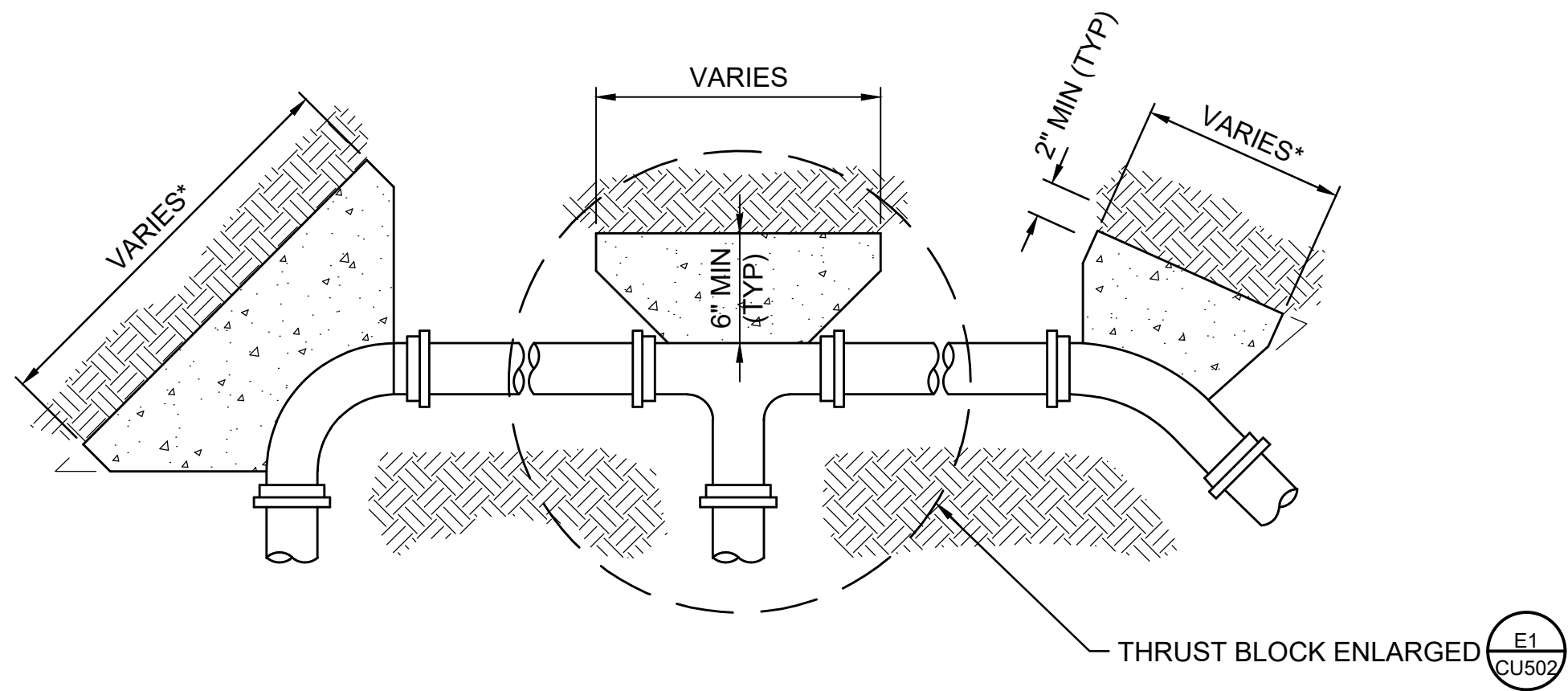




THRUST BLOCK BEARING AREA (SQ FT)					
FITTING SIZE	TEE & END	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
6	4.52	6.40	3.46	1.77	0.89
3	2.01	2.84	1.54	0.78	0.39

*AREAS BASED ON PIPE WORKING PRESSURE OF 92 PSI, AND 200 PSI TEST PRESSURE WITH A SOIL BEARING PRESSURE OF 2,500 PSF AND FACTOR OF SAFETY OF 2.0.

