

THRUST BLOCK SIZING TABLE

BEARING AREA OF THRUST BLOCK IN SQUARE FEET

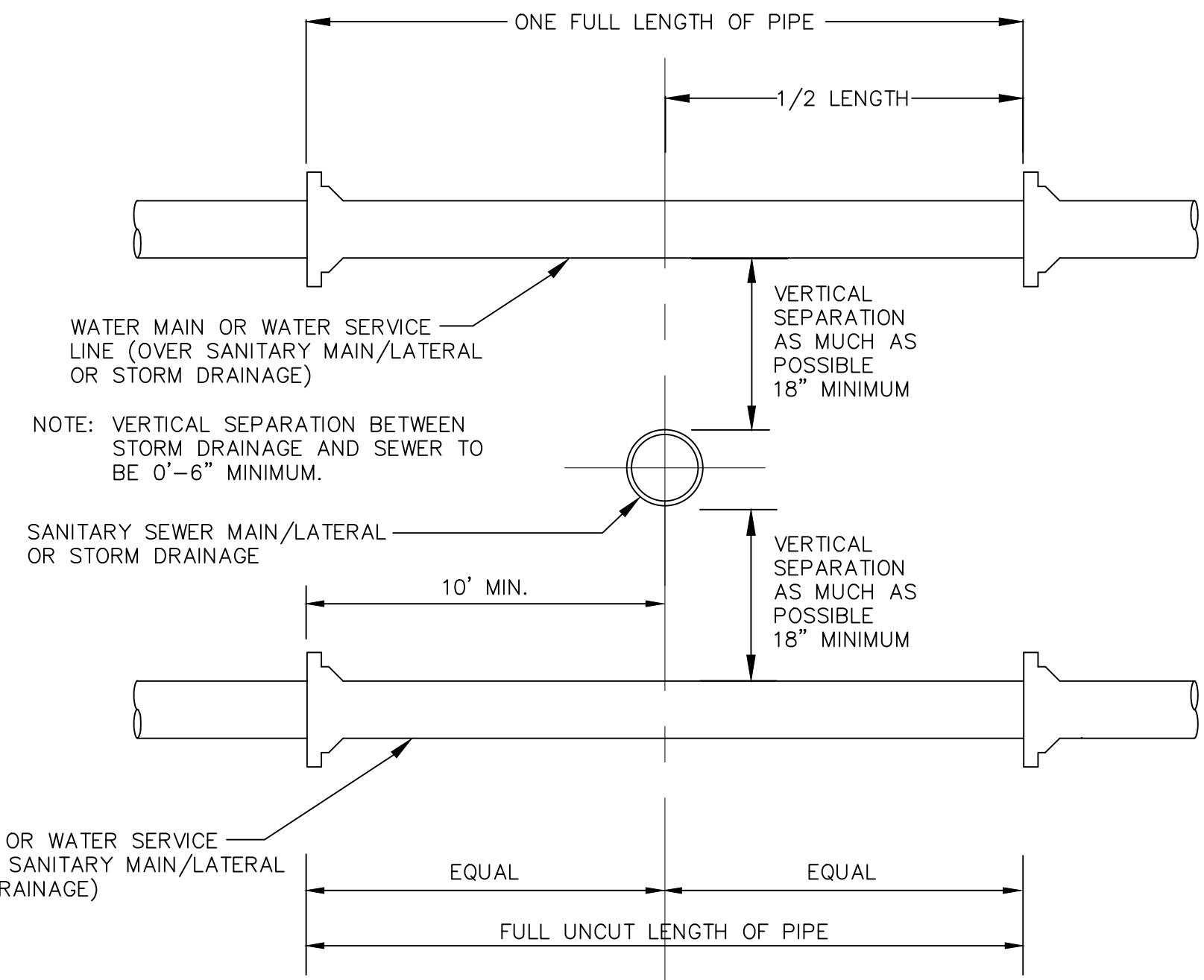
FITTING	THRUST (POUNDS)	HARD SAND & GRAVEL	SAND	SOFT CLAY
TEES AND BEND ENDS				
6"	5,700	1	2	6
8"	9,970	1	3	9
10"	16,125	2	3.5	10.5
12"	22,995	2.5	4	12
14"	31,155	3	4.5	13.5
16"	40,320	4	5	15
90° BEND				
6"	8,055	1	3	4
8"	13,950	1.5	4	5
10"	22,995	2	4.5	6
12"	32,400	2.5	5	7
14"	44,040	3	5.5	8
16"	57,015	4	6	9
45° BEND				
6"	4,365	1	1.5	2.5
8"	7,560	1	2	3
10"	12,300	1.5	2.5	4
12"	17,580	2	3	5
14"	23,865	2.5	3.5	6
16"	30,885	3	4	7
22.5° BEND				
6"	2,305	1	1	1.5
8"	3,825	1	1.5	2
10"	6,255	1	2	3
12"	8,910	1.5	2.5	4
14"	12,090	2	3	5
16"	15,645	2.5	3.5	6

