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

August 10, 2012

Douglas Talmadge
New Cingular Wireless PCS, LLC
147 Austin Ryer Lane
Branford, CT 06405

RE: **EM-CING-002-120726** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 1 Deerfield Lane, Ansonia, Connecticut.

Dear Mr. Talmadge:

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:

- The proposed coax and auxiliary equipment be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated July 6, 2012 and stamped by Christopher Murphy; and
- Following the installation of the proposed equipment, AT&T shall provide documentation certifying that the installation complied with the engineer's recommendation.
- 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 July 24, 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,

LRoberts

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable James T. DellaVolpe, Mayor, City of Ansonia
Peter Crabtree, Zoning Enforcement Officer, City of Ansonia

STATE OF CONNECTICUT
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July 26, 2012

The Honorable James T. DellaVolpe
Mayor
City of Ansonia
City Hall
253 Main Street
Ansonia, CT 06401-1866

RE: **EM-CING-002-120726** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 1 Deerfield Lane, Ansonia, Connecticut.

Dear Mayor DellaVolpe:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by August 9, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/cm

Enclosure: Notice of Intent

c: Peter Crabtree, Zoning Enforcement Officer, City of Ansonia

CSC
CONNECTICUT SITING COUNCIL

EM-CING-002-120726

v Cingular Wireless PCS, LLC
147 Austin Ryer ln
Branford, CT 06405
Phone: (203)-410-4531
Douglas Talmadge
Real Estate Consultant

ORIGINAL

July 24, 2012

Hand Delivered

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

RE: New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 1 Deerfield Ln, Ansonia, CT 06401 known to New Cingular Wireless PCS, LLC as site CT2359.

Dear Ms. Roberts:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and/or Long Term Evolution ("LTE") capabilities, and enhance system performance in the state of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell 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 its attachments is being sent to the chief elected official of the municipality in which affected cell site is located.

UMTS offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile ("GSM") communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

LTE is a new high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks. New Cingular Wireless PCS, LLC ("AT&T") will be adding three (3) LTE antennas, six (6) Remote Radio Heads and associated Fiber and DC cabling to their existing equipment on the tower.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The changes to the facility do not constitute modification as defined Connecticut General Statues ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for the R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will not be affected.
2. The proposed changes will not extend the site boundaries. The equipment cabinets will be installed in AT&T's existing equipment shelter.
3. The proposed changes will not increase the noise level at the existing facility by 6 decibels or more.
4. Radio Frequency power density may increase due to the use of one or more GSM channels for UMTS transmissions. Moreover, LTE will utilize additional radio frequencies newly licensed by the FCC for cellular mobile communications. However, the changes 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 environments as calculated for a mixed frequency site.

For the foregoing reasons New Cingular Wireless PCS, LLC respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (203)-410-4531 or email DTalmadge@Transcendwireless.com with questions concerning this matter.
Thank you for your consideration.

Sincerely,

Douglas Talmadge
Real Estate Consultant

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

Calculated Radio Frequency Emissions

at&t

CT2359

(Ansonia – Deerfield Lane)

1 Deerfield Lane, Ansonia, CT 06401

(a.k.a. 2 Osbourne Lane)

July 12, 2012

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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 1 Deerfield Lane in Ansonia, CT. The coordinates of the tower are 41-21-2.70 N, 73-2-57.30 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
Cingular GSM	*147*	*1900*	*2*	*296*	*0.0099*	*1.0000*	*0.99%*
Cingular GSM	*147*	*880*	*4*	*296*	*0.0197*	*0.5867*	*3.36%*
Cingular UMTS	*147*	*880*	*1*	*500*	*0.0083*	*0.5867*	*1.42%*
T-Mobile GSM	167.5	1945	8	113	0.0116	1.0000	1.16%
T-Mobile UMTS	167.5	2100	2	639	0.0164	1.0000	1.64%
Clearwire	127	2496	2	153	0.0068	1.0000	0.68%
Clearwire	127	11000	1	211	0.0047	1.0000	0.47%
Verizon cellular	157	880	9	200	0.0263	0.5867	4.48%
Verizon PCS	157	1970	6	200	0.0175	1.0000	1.75%
Pocket	137	2130	3	631	0.0363	1.0000	3.63%
AT&T UMTS	148	880	2	565	0.0019	0.5867	0.32%
AT&T UMTS	148	1900	2	875	0.0029	1.0000	0.29%
AT&T LTE	148	734	1	1615	0.0027	0.4893	0.54%
AT&T GSM	148	880	1	283	0.0005	0.5867	0.08%
AT&T GSM	148	1900	4	525	0.0034	1.0000	0.34%
						Total	**15.37%**

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 FDH Engineering, Inc Structural Analysis dated July 6, 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 **15.37% 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 12, 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

