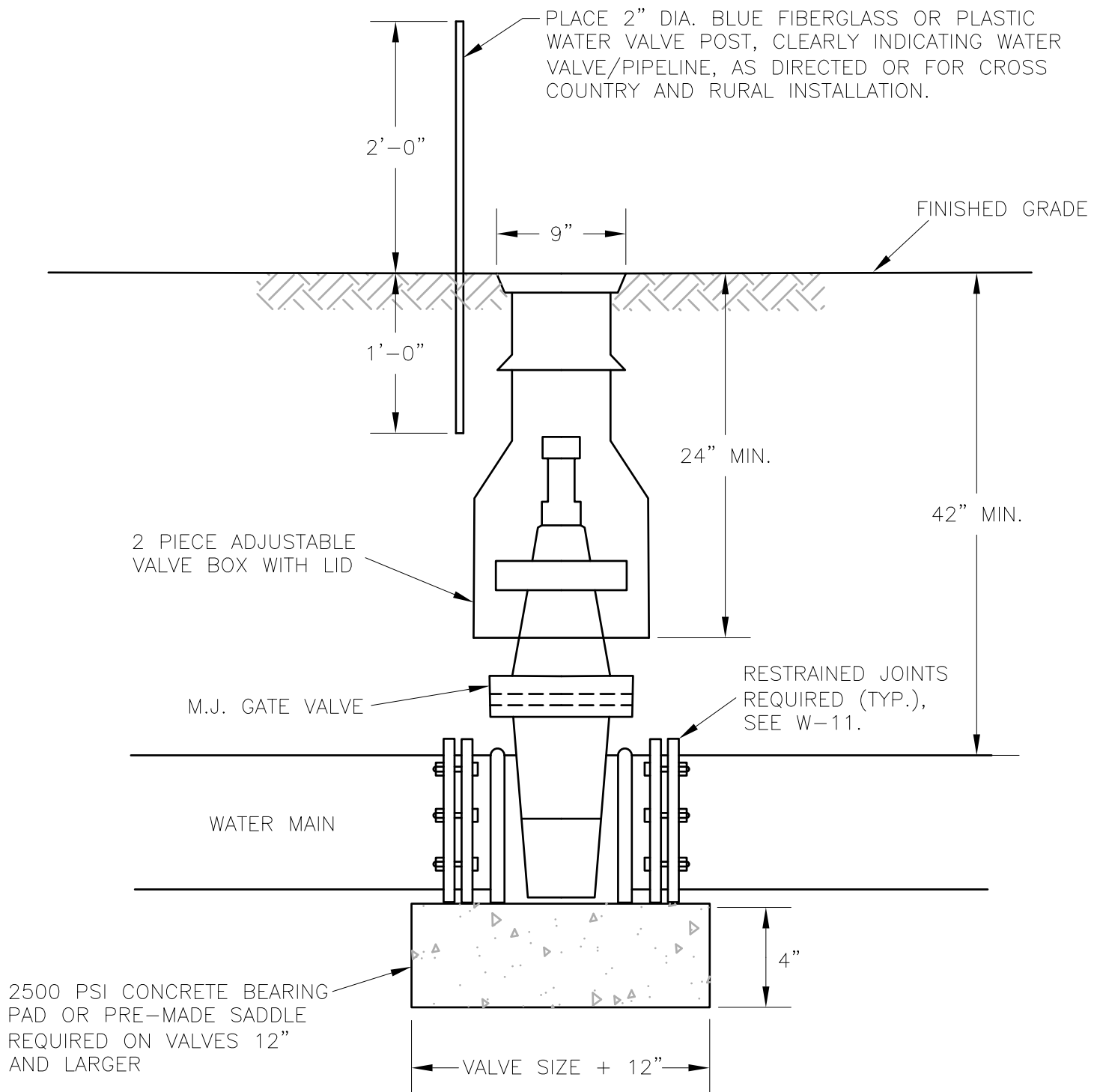
DATE: FEB. 1996

REVISED: APRIL 2021

**AIR RELEASE VALVE FOR DEEP OR STREET
INSTALLATION**

DRAWING NUMBER: W-4B

PAGE: 1 OF 1



NOTE:

ALL VALVES 1.5" AND LARGER SHALL BE PROVIDED WITH A STANDARD 2" OPERATING NUT.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

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DRAWN BY: ACSA

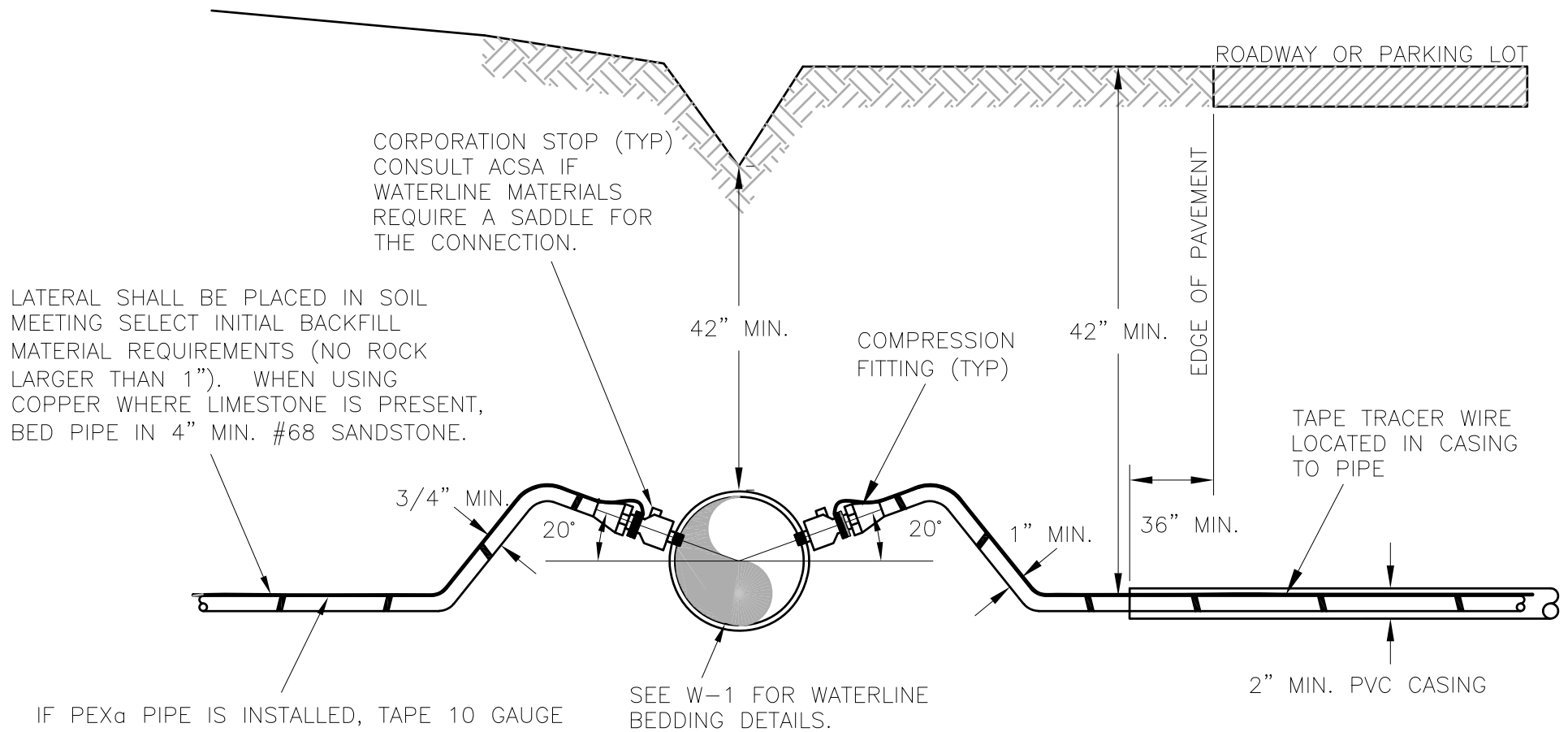
DATE: FEB. 1996

REVISED: NOV. 2020

TYPICAL GATE VALVE INSTALLATION

DRAWING NUMBER: W-5

PAGE: 1 OF 1



IF PEX_a PIPE IS INSTALLED, TAPE 10 GAUGE
THHN SOLID COPPER TRACER WIRE TO PIPE.
INSULATION IS TO BE STRIPPED AND THE
WIRE IS TO BE WRAPPED TO THE CORP.
STOP, THEN WRAPPED WITH ELECTRICAL TAPE.

METER SIZE	LATERAL SIZE
5/8"	3/4" (1" IF CROSSING ROADWAY)
5/8" DOUBLE CONN.	1"
3/4"	1"
1"	1"

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: FEB. 1996

REVISED: NOV. 2020

**TYPICAL WATER SERVICE LATERAL
INSTALLATION 5/8" - 1" METERS**

DRAWING NUMBER: W-6

PAGE: 1 OF 1

METER BOX AND CAST IRON FRAME & POLYMER COVER, IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST. INSTALL LEVEL WITH FINISHED GRADE.

WOOD STAKE TO MARK END OF THE LINE

EXTEND TRACER WIRE A MIN. OF 4" ABOVE THE ANGLE VALVE

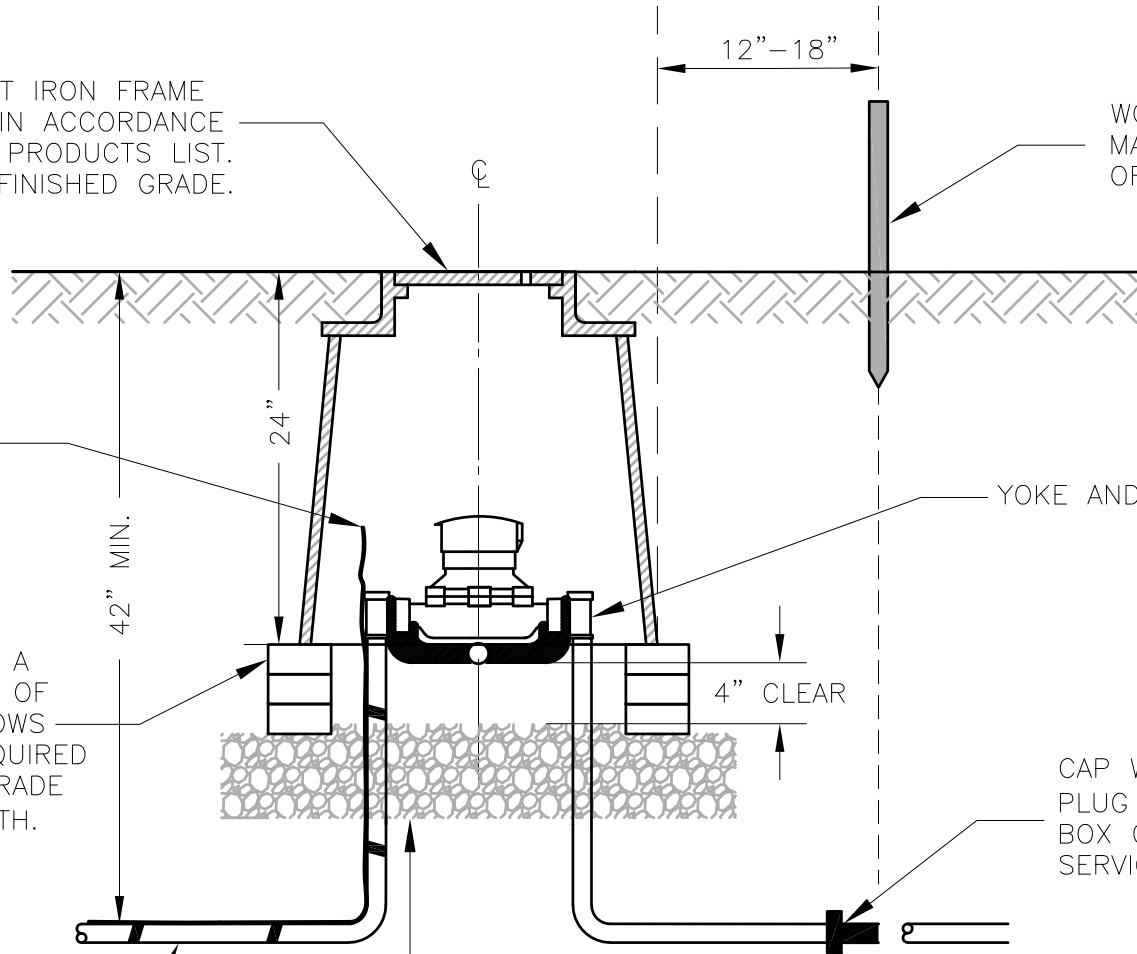
YOKE AND ANGLE VALVES (2)

PLACE METER BOX ON A MINIMUM OF ONE ROW OF BRICK. ADDITIONAL ROWS OF BRICK MAY BE REQUIRED TO MATCH FINISHED GRADE AND ACHIEVE 24" DEPTH.

CAP WITH SUITABLE PLUG AT 12"-18" FROM BOX OR CONNECT TO SERVICE LINE

SEE DETAIL W-6

6" MIN. #68 STONE (SANDSTONE REQUIRED WHERE CONTACT WITH COPPER IS POSSIBLE).



METER SIZE	YOKE BAR WITH EXPANDER WHEEL
5/8"	5/8"
3/4"	5/8" X 3/4"
1"	1"

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: FEB. 1996

REVISED: FEB. 2021

**TYPICAL WATER SERVICE
CONNECTION 5/8", 3/4" & 1"**

DRAWING NUMBER: W-7A

PAGE: 1 OF 1

BOX, FRAME AND COVER
(SEE APPROVED PRODUCTS)

COMPRESSION
TYPE SHUT OFF
VALVE (TYP)

U-BRANCH

SERVICE LINE
PER SPECS

METER YOKE (TYP)

12"-18"

METER BOX TO BE CENTERED
ON PROPERTY LINES, UNLESS
OTHERWISE APPROVED BY ACSA

BOX CENTERLINE

CAP WITH SUITABLE
PLUG AT 12"-18" FROM
BOX OR CONNECT TO
SERVICE LINE (TYP)

INSTALLATION SHALL BE IN ACCORDANCE WITH
STANDARD DETAIL W-7A

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: NOV. 2012

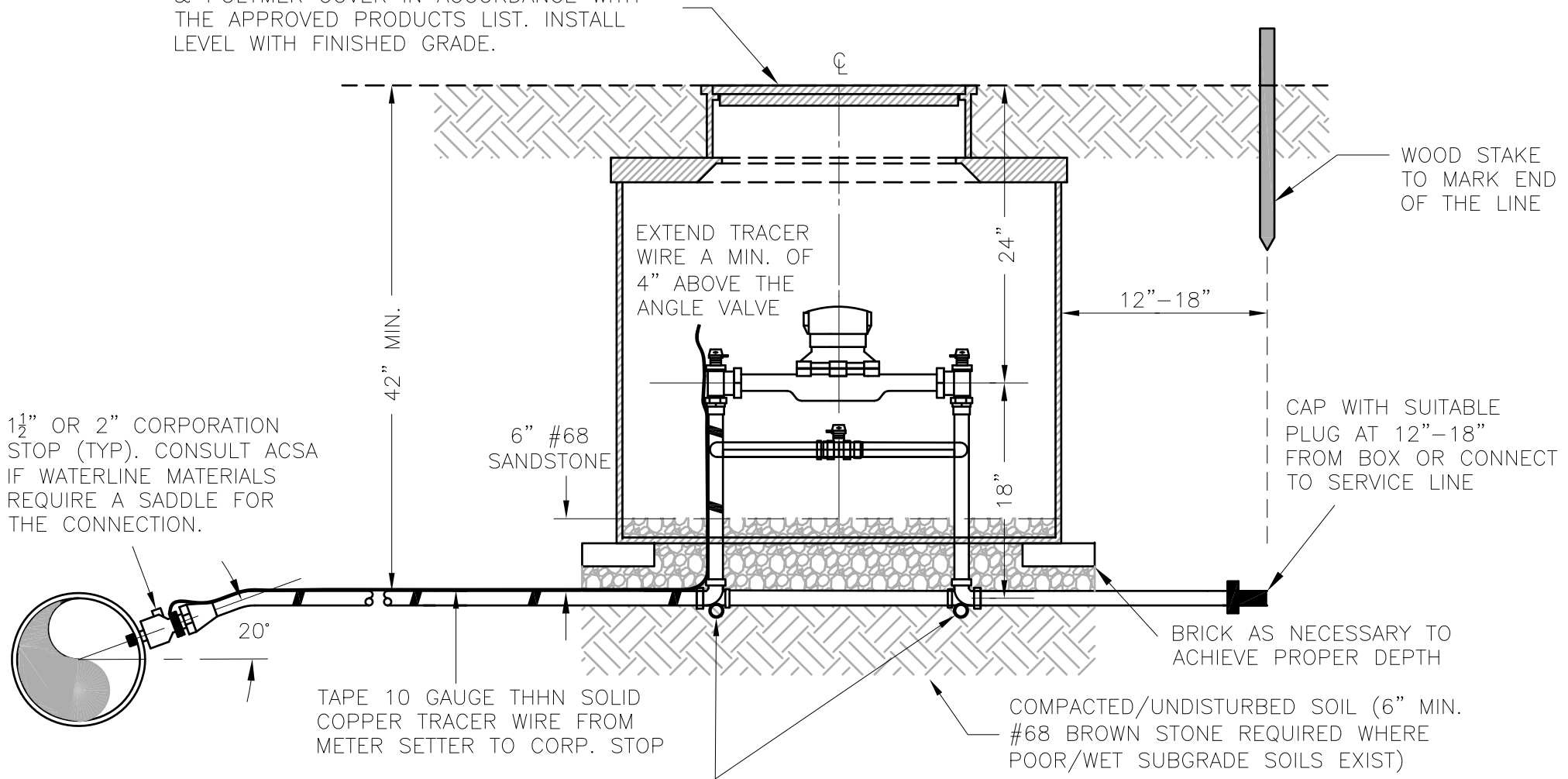
REVISED: FEB. 2021

**DOUBLE RESIDENTIAL METER DETAIL
5/8" ONLY**

DRAWING NUMBER: W-7B

PAGE: 1 OF 1

36X30 METER BOX AND CAST IRON FRAME & POLYMER COVER IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST. INSTALL LEVEL WITH FINISHED GRADE.



