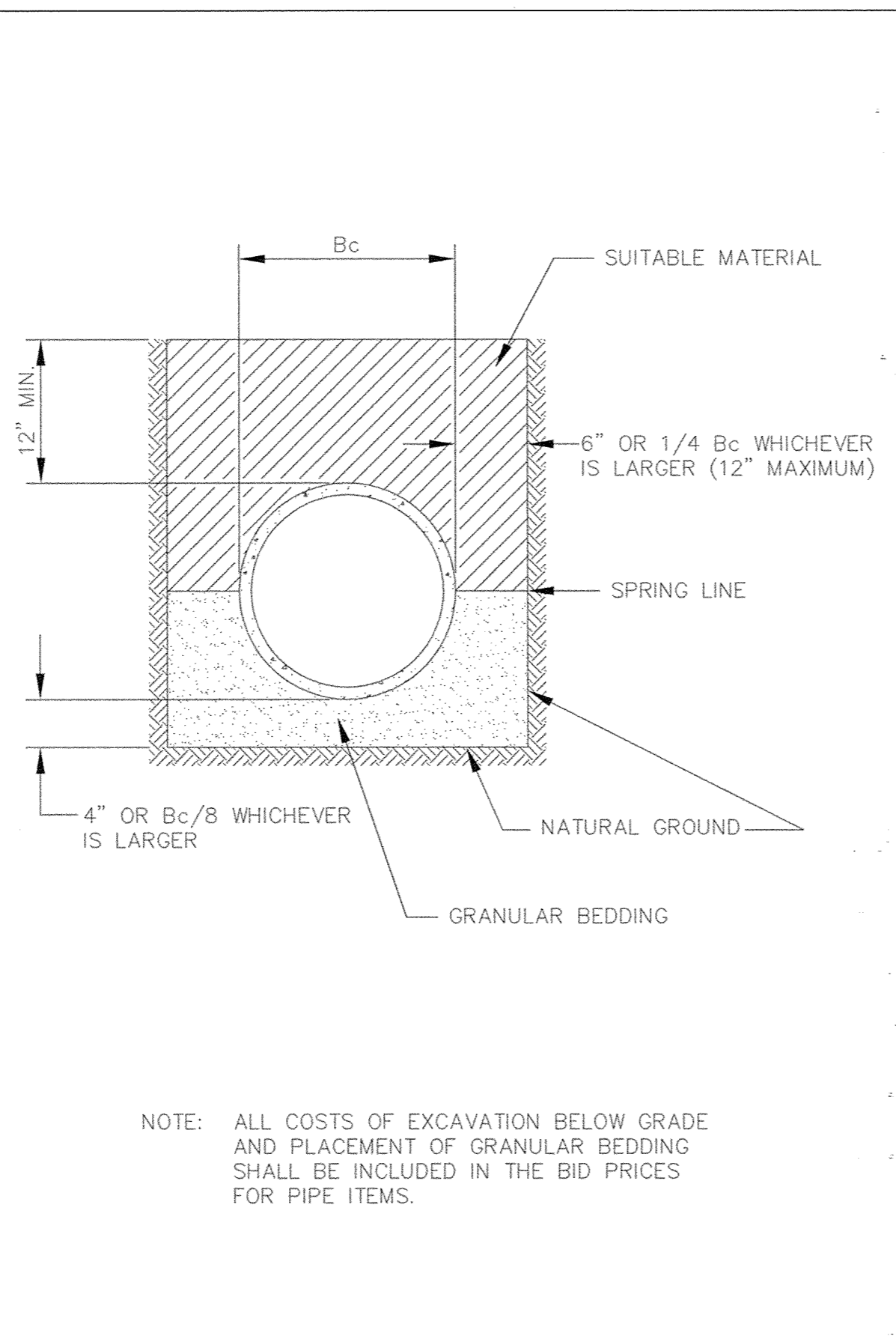
