ARTICLE 2 (WATER REGULATIONS)

General Notes

Allowable materials for use in water distribution networks include, but are not limited to the following:

A. Water Meters

1. All service connections shall be metered. Meters shall be purchased from the Town of Leesburg.

2. For specific meter locations and sizes which may be used, refer to Article 2, Section 2-340 and Details WD-10 and WD-11.

B. Pipe

1. All pipe must have a born on date within one year from pre-construction meeting or start of the project.
2. All ductile iron fittings must be zinc or epoxy coated.
3. All mains must have 12" of VDOT 68 stone 12" under and 12" over the pipe. Service lines must have 6" of VDOT 68 stone 6" under and 6" over the service line.

C. Cathodic Protection

1. All plans requiring Cathodic Protection must provide all details in the plans prior to approval.

D. The current version of the Approved Materials List can be found on the Town of Leesburg website.

Not To Scale

REVISIONS				**GENERAL NOTES**	DRAWING WN-1
NO.	DATE:				
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REVISIONS				BLANK	DRAWING WN-2
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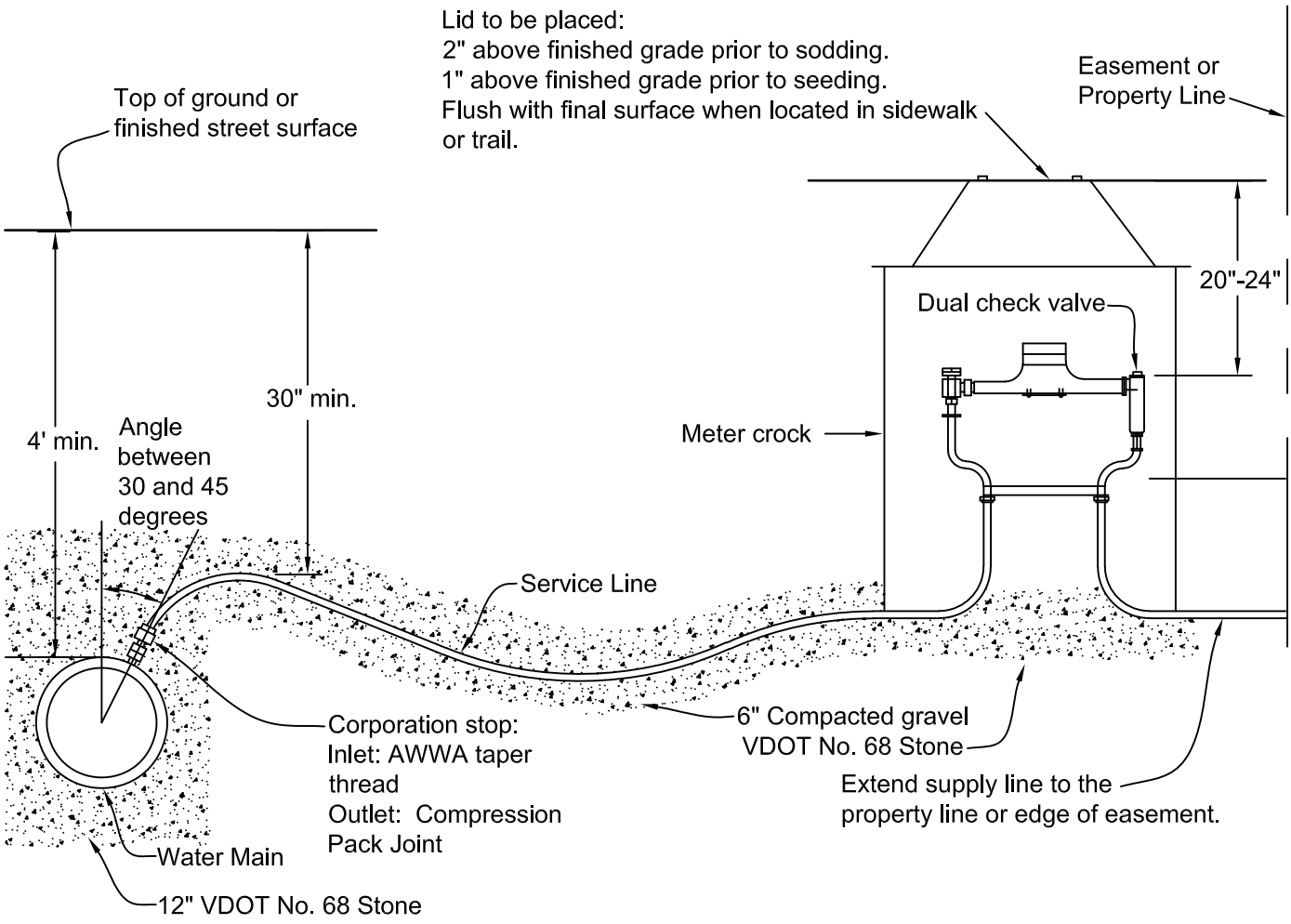
1					PAGE 2
2	04/09/24				

ARTICLE 2-122.4D(5)



NOTES:

A. Refer to water details WD-10 and WD-11 of Article 2 for sizing combinations of the service line and meter.
B. This detail is for ¾" or 1" Water Meter.
C. The meter setter and cross bar shall be centered in the crock and equidistant from the inside edge of the crock.
D. Top of water meter crock lid shall not be higher than the final grade of surrounding surfaces including brick or concrete sidewalk, curb, asphalt trail or seeded/sodded area.

Not To Scale

REVISIONS			
NO.	DATE:		
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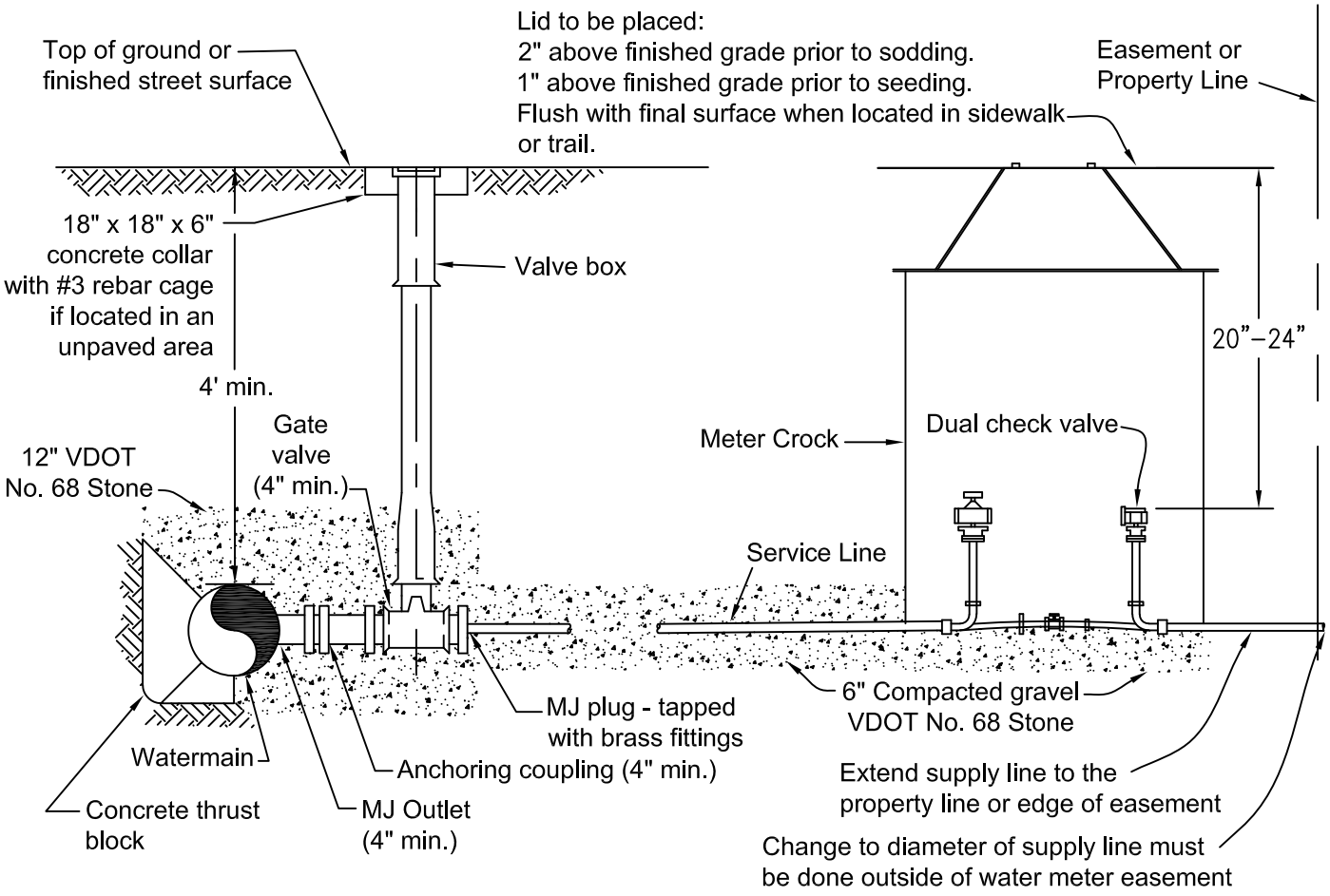
1" WATER SERVICE AND ¾" or 1" METER

DRAWING WS-1

ARTICLE 2-122.4D(5)



NOTES:

A. Refer to Article 2 water details WD-10 and WD-11 for service line and meter sizing combinations.
B. This detail is for a 1½" or 2" Water Meter.
C. The meter setter and cross bar shall be centered in the crock and equidistant from the inside edge of the crock.
D. Brass adapters are required for the installation.
E. Top of water meter crock lid shall not be higher than the final grade of surrounding surfaces including brick or concrete sidewalk, curb, asphalt trail, or seeded / sodded area.
F. All service lines will be 2". Reduction for water meter will be in the meter crock.

Not To Scale

REVISIONS				**2" WATER SERVICE AND METER CONNECTION**	DRAWING WS-2
NO.	DATE:				
1					PAGE 4
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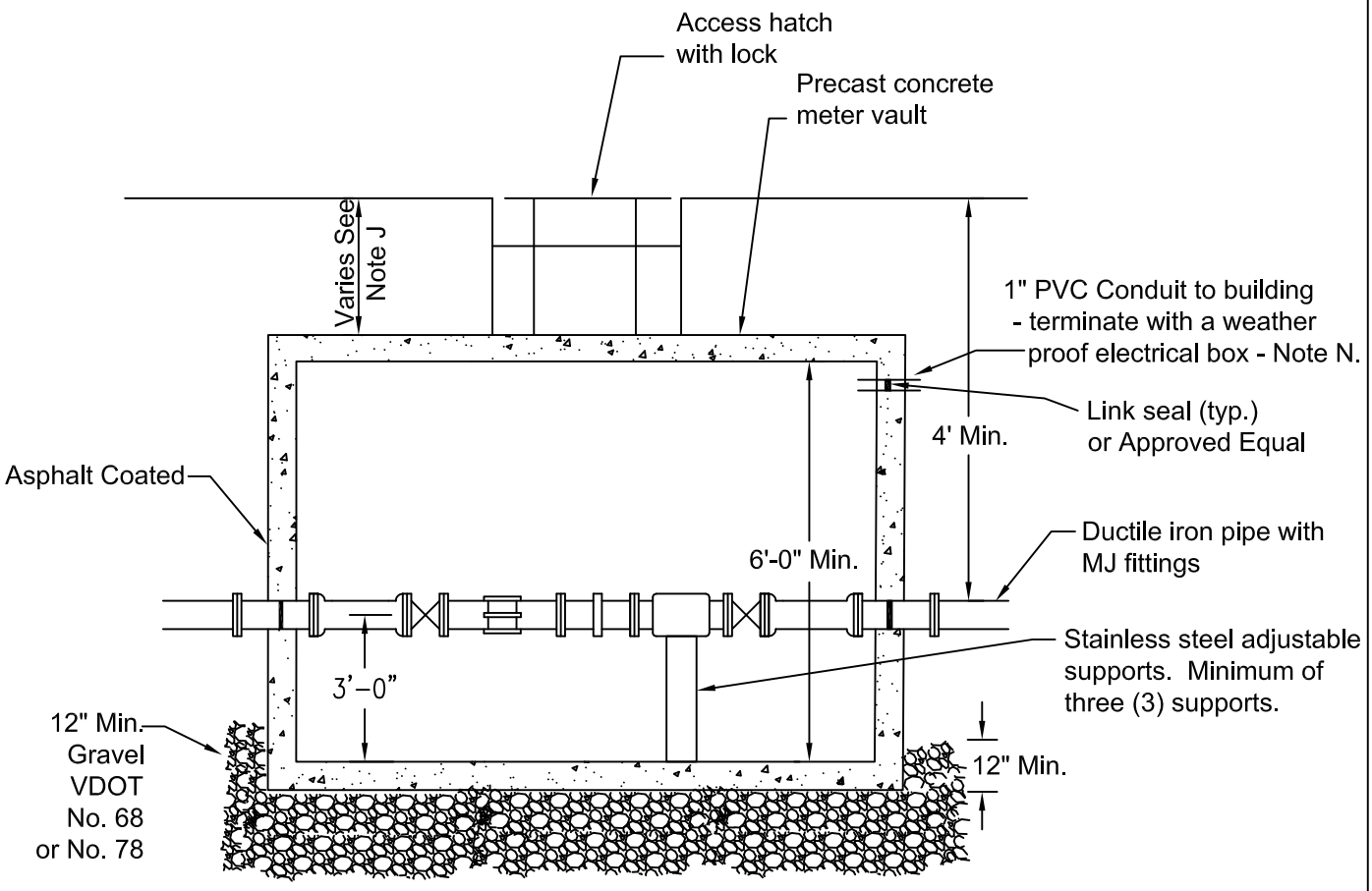
ARTICLE 2-340.5A