1½" OR 2" CORPORATION STOP (TYP). CONSULT ACSA IF WATERLINE MATERIALS REQUIRE A SADDLE FOR THE CONNECTION.

TAPE 10 GAUGE THHN SOLID COPPER TRACER WIRE FROM METER SETTER TO CORP. STOP

6" #68 SANDSTONE

EXTEND TRACER WIRE A MIN. OF 4" ABOVE THE ANGLE VALVE

WOOD STAKE TO MARK END OF THE LINE

CAP WITH SUITABLE PLUG AT 12"-18" FROM BOX OR CONNECT TO SERVICE LINE

BRICK AS NECESSARY TO ACHIEVE PROPER DEPTH

COMPACTED/UNDISTURBED SOIL (6" MIN. #68 BROWN STONE REQUIRED WHERE POOR/WET SUBGRADE SOILS EXIST)

SETTER SHALL BE IN ACCORDANCE WITH APPROVED PRODUCTS. INSTALL 1" x 15" PIPE FOR STABILITY OF SETTER

GENERAL LATERAL SIZE TABLE		
	1-1/2" METER	2" METER
COPPER	1-1/2"	2"
"PEXd"	1-1/2"	2"

LATERAL SIZE SHALL BE EVALUATED BY THE ENGINEER FOR DISTANCES EXCEEDING NORMAL INSTALLATION LENGTH (GENERALLY NOT EXCEEDING 100 FEET).

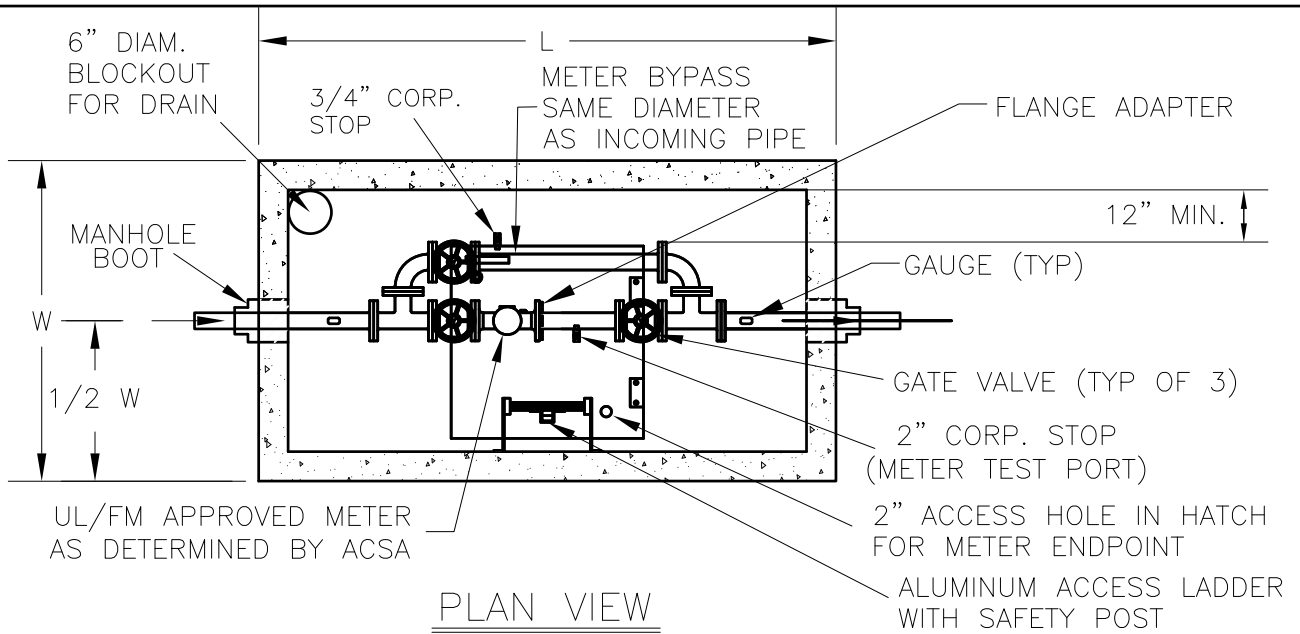
**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS DRAWN BY: ACSA

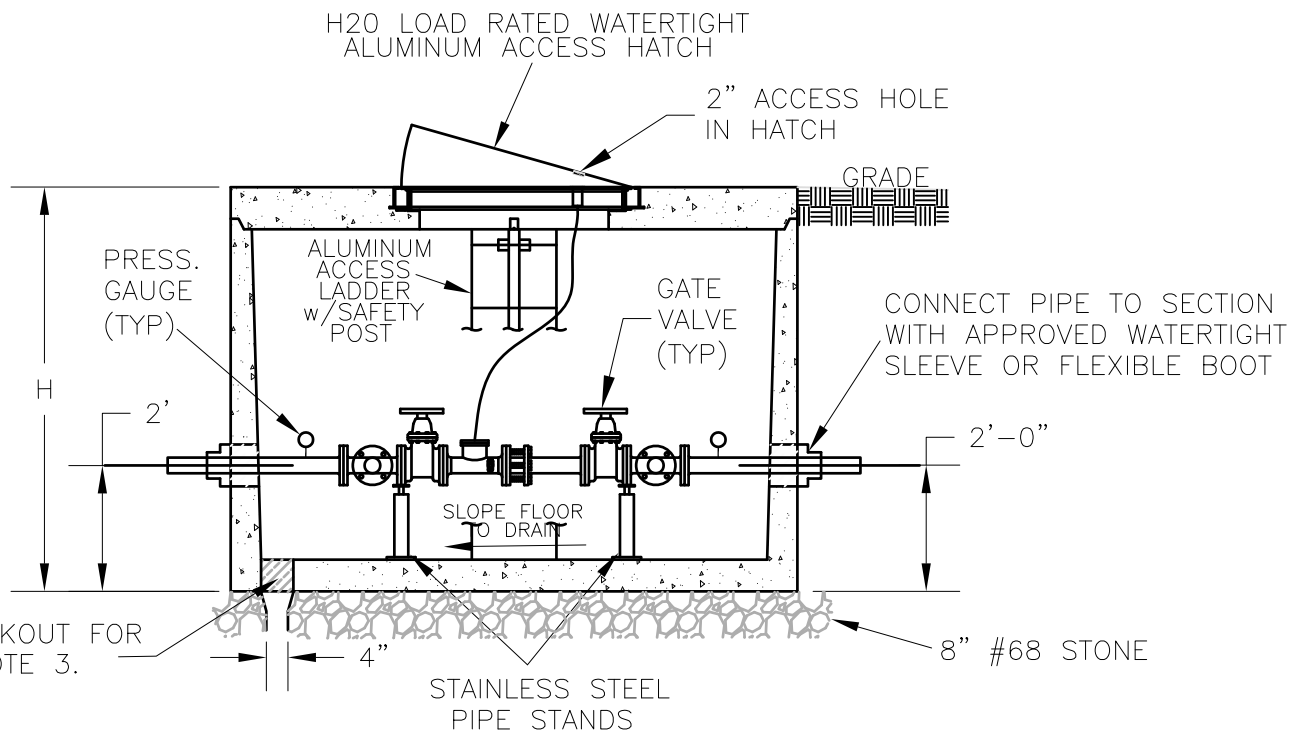
DATE: FEB. 1996 REVISED: MAR. 2021

**TYPICAL WATER SERVICE
CONNECTION 1½" & 2"**

DRAWING NUMBER: W-8 PAGE: 1 OF 1



PLAN VIEW

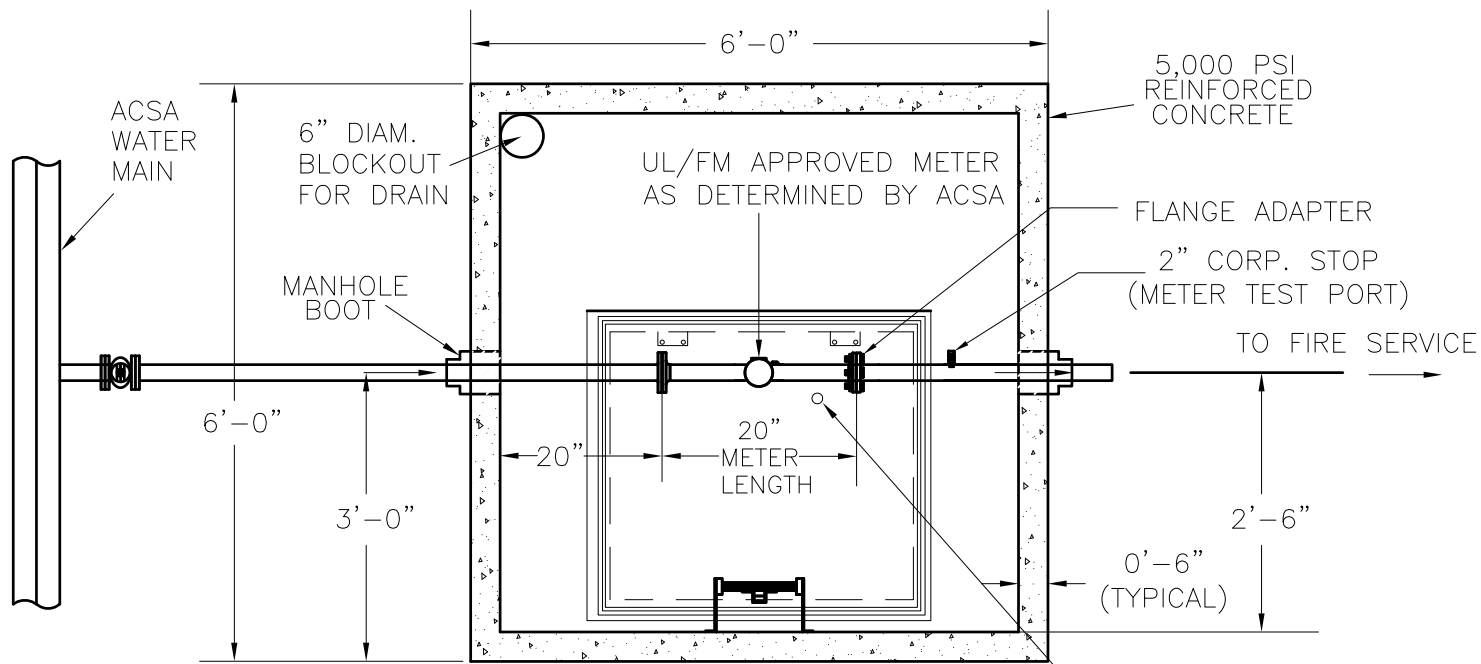


PROFILE VIEW

NOTES:

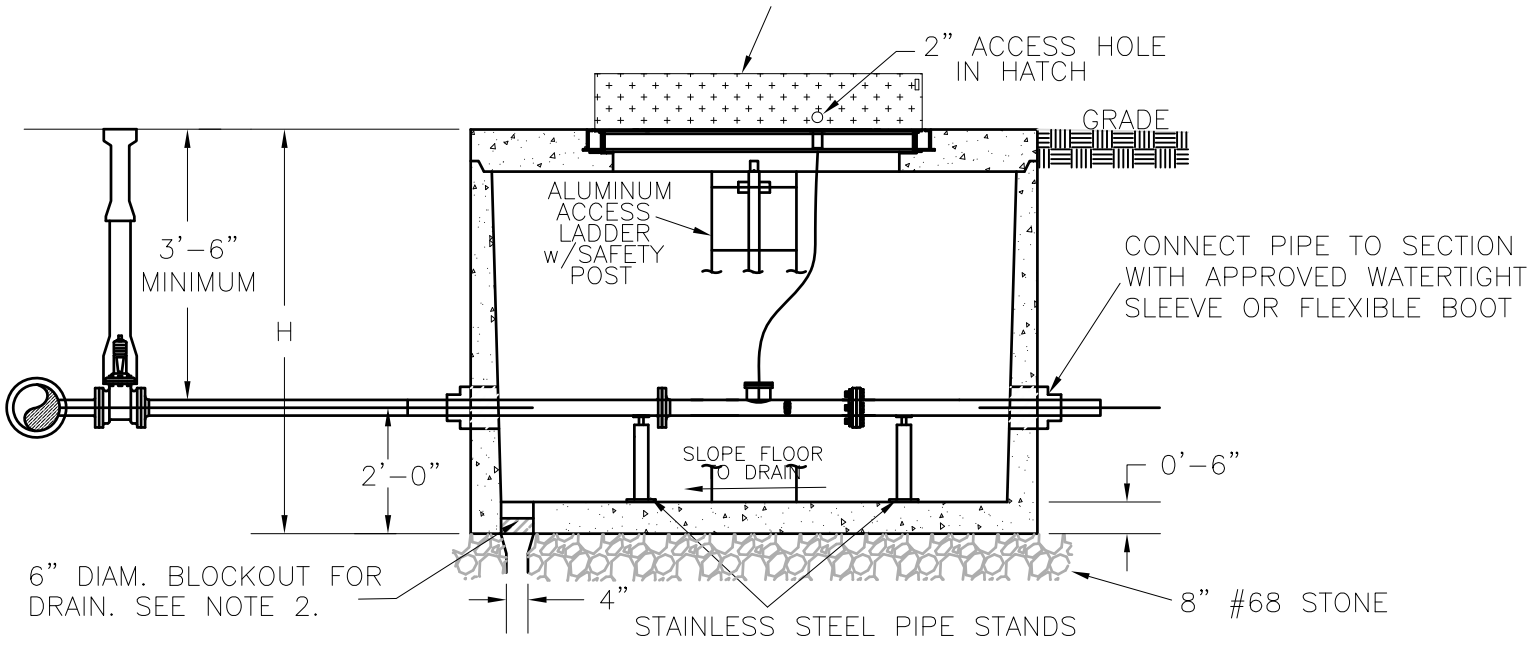
1. VAULT SHALL BE CONSTRUCTED TO ACCOMMODATE METER AS DETERMINED BY ACSA. ENGINEER SHALL COORDINATE WITH ACSA ENGINEERING STAFF DURING PLAN DEVELOPMENT. VAULT SUBMITTAL MUST BE APPROVED BY ACSA BEFORE ORDERING.
2. SEE APPROVED PRODUCTS LIST FOR PRECAST CONCRETE SUPPLIERS.
3. WHEN POSSIBLE, PIPE TO ATMOSPHERE—4" SCH 40 PVC PIPE. CHECK WITH ACSA ABOUT DRAIN PIPE LOCATION AND CONFIGURATION BEFORE CORING OUT THE BLOCKOUT. NOTIFY ACSA ENGINEERING DEPT. IN AREAS OF HIGH WATER TABLE.
4. CONCRETE SHALL BE 5,000 PSI REINFORCED CONCRETE. VAULT AND HATCH SHALL BE TRAFFIC RATED(H2O) UNLESS OTHERWISE APPROVED.