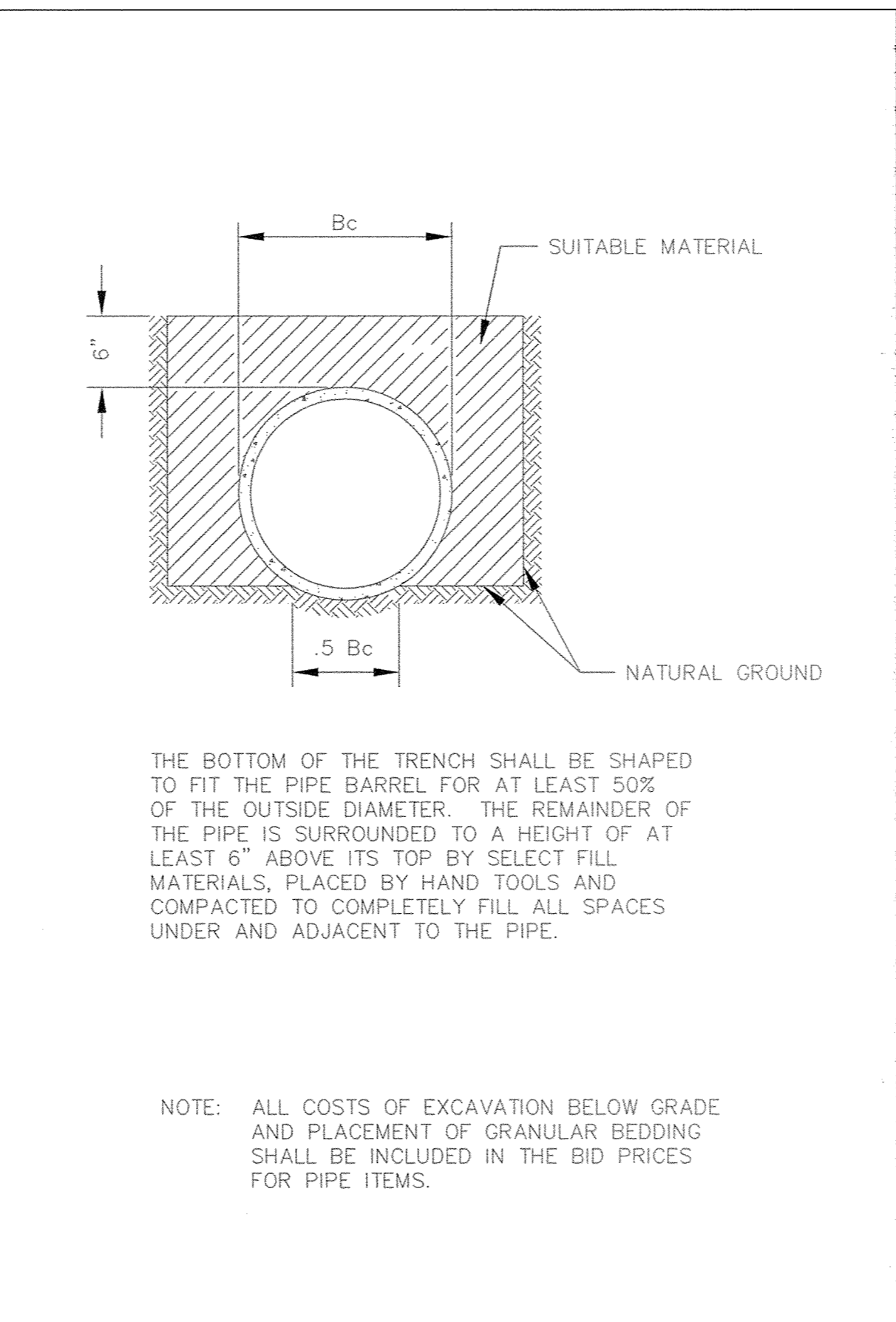


