

500' UTC TYPE 720/POLE

75 MPH NO ICE

65 MPH 1/2" ICE

T.I.A./E.I.A.-222-F

BEECHER, ILLINOIS



Utility Tower
COMPANY

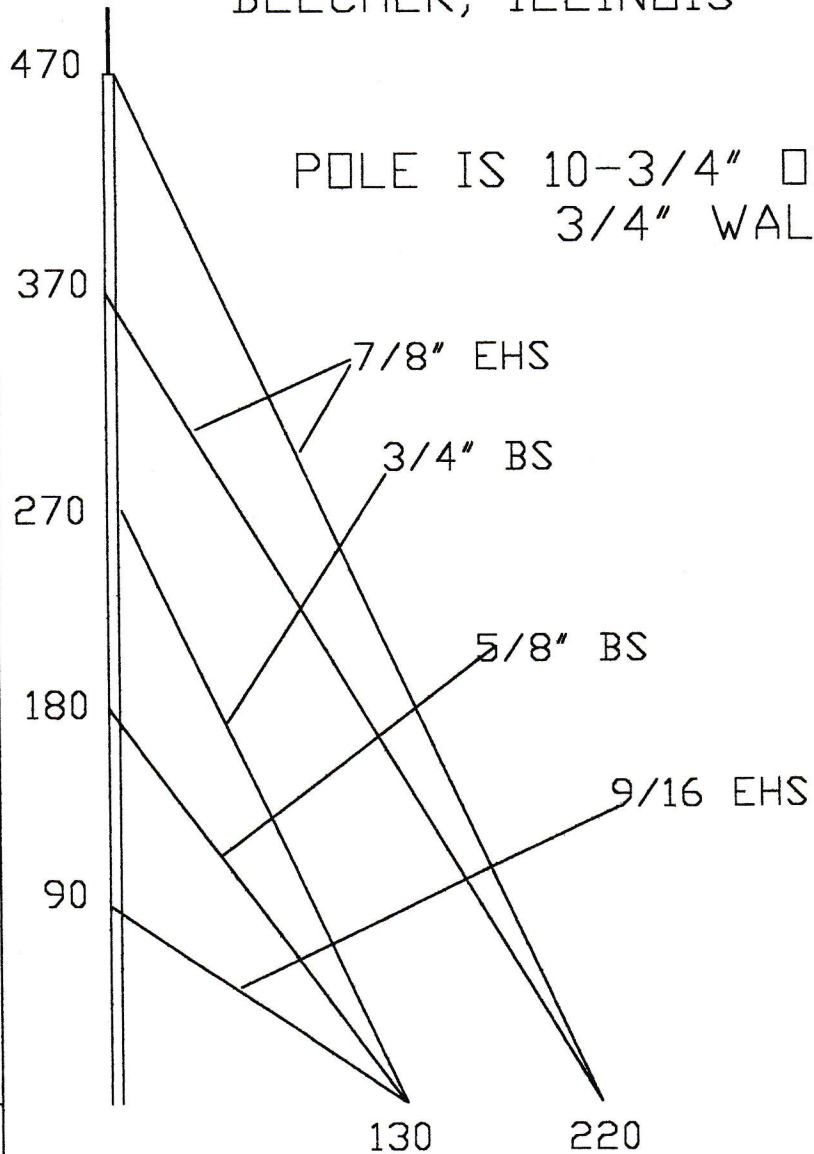
OKLAHOMA CITY, OKLAHOMA

470' UTC TYPE 720 SR
+ 30 FT. POLE

75 MPH NO ICE DR
65 MPH 1/2" ICE

T.I.A./E.I.A.-222-F
BEECHER, ILLINOIS

		POLE
	2-1/2	
LEGS	2-3/4 SR	
GIRTS	7/8" SR X-BR	
DIAGS	2 x 2 x 3/6	



UTILITY TOWER COMPANY

2-BAY, 3-BAY, 3-TW EIA-F 75 MPH 1/2" ICE W/RED.