AUGUSTA COUNTY SERVICE AUTHORITY VERONA, VIRGINIA	
SCALE: NTS	DRAWN BY: ACSA
DATE: FEB. 1996	REVISED: APRIL 2021
TYPICAL VAULT FOR DOMESTIC METER CONNECTIONS 3" AND LARGER	
DRAWING NUMBER: W-9	PAGE: 1 OF 1



PLAN VIEW

36"X36" H20 LOAD RATED WATERTIGHT ALUMINUM ACCESS HATCH

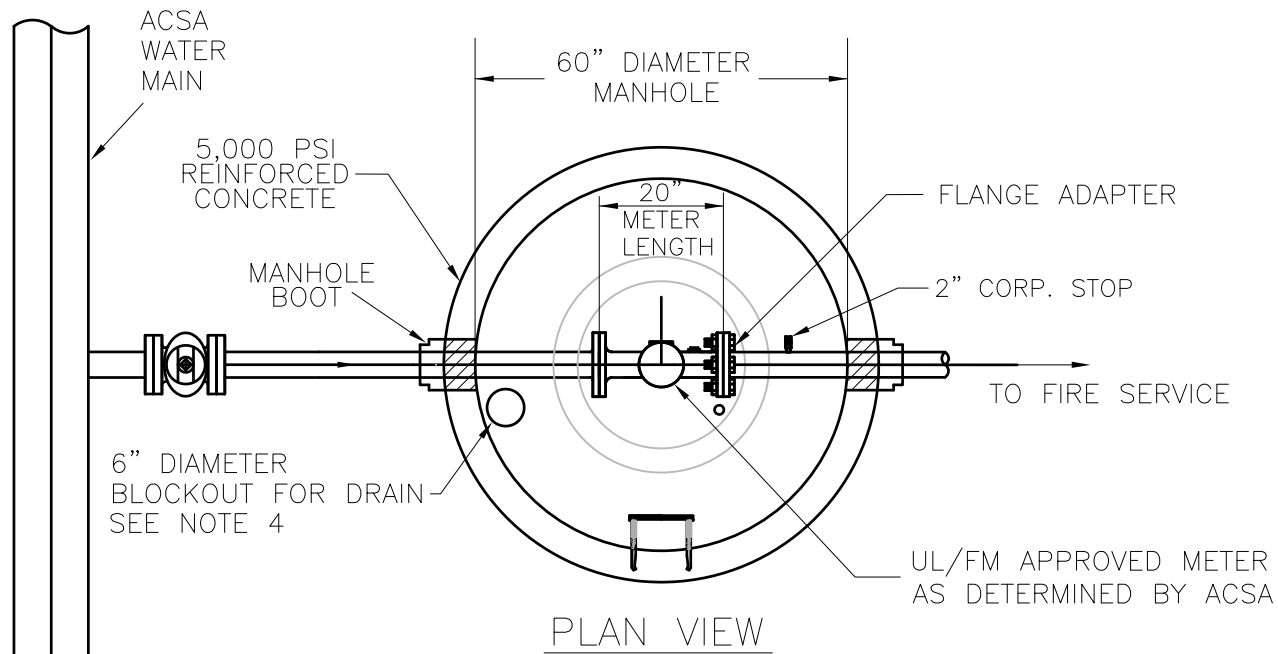


PROFILE VIEW

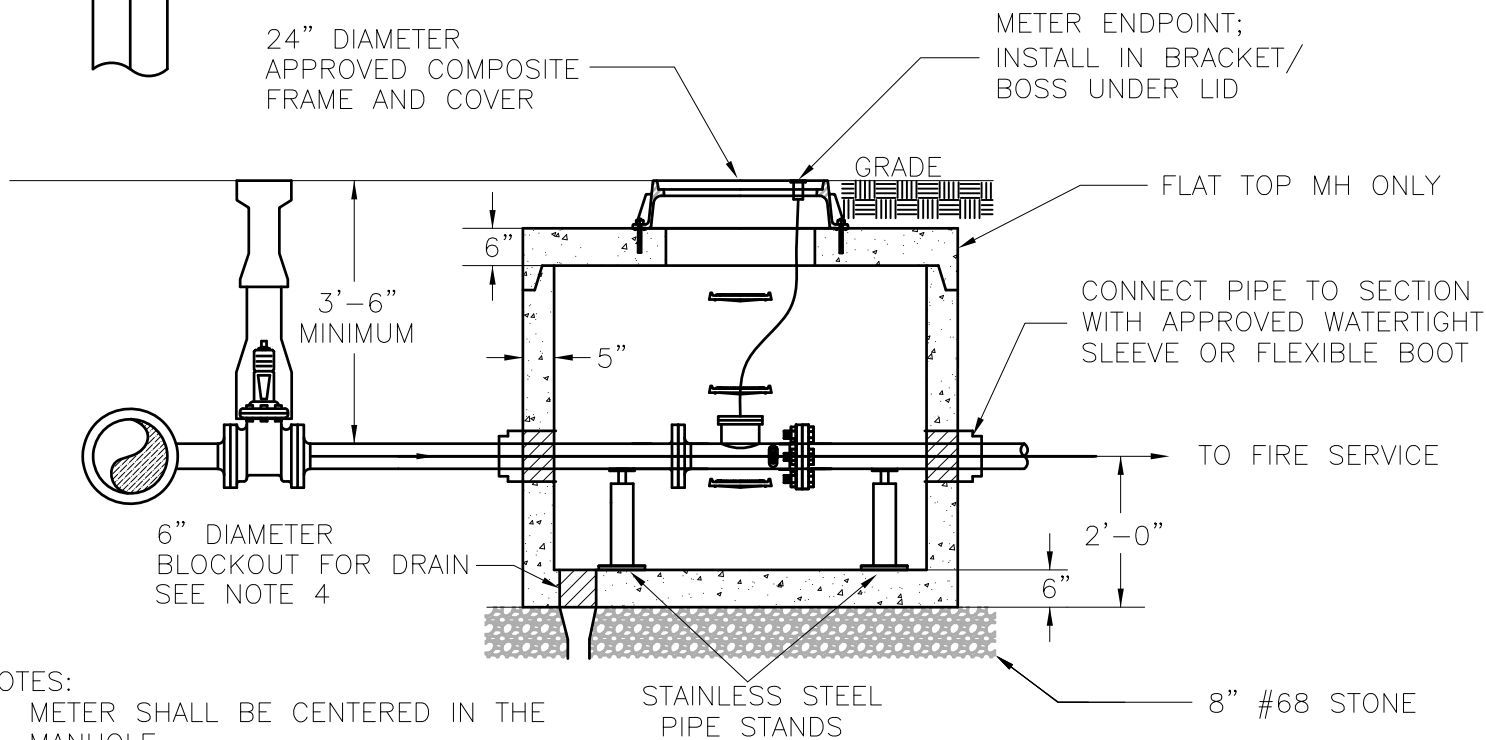
NOTES:

- (1) SUBMITTALS MUST BE APPROVED BY THE ACSA BEFORE THE VAULT IS ORDERED.
- (2) WHEN POSSIBLE, PIPE TO ATMOSPHERE—4" SCH 40 PVC PIPE. CHECK WITH ACSA ABOUT DRAIN PIPE LOCATION AND CONFIGURATION BEFORE CORING OUT THE BLOCKOUT. NOTIFY ACSA ENGINEERING DEPT. IN AREAS OF HIGH WATER TABLE.

AUGUSTA COUNTY SERVICE AUTHORITY VERONA, VIRGINIA	
SCALE: NTS	DRAWN BY: ACSA
DATE: AUGUST 2020	REVISED: APRIL 2021
TYPICAL VAULT FOR FIRE LINE METERS	
DRAWING NUMBER: W-10A	PAGE: 1 OF 1



PLAN VIEW



PROFILE VIEW

NOTES:

1. METER SHALL BE CENTERED IN THE MANHOLE.
2. SEAL UNDER FRAME AND ALL JOINTS WITH 2 RINGS OF BUTYL RUBBER ROPE OR O-RING SEAL.
3. FRAME AND COVER (LABELED WATER) SHALL BE BOLTED TO THE MANHOLE USING ZINC COATED $\frac{3}{4}$ " WEDGE ANCHORS OR ZINC COATED FLUSH DROP IN STYLE ANCHORS WITH $\frac{3}{4}$ " STAINLESS STEEL ALL THREAD.
4. WHEN POSSIBLE, PIPE TO ATMOSPHERE—4" SCH 40 PVC PIPE. CHECK WITH ACSA ABOUT DRAIN PIPE LOCATION AND CONFIGURATION BEFORE CORING OUT THE BLOCKOUT. NOTIFY ACSA ENGINEERING DEPT. IN AREAS OF HIGH WATER TABLE.
5. SUBMITTALS MUST BE APPROVED BY THE ACSA BEFORE THE VAULT IS ORDERED.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: AUGUST 2020

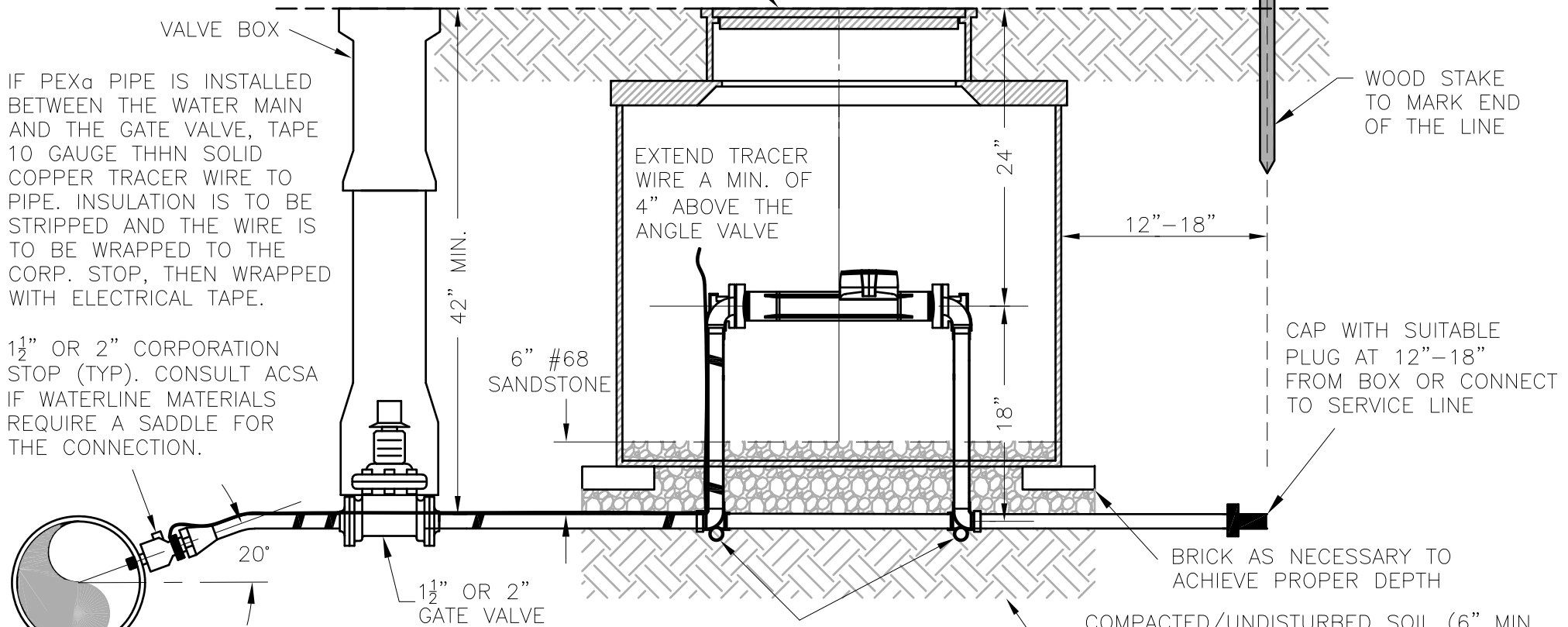
REVISED: APRIL 2021

**TYPICAL VAULT FOR FIRE LINE
METERS - 5' DIAMETER MANHOLE**

DRAWING NUMBER W-10B

PAGE: 1 OF 1

36X30 METER BOX AND CAST IRON FRAME & POLYMER COVER IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST. INSTALL LEVEL WITH FINISHED GRADE.



IF PEX_d PIPE IS INSTALLED BETWEEN THE WATER MAIN AND THE GATE VALVE, TAPE 10 GAUGE THHN SOLID COPPER TRACER WIRE TO PIPE. INSULATION IS TO BE STRIPPED AND THE WIRE IS TO BE WRAPPED TO THE CORP. STOP, THEN WRAPPED WITH ELECTRICAL TAPE.

1 1/2" OR 2" CORPORATION STOP (TYP). CONSULT ACSA IF WATERLINE MATERIALS REQUIRE A SADDLE FOR THE CONNECTION.

- NOTES:
1. USE COATED DUCTILE IRON PIPE AND FITTINGS BETWEEN THE GATE VALVE AND THE SETTER.
 2. THE METER IS TO BE UL/FM APPROVED AND WILL BE PROVIDED AND INSTALLED BY THE AUGUSTA COUNTY SERVICE AUTHORITY.

GENERAL LATERAL SIZE TABLE		
	1-1/2" METER	2" METER
COPPER	1-1/2"	2"
"PEX _d "	1-1/2"	2"

LATERAL SIZE SHALL BE EVALUATED BY THE ENGINEER FOR DISTANCES EXCEEDING NORMAL INSTALLATION LENGTH (GENERALLY NOT EXCEEDING 100 FEET).

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS DRAWN BY: ACSA

DATE: FEB. 2021 REVISED:

**1 1/2" & 2" FIRE LINE METER
IN 36X30 METER BOX**

DRAWING NUMBER: W-10C PAGE: 1 OF 1

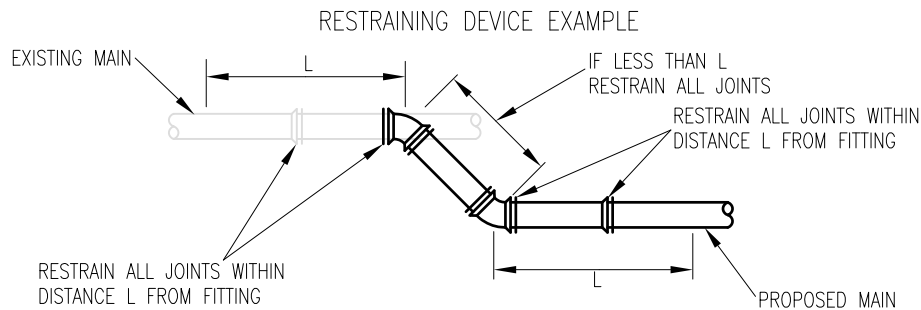
MINIMUM LENGTH OF PIPE WITH RESTRAINED JOINTS (L) IN FEET FOR DUCTILE IRON PIPE (SEE NOTE 4 FOR PVC)

TEST PRESSURE 200 PSI

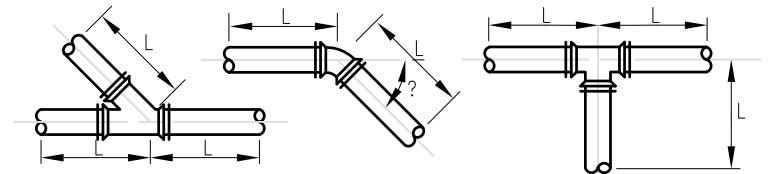
PIPE SIZE	HORIZONTAL				VERTICAL				DEAD END	TEE OR WYE
	11¼"	22½"	45"	90"	11¼"	22½"	45"	90"		
4"	10	10	10	18	10	10	17	NOT ALLOWED	29'	10'
6"	10	10	10	25	10	12	25	"	41'	10'
8"	10	10	14	33	10	16	32	"	54'	14'
10"	10	10	16	40	10	19	39	"	65'	16'
12"	10	10	19	47	11	22	46	"	77'	19'
14"	10	11	22	54	13	25	53	"	89'	22'
16"	10	12	25	61	14	29	60	"	101'	25'
18"	10	13	28	67	16	32	67	"	112"	28'
20"	10	15	31	74	17	35	73	"	124'	31'
24"	10	17	36	86	20	41	86	"	146'	36'

TEST PRESSURE 250 PSI

PIPE SIZE	HORIZONTAL				VERTICAL				DEAD END	TEE OR WYE
	11¼"	22½"	45"	90"	11¼"	22½"	45"	90"		
4"	10	10	10	22	10	10	22	NOT ALLOWED	36'	10'
6"	10	10	13	31	10	15	31	"	51'	13'
8"	10	10	17	41	10	19	40	"	68'	17'
10"	10	10	21	50	12	23	49	"	81'	21'
12"	10	12	24	59	14	28	58	"	97'	24'
14"	10	13	28	67	16	32	66	"	111'	28'
16"	10	15	31	76	18	36	75	"	126'	31'
18"	10	17	35	84	20	40	83	"	140'	35'
20"	10	18	38	92	22	44	91	"	155'	38'
24"	11	21	45	108	26	52	108	"	183'	45'



MECHANICAL RESTRAINING DEVICE DETAILS AND NOTES



8. IF A CASING PIPE FALLS WITHIN THE RESTRAINED LENGTH "L", THIS REQUIRED RESTRAINED LENGTH "L" SHALL BE INCREASED BY THE LENGTH OF THE CASING.

NOTES:

1. RESTRAINING DEVICES OR RESTRAINED JOINTS SHALL HAVE A WORKING PRESSURE OF 250 PSI WITH A MINIMUM SAFETY FACTOR OF 2.
2. RESTRAINED LENGTH SHOWN IS BASED ON 3' OF COVER, SOILTYPE CL, TRENCH TYPE 4, 2:1 SAFETY FACTOR, AND DUCTILE IRON PIPE.
3. VALVES SHALL BE RESTRAINED BASED ON RESTRAINED LENGTH FOR DEAD ENDS.
4. FOR PVC PIPE, INCREASE LENGTH "L" BY 25% FOR HORIZONTAL BENDS, AND INCREASE LENGTH "L" BY 100% FOR VERTICAL BENDS AND DEADENDS.
5. EXISTING PIPE ADJACENT TO PROPOSED BENDS, WYES, VALVES, TEES, AND PLUGS SHALL BE UNCOVERED AND THE JOINTS RESTRAINED FOR THE LENGTHS INDICATED. IF THE EXISTING PIPE IS UNABLE TO ACCEPT THE MECHANICAL JOINT RESTRAINING MECHANISM, THE EXISTING PIPE SHALL BE REPLACED WITH DUCTILE IRON WATER MAIN IN ACCORDANCE WITH THE SPECIFICATIONS AND RESTRAINED FOR THE LENGTH INDICATED.
6. FIRE HYDRANTS SHALL BE RESTRAINED AT EACH JOINT IN THE ASSEMBLY.
7. ALL JOINTS WITHIN CASING PIPES SHALL BE RESTRAINED.

AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA

SCALE: NTS

DRAWN BY: ACSA

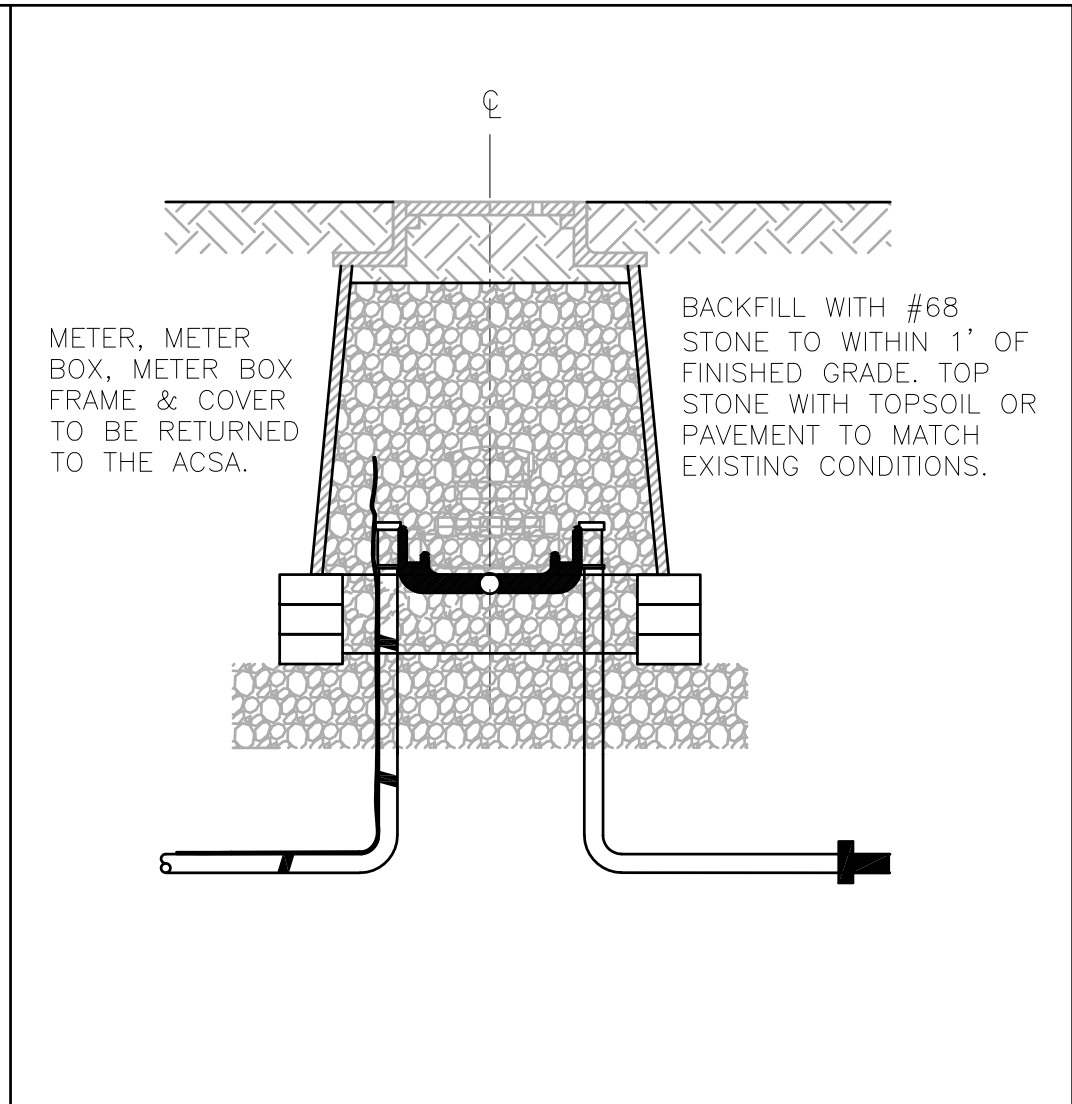
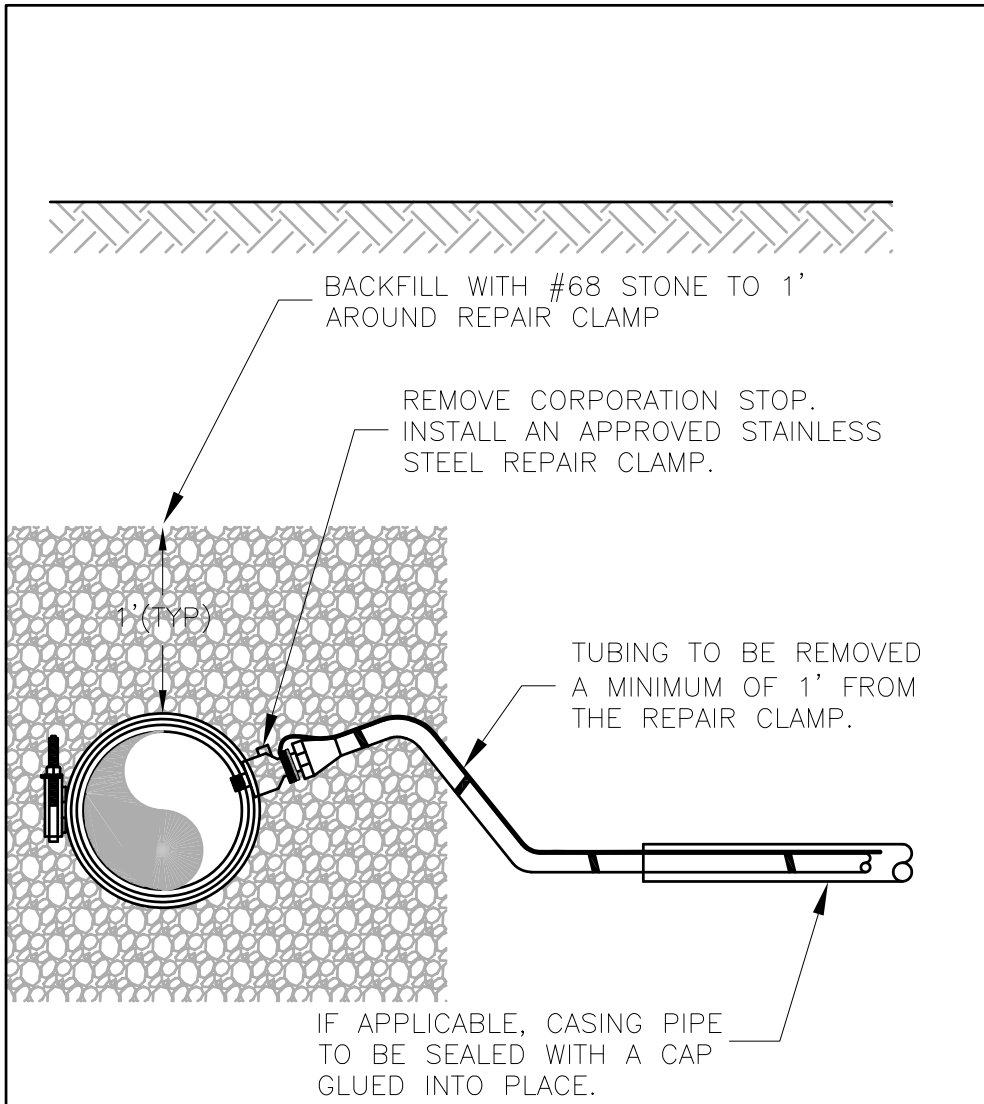
DATE: AUG. 2004

REVISED: NOV. 2020

TYPICAL RESTRAINING DEVICE

DRAWING NUMBER: W-11

PAGE: 1 OF 1



NOTES:

1. COORDINATE THE SHUTDOWN OF THE EXISTING WATERLINE WITH ACSA IN ACCORDANCE WITH DESIGN STANDARDS.
2. REPAIR CLAMP IS TO BE IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST.
3. WATER METER, METER BOX, METER BOX FRAME & COVER ARE TO BE RETURNED TO THE ACSA.
4. THE CONTRACTOR IS RESPONSIBLE FOR DEWATERING TRENCH PRIOR TO BACKFILLING.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: APR. 2021

REVISED:

**TYPICAL WATER SERVICE
LATERAL ABANDONMENT**

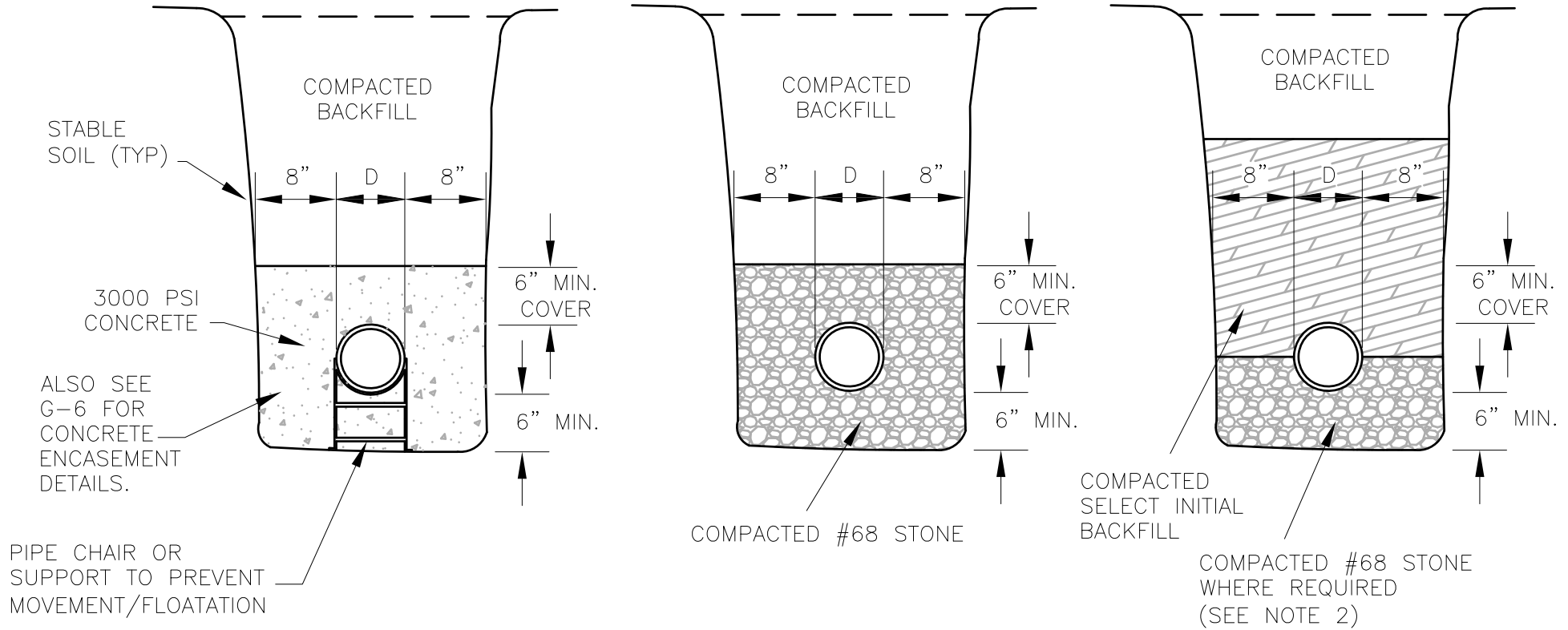
DRAWING NUMBER: W-12

PAGE: 1 OF 1

PVC/DUCTILE IRON PIPE
INSTALLATION FOR
STREAM/RIVER CROSSING,
UNSTABLE SOILS OR
HIGH WATER TABLE
JOINTS IN ENCASEMENT
SHALL BE RESTRAINED

GRAVITY PVC PIPE INSTALLATION
GRAVITY DUCTILE IRON PIPE INSTALLATION

DUCTILE IRON PIPE
FORCE MAIN INSTALLATION



NOTES:

1. BELL HOLES WHERE APPLICABLE SHALL BE PROVIDED FOR EACH JOINT TO ALLOW JOINT ASSEMBLY AND TO ENSURE THAT THE PIPE BARREL WILL BE FLAT ON TRENCH BOTTOM.

2. FOR DUCTILE IRON FORCE MAIN INSTALLATION, STONE BEDDING IS NOT REQUIRED WHEN PIPE PLACED ON STABLE SOIL. TRENCH BOTTOM SHALL BE SCRAPED, ALL STONES REMOVED, AND COMPACTED. PIPE SHALL NOT BE ALLOWED TO REST ON ROCK.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

