



March 12, 2018

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

Re: Notice of Exempt Modification – Antenna Swap
Property Address: 62 NORTH MAIN STREET BAL TIC, CT 06330
Applicant: AT&T Mobility, LLC

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 175-feet on an existing 175 –self-support tower, owned by Wireless Solutions, LLC 695 Norwich New London Tnpk. P O Box 374 Uncasville, CT 06382 Attn: Ken Thomas. AT&T now intends to install (3) NEW ANTENNAS TO REPLACE (3) EXISTING ANTENNAS (3) NEW RRUS-32 B2 UNITS (2) NEW RRUS-B14 UNITS UPGRADE DUS TO 5216 AND ADD XMU.

This facility was approved the Sprague Planning and Zoning Commission on April 13, 2005 for a certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of telecommunications antennas, associated equipment, and building to provide Domestic Public Cellular Radio Telecommunication service in the Connecticut- New England area.

The following is a subsequent decision by the Connecticut Siting Council:

EM-CING-133-121129- New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 62 North Main Street, **Sprague** (Baltic), Connecticut.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-510j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to First Selectman Catherine A. Osten and Land Use Coordinator Colette J. Hoffman Sprague Town Hall 1 Main Street, Baltic, CT 06330 . A copy of this letter is also being sent to Wireless Solutions, LLC 695 Norwich New London Tnpk. P O Box 374 Uncasville, CT 06382 Attn: Ken Thomas.



The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 175-foot level of the 175-foot utility monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

David Barbagallo

Enclosures
CC w/enclosures:

Selectman Catherine A. Osten - as elected official
Land Use Coordinator Colette J. Hoffman
Ken Thomas-tower/land owner.



TOWN OF SPRAGUE

Planning and Zoning Commission

1 Main Street

Baltic, Connecticut 06330

860-822-3000 Ext. 223

Fax: 860-822-3016

landuse@ctsprague.org

April 20, 2005

Dennison Allen, First Selectman
Town of Sprague
1 Main Street
Baltic, CT 06330

Dear Mr. Allen:

At the regular meeting of the Sprague Planning and Zoning Commission held on April 13, 2005, your request for a communications tower and building for communications equipment to be located on the western side of the Baltic Reservoir as shown on your revised site plan was reviewed. Please be advised that the Commission voted to approve your application.

If you have any questions, please contact us.

Sincerely yours,

Richard Waterman cjh

Richard Waterman, Chairman

RW/cjh

Cc: Joseph Smith, ZEO

62 NORTH MAIN ST

Location 62 NORTH MAIN ST

Mblu 9/ 4/ 5/ /

Acct# B0001210

Owner SPRAGUE TOWN OF

PBN

Assessment \$226,460

Appraisal \$323,500

PID 13

Building Count 1

Proposed Value

Appraisal			
Valuation Year	Improvements	Land	
2017	\$151,550	\$171,950	

Assessment			
Valuation Year	Improvements	Land	
2017	\$106,090	\$120,370	

Owner of Record

Owner SPRAGUE TOWN OF
Co-Owner C/O WIRELESS SOLUTIONS LLC
Address PO BOX 677
OLD LYME, CT 06371

Sale Price \$0
Certificate 1
Book & Page 22/ 13
Sale Date 02/22/2007
Instrument 00

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Instrument
SPRAGUE TOWN OF	\$0	1	22/ 13	00

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

Replacement Cost: \$0

Building Percent

Good:

Replacement Cost

Less Depreciation: \$0

Building Photo

 Building Photo
(<http://images.vgsi.com/photos2/Spra>)

Building Layout

Building Attributes	
Field	Description
Style	Vacant Land
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	

Building Sub-Areas (s

No Data for Building Su

Kitchen Style:	
Fireplaces	
Xtra Openings	
Gas Fireplaces	
Wood/Pellet Stv	
Finished Bsmt	
Bsmt Gar	
Rec Room	

Extra Features

Extra Features	
No Data for Extra Features	

Land

Land Use

Use Code	3030
Description	Comm Land
Zone	CELLSITE
Neighborhood	202
Alt Land Appr Category	No

Land Line Valuation

Size (Acres)	0.24
Frontage	
Depth	
Assessed Value	\$120,370
Appraised Value	\$171,950

Outbuildings

Outbuildings					
Code	Description	Sub Code	Sub Description	Size	Va
FN3	Fence-6' Chain			550 L.F.	
TWR1	Cell Tower			1 UNITS	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	



IMPORTANT!

FedEx is closely monitoring the winter storms across portions of the U.S. [Learn More](#)

789995606264

Ship date:

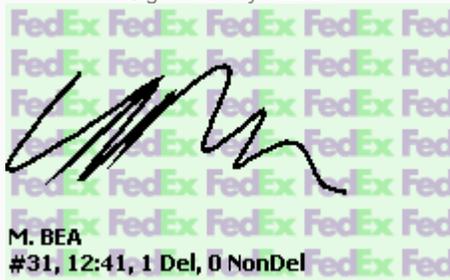
Wed 3/14/2018

Smartlink LLC
David Barbagallo
265 Lincoln St
KENSINGTON, CT US 06037
860 681-7708



Delivered

Signed for by: MBEA



M. BEA
#31, 12:41, 1 Del, 0 NonDel

Actual delivery:

Thu 3/15/2018 12:41

Baltic Town Hall
Catherine A. Osten
1 MAIN ST
BAL TIC, CT US 0633
860 822-3000

Travel History

▲ Date/Time	Activity	Loca
- 3/15/2018 - Thursday		
12:42 pm	Delivered	Baltic, C
4:08 am	On FedEx vehicle for delivery	WILLINC
4:05 am	At local FedEx facility	WILLINC
12:55 am	Arrived at FedEx location	WILLINC

3/14/2018 - Wednesday

10:24 pm	Left FedEx origin facility	SOUTH
8:38 pm	Arrived at FedEx location	SOUTH
7:17 pm	Picked up	SOUTH

3/12/2018 - Monday

1:03 pm	Shipment information sent to FedEx
---------	------------------------------------

Shipment Facts

Tracking Number	789995606264	Service	FedEx Ground
Weight	1 lbs / 0.45 kgs	Delivery attempts	1
Total pieces	1	Terms	Not Available
Packaging	Package	Standard transit	 3/15/2018

OUR COMPANY

[About FedEx](#)

[Our Portfolio](#)

[Investor Relations](#)

[Careers](#)

[FedEx Blog](#)

[Corporate Responsibility](#)

[Newsroom](#)

[Contact Us](#)

MORE FROM FEDEX

[FedEx Compatible](#)

[Developer Resource Center](#)

[FedEx Cross Border](#)

LANGUAGE

[Change Country](#)

English

FOLLOW FEDEX

© FedEx 1995-2018

[Feedback](#) | [Site Map](#) | [Terms of Use](#) | [Security & Privacy](#)



IMPORTANT!

FedEx is closely monitoring the winter storms across portions of the U.S. [Learn More](#)

789995606264

Ship date:

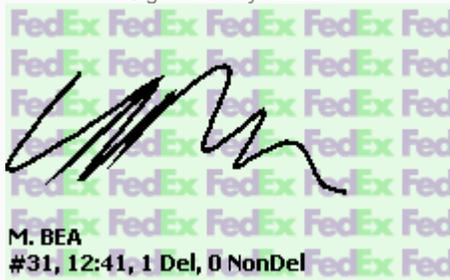
Wed 3/14/2018

Smartlink LLC
David Barbagallo
265 Lincoln St
KENSINGTON, CT US 06037
860 681-7708



Delivered

Signed for by: MBEA



M. BEA
#31, 12:41, 1 Del, 0 NonDel

Actual delivery:

Thu 3/15/2018 12:41

Baltic Town Hall
Catherine A. Osten
1 MAIN ST
BAL TIC, CT US 0633
860 822-3000

Travel History

▲ Date/Time	Activity	Loca
- 3/15/2018 - Thursday		
12:42 pm	Delivered	Baltic, C
4:08 am	On FedEx vehicle for delivery	WILLINC
4:05 am	At local FedEx facility	WILLINC
12:55 am	Arrived at FedEx location	WILLINC

3/14/2018 - Wednesday

10:24 pm	Left FedEx origin facility	SOUTH
8:38 pm	Arrived at FedEx location	SOUTH
7:17 pm	Picked up	SOUTH

3/12/2018 - Monday

1:03 pm	Shipment information sent to FedEx
---------	------------------------------------

Shipment Facts

Tracking Number	789995606264	Service	FedEx Ground
Weight	1 lbs / 0.45 kgs	Delivery attempts	1
Total pieces	1	Terms	Not Available
Packaging	Package	Standard transit	 3/15/2018

OUR COMPANY

[About FedEx](#)

[Our Portfolio](#)

[Investor Relations](#)

[Careers](#)

[FedEx Blog](#)

[Corporate Responsibility](#)

[Newsroom](#)

[Contact Us](#)

MORE FROM FEDEX

[FedEx Compatible](#)

[Developer Resource Center](#)

[FedEx Cross Border](#)

LANGUAGE

[Change Country](#)

English

FOLLOW FEDEX

© FedEx 1995-2018

[Feedback](#) | [Site Map](#) | [Terms of Use](#) | [Security & Privacy](#)



IMPORTANT!

FedEx is closely monitoring the winter storms across portions of the U.S. [Learn More](#)

789995708969

Ship date:

Tue 3/13/2018

Actual delivery:

Mon 3/19/2018 8:48

Smartlink LLC
David Barbagallo
265 Lincoln St
KENSINGTON, CT US 06037
860 681-7708



Delivered

Signed for by: J.SYNNETT



Baltic Town Hall
Colette J. Hoffman
1 Main St
BAL TIC, CT US 0633
860 822-3000

Travel History

▲ Date/Time	Activity	Loca
- 3/19/2018 - Monday		
8:48 am	Delivered	BAL TIC,
8:21 am	On FedEx vehicle for delivery	NORWIC
7:13 am	At local FedEx facility	NORWIC
- 3/16/2018 - Friday		
6:57 pm	At local FedEx facility	NORWIC
8:46 am	Delivery exception	NORWIC
	Business closed - No delivery attempt	NORWIC

8:22 am	At local FedEx facility	
- 3/15/2018 - Thursday		
7:09 pm	At local FedEx facility	NORWIC
8:46 am	At local FedEx facility	NORWIC
	Package not due for delivery	
8:35 am	At local FedEx facility	NORWIC
- 3/14/2018 - Wednesday		
7:19 pm	At local FedEx facility	NORWIC
10:23 am	At local FedEx facility	NORWIC
	Package not due for delivery	
9:05 am	At local FedEx facility	NORWIC
	Package not due for delivery	
8:52 am	At local FedEx facility	NORWIC
- 3/13/2018 - Tuesday		
7:45 pm	At destination sort facility	EAST G
7:35 pm	Left FedEx origin facility	WINDSC
3:20 pm	Picked up	WINDSC
- 3/12/2018 - Monday		
11:59 am	Shipment information sent to FedEx	

Shipment Facts

Tracking Number	789995708969	Service	FedEx Express Saver
Weight	1 lbs / 0.45 kgs	Delivery attempts	1
Delivered To	Receptionist/Front Desk	Total pieces	1
Total shipment weight	1 lbs / 0.45 kgs	Terms	Not Available
Packaging	FedEx Pak	Special handling section	Deliver Weekday
Standard transit 	3/19/2018 by 4:30 pm		

OUR COMPANY

[About FedEx](#)

[Our Portfolio](#)

[Investor Relations](#)

[Careers](#)

[FedEx Blog](#)

[Corporate Responsibility](#)

[Newsroom](#)

[Contact Us](#)

MORE FROM FEDEX

FedEx Compatible

Developer Resource Center

FedEx Cross Border

LANGUAGE

Change Country

English

FOLLOW FEDEX

© FedEx 1995-2018

[Feedback](#) | [Site Map](#) | [Terms of Use](#) | [Security & Privacy](#)



PROJECT: LTE 2C/3C
 SITE NUMBER: CTL02206
 FA NUMBER: 10065740
 PTN NUMBER: 2051A0D6PA
 PACE NUMBER: MRCTB025407/MRCTB025405
 SITE NAME: SPRAGUE BALTIC RESERVOIR
 SITE ADDRESS: 62 NORTH MAIN STREET
 BALTIC, CT 06330

550 COCHITUATE ROAD
 SUITE 550 13 AND 14
 FRAMINGHAM, MA 01701

1362 MELLON ROAD
 SUITE 140
 HANOVER, MD 21076

FULLERTON
 ENGINEERING • DESIGN
 1100 E. WOODFIELD ROAD, SUITE 500
 SCHAUMBURG, ILLINOIS 60173
 TEL: 847-908-8400
 COA# PEC.0001444
 www.FullertonEngineering.com

PROJECT INFORMATION

SITE NAME: SPRAGUE BALTIC RESERVOIR
SITE NUMBER: CTL02206
SITE ADDRESS: 62 NORTH MAIN STREET
 BALTIC, CT 06330
FA NUMBER: 10065740
PTN NUMBER: 2051A0D6PA
PACE NUMBER: MRCTB025407/MRCTB025405
USID NUMBER: 98766

APPLICANT: AT&T WIRELESS
 550 COCHITUATE ROAD SUITE 550 13 AND 14
 FRAMINGHAM, MA 01701

OWNER: WIRELESS SOLUTION, LLC.

JURISDICTION: NEW LONDON COUNTY
COUNTY: NEW LONDON
SITE COORDINATES FROM (RFDS)
LATITUDE: 41.6238889°
LONGITUDE: -72.0780556°
GROUND ELEV.: 367'
PROPOSED USE: TELECOMMUNICATIONS FACILITY

AT&T RF MANAGER: DEEPAK RATHORE
PHONE: (860) 965-3068
EMAIL: dr701e@att.com

SCOPE OF WORK

LTE 850 WILL BE 2C/3C AT THE SITE WITH BRONZE CONFIGURATION. PROPOSED 2C3C PROJECT SCOPE HEREIN BASED ON RFDS ID # 1833308, VERSION 1.00 LAST UPDATED 09/28/17.

- (3) NEW ANTENNAS TO REPLACE (3) EXISTING ANTENNAS
- (3) NEW RRUS-32 B2 UNITS
- (2) NEW RRUS-B14 UNITS
- UPGRADE DUS TO 5216 AND ADD XMU

- CONTRACTOR SHALL FURNISH ALL MATERIAL WITH THE EXCEPTION OF AT&T SUPPLIED MATERIAL.
- ALL MATERIAL SHALL BE INSTALLED BY THE CONTRACTOR, UNLESS STATED OTHERWISE.

APPLICABLE BUILDING CODES AND STANDARDS

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

BUILDING CODE: 2012 INTERNATIONAL BUILDING CODE
 2016 CONNECTICUT STATE BUILDING CODE SUPPLEMENT

ELECTRICAL CODE: 2014 NATIONAL ELECTRIC CODE

- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- ADA ACCESS REQUIREMENTS ARE NOT REQUIRED.
- THIS FACILITY DOES NOT REQUIRE POTABLE WATER AND WILL NOT PRODUCE ANY SEWAGE

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

SITE LOCATION MAP



DRAWING INDEX

T1	TITLE SHEET
SP1	NOTES AND SPECIFICATIONS
SP2	NOTES AND SPECIFICATIONS
A1	COMPOUND PLAN
A2	EQUIPMENT PLAN
A3	ELEVATIONS
A4	ANTENNA PLANS
A5	EQUIPMENT DETAILS
A6	ANTENNA & CABLE CONFIGURATION
A7	CABLE NOTES AND COLOR CODING
A8	GROUNDING DETAILS

PROJECT CONSULTANTS

PROJECT MANAGER: SMARTLINK
 85 RANGEWAY ROAD, SUITE 102
 NORTH BILLERICA, MA 01862
CONTACT: EDWARD WEISSMAN (917) 528-1857
EMAIL: Edward.Weissman@smartlinkllc.com

SITE ACQUISITION: SMARTLINK
 85 RANGEWAY ROAD, SUITE 102
 NORTH BILLERICA, MA 01862
CONTACT: SHARON KEEFE (978) 930-3918
EMAIL: Sharon.Keefe@smartlinkllc.com

ENGINEER/ARCHITECT: FULLERTON ENGINEERING
 1100 E. WOODFIELD ROAD, SUITE 500
 SCHAUMBURG, IL 60173
CONTACT: MILEN DIMITROV (847) 908-8439
EMAIL: MDimitrov@FullertonEngineering.com

CONSTRUCTION: SMARTLINK
 85 RANGEWAY ROAD, SUITE 102
 NORTH BILLERICA, MA 01862
CONTACT: MARK DONNELLY (617) 515-2080
EMAIL: mark.donnelly@smartlinkllc.com

DIRECTIONS

SCAN QR CODE FOR LINK TO SITE LOCATION MAP



NOTE: DRAWING SCALES ARE FOR 11"x17" SHEETS UNLESS OTHERWISE NOTED

SITE NAME
 SPRAGUE BALTIC RESERVOIR

SITE NUMBER:
 CTL02206

SITE ADDRESS
 62 NORTH MAIN STREET
 BALTIC, CT 06330

SHEET NAME
 TITLE SHEET

SHEET NUMBER
 T1

THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

GENERAL CONSTRUCTION

- FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR/CM – SMARTLINK
OWNER – AT&T WIRELESS
- ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
- GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
- GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
- ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
- SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
- WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.

- THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
- THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OT 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
- THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
- ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
- ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
- CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
- CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
- THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
- OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
- NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
- ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
- CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
- CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.

ANTENNA MOUNTING

- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL

- CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
 - ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
 - DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
 - ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
 - CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
 - ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
 - PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.
 - JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
 - CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
 - TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.

TORQUE REQUIREMENTS

- ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
- ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.
B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.

FIBER & POWER CABLE MOUNTING

- THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
- THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES. A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
- WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

- TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
- CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
- CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.
- ALL JUMPERS TO THE ANTENNAS FROM THE MAIN

TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".

- ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
- CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT. INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
- CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.

GENERAL CABLE AND EQUIPMENT NOTES

- CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMA'S, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
- ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
- ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
- IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
A. TEMPERATURE SHALL BE ABOVE 50° F.
B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS
- ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
A. GROUNDING AT THE ANTENNA LEVEL.
B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDING REQUIRED.
C. GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
D. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
- ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.



550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701



1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME
SPRAGUE BALTIC RESERVOIR

SITE NUMBER:
CTL02206

SITE ADDRESS
**62 NORTH MAIN STREET
BAL TIC, CT 06330**

SHEET NAME
NOTES AND SPECIFICATIONS

SHEET NUMBER
SP1

THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

NOTICE

Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC General Population Exposure Limits.

Follow all posted signs and site guidelines for working in a RF environment.

Ref: 47CFR 1.1307(b)

CAUTION

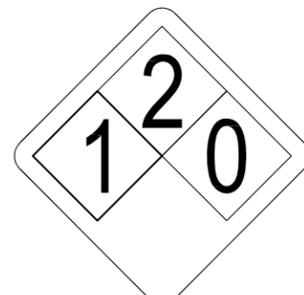
Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC Occupational Exposure Limits.

Obey all posted signs and site guidelines for working in a RF environment.

Ref: 47CFR 1.1307(b)



ALERTING SIGN
(FOR CELL SITE BATTERIES)



ALERTING SIGN
(FOR DIESEL FUEL)



ALERTING SIGN
(FOR PROPANE)

550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON
ENGINEERING • DESIGN

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

ALERTING SIGNS

WARNING!

DANGER DO NOT TOUCH TOWER!
SERIOUS "RF" BURN HAZARD!

MAINTAIN AN ADEQUATE CLEARANCE BETWEEN TOWER SUPPORTS AND GUY WIRES

FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN A RADIO FREQUENCY ENVIRONMENT COULD RESULT IN SERIOUS INJURY. CONTACT CURRENT MAY EXCEED LIMITS PRESCRIBED IN ANSI, IEEE C95.1-1992 FOR CONTROLLED ENVIRONMENTS.

PROPERTY OF AT&T

AUTHORIZED PERSONNEL ONLY

IN CASE OF EMERGENCY, OR PRIOR TO PERFORMING MAINTENANCE ON THIS SITE, CALL 800-638-2822 AND REFERENCE CELL SITE NUMBER _____

ALERTING SIGN

INFO SIGN #4

GENERAL SIGNAGE GUIDELINES

STRUCTURE TYPE	INFO SIGN #1	INFO SIGN #2	INFO SIGN #3	INFO SIGN #4	STRIPING	NOTICE SIGN	CAUTION SIGN
TOWERS							
MONOPOLE/MONOPINE/MONOPALM	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			AT THE HEIGHT OF THE FIRST CLIMBING STEP, MIN 9 FT ABOVE GROUND
SEC TOWERS/TOWERS WITH HIGH VOLTAGE	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
LIGHT POLES/FLAG POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
UTILITY WOOD POLES (JPA)	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		IF GP MAX VALUE OF MPE AT ANTENNA LEVEL IS: 0-99%: NOTICE SIGN; OVER 99%: CAUTION SIGN AT NO LESS THAN 3FT BELOW ANTENNA AND 9FT ABOVE GROUND	
MICROCELLS MOUNTED ON NON-JPA POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		NOTICE OR CAUTION SIGN AT NO LESS THAN 9FT ABOVE GROUND; ONLY IF THE EXPOSURE EXCEEDS 90% OF THE GENERAL PUBLIC EXPOSURE AT EXPOSURE AT 6FT ABOVE GROUND OR AT OUTSIDE OF SURFACE OF ADJACENT BUILDING	
TOWERS							
AT ALL ACCESS POINTS TO THE ROOF	X			X			
ON ANTENNAS	X		X	X			
CONCEALED ANTENNAS	X	X		X			
ANTENNAS MOUNTED FACING OUTSIDE THE BUILDING	X	X		X			
ANTENNAS ON SUPPORT STRUCTURE	X	X		X			
ROOFVIEW GRAPH							
RADIATION AREA IS WITHIN 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X			EITHER NOTICE OR CAUTION SIGN (BASED ON ROOFVIEW RESULTS) AT ANTENNA /BARRIER
RADIATION AREA IS BEYOND 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X	DIAGONAL, YELLOW STRIPING AS TO ROOFVIEW GRAPH		
CHURCH STEEPLES	ACCESS TO STEEPLE	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO STEEPLE			CAUTION SIGN AT THE ANTENNAS
WATER STATIONS	ACCESS TO LADDER	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO LADDER			CAUTION SIGN BESIDE INFO SIGN #1, MIN. 9FT ABOVE GROUND

STAY BACK 3 FEET FROM ANTENNA

INFORMATION

AT&T operates telecommunications antennas at this location. Remain at least 3 feet away from any antenna and obey all posted signs.

Contact the owner(s) of the antenna(s) before working closer than 3 feet from the antenna.

Contact AT&T at _____ prior to performing any maintenance or repairs near AT&T antennas. This is Site# _____

Contact the management office if this door/hatch/gate is found unlocked.

INFORMACION

En esta propiedad se ubican antenas de telecomunicaciones operadas por AT&T. Favor mantener una distancia de no menos de 3 pies y obedecer todos los avisos.

Comuníquese con el propietario o los propietarios de las antenas antes de trabajar o caminar a una distancia de menos de 3 pies de la antena.

Comuníquese con AT&T _____ antes de realizar cualquier mantenimiento o reparaciones cerca de la antena de AT&T.

Esta es la estación base maestra. _____

Favor comunicarse con la oficina de la administración del edificio si esta puerta o compuerta se encuentra sin candado.

INFORMATION

ACTIVE ANTENNAS ARE MOUNTED

ON THE OUTSIDE OF THIS BUILDING

BEHIND THIS PANEL

ON THIS STRUCTURE

STAY BACK A MINIMUM OF 3 FEET FROM THESE ANTENNAS

Contact AT&T at _____ and follow their instructions prior to performing any maintenance or repairs closer than 3 feet from the antennas.