TYPICAL SECTION

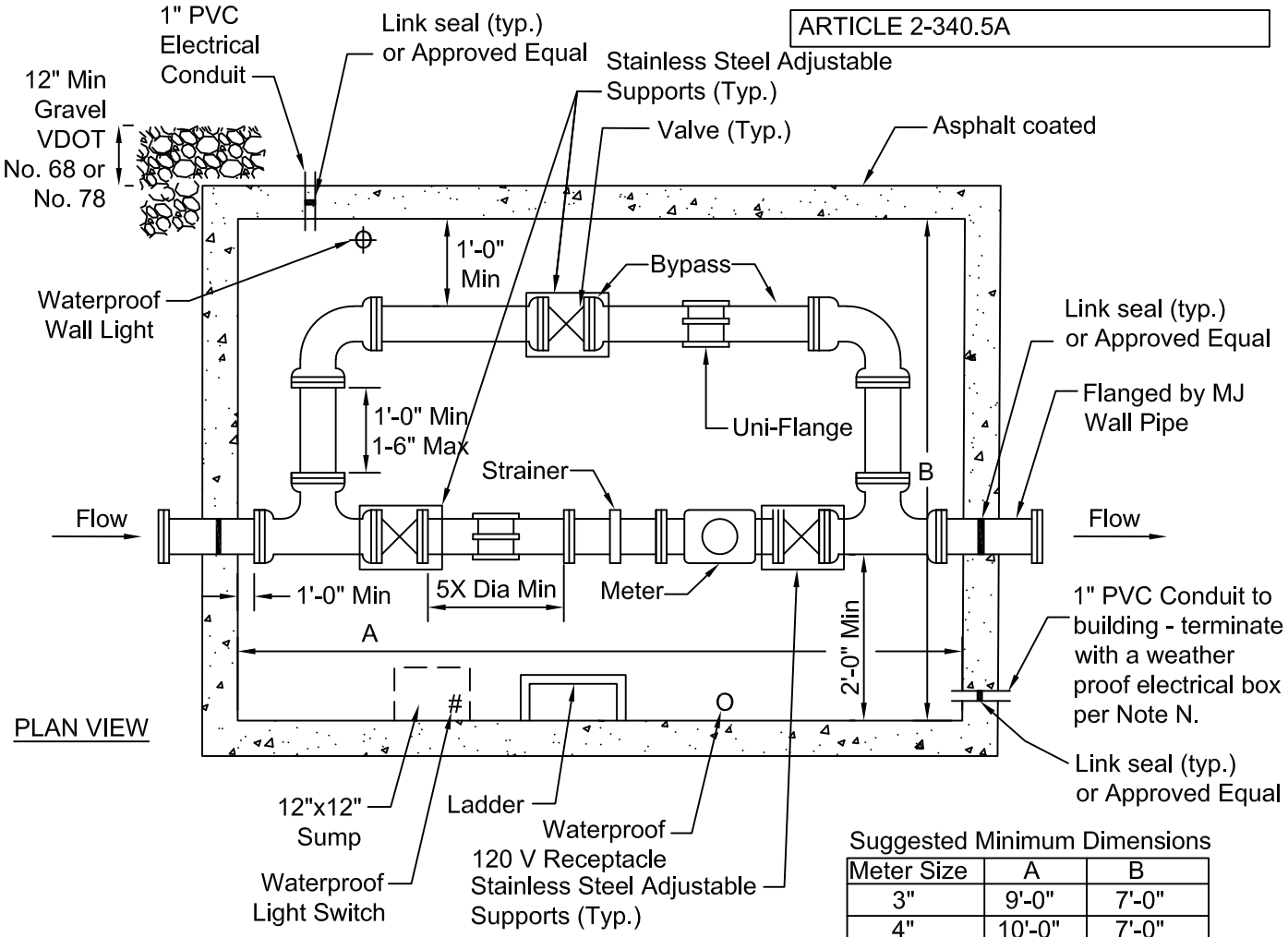
NOTES:

A. The site plan drawings will accompany details of the valve vault construction and installation. Shop drawings shall be submitted to the Town for approval.
B. Inside ceiling height to be 6'-0" min. pipe centerline 3'-0' above floor.
C. Utilize Bilco 36"x36" hinged frame and cover model J-4AL or approved equal with lock.
D. Structural design to be certified by a Virginia Professional Engineer.
E. Tap at main is to be valved and restrained.
F. Slope floor to sump. A gravity drain with screen or sump pump must be provided for the valve vault.
G. All valves shall be epoxy coated resilient wedge gate valves with hand wheel operators.
H. All pipe within the vault shall be flanged pipe.
I. See drawing WS-4 for construction of meter vault assembly.
J. The meter vault top must consider the asphalt pavement section if the vault is located in a paved area.
K. The water meter will be ordered by the Town and paid for by the owner.
L. The access hatch shall be flush with the finished grade.
M. Vault and hatch shall be designed for HS-20 loading when subject to traffic loading.
N. Contractor to provide PVC conduit with required wiring through vault wall to the building wall where receptacle box will be provided for wall mount MTU.

Not To Scale

REVISIONS				**3" AND LARGER WATER METER CONNECTION WITH NO FIRE SERVICE**	DRAWING WS-3
NO.	DATE:				
1					
2	10/16/07				
3	04/27/10				PAGE 5
4	04/09/24				

ARTICLE 2-340.5A



Suggested Minimum Dimensions

Meter Size	A	B
3"	9'-0"	7'-0"
4"	10'-0"	7'-0"
6"	10'-0"	7'-0"

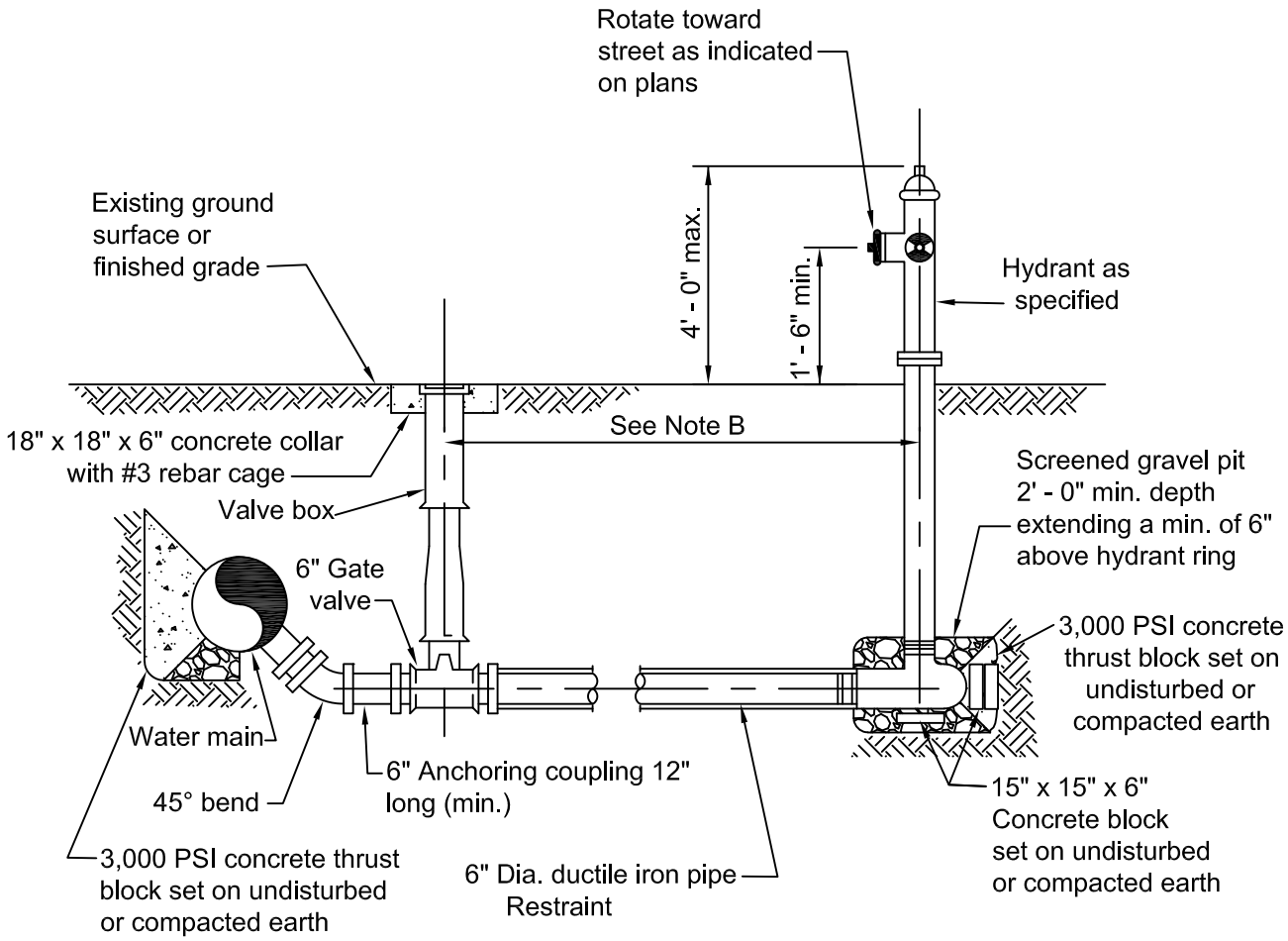
NOTES:

A. The site plan drawings will accompany details of the valve vault construction and installation. Shop drawings shall be submitted to the Town for approval.
B. Inside ceiling height to be 6'-0" min. pipe centerline 3'-0' above floor.
C. Utilize Bilco 36"x36" hinged frame and cover model J-4AL or approved equal with lock.
D. Structural design to be certified by a Virginia Professional Engineer.
E. Tap at main is to be valved and restrained.
F. Slope floor to sump. A gravity drain with screen or sump pump must be provided for the valve vault.
G. All valves shall be epoxy coated resilient wedge gate valves with hand wheel operators.
H. All pipe within the vault shall be flanged pipe.
I. The meter vault top must consider the asphalt pavement section if the vault is located in a paved area.
J. The water meter will be ordered by the town and paid for by the owner.
K. The access hatch shall be flush with the final grade.
L. Vault and hatch shall be designed for HS-20 loading when vault subject to traffic loading.
M. See drawing WS-3 for additional information.
N. Contractor to provide PVC conduit with required wire through vault wall to the building wall where receptacle box will be provided for wall mount MTU.
O. Provide a minimum three (3) stainless steel supports.

Not To Scale

REVISIONS				**3" AND LARGER WATER METER INSTALLATION WITH NO FIRE SERVICE**	DRAWING WS-4
NO.	DATE:				
1					PAGE 6
2	10/16/07				
3	04/27/10				
4	04/09/24				

ARTICLE 2-122.4L



NOTES:

A. Maximum hydrant barrel height is limited to 8'.
B. Horizontal setback distance from flow line of gutter or edge of pavement shall be 14" minimum and 24" maximum.
C. Two types of restraints are required. Strapping may be required also due to field conditions.
   1. Mega lugs or bell restraints
   2. Anchoring coupling between valve and hydrant.
   3. Thrust blocks at hydrant.
D. Hydrants over 5' deep must use vertical aqua grip shoe with aqua grip 90° bend.

Not To Scale

REVISIONS				**BLOW - OFF FIRE HYDRANT**	DRAWING WS-5
NO.	DATE:				
1					PAGE 7
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ARTICLE 2-122 4.K., 2-270, 2-340 2. & 9.

Utility Services Summary Table

PROJECT NAME: _____

Building	Use / Sq Ft	Lateral (in)	Grease Trap	Service	Meter	Supply	Fireline	Pump Dom.	Pump Fire
A	50,000	4"	No	2"	2"	2"	6"	No	Yes
B	4,000	4"	Yes	1"	1"	2"	6"	No	Yes
C	6,000	4"	No	1"	1"	2"	6"	No	Yes
D	10,000	4"	Yes	2"	1.5"	2"	6"	No	Yes
E	15,000	4"	No	1"	1.5"	2"	6"	No	Yes

NOTES:

A. A table similar to the one above shall be placed on one of the plan sheets.

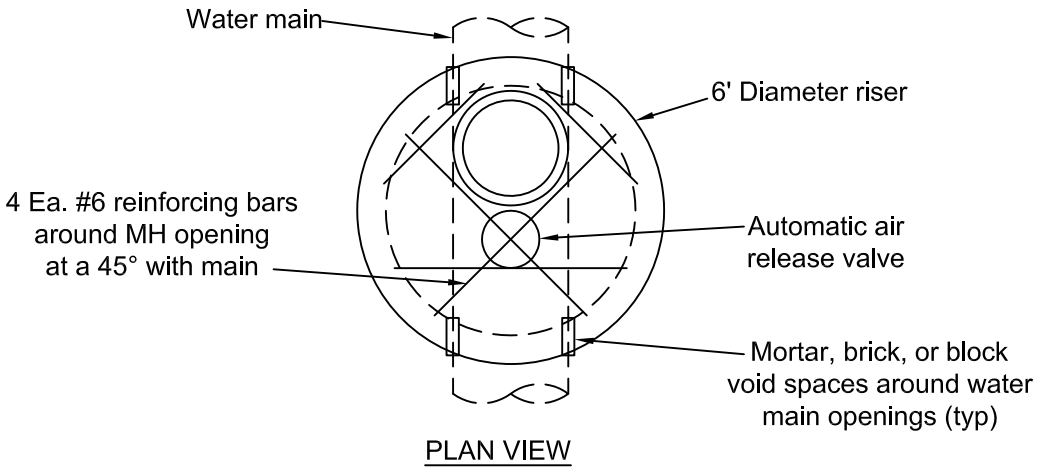
Not To Scale

REVISIONS			
NO.	DATE:		
2	10/16/07		
3 - NEW	04/27/10		

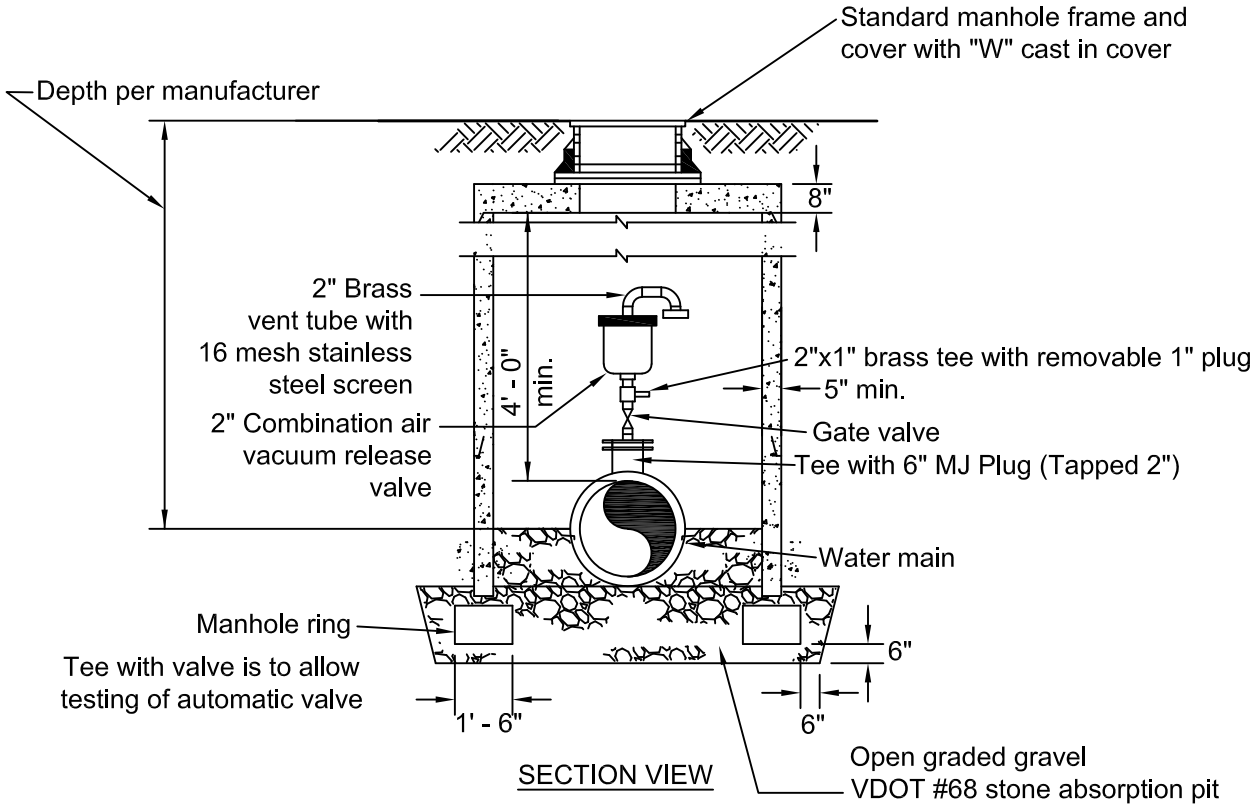
SAMPLE UTILITY SERVICE SUMMARY TABLE

DRAWING
WS-6

ARTICLE 2-122.4M



PLAN VIEW



SECTION VIEW

NOTES

A. Manhole cover must be flush with final grade.
B. Localized dips in water mains are not allowed to avoid use of air release valves.
C. Manhole has an 8" by 1' - 6" ring bottom as shown.
D. Manhole venting as shown on DCSM detail SS-9 to be used in areas subject to flooding.
E. This detail depicts typical 2" installation. Custom details are required for larger sizes.

