Michael Gentile, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 844-9813
Mgentile@clinellc.com

2/18/2016

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

RE: Notice of Exempt Modification // Site Number: CT2120
55 Walls Drive, Fairfield, CT 06824 (Site Name: Fairfield Central)
N 41.1478250 // W -73.2514711

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains nine (9) antennas at the 70' foot level of the existing 20' lattice tower located on the 50' rooftop at 55 Walls Drive, Fairfield, CT 06824. The tower is owned by Robert D. Scinto c/o RD Scinto, Inc. The property is also owned by Robert D. Scinto. AT&T now intends to replace three (3) of its existing antennas with three (3) new LTE (700/1900 band) antennas for its LTE upgrade. These antennas would be installed at the same 70' AGL level of the tower. AT&T also intends to install three (3) remote radio units and three (3) remote radio unit modules.

The current proposal involves an antenna swap only (three for three); no antennas will be added.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mike Tetreau, First Selectman for the Town of Fairfield, as well as the tower owner, Robert D. Scinto and the ground owner, Robert D. Scinto.

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

Attached to accommodate this filing are construction drawings dated 2/10/2016 by ComEx Consultants, a structural analysis dated 2/4/2016 by ComEx Consultants and an Emissions Analysis Report dated 2/9/2016 by EBI Consulting.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

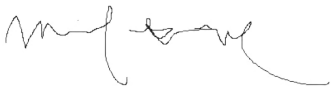
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading as shown in the attached structural analysis by ComEx consultants, dated 2/4/2016.

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

Sincerely,



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Attachments

cc: Mike Tetreau, First Selectman, Town of Fairfield - as elected official
Robert D. Scinto - as tower owner
Robert D. Scinto - as property owner

STRUCTURAL ANALYSIS REPORT
SELF-SUPPORT TOWER

Prepared For:

Com-Ex Consultants, LLC
115 Route 46 – Suite E39
Mountain Lakes, NJ 07046

Structure Rating:

Self-Support Tower: **Pass**

Sincerely,
Destek Engineering, LLC

02-04-2016

STATE OF CONNECTICUT
AHMET COLAKOGLU
PEN. 27057
LICENSED
PROFESSIONAL ENGINEER

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

AT&T Site ID: CT2120
FA Code: 10035074
Site Name: Fairfield Central
55 Walls Drive
Fairfield, CT 06824

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

CONTENTS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the 20 feet tall self-support tower on the rooftop of the building at 55 Walls Drive, Fairfield, CT 06824 for the additions and alterations proposed by AT&T.

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

- As-Built Drawings prepared by Hudson Design Group, dated 06/15/2011
- Structural Analysis Report prepared by Hudson Design Group, dated 06/24/2011
- RFDS provided by AT&T, dated 09/18/2015
- Construction Drawings prepared by Com-Ex Consultants, Project Number 15127-EMP, dated 12/07/2015
- Site Photographs

1.1 STRUCTURE

The subject structure is a 3-sided, 20 feet tall self-support tower formed by (5) sections which are X-braced with single angle diagonals. The tower is 4 feet wide at both the top and base. The tower is located on the rooftop of a (4) story commercial building. The elevation of the main roof line is approximately 48 feet above ground level (AGL). Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

Appurtenances by others can be found in the appendix. AT&T is proposing the following antenna configuration on the tower:

Existing Configuration of AT&T Appurtenances:

Rad Center (Feet-AGL)	Antenna & Equipment	Feedlines	Mount
70	(6) Powerwave 7770.00.850.00 (3) Powerwave P65-16-XLH-RR (3) DC-6, (12) LGP21401, (3) RRUS-11	(1) 1/2'' (12) 1-5/8''	(3) Side Mount Standoff

Proposed and Final Configuration of AT&T Appurtenances:

Rad Center (Feet-AGL)	Antenna & Equipment	Feedlines	Mount
70	(6) Powerwave 7770.00.850.00 (3) CCI HPA-65R-BUU-H6 (3) DC-6 (12) LGP21401 (3) RRUS-11, (3) RRUS-12, (3) RRUS-A2	(1) 1/2'' (12) 1-5/8''	(3) Side Mount Standoff

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

3.0 CODES AND LOADING

The tower was analyzed per TIA/EIA-222-F as referenced by the 2005 State Building Code with all adopted amendments and supplements (Connecticut). The following wind loading was used in compliance with the standard for Fairfield, CT:

- Basic wind speed 85 mph without ice
- Basic wind speed 74 mph with 0.5" ice

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

- $D + W_o$
- $D + 0.75\ W_i + I$

D: Dead Load of structure and appurtenances
W_o: Wind Load, without ice
W_i: Wind Load with ice
I: Weight of ice

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 noted otherwise, the structure and the foundation system are 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. 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 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 additions and alterations. Any deviation of the proposed equipment and placement, etc., will require Destek to generate an additional structural analysis.

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

5.0 ANALYSIS AND ASSUMPTIONS

The structure is considered to have adequate strength for the proposed loading if the existing structural members that will be used to support the proposed equipment are structurally adequate per the applicable code criteria, or that the additions or alterations to the existing structure do not increase the force in any structural element by more than 5%.

The structure was analyzed by utilizing tnxTower, a non-linear 3-Dimensional finite element software, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix-A of this report.

Maximum tower reactions are located in the Appendix-A of this report. Any additional required calculations are assumed to be performed by others.

6.0 RESULTS AND CONCLUSION

Based on a structural analysis per ANSI/TIA-222-F, the existing self-support tower is found to have **adequate** structural capacity for the proposed changes by AT&T Mobility. For the aforementioned load combinations, the tower leg members have the highest stresses and are stressed to **48.7%** of capacity as a maximum.

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.

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

APPENDIX A
SOFTWARE OUTPUT

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
27' whip antenna	71.25	(4) LGP21401	68.25
7770.00 w/ Mount Pipe	70	(4) LGP21401	68.25
7770.00 w/ Mount Pipe	70	RRUS 11	65
7770.00 w/ Mount Pipe	70	RRUS 11	65
7770.00 w/ Mount Pipe	70	RRUS 11	65
7770.00 w/ Mount Pipe	70	RRUS A2	65
7770.00 w/ Mount Pipe	70	RRUS A2	65
HPA-65R-BUU-H6 w/ Mount Pipe	70	RRUS A2	65
HPA-65R-BUU-H6 w/ Mount Pipe	70	RRUS 12	65
HPA-65R-BUU-H6 w/ Mount Pipe	70	RRUS 12	65
Pirod 4' Side Mount Standoff (1)	69	RRUS 12	65
Pirod 4' Side Mount Standoff (1)	69	DC6-48-60-18-8F	65
Pirod 4' Side Mount Standoff (1)	69	DC6-48-60-18-8F	65
(4) LGP21401	68.25	DC6-48-60-18-8F	65

SYMBOL LIST

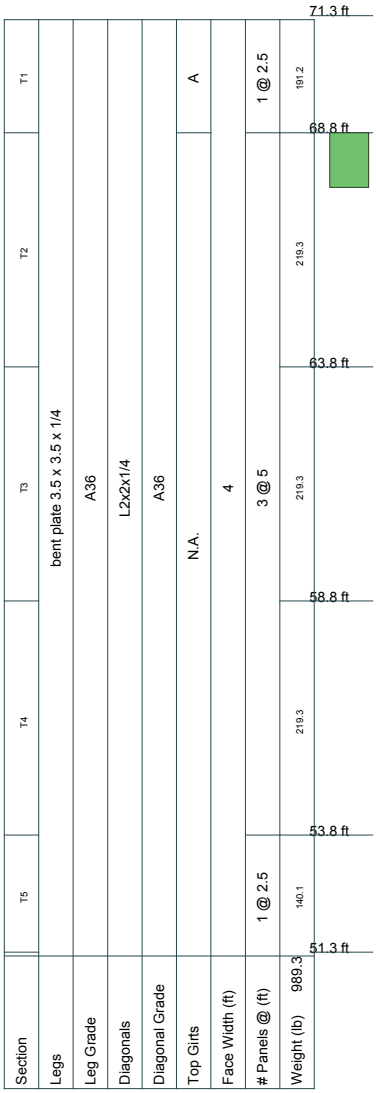
MARK	SIZE	MARK	SIZE
A	L 2 1/2x 2 1/2x 1/4		

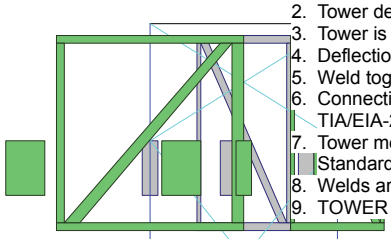
MATERIAL STRENGTH

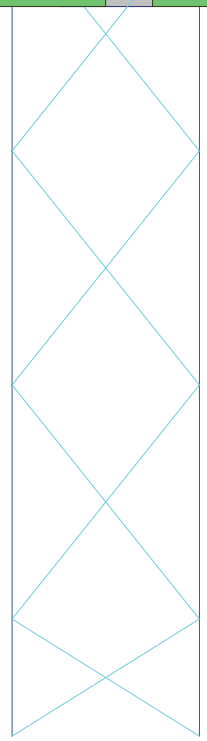
GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. Weld together tower sections have flange connections.
6. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
7. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
8. Welds are fabricated with ER-70S-6 electrodes.
9. TOWER RATING: 48.7%







△ *MAX. CORNER REACTIONS AT BASE:*

DOWN: 22527 lb
SHEAR: 2406 lb

UPLIFT: -19871 lb
SHEAR: 2266 lb

AXIAL
4684 lb

SHEAR
4362 lb

MOMENT
67775 lb-ft

TORQUE 495 lb-ft
74 mph WIND - 0.5000 in ICE

AXIAL
2798 lb

SHEAR
4856 lb

MOMENT
74806 lb-ft

TORQUE 505 lb-ft
REACTIONS - 85 mph WIND

Destek Engineering, LLC
1281 Kennestone Circle, Suite 100
Marietta, GA 30066
Phone: (770) 693-0835
FAX:

Job: *CT2120*			
Project: *1629014*			
Client: ComEx Consultants	Drawn by: Ahmet Colakoglu		App'd:
Code: TIA/EIA-222-F	Date: 02/05/16		Scale: NTS
Path: C:\Users\destek16\Desktop\Temporary\29 - ComexCT2120\RLP Temp (11)\CT2120 - Fairfield Central - SSTower.eri			Dwg No. E-1

