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DESIGN CALCULATIONS OF CONCRETE STRAIN POLES USING THE ATLAS PROGRAM VERSION 5.04

FOR: SR 50 @ CR 565
LAKE COUNTY, FL

November 02, 2007

Prepared By:
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Submitted By:
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DM Patrick
11/02/07
Sheets 1-20

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|                                                                        |
|                Analysis of Traffic Lights And Signs                    |
|                                                                        |
|                          Version 5.04                                  |
|                                                                        |
|          Developed by :                                                |
|                                                                        |
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|                                                                        |
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*** Note - Pole convergence tolerence is increased
to 1.5 times the default for wind greater than 65 mph
Tolerence is now equal 0.150000

Input Data File = C:\Documents and Settings\DPatrick\My Documents\Lake.SR50.Concrete_Span.in
Output Data File = C:\Documents and Settings\DPatrick\My Documents\tempfile.out

ATLAS EXECUTION STATUS

- Perform Complete Design

CONTROL DATA (More Information found in ATLAS User`s guide)

- Problem Title

SR50.SPAN.IN

- Structural Parameters :

Number of Nodes = 32
Number of Cables = 2
Roadway Clearance = 305.20

- Wind Data :

Wind Speed (Miles per Hour) = 81.00
Wind Direction (Angle from +ve X axis) = 90.0

- Nonlinear iteration Parameters :

Number of Iterations (Shape Finder) = 200
Number of Iterations (Gravity Solution) = 200
Number of Iterations (Wind Solution) = 200

Number of Loops for Shape Calculation	=	5
Number of Cycles (Shape-Stiffness Iteration)	=	200
Force Tolerance for Gravity Solution (%)	=	5.00
Force Tolerance for Wind Solution (%)	=	3.00
Pole Displacement Tolerance	=	0.150000

0

ECHO OF NODAL POINT INPUT DATA

Nodal Point Coordinates / Boundary Conditions

Node	X	Y	Z	Tx	Ty	Tz	Rx	Ry'	Rz
1	0.000	360.000	0.000	F	F	F	F	F	F
2	0.000	360.000	293.200	R	R	R	R	R	R
3	0.000	360.000	419.200	R	R	R	R	R	R
4	24.000	360.000	0.000	F	F	F	F	F	F
5	2280.000	360.000	0.000	F	F	F	F	F	F
6	2280.000	360.000	293.200	R	R	R	R	R	R
7	2280.000	360.000	419.200	R	R	R	R	R	R
8	2304.000	360.000	0.000	F	F	F	F	F	F
9	458.400	360.000	345.953	R	R	R	R	R	R
10	458.400	360.000	293.200	R	R	R	R	R	R
11	458.400	360.000	265.140	R	R	R	R	R	R
12	627.600	360.000	328.231	R	R	R	R	R	R
13	627.600	360.000	293.200	R	R	R	R	R	R
14	627.600	360.000	265.140	R	R	R	R	R	R
15	718.800	360.000	320.762	R	R	R	R	R	R
16	718.800	360.000	293.200	R	R	R	R	R	R
17	718.800	360.000	251.100	R	R	R	R	R	R
18	906.000	360.000	310.003	R	R	R	R	R	R
19	906.000	360.000	293.200	R	R	R	R	R	R
20	906.000	360.000	251.100	R	R	R	R	R	R
21	1106.400	360.000	305.299	R	R	R	R	R	R
22	1106.400	360.000	293.200	R	R	R	R	R	R
23	1106.400	360.000	251.100	R	R	R	R	R	R
24	1237.200	360.000	306.029	R	R	R	R	R	R
25	1237.200	360.000	293.200	R	R	R	R	R	R
26	1237.200	360.000	251.100	R	R	R	R	R	R
27	1395.600	360.000	310.931	R	R	R	R	R	R
28	1395.600	360.000	293.200	R	R	R	R	R	R
29	1395.600	360.000	265.140	R	R	R	R	R	R
30	1472.400	360.000	314.892	R	R	R	R	R	R
31	1472.400	360.000	293.200	R	R	R	R	R	R
32	1472.400	360.000	265.140	R	R	R	R	R	R

ECHO OF ELEMENT INPUT DATA

1. Pole/Beam Element Data

Number of Property Lines = 1

Property Line	=	1
Pole type	=	NVII
Concrete Strength, F`c (psi)	=	6000.00

NOTE : The properties used in the analysis were obtained at the effective heights of the poles and are provided below. For more information refer to the report that accompanies the program.

Pole/Beam Connectivity and Properties Used

4/20

Mem	Nodes I	J	K	Mat	Properties Area	E	I33	I22	J	G
1	1	2	4	1	229.04	4415.20	9200.22	9200.22	18400.44	1698.15
2	2	3	4	1	177.66	4415.20	4337.99	4337.99	8675.97	1698.15
3	5	6	8	1	229.04	4415.20	9200.22	9200.22	18400.44	1698.15
4	6	7	8	1	177.66	4415.20	4337.99	4337.99	8675.97	1698.15

2. Primary Cable Element Data

Number of Property Lines = 1

Primary Cable Connectivity and Properties

Mem	Nodes I	J	Mat	Cable	Properties Area	E
1	3	9	1	1	0.0790	27500.0
2	9	12	1	1	0.0790	27500.0
3	12	15	1	1	0.0790	27500.0
4	15	18	1	1	0.0790	27500.0
5	18	21	1	1	0.0790	27500.0
6	21	24	1	1	0.0790	27500.0
7	24	27	1	1	0.0790	27500.0
8	27	30	1	1	0.0790	27500.0
9	30	7	1	1	0.0790	27500.0

3. Secondary Cable Element Data

Number of Property Lines = 1

Secondary Cable Connectivity and Properties

Mem	Nodes I	J	Mat	Cable	Properties Area	E
1	2	10	1	2	0.0790	27500.0
2	10	13	1	2	0.0790	27500.0
3	13	16	1	2	0.0790	27500.0
4	16	19	1	2	0.0790	27500.0
5	19	22	1	2	0.0790	27500.0
6	22	25	1	2	0.0790	27500.0
7	25	28	1	2	0.0790	27500.0
8	28	31	1	2	0.0790	27500.0
9	31	6	1	2	0.0790	27500.0

4. Connector Element Data

Number of Property Lines = 2

Connector Connectivity and Properties

Mem	Nodes I	J	K	Mat	Properties Area	E	I33	I22	J	G
1	9	10	3	1	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
2	12	13	3	1	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
3	15	16	3	2	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
4	18	19	3	2	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
5	21	22	3	2	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
6	24	25	3	2	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
7	27	28	3	1	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
8	30	31	3	1	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8

3/20

5. Light Element Data

Number of Property Lines = 2

Property Line = 1
Projected area on X-Z plane = 735.36
Projected area on Y-Z plane = 735.36

Property Line = 2
Projected area on X-Z plane = 1129.60
Projected area on Y-Z plane = 1129.60

Light Connectivity and Properties

	Nodes				Properties					
Mem	I	J	K	Mat	Area	E	I33	I22	J	G
1	10	11	3	1	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
2	13	14	3	1	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
3	16	17	3	2	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
4	19	20	3	2	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
5	22	23	3	2	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
6	25	26	3	2	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
7	28	29	3	1	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8
8	31	32	3	1	1.0700	29000.0	0.6660	0.6660	1.3300	11153.8

CONCENTRATED APPLIED LOADS

- Sign weights

Node	X	Y	Z
3	0.00000	0.00000	-0.00518
7	0.00000	0.00000	-0.00911
9	0.00000	0.00000	-0.01265
10	0.00000	0.00000	-0.01265
11	0.00000	0.00000	-0.05649
12	0.00000	0.00000	-0.01101
13	0.00000	0.00000	-0.01101
14	0.00000	0.00000	-0.05233
15	0.00000	0.00000	-0.01032
16	0.00000	0.00000	-0.01032
17	0.00000	0.00000	-0.07453
18	0.00000	0.00000	-0.00932
19	0.00000	0.00000	-0.00932
20	0.00000	0.00000	-0.07576
21	0.00000	0.00000	-0.00889
22	0.00000	0.00000	-0.00889
23	0.00000	0.00000	-0.07513
24	0.00000	0.00000	-0.00896
25	0.00000	0.00000	-0.00896
26	0.00000	0.00000	-0.07465
27	0.00000	0.00000	-0.00941
28	0.00000	0.00000	-0.00941
29	0.00000	0.00000	-0.05205
30	0.00000	0.00000	-0.00978
31	0.00000	0.00000	-0.00978
32	0.00000	0.00000	-0.05938

- Wind loads on Signal Lights and cables

4/20

NOTE : These loads consist of loads that are different from the weight of the signs. Their magnitude is constant and does not change with the rotation of the lights. This is where wind on cables is included. For more information refer to the report that accompanies this program.

Node	X	Y	Z	XX	YY	ZZ
9	0.00000	0.02561	0.00000	0.00000	0.00000	0.00000
10	0.00000	0.05103	0.00000	0.00000	0.00000	0.00000
12	0.00000	0.01061	0.00000	0.00000	0.00000	0.00000
13	0.00000	0.02117	0.00000	0.00000	0.00000	0.00000
15	0.00000	0.01133	0.00000	0.00000	0.00000	0.00000
16	0.00000	0.02264	0.00000	0.00000	0.00000	0.00000
18	0.00000	0.01576	0.00000	0.00000	0.00000	0.00000
19	0.00000	0.03152	0.00000	0.00000	0.00000	0.00000
21	0.00000	0.01347	0.00000	0.00000	0.00000	0.00000
22	0.00000	0.02693	0.00000	0.00000	0.00000	0.00000
24	0.00000	0.01176	0.00000	0.00000	0.00000	0.00000
25	0.00000	0.02352	0.00000	0.00000	0.00000	0.00000
27	0.00000	0.00956	0.00000	0.00000	0.00000	0.00000
28	0.00000	0.01912	0.00000	0.00000	0.00000	0.00000
30	0.00000	0.03606	0.00000	0.00000	0.00000	0.00000
31	0.00000	0.07191	0.00000	0.00000	0.00000	0.00000

Total Loads Applied on the Structure

Node	Fx	Fy	Fz	Mom-X	Mom-Y	Mom-Z
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	-0.0052	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	-0.0091	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0256	-0.0126	0.0000	0.0000	0.0000
10	0.0000	0.0510	-0.0126	0.0000	0.0000	0.0000
11	0.0000	0.0000	-0.0565	0.0000	0.0000	0.0000
12	0.0000	0.0106	-0.0110	0.0000	0.0000	0.0000
13	0.0000	0.0212	-0.0110	0.0000	0.0000	0.0000
14	0.0000	0.0000	-0.0523	0.0000	0.0000	0.0000
15	0.0000	0.0113	-0.0103	0.0000	0.0000	0.0000
16	0.0000	0.0226	-0.0103	0.0000	0.0000	0.0000
17	0.0000	0.0000	-0.0745	0.0000	0.0000	0.0000
18	0.0000	0.0158	-0.0093	0.0000	0.0000	0.0000
19	0.0000	0.0315	-0.0093	0.0000	0.0000	0.0000
20	0.0000	0.0000	-0.0758	0.0000	0.0000	0.0000
21	0.0000	0.0135	-0.0089	0.0000	0.0000	0.0000
22	0.0000	0.0269	-0.0089	0.0000	0.0000	0.0000
23	0.0000	0.0000	-0.0751	0.0000	0.0000	0.0000
24	0.0000	0.0118	-0.0090	0.0000	0.0000	0.0000
25	0.0000	0.0235	-0.0090	0.0000	0.0000	0.0000
26	0.0000	0.0000	-0.0747	0.0000	0.0000	0.0000
27	0.0000	0.0096	-0.0094	0.0000	0.0000	0.0000
28	0.0000	0.0191	-0.0094	0.0000	0.0000	0.0000
29	0.0000	0.0000	-0.0520	0.0000	0.0000	0.0000
30	0.0000	0.0361	-0.0098	0.0000	0.0000	0.0000
31	0.0000	0.0719	-0.0098	0.0000	0.0000	0.0000
32	0.0000	0.0000	-0.0594	0.0000	0.0000	0.0000

5/20

Total Loads Applied on the Structure

Node	Fx	Fy	Fz	Mom-X	Mom-Y	Mom-Z
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	-0.0052	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	-0.0091	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0256	-0.0126	0.0000	0.0000	0.0000
10	0.0000	0.0510	-0.0126	0.0000	0.0000	0.0000
11	0.0000	0.0000	-0.0565	0.0000	0.0000	0.0000
12	0.0000	0.0106	-0.0110	0.0000	0.0000	0.0000
13	0.0000	0.0212	-0.0110	0.0000	0.0000	0.0000
14	0.0000	0.0000	-0.0523	0.0000	0.0000	0.0000
15	0.0000	0.0113	-0.0103	0.0000	0.0000	0.0000
16	0.0000	0.0226	-0.0103	0.0000	0.0000	0.0000
17	0.0000	0.0000	-0.0745	0.0000	0.0000	0.0000
18	0.0000	0.0158	-0.0093	0.0000	0.0000	0.0000
19	0.0000	0.0315	-0.0093	0.0000	0.0000	0.0000
20	0.0000	0.0000	-0.0758	0.0000	0.0000	0.0000
21	0.0000	0.0135	-0.0089	0.0000	0.0000	0.0000
22	0.0000	0.0269	-0.0089	0.0000	0.0000	0.0000
23	0.0000	0.0000	-0.0751	0.0000	0.0000	0.0000
24	0.0000	0.0118	-0.0090	0.0000	0.0000	0.0000
25	0.0000	0.0235	-0.0090	0.0000	0.0000	0.0000
26	0.0000	0.0000	-0.0747	0.0000	0.0000	0.0000
27	0.0000	0.0096	-0.0094	0.0000	0.0000	0.0000
28	0.0000	0.0191	-0.0094	0.0000	0.0000	0.0000
29	0.0000	0.0000	-0.0520	0.0000	0.0000	0.0000
30	0.0000	0.0361	-0.0098	0.0000	0.0000	0.0000
31	0.0000	0.0719	-0.0098	0.0000	0.0000	0.0000
32	0.0000	0.0000	-0.0594	0.0000	0.0000	0.0000

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|                          D E S I G N   S E C T I O N                      |
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NOTE : The design of the sections follows the design
standard provided in the report that accompanies
the ATLAS software. The report is dated Feb 1995

- CABLE DESIGN
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DESIGN MODE :

Working Stress Design Used
Safety Factor=2.5

Cable Number = 1

* Catenary Cable - Custom Cable *

Starting Node = 3

6/20

Ending Node = 7
Cable Tension (k) = 2.517
Required Cable Sag (%) = 4.300
Cable Diameter (in) = 0.375
Cable Area (sq. in) = 0.079
Cable Weight (psf) = 0.023
Cable Tensile Strength (k) = 4.600

CATENARY = 3/8"

Cable Size is Adequate for current Tensile Force
DL only used for design of this cable

Cable Number = 2

* Messenger Cable - Custom Cable *

Starting Node = 2
Ending Node = 6
Cable Tension (k) = 5.966
Cable Diameter (in) = 0.438
Cable Area (sq. in) = 0.116
Cable Weight (psf) = 0.033
Cable Tensile Strength (k) = 7.200

MESSENGER = 7/16"

Cable Size is Adequate for current Tensile Force
DL+WL used for design of this cable

- POLE DESIGN
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DESIGN MODE :

Pole Number = 1
Pole Node Numbers = 1 2 3

Input Pole Type = NVII
Base Shear (kips) = 6.101
Base Moment (kft) = 190.336

TYPE VII POLES PROPOSED EXCEED REQMTS

Required Pole Type = NVI
Selected Pole Capacity (kft) = 201.778
Required Embedment Length (ft) = 11.859
Minimum Embedment Length (ft) = 8.000
Pole Height Above Ground (ft) = 34.933

13' PROVIDED

The Pole chosen by DESIGN is adequate to support the base moment and shear

NOTE : The Base shear and moment are un-factored.
These values were scaled by the Factor of
Safety and then used for the foundation design
DL+WL used for design of this pole,

Pole Number = 2
Pole Node Numbers = 5 6 7

Input Pole Type = NVII
Base Shear (kips) = 6.021
Base Moment (kft) = 190.905

TYPE VII POLES PROPOSED EXCEED REQMTS

Required Pole Type = NVI
Selected Pole Capacity (kft) = 201.778
Required Embedment Length (ft) = 11.853
Minimum Embedment Length (ft) = 8.000

13' PROVIDED

7/20

Lake.SR50.Concrete_Span

Pole Height Above Ground (ft) = 34.933

The Pole chosen by DESIGN is adequate to support the base moment and shear

NOTE : The Base shear and moment are un-factored. These values were scaled by the Factor of Safety and then used for the foundation design DL+WL used for design of this pole,

GRAVITY SOLUTION RESULTS

Final Coordinates

Node	X	Y	Z
1	0.0000	360.0000	0.0000
2	1.6868	360.0000	293.1999
3	3.0402	360.0000	419.1998
4	24.0000	360.0000	0.0000
5	2280.0000	360.0000	0.0000
6	2278.3118	360.0000	293.1999
7	2276.9570	360.0000	419.1998
8	2304.0000	360.0000	0.0000
9	457.1758	360.0022	348.0497
10	457.1741	360.0045	293.2571
11	457.1733	360.0056	265.1971
12	625.5884	360.0009	327.3492
13	625.5881	360.0019	293.2496
14	625.5878	360.0026	265.1896
15	716.6552	360.0010	318.8819
16	716.6550	360.0020	293.2490
17	716.6547	360.0036	251.1489
18	904.1707	360.0014	308.6241
19	904.1707	360.0028	293.2490
20	904.1705	360.0066	251.1489
21	1105.0436	360.0012	305.2613
22	1105.0436	360.0024	293.2492
23	1105.0437	360.0065	251.1491
24	1236.0766	360.0010	307.9627
25	1236.0766	360.0021	293.2495
26	1236.0768	360.0050	251.1494
27	1394.4073	360.0008	317.1210
28	1394.4076	360.0017	293.2508
29	1394.4079	360.0027	265.1907
30	1470.9539	360.0032	323.7329
31	1470.9546	360.0063	293.2543
32	1470.9553	360.0092	265.1942

Gravity Loads Applied on the Structure

Node	Fx	Fy	Fz	Mom-X	Mom-Y	Mom-Z
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	-0.0052	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

8/20

6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	-0.0091	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0256	-0.0126	0.0000	0.0000	0.0000
10	0.0000	0.0510	-0.0126	0.0000	0.0000	0.0000
11	0.0000	0.0000	-0.0565	0.0000	0.0000	0.0000
12	0.0000	0.0106	-0.0110	0.0000	0.0000	0.0000
13	0.0000	0.0212	-0.0110	0.0000	0.0000	0.0000
14	0.0000	0.0000	-0.0523	0.0000	0.0000	0.0000
15	0.0000	0.0113	-0.0103	0.0000	0.0000	0.0000
16	0.0000	0.0226	-0.0103	0.0000	0.0000	0.0000
17	0.0000	0.0000	-0.0745	0.0000	0.0000	0.0000
18	0.0000	0.0158	-0.0093	0.0000	0.0000	0.0000
19	0.0000	0.0315	-0.0093	0.0000	0.0000	0.0000
20	0.0000	0.0000	-0.0758	0.0000	0.0000	0.0000
21	0.0000	0.0135	-0.0089	0.0000	0.0000	0.0000
22	0.0000	0.0269	-0.0089	0.0000	0.0000	0.0000
23	0.0000	0.0000	-0.0751	0.0000	0.0000	0.0000
24	0.0000	0.0118	-0.0090	0.0000	0.0000	0.0000
25	0.0000	0.0235	-0.0090	0.0000	0.0000	0.0000
26	0.0000	0.0000	-0.0747	0.0000	0.0000	0.0000
27	0.0000	0.0096	-0.0094	0.0000	0.0000	0.0000
28	0.0000	0.0191	-0.0094	0.0000	0.0000	0.0000
29	0.0000	0.0000	-0.0520	0.0000	0.0000	0.0000
30	0.0000	0.0361	-0.0098	0.0000	0.0000	0.0000
31	0.0000	0.0719	-0.0098	0.0000	0.0000	0.0000
32	0.0000	0.0000	-0.0594	0.0000	0.0000	0.0000

Final Displacements

Node	Tx	Ty	Tz	Rot-X	Rot-Y	Rot-Z
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	1.6868	0.0000	-0.0001	0.0000	0.0095	0.0000
3	3.0402	0.0000	-0.0002	0.0000	0.0113	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	-1.6882	0.0000	-0.0001	0.0000	-0.0095	0.0000
7	-3.0430	0.0000	-0.0002	0.0000	-0.0114	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0013	0.0022	0.0572	0.0000	0.0000	0.0000
10	-0.0004	0.0045	0.0571	0.0000	0.0000	0.0000
11	-0.0013	0.0056	0.0571	0.0000	0.0000	0.0000
12	0.0001	0.0009	0.0497	0.0000	0.0000	0.0000
13	-0.0002	0.0019	0.0496	0.0000	0.0000	0.0000
14	-0.0005	0.0026	0.0496	0.0000	0.0000	0.0000
15	0.0000	0.0010	0.0491	0.0000	0.0000	0.0000
16	-0.0001	0.0020	0.0490	0.0000	0.0000	0.0000
17	-0.0004	0.0036	0.0489	0.0000	0.0000	0.0000
18	0.0000	0.0014	0.0490	0.0001	0.0000	0.0000
19	-0.0001	0.0028	0.0490	0.0001	0.0000	0.0000
20	-0.0002	0.0066	0.0489	0.0001	0.0000	0.0000
21	0.0000	0.0012	0.0492	0.0001	0.0000	0.0000
22	0.0000	0.0024	0.0492	0.0001	0.0000	0.0000
23	0.0000	0.0065	0.0491	0.0001	0.0000	0.0000
24	0.0000	0.0010	0.0495	0.0001	0.0000	0.0000
25	0.0000	0.0021	0.0495	0.0001	0.0000	0.0000
26	0.0002	0.0050	0.0494	0.0001	0.0000	0.0000
27	-0.0001	0.0008	0.0508	0.0000	0.0000	0.0000
28	0.0001	0.0017	0.0508	0.0000	0.0000	0.0000
29	0.0004	0.0027	0.0507	0.0000	0.0000	0.0000
30	-0.0006	0.0032	0.0543	0.0001	0.0000	0.0000

9/20

Lake.SR50.Concrete_Span

31	0.0001	0.0063	0.0543	0.0001	0.0000	0.0000
32	0.0008	0.0092	0.0542	0.0001	0.0000	0.0000

- Frame Member Forces

Member # 1

	Node I	Node J
Axial Force =	0.3925	-0.3925
Shear Xm - Ym =	-3.4851	3.4851
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0080	-0.0015
Moment About Zm =	-1333.4468	311.6281

Member # 2

	Node I	Node J
Axial Force =	0.3927	-0.3927
Shear Xm - Ym =	-2.4732	2.4732
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0015	0.0000
Moment About Zm =	-311.6281	0.0000

Member # 3

	Node I	Node J
Axial Force =	0.3027	-0.3027
Shear Xm - Ym =	3.4849	-3.4849
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0064	-0.0012
Moment About Zm =	1334.2181	-312.4391

Member # 4

	Node I	Node J
Axial Force =	0.3028	-0.3028
Shear Xm - Ym =	2.4797	-2.4797
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0012	0.0000
Moment About Zm =	312.4391	0.0000

- Primary (Catenary) Cable Forces Primary Cable Reactions on Poles

Member	Force	Stress	Node	Fx	Fy	Fz
1	2.5170	31.8606	3	2.4866	0.0000	-0.3896
2	2.5057	31.7177				
3	2.4977	31.6167				
4	2.4907	31.5280				
5	2.4873	31.4854				
6	2.4875	31.4876				
7	2.4912	31.5336				
8	2.4962	31.5980				
9	2.5043	31.6998	7	-2.4869	0.0000	-0.2946

- Secondary (Messenger) Cable Forces Secondary Cable Reactions on Poles

10/20

Member	Force	Stress	Node	Fx	Fy	Fz
1	1.0000	8.6207	2	1.0000	0.0000	0.0001
2	1.0000	8.6207				
3	1.0000	8.6207				
4	1.0000	8.6207				
5	1.0000	8.6207				
6	1.0000	8.6207				
7	1.0000	8.6207				
8	1.0000	8.6207				
9	1.0000	8.6207	6	-1.0000	0.0000	0.0001

- Light Member Forces

Member # 1

	Node I	Node J
Axial Force =	-0.0565	0.0565
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 2

	Node I	Node J
Axial Force =	-0.0523	0.0523
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 3

	Node I	Node J
Axial Force =	-0.0746	0.0746
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 4

	Node I	Node J
Axial Force =	-0.0759	0.0759
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 5

	Node I	Node J
Axial Force =	-0.0753	0.0753
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000

11/20

Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 6

	Node I	Node J
Axial Force =	-0.0747	0.0747
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 7

	Node I	Node J
Axial Force =	-0.0521	0.0521
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 8

	Node I	Node J
Axial Force =	-0.0596	0.0596
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

- Hanger (Connector) Member Forces

Member # 1

	Node I	Node J
Axial Force =	-0.0693	0.0693
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 2

	Node I	Node J
Axial Force =	-0.0633	0.0633
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 3

	Node I	Node J
Axial Force =	-0.0849	0.0849
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000

12/20

Moment About Zm =	0.0000	0.0000

Member # 4

	Node I	Node J
Axial Force =	-0.0852	0.0852
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 5

	Node I	Node J
Axial Force =	-0.0842	0.0842
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 6

	Node I	Node J
Axial Force =	-0.0837	0.0837
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 7

	Node I	Node J
Axial Force =	-0.0614	0.0614
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

Member # 8

	Node I	Node J
Axial Force =	-0.0694	0.0694
Shear Xm - Ym =	0.0000	0.0000
Shear Xm - Zm =	0.0000	0.0000
Torsion =	0.0000	0.0000
Moment About Ym =	0.0000	0.0000
Moment About Zm =	0.0000	0.0000

W I N D S O L U T I O N R E S U L T S

Wind Application Angle = 90.00
Wind Velocity Input for Analysis = 81.0
Wind velocity may be reduced on cables that become unstable
Final Wind Velocity for Cable # 1 = 81.00
Final Wind Velocity for Cable # 2 = 81.00

Final Coordinates

Node	X	Y	Z
1	0.0000	360.0000	0.0000
2	2.6670	360.2108	293.2000
3	4.5233	360.3504	419.2000
4	24.0000	360.0000	0.0000
5	2280.0000	360.0000	0.0000
6	2277.3139	360.1607	293.2000
7	2275.4360	360.2696	419.2000
8	2304.0000	360.0000	0.0000
9	458.7899	372.7725	353.4318
10	456.2601	404.3469	308.7231
11	454.9629	420.6229	285.9022
12	626.3663	383.5806	329.7585
13	624.5882	413.7803	314.0234
14	623.1245	438.6604	301.1312
15	716.9381	391.8243	320.5735
16	715.7277	416.9425	315.6076
17	713.7384	458.2228	307.5812
18	904.0916	405.0183	315.3064
19	903.5013	420.3797	315.0280
20	901.8848	462.4417	314.2472
21	1104.8333	409.4710	314.4533
22	1104.6794	421.4821	314.4235
23	1104.1397	463.5787	314.2583
24	1235.7768	406.0411	315.4652
25	1235.9097	420.7430	314.9045
26	1236.2899	462.8107	313.2961
27	1393.7813	395.3181	322.2430
28	1394.4584	417.9972	314.8276
29	1395.2546	444.6694	306.1486
30	1470.0406	389.4313	329.0866
31	1471.0786	415.6947	313.6565
32	1472.0347	439.9036	299.5007

Total Loads Applied on the Structure

Node	Fx	Fy	Fz	Mom-X	Mom-Y	Mom-Z
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	-0.0052	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	-0.0091	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0256	-0.0126	0.0000	0.0000	0.0000
10	0.0000	0.0510	-0.0126	0.0000	0.0000	0.0000
11	0.0000	0.1167	0.0351	0.0000	0.0000	0.0000
12	0.0000	0.0106	-0.0110	0.0000	0.0000	0.0000
13	0.0000	0.0212	-0.0110	0.0000	0.0000	0.0000
14	0.0000	0.0601	0.0530	0.0000	0.0000	0.0000
15	0.0000	0.0113	-0.0103	0.0000	0.0000	0.0000
16	0.0000	0.0226	-0.0103	0.0000	0.0000	0.0000
17	0.0000	0.0891	0.0474	0.0000	0.0000	0.0000
18	0.0000	0.0158	-0.0093	0.0000	0.0000	0.0000
19	0.0000	0.0315	-0.0093	0.0000	0.0000	0.0000
20	0.0000	0.0891	-0.0121	0.0000	0.0000	0.0000
21	0.0000	0.0135	-0.0089	0.0000	0.0000	0.0000

22	0.0000	0.0269	-0.0089	0.0000	0.0000	0.0000
23	0.0000	0.0891	-0.0369	0.0000	0.0000	0.0000
24	0.0000	0.0118	-0.0090	0.0000	0.0000	0.0000
25	0.0000	0.0235	-0.0090	0.0000	0.0000	0.0000
26	0.0000	0.0891	-0.0057	0.0000	0.0000	0.0000
27	0.0000	0.0096	-0.0094	0.0000	0.0000	0.0000
28	0.0000	0.0191	-0.0094	0.0000	0.0000	0.0000
29	0.0000	0.0580	0.0405	0.0000	0.0000	0.0000
30	0.0000	0.0361	-0.0098	0.0000	0.0000	0.0000
31	0.0000	0.0719	-0.0098	0.0000	0.0000	0.0000
32	0.0000	0.0636	0.0471	0.0000	0.0000	0.0000

Final Displacements

Node	Tx	Ty	Tz	Rot-X	Rot-Y	Rot-Z
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	2.6670	0.2108	0.0000	-0.0011	0.0141	0.0000
3	4.5233	0.3504	0.0000	-0.0011	0.0150	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	-2.6861	0.1607	0.0000	-0.0008	-0.0142	0.0000
7	-4.5640	0.2696	0.0000	-0.0009	-0.0152	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	1.6153	12.7725	5.4393	0.6134	0.0565	0.0000
10	-0.9145	44.3469	15.5231	0.6180	0.0564	0.0002
11	-2.2117	60.6229	20.7622	0.6203	0.0564	0.0003
12	0.7780	23.5806	2.4590	1.0898	0.1125	0.0000
13	-1.0000	53.7803	20.8234	1.0917	0.1125	0.0000
14	-2.4638	78.6604	35.9912	1.0932	0.1125	0.0001
15	0.2830	31.8243	1.7406	1.3750	0.2390	0.0000
16	-0.9274	56.9425	22.4076	1.3768	0.2389	0.0000
17	-2.9168	98.2228	56.4812	1.3797	0.2389	0.0001
18	-0.0791	45.0183	6.7313	1.5527	1.1423	0.0000
19	-0.6694	60.3797	21.8280	1.5526	1.1423	0.0000
20	-2.2859	102.4417	63.1472	1.5521	1.1423	0.0000
21	-0.2103	49.4710	9.2412	1.5685	1.5607	0.0000
22	-0.3642	61.4821	21.2235	1.5680	1.5607	0.0000
23	-0.9039	103.5787	63.1583	1.5663	1.5607	0.0000
24	-0.2998	46.0411	7.5520	1.5327	-0.2339	0.0000
25	-0.1669	60.7430	21.7045	1.5327	-0.2339	0.0000
26	0.2133	102.8107	62.1961	1.5325	-0.2339	0.0000
27	-0.6261	35.3181	5.1728	1.2545	-0.0910	0.0000
28	0.0510	57.9972	21.6276	1.2554	-0.0910	0.0000
29	0.8472	84.6694	41.0086	1.2566	-0.0910	0.0000
30	-0.9139	29.4313	5.4081	1.0391	-0.0672	0.0000
31	0.1241	55.6947	20.4565	1.0407	-0.0671	0.0000
32	1.0802	79.9036	34.3607	1.0422	-0.0671	0.0000

- Frame (Pole) Member Forces

Member # 1

	Node I	Node J
Axial Force =	-0.0132	0.0132
Shear Xm - Ym =	-7.2085	7.2085
Shear Xm - Zm =	-0.6122	0.6122
Torsion =	0.0000	0.0000
Moment About Ym =	183.8819	-4.3953
Moment About Zm =	-2274.2549	160.7337

Member # 2

	Node I	Node J
Axial Force =	0.1899	-0.1899
Shear Xm - Ym =	-1.2757	1.2757
Shear Xm - Zm =	-0.0349	0.0349
Torsion =	0.0000	0.0000
Moment About Ym =	4.3953	0.0000
Moment About Zm =	-160.7337	0.0000

Member # 3

	Node I	Node J
Axial Force =	0.0131	-0.0131
Shear Xm - Ym =	7.2102	-7.2102
Shear Xm - Zm =	-0.4521	0.4521
Torsion =	0.0000	0.0000
Moment About Ym =	138.7810	-6.2145
Moment About Zm =	2285.6614	-171.6340

Member # 4

	Node I	Node J
Axial Force =	0.1615	-0.1615
Shear Xm - Ym =	1.3622	-1.3622
Shear Xm - Zm =	-0.0493	0.0493
Torsion =	0.0000	0.0000
Moment About Ym =	6.2145	0.0000
Moment About Zm =	171.6340	0.0000

- Primary (Catenary) Cable Forces Primary Cable Reactions on Poles

Member	Force	Stress	Node	Fx	Fy	Fz
1	1.2912	16.3443	3	1.2774	0.0349	-0.1849
2	1.2930	16.3668				
3	1.2880	16.3033				
4	1.2789	16.1883				
5	1.3198	16.7063				
6	1.3690	17.3290				
7	1.3653	17.2829				
8	1.3709	17.3536				
9	1.3727	17.3764	7	-1.3633	0.0494	-0.1525

- Secondary (Messenger) Cable Forces Secondary Cable Reactions on Poles

Member	Force	Stress	Node	Fx	Fy	Fz
1	5.9659	51.4304	2	5.9344	0.5774	0.2031
2	5.9464	51.2619				
3	5.9401	51.2078				
4	5.9376	51.1864				
5	5.8924	50.7967				
6	5.8434	50.3740				
7	5.8516	50.4453				
8	5.8536	50.4623				
9	5.8642	50.5532	6	-5.8484	0.4028	0.1484

- Light Member Forces

16/20

Member # 1
Rotation Angle in X-Z Plane (Degrees) = 35.50
Rotation Angle in Y-Z Plane (Degrees) = 3.25

	Node I	Node J
Axial Force =	-0.4551	0.4551
Shear Xm - Ym =	-0.0424	0.0424
Shear Xm - Zm =	-0.1156	0.1156
Torsion =	0.0001	-0.0001
Moment About Ym =	3.2427	0.0002
Moment About Zm =	-0.5724	-0.6181

Member # 2
Rotation Angle in X-Z Plane (Degrees) = 62.61
Rotation Angle in Y-Z Plane (Degrees) = 6.48

	Node I	Node J
Axial Force =	-0.1327	0.1327
Shear Xm - Ym =	-0.0629	0.0629
Shear Xm - Zm =	-0.0752	0.0752
Torsion =	0.0008	-0.0008
Moment About Ym =	2.1039	0.0073
Moment About Zm =	-0.8438	-0.9223

Member # 3
Rotation Angle in X-Z Plane (Degrees) = 79.00
Rotation Angle in Y-Z Plane (Degrees) = 13.92

	Node I	Node J
Axial Force =	-0.3158	0.3158
Shear Xm - Ym =	-0.0918	0.0918
Shear Xm - Zm =	-0.0680	0.0680
Torsion =	0.0081	-0.0081
Moment About Ym =	2.7738	0.0899
Moment About Zm =	-1.8836	-1.9820

Member # 4
Rotation Angle in X-Z Plane (Degrees) = 88.94
Rotation Angle in Y-Z Plane (Degrees) = 64.22

	Node I	Node J
Axial Force =	-0.2865	0.2865
Shear Xm - Ym =	0.0567	-0.0567
Shear Xm - Zm =	-0.1094	0.1094
Torsion =	0.0073	-0.0073
Moment About Ym =	2.0802	2.5236
Moment About Zm =	1.1833	1.2026

Member # 5
Rotation Angle in X-Z Plane (Degrees) = 89.78
Rotation Angle in Y-Z Plane (Degrees) = 72.98

	Node I	Node J
Axial Force =	-0.2472	0.2472
Shear Xm - Ym =	0.3846	-0.3846
Shear Xm - Zm =	-20.3417	20.3417
Torsion =	0.3225	-0.3225
Moment About Ym =	427.5458	428.8446

17/20

Moment About Zm =	8.0881	8.1016

Member # 6
Rotation Angle in X-Z Plane (Degrees) = 87.81
Rotation Angle in Y-Z Plane (Degrees) = 13.30

	Node I	Node J
Axial Force =	-0.0803	0.0803
Shear Xm - Ym =	-0.0091	0.0091
Shear Xm - Zm =	0.0014	-0.0014
Torsion =	-0.0001	0.0001
Moment About Ym =	-0.0795	0.0186
Moment About Zm =	-0.1910	-0.1931

Member # 7
Rotation Angle in X-Z Plane (Degrees) = 71.98
Rotation Angle in Y-Z Plane (Degrees) = 5.24

	Node I	Node J
Axial Force =	-0.0709	0.0709
Shear Xm - Ym =	0.0360	-0.0360
Shear Xm - Zm =	-0.0568	0.0568
Torsion =	-0.0005	0.0005
Moment About Ym =	1.5895	0.0038
Moment About Zm =	0.4891	0.5218

Member # 8
Rotation Angle in X-Z Plane (Degrees) = 59.68
Rotation Angle in Y-Z Plane (Degrees) = 3.86

	Node I	Node J
Axial Force =	-0.0958	0.0958
Shear Xm - Ym =	0.0335	-0.0335
Shear Xm - Zm =	-0.0731	0.0731
Torsion =	-0.0004	0.0004
Moment About Ym =	2.0466	0.0032
Moment About Zm =	0.4477	0.4933

- Hanger (Connector) Member Forces

Member # 1

	Node I	Node J
Axial Force =	0.0474	-0.0474
Shear Xm - Ym =	-0.0008	0.0008
Shear Xm - Zm =	0.0592	-0.0592
Torsion =	-0.0001	0.0001
Moment About Ym =	-0.0001	-3.2426
Moment About Zm =	-0.0001	-0.0452

Member # 2

	Node I	Node J
Axial Force =	0.0066	-0.0066
Shear Xm - Ym =	-0.0025	0.0025
Shear Xm - Zm =	0.0615	-0.0615
Torsion =	0.0000	0.0000
Moment About Ym =	-0.0009	-2.0975
Moment About Zm =	-0.0034	-0.0810

Member # 3

	Node I	Node J
Axial Force =	-0.0688	0.0688
Shear Xm - Ym =	-0.0093	0.0093
Shear Xm - Zm =	0.1050	-0.1050
Torsion =	0.0002	-0.0002
Moment About Ym =	-0.0040	-2.6881
Moment About Zm =	-0.0715	-0.1659

Member # 4

	Node I	Node J
Axial Force =	-0.2348	0.2348
Shear Xm - Ym =	0.2289	-0.2289
Shear Xm - Zm =	-0.3133	0.3133
Torsion =	0.0042	-0.0042
Moment About Ym =	2.1870	2.6307
Moment About Zm =	1.7497	1.7691

Member # 5

	Node I	Node J
Axial Force =	-0.1404	0.1404
Shear Xm - Ym =	1.9955	-1.9955
Shear Xm - Zm =	-103.0585	103.0585
Torsion =	0.2103	-0.2103
Moment About Ym =	618.2526	619.6989
Moment About Zm =	11.9765	11.9938

Member # 6

	Node I	Node J
Axial Force =	-0.0376	0.0376
Shear Xm - Ym =	-0.0518	0.0518
Shear Xm - Zm =	-0.0104	0.0104
Torsion =	-0.0001	0.0001
Moment About Ym =	0.0276	0.1258
Moment About Zm =	-0.3801	-0.3823

Member # 7

	Node I	Node J
Axial Force =	-0.0100	0.0100
Shear Xm - Ym =	0.0031	-0.0031
Shear Xm - Zm =	0.0663	-0.0663
Torsion =	0.0000	0.0000
Moment About Ym =	0.0013	-1.5844
Moment About Zm =	0.0205	0.0528

Member # 8

	Node I	Node J
Axial Force =	0.0775	-0.0775
Shear Xm - Ym =	0.0016	-0.0016
Shear Xm - Zm =	0.0670	-0.0670
Torsion =	0.0000	0.0000
Moment About Ym =	0.0007	-2.0428
Moment About Zm =	0.0017	0.0467

Concrete Strain Pole Moment Calculation

Project: SR 50 @ CR 565 11/2/2007

County: Lake

The Atlas Program does not include the wind load on the pole.
Reference the ATLAS Program results for this location.

Pole Properties

Pole Type NVII		
Elevation to message wire	22.5	ft
Elevation to catenary wire	34.0	ft
Distance from catenary wire to top	1.0	ft
Minimum pole height, H =	35.0	ft
Required embedment	12.0	ft
Total pole height	47.0	ft
Pole dimension at top	14.0	in
Taper rate per foot	0.152	in/ft
Bottom diameter	19.32	in

Wind Load

Wind velocity, V =	81	mph
Cd, Drag Coefficient	1.2	
Ch, Height Coefficient	1.1	
Wind pressure, P = 0.00256*Cd*Ch*(1.3*V)^2	37.47	psf

Wind Moment on Pole

Projected area of pole, Ap =	48.59	sf
Moment on pole = P*Ap*H/2 =	31861.81	ft-lbs

Wind Moment on Pole Mounted Signs

Area of sign, As = 2' x 8'	16.0	sf
Height from base to sign, Hs =	18.0	ft
Moment from wind on sign = P*As * Hs =	10791.04	ft-lbs

Total Moments

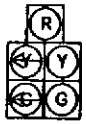
Wind moment of pole and sign	42.65	k-ft
Moment from ATLAS Program	190.90	k-ft
Total Moment	**233.55**	k-ft
Maximum Moment Type VII Concrete Pole	**314.0**	k-ft per FDOT 17725

Use: Type VII Concrete poles x 47' total length with 12' embedded

Reference

SIGNAL HEAD DETAILS

1-6, 2-5

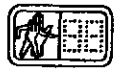


5-SECT, 1-WAY
12" LED
650-5I-513 (2 EA)

2, 1
6, 8

3-SECT, 1-WAY
12" LED
650-5I-313 (6 EA)

P4, P6



1-SECT 1-WAY
1-SECT 2-WAY
INTERNATIONAL
PEDESTRIAN SIGNAL
653-191 (2 EA)
653-192 (1 EA)

Detector Configuration Chart

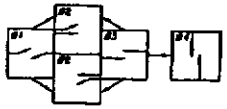
MOVEMENT	LOOP I.D.	LOOP TYPE	DETECTOR I.D.	DETECTOR TYPE	CHANNEL NUMBER	SECONDS OF DELAY
1	L-1	FIGURE	U	10	1	5
2	L-2A & 2B	6	U2	9	1	-
	L-2C & 2D	8			2	-
4	L-4	FIGURE	U4	10	1	5
5	L-5	FIGURE	U5	10	1	5
6	L-6A & 6B	6	U6	9	1	-
	L-6C & 6D	8			2	-
8	L-8	FIGURE	U8	10	1	5
	L-8A	FIGURE			2	5

Controller Operations

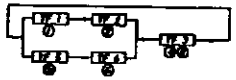
INITIAL TIMING CHART

Phase (TP)	MIN. GREEN		MAX. GREEN		YELLOW CLEAR	ALL RED	WALK	P.D.W.	RECALL	DET. FUNCT.
	INIT.	EXT.	I	II						
1	5	3	15	25	4.0	2.3				NC
2	15	3	50	30	4.0	2.3	7.0	15.0	Min	L
4	10	3	15	30	4.0	2.7	7.0	25.0		NL
5	5	3	15	25	4.0	2.3				NC
6	15	3	30	30	4.0	2.3			Min	L

PHASE MOVEMENT DIAGRAM



RING DIAGRAM

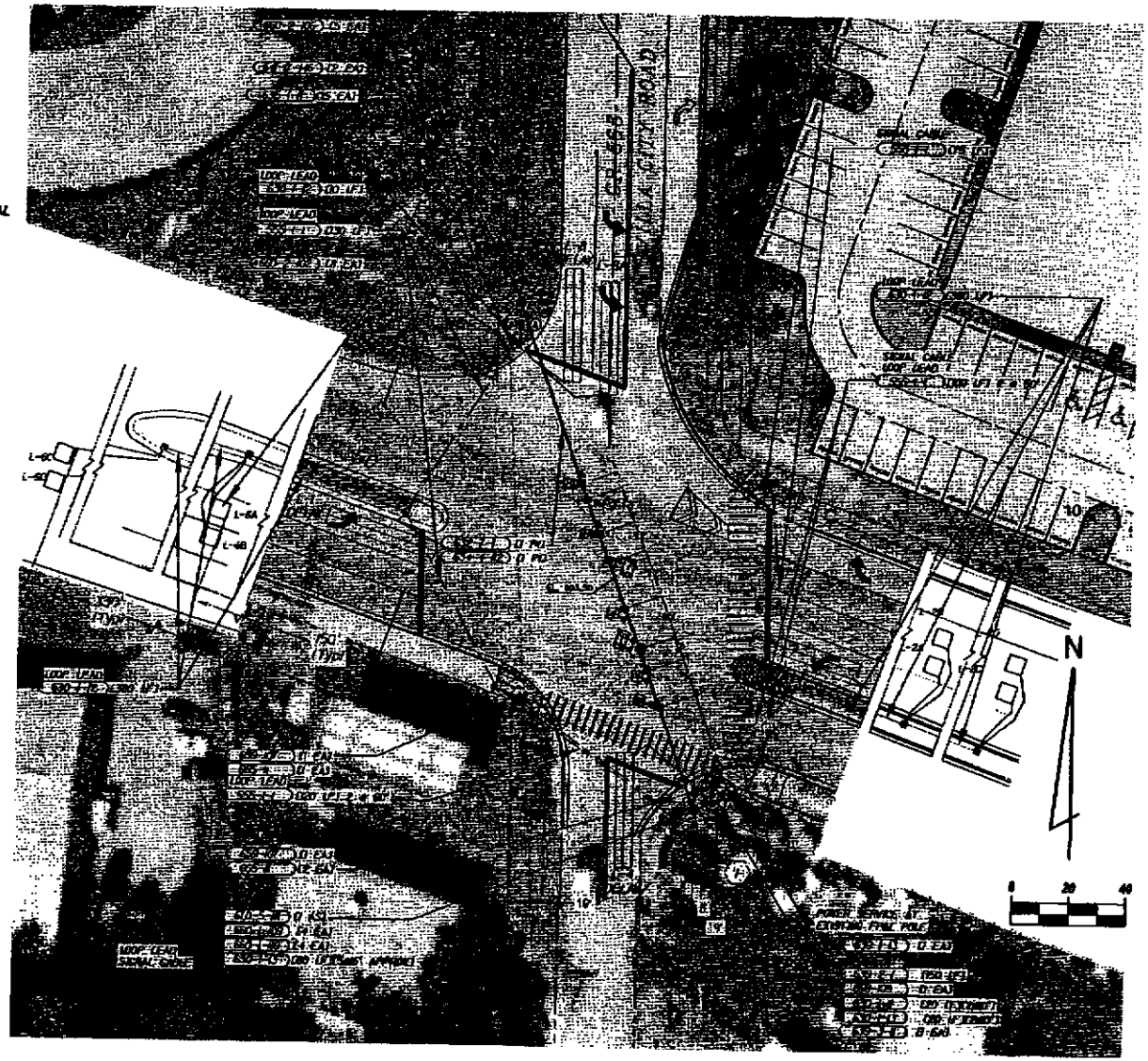


NOTES:

Fully Actuated Controller. Use SDP 7.

2+6 Shall Flash Yellow; All Other Phases Shall Flash Red

Controller Shall Be Wired And Conform All Load Switches For Further 8 Phase Operation.



REVISIONS			Engineer of Record: Fred Farrell, P.E. PE No. 41902 Date: October 12, 2007	Traffic Engineering Data Solutions, Inc.	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SR 50 AT CR 565 (VILLA CITY ROAD) SIGNAL PLANS	SHEET NO. T-4
DATE	BY	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT #		
					50	LAKE	-----		