* THRUST AT 150 PSI OF WATER PRESSURE

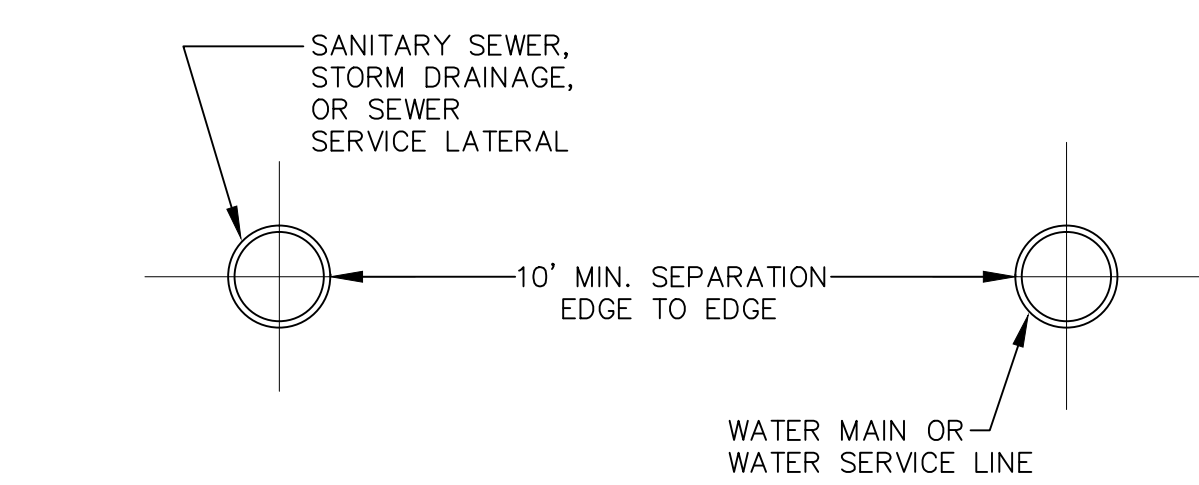
ANCHOR VALVE AS ABOVE AT VERT. BENDS, ANCHOR TO RESIST OUTWARD THRUSTS

NOTES:
 1. KEEP NUTS AND BOLTS FREE OF CONCRETE THROUGH THE USE OF PLASTIC COVERS.
 2. THRUST BLOCKS ARE TO BE INSTALLED AS SHOWN FOR EACH OF THE FITTINGS SHOWN ABOVE WHERE INDICATED ON THE PLANS OR AS ORDERED BY THE ENGINEER.

