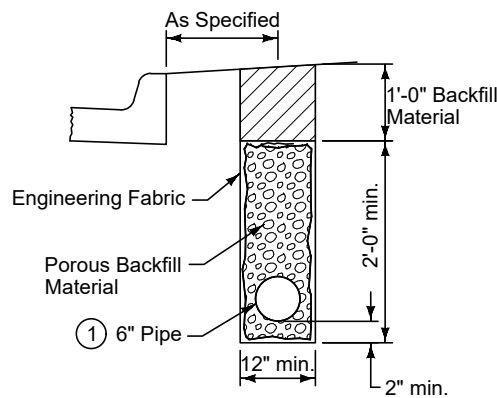
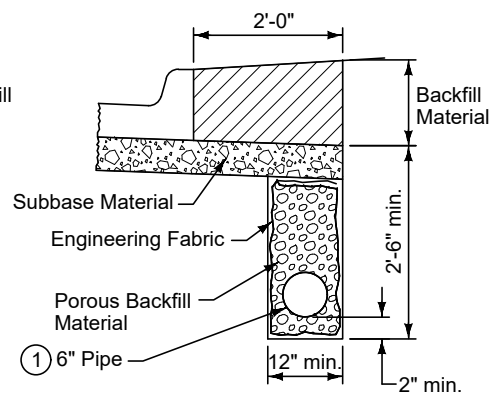
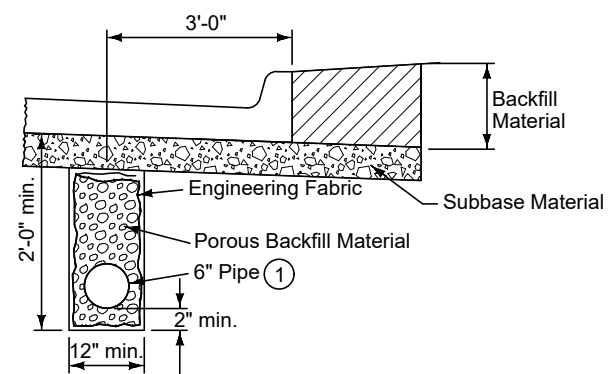