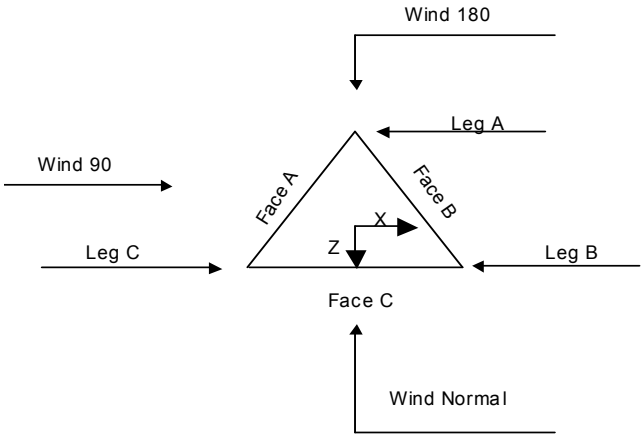
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 71.30 ft above the ground line.
The base of the tower is set at an elevation of 51.30 ft above the ground line.
The face width of the tower is 4.00 ft at the top and 4.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member 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		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	71.30-68.80			4.00	1	2.50
T2	68.80-63.80			4.00	1	5.00
T3	63.80-58.80			4.00	1	5.00
T4	58.80-53.80			4.00	1	5.00
T5	53.80-51.30			4.00	1	2.50

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	71.30-68.80	2.50	X Brace	No	No	0.0000	0.0000
T2	68.80-63.80	5.00	X Brace	No	No	0.0000	0.0000
T3	63.80-58.80	5.00	X Brace	No	No	0.0000	0.0000
T4	58.80-53.80	5.00	X Brace	No	No	0.0000	0.0000
T5	53.80-51.30	2.50	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 71.30-68.80	Arbitrary Shape	bent plate 3.5 x 3.5 x 1/4	A36 (36 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T2 68.80-63.80	Arbitrary Shape	bent plate 3.5 x 3.5 x 1/4	A36 (36 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T3 63.80-58.80	Arbitrary Shape	bent plate 3.5 x 3.5 x 1/4	A36 (36 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T4 58.80-53.80	Arbitrary Shape	bent plate 3.5 x 3.5 x 1/4	A36 (36 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T5 53.80-51.30	Arbitrary Shape	bent plate 3.5 x 3.5 x 1/4	A36 (36 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 71.30-68.80	Single Angle	L 2 1/2x 2 1/2x 1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	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
T1 71.30-68.80	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000
T2 68.80-63.80	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	0.0000	0.0000
T3 63.80-58.80	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	0.0000	0.0000
T4 58.80-53.80	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	0.0000	0.0000
T5 53.80-51.30	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 71.30-68.80	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T2	Yes	No	1	1	1	1	1	1	1	1
68.80-63.80				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1
63.80-58.80				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
58.80-53.80				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
53.80-51.30				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 71.30-68.80	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 68.80-63.80	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 63.80-58.80	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 58.80-53.80	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 53.80-51.30	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1 71.30-68.80	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 68.80-63.80	Flange	0.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 63.80-58.80	Flange	0.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 58.80-53.80	Flange	0.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 53.80-51.30	Flange	0.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Climbing Ladder	A	No	Af (Leg)	71.30 - 51.30	0.0000	0	1	1	0.2500 0.0000	0.0000	0.0000	7.90
HJ7-50A(1-5/8")	B	No	Ar (Leg)	67.30 - 51.30	0.0000	0	12	2	1.9800 0.0000	1.9800		1.04
3" conduit	A	No	Ar (CaAa)	67.30 - 51.30	0.0000	0.1	1	1	3.5000 0.0000	3.5000		3.00
HJ4-50(1/2")	A	No	Ar (CaAa)	67.30 - 51.30	0.0000	0	1	1	0.5800 0.0000	0.5800		0.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	71.30-68.80	A	0.000	0.000	0.000	0.000	19.75
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	68.80-63.80	A	0.000	0.000	1.428	0.000	50.88
		B	1.155	0.000	0.000	0.000	43.68
		C	1.155	0.000	0.000	0.000	0.00
T3	63.80-58.80	A	0.000	0.000	2.040	0.000	55.75
		B	1.650	0.000	0.000	0.000	62.40
		C	1.650	0.000	0.000	0.000	0.00
T4	58.80-53.80	A	0.000	0.000	2.040	0.000	55.75
		B	1.650	0.000	0.000	0.000	62.40
		C	1.650	0.000	0.000	0.000	0.00
T5	53.80-51.30	A	0.000	0.000	1.020	0.000	27.88
		B	0.825	0.000	0.000	0.000	31.20
		C	0.825	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_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	71.30-68.80	A	0.500	0.000	0.139	0.000	0.000	20.67
		B		0.000	0.139	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	68.80-63.80	A	0.500	0.000	0.278	2.128	0.000	63.58
		B		1.738	0.278	0.000	0.000	107.31
		C		1.738	0.000	0.000	0.000	0.00
T3	63.80-58.80	A	0.500	0.000	0.278	3.040	0.000	73.11
		B		2.483	0.278	0.000	0.000	153.30
		C		2.483	0.000	0.000	0.000	0.00
T4	58.80-53.80	A	0.500	0.000	0.278	3.040	0.000	73.11
		B		2.483	0.278	0.000	0.000	153.30
		C		2.483	0.000	0.000	0.000	0.00
T5	53.80-51.30	A	0.500	0.000	0.139	1.520	0.000	36.55
		B		1.242	0.139	0.000	0.000	76.65
		C		1.242	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	71.30-68.80	0.0000	0.0000	0.0000	-0.2460
T2	68.80-63.80	0.5018	-0.0036	0.5389	-0.1966
T3	63.80-58.80	0.6242	-0.0045	0.6644	-0.1543
T4	58.80-53.80	0.6242	-0.0045	0.6644	-0.1543
T5	53.80-51.30	0.5629	-0.0040	0.5961	-0.1384

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Pirod 4' Side Mount Standoff (1)	A	Stand-Off Right	0.00 0.00 0.00	0.0000	69.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	50.00 89.00
Pirod 4' Side Mount Standoff (1)	B	Stand-Off Right	0.00 0.00 0.00	0.0000	69.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	50.00 89.00
Pirod 4' Side Mount Standoff (1)	C	Stand-Off Right	0.00 0.00 0.00	0.0000	69.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	50.00 89.00
27' whip antenna	C	From Leg	0.00 0.00 11.00	0.0000	71.25	No Ice 1/2" Ice	8.10 10.83	8.10 10.83	30.00 88.13
7770.00 w/ Mount Pipe	A	Stand-Off Right	5.00 0.50 0.00	0.0000	70.00	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	55.38 102.81
7770.00 w/ Mount Pipe	B	Stand-Off Right	5.00 0.50 0.00	0.0000	70.00	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	55.38 102.81
7770.00 w/ Mount Pipe	C	Stand-Off Right	5.00 0.50 0.00	0.0000	70.00	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	55.38 102.81
7770.00 w/ Mount Pipe	A	Stand-Off Right	1.00 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	55.38 102.81
7770.00 w/ Mount Pipe	B	Stand-Off Right	1.00 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	55.38 102.81
7770.00 w/ Mount Pipe	C	Stand-Off Right	1.00 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice	6.12 6.63	4.25 5.01	55.38 102.81
HPA-65R-BUU-H6 w/ Mount Pipe	A	Stand-Off Right	5.00 -0.50 0.00	0.0000	70.00	No Ice 1/2" Ice	10.60 11.27	8.11 9.30	76.55 158.03
HPA-65R-BUU-H6 w/ Mount Pipe	B	Stand-Off Right	5.00 -0.50 0.00	0.0000	70.00	No Ice 1/2" Ice	10.60 11.27	8.11 9.30	76.55 158.03
HPA-65R-BUU-H6 w/ Mount Pipe	C	Stand-Off Right	5.00 -0.50	0.0000	70.00	No Ice 1/2" Ice	10.60 11.27	8.11 9.30	76.55 158.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
(4) LGP21401	A	Stand-Off	1.00	0.0000	68.25	No Ice	1.29	0.36	14.10
		Right	0.00			1/2" Ice	1.45	0.48	21.26
			0.00						
(4) LGP21401	B	Stand-Off	1.00	0.0000	68.25	No Ice	1.29	0.36	14.10
		Right	0.00			1/2" Ice	1.45	0.48	21.26
			0.00						
(4) LGP21401	C	Stand-Off	1.00	0.0000	68.25	No Ice	1.29	0.36	14.10
		Right	0.00			1/2" Ice	1.45	0.48	21.26
			0.00						
RRUS 11	A	From Face	0.50	0.0000	65.00	No Ice	3.25	1.37	50.70
			0.00			1/2" Ice	3.49	1.55	71.50
			0.00						
RRUS 11	B	From Face	0.50	0.0000	65.00	No Ice	3.25	1.37	50.70
			0.00			1/2" Ice	3.49	1.55	71.50
			0.00						
RRUS 11	C	From Face	0.50	0.0000	65.00	No Ice	3.25	1.37	50.70
			0.00			1/2" Ice	3.49	1.55	71.50
			0.00						
RRUS A2	A	From Face	0.50	0.0000	65.00	No Ice	2.41	0.54	22.04
			0.00			1/2" Ice	2.62	0.68	34.71
			0.00						
RRUS A2	B	From Face	0.50	0.0000	65.00	No Ice	2.41	0.54	22.04
			0.00			1/2" Ice	2.62	0.68	34.71
			0.00						
RRUS A2	C	From Face	0.50	0.0000	65.00	No Ice	2.41	0.54	22.04
			0.00			1/2" Ice	2.62	0.68	34.71
			0.00						
RRUS 12	A	From Face	0.50	0.0000	65.00	No Ice	3.67	1.49	58.00
			0.00			1/2" Ice	3.93	1.67	81.22
			0.00						
RRUS 12	B	From Face	0.50	0.0000	65.00	No Ice	3.67	1.49	58.00
			0.00			1/2" Ice	3.93	1.67	81.22
			0.00						
RRUS 12	C	From Face	0.50	0.0000	65.00	No Ice	3.67	1.49	58.00
			0.00			1/2" Ice	3.93	1.67	81.22
			0.00						
DC6-48-60-18-8F	A	From Face	0.50	0.0000	65.00	No Ice	1.29	1.29	32.00
			0.00			1/2" Ice	1.49	1.49	47.38
			0.00						
DC6-48-60-18-8F	B	From Face	0.50	0.0000	65.00	No Ice	1.29	1.29	32.00
			0.00			1/2" Ice	1.49	1.49	47.38
			0.00						
DC6-48-60-18-8F	C	From Face	0.50	0.0000	65.00	No Ice	1.29	1.29	32.00
			0.00			1/2" Ice	1.49	1.49	47.38
			0.00						

Load Combinations

Comb. No.	Description

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T1	71.3 - 68.8	Leg	Max Tension	12	705.06	-196.52	-0.26
			Max. Compression	23	-1781.66	140.13	-0.03
			Max. Mx	6	-1305.08	-268.57	0.34
			Max. My	7	-327.46	0.23	273.31
			Max. Vy	2	-462.67	200.15	-0.65
			Max. Vx	13	-458.66	0.23	191.91
		Diagonal	Max Tension	25	652.38	0.00	0.00
			Max. Compression	6	-502.68	0.00	0.00
			Max. Mx	25	-99.86	-3.93	0.22
			Max. My	7	-253.15	0.80	-1.08
			Max. Vy	23	-6.47	2.78	0.33
			Max. Vx	7	0.46	0.80	-1.08
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-165.54	0.00	0.00
			Max. Mx	14	-158.13	-13.16	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	20	-156.89	0.00	0.00
			Max. Vy	14	13.16	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T2	68.8 - 63.8	Leg	Max Tension	12	3016.60	-196.52	-0.26
			Max. Compression	2	-3977.94	112.32	-1.32
			Max. Mx	10	-3725.21	200.19	0.31
			Max. My	9	-307.49	0.10	192.85
			Max. Vy	6	-189.42	112.28	0.61
			Max. Vx	3	-186.73	0.10	-192.81
		Diagonal	Max Tension	12	1676.75	0.00	0.00
			Max. Compression	19	-1851.53	0.00	0.00
			Max. Mx	21	1031.89	12.14	0.24
			Max. My	12	-1339.90	-0.89	1.97
			Max. Vy	21	9.09	12.14	0.24
			Max. Vx	12	0.62	0.00	0.00
T3	63.8 - 58.8	Leg	Max Tension	4	7963.91	-36.61	-0.58
			Max. Compression	19	-9806.64	-59.11	0.94
			Max. Mx	19	-9685.63	144.56	1.02
			Max. My	9	-704.41	0.17	86.78
			Max. Vy	19	65.96	144.56	1.02
			Max. Vx	9	33.07	0.17	86.78
		Diagonal	Max Tension	24	2250.53	0.00	0.00
			Max. Compression	11	-2146.77	0.00	0.00
			Max. Mx	19	-1182.76	-23.00	2.73
			Max. My	5	-2138.27	-11.47	-5.07
			Max. Vy	19	-12.47	0.00	0.00
			Max. Vx	5	-1.58	0.00	0.00
T4	58.8 - 53.8	Leg	Max Tension	4	13457.05	-93.64	-0.44
			Max. Compression	6	-15466.97	97.27	-0.41
			Max. Mx	19	-14083.63	239.13	-0.08
			Max. My	3	-836.73	-0.56	-117.59
			Max. Vy	19	-84.27	239.13	-0.08
			Max. Vx	3	38.40	-0.56	-117.59
		Diagonal	Max Tension	11	2298.26	0.00	0.00
			Max. Compression	18	-2531.00	0.00	0.00
			Max. Mx	19	1191.49	39.67	-1.96
			Max. My	13	-2149.80	-16.38	2.96
			Max. Vy	19	-17.69	39.67	-1.96
			Max. Vx	13	-0.92	-16.38	2.96
T5	53.8 - 51.3	Leg	Max Tension	4	18239.03	0.00	-0.00
			Max. Compression	6	-20753.28	-0.00	-0.00
			Max. Mx	19	-19884.30	239.13	-0.08
			Max. My	3	-943.37	-0.56	-117.59
			Max. Vy	19	107.05	239.13	-0.08
			Max. Vx	3	-60.58	-0.56	-117.59
		Diagonal	Max Tension	18	2124.93	-23.79	4.91
			Max. Compression	5	-1899.14	0.00	0.00
			Max. Mx	18	-433.55	-61.23	-3.11
			Max. My	7	-1760.60	-16.99	-6.89
			Max. Vy	18	31.25	0.00	0.00
			Max. Vx	7	2.92	-14.82	-6.89

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	10	22381.86	2085.73	-1198.08
	Max. H_x	10	22381.86	2085.73	-1198.08
	Max. H_z	16	-14938.12	-1972.97	1592.42
	Min. Vert	4	-19871.28	-1964.59	1129.19
	Min. H_x	17	-17307.19	-2388.52	1376.41
	Min. H_z	9	18954.02	1509.44	-1370.96
Leg B	Max. Vert	6	22527.36	-2115.36	-1146.52
	Max. H_x	25	-16952.45	2419.26	1323.45
	Max. H_z	26	-14583.36	2025.73	1501.08
	Min. Vert	12	-19725.83	1995.31	1076.25
	Min. H_x	6	22527.36	-2115.36	-1146.52
	Min. H_z	7	19099.51	-1561.96	-1280.01
Leg A	Max. Vert	2	22519.55	-59.47	2405.08
	Max. H_x	11	976.09	758.34	-1.98
	Max. H_z	2	22519.55	-59.47	2405.08
	Min. Vert	8	-19733.63	61.20	-2266.24
	Min. H_x	5	976.07	-758.48	-2.03
	Min. H_z	21	-17212.53	61.23	-2756.56

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	2798.32	-0.00	0.00	-149.87	-290.81	0.00
Dead+Wind 0 deg - No Ice	2798.32	-0.00	-4856.02	-74778.78	-290.89	-412.40
Dead+Wind 30 deg - No Ice	2798.32	2324.91	-4026.86	-62904.34	-36522.25	-223.85
Dead+Wind 60 deg - No Ice	2798.32	3967.34	-2290.54	-36020.15	-62419.97	30.88
Dead+Wind 90 deg - No Ice	2798.32	4649.82	0.00	-149.97	-72753.50	279.68
Dead+Wind 120 deg - No Ice	2798.32	4205.44	2428.01	37164.51	-64921.39	448.69
Dead+Wind 150 deg - No Ice	2798.32	2324.91	4026.86	62604.54	-36522.19	504.81
Dead+Wind 180 deg - No Ice	2798.32	-0.00	4581.09	71590.51	-290.97	423.44
Dead+Wind 210 deg - No Ice	2798.32	-2324.91	4026.86	62604.50	35940.25	223.86
Dead+Wind 240 deg - No Ice	2798.32	-4205.44	2428.01	37164.43	64339.48	-36.29
Dead+Wind 270 deg - No Ice	2798.32	-4649.82	0.00	-150.05	72171.61	-279.68
Dead+Wind 300 deg - No Ice	2798.32	-3967.34	-2290.54	-36020.21	61838.13	-454.32
Dead+Wind 330 deg - No Ice	2798.32	-2324.91	-4026.86	-62904.38	35940.43	-504.81
Dead+Ice+Temp	4684.04	-0.00	-0.00	190.99	-709.49	0.00
Dead+Wind 0 deg+Ice+Temp	4684.04	-0.00	-4361.67	-66873.22	-709.56	-414.58
Dead+Wind 30 deg+Ice+Temp	4684.04	2101.37	-3639.68	-56445.63	-33408.97	-234.70
Dead+Wind 60 deg+Ice+Temp	4684.04	3593.80	-2074.88	-32230.67	-56865.77	14.57
Dead+Wind 90 deg+Ice+Temp	4684.04	4202.74	0.00	190.96	-66108.26	260.73
Dead+Wind 120 deg+Ice+Temp	4684.04	3777.32	2180.84	33723.21	-58789.15	430.98
Dead+Wind 150 deg+Ice+Temp	4684.04	2101.37	3639.68	56827.93	-33408.95	495.18
Dead+Wind 180 deg+Ice+Temp	4684.04	-0.00	4149.76	65034.62	-709.73	423.60
Dead+Wind 210 deg+Ice+Temp	4684.04	-2101.37	3639.68	56827.90	31989.44	234.71
Dead+Wind 240 deg+Ice+Temp	4684.04	-3777.32	2180.84	33723.08	57369.75	-16.40
Dead+Wind 270 deg+Ice+Temp	4684.04	-4202.74	0.00	190.76	64689.02	-260.74
Dead+Wind 300 deg+Ice+Temp	4684.04	-3593.80	-2074.88	-32230.84	55446.69	-438.17
Dead+Wind 330 deg+Ice+Temp	4684.04	-2101.37	-3639.68	-56445.74	31989.87	-495.18
Dead+Wind 0 deg - Service	2798.32	-0.00	-2419.61	-37335.28	-290.92	-205.50
Dead+Wind 30 deg - Service	2798.32	1158.43	-2006.46	-31418.48	-18343.80	-111.74
Dead+Wind 60 deg - Service	2798.32	1976.80	-1141.31	-18023.00	-31247.98	15.38
Dead+Wind 90 deg - Service	2798.32	2316.87	0.00	-149.92	-36396.72	139.56
Dead+Wind 120 deg - Service	2798.32	2095.44	1209.80	18442.73	-32494.37	223.58
Dead+Wind 150 deg - Service	2798.32	1158.43	2006.46	31118.58	-18343.85	251.31
Dead+Wind 180 deg - Service	2798.32	-0.00	2282.62	35596.17	-290.96	210.97

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 210 deg - Service	2798.32	-1158.43	2006.46	31118.55	17761.94	111.74
Dead+Wind 240 deg - Service	2798.32	-2095.44	1209.80	18442.69	31912.47	-18.08
Dead+Wind 270 deg - Service	2798.32	-2316.87	0.00	-149.96	35814.83	-139.56
Dead+Wind 300 deg - Service	2798.32	-1976.80	-1141.31	-18023.03	30666.11	-226.35
Dead+Wind 330 deg - Service	2798.32	-1158.43	-2006.46	-31418.49	17761.95	-251.31

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	-0.00	-2798.32	0.00	0.00	2798.32	-0.00	0.000%
2	-0.00	-2798.32	-4856.02	0.00	2798.32	4856.02	0.000%
3	2324.91	-2798.32	-4026.86	-2324.91	2798.32	4026.86	0.000%
4	3967.34	-2798.32	-2290.54	-3967.34	2798.32	2290.54	0.000%
5	4649.82	-2798.32	0.00	-4649.82	2798.32	-0.00	0.000%
6	4205.44	-2798.32	2428.01	-4205.44	2798.32	-2428.01	0.000%
7	2324.91	-2798.32	4026.86	-2324.91	2798.32	-4026.86	0.000%
8	0.00	-2798.32	4581.09	0.00	2798.32	-4581.09	0.000%
9	-2324.91	-2798.32	4026.86	2324.91	2798.32	-4026.86	0.000%
10	-4205.44	-2798.32	2428.01	4205.44	2798.32	-2428.01	0.000%
11	-4649.82	-2798.32	0.00	4649.82	2798.32	-0.00	0.000%
12	-3967.34	-2798.32	-2290.54	3967.34	2798.32	2290.54	0.000%
13	-2324.91	-2798.32	-4026.86	2324.91	2798.32	4026.86	0.000%
14	-0.00	-4684.04	-0.00	0.00	4684.04	0.00	0.000%
15	-0.00	-4684.04	-4361.67	0.00	4684.04	4361.67	0.000%
16	2101.37	-4684.04	-3639.68	-2101.37	4684.04	3639.68	0.000%
17	3593.80	-4684.04	-2074.88	-3593.80	4684.04	2074.88	0.000%
18	4202.74	-4684.04	-0.00	-4202.74	4684.04	-0.00	0.000%
19	3777.32	-4684.04	2180.84	-3777.32	4684.04	-2180.84	0.000%
20	2101.37	-4684.04	3639.68	-2101.37	4684.04	-3639.68	0.000%
21	-0.00	-4684.04	4149.76	0.00	4684.04	-4149.76	0.000%
22	-2101.37	-4684.04	3639.68	2101.37	4684.04	-3639.68	0.000%
23	-3777.32	-4684.04	2180.84	3777.32	4684.04	-2180.84	0.000%
24	-4202.74	-4684.04	-0.00	4202.74	4684.04	-0.00	0.000%
25	-3593.80	-4684.04	-2074.88	3593.80	4684.04	2074.88	0.000%
26	-2101.37	-4684.04	-3639.68	2101.37	4684.04	3639.68	0.000%
27	0.00	-2798.32	-2419.61	0.00	2798.32	2419.61	0.000%
28	1158.43	-2798.32	-2006.46	-1158.43	2798.32	2006.46	0.000%
29	1976.80	-2798.32	-1141.31	-1976.80	2798.32	1141.31	0.000%
30	2316.87	-2798.32	0.00	-2316.87	2798.32	-0.00	0.000%
31	2095.44	-2798.32	1209.80	-2095.44	2798.32	-1209.80	0.000%
32	1158.43	-2798.32	2006.46	-1158.43	2798.32	-2006.46	0.000%
33	-0.00	-2798.32	2282.62	0.00	2798.32	-2282.62	0.000%
34	-1158.43	-2798.32	2006.46	1158.43	2798.32	-2006.46	0.000%
35	-2095.44	-2798.32	1209.80	2095.44	2798.32	-1209.80	0.000%
36	-2316.87	-2798.32	0.00	2316.87	2798.32	-0.00	0.000%
37	-1976.80	-2798.32	-1141.31	1976.80	2798.32	1141.31	0.000%
38	-1158.43	-2798.32	-2006.46	1158.43	2798.32	2006.46	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00000001
3	Yes	6	0.00000001	0.00000001
4	Yes	6	0.00000001	0.00000001
5	Yes	6	0.00000001	0.00000001
6	Yes	6	0.00000001	0.00000001
7	Yes	6	0.00000001	0.00000001
8	Yes	6	0.00000001	0.00000001
9	Yes	6	0.00000001	0.00000001
10	Yes	6	0.00000001	0.00000001
11	Yes	6	0.00000001	0.00000001
12	Yes	6	0.00000001	0.00000001
13	Yes	6	0.00000001	0.00000001
14	Yes	6	0.00000001	0.00000001
15	Yes	6	0.00000001	0.00000001
16	Yes	6	0.00000001	0.00000001
17	Yes	6	0.00000001	0.00000001
18	Yes	6	0.00000001	0.00000001
19	Yes	6	0.00000001	0.00000001
20	Yes	6	0.00000001	0.00000001
21	Yes	6	0.00000001	0.00000001
22	Yes	6	0.00000001	0.00000001
23	Yes	6	0.00000001	0.00000001
24	Yes	6	0.00000001	0.00000001
25	Yes	6	0.00000001	0.00000001
26	Yes	6	0.00000001	0.00000001
27	Yes	6	0.00000001	0.00000001
28	Yes	6	0.00000001	0.00000001
29	Yes	6	0.00000001	0.00000001
30	Yes	6	0.00000001	0.00000001
31	Yes	6	0.00000001	0.00000001
32	Yes	6	0.00000001	0.00000001
33	Yes	6	0.00000001	0.00000001
34	Yes	6	0.00000001	0.00000001
35	Yes	6	0.00000001	0.00000001
36	Yes	6	0.00000001	0.00000001
37	Yes	6	0.00000001	0.00000001
38	Yes	6	0.00000001	0.00000001

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T2	68.8	Diagonal	A325N	0.6250	1	1851.53	6442.72	0.287	1.333	Bolt Shear
T3	63.8	Diagonal	A325N	0.6250	1	2250.53	6071.88	0.371	1.333	Member Block Shear
T4	58.8	Diagonal	A325N	0.6250	1	2531.00	6442.72	0.393	1.333	Bolt Shear
T5	53.8	Diagonal	A325N	0.6250	1	2124.93	6071.88	0.350	1.333	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	71.3 - 68.8	bent plate 3.5 x 3.5 x 1/4	2.50	2.50	43.2 K=1.00	18.928	1.6900	-1781.66	31988.40	0.056
T2	68.8 - 63.8	bent plate 3.5 x 3.5 x 1/4	5.00	5.00	86.5 K=1.00	14.621	1.6900	-3977.94	24709.80	0.161
T3	63.8 - 58.8	bent plate 3.5 x 3.5 x 1/4	5.00	5.00	86.5 K=1.00	14.621	1.6900	-9806.64	24709.80	0.397
T4	58.8 - 53.8	bent plate 3.5 x 3.5 x 1/4	5.00	5.00	86.5 K=1.00	14.621	1.6900	-15467.00	24709.80	0.626
T5	53.8 - 51.3	bent plate 3.5 x 3.5 x 1/4	2.50	2.50	43.2 K=1.00	18.928	1.6900	-20753.30	31988.40	0.649

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	71.3 - 68.8	L2x2x1/4	4.72	2.19	80.3 K=1.20	15.319	0.9380	-502.68	14368.90	0.035
T2	68.8 - 63.8	L2x2x1/4	6.40	2.85	95.6 K=1.09	13.532	0.9380	-1851.53	12692.80	0.146
T3	63.8 - 58.8	L2x2x1/4	6.40	2.85	95.6 K=1.09	13.532	0.9380	-2146.77	12692.80	0.169
T4	58.8 - 53.8	L2x2x1/4	6.40	2.85	95.6 K=1.09	13.532	0.9380	-2531.00	12692.80	0.199
T5	53.8 - 51.3	L2x2x1/4	4.72	2.07	77.6 K=1.22	15.623	0.9380	-1899.14	14654.70	0.130

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	71.3 - 68.8	L 2 1/2x 2 1/2x 1/4	4.00	3.71	105.3 K=1.16	12.294	1.1900	-158.13	14629.50	0.011*

* DL controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	71.3 - 68.8	bent plate 3.5 x 3.5 x 1/4	2.50	2.50	43.2	21.600	1.6900	705.06	36504.00	0.019
T2	68.8 - 63.8	bent plate 3.5 x 3.5 x 1/4	5.00	5.00	86.5	21.600	1.6900	3016.60	36504.00	0.083
T3	63.8 - 58.8	bent plate 3.5 x 3.5 x 1/4	5.00	5.00	86.5	21.600	1.6900	7963.92	36504.00	0.218
T4	58.8 - 53.8	bent plate 3.5 x 3.5 x 1/4	5.00	5.00	86.5	21.600	1.6900	13457.10	36504.00	0.369
T5	53.8 - 51.3	bent plate 3.5 x 3.5 x 1/4	2.50	2.50	43.2	21.600	1.6900	18239.00	36504.00	0.500

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	71.3 - 68.8	L2x2x1/4	4.72	2.19	43.1	21.600	0.9380	652.38	20260.80	0.032
T2	68.8 - 63.8	L2x2x1/4	6.40	2.85	58.5	29.000	0.5629	1676.75	16323.40	0.103
T3	63.8 - 58.8	L2x2x1/4	6.40	2.85	58.5	29.000	0.5629	2250.53	16323.40	0.138
T4	58.8 - 53.8	L2x2x1/4	6.40	2.85	58.5	29.000	0.5629	2298.26	16323.40	0.141
T5	53.8 - 51.3	L2x2x1/4	4.72	2.07	43.1	29.000	0.5629	2124.93	16323.40	0.130

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	71.3 - 68.8	Leg	bent plate 3.5 x 3.5 x 1/4	1	-1781.66	42640.54	4.2	Pass
		Diagonal	L2x2x1/4	8	-502.68	19153.74	2.6	Pass
		Top Girt	L 2 1/2x 2 1/2x 1/4	5	-158.13	14629.50	1.1	Pass
T2	68.8 - 63.8	Leg	bent plate 3.5 x 3.5 x 1/4	15	-3977.94	32938.16	12.1	Pass
		Diagonal	L2x2x1/4	17	-1851.53	16919.50	10.9	Pass
							21.6 (b)	
T3	63.8 - 58.8	Leg	bent plate 3.5 x 3.5 x 1/4	23	-9806.64	32938.16	29.8	Pass
		Diagonal	L2x2x1/4	25	-2146.77	16919.50	12.7	Pass
							27.8 (b)	
T4	58.8 - 53.8	Leg	bent plate 3.5 x 3.5 x 1/4	32	-15467.00	32938.16	47.0	Pass
		Diagonal	L2x2x1/4	35	-2531.00	16919.50	15.0	Pass
							29.5 (b)	
T5	53.8 - 51.3	Leg	bent plate 3.5 x 3.5 x 1/4	41	-20753.30	42640.54	48.7	Pass
		Diagonal	L2x2x1/4	43	2124.93	21759.09	9.8	Pass
							26.3 (b)	
							Summary	
							Leg (T5) 48.7	Pass
							Diagonal (T4) 29.5	Pass
							Top Girt (T1) 1.1	Pass
							Bolt Checks 29.5	Pass
							RATING = 48.7	**Pass**

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

AT&T Existing Facility

Site ID: CT2120

Fairfield Central
55 Walls Drive
Fairfield, CT 06824

February 9, 2016

EBI Project Number: 6216000624

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	9.58 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
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February 9, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2120 – Fairfield Central**

EBI Consulting was directed to analyze the proposed AT&T facility located at **55 Walls Drive, Fairfield, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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 ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. 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 **55 Walls Drive, Fairfield, 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) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

2) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

3) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 UMTS channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 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 **CCI HPA-65R-BUU-H6 and the Powerwave 7770.00** for transmission in the 700 MHz, 850 MHz and1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. 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 centerline of the proposed antennas is **73 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:	CCI OPA-65R-BUU-H6	Make / Model:	CCI OPA-65R-BUU-H6	Make / Model:	CCI OPA-65R-BUU-H6
Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd
Height (AGL):	77 feet	Height (AGL):	77 feet	Height (AGL):	77 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	5,462.56	ERP (W):	5,462.56	ERP (W):	5,462.56
Antenna A1 MPE%	**6.09**	Antenna B1 MPE%	**6.09**	Antenna C1 MPE%	**6.09**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00	Make / Model:	Powerwave 7770.00
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	77 feet	Height (AGL):	77 feet	Height (AGL):	77 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A2 MPE%	**2.22**	Antenna B2 MPE%	**2.22**	Antenna C2 MPE%	**2.22**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
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):	77 feet	Height (AGL):	77 feet	Height (AGL):	77 feet
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60	Total TX Power(W):	60	Total TX Power(W):	60
ERP (W):	828.23	ERP (W):	828.23	ERP (W):	828.23
Antenna A3 MPE%	**1.17**	Antenna B3 MPE%	**1.17**	Antenna C3 MPE%	**1.17**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**9.48 %**
WMNR	0.04 %
ABA Alarm	0.06 %
Site Total MPE %:	**9.58 %**

AT&T Sector 1 Total:	9.48 %
AT&T Sector 2 Total:	9.48 %
AT&T Sector 3 Total:	9.48 %
Site Total:	9.58 %

AT&T _ Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 700 MHz LTE	2	940.05	77	15.06	700	467	3.22 %
AT&T 1900 MHz (PCS) LTE	2	1791.23	77	28.69	1900	1000	2.87 %
AT&T 850 MHz UMTS	2	414.12	77	6.63	850	567	1.17 %
AT&T 1900 MHz (PCS) UMTS	2	656.33	77	10.51	1900	1000	1.05 %
AT&T 850 MHz GSM	2	414.12	77	6.63	850	567	1.17 %
						Total:	9.48 %

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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:	9.48 %
Sector 2:	9.48 %
Sector 3 :	9.48 %
AT&T Maximum Total (per sector):	9.48 %
Site Total:	9.58 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.58%** 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.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

PROJECT INFORMATION

SCOPE OF WORK:
LTE2C

- REMOVE (1) ANTENNA PER SECTOR (TOTAL OF 3 ANTENNAS)
- INSTALL (1) ANTENNA PER SECTOR (TOTAL OF 3 NEW ANTENNAS)
- (2) EXISTING ANTENNAS PER SECTOR, FOR A TOTAL OF (6) ANTENNAS TO REMAINS
- ADD (1) NEW RRU PER SECTOR, FOR A TOTAL OF (3) NEW RRUs; ADD (1) RRUS–A2 MODULE PER SECTOR, FOR A TOTAL OF (3) NEW RRUS–A2 MODULES; (1) EXISTING RRU PER SECTOR, FOR A TOTAL OF (3) EXISTING RRUS TO REMAIN.
- REPLACE DUL21 WITH NEW DUS41

SITE ADDRESS:	55 WALLS DRIVE FAIRFIELD, CT 06824
LATITUDE:	41.1478250 41° 08' 52.17"N
LONGITUDE:	–73.2514711 73° 15' 05.29"W
USID:	60405
TYPE OF SITE:	BUILDING/TOWER/INDOOR EQUIPMENT
TOWER HEIGHT:	71–3"±
RAD CENTER:	70'–0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

at&t MOBILITY

FA CODE: 10035074
SITE NUMBER: CT2120
SITE NAME: FAIRFIELD CENTRAL

PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
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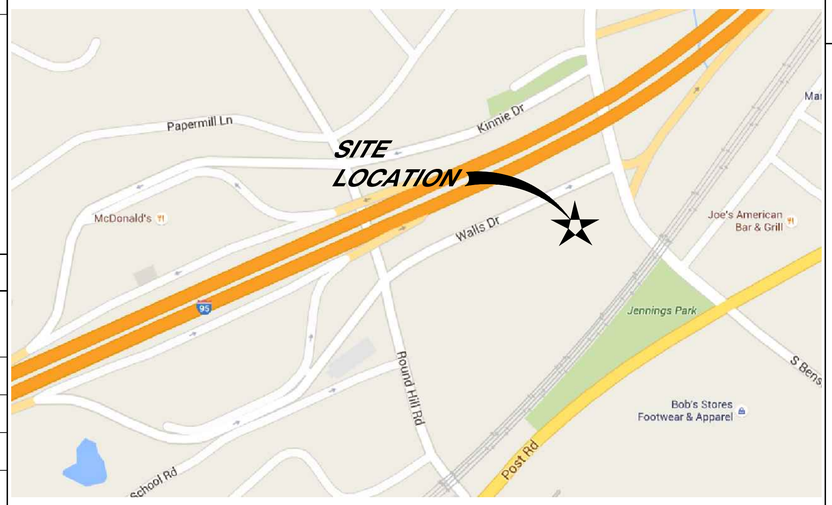
DRAWING INDEX

VICINITY MAP

FROM ROCKY HILL, HEAD SOUTHWEST ON CONCRIB LN. TURN LEFT ONTO SOLO DR. TURN RIGHT ONTO GILBERT AVE. TURN RIGHT ONTO STATE HWY 411. TURN LEFT TO MERGE ONTO I–91 S. TAKE EXIT 17 TO CT–15 S. TAKE EXIT 52 TO CT–8 S. MERGE ONTO CT–8 S. TAKE EXIT FOR I–95 S. TAKE EXIT 22 FOR CT–135 S. TURN LEFT ONTO CT–135 S. TURN RIGHT ONTO KINNIE DR. TURN LEFT ONTO ROUND HILL RD. TURN LEFT ONTO WALL DR. SITE WILL BE ON RIGHT.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

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 AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

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SITE NUMBER: CT2120
SITE NAME: FAIRFIELD CENTRAL
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550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/10/16	ISSUED AS FINAL	KCD	NDB	NDB

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

SEAL:
STATE OF CONNECTICUT · DOUGLAS D. BARILE · 28643 · REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15127–EMP	T–1	0

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.
23. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY HUDSON DESIGN GROUP FOR A RECENT UPGRADE DATED 08/15/2011. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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FAIRFIELD, CT 06824
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
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NO.	DATE	REVISIONS	BY	CHK	APP'D
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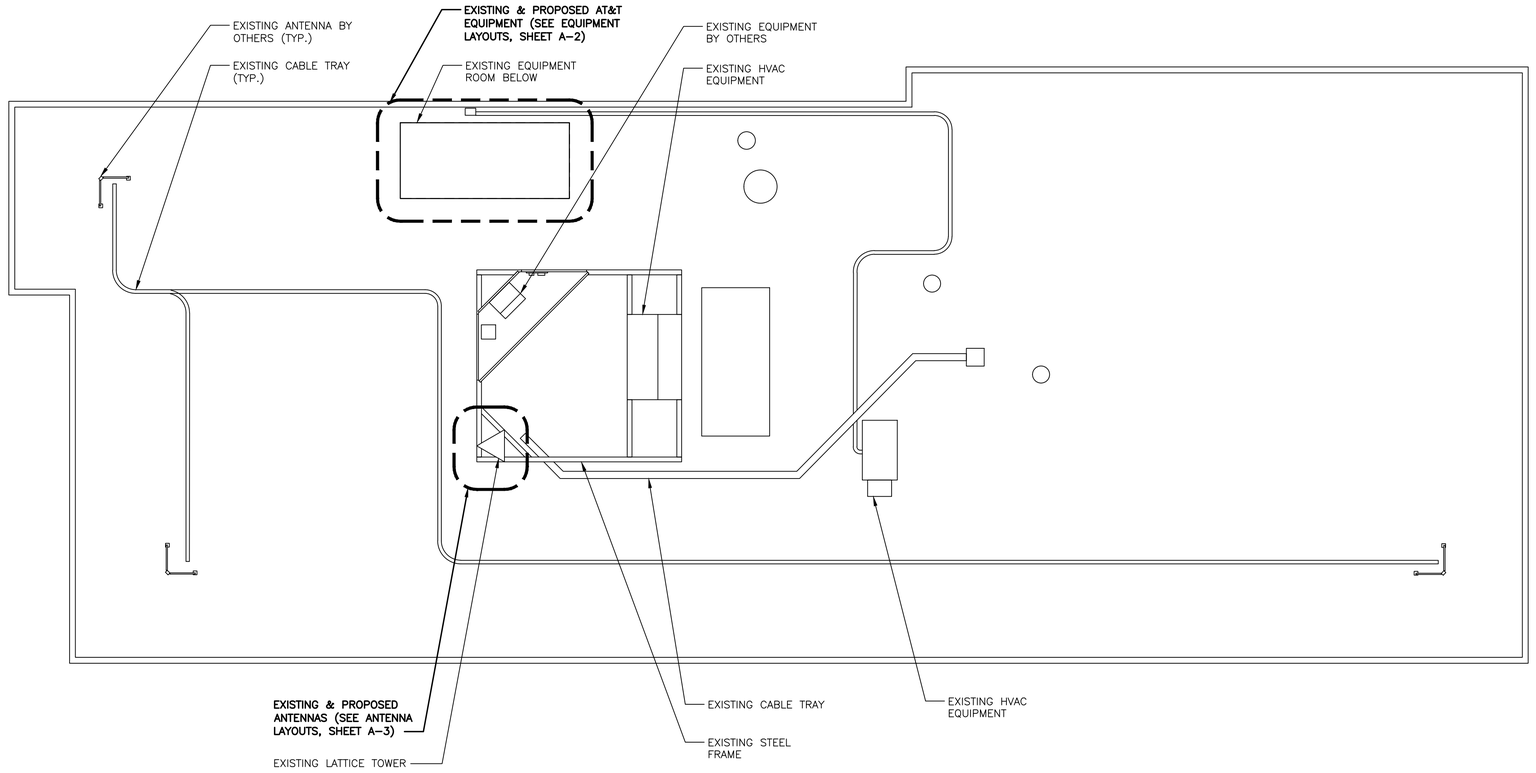
SCALE: AS SHOWN | DESIGNED BY: JW | DRAWN BY: JW

SEAL: STATE OF CONNECTICUT NICHOLAS D. BARILE No. 28643 LICENSED PROFESSIONAL ENGINEER
NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT LIC. NO. 28643

AT&T

DRAWING TITLE:
GROUNDING NOTES & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15127-EMP	GN-1	0



NORTH

ROOF PLAN

SCALE: 3/32"=1'-0"

0 5'-4" 10'-8" 21'-4"

GRAPHIC SCALE: 3/32"=1'-0"

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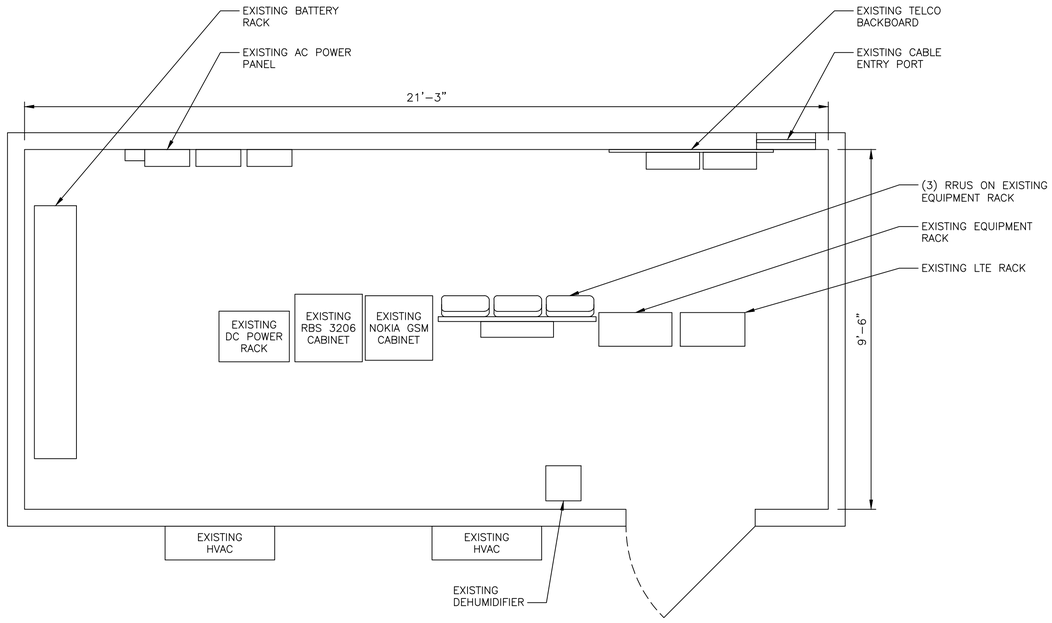
SEAL:

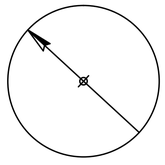
STATE OF CONNECTICUT — DOUGLAS N. BARTH — LICENSED PROFESSIONAL ENGINEER — PROFESSIONAL ENGINEER — CT LICENSE NO. 28643

AT&T

DRAWING TITLE: ROOF PLAN

JOB NUMBER	DRAWING NUMBER	REV
15127-EMP	A-1	0



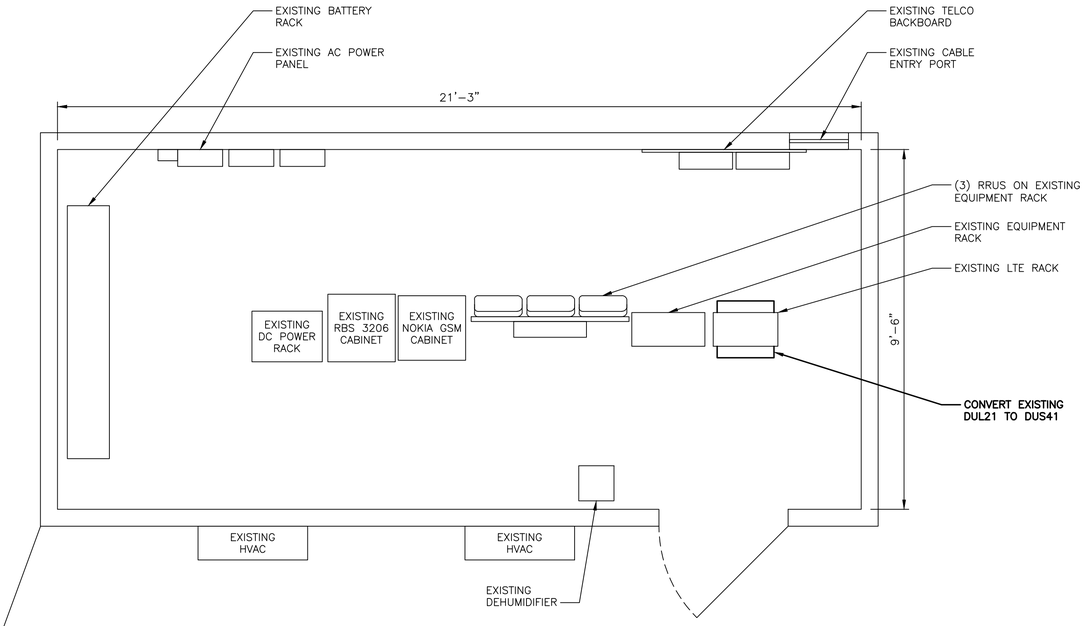


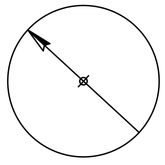
EXISTING EQUIPMENT LAYOUT

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

0 1 2 4

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





PROPOSED EQUIPMENT LAYOUT

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

0 1 2 4

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

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NICHOLAS G. BORDEN
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No. 28643

PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

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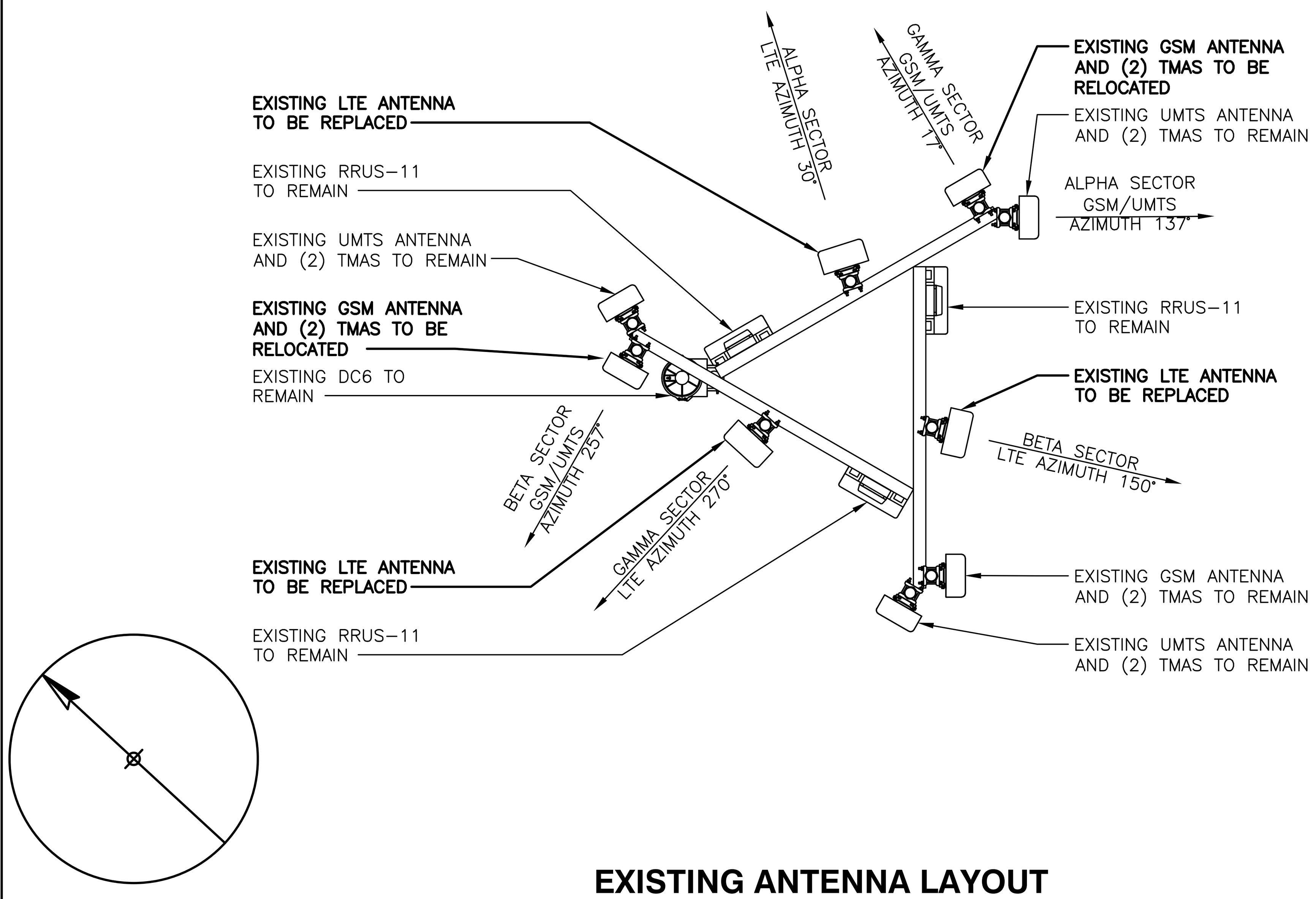
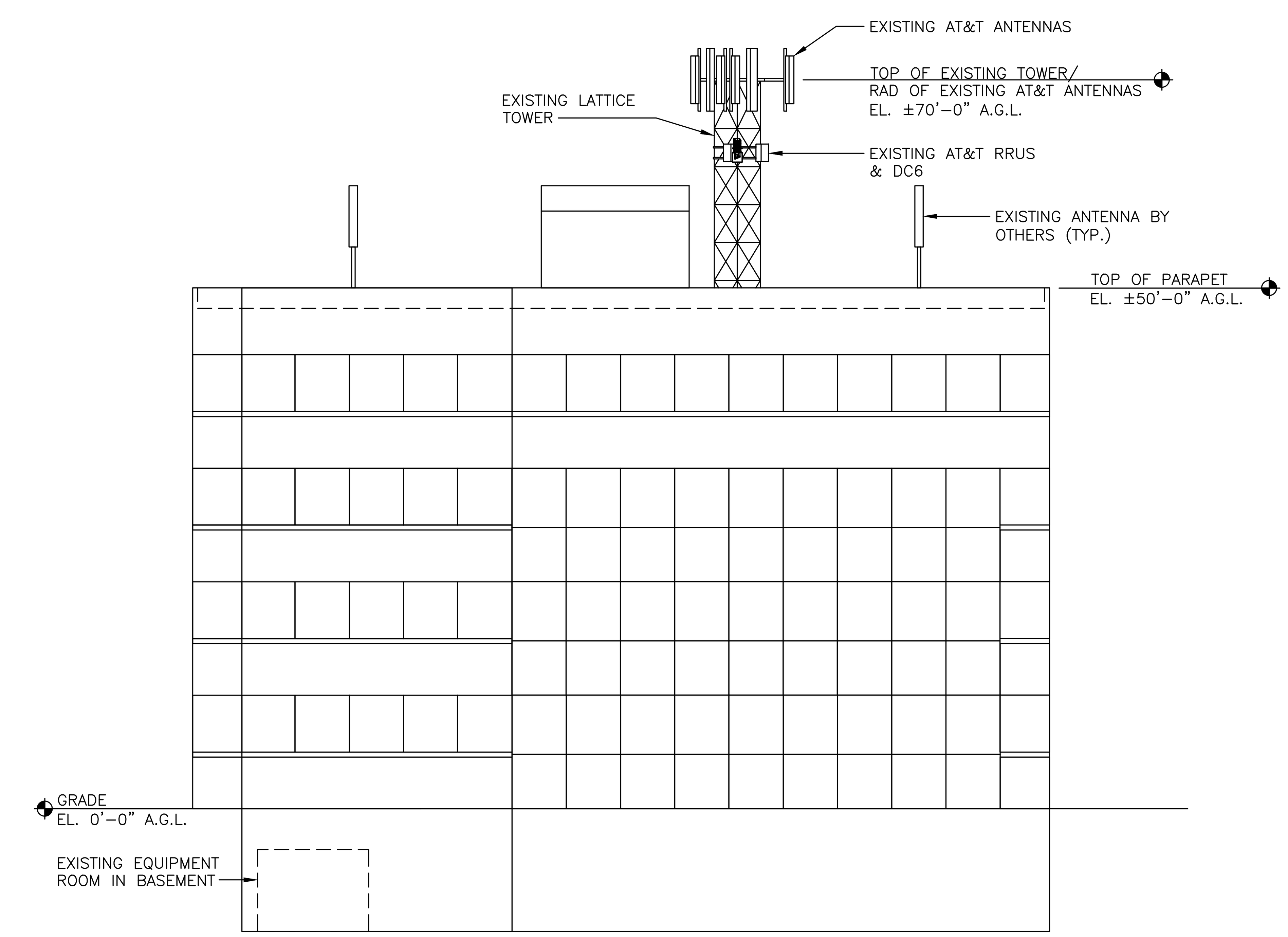
DRAWING TITLE:
EQUIPMENT LAYOUTS

JOB NUMBER	DRAWING NUMBER	REV
15127-EMP	A-2	0



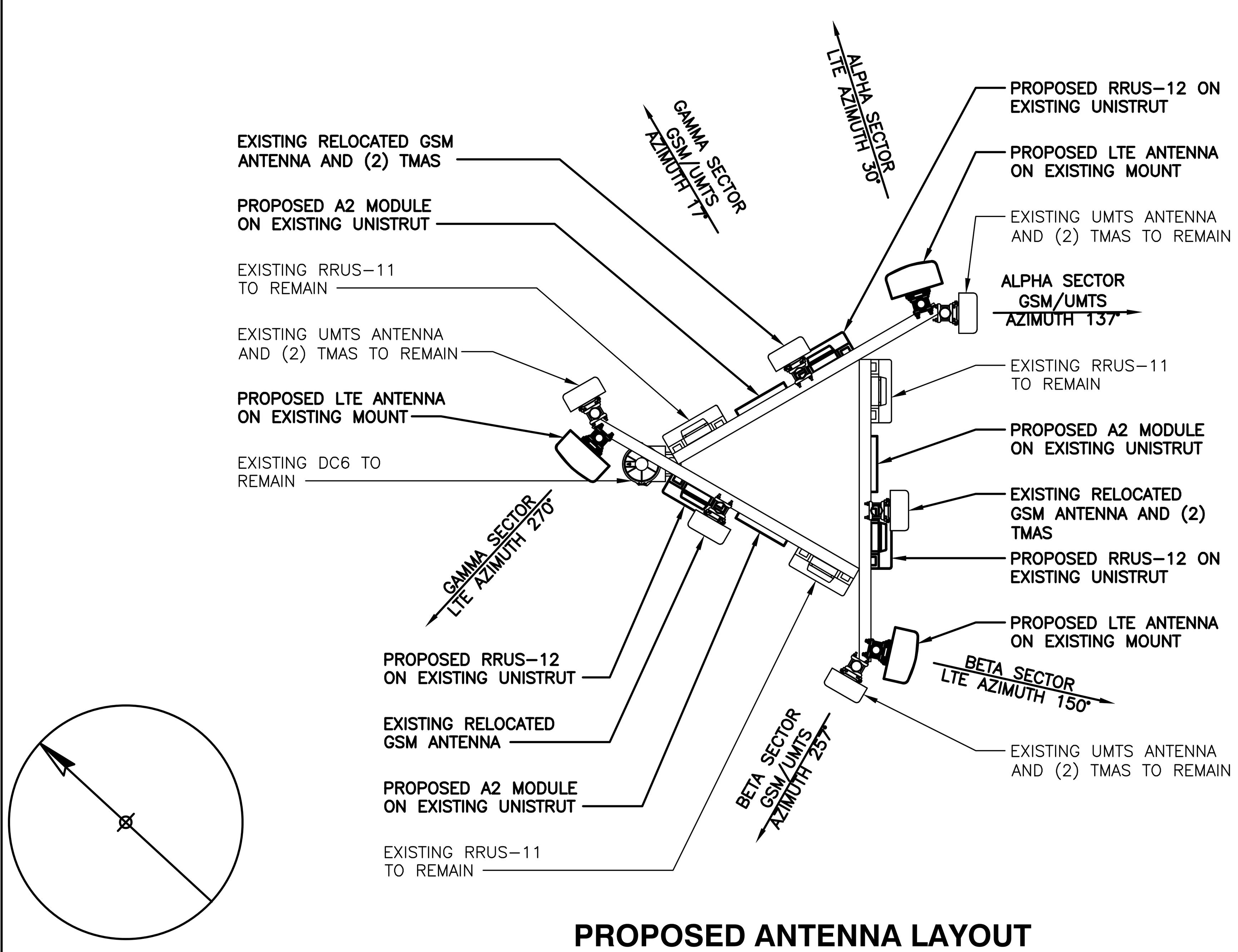
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



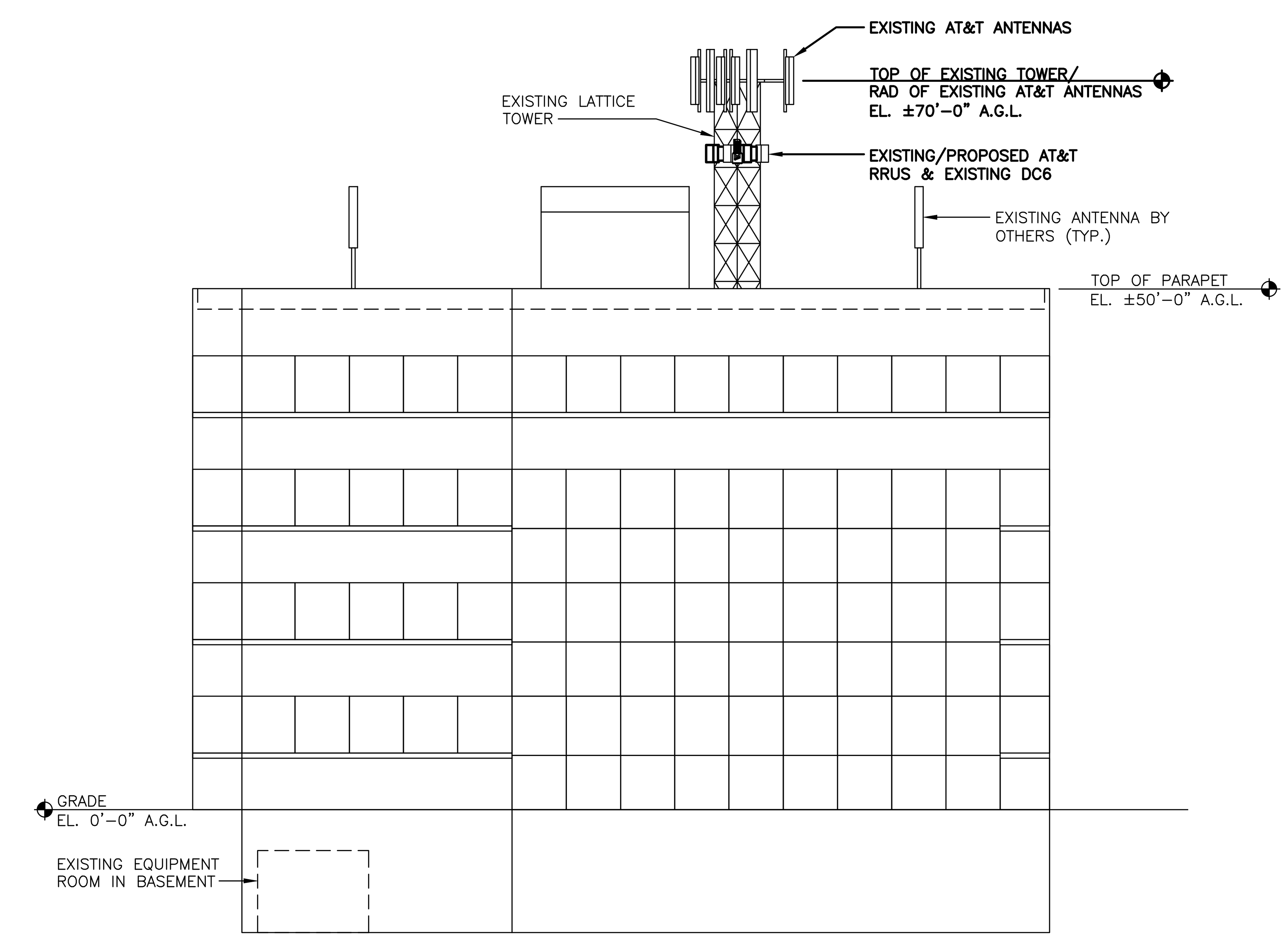
EXISTING ELEVATION

SCALE: 3/32" = 1'-0"



PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



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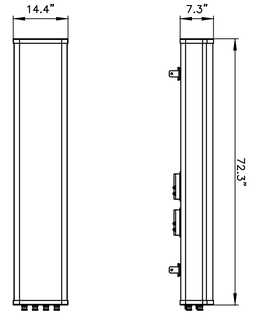
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
15127-EMP	A-3	0



