ARTICLE 4 (SANITARY SEWER REGULATIONS)

General Notes

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

A. Pipe

1. All pipe must have a born on date within one year from pre-construction meeting or start of the project.
2. All mains and laterals must have 12" of VDOT 68 stone 12" under and 12" over the pipe.

B. Cathodic Protection

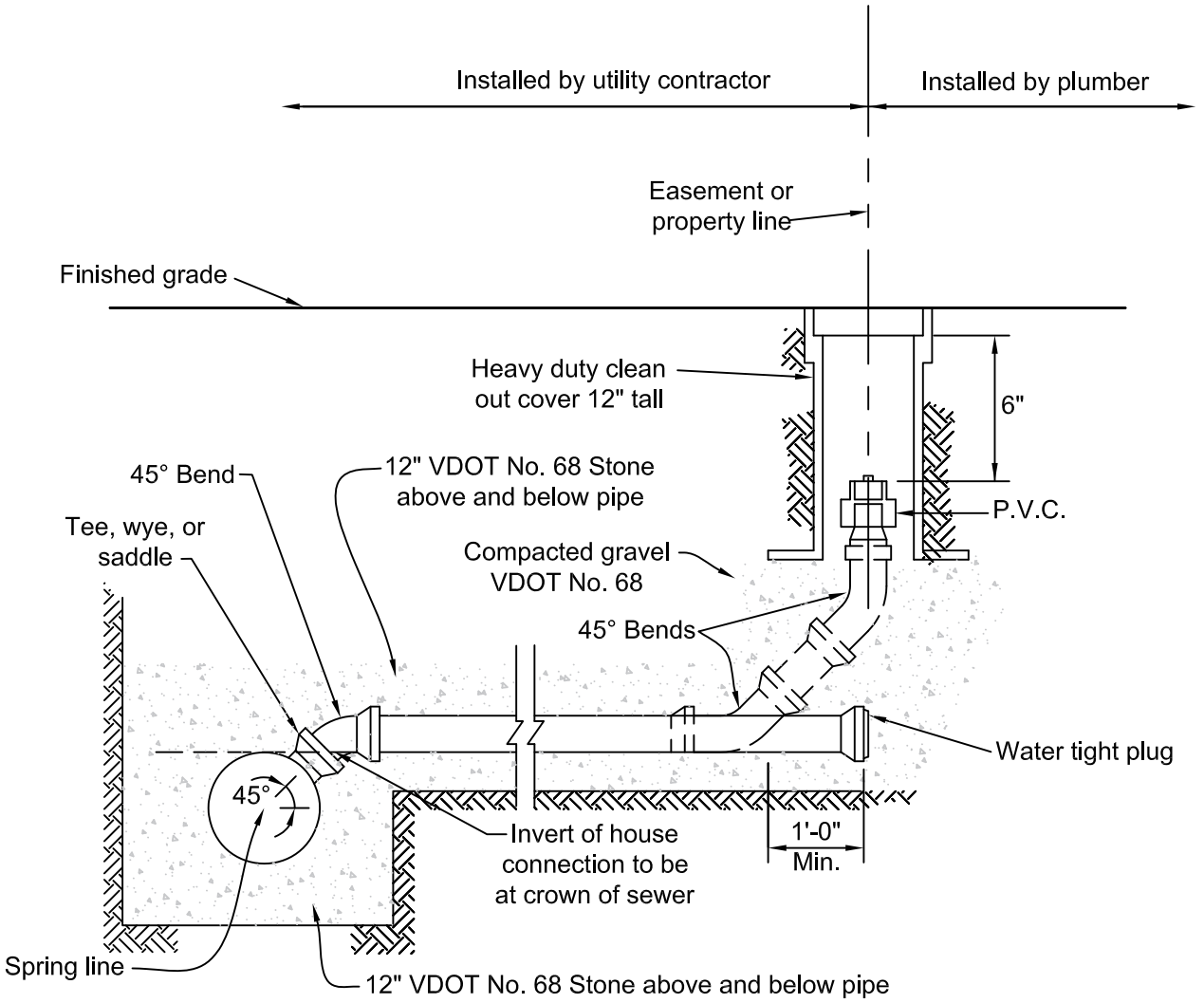
1. All plans requiring Cathodic Protection must provide all details in the plans prior to approval.

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

Not To Scale

REVISIONS				**GENERAL NOTES**	DRAWING SN-1
NO.	DATE:				
1					PAGE 30f
2	04/09/24				

ARTICLE 4-130.5B



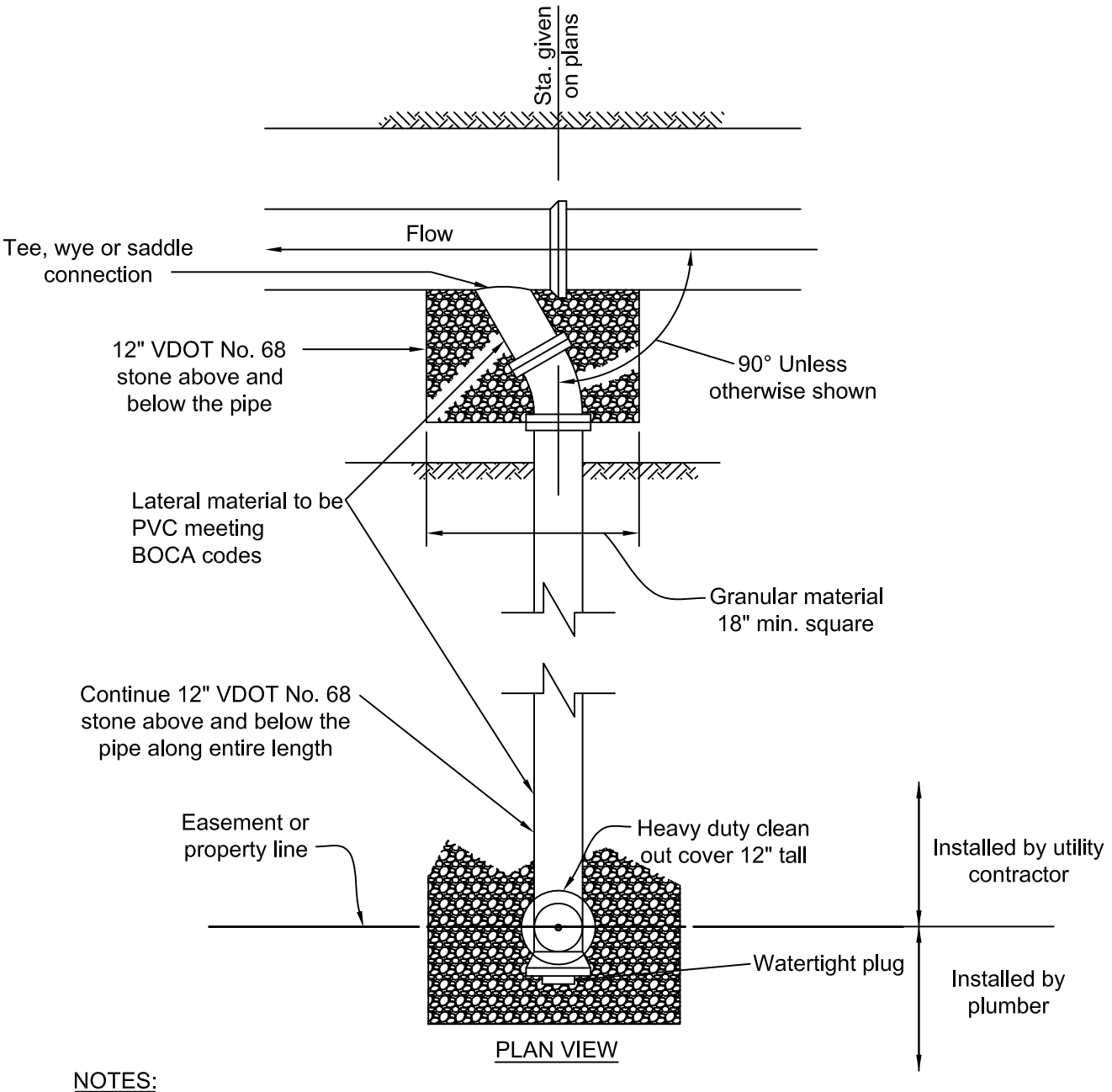
NOTES:

A. The lateral sewer shall be installed to property line or the edge of easement including the cleanout by the utility contractor.
B. Saddle may be used only when tapping into an existing sewer line.
C. See detail SS-13 for cleanout valve box detail.
D. Cleanout location tolerance is within 1' on either side of the property line.
E. Lubricate threads on cap for easy removal. (Anti-Seize Lubricant or approved equal)
F. The minimum slope shall be 2.08% and a maximum slope shall be 4% for a 4" lateral.
G. The minimum slope shall be 1.0% and a maximum slope shall be 4% for 6" pipes.
H. Lateral stacks to be constructed and maintained vertically plumb, 90% visibility.

Not To Scale

REVISIONS				**SANITARY LATERAL CONNECTION**	DRAWING SS-1
NO.	DATE:				
1					PAGE 31
2	10/16/07				
3	04/27/10				
4	04/09/24				

ARTICLE 4-130.5B



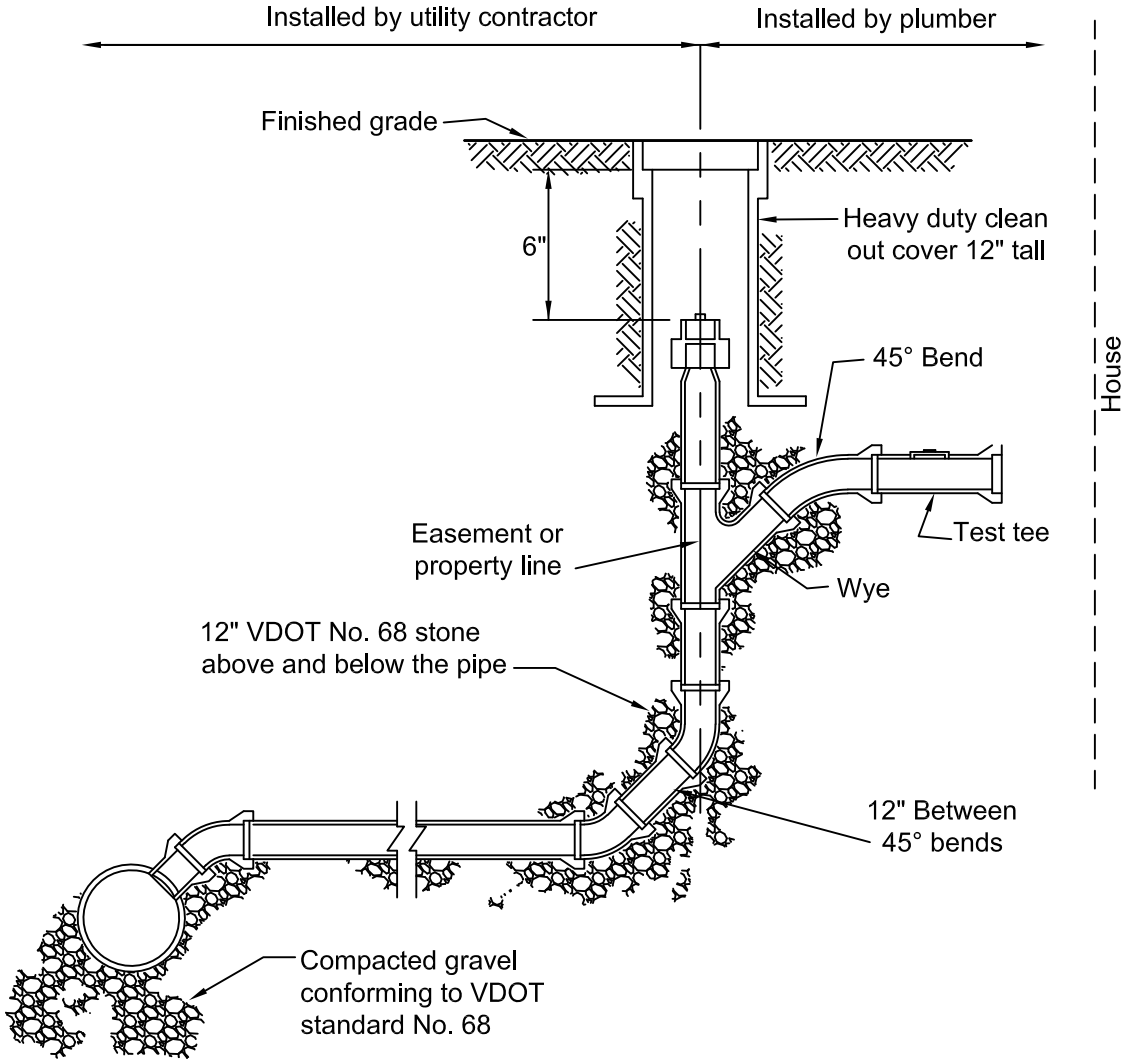
NOTES:

A. Unless otherwise approved by Director, 6" laterals may be permitted to connect to 8" and 10" sewer mains. Pre-manufactured tees, wyes or sewer saddles may be used for all connections to 8" rigid pipe sewer mains.
B. See SS-1 and SS-3 for additional notes and details.
C. Lateral stacks to be constructed and maintained vertically plumb, with 90% visibility.

Not To Scale

REVISIONS				HOUSE LATERAL SPUR	DRAWING SS-2
NO.	DATE:				
1					
2	04/09/24				PAGE 32

ARTICLE 4-130.5B



NOTES:

A. See SS-1 and SS-2 for additional notes and details.
B. Cleanout must be installed by the utility (general) contractor.
C. Cleanout location tolerance is within 1' on either side of the property line.
D. Plumber shall cut the vertical riser at the required elevation to service the basement and install a wye, a 45° fitting, and test tee. The cleanout location will remain as installed by the utility contractor.
E. The lateral riser pipe and fittings shall be of the same material as the main sewer to the point where the plumber cuts the vertical riser.
F. This standard for deep lateral sewer is only applicable where the main sewer is at a depth greater than 10' below the final street grade.
G. The minimum slope shall be 2.08% and a maximum slope shall be 4% for a 4" lateral.
H. The minimum slope shall be 1.0% and a maximum slope shall be 4% for 6" pipes.
I. Lateral stacks to be constructed and maintained vertically plumb, with 90% visibility.

Not To Scale

REVISIONS				**LATERAL FOR DEEP SEWER**	DRAWING SS-3
NO.	DATE:				
1					
2	10/16/07				PAGE 33
3	04/09/24				

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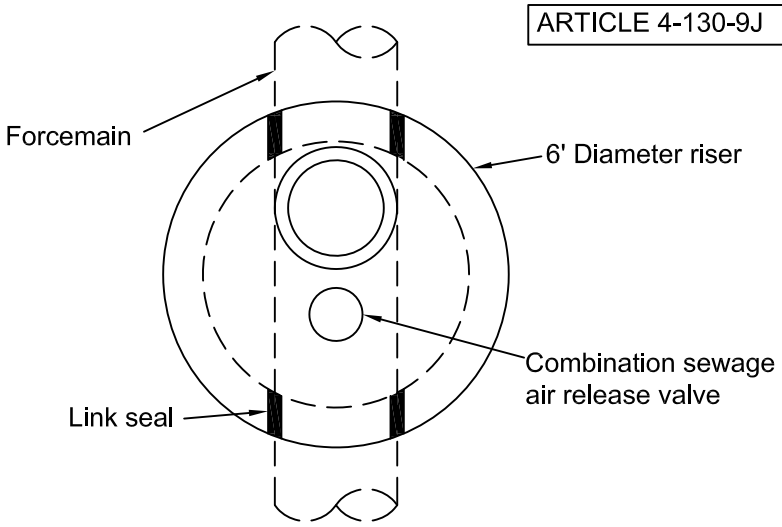
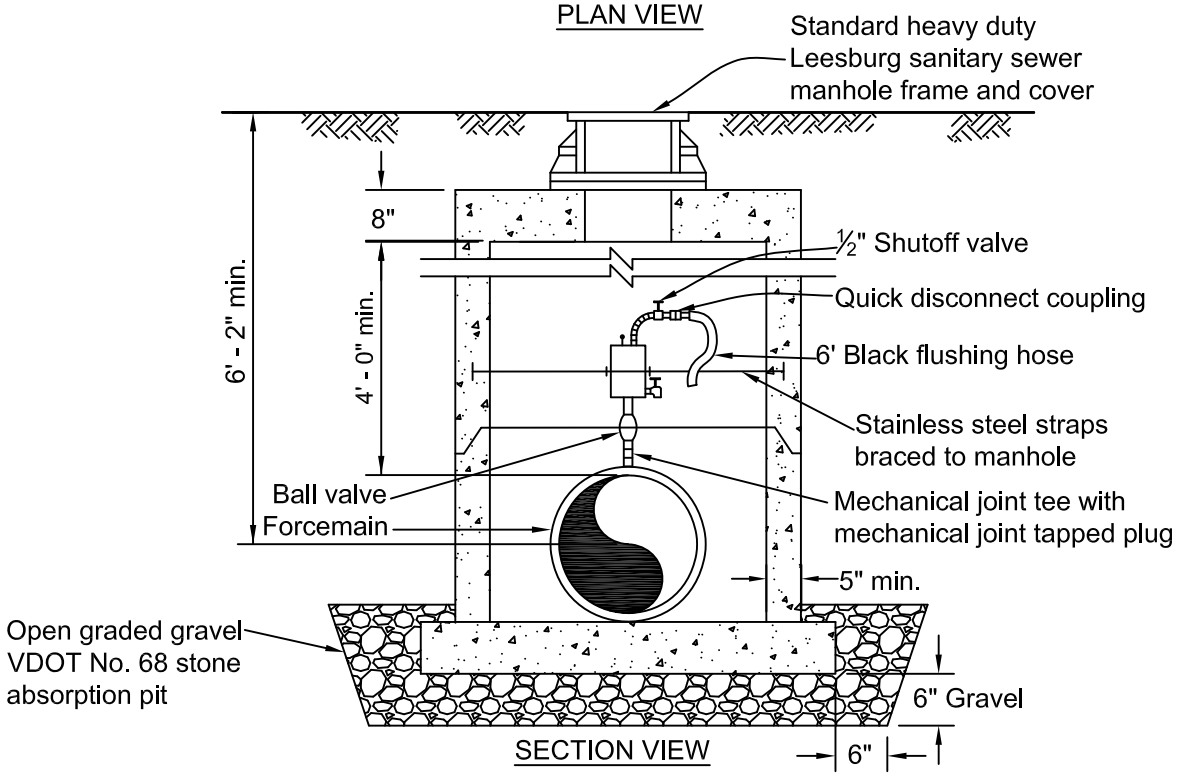
REVISIONS				BLANK	DRAWING SS-4
NO.	DATE:				
1					PAGE 34
2	04/09/24				