**PER NFPA 24, PARAGRAPH 10.10.2.2.1 : ALL PIPING AND ATTACHED APPURTENANCES SUBJECTED TO SYSTEM WORKING PRESSURE MUST BE HYDROSTATICALLY TESTED AT GAUGE PRESSURE OF 200 PSI OR 50 PSI IN EXCESS OF THE SYSTEM WORKING PRESSURE WHICHEVER IS GREATER AND MUST MAINTAIN THE PRESURE WORKING AT GAUGE PRESSURE OF -- 5 PSI FOR 2 HOURS.

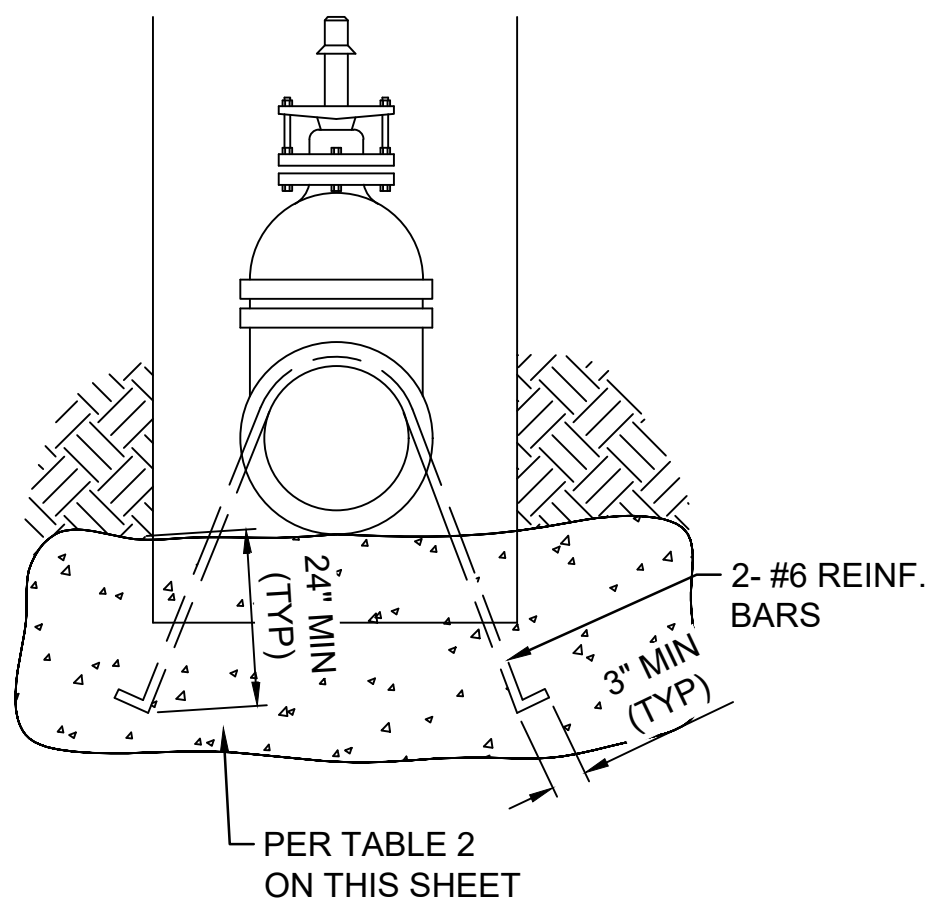
H1 HORIZONTAL THRUST BLOCK - PLAN

SCALE: NTS



E1 THRUST BLOCK - ENLARGED PLAN

SCALE: NTS

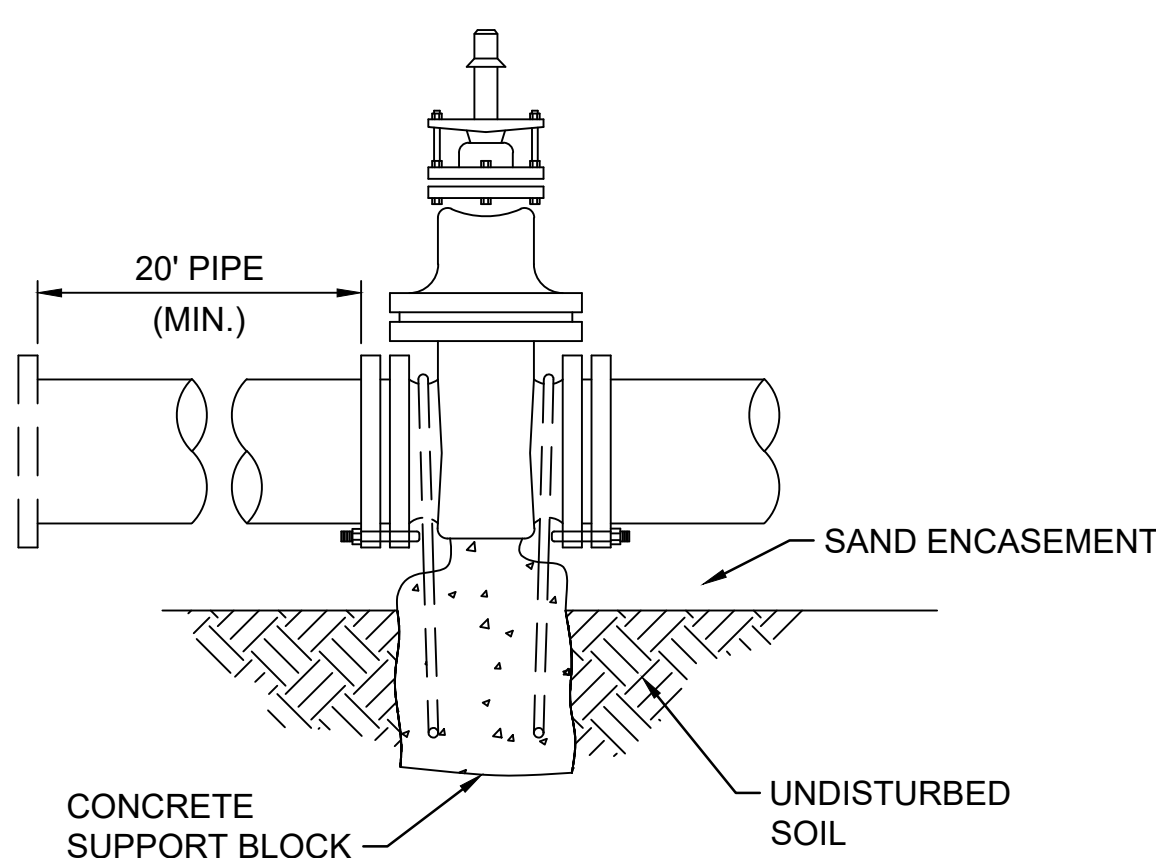


A1 ANCHOR VALVE ASSEMBLY

SCALE: NTS

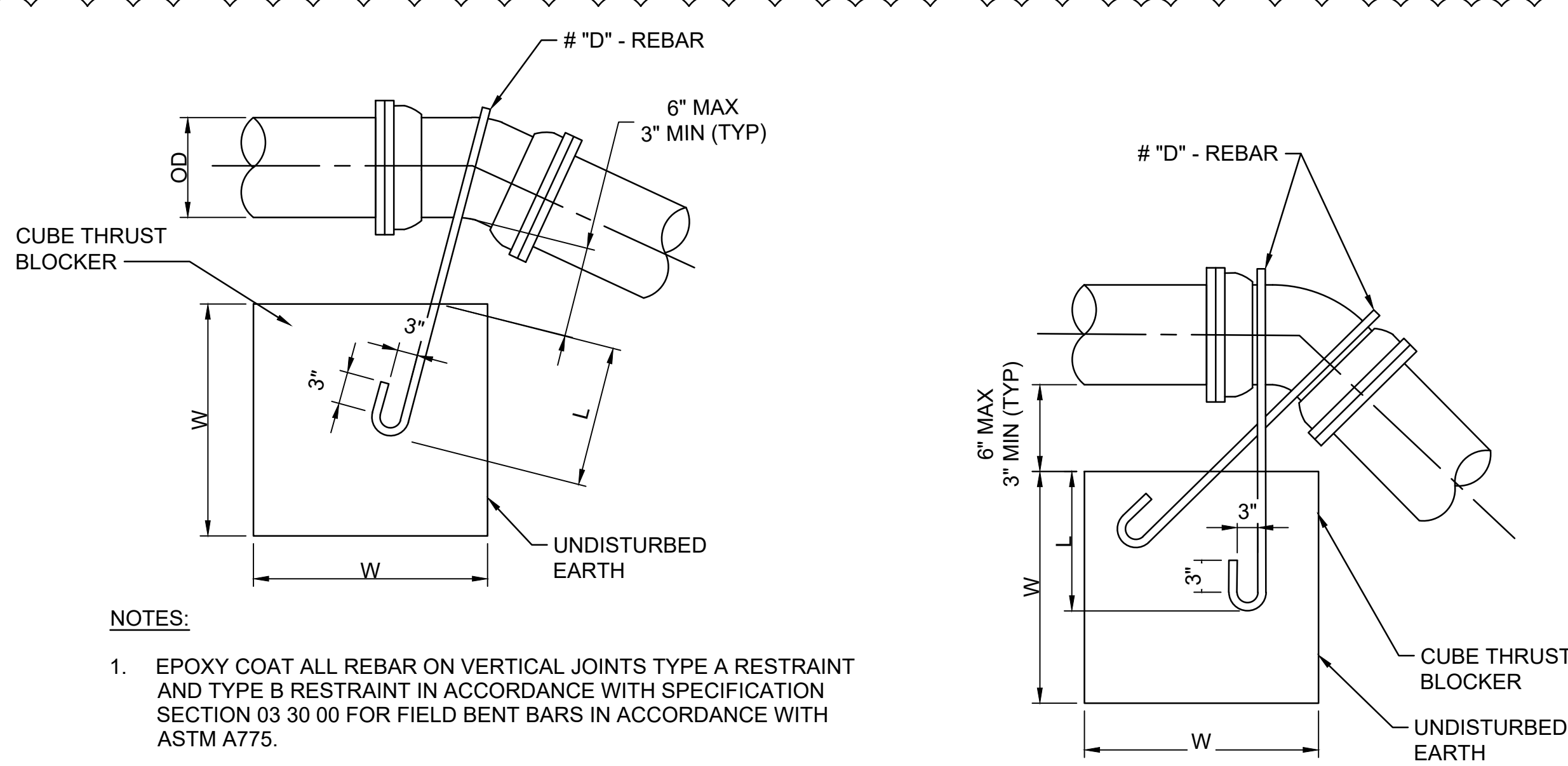