Not To Scale

REVISIONS			
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1			
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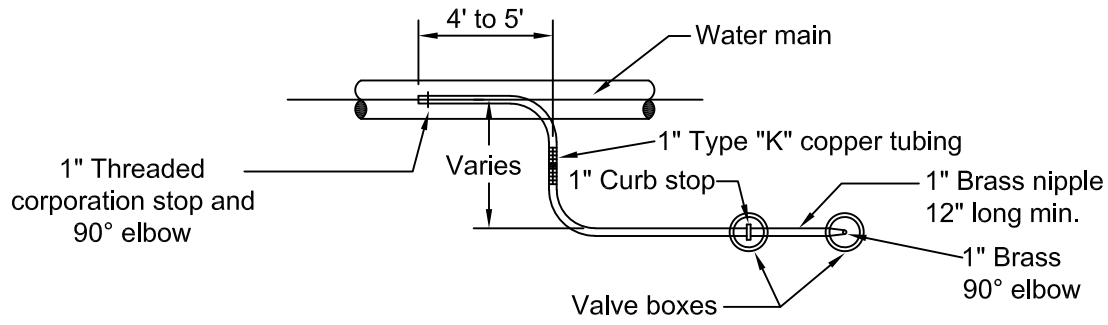
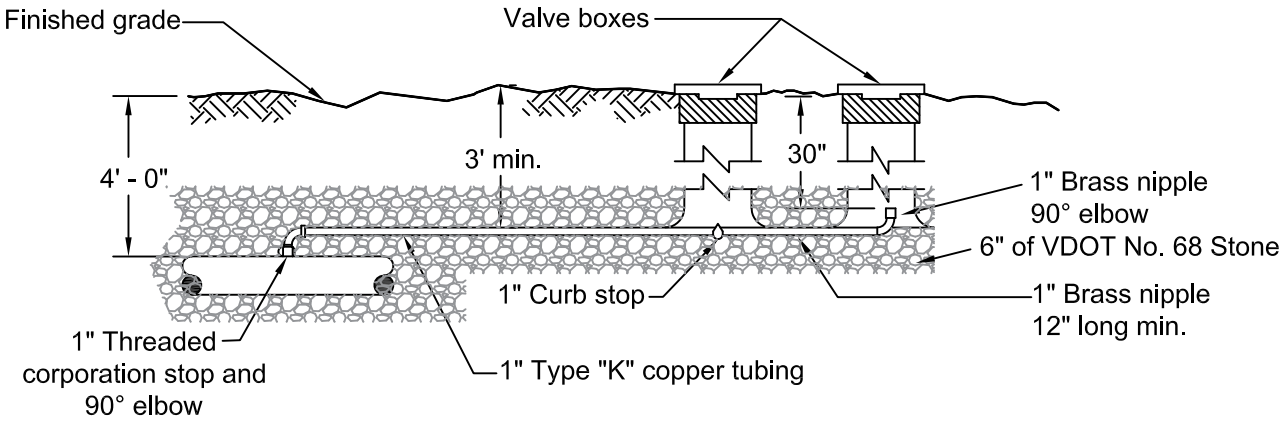
2" COMBINATION AUTOMATIC AIR RELEASE VALVE

DRAWING WS-7

ARTICLE 2-122.4M



PLAN VIEW



ELEVATION VIEW

NOTE:

A. Easement must be expanded to provide 5' clearance from air release.
B. If outside paved area, provide 18" x 18" x 6" concrete collar with #3 rebar cage around the valve boxes.
C. For use on 6" pipes.

Not To Scale

REVISIONS				1" MANUAL AIR RELEASE	DRAWING WS-8
NO.	DATE:				
1					PAGE 10
2	10/16/07				
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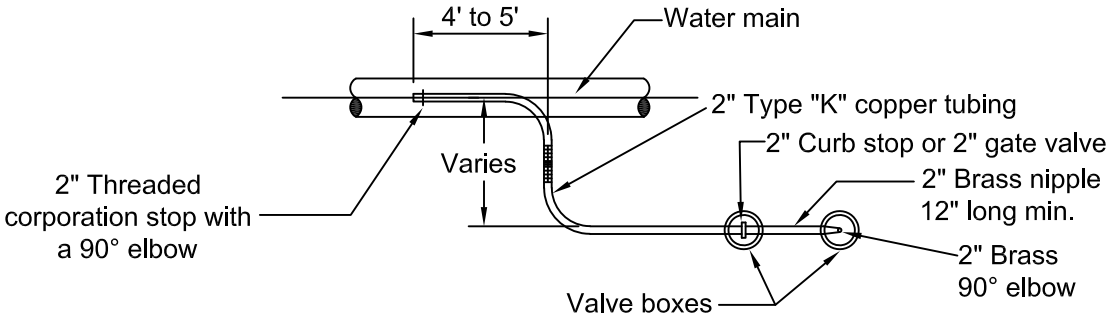
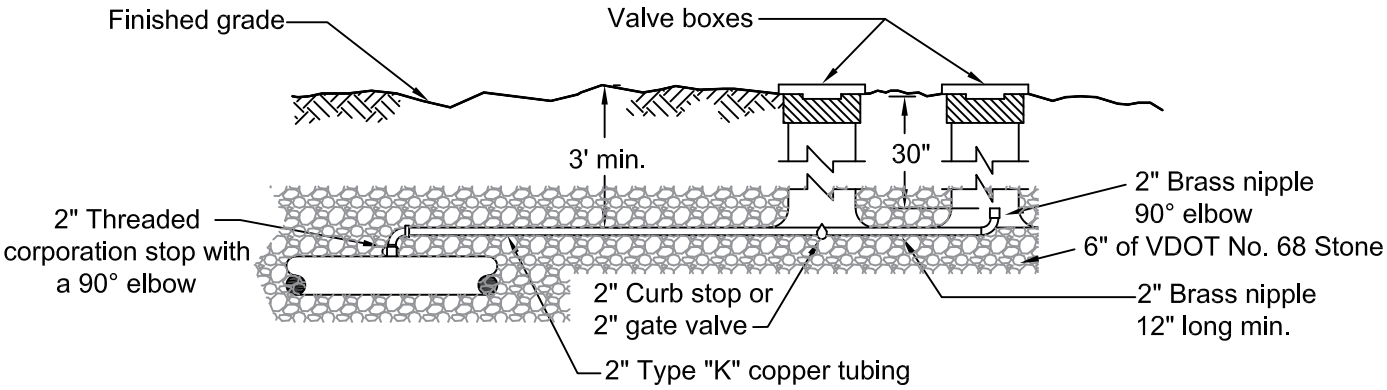
ARTICLE 2-122.4M



PLAN VIEW



ELEVATION VIEW

NOTE:

A. Easement must be expanded to provide 5' clearance from air release.
B. If outside paved area, provide 18" x 18" x 6" concrete collar with #3 rebar cage around the valve boxes.
C. For use on 8" and 10" pipes.

Not To Scale

REVISIONS				**2" MANUAL AIR RELEASE**	DRAWING WS-9
NO.	DATE:				
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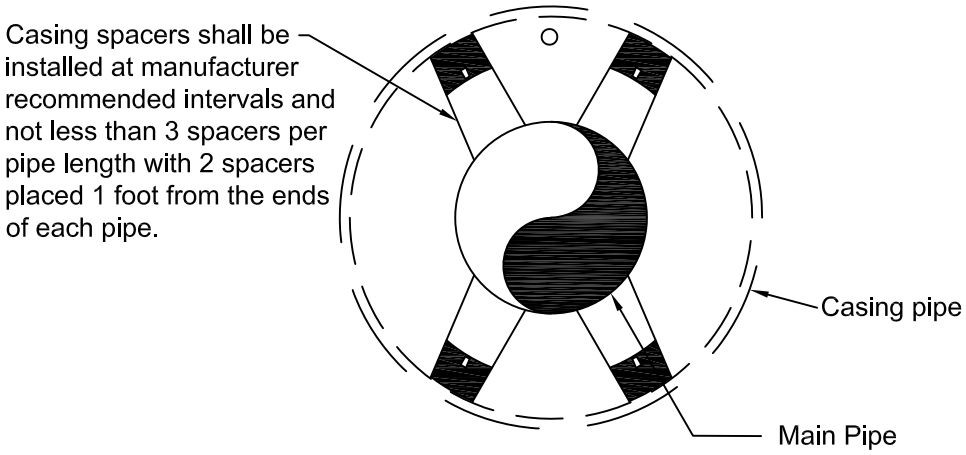
ARTICLE 2-338

CASING PIPE SIZE	
PIPE SIZE (inches)	CASING PIPE SIZE (inches)
6	16
8	20
10	24
12	24
14	30
16	30
18	36
20	36
24	36



NOTES:

A. Casing ends must utilize mortar, brick, or block and casing end sealer per manufacturer's recommendations. The acceptable manufacturers are Cascade, PSI Casing Spacers or approved equal.
B. The steel casing for boring and jacking for highway crossings shall be welded steel pipe with a minimum yield strength of 35,000 PSI. The wall thickness shall be ⅜" for pipes up to 36" in diameter and ½" for pipes 42" or greater in diameter.
C. The steel casing shall be shop primed inside and outside with one coat of inertol rust inhibitive primer No. 621 or equal.
D. The steel casing shall conform to the requirements of ASTM designation grade "B".
E. All casings to be filled with sand, flowable fill, grout or approved equal after carrier pipe is installed. Casing fill material to be approved by town inspector.
F. Main pipe shall be ductile iron (Water) or PVC C900 with PVC bell joint restraint pipe within the casing (mega-lug, super-lok, TR Flex, Flex Ring, HP Lok, snap-lok, or approved equal).
G. Casing spacers shall be installed at manufacturer recommended intervals and not less than 3 spacers per pipe length with 2 spacers placed 1 foot from the ends of each pipe.

Not To Scale

REVISIONS				**STANDARD CASING INSTALLATION**	DRAWING WS-10
NO.	DATE:				
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REVISIONS				BLANK	DRAWING WS-11
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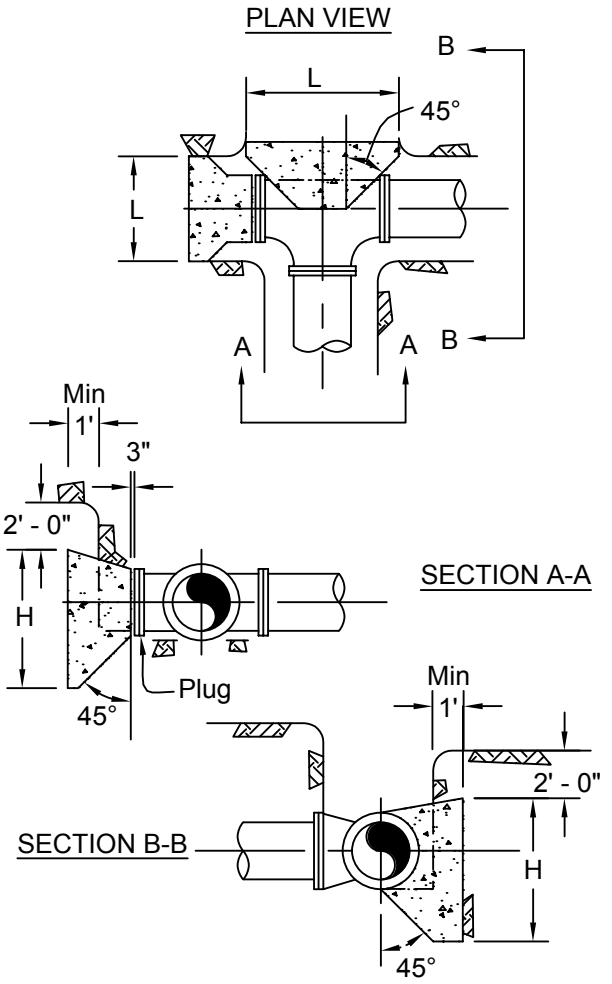
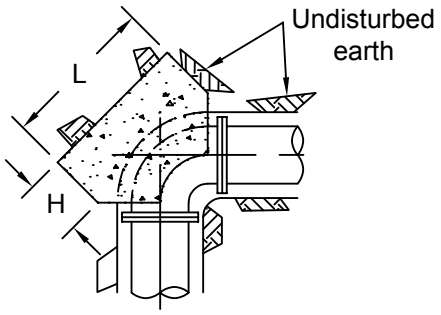
MINIMUM CONCRETE ANCHOR BLOCK DIMENSIONS - FEET			
Pipe Size Inches	Degree of Bend	150 PSI Working Pressure	
		L	H
6	90 45 22.5 11.25	2.5 2.5 1.5 1.5	2.0 1.0 1.0 1.0
8	90 45 22.5 11.25	4.0 2.5 2.5 2.0	2.0 2.0 1.0 1.0
12	90 45 22.5 11.25	5.0 4.0 2.5 2.0	4.0 2.5 2.0 1.5
16	90 45 22.5 11.25	7.5 5.0 3.0 3.0	4.5 3.5 3.0 3.0
20	90 45 22.5 11.25	8.5 6.0 4.5 4.5	6.0 4.5 3.0 3.0
24	90 45 22.5 11.25	11.0 7.0 5.0 5.0	6.5 5.5 4.0 4.0

ARTICLE 2-122.4O



NOTES:

A. The above table is based on 3,000 PSF soil bearing capacity.
B. Concrete anchor block dimensions for tees to be same as for 90° bends.
C. Anchor block design for pipe larger than 24" shall be reviewed on an individual basis by the Director.
D. Height of concrete anchor block above pipe centerline is ⅓ the H dimension.
E. Concrete strength (f"c) shall be 3,000 psi.
F. Anchor block design for pipes larger than 24" shall be reviewed on an individual basis by the Town.
G. Wrap fitting with polyethylene sheeting. Concrete must not obstruct access to mechanical joint assembly.



