



January 21, 2015

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification – Radio Add
Property Address: 345 North Main Street, West Hartford, CT 06117 (the
“Property”)
Applicant: New Cingular Wireless PCS, LLC (“AT&T”)

Dear Ms. Bachman:

New Cingular Wireless PCS, LLC (aka) AT&T Wireless currently maintains nine (9) wireless telecommunication antennas, all at the 94 (A. G. L.) foot level on an existing 105 foot roof top tower at the above referenced address. The tower is owned by Sprint Sites USA. The Council approved AT&T's/New Cingular Wireless use of the tower in the following prior decision; Docket No. EM-CING-155-121011. In this 11/09/2012 decision (the “Decision”), the Council approved for AT&T to install 6 Remote Radio Heads (Ericsson RRUS) but AT&T installed only three (3). AT&T now intends to install the remaining RRUS's to complete the installation. This exempt Modification Application is necessary because the Decision is over one year old. Please refer to Tab 1 for further specifications of the new radio heads.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to the town of West Hartford, CT c/o Mayor Scott Slifka. A copy of this letter is also being sent to Sprint Sites USA, the tower owner, and Edens, the owner of the property where the tower is located.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in height of the existing tower. AT&T's installations will be installed at the 94 foot level of the 105 foot tower.



2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the General Power Density table included in Attachment 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Attachment 3).

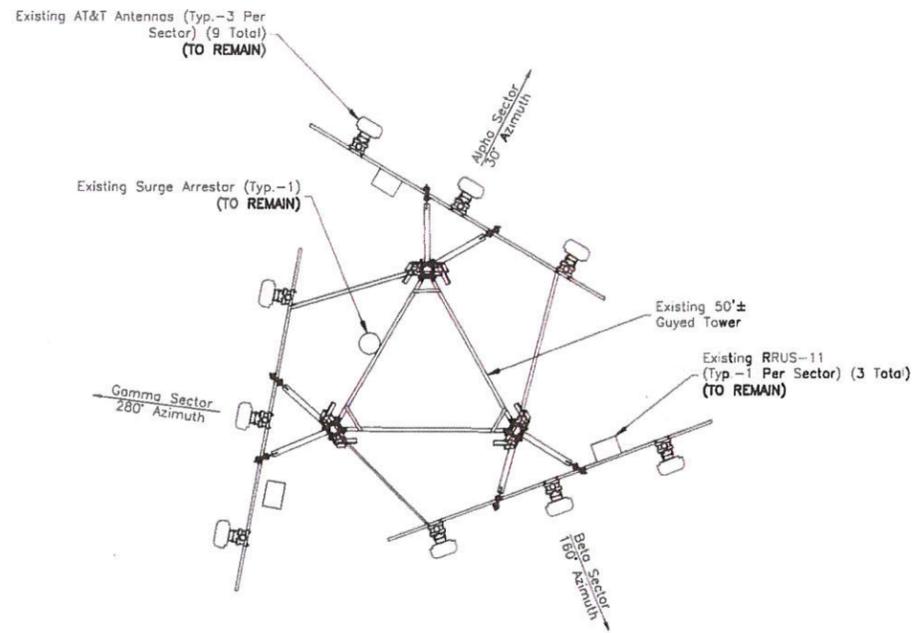
For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b)(2).

Sincerely,

Adam F. Braillard

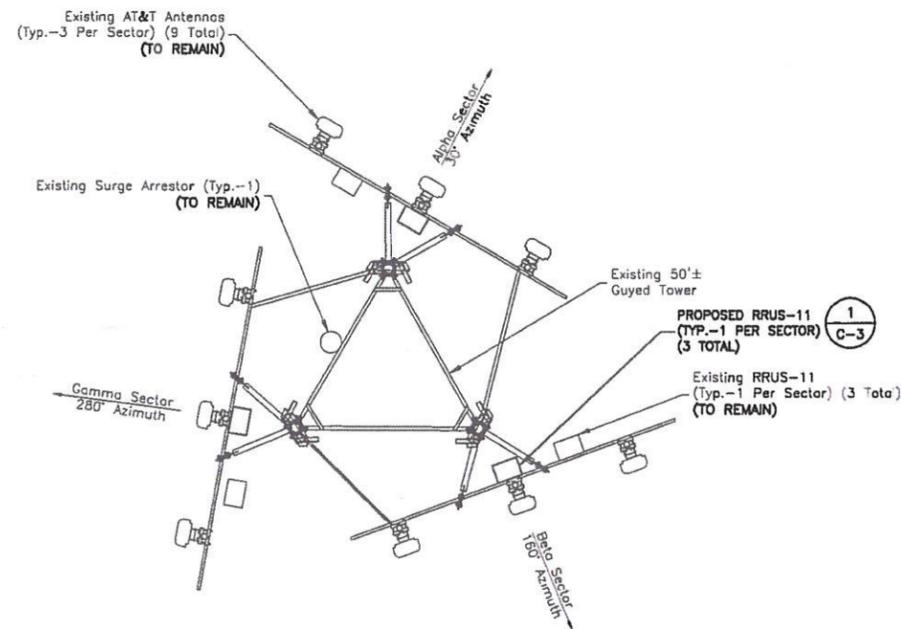
cc: Sprint Sites USA, 1765 Grassland Parkway, Suite A, Alpharetta, GA 30004
Mayor Scott Slifka, Town of West Hartford, 50 South Main Street, West Hartford, CT 06107
Edens, 21 Custom House Street, Suite 450, Boston, MA 02110

TAB 1



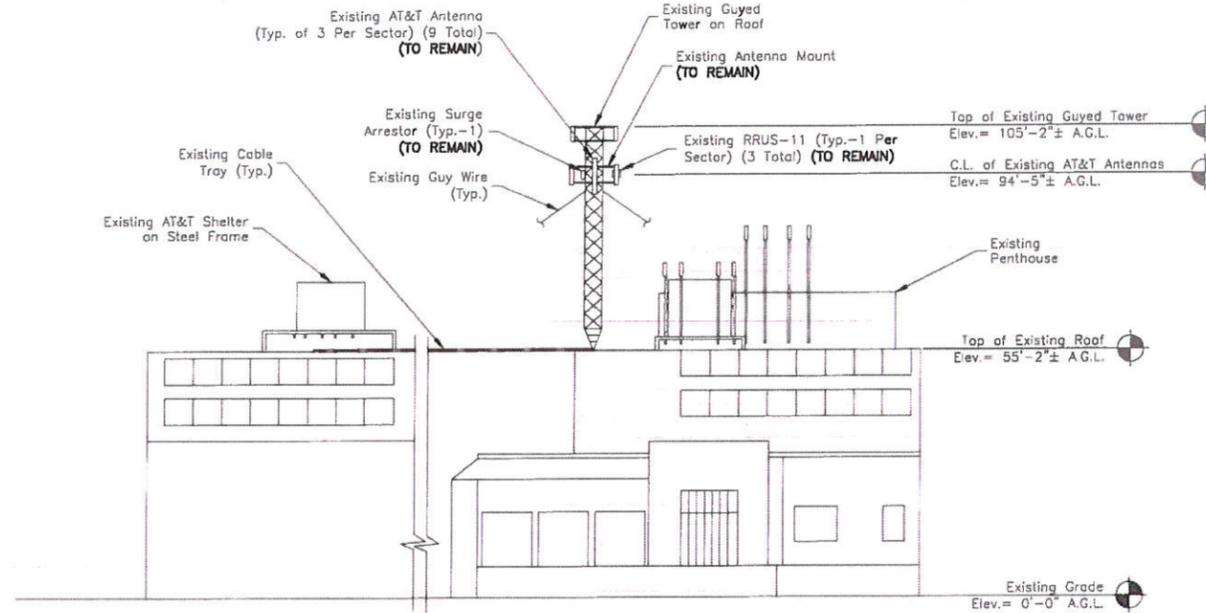
EXISTING ANTENNA LAYOUT
SCALE: N.T.S.

1



PROPOSED ANTENNA LAYOUT
SCALE: N.T.S.

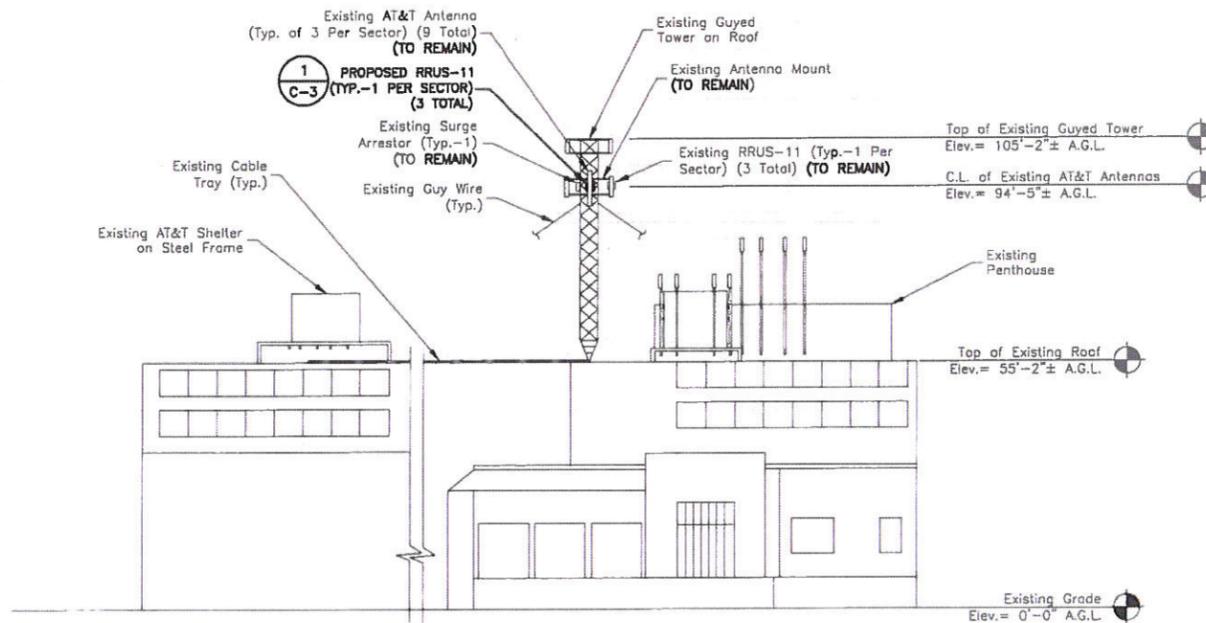
2



EXISTING EAST ELEVATION

SCALE: 1"=40' FOR 11"x17"
1"=20' FOR 22"x34"

3



PROPOSED EAST ELEVATION

SCALE: 1"=40' FOR 11"x17"
1"=20' FOR 22"x34"

4



NOTES:

1. PRIOR TO START OF ANY WORK, A PASSING STRUCTURAL ANALYSIS SHALL BE PROVIDED BY A CONNECTICUT LICENSED P.E. CONTRACTOR TO OBTAIN A COPY BEFORE STARTING ANY WORK.
2. ALL ANTENNAS, COAX, SURGE ARRESTORS, RRUS, ETC. TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY OTHERS AND FINAL AT&T RF DATA SHEET.



500 ENTERPRISE DRIVE SUITE 3A
ROCKY HILL, CT 06067



1997 ANNAPOLIS EXCHANGE PARKWAY
SUITE 200
ANNAPOLIS, MD 21401

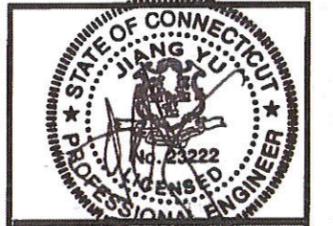
**CT1195
WEST HARTFORD
BISHOPS CORNER**

CONSTRUCTION DRAWINGS

A 03/05/14 ISSUED AS FINAL



Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



CT LICENSE No. PEN.0023222

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT.

DRAWN BY: FG

REVIEWED BY: PD

CHECKED BY: GHN

PROJECT NUMBER: 50063024

JOB NUMBER: 50063033

SITE ADDRESS:

345 NORTH MAIN STREET,
WEST HARTFORD,
CT 06107
HARTFORD COUNTY

SHEET TITLE

ANTENNA LAYOUTS
& ELEVATIONS

SHEET NUMBER

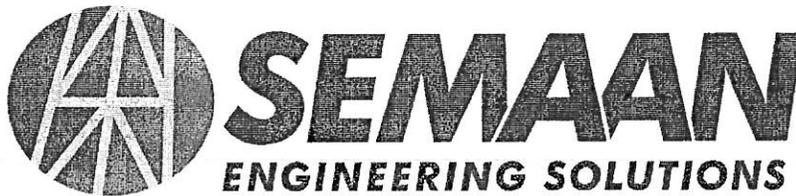
C-2

TAB 2

Power Density Calculations

<u>Control Number</u>	<u>Site</u>	<u>Carrier</u>	<u>#Channels</u>	<u>ERP/Ch</u>	<u>Ant Ht</u>	<u>Power Density (</u>	<u>MHz</u>	<u>S</u>	<u>%MPE</u>	<u>Site Total</u>
EM-Clearwire-155-100602	West Hartford - 345 North Main Street	Clearwire	2	153	100	0.0110	2496	1.0000	1.10%	16.46% Total of other carriers per Clearwire 18.38% Clearwire plus other carriers
EM-Clearwire-155-100602	West Hartford - 345 North Main Street	Clearwire	1	211	96	0.0082	23 GHz	1.0000	0.82%	
EM-Sprint-155-130828	West Hartford - 345 North Main Street	Sprint CDMA/LTE	3	693	100	0.0748	1900	1.0000	7.48%	71.73% = Total of AT&T, Clearwire and other carriers per Clearwire
EM-Sprint-155-130828	West Hartford - 345 North Main Street	Sprint CDMA/LTE	1	390	100	0.0140	850	0.5667	2.47%	
EM-CING-155-121022	West Hartford - 345 North Main Street	AT&T UMTS	2	565	89	0.0513	880	0.5867	8.74%	
EM-CING-155-121022	West Hartford - 345 North Main Street	AT&T UMTS	2	875	89	0.0794	1900	1.0000	7.94%	
EM-CING-155-121022	West Hartford - 345 North Main Street	AT&T GSM	1	283	89	0.0128	880	0.5867	2.19%	
EM-CING-155-121022	West Hartford - 345 North Main Street	AT&T GSM	4	525	89	0.0953	1900	1.0000	9.53%	
EM-CING-155-121022	West Hartford - 345 North Main Street	AT&T GSM	4	525	89	0.0953	1900	1.0000	9.53%	
EM-CING-155-121022	West Hartford - 345 North Main Street	AT&T LTE	1	1615	89	0.0733	734	0.4893	14.98%	

TAB 3



Modification Package

Prepared for:

Sprint Sites USA
1765 Grassland Parkway
Suite AAlpharetta, GA 30004

ATTN: Ms. Deborah MacMaster

Structure : 50 ft Rohn Guyed Tower
(rooftop mounted 54 ft above grade)

Proposed Carrier : AT&T

Site ID : CT03XC074

Site Location : West Hartford, CT

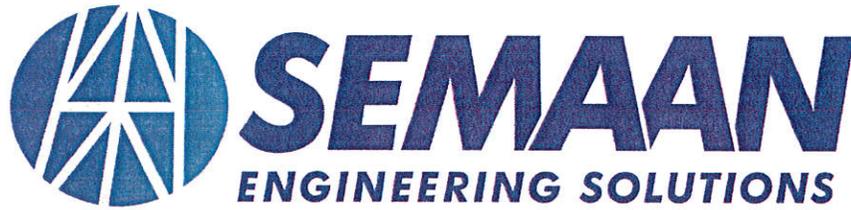
County : Hartford

Date : October 20, 2014

Usage : 38.0% Legs, 62.0% Diagonals, 25.0%
Horizontals, 81.0% Guys
(with modifications)



Semaan Engineering Solutions Holdings, LLC
1079 N. 205th Street, Elkhorn, NE 68022
Phone: 402-289-1888



Modification Package

Prepared for:

**Sprint Sites USA
1765 Grassland Parkway
Suite A Alpharetta, GA 30004**

ATTN: Ms. Deborah MacMaster

**Structure : 50 ft Rohn Guyed Tower
(rooftop mounted 54 ft above grade)**

Proposed Carrier : AT&T

Site ID : CT03XC074

Site Location : West Hartford, CT

County : Hartford

Date : October 20, 2014

**Usage : 38.0% Legs, 62.0% Diagonals, 25.0%
Horizontals, 81.0% Guys
(with modifications)**

Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 50 ft Rohn Guyed Tower located at West Hartford, CT, Hartford County (site # CT03XC074). The tower was originally designed and manufactured by Rohn (Drawing # 0970975 dated July 28, 1997). This tower is mounted on top of a building with the base of the tower 54 ft above the grade line.

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software. The analysis assumes that the tower is in good, undamaged, and non-corroded condition. The analysis was performed in conformance with TIA/EIA-222 Rev F and local building codes for a basic wind speed of 80 mph no ice and 69 mph with 1/2" radial ice (fastest mile). This wind speed is equivalent to a 100 mph 3-second gust per the IBC 2003. This is in conformance with the IBC 2003: Section 1609.1.1, Exception (5) and Section 3108.4.

Basic Wind Speed: 80.0 mph
 Radial Ice: 69 mph w/ 0.50" ice
 Code: TIA/EIA-222 Rev F

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
46.0/ 100.0	3	APXVSP18-C-A20	(3) Sector Frames	(3) 1-1/4	Sprint
	3	800 MHz RRH		(3) 1-1/4	
	3	1900 MHz RRU		(3) 1-1/4	
	3	APXVTM14-C-I20		(3) 1-1/4	Sprint 2.5
	3	TD-RRH-8X20-25		(3) 1-1/4	
39.3/ 93.3	3	RRUS11	(3) Sector Frames	(1) Fiber Optic Cable (3) DC Cables Inside (1) 3" Conduit	AT&T
	1	AM-X-CD-16-65-00T-RET			
	2	P65-17-XLH-RR			
	1	DC6-48-60-18-8F			
	6	TT19-08BP111-001			
	6	Powerwave 7770.00			
13.0/ 67.0	1	GPS antenna	Leg Mounts	(1) 1/2	Sprint

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
39.3	3	RRUS11	Existing Mounts	(3) DC Cables Inside (1) 3" Conduit	AT&T

The proposed transmission lines may be placed anywhere on the tower. No line shielding was considered.

Results

The existing Guyed Tower is not structurally capable of supporting the existing and proposed antennas. The guy cables at the 32 ft elevation are overstressed. New larger guy cables will be required. Refer to the attached drawings for additional information.

The maximum leg usage is: 37.0% (without mods) and 38.0% (with mods).
The maximum diagonal usage is: 66.0% (without mods) and 62.0% (with mods).
The maximum horizontal usage is: 26.0% (without mods) and 25.0% (with mods).
The maximum guy usage is: 138.0% (without mods) and 81.0% (with mods).

	Design Compression (kip)	Analysis Compression (kip)	% Of Design
Tower Base	23.00	40.98	178.2

Anchor Radius (Ft)	Design Uplift (kip)	Analysis Uplift (kip)	% Of Design
29.0 ft	10.70	16.49	154.1

The analysis reactions exceed the original design reactions. The building support structure and connections must be checked by others for the additional loading.

Conclusion

Based on the analysis results, the existing structure meets the requirements per the TIA/EIA-222 Rev F standards for a basic wind speed of 80 mph no ice and 69 mph with 1/2" radial ice.

If you have any questions or require additional information, please call 402-289-1888.

Attachments

1. Drawing T-1, Revision 0, dated 10/20/2014.
2. Drawing N-1, Revision 0, dated 10/20/2014.
3. Drawing N-2, Revision 0, dated 10/20/2014.
4. Drawing S-1, Revision 0, dated 10/20/2014.
5. Drawing S-2, Revision 0, dated 10/20/2014.
6. Drawing S-3, Revision 0, dated 10/20/2014.

Standard Conditions

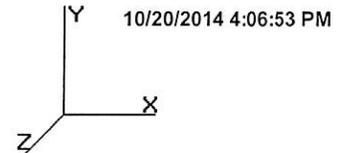
All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions Holdings and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and Semaan Engineering Solutions, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Semaan Engineering Solutions Holdings is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Gh : 1.22

Section Forces

LoadCase Normal No Ice 80.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	42.50	22.26	0.00	11.19	0.00	0.22	2.54	1.00	1.00	0.59	6.65	15.57	0.00	630.3	0.0	456.29	505.62	961.91	1
3	27.50	21.21	0.00	14.33	0.00	0.28	2.35	1.00	1.00	0.61	8.74	44.13	0.00	842.7	0.0	530.01	1,365.2	1,895.21	1
2	12.50	20.02	0.00	11.19	0.00	0.22	2.54	1.00	1.00	0.59	6.65	44.56	0.00	768.8	0.0	410.24	1,300.7	1,711.01	1
1	2.50	19.10	2.61	2.58	0.00	0.61	1.80	1.00	1.00	0.76	4.56	14.98	0.00	485.8	0.0	190.78	417.39	397.07	1
														2,727.6	0.0			4,965.20	

** = 2QzGhAg Controls

LoadCase 60 deg No Ice 80.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	42.50	22.26	0.00	11.19	0.00	0.22	2.54	0.80	1.00	0.59	6.65	15.57	0.00	630.3	0.0	456.29	505.62	961.91	1
3	27.50	21.21	0.00	14.33	0.00	0.28	2.35	0.80	1.00	0.61	8.74	44.13	0.00	842.7	0.0	530.01	1,365.2	1,895.21	1
2	12.50	20.02	0.00	11.19	0.00	0.22	2.54	0.80	1.00	0.59	6.65	44.56	0.00	768.8	0.0	410.24	1,300.7	1,711.01	1
1	2.50	19.10	2.61	2.58	0.00	0.61	1.80	0.80	1.00	0.76	4.04	14.98	0.00	485.8	0.0	168.94	417.39	397.07	1
														2,727.6	0.0			4,965.20	

** = 2QzGhAg Controls

LoadCase 90 deg No Ice 80.00 mph Wind at 90 deg From Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

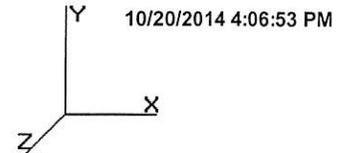
Sect Seq	Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	42.50	22.26	0.00	11.19	0.00	0.22	2.54	0.85	1.00	0.59	6.65	15.57	0.00	630.3	0.0	456.29	505.62	961.91	1
3	27.50	21.21	0.00	14.33	0.00	0.28	2.35	0.85	1.00	0.61	8.74	44.13	0.00	842.7	0.0	530.01	1,365.2	1,895.21	1
2	12.50	20.02	0.00	11.19	0.00	0.22	2.54	0.85	1.00	0.59	6.65	44.56	0.00	768.8	0.0	410.24	1,300.7	1,711.01	1
1	2.50	19.10	2.61	2.58	0.00	0.61	1.80	0.85	1.00	0.76	4.17	14.98	0.00	485.8	0.0	174.40	417.39	397.07	1
														2,727.6	0.0			4,965.20	

** = 2QzGhAg Controls

SEMAAN ENGINEERING SOLUTIONS, LLC
 1079 N.205th Street
 Elkhorn, NE 68022
 Phone: 402-289-1888
 Fax: 402-289-1861

Site Number: CT03XC074_FIX02
 Location: West Hartford, CT
 Code: TIA/EIA-222 Rev F

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Gh : 1.22

Section Forces

LoadCase Normal Ice

69.28 mph Wind Normal To Face with Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	42.50	16.70	0.00	16.35	5.17	0.32	2.25	1.00	1.00	0.62	10.17	15.57	12.52	1,000.3	370.1	463.70	684.10	1,147.80	1
3	27.50	15.91	0.00	21.59	7.26	0.42	2.02	1.00	1.00	0.66	14.26	44.13	33.75	1,592.0	749.4	558.05	1,806.9	1,983.87	1 **
2	12.50	15.01	0.00	16.35	5.17	0.32	2.25	1.00	1.00	0.62	10.17	44.56	34.42	1,431.6	662.8	416.90	1,729.0	1,871.87	1 **
1	2.50	14.33	2.61	4.13	1.55	0.79	1.81	1.00	1.00	0.89	6.27	14.98	11.67	749.4	263.5	197.38	556.82	297.78	1 **
														4,773.3	2,045.8			5,301.32	

** = 2QzGhAg Controls

LoadCase 60 deg Ice

69.28 mph Wind at 60 deg From Face with Ice

Allow Stress Inc: 1.333
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4	42.50	16.70	0.00	16.35	5.17	0.32	2.25	0.80	1.00	0.62	10.17	15.57	12.52	1,000.3	370.1	463.70	684.10	1,147.80	1
3	27.50	15.91	0.00	21.59	7.26	0.42	2.02	0.80	1.00	0.66	14.26	44.13	33.75	1,592.0	749.4	558.05	1,806.9	1,983.87	1 **
2	12.50	15.01	0.00	16.35	5.17	0.32	2.25	0.80	1.00	0.62	10.17	44.56	34.42	1,431.6	662.8	416.90	1,729.0	1,871.87	1 **
1	2.50	14.33	2.61	4.13	1.55	0.79	1.81	0.80	1.00	0.89	5.75	14.98	11.67	749.4	263.5	180.93	556.82	297.78	1 **
														4,773.3	2,045.8			5,301.32	

** = 2QzGhAg Controls

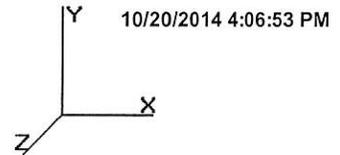
LoadCase 90 deg Ice

69.28 mph Wind at 90 deg From Face with Ice

Allow Stress Inc: 1.333
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Sect Seq	Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Ice Weight (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	42.50	16.70	0.00	16.35	5.17	0.32	2.25	0.85	1.00	0.62	10.17	15.57	12.52	1,000.3	370.1	463.70	684.10	1,147.80	1
3	27.50	15.91	0.00	21.59	7.26	0.42	2.02	0.85	1.00	0.66	14.26	44.13	33.75	1,592.0	749.4	558.05	1,806.9	1,983.87	1 **
2	12.50	15.01	0.00	16.35	5.17	0.32	2.25	0.85	1.00	0.62	10.17	44.56	34.42	1,431.6	662.8	416.90	1,729.0	1,871.87	1 **
1	2.50	14.33	2.61	4.13	1.55	0.79	1.81	0.85	1.00	0.89	5.88	14.98	11.67	749.4	263.5	185.05	556.82	297.78	1 **
														4,773.3	2,045.8			5,301.32	

** = 2QzGhAg Controls



Gh : 1.22

Section Forces

LoadCase Normal

50.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	42.50	8.70	0.00	11.19	0.00	0.22	2.54	1.00	1.00	0.59	6.65	15.57	0.00	630.3	0.0	178.24	197.51	375.75	1
3	27.50	8.29	0.00	14.33	0.00	0.28	2.35	1.00	1.00	0.61	8.74	44.13	0.00	842.7	0.0	207.04	533.28	740.32	1
2	12.50	7.82	0.00	11.19	0.00	0.22	2.54	1.00	1.00	0.59	6.65	44.56	0.00	768.8	0.0	160.25	508.11	668.36	1
1	2.50	7.46	2.61	2.58	0.00	0.61	1.80	1.00	1.00	0.76	4.56	14.98	0.00	485.8	0.0	74.52	163.04	155.11	1
														2,727.6	0.0			1,939.53	

** = 2QzGhAg Controls

LoadCase 60 deg

50.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	42.50	8.70	0.00	11.19	0.00	0.22	2.54	0.80	1.00	0.59	6.65	15.57	0.00	630.3	0.0	178.24	197.51	375.75	1
3	27.50	8.29	0.00	14.33	0.00	0.28	2.35	0.80	1.00	0.61	8.74	44.13	0.00	842.7	0.0	207.04	533.28	740.32	1
2	12.50	7.82	0.00	11.19	0.00	0.22	2.54	0.80	1.00	0.59	6.65	44.56	0.00	768.8	0.0	160.25	508.11	668.36	1
1	2.50	7.46	2.61	2.58	0.00	0.61	1.80	0.80	1.00	0.76	4.04	14.98	0.00	485.8	0.0	65.99	163.04	155.11	1
														2,727.6	0.0			1,939.53	

** = 2QzGhAg Controls

LoadCase 90 deg

50.00 mph Wind at 90 deg From Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

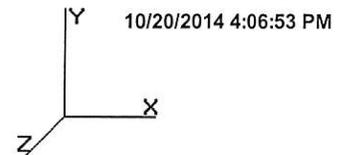
Sect Seq	Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	42.50	8.70	0.00	11.19	0.00	0.22	2.54	0.85	1.00	0.59	6.65	15.57	0.00	630.3	0.0	178.24	197.51	375.75	1
3	27.50	8.29	0.00	14.33	0.00	0.28	2.35	0.85	1.00	0.61	8.74	44.13	0.00	842.7	0.0	207.04	533.28	740.32	1
2	12.50	7.82	0.00	11.19	0.00	0.22	2.54	0.85	1.00	0.59	6.65	44.56	0.00	768.8	0.0	160.25	508.11	668.36	1
1	2.50	7.46	2.61	2.58	0.00	0.61	1.80	0.85	1.00	0.76	4.17	14.98	0.00	485.8	0.0	68.13	163.04	155.11	1
														2,727.6	0.0			1,939.53	

** = 2QzGhAg Controls

SEMAAN ENGINEERING SOLUTIONS, LLC
 1079 N.205th Street
 Elkhorn, NE 68022
 Phone: 402-289-1888
 Fax: 402-289-1861

Site Number: CT03XC074_FIX02
 Location: West Hartford, CT
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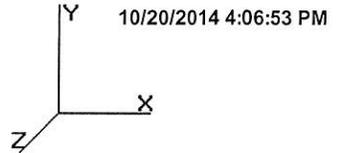
Tower Loading

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice CaAa (sf)	CaAa Factor	Weight (lb)	Ice CaAa (sf)	CaAa Factor	Distance From Face (ft)	X Angle (deg)	Vert Ecc (ft)
46.00	Sector Frames	3	500.00	15.000	0.75	650.00	20.600	0.75	0.000	0.00	0.000
46.00	APXVSP18-C-A20	3	50.00	8.260	0.80	99.52	9.080	0.80	0.000	0.00	0.000
46.00	800 MHz RRH	3	50.00	2.520	0.93	64.00	2.870	0.93	0.000	0.00	0.000
46.00	1900 MHz RRU	3	44.09	2.690	0.80	62.21	3.030	0.80	0.000	0.00	0.000
46.00	APXVTM14-C-I20	3	54.90	6.430	0.76	92.44	7.090	0.76	0.000	0.00	0.000
46.00	TD-RRH-8X20-25	3	70.00	4.800	0.68	70.00	5.250	0.68	0.000	0.00	0.000
39.33	RRUS11	3	51.00	3.256	0.73	72.85	3.623	0.73	0.000	0.00	0.000
39.33	RRUS11	3	51.00	3.256	0.73	72.85	3.623	0.73	0.000	0.00	0.000
39.33	AM-X-CD-16-65-00T-RET	1	48.50	8.260	0.75	95.00	9.080	0.75	0.000	0.00	0.000
39.33	P65-17-XLH-RR	2	59.00	11.470	0.88	121.06	12.394	0.88	0.000	0.00	0.000
39.33	DC6-48-60-18-8F	1	32.80	1.467	1.00	50.52	1.667	1.00	0.000	0.00	0.000
39.33	Sector Frames	3	500.00	15.000	0.75	650.00	20.600	0.75	0.000	0.00	0.000
39.33	TT19-08BP111-001	6	16.00	0.635	0.90	21.74	0.805	0.90	0.000	0.00	0.000
39.33	Powerwave 7770.00	6	35.00	5.882	0.73	67.63	6.533	0.73	0.000	0.00	0.000
32.00	Torque Arm	1	500.00	15.000	1.00	1000.00	20.000	1.00	0.000	0.00	0.000
13.00	GPS antenna	1	35.00	2.120	1.00	48.31	2.430	1.00	0.000	0.00	0.000
Totals		45	5153.27			7473.78			Number of Appurtenances : 16		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Wind	Spread On Faces	Bundling Arrangement
0.00	46.00	1-1/4" Hybrid Cable	3	1.25	0.95	100.00	Lin App	Separate
0.00	46.00	5/8" Fiber	1	0.70	0.16	100.00	Lin App	Separate
0.00	46.00	5/8" Fiber	1	0.65	0.16	100.00	Lin App	Separate
0.00	39.33	1 5/8" Coax	12	1.98	1.04	100.00	Lin App	Separate
0.00	39.33	3" conduit	1	3.00	1.00	100.00	Lin App	Separate
0.00	39.33	3" conduit	1	3.00	1.00	100.00	Lin App	Separate
0.00	39.33	DC Cables	3	0.00	0.52	100.00	Lin App	Separate
0.00	39.33	DC Cables	3	0.00	0.52	100.00	Lin App	Separate
0.00	39.33	Fiber Optic Cable	1	0.00	0.95	100.00	Lin App	Separate
0.00	39.33	RET cable	1	0.44	0.08	100.00	Lin App	Separate
0.00	13.00	1/2" Coax	1	0.65	0.16	100.00	Lin App	Separate



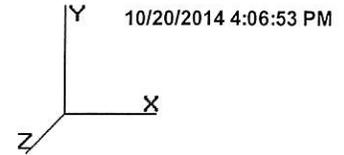
Force/Stress Summary

Section: 1		G80TB - BASE		Bot Elev (ft): 0.00		Height (ft): 5.000						Shear Bear		Use		
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)	%	Controls	
LEG	PXX - 2-1/2" DIA PIP	-14.67	Normal Ice	1.23	100	100	100	17.5	38.1	153.43	0	0	0.00	0.00	9 Member X	
HORIZ	SAE - 4X4X0.25	-0.06	Normal No Ice	0.784	100	100	100	11.8	27.8	54.02	0	0	0.00	0.00	0 Member Z	
DIAG		0.00		0.000	0	0	0	0.0	0.00	0	0	0.00	0.00			
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls					
LEG		0.00		0	0.00	0	0	0.00	0.00	0						
HORIZ	SAE - 4X4X0.25	1.72	Normal No Ice	36	55.87	0	0	0.00	0.00	3	Member					
DIAG		0.00		0	0.00	0	0	0.00	0.00	0						
Section: 2		G84HCS-15 FT		Bot Elev (ft): 5.00		Height (ft): 15.000						Shear Bear		Use		
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)	%	Controls	
LEG	PX - 2-1/2" DIA PIPE	-16.70	Normal No Ice	2.42	200	200	200	63.0	29.6	66.61	0	0	0.00	0.00	25 Member X	
HORIZ	PSP - ROHN 1 1/2X16G	-0.47	90 deg No Ice	3.420	100	100	100	80.5	22.7	6.64	0	0	0.00	0.00	7 Member X	
DIAG	PSP - ROHN 1 1/2X16G	-1.30	Normal No Ice	4.192	100	100	100	0.0	0.0	4.84	0	0	0.00	0.00	26 User Input	
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls					
LEG		0.00		0	0.00	0	0	0.00	0.00	0						
HORIZ	PSP - ROHN 1 1/2X16G	1.54	Normal Ice	42	9.84	0	0	0.00	0.00	15	Member					
DIAG	PSP - ROHN 1 1/2X16G	1.37	90 deg No Ice	42	4.84	0	0	0.00	0.00	28	User Input					
Section: 3		G84HCS-15 FT		Bot Elev (ft): 20.00		Height (ft): 15.000						Shear Bear		Use		
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)	%	Controls	
LEG	PX - 2-1/2" DIA PIPE	-25.84	Normal No Ice	2.42	200	200	200	63.0	29.6	66.61	0	0	0.00	0.00	38 Member X	
HORIZ	PSP - ROHN 1 1/2X16G	-0.10	Normal No Ice	3.420	100	100	100	80.5	22.7	6.64	0	0	0.00	0.00	1 Member X	
DIAG	PSP - ROHN 1 1/2X16G	-3.04	Normal No Ice	4.192	100	100	100	0.0	0.0	4.84	0	0	0.00	0.00	62 User Input	
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls					
LEG	PX - 2-1/2" DIA PIPE	18.66	60 deg No Ice	50	90.00	0	0	0.00	0.00	20	Member					
HORIZ	PSP - ROHN 1 1/2X16G	2.19	Normal No Ice	42	9.84	0	0	0.00	0.00	22	Member					
DIAG	PSP - ROHN 1 1/2X16G	2.83	90 deg No Ice	42	4.84	0	0	0.00	0.00	58	User Input					

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Force/Stress Summary

Section: 4 G84HCS-15 FT Bot Elev (ft): 35.00 Height (ft): 15.000

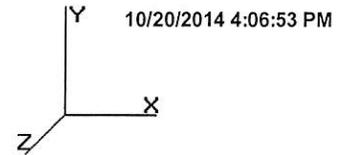
Max Compression Member	Force		Len (ft)	Bracing %			Fa (ksi)	Member			Shear Bear		Use %	Controls	
	(kip)	Load Case		X	Y	Z		KL/R	Cap (kip)	Num Bolts	Num Holes	Cap (kip)			Cap (kip)
LEG PX - 2-1/2" DIA PIPE	-17.36	Normal No Ice	2.42	200	200	200	63.0	29.6	66.61	0	0	0.00	0.00	26	Member X
HORIZ PSP - ROHN 1 1/2X11G	-2.94	90 deg No Ice	3.420	100	100	100	83.9	22.0	11.43	0	0	0.00	0.00	25	Member X
DIAG PSP - ROHN 1 1/2X11G	-5.21	Normal No Ice	4.192	100	100	100	102.9	17.9	9.32	0	0	0.00	0.00	55	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2-1/2" DIA PIPE	13.89	60 deg No Ice	50	90.00	0	0	0.00	0.00	15	Member
HORIZ PSP - ROHN 1 1/2X11G	1.31	Normal No Ice	42	17.47	0	0	0.00	0.00	7	Member
DIAG PSP - ROHN 1 1/2X11G	5.71	90 deg No Ice	42	17.47	0	0	0.00	0.00	32	Member

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Support Forces Summary

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
90 deg	A1b	-4.31	-6.47	-2.44	
	A1a	0.06	-0.09	-0.05	
	A1	-0.05	-3.28	2.51	
	1	0.05	17.83	-0.03	
60 deg	A1b	-4.17	-6.28	-2.41	
	A1a	0.52	-0.80	-0.35	
	A1	-0.04	-0.80	0.62	
	1	0.03	15.87	0.02	
Normal	A1b	-3.65	-5.55	-2.17	
	A1a	3.65	-5.55	-2.17	
	A1	0.00	-0.02	0.02	
	1	0.00	19.11	0.07	
90 deg Ice	A1b	-11.06	-16.37	-6.14	
	A1a	0.10	-0.24	-0.11	
	A1	-0.24	-8.37	6.42	
	1	0.24	37.48	-0.17	
60 deg Ice	A1b	-9.83	-14.69	-5.68	
	A1a	0.48	-0.82	-0.39	
	A1	-0.10	-0.82	0.61	
	1	-0.03	28.82	-0.02	
Normal Ice	A1b	-9.32	-14.16	-5.70	
	A1a	9.32	-14.16	-5.70	
	A1	0.00	-0.14	0.07	
	1	0.00	40.98	0.39	
90 deg No Ice	A1b	-11.08	-16.49	-6.17	
	A1a	0.04	-0.10	-0.05	
	A1	-0.18	-8.35	6.39	
	1	0.31	32.93	-0.16	
60 deg No Ice	A1b	-9.63	-14.49	-5.56	
	A1a	0.22	-0.37	-0.18	
	A1	-0.04	-0.37	0.28	
	1	0.02	23.21	0.01	
Normal No Ice	A1b	-9.39	-14.29	-5.69	
	A1a	9.39	-14.29	-5.70	
	A1	0.00	-0.06	0.03	
	1	0.00	36.64	0.46	

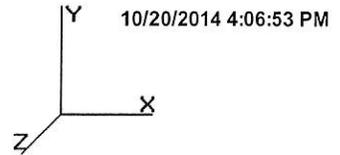
Max Reactions

	<u>Base</u>	<u>Anch1</u>
Vertical (kip)	40.98	-16.49
Horizontal (kip)	0.46	12.68

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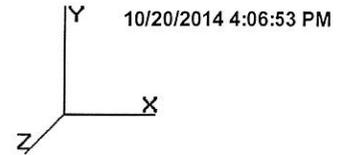
Cable Forces Summary

Load Case	Elevation (ft)	Cable	Node 1	Node 2	Allow Tension (kip)	Applied Tension (kip)	Use %
Normal No Ice	32.12	1/2 EHS	A1	T1	13.35	0.05	0
		1/2 EHS	A1b	T1b	13.35	9.50	71
		1/2 EHS	A1a	T1a	13.35	8.57	64
		1/2 EHS	A1a	T1	13.35	9.54	71
		1/2 EHS	A1b	T1a	13.35	8.61	64
		1/2 EHS	A1	T1b	13.35	0.05	0
60 deg No Ice		1/2 EHS	A1	T1	13.35	0.30	2
		1/2 EHS	A1b	T1b	13.35	9.18	68
		1/2 EHS	A1a	T1a	13.35	0.21	1
		1/2 EHS	A1a	T1	13.35	0.30	2
		1/2 EHS	A1b	T1a	13.35	9.18	68
		1/2 EHS	A1	T1b	13.35	0.21	1
90 deg No Ice		1/2 EHS	A1	T1	13.35	5.72	42
		1/2 EHS	A1b	T1b	13.35	10.06	75
		1/2 EHS	A1a	T1a	13.35	0.07	0
		1/2 EHS	A1a	T1	13.35	0.09	0
		1/2 EHS	A1b	T1a	13.35	10.84	81
		1/2 EHS	A1	T1b	13.35	4.85	36
Normal Ice		1/2 EHS	A1	T1	13.35	0.12	0
		1/2 EHS	A1b	T1b	13.35	9.47	70
		1/2 EHS	A1a	T1a	13.35	8.51	63
		1/2 EHS	A1a	T1	13.35	9.50	71
		1/2 EHS	A1b	T1a	13.35	8.54	63
		1/2 EHS	A1	T1b	13.35	0.12	0
60 deg Ice		1/2 EHS	A1	T1	13.35	0.65	4
		1/2 EHS	A1b	T1b	13.35	9.35	70
		1/2 EHS	A1a	T1a	13.35	0.46	3
		1/2 EHS	A1a	T1	13.35	0.65	4
		1/2 EHS	A1b	T1a	13.35	9.35	70
		1/2 EHS	A1	T1b	13.35	0.46	3
90 deg Ice		1/2 EHS	A1	T1	13.35	5.78	43
		1/2 EHS	A1b	T1b	13.35	10.02	75
		1/2 EHS	A1a	T1a	13.35	0.16	1
		1/2 EHS	A1a	T1	13.35	0.21	1
		1/2 EHS	A1b	T1a	13.35	10.81	80
		1/2 EHS	A1	T1b	13.35	4.88	36
Normal		1/2 EHS	A1	T1	13.35	0.03	0
		1/2 EHS	A1b	T1b	13.35	3.73	27
		1/2 EHS	A1a	T1a	13.35	3.30	24
		1/2 EHS	A1a	T1	13.35	3.74	28
		1/2 EHS	A1b	T1a	13.35	3.31	24
		1/2 EHS	A1	T1b	13.35	0.03	0
60 deg		1/2 EHS	A1	T1	13.35	0.70	5
		1/2 EHS	A1b	T1b	13.35	3.99	29
		1/2 EHS	A1a	T1a	13.35	0.35	2

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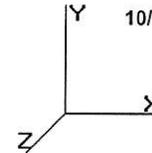
	1/2 EHS	A1a	T1	13.35	0.70	5
	1/2 EHS	A1b	T1a	13.35	3.98	29
	1/2 EHS	A1	T1b	13.35	0.35	2
90 deg	1/2 EHS	A1	T1	13.35	2.30	17
	1/2 EHS	A1b	T1b	13.35	3.93	29
	1/2 EHS	A1a	T1a	13.35	0.06	0
	1/2 EHS	A1a	T1	13.35	0.10	0
	1/2 EHS	A1b	T1a	13.35	4.28	32
	1/2 EHS	A1	T1b	13.35	1.89	14

SEMAAN ENGINEERING SOLUTIONS, LLC
 1079 N.205th Street
 Elkhorn, NE 68022
 Phone: 402-289-1888
 Fax: 402-289-1861

Site Number: CT03XC074_FIX02
 Location: West Hartford, CT
 Code: TIA/EIA-222 Rev F

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10/20/2014 4:06:53 PM



Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
50.00 mph Wind at 60 deg From Face with No Ice	12.27	0.0173	-0.0054	0.0809
	32.12	0.0467	0.0005	0.1712
	39.85	0.0672	0.0005	0.1397
	47.12	0.0851	0.0004	0.1433
50.00 mph Wind at 90 deg From Face with No Ice	12.27	0.0268	-0.0302	0.1224
	32.12	0.0708	-0.0232	0.2709
	39.85	0.0961	-0.0231	0.1859
	47.12	0.1201	-0.0230	0.1853
50.00 mph Wind Normal To Face with No Ice	12.27	0.0332	-0.0094	0.1532
	32.12	0.0881	-0.0020	0.3272
	39.85	0.1179	-0.0023	0.2185
	47.12	0.1465	-0.0023	0.2188
69.28 mph Wind at 60 deg From Face with Ice	12.27	0.0622	-0.0110	0.2879
	32.12	0.1638	0.0009	0.4195
	39.85	0.2237	0.0003	0.4203
	47.12	0.2778	0.0003	0.4291
69.28 mph Wind at 90 deg From Face with Ice	12.27	0.1177	-0.0791	0.5378
	32.12	0.3066	-0.0612	0.9105
	39.85	0.3979	-0.0640	0.6845
	47.12	0.4871	-0.0640	0.6810
69.28 mph Wind Normal To Face with Ice	12.27	0.1364	-0.0195	0.6301
	32.12	0.3577	0.0001	1.0629
	39.85	0.4642	-0.0033	0.7838
	47.12	0.5656	-0.0035	0.7848
80.00 mph Wind at 60 deg From Face with No Ice	12.27	0.0617	-0.0072	0.2851
	32.12	0.1638	0.0009	0.4039
	39.85	0.2260	0.0004	0.4306
	47.12	0.2814	0.0002	0.4400
80.00 mph Wind at 90 deg From Face with No Ice	12.27	0.1214	-0.0785	0.5558
	32.12	0.3183	-0.0638	0.9336
	39.85	0.4142	-0.0668	0.7162
	47.12	0.5072	-0.0668	0.7117
80.00 mph Wind Normal To Face with No Ice	12.27	0.1409	-0.0172	0.6524
	32.12	0.3719	-0.0010	1.0940
	39.85	0.4835	-0.0045	0.8193
	47.12	0.5896	-0.0048	0.8213
		0.0000	0.0000	0.0000

SEMAAN ENGINEERING SOLUTIONS, LLC
 1079 N.205th Street
 Elkhorn, NE 68022

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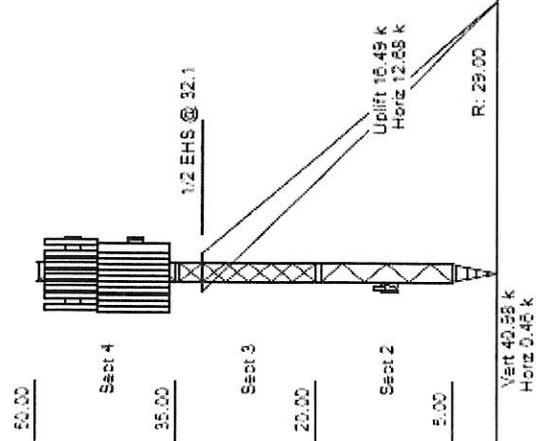
Loads: 80 mph no ice
 69 mph w/ 1/2" radial ice
 50 mph no ice

Job Information		
Tower : CT03XC074_FIX02	Location : West Hartford, CT	Base Width : 3.42 ft
Code : TIA/EIA-222 Rev F	Shape : Triangle	
Client : Sprint Sites USA - GA 2		

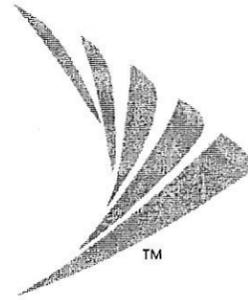
Sections Properties		
Section	Leg Members	Horizontal Members
1	PXX 50 ksi 2-1/2" DIA PIPE	SAE 36 ksi 4X4X0.25
2 - 3	PX 50 ksi 2-1/2" DIA PIPE	PSP 42 ksi ROHN 1 1/2X16GA
4	PX 50 ksi 2-1/2" DIA PIPE	PSP 42 ksi ROHN 1 1/2X11GA
		PSP 42 ksi ROHN 1 1/2X11GA

Discrete Appurtenance		
Elev (ft)	Type	Qty Description
46.00	Mounting Frame	3 Sector Frames
46.00	Panel	3 APXVSP18-C-A20
46.00	Panel	3 800 MHz RRU
46.00	Panel	3 1900 MHz RRU
46.00	Panel	3 APXVTM14-C-120
39.33	Panel	3 TD-RRH-8X20-25
39.33	Panel	3 RRUS11
39.33	Panel	3 RRUS11
39.33	Panel	1 AM-X-CD-16-65-00T-RET
39.33	Panel	2 P65-17-XLH-RR
39.33	Panel	1 DC6-48-60-18-8F
39.33	Mounting Frame	3 Sector Frames
39.33	Panel	6 TT19-08BP111-001
39.33	Panel	6 Powerwave 7770.00
32.00	Other	1 Torque Arm
13.00	Panel	1 GPS antenna

Linear Appurtenance		
Elev (ft)	From	To Qty Description
0.000	46.000	1 5/8" Fiber
0.000	46.000	1 5/8" Fiber
0.000	46.000	3 1-1/4" Hybrid Cable
0.000	39.330	1 RET cable
0.000	39.330	1 Fiber Optic Cable
0.000	39.330	3 DC Cables
0.000	39.330	3 DC Cables
0.000	39.330	1 3" conduit
0.000	39.330	1 3" conduit
0.000	39.330	12 1 5/8" Coax
0.000	13.000	1 1/2" Coax



PREPARED FOR



MODIFICATION PACKAGE FOR A 50 FT ROHN 80 GUYED TOWER

CLIENT SITE NAME/NUMBER

CT03XC074

OWNER/SITE NUMBER/SITE NAME

SPRINT/CT03XC074/WEST HARTFORD BISHOPS

PROPOSED CARRIER/SITE NUMBER/SITE NAME

AT&T/CT1195/WEST HARTFORD BISHOPS CORNER

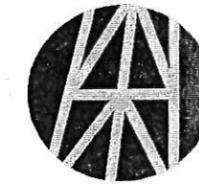
SITE ADDRESS

345 NORTH MAIN STREET
WEST HARTFORD, CT 06117
HARTFORD COUNTY
N41°47'6.3", W72°44'54.5

DATE:

10/20/2014

PREPARED BY



SEMAAN
ENGINEERING SOLUTIONS

SEMAAN ENGINEERING SOLUTIONS HOLDINGS, LLC

CONTACT INFORMATION

ENGINEER OF RECORD

NAME: SEMAAN ENGINEERING SOLUTIONS HOLDINGS, LLC
ADDRESS: 1079 N 205TH STREET
ELKHORN, NE 68022

CONTACT: THOMAS TAYLOR

(402) 289-1888 x2416

EMAIL: TOMT@SEMAANENG.COM

SHEET INDEX			STAMP	VICINITY MAP	MODIFICATION OUTLINE
SHEET #	SHEET TITLE	REV #			<p>THE MODIFICATIONS PROVIDED IN THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL MODIFICATIONS ANALYSIS REPORT COMPLETED BY SEMAAN ENGINEERING SOLUTIONS HOLDINGS, LLC (SES) DATED 10/20/2014 (REV 0). THIS REPORT IS BASED ON A SPECIFIC ANTENNA LOADING AND COAX CONFIGURATION AS DEFINED IN THE REPORT. ANY OTHER ANTENNA OR COAX CONFIGURATION REQUIRES REVIEW BY SES</p> <p>CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, QUANTITIES, PART NUMBERS AND COAX/ANTENNA PLACEMENTS PRIOR TO BIDDING, ORDERING MATERIALS, AND CONSTRUCTION.</p>
T-1	TITLE SHEET	0			
N-1	GENERAL NOTES	0			
N-2	SITE SPECIFIC NOTES	0			
S-1	GUYED TOWER ELEVATION VIEW	0			
S-2	GUY WIRE TENSION TABLE	0			
S-3	STRAND TERMINATION AND STANDARD SAFETY INSTALLATION DETAILS	0			

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT

GENERAL NOTES:

1. REFERENCE THE SEMAAN ENGINEERING SOLUTIONS ANALYSIS DATED 10/20/2014 FOR THE PROPOSED AND EXISTING LOADS CONSIDERED. THIS DRAWING IS NOT VALID IF LOADS OTHER THAN THOSE CONSIDERED IN THE ANALYSIS ARE ADDED TO OR REMOVED FROM THE STRUCTURE UNLESS APPROVED IN WRITING BY SEMAAN ENGINEERING SOLUTIONS HOLDINGS, LLC.
2. THE PROPOSED LOADS SHALL NOT BE ADDED TO THE STRUCTURE UNTIL ALL MODIFICATIONS HAVE BEEN COMPLETED, INSPECTED BY A 3RD PARTY, AND APPROVED BY THE ENGINEER OF RECORD.
3. ALL METHODS, MATERIALS AND WORKMANSHIP SHALL FOLLOW THE DICTATES OF GOOD CONSTRUCTION PRACTICE.
4. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
5. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS AND CONDITIONS PRIOR TO FABRICATION. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR THE PROPER FIT AND CLEARANCE IN THE FIELD. CONTACT SEMAAN ENGINEERING IF ANY DISCREPANCIES EXIST.
6. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS FOR THIS JOB.
7. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND INSPECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
8. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND OSHA SAFETY REGULATIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ON-SITE SAFETY ASSOCIATED WITH THE WORK TO BE PERFORMED AS WELL AS THE PUBLIC AFFECTED BY THE WORK IN THE VICINITY OF THE JOB SITE.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY, PER TIA-1019-A-2001, TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
10. THE CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.
11. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE PROTECTION OF THE PROPERTY IN THE VICINITY OF THE JOB SITE. THE CONTRACTOR SHALL USE THE PRECAUTIONARY MEANS NECESSARY FOR ADEQUATE PROTECTION.
12. ALL WORK SHALL BE PERFORMED IN CALM WIND CONDITIONS, WHERE SPEED DOES NOT EXCEED 10 MPH.
13. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.
14. ALL TOWER MODIFICATION WORK SHALL BE IN ACCORDANCE WITH TIA-1019-A STANDARDS FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

APPLICABLE CODES AND STANDARDS:

1. EIA/TIA-222 STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES, REV F.
2. 2006 INTERNATIONAL BUILDING CODE WITH CONNECTICUT STATE AMENDMENTS.
3. ACI 318: AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 318-11 (LATEST EDITION).
4. CRSI: CONCRETE REINFORCEMENT STEEL INSTITUTE, MANUAL OF STANDARD PRACTICE, (LATEST EDITION).
5. AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, 14TH EDITION - 2011 (LATEST EDITION).
6. AWS: AMERICAN WELDING SOCIETY D1.1, STRUCTURAL WELDING CODE - 2011, (LATEST EDITION).

STEEL CONSTRUCTION:

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION, 14TH EDITION, FOR THE DESIGN, FABRICATION, AND ERECTION OF STEEL COMPONENTS.
2. UNLESS NOTED OTHERWISE, ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - ANGLE: ASTM A36
 - PIPE/TUBE: ASTM A500 (46 ksi YIELD)
 - PLATE: ASTM A36
 - A. ALL BOLTS, ASTM A325 GALVANIZED HIGH STRENGTH BOLTS.
 - B. ALL U-BOLTS, ASTM A36
 - C. ALL NUTS, A563 CARBON AND STEEL ALLOY NUTS.
 - D. ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS
3. SHOP DRAWINGS SHALL BE SUBMITTED TO SES FOR APPROVAL PRIOR TO FABRICATION. SHOP DRAWINGS SHALL INCLUDE ALL FABRICATED STEEL ASSEMBLIES INCLUDING MONOPOLE/TOWER EXTENSIONS

STEEL CONSTRUCTION (CONT.):

4. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 FOR COMPONENTS AND ASTM A153 FOR HARDWARE, AND AS FOLLOWS, UNLESS OTHERWISE NOTED.
 - A. GALVANIZING SHALL BE PERFORMED AFTER SHOP FABRICATION AND WELDING TO THE GREATEST EXTENT POSSIBLE
 - B. ALL DINGS, SCRAPES, MARS AND WELDS IN THE GALVANIZED AREA SHALL BE COATED WITH (3) BRUSH COATS OF ZRC COLD GALVANIZING COMPOUND OR APPROVED EQUAL. THE COATING SHALL BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - C. IF THE STRUCTURE WAS ORIGINALLY PAINTED, AFTER ZINC-RICH COATING IS DRY, OVERCOAT WITH AN APPROPRIATE PAINT WITH THE SAME COLOR AS THE EXISTING.
5. NO TORCH CUTTING SHALL BE PERMITTED UNLESS APPROVED BY THE ENGINEER.
6. DO NOT PLACE HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON DRAWINGS.

WELDING NOTES:

1. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
2. CONTRACTOR SHALL RETAIN AN AWS CERTIFIED WELD INSPECTOR TO PERFORM VISUAL INSPECTIONS ON ALL FIELD WELDS. A REPORT SHALL BE SUBMITTED TO SEMAAN ENGINEERING FOR FINAL APPROVAL.
3. ALL ELECTRODES SHALL BE LOW HYDROGEN E70XX ELECTRODES, PER AWS D1.1, UNLESS NOTED OTHERWISE.
4. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
5. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING AND ANY OTHER CONTAMINANTS 2" BEYOND ALL FIELD WELD SURFACES. AFTER WELDING, REPAIR ALL GROUND AND WELDED SURFACES WITH (3) BRUSH COATS OF ZRC COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS REQUIREMENTS.
6. ALL FULL PENETRATION WELDS ARE REQUIRED TO BE 100% NDE INSPECTED BY ULTRASONIC TESTING (UT) IN ACCORDANCE WITH AWS D1.1.
7. ALL PARTIAL PENETRATION AND FILLET WELDS ARE REQUIRED TO BE 50% NDE INSPECTED BY MAGNETIC PARTICLE (MT) IN ACCORDANCE WITH AWS D1.1.

BOLTING NOTES:

1. STRUCTURAL CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC-2009 (SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR ASTM A490 BOLTS.)
2. ALL CONNECTION BOLTS SHALL BE ASTM A325N (GALVANIZED), UNLESS NOTED OTHERWISE.
3. SPLICE/FLANGE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS". LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

8.2.1 TURN-OF-NUT PRETENSIONING
BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED IN THE TABLE PROVIDED. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

TURN-OF-NUT ROTATION FROM SNUG TIGHT CONDITION

BOLT LENGTH (UNDER SIDE OF HEAD TO END OF BOLT)	BOTH FACES NORMAL TO BOLT AXIS		
	NUT ROTATION	INITIAL MARKING POSITION	FINAL MARKING POSITION
UP TO AND INCLUDING 4 DIAMETERS	1/3 TURN		
OVER 4 DIAMETERS BUT NOT EXCEEDING 8 DIA.	1/2 TURN		
OVER 8 DIAMETERS BUT NOT EXCEEDING 12 DIA.	2/3 TURN		

USE A WATERPROOF BLACK MARKER TO MARK THE BOLT AND NUT AS SHOWN ON THE TABLE.

BOLTING NOTES (CONT.):

4. ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.
5. ALL BOLT HOLES SHALL BE ALIGNED TO PERMIT INSERTION OF THE BOLTS WITHOUT UNDUE DAMAGE TO THE THREADS. BOLTS SHALL BE PLACED IN ALL HOLES WITH WASHERS POSITIONED AS REQUIRED AND NUTS THREADED TO COMPLETE THE ASSEMBLY. COMPACTING THE JOINT TO THE SNUG-TIGHT CONDITION SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT. THE SNUG-TIGHTENED CONDITION IS THE TIGHTNESS THAT IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
6. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.
7. ALL NEW BOLTS SHALL BE LONG ENOUGH TO FULLY ENGAGE THE FULL DEPTH OF THE NUT AND LOCKING DEVICE.
8. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.

CONCRETE CONSTRUCTION:

1. ALL CONCRETE SHALL CONFORM TO THE SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, ACI 301
2. ALL CONCRETE SHALL BE MADE WITH STONE AGGREGATE & SHALL DEVELOP 4000 PSI MIN. COMPRESSIVE STRENGTH IN 28 DAYS. CONCRETE MIX DESIGN: 6 1/2 SACKS OF CEMENT MINIMUM PER CUBIC YARD, 3/4" MAXIMUM AGGREGATE. AIR ENTRAINMENT = 6% ± 1% AND SLUMP = 4" ± 1" (WITHOUT PLASTICIZER)
3. ALL REINFORCING SHALL BE HIGH STRENGTH DEFORMED BARS, GRADE 60, ASTM A615, WITH 60,000 PSI MINIMUM YIELD POINT.
4. REINFORCING PROTECTION: CONCRETE POURED AGAINST EARTH.....3"
5. ALL BAR LENGTHS ARE NOT DRAWN TO SCALE. NO SPLICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AS AUTHORIZED BY THE STRUCTURAL ENGINEER. LAP SPLICES, WHERE PERMITTED, SHALL BE A MINIMUM OF 40 BAR DIAMETERS UNLESS NOTED.
6. DETAIL BARS IN ACCORDANCE WITH ACI DETAILING MANUAL & ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
7. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT THE POSITIONS SHOWN ON THE PLANS.
8. BACKFILL AND COMPACT SOIL TO A MINIMUM 95% OF STANDARD PROCTOR DENSITY PER ASTM D 698. THE COMPACTED SOIL SHALL PROVIDE A MINIMUM UNIT WEIGHT OF 120 POUNDS PER CUBIC FOOT FOR THE FILL MATERIAL.
9. AS APPLICABLE, ORIENT NEW ANCHORS IN LINE WITH EXISTING ANCHORS.
10. AS APPLICABLE, ANCHOR RODS TO PASS THROUGH CENTROID OF BLOCK.

EPOXY-GROUTED FASTENER INSTALLATION:

1. CONTRACTOR SHALL VERIFY THAT DRILLING CLEARANCE IS ADEQUATE PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER IF A CLEARANCE PROBLEM EXISTS.
2. ALL HOLES SHALL BE WIRE-BRUSHED TO PROFILE THE CONCRETE SURFACE, ALL CORED HOLES WITH SMOOTH WALLS SHALL BE ROUGHENED.
3. USE COMPRESSED AIR TO BLOW ANY REMAINING DEBRIS OUT OF THE NEWLY DRILLED HOLES.
4. EPOXY GROUT THE NEW ANCHOR BOLTS OR REBAR IN PLACE PER THE MANUFACTURER'S INSTRUCTIONS.

CONTINUOUS INSPECTION AND MAINTENANCE:

CONTINUOUS INSPECTION OF THE STRUCTURE AND THE ADDED REINFORCING CONSISTENT WITH THE CURRENT REQUIREMENTS OF THE LATEST TIA 222 STANDARD SHALL BE IMPLEMENTED BY THE OWNER. ANY FUTURE CORROSION OR OTHER DETERIORATION OF THE STRUCTURE OR ITS REINFORCING WILL REDUCE ITS CAPACITY TO WITHSTAND THE REQUIRED LOADS. ANY DEFECTS SHALL BE REPAIRED TO ENSURE THE STRUCTURAL INTEGRITY FOR THE LIFE OF THE STRUCTURE.

CLIENT

SITE NAME/NUMBER
CT03XC074

SITE ADDRESS
345 NORTH MAIN STREET
WEST HARTFORD, CT 06117
N41°47'6.3", W72°44'54.5

DRAWINGS PREPARED BY:

SEMAAN ENGINEERING SOLUTIONS HOLDINGS, LLC

1079 NORTH 205TH STREET
OMAHA, NEBRASKA 68022
PHONE: (402) 289-1888
FAX: (402) 289-1861

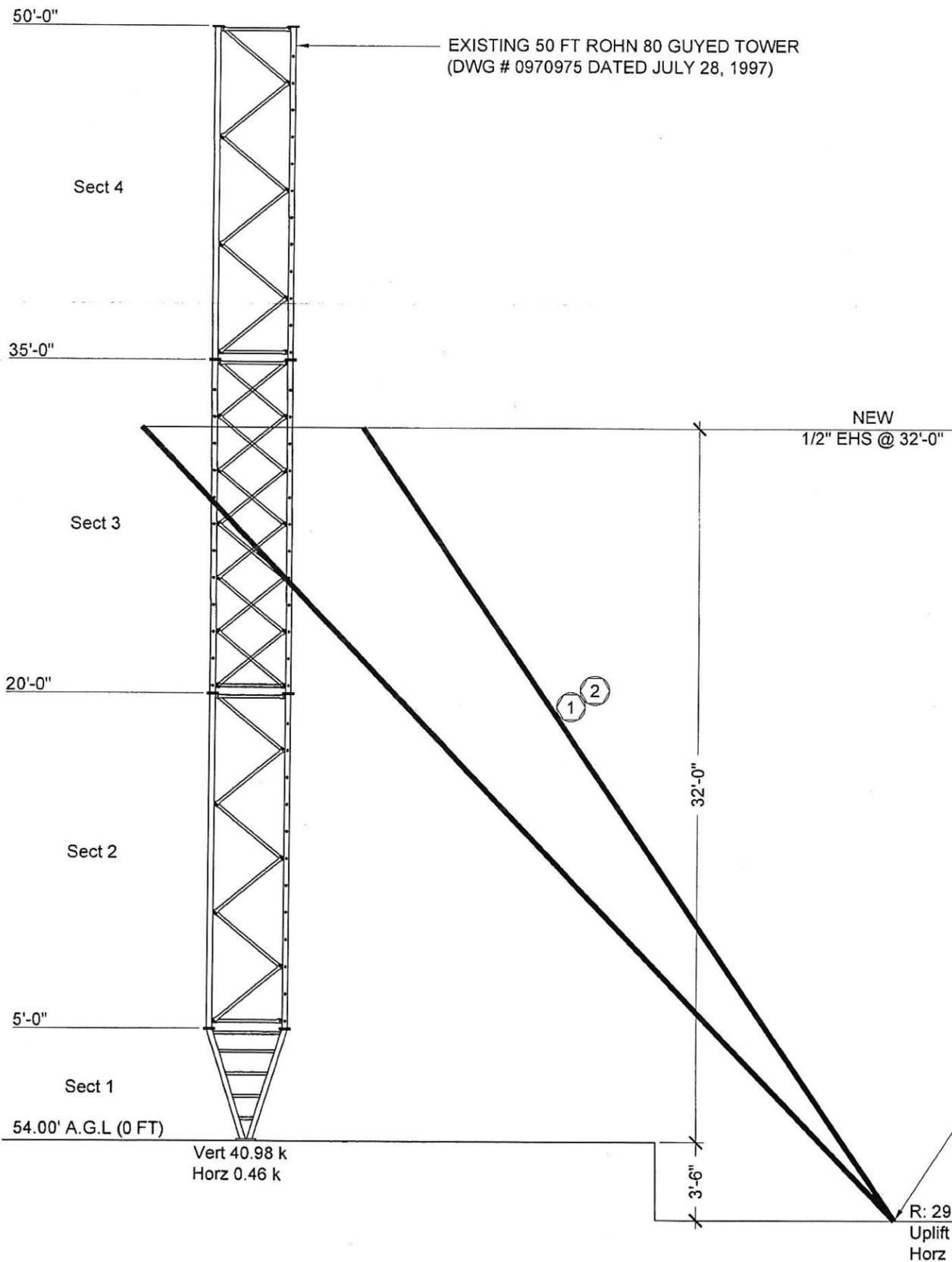
DRAWN BY: KRC
APPROVED BY: LMP

REV	DESCRIPTION	DATE
0	FIRST ISSUE	10/20/2014

DRAWING DESCRIPTION

GENERAL NOTES

SHEET NUMBER: **N-1** REVISION: **0**



EXISTING 50 FT ROHN 80 GUYED TOWER
(DWG # 0970975 DATED JULY 28, 1997)

NEW
1/2" EHS @ 32'-0"

SECTION PROPERTIES			
SECTION	LEG MEMBERS	DIAGONAL MEMBERS	HORIZONTAL MEMBERS
1	PXX 50 ksi 2 1/2" DIA PIPE		SAE 36 ksi 4x4x0.25
2 - 3	PX 50 ksi 2 1/2" DIA PIPE	PSP 42 ksi 1 1/2"x16GA	PSP 42 ksi 1 1/2"x16GA
4	PX 50 ksi 2 1/2" DIA PIPE	PSP 42 ksi 1 1/2"x11GA	PSP 42 ksi 1 1/2"x11GA

MODIFICATION SCHEDULE			
NO.	MODIFICATION DESCRIPTION	ELEVATIONS (FT)	SHEETS
①	REPLACE (3) 3/8" EHS GUY CABLES W/ (3) NEW 1/2" EHS GUY CABLES AND COMPATIBLE HARDWARE.	32	S-3
②	RETENSION ALL GUY CABLES	-	S-2

CONTRACTOR NOTES:

1. PROVIDE TEMPORARY GUY CABLES DIRECTLY ABOVE OR BELOW AND CABLES THAT ARE BEING TEMPORARILY REMOVED. AT NO TIME SHOULD ANY OF THE GUY POINTS ON THE OTWER BE LEFT UNSUPPORTED.

NOTE:
THE CONNECTIONS TO THE BUILDING AND THE BUILDING STRUCTURE ITSELF MUST BE CHECKED BY OTHERS. ONLY AFTER THE CONNECTION AND THE BUILDING STRUCTURE IS DEEMED TO BE STRUCTURALLY ADEQUATE BY A SEPARATE 3RD PARTY ENGINEER PROVIDING STAMPED AND SIGNED CALCULATIONS MAY THE NEW LARGER GUY CABLES BE INSTALLED.

TOWER ELEVATION
NOT TO SCALE



CLIENT
Sprint

SITE NAME/NUMBER
CT03XC074

SITE ADDRESS
345 NORTH MAIN STREET
WEST HARTFORD, CT 06117
N41°47'6.3", W72°44'54.5

DRAWINGS PREPARED BY:
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ENGINEERING SOLUTIONS
SEMAAN ENGINEERING SOLUTIONS HOLDINGS, LLC

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DRAWN BY: KRC
APPROVED BY: LMP

REV	DESCRIPTION	DATE
0	FIRST ISSUE	10/20/2014

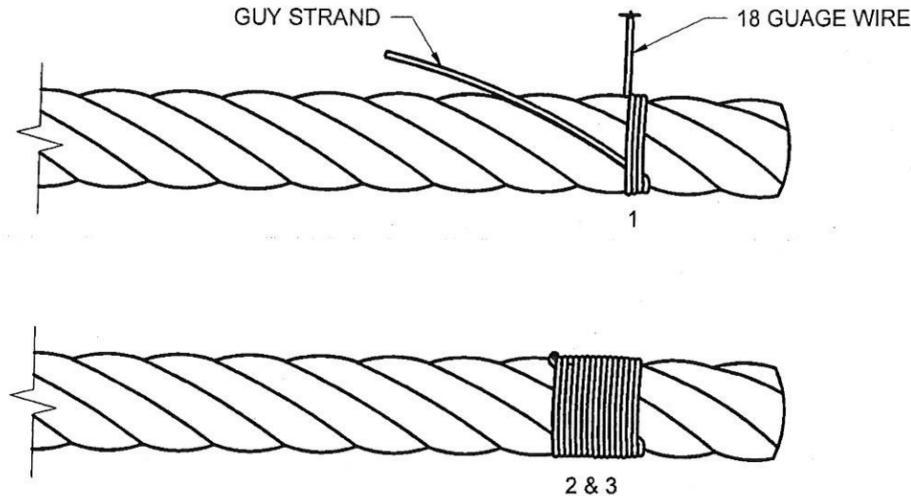
DRAWING DESCRIPTION
**GUYED TOWER
ELEVATION VIEW**

SHEET NUMBER	REVISION
S-1	0

INITIAL TENSION NOTES:

THE MAXIMUM DEVIATION FROM THE DESIGN INITIAL TENSION ARE:

- ±10% FOR GUYS < 1" DIAMETER
- ±5% FOR GUYS > 1" DIAMETER, OF THE INITIAL TENSIONS SPECIFIED ON THIS TEMPERATURE/TENSION CHART.



- LAY ONE END OF THE SEIZING WIRE IN THE GROOVE BETWEEN TWO STRANDS IN THE WIRE ROPE AND WRAP THE OTHER END TIGHTLY OVER THE PORTION IN THE GROOVE.
- CONTINUE TWISTING WITH PLIERS TO TAKE UP SLACK AND TIGHTEN. WIND SEIZING WIRE AROUND ROPE FOR A LENGTH EQUAL TO THE ROPE DIAMETER.
- TWIST WIRE TIGHTLY AGAINST SERVING, WINDING TWISTED WIRE INTO KNOT BEFORE CUTTING OFF ENDS OF THE WIRE. POUND KNOT SNUGLY AGAINST THE ROPE.

GUY TENSION TABLE

Cable Dia. (in)	Anchor Radius (ft)	Guy Elevation (ft)	T (lbs) @ 20 degrees F	T (LBS) @ 40 Degrees F	T (LBS) @ 60 Degrees F	T (LBS) @ 80 Degrees F	T (LBS) @ 100 Degrees F
1/2	29	32+3.5	3074	2872	2670	2458	2266

FIELD VERIFY THE EXISTING HOLE DIAMETERS IN THE GUY LUGS, TORQUE ARM, AND ANCHOR HEAD WILL WORK WITH THE LARGER CONNECTION HARDWARE. CONTACT SEMAAN ENGINEERING AT (402)289-1888 IF ANY PROBLEMS EXIST.

GUY CABLE NOTES:

- ALL EHS AND BRIDGE STRAND HAS A LEFT HAND LAY.
- THE WORKING LOADS ARE BASED ON A SAFETY FACTOR OF 2.0. FOR TOWER TALLER THAN 700', A HIGHER SAFETY FACTOR IS REQUIRED BY EIA.
- USE (1) 3/8" WIRE ROPE CLIP PER ANCHOR WITH 3/8" EHS GUY STRAND X 15' FOR TURNBUCKLE TIE.
- ALL CUT LENGTHS ARE CALCULATED BASED ON TOWER DRAWINGS AND MAPPING, AND ARE THEORETICAL PLUS 5% OR 25 FEET WHICHEVER IS GREATER. CONTRACTOR NEED TO BE AWARE THAT ACTUAL LENGTHS IN FIELD MAY VARY FROM THE CALCULATED LENGTH.
- IF HARDWARE IS NOT PROVIDED (INDICATED AS N/A ON HARDWARE CHART), REUSE EXISTING HARDWARE AND/OR GUY WIRES AS NECESSARY.
- VERIFY SIZES OF GUY WIRES BEFORE RE-TENSIONING. IF ANY DISCREPANCIES ARE NOTED IN THE FIELD, PLEASE CONTACT SEMAAN ENGINEERING (402-289-1888) IMMEDIATELY FOR FURTHER INSTRUCTIONS.

GUY WIRE TENSION TABLE
NOT TO SCALE

CLIENT
Sprint

SITE NAME/NUMBER
CT03XC074

SITE ADDRESS
345 NORTH MAIN STREET
WEST HARTFORD, CT 06117
N41°47'6.3", W72°44'54.5

DRAWINGS PREPARED BY:
SEMAAN
ENGINEERING SOLUTIONS
SEMAAN ENGINEERING SOLUTIONS HOLDINGS, LLC

1079 NORTH 205TH STREET
OMAHA, NEBRASKA 68022
PHONE: (402) 289-1888
FAX: (402) 289-1861

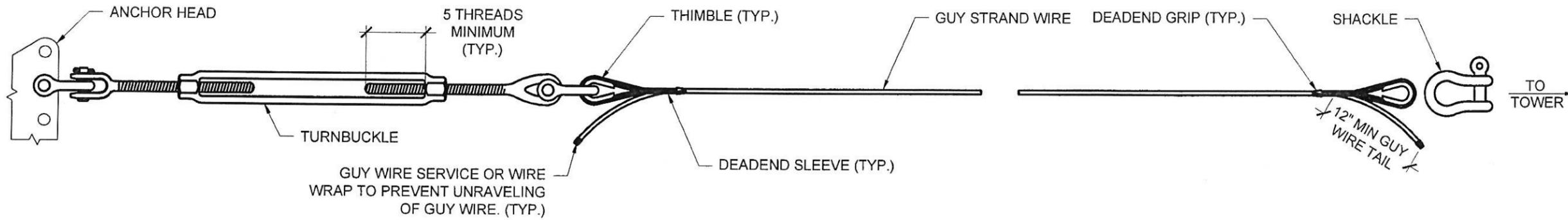
STAMP
STATE OF CONNECTICUT
THOMAS L TAYLOR
28130
LICENSED PROFESSIONAL ENGINEER
10/21/14

DRAWN BY: KRC
APPROVED BY: LMP

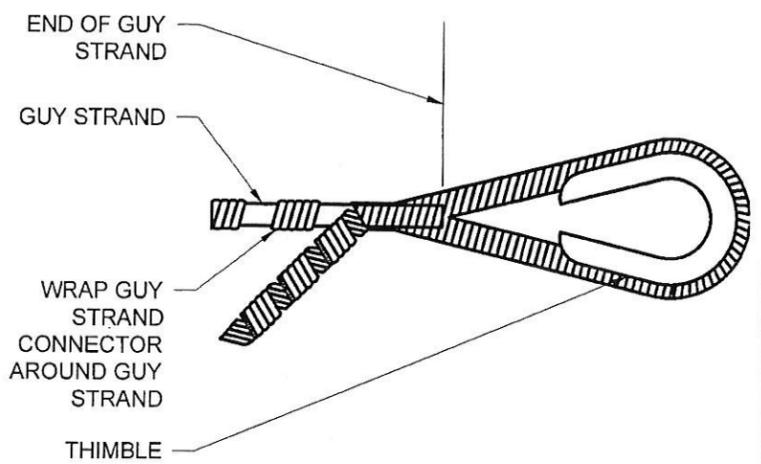
REV	DESCRIPTION	DATE
0	FIRST ISSUE	10/20/2014

DRAWING DESCRIPTION
GUY WIRE TENSION TABLE

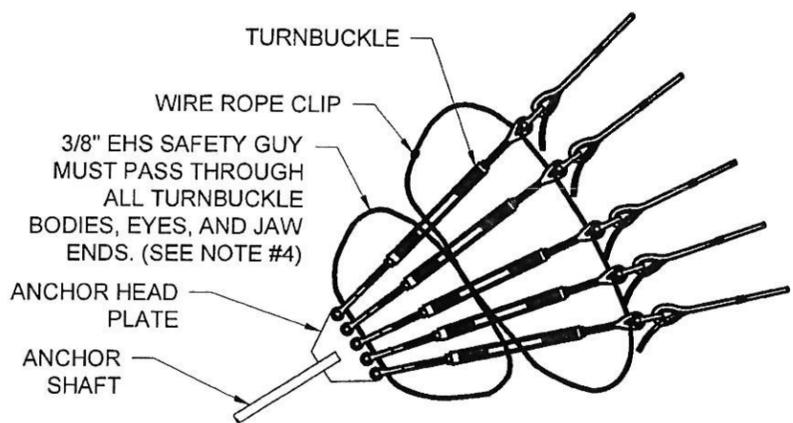
SHEET NUMBER: **S-2**
REVISION: **0**



TYPICAL GUY ASSEMBLY
NOT TO SCALE



TYPICAL DEADEND GRIP DETAIL
NOT TO SCALE



TYPICAL TIE WIRE ASSEMBLY
NOT TO SCALE

STANDARD GUY STRAND HARDWARE CHART

GUY STRAND			CROSBY TURNBUCKLE HG-228 (JAW & JAW) OR HG-227 (JAW & EYE)				DEADEND GRIP	DEADEND SLEEVE	CROSBY THIMBLE (G-414)	CROSBY SCREW PIN ANCHOR SHACKLE (G-209-A)			
SIZE	U.T.S.	W.L.	SIZE	U.T.S.	W.L.	PIN DIA.	SIZE	SIZE	SIZE	SIZE	U.T.S.	W.L.	PIN DIA.
5/16 EHS	11.2	5.6	5/8 x 12	17.5	8.8	1/2"	5/16"	5/16"	3/8 HVY	1/2"	33.3	16.6	5/8"
3/8 EHS	15.4	7.7	5/8 x 12	17.5	8.8	1/2"	3/8"	3/8"	1/2 HVY	1/2"	33.3	16.6	5/8"
7/16 EHS	20.8	10.4	3/4 x 12	26.0	13.0	5/8"	7/16"	7/16"	1/2 HVY	1/2"	33.3	16.6	5/8"
1/2 EHS	26.9	13.5	3/4 x 12	26.0	13.0	5/8"	1/2"	1/2"	1/2 HVY	1/2"	33.3	16.6	5/8"
9/16 EHS	35.0	17.5	7/8 x 12	36.0	18.0	3/4"	9/16"	9/16"	3/4 HVY	5/8"	50.0	25.0	3/4"
5/8 EHS	42.4	21.2	1 x 12	50.0	25.0	7/8"	5/8"	5/8"	3/4 HVY	5/8"	50.0	25.0	3/4"
11/16 EHS	50.0	25.0	1 x 12	50.0	25.0	7/8"	11/16"	11/16"	3/4 HVY	5/8"	50.0	25.0	3/4"
3/4 EHS	58.3	29.2	1 1/4 x 18	76.0	38.0	1 1/8"	3/4"	3/4"	1 HVY	3/4"	70.0	35.0	7/8"
7/8 EHS	78.7	39.9	1 1/2 x 18	107.0	53.5	1 3/8"	7/8"	7/8"	1 1/8 HVY	7/8"	95.0	47.5	1"
1 EHS	104.5	52.3	1 1/2 x 18	107.0	53.5	1 3/8"	1"	1"	1 1/8 HVY	1"	125.0	62.5	1 1/8"
5/8 BS	48.0	24.0	1 x 12	50.0	25.0	7/8"	5/8"	5/8"	3/4 HVY	5/8"	50.0	25.0	3/4"
11/16 BS	58.0	29.0	1 1/4 x 18	76.0	38.0	1 1/8"	11/16"	11/16"	7/8 HVY	3/4"	70.0	35.0	7/8"
3/4 BS	68.0	34.0	1 1/4 x 18	76.0	38.0	1 1/8"	3/4"	3/4"	1 HVY	3/4"	70.0	35.0	7/8"
13/16 BS	80.0	40.0	1 1/2 x 18	107.0	53.5	1 3/8"	13/16"	13/16"	1 HVY	7/8"	95.0	47.5	1"
7/8 BS	92.0	46.0	1 1/2 x 18	107.0	53.5	1 3/8"	7/8"	7/8"	1 1/8 HVY	7/8"	95.0	47.5	1"
15/16 BS	108.0	54.0	1 3/4 x 24	140.0	70.0	1 5/8"	15/16"	15/16"	1 1/8 HVY	1"	125.0	62.5	1 1/8"

- NOTE:
1. THE WORKING LOADS ARE BASED ON A SAFETY FACTOR OF 2.0. FOR TOWERS TALLER THAN 700', A HIGHER SAFETY FACTOR IS REQUIRED BY EIA.
 2. ALL EHS AND BRIDGE STRAND HAS A LEFT HAND WIRE LAY.
 3. USE (1) 3/8" WIRE ROPE CLIP PER ANCHOR WITH 3/8" EHS GUY STRAND x 15' FOR TURNBUCKLE TIE.

THE FOLLOWING CHART IS FOR OTHER TYPES OF SHACKLES AND IS FOR INFORMATION ONLY.

GUY STRAND			CROSBY FORGED SHACKLE (G-209)				CROSBY BOLT TYPE SHACKLE (G-2130)			
SIZE	U.T.S.	W.L.	SIZE	U.T.S.	W.L.	PIN DIA.	SIZE	U.T.S.	W.L.	PIN DIA.
5/16 EHS	11.2	5.6	1/2"	24	12.0	5/8"	1/2"	24	12.0	5/8"
3/8 EHS	15.4	7.7	1/2"	24	12.0	5/8"	1/2"	24	12.0	5/8"
7/16 EHS	20.8	10.4	1/2"	24	12.0	5/8"	1/2"	24	12.0	5/8"
1/2 EHS	26.9	13.5	5/8"	39	19.5	5/8"	5/8"	39	19.5	3/4"
9/16 EHS	35.0	17.5	5/8"	39	19.5	3/4"	5/8"	39	19.5	3/4"
5/8 EHS	42.4	21.2	3/4"	57	28.5	7/8"	3/4"	57	28.5	7/8"
3/4 EHS	58.3	29.2	7/8"	78	39.0	1"	7/8"	78	39.0	1"
7/8 EHS	79.7	39.9	1"	102	51.0	1 1/8"	1"	102	51.0	1 1/8"
1 EHS	104.5	52.3	1 1/8"	114	57.0	1 1/4"	1 1/8"	114	57.0	1 1/4"

- NOTES:
1. THE GUY STRAND CONNECTOR MUST FOLLOW THE LAY OF THE GUY STRAND.
 2. THE STRAND AND THE CONNECTOR SHOWN HAVE A LEFT HAND LAY. STRAND WHICH HAS A RIGHT HAND LAY REQUIRES A CONNECTOR WITH A RIGHT HAND LAY.
 3. IF REMOVAL IF EXISTING PERFORMS IS REQUIRED - THEY CANNOT BE RE-USED.
 4. IF THE EXISTING SAFETY CABLES DO NOT HAVE THE LENGTH SUFFICIENT TO MAKE THE CONFIGURATION AS SHOWN, PLEASE REPLACE WITH NEW CABLES AND GUY CLIPS.

STANDARD GUY STRAND HARWARE CHART
NOT TO SCALE

CLIENT

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N41°47'6.3", W72°44'54.5

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PHONE: (402) 289-1888
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DRAWN BY: KRC
APPROVED BY: LMP

REV	DESCRIPTION	DATE
0	FIRST ISSUE	10/20/2014

DRAWING DESCRIPTION
**STRAND TERMINATION
AND STANDARD
SAFETY INSTALLATION
DETAILS**

SHEET NUMBER
S-3

REVISION
0