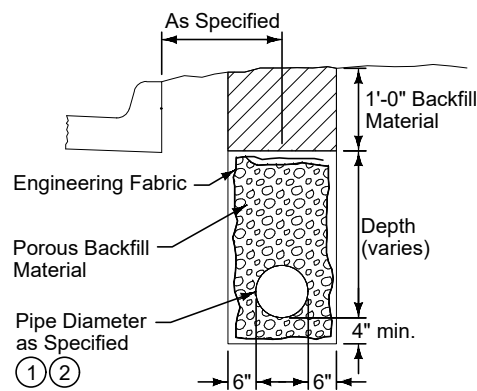
CASE A
TYPE 1



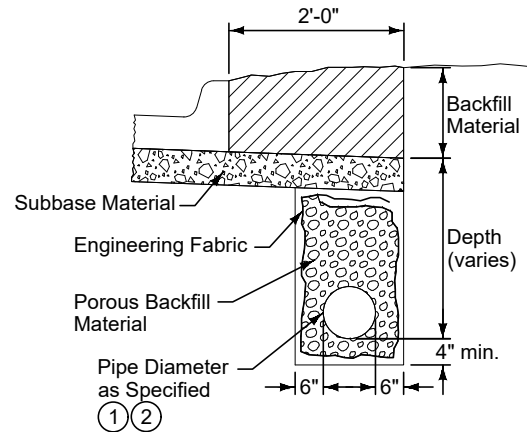
CASE B
TYPE 1



CASE C
TYPE 1



CASE D
TYPE 2



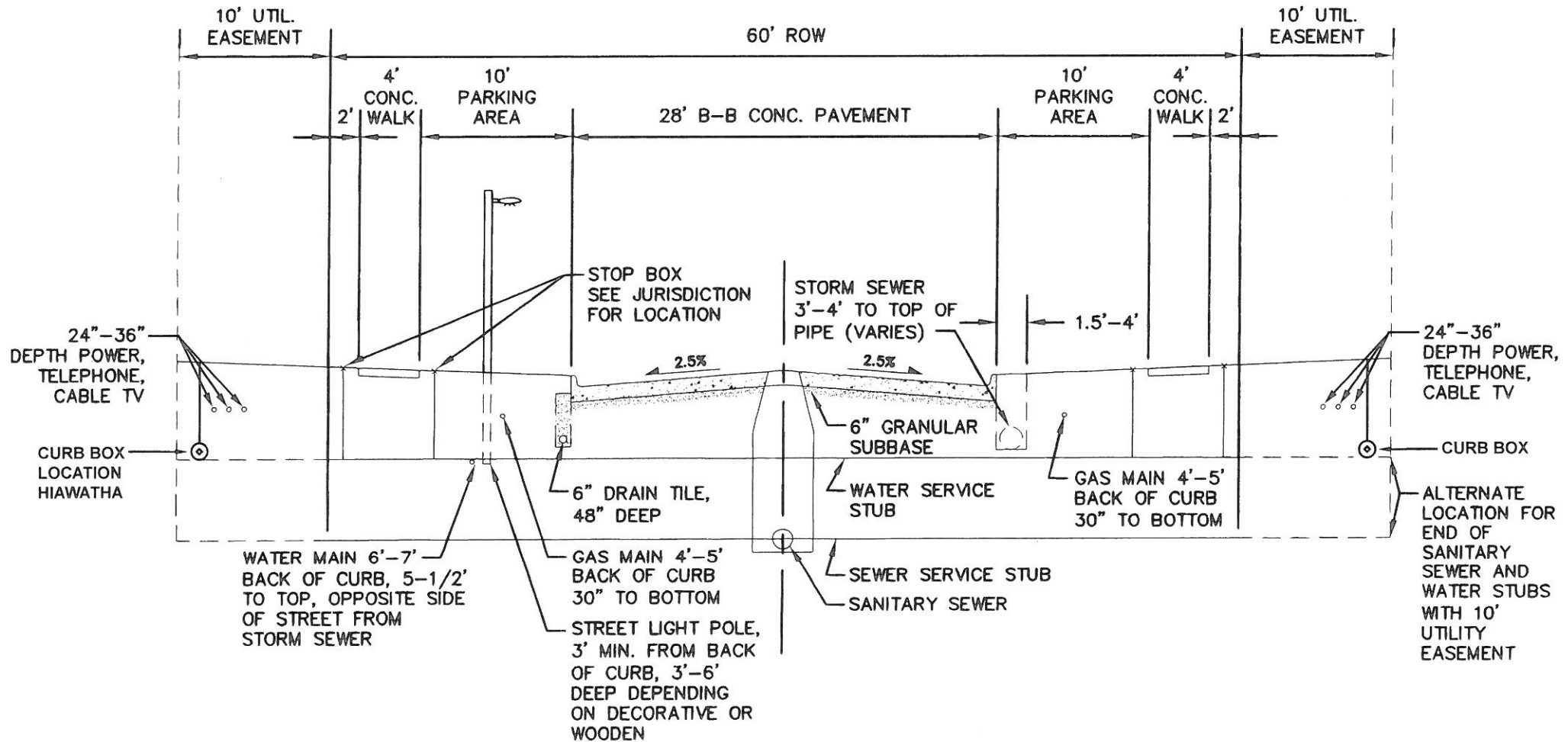
CASE E
TYPE 2

Type 1 installation is for longitudinal subdrain only. Type 2 installation is for combination subdrain/footing drain collectors.

- ① Place perforations down for all installations.