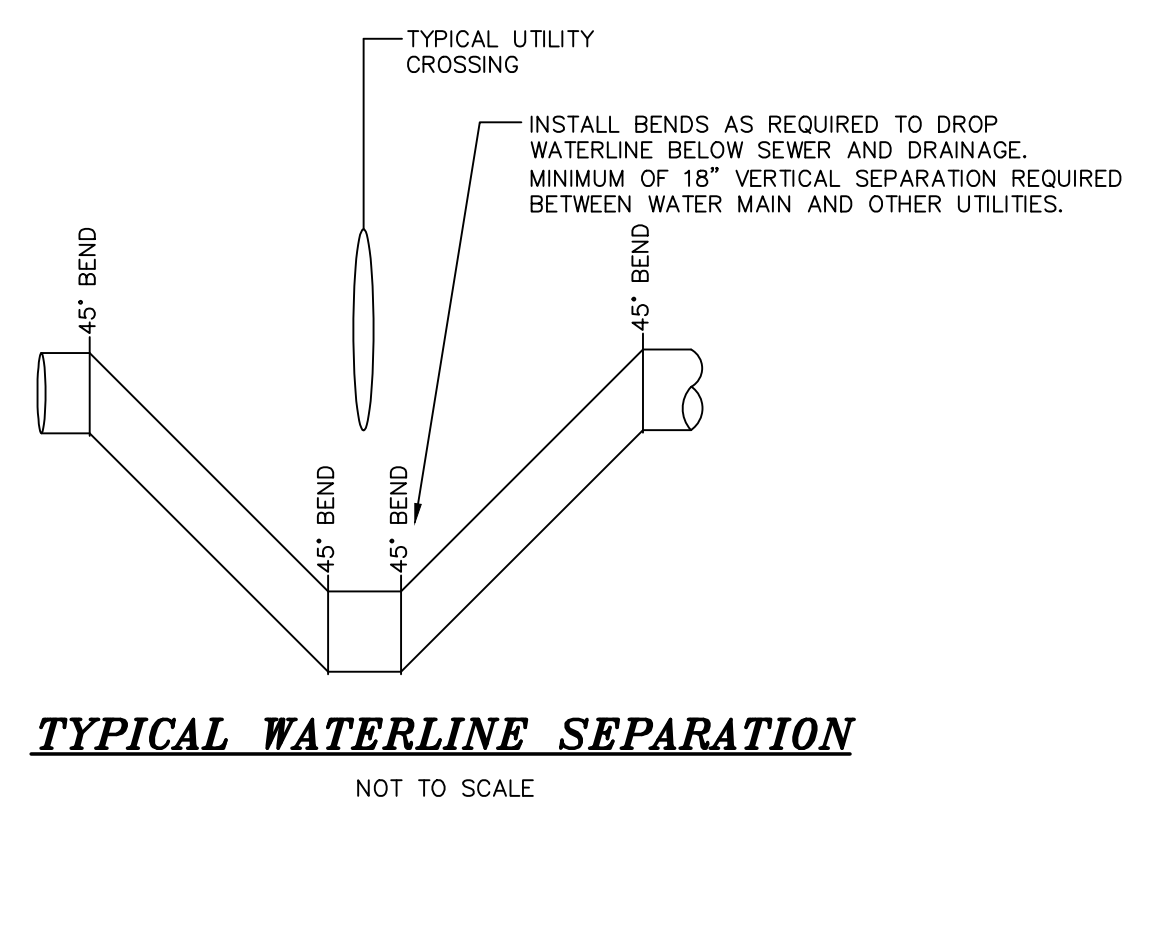
THRUST BLOCK DETAILS
NOT TO SCALE



WATER & SEWER CROSSING DETAIL
NOT TO SCALE

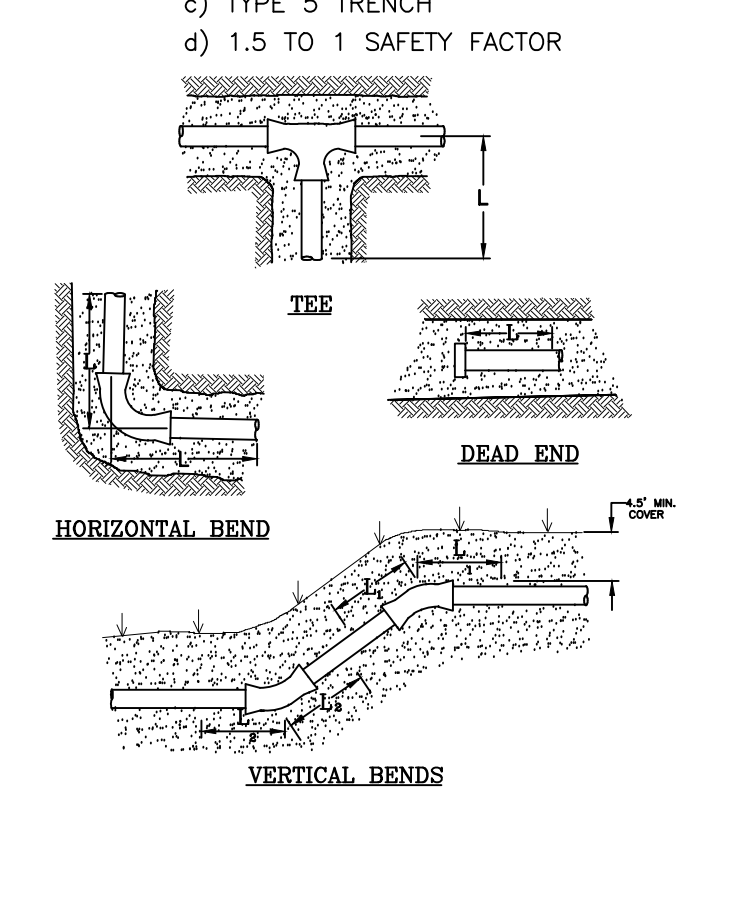


WATER & SEWER HORIZONTAL SEPARATION
NOT TO SCALE



TYPICAL WATERLINE SEPARATION
NOT TO SCALE

NOTE: LENGTH OF RESTRAINED JOINTS BASED UPON:
 a) 4.5" MINIMUM COVER
 b) TEST PRESSURE = 150 PSI
 c) TYPE S TRENCH
 d) 1.5 TO 1 SAFETY FACTOR