ARTICLE 4-130-9J



PLAN VIEW



SECTION VIEW

NOTES:

A. Air Valve shall be provided with proper bracing.
B. Manhole penetrations shall be via link seal, armor flex and/or rubber boot.
C. All parts to be sanitary rated or stainless steel

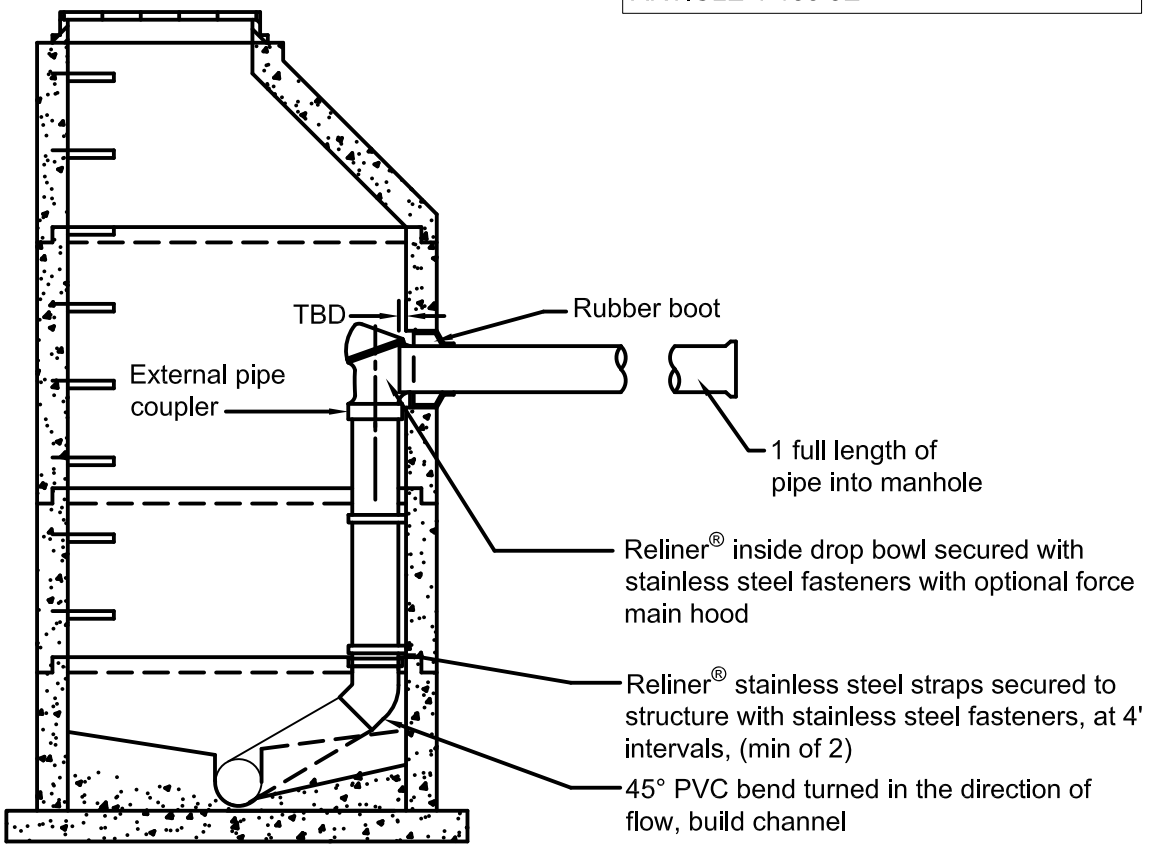
Not To Scale

REVISIONS			
NO.	DATE:		
1			
3	04/27/10		
4	04/09/24		

FORCEMAIN SEWAGE AIR RELEASE VALVE

DRAWING SS-5

ARTICLE 4-130.5E



NOTES:

A. The interior drop pipe shall be the same diameter as the incoming service for 4" pipe and shall be 6" for pipes 8" or 10" in diameter.

B. The diameter of the vertical stack shall not be less than 4".

C. Use 4' manhole for vertical pipes up to 8". 10" and larger vertical pipes will require a 5' manhole.

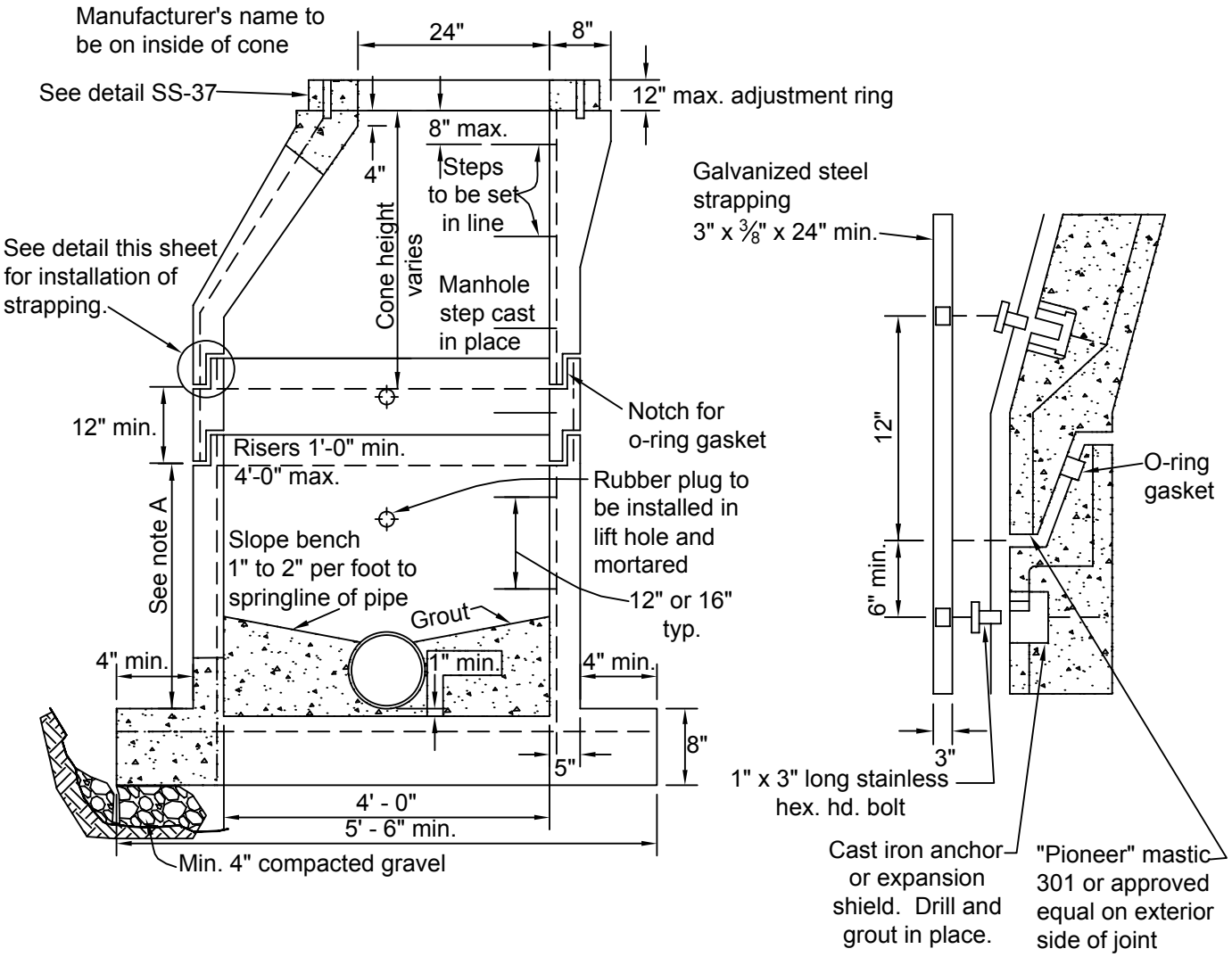
D. The elbow at the bottom of the stack shall be a 45° bend turned in the direction of flow in the manhole with a bench constructed to conform to the manhole bench.

E. See SS-7 for manhole detail.

Not To Scale

REVISIONS				INSIDE DROP CONNECTION	DRAWING SS-6
NO.	DATE:				
1					PAGE 36
2	04/09/24				

ARTICLE 4-130.5F



NOTES:

A. Base section to provide minimum 6' clearance between the top of the pipe opening and bottom of bell and spigot joint.
B. In all areas, base section footing must be spread a minimum of 8".
C. Strapping of manhole to be used where within limit of 100-year floodplain.
D. Exterior of manhole to be asphalt coated.
E. Fasten the frame to cone per detail SS-37.
F. Use two strands of 1" roll mastic between the cone and frame (RV-30).
G. Use roll mastic between manhole sections in addition to gasket.
H. All manholes require a chimney seal per detail SS-35.
I. When adjusting existing manhole riser rings (HDPE or concrete) shall be used.

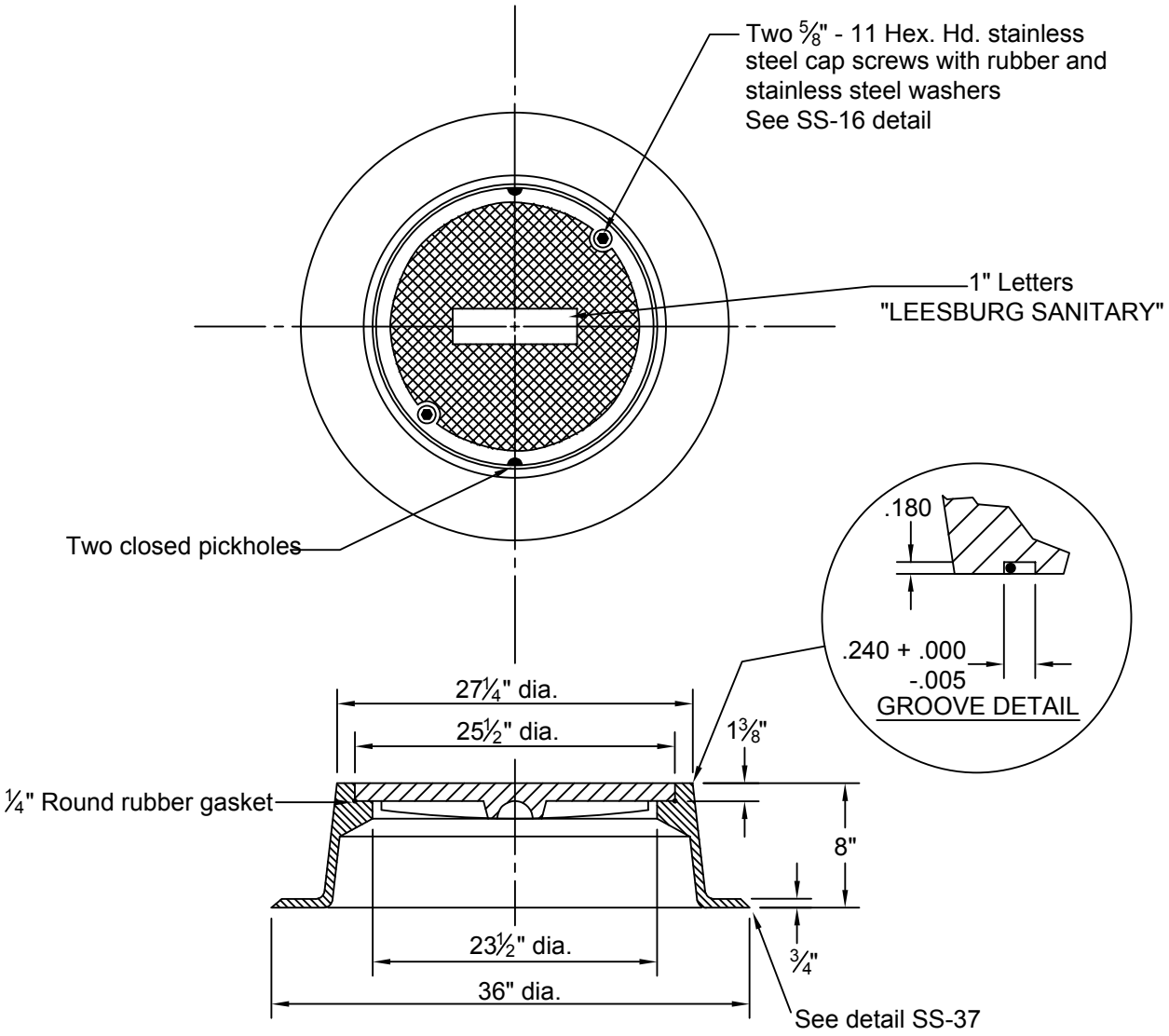
Not To Scale

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

TYPICAL 4' - 0" I.D. PRECAST CONCRETE MANHOLE

DRAWING SS-7

ARTICLE 4-130.5J(2)



NOTES:

A. Heavy duty machine bearing surfaces.

B. Unit weight equals approximately 350 lbs.

C. Material shall conform to A.S.T.M. A48.

D. See SS-16 for cover locking detail.

Not To Scale

REVISIONS			
NO.	DATE:		
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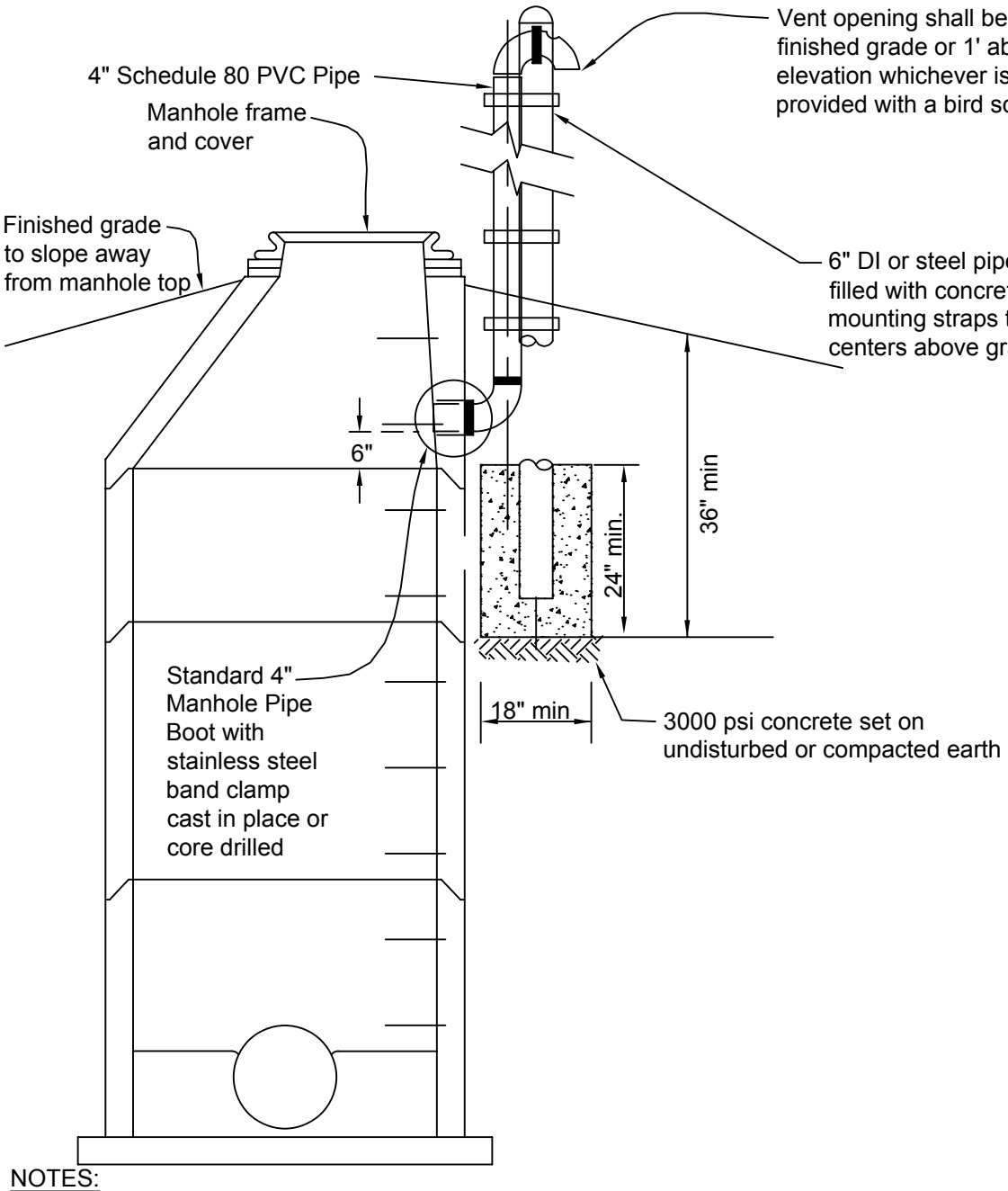
HEAVY DUTY WATERTIGHT FRAME AND COVER

DRAWING SS-8

ARTICLE 4-130.5K



NOTES:

A. Vent locations shall be indicated on both plan and profile.
B. The design elevation of the vent pipe opening shall be indicated on both plan and profile.
C. Manholes located within paved areas require vents to be moved to the utility strip or a grassy area.
D. Prime post and attachment hardware with one coat of white rust inhibtive primer. Apply two coats of exterior semi-gloss white latex paint on vent piping, post and hardware.
E. Drawing is for vent detail only.

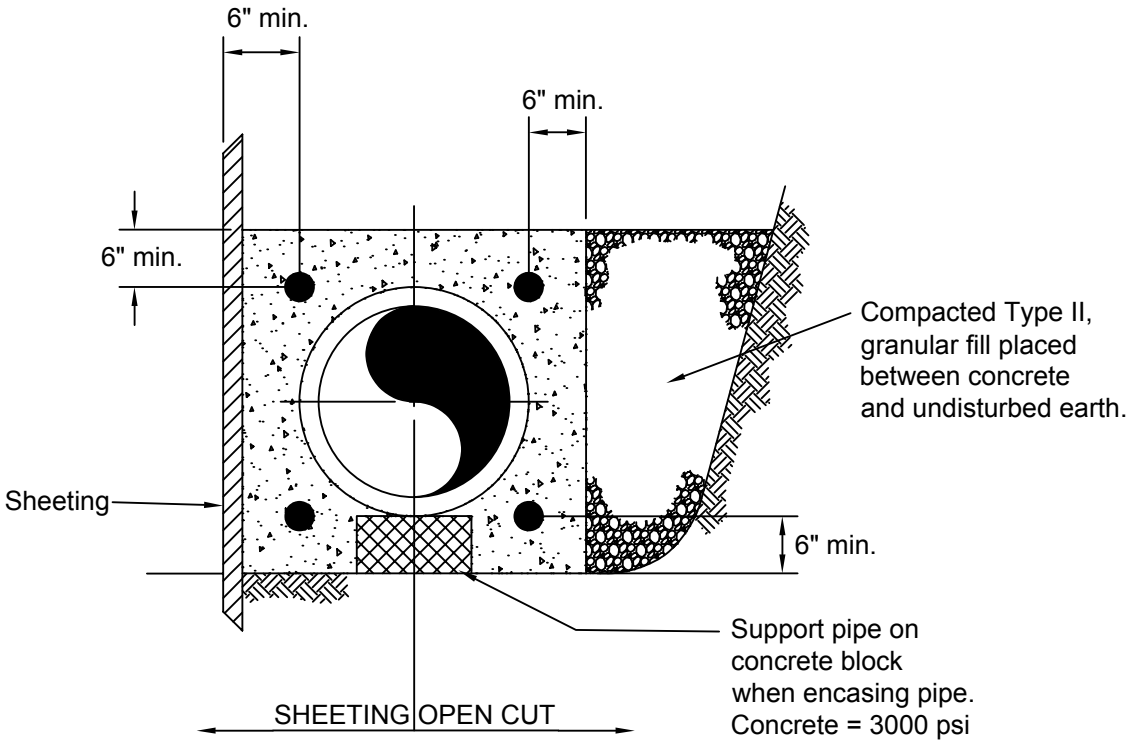
Not To Scale

REVISIONS			
NO.	DATE:		
1			
2	10/16/07		

VENT FOR MANHOLES

DRAWING SS-9

ARTICLE 2-370.1B(1) and 4-130.5M(2)



SECTION VIEW

NOTES:

A. The encased pipe shall be ductile iron. PVC pipes will not be allowed for encasement. The entire length of pipe to 2' outside the casing shall be wrapped with polyethylene per AWWA standards section C-105/A21.5.

B. Control joints and pipe joints for encasements shall coincide for spacing. The maximum distance between control joints shall be 24'.

C. Steel reinforcing #4 bars at 12", 4' long shall be provided across control joints for encasements.

D. During installation protect pipe against flotation.

E. At utility crossings, the concrete encasement shall extend 10' minimum on each side of the line at the point of crossing.

F. Applicable to both water and sanitary sewer lines.

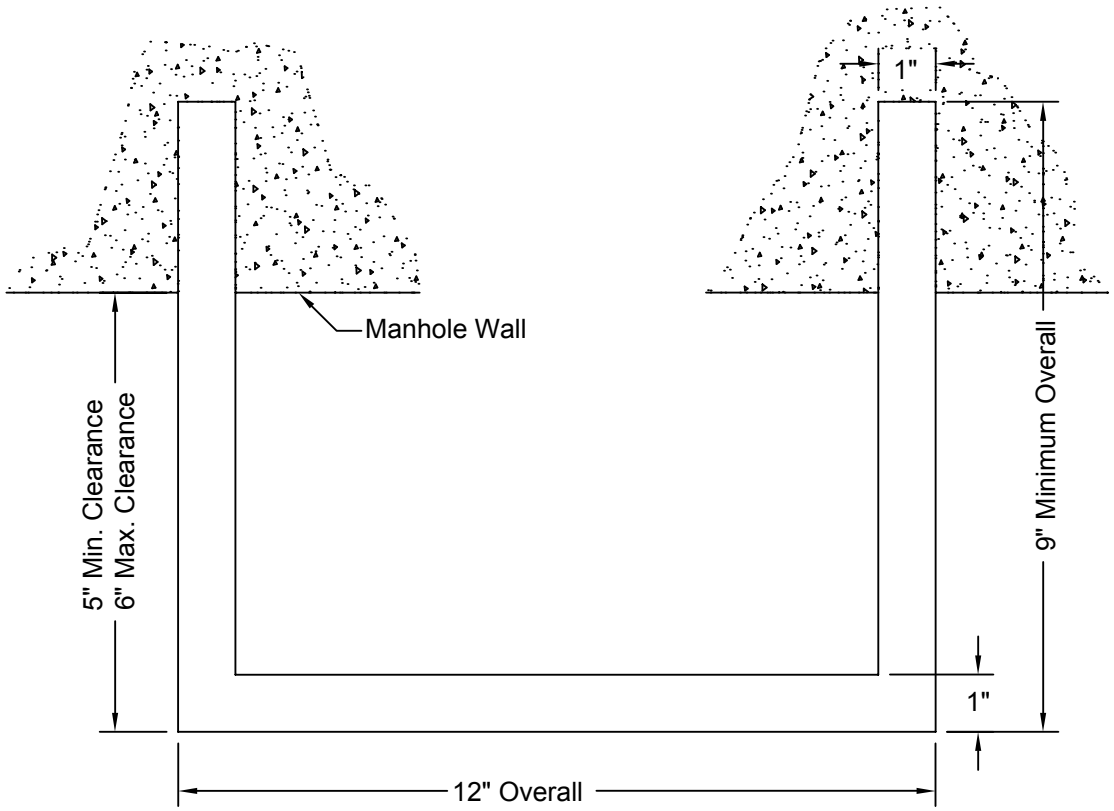
Not To Scale

REVISIONS			
NO.	DATE:		
1			

CONCRETE ENCASEMENT DETAIL

DRAWING SS-10

ARTICLE 4-130.5P



PLAN VIEW

NOTES:

A. Steps must be steel with plastic or rubber coating unless otherwise specified for caustic service.

B. Steps may be M.A. Industries, Inc. "Plastic Step" or approved equal.

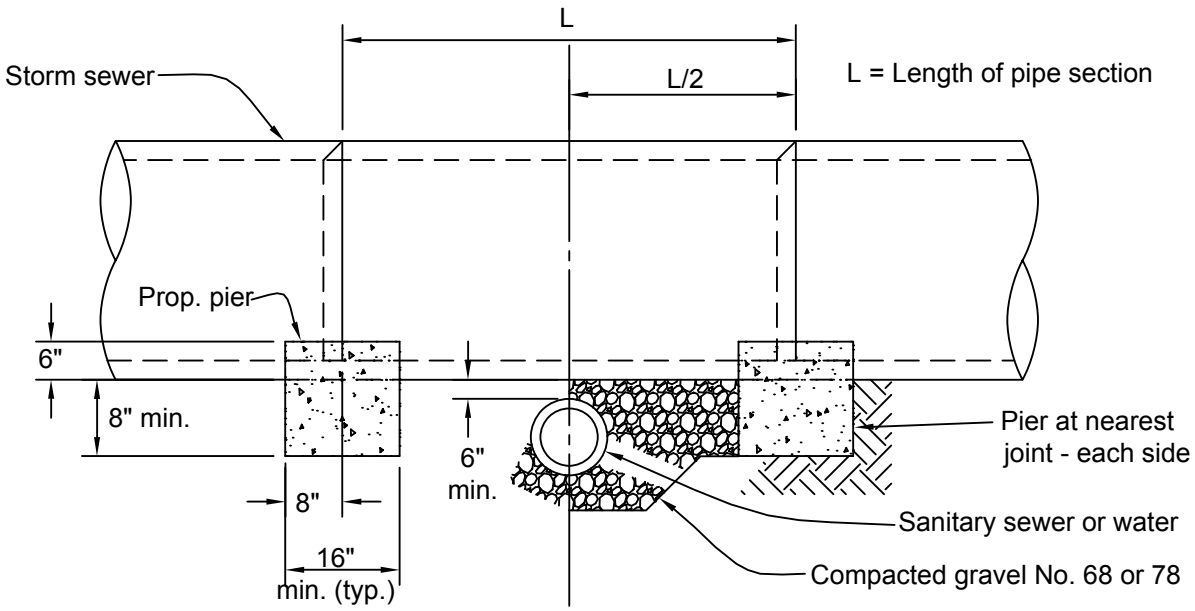
Not To Scale

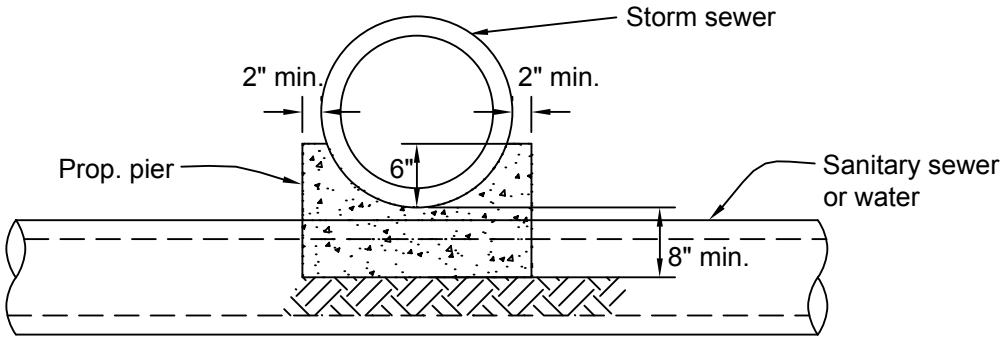
REVISIONS			
NO.	DATE:		
1			

MANHOLE STEP DETAIL

DRAWING SS-11

ARTICLE 4-130.5Q





NOTES:

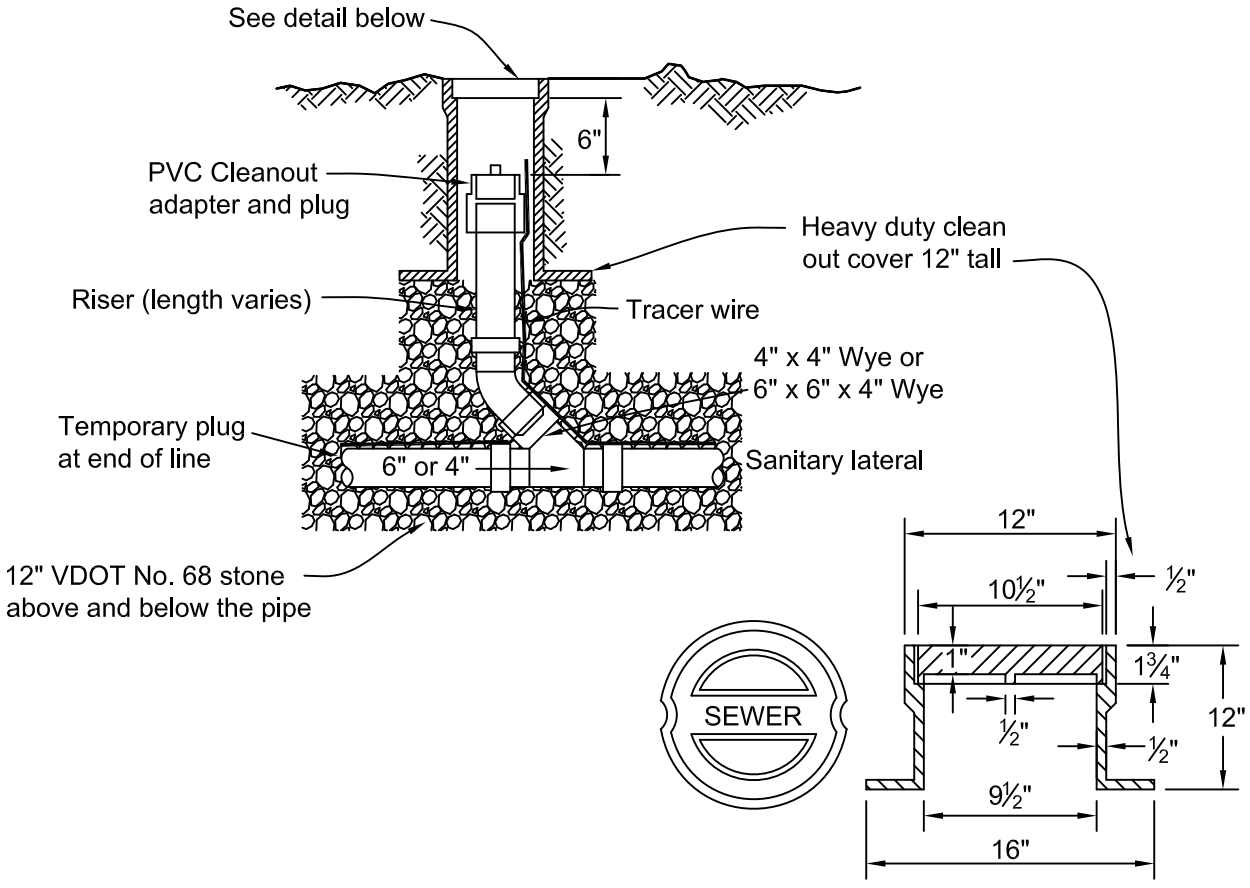
A. Pier only when a large diameter pipe (36" or larger) crosses over the other utility with a vertical clearance of less than 18".

B. Pier to be built on undisturbed earth. Concrete to be class "A3".

Not To Scale

REVISIONS				**CONCRETE PIER**	DRAWING SS-12
NO.	DATE:				
1					PAGE 42

ARTICLE 4-130.6C



NOTE:

A. Lateral stacks to be constructed and maintained vertically plumb, with 90% visibility.
B. Refer to Section 4-140-6C for additional details.
C. Tape the tracer wire to top of the pipe at 2' intervals.
D. The tracer wire requirement applies to details SS-1, SS-2 and SS-3.

Not To Scale

REVISIONS				**SANITARY LATERAL CLEANOUT**	DRAWING SS-13
NO.	DATE:				
1					
3	04/27/10				PAGE 43
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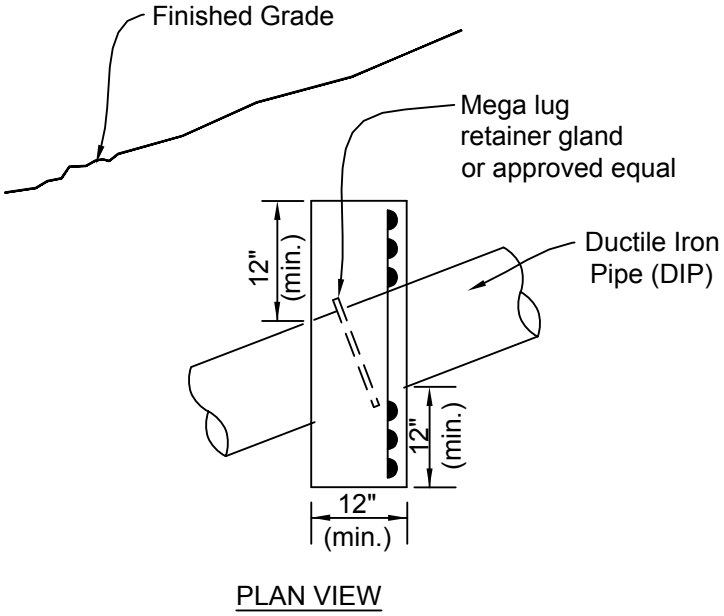
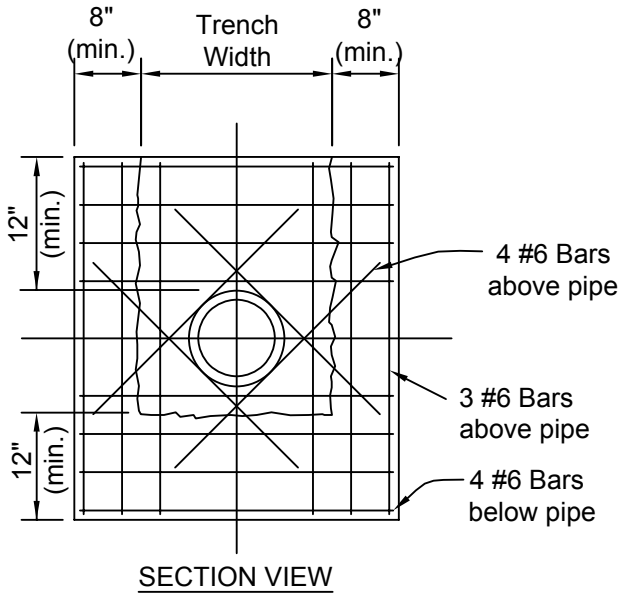
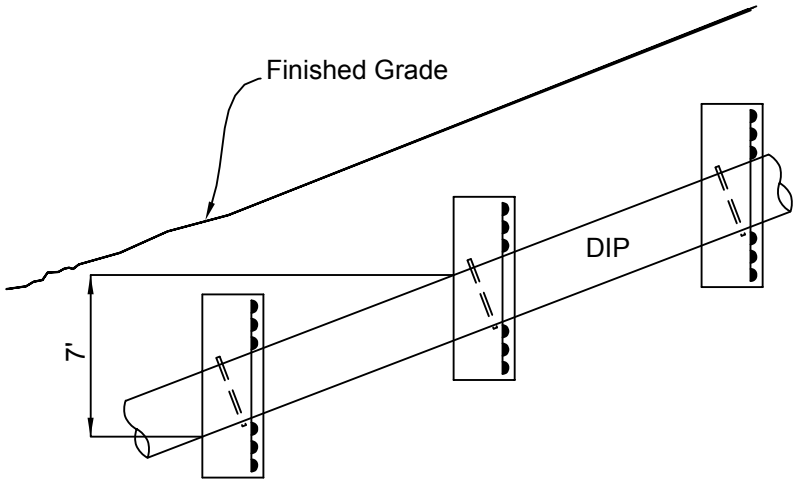
ARTICLE 4-130.8F



PLAN VIEW



SECTION VIEW



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. Wrap the pipe with polyethylene bags to 6" outside the concrete encasement.
E. All reinforcing steel to be ASTM A-615, grade 60, #6 bars.
F. Pipe anchors shall be constructed at 7' vertical intervals.

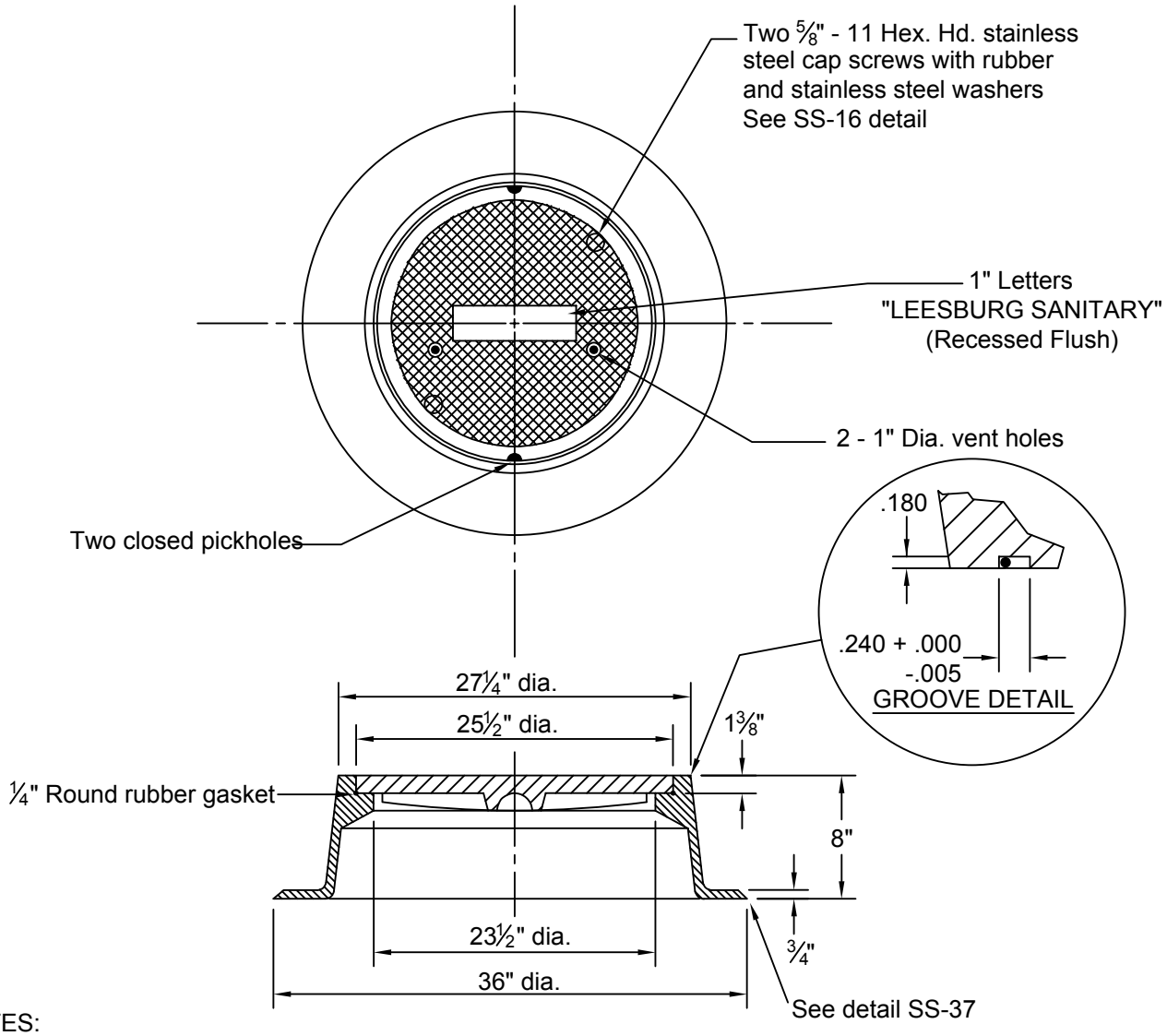
Not To Scale

REVISIONS			
NO.	DATE:		
1			
2	10/16/07		
3	04/27/10		

CONCRETE SLOPE ANCHOR

DRAWING
SS-14

ARTICLE 4-130.8M



NOTES:

A. Heavy duty machine bearing surfaces.

B. Unit weight equals approximately 350 lbs.

C. Material shall conform to A.S.T.M. A48.

D. Frame must be fastened to the cone section.

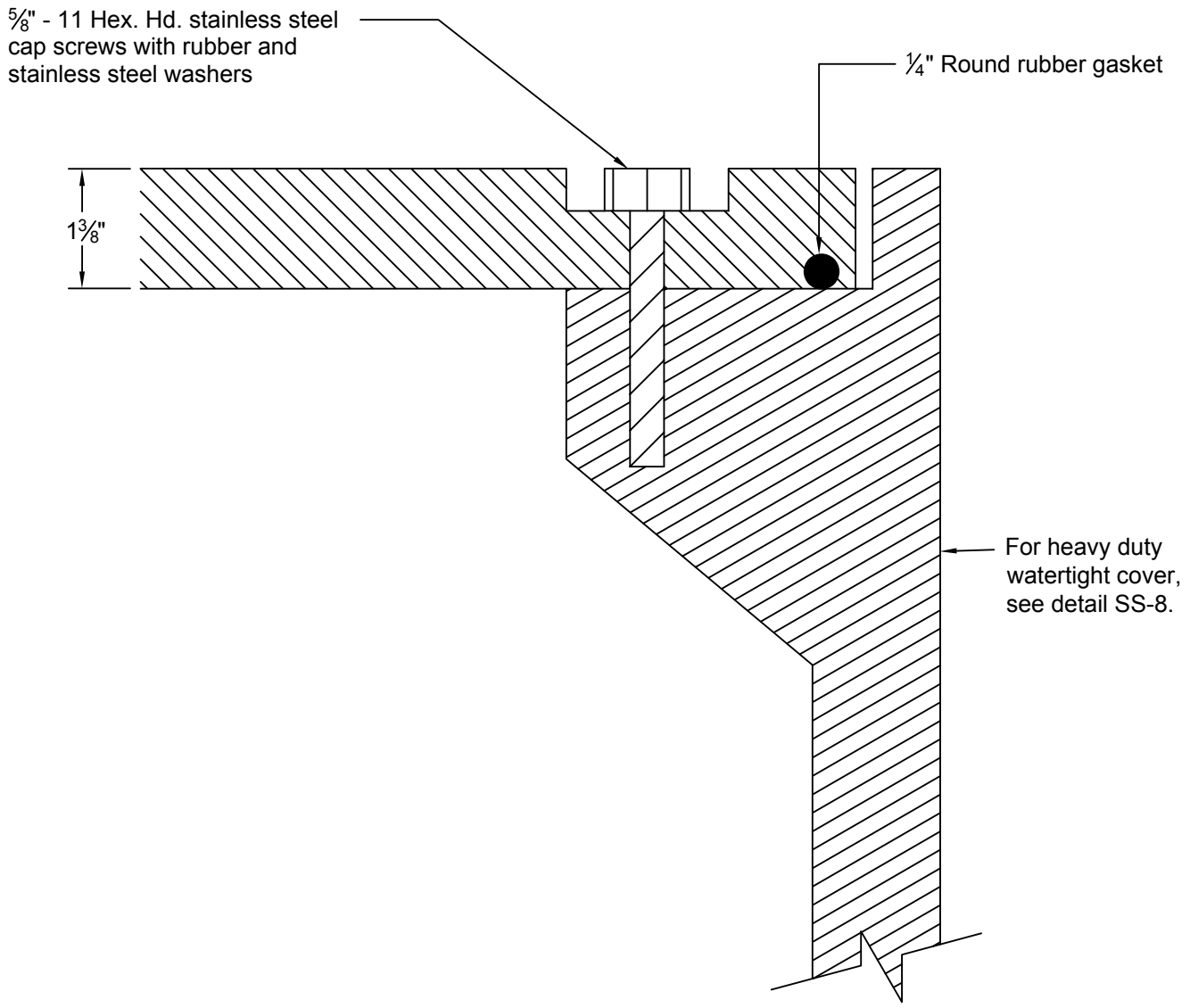
Not To Scale

REVISIONS			
NO.	DATE:		
1			

HEAVY DUTY AND LOCK TYPE MANHOLE FRAME AND COVER

DRAWING SS-15

ARTICLE 4-130.8M



Not To Scale

REVISIONS			
NO.	DATE:		
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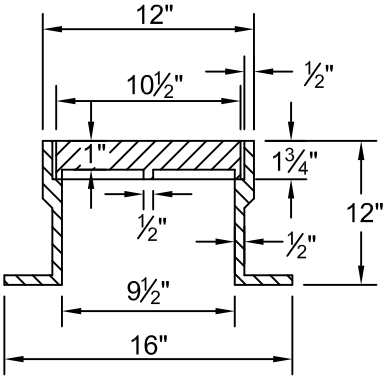
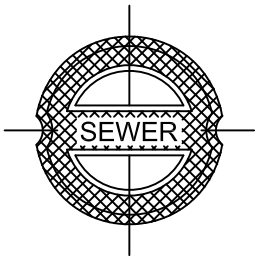
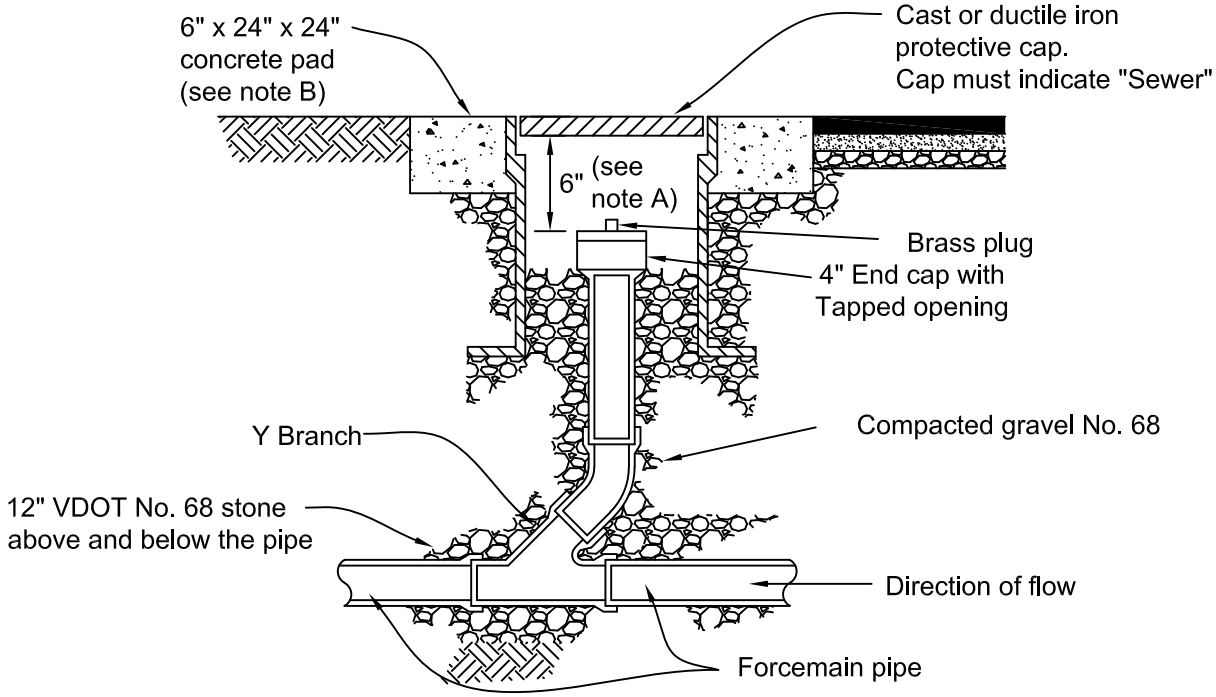
MANHOLE LOCKING COVER

DRAWING SS-16

ARTICLE 4-130.9H







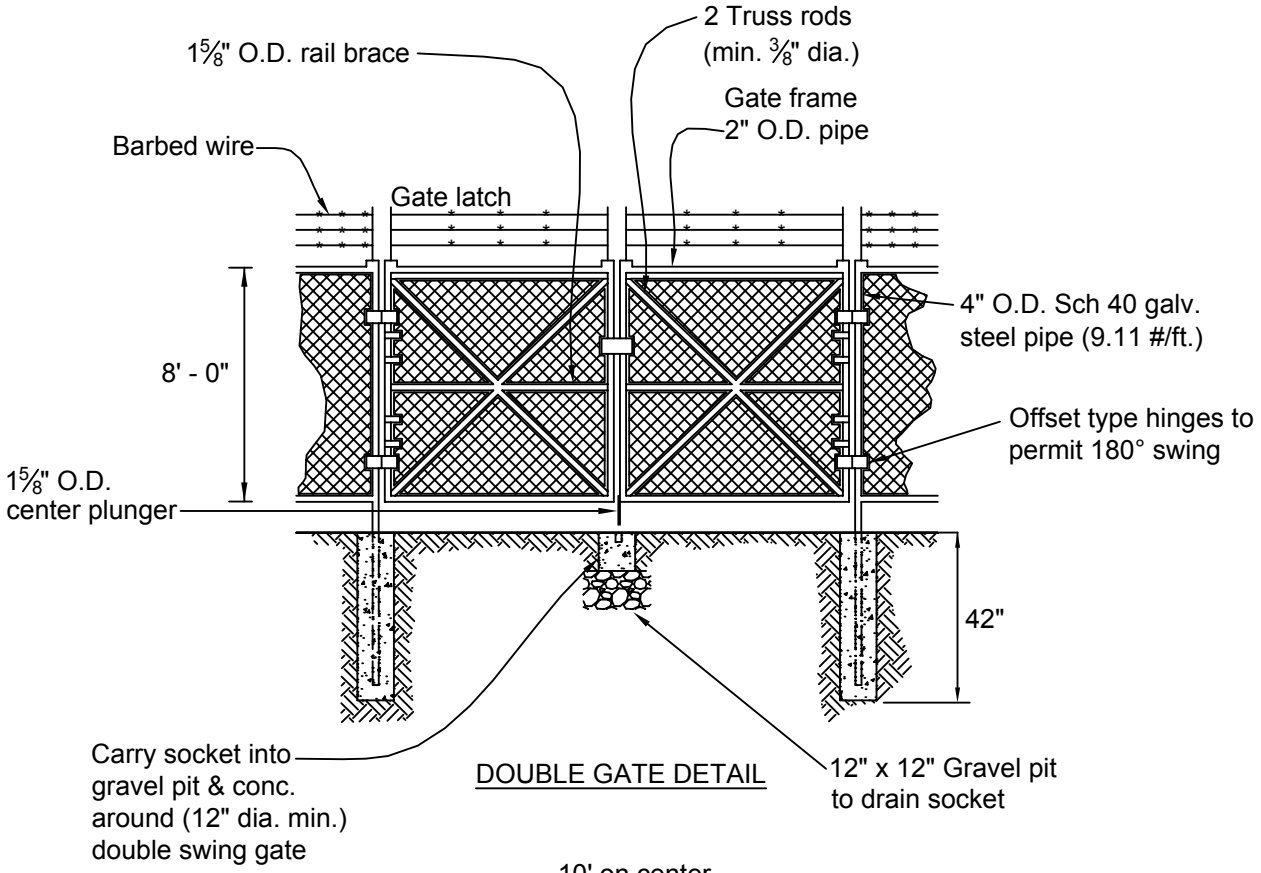
NOTES:

A. Concrete pad to be used if the cleanout is located outside a paved area and provided with #3 rebar cage.
B. A metallic warning tape indicating "Buried Pipe" shall be installed at least one foot above the pipe.
C. Machine contact surfaces of frame and cover.
D. Lateral stacks to be constructed and maintained vertically plumb, with 90% visibility.

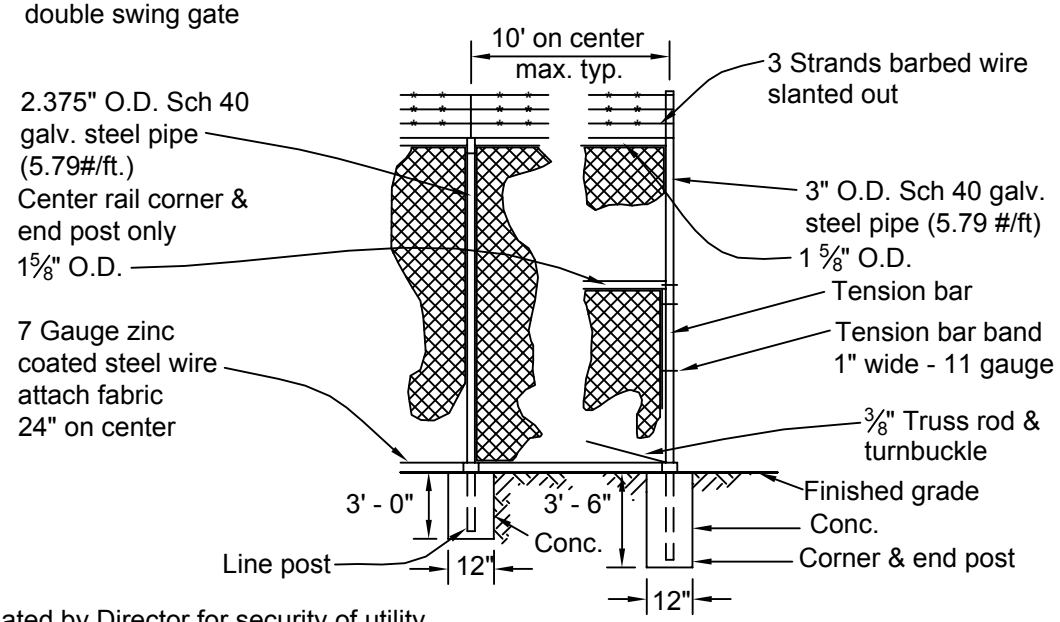
Not To Scale

REVISIONS				**FORCEMAIN CLEANOUT**	DRAWING SS-17
NO.	DATE:				
1					PAGE 47
2	10/16/07				
3	04/27/10				
4	04/09/24				

ARTICLE 4-130.11D



DOUBLE GATE DETAIL



FENCE DETAIL

NOTES:

1. As designated by Director for security of utility installations.
2. Minimum fence height shall be 8', not including barbed wire.

Not To Scale

REVISIONS			
NO.	DATE:		
1			
2	10/16/07		

CHAIN LINK FENCE

DRAWING SS-18

ARTICLE 4-151.1

LENGTH OF MAIN LINE IN FEET 8" DIAMETER

	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
0	.07	.14	.21	.29	.36	.43	.50	.57	.64	.72	.79	.86	.93	1.00	1.07	1.15
25	.11	.18	.24	.32	.39	.46	.53	.60	.67	.75	.82	.89	.96	1.03	1.10	1.13
50	.14	.21	.28	.36	.43	.50	.57	.64	.71	.79	.86	.93	1.00	1.07	1.14	1.22
75	.18	.25	.31	.39	.46	.53	.60	.67	.74	.82	.89	.96	1.03	1.10	1.17	1.25
100	.21	.28	.35	.43	.50	.57	.64	.71	.78	.86	.93	1.00	1.07	1.14	1.21	1.29
125	.25	.32	.38	.46	.53	.60	.67	.74	.81	.89	.96	1.03	1.10	1.17	1.24	1.32
150	.28	.35	.42	.50	.57	.64	.71	.78	.85	.93	1.00	1.07	1.14	1.21	1.28	1.36
175	.32	.39	.46	.54	.61	.68	.75	.82	.89	.97	1.04	1.11	1.18	1.25	1.32	1.40
200	.36	.43	.49	.57	.64	.71	.78	.85	.92	1.00	1.07	1.14	1.21	1.28	1.35	1.43
225	.39	.46	.53	.61	.68	.75	.82	.89	.96	1.04	1.11	1.18	1.25	1.32	1.39	1.47
250	.43	.50	.56	.64	.71	.78	.85	.92	.99	1.07	1.14	1.21	1.28	1.35	1.42	1.50
275	.46	.53	.60	.68	.75	.82	.89	.96	1.03	1.11	1.18	1.25	1.32	1.39	1.46	1.54
300	.50	.57	.63	.71	.78	.85	.92	.99	1.06	1.14	1.21	1.28	1.35	1.42	1.49	1.57

Length of spur (feet) - 4' diameter

LENGTH OF MAIN LINE IN FEET 10" DIAMETER

	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
0	.09	.17	.26	.35	.44	.53	.62	.71	.80	.89	.98	1.07	1.16	1.25	1.34	1.43
25	.12	.20	.29	.38	.47	.56	.65	.74	.83	92	1.01	1.10	1.19	1.28	1.37	1.46
50	.16	.24	.33	.42	.51	.60	.69	.78	.87	.96	1.05	1.14	1.23	1.32	1.41	1.50
75	.19	.27	.36	.45	.54	.63	.72	.81	.90	.99	1.08	1.17	1.26	1.35	1.44	1.53
100	.23	.31	.40	.49	.58	.67	.76	.85	.93	1.03	1.12	1.21	1.30	1.39	1.48	1.57
125	.26	.34	.43	.52	.61	.70	.79	.88	.97	1.06	1.15	1.24	1.33	1.42	1.51	1.60
150	.30	.38	.47	.56	.65	.74	.83	.92	1.01	1.10	1.19	1.28	1.37	1.46	1.55	1.64
175	.34	.42	.51	.60	.69	.78	.87	.96	1.04	1.14	1.23	1.32	1.41	1.50	1.59	1.68
200	.37	.45	.54	.63	.72	.81	.90	.99	1.08	1.17	1.26	1.35	1.44	1.53	1.62	1.71
225	.41	.49	.58	.67	.76	.85	.94	1.03	1.12	1.21	1.30	1.39	1.48	1.57	1.66	1.74
250	.44	.52	.61	.70	.79	.88	.97	1.06	1.15	1.24	1.33	1.42	1.51	1.60	1.69	1.78
275	.48	.56	.65	.74	.83	.92	1.01	1.10	1.18	1.28	1.37	1.46	1.55	1.64	1.73	1.81
300	.51	.59	.68	.77	.86	.95	1.04	1.13	1.28	1.31	1.60	1.49	1.58	1.67	1.76	1.86

Length of spur (feet) - 4' diameter

ARTICLE 4-151.1

LENGTH OF MAIN LINE IN FEET 12" DIAMETER

	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
0	.10	.21	.32	.42	.53	.64	.75	.85	.96	1.07	1.18	1.28	1.39	1.50	1.61	1.71
25	.13	.24	.35	.45	.56	.67	.78	.88	.99	1.10	1.21	1.31	1.42	1.53	1.64	1.74
50	.17	.28	.39	.49	.60	.71	.82	.92	1.03	1.14	1.25	1.35	1.46	1.57	1.68	1.78
75	.20	.31	.42	.52	.63	.74	.85	.95	1.06	1.17	1.28	1.38	1.49	1.60	1.71	1.81
100	.24	.35	.46	.56	.67	.78	.89	.99	1.10	1.21	1.32	1.42	1.53	1.64	1.75	1.85
125	.27	.38	.49	.59	.70	.81	.92	1.02	1.13	1.24	1.35	1.45	1.56	1.67	1.78	1.88
150	.32	.42	.53	.63	.74	.85	.96	1.06	1.17	1.28	1.39	1.49	1.60	1.71	1.82	1.92
175	.35	.46	.57	.67	.78	.89	1.00	1.11	1.21	1.32	1.43	1.53	1.64	1.75	1.86	1.96
200	.38	.49	.60	.70	.81	.92	1.03	1.13	1.24	1.35	1.46	1.56	1.67	1.78	1.89	1.99
225	.42	.53	.64	.74	.85	.96	1.07	1.17	1.28	1.39	1.50	1.60	1.71	1.82	1.93	2.03
250	.45	.56	.67	.77	.88	.99	1.10	1.20	1.31	1.42	1.53	1.63	1.74	1.85	1.96	2.06
275	.49	.60	.71	.81	.92	1.03	1.14	1.24	1.35	1.46	1.57	1.67	1.78	1.89	2.00	2.10
300	.52	.63	.74	.84	.95	1.06	1.17	1.27	1.38	1.49	1.60	1.70	1.81	1.92	2.03	2.13

Length of spur (feet) - 4' diameter

LENGTH OF MAIN LINE IN FEET 15" DIAMETER

	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
0	.13	.26	.40	.53	.67	.80	.94	1.07	1.20	1.34	1.47	1.61	1.74	1.88	2.01	2.14
25	.16	.29	.43	.56	.70	.83	.97	1.10	1.23	1.37	1.50	1.64	1.77	1.91	2.04	2.17
50	.26	.33	.47	.61	.73	.87	1.01	1.14	1.27	1.41	1.54	1.68	1.81	1.94	2.08	2.21
75	.30	.36	.50	.63	.77	.90	1.04	1.17	1.30	1.44	1.57	1.71	1.84	1.98	2.11	2.24
100	.33	.40	.54	.67	.81	.94	1.08	1.21	1.34	1.48	1.61	1.75	1.88	2.01	2.15	2.28
125	.37	.43	.57	.70	.84	.97	1.11	1.24	1.37	1.51	1.64	1.78	1.91	2.05	2.18	2.31
150	.41	.47	.61	.74	.88	1.01	1.15	1.28	1.41	1.55	1.68	1.82	1.92	2.08	2.22	2.35
175	.44	.51	.65	.78	.92	1.05	1.19	1.32	1.45	1.59	1.72	1.86	1.99	2.12	2.26	2.39
200	.48	.54	.68	.81	.95	1.08	1.22	1.35	1.48	1.62	1.75	1.89	2.02	2.16	2.29	2.42
225	.51	.58	.72	.85	.99	1.12	1.26	1.39	1.52	1.66	1.79	1.93	2.06	2.19	2.33	2.46
250	.55	.61	.75	.88	1.02	1.15	1.29	1.42	1.55	1.69	1.82	1.96	2.09	2.23	2.36	2.49
275	.58	.65	.79	.92	1.06	1.19	1.33	1.46	1.59	1.73	1.86	2.00	2.13	2.26	2.40	2.53
300	.62	.68	.82	.95	1.09	1.22	1.36	1.49	1.62	1.76	1.89	2.03	2.16	2.30	2.43	2.56

Length of spur (feet) - 4' diameter

REVISIONS			
NO.	DATE:		
1			

WATER TEST TABLE
12" and 15" DIA. PIPES

DRAWING
SS-20

ARTICLE 4-151.1

LENGTH OF MAIN LINE IN FEET 18" DIAMETER

	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
0	.16	.32	.48	.64	.80	.96	1.12	1.28	1.45	1.61	1.77	1.93	2.09	2.25	2.45	2.57
25	.19	.35	.51	.67	.83	.99	1.15	1.31	1.48	1.64	1.80	1.96	2.12	2.28	2.48	2.60
50	.23	.39	.55	.71	.87	1.03	1.19	1.35	1.52	1.68	1.84	2.00	2.16	2.32	2.52	2.64
75	.26	.42	.58	.74	.90	1.06	1.22	1.38	1.55	1.71	1.87	2.03	2.19	2.35	2.55	2.67
100	.30	.46	.62	.78	.94	1.10	1.26	1.42	1.59	1.75	1.91	2.07	2.23	2.39	2.59	2.71
125	.33	.49	.64	.81	.97	1.13	1.29	1.45	1.62	1.78	1.94	2.10	2.26	2.42	2.62	2.74
150	.37	.53	.69	.85	1.01	1.17	1.33	1.49	1.66	1.82	1.98	2.14	2.30	2.46	2.66	2.78
175	.40	.56	.72	.88	1.04	1.20	1.36	1.52	1.69	1.85	2.01	2.17	2.33	2.49	2.69	2.81
200	.44	.60	.76	.92	1.08	1.24	1.40	1.56	1.73	1.89	2.05	2.21	2.37	2.53	2.73	2.85
225	.48	.64	.80	.96	1.12	1.28	1.44	1.60	1.77	1.93	2.09	2.25	2.41	2.57	2.77	2.89
250	.51	.67	.83	.99	1.15	1.31	1.47	1.63	1.80	1.96	2.12	2.28	2.44	2.60	2.80	2.92
275	.55	.71	.87	1.03	1.19	1.35	1.51	1.67	1.84	2.00	2.16	2.32	2.48	2.64	2.84	2.96
300	.58	.74	.90	1.06	1.22	1.38	1.54	1.70	1.87	2.03	2.19	2.35	2.51	2.67	2.87	2.99

Length of spur (feet) - 4' diameter

LENGTH OF MAIN LINE IN FEET 21" DIAMETER

	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
0	.18	.37	.56	.75	.94	1.12	1.31	1.50	1.69	1.88	2.06	2.25	2.44	2.63	2.82	3.00
25	.21	.40	.59	.78	.97	1.15	1.34	1.53	1.72	1.91	2.09	2.28	2.47	2.66	2.85	3.03
50	.25	.44	.63	.82	1.01	1.19	1.38	1.57	1.76	1.95	2.13	2.32	2.51	2.70	2.88	3.07
75	.28	.47	.66	.85	1.04	1.22	1.41	1.60	1.79	1.98	2.16	2.35	2.54	2.73	2.92	3.10
100	.32	.51	.70	.89	1.08	1.26	1.45	1.64	1.83	2.02	2.20	2.39	2.58	2.77	2.96	3.14
125	.35	.54	.73	.92	1.11	1.29	1.48	1.67	1.86	2.05	2.23	2.42	2.61	2.80	2.99	3.17
150	.39	.58	.77	.96	1.15	1.33	1.52	1.71	1.90	2.09	2.27	2.46	2.65	2.83	3.03	3.21
175	.43	.62	.81	1.00	1.19	1.37	1.56	1.75	1.91	2.13	2.31	2.50	2.69	2.88	3.07	3.25
200	.46	.65	.84	1.03	1.22	1.40	1.59	1.78	1.97	2.16	2.34	2.53	2.72	2.91	3.10	3.28
225	.50	.69	.88	1.07	1.26	1.44	1.63	1.82	2.01	2.20	2.38	2.57	2.76	2.95	3.14	3.32
250	.53	.72	.91	1.10	1.29	1.47	1.66	1.85	2.04	2.23	2.41	2.61	2.79	2.98	3.17	3.35
275	.57	.76	.95	1.14	1.33	1.51	1.70	1.89	2.08	2.27	2.45	2.64	2.83	3.02	3.21	3.39
300	.60	.79	.98	1.17	1.36	1.54	1.73	1.92	2.11	2.30	2.48	2.67	2.86	3.05	3.24	3.40

Length of spur (feet) - 4' diameter

ARTICLE 4-151.1

LENGTH OF MAIN LINE IN FEET 24" DIAMETER

	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
0	.21	.42	.63	.85	1.07	1.28	1.50	1.71	1.93	2.14	2.36	2.57	2.79	3.00	3.22	3.43
25	.24	.45	.67	.88	1.10	1.31	1.53	1.74	2.00	2.21	2.43	2.64	2.86	3.07	3.29	3.50
50	.28	.49	.71	.92	1.14	1.35	1.57	1.78	2.00	2.21	2.43	2.64	2.86	3.07	3.29	3.50
75	.31	.52	.74	.95	1.17	1.38	1.60	1.81	2.03	2.24	2.46	2.67	2.89	3.10	3.32	3.53
100	.35	.56	.78	.99	1.21	1.42	1.64	1.85	2.07	2.28	2.50	2.71	2.93	3.14	3.36	3.57
125	.38	.59	.81	1.02	1.24	1.45	1.67	1.88	2.10	2.31	2.53	2.74	2.96	3.17	3.39	3.60
150	.42	.63	.85	1.06	1.28	1.49	1.71	1.92	2.14	2.35	2.57	2.78	3.00	3.21	3.42	3.64
175	.46	.67	.89	1.10	1.32	1.53	1.75	1.96	2.18	2.39	2.61	2.82	3.04	3.25	3.47	3.68
200	.49	.70	.92	1.13	1.35	1.55	1.78	1.99	2.21	2.42	2.64	2.85	3.07	3.28	3.50	3.71
225	.53	.74	.96	1.17	1.39	1.60	1.82	2.03	2.25	2.46	2.68	2.89	3.11	3.31	3.54	3.75
250	.56	.77	.99	1.20	1.42	1.63	1.85	2.06	2.28	2.49	2.71	2.92	3.14	3.35	3.57	3.78
275	.60	.81	1.03	1.24	1.46	1.67	1.89	2.10	2.32	2.53	2.75	2.96	3.18	3.39	3.61	3.82
300	.63	.84	1.06	1.27	1.49	1.70	1.92	2.13	2.35	2.56	2.78	2.99	3.21	3.42	3.64	3.85

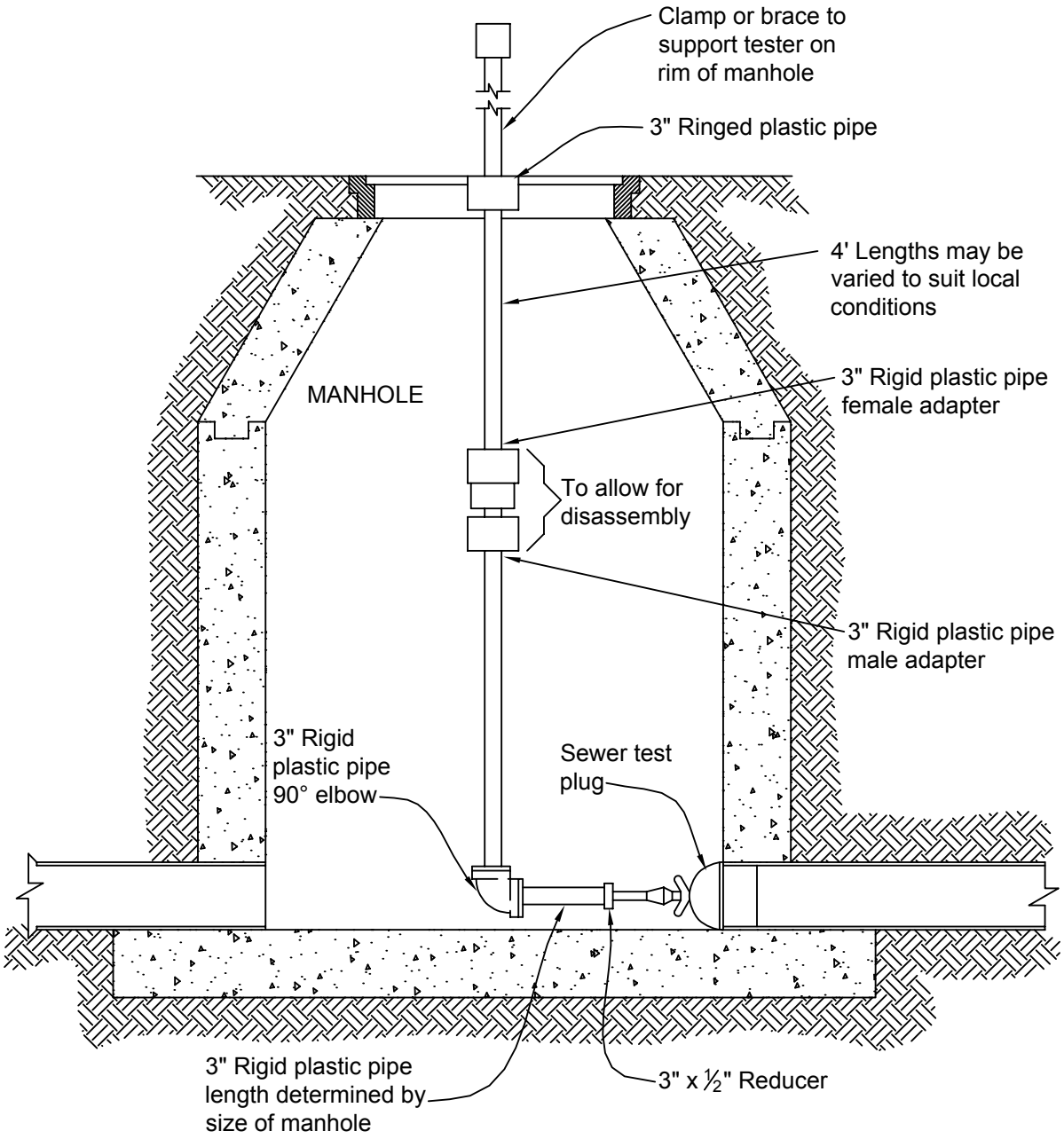
Length of spur (feet) - 4' diameter

REVISIONS			
NO.	DATE:		
1			

WATER TEST TABLE 24" DIA. PIPES

DRAWING SS-22

ARTICLE 4-151.1A



NOTE:

A. To be used for shallow, less than 6', manholes.

Not To Scale

REVISIONS			
NO.	DATE:		
1			

EXFILTRATION TEST ASSEMBLY

DRAWING SS-23

ARTICLE 4-152.8

MINIMUM HOLDING TIME IN MINUTES REQUIRED FOR PRESSURE DROP FROM 3.5 TO 3.0 PSI

	4"	6"	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"
25	2.8	4.2	5.7	7.1	8.5	10.6	12.7	14.8	17.0	19.2	21.2	23.3	25.5
50												23.3	25.5
75										19.2	21.2	24.3	28.8
100								14.8	17.0	21.6	26.8	32.2	38.5
125							12.7	16.3	21.2	27.0	33.3	40.1	48.2
150						10.6	14.3	19.6	25.5	32.6	40.1	48.3	57.6
175						11.6	16.7	22.8	29.7	37.9	46.7	56.2	67.3
200					8.5	13.3	19.1	26.1	34.0	43.3	53.5	64.4	77.0
225				7.1	9.5	15.0	21.5	29.4	38.2	48.7	60.1	72.3	86.7
250				7.4	10.6	16.7	24.0	32.6	42.5	54.0	66.9	80.5	96.1
275				8.1	11.7	18.3	26.3	35.9	46.7	59.6	73.5	88.4	105.8
300			5.7	8.9	12.7	20.0	28.7	39.1	51.0	65.0	80.3	96.6	115.5
350			6.6	10.4	14.9	23.4	33.4	45.7	59.5	75.7	93.7	112.7	134.6
400		4.2	7.6	11.9	17.0	26.7	38.2	52.2	68.0	86.6	107.1	128.8	154.0
450		4.8	8.5	13.4	19.1	30.3	43.0	58.7	76.5	97.4	120.5	144.9	173.1
500	2.8	5.3	9.5	14.9	21.2	33.3	47.8	65.3	85.0	108.3	133.9	161.0	192.5

NOTES:

A. Air Test Table Based on Ramseier's Equation T=0.085 DK/Q (Q = 0.0010 CFM)

B. For Testing 4" Laterals With Sewer Main Add 2.8 Minutes to Appropriate Sewer Main Test Time.

REVISIONS			
NO.	DATE:		
1			

AIR TEST MINIMUM HOLDING TIME

DRAWING SS-24

ARTICLE 4-152.9

EQUIVALENT PSI	HEIGHT OF GROUND WATER ABOVE PIPE INV. (FT.)
0.43	1
0.87	2
1.30	3
1.73	4
2.17	5
2.60	6
3.03	7
3.47	8
3.90	9
4.34	10
4.77	11
4.98	11.5
For anything above 11.5 v.f., allow maximum of 5.0 PSI.	

NOTES:

A. Table based on 1.0 v.f. of water = 0.4335 PSI.

B. The appropriate PSI allowance for average vertical foot of ground water shall be added to the base starting pressure of 4.0 PSI, but in **NO CASE** shall the resulting pressure be more than 9.0 PSI.

C. Interpolate for fractions of a foot of water.

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Not To Scale

REVISIONS			
NO.	DATE:		
2	10/16/07		

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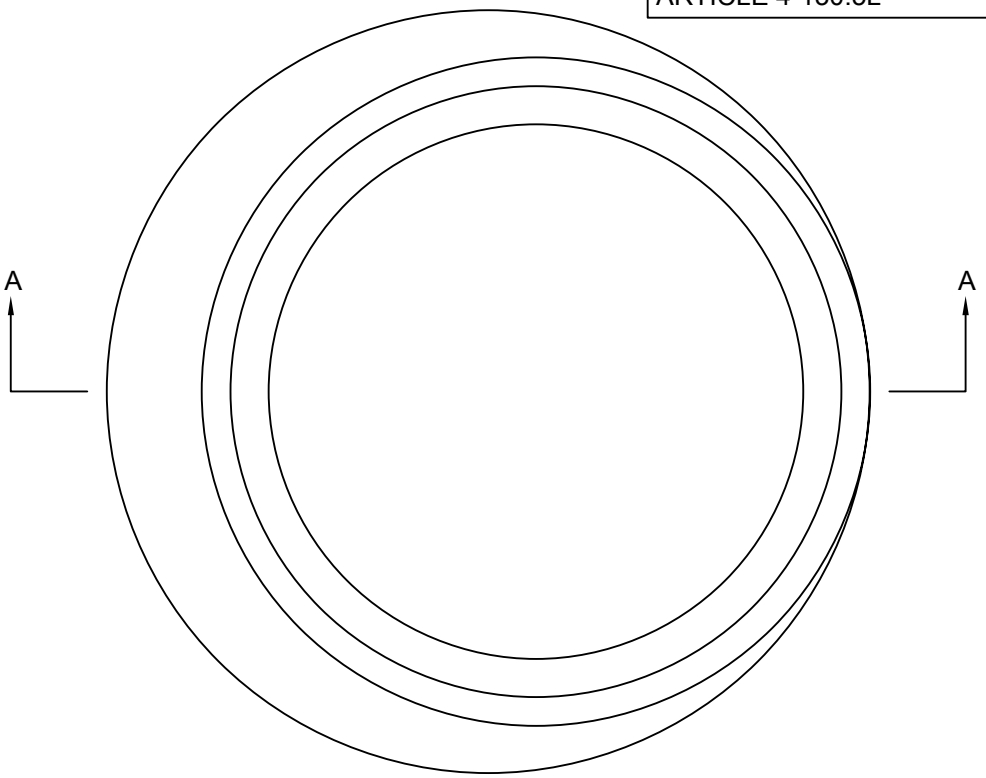
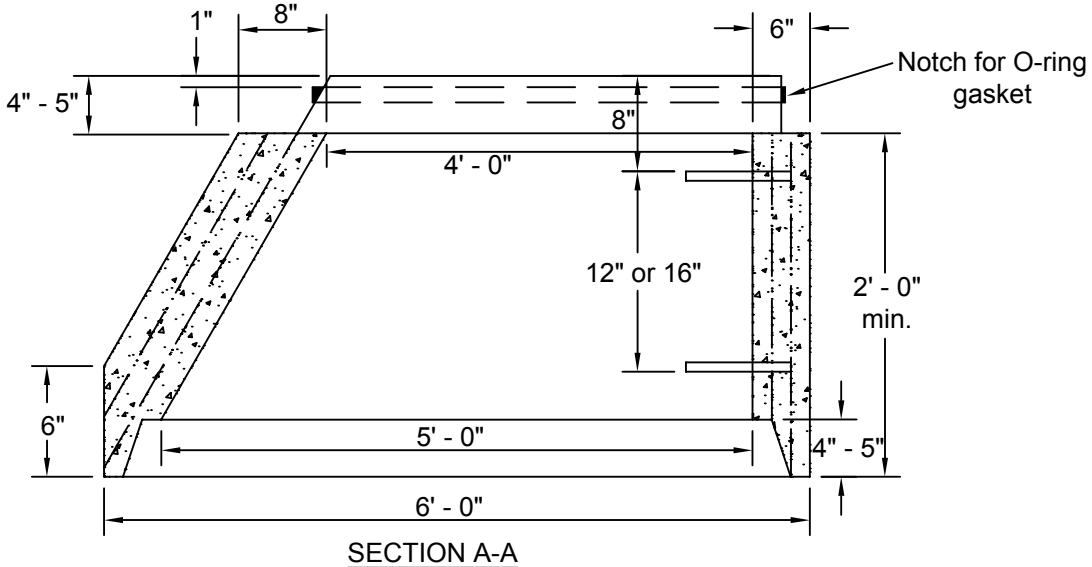
DRAWING
SS-26

ARTICLE 4-130.5L



TOP VIEW



SECTION A-A

NOTE:

A. Manhole reducing sections must be approved for use within a VDOT R.O.W.

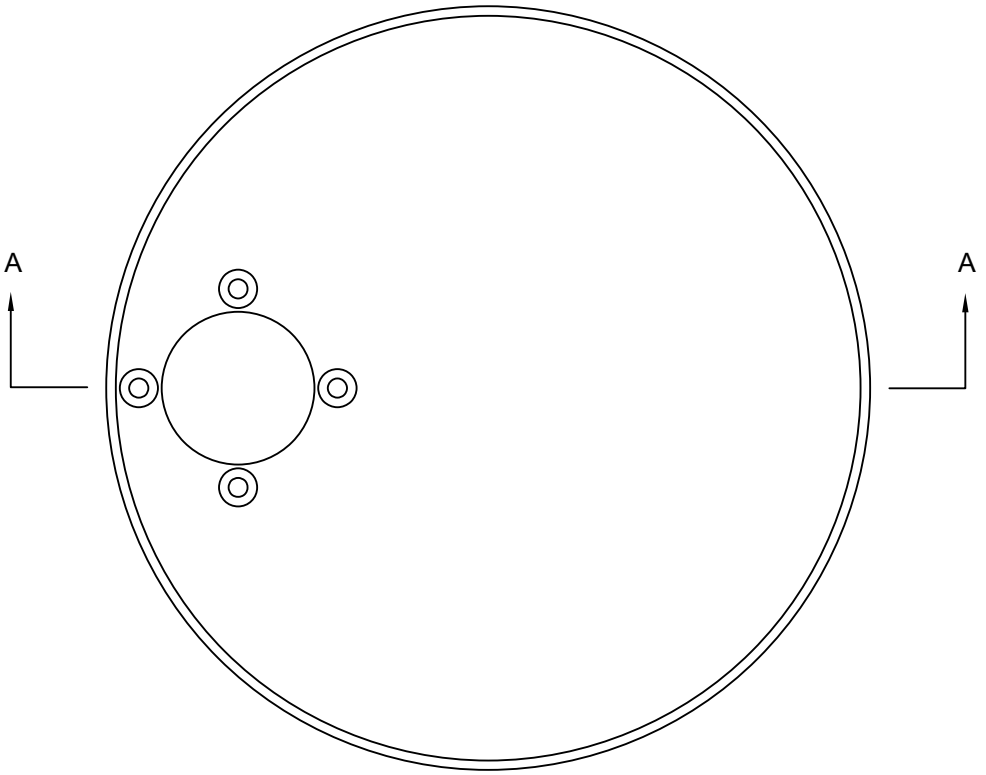
Not To Scale

REVISIONS			
NO.	DATE:		
1			

5' - 0" TO 4' - 0" PRECAST CONCRETE CONICAL REDUCER

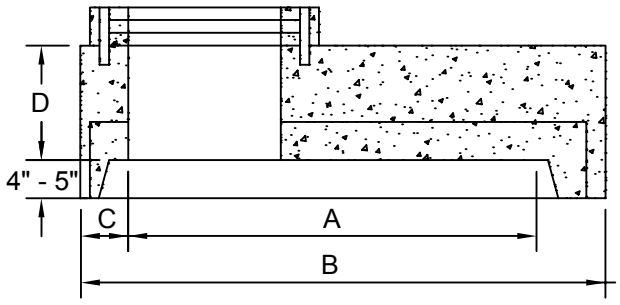
DRAWING SS-27

ARTICLE 4-130.5L



TOP VIEW

MANHOLE SIZE			
	4' - 0"	5' - 0"	6' - 0"
A	48"	60"	72"
B	58"	72"	86"
C	5"	6"	7"
D	6"	8"	8"



SECTION A-A

NOTES:

A. Manhole tops must be approved for use within a VDOT R.O.W.
B. Flat tops to be used only when specifically required or when necessitated by a height or invert conflict or as required.
C. A maximum adjustment of six inches on a manhole flat top is allowed.

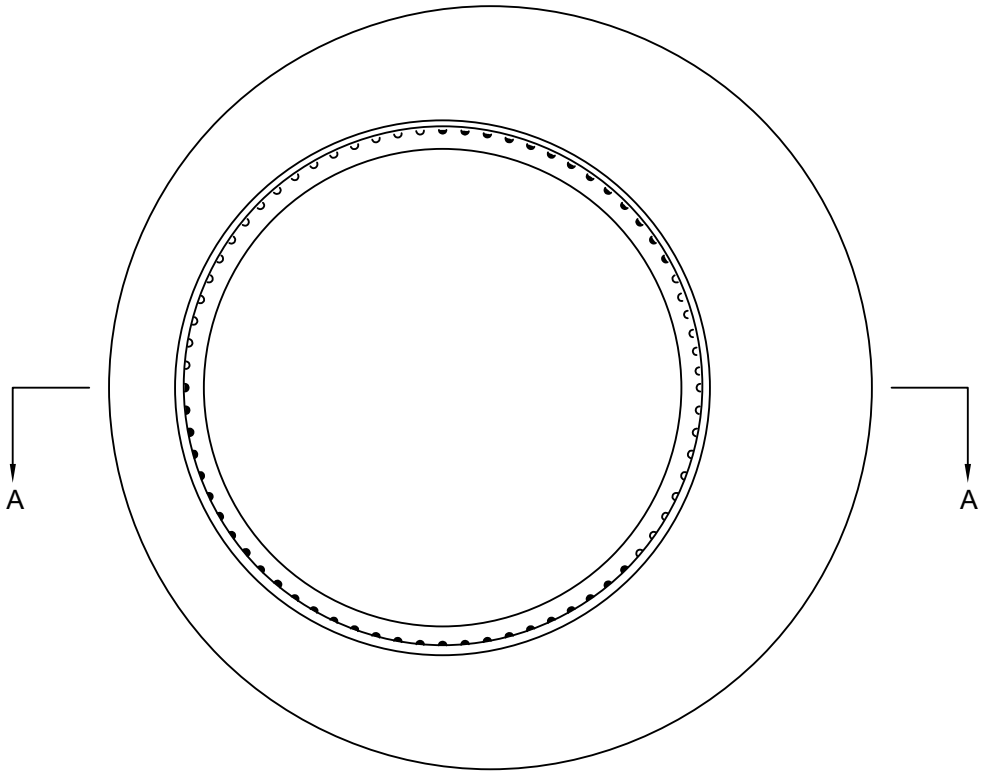
Not To Scale

REVISIONS			
NO.	DATE:		
1			

PRECAST CONCRETE MANHOLE FLAT TOP

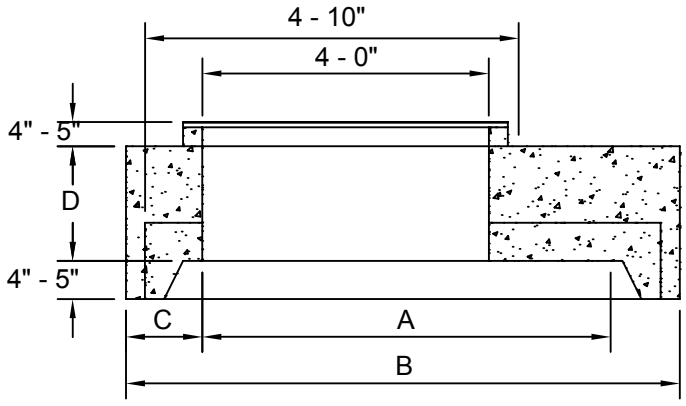
DRAWING SS-28

ARTICLE 4-130.5L



TOP VIEW

MANHOLE SIZE			
	4' - 0"	5' - 0"	6' - 0"
A	48"	60"	72"
B	58"	72"	86"
C	5"	6"	7"
D	6"	8"	8"



SECTION A-A

NOTE:

A. Manhole reducing sections must be approved for use within a VDOT R.O.W.

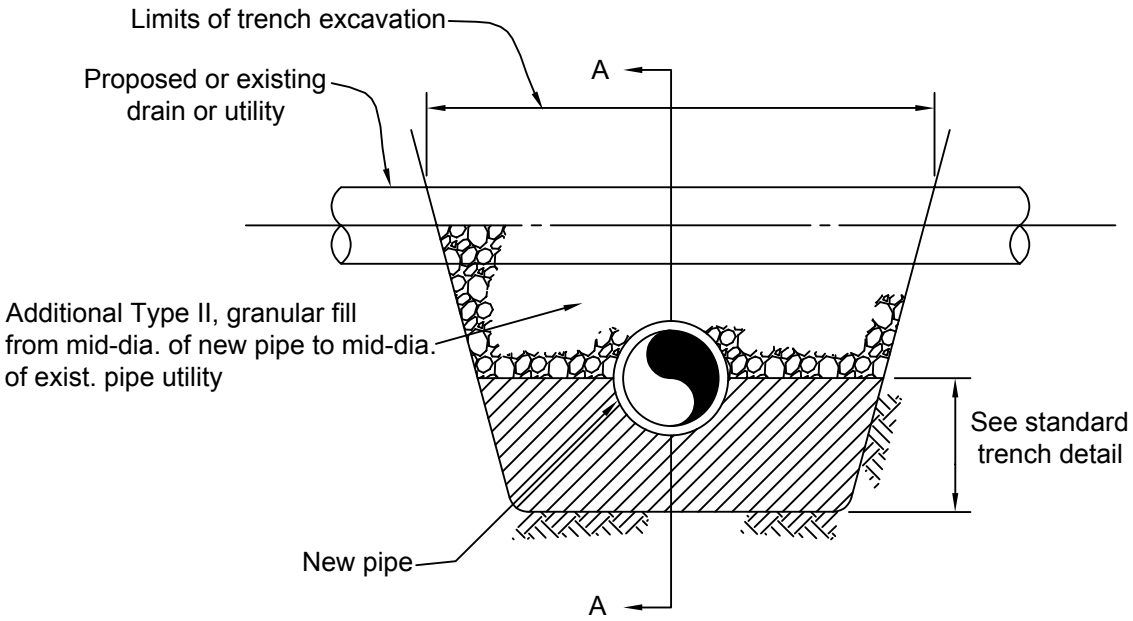
Not To Scale

REVISIONS			
NO.	DATE:		
1			

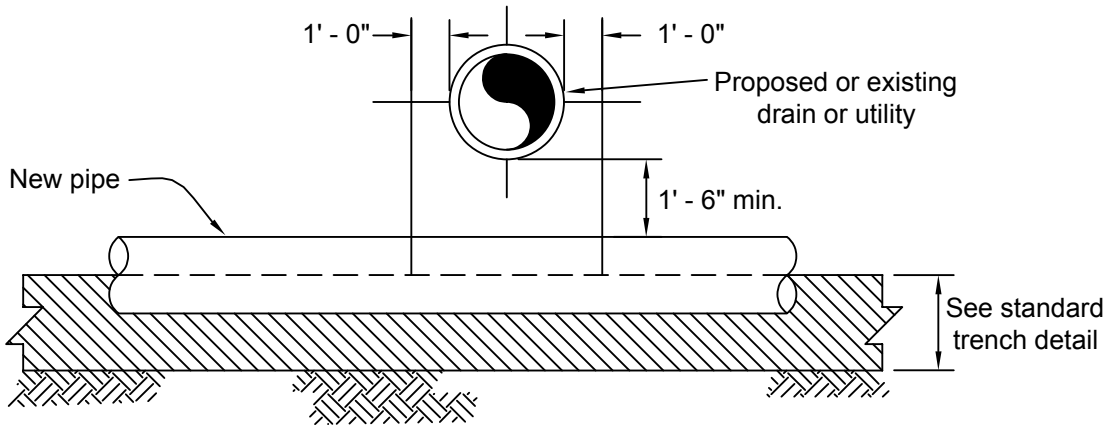
PRECAST CONCRETE MANHOLE REDUCER

DRAWING
SS-29

ARTICLE 4-130.5A(3)c



LONGITUDINAL SECTION

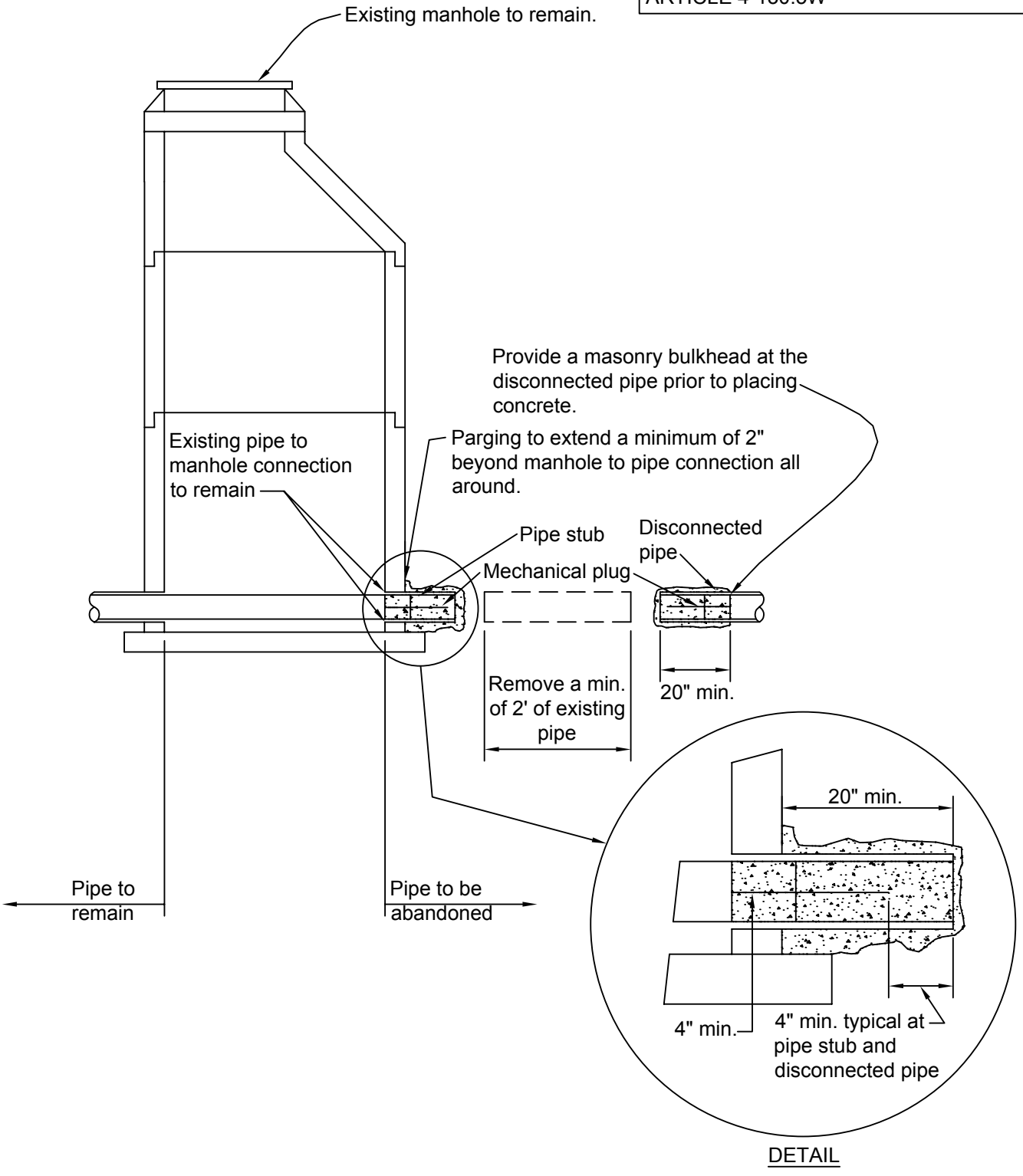


CROSS SECTION A-A

Not To Scale

REVISIONS				**UTILITY AND DRAIN CROSSING**	DRAWING SS-30
NO.	DATE:				
1					PAGE 60

ARTICLE 4-130.5W



DETAIL

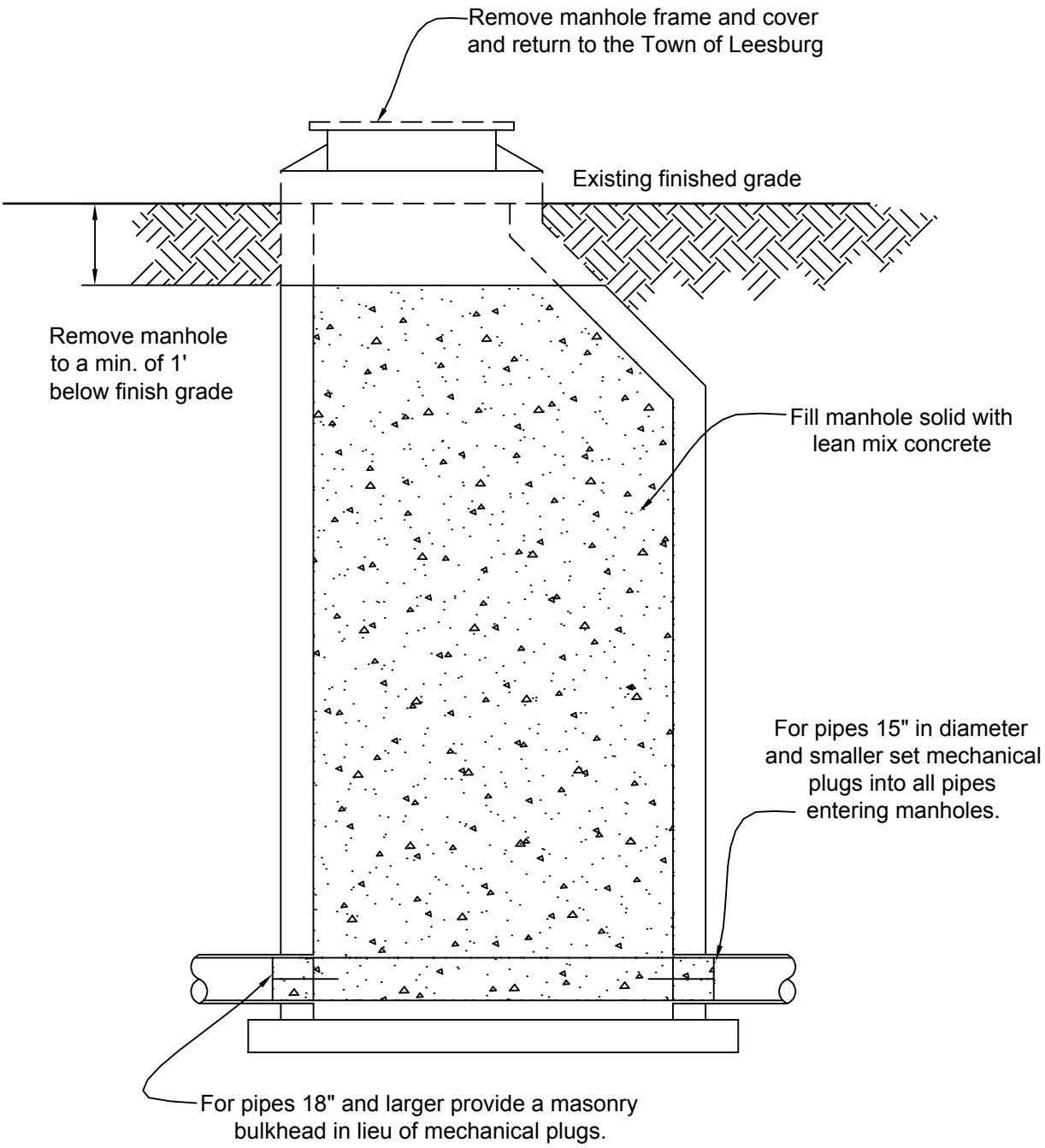
Not To Scale

REVISIONS			
NO.	DATE:		
1			

SANITARY SEWER PIPE ABANDONMENT AT A MANHOLE

DRAWING SS-31

ARTICLE 4-130.5W



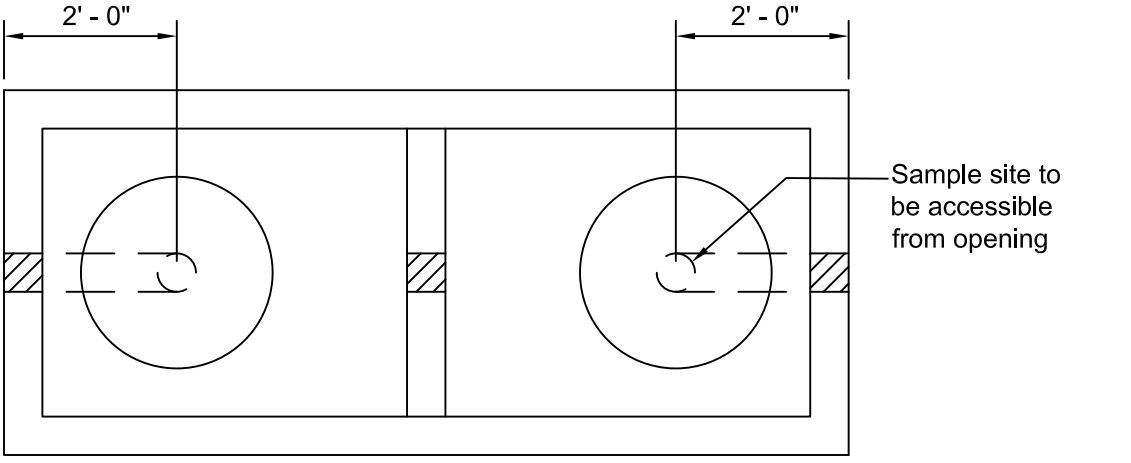
Not To Scale

REVISIONS			
NO.	DATE:		
1			

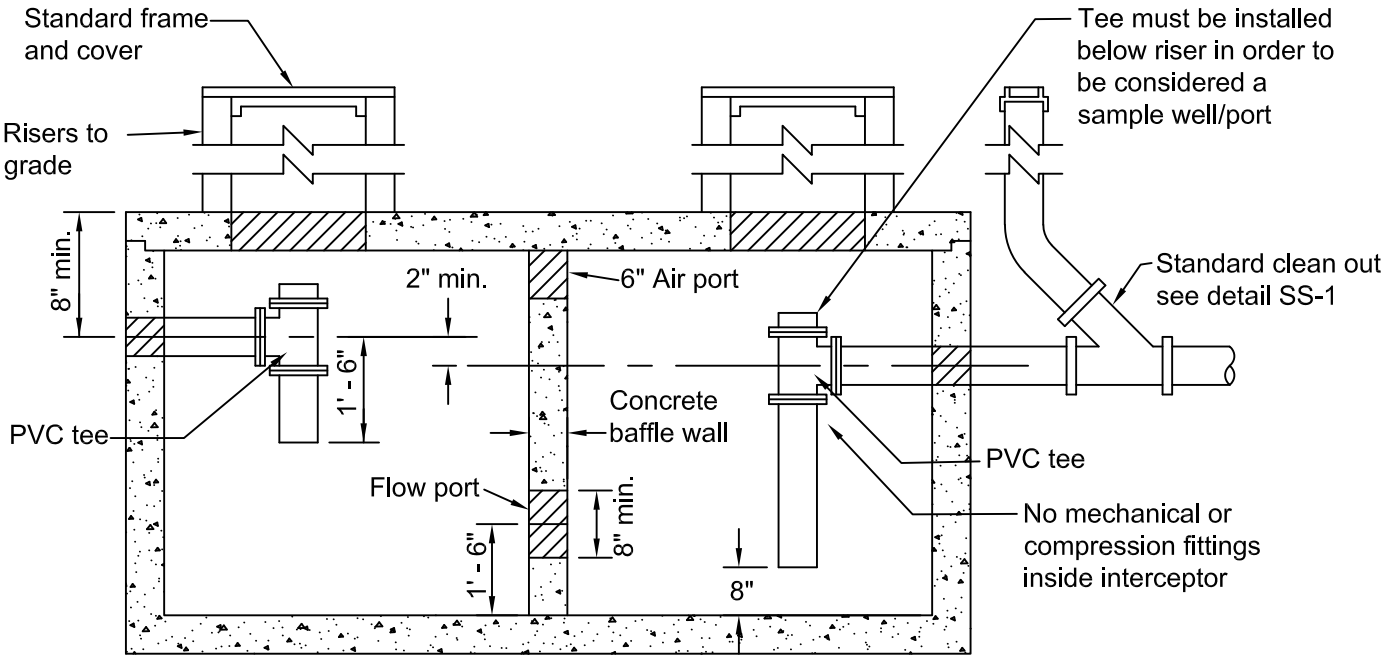
SANITARY SEWER MANHOLE ABANDONMENT

DRAWING SS-32

ARTICLE 4-130.6C



PLAN VIEW



SECTION VIEW

NOTES:

A. This is an illustration for a grease interceptor only.

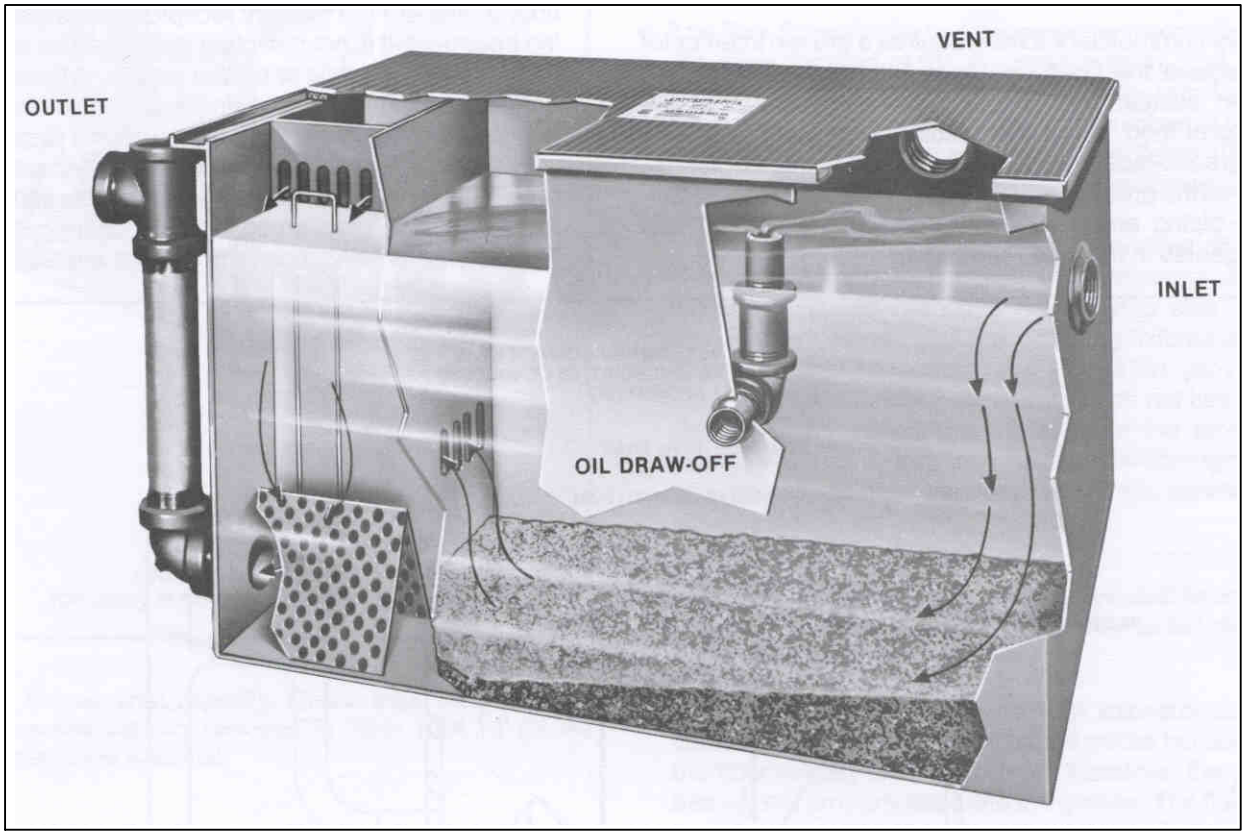
B. Grease interceptors shall be individually designed for each specific application required by the Town Code.

C. All designs shall be in accordance with International Plumbing Code and is subject to Loudoun County approval with issuance of the Loudoun County Building Permit.

Not To Scale

REVISIONS				**GREASE INTERCEPTOR**	DRAWING SS-33
NO.	DATE:				
1					PAGE 63
2	04/09/24				

ARTICLE 4-130.6C



NOTES:

A. This is an illustration for an oil and sand trap only.

B. Sand traps shall be individually designed for each specific application as required by the Town Code.

C. Sand traps placed under paved areas shall be designed to support H-20 loading.

D. Precast septic type tanks with appropriately sized chambers may be used in grass areas.

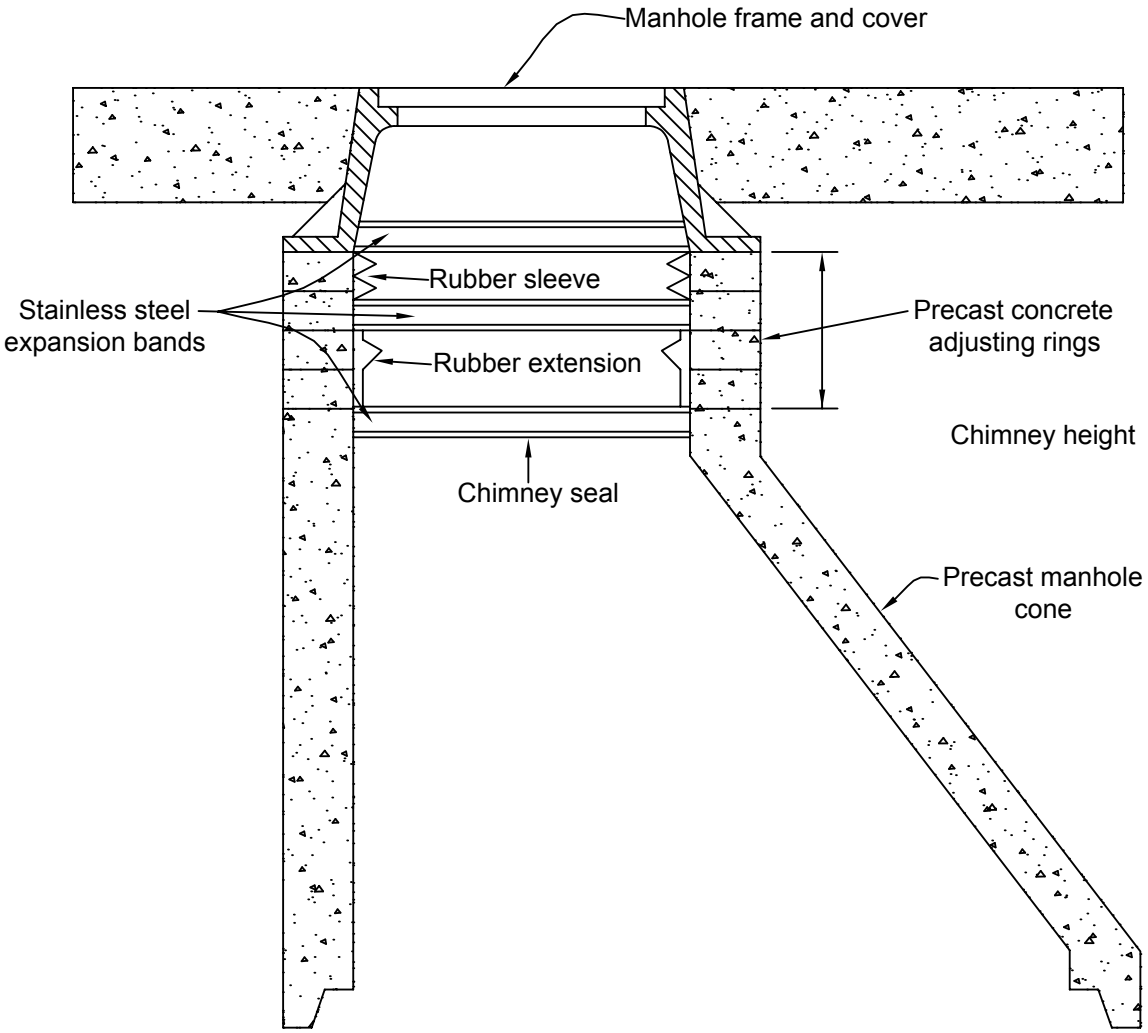
E. The sediment collected by the sand trap shall be collected regularly and disposed of by a hazardous waste handling contractor licensed in the state of Virginia.

F. All designs shall be in accordance with International Plumbing Code and is subject to Loudoun County approval with issuance of the Loudoun County Building Permit.

Not To Scale

REVISIONS					
NO.	DATE:			**OIL AND SAND TRAP**	DRAWING SS-34
1					PAGE 64

ARTICLE 4-130.5J(1)



NOTES:

A. For use in all sanitary sewer manholes or appurtances. The chimney seal may be omitted upon specific approval of the director in isolated locations when infiltration is highly unlikely.

B. Applicable to both eccentric or concentric manhole covers.

C. Approved internal seals shall be installed unless an external seal is specifically approved for installation by the director.

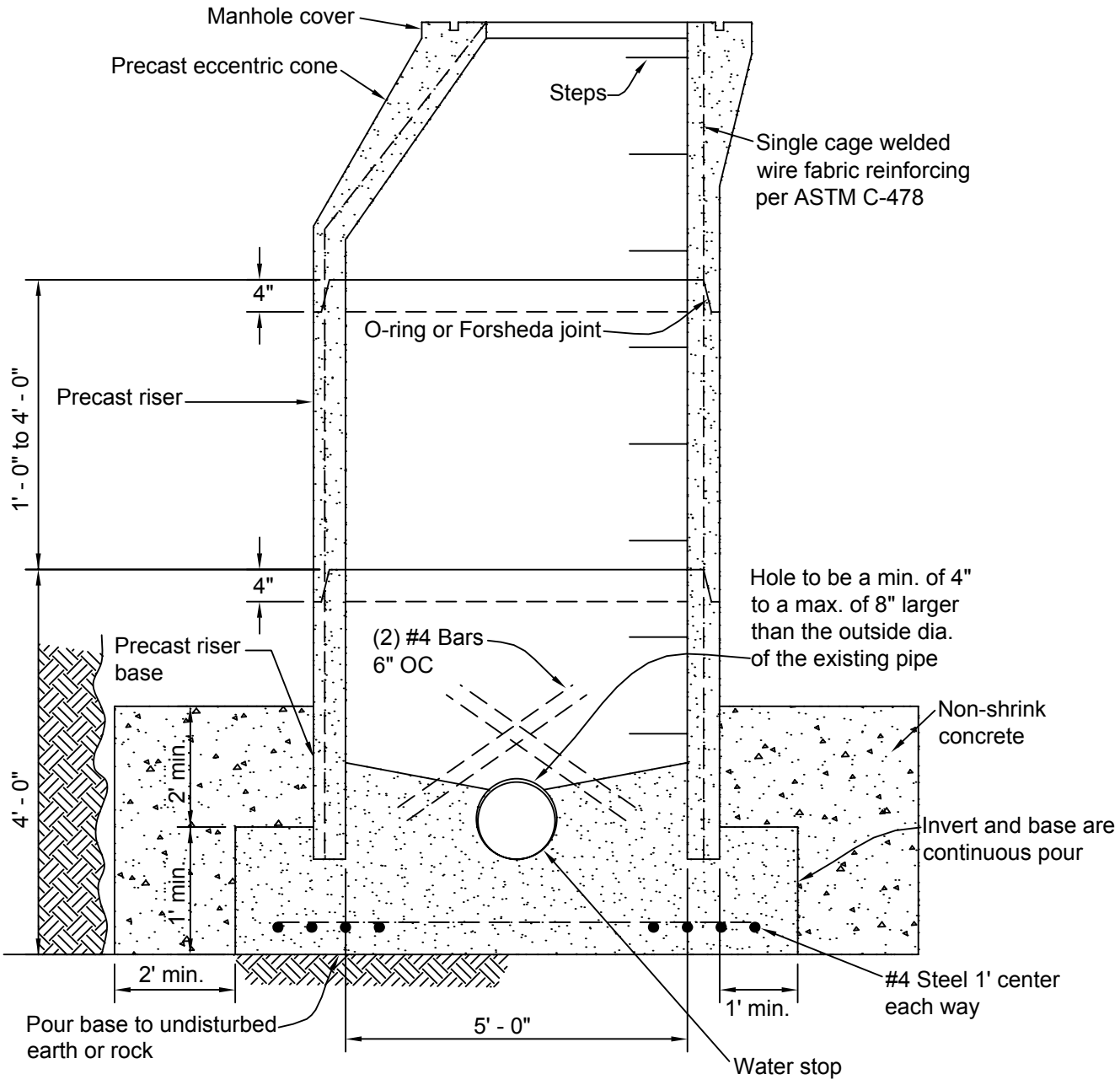
Not To Scale

REVISIONS			
NO.	DATE:		
1			

MANHOLE CHIMNEY SEAL

DRAWING SS-35

ARTICLE 4-130.5A(3)f



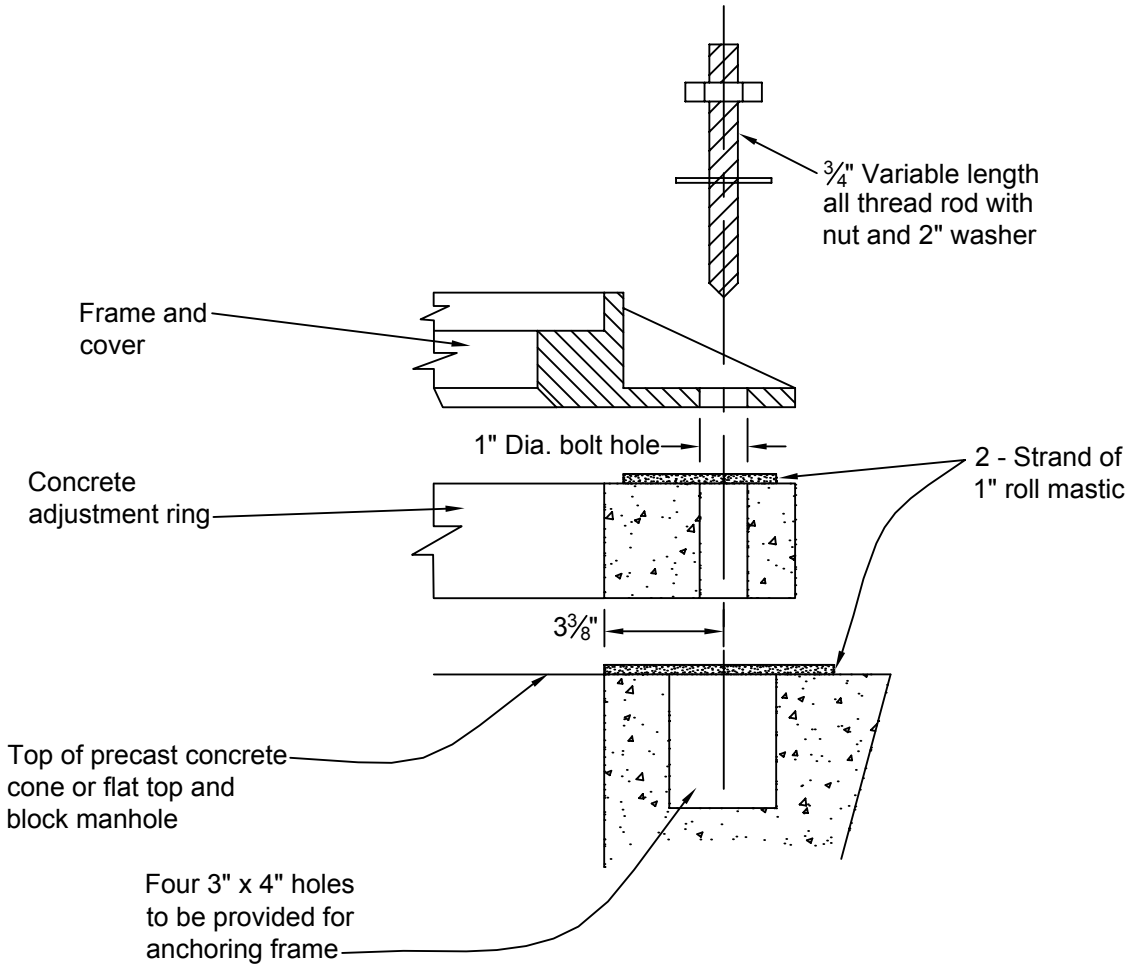
NOTES:

A. Test manhole prior to cutting off existing sewer main.
B. Non-shrink concrete to be poured around base and 2' above the base and against undisturbed earth.
C. Manhole detail for reference only. Refer to details SS-7, SS-8, etc.
D. Precast riser must be prefabricated.
E. Doghouse manhole will be permitted on a case by case basis and as approved by the Director.

Not To Scale

REVISIONS				**DOGHOUSE MANHOLE**	DRAWING SS-36
NO.	DATE:				
1					PAGE 64b

ARTICLE 4-130-5



NOTES:

A. Bolts are required when manhole is outside paved area.

B. Use of HDPE or concrete adjustment rings are acceptable for sanitary sewer manholes located outside the paved areas. Use of bricks are unacceptable.

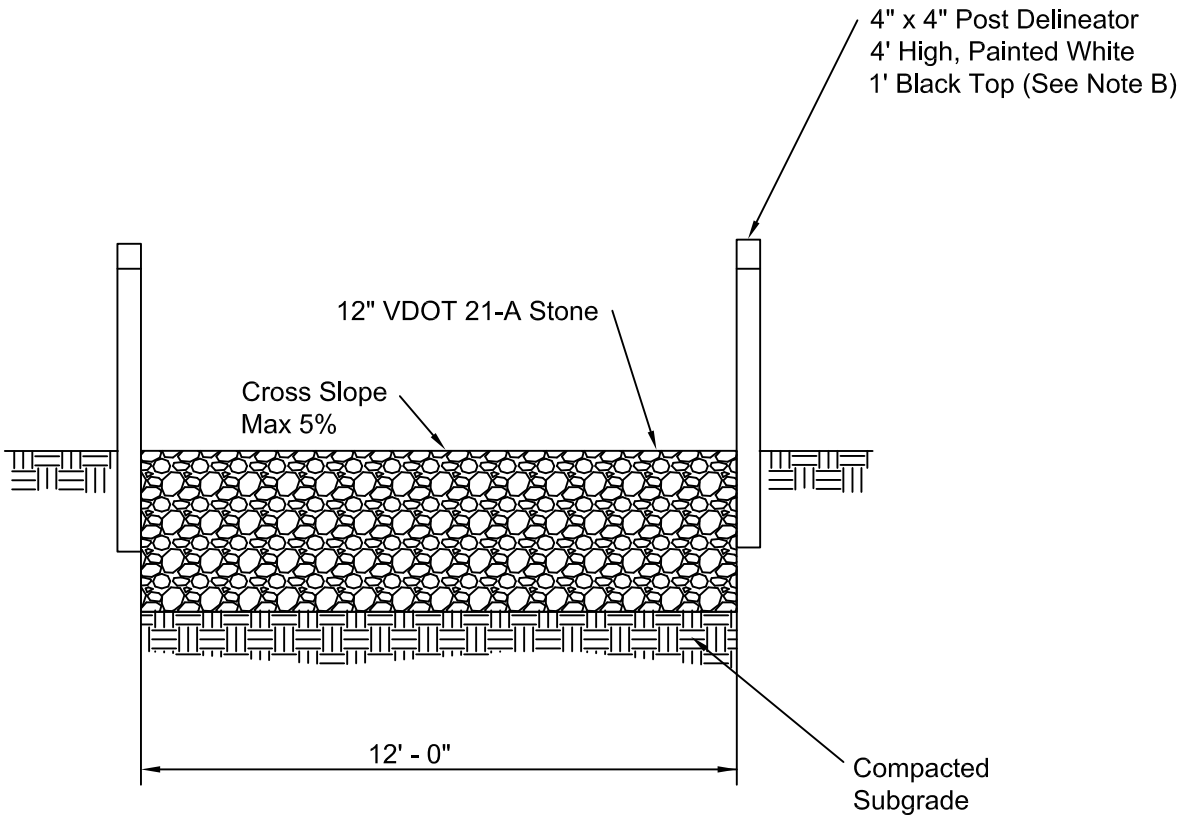
Not To Scale

REVISIONS			
NO.	DATE:		
1			

MANHOLE FRAME FASTENING & ADJUSTMENT

DRAWING SS-37

ARTICLE 4-130-5.R and T



NOTES:

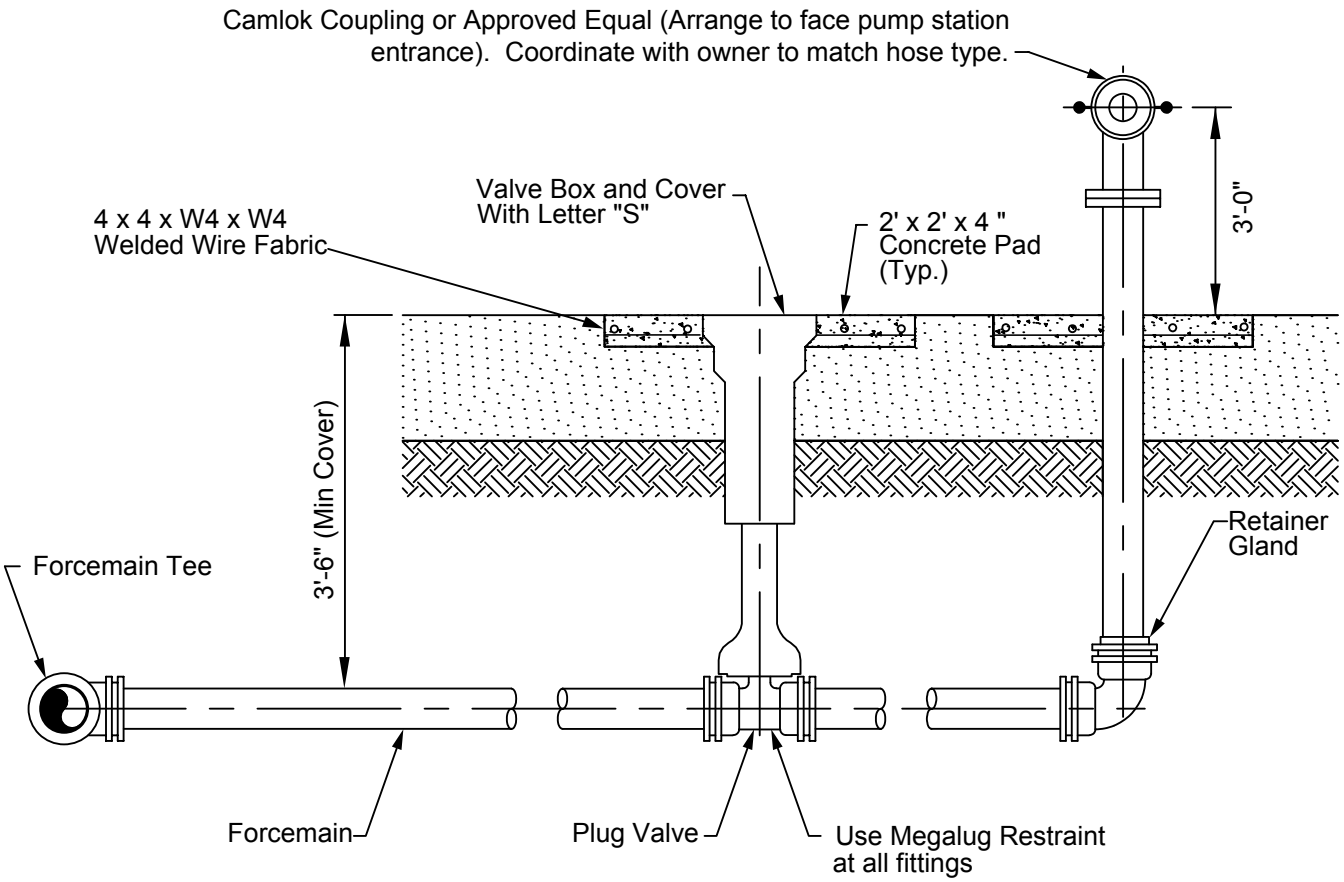
A. Subgrade shall be compacted to minimum 95% density at optimum moisture in accordance with AASHTO T99-61.
B. Spacing and height of delineators will be considered on a case by case basis depending on location of access road and proximity to residents.
C. Maximum grade for the access drive shall be 15%.
D. Access drive may need to be wider than 12' at turning radius and dead ends in order to accomodate a SU vehicle.
E. For residential areas, approved H-20 loading materials include grasscrete, grasspave, or approved equal.

Not To Scale

REVISIONS			
NO.	DATE:		
3 NEW	04/27/10		
4	04/09/24		

TYPICAL SECTION SANITARY SEWER MAINTENANCE ACCESS DRIVE

DRAWING SS-38



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

EMERGENCY FORCEMAIN PUMP CONNECTION

DRAWING SS-39