PLAN VIEW

Not To Scale

REVISIONS			
NO.	DATE:		
1			
3	04/27/10		

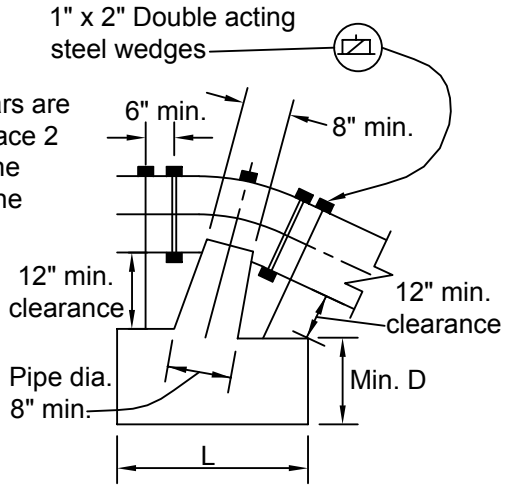
THRUST BLOCKS

DRAWING WS-12

PAGE 14

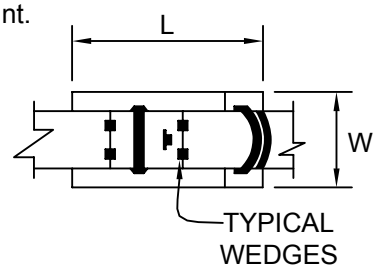
ARTICLE 2-122-4O

Where 4 reinforcing bars are used symmetrically, place 2 bars at the bend and the others as depicted in the elevation view.



ELEVATION VIEW

Embed reinforcing bars a minimum of 36 diameters including the hook. Paint the exposed bars with two coats of bituminous paint.



PLAN VIEW

Total pressure as defined in the standard specifications.

Bend		Size									
		3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
11¼°	L	1'-6"	1'-6"	2'-0"	2'-0"	2'-3"	2'-6"	3'-3"	4'-0"	4'-6"	5'-0"
	W	1'-6"	1'-6"	2'-0"	2'-0"	2'-3"	2'-6"	3'-3"	4'-0"	4'-6"	5'-0"
	D	1'-6"	1'-6"	1'-6"	2'-0"	2'-0"	2'-3"	2'-6"	2'-6"	3'-0"	3'-0"
Reinf. bars		3#7	3#7	3#7	3#8	3#8	3#8	3#8	3#10	3#10	3#10
22½°	L	1'-6"	2'-0"	2'-6"	2'-9"	3'-6"	4'-0"	4'-6"	5'-6"	6'-0"	7'-0"
	W	1'-6"	2'-0"	2'-6"	2'-9"	3'-6"	4'-0"	4'-6"	5'-6"	6'-0"	7'-0"
	D	1'-6"	1'-6"	2'-6"	2'-3"	2'-3"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"
Reinf. bars		3#7	3#7	3#7	3#8	3#8	4#8	4#8	3#10	4#10	4#10
45°	L	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	6'-0"	7'-6"	8'-6"	10'-0"
	W	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	6'-0"	7'-6"	8'-6"	10'-0"
	D	1'-6"	2'-0"	2'-0"	2'-6"	2'-9"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
Reinf. bars		3#7	3#7	3#7	3#8	4#8	4#8	4#8	4#10	4#10	4#11

NOTES:

1. f^1 = 3,000 PSI at 28 days.
2. Carry all bearing surfaces to undisturbed earth or firm subgrade.
3. The anchorage dimensions are based on the total pressure of 150 PSI. Where the pressure is different, the volume of concrete (i.e. LxWxD) shall be proportioned to required pressure. Soil bearing pressure is 2,500 PSI.

Not To Scale

REVISIONS			
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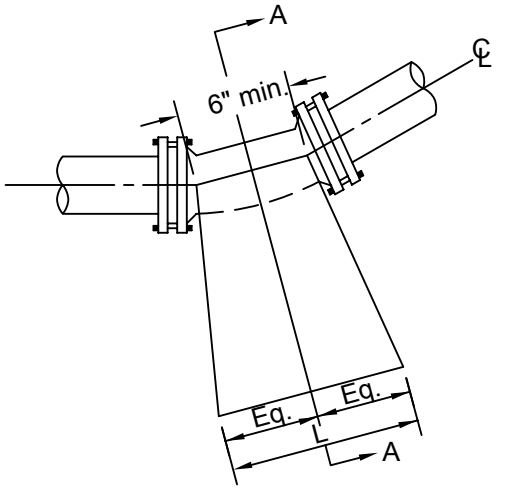
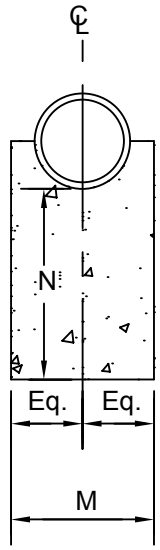
ANCHORAGE FOR 11¼°, 22½° AND 45° UPPER VERTICAL BENDS

DRAWING WS-13

ARTICLE 2-122-4O



ELEVATION VIEW



SECTION A-A

Total pressure as defined in the standard specifications.

Bend		Buttress for lower vertical bends									
		3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
11¼°	L	6"	6"	6"	8"	8"	8"	1'-1"	1'-5"	1'-10"	2'-8"
	M	1'-0"	1'-0"	1'-2"	1'-4"	1'-6"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"
	N	8"	8"	8"	8"	8"	8"	9"	10"	12"	1'-2"
22½°	L	6"	8"	10"	11"	1'-3"	1'-4"	2'-1"	2'-9"	3'-7"	5'-3"
	M	1'-0"	1'-0"	1'-2"	1'-2"	1'-4"	1'-6"	2'-0"	2'-4"	2'-8"	3'-2"
	N	8"	8"	8"	8"	9"	9"	12"	1'-2"	1'-4"	1'-6"
45°	L	10"	1'-0"	1'-2"	1'-9"	2'-5"	2'-8"	4'-0"	5'-6"	6'-0"	8'-2"
	M	1'-0"	1'-0"	1'-2"	1'-4"	1'-6"	2'-0"	2'-4"	2'-8"	3'-6"	4'-0"
	N	8"	8"	8"	8"	12"	1'-2"	1'-6"	2'-0"	2'-6"	3'-0"

NOTES:

1. f' = 3,000 PSI at 28 days.
2. Carry all bearing surfaces to undisturbed earth or firm subgrade.
3. The anchorage dimensions are based on the total pressure of 150 psi. Where the pressure is different, the area of concrete block (i.e. L&M) shall be proportioned accordingly. Area adjustment for required pressure shall be made first before making adjustment for soil bearing pressure.

Not To Scale

REVISIONS			
NO.	DATE:		
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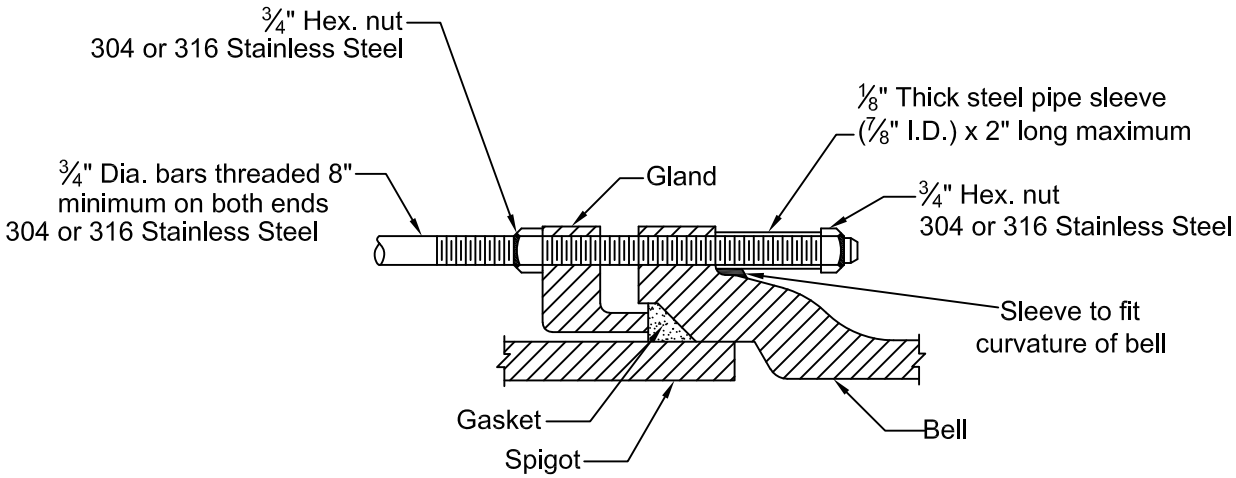
BUTTRESSES FOR 11¼°, 22½° AND 45° LOWER VERTICAL BENDS

DRAWING WS-14

ARTICLE 2-122.4P



Valve size	Number of ¾" dia. bars required	Maximum length of spigot pipe
3"	2	24"
4"	2	24"
6"	2	27"
8"	2	27"
10"	4	27"
12"	6	27"
16"	8	36"
20"	12	36"
24"	16	36"
30"	20	42"

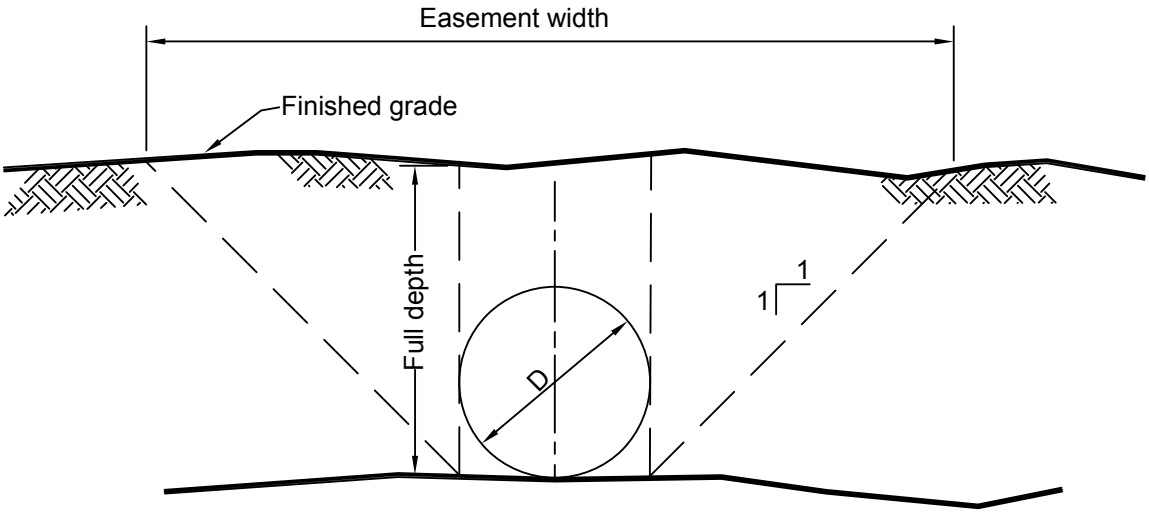
NOTES:

A. Rods shall be at least 36,000 PSI yield strength.
B. Duc lugs or Eyebolts are also acceptable.
C. All rods, nuts, and bolts to be 304 or 316 stainless steel

Not To Scale

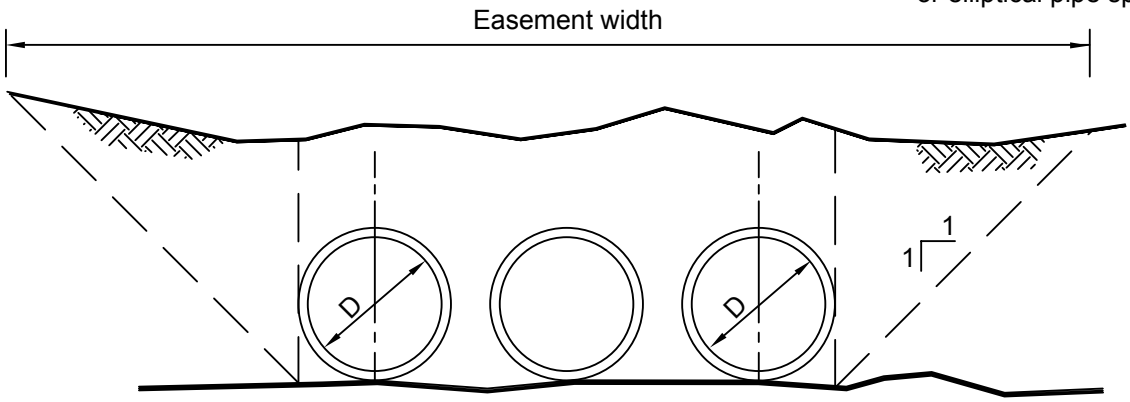
REVISIONS				**STRAPPING**	DRAWING WS-15
NO.	DATE:				
1					PAGE 17
2	04/09/24				

ARTICLE 2-123.8



SINGLE PIPE

D = Pipe diameter, culvert width, or elliptical pipe span



MULTIPLE PIPES

NOTES:

A. Public easement width shall be determined based on 1:1 side slope extending from the finished grade to outside edge of pipe (nominal pipe diameter) rounded up to the nearest 1' increment.

B. This easement shall extend along the entire length of the subject pipe to the centerline of the upstream and downstream structure.