This is AT&T site# _____

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME
SPRAGUE BALTIC RESERVOIR

SITE NUMBER:
CTL02206

SITE ADDRESS
**62 NORTH MAIN STREET
BALTIC, CT 06330**

SHEET NAME
NOTES AND SPECIFICATIONS

SHEET NUMBER
SP2

INFO SIGN #1

INFO SIGN #2

INFO SIGN #3

SIGNAGE GUIDELINES CHART

NOTES FOR ROOFTOP SITES:

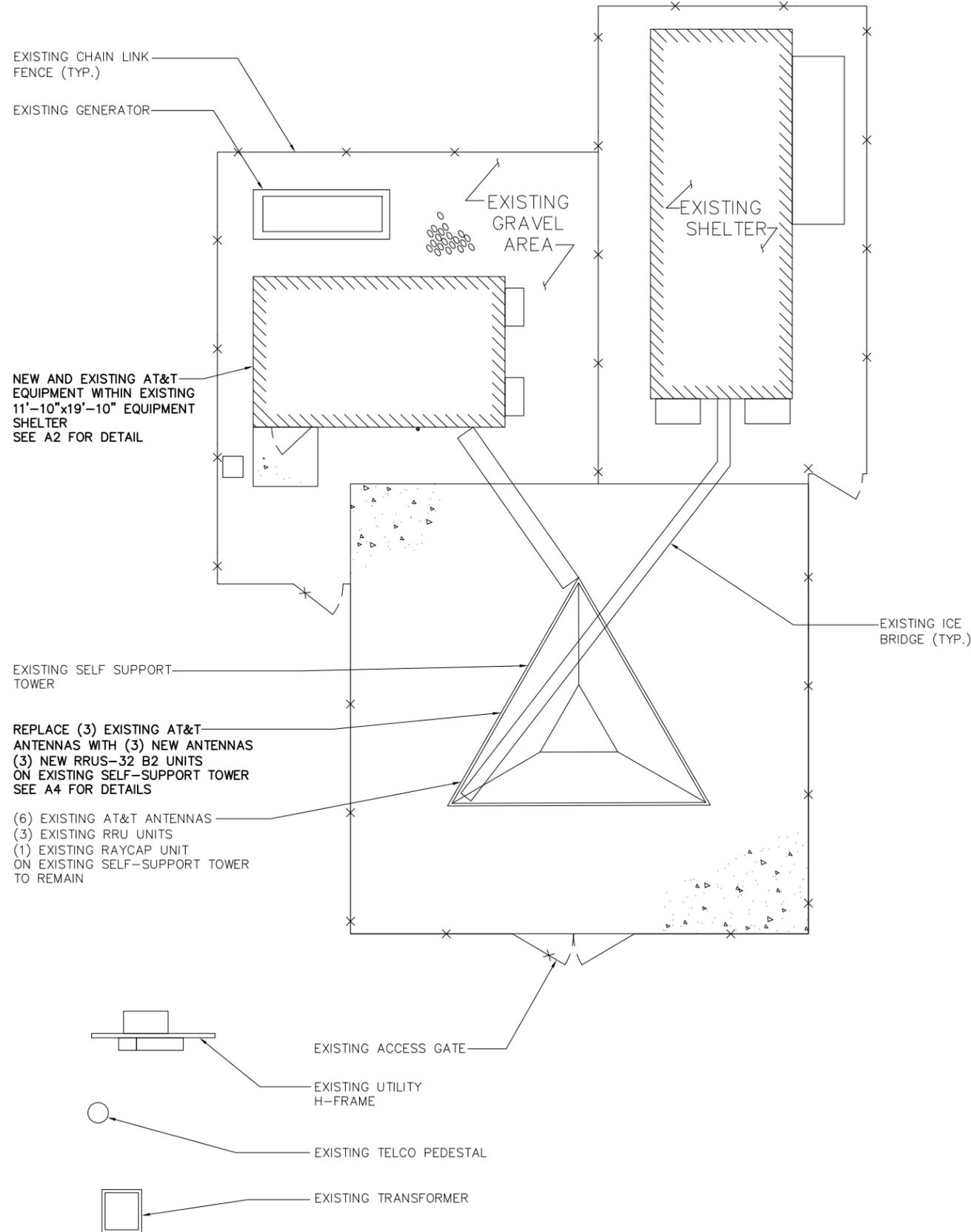
- EITHER NOTICE OR CAUTION SIGNS NEED TO BE POSTED AT EACH SECTOR AS CLOSE AS POSSIBLE TO: THE OUTER EDGE OF THE STRIPED OFF AREA OR THE OUTER ANTENNAS OF THE SECTOR
- IF ROOFVIEWS SHOWS: ONLY BLUE = NOTICE SIGN, BLUE AND YELLOW = CAUTION SIGN, ONLY YELLOW = CAUTION SIGN TO BE INSTALLED
- SHOULD THE REQUIRED STRIPING AREAS INTERFERE WITH ANY STRUCTURE OR EQUIPMENT (A/C, VENTS, ROOF HATCH, DOORS, OTHER ANTENNAS, DISHES, ETC.). PLEASE NOTIFY AT&T TO MODIFY THE STRIPING AREA, PRIOR TO STARTING THE WORK.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AGL	ABOVE GRADE LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BTS	BASE TRANSMISSION STATION
CL	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
DWG	DRAWING
FT	FOOT(FEET)
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATION
EQUIP	EQUIPMENT
(E)	EXISTING
EXT	EXTERIOR
FND	FOUNDATION
F	FIBER
FIF	FACILITY INTERFACE FRAME
GA	GAUGE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE COMMUNICATION
LTE	LONG TERM EVOLUTION
MAX	MAXIMUM
MCPA	MULTI-CARRIER POWER AMPLIFIER
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTS	MANUAL TRANSFER SWITCH
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OE/OT	OVERHEAD ELECTRIC/TELCO
PPC	POWER PROTECTION CABINET
PL	PROPERTY LINE
RBS	RADIO BASED STATION
RET	REMOTE ELECTRIC TILT
RRU	REMOTE RADIO UNIT
RGS	RIGID GALVANIZED STEEL
IN	INCH(ES)
INT	INTERIOR
LB(S), #	POUND(S)
SF	SQUARE FOOT
STL	STEEL
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UE/UT	UNDERGROUND ELECTRIC/TELCO
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELE-COMMUNICATION SYSTEM
VIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

SYMBOLS

	REVISION
	WORK POINT
	UTILITY POLE
	COMPRESSED STONE
	BRICK
	CONCRETE
	EARTH
	GRAVEL
	MASONRY
	STEEL
	CENTERLINE
	PROPERTY LINE
	LEASE LINE
	EASEMENT LINE
	CHAIN LINK FENCE
	WOOD FENCE
	BELOW GRADE ELECTRIC
	BELOW GRADE TELEPHONE
	OVERHEAD ELECTRIC/TELEPHONE
	SECTION REFERENCE



SITE PHOTO 1 SCALE: N.T.S. 2



SITE PHOTO 2 SCALE: N.T.S. 3



550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701



1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME
SPRAGUE BALTIC RESERVOIR

SITE NUMBER:
CTL02206

SITE ADDRESS
**62 NORTH MAIN STREET
BAL TIC, CT 06330**

SHEET NAME
COMPOUND PLAN

SHEET NUMBER
A1

COMPOUND PLAN

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

1

SITE PHOTO 2

SCALE: N.T.S.

3

THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701



1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME

SPRAGUE BALTIC RESERVOIR

SITE NUMBER:

CTL02206

SITE ADDRESS

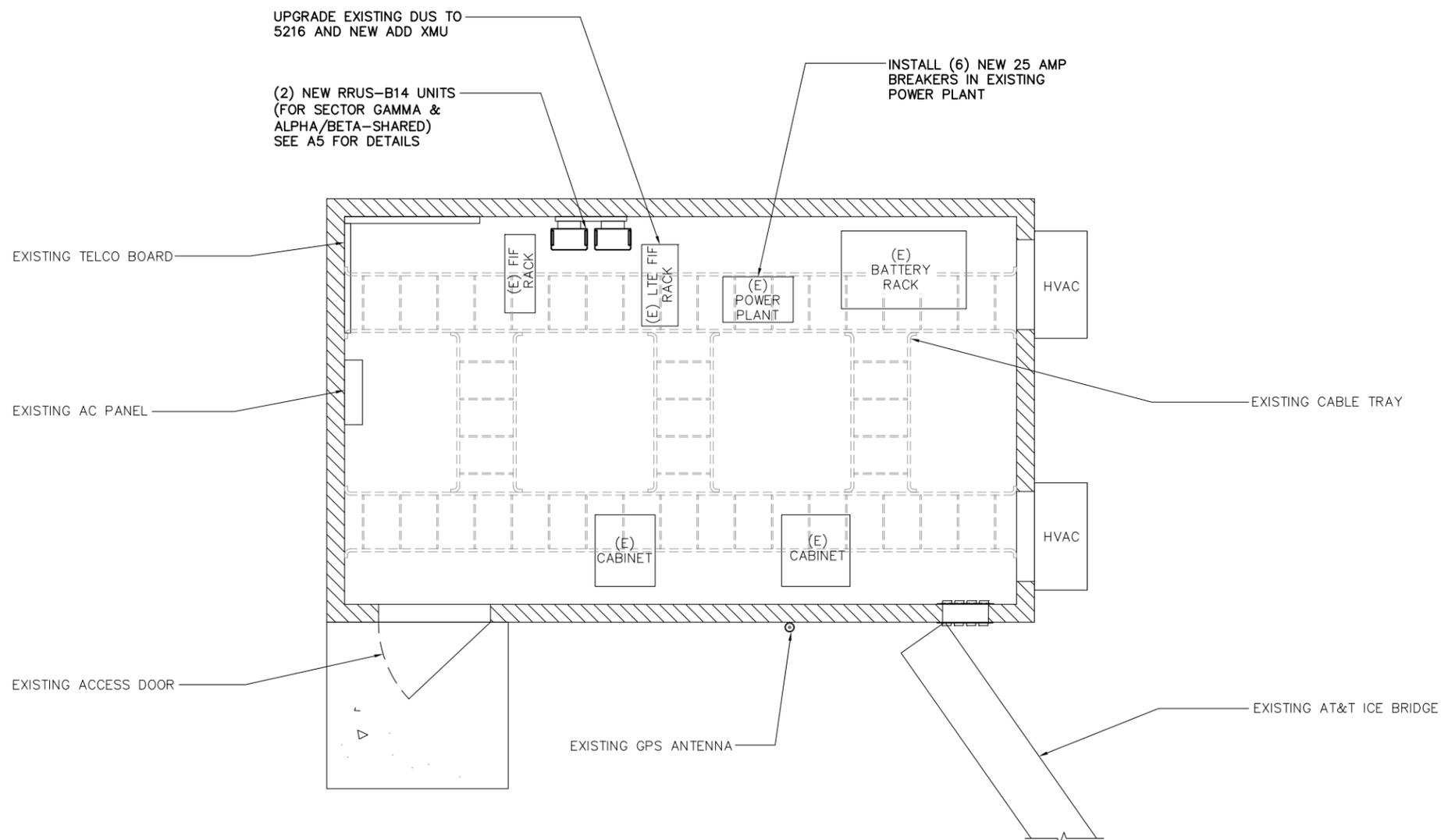
**62 NORTH MAIN STREET
BALTIC, CT 06330**

SHEET NAME

EQUIPMENT PLAN

SHEET NUMBER

A2





550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701



1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME

SPRAGUE BALTIC RESERVOIR

SITE NUMBER:

CTL02206

SITE ADDRESS

**62 NORTH MAIN STREET
BAL TIC, CT 06330**

SHEET NAME

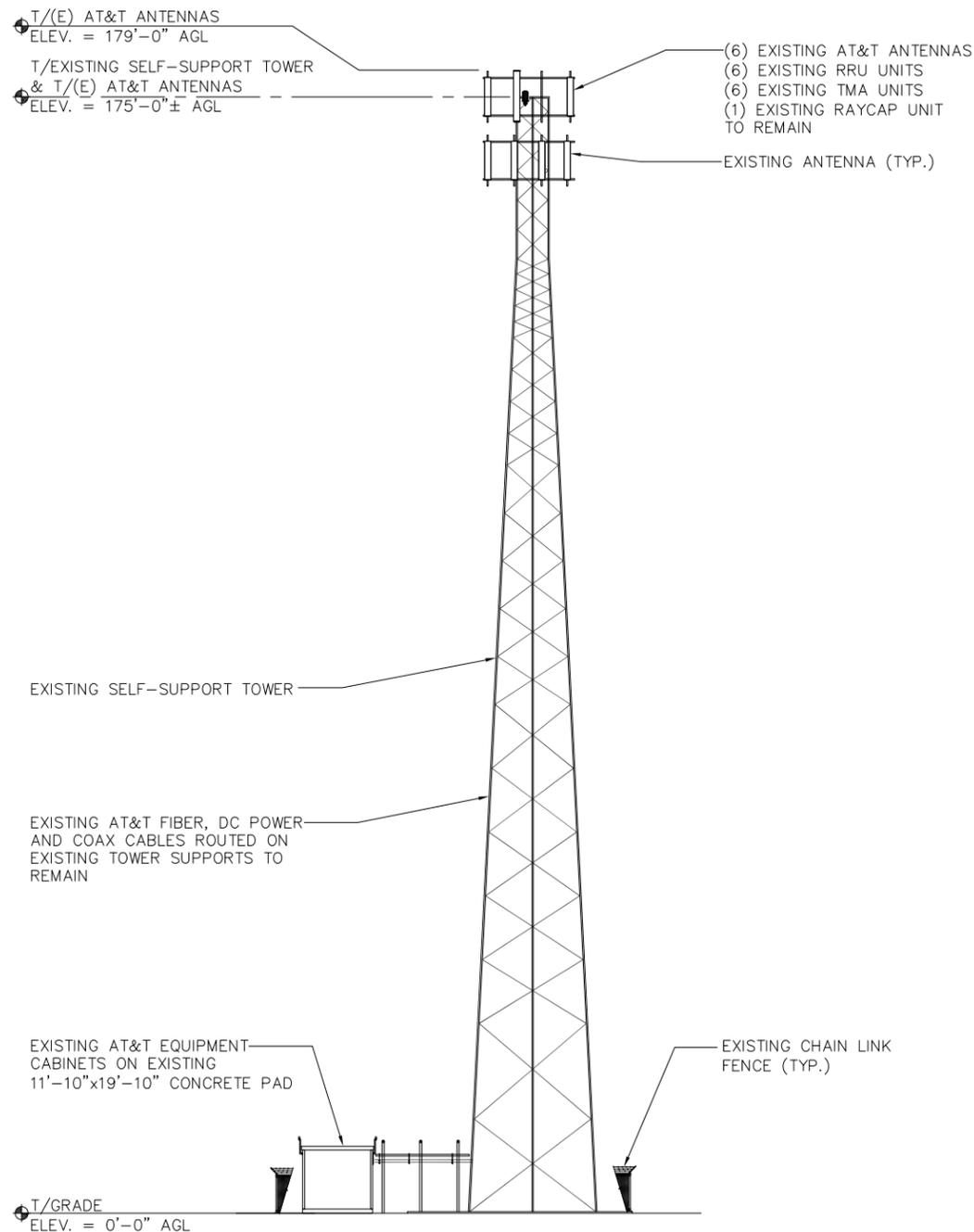
ELEVATIONS

SHEET NUMBER

A3

NOTES:

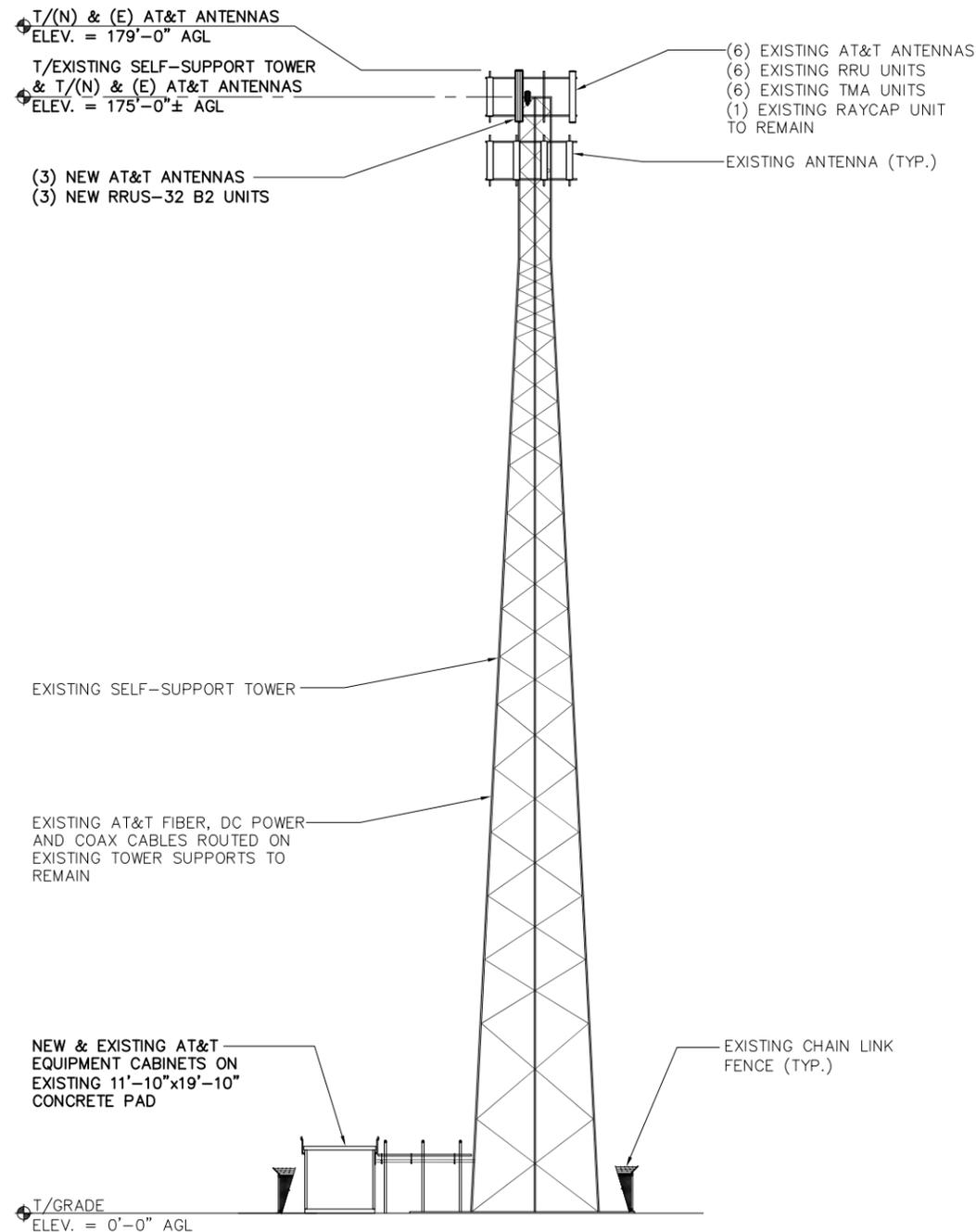
1. CALCULATIONS FOR THE STRUCTURE AND ANTENNA MOUNTS WERE PREPARED BY OTHERS AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
2. CABLES NOT SHOWN FOR CLARITY



EXISTING ELEVATION

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

1

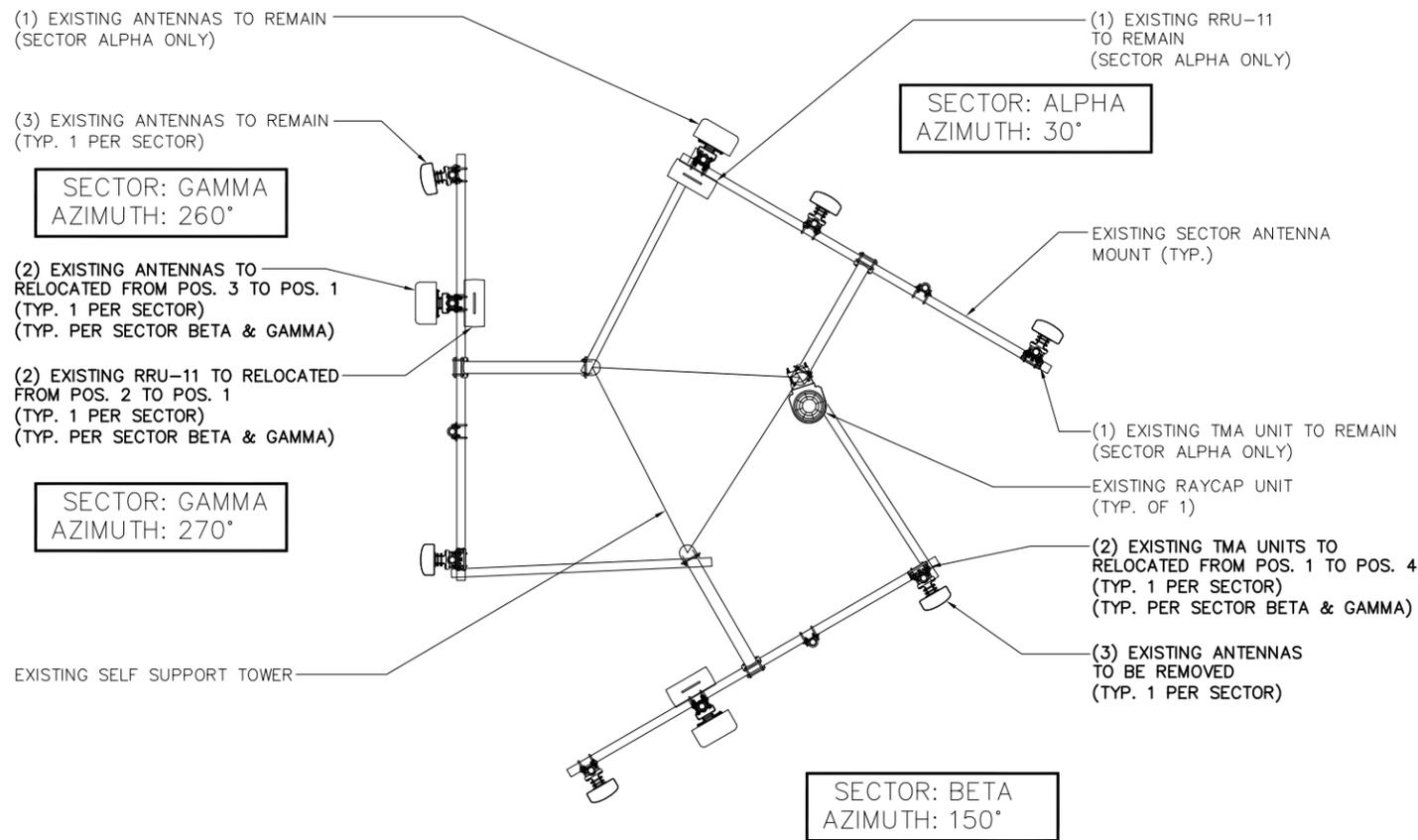


NEW ELEVATION

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

2

THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



EXISTING ANTENNA PLAN

SCALE: 3/16" = 1'-0" 1

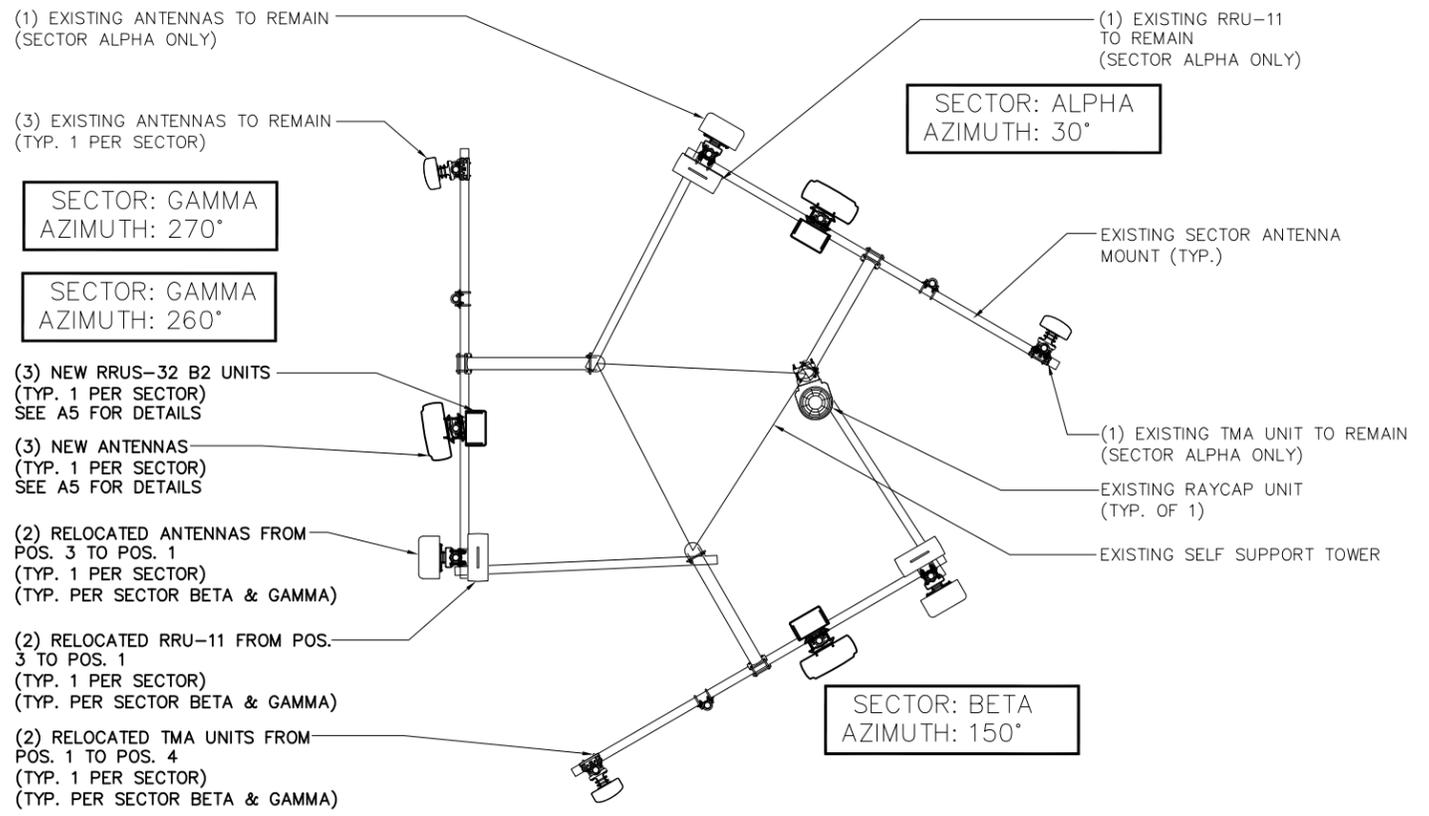
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



FINAL ANTENNA PLAN

SCALE: 3/16" = 1'-0" 2

SITE NAME
SPRAGUE BALTIC RESERVOIR

SITE NUMBER:
CTL02206

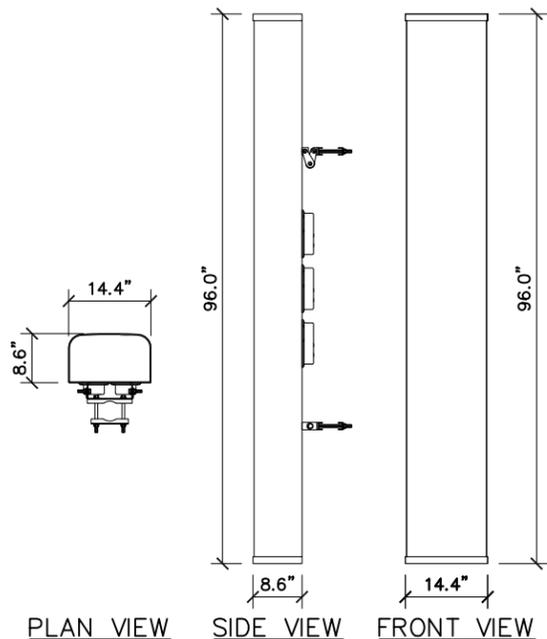
SITE ADDRESS
**62 NORTH MAIN STREET
BALTIC, CT 06330**