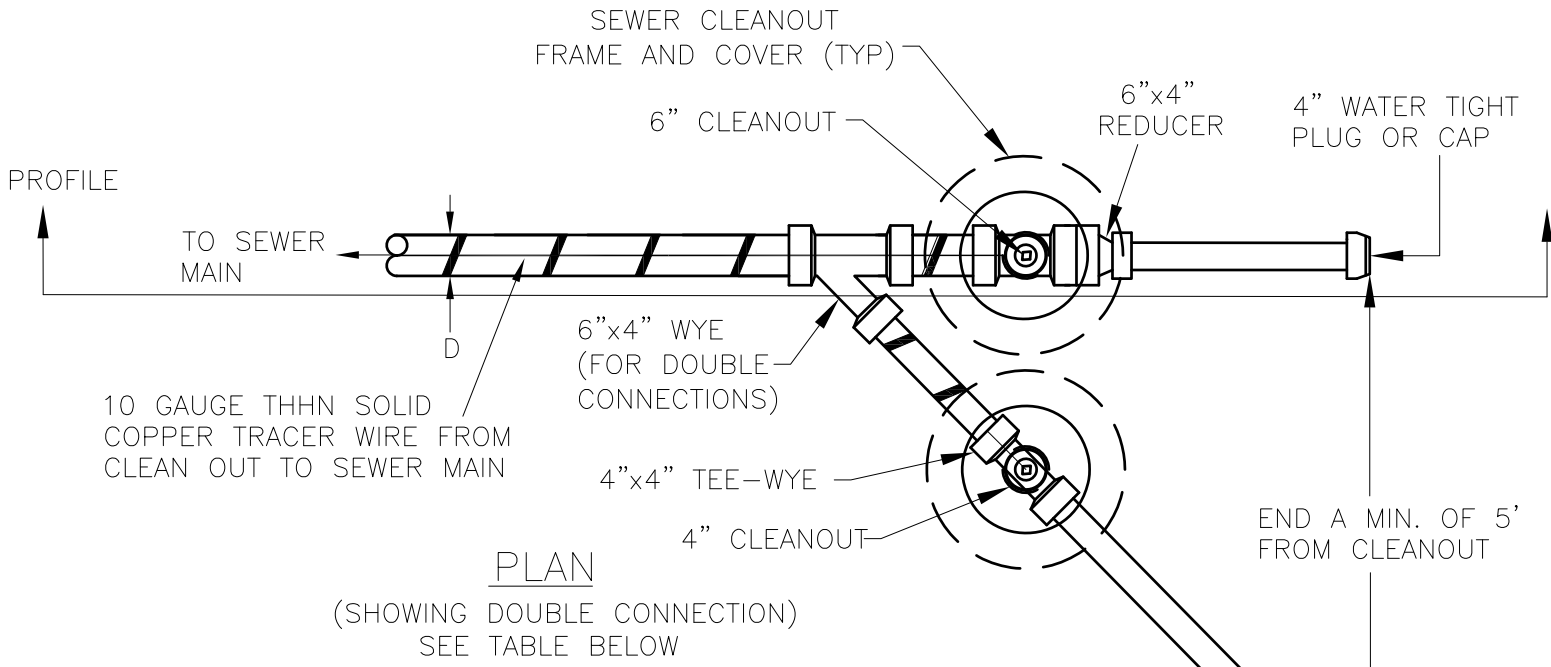
DATE: FEB. 1996

REVISED: FEB. 2021

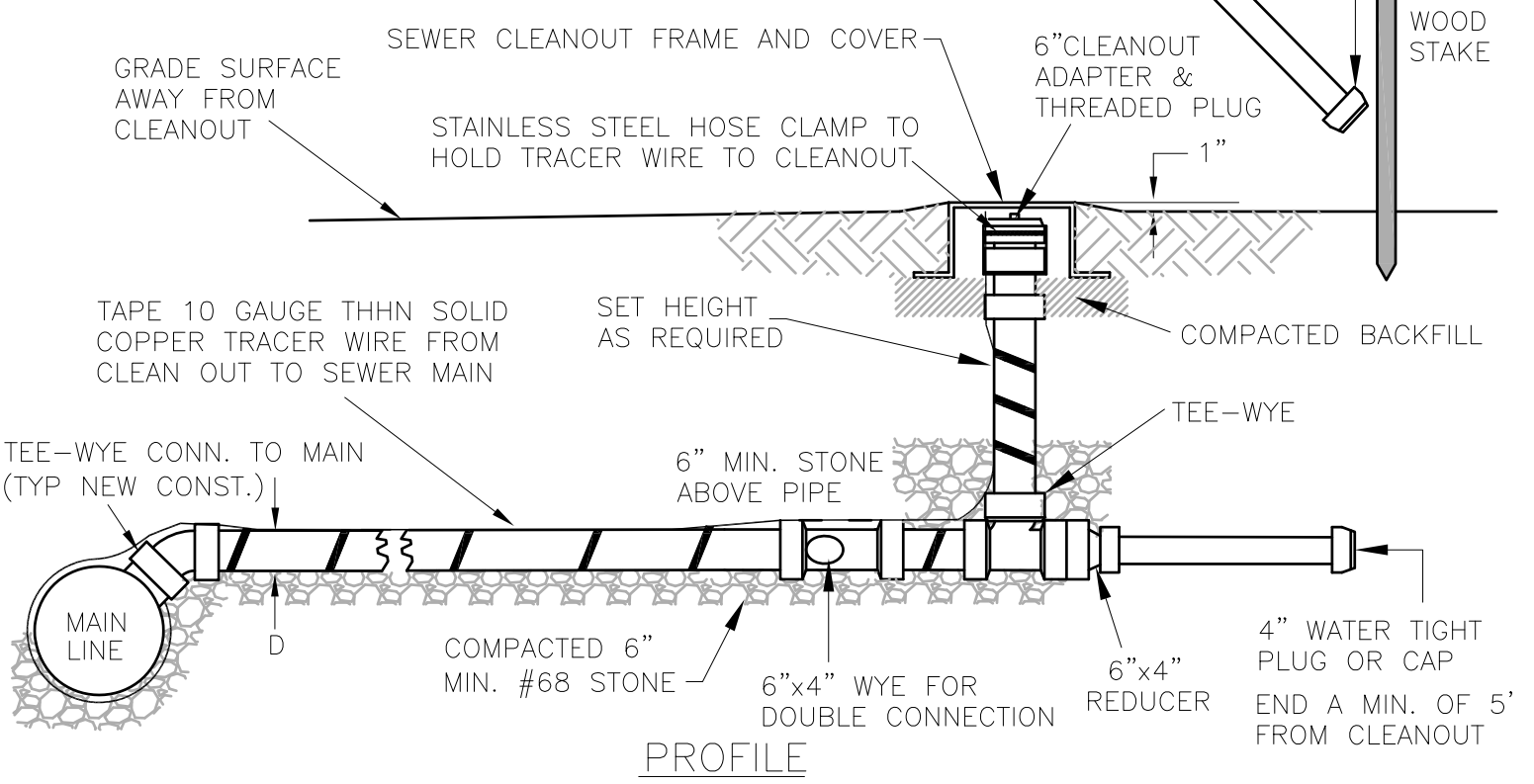
**TYPICAL SEWER PIPE
INSTALLATION IN TRENCH**

DRAWING NUMBER: S-1

PAGE: 1 OF 1



PLAN
(SHOWING DOUBLE CONNECTION)
SEE TABLE BELOW



PROFILE

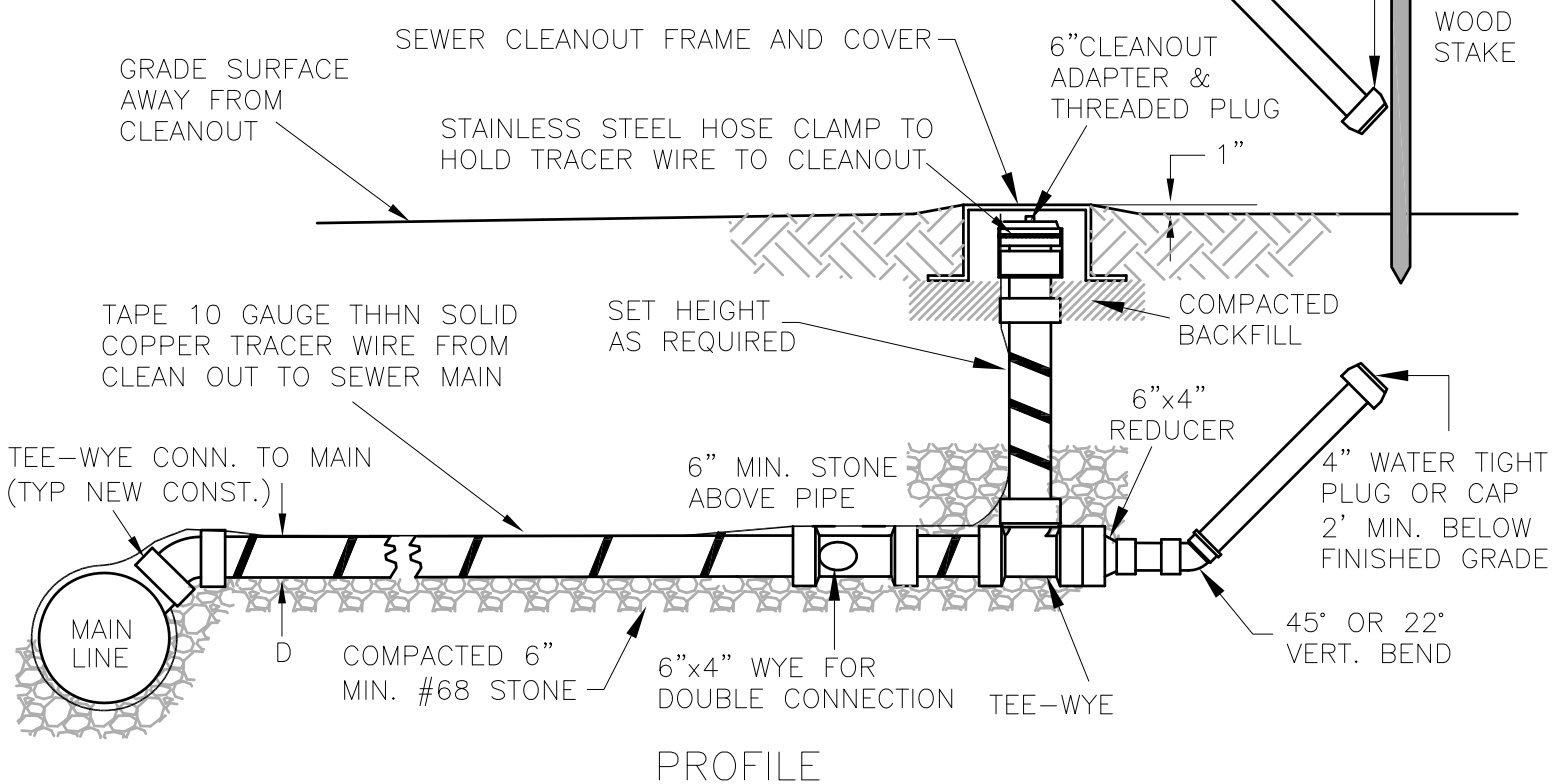
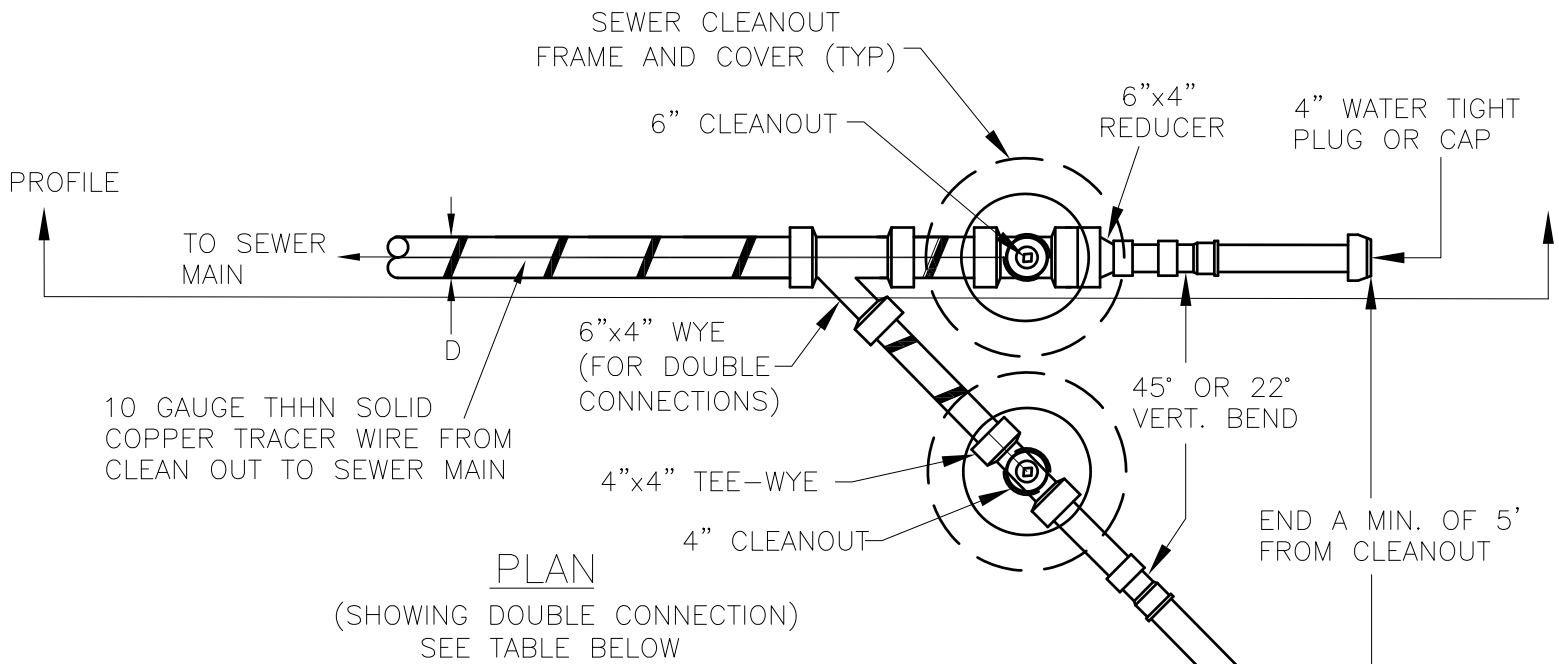
LATERAL DIAMETER, D	ALLOWABLE NUMBER OF CONNECTIONS TO BE SERVED
4"	1
6"	2

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

NOTES:

- TRACER WIRE SHALL BE PLACED FOR EACH CONNECTION AND FOR ANY MAINLINE OR SIDEWALK COLLECTOR THAT DOES NOT TERMINATE WITH A MANHOLE. TRACER WIRE SHALL BE PLACED WITH ACSA INSPECTION OVERSIGHT (PRIOR TO BACKFILL).
- SLOPE NOT LESS THAN 1% UNLESS APPROVED BY ACSA.

SCALE: NTS	DRAWN BY: ACSA
DATE: APRIL 2005	REVISED: APRIL 2021
TYPICAL RESIDENTIAL SERVICE CONNECTION LESS THAN 8' DEEP	
DRAWING NUMBER: S-2A	PAGE: 1 OF 1



LATERAL DIAMETER, D	ALLOWABLE NUMBER OF CONNECTIONS TO BE SERVED
4"	1
6"	2

NOTES:

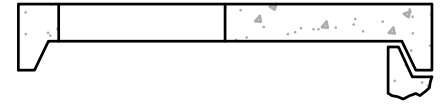
- TRACER WIRE SHALL BE PLACED FOR EACH CONNECTION AND FOR ANY MAINLINE OR SIDEWALK COLLECTOR THAT DOES NOT TERMINATE WITH A MANHOLE. TRACER WIRE SHALL BE PLACED WITH ACSA INSPECTION OVERSIGHT (PRIOR TO BACKFILL).
- SLOPE NOT LESS THAN 1% UNLESS APPROVED BY ACSA.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

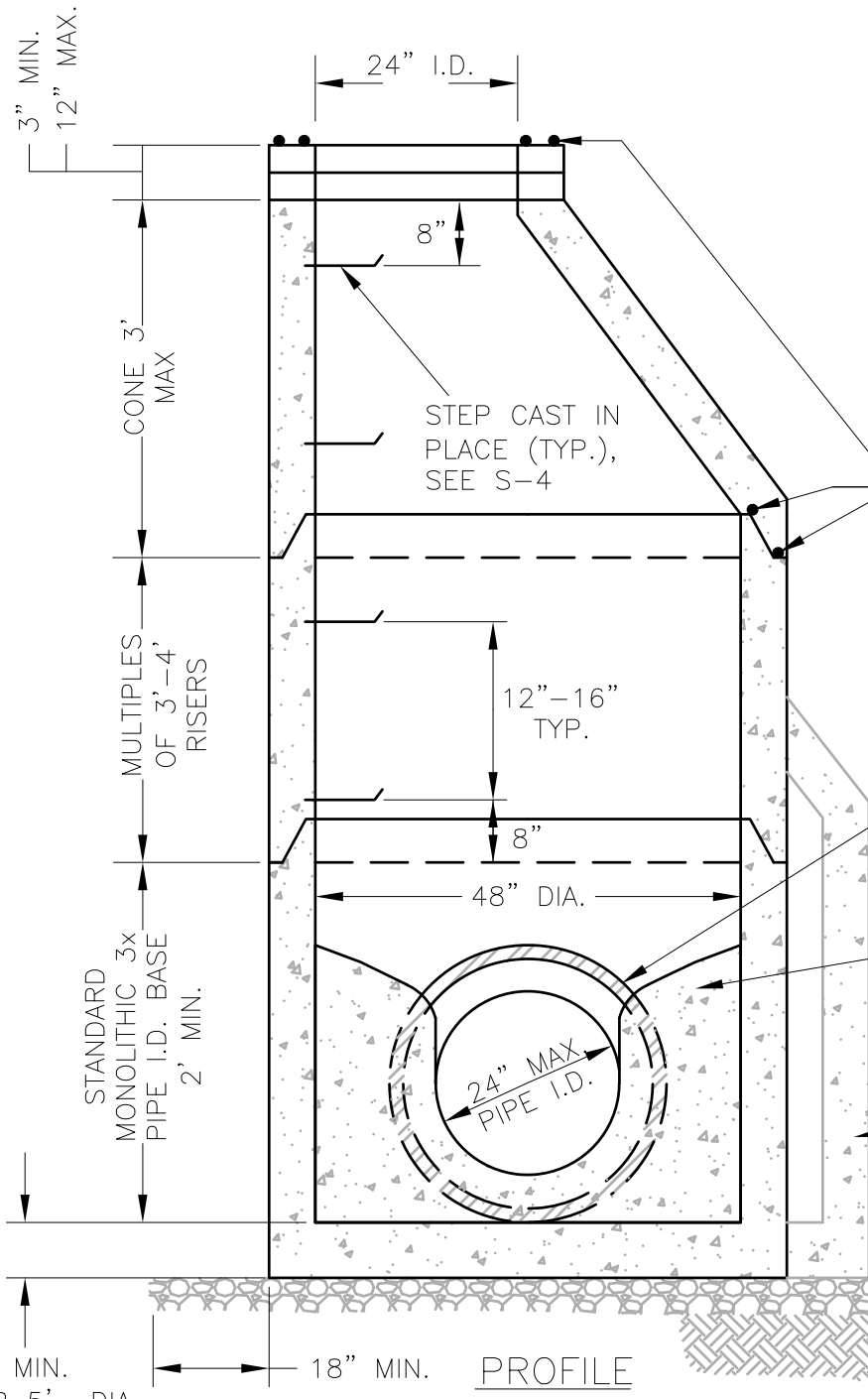
SCALE: NTS	DRAWN BY: ACSA
DATE: APRIL 2005	REVISED: APRIL 2021
TYPICAL RESIDENTIAL SERVICE CONNECTION DEEPER THAN 8'	
DRAWING NUMBER: S-2B	PAGE: 1 OF 1

FRAME AND COVER SHALL BE BOLTED TO THE MANHOLE USING ZINC COATED $\frac{3}{4}$ " WEDGE ANCHORS OR ZINC COATED FLUSH DROP IN STYLE ANCHORS WITH $\frac{3}{4}$ " STAINLESS STEEL ALL-THREAD

FLAT TOP SHALL BE TRAFFIC RATED (H20)



ALT. TOP FOR SHALLOW MANHOLES (FLATTOP)



SEAL UNDER FRAME AND ALL JOINTS WITH 2 RINGS OF BUTYL RUBBER ROPE OR O-RING SEALER. ALL EXTERIOR JOINTS SHALL BE WRAPPED WITH A 6" (MIN.) WIDE WRAP IN ACCORDANCE WITH APPROVED PRODUCTS LIST AND MANUFACTURER'S REQUIREMENTS

FLEXIBLE BOOT (SEE NOTE 2)

BENCH FROM CROWN OF PIPE TO WALL @ 2"-4"/FT. SLOPE WITH 2500 PSI CONCRETE

5' DIA. MANHOLE FOR PIPES 27"-36" DIAMETER OR AS REQUIRED.

8" MIN. THICK BED OF #68 STONE

UNDISTURBED, SUITABLE SOIL

6" MIN. (8" FOR 5' DIA. SECTION)

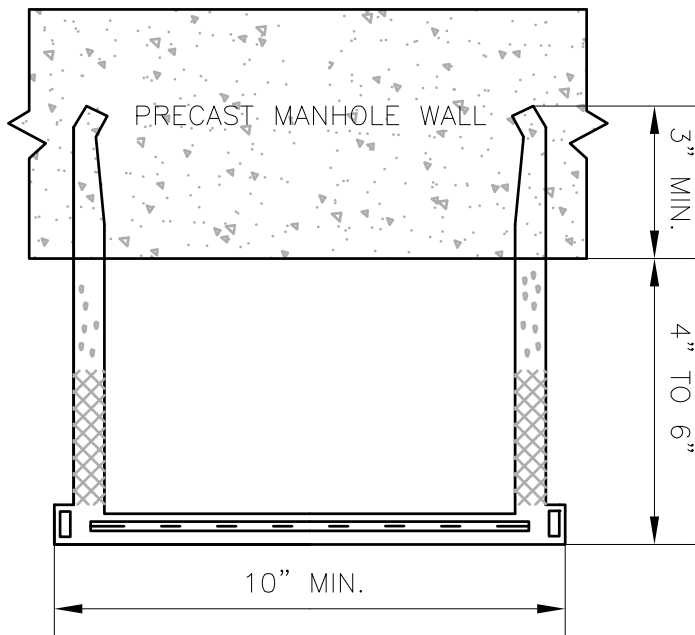
18" MIN. PROFILE

- NOTES:
1. CONE SHALL BE OF THE ECCENTRIC TYPE.
 2. CONNECT PIPE TO SECTION WITH APPROVED FLEXIBLE WATER-TIGHT BOOT & SS CLAMP INSTALLED PER MANUFACTURER'S REQUIREMENTS.
 3. SUBMITTALS MUST BE APPROVED BY THE ACSA BEFORE STRUCTURES ARE ORDERED.