- ② When concrete pipe is specified, wrap pipe joints with engineering fabric. Do not apply joint sealant. Comply with Figure 4020.211

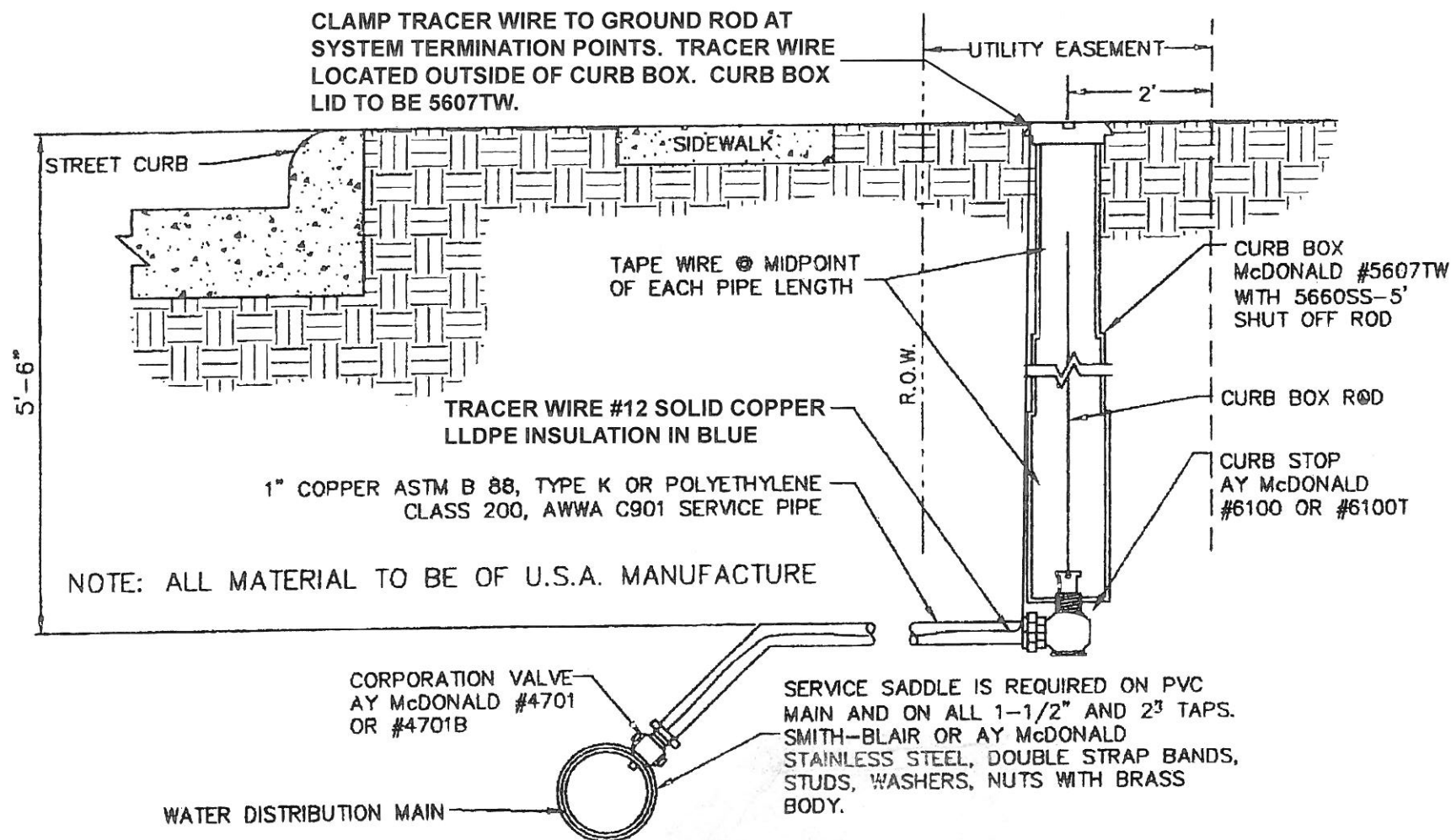
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	HI 4040.231	
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Hiawatha General Supplemental Specifications to SUDAS		
SUBDRAINS		