SHEET NAME
ANTENNA PLANS

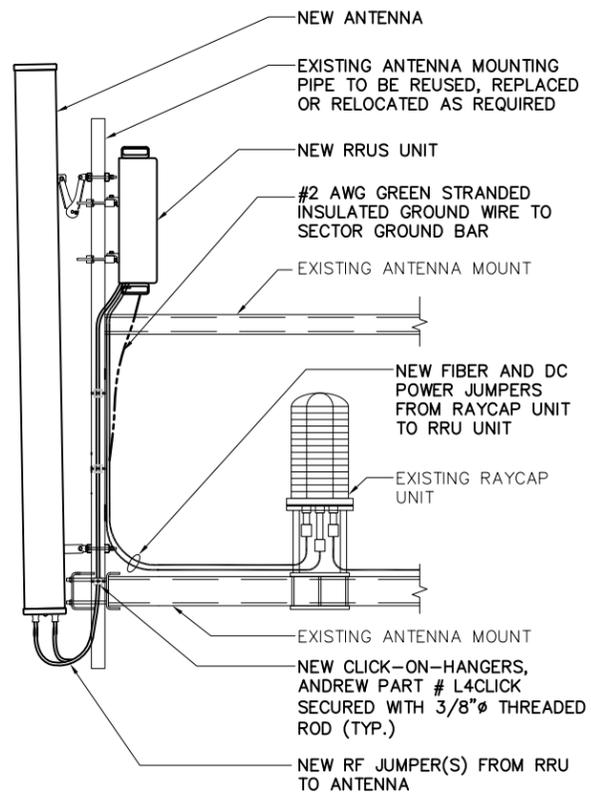
SHEET NUMBER
A4



THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



CCI ANTENNA TPA-65R-LCUUUU-H8
 12 PORT MULTI-BAND ANTENNA
 FREQUENCY RANGE
 2 LOW BAND PORTS, 698-798 MHz
 2 LOW BAND PORTS, 824-896 MHz
 8 HIGH BAND PORTS, 1695-2360 MHz
 ANTENNA W/ RET SYSTEM 81.6 Lbs
 BRACKET 12.6 Lbs
 TOTAL 94.2 Lbs

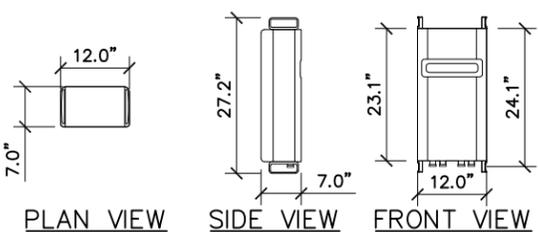


ANTENNA SPEC SCALE: N.T.S. 1

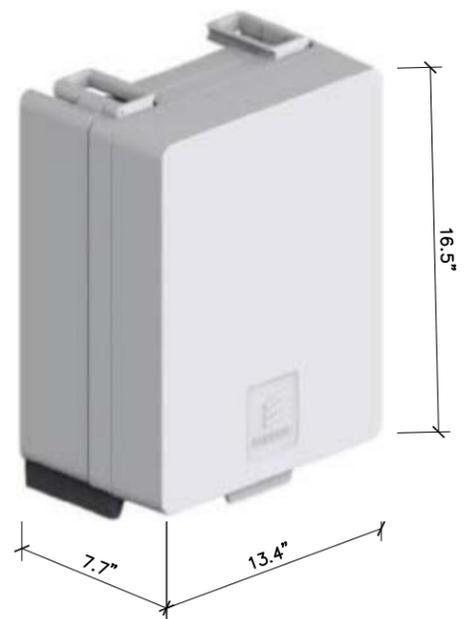
ANTENNA SCHEMATIC SCALE: N.T.S. 2

NOT USED SCALE: N.T.S. 3

NOT USED SCALE: N.T.S. 4



ERICSSON - RRUS 32 B2
 TECHNOLOGIES: FDD, LTE, GSM & WCDMA
 FREQUENCY RANGE: UPLINK 1850-1910 MHz
 DOWNLINK 1930-1990 MHz
 WEIGHT w/SOLAR SHIELD & HANDLE 53 Lbs



FREQUENCY RANGE TX 758-768 MHz
 RX 788-798 MHz
 TOTAL WEIGHT 59.9 Lbs

RRU SPEC SCALE: N.T.S. 5

RRU SPEC SCALE: N.T.S. 6

NOT USED SCALE: N.T.S. 7

NOT USED SCALE: N.T.S. 8



REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME
SPRAGUE BALTIC RESERVOIR

SITE NUMBER:
CTL02206

SITE ADDRESS
**62 NORTH MAIN STREET
 BALTIC, CT 06330**

SHEET NAME
EQUIPMENT DETAILS

SHEET NUMBER
A5

THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701



1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME

**SPRAGUE BALTIC
RESERVOIR**

SITE NUMBER:

CTL02206

SITE ADDRESS

62 NORTH MAIN STREET
BAL TIC, CT 06330

SHEET NAME

**ANTENNA &
CABLE
CONFIGURATION**

SHEET NUMBER

A6

**FINAL ANTENNA CONFIGURATION AND CABLE SCHEDULE
SUPPLIED BY AT&T WIRELESS, FROM RF CONFIG. DATED (09/28/17)**

SECTOR	ANTENNA NUMBER	ANTENNA STATUS & TYPE	ANTENNA MODEL NUMBER	ANTENNA VENDOR	TMA/RRU UNIT (BY ANTENNAS)	TMA/RRU UNIT (BY EQUIPMENT)	AZIMUTH	ANTENNA CL FROM GROUND	CABLE FEEDER		RAYCAP UNIT
									TYPE	LENGTH	
ALPHA	A-1	(E) LTE1C ANTENNA	AM-X-CD-17-65-00T-RET	KMW	(1) EXISTING RRUS-11 UNIT	-	30°	140'-0"	(1) EXISTING FIBER CABLE	230'-0"	(1) (E) DC6-48-60-18-8F UNIT
	A-2	(N) LTE2C/3C ANTENNA	TPA-65R-LCUUUU-H8	CCI	(1) NEW RRUS-32 UNIT	(1) NEW RRUS-B14 UNIT	30°	140'-0"	(2) EXISTING DC POWER CABLES	230'-0"	
	A-3	-	-	-	-	-	-	-	(2) 1-5/8"φ LDF7-50A	230'-0"	
	A-4	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNITS	-	30°	140'-0"	SEE ANTENNA A-1 FOR CABLE TYPE AND LENGTH	-	
BETA	B-1	(E) LTE1C ANTENNA	SBNH-1D6565C	COMMSCOPE	(1) EXISTING RRUS-11 UNIT	-	150°	140'-0"	1-5/8"φ LDF7-50A	230'-0"	
	B-2	(N) LTE2C/3C ANTENNA	TPA-65R-LCUUUU-H8	CCI	(1) NEW RRUS-32 UNIT	SEE RRU A-2	150°	140'-0"	SEE ANTENNA A-1 FOR CABLE TYPE AND LENGTH	-	
	B-3	-	-	-	-	-	-	-	SEE ANTENNA A-1 FOR CABLE TYPE AND LENGTH	-	
	B-4	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNITS	-	150°	140'-0"	1-5/8"φ LDF7-50A	230'-0"	
GAMMA	C-1	(E) LTE1C ANTENNA	SBNH-1D6565C	COMMSCOPE	(1) EXISTING RRUS-11 UNIT	-	260°	140'-0"	1-5/8"φ LDF7-50A	230'-0"	
	C-2	(N) LTE2C/3C ANTENNA	TPA-65R-LCUUUU-H8	CCI	(1) NEW RRUS-32 UNIT	(1) NEW RRUS-B14 UNIT	260°	140'-0"	SEE ANTENNA A-1 FOR CABLE TYPE AND LENGTH	-	
	C-3	-	-	-	-	-	-	-	(2) 1-5/8"φ LDF7-50A	230'-0"	
	C-4	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNITS	-	270°	140'-0"	SEE ANTENNA A-1 FOR CABLE TYPE AND LENGTH	-	

LEGEND
(N) - NEW
(E) - EXISTING

- CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
- THE SIZE, HEIGHT, AND DIRECTION OF THE ANTENNAS SHALL BE ADJUSTED TO ACHIEVE THE AZIMUTHS SPECIFIED AND LIMIT SHADOWING AND TO MEET THE SYSTEM REQUIREMENTS.
- CONTRACTOR SHALL VERIFY THE HEIGHT OF THE ANTENNA WITH THE AT&T WIRELESS PROJECT MANAGER.
- VERIFY TYPE AND SIZE OF TOWER LEG PRIOR TO ORDERING ANY ANTENNA MOUNT.
- UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY.
- ANTENNA AZIMUTHS ARE DEGREES OFF OF TRUE NORTH, BEARING CLOCKWISE, IN WHICH ANTENNA FACE IS DIRECTED. ALL ANTENNAS (AND SUPPORTING STRUCTURES AS PRACTICAL) SHALL BE ACCURATELY ORIENTED IN THE SPECIFIED DIRECTION.
- CONTRACTOR SHALL VERIFY ALL RF INFORMATION PRIOR TO CONSTRUCTION.
- SWEEP TEST SHALL BE PERFORMED BY GENERAL CONTRACTOR AND SUBMITTED TO AT&T WIRELESS CONSTRUCTION SPECIALIST. TEST SHALL BE PERFORMED PER AT&T WIRELESS STANDARDS.
- CABLE LENGTHS WERE DETERMINED BASED ON THE DESIGN DRAWING. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
- CONTRACTOR TO USE ROSENBERGER FIBER LINE HANGER COMPONENTS (OR ENGINEER APPROVED EQUAL).

ANTENNA AND CABLING NOTES

SCALE: N.T.S. 1

RF, DC, & COAX CABLE MARKING LOCATIONS TABLE	
NO	LOCATIONS
1	EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
3	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.

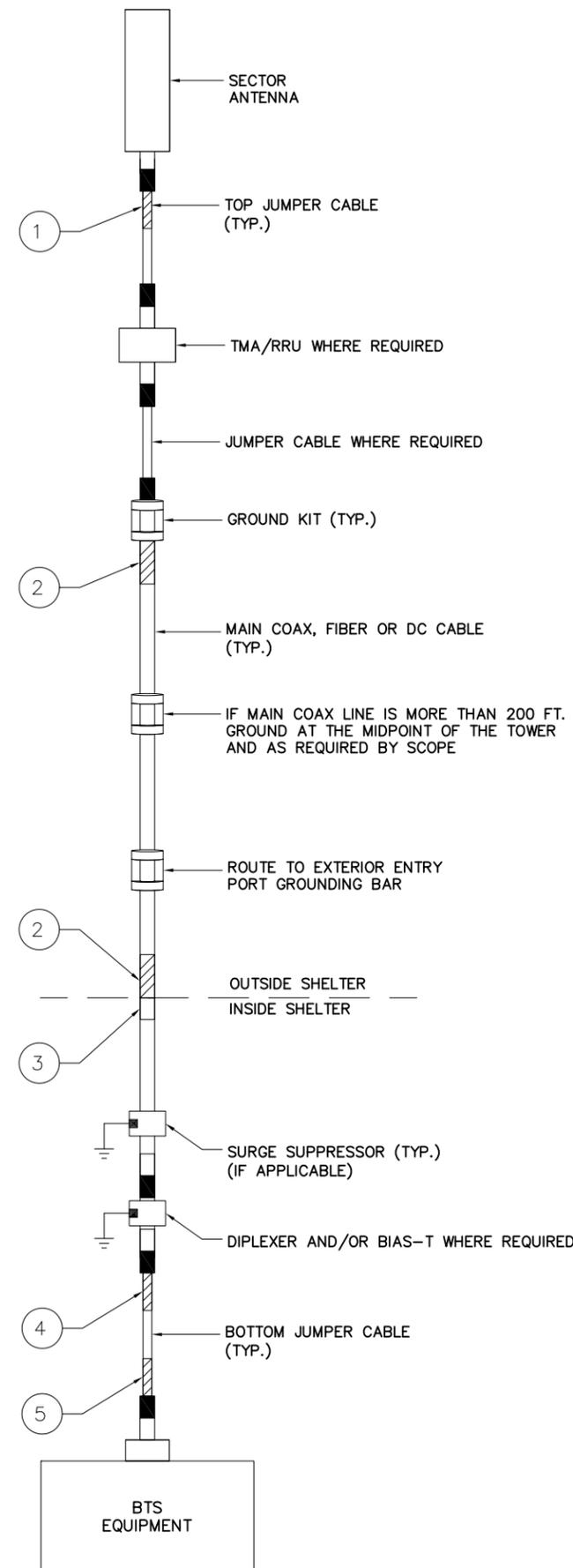
CABLE MARKING DIAGRAM

SCALE: N.T.S. 2

- THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE.
- THE STANDARD IS BASED ON EIGHT COLORED TAPES-RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE, AND VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR CONTRACTOR ON SITE.
- USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE COLOR CHART".
- WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN TECHNOLOGIES IS ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING STANDARD. IN THE ABSENCE OF AN EXISTING COLOR CODING AND TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
- ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) THREE WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
- ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE, AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE BETWEEN EACH COLOR.
- ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
- IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE NEW TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

CABLE MARKING NOTES

SCALE: N.T.S. 3



CABLE COLOR CODING DIAGRAM

SCALE: N.T.S. 4



REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME
SPRAGUE BALTIC RESERVOIR

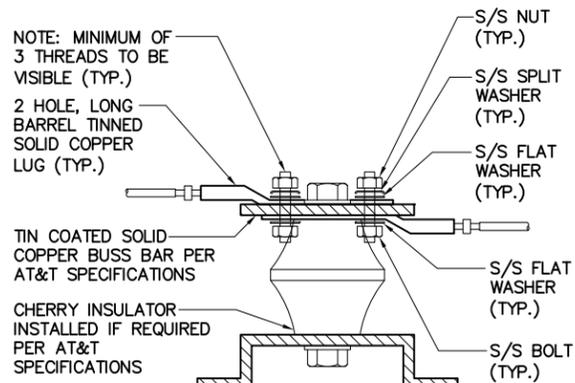
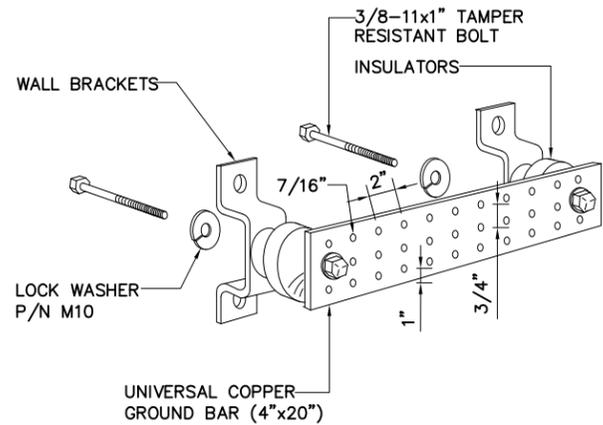
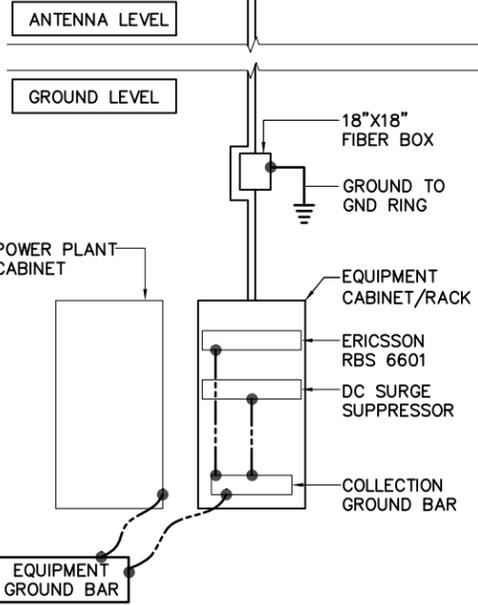
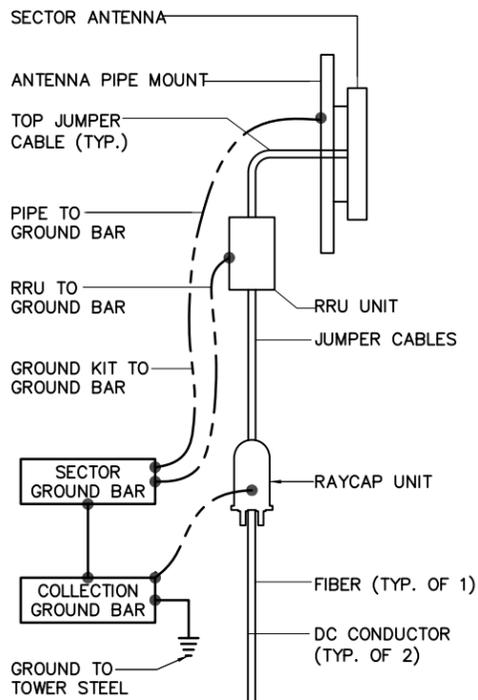
SITE NUMBER:
CTL02206

SITE ADDRESS
**62 NORTH MAIN STREET
BAL TIC, CT 06330**

SHEET NAME
**CABLE NOTES
AND COLOR
CODING**

SHEET NUMBER
A7

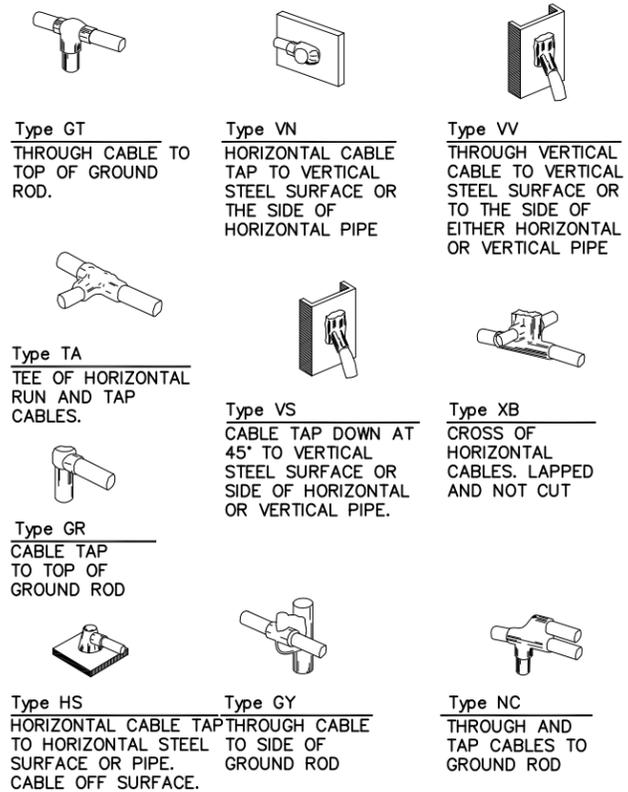
THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.



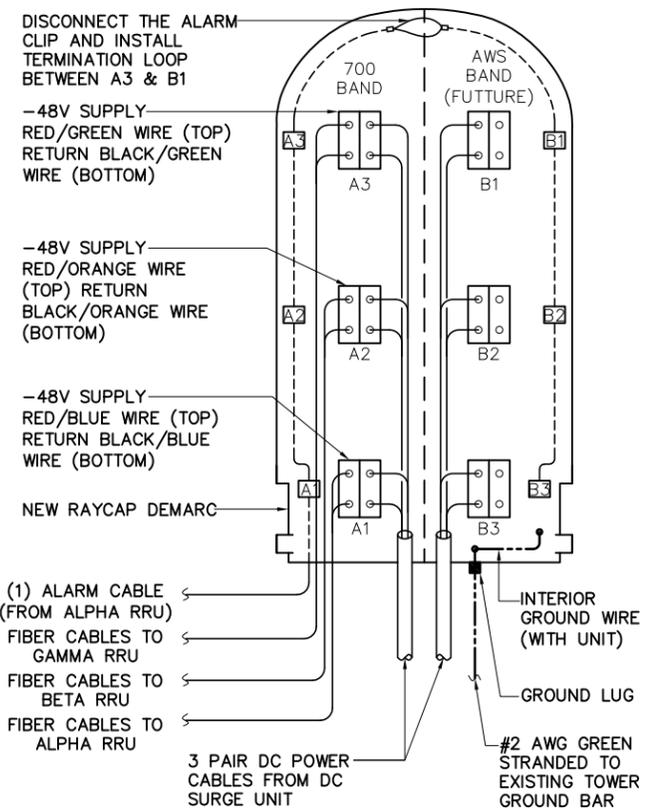
- NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
 2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
 3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

GROUND BAR DETAIL SCALE: N.T.S. 2

LUG DETAIL SCALE: N.T.S. 3



EXOTHERMIC WELD DETAILS SCALE: N.T.S. 4



RAYCAP DC POWER AND ALARM DET. SCALE: N.T.S. 5

NOT USED SCALE: N.T.S. 6

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON
ENGINEERING • DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	10/19/17	90% REVIEW	EB
1	12/01/17	FOR PERMIT	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.



SITE NAME
SPRAGUE BALTIC RESERVOIR

SITE NUMBER:
CTL02206

SITE ADDRESS
62 NORTH MAIN STREET
BAL TIC, CT 06330

SHEET NAME
GROUNDING DETAILS

SHEET NUMBER
A8

THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

STRUCTURAL CALCULATIONS

Prepared for: Smartlink / AT&T LTE 2C/3C

New Antenna and Equipment Installation on Self-Support Tower

Site No: CTL02206

FA No: 10065740

PTN No: 2051A0D6PA

Pace No: MRCTB025407/MRCTB025405

Site Name: Sprague Baltic Reservoir

62 North Main Street

Baltic, CT 06330

December 7, 2017

Henry M. Bellagamba, P.E.

Summary

A rigorous structural analysis was performed by Fullerton, as requested by the client, to determine the conformance of existing structure with the governing building code, 2016 Connecticut State Building Code, 2012 International Building Code and the industry standard, ANSI/TIA-222-G (Structural Standard for Steel Antenna Supporting Structures and Antennas). The analysis considers the tower properties, existing and proposed appurtenances and the required loading criteria.

Conclusion

- The tower member stresses are in conformance for the loading considered.
- The tower base foundation is in conformance for the loading considered.

Note:

The foundation capacity used for the reaction comparison has been based on the original tower and foundation design referenced in the Original Construction Drawings by Valmont Structures, dated 10/23/2006.

Analysis Data

The following is based on information provided by the client, field investigation, and other determination by Fullerton Engineering Consultants or third parties.

Configuration	175.4 ft. Truss Legs Self-Support tower with a 5' top and 20' bottom face width.
References	RF Design Sheet by AT&T, dated 09/28/2017. Structural Analysis Report by Hudson Design Group, LLC., dated 10/25/2012. Original Construction Drawings by Valmont Structures, eng. file No.A-122359-1, drawing No.207654, dated 10/23/2006.

Appurtenance Loading Schedule

ELEV. (FT.=AGL)	APPURTENANCE	TRANSMISSION LINES
	Proposed AT&T	
175'	(3) CCI TPA-65R-LCUUUU-H8 antennas (3) RRUS-32 B2 units Mounted on existing (3) Sector Frames	
	Existing AT&T (to be Remain / Relocated)	
175'	(3) Powerwave 7770 antennas (2) Commscope SBNH-1D6565C antennas (1) KMW AM-X-CD-17-65-00T-RET antenna (3) RRUS-11 units (6) Powerwave LPG21401 TMA units (1) Raycap DC6-48-60-18-8F unit Mounted and/ or relocated on existing (3) Sector Frames	(1) 3/8" Fiber (2) 3/4" DC Power (12) 1-5/8" Coax
	Existing AT&T (to be Removed)	
175'	(3) Powerwave 7770 antennas	
	Existing (to Remain)	
181'	(1) Lightning Rod Mounted on pipe mount to tower leg	
180'	(1) SRL-420NHD Omni antenna Mounted on pipe mount to tower leg	
163'	(6) Amphenol LPA-80080/4CF antennas (3) Amphenol BXA-70063/6CF antennas (3) Amphenol BXA-171085/8CF antennas Mounted on existing (3) Sector Frames	(18) 1-5/8" Coax

Results

The results of the structural analysis are summarized as follows:

Tower mast

The tower leg members are **adequate** for new loads, with a maximum stress ratio of 49.5% @ Elev. 20'-40' AGL.

The tower leg bolts are **adequate** for new loads, with a maximum stress ratio of 81.4% @ Elev. 20' AGL.

The tower main diagonal members are **adequate** for new loads, with a maximum stress ratio of 56.4% @ Elev. 60'-80' AGL.

The tower diagonal bolts are **adequate** for new loads, with a maximum stress ratio of 52.8% @ Elev. 60'-80' AGL.

The tower top girt members are **adequate** for new loads, with a maximum stress ratio of 38.4% @ Elev. 165' AGL.

The tower bottom girt members are **adequate** for new loads, with a maximum stress ratio 57.6% @ Elev. 150' AGL.

Foundation

The tower foundations are **adequate** for new loads.

	Forces	Original Design Reactions (Factored)	Current Analysis Reactions (Factored)	Result
Tower base	Download	65.3 kip	61.11 kip	93.6% Pass ✓
	Shear	65.6 kip	58.42 kip	89.1% Pass ✓
	Moment	7691.8 kip*ft	5884.5 kip*ft	76.5% Pass ✓
Leg	Download	465.9 kip	360.11 kip	77.3% Pass ✓
	Uplift	422.3 kip	316.19 kip	74.9% Pass ✓

Notes:

- The analysis reactions are less than the design reactions. According to ANSI/TIA-222-G Section 15.4 **no foundation modifications are required.**

Assumptions

This analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. The analysis is based solely on the information supplied, and the results, in turn, are only as accurate as data extracted from this information. Fullerton has been instructed by the client to assume the information supplied is accurate, and Fullerton has made no independent determination of its accuracy. The exception to the previous statement is if Fullerton has been contracted by the client to provide an independent structural mapping report of the tower and related appurtenances, in which case Fullerton has made an independent determination of the accuracy of the information resulting from the mapping report.