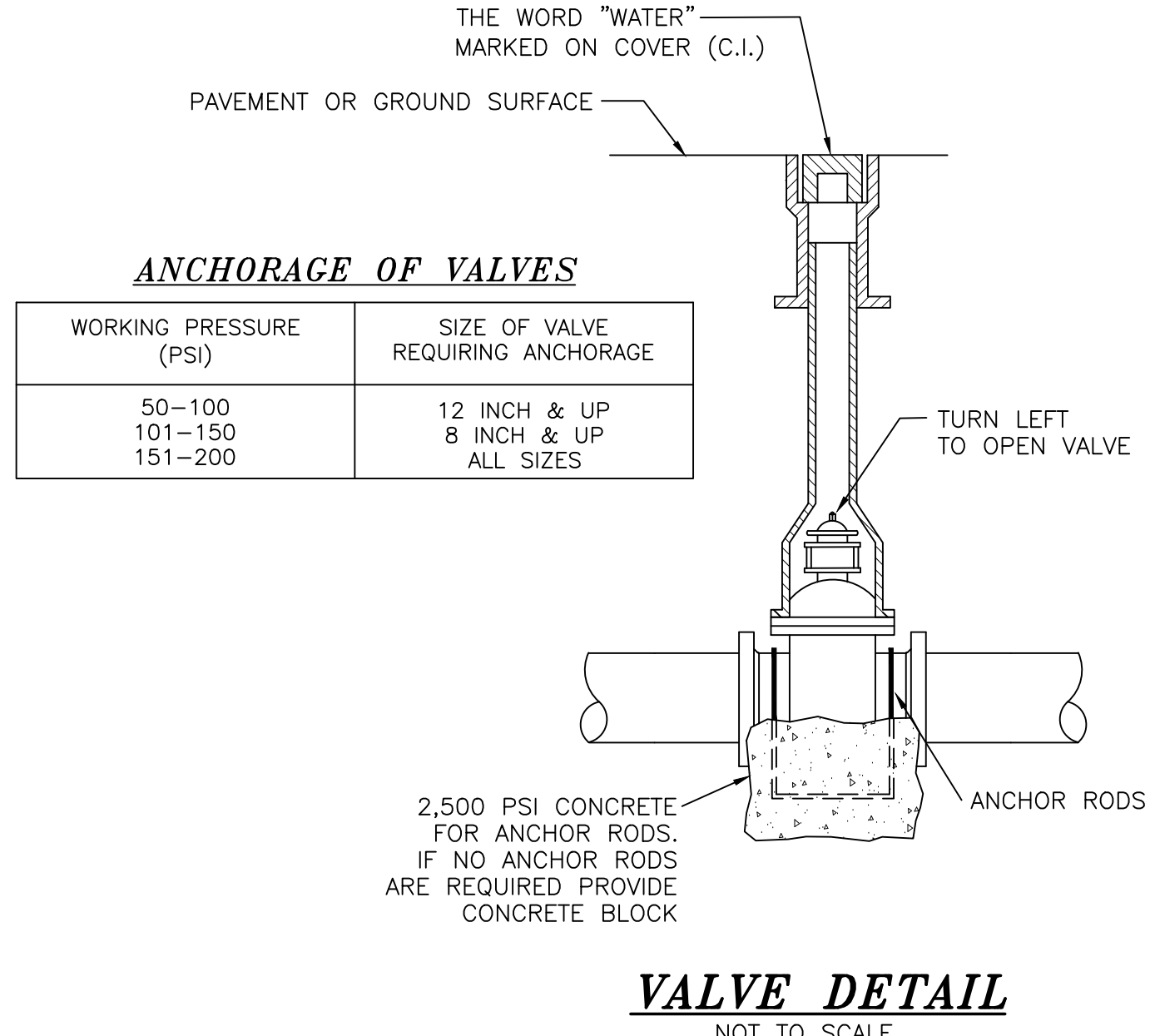


RESTRAINED JOINT TABLE

MINIMUM LENGTH REQUIRED IN LINEAR FEET

FITTING	LENGTH IN LINEAR FEET (L)
TEES AND BEND ENDS	
6"	25
8"	34
10"	40
12"	46
14"	52
16"	58
90° BEND	
6"	10
8"	15
10"	17
12"	20
14"	22
16"	24
45° BEND	
6"	4
8"	5
10"	6
12"	7
14"	8
16"	9
22.5° BEND	
6"	2
8"	3
10"	3
12"	4
14"	4
16"	5
VERTICAL BENDS	
6"	L
8"	L
10"	L
12"	L
14"	L
16"	L

