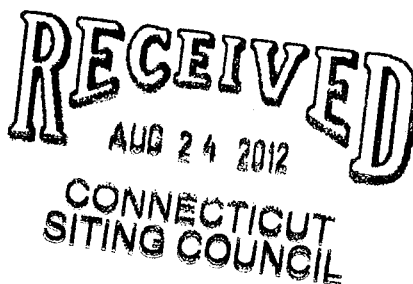


August 16, 2012

VIA UPS Delivery

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

RE: AT&T Mobility - Notice of Exempt Modification  
82 Lovely Street, Unionville CT 06085



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 16-50j-73, a copy of this letter and attachments is being sent to Albert L Goodhall Jr.; First Selectman of Union.

AT&T plans to modify the existing facility at 82 Lovely Street, owned by the Southern New England Telephone (coordinates 41.761381, -72.887527). 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-1 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 arrester. Additionally, AT&T will install one (1) fiber cable and two (2) DC control cables within the existing monopole.

2. The proposed changes will not extend the site boundaries. AT&T will install additional equipment in the existing equipment shelter. Thus, there will be 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 3.98%; the combined site operations will result in a total power density of 12.46 %.

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: Albert L Goodhall Jr.; First Selectman  
Town Hall  
1024 Buckley Highway  
Union, Ct 06076



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

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Calculated Radio Frequency Emissions



CT1061 – Unionville SBC CO

82 Lovely Street, Unionville, CT 06085

(a.k.a. Farmington - 82 Lovely Street)

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July 30, 2012

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## 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 82 Lovely Street in Unionville, CT. The coordinates of the tower are 41° 45' 40.9716" N, -72° 53' 15.0972" 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 ( $\text{mW}/\text{cm}^2$ ). 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:

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

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 <sup>2</sup> )	Limit	%MPE
Nextel	82	851	9	100	0.0481	0.5673	8.48%
AT&T UMTS	102	880	2	720	0.0050	0.5867	0.85%
AT&T UMTS	102	1900	2	1140	0.0079	1.0000	0.79%
AT&T LTE	100	734	1	1615	0.0058	0.4893	1.19%
AT&T GSM	102	880	1	360	0.0012	0.5867	0.21%
AT&T GSM	102	1900	4	684	0.0095	1.0000	0.95%
						<b>Total</b>	<b>12.46%</b>

Table 1: Carrier Information<sup>1 2 3</sup>

<sup>1</sup> The existing CSC filing for AT&T 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 7/27/2012. 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.

<sup>2</sup> 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.

<sup>3</sup> Antenna height listed for AT&T is in reference to the B&T Group Structural Analysis Report dated July 26, 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 **12.46% 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

July 30, 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<sup>4</sup>**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f <sup>2</sup> )*	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<sup>5</sup>**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	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)**

<sup>4</sup> 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

<sup>5</sup> 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

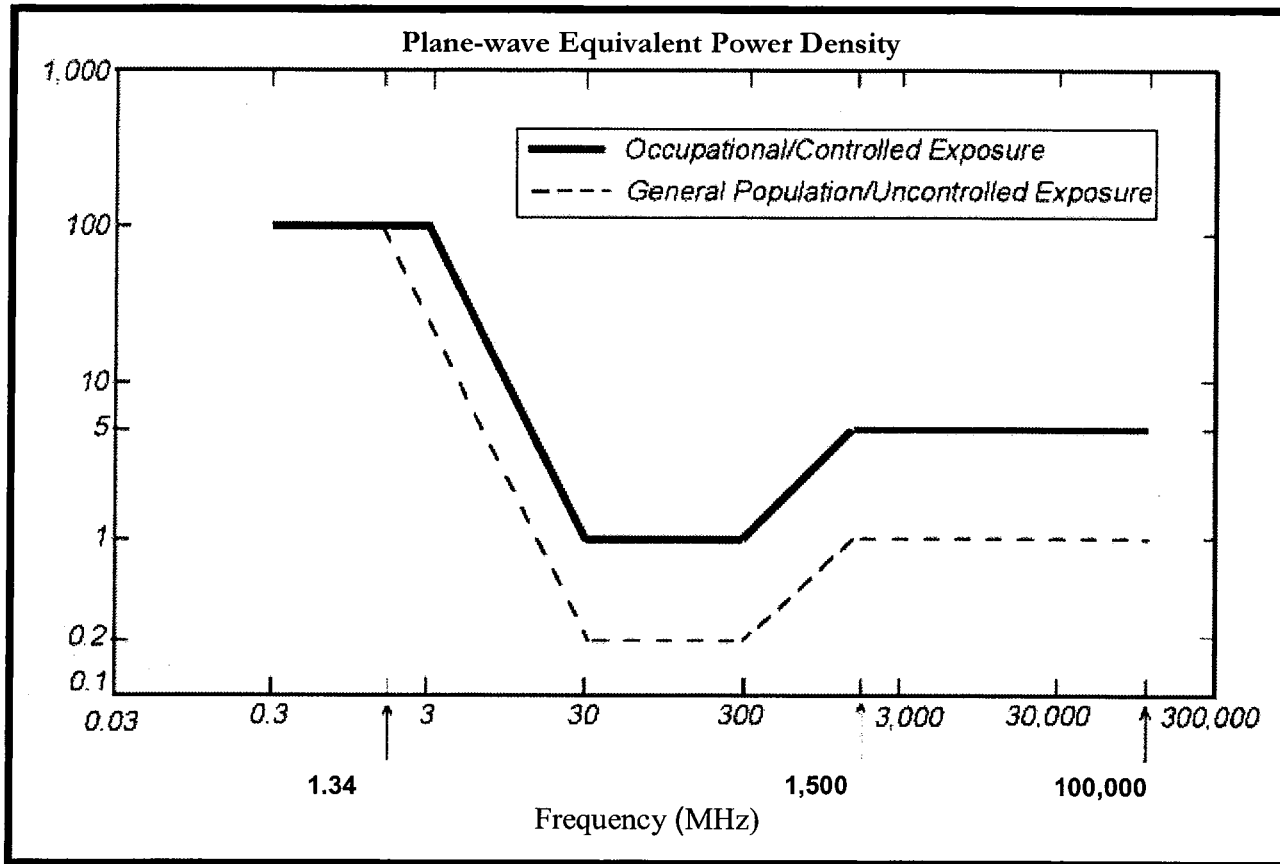
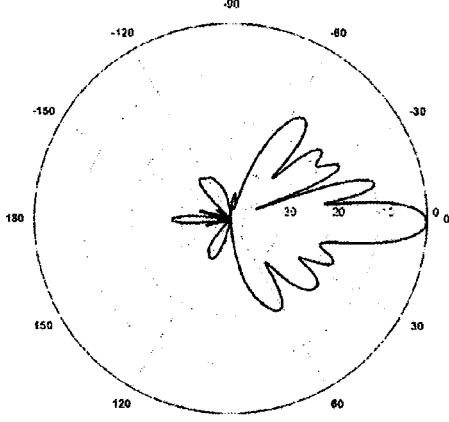
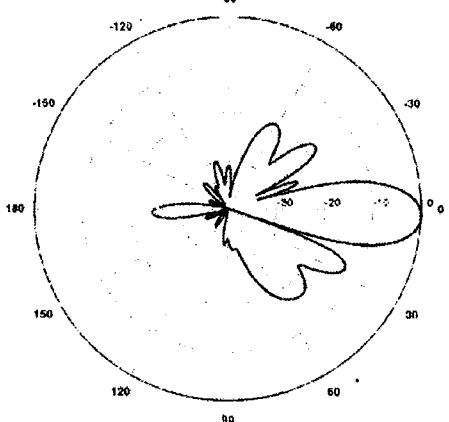
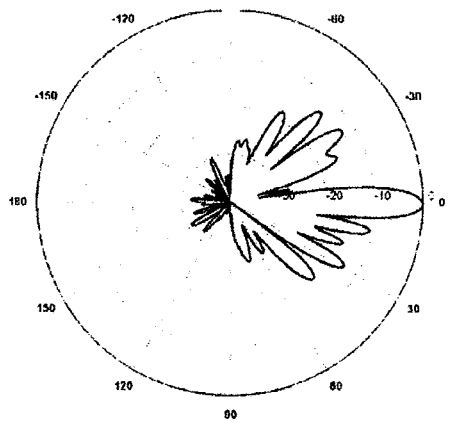


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

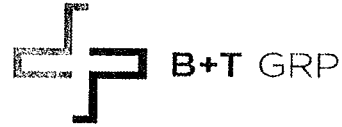
<p><b>700 MHz</b></p> <p>Manufacturer: Powerwave            Model #: P65-17XLH-RR            Frequency Band: 698-806 MHz            Gain: 14.3 dBd            Vertical Beamwidth: 8.4°            Horizontal Beamwidth: 70°            Polarization: Dual Linear <math>\pm 45^\circ</math>            Size L x W x D: 96.0" x 12.0" x 6.0"</p>	 <p>A polar plot showing the radiation pattern for a 700 MHz antenna. The plot is circular with a scale from 0 to 180 degrees. The main lobe is centered at 0 degrees and has a peak gain of approximately 14.3 dBd. The beamwidth is 70 degrees. There are several side lobes and nulls, with the most significant side lobes occurring between 30 and 150 degrees.</p>
<p><b>850 MHz</b></p> <p>Manufacturer: Powerwave            Model #: P65-15-XLH-RR            Frequency Band: 806-894 MHz            Gain: 12.6 dBd            Vertical Beamwidth: 17°            Horizontal Beamwidth: 63°            Polarization: Dual Linear <math>\pm 45^\circ</math>            Size L x W x D: 51.0" x 12.0" x 6.0"</p>	 <p>A polar plot showing the radiation pattern for an 850 MHz antenna. The plot is circular with a scale from 0 to 180 degrees. The main lobe is centered at 0 degrees and has a peak gain of approximately 12.6 dBd. The beamwidth is 63 degrees. There are several side lobes and nulls, with the most significant side lobes occurring between 30 and 150 degrees.</p>
<p><b>1900 MHz</b></p> <p>Manufacturer: Powerwave            Model #: P65-15-XLH-RR            Frequency Band: 1850-1990 MHz            Gain: 14.6 dBd            Vertical Beamwidth: 7.5°            Horizontal Beamwidth: 61°            Polarization: Dual Linear <math>\pm 45^\circ</math>            Size L x W x D: 51.0" x 12.0" x 6.0"</p>	 <p>A polar plot showing the radiation pattern for a 1900 MHz antenna. The plot is circular with a scale from 0 to 180 degrees. The main lobe is centered at 0 degrees and has a peak gain of approximately 14.6 dBd. The beamwidth is 61 degrees. There are several side lobes and nulls, with the most significant side lobes occurring between 30 and 150 degrees.</p>





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

August 3, 2012



**B+T Group**  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119

B+T No.: 84421.000.002

**Structural Modification Report**  
**100' Monopole**

AT&T DESIGNATION: Site ID: 59358  
Site FA: 10035037  
Site Name: UNIONVILLE SBC CO  
AT&T Project: MOD LTE W3 012312

ANALYSIS CRITERIA: Codes: TIA/EIA-222-F (80 mph fastest mile)  
IBC 2006  
2003 IRC (State Building Code, 2005 CT supplement)

SITE DATA: 82 LOVELY STREET, Unionville , CT, Hartford County  
Latitude 41.761381°, Longitude -72.887527°  
Market MA/RI/VT/NH/ME/CT

Dear Ms. Wenderoth,

B+T Group is pleased to submit this Structural Modification Report to determine the structural integrity of the aforementioned 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**

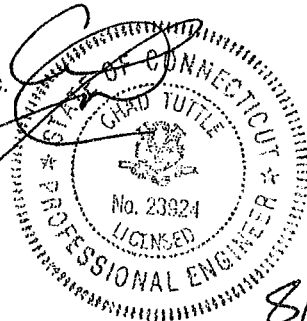
Tower Stress Level with Proposed Equipment: **95.1%** **Pass**  
Foundation Ratio with Proposed Equipment: **31.4%** **Pass**

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and AT&T Towers. 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: Ali Abbaszadeh

Analysis Reviewed by: Chad E. Tuttle, P.E.



8/3/12

## ANALYSIS PROCEDURE:

**Table 4 - Documents Provided**

Document	Description	Date	Source
Tower Data	SA by B+T Engineering, Inc.	4/24/2012	Siterra
Foundation Information	WEI Geotechnical Engineers	2/16/2010	Siterra
Geotech Report	WEI Geotechnical Engineers	2/16/2010	Siterra
Loading	Equipment Mod Form	4/12/2012	Siterra
	Previous analysis by B+T	4/24/2012	On File
Previous Structural Analysis	SA by B+T Engineering, Inc.	4/24/2012	Siterra
	SA by GPD	2/9/2011	Siterra

## ANALYSIS METHOD:

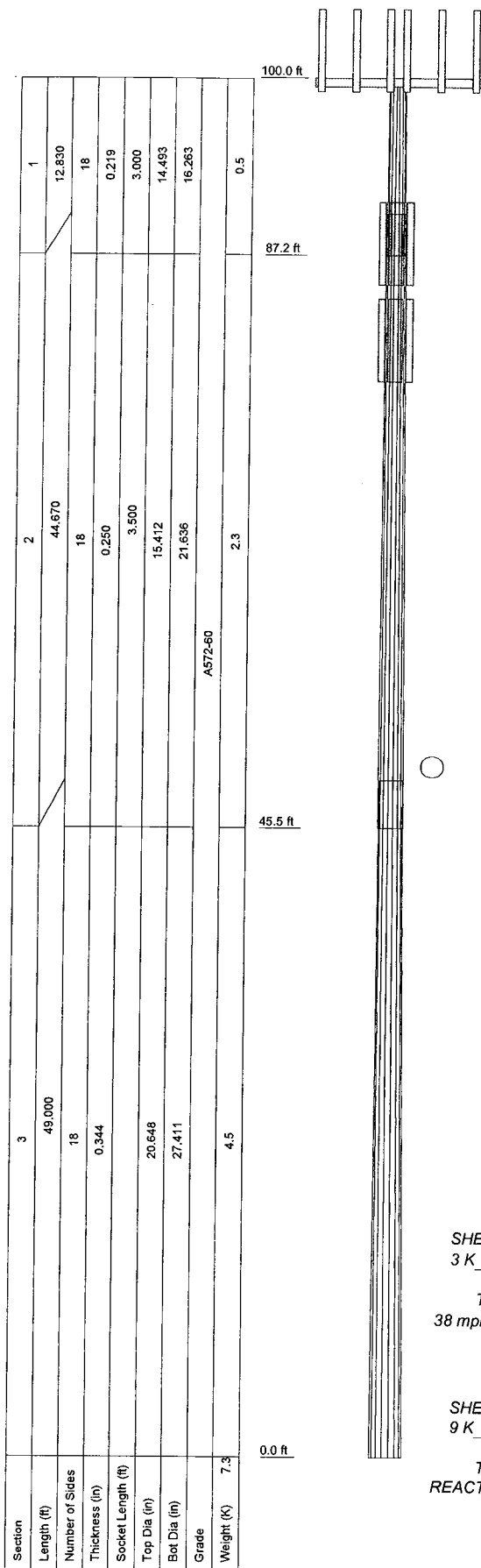
tnxTower, a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix B.

## 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.

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





### DESIGNED APPURTENANCE LOADING

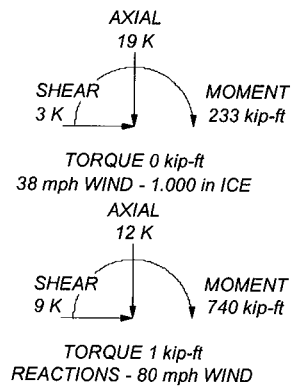
TYPE	ELEVATION	TYPE	ELEVATION
(2) P65-15-XLH-RR w/ Mount Pipe (ATI_E)	102	(2) RBS-6601 TMA (ATI_P)	100
(2) P65-15-XLH-RR w/ Mount Pipe (ATI_E)	102	DC6-48-60-18-8F (ATI_P)	100
(2) P65-15-XLH-RR w/ Mount Pipe (ATI_E)	102	T-Arm Mount [TA 602-3] (ATI_P)	100
(2) TT19-08BP111-001 (ATI_E)	100	AP11-880/090D/XPV w/Mount Pipe (E)	88
(2) TT19-08BP111-001 (ATI_E)	100	AP11-880/090D/XPV w/Mount Pipe (E)	88
(2) TT19-08BP111-001 (ATI_E)	100	AP11-880/090D/XPV w/Mount Pipe (E)	88
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI_P)	100	Pipe Mount [PM 601-3] (E)	88
SBNH-1D6565C w/ Mount Pipe (ATI_P)	100	AP11-880/090D/XPV w/Mount Pipe (E)	81
P65-17-XLH-RR w/ Mount Pipe (ATI_P)	100	AP11-880/090D/XPV w/Mount Pipe (E)	81
(2) RBS-6601 TMA (ATI_P)	100	AP11-880/090D/XPV w/Mount Pipe (E)	81
(2) RBS-6601 TMA (ATI_P)	100	Pipe Mount [PM 601-3] (E)	81

### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-60	60 ksi	75 ksi			

### TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 95.1%

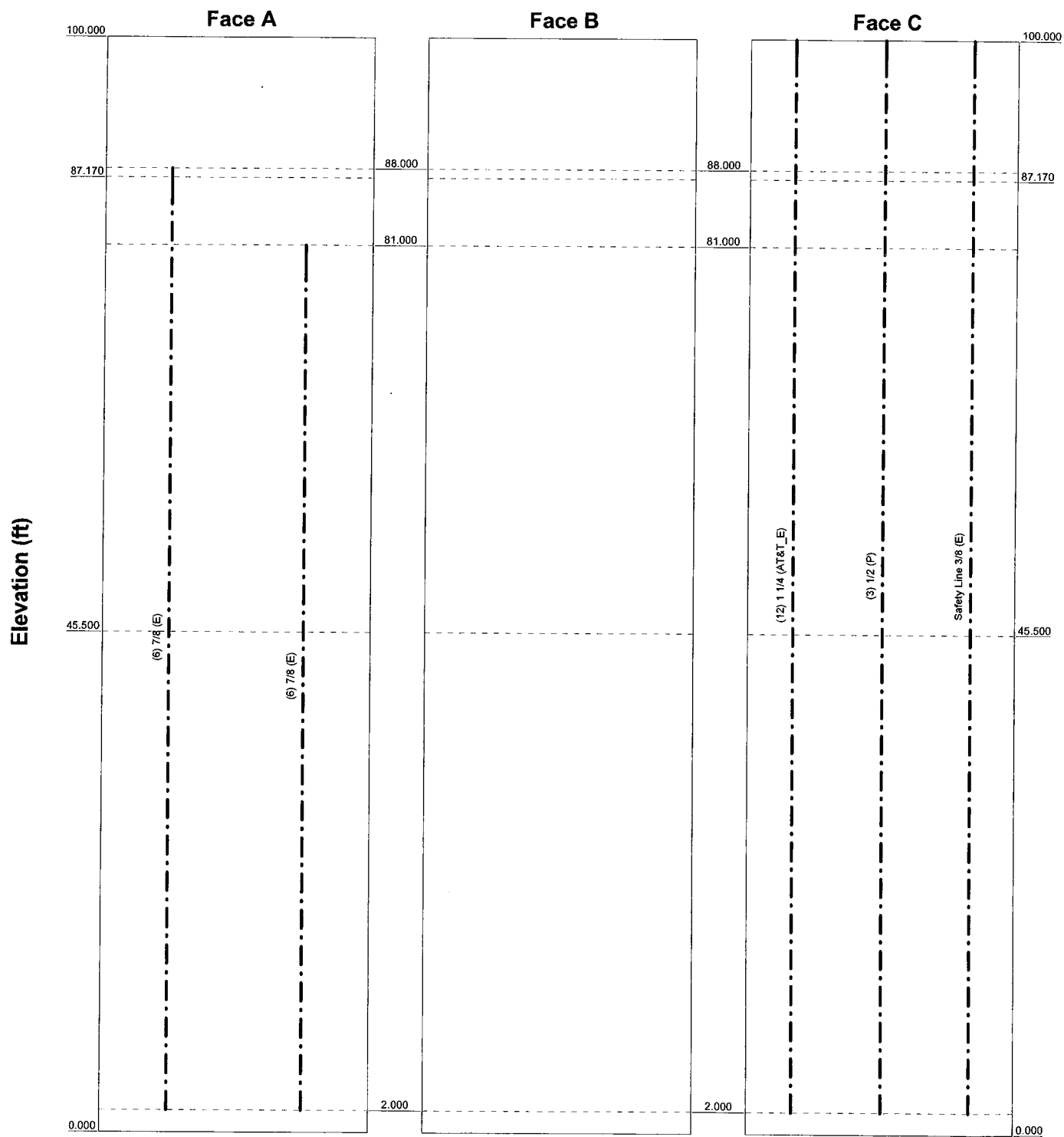


 <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job: <b>84421.000.0002b - Unionville SBC Co, CT (USID# 5935)</b>
	Project: <b>100' Monopole / AT&amp;T Co-Locate</b>
	Client: Nexlink
	Code: TIA/EIA-222-F
	Path:
Drawn by: K. Mears	App'd:
Date: 08/03/12	Scale: NTS
	Dwg No. E-1

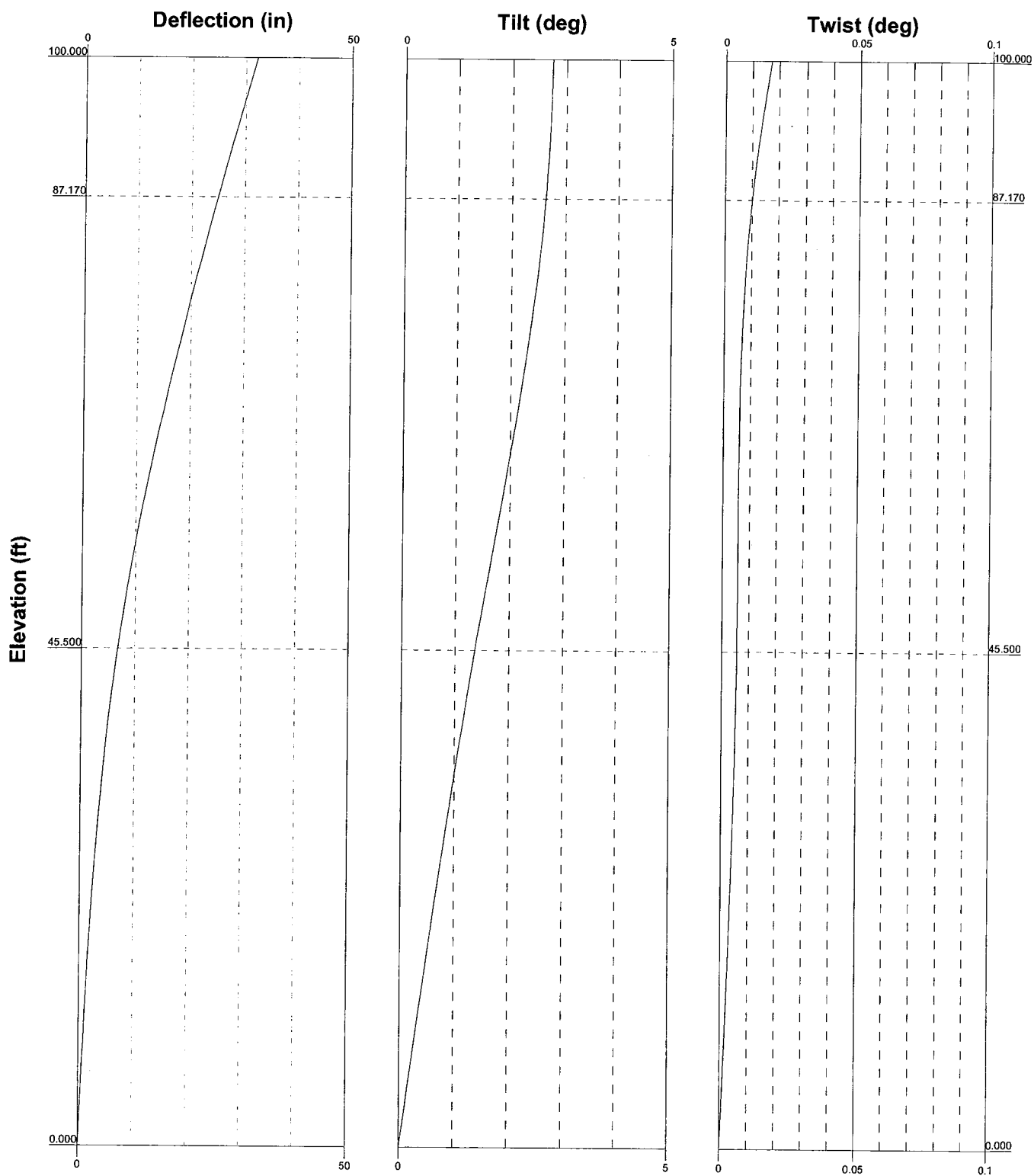
# Feedline Distribution Chart


## 0' - 100'

Round   
  Flat   
  App In Face   
  App Out Face   
  Truss Leg



 <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job: 84421.000.0002b - Unionville SBC Co, CT (USID# 5935)</b>		
	<b>Project: 100' Monopole / AT&amp;T Co-Locate</b>		
	Client: Nexlink	Drawn by: K. Mears	App'd:
	Code: TIA/EIA-222-F	Date: 08/03/12	Scale: NTS
	Path:	Dwg No. E-7	



 <p><b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<b>Job: 84421.000.0002b - Unionville SBC Co, CT (USID# 5935)</b>		
	Project: 100' Monopole / AT&T Co-Locate		
	Client: Nexlink	Drawn by: K. Mears	App'd:
	Code: TIA/EIA-222-F	Date: 08/03/12	Scale: NTS
	Path:	Dwg No. E-5	

<b>tnxTower</b>  <b>B+T Group</b> 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	<b>Job</b> 84421.000.0002b - Unionville SBC Co, CT (USID# 59358)	<b>Page</b> 2 of 12
	<b>Project</b> 100' Monopole / AT&T Co-Locate	<b>Date</b> 09:40:35 08/03/12
	<b>Client</b> Nexlink	<b>Designed by</b> K. Mears

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/Q in <sup>2</sup>	w in	w/t
L1	14.717	9.913	255.196	5.067	7.363	34.661	510.728	4.958	2.166	9.898
	16.514	11.143	362.392	5.696	8.262	43.864	725.260	5.572	2.477	11.322
L2	16.074	12.031	349.418	5.382	7.829	44.630	699.296	6.017	2.272	9.09
	21.969	16.969	980.489	7.592	10.991	89.210	1962.268	8.486	3.368	13.471
L3	21.457	22.156	1153.983	7.208	10.489	110.017	2309.484	11.080	3.029	8.81
	27.834	29.537	2733.946	9.609	13.925	196.335	5471.489	14.771	4.219	12.272

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft <sup>2</sup>	in					in	in
L1 100.000-87.17 0				1	1	1.05		
L2 87.170-45.500				1	1	1.05		
L3 45.500-0.000				1	1	1.05		

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C <sub>AA</sub>	Weight
							ft <sup>2</sup> /ft	klf
1 1/4 (AT&T_E)	C	No	Inside Pole	100.000 - 2.000	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
1/2 (P)	C	No	Inside Pole	100.000 - 2.000	3	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
****								
7/8 (E)	A	No	Inside Pole	88.000 - 2.000	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 (E)	A	No	Inside Pole	81.000 - 2.000	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
****								
Safety Line 3/8 (E)	C	No	CaAa (Out Of Face)	100.000 - 2.000	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

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
			Horz Lateral ft	Vert ft					
(AT&T_E)			0.000						
						1" Ice	6.756	4.902	0.141
						2" Ice	7.716	6.235	0.262
						4" Ice	9.772	9.277	0.611
(2) P65-15-XLH-RR w/ Mount Pipe (AT&T_E)	B	From Leg	3.000 0.000 0.000		22.000	102.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.838 6.292 6.756 7.716 9.772	3.665 4.278 4.902 6.235 9.277	0.048 0.090 0.141 0.262 0.611
(2) P65-15-XLH-RR w/ Mount Pipe (AT&T_E)	A	From Leg	3.000 0.000 0.000		14.000	102.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.838 6.292 6.756 7.716 9.772	3.665 4.278 4.902 6.235 9.277	0.048 0.090 0.141 0.262 0.611
(2) TT19-08BP111-001 (AT&T_E)	C	From Leg	3.000 0.000 0.000		0.000	100.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.636 0.747 0.867 1.133 1.768	0.516 0.619 0.730 0.980 1.582	0.016 0.022 0.029 0.049 0.118
(2) TT19-08BP111-001 (AT&T_E)	B	From Leg	3.000 0.000 0.000		0.000	100.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.636 0.747 0.867 1.133 1.768	0.516 0.619 0.730 0.980 1.582	0.016 0.022 0.029 0.049 0.118
(2) TT19-08BP111-001 (AT&T_E)	A	From Leg	3.000 0.000 0.000		0.000	100.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.636 0.747 0.867 1.133 1.768	0.516 0.619 0.730 0.980 1.582	0.016 0.022 0.029 0.049 0.118
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T_P)	C	From Leg	3.000 0.000 0.000		40.000	100.000 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
SBNH-1D6565C w/ Mount Pipe (AT&T_P)	A	From Leg	3.000 0.000 0.000		50.000	100.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.644 12.365 13.095 14.553 17.825	9.842 11.366 12.914 15.267 20.139	0.099 0.185 0.286 0.521 1.165
P65-17-XLH-RR w/ Mount Pipe (AT&T_P)	B	From Leg	3.000 0.000 0.000		40.000	100.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.704 12.424 13.153 14.639 17.906	8.938 10.450 11.986 14.313 19.144	0.092 0.174 0.271 0.498 1.125
(2) RBS-6601 TMA (AT&T_P)	C	From Leg	3.000 0.000 0.000		0.000	100.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.542 2.870 3.198 3.854 5.166	0.483 0.699 0.915 1.347 2.211	0.175 0.220 0.269 0.380 0.663
(2) RBS-6601 TMA (AT&T_P)	B	From Leg	3.000 0.000 0.000		0.000	100.000 No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.542 2.870 3.198 3.854 5.166	0.483 0.699 0.915 1.347 2.211	0.175 0.220 0.269 0.380 0.663
(2) RBS-6601 TMA (AT&T_P)	A	From Leg	3.000 0.000 0.000		0.000	100.000 No Ice 1/2" Ice 1" Ice 2" Ice	2.542 2.870 3.198 3.854	0.483 0.699 0.915 1.347	0.175 0.220 0.269 0.380



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	<b>Client</b> Nexlink	<b>Designed by</b> K. Mears

## 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
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	100 - 87.17	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-5.764	-0.211	0.541
			Max. Mx	5	-2.505	-38.587	-0.372
			Max. My	2	-2.514	0.402	38.194
			Max. Vy	5	3.883	-38.587	-0.372
			Max. Vx	2	-3.830	0.402	38.194
			Max. Torque	12			
L2	87.17 - 45.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-12.107	-0.190	0.573

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Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>y</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>y</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 90 deg+Ice+Temp	19.238	2.728	0.008	0.381	-232.384	-0.213
Dead+Wind 120 deg+Ice+Temp	19.238	2.367	1.364	115.560	-201.749	-0.237
Dead+Wind 150 deg+Ice+Temp	19.238	1.372	2.354	199.621	-117.090	-0.199
Dead+Wind 180 deg+Ice+Temp	19.238	0.008	2.714	230.037	-1.095	-0.107
Dead+Wind 210 deg+Ice+Temp	19.238	-1.357	2.346	198.669	115.154	0.013
Dead+Wind 240 deg+Ice+Temp	19.238	-2.359	1.350	113.910	200.510	0.131
Dead+Wind 270 deg+Ice+Temp	19.238	-2.728	-0.008	-1.524	232.096	0.213
Dead+Wind 300 deg+Ice+Temp	19.238	-2.367	-1.364	-116.703	201.463	0.238
Dead+Wind 330 deg+Ice+Temp	19.238	-1.372	-2.354	-200.766	116.805	0.199
Dead+Wind 0 deg - Service	12.174	-0.014	-3.590	-287.019	1.457	0.172
Dead+Wind 30 deg - Service	12.174	1.793	-3.102	-247.836	-143.226	-0.023
Dead+Wind 60 deg - Service	12.174	3.119	-1.783	-142.274	-249.543	-0.211
Dead+Wind 90 deg - Service	12.174	3.610	0.014	1.374	-289.005	-0.343
Dead+Wind 120 deg - Service	12.174	3.133	1.807	144.618	-251.041	-0.383
Dead+Wind 150 deg - Service	12.174	1.817	3.116	249.078	-145.824	-0.321
Dead+Wind 180 deg - Service	12.174	0.014	3.590	286.764	-1.545	-0.173
Dead+Wind 210 deg - Service	12.174	-1.793	3.102	247.578	143.136	0.021
Dead+Wind 240 deg - Service	12.174	-3.119	1.783	142.018	249.452	0.211
Dead+Wind 270 deg - Service	12.174	-3.610	-0.014	-1.629	288.915	0.344
Dead+Wind 300 deg - Service	12.174	-3.133	-1.807	-144.873	250.953	0.385
Dead+Wind 330 deg - Service	12.174	-1.817	-3.116	-249.334	145.737	0.322

### Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-12.174	0.000	0.000	12.174	0.000	0.000%
2	-0.036	-12.174	-9.191	0.036	12.174	9.191	0.000%
3	4.590	-12.174	-7.942	-4.590	12.174	7.942	0.000%
4	7.986	-12.174	-4.565	-7.986	12.174	4.565	0.000%
5	9.242	-12.174	0.036	-9.242	12.174	-0.036	0.000%
6	8.021	-12.174	4.627	-8.021	12.174	-4.627	0.000%
7	4.652	-12.174	7.978	-4.652	12.174	-7.978	0.000%
8	0.036	-12.174	9.191	-0.036	12.174	-9.191	0.000%
9	-4.590	-12.174	7.942	4.590	12.174	-7.942	0.000%
10	-7.986	-12.174	4.565	7.986	12.174	-4.565	0.000%
11	-9.242	-12.174	-0.036	9.242	12.174	0.036	0.000%
12	-8.021	-12.174	-4.627	8.021	12.174	4.627	0.000%
13	-4.652	-12.174	-7.978	4.652	12.174	7.978	0.000%
14	0.000	-19.238	0.000	-0.000	19.238	0.000	0.000%
15	-0.008	-19.238	-2.714	0.008	19.238	2.714	0.000%
16	1.357	-19.238	-2.346	-1.357	19.238	2.346	0.000%
17	2.359	-19.238	-1.350	-2.359	19.238	1.350	0.000%
18	2.728	-19.238	0.008	-2.728	19.238	-0.008	0.000%
19	2.367	-19.238	1.364	-2.367	19.238	-1.364	0.000%
20	1.371	-19.238	2.354	-1.372	19.238	-2.354	0.000%
21	0.008	-19.238	2.714	-0.008	19.238	-2.714	0.000%
22	-1.357	-19.238	2.346	1.357	19.238	-2.346	0.000%
23	-2.359	-19.238	1.350	2.359	19.238	-1.350	0.000%
24	-2.728	-19.238	-0.008	2.728	19.238	0.008	0.000%
25	-2.367	-19.238	-1.364	2.367	19.238	1.364	0.000%
26	-1.371	-19.238	-2.354	1.372	19.238	2.354	0.000%
27	-0.014	-12.174	-3.590	0.014	12.174	3.590	0.000%
28	1.793	-12.174	-3.102	-1.793	12.174	3.102	0.000%
29	3.119	-12.174	-1.783	-3.119	12.174	1.783	0.000%
30	3.610	-12.174	0.014	-3.610	12.174	-0.014	0.000%
31	3.133	-12.174	1.807	-3.133	12.174	-1.807	0.000%

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### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 87.17	32.178	37	2.740	0.018
L2	90.17 - 45.5	26.595	37	2.667	0.014
L3	49 - 0	7.816	37	1.487	0.004

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
102.000	(2) P65-15-XLH-RR w/ Mount Pipe	37	32.178	2.740	0.018	8302
100.000	(2) TT19-08BP111-001	37	32.178	2.740	0.018	8302
88.000	AP11-880/090D/XPV w/Mount Pipe	37	25.390	2.638	0.013	3802
81.000	AP11-880/090D/XPV w/Mount Pipe	37	21.613	2.506	0.010	2819

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 87.17	81.898	12	6.985	0.047
L2	90.17 - 45.5	67.718	12	6.799	0.035
L3	49 - 0	19.941	12	3.795	0.010

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
102.000	(2) P65-15-XLH-RR w/ Mount Pipe	12	81.898	6.985	0.047	3372
100.000	(2) TT19-08BP111-001	12	81.898	6.985	0.047	3372
88.000	AP11-880/090D/XPV w/Mount Pipe	12	64.655	6.726	0.032	1539
81.000	AP11-880/090D/XPV w/Mount Pipe	12	55.054	6.391	0.026	1135

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### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P <sub>allow</sub> K	% Capacity	Pass Fail
L1	100 - 87.17	Pole	TP16.263x14.493x0.219	1	-2.501	520.914	23.8	Pass
L2	87.17 - 45.5	Pole	TP21.636x15.412x0.25	2	-6.198	795.758	94.5	Pass
L3	45.5 - 0	Pole	TP27.411x20.648x0.344	3	-12.159	1417.392	95.1	Pass
Summary								
Pole (L3)							95.1	Pass
<b>RATING =</b>							<b>95.1</b>	<b>Pass</b>

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

**Site Data**

USID#: 59358

Site Name: Unionville SBC Co, 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:	0	in
Pier Dist. Above Grade:	6	in
Pad Bearing Depth, D:	9.5	ft
Pad Thickness, T:	4.5	ft
Pad Width=Length, L:	17	ft
Pier Cross Section Shape:	Square	<--Pull Down
Enter Pier Side Width:	6.5	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	42.25	ft^2
Pier Height:	5.50	ft
Soil (above pad) Height:	5.00	ft

**Soil Parameters**

Unit Weight, $\gamma$ :	130.0	pcf
Ultimate Bearing Capacity, $q_n$ :	15.00	ksf
Strength Reduct. factor, $\phi$ :	0.75	
Angle of Friction, $\Phi$ :	30.0	degrees
Undrained Shear Strength, $C_u$ :	0.00	ksf
Allowable Bearing: $\phi * q_n$ :	11.25	ksf
Passive Pres. Coeff., $K_p$ :	3.00	

**Forces/Moments due to Wind and Lateral Soil**

Minimum of ( $\phi * \text{Ultimate Pad Passive Force, } V_u$ ):	12.2	kips
Pad Force Location Above D:	2.02	ft
$\phi$ (Passive Pressure Moment):	24.51	ft-kips
Factored O.T. M(WL), "1.6W":	1120.5	ft-kips
Factored OT (MW-Msoil), M1	1095.99	ft-kips

**Resistance due to Foundation Gravity**

Soil Wedge Projection grade, a:	2.89	ft
Sum of Soil Wedges Wt:	27.85	kips
Soil Wedges ecc, K1:	8.53	ft
Ftg+Soil above Pad wt:	390.3	kips
Unfactored (Total ftg-soil Wt):	418.17	kips
1.2D. <b>No Soil Wedges.</b>	493.34	kips
0.9D. <b>With Soil Wedges</b>	399.13	kips

**Resistance due to Cohesion (Vertical)**

$\phi * (1/2 * C_u) (\text{Total Vert. Planes})$	0.00	kips
Cohesion Force Eccentricity, K2	0.00	ft

**Monopole Base Reaction Forces**

TIA Revision:	F	<--Pull Down
Unfactored DL Axial, PD:	7.3	kips
Unfactored WL Axial, PW:	12	kips
Unfactored WL Shear, V:	9	kips
Unfactored WL Moment, M:	740	ft-kips

**Load Factor Shaft Factored Loads**

1.20	1.2D+1.6W, Pu:	24.96	kips
0.90	0.9D+1.6W, Pu:	22.77	kips
1.35	Vu:	12.15	kips
	Mu:	999	ft-kips

**1.2D+1.6W Load Combination, Bearing Results:**

<b>(No Soil Wedges)</b> [Reaction+Conc+Soil]	493.34	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	1095.99	ft-kips

Orthogonal Direction:

ecc1 = M1/P1 = 2.22 ft  
 Orthogonal qu= 2.60 ksf  
 qu/ $\phi * q_n$  Ratio= 23.11% Pass

Diagonal Direction:

ecc2 = (0.707M1)/P1 = 1.57 ft  
 Diagonal qu= 2.57 ksf  
 qu/ $\phi * q_n$  Ratio= 22.83% Pass

<-- Press Upon Completing All Input

**Overtuning Stability Check**

**0.9D+1.6W Load Combination, Bearing Results:**

<b>(w/ Soil Wedges)</b> [Reaction+Conc+Soil]	399.13	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	882.07	ft-kips

Orthogonal ecc3 = M2/P2 = 2.21 ft  
 Ortho Non Bearing Length, NBL= 4.42 ft  
 Orthogonal qu= 2.10 ksf  
 Diagonal qu= 2.07 ksf

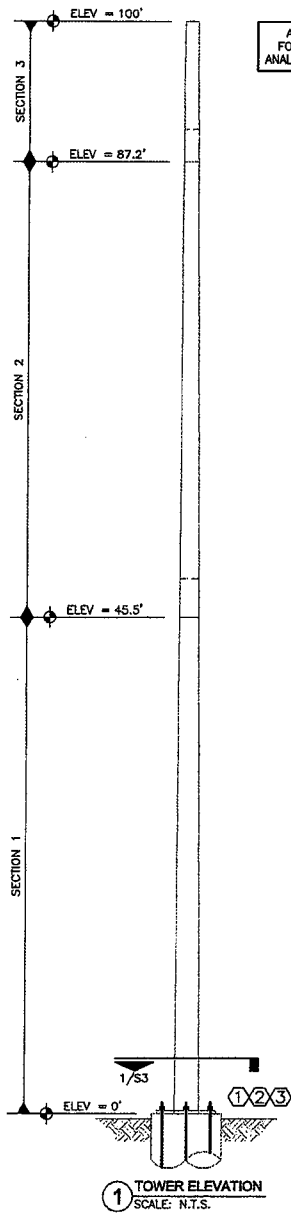
**Max Reaction Moment (ft-kips) so that qu= $\phi * q_n$  = 100% Capacity Rating**

Actual M:	740.00		
M Orthogonal:	2359.39	31.36%	Pass
M Diagonal:	2359.39	31.36%	Pass



ANTENNA CONFIG (FROM BACO):	Section 160 - NEW PROPOSED SECTOR CELL INFORMATION DELTA						
	ANTENNA 1 GSM, UMTS (850 / 1900) or LTE (200 / AWS)	ANTENNA 2 GSM, UMTS (850 / 1900) or LTE (200 / AWS)	ANTENNA 3 GSM, UMTS (850 / 1900) or LTE (200 / AWS)	ANTENNA 4 GSM, UMTS (850 / 1900) or LTE (200 / AWS)	ANTENNA 5 GSM, UMTS (850 / 1900) or LTE (200 / AWS)	ANTENNA 6 GSM, UMTS (850 / 1900) or LTE (200 / AWS)	ANTENNA 7 GSM, UMTS (850 / 1900) or LTE (200 / AWS)
TECHNOLOGY							
SITE LOCATION (Tower/Building/Street)							
FEEDER TYPE							
FEEDER LABEL NAME							
ANTENNA TYPE							
ANTENNA MAKE - MODEL							
ANTENNA VENDOR							
ANTENNA USE (a or n or b)							
ANTENNA WEIGHT							
ANTENNA GAIN							
ISOLATION							
ISOLATION CENTER FREQUENCY							
ANTENNA TYP HEIGHT							
ELECTRICAL TILT (DOWN) (DEGREES)							
MECHANICAL TILT (DOWN)							
FEEDER MOUNTING							
Antenna BEI Mount (ROT/MOD/CL)							
Antenna BEI Earth Grounding Change (ROT/MOD/CL)							
Antenna BEI Surge Arrestor (ROT/MOD/CL)							
Antenna BEI Connector Unit (ROT/MOD/CL) Length per side							
DC BLOCK (ROT/MOD/CL)							
THRU LINE (ROT/MOD/CL)							
CURRENT DIRECTIONS FOR USA (ROT/MOD/CL)							
DC FEED THRU LINE (ROT/MOD/CL) Length per side							
DC BLOCK ABSORBER (ROT/MOD/CL)							
REFLECTOR (ROT/MOD/CL)							
WINDING COORDINATE (ROT/MOD/CL)							
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ANTENNAS NOT SHOWN FOR CLARITY, REFERENCE ANALYSIS FOR CONFIGURATION

MODIFICATIONS BASED ON STRUCTURAL ANALYSIS FROM B+T ENGINEERING DATED 04/23/12 AND ACCOMPANIED BY ANALYSIS FROM B+T GROUP DATED 08/03/12.

EXISTING MEMBER SCHEDULE				
SECTION	NUMBER OF SIDES	THICKNESS	BOTTOM DIAMETER	TOP DIAMETER
1	18	0.344"	27.411"	28.648"
2	18	0.250"	21.636"	15.412"
3	18	0.219"	16.263"	14.493"

**TOWER MODIFICATIONS:**

- ① CONTRACTOR SHALL BUDGET A SITE VISIT TO CHECK CRITICAL DIMENSIONS AND VERIFY UNKNOWN CONDITIONS PRIOR TO STEEL FABRICATION.
- ② THE NEW AND EXISTING TRANSMISSION MUST BE DISTRIBUTED AS SHOWN IN THE LSE DISTRIBUTION DIAGRAM RE: DETAIL 2/S1.
- ③ INSTALL NEW ANCHOR RODS RE: SHEET S3.
  - CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR ALL REMOVE AND REPLACE PROCEDURES.
  - MODIFICATIONS SHALL BE COMPLETED PRIOR TO ADDING THE PROPOSED APPURTENANCES.

**GENERAL NOTES**

- 1.1 ALL WORK SHALL COMPLY WITH THE TIA/EIA-222-F STANDARD AS WELL AS ANY OTHER GOVERNING BUILDING CODES.
- 1.2 FIELD WORK WILL BE DONE AROUND EXISTING COAXIAL CABLE AND EQUIPMENT. ALL WORK SHALL BE DONE IN A MANNER SUCH THAT NO DAMAGE OCCURS TO THE EXISTING EQUIPMENT OR THE STRUCTURE.
- 1.3 A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND (OR APPROVED EQUIVALENT) SHALL BE APPLIED TO ANY FIELD CUTS OR FIELD DRILLED HOLES.
- 1.4 THE USE OF A GAS TORCH OR WELDER WILL NOT BE PERMITTED ON THE TOWER WITHOUT THE CONSENT OF THE OWNER.
- 1.5 ALL FIELD CONNECTIONS SHALL BE MADE WITH A325X BOLTS, U.N.O.
- 1.6 IN LIEU OF TEMPORARY BRACING CONTRACTOR MAY HAVE A STABILITY ANALYSIS PERFORMED BY AN ENGINEER LICENSED IN THE STATE THE TOWER IS LOCATED. THE ANALYSIS SHALL USE A MINIMUM WIND SPEED OF 45 mph (3-SEC) PER TIA-1019.

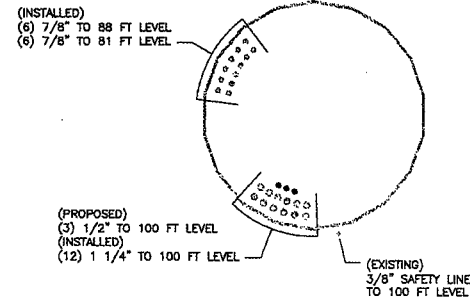
**FABRICATION**

- 2.1 ALL WORK SHALL BE DONE IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
- 2.2 STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:
 

	YIELD	ASTM SPECS
A. STEEL SHAPES AND PLATES, U.N.O.	36ksi	A36
- 2.3 ALL NEW MATERIAL INCLUDING STRUCTURAL STEEL AND FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 AND A153.
- 2.4 WELDING SHALL MEET ANSI/AWS D1.1 STRUCTURAL WELDING CODE (LATEST REVISION). ELECTRODES SHALL BE E80 SERIES.
- 2.5 CONTRACTOR SHALL PROVIDE SHOP FABRICATION DRAWINGS TO B+T GROUP 2 WEEKS PRIOR TO FABRICATION.

**KEY NOTES**

- ① TOWER MODIFICATION I.D.



② TX LINE DISTRIBUTION DIAGRAM  
SCALE: N.T.S.

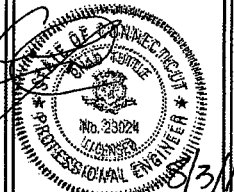


**ISSUED FOR:**

REV	DATE	DESCRIPTION
0	08/03/12	ISSUED FOR CONSTRUCTION

PROJECT NO:	84421.000.0002
PROJECT ENG:	ALI ABBASZADEH
DRAWN BY:	GLS
CHECKED BY:	SSV

B+T ENGINEERING, INC.



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

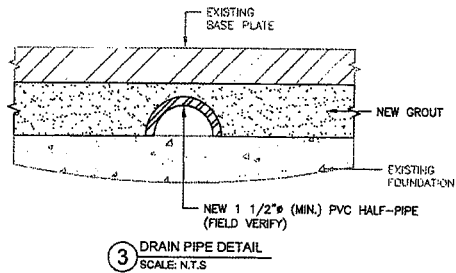
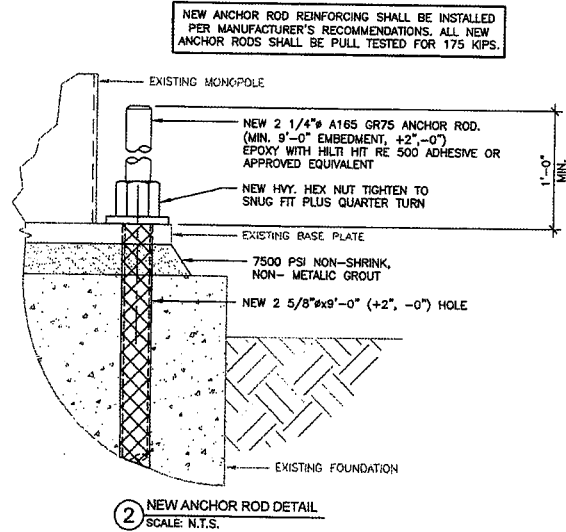
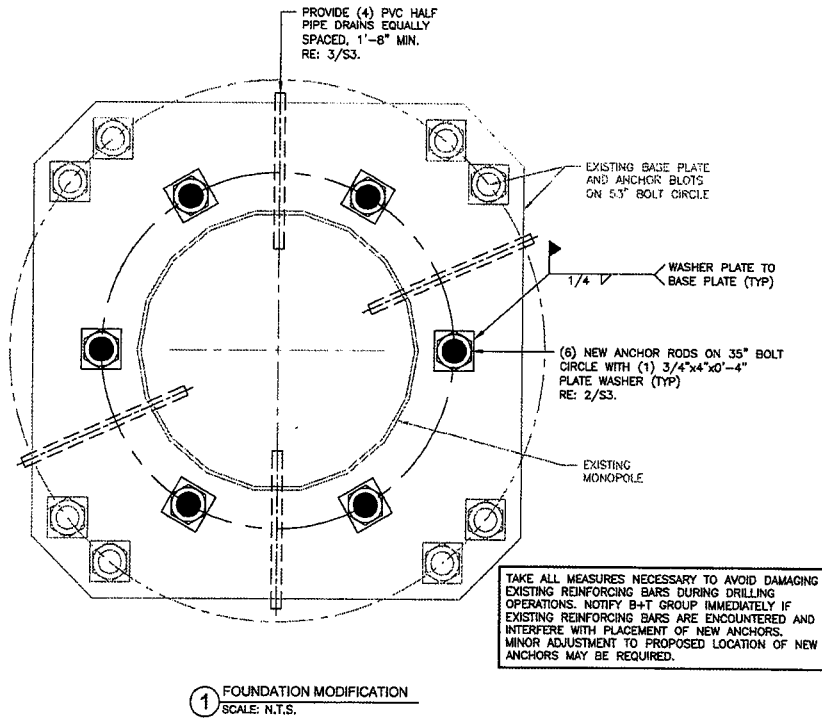
UNIONVILLE  
CT1061  
82 LOVELY STREET  
UNIONVILLE, CT  
EXISTING 100'  
MONOPOLE

SHEET TITLE  
TOWER ELEV., SCHEDULES,  
TX LINE DIST. DIAGRAM  
AND GENERAL NOTES

SHEET NUMBER:	REVISION:
S1	0



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**B+T GRP**  
1717 S. BOULDER  
SUITE 300  
TULSA, OK 74116  
PH: (918) 587-4630  
www.btgrp.com

**NEXLINK**  
GLOBAL SERVICES

**at&t**

ISSUED FOR:		
REV	DATE	DESCRIPTION
0	08/03/12	ISSUED FOR CONSTRUCTION
PROJECT NO: 94421.000.0002		
PROJECT ENG: ALI ABBASZADEH		
DRAWN BY: GLS		
CHECKED BY: SSV		

B+T ENGINEERING, INC.

**ALI ABBASZADEH**  
No. 23924  
LICENSED PROFESSIONAL ENGINEER

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

UNIONVILLE  
CT1061  
82 LOVELY STREET  
UNIONVILLE, CT  
EXISTING 100'  
MONOPOLE

SHEET TITLE  
**BASE PLATE AND ANCHOR ROD DETAILS**

SHEET NUMBER: <b>S3</b>	REVISION: <b>0</b>
----------------------------	-----------------------

**PROJECT INFORMATION**

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS  
 SITE ADDRESS: 82 LOVELY STREET  
 FARMINGTON, CT 06085  
 LATITUDE: 41.761389 N 41° 45' 41" N  
 LONGITUDE: 72.887528 W 72° 53' 15.1" W  
 JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES  
 CURRENT USE: TELECOMMUNICATIONS FACILITY  
 PROPOSED USE: TELECOMMUNICATIONS FACILITY



**SITE NUMBER: CT1061**  
**SITE NAME: UNIONVILLE**

**DRAWING INDEX**

**REV**

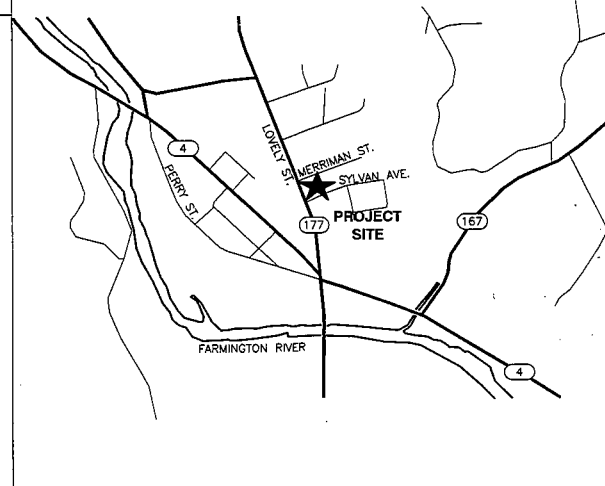
**VICINITY MAP**

**GENERAL NOTES**

T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	EQUIPMENT & COMPOUND PLAN	2
A-2	ELEVATION & ANTENNA LAYOUT	2
A-3	DETAILS	2
G-1	PLUMBING DIAGRAM & GROUNDING DETAILS	2

DIRECTIONS TO SITE:  
 START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO CT-9 N VIA EXIT 22N TOWARD NEW BRITAIN. MERGE ONTO I-84 W / US-6 W VIA EXIT 32 ON THE LEFT TOWARD WATERBURY / CT-4. MERGE ONTO CT-4 W / FARMINGTON AVE VIA EXIT 39 TOWARD FARMINGTON. TURN RIGHT ONTO LOVELY ST / CT-177. 82 LOVELY ST IS ON THE RIGHT.

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



CALL



BEFORE YOU DIG



CALL TOLL FREE 800-922-4455

UNDERGROUND SERVICE ALERT

Hudson  
Design Group

1400 OSGOOD STREET  
 BUILDING 20 NORTH SUITE 2-101  
 N. ANDOVER, MA 01850  
 TEL: 978-537-3333  
 FAX: 978-531-6586



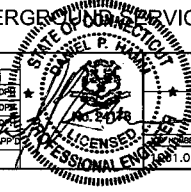
a UniTek GLOBAL SERVICES company  
 800 MARSHALL PHELPS ROAD UNIT#: 2A  
 WINDSOR, CT 06095

SITE NUMBER: CT1061  
 SITE NAME: UNIONVILLE  
 82 LOVELY STREET  
 FARMINGTON, CT 06085  
 HARTFORD COUNTY



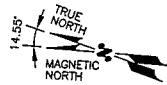
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 ROCKY HILL, CT 06067

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1	04/18/12	ISSUED FOR CONSTRUCTION	SF	DC	DWB	
0	03/21/12	ISSUED FOR REVIEW	RP	DC	DWB	
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DRAWN BY: RP						PROJECT NUMBER: 1061.01
DRAWING NUMBER: T-1						REV: 2



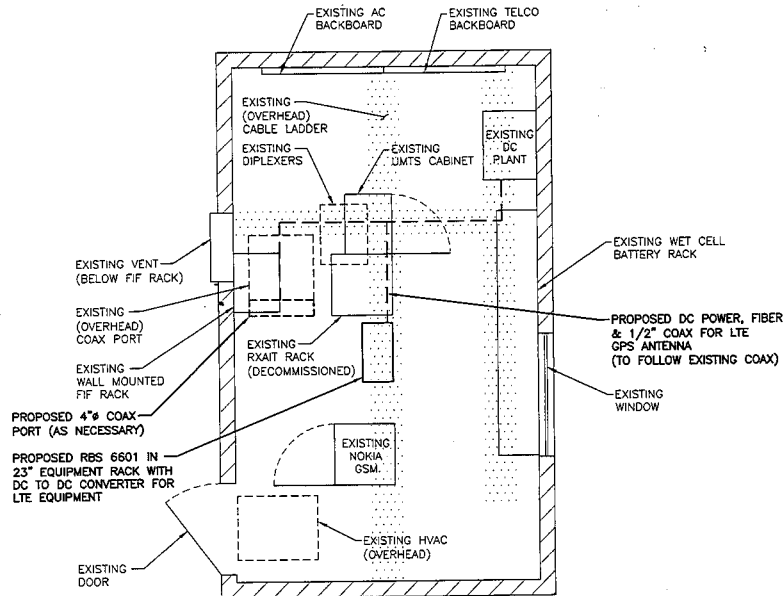
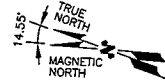
AT&T

TITLE SHEET  
(LTE)



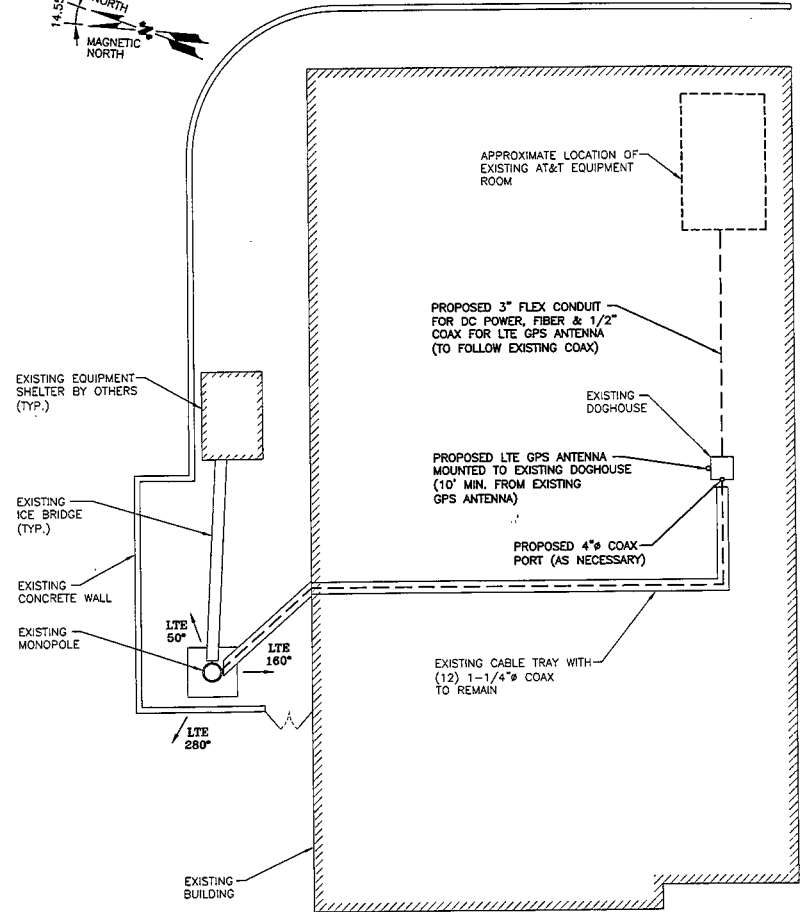
**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



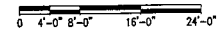
**EQUIPMENT PLAN**

SCALE: 1/2"=1'-0"



**COMPOUND PLAN**

SCALE: 1/8"=1'-0"



1600 DIXWOOD STREET  
HOLDING 30 NORTH, SUITE 2-101  
N. ANDOVER, MA 01845

TEL: (978) 557-5553  
FAX: (978) 334-5586



a Unitek GLOBAL SERVICES company  
800 MARSHALL PHELPS ROAD UNIT#: 2A  
WINDSOR, CT 06095

**SITE NUMBER: CT1061**  
**SITE NAME: UNIONVILLE**  
82 LOVELY STREET  
FARMINGTON, CT 06085  
HARTFORD COUNTY



500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

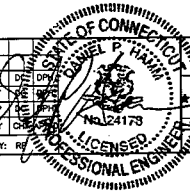
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2	08/16/12	CONSTRUCTION REVISED		
1	04/18/12	ISSUED FOR CONSTRUCTION		
0	03/21/12	ISSUED FOR REVIEW		

NO.	DATE	REVISIONS	DESIGNED BY: RP	DRAWN BY: RP	CHECKED BY: RP	SCALE: AS SHOWN

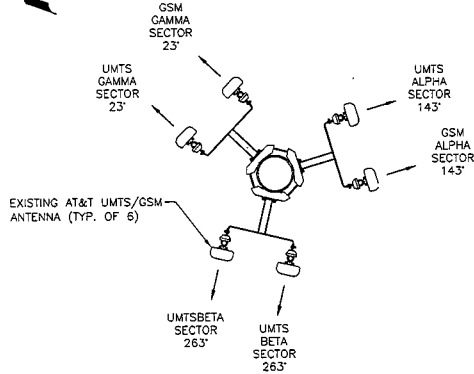
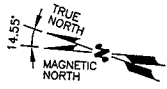
  

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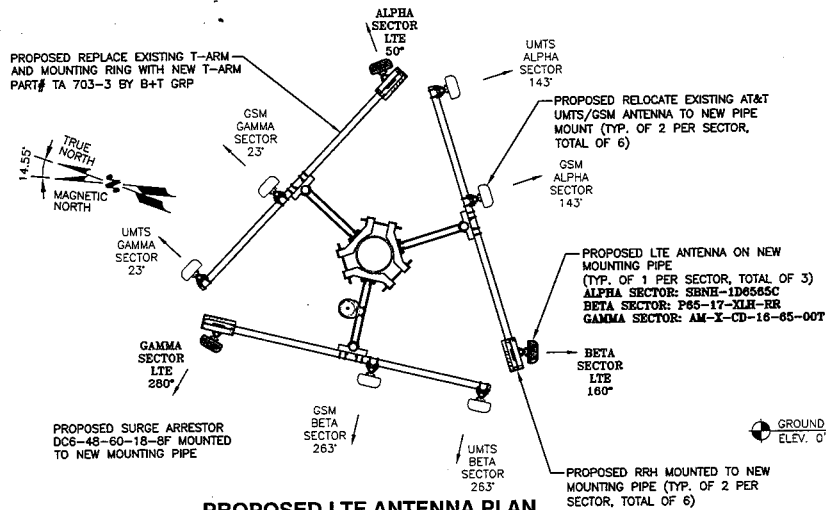
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EQUIPMENT & COMPOUND PLAN  
(LTE)



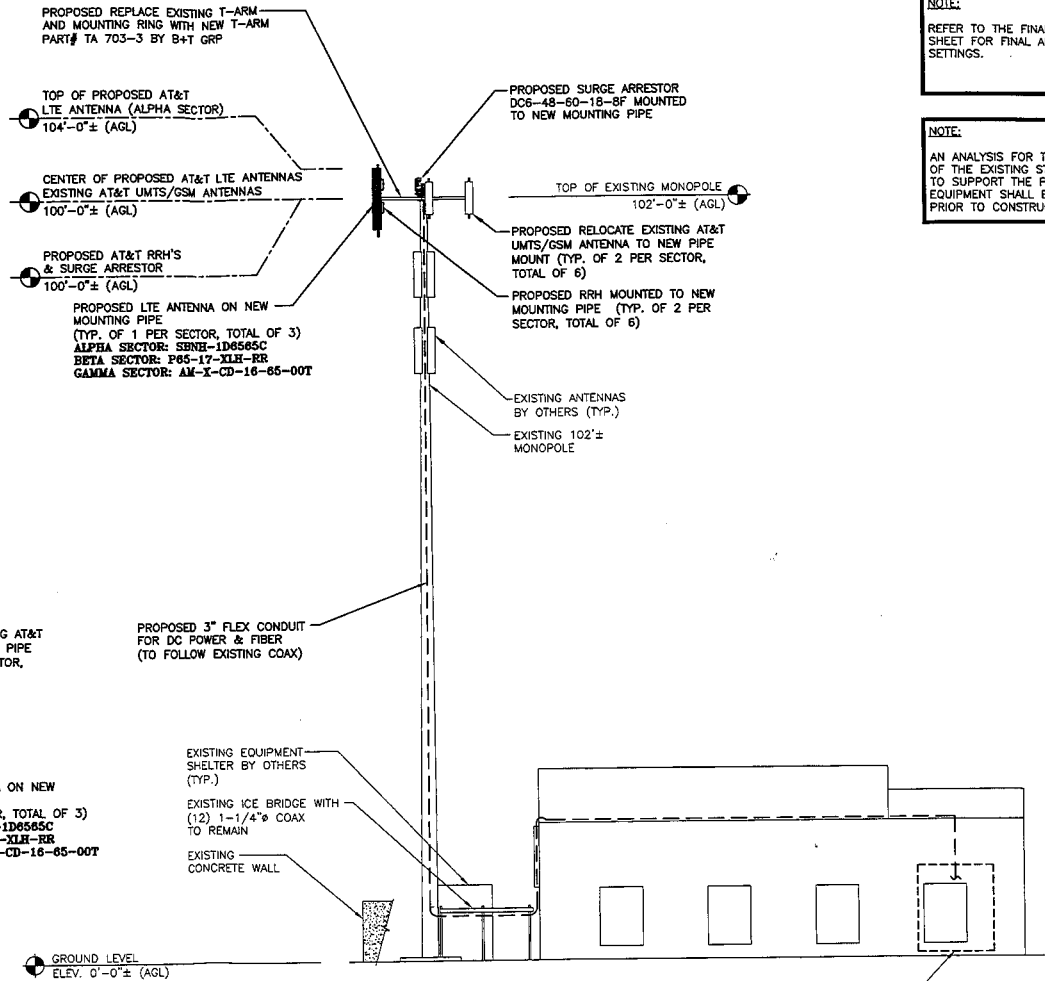
**EXISTING UMTS/GSM ANTENNA PLAN**

SCALE: N.T.S.



**PROPOSED LTE ANTENNA PLAN**

SCALE: N.T.S.



**WEST ELEVATION**

SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

**NOTE:**

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**

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**Hudson**  
Design Group, Inc.  
1400 OXGWOOD STREET  
BUILDING 20 NORTH, SUITE 2-101  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5566

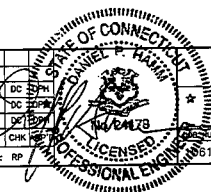
**NEXLINK**  
GLOBAL SERVICES  
a Nextel GLOBAL SERVICES company  
800 MARSHALL PHELPS ROAD UNIT# 2A  
WINDSOR, CT 06095

**SITE NUMBER: CT1061**  
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HARTFORD COUNTY

**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP	NO.	REV
2	08/16/12	CONSTRUCTION REVISED	RP	CMK	RP	1061.01	2
1	04/18/12	ISSUED FOR CONSTRUCTION	RP	CMK	RP	1061.01	1
0	03/21/12	ISSUED FOR REVIEW	RP	CMK	RP	1061.01	0

SCALE: AS SHOWN | DESIGNED BY: RP | DRAWN BY: RP



AT&T

ELEVATION & ANTENNA LAYOUT (LTE)

DRAWING NUMBER

A-2

**PROJECT INFORMATION**

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS  
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**SITE NUMBER: CT1061**  
**SITE NAME: UNIONVILLE**

**DRAWING INDEX**

**REV**

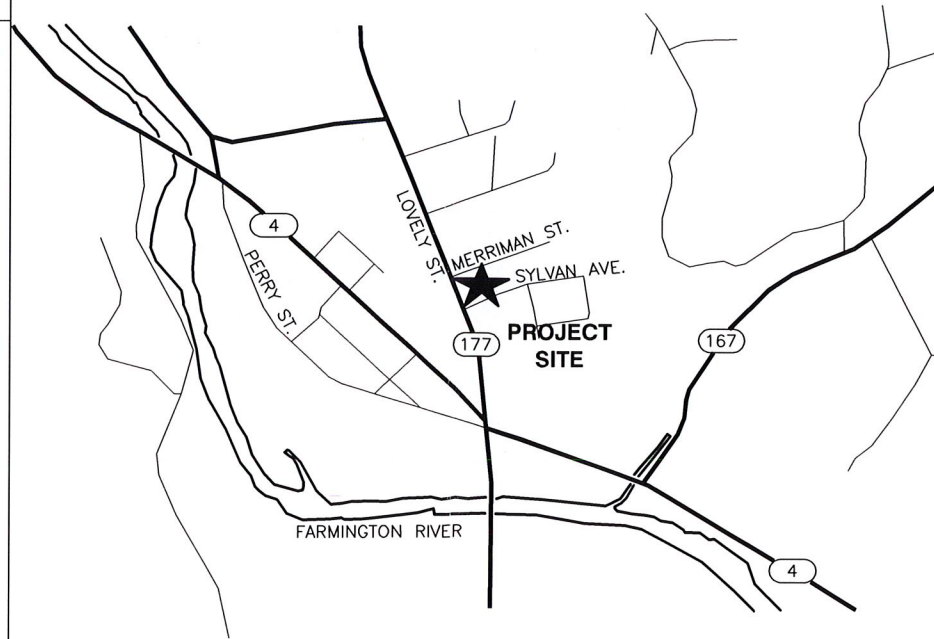
**VICINITY MAP**

**GENERAL NOTES**

<b>T-1</b>	<b>TITLE SHEET</b>	<b>2</b>
<b>GN-1</b>	<b>GENERAL NOTES</b>	<b>2</b>
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DIRECTIONS TO SITE:  
 START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO CT-9 N VIA EXIT 22N TOWARD NEW BRITAIN. MERGE ONTO I-84 W / US-6 W VIA EXIT 32 ON THE LEFT TOWARD WATERBURY / CT-4. MERGE ONTO CT-4 W / FARMINGTON AVE VIA EXIT 39 TOWARD FARMINGTON. TURN RIGHT ONTO LOVELY ST / CT-177. 82 LOVELY ST IS ON THE RIGHT.

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2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



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**SITE NUMBER: CT1061**  
**SITE NAME: UNIONVILLE**  
 82 LOVELY STREET  
 FARMINGTON, CT 06085  
 HARTFORD COUNTY

500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	08/16/12	CONSTRUCTION REVISED	MC	DC	DPE
1	04/18/12	ISSUED FOR CONSTRUCTION	SF	DC	DPE
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SCALE: AS SHOWN    DESIGNED BY: RP    DRAWN BY: RP



AT&T	
TITLE SHEET (LTE)	
DRAWING NUMBER	REV
T-1	2



**GROUNDING NOTES**

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
 CONTRACTOR - NEXLINK  
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)  
 OWNER - AT&T MOBILITY
  2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
  3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
  4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
  5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
  6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
  7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
  8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
  9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
  10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
  11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
  12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
  13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
  14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
  15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
  16. CONSTRUCTION SHALL COMPLY WITH UMS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
  17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
  18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
  19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
  20. APPLICABLE BUILDING CODES:  
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.  
 BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS  
 ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS  
 LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS
- SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
- AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;
  - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
  - MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;
  - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL
  - ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.
- FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

**ABBREVIATIONS**

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE		
EGR	EQUIPMENT GROUND RING	REF	REFERENCE	TYP	TYPICAL

Hudson Design Group  
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**SITE NAME: UNIONVILLE**  
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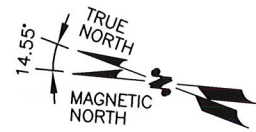
NO.	DATE	REVISIONS	BY	CHK	APP'D	DESCRIPTION
2	08/16/12	CONSTRUCTION REVISED	HC	DC	DPH	
1	04/18/12	ISSUED FOR CONSTRUCTION	SE	DC	DPH	
0	03/21/12	ISSUED FOR REVIEW	RP	DC	DPH	

SCALE: AS SHOWN    DESIGNED BY: RP    DRAWN BY: RP

STATE OF CONNECTICUT  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 24178

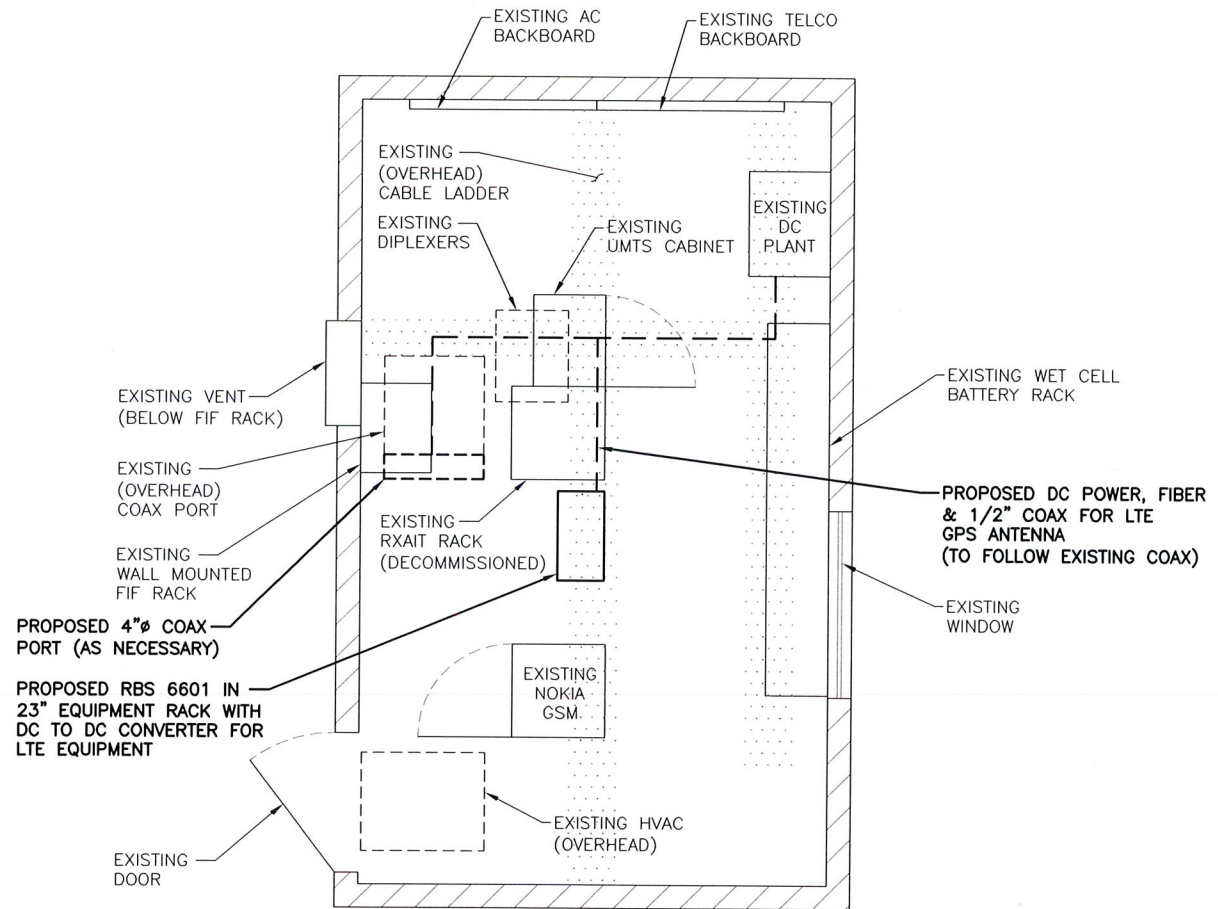
REV	DESCRIPTION	DATE
001	GENERAL NOTES (LTE)	
001	GN-1	





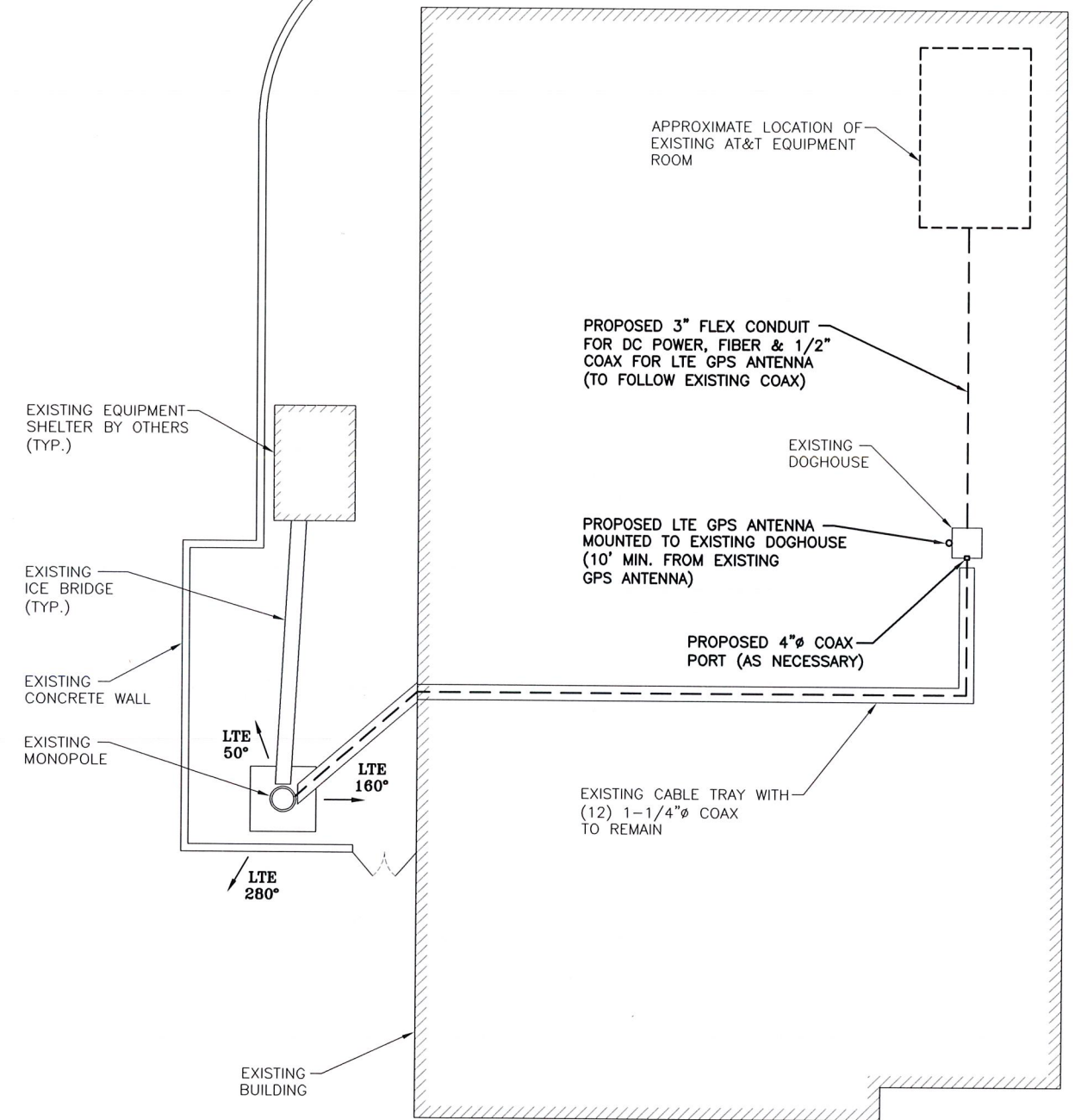
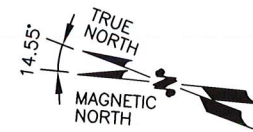
**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



**EQUIPMENT PLAN**

SCALE: 1/2"=1'-0"



**COMPOUND PLAN**

SCALE: 1/8"=1'-0"



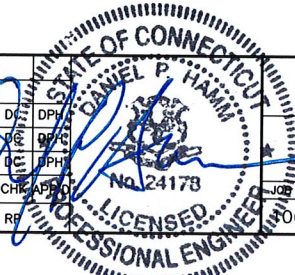
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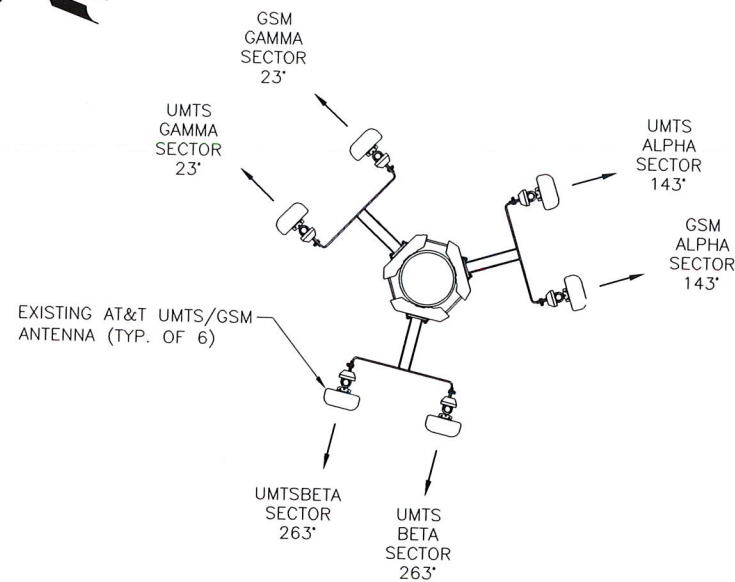
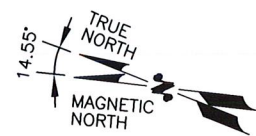
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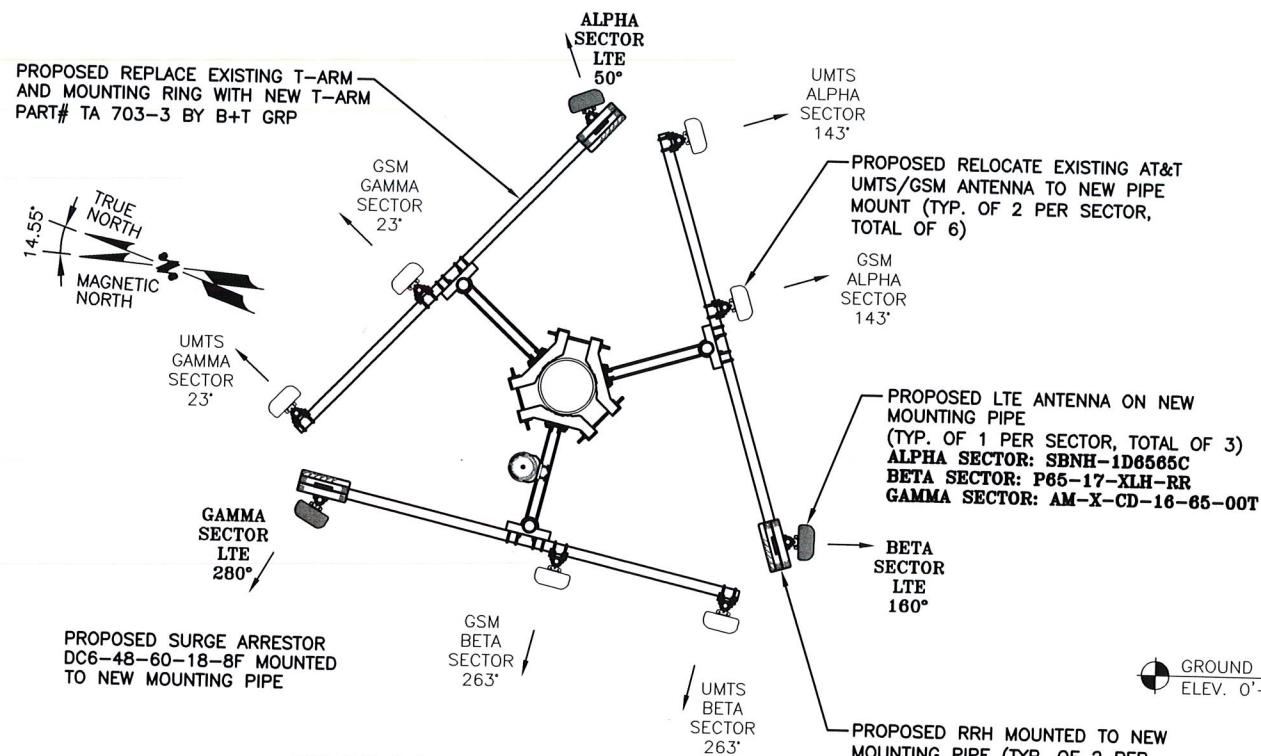
								AT&T	
								EQUIPMENT & COMPOUND PLAN (LTE)	
NO.	DATE	REVISIONS		BY	CHKD	JOB NUMBER		DRAWING NUMBER	REV
2	08/16/12	CONSTRUCTION REVISED		HC	DC	061.01		A-1	2
1	04/18/12	ISSUED FOR CONSTRUCTION		SF	DC				
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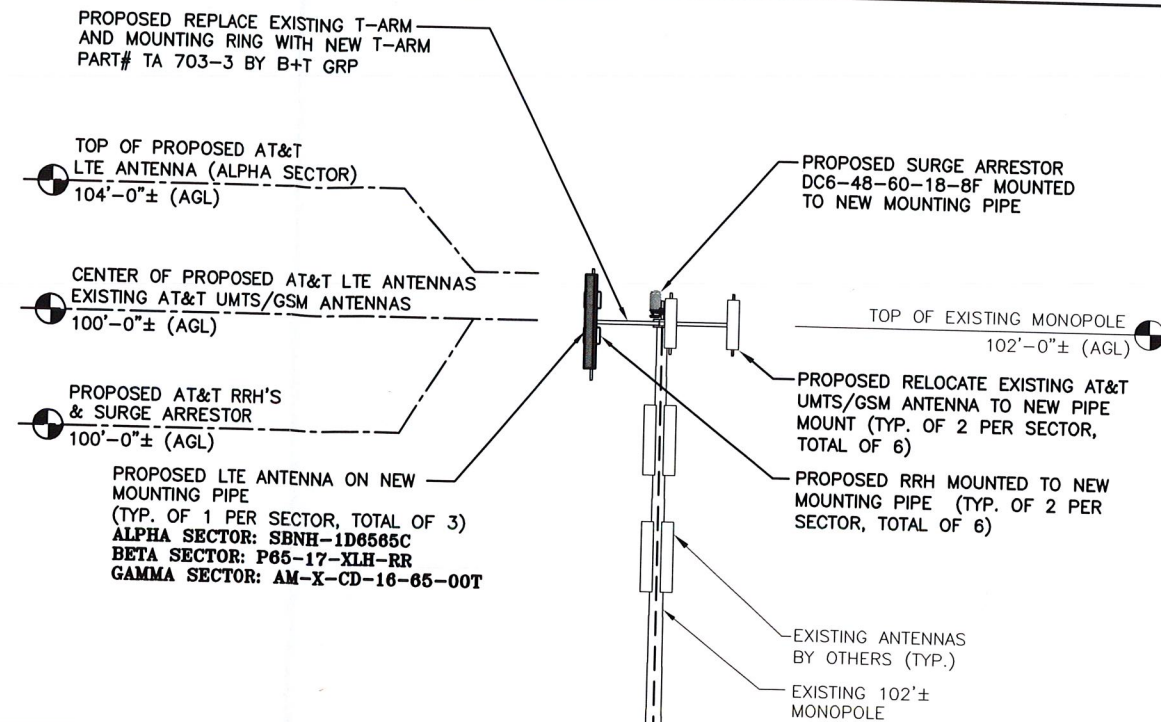




**EXISTING UMTS/GSM ANTENNA PLAN**  
SCALE: N.T.S.



**PROPOSED LTE ANTENNA PLAN**  
SCALE: N.T.S.



**WEST ELEVATION**

SCALE: 1/8"=1'-0"

GROUND LEVEL  
ELEV. 0'-0"± (AGL)

PROPOSED 3" FLEX CONDUIT FOR DC POWER & FIBER (TO FOLLOW EXISTING COAX)

EXISTING EQUIPMENT SHELTER BY OTHERS (TYP.)

EXISTING ICE BRIDGE WITH (12) 1-1/4"Ø COAX TO REMAIN

EXISTING CONCRETE WALL



APPROXIMATE LOCATION OF EXISTING AT&T EQUIPMENT ROOM

**NOTE:**

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**

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AT&T

ELEVATION & ANTENNA LAYOUT (LTE)



PROPOSED ANTENNA DOWNTILT KIT  
 PROPOSED 3" SCH. 40 MOUNTING PIPE

PROPOSED RRH MOUNTED TO NEW MOUNTING PIPE (TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED SURGE ARRESTOR DC6-48-60-18-8F MOUNTED TO PROPOSED 2-3/8" MOUNTING PIPE

PROPOSED 2-3/8" x 24" LONG MOUNTING PIPE

PROPOSED (4) 1/2" STAINLESS STEEL BOLTS  
 PROPOSED (2) 8"x8"x3/8" PLATES

**NOTES:**

1. REFER TO RF CONFIG & SECTOR SCHEMATICS FOR MODEL, TYPE & QUANTITY REQUIRED PER SECTOR

PROPOSED REPLACE EXISTING T-ARM AND MOUNTING RING WITH NEW T-ARM PART# TA 703-3 BY B+T GRP

**SURGE ARRESTOR SIDE VIEW**

**PROPOSED LTE ANTENNA, RRH & SURGE ARRESTOR MOUNTING DETAIL**

SCALE: N.T.S.

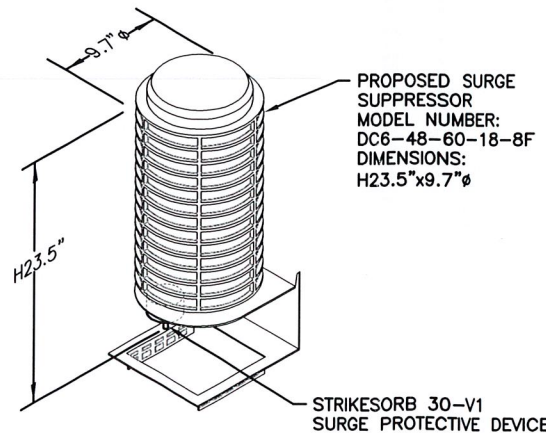
PROPOSED LTE ANTENNA ON NEW MOUNTING PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 3)  
 ALPHA SECTOR: H96.4"xW11.9"xD7.1"  
 BETA SECTOR: H96"xW12"xD6"  
 GAMMA SECTOR: H72"xW11.8"xD5.9"

PROPOSED RRH DIMENSIONS: H17.8"xW17"xD7.2"

NOTE: MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**RRH DETAIL**

SCALE: N.T.S.



PROPOSED SURGE SUPPRESSOR MODEL NUMBER: DC6-48-60-18-8F DIMENSIONS: H23.5"x9.7"

STRIKESORB 30-V1 SURGE PROTECTIVE DEVICE

NOTE: MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**DC SURGE SUPPRESSOR DETAIL**

SCALE: N.T.S.

**NOTE:**

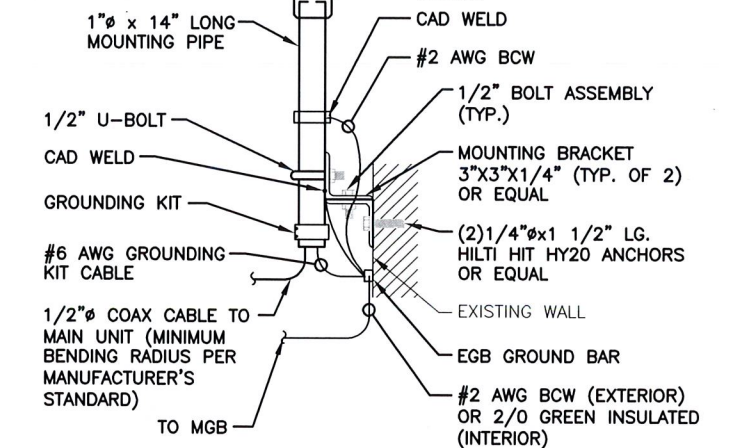
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

**NOTE:**

GPS TO BE MOUNTED WITH SOUTHWESTERN EXPOSURE, 10' (MIN.) FROM EXISTING GPS ANTENNA.



**GPS MOUNTING DETAIL**

SCALE: N.T.S.

EXISTING ANTENNA DOWNTILT KIT

PROPOSED RELOCATE EXISTING AT&T UMTS/GSM ANTENNA TO NEW PIPE MOUNT (TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED REPLACE EXISTING T-ARM AND MOUNTING RING WITH NEW T-ARM PART# TA 703-3 BY B+T GRP

EXISTING TMA TO BE RELOCATED (TYP.)

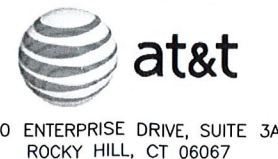
PEXISTING JUMPER

**PROPOSED UMTS/GSM ANTENNA MOUNTING DETAIL**

SCALE: N.T.S.



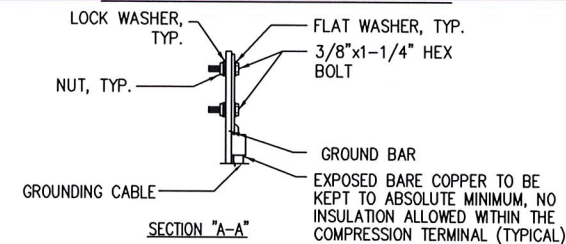
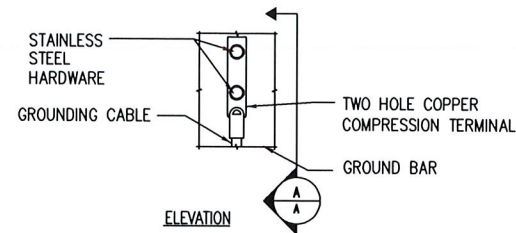
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						AT&T	
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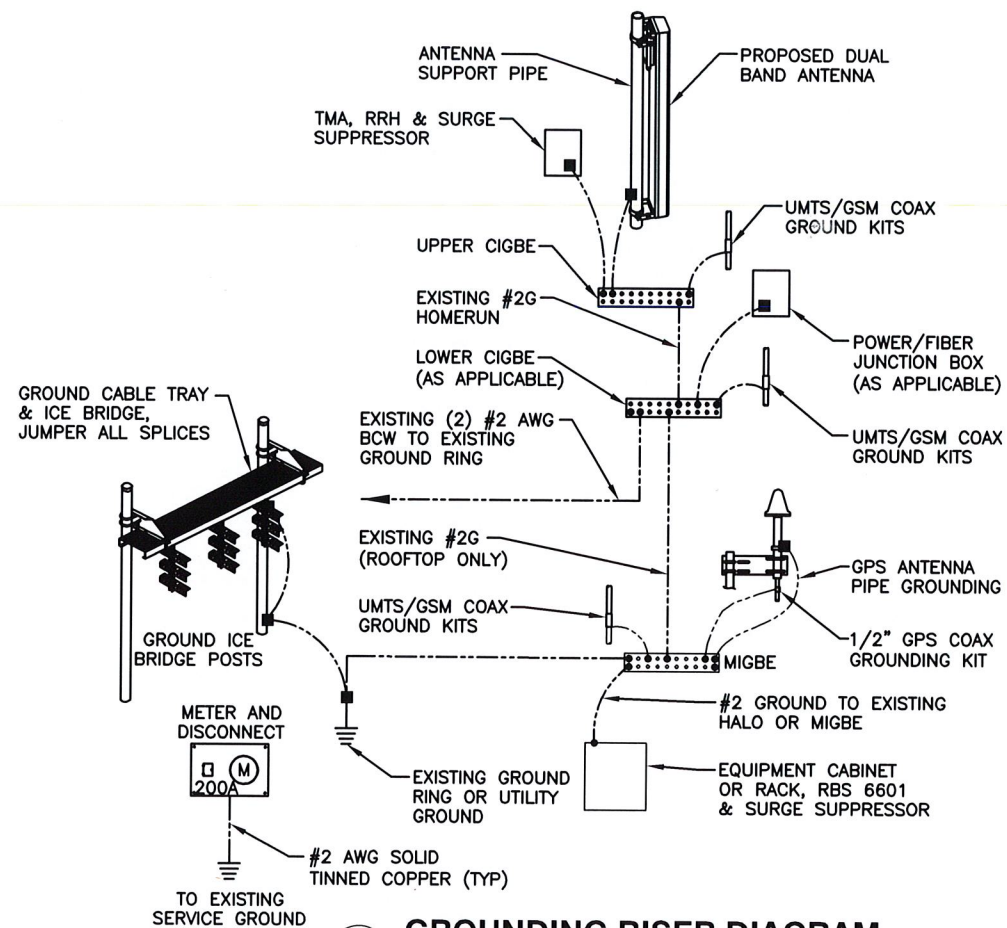




- NOTE:
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
  - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
  - CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

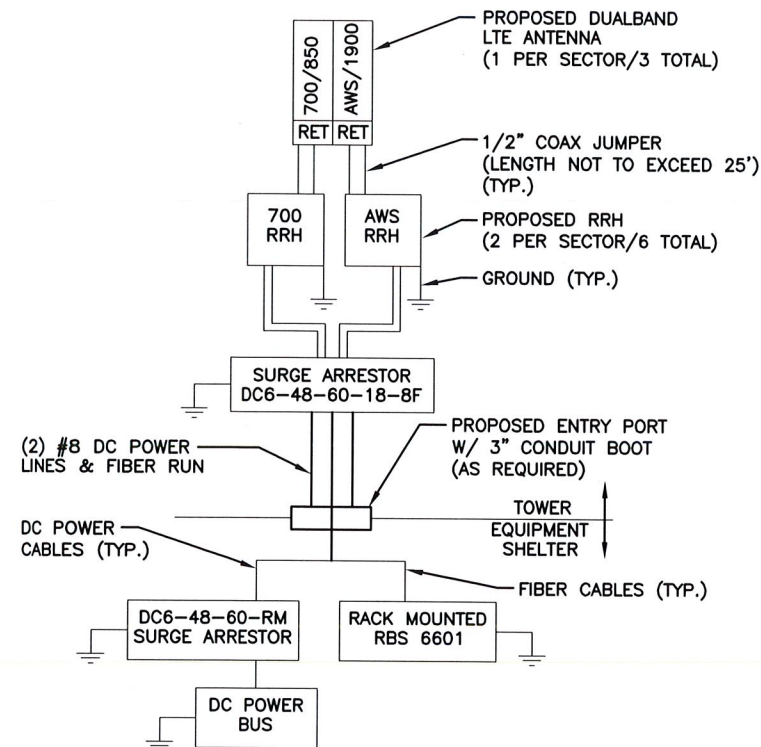
**TYPICAL GROUND BAR CONNECTION DETAIL**

2  
—  
N.T.S.



**GROUNDING RISER DIAGRAM**

1  
—  
N.T.S.



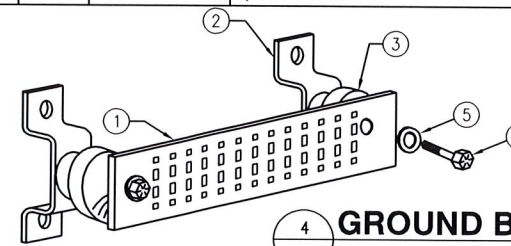
NOTES:

- CONTRACTOR TO CONFIRM ALL PARTS.
- INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.

**PLUMBING DIAGRAM**

3  
—  
N.T.S.

WIRELESS SOLUTIONS INC.			
NO.	REQ.	PART NO.	DESCRIPTION
①	1	HLGB-0420-IS	SOLID GND. BAR (20"x4"x1/4")
②	2	—	WALL MTG. BRKT.
③	2	—	INSULATORS
④	4	—	5/8"-11x1" H.H.C.S.
⑤	4	—	5/8 LOCKWASHER



**GROUND BAR - DETAIL**

4  
—  
N.T.S.

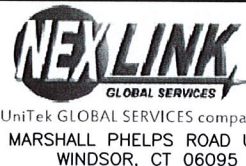
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

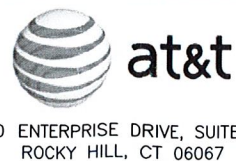
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

**SECTION "A" - SURGE ABSORBERS**

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)



**SITE NUMBER: CT1061**  
**SITE NAME: UNIONVILLE**  
 82 LOVELY STREET  
 FARMINGTON, CT 06085  
 HARTFORD COUNTY



				AT&T	
2	08/16/12	CONSTRUCTION REVISED	HC	DC	DPH
1	04/18/12	ISSUED FOR CONSTRUCTION	SF	DC	DPH
0	03/21/12	ISSUED FOR REVIEW	RF	DC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP
SCALE: AS SHOWN		DESIGNED BY: RP	DRAWN BY: RP		
				PROJECT NUMBER	DRAWING NUMBER
				061.01	G-1
				REV	2

