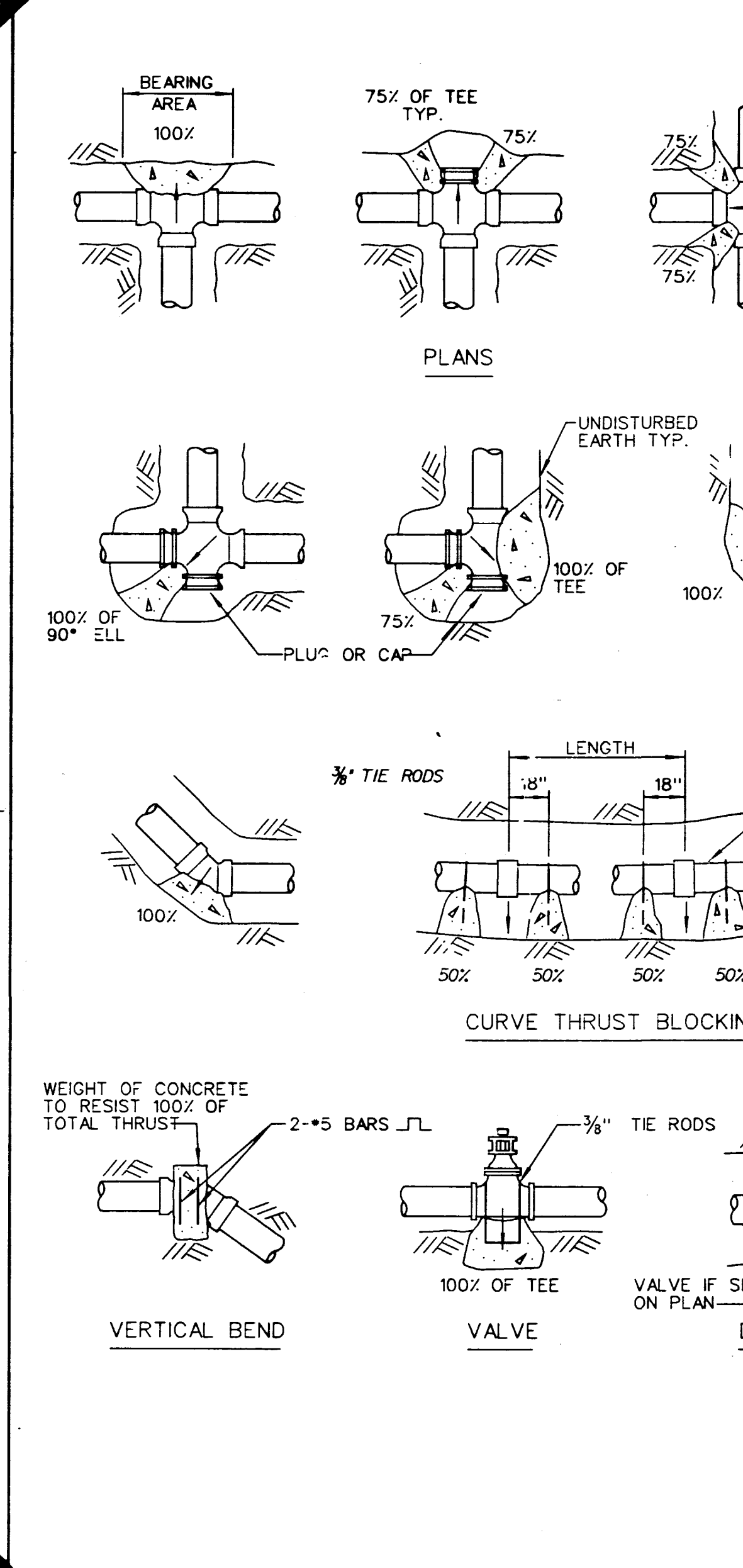
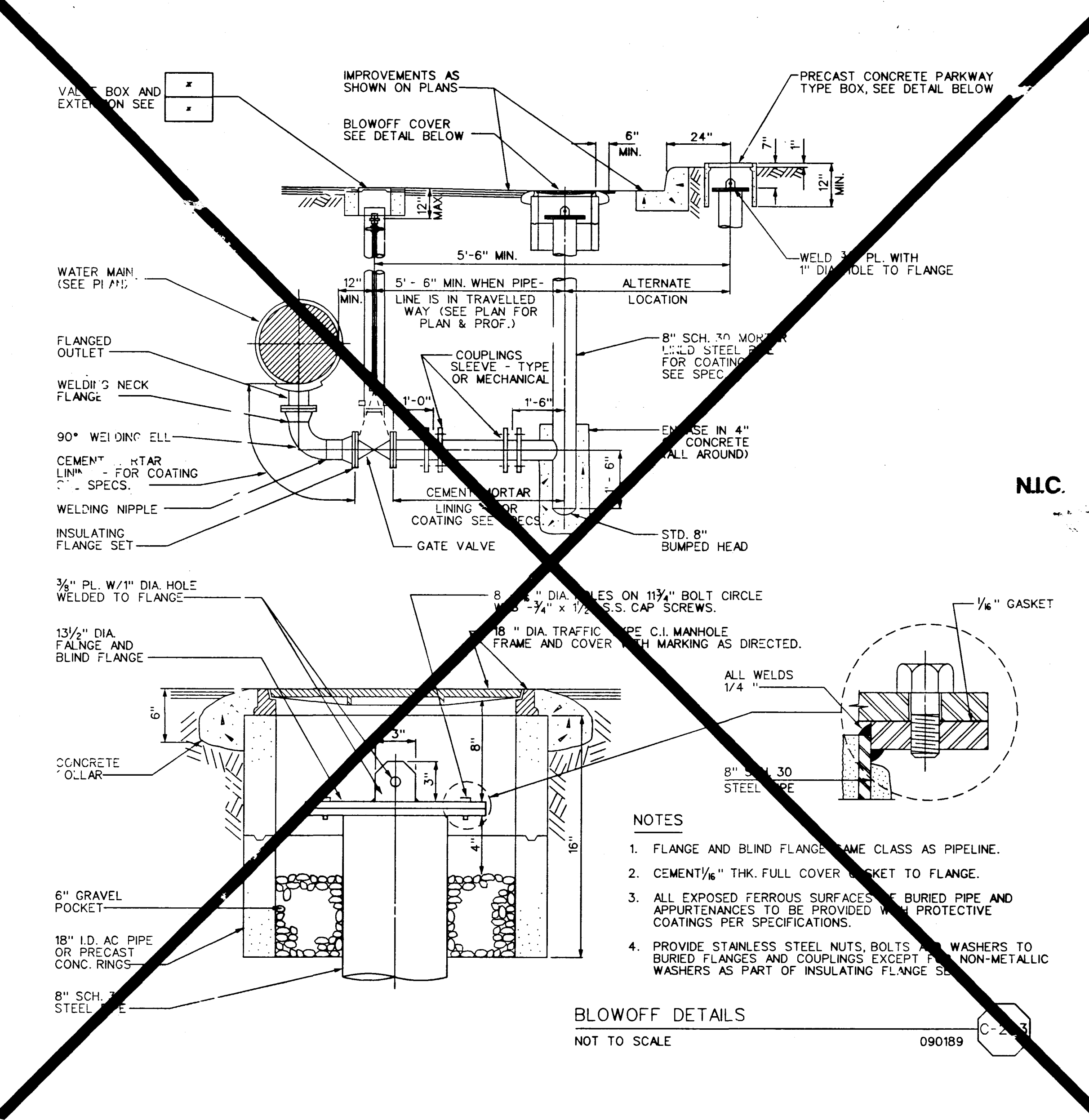
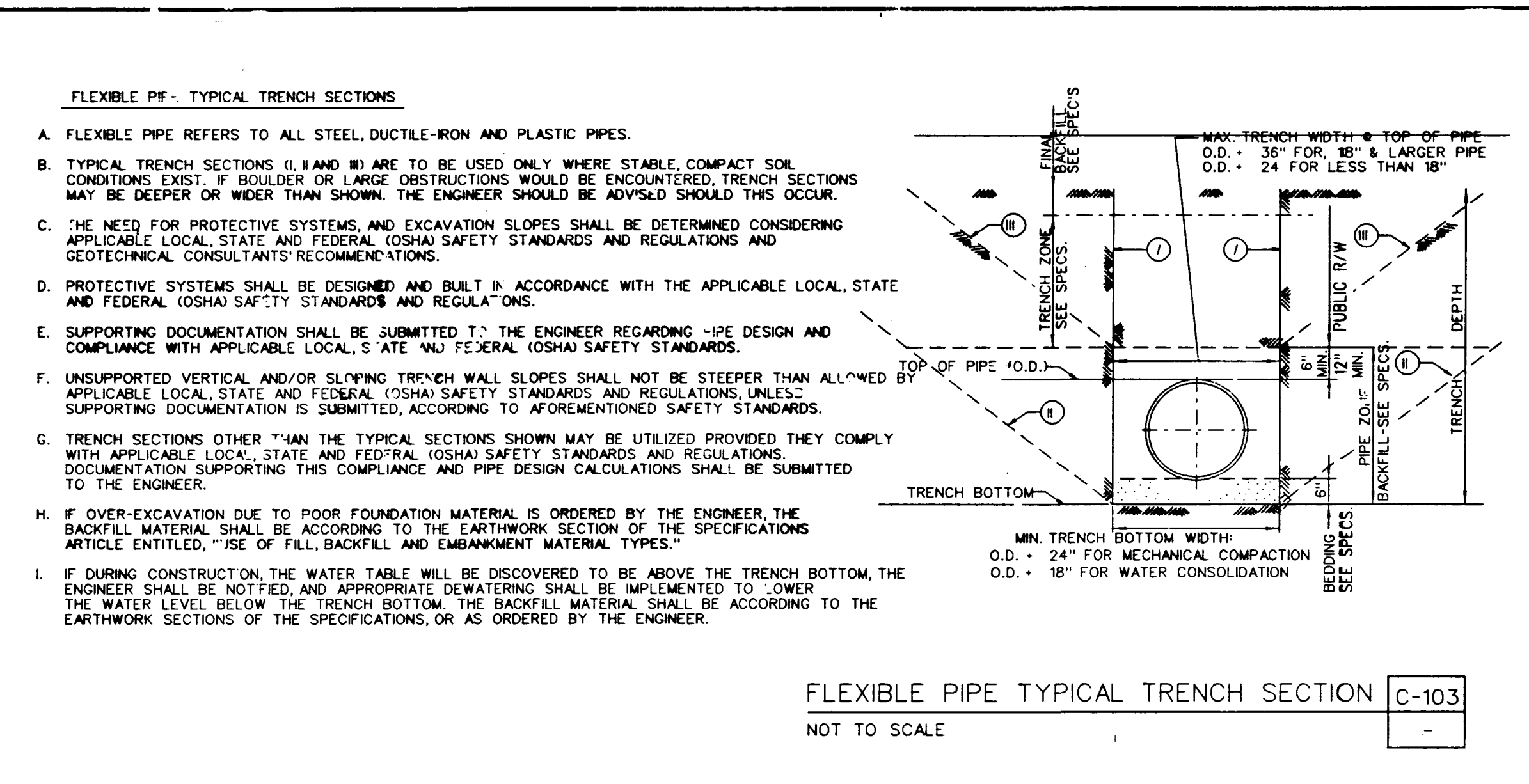
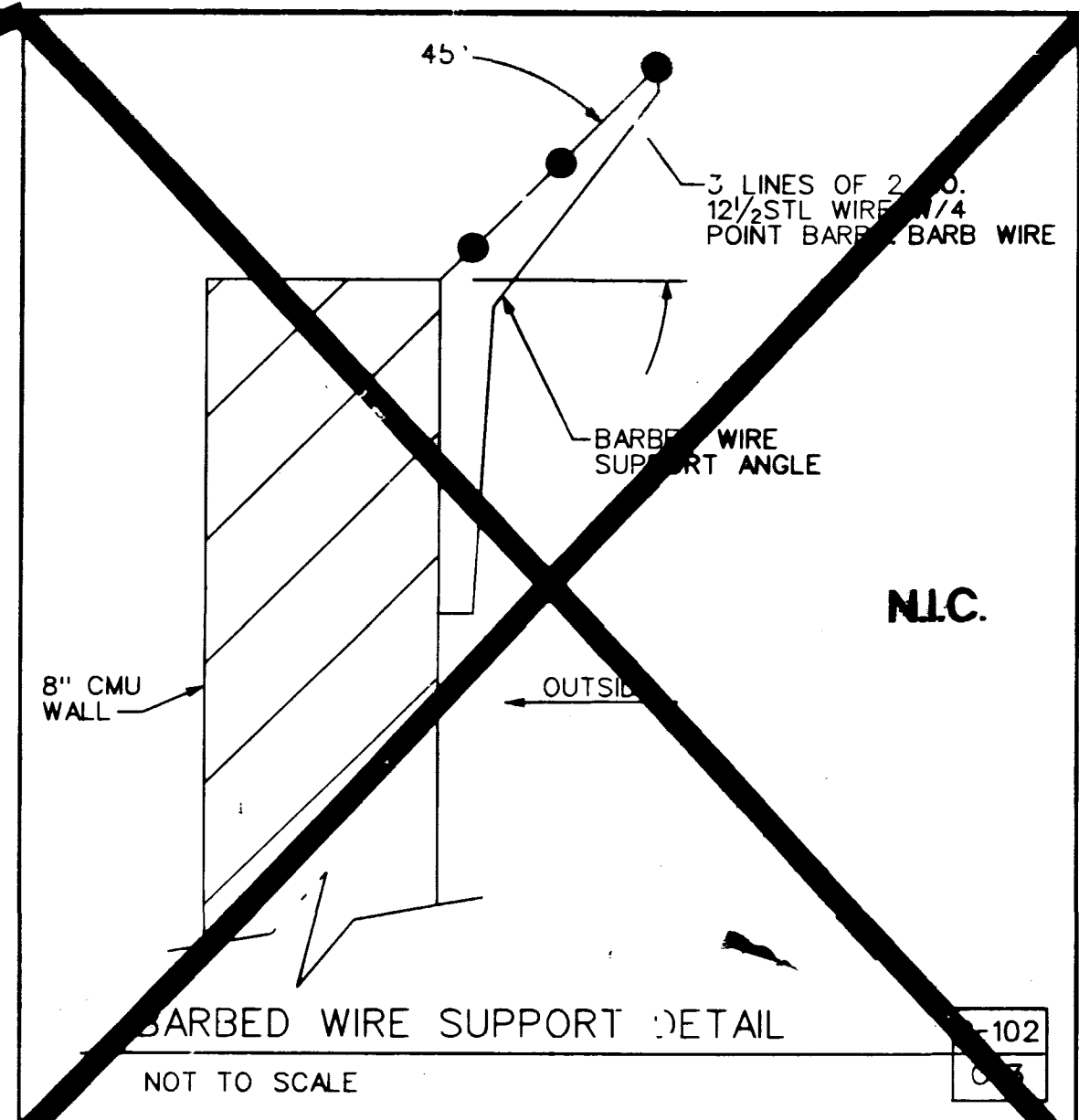
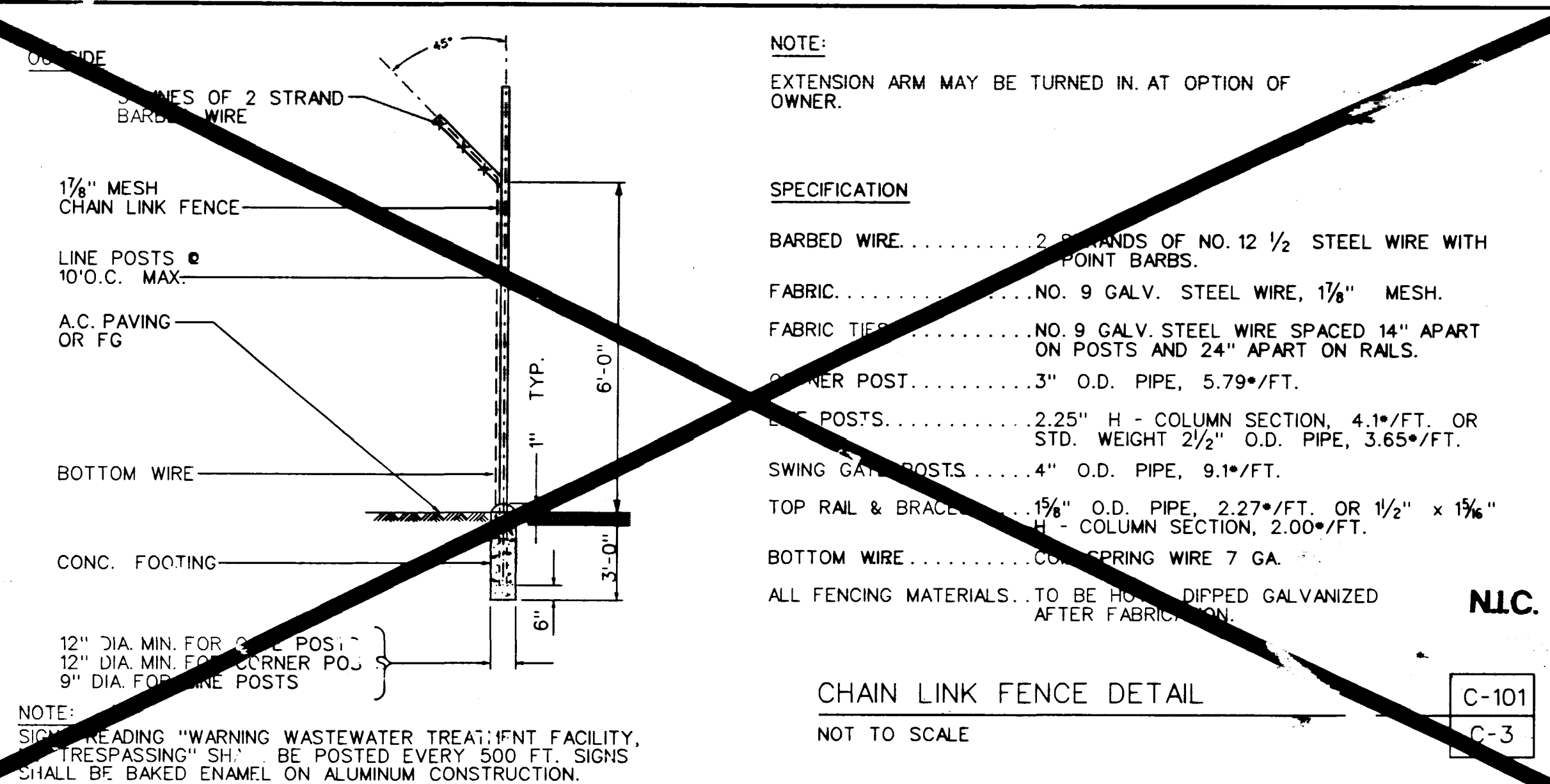