Not To Scale

REVISIONS				**WATER, STORM & SANITARY EASEMENTS**	DRAWING WS-16
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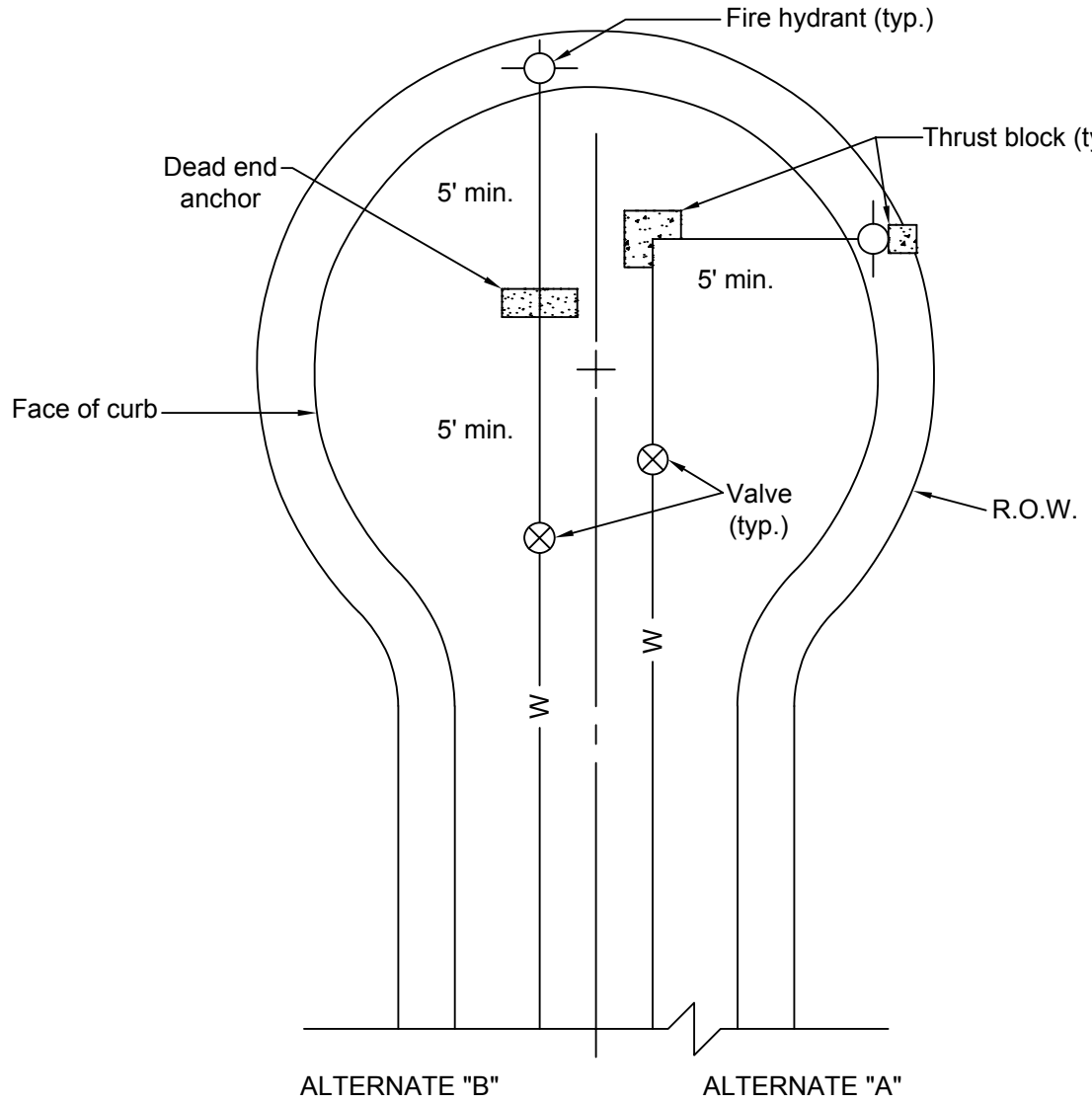
1					PAGE 18

ARTICLE 2-240.7



ALTERNATE "A"
Thrust block at the 90° bend and the hydrant.

ALTERNATE "B"
Hydrant to be either blocked or strapped to dead end anchor. When strapping is utilized, the 5' distance must be increased to 10'.

NOTES:
A. Engineer may choose either option.
B. Waterline must be located to the north or east of road centerline.
C. Dead end anchor and blocks to be poured to undisturbed earth.

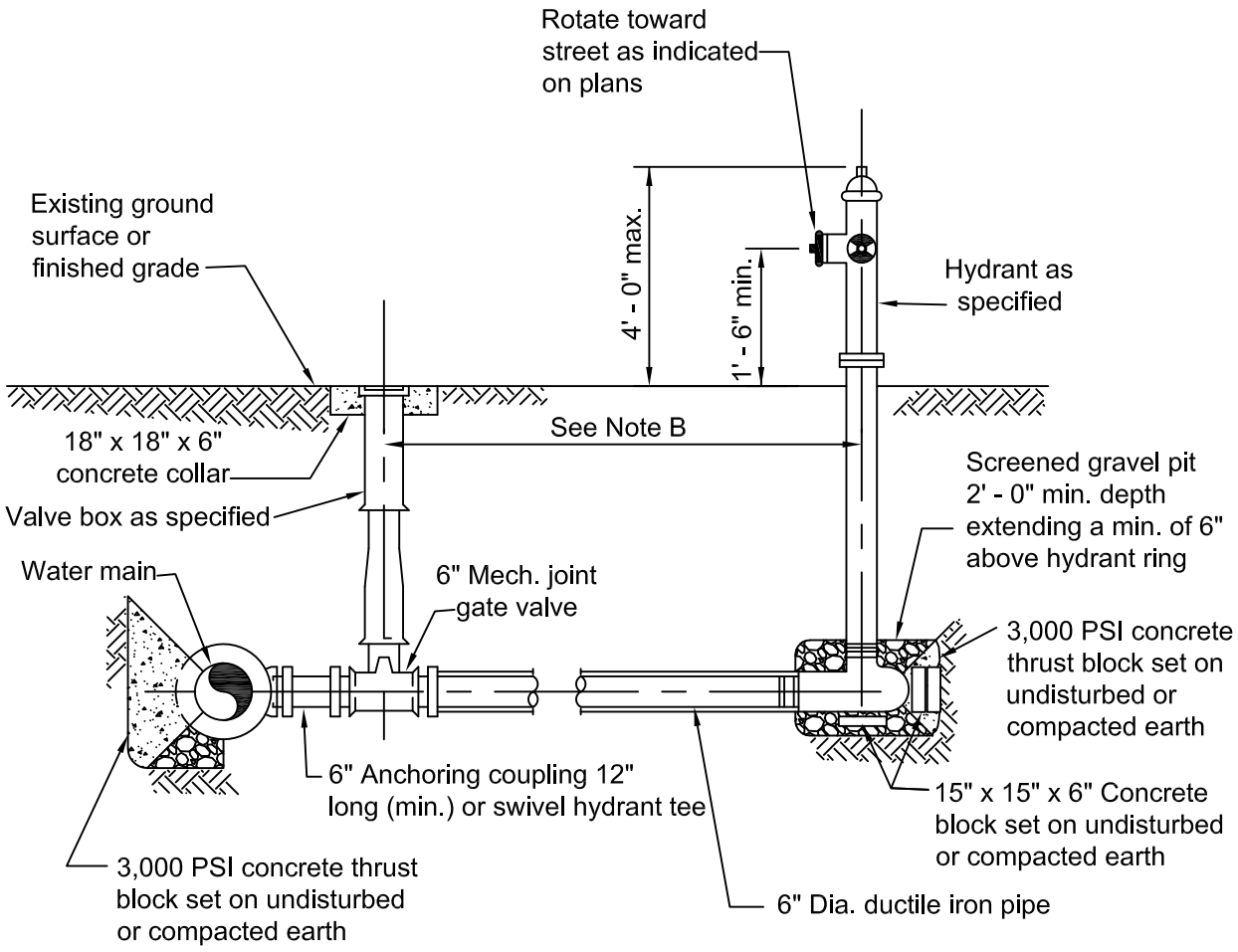
Not To Scale

REVISIONS			
NO.	DATE:		
1			

DEAD END FIRE HYDRANT

DRAWING WS-17

ARTICLE 2-260.2 & 2-390.2A



NOTES:

A. Maximum hydrant barrel height is limited to 8'.
B. Horizontal setback distance from flow line of gutter or edge of pavement shall be 14" minimum and 24" maximum.
C. Two types of restraints are required. Strapping may be required also due to field conditions.
   1. Mega lugs or bell restraints
   2. Anchoring coupling between valve and hydrant.
   3. Thrust blocks at hydrant.
D. Hydrants over 5' deep must use vertical aqua grip shoe with aqua grip 90° bend.

Not To Scale

REVISIONS				FIRE HYDRANT	DRAWING WS-18
NO.	DATE:				
1					PAGE 20
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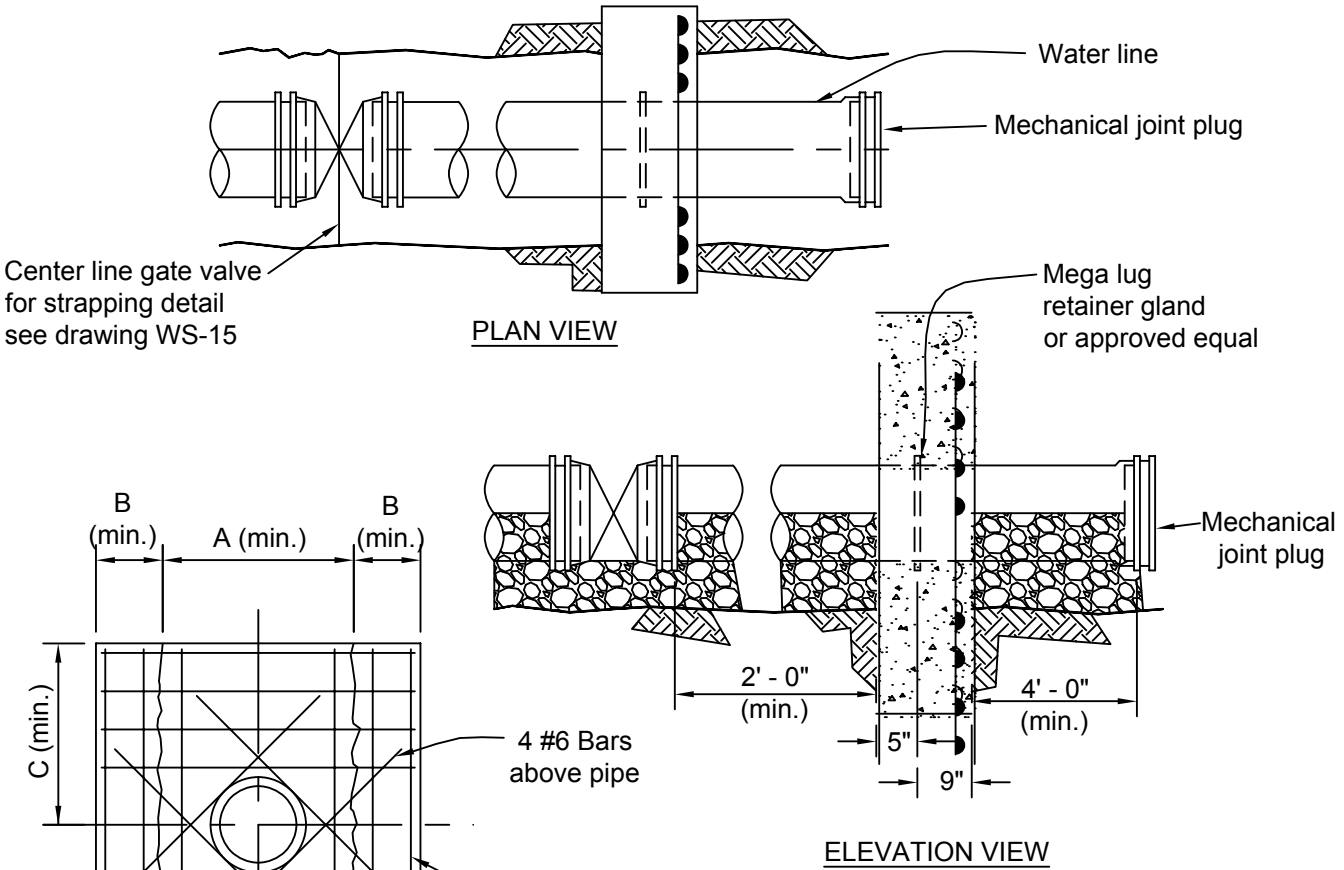
ARTICLE 2-310.12



DEAD END ANCHOR SCHEDULE				
Line size	A	B	C	D
6"	2' - 0"	1' - 0"	1' - 6"	1' - 0"
8"	2' - 0"	1' - 3"	1' - 6"	1' - 0"
10"	2' - 3"	1' - 6"	1' - 6"	1' - 6"
12"	2' - 6"	2' - 0"	1' - 6"	1' - 6"
16"	2' - 9"	3' - 0"	2' - 0"	1' - 6"
24"	3' - 6"	4' - 0"	2' - 6"	2' - 0"

NOTES:

A. Bearing area is based on 150 PSI test pressure and a soil bearing pressure of 2,000 PSF.
B. Increase block dimensions as required on soils with lower bearing values.
C. Concrete strength (f'c) shall be 3,000 PSI.
D. Dead end anchor design for pipes larger than 24" shall be reviewed on an individual basis by the Director.
E. Wrap the pipe with polyethylene sheeting to 6" beyond the concrete encasement.

Not To Scale

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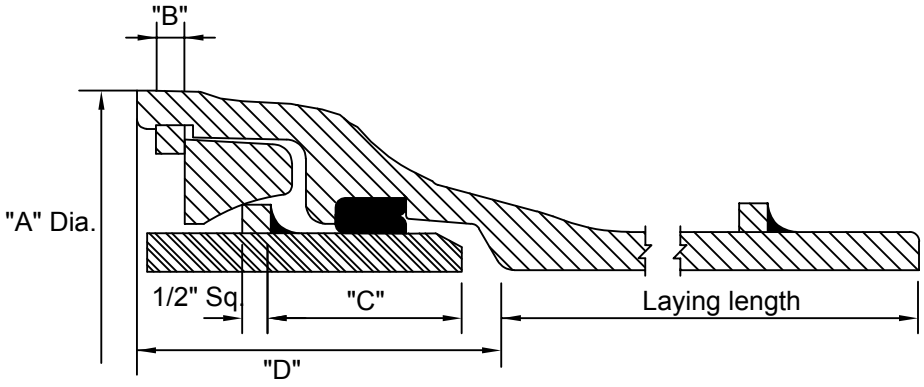
DEAD END ANCHOR

DRAWING
WS-19

ARTICLE 2-315



Size	A Dia.	B	C	D	Laying length	Defl. angle
6	11.44	3/8	3-1/2	6.51	19' - 11"	4°
8	13.97	3/8	4	7.19	19' - 10"	4°
10	16.44	1/2	4-1/4	7.25	19' - 10"	4°
12	18.75	1/2	4	8.01	19' - 10"	4°
14	20.96	1/2	5-1/4	8.88	19' - 9"	3°
16	23.22	1/2	5-1/4	8.95	19' - 8"	3°
18	25.72	5/8	5-3/8	9.20	19' - 8"	3°
20	27.85	5/8	6	9.88	19' - 7"	3°
24	32.54	5/8	6-1/4	10.58	19' - 6"	3°

Dimensions in inches.

NOTE:

A. Snap-lok or approved equal restrained joint pipe will be acceptable.
B. Use of mega-lug (or approved equal) joint pipes will be accepted in lieu of proprietary restraint joint piping. Refer to Article 2, Section 2-315 for specifics.