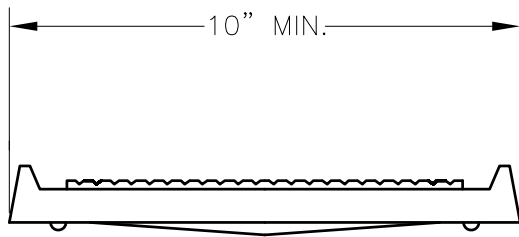
**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS	DRAWN BY: ACSA
DATE: FEB. 1996	REVISED: APRIL 2021

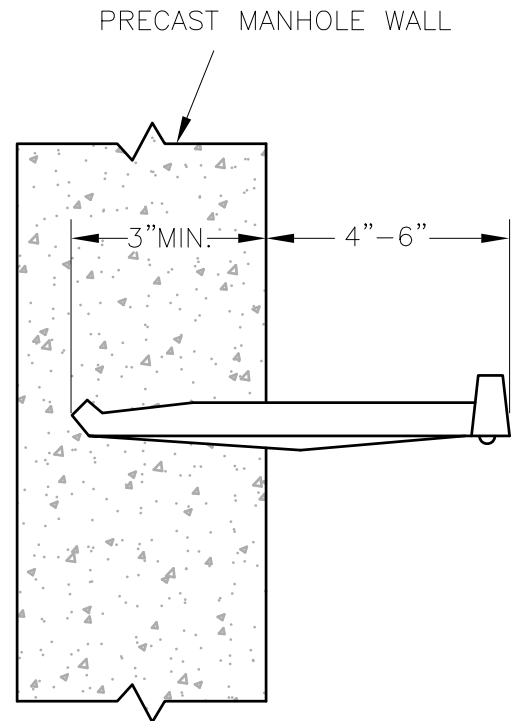
TYPICAL SANITARY SEWER MANHOLE



PLAN



FRONT ELEVATION



SECTION

NOTES:

1. STEPS SHALL BE POURED INTEGRALLY WITH THE MANHOLE SECTION AND NOT MORTARED OR GROUTED LATER
2. STEPS SHALL HAVE CONTINUOUS ALIGNMENT IN THE MANHOLE
3. STEPS SHALL CONFORM TO ASTM C-478 AND APPLICABLE PORTIONS OF ASTM C-497

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: AUG. 2004

REVISED: NOV. 2012

TYPICAL MANHOLE STEP

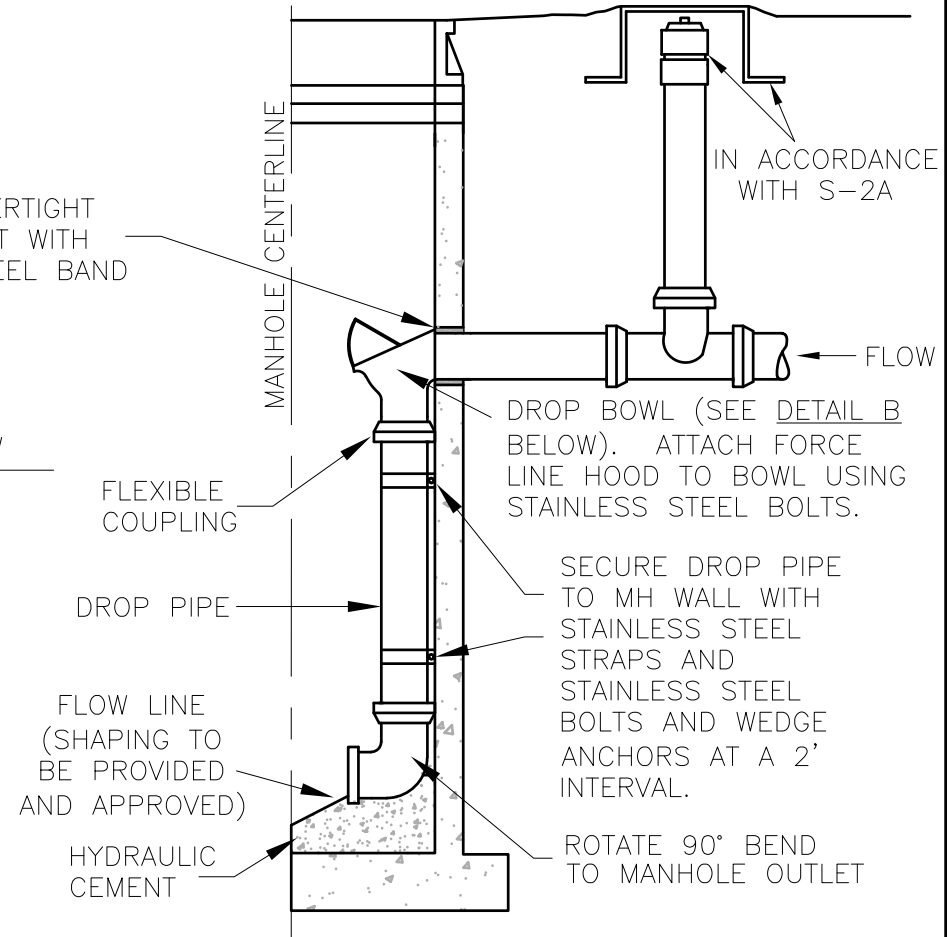
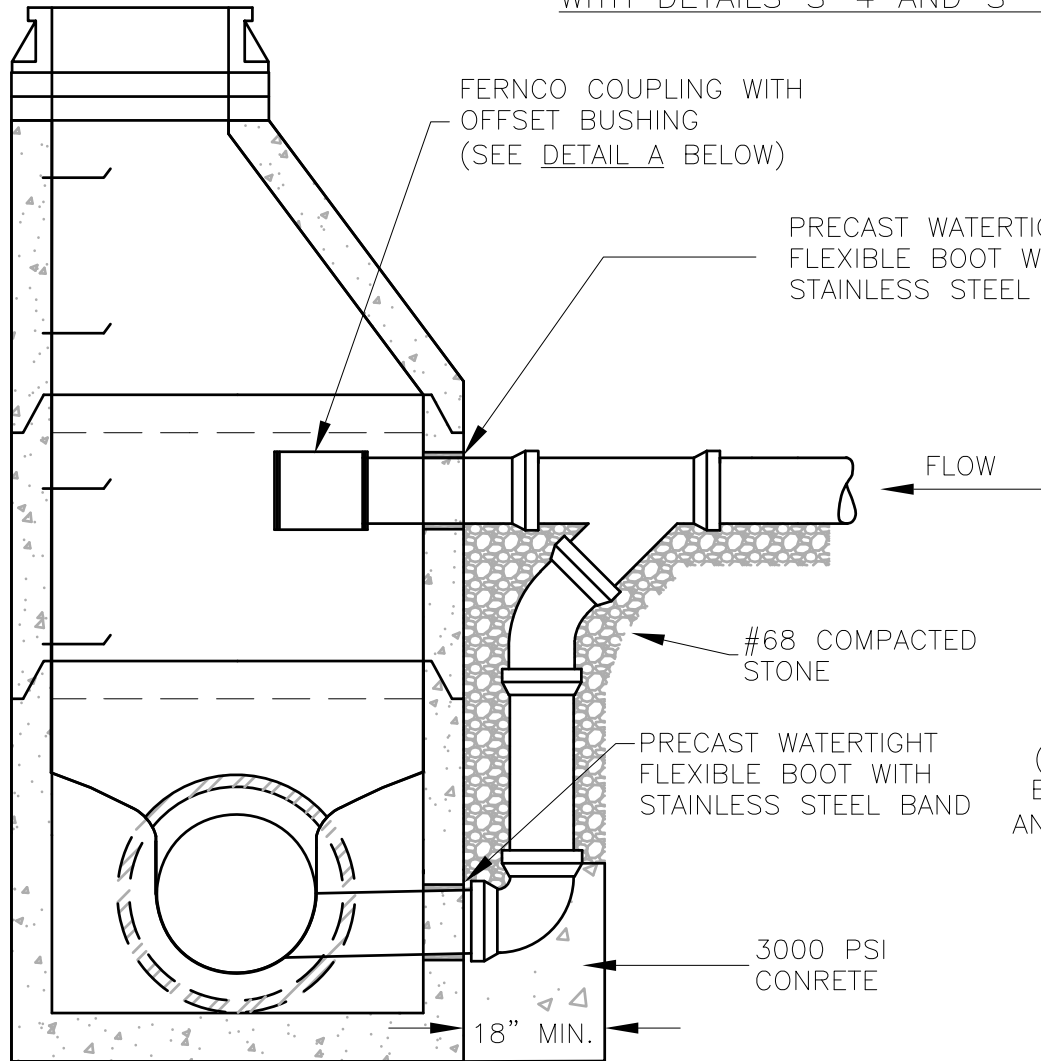
DRAWING NUMBER: S-4

PAGE: 1 OF 1

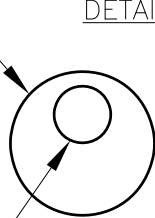
EXTERIOR DROP CONNECTION
DETAIL FOR PIPE 8" OR GREATER

PRECAST MANHOLE AND FRAME &
COVER SHALL BE IN ACCORDANCE
WITH DETAILS S-4 AND S-7

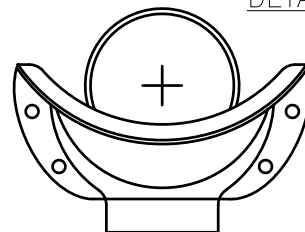
INTERIOR DROP CONNECTION DETAIL FOR
PIPE 6", 4", OR AS APPROVED BY ACSA



COUPLING &
BUSHING TO
MATCH INCOMING
PIPE DIAMETER



REDUCE TO 4"
ORIENT REDUCED
HOLE IN THE
UPWARD DIRECTION



DROP BOWL
MOUNTING
POSITION

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

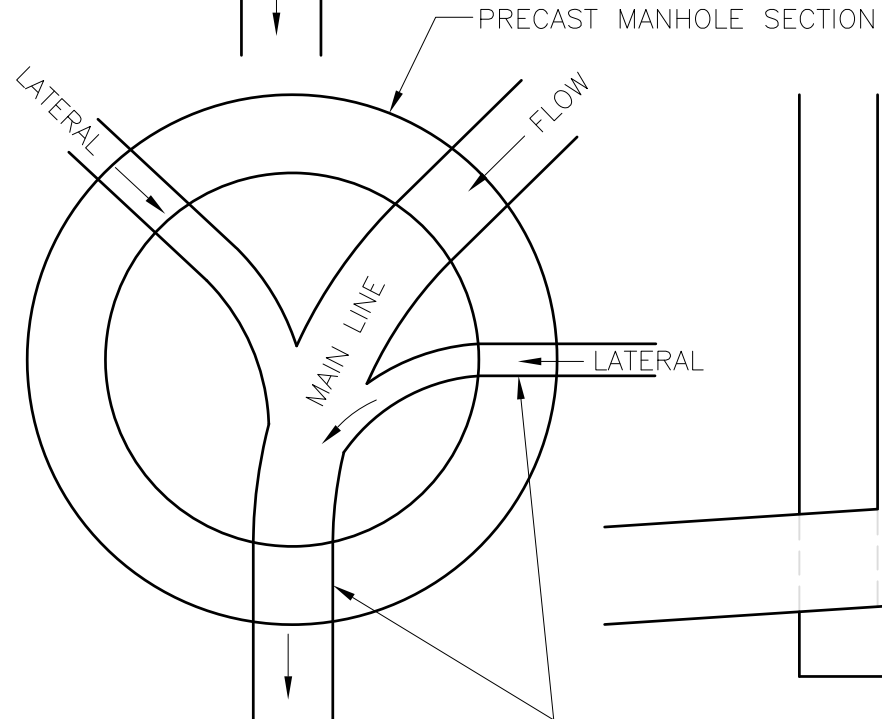
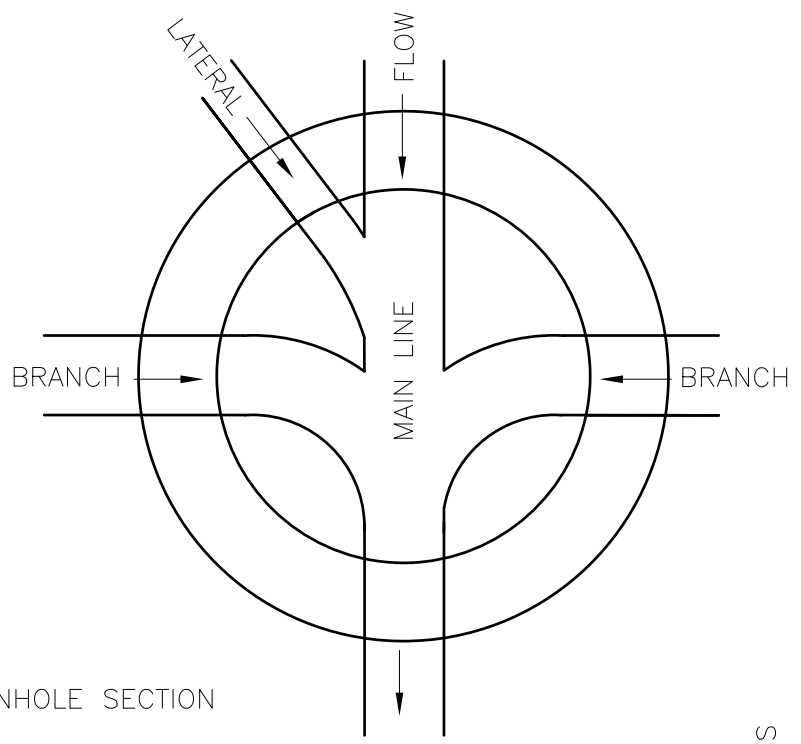
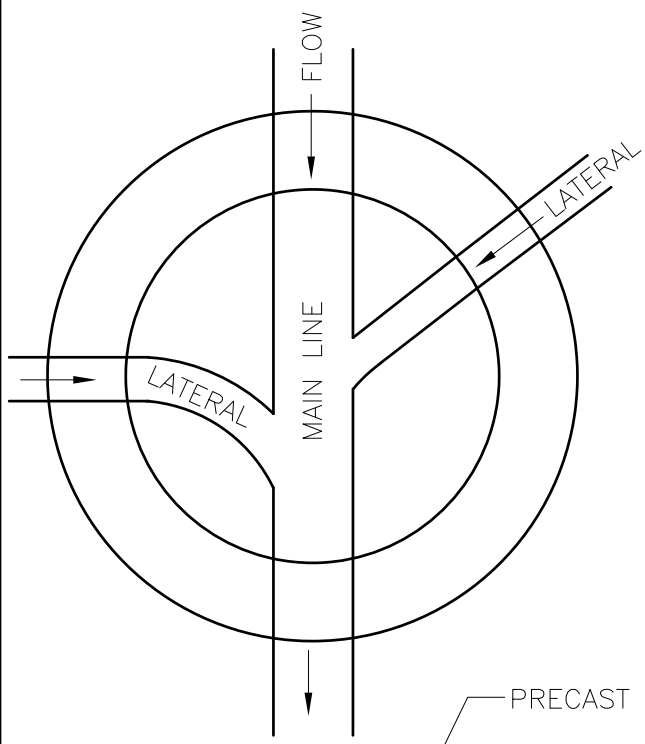
DATE: FEB. 1996

REVISED: FEB. 2021

**TYPICAL PRECAST MANHOLE
WITH DROP CONNECTION**

DRAWING NUMBER: S-5

PAGE: 1 OF 1



TYPICAL MANHOLE SECTION PER STANDARD DETAIL S-5

FOR SLOPES GREATER THAN 10% USE DROP CONNECTION IN ACCORDANCE WITH THE ACSA DESIGN STANDARDS

FOR BRANCH TIE-INS BETWEEN 90° AND 105° MATCH CROWN ELEVATIONS OR PROVIDE 0.3' DROP, WHICHEVER IS GREATER

2.5% MIN. - 10% MAX.