E6 THRUST BLOCK - SECTION

SCALE: NTS



A6 ANCHOR VALVE ASSEMBLY - ELEVATION

SCALE: NTS



NOTES:

- EPOXY COAT ALL REBAR ON VERTICAL JOINTS TYPE A RESTRAINT AND TYPE B RESTRAINT IN ACCORDANCE WITH SPECIFICATION SECTION 03 30 00 FOR FIELD BENT BARS IN ACCORDANCE WITH ASTM A775.
- FIELD REPAIR ANY DAMAGE TO THE FACTORY COATING DURING TRANSPORT, STORAGE, OR INSTALLATION, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

J12 TYPE A RESTRAINT FOR 11.25° & 22.50° VERT BENDS

SCALE: NTS

J16 TYPE B RESTRAINT FOR 45° VERT BENDS

SCALE: NTS

TABLE 2: VERTICAL JOINT RESTRAINTS								
DEG BEND	PIPE DIA	THRUST (lbs)*	CONCRETE (CF)	CONCRETE (CY)	BLOCK SIZE (ft) (W)	BLOCK SIZE TO NEAREST 0.25 (ft) (W)	BAR DIA (D)	EMBEDMENT (ft) (L)
45	6"	5724	38.16	1.41	3.37	3.50	#5	2.0
	3"	2771	18.47	0.68	2.64	2.75	#5	2.0
22.5	6"	2918	19.45	0.72	2.69	2.75	#5	2.0
	3"	1413	9.42	0.35	2.11	2.25	#5	2.0
11.25	6"	1466	9.77	0.36	2.14	2.25	#5	2.0
	3"	710	4.73	0.18	1.68	1.75	#5	2.0

*AREAS BASED ON PIPE WORKING PRESSURE OF 92 PSI, AND 200 PSI TEST PRESSURE WITH A SOIL BEARING PRESSURE OF 2,500 PSF AND FACTOR OF SAFETY OF 2.0.

