STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

July 20, 2012

Stephanie Wenderoth
Nexlink Global Services
Suite A, Building 2
800 Marshall Phelps Road
Windsor, CT 06095

RE: **EM-AT&T-044-120703** – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 259 Commerce Street, East Haven, Connecticut.

Dear Ms. Wenderoth:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- AT&T shall submit to the Council a Radio Frequency Exposure Report with field measurements taken in the vicinity of this facility within three months after the installation described in this notice of exempt modification has been completed.
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated June 29, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change

with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Joseph Maturo, Jr., Mayor, Town of East Haven
George Mingione, Zoning Enforcement Officer, Town of East Haven

CONNECTICUT SITING COUNCIL
NOTICE OF INTENT TO MODIFY AN EXISTI
EXEMPT MODIFICATION FILI
Public Utility Environmental Standards Act, Connecticut Ge
Regulations of Connecticut State Agencies §§ 16-5(

EM-AT&T-044-120703

TO BE COMPLETED BY FILER

Date: 6/29/12

ORIGINAL

Filer Name and Contact Information
Name: Stephanie Wenderoth
Address: Nexlink Global Services; Suite A Building 2
800 Marshall Phelps Road, Windsor, CT 06095
Phone Number: 401.477.2938

Wireless Carrier: AT&T

Tower Owner: AT&T

Tower Site Address: 223 Brainard Road, Hartford CT

Municipality and Name of Chief Elected Official Provided A Copy Of This Notice:
Joseph Maturo Jr.; Mayor

Description of Exempt Modification (including antenna and equipment changes):
Add 3 LTE Antennas, new conduit, RRUs and surge arrestor.

Attachments
- ✓ Plans
- ✓ Power density calculations if applicable
- ✓ Tower structural report if applicable
- ✓ $625.00 Filing Fee

If required:
Municipality w/i 2,500' & Name of Chief Elected Official Provided A Copy Of This Notice:

Underlying Property Owner Provided A Copy Of This Notice:

FOR STAFF USE ONLY

- ___ Modification will not result in an increase in tower height
- ___ Modification is within existing site boundaries
- ___ Modification will not increase noise levels at the site boundary by 6 dbA or more, or to levels that exceed State & local criteria
- ___ Modification will meet FCC and DEEP MPE limits

____ Modification will not result in significant adverse change in physical or environmental characteristics of the site

____ Modification will not impair the structural integrity of the facility as determined by PE

____ If yes to all of the above, approval of acknowledgement letter

June 29, 2012

VIA UPS Delivery

Ms. Linda Roberts, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

ORIGINAL

RE: AT&T Mobility - Notice of Exempt Modification
259 Commerce Street, East Haven, CT

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of AT&T Mobility ("AT&T"). AT&T is enhancing the capabilities of its wireless system in Connecticut by implementing LTE technology. In order to do so, AT&T will modify antenna and equipment configurations at a number of existing sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section I6-50j-73, a copy of this letter and attachments is being sent to the Mayor of East Haven.

AT&T plans to modify the existing facility at 259 Commerce Street, owned by Stephen J Viglione (coordinates 41.256392 N, -72.875799 W). Attached are drawings depicting the planned changes, and documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration. Also included is a power density calculation reflecting the modification to AT&T's operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C. S.A. Section | 6-50j-l 2(b)(2).

1. The height of the overall structure will be unaffected. The existing antennas will remain and AT&T will add three (3) new antennas, six (6) RRU's and one (1) surge arrestor. Additionally, AT&T will install one (1) fiber cable and two (2) DC control cables.

2. The proposed changes will not extend the site boundaries. AT&T will install additional equipment in the existing equipment shelter. Thus, there will no effect on the site compound.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed change will be negligible.

4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environment as calculated for a mixed frequency site. As indicated in the attached

power density calculations, AT&T's operations at the site will result in a power density of 10.77%; the combined site operations will result in a total power density of 53.34%.

Please feel free to call me with any questions or concerns regarding this matter.
Thank you for your consideration.

Respectfully submitted,

AT&T Mobility
Stephanie Wenderoth, Consultant
wenderoths@nexlinkgs.com
401.477.2938

Cc: Joseph Maturo Jr. ; Mayor
Town Hall
250 Main Street
East Haven, Ct 06512

C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions

at&t

CT5048 – East Haven South

259 Commerce Street, East Haven, CT

June 22, 2012

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the monopole tower located at 259 Commerce Street in East Haven, CT. The coordinates of the tower are 41-15-23.01 N, 72-52-32.88 W.

AT&T is proposing the following modifications:

1) Install three 700 MHz LTE antennas (one per sector).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pocket	37	2130	3	631	0.0708	1.0000	7.08%
T-Mobile GSM	47	1935	2	198	0.0645	1.0000	6.45%
T-Mobile UMTS	47	2100	2	892	0.2904	1.0000	29.04%
AT&T UMTS	57	880	2	565	0.0125	0.5867	2.13%
AT&T UMTS	57	1900	2	1077	0.0238	1.0000	2.38%
AT&T LTE	58	734	1	1313	0.0140	0.4893	2.87%
AT&T GSM	57	880	1	283	0.0031	0.5867	0.53%
AT&T GSM	57	1900	4	646	0.0286	1.0000	2.86%
						Total	**53.34%**

Table 1: Carrier Information [1] [2] [3]

[1] The existing CSC filing for Cingular should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 3/29/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

[2] In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

[3] Antenna height listed for AT&T is in reference to the B&T Engineering, Inc. Structural Analysis dated May 30, 2012

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **53.34% of the FCC limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Daniel L. Goulet
C Squared Systems, LLC

June 22, 2012
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[4] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[5] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

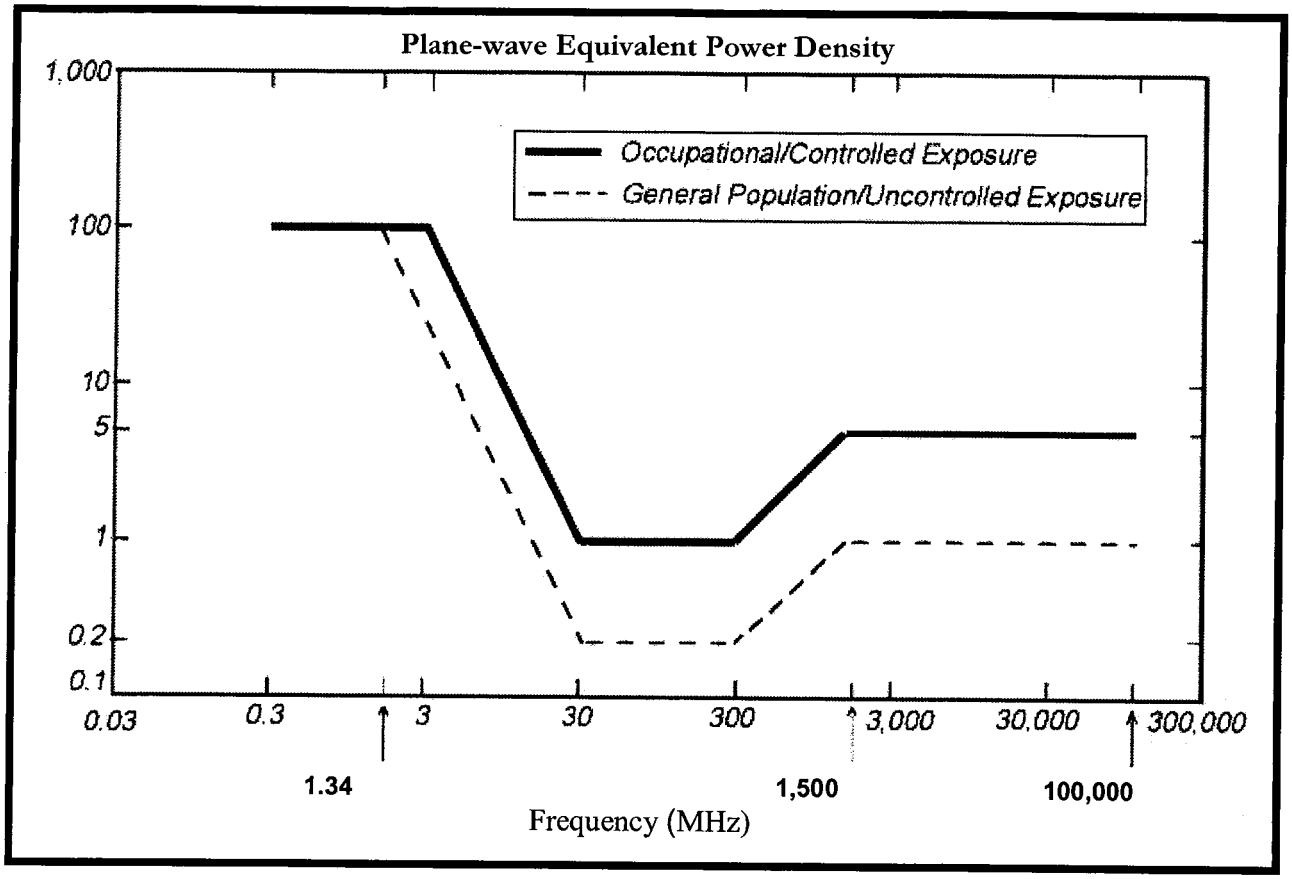
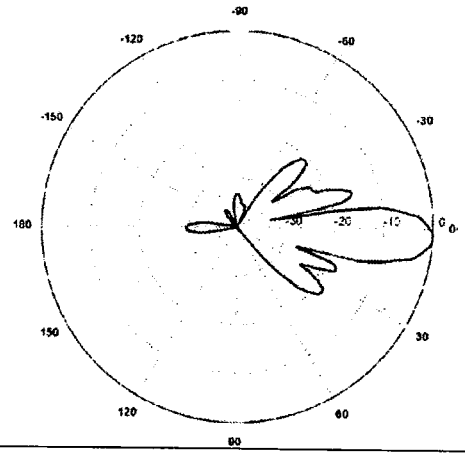


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

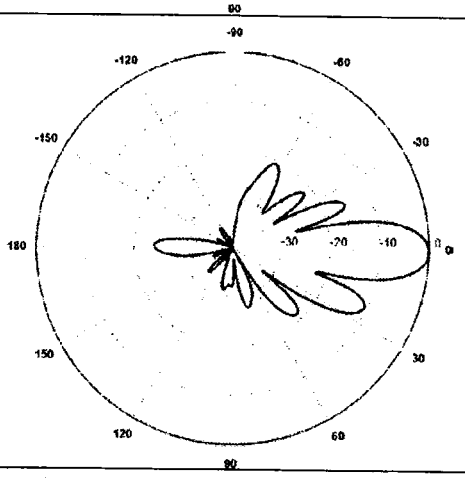
700 MHz

Manufacturer:	KMW
Model #:	AM-X-CD-16-65-00T
Frequency Band:	698-806 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	12.3°
Horizontal Beamwidth:	65°
Polarization:	± 45°
Size L x W x D:	72"×11.8"×5.9"



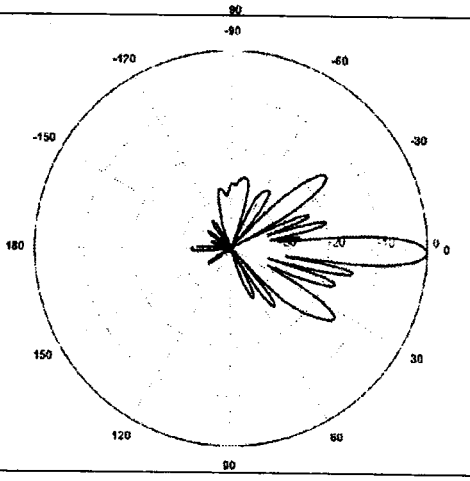
850 MHz

Manufacturer:	Kathrein
Model #:	80010121
Frequency Band:	824-896 MHz
Gain:	11.5 dBd
Vertical Beamwidth:	14.5°
Horizontal Beamwidth:	86°
Polarization:	±45°
Size L x W x D:	54.5"x10.3"x5.9"



1900 MHz

Manufacturer:	Kathrein
Model #:	80010121
Frequency Band:	1850-1990 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	6.6°
Horizontal Beamwidth:	85°
Polarization:	±45°
Size L x W x D:	54.5"x10.3"x5.9"



Nexlink Global Services, Inc.
800 Marshall Phelps Road
Windsor, CT 06095

May 30, 2012

B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119

B&T No.: 84602.001

STRUCTURAL ANALYSIS
58' Monopole Tower

AT&T DESIGNATION:	Site ID:	24481 (CT5048)
	Site FA:	10071016
	Site Name:	East Haven South
	AT&T Project:	MOD LTE W3 012712
ANALYSIS CRITERIA:	Codes:	TIA/EIA-222-F (95 mph fastest mile) IBC 2003 2005 CT Building Code
SITE DATA:		259 Commerce Street, East Haven , CT, New Haven County Latitude 41.256392°, Longitude -72.875799° Market MA/RI/VT/NH/ME/CT

Ms. Stephanie Wenderoth,

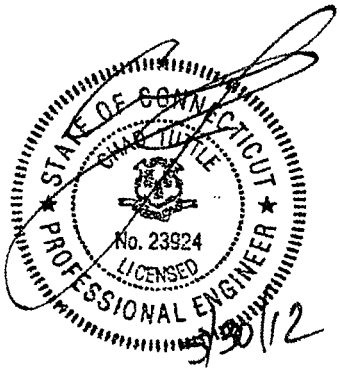
B&T Engineering, Inc. is pleased to submit this Structural Analysis Report to determine the structural integrity of the aformentioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	**58.4%**	**Pass**
Foundation Ratio with Proposed Equipment:	**37.6%**	**Pass**

We at B&T Engineering, Inc. appreciate the opportunity of providing our continuing professioinal services to you and Nexlink Global Services, Inc.. If you have any questions or need further assistance on this or any other project please give us a call.

Respectfully Submitted by:	B&T Engineering, Inc.
Analysis Prepared by:	Kristin Mears, E.I.
Analysis Reviewed by:	Chad E. Tuttle, P.E.



ANALYSIS RESULTS:

Table 1 - Section Capacity (Summary)

Component (Tower Section)	% Capacity	Pass / Fail
58 - 50.5	6.5	Pass
50.5 - 0	58.4	Pass

Table 2 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	52.3	**Pass**
1	Base Plate	Base	54.9	**Pass**
1	Base Foundation	Base	37.6	**Pass**

Structure Rating (max from all components) =	**58.4%**

Notes:
1.) See additional documentation in "Appendix B - Calculations" for calculation supporting the % capacity consumed.

Recommendations:

N/A

ANALYSIS PROCEDURE:

Table 4 - Documents Provided

Document	Description	Date	Source
Tower Data	FWT Job No. J030902001	9/2/2003	Siterra
Foundation Information	FWT Job No. J030902001	9/2/2003	Siterra
Geotech Report	Jaworski Geotech, Inc. Project No. 03368G	7/1/2003	Siterra
Loading	Equipment Mod Form	2/9/2012	Siterra
	Previous Analysis by B&T Engineering, Inc.	7/27/2011	On File
	Site Photographs	11/20/2011	Siterra
Previous Structural Analysis	B&T Engineering Project No. 83031.002	7/27/2011	On File
	B&T Engineering Project No. 83031.001	6/21/2011	On File
	GPD Project No. 2008265.20	10/27/2008	Siterra

ANALYSIS METHOD:

tnxTower, a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix B.

ASSUMPTIONS:

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with the manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Appendix A of this report.
4. Mount areas and weights are assumed based on photographs provided.
5. Refer to the base level drawing for transmission line distribution.
6. The previous analysis used (3) TMAs for AT&T Mobility at 57'. Based on photographs and previous e-mail discussions, (6) TMAs were used in this analysis.
7. The previous analysis used 85 mph fastest mile wind speed. Based on local jurisdication requirements, this anlaysis uses a 95 mph fastest mile wind speed.

If any of these assumptions have been made in error, B&T Engineering should be notified to determine the effect on the structural integrity of the tower.

APPENDIX A

TOWER ANALYSIS LOADING

TOWER ANALYSIS LOADING:

Existing / Reserved Loading

Antenna						Mount		Transmission Line	
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Quantity	Size (in)
AT&T Mobility	**58**	**57**	**3**	**Kathrein**	**800-10121**	**3****	**Pipe Mounts****	**6**	**7/8"**
AT&T Mobility	**58**	**57**	**6**	**Powerwave**	**LGP 21401**				
T-Mobile	**47**	**47**	**3**	**RFS**	**APX16DWV-16DWVS-C**	**3**	**Pipe Mounts**	**12**	**7/8"**
T-Mobile	**47**	**47**	**3**	**RFS**	**ATMAA1412D-1A20**				
T-Mobile	**47**	**47**	**3**	**RFS**	**ATMPP1412D-1CWA**				
Pocket Communications	**37**	**37**	**3**	**RFS**	**APXV18-206517S-C**	**3**	**Pipe Mounts**	**6**	**7/8"**

**Equipment to be Removed

Proposed Loading

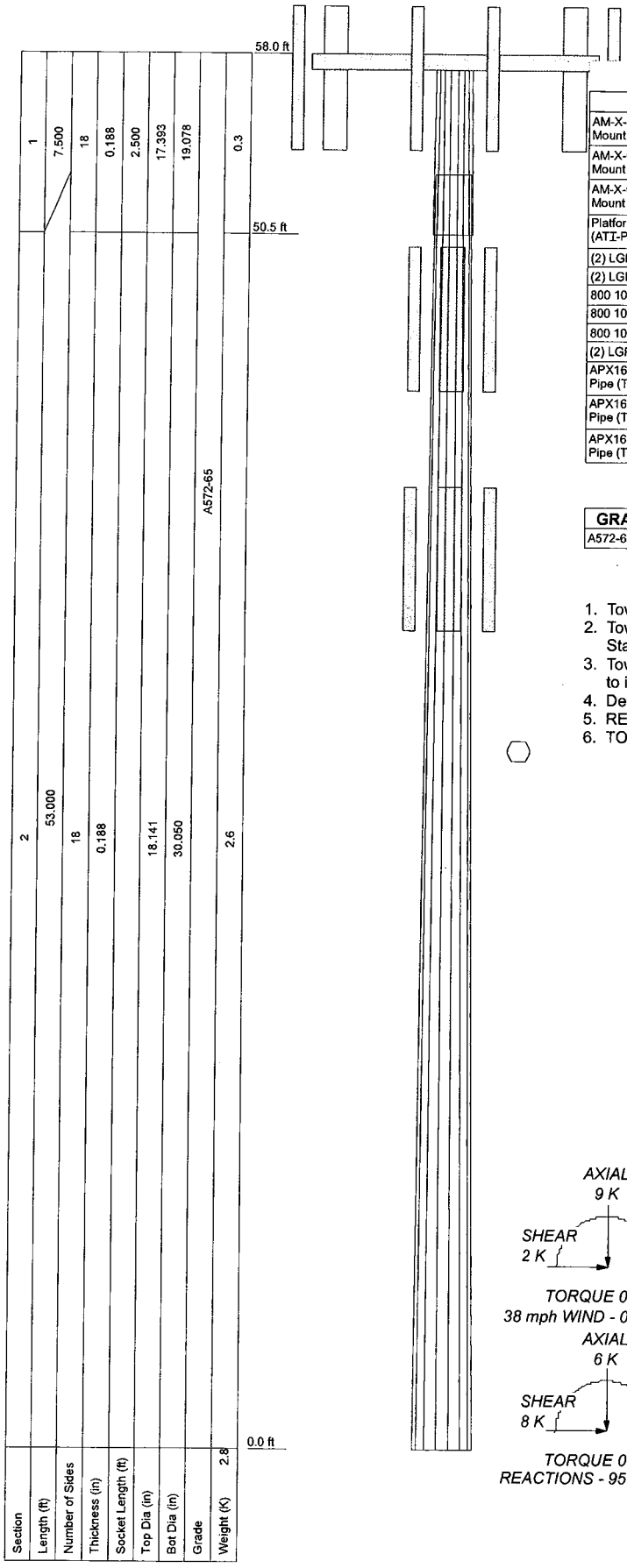
Antenna						Mount		Transmission Line	
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Quantity	Size (in)
AT&T Mobility	**58**	**58**	**3**	**KMW**	**AM-X-CD-16-65-00T**	**1**	**Platform w/ Rails**		

Future Loading

Antenna						Mount		Transmission Line	
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Quantity	Size (in)

APPENDIX B

CALCULATIONS



Section	1	2
Length (ft)	7.500	53.000
Number of Sides	18	18
Thickness (in)	0.188	0.188
Socket Length (ft)	2.500	
Top Dia (in)	17.393	18.141
Bot Dia (in)	19.078	30.050
Grade	A572-65	
Weight (K)	0.3	2.6

2.8

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	58	ATMAA1412D-1A20 (T-Mobile-E)	47
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	58	ATMAA1412D-1A20 (T-Mobile-E)	47
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-P)	58	ATMAA1412D-1A20 (T-Mobile-E)	47
Platform Mount [LP 303-1] (ATI-P)	58	ATMPP1412D-1CWA (T-Mobile-E)	47
(2) LGP21401 (ATI-E)	57	ATMPP1412D-1CWA (T-Mobile-E)	47
(2) LGP21401 (ATI-E)	57	ATMPP1412D-1CWA (T-Mobile-E)	47
800 10121 w/ Mount Pipe (ATI-E)	57	Pipe Mount [PM 601-3] (T-Mobile-E)	47
800 10121 w/ Mount Pipe (ATI-E)	57	APXV18-206517S-C (Pocket Comm-E)	37
800 10121 w/ Mount Pipe (ATI-E)	57	APXV18-206517S-C (Pocket Comm-E)	37
(2) LGP21401 (ATI-E)	57	APXV18-206517S-C (Pocket Comm-E)	37
APX16DWV-16DWVS-C w/Mount Pipe (T-Mobile-E)	47	Pipe Mount [PM 601-3] (Pocket Comm-E)	37
APX16DWV-16DWVS-C w/Mount Pipe (T-Mobile-E)	47		
APX16DWV-16DWVS-C w/Mount Pipe (T-Mobile-E)	47		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 95 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. RE: Feedline Distribution Chart for transmission lines distribution.
6. TOWER RATING: 58.4%

TORQUE 0 kip-ft
38 mph WIND - 0.750 in ICE

TORQUE 0 kip-ft
REACTIONS - 95 mph WIND

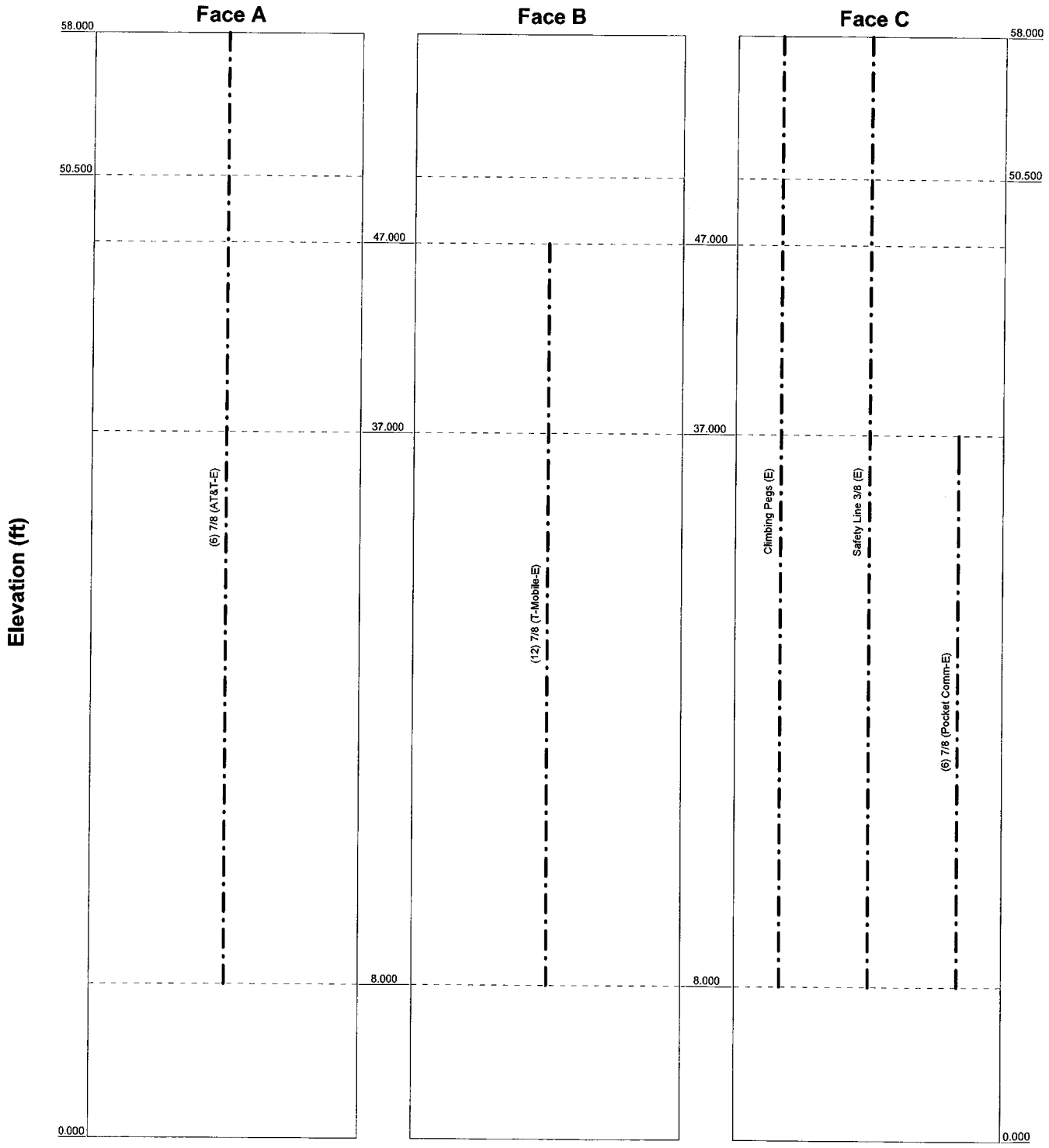
B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***84602.001 - East Haven South, CT (USID# 24481***	
Project:	***58' FWT Monopole / AT&T Co-Locate***	
Client: Nexlink	Drawn by: K. Mears	App'd:
Code: TIA/EIA-222-F	Date: 05/30/12	Scale: NTS
Path: S:\B&T Engineering Projects\AT&T Management\84602_24481_East Haven South\Engineering\mnTower\84602_001_East Haven South.eri		Dwg No. E-1

PROJECT#: 84602

Feedline Distribution Chart
0' - 58'

Round — Flat — App In Face — App Out Face — Truss Leg



B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***84602.001 - East Haven South, CT (USID# 24481***		
Project: ***58' FWT Monopole / AT&T Co-Locate***		
Client: Nexlink	Drawn by: K. Mears	App'd:
Code: TIA/EIA-222-F	Date: 05/30/12	Scale: NTS
Path: S:\B&T Engineering\Projects\BTE Management\84602_24481 East Haven South\Engineering\Tower\84602_001 East Haven South CT.eri		Dwg No. E-7

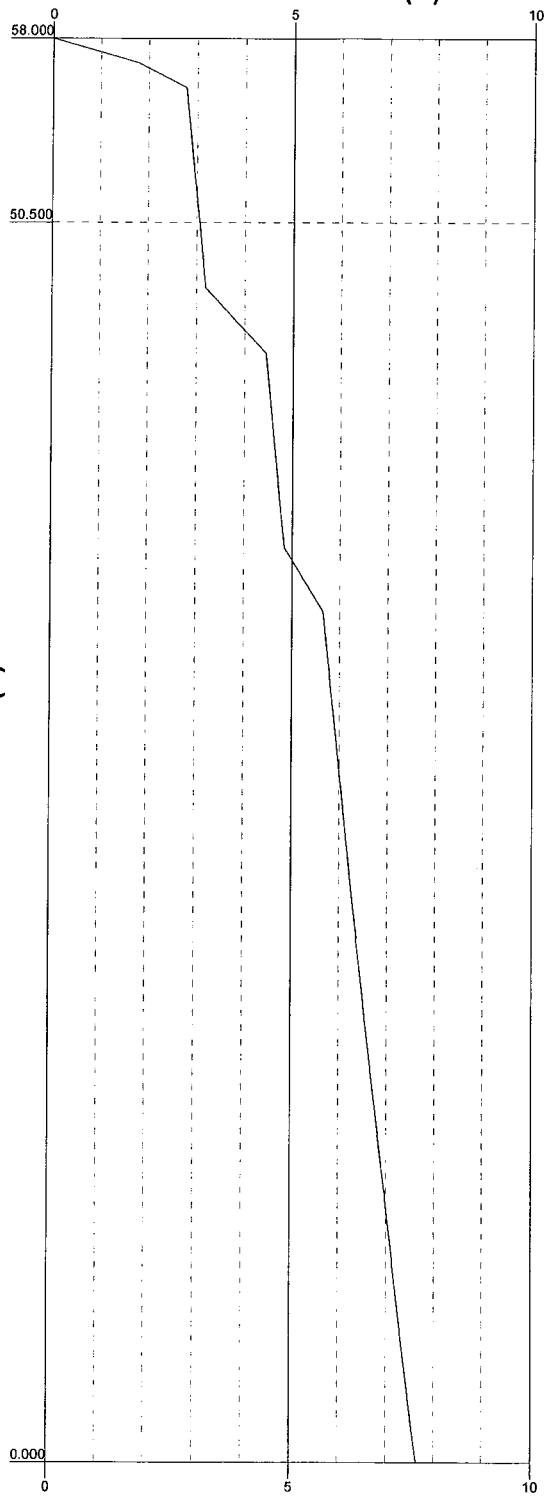
TIA/EIA-222-F - 95 mph/38 mph 0.750 in Ice

Vx ---------- Vz

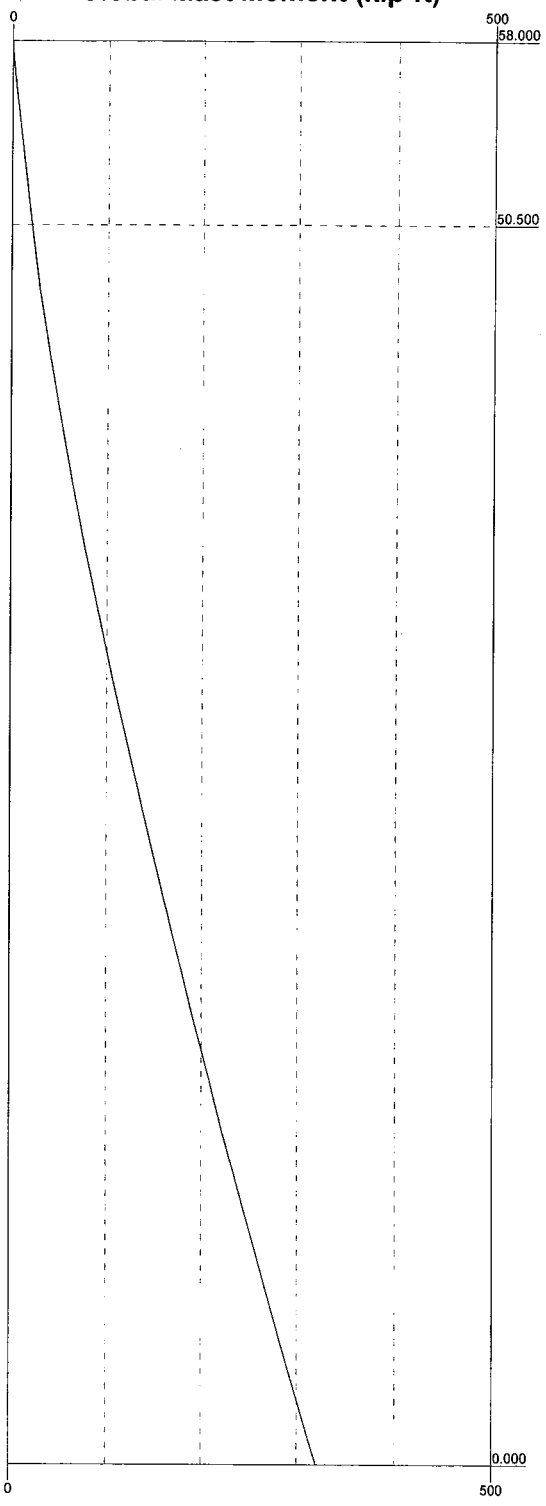
Maximum Values

Mx ---------- Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)

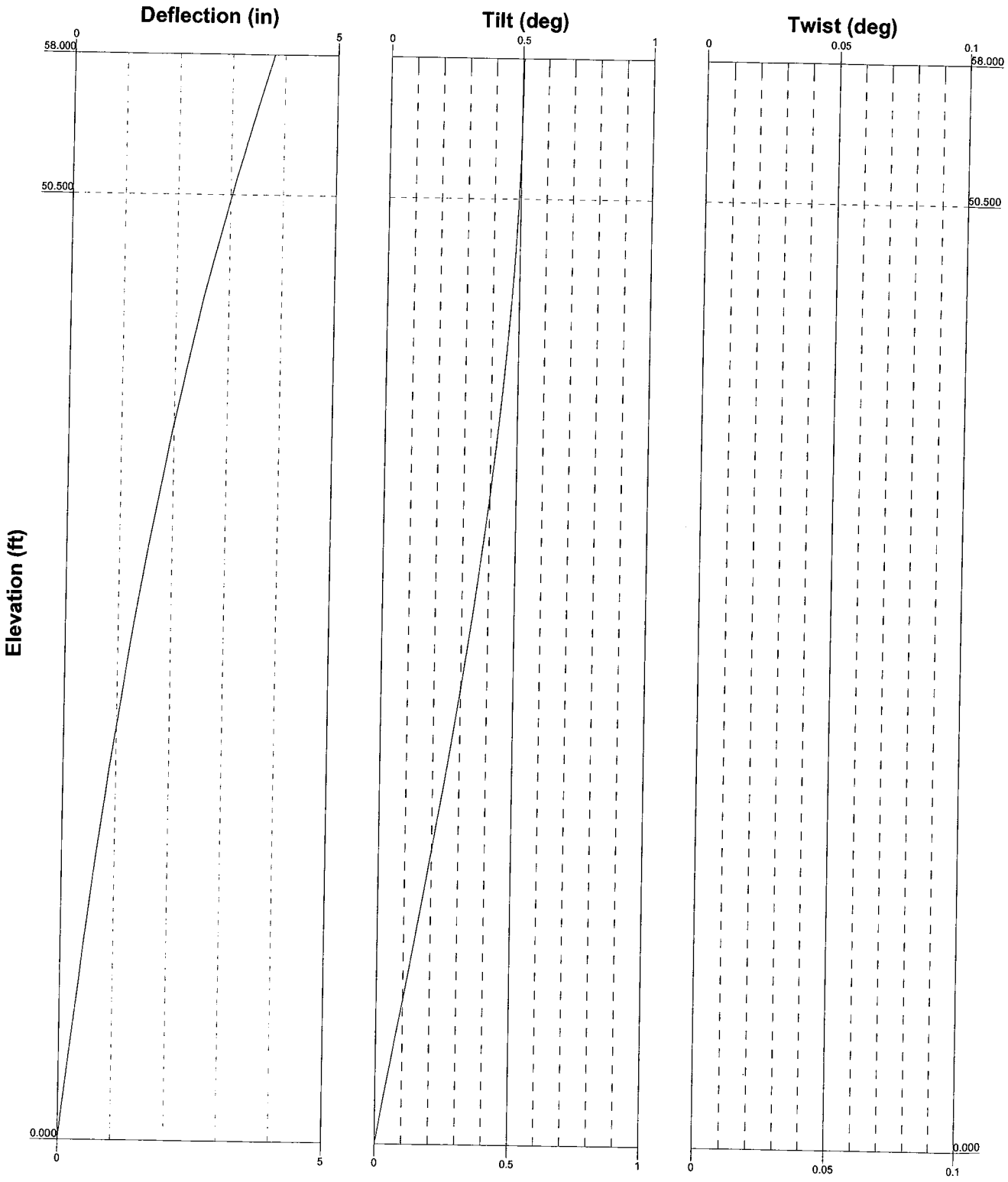


B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 84602.001 - East Haven South, CT (USID# 24481)		
Project: 58' FWT Monopole / AT&T Co-Locate		
Client: Nexlink	Drawn by: K. Mears	App'd:
Code: TIA/EIA-222-F	Date: 05/30/12	Scale: NTS
Path:		Dwg No. E-4

TIA/EIA-222-F - Service - 50 mph

Maximum Values



B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 84602.001 - East Haven South, CT (USID# 24481		
Project: 58' FWT Monopole / AT&T Co-Locate		
Client: Nexlink	Drawn by: K. Mears	App'd:
Code: TIA/EIA-222-F	Date: 05/30/12	Scale: NTS
Path: S:\B&T Engineering\Projects\AT&T\Monopoles\84602_24481_East Haven South\Engineering\Tower\84602_001_East Haven South.eri		Dwg No. E-5

tnxTower	Job	Page
	84602.001 - East Haven South, CT (USID# 24481)	1 of 12
B&T Engineering, Inc. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	**Project** 58' FWT Monopole / AT&T Co-Locate	**Date** 15:26:42 05/30/12
	Client Nexlink	**Designed by** K. Mears

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 95 mph.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
RE: Feedline Distribution Chart for transmission lines distribution..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios		Use Clear Spans For KL/r		SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		All Leg Panels Have Same Allowable
√	Escalate Ice	√	Bypass Mast Stability Checks		Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Include Angle Block Shear Check
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Poles
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends	√	Include Shear-Torsion Interaction
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination				

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	58.000-50.500	7.500	2.500	18	17.393	19.078	0.188	0.750	A572-65 (65 ksi)
L2	50.500-0.000	53.000		18	18.141	30.050	0.188	0.750	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia.	Area	I	r	C	I/C	J	It/Q	w	w/t
	in	in^2	in^4	in	in	in^3	in^4	in^2	in	
L1	17.661	10.239	382.955	6.108	8.836	43.342	766.414	5.121	2.731	14.566
	19.372	11.242	506.846	6.706	9.692	52.297	1014.359	5.622	3.028	16.148
L2	18.992	10.685	435.128	6.374	9.216	47.215	870.829	5.343	2.863	15.269
	30.514	17.772	2002.277	10.601	15.265	131.164	4007.188	8.888	4.959	26.447

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft^2	in					in	in
L1 58.000-50.500				1	1	1		
L2 50.500-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	Number Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
				ft			in	in	in	klf
_										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C_AA_A	Weight
				ft			ft^2/ft	klf
Climbing Pegs (E)	C	No	CaAa (Out Of Face)	58.000 - 8.000	1	No Ice	0.080	0.000
						1/2" Ice	1.000	0.000
						1" Ice	1.920	0.000
						2" Ice	3.760	0.000
						4" Ice	7.440	0.000
Safety Line 3/8 (E)	C	No	CaAa (Out Of Face)	58.000 - 8.000	1	No Ice	0.037	0.000
						1/2" Ice	0.137	0.001
						1" Ice	0.238	0.001
						2" Ice	0.437	0.002
						4" Ice	0.838	0.004
_								
7/8 (AT&T-E)	A	No	Inside Pole	58.000 - 8.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
_								
7/8 (T-Mobile-E)	B	No	Inside Pole	47.000 - 8.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
_								
7/8	C	No	Inside Pole	37.000 - 8.000	6	No Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
(Pocket Comm-E)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
_								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	58.000-50.500	A	0.000	0.000	0.000	0.000	0.024
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.881	0.005
L2	50.500-0.000	A	0.000	0.000	0.000	0.000	0.138
		B	0.000	0.000	0.000	0.000	0.253
		C	0.000	0.000	0.000	4.994	0.120

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	58.000-50.500	A	0.796	0.000	0.000	0.000	0.000	0.024
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	13.060	0.008
L2	50.500-0.000	A	0.750	0.000	0.000	0.000	0.000	0.138
		B		0.000	0.000	0.000	0.000	0.253
		C		0.000	0.000	0.000	74.007	0.139

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	58.000-50.500	-0.142	0.082	-1.013	0.585
L2	50.500-0.000	-0.118	0.068	-1.026	0.592

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
800 10121 w/ Mount Pipe (AT&T-E)	C	From Leg	4.000 0.000 0.000	0.000	57.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.804 6.350 6.872 7.950 10.237	4.718 5.564 6.288 7.821 11.237	0.068 0.115 0.171 0.305 0.693
800 10121 w/ Mount Pipe (AT&T-E)	B	From Leg	4.000 0.000 0.000	0.000	57.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.804 6.350 6.872 7.950 10.237	4.718 5.564 6.288 7.821 11.237	0.068 0.115 0.171 0.305 0.693
800 10121 w/ Mount Pipe (AT&T-E)	A	From Leg	4.000 0.000 0.000	0.000	57.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.804 6.350 6.872 7.950 10.237	4.718 5.564 6.288 7.821 11.237	0.068 0.115 0.171 0.305 0.693
(2) LGP21401 (AT&T-E)	C	From Leg	4.000 0.000 0.000	0.000	57.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
(2) LGP21401 (AT&T-E)	B	From Leg	4.000 0.000 0.000	0.000	57.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
(2) LGP21401 (AT&T-E)	A	From Leg	4.000 0.000 0.000	0.000	57.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.288 1.445 1.611 1.969 2.788	0.233 0.313 0.403 0.608 1.121	0.014 0.021 0.030 0.055 0.135
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-P)	C	From Leg	4.000 0.000 0.000	0.000	58.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.136 0.210 0.385 0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-P)	B	From Leg	4.000 0.000 0.000	0.000	58.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.136 0.210 0.385 0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-P)	A	From Leg	4.000 0.000 0.000	0.000	58.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.304 7.479 8.368 10.179 14.024	0.074 0.136 0.210 0.385 0.874
Platform Mount [LP 303-1] (AT&T-P)	C	None		0.000	58.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	14.660 18.870 23.080 31.500 48.340	14.660 18.870 23.080 31.500 48.340	1.250 1.481 1.713 2.175 3.101
_ *****									
APX16DWV-16DWVS-C w/Mount Pipe	C	From Leg	1.000 0.000	0.000	47.000	No Ice 1/2" Ice	7.547 8.111	3.575 4.415	0.063 0.110

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(T-Mobile-E)			0.000			1" Ice	8.655	5.131	0.167
						2" Ice	9.776	6.614	0.303
						4" Ice	12.144	9.779	0.695
APX16DWV-16DWVS-C	B	From Leg	1.000	0.000	47.000	No Ice	7.547	3.575	0.063
w/Mount Pipe			0.000			1/2" Ice	8.111	4.415	0.110
(T-Mobile-E)			0.000			1" Ice	8.655	5.131	0.167
						2" Ice	9.776	6.614	0.303
						4" Ice	12.144	9.779	0.695
APX16DWV-16DWVS-C	A	From Leg	1.000	0.000	47.000	No Ice	7.547	3.575	0.063
w/Mount Pipe			0.000			1/2" Ice	8.111	4.415	0.110
(T-Mobile-E)			0.000			1" Ice	8.655	5.131	0.167
						2" Ice	9.776	6.614	0.303
						4" Ice	12.144	9.779	0.695
ATMAA1412D-1A20	C	From Leg	1.000	0.000	47.000	No Ice	1.167	0.467	0.013
(T-Mobile-E)			0.000			1/2" Ice	1.314	0.575	0.021
			0.000			1" Ice	1.469	0.691	0.030
						2" Ice	1.806	0.951	0.056
						4" Ice	2.584	1.573	0.137
ATMAA1412D-1A20	B	From Leg	1.000	0.000	47.000	No Ice	1.167	0.467	0.013
(T-Mobile-E)			0.000			1/2" Ice	1.314	0.575	0.021
			0.000			1" Ice	1.469	0.691	0.030
						2" Ice	1.806	0.951	0.056
						4" Ice	2.584	1.573	0.137
ATMAA1412D-1A20	A	From Leg	1.000	0.000	47.000	No Ice	1.167	0.467	0.013
(T-Mobile-E)			0.000			1/2" Ice	1.314	0.575	0.021
			0.000			1" Ice	1.469	0.691	0.030
						2" Ice	1.806	0.951	0.056
						4" Ice	2.584	1.573	0.137
ATMPP1412D-1CWA	C	From Leg	1.000	0.000	47.000	No Ice	1.167	0.416	0.013
(T-Mobile-E)			0.000			1/2" Ice	1.317	0.530	0.020
			0.000			1" Ice	1.476	0.652	0.028
						2" Ice	1.820	0.923	0.052
						4" Ice	2.610	1.569	0.131
ATMPP1412D-1CWA	B	From Leg	1.000	0.000	47.000	No Ice	1.167	0.416	0.013
(T-Mobile-E)			0.000			1/2" Ice	1.317	0.530	0.020
			0.000			1" Ice	1.476	0.652	0.028
						2" Ice	1.820	0.923	0.052
						4" Ice	2.610	1.569	0.131
ATMPP1412D-1CWA	A	From Leg	1.000	0.000	47.000	No Ice	1.167	0.416	0.013
(T-Mobile-E)			0.000			1/2" Ice	1.317	0.530	0.020
			0.000			1" Ice	1.476	0.652	0.028
						2" Ice	1.820	0.923	0.052
						4" Ice	2.610	1.569	0.131
Pipe Mount [PM 601-3]	C	None		0.000	47.000	No Ice	4.390	4.390	0.195
(T-Mobile-E)						1/2" Ice	5.480	5.480	0.237
						1" Ice	6.570	6.570	0.280
						2" Ice	8.750	8.750	0.365
						4" Ice	13.110	13.110	0.534
-									
APXV18-206517S-C	C	From Leg	1.000	0.000	37.000	No Ice	5.167	3.038	0.026
(Pocket Comm-E)			0.000			1/2" Ice	5.618	3.469	0.053
			0.000			1" Ice	6.077	3.909	0.085
						2" Ice	7.017	4.809	0.167
						4" Ice	9.122	6.700	0.404
APXV18-206517S-C	B	From Leg	1.000	0.000	37.000	No Ice	5.167	3.038	0.026
(Pocket Comm-E)			0.000			1/2" Ice	5.618	3.469	0.053
			0.000			1" Ice	6.077	3.909	0.085

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXV18-206517S-C (Pocket Comm-E)	A	From Leg	1.000 0.000 0.000	0.000	37.000	2" Ice	7.017	4.809	0.167
						4" Ice	9.122	6.700	0.404
						No Ice	5.167	3.038	0.026
						1/2" Ice	5.618	3.469	0.053
						1" Ice	6.077	3.909	0.085
						2" Ice	7.017	4.809	0.167
						4" Ice	9.122	6.700	0.404
Pipe Mount [PM 601-3] (Pocket Comm-E)	C	None		0.000	37.000	No Ice	4.390	4.390	0.195
						1/2" Ice	5.480	5.480	0.237
						1" Ice	6.570	6.570	0.280
						2" Ice	8.750	8.750	0.365
						4" Ice	13.110	13.110	0.534

_

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service

Comb. No.	Description
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	58 - 50.5	Pole	Max Tension	14	0.000	0.000	0.000
			Max. Compression	14	-3.065	0.003	-0.002
			Max. Mx	11	-1.868	13.055	-0.001
			Max. My	8	-1.868	0.002	-13.054
			Max. Vy	11	-2.925	13.055	-0.001
			Max. Vx	8	2.925	0.002	-13.054
			Max. Torque	26			0.011
L2	50.5 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-8.852	0.044	-0.025
			Max. Mx	11	-5.867	319.277	-0.015
			Max. My	8	-5.867	0.026	-319.266
			Max. Vy	11	-7.634	319.277	-0.015
			Max. Vx	8	7.634	0.026	-319.266
			Max. Torque	26			0.106

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	24	8.852	1.941	0.000
	Max. H_x	11	5.875	7.628	0.000
	Max. H_z	2	5.875	0.000	7.628
	Max. M_x	2	319.236	0.000	7.628
	Max. M_z	5	319.225	-7.628	0.000
	Max. Torsion	26	0.106	0.971	1.681
	Min. Vert	1	5.875	0.000	0.000
	Min. H_x	5	5.875	-7.628	0.000
	Min. H_z	8	5.875	0.000	-7.628
	Min. M_x	8	-319.266	0.000	-7.628
	Min. M_z	11	-319.277	7.628	0.000
	Min. Torsion	20	-0.106	-0.971	-1.681

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	5.875	0.000	0.000	0.015	0.025	0.000
Dead+Wind 0 deg - No Ice	5.875	0.000	-7.628	-319.236	0.026	-0.032
Dead+Wind 30 deg - No Ice	5.875	3.814	-6.606	-276.465	-159.600	-0.019
Dead+Wind 60 deg - No Ice	5.875	6.606	-3.814	-159.611	-276.454	-0.000
Dead+Wind 90 deg - No Ice	5.875	7.628	0.000	0.015	-319.225	0.019
Dead+Wind 120 deg - No Ice	5.875	6.606	3.814	159.640	-276.454	0.032
Dead+Wind 150 deg - No Ice	5.875	3.814	6.606	276.494	-159.600	0.037
Dead+Wind 180 deg - No Ice	5.875	0.000	7.628	319.266	0.026	0.032
Dead+Wind 210 deg - No Ice	5.875	-3.814	6.606	276.494	159.651	0.019
Dead+Wind 240 deg - No Ice	5.875	-6.606	3.814	159.640	276.505	-0.000
Dead+Wind 270 deg - No Ice	5.875	-7.628	0.000	0.015	319.277	-0.019
Dead+Wind 300 deg - No Ice	5.875	-6.606	-3.814	-159.611	276.505	-0.032
Dead+Wind 330 deg - No Ice	5.875	-3.814	-6.606	-276.465	159.651	-0.037
Dead+Ice+Temp	8.852	0.000	0.000	0.025	0.044	0.000
Dead+Wind 0 deg+Ice+Temp	8.852	0.000	-1.941	-76.931	0.044	-0.092
Dead+Wind 30 deg+Ice+Temp	8.852	0.971	-1.681	-66.621	-38.434	-0.053
Dead+Wind 60 deg+Ice+Temp	8.852	1.681	-0.971	-38.453	-66.602	0.000
Dead+Wind 90 deg+Ice+Temp	8.852	1.941	0.000	0.026	-76.912	0.053
Dead+Wind 120 deg+Ice+Temp	8.852	1.681	0.971	38.504	-66.602	0.092
Dead+Wind 150 deg+Ice+Temp	8.852	0.971	1.681	66.672	-38.434	0.106
Dead+Wind 180 deg+Ice+Temp	8.852	0.000	1.941	76.982	0.044	0.092
Dead+Wind 210 deg+Ice+Temp	8.852	-0.971	1.681	66.672	38.523	0.053
Dead+Wind 240 deg+Ice+Temp	8.852	-1.681	0.971	38.504	66.691	0.000
Dead+Wind 270 deg+Ice+Temp	8.852	-1.941	0.000	0.026	77.001	-0.053
Dead+Wind 300 deg+Ice+Temp	8.852	-1.681	-0.971	-38.453	66.691	-0.092
Dead+Wind 330 deg+Ice+Temp	8.852	-0.971	-1.681	-66.621	38.523	-0.106
Dead+Wind 0 deg - Service	5.875	0.000	-2.113	-88.436	0.026	-0.009
Dead+Wind 30 deg - Service	5.875	1.056	-1.830	-76.586	-44.200	-0.005
Dead+Wind 60 deg - Service	5.875	1.830	-1.056	-44.211	-76.575	0.000
Dead+Wind 90 deg - Service	5.875	2.113	0.000	0.015	-88.425	0.005
Dead+Wind 120 deg - Service	5.875	1.830	1.056	44.240	-76.575	0.009
Dead+Wind 150 deg - Service	5.875	1.056	1.830	76.616	-44.200	0.010
Dead+Wind 180 deg - Service	5.875	0.000	2.113	88.466	0.026	0.009
Dead+Wind 210 deg - Service	5.875	-1.056	1.830	76.616	44.251	0.005
Dead+Wind 240 deg - Service	5.875	-1.830	1.056	44.240	76.627	0.000
Dead+Wind 270 deg - Service	5.875	-2.113	0.000	0.015	88.477	-0.005
Dead+Wind 300 deg - Service	5.875	-1.830	-1.056	-44.211	76.627	-0.009
Dead+Wind 330 deg - Service	5.875	-1.056	-1.830	-76.586	44.251	-0.010

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-5.875	0.000	0.000	5.875	0.000	0.000%
2	0.000	-5.875	-7.628	0.000	5.875	7.628	0.000%
3	3.814	-5.875	-6.606	-3.814	5.875	6.606	0.000%
4	6.606	-5.875	-3.814	-6.606	5.875	3.814	0.000%
5	7.628	-5.875	0.000	-7.628	5.875	0.000	0.000%
6	6.606	-5.875	3.814	-6.606	5.875	-3.814	0.000%
7	3.814	-5.875	6.606	-3.814	5.875	-6.606	0.000%
8	0.000	-5.875	7.628	0.000	5.875	-7.628	0.000%
9	-3.814	-5.875	6.606	3.814	5.875	-6.606	0.000%
10	-6.606	-5.875	3.814	6.606	5.875	-3.814	0.000%
11	-7.628	-5.875	0.000	7.628	5.875	0.000	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
12	-6.606	-5.875	-3.814	6.606	5.875	3.814	0.000%
13	-3.814	-5.875	-6.606	3.814	5.875	6.606	0.000%
14	0.000	-8.852	0.000	0.000	8.852	0.000	0.000%
15	0.000	-8.852	-1.941	0.000	8.852	1.941	0.000%
16	0.971	-8.852	-1.681	-0.971	8.852	1.681	0.000%
17	1.681	-8.852	-0.971	-1.681	8.852	0.971	0.000%
18	1.941	-8.852	0.000	-1.941	8.852	0.000	0.000%
19	1.681	-8.852	0.971	-1.681	8.852	-0.971	0.000%
20	0.971	-8.852	1.681	-0.971	8.852	-1.681	0.000%
21	0.000	-8.852	1.941	0.000	8.852	-1.941	0.000%
22	-0.971	-8.852	1.681	0.971	8.852	-1.681	0.000%
23	-1.681	-8.852	0.971	1.681	8.852	-0.971	0.000%
24	-1.941	-8.852	0.000	1.941	8.852	0.000	0.000%
25	-1.681	-8.852	-0.971	1.681	8.852	0.971	0.000%
26	-0.971	-8.852	-1.681	0.971	8.852	1.681	0.000%
27	0.000	-5.875	-2.113	0.000	5.875	2.113	0.000%
28	1.056	-5.875	-1.830	-1.056	5.875	1.830	0.000%
29	1.830	-5.875	-1.056	-1.830	5.875	1.056	0.000%
30	2.113	-5.875	0.000	-2.113	5.875	0.000	0.000%
31	1.830	-5.875	1.056	-1.830	5.875	-1.056	0.000%
32	1.056	-5.875	1.830	-1.056	5.875	-1.830	0.000%
33	0.000	-5.875	2.113	0.000	5.875	-2.113	0.000%
34	-1.056	-5.875	1.830	1.056	5.875	-1.830	0.000%
35	-1.830	-5.875	1.056	1.830	5.875	-1.056	0.000%
36	-2.113	-5.875	0.000	2.113	5.875	0.000	0.000%
37	-1.830	-5.875	-1.056	1.830	5.875	1.056	0.000%
38	-1.056	-5.875	-1.830	1.056	5.875	1.830	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001
3	Yes	4	0.00000001	0.00023716
4	Yes	4	0.00000001	0.00023799
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00023949
7	Yes	4	0.00000001	0.00023640
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00023897
10	Yes	4	0.00000001	0.00023814
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00023666
13	Yes	4	0.00000001	0.00023976
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00012004
16	Yes	4	0.00000001	0.00012692
17	Yes	4	0.00000001	0.00012697
18	Yes	4	0.00000001	0.00011993
19	Yes	4	0.00000001	0.00012731
20	Yes	4	0.00000001	0.00012703
21	Yes	4	0.00000001	0.00012014
22	Yes	4	0.00000001	0.00012732
23	Yes	4	0.00000001	0.00012720
24	Yes	4	0.00000001	0.00012010

25	Yes	4	0.00000001	0.00012707
26	Yes	4	0.00000001	0.00012743
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	58 - 50.5	3.798	35	0.504	0.000
L2	53 - 0	3.272	35	0.499	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
58.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	35	3.798	0.504	0.000	6532
57.000	800 10121 w/ Mount Pipe	35	3.691	0.503	0.000	6532
47.000	APX16DWV-16DWVS-C w/Mount Pipe	35	2.702	0.480	0.000	6022
37.000	APXV18-206517S-C	35	1.908	0.420	0.000	7649

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	58 - 50.5	13.701	11	1.818	0.001
L2	53 - 0	11.804	11	1.799	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
58.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	11	13.701	1.818	0.001	1813
57.000	800 10121 w/ Mount Pipe	11	13.315	1.816	0.001	1813
47.000	APX16DWV-16DWVS-C w/Mount Pipe	11	9.749	1.732	0.001	1671
37.000	APXV18-206517S-C	11	6.882	1.515	0.001	2122

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	7.500	0.000	0.0	39.000	10.908	-1.868	425.410	0.004
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	53.000	0.000	0.0	37.971	17.772	-5.867	674.813	0.009

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	13.056	3.183	39.000	0.082	0.000	0.000	39.000	0.000
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	319.281	29.210	37.971	0.769	0.000	0.000	37.971	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	2.925	0.268	26.000	0.021	0.000	0.000	26.000	0.000
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	7.634	0.430	26.000	0.033	0.000	0.000	26.000	0.000

tnxTower	Job	Page
	84602.001 - East Haven South, CT (USID# 24481)	12 of 12
B&T Engineering, Inc. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	**Project** 58' FWT Monopole / AT&T Co-Locate	**Date** 15:26:42 05/30/12
	Client Nexlink	**Designed by** K. Mears

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	58 - 50.5 (1)	0.004	0.082	0.000	0.021	0.000	0.086 ✓	1.333	H1-3+VT ✓
L2	50.5 - 0 (2)	0.009	0.769	0.000	0.033	0.000	0.778 ✓	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	58 - 50.5	Pole	TP19.078x17.393x0.188	1	-1.868	567.072	6.5	Pass
L2	50.5 - 0	Pole	TP30.05x18.141x0.188	2	-5.867	899.526	58.4	Pass
							Summary	
						Pole (L2)	58.4	Pass
						RATING =	**58.4**	**Pass**

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

USID#: *24481*
Site Name: *East Haven South, CT*
New Haven County

Anchor Rod Data		
Qty:	4	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	37	in

Plate Data		
W=Side:	33	in
Thick:	2	in
Grade:	60	ksi
Clip Distance:	6	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi
Clear Space between Stiffeners at B.C.		in

Pole Data		
Diam:	30.05	in
Thick:	0.1875	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Stress Increase Factor		
ASD ASIF:	1.333	

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Base Reactions		
TIA Revision:	F	
Unfactored Moment, M:	319	ft-kips
Unfactored Axial, P:	6	kips
Unfactored Shear, V:	8	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension	102.0 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	52.3% Pass

Base Plate Results Flexural Check

Base Plate Stress:	32.9 ksi
Allowable PL Bending Stress:	60.0 ksi
Base Plate Stress Ratio:	54.9% Pass

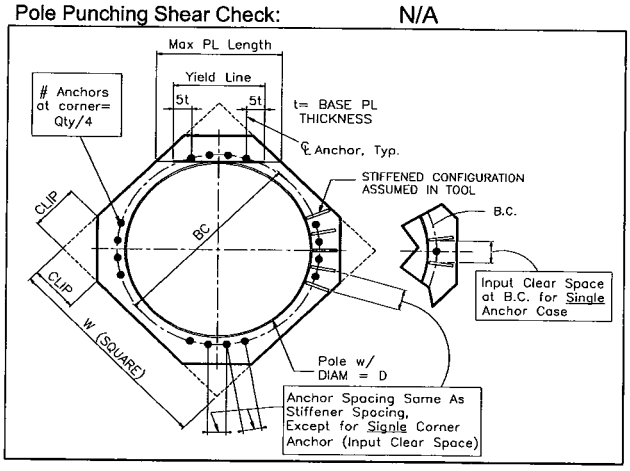
PL Ref. Data
Yield Line (in): 16.62
Max PL Length: 16.62

N/A - Unstiffened
Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A



(Bearing and Stability Checks) Tool for TIA Rev F or G - Application (MP, SST with unitbase)

Site Data

Site#: *24481*
Site Name: *East Haven South, CT*

Enter Load Factors Below:		
For P (DL)	1.2	<---- Enter Factor
For P,V, and M (WL)	1.35	<---- Enter Factor

Pad & Pier Data		
Base PL Dist. Above Pier:	3	in
Pier Dist. Above Grade:	6	in
Pad Bearing Depth, D:	6.5	ft
Pad Thickness, T:	2.5	ft
Pad Width=Length, L:	14	ft
Pier Cross Section Shape:	Round	<--Pull Down
Enter Pier Diameter:	5	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	19.63	ft^2
Pier Height:	4.50	ft
Soil (above pad) Height:	4.00	ft

Soil Parameters		
Unit Weight, γ:	120.0	pcf
Ultimate Bearing Capacity, qn:	10.00	ksf
Strength Reduct. factor, ϕ:	0.75	
Angle of Friction, Φ:	30.0	degrees
Undrained Shear Strength, Cu:	0.00	ksf
Allowable Bearing: ϕ*qn:	7.50	ksf
Passive Pres. Coeff., Kp	3.00	

Forces/Moments due to Wind and Lateral Soil		
Minimum of (φ*Ultimate Pad Passive Force, Vu):	10.8	kips
Pad Force Location Above D:	1.15	ft
ϕ(Passive Pressure Moment):	12.43	ft-kips
Factored O.T. M(WL), "1.6W":	509.0	ft-kips
Factored OT (MW-Msoil), M1	496.52	ft-kips

Resistance due to Foundation Gravity		
Soil Wedge Projection grade, a:	2.31	ft
Sum of Soil Wedges Wt:	14.56	kips
Soil Wedges ecc, K1:	6.71	ft
Ftg+Soil above Pad wt:	171.4	kips
Unfactored (Total ftg-soil Wt):	185.96	kips
1.2D. **No Soil Wedges**.	217.15	kips
0.9D. **With Soil Wedges**	177.99	kips

Resistance due to Cohesion (Vertical)		
ϕ*(1/2*Cu)(Total Vert. Planes)	0.00	kips
Cohesion Force Eccentricity, K2	0.00	ft

Monopole Base Reaction Forces		
TIA Revision:	F	<--Pull Down
Unfactored DL Axial, PD:	2.8	kips
Unfactored WL Axial, PW:	6	kips
Unfactored WL Shear, V:	8	kips
Unfactored WL Moment, M:	319	ft-kips

Load Factor	Shaft Factored Loads		
1.20	1.2D+1.6W, Pu:	11.46	kips
0.90	0.9D+1.6W, Pu:	10.62	kips
1.35	Vu:	10.8	kips
	Mu:	430.65	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(**No Soil Wedges**) [Reaction+Conc+Soil]	217.15	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	496.52	ft-kips

Orthogonal Direction:

ecc1 = M1/P1 =	2.29	ft
Orthogonal qu=	1.83	ksf
qu/ϕ*qn Ratio=	**24.42%**	Pass

Diagonal Direction:

ecc2 = (0.707M1)/P1 =	1.62	ft
Diagonal qu=	1.87	ksf
qu/ϕ*qn Ratio=	**24.98%**	Pass

Run <-- Press Upon Completing All Input

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

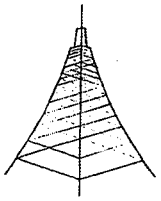
(**w/ Soil Wedges**) [Reaction+Conc+Soil]	177.99	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	408.63	ft-kips

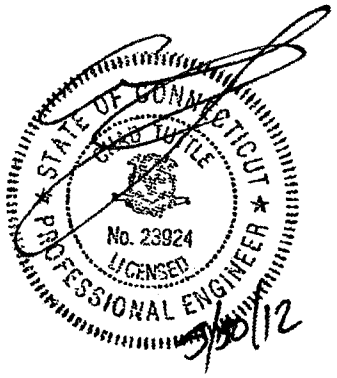
Orthogonal ecc3 = M2/P2 =	2.30	ft
Ortho Non Bearing Length,NBL=	4.59	ft
Orthogonal qu=	1.50	ksf
Diagonal qu=	1.54	ksf

Max Reaction Moment (ft-kips) so that qu=φ*qn = 100% Capacity Rating			
Actual M:	319.00		
M Orthogonal:	849.25	**37.56%**	Pass
M Diagonal:	849.25	**37.56%**	Pass

at&t

Letter of Explanation (LOE)
MUST be attached to any Structural Analysis





Site Name	**East Haven South**
Site Number	**24481 (CT5048)**
PE of Record	**Chad E. Tuttle, P.E.**

ALL STRUCTURES	Statement in COLA is Correct	VARIANCE from COLA	N/A	Alternate Value/Concept Used	Explanation	Yes	No	N/A	Comment(s) Required
Structure Analyzed to F Code	X								
Note: ALL G analyses MUST be justified. A simple notation of jurisdiction requirement will suffice. F BUILT TOWERS in G Code jurisdictions MUST Have the new "5% Grace" Test Applied.G to be applied ONLY where this is exceeded. This 5% test applies to "like for like" only									
Guy Tensions Adjusted Within Code to Find Optimum tension / Minimum Reinforcement (Applies to Guyed Tower Failures Only). Note : AT&T requires a pulse chart for altered Tensions			X						
Antenna Azimuths Inputted Per AT&T information. NOTE that new antennas should be calculated at 0 degrees to allow flexibility.	X								
All Yield Stresses > = 50 ksi (legs)			X		Monopole; Shaft = 65 ksi				
All Yield Stresses > = 36 ksi (Diagonals and Horizontals))			X		Monopole				
Structures Designated Class II (G Only)			X						
Exposure B Rating Used (Topography)			X						
K value for Slenderness ratio < 1.0			X		Monopole				
Shielding of All Appurtenances Used when Appropriate PER 2.6.9.4 (G Code Only)			X						
0.76 Reduction "Shape" Factor (Figure 2.6) for platform mounts, 0.8 for T-Boom Mounts Used (G Only)			X						
Pipes and round Members have 1.0 Drag Factors. Note if Pipe is attached to flat antenna, these must be considered separately if differing Drag factors are Used		X			In compliance with the TIA-222-F Table 3				
Are Tower Diagonals Designed as "Tension Only"			X		Monopole				

MODIFICATION SECTION	Statement in COL A is Correct	Deviation from Col A	N/A	Alternate Value / Concept Used	Explanation	Yes	No	N/A	Comments / Reference
Guyed									
Guyed Only: Reinforcement Recommendation accompanies Optimum Guy Tensioning Scenario.									
Compression Failing Legs / Diagonals / Horizontals: Effective Length Reduced by U-Bolted Member									
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.									
Self Supporting									
Compression Failing Legs / Diagonals / Horizontals: Effective Length Reduced by U-Bolted Member									
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.									
Monopole									
Compression Collars									
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.									
Foundation									
Guyed Anchor Failure: Berm Solution									
SS Foundation Pad and Pier Failure Berm									
SS Foundation Caisson / Concrete Cap									
Monopole: Cap									

WIRELESS COMMUNICATIONS FACILITY

CT5048

EAST HAVEN SOUTH

259 COMMERCE STREET

EAST HAVEN, CT 06512

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2005 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT

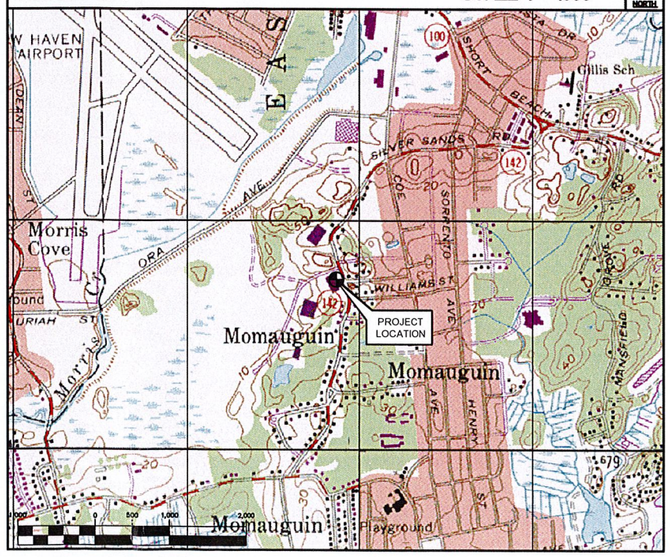
TO: 259 COMMERCE STREET, EAST HAVEN, CT 06512

1.	Take ramp left for I-91 South	29.0 mi
2.	Take ramp left for I-95 North toward New London	1.9 mi
3.	At exit 51, take ramp right for Frontage Rd toward East Haven	0.6 mi
4.	Keep straight onto US-1 North / Frontage Rd / Saltonstall Pkwy	0.8 mi
5.	Turn right onto CT-142 / Hemingway Ave	1.0 mi
6.	Keep straight onto Coe Ave	0.4 mi
7.	Turn right onto CT-337 / Silver Sands Rd	0.3 mi
8.	Turn right onto Commerce St	454 ft

Arrive at 259 Commerce St, East Haven, CT 06512

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK GENERALLY CONSISTS OF THE INSTALLATION OF ONE (1) LTE ANTENNA PER SECTOR FOR A TOTAL OF (3) LTE ANTENNAS TO THE EXISTING AT&T ANTENNA ARRAY THRU THE ADDITION OF A ONE (1) T-ARM PER SECTOR FOR A TOTAL OF (3). AN LTE BASEBAND EQUIPMENT UNIT (RBS) WILL BE INSTALLED ON THE EXISTING AT&T EQUIPMENT PAD.
2. ADDITIONALLY, (2) REMOTE RADIO UNITS (RRUs) PER SECTOR WILL BE INSTALLED. SURGE ARRESTORS WILL BE INSTALLED AT BOTH AT&T RRU AND EQUIPMENT LOCATIONS. REFER TO THESE ACCOMPANYING DRAWINGS FOR FURTHER INFORMATION.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT5048
AT&T SITE NAME:	EAST HAVEN SOUTH
SITE ADDRESS:	259 COMMERCE STREET EAST HAVEN, CT 06512
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-15'-22.86"N LONGITUDE: 72°-52'-32.8"W GROUND ELEVATION: ±40'AMSL

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
N-1	NOTES AND SPECIFICATIONS	1
C-1	PLANS, ELEVATION AND DETAIL	1
C-2	SITE DETAILS	1
C-3	LTE DETAILS	1
E-1	ELECTRICAL DETAILS AND NOTES	1
E-2	ELECTRICAL DETAILS	1

DESIGNED BY:	DEB
DRAWN BY:	FLO
CHK'D BY:	CFC

REV.	DATE	DRAWN BY	CHK'D BY	
0	5/30/12	FLO	DEB	CONSTRUCTION - CLIENT REVIEW
1	6/28/12	DEB	CFC	CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT — No.16694 — LICENSED PROFESSIONAL ENGINEER

at&t

NEXLINK GLOBAL SERVICES

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY

WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE

CT5048

EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C037

TITLE SHEET

T-1

Sheet No. 1 of 7

STRUCTURAL SPECIFICATIONS

DESIGN BASIS

GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT STATE BUILDING CODE AND 2009 AMENDMENTS.

1. DESIGN CRITERIA:
   - WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 90 MPH (FASTEST MILE), EQUIVALENT TO 110 MPH (3 SECOND GUST).
   - BASIC WIND SPEED (OTHER STRUCTURE): 110 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMMENDMENT.
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-95 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

GENERAL NOTES

1. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
2. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.
3. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
4. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED OFF SITE AND BE LEGALLY DISPOSED, AT NO ADDITIONAL COST.
4. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.
5. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
6. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
7. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
8. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

CONCRETE CONSTRUCTION NOTES

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE FOLLOWING STANDARDS:

   ACI 211 – STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL AND HEAVYWEIGHT CONCRETE.

   ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.

   ACI 302 – GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION

   ACI 304 – RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.

   ACI 306.1 STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING

   ACI 318 – BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.

2. CONCRETE SHALL DEVELOP COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:

SLABS ON GRADE	4,000 PSI
ALL OTHER CONCRETE	3,000 PSI

   - PORTLAND CEMENT: ASTM C150, TYPE II, (540 LBS/CUBIC YARD)
   - AGGREGATE: ASTM C33, No. 67, TYPICAL
   - WATER: POTABLE WITH MAXIMUM WATER CEMENT RATIO OF .55
   - SLUMP: 3" TO 4"
   - ADMIXTURES: USE AIR ENTRAINING ADGENT CONFORMING TO ASTM C260 WITH 4 TO 6% TOTAL AIR. USE WATER REDUCING AGENT CONFORMING TO ASTM C494, TYPE A, IN ALL CONCRETE. CALCIUM CHLORIDE MAY NOT BE USED TO ACCELERATE THE CONCRETE SETTING TIME.

3. REINFORCING STEEL SHALL BE 60,000 PSI YIELD STRENGTH.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM- A-185.
5. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE LATEST ACI CODE AND LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
6. CONCRETE COVER OVER REINFORCING SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SHOWN:

BOTTOM OF FOOTINGS	3 INCHES
SURFACES NOT EXPOSED TO EARTH OR WEATHER	1-1/2 INCHES

7. NO STEEL WIRE, METAL FORM TIES, OR ANY OTHER METAL SHALL REMAIN WITHIN THE REQUIRED COVER OF ANY CONCRETE SURFACE.
8. ALL REINFORCEMENT SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. SPLICES SHALL BE WELL STAGGERED. ADDITIONAL BARS AND SPECIAL BENDING DETAILS ARE REQUIRED AT INTERSECTING WALLS AND AT JOINTS. SUCH DETAILS SHALL COMPLY WITH ACI 315 RECOMMENDATIONS UNLESS OTHERWISE SHOWN.
9. NO TACK WELDING OF REINFORCING WILL BE PERMITTED.
10. NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 1% CHLORIDE BY WEIGHT OF ADMIXTURE SHALL BE USED IN THE CONCRETE.
11. UNLESS OTHERWISE NOTED, ALL LAP SPLICES SHALL BE 48 BAR DIAMETERS.
12. SLAB ON GRADE FINISHES:

EXTERIOR SLAB:	NON-SLIP BROOM FINISH
INTERIOR SLAB:	STEEL TROWEL FINISH

FOUNDATION CONSTRUCTION NOTES

1. ALL FOOTINGS SHALL BE PLACED ON SUITABLE, COMPACTED SOIL HAVING ADEQUATE BEARING CAPACITY AND FREE OF ORGANIC CONTENT, CLAY, OR OTHER UNSUITABLE MATERIAL. ADDITIONAL EXCAVATION MAY BE REQUIRED BELOW FOOTING ELEVATIONS INDICATED IF UNSUITABLE MATERIAL IS ENCOUNTERED.
2. SUBGRADE PREPARATION: IF UNSUITABLE SOIL IS ENCOUNTERED, REMOVE ALL UNSUITABLE MATERIALS FROM BELOW PROPOSED STRUCTURE FOUNDATIONS AND COMPACT EXPOSED SOIL SURFACES. PLACE AND COMPACT APPROVED GRAVEL FILL. PLACEMENT OF ALL COMPACTED FILL MUST BE UNDER SUPERVISION OF AN APPROVED TESTING LABORATORY. FILL SHALL BE COMPACTED IN LAYERS NOT TO EXCEED 10" BEFORE COMPACTION. DETERMINE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D1557-70 AND MAKE ONE (1) FIELD DENSITY TEST IN ACCORDANCE WITH ASTM D2167-66 FOR EACH 50 CUBIC YARDS OF COMPACTED FILL. BUT NOT LESS THAN ONE (1) PER LAYER, TO INSURE COMPACTION TO 95% OF MAX. DRY DENSITY.
3. ALL SOIL SURROUNDING AND UNDER ALL FOOTINGS SHALL BE KEPT REASONABLY DRY AND PROTECTED FROM FREEZING AND FROST ACTION DURING THE COURSE OF CONSTRUCTION.
4. WHERE GROUNDWATER IS ENCOUNTERED, DEWATERING SHALL BE ACCOMPLISHED CONTINUOUSLY AND COMPLETELY DURING FOUNDATION CONSTRUCTION. PROVIDE CRUSHED STONE AS REQUIRED TO STABILIZE FOOTING SUBGRADE.
5. ALL FOOTINGS ARE TO REST ON FIRM SOIL, REGARDLESS OF ELEVATIONS SHOWN ON THE DRAWINGS, BUT IN NO CASE MAY FOOTING ELEVATIONS BE HIGHER THAN INDICATED ON THE FOUNDATION PLAN, UNLESS SPECIFICALLY DIRECTED BY THE ENGINEER.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)
   - A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   - B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   - C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   - D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   - E. PIPE---ASTM A53 (FY = 35 KSI)
   - F. CONNECTION BOLTS---ASTM A325-N
   - G. U-BOLTS---ASTM A36
   - H. ANCHOR RODS---ASTM F 1554
   - I. WELDING ELECTRODE---ASTM E 70XX
2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLET J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 9TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
11. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
12. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
13. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
14. CONNECTIONS SHALL CONFORM TO ALL REQUIREMENTS OF THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR SHELTERS", LATEST EDITION, AND THE "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", LATEST EDITION.
15. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
16. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
17. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
18. FABRICATE BEAMS WITH MILL CAMBER UP.
19. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
20. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
21. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
22. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

DESIGNED BY:	DEB
DRAWN BY:	FLO
CHK'D BY:	CFC

REV.	DATE	DRAWN BY	CHK'D BY
1	6/26/12	DEB	CFC
0	5/30/12	FLO	DEB

1 CONSTRUCTION - CLIENT REVIEW
0 CONSTRUCTION - CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

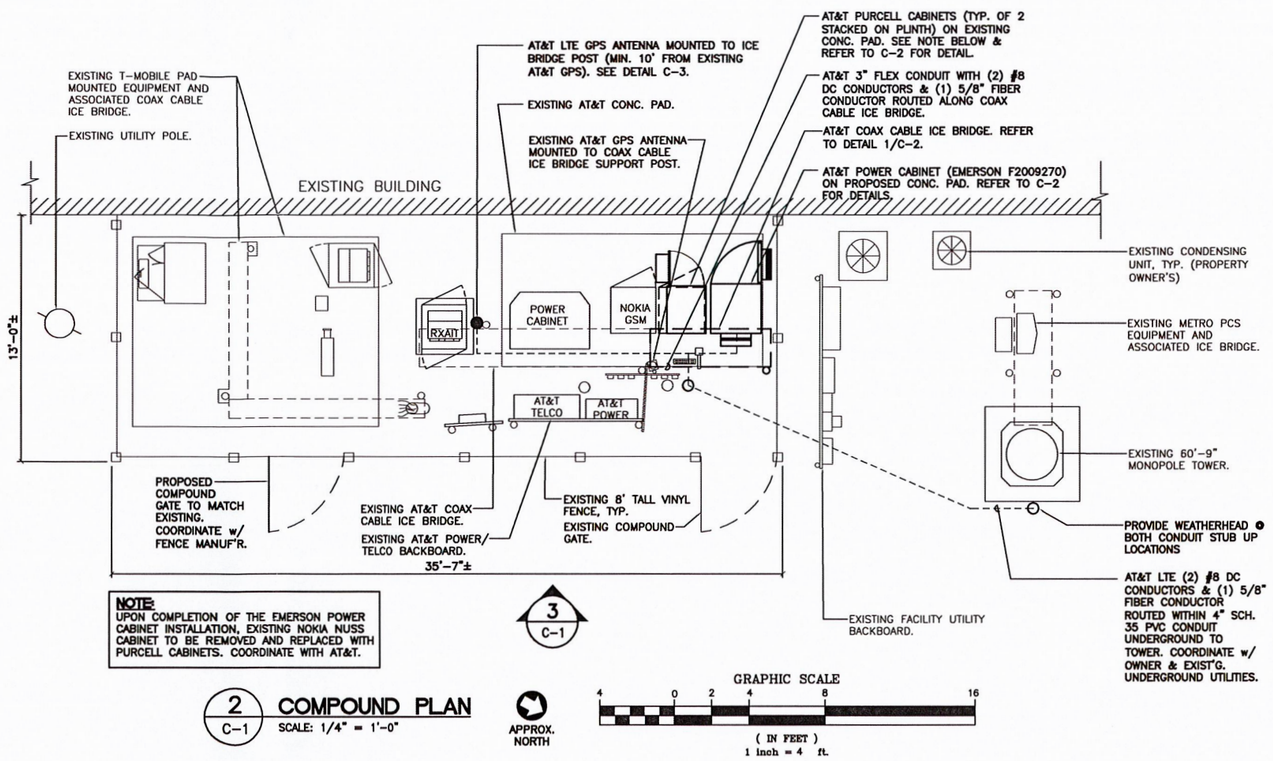
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE
CT5048
EAST HAVEN SOUTH
259 COMMERCE STREET
EAST HAVEN, CT 06512

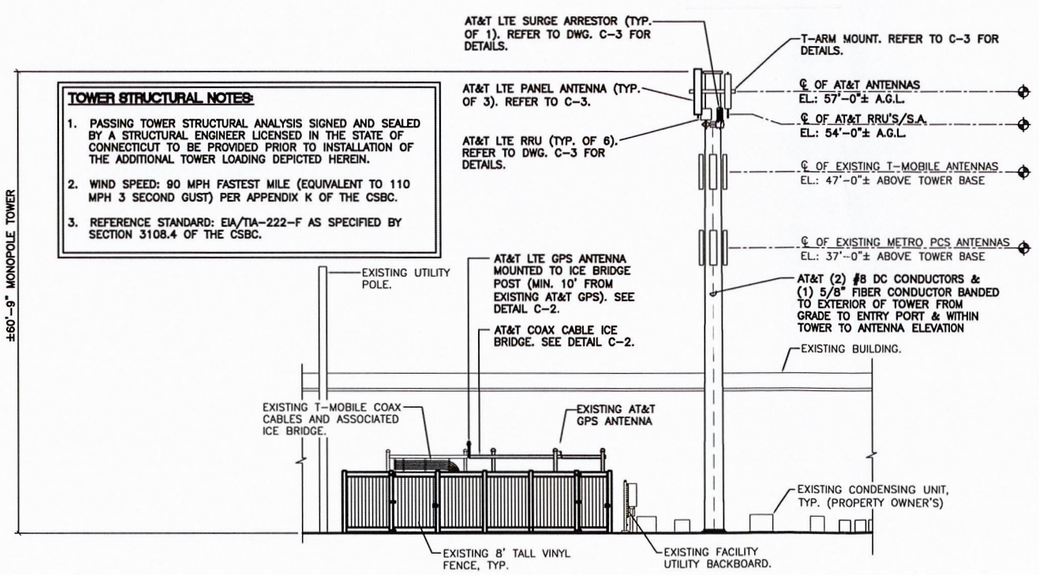
DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C037

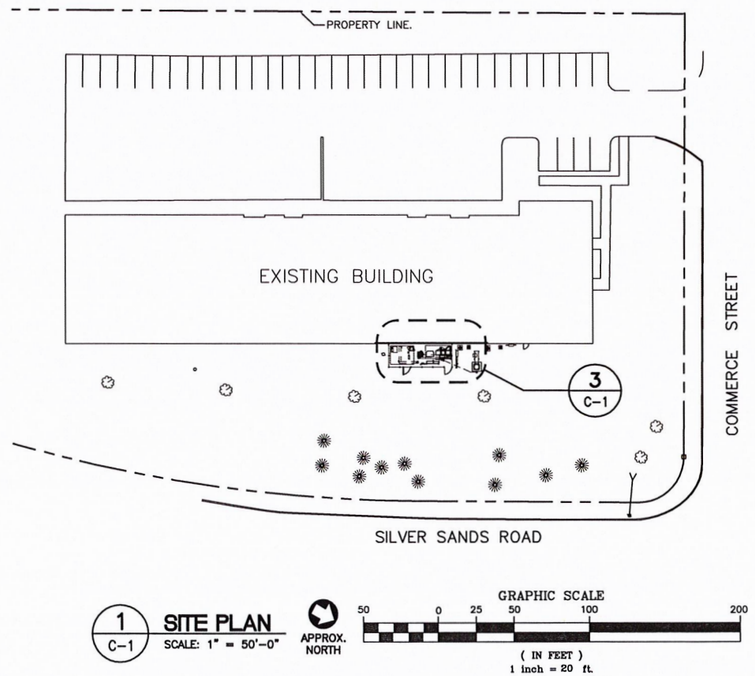
NOTES AND SPECIFICATIONS

N-1

Sheet No. 2 of 7







DESIGNED BY:	DEB
DRAWN BY:	FLO
CHK'D BY:	CFC

REV.	DATE	DRAWN BY	CHK'D BY	
1	6/7/12	DEB	CFC	CONSTRUCTION – CLIENT REVIEW
0	5/30/12	FLO	DEB	CONSTRUCTION – CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT
CHARLES J. CENTORE
No.16652
LICENSED
PROFESSIONAL ENGINEER

at&t

NEXLINK GLOBAL SERVICES

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

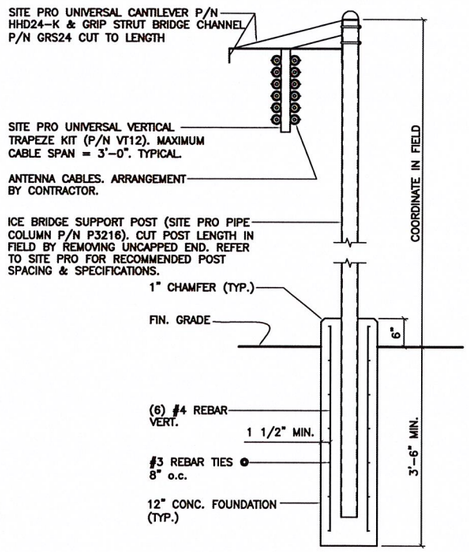
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY: LTE UPGRADE
CT5048
EAST HAVEN SOUTH
250 COMMERCE STREET
EAST HAVEN, CT 06512

DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C037

PLANS, ELEVATION AND DETAIL

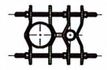
C-1

Sheet No. 3 of 7



1 / C-2 **ICE BRIDGE DETAIL**
NOT TO SCALE

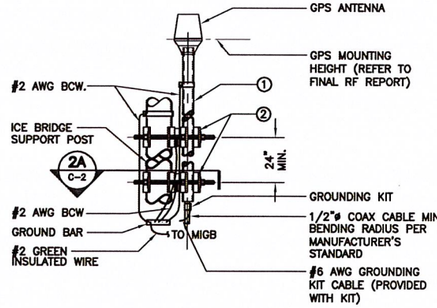
BILL OF MATERIALS		
ITEM	DESCRIPTION	QUANTITY
1	2-1/2"ø SCH. 40 x 8'-0" LG. MAX SS OR GALV. PIPE	1
2	UNIVERSAL CLAMP SET.	2



2A / C-2 **PLAN VIEW**
NOT TO SCALE

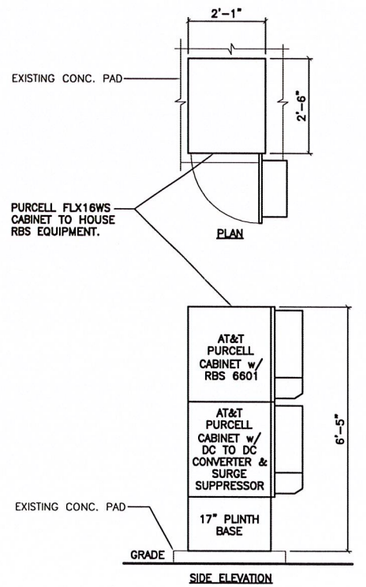
NOTES:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT AND COORDINATED WITH AT&T CONSTRUCTION MANAGER.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 2-1/2" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 24 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
3. ATTACH TO ICE BRIDGE POST NEAREST ANTENNA CABLE PORT AT EQUIPMENT.
4. PRIOR TO INSTALLATION CONTRACTOR SHALL TEST GPS LOCATION WITH HAND HELD AND MOVE GPS ANTENNA TO OTHER ICE BRIDGE POSTS AS REQUIRED TO ACHIEVE ADEQUATE SIGNAL. FAILURE TO ACHIEVE ADEQUATE SIGNAL WITH A HAND HELD GPS SHALL BE REPORTED TO CONSTRUCTION MANAGER AND ENGINEER TO DETERMINE ALTERNATE INSTALLATION LOCATION FOR GPS ANTENNA.

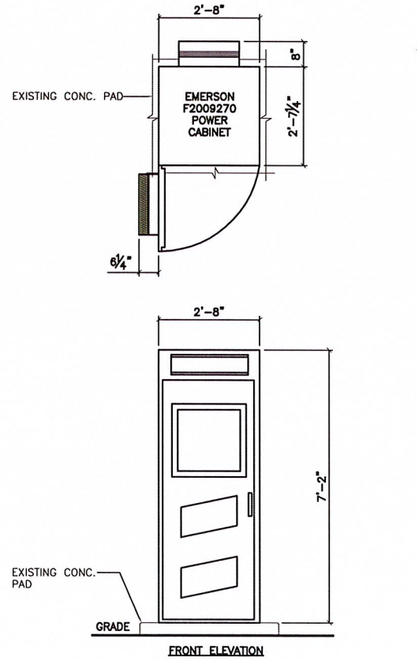


GPS ANTENNA MOUNTING BRACKET

2 / C-2 **GPS GROUNDING/MOUNTING BRACKET DETAILS**
NOT TO SCALE



3 / C-2 **PURCELL CABINET DETAIL**
NOT TO SCALE



4 / C-2 **EMERSON POWER CABINET DETAIL**
NOT TO SCALE

DESIGNED BY:				DEB
DRAWN BY:				FLO
CHK'D BY:				CFC
0	6/28/12	DEB	CFC	CONSTRUCTION - CLIENT REVIEW
REV.	DATE	DRAWN BY	CHK'D BY	

PROFESSIONAL ENGINEER SEAL

CONNECTICUT LICENSED PROFESSIONAL ENGINEER No.16694

at&t

NEXLINK GLOBAL SERVICES

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

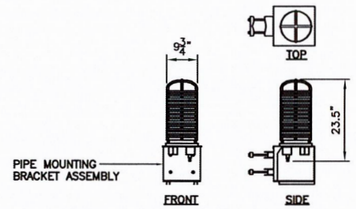
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE
CT5048
EAST HAVEN SOUTH
259 COMMERCE STREET
EAST HAVEN, CT 06512

DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C037

SITE DETAILS

C-2

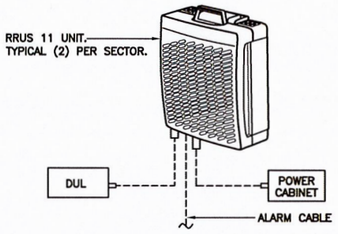
Sheet No. 4 of 7



SURGE ARRESTOR				
SITE TYPE	ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
TOWER	MAKE: RAYCAP (SQUID) MODEL: DC6-48-60-18-8F	(1) PER SITE	TOWER, ADJACENT TO AT&T ANTENNAS AND RRUs.	20 LBS. (WITHOUT MOUNT)

NOTES:
1. CONTRACTOR TO COORDINATE FINAL SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.
2. CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.

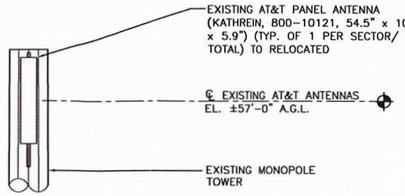
8 C-3 SURGE ARRESTOR DETAIL
NOT TO SCALE



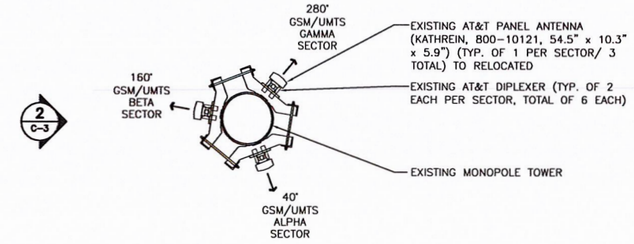
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 11	17.8"L x 17.3"W x 7.2"D	BAND 4: 44 LBS. BAND 12: 50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. SIDE: 0" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

9 C-3 RRU DETAIL
NOT TO SCALE

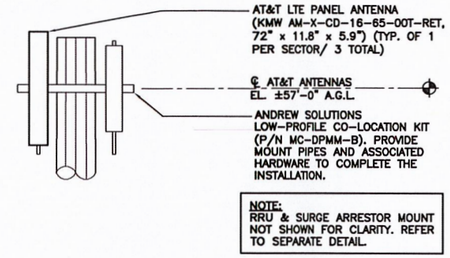


2 C-3 EXISTING ANTENNA SECTOR ELEVATION
SCALE: 1/4" = 1'-0"



1 C-3 EXISTING ANTENNA PLAN
SCALE: 1/4" = 1'-0"

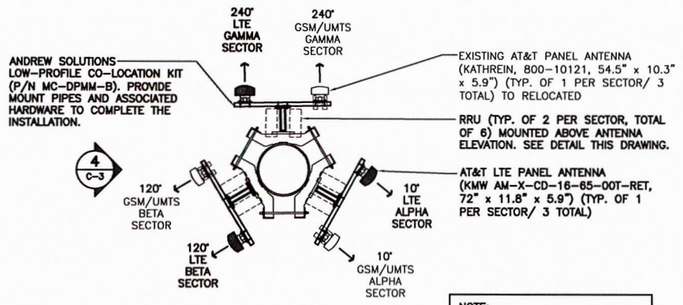
APPROX. NORTH



NOTE:
RRU & SURGE ARRESTOR MOUNT NOT SHOWN FOR CLARITY. REFER TO SEPARATE DETAIL.

4 C-3 PROPOSED ANTENNA SECTOR ELEVATION
SCALE: 1/4" = 1'-0"

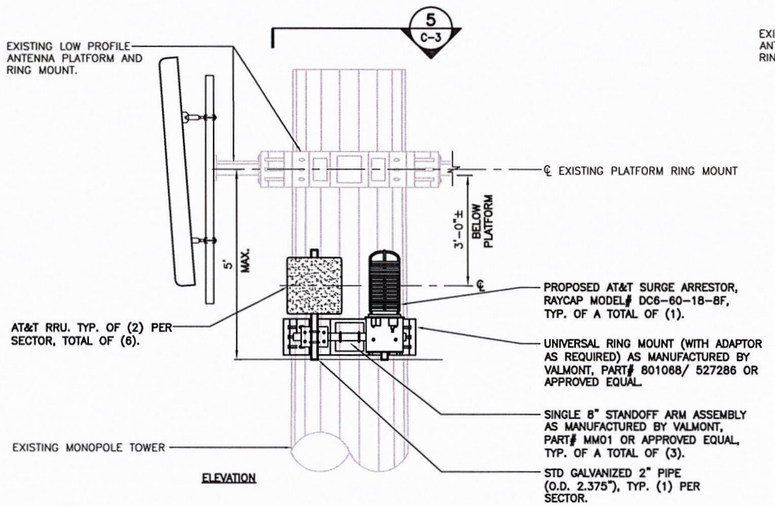
REFER TO FINAL AT&T RF ENGINEER'S RF RADIO PLAN PRIOR TO INSTALLATION OF ANTENNAS AND COAX



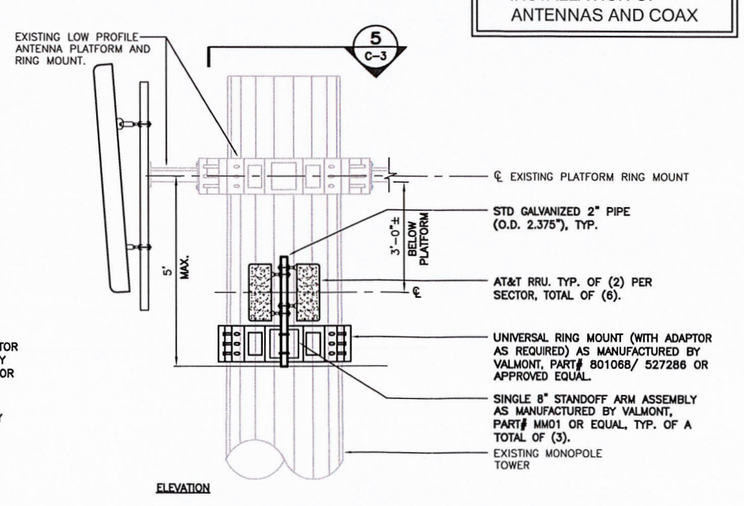
NOTE:
ROTATE EXISTING RING MOUNT AS REQUIRED TO ACCOMODATE PROPOSED AZIMUTHS.

3 C-3 PROPOSED ANTENNA PLAN
SCALE: 1/4" = 1'-0"

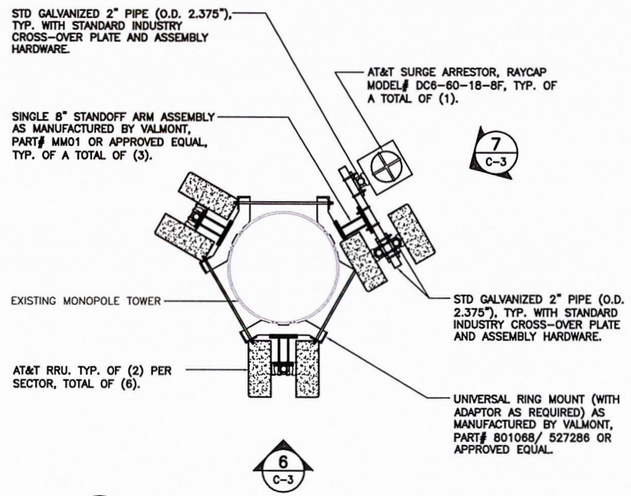
APPROX. NORTH



7 C-3 RRU AND SURGE ARRESTOR MOUNTING DETAIL
SCALE: 1/2" = 1'- 0"



6 C-3 RRU MOUNTING DETAIL
SCALE: 1/2" = 1'- 0"



5 C-3 RRU AND SURGE ARRESTOR MOUNTING PLAN
SCALE: 1/2" = 1'- 0"

DESIGNED BY:					DEB
DRAWN BY:					FLO
CHK'D BY:					CFC
			CONSTRUCTION – CLIENT REVIEW	CFC	DEB
			CONSTRUCTION	DEB	FLO
			6/28/12	6/20/12	
			0		
REV.	DATE	DRAWN BY	CHK'D BY		

PROFESSIONAL ENGINEER SEAL

No.16694 LICENSED

at&t

NEXLINK

CENTEK engineering
Centered on Solutions℠

(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY

WIRELESS COMMUNICATIONS FACILITY / LTE UPGRADE

CT5048
EAST HAVEN SOUTH

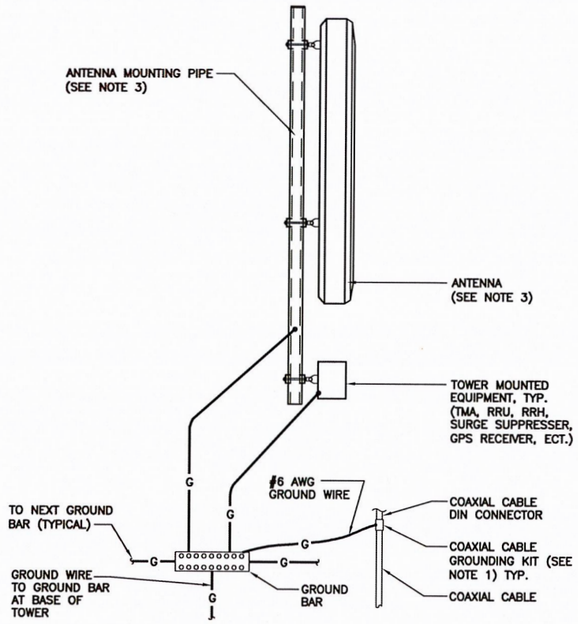
259 COMMERCE STREET
EAST HAVEN, CT 06512

DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C037

LTE EQUIPMENT DETAILS

C-3

Sheet No. 5 of 7

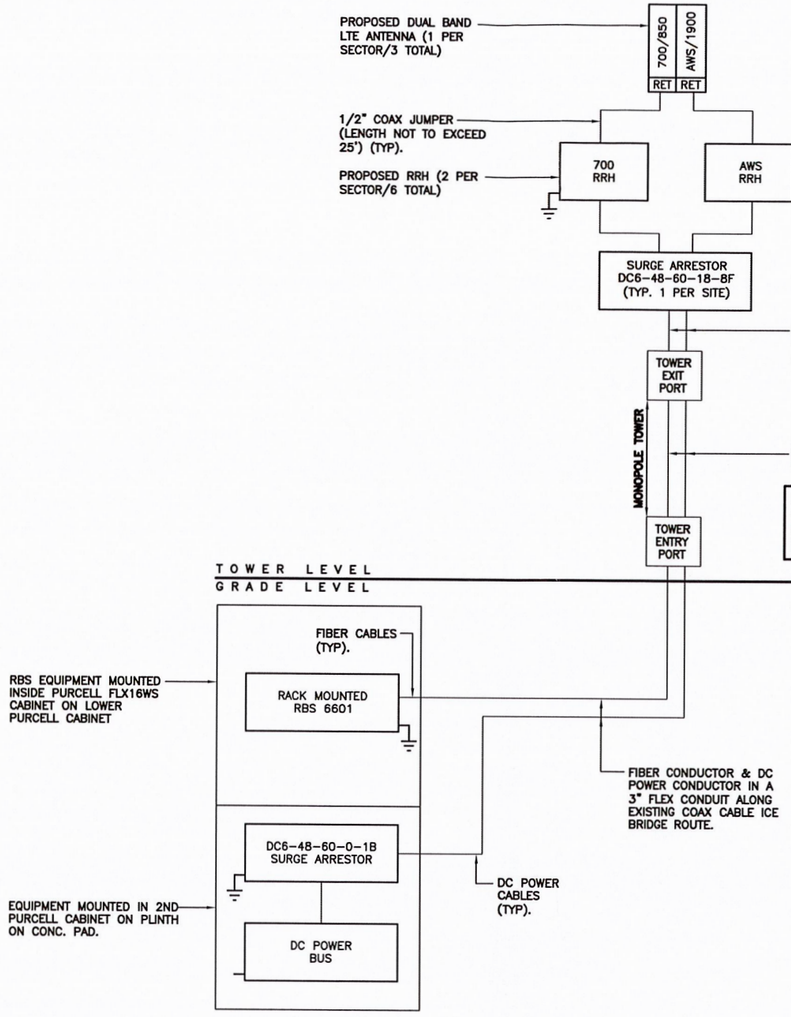


NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 / E-1 TYPICAL ANTENNA GROUNDING DETAIL

NOT TO SCALE

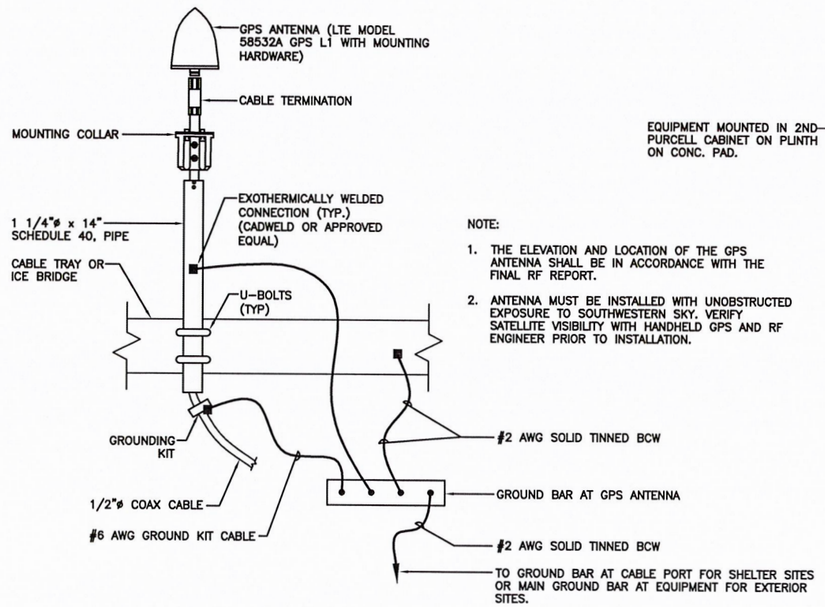


NOTES:

1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURERS RECOMMENDATIONS.

2 / E-1 LTE SCHEMATIC DIAGRAM

NOT TO SCALE



NOTE:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. ANTENNA MUST BE INSTALLED WITH UNOBSTRUCTED EXPOSURE TO SOUTHWESTERN SKY. VERIFY SATELLITE VISIBILITY WITH HANDHELD GPS AND RF ENGINEER PRIOR TO INSTALLATION.

3 / E-1 GPS MOUNTED TO CABLE TRAY / ICE BRIDGE

NOT TO SCALE

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS, #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

   TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

   THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

   1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
   2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
   3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

DESIGNED BY:	CKD
DRAWN BY:	TJB
CHK'D BY:	CKD

REV.	DATE	DRAWN BY	CHK'D BY	
4	6/25/12	DEB	CFC	CONSTRUCTION
0	5/30/12	FLO	DEB	CONSTRUCTION - CLIENT REVIEW

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

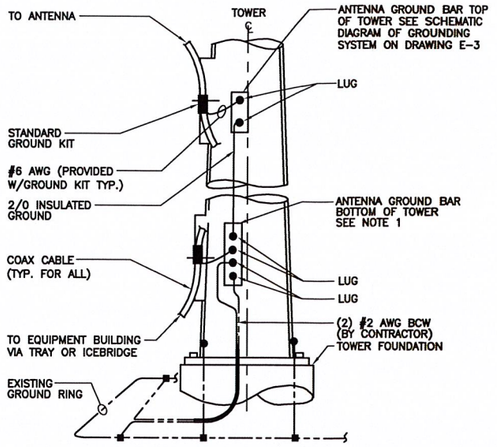
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE
CT5048
EAST HAVEN SOUTH
259 COMMERCE STREET
EAST HAVEN, CT 06512

DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C037

ELECTRICAL DETAILS AND NOTES

E-1

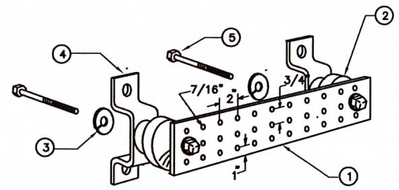
Sheet No. 6 of 7



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

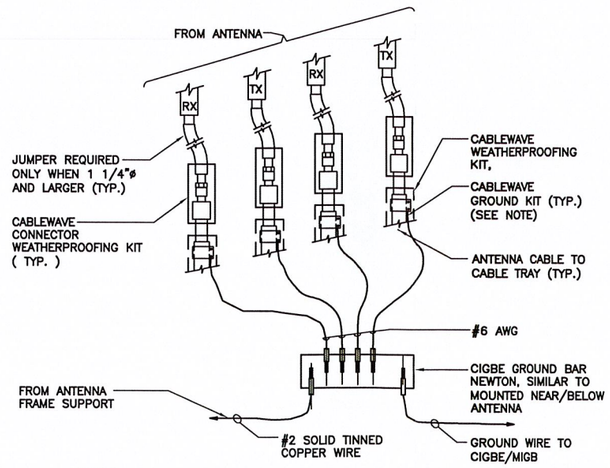
1 / E-2 **ANTENNA CABLE GROUNDING - TOWER**
NOT TO SCALE



LEGEND

1. TINNED COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG .
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061-4.
3. 3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. 4. CAT NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

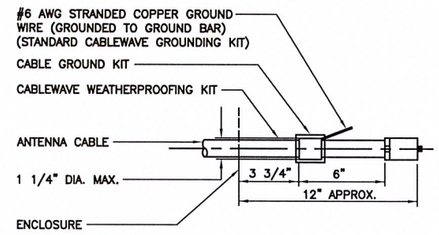
1 / E-2 **GROUND BAR DETAIL**
NOT TO SCALE



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

2 / E-2 **CONNECTION OF GROUND WIRES TO GROUND BAR**
NOT TO SCALE



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 / E-2 **ANTENNA CABLE GROUNDING DETAIL**
NOT TO SCALE

DESIGNED BY:	CKD
DRAWN BY:	TJB
CHK'D BY:	CKD

REV.	DATE	DRAWN BY	CHK'D BY	
0	5/30/12	FLO	DEB	CONSTRUCTION - CLIENT REVIEW
1	6/28/12	DEB	CFC	CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

No.18694 LICENSED PROFESSIONAL ENGINEER

at&t

NEXLINK WIRELESS GENERAL SERVICES

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY

WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE

CT5048
EAST HAVEN SOUTH

255 COMMERCE STREET
EAST HAVEN, CT 06512

DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C037

ELECTRICAL DETAILS

E-2

Sheet No. 7 of 7