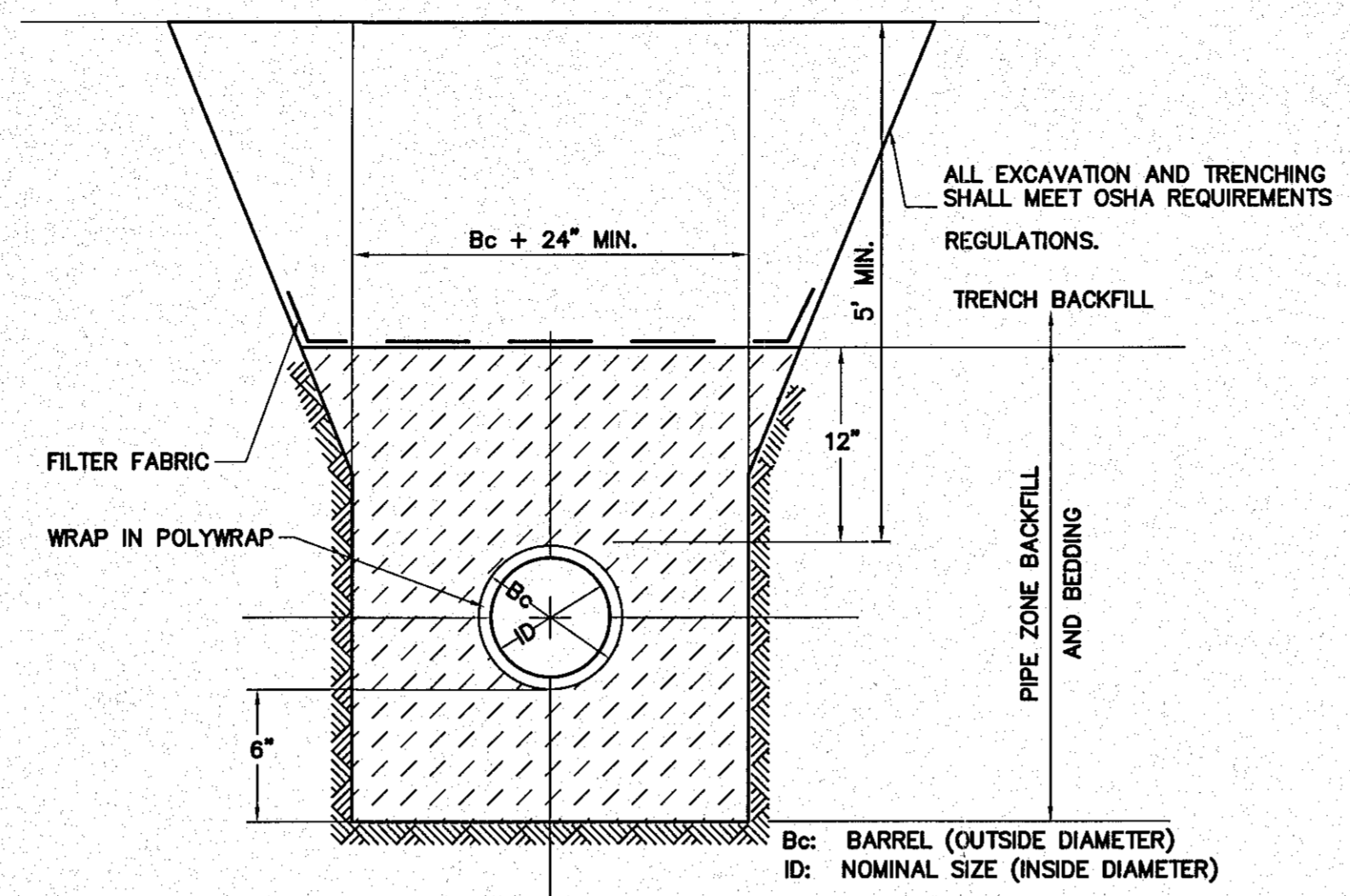
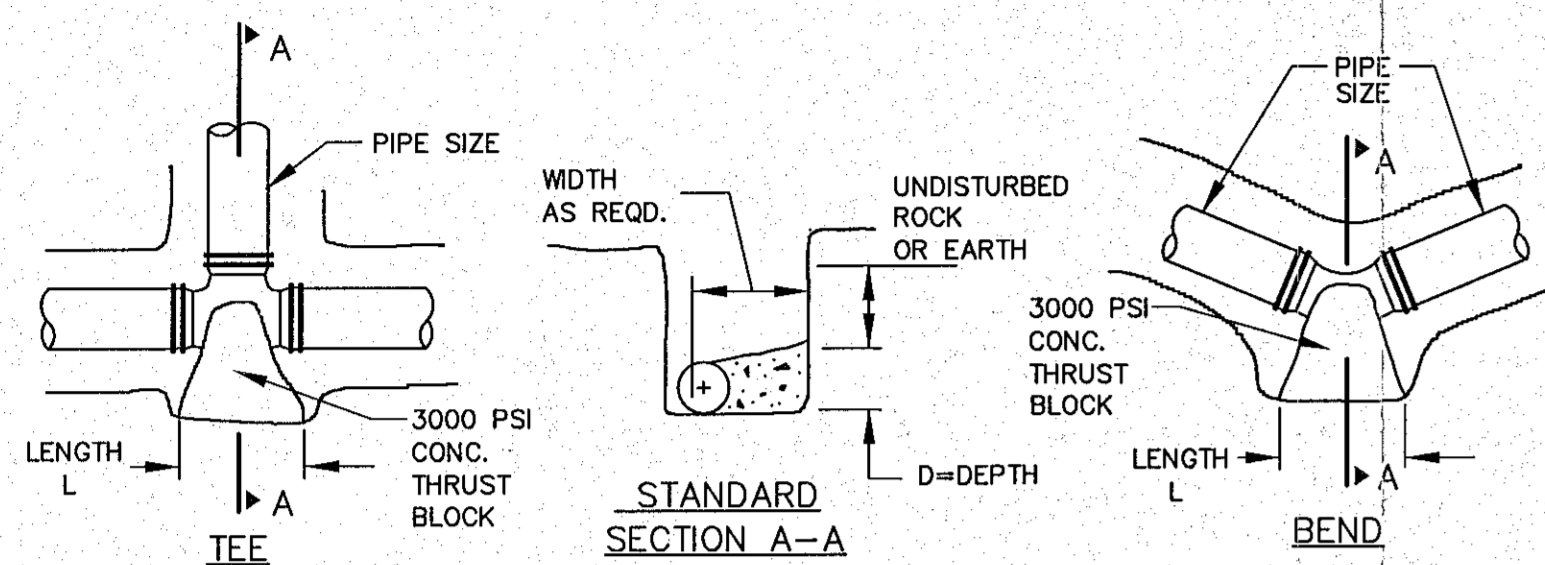
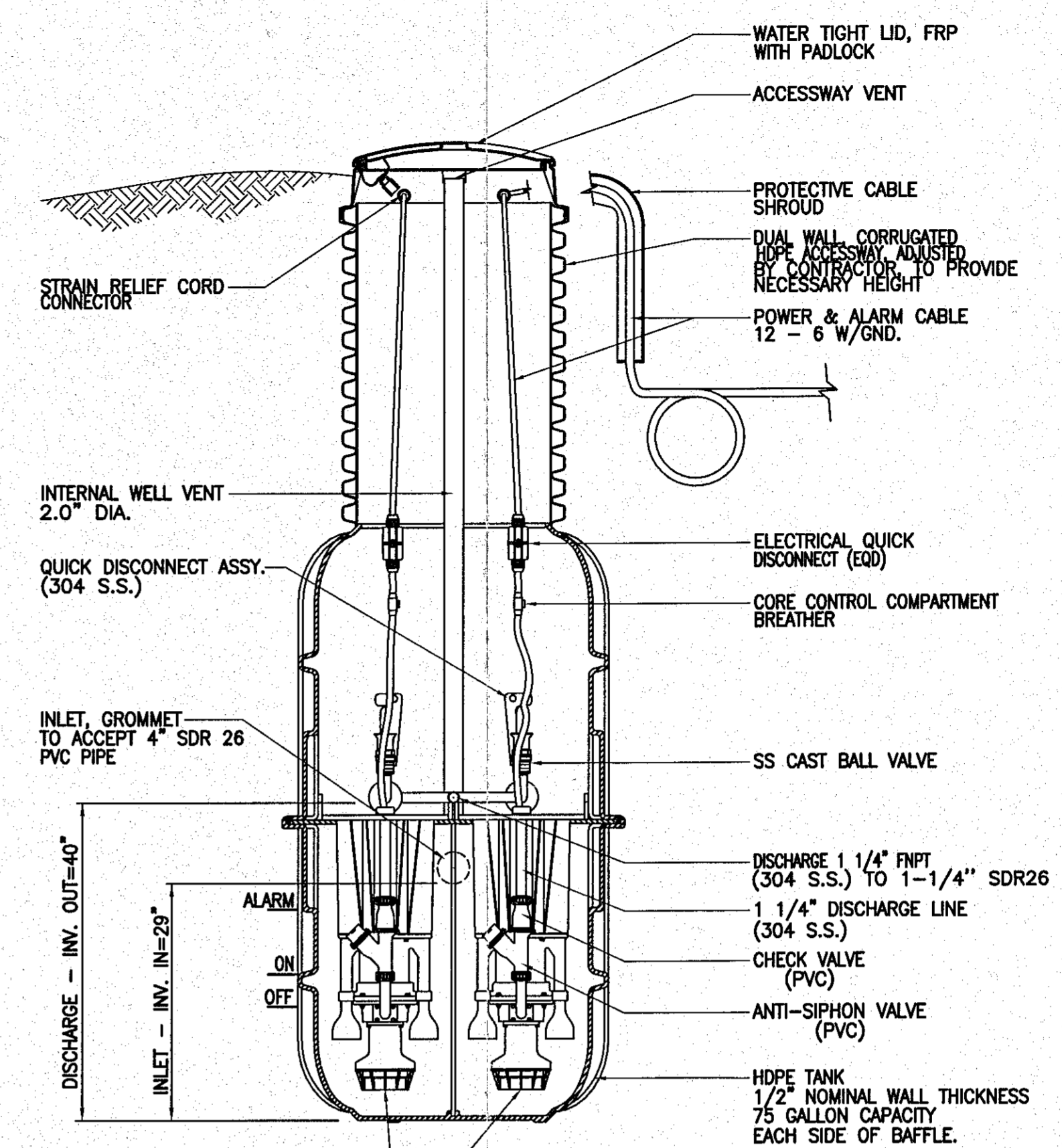


REQUIRED BEARING AREAS & DIMENSIONS FOR CONCRETE THRUST BLOCKS										
PIPE SIZE (IN.)	TEE (See Note 5)		90°(1/4)BEND		45°(1/8)BEND		22-1/2°(1/16)BEND		11-1/4°(1/32)BEND	
	AREA Sq.Ft.	Dimen. D x L	AREA Sq.Ft.	Dimen. D x L	AREA Sq.Ft.	Dimen. D x L	AREA Sq.Ft.	Dimen. D x L	AREA Sq.Ft.	Dimen. D x L