- The tower member sizes and geometry are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and stated in the materials section.
- The existing tower is assumed to have been properly maintained in accordance with the TIA/EIA standard and/or its original manufacturer's recommendations. The existing tower is assumed to be in good condition with no structural defects and with no deterioration to its member capacities.
- The antenna configuration is as supplied and/or stated in the analysis section. It is assumed to be complete and accurate. All antennas, mounts, remote radios, cables and cable supports are assumed to be properly installed and supported as per the manufacturer's requirements.
- The antennas, mounts, remote radios, cables and cable supports and lines stated in the appurtenance loading schedule represent Fullerton's understanding of the overall antenna configuration. If the actual configuration is different than above, then this analysis is invalid. Please refer to this report for the projected wind areas used in the calculations for antennas and mounts. If variations or discrepancies are identified, please inform Fullerton.
- Some assumptions are made regarding antenna and mount sizes and their projected areas based on a best interpretation of the data supplied and a best knowledge of antenna type and industry practice.
- The existing foundation is assumed to be in good condition with no structural defects and with no deterioration to its member capacities.
- The soil parameters are as per data supplied, or as assumed, and stated in the calculations.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
- All prior structural modifications, if any, are assumed to be as per date supplied/ available, to be properly installed and to be fully effective.

Scope and Limitations

The engineering services rendered by Fullerton Engineering Consultants, Inc. (Fullerton) in connection with this structural analysis are limited to an analysis of the structure, size and capacity of its members. Fullerton does not analyze the fabrication, including welding and connection capacities, except as included in this report.

The information and conclusions contained in this report were determined by application of the current engineering standards and analysis procedures and formulae, and Fullerton assumes no obligation to revise any of the information or conclusions contained in this report in the event such engineering and analysis procedures and formulae are hereafter modified or revised.

Fullerton makes no warranties, expressed or implied in connection with this report and disclaims any liability arising from original design, material, fabrication and erection deficiencies or the “as-built” condition of this tower. Fullerton will not be responsible whatsoever for or on account of consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report.

Installation procedures and loading are not within the scope of this report and should be performed and evaluated by a competent tower erection contractor.

Structural Calculations

DESIGNED APPURTENANCE LOADING

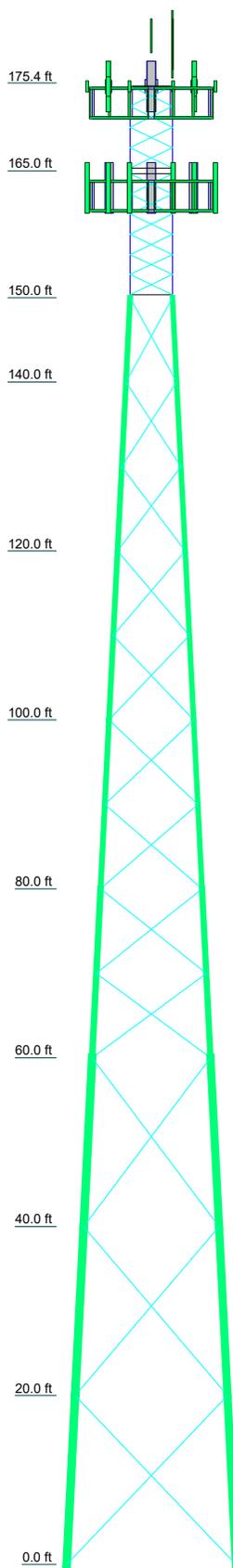
TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 1/2"x3' on 12' Pipe	181	RRUS-32 B2	175
SRL-420NHD Omni	180	RRUS-32 B2	175
2" STD x 8' Pipe mount	180	RRUS-32 B2	175
Powerwave 7770.00	175	PIROD 15' T-Frame	173
Powerwave 7770.00	175	PIROD 15' T-Frame	173
Powerwave 7770.00	175	PIROD 15' T-Frame	173
KMW AM-X-CD-17-65-00T	175	Amphenol BXA-70063/6CF	163
Commscope SBNH-1D6565C	175	Amphenol BXA-70063/6CF	163
Commscope SBNH-1D6565C	175	Amphenol BXA-70063/6CF	163
RRUS-11	175	Amphenol BXA-171085/8CF	163
RRUS-11	175	Amphenol BXA-171085/8CF	163
RRUS-11	175	Amphenol BXA-171085/8CF	163
(2) Powerwave LGP21401 TMA	175	(2) Amphenol LPA-80080/4CF	163
(2) Powerwave LGP21401 TMA	175	(2) Amphenol LPA-80080/4CF	163
(2) Powerwave LGP21401 TMA	175	(2) Amphenol LPA-80080/4CF	163
Raycap DC6-48-60-18-8F	175	PIROD 15' T-Frame	162
CCI TPA-65R-LCUUUU-H8	175	PIROD 15' T-Frame	162
CCI TPA-65R-LCUUUU-H8	175	PIROD 15' T-Frame	162
CCI TPA-65R-LCUUUU-H8	175	PIROD 15' T-Frame	162

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft



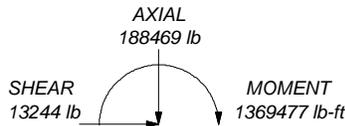
Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs	SR 2	SR 2 1/4	Pirod 105245	Pirod 105218	Pirod 105219	Pirod 105220	Pirod 112743	Pirod 112744		
Leg Grade	SR 1	SR 1								
Diagonals	SR 7/8	A572-50								
Diagonal Grade										
Top Girts										
Bottom Girts	SR 7/8	SR 7/8								
Face Width (ft)	5	6	8	10	12	14	16	18		
# Panels @ (ft)	4 @ 2.43333	6 @ 2.38889	8 @ 2.38889	10 @ 2.38889	12 @ 2.38889	14 @ 2.38889	16 @ 2.38889	18 @ 2.38889		
Weight (lb) 42017.4	701.4	1283.5	1452.5	3196.7	3864.9	4621.2	7317.3	7429.2	8196.1	

ALL REACTIONS ARE FACTORED

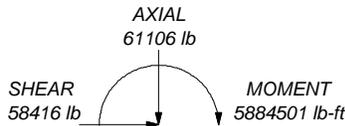
MAX. CORNER REACTIONS AT BASE:

DOWN: 360110 lb
SHEAR: 38962 lb

UPLIFT: -316191 lb
SHEAR: 34546 lb



TORQUE 2865 lb-ft
50 mph WIND - 0.7500 in ICE



TORQUE 11271 lb-ft
REACTIONS - 120 mph WIND

Fullerton Engineering Consultants
1100 E. Woodfield Road, Suite 500
Schaumburg, IL 60173
Phone: (847) 908-8400
FAX: fax@fullertonengineering.com

Job: CTL02206	Project: 175.4 ft. Truss Legs Self-Support Tower
Client: Smartlink / AT&T	Drawn by: VY
Code: TIA-222-G Page 8 of 12	App'd:
Path: 	Scale: NTS
	Dwg No. E-1

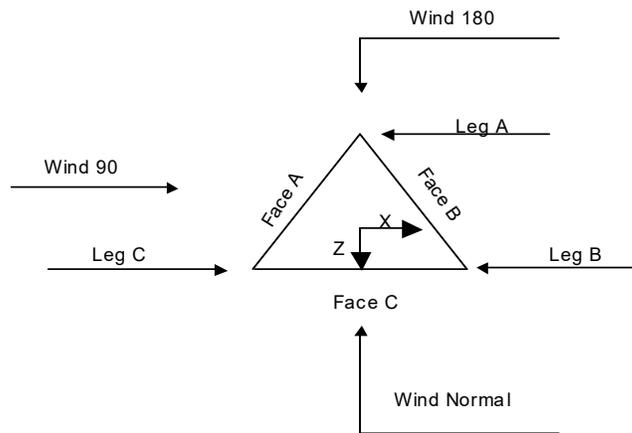
<p>tnxTower</p> <p>Fullerton Engineering Consultants</p> <p>1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com</p>	<p>Job</p> <p>CTL02206</p>	<p>Page</p> <p>1 of 35</p>
	<p>Project</p> <p>175.4 ft. Truss Legs Self-Support Tower</p>	<p>Date</p> <p>13:27:31 12/07/17</p>
	<p>Client</p> <p>Smartlink / AT&T</p>	<p>Designed by</p> <p>VY</p>

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 175.40 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 20.00 ft at the base.
This tower is designed using the TIA-222-G standard.

The following design criteria apply:

- Tower is located in New London County, Connecticut.
- Basic wind speed of 120 mph.
- Structure Class II.
- Exposure Category B.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Nominal ice thickness of 0.7500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.



Triangular Tower

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	2 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	175.40-165.00			5.00	1	10.40
T2	165.00-150.00			5.00	1	15.00
T3	150.00-140.00			5.00	1	10.00
T4	140.00-120.00			6.00	1	20.00
T5	120.00-100.00			8.00	1	20.00
T6	100.00-80.00			10.00	1	20.00
T7	80.00-60.00			12.00	1	20.00
T8	60.00-40.00			14.00	1	20.00
T9	40.00-20.00			16.00	1	20.00
T10	20.00-0.00			18.00	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	175.40-165.00	2.43	X Brace	No	No	4.0000	4.0000
T2	165.00-150.00	2.39	X Brace	No	No	4.0000	4.0000
T3	150.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T5	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T6	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	20.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	20.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
<i>ft</i>						
T1 175.40-165.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 165.00-150.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 150.00-140.00	Truss Leg	Pirod 105245	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T4 140.00-120.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T5 120.00-100.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T6 100.00-80.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T7 80.00-60.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T8 60.00-40.00	Truss Leg	Pirod 112743	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	3 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T9 40.00-20.00	Truss Leg	Pirol 112743	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x5/16	A36 (36 ksi)
T10 20.00-0.00	Truss Leg	Pirol 112744	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x5/16	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 175.40-165.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 165.00-150.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 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	Double Angle Stitch Bolt Spacing Redundants in
T1 175.40-165.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T2 165.00-150.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T3 150.00-140.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T4 140.00-120.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T5 120.00-100.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T6 100.00-80.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T7 80.00-60.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T8 60.00-40.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T9 40.00-20.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T10 20.00-0.00	0.00	0.6250	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry (cont'd)

K Factors¹

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	4 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	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
175.40-165.00	No	No	1	1	1	1	1	1	1	1
165.00-150.00	No	No	1	1	1	1	1	1	1	1
150.00-140.00	No	No	1	1	1	1	1	1	1	1
140.00-120.00	No	No	1	1	1	1	1	1	1	1
120.00-100.00	No	No	1	1	1	1	1	1	1	1
100.00-80.00	No	No	1	1	1	1	1	1	1	1
80.00-60.00	No	No	1	1	1	1	1	1	1	1
60.00-40.00	No	No	1	1	1	1	1	1	1	1
40.00-20.00	No	No	1	1	1	1	1	1	1	1
20.00-0.00	No	No	1	1	1	1	1	1	1	1

¹Note: 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	Truss-Leg K Factors					
	Truss-Legs Used As Leg Members			Truss-Legs Used As Inner Members		
	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals
150.00-140.00	1	0.5	0.85	1	0.5	0.85
140.00-120.00	1	0.5	0.85	1	0.5	0.85
120.00-100.00	1	0.5	0.85	1	0.5	0.85
100.00-80.00	1	0.5	0.85	1	0.5	0.85
80.00-60.00	1	0.5	0.85	1	0.5	0.85
60.00-40.00	1	0.5	0.85	1	0.5	0.85
40.00-20.00	1	0.5	0.85	1	0.5	0.85
20.00-0.00	1	0.5	0.85	1	0.5	0.85

Tower Section Geometry (cont'd)

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Fullerton Engineering Consultants</p> <p style="text-align: center;">1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com</p>	<p>Job</p> <p style="text-align: center;">CTL02206</p>	<p>Page</p> <p style="text-align: center;">5 of 35</p>
	<p>Project</p> <p style="text-align: center;">175.4 ft. Truss Legs Self-Support Tower</p>	<p>Date</p> <p style="text-align: center;">13:27:31 12/07/17</p>
	<p>Client</p> <p style="text-align: center;">Smartlink / AT&T</p>	<p>Designed by</p> <p style="text-align: center;">VY</p>

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 175.40-165.00	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 165.00-150.00	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 150.00-140.00	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 140.00-120.00	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 120.00-100.00	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
T6 100.00-80.00	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
T7 80.00-60.00	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
T8 60.00-40.00	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
T9 40.00-20.00	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
T10 20.00-0.00	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		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.								
T1 175.40-165.00	Flange	0.7500	5	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T2 165.00-150.00	Flange	1.0000	6	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T3 150.00-140.00	Flange	1.0000	6	1.0000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T4 140.00-120.00	Flange	1.0000	6	1.0000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T5 120.00-100.00	Flange	1.2500	4	1.2500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T6 100.00-80.00	Flange	1.2500	4	1.2500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T7 80.00-60.00	Flange	1.2500	4	1.2500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T8 60.00-40.00	Flange	1.2500	4	1.0000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T9 40.00-20.00	Flange	1.2500	4	1.0000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
T10 20.00-0.00	Flange	0.6250	0	1.0000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0

Feed Line/Linear Appurtenances - Entered As Area

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	6 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C _A A _A ft ² /ft	Weight plf
LDF7-50A (1-5/8 FOAM)	C	No	CaAa (In Face)	175.00 - 8.00	0.0000	0.5	12	No Ice	0.20	0.82
								1/2" Ice	0.30	2.33
								1" Ice	0.40	4.46
3/8" Fiber	C	No	CaAa (In Face)	175.00 - 8.00	0.0000	0.5	1	No Ice	0.03	0.08
								1/2" Ice	0.14	0.63
								1" Ice	0.24	1.79
3/4" DC power cable	C	No	CaAa (In Face)	175.00 - 8.00	0.0000	0.5	2	No Ice	0.08	0.40
								1/2" Ice	0.17	1.89
								1" Ice	0.28	3.27
LDF7-50A (1-5/8 FOAM)	B	No	CaAa (In Face)	162.00 - 8.00	0.0000	0.5	12	No Ice	0.20	0.82
								1/2" Ice	0.30	2.33
								1" Ice	0.40	4.46
LDF7-50A (1-5/8 FOAM)	A	No	CaAa (In Face)	162.00 - 8.00	0.0000	0.5	6	No Ice	0.20	0.82
								1/2" Ice	0.30	2.33
								1" Ice	0.40	4.46

Feed Line/Linear Appurtenances Section Areas

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 lb
T1	175.40-165.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	25.590	0.000	107.20
T2	165.00-150.00	A	0.000	0.000	14.256	0.000	59.04
		B	0.000	0.000	28.512	0.000	118.08
		C	0.000	0.000	38.385	0.000	160.80
T3	150.00-140.00	A	0.000	0.000	11.880	0.000	49.20
		B	0.000	0.000	23.760	0.000	98.40
		C	0.000	0.000	25.590	0.000	107.20
T4	140.00-120.00	A	0.000	0.000	23.760	0.000	98.40
		B	0.000	0.000	47.520	0.000	196.80
		C	0.000	0.000	51.180	0.000	214.40
T5	120.00-100.00	A	0.000	0.000	23.760	0.000	98.40
		B	0.000	0.000	47.520	0.000	196.80
		C	0.000	0.000	51.180	0.000	214.40
T6	100.00-80.00	A	0.000	0.000	23.760	0.000	98.40
		B	0.000	0.000	47.520	0.000	196.80
		C	0.000	0.000	51.180	0.000	214.40
T7	80.00-60.00	A	0.000	0.000	23.760	0.000	98.40
		B	0.000	0.000	47.520	0.000	196.80
		C	0.000	0.000	51.180	0.000	214.40
T8	60.00-40.00	A	0.000	0.000	23.760	0.000	98.40
		B	0.000	0.000	47.520	0.000	196.80
		C	0.000	0.000	51.180	0.000	214.40
T9	40.00-20.00	A	0.000	0.000	23.760	0.000	98.40
		B	0.000	0.000	47.520	0.000	196.80
		C	0.000	0.000	51.180	0.000	214.40
T10	20.00-0.00	A	0.000	0.000	14.256	0.000	59.04
		B	0.000	0.000	28.512	0.000	118.08
		C	0.000	0.000	30.708	0.000	128.64

Feed Line/Linear Appurtenances Section Areas - With Ice

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Fullerton Engineering Consultants</p> <p style="text-align: center;">1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com</p>	Job <p style="text-align: center;">CTL02206</p>	Page <p style="text-align: center;">7 of 35</p>
	Project <p style="text-align: center;">175.4 ft. Truss Legs Self-Support Tower</p>	Date <p style="text-align: center;">13:27:31 12/07/17</p>
	Client <p style="text-align: center;">Smartlink / AT&T</p>	Designed by <p style="text-align: center;">VY</p>

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
T1	175.40-165.00	A	1.767	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	78.682	0.000	1281.04
T2	165.00-150.00	A	1.754	0.000	0.000	39.510	0.000	651.37
		B		0.000	0.000	79.020	0.000	1302.73
		C		0.000	0.000	117.408	0.000	1903.87
T3	150.00-140.00	A	1.739	0.000	0.000	32.752	0.000	537.53
		B		0.000	0.000	65.503	0.000	1075.06
		C		0.000	0.000	77.839	0.000	1256.78
T4	140.00-120.00	A	1.720	0.000	0.000	65.050	0.000	1061.27
		B		0.000	0.000	130.100	0.000	2122.55
		C		0.000	0.000	154.545	0.000	2480.95
T5	120.00-100.00	A	1.692	0.000	0.000	64.366	0.000	1040.46
		B		0.000	0.000	128.732	0.000	2080.93
		C		0.000	0.000	152.835	0.000	2431.74
T6	100.00-80.00	A	1.658	0.000	0.000	63.559	0.000	1015.92
		B		0.000	0.000	127.118	0.000	2031.85
		C		0.000	0.000	150.818	0.000	2373.71
T7	80.00-60.00	A	1.617	0.000	0.000	62.571	0.000	985.87
		B		0.000	0.000	125.143	0.000	1971.75
		C		0.000	0.000	148.349	0.000	2302.65
T8	60.00-40.00	A	1.564	0.000	0.000	61.287	0.000	946.81
		B		0.000	0.000	122.575	0.000	1893.62
		C		0.000	0.000	145.138	0.000	2210.26
T9	40.00-20.00	A	1.486	0.000	0.000	59.419	0.000	889.96
		B		0.000	0.000	118.837	0.000	1779.91
		C		0.000	0.000	140.466	0.000	2075.82
T10	20.00-0.00	A	1.331	0.000	0.000	33.425	0.000	466.26
		B		0.000	0.000	66.850	0.000	932.51
		C		0.000	0.000	78.715	0.000	1085.36

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
T1	175.40-165.00	-5.5272	3.1911	-4.7991	2.7708
T2	165.00-150.00	-0.7735	1.7363	-0.9591	1.6935
T3	150.00-140.00	-0.1810	1.4616	-0.3463	1.2614
T4	140.00-120.00	-0.2283	1.8430	-0.4836	1.7654
T5	120.00-100.00	-0.2859	2.3085	-0.6538	2.3934
T6	100.00-80.00	-0.3456	2.7901	-0.8167	3.0008
T7	80.00-60.00	-0.3992	3.2233	-0.9583	3.5371
T8	60.00-40.00	-0.4348	3.5101	-1.0391	3.8590
T9	40.00-20.00	-0.4908	3.9626	-1.1537	4.3257
T10	20.00-0.00	-0.4250	3.4310	-0.9792	3.7507

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
---------------	----------------------	-------------	-------------------------	--------------------------	-----------------------

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Fullerton Engineering Consultants</p> <p style="text-align: center;">1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com</p>	<p>Job</p> <p style="text-align: center;">CTL02206</p>	<p>Page</p> <p style="text-align: center;">8 of 35</p>
	<p>Project</p> <p style="text-align: center;">175.4 ft. Truss Legs Self-Support Tower</p>	<p>Date</p> <p style="text-align: center;">13:27:31 12/07/17</p>
	<p>Client</p> <p style="text-align: center;">Smartlink / AT&T</p>	<p>Designed by</p> <p style="text-align: center;">VY</p>

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	9	LDF7-50A (1-5/8 FOAM)	165.00 - 175.00	0.6000	0.4903
T1	10	3/8" Fiber	165.00 - 175.00	0.6000	0.4903
T1	11	3/4" DC power cable	165.00 - 175.00	0.6000	0.4903
T2	9	LDF7-50A (1-5/8 FOAM)	150.00 - 165.00	0.6000	0.4896
T2	10	3/8" Fiber	150.00 - 165.00	0.6000	0.4896
T2	11	3/4" DC power cable	150.00 - 165.00	0.6000	0.4896
T2	12	LDF7-50A (1-5/8 FOAM)	150.00 - 162.00	0.6000	0.4896
T2	13	LDF7-50A (1-5/8 FOAM)	150.00 - 162.00	0.6000	0.4896
T3	9	LDF7-50A (1-5/8 FOAM)	140.00 - 150.00	0.6000	0.3057
T3	10	3/8" Fiber	140.00 - 150.00	0.6000	0.3057
T3	11	3/4" DC power cable	140.00 - 150.00	0.6000	0.3057
T3	12	LDF7-50A (1-5/8 FOAM)	140.00 - 150.00	0.6000	0.3057
T3	13	LDF7-50A (1-5/8 FOAM)	140.00 - 150.00	0.6000	0.3057
T4	9	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4114
T4	10	3/8" Fiber	120.00 - 140.00	0.6000	0.4114
T4	11	3/4" DC power cable	120.00 - 140.00	0.6000	0.4114
T4	12	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4114
T4	13	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4114
T5	9	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.5081
T5	10	3/8" Fiber	100.00 - 120.00	0.6000	0.5081
T5	11	3/4" DC power cable	100.00 - 120.00	0.6000	0.5081
T5	12	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.5081
T5	13	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.5081
T6	9	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.5762
T6	10	3/8" Fiber	80.00 - 100.00	0.6000	0.5762
T6	11	3/4" DC power cable	80.00 - 100.00	0.6000	0.5762
T6	12	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.5762
T6	13	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.5762
T7	9	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	10	3/8" Fiber	60.00 - 80.00	0.6000	0.6000
T7	11	3/4" DC power cable	60.00 - 80.00	0.6000	0.6000
T7	12	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	13	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T8	9	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	10	3/8" Fiber	40.00 - 60.00	0.6000	0.6000
T8	11	3/4" DC power cable	40.00 - 60.00	0.6000	0.6000
T8	12	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	13	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T9	9	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 9 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	10	3/8" Fiber	20.00 - 40.00	0.6000	0.6000
T9	11	3/4" DC power cable	20.00 - 40.00	0.6000	0.6000
T9	12	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	13	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T10	9	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	10	3/8" Fiber	8.00 - 20.00	0.6000	0.6000
T10	11	3/4" DC power cable	8.00 - 20.00	0.6000	0.6000
T10	12	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	13	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

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 lb	
Lightning Rod 1/2"x3' on 12' Pipe	A	None		0.0000	181.00	No Ice	2.52	2.52	51.50
						1/2" Ice	3.86	3.86	79.70
						1" Ice	5.10	5.10	112.42
SRL-420NHD Omni	B	From Leg	0.00	0.0000	180.00	No Ice	3.60	3.60	44.20
						1/2" Ice	5.14	5.14	75.00
						1" Ice	6.68	6.68	105.80
2" STD x 8' Pipe mount	B	From Leg	0.00	0.0000	180.00	No Ice	1.90	1.90	29.28
						1/2" Ice	2.73	2.73	43.62
						1" Ice	3.40	3.40	63.24
PiROD 15' T-Frame	A	From Leg	1.50	0.0000	173.00	No Ice	15.00	15.00	500.00
						1/2" Ice	20.60	20.60	650.00
						1" Ice	26.20	26.20	800.00
PiROD 15' T-Frame	B	From Leg	1.50	0.0000	173.00	No Ice	15.00	15.00	500.00
						1/2" Ice	20.60	20.60	650.00
						1" Ice	26.20	26.20	800.00
PiROD 15' T-Frame	C	From Leg	1.50	0.0000	173.00	No Ice	15.00	15.00	500.00
						1/2" Ice	20.60	20.60	650.00
						1" Ice	26.20	26.20	800.00
Powerwave 7770.00	A	From Leg	3.00	0.0000	175.00	No Ice	5.84	4.35	60.90
						1/2" Ice	6.32	5.20	109.42
						1" Ice	6.77	5.92	164.42
Powerwave 7770.00	B	From Leg	3.00	0.0000	175.00	No Ice	5.84	4.35	60.90
						1/2" Ice	6.32	5.20	109.42
						1" Ice	6.77	5.92	164.42
Powerwave 7770.00	C	From Leg	3.00	0.0000	175.00	No Ice	5.84	4.35	60.90
						1/2" Ice	6.32	5.20	109.42
						1" Ice	6.77	5.92	164.42
KMW AM-X-CD-17-65-00T	A	From Leg	3.00	0.0000	175.00	No Ice	11.55	8.94	107.85
						1/2" Ice	12.27	10.45	192.95
						1" Ice	13.00	11.99	287.90
Commscope SBNH-1D6565C	B	From Leg	3.00	0.0000	175.00	No Ice	11.41	9.60	90.05
						1/2" Ice	12.03	11.02	176.86
						1" Ice	12.65	12.29	273.42
Commscope SBNH-1D6565C	C	From Leg	3.00	0.0000	175.00	No Ice	11.41	9.60	90.05
						1/2" Ice	12.03	11.02	176.86
						1" Ice	12.65	12.29	273.42