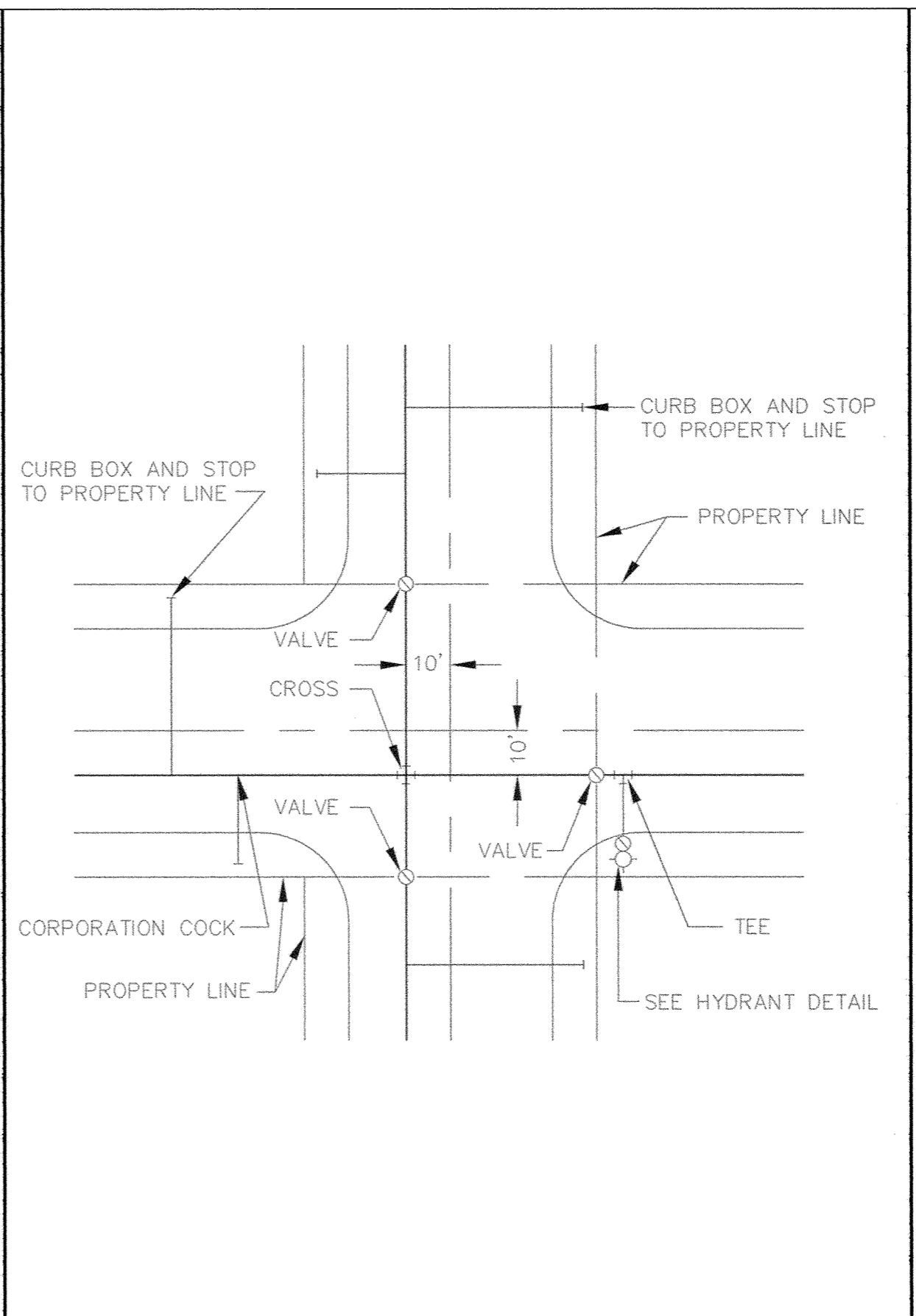
C.S.A.H. 13 WET TAP DETAIL



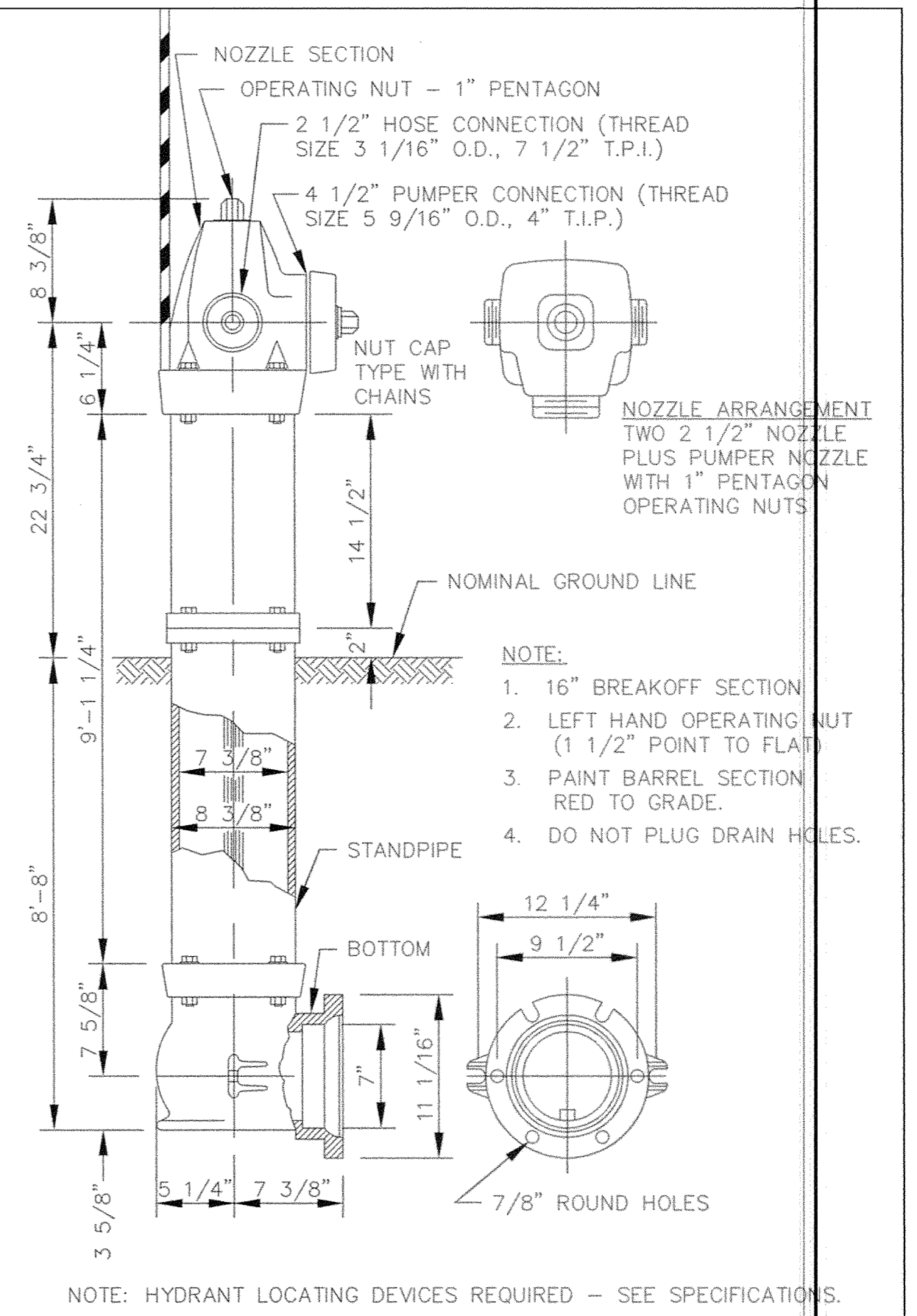
CLASS B PIPE BEDDING



CLASS C PIPE BEDDING



TYPICAL WATER LAYOUT



PACER HYDRANT DETAIL

1/4" PLYWOOD OVER FACE OF BOLTS

PLUG OR CAP

PLUGGED CROSS