3 & 4	1.4	1.0 x 1.5	2.0	1.0 x 2.0	1.1	1.0 x 1.5	0.6	0.5 x 1.5	0.3	0.5 x 1.0
6	3.2	1.5 x 2.5	4.5	2.0 x 2.5	2.4	1.5 x 2.0	1.2	1.0 x 1.5	0.6	1.5 x 1.5
8	5.7	2.0 x 3.0	8.0	2.0 x 4.0	4.3	2.0 x 2.5	2.2	1.5 x 1.5	1.1	1.0 x 1.5
12	12.7	3.5 x 3.5	18.0	4.0 x 4.5	9.7	2.5 x 4.0	5.0	2.0 x 2.5	2.5	1.5 x 2.0
14	24.6	6.0 x 4.5	24.6	6.0 x 4.5	13.3	3.5 x 4.0	6.8	2.0 x 3.5	3.4	1.5 x 2.5
20	50.0	6.0 x 8.5	50.0	6.0 x 8.5	27.0	5.0 x 5.5	13.8	3.5 x 4.0	6.9	2.5 x 3.0
24	72.0	8.0 x 9.0	72.0	8.0 x 9.0	39.0	5.0 x 8.0	20.0	4.0 x 5.0	10.0	3.0 x 3.5



3 TYPICAL WATER MAIN TRENCH SCALE: NTS



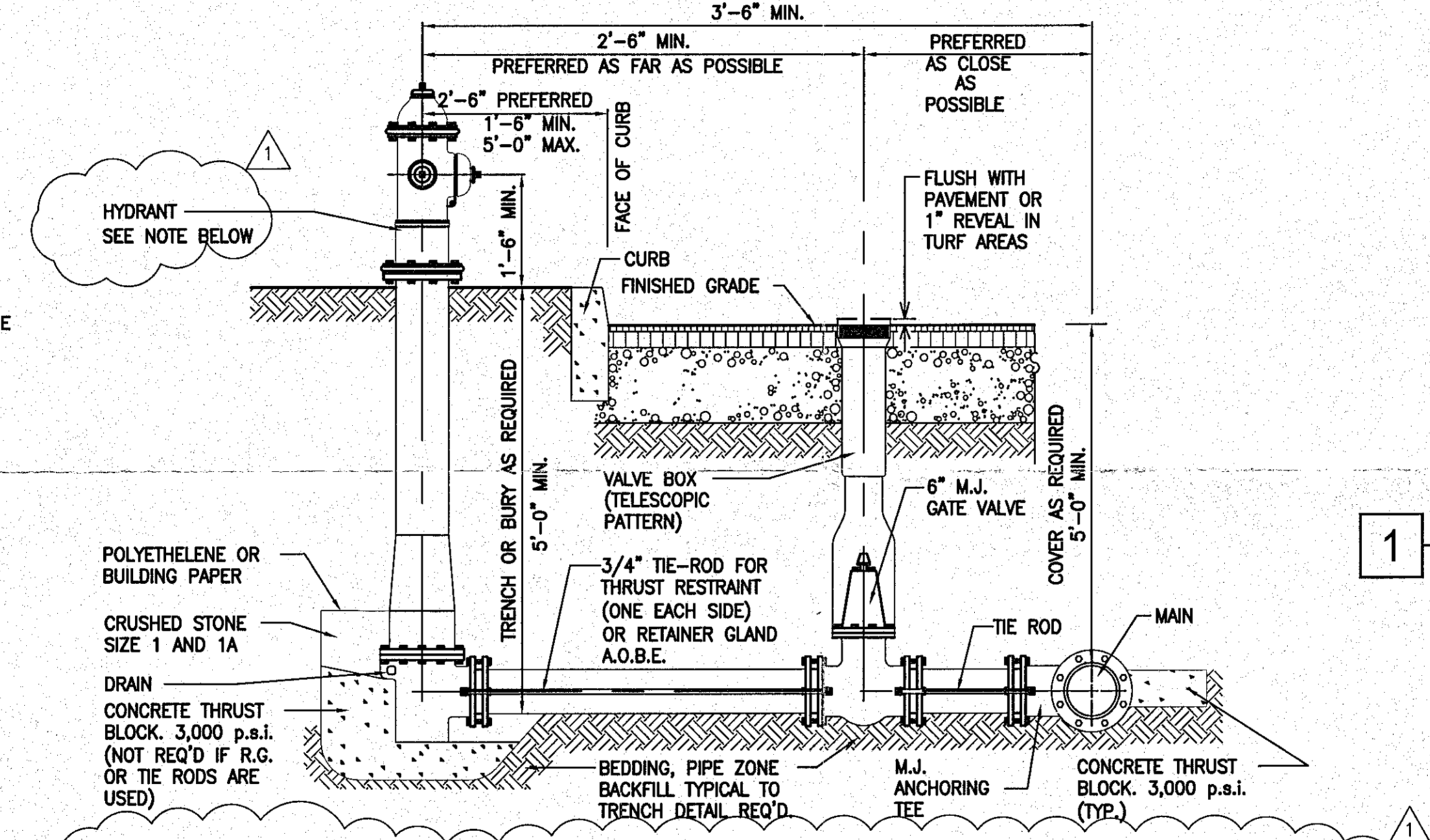
1 DUPLEX PUMP STATION SCALE: NTS

THRUST BLOCK NOTES

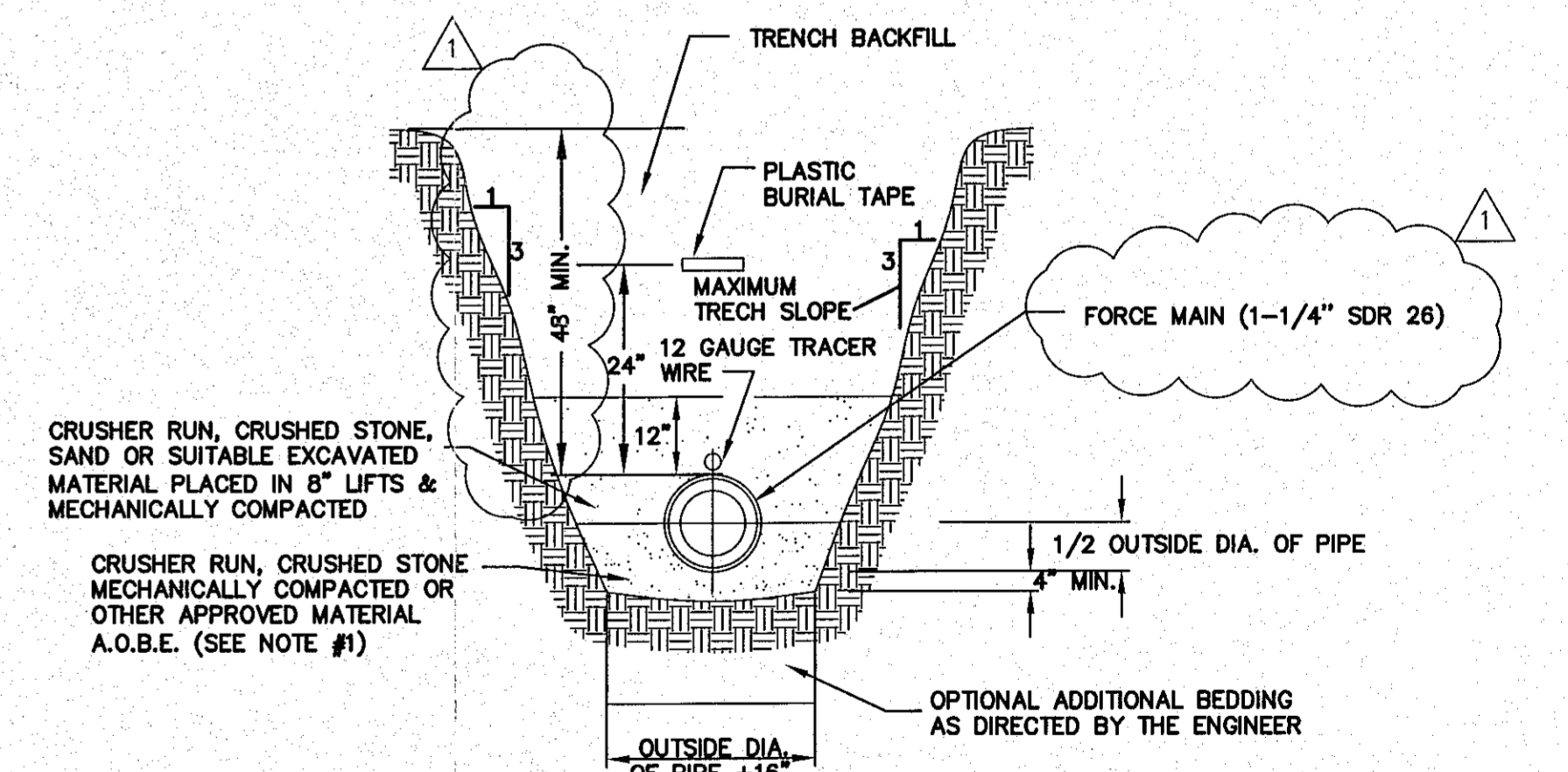
- FOR REQUIRED BEARING AREA DIMENSIONS D & L SEE TABLE. DIMENSIONS OF D & L