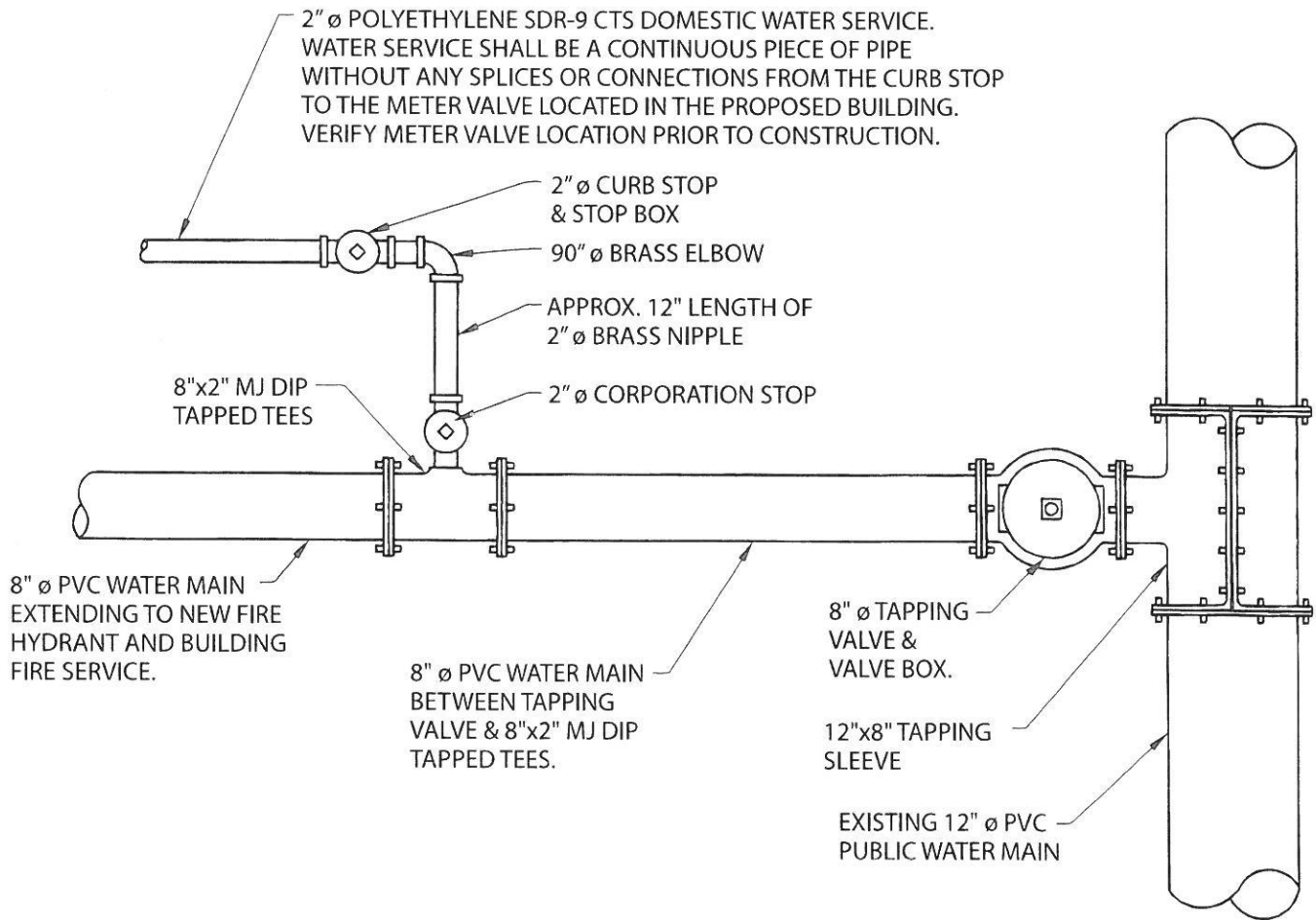
FIGURE 9.1 TYPICAL PAVEMENT/UTILITY SECTION
LOCAL RESIDENTIAL STREET



WATER SERVICE DETAIL

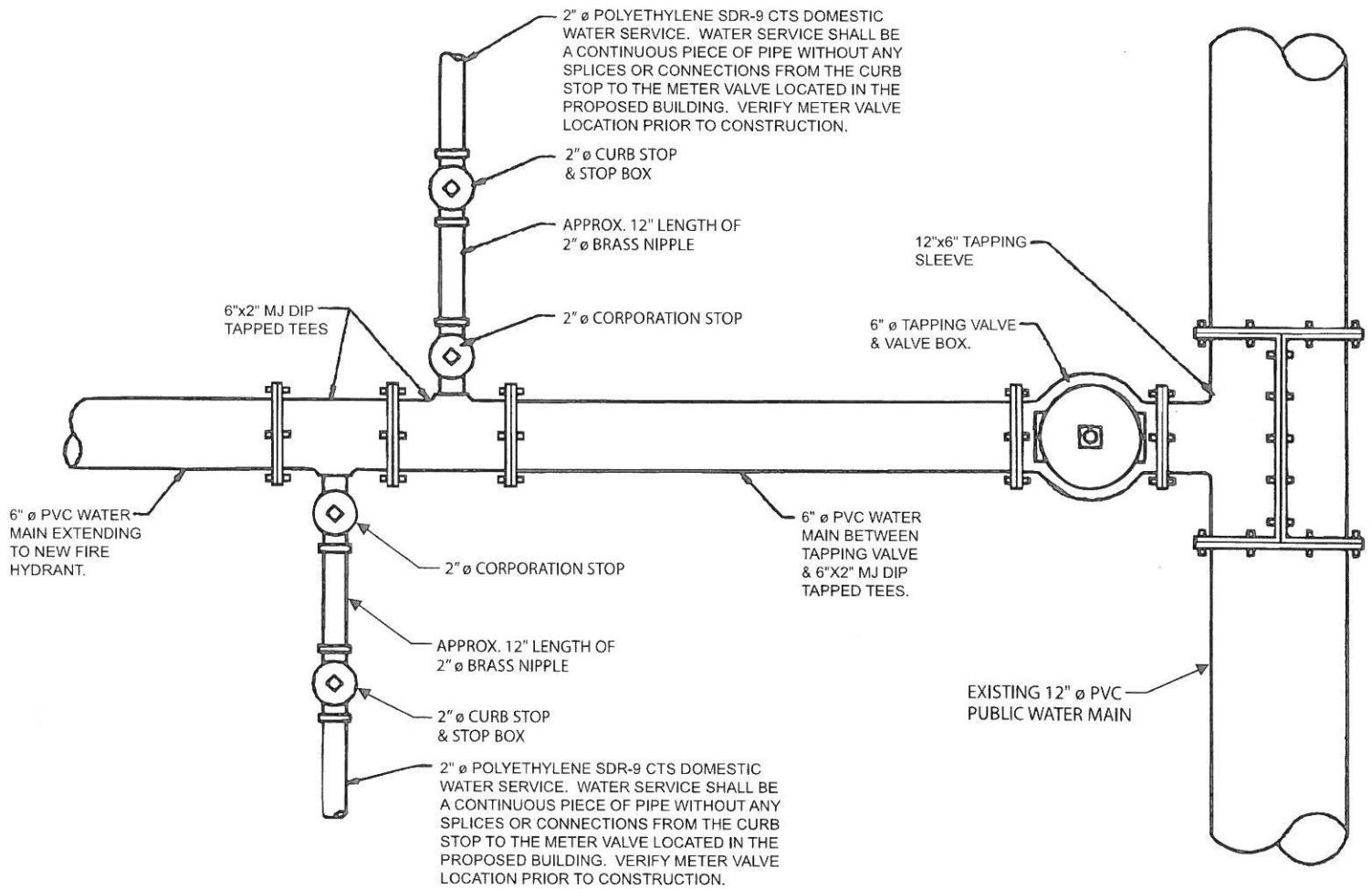
N.T.S.