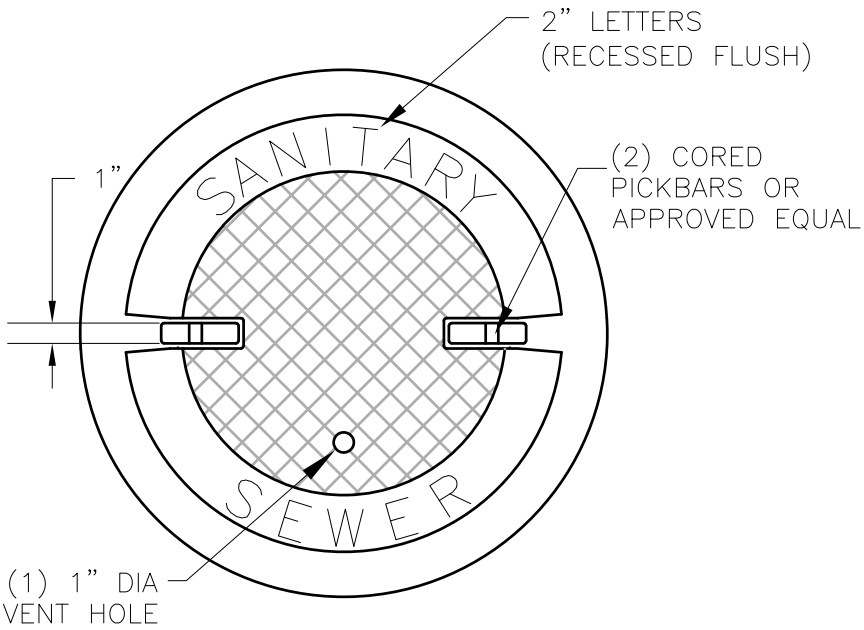
FOR INCOMING SLOPES 2.5% OR GREATER MATCH SLOPE THROUGH MANHOLE WITH INCOMING SLOPE

WATERTIGHT FLEXIBLE BOOT REQ'D AT ALL PIPE CONNECTIONS PER SPECIFICATIONS

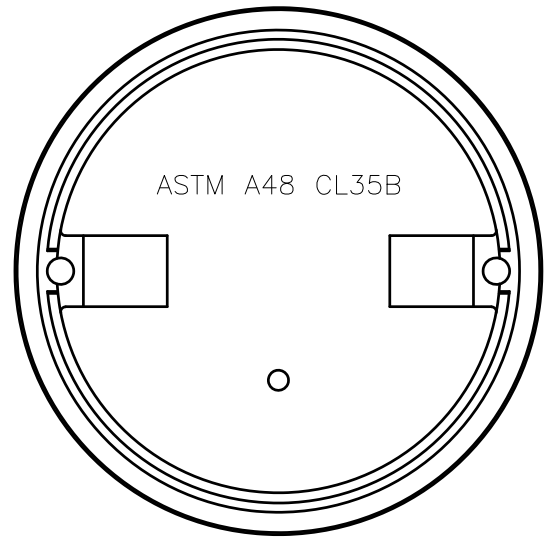
NOTES:
 1. THE INVERT CHANNELS SHALL BE CONSTRUCTED TO THE CROWN OF THE PROPOSED PIPE, FORMED WITH CONCRETE AS SHOWN AND SHALL BE SMOOTH AND SEMI-CIRCULAR IN SHAPE, CONFORMING TO THE INSIDE OF THE ADJACENT SEWER SECTION. CHANGES IN THE DIRECTION OF FLOW SHALL BE MADE WITH A SMOOTH CURVE OF AS LARGE A RADIUS AS SIZE OF MANHOLE WILL PERMIT. SEE SPECIFICATIONS FOR FURTHER DETAIL.

2. CONNECTIONS APPROACHING AT LESS THAN 90° FROM MAIN LINE, NOT PERMITTED.

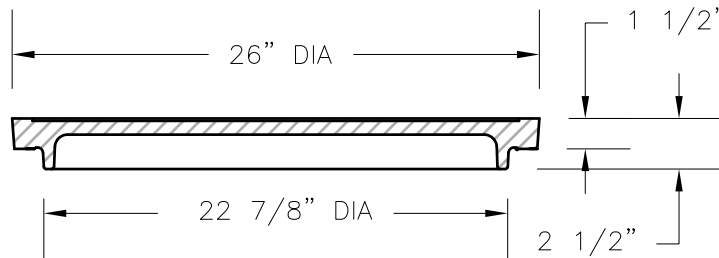
AUGUSTA COUNTY SERVICE AUTHORITY VERONA, VIRGINIA	
SCALE: NTS	DRAWN BY: ACSA
DATE: FEB. 1996	REVISED: FEB. 2021
TYPICAL MANHOLE PLAN VIEW SHOWING BRANCH TIE-IN & INVERT CHANNELING	
DRAWING NUMBER: S-6	PAGE: 1 OF 1



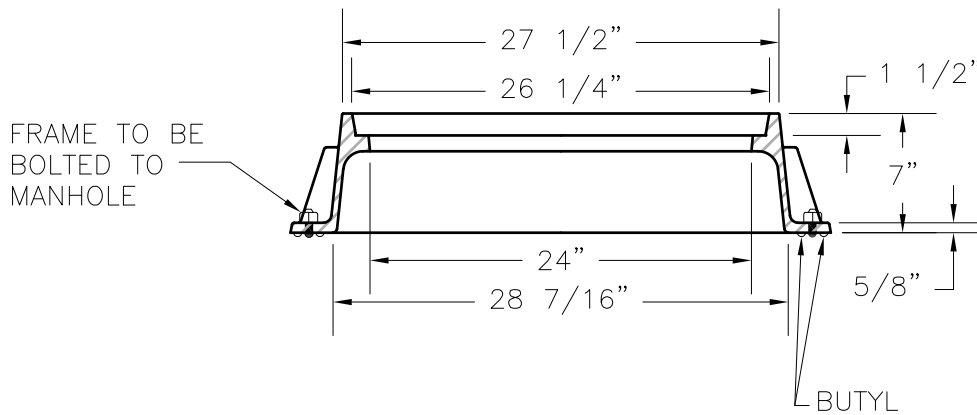
TOP OF FRAME & COVER



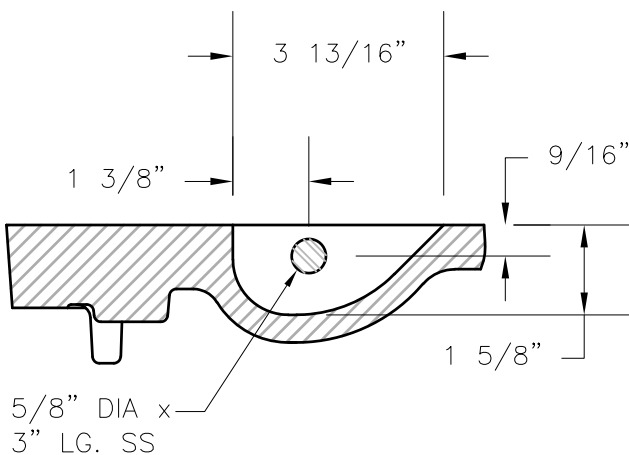
BOTTOM OF FRAME & COVER



COVER SECTION



FRAME SECTION



PICKBAR DETAIL

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DATE: MAR. 1996

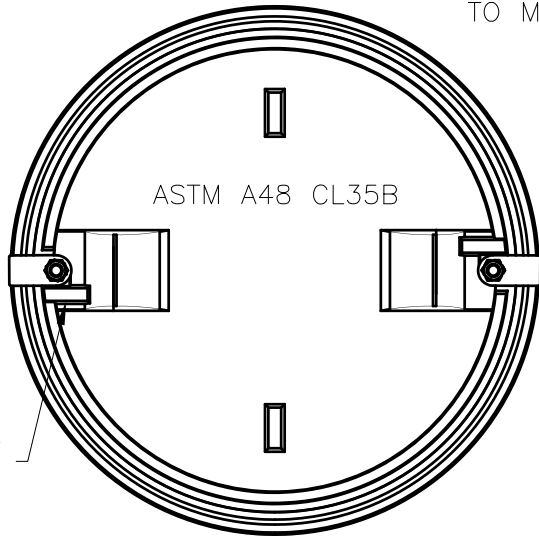
REVISED: APRIL 2021

TYPICAL MANHOLE FRAME & COVER

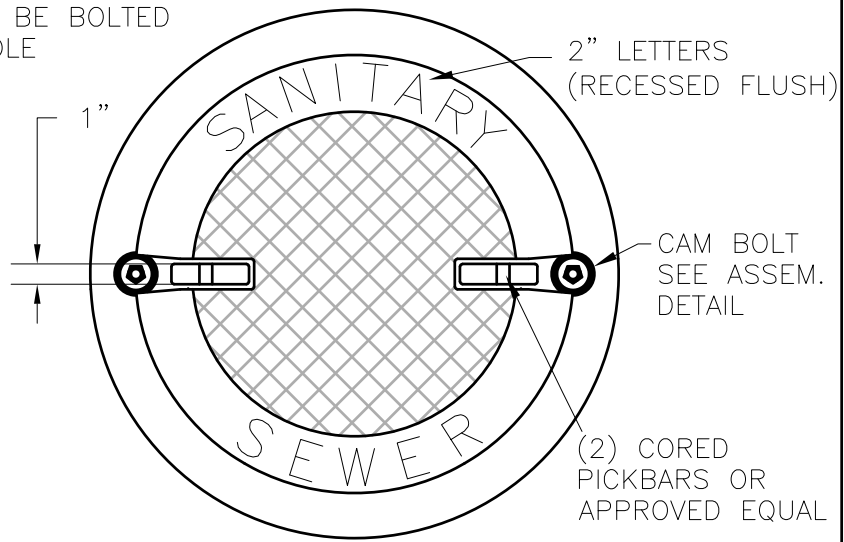
DRAWING NUMBER: S-7

PAGE: 1 OF 1

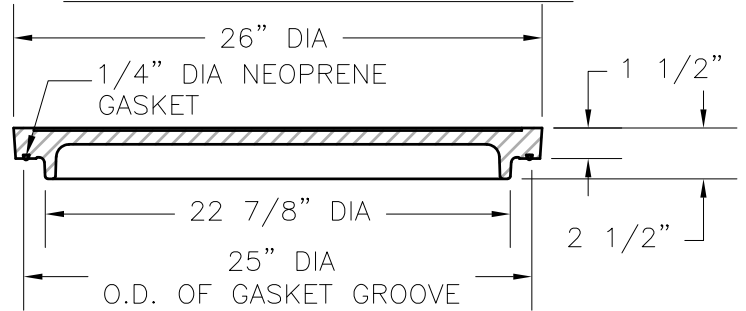
FRAME TO BE BOLTED TO MANHOLE



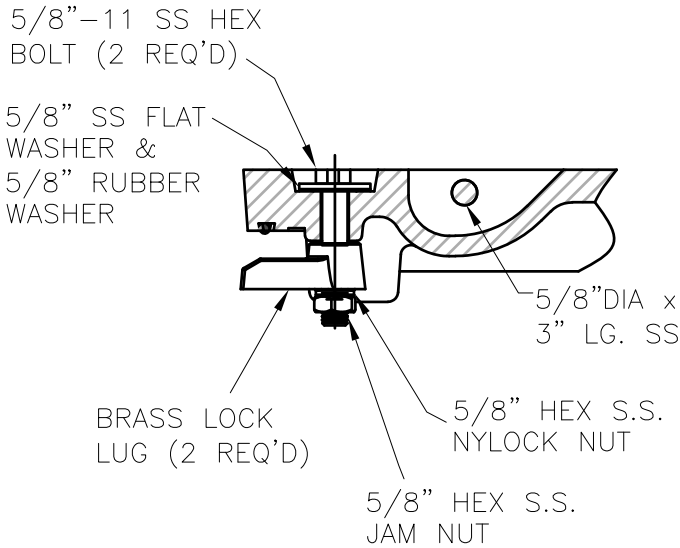
BOTTOM OF COVER



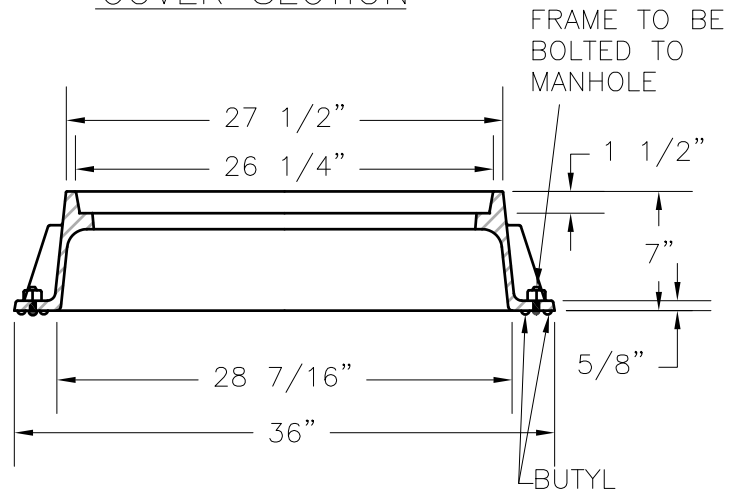
TOP OF FRAME & COVER



COVER SECTION



GASKET GROOVE, LOCKING LUG & PICKBAR DETAIL



FRAME SECTION

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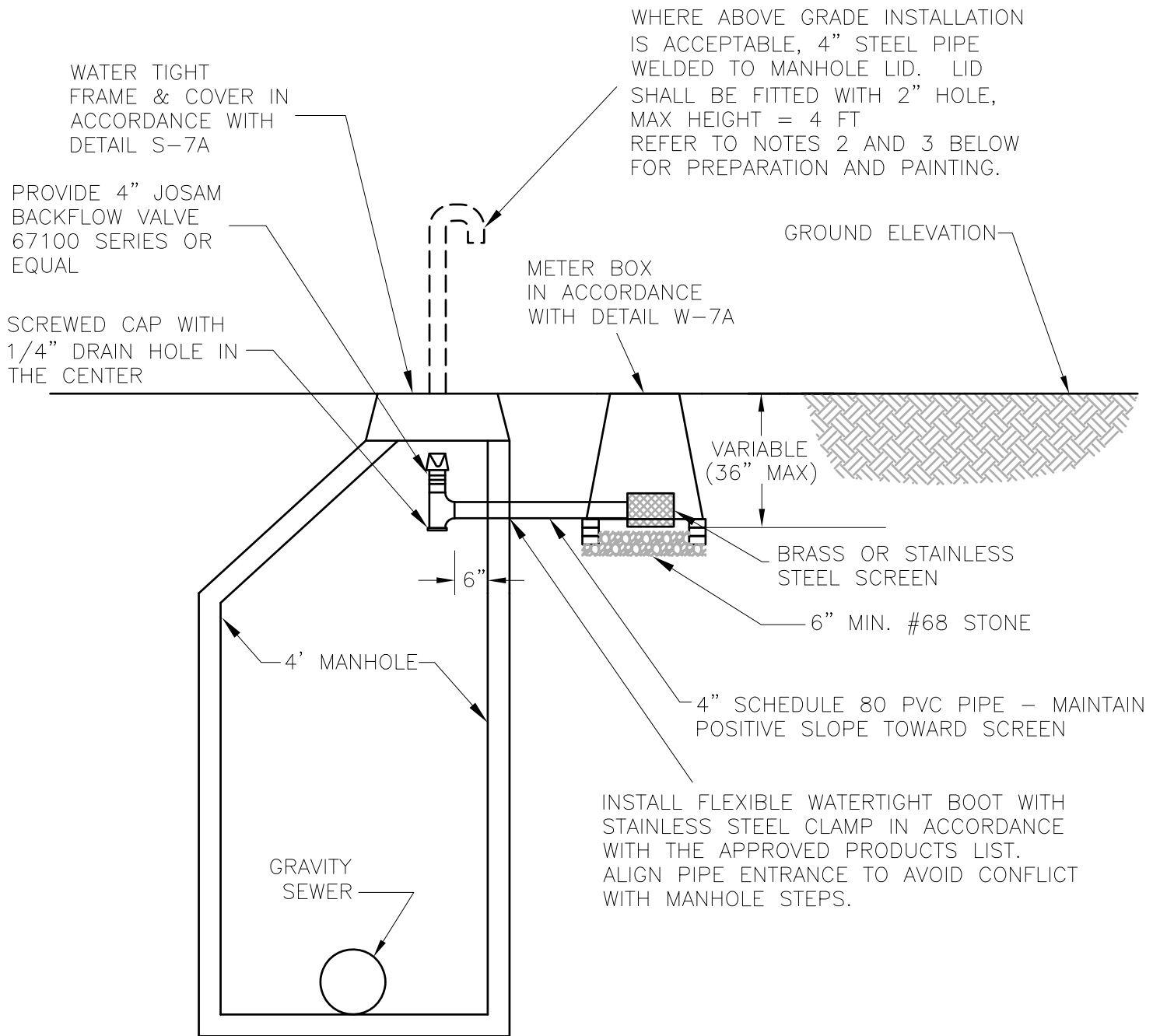
DATE: FEB. 1996

REVISED: APRIL 2021

**TYPICAL WATER-TIGHT MANHOLE
FRAME & COVER**

DRAWING NUMBER: S-7A

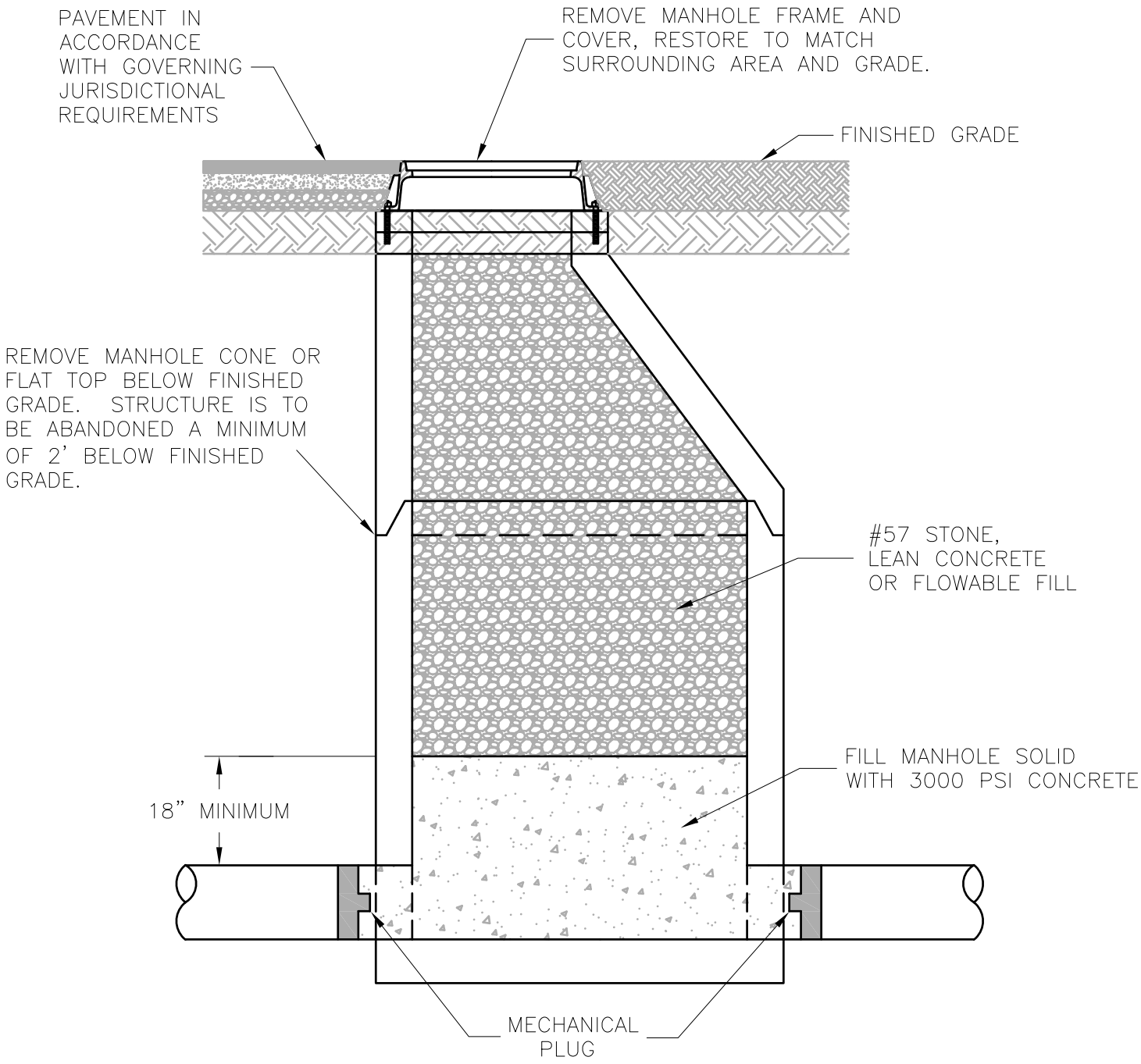
PAGE: 1 OF 1



NOTES:

1. METER BOX LID SHALL BE LABELED SEWER OR BE PLAIN WITH NO LABELING.
2. WIRE BRUSH PIPE AND REMOVE ANY OIL, GREASE OR OTHER DEBRIS PRIOR TO PAINTING.
3. APPLY A MINIMUM OF TWO COATS OF SAFETY YELLOW PAINT IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST.