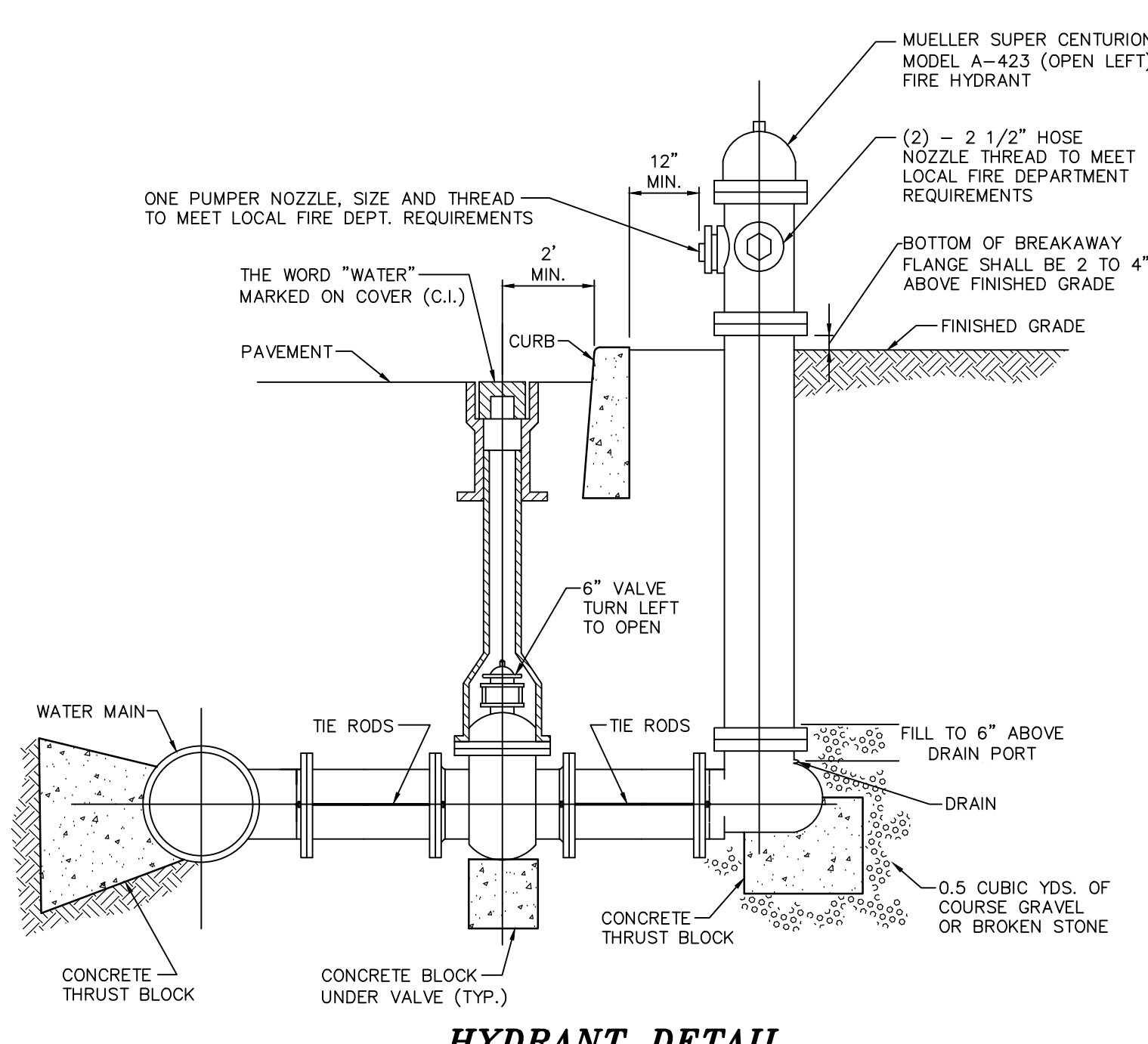
RESTRAINED JOINT DETAILS
NOT TO SCALE



ANCHORAGE OF VALVES

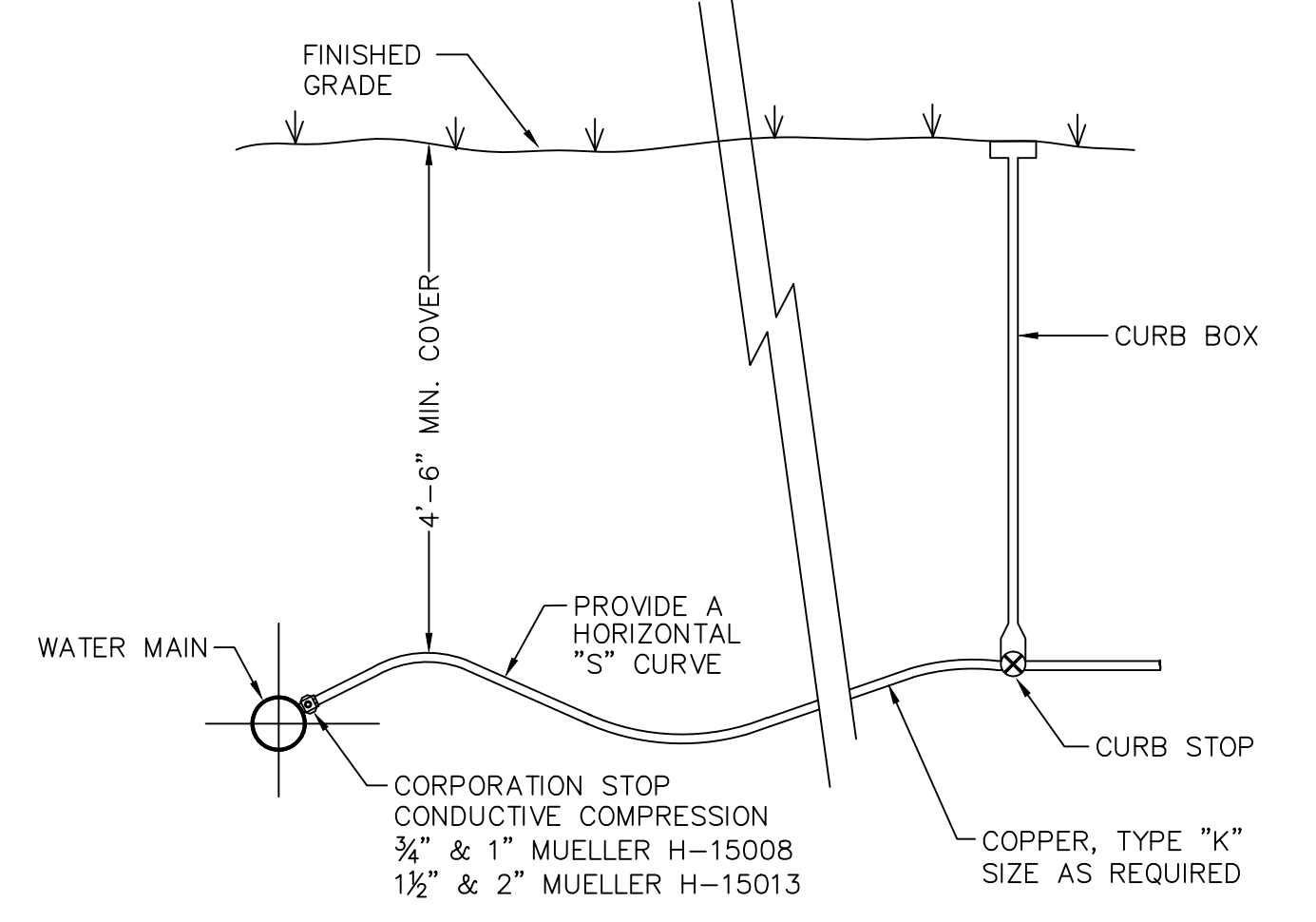
WORKING PRESSURE (PSI)	SIZE OF VALVE REQUIRING ANCHORAGE
50-100	12 INCH & UP
101-150	8 INCH & UP
151-200	ALL SIZES