1 WATER SERVICE LAYOUT DETAIL

COMMERCIAL

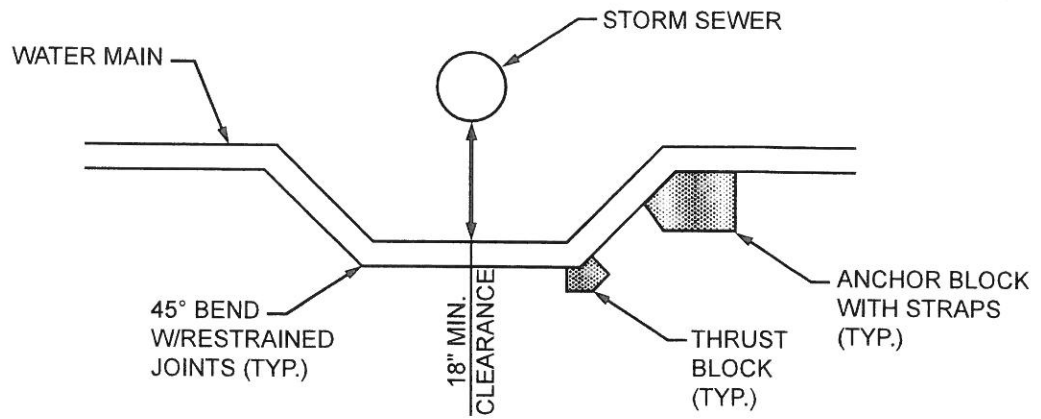


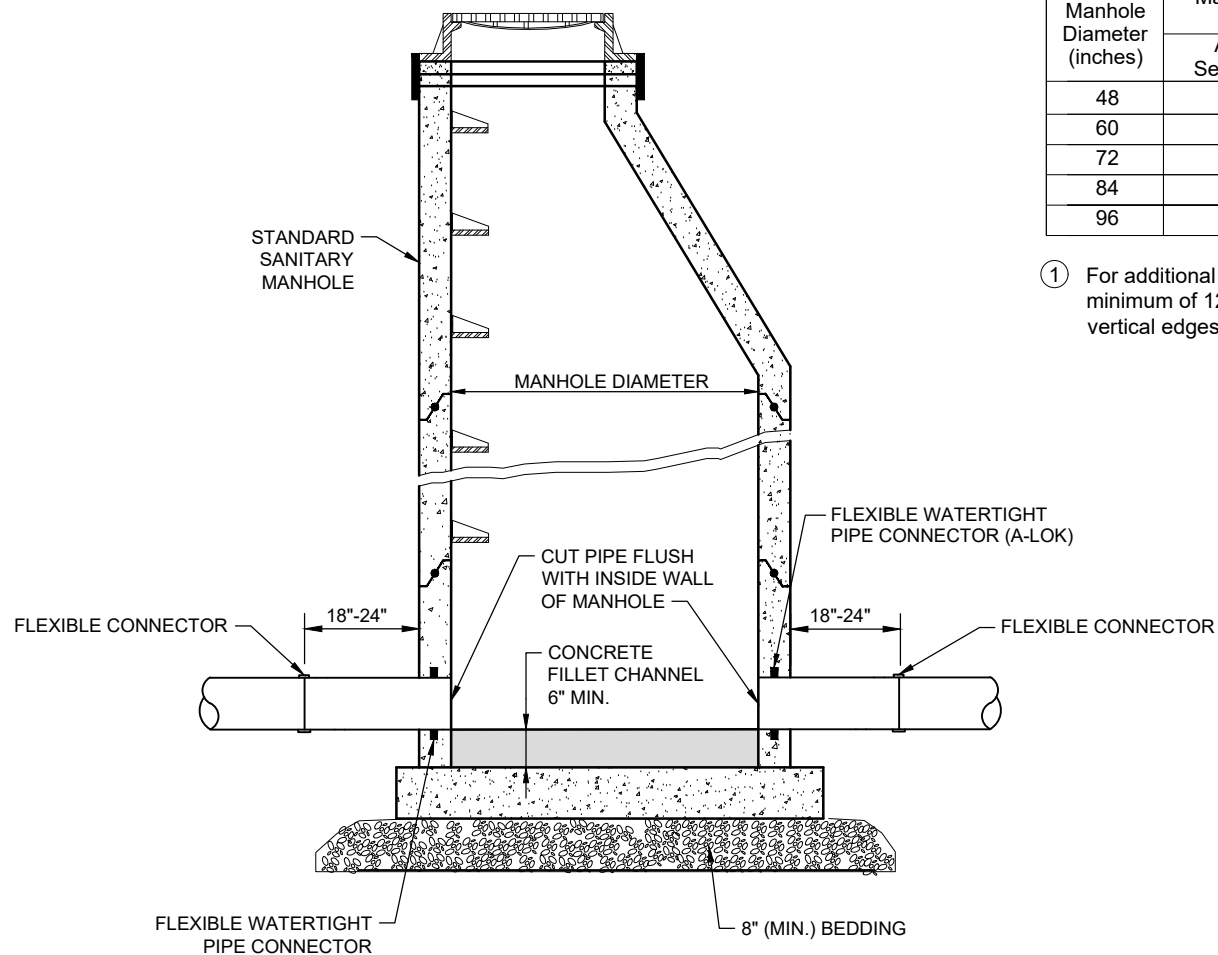
2 WATER SERVICE LAYOUT DETAIL

COMMERCIAL

WATER MAIN CLEARANCE DETAIL

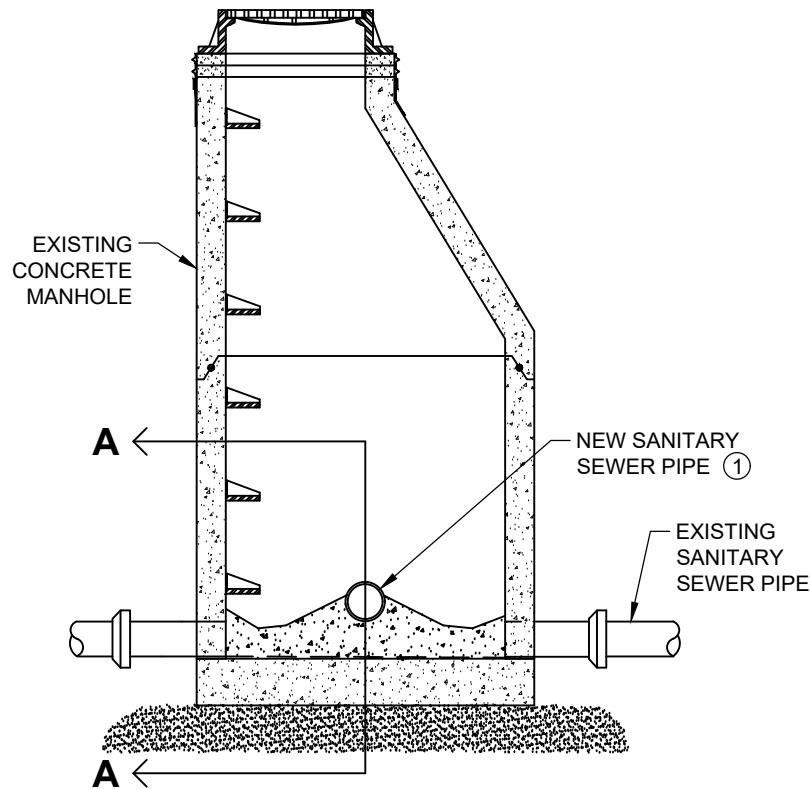