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THRUST PER PSI OF WATER PRESSURE AT VARIOUS FITTINGS

PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2° ELBOW
4	19	27	15	7
6	39	55	30	15
8	67	94	51	26
10	109	154	84	43
12	155	218	119	61
14	210	296	161	82
16	275	383	209	106
18	351	494	269	137
20	434	611	333	169
24	623	878	478	244

EXAMPLE:
8 INCH 90° ELBOW, PRESSURE = 200LB./ SQ. IN. FROM TABLE:
THRUST = 94 x 200 = 18,800 LBS.
ASSUME BEARING STRENGTH OF SOIL = 2000 LB./SQ. FT.
18,800 / 2000 = 9.4 SQ. FT. = AREA OF BEARING REQUIRED FOR THRUST BLOCK.

SIDE THRUST PERM 100 LB./SQ.IN. PRESSURE PER DEGREE OF DEFLECTION

PIPE SIZE	SIDE THRUST-1/2" PIPE	SIDE THRUST-1/2" PIPE	
4	35	14	377
6	72	16	486
8	122	18	665
10	197	20	790
12	278	24	1150

NOTES:

- IN USING THE ABOVE TABLES, USE THE MAXIMUM INTERNAL PRESSURE ANTICIPATED (i.e. HYDROSTATIC TEST PRESSURE, POSSIBLE SURGE PRESSURE DUE TO PUMP SHUT-OFF, ETC).
- SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL. IN THE ABSENCE OF A SOILS REPORT, AN AVERAGE SOIL (SPADABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 3000 P.S.F.
- THRUST BLOCKS ARE NOT REQUIRED ON P.V.C. PIPE WITH SOLVENT WELDED JOINTS.
- CONCRETE FOR THRUST BLOCKS TO BE 3000 P.S.I. AT 28 DAYS.
- ARROWS (→) INDICATE THRUST DIRECTION
- FIGURE (100%) AT THRUST BLOCK INDICATES PERCENT OF TOTAL THRUST TO BE APPLIED FOR BEARING AREA.

GENERAL NOTES:

- THE FOLLOWING NOTES ARE APPLICABLE TO THE INSTALLATION OF THE 12" RAW WATER EFFLUENT (REW) AND THE 12" SANITARY SEWER (SS) INFLUENT LINES.
- PORTIONS OF THE FOLLOWING DRAWINGS (AS INDICATED) APPLY TO THE INSTALLATION OF REW & SS LINES: GC-2, GC-3, GC-5, C-5, C-6, C-7, C-8 & GM-1.
- BENCH MARK:** CITY OF LAS VEGAS BENCHMARK NO. 2LV012556, EL. 1316.16 NAVD83, RIVET & PLATE IN TOP OF CURB, NE RETURN OF MOJAVE ROAD AT FREEDOM PARK ENTRANCE.
- BASE OF BEARING:** THE NORTH LINE OF THE NE 1/4 OF THE NE 1/4, SECTION 36, TOWNSHIP 20 SOUTH, RANGE 61 EAST, M.D.M., S87°00'48"E USED, ROTATE 01°12'19" TO MATCH S88°13'07"E AS SHOWN ON RECORD OF SURVEY, FILE 54, PAGE 36.
- THE 12" REW LINE SHALL CONFORM TO FINAL EFFLUENT (FE) PIPE MATERIALS AND SHALL BE DUCTILE IRON PIPE, GROUP NO. 26, AS SHOWN ON THE PIPING SCHEDULE ON DWG GM-1 (SEE SPECIFICATION SECTION 02585). END LINE AT STA. 13+20 (±) AND PROVIDE TEMPORARY END CAP.
- THE 12" SS LINE SHALL CONFORM TO SANITARY SEWER (SS) LINE MATERIALS AND SHALL BE PVC PIPE, GROUP NO. 27, AS SHOWN ON THE PIPING SCHEDULE ON DWG GM-1 (SEE SPECIFICATION SECTION 020). BEGIN LINE AT STA 0+05, & PROVIDE TEMPORARY END PLUG (INFLUENT WET WELL BY OTHERS)
- GATE NO. 4-G-3 IN THE 33" FLOW DIVERSION MANHOLE (DWG GC-5, DETAIL "A"), SHALL BE A MANUALLY OPERATED 12" WIDE x 18" HIGH FRP STOP GATE WITH HANDHOLE & ROUNDED BOTTOM. GATE SHALL BE DESIGNED FOR RAW SEWAGE SERVICE, SEATING HEAD OF 3 FT & UNSEATING HEAD OF 0 FT (SEE SPECIFICATION SECTION 15254).
- 33" FLOW DIVERSION MANHOLE SHALL BE PVC LINED, FLOCK OR EQUIVALENT, SIMILAR TO DETAIL "B" ON DWG 107-V2677, SHT. 13A. SUBMIT DETAIL DWG FOR APPROVAL.
- CONTRACTOR TO COORDINATE INSTALLATION OF REW & SS LINES WITH LOCATION OF RECENTLY INSTALLED SOUTH-WEST GAS MAIN, SERVICES & APPURTENANCES.
- TESTING AND DISINFECTION OF RELOCATED WATER LINES SHALL CONFORM TO SPECIFICATION SECTION 02543.