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	10 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
RRUS-11	A	From Leg	3.00	0.0000	175.00	No Ice	2.79	1.19	50.00
			0.00			1/2" Ice	3.00	1.34	70.87
			0.00			1" Ice	3.21	1.50	94.78
RRUS-11	B	From Leg	3.00	0.0000	175.00	No Ice	2.79	1.19	50.00
			0.00			1/2" Ice	3.00	1.34	70.87
			0.00			1" Ice	3.21	1.50	94.78
RRUS-11	C	From Leg	3.00	0.0000	175.00	No Ice	2.79	1.19	50.00
			0.00			1/2" Ice	3.00	1.34	70.87
			0.00			1" Ice	3.21	1.50	94.78
(2) Powerwave LGP21401 TMA	A	From Leg	3.00	0.0000	175.00	No Ice	1.09	0.37	14.00
			0.00			1/2" Ice	1.23	0.47	21.03
			0.00			1" Ice	1.38	0.58	29.98
(2) Powerwave LGP21401 TMA	B	From Leg	3.00	0.0000	175.00	No Ice	1.09	0.37	14.00
			0.00			1/2" Ice	1.23	0.47	21.03
			0.00			1" Ice	1.38	0.58	29.98
(2) Powerwave LGP21401 TMA	C	From Leg	3.00	0.0000	175.00	No Ice	1.09	0.37	14.00
			0.00			1/2" Ice	1.23	0.47	21.03
			0.00			1" Ice	1.38	0.58	29.98
Raycap DC6-48-60-18-8F	A	From Leg	0.50	0.0000	175.00	No Ice	0.83	0.83	22.00
			0.00			1/2" Ice	1.34	1.34	37.91
			0.00			1" Ice	1.52	1.52	56.21
PiROD 15' T-Frame	A	From Leg	1.50	0.0000	162.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00			1" Ice	26.20	26.20	800.00
PiROD 15' T-Frame	B	From Leg	1.50	0.0000	162.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00			1" Ice	26.20	26.20	800.00
PiROD 15' T-Frame	C	From Leg	1.50	0.0000	162.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00			1" Ice	26.20	26.20	800.00
(2) Amphenol LPA-80080/4CF	A	From Leg	3.00	0.0000	163.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00			1" Ice	3.61	8.66	119.01
(2) Amphenol LPA-80080/4CF	B	From Leg	3.00	0.0000	163.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00			1" Ice	3.61	8.66	119.01
(2) Amphenol LPA-80080/4CF	C	From Leg	3.00	0.0000	163.00	No Ice	2.87	7.24	30.25
			0.00			1/2" Ice	3.24	7.95	74.63
			0.00			1" Ice	3.61	8.66	119.01
Amphenol BXA-70063/6CF	A	From Leg	3.00	0.0000	163.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00			1" Ice	9.29	8.16	158.85
Amphenol BXA-70063/6CF	B	From Leg	3.00	0.0000	163.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00			1" Ice	9.29	8.16	158.85
Amphenol BXA-70063/6CF	C	From Leg	3.00	0.0000	163.00	No Ice	7.99	5.82	42.55
			0.00			1/2" Ice	8.64	6.99	100.70
			0.00			1" Ice	9.29	8.16	158.85
Amphenol BXA-171085/8CF	A	From Leg	3.00	0.0000	163.00	No Ice	3.17	3.34	43.25
			0.00			1/2" Ice	3.54	3.95	75.31
			0.00			1" Ice	3.91	4.58	112.84
Amphenol BXA-171085/8CF	B	From Leg	3.00	0.0000	163.00	No Ice	3.17	3.34	43.25
			0.00			1/2" Ice	3.54	3.95	75.31
			0.00			1" Ice	3.91	4.58	112.84
Amphenol BXA-171085/8CF	C	From Leg	3.00	0.0000	163.00	No Ice	3.17	3.34	43.25
			0.00			1/2" Ice	3.54	3.95	75.31
			0.00			1" Ice	3.91	4.58	112.84

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	11 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
Proposed									
CCI TPA-65R-LCUUUU-H8	A	From Leg	3.00	0.0000	175.00	No Ice	13.30	10.72	123.40
			0.00			1/2" Ice	13.90	12.15	223.96
			0.00			1" Ice	14.50	13.43	334.50
CCI TPA-65R-LCUUUU-H8	B	From Leg	3.00	0.0000	175.00	No Ice	13.30	10.72	123.40
			0.00			1/2" Ice	13.90	12.15	223.96
			0.00			1" Ice	14.50	13.43	334.50
CCI TPA-65R-LCUUUU-H8	C	From Leg	3.00	0.0000	175.00	No Ice	13.30	10.72	123.40
			0.00			1/2" Ice	13.90	12.15	223.96
			0.00			1" Ice	14.50	13.43	334.50
RRUS-32 B2	A	From Leg	3.00	0.0000	175.00	No Ice	2.74	1.67	60.00
			0.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
RRUS-32 B2	B	From Leg	3.00	0.0000	175.00	No Ice	2.74	1.67	60.00
			0.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
RRUS-32 B2	C	From Leg	3.00	0.0000	175.00	No Ice	2.74	1.67	60.00
			0.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42

Truss-Leg Properties

Section Designation	Area	Area Ice	Self Weight	Ice Weight	Equiv. Diameter	Equiv. Diameter Ice	Leg Area
	in ²	in ²	lb	lb	in	in	in ²
Pirod 105245	1090.3344	3193.6269	676.81	1086.58	7.5718	22.1780	5.3014
Pirod 105218	2263.4687	6625.8954	754.52	2270.19	7.8593	23.0066	7.2158
Pirod 105219	2441.8688	6672.7000	944.27	2296.32	8.4787	23.1691	9.4248
Pirod 105219	2441.8688	6642.9857	944.27	2278.40	8.4787	23.0659	9.4248
Pirod 105220	2578.8005	6678.6036	1121.16	2295.74	8.9542	23.1896	11.9282
Pirod 112743	3466.5160	8827.2724	1689.34	3932.00	12.0365	30.6503	14.7262
Pirod 112743	3466.5160	8768.9018	1689.34	3611.00	12.0365	30.4476	14.7262
Pirod 112744	3599.5585	8725.0272	1904.37	3038.81	12.4985	30.2952	17.8187

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation	z	K _Z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		psf	ft ²	c	ft ²	ft ²	ft ²	%	ft ²	ft ²
175.40-165.00	T1	170.20	1.15	36	53.733	A	0.000	7.307	3.467	47.44	0.000
						B	0.000	7.307		47.44	0.000
						C	0.000	7.307		47.44	25.590
T2	157.50	1.125	35	77.813	A	0.000	11.660	5.625	48.24	14.256	0.000

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 12 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e ft ²	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	
165.00-150.00					B	0.000	11.660		48.24	28.512	0.000	
					C	0.000	11.660		48.24	38.385	0.000	
T3	145.00	1.099	34	66.264	A	5.093	12.641	12.641	71.28	11.880	0.000	
150.00-140.00					B	5.093	12.641		71.28	23.760	0.000	
					C	5.093	12.641		71.28	25.590	0.000	
T4	130.00	1.065	33	162.945	A	10.467	26.241	26.241	71.49	23.760	0.000	
140.00-120.00					B	10.467	26.241		71.49	47.520	0.000	
					C	10.467	26.241		71.49	51.180	0.000	
T5	110.00	1.016	32	203.362	A	11.964	28.309	28.309	70.29	23.760	0.000	
120.00-100.00					B	11.964	28.309		70.29	47.520	0.000	
					C	11.964	28.309		70.29	51.180	0.000	
T6	90.00	0.959	30	243.362	A	13.520	28.309	28.309	67.68	23.760	0.000	
100.00-80.00					B	13.520	28.309		67.68	47.520	0.000	
					C	13.520	28.309		67.68	51.180	0.000	
T7	80.00-60.00	70.00	0.892	28	283.780	A	15.144	29.897	29.897	66.38	23.760	0.000
					B	15.144	29.897		66.38	47.520	0.000	
					C	15.144	29.897		66.38	51.180	0.000	
T8	60.00-40.00	50.00	0.811	25	334.209	A	13.373	40.189	40.189	75.03	23.760	0.000
					B	13.373	40.189		75.03	47.520	0.000	
					C	13.373	40.189		75.03	51.180	0.000	
T9	40.00-20.00	30.00	0.701	22	374.209	A	13.965	40.189	40.189	74.21	23.760	0.000
					B	13.965	40.189		74.21	47.520	0.000	
					C	13.965	40.189		74.21	51.180	0.000	
T10	20.00-0.00	10.00	0.7	22	414.627	A	14.825	41.731	41.731	73.79	14.256	0.000
					B	14.825	41.731		73.79	28.512	0.000	
					C	14.825	41.731		73.79	30.708	0.000	

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K _Z	q _z psf	t _z in	A _G ft ²	F a c e ft ²	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	
T1	170.20	1.15	6	1.7674	56.797	A	0.000	28.949	9.594	33.14	0.000	0.000	
175.40-165.00						B	0.000	28.949		33.14	0.000	0.000	
						C	0.000	28.949		33.14	78.682	0.000	
T2	157.50	1.125	6	1.7538	82.197	A	0.000	41.950	14.394	34.31	39.510	0.000	
165.00-150.00						B	0.000	41.950		34.31	79.020	0.000	
						C	0.000	41.950		34.31	117.408	0.000	
T3	145.00	1.099	6	1.7393	69.167	A	5.093	42.930	37.025	77.10	32.752	0.000	
150.00-140.00						B	5.093	42.930		77.10	65.503	0.000	
						C	5.093	42.930		77.10	77.839	0.000	
T4	130.00	1.065	6	1.7204	168.687	A	10.467	88.821	76.816	77.37	65.050	0.000	
140.00-120.00						B	10.467	88.821		77.37	130.100	0.000	
						C	10.467	88.821		77.37	154.545	0.000	
T5	110.00	1.016	6	1.6919	209.009	A	11.964	90.854	77.359	75.24	64.366	0.000	
120.00-100.00						B	11.964	90.854		75.24	128.732	0.000	
						C	11.964	90.854		75.24	152.835	0.000	
T6	100.00-80.00	90.00	0.959	5	1.6583	248.897	A	13.520	91.961	77.014	73.01	63.559	0.000
						B	13.520	91.961		73.01	127.118	0.000	
						C	13.520	91.961		73.01	150.818	0.000	
T7	80.00-60.00	70.00	0.892	5	1.6171	289.177	A	15.144	93.754	77.427	71.10	62.571	0.000
						B	15.144	93.754		71.10	125.143	0.000	
						C	15.144	93.754		71.10	148.349	0.000	

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	13 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Section Elevation ft	z ft	K _Z	q _z psf	t _z in	A _G ft ²	F a c e ft ²	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
T8 60.00-40.00	50.00	0.811	4	1.5636	339.428	A B C	13.373 13.373 13.373	114.286 114.286 114.286	102.338	80.17 80.17 80.17	61.287 122.575 145.138	0.000 0.000 0.000
T9 40.00-20.00	30.00	0.701	4	1.4858	379.168	A B C	13.965 13.965 13.965	113.517 113.517 113.517	101.661	79.75 79.75 79.75	59.419 118.837 140.466	0.000 0.000 0.000
T10 20.00-0.00	10.00	0.7	4	1.3312	419.069	A B C	14.825 14.825 14.825	112.430 112.430 112.430	101.152	79.49 79.49 79.49	33.425 66.850 78.715	0.000 0.000 0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e ft ²	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
T1 175.40-165.00	170.20	1.15	9	53.733	A B C	0.000 0.000 0.000	7.307 7.307 7.307	3.467	47.44 47.44 47.44	0.000 0.000 25.590	0.000 0.000 0.000
T2 165.00-150.00	157.50	1.125	9	77.813	A B C	0.000 0.000 0.000	11.660 11.660 11.660	5.625	48.24 48.24 48.24	14.256 28.512 38.385	0.000 0.000 0.000
T3 150.00-140.00	145.00	1.099	9	66.264	A B C	5.093 5.093 5.093	12.641 12.641 12.641	12.641	71.28 71.28 71.28	11.880 23.760 25.590	0.000 0.000 0.000
T4 140.00-120.00	130.00	1.065	8	162.945	A B C	10.467 10.467 10.467	26.241 26.241 26.241	26.241	71.49 71.49 71.49	23.760 47.520 51.180	0.000 0.000 0.000
T5 120.00-100.00	110.00	1.016	8	203.362	A B C	11.964 11.964 11.964	28.309 28.309 28.309	28.309	70.29 70.29 70.29	23.760 47.520 51.180	0.000 0.000 0.000
T6 100.00-80.00	90.00	0.959	8	243.362	A B C	13.520 13.520 13.520	28.309 28.309 28.309	28.309	67.68 67.68 67.68	23.760 47.520 51.180	0.000 0.000 0.000
T7 80.00-60.00	70.00	0.892	7	283.780	A B C	15.144 15.144 15.144	29.897 29.897 29.897	29.897	66.38 66.38 66.38	23.760 47.520 51.180	0.000 0.000 0.000
T8 60.00-40.00	50.00	0.811	6	334.209	A B C	13.373 13.373 13.373	40.189 40.189 40.189	40.189	75.03 75.03 75.03	23.760 47.520 51.180	0.000 0.000 0.000
T9 40.00-20.00	30.00	0.701	5	374.209	A B C	13.965 13.965 13.965	40.189 40.189 40.189	40.189	74.21 74.21 74.21	23.760 47.520 51.180	0.000 0.000 0.000
T10 20.00-0.00	10.00	0.7	5	414.627	A B C	14.825 14.825 14.825	41.731 41.731 41.731	41.731	73.79 73.79 73.79	14.256 28.512 30.708	0.000 0.000 0.000

Tower Forces - No Ice - Wind Normal To Face

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Fullerton Engineering Consultants</p> <p style="text-align: center;">1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com</p>	<p>Job</p> <p style="text-align: center;">CTL02206</p>	<p>Page</p> <p style="text-align: center;">14 of 35</p>
	<p>Project</p> <p style="text-align: center;">175.4 ft. Truss Legs Self-Support Tower</p>	<p>Date</p> <p style="text-align: center;">13:27:31 12/07/17</p>
	<p>Client</p> <p style="text-align: center;">Smartlink / AT&T</p>	<p>Designed by</p> <p style="text-align: center;">VY</p>

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1 175.40-165.00	107.20	701.39	A	0.136	2.824	36	1	1	4.138	828.44	79.66	C
			B	0.136	2.824				4.138			
			C	0.136	2.824				4.138			
T2 165.00-150.00	337.92	1263.54	A	0.15	2.772	35	1	1	6.618	2008.97	133.93	C
			B	0.15	2.772				6.618			
			C	0.15	2.772				6.618			
T3 150.00-140.00	254.80	1452.53	A	0.268	2.386	34	1	1	12.545	1951.23	195.12	C
			B	0.268	2.386				12.545			
			C	0.268	2.386				12.545			
T4 140.00-120.00	509.60	3199.68	A	0.225	2.514	33	1	1	25.670	3915.13	195.76	C
			B	0.225	2.514				25.670			
			C	0.225	2.514				25.670			
T5 120.00-100.00	509.60	3864.89	A	0.198	2.603	32	1	1	28.218	3973.66	198.68	C
			B	0.198	2.603				28.218			
			C	0.198	2.603				28.218			
T6 100.00-80.00	509.60	3972.57	A	0.172	2.693	30	1	1	29.660	3916.29	195.81	C
			B	0.172	2.693				29.660			
			C	0.172	2.693				29.660			
T7 80.00-60.00	509.60	4621.18	A	0.159	2.74	28	1	1	32.140	3839.66	191.98	C
			B	0.159	2.74				32.140			
			C	0.159	2.74				32.140			
T8 60.00-40.00	509.60	7317.28	A	0.16	2.734	25	1	1	36.226	3725.07	186.25	C
			B	0.16	2.734				36.226			
			C	0.16	2.734				36.226			
T9 40.00-20.00	509.60	7429.16	A	0.145	2.791	22	1	1	36.753	3285.13	164.26	C
			B	0.145	2.791				36.753			
			C	0.145	2.791				36.753			
T10 20.00-0.00	305.76	8195.14	A	0.136	2.822	22	1	1	38.457	2845.42	142.27	C
			B	0.136	2.822				38.457			
			C	0.136	2.822				38.457			
Sum Weight:	4063.28	42017.35						OTM	2620915.7 0 lb-ft	30289.01		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1 175.40-165.00	107.20	701.39	A	0.136	2.824	36	0.8	1	4.138	828.44	79.66	C
			B	0.136	2.824				4.138			
			C	0.136	2.824				4.138			
T2 165.00-150.00	337.92	1263.54	A	0.15	2.772	35	0.8	1	6.618	2008.97	133.93	C
			B	0.15	2.772				6.618			
			C	0.15	2.772				6.618			
T3 150.00-140.00	254.80	1452.53	A	0.268	2.386	34	0.8	1	11.526	1880.11	188.01	C
			B	0.268	2.386				11.526			
			C	0.268	2.386				11.526			
T4 140.00-120.00	509.60	3199.68	A	0.225	2.514	33	0.8	1	23.577	3765.85	188.29	C
			B	0.225	2.514				23.577			
			C	0.225	2.514				23.577			
T5 120.00-100.00	509.60	3864.89	A	0.198	2.603	32	0.8	1	25.825	3805.22	190.26	C
			B	0.198	2.603				25.825			
			C	0.198	2.603				25.825			

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	15 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
T6 100.00-80.00	509.60	3972.57	A	0.172	2.693	30	0.8	1	26.956	3730.34	186.52	C
			B	0.172	2.693		0.8	1	26.956			
			C	0.172	2.693		0.8	1	26.956			
T7 80.00-60.00	509.60	4621.18	A	0.159	2.74	28	0.8	1	29.111	3642.41	182.12	C
			B	0.159	2.74		0.8	1	29.111			
			C	0.159	2.74		0.8	1	29.111			
T8 60.00-40.00	509.60	7317.28	A	0.16	2.734	25	0.8	1	33.552	3567.19	178.36	C
			B	0.16	2.734		0.8	1	33.552			
			C	0.16	2.734		0.8	1	33.552			
T9 40.00-20.00	509.60	7429.16	A	0.145	2.791	22	0.8	1	33.960	3139.67	156.98	C
			B	0.145	2.791		0.8	1	33.960			
			C	0.145	2.791		0.8	1	33.960			
T10 20.00-0.00	305.76	8195.14	A	0.136	2.822	22	0.8	1	35.492	2689.41	134.47	C
			B	0.136	2.822		0.8	1	35.492			
			C	0.136	2.822		0.8	1	35.492			
Sum Weight:	4063.28	42017.35						OTM	2528305.5 9 lb-ft	29057.60		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
T1 175.40-165.00	107.20	701.39	A	0.136	2.824	36	0.85	1	4.138	828.44	79.66	C
			B	0.136	2.824		0.85	1	4.138			
			C	0.136	2.824		0.85	1	4.138			
T2 165.00-150.00	337.92	1263.54	A	0.15	2.772	35	0.85	1	6.618	2008.97	133.93	C
			B	0.15	2.772		0.85	1	6.618			
			C	0.15	2.772		0.85	1	6.618			
T3 150.00-140.00	254.80	1452.53	A	0.268	2.386	34	0.85	1	11.781	1897.89	189.79	C
			B	0.268	2.386		0.85	1	11.781			
			C	0.268	2.386		0.85	1	11.781			
T4 140.00-120.00	509.60	3199.68	A	0.225	2.514	33	0.85	1	24.100	3803.17	190.16	C
			B	0.225	2.514		0.85	1	24.100			
			C	0.225	2.514		0.85	1	24.100			
T5 120.00-100.00	509.60	3864.89	A	0.198	2.603	32	0.85	1	26.423	3847.33	192.37	C
			B	0.198	2.603		0.85	1	26.423			
			C	0.198	2.603		0.85	1	26.423			
T6 100.00-80.00	509.60	3972.57	A	0.172	2.693	30	0.85	1	27.632	3776.83	188.84	C
			B	0.172	2.693		0.85	1	27.632			
			C	0.172	2.693		0.85	1	27.632			
T7 80.00-60.00	509.60	4621.18	A	0.159	2.74	28	0.85	1	29.868	3691.72	184.59	C
			B	0.159	2.74		0.85	1	29.868			
			C	0.159	2.74		0.85	1	29.868			
T8 60.00-40.00	509.60	7317.28	A	0.16	2.734	25	0.85	1	34.220	3606.66	180.33	C
			B	0.16	2.734		0.85	1	34.220			
			C	0.16	2.734		0.85	1	34.220			
T9 40.00-20.00	509.60	7429.16	A	0.145	2.791	22	0.85	1	34.658	3176.03	158.80	C
			B	0.145	2.791		0.85	1	34.658			
			C	0.145	2.791		0.85	1	34.658			
T10 20.00-0.00	305.76	8195.14	A	0.136	2.822	22	0.85	1	36.234	2728.41	136.42	C
			B	0.136	2.822		0.85	1	36.234			
			C	0.136	2.822		0.85	1	36.234			

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	16 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
Sum Weight:	4063.28	42017.35						OTM	2551458.1 1 lb-ft	29365.45		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1 175.40-165.00	1281.04	1887.84	A	0.51	1.888	6	1	1	19.983	405.87	39.03	C
			B	0.51	1.888		1	1	19.983			
			C	0.51	1.888		1	1	19.983			
T2 165.00-150.00	3857.97	2995.57	A	0.51	1.887	6	1	1	28.973	885.49	59.03	C
			B	0.51	1.887		1	1	28.973			
			C	0.51	1.887		1	1	28.973			
T3 150.00-140.00	2869.38	3955.84	A	0.694	1.776	6	1	1	39.739	632.11	63.21	C
			B	0.694	1.776		1	1	39.739			
			C	0.694	1.776		1	1	39.739			
T4 140.00-120.00	5664.77	11859.05	A	0.589	1.812	6	1	1	75.893	1385.71	69.29	C
			B	0.589	1.812		1	1	75.893			
			C	0.589	1.812		1	1	75.893			
T5 120.00-100.00	5553.13	12746.99	A	0.492	1.911	6	1	1	73.806	1487.51	74.38	C
			B	0.492	1.911		1	1	73.806			
			C	0.492	1.911		1	1	73.806			
T6 100.00-80.00	5421.47	12952.83	A	0.424	2.019	5	1	1	73.006	1526.02	76.30	C
			B	0.424	2.019		1	1	73.006			
			C	0.424	2.019		1	1	73.006			
T7 80.00-60.00	5260.27	13799.20	A	0.377	2.112	5	1	1	73.874	1476.08	73.80	C
			B	0.377	2.112		1	1	73.874			
			C	0.377	2.112		1	1	73.874			
T8 60.00-40.00	5050.69	21587.49	A	0.376	2.113	4	1	1	84.941	1412.86	70.64	C
			B	0.376	2.113		1	1	84.941			
			C	0.376	2.113		1	1	84.941			
T9 40.00-20.00	4745.69	20706.72	A	0.336	2.204	4	1	1	83.327	1214.49	60.72	C
			B	0.336	2.204		1	1	83.327			
			C	0.336	2.204		1	1	83.327			
T10 20.00-0.00	2484.13	19569.90	A	0.304	2.286	4	1	1	82.291	956.59	47.83	C
			B	0.304	2.286		1	1	82.291			
			C	0.304	2.286		1	1	82.291			
Sum Weight:	42188.53	122061.43						OTM	1001280.5 1 lb-ft	11382.74		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1	1281.04	1887.84	A	0.51	1.888	6	0.8	1	19.983	405.87	39.03	C

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 17 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
175.40-165.00			B	0.51	1.888		0.8	1	19.983			
			C	0.51	1.888		0.8	1	19.983			
T2	3857.97	2995.57	A	0.51	1.887	6	0.8	1	28.973	885.49	59.03	C
165.00-150.00			B	0.51	1.887		0.8	1	28.973			
			C	0.51	1.887		0.8	1	28.973			
T3	2869.38	3955.84	A	0.694	1.776	6	0.8	1	38.721	622.92	62.29	C
150.00-140.00			B	0.694	1.776		0.8	1	38.721			
			C	0.694	1.776		0.8	1	38.721			
T4	5664.77	11859.05	A	0.589	1.812	6	0.8	1	73.800	1367.04	68.35	C
140.00-120.00			B	0.589	1.812		0.8	1	73.800			
			C	0.589	1.812		0.8	1	73.800			
T5	5553.13	12746.99	A	0.492	1.911	6	0.8	1	71.414	1466.04	73.30	C
120.00-100.00			B	0.492	1.911		0.8	1	71.414			
			C	0.492	1.911		0.8	1	71.414			
T6	5421.47	12952.83	A	0.424	2.019	5	0.8	1	70.302	1501.81	75.09	C
100.00-80.00			B	0.424	2.019		0.8	1	70.302			
			C	0.424	2.019		0.8	1	70.302			
T7	5260.27	13799.20	A	0.377	2.112	5	0.8	1	70.845	1449.68	72.48	C
80.00-60.00			B	0.377	2.112		0.8	1	70.845			
			C	0.377	2.112		0.8	1	70.845			
T8	5050.69	21587.49	A	0.376	2.113	4	0.8	1	82.267	1391.67	69.58	C
60.00-40.00			B	0.376	2.113		0.8	1	82.267			
			C	0.376	2.113		0.8	1	82.267			
T9	4745.69	20706.72	A	0.336	2.204	4	0.8	1	80.534	1194.54	59.73	C
40.00-20.00			B	0.336	2.204		0.8	1	80.534			
			C	0.336	2.204		0.8	1	80.534			
T10	2484.13	19569.90	A	0.304	2.286	4	0.8	1	79.326	934.65	46.73	C
20.00-0.00			B	0.304	2.286		0.8	1	79.326			
			C	0.304	2.286		0.8	1	79.326			
Sum Weight:	42188.53	122061.43						OTM	989254.49 lb-ft	11219.72		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1	1281.04	1887.84	A	0.51	1.888	6	0.85	1	19.983	405.87	39.03	C
175.40-165.00			B	0.51	1.888		0.85	1	19.983			
			C	0.51	1.888		0.85	1	19.983			
T2	3857.97	2995.57	A	0.51	1.887	6	0.85	1	28.973	885.49	59.03	C
165.00-150.00			B	0.51	1.887		0.85	1	28.973			
			C	0.51	1.887		0.85	1	28.973			
T3	2869.38	3955.84	A	0.694	1.776	6	0.85	1	38.975	625.22	62.52	C
150.00-140.00			B	0.694	1.776		0.85	1	38.975			
			C	0.694	1.776		0.85	1	38.975			
T4	5664.77	11859.05	A	0.589	1.812	6	0.85	1	74.323	1371.71	68.59	C
140.00-120.00			B	0.589	1.812		0.85	1	74.323			
			C	0.589	1.812		0.85	1	74.323			
T5	5553.13	12746.99	A	0.492	1.911	6	0.85	1	72.012	1471.41	73.57	C
120.00-100.00			B	0.492	1.911		0.85	1	72.012			
			C	0.492	1.911		0.85	1	72.012			
T6	5421.47	12952.83	A	0.424	2.019	5	0.85	1	70.978	1507.86	75.39	C