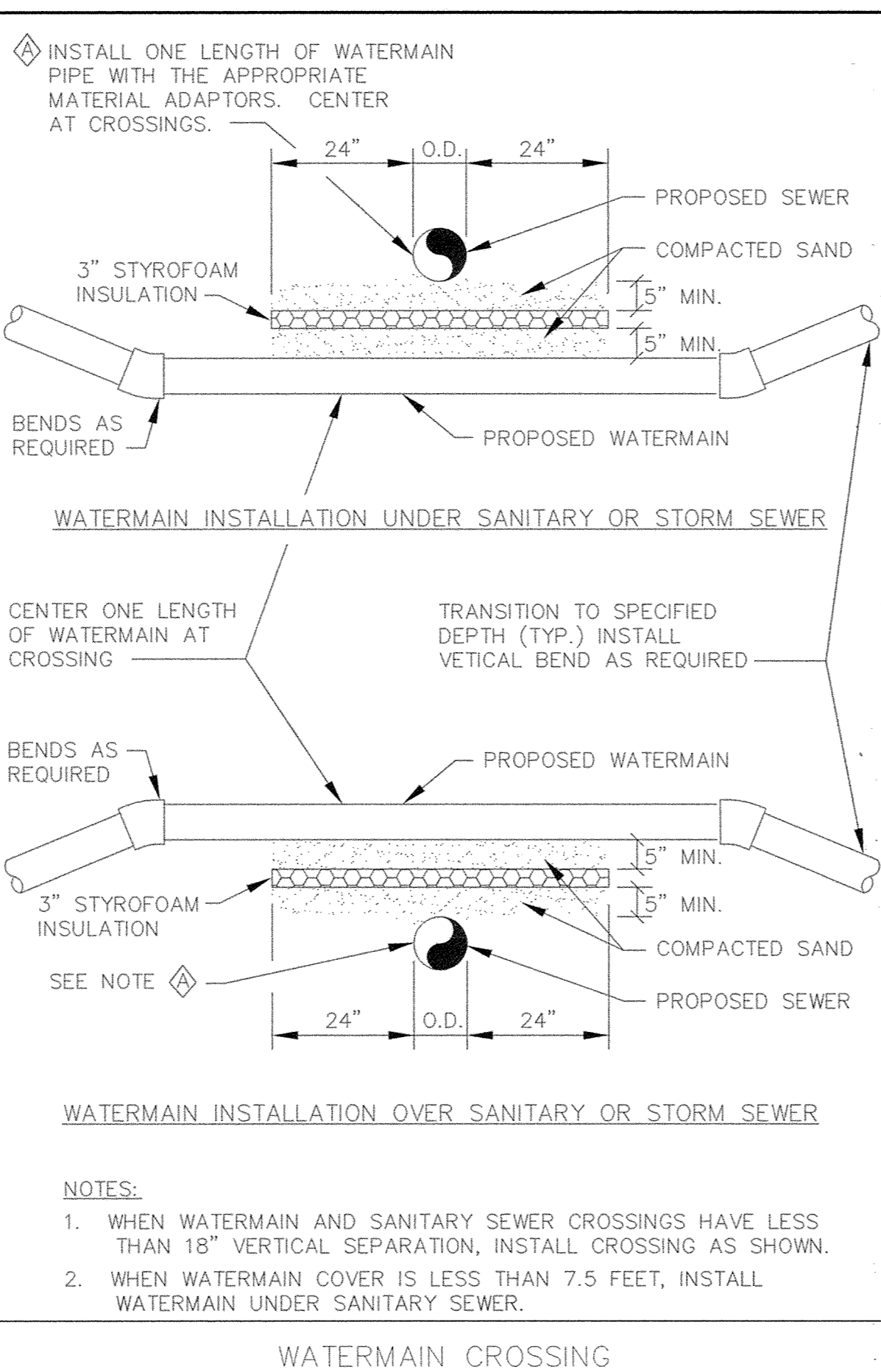
PLUGGED TEE

NOMINAL FITTING SIZE (INCHES)	TEE, WYE, PLUG OR CAP	90° BEND, PLUGGED CROSS	TEE PLUGGED ON RUN		45° BEND	22 1/2" BEND	11 1/4" BEND
			A1	A2			
4	1.0	1.4	1.9	1.4	1.0	---	---
6	2.1	3.0	4.3	3.0	1.6	1.0	---
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.6	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3
16	15.0	21.3	30.0	21.3	11.6	6.0	3.0
18	19.0	27.0	38.0	27.0	14.6	7.6	3.8
20	23.5	33.3	47.0	33.3	18.1	9.4	4.7
24	34.0	48.0	68.0	48.0	26.2	13.6	6.8