FRONT VIEW

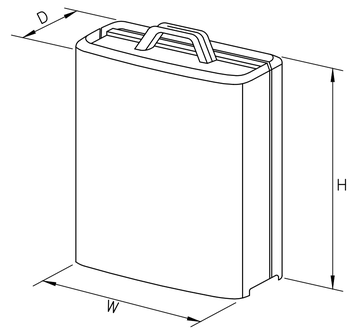
SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	HPA-65R-BUU-H6
WEIGHT	42.9 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

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DETAILS

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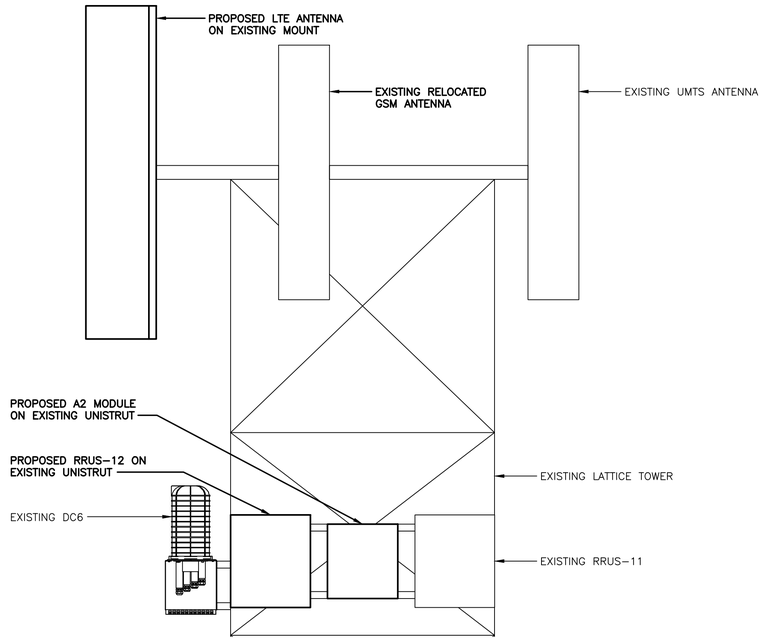
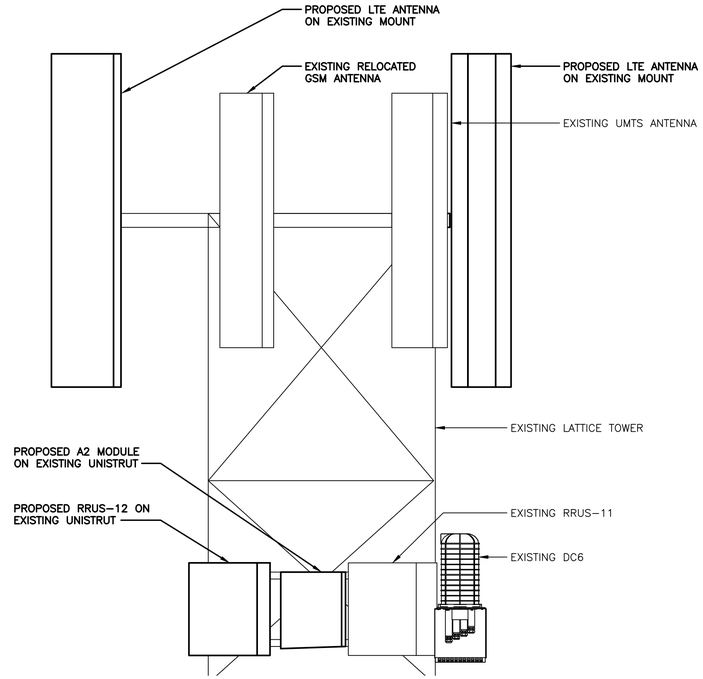


PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)

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	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	A3	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	B3	POWERWAVE	7770	55"x11"x5"
GAMMA	C1	POWERWAVE	7770	55"x11"x5"
	C2	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	C3	POWERWAVE	7770	55"x11"x5"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	POWERWAVE	7770	55"x11"x5"
	A3	**POWERWAVE**	**HPA-65R-BUU-H6**	**72"x14.8"x9"**
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	POWERWAVE	7770	55"x11"x5"
	B3	**POWERWAVE**	**HPA-65R-BUU-H6**	**72"x14.8"x9"**
GAMMA	C1	POWERWAVE	7770	55"x11"x5"
	C2	POWERWAVE	7770	55"x11"x5"
	C3	**POWERWAVE**	**HPA-65R-BUU-H6**	**72"x14.8"x9"**

PROPOSED RRU SCHEDULE

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

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.

COM-EX Consultants
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16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2120

SITE NAME: FAIRFIELD CENTRAL

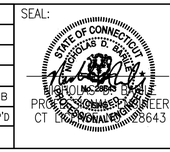
55 WALLS DRIVE
FAIRFIELD, CT 06824
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	02/10/16	ISSUED AS FINAL	KCD	NDB	NDB

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

SEAL:

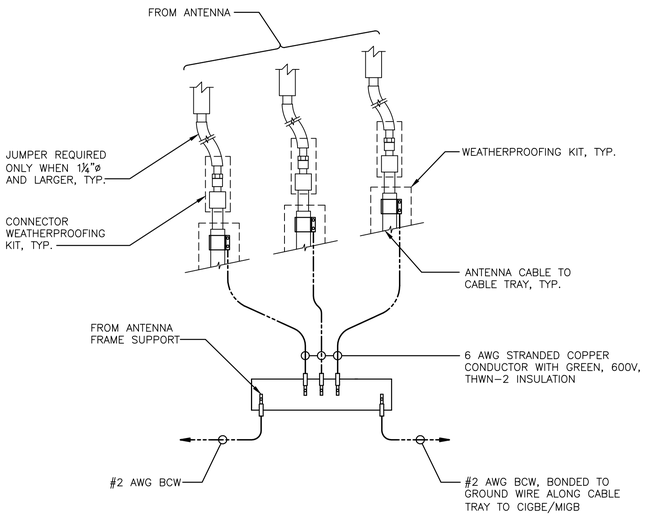


PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

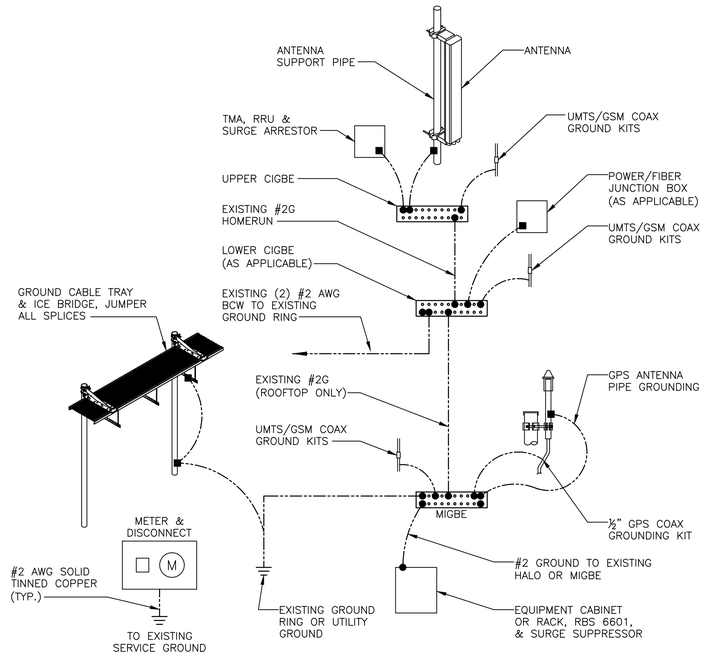
DRAWING TITLE:
ANTENNA MOUNTING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15127-EMP	A-5	0



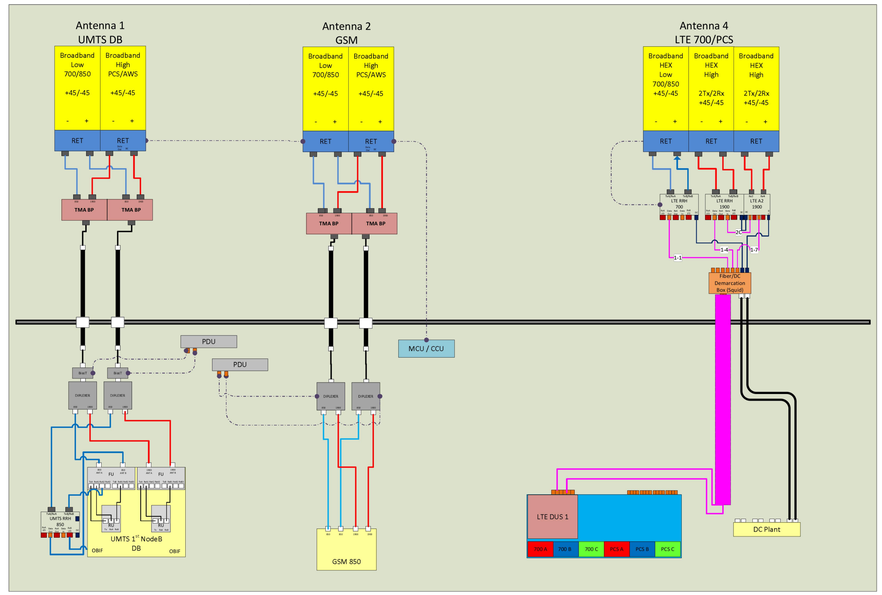
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



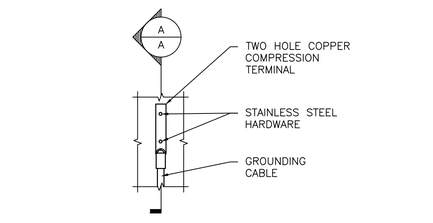
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

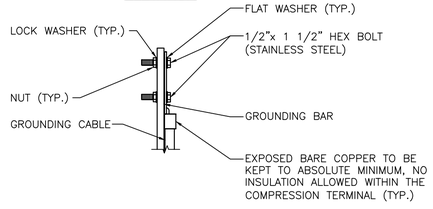


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



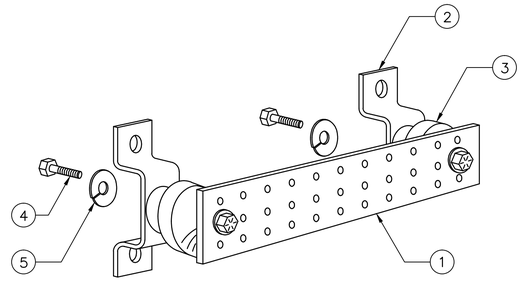
SECTION "A–A"

NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

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

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

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

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

SEAL:

AT&T

DRAWING TITLE:

GROUNDING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15127–EMP	G–1	0