VALVE DETAIL
NOT TO SCALE

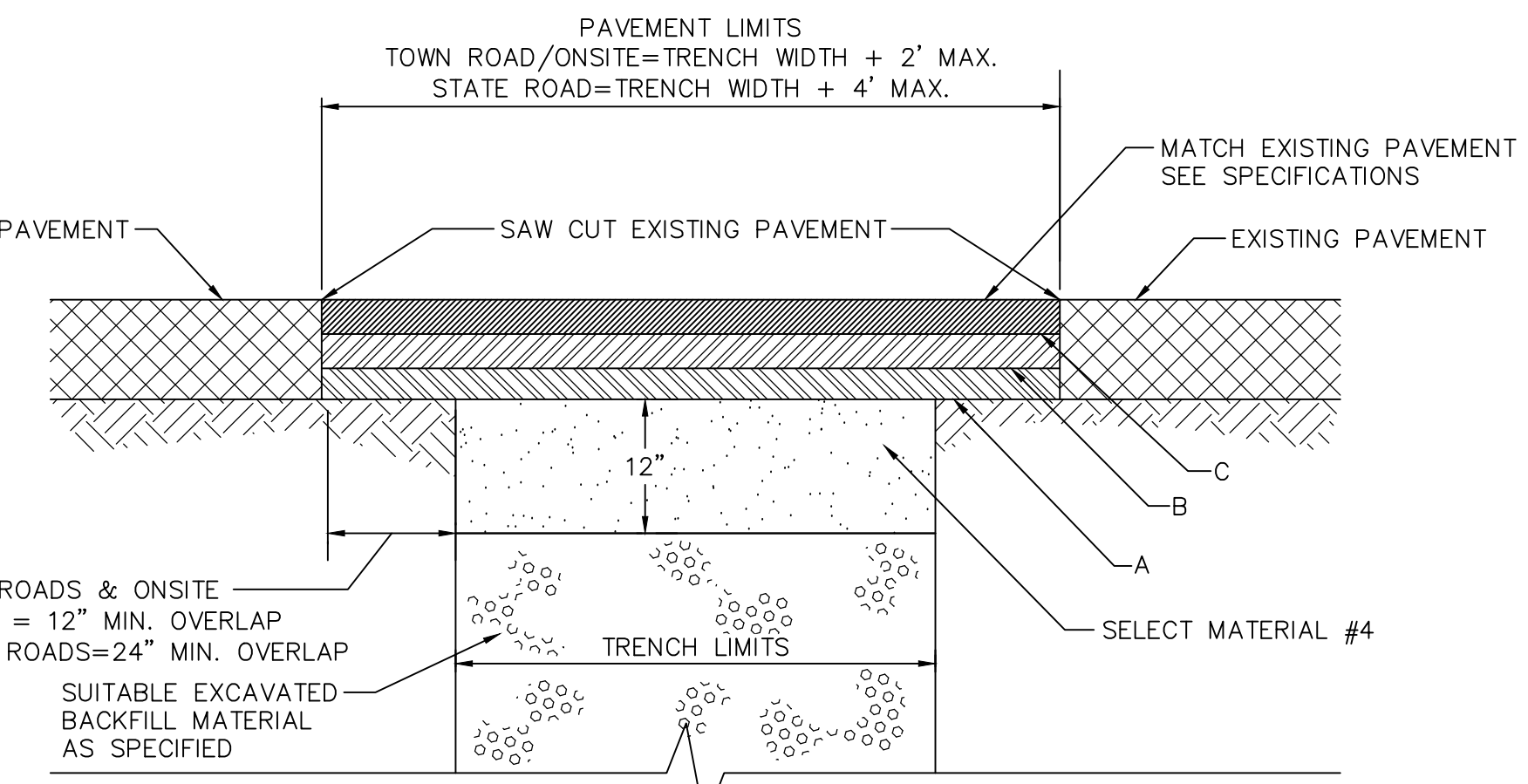


HYDRANT DETAIL
NOT TO SCALE

NOTES:
 1. HYDRANT SHALL BE MUELLER SUPER CENTURION MODEL A-423 (OPEN LEFT)
 2. HYDRANT SHALL BE PAINTED IN ACCORDANCE WITH ANPA STANDARDS (C202, SEC. 4.13)
 3. WHERE GROUND WATER RISES TO WITHIN 2 FEET OF A FIRE HYDRANT BASE, THE DRAIN PORT SHALL BE PLUGGED. ANY HYDRANT THAT IS PLUGGED SHALL BE LABELED IN A MANNER SATISFACTORY TO THE LOCAL FIRE DEPARTMENT AND WATER DEPARTMENT TO ENSURE THAT THE HYDRANT IS PUMPED OUT AFTER EACH USE.



DETAIL - WATER SERVICE
NOT TO SCALE



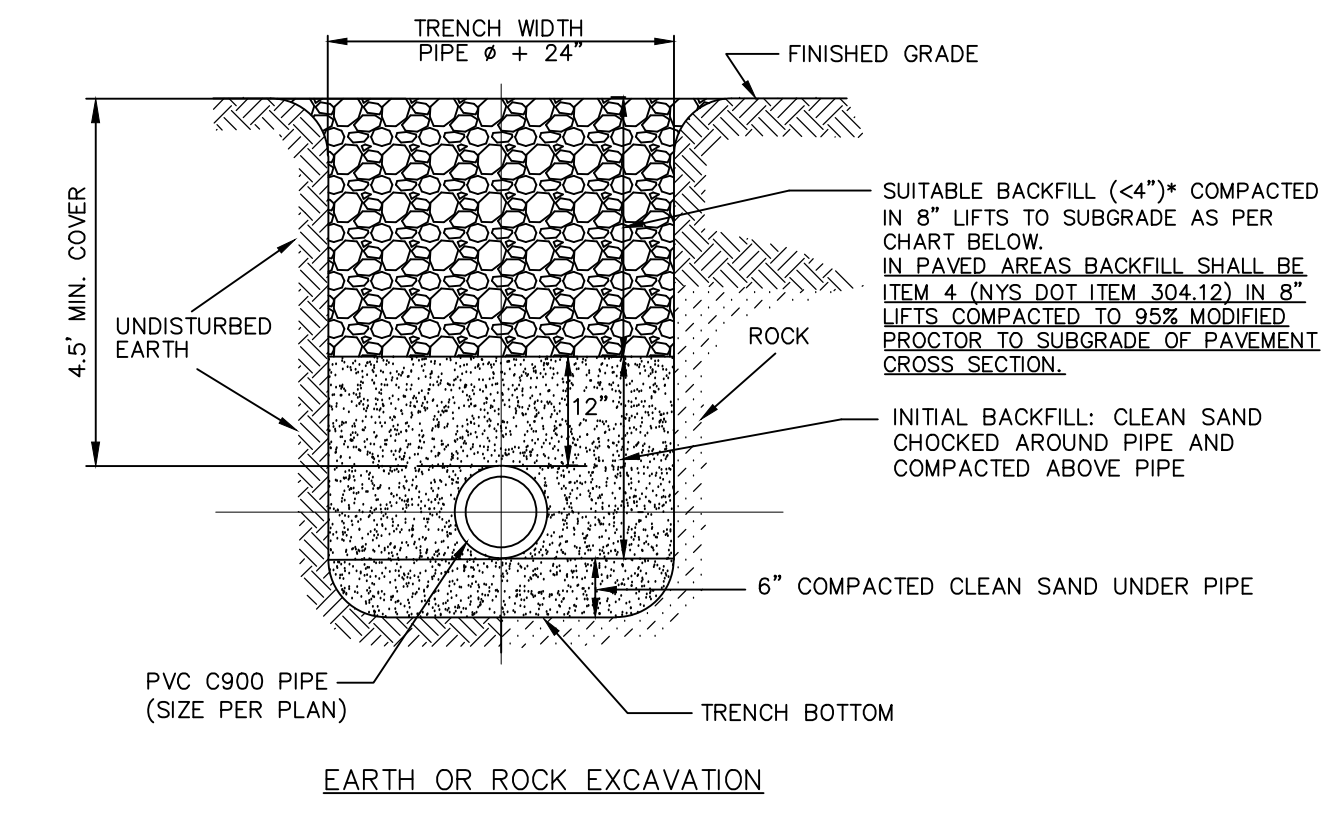
1. MATCH EXISTING PAVEMENT THICKNESS IN ALL AREAS OR PLACE AS A MINIMUM THE FOLLOWING:

WITHIN STATE R.O.W. (ONLY PERMITTED OPEN CUTS):
 A) 8" BASE (NYS DOT 402.376902 - 37mm F9)
 B) 2 1/2" BINDER (NYS DOT 402.196902 - 19mm F9)
 C) 1 1/2" TOP (NYS DOT 402.126102 - 12.5mm F1)

TOWN ROADS:
 A) 3" BINDER (N.Y.S.D.O.T. TYPE #3)
 C) 2" TOP COURSE (N.Y.S.D.O.T. TYPE #6F)

DRIVEWAYS/PARKING LOTS:
 B) 3" DENSE BINDER (N.Y.S.D.O.T. TYPE #3)
 C) 2" TOP COURSE (N.Y.S.D.O.T. TYPE #6F)

TRENCH LIMIT/PAVEMENT REPLACEMENT DETAIL
NOT TO SCALE

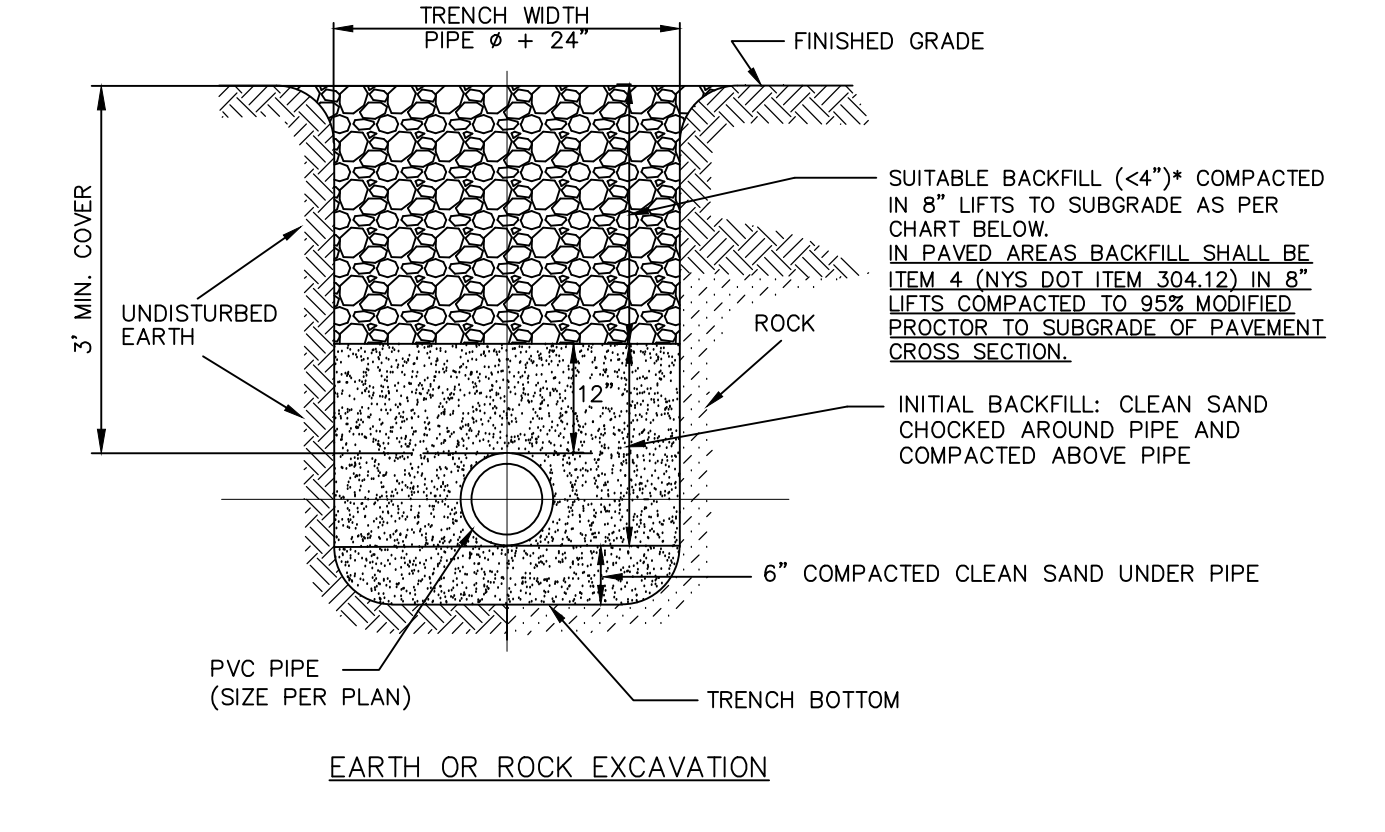


ACCEPTABLE BACKFILL MATERIAL & COMPACTION REQUIREMENTS

DESCRIPTION	SOIL CLASSIFICATION	MINIMUM STANDARD PROCTOR DENSITY %
GRADED OR CRUSHED STONE, GRAVEL	CLASS I	56
SAND, GRAVELS AND GRAVEL/SAND MIXTURES; LITTLE OR NO FINES	CLASS II	85%
SILTY OR CLAYEY GRAVELS, GRAVEL/SAND/SILT OR GRAVEL AND CLAY MIXTURES; SILTY OR CLAYEY SANDS, SAND/CLAY OR SAND/SILT MIXTURES	CLASS III	90%

NOTE: INORGANIC SILTS, CLAYS, AND OTHER CLASS IV MATERIAL SHALL NOT BE PERMITTED.

