



20 Commercial St

Branford, CT 06405
Phone: (203) 208-0806
Fax: (203) 488-4820

June 4, 2015

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051
Attn: Ms. Melanie Bachman, Executive Director

Re: Notice of Exempt Modification Application
33 Boardman Road
New Milford, CT

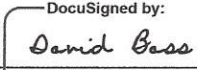
Dear Ms. Bachman,

On behalf of New Cingular Wireless PCS, LLC ("AT&T"), enclosed for filing are an original and two (2) copies of AT&T's Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site.

I also enclose herewith a check in the amount of \$625.00 representing the fee for the Notice of Exempt Modification.

If you have any questions, please feel free to contact me.

Thank you,

By:  DocuSigned by:
B3070FF9702647A...

Name: David Bass
Vertical Development LLC

CC:

Mayor Pat Murphy
Town Hall
10 Main Street
New Milford, CT 06776

O&G Industries, Inc.
112 Wall Street
Torrington, CT 06790
Attention: Mr. Dan Cretella

siting.council@ct.gov

Notice of Exempt Modification
New Milford – Boardman Road
33 Boardman Road, New Milford CT

New Cingular Wireless PCS, LLC ("AT&T") submits this Notice of Exempt Modification to the Connecticut Siting Council ("Council") pursuant to Sections 16-50j-73 and 16-50j-72(b) of the Regulations of Connecticut State Agencies ("Regulations") in connection with AT&T's planned modification of antennas and associated equipment on an existing 153' monopine located at 33 Boardman Road, in the Town of New Milford, Connecticut. More particularly, AT&T plans to upgrade this site by adding LTE technology to its facilities. The proposed modifications will not increase the tower height, cause a significant adverse change or alteration in the physical or environmental characteristics of the site, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six (6) decibels, add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes, or impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

To better meet the growing voice and data demands of its wireless customers, AT&T is upgrading their network nationwide to include LTE technology, which will provide faster service and better overall performance. Pursuant to the LTE technology upgrade at this site, AT&T will add panel antennas and install RRHs and related equipment within the fenced tower compound.

The existing 153' monopine located at 33 Boardman Road, in the Town of New Milford, Connecticut (lat. 41° 35' 57.85", long. -73° 26' 14.09") is owned by Quarry Stone and Gravel. AT&T's existing facility is located within the Landlord's existing fenced compound. AT&T currently has nine (9) panel antennas (three (3) per sector) with a centerline of 120' installed on the tower. AT&T's base station equipment is located adjacent to the base of the tower within the fenced compound. A site plan depicting this is attached.

AT&T will relocate the following existing antennas and equipment: six (6) existing Powerwave 7777.00 panel antennas (two (2) per sector), three (3) existing KMW AM-X-CD-16-65-00T-RET panel antennas (one (1) per sector), and three (3) Ericsson RRUS-11 (one (1) per sector).

AT&T plans to add the following antennas and equipment: two (2) HPA-65R-BUU-H6 panel antennas and one (1) CCI OPA-65R-LCUU-H8 panel antenna, three (3) RRUS-12 (1 per sector), and three (3) Ericsson A2 modules (1 per sector (attached behind each respective RRU-12)). The height of the tower will not be increased and all antennas, surge suppressors, and RRHs will be installed at the 120' centerline.

The compound's boundaries will not need to be extended. The proposed modifications will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, since it is already a telecommunications installation and the modifications will be compatible with this. Other than brief, construction-related noise, these modifications will not increase noise levels at the tower site boundary by six (6) decibels.

The proposed modifications will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes. A radio frequency emissions analysis prepared by EBI Consulting concludes that the proposed final configuration

(including other carriers on the tower) will emit 49.83% of the allowable FCC established general public limits sampled at the ground level (see page 1 and the 6th page of Radio Frequency Emissions Analysis Report Evaluation of Human Exposure Potential to Non-Ionizing Emissions (the “MPE” Assessment) dated May 15, 2015). Emissions values for additional carriers were based upon values listed in Connecticut Siting Council active database (see the 4th and 6th page of the MPE Assessment dated May 15, 2015). The information used in the report was analyzed as a percentage of current Maximum Permissible Exposure (%MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1 (see the 2nd page of the MPE Assessment).

The proposed modifications will not impair the structural integrity of the facility. Destek Engineering performed a structural analysis of the tower to verify that it can support the proposed loading. The structure and foundation were found to meet the specified TIA requirements and deemed adequate to support the existing and proposed loading, and was rated at 92.5% (see page 6 of the Structural Analysis Report dated June 3, 2015.)

In conclusion, AT&T’s proposed modifications do not constitute a modification subject to the Council’s review because AT&T will not change the height of the tower, will not extend the boundaries of the compound, will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, will not increase the noise levels at the site, will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards, and will not impair the structural integrity of the facility. Therefore, AT&T respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council’s exemption criteria.

**STRUCTURAL ANALYSIS REPORT – REV.1
MONOPOLE**



Prepared For:
Com-Ex Consultants, LLC
4 Second Avenue – Suite 204
Denville, NJ 07834

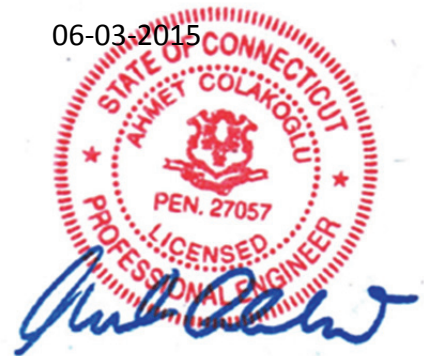


Structure Rating:

Monopole: Pass

Sincerely,
Destek Engineering, LLC

06-03-2015



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

AT&T Site ID: CT2001
FA Number: 10107964
Site Name: NEW MILFORD-BOARDMAN ROAD
33 Boardman Road
New Milford, CT 06776

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1.0 **SUBJECT AND REFERENCES**

The purpose of this analysis is to evaluate the structural capacity of the existing telecommunication installation on the monopole at 33 Boardman Road, New Milford, Litchfield County, CT 06776 for the additions and alterations proposed by AT&T.

The structural analysis is based on the following information provided to Destek Engineering, LLC (Destek):

- Construction Drawings prepared by Com-Ex Consultants, dated 4/10/2015.
- Structural Analysis Report prepared by Centek Engineering, Project Number 12063.CO44, dates 10/16/2012.

1.1 **STRUCTURE**

The structure is a 153'-0" (18) sided monopole, which is attached to the foundation with anchor bolts and base plate. Please refer to the software output in Appendix A, for tower geometry, member sizes, and other details.

ELEVATION (FEET)	SECTION LENGTH (FEET)	LAP SPLICE (IN)	SHAFT THICKNESS (IN)	TOP DIAMETER (IN)	BOTTOM DIAMETER (IN)	YIELD STRENGTH (KSI)
154.0-134.8	19.17	-	0.188	25.25	30.03	65
134.8-89.2	50.00	4.33	0.313	28.575	40.91	65
89.2-44.5	50.29	5.67	0.5	38.886	51.28	65
44.5-1.0	50.46	6.92	0.563	48.575	61.00	65

2.0 **PROPOSED ADDITION**

Existing Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Coax	Mount
120	(6) Powerwave 7770.00 (3) AM-X-CD-16-65-00T-RET (12) LGP21401-TMA's (6) RRUS 11 (1) DC6	(12) 1-5/8" (1) RG6 Fiber (2) Copper Wire	(3) 10' Universal T-Arm

Proposed and Final Configuration of AT&T Appurtenances:

Rad. Center (ft)	Antenna & TMA	Coax	Mount
120	(6) Powerwave 7770.00 (2) HPA-65R-BUU-H6 (1) HPA-65R-BUU-H8 (3) AM-X-CD-16-65-00T-RET (12) LGP21401-TMA's (3) RRUS 12 (3) Ericsson A2 (3) RRUS 11 (1) DC6	(12) 1-5/8" (1) RG6 Fiber (2) Copper Wire	(3) 10' Universal T-Arm

***All ancillary loading per RFDS included**

Existing Appurtenances by Others

Rad. Center (ft)	Antenna & TMA	Coax	Mount
150 Sprint	(6) 72"x6.5"x8" Panel (3) APXVSPP18-C-A20 (3) RRH 2x50 800 (3) RRH 4x40 1900 (1) 10' Dipole	(1) 7/8" (9) 1-5/8" (1) 1-1/4"	(3) 10' Universal T-Arm
140 T-Mobile	(3) 53"x7"x3" Panel (6) TMA 10"x8"x3"	(6) 1-5/8"	(3) 10' Universal T-Arm
130 Verizon	(6) LPA-80080-4CF (3) BXA-171085-8BF (3) BXA-70063/6CF (6) FD9R6004/2C-3L	(12) 1-5/8"	(3) 10' Universal T-Arm

3.0 CODES AND LOADING

The monopole was analyzed per *TIA/EIA-222-F* as referenced by *2005 Connecticut State Building Code with 2005 Addendum and 2013 Supplement*, International Code Council. The following wind loading was used in compliance with the standard for Fairfield County:

- Basic wind speed 80 mph without ice (W)
- Basic wind speed 69.3 mph with 1/2" radial ice (W_i)

The following load combinations were used with wind blowing at 0° , 60° and 90° , measured from a line normal to the face of the tower.

- $D + W$
- $D + W_i + I$

D: Dead Load W: Wind Load, without ice
 W_i : Wind Load with ice I: Ice Gravity Load

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless otherwise noted, the structure is assumed to be in good condition, free of defects, and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service lifespan. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis does not include a qualification of the antenna mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed appurtenances. Any deviation of the appurtenances and placement, etc., will require Destek to generate an additional structural analysis. Additionally, the proposed linear appurtenances should be placed per recommendations of this report.

5.0 ANALYSIS AND RESULTS

The monopole was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

6.0 **RESULTS AND CONCLUSION**

Based on analysis per TIA/EIA-222-F, the existing monopole is found to have **adequate** structural capacity for the proposed changes by AT&T. As a maximum, the monopole shaft between 1 and 44.54 feet is stressed to **95.2%** of its capacity. The anchor rods, base plate and foundation are also found to have **adequate** capacity.

Reaction Comparison:

Maximums	Destek Analysis	Centek Analysis
Base Shear (kips)	57	56
Base Moment (kip-ft)	6552	6334

Therefore, the proposed additions and alterations by AT&T can be implemented as intended with the conditions outlined in this report.

Should you have any questions about this report, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

APPENDIX A

CALCULATIONS

Section	1	2	3	4	
Length (ft)	19.17	50.00	50.29	50.46	
Number of Sides	18	18	18	18	
Thickness (in)	0.1875	0.3125	0.5000	0.5625	
Socket Length (ft)	4.33	5.67	6.92	48.5746	
Top Dia (in)	25.2500	28.5753	38.8862	61.0000	
Bot Dia (in)	30.0300	40.9100	51.2800		
Grade		A572-65			
Weight (K)	1.1	5.8	12.1	16.6	35.6

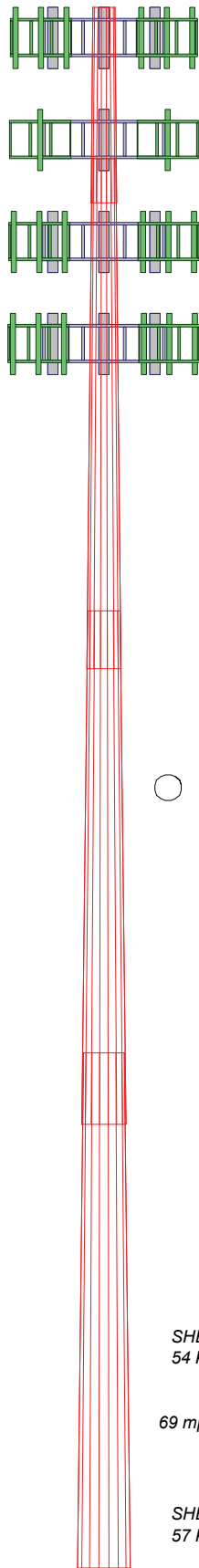
154.0 ft

134.8 ft

89.2 ft

44.5 ft

1.0 ft



DESIGNED APPURTENANCE LOADING

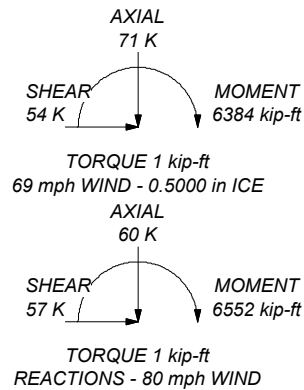
TYPE	ELEVATION	TYPE	ELEVATION
EEI Pine Branches	151	(2) FD9R6004/2C-3L Diplexer	131
10" Dipole	151	(2) FD9R6004/2C-3L Diplexer	131
(2) 72"x6.5"x8" panel	151	(2) FD9R6004/2C-3L Diplexer	131
(2) 72"x6.5"x8" panel	151	EEI 10" Universal T-arm	131
APXVSP18-C-A20	151	EEI 10" Universal T-arm	131
APXVSP18-C-A20	151	EEI Pine Branches	121
APXVSP18-C-A20	151	(2) 7770.00	121
FD-RRH-2x50-800	151	(2) 7770.00	121
FD-RRH-2x50-800	151	(2) 7770.00	121
FD-RRH-2x50-800	151	(2) LGP 21401 TMA	121
FD-RRH-2x50-1900	151	(2) LGP 21401 TMA	121
FD-RRH-2x50-1900	151	(2) LGP 21401 TMA	121
FD-RRH-2x50-1900	151	(2) LGP21901 Diplexer	121
EEI 10" Universal T-arm	151	(2) LGP21901 Diplexer	121
EEI 10" Universal T-arm	151	(2) LGP21901 Diplexer	121
EEI Pine Branches	141	AM-X-CD-16-65-00T-RET	121
53"x7"x3" Panel	141	AM-X-CD-16-65-00T-RET	121
53"x7"x3" Panel	141	P65-17-XLH-RR	121
53"x7"x3" Panel	141	RRUS 11	121
(2) TMA 10"x8"x3"	141	RRUS 11	121
(2) TMA 10"x8"x3"	141	RRUS 11	121
EEI 10" Universal T-arm	141	DC6-48-60-18-8F	121
EEI 10" Universal T-arm	141	EEI 10" Universal T-arm	121
EEI 10" Universal T-arm	141	EEI 10" Universal T-arm	121
EEI Pine Branches	131	RRUS 12	121
LPA-80080-4CF	131	RRUS 12	121
BXA-70063-8BF	131	HPA-65R-BUU-H6	121
BXA-70063/6CF	131	HPA-65R-BUU-H6	121
LPA-80080-4CF	131	HPA-65R-BUU-H8	121
LPA-80080-4CF	131	RRUS A2 MODULE	121
BXA-70063-8BF	131	RRUS A2 MODULE	121
BXA-70063/6CF	131	RRUS A2 MODULE	121
LPA-80080-4CF	131	EEI Pine Branches	111
LPA-80080-4CF	131	EEI Pine Branches	101
BXA-70063-8BF	131	EEI Pine Branches	91
BXA-70063/6CF	131	EEI Pine Branches	81
LPA-80080-4CF	131		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield 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 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 95.2%



tnxTower Destek Engineering, PLLC 1281 Kennestone Circle, Ste100 Marietta, GA 30066 Phone: (770) 693-0835 FAX:	Job	1529092	Page	1 of 20
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	Client	Com-Ex Consultants, LLC	Designed by	Ahmet Colakoglu

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in Litchfield County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 69 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	√ Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination	Use TIA-222-G Tension Splice Capacity	
	Exemption	

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	154.00-134.83	19.17	4.33	18	25.2500	30.0300	0.1875	0.7500	A572-65 (65 ksi)
L2	134.83-89.16	50.00	5.67	18	28.5753	40.9100	0.3125	1.2500	A572-65 (65 ksi)
L3	89.16-44.54	50.29	6.92	18	38.8862	51.2800	0.5000	2.0000	A572-65 (65 ksi)
L4	44.54-1.00	50.46		18	48.5746	61.0000	0.5625	2.2500	A572-65 (65 ksi)

tnxTower Destek Engineering, PLLC 1281 Kennestone Circle, Ste100 Marietta, GA 30066 Phone: (770) 693-0835 FAX:	Job	Page
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	Client	Designed by
	Com-Ex Consultants, LLC	Ahmet Colakoglu