**PER NFPA 24, PARAGRAPH 10.10.2.2.1: ALL PIPING AND ATTACHED APPURTENANCES SUBJECTED TO SYSTEM WORKING PRESSURE MUST BE HYDROSTATICALLY TESTED AT GAUGE PRESSURE OF 200 PSI OR 50 PSI IN EXCESS OF THE SYSTEM WORKING PRESSURE WHICHEVER IS GREATER AND MUST MAINTAIN THE PRESSURE WORKING AT GAUGE PRESSURE OF -- 5 PSI FOR 2 HOURS.

E12 VERTICAL JOINT RESTRAINTS TABLE

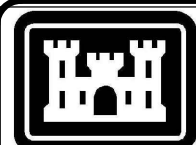
SCALE: NTS

GENERAL HORIZONTAL AND VERTICAL THRUST BLOCK NOTES:

- CONCRETE BLOCK AT VALVE TO HAVE SUFFICIENT BEARING IN UNDISTURBED SOIL TO PREVENT THRUST MOVEMENT.
- CONSTRUCT THE THRUST BLOCK SUCH THAT BOLTS, NUTS, AND OTHER MECHANICAL JOINT ACCESSORIES ARE KEPT CLEAR OF CONCRETE.
- BLOCK ALL VALVES AT DEAD ENDS AND AT OTHER LOCATIONS AS CALLED OUT ON THE PLANS AS SHOWN HERE.
- PLACE A NONPOROUS MATERIAL 8 MILS MIN VISQUEEN OR 15 LB MIN FELT BETWEEN THE FITTING AND CONCRETE THRUST BLOCK.
- DO NOT COVER JOINTS WITH CONCRETE. PROVIDE SUFFICIENT CLEARANCE BETWEEN CONCRETE AND FITTINGS FOR FUTURE MAINTENANCE.
- DOUBLE LAYER OF TAR PAPER BETWEEN CONCRETE BLOCK AND PLUG TO PERMIT EASY REMOVAL FOR FUTURE EXTENSION OF WATER MAIN WHERE REQUIRED.
- EPOXY COAT ALL REBAR USED ON THRUST BLOCKS IN ACCORDANCE WITH SPECIFICATION SECTION 03 30 00.

A12 GENERAL HORIZONTAL AND VERTICAL THRUST BLOCK NOTES

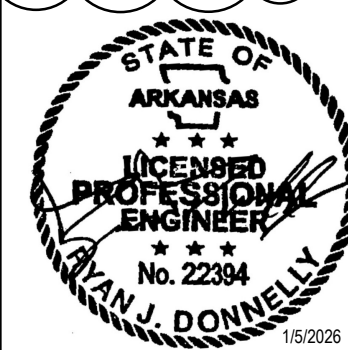
SCALE: NTS



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of Engineers ®

DATE	DESCRIPTION	MARK
JAN 2026	AM002 - REMOVED CATHODIC PROTECTION	1
JUL 2025	READY-TO-ADVERTISE (RTA) SUBMITTAL	0

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DRAWN BY: R. DONNELLY	FILE NAME: 165436.dwg	
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SUBMITTED BY: B. STREEBIN		
US ARMY CORPS OF ENGINEERS LITTLE ROCK DISTRICT LITTLE ROCK, ARKANSAS		
BURNS AND McDONNELL 9400 WARD PARKWAY KANSAS CITY, MO. 64114 165436		



F-35: SPECIAL ACCESS PROGRAM FACILITY
EBBING AIR NATIONAL GUARD BASE (ANGB), FORT SMITH, ARKANSAS

UTILITY DETAILS

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