N.T.S.



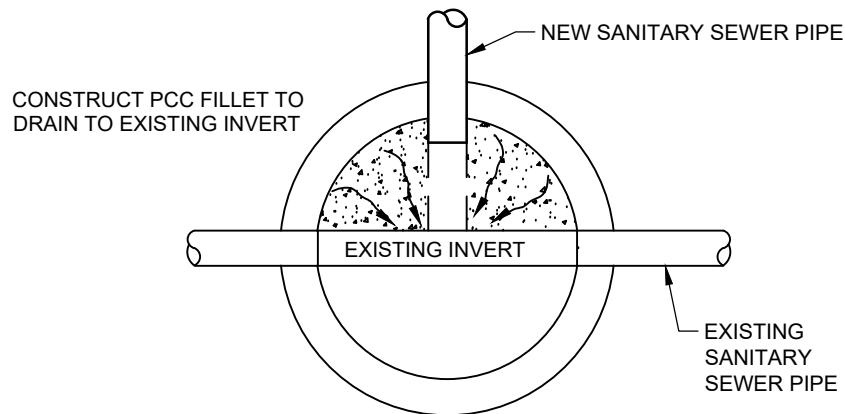


Manhole Diameter (inches)	Maximum Pipe Diameter (inches) for 2 Pipes ^①	
	At 180° Separation	At 90° Separation
48	24	18
60	36	24
72	42	30
84	48	36
96	60	42

