



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

February 21, 2017

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: 855662
AT&T Site ID: CT5138
340 Bloomfield Avenue, Windsor, CT 06095
Latitude: 41° 51' 9.34"/ Longitude: -72° 39' 37.79"

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 146-foot level of the existing 150-foot monopole at 340 Bloomfield Avenue in Windsor, CT. The tower is owned by Crown Castle; the Town of Windsor owns the property. AT&T intends to replace three (3) antennas with three (3) new antennas, remove three (3) Kathrein antennas, six (6) TMAs, six (6) combiners, and six (6) lines. AT&T also intends to install three (3) RRU12/A2s and three (3) twin TMAs.

This facility was approved by the by the Town of Windsor Planning & Zoning Commission on October 10, 2000. This approval included the conditions that:

1. Final approval of the Fire Marshal regarding fire safety issues.

This condition was related to the original building of the tower and not modifications going forward. 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 The Honorable Donald S. Trinks, Mayor, Town of Windsor, as well as the property owner, and 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.
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.

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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: The Honorable Donald S. Trinks, Mayor
Town of Windsor
275 Broad Street
Windsor, CT 06095

Town of Windsor Planning & Zoning
275 Broad Street
Windsor, CT 06095



First in Connecticut. First for its citizens.

October 25, 2000

Cuddy & Feder & Worby LLP
ATTN: Daniel F. Leary
90 Maple Avenue
White Plains, NY 10601-5196

Subject: Special Use #546 - Wireless Telecommunications Tower, 340 Bloomfield Avenue, Zoning Regulations Sections 12.2 & 2.2.19E(1), NZ Zone, Town of Windsor/AT&T Wireless PCS, LLC

Site Plan #308E - Revision, Wireless Telecommunications Tower, 340 Bloomfield Avenue, NZ Zone, Town of Windsor/AT&T Wireless PCS, LLC

Dear Mr. Leary:

At its meeting on October 10, 2000 the Windsor Town Planning & Zoning Commission took the following action on the subject applications:

Approved subject to the following condition:

- 1) **Final approval of the Fire Marshal regarding fire safety issues**

Approval includes the following distance waiver:

- 1) **83 feet for Bloomfield Avenue south of site**

Very truly yours,

Town Planning & Zoning Commission

/mm

I, Anita M. Mips, Chairperson of the Windsor Town Planning and Zoning Commission, hereby certify that on October 10, 2000 the Planning and Zoning Commission of the Town of Windsor granted approval of Special Use Application #546 for a Wireless Telecommunications Tower with a monopole height of 150 feet plus 20-foot Town public service whip antennas for a total height of 170 feet, under Zoning Regulations Sections 12.2 & 2.2.19E(1), subject to the following condition:

1) Final approval of the Fire Marshal regarding fire safety issues.


This approval also includes the following waiver in accordance with Zoning Regulations Section 12.1:

1) a waiver of the fall zone distance requirement for 83 feet in relation to the distance of the tower from Bloomfield Avenue, 340 feet being required, 257 feet being proposed.

Said Special Use was granted for the property located at: 340 Bloomfield Avenue

The owner of record of said parcel is: Town of Windsor

Dated at Windsor, Connecticut, this 30th day of November, 2000

 Chairperson

Public Act #75-317

Received for Record this _____ day of _____, 2000

_____ Attest: Town Clerk

Property Cards

Address Search :

[Clear Search](#)

340 Bloomfield Ave

Property Owner:

Windsor Town Of

Property Co-Owner

C/O At&T Mobility

Mailing Address:

575 Morosgo Dr Suite 13-F
Atlanta, GA
30324

File Code

3788.01

Map:

54

Block:

456

Lot:

98

Census Tract:

4736.02

Property Type:

Cell Tower

Land Area (Acres):

0.05

Zone:

NZ



Construction Details

Year Built:

0

Building Style:

Stories:

Living Area:

0 Sq/Ft

Building ID

100454

Grade

Exterior Wall

Total Rooms:

Bedrooms:

Bathrooms:

Half Baths:

Heating Type

Heating Fuel

AC Type

Valuation

Assessed Land Value:
\$143,500

Assessed Building Value:
\$164,640

Total Assessed Value:
\$308,140

Appraised Land Value:
\$205,000

Appraised Building Value:
\$235,200

Total Appraised Value:
\$440,200

Last Sale

Last Sale Date:
Tuesday, August 6th, 1963

Last Sale Price:
\$0

Qualified Sale:

Book/Page:
190/ 568

Prior Owners

Sale Date	Owner Name	Sale Price	Book / Page

Parcel Sketch



Sub Area Detail

Code	Gross Area (Sq Ft)	Living Area (Sq Ft)
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Outbuildings & Extra Features

Code	Description	Appraised Value	Assessed Value
CB3	PerCastConCel	\$220500.00	\$154350.00

AOF Office Area

APT Apartment

BAS First Floor

CAN Canopy

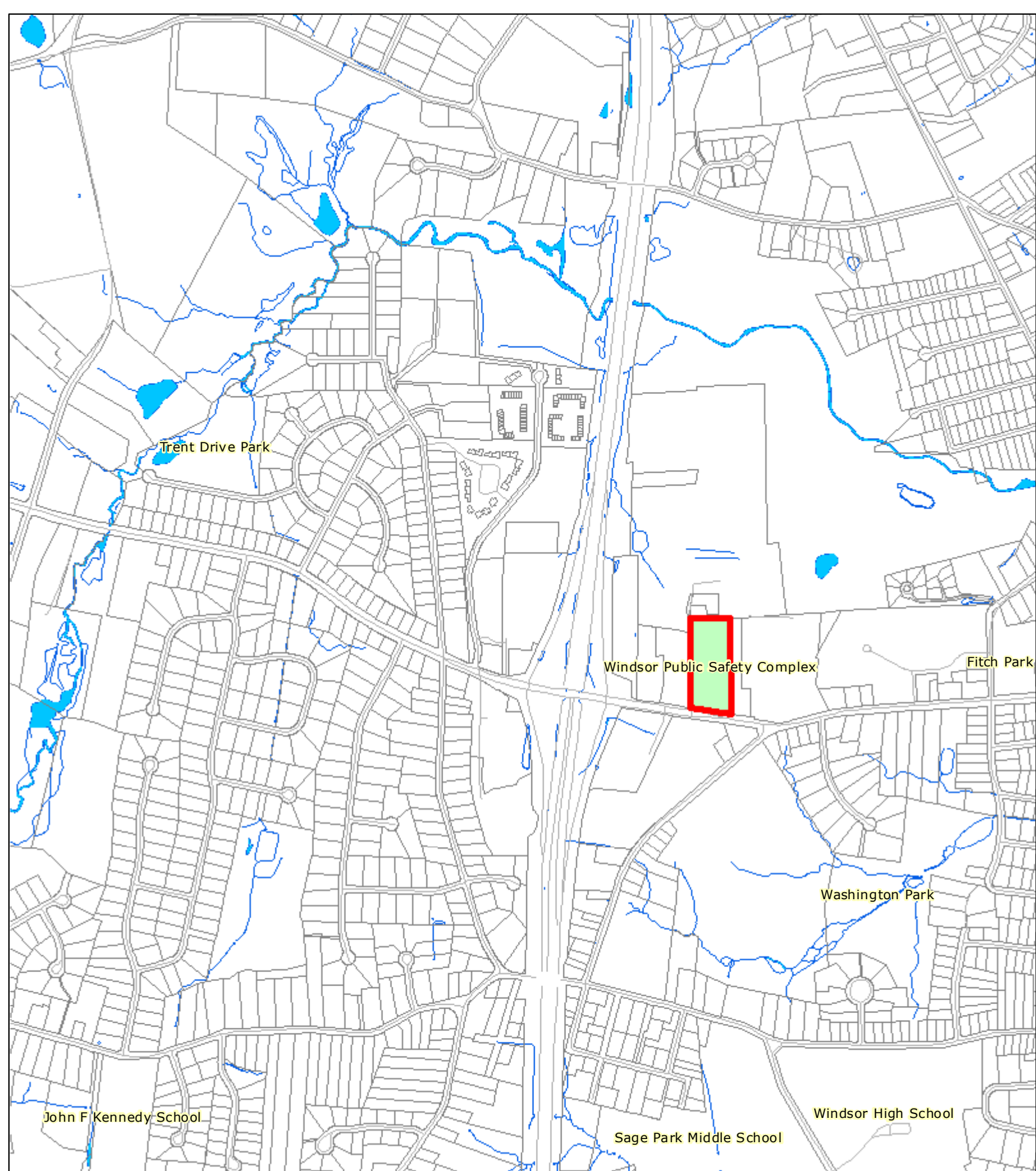
CDN Canopy (Det)

CLP Loading Platform (Finished)

EAF Attic (Expan)(Finished)

EAU Attic (Expan)(Unfinished)

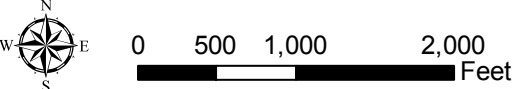
FAT Attic (Finished)



Hartford County, Connecticut

Horizontal Datum is Connecticut State Plane Feet, NAD83

1 inch = 1,219 feet



Property Boundaries not legally binding for title or zoning purposes.

The Town of Windsor makes no warranty as to the accuracy, reliability, or completeness of the information and is not responsible for any error or omissions for results obtained from the use of the information.



PROJECT: LTE 2C
SITE NUMBER: CTL05138
FA NUMBER: 10092835
PTN NUMBER: 2051A066G5
PACE NUMBER: MRCTB018197
CROWN BU#: 855662
SITE NAME: WINDSOR CENTRAL
SITE ADDRESS: 340 BLOOMFIELD AVENUE
 WINDSOR, CT 06095



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



1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076



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

PROJECT INFORMATION

SITE NAME: WINDSOR CENTRAL
SITE NUMBER: CTL05138
SITE ADDRESS: 340 BLOOMFIELD AVENUE
 WINDSOR, CT 06095
FA NUMBER: 10092835
PTN NUMBER: 2051A066G5
PACE NUMBER: MRCTB018197
USID NUMBER: 14488
CROWN BU#: 855662
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: WINDSOR, CT
COUNTY: HARTFORD
SITE COORDINATES FROM (RFDS):
LATITUDE: 41.852492°
LONGITUDE: -72.660599°
GROUND ELEV.: 118'
PROPOSED USE: TELECOMMUNICATIONS FACILITY
AT&T RF MANAGER: CAMERON SYME
PHONE: (508) 596-7146
EMAIL: cs6970@att.com

SCOPE OF WORK

LTE 1900 WILL BE 2C AT THE SITE WITH BRONZE CONFIGURATION. PROPOSED 2C PROJECT SCOPE HEREIN BASED ON RFDS ID # 1118603, VERSION 5.00 LAST UPDATED 02/02/17.

- (3) NEW ANTENNAS TO REPLACE (3) EXISTING ANTENNAS
- (3) NEW RRUS-12 UNITS W/A2 MODULE
- (1) NEW LTE DUS
- (1) XMU CARD
- (1) NEW HANDRAIL KIT
- GSM TO BE DECOMMISSIONED

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

APPLICABLE BUILDING CODES AND STANDARDS

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

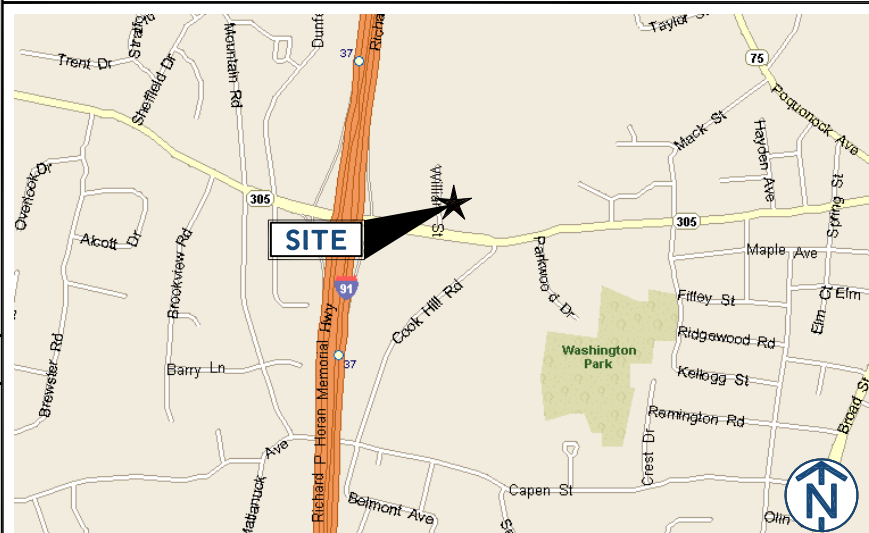
BUILDING CODE: 2012 INTERNATIONAL BUILDING CODE
 2016 CONNECTICUT STATE BUILDING CODE SUPPLEMENT
ELECTRICAL CODE: 2014 NATIONAL ELECTRIC CODE

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

REV	DATE	DESCRIPTION	BY
0	07/11/16	90% REVIEW	KC
1	09/20/16	FOR PERMIT	KC
2	02/08/17	FOR CONSTRUCTION	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



NO SCALE

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

DIRECTIONS

SCAN QR CODE FOR LINK TO SITE LOCATION MAP



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

SITE NAME
WINDSOR CENTRAL

SITE NUMBER:
CTL05138
CROWN BU # 855662

SITE ADDRESS
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET NAME
TITLE SHEET

SHEET NUMBER
T1

GENERAL CONSTRUCTION

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

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

ANTENNA MOUNTING

- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL

CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.

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

TORQUE REQUIREMENTS

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

FIBER & POWER CABLE MOUNTING

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

COAXIAL CABLE NOTES

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

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

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

GENERAL CABLE AND EQUIPMENT NOTES

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



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



REV	DATE	DESCRIPTION	BY
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2	02/08/17	FOR CONSTRUCTION	KC

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SITE NAME
WINDSOR CENTRAL

SITE NUMBER:
**CTL05138
CROWN BU # 855662**

SITE ADDRESS
**340 BLOOMFIELD AVENUE
WINDSOR, CT 06095**

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.

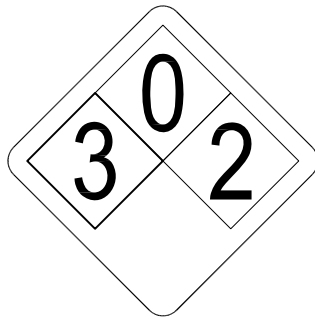
Ref: 47CFR 1.1307(b)

CAUTION

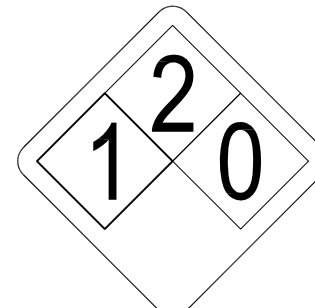
Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC Occupational Exposure Limits.

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

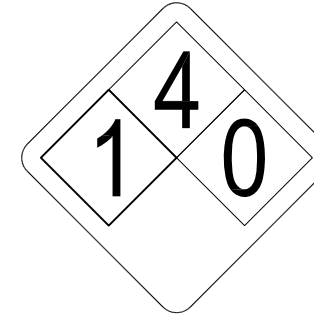
Ref: 47CFR 1.1307(b)



ALERTING SIGN
(FOR CELL SITE BATTERIES)



ALERTING SIGN
(FOR DIESEL FUEL)



ALERTING SIGN
(FOR PROPANE)



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



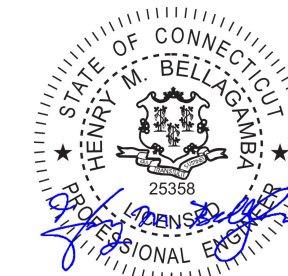
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SITE NAME
WINDSOR CENTRAL

SITE NUMBER:
**CTL05138
CROWN BU # 855662**

SITE ADDRESS
**340 BLOOMFIELD AVENUE
WINDSOR, CT 06095**

SHEET NAME
NOTES AND SPECIFICATIONS

SHEET NUMBER
SP2

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.

INFO SIGN #1

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 # _____

INFO SIGN #2

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A



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 #3

SIGNAGE GUIDELINES CHART

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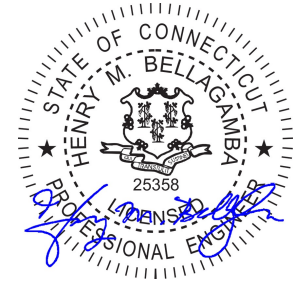
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WINDSOR CENTRAL

SITE NUMBER:
**CTL05138
CROWN BU # 855662**

SITE ADDRESS
**340 BLOOMFIELD AVENUE
WINDSOR, CT 06095**

SHEET NAME
COMPOUND PLAN

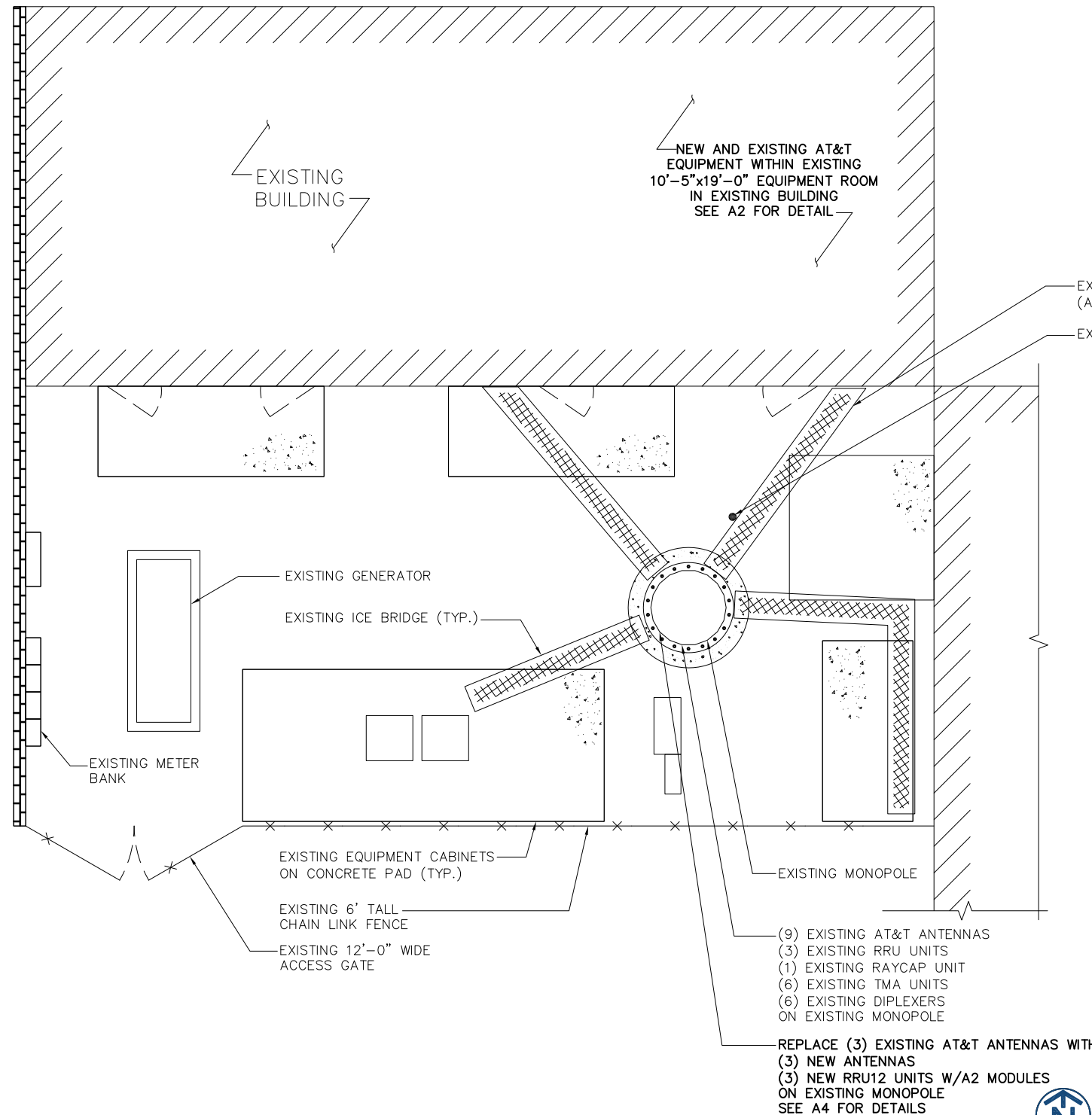
SHEET NUMBER
A1

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
MCFA	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



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



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

COMPOUND PLAN

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

A1

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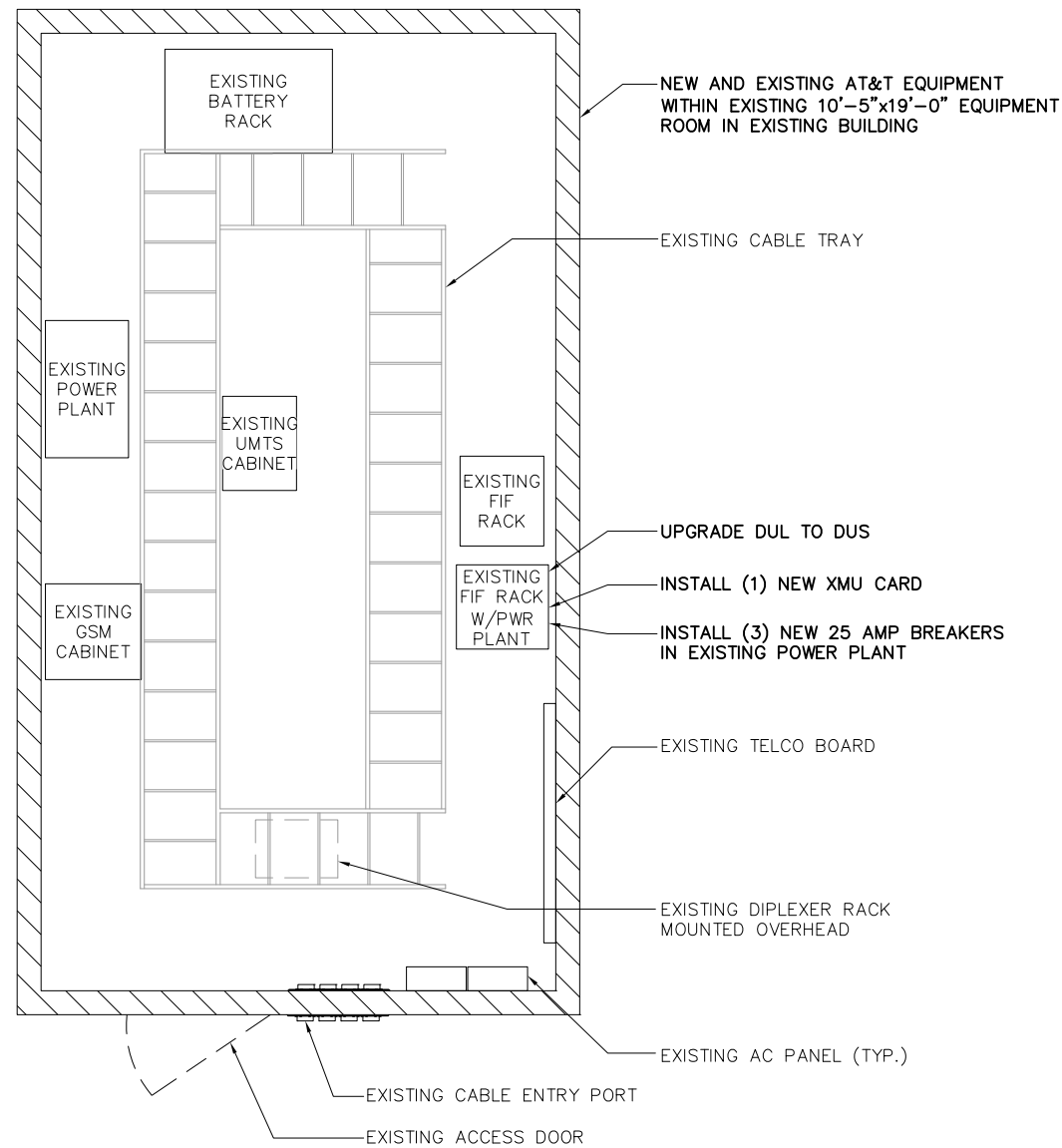
SITE NAME
WINDSOR CENTRAL

SITE NUMBER:
**CTL05138
CROWN BU # 855662**

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SHEET NAME
EQUIPMENT PLAN

SHEET NUMBER
A2



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NOTES:

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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

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.