500' UTC TYPE 720/POLE FM WILL COUNTY, ILLINOIS

HEIGHT= 500.FT ANC1= 130.FT ANC2= 220.FT ANC3= 0.FT

FY=50.KSI CANT MOM= 47704.FT LB CANT V= 2967.LBS CANT WT= 3001.LBS

SPAN	WIDTH	WIND LOAD	STYLE	BAYS	GL	DL	LU
1	60.	21.	2	4	57.25	80.79	57.00
2	60.	21.	2	4	57.25	80.79	57.00
3	60.	21.	2	4	57.25	80.79	57.00
4	60.	26.	2	4	57.25	80.79	57.00
5	60.	26.	2	4	57.50	80.96	57.00

LEG SIZES

SPAN	DESCRIPTION
1	2.7500 OD SOLID ROD
2	2.7500 OD SOLID ROD
3	2.7500 OD SOLID ROD
4	2.7500 OD SOLID ROD
5	2.5000 OD SOLID ROD

DIAGONAL SIZES

SPAN	DESCRIPTION
1	0.8750 OD SOLID ROD
2	0.8750 OD SOLID ROD
3	0.8750 OD SOLID ROD
4	0.8750 OD SOLID ROD
5	0.8750 OD SOLID ROD

GIRT SIZES

SPAN	DESCRIPTION
1	2.0000 X 2.0000 X0.1875 ANGLE
2	2.0000 X 2.0000 X0.1875 ANGLE
3	2.0000 X 2.0000 X0.1875 ANGLE
4	2.0000 X 2.0000 X0.1875 ANGLE
5	2.0000 X 2.0000 X0.1875 ANGLE

JOINT LOADS

ELEVATION	LOAD
200.00	360.
305.00	320.
315.00	320.
325.00	320.
485.00	320.
495.00	320.

SPAN	LENGTH	WIND PLF	WT PLF	FEMB	FEMT	VB	VT
1	90.0	97.7	117.9	0.	-98961.	4398.	-4398.
2	90.0	97.7	117.9	65974.	-65974.	4398.	-4398.
3	90.0	81.7	113.9	59530.	-56418.	3993.	-3724.
4	100.0	78.6	110.9	78137.	-75953.	4479.	-4339.
5	100.0	77.6	100.0	64636.	-64636.	3878.	-3878.

DISTRIBUTION FACTORS

0.00 -0.43 -0.50 -0.53 -0.55 -1.00
 -1.00 -0.57 -0.50 -0.47 -0.45 0.00

SPAN	DISTRIBUTED MOMENTS		SHEARS		REACTIONS
	MOM B	MOM T	VB	VT	LBS
1	0.	-85253.	3451.	-5346.	10082.
2	85253.	-54832.	4736.	-4060.	7898.
3	54832.	-68818.	3837.	-3879.	8281.
4	68818.	-76501.	4402.	-4416.	8582.
5	76501.	-47704.	4166.	-3590.	6557.

GUY LEV	GUY LENGTH	ANCHOR DIST	GUY AREA	GUY WT	INITIAL TENSION
90.	158.1	130.00	0.19430	0.6612	3500.
180.	222.0	130.00	0.23560	0.8017	4800.
270.	348.3	220.00	0.33580	1.1427	6800.
370.	430.5	220.00	0.45900	1.5619	7970.
470.	518.9	220.00	0.45900	1.5619	7970.

TOWER ANALYZED AS A CONTINUOUS BEAM ON YIELDING SUPPORTS

1 INCH UNIT DEFLECTION AT THE 90. FT LEVEL

SPAN	DISTRIBUTED MOMENTS		SHEARS		REACTIONS
	MOM B	MOM T	VB	VT	LBS
1	0.	80716.	897.	897.	-2427.
2	-80716.	-57035.	-1531.	-1531.	2326.
3	57035.	14509.	795.	795.	-978.
4	-14509.	-3803.	-183.	-183.	221.
5	3803.	0.	38.	38.	-38.