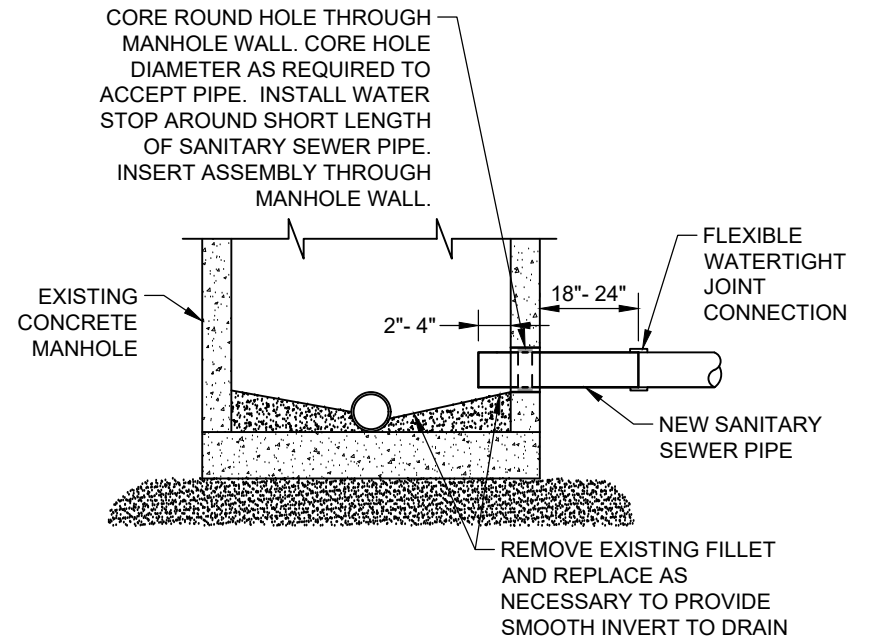
- ① For additional configurations, maintain a minimum of 12 inches of concrete between vertical edges of pipe openings.



ELEVATION



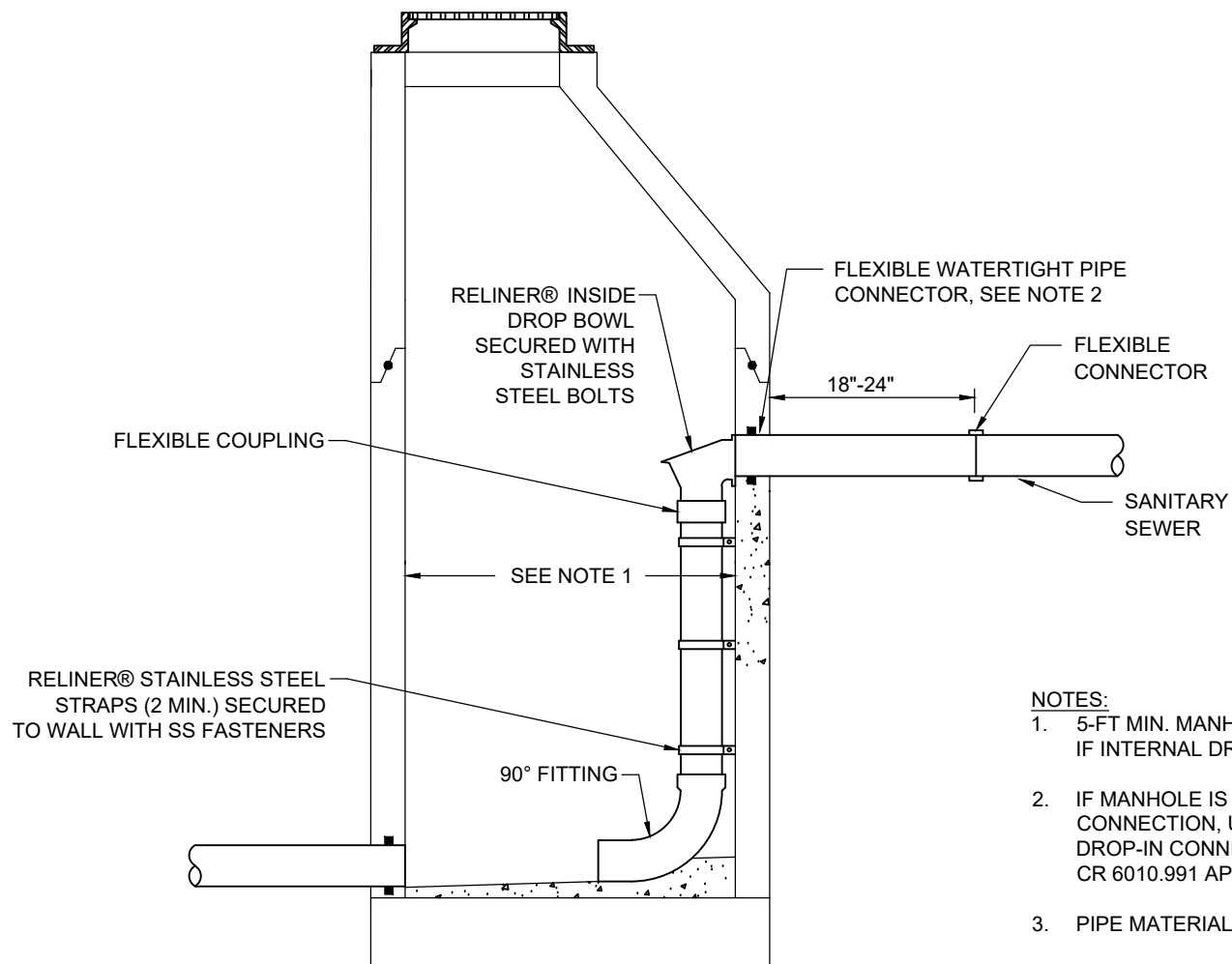
PLAN



SECTION A-A

- ① MAINTAIN A MINIMUM OF 12 INCHES OF CONCRETE BETWEEN VERTICAL EDGES OF PIPE OPENINGS.

