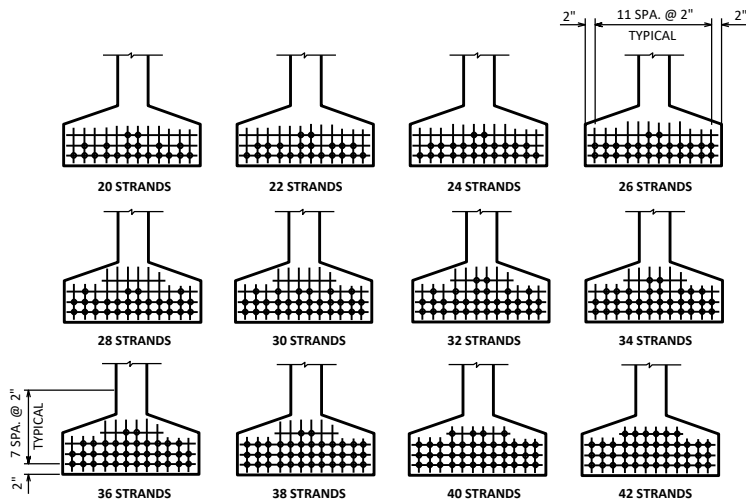


ARRANGEMENT AT C/L SPAN FOR GIRDERS WITH DRAPED 0.5" DIA. STRANDS



ARRANGEMENT AT C/L SPAN FOR GIRDERS WITH DRAPED 0.6" DIA. STRANDS

(COMPRESSION IS NEGATIVE)

N	(1)	(2)	(3)	(4)	(5)
NO. STRANDS	$e_s$ 0.5" DIA. STRANDS (INCHES)	$(1 + \frac{e_s y_b}{r^2})$ 0.5" DIA. STRANDS	$(A/2)$ 0.5" DIA. STRANDS (SQ. IN.)	$P(INIT.) = A_s f_s$ 0.5" DIA. STRANDS (KIPS)	$f_b(INIT.) = (4)/(3)$ 0.5" DIA. STRANDS (K/SQ. IN)
20	-31.62	2.659	291.090	620	2.130
22	-31.53	2.655	291.530	682	2.339
24	-31.45	2.650	292.080	744	2.547
26	-31.39	2.647	292.410	806	2.756
28	-31.05	2.629	294.410	868	2.948
30	-30.89	2.621	295.310	930	3.149
32	-30.75	2.614	296.100	992	3.350
34	-30.62	2.607	296.890	1054	3.550
36	-30.51	2.601	297.580	1116	3.750
38	-30.41	2.596	298.150	1178	3.951
40	-30.12	2.581	299.880	1240	4.135
42	-29.95	2.572	300.930	1302	4.327
44	-29.80	2.564	301.870	1364	4.519
46	-29.49	2.548	303.770	1426	4.694

STANDARD PATTERNS - 0.5" DIA. DRAPED STRANDS

70" GIRDER

A = 774 SQ. IN.  
 $r^2 = 659.70 \text{ IN.}^2$   
 $y_T = 35.38 \text{ IN.}$   
 $y_B = -34.62 \text{ IN.}$   
 $I = 510,613 \text{ IN.}^4$   
 $S_T = 14,430 \text{ IN.}^3$   
 $S_B = -14,750 \text{ IN.}^3$   
 WT. = 0.806 KIPS/FT. +  
 6.6 KIPS FOR BOTH END BLOCKS

(COMPRESSION IS NEGATIVE)

N	(1)	(2)	(3)	(4)	(5)
NO. STRANDS	$e_s$ 0.6" DIA. STRANDS (INCHES)	$(1 + \frac{e_s y_b}{r^2})$ 0.6" DIA. STRANDS	$(A/2)$ 0.6" DIA. STRANDS (SQ. IN.)	$P(INIT.) = A_s f_s$ 0.6" DIA. STRANDS (KIPS)	$f_b(INIT.) = (4)/(3)$ 0.6" DIA. STRANDS (K/SQ. IN)
20	-31.62	2.659	291.090	879	3.020
22	-31.53	2.655	291.530	967	3.317
24	-31.45	2.650	292.080	1055	3.612
26	-31.39	2.647	292.410	1143	3.909
28	-31.19	2.637	293.520	1230	4.191
30	-31.02	2.628	294.520	1318	4.475
32	-30.74	2.614	296.100	1406	4.748
34	-30.62	2.607	296.890	1494	5.032
36	-30.51	2.601	297.580	1582	5.316
38	-30.41	2.596	298.150	1670	5.601
40	-30.22	2.586	299.300	1758	5.874
42	-30.05	2.577	300.350	1846	6.146

STANDARD PATTERNS - 0.6" DIA. DRAPED STRANDS

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  
 $P \text{ PER } 0.5" \text{ DIA. STRAND}$   
 $= 0.1531 \times 202,500 = \underline{31.00 \text{ KIPS}}$   
 $P \text{ PER } 0.6" \text{ DIA. STRAND}$   
 $= 0.217 \times 202,500 = \underline{43.94 \text{ KIPS}}$

$$\frac{y_b}{r^2} = \frac{-34.62}{659.70} = -0.05248 \text{ IN./IN.}^2$$

**70" PRESTRESSED GIRDER DESIGN DATA**

**BUREAU OF STRUCTURES**

DATE:  
7-16

APPROVED: *Laura Shadewald*