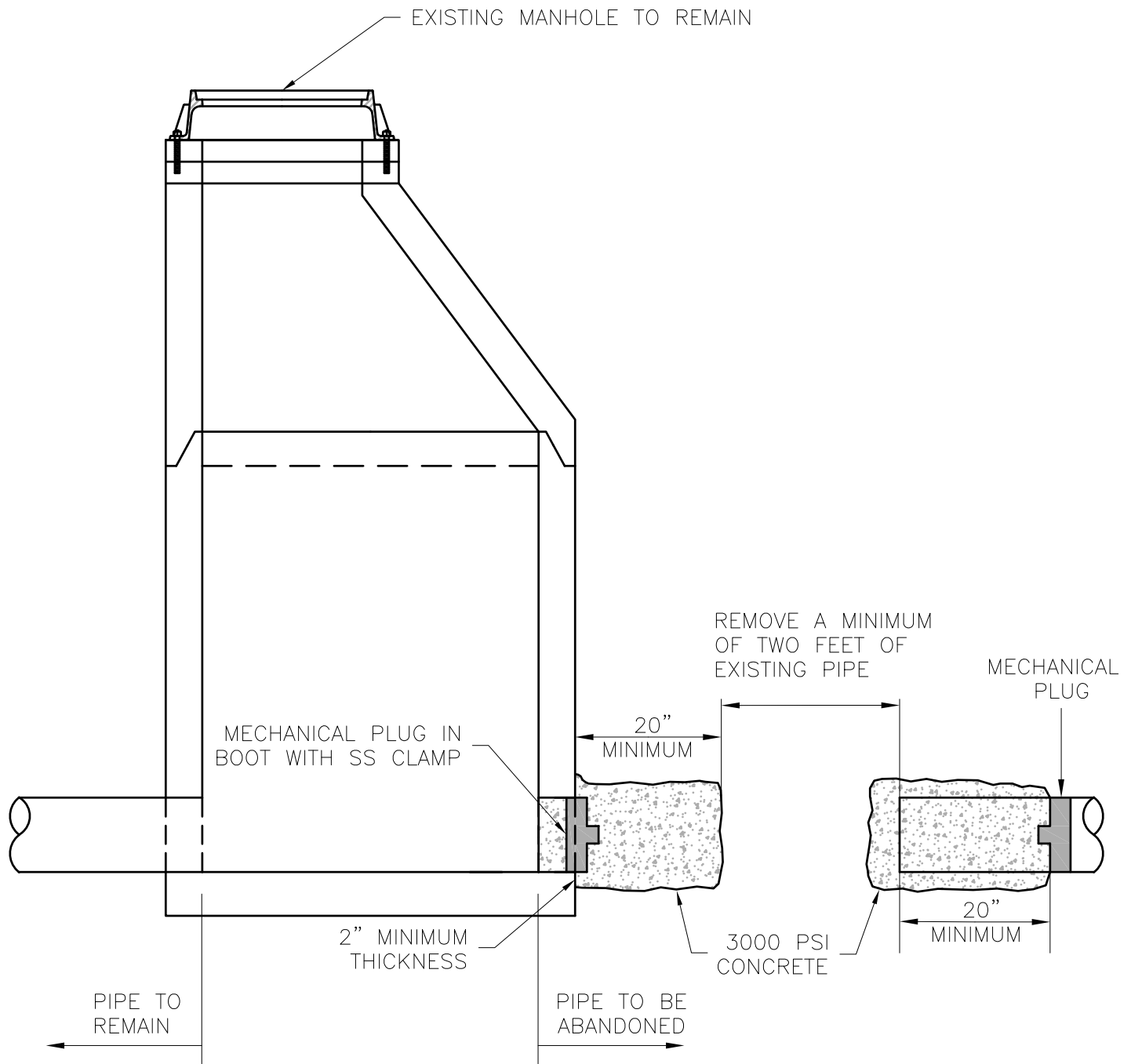
AUGUSTA COUNTY SERVICE AUTHORITY VERONA, VIRGINIA	
SCALE: NTS	DRAWN BY: ACSA
DATE: FEB. 2005	REVISED: FEB. 2021
MANHOLE VENTILATION	
DRAWING NUMBER: S-8	PAGE: 1 OF 1



NOTES:

1. FOR PIPES 18" AND SMALLER, SET MECHANICAL PLUG INTO ALL PIPES ENTERING THE MANHOLE.
2. FOR PIPES 18" AND LARGER, PROVIDE A MASONRY PLUG BULKHEAD IN LIEU OF MECHANICAL PLUGS.
3. A WRITTEN SAFETY PLAN MUST BE SUBMITTED FOR REVIEW AT LEAST 48 HOURS PRIOR TO ANY WORK INVOLVING ACSA OWNED STRUCTURES REQUIRING CONFINED SPACE ENTRY AND/OR WORKING AT HEIGHTS.

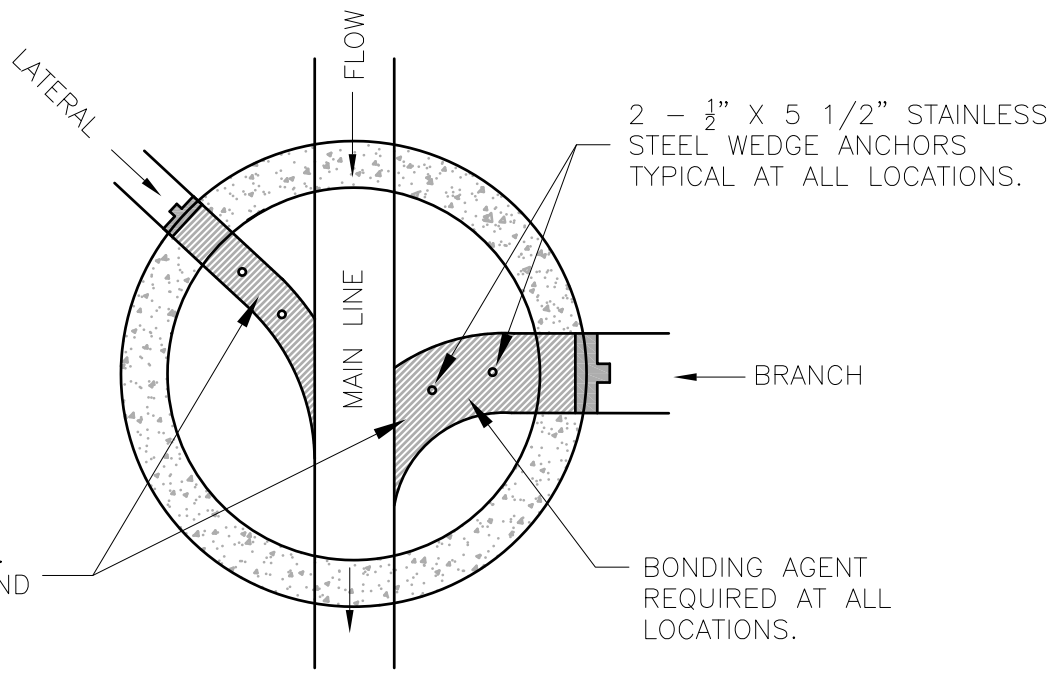
AUGUSTA COUNTY SERVICE AUTHORITY VERONA, VIRGINIA	
SCALE: NTS	DRAWN BY: ACSA
DATE: FEB. 2021	REVISED:
SANITARY SEWER MANHOLE ABANDONMENT	
DRAWING NUMBER: S-9	PAGE: 1 OF 1



NOTES:

1. FOR PIPES 18" AND LARGER, PROVIDE A MASONRY BULKHEAD IN LIEU OF MECHANICAL PLUGS.

AUGUSTA COUNTY SERVICE AUTHORITY VERONA, VIRGINIA	
SCALE: NTS	DRAWN BY: ACSA
DATE: FEB. 2021	REVISED:
SANITARY SEWER PIPE ABANDONMENT AT MANHOLE	
DRAWING NUMBER: S-10	PAGE: 1 OF 1

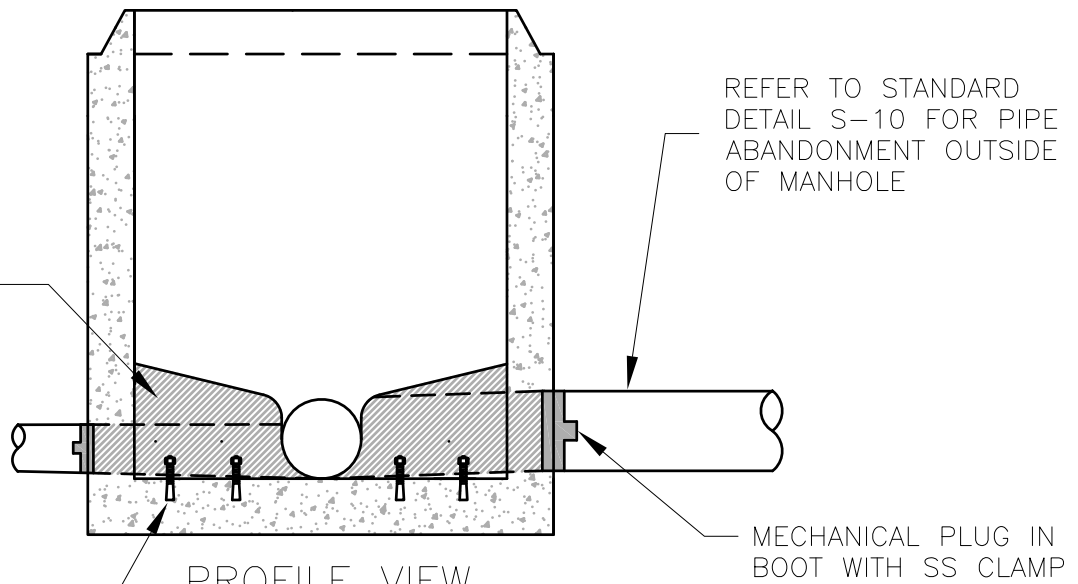


FILL ABANDONED INVERTS WITH 3000 PSI CONCRETE. MATCH EXISTING BENCH AND TROUGH GRADES.

2 - 1/2" X 5 1/2" STAINLESS STEEL WEDGE ANCHORS TYPICAL AT ALL LOCATIONS.

BONDING AGENT REQUIRED AT ALL LOCATIONS.

PLAN VIEW



FILL ABANDONED INVERTS WITH 3000 PSI CONCRETE. MATCH EXISTING BENCH AND TROUGH GRADES.

REFER TO STANDARD DETAIL S-10 FOR PIPE ABANDONMENT OUTSIDE OF MANHOLE

MECHANICAL PLUG IN BOOT WITH SS CLAMP

PROFILE VIEW

1/2" X 5 1/2" STAINLESS STEEL WEDGE ANCHORS WITH NUTS

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VERONA, VIRGINIA**

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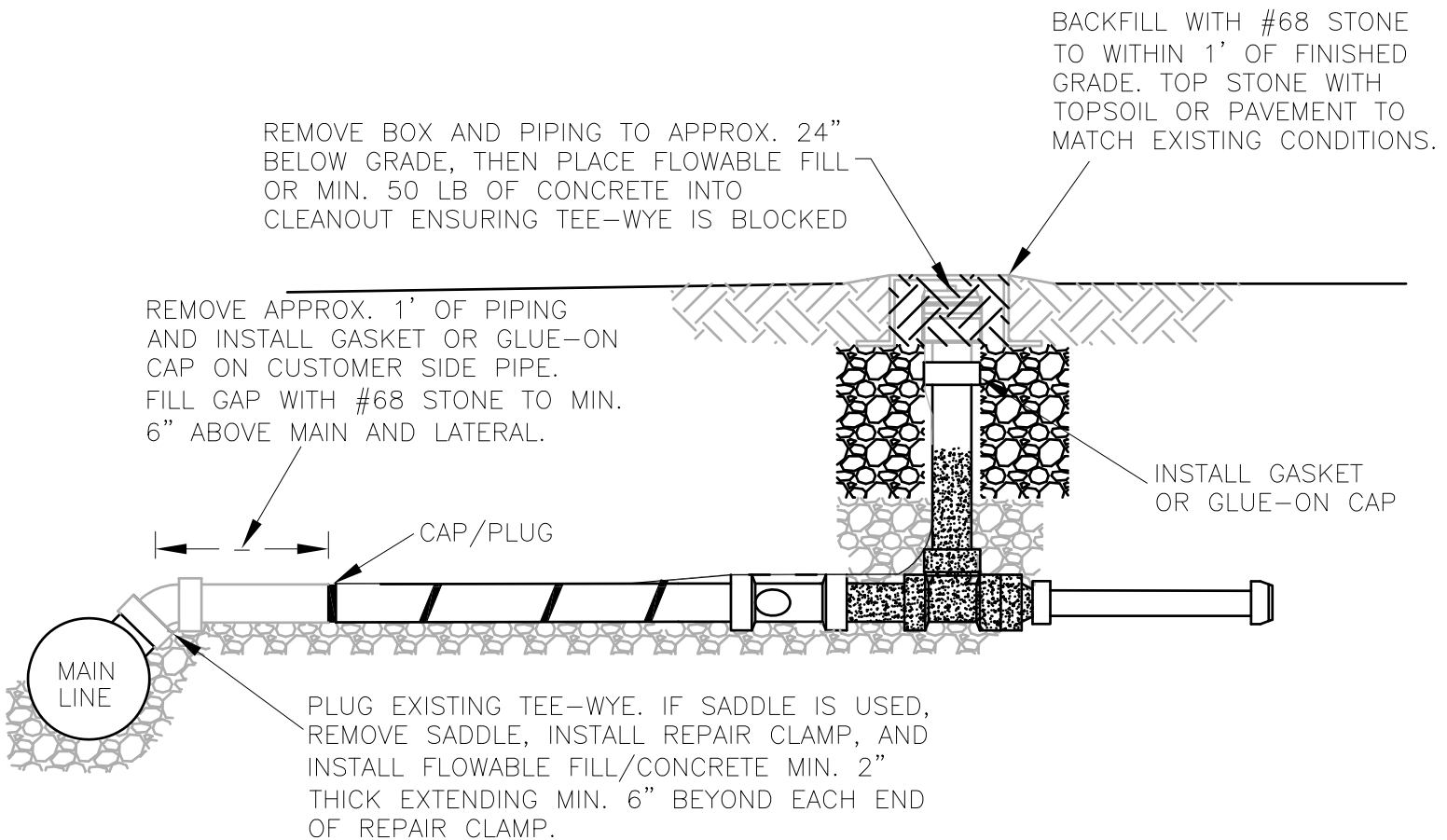
DATE: APRIL 2021

REVISED:

**TYPICAL MANHOLE
INVERT ABANDONMENT**

DRAWING NUMBER: S-11

PAGE: 1 OF 1



NOTES:

1. CLEANOUT FRAME AND COVER TO BE RETURNED TO THE ACSA.
2. ANY WORK TAKING PLACE ON ASBESTOS CEMENT PIPE IS TO BE PERFORMED BY CERTIFIED PERSONNEL.
3. SEE ACSA DETAIL S-10 FOR LATERALS ENTERING A MANHOLE.

**AUGUSTA COUNTY SERVICE AUTHORITY
VERONA, VIRGINIA**

SCALE: NTS

DRAWN BY: ACSA

DATE: APRIL 2021

REVISED:

SEWER SERVICE ABANDONMENT

DRAWING NUMBER: S-12

PAGE: 1 OF 1