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SANITARY SEWER CONNECTION TO EXISTING MANHOLE		



NOTES:

1. 5-FT MIN. MANHOLE DIAMETER REQUIRED IF INTERNAL DROP INSTALLED.
2. IF MANHOLE IS BUILT NEW WITH DROP-IN CONNECTION, USE A-LOK CONNECTOR, IF DROP-IN CONNECTION IS RETRO-FITTED, CR 6010.991 APPLIES.
3. PIPE MATERIAL PER SUDAS SECTION 4010.

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INTERNAL DROP CONNECTION FOR SANITARY SEWER MANHOLE		

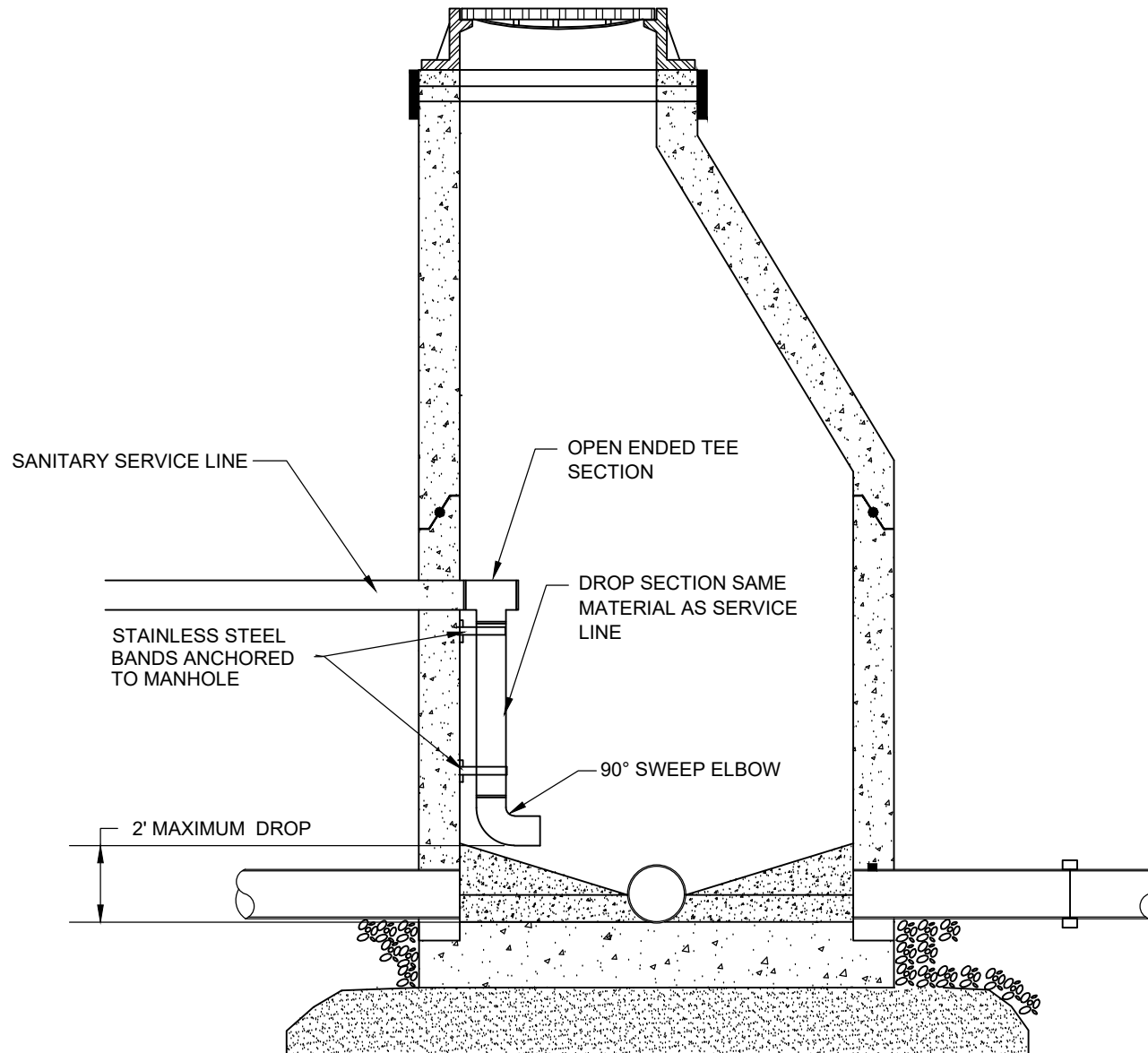


FIGURE HI 6010.993 SHEET 1 OF 1

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INTERNAL SANITARY SERVICE DROP		