DATA CHART

DESIGN	7-7-10	7-7-20	7-7-30	7-7-40	7-7-50	7-7-60	7-7-70	7-7-80
BARREL DIMENSIONS	S=7'; H=7'	S=7'; H=7'	S=7'; H=7'	S=7'; H=7'	[illegible]	[illegible]	S=7'; H=7'	S=7'; H=7'
T_1	7¼"	9"	10½"	11¾"	1'-1"	1'-2"	1'-2¾"	1'-3½"
T_2	9"	9"	9¾"	11"	[illegible]	1'-1"	1'-3¼"	1'-5"
BAR "A"	NO.6 @ 12"	2-NO.5 @ 12"	2-NO.6 @ 12"	2-NO.6 @ 12"	2-NO.[illegible] @ 11½"	NO.9 @ 1[illegible]	NO.9 @ 12"	NO.8 @ 12"
BAR "B"	NO.4 @ 12" E=1'-5", F=2'-2"	NO.5 @ 12" E=1'-2", F=2'-10"	NO.6 @ 12" E=1'-1", F=3'-3"	NO.6 @ 12" E=1'-1", F=2'-5"	NO.7 @ 11½" E=1'-1" F=[illegible]	NO.7 @ 12" E=1'-1" F=2'-9"	NO.[illegible] @ 12" E=1'-2", F=3'-7"	NO.9 @ 12" E=1'-4", F=3'-5"
BAR "C"	NO.5 @ 12" A=2'-8"	NO.5 @ 12" A=2'-6"	NO.4 @ 12" A=2'-6"	NO.5 @ 12" A=2'-7"	NO.4 @ 11½" A=2'-7¼"	NO.4 @ 12" A=2'-8½"	NO.5 @ 12" A=2'-10"	NO.6 @ 12" A=3'-8¾"
NO. BARS "D" IN TWO SLABS	28	28	28	28	28	28	28	28
BAR "E"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 11½"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"
NO. BARS "F" IN TWO WALLS	14	14	14	14	14	14	14	14
NO. BARS "G" IN TWO WALLS	12	12	12	12	12	12	12	12
BAR "H"	NO.6 @ 12"	NO.5 @ 12"	NO.4 @ 12"	NO.5 @ 12"	NO.4 @ 11½"	NO.7 @ 12"	NO.6 @ 12"	NO.6 @ 12"
NO. BARS "J" PER CORNER	0	0	1 @ 10"	2 @ 6¾"	3 @ 5½"	4 @ 4"	5 @ 3¾"	7 @ 2¾"
CU. YDS. CONCRETE PER FT.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
LB. REINF. STEEL PER FT.	121.863	140.33	170.65	190.54	196.09	247.94	274.59	348.71
MAX. HT. OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'

DESIGN	9-9-10	9-9-20	9-9-30	9-9-40	9-9-50	9-9-60	9-9-70	9-9-80
BARREL DIMENSIONS	S=9'; H=9'	S=9'; H=9'	S=9'; H=9'	S=9'; H=9'	S=9'; H=9'	S=9'; H=9'	S=9'; H=9'	S=9'; H=9'
T_1	9½"	11"	1'-1"	1'-2½"	1'-4"	1'-5½"	1'-6¼"	1'-7½"
T_2	9"	10¼"	1'-0"	1'-1½"	1'-3"	1'-4½"	1'-7"	1'-9½"
BAR "A"	NO.7 @ 12"	2-NO.6 @ 12"	NO.9 @ 12"	NO.9 @ 12"	2-NO.7 @ 11"	NO.9 @ 11	2-NO.[illegible] @ 12"	NO.10 @ 12"
BAR "B"	NO.4 @ 12" E=1'-4", F=2'-4"	NO.6 @ 12" E=1'-5", F=3'-4"	NO.7 @ 12" E=1'-4", F=[illegible]	NO.9 @ 12" E=1'-4", F=4'-2"	NO.8 @ 12" E=1'-4", F=4'-1"	NO.9 @ 11 E=1'-5", F=[illegible]	NO.9 @ 12" E=[illegible], F=4'-2"	NO.9 @ 12" E=1'-9", F=4'-0"
BAR "C"	NO.5 @ 12" A=2'-10½"	NO.5 @ 12" A=2'-10¼"	NO.5 @ 12" A=2'-10¾"	NO.4 @ 12" A=2'-11½"	NO.5 @ 12" A=3'-0½"	NO.5 @ 11 A=3'-1¾"	NO.6 @ 12" A=3'-3¾"	NO.7 @ 12" A=3'-6¾"
NO. BARS "D" IN TWO SLABS	32	32	32	32	32	32	32	32
BAR "E"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"
NO. BARS "F" IN TWO WALLS	18	18	18	18	18	18	18	18
NO. BARS "G" IN TWO WALLS	16	16	16	16	16	16	16	16
BAR "H"	NO.6 @ 12"	NO.5 @ 12"	NO.5 @ 12"	NO.4 @ 12"	NO.5 @ 12"	NO.5 @ [illegible]	NO.[illegible] @ 12"	NO.7 @ 12"
NO. BARS "J" PER CORNER	0	0	1 @ 9½"	3 @ 6½"	4 @ 4¾"	5 @ 4"	[illegible]	9 @ 2¾"
CU. YDS. CONCRETE PER FT.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
LB. REINF. STEEL PER FT.	159.82	209.00	253.64	296.82	[illegible]	392.88	440.58	506.0[illegible]
MAX. HT. OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'

DESIGN	7-5-10	7-5-20	7-5-30	7-5-40	7-5-50	7-5-60	7-5-70	7-5-80
BARREL DIMENSIONS	S=7'; H=5'	S=7'; H=5'	S=7'; H=5'	[illegible]	[illegible]	[illegible]	[illegible]	S=7'; H=5'
T_1	7"	8¾"	10½"	11¾"	1'-1"	1'-2"	1'-3"	1'-4"
T_2	9"	9"	9¾"	10½"	11½"	[illegible]	1'-1"	1'-1½"
BAR "A"	NO.6 @ 12"	NO.8 @ 12"	2-NO.6 @ 12"	NO.9 @ 12"	[illegible]	2-NO.7 @ 1[illegible]	2-NO.6 @ 12"	NO.9 @ 12"
BAR "B"	NO.4 @ 12" E=1'-4", F=2'-2"	NO.4 @ 12" E=1'-1", F=2'-5"	NO.5 @ 12" E=11", F=3'-3"	NO.6 @ 12" E=11", F=[illegible]	NO.7 @ 12" E=10", F=[illegible]	NO.7 @ 1[illegible] E=10", F=[illegible]	NO.9 @ 12" E=10", F=3'-11"	NO.9 @ 12" E=10", F=4'-[illegible]
BAR "C"	NO.5 @ 12" A=2'-7¼"	NO.6 @ 12" A=2'-5¼"	NO.5 @ 12" A=2'-4¾"	NO.5 @ 12" A=2'-4½"	NO.4 @ 12" A=2'-4½"	NO.4 @ 1[illegible] A=[illegible]	NO.4 @ 12" A=[illegible]	NO.4 @ 12" A=2'-4½"
NO. BARS "D" IN TWO SLABS	28	28	28	28	28	28	28	28
BAR "E"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"
NO. BARS "F" IN TWO WALLS	10	10	10	10	10	10	10	10
NO. BARS "G" IN TWO WALLS	8	8	8	8	8	8	8	8
BAR "H"	NO.6 @ 12"	NO.6 @ 12"	NO.5 @ 12"	NO.5 @ 12"	NO.4 @ [illegible]	[illegible]	[illegible]	NO.4 @ 12"
NO. BARS "J" PER CORNER	0	0	1 @ 10½"	2 @ 7"	3 @ 5"	4 @ 4½"	[illegible]	[illegible]
CU. YDS. CONCRETE PER FT.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
LB. REINF. STEEL PER FT.	[illegible]	130.63	155.2638	189.45	[illegible]	241.69	285.52	309.37
MAX. HT. OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'

DESIGN	9-8-10	9-8-20	9-8-30	9-8-40	9-8-50	9-8-60	9-8-70	9-8-80
BARREL DIMENSIONS	S=9'; H=8'	S=9'; H=8'	S=9'; H=8'	S=9'; H=8'	[illegible]	S=9'; H=8'	S=9'; H=8'	S=9'; H=8'
T_1	9"	11"	1'-1"	1'-2½"	1'-4"	1'-5¼"	1'-6½"	1'-7½"
T_2	9"	10½"	11¾"	1'-1"	1'-2½"	1'-3½"	1'-5½"	1'-7½"
BAR "A"	NO.7 @ 12"	2-NO.6 @ 12"	NO.9 @ 12"	2-NO.7 @ 12"	2-NO.8 @ 12"	NO.10 @ 11	2-NO.8 @ 12"	2-NO.8 @ 12"
BAR "B"	NO.5 @ 12" E=1'-5", F=3'-5"	NO.6 @ 12" E=1'-4", F=3'-6"	NO.7 @ 12" E=1'-3", F=4'-1"	NO.7 @ 12" E=1'-3", F=4'-0"	NO.6 @ 12" E=1'-3", F=[illegible]	NO.8 @ 11½ E=1'-2", F=[illegible]	NO.8 @ 12" E=1'-4", F=[illegible]	NO.8 @ 12" E=1'-5", F=3'-8"
BAR "C"	NO.4 @ 12" A=2'-9¾"	NO.5 @ 12" A=2'-9"	NO.4 @ 12" A=2'-9⅞"	NO.5 @ 12" A=2'-9⅞"	NO.7 @ 12" A=2'-10¼"	NO.5 @ 11½ A=2'-11⅝"	NO.6 @ 12" A=3'-0¾"	NO.8 @ 12" A=3'-2⅞"
NO. BARS "D" IN TWO SLABS	30	30	30	30	30	30	30	30
BAR "E"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 11½	NO.4 @ 12"	NO.4 @ 12"
NO. BARS "F" IN TWO WALLS	16	16	16	16	16	16	16	16
NO. BARS "G" IN TWO WALLS	14	14	14	14	14	14	14	14
BAR "H"	NO.5 @ 12"	NO.5 @ 12"	NO.4 @ 12"	NO.5 @ 12"	[illegible]	[illegible]	[illegible]	NO.8 @ 12"
NO. BARS "J" PER CORNER	0	0	1 @ 10"	3 @ 6½"	4 @ 5"	[illegible]	[illegible]	8 @ 3"
CU. YDS. CONCRETE PER FT.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
LB. REINF. STEEL PER FT.	154.71	202.23	236.68	289.17	344.38	370.27	419.38	493.36
MAX. HT. OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'

DESIGN	10-9-10	10-9-20	10-9-30	10-9-40	10-9-50	10-9-60	10-9-70	10-9-80
BARREL DIMENSIONS	S=10'; H=9'	S=10'; H=9'	S=10'; H=9'	S=10'; H=9'	S=10'; H=9'	S=10'; H=9'	S=10'; H=9'	S=10'; H=9'
T_1	9½"	1'-0"	1'-1½"	1'-4"	1'-5½"	1'-7"	1'-8½"	1'-9½"
T_2	9"	11"	1'-0¾"	1'-2½"	1'-3¾"	1'-5½"	1'-7½"	1'-9½"
BAR "A"	NO.7 @ 12"	2-NO.7 @ 12"	2-NO.7 @ 12"	2-NO.7 @ 12"	2-NO.8 @ 12"	2-NO.8 @ 12"	2-NO.9 @ 12"	NO.11 @ 12"
BAR "B"	NO.6 @ 12" E=1'-7", F=3'-3"	NO.6 @ 12" E=1'-6", F=3'-8"	NO.7 @ 12" E=1'-6", F=3'-11"	NO.8 @ 12" E=1'-6", F=4'-4"	NO.8 @ 12" E=1'-5", F=4'-8"	NO.8 @ 12" E=1'-5", F=4'-10"	NO.9 @ 12" E=1'-6", F=5'-2"	NO.10 @ 12" E=1'-7", F=6'-0"
BAR "C"	NO.4 @ 12" A=3'-0"	NO.6 @ 12" A=2'-10"	NO.6 @ 12" A=3'-0"	NO.5 @ 12" A=3'-1"	NO.6 @ 12" A=3'-1"	NO.6 @ 12" A=3'-4"	NO.6 @ 12" A=3'-3"	NO.5 @ 12" A=3'-0"
NO. BARS "D" IN TWO SLABS	30	30	30	30	30	30	30	30
BAR "E"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"	NO.4 @ 12"
NO. BARS "F" IN TWO WALLS	18	18	18	18	18	18	18	18
NO. BARS "G" IN TWO WALLS	16	16	16	16	16	16	16	16
BAR "H"	NO.5 @ 12"	NO.6 @ 12"	NO.6 @ 12"	NO.5 @ 12"	NO.6 @ 12"	NO.6 @ 12"	NO.6 @ 12"	NO.5 @ 12"
NO. BARS "J" PER CORNER	0	0	2 @ 9½"	3 @ 6½"	5 @ 4½"	7 @ 4"	9 @ 3½"	10 @ 3"
CU. YDS. CONCRETE PER FT.	1.1658	1.4969	1.7280	2.0410	2.2480	2.4775	2.7297	3.0064
LB. REINF. STEEL PER FT.	182.60	261.43	301.39	327.47	396.80	420.15	480.73	537.17
MAX. HT. OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'

DESIGN	9-6-10	9-6-20	9-6-30	9-6-40	9-6-50	9-6-60	9-6-70	9-6-80
BARREL DIMENSIONS	S=9'; H=6'	S=9'; H=6'	S=9'; H=6'	S=9'; H=6'	S=9'; H=6'	S=9'; H=6'	S=9'; H=6'	S=9'; H=6'
T_1	8¼"	11¼"	13¼"	15"	16¼"	17¾"	19"	20"
T_2	8¼"	10½"	12½"	14¼"	16¼"	18"	20"	22"
BAR "A"	NO 7 @ 12"	2 NO 6 @ 12"	2 NO 6 @ 12"	2 NO 7 @ 12"	2 NO 7 @ 12"	2 NO 7 @ 12"	2 NO 7 @ 12"	2 NO 8 @ 12"
BAR "B"	NO 5 @ 12" E=1'-3"; F=4'-3"	NO 5 @ 12" E=1'-3"; F=4'-9"	NO 6 @ 12" E=1'-3"; F=4'-9"	NO 5 @ 12" E=1'-4"; F=4'-9"	NO 6 @ 12" E=1'-5"; F=4'-9"	NO 7 @ 12" E=1'-6"; F=5'-3"	NO 7 @ 12" E=1'-8"; F=5'-6"	NO 5 @ 12" E=1'-10"; F=5'-2"
BAR "C"	NO 4 @ 12" A=2'-6"	NO 4 @ 12" A=2'-7"	NO 4 @ 12" A=2'-10"	NO 6 @ 12" A=3'-0"	NO 5 @ 12" A=3'-2"	NO 5 @ 12" A=3'-3"	NO 5 @ 12" A=3'-5"	NO 7 @ 12" A=4'-3"
NO BARS "D" IN TWO SLABS	30	30	30	30	30	30	30	30
BAR "E"	NO 4 @ 12"	NO 4 @ 12"	NO 4 @ 12"	NO 4 @ 12"	NO 4 @ 12"	NO 4 @ 12"	NO 4 @ 12"	NO 4 @ 12"
NO BARS "F" IN TWO WALLS	12	12	12	12	12	12	12	12
NO BARS "G" IN TWO WALLS	10	10	10	10	10	10	10	10
BAR "H"	NO 4 @ 12"	NO 4 @ 12"	NO 4 @ 12"	NO 6 @ 12"	NO 5 @ 12"	NO 5 @ 12"	NO 5 @ 12"	NO 7 @ 12"
NO BARS "J" PER CORNER	0	0	1 @ 6"	2 @ 8"	3 @ 6½"	4 @ 4½"	5 @ 4"	6 @ 3½"
CU. YDS. CONC. PER FT.	0.8752	1.1446	1.3787	1.5902	1.7855	1.9907	2.1964	2.3878
LBS. REINF STEEL PER FT.	141.80	167.89	196.73	237.12	254.08	294.05	309.47	342.54
MAX. HT. OF FILL OVER TOP	10'	20'	30'	40'	50'	60'	70'	80'

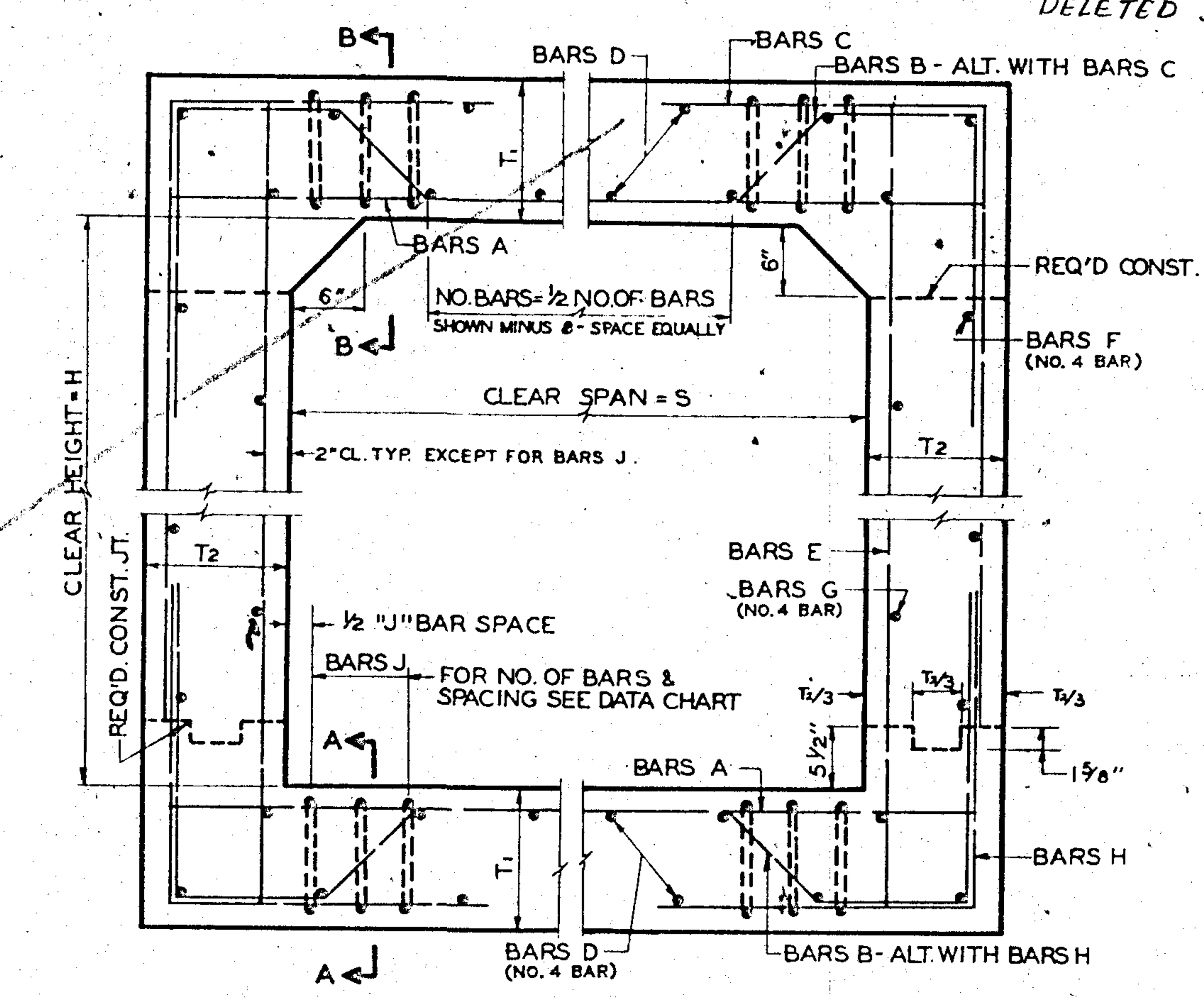
DESIGN	9-5-10
BARREL DIMENSIONS	S=9'; H=5'
T_1	8¼"
T_2	9"
BAR "A"	NO. 6 AT 12"
BAR "B"	NO. 5 AT 12" E=1'-5"; F=2'-3"
BAR "C"	NO. 5 AT 12" A=2'-8"
NO. BARS "D" IN 2 SLABS	30
BAR "E"	NO. 4 AT 12"
NO. BARS "F" IN 2 WALLS	10
NO. BARS "G" IN 2 WALLS	8
BAR "H"	NO. 5 AT 12"
NO. BARS "J" PER CORNER	0
CU. YDS. CONC. PER FT.	0.8218
LBS. REINF. STEEL PER FT.	127.42
MAX. HT. OF FILL OVER TOP	10'

	9-8-90
	S=9'; H=8'
	1'-9¼"
	1'-11½"
	2 NO.8 @ 12"
	NO.8 @ 12" E=1'-8"; F=4'-2"
	NO. 8 @ 12" A=5'-3"
	30
	NO.4 @ 12"
	16
	14
	NO.8 @ 12"
	7 @ 3"
	2.8640
	479.55
	90'

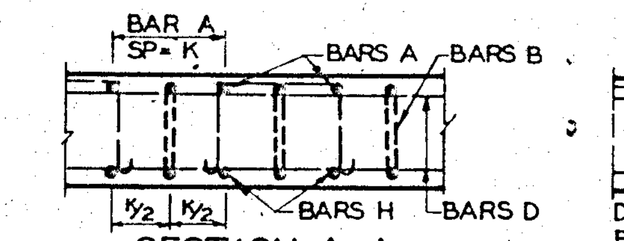
NOTE: BARS "A" THAT ARE SHOWN AS TWO SHALL BE EQUALLY SPACED BETWEEN BARS "B" TOP AND BOTTOM SLABS.

STATE	PROJECT NUMBER	SHEET No.	TOTAL SHEETS
GA.	TSAP 193 (9)	89	135

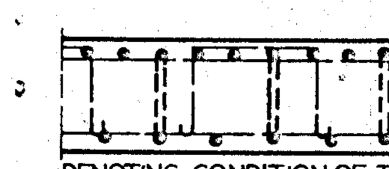
DELETED 5-19-83



TYPICAL BARREL SECTION - ALL DESIGNS



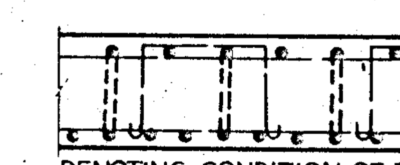
SECTION A-A



DENOTING CONDITION OF TWO BARS A BETWEEN BARS B

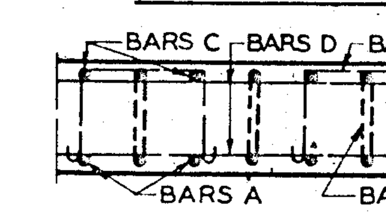
SECTION A-A

NOTE: NO. OF "J" BARS SHOWN IN DATA CHART IS THE NO. PER CORNER IN ANY ONE PLANE. THE TOTAL NO. OF "J" BARS REQUIRED DEPENDS UPON THE LENGTH OF THE SECTION.



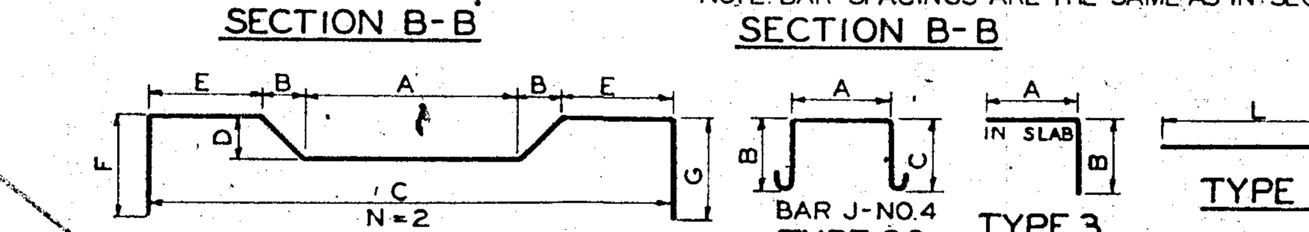
DENOTING CONDITION OF TWO BARS A BETWEEN BARS B.

SECTION B-B



NOTE: BAR SPACINGS ARE THE SAME AS IN SECTION A-A.

SECTION B-B



BAR TYPES

BAR "A": L = S+2T2-4"
BAR "B": B&D = T1-4"; C = S+2T2-4"; A = C-2E-2B; G = F
BAR "C": B = H+T1-7½"
BAR "E": L = H+2T1-4"
BAR "H": B = T1+3½"+16.67d. NOTE: d = DIAMETER OF BAR "H"; A = DIM. A OF BAR "C".
BAR "J": A = SPACING OF BAR "C"+1"+DIAMETER OF BAR "C": B & C = T1-3".
NOTE: SEE DATA CHART FOR DIMENSIONS OF BAR DETAILS NOT INDICATED ABOVE.

REINFORCEMENT DETAILS

⚠ NOTE: BEND LONGITUDINAL BARS INTO WINGS AND PARAPETS SIMILAR TO STANDARDS. IF CULVERT IS SKEWED CUT TRANSVERSE STEEL AND BEND 12" INTO PARAPET OR TOE WALL AND HOOK

BY	REVISIONS	DATE
R.J.S.	ADD NOTE	7-25-74
R.J.S.	DELETE BAR INCREASE TO #9	2-28-80
R.J.S.	CONC. QUANTITIES	12-2-70
R.J.S.	ADD 9X6; 10 TO 80' FILL	9-18-73
R.J.S.	Add 9-8-90	9-18-73
R.J.S.	Add 9-5-10	1-8-74

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL DESIGN BOX CULVERTS
7X7; 9X9; 7X5; 9X8; 10X9; 9X6; 9X5

BRIDGE SHEET OF

DESIGNED J.T.K. - R.J.S. DRAWN J.M.B. TRACED C.U. CHECKED REVIEWED APPROVED

(8)