OTHER THAN THOSE SHOWN IN THE TABLE MAY BE USED PROVIDED THEY YIELD A BEARING AREA EQUAL TO OR LARGER THAN THAT REQUIRED.
- CONCRETE NOT TO OVERLAP ANY JOINT.
- CONCRETE TO BE PLACED SO AS NOT TO INTERFERE WITH REMOVING OR INSTALLING ANY OF THE JOINTING HARDWARE.
- APPROXIMATE VOLUME OF CONCRETE THRUST BLOCK:

$$V = \frac{LD(W+ID) - ID^3}{8}$$
 WHERE:
 V = VOLUME IN CUBIC YARDS
 L = LENGTH OF BLOCK IN FEET
 D = DEPTH OF BLOCK IN FEET
 W = WIDTH OF BLOCK IN FEET
 ID = INSIDE DIAMETER OF PIPE IN FEET
- VALUES FOR TEE ALSO APPLY TO END PLUGS, CAPS, AND TAPPING SLEEVES.
- REQUIRED BEARING AREAS ARE DUE TO THRUSTS CAUSED BY 150 PSI WORKING PRESSURE PLUS 50%(75 PSI) SURGE ALLOWANCE RESULTING IN 225 PSI TOTAL INTERNAL PRESSURE. NORMAL PIPE DIAMETER USED.
- REQUIRED BEARING AREAS ARE BASED ON ALLOWABLE SOIL BEARING CAPACITY OF 2000 LBS. PER SQUARE FOOT FOR SAND. DUE TO OTHER SOIL CONDITIONS ENCOUNTERED, BEARING AREAS MAY BE MODIFIED BY THE ENGINEER.
- IN MUCK, PEAT, OR RECENTLY PLACED FILL ALL THRUST SHALL BE RESISTED BY PILES OR THE RODS TO SOLID FOUNDATIONS, OR BY REMOVAL OF SUCH UNSTABLE MATERIAL AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THE THRUSTS, ALL AS REQUIRED BY THE ENGINEER.

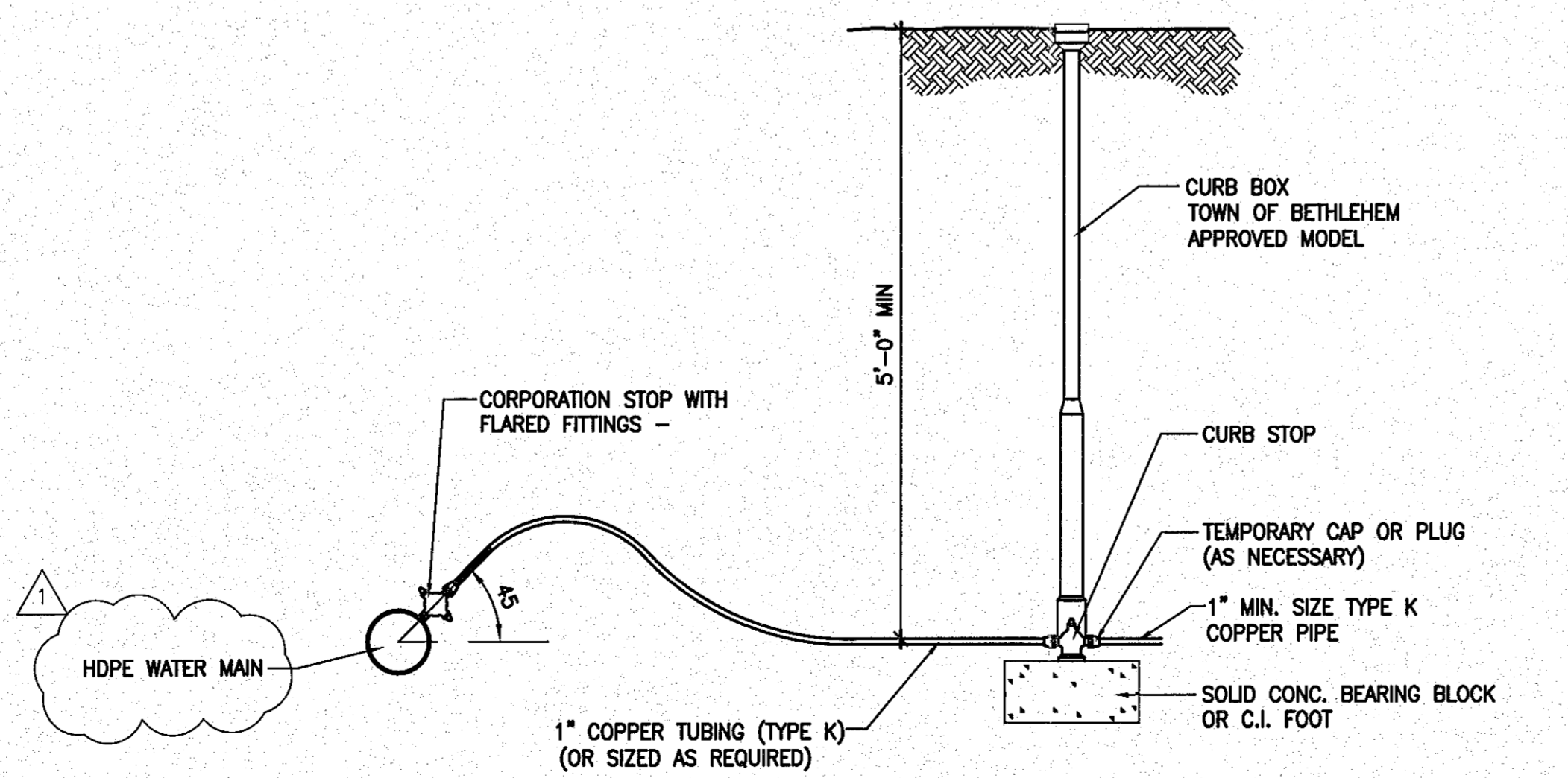
6 THRUST BLOCK SCALE: NTS



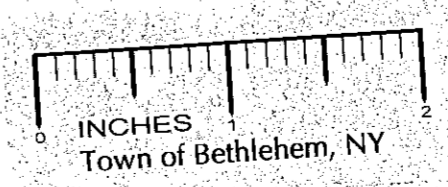
4 WATER VALVE AND HYDRANT DETAIL SCALE: NTS



2 FORCE MAIN TRENCH DETAIL SCALE: NTS



5 WATER SERVICE SCALE: NTS



PLANNING BOARD
 TOWN OF BETHLEHEM
 ALBANY COUNTY, NEW YORK
 This Site Plan Approved:
George J. ...
 Title: *Chairman*
 Date: *March 16, 2012*