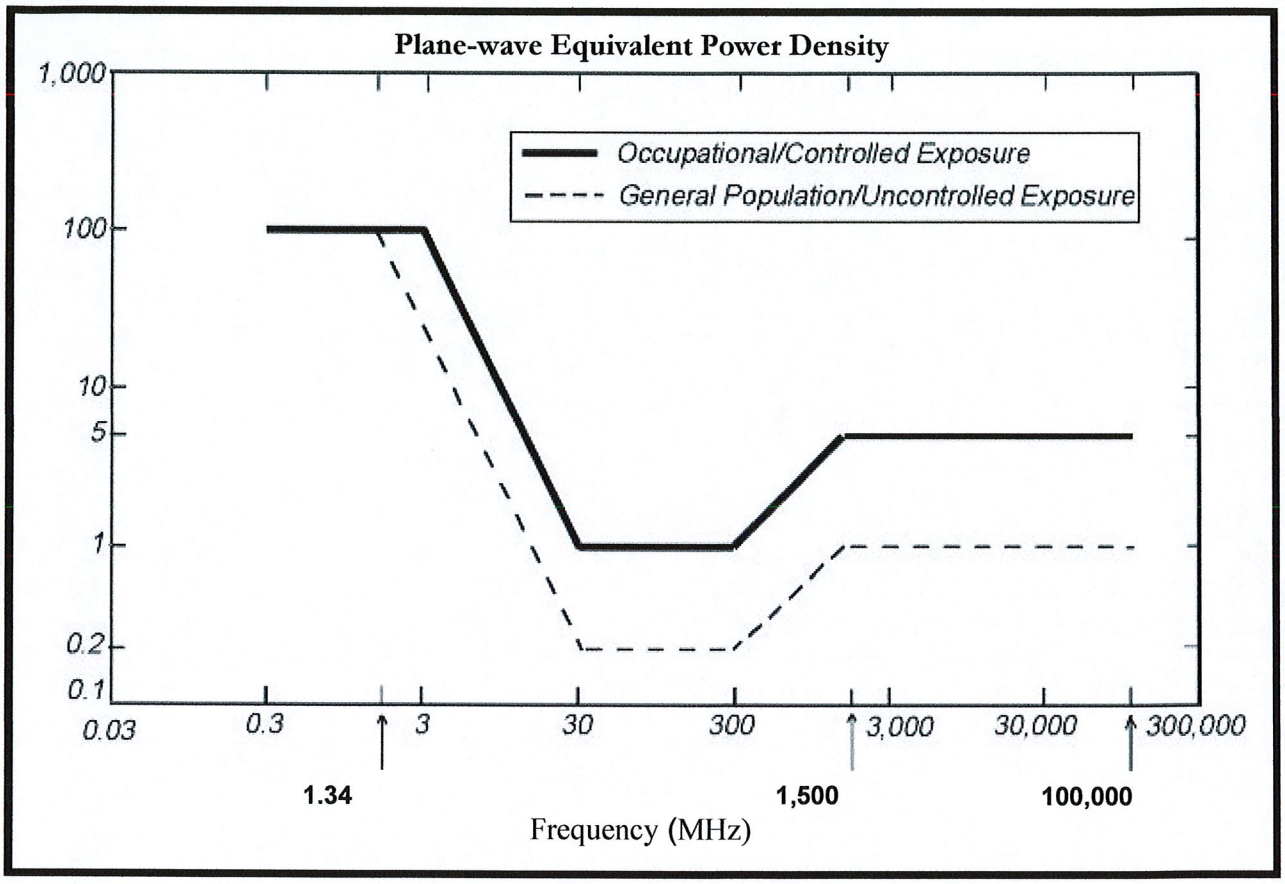
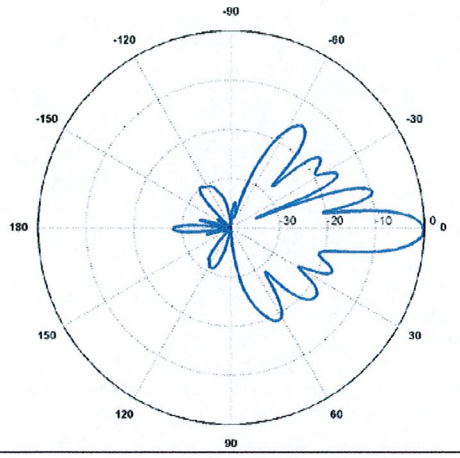


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

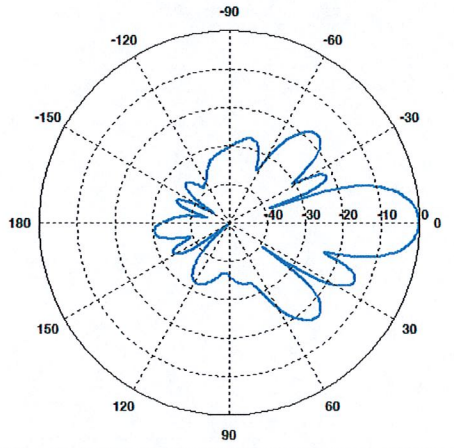
700 MHz

Manufacturer:	Powerwave
Model #:	P65-17-XLH-RR
Frequency Band:	698-806 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	8.4°
Horizontal Beamwidth:	70°
Polarization:	Dual Linear ± 45°
Size L x W x D:	96.0" x 12.0" x 6.0"



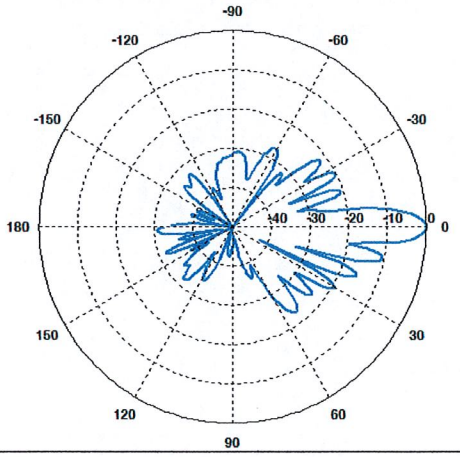
850 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	824-896 MHz
Gain:	11.4 dBd
Vertical Beamwidth:	15°
Horizontal Beamwidth:	85°
Polarization:	Dual Linear ±45°
Size L x W x D:	55.4" x 11.0" x 5.0"



1900 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	1850-1990 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	7°
Horizontal Beamwidth:	90°
Polarization:	Dual Linear ±45°
Size L x W x D:	55.4" x 11.0" x 5.0"



FDH Engineering, Inc., 6521 Meridien Dr. Raleigh, NC 27616, Ph. 919.755.1012, Fax 919.755.1031

Structural Analysis for SBA Network Services, Inc.

169' Monopole Tower

SBA Site Name: Woodbridge
SBA Site ID: CT13071-A
AT&T Site Name: Ansonia CT Deerfield Lane
AT&T Site ID: CT2359

FDH Project Number 12-06920E S1

Analysis Results

Tower Components	95.3%	Sufficient
Foundation	97.1%	Sufficient

Prepared By:

Brandon T. Compton, EI
Project Engineer

Reviewed By:

Christopher M. Murphy, PE
President
CT PE License No. 25842

FDH Engineering, Inc.
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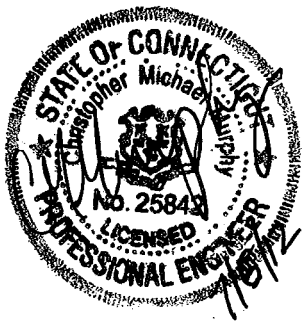

July 6, 2012

Prepared pursuant to TIA/EIA-222-F June 1996 Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut State Building Code

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EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Ansonia, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F* and *2005 Connecticut State Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, soil parameters, foundation dimensions, and member sizes was obtained from:

- Sabre Tower and Poles (Job No. 08-01016) Structural Design Report dated January 30, 2008
- FDH, Inc. (Project No. 08-07136T) TIA Inspection Report dated September 9, 2008
- JGI Eastern, Inc. (Project No. J2085109) Geotechnical Evaluation dated January 29, 2008
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 Connecticut State Building Code* is 85 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from AT&T in place at 148' and 150', the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut State Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed per the original design drawings (see Sabre Job No. 08-01016) and given existing soil parameters (see JGI Eastern, Inc. Project No. J2085109), the foundation should have the necessary capacity to support both the proposed and existing loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut State Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. Proposed coax should be installed inside the pole's shaft.
2. RRU/RRH Stipulation: The equipment may be installed in any arrangement as determined by the client.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines[1]	Carrier	Mount Elevation (ft)	Mount Type
167.5	(3) RFS APXV18-209014 (6) RFS APX16DWV-16DWV-A20 (3) Andrew ATMAA1214 TMAs (6) Ericsson KRY1271/201 TMAs	(18) 1-5/8"	T-Mobile	167.5	(3) 4' T-Arms
157[2]	(4) Decibel DB846F65ZAXY (2) Decibel DB846H80E-SX (6) Antel LPA-185063/12CF (1) Antel BXA-70063/6CF (2) Swedcom SLCP 2X6014 (1) GPS	(18) 1-5/8" (1) 1/2"	Verizon	157	(3) T-Arms
148	(6) Powerwave 7770 (6) Powerwave LGP21401 TMAs (6) Powerwave LGP13519 Diplexers	(12) 1-5/8"	AT&T	148	(3) T-Arms
137	(3) RFS APXV18-206517S-C	(6) 1-5/8"	Pocket	137	(3) Pipe Mounts
127	(3) Argus LLPX310R (3) Samsung 2.5Ghz RRH BTSs (3) Andrew VHLP2-11 Dishes (1) Andrew VHLP800-11 Dish	(3) 5/16" (4) 1/2" (3) 5/8" (3) 1/4"	Clearwire	127	(3) 12' T-Arms

1. Coax installed inside the pole's shaft unless otherwise noted.
2. Verizon may install (6) 1-5/8" coax outside the pole in a single row to 157'.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
150	(6) Ericsson RRUS 11 RRUs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-5/8" (1) 10mm Fiber (2) DC Power	AT&T	150	(1) Andrew MTC3335 Collar Mount
148	(6) Powerwave 7770 (3) KMW AM-X-CD-16-65-00T (6) Powerwave LGP21401 TMAs (6) Powerwave LGP13519 Diplexers			148	(3) T-Arms

RESULTS

The following yield strength of steel for individual members was used for analysis:

Table 2 - Material Strength

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Base Plate	60 ksi
Anchor Bolts	75 ksi

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

Table 3 - Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
L1	169 - 139	Pole	TP30x24x0.1875	39.7	Pass
L2	139 - 89.25	Pole	TP39.58x28.875x0.25	95.3	Pass
L3	89.25 - 40.75	Pole	TP48.78x38.0795x0.375	84.0	Pass
L4	40.75 - 0	Pole	TP56.18x46.7799x0.4375	81.7	Pass
		Anchor Bolts	(16) 2.25" Ø on a 62.75" B.C.	89.8	Pass
		Base Plate	PL 3" Thk. x 61.25" Sq.	66.6	Pass

*Capacities include 1/3 allowable stress increase for wind per TIA/EIA-222-F standards.

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis* *(TIA/EIA-222-F)*	Original Design *(ANSI/TIA-222-G)*
Axial	42 k	60 k
Shear	31 k	44 k
Moment	3,718 k-ft	4,977 k-ft

*Foundation determined adequate per independent analysis.

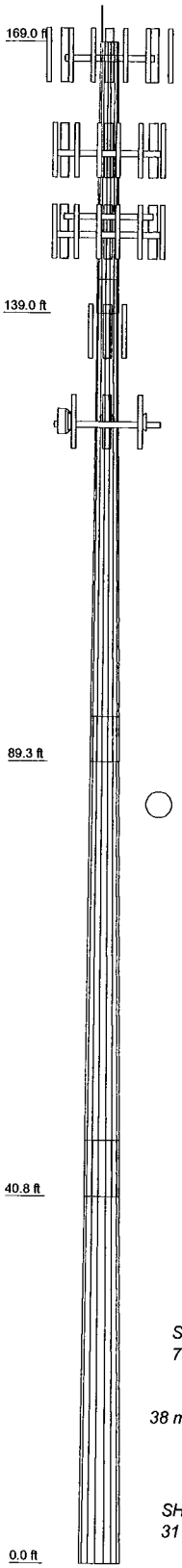
GENERAL COMMENTS

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

LIMITATIONS

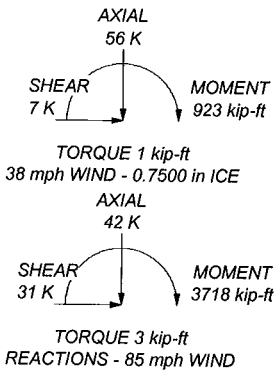
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX



Section	1	2	3	4
Length (ft)	30.00	53.50	53.50	47.00
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3750	0.4375
Socket Length (ft)	3.75	5.00	6.25	
Top Dia (in)	24.0000	28.8750	38.0795	46.7799
Bot Dia (in)	30.0000	39.5800	48.7800	56.1800
Grade	A572-65			
Weight (K)	1.6	4.9	9.3	11.3

27.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	169	(2) Pipe Mount	150
APXV18-209014-C w/ mount pipe	167.5	(2) Pipe Mount	150
APXV18-209014-C w/ mount pipe	167.5	(2) Pipe Mount	150
APXV18-209014-C w/ mount pipe	167.5	(1) Andrew TMC3335 Collar Mount MNT	150
ATMAA1412 TMA	167.5		
ATMAA1412 TMA	167.5	(2) LGP 13519 Diplexer	148
ATMAA1412 TMA	167.5	(2) LGP 13519 Diplexer	148
(3) 4' T-Arms	167.5	(3) T-Arms	148
(2) APX16DWV-16DWVS-A20 w/ mount pipe	167.5	(2) 7770 w/Mount Pipe	148
		AM-X-CD-16-65-00T w/ Mount Pipe	148
(2) APX16DWV-16DWVS-A20 w/ mount pipe	167.5	AM-X-CD-16-65-00T w/ Mount Pipe	148
		AM-X-CD-16-65-00T w/ Mount Pipe	148
(2) APX16DWV-16DWVS-A20 w/ mount pipe	167.5	(2) LGP 21401 TMA	148
		(2) LGP 21401 TMA	148
(2) KRY1271/201 TMA	167.5	(2) LGP 21401 TMA	148
(2) KRY1271/201 TMA	167.5	(2) LGP 13519 Diplexer	148
(2) KRY1271/201 TMA	167.5	(2) 7770 w/Mount Pipe	148
(2) DB846F65ZAXY w/Mount Pipe	157	(2) 7770 w/Mount Pipe	148
(2) DB846F65ZAXY w/Mount Pipe	157	APXV18-206517 w/ mount pipe	137
(2) DB846H80E-SX w/Mount Pipe	157	APXV18-206517 w/ mount pipe	137
(2) LPA-185063/12CF w/ mount pipe	157	APXV18-206517 w/ mount pipe	137
(2) LPA-185063/12CF w/ mount pipe	157	LLPX310R w/ mount pipe	127
(2) LPA-185063/12CF w/ mount pipe	157	2.5 Ghz RRH BTS	127
BXA-70063/6CF w/ mount pipe	157	2.5 Ghz RRH BTS	127
(3) T-Arms	157	2.5 Ghz RRH BTS	127
GPS	157	(3) 12' T-Arms	127
SLCP 2X6014 w/Mount Pipe	157	LLPX310R w/ mount pipe	127
SLCP 2X6014 w/Mount Pipe	157	LLPX310R w/ mount pipe	127
(2) RRUS 11 RRU	150	VHLP800-11	127
(2) RRUS 11 RRU	150	VHLP2-11	127
(2) RRUS 11 RRU	150	VHLP2-11	127
DC6-48-60-18-8F Surge Arrestor	150	VHLP2-11	127

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 85 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. TOWER RATING: 95.3%

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job: Woodbridge, CT13071-A			
Project: 12-06920E S1			
Client: SBA Network Services, Inc.	Drawn by: Brandon Compton		App'd:
Code: TIA/EIA-222-F	Date: 07/06/12		Scale: NTS
Path: \\FDH-SERVER\Projects\12 Projects\12 - Acad\12-06920E\Woodbridge, CT-S1 - SA ATT\Analysis\Eng\Woodbridge, CT13071-A.en			Dwg No. E-1

at&t

WIRELESS COMMUNICATIONS FACILITY

CT2359

ANSONIA CT - DEERFIELD LANE

1 DEERFIELD LANE

ANSONIA, CT 06401

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

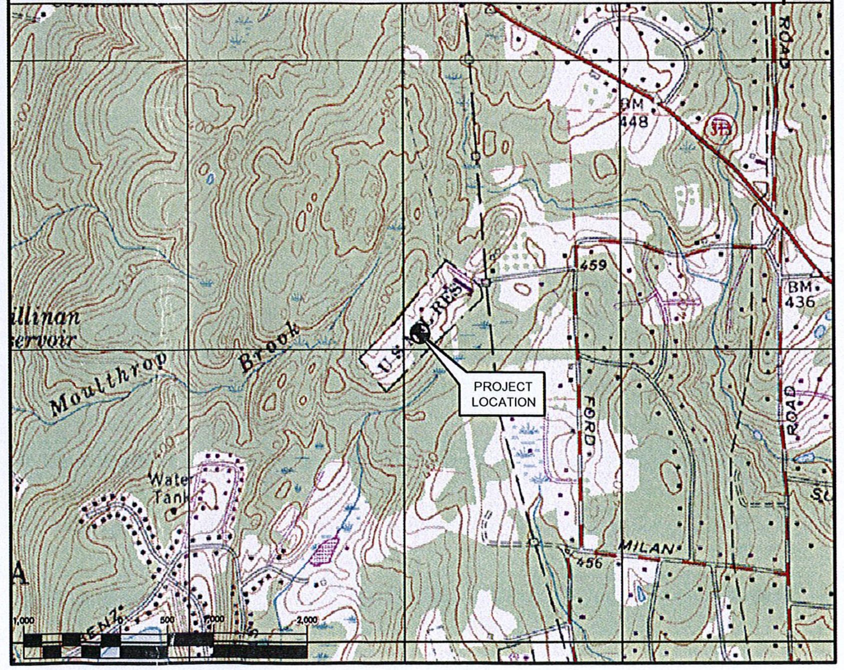
TO: 1 DEERFIELD LANE
ANSONIA, CT 06401

1. Take ramp left for I-91 South	9.7 mi
2. At exit 17, take ramp right for CT-15 South toward W. Cross Pkwy / E. Main St	21.8 mi
3. Take ramp right for CT-34 West / Derby Ave	0.8 mi
4. Turn right onto Sodom Ln	0.5 mi
5. Turn right onto Marshall Ln	1.0 mi
6. Turn right onto CT-243 / Pulaski Hwy	0.2 mi
7. Turn left onto Benz St	0.6 mi
8. Turn right onto Ford St, and then immediately turn left onto Benz St	0.5 mi
9. Turn right onto Milan Rd	343 ft
10. Keep straight onto Deerfield Ln	48 ft
Arrive at 1 Deerfield Ln, Ansonia, CT 06401	

VICINITY MAP

SCALE: 1" = 1000'

NORTH



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. AN LTE BASEBAND EQUIPMENT UNIT (RBS) WILL BE INSTALLED WITHIN THE EXISTING AT&T EQUIPMENT SHELTER.
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:	CT2359
AT&T SITE NAME:	ANSONIA CT – DEERFIELD LN
SITE ADDRESS:	1 DEERFIELD LANE ANSONIA, CT 06401
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°-21'-02.7"N LONGITUDE: 73°-02'-57.3"W GROUND ELEVATION: ±470'AMSL

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
N-1	NOTES AND SPECIFICATIONS	1
C-1	PLANS AND ELEVATION	1
C-2	LTE EQUIPMENT 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	4/23/12	FLO	DEB	CONSTRUCTION – CLIENT REVIEW
1	7/12/12	DEB	CFC	CONSTRUCTION

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Branford, CT 06405

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WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE

CT2359

ANSONIA CT - DEERFIELD LN

1 DEERFIELD LANE
ANSONIA, CT 06401

DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C036

TITLE SHEET

T-1

Sheet No. 1 of 6

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): 85 MPH (FASTEST MILE), EQUIVALENT TO 105 MPH (3 SECOND GUST).
   - BASIC WIND SPEED (OTHER STRUCTURE): 105 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.

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	7/12/12	DEB	CFC	CONSTRUCTION
0	4/23/12	FLO	DEB	CONSTRUCTION - CLIENT REVIEW

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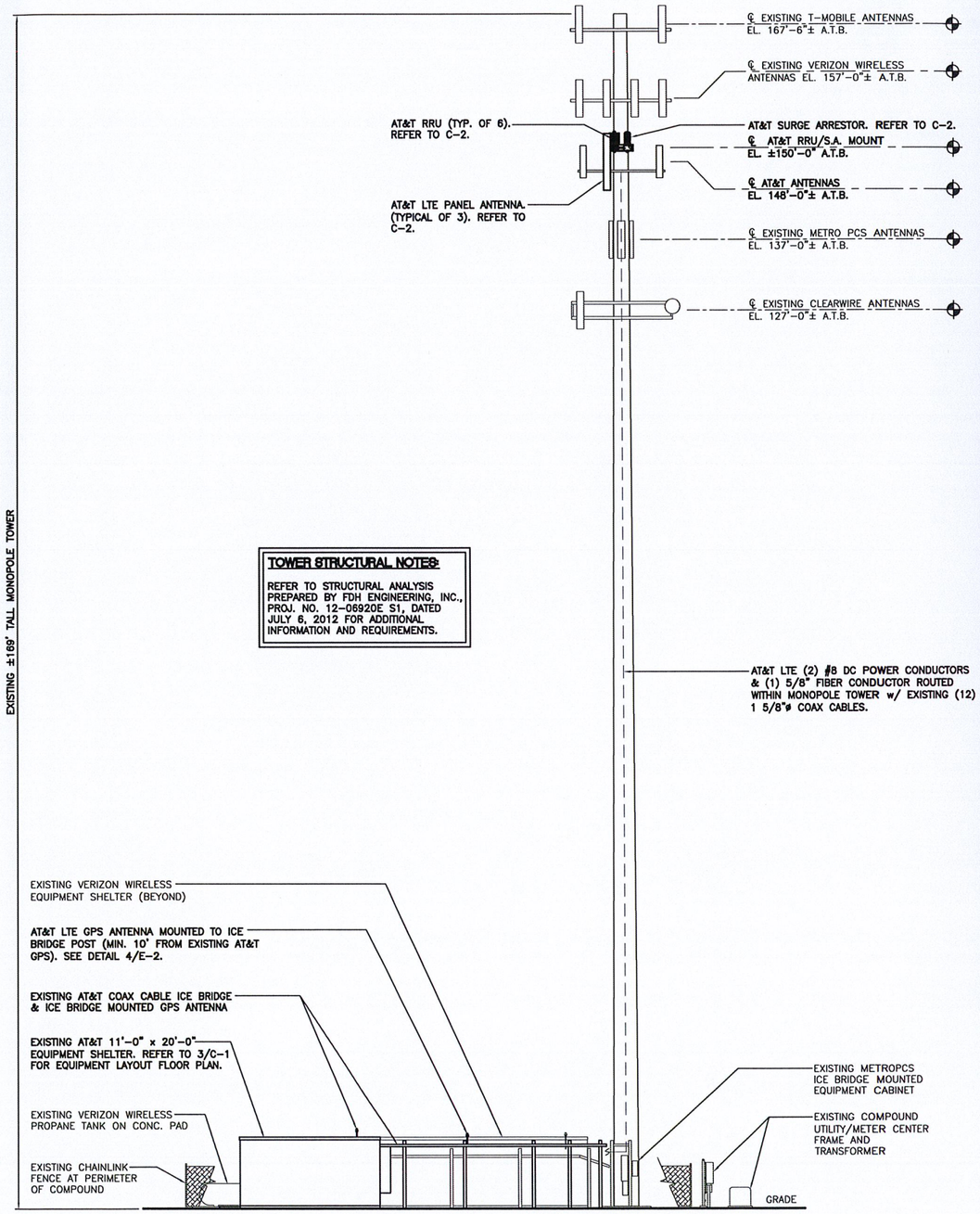
CT2359
ANSONIA CT - DEERFIELD LN

1 DEERFIELD LANE
ANSONIA, CT 06401

DATE:	03/28/12
SCALE:	AS NOTED
JOB NO.	11118.C036

NOTES AND SPECIFICATIONS

N-1



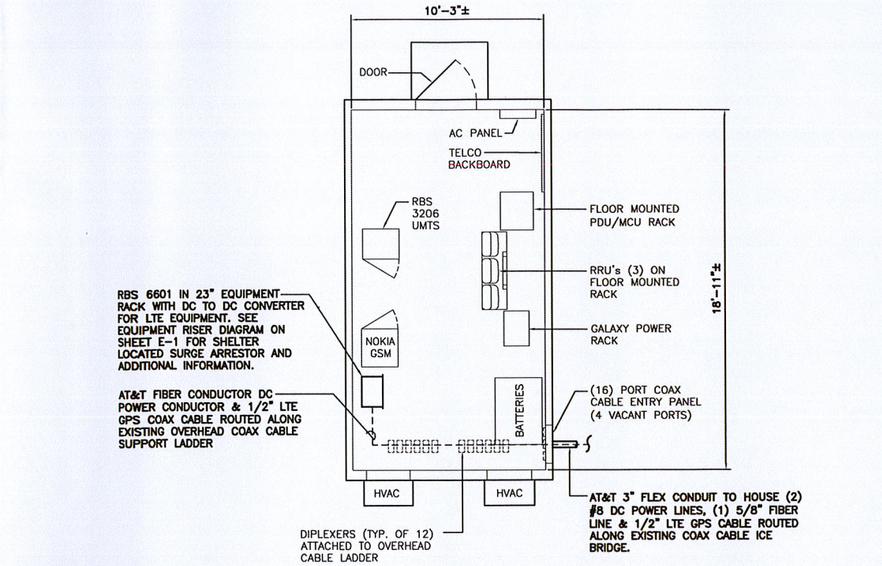
TOWER STRUCTURAL NOTES:

REFER TO STRUCTURAL ANALYSIS PREPARED BY FDH ENGINEERING, INC., PROJ. NO. 12-06920E S1, DATED JULY 6, 2012 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

2/C-1 SOUTHWEST ELEVATION

SCALE: 1" = 10'-0"

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

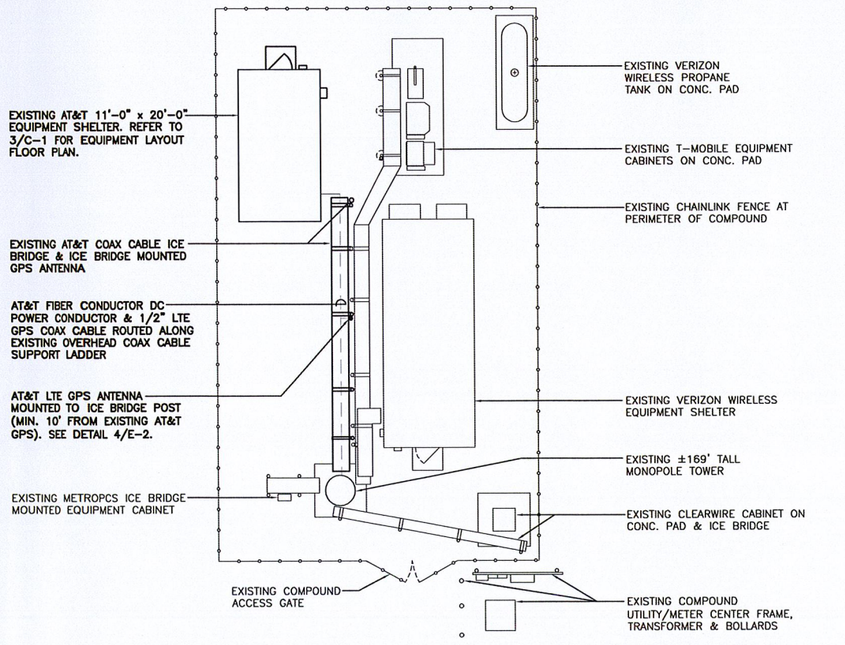


3/C-1 EQUIPMENT SHELTER FLOOR PLAN

SCALE: 1/4" = 1'-0"

APPROX. NORTH

GRAPHIC SCALE
4 0 2 4 8 16
(IN FEET)
1 inch = 4 ft.



2/C-1

1/C-1 COMPOUND PLAN

SCALE: 1" = 10'-0"

APPROX. NORTH

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

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

REV.	DATE	DRAWN BY	CHK'D BY	
1	7/12/12	DEB	CFC	CONSTRUCTION - CLIENT REVIEW
0	4/23/12	FLO	DEB	CONSTRUCTION

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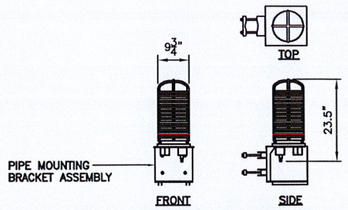
PLANS AND ELEVATION

C-1

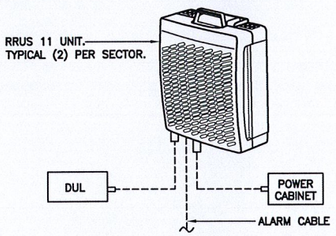
Sheet No. 3 of 6



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.

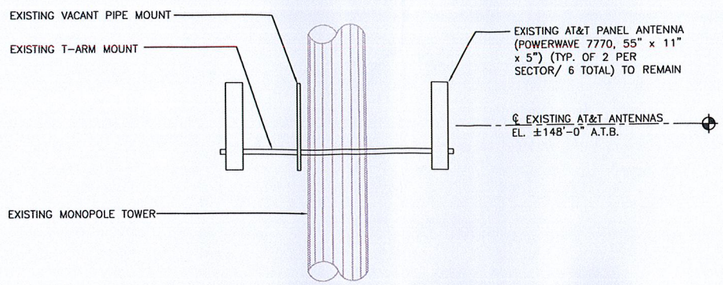
8 C-2 SURGE ARRESTOR DETAIL
NOT TO SCALE



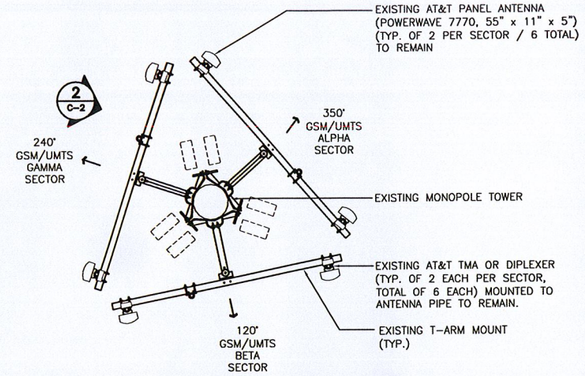
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 11	17.8"L x 17.3"W x 7.2"D	BAND 4: 44 LBS. BAND 12: 50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. SIDE: 0" MIN.

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

8 C-2 RRU DETAIL
NOT TO SCALE

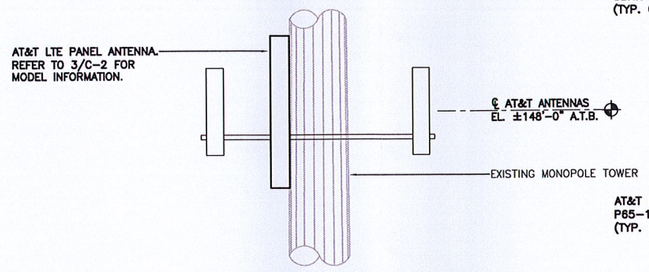


2 C-2 EXISTING ANTENNA SECTOR ELEVATION
SCALE: 1/4" = 1'-0"

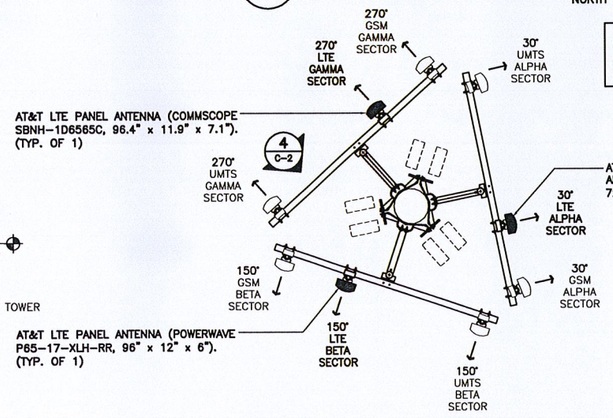


1 C-2 EXISTING ANTENNA PLAN
SCALE: 1/4" = 1'-0"

APPROX. NORTH



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

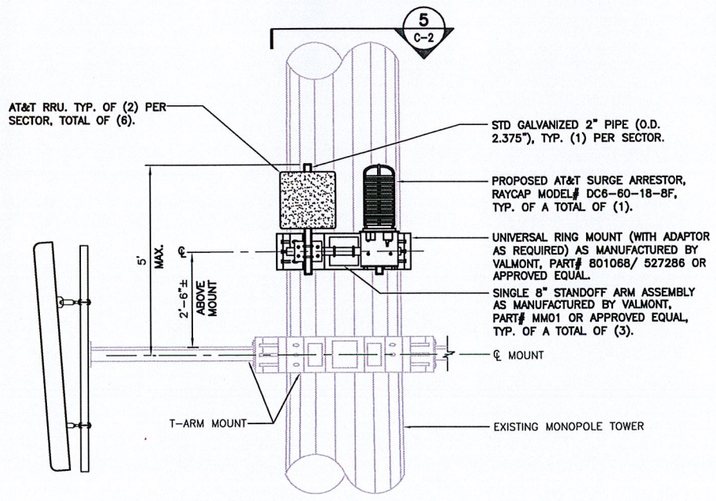


NOTE:
ROTATE T-ARM MOUNT AS REQUIRED TO ACCOMMODATE PROPOSED AZIMUTHS.

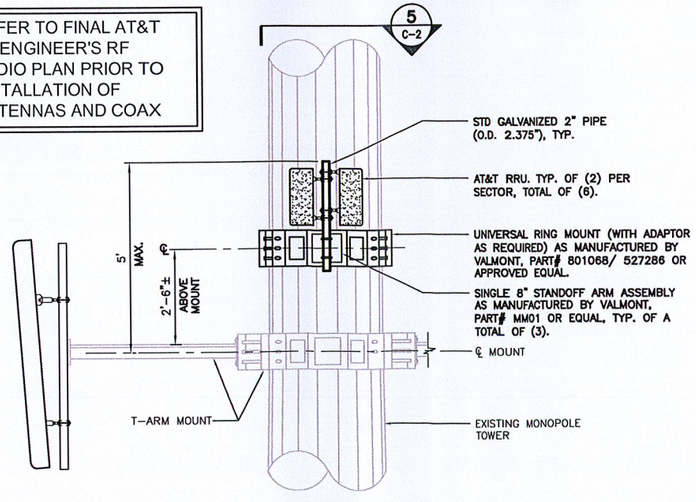
3 C-2 PROPOSED ANTENNA PLAN
SCALE: 1/4" = 1'-0"

APPROX. NORTH

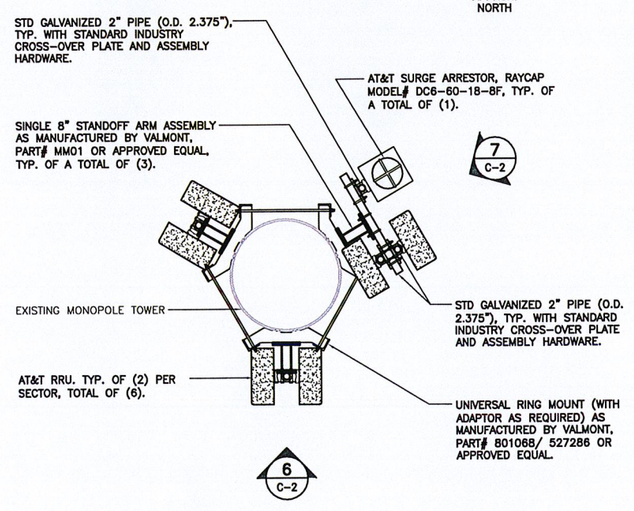
REFER TO FINAL AT&T RF ENGINEER'S RF RADIO PLAN PRIOR TO INSTALLATION OF ANTENNAS AND COAX



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



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



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

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DRAWN BY:	FLO
CHK'D BY:	CFC

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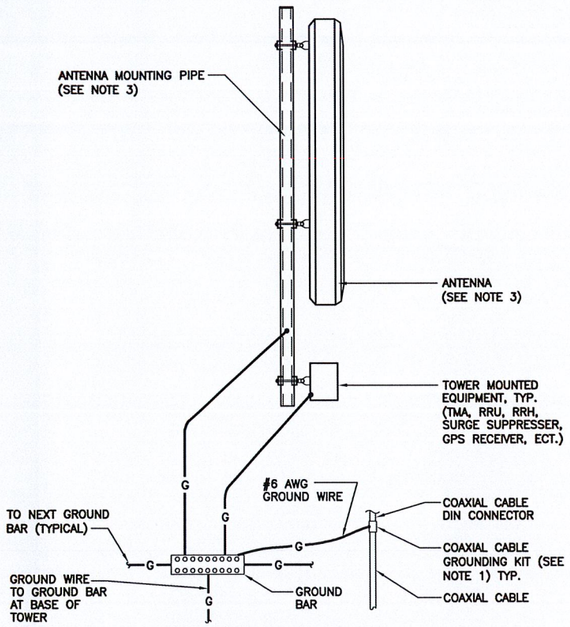
LTE EQUIPMENT DETAILS

C-2

Sheet No. 4 of 6

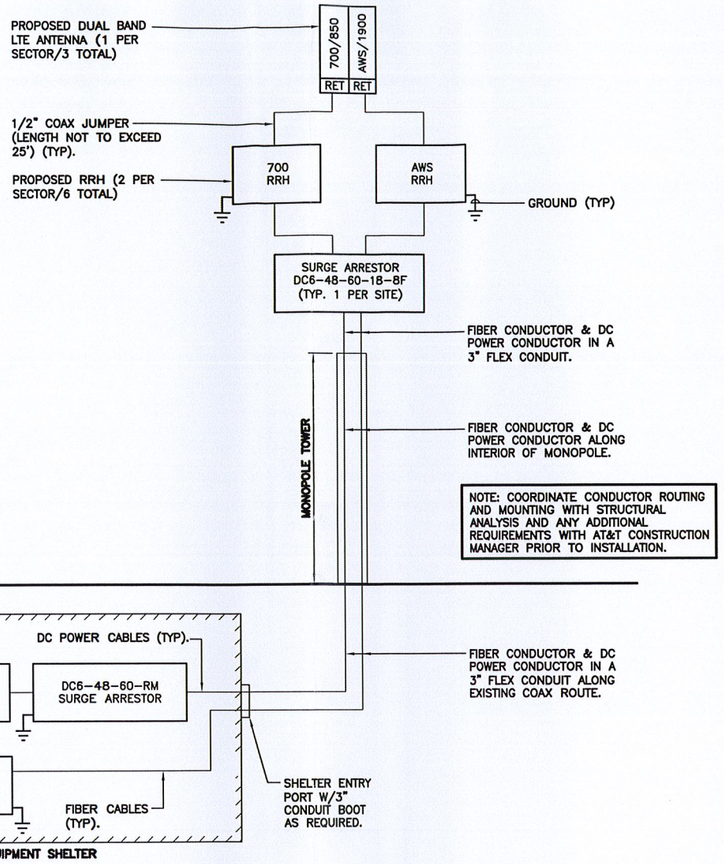


NOTES:

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

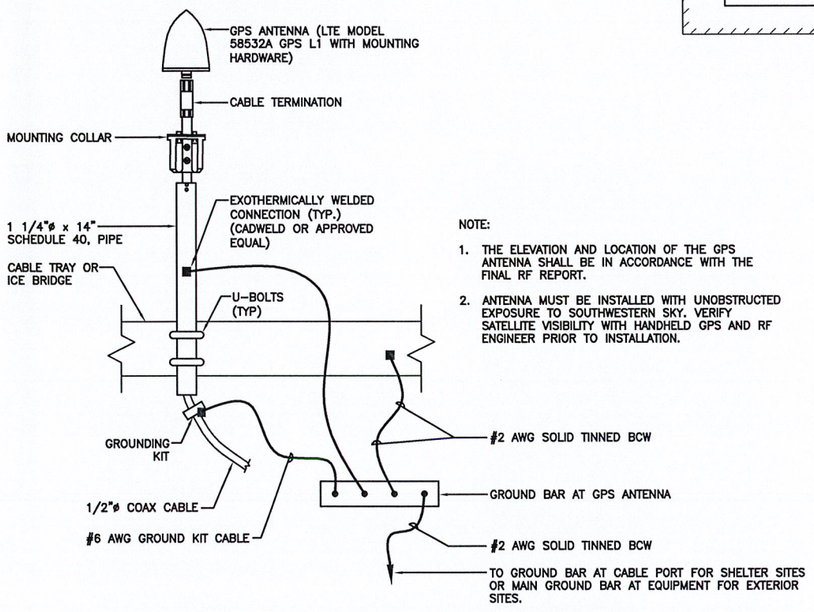


NOTES:

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.

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ELECTRICAL DETAILS AND NOTES

E-1

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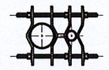
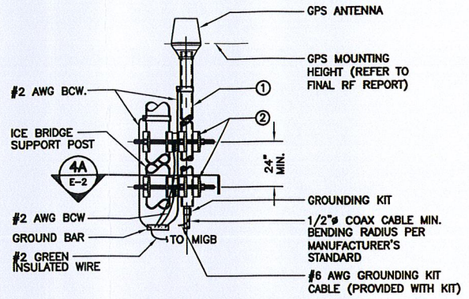
BILL OF MATERIALS		
ITEM	DESCRIPTION	QUANTITY
(1)	2-1/2"ø SCH. 40 x 8'-0" LG. MAX SS OR GALV. PIPE	1
(2)	UNIVERSAL CLAMP SET.	2



4A / E-2 **PLAN VIEW**
NOT TO SCALE

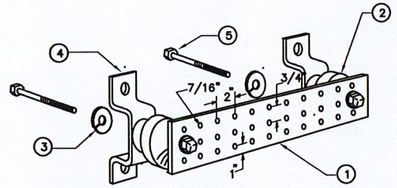
NOTES:

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

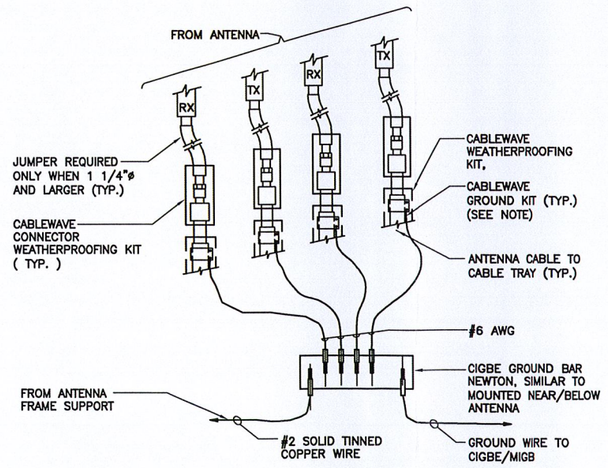
4 / E-2 **GPS GROUNDING/MOUNTING BRACKET DETAILS**
NOT TO SCALE



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.

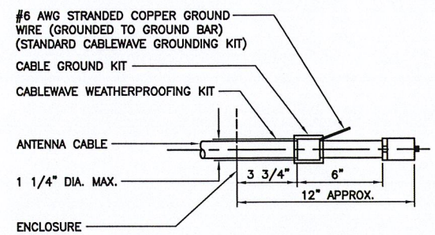
1 / E-2 **GROUND BAR DETAIL**
NOT TO SCALE



NOTE:

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

3 / 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.

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

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CHK'D BY:	CKD

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ELECTRICAL DETAILS

E-2

Sheet No. 6 of 6