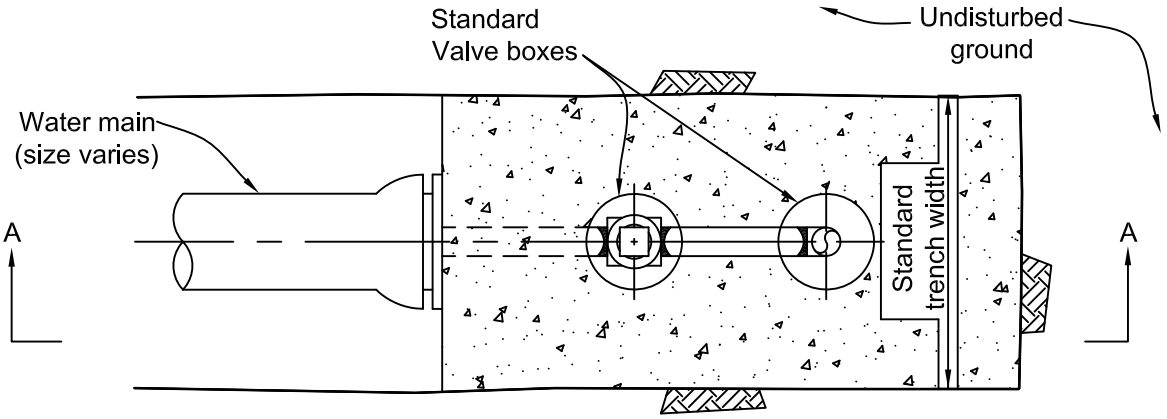
Not To Scale

REVISIONS			
NO.	DATE:		
1			
3	04/27/10		

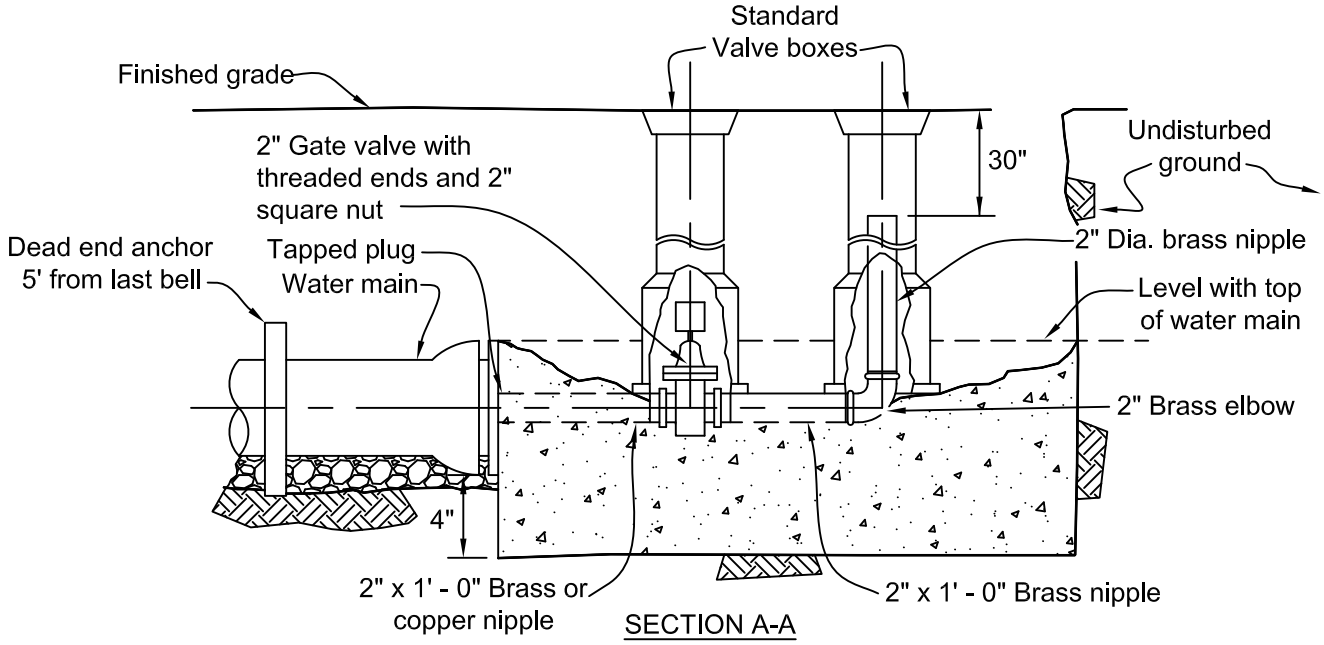
RESTRAINED JOINT

DRAWING
WS-20

ARTICLE 2-122.4L



PLAN VIEW



SECTION A-A

NOTES:

A. Blocking shall extend beyond the water main to undisturbed ground.
B. This blow off must be used when the valve boxes are located within paved areas.
C. Easements must be extended to provide 5' of clearance from blow off assembly.
D. Wrap the pipe and fittings with polyethylene bags when in contact with concrete.
E. All brass pipe shall have iron pipe threads (IPT).
F. Concrete strength (f"c) shall be 3000 psi.
G. If more than one pipe segment from the valve all pipes must be restrained and have a dead end anchor on last installed pipe.

Not To Scale

REVISIONS				**PERMANENT 2" BLOW OFF**	DRAWING WS-21
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1					PAGE 23
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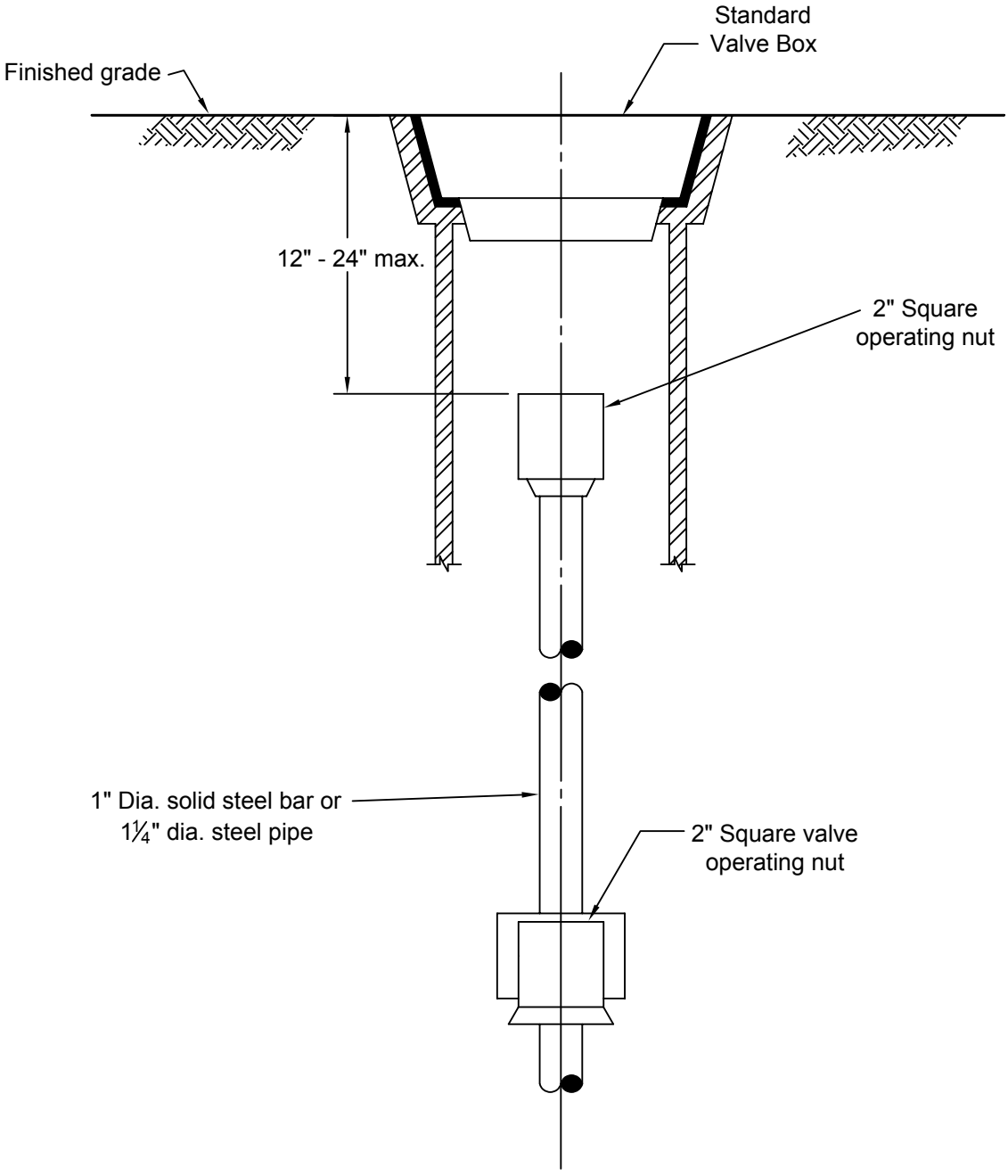
ARTICLE 2-320.7



NOTE:

A. Valve stem extensions to be used when valve nut is 4' or more from the finished grade.
B. Valve boxes outside paved areas shall be provided with 18" x 18" x 6" concrete collar with #3 rebar cage.

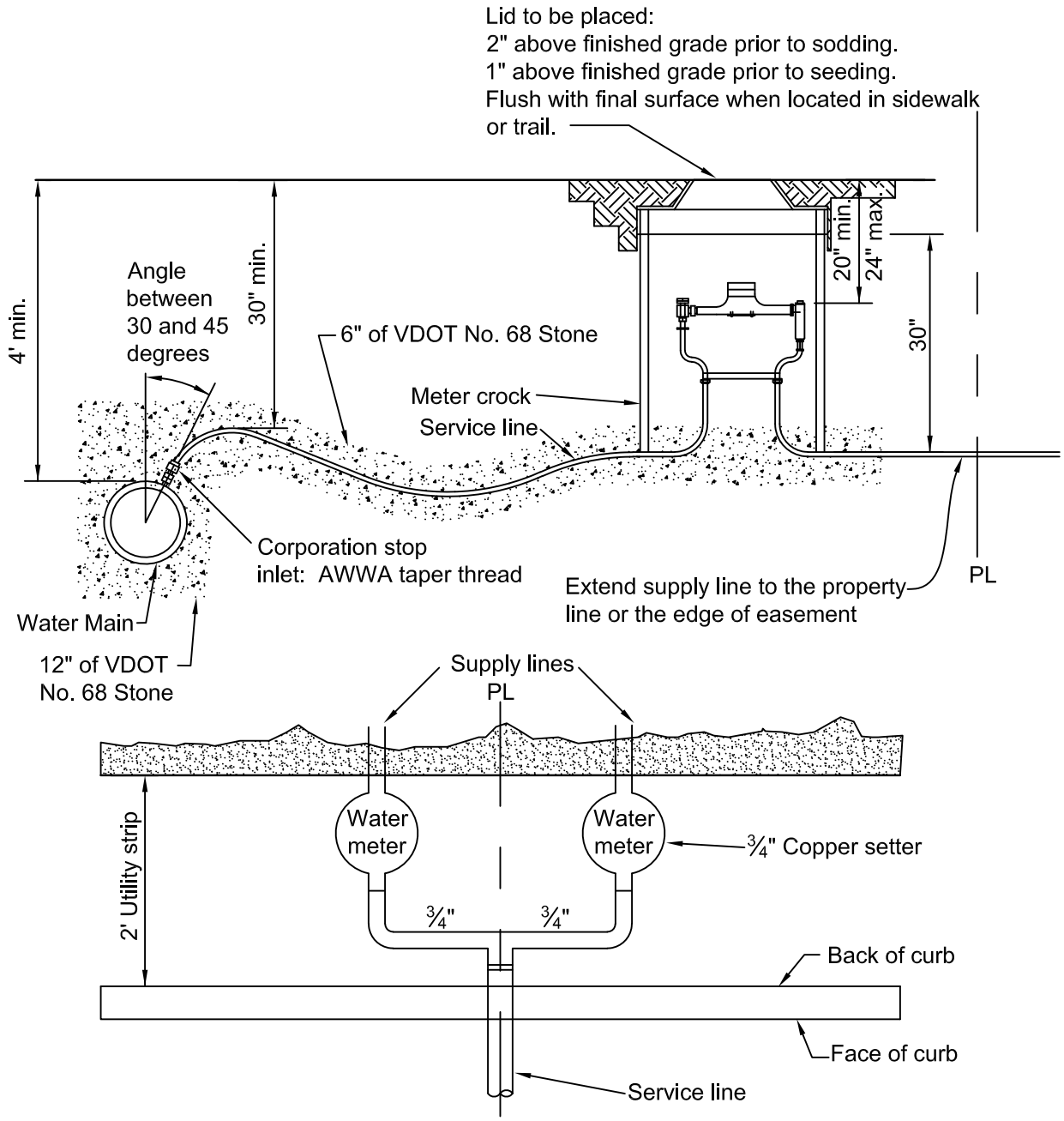
Not To Scale

REVISIONS			
NO.	DATE:		
1			
3	04/27/10		

VALVE STEM EXTENSION

DRAWING
WS-22

ARTICLE 2-340.1



NOTES:

A. Double meters to be used for townhouses or duplexes.
B. Both meters are located inside one meter crock.
C. Meter crock size for double setter is 18"x24"x30"
D. Meters shall be located within the utility strip and top of water meter crock shall not be higher than the final grade of surrounding surfaces including brick or concrete sidewalk, curb, asphalt trail or seeded/sodded area.

