

**ERIE ST. / ORTT DR.**  
**2020117.09**  
**MAST ARM SIGNAL SUPPORT DESIGN**

**DESIGN CALCULATION FOR EX. SIGNAL SUPPORT #1**

**LOAD FACTORS:**

SIGN 1 AREA:	7.5	SIGN 1 LOAD FACTOR:	19	SIGNAL 1:	86	BACKPLT:		TOTAL SIGNAL 1:	86
SIGN 2 AREA:	11	SIGN 2 LOAD FACTOR:	23.2	SIGNAL 2:	80	BACKPLT:		TOTAL SIGNAL 2:	80
SIGN 3 AREA:		SIGN 3 LOAD FACTOR:	10	SIGNAL 3:		BACKPLT:		TOTAL SIGNAL 3:	0

**LOAD MOMENT DESIGN FACTOR CALCULATION**

LOAD FACTOR, SIGN 1:	19	X1:	24	$K = (LS1 \cdot X1) + (LS2 \cdot X2) + (LS3 \cdot X3) + (LS1 \cdot L1) + (LS2 \cdot L2) + (LS3 \cdot L3)$
LOAD FACTOR, SIGN 2:	23.2	X2:	5	
LOAD FACTOR, SIGN 3:	10	X3:		
LOAD FACTOR, SIGNAL 1:	86	L1:	28	<div><math>K = 4180</math></div>
LOAD FACTOR, SIGNAL 2:	80	L2:	15	
LOAD FACTOR, SIGNAL 3:	0	L3:		

**AREA MOMENT CHECK FOR MAST ARMS WITH RIGID MOUNTED SIGNS AND SIGNALS WITH BACKPLATES**

AREA MOMENT CALCULATION = (AREA SIGN 1\*X1)+(AREA SIGN 2\*X2)+(AREA SIGN 3\*X3)+(6\*L1)+(6\*L2)+(6\*L3)  
\*\*L1, L2 AND L3 TERMS ARE ONLY USED IF BACKPLATES ARE PRESENT.

**AREA MOMENT CHECK = 235**

**EXISTING SUPPORT: TC-81.20, DESIGN 2 WITH A 32' MAST ARM, MAXIMUM AREA MOMENT = 320**

IS AREA MOMENT CHECK LESS THAN MAXIMUM? **YES**