45W" GIRDER

A = 692 SQ. IN.

r^2 = 258.70 IN.^{2}

y_T = 24.26 IN.

y_B = -20.74 IN.

I = 178,971 IN.^{4}

S_T = 7,377 IN.^{3}

S_B = -8,629 IN.^{3}

WT. = 721 #/FT.

PRE-TENSION

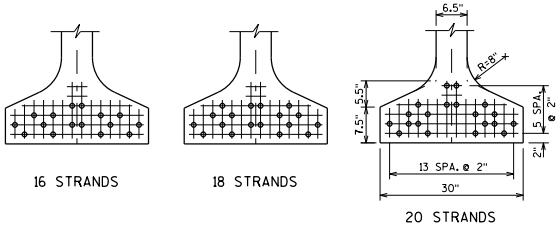
f'_s = 270,000 P.S.I.

f_s = 0.75 X 270,000 = 202,500 P.S.I.
for low relaxation strands

Pi PER 0.6" DIA. STRAND = 0.217 X 202,500 = 43.94 KIPS

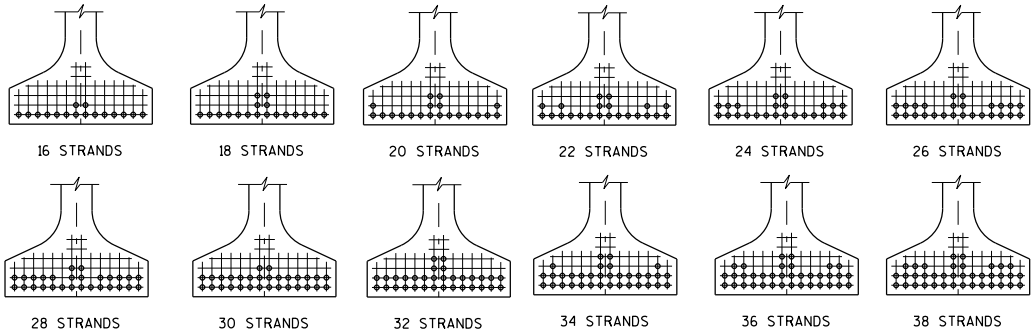
$$\frac{y_B}{r^2} = \frac{-20.74}{258.70} = -0.08017 \text{ in/in}^2$$

$$f_B(\text{init.}) = \frac{A_S f_S}{A}\left(1 + \frac{e_S y_B}{r^2}\right)$$



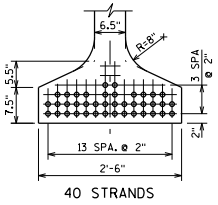
16 STRANDS 18 STRANDS 20 STRANDS

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



16 STRANDS 18 STRANDS 20 STRANDS 22 STRANDS 24 STRANDS 26 STRANDS

28 STRANDS 30 STRANDS 32 STRANDS 34 STRANDS 36 STRANDS 38 STRANDS



40 STRANDS

ARRANGEMENT AT ℄ SPAN - FOR GIRDERS WITH DRAPED 0.6" DIA. STRANDS

(COMPRESSION IS POSITIVE)

NO. STRANDS	e_S (inches)	P(init.)=$A_S f_S$ (KIPS)	f_B (init.) (K/sq.in.)
STANDARD STRAND PATTERNS FOR UNDRAPED STRANDS			
16	-16.24	703	2.339
18	-15.85	791	2.596
20	-15.14	879	2.812
STANDARD STRAND PATTERNS FOR DRAPED STRANDS			
16	-18.49	703	2.521
18	-18.07	791	2.799
20	-17.94	879	3.097
22	-17.83	967	3.394
24	-17.74	1055	3.693
26	-17.66	1143	3.991
28	-17.60	1230	4.285
30	-17.54	1318	4.583
32	-17.24	1406	4.840
34	-17.09	1494	5.117
36	-16.96	1582	5.395
38	-16.85	1670	5.674
40	-16.74	1758	5.950

DESIGNER NOTES

ON THE STRAND PATTERN SHEET, PLACE A BOX AROUND EACH STRAND PATTERN THAT APPLIES TO THE DESIGNED STRUCTURE AND LABEL THE SPAN IT IS USED IN.

45W" PRESTRESSED GIRDER DESIGN DATA

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-17