Not To Scale

REVISIONS				**DOUBLE METER INSTALLATION**	DRAWING WS-23
NO.	DATE:				
1					PAGE 25
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REVISIONS				BLANK	DRAWING WS-24
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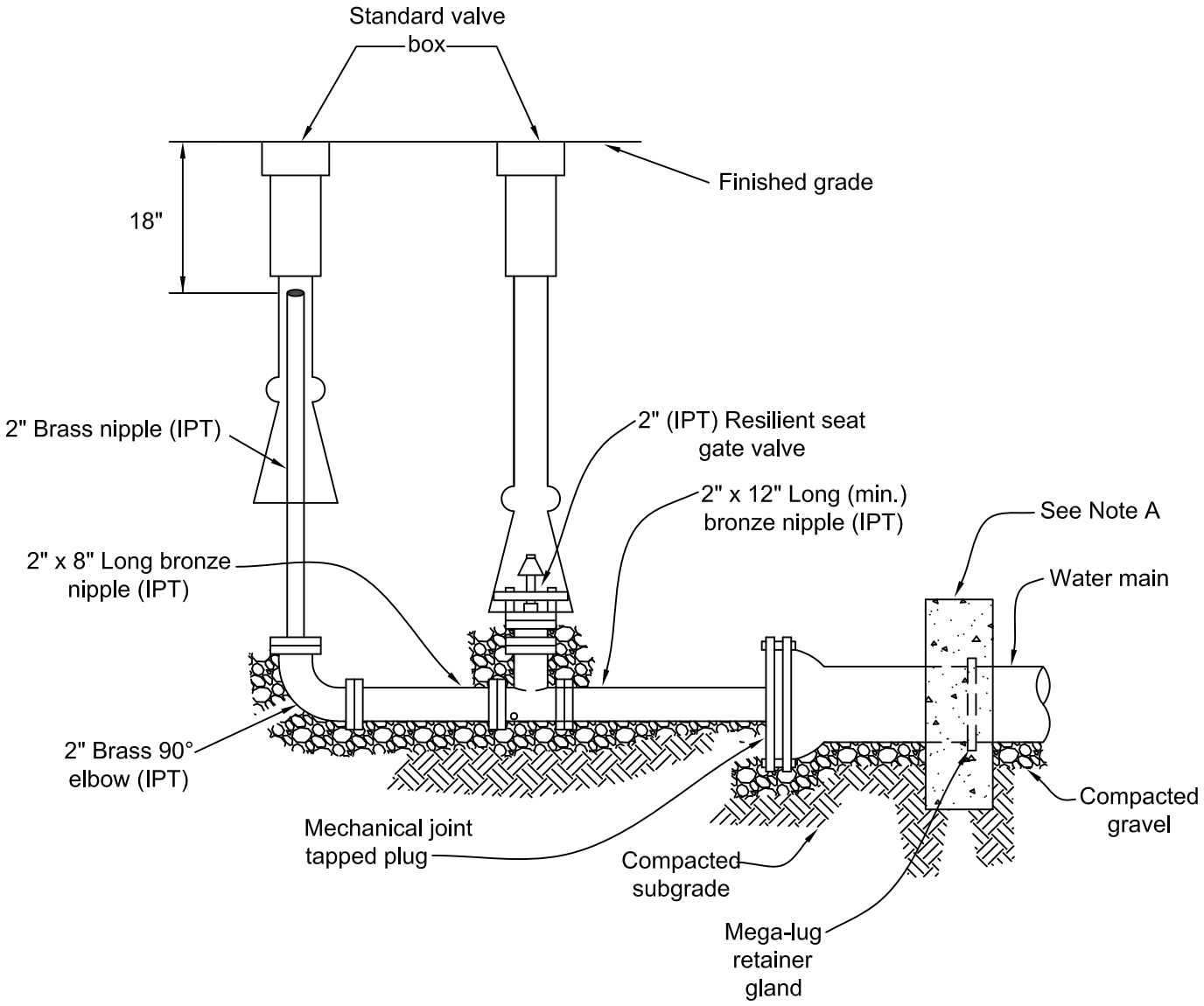
1					PAGE 26
2	04/09/24				

ARTICLE 2-360.4



NOTES:

A. Use anchor collar as shown or block the plug and entire 2" pipe and bend. See WS-26.
B. All brass pipe shall have iron pipe threads (IPT).
C. Encase the valve boxes in a 2' x 3' - 6" x 6" concrete collar when located in grass.
D. If more than one pipe segment from the valve all pipes must be restrained and have a dead end anchor on last installed pipe.

Not To Scale

REVISIONS				**TEMPORARY 2" BLOW OFF**	DRAWING WS-25
NO.	DATE:				
1					PAGE 27
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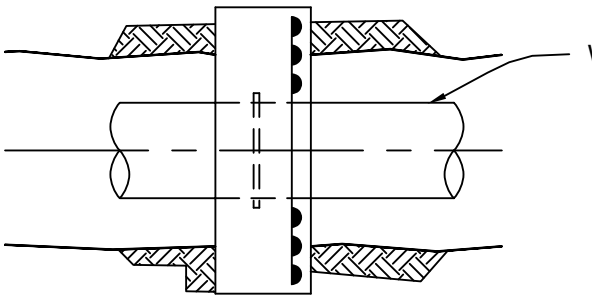
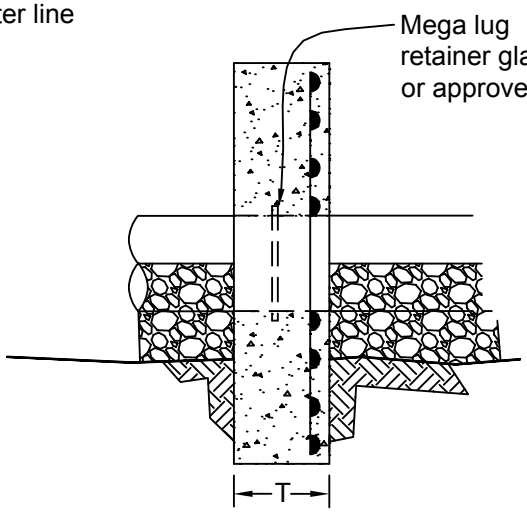
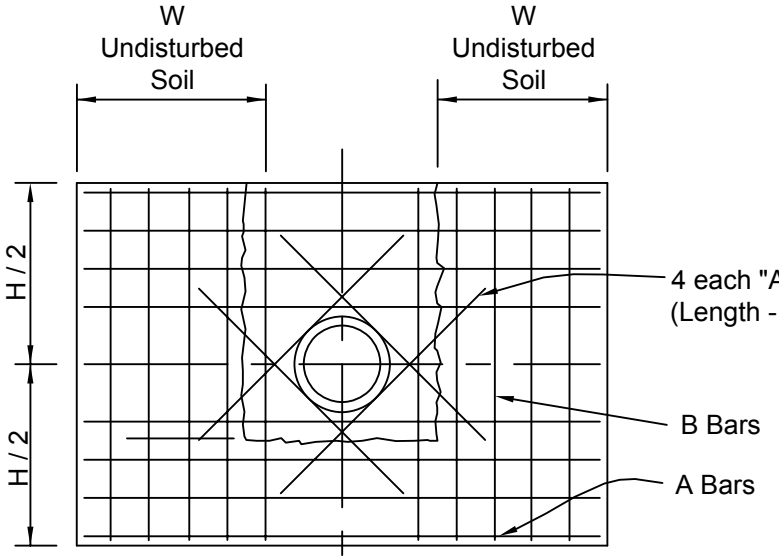
ARTICLE 2-360.4



PLAN VIEW



ELEVATION VIEW



SECTION VIEW

ANCHOR COLLAR SCHEDULE				
Line size	W	H	T	BARS
6"	1' - 6"	2' - 0"	1' - 0"	#6 @ 6"
8"	1' - 6"	2' - 0"	1' - 0"	#6 @ 6"
10"	2' - 0"	3' - 0"	1' - 6"	#6 @ 6"
12"	2' - 0"	4' - 0"	1' - 6"	#6 @ 6"
16"	3' - 0"	4' - 6"	2' - 0"	#6 @ 6"

NOTES:

A. Bearing area is based on 150 PSI test pressure and a soil bearing pressure of 2,000 PSF.
B. Increase block dimensions as required on soils with lower bearing values.
C. Concrete strength (f'c) shall be 3000 PSI.
D. Anchor collar design for pipes larger than 16" shall be reviewed on an individual basis by the Town.
E. Wrap the pipe with polyethylene bags to 6" outside the concrete encasement.

Not To Scale

REVISIONS			
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1			
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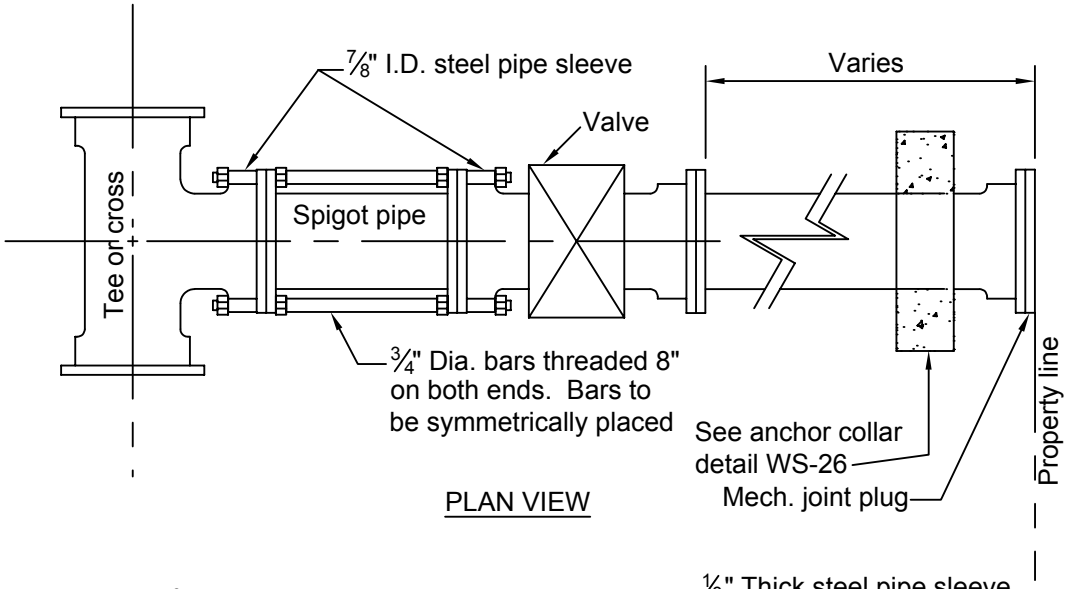
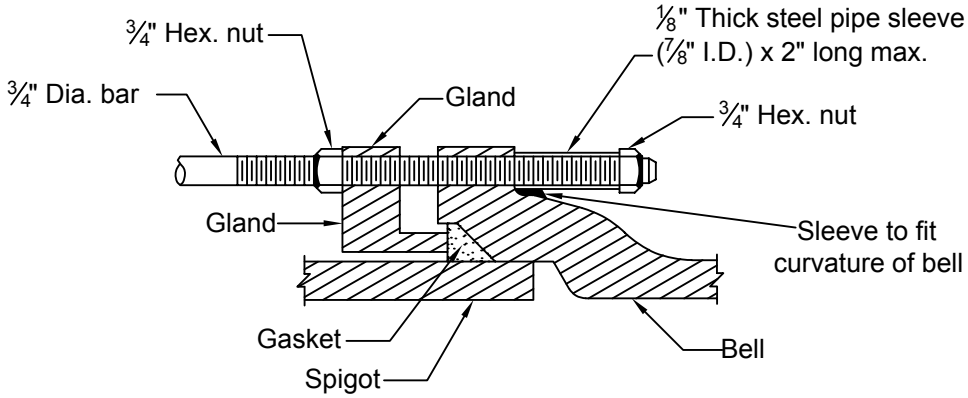
ANCHOR COLLAR

DRAWING
WS-26

ARTICLE 2-122.4(O)



PLAN VIEW



SECTION VIEW OF SLEEVE AND BAR ASSEMBLY

Valve size	Number of 3/4" dia. bars required	Maximum length of spigot pipe
3"	2	24"
4"	2	24"
6"	2	27"
8"	2	27"
10"	4	27"
12"	6	27"
16"	8	36"
20"	12	36"
24"	16	36"
30"	20	42"

NOTES:

A. Use mechanical joint fittings only.
B. Paint all steel with two coats of bituminous paint.
C. Use butterfly valves for 12" dia. and larger pipe.
D. Use gate valves for 10" dia. and smaller pipe.
E. Rods and nuts, 36,000 PSI yield strength, stainless steel and field coated when cut.
F. Applies to all directions of the tee.

Not To Scale

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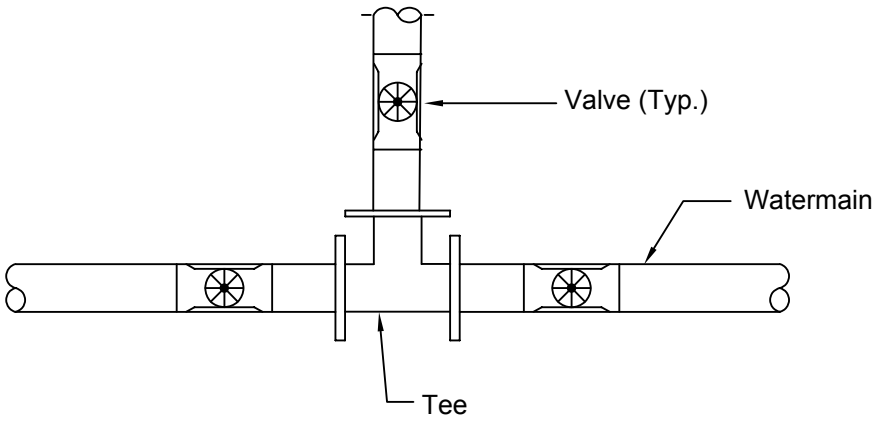
LATERAL WATER CONNECTION

DRAWING WS-27

ARTICLE 2-122.4K



NOTES:

A. See WS-30 and WS-31 for additional details.
B. The tee and valve shall be restrained to the watermain with mega lugs, stainless steel rods, thrust blocks, or proprietary restraining assembly.

Not To Scale

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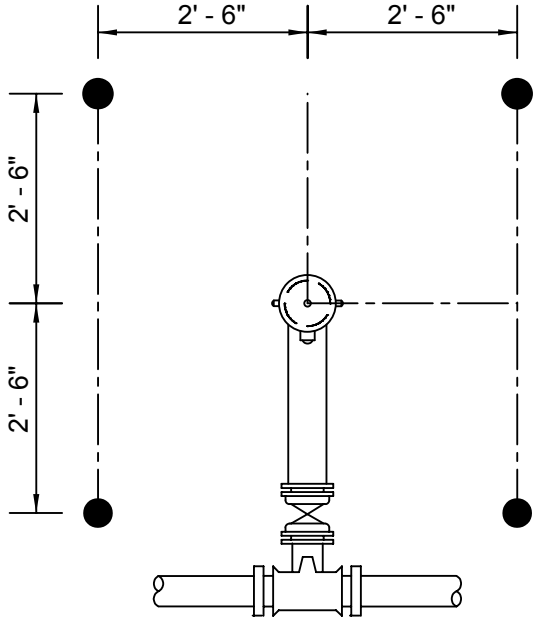
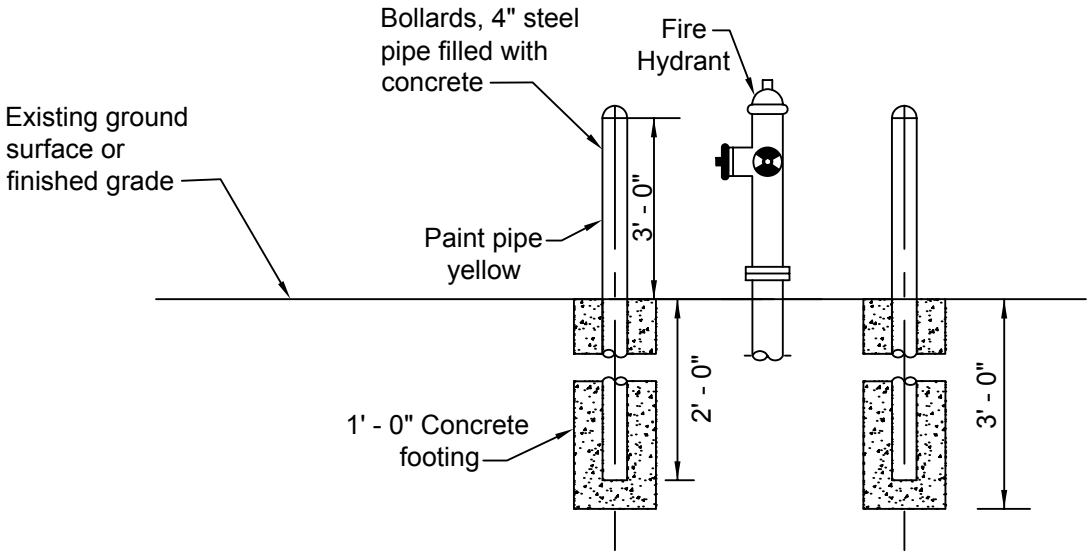
VALVING ARRANGEMENT FOR FIRE AND SERVICE LINES

DRAWING
WS-28

ARTICLE 2-240.13



TYPICAL 4 BOLLARD PLAN VIEW



SECTION VIEW

NOTES:

A. Quantity (Min 2 - Max 4) and placement of bollards to be shown on plans. Field verification may be required.
B. Use fire hydrant bollards for protection where an island can not be constructed.
C. Refer to water details WS-5 and WS-18 for fire hydrant installation. This detail is for bollard placement only.
D. Bollards to be evenly spaced around the hydrant with each offset 2'-6" from the hydrant.

