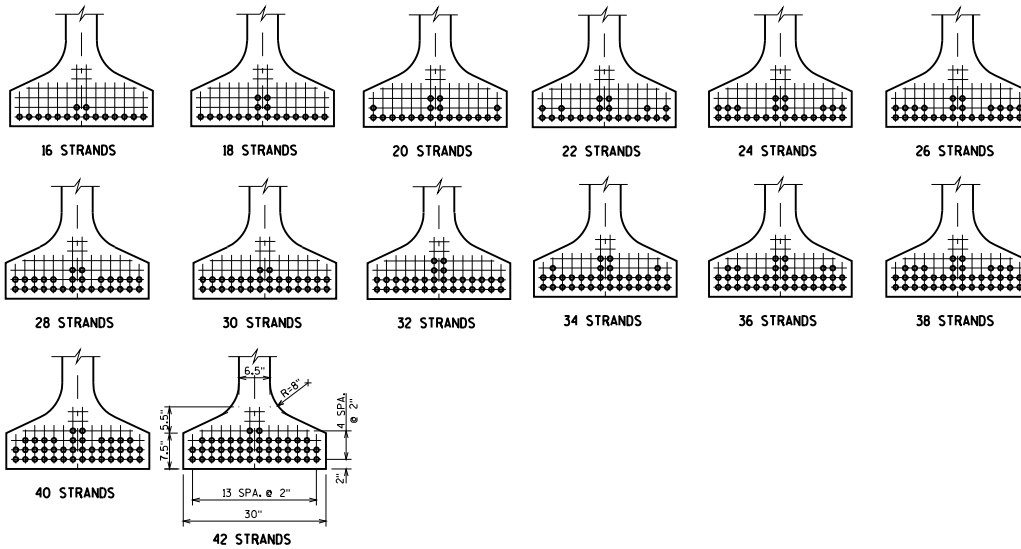


STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF 0.6"Ø STRANDS



ARRANGEMENT AT ¼ SPAN - FOR GIRDERS WITH DRAPED 0.6"Ø STRANDS

54W" GIRDER

A = 798 SQ. IN.
 $r^2 = 402,41 \text{ IN.}^2$
 $y_T = 27.70 \text{ IN.}$
 $y_B = -26.30 \text{ IN.}$
 $I = 321,049 \text{ IN.}^4$
 $S_T = 11,592 \text{ IN.}^3$
 $S_B = -12,205 \text{ IN.}^3$
 WT. = 831 #/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 0.6" Ø STRAND = $0.217 \times 202,500 = 43,94 \text{ KIPS}$

$$\frac{y_B}{r^2} = \frac{-26.30}{402.41} = -0.06536 \text{ in/in}^2$$

$$f_B (\text{init.}) = \frac{A_s f_s}{A} \left(1 + \frac{e_s y_B}{r^2}\right)$$

NO. STRANDS	e_s (inches)	$P(\text{init.}) = A_s f_s$ (KIPS)	(COMPRESSION IS POSITIVE)
			$f_B (\text{init.})$ (K/sq.in.)
STANDARD STRAND PATTERNS FOR UNDRAPED STRANDS			
16	-21.80	703	2.136
18	-21.41	791	2.378
20	-20.70	879	2.592
STANDARD STRAND PATTERNS FOR DRAPED STRANDS			
16	-24.05	703	2.266
18	-23.63	791	2.522
20	-23.50	879	2.793
22	-23.39	967	3.065
24	-23.30	1055	3.336
26	-23.22	1143	3.607
28	-23.16	1230	3.875
30	-23.10	1318	4.146
32	-22.80	1406	4.387
34	-22.65	1494	4.643
36	-22.52	1582	4.901
38	-22.41	1670	5.159
40	-22.30	1758	5.413
42	-22.20	1846	5.670

54W" PRESTRESSED GIRDER DESIGN DATA

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker DATE: 7-09