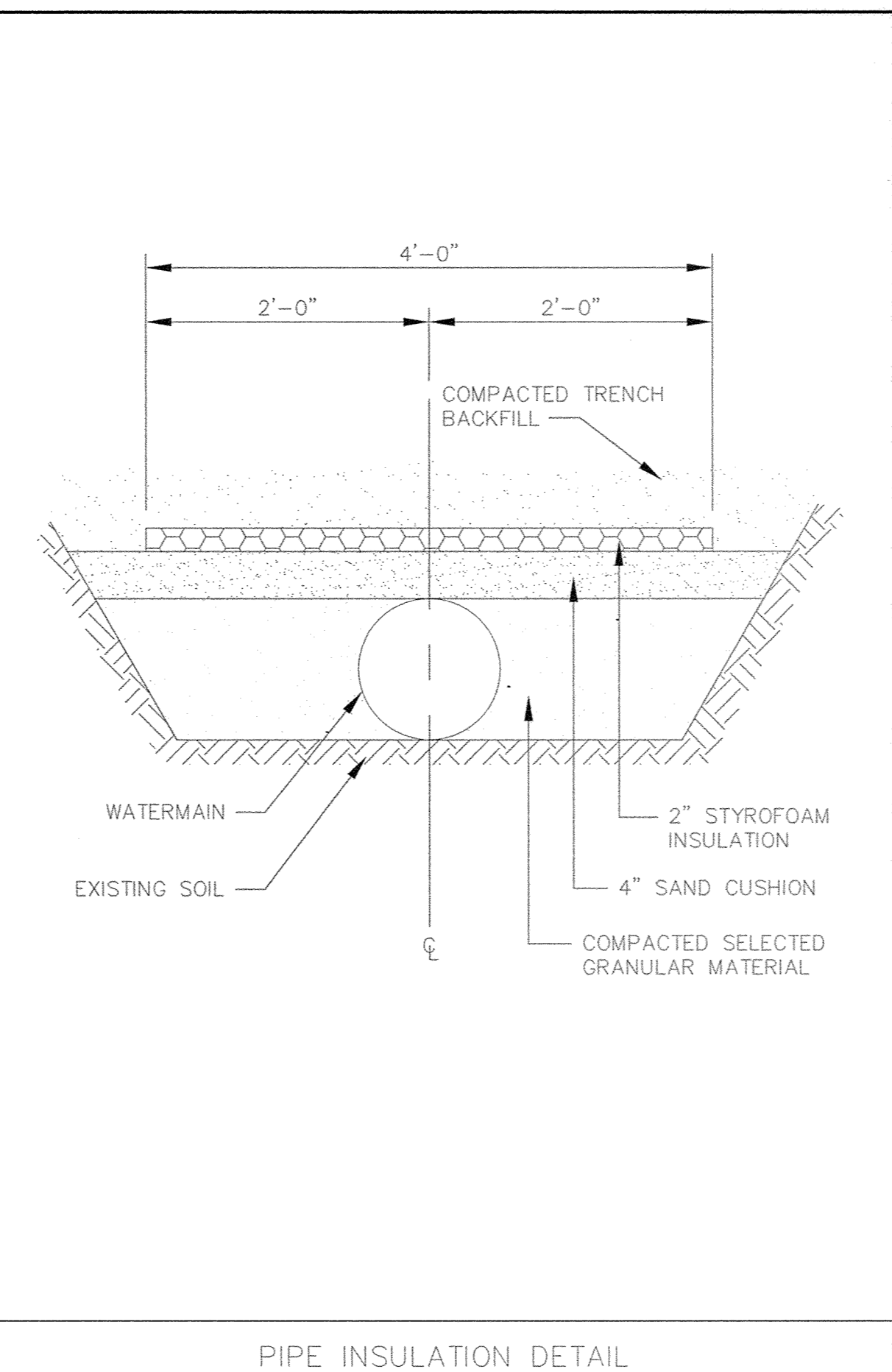
NOTE:

- CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
- KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
- IF NOT SHOWN ON PLANS, REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED ABOVE, ADJUSTED IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES).
- BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN IN THIS STANDARD DETAIL.
- ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150) X (2000/SOIL BEARING STRESS) X (TABLE VALUE).

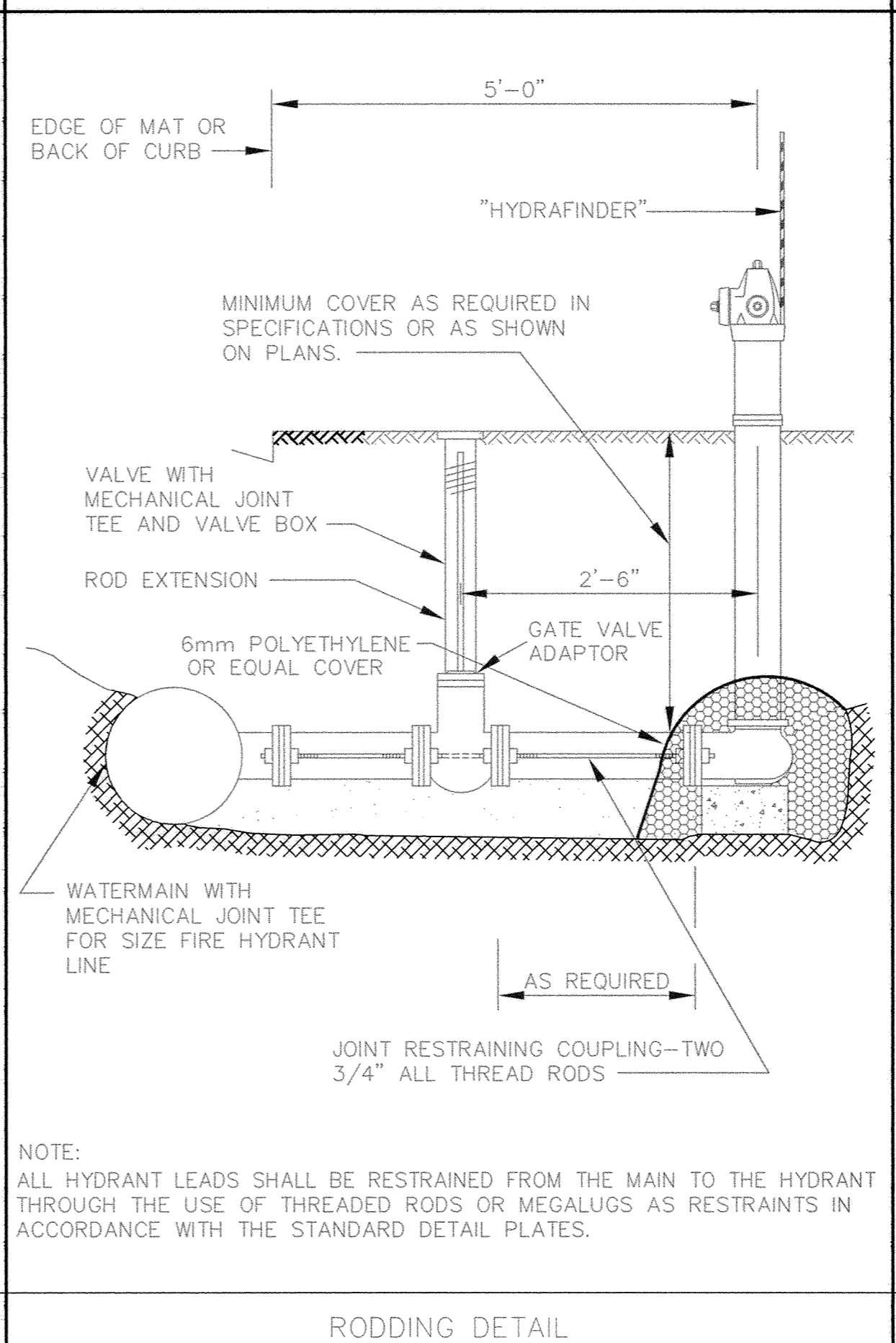
THRUST BLOCKING DETAIL



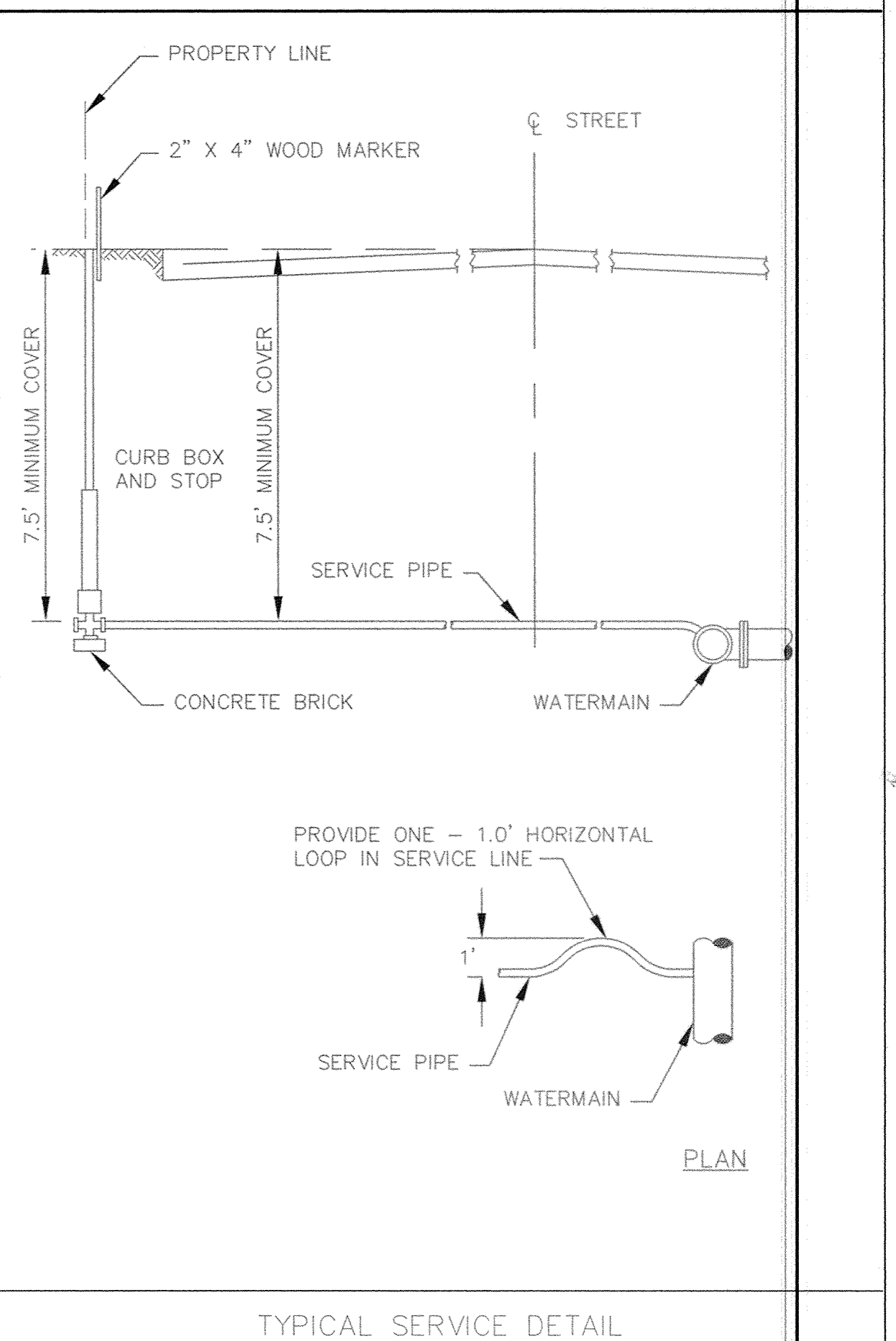
WATERMAIN CROSSING



PIPE INSULATION DETAIL



RODDING DETAIL



TYPICAL SERVICE DETAIL

DESIGNED BY: _____ DRAWN BY: RM

APPROVED BY: _____ JOB NUMBER 809781J

CAD DATE: January 20, 2005 1:35:00 p.m.

CAD FILE: 809782j\ASBUILT\Phase2\809782--WM.DWG

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE _____ DATE _____

PRINTED NAME JOHN M. ANDERSON LIC. NO. 25889

NO.	DATE	BY	REVISION DESCRIPTION

1326 ENERGY PARK DRIVE
ST. PAUL, MINNESOTA 55108
(651) 644-4389

Howard R. Green Company
CONSULTING ENGINEERS

CITY OF ELK RIVER
TWIN LAKES TOWNHOMES 2ND ADDITION
STREET AND UTILITY IMPROVEMENTS

WATERMAIN CONSTRUCTION DETAILS

SHEET NO.
D2

SARCO PRODUCTS - NEW HOPE, MINNESOTA
REGISTERED BY PLAN NUMBER 8532
PROFESSIONAL SEAL OF JOHN M. ANDERSON