Not To Scale

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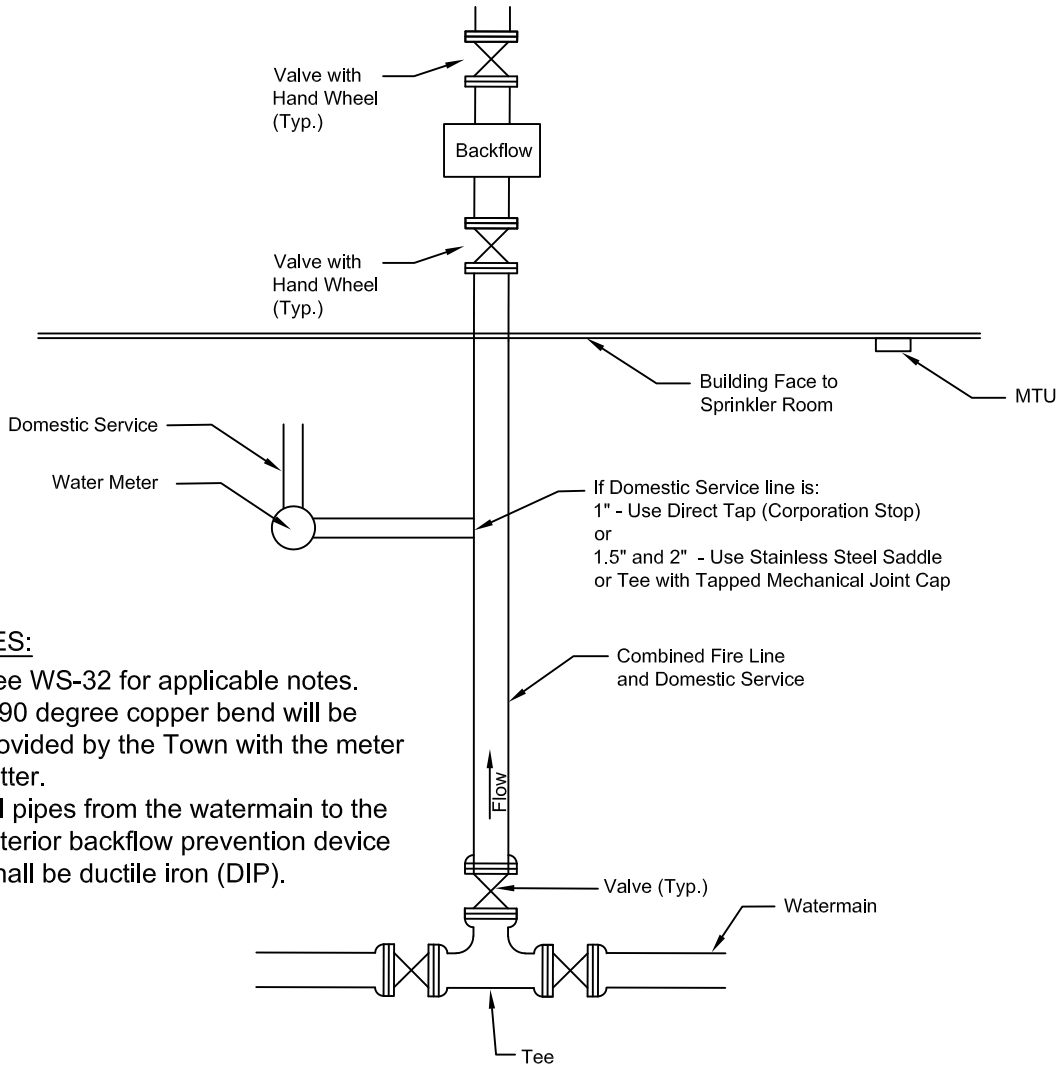
FIRE HYDRANT BOLLARDS

DRAWING WS-29

ARTICLE 2-270



NOTES:

A. See WS-32 for applicable notes.
B. A 90 degree copper bend will be provided by the Town with the meter setter.
C. All pipes from the watermain to the interior backflow prevention device shall be ductile iron (DIP).

Not To Scale

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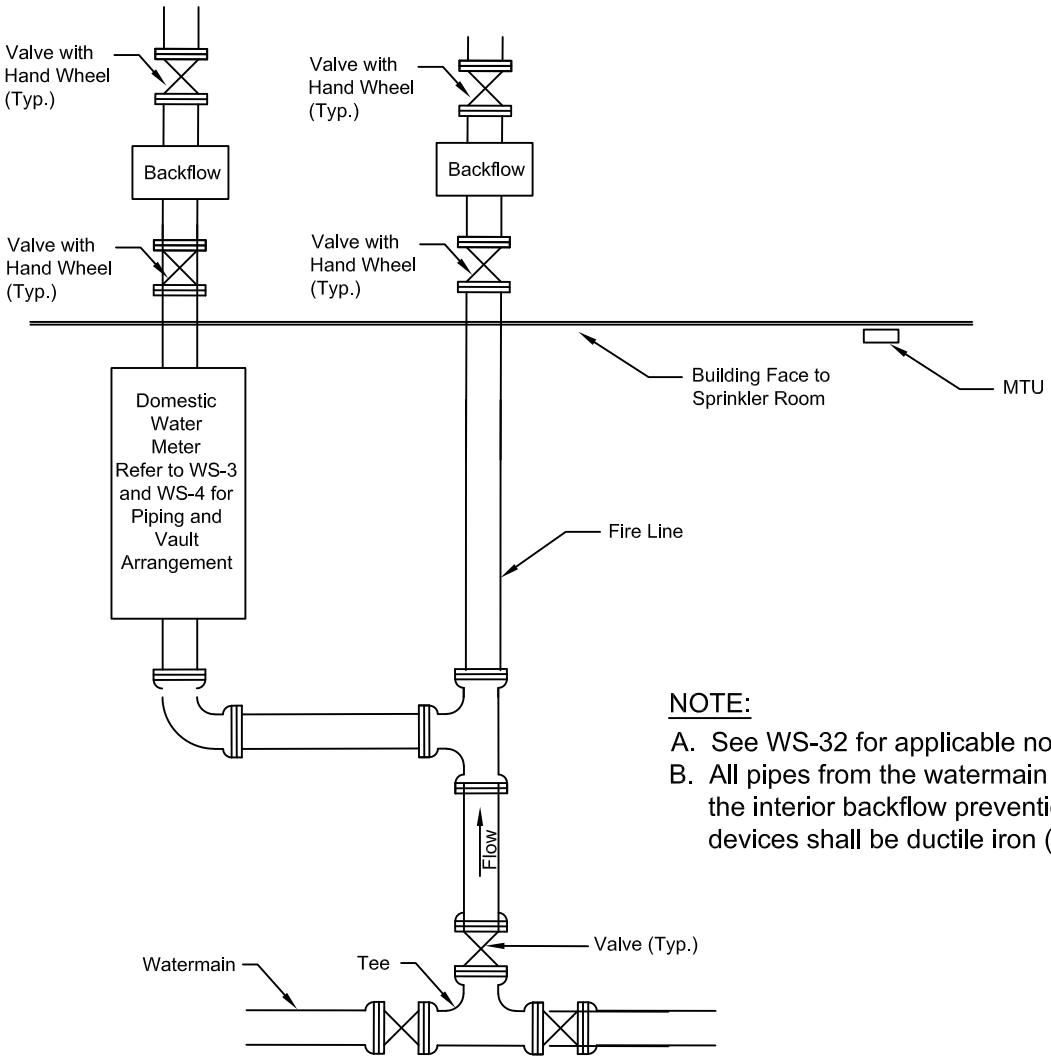
COMBINED FIRE LINE AND DOMESTIC (1", 1.5" OR 2") SERVICE CONNECTION

DRAWING WS-30

ARTICLE 2-270



NOTE:

A. See WS-32 for applicable notes.
B. All pipes from the watermain to the interior backflow prevention devices shall be ductile iron (DIP).

Not To Scale

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2	10/16/07		
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COMBINED FIRE LINE AND DOMESTIC (3" AND LARGER) SERVICE CONNECTION

DRAWING WS-31

ARTICLE 2-270

NOTES:

A. Use ductile iron (DIP) mechanical joint piping and mega-lug restraints for all joints below grade from the main to the building. All pipes inside the building to the backflow prevention devices shall also be ductile iron (DIP).
B. Meters will be ordered by Town of Leesburg and paid for by the developer.
C. Backflow prevention devices: Double check / double gate valve or RPZ shall be located inside the mechancial room for meters larger than 2". Meters 2" and smaller include the required backflow device. Inspector approved backflow prevention devices are required at premises connecting booster pumps to the public water works.
D. Contractor to provide conduit through building wall for the wire when required for wall mount MTU.
E All valves shall be epoxy coated resilient wedge gate valves.
F. Meter and backflow devices should be installed no higher than 4' from the finished floor. Vertical installations can also be accomodated with some brands of backflow devices. Consult with manufacturer for design of vertical installation. In all cases, there must be ample space provided from surrounding walls and floors for maintenance.
G. Details WS-30 and WS-31 are schematic and all applicable plumbing codes must be met in addition to the Town's requirements for a combined fire line and domestic service connection.
H. Testable backflow devices - all testable backflow devices must be installed 12"-48" from the finished floor and in a manor accessible for testing. All devices must be installed and positioned in a manner and configuration approved by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research and manufacturer's installation instructions. Reduced Pressure Principle Assemblies (RP devices must meet ASSE 1013 (ASSE 1047 for RP Detector) and comply with the most recent Virginia Statewide Building Code and Virginia Waterworks regulations.
I. The relief port must discharge by air gap and be prevented from being submerged. Double Check Valve Assemblies (DC) devices must meet ASSE 1015 (ASSE 1048 for DC Detector) and comply with the most recent Virginia Statewide Building Code and Virginia Waterworks regulations. Pressure Vacuum Breakers (PVB) must meet ASSE 1020 standrards and comply with the most recent Virginia Statewide Building Code and Virginia Waterworks regulations.
J. PVBs must be installed at least 12" higher than the highest portion of the system.

There is a list available online and updated annually that is used to check for installation approval at the following link: usclist.com.

Not To Scale

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NO.	DATE:		
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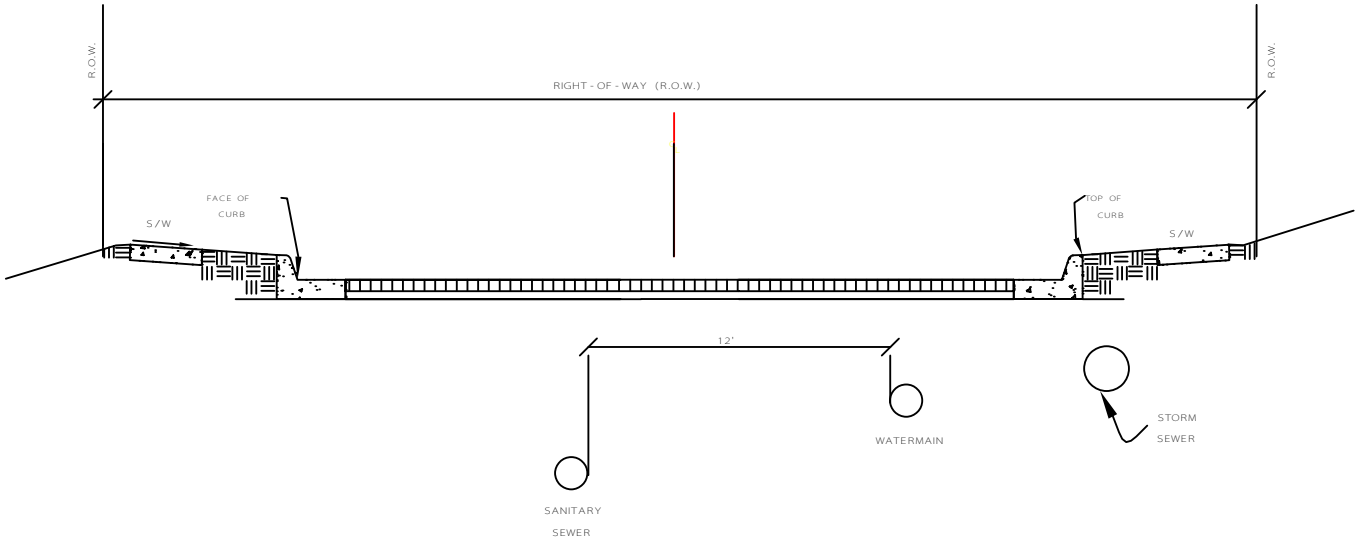
NOTES FOR COMBINED FIRE LINE AND DOMESTIC SERVICE CONNECTION

DRAWING WS-32

ARTICLE 2-121-3

TYPICAL UTILITY SEPARATION CROSS SECTION



NOTES:

A. This detail is only a schematic depiction of watermain and sanitary sewer separation per VDH criteria.
B. Street dimensions will vary.
C. The separation of 12' between the outside diameters of water and sanitary sewer pipes will assure 10' of separation at a 4' manhole. For 5' or 6' manholes, this distance must be increased to 13' or 14' respectively.
D. Sanitary sewer manholes shall be located along center line of roadway or centerline of travel lane and not installed in the wheel path of travel lanes.

Not To Scale

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HORIZONTAL UTILITY SEPARATION

DRAWING WS-33