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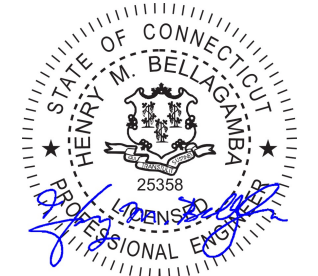
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SITE NAME

**WINDSOR
CENTRAL**

SITE NUMBER:

**CTL05138
CROWN BU # 855662**

SITE ADDRESS

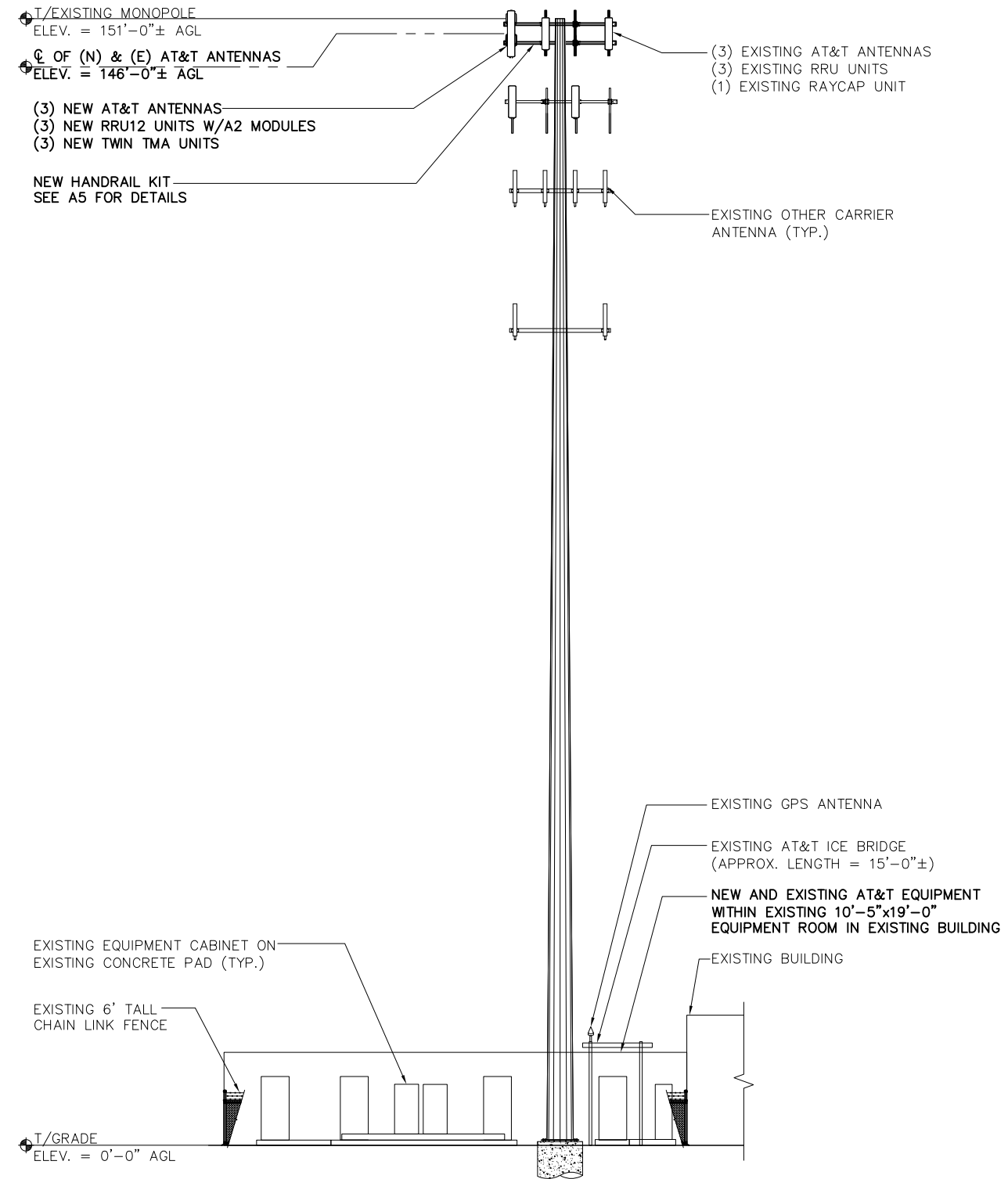
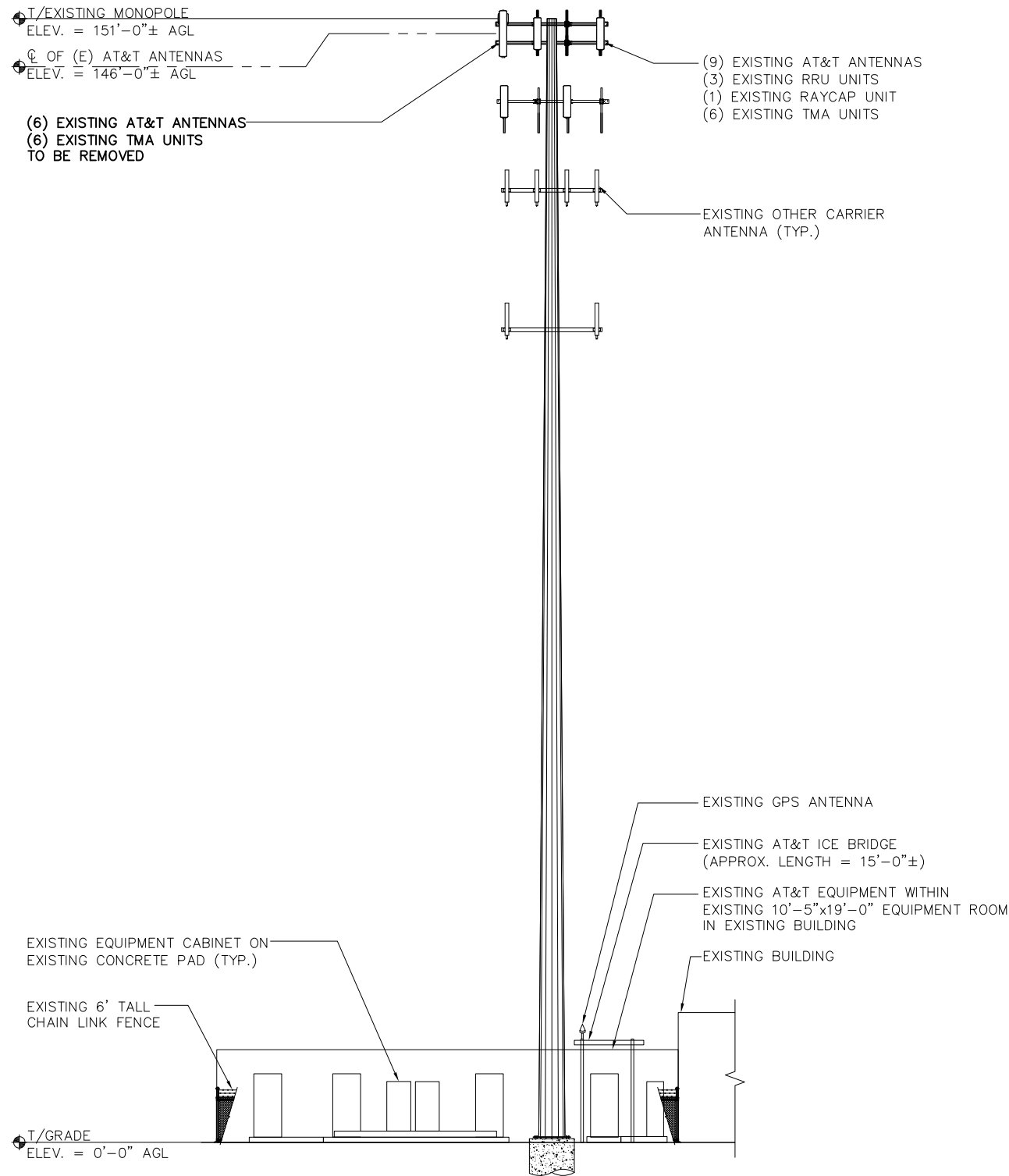
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SHEET NAME

ELEVATIONS

SHEET NUMBER

A3



EXISTING ELEVATION

SCALE: 1" = 20'-0" 1

NEW ELEVATION

SCALE: 1" = 20'-0" 2



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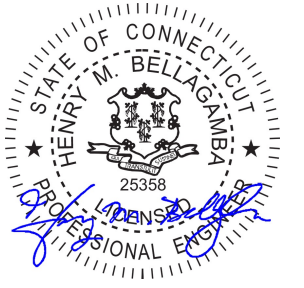
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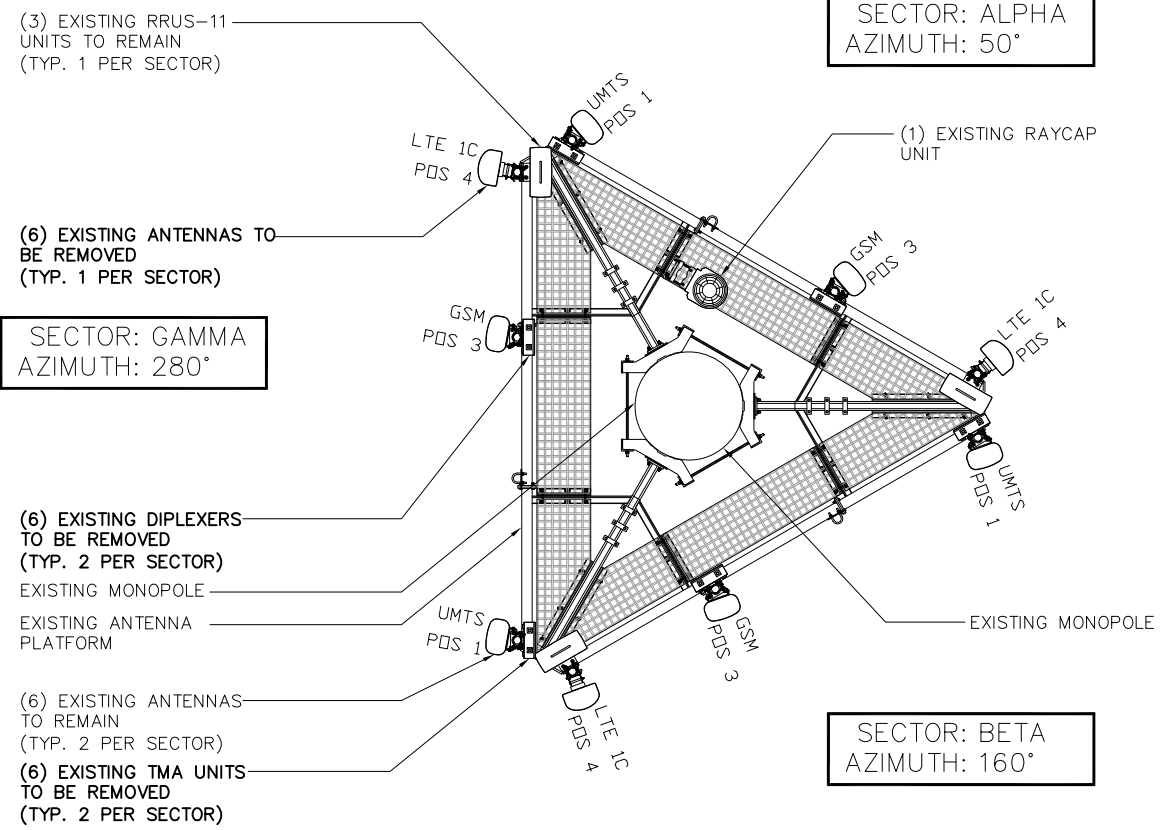
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CROWN BU # 855662**

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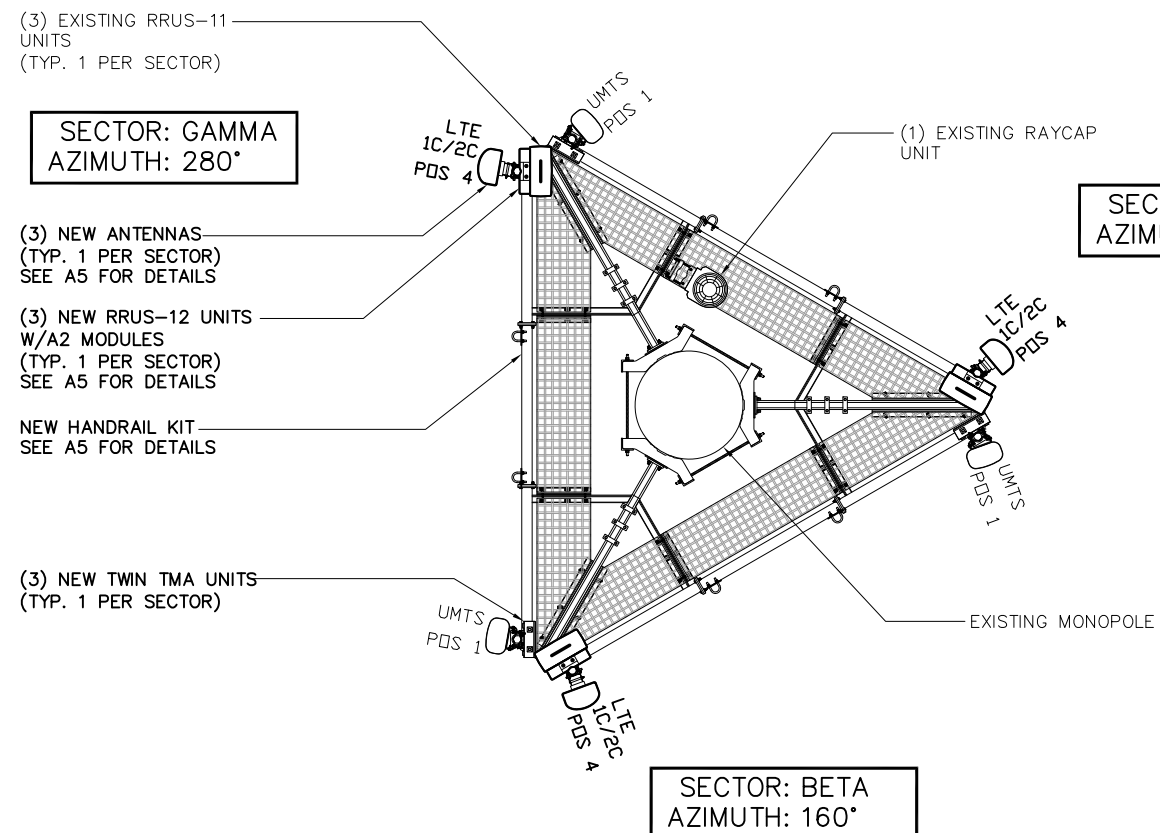
SHEET NAME
ANTENNA PLANS

SHEET NUMBER
A4



EXISTING ANTENNA PLAN

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

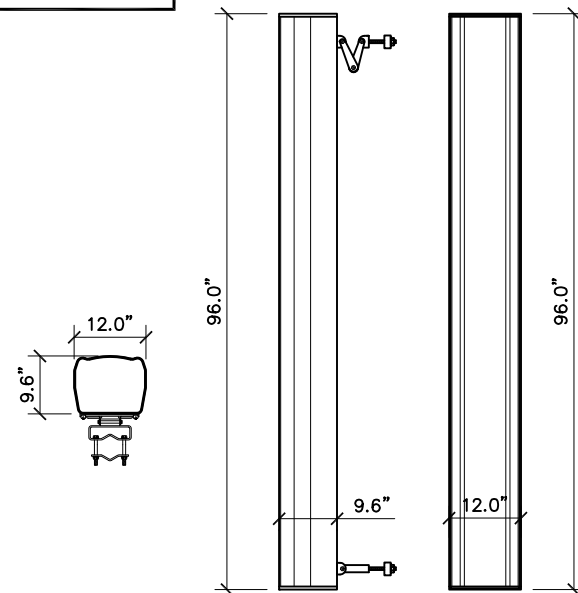


FINAL ANTENNA PLAN

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

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ALPHA



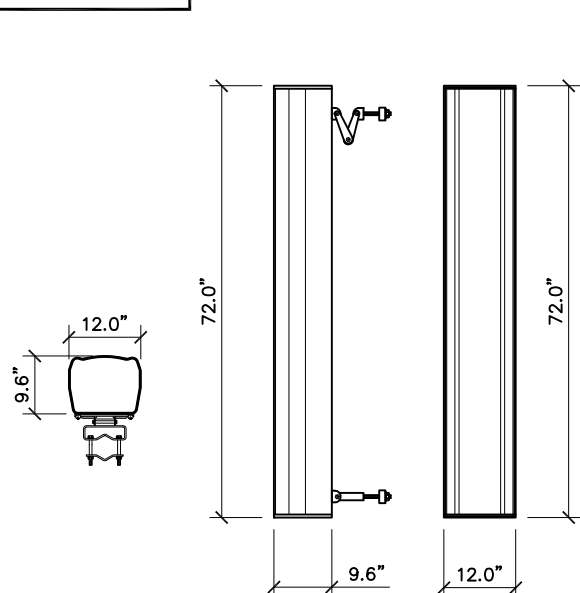
PLAN VIEW SIDE VIEW FRONT VIEW

QUINTEL – QS86512-2

MULTISERVE MULTIBAND 12 PORT ANTENNA WITH QILT AND INTERNAL RET

FREQUENCY RANGE	2x698-806 MHz	140 Lbs
	2x824-894 MHz	15 Lbs
	4x1850-1990 MHz	155 Lbs
	4x1695-1780 +2110-2400 MHz	
ANTENNA WEIGHT		
BRACKET WEIGHT		
TOTAL WEIGHT		

BETA & GAMMA

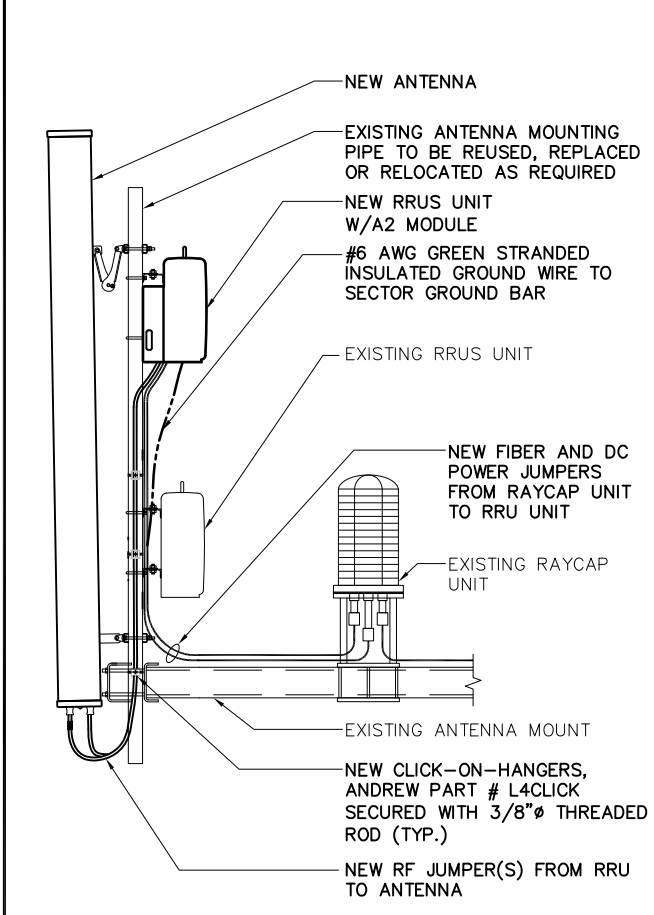


PLAN VIEW SIDE VIEW FRONT VIEW

QUINTEL – QS66512-2

MULTISERVE MULTIBAND 12 PORT ANTENNA WITH QILT AND INTERNAL RET

FREQUENCY RANGE	2x698-806 MHz	111 Lbs
	2x824-894 MHz	15 Lbs
	4x1850-1990 MHz	126 Lbs
	4x1695-1780 +2110-2400 MHz	
ANTENNA WEIGHT		
BRACKET WEIGHT		
TOTAL WEIGHT		



ANTENNA SCHEMATIC SCALE: N.T.S. 3

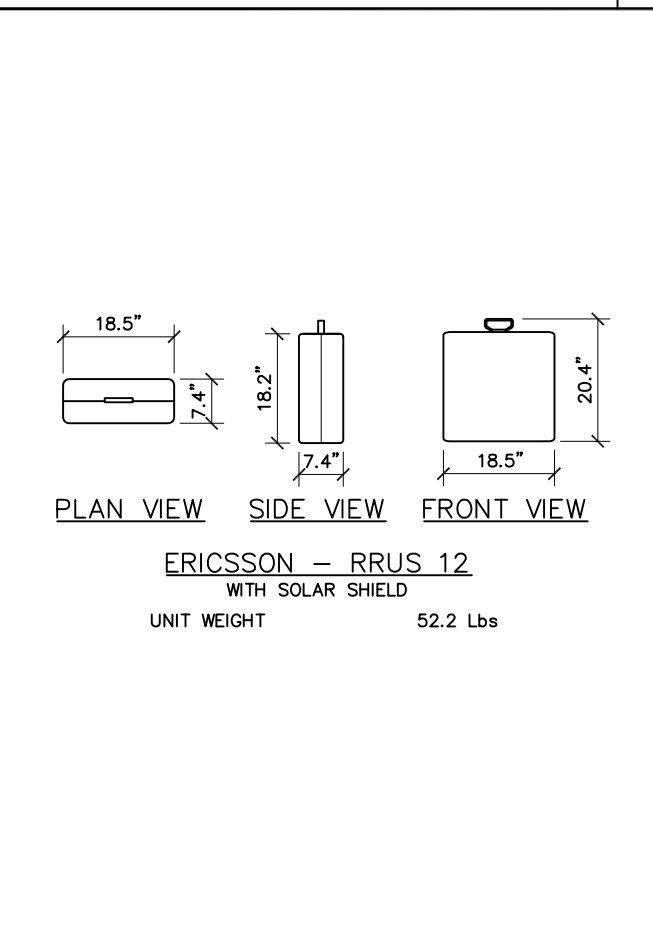
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2	02/08/17	FOR CONSTRUCTION	KC

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NOT USED SCALE: N.T.S. 4

ANTENNA SPEC SCALE: N.T.S. 1

ANTENNA SPEC SCALE: N.T.S. 2

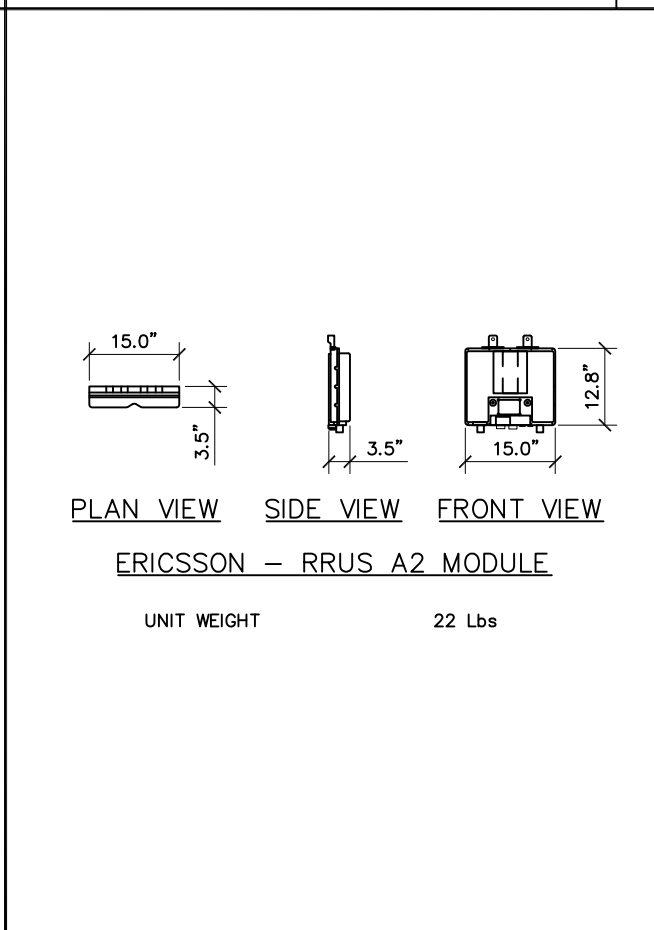


PLAN VIEW SIDE VIEW FRONT VIEW

ERICSSON – RRU 12

WITH SOLAR SHIELD

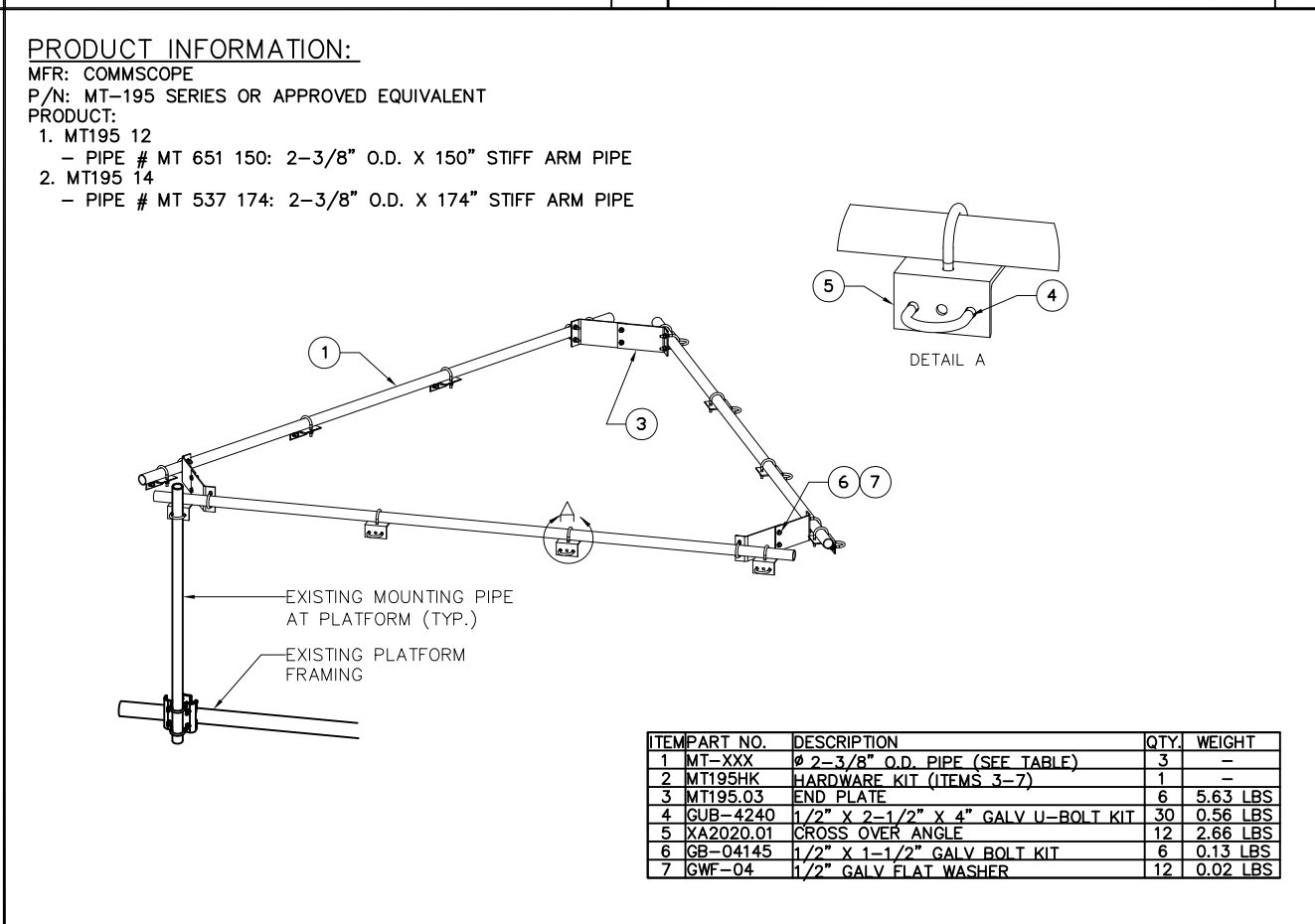
UNIT WEIGHT 52.2 Lbs



PLAN VIEW SIDE VIEW FRONT VIEW

ERICSSON – RRU A2 MODULE

UNIT WEIGHT 22 Lbs



HANDRAIL DETAIL SCALE: N.T.S. 7

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
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	GW-04 1/2" GALV FLAT WASHER	12	0.02 LBS

RRU SPEC SCALE: N.T.S. 5

A2 BOX SPEC SCALE: N.T.S. 6

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FRAMINGHAM, MA 01701

1362 MELLON ROAD
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SITE NAME
WINDSOR CENTRAL

SITE NUMBER:
**CTL05138
CROWN BU # 855662**

SITE ADDRESS
**340 BLOOMFIELD AVENUE
WINDSOR, CT 06095**

SHEET NAME
**EQUIPMENT
DETAILS**

SHEET NUMBER
A5

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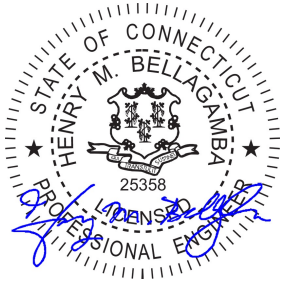
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**CTL05138
CROWN BU # 855662**

SITE ADDRESS
**340 BLOOMFIELD AVENUE
WINDSOR, CT 06095**

SHEET NAME
**ANTENNA &
CABLE
CONFIGURATION**

SHEET NUMBER
A6

FINAL ANTENNA CONFIGURATION AND CABLE SCHEDULE
SUPPLIED BY AT&T WIRELESS, FROM RF CONFIG. DATED (02/02/17)

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) UMTS ANTENNA	800-10121	KATHREIN	(1) NEW TWIN TMA UNIT	50°	146'-0"	1-5/8"φ LDF7-50A	175'-0"	(1) (E) DC6-48-60-18-8F UNIT
	A-2	-	-	-	-	-	-	-	-	
	A-3	-	-	-	-	-	-	-	-	
	A-4	(N) LTE1C/2C ANTENNA	QS86512-2	QUINTEL	(1) EXISTING RRUS-11 UNIT AND (1) NEW RRUS-12 UNIT W/ A2 MODULE	50°	146'-0"	(1) EXISTING FIBER CABLE (2) EXISTING DC POWER CABLES	175'-0" 175'-0"	
BETA	B-1	(E) UMTS ANTENNA	800-10121	KATHREIN	(1) NEW TWIN TMA UNIT	160°	146'-0"	1-5/8"φ LDF7-50A 1-5/8"φ LDF7-50A	175'-0" 175'-0"	
	B-2	-	-	-	-	-	-	-	-	
	B-3	-	-	-	-	-	-	-	-	
	B-4	(N) LTE1C/2C ANTENNA	QS66512-2	QUINTEL	(1) EXISTING RRUS-11 UNIT AND (1) NEW RRUS-12 UNIT W/ A2 MODULE	160°	146'-0"	SEE ANTENNA A-4 FOR CABLE TYPE AND LENGTH		
GAMMA	C-1	(E) UMTS ANTENNA	800-10121	KATHREIN	(1) NEW TWIN TMA UNIT	280°	146'-0"	1-5/8"φ LDF7-50A 1-5/8"φ LDF7-50A	175'-0" 175'-0"	
	C-2	-	-	-	-	-	-	-	-	
	C-3	-	-	-	-	-	-	-	-	
	C-4	(N) LTE1C/2C ANTENNA	QS66512-2	QUINTEL	(1) EXISTING RRUS-11 UNIT AND (1) NEW RRUS-12 UNIT W/ A2 MODULE	280°	146'-0"	SEE ANTENNA A-4 FOR CABLE TYPE AND LENGTH		

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.

