

**(H) THRUST BLOCK NOTES**  
N.T.S.

- INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.
- ANY MODIFICATION TO THRUST BLOCK SIZING OR PIPE RESTRAINT REVISIONS SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.
- ANY WORK RELATING TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS.
- ALL RESTRAINED JOINTS MUST HAVE GRIPRING™.

BEARING SURFACE REQUIRED IN SQUARE FEET

PIPE SIZE	1/2 BEND	1/4 BEND	1/8 BEND	TEES/CAPS
6" / 8"	5.0	5.0	5.0	6.5
12"	11.5	11.5	11.5	20.0
				22.0

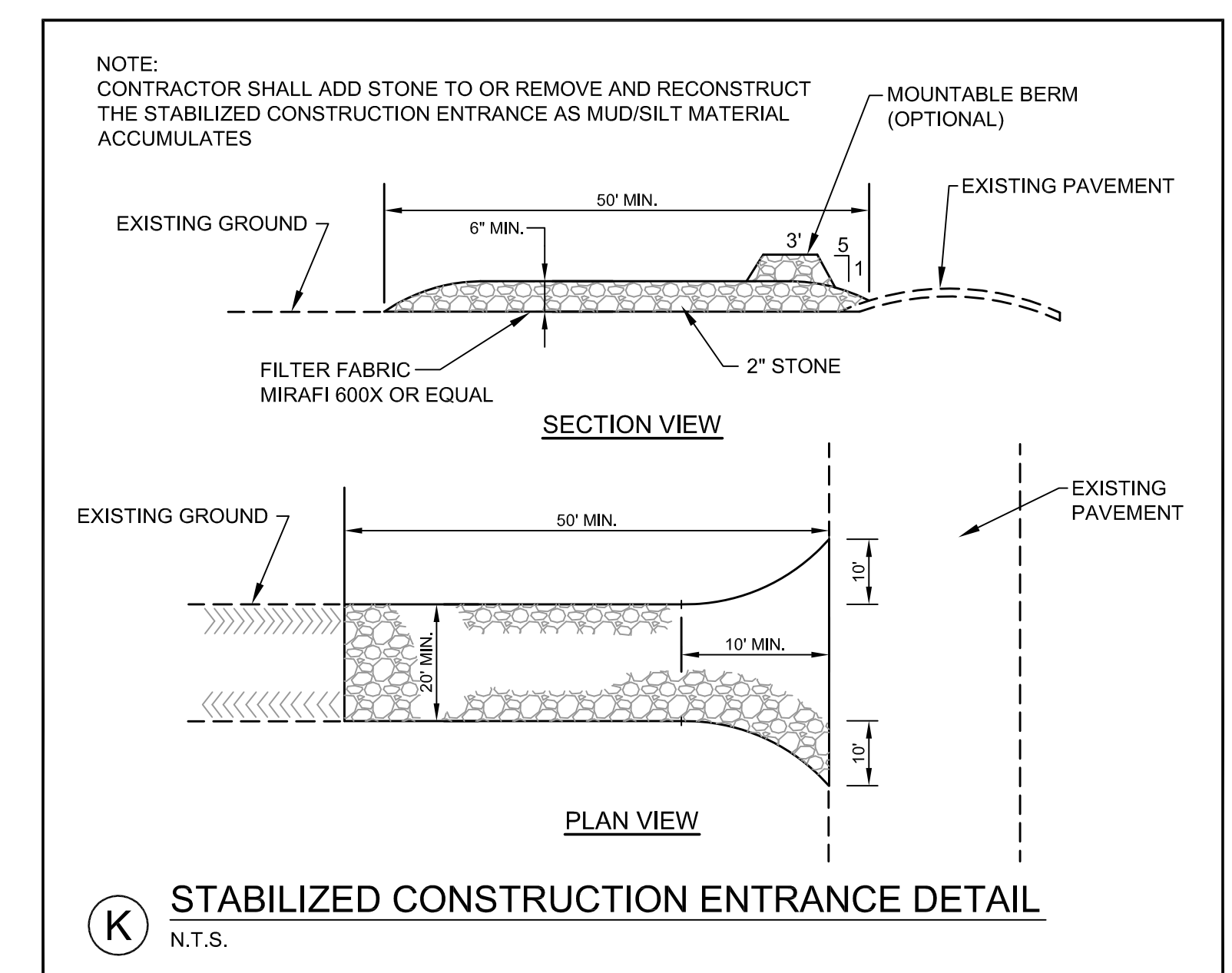
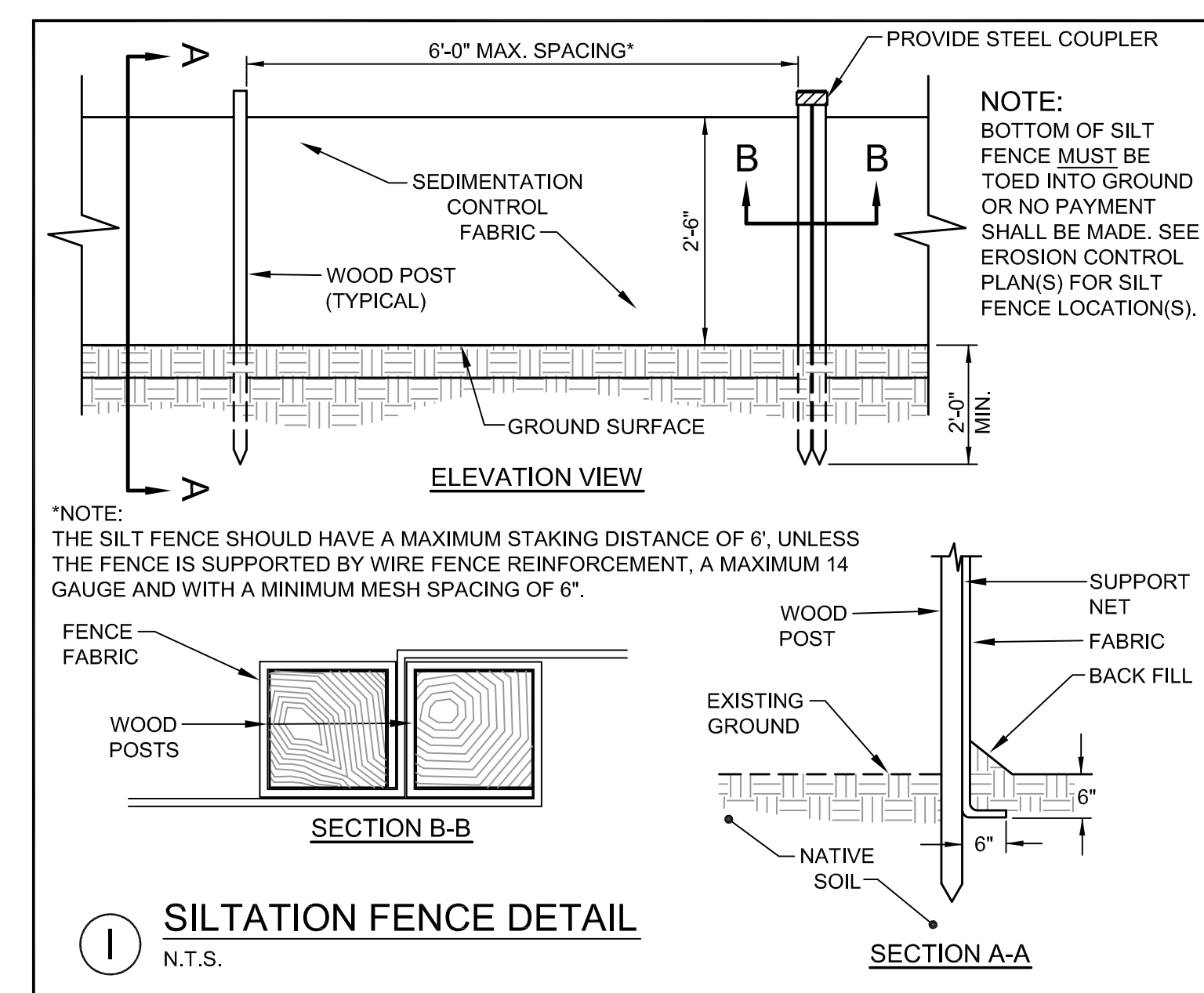
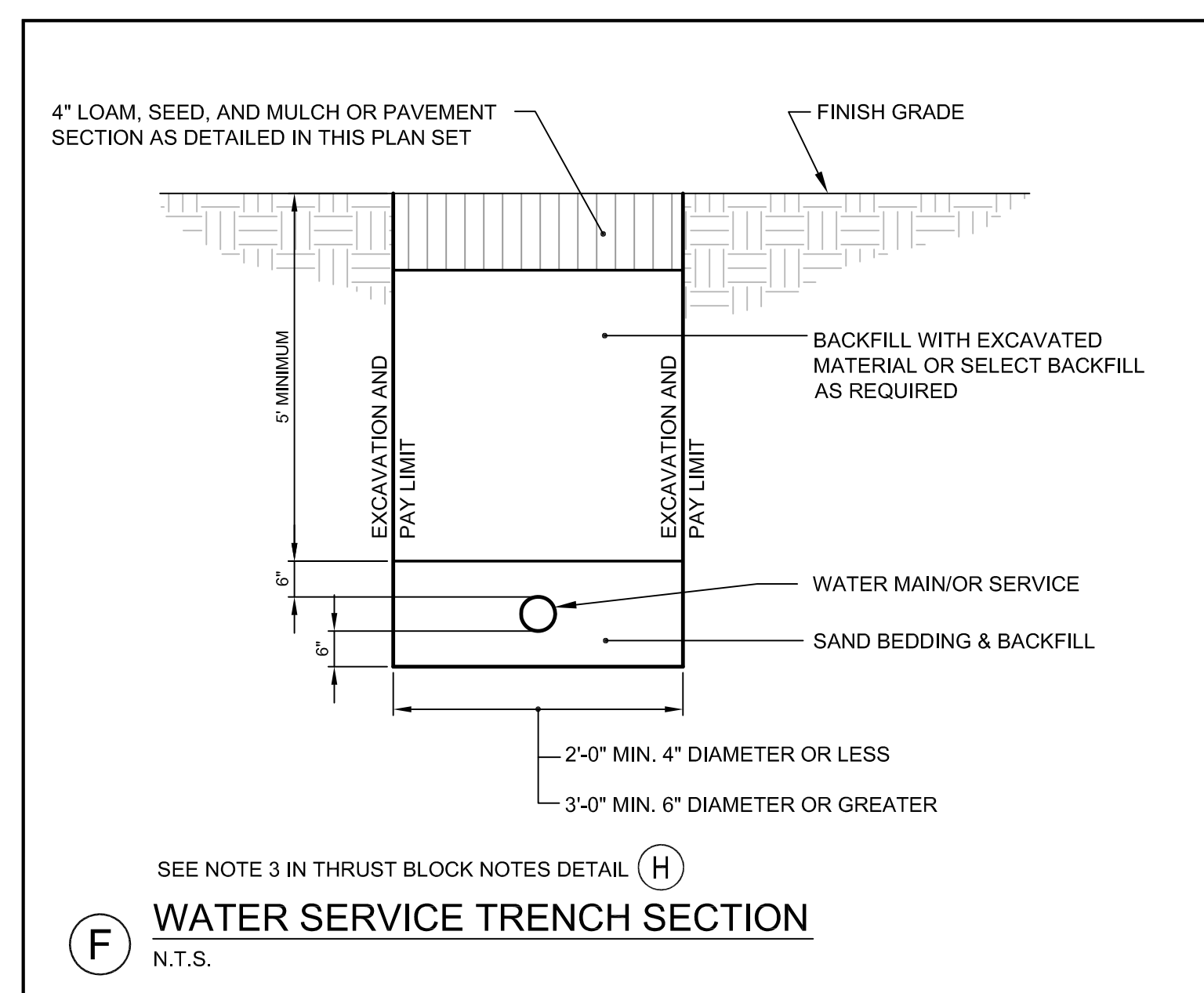
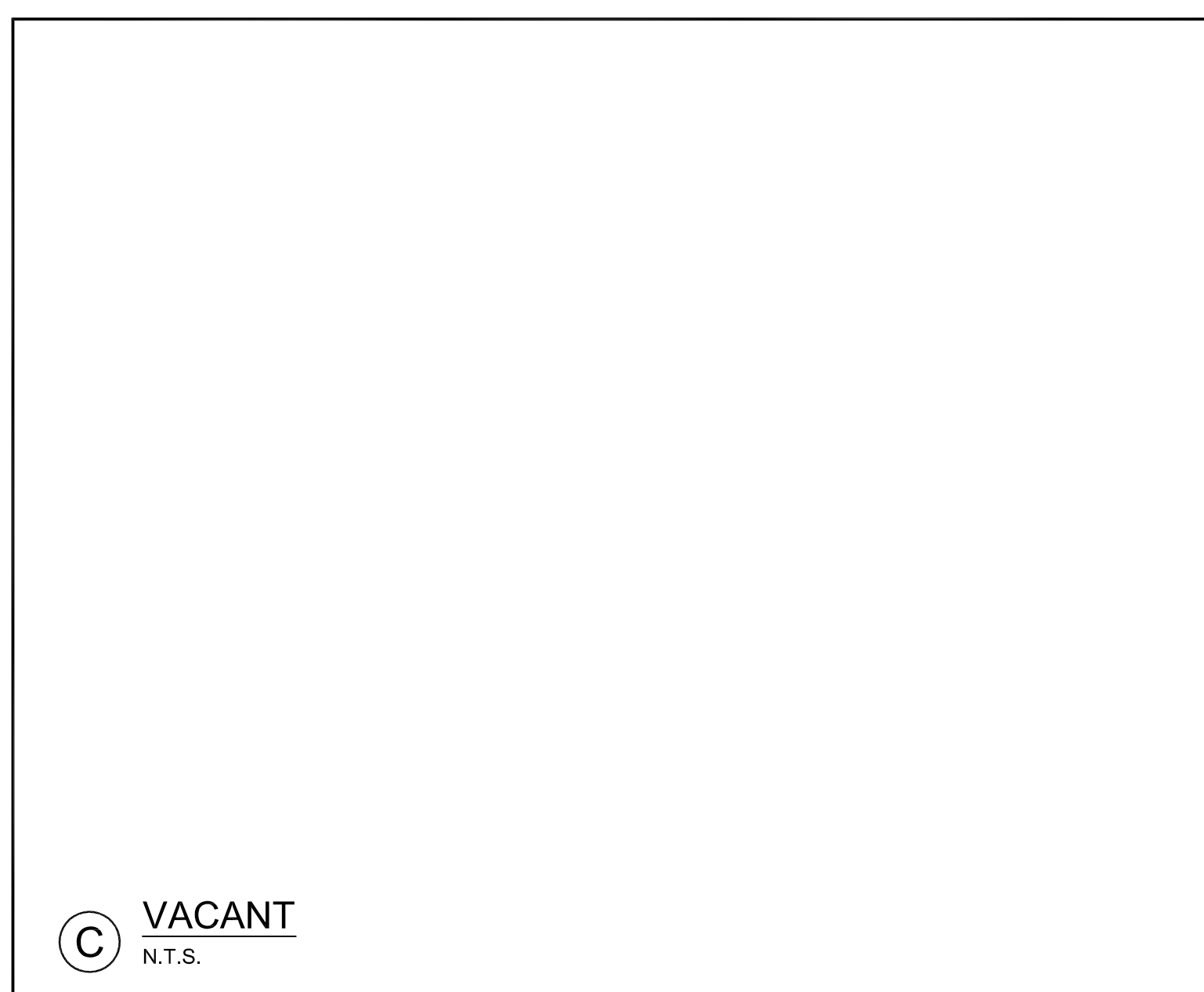
**THRUST/RETAINER GLAND SCHEDULE**

PIPE SIZE	BEND ANGLE	REQUIREMENT
1/2 BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK WITH GRIPRING™ MECHANICAL JOINT RESTRAINT
1/4 BEND	(45°)	THRUST BLOCK W/ GRIPRING™
1/8 BEND	(22 1/2°)	THRUST BLOCK W/ GRIPRING™
1/2 BEND	(11 1/4°)	THRUST BLOCK W/ GRIPRING™

THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

NOTES:

- THE PORTLAND WATER DISTRICT MAY HAVE INSPECTION FEES AND REQUIRE OBSERVATION OF ALL PIPING INSTALLATION BEFORE BURIAL. REFER TO SPECIFICATIONS.
- FOR WATER MAIN LAYOUT SEE DRAWING C-3.00
- REFER TO SPECIFICATIONS FOR TESTING AND CHLORINATION REQUIREMENTS.
- ALL HYDRANTS AND VALVES TO BE EPOXY COATED, NUTS & BOLTS TO BE STAINLESS STEEL.
- SERVICE RODS FOR DOMESTIC SERVICE OR AIR VALVES TO BE STAINLESS STEEL.



PRELIMINARY - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY
1	02.10.14	SUBMITTED TO CITY OF PORTLAND	
			P.E. STEPHEN BUSHEY LIC. # 7429

PROJECT	PH WARREN AVENUE, LLC COMMERCIAL SITE 421 WARREN AVENUE
SHEET TITLE	DETAILS
CLIENT	PH WARREN AVENUE, LLC C/O PETER HOLMES 12 WILDWOOD LANE SCARBOROUGH, ME 04074

**FST** FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS - PLANNERS - SCIENTISTS  
778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

Drawn: CMW  
Designed: SRB  
Checked: SRB  
File Name: SP-M104-DET  
Date: NOVEMBER 2013  
Scale: AS NOTED  
Job No: SP-M104  
Sheet: C-6.2