



Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

October 27, 2016

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

RE: Notice of Exempt Modification for AT&T/ LTE 3C Crown Site BU: 801367
AT&T Site ID: CT5263
1121 Summit Road, Cheshire, CT 06410
Latitude: 41° 32' 11.2" / Longitude: -72° 57' 26.3"

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 160-foot level of the existing 167-foot monopole tower at 1121 Summit Road in Cheshire, CT. The tower is owned by Crown Castle. The property is owned by Thomas & M. Joanne Didomizio. AT&T now replace three (3) antennas with three (3) CCI antennas. These antennas would be placed at the 160-foot level of the tower. AT&T also intends to install three (3) RRU-32s, two (2) DC, one (1) fiber, and six (6) triplexers.

This facility was approved by the by the Connecticut Siting Council in Docket No. 199 on April 12, 2001. This approval included the conditions that:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T, Voicestream, Sprint, the Town of Cheshire and other entities, both public and private, but such tower shall not exceed a height of 170 feet above ground level.

This modification complies with the aforementioned condition(s).

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to Mr. Robert Oris, Chairman – Town Council, Town of Cheshire, as well as the property owner, and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.

Melanie A. Bachman

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3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-729-0053
Jeff.Barbadora@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes

Tab 2: Exhibit-2: Structural Modification Report

Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc:

Mr. Robert Oris, Chairman – Town Council
Town of Cheshire
84 South Main Street, Cheshire, CT 06410

Thomas & M. Joanne Didomizio
1119 Summit Road
Cheshire, CT 06410



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Robert Stein
Chairman

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[Robert Stein](#)
Chairman

Melanie Bachman,
Acting Executive Director

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<p>DOCKET NO. 199 - Crown Atlantic Company LLC and Cellco Partnership d/b/a Verizon Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at 1119 Summit Road, Cheshire, Connecticut.</p>	Connecticut } Siting } Council } April 12, 2001
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Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility at the proposed alternate site in Cheshire, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Crown Atlantic Company LLC and Cellco Partnership d/b/a Verizon Wireless for the construction, maintenance and operation of a cellular telecommunications facility at the proposed alternate site located at 1119 Summit Road, Cheshire, Connecticut. We deny certification of the proposed prime site located at 1119 Summit Road, Cheshire, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T, Voicestream, Sprint, the Town of Cheshire and other entities, both public and private, but such tower shall not exceed a height of 170 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include the location and specifications for the tower, tower foundation, antennas, a single equipment building capable to house all proposed users including the Town of Cheshire, security fence, access road, utility line, and landscaping plan. The D&M Plan shall also include construction plans to be submitted prior to construction for site clearing, water drainage, and erosion and sedimentation control consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and ceases to function.

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8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in [The Hartford Courant](#), [The Cheshire Herald](#), [The Waterbury Republican-American](#) and [The Record Journal](#).

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Crown Atlantic Company LLC Robert Stanford, Project Manager
And Cellco Partnership d/b/a Crown Atlantic Company LLC
Verizon Wireless 703 Hebron Avenue
Glastonbury, CT 06033

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

AT&T Wireless Services, Inc. Anthony B. Gioffre III, Esq.
Cuddy & Feder & Worby
90 Maple Avenue
White Plains, NY 10601

Content Last Modified on 10/9/2002 1:52:54 PM

Ten Franklin Square New Britain, CT 06051 / 860- 827-2935

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The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2013.



Town of Cheshire

The bedding plant capital of Connecticut

Information on the Property Records for the Municipality of Cheshire was last updated on 10/27/2016.

Parcel Information

Location:	1119 SUMMIT RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00087800	Map Block Lot:	24 2	Acres:	22.52
Zone:	R-80	Volume / Page:	0798/0074	Developers Map / Lot:	15809
Census:	3432				

Value Information

	Appraised Value	70% Assessed Value
Land	377,245	264,070
Buildings	311,951	218,370

	Appraised Value	70% Assessed Value
Detached Outbuildings	6,370	4,460
Total	695,566	486,900

Owner's Information

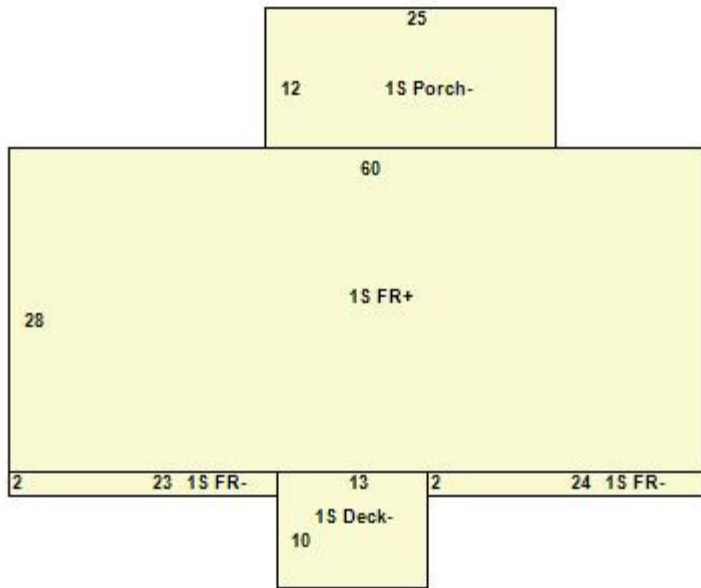
Owner's Data

DIDOMIZIO JOANNE M
1115 SUMMIT RD
CHESHIRE CT 06410

Building 1



0087800 03/08/2012



Building Use:	Single Family	Style:	Raised Ranch	Living Area:	1,774
Stories:	1.00	Construction:	Wood Frame	Year Built:	1990
Total Rooms:	7	Bedrooms:	2	Full Baths:	3
Heating:	FHA	Fireplaces:	0	Half Baths:	1
Fuel:	Oil	Cooling Percent:	0%	Basement Area:	1,680

Basement Finished Area:	840	Basement Garages:	2	Roof Material:	Asphalt
Siding:	Clapboards				

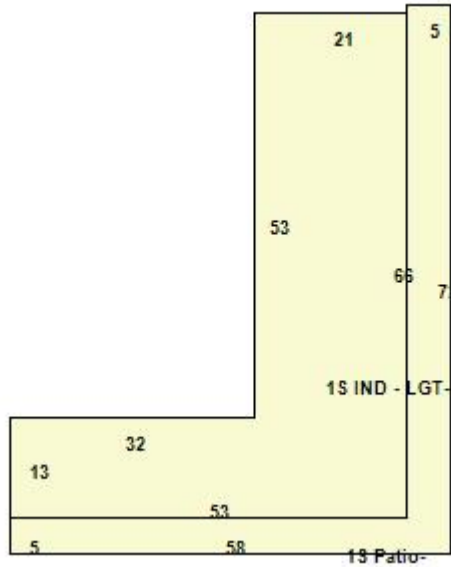
Special Features

Whirlpool	1
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Attached Components

Type:	Year Built:	Area:
Wood Deck	1990	130
Open Porch	1990	300

Building 2



Category:	Industrial	Use:	Light Industrial	Stories:	1.00
Above Grade:	1,802	Below Grade:	0	Below Grade Finish:	0
Construction:	Good	Year Built:	2002	Heating:	
Fuel:		Cooling Percent:	0%	Siding:	Stone
Roof Material:		Beds/Units:	0		

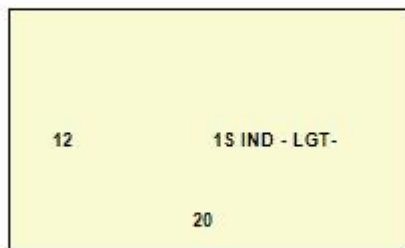
Special Features

Attached Components

Type:	Year Built:	Area:
Concrete Patio	2002	625

Building 3

Photo Not Available



Category:	Industrial	Use:	Light Industrial	Stories:	1.00
Above Grade:	240	Below Grade:	0	Below Grade Finish:	0

Construction:	Good	Year Built:	2004	Heating:	
Fuel:		Cooling Percent:	0%	Siding:	Concrete Block
Roof Material:		Beds/Units:	0		

Special Features

Attached Components

Detached Outbuildings

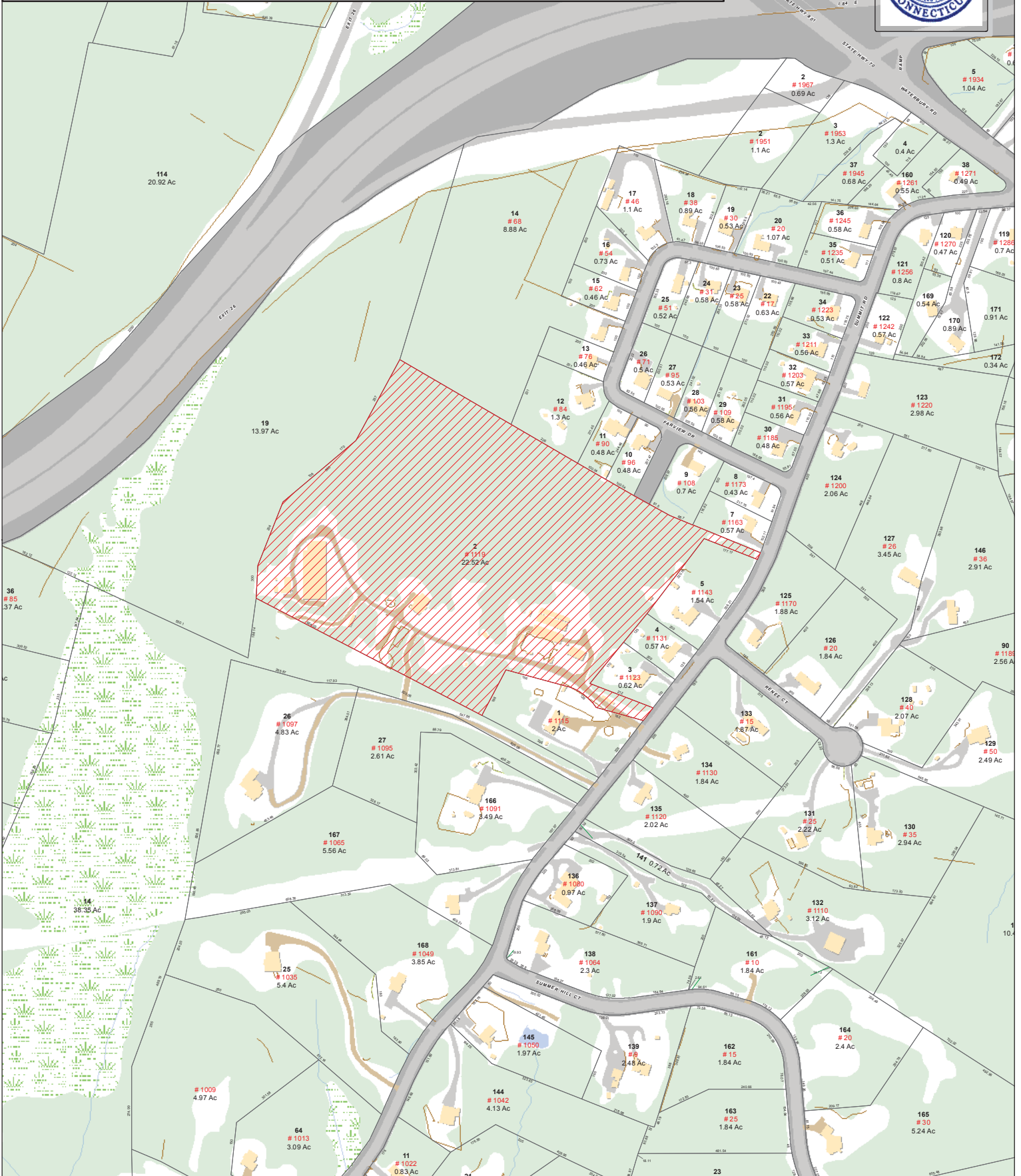
Type:	Year Built:	Length:	Width:	Area:
Fencing	2002			1,600

Information Published With Permission From The Assessor

Town of Cheshire, Connecticut - Assessment Parcel Map

Unique ID: 00087800

Address: 1119 SUMMIT RD



Approximate Scale:

1 inch = 400 feet

Disclaimer:

This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Cheshire and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Produced January 2016



PROJECT: LTE 3C / MULTI CARRIER
SITE NUMBER: CTL05263
FA NUMBER: 10090892
PTN NUMBER: 2051A060CG
PACE NUMBER: MRCTB018118 / MRCTB018555
CROWN BU#: 801367
SITE NAME: CHESHIRE LARSENS POND
SITE ADDRESS: CHESHIRE LARSENS POND
 CHESHIRE, CT 06410



PROJECT INFORMATION

SITE NAME: CHESHIRE LARSENS POND
SITE NUMBER: CTL05263
SITE ADDRESS: CHESHIRE LARSENS POND, CHESHIRE, CT 06410
FA NUMBER: 10090892
PTN NUMBER: 2051A060CG
PACE NUMBER: MRCTB018118 / MRCTB018555
USID NUMBER: 26259
CROWN BU#: 801367
APPLICANT: AT&T WIRELESS, 550 COCHITUATE ROAD SUITE 550 13 AND 14, FRAMINGHAM, MA 01701
TOWER OWNER: CROWN CASTLE INTERNATIONAL, 12 GILL STREET, SUITE 5800, WOBURN, MA 01801
JURISDICTION: CONNECTICUT SITING COUNCIL
COUNTY: NEW HAVEN (RFDS)
SITE COORDINATES FROM: 41.536373°
LATITUDE: -72.95721°
LONGITUDE: 630'
GROUND ELEV.: TELECOMMUNICATIONS FACILITY
PROPOSED USE:
AT&T RF MANAGER: CAMERON SYME
PHONE: (508) 596-7146
EMAIL: cs6970@att.com

SCOPE OF WORK

LTE WCS WILL BE 3C/MULTI CARRIER AT THE SITE WITH BRONZE CONFIGURATION. PROPOSED 3C/MULTI CARRIER PROJECT SCOPE HEREIN BASED ON RFDS ID # 1107656, VERSION 1.00 LAST UPDATED 03/11/16 & RFDS ID # 11070239, VERSION 1.00 LAST UPDATED 04/15/16.

- (3) NEW ANTENNAS TO REPLACE (3) EXISTING ANTENNAS
- (6) NEW RRUS-32
- (1) NEW DC-6 FIBER SQUID
- (1) FIBER CABLE AND (2) DC POWER CABLES
- (12) NEW TRIPLEXERS (6 TOP / 6 BOTTOM)
- (2) NEW DUS
- (1) NEW XMU CARD

• 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: 2003 INTERNATIONAL BUILDING CODE
ELECTRICAL CODE: 2011 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	07/08/16	90% REVIEW	VV
1	08/22/16	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWING 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 RANGWAY ROAD, SUITE 102, NORTH BILLERICA, MA 01862, RYAN BURGENDORFER (508) 665-8005, Ryan.Burgdorfer@Smartlinkllc.com
CONTACT: RYAN BURGENDORFER (508) 665-8005, Ryan.Burgdorfer@Smartlinkllc.com
EMAIL: Ryan.Burgdorfer@Smartlinkllc.com
SITE ACQUISITION: SMARTLINK, 85 RANGWAY ROAD, SUITE 102, NORTH BILLERICA, MA 01862, SHARON KEEFE (978) 930-3918, Sharon.Keefe@Smartlinkllc.com
CONTACT: SHARON KEEFE (978) 930-3918, Sharon.Keefe@Smartlinkllc.com
EMAIL: Sharon.Keefe@Smartlinkllc.com
ENGINEER/ARCHITECT: FULLERTON ENGINEERING, 1100 E. WOODFIELD ROAD, SUITE 500, SCHAUMBURG, IL 60173, MILEN DIMITROV (847) 908-8439, MDimitrov@fullertonengineering.com
CONTACT: MILEN DIMITROV (847) 908-8439, MDimitrov@fullertonengineering.com
EMAIL: MDimitrov@fullertonengineering.com
CONSTRUCTION: SMARTLINK, 85 RANGWAY ROAD, SUITE 102, NORTH BILLERICA, MA 01862, MARK DONNELLY (617) 515-2080, mark.donnelly@smartlinkllc.com
CONTACT: MARK DONNELLY (617) 515-2080, mark.donnelly@smartlinkllc.com
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
CHESHIRE LARSENS POND

SITE NUMBER:
CTL05263
CROWN BU# 801367

SITE ADDRESS
CHESHIRE LARSENS POND
CHESHIRE, CT 06410

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 PROJECT, ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

GENERAL CONSTRUCTION

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR/CM – SMARTLINK
OWNER – AT&T WIRELESS
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. 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.
4. 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.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. 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.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. 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.
10. 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.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. 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.
13. 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.
14. 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.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. 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.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.

20. 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.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OR 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. 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.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. 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).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. 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.
36. 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.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. 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.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.

ANTENNA MOUNTING

40. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.

41. 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.
42. 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.
43. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
44. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
45. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
46. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
47. 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.
48. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
49. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
50. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.

TORQUE REQUIREMENTS

51. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
52. 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

53. 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.
54. 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.
55. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

62. 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.
63. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
64. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.
65. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".

66. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
67. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
68. 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.
69. 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.
70. 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

71. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMA'S, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
72. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
73. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
74. 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.
75. 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
76. 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.
77. 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
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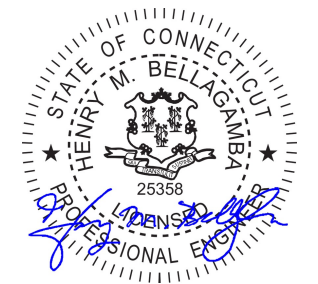
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SITE NAME
**CHESHIRE
LARSENS POND**

SITE NUMBER:
**CTL05263
CROWN BU# 801367**

SITE ADDRESS
**CHESHIRE LARSENS POND
CHESHIRE, CT 06410**

SHEET NAME
**NOTES AND
SPECIFICATIONS**

SHEET NUMBER
SP1

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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.

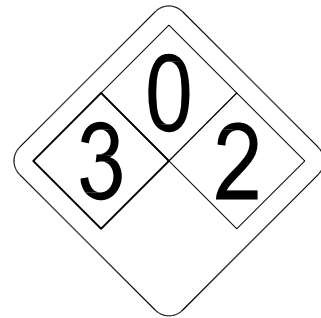
Ref: 47CFR 1.1307(b)

CAUTION

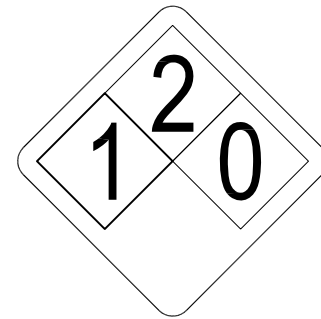
Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC Occupational Exposure Limits.

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

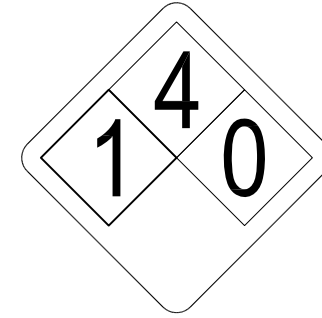
Ref: 47CFR 1.1307(b)



ALERTING SIGN
(FOR CELL SITE BATTERIES)



ALERTING SIGN
(FOR DIESEL FUEL)



ALERTING SIGN
(FOR PROPANE)



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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

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 número _____

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 # _____

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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			
RADIATION AREA IS BEYOND 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X	DIAGONAL, YELLOW STRIPING AS TO ROOFVIEW GRAPH		EITHER NOTICE OR CAUTION SIGN (BASED ON ROOFVIEW RESULTS) AT ANTENNA /BARRIER
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

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.

INFO SIGN #1

INFO SIGN #2

INFO SIGN #3

SIGNAGE GUIDELINES CHART

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CROWN BU# 801367**

SITE ADDRESS
**CHESHIRE LARSENS POND
CHESHIRE, CT 06410**

SHEET NAME
NOTES AND SPECIFICATIONS

SHEET NUMBER
SP2



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SUITE 550 13 AND 14
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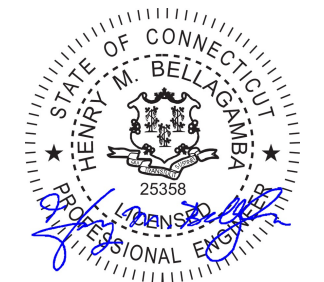
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SHEET NAME
COMPOUND PLAN

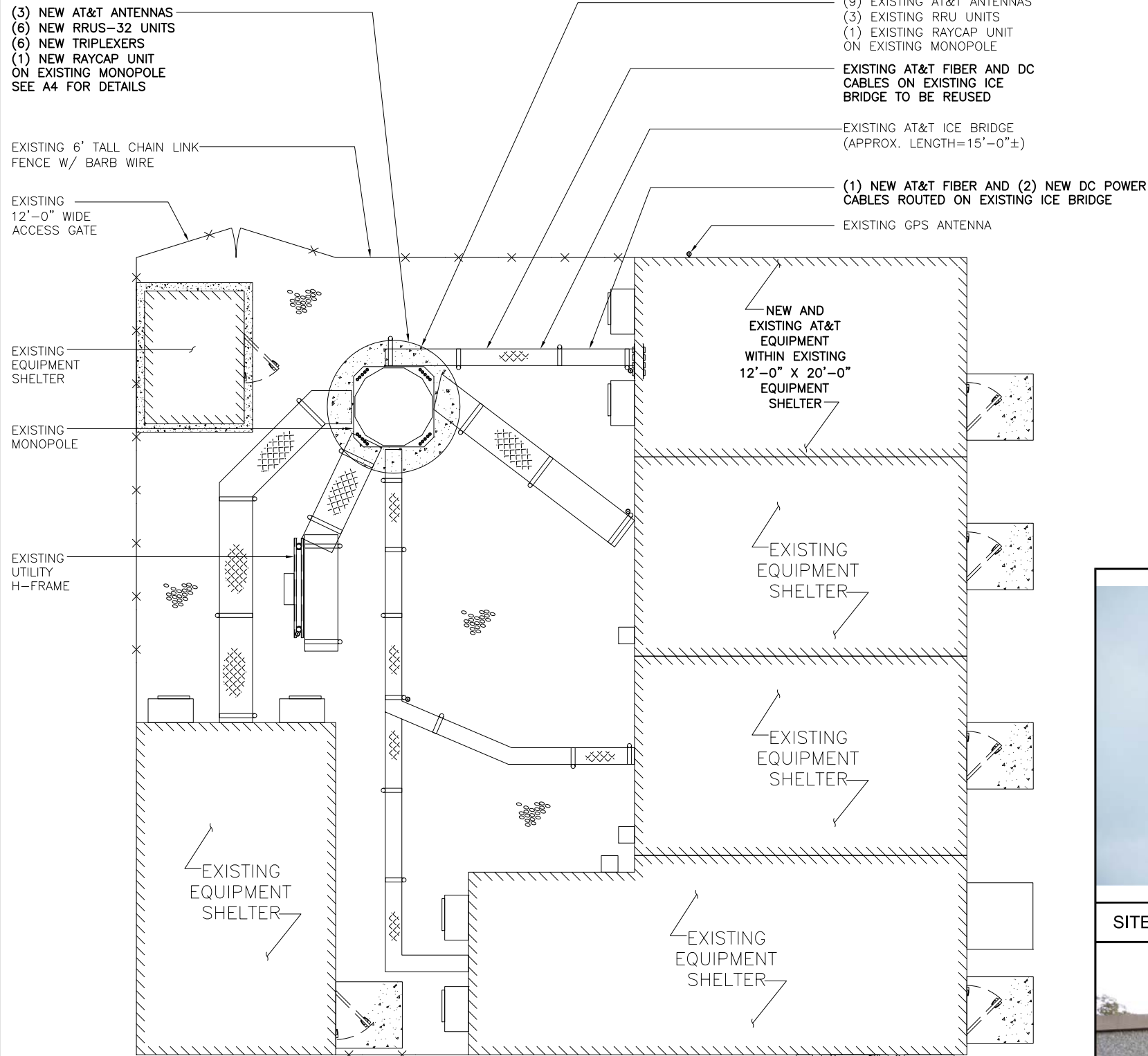
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ABBREVIATIONS

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
C	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 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



COMPOUND PLAN

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



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



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

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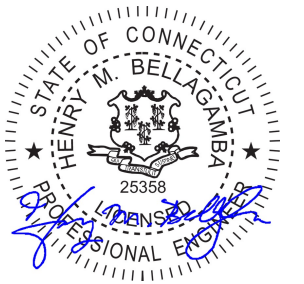
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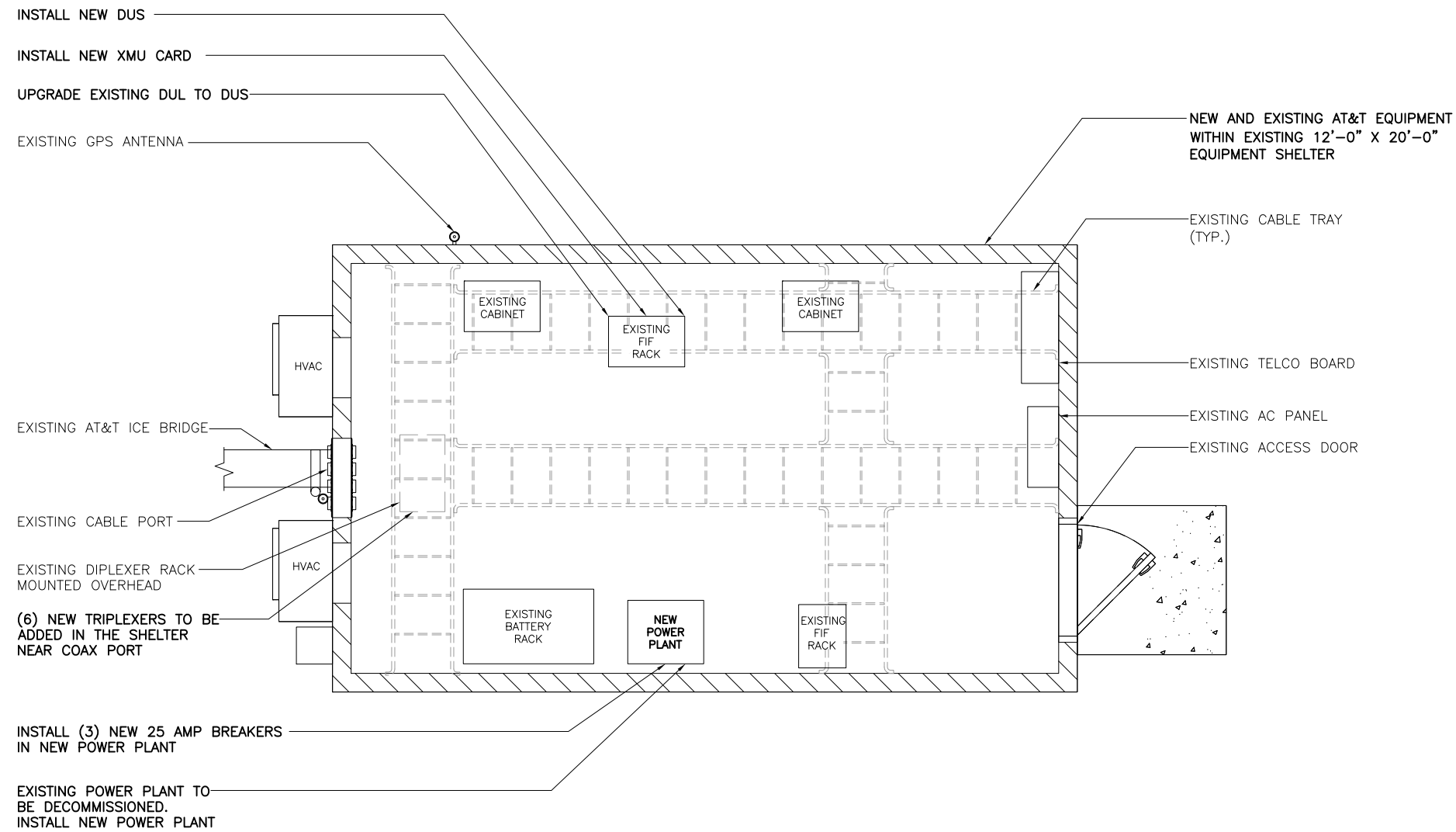
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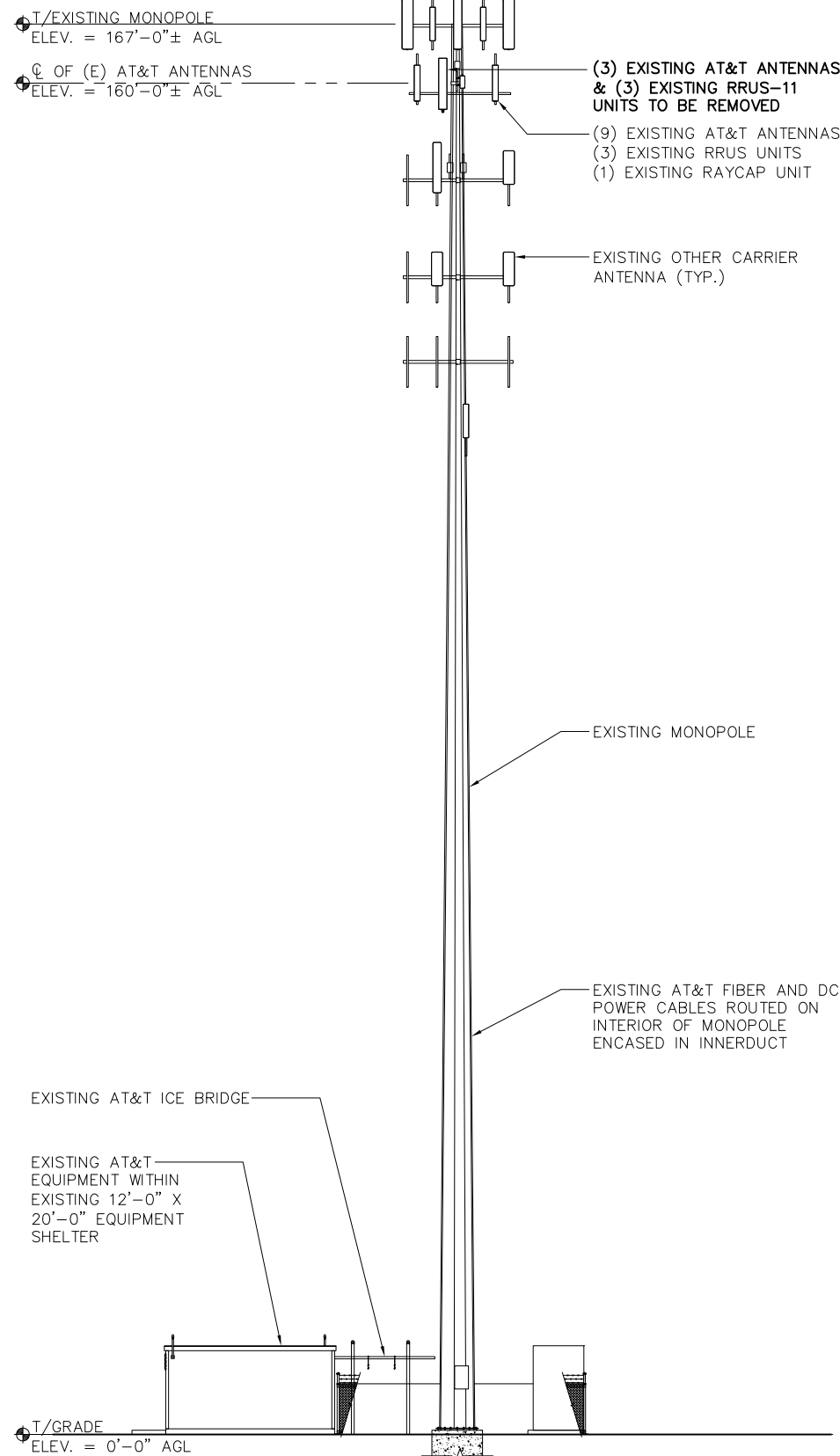
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CHESHIRE, CT 06410**

SHEET NAME
**EQUIPMENT
PLAN**

SHEET NUMBER
A2



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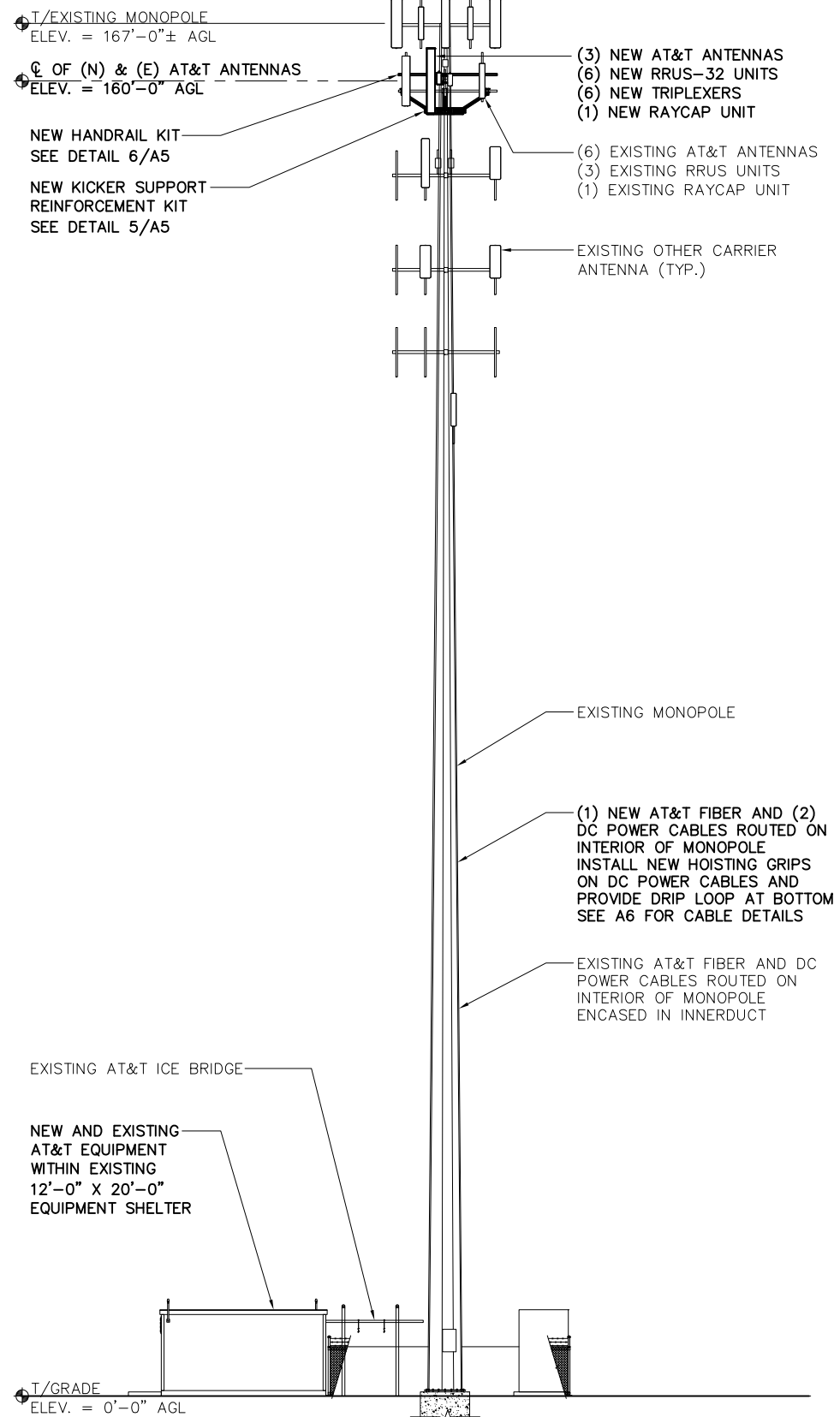
NOTES:

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

EXISTING ELEVATION

SCALE: 1" = 20'-0"

1



NOTES:

1. ALL EQUIPMENT (ANTENNAS, LINES, ETC.) TO BE INSTALLED IN ACCORDANCE WITH PASSING STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE.
2. TAPE DROP FORMS AND PHOTOGRAPHS TO BE SUBMITTED PER CCI AND AT&T CLOSEOUT REQUIREMENTS.

NEW ELEVATION

SCALE: 1" = 20'-0"

2



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CHESHIRE LARSENS POND

SITE NUMBER:
CTL05263 CROWN BU# 801367

SITE ADDRESS
CHESHIRE LARSENS POND CHESHIRE, CT 06410

SHEET NAME
ELEVATIONS

SHEET NUMBER
A3



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



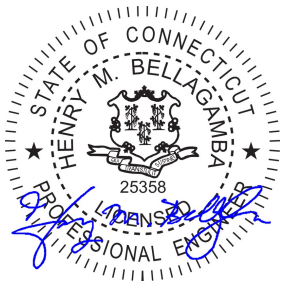
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HANOVER, MD 21076



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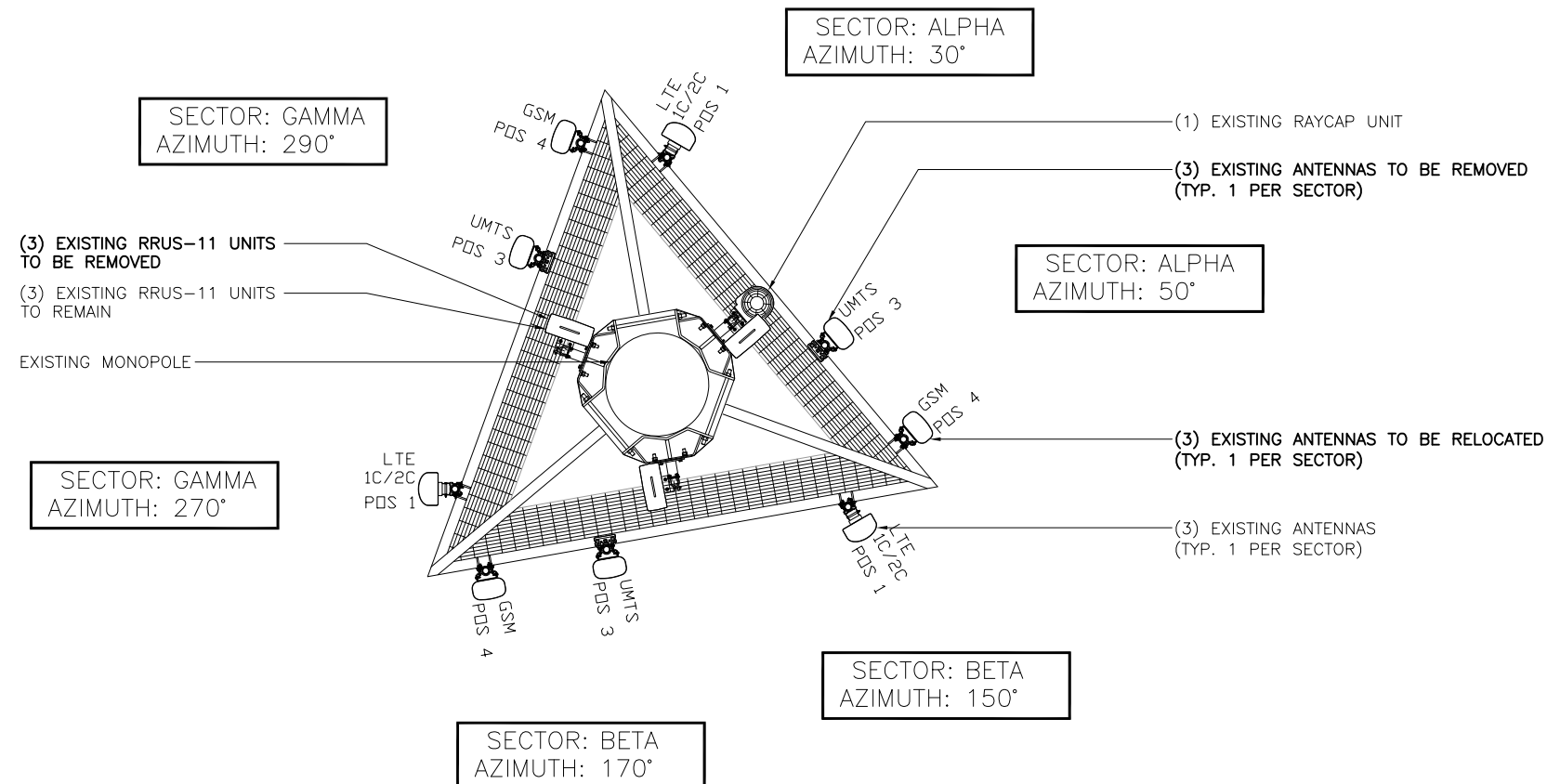
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CROWN BU# 801367**

SITE ADDRESS
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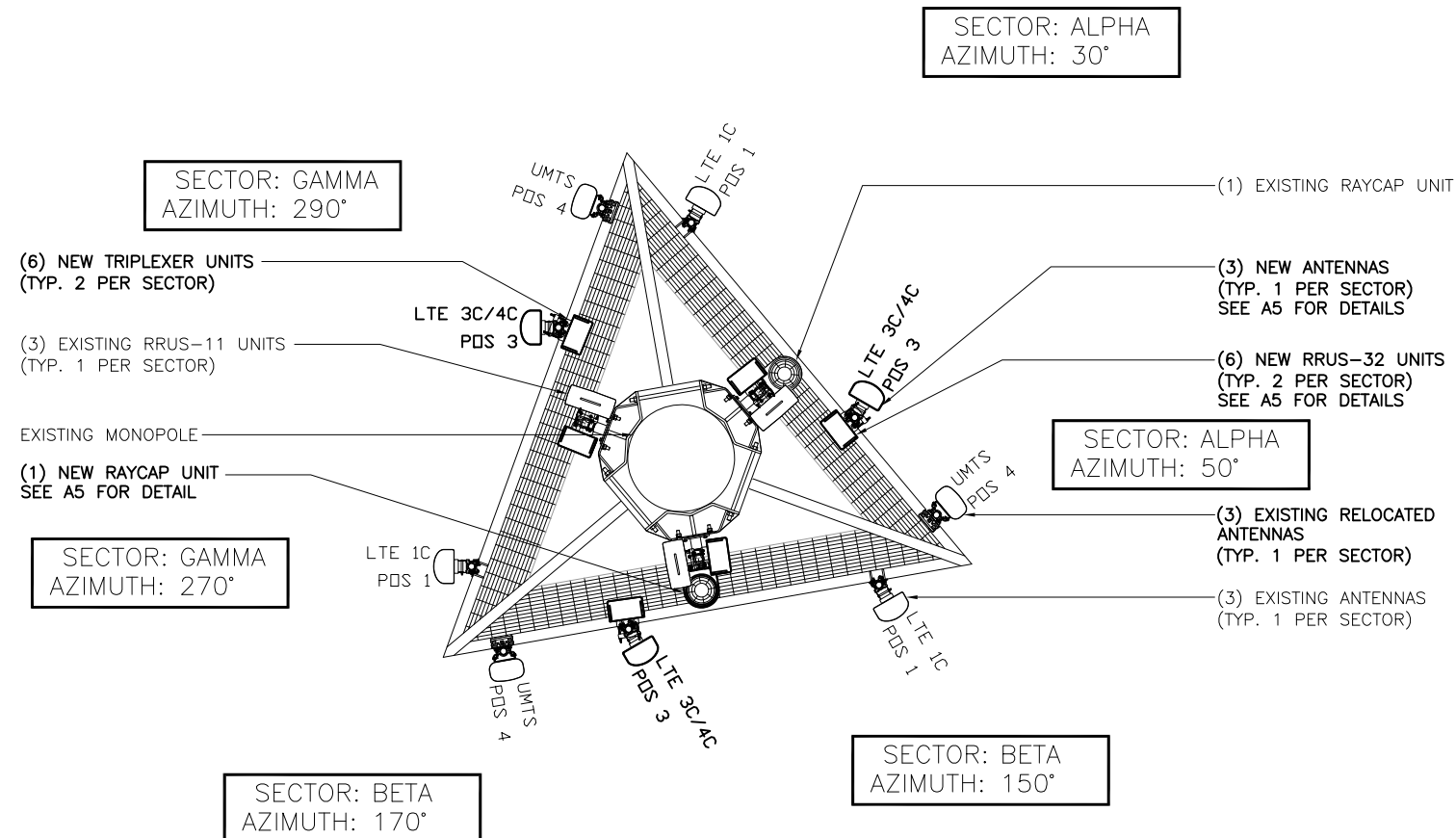
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ANTENNA PLANS

SHEET NUMBER
A4



EXISTING ANTENNA PLAN

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



FINAL ANTENNA PLAN

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

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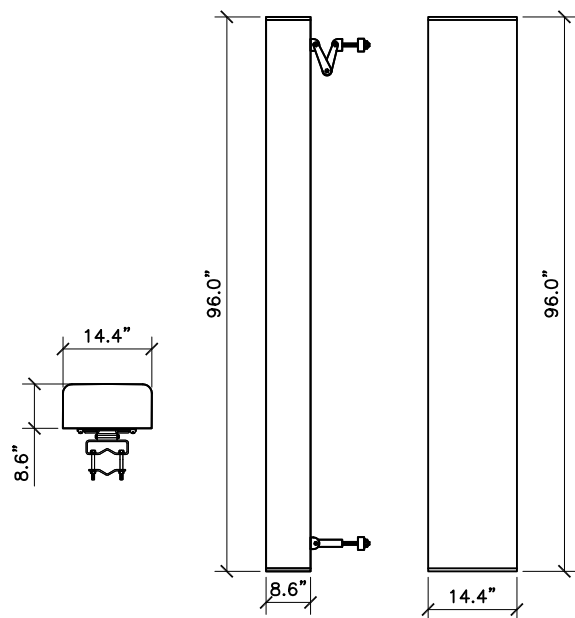
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CROWN BU# 801367**

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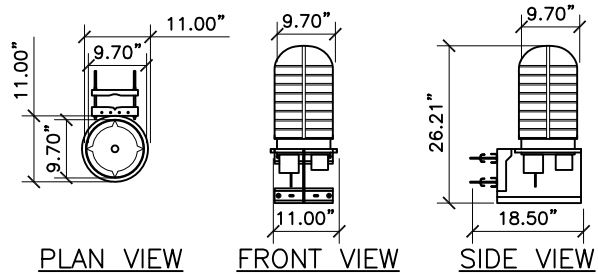
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EQUIPMENT DETAILS

SHEET NUMBER
A5



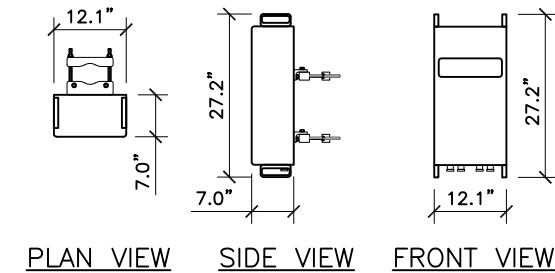
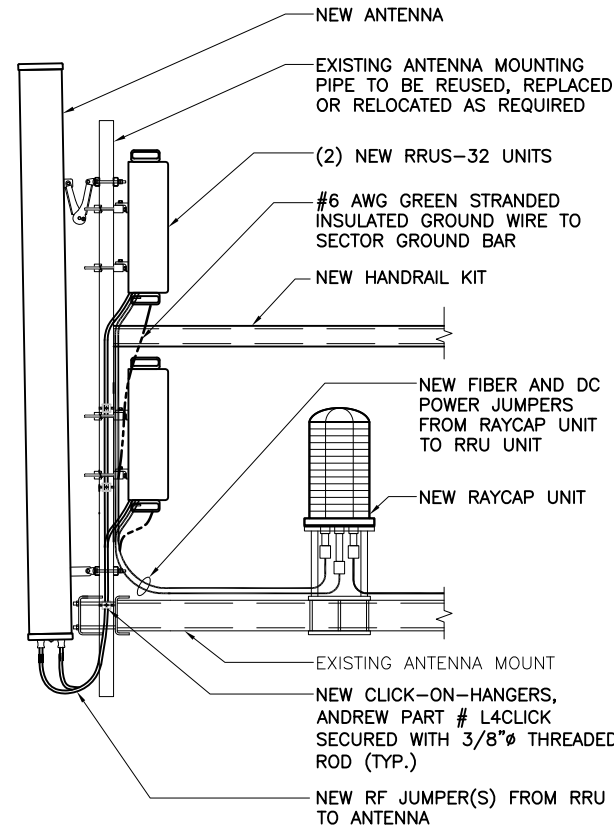
PLAN VIEW SIDE VIEW FRONT VIEW

TPA-65R-LCUUU-H8
12-PORT MULTI-BAND ANTENNA
FREQUENCY RANGE 698-798 MHz
824-896 MHz
1850-1990 MHz
1695-1780/2110-2180 MHz
2305-2360 MHz
ANTENNA WITH BRACKET 75 Lbs
85 Lbs



PLAN VIEW FRONT VIEW SIDE VIEW

RAYCAP - DC6-48-60-18-8F
TOWER DC OVER VOLTAGE PROTECTION POWER CONNECTION SOLUTION
UNIT WEIGHT 32.8 Lbs



PLAN VIEW SIDE VIEW FRONT VIEW

ERICSSON - RRUS 32 B30

UNIT WEIGHT 60 Lbs

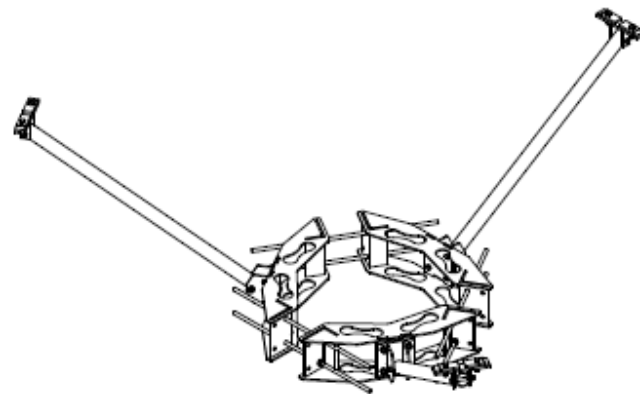
ANTENNA SPEC SCALE: N.T.S. 1

RAYCAP SPEC SCALE: N.T.S. 2

ANTENNA SCHEMATIC SCALE: N.T.S. 3

RRU SPEC SCALE: N.T.S. 4

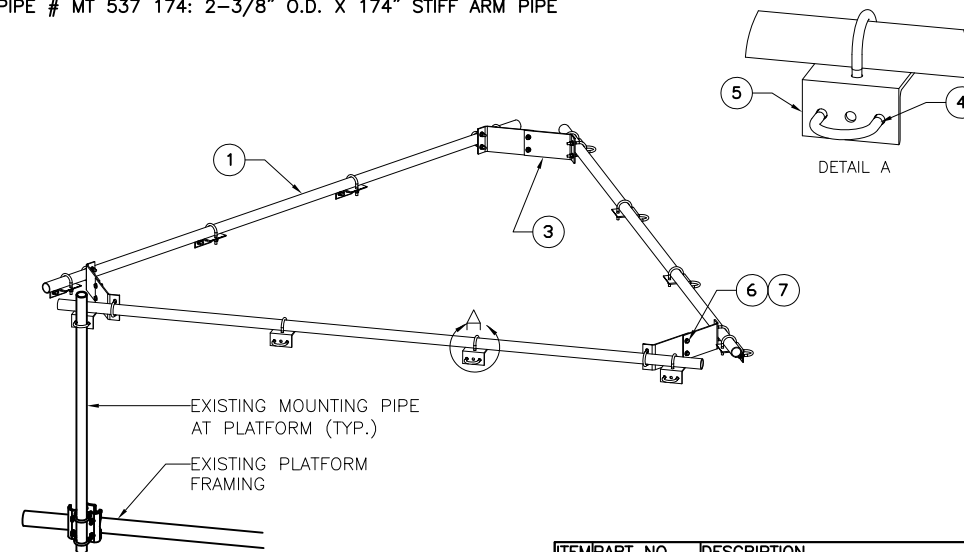
PRODUCT INFORMATION:
MFR: COMMSCOPE
P/N: MTC3791 SERIES OR APPROVED EQUIVALENT



ITEM PART NO.	DESCRIPTION	QTY.	WEIGHT
1	MT-XXX Ø 2-3/8" O.D. PIPE (SEE TABLE)	3	-
2	MT195HK HARDWARE KIT (ITEMS 3-7)	1	-
3	MT195.03 END PLATE	6	5.63 LBS
4	GUB-4240 1/2" X 2-1/2" X 4" GALV U-BOLT KIT	30	0.56 LBS
5	XA2020.01 CROSS OVER ANGLE	12	2.66 LBS
6	GB-04145 1/2" X 1-1/2" GALV BOLT KIT	6	0.13 LBS
7	GWFF-04 1/2" GALV FLAT WASHER	12	0.02 LBS

KICKER SUPPORT KIT DETAILS SCALE: N.T.S. 5

PRODUCT INFORMATION:
MFR: COMMSCOPE
P/N: MT-195 SERIES OR APPROVED EQUIVALENT
PRODUCT:
1. MT195 12
- PIPE # MT 651 150: 2-3/8" O.D. X 150" STIFF ARM PIPE
2. MT195 14
- PIPE # MT 537 174: 2-3/8" O.D. X 174" STIFF ARM PIPE



ITEM PART NO.	DESCRIPTION	QTY.	WEIGHT
1	MT-XXX Ø 2-3/8" O.D. PIPE (SEE TABLE)	3	-
2	MT195HK HARDWARE KIT (ITEMS 3-7)	1	-
3	MT195.03 END PLATE	6	5.63 LBS
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5	XA2020.01 CROSS OVER ANGLE	12	2.66 LBS
6	GB-04145 1/2" X 1-1/2" GALV BOLT KIT	6	0.13 LBS
7	GWFF-04 1/2" GALV FLAT WASHER	12	0.02 LBS

HANDRAIL KIT DETAILS SCALE: N.T.S. 6

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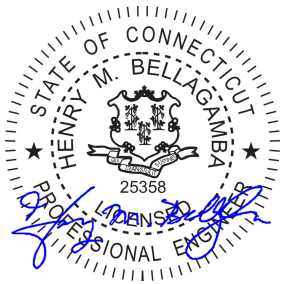
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SITE NAME
**CHESHIRE
LARSENS POND**

SITE NUMBER:
**CTL05263
CROWN BU# 801367**

SITE ADDRESS
**CHESHIRE LARSENS POND
CHESHIRE, CT 06410**

SHEET NAME
**ANTENNA &
CABLE
CONFIGURATION**

SHEET NUMBER
A6

**FINAL ANTENNA CONFIGURATION AND CABLE SCHEDULE
SUPPLIED BY AT&T WIRELESS, FROM RF CONFIG. DATED (3/11/16 & 04/15/16)**

SECTOR	ANTENNA NUMBER	ANTENNA STATUS & TYPE	ANTENNA MODEL NUMBER	ANTENNA VENDOR	TMA/RRU UNIT	AZIMUTH	ANTENNA CL FROM GROUND	CABLE FEEDER		RAYCAP UNIT
								TYPE	LENGTH	
ALPHA	A-1	(E) LTE 1C ANTENNA	SBNH-1D6565C	COMMSCOPE	(1) EXISTING RRUS-11 UNITS	30°	160'-0"	(1) EXISTING FIBER CABLE	210'-0"	(1) (E) DC6-48-60-18-8F UNIT (1) (N) DC6-48-60-18-8F UNIT
	A-2	-	-	-	-	-	-	-	-	
	A-3	(N) GSM/LTE 3C/4C ANTENNA	TPA-65R-LCUUUU-H8	CCI	(2) NEW RRUS-32 UNITS & (2) NEW TRIPLEXER UNITS	30°	160'-0"	SEE ANTENNA B-3 FOR CABLE TYPE AND LENGTH		
	A-4	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNIT	50°	160'-0"	1-5/8"φ LDF7-50A	210'-0"	
1-5/8"φ LDF7-50A								210'-0"		
BETA	B-1	(E) LTE 1C ANTENNA	SBNH-1D6565C	COMMSCOPE	(1) EXISTING RRUS-11 UNITS	150°	160'-0"	SEE ANTENNA A-1 FOR CABLE TYPE AND LENGTH		
	B-2	-	-	-	-	-	-	-		
	B-3	(N) GSM/LTE 3C/4C ANTENNA	TPA-65R-LCUUUU-H8	CCI	(2) NEW RRUS-32 UNITS & (2) NEW TRIPLEXER UNITS	150°	160'-0"	(2) 1-5/8"φ LDF7-50A	210'-0"	
								(1) NEW FIBER & (2) NEW DC POWER CABLES	210'-0"	
B-4	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNIT	170°	160'-0"	1-5/8"φ LDF7-50A	210'-0"		
							1-5/8"φ LDF7-50A	210'-0"		
GAMMA	C-1	(E) LTE 1C ANTENNA	SBNH-1D6565C	COMMSCOPE	(1) EXISTING RRUS-11 UNITS	270°	160'-0"	SEE ANTENNA A-1 FOR CABLE TYPE AND LENGTH		
	C-2	-	-	-	-	-	-	-		
	C-3	(N) GSM/LTE 3C/4C ANTENNA	TPA-65R-LCUUUU-H8	CCI	(2) NEW RRUS-32 UNITS & (2) NEW TRIPLEXER UNITS	270°	160'-0"	SEE ANTENNA B-3 FOR CABLE TYPE AND LENGTH		
								1-5/8"φ LDF7-50A	210'-0"	
C-4	(E) UMTS ANTENNA	7770	POWERWAVE	(2) EXISTING TMA UNIT	290°	160'-0"	1-5/8"φ LDF7-50A	210'-0"		
							1-5/8"φ LDF7-50A	210'-0"		

1. CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
2. 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.
3. CONTRACTOR SHALL VERIFY THE HEIGHT OF THE ANTENNA WITH THE AT&T WIRELESS PROJECT MANAGER.
4. VERIFY TYPE AND SIZE OF TOWER LEG PRIOR TO ORDERING ANY ANTENNA MOUNT.
5. UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY.
6. 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.
7. CONTRACTOR SHALL VERIFY ALL RF INFORMATION PRIOR TO CONSTRUCTION.
8. 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.
9. CABLE LENGTHS WERE DETERMINED BASED ON THE DESIGN DRAWING. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
10. 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.

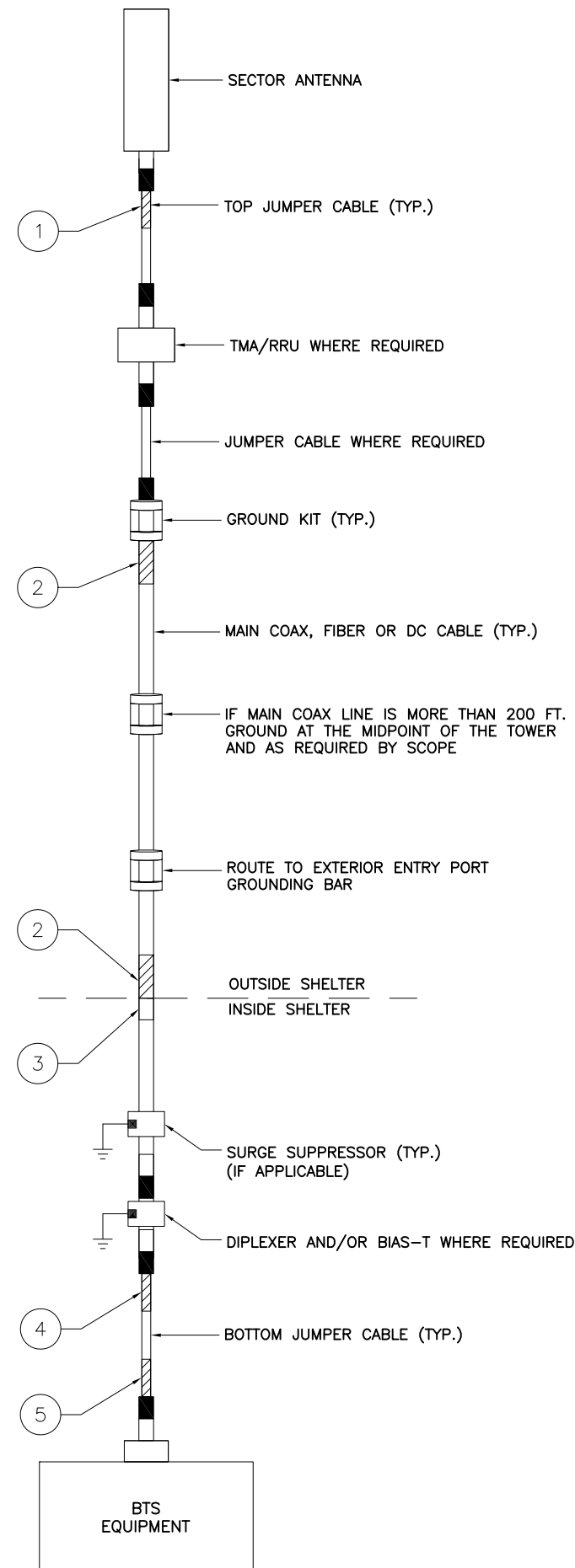
CABLE MARKING DIAGRAM

SCALE: N.T.S. 2

1. THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE.
2. 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.
3. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE COLOR CHART".
4. 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.
5. 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.
6. 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.
7. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
8. 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



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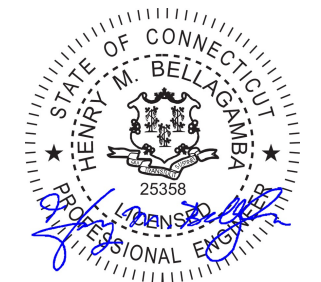
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SITE NUMBER:
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CROWN BU# 801367**

SITE ADDRESS
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CHESHIRE, CT 06410

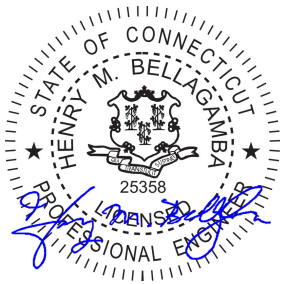
SHEET NAME
**CABLE NOTES
AND COLOR
CODING**

SHEET NUMBER
A7

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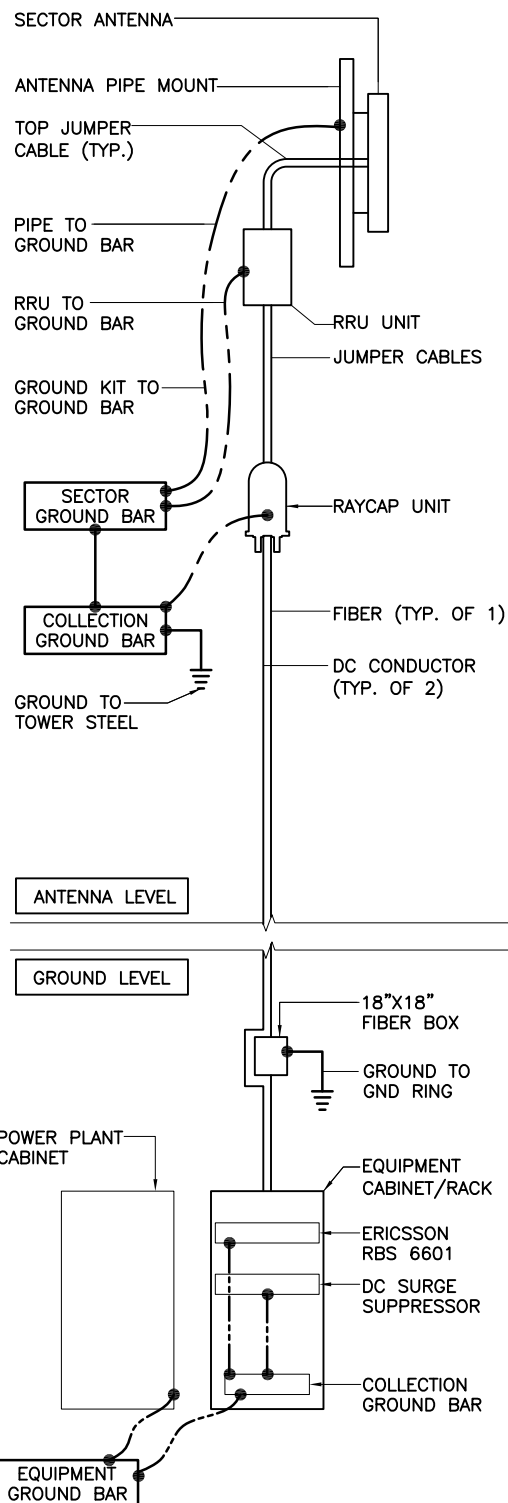
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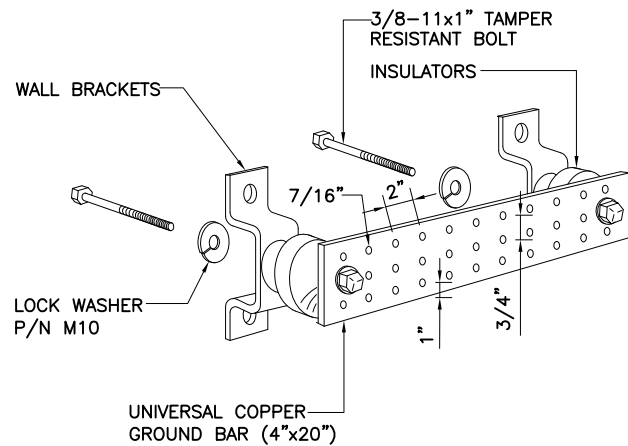
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CHESHIRE LARSENS POND
CHESHIRE, CT 06410

SHEET NAME
GROUNDING DETAILS

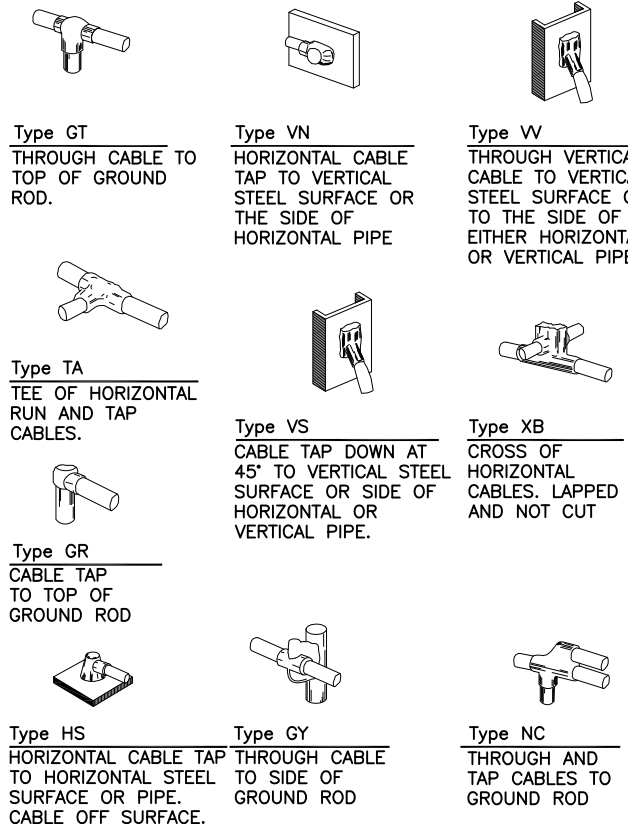
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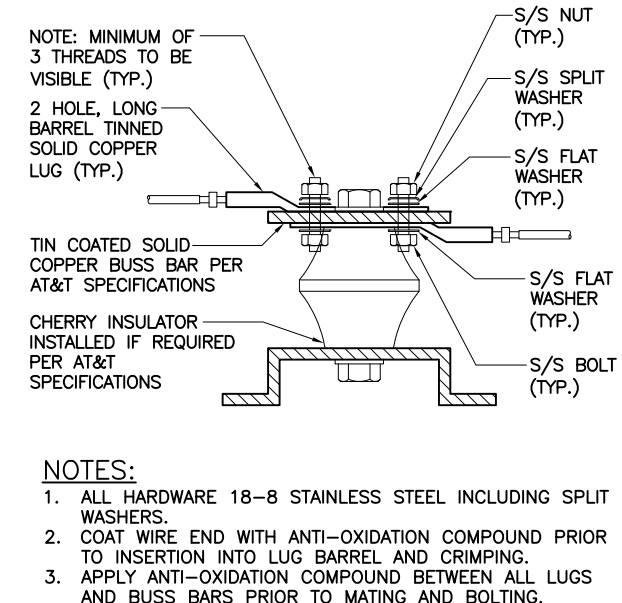
GROUNDING SCHEMATIC SCALE: N.T.S. 1



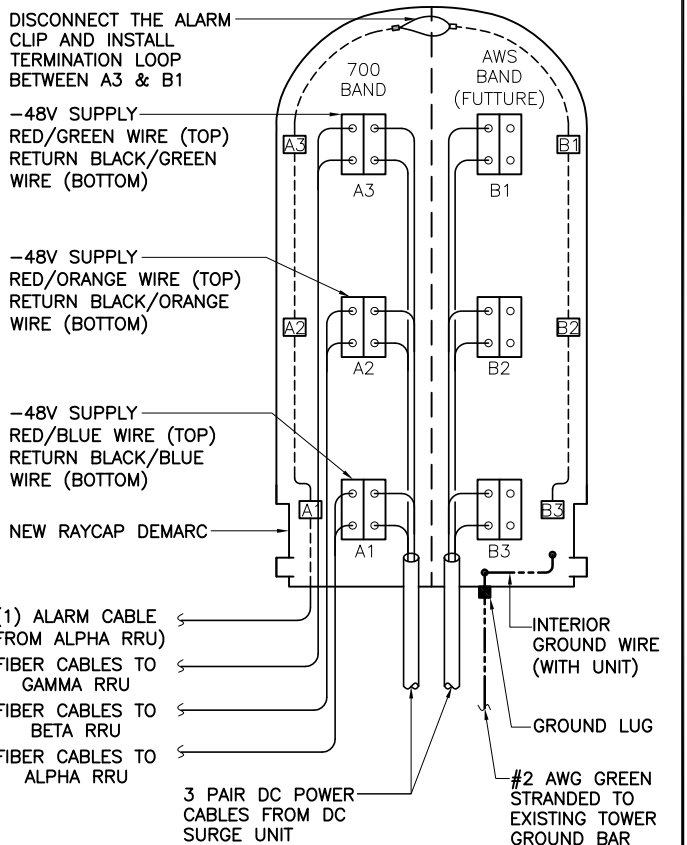
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EXOTHERMIC WELD DETAILS SCALE: N.T.S. 4



LUG DETAIL SCALE: N.T.S. 3



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

NOT USED SCALE: N.T.S. 6

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Date: **October 6, 2016**

Ardalan Arabi
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6602



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
crown@tepgroup.net

Subject: Structural Analysis Report

Carrier Designation: **AT&T Mobility Co-Locate**
Carrier Site Number: CTL05263
Carrier Site Name: Cheshire Larsens Pond

Crown Castle Designation: **Crown Castle BU Number:** 801367
Crown Castle Site Name: CT NHV-2075 CAC 801367
Crown Castle JDE Job Number: 380068
Crown Castle Work Order Number: 1308077
Crown Castle Application Number: 348115 Rev. 9

Engineering Firm Designation: **TEP Project Number:** 25630.98367

Site Data: **1121 Summit Road, Cheshire, New Haven County, CT 06410**
Latitude 41° 32' 11.2", Longitude -72° 57' 26.3"
167 Foot - Monopole Tower

Dear Ardalan Arabi,

Tower Engineering Professionals is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 953898, in accordance with application 348115, revision 9.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Existing + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code (2012 International Building Code) based upon an ultimate 3-second gust wind speed of 122 mph converted to a nominal 3-second gust wind speed of 95 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawing for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Crown Castle*. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Matthew G. Young, E.I. / DTS

Respectfully submitted by:

Graham M. Andres, P.E.



10/6/16

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7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 167-ft monopole tower designed by Paul J. Ford and Company in June of 2001. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F for the appurtenances listed in Table 3. The tower has been modified multiple times in the past to accommodate additional loading. TEP visited the site in November of 2012 and May of 2013 to perform post modification inspections. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the ANSI/TIA-222-G-2-2009 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a nominal 3-second gust wind speed of 95 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads with the following design criteria:

Type of Analysis: **Rigorous Structural Analysis**

Classification of Structure: **Class II**

Exposure Category: **Exposure B**

Topographic Category: **Category 1**

Earthquake Category: **Not Considered**

Earthquake effects may be ignored per this standard for site locations where S_s does not exceed 1.0.
 (New Haven County Max S_s = 0.32).

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
158.0	160.0	3	CCI Antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe	1 2	3/8 3/4	1
		6	CCI Antennas	TPX-070821			
		3	Ericsson	RRUS 32			
		3	Ericsson	RRUS 32 B2			
		1	Raycap	DC6-48-60-18-8F			
	1	Tower Mounts	Handrail Kit [NA 510-1]				
	157.0	1	Tower Mounts	Kicker Support Kit [NA 509-3]			

Notes:

- 1) See "Appendix B – Base Level Drawing" for assumed feed line configuration.

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
167.0	171.0	1	GPS	GPS_A	1 19	1/2 1-5/8	1
	168.0	6	Antel	LPA-80063-6CF-EDIN w/ Mount Pipe			
		3	Antel	BXA-70063-6CF-EDIN-2 w/ Mount Pipe			
		3	Antel	BXA-171063-8BF-2 w/ Mount Pipe			
		3	Antel	BXA-171063-8CF-EDIN-X w/ Mount Pipe			
		3	Alcatel Lucent	RRH2X40-AWS			
	1	RFS Celwave	DB-T1-6Z-8AB-0Z				
167.0	1	Tower Mounts	Platform Mount [LP 1201-1]				
158.0	160.0	3	Powerwave Technologies	7770.00 w/ Mount Pipe	-	-	2
		6	Powerwave Technologies	LGP13519			
		3	Andrew	SBNH-1D6565C w/ Mount Pipe			
		3	Powerwave Technologies	7770.00 w/ Mount Pipe			
	158.0	1	Raycap	DC6-48-60-18-8F	1 2 12	3/8 3/4 1-5/8	1
		3	Ericsson	RRUS-11			
		6	Powerwave Technologies	LGP21401			
1	Tower Mounts	Platform Mount [LP 1201-1]					
150.0	151.0	3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz	-	-	1
	150.0	3	Alcatel Lucent	TME-800MHZ RRH			
		2	Tower Mounts	Pipe Mount [PM 601-3]			
148.0	148.0	1	Tower Mounts	Platform Mount [LP 1201-1]	3 1	1/2 5/8	1
	147.0	3	RFS Celwave	APXVTM14-C-120 w/ Mount Pipe			
		3	RFS Celwave	APXVSP18-C-A20 w/ Mount Pipe			
		3	Alcatel Lucent	TD-RRH8x20-25			
		3	Alcatel Lucent	800 External Notch Filter			
		9	RFS Celwave	ACU-A20-N			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
138.0	138.0	3	RFS Celwave	APX16PV-16PVL w/ Mount Pipe	18	1-5/8	1
		3	Commscope	LNx-6515DS-VTM w/ Mount Pipe			
		3	Ericsson	KRY 112 134/1			
		3	Ericsson	KRY 112 89/5			
		3	Commscope	ATBT-BOTTOM-24V			
		1	Tower Mounts	Platform Mount [LP 1201-1]			

Notes:

- 1) Existing equipment
- 2) Existing equipment to be removed; not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
168.0	168.0	1	Generic	Panel Antennas (Total CaAa = 40 sq. ft.)	-	-
158.0	158.0	1	Generic	Panel Antennas (Total CaAa = 40 sq. ft.)	-	-
148.0	148.0	1	Generic	Panel Antennas (Total CaAa = 40 sq. ft.)	-	-
138.0	138.0	1	Generic	Panel Antennas (Total CaAa = 40 sq. ft.)	-	-
128.0	128.0	1	Generic	Panel Antennas (Total CaAa = 40 sq. ft.)	-	-
118.0	118.0	1	Generic	Panel Antennas (Total CaAa = 40 sq. ft.)	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	Clough, Harbour & Associates, LLP	445076	CCISites
Tower Foundation Drawings	Paul J. Ford and Company	842573	CCISites
Foundation Mapping	FDH Velocitel	842573	CCISites
Tower Manufacturer Drawings	Paul J. Ford and Company	799210	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Company	3245562	CCISites
Post Modification Inspection	Tower Engineering Professionals	3379750	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Company	3461318	CCISites
Post Modification Inspection	Tower Engineering Professionals	3847627	CCISites

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

For analysis of monopole shaft reinforcements, the plates are modeled as linear appurtenances along the exterior of the pole. The loads calculated from tnxTower are then exported to a proprietary calculation sheet created by Tower Engineering Professionals, Inc. that analyzes each reinforcing element along each critical axis and presents percent capacities for each element and the pole shaft along each critical axis. The actual percent capacity of the tower structure including the reinforcing elements is reported in Table 5 - Section Capacity (Summary).

3.2) Assumptions

- 1) The tower and foundation were built in accordance with the manufacturer’s specifications.
- 2) The tower and foundation have been maintained in accordance with the manufacturer’s specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and “Appendix B – Base Level Drawing”.
- 4) All tower components are in sufficient condition to carry their full design capacity.
- 5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier’s responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	ΦP_{allow} (lb)	% Capacity	Pass / Fail
L1	167.00-118.25	Pole	TP35.36×24.00×0.2500	1	Note 1	Note 1	58.9	Pass
L2	122.75-77.75	Pole	TP44.30×33.81×0.3125	2	Note 1	Note 1	65.9	Pass
L3	83.25-38.25	Pole	TP52.88×42.39×0.3750	3	Note 1	Note 1	61.2	Pass
L4	45.00-0.00	Pole	TP61.04×50.55×0.4375	4	Note 1	Note 1	59.7	Pass
M1	53.00-43.00	Mod (Ex)	(Aero) MP304	1	Note 1	Note 1	71.0	Pass
M2	91.50-81.50	Mod (Ex)	(Aero) MP303	2	Note 1	Note 1	75.6	Pass
M3	65.50-50.50	Mod (Ex)	(Aero) MP304	3	Note 1	Note 1	70.0	Pass
							Summary	
						Pole (L2)	65.9	Pass
						Mod (M2)	75.6	Pass
						RATING =	75.6	Pass

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	58.4	Pass
1	Base Plate	-	47.1	Pass
1	Base Foundation Soil Interaction	-	76.4	Pass
1	Base Foundation Structural	-	38.5	Pass

Structure Rating (max from all components) =	76.4%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

4.1) Recommendations

- 1) If the load differs from that described in Tables 1 and 2 of this report, "Appendix B – Base Level Drawing" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8" x 6'	167	TPA-65R-LCUUUU-H8 w/ Mount Pipe	158
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	167	Platform Mount [LP 1201-1]	158
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	167	Miscellaneous [NA 509-3]	157
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	167	PCS 1900MHz 4x45W-65MHz	150
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	167	PCS 1900MHz 4x45W-65MHz	150
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	167	PCS 1900MHz 4x45W-65MHz	150
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	167	TME-800MHz RRH	150
BXA-171063-8BF-2 w/ Mount Pipe	167	TME-800MHz RRH	150
BXA-171063-8BF-2 w/ Mount Pipe	167	TME-800MHz RRH	150
BXA-171063-8BF-2 w/ Mount Pipe	167	(2) Pipe Mount [PM 601-3]	150
BXA-171063-8CF-EDIN-X w/ Mount Pipe	167	APXVTM14-C-120 w/ Mount Pipe	148
BXA-171063-8CF-EDIN-X w/ Mount Pipe	167	APXVTM14-C-120 w/ Mount Pipe	148
BXA-171063-8CF-EDIN-X w/ Mount Pipe	167	APXVTM14-C-120 w/ Mount Pipe	148
BXA-171063-8CF-EDIN-X w/ Mount Pipe	167	APXVTM14-C-120 w/ Mount Pipe	148
GPS_A	167	APXVSP18-C-A20 w/ Mount Pipe	148
RRH2X40-AWS	167	APXVSP18-C-A20 w/ Mount Pipe	148
RRH2X40-AWS	167	APXVSP18-C-A20 w/ Mount Pipe	148
RRH2X40-AWS	167	TD-RRH8x20-25	148
DB-T1-6Z-8AB-OZ	167	TD-RRH8x20-25	148
2.4" Dia x 4-ft Mount Pipe	167	TD-RRH8x20-25	148
Platform Mount [LP 1201-1]	167	800 EXTERNAL NOTCH FILTER	148
Miscellaneous [NA 510-1]	160	800 EXTERNAL NOTCH FILTER	148
TPA-65R-LCUUUU-H8 w/ Mount Pipe	158	800 EXTERNAL NOTCH FILTER	148
TPA-65R-LCUUUU-H8 w/ Mount Pipe	158	(3) ACU-A20-N	148
SBNH-1D6565C w/ Mount Pipe	158	(3) ACU-A20-N	148
SBNH-1D6565C w/ Mount Pipe	158	(3) ACU-A20-N	148
SBNH-1D6565C w/ Mount Pipe	158	2.4" Dia x 6-ft Pipe	148
7770.00 w/ Mount Pipe	158	2.4" Dia x 6-ft Pipe	148
7770.00 w/ Mount Pipe	158	2.4" Dia x 6-ft Pipe	148
7770.00 w/ Mount Pipe	158	Platform Mount [LP 1201-1]	148
(2) TPX-070821	158	APX16PV-16PVL w/ Mount Pipe	138
(2) TPX-070821	158	APX16PV-16PVL w/ Mount Pipe	138
(2) TPX-070821	158	APX16PV-16PVL w/ Mount Pipe	138
RRUS 32	158	LNK-6515DS-VTM w/ Mount Pipe	138
RRUS 32	158	LNK-6515DS-VTM w/ Mount Pipe	138
RRUS 32	158	LNK-6515DS-VTM w/ Mount Pipe	138
RRUS 32 B2	158	KRY 112 134/1	138
RRUS 32 B2	158	KRY 112 134/1	138
RRUS 32 B2	158	KRY 112 134/1	138
DC6-48-60-18-8F	158	KRY 112 89/5	138
DC6-48-60-18-8F	158	KRY 112 89/5	138
(2) LGP21401	158	KRY 112 89/5	138
(2) LGP21401	158	ATBT-BOTTOM-24V	138
(2) LGP21401	158	ATBT-BOTTOM-24V	138
RRUS-11	158	ATBT-BOTTOM-24V	138
RRUS-11	158	2.4" Dia x 6-ft Pipe	138
RRUS-11	158	2.4" Dia x 6-ft Pipe	138
2.4" Dia x 6-ft Pipe	158	2.4" Dia x 6-ft Pipe	138
2.4" Dia x 6-ft Pipe	158	Platform Mount [LP 1201-1]	138
2.4" Dia x 6-ft Pipe	158		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
MPRF-Fy=65ksi Density=100%	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 95 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	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	48.75	18	0.2500	4.50	24.0000	35.3600		3873.9
2	32.50	18	0.3125		33.8114	41.3843		4089.9
3	12.50	18	0.3832	5.50	41.3843	44.2970	MPRF-Fy=65ksi, Density=100%	1794.2
4	19.25	18	0.3750		42.3904	46.8763		3450.6
5	12.50	18	0.4611		46.8763	49.7893		2427.8
6	13.25	18	0.4583	6.75	49.7893	52.8770		2734.6
7	45.00	18	0.4375		50.5540	61.0400		11771.3
								30142.4

118.3 ft

90.3 ft

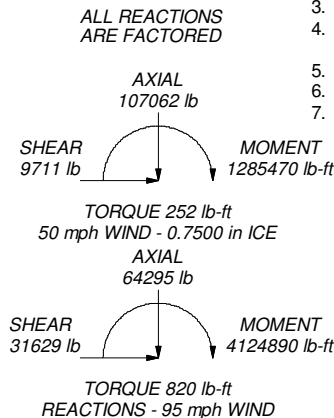
77.8 ft

64.0 ft

51.5 ft

38.3 ft

0.0 ft



 <p>Tower Engineering Professionals</p>	<p>Tower Engineering Professionals</p> <p>326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350</p>			<p>Job: CT NHV-2075 CAC 801367 (BU 801367)</p>		
	<p>Project: TEP No. 25630.98367</p>			<p>Client: Crown Castle Drawn by: myoung App'd:</p>		
	<p>Code: TIA-222-G Date: 10/05/16 Scale: NTS</p>			<p>Path: Dwg No. E-1</p>		
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	Client Crown Castle	Designed by myoung

Tower Input Data

There is a pole section.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

- Tower is located in New Haven County, Connecticut.
- Basic wind speed of 95 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.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--|--|---|

Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	167.00-118.25	48.75	4.50	18	24.0000	35.3600	0.2500	1.0000	MPRF-Fy=65ksi, Density=100% (65 ksi)

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Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	118.25-90.25	32.50	0.00	18	33.8114	41.3843	0.3125	1.2500	MPRF-Fy=65ksi, Density=100% (65 ksi)
L3	90.25-77.75	12.50	5.50	18	41.3843	44.2970	0.3832	1.5330	MPRF-Fy=65ksi, Density=100% (65 ksi)
L4	77.75-64.00	19.25	0.00	18	42.3904	46.8763	0.3750	1.5000	MPRF-Fy=65ksi, Density=100% (65 ksi)
L5	64.00-51.50	12.50	0.00	18	46.8763	49.7893	0.4611	1.8444	MPRF-Fy=65ksi, Density=100% (65 ksi)
L6	51.50-38.25	13.25	6.75	18	49.7893	52.8770	0.4583	1.8331	MPRF-Fy=65ksi, Density=100% (65 ksi)
L7	38.25-0.00	45.00		18	50.5540	61.0400	0.4375	1.7500	MPRF-Fy=65ksi, Density=100% (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	24.3702	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	35.9055	27.8598	4338.8723	12.4641	17.9629	241.5466	8683.4538	13.9325	5.7834	23.133
L2	35.3977	33.2267	4710.7064	11.8921	17.1762	274.2579	9427.6112	16.6165	5.4008	17.283
	42.0228	40.7381	8682.1375	14.5805	21.0232	412.9781	17375.6993	20.3729	6.7336	21.548
L3	42.0228	49.8742	10592.6456	14.5554	21.0232	503.8541	21199.2292	24.9419	6.6091	17.245
	44.9804	53.4172	13014.2758	15.5894	22.5029	578.3383	26045.6760	26.7137	7.1218	18.583
L4	44.3458	50.0088	11153.2426	14.9155	21.5343	517.9286	22321.1609	25.0092	6.8007	18.135
	47.5995	55.3482	15120.6997	16.5080	23.8132	634.9719	30261.2956	27.6794	7.5902	20.241
L5	47.5995	67.9285	18488.8905	16.4774	23.8132	776.4142	37002.1091	33.9707	7.4387	16.133
	50.5574	72.1916	22192.9192	17.5115	25.2930	877.4349	44415.0405	36.1027	7.9514	17.245
L6	50.5574	71.7537	22060.8155	17.5125	25.2930	872.2119	44150.6592	35.8836	7.9564	17.362
	53.6927	76.2449	26467.9952	18.6087	26.8615	985.3500	52970.8176	38.1297	8.4998	18.548
L7	52.9310	69.5930	22083.3335	17.7914	25.6814	859.8949	44195.7247	34.8031	8.1275	18.577
	61.9816	84.1541	39047.5735	21.5139	31.0083	1259.2612	78146.5267	42.0851	9.9730	22.796

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
L1 167.00-118.25				1	1	1			
L2 118.25-90.25				1	1	1			
L3 90.25-77.75				1	1	0.816763			
L4 77.75-64.00				1	1	1			

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	Client Crown Castle	Designed by myoung

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L5 64.00-51.50				1	1	0.814712			
L6 51.50-38.25				1	1	0.819643			
L7 38.25-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
			ft				in	in	plf
561(1-5/8")	B	Surface Ar (CaAa)	167.00 - 0.00	6	6	0.250 0.250	1.6250		1.35
FLC 158-50J(1-5/8")	C	Surface Ar (CaAa)	138.00 - 0.00	4	4	0.000 0.000	2.0150		0.92

Step Pegs (5/8" SR) 7-in. w/30" step	A	Surface Ar (CaAa)	167.00 - 0.00	1	1	-0.250 -0.250	0.3500		0.49
Safety Line 3/8	A	Surface Ar (CaAa)	167.00 - 0.00	1	1	-0.250 -0.250	0.3750		0.22
*									
Aero MP3-04	A	Surface Ar (CaAa)	53.00 - 43.00	1	1	-0.250 -0.250	1.6100		14.10
Aero MP3-04	A	Surface Ar (CaAa)	53.00 - 43.00	1	1	0.500 0.500	1.6100		14.10
Aero MP3-04	A	Surface Ar (CaAa)	65.50 - 53.00	1	1	-0.250 -0.250	1.6100		14.10
Aero MP3-04	A	Surface Ar (CaAa)	65.50 - 53.00	1	1	0.500 0.500	1.6100		14.10
*									
Aero MP3-03	A	Surface Ar (CaAa)	91.50 - 81.50	1	1	-0.250 -0.250	1.5700		9.90
Aero MP3-03	A	Surface Ar (CaAa)	91.50 - 81.50	1	1	0.500 0.500	1.5700		9.90
*									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C_{AA}	Weight
				ft			ft ² /ft	plf
LDF4-50A(1/2")	C	No	Inside Pole	167.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.15 0.15 0.15
HB158-1-08U8-S8J18(1-5/8")	C	No	Inside Pole	167.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.30 1.30 1.30
561(1-5/8")	C	No	Inside Pole	167.00 - 0.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.35 1.35 1.35

LDF7-50A(1-5/8")	B	No	Inside Pole	158.00 - 0.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
FB-L98B-002-75000(3/8")	B	No	Inside Pole	158.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4")	B	No	Inside Pole	158.00 - 0.00	2	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
2" Flexible Conduit	B	No	Inside Pole	158.00 - 0.00	1	No Ice	0.00	0.34
						1/2" Ice	0.00	0.34
						1" Ice	0.00	0.34
FB-L98B-034-XXX(3/8")	B	No	Inside Pole	158.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4")	B	No	Inside Pole	158.00 - 0.00	2	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58

HB058-M12-XXXF(5/8")	C	No	Inside Pole	148.00 - 0.00	1	No Ice	0.00	0.24
						1/2" Ice	0.00	0.24
						1" Ice	0.00	0.24
HYBRIFLEX RRH 1-SECTOR(1/2")	C	No	Inside Pole	148.00 - 0.00	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15

FLC 158-50J(1-5/8")	C	No	Inside Pole	138.00 - 0.00	14	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92
Aero MP3-04	C	No	CaAa (Out Of Face)	53.00 - 43.00	1	No Ice	0.00	14.10
						1/2" Ice	0.00	15.30
						1" Ice	0.00	16.85
*								
Aero MP3-04	A	No	CaAa (Out Of Face)	53.00 - 50.50	1	No Ice	0.00	14.10
						1/2" Ice	0.00	15.30
						1" Ice	0.00	16.85
Aero MP3-04	A	No	CaAa (Out Of Face)	53.00 - 50.50	1	No Ice	0.00	14.10
						1/2" Ice	0.00	15.30
						1" Ice	0.00	16.85
Aero MP3-04	C	No	CaAa (Out Of Face)	65.50 - 50.50	1	No Ice	0.00	14.10
						1/2" Ice	0.00	15.30
						1" Ice	0.00	16.85
Aero MP3-03	C	No	CaAa (Out Of Face)	91.50 - 81.50	1	No Ice	0.00	9.90
						1/2" Ice	0.00	11.06
						1" Ice	0.00	12.57
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
L1	167.00-118.25	A	0.000	0.000	3.534	0.000	34
		B	0.000	0.000	47.531	0.000	897
		C	0.000	0.000	15.919	0.000	1208
L2	118.25-90.25	A	0.000	0.000	2.422	0.000	45
		B	0.000	0.000	27.300	0.000	580
		C	0.000	0.000	22.568	0.000	990
L3	90.25-77.75	A	0.000	0.000	3.654	0.000	182
		B	0.000	0.000	12.188	0.000	259
		C	0.000	0.000	10.075	0.000	523

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Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
L4	77.75-64.00	A	0.000	0.000	1.480	0.000	52
		B	0.000	0.000	13.406	0.000	285
		C	0.000	0.000	11.083	0.000	501
L5	64.00-51.50	A	0.000	0.000	4.931	0.000	404
		B	0.000	0.000	12.188	0.000	259
		C	0.000	0.000	10.075	0.000	634
L6	51.50-38.25	A	0.000	0.000	3.698	0.000	277
		B	0.000	0.000	12.919	0.000	275
		C	0.000	0.000	10.680	0.000	596
L7	38.25-0.00	A	0.000	0.000	2.773	0.000	27
		B	0.000	0.000	37.294	0.000	793
		C	0.000	0.000	30.829	0.000	1335

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
L1	167.00-118.25	A	1.735	0.000	0.000	37.365	0.000	468
		B		0.000	0.000	80.558	0.000	1832
		C		0.000	0.000	28.464	0.000	1546
L2	118.25-90.25	A	1.682	0.000	0.000	22.721	0.000	311
		B		0.000	0.000	46.269	0.000	1118
		C		0.000	0.000	40.354	0.000	1476
L3	90.25-77.75	A	1.647	0.000	0.000	17.651	0.000	396
		B		0.000	0.000	20.381	0.000	485
		C		0.000	0.000	17.740	0.000	771
L4	77.75-64.00	A	1.619	0.000	0.000	11.525	0.000	183
		B		0.000	0.000	22.419	0.000	534
		C		0.000	0.000	19.514	0.000	731
L5	64.00-51.50	A	1.586	0.000	0.000	20.793	0.000	668
		B		0.000	0.000	20.191	0.000	476
		C		0.000	0.000	17.551	0.000	899
L6	51.50-38.25	A	1.547	0.000	0.000	17.153	0.000	484
		B		0.000	0.000	21.272	0.000	498
		C		0.000	0.000	18.472	0.000	843
L7	38.25-0.00	A	1.417	0.000	0.000	26.436	0.000	303
		B		0.000	0.000	61.406	0.000	1438
		C		0.000	0.000	53.326	0.000	1909

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	167.00-118.25	0.9119	0.3684	0.5341	0.3810
L2	118.25-90.25	0.8752	0.7866	0.5036	0.8133
L3	90.25-77.75	0.7763	0.6871	0.3363	0.6313
L4	77.75-64.00	0.9085	0.8144	0.5462	0.8700
L5	64.00-51.50	0.7409	0.6492	0.2721	0.5689
L6	51.50-38.25	0.8291	0.7337	0.4134	0.7231
L7	38.25-0.00	0.9904	0.8889	0.6785	1.0248

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Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	4	561(1-5/8")	118.25 - 167.00	1.0000	1.0000
L1	17	FLC 158-50J(1-5/8")	118.25 - 138.00	1.0000	1.0000
L1	19	Step Pegs (5/8" SR) 7-in. w/30" step	118.25 - 167.00	1.0000	1.0000
L1	20	Safety Line 3/8	118.25 - 167.00	1.0000	1.0000
L1	32	Aero MP3-03	118.25 - 91.50	1.0000	1.0000
L1	33	Aero MP3-03	118.25 - 91.50	1.0000	1.0000
L3	4	561(1-5/8")	77.75 - 90.25	1.0000	1.0000
L3	17	FLC 158-50J(1-5/8")	77.75 - 90.25	1.0000	1.0000
L3	19	Step Pegs (5/8" SR) 7-in. w/30" step	77.75 - 90.25	1.0000	1.0000
L3	20	Safety Line 3/8	77.75 - 90.25	1.0000	1.0000
L3	32	Aero MP3-03	81.50 - 90.25	1.0000	1.0000
L3	33	Aero MP3-03	81.50 - 90.25	1.0000	1.0000
L3	27	Aero MP3-04	77.75 - 65.50	1.0000	1.0000
L3	29	Aero MP3-04	77.75 - 65.50	1.0000	1.0000
L5	4	561(1-5/8")	51.50 - 64.00	1.0000	1.0000
L5	17	FLC 158-50J(1-5/8")	51.50 - 64.00	1.0000	1.0000
L5	19	Step Pegs (5/8" SR) 7-in. w/30" step	51.50 - 64.00	1.0000	1.0000
L5	20	Safety Line 3/8	51.50 - 64.00	1.0000	1.0000
L5	22	Aero MP3-04	51.50 - 53.00	1.0000	1.0000
L5	23	Aero MP3-04	51.50 - 53.00	1.0000	1.0000
L5	27	Aero MP3-04	53.00 - 64.00	1.0000	1.0000
L5	29	Aero MP3-04	53.00 - 64.00	1.0000	1.0000
L6	4	561(1-5/8")	38.25 - 51.50	1.0000	1.0000
L6	17	FLC 158-50J(1-5/8")	38.25 - 51.50	1.0000	1.0000
L6	19	Step Pegs (5/8" SR) 7-in. w/30" step	38.25 - 51.50	1.0000	1.0000
L6	20	Safety Line 3/8	38.25 - 51.50	1.0000	1.0000
L6	22	Aero MP3-04	43.00 - 51.50	1.0000	1.0000
L6	23	Aero MP3-04	43.00 - 51.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _A A _{Front}	C _A A _{Side}	Weight
			ft ft ft	°	ft	ft ²	ft ²	lb
Lightning Rod 5/8" x 6'	C	From Leg	0.00 0.00 3.00	0.0000	167.00	No Ice 1/2" Ice 1" Ice	0.38 0.99 1.62	7 11 19

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	

(2) LPA-80063-6CF-EDIN w/ Mount Pipe	A	From Centroid-Fa	4.00	-1.00	0.0000	167.00	No Ice 1/2" Ice	10.74 11.41	10.70 11.97	50 145
		ce	1.00				1" Ice	12.04	12.95	247
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	B	From Centroid-Fa	4.00	0.00	0.0000	167.00	No Ice 1/2" Ice	10.74 11.41	10.70 11.97	50 145
		ce	1.00				1" Ice	12.04	12.95	247
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	C	From Centroid-Fa	4.00	0.00	0.0000	167.00	No Ice 1/2" Ice	10.74 11.41	10.70 11.97	50 145
		ce	1.00				1" Ice	12.04	12.95	247
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	A	From Centroid-Fa	4.00	-2.00	0.0000	167.00	No Ice 1/2" Ice	7.81 8.36	5.80 6.95	42 103
		ce	1.00				1" Ice	8.87	7.82	171
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	B	From Centroid-Fa	4.00	-3.00	0.0000	167.00	No Ice 1/2" Ice	7.81 8.36	5.80 6.95	42 103
		ce	1.00				1" Ice	8.87	7.82	171
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	C	From Centroid-Fa	4.00	-3.00	0.0000	167.00	No Ice 1/2" Ice	7.81 8.36	5.80 6.95	42 103
		ce	1.00				1" Ice	8.87	7.82	171
BXA-171063-8BF-2 w/ Mount Pipe	A	From Centroid-Fa	4.00	-5.00	0.0000	167.00	No Ice 1/2" Ice	3.18 3.56	3.35 3.97	29 61
		ce	1.00				1" Ice	3.93	4.60	99
BXA-171063-8BF-2 w/ Mount Pipe	B	From Centroid-Fa	4.00	0.00	0.0000	167.00	No Ice 1/2" Ice	3.18 3.56	3.35 3.97	29 61
		ce	1.00				1" Ice	3.93	4.60	99
BXA-171063-8BF-2 w/ Mount Pipe	C	From Centroid-Fa	4.00	0.00	0.0000	167.00	No Ice 1/2" Ice	3.18 3.56	3.35 3.97	29 61
		ce	1.00				1" Ice	3.93	4.60	99
BXA-171063-8CF-EDIN-X w/ Mount Pipe	A	From Centroid-Fa	4.00	2.00	0.0000	167.00	No Ice 1/2" Ice	3.16 3.53	3.33 3.94	28 60
		ce	1.00				1" Ice	3.90	4.56	97
BXA-171063-8CF-EDIN-X w/ Mount Pipe	B	From Centroid-Fa	4.00	3.00	0.0000	167.00	No Ice 1/2" Ice	3.16 3.53	3.33 3.94	28 60
		ce	1.00				1" Ice	3.90	4.56	97
BXA-171063-8CF-EDIN-X w/ Mount Pipe	C	From Centroid-Fa	4.00	3.00	0.0000	167.00	No Ice 1/2" Ice	3.16 3.53	3.33 3.94	28 60
		ce	1.00				1" Ice	3.90	4.56	97
GPS_A	A	From Centroid-Fa	4.00	7.00	0.0000	167.00	No Ice 1/2" Ice	0.26 0.32	0.26 0.32	1 5
		ce	4.00				1" Ice	0.39	0.39	10
RRH2X40-AWS	A	From Centroid-Fa	4.00	2.00	0.0000	167.00	No Ice 1/2" Ice	2.16 2.36	1.42 1.59	44 61
		ce	1.00				1" Ice	2.57	1.77	82
RRH2X40-AWS	B	From Centroid-Fa	4.00	3.00	0.0000	167.00	No Ice 1/2" Ice	2.16 2.36	1.42 1.59	44 61
		ce	1.00				1" Ice	2.57	1.77	82
RRH2X40-AWS	C	From Centroid-Fa	4.00	3.00	0.0000	167.00	No Ice 1/2" Ice	2.16 2.36	1.42 1.59	44 61
		ce	1.00				1" Ice	2.57	1.77	82
DB-T1-6Z-8AB-0Z	A	From Centroid-Fa	4.00	2.00	0.0000	167.00	No Ice 1/2" Ice	4.80 5.07	2.00 2.19	44 80
		ce	1.00				1" Ice	5.35	2.39	120
2.4" Dia x 4-ft Mount Pipe	A	From Centroid-Fa	4.00	7.00	0.0000	167.00	No Ice 1/2" Ice	0.87 1.12	0.87 1.12	15 22
		ce	0.00				1" Ice	1.37	1.37	32
Platform Mount [LP 1201-1]	C	None			0.0000	167.00	No Ice 1/2" Ice	23.10 26.80	23.10 26.80	2100 2500

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
***						1" Ice	30.50	30.50	2900
TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	13.54 14.24 14.95	10.96 12.49 14.04	114 218 331
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	13.54 14.24 14.95	10.96 12.49 14.04	114 218 331
TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	13.54 14.24 14.95	10.96 12.49 14.04	114 218 331
SBNH-1D6565C w/ Mount Pipe	A	From Centroid-Face	4.00 -7.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	11.69 12.42 13.16	9.85 11.38 12.94	99 189 289
SBNH-1D6565C w/ Mount Pipe	B	From Centroid-Face	4.00 -7.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	11.69 12.42 13.16	9.85 11.38 12.94	99 189 289
SBNH-1D6565C w/ Mount Pipe	C	From Centroid-Face	4.00 -7.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	11.69 12.42 13.16	9.85 11.38 12.94	99 189 289
7770.00 w/ Mount Pipe	A	From Centroid-Face	4.00 7.00 2.00		-10.0000	158.00 No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	55 103 157
7770.00 w/ Mount Pipe	B	From Centroid-Face	4.00 7.00 2.00		-10.0000	158.00 No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	55 103 157
7770.00 w/ Mount Pipe	C	From Centroid-Face	4.00 7.00 2.00		-10.0000	158.00 No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	55 103 157
(2) TPX-070821	A	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	0.47 0.56 0.66	0.10 0.15 0.20	8 11 16
(2) TPX-070821	B	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	0.47 0.56 0.66	0.10 0.15 0.20	8 11 16
(2) TPX-070821	C	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	0.47 0.56 0.66	0.10 0.15 0.20	8 11 16
RRUS 32	A	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	55 77 103
RRUS 32	B	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	55 77 103
RRUS 32	C	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	55 77 103
RRUS 32 B2	A	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	53 74 98
RRUS 32 B2	B	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	53 74 98
RRUS 32 B2	C	From Centroid-Face	4.00 -3.00 2.00		-30.0000	158.00 No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	53 74 98
DC6-48-60-18-8F	B	From	4.00		-30.0000	158.00 No Ice	0.92	0.92	19

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	Client	Crown Castle	Designed by	myoung

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	
DC6-48-60-18-8F	B	Centroid-Face	-3.00			1/2" Ice	1.46	1.46	37	
		ce	2.00			1" Ice	1.64	1.64	57	
		From	4.00		-30.0000	158.00	No Ice	0.92	0.92	19
(2) LGP21401	A	Centroid-Face	-7.00			1/2" Ice	1.46	1.46	37	
		ce	0.00			1" Ice	1.64	1.64	57	
		From	4.00		-10.0000	158.00	No Ice	1.10	0.21	14
(2) LGP21401	B	Centroid-Face	7.00			1/2" Ice	1.24	0.27	21	
		ce	0.00			1" Ice	1.38	0.35	30	
		From	4.00		-10.0000	158.00	No Ice	1.10	0.21	14
(2) LGP21401	C	Centroid-Face	7.00			1/2" Ice	1.24	0.27	21	
		ce	0.00			1" Ice	1.38	0.35	30	
		From	4.00		-10.0000	158.00	No Ice	1.10	0.21	14
RRUS-11	A	Centroid-Face	7.00			1/2" Ice	1.24	0.27	21	
		ce	0.00			1" Ice	1.38	0.35	30	
		From	4.00		-30.0000	158.00	No Ice	2.79	1.19	50
RRUS-11	B	Centroid-Face	-7.00			1/2" Ice	3.00	1.34	71	
		ce	0.00			1" Ice	3.21	1.50	95	
		From	4.00		-30.0000	158.00	No Ice	2.79	1.19	50
RRUS-11	C	Centroid-Face	-7.00			1/2" Ice	3.00	1.34	71	
		ce	0.00			1" Ice	3.21	1.50	95	
		From	4.00		-30.0000	158.00	No Ice	2.79	1.19	50
2.4" Dia x 6-ft Pipe	A	Centroid-Face	-7.00			1/2" Ice	3.00	1.34	71	
		ce	0.00			1" Ice	3.21	1.50	95	
		From	4.00		0.0000	158.00	No Ice	1.43	1.43	22
2.4" Dia x 6-ft Pipe	B	Centroid-Face	3.00			1/2" Ice	1.93	1.93	33	
		ce	0.00			1" Ice	2.30	2.30	48	
		From	4.00		0.0000	158.00	No Ice	1.43	1.43	22
2.4" Dia x 6-ft Pipe	C	Centroid-Face	3.00			1/2" Ice	1.93	1.93	33	
		ce	0.00			1" Ice	2.30	2.30	48	
		From	4.00		0.0000	158.00	No Ice	1.43	1.43	22
Miscellaneous [NA 509-3]	C	Centroid-Face	3.00			1/2" Ice	1.93	1.93	33	
		ce	0.00			1" Ice	2.30	2.30	48	
		None			0.0000	157.00	No Ice	11.84	11.84	275
Miscellaneous [NA 510-1]	C	Centroid-Face				1/2" Ice	16.96	16.96	296	
		ce				1" Ice	22.08	22.08	317	
		None			0.0000	160.00	No Ice	6.00	6.00	256
Platform Mount [LP 1201-1]	C	Centroid-Face				1/2" Ice	8.50	8.50	340	
		ce				1" Ice	11.00	11.00	409	
		None			0.0000	158.00	No Ice	23.10	23.10	2100
***	A	Centroid-Face				1/2" Ice	26.80	26.80	2500	
		ce				1" Ice	30.50	30.50	2900	
		From Face	1.00		-30.0000	150.00	No Ice	2.32	2.24	60
PCS 1900MHz 4x45W-65MHz	B	From Face	1.00		-30.0000	150.00	No Ice	2.32	2.24	60
		ce	0.00			1/2" Ice	2.53	2.44	83	
		From Face	1.00		10.0000	150.00	No Ice	2.32	2.24	60
PCS 1900MHz 4x45W-65MHz	C	From Face	1.00		10.0000	150.00	No Ice	2.32	2.24	60
		ce	0.00			1/2" Ice	2.53	2.44	83	
		From Face	1.00		-30.0000	150.00	No Ice	2.32	2.24	60
TME-800MHz RRH	A	From Face	1.00		-30.0000	150.00	No Ice	2.13	1.77	53
		ce	0.00			1/2" Ice	2.32	1.95	74	
		From Face	1.00		-30.0000	150.00	No Ice	2.13	1.77	53
TME-800MHz RRH	B	From Face	1.00		-30.0000	150.00	No Ice	2.13	1.77	53
		ce	0.00			1/2" Ice	2.32	1.95	74	
		From Face	1.00		-30.0000	150.00	No Ice	2.13	1.77	53
TME-800MHz RRH	B	From Face	1.00		-30.0000	150.00	No Ice	2.13	1.77	53
		ce	0.00			1/2" Ice	2.32	1.95	74	
		From Face	1.00		-30.0000	150.00	No Ice	2.13	1.77	53

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	Client	Crown Castle	Designed by	myoung

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz	Vert			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	lb	
TME-800MHZ RRH	C	From Face	1.00		10.0000	150.00	No Ice	2.13	1.77	53
			0.00				1/2" Ice	2.32	1.95	74
			0.00				1" Ice	2.51	2.13	98
(2) Pipe Mount [PM 601-3]	C	None			0.0000	150.00	No Ice	4.39	4.39	195
							1/2" Ice	5.48	5.48	237
							1" Ice	6.57	6.57	280

APXVTM14-C-120 w/ Mount Pipe	A	From Centroid-Fa	4.00 -7.00		-10.0000	148.00	No Ice	6.34	3.61	56
		ce	-1.00				1/2" Ice	6.72	3.97	96
							1" Ice	7.10	4.33	140
APXVTM14-C-120 w/ Mount Pipe	B	From Centroid-Fa	4.00 -7.00		-10.0000	148.00	No Ice	6.34	3.61	56
		ce	-1.00				1/2" Ice	6.72	3.97	96
							1" Ice	7.10	4.33	140
APXVTM14-C-120 w/ Mount Pipe	C	From Centroid-Fa	4.00 -7.00		-10.0000	148.00	No Ice	6.34	3.61	56
		ce	-1.00				1/2" Ice	6.72	3.97	96
							1" Ice	7.10	4.33	140
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	8.26	6.95	83
		ce	-1.00				1/2" Ice	8.82	8.13	151
							1" Ice	9.35	9.02	227
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	8.26	6.95	83
		ce	-1.00				1/2" Ice	8.82	8.13	151
							1" Ice	9.35	9.02	227
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	8.26	6.95	83
		ce	-1.00				1/2" Ice	8.82	8.13	151
							1" Ice	9.35	9.02	227
TD-RRH8x20-25	A	From Centroid-Fa	4.00 -7.00		-10.0000	148.00	No Ice	4.05	1.53	70
		ce	-1.00				1/2" Ice	4.30	1.71	97
							1" Ice	4.56	1.90	128
TD-RRH8x20-25	B	From Centroid-Fa	4.00 -7.00		-10.0000	148.00	No Ice	4.05	1.53	70
		ce	-1.00				1/2" Ice	4.30	1.71	97
							1" Ice	4.56	1.90	128
TD-RRH8x20-25	C	From Centroid-Fa	4.00 -7.00		-10.0000	148.00	No Ice	4.05	1.53	70
		ce	-1.00				1/2" Ice	4.30	1.71	97
							1" Ice	4.56	1.90	128
800 EXTERNAL NOTCH FILTER	A	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	0.66	0.32	11
		ce	-1.00				1/2" Ice	0.76	0.40	17
							1" Ice	0.87	0.48	24
800 EXTERNAL NOTCH FILTER	B	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	0.66	0.32	11
		ce	-1.00				1/2" Ice	0.76	0.40	17
							1" Ice	0.87	0.48	24
800 EXTERNAL NOTCH FILTER	C	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	0.66	0.32	11
		ce	-1.00				1/2" Ice	0.76	0.40	17
							1" Ice	0.87	0.48	24
(3) ACU-A20-N	A	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	0.07	0.12	1
		ce	-1.00				1/2" Ice	0.10	0.16	2
							1" Ice	0.15	0.21	4
(3) ACU-A20-N	B	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	0.07	0.12	1
		ce	-1.00				1/2" Ice	0.10	0.16	2
							1" Ice	0.15	0.21	4
(3) ACU-A20-N	C	From Centroid-Fa	4.00 0.00		-10.0000	148.00	No Ice	0.07	0.12	1
		ce	-1.00				1/2" Ice	0.10	0.16	2
							1" Ice	0.15	0.21	4
2.4" Dia x 6-ft Pipe	A	From Centroid-Fa	4.00 7.00		0.0000	148.00	No Ice	1.43	1.43	22
		ce	0.00				1/2" Ice	1.93	1.93	33
							1" Ice	2.30	2.30	48
2.4" Dia x 6-ft Pipe	B	From Centroid-Fa	4.00 7.00		0.0000	148.00	No Ice	1.43	1.43	22
							1/2" Ice	1.93	1.93	33

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	Client	Crown Castle	Designed by	myoung

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	
2.4" Dia x 6-ft Pipe	C	ce	0.00		0.0000	148.00	1" Ice	2.30	2.30	48
		From	4.00				No Ice	1.43	1.43	22
		Centroid-Fa	7.00				1/2" Ice	1.93	1.93	33
Platform Mount [LP 1201-1]	C	ce	0.00		0.0000	148.00	1" Ice	2.30	2.30	48
		None					No Ice	23.10	23.10	2100
							1/2" Ice	26.80	26.80	2500
							1" Ice	30.50	30.50	2900

APX16PV-16PVL w/ Mount Pipe	A	From	4.00		-10.0000	138.00	No Ice	6.27	3.27	59
		Centroid-Fa	-7.00				1/2" Ice	6.70	3.97	105
		ce	0.00				1" Ice	7.13	4.64	156
APX16PV-16PVL w/ Mount Pipe	B	From	4.00		-10.0000	138.00	No Ice	6.27	3.27	59
		Centroid-Fa	-7.00				1/2" Ice	6.70	3.97	105
		ce	0.00				1" Ice	7.13	4.64	156
APX16PV-16PVL w/ Mount Pipe	C	From	4.00		-10.0000	138.00	No Ice	6.27	3.27	59
		Centroid-Fa	-7.00				1/2" Ice	6.70	3.97	105
		ce	0.00				1" Ice	7.13	4.64	156
LNX-6515DS-VTM w/ Mount Pipe	A	From	4.00		-10.0000	138.00	No Ice	11.68	9.84	83
		Centroid-Fa	0.00				1/2" Ice	12.40	11.37	173
		ce	0.00				1" Ice	13.14	12.91	273
LNX-6515DS-VTM w/ Mount Pipe	B	From	4.00		-10.0000	138.00	No Ice	11.68	9.84	83
		Centroid-Fa	0.00				1/2" Ice	12.40	11.37	173
		ce	0.00				1" Ice	13.14	12.91	273
LNX-6515DS-VTM w/ Mount Pipe	C	From	4.00		-10.0000	138.00	No Ice	11.68	9.84	83
		Centroid-Fa	0.00				1/2" Ice	12.40	11.37	173
		ce	0.00				1" Ice	13.14	12.91	273
KRY 112 134/1	A	From	4.00		-10.0000	138.00	No Ice	0.86	0.43	10
		Centroid-Fa	-7.00				1/2" Ice	0.98	0.53	17
		ce	0.00				1" Ice	1.11	0.63	26
KRY 112 134/1	B	From	4.00		-10.0000	138.00	No Ice	0.86	0.43	10
		Centroid-Fa	-7.00				1/2" Ice	0.98	0.53	17
		ce	0.00				1" Ice	1.11	0.63	26
KRY 112 134/1	C	From	4.00		-10.0000	138.00	No Ice	0.86	0.43	10
		Centroid-Fa	-7.00				1/2" Ice	0.98	0.53	17
		ce	0.00				1" Ice	1.11	0.63	26
KRY 112 89/5	A	From	4.00		-10.0000	138.00	No Ice	0.20	0.37	15
		Centroid-Fa	-7.00				1/2" Ice	0.26	0.45	20
		ce	0.00				1" Ice	0.33	0.55	27
KRY 112 89/5	B	From	4.00		-10.0000	138.00	No Ice	0.20	0.37	15
		Centroid-Fa	-7.00				1/2" Ice	0.26	0.45	20
		ce	0.00				1" Ice	0.33	0.55	27
KRY 112 89/5	C	From	4.00		-10.0000	138.00	No Ice	0.20	0.37	15
		Centroid-Fa	-7.00				1/2" Ice	0.26	0.45	20
		ce	0.00				1" Ice	0.33	0.55	27
ATBT-BOTTOM-24V	A	From	4.00		-10.0000	138.00	No Ice	0.10	0.06	3
		Centroid-Fa	0.00				1/2" Ice	0.15	0.10	4
		ce	0.00				1" Ice	0.20	0.15	6
ATBT-BOTTOM-24V	B	From	4.00		-10.0000	138.00	No Ice	0.10	0.06	3
		Centroid-Fa	0.00				1/2" Ice	0.15	0.10	4
		ce	0.00				1" Ice	0.20	0.15	6
ATBT-BOTTOM-24V	C	From	4.00		-10.0000	138.00	No Ice	0.10	0.06	3
		Centroid-Fa	0.00				1/2" Ice	0.15	0.10	4
		ce	0.00				1" Ice	0.20	0.15	6
2.4" Dia x 6-ft Pipe	A	From	4.00		0.0000	138.00	No Ice	1.43	1.43	22
		Centroid-Fa	7.00				1/2" Ice	1.93	1.93	33
		ce	0.00				1" Ice	2.30	2.30	48
2.4" Dia x 6-ft Pipe	B	From	4.00		0.0000	138.00	No Ice	1.43	1.43	22

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	
2.4" Dia x 6-ft Pipe	C	Centroid-Face	7.00	0.00	0.0000	138.00	1/2" Ice	1.93	1.93	33
			0.00	0.00			1" Ice	2.30	2.30	48
		From Centroid-Face	4.00	0.00			No Ice	1.43	1.43	22
			7.00	0.00			1/2" Ice	1.93	1.93	33
Platform Mount [LP 1201-1]	C	None	0.0000	138.00	0.0000	1" Ice	2.30	2.30	48	
						No Ice	23.10	23.10	2100	
						1/2" Ice	26.80	26.80	2500	
						1" Ice	30.50	30.50	2900	

*

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio P _u / φP _n
			ft	ft		in ²	lb	lb	
L1	167 - 118.25 (1)	TP35.36x24x0.25	48.75	0.00	0.0	27.0277	-20662	1825830	0.011
L2	118.25 - 90.25 (2)	TP41.3843x33.8114x0.3125	32.50	0.00	0.0	40.7381	-28701	2788570	0.010
L3	90.25 - 77.75 (3)	TP44.297x41.3843x0.3832	12.50	0.00	0.0	51.8583	-30641	3744810	0.008
L4	77.75 - 64 (4)	TP46.8763x42.3904x0.375	19.25	0.00	0.0	55.3482	-37514	3865220	0.010
L5	64 - 51.5 (5)	TP49.7893x46.8763x0.4611	12.50	0.00	0.0	72.1916	-42155	5270400	0.008
L6	51.5 - 38.25 (6)	TP52.877x49.7893x0.4583	13.25	0.00	0.0	73.9569	-44508	5344570	0.008
L7	38.25 - 0 (7)	TP61.04x50.554x0.4375	45.00	0.00	0.0	84.1541	-64278	5649280	0.011

Pole Bending Design Data

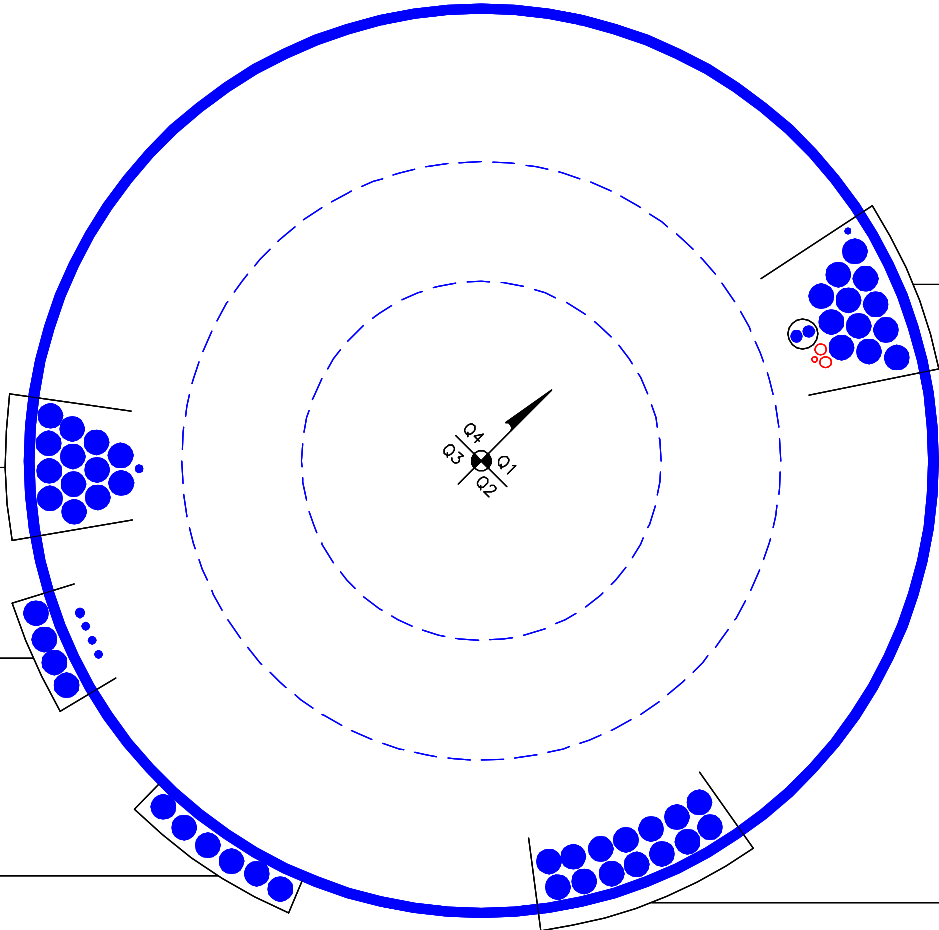
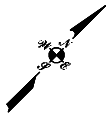
Section No.	Elevation	Size	M _{ux}	φM _{ux}	Ratio M _{ux} / φM _{ux}	M _{uy}	φM _{uy}	Ratio M _{uy} / φM _{uy}
			lb-ft	lb-ft		lb-ft	lb-ft	
L1	167 - 118.25 (1)	TP35.36x24x0.25	738907	1279492	0.577	0	1279492	0.000
L2	118.25 - 90.25 (2)	TP41.3843x33.8114x0.3125	1527742	2355733	0.649	0	2355733	0.000
L3	90.25 - 77.75 (3)	TP44.297x41.3843x0.3832	1707742	3279242	0.521	0	3279242	0.000
L4	77.75 - 64 (4)	TP46.8763x42.3904x0.375	2223717	3695250	0.602	0	3695250	0.000
L5	64 - 51.5 (5)	TP49.7893x46.8763x0.4611	2572700	5338150	0.482	0	5338150	0.000
L6	51.5 - 38.25 (6)	TP52.877x49.7893x0.4583	2759133	5581658	0.494	0	5581658	0.000
L7	38.25 - 0 (7)	TP61.04x50.554x0.4375	4124892	7044541	0.586	0	7044541	0.000

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Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	167 - 118.25 (1)	TP35.36x24x0.25	23018	912914	0.025	387	2562117	0.000
L2	118.25 - 90.25 (2)	TP41.3843x33.8114x0.3125	25479	1394280	0.018	386	4717233	0.000
L3	90.25 - 77.75 (3)	TP44.297x41.3843x0.3832	26005	1872410	0.014	386	6566500	0.000
L4	77.75 - 64 (4)	TP46.8763x42.3904x0.375	27522	1932610	0.014	386	7399541	0.000
L5	64 - 51.5 (5)	TP49.7893x46.8763x0.4611	28450	2635200	0.011	385	10689333	0.000
L6	51.5 - 38.25 (6)	TP52.877x49.7893x0.4583	28895	2672290	0.011	385	11177000	0.000
L7	38.25 - 0 (7)	TP61.04x50.554x0.4375	31663	2824640	0.011	385	14106333	0.000

APPENDIX B
BASE LEVEL DRAWING



(INSTALLED)
(1) 1/2" TO 167 FT LEVEL
(13) 1-5/8" TO 167 FT LEVEL

(INSTALLED)
(4) 1-5/8" TO 138 FT LEVEL
(3) 1/2" TO 148 FT LEVEL
(1) 5/8" TO 148 FT LEVEL

(INSTALLED)
(6) 1-5/8" TO 167 FT LEVEL

(PROPOSED)
(1) 3/8" TO 158 FT LEVEL
(2) 3/4" TO 158 FT LEVEL
(INSTALLED-IN CONDUIT)
(2) 3/4" TO 158 FT LEVEL
(INSTALLED)
(1) 3/8" TO 158 FT LEVEL
(12) 1-5/8" TO 158 FT LEVEL

(INSTALLED)
(14) 1-5/8" TO 138 FT LEVEL

APPENDIX C
ADDITIONAL CALCULATIONS



TOWER
ENGINEERING
PROFESSIONALS

Pole (L2)	65.9%	Pass
Mod (M2)	75.6%	Pass

TEP #: 25630.98367

Analysis: MGY 10/5/2016

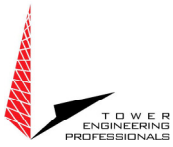
Check: DTS 10/5/2016

Monopole Reinforcement_v1.7.11 - TIA-222-G

Mod #	Modification Type	Termination Length (ft)	Bot. Elevation (ft)	Top Elevation (ft)	Termination Length (ft)	Modification Location (° or Flat/Point #)	Location (F/P)	Lateral Offset (in)
1	(Aero) MP304		43.00	53.00		5 11 17	Flats	0.00
2	(Aero) MP303		81.50	91.50		5 11 17	Flats	0.00
3	(Aero) MP304	1.00	50.50	65.50		4 10 16	Flats	0.00

MODIFICATION PROPERTIES

#	Modification	Default Termination (ft)	Stitch (in)	k	Drill Hole (in)	Bolt/Weld Capacity (k)	A _G (in ²)	F _Y (ksi)	F _U (ksi)
1	(Aero) MP304	1.50	18.00	0.80	1.2188	36.0	4.13	65.0	80.0
2	(Aero) MP303	1.25	18.00	0.80	1.2188	36.0	2.92	65.0	80.0



CT NHV-2075 CAC 801367 (BU 801367)

Pole (L2)	65.9%	Pass
Mod (M2)	75.6%	Pass

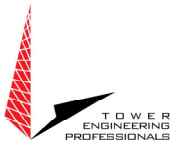
TEP #: 25630.98367
 Analysis: MGY 10/5/2016
 Check: DTS 10/5/2016

Monopole Reinforcement_v1.7.11 - TIA-222-G - Capacities

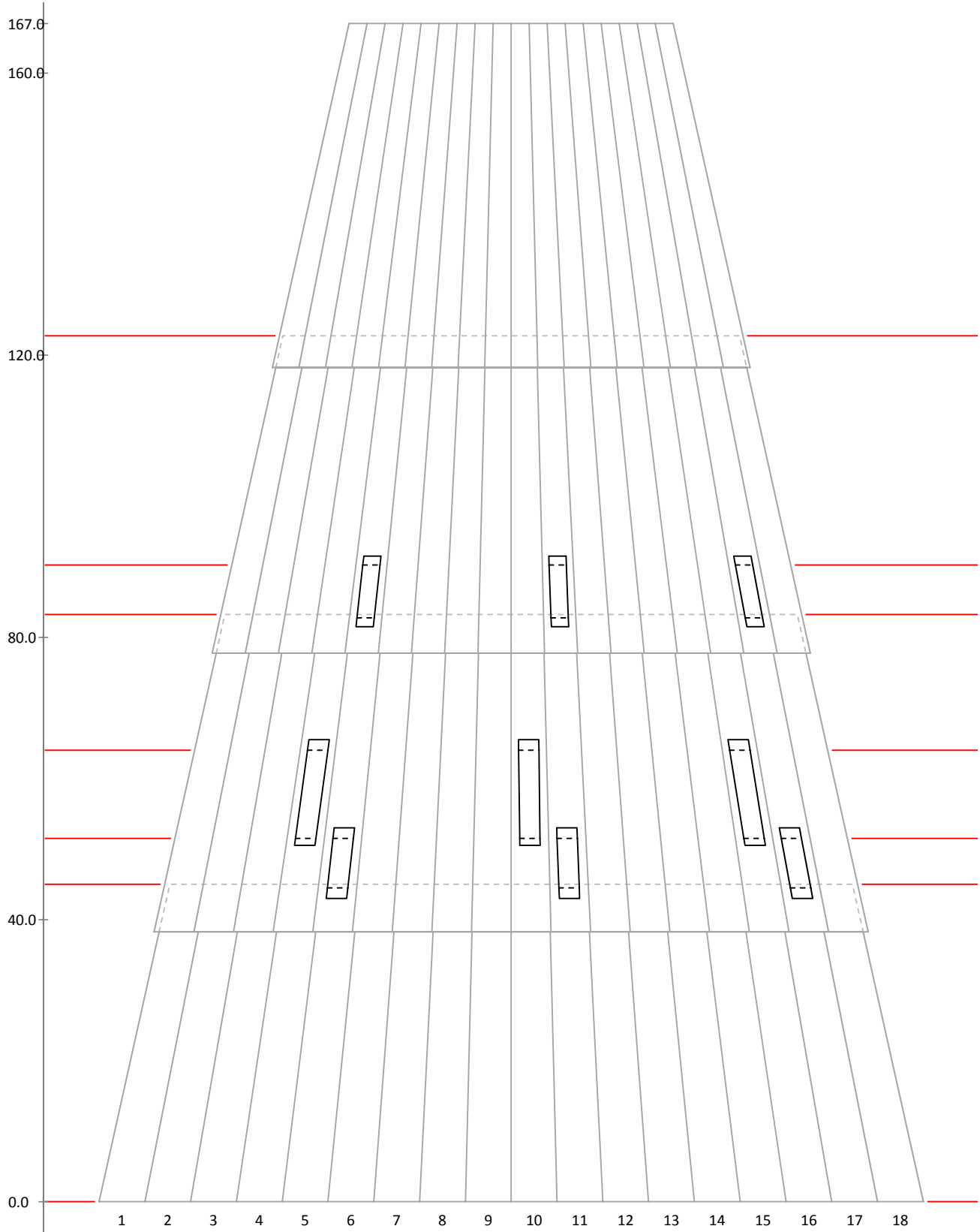
Section No.	Elevation (ft)	Type	Size	Critical Element	Pu (lb)	φPn (lb)	% Capacity	Pass/Fail
L1	167.00-118.25	Pole	TP35.36×24.00×0.2500	1	Note 1	Note 1	58.9	Pass
L2	122.75-77.75	Pole	TP44.30×33.81×0.3125	2	Note 1	Note 1	65.9	Pass
L3	83.25-38.25	Pole	TP52.88×42.39×0.3750	3	Note 1	Note 1	61.2	Pass
L4	45.00-0.00	Pole	TP61.04×50.55×0.4375	4	Note 1	Note 1	59.7	Pass
M1	53.00-43.00	Mod (Ex)	(Aero) MP304	1	Note 1	Note 1	71.0	Pass
M2	91.50-81.50	Mod (Ex)	(Aero) MP303	2	Note 1	Note 1	75.6	Pass
M3	65.50-50.50	Mod (Ex)	(Aero) MP304	3	Note 1	Note 1	70.0	Pass

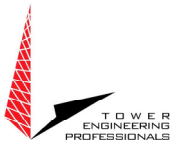
Summary		
Pole (L2)	65.9	Pass
Mod (M2)	75.6	Pass
RATING =	75.6	Pass

*Note 1: See additional documentation in following sheets for details.



Reinforcement Layout

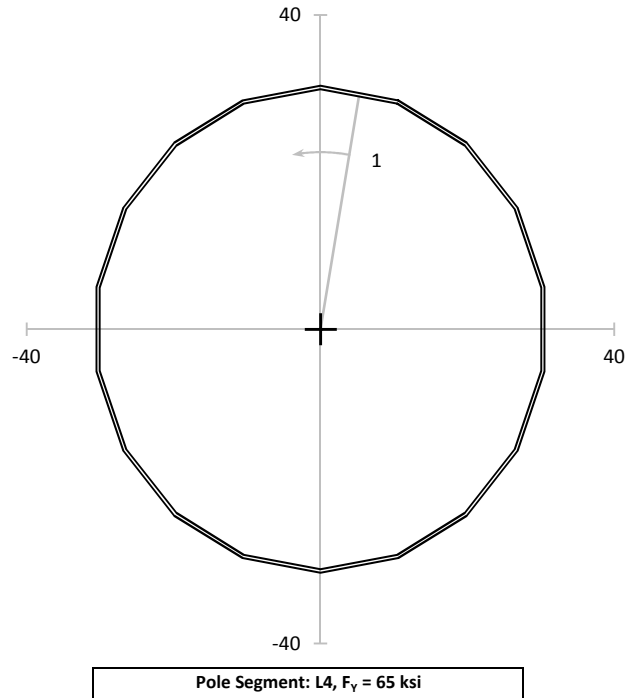




Elevation: 0.00-ft

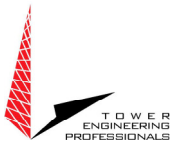
Loads	
Axial:	64.3 k
Moment:	4,124.9 k-ft
Shear:	31.7 k
Torsion:	0.4 k-ft
Equivalent Loads to Pole	
Axial:	64.3 k
Moment:	4,124.9 k-ft
Shear:	31.7 k
Torsion:	0.4 k-ft
Shear Flow N/A	

Pole Info	
OD:	61.04 in
t:	0.4375 in
Pole A_G :	84.15 in ²
Pole I_G :	39,047.6 in ⁴
Controlling	
Angle:	10.00°
I_{CONT} :	39,047.6 in ⁴
A_G :	84.15 in ²
Minimum	
Angle:	0.00°
I_{MIN} :	39,047.6 in ⁴
t_{EFF} :	0.4375 in



POLE CAPACITY											
Angle (°)	Y_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
10.00	31.01	39047.6	0.764	39.308	0.376	0.002	67.130	67.130	33.565	67.130	59.7%

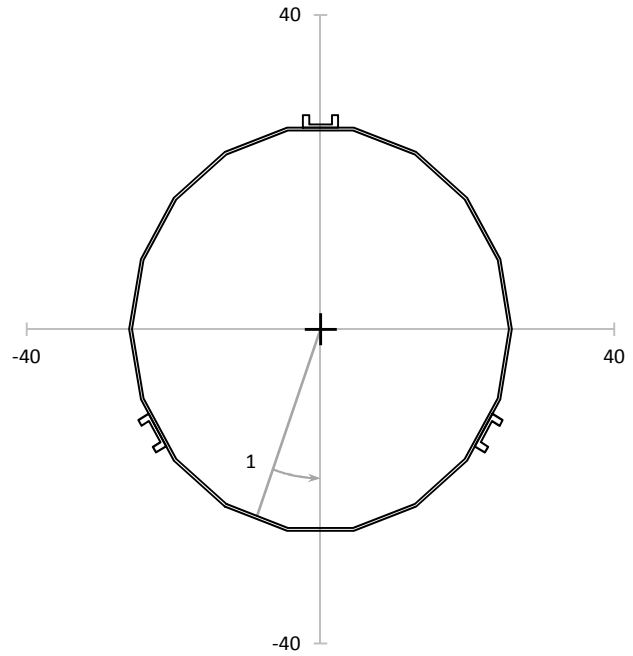
MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity



Elevation: 45.00-ft

Loads	
Axial:	44.5 k
Moment:	2,759.1 k-ft
Shear:	28.9 k
Torsion:	0.4 k-ft
Equivalent Loads to Pole	
Axial:	37.0 k
Moment:	2,268.9 k-ft
Shear:	24.0 k
Torsion:	0.4 k-ft
Shear Flow	
Controlling Mod:	1
q:	0.130 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	277.48 in
Stitch:	18.00 in
Capacity:	6.5%

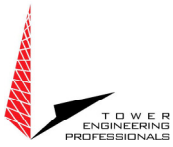
Pole Info	
OD:	51.30 in
t:	0.3750 in
Pole A_G :	60.62 in ²
Pole I_G :	19,864.2 in ⁴
Controlling	
Angle:	200.00°
I_G :	24,156.0 in ⁴
A_G :	73.01 in ²
Minimum	
Angle:	10.00°
I_{MIN} :	24,156.0 in ⁴
t_{EFF} :	0.4583 in



Pole Segment: L3, $F_y = 65$ ksi

POLE CAPACITY											
Angle (°)	Y_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
10.00	26.06	24156.0	0.610	35.723	0.396	0.003	67.635	67.635	33.817	67.635	53.7%

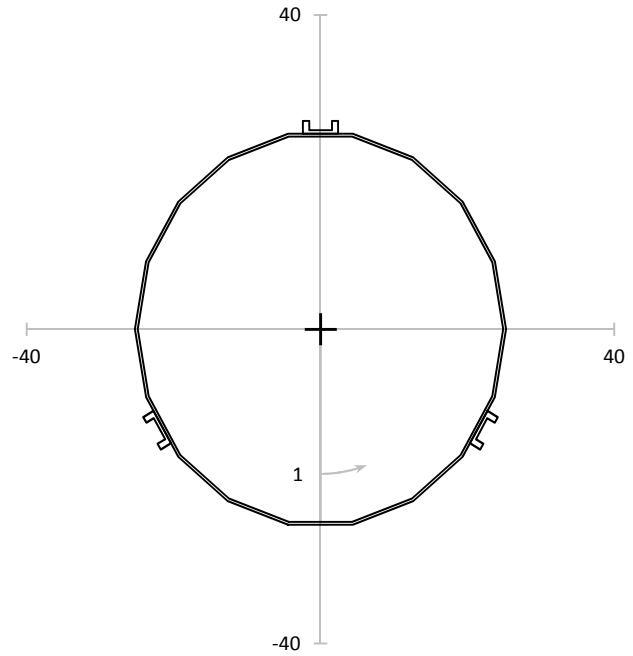
MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
1	1	80.00	26.26	24156.0	0.610	35.996	0.396	53.494	49.881	29.250	71.0%
1	2	200.00	26.26	24156.0	0.610	35.996	0.396	53.494	49.881	29.250	71.0%
1	3	320.00	26.26	24156.0	0.610	35.996	0.396	53.494	49.881	29.250	71.0%



Elevation: 51.50-ft

Loads	
Axial:	42.2 k
Moment:	2,572.7 k-ft
Shear:	28.4 k
Torsion:	0.4 k-ft
Equivalent Loads to Pole	
Axial:	34.8 k
Moment:	2,103.3 k-ft
Shear:	23.5 k
Torsion:	0.4 k-ft
Shear Flow	
Controlling Mod:	3
q:	0.135 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	266.61 in
Stitch:	18.00 in
Capacity:	6.8%

Pole Info	
OD:	49.79 in
t:	0.3750 in
Pole A_G :	58.82 in ²
Pole I_G :	18,144.0 in ⁴
Controlling	
Angle:	180.00°
I_G :	22,192.9 in ⁴
A_G :	71.21 in ²
Minimum	
Angle:	173.00°
I_{MIN} :	22,192.9 in ⁴
t_{EFF} :	0.4611 in



POLE CAPACITY											
Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
10.00	25.29	22192.9	0.592	35.185	0.400	0.003	68.387	68.387	34.194	68.387	52.3%

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
3	1	60.00	25.50	22192.9	0.592	35.479	0.400	53.494	49.881	29.250	70.0%
3	2	180.00	25.50	22192.9	0.592	35.479	0.400	53.494	49.881	29.250	70.0%
3	3	300.00	25.50	22192.9	0.592	35.479	0.400	53.494	49.881	29.250	70.0%



Elevation: 64.00-ft

Loads	
Axial:	37.5 k
Moment:	2,223.7 k-ft
Shear:	27.5 k
Torsion:	0.4 k-ft

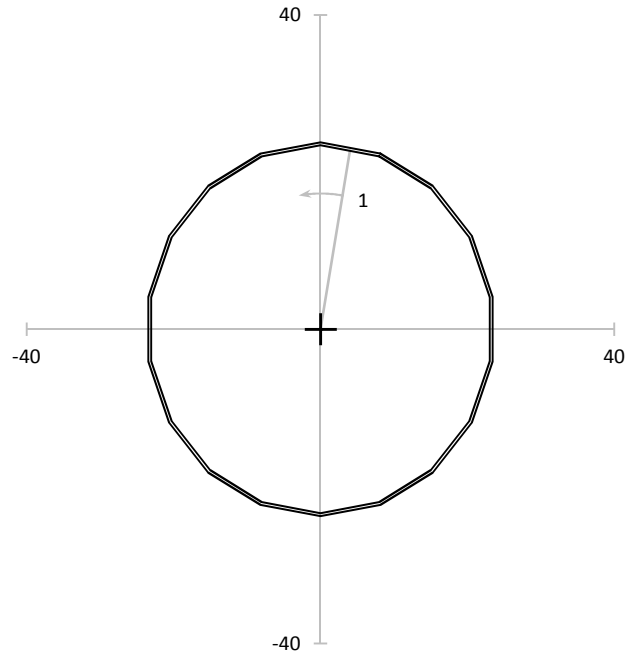
Equivalent Loads to Pole	
Axial:	37.5 k
Moment:	2,223.7 k-ft
Shear:	27.5 k
Torsion:	0.4 k-ft

Shear Flow N/A

Pole Info	
OD:	46.88 in
t:	0.3750 in
Pole A_G :	55.35 in ²
Pole I_G :	15,120.7 in ⁴

Controlling	
Angle:	10.00°
I_G :	15,120.7 in ⁴
A_G :	55.35 in ²

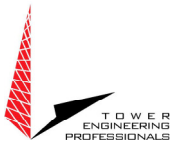
Minimum	
Angle:	0.00°
I_{MIN} :	15,120.7 in ⁴
t_{EFF} :	0.3750 in



Pole Segment: L3, F_y = 65 ksi

POLE CAPACITY											
Angle (°)	Y_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
10.00	23.81	15120.7	0.678	42.025	0.497	0.004	69.835	69.835	34.917	69.835	61.2%

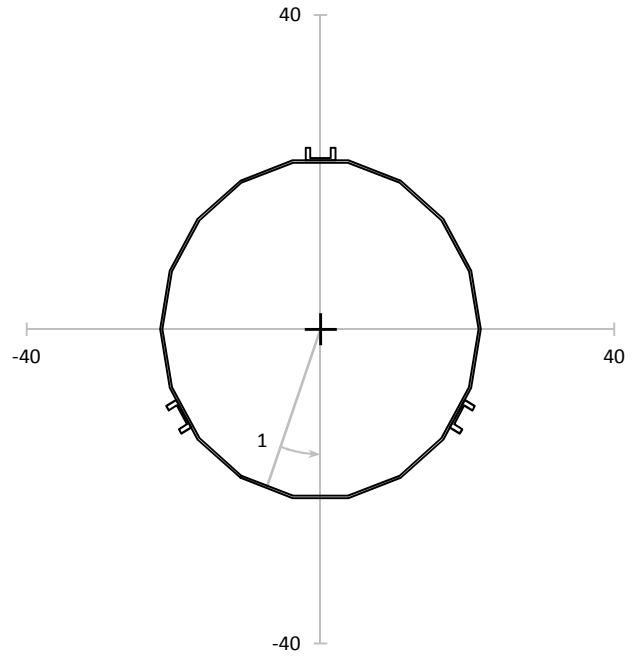
MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity



Elevation: 83.25-ft

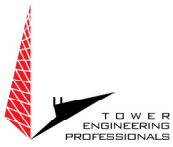
Loads	
Axial:	30.6 k
Moment:	1,707.7 k-ft
Shear:	26.0 k
Torsion:	0.4 k-ft
Equivalent Loads to Pole	
Axial:	25.4 k
Moment:	1,399.5 k-ft
Shear:	21.5 k
Torsion:	0.4 k-ft
Shear Flow	
Controlling Mod:	2
q:	0.141 k/in
Bolt/Weld Cap:	36.0 k/bolt
Max Spacing:	255.47 in
Stitch:	18.00 in
Capacity:	7.0%

Pole Info	
OD:	43.02 in
t:	0.3125 in
Pole A_G :	42.36 in ²
Pole I_G :	9,758.1 in ⁴
Controlling	
Angle:	200.00°
I_G :	11,907.8 in ⁴
A_G :	51.12 in ²
Minimum	
Angle:	23.60°
I_{MIN} :	11,907.8 in ⁴
t_{EFF} :	0.3832 in



POLE CAPACITY											
Angle (°)	Y_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
10.00	21.85	11907.8	0.599	37.606	0.509	0.005	67.479	67.479	33.739	67.479	56.6%

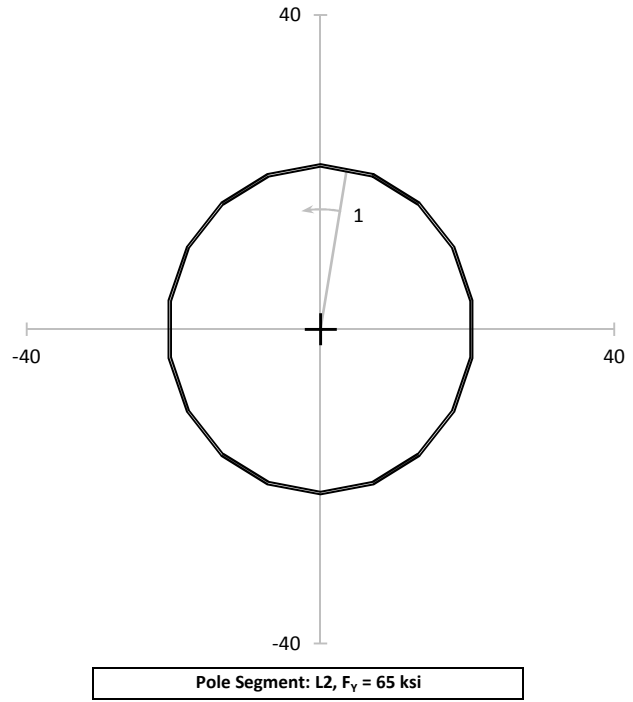
MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity
2	1	80.00	22.10	11907.8	0.599	38.029	0.509	53.615	49.540	29.250	75.6%
2	2	200.00	22.10	11907.8	0.599	38.029	0.509	53.615	49.540	29.250	75.6%
2	3	320.00	22.10	11907.8	0.599	38.029	0.509	53.615	49.540	29.250	75.6%



Elevation: 90.25-ft

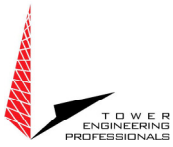
Loads	
Axial:	28.7 k
Moment:	1,527.7 k-ft
Shear:	25.5 k
Torsion:	0.4 k-ft
Equivalent Loads to Pole	
Axial:	28.7 k
Moment:	1,527.7 k-ft
Shear:	25.5 k
Torsion:	0.4 k-ft
Shear Flow N/A	

Pole Info	
OD:	41.38 in
t:	0.3125 in
Pole A_G :	40.74 in ²
Pole I_G :	8,682.1 in ⁴
Controlling	
Angle:	10.00°
I_G :	8,682.1 in ⁴
A_G :	40.74 in ²
Minimum	
Angle:	0.00°
I_{MIN} :	8,682.1 in ⁴
t_{EFF} :	0.3125 in



POLE CAPACITY											
Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
10.00	21.02	8682.1	0.705	44.392	0.625	0.006	68.451	68.451	34.226	68.451	65.9%

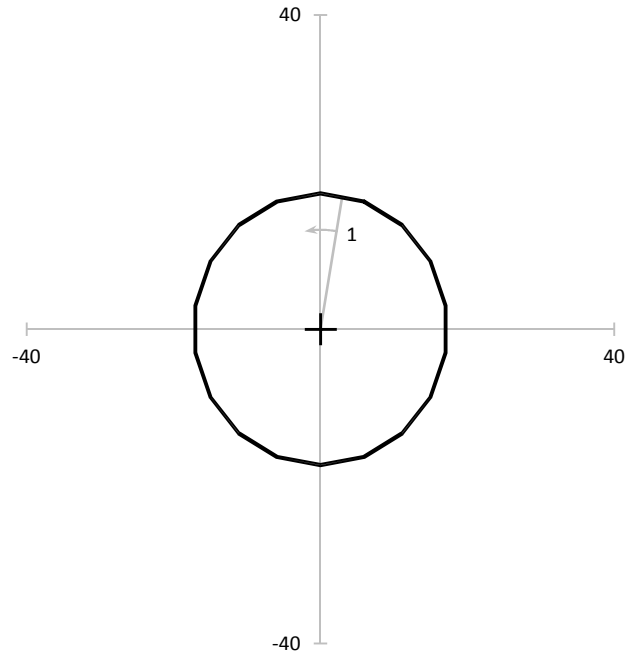
MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity



Elevation: 122.75-ft

Loads	
Axial:	20.7 k
Moment:	738.9 k-ft
Shear:	23.0 k
Torsion:	0.4 k-ft
Equivalent Loads to Pole	
Axial:	20.7 k
Moment:	738.9 k-ft
Shear:	23.0 k
Torsion:	0.4 k-ft
Shear Flow N/A	

Pole Info	
OD:	34.31 in
t:	0.2500 in
Pole A_G :	27.03 in ²
Pole I_G :	3,961.6 in ⁴
Controlling	
Angle:	10.00°
I_G :	3,961.6 in ⁴
A_G :	27.03 in ²
Minimum	
Angle:	0.00°
I_{MIN} :	3,961.6 in ⁴
t_{EFF} :	0.2500 in



Pole Segment: L1, $F_y = 65$ ksi

POLE CAPACITY											
Angle (°)	Y_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	σ_T (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	ϕF_T (ksi)	Capacity
10.00	17.43	3961.6	0.764	39.012	0.852	0.010	67.554	67.554	33.777	67.554	58.9%

MODIFICATION CAPACITIES											
Mod Number	#	Angle (°)	\bar{Y}_{CONT} (in)	I (in ⁴)	σ_A (ksi)	σ_B (ksi)	σ_V (ksi)	ϕF_A (ksi)	ϕF_B (ksi)	ϕF_V (ksi)	Capacity

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

- Assumptions:** 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding $(1) \times (\text{Rod Diameter})$

Site Data

BU#: 801367
 Site Name: CT NHV-2075 CAC 801367
 App #: 348115 Rev. 9

Anchor Rod Data

Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, F_y :	75	ksi
Strength, F_u :	100	ksi
Bolt Circle:	68	in
Anchor Spacing:	6	in

Plate Data

W=Side:	67	in
Thick:	3	in
Grade:	55	ksi
Clip Distance:	14	in

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:	**	
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	61.04	in
Thick:	0.4375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Base Reactions

TIA Revision:	G	
Factored Moment, M_u :	4124.89	ft-kips
Factored Axial, P_u :	64.295	kips
Factored Shear, V_u :	31.629	kips

Anchor Rod Results

TIA G --> Max Rod $(C_u + V_u/\eta)$: 152.0 Kips
 Axial Design Strength, $\Phi * F_u * A_{net}$: 260.0 Kips
 Anchor Rod Stress Ratio: 58.4% **Pass**

Base Plate Results

Base Plate Stress: 23.3 ksi
 PL Design Bending Strength, $\Phi * F_y$: 49.5 ksi
 Base Plate Stress Ratio: 47.1% **Pass**

Flexural Check

PL Ref. Data

Yield Line (in):	33.71
Max PL Length:	33.71

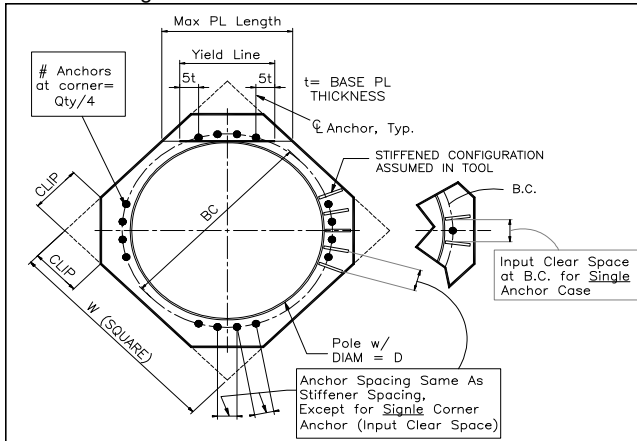
N/A - Unstiffened

Stiffener Results

Horizontal Weld : N/A
 Vertical Weld: N/A
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: N/A
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: N/A
 Plate Comp. (AISC Bracket): N/A

Pole Results

Pole Punching Shear Check: N/A



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

JOB: CT NHV-2075 CAC 801367 (BU 801367)
 SHEET NUMBER: 1 OF 1
 CALCULATED BY: MGY DATE 10/5/2016
 CHECKED BY: DTS DATE 10/5/2016

Pad and Pier Foundation for Monopole - TIA-222-G

(For pads of unequal side dimensions and eccentric tower location)

q _a , ALLOWABLE SOIL PRESS. (ksf)	8.00
NET or GROSS	NET
SAFETY FACTOR IN q _a	2
SOIL DENSITY (pcf)	100

F _c (ksi)	3
F _y (ksi)	60

φ*q_n = 12.0 ksf

Base Reactions LC1: 1.2D + 1.6W

M, MOMENT (k-ft)	4124.9
P _t , TOTAL DOWNLOAD (k)	64.3
H, HORIZONTAL SHEAR (k)	31.6
Tower Eccentricity, e _{LT} (ft)	0.0
Tower Eccentricity, e _{BT} (ft)	0.0

Base Reaction LC2: 0.9D + 1.6W

M (k-ft)	4124.9
P _t (k)	48.2
H (k)	31.6

Try:	L (ft.)	B (ft.)	t (ft.)	Depth to top of pad (ft.)	Pier dia./width (ft.)	Pier Height, h (cu.ft.)	Pier Shape
	28	25	2.5	2.9	8.00	3.50	Round

W _m , Weight of Mat (k) =	262.5
W _p , Weight of Pier (k) =	26.4
W _s , Weight of Soil (k) =	188.4

Concrete Vol. (cu ft) 71.33

CHECK BEARING PRESSURE for LC1: 1.2D + 1.6W

P = P _t + W _f + W _s =	637.1 k
e _L =	6.77 ft
L/6 =	4.67 ft
e _B =	6.77 ft
B/6 =	4.17 ft
Orthogonal: q _{max} =	2.04 ksf
Diag. Axis: q _{max} =	2.75 ksf

Capacity: 22.9%

CHECK BEARING STABILITY FOR LC2: 0.9D + 1.6W

90° Axis	M _{φqn} ¹ =	5649.1 k-ft
	M _{ot} /M _{φqn} =	0.76
Diag. Axis	M _{φqn} =	6761.9 k-ft
	M _{ot} /M _{φqn} =	0.64

Capacity: 76.4%

¹ M_{φqn} is the overturning moment at which q_{max} = φq_n

CHECK OVERTURNING: LC2 WITH WIND PARALLEL TO SIDE B CONTROLS

M _{st} =(P _t +0.9W _p)*(B/2-e _{BT})+(0.9W _{m+s} *B/2) =	5972.5 k-ft
M _{ot} = M+H*(t+h) =	4314.7 k-ft
M _{ot} /M _{st} =	0.72

Capacity: 72.2%

JOB: CT NHV-2075 CAC 801367 (BU 801367)
 SHEET NUMBER: 2 OF 2
 CALCULATED BY: MGY DATE 10/5/2016
 CHECKED BY: DTS DATE 10/5/2016

CHECK ONE WAY SHEAR

$V_u = 254.1 \text{ k}$
 $V_c = 710.8 \text{ k}$

Capacity: 35.75%

CALCULATE REINFORCING REQUIRED

$F'_c = 3.0 \text{ ksi}$ $F'_y = 60.0 \text{ ksi}$

Temp & Shrinkage reinforcing, $A_{s,t} = 0.32 \text{ in}^2/\text{ft}$ (ACI 318 Sec. 10.5.4)

BOTTOM REINFORCING

Bar Size = 10
 Bar Spacing, c-c: 9.0
 d = 25.1 in.

$\mu = 468.0 \text{ in-k/ft}$

$\phi M_n = 0.9 * A_s * F_y * d (1 - 0.59 * A_s * F_y / (b * d * F'_c))$

Solution: $A_{s,req} = 0.35 \text{ in}^2/\text{ft}$

Check, $A_s = 1.69 \text{ in}^2/\text{ft}$

Capacity: 20.65%

TOP REINFORCING

Bar Size = 10
 Bar Spacing, c-c: 9.0
 d = 25.1 in.

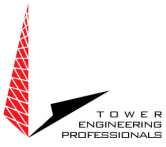
$\mu = 835.3 \text{ in-k/ft}$

$\phi M_n = 0.9 * A_s * F_y * d (1 - 0.59 * A_s * F_y / (b * d * F'_c))$

Solution: $A_{s,req} = 0.63 \text{ in}^2/\text{ft}$

Check, $A_s = 1.69 \text{ in}^2/\text{ft}$

Capacity: 37.28%



PASS PASS

CT NHV-2075 CAC 801367 (BU 801367)

Results Summary: LC1 LC2

TEP #: 25630.98367

Soil Interaction: N/A N/A

Analysis: MGY 10/5/2016

Drilled Caisson Tool - Input

Foundation Structural: 38.5% 11.9%

Check: DTS 10/5/2016

Code Revisions: TIA-222-G ACI 318-11

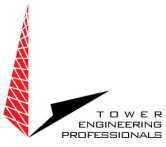
Tower Type: Monopole

	LC1	LC2	
Moment:	4,235.59	1,319.46	kip-ft
Axial (download):	64.30	107.06	kip
Shear:	31.63	9.71	kip
Axial (uplift):			kip

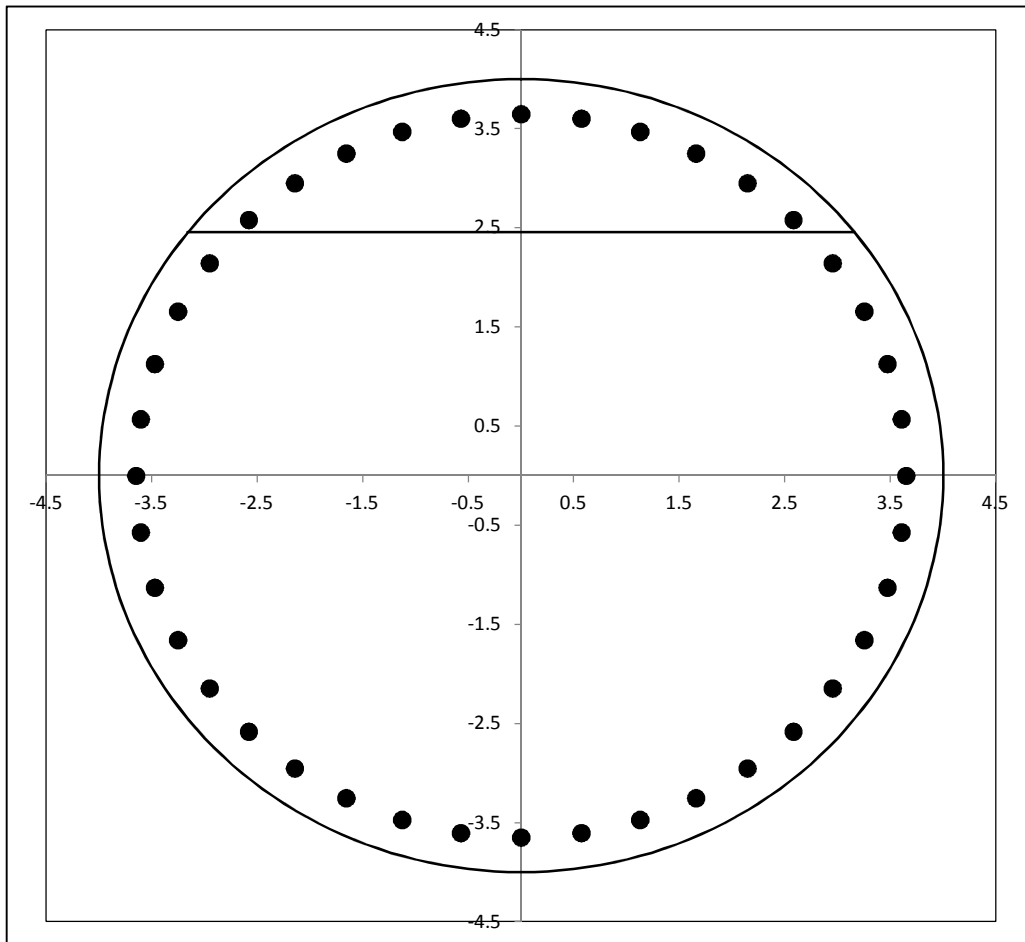
Shaft Information		
Diameter:	8.00	ft
Projection:	0.60	ft
Caisson Length:	3.50	ft
f'c:	3.000	ksi
Max ϵ_c :	0.003	in/in

Cage 1 Reinforcement

Tie Bar Size:	4	($f_y = 40.0$ ksi)
Clear Cover to Tie:	3.00	in (Cage $\phi = 87.59$ in)
Tie Bar Spacing:	6.00	in
Vertical Bar Size:	11	
Vertical Bar Quantity:	40	($\rho = 0.862\%$)
f _y :	60.0	ksi
E:	29,000	ksi



Reinforcement Capacity



	LC1	LC2
V_u =	31.6	31.6 kip
V_c =	796.4	798.8 kip
$f_{y,tie}$ = 40.0 V_s =	244.4	244.4 kip
ϕV_n =	780.6	782.4 kip
Capacity =	4.1%	4.0%
	PASS	PASS

	LC1	LC2
M_u =	4235.6	1319.5 kip-ft
ϕM_n =	10991.6	11102.4 kip-ft
Capacity =	38.5%	11.9%
	PASS	PASS



[ASCE 7 Windspeed](#)
[ASCE 7 Ground Snow Load](#)
[Related Resources](#)
[Sponsors](#)
[About ATC](#)
[Contact](#)

Search Results

Query Date: Mon Oct 03 2016

Latitude: 41.5364

Longitude: -72.9573

**ASCE 7-10 Windspeeds
(3-sec peak gust in mph*):**

Risk Category I: 111

Risk Category II: 122

Risk Category III-IV: 131

MRI 10-Year:** 76

MRI 25-Year:** 86

MRI 50-Year:** 92

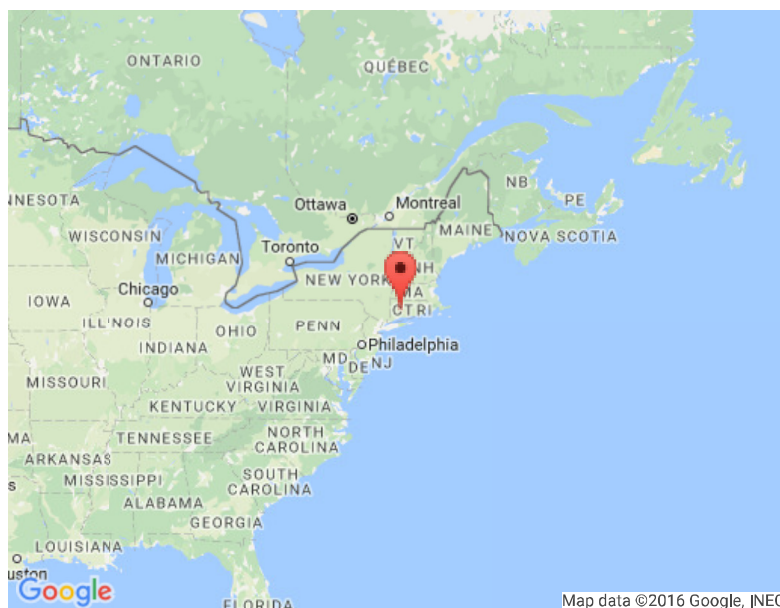
MRI 100-Year:** 99

ASCE 7-05 Windspeed:

101 (3-sec peak gust in mph)

ASCE 7-93 Windspeed:

80 (fastest mile in mph)



Map data ©2016 Google, INEGI

*Miles per hour

**Mean Recurrence Interval

Users should consult with local building officials to determine if there are community-specific wind speed requirements that govern.



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SITE SAFE
RF COMPLIANCE EXPERTS

A BUSINESS OF FDH VELOCITEL

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



**SmartLink, LLC on behalf of
AT&T Mobility, LLC
Site FA – 10090892
Site ID – CTV5263 (3C)
USID – 26259
Site Name – Cheshire Larsens
Pond
Site Compliance Report**

**Cheshire Larsens Pond
Cheshire, CT 06410**

Latitude: N41-32-10.94
Longitude: W72-57-25.96
Structure Type: Monopole

Report generated date: October 14, 2016
Report by: Leo Romero
Customer Contact: Kristen Smith

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

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1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Access to Antennas Locked?	Yes
RF Sign(s) @ access point(s)	No
RF Sign(s) @ antennas	No
Barrier(s) @ sectors	No
Max cumulative simulated RFE level on the Ground Level	<1% General Public Limit at AT&T Mobility, LLC Alpha, Beta and Gamma Sectors
FCC & AT&T Compliant?	Will Be Compliant

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






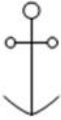
RFDS: NEW-ENGLAND_CONNECTICUT_CTV5263_2017-LTE-Multi-Carrier_1xBBU-RRH-Add_om636a_PTN_10090892_26259_04-15-2016_Final-Approved_v2.00

CD's: 10090892_AE201_160818_CTL05263_REV0

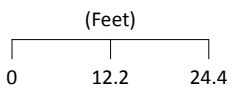
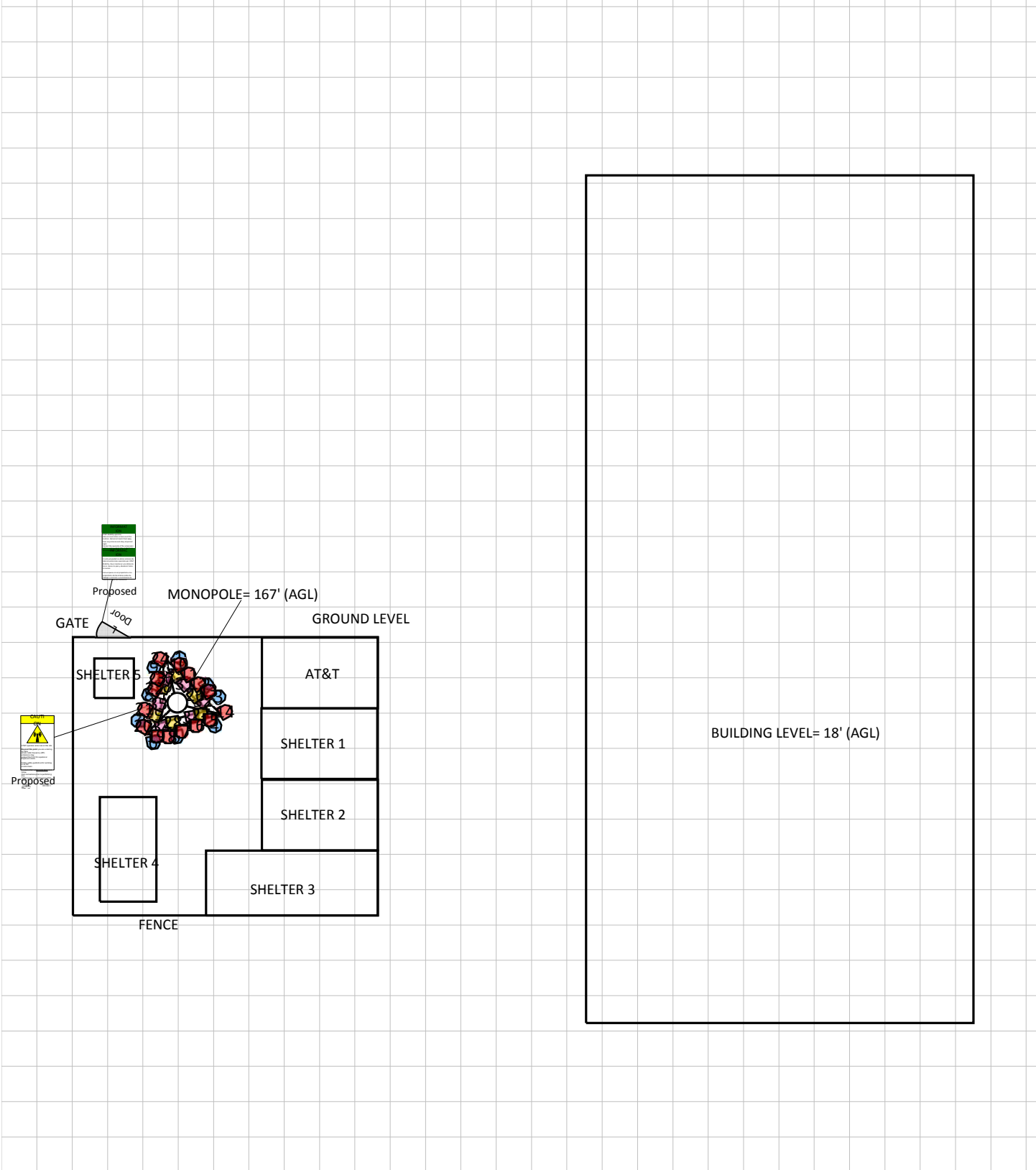
2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- RF Exposure Diagram – Detail View
- AT&T Mobility, LLC Contribution

Scale Map Key		
 <p>Existing Sign</p>	 <p>Proposed Barrier</p>	 <p>GPS Reading</p>
 <p>Proposed Sign</p>	 <p>Existing Barrier</p>	 <p>Anchor Point</p>

Site Scale Map For: Cheshire Larsens Pond



AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

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 (AGL)
1	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	737	30	71	8	13.733	0	0	1	1475.7	51'	115.6'	156'
2	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	850	50	63	8	13.56	1	0	0	237.1	55.9'	110.9'	156'
2	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2300	50	65	8	14.36	0	0	1	1285.3	55.9'	110.9'	156'
2	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	50	68.2	8	13.86	0	0	1	3664.4	55.9'	110.9'	156'
3	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	50	82	4.6	11.51	0	1	0	237.1	58'	108.7'	157.7'
3	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	50	86	4.6	13.41	0	1	0	336.5	58'	108.7'	157.7'
4	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	737	150	71	8	13.733	0	0	1	1475.7	57.3'	103.6'	156'
5	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	850	170	63	8	13.56	1	0	0	237.1	50.5'	101.6'	156'
5	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2300	170	65	8	14.36	0	0	1	1285.3	50.5'	101.6'	156'
5	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	170	68.2	8	13.86	0	0	1	3664.4	50.5'	101.6'	156'
6	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	170	82	4.6	11.51	0	1	0	237.1	46.5'	100.6'	157.7'
6	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	170	86	4.6	13.41	0	1	0	336.5	46.5'	100.6'	157.7'
7	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	737	270	71	8	13.733	0	0	1	1475.7	43.7'	104.5'	156'
8	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	850	290	63	8	13.56	1	0	0	237.1	45.7'	109.1'	156'
8	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2300	290	65	8	14.36	0	0	1	1285.3	45.7'	109.1'	156'
8	AT&T MOBILITY LLC (Proposed)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	290	68.2	8	13.86	0	0	1	3664.4	45.7'	109.1'	156'
9	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	290	82	4.6	11.51	0	1	0	237.1	46.6'	114'	157.7'
9	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	290	86	4.6	13.41	0	1	0	336.5	46.6'	114'	157.7'
10	VERIZON WIRELESS	Antel LPA-80063-8CF	Panel	850	60	63	7.9	16.01	-	-	-	1596.1	51'	114.5'	164.1'
11	VERIZON WIRELESS	Antel BXA-171063-8CF	Panel	1900	60	65	4	14.91	-	-	-	1858.5	52.7'	112.7'	166'
12	VERIZON WIRELESS	Antel BXA-70063-6CF	Panel	751	60	65	5.9	14.01	-	-	-	1510.6	54.5'	111'	165'
13	VERIZON WIRELESS	Antel BXA-171063-8CF	Panel	2100	60	60	4	15.31	-	-	-	2037.8	56.3'	109.7'	166'
14	VERIZON WIRELESS	Antel LPA-80063-8CF	Panel	850	60	63	7.9	16.01	-	-	-	1596.1	59.2'	106.1'	164.1'
15	VERIZON WIRELESS	Antel LPA-80063-8CF	Panel	850	180	63	7.9	16.01	-	-	-	1596.1	56.4'	104.6'	164.1'
16	VERIZON WIRELESS	Antel BXA-171063-8CF	Panel	1900	180	65	4	14.91	-	-	-	1858.5	53.9'	103.6'	166'
17	VERIZON WIRELESS	Antel BXA-70063-6CF	Panel	751	180	65	5.9	14.01	-	-	-	1510.6	51.4'	102.6'	165'
18	VERIZON WIRELESS	Antel BXA-171063-8CF	Panel	2100	180	60	4	15.31	-	-	-	2037.8	49.1'	101.6'	166'
19	VERIZON WIRELESS	Antel LPA-80063-8CF	Panel	850	180	63	7.9	16.01	-	-	-	1596.1	47'	101.7'	164.1'
20	VERIZON WIRELESS	Antel LPA-80063-8CF	Panel	850	300	63	7.9	16.01	-	-	-	1596.1	44.6'	103.5'	164.1'

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 (AGL)
21	VERIZON WIRELESS	Antel BXA-171063-8CF	Panel	1900	300	65	4	14.91	-	-	-	1858.5	44.9'	106.6'	166'
22	VERIZON WIRELESS	Antel BXA-70063-6CF	Panel	751	300	65	5.9	14.01	-	-	-	1510.6	46.7'	110.1'	165'
23	VERIZON WIRELESS	Antel BXA-171063-8CF	Panel	2100	300	60	4	15.31	-	-	-	2037.8	47.1'	112'	166'
24	VERIZON WIRELESS	Antel LPA-80063-8CF	Panel	850	300	63	7.9	16.01	-	-	-	1596.1	47.6'	115.5'	164.1'
25	SPRINT	RFS APXVTM14-C-I20	Panel	2500	50	68	4.7	15.86	-	-	-	1600	50.5'	112.6'	144.7'
26	SPRINT	RFS APXVSP18-C-A20	Panel	1900	50	65	6	16.27	-	-	-	2541.9	53.9'	109'	144'
26	SPRINT	RFS APXVSP18-C-A20	Panel	862	50	65	6	13.37	-	-	-	869.1	53.9'	109'	144'
27	SPRINT	RFS APXVTM14-C-I20	Panel	2500	170	68	4.7	15.86	-	-	-	1600	54.9'	105.6'	144.7'
28	SPRINT	RFS APXVSP18-C-A20	Panel	1900	170	65	6	16.27	-	-	-	2541.9	49.9'	104.1'	144'
28	SPRINT	RFS APXVSP18-C-A20	Panel	862	170	65	6	13.37	-	-	-	869.1	49.9'	104.1'	144'
29	SPRINT	RFS APXVTM14-C-I20	Panel	2500	290	68	4.7	15.86	-	-	-	1600	46.6'	105.6'	144.7'
30	SPRINT	RFS APXVSP18-C-A20	Panel	1900	290	65	6	16.27	-	-	-	2541.9	48.1'	110.5'	144'
30	SPRINT	RFS APXVSP18-C-A20	Panel	862	290	65	6	13.37	-	-	-	869.1	48.1'	110.5'	144'
31	T-MOBILE	Andrew LNX-6515DS-VTM	Panel	700	50	65	8	14.42	-	-	-	1660.2	52'	111.1'	134'
32	T-MOBILE	RFS APX16PV-16PVL	Panel	2100	50	66.3	4.4	15.56	-	-	-	2158.5	55.3'	108'	135.8'
32	T-MOBILE	RFS APX16PV-16PVL	Panel	1900	50	66.3	4.4	15.56	-	-	-	2158.5	55.3'	108'	135.8'
33	T-MOBILE	Andrew LNX-6515DS-VTM	Panel	700	170	65	8	14.42	-	-	-	1660.2	53.3'	105.1'	134'
34	T-MOBILE	RFS APX16PV-16PVL	Panel	1900	170	66.3	4.4	15.56	-	-	-	2158.5	48'	103.5'	135.8'
34	T-MOBILE	RFS APX16PV-16PVL	Panel	2100	170	66.3	4.4	15.56	-	-	-	2158.5	48'	103.5'	135.8'
35	T-MOBILE	Andrew LNX-6515DS-VTM	Panel	700	290	65	8	14.42	-	-	-	1660.2	47.4'	107.5'	134'
36	T-MOBILE	RFS APX16PV-16PVL	Panel	1900	290	66.3	4.4	15.56	-	-	-	2158.5	48.4'	112'	135.8'
36	T-MOBILE	RFS APX16PV-16PVL	Panel	2100	290	66.3	4.4	15.56	-	-	-	2158.5	48.4'	112'	135.8'

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 ground level (AGL)**. 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.

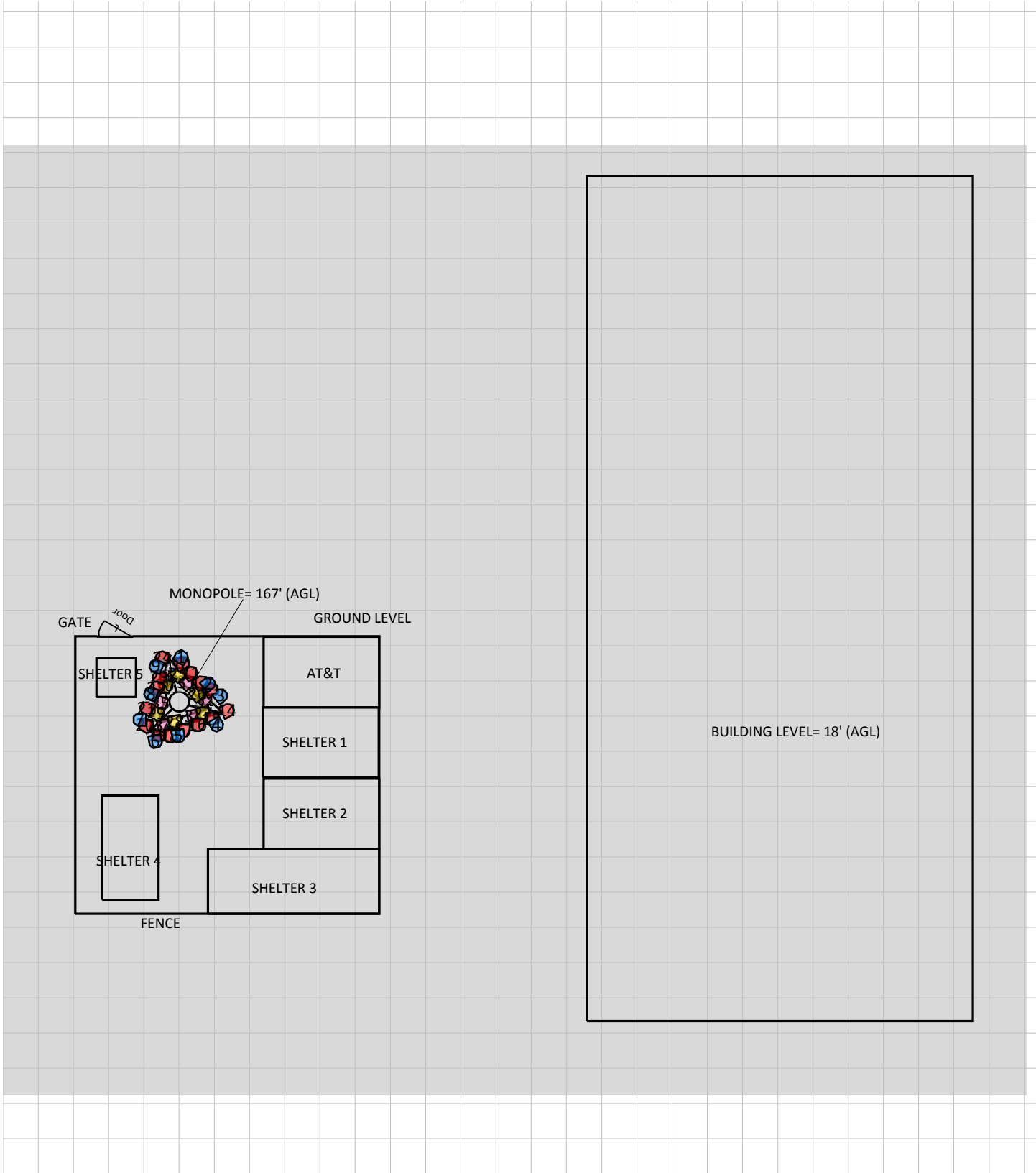
Note: The 1900MHz LTE technology is being added to an existing antenna.

4 Emission Predictions

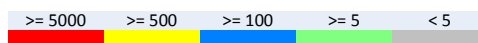
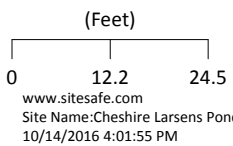
In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main 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: Cheshire Larsens Pond



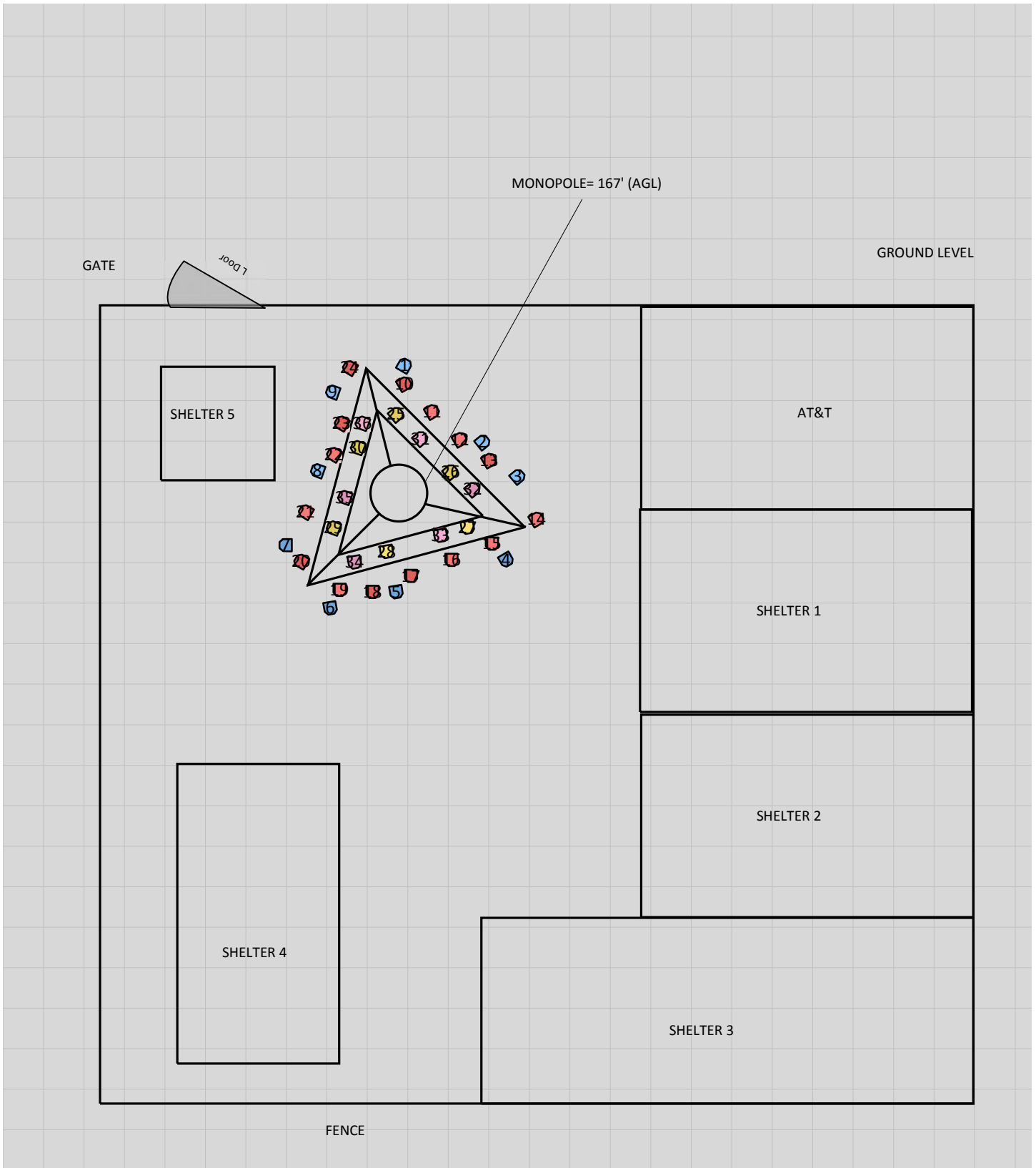
% of FCC Public Exposure Limit
Spatial average 0' - 6'



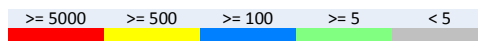
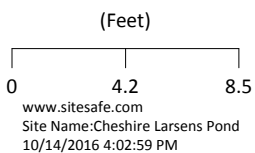
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SitesafeTC Version: 1.0.0.0 - 0.0.0.249
 Sitesafe OET-65 Model
 Near Field Boundary: 1.5 * Aperture
 Reflection Factor: 1
 Spatially Averaged

RF Exposure Simulation For: Cheshire Larsens Pond Detail View



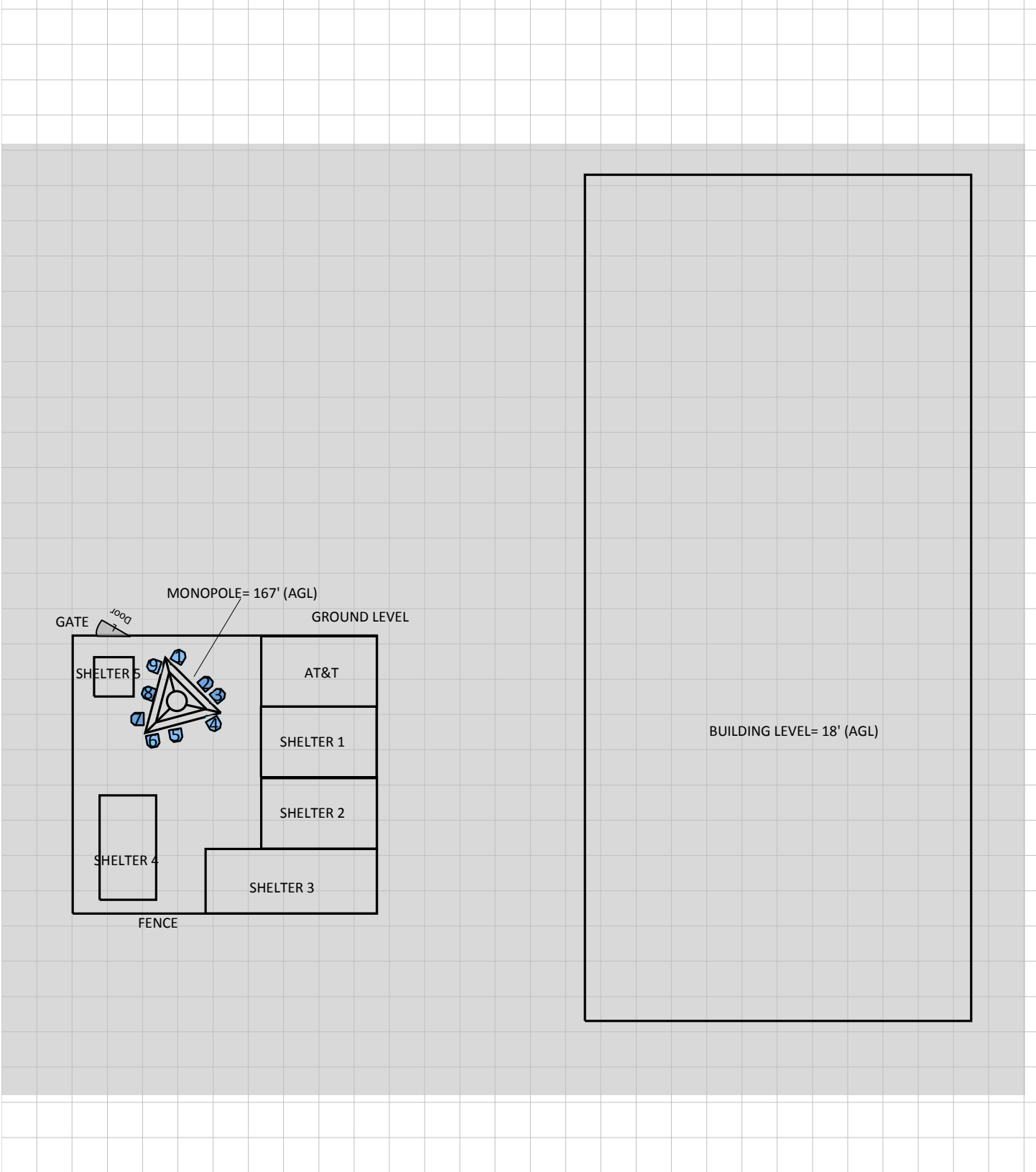
% of FCC Public Exposure Limit
Spatial average 0' - 6'



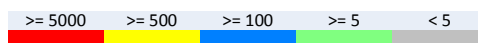
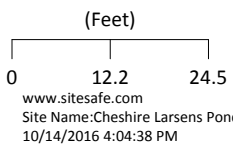
AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

SitesafeTC Version:1.0.0.0 - 0.0.0.249
 Sitesafe OET-65 Model
 Near Field Boundary: 1.5 * Aperture
 Reflection Factor: 1
 Spatially Averaged

RF Exposure Simulation For: Cheshire Larsens Pond
 AT&T Mobility, LLC Contribution



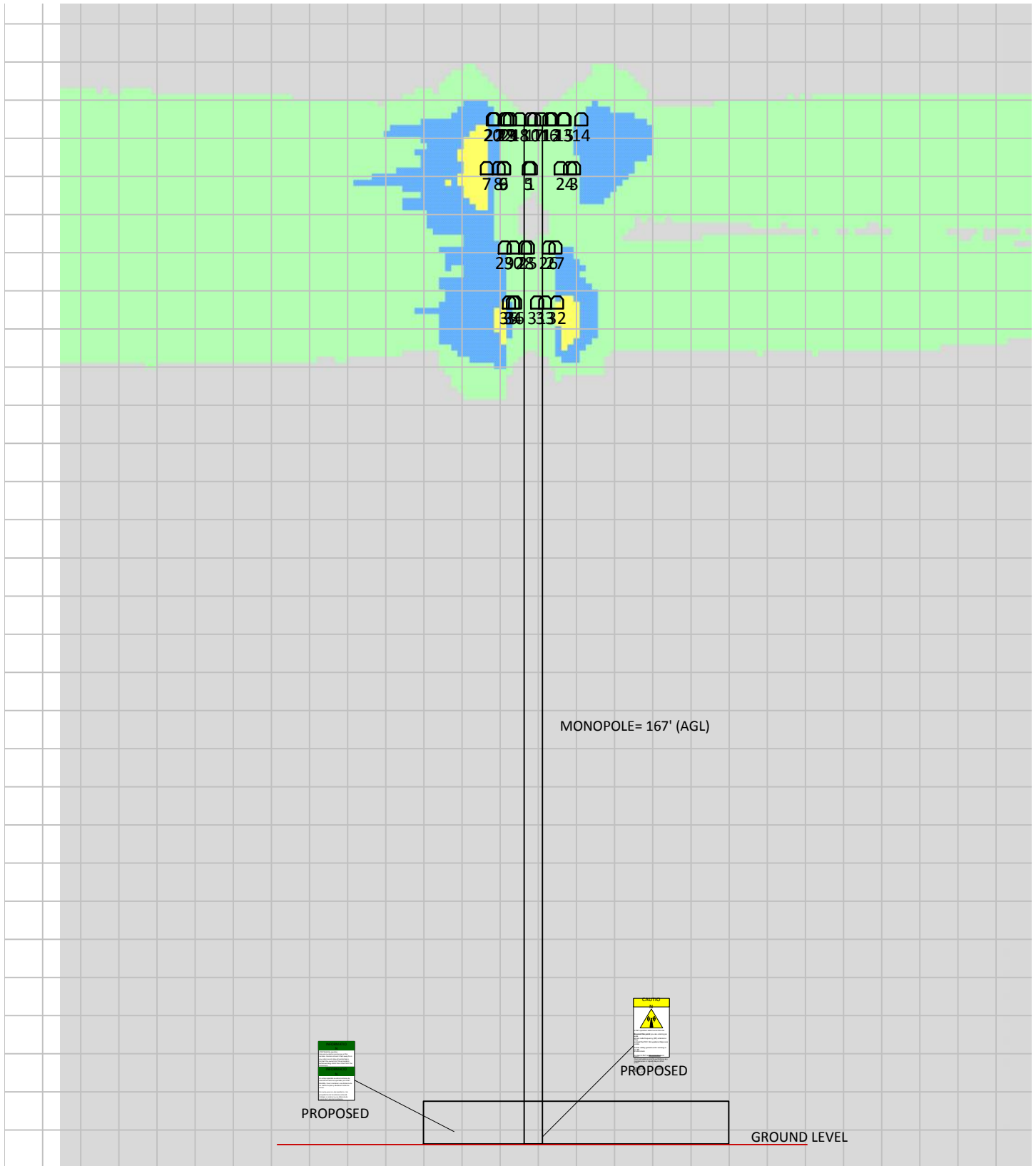
% of FCC Public Exposure Limit
 Spatial average 0' - 6'



AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPICS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT
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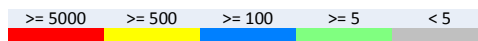
SitesafeTC Version: 1.0.0.0 - 0.0.0.249
 Sitesafe OET-65 Model
 Near Field Boundary: 1.5 * Aperture
 Reflection Factor: 1
 Spatially Averaged

RF Exposure Simulation For: Cheshire Larsens Pond Elevation View



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

(Feet)
 0 11.2 22.4
 www.sitesafe.com
 Site Name: Cheshire Larsens Pond
 10/14/2016 4:11:46 PM



AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT
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SitesafeTC Version: 1.0.0.0 - 0.0.0.249
 Sitesafe OET-65 Model
 Near Field Boundary: 1.5 * Aperture
 Reflection Factor: 1
 Spatially Averaged

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:

Base of Tower

Yellow caution 2 sign required.

Compound Gate

Information 1 sign required.

6 Engineer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms that:

I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

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 Leo Romero.

October 14, 2016

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 Communication 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.

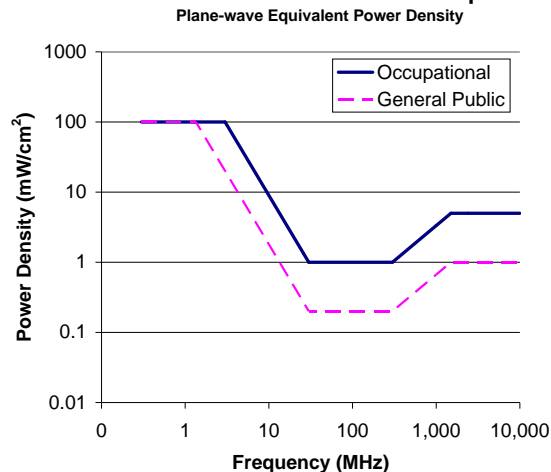
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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>