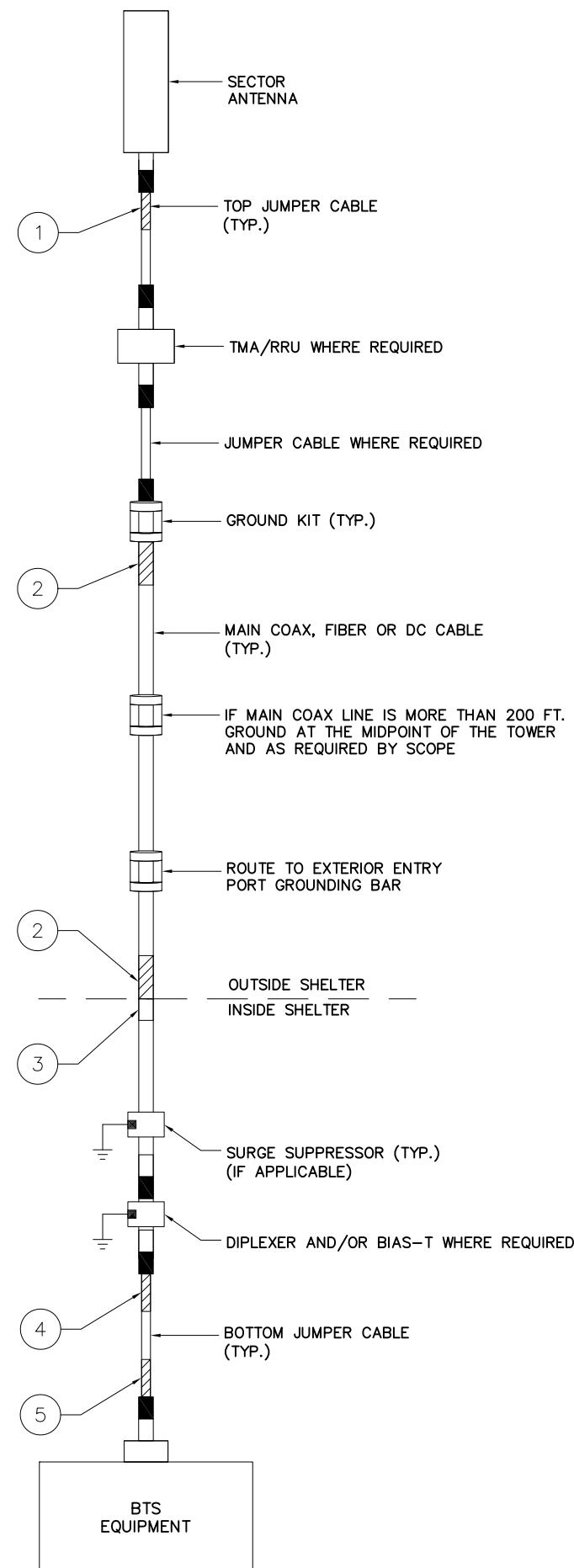
CABLE MARKING DIAGRAM

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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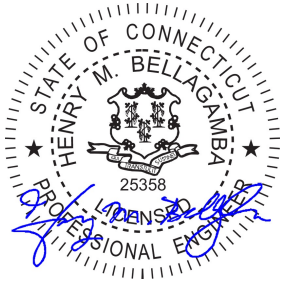
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**CABLE NOTES
AND COLOR
CODING**

SHEET NUMBER
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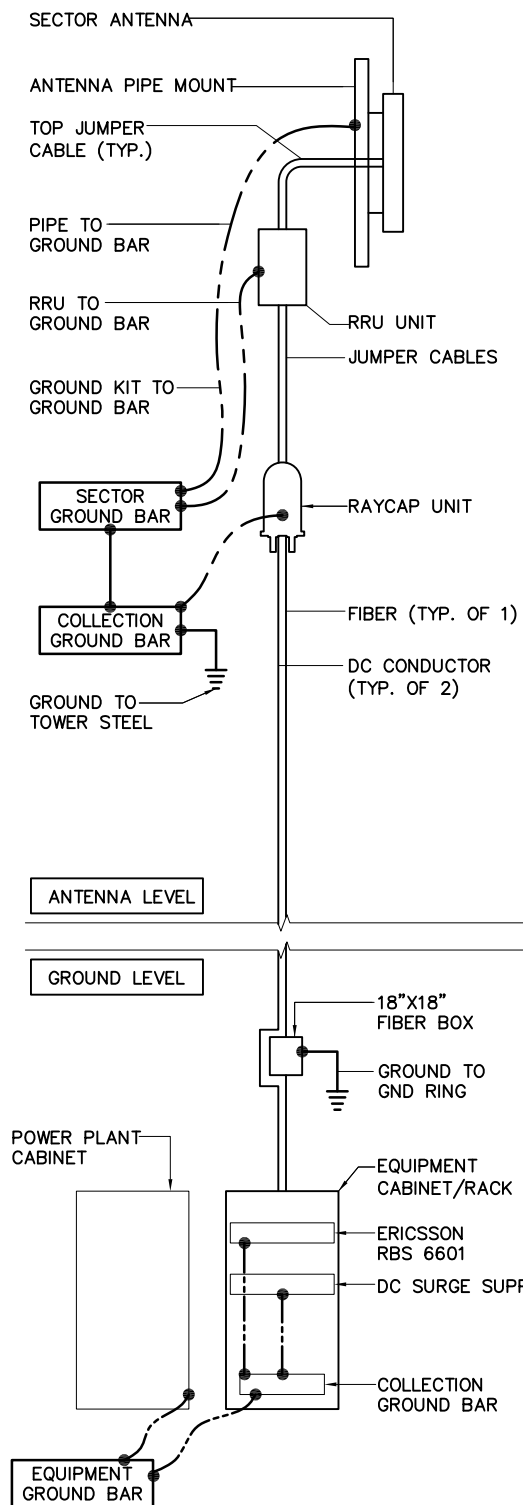
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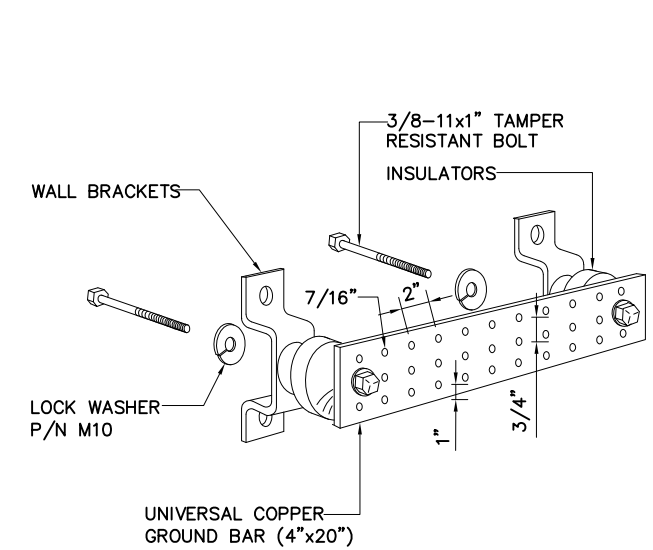
SITE ADDRESS
**340 BLOOMFIELD AVENUE
WINDSOR, CT 06095**

SHEET NAME
GROUNDING DETAILS

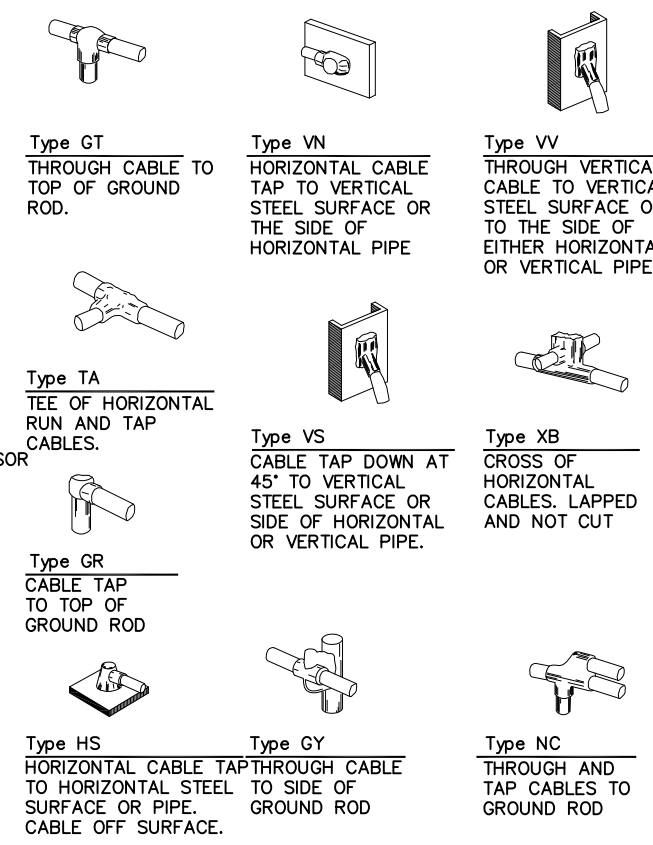
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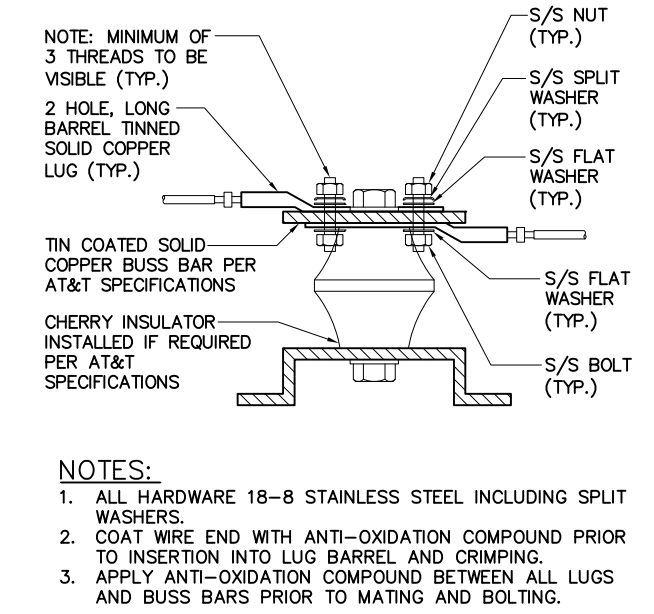
GROUNDING SCHEMATIC SCALE: N.T.S. 1



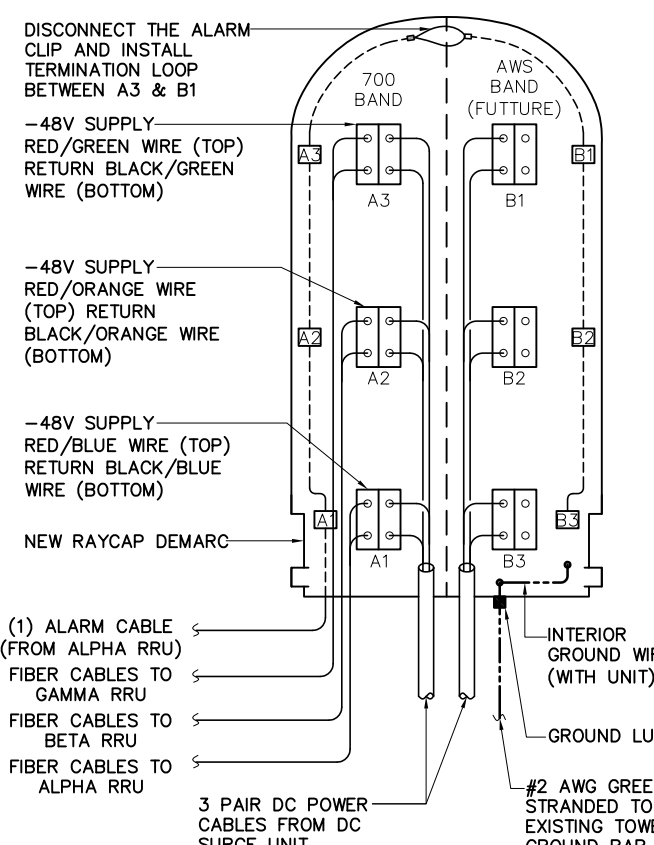
GROUND BAR DETAIL SCALE: N.T.S. 2



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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 btwo@btgrp.com

December 14, 2016

Sean Dempsey
 Crown Castle
 3530 Toringdon Way Suite 300
 Charlotte, NC 28277
 (704) 405-6565

Subject: **Structural Analysis Report**

Carrier Designation: **AT&T Mobility Co-Locate**
Carrier Site Number: CTL05138
Carrier Site Name: Windsor Central

Crown Castle Designation: **Crown Castle BU Number:** 855662
Crown Castle Site Name: Windsorcentral
Crown Castle JDE Job Number: 380604
Crown Castle Work Order Number: 1336541
Crown Castle Application Number: 348884 Rev. 14

Engineering Firm Designation: **B+T Group Project Number:** 91728.007.01

Site Data: **340 Bloomfield Avenue, Windsor, Hartford County, CT**
Latitude 41° 51' 9.34", Longitude -72° 39' 37.79"
148 Foot - Monopole Tower

Dear Sean Dempsey,

B+T Group 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 980781, in accordance with application 348884, revision 14.

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:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
 Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 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 C and Risk Category II were used in this analysis.

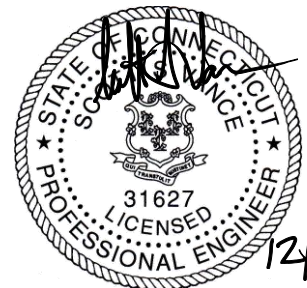
All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at B+T Group 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.

Respectfully submitted by:
 B+T Engineering, Inc.

Jacob Johnson, E.I.T.
 Project Engineer

Scott S. Vance, P.E.
 Engineer of Record
 COA: PEC.0001564 Expires: 02/10/2017



12/14/16

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tnxTower Output

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7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 148 ft. Monopole tower designed by Summit Manufacturing, LLC in November of 2000. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F. This tower has been modified by B+T Group in October of 2014 and those modifications were incorporated in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category C with topographic category 1 and crest height of 0 feet.

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
148.0	146.0	3	CCI Antennas	DTMABP7819VG12A	--	--	--
		3	Ericsson	RRUS12/RRUS A2			
		2	Quintel Technology	QS66512-2			
		1	Quintel Technology	QS86512-2			
		1	--	Miscellaneous [NA 510-1]			

Table 2 - Existing and Reserved 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
148.0	148.0	1	--	Platform Mount [LP 1201-1]	6	1-5/8	1
		3	Kathrein	800 10121			
		1	Raycap	DC6-48-60-18-8F			
	146.0	3	Ericsson	RRUS 11	5	1-5/8	3
		6	Kathrein	782-10250			
		3	Kathrein	800 10121			
		2	KMW Comm.	AM-X-CD-16-65-00T-RET			
		6	Powerwave Tech.	LGP21401			
		1	Powerwave Tech.	P65-15-XLH-RR			
142.0	143.0	3	Commscope	LNx-6515DS-VTM	13	1-5/8	1
		3	Ericsson	Ericsson Air 21 B2A B4P			
		3	Ericsson	Ericsson Air 21 B4A B2P			
	142.0	3	Ericsson	KRY 112 144/1			
		3	Ericsson	RRUS 11 B12			
		1	--	Platform Mount [LP 1201-1]			
126.0	127.0	6	Commscope	SBNHH-1D65B	13	1-5/8	1
		3	Alcatel Lucent	RRH2x60-700			
		3	Antel	BXA-70063-4CF-EDIN-X			
		3	Alcatel Lucent	RRH2X60-AWS			
		3	Alcatel Lucent	RRH2X60-PCS			
		1	Antel	BXA-70080-6CF-4			
		2	Powerwave Tech.	P65-16-XL-R			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
126.0	127.0	2	RFS Celwave	DB-T1-6Z-8AB-0Z	--	--	1
		3	RFS Celwave	FD9R6004/2C-3L			
	126.0	3	RFS Celwave	FD9R6004/2C-3L			
		1	--	Platform Mount [LP 403-1]			
111.0	112.0	3	Alcatel Lucent	TME-800MHz 2X50W RRH W/FILTER	--	--	1
	111.0	3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz			
		1	--	Pipe Mount [PM 601-3]			
109.0	116.0	1	Decibel	DB205-L	3 1 3 5	1-1/4 5/8 5/16 7/8	1
		1	Kathrein	K732267			
	113.0	1	Sinclair	SD212-SF3P2SNM			
	110.0	3	Alcatel Lucent	TD-RRH8x20-25			
		4	RFS Celwave	APXVSPP18-C-A20			
	109.0	3	RFS Celwave	APXVTM14-C-120			
79.0	79.0	1	--	Side Arm Mount [SO 702-3]	2	7/8	1
	76.0	1	Kathrein	K732267			
	75.0	1	Sinclair	SRL-227			
74.0	75.0	1	Radiowaves	HP2-23	1	3/8	1
	74.0	1	--	Pipe Mount [PM 601-1]			
50.0	51.0	1	Pctel	GPS-TMG-HR-26N	1	1/2	1
	50.0	1	--	Side Arm Mount [SO 701-1]			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment
- 3) 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)
148.0	148.0	12	Allgon	7184.14	--	--
		1	Generic	14' Low Profile Platform		
143.0	143.0	12	Swedcom	ALP-9212-N	--	--
		1	Generic	14' Low Profile Platform		
128.0	128.0	12	Swedcom	ALP-9212-N	--	--
		1	Generic	14' Low Profile Platform		
113.0	113.0	12	Swedcom	ALP-9212-N	--	--
		1	Generic	14' Low Profile Platform		
98.0	98.0	12	Swedcom	ALP-9212-N	--	--
		1	Generic	14' Low Profile Platform		
83.0	83.0	12	Swedcom	ALP-9212-N	--	--
		1	Generic	14' Low Profile Platform		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	AT&T Mobility Co-Locate, Rev. 14	348884	CCI Sites
Tower Manufacturer Drawing	Summit, Job No. 11986	4864315	CCI Sites
Mount Analysis	Fullerton Engineering, Proj. No. 2016.0200.0028	Date: 07/13/2016	On File
Tower Modification Drawing	B+T Group, Date: 10/29/2014	5373232	CCI Sites
Post Modification Inspection	TEP, Date: 04/23/2015	5649676	CCI Sites
Foundation Drawing	Summit, Job No. 11986	4864324	CCI Sites
Geotech Report	Tectonic, Project No. 2323.138	5269642	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 12/12/2016	CCI Sites

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.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specs.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group 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 (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	148 - 116	Pole	TP30.241x24x0.219	1	-13.461	1382.730	42.8	Pass
L2	116 - 93.5	Pole	TP34.191x29.072x0.25	2	-22.268	1821.780	78.3	Pass
L3	93.5 - 74.75	Pole	TP37.847x34.191x0.421	3	-25.858	2323.070	80.2	Pass
L4	74.75 - 57.75	Pole	TP40.663x36.421x0.467	4	-33.585	2844.290	88.0	Pass
L5	57.75 - 39.5	Pole	TP44.222x40.663x0.511	5	-38.252	3356.390	84.6	Pass
L6	39.5 - 31.75	Pole	TP45.108x42.524x0.565	6	-44.809	3884.410	82.8	Pass
L7	31.75 - 0	Pole	TP51.3x45.108x0.526	7	-58.870	4598.930	85.1	Pass
							Summary	
						Pole (L4)	88.0	Pass
						Rating =	88.0	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	83.0	Pass
1	Base Plate	Base	77.7	Pass
1	Base Foundation(Structural)	Base	85.4	Pass
1	Base Foundation (Soil Interaction)	Base	75.2	Pass
Structure Rating (max from all components) =				88.0%

Notes:

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

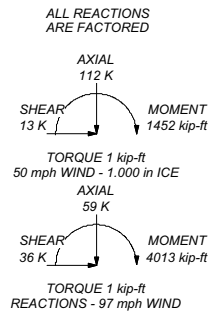
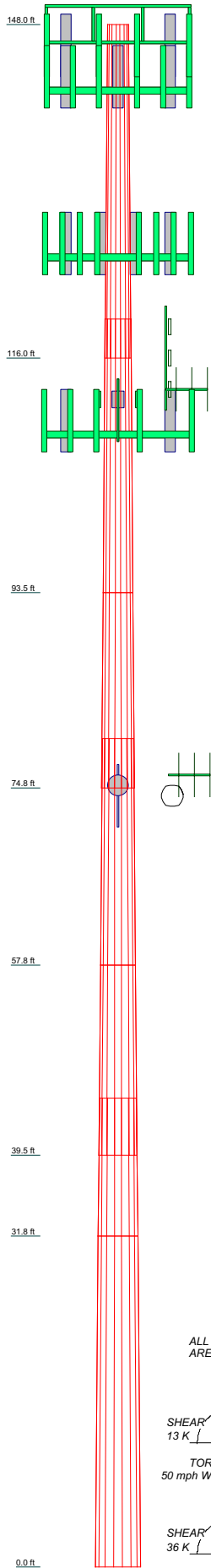
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the final load configurations. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	32,000	18	0.219	3,750	24,000	30,241	2.0	
2	26,250	18	0.250	28,072	34,191		2.2	
3	18,750	18	0.421	4,750	34,191	37,847	2.9	
4	21,750	18	0.467	38,421	40,663		4.1	
5	18,250	18	0.511	5,500	40,663	44,222	4.1	
6	13,250	18	0.566	42,524	45,108		3.4	
7	31,750	18	0.526	45,108	51,300	47,509	9.4	
								28.1



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PD320-2 (E-Crown Castle)	148	RRH2X60-PCS (E)	126
800 10121 w/ Mount Pipe (E)	148	RRH2X60-AWS (E)	126
800 10121 w/ Mount Pipe (E)	148	RRH2X60-AWS (E)	126
800 10121 w/ Mount Pipe (E)	148	RRH2X60-AWS (E)	126
RRUS 11 (E)	148	(2) DB-T1-6Z-9AB-0Z (E)	126
RRUS 11 (E)	148	(2) SBNH4-1D65B w/ Mount Pipe (R)	126
RRUS 11 (E)	148	(2) SBNH4-1D65B w/ Mount Pipe (R)	126
DC6-48-60-19-8F (E)	148	(2) SBNH4-1D65B w/ Mount Pipe (R)	126
QS66512-2 w/ Mount Pipe (P)	148	RRH2x60-700 (R)	126
QS66512-2 w/ Mount Pipe (P)	148	RRH2x60-700 (R)	126
QS66512-2 w/ Mount Pipe (P)	148	RRH2x60-700 (R)	126
DTMABP7819VG12A (P)	148	4' x 2" Pipe Mount (E-For TME)	126
DTMABP7819VG12A (P)	148	4' x 2" Pipe Mount (E-For TME)	126
DTMABP7819VG12A (P)	148	4' x 2" Pipe Mount (E-For TME)	126
RRUS12/RRUS A2 (P)	148	Platform Mount [LP 403-1] (E-15' Conservative)	126
RRUS12/RRUS A2 (P)	148	BXA-70063-4CF-EDIN-X w/ Mount Pipe (E)	126
RRUS12/RRUS A2 (P)	148	TME-800MHz 2X50W RRH W/FILTER (E-CL/Photo)	111
5' x 2" Pipe Mount (E-For TME Corner)	148	TME-800MHz 2X50W RRH W/FILTER (E-CL/Photo)	111
5' x 2" Pipe Mount (E-For TME Corner)	148	PCS 1900MHz 4x45W-65MHz (E)	111
5' x 2" Pipe Mount (E-For TME Corner)	148	PCS 1900MHz 4x45W-65MHz (E)	111
6' x 2" Mount Pipe (E-Empty)	148	PCS 1900MHz 4x45W-65MHz (E)	111
Platform Mount [LP 1201-1] (E)	148	Pipe Mount [PM 601-3] (E)	111
Miscellaneous [NA 510-1] (P-Handrail per Mount SA)	148	TME-800MHz 2X50W RRH W/FILTER (E-CL/Photo)	111
Detuner Mount (E)	147		
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	142	DB205-L (E-Crown Castle)	109
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	142	SD212-SF3P2SNM (E-Crown Castle)	109
LNK-6515DS-VTM w/ Mount Pipe (E)	142	APXV/TM14-C-120 w/ Mount Pipe (E-Sprint PCS)	109
LNK-6515DS-VTM w/ Mount Pipe (E)	142	APXV/TM14-C-120 w/ Mount Pipe (E)	109
LNK-6515DS-VTM w/ Mount Pipe (E)	142	APXV/TM14-C-120 w/ Mount Pipe (E)	109
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	142	APXV/SPP18-C-A20 w/ Mount Pipe (E)	109
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	142	APXV/SPP18-C-A20 w/ Mount Pipe (E)	109
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	142	APXV/SPP18-C-A20 w/ Mount Pipe (E)	109
RRUS 11 B12 (E)	142	TD-RRH8x20-25 (E)	109
RRUS 11 B12 (E)	142	TD-RRH8x20-25 (E)	109
RRUS 11 B12 (E)	142	TD-RRH8x20-25 (E)	109
KRY 112 1441 (E)	142	6' x 2" Mount Pipe (E)	109
KRY 112 1441 (E)	142	(2) 6' x 2" Mount Pipe (E)	109
KRY 112 1441 (E)	142	6' x 2" Mount Pipe (E)	109
(2) 5' x 2" Pipe Mount (E)	142	Platform Mount [LP 1201-1] (E)	109
(2) 5' x 2" Pipe Mount (E)	142	K732267 (E-Crown Castle)	109
(2) 5' x 2" Pipe Mount (E)	142	Detuner Mount (E)	95
Platform Mount [LP 1201-1] (E)	142	4' x 2" Pipe Mount (E)	79
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	142	4' x 2" Pipe Mount (E)	79
BXA-70063-4CF-EDIN-X w/ Mount Pipe (E)	126	4' x 2" Pipe Mount (E)	79
BXA-70063-4CF-EDIN-X w/ Mount Pipe (E)	126	Side Arm Mount [SO 702-3] (E)	79
P65-16-XL-R w/ Mount Pipe (E)	126	SRL-227 (E)	79
P65-16-XL-R w/ Mount Pipe (E)	126	K732267 (E)	79
BXA-70080-6CF-4 w/ Mount Pipe (E)	126	8' X 8" X 4" TMA (E-8'/TIA/Photo)	74
FD9R6004/2C-3L (E)	126	Pipe Mount [PM 601-1] (E)	74
FD9R6004/2C-3L (E)	126	HP2-23 (E)	74
FD9R6004/2C-3L (E)	126	GPS-TMG-HR-26N (E)	50
FD9R6004/2C-3L (E)	126	2' x 2" Pipe Mount (E)	50
FD9R6004/2C-3L (E)	126	Detuner Mount (E)	50
FD9R6004/2C-3L (E)	126	Side Arm Mount [SO 701-1] (E)	50
RRH2X60-PCS (E)	126	Detuner Mount (E)	15
RRH2X60-PCS (E)	126		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi	42,444254ksi	42 ksi	57 ksi
41,708369ksi	42 ksi	57 ksi	42,513342ksi	43 ksi	58 ksi
41,784176ksi	42 ksi	57 ksi	47,506926ksi	48 ksi	63 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 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 0.000 ft
8. TOWER RATING: 88%

B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: **91728.007.01 - WINDSORCENTRAL, CT (BU# 85566)**

Project: Crown Castle
Client: Devaraj Sanamur
Code: TIA-222-G
Date: 12/14/16
Path:

App'd: _____
Scale: NTS
Dwg No: E-1

Vx

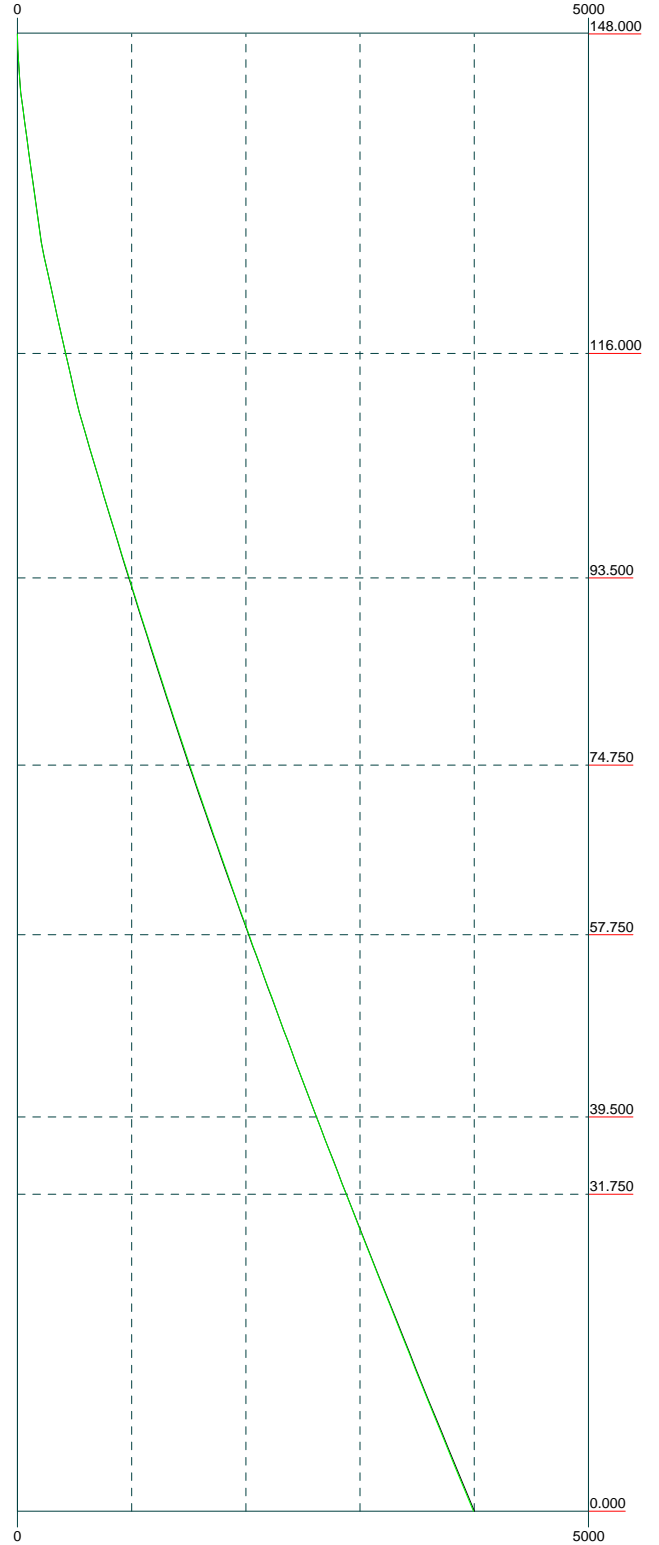
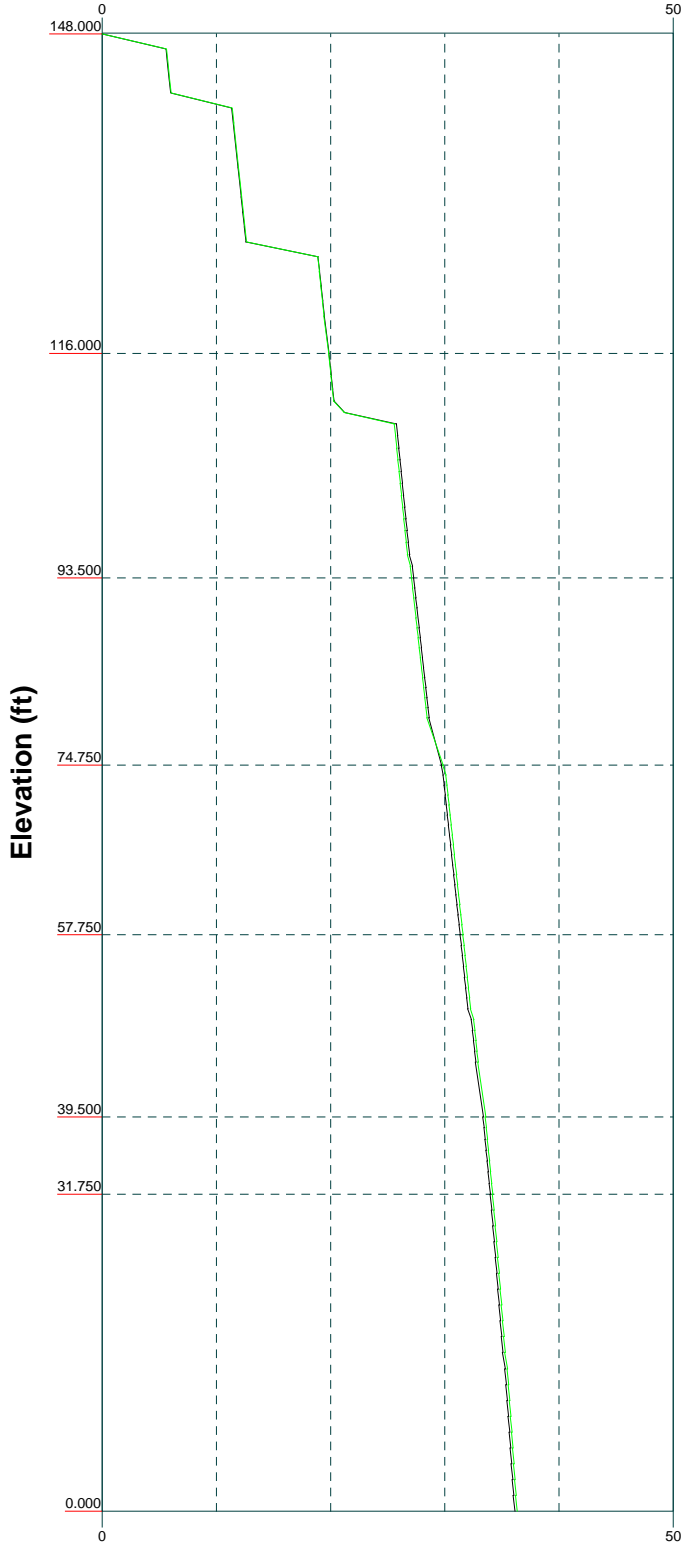
Vz

Mx

Mz

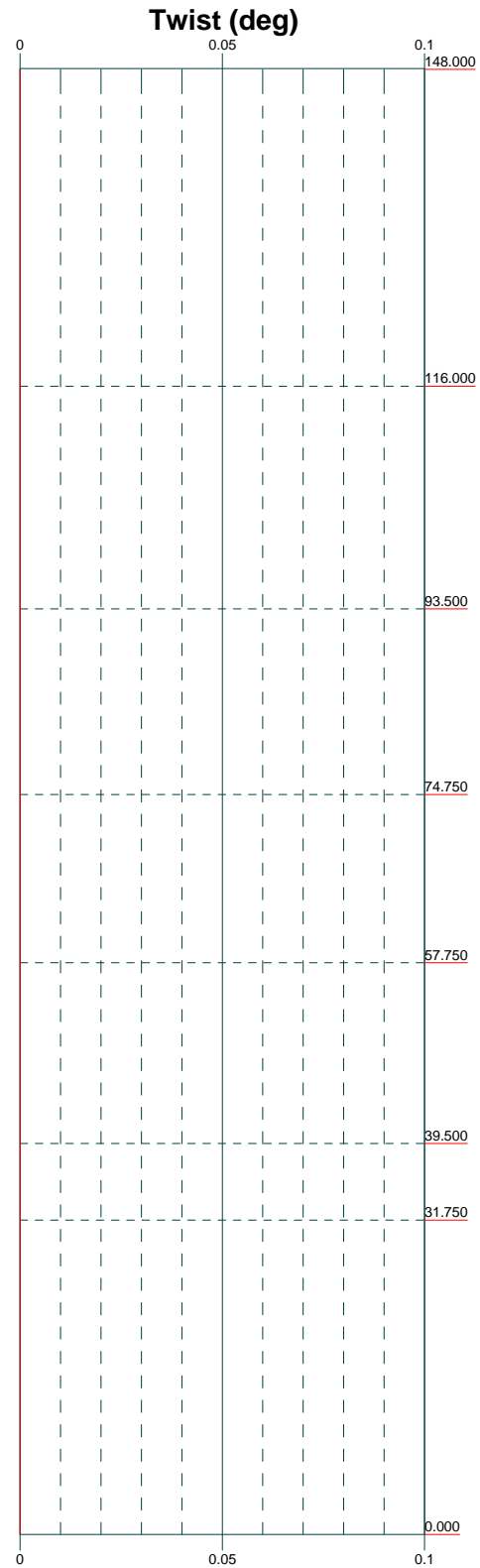
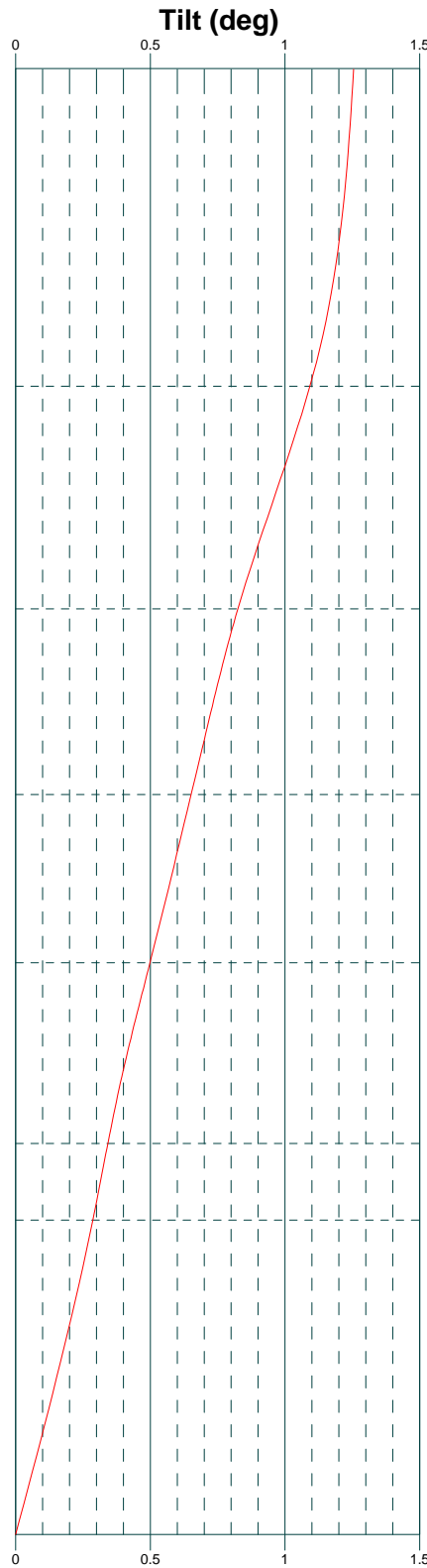
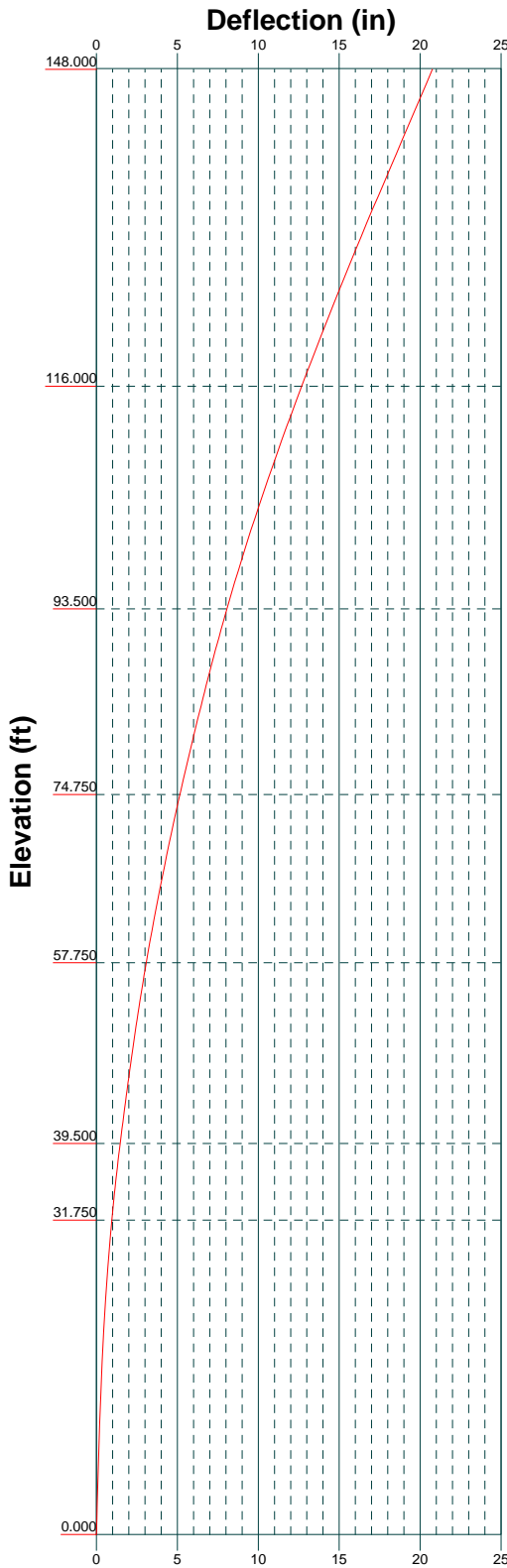
Global Mast Shear (K)

Global Mast Moment (kip-ft)



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Job: 91728.007.01 - WINDSORCENTRAL, CT (BU# 85566)		
Project:		
Client: Crown Castle	Drawn by: Devaraj Sanamuri	App'd:
Code: TIA-222-G	Date: 12/14/16	Scale: NTS
Path:	Dwg No. E-4	



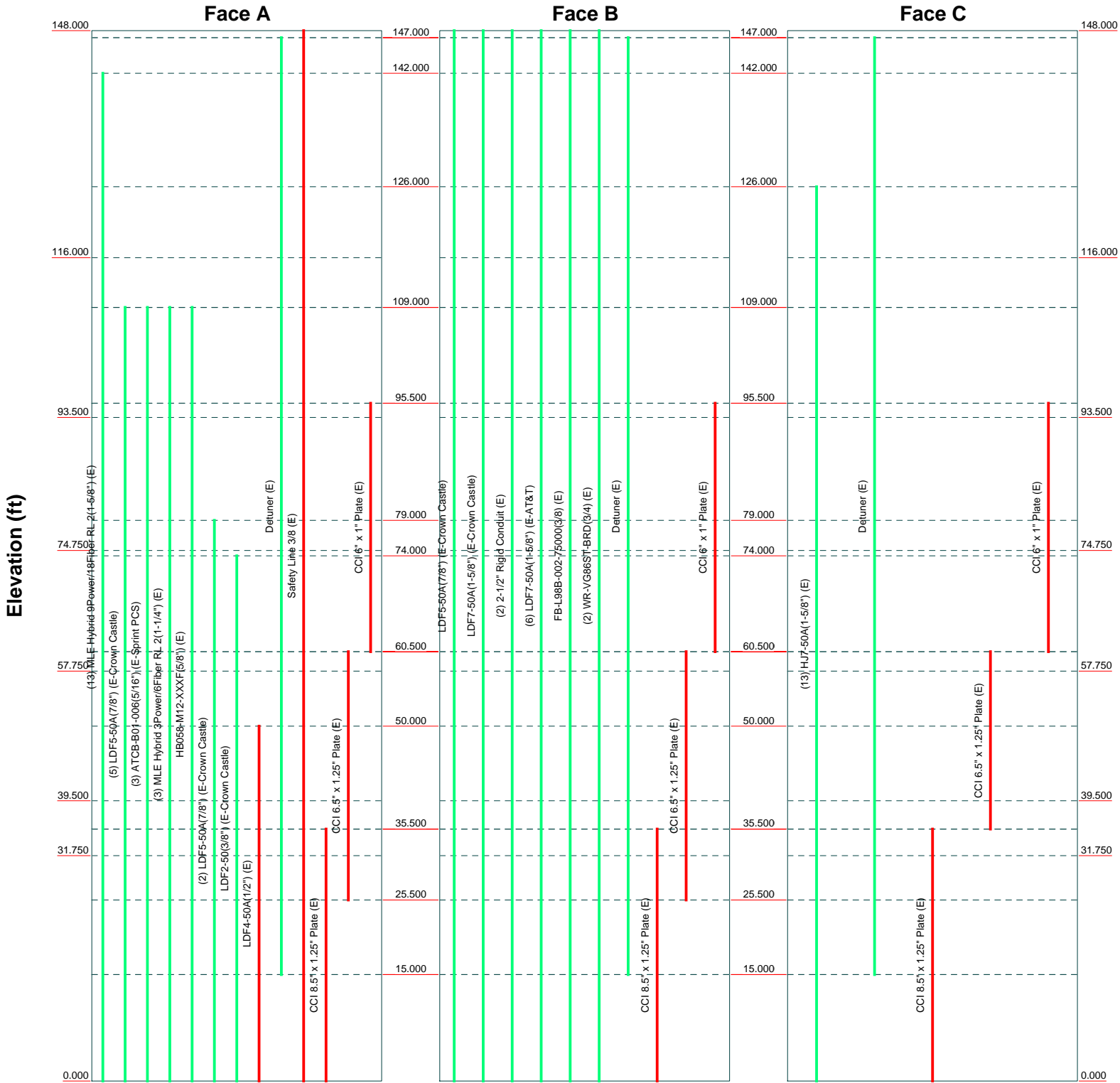
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 FAX: (918) 295-0265

Job: 91728.007.01 - WINDSORCENTRAL, CT (BU# 85566)		
Project:		
Client: Crown Castle	Drawn by: Devaraj Sanamuri	App'd:
Code: TIA-222-G	Date: 12/14/16	Scale: NTS
Path:	Dwg No. E-5	

Feed Line Distribution Chart

0' - 148'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



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Job: 91728.007.01 - WINDSORCENTRAL, CT (BU# 85566)		
Project:		
Client: Crown Castle	Drawn by: Devaraj Sanamuri	App'd:
Code: TIA-222-G	Date: 12/14/16	Scale: NTS
Path:		Dwg No. E-7

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">B+T Group 1717 S Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job 91728.007.01 - WINDSORCENTRAL, CT (BU# 855662)	Page 1 of 34
	Project	Date 16:50:24 12/14/16
	Client Crown Castle	Designed by Devaraj Sanamuri

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 Hartford County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.000 ft.

Nominal ice thickness of 1.000 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50.000 °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

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	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	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 <div style="background-color: #e0e0e0; text-align: center; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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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	148.000-116.000	32.000	3.750	18	24.000	30.241	0.219	0.875	A607-65 (65 ksi)
L2	116.000-93.500	26.250	0.000	18	29.072	34.191	0.250	1.000	A607-65 (65 ksi)

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	Project	Date 16:50:24 12/14/16
	Client Crown Castle	Designed by Devaraj Sanamuri

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
L3	93.500-74.750	18.750	4.750	18	34.191	37.847	0.421	1.682	41.709368ksi (42 ksi)
L4	74.750-57.750	21.750	0.000	18	36.421	40.663	0.467	1.867	41.784176ksi (42 ksi)
L5	57.750-39.500	18.250	5.500	18	40.663	44.222	0.511	2.045	42.444254ksi (42 ksi)
L6	39.500-31.750	13.250	0.000	18	42.524	45.108	0.565	2.262	42.513342ksi (43 ksi)
L7	31.750-0.000	31.750		18	45.108	51.300	0.526	2.102	47.505925ksi (48 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	It/Q in ²	w in	w/t
L1	24.370	16.512	1179.768	8.442	12.192	96.766	2361.088	8.257	3.839	17.55
	30.708	20.845	2373.680	10.658	15.362	154.512	4750.483	10.424	4.937	22.571
L2	30.263	22.870	2400.285	10.232	14.769	162.526	4803.728	11.437	4.677	18.707
	34.718	26.932	3919.682	12.049	17.369	225.672	7844.521	13.469	5.578	22.31
L3	34.718	45.084	6495.710	11.988	17.369	373.985	12999.968	22.546	5.277	12.547
	38.431	49.965	8842.189	13.286	19.226	459.901	17696.012	24.987	5.921	14.077
L4	37.923	53.270	8699.854	12.764	18.502	470.218	17411.156	26.640	5.588	11.972
	41.290	59.555	12156.721	14.270	20.657	588.514	24329.438	29.783	6.335	13.571
L5	41.290	65.150	13269.407	14.254	20.657	642.380	26556.275	32.581	6.257	12.239
	44.904	70.925	17120.363	15.517	22.465	762.098	34263.253	35.469	6.883	13.465
L6	44.269	75.301	16748.886	14.895	21.602	775.327	33519.810	37.658	6.489	11.477
	45.804	79.938	20037.684	15.813	22.915	874.435	40101.735	39.977	6.944	12.281
L7	45.804	74.368	18674.764	15.827	22.915	814.958	37374.100	37.191	7.014	13.346
	52.091	84.696	27586.137	18.025	26.060	1058.546	55208.573	42.356	8.104	15.42

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 148.000-116.000				1	1	1			
L2 116.000-93.500				1	1	1			
L3 93.500-74.750				1	1	0.967368			
L4 74.750-57.750				1	1	0.974999			
L5 57.750-39.500				1	1	0.967245			
L6 39.500-31.750				1	1	0.971676			
L7 31.750-0.000				1	1	1.09287			

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	Project	Date 16:50:24 12/14/16
	Client Crown Castle	Designed by Devaraj Sanamuri

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*** LDF4-50A(1/2") (E) ***	A	Surface Ar (CaAa)	50.000 - 0.000	1	1	0.000 0.020	0.630		0.000
Safety Line 3/8 (E) **MOD**	A	Surface Ar (CaAa)	148.000 - 0.000	1	1	0.490 0.500	0.375		0.000
CCI 8.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	35.500 - 0.000	1	1	0.000 0.050	8.500	19.500	0.000
CCI 8.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	35.500 - 0.000	1	1	0.000 0.050	8.500	19.500	0.000
CCI 8.5" x 1.25" Plate (E) ***	C	Surface Af (CaAa)	35.500 - 0.000	1	1	0.000 0.050	8.500	19.500	0.000
CCI 6.5" x 1.25" Plate (E)	A	Surface Af (CaAa)	60.500 - 25.500	1	1	0.000 0.050	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate (E)	B	Surface Af (CaAa)	60.500 - 25.500	1	1	0.000 0.050	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate (E) ***	C	Surface Af (CaAa)	60.500 - 35.500	1	1	0.000 0.050	6.500	15.500	0.000
CCI 6" x 1" Plate (E)	A	Surface Af (CaAa)	95.500 - 60.500	1	1	0.000 0.050	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	B	Surface Af (CaAa)	95.500 - 60.500	1	1	0.000 0.050	6.000	14.000	0.000
CCI 6" x 1" Plate (E) ***	C	Surface Af (CaAa)	95.500 - 60.500	1	1	0.000 0.050	6.000	14.000	0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Shield Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C _{AA} ft ² /ft	Weight klf
LDF5-50A(7/8") (E-Crown Castle)	B	No	Inside Pole	148.000 - 0.000	0.000	0	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
LDF7-50A(1-5/8") (E-Crown Castle) ***	B	No	Inside Pole	148.000 - 0.000	0.000	0	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
2-1/2" Rigid Conduit (E)	B	No	Inside Pole	148.000 - 0.000	0.000	0	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.003 0.003 0.003
LDF7-50A(1-5/8") (E-AT&T)	B	No	Inside Pole	148.000 - 0.000	0.000	0	6	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
FB-L98B-002-75000(3/8) (E)	B	No	Inside Pole	148.000 - 0.000	0.000	0	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
WR-VG86ST-BRD(3/4) (E)	B	No	Inside Pole	148.000 - 0.000	0.000	0	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C _{AA} ft ² /ft	Weight klf

MLE Hybrid 9Power/18Fiber RL 2(1-5/8") (E)	A	No	Inside Pole	142.000 - 0.000	0.000	0	13	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001

HJ7-50A(1-5/8") (E)	C	No	Inside Pole	126.000 - 0.000	0.000	0	13	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001

LDF5-50A(7/8") (E-Crown Castle)	A	No	Inside Pole	109.000 - 0.000	0.000	0	5	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000

ATCB-B01-006(5/16") (E-Sprint PCS)	A	No	Inside Pole	109.000 - 0.000	0.000	0	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
MLE Hybrid 3Power/6Fiber RL 2(1-1/4") (E)	A	No	Inside Pole	109.000 - 0.000	0.000	0	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
HB058-M12-XXXF(5/8") (E)	A	No	Inside Pole	109.000 - 0.000	0.000	0	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000

LDF5-50A(7/8") (E-Crown Castle)	A	No	Inside Pole	79.000 - 0.000	0.000	0	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000

LDF2-50(3/8") (E-Crown Castle)	A	No	Inside Pole	74.000 - 0.000	0.000	0	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000

Detuner (E)	A	No	CaAa (Out Of Face)	147.000 - 15.000	36.000	0	1	No Ice 1/2" Ice 1" Ice	0.037 0.137 0.238	0.000 0.001 0.001
Detuner (E)	B	No	CaAa (Out Of Face)	147.000 - 15.000	36.000	0	1	No Ice 1/2" Ice 1" Ice	0.037 0.137 0.238	0.000 0.001 0.001
Detuner (E)	C	No	CaAa (Out Of Face)	147.000 - 15.000	36.000	0	1	No Ice 1/2" Ice 1" Ice	0.037 0.137 0.238	0.000 0.001 0.001

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 K
L1	148.000-116.000	A	0.000	0.000	1.200	1.163	0.376
		B	0.000	0.000	0.000	1.163	0.432
		C	0.000	0.000	0.000	1.163	0.142
L2	116.000-93.500	A	0.000	0.000	2.844	0.844	0.387
		B	0.000	0.000	2.000	0.844	0.304

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Tower Section	Tower Elevation ft	Face	A_R	A_F	C_{AA}	C_{AA}	Weight K
			ft^2	ft^2	In Face ft^2	Out Face ft^2	
L3	93.500-74.750	C	0.000	0.000	2.000	0.844	0.309
		A	0.000	0.000	19.453	0.703	0.349
		B	0.000	0.000	18.750	0.703	0.253
L4	74.750-57.750	C	0.000	0.000	18.750	0.703	0.258
		A	0.000	0.000	17.867	0.637	0.327
		B	0.000	0.000	17.229	0.637	0.230
L5	57.750-39.500	C	0.000	0.000	17.229	0.637	0.234
		A	0.000	0.000	21.117	0.684	0.352
		B	0.000	0.000	19.771	0.684	0.247
L6	39.500-31.750	C	0.000	0.000	19.771	0.684	0.251
		A	0.000	0.000	14.487	0.291	0.150
		B	0.000	0.000	13.708	0.291	0.105
L7	31.750-0.000	C	0.000	0.000	9.646	0.291	0.106
		A	0.000	0.000	54.941	0.628	0.612
		B	0.000	0.000	51.750	0.628	0.426
		C	0.000	0.000	44.979	0.628	0.433

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R	A_F	C_{AA}	C_{AA}	Weight K
				ft^2	ft^2	In Face ft^2	Out Face ft^2	
L1	148.000-116.000	A	2.297	0.000	0.000	15.898	15.401	0.691
		B		0.000	0.000	0.000	15.401	0.508
		C		0.000	0.000	0.000	15.401	0.217
L2	116.000-93.500	A	2.244	0.000	0.000	14.097	11.178	0.651
		B		0.000	0.000	2.919	11.178	0.399
		C		0.000	0.000	2.919	11.178	0.404
L3	93.500-74.750	A	2.196	0.000	0.000	35.921	8.937	0.880
		B		0.000	0.000	26.984	8.937	0.654
		C		0.000	0.000	26.984	8.937	0.659
L4	74.750-57.750	A	2.144	0.000	0.000	32.798	8.103	0.811
		B		0.000	0.000	24.695	8.103	0.597
		C		0.000	0.000	24.695	8.103	0.601
L5	57.750-39.500	A	2.079	0.000	0.000	40.655	8.271	0.923
		B		0.000	0.000	27.357	8.271	0.632
		C		0.000	0.000	27.357	8.271	0.636
L6	39.500-31.750	A	2.015	0.000	0.000	25.711	3.512	0.498
		B		0.000	0.000	18.489	3.512	0.351
		C		0.000	0.000	12.868	3.512	0.282
L7	31.750-0.000	A	1.859	0.000	0.000	92.685	6.857	1.697
		B		0.000	0.000	65.881	6.857	1.170
		C		0.000	0.000	56.786	6.857	1.075

Feed Line Center of Pressure

Section	Elevation ft	CP_x	CP_z	CP_x	CP_z
		in	in	Ice in	Ice in
L1	148.000-116.000	-0.001	-0.053	-0.004	-0.370
L2	116.000-93.500	-0.001	-0.049	-0.004	-0.368
L3	93.500-74.750	-0.000	-0.028	-0.002	-0.225
L4	74.750-57.750	-0.000	-0.028	-0.002	-0.236
L5	57.750-39.500	-0.024	-0.043	-0.125	-0.305

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Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
L6	39.500-31.750	-0.000	-0.388	-0.149	-0.630
L7	31.750-0.000	-0.023	-0.188	-0.180	-0.468

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	32	Safety Line 3/8	116.00 - 148.00	1.0000	1.0000
L1	42	CCI 6" x 1" Plate	116.00 - 95.50	1.0000	1.0000
L1	43	CCI 6" x 1" Plate	116.00 - 95.50	1.0000	1.0000
L1	44	CCI 6" x 1" Plate	116.00 - 95.50	1.0000	1.0000
L3	32	Safety Line 3/8	74.75 - 93.50	1.0000	1.0000
L3	42	CCI 6" x 1" Plate	74.75 - 93.50	1.0000	1.0000
L3	43	CCI 6" x 1" Plate	74.75 - 93.50	1.0000	1.0000
L3	44	CCI 6" x 1" Plate	74.75 - 93.50	1.0000	1.0000
L3	38	CCI 6.5" x 1.25" Plate	74.75 - 60.50	1.0000	1.0000
L3	39	CCI 6.5" x 1.25" Plate	74.75 - 60.50	1.0000	1.0000
L3	40	CCI 6.5" x 1.25" Plate	74.75 - 60.50	1.0000	1.0000
L5	26	LDF4-50A(1/2")	39.50 - 50.00	1.0000	1.0000
L5	32	Safety Line 3/8	39.50 - 57.75	1.0000	1.0000
L5	38	CCI 6.5" x 1.25" Plate	39.50 - 57.75	1.0000	1.0000
L5	39	CCI 6.5" x 1.25" Plate	39.50 - 57.75	1.0000	1.0000
L5	40	CCI 6.5" x 1.25" Plate	39.50 - 57.75	1.0000	1.0000
L5	34	CCI 8.5" x 1.25" Plate	39.50 - 35.50	1.0000	1.0000
L5	35	CCI 8.5" x 1.25" Plate	39.50 - 35.50	1.0000	1.0000
L5	36	CCI 8.5" x 1.25" Plate	39.50 - 35.50	1.0000	1.0000
L7	26	LDF4-50A(1/2")	0.00 - 31.75	1.0000	1.0000
L7	32	Safety Line 3/8	0.00 - 31.75	1.0000	1.0000
L7	34	CCI 8.5" x 1.25" Plate	0.00 - 31.75	1.0000	1.0000
L7	35	CCI 8.5" x 1.25" Plate	0.00 - 31.75	1.0000	1.0000
L7	36	CCI 8.5" x 1.25" Plate	0.00 - 31.75	1.0000	1.0000
L7	38	CCI 6.5" x 1.25" Plate	25.50 - 31.75	1.0000	1.0000
L7	39	CCI 6.5" x 1.25" Plate	25.50 - 31.75	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front	C _{AA} Side	Weight K	
PD320-2 (E-Crown Castle)	A	From Leg	4.000 0.000 -2.000	0.000	148.000	No Ice 1/2" Ice 1" Ice	1.800 3.408 5.016	1.000 2.017 3.034	0.015 0.022 0.029

tnxTower

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz	Vert			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	K	
800 10121 w/ Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	148.000	No Ice	5.388	4.600	0.066
			0.000	0.000			1/2" Ice	5.813	5.351	0.114
			-2.000	-2.000			1" Ice	6.234	6.046	0.168
800 10121 w/ Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	148.000	No Ice	5.388	4.600	0.066
			0.000	0.000			1/2" Ice	5.813	5.351	0.114
			-2.000	-2.000			1" Ice	6.234	6.046	0.168
800 10121 w/ Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	148.000	No Ice	5.388	4.600	0.066
			0.000	0.000			1/2" Ice	5.813	5.351	0.114
			-2.000	-2.000			1" Ice	6.234	6.046	0.168
RRUS 11 (E)	A	From Leg	4.000	0.000	0.000	148.000	No Ice	2.784	1.187	0.048
			0.000	0.000			1/2" Ice	2.992	1.334	0.068
			-2.000	-2.000			1" Ice	3.207	1.490	0.092
RRUS 11 (E)	B	From Leg	4.000	0.000	0.000	148.000	No Ice	2.784	1.187	0.048
			0.000	0.000			1/2" Ice	2.992	1.334	0.068
			-2.000	-2.000			1" Ice	3.207	1.490	0.092
RRUS 11 (E)	C	From Leg	4.000	0.000	0.000	148.000	No Ice	2.784	1.187	0.048
			0.000	0.000			1/2" Ice	2.992	1.334	0.068
			-2.000	-2.000			1" Ice	3.207	1.490	0.092
DC6-48-60-18-8F (E)	A	From Leg	4.000	0.000	0.000	148.000	No Ice	0.791	0.791	0.020
			0.000	0.000			1/2" Ice	1.274	1.274	0.035
			-2.000	-2.000			1" Ice	1.450	1.450	0.053
QS86512-2 w/ Mount Pipe (P)	A	From Leg	4.000	0.000	0.000	148.000	No Ice	11.704	11.738	0.173
			0.000	0.000			1/2" Ice	12.424	13.269	0.271
			-2.000	-2.000			1" Ice	13.153	14.825	0.380
QS66512-2 w/ Mount Pipe (P)	B	From Leg	4.000	0.000	0.000	148.000	No Ice	8.371	8.463	0.137
			0.000	0.000			1/2" Ice	8.931	9.657	0.212
			-2.000	-2.000			1" Ice	9.457	10.548	0.296
QS66512-2 w/ Mount Pipe (P)	C	From Leg	4.000	0.000	0.000	148.000	No Ice	8.371	8.463	0.137
			0.000	0.000			1/2" Ice	8.931	9.657	0.212
			-2.000	-2.000			1" Ice	9.457	10.548	0.296
DTMABP7819VG12A (P)	A	From Leg	4.000	0.000	0.000	148.000	No Ice	0.976	0.339	0.019
			0.000	0.000			1/2" Ice	1.100	0.419	0.026
			-2.000	-2.000			1" Ice	1.232	0.510	0.036
DTMABP7819VG12A (P)	B	From Leg	4.000	0.000	0.000	148.000	No Ice	0.976	0.339	0.019
			0.000	0.000			1/2" Ice	1.100	0.419	0.026
			-2.000	-2.000			1" Ice	1.232	0.510	0.036
DTMABP7819VG12A (P)	C	From Leg	4.000	0.000	0.000	148.000	No Ice	0.976	0.339	0.019
			0.000	0.000			1/2" Ice	1.100	0.419	0.026
			-2.000	-2.000			1" Ice	1.232	0.510	0.036
RRUS12/RRUS A2 (P)	A	From Leg	4.000	0.000	0.000	148.000	No Ice	3.143	1.835	0.072
			0.000	0.000			1/2" Ice	3.363	2.012	0.099
			-2.000	-2.000			1" Ice	3.590	2.196	0.130
RRUS12/RRUS A2 (P)	B	From Leg	4.000	0.000	0.000	148.000	No Ice	3.143	1.835	0.072
			0.000	0.000			1/2" Ice	3.363	2.012	0.099
			-2.000	-2.000			1" Ice	3.590	2.196	0.130
RRUS12/RRUS A2 (P)	C	From Leg	4.000	0.000	0.000	148.000	No Ice	3.143	1.835	0.072
			0.000	0.000			1/2" Ice	3.363	2.012	0.099
			-2.000	-2.000			1" Ice	3.590	2.196	0.130
5' x 2" Pipe Mount (E-For TME,Corner)	A	From Leg	4.000	0.000	0.000	148.000	No Ice	1.000	1.000	0.029
			0.000	0.000			1/2" Ice	1.393	1.393	0.037
			1.000	1.000			1" Ice	1.703	1.703	0.048
5' x 2" Pipe Mount (E-For TME,Corner)	B	From Leg	4.000	0.000	0.000	148.000	No Ice	1.000	1.000	0.029
			0.000	0.000			1/2" Ice	1.393	1.393	0.037
			1.000	1.000			1" Ice	1.703	1.703	0.048
5' x 2" Pipe Mount (E-For TME,Corner)	C	From Leg	4.000	0.000	0.000	148.000	No Ice	1.000	1.000	0.029
			0.000	0.000			1/2" Ice	1.393	1.393	0.037
			1.000	1.000			1" Ice	1.703	1.703	0.048

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	Client		Crown Castle		Designed by		Devaraj Sanamuri	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz	Vert			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	K	
6' x 2" Mount Pipe (E-Per Photo (For DC6))	A	From Leg	1.000	0.000	0.000	148.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			1.000				1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe (E-Empty)	B	From Leg	4.000	0.000	0.000	148.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
Platform Mount [LP 1201-1] (E)	C	None			0.000	148.000	No Ice	23.100	23.100	2.100
							1/2" Ice	26.800	26.800	2.500
							1" Ice	30.500	30.500	2.900
Miscellaneous [NA 510-1] (P-Handrail per Mount SA)	C	None			0.000	148.000	No Ice	6.000	6.000	0.256
							1/2" Ice	8.500	8.500	0.340
							1" Ice	11.000	11.000	0.423

ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	142.000	No Ice	6.329	5.642	0.112
			0.000				1/2" Ice	6.775	6.426	0.169
			1.000				1" Ice	7.214	7.131	0.233
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	142.000	No Ice	6.329	5.642	0.112
			0.000				1/2" Ice	6.775	6.426	0.169
			1.000				1" Ice	7.214	7.131	0.233
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	142.000	No Ice	6.329	5.642	0.112
			0.000				1/2" Ice	6.775	6.426	0.169
			1.000				1" Ice	7.214	7.131	0.233
LNX-6515DS-VTM w/ Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	142.000	No Ice	11.683	9.842	0.083
			0.000				1/2" Ice	12.404	11.366	0.173
			1.000				1" Ice	13.135	12.914	0.273
LNX-6515DS-VTM w/ Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	142.000	No Ice	11.683	9.842	0.083
			0.000				1/2" Ice	12.404	11.366	0.173
			1.000				1" Ice	13.135	12.914	0.273
LNX-6515DS-VTM w/ Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	142.000	No Ice	11.683	9.842	0.083
			0.000				1/2" Ice	12.404	11.366	0.173
			1.000				1" Ice	13.135	12.914	0.273
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	142.000	No Ice	6.329	5.642	0.112
			0.000				1/2" Ice	6.775	6.426	0.169
			1.000				1" Ice	7.214	7.131	0.233
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	142.000	No Ice	6.329	5.642	0.112
			0.000				1/2" Ice	6.775	6.426	0.169
			1.000				1" Ice	7.214	7.131	0.233
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	142.000	No Ice	6.329	5.642	0.112
			0.000				1/2" Ice	6.775	6.426	0.169
			1.000				1" Ice	7.214	7.131	0.233
RRUS 11 B12 (E)	A	From Leg	4.000	0.000	0.000	142.000	No Ice	2.833	1.182	0.051
			0.000				1/2" Ice	3.043	1.330	0.072
			0.000				1" Ice	3.259	1.485	0.095
RRUS 11 B12 (E)	B	From Leg	4.000	0.000	0.000	142.000	No Ice	2.833	1.182	0.051
			0.000				1/2" Ice	3.043	1.330	0.072
			0.000				1" Ice	3.259	1.485	0.095
RRUS 11 B12 (E)	C	From Leg	4.000	0.000	0.000	142.000	No Ice	2.833	1.182	0.051
			0.000				1/2" Ice	3.043	1.330	0.072
			0.000				1" Ice	3.259	1.485	0.095
KRY 112 144/1 (E)	A	From Leg	4.000	0.000	0.000	142.000	No Ice	0.350	0.175	0.011
			0.000				1/2" Ice	0.426	0.234	0.014
			0.000				1" Ice	0.509	0.301	0.019
KRY 112 144/1 (E)	B	From Leg	4.000	0.000	0.000	142.000	No Ice	0.350	0.175	0.011
			0.000				1/2" Ice	0.426	0.234	0.014
			0.000				1" Ice	0.509	0.301	0.019
KRY 112 144/1 (E)	C	From Leg	4.000	0.000	0.000	142.000	No Ice	0.350	0.175	0.011
			0.000				1/2" Ice	0.426	0.234	0.014

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">B+T Group 1717 S Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job		91728.007.01 - WINDSORCENTRAL, CT (BU# 855662)		Page		9 of 34	
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	Client		Crown Castle		Designed by		Devaraj Sanamuri	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight
			Horz	Vert			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	K
			0.000						
(2) 5' x 2" Pipe Mount (E)	A	From Leg	4.000		0.000	142.000	1" Ice 0.509	0.301	0.019
			0.000				No Ice 1.000	1.000	0.029
			0.000				1/2" Ice 1.393	1.393	0.037
			0.000				1" Ice 1.703	1.703	0.048
(2) 5' x 2" Pipe Mount (E)	B	From Leg	4.000		0.000	142.000	No Ice 1.000	1.000	0.029
			0.000				1/2" Ice 1.393	1.393	0.037
			0.000				1" Ice 1.703	1.703	0.048
(2) 5' x 2" Pipe Mount (E)	C	From Leg	4.000		0.000	142.000	No Ice 1.000	1.000	0.029
			0.000				1/2" Ice 1.393	1.393	0.037
			0.000				1" Ice 1.703	1.703	0.048
Platform Mount [LP 1201-1] (E)	C	None			0.000	142.000	No Ice 23.100	23.100	2.100
							1/2" Ice 26.800	26.800	2.500
							1" Ice 30.500	30.500	2.900

BXA-70063-4CF-EDIN-X w/ Mount Pipe (E)	A	From Leg	4.000		0.000	126.000	No Ice 4.945	3.693	0.028
			0.000				1/2" Ice 5.324	4.295	0.070
			1.000				1" Ice 5.712	4.913	0.118
BXA-70063-4CF-EDIN-X w/ Mount Pipe (E)	B	From Leg	4.000		0.000	126.000	No Ice 4.945	3.693	0.028
			0.000				1/2" Ice 5.324	4.295	0.070
			1.000				1" Ice 5.712	4.913	0.118
BXA-70063-4CF-EDIN-X w/ Mount Pipe (E)	C	From Leg	4.000		0.000	126.000	No Ice 4.945	3.693	0.028
			0.000				1/2" Ice 5.324	4.295	0.070
			1.000				1" Ice 5.712	4.913	0.118
P65-16-XL-R w/ Mount Pipe (E)	A	From Leg	4.000		0.000	126.000	No Ice 8.371	6.362	0.057
			0.000				1/2" Ice 8.931	7.538	0.122
			1.000				1" Ice 9.457	8.427	0.196
P65-16-XL-R w/ Mount Pipe (E)	B	From Leg	4.000		0.000	126.000	No Ice 8.371	6.362	0.057
			0.000				1/2" Ice 8.931	7.538	0.122
			1.000				1" Ice 9.457	8.427	0.196
BXA-70080-6CF-4 w/ Mount Pipe (E)	C	From Leg	4.000		0.000	126.000	No Ice 6.006	6.203	0.043
			0.000				1/2" Ice 6.562	7.359	0.098
			1.000				1" Ice 7.083	8.229	0.160
FD9R6004/2C-3L (E)	A	From Leg	4.000		0.000	126.000	No Ice 0.314	0.076	0.003
			0.000				1/2" Ice 0.386	0.119	0.005
			1.000				1" Ice 0.466	0.169	0.009
FD9R6004/2C-3L (E)	B	From Leg	4.000		0.000	126.000	No Ice 0.314	0.076	0.003
			0.000				1/2" Ice 0.386	0.119	0.005
			1.000				1" Ice 0.466	0.169	0.009
FD9R6004/2C-3L (E)	C	From Leg	4.000		0.000	126.000	No Ice 0.314	0.076	0.003
			0.000				1/2" Ice 0.386	0.119	0.005
			1.000				1" Ice 0.466	0.169	0.009
FD9R6004/2C-3L (E)	A	From Leg	4.000		0.000	126.000	No Ice 0.314	0.076	0.003
			0.000				1/2" Ice 0.386	0.119	0.005
			0.000				1" Ice 0.466	0.169	0.009
FD9R6004/2C-3L (E)	B	From Leg	4.000		0.000	126.000	No Ice 0.314	0.076	0.003
			0.000				1/2" Ice 0.386	0.119	0.005
			0.000				1" Ice 0.466	0.169	0.009
FD9R6004/2C-3L (E)	C	From Leg	4.000		0.000	126.000	No Ice 0.314	0.076	0.003
			0.000				1/2" Ice 0.386	0.119	0.005
			0.000				1" Ice 0.466	0.169	0.009
RRH2X60-PCS (E)	A	From Leg	4.000		0.000	126.000	No Ice 2.200	1.723	0.055
			0.000				1/2" Ice 2.393	1.901	0.075
			1.000				1" Ice 2.593	2.087	0.099
RRH2X60-PCS (E)	B	From Leg	4.000		0.000	126.000	No Ice 2.200	1.723	0.055
			0.000				1/2" Ice 2.393	1.901	0.075
			1.000				1" Ice 2.593	2.087	0.099
RRH2X60-PCS (E)	C	From Leg	4.000		0.000	126.000	No Ice 2.200	1.723	0.055

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	Client Crown Castle	Designed by Devaraj Sanamuri

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(E)			0.000			1/2" Ice 2.393	1.901	0.075
			1.000			1" Ice 2.593	2.087	0.099
RRH2X60-AWS	A	From Leg	4.000	0.000	126.000	No Ice 3.500	1.816	0.060
(E)			0.000			1/2" Ice 3.761	2.052	0.083
			1.000			1" Ice 4.029	2.289	0.109
RRH2X60-AWS	B	From Leg	4.000	0.000	126.000	No Ice 3.500	1.816	0.060
(E)			0.000			1/2" Ice 3.761	2.052	0.083
			1.000			1" Ice 4.029	2.289	0.109
RRH2X60-AWS	C	From Leg	4.000	0.000	126.000	No Ice 3.500	1.816	0.060
(E)			0.000			1/2" Ice 3.761	2.052	0.083
			1.000			1" Ice 4.029	2.289	0.109
(2) DB-T1-6Z-8AB-0Z	C	From Leg	4.000	0.000	126.000	No Ice 4.800	2.000	0.044
(E)			0.000			1/2" Ice 5.070	2.193	0.080
			1.000			1" Ice 5.348	2.393	0.120
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000	0.000	126.000	No Ice 8.386	7.084	0.076
(R)			0.000			1/2" Ice 8.950	8.275	0.146
			1.000			1" Ice 9.480	9.188	0.223
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000	0.000	126.000	No Ice 8.386	7.084	0.076
(R)			0.000			1/2" Ice 8.950	8.275	0.146
			1.000			1" Ice 9.480	9.188	0.223
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000	0.000	126.000	No Ice 8.386	7.084	0.076
(R)			0.000			1/2" Ice 8.950	8.275	0.146
			1.000			1" Ice 9.480	9.188	0.223
RRH2x60-700	A	From Leg	4.000	0.000	126.000	No Ice 3.500	1.816	0.060
(R)			0.000			1/2" Ice 3.761	2.052	0.083
			1.000			1" Ice 4.029	2.289	0.109
RRH2x60-700	B	From Leg	4.000	0.000	126.000	No Ice 3.500	1.816	0.060
(R)			0.000			1/2" Ice 3.761	2.052	0.083
			1.000			1" Ice 4.029	2.289	0.109
RRH2x60-700	C	From Leg	4.000	0.000	126.000	No Ice 3.500	1.816	0.060
(R)			0.000			1/2" Ice 3.761	2.052	0.083
			1.000			1" Ice 4.029	2.289	0.109
4' x 2" Pipe Mount (E-For TME)	A	From Leg	3.000	0.000	126.000	No Ice 0.785	0.785	0.029
			0.000			1/2" Ice 1.028	1.028	0.035
			0.000			1" Ice 1.281	1.281	0.044
4' x 2" Pipe Mount (E-For TME)	B	From Leg	3.000	0.000	126.000	No Ice 0.785	0.785	0.029
			0.000			1/2" Ice 1.028	1.028	0.035
			0.000			1" Ice 1.281	1.281	0.044
4' x 2" Pipe Mount (E-For TME)	C	From Leg	3.000	0.000	126.000	No Ice 0.785	0.785	0.029
			0.000			1/2" Ice 1.028	1.028	0.035
			0.000			1" Ice 1.281	1.281	0.044
Platform Mount [LP 403-1] (E-15' Conservative)	C	None		0.000	126.000	No Ice 18.850	18.850	1.500
						1/2" Ice 24.300	24.300	1.797
						1" Ice 29.750	29.750	2.093

TME-800MHz 2X50W RRH W/FILTER (E-CL/Photo)	A	From Leg	1.000	0.000	111.000	No Ice 2.058	1.932	0.064
			0.000			1/2" Ice 2.240	2.109	0.086
			1.000			1" Ice 2.429	2.293	0.111
TME-800MHz 2X50W RRH W/FILTER (E-CL/Photo)	B	From Leg	1.000	0.000	111.000	No Ice 2.058	1.932	0.064
			0.000			1/2" Ice 2.240	2.109	0.086
			1.000			1" Ice 2.429	2.293	0.111
TME-800MHz 2X50W RRH W/FILTER (E-CL/Photo)	C	From Leg	1.000	0.000	111.000	No Ice 2.058	1.932	0.064
			0.000			1/2" Ice 2.240	2.109	0.086
			1.000			1" Ice 2.429	2.293	0.111
PCS 1900MHz 4x45W-65MHz (E)	A	From Leg	1.000	0.000	111.000	No Ice 2.322	2.238	0.060
			0.000			1/2" Ice 2.527	2.441	0.083
			0.000			1" Ice 2.739	2.651	0.110

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	<p>Project</p>	<p>Date</p> <p style="text-align: center;">16:50:24 12/14/16</p>
	<p>Client</p> <p style="text-align: center;">Crown Castle</p>	<p>Designed by</p> <p style="text-align: center;">Devaraj Sanamuri</p>

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz	Vert			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	K	
PCS 1900MHz 4x45W-65MHz (E)	B	From Leg	1.000 0.000 0.000		0.000	111.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.060 0.083 0.110
PCS 1900MHz 4x45W-65MHz (E)	C	From Leg	1.000 0.000 0.000		0.000	111.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.060 0.083 0.110
Pipe Mount [PM 601-3] (E)	C	None			0.000	111.000	No Ice 1/2" Ice 1" Ice	4.390 5.480 6.570	4.390 5.480 6.570	0.195 0.237 0.280

K732267 (E-Crown Castle)	A	From Leg	4.000 0.000 7.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	0.650 0.756 0.870	3.100 3.343 3.593	0.014 0.037 0.063
DB205-L (E-Crown Castle)	B	From Leg	4.000 0.000 7.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	1.717 3.450 5.200	1.717 3.450 5.200	0.036 0.052 0.078
SD212-SF3P2SNM (E-Crown Castle)	B	From Leg	4.000 0.000 4.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	2.160 3.960 5.760	2.160 3.960 5.760	0.021 0.050 0.079

APXVTM14-C-120 w/ Mount Pipe (E-Sprint PCS)	A	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.131 0.193
APXVTM14-C-120 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.131 0.193
APXVTM14-C-120 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.131 0.193
APXVSP18-C-A20 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
APXVSP18-C-A20 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
(2) APXVSP18-C-A20 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
TD-RRH8x20-25 (E)	A	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
TD-RRH8x20-25 (E)	B	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
TD-RRH8x20-25 (E)	C	From Leg	4.000 0.000 1.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
6' x 2" Mount Pipe (E)	A	From Leg	4.000 0.000 0.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
(2) 6' x 2" Mount Pipe (E)	B	From Leg	4.000 0.000 0.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
6' x 2" Mount Pipe (E)	C	From Leg	4.000 0.000 0.000		0.000	109.000	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
Platform Mount [LP 1201-1]	C	None			0.000	109.000	No Ice	23.100	23.100	2.100

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Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
HP2-23 (E)	A	Paraboloid w/Shroud (HP)	From Leg	1.000 0.000 1.000	0.000		74.000	2.042	No Ice 3.190 1/2" Ice 3.460 1" Ice 3.730	0.030 0.030 0.035
_										

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service

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Comb. No.	Description
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	148 - 116	Pole	Max Tension	26	0.000	-0.000	-0.000
			Max. Compression	26	-38.211	1.556	0.816
			Max. Mx	20	-13.467	347.488	-0.401
			Max. My	2	-13.472	-0.279	348.078
			Max. Vy	20	-19.459	347.488	-0.401
			Max. Vx	14	19.432	0.796	-347.692
			Max. Torque	8			1.282
L2	116 - 93.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.100	1.620	-0.657
			Max. Mx	20	-22.275	978.885	-2.922
			Max. My	14	-22.290	2.999	-975.422
			Max. Vy	20	-27.285	978.885	-2.922
			Max. Vx	14	27.102	2.999	-975.422
			Max. Torque	18			-0.953
L3	93.5 - 74.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-62.910	1.622	-0.504
			Max. Mx	20	-25.864	1370.142	-4.192
			Max. My	14	-25.875	4.289	-1364.116
			Max. Vy	20	-28.640	1370.142	-4.192
			Max. Vx	14	28.457	4.289	-1364.116
			Max. Torque	16			-0.612
L4	74.75 - 57.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.962	0.929	2.360
			Max. Mx	20	-33.597	2027.949	-6.359
			Max. My	14	-33.586	7.188	-2024.794
			Max. Vy	20	-31.360	2027.949	-6.359
			Max. Vx	14	31.601	7.188	-2024.794
			Max. Torque	32			0.800
L5	57.75 - 39.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.027	1.011	3.152
			Max. Mx	20	-38.265	2436.015	-7.658
			Max. My	14	-38.257	9.009	-2435.449
			Max. Vy	20	-32.725	2436.015	-7.658
			Max. Vx	14	32.930	9.009	-2435.449
			Max. Torque	20			-0.888
L6	39.5 - 31.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-92.701	1.121	3.519
			Max. Mx	20	-44.820	2878.540	-9.302
			Max. My	14	-44.814	10.897	-2880.684
			Max. Vy	20	-34.003	2878.540	-9.302
			Max. Vx	14	34.208	10.897	-2880.684
			Max. Torque	20			-0.888
L7	31.75 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-112.243	1.427	4.256
			Max. Mx	20	-58.870	3992.659	-13.185

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-58.870	15.353	-4001.277
			Max. Vy	20	-36.136	3992.659	-13.185
			Max. Vx	14	36.340	15.353	-4001.277
			Max. Torque	20			-0.887

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	112.243	13.058	-0.018
	Max. H _x	21	44.168	36.102	-0.121
	Max. H _z	3	44.168	-0.138	36.268
	Max. M _x	2	3999.617	-0.138	36.268
	Max. M _z	8	3992.137	-36.102	0.155
	Max. Torsion	8	0.881	-36.102	0.155
	Min. Vert	11	44.168	-31.170	-18.082
	Min. H _x	8	58.891	-36.102	0.155
	Min. H _z	15	44.168	0.138	-36.306
	Min. M _x	14	-4001.277	0.138	-36.306
	Min. M _z	20	-3992.659	36.102	-0.121
	Min. Torsion	20	-0.887	36.102	-0.121

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	49.076	0.000	0.000	-0.497	0.201	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	58.891	0.138	-36.268	-3999.617	-14.830	0.174
0.9 Dead+1.6 Wind 0 deg - No Ice	44.168	0.138	-36.268	-3953.087	-14.739	0.171
1.2 Dead+1.6 Wind 30 deg - No Ice	58.891	18.149	-31.490	-3472.282	-2007.382	-0.209
0.9 Dead+1.6 Wind 30 deg - No Ice	44.168	18.149	-31.490	-3431.885	-1984.136	-0.208
1.2 Dead+1.6 Wind 60 deg - No Ice	58.891	31.318	-18.285	-2015.563	-3463.553	-0.609
0.9 Dead+1.6 Wind 60 deg - No Ice	44.168	31.318	-18.285	-1992.067	-3423.389	-0.605
1.2 Dead+1.6 Wind 90 deg - No Ice	58.891	36.102	-0.155	-16.997	-3992.137	-0.881
0.9 Dead+1.6 Wind 90 deg - No Ice	44.168	36.102	-0.155	-16.669	-3945.831	-0.874
1.2 Dead+1.6 Wind 120 deg - No Ice	58.891	31.170	18.082	1990.994	-3447.684	-0.787
0.9 Dead+1.6 Wind 120 deg - No Ice	44.168	31.170	18.082	1968.071	-3407.685	-0.779
1.2 Dead+1.6 Wind 150 deg - No Ice	58.891	17.920	31.391	3459.007	-1981.962	-0.566
0.9 Dead+1.6 Wind 150 deg - No Ice	44.168	17.920	31.391	3419.065	-1958.989	-0.559

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.6 Wind 180 deg - No Ice	58.891	-0.138	36.306	4001.277	15.353	-0.179
0.9 Dead+1.6 Wind 180 deg - No Ice	44.168	-0.138	36.306	3955.046	15.123	-0.176
1.2 Dead+1.6 Wind 210 deg - No Ice	58.891	-18.158	31.529	3474.037	2008.589	0.258
0.9 Dead+1.6 Wind 210 deg - No Ice	44.168	-18.158	31.529	3433.938	1985.200	0.257
1.2 Dead+1.6 Wind 240 deg - No Ice	58.891	-31.307	18.320	2017.097	3463.238	0.613
0.9 Dead+1.6 Wind 240 deg - No Ice	44.168	-31.307	18.320	1993.899	3422.942	0.608
1.2 Dead+1.6 Wind 270 deg - No Ice	58.891	-36.102	0.121	13.185	3992.659	0.887
0.9 Dead+1.6 Wind 270 deg - No Ice	44.168	-36.102	0.121	13.193	3946.205	0.880
1.2 Dead+1.6 Wind 300 deg - No Ice	58.891	-31.180	-18.046	-1989.458	3449.044	0.788
0.9 Dead+1.6 Wind 300 deg - No Ice	44.168	-31.180	-18.046	-1966.238	3408.897	0.781
1.2 Dead+1.6 Wind 330 deg - No Ice	58.891	-17.911	-31.352	-3457.250	1981.800	0.512
0.9 Dead+1.6 Wind 330 deg - No Ice	44.168	-17.911	-31.352	-3417.011	1958.691	0.506
1.2 Dead+1.0 Ice+1.0 Temp	112.243	-0.000	-0.000	-4.256	1.427	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	112.243	0.021	-12.656	-1425.952	-0.835	0.661
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	112.243	6.426	-11.243	-1247.461	-710.905	0.289
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	112.243	10.846	-6.355	-718.079	-1220.131	-0.176
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	112.243	13.058	-0.025	-7.359	-1448.893	-0.600
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	112.243	10.818	6.323	705.123	-1217.219	-0.831
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	112.243	6.296	11.065	1232.731	-704.648	-0.862
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	112.243	-0.021	12.665	1417.419	4.062	-0.661
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	112.243	-6.428	11.252	1238.945	714.290	-0.283
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	112.243	-10.844	6.363	709.511	1223.150	0.171
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	112.243	-13.058	0.018	-2.463	1452.106	0.601
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	112.243	-10.821	-6.315	-713.678	1220.633	0.838
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	112.243	-6.294	-11.056	-1241.235	707.711	0.857
Dead+Wind 0 deg - Service	49.076	0.029	-7.760	-850.689	-2.992	0.037
Dead+Wind 30 deg - Service	49.076	3.883	-6.738	-738.587	-426.600	-0.051
Dead+Wind 60 deg - Service	49.076	6.701	-3.912	-428.892	-736.178	-0.137
Dead+Wind 90 deg - Service	49.076	7.724	-0.033	-3.999	-848.547	-0.190
Dead+Wind 120 deg - Service	49.076	6.669	3.869	422.894	-732.791	-0.163
Dead+Wind 150 deg - Service	49.076	3.834	6.716	734.988	-421.189	-0.115
Dead+Wind 180 deg - Service	49.076	-0.029	7.768	850.279	3.427	-0.037
Dead+Wind 210 deg - Service	49.076	-3.885	6.746	738.197	427.182	0.051
Dead+Wind 240 deg - Service	49.076	-6.699	3.920	428.453	736.435	0.127
Dead+Wind 270 deg - Service	49.076	-7.724	0.026	2.420	848.981	0.190
Dead+Wind 300 deg - Service	49.076	-6.671	-3.861	-423.333	733.403	0.174
Dead+Wind 330 deg - Service	49.076	-3.832	-6.708	-735.377	421.476	0.115

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Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-49.076	0.000	0.000	49.076	0.000	0.000%
2	0.138	-58.891	-36.268	-0.138	58.891	36.268	0.000%
3	0.138	-44.168	-36.268	-0.138	44.168	36.268	0.000%
4	18.149	-58.891	-31.490	-18.149	58.891	31.490	0.000%
5	18.149	-44.168	-31.490	-18.149	44.168	31.490	0.000%
6	31.318	-58.891	-18.285	-31.318	58.891	18.285	0.000%
7	31.318	-44.168	-18.285	-31.318	44.168	18.285	0.000%
8	36.102	-58.891	-0.155	-36.102	58.891	0.155	0.000%
9	36.102	-44.168	-0.155	-36.102	44.168	0.155	0.000%
10	31.170	-58.891	18.082	-31.170	58.891	-18.082	0.000%
11	31.170	-44.168	18.082	-31.170	44.168	-18.082	0.000%
12	17.920	-58.891	31.391	-17.920	58.891	-31.391	0.000%
13	17.920	-44.168	31.391	-17.920	44.168	-31.391	0.000%
14	-0.138	-58.891	36.306	0.138	58.891	-36.306	0.000%
15	-0.138	-44.168	36.306	0.138	44.168	-36.306	0.000%
16	-18.158	-58.891	31.529	18.158	58.891	-31.529	0.000%
17	-18.158	-44.168	31.529	18.158	44.168	-31.529	0.000%
18	-31.307	-58.891	18.320	31.307	58.891	-18.320	0.000%
19	-31.307	-44.168	18.320	31.307	44.168	-18.320	0.000%
20	-36.102	-58.891	0.121	36.102	58.891	-0.121	0.000%
21	-36.102	-44.168	0.121	36.102	44.168	-0.121	0.000%
22	-31.180	-58.891	-18.046	31.180	58.891	18.046	0.000%
23	-31.180	-44.168	-18.046	31.180	44.168	18.046	0.000%
24	-17.911	-58.891	-31.352	17.911	58.891	31.352	0.000%
25	-17.911	-44.168	-31.352	17.911	44.168	31.352	0.000%
26	0.000	-112.243	0.000	0.000	112.243	0.000	0.000%
27	0.021	-112.243	-12.656	-0.021	112.243	12.656	0.000%
28	6.426	-112.243	-11.243	-6.426	112.243	11.243	0.000%
29	10.846	-112.243	-6.355	-10.846	112.243	6.355	0.000%
30	13.058	-112.243	-0.025	-13.058	112.243	0.025	0.000%
31	10.818	-112.243	6.323	-10.818	112.243	-6.323	0.000%
32	6.296	-112.243	11.065	-6.296	112.243	-11.065	0.000%
33	-0.021	-112.243	12.665	0.021	112.243	-12.665	0.000%
34	-6.428	-112.243	11.252	6.428	112.243	-11.252	0.000%
35	-10.844	-112.243	6.363	10.844	112.243	-6.363	0.000%
36	-13.058	-112.243	0.018	13.058	112.243	-0.018	0.000%
37	-10.821	-112.243	-6.315	10.821	112.243	6.315	0.000%
38	-6.294	-112.243	-11.056	6.294	112.243	11.056	0.000%
39	0.029	-49.076	-7.760	-0.029	49.076	7.760	0.000%
40	3.883	-49.076	-6.738	-3.883	49.076	6.738	0.000%
41	6.701	-49.076	-3.912	-6.701	49.076	3.912	0.000%
42	7.724	-49.076	-0.033	-7.724	49.076	0.033	0.000%
43	6.669	-49.076	3.869	-6.669	49.076	-3.869	0.000%
44	3.834	-49.076	6.716	-3.834	49.076	-6.716	0.000%
45	-0.029	-49.076	7.768	0.029	49.076	-7.768	0.000%
46	-3.885	-49.076	6.746	3.885	49.076	-6.746	0.000%
47	-6.699	-49.076	3.920	6.699	49.076	-3.920	0.000%
48	-7.724	-49.076	0.026	7.724	49.076	-0.026	0.000%
49	-6.671	-49.076	-3.861	6.671	49.076	3.861	0.000%
50	-3.832	-49.076	-6.708	3.832	49.076	6.708	0.000%

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Non-Linear Convergence Results

<i>Load Combination</i>	<i>Converged?</i>	<i>Number of Cycles</i>	<i>Displacement Tolerance</i>	<i>Force Tolerance</i>
1	Yes	4	0.0000001	0.0000001
2	Yes	5	0.0000001	0.0005833
3	Yes	4	0.0000001	0.00057089
4	Yes	6	0.0000001	0.00019264
5	Yes	6	0.0000001	0.00006150
6	Yes	6	0.0000001	0.00019547
7	Yes	6	0.0000001	0.00006250
8	Yes	5	0.0000001	0.00010792
9	Yes	5	0.0000001	0.00004764
10	Yes	6	0.0000001	0.00018986
11	Yes	6	0.0000001	0.00006077
12	Yes	6	0.0000001	0.00019159
13	Yes	6	0.0000001	0.00006138
14	Yes	5	0.0000001	0.00006127
15	Yes	4	0.0000001	0.000060974
16	Yes	6	0.0000001	0.00019444
17	Yes	6	0.0000001	0.00006213
18	Yes	6	0.0000001	0.00019252
19	Yes	6	0.0000001	0.00006144
20	Yes	5	0.0000001	0.00006024
21	Yes	4	0.0000001	0.000060317
22	Yes	6	0.0000001	0.00019280
23	Yes	6	0.0000001	0.00006180
24	Yes	6	0.0000001	0.00019016
25	Yes	6	0.0000001	0.00006087
26	Yes	4	0.0000001	0.00001351
27	Yes	6	0.0000001	0.00038603
28	Yes	6	0.0000001	0.00054276
29	Yes	6	0.0000001	0.00053805
30	Yes	6	0.0000001	0.00039012
31	Yes	6	0.0000001	0.00052761
32	Yes	6	0.0000001	0.00053879
33	Yes	6	0.0000001	0.00038385
34	Yes	6	0.0000001	0.00053859
35	Yes	6	0.0000001	0.00053609
36	Yes	6	0.0000001	0.00039182
37	Yes	6	0.0000001	0.00054161
38	Yes	6	0.0000001	0.00053656
39	Yes	4	0.0000001	0.00018768
40	Yes	4	0.0000001	0.00091834
41	Yes	4	0.0000001	0.00095290
42	Yes	4	0.0000001	0.00019880
43	Yes	4	0.0000001	0.00089525
44	Yes	4	0.0000001	0.00092111
45	Yes	4	0.0000001	0.00018778
46	Yes	4	0.0000001	0.00094280
47	Yes	4	0.0000001	0.00091390
48	Yes	4	0.0000001	0.00019519
49	Yes	4	0.0000001	0.00093619
50	Yes	4	0.0000001	0.00090459

Maximum Tower Deflections - Service Wind

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 116	20.758	47	1.257	0.002
L2	119.75 - 93.5	13.560	47	1.130	0.001
L3	93.5 - 74.75	8.064	40	0.827	0.000
L4	79.5 - 57.75	5.834	40	0.692	0.000
L5	57.75 - 39.5	3.076	40	0.500	0.000
L6	45 - 31.75	1.900	40	0.381	0.000
L7	31.75 - 0	0.951	40	0.289	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.000	PD320-2	47	20.758	1.257	0.002	37460
147.000	Detuner Mount	47	20.495	1.254	0.002	37460
142.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	47	19.181	1.242	0.002	31216
126.000	BXA-70063-4CF-EDIN-X w/ Mount Pipe	47	15.079	1.177	0.001	8513
111.000	TME-800MHz 2X50W RRH W/FILTER	47	11.552	1.039	0.000	5544
109.000	K732267	47	11.116	1.016	0.000	5340
95.000	Detuner Mount	40	8.331	0.844	0.000	4295
79.000	SRL-227	40	5.762	0.688	0.000	7699
75.000	HP2-23	40	5.194	0.653	0.000	7343
74.000	8" X 8" X 4" TMA	40	5.056	0.644	0.000	7165
50.000	GPS-TMG-HR-26N	40	2.328	0.425	0.000	7440
15.000	Detuner Mount	40	0.288	0.148	0.000	9732

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 116	97.618	18	5.921	0.010
L2	119.75 - 93.5	63.794	16	5.325	0.003
L3	93.5 - 74.75	37.955	16	3.897	0.002
L4	79.5 - 57.75	27.462	16	3.260	0.001
L5	57.75 - 39.5	14.479	16	2.353	0.001
L6	45 - 31.75	8.941	16	1.796	0.001
L7	31.75 - 0	4.474	16	1.360	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.000	PD320-2	18	97.618	5.921	0.011	8123
147.000	Detuner Mount	18	96.381	5.910	0.011	8123

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Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
142.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	18	90.207	5.852	0.009	6769
126.000	BXA-70063-4CF-EDIN-X w/ Mount Pipe	18	70.934	5.545	0.004	1843
111.000	TME-800MHz 2X50W RRH W/FILTER	16	54.361	4.896	0.002	1194
109.000	K732267	16	52.309	4.784	0.002	1149
95.000	Detuner Mount	16	39.214	3.977	0.002	923
79.000	SRL-227	16	27.120	3.239	0.001	1645
75.000	HP2-23	16	24.446	3.075	0.001	1568
74.000	8" X 8" X 4" TMA	16	23.797	3.035	0.001	1530
50.000	GPS-TMG-HR-26N	16	10.958	2.003	0.001	1583
15.000	Detuner Mount	16	1.356	0.698	0.000	2068

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio
	ft		ft	ft		in ²	K	K	$\frac{P_u}{\phi P_n}$
L1	148 - 146.513	TP30.241x24x0.219	32.000	0.000	0.0	16.713	-11.099	1210.620	0.009
	146.513 - 145.026					16.914	-4.273	1221.030	0.003
	145.026 - 143.539					17.116	-4.416	1231.340	0.004
	143.539 - 142.053					17.317	-4.561	1241.540	0.004
	142.053 - 140.566					17.518	-8.249	1251.650	0.007
	140.566 - 139.079					17.720	-8.398	1261.660	0.007
	139.079 - 137.592					17.921	-8.550	1271.570	0.007
	137.592 - 136.105					18.122	-8.703	1281.380	0.007
	136.105 - 134.618					18.324	-8.859	1291.090	0.007
	134.618 - 133.132					18.525	-9.016	1300.700	0.007
	133.132 - 131.645					18.726	-9.176	1310.210	0.007
	131.645 - 130.158					18.928	-9.338	1319.630	0.007
	130.158 - 128.671					19.129	-9.501	1328.940	0.007
	128.671 - 127.184					19.330	-9.667	1338.150	0.007
	127.184 - 125.697					19.532	-12.754	1347.270	0.009
	125.697 - 124.211					19.733	-12.930	1356.280	0.010
	124.211 - 122.724					19.934	-13.108	1365.200	0.010

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">B+T Group 1717 S Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job 91728.007.01 - WINDSORCENTRAL, CT (BU# 855662)	Page 21 of 34
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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
	122.724 - 121.237					20.136	-13.277	1374.010	0.010
	121.237 - 119.75					20.337	-13.461	1382.730	0.010
L2	119.75 - 116	TP34.191x29.072x0.25	26.250	0.000	0.0	20.845	-6.735	1404.270	0.005
	119.75 - 116					23.451	-7.519	1662.960	0.005
	116 - 114.816					23.634	-14.446	1671.890	0.009
	114.816 - 113.632					23.817	-14.633	1680.750	0.009
	113.632 - 112.447					24.000	-14.822	1689.550	0.009
	112.447 - 111.263					24.184	-15.012	1698.290	0.009
	111.263 - 110.079					24.367	-15.816	1706.960	0.009
	110.079 - 108.895					24.550	-19.279	1715.570	0.011
	108.895 - 107.711					24.733	-19.481	1724.120	0.011
	107.711 - 106.526					24.917	-19.684	1732.610	0.011
	106.526 - 105.342					25.100	-19.890	1741.030	0.011
	105.342 - 104.158					25.283	-20.097	1749.390	0.011
	104.158 - 102.974					25.466	-20.306	1757.690	0.012
	102.974 - 101.789					25.649	-20.517	1765.920	0.012
	101.789 - 100.605					25.833	-20.730	1774.090	0.012
	100.605 - 99.4211					26.016	-20.945	1782.200	0.012
	99.4211 - 98.2368					26.199	-21.161	1790.240	0.012
	98.2368 - 97.0526					26.382	-21.380	1798.220	0.012
	97.0526 - 95.8684					26.566	-21.600	1806.140	0.012
	95.8684 - 94.6842					26.749	-22.045	1813.990	0.012
L3	94.6842 - 93.5	TP37.847x34.191x0.421	18.750	0.000	0.0	26.932	-22.268	1821.780	0.012
	93.5 - 92.5					45.344	-22.525	2161.740	0.010
	92.5 - 91.5					45.605	-22.773	2174.150	0.010
	91.5 - 90.5					45.865	-23.023	2186.560	0.011
	90.5 - 89.5					46.125	-23.274	2198.970	0.011
	89.5 - 88.5					46.386	-23.527	2211.380	0.011
	88.5 - 87.5					46.646	-23.780	2223.790	0.011
	87.5 - 86.5					46.906	-24.035	2236.200	0.011
	86.5 - 85.5					47.167	-24.292	2248.610	0.011
	85.5 - 84.5					47.427	-24.549	2261.020	0.011
	84.5 - 83.5					47.687	-24.808	2273.430	0.011
	83.5 - 82.5					47.947	-25.069	2285.840	0.011
	82.5 - 81.5					48.208	-25.330	2298.250	0.011
	81.5 - 80.5					48.468	-25.593	2310.660	0.011
	80.5 - 79.5					48.729	-25.858	2323.070	0.011
	79.5 - 74.75					49.965	-13.619	2382.030	0.006
L4	79.5 - 74.75	TP40.663x36.421x0.467	21.750	0.000	0.0	54.642	-14.716	2609.680	0.006
	74.75 - 73.75					54.931	-28.730	2623.480	0.011
	73.75 - 72.75					55.220	-29.023	2637.280	0.011

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	<p>Client Crown Castle</p>	<p>Designed by Devaraj Sanamuri</p>

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
	72.75 - 71.75					55.509	-29.318	2651.080	0.011
	71.75 - 70.75					55.798	-29.614	2664.880	0.011
	70.75 - 69.75					56.087	-29.911	2678.680	0.011
	69.75 - 68.75					56.376	-30.210	2692.480	0.011
	68.75 - 67.75					56.665	-30.510	2706.280	0.011
	67.75 - 66.75					56.954	-30.811	2720.080	0.011
	66.75 - 65.75					57.243	-31.114	2733.890	0.011
	65.75 - 64.75					57.532	-31.419	2747.690	0.011
	64.75 - 63.75					57.821	-31.724	2761.490	0.011
	63.75 - 62.75					58.110	-32.031	2775.290	0.012
	62.75 - 61.75					58.399	-32.339	2789.090	0.012
	61.75 - 60.75					58.688	-32.649	2802.890	0.012
	60.75 - 59.75					58.977	-32.960	2816.690	0.012
	59.75 - 58.75					59.266	-33.272	2830.490	0.012
	58.75 - 57.75					59.555	-33.585	2844.290	0.012
L5	57.75 - 56.6875	TP44.222x40.663x0.511	18.250	0.000	0.0	65.486	-33.940	3176.960	0.011
	56.6875 - 55.625					65.822	-34.296	3193.270	0.011
	55.625 - 54.5625					66.158	-34.653	3209.590	0.011
	54.5625 - 53.5					66.494	-35.012	3225.900	0.011
	53.5 - 52.4375					66.831	-35.373	3242.210	0.011
	52.4375 - 51.375					67.167	-35.735	3258.520	0.011
	51.375 - 50.3125					67.503	-36.099	3274.830	0.011
	50.3125 - 49.25					67.839	-36.778	3291.150	0.011
	49.25 - 48.1875					68.176	-37.145	3307.460	0.011
	48.1875 - 47.125					68.512	-37.514	3323.770	0.011
	47.125 - 46.0625					68.848	-37.884	3340.080	0.011
	46.0625 - 45					69.184	-38.252	3356.390	0.011
	45 - 39.5					70.925	-20.073	3440.830	0.006
L6	45 - 39.5	TP45.108x42.524x0.565	13.250	0.000	0.0	77.226	-21.699	3752.610	0.006
	39.5 - 38.3929					77.613	-42.218	3771.440	0.011
	38.3929 - 37.2857					78.001	-42.645	3790.270	0.011
	37.2857 - 36.1786					78.388	-43.075	3809.100	0.011
	36.1786 - 35.0714					78.776	-43.506	3827.930	0.011
	35.0714 - 33.9643					79.163	-43.938	3846.760	0.011
	33.9643 - 32.8571					79.551	-44.373	3865.580	0.011
	32.8571 - 31.75					79.938	-44.809	3884.410	0.012
L7	31.75 - 30.1625	TP51.3x45.108x0.526	31.750	0.000	0.0	74.884	-45.457	4066.150	0.011
	30.1625 - 28.575					75.400	-46.116	4094.190	0.011
	28.575 - 26.9875					75.917	-46.779	4122.230	0.011
	26.9875 - 25.4					76.433	-47.445	4150.280	0.011
	25.4 - 23.8125					76.950	-48.116	4178.320	0.012
	23.8125 -					77.466	-48.790	4206.360	0.012

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
	22.225								
	22.225 - 20.6375					77.983	-49.469	4234.400	0.012
	20.6375 - 19.05					78.499	-50.151	4262.440	0.012
	19.05 - 17.4625					79.015	-50.837	4290.480	0.012
	17.4625 - 15.875					79.532	-51.527	4318.520	0.012
	15.875 - 14.2875					80.048	-52.454	4346.560	0.012
	14.2875 - 12.7					80.565	-53.151	4374.600	0.012
	12.7 - 11.1125					81.081	-53.853	4402.640	0.012
	11.1125 - 9.525					81.598	-54.558	4430.690	0.012
	9.525 - 7.9375					82.114	-55.267	4458.730	0.012
	7.9375 - 6.35					82.630	-55.980	4486.770	0.012
	6.35 - 4.7625					83.147	-56.697	4514.810	0.013
	4.7625 - 3.175					83.663	-57.418	4542.850	0.013
	3.175 - 1.5875					84.180	-58.142	4570.890	0.013
	1.5875 - 0					84.696	-58.870	4598.930	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	148 - 146.513	TP30.241x24x0.219	3.056	598.508	0.005	0.000	598.508	0.000
	146.513 - 145.026		11.276	610.991	0.018	0.000	610.991	0.000
	145.026 - 143.539		19.950	623.548	0.032	0.000	623.548	0.000
	143.539 - 142.053		28.824	636.178	0.045	0.000	636.178	0.000
	142.053 - 140.566		48.379	648.879	0.075	0.000	648.879	0.000
	140.566 - 139.079		65.415	661.650	0.099	0.000	661.650	0.000
	139.079 - 137.592		82.654	674.488	0.123	0.000	674.488	0.000
	137.592 - 136.105		100.096	687.393	0.146	0.000	687.393	0.000
	136.105 - 134.618		117.742	700.361	0.168	0.000	700.361	0.000
	134.618 - 133.132		135.592	713.391	0.190	0.000	713.391	0.000
	133.132 - 131.645		153.648	726.481	0.211	0.000	726.481	0.000
	131.645 - 130.158		171.909	739.630	0.232	0.000	739.630	0.000
	130.158 - 128.671		190.378	752.836	0.253	0.000	752.836	0.000
	128.671 - 127.184		209.054	766.097	0.273	0.000	766.097	0.000
	127.184 - 125.697		234.195	779.411	0.300	0.000	779.411	0.000

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Section No.	Elevation ft	Size	M_{ux}	ϕM_{ux}	Ratio	M_{uy}	ϕM_{uy}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{ux}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{uy}}$
	125.697 - 124.211		262.358	792.777	0.331	0.000	792.777	0.000
	124.211 - 122.724		290.726	806.192	0.361	0.000	806.192	0.000
	122.724 - 121.237		319.322	819.655	0.390	0.000	819.655	0.000
	121.237 - 119.75		348.196	833.164	0.418	0.000	833.164	0.000
L2	119.75 - 116	TP34.191x29.072x0.25	202.033	867.425	0.233	0.000	867.425	0.000
	119.75 - 116		220.000	1010.000	0.218	0.000	1010.000	0.000
	116 - 114.816		445.652	1023.425	0.435	0.000	1023.425	0.000
	114.816 - 113.632		469.401	1036.892	0.453	0.000	1036.892	0.000
	113.632 - 112.447		493.277	1050.408	0.470	0.000	1050.408	0.000
	112.447 - 111.263		517.283	1063.967	0.486	0.000	1063.967	0.000
	111.263 - 110.079		542.421	1077.575	0.503	0.000	1077.575	0.000
	110.079 - 108.895		572.639	1091.217	0.525	0.000	1091.217	0.000
	108.895 - 107.711		603.255	1104.908	0.546	0.000	1104.908	0.000
	107.711 - 106.526		633.994	1118.633	0.567	0.000	1118.633	0.000
	106.526 - 105.342		664.857	1132.408	0.587	0.000	1132.408	0.000
	105.342 - 104.158		695.842	1146.217	0.607	0.000	1146.217	0.000
	104.158 - 102.974		726.949	1160.058	0.627	0.000	1160.058	0.000
	102.974 - 101.789		758.179	1173.942	0.646	0.000	1173.942	0.000
	101.789 - 100.605		789.533	1187.867	0.665	0.000	1187.867	0.000
	100.605 - 99.4211		821.007	1201.825	0.683	0.000	1201.825	0.000
	99.4211 - 98.2368	852.600	1215.817	0.701	0.000	1215.817	0.000	
	98.2368 - 97.0526	884.325	1229.842	0.719	0.000	1229.842	0.000	
	97.0526 - 95.8684	916.158	1243.900	0.737	0.000	1243.900	0.000	
	95.8684 - 94.6842	948.175	1257.992	0.754	0.000	1257.992	0.000	
L3	94.6842 - 93.5	TP37.847x34.191x0.421	980.442	1272.108	0.771	0.000	1272.108	0.000
	93.5 - 92.5		1007.792	1503.083	0.670	0.000	1503.083	0.000
	92.5 - 91.5		1035.242	1520.500	0.681	0.000	1520.500	0.000
	91.5 - 90.5		1062.783	1538.017	0.691	0.000	1538.017	0.000
	90.5 - 89.5		1090.425	1555.633	0.701	0.000	1555.633	0.000
	89.5 - 88.5		1118.158	1573.342	0.711	0.000	1573.342	0.000
	88.5 - 87.5		1145.992	1591.158	0.720	0.000	1591.158	0.000
	87.5 - 86.5		1173.925	1609.075	0.730	0.000	1609.075	0.000
	86.5 - 85.5		1201.958	1627.092	0.739	0.000	1627.092	0.000
	85.5 - 84.5		1230.083	1645.208	0.748	0.000	1645.208	0.000
	84.5 - 83.5		1258.308	1663.425	0.756	0.000	1663.425	0.000
	83.5 - 82.5		1286.625	1681.742	0.765	0.000	1681.742	0.000
	82.5 - 81.5		1315.042	1700.158	0.773	0.000	1700.158	0.000
	81.5 - 80.5		1343.558	1718.683	0.782	0.000	1718.683	0.000
	80.5 - 79.5		1372.175	1737.300	0.790	0.000	1737.300	0.000

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Section No.	Elevation ft	Size	M_{ux}	ϕM_{ux}	Ratio	M_{uy}	ϕM_{uy}	Ratio		
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{ux}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{uy}}$		
L4	79.5 - 74.75	TP40.663x36.421x0.467	733.115	1827.100	0.401	0.000	1827.100	0.000		
	79.5 - 74.75		777.687	1969.758	0.395	0.000	1969.758	0.000		
	74.75 - 73.75		1540.625	1990.775	0.774	0.000	1990.775	0.000		
	73.75 - 72.75		1570.708	2011.908	0.781	0.000	2011.908	0.000		
	72.75 - 71.75		1600.875	2033.150	0.787	0.000	2033.150	0.000		
	71.75 - 70.75		1631.142	2054.500	0.794	0.000	2054.500	0.000		
	70.75 - 69.75		1661.508	2075.967	0.800	0.000	2075.967	0.000		
	69.75 - 68.75		1691.958	2097.542	0.807	0.000	2097.542	0.000		
	68.75 - 67.75		1722.508	2119.233	0.813	0.000	2119.233	0.000		
	67.75 - 66.75		1753.142	2141.033	0.819	0.000	2141.033	0.000		
	66.75 - 65.75		1783.883	2162.942	0.825	0.000	2162.942	0.000		
	65.75 - 64.75		1814.708	2184.967	0.831	0.000	2184.967	0.000		
	64.75 - 63.75		1845.625	2207.100	0.836	0.000	2207.100	0.000		
	63.75 - 62.75		1876.642	2229.350	0.842	0.000	2229.350	0.000		
	62.75 - 61.75		1907.750	2251.708	0.847	0.000	2251.708	0.000		
L5	61.75 - 60.75	TP44.222x40.663x0.511	1938.950	2274.175	0.853	0.000	2274.175	0.000		
	60.75 - 59.75		1970.250	2296.758	0.858	0.000	2296.758	0.000		
	59.75 - 58.75		2001.642	2319.450	0.863	0.000	2319.450	0.000		
	58.75 - 57.75		2033.125	2342.250	0.868	0.000	2342.250	0.000		
	57.75 - 56.6875		2066.675	2624.067	0.788	0.000	2624.067	0.000		
	56.6875 - 55.625		2100.333	2651.250	0.792	0.000	2651.250	0.000		
	55.625 - 54.5625		2134.092	2678.575	0.797	0.000	2678.575	0.000		
	54.5625 - 53.5		2167.942	2706.042	0.801	0.000	2706.042	0.000		
	53.5 - 52.4375		2201.900	2733.650	0.805	0.000	2733.650	0.000		
	52.4375 - 51.375		2235.967	2761.392	0.810	0.000	2761.392	0.000		
	51.375 - 50.3125		2270.125	2789.275	0.814	0.000	2789.275	0.000		
	50.3125 - 49.25		2304.400	2817.300	0.818	0.000	2817.300	0.000		
	49.25 - 48.1875		2338.983	2845.467	0.822	0.000	2845.467	0.000		
	48.1875 - 47.125		2373.675	2873.775	0.826	0.000	2873.775	0.000		
	47.125 - 46.0625		2408.458	2902.225	0.830	0.000	2902.225	0.000		
L6	46.0625 - 45	TP45.108x42.524x0.565	2443.450	2930.808	0.834	0.000	2930.808	0.000		
	45 - 39.5		1278.542	3081.025	0.415	0.000	3081.025	0.000		
	45 - 39.5		1348.125	3303.267	0.408	0.000	3303.267	0.000		
	39.5 - 38.3929		2663.950	3336.708	0.798	0.000	3336.708	0.000		
	38.3929 - 37.2857		2701.325	3370.325	0.802	0.000	3370.325	0.000		
	37.2857 - 36.1786		2738.808	3404.108	0.805	0.000	3404.108	0.000		
	36.1786 - 35.0714		2776.400	3438.067	0.808	0.000	3438.067	0.000		
	35.0714 - 33.9643		2814.083	3472.183	0.810	0.000	3472.183	0.000		
	33.9643 - 32.8571		2851.875	3506.475	0.813	0.000	3506.475	0.000		
	32.8571 - 31.75		2889.767	3540.933	0.816	0.000	3540.933	0.000		
	31.75 - 30.1625		2944.267	3739.325	0.787	0.000	3739.325	0.000		
	30.1625 - 28.575		2998.942	3791.383	0.791	0.000	3791.383	0.000		
	28.575 - 28.575		3053.800	3843.792	0.794	0.000	3843.792	0.000		
	L7			TP51.3x45.108x0.526						

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	<p>Client Crown Castle</p>	<p>Designed by Devaraj Sanamuri</p>

Section No.	Elevation ft	Size	M_{ux}	ϕM_{ux}	Ratio	M_{uy}	ϕM_{uy}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{ux}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{uy}}$
	26.9875							
	26.9875 - 25.4		3108.833	3896.567	0.798	0.000	3896.567	0.000
	25.4 - 23.8125		3164.042	3949.700	0.801	0.000	3949.700	0.000
	23.8125 - 22.225		3219.417	4003.192	0.804	0.000	4003.192	0.000
	22.225 - 20.6375		3274.967	4057.042	0.807	0.000	4057.042	0.000
	20.6375 - 19.05		3330.675	4111.250	0.810	0.000	4111.250	0.000
	19.05 - 17.4625		3386.558	4165.825	0.813	0.000	4165.825	0.000
	17.4625 - 15.875		3442.600	4220.758	0.816	0.000	4220.758	0.000
	15.875 - 14.2875		3498.867	4276.042	0.818	0.000	4276.042	0.000
	14.2875 - 12.7		3555.383	4331.700	0.821	0.000	4331.700	0.000
	12.7 - 11.1125		3612.058	4387.708	0.823	0.000	4387.708	0.000
	11.1125 - 9.525		3668.883	4444.075	0.826	0.000	4444.075	0.000
	9.525 - 7.9375		3725.858	4500.808	0.828	0.000	4500.808	0.000
	7.9375 - 6.35		3782.975	4557.900	0.830	0.000	4557.900	0.000
	6.35 - 4.7625		3840.250	4615.350	0.832	0.000	4615.350	0.000
	4.7625 - 3.175		3897.658	4673.158	0.834	0.000	4673.158	0.000
	3.175 - 1.5875		3955.208	4731.325	0.836	0.000	4731.325	0.000
	1.5875 - 0		4012.900	4789.858	0.838	0.000	4789.858	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u K	K	$\frac{V_u}{\phi V_n}$	T_u kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	148 - 146.513	TP30.241x24x0.219	1.979	605.311	0.003	0.177	1198.483	0.000
	146.513 - 145.026		5.767	610.514	0.009	0.319	1223.475	0.000
	145.026 - 143.539		5.901	615.668	0.010	0.319	1248.625	0.000
	143.539 - 142.053		6.036	620.772	0.010	0.319	1273.917	0.000
	142.053 - 140.566		11.391	625.826	0.018	0.319	1299.350	0.000
	140.566 - 139.079		11.527	630.830	0.018	0.318	1324.917	0.000
	139.079 - 137.592		11.664	635.785	0.018	0.318	1350.625	0.000
	137.592 - 136.105		11.801	640.690	0.018	0.318	1376.467	0.000
	136.105 - 134.618		11.939	645.546	0.018	0.318	1402.433	0.000
	134.618 - 133.132		12.077	650.351	0.019	0.318	1428.525	0.000
	133.132 - 131.645		12.215	655.107	0.019	0.318	1454.742	0.000
	131.645 - 130.158		12.355	659.813	0.019	0.318	1481.067	0.000
	130.158 - 128.671		12.494	664.470	0.019	0.318	1507.517	0.000

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	<p>Project</p>	<p>Date 16:50:24 12/14/16</p>
	<p>Client Crown Castle</p>	<p>Designed by Devaraj Sanamuri</p>

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	128.671 - 127.184		12.635	669.077	0.019	0.318	1534.067	0.000
	127.184 - 125.697		18.878	673.634	0.028	0.417	1560.725	0.000
	125.697 - 124.211		19.017	678.141	0.028	0.417	1587.492	0.000
	124.211 - 122.724		19.155	682.598	0.028	0.417	1614.358	0.000
	122.724 - 121.237		19.358	687.006	0.028	0.784	1641.317	0.000
	121.237 - 119.75		19.496	691.364	0.028	0.784	1668.367	0.000
L2	119.75 - 116	TP34.191x29.072x0.25	9.619	702.135	0.014	0.375	1736.975	0.000
	119.75 - 116		10.283	831.480	0.012	0.409	2022.475	0.000
	116 - 114.816		20.007	835.944	0.024	0.784	2049.358	0.000
	114.816 - 113.632		20.116	840.375	0.024	0.784	2076.325	0.000
	113.632 - 112.447		20.225	844.776	0.024	0.784	2103.392	0.000
	112.447 - 111.263		20.334	849.144	0.024	0.784	2130.542	0.000
	111.263 - 110.079		21.263	853.482	0.025	0.784	2157.783	0.000
	110.079 - 108.895		25.813	857.787	0.030	0.953	2185.108	0.000
	108.895 - 107.711		25.917	862.062	0.030	0.500	2212.517	0.000
	107.711 - 106.526		26.022	866.304	0.030	0.500	2240.008	0.000
	106.526 - 105.342		26.126	870.515	0.030	0.500	2267.575	0.000
	105.342 - 104.158		26.230	874.695	0.030	0.500	2295.233	0.000
	104.158 - 102.974		26.334	878.843	0.030	0.500	2322.958	0.000
	102.974 - 101.789		26.438	882.960	0.030	0.500	2350.758	0.000
	101.789 - 100.605		26.542	887.045	0.030	0.500	2378.633	0.000
	100.605 - 99.4211		26.645	891.098	0.030	0.500	2406.583	0.000
	99.4211 - 98.2368	26.748	895.120	0.030	0.500	2434.600	0.000	
	98.2368 - 97.0526	26.852	899.110	0.030	0.500	2462.683	0.000	
	97.0526 - 95.8684	26.954	903.069	0.030	0.500	2490.842	0.000	
	95.8684 - 94.6842	27.216	906.997	0.030	0.500	2519.050	0.000	
L3	94.6842 - 93.5	TP37.847x34.191x0.421	27.319	910.892	0.030	0.500	2547.333	0.000
	93.5 - 92.5		27.408	1080.870	0.025	0.500	3009.850	0.000
	92.5 - 91.5		27.505	1087.070	0.025	0.500	3044.717	0.000
	91.5 - 90.5		27.602	1093.280	0.025	0.500	3079.792	0.000
	90.5 - 89.5		27.698	1099.480	0.025	0.499	3115.067	0.000
	89.5 - 88.5		27.796	1105.690	0.025	0.499	3150.542	0.000
	88.5 - 87.5		27.893	1111.890	0.025	0.499	3186.217	0.000
	87.5 - 86.5		27.990	1118.100	0.025	0.499	3222.092	0.000
	86.5 - 85.5		28.088	1124.310	0.025	0.499	3258.167	0.000
	85.5 - 84.5		28.185	1130.510	0.025	0.499	3294.442	0.000
	84.5 - 83.5	28.283	1136.720	0.025	0.499	3330.925	0.000	

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Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$		
L4	83.5 - 82.5	TP40.663x36.421x0.467	28.380	1142.920	0.025	0.499	3367.600	0.000		
	82.5 - 81.5		28.478	1149.130	0.025	0.499	3404.483	0.000		
	81.5 - 80.5		28.576	1155.330	0.025	0.499	3441.567	0.000		
	80.5 - 79.5		28.674	1161.540	0.025	0.499	3478.842	0.000		
	79.5 - 74.75		14.761	1191.010	0.012	0.404	3658.675	0.000		
	79.5 - 74.75		15.119	1304.840	0.012	0.096	3944.333	0.000		
	74.75 - 73.75		30.047	1311.740	0.023	0.380	3986.425	0.000		
	73.75 - 72.75		30.140	1318.640	0.023	0.380	4028.733	0.000		
	72.75 - 71.75		30.233	1325.540	0.023	0.380	4071.267	0.000		
	71.75 - 70.75		30.327	1332.440	0.023	0.380	4114.033	0.000		
	70.75 - 69.75		30.420	1339.340	0.023	0.380	4157.008	0.000		
	69.75 - 68.75		30.514	1346.240	0.023	0.380	4200.217	0.000		
	68.75 - 67.75		30.607	1353.140	0.023	0.380	4243.650	0.000		
	67.75 - 66.75		30.701	1360.040	0.023	0.380	4287.300	0.000		
	66.75 - 65.75		30.795	1366.940	0.023	0.380	4331.175	0.000		
	65.75 - 64.75		30.889	1373.840	0.022	0.380	4375.275	0.000		
	64.75 - 63.75		30.982	1380.740	0.022	0.380	4419.600	0.000		
	63.75 - 62.75		31.076	1387.640	0.022	0.380	4464.150	0.000		
	62.75 - 61.75		31.170	1394.540	0.022	0.380	4508.917	0.000		
L5	61.75 - 60.75	TP44.222x40.663x0.511	31.264	1401.440	0.022	0.380	4553.908	0.000		
	60.75 - 59.75		31.358	1408.340	0.022	0.380	4599.125	0.000		
	59.75 - 58.75		31.452	1415.240	0.022	0.380	4644.567	0.000		
	58.75 - 57.75		31.546	1422.140	0.022	0.380	4690.233	0.000		
	57.75 - 56.6875		31.642	1588.480	0.020	0.380	5254.550	0.000		
	56.6875 - 55.625		31.737	1596.640	0.020	0.380	5308.992	0.000		
	55.625 - 54.5625		31.833	1604.790	0.020	0.380	5363.708	0.000		
	54.5625 - 53.5		31.928	1612.950	0.020	0.380	5418.700	0.000		
	53.5 - 52.4375		32.024	1621.100	0.020	0.380	5473.983	0.000		
	52.4375 - 51.375		32.120	1629.260	0.020	0.380	5529.542	0.000		
	51.375 - 50.3125		32.216	1637.420	0.020	0.380	5585.375	0.000		
	50.3125 - 49.25		32.319	1645.570	0.020	0.614	5641.500	0.000		
	49.25 - 48.1875		32.614	1653.730	0.020	0.614	5697.900	0.000		
	48.1875 - 47.125		32.710	1661.880	0.020	0.614	5754.583	0.000		
	47.125 - 46.0625		32.806	1670.040	0.020	0.614	5811.541	0.000		
	46.0625 - 45		33.012	1678.200	0.020	0.259	5868.783	0.000		
	45 - 39.5		16.546	1720.420	0.010	0.126	6169.583	0.000		
	L6		45 - 39.5	TP45.108x42.524x0.565	17.124	1876.310	0.009	0.133	6614.608	0.000
			39.5 - 38.3929		33.736	1885.720	0.018	0.259	6681.583	0.000
38.3929 - 37.2857		33.828	1895.130		0.018	0.258	6748.900	0.000		
37.2857 - 36.1786		33.920	1904.550		0.018	0.258	6816.550	0.000		
36.1786 - 35.0714		34.013	1913.960		0.018	0.258	6884.541	0.000		
35.0714 - 33.9643		34.105	1923.380		0.018	0.258	6952.867	0.000		
33.9643 - 32.8571		34.197	1932.790		0.018	0.258	7021.525	0.000		
32.8571 - 31.75		34.289	1942.210		0.018	0.258	7090.525	0.000		
31.75 - 31.75		34.414	2033.080		0.017	0.258	7487.800	0.000		
L7		31.75 -	TP51.3x45.108x0.526		34.414	2033.080	0.017	0.258	7487.800	0.000

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Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	30.1625							
	30.1625 - 28.575		34.528	2047.100	0.017	0.258	7592.033	0.000
	28.575 - 26.9875		34.640	2061.120	0.017	0.258	7696.983	0.000
	26.9875 - 25.4		34.750	2075.140	0.017	0.258	7802.658	0.000
	25.4 - 23.8125		34.860	2089.160	0.017	0.258	7909.058	0.000
	23.8125 - 22.225		34.967	2103.180	0.017	0.258	8016.167	0.000
	22.225 - 20.6375		35.074	2117.200	0.017	0.258	8124.008	0.000
	20.6375 - 19.05		35.178	2131.220	0.017	0.258	8232.558	0.000
	19.05 - 17.4625		35.282	2145.240	0.016	0.258	8341.833	0.000
	17.4625 - 15.875		35.383	2159.260	0.016	0.258	8451.833	0.000
	15.875 - 14.2875		35.583	2173.280	0.016	0.258	8562.583	0.000
	14.2875 - 12.7		35.682	2187.300	0.016	0.258	8674.000	0.000
	12.7 - 11.1125		35.779	2201.320	0.016	0.258	8786.167	0.000
	11.1125 - 9.525		35.875	2215.340	0.016	0.258	8899.000	0.000
	9.525 - 7.9375		35.969	2229.360	0.016	0.258	9012.667	0.000
	7.9375 - 6.35		36.062	2243.380	0.016	0.258	9126.917	0.000
	6.35 - 4.7625		36.153	2257.400	0.016	0.258	9242.000	0.000
	4.7625 - 3.175		36.243	2271.420	0.016	0.258	9357.750	0.000
	3.175 - 1.5875		36.331	2285.450	0.016	0.258	9474.250	0.000
	1.5875 - 0		36.418	2299.470	0.016	0.258	9591.417	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	148 - 146.513	0.009	0.005	0.000	0.003	0.000	0.014	1.000	4.8.2 ✓
	146.513 - 145.026	0.003	0.018	0.000	0.009	0.000	0.022	1.000	4.8.2 ✓
	145.026 - 143.539	0.004	0.032	0.000	0.010	0.000	0.036	1.000	4.8.2 ✓
	143.539 - 142.053	0.004	0.045	0.000	0.010	0.000	0.049	1.000	4.8.2 ✓
	142.053 - 140.566	0.007	0.075	0.000	0.018	0.000	0.081	1.000	4.8.2 ✓
	140.566 - 139.079	0.007	0.099	0.000	0.018	0.000	0.106	1.000	4.8.2 ✓
	139.079 - 137.592	0.007	0.123	0.000	0.018	0.000	0.130	1.000	4.8.2 ✓
	137.592 - 136.105	0.007	0.146	0.000	0.018	0.000	0.153	1.000	4.8.2 ✓
	136.105 -	0.007	0.168	0.000	0.018	0.000	0.175	1.000	4.8.2 ✓

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Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
	134.618						✓		
	134.618 - 133.132	0.007	0.190	0.000	0.019	0.000	0.197	1.000	4.8.2 ✓
	133.132 - 131.645	0.007	0.211	0.000	0.019	0.000	0.219	1.000	4.8.2 ✓
	131.645 - 130.158	0.007	0.232	0.000	0.019	0.000	0.240	1.000	4.8.2 ✓
	130.158 - 128.671	0.007	0.253	0.000	0.019	0.000	0.260	1.000	4.8.2 ✓
	128.671 - 127.184	0.007	0.273	0.000	0.019	0.000	0.280	1.000	4.8.2 ✓
	127.184 - 125.697	0.009	0.300	0.000	0.028	0.000	0.311	1.000	4.8.2 ✓
	125.697 - 124.211	0.010	0.331	0.000	0.028	0.000	0.341	1.000	4.8.2 ✓
	124.211 - 122.724	0.010	0.361	0.000	0.028	0.000	0.371	1.000	4.8.2 ✓
	122.724 - 121.237	0.010	0.390	0.000	0.028	0.000	0.400	1.000	4.8.2 ✓
	121.237 - 119.75	0.010	0.418	0.000	0.028	0.000	0.428	1.000	4.8.2 ✓
	119.75 - 116	0.005	0.233	0.000	0.014	0.000	0.238	1.000	4.8.2 ✓
L2	119.75 - 116	0.005	0.218	0.000	0.012	0.000	0.222	1.000	4.8.2 ✓
	116 - 114.816	0.009	0.435	0.000	0.024	0.000	0.445	1.000	4.8.2 ✓
	114.816 - 113.632	0.009	0.453	0.000	0.024	0.000	0.462	1.000	4.8.2 ✓
	113.632 - 112.447	0.009	0.470	0.000	0.024	0.000	0.479	1.000	4.8.2 ✓
	112.447 - 111.263	0.009	0.486	0.000	0.024	0.000	0.496	1.000	4.8.2 ✓
	111.263 - 110.079	0.009	0.503	0.000	0.025	0.000	0.513	1.000	4.8.2 ✓
	110.079 - 108.895	0.011	0.525	0.000	0.030	0.000	0.537	1.000	4.8.2 ✓
	108.895 - 107.711	0.011	0.546	0.000	0.030	0.000	0.558	1.000	4.8.2 ✓
	107.711 - 106.526	0.011	0.567	0.000	0.030	0.000	0.579	1.000	4.8.2 ✓
	106.526 - 105.342	0.011	0.587	0.000	0.030	0.000	0.599	1.000	4.8.2 ✓
	105.342 - 104.158	0.011	0.607	0.000	0.030	0.000	0.619	1.000	4.8.2 ✓
	104.158 - 102.974	0.012	0.627	0.000	0.030	0.000	0.639	1.000	4.8.2 ✓
	102.974 - 101.789	0.012	0.646	0.000	0.030	0.000	0.658	1.000	4.8.2 ✓
	101.789 - 100.605	0.012	0.665	0.000	0.030	0.000	0.677	1.000	4.8.2 ✓
	100.605 -	0.012	0.683	0.000	0.030	0.000	0.696	1.000	4.8.2 ✓

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	<p>Project</p>	<p>Date 16:50:24 12/14/16</p>
	<p>Client Crown Castle</p>	<p>Designed by Devaraj Sanamuri</p>

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
	99.4211						✓		
	99.4211 - 98.2368	0.012	0.701	0.000	0.030	0.000	0.714	1.000	4.8.2 ✓
	98.2368 - 97.0526	0.012	0.719	0.000	0.030	0.000	0.732	1.000	4.8.2 ✓
	97.0526 - 95.8684	0.012	0.737	0.000	0.030	0.000	0.749	1.000	4.8.2 ✓
	95.8684 - 94.6842	0.012	0.754	0.000	0.030	0.000	0.767	1.000	4.8.2 ✓
	94.6842 - 93.5	0.012	0.771	0.000	0.030	0.000	0.784	1.000	4.8.2 ✓
L3	93.5 - 92.5	0.010	0.670	0.000	0.025	0.000	0.682	1.000	4.8.2 ✓
	92.5 - 91.5	0.010	0.681	0.000	0.025	0.000	0.692	1.000	4.8.2 ✓
	91.5 - 90.5	0.011	0.691	0.000	0.025	0.000	0.702	1.000	4.8.2 ✓
	90.5 - 89.5	0.011	0.701	0.000	0.025	0.000	0.712	1.000	4.8.2 ✓
	89.5 - 88.5	0.011	0.711	0.000	0.025	0.000	0.722	1.000	4.8.2 ✓
	88.5 - 87.5	0.011	0.720	0.000	0.025	0.000	0.732	1.000	4.8.2 ✓
	87.5 - 86.5	0.011	0.730	0.000	0.025	0.000	0.741	1.000	4.8.2 ✓
	86.5 - 85.5	0.011	0.739	0.000	0.025	0.000	0.750	1.000	4.8.2 ✓
	85.5 - 84.5	0.011	0.748	0.000	0.025	0.000	0.759	1.000	4.8.2 ✓
	84.5 - 83.5	0.011	0.756	0.000	0.025	0.000	0.768	1.000	4.8.2 ✓
	83.5 - 82.5	0.011	0.765	0.000	0.025	0.000	0.777	1.000	4.8.2 ✓
	82.5 - 81.5	0.011	0.773	0.000	0.025	0.000	0.785	1.000	4.8.2 ✓
	81.5 - 80.5	0.011	0.782	0.000	0.025	0.000	0.793	1.000	4.8.2 ✓
	80.5 - 79.5	0.011	0.790	0.000	0.025	0.000	0.802	1.000	4.8.2 ✓
	79.5 - 74.75	0.006	0.401	0.000	0.012	0.000	0.407	1.000	4.8.2 ✓
L4	79.5 - 74.75	0.006	0.395	0.000	0.012	0.000	0.401	1.000	4.8.2 ✓
	74.75 - 73.75	0.011	0.774	0.000	0.023	0.000	0.785	1.000	4.8.2 ✓
	73.75 - 72.75	0.011	0.781	0.000	0.023	0.000	0.792	1.000	4.8.2 ✓
	72.75 - 71.75	0.011	0.787	0.000	0.023	0.000	0.799	1.000	4.8.2 ✓
	71.75 - 70.75	0.011	0.794	0.000	0.023	0.000	0.806	1.000	4.8.2 ✓
	70.75 - 69.75	0.011	0.800	0.000	0.023	0.000	0.812	1.000	4.8.2 ✓

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	<p>Client Crown Castle</p>	<p>Designed by Devaraj Sanamuri</p>

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u ϕP_n	M_{ux} ϕM_{nx}	M_{uy} ϕM_{ny}	V_u ϕV_n	T_u ϕT_n			
	69.75 - 68.75	0.011	0.807	0.000	0.023	0.000	0.818	1.000	4.8.2 ✓
	68.75 - 67.75	0.011	0.813	0.000	0.023	0.000	0.825	1.000	4.8.2 ✓
	67.75 - 66.75	0.011	0.819	0.000	0.023	0.000	0.831	1.000	4.8.2 ✓
	66.75 - 65.75	0.011	0.825	0.000	0.023	0.000	0.837	1.000	4.8.2 ✓
	65.75 - 64.75	0.011	0.831	0.000	0.022	0.000	0.842	1.000	4.8.2 ✓
	64.75 - 63.75	0.011	0.836	0.000	0.022	0.000	0.848	1.000	4.8.2 ✓
	63.75 - 62.75	0.012	0.842	0.000	0.022	0.000	0.854	1.000	4.8.2 ✓
	62.75 - 61.75	0.012	0.847	0.000	0.022	0.000	0.859	1.000	4.8.2 ✓
	61.75 - 60.75	0.012	0.853	0.000	0.022	0.000	0.865	1.000	4.8.2 ✓
	60.75 - 59.75	0.012	0.858	0.000	0.022	0.000	0.870	1.000	4.8.2 ✓
	59.75 - 58.75	0.012	0.863	0.000	0.022	0.000	0.875	1.000	4.8.2 ✓
	58.75 - 57.75	0.012	0.868	0.000	0.022	0.000	0.880	1.000	4.8.2 ✓
L5	57.75 - 56.6875	0.011	0.788	0.000	0.020	0.000	0.799	1.000	4.8.2 ✓
	56.6875 - 55.625	0.011	0.792	0.000	0.020	0.000	0.803	1.000	4.8.2 ✓
	55.625 - 54.5625	0.011	0.797	0.000	0.020	0.000	0.808	1.000	4.8.2 ✓
	54.5625 - 53.5	0.011	0.801	0.000	0.020	0.000	0.812	1.000	4.8.2 ✓
	53.5 - 52.4375	0.011	0.805	0.000	0.020	0.000	0.817	1.000	4.8.2 ✓
	52.4375 - 51.375	0.011	0.810	0.000	0.020	0.000	0.821	1.000	4.8.2 ✓
	51.375 - 50.3125	0.011	0.814	0.000	0.020	0.000	0.825	1.000	4.8.2 ✓
	50.3125 - 49.25	0.011	0.818	0.000	0.020	0.000	0.830	1.000	4.8.2 ✓
	49.25 - 48.1875	0.011	0.822	0.000	0.020	0.000	0.834	1.000	4.8.2 ✓
	48.1875 - 47.125	0.011	0.826	0.000	0.020	0.000	0.838	1.000	4.8.2 ✓
	47.125 - 46.0625	0.011	0.830	0.000	0.020	0.000	0.842	1.000	4.8.2 ✓
	46.0625 - 45	0.011	0.834	0.000	0.020	0.000	0.845	1.000	4.8.2 ✓
	45 - 39.5	0.006	0.415	0.000	0.010	0.000	0.421	1.000	4.8.2 ✓
L6	45 - 39.5	0.006	0.408	0.000	0.009	0.000	0.414	1.000	4.8.2 ✓

tnxTower

B+T Group
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Project	Date 16:50:24 12/14/16
Client Crown Castle	Designed by Devaraj Sanamuri

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
L7	39.5 - 38.3929	0.011	0.798	0.000	0.018	0.000	0.810	1.000	4.8.2 ✓
	38.3929 - 37.2857	0.011	0.802	0.000	0.018	0.000	0.813	1.000	4.8.2 ✓
	37.2857 - 36.1786	0.011	0.805	0.000	0.018	0.000	0.816	1.000	4.8.2 ✓
	36.1786 - 35.0714	0.011	0.808	0.000	0.018	0.000	0.819	1.000	4.8.2 ✓
	35.0714 - 33.9643	0.011	0.810	0.000	0.018	0.000	0.822	1.000	4.8.2 ✓
	33.9643 - 32.8571	0.011	0.813	0.000	0.018	0.000	0.825	1.000	4.8.2 ✓
	32.8571 - 31.75	0.012	0.816	0.000	0.018	0.000	0.828	1.000	4.8.2 ✓
	31.75 - 30.1625	0.011	0.787	0.000	0.017	0.000	0.799	1.000	4.8.2 ✓
	30.1625 - 28.575	0.011	0.791	0.000	0.017	0.000	0.803	1.000	4.8.2 ✓
	28.575 - 26.9875	0.011	0.794	0.000	0.017	0.000	0.806	1.000	4.8.2 ✓
	26.9875 - 25.4	0.011	0.798	0.000	0.017	0.000	0.810	1.000	4.8.2 ✓
	25.4 - 23.8125	0.012	0.801	0.000	0.017	0.000	0.813	1.000	4.8.2 ✓
	23.8125 - 22.225	0.012	0.804	0.000	0.017	0.000	0.816	1.000	4.8.2 ✓
	22.225 - 20.6375	0.012	0.807	0.000	0.017	0.000	0.819	1.000	4.8.2 ✓
	20.6375 - 19.05	0.012	0.810	0.000	0.017	0.000	0.822	1.000	4.8.2 ✓
	19.05 - 17.4625	0.012	0.813	0.000	0.016	0.000	0.825	1.000	4.8.2 ✓
	17.4625 - 15.875	0.012	0.816	0.000	0.016	0.000	0.828	1.000	4.8.2 ✓
	15.875 - 14.2875	0.012	0.818	0.000	0.016	0.000	0.831	1.000	4.8.2 ✓
	14.2875 - 12.7	0.012	0.821	0.000	0.016	0.000	0.833	1.000	4.8.2 ✓
	12.7 - 11.1125	0.012	0.823	0.000	0.016	0.000	0.836	1.000	4.8.2 ✓
11.1125 - 9.525	0.012	0.826	0.000	0.016	0.000	0.838	1.000	4.8.2 ✓	
9.525 - 7.9375	0.012	0.828	0.000	0.016	0.000	0.840	1.000	4.8.2 ✓	
7.9375 - 6.35	0.012	0.830	0.000	0.016	0.000	0.843	1.000	4.8.2 ✓	
6.35 - 4.7625	0.013	0.832	0.000	0.016	0.000	0.845	1.000	4.8.2 ✓	
4.7625 - 3.175	0.013	0.834	0.000	0.016	0.000	0.847	1.000	4.8.2 ✓	
3.175 - 1.5875	0.013	0.836	0.000	0.016	0.000	0.849	1.000	4.8.2 ✓	

tnxTower B+T Group 1717 S Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 91728.007.01 - WINDSORCENTRAL, CT (BU# 855662)	Page 34 of 34
	Project	Date 16:50:24 12/14/16
	Client Crown Castle	Designed by Devaraj Sanamuri

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	1.5875 - 0	0.013	0.838	0.000	0.016	0.000	0.851	1.000	4.8.2 ✓

Section Capacity Table

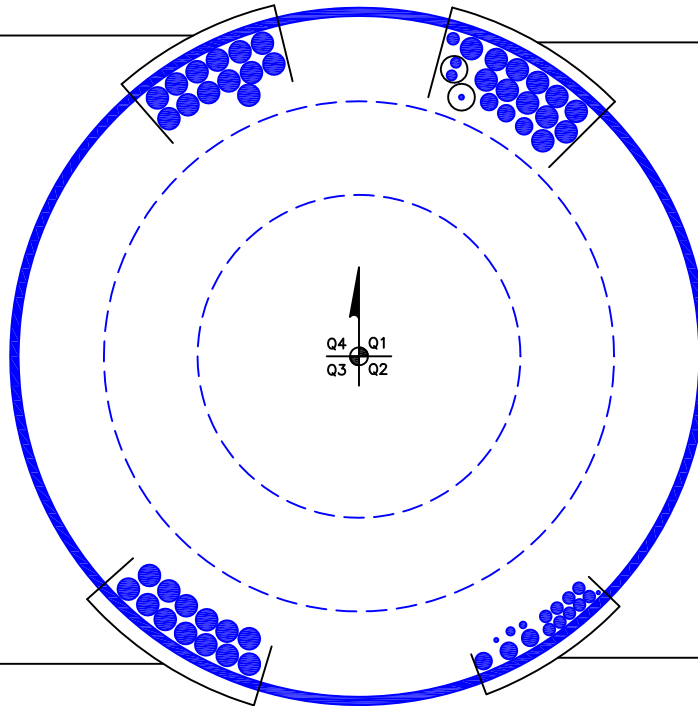
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	148 - 116	Pole	TP30.241x24x0.219	1	-13.461	1382.730	**	**
L2	116 - 93.5	Pole	TP34.191x29.072x0.25	2	-22.268	1821.780	**	**
L3	93.5 - 74.75	Pole	TP37.847x34.191x0.421	3	-25.858	2323.070	**	**
L4	74.75 - 57.75	Pole	TP40.663x36.421x0.467	4	-33.585	2844.290	**	**
L5	57.75 - 39.5	Pole	TP44.222x40.663x0.511	5	-38.252	3356.390	**	**
L6	39.5 - 31.75	Pole	TP45.108x42.524x0.565	6	-44.809	3884.410	**	**
L7	31.75 - 0	Pole	TP51.3x45.108x0.526	7	-58.870	4598.930	**	**
Summary								
Pole (L4)							**	**
RATING =							**	**

** See Additional Calculations

APPENDIX B
BASE LEVEL DRAWING

(INSTALLED)
(13) 1-5/8" TO 142 FT LEVEL

(INSTALLED)
(1) 7/8" TO 148 FT LEVEL
(1) 1-5/8" TO 148 FT LEVEL
(INSTALLED-TO BE REMOVED)
(3) 1-1/4" TO 148 FT LEVEL
(5) 1-5/8" TO 148 FT LEVEL
(INSTALLED-(2) 2" CONDUITS)
(1) 3/8" TO 148 FT LEVEL
(2) 3/4" TO 148 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 148 FT LEVEL



(INSTALLED)
(13) 1-5/8" TO 126 FT LEVEL

(INSTALLED)
(2) 7/8" TO 79 FT LEVEL
(1) 3/8" TO 74 FT LEVEL
(5) 7/8" TO 109 FT LEVEL
(INSTALLED)
(1) 1/2" TO 50 FT LEVEL
(3) 5/16" TO 109 FT LEVEL
(1) 5/8" TO 109 FT LEVEL
(3) 1-1/4" TO 109 FT LEVEL

BUSINESS UNIT: 855662

APPENDIX C
ADDITIONAL CALCULATIONS

Reinforcement Capacity

Dimensions and Properties														Compression				Axial				
Model	Weight (lb/ft)	Area (in ²)	Moment of Inertia (in ⁴)	Moment of Inertia (in ⁴)	Centroid from Mating Edge (in)	Centroid from Bolt Hole Center (in)	Web Thickness (in)	Width (in)	Flange Width (in)	Flange Thickness (in)	Hole Diameter (in)	Yield Stress (ksi)	Ultimate Stress (ksi)	Slender. Ratio Coefficient	Unbraced Length (in)	Slender. Ratio Coefficient	Unbraced Length (in)	ASD-9			LRFD	
																		Allowable Axial (kip)	Allowable Axial w/ increase (kip)	Governing Axial	Design Axial Strength (kip)	Governing Axial
CCI-XFP-060100	20.4	6.00	0.50	18.00	0.5	0	1	6	0	0	1.1875	65	80	0.80	16	1.00	16	189.3	252.3	Compress.	285.0	Rupture
CCI-XFP-065125	27.6	8.13	1.06	28.61	0.625	0	1.25	6.5	0	0	1.1875	65	80	0.80	19	1.00	19	260.4	347.2	Compress.	393.8	Rupture
CCI-XFP-085125	36.2	10.63	1.38	63.97	0.625	0	1.25	8.5	0	0	1.1875	65	80	0.80	17	1.00	17	350.9	467.9	Compress.	543.1	Compress.

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

- 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)*(Rod Diameter)

Site Data

BU#: 855662
 Site Name: WINDSORCENTRAL
 App #: 348884 Revision # 14

Anchor Rod Data

Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	58	in
Anchor Spacing:	6	in

Plate Data

W=Side:	57	in
Thick:	2.75	in
Grade:	55	ksi
Clip Distance:	6	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:	51.3	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Base Reactions

TIA Revision:	G	
Factored Moment, Mu:	4013.61948	ft-kips
Factored Axial, Pu:	58.7934	kips
Factored Shear, Vu:	36.427679	kips

Anchor Rod Results

TIA G --> Max Rod (Cu+ Vu/ η): 215.8 Kips
 Axial Design Strength, $\Phi * F_u * A_{net}$: 260.0 Kips
 Anchor Rod Stress Ratio: 83.0% **Pass**

Base Plate Results

Flexural Check
 Base Plate Stress: 38.5 ksi
 PL Design Bending Strength, $\Phi * F_y$: 49.5 ksi
 Base Plate Stress Ratio: 77.7% **Pass**

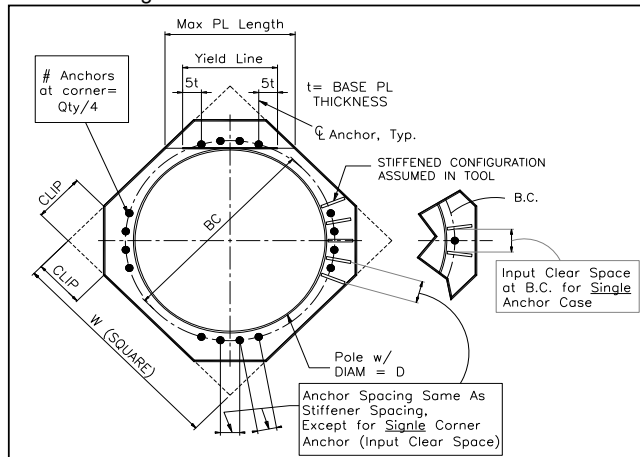
N/A - Unstiffened

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

BU:	855662
Site Name:	WINDSORCENTRAL, CT
App Number:	348884 Rev. 14
Work Order:	1336541

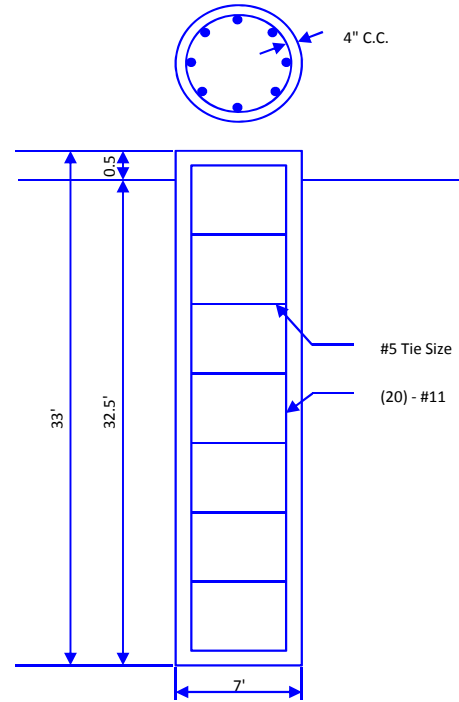


Monopole Drilled Pier

Input

Criteria	
TIA Revision:	G
ACI 318 Revision:	2008
Seismic Category:	B
Forces	
Compression	59 kips
Shear	36 kips
Moment	4013 k-ft
Swelling Force	0 kips
Foundation Dimensions	
Pier Diameter:	7 ft
Ext. above grade:	0.5 ft
Depth below grade:	32.5 ft
Material Properties	
Number of Rebar:	20
Rebar Size:	11
Tie Size	5
Rebar tensile strength:	60 ksi
Concrete Strength:	3000 psi
Ultimate Concrete Strain	0.003 in/in
Clear Cover to Ties:	4 in

Soil Profile: Soil



Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	2	0	2	100	0	0	0	0	0	
2	3	2	5	50	0	0	0	0	0	
3	7	5	12	55		35			0	
4	4	12	16	50		31			0	
5	16.5	16	32.5	50	800				4.8	

Analysis Results

Soil Lateral Capacity	
Depth to Zero Shear:	7.02 ft
Max Moment, Mu:	4244.15 k-ft
Soil Safety Factor:	1.77
Safety Factor Req'd:	1.33
RATING:	75.2%

Soil Axial Capacity	
Skin Friction (k):	206.19 kips
End Bearing (k):	138.54 kips
Comp. Capacity (k), ϕC_n :	344.74 kips
Comp. (k), Cu:	59.00 kips
RATING:	17.1%

Concrete/Steel Check

Mu (from soil analysis)	4244.15 k-ft
ϕM_n	4969.89 k-ft
RATING:	85.4%

rho provided	0.56
rho required	0.33 OK

Rebar Spacing	10.11
Spacing required	22.56 OK

Dev. Length required	25.14
Dev. Length provided	61.78 OK

Overall Foundation Rating: 85.4%



SITE SAFE
RF COMPLIANCE EXPERTS

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info@sitesafe.com • www.sitesafe.com



**SmartLink, LLC on behalf of
AT&T Mobility, LLC
Site FA – 10092835
Site ID – CT5138 (2C)
USID – 14488
Site Name – Windsorcentral
Site Compliance Report**

**340 Bloomfield Avenue
Windsor, CT 06095**

Latitude: N41-51-08.97
Longitude: W72-39-38.16
Structure Type: Monopole

Report generated date: February 15, 2017
Report by: Young Kim
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?	No
RF Sign(s) @ access point(s)	None
RF Sign(s) @ antennas	None
Barrier(s) @ sectors	None
Max cumulative simulated RFE level on the Ground	<1% General Public Limit
FCC & AT&T Compliant?	Will be compliant

Note: Data concerning all other carriers on site was unavailable therefore not included.

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







RFDS: NEW-ENGLAND_CONNECTICUT_CTV5138_2017-LTE-Next-Carrier_LTE-2C_mm093q_PTN_10092835_14488_03-14-2016_Preliminary-Approved_v2.00

CD's: 10092835_AE201_160920_CTL05138_REV1

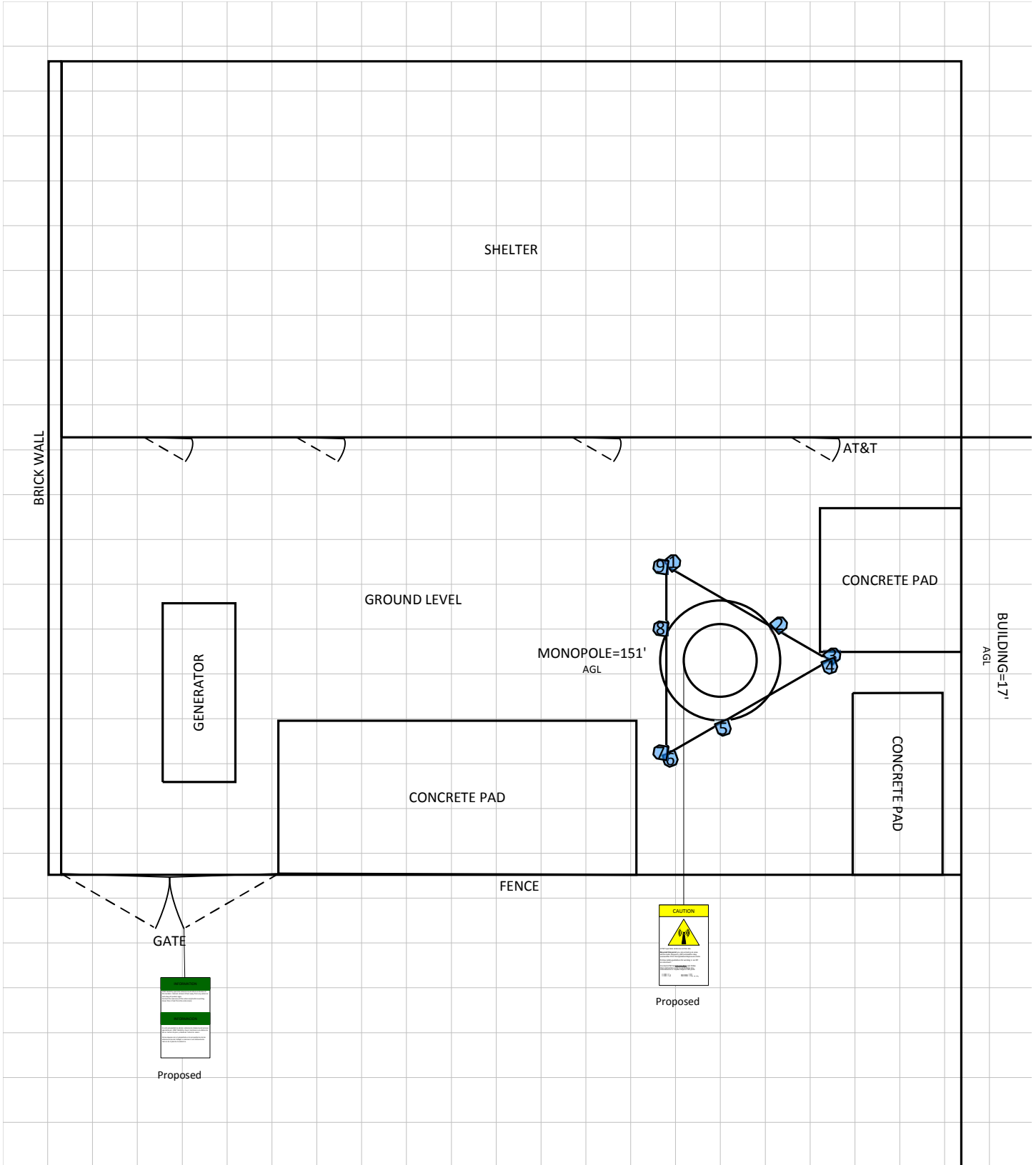
2 Scale Maps of Site

The following diagrams are included:

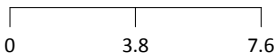
- Site Scale Map
- RF Exposure Diagram
- Elevation View – South

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: Windsorcentral



(Feet)



www.sitesafe.com
 Site Name: Windsorcentral
 2/15/2017 9:28:42 AM

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

3 Antenna Inventory

The following antenna inventory was obtained by the customer and 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	Kathrein-Scala