WATERMAIN TRENCH CROSS SECTION
NOT TO SCALE

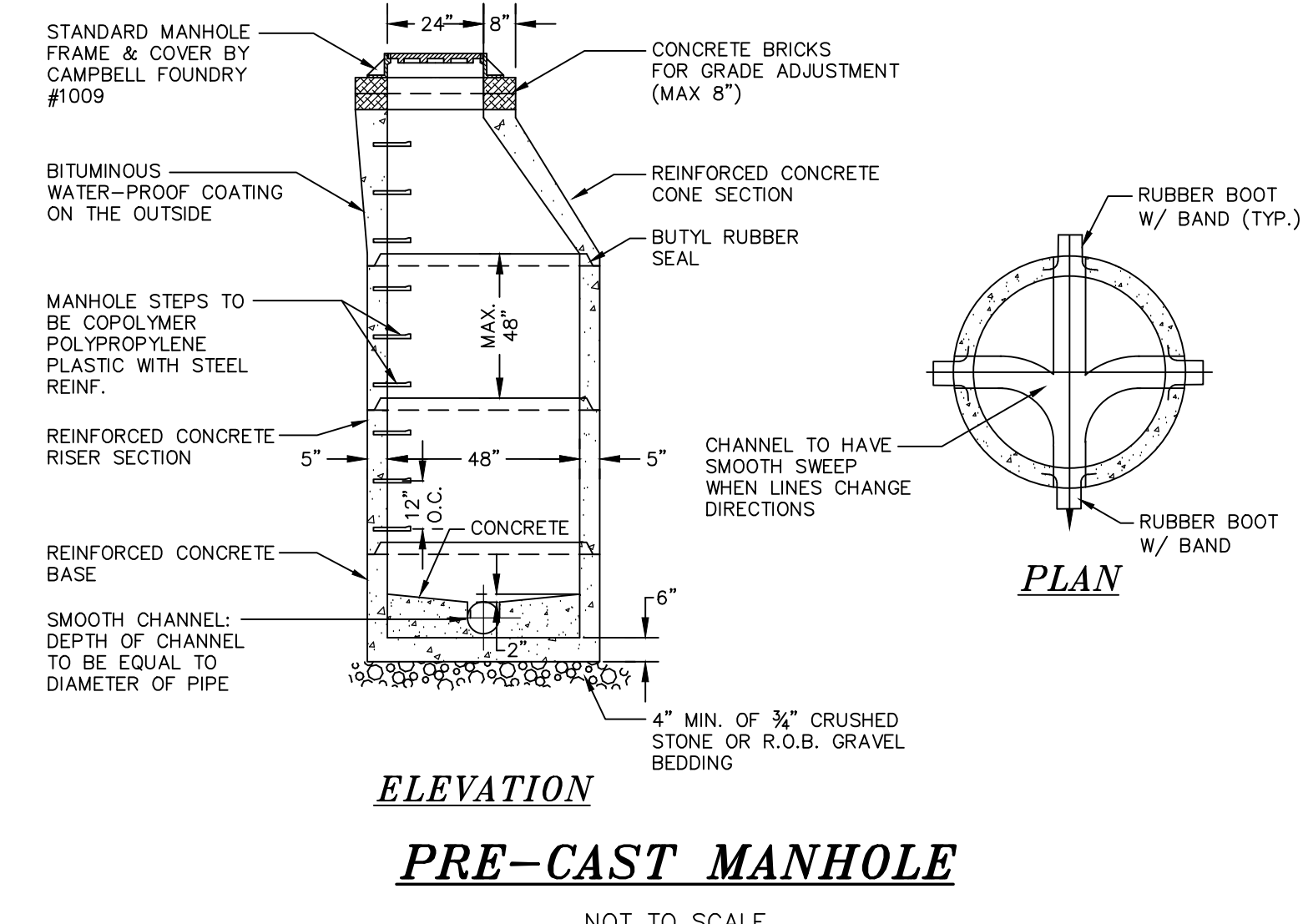


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SILTY OR CLAYEY GRAVELS, GRAVEL/SAND/SILT OR GRAVEL AND CLAY MIXTURES; SILTY OR CLAYEY SANDS, SAND/CLAY OR SAND/SILT MIXTURES	CLASS III	90%

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SANITARY SEWER TRENCH CROSS SECTION
NOT TO SCALE



PRE-CAST MANHOLE
NOT TO SCALE

NOTES:
 1. SMOOTH CHANNEL INVERT TO BE PAVED WITH CEMENT MORTAR.
 2. PIPE JOINTS SHALL BE A MINIMUM OF 2" FROM OUTSIDE WALL OF MANHOLE.
 3. SANITARY SEWER TO EXTEND INTO THE MANHOLE TO A POINT WHERE OUTSIDE OF SEWER MEETS INSIDE WALL OF MANHOLE.
 4. OPENING FOR PIPE SHALL BE PRE-CAST. CONNECTIONS TO EXISTING MANHOLES SHALL BE MACHINE CORED.
 5. MANHOLE COVERS TO BE STAMPED "SANITARY".
 6. PRECAST REINFORCED CONCRETE MANHOLE SHALL BE DESIGNED FOR H20 LIVE LOAD.

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NOTE: WATER MAIN TO BE ENCASED PER DETAIL ONLY WHERE 10' HORIZONTAL OR 18" VERTICAL SEPARATION CANNOT BE MAINTAINED AND ONLY AT THE DIRECTION AND APPROVAL OF THE SITE ENGINEER.

PIPE ENCASEMENT DETAIL
NOT TO SCALE

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 DRAWING NO.: 15 OF 18
 DRAWING TITLE: CONSTRUCTION DETAILS 2

Drawn By: MK
 Checked By: N/A
 Title: SEE SHEET 2
 Date: A-16-0042-01