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 18 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
100.00-80.00			B	0.424	2.019		0.85	1	70.978			
			C	0.424	2.019		0.85	1	70.978			
T7	5260.27	13799.20	A	0.377	2.112	5	0.85	1	71.602	1456.28	72.81	C
80.00-60.00			B	0.377	2.112		0.85	1	71.602			
			C	0.377	2.112		0.85	1	71.602			
T8	5050.69	21587.49	A	0.376	2.113	4	0.85	1	82.936	1396.97	69.85	C
60.00-40.00			B	0.376	2.113		0.85	1	82.936			
			C	0.376	2.113		0.85	1	82.936			
T9	4745.69	20706.72	A	0.336	2.204	4	0.85	1	81.232	1199.53	59.98	C
40.00-20.00			B	0.336	2.204		0.85	1	81.232			
			C	0.336	2.204		0.85	1	81.232			
T10	2484.13	19569.90	A	0.304	2.286	4	0.85	1	80.067	940.14	47.01	C
20.00-0.00			B	0.304	2.286		0.85	1	80.067			
			C	0.304	2.286		0.85	1	80.067			
Sum Weight:	42188.53	122061.43						OTM	992261.00 lb-ft	11260.47		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1	107.20	701.39	A	0.136	2.824	9	1	1	4.138	207.11	19.91	C
175.40-165.00			B	0.136	2.824		1	1	4.138			
			C	0.136	2.824		1	1	4.138			
T2	337.92	1263.54	A	0.15	2.772	9	1	1	6.618	502.24	33.48	C
165.00-150.00			B	0.15	2.772		1	1	6.618			
			C	0.15	2.772		1	1	6.618			
T3	254.80	1452.53	A	0.268	2.386	9	1	1	12.545	487.81	48.78	C
150.00-140.00			B	0.268	2.386		1	1	12.545			
			C	0.268	2.386		1	1	12.545			
T4	509.60	3199.68	A	0.225	2.514	8	1	1	25.670	978.78	48.94	C
140.00-120.00			B	0.225	2.514		1	1	25.670			
			C	0.225	2.514		1	1	25.670			
T5	509.60	3864.89	A	0.198	2.603	8	1	1	28.218	993.42	49.67	C
120.00-100.00			B	0.198	2.603		1	1	28.218			
			C	0.198	2.603		1	1	28.218			
T6	509.60	3972.57	A	0.172	2.693	8	1	1	29.660	979.07	48.95	C
100.00-80.00			B	0.172	2.693		1	1	29.660			
			C	0.172	2.693		1	1	29.660			
T7	509.60	4621.18	A	0.159	2.74	7	1	1	32.140	959.92	48.00	C
80.00-60.00			B	0.159	2.74		1	1	32.140			
			C	0.159	2.74		1	1	32.140			
T8	509.60	7317.28	A	0.16	2.734	6	1	1	36.226	931.27	46.56	C
60.00-40.00			B	0.16	2.734		1	1	36.226			
			C	0.16	2.734		1	1	36.226			
T9	509.60	7429.16	A	0.145	2.791	5	1	1	36.753	821.28	41.06	C
40.00-20.00			B	0.145	2.791		1	1	36.753			
			C	0.145	2.791		1	1	36.753			
T10	305.76	8195.14	A	0.136	2.822	5	1	1	38.457	711.36	35.57	C
20.00-0.00			B	0.136	2.822		1	1	38.457			
			C	0.136	2.822		1	1	38.457			
Sum Weight:	4063.28	42017.35						OTM	655228.92	7572.25		

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 19 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
ft	lb	lb							lb-ft			

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
ft	lb	lb							lb-ft			
T1 175.40-165.00	107.20	701.39	A	0.136	2.824	9	0.8	1	4.138	207.11	19.91	C
			B	0.136	2.824		0.8	1	4.138			
			C	0.136	2.824		0.8	1	4.138			
T2 165.00-150.00	337.92	1263.54	A	0.15	2.772	9	0.8	1	6.618	502.24	33.48	C
			B	0.15	2.772		0.8	1	6.618			
			C	0.15	2.772		0.8	1	6.618			
T3 150.00-140.00	254.80	1452.53	A	0.268	2.386	9	0.8	1	11.526	470.03	47.00	C
			B	0.268	2.386		0.8	1	11.526			
			C	0.268	2.386		0.8	1	11.526			
T4 140.00-120.00	509.60	3199.68	A	0.225	2.514	8	0.8	1	23.577	941.46	47.07	C
			B	0.225	2.514		0.8	1	23.577			
			C	0.225	2.514		0.8	1	23.577			
T5 120.00-100.00	509.60	3864.89	A	0.198	2.603	8	0.8	1	25.825	951.31	47.57	C
			B	0.198	2.603		0.8	1	25.825			
			C	0.198	2.603		0.8	1	25.825			
T6 100.00-80.00	509.60	3972.57	A	0.172	2.693	8	0.8	1	26.956	932.59	46.63	C
			B	0.172	2.693		0.8	1	26.956			
			C	0.172	2.693		0.8	1	26.956			
T7 80.00-60.00	509.60	4621.18	A	0.159	2.74	7	0.8	1	29.111	910.60	45.53	C
			B	0.159	2.74		0.8	1	29.111			
			C	0.159	2.74		0.8	1	29.111			
T8 60.00-40.00	509.60	7317.28	A	0.16	2.734	6	0.8	1	33.552	891.80	44.59	C
			B	0.16	2.734		0.8	1	33.552			
			C	0.16	2.734		0.8	1	33.552			
T9 40.00-20.00	509.60	7429.16	A	0.145	2.791	5	0.8	1	33.960	784.92	39.25	C
			B	0.145	2.791		0.8	1	33.960			
			C	0.145	2.791		0.8	1	33.960			
T10 20.00-0.00	305.76	8195.14	A	0.136	2.822	5	0.8	1	35.492	672.35	33.62	C
			B	0.136	2.822		0.8	1	35.492			
			C	0.136	2.822		0.8	1	35.492			
Sum Weight:	4063.28	42017.35						OTM	632076.40 lb-ft	7264.40		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
ft	lb	lb							lb-ft			
T1 175.40-165.00	107.20	701.39	A	0.136	2.824	9	0.85	1	4.138	207.11	19.91	C
			B	0.136	2.824		0.85	1	4.138			

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	20 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T2 165.00-150.00	337.92	1263.54	C	0.136	2.824	9	0.85	1	4.138	502.24	33.48	C
			A	0.15	2.772		0.85	1	6.618			
			B	0.15	2.772		0.85	1	6.618			
			C	0.15	2.772		0.85	1	6.618			
T3 150.00-140.00	254.80	1452.53	A	0.268	2.386	9	0.85	1	11.781	474.47	47.45	C
			B	0.268	2.386		0.85	1	11.781			
			C	0.268	2.386		0.85	1	11.781			
			A	0.225	2.514		0.85	1	24.100			
T4 140.00-120.00	509.60	3199.68	B	0.225	2.514	8	0.85	1	24.100	950.79	47.54	C
			C	0.225	2.514		0.85	1	24.100			
			A	0.198	2.603		0.85	1	26.423			
			B	0.198	2.603		0.85	1	26.423			
T5 120.00-100.00	509.60	3864.89	C	0.198	2.603	8	0.85	1	26.423	961.83	48.09	C
			A	0.172	2.693		0.85	1	27.632			
			B	0.172	2.693		0.85	1	27.632			
			C	0.172	2.693		0.85	1	27.632			
T6 100.00-80.00	509.60	3972.57	A	0.159	2.74	7	0.85	1	29.868	922.93	46.15	C
			B	0.159	2.74		0.85	1	29.868			
			C	0.159	2.74		0.85	1	29.868			
			A	0.16	2.734		0.85	1	34.220			
T7 80.00-60.00	509.60	4621.18	B	0.16	2.734	6	0.85	1	34.220	901.66	45.08	C
			C	0.16	2.734		0.85	1	34.220			
			A	0.145	2.791		0.85	1	34.658			
			B	0.145	2.791		0.85	1	34.658			
T8 60.00-40.00	509.60	7429.16	C	0.145	2.791	5	0.85	1	34.658	794.01	39.70	C
			A	0.136	2.822		0.85	1	36.234			
			B	0.136	2.822		0.85	1	36.234			
			C	0.136	2.822		0.85	1	36.234			
T9 40.00-20.00	305.76	8195.14	A	0.136	2.822	5	0.85	1	36.234	682.10	34.11	C
T10 20.00-0.00	305.76	8195.14	B	0.136	2.822	5	0.85	1	36.234	682.10	34.11	C
Sum Weight:	4063.28	42017.35	C	0.136	2.822		0.85	1	36.234	7341.36		
								OTM	637864.53 lb-ft			

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M _x lb-ft	Sum of Overturning Moments, M _z lb-ft	Sum of Torques lb-ft
Leg Weight	29193.36					
Bracing Weight	12823.99					
Total Member Self-Weight	42017.35					
Total Weight	50921.36			5630.73	947.11	
Wind 0 deg - No Ice		0.00	-36510.15	-3672047.36	947.11	-977.83
Wind 30 deg - No Ice		17783.41	-30818.90	-3119179.89	-1801432.53	2699.28
Wind 60 deg - No Ice		30535.16	-17639.37	-1786903.26	-3100815.32	5565.22
Wind 90 deg - No Ice		35566.82	0.00	5630.73	-3603812.17	7044.09
Wind 120 deg - No Ice		31601.59	18255.08	1844469.77	-3181018.03	6783.50
Wind 150 deg - No Ice		17783.41	30818.90	3130441.35	-1801432.53	4344.81
Wind 180 deg - No Ice		0.00	35278.74	3590698.70	947.11	940.79
Wind 210 deg - No Ice		-17783.41	30818.90	3130441.35	1803326.75	-2699.28
Wind 240 deg - No Ice		-31601.59	18255.08	1844469.77	3182912.25	-5805.67
Wind 270 deg - No Ice		-35566.82	0.00	5630.73	3605706.39	-7044.09
Wind 300 deg - No Ice		-30535.16	-17639.37	-1786903.26	3102709.54	-6506.01
Wind 330 deg - No Ice		-17783.41	-30818.90	-3119179.89	1803326.75	-4344.81
Member Ice	80044.08					

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Fullerton Engineering Consultants</p> <p style="text-align: center;">1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com</p>	<p>Job</p> <p style="text-align: center;">CTL02206</p>	<p>Page</p> <p style="text-align: center;">21 of 35</p>
	<p>Project</p> <p style="text-align: center;">175.4 ft. Truss Legs Self-Support Tower</p>	<p>Date</p> <p style="text-align: center;">13:27:31 12/07/17</p>
	<p>Client</p> <p style="text-align: center;">Smartlink / AT&T</p>	<p>Designed by</p> <p style="text-align: center;">VY</p>

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M _x lb-ft	Sum of Overturning Moments, M _z lb-ft	Sum of Torques lb-ft
Total Weight Ice	178284.72			59683.45	17730.29	
Wind 0 deg - Ice		0.00	-13244.06	-1257230.32	17730.29	-783.90
Wind 30 deg - Ice		6559.49	-11363.81	-1072986.20	-635970.76	740.26
Wind 60 deg - Ice		11326.08	-6540.52	-592760.42	-1111909.42	2049.65
Wind 90 deg - Ice		13118.99	0.00	59683.45	-1289671.80	2823.36
Wind 120 deg - Ice		11467.26	6622.03	718140.34	-1122324.27	2864.78
Wind 150 deg - Ice		6559.49	11363.81	1192353.10	-635970.76	2083.10
Wind 180 deg - Ice		0.00	13081.04	1364571.20	17730.29	772.42
Wind 210 deg - Ice		-6559.49	11363.81	1192353.10	671431.34	-740.26
Wind 240 deg - Ice		-11467.26	6622.03	718140.34	1157784.85	-2080.88
Wind 270 deg - Ice		-13118.99	0.00	59683.45	1325132.38	-2823.36
Wind 300 deg - Ice		-11326.08	-6540.52	-592760.42	1147370.01	-2822.07
Wind 330 deg - Ice		-6559.49	-11363.81	-1072986.20	671431.34	-2083.10
Total Weight	50921.36			5630.73	947.11	
Wind 0 deg - Service		0.00	-9127.54	-919492.75	-183.70	-244.46
Wind 30 deg - Service		4445.85	-7704.72	-781275.89	-450778.61	674.82
Wind 60 deg - Service		7633.79	-4409.84	-448206.73	-775624.31	1391.31
Wind 90 deg - Service		8891.70	0.00	-73.23	-901373.52	1761.02
Wind 120 deg - Service		7900.40	4563.77	459636.53	-795674.99	1695.88
Wind 150 deg - Service		4445.85	7704.72	781129.42	-450778.61	1086.20
Wind 180 deg - Service		0.00	8819.69	896193.76	-183.70	235.20
Wind 210 deg - Service		-4445.85	7704.72	781129.42	450411.21	-674.82
Wind 240 deg - Service		-7900.40	4563.77	459636.53	795307.59	-1451.42
Wind 270 deg - Service		-8891.70	0.00	-73.23	901006.12	-1761.02
Wind 300 deg - Service		-7633.79	-4409.84	-448206.73	775256.91	-1626.50
Wind 330 deg - Service		-4445.85	-7704.72	-781275.89	450411.21	-1086.20

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	22 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Comb. No.	Description
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft	
T1	175.4 - 165	Leg	Max Tension	15	13746.02	-0.42	708.74	
			Max. Compression	2	-16301.46	-1.60	247.84	
			Max. Mx	8	11280.42	653.89	-89.86	
			Max. My	14	11130.23	-0.42	708.91	
			Max. Vy	20	-2680.26	240.17	-12.31	
			Max. Vx	2	-2867.64	-1.60	247.84	
		Diagonal	Max Tension	8	3065.92	0.00	0.00	
			Max. Compression	8	-3077.93	0.00	0.00	
			Max. Mx	38	342.66	-7.54	-0.03	
			Max. My	8	3046.31	-2.58	0.33	
			Max. Vy	38	13.07	-7.54	-0.03	
			Max. Vx	8	0.12	-2.58	0.33	
		Top Girt	Max Tension	3	485.15	0.00	0.00	
			Max. Compression	14	-503.48	0.00	0.00	
			Max. Mx	26	-28.51	25.89	0.00	
			Max. Vy	26	-20.71	0.00	0.00	
			Bottom Girt	Max Tension	14	1036.42	0.00	0.00
				Max. Compression	3	-1014.44	0.00	0.00
		Max. Mx		26	34.05	25.89	0.00	
		Max. Vy		26	-20.71	0.00	0.00	
T2	165 - 150	Leg		Max Tension	15	54261.66	0.18	136.30
				Max. Compression	18	-59222.53	1697.94	-941.15
			Max. Mx	20	45762.55	1752.32	332.69	
			Max. My	14	53555.08	10.74	-1947.84	
			Max. Vy	8	5622.08	-1752.20	332.98	
			Max. Vx	14	6262.89	10.74	-1947.84	
		Diagonal	Max Tension	8	5464.65	0.00	0.00	
			Max. Compression	8	-5487.67	0.00	0.00	

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	23 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft		
T3	150 - 140	Top Girt	Max. Mx	35	966.94	-8.97	0.01		
			Max. My	20	3657.43	-3.57	-0.39		
			Max. Vy	35	14.82	-8.97	0.01		
			Max. Vx	20	-0.14	0.00	0.00		
			Max Tension	3	745.03	0.00	0.00		
			Max. Compression	14	-748.72	0.00	0.00		
		Bottom Girt	Max. Mx	26	-7.28	25.66	0.00		
			Max. Vy	26	-20.53	0.00	0.00		
			Max Tension	14	1219.04	0.00	0.00		
			Max. Compression	3	-1123.06	0.00	0.00		
			Max. Mx	26	128.64	25.66	0.00		
			Max. Vy	26	-20.53	0.00	0.00		
		T4	140 - 120	Leg	Max Tension	15	60923.66	-1947.30	-10.65
					Max. Compression	18	-65809.73	3231.30	7.03
					Max. Mx	14	59950.66	-3590.15	-8.08
					Max. My	12	-3167.57	-182.53	-6026.21
					Max. Vy	22	328.24	-3580.74	25.30
					Max. Vx	12	658.55	-182.53	-6026.21
Diagonal	Max Tension			23	7612.47	123.46	20.85		
	Max. Compression			10	-8173.20	0.00	0.00		
	Max. Mx			14	7207.08	127.06	16.06		
	Max. My			20	-6964.95	-85.60	30.29		
	Max. Vy			33	39.39	55.33	4.53		
	Max. Vx			20	-6.41	0.00	0.00		
T5	120 - 100			Leg	Max Tension	15	102699.71	-4425.84	-4.73
					Max. Compression	18	-111144.78	4166.97	9.41
					Max. Mx	2	-91529.88	4591.71	2.86
					Max. My	12	-4083.57	-182.53	-6026.21
					Max. Vy	2	-298.11	4591.71	2.86
					Max. Vx	12	-421.00	-182.53	-6026.21
		Diagonal	Max Tension	8	7609.26	0.00	0.00		
			Max. Compression	8	-7529.97	0.00	0.00		
			Max. Mx	18	6535.82	127.93	11.78		
			Max. My	12	7117.04	100.29	-12.46		
			Max. Vy	33	51.76	76.34	11.81		
			Max. Vx	31	3.83	0.00	0.00		
		T6	100 - 80	Leg	Max Tension	15	140284.12	-4636.15	-3.73
					Max. Compression	18	-152701.40	4702.45	6.84
					Max. Mx	3	-150939.32	4711.06	1.39
					Max. My	12	-6873.39	-28.74	-4479.50
					Max. Vy	3	-225.27	4694.15	1.59
					Max. Vx	12	202.30	-28.74	-4479.50
Diagonal	Max Tension			8	7861.16	0.00	0.00		
	Max. Compression			8	-7966.15	0.00	0.00		
	Max. Mx			18	6102.74	104.99	6.24		
	Max. My			30	-2006.55	66.51	-14.21		
	Max. Vy			33	62.96	96.11	13.38		
	Max. Vx			30	4.05	0.00	0.00		
T7	80 - 60			Leg	Max Tension	15	176217.50	-4578.21	-3.20
					Max. Compression	18	-192945.17	4382.88	4.18
					Max. Mx	3	-170774.57	4711.06	1.39
					Max. My	12	-8728.93	-170.14	-5474.97
					Max. Vy	6	-197.14	-4697.67	-15.14
					Max. Vx	12	243.35	3.45	-5087.36
		Diagonal	Max Tension	8	8501.53	0.00	0.00		
			Max. Compression	8	-8550.34	0.00	0.00		
			Max. Mx	35	1607.93	125.70	-16.45		
			Max. My	31	1302.03	115.72	-17.15		
			Max. Vy	33	74.05	121.78	16.64		
			Max. Vx	31	4.41	0.00	0.00		
		T7	80 - 60	Leg	Max Tension	15	212026.69	-4840.09	1.19

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	24 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T8	60 - 40	Leg	Max. Compression	18	-233826.00	8565.64	106.64
			Max. Mx	14	208994.24	-9057.62	-22.03
			Max. My	12	-10952.05	-357.19	-11014.61
			Max. Vy	6	617.41	-9046.76	-118.54
			Max. Vx	12	1195.08	-357.19	-11014.61
			Diagonal	9	9041.19	0.00	0.00
			Max. Compression	8	-9214.29	0.00	0.00
			Max. Mx	33	1176.33	149.28	-17.85
			Max. My	36	-1896.50	121.84	21.88
			Max. Vy	33	84.34	149.28	-17.85
			Max. Vx	36	-4.95	0.00	0.00
			Max Tension	15	233073.37	-8966.32	-21.53
			Max. Compression	18	-258331.48	12345.61	48.43
			Max. Mx	18	-258331.48	12345.61	48.43
			Max. My	12	-12969.53	59.54	-11617.17
			Max. Vy	29	646.62	-7990.94	-113.32
			Max. Vx	12	454.02	59.54	-11617.17
			T9	40 - 20	Leg	Max Tension	23
Max. Compression	10	-14738.69				0.00	0.00
Max. Mx	33	3005.50				-451.67	-70.12
Max. My	36	-3181.68				-374.31	-85.47
Max. Vy	33	-170.93				-451.67	-70.12
Max. Vx	36	13.09				0.00	0.00
Max Tension	15	269853.39				-11941.90	-11.47
Max. Compression	18	-303793.05				11469.01	41.44
Max. Mx	14	264360.10				-12917.78	-14.00
Max. My	12	-17106.60				-891.30	-19961.25
Max. Vy	29	-776.15				-7990.94	-113.32
Max. Vx	12	791.02				-891.30	-19961.25
Diagonal	8	13880.04				0.00	0.00
Max. Compression	8	-13509.25				0.00	0.00
Max. Mx	33	807.75				-562.77	-81.23
Max. My	30	-4680.74				-487.58	85.07
Max. Vy	33	-190.39				-562.77	-81.23
Max. Vx	30	-12.81				0.00	0.00
T10	20 - 0	Leg	Max Tension	15	297765.66	-12691.14	-13.03
			Max. Compression	18	-337198.01	0.00	-0.11
			Max. Mx	14	293621.80	-12917.78	-14.00
			Max. My	12	-17296.73	-891.30	-19961.25
			Max. Vy	6	-1077.59	-12898.87	-74.63
			Max. Vx	12	-1383.23	-891.30	-19961.25
			Diagonal	23	15080.13	0.00	0.00
			Max. Compression	10	-16541.58	0.00	0.00
			Max. Mx	34	4385.59	-537.31	-101.76
			Max. My	12	13827.14	-393.44	115.94
			Max. Vy	34	-194.29	-537.31	-101.76
			Max. Vx	32	-13.74	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	360110.05	33879.19	-19241.27
	Max. H _x	18	360110.05	33879.19	-19241.27
	Max. H _z	7	-315469.35	-30018.91	17039.91
	Min. Vert	7	-315469.35	-30018.91	17039.91

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Fullerton Engineering Consultants</p> <p style="text-align: center;">1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com</p>	Job	CTL02206	Page	25 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg B	Min. H _x	7	-315469.35	-30018.91	17039.91
	Min. H _z	18	360110.05	33879.19	-19241.27
	Max. Vert	10	359996.40	-33900.19	-19199.51
	Max. H _x	23	-315554.59	30041.78	17004.34
	Max. H _z	23	-315554.59	30041.78	17004.34
	Min. Vert	23	-315554.59	30041.78	17004.34
Leg A	Min. H _x	10	359996.40	-33900.19	-19199.51
	Min. H _z	10	359996.40	-33900.19	-19199.51
	Max. Vert	2	359707.87	-46.66	38963.25
	Max. H _x	21	14983.83	1406.98	1386.59
	Max. H _z	2	359707.87	-46.66	38963.25
	Min. Vert	15	-316190.65	42.24	-34546.00
	Min. H _x	8	19978.44	-1409.70	1848.79
	Min. H _z	15	-316190.65	42.24	-34546.00

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	50921.36	-0.00	0.00	5630.73	947.11	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	61105.63	-0.00	-58416.26	-5877529.48	1136.53	-1564.53
0.9 Dead+1.6 Wind 0 deg - No Ice	45829.22	-0.00	-58416.26	-5879218.70	852.40	-1564.53
1.2 Dead+1.6 Wind 30 deg - No Ice	61105.63	28453.46	-49310.24	-4992941.32	-2882671.57	4318.84
0.9 Dead+1.6 Wind 30 deg - No Ice	45829.22	28453.46	-49310.24	-4994630.54	-2882955.70	4318.84
1.2 Dead+1.6 Wind 60 deg - No Ice	61105.63	48856.26	-28223.00	-2861298.20	-4961684.53	8904.36
0.9 Dead+1.6 Wind 60 deg - No Ice	45829.22	48856.26	-28223.00	-2862987.42	-4961968.66	8904.36
1.2 Dead+1.6 Wind 90 deg - No Ice	61105.63	56906.92	0.00	6756.88	-5766479.67	11270.54
0.9 Dead+1.6 Wind 90 deg - No Ice	45829.22	56906.92	0.00	5067.66	-5766763.80	11270.54
1.2 Dead+1.6 Wind 120 deg - No Ice	61105.63	50562.56	29208.13	2948900.05	-5090008.89	10853.60
0.9 Dead+1.6 Wind 120 deg - No Ice	45829.22	50562.56	29208.13	2947210.83	-5090293.02	10853.60
1.2 Dead+1.6 Wind 150 deg - No Ice	61105.63	28453.46	49310.24	5006455.07	-2882671.57	6951.70
0.9 Dead+1.6 Wind 150 deg - No Ice	45829.22	28453.46	49310.24	5004765.86	-2882955.70	6951.70
1.2 Dead+1.6 Wind 180 deg - No Ice	61105.63	-0.00	56446.00	5742867.03	1136.53	1505.26
0.9 Dead+1.6 Wind 180 deg - No Ice	45829.22	-0.00	56446.00	5741177.81	852.40	1505.26
1.2 Dead+1.6 Wind 210 deg - No Ice	61105.63	-28453.46	49310.24	5006455.07	2884944.63	-4318.84
0.9 Dead+1.6 Wind 210 deg - No Ice	45829.22	-28453.46	49310.24	5004765.86	2884660.50	-4318.84
1.2 Dead+1.6 Wind 240 deg - No Ice	61105.63	-50562.56	29208.13	2948900.05	5092281.95	-9289.08
0.9 Dead+1.6 Wind 240 deg - No Ice	45829.22	-50562.56	29208.13	2947210.83	5091997.82	-9289.08