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ⁵	w in	w/t
L1	25.6395	14.9153	1183.6378	8.8972	12.8270	92.2771	2368.8330	7.4591	4.1140	21.941
	30.4933	17.7600	1998.2566	10.5941	15.2552	130.9882	3999.1425	8.8817	4.9553	26.428
L2	30.1008	28.0332	2829.0525	10.0333	14.5163	194.8885	5661.8276	14.0193	4.4793	14.334
	41.5411	40.2676	8384.7915	14.4121	20.7823	403.4587	16780.6158	20.1376	6.6502	21.281
L3	40.9050	60.9190	11340.7394	13.6271	19.7542	574.0922	22696.4013	30.4653	5.9640	11.928
	52.0711	80.5879	26253.8178	18.0269	26.0502	1007.8148	52542.1810	40.3016	8.1453	16.291
L4	51.0542	85.7196	24964.2715	17.0443	24.6759	1011.6866	49961.3916	42.8679	7.5591	13.438
	61.9410	107.9036	49795.0730	21.4553	30.9880	1606.9147	99655.6677	53.9621	9.7460	17.326

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
ft	ft ²	in						
L1				1	1	1		
154.00-134.83								
L2				1	1	1		
134.83-89.16								
L3				1	1	1		
89.16-44.54								
L4				1	1	1		
44.54-1.00								

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A	Weight
						ft ² /ft	plf
LDF5-50A(7/8")	B	No	Inside Pole	152.00 - 5.00	1	No Ice 1/2" Ice	0.00 0.33
LDF7-50A(1-5/8")	B	No	Inside Pole	152.00 - 5.00	9	No Ice 1/2" Ice	0.82 0.82
LDF7-50A(1-5/8")	B	No	Inside Pole	142.00 - 5.00	6	No Ice 1/2" Ice	0.82 0.82
LDF7-50A(1-5/8")	B	No	Inside Pole	132.00 - 5.00	12	No Ice 1/2" Ice	0.82 0.82
LDF7-50A(1-5/8")	B	No	Inside Pole	122.00 - 5.00	12	No Ice 1/2" Ice	0.82 0.82
LDF7-50A(1-5/8")	B	No	Inside Pole	122.00 - 5.00	1	No Ice 1/2" Ice	0.82 0.82
LDF7-50A(1-5/8")	B	No	Inside Pole	122.00 - 5.00	1	No Ice 1/2" Ice	0.82 0.82
8 AWG(1-5/16")	B	No	Inside Pole	122.00 - 5.00	2	No Ice 1/2" Ice	0.04 0.04
LDF6-50A(1-1/4")	B	No	Inside Pole	152.00 - 5.00	3	No Ice 1/2" Ice	0.66 0.66

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R	A _F	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	154.00-134.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.20

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	Client	Com-Ex Consultants, LLC	Designed by	Ahmet Colakoglu

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L2	134.83-89.16	C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	1.44
L3	89.16-44.54	C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	1.57
L4	44.54-1.00	C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	1.39
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	154.00-134.83	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.20
		C		0.000	0.000	0.000	0.000	0.00
L2	134.83-89.16	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	1.44
		C		0.000	0.000	0.000	0.000	0.00
L3	89.16-44.54	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	1.57
		C		0.000	0.000	0.000	0.000	0.00
L4	44.54-1.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	1.39
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	154.00-134.83	0.0000	0.0000	0.0000	0.0000
L2	134.83-89.16	0.0000	0.0000	0.0000	0.0000
L3	89.16-44.54	0.0000	0.0000	0.0000	0.0000
L4	44.54-1.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment</i> °	<i>Placement</i> ft		<i>C_AA_A Front</i> ft ²	<i>C_AA_A Side</i> ft ²	<i>Weight</i> K
EEI Pine Branches	C	None		0.0000	151.00	No Ice	90.00	90.00	1.50

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	Com-Ex Consultants, LLC	Ahmet Colakoglu

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>
EEI Pine Branches	C	None		0.0000	141.00	1/2" Ice 130.00 No Ice 90.00	130.00 90.00	1.90 1.50
EEI Pine Branches	C	None		0.0000	131.00	1/2" Ice 130.00 No Ice 90.00	130.00 90.00	1.90 1.50
EEI Pine Branches	C	None		0.0000	121.00	1/2" Ice 130.00 No Ice 90.00	130.00 90.00	1.90 1.50
EEI Pine Branches	C	None		0.0000	111.00	1/2" Ice 130.00 No Ice 90.00	130.00 90.00	1.90 1.50
EEI Pine Branches	C	None		0.0000	101.00	1/2" Ice 130.00 No Ice 90.00	130.00 90.00	1.90 1.50
EEI Pine Branches	C	None		0.0000	91.00	1/2" Ice 130.00 No Ice 90.00	130.00 90.00	1.90 1.50
EEI Pine Branches	C	None		0.0000	81.00	1/2" Ice 130.00 No Ice 90.00	130.00 90.00	1.90 1.50
Sprint 10' Dipole	A	From Face	2.00 0.00 5.00	0.0000	151.00	No Ice 4.00 1/2" Ice 6.00	4.00 6.00	0.05 0.07
(2) 72"x6.5"x8" panel	A	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 5.09 1/2" Ice 5.55	6.06 6.53	0.01 0.06
(2) 72"x6.5"x8" panel	B	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 5.09 1/2" Ice 5.55	6.06 6.53	0.01 0.06
(2) 72"x6.5"x8" panel	C	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 5.09 1/2" Ice 5.55	6.06 6.53	0.01 0.06
APXVSPP18-C-A20	A	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 8.26 1/2" Ice 8.81	5.28 5.74	0.06 0.11
APXVSPP18-C-A20	B	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 8.26 1/2" Ice 8.81	5.28 5.74	0.06 0.11
APXVSPP18-C-A20	C	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 8.26 1/2" Ice 8.81	5.28 5.74	0.06 0.11
FD-RRH-2x50-800	A	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 2.48 1/2" Ice 2.69	2.06 2.26	0.05 0.07
FD-RRH-2x50-800	B	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 2.48 1/2" Ice 2.69	2.06 2.26	0.05 0.07
FD-RRH-2x50-800	C	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 2.48 1/2" Ice 2.69	2.06 2.26	0.05 0.07
FD-RRH-2x50-1900	A	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 2.82 1/2" Ice 3.06	2.82 3.06	0.04 0.07
FD-RRH-2x50-1900	B	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 2.82 1/2" Ice 3.06	2.82 3.06	0.04 0.07
FD-RRH-2x50-1900	C	From Face	3.00 0.00 0.00	0.0000	151.00	No Ice 2.82 1/2" Ice 3.06	2.82 3.06	0.04 0.07
EEI 10" Universal T-arm	A	None		0.0000	151.00	No Ice 13.34 1/2" Ice 16.80	13.40 16.80	0.45 0.60

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>	
EEI 10" Universal T-arm	B	None		0.0000	151.00	No Ice 1/2" Ice	13.34 16.80	13.40 16.80	0.45 0.60
EEI 10" Universal T-arm	C	None		0.0000	151.00	No Ice 1/2" Ice	13.34 16.80	13.40 16.80	0.45 0.60
T-Mobile									
53"x7"x3" Panel	A	From Face	3.00 -6.00 0.00	0.0000	141.00	No Ice 1/2" Ice	3.51 3.85	2.00 2.33	0.02 0.04
53"x7"x3" Panel	B	From Face	3.00 -6.00 0.00	0.0000	141.00	No Ice 1/2" Ice	3.51 3.85	2.00 2.33	0.02 0.04
53"x7"x3" Panel	C	From Face	3.00 -6.00 0.00	0.0000	141.00	No Ice 1/2" Ice	3.51 3.85	2.00 2.33	0.02 0.04
(2) TMA 10"x8"x3"	A	From Face	3.00 0.00 0.00	0.0000	141.00	No Ice 1/2" Ice	0.78 0.90	0.29 0.38	0.01 0.02
(2) TMA 10"x8"x3"	B	From Face	3.00 0.00 0.00	0.0000	141.00	No Ice 1/2" Ice	0.78 0.90	0.29 0.38	0.01 0.02
(2) TMA 10"x8"x3"	C	From Face	3.00 0.00 0.00	0.0000	141.00	No Ice 1/2" Ice	0.78 0.90	0.29 0.38	0.01 0.02
EEI 10" Universal T-arm	A	None		0.0000	141.00	No Ice 1/2" Ice	13.34 16.80	13.40 16.80	0.45 0.60
EEI 10" Universal T-arm	B	None		0.0000	141.00	No Ice 1/2" Ice	13.34 16.80	13.40 16.80	0.45 0.60
EEI 10" Universal T-arm	C	None		0.0000	141.00	No Ice 1/2" Ice	13.34 16.80	13.40 16.80	0.45 0.60
Verizon									
LPA-80080-4CF	A	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.62 2.92	6.06 6.45	0.01 0.04
BXA-70063-8BF	A	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.94 3.25	2.16 2.46	0.01 0.03
BXA-70063/6CF	A	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	7.73 8.27	4.16 4.59	0.02 0.06
LPA-80080-4CF	A	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.62 2.92	6.06 6.45	0.01 0.04
LPA-80080-4CF	B	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.62 2.92	6.06 6.45	0.01 0.04
BXA-70063-8BF	B	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.94 3.25	2.16 2.46	0.01 0.03
BXA-70063/6CF	B	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	7.73 8.27	4.16 4.59	0.02 0.06
LPA-80080-4CF	B	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.62 2.92	6.06 6.45	0.01 0.04
LPA-80080-4CF	C	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.62 2.92	6.06 6.45	0.01 0.04

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	Com-Ex Consultants, LLC						Ahmet Colakoglu		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
BXA-70063-8BF	C	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.94 3.25	2.16 2.46	0.01 0.03
BXA-70063/6CF	C	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	7.73 8.27	4.16 4.59	0.02 0.06
LPA-80080-4CF	C	From Face	3.00 6.00 0.00	0.0000	131.00	No Ice 1/2" Ice	2.62 2.92	6.06 6.45	0.01 0.04
(2) FD9R6004/2C-3L Diplexer	A	From Face	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice	0.37 0.45	0.09 0.14	0.00 0.01
(2) FD9R6004/2C-3L Diplexer	B	From Face	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice	0.37 0.45	0.09 0.14	0.00 0.01
(2) FD9R6004/2C-3L Diplexer	C	From Face	3.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice	0.37 0.45	0.09 0.14	0.00 0.01
EEI 10" Universal T-arm	A	None		0.0000	131.00	No Ice 1/2" Ice	13.34 16.80	13.40 16.80	0.45 0.60
EEI 10" Universal T-arm	B	None		0.0000	131.00	No Ice 1/2" Ice	13.34 16.80	13.40 16.80	0.45 0.60
EEI 10" Universal T-arm	C	None		0.0000	131.00	No Ice 1/2" Ice	13.34 16.80	13.40 16.80	0.45 0.60
ATT									
(2) 7770.00	A	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(2) 7770.00	B	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(2) 7770.00	C	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(2) LGP 21401 TMA	A	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(2) LGP 21401 TMA	B	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(2) LGP 21401 TMA	C	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(2) LGP21901 Diplexer	A	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	0.23 0.30	0.12 0.17	0.01 0.01
(2) LGP21901 Diplexer	B	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	0.23 0.30	0.12 0.17	0.01 0.01
(2) LGP21901 Diplexer	C	From Face	3.00 0.00 0.00	0.0000	121.00	No Ice 1/2" Ice	0.23 0.30	0.12 0.17	0.01 0.01
AM-X-CD-16-65-00T-RET	A	From Face	3.00 2.00 0.00	0.0000	121.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	0.05 0.10
AM-X-CD-16-65-00T-RET	B	From Face	3.00 2.00	0.0000	121.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	0.05 0.10

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>
P65-17-XLH-RR	C	From Face	0.00 3.00 2.00 0.00	0.0000	121.00	No Ice 11.47 1/2" Ice 12.08	6.80 7.38	0.06 0.12
RRUS 11	A	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 2.99 1/2" Ice 3.23	1.25 1.41	0.05 0.07
RRUS 11	B	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 2.99 1/2" Ice 3.23	1.25 1.41	0.05 0.07
RRUS 11	C	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 2.99 1/2" Ice 3.23	1.25 1.41	0.05 0.07
DC6-48-60-18-8F	C	From Face	0.00 0.50 0.00 0.00	0.0000	121.00	No Ice 2.23 1/2" Ice 2.45	2.23 2.45	0.02 0.04
EEI 10" Universal T-arm	A	None		0.0000	121.00	No Ice 13.34 1/2" Ice 16.80	13.40 16.80	0.45 0.60
EEI 10" Universal T-arm	B	None		0.0000	121.00	No Ice 13.34 1/2" Ice 16.80	13.40 16.80	0.45 0.60
EEI 10" Universal T-arm	C	None		0.0000	121.00	No Ice 13.34 1/2" Ice 16.80	13.40 16.80	0.45 0.60
ATT proposed RRUS 12	A	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 3.67 1/2" Ice 3.93	1.49 1.67	0.06 0.08
RRUS 12	B	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 3.67 1/2" Ice 3.93	1.49 1.67	0.06 0.08
RRUS 12	C	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 3.67 1/2" Ice 3.93	1.49 1.67	0.06 0.08
HPA-65R-BUU-H6	A	From Face	0.00 3.00 0.00 0.00	0.0000	121.00	No Ice 10.36 1/2" Ice 10.93	6.45 6.91	0.05 0.11
HPA-65R-BUU-H6	B	From Face	0.00 3.00 0.00 0.00	0.0000	121.00	No Ice 10.36 1/2" Ice 10.93	6.45 6.91	0.05 0.11
HPA-65R-BUU-H8	C	From Face	0.00 3.00 0.00 0.00	0.0000	121.00	No Ice 13.30 1/2" Ice 13.99	7.52 8.09	0.07 0.14
RRUS A2 MODULE	A	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 1.87 1/2" Ice 2.05	0.42 0.53	0.02 0.03
RRUS A2 MODULE	B	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 1.87 1/2" Ice 2.05	0.42 0.53	0.02 0.03
RRUS A2 MODULE	C	From Face	0.00 1.00 2.00 0.00	0.0000	121.00	No Ice 1.87 1/2" Ice 2.05	0.42 0.53	0.02 0.03

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Tower Pressures - No Ice

$$G_H = 1.690$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1 154.00-134.83	144.14	1.524	25	44.155	A	0.000	44.155	44.155	100.00	0.000	0.000
					B	0.000	44.155		100.00	0.000	0.000
					C	0.000	44.155		100.00	0.000	0.000
L2 134.83-89.16	111.11	1.415	23	134.257	A	0.000	134.257	134.257	100.00	0.000	0.000
					B	0.000	134.257		100.00	0.000	0.000
					C	0.000	134.257		100.00	0.000	0.000
L3 89.16-44.54	66.49	1.222	20	170.232	A	0.000	170.232	170.232	100.00	0.000	0.000
					B	0.000	170.232		100.00	0.000	0.000
					C	0.000	170.232		100.00	0.000	0.000
L4 44.54-1.00	22.09	1	16	201.878	A	0.000	201.878	201.878	100.00	0.000	0.000
					B	0.000	201.878		100.00	0.000	0.000
					C	0.000	201.878		100.00	0.000	0.000

Tower Pressure - With Ice

$$G_H = 1.690$$

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	in	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1 154.00-134.83	144.14	1.524	19	0.5000	45.752	A	0.000	45.752	45.752	100.00	0.000	0.000
						B	0.000	45.752		100.00	0.000	0.000
						C	0.000	45.752		100.00	0.000	0.000
L2 134.83-89.16	111.11	1.415	17	0.5000	138.063	A	0.000	138.063	138.063	100.00	0.000	0.000
						B	0.000	138.063		100.00	0.000	0.000
						C	0.000	138.063		100.00	0.000	0.000
L3 89.16-44.54	66.49	1.222	15	0.5000	173.950	A	0.000	173.950	173.950	100.00	0.000	0.000
						B	0.000	173.950		100.00	0.000	0.000
						C	0.000	173.950		100.00	0.000	0.000
L4 44.54-1.00	22.09	1	12	0.5000	205.506	A	0.000	205.506	205.506	100.00	0.000	0.000
						B	0.000	205.506		100.00	0.000	0.000
						C	0.000	205.506		100.00	0.000	0.000

Tower Pressure - Service

$$G_H = 1.690$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1 154.00-134.83	144.14	1.524	14	44.155	A	0.000	44.155	44.155	100.00	0.000	0.000
					B	0.000	44.155		100.00	0.000	0.000
					C	0.000	44.155		100.00	0.000	0.000
L2	111.11	1.415	13	134.257	A	0.000	134.257	134.257	100.00	0.000	0.000

