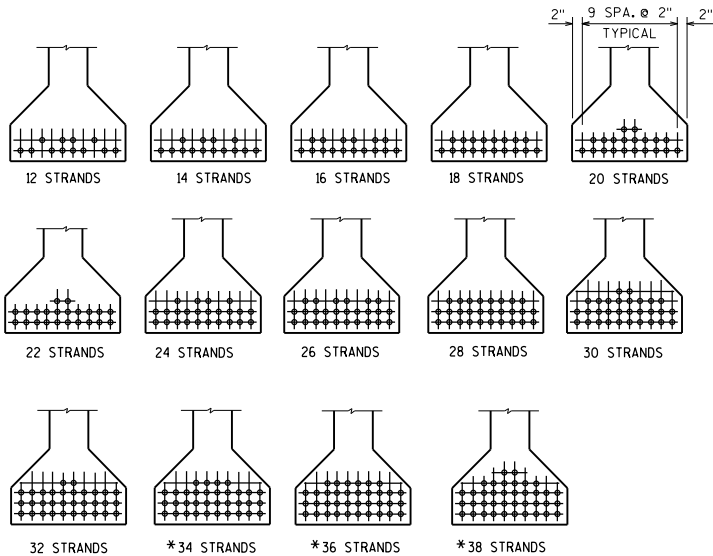


**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF 0.6" DIA. STRANDS**



45" GIRDER

$A = 560 \text{ SQ. IN.}$

$r^2 = 223.91 \text{ IN.}^2$

$y_T = 24.73 \text{ IN.}$

$y_B = -20.27 \text{ IN.}$

$I = 125,390 \text{ IN.}^4$

$S_T = 5,070 \text{ IN.}^3$

$S_B = -6,186 \text{ IN.}^3$

$WT. = 583 \text{ \#}/\text{FT.}$

PRE-TENSION

$f'_s = 270,000 \text{ P.S.I.}$

$f_s = 0.75 \times 270,000 = 202,500 \text{ P.S.I.}$
for low relaxation strands.

Pi PER 0.5" DIA. STRAND = $0.1531 \times 202,500 = 31.00 \text{ KIPS}$

Pi PER 0.6" DIA. STRAND = $0.217 \times 202,500 = 43.94 \text{ KIPS}$

$\frac{y_B}{r^2} = \frac{-20.27}{223.91} = -0.09053 \text{ IN./IN.}^2$

(COMPRESSION IS POSITIVE)

N NO. STRANDS	(1) e_s (inches)	(2) $(1 + \frac{e_s y_B}{r^2})$	(3) $(A/(2))$ (sq. in.)	(4) $P(\text{ini.}) = A_s f'_s$ 0.5" DIA. STRANDS (KIPS)	(4) $P(\text{ini.}) = A_s f'_s$ 0.6" DIA. STRANDS (KIPS)	(5) $f_b (\text{ini.}) = (4)/(3)$ 0.5" DIA. STRANDS (K/Sq. In.)	(5) $f_b (\text{ini.}) = (4)/(3)$ 0.6" DIA. STRANDS (K/Sq. In.)
STANDARD PATTERNS FOR UNDRAPED STRANDS							
12	-14.94	2.352	238.10		527		2.213
14	-14.27	2.292	244.33		615		2.517
16	-13.27	2.201	254.43		703		2.763
18	-13.15	2.190	255.71		791		3.093
20	-12.27	2.111	265.28		879		3.313
22	-12.27	2.111	265.28		967		3.645
24	-12.10	2.095	267.30		1055		3.947
STANDARD PATTERNS FOR DRAPED STRANDS							
12	-17.60	2.593	215.97	372	527	1.722	2.440
14	-17.70	2.602	215.22	434	615	2.017	2.858
16	-17.52	2.586	216.55	496	703	2.290	3.246
18	-17.38	2.573	217.64	558	791	2.564	3.634
20	-17.07	2.545	220.04	620	879	2.818	3.995
22	-17.01	2.540	220.47	682	967	3.093	4.386
24	-16.77	2.518	222.40	744	1055	3.345	4.744
26	-16.58	2.501	223.91	806	1143	3.600	5.105
28	-16.41	2.486	225.26	868	1230	3.853	5.460
30	-16.13	2.460	227.64	930	1318	4.085	5.790
32	-16.02	2.450	228.57	992	1406	4.340	6.151
34	-15.80	2.430	230.45	1054		4.574	
36	-15.60	2.412	232.17	1116		4.807	
38	-15.32	2.387	234.60	1178		5.021	

ARRANGEMENT AT $\frac{1}{4}$ SPAN - FOR GIRDERS WITH DRAPED 0.5" DIA. AND 0.6" DIA. STRANDS

*0.5" DIA. STRANDS ONLY

**45" PRESTRESSED
GIRDER DESIGN DATA**

**BUREAU OF
STRUCTURES**

APPROVED: *Laura Shadewald*

DATE:
7-16