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	26 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

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
1.2 Dead+1.6 Wind 270 deg - No Ice	61105.63	-56906.92	0.00	6756.88	5768752.73	-11270.54
0.9 Dead+1.6 Wind 270 deg - No Ice	45829.22	-56906.92	0.00	5067.66	5768468.60	-11270.54
1.2 Dead+1.6 Wind 300 deg - No Ice	61105.63	-48856.26	-28223.00	-2861298.20	4963957.59	-10409.62
0.9 Dead+1.6 Wind 300 deg - No Ice	45829.22	-48856.26	-28223.00	-2862987.42	4963673.46	-10409.62
1.2 Dead+1.6 Wind 330 deg - No Ice	61105.63	-28453.46	-49310.24	-4992941.32	2884944.63	-6951.70
0.9 Dead+1.6 Wind 330 deg - No Ice	45829.22	-28453.46	-49310.24	-4994630.54	2884660.50	-6951.70
1.2 Dead+1.0 Ice+1.0 Temp	188468.99	-0.00	0.00	60809.62	17919.72	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	188468.99	-0.00	-13244.06	-1256104.50	17919.72	-783.90
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	188468.99	6559.49	-11363.81	-1071860.33	-635781.49	740.26
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	188468.99	11326.08	-6540.52	-591634.43	-1111720.29	2049.65
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	188468.99	13118.99	0.00	60809.62	-1289482.71	2823.36
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	188468.99	11467.26	6622.03	719266.67	-1122135.13	2864.78
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	188468.99	6559.49	11363.81	1193479.56	-635781.49	2083.10
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	188468.99	-0.00	13081.05	1365697.71	17919.72	772.42
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	188468.99	-6559.49	11363.81	1193479.56	671620.93	-740.26
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	188468.99	-11467.26	6622.03	719266.67	1157974.57	-2080.88
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	188468.99	-13118.99	0.00	60809.62	1325322.15	-2823.36
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	188468.99	-11326.08	-6540.52	-591634.43	1147559.72	-2822.07
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	188468.99	-6559.49	-11363.81	-1071860.33	671620.93	-2083.10
Dead+Wind 0 deg - Service	50921.36	-0.00	-9127.54	-913789.01	947.11	-244.46
Dead+Wind 30 deg - Service	50921.36	4445.85	-7704.73	-775572.11	-449647.91	674.82
Dead+Wind 60 deg - Service	50921.36	7633.79	-4409.84	-442502.87	-774493.68	1391.31
Dead+Wind 90 deg - Service	50921.36	8891.71	0.00	5630.73	-900242.92	1761.02
Dead+Wind 120 deg - Service	50921.36	7900.40	4563.77	465340.60	-794544.36	1695.88
Dead+Wind 150 deg - Service	50921.36	4445.85	7704.73	786833.57	-449647.91	1086.20
Dead+Wind 180 deg - Service	50921.36	-0.00	8819.69	901897.94	947.11	235.20
Dead+Wind 210 deg - Service	50921.36	-4445.85	7704.73	786833.57	451542.12	-674.82
Dead+Wind 240 deg - Service	50921.36	-7900.40	4563.77	465340.60	796438.58	-1451.42
Dead+Wind 270 deg - Service	50921.36	-8891.71	0.00	5630.73	902137.14	-1761.02
Dead+Wind 300 deg - Service	50921.36	-7633.79	-4409.84	-442502.87	776387.90	-1626.50
Dead+Wind 330 deg - Service	50921.36	-4445.85	-7704.73	-775572.11	451542.12	-1086.20

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-50921.36	0.00	0.00	50921.36	-0.00	0.000%
2	-0.00	-61105.63	-58416.25	0.00	61105.63	58416.26	0.000%
3	-0.00	-45829.22	-58416.25	0.00	45829.22	58416.26	0.000%

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Fullerton Engineering Consultants</p> <p style="text-align: center;">1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com</p>	<p>Job</p> <p style="text-align: center;">CTL02206</p>	<p>Page</p> <p style="text-align: center;">27 of 35</p>
	<p>Project</p> <p style="text-align: center;">175.4 ft. Truss Legs Self-Support Tower</p>	<p>Date</p> <p style="text-align: center;">13:27:31 12/07/17</p>
	<p>Client</p> <p style="text-align: center;">Smartlink / AT&T</p>	<p>Designed by</p> <p style="text-align: center;">VY</p>

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
4	28453.45	-61105.63	-49310.23	-28453.46	61105.63	49310.24	0.000%
5	28453.45	-45829.22	-49310.23	-28453.46	45829.22	49310.24	0.000%
6	48856.26	-61105.63	-28222.99	-48856.26	61105.63	28223.00	0.000%
7	48856.26	-45829.22	-28222.99	-48856.26	45829.22	28223.00	0.000%
8	56906.91	-61105.63	0.00	-56906.92	61105.63	-0.00	0.000%
9	56906.91	-45829.22	0.00	-56906.92	45829.22	-0.00	0.000%
10	50562.55	-61105.63	29208.12	-50562.56	61105.63	-29208.13	0.000%
11	50562.55	-45829.22	29208.12	-50562.56	45829.22	-29208.13	0.000%
12	28453.45	-61105.63	49310.23	-28453.46	61105.63	-49310.24	0.000%
13	28453.45	-45829.22	49310.23	-28453.46	45829.22	-49310.24	0.000%
14	-0.00	-61105.63	56445.99	0.00	61105.63	-56446.00	0.000%
15	-0.00	-45829.22	56445.99	0.00	45829.22	-56446.00	0.000%
16	-28453.45	-61105.63	49310.23	28453.46	61105.63	-49310.24	0.000%
17	-28453.45	-45829.22	49310.23	28453.46	45829.22	-49310.24	0.000%
18	-50562.55	-61105.63	29208.12	50562.56	61105.63	-29208.13	0.000%
19	-50562.55	-45829.22	29208.12	50562.56	45829.22	-29208.13	0.000%
20	-56906.91	-61105.63	0.00	56906.92	61105.63	-0.00	0.000%
21	-56906.91	-45829.22	0.00	56906.92	45829.22	-0.00	0.000%
22	-48856.26	-61105.63	-28222.99	48856.26	61105.63	28223.00	0.000%
23	-48856.26	-45829.22	-28222.99	48856.26	45829.22	28223.00	0.000%
24	-28453.45	-61105.63	-49310.23	28453.46	61105.63	49310.24	0.000%
25	-28453.45	-45829.22	-49310.23	28453.46	45829.22	49310.24	0.000%
26	0.00	-188468.99	0.00	0.00	188468.99	-0.00	0.000%
27	0.00	-188468.99	-13244.06	0.00	188468.99	13244.06	0.000%
28	6559.49	-188468.99	-11363.81	-6559.49	188468.99	11363.81	0.000%
29	11326.08	-188468.99	-6540.52	-11326.08	188468.99	6540.52	0.000%
30	13118.99	-188468.99	0.00	-13118.99	188468.99	-0.00	0.000%
31	11467.26	-188468.99	6622.03	-11467.26	188468.99	-6622.03	0.000%
32	6559.49	-188468.99	11363.81	-6559.49	188468.99	-11363.81	0.000%
33	-0.00	-188468.99	13081.04	0.00	188468.99	-13081.05	0.000%
34	-6559.49	-188468.99	11363.81	6559.49	188468.99	-11363.81	0.000%
35	-11467.26	-188468.99	6622.03	11467.26	188468.99	-6622.03	0.000%
36	-13118.99	-188468.99	0.00	13118.99	188468.99	-0.00	0.000%
37	-11326.08	-188468.99	-6540.52	11326.08	188468.99	6540.52	0.000%
38	-6559.49	-188468.99	-11363.81	6559.49	188468.99	11363.81	0.000%
39	-0.00	-50921.36	-9127.54	0.00	50921.36	9127.54	0.000%
40	4445.85	-50921.36	-7704.72	-4445.85	50921.36	7704.73	0.000%
41	7633.79	-50921.36	-4409.84	-7633.79	50921.36	4409.84	0.000%
42	8891.70	-50921.36	0.00	-8891.71	50921.36	-0.00	0.000%
43	7900.40	-50921.36	4563.77	-7900.40	50921.36	-4563.77	0.000%
44	4445.85	-50921.36	7704.72	-4445.85	50921.36	-7704.73	0.000%
45	-0.00	-50921.36	8819.69	0.00	50921.36	-8819.69	0.000%
46	-4445.85	-50921.36	7704.72	4445.85	50921.36	-7704.73	0.000%
47	-7900.40	-50921.36	4563.77	7900.40	50921.36	-4563.77	0.000%
48	-8891.70	-50921.36	0.00	8891.71	50921.36	-0.00	0.000%
49	-7633.79	-50921.36	-4409.84	7633.79	50921.36	4409.84	0.000%
50	-4445.85	-50921.36	-7704.72	4445.85	50921.36	7704.73	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	175.4 - 165	2.303	47	0.1301	0.0071
T2	165 - 150	2.013	47	0.1277	0.0062
T3	150 - 140	1.612	47	0.1138	0.0048

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 28 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T4	140 - 120	1.379	47	0.1024	0.0040
T5	120 - 100	0.981	47	0.0826	0.0030
T6	100 - 80	0.659	47	0.0658	0.0022
T7	80 - 60	0.409	47	0.0481	0.0015
T8	60 - 40	0.224	47	0.0337	0.0009
T9	40 - 20	0.098	47	0.0219	0.0006
T10	20 - 0	0.024	47	0.0098	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181.00	Lightning Rod 1/2"x3' on 12' Pipe	47	2.303	0.1301	0.0071	669736
180.00	SRL-420NHD Omni	47	2.303	0.1301	0.0071	669736
175.00	Powerwave 7770.00	47	2.292	0.1301	0.0070	669736
173.00	PiROD 15' T-Frame	47	2.236	0.1299	0.0069	669736
163.00	(2) Amphenol LPA-80080/4CF	47	1.957	0.1266	0.0060	144739
162.00	PiROD 15' T-Frame	47	1.929	0.1259	0.0059	117751

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	175.4 - 165	14.682	18	0.8291	0.0452
T2	165 - 150	12.832	18	0.8136	0.0397
T3	150 - 140	10.278	18	0.7253	0.0308
T4	140 - 120	8.792	18	0.6525	0.0258
T5	120 - 100	6.256	18	0.5262	0.0190
T6	100 - 80	4.207	18	0.4195	0.0140
T7	80 - 60	2.612	18	0.3068	0.0097
T8	60 - 40	1.431	18	0.2151	0.0057
T9	40 - 20	0.627	18	0.1397	0.0035
T10	20 - 0	0.152	18	0.0623	0.0016

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181.00	Lightning Rod 1/2"x3' on 12' Pipe	18	14.682	0.8291	0.0452	105985
180.00	SRL-420NHD Omni	18	14.682	0.8291	0.0452	105985
175.00	Powerwave 7770.00	18	14.611	0.8288	0.0450	105985
173.00	PiROD 15' T-Frame	18	14.254	0.8275	0.0440	105985
163.00	(2) Amphenol LPA-80080/4CF	18	12.479	0.8061	0.0385	22820
162.00	PiROD 15' T-Frame	18	12.303	0.8016	0.0379	18556

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 29 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

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
T1	175.4	Leg	A325N	0.7500	5	2749.20	29820.60	0.092 ✓	1	Bolt Tension
T2	165	Leg	A325N	1.0000	6	9043.61	53014.40	0.171 ✓	1	Bolt Tension
T3	150	Leg	A325N	1.0000	6	10153.90	53014.40	0.192 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	7612.47	16939.50	0.449 ✓	1	Member Block Shear
T4	140	Leg	A325N	1.0000	6	17116.60	53014.40	0.323 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	7609.26	16939.50	0.449 ✓	1	Member Block Shear
T5	120	Leg	A325N	1.2500	4	35071.00	82835.00	0.423 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	7861.16	17138.70	0.459 ✓	1	Member Block Shear
T6	100	Leg	A325N	1.2500	4	44054.40	82835.00	0.532 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	8501.53	17138.70	0.496 ✓	1	Member Block Shear
T7	80	Leg	A325N	1.2500	4	53006.70	82835.00	0.640 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	9041.19	17138.70	0.528 ✓	1	Member Block Shear
T8	60	Leg	A325N	1.2500	4	58268.30	82835.00	0.703 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	13411.90	40675.80	0.330 ✓	1	Member Block Shear
T9	40	Leg	A325N	1.2500	4	67463.30	82835.00	0.814 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	13880.00	40675.80	0.341 ✓	1	Member Block Shear
T10	20	Diagonal	A325N	1.0000	1	15080.10	40675.80	0.371 ✓	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio P _u / φP _n
T1	175.4 - 165	2	10.40	2.43	58.4 K=1.00	3.1416	-16301.50	110170.00	0.148 ¹ ✓
T2	165 - 150	2 1/4	15.00	2.39	51.0 K=1.00	3.9761	-59222.50	147977.00	0.400 ¹ ✓
T3	150 - 140	Piroad 105245	10.02	10.02	37.8 K=1.00	5.3014	-65809.70	214859.00	0.306 ¹ ✓
T4	140 - 120	Piroad 105218	20.03	10.02	32.4 K=1.00	7.2158	-111145.00	300681.00	0.370 ¹ ✓

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	30 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T5	120 - 100	Pirod 105219	20.03	10.02	28.4 K=1.00	9.4248	-152701.00	399868.00	0.382 ¹ ✓
T6	100 - 80	Pirod 105219	20.03	10.02	28.4 K=1.00	9.4248	-192945.00	399868.00	0.483 ¹ ✓
T7	80 - 60	Pirod 105220	20.03	10.02	25.2 K=1.00	11.9282	-233826.00	512375.00	0.456 ¹ ✓
T8	60 - 40	Pirod 112743	20.03	20.03	32.6 K=1.00	14.7262	-258331.00	613145.00	0.421 ¹ ✓
T9	40 - 20	Pirod 112743	20.03	20.03	32.6 K=1.00	14.7262	-303793.00	613145.00	0.495 ¹ ✓
T10	20 - 0	Pirod 112744	20.03	20.03	32.6 K=1.00	17.8187	-337198.00	741993.00	0.454 ¹ ✓

¹ P_u / φP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L _d ft	Kl/r	φP _n lb	A in ²	V _u lb	φV _n lb	Stress Ratio
T3	150 - 140	0.5	1.47	120.0	238565.00	0.1963	659.27	3446.37	0.192 ✓
T4	140 - 120	0.5	1.46	119.0	324713.00	0.1963	423.00	3377.71	0.126 ✓
T5	120 - 100	0.625	1.45	94.4	424115.00	0.3068	229.72	6957.62	0.034 ✓
T6	100 - 80	0.625	1.45	94.4	424115.00	0.3068	258.84	6957.62	0.038 ✓
T7	80 - 60	0.625	1.43	93.6	536771.00	0.3068	1198.44	7011.35	0.172 ✓
T8	60 - 40	0.75	1.73	93.9	662680.00	0.4418	646.66	14363.90	0.045 ✓
T9	40 - 20	0.75	1.73	93.9	662680.00	0.4418	798.30	14363.90	0.056 ✓
T10	20 - 0	0.75	1.71	93.1	801842.00	0.4418	1391.59	14530.80	0.096 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	175.4 - 165	7/8	5.56	2.69	147.4 K=1.00	0.6013	-3077.93	6249.29	0.493 ¹ ✓
T2	165 - 150	1	5.54	2.67	128.0 K=1.00	0.7854	-5487.67	10828.60	0.507 ¹ ✓
T3	150 - 140	L3x3x5/16	11.42	5.19	105.8	1.7800	-8173.20	32009.00	0.255 ¹ ✓

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	31 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	140 - 120	L3x3x5/16	12.50	5.84	K=1.00 118.9	1.7800	-7529.97	27403.10	0.275 ¹ ✓
T5	120 - 100	L3x3x5/16	13.80	6.54	K=1.00 133.1	1.7800	-7966.15	22679.70	0.351 ¹ ✓
T6	100 - 80	L3x3x5/16	15.24	7.29	K=1.00 148.5	1.7800	-8550.34	18229.00	0.469 ¹ ✓
T7	80 - 60	L3x3x5/16	16.01	7.70	K=1.00 156.9	1.7800	-9214.29	16326.10	0.564 ¹ ✓
T8	60 - 40	2L3 1/2x3 1/2x5/16	25.01	12.09	K=1.00 134.3	4.1800	-14738.70	52351.60	0.282 ¹ ✓
T9	40 - 20	2L3 1/2x3 1/2x5/16	26.26	12.74	K=1.00 141.6	4.1800	-13509.30	47110.40	0.287 ¹ ✓
T10	20 - 0	2L3 1/2x3 1/2x5/16	27.59	13.43	K=1.00 149.3	4.1800	-16541.60	42385.50	0.390 ¹ ✓

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	175.4 - 165	7/8	5.00	4.83	K=1.00 265.1	0.6013	-503.48	1932.35	0.261 ¹ ✓
T2	165 - 150	KL/R > 200 (C) - 4 7/8	5.00	4.81	K=1.00 264.0	0.6013	-748.72	1949.12	0.384 ¹ ✓
		KL/R > 200 (C) - 37							

¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	175.4 - 165	7/8	5.00	4.83	K=1.00 265.1	0.6013	-1014.44	1932.35	0.525 ¹ ✓
T2	165 - 150	KL/R > 200 (C) - 7 7/8	5.00	4.81	K=1.00 264.0	0.6013	-1123.06	1949.12	0.576 ¹ ✓
		KL/R > 200 (C) - 40							

¹ P_u / φP_n controls

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job	CTL02206	Page	32 of 35
	Project	175.4 ft. Truss Legs Self-Support Tower	Date	13:27:31 12/07/17
	Client	Smartlink / AT&T	Designed by	VY

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	175.4 - 165	2	10.40	2.43	58.4	3.1416	13746.00	141372.00	0.097 ¹
T2	165 - 150	2 1/4	15.00	2.39	51.0	3.9761	54261.70	178924.00	0.303 ¹
T3	150 - 140	Pirod 105245	10.02	10.02	37.8	5.3014	60923.70	238565.00	0.255 ¹
T4	140 - 120	Pirod 105218	20.03	10.02	32.4	7.2158	102700.00	324713.00	0.316 ¹
T5	120 - 100	Pirod 105219	20.03	10.02	28.4	9.4248	140284.00	424115.00	0.331 ¹
T6	100 - 80	Pirod 105219	20.03	10.02	28.4	9.4248	176218.00	424115.00	0.415 ¹
T7	80 - 60	Pirod 105220	20.03	10.02	25.2	11.9282	212027.00	536771.00	0.395 ¹
T8	60 - 40	Pirod 112743	20.03	20.03	32.6	14.7262	233073.00	662680.00	0.352 ¹
T9	40 - 20	Pirod 112743	20.03	20.03	32.6	14.7262	269853.00	662680.00	0.407 ¹
T10	20 - 0	Pirod 112744	20.03	20.03	32.6	17.8187	297766.00	801842.00	0.371 ¹

¹ P_u / φP_n controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L _d ft	Kl/r	φP _n lb	A in ²	V _u lb	φV _n lb	Stress Ratio
T3	150 - 140	0.5	1.47	120.0	238565.00	0.1963	659.27	3446.37	0.192
T4	140 - 120	0.5	1.46	119.0	324713.00	0.1963	423.00	3377.71	0.126
T5	120 - 100	0.625	1.45	94.4	424115.00	0.3068	229.72	6957.62	0.034
T6	100 - 80	0.625	1.45	94.4	424115.00	0.3068	258.84	6957.62	0.038
T7	80 - 60	0.625	1.43	93.6	536771.00	0.3068	1198.44	7011.35	0.172
T8	60 - 40	0.75	1.73	93.9	662680.00	0.4418	646.66	14363.90	0.045
T9	40 - 20	0.75	1.73	93.9	662680.00	0.4418	798.30	14363.90	0.056
T10	20 - 0	0.75	1.71	93.1	801842.00	0.4418	1391.59	14530.80	0.096

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 33 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n lb	A in ²	V_u lb	ϕV_n lb	Stress Ratio
									✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	175.4 - 165	7/8	5.56	2.69	147.4	0.6013	3065.92	27059.40	0.113 ¹ ✓
T2	165 - 150	1	5.54	2.67	128.0	0.7854	5464.65	35342.90	0.155 ¹ ✓
T3	150 - 140	L3x3x5/16	11.42	5.19	67.6	1.0713	7612.47	46602.80	0.163 ¹ ✓
T4	140 - 120	L3x3x5/16	11.93	5.59	72.8	1.0713	7609.26	46602.80	0.163 ¹ ✓
T5	120 - 100	L3x3x5/16	13.80	6.54	85.1	1.0127	7861.16	44053.90	0.178 ¹ ✓
T6	100 - 80	L3x3x5/16	15.24	7.29	94.9	1.0127	8501.53	44053.90	0.193 ¹ ✓
T7	80 - 60	L3x3x5/16	16.01	7.70	100.3	1.0127	9041.19	44053.90	0.205 ¹ ✓
T8	60 - 40	2L3 1/2x3 1/2x5/16	25.01	12.09	134.3	2.6077	13411.90	113433.00	0.118 ¹ ✓
T9	40 - 20	2L3 1/2x3 1/2x5/16	26.26	12.74	141.6	2.6077	13880.00	113433.00	0.122 ¹ ✓
T10	20 - 0	2L3 1/2x3 1/2x5/16	27.59	13.43	149.3	2.6077	15080.10	113433.00	0.133 ¹ ✓

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	175.4 - 165	7/8	5.00	4.83	265.1	0.6013	485.14	27059.40	0.018 ¹ ✓
T2	165 - 150	7/8	5.00	4.81	264.0	0.6013	745.03	27059.40	0.028 ¹ ✓

¹ $P_u / \phi P_n$ controls

Bottom Girt Design Data (Tension)

tnxTower Fullerton Engineering Consultants 1100 E. Woodfield Road, Suite 500 Schaumburg, IL 60173 Phone: (847) 908-8400 FAX: fax@fullertonengineering.com	Job CTL02206	Page 34 of 35
	Project 175.4 ft. Truss Legs Self-Support Tower	Date 13:27:31 12/07/17
	Client Smartlink / AT&T	Designed by VY

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	175.4 - 165	7/8	5.00	4.83	265.1	0.6013	1036.42	27059.40	0.038 ¹
T2	165 - 150	7/8	5.00	4.81	264.0	0.6013	1219.04	27059.40	0.045 ¹

¹ P_u / φP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	φP _{allow} lb	% Capacity	Pass Fail	
T1	175.4 - 165	Leg	2	3	-16301.50	110170.00	14.8	Pass	
T2	165 - 150	Leg	2 1/4	34	-59222.50	147977.00	40.0	Pass	
T3	150 - 140	Leg	Pirod 105245	79	-65809.70	214859.00	30.6	Pass	
T4	140 - 120	Leg	Pirod 105218	88	-111145.00	300681.00	37.0	Pass	
T5	120 - 100	Leg	Pirod 105219	103	-152701.00	399868.00	38.2	Pass	
T6	100 - 80	Leg	Pirod 105219	118	-192945.00	399868.00	48.3	Pass	
T7	80 - 60	Leg	Pirod 105220	133	-233826.00	512375.00	45.6	Pass	
T8	60 - 40	Leg	Pirod 112743	148	-258331.00	613145.00	42.1	Pass	
T9	40 - 20	Leg	Pirod 112743	157	-303793.00	613145.00	49.5	Pass	
T10	20 - 0	Leg	Pirod 112744	166	-337198.00	741993.00	45.4	Pass	
T1	175.4 - 165	Diagonal	7/8	11	-3077.93	6249.29	49.3	Pass	
T2	165 - 150	Diagonal	1	44	-5487.67	10828.60	50.7	Pass	
T3	150 - 140	Diagonal	L3x3x5/16	83	-8173.20	32009.00	25.5	Pass	
T4	140 - 120	Diagonal	L3x3x5/16	92	-7529.97	27403.10	27.5	Pass	
T5	120 - 100	Diagonal	L3x3x5/16	107	-7966.15	22679.70	35.1	Pass	
T6	100 - 80	Diagonal	L3x3x5/16	122	-8550.34	18229.00	46.9	Pass	
T7	80 - 60	Diagonal	L3x3x5/16	143	-9214.29	16326.10	56.4	Pass	
T8	60 - 40	Diagonal	2L3 1/2x3 1/2x5/16	152	-14738.70	52351.60	28.2	Pass	
T9	40 - 20	Diagonal	2L3 1/2x3 1/2x5/16	161	-13509.30	47110.40	28.7	Pass	
T10	20 - 0	Diagonal	2L3 1/2x3 1/2x5/16	170	-16541.60	42385.50	39.0	Pass	
T1	175.4 - 165	Top Girt	7/8	4	-503.48	1932.35	26.1	Pass	
T2	165 - 150	Top Girt	7/8	37	-748.72	1949.12	38.4	Pass	
T1	175.4 - 165	Bottom Girt	7/8	7	-1014.44	1932.35	52.5	Pass	
T2	165 - 150	Bottom Girt	7/8	40	-1123.06	1949.12	57.6	Pass	
							Summary		
							Leg (T9)	49.5	Pass
							Diagonal (T7)	56.4	Pass
							Top Girt (T2)	38.4	Pass
							Bottom Girt (T2)	57.6	Pass
							Bolt Checks	81.4	Pass
							RATING =	81.4	Pass



200 North Glebe Road, Suite 1000, Arlington, VA 22203-3728
703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com



**Smartlink on behalf of
AT&T Mobility, LLC
Site FA – 10035268
Site ID – CT1047
(MRCTB025612)
USID – 25952
Site Name – Tolland West
Site Compliance Report**

**497 Old Post Road
Tolland, CT 06084**

Latitude: N41-51-38.67
Longitude: W72-24-12.00
Structure Type: Guyed

Report generated date: February 19, 2018
Report by: Scott Broyles
Customer Contact: David Barbagallo

**AT&T Mobility, LLC will be compliant when the
remediation recommended in Section 5.2 or
other appropriate remediation is implemented.**

Sitesafe logo is a registered trademark of Site Safe, Inc. All rights reserved.