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Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
134.83-89.16					B	0.000	134.257		100.00	0.000	0.000
					C	0.000	134.257		100.00	0.000	0.000
L3 89.16-44.54	66.49	1.222	11	170.232	A	0.000	170.232	170.232	100.00	0.000	0.000
					B	0.000	170.232		100.00	0.000	0.000
					C	0.000	170.232		100.00	0.000	0.000
L4 44.54-1.00	22.09	1	9	201.878	A	0.000	201.878	201.878	100.00	0.000	0.000
					B	0.000	201.878		100.00	0.000	0.000
					C	0.000	201.878		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1	0.20	1.07	A	1	0.65	1	1	1	44.155	1.21	63.17	C
154.00-134.83			B	1	0.65	1	1	1	44.155			
			C	1	0.65	1	1	1	44.155			
L2	1.44	5.81	A	1	0.65	1	1	1	134.257	3.41	74.70	C
134.83-89.16			B	1	0.65	1	1	1	134.257			
			C	1	0.65	1	1	1	134.257			
L3	1.57	12.11	A	1	0.65	1	1	1	170.232	3.72	83.44	C
89.16-44.54			B	1	0.65	1	1	1	170.232			
			C	1	0.65	1	1	1	170.232			
L4 44.54-1.00	1.39	16.62	A	1	0.65	1	1	1	201.878	3.64	83.61	C
			B	1	0.65	1	1	1	201.878			
			C	1	0.65	1	1	1	201.878			
Sum Weight:	4.60	35.61						OTM	869.64 kip-ft	11.99		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1	0.20	1.07	A	1	0.65	1	1	1	44.155	1.21	63.17	C
154.00-134.83			B	1	0.65	1	1	1	44.155			
			C	1	0.65	1	1	1	44.155			
L2	1.44	5.81	A	1	0.65	1	1	1	134.257	3.41	74.70	C
134.83-89.16			B	1	0.65	1	1	1	134.257			
			C	1	0.65	1	1	1	134.257			
L3	1.57	12.11	A	1	0.65	1	1	1	170.232	3.72	83.44	C
89.16-44.54			B	1	0.65	1	1	1	170.232			
			C	1	0.65	1	1	1	170.232			
L4 44.54-1.00	1.39	16.62	A	1	0.65	1	1	1	201.878	3.64	83.61	C
			B	1	0.65	1	1	1	201.878			
			C	1	0.65	1	1	1	201.878			
Sum Weight:	4.60	35.61						OTM	869.64 kip-ft	11.99		

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Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 154.00-134.83	0.20	1.07	A	1	0.65	1	1	1	44.155	1.21	63.17	C
			B	1	0.65	1	1	1	44.155			
			C	1	0.65	1	1	1	44.155			
L2 134.83-89.16	1.44	5.81	A	1	0.65	1	1	1	134.257	3.41	74.70	C
			B	1	0.65	1	1	1	134.257			
			C	1	0.65	1	1	1	134.257			
L3 89.16-44.54	1.57	12.11	A	1	0.65	1	1	1	170.232	3.72	83.44	C
			B	1	0.65	1	1	1	170.232			
			C	1	0.65	1	1	1	170.232			
L4 44.54-1.00	1.39	16.62	A	1	0.65	1	1	1	201.878	3.64	83.61	C
			B	1	0.65	1	1	1	201.878			
			C	1	0.65	1	1	1	201.878			
Sum Weight:	4.60	35.61						OTM	869.64 kip-ft	11.99		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 154.00-134.83	0.20	1.40	A	1	0.65	1	1	1	45.752	0.94	49.09	C
			B	1	0.65	1	1	1	45.752			
			C	1	0.65	1	1	1	45.752			
L2 134.83-89.16	1.44	6.82	A	1	0.65	1	1	1	138.063	2.63	57.61	C
			B	1	0.65	1	1	1	138.063			
			C	1	0.65	1	1	1	138.063			
L3 89.16-44.54	1.57	13.38	A	1	0.65	1	1	1	173.950	2.85	63.95	C
			B	1	0.65	1	1	1	173.950			
			C	1	0.65	1	1	1	173.950			
L4 44.54-1.00	1.39	18.13	A	1	0.65	1	1	1	205.506	2.78	63.83	C
			B	1	0.65	1	1	1	205.506			
			C	1	0.65	1	1	1	205.506			
Sum Weight:	4.60	39.73						OTM	669.95 kip-ft	9.21		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 154.00-134.83	0.20	1.40	A	1	0.65	1	1	1	45.752	0.94	49.09	C
			B	1	0.65	1	1	1	45.752			
			C	1	0.65	1	1	1	45.752			
L2 134.83-89.16	1.44	6.82	A	1	0.65	1	1	1	138.063	2.63	57.61	C
			B	1	0.65	1	1	1	138.063			

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Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L3	1.57	13.38	C	1	0.65	1	1	1	138.063			
89.16-44.54			A	1	0.65	1	1	1	173.950	2.85	63.95	C
			B	1	0.65	1	1	1	173.950			
L4 44.54-1.00	1.39	18.13	C	1	0.65	1	1	1	173.950			
			A	1	0.65	1	1	1	205.506	2.78	63.83	C
			B	1	0.65	1	1	1	205.506			
			C	1	0.65	1	1	1	205.506			
Sum Weight:	4.60	39.73						OTM	669.95 kip-ft	9.21		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1	0.20	1.40	A	1	0.65	1	1	1	45.752	0.94	49.09	C
154.00-134.83			B	1	0.65	1	1	1	45.752			
			C	1	0.65	1	1	1	45.752			
L2	1.44	6.82	A	1	0.65	1	1	1	138.063	2.63	57.61	C
134.83-89.16			B	1	0.65	1	1	1	138.063			
			C	1	0.65	1	1	1	138.063			
L3	1.57	13.38	A	1	0.65	1	1	1	173.950	2.85	63.95	C
89.16-44.54			B	1	0.65	1	1	1	173.950			
			C	1	0.65	1	1	1	173.950			
L4 44.54-1.00	1.39	18.13	A	1	0.65	1	1	1	205.506	2.78	63.83	C
			B	1	0.65	1	1	1	205.506			
			C	1	0.65	1	1	1	205.506			
Sum Weight:	4.60	39.73						OTM	669.95 kip-ft	9.21		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1	0.20	1.07	A	1	0.65	1	1	1	44.155	0.68	35.53	C
154.00-134.83			B	1	0.65	1	1	1	44.155			
			C	1	0.65	1	1	1	44.155			
L2	1.44	5.81	A	1	0.65	1	1	1	134.257	1.92	42.02	C
134.83-89.16			B	1	0.65	1	1	1	134.257			
			C	1	0.65	1	1	1	134.257			
L3	1.57	12.11	A	1	0.65	1	1	1	170.232	2.09	46.94	C
89.16-44.54			B	1	0.65	1	1	1	170.232			
			C	1	0.65	1	1	1	170.232			
L4 44.54-1.00	1.39	16.62	A	1	0.65	1	1	1	201.878	2.05	47.03	C
			B	1	0.65	1	1	1	201.878			
			C	1	0.65	1	1	1	201.878			
Sum Weight:	4.60	35.61						OTM	489.17 kip-ft	6.74		

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Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 154.00-134.83	0.20	1.07	A	1	0.65	1	1	1	44.155	0.68	35.53	C
			B	1	0.65	1	1	1	44.155			
			C	1	0.65	1	1	1	44.155			
L2 134.83-89.16	1.44	5.81	A	1	0.65	1	1	1	134.257	1.92	42.02	C
			B	1	0.65	1	1	1	134.257			
			C	1	0.65	1	1	1	134.257			
L3 89.16-44.54	1.57	12.11	A	1	0.65	1	1	1	170.232	2.09	46.94	C
			B	1	0.65	1	1	1	170.232			
			C	1	0.65	1	1	1	170.232			
L4 44.54-1.00	1.39	16.62	A	1	0.65	1	1	1	201.878	2.05	47.03	C
			B	1	0.65	1	1	1	201.878			
			C	1	0.65	1	1	1	201.878			
Sum Weight:	4.60	35.61						OTM	489.17 kip-ft	6.74		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 154.00-134.83	0.20	1.07	A	1	0.65	1	1	1	44.155	0.68	35.53	C
			B	1	0.65	1	1	1	44.155			
			C	1	0.65	1	1	1	44.155			
L2 134.83-89.16	1.44	5.81	A	1	0.65	1	1	1	134.257	1.92	42.02	C
			B	1	0.65	1	1	1	134.257			
			C	1	0.65	1	1	1	134.257			
L3 89.16-44.54	1.57	12.11	A	1	0.65	1	1	1	170.232	2.09	46.94	C
			B	1	0.65	1	1	1	170.232			
			C	1	0.65	1	1	1	170.232			
L4 44.54-1.00	1.39	16.62	A	1	0.65	1	1	1	201.878	2.05	47.03	C
			B	1	0.65	1	1	1	201.878			
			C	1	0.65	1	1	1	201.878			
Sum Weight:	4.60	35.61						OTM	489.17 kip-ft	6.74		

Force Totals

Load Case	Vertical Forces	Sum of Forces X	Sum of Forces Z	Sum of Overturning Moments, M _x	Sum of Overturning Moments, M _z	Sum of Torques
	K	K	K	kip-ft	kip-ft	kip-ft
Leg Weight	35.61					
Bracing Weight	0.00					
Total Member Self-Weight	35.61			0.10	0.16	

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Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Total Weight	59.64			0.10	0.16	
Wind 0 deg - No Ice		0.00	-56.96	-6388.82	0.16	-0.72
Wind 30 deg - No Ice		28.42	-49.32	-5532.86	-3187.27	-0.39
Wind 60 deg - No Ice		49.22	-28.48	-3194.36	-5520.63	0.05
Wind 90 deg - No Ice		56.84	0.00	0.10	-6374.70	0.47
Wind 120 deg - No Ice		49.22	28.48	3194.56	-5520.63	0.76
Wind 150 deg - No Ice		28.42	49.32	5533.06	-3187.27	0.86
Wind 180 deg - No Ice		0.00	56.96	6389.02	0.16	0.72
Wind 210 deg - No Ice		-28.42	49.32	5533.06	3187.59	0.39
Wind 240 deg - No Ice		-49.22	28.48	3194.56	5520.95	-0.05
Wind 270 deg - No Ice		-56.84	0.00	0.10	6375.02	-0.47
Wind 300 deg - No Ice		-49.22	-28.48	-3194.36	5520.95	-0.76
Wind 330 deg - No Ice		-28.42	-49.32	-5532.86	3187.59	-0.86
Member Ice	4.12					
Total Weight Ice	70.56			0.21	0.25	
Wind 0 deg - Ice		0.00	-54.38	-6178.04	0.25	-0.72
Wind 30 deg - Ice		27.15	-47.10	-5350.32	-3083.69	-0.47
Wind 60 deg - Ice		47.02	-27.19	-3088.92	-5341.28	-0.10
Wind 90 deg - Ice		54.30	0.00	0.21	-6167.62	0.30
Wind 120 deg - Ice		47.02	27.19	3089.33	-5341.28	0.61
Wind 150 deg - Ice		27.15	47.10	5350.73	-3083.69	0.77
Wind 180 deg - Ice		0.00	54.38	6178.46	0.25	0.72
Wind 210 deg - Ice		-27.15	47.10	5350.73	3084.18	0.47
Wind 240 deg - Ice		-47.02	27.19	3089.33	5341.78	0.10
Wind 270 deg - Ice		-54.30	0.00	0.21	6168.12	-0.30
Wind 300 deg - Ice		-47.02	-27.19	-3088.92	5341.78	-0.61
Wind 330 deg - Ice		-27.15	-47.10	-5350.32	3084.18	-0.77
Total Weight	59.64			0.10	0.16	
Wind 0 deg - Service		0.00	-32.04	-3593.66	0.16	-0.40
Wind 30 deg - Service		15.99	-27.75	-3112.19	-1792.77	-0.22
Wind 60 deg - Service		27.69	-16.02	-1796.78	-3105.29	0.03
Wind 90 deg - Service		31.97	0.00	0.10	-3585.70	0.26
Wind 120 deg - Service		27.69	16.02	1796.98	-3105.29	0.43
Wind 150 deg - Service		15.99	27.75	3112.39	-1792.77	0.48
Wind 180 deg - Service		0.00	32.04	3593.87	0.16	0.40
Wind 210 deg - Service		-15.99	27.75	3112.39	1793.09	0.22
Wind 240 deg - Service		-27.69	16.02	1796.98	3105.60	-0.03
Wind 270 deg - Service		-31.97	0.00	0.10	3586.02	-0.26
Wind 300 deg - Service		-27.69	-16.02	-1796.78	3105.60	-0.43
Wind 330 deg - Service		-15.99	-27.75	-3112.19	1793.09	-0.48

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

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<i>Comb. No.</i>	<i>Description</i>
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

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Force K</i>	<i>Major Axis Moment kip-ft</i>	<i>Minor Axis Moment kip-ft</i>
L1	154 - 134.83	Pole	Max Tension	33	0.00	-0.00	0.00
			Max. Compression	14	-10.01	0.19	0.11
			Max. Mx	11	-5.95	125.97	0.05
			Max. My	2	-5.95	0.10	125.92
			Max. Vy	11	-16.17	125.97	0.05
			Max. Vx	8	16.17	0.10	-125.77
			Max. Torque	22			-0.60
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-31.20	0.25	-0.21
			Max. Mx	11	-21.19	1527.59	-0.09
L2	134.83 - 89.16	Pole	Max. My	8	-21.17	0.14	-1530.69
			Max. Vy	11	-43.93	1527.59	-0.09
			Max. Vx	8	44.05	0.14	-1530.69
			Max. Torque	13			0.85
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-48.71	0.25	-0.21
			Max. Mx	11	-37.71	3738.78	-0.10
			Max. My	8	-37.71	0.16	-3747.10
			Max. Vy	11	-53.90	3738.78	-0.10
			Max. Vx	8	54.02	0.16	-3747.10
L3	89.16 - 44.54	Pole	Max. Torque	13			0.85
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-70.56	0.25	-0.21
			Max. Mx	11	-59.60	6537.92	-0.10
			Max. My	8	-59.60	0.16	-6552.23
			Max. Vy	11	-56.88	6537.92	-0.10
			Max. Vx	8	56.88	0.16	-6552.23
			Max. Torque	13			0.85
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-70.56	0.25	-0.21
L4	44.54 - 1	Pole	Max. Mx	11	-59.60	6537.92	-0.10
			Max. My	8	-59.60	0.16	-6552.23
			Max. Vy	11	-56.88	6537.92	-0.10
			Max. Vx	8	56.88	0.16	-6552.23
			Max. Torque	13			0.85
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-70.56	0.25	-0.21
			Max. Mx	11	-59.60	6537.92	-0.10
			Max. My	8	-59.60	0.16	-6552.23
			Max. Vy	11	-56.88	6537.92	-0.10

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. V _x	8	57.00	0.16	-6552.23
			Max. Torque	13			0.85

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	70.56	0.00	-0.00
	Max. H _x	11	59.64	56.84	-0.00
	Max. H _z	2	59.64	0.00	56.95
	Max. M _x	2	6552.02	0.00	56.95
	Max. M _z	5	6537.59	-56.84	-0.00
	Max. Torsion	13	0.85	28.42	49.32
	Min. Vert	33	59.64	0.00	-32.03
	Min. H _x	5	59.64	-56.84	-0.00
	Min. H _z	8	59.64	0.00	-56.95
	Min. M _x	8	-6552.23	0.00	-56.95
	Min. M _z	11	-6537.92	56.84	-0.00
	Min. Torsion	7	-0.85	-28.42	-49.32

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	59.64	-0.00	0.00	0.10	0.16	0.00
Dead+Wind 0 deg - No Ice	59.64	-0.00	-56.95	-6552.02	0.16	-0.71
Dead+Wind 30 deg - No Ice	59.64	28.42	-49.32	-5674.43	-3268.83	-0.38
Dead+Wind 60 deg - No Ice	59.64	49.22	-28.48	-3276.10	-5661.90	0.05
Dead+Wind 90 deg - No Ice	59.64	56.84	0.00	0.10	-6537.59	0.46
Dead+Wind 120 deg - No Ice	59.64	49.22	28.48	3276.30	-5661.91	0.76
Dead+Wind 150 deg - No Ice	59.64	28.42	49.32	5674.64	-3268.83	0.85
Dead+Wind 180 deg - No Ice	59.64	-0.00	56.95	6552.23	0.16	0.71
Dead+Wind 210 deg - No Ice	59.64	-28.42	49.32	5674.64	3269.15	0.39
Dead+Wind 240 deg - No Ice	59.64	-49.22	28.48	3276.31	5662.23	-0.04
Dead+Wind 270 deg - No Ice	59.64	-56.84	0.00	0.10	6537.92	-0.46
Dead+Wind 300 deg - No Ice	59.64	-49.22	-28.48	-3276.10	5662.23	-0.76
Dead+Wind 330 deg - No Ice	59.64	-28.42	-49.32	-5674.43	3269.15	-0.85
Dead+Ice+Temp	70.56	-0.00	0.00	0.21	0.25	0.00
Dead+Wind 0 deg+Ice+Temp	70.56	-0.00	-54.38	-6383.82	0.26	-0.71
Dead+Wind 30 deg+Ice+Temp	70.56	27.15	-47.10	-5528.61	-3186.45	-0.47
Dead+Wind 60 deg+Ice+Temp	70.56	47.02	-27.19	-3191.86	-5519.29	-0.10
Dead+Wind 90 deg+Ice+Temp	70.56	54.30	0.00	0.22	-6373.08	0.29
Dead+Wind 120 deg+Ice+Temp	70.56	47.02	27.19	3192.29	-5519.29	0.61
Dead+Wind 150 deg+Ice+Temp	70.56	27.15	47.10	5529.04	-3186.45	0.76
Dead+Wind 180 deg+Ice+Temp	70.56	-0.00	54.38	6384.25	0.26	0.71
Dead+Wind 210 deg+Ice+Temp	70.56	-27.15	47.10	5529.05	3186.97	0.47
Dead+Wind 240 deg+Ice+Temp	70.56	-47.02	27.19	3192.30	5519.82	0.10
Dead+Wind 270 deg+Ice+Temp	70.56	-54.30	0.00	0.22	6373.60	-0.29
Dead+Wind 300 deg+Ice+Temp	70.56	-47.02	-27.19	-3191.86	5519.82	-0.61
Dead+Wind 330 deg+Ice+Temp	70.56	-27.15	-47.10	-5528.61	3186.97	-0.76
Dead+Wind 0 deg - Service	59.64	-0.00	-32.03	-3688.39	0.16	-0.40

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<i>Load Combination</i>	<i>Vertical K</i>	<i>Shear_x K</i>	<i>Shear_z K</i>	<i>Overturning Moment, M_x kip-ft</i>	<i>Overturning Moment, M_z kip-ft</i>	<i>Torque kip-ft</i>
Dead+Wind 30 deg - Service	59.64	15.99	-27.75	-3194.64	-1840.26	-0.22
Dead+Wind 60 deg - Service	59.64	27.69	-16.02	-1844.38	-3187.55	0.03
Dead+Wind 90 deg - Service	59.64	31.97	0.00	0.10	-3680.22	0.26
Dead+Wind 120 deg - Service	59.64	27.69	16.02	1844.59	-3187.55	0.43
Dead+Wind 150 deg - Service	59.64	15.99	27.75	3194.85	-1840.26	0.48
Dead+Wind 180 deg - Service	59.64	-0.00	32.03	3688.60	0.16	0.40
Dead+Wind 210 deg - Service	59.64	-15.99	27.75	3194.85	1840.59	0.22
Dead+Wind 240 deg - Service	59.64	-27.69	16.02	1844.59	3187.89	-0.02
Dead+Wind 270 deg - Service	59.64	-31.97	0.00	0.10	3680.55	-0.26
Dead+Wind 300 deg - Service	59.64	-27.69	-16.02	-1844.38	3187.88	-0.43
Dead+Wind 330 deg - Service	59.64	-15.99	-27.75	-3194.64	1840.59	-0.48

Solution Summary

<i>Load Comb.</i>	<i>Sum of Applied Forces</i>			<i>Sum of Reactions</i>			<i>% Error</i>
	<i>PX K</i>	<i>PY K</i>	<i>PZ K</i>	<i>PX K</i>	<i>PY K</i>	<i>PZ K</i>	
1	0.00	-59.64	0.00	0.00	59.64	0.00	0.000%
2	0.00	-59.64	-56.96	0.00	59.64	56.95	0.002%
3	28.42	-59.64	-49.32	-28.42	59.64	49.32	0.000%
4	49.22	-59.64	-28.48	-49.22	59.64	28.48	0.000%
5	56.84	-59.64	0.00	-56.84	59.64	-0.00	0.002%
6	49.22	-59.64	28.48	-49.22	59.64	-28.48	0.000%
7	28.42	-59.64	49.32	-28.42	59.64	-49.32	0.000%
8	0.00	-59.64	56.96	0.00	59.64	-56.95	0.002%
9	-28.42	-59.64	49.32	28.42	59.64	-49.32	0.000%
10	-49.22	-59.64	28.48	49.22	59.64	-28.48	0.000%
11	-56.84	-59.64	0.00	56.84	59.64	-0.00	0.002%
12	-49.22	-59.64	-28.48	49.22	59.64	28.48	0.000%
13	-28.42	-59.64	-49.32	28.42	59.64	49.32	0.000%
14	0.00	-70.56	0.00	0.00	70.56	-0.00	0.000%
15	0.00	-70.56	-54.38	0.00	70.56	54.38	0.001%
16	27.15	-70.56	-47.10	-27.15	70.56	47.10	0.000%
17	47.02	-70.56	-27.19	-47.02	70.56	27.19	0.000%
18	54.30	-70.56	0.00	-54.30	70.56	-0.00	0.001%
19	47.02	-70.56	27.19	-47.02	70.56	-27.19	0.000%
20	27.15	-70.56	47.10	-27.15	70.56	-47.10	0.000%
21	0.00	-70.56	54.38	0.00	70.56	-54.38	0.001%
22	-27.15	-70.56	47.10	27.15	70.56	-47.10	0.000%
23	-47.02	-70.56	27.19	47.02	70.56	-27.19	0.000%
24	-54.30	-70.56	0.00	54.30	70.56	-0.00	0.001%
25	-47.02	-70.56	-27.19	47.02	70.56	27.19	0.000%
26	-27.15	-70.56	-47.10	27.15	70.56	47.10	0.000%
27	0.00	-59.64	-32.04	0.00	59.64	32.03	0.005%
28	15.99	-59.64	-27.75	-15.99	59.64	27.75	0.000%
29	27.69	-59.64	-16.02	-27.69	59.64	16.02	0.000%
30	31.97	-59.64	0.00	-31.97	59.64	-0.00	0.005%
31	27.69	-59.64	16.02	-27.69	59.64	-16.02	0.000%
32	15.99	-59.64	27.75	-15.99	59.64	-27.75	0.000%
33	0.00	-59.64	32.04	0.00	59.64	-32.03	0.005%
34	-15.99	-59.64	27.75	15.99	59.64	-27.75	0.000%
35	-27.69	-59.64	16.02	27.69	59.64	-16.02	0.000%
36	-31.97	-59.64	0.00	31.97	59.64	-0.00	0.005%
37	-27.69	-59.64	-16.02	27.69	59.64	16.02	0.000%
38	-15.99	-59.64	-27.75	15.99	59.64	27.75	0.000%

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Non-Linear Convergence Results

<i>Load Combination</i>	<i>Converged?</i>	<i>Number of Cycles</i>	<i>Displacement Tolerance</i>	<i>Force Tolerance</i>
1	Yes	6	0.00000001	0.00000001
2	Yes	12	0.00002975	0.00006567
3	Yes	15	0.00000001	0.00007324
4	Yes	15	0.00000001	0.00007384
5	Yes	12	0.00002976	0.00005655
6	Yes	15	0.00000001	0.00007412
7	Yes	15	0.00000001	0.00007309
8	Yes	12	0.00002975	0.00006567
9	Yes	15	0.00000001	0.00007416
10	Yes	15	0.00000001	0.00007355
11	Yes	12	0.00002976	0.00005656
12	Yes	15	0.00000001	0.00007327
13	Yes	15	0.00000001	0.00007432
14	Yes	6	0.00000001	0.00000001
15	Yes	13	0.00000001	0.00013911
16	Yes	15	0.00000001	0.00010435
17	Yes	15	0.00000001	0.00010526
18	Yes	13	0.00000001	0.00013811
19	Yes	15	0.00000001	0.00010538
20	Yes	15	0.00000001	0.00010432
21	Yes	13	0.00000001	0.00013913
22	Yes	15	0.00000001	0.00010564
23	Yes	15	0.00000001	0.00010471
24	Yes	13	0.00000001	0.00013813
25	Yes	15	0.00000001	0.00010459
26	Yes	15	0.00000001	0.00010568
27	Yes	11	0.00009894	0.00013433
28	Yes	14	0.00000001	0.00006025
29	Yes	14	0.00000001	0.00006108
30	Yes	11	0.00009895	0.00012897
31	Yes	14	0.00000001	0.00006149
32	Yes	14	0.00000001	0.00006004
33	Yes	11	0.00009894	0.00013435
34	Yes	14	0.00000001	0.00006157
35	Yes	14	0.00000001	0.00006067
36	Yes	11	0.00009895	0.00012900
37	Yes	14	0.00000001	0.00006027
38	Yes	14	0.00000001	0.00006180

Maximum Tower Deflections - Service Wind

<i>Section No.</i>	<i>Elevation ft</i>	<i>Horz. Deflection in</i>	<i>Gov. Load Comb.</i>	<i>Tilt °</i>	<i>Twist °</i>
L1	154 - 134.83	54.370	33	3.0587	0.0024
L2	139.16 - 89.16	44.927	33	2.9902	0.0017
L3	94.83 - 44.54	20.461	33	2.0732	0.0007
L4	51.46 - 1	5.877	33	1.0680	0.0002

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
L3	89.16 - 44.54 (3)	TP51.28x38.8862x0.5	50.29	0.00	0.0	39.000	77.8814	-37.71	3037.37	0.012
L4	44.54 - 1 (4)	TP61x48.5746x0.5625	50.46	0.00	0.0	39.000	107.9040	-59.60	4208.24	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	154 - 134.83 (1)	TP30.03x25.25x0.1875	126.01	12.429	38.627	0.322	0.00	0.000	38.627	0.000
L2	134.83 - 89.16 (2)	TP40.91x28.5753x0.3125	1530.69	48.848	39.000	1.253	0.00	0.000	39.000	0.000
L3	89.16 - 44.54 (3)	TP51.28x38.8862x0.5	3747.10	47.788	39.000	1.225	0.00	0.000	39.000	0.000
L4	44.54 - 1 (4)	TP61x48.5746x0.5625	6552.23	48.930	39.000	1.255	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f _{vt} ksi	Allow. F _{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	154 - 134.83 (1)	TP30.03x25.25x0.1875	16.17	0.945	26.000	0.073	0.00	0.000	26.000	0.000
L2	134.83 - 89.16 (2)	TP40.91x28.5753x0.3125	44.05	1.133	26.000	0.087	0.72	0.011	26.000	0.000
L3	89.16 - 44.54 (3)	TP51.28x38.8862x0.5	54.02	0.694	26.000	0.053	0.71	0.004	26.000	0.000
L4	44.54 - 1 (4)	TP61x48.5746x0.5625	57.00	0.528	26.000	0.041	0.71	0.003	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	154 - 134.83 (1)	0.009	0.322	0.000	0.073	0.000	0.332 ✓	1.333	H1-3+VT ✓
L2	134.83 - 89.16 (2)	0.014	1.253	0.000	0.087	0.000	1.268 ✓	1.333	H1-3+VT ✓
L3	89.16 - 44.54 (3)	0.012	1.225	0.000	0.053	0.000	1.238 ✓	1.333	H1-3+VT ✓
L4	44.54 - 1 (4)	0.014	1.255	0.000	0.041	0.000	1.269 ✓	1.333	H1-3+VT ✓

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Section Capacity Table

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Size</i>	<i>Critical Element</i>	<i>P K</i>	<i>SF*P_{allow} K</i>	<i>% Capacity</i>	<i>Pass Fail</i>
L1	154 - 134.83	Pole	TP30.03x25.25x0.1875	1	-5.95	881.38	24.9	Pass
L2	134.83 - 89.16	Pole	TP40.91x28.5753x0.3125	2	-21.17	2021.27	95.2	Pass
L3	89.16 - 44.54	Pole	TP51.28x38.8862x0.5	3	-37.71	4048.81	92.9	Pass
L4	44.54 - 1	Pole	TP61x48.5746x0.5625	4	-59.60	5609.58	95.2	Pass
							Summary	
							Pole (L4)	95.2
							RATING =	95.2
								Pass

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#:	
Site Name:	CT 2001
App #:	
Pole Manufacturer:	Other

Reactions

Moment:	6552	ft-kips
Axial:	60	kips
Shear:	57	kips

Anchor Rod Data

Qty:	28	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	68	in

If No stiffeners, Criteria: **AISC ASD** <-Only Applicable to Unstiffened Cases

Anchor Rod Results

Maximum Rod Tension:	163.0 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	83.6% Pass

Rigid

Service, ASD
Fty*ASIF

Plate Data

Diam:	74	in
Thick:	3	in
Grade:	60	ksi
Single-Rod B-eff:	6.91	in

Base Plate Results

Base Plate Stress:	35.4 ksi
Allowable Plate Stress:	60.0 ksi
Base Plate Stress Ratio:	59.0% Pass

Flexural Check

Rigid

Service ASD
0.75*Fy*ASIF
Y.L. Length:
30.05

Stiffener Data (Welding at both sides)

Config:	0	*
Weld Type:	Both	
Groove Depth:	0.25	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	50	ksi
Weld str.:	70	ksi

n/a

Stiffener Results

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

Pole Results

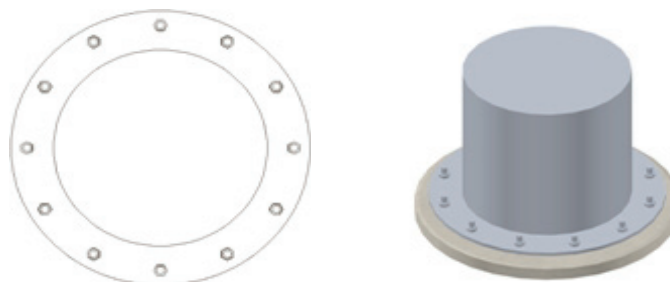
Pole Punching Shear Check:	n/a
----------------------------	-----

Pole Data

Diam:	61	in
Thick:	0.5625	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor

ASIF:	1.333	
-------	-------	--



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

Monopole Pier and Pad Foundation

Site Name: CT 2001

TIA-222 Revision: F

Design Reactions		
Shear, S :	57	kips
Moment, M :	6552	ft-kips
Tower Height, H :	153	ft
Tower Weight, Wt :	60	kips
Base Diameter, BD :	5.10	ft

Foundation Dimensions		
Depth, D :	6.5	ft
Pad Width, W :	32	ft
Neglected Depth, N :	3.33	ft
Thickness, T :	4.00	ft
Pier Diameter, Pd :	7.50	ft
Ext. Above Grade, E :	1.00	ft
BP Dist. Above Pier:	3	in.
Clear Cover, Cc :	3.0	in

Soil Properties		
Soil Unit Weight, γ :	0.100	kcf
Ult. Bearing Capacity, Bc :	12.0	ksf
Angle of Friction, Φ :	10	deg
Cohesion, Co :	0.000	ksf
Passive Pressure, Pp :	0.000	ksf
Base Friction, μ :	0.45	

Material Properties		
Rebar Yield Strength, Fy :	60000	psi
Concrete Strength, F'c :	4000	psi
Concrete Unit Weight, δc :	0.150	kcf
Seismic Zone, z :	1	

Rebar Properties		
Pier Rebar Size, Sp :	11	
Pier Rebar Quantity, mp :	36	21
Pad Rebar Size, Spad :	11	
Pad Rebar Quantity, mpad :	84	11
Pier Tie Size, St :	3	4
Tie Quantity, mt :	5	5

Design Checks			
	Capacity/ Availability	Demand/ Limits	Check
<i>Req'd Pier Diam.(ft)</i>	7.5	7.1	OK
<i>Overturning (ft-kips)</i>	8829.21	6552.00	74.2%
<i>Shear Capacity (kips)</i>	213.68	57.00	26.7%
<i>Bearing (ksf)</i>	9.00	2.74	30.4%
<i>Pad Shear - 1-way (kips)</i>	1613.64	680.03	42.1%
<i>Pad Shear - 2-way (kips)</i>	3545.81	142.61	4.0%
<i>Pad Moment Capacity (k-ft)</i>	24344.33	3303.66	13.6%
<i>Pier Moment Capacity (k-ft)</i>	9815.92	6751.50	68.8%

PROJECT INFORMATION			 FA CODE: 10107964 SITE NUMBER: CT2001 SITE NAME: NEW MILFORD-BOARDMAN ROAD			PROJECT TEAM																																																		
SCOPE OF WORK: - RELOCATE (1) EXISTING LTE ANTENNA PER (ALPHA) SECTOR WITH (1) SECTOR, FOR A TOTAL OF (1) EXISTING ANTENNA TO BE RELOCATED. - RELOCATE (1) EXISTING GSM ANTENNA PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) EXISTING ANTENNAS TO BE RELOCATED. - NEW AT&T ANTENNAS; (1) NEW LTE ANTENNA PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW ANTENNAS; (3) EXISTING UMTS ANTENNAS TO REMAIN (1 PER SECTOR); (3) EXISTING LTE ANTENNAS TO REMAIN (1 PER SECTOR). FOR A TOTAL OF 12 ANTENNAS - AT&T RRUs: (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (2) EXISTING RRU PER SECTOR TO REMAIN, FOR A TOTAL OF (6) EXISTING RRUs. (1) NEW A2 MODULE PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW A2 MODULES. SITE ADDRESS: 33 BOARDMAN ROAD NEW MILFORD, CT 06776 LATITUDE: 41.5994031 41° 35' 57.85116"N LONGITUDE: -73.4374739 73° 26' 14.90604"W USID: 83126 TOWER OWNER: TYPE OF SITE: MONOPINE/INDOOR EQUIPMENT MONOPINE HEIGHT: 150'-0"± RAD CENTER: 120'-0"± CURRENT USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY PROPOSED USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY						CLIENT REPRESENTATIVE COMPANY: EMPIRE TELECOM ADDRESS: 16 ESQUIRE ROAD BILLERICA, MA 01821 CONTACT: DAVID COOPER PHONE: 617-639-4908 EMAIL: dcooper@empiretelecomm.com SITE ACQUISITION: COMPANY: VERTICAL DEVELOPMENT, LLC ADDRESS: 20 COMMERCIAL STREET BRANFORD, CT 06405 CONTACT: DAVID BASS PHONE: 203-826-5857 EMAIL: dbass@verticaldevelopmentllc.com ZONING: COMPANY: VERTICAL DEVELOPMENT, LLC ADDRESS: 20 COMMERCIAL STREET BRANFORD, CT 06405 CONTACT: DAVID BASS PHONE: 203-826-5857 EMAIL: dbass@verticaldevelopmentllc.com ENGINEERING: COMPANY: COM-EX CONSULTANTS, LLC ADDRESS: 4 SECOND AVENUE SUITE 204 DENVER, NJ 07834 CONTACT: NICHOLAS D. BARILE, P.E. PHONE: 862-209-4300 EMAIL: nbarile@comexconsultants.com			RF ENGINEER: COMPANY: AT&T MOBILITY — NEW ENGLAND ADDRESS: 550 COCHITUATE ROAD SUITE 550 13 & 14 FRAMINGHAM, MA 01701 CONTACT: CAMERON SYME PHONE: 508-596-7146 EMAIL: cs6970@att.com CONSTRUCTION MANAGEMENT: COMPANY: EMPIRE TELECOM ADDRESS: 16 ESQUIRE ROAD BILLERICA, MA 01821 CONTACT: GRZEGORZ "GREG" DORMAN PHONE: 484-683-1750 EMAIL: gdorman@empiretelecomm.com																																															
DRAWING INDEX			REV.			VICINITY MAP			GENERAL NOTES																																															
T-1	TITLE SHEET		0					 CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811																																																
GN-1	GROUNDING & GENERAL NOTES		0																																																					
A-1	COMPOUND LAYOUTS		0																																																					
A-2	EQUIPMENT LAYOUT		0																																																					
A-3	ANTENNA LAYOUTS & ELEVATIONS		0																																																					
A-4	DETAILS		0																																																					
A-5	ANTENNA MOUNTING DETAILS		0																																																					
G-1	GROUNDING DETAILS		0																																																					
APPROVALS					THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR SITE MODIFICATIONS. <table><tr><td>DISCIPLINE:</td><td colspan="2">NAME:</td><td colspan="2">DATE:</td></tr><tr><td>SITE ACQUISITION:</td><td colspan="2"></td><td colspan="2"></td></tr><tr><td>CONSTRUCTION MANAGER:</td><td colspan="2"></td><td colspan="2"></td></tr><tr><td>AT&T PROJECT MANAGER:</td><td colspan="2"></td><td colspan="2"></td></tr></table>							DISCIPLINE:	NAME:		DATE:		SITE ACQUISITION:					CONSTRUCTION MANAGER:					AT&T PROJECT MANAGER:																													
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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. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.
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 WITH STAINLESS STEEL HARDWARE 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 AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').
14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½” OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR – EMPIRE TELECOM

SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)

OWNER – AT&T MOBILITY

OEM – ORIGINAL EQUIPMENT MANUFACTURER
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. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. 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.
8. 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. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR
9. 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.
10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF 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.
11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
14. 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). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
16. 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.
17. 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 MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
18. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. 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.

INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS

NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS

FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS
20. 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, THIRTEENTH EDITION

AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:

TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS
21. 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.
22. 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 AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
23. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY CENTEK ENGINEERING FOR AN LTE UPGRADE DATED 10/24/2012. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

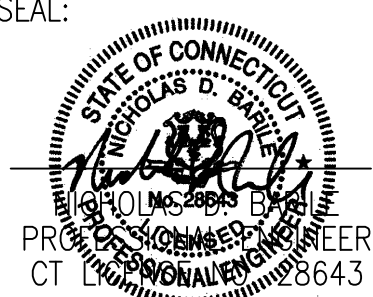


SITE NUMBER: CT2001
SITE NAME: NEW MILFORD-BOARDMAN ROAD
33 BOARDMAN ROAD
NEW MILFORD, CT 06776
LITCHFIELD COUNTY

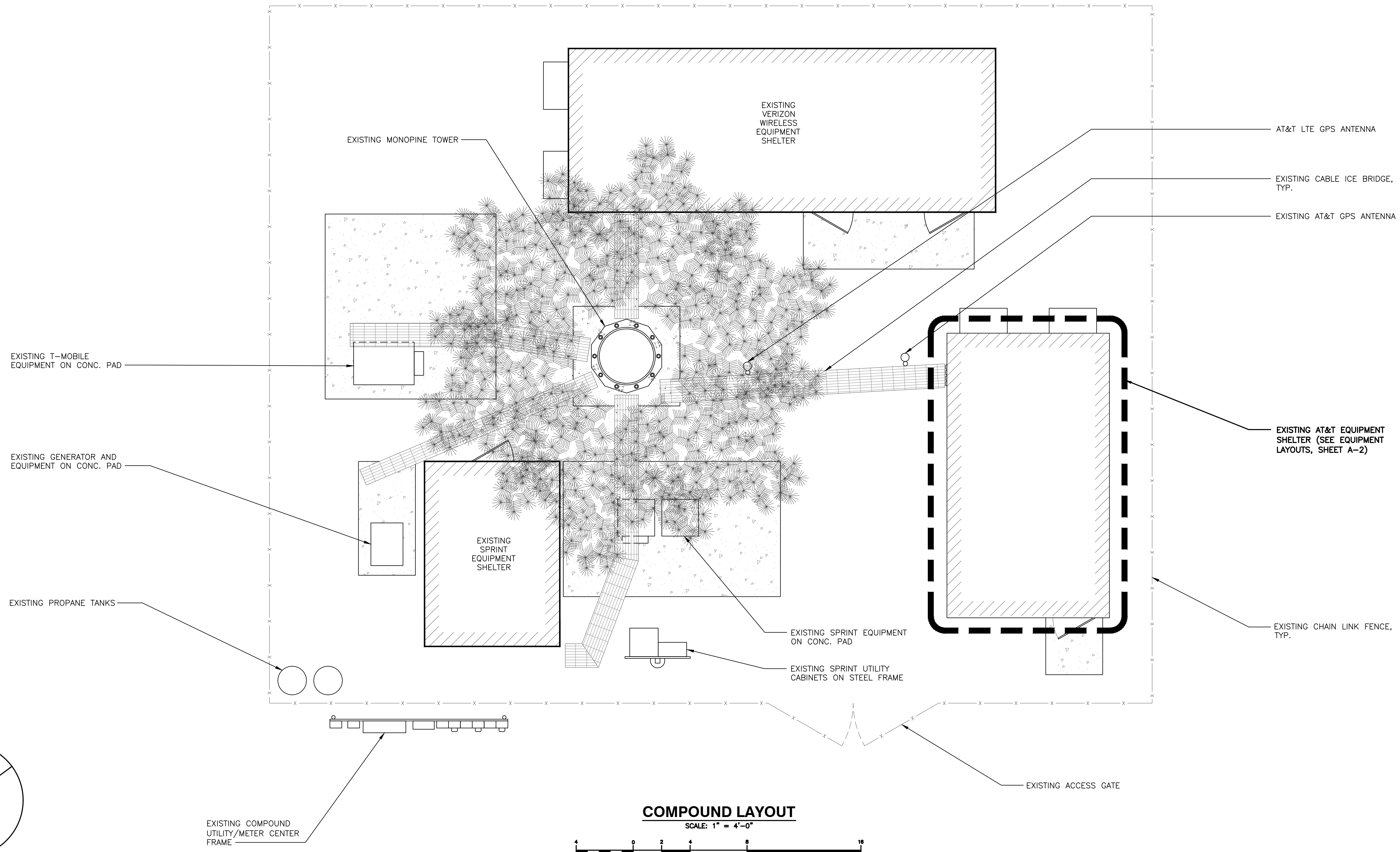


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NO.	DATE	REVISIONS		BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: CJT		DRAWN BY: AM		

SEAL:



AT&T		
DRAWING TITLE: GROUNDING NOTES & GENERAL NOTES		
JOB NUMBER 14191-EMP	DRAWING NUMBER GN-1	REV 0



NOTE:
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 AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

COM-EX
Consultants
4 SECOND AVENUE
SUITE 204
DENVER, NJ 07834
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FAX: 862.209.4301

EMPIRE
telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2001
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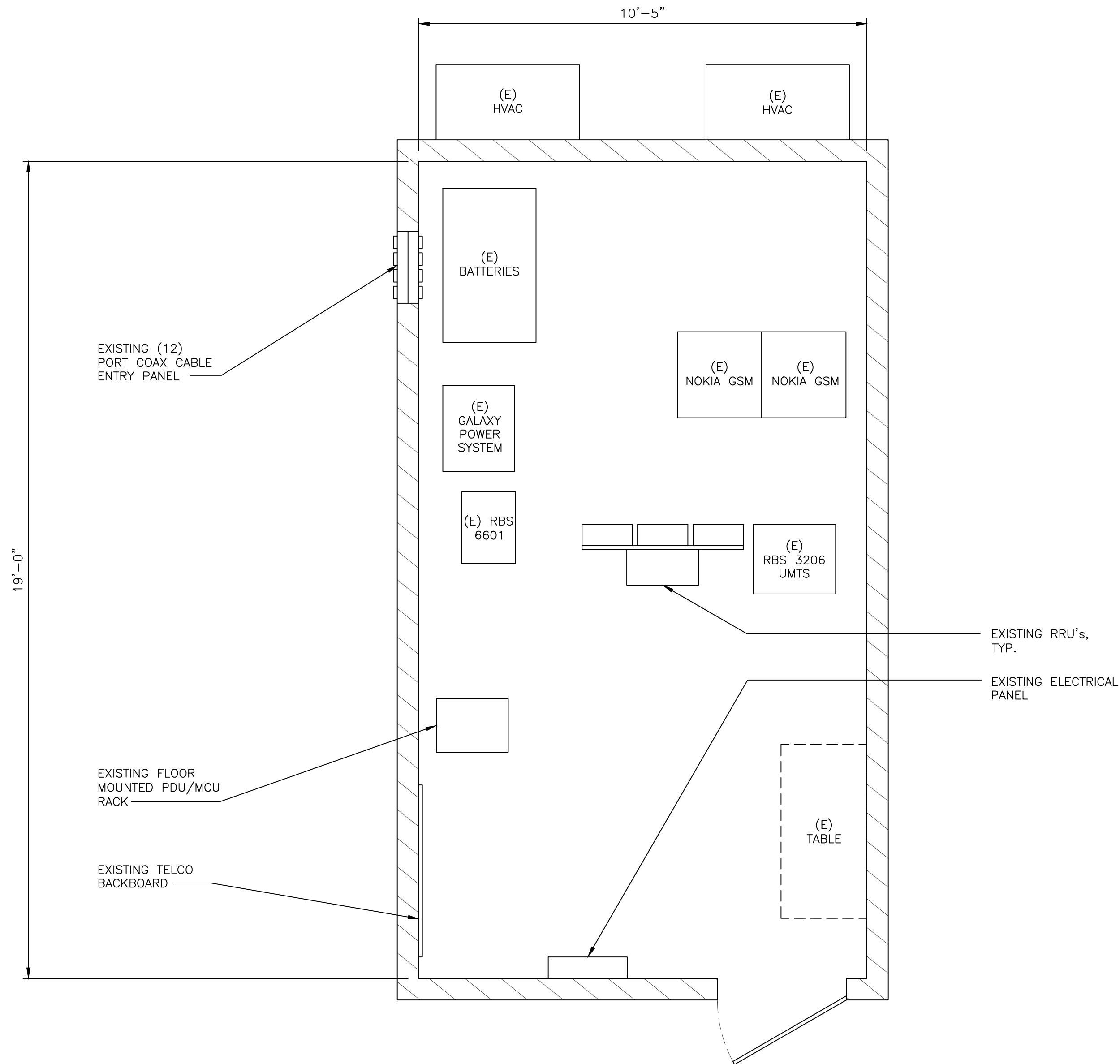
at&t
MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: CJT	DRAWN BY: AM		

SEAL:

NICHOLAS D. BICKEL
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T		
DRAWING TITLE: COMPOUND LAYOUT		
JOB NUMBER 14191-EMP	DRAWING NUMBER A-1	REV 0



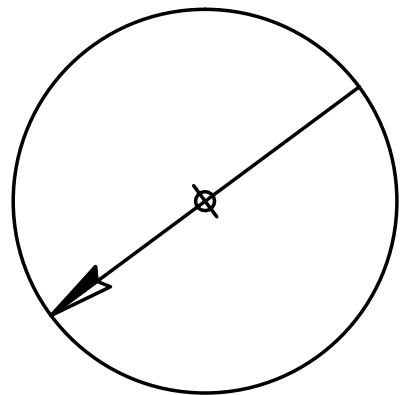
EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"



(IN FEET)
1/2 Inch = 1 Foot

NO GROUND EQUIPMENT MODIFICATIONS
ARE BEING MADE AS PART OF THIS
SCOPE. EXISTING GROUND EQUIPMENT
CONFIGURATION TO REMAIN.



NORTH

COM-EX
Consultants
4 SECOND AVENUE
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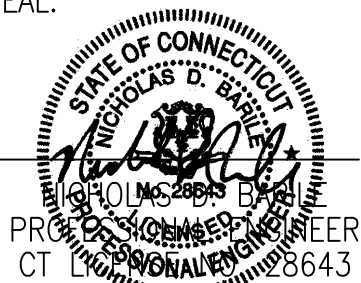
EMPIRE
telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2001
SITE NAME: NEW MILFORD-BOARDMAN ROAD
33 BOARDMAN ROAD
NEW MILFORD, CT 06776
LITCHFIELD COUNTY

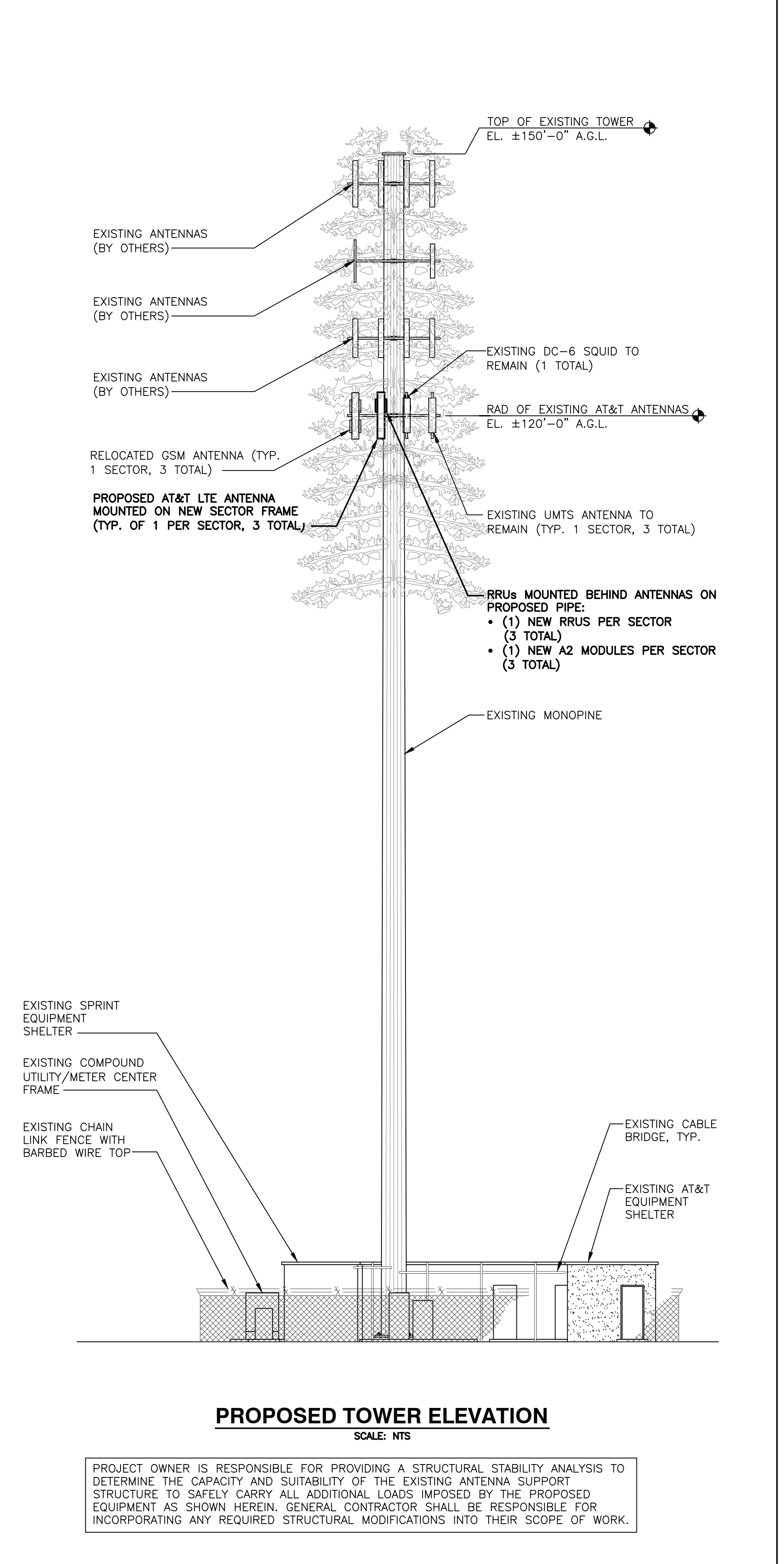
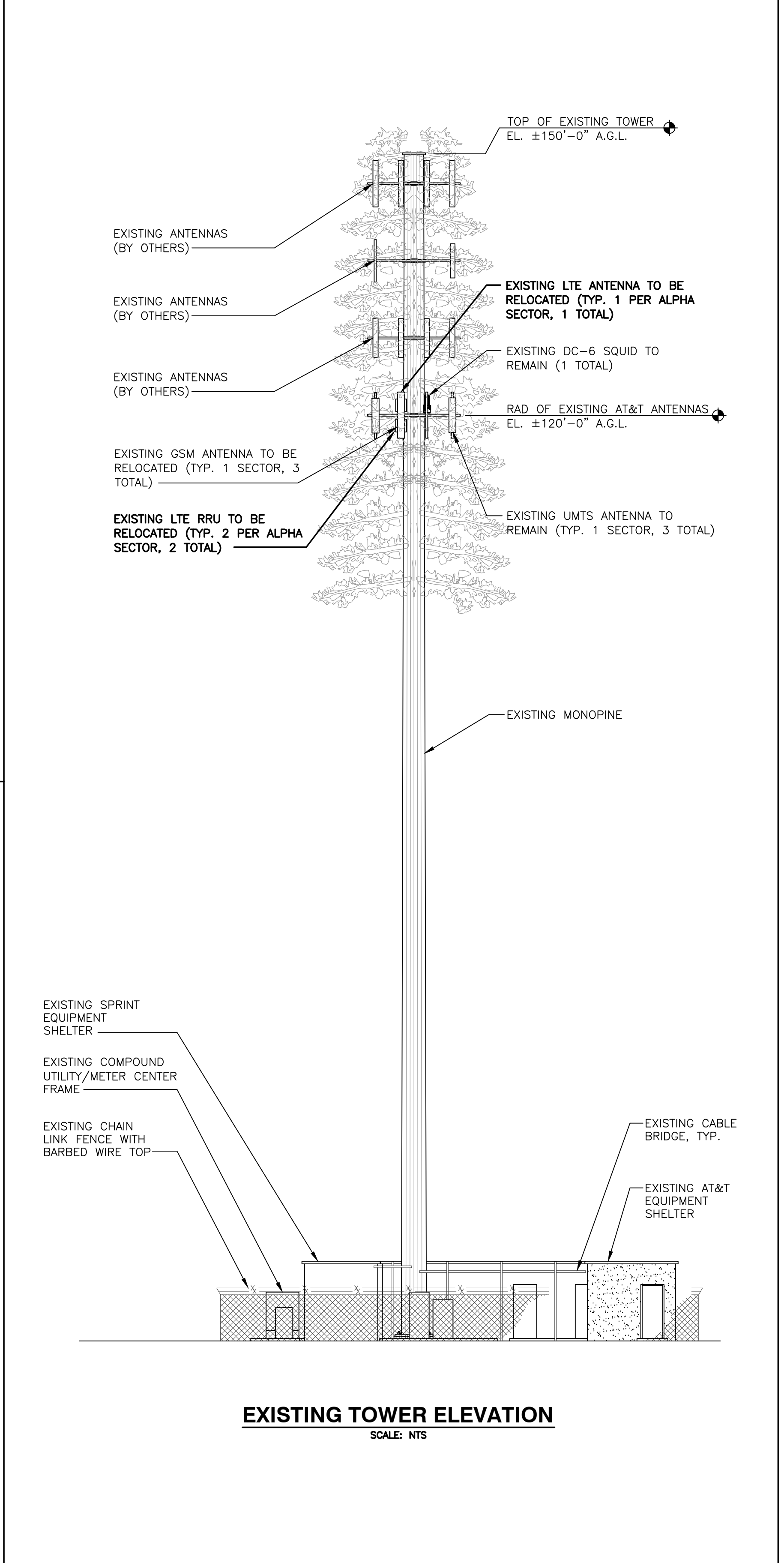
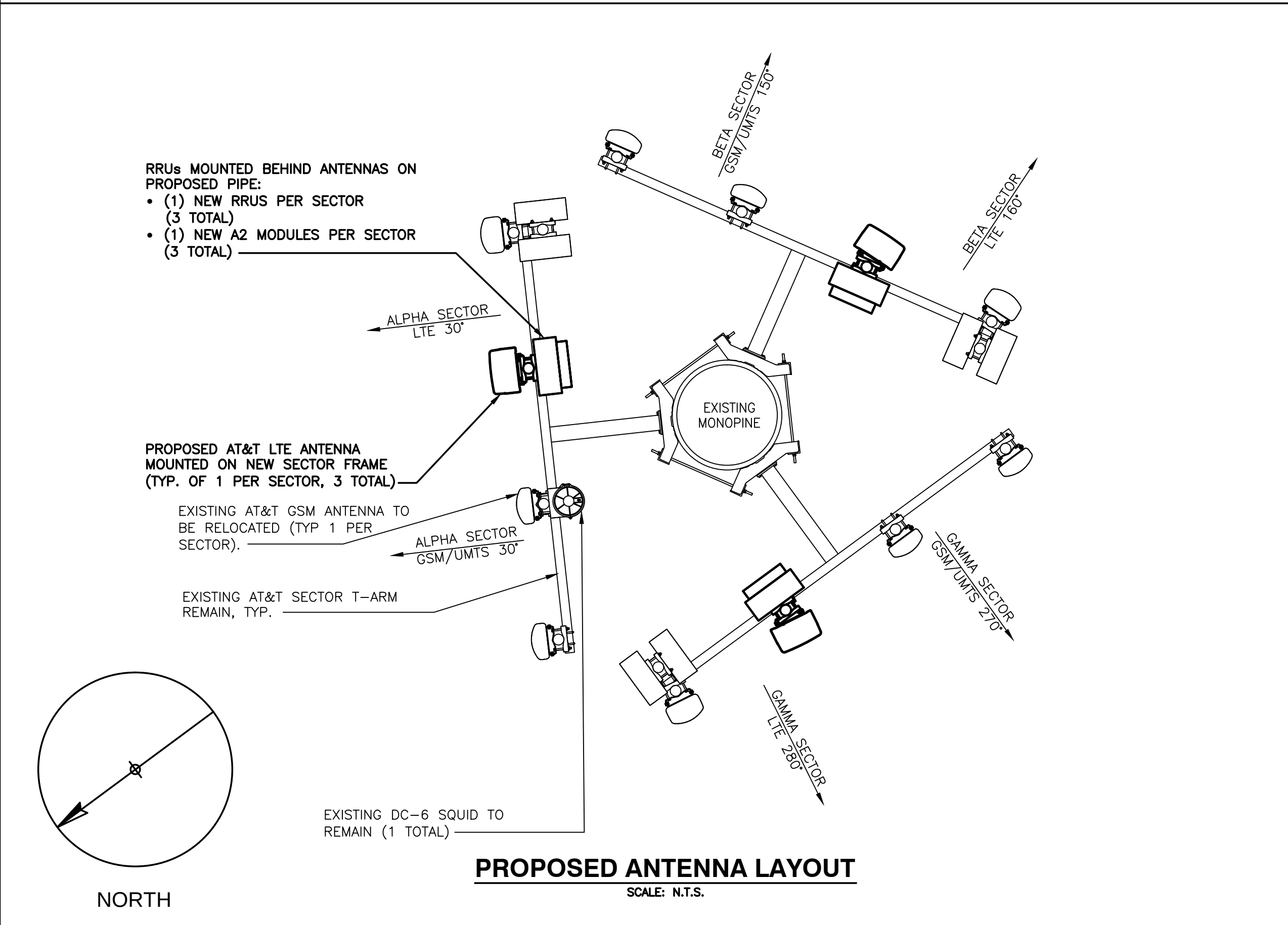
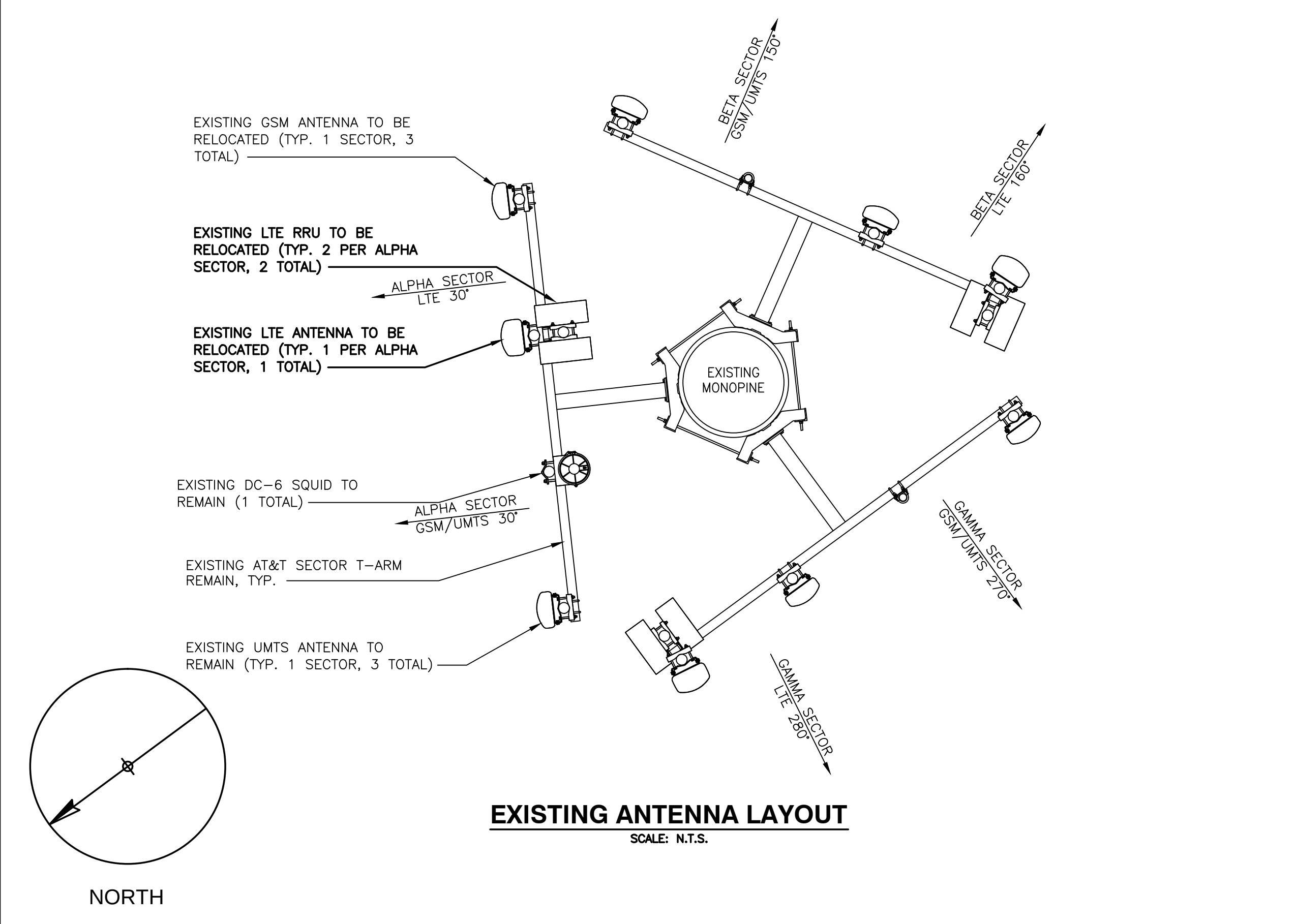
 **at&t**
MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

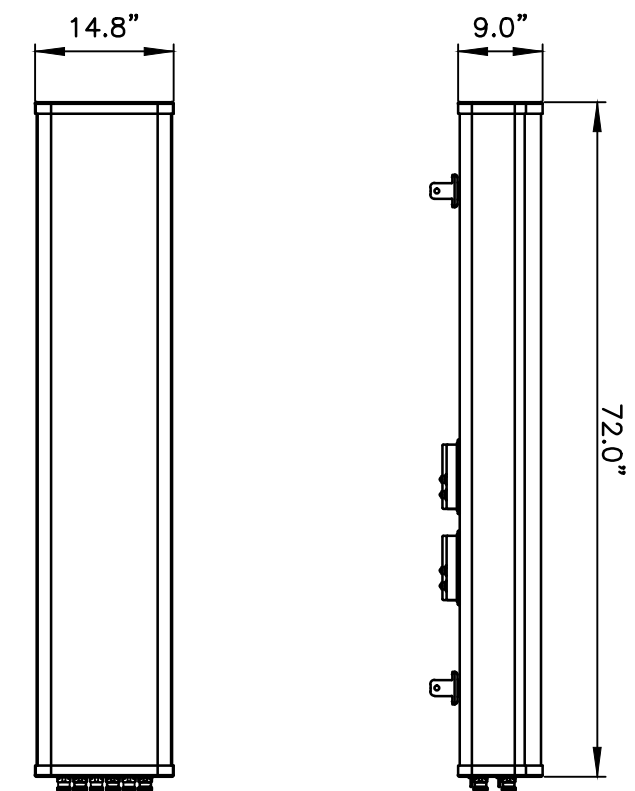
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NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: CJT	DRAWN BY: AM		

SEAL:



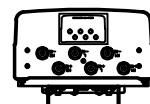
AT&T		
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JOB NUMBER 14191-EMP	DRAWING NUMBER A-2	REV 0





FRONT VIEW

SIDE VIEW

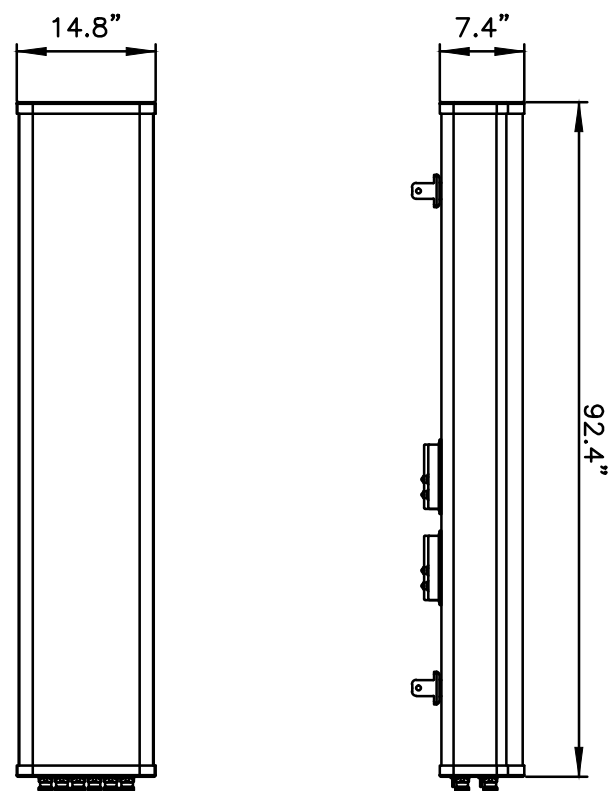


BOTTOM VIEW

MANUFACTURER	CCI
MODEL	HPA-65R-BUU-H6
WEIGHT	51.0 LBS

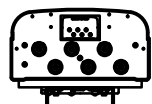
LTE ANTENNA DETAIL

SCALE: N.T.S.



FRONT VIEW

SIDE VIEW

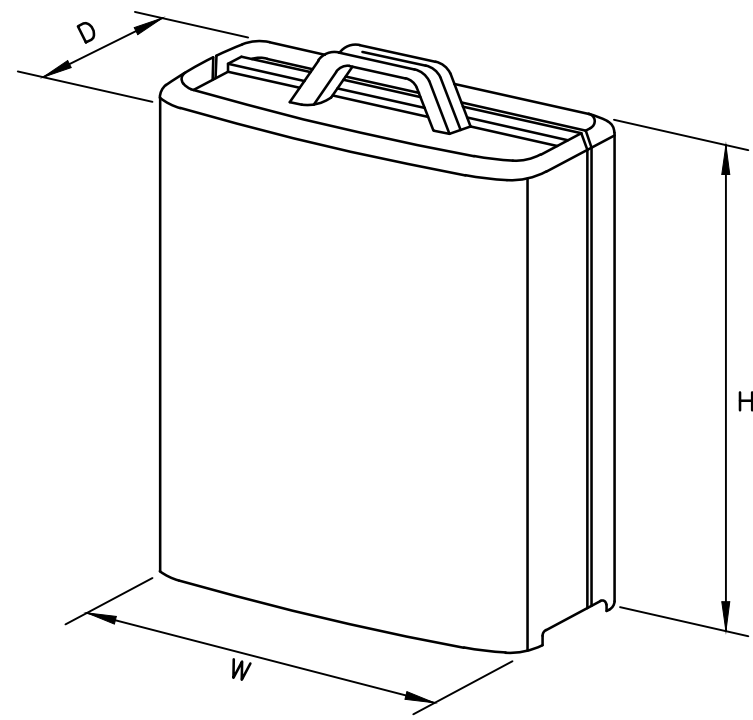


BOTTOM VIEW

MANUFACTURER	CCI
MODEL	HPA-65R-BUU-H8
WEIGHT	68.0 LBS

LTE ANTENNA DETAIL

SCALE: N.T.S.

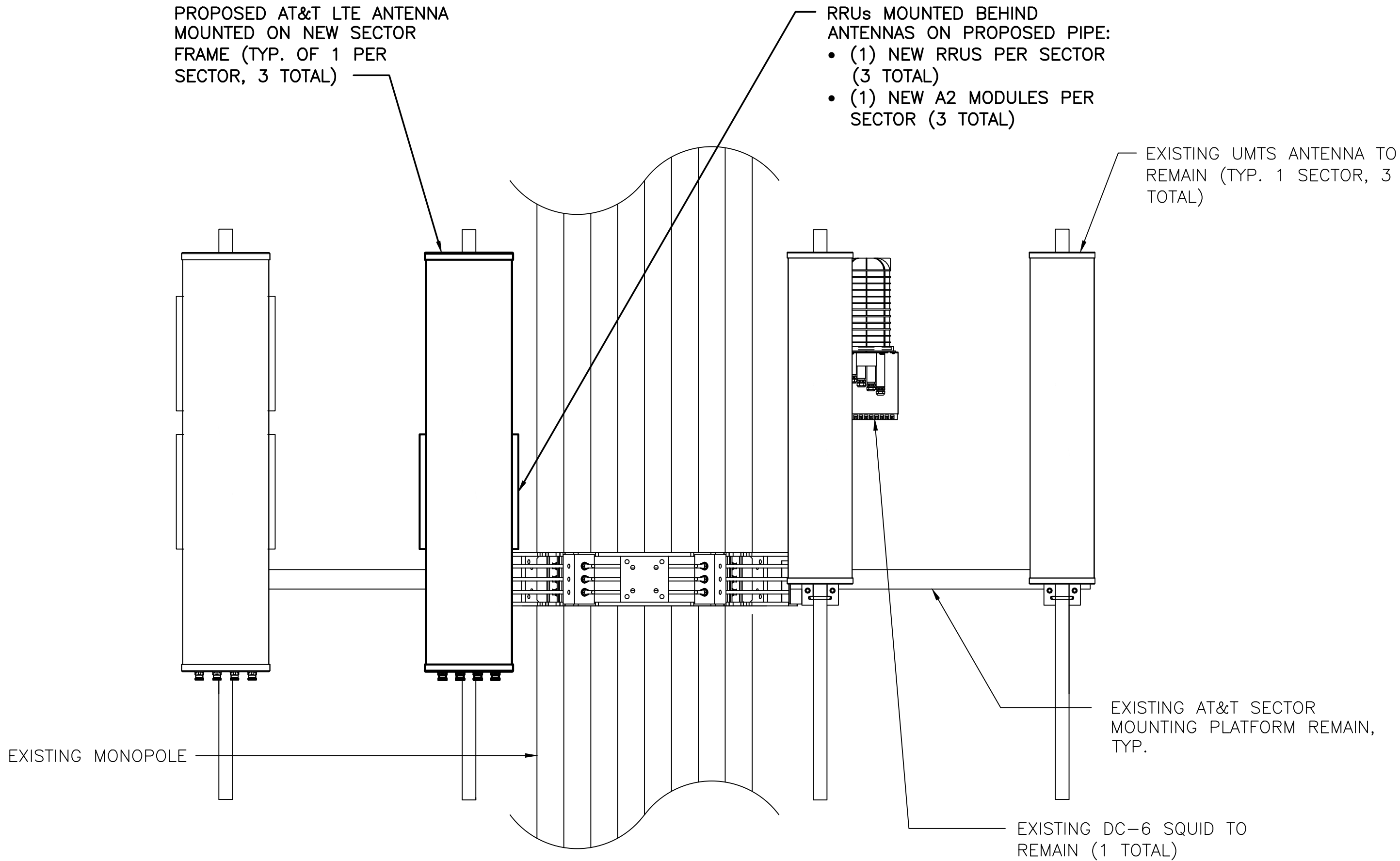


MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

*DENOTES EXISTING.

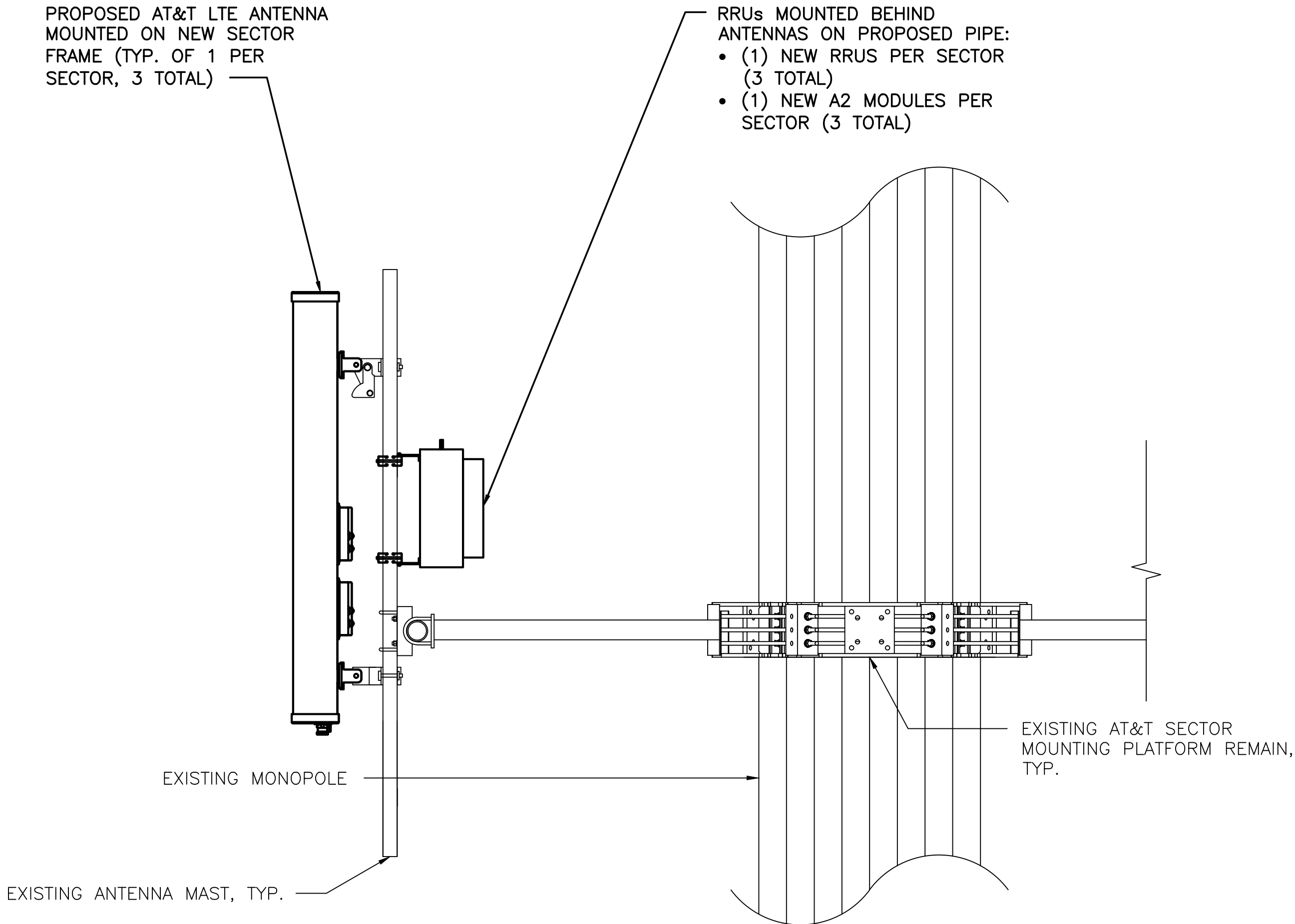
RRUS DETAIL

SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)

SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (SIDE VIEW)

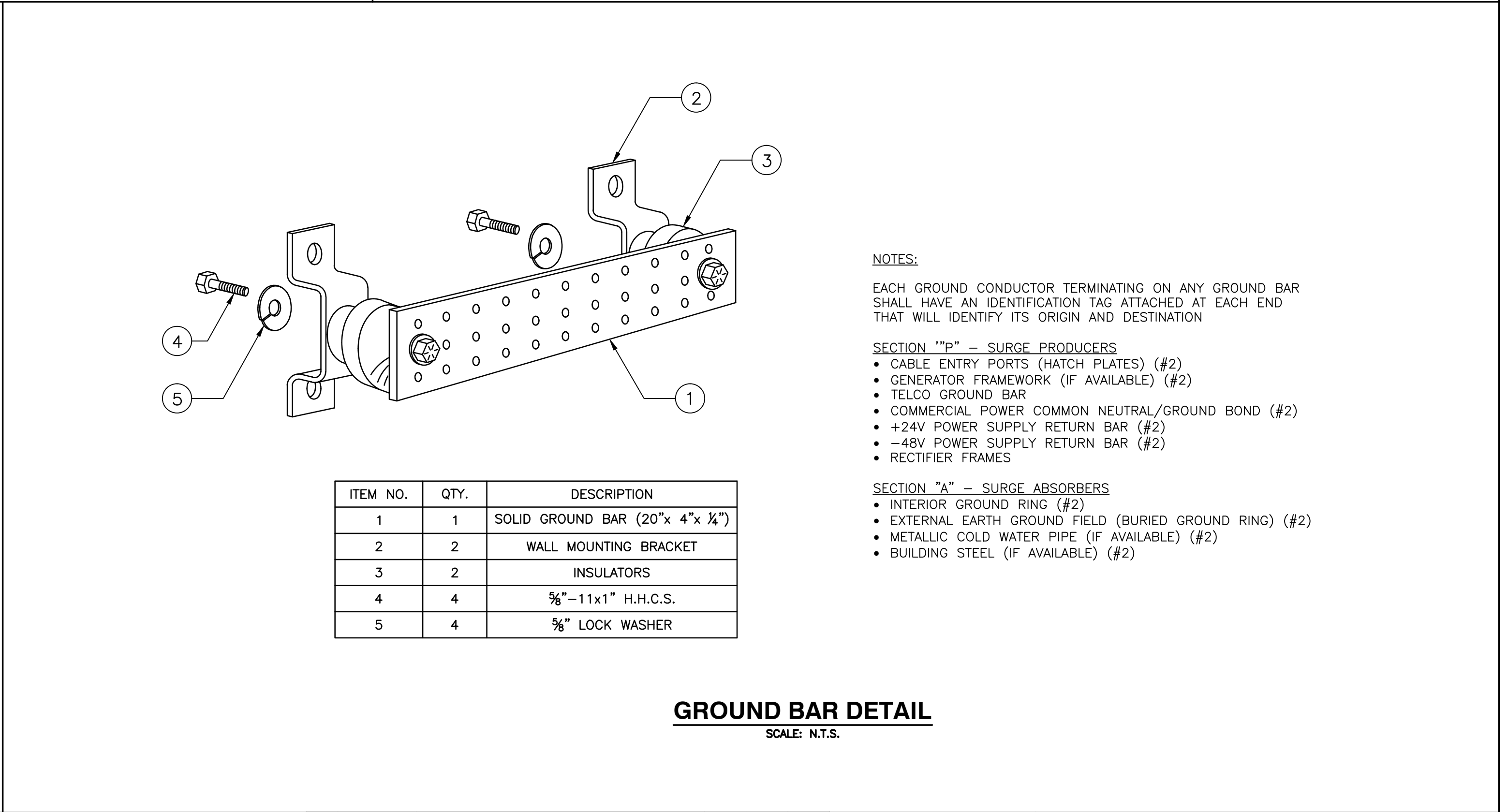
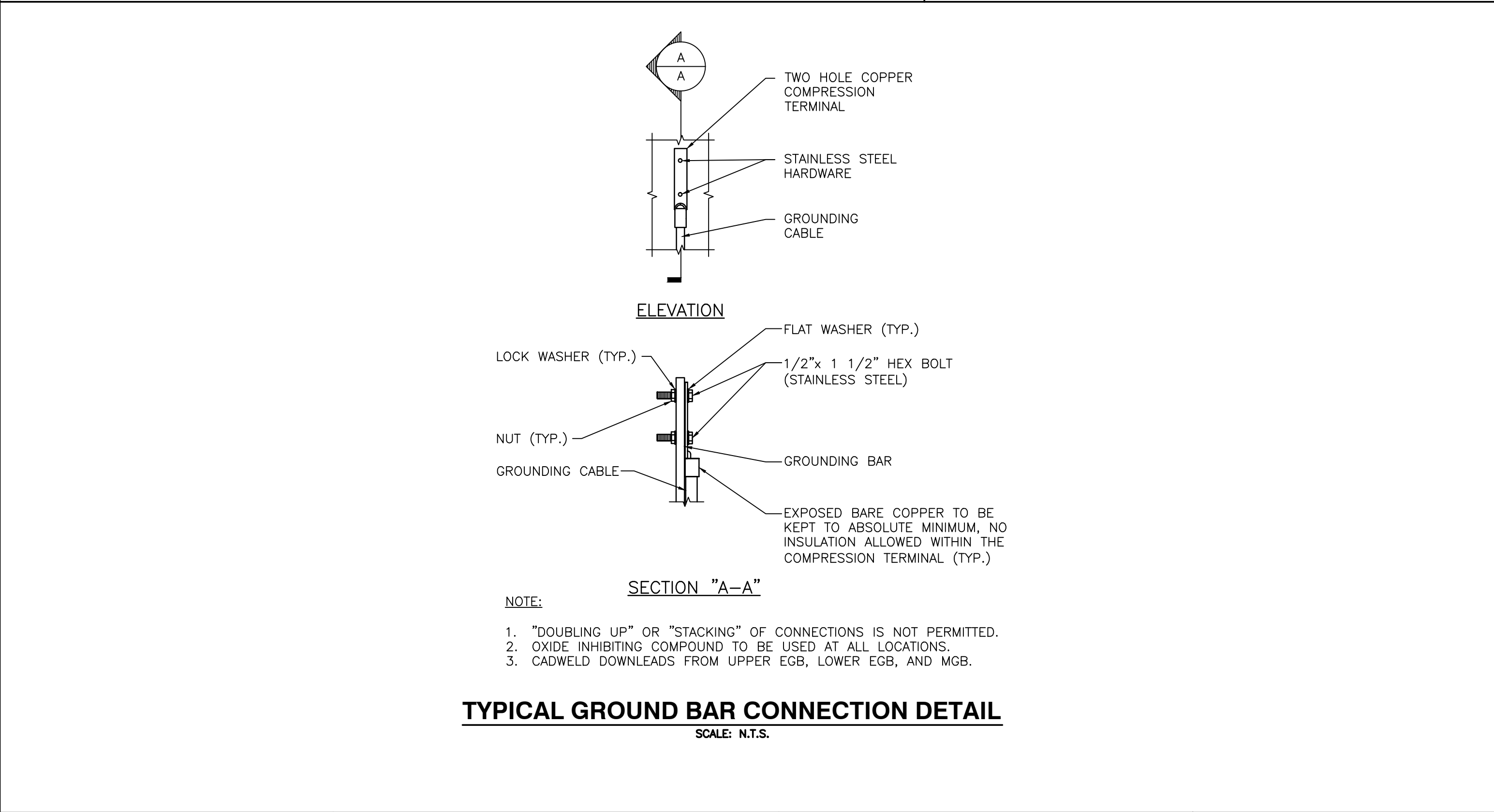
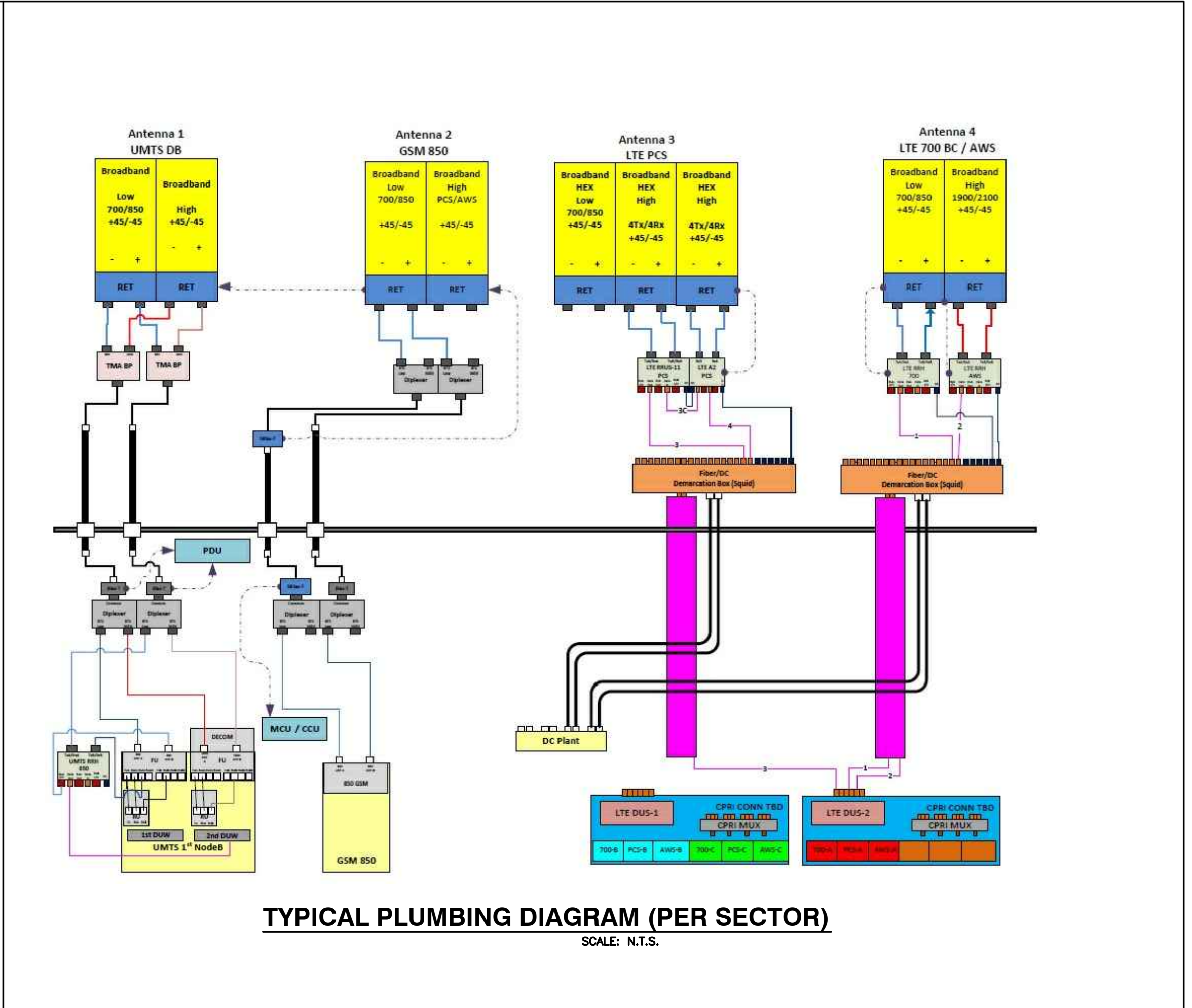
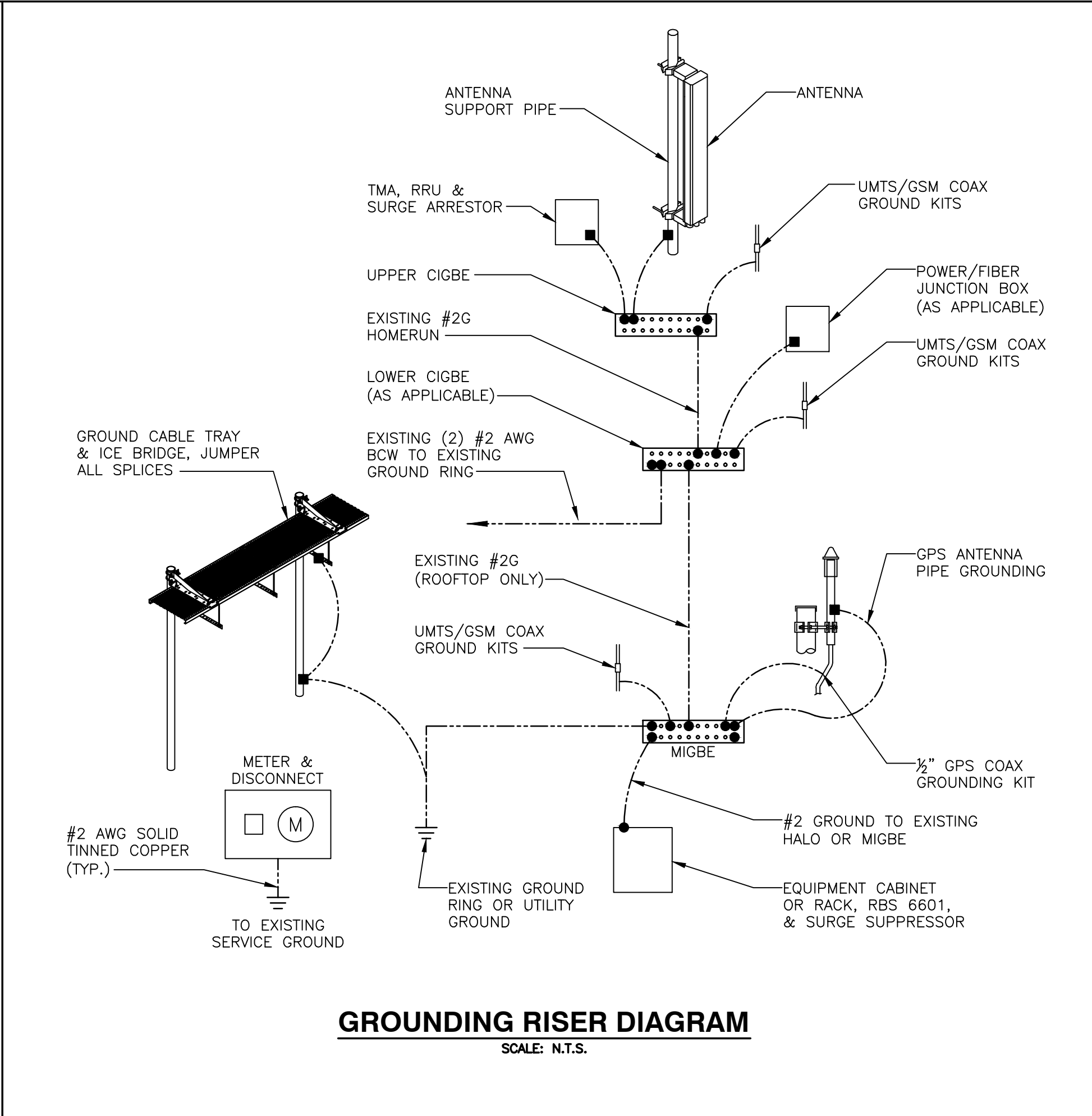
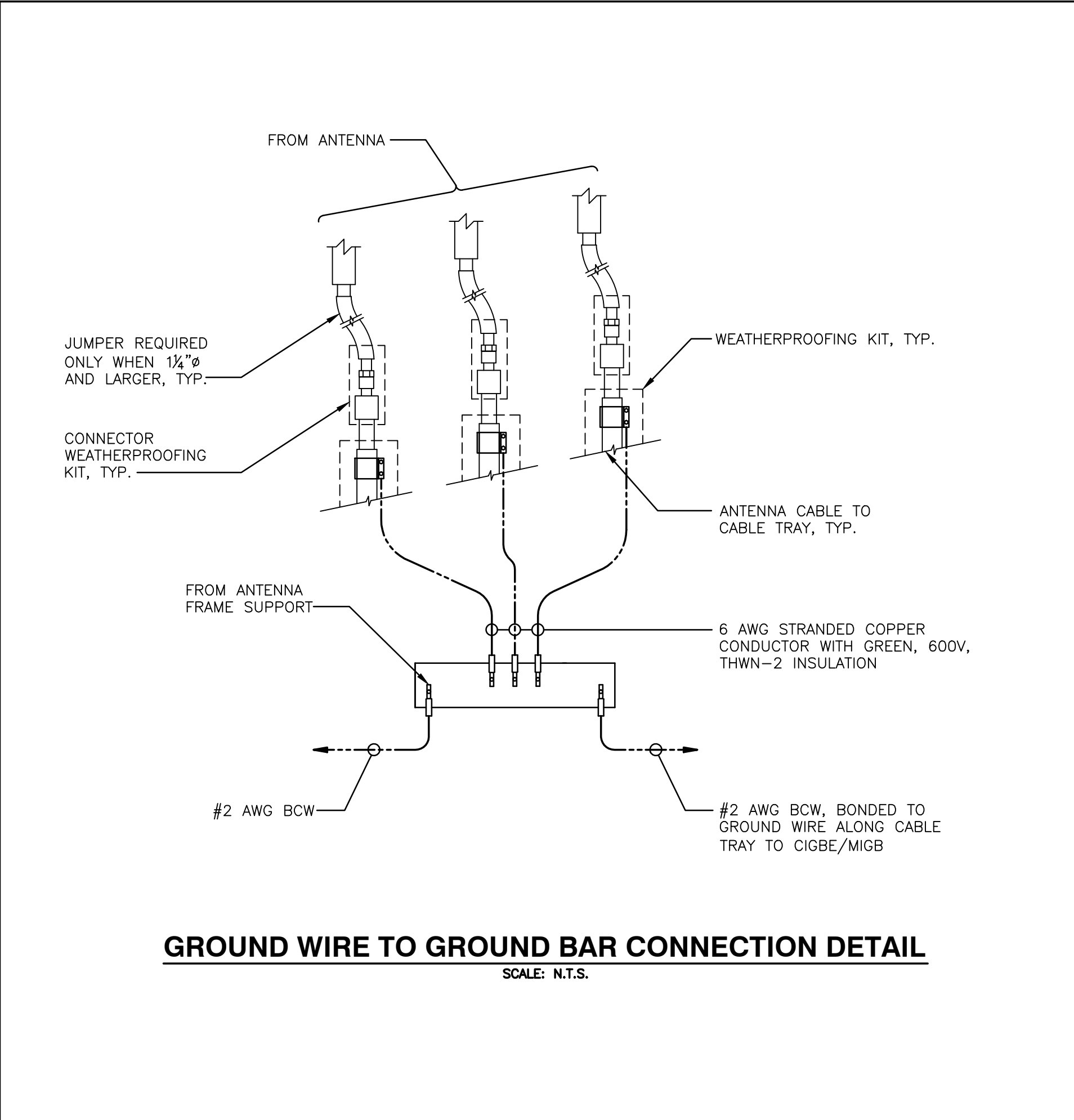
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE				
SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	—	—	—
	A3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	—	—	—
	B3	POWERWAVE	7770	55"x11"x5"
	B4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	—	—	—
	G3	POWERWAVE	7770	55"x11"x5"
	G4	KMW	AM-X-CD-17-65-00T-RET	96"x11.8"x5.9"

PROPOSED ANTENNA SCHEDULE				
SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	POWERWAVE	7770	55"x11"x5"
	A3	CCI	HPA-65R-BUU-H6	72"x14.8"x9.0"
	A4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	POWERWAVE	7770	55"x11"x5"
	B3	CCI	HPA-65R-BUU-H6	72"x14.8"x9.0"
	B4	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	POWERWAVE	7770	55"x11"x5"
	G3	CCI	HPA-65R-BUU-H8	92"x14.8"x9.0"
	G4	KMW	AM-X-CD-17-65-00T-RET	96"x11.8"x5.9"

PROPOSED RRH SCHEDULE					
SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
BETA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
GAMMA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.



**RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL
TO NON-IONIZING EMISSIONS**

AT&T Existing Facility

Site ID: CT2001

**New Milford - Boardman Road
33 Boardman Road
New Milford, CT 06776**

May 15, 2015

EBI Project Number: 6215002978

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	49.83 %

May 15, 2015

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 01701

Emissions Analysis for Site: **CT2001 – New Milford - Boardman Road**

EBI Consulting was directed to analyze the proposed AT&T facility located at **33 Boardman Road, New Milford, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 MHz and 800 MHz Bands are $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the PCS, AWS & WCS bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **33 Boardman Road, New Milford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 4 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 3) 2 LTE channels (AWS - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channels (PCS - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Powerwave 7770.00, KMW AM-X-CD-16-65-00, KMW AM-X-CD-17-65-00, CCI OPA-65R-LCUU-H8, CCI OPA-65R-LCUU-H8, CCI HPA-65R-BUU-H6 and the CCI HPA-65R-BUU-H8**. This is based on feedback from the carrier with regards to anticipated antenna selection. The manufacturers maximum gain values per assigned frequency band are listed in the following data table on the next page. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **120 feet** above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.



AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 dBd	Gain:	11.4 dBd	Gain:	11.4 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 feet
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	4	Channel Count	4	# PCS Channels:	4
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	1,205.43	ERP (W):	1,205.43	ERP (W):	1,205.43
Antenna A1 MPE%	0.63 (0.63% @ 850 MHz)	Antenna B1 MPE%	0.63 (0.63% @ 850 MHz)	Antenna C1 MPE%	0.63 (0.63% @ 850 MHz)
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	CCI OPA-65R-LCUU-H8	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	15 dBd	Gain:	15.1 dBd	Gain:	15 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 feet
Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	1,832.12	ERP (W):	1,843.26	ERP (W):	1,690.92
Antenna A2 MPE%	1.65 (1.65 @ 2300 MHz)	Antenna B2 MPE%	1.69 (1.69 @ 2300 MHz)	Antenna C2 MPE%	1.65 (1.65 @ 2300 MHz)
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	KMW AM-X-CD-16-65-00	Make / Model:	KMW AM-X-CD-16-65-00	Make / Model:	KMW AM-X-CD-17-65-00
Gain:	13.5 / 15.1 dBd	Gain:	13.5 / 15.1 dBd	Gain:	14.7 / 15.1 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 feet
Frequency Bands	700 MHz / 2100 MHz (AWS)	Frequency Bands	700 MHz / 2100 MHz (AWS)	Frequency Bands	700 MHz / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	240	Total TX Power:	240	Total TX Power:	240
ERP (W):	3,447.65	ERP (W):	3,447.65	ERP (W):	3,553.09
Antenna A3 MPE%	2.38 (1.31 @ 700 MHz) (1.07 @ 2100 MHz)	Antenna B3 MPE%	2.38 (1.31 @ 700 MHz) (1.07 @ 2100 MHz)	Antenna C3 MPE%	2.93 (1.85 @ 700 MHz) (1.07 @ 2100 MHz)
Antenna #:	4	Antenna #:	4	Antenna #:	4
Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H8
Gain:	14.8 dBd	Gain:	14.8 dBd	Gain:	15 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 feet
Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	1,807.95	ERP (W):	1,807.95	ERP (W):	1,832.12
Antenna A4 MPE%	1.57 (1.57 @ 1900 MHz)	Antenna B4 MPE%	1.57 (1.57 @ 1900 MHz)	Antenna C4 MPE%	1.57 (1.57 @ 1900 MHz)



Site Composite MPE %	
Carrier	MPE %
AT&T	19.38 %
Sprint	4.97%
Verizon Wireless	23.87%
T-Mobile	1.61%
Site Total MPE %:	49.83 %

AT&T Sector 1 Total:	6.24 %
AT&T Sector 2 Total:	6.28 %
AT&T Sector 3 Total:	6.86 %
Site Total:	49.83 %

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	6.24 %
Sector 2:	6.28 %
Sector 3 :	6.86 %
AT&T Total:	19.38 %
Site Total:	49.83 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **49.83%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



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