1 INCH UNIT DEFLECTION AT THE 180. FT LEVEL

SPAN	DISTRIBUTED MOMENTS		SHEARS		REACTIONS
	MOM B	MOM T	VB	VT	LBS
1	0.	-57035.	-634.	-634.	2326.
2	57035.	95225.	1692.	1692.	-3395.
3	-95225.	-58037.	-1703.	-1703.	2435.
4	58037.	15213.	732.	732.	-885.
5	-15213.	0.	-152.	-152.	152.

1 INCH UNIT DEFLECTION AT THE 270. FT LEVEL

SPAN	DISTRIBUTED MOMENTS		SHEARS		REACTIONS
	MOM B	MOM T	VB	VT	LBS
1	0.	14671.	163.	163.	-978.
2	-14671.	-58684.	-815.	-815.	2435.
3	58684.	87148.	1620.	1620.	-3002.
4	-87148.	-51064.	-1382.	-1382.	1893.
5	51064.	0.	511.	511.	-511.

1 INCH UNIT DEFLECTION AT THE 370. FT LEVEL

SPAN	DISTRIBUTED MOMENTS		SHEARS		REACTIONS
	MOM B	MOM T	VB	VT	LBS
1	0.	-3175.	-35.	-35.	212.
2	3175.	12699.	176.	176.	-847.
3	-12699.	-47621.	-670.	-670.	1765.
4	47621.	61868.	1095.	1095.	-1714.
5	-61868.	0.	-619.	-619.	619.

1 INCH UNIT DEFLECTION AT THE 470. FT LEVEL

SPAN	DISTRIBUTED MOMENTS		SHEARS		REACTIONS
	MOM B	MOM T	VB	VT	LBS
1	0.	428.	5.	5.	-29.
	-428.	-1711.	-24.	-24.	114.
	1711.	6418.	90.	90.	-383.
4	-6418.	-22848.	-293.	-293.	521.
	22848.	0.	228.	228.	-228.

MOMENTS FROM NON-LINEAR DEFLECTIONS

GUY LEVEL	DEF MOM	RIGID BM MOM	FINAL MOM	DEF	EMOM
0.	0.	0.	0.	0.0000	
90.	41504.	-85253.	-43748.	5.9190	21153.
180.	15444.	-54832.	-39388.	10.4728	37441.
270.	-38644.	-68818.	-107461.	14.5403	48783.
370.	-5497.	-76501.	-81998.	20.3456	69324.
470.	0.	-47704.	-47704.	28.8244	74518.

ELEV	SPG	Q	REACTION	DEF
90.	1516.	-167.	8805.	5.9190
80.	692.	-223.	7023.	10.4728
270.	687.	-177.	9807.	14.5403
70.	468.	-812.	8715.	20.3456
70.	262.	-1346.	6192.	28.8244

GUY STRESS

GUY ELEV	CABLE FORCE	BREAK STR	SAFETY FACTOR	1
90.	12687.	35000.	2.7588	0.9062
180.	15477.	48000.	3.1014	0.8061
270.	21213.	68000.	3.2056	0.7799
370.	26622.	79700.	2.9938	0.8351
470.	27074.	79700.	2.9438	0.8492

ANCHOR REACTIONS

ANCHOR AT 130. FT FROM BASE + 0.00 FROM BASE GRADE
 RIZ= 19855. VERT= 19491. RESULT= 27823. RES. ANG= 44.47DEG
 LATERAL= 0.

ANCHOR AT 220. FT FROM BASE + 0.00 FROM BASE GRADE
 RIZ= 40439. VERT= 62486. RESULT= 74430. RES. ANG= 57.09DEG
 LATERAL= 0.

TOWER STRESS

HEIGHT	FA	PB	ALLOW	% STRESS
0.	10428.	0.	18425.	0.5660
50.	10428.	3044.	18425.	0.7312
90.	9832.	2112.	18425.	0.6483
90.	9307.	1290.	18425.	0.5752
135.	9307.	2232.	18425.	0.6263
180.	8712.	2259.	18425.	0.5955
180.	7722.	804.	18425.	0.4627
234.	7722.	499.	18425.	0.4462
270.	7147.	5126.	18425.	0.6661
270.	5781.	3230.	18425.	0.4891
317.	5781.	152.	18425.	0.3220

370.	5158.	4536.	18425.	0.5262
370.	3737.	2227.	16679.	0.3576
416.	3737.	1546.	16679.	0.3167
470.	3057.	3997.	16679.	0.4230

BASE LOAD=185814.3 LBS

AGONAL STRESS

AN	FORCE	FA	ALLOW	% STRESS
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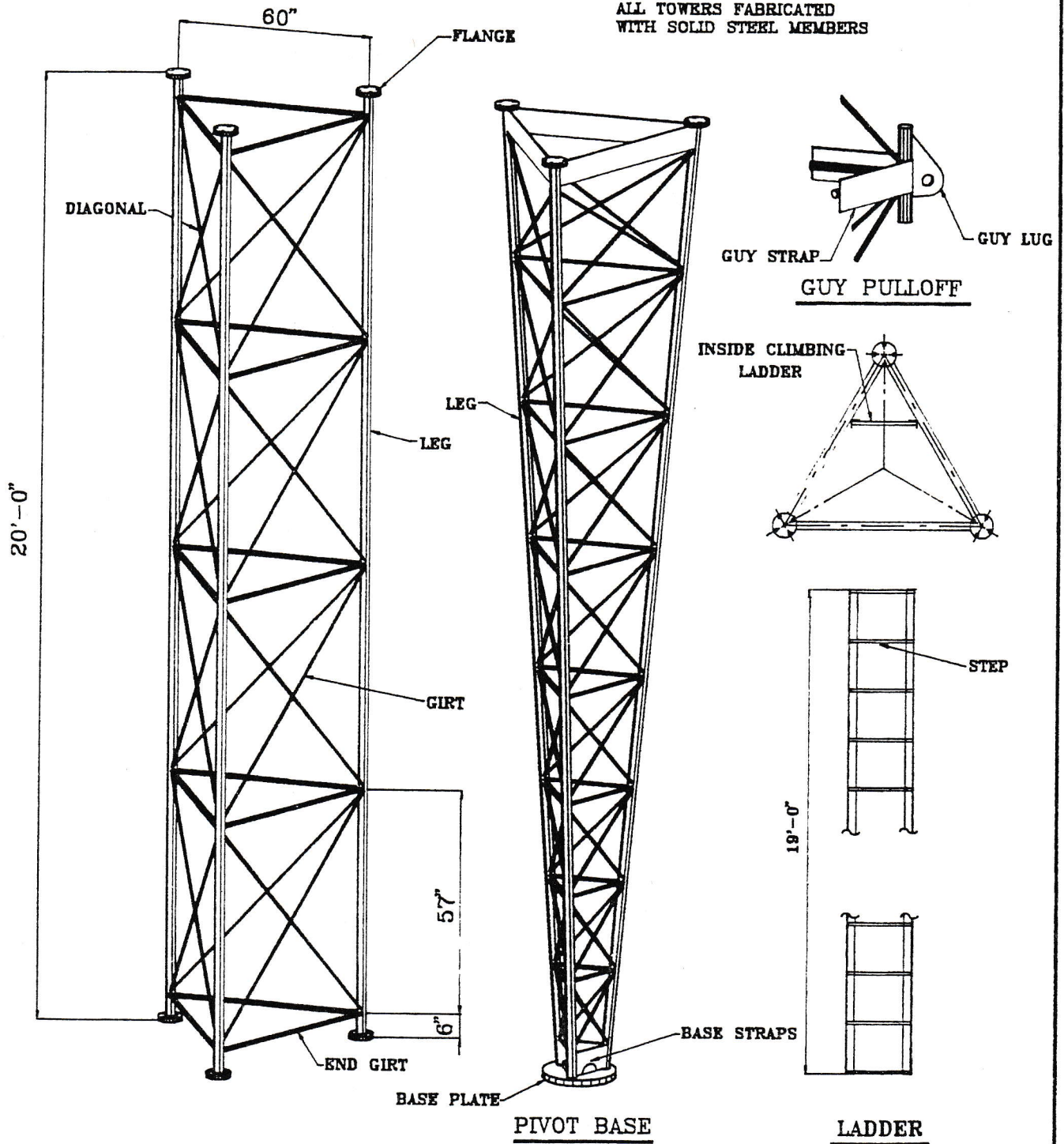
1	4595.	7641.	30000.	0.2547	X BR
2	4183.	6957.	30000.	0.2319	X BR
3	4215.	7009.	30000.	0.2336	X BR
4	4453.	7406.	30000.	0.2469	X BR
5	3962.	6590.	30000.	0.2197	X BR

GIRT STRESS

AN	FORCE	FA	ALLOW	% STRESS
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1	3256.	4555.	8074.	0.5642
2	2964.	4147.	8074.	0.5136
3	2987.	4178.	8074.	0.5175
4	3156.	4415.	8074.	0.5467
5	2814.	3937.	8033.	0.4900

NOTE:
ALL TOWERS FABRICATED
WITH SOLID STEEL MEMBERS



ACTUAL SIZES MAY VARY, AND WILL BE
DETERMINED BY A STRUCTURAL STRESS ANALYSIS

DRAWN BY RLC
DATE 01-21-61
DRAWING NO.
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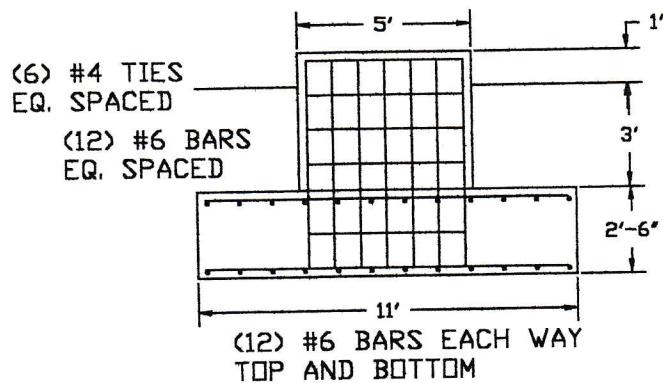
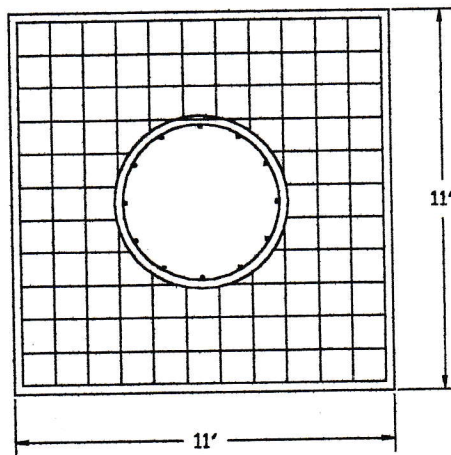
TYPE 720 DETAILS

Utility Tower
OKLAHOMA CITY, OKLAHOMA

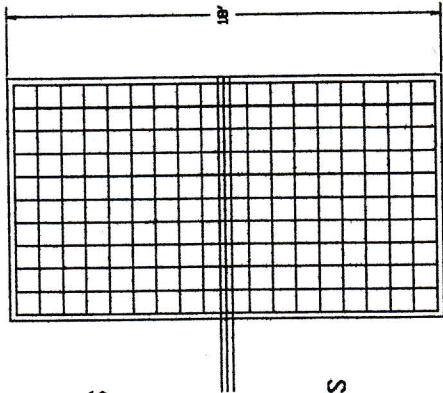
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IS PROHIBITED.

BASE PIER
 500' UTC TYPE 720/POLE
 BEECHER, ILLINOIS

1. FOUNDATION DESIGN BASED ON REPORT FROM TESTING SERVICES CORPORATION.
2. ALL REBAR TO BE GRADE 60 WITH ASTM A615 DEFORMATION.
3. CONCRTE MUST HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28-DAYS.

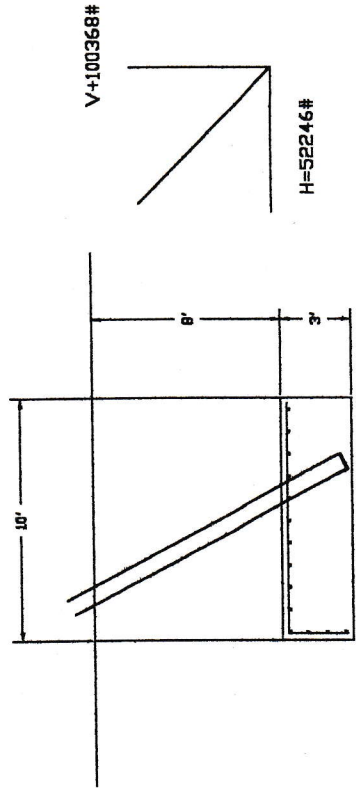


OUTSIDE ANCHOR
BEECHER, ILLINOIS

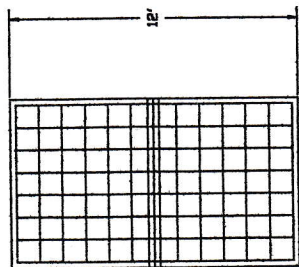


(19) #4 TIES
EQ. SPACED

(14) #6 BARS
EQ. SPACED

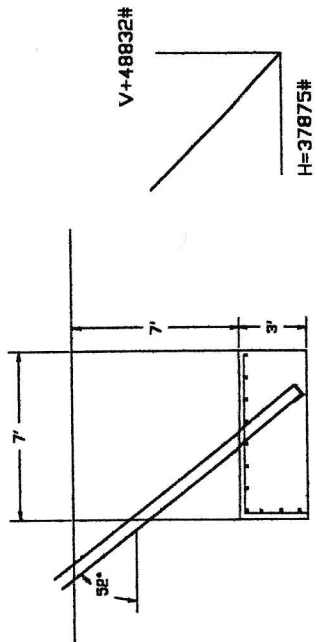


INSIDE ANCHOR
BEECHER, ILLINOIS

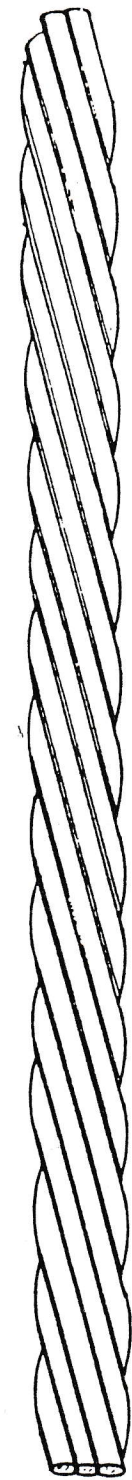


(13) #4 TIES
EQ. SPACED

(11) #6 BARS
EQ. SPACED



SIZE	GUY AREA	BREAK STRENGTH	GUY DIAMETER	APPROX WT. PER FT.
1/4 HS	.03519	4.75	.2500	.121
1/4 EHS	.03519	6.65	.2500	.121
5/16 HS	.05946	8.00	.3125	.205
5/16 EHS	.05946	11.20	.3125	.205
3/8 HS	.07917	10.80	.3750	.273
3/8 EHS	.07917	15.40	.3750	.273
7/16 HS	.11560	14.50	.4375	.399
7/16 EHS	.11560	20.80	.4375	.399
1/2 HS	.14970	18.80	.5000	.517
1/2 EHS	.14970	26.90	.5000	.517
9/16 HS	.19430	24.50	.5625	.671
9/16 EHS	.19430	35.00	.5625	.671
5/8 HS	.23560	29.60	.6250	.813
5/8 EHS	.23560	42.40	.6250	.813
3/4 HS	.33580	40.80	.7500	1.155
3/4 EHS	.33580	58.30	.7500	1.155
7/8 HS	.46750	55.80	.8750	1.581
7/8 BS	.45900	87.40	.8750	1.610
1- BS	.60000	115.80	1.0000	2.100
1- 1/16 BS	.67700	131.00	1.0625	2.370
1- 1/8 BS	.75900	148.20	1.1250	2.660
1- 3/16 BS	.84600	163.40	1.1875	2.960
1- 1/4 BS	.93800	184.40	1.2500	3.280
1- 5/16 BS	1.0300	204.00	1.3125	3.620
1- 3/8 BS	1.1300	222.00	1.3750	3.970
1- 7/16 BS	1.2400	242.00	1.4375	4.340
1- 1/2 BS	1.3500	264.00	1.5000	4.730
1- 9/16 BS	1.4700	288.00	1.5625	5.130
1- 5/8 BS	1.5900	310.00	1.6250	5.555
1- 11/16 BS	1.7100	338.00	1.6875	5.980
1- 3/4 BS	1.8400	360.00	1.7500	6.430
1- 13/16 BS	1.9700	388.00	1.8125	6.900
1- 7/8 BS	2.1100	414.00	1.8750	7.390
1- 15/16 BS	2.2500	442.00	1.9375	7.890
2 BS	2.4000	476.00	2.0000	8.400



DRAWN BY:
RAY BARKER

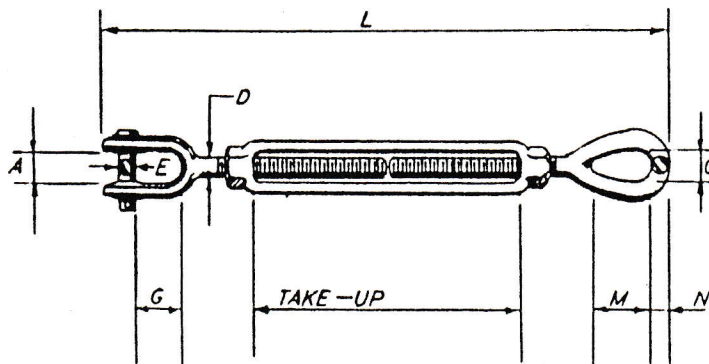
DATE:
JUNE 24, 1970

DRAWING NO:
202-51

GUY CABLES

Utility Tower
COMPANY

3200 NORTHWEST 38th P. O. BOX 12027
OKLAHOMA CITY, OKLAHOMA 73112



SIZE (D)	A	E	G	M	N	O	ALLOWABLE LOAD
1/4	13/32	1/4	21/32	13/16	7/32	117/32	980
5/16	1/2	1/4	27/32	15/16	9/32	7/16	1630
3/8	17/32	5/16	7/8	1 1/8	11/32	17/32	2420
1/2	21/32	7/16	1 1/8	1 7/16	7/16	28/32	4400
5/8	25/32	1/2	1 5/16	1 3/4	1/2	7/8	7000
3/4	1	5/8	1 9/16	2 1/8	5/8	1	10350
7/8	1 3/16	3/4	1 13/16	2 3/8	3/4	1 1/4	14200
1	1 1/4	7/8	2 1/16	3	7/8	1 7/16	18550
1 1/4	1 13/16	1 1/8	2 7/16	3 9/16	1 1/8	1 13/16	29360
1 1/2	2 1/8	1 5/8	2 13/16	4 1/8	1 1/4	2 1/8	42150

NOTE: ALLOWABLE LOADS ARE WITH A 2.5/1 SAFETY FACTOR.

NO. TB-68

STANDARD TURNBUCKLES

Utility Tower
COMPANY