Table of Contents

1	GENERAL SITE SUMMARY.....	2
1.1	REPORT SUMMARY.....	2
2	SCALE MAPS OF SITE.....	3
3	ANTENNA INVENTORY	5
4	EMISSION PREDICTIONS	6
5	SITE COMPLIANCE	10
5.1	SITE COMPLIANCE STATEMENT	10
5.2	ACTIONS FOR SITE COMPLIANCE	10
6	REVIEWER CERTIFICATION	11
	APPENDIX A – STATEMENT OF LIMITING CONDITIONS	12
	APPENDIX B – REGULATORY BACKGROUND INFORMATION	13
	FCC RULES AND REGULATIONS	13
	OSHA STATEMENT.....	14
	APPENDIX C – SAFETY PLAN AND PROCEDURES.....	15
	APPENDIX D – RF EMISSIONS.....	16
	APPENDIX E – ASSUMPTIONS AND DEFINITIONS	17
	GENERAL MODEL ASSUMPTIONS	17
	USE OF GENERIC ANTENNAS.....	17
	DEFINITIONS	18
	APPENDIX F – REFERENCES	20

1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Access to Antennas Locked?	No
RF Sign(s) @ access point(s)	Unknown
RF Sign(s) @ antennas	Unknown
Barrier(s) @ sectors	None
Max cumulative simulated RFE level on the Ground	<1% General Public Limit at AT&T Mobility, LLC
FCC & AT&T Compliant?	Will Be Compliant

Note:

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CTL01047_2018-LTE-Next-Carrier_LTE_rx855w_2051A0DAYH_10035268_25952_06-21-2017_Final-Approved_v2.00

CD's: 10035268_AE201_171218_CTL01047_REV1

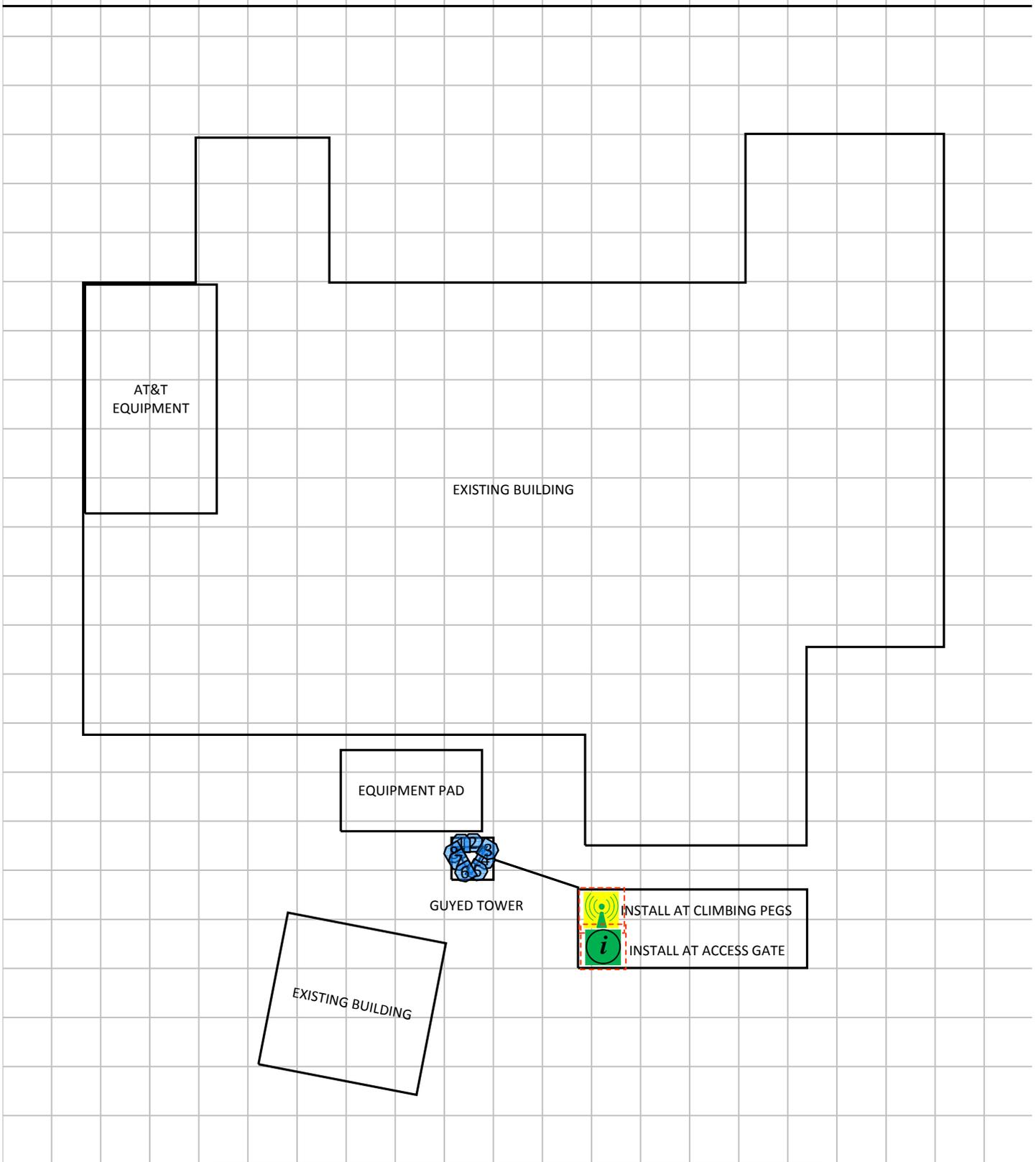
RF Powers Used: RFDS Above

2 Scale Maps of Site

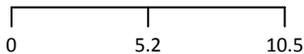
The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- Side View
- Alpha, Beta, and Gamma Sector – Detail View

Site Scale Map For: Tolland West



(Feet)



www.sitesafe.com
 Site Name:Tolland West
 2/15/2018 3:16:42 PM

Carrier Identification					
	AT&T MOBILITY LLC		VERIZON WIRELESS		T-MOBILE
	SPRINT		UNKNOWN CARRIER		

Sign Legend					
	Caution 1		Caution 2		Notice 2
	Notice 1		Warning		Info 1
	Info 2				

Proposed Barriers/ Signs	
	Barrier
	Proposed Barriers/ Signs

3 Antenna Inventory

The following antenna inventory on this and the following page, were obtained by the customer and were utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z
1	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	737	0	66.2	6	11.68	0	0	1	1475.7	34.6'	36.3'	123'
1	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	1900	0	61.1	6	14.53	0	0	1	4842.1	34.6'	36.3'	123'
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	727	0	66.2	6	11.68	0	0	1	2951.4	35.5'	36.4'	123'
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	2300	0	61.1	6	14.53	0	0	1	1285.3	35.5'	36.4'	123'
3	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	850	120	67	8	13.868	0	2	0	955.1	36.7'	35.8'	122'
3	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	1900	120	57	8	15.504	0	2	0	1227.5	36.7'	35.8'	122'
4	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	737	120	66.2	6	11.68	0	0	1	1475.7	36.4'	35.1'	123'
4	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	1900	120	61.1	6	14.53	0	0	1	4842.1	36.4'	35.1'	123'
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	737	120	66.2	6	11.68	0	0	1	2951.4	35.8'	34.2'	123'
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	2300	120	61.1	6	14.53	0	0	1	1285.3	35.8'	34.2'	123'
6	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	850	240	67	8	13.868	0	2	0	955.1	34.9'	34.1'	122'
6	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	1900	240	57	8	15.504	0	2	0	1227.5	34.9'	34.1'	122'
7	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	737	240	66.2	6	11.68	0	0	1	1475.7	34.4'	35'	123'
7	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H6	Panel	1900	240	61.1	6	14.53	0	0	1	4842.1	34.4'	35'	123'
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	737	240	66.2	6	11.68	0	0	1	2951.4	34'	35.6'	123'
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H6	Panel	2300	240	61.1	6	14.53	0	0	1	1285.3	34'	35.6'	123'

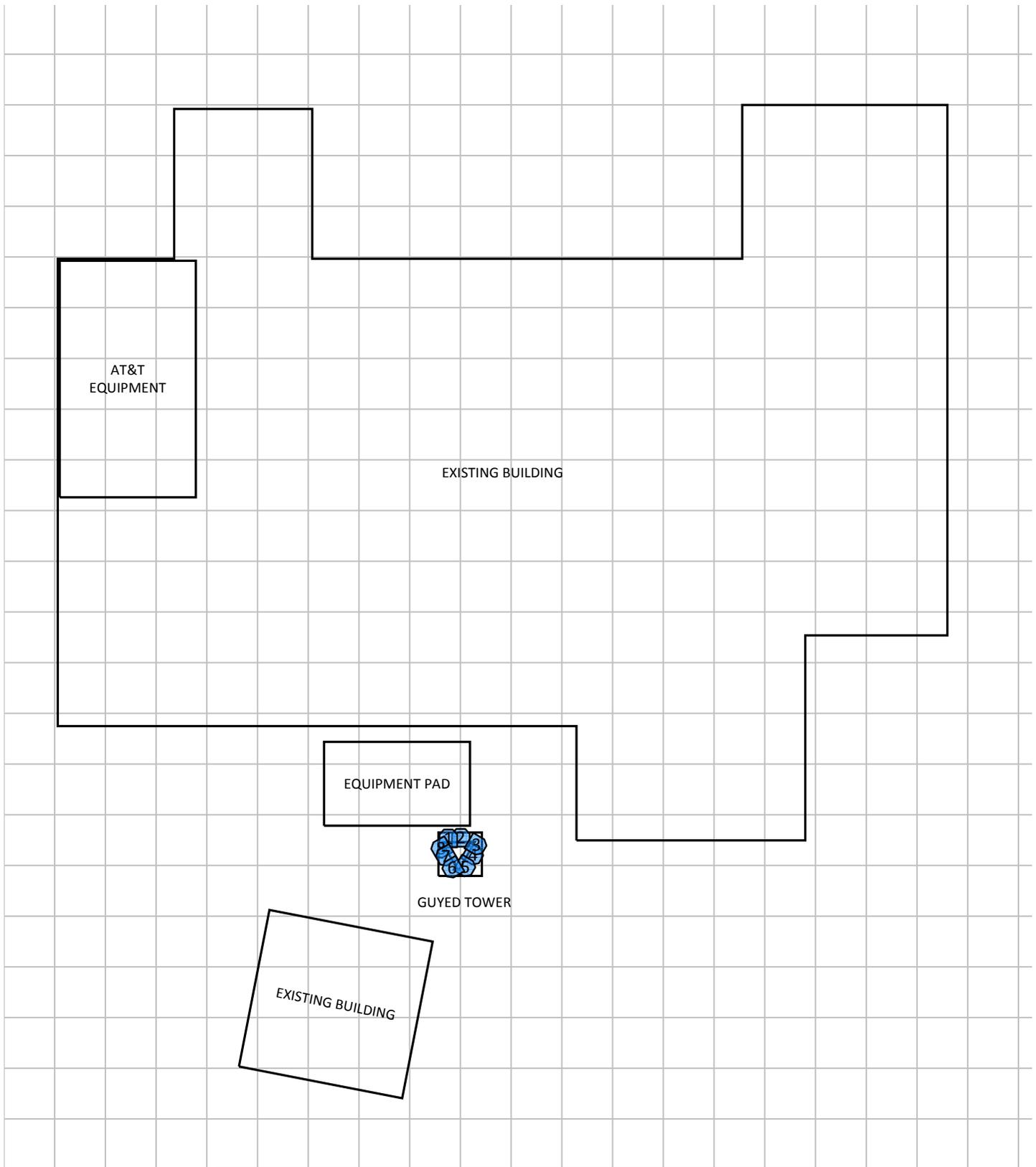
NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

4 Emission Predictions

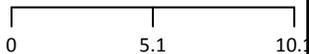
In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas.

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: Tolland West



(Feet)

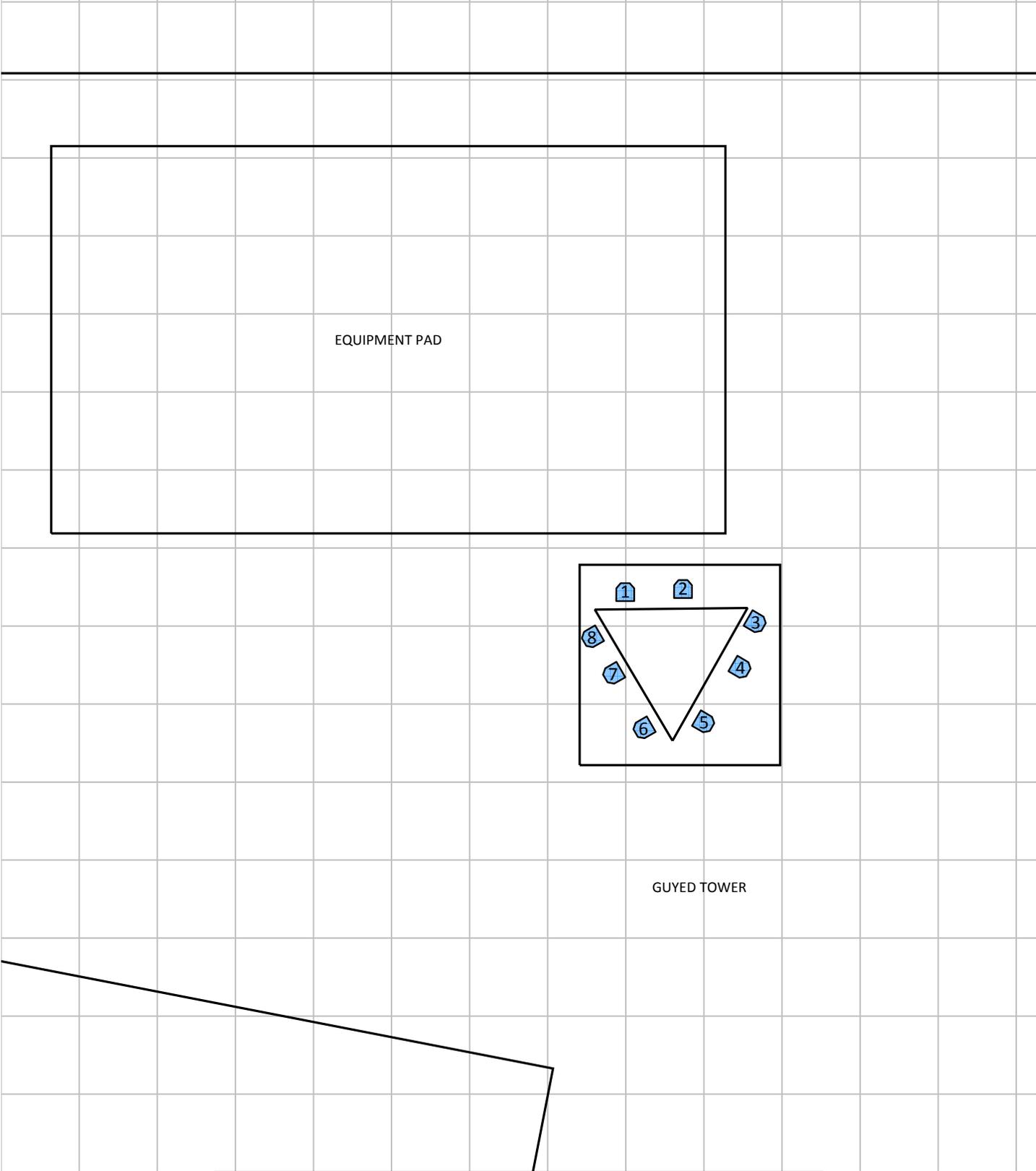


www.sitesafe.com
 Site Name:Tolland West
 2/15/2018 3:14:52 PM

% of FCC Public Exposure Limit				
>= 5000	>= 500	>= 100	>= 5	< 5
Carrier Identification				
● AT&T MOBILITY LLC	● VERIZON WIRELESS	● T-MOBILE	● SPRINT	○ UNKNOWN CARRIER
Barrier —		Proposed Barriers/ Signs - - - -		

SitesafeTC Version:1.0.0.0 - 0.0.0.267
 Sitesafe OET-65 Model
 Near Field Boundary: 1.5 * Aperture
 Reflection Factor: 1
 Single Level (0)

RF Exposure Simulation For: Tolland West Alpha, Beta, and Gamma Detailed View



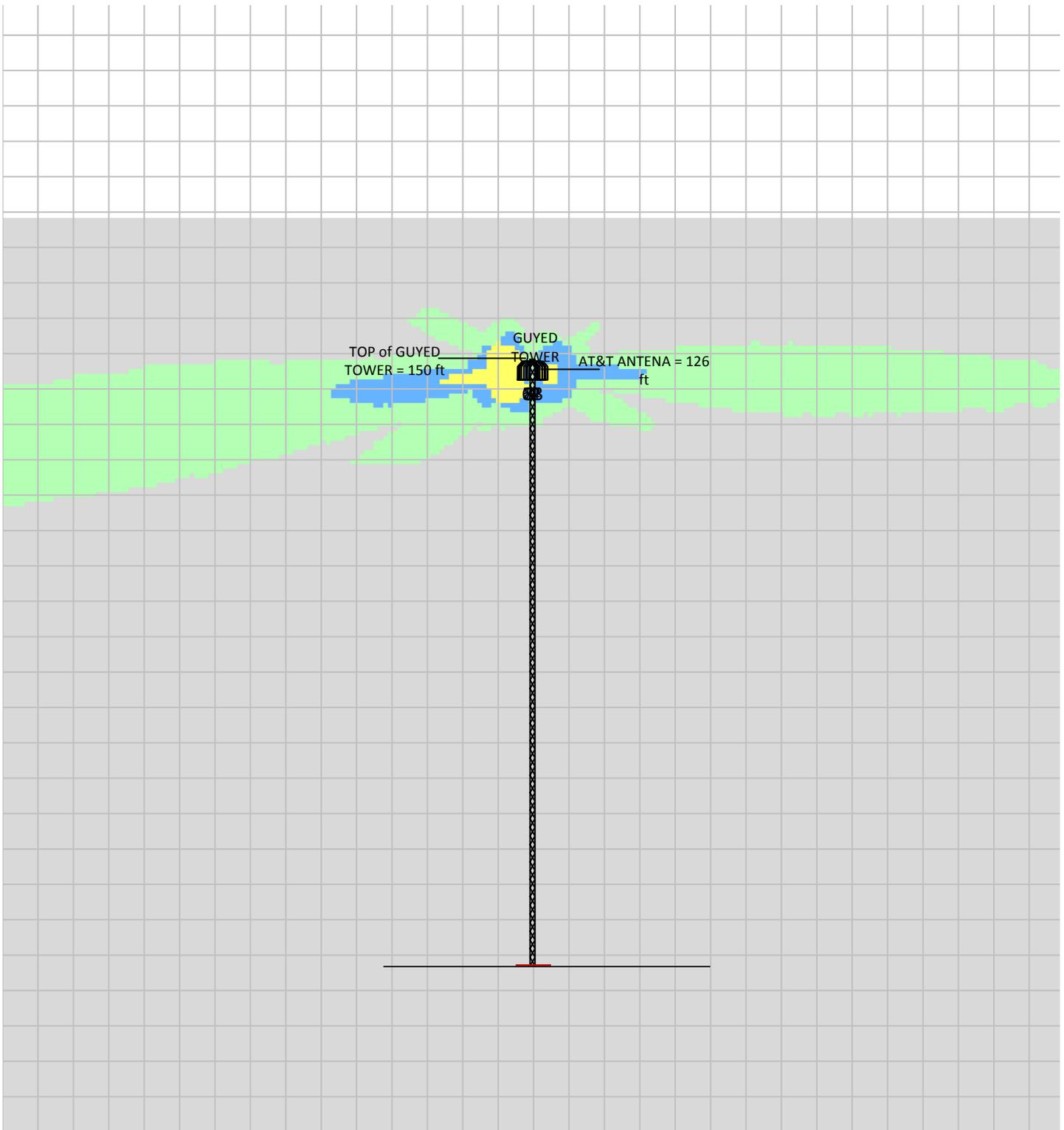
(Feet)

0 1.1
www.sitesafe.com
Site Name:Tolland West
2/15/2018 3:30:29 PM

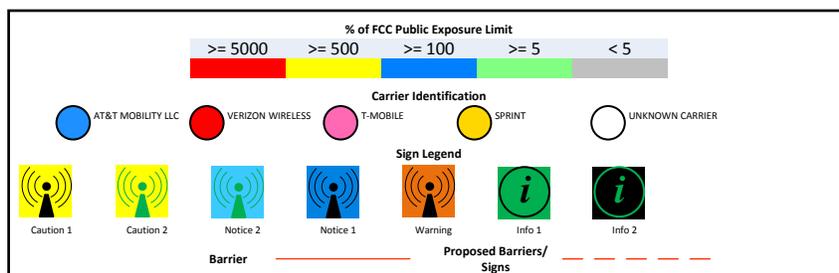
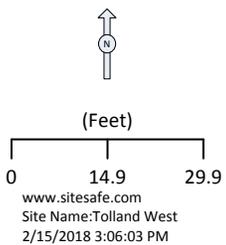
% of FCC Public Exposure Limit				
≥ 5000	≥ 500	≥ 100	≥ 5	< 5
Carrier Identification				
AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	SPRINT	UNKNOWN CARRIER
Sign Legend				
Caution 1	Caution 2	Notice 2	Notice 1	Warning
			Info 1	Info 2
Barrier		Proposed Barriers/ Signs		

SitesafeTC Version:1.0.0.0 - 0.0.0.267
Sitesafe OET-65 Model
Near Field Boundary: 1.5 * Aperture
Reflection Factor: 1
Single Level (0)

RF Exposure Simulation For: Tolland West Site View



% of FCC Public Exposure Limit
Spatial average 0' - 6'



5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Site Access Location

Gate Access - Information 1 sign required.

Tower Access Climbing Pegs – Caution 2 required

6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Sitesafe, Inc., in Arlington, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Scott Broyles.

February 19, 2018

Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 (“OET Bulletin 65”), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

FCC regulations define two separate tiers of exposure limits: Occupational or “Controlled environment” and General Public or “Uncontrolled environment”. The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

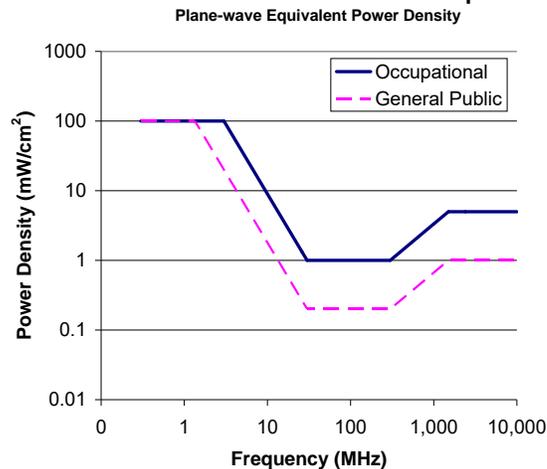
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:

FCC Limits for Maximum Permissible Exposure (MPE)



Limits for Occupational/Controlled Exposure (MPE)

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

Limits for General Population/Uncontrolled Exposure (MPE)

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

f = frequency in MHz

*Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. **Gray represents areas more than 20 times below the most conservative exposure limit.**
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers.**
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.**
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where exposure to RF energy may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The maximum levels of RF exposure a person may be exposed to without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the

potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency (RF) – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

Radio Frequency Exposure (RFE) – The amount of RF power density that a person is or might be exposed to.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average power density an average sized human will be exposed to at a location.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix F – References

The following references can be followed for further information about RF Health and Safety.

Sitesafe, Inc.

<http://www.sitesafe.com>

FCC Radio Frequency Safety

<http://www.fcc.gov/encyclopedia/radio-frequency-safety>

National Council on Radiation Protection and Measurements (NCRP)

<http://www.ncrponline.org>

Institute of Electrical and Electronics Engineers, Inc., (IEEE)

<http://www.ieee.org>

American National Standards Institute (ANSI)

<http://www.ansi.org>

Environmental Protection Agency (EPA)

<http://www.epa.gov/radtown/wireless-tech.html>

National Institutes of Health (NIH)

<http://www.niehs.nih.gov/health/topics/agents/emf/>

Occupational Safety and Health Agency (OSHA)

<http://www.osha.gov/SLTC/radiofrequencyradiation/>

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

<http://www.icnirp.org>

World Health Organization (WHO)

<http://www.who.int/peh-emf/en/>

National Cancer Institute

<http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones>

American Cancer Society (ACS)

http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?sitearea=PED

European Commission Scientific Committee on Emerging and Newly Identified Health Risks

http://ec.europa.eu/health/ph_risk/committees/04_scenihp/docs/scenihp_o_022.pdf

Fairfax County, Virginia Public School Survey

<http://www.fcps.edu/fts/safety-security/RFEESurvey/>

UK Health Protection Agency Advisory Group on Non-ionising Radiation

http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368

Norwegian Institute of Public Health

<http://www.fhi.no/dokumenter/545eea7147.pdf>

2016		\$180,000
2015		\$228,980
2014		\$228,980

Assessment		
Valuation Year	Improvements	Land
2016		\$126,000
2015		\$228,980
2014		\$228,980

(c) 2016 Vision Government Solution: