NOTES:
1. ALL DOWNWARD CONCAVE BENDS MUST EITHER BE CONNECTED TO A CONCRETE THRUST BLOCK AT LEAST AS LARGE AS INDICATED IN TABLE 1, BE CONNECTED TO RESTRAINED PIPE FOR THE MINIMUM DISTANCE GIVEN IN TABLE 2, OR A COMBINATION OF THE TWO. EXAMPLE OF COMBINATION: 45 DEGREE BEND IN 16" PIPE 16" FROM ANOTHER CONCAVE DOWNWARD BEND AND 4 STICKS (18" EACH) FROM NEAREST UNRESTRAINED JOINT. IF NOT RESTRAINED, THE VOLUME OF THE REQUIRED THRUST BLOCK WOULD BE 6.8 CU. YARDS. AS GIVEN BY TABLE 1. HOWEVER, SINCE THERE IS A RESTRAINED LENGTH "D" = (1/2 x 16" + 4 x 18") = 80 FT, THE SPACE OF THE BLOCK CAN BE REDUCED. THIS REDUCTION IS GIVEN BY THE LAST COLUMN OF TABLE 2 TO BE 8 x 0.59 CU. YARDS = 4.7 CU. YARDS. SO THAT THE BLOCK NEEDS TO BE ONLY 6.9 - 4.7 = 2.2 CU. YARDS.
2. THRUST BLOCKS SHALL BE POURED SO THAT JOINTS OF FITTINGS, INCLUDING ALL NUTS AND FOLLOWERS, REMAIN ACCESSIBLE.
3. CENTER OF MASS OF THRUST BLOCK MUST BE BELOW PIPE AND CONNECTED TO PIPE WITH TWO STEEL STRAPS. EACH STRAP IS TO HAVE A CROSS-SECTIONAL AREA OF AT LEAST 1/2 SQUARE INCH PER 4 CUBIC YARDS OF CONCRETE. IF STRAPS ARE NOT STAINLESS, PIPE AND STRAPS SHALL BE ISOLATED FROM DIRECT CONTACT WITH A PLASTIC INSULATOR.
4. REGARDLESS OF SIZE OF THRUST BLOCK, WATER PIPE JOINTS AT ANGLE MUST BE RESTRAINED.
5. CONCRETE THRUST BLOCKS SHALL BE 2500 P.S.I. AND ARE BASED ON 150 L.P.S.I. WATER PRESSURE. ALL OTHER CONDITIONS ARE SUBJECT TO THE ENGINEER'S REVIEW AND APPROVAL.
6. DEDUCTION D IS ALLOWED ONLY WHEN CONDITIONS LISTED IN NOTE 5 ARE MET. ENTIRE SECTION D IS BURIED AT LEAST 5' DEEP, AND PIPE IS BEDDED IN CLEAN SAND FOR ENTIRE LENGTH OF D.
7. THIS STANDARD APPLIES TO DOWNWARD CONCAVE ELBOWS. UPWARD CONCAVE ELBOWS SHALL HAVE THRUST BLOCKS AS SHOWN ON STANDARD 414B.
8. FIELD-LOCK GASKETS, MEGA-LUG COUPLINGS, AND FORD UNIPLANE COUPLINGS ARE THE ONLY APPROVED MEANS OF RESTRAINING JOINTS.
9. RESTRAINED LENGTHS USED IN PLACE OF THRUST BLOCKS IN STANDARDS 414A AND 414B MAY NOT OVERLAP.