

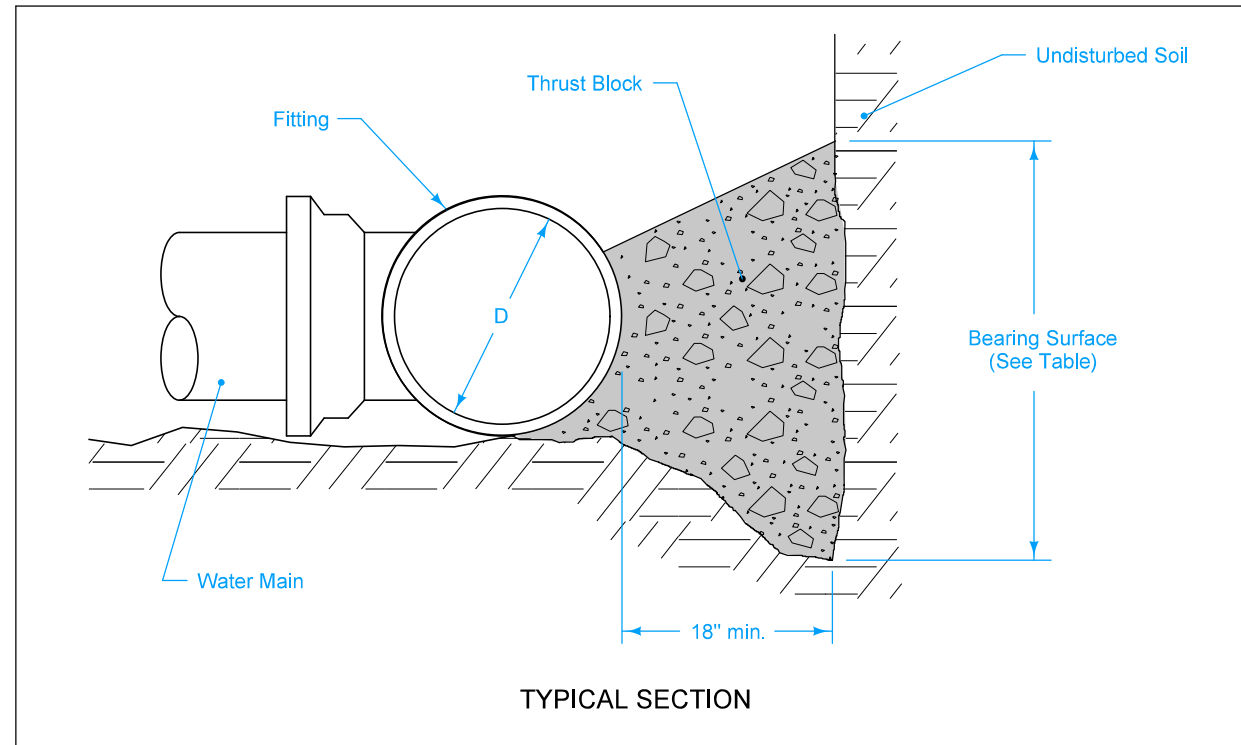
Water Main

WM

Water Main

SECTION
WM

NO.	DATE	TITLE
WM-101	10-18-16	Thrust Blocks
WM-102	10-18-16	Tracer System
WM-201	04-19-22	Fire Hydrant Assembly



Extend thrust blocks to undisturbed soil. Excavation into trench wall may be necessary.

Form vertical surfaces of poured concrete thrust blocks except on bearing surface.

Encase all fittings in polyethylene wrap. Do not allow concrete to directly contact joints or fitting bolts.

Diameter of Pipe, D (inches)	MINIMUM BEARING SURFACE (sf)				
	Bends				Tees and Dead Ends
	11 $\frac{1}{4}$ ^o	22 $\frac{1}{2}$ ^o	45 ^o	90 ^o	
4	1	1	2	4	3
6	1	2	4	8	6
8	2	4	7	14	10
10	3	6	11	21	15
12	4	8	16	29	21
14	5	11	21	39	28
16	7	14	27	50	36
18	9	17	34	63	45
20	11	21	42	78	55
24	15	31	60	111	78
30	24	47	92	171	120
36	34	67	132	244	173

Minimum surface area based on water pressure of 150 psi and allowable soil pressure of 1,000 psf.

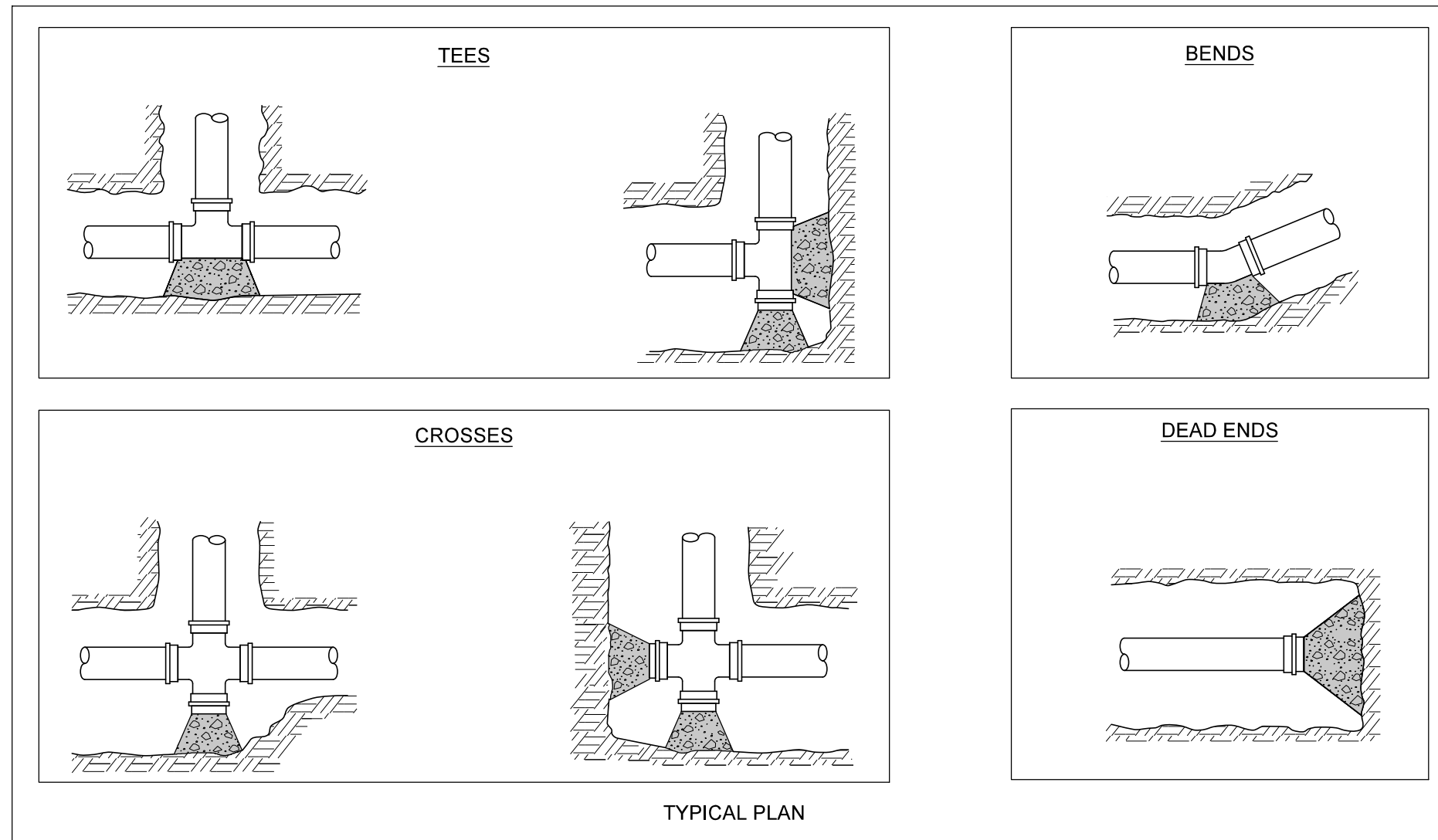
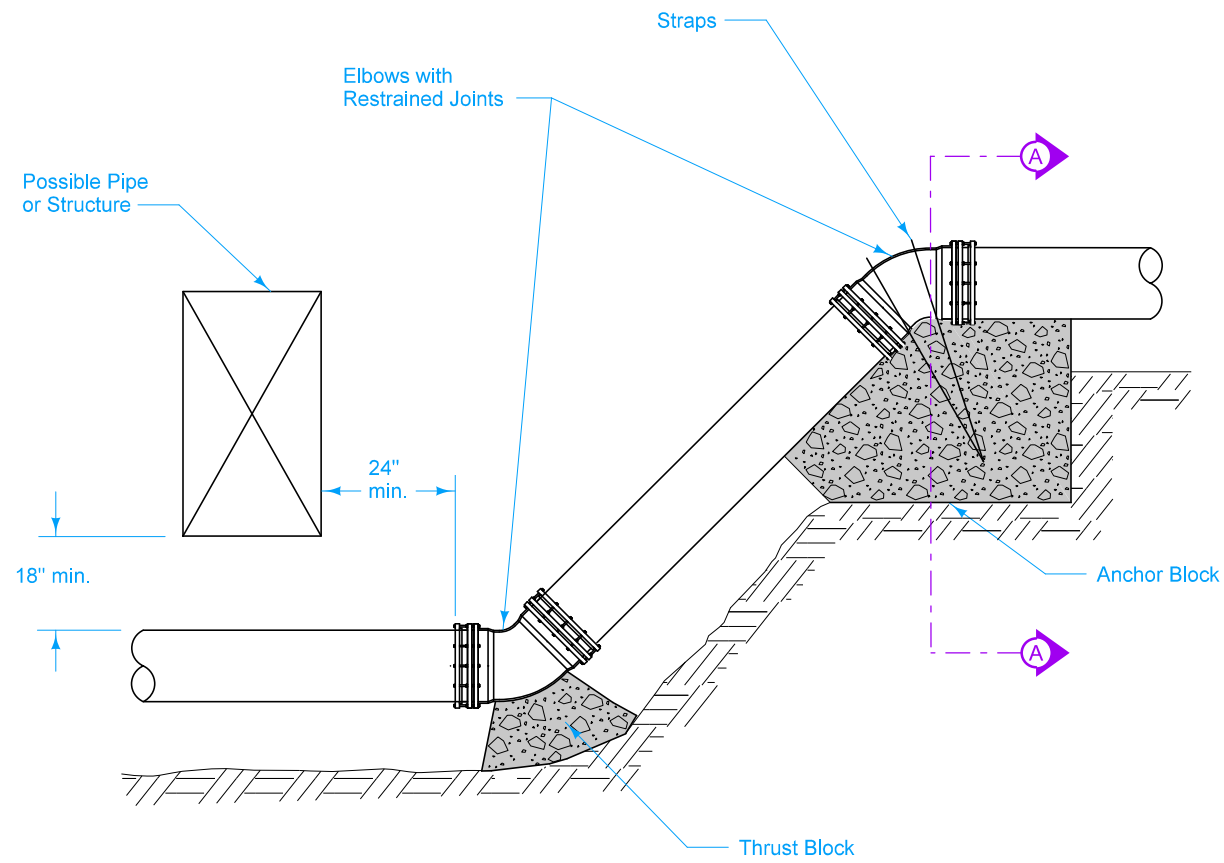


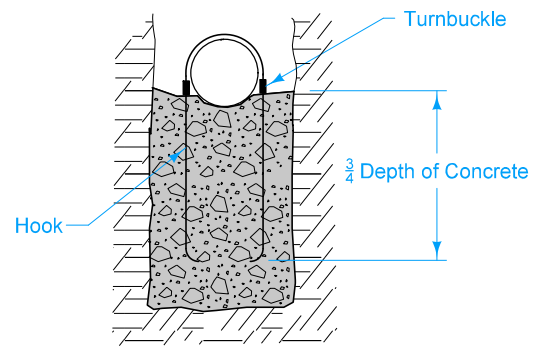
FIGURE 5010.101 SHEET 1 OF 2

		REVISION	
		1	10-18-16
FIGURE 5010.101	STANDARD ROAD PLAN	WM-101 SHEET 1 of 2	
REVISIONS: Replaced Iowa DOT and SUDAS logos with new logos.			
 SUDAS DIRECTOR		 DESIGN METHODS ENGINEER	
THRUST BLOCKS			

CHANGES IN PIPE DEPTH



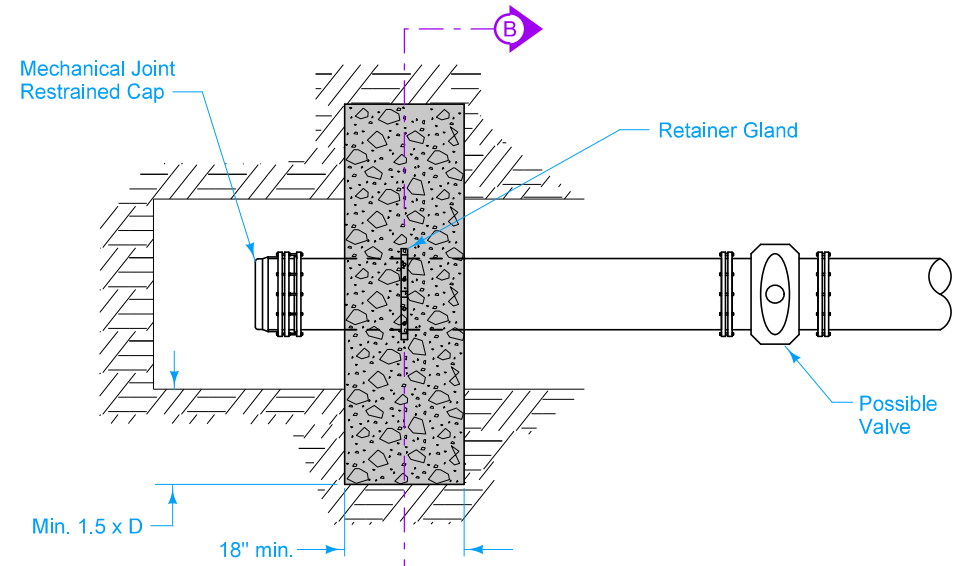
ELEVATION



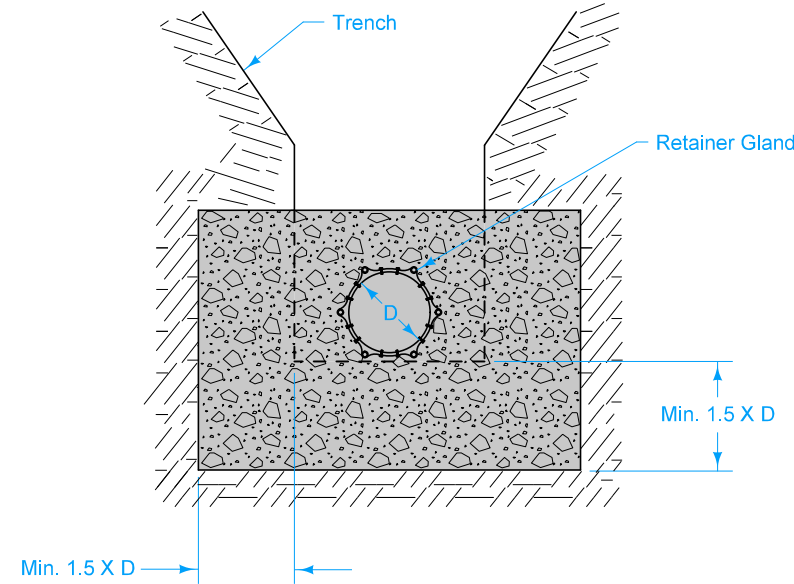
SECTION A-A

DEAD ENDS (ALTERNATE METHOD)

Use only when allowed by the Engineer, or when specified in the contract documents.



PLAN



SECTION B-B

FIGURE 5010.101 SHEET 2 OF 2

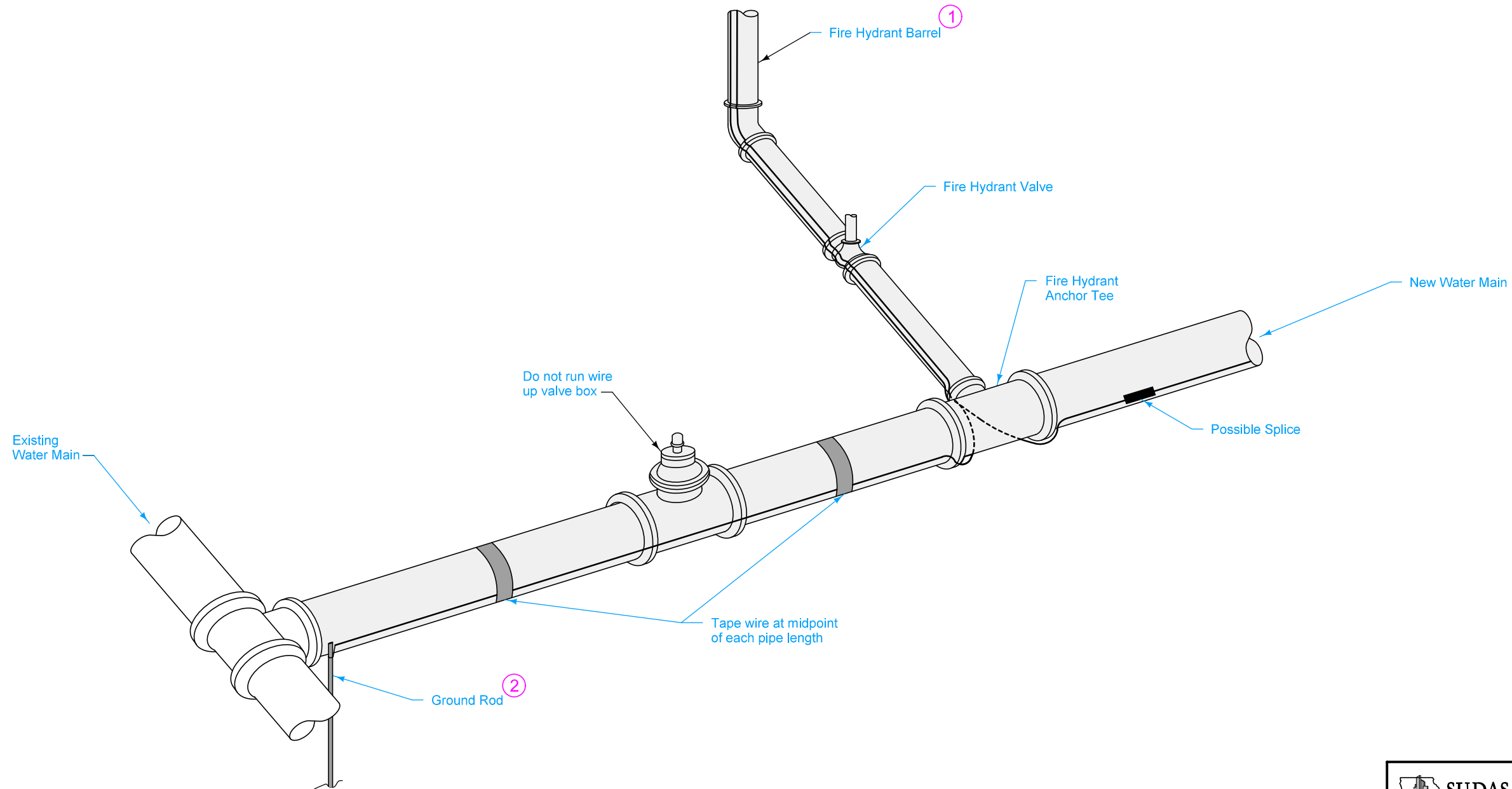
		REVISION	
		1	10-18-16
FIGURE 5010.101	STANDARD ROAD PLAN	WM-101	
		SHEET 2 of 2	

REVISIONS: Replaced Iowa DOT and SUDAS logos with new logos.

SUDAS DIRECTOR
 DESIGN METHODS ENGINEER

THRUST BLOCKS

- ① Extend tracer wire up fire hydrant barrel to internal terminals of tracer wire station and back down. Refer to WM-201 for details of fire hydrant assembly.
- ② Clamp tracer wire to ground rod at system termination points.



TYPICAL INSTALLATION

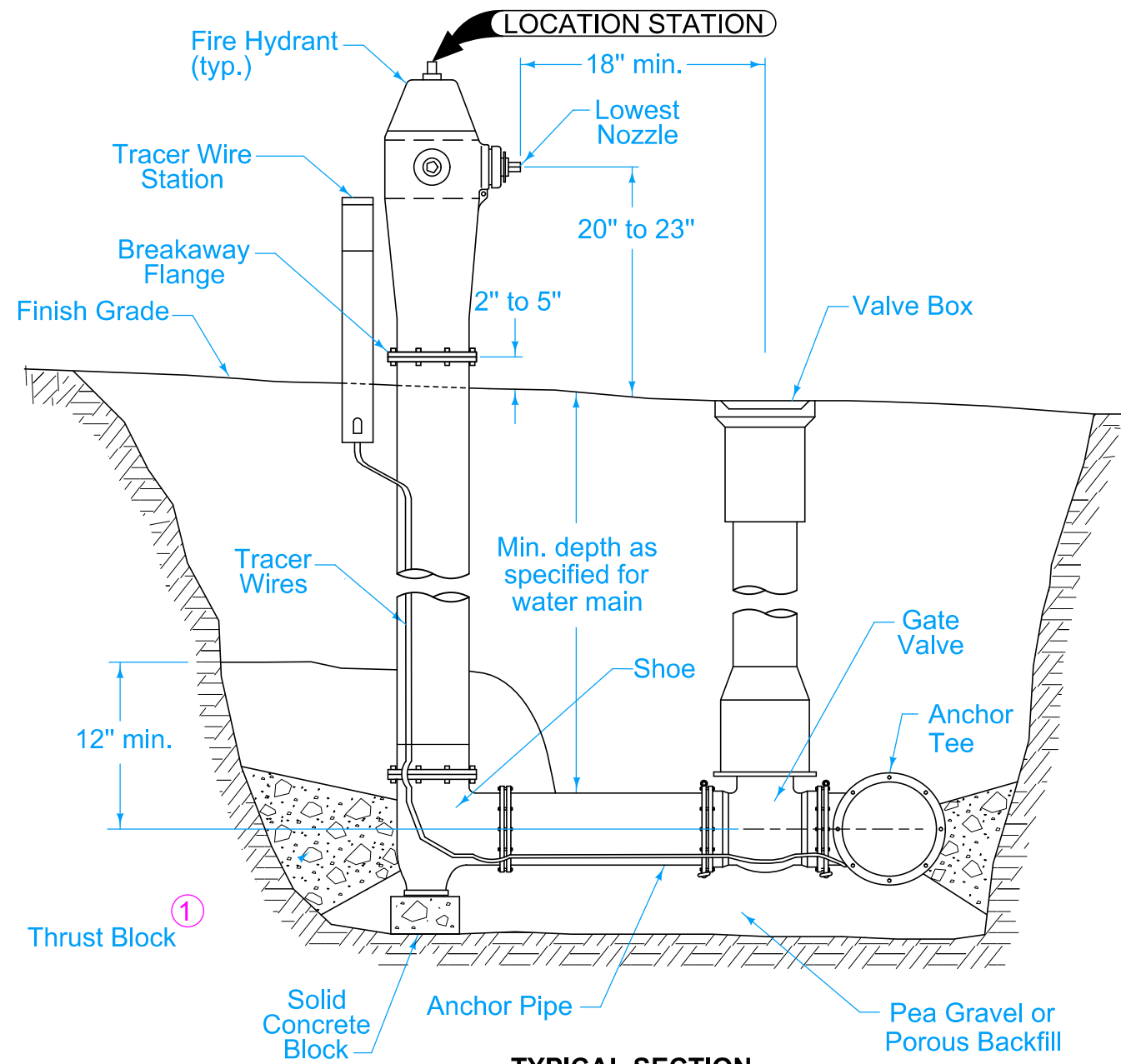
SUDAS	IOWA DOT	REVISION	
		1	10-18-16
FIGURE 5010.102	STANDARD ROAD PLAN	WM-102	
		SHEET 1 of 1	

REVISIONS: Replaced Iowa DOT and SUDAS logos with new logos.

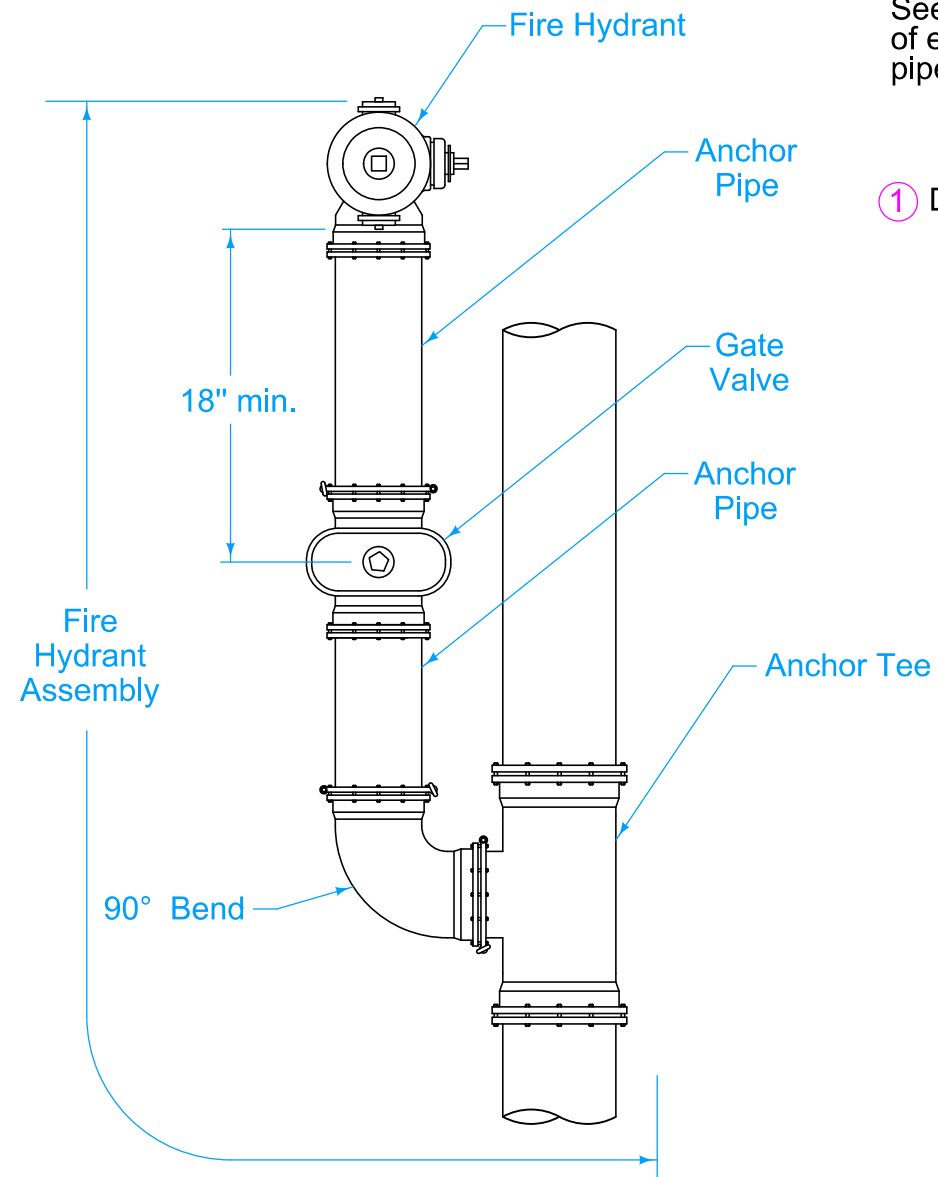
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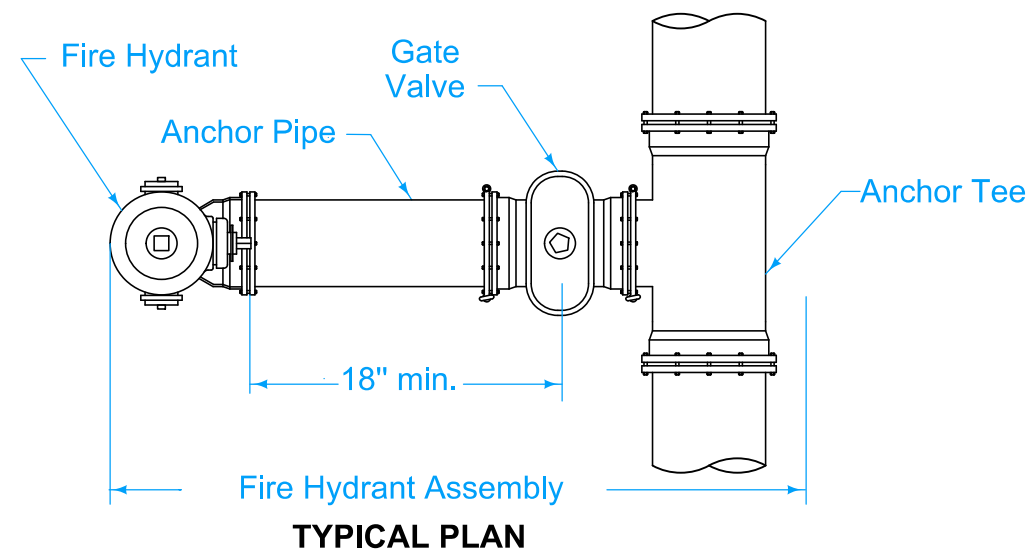
TRACER SYSTEM



TYPICAL SECTION



ALTERNATE PLAN



TYPICAL PLAN

Use ductile iron pipe with restrained mechanical joints for fire hydrant assembly and anchor tee.

All shaded items are included in the Fire Hydrant Assembly bid item.

See the contract documents for the location of each hydrant and the length of anchoring pipe.

① Do not cover drain holes or tracer wire.

FIGURE 5020.201 SHEET 1 OF 1

SUDAS	IOWA DOT	REVISION
		4 04-19-22
FIGURE 5020.201	STANDARD ROAD PLAN	WM-201
		SHEET 1 of 1

REVISIONS: Added general note for location and length.

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 SUDAS DIRECTOR

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 DESIGN METHODS ENGINEER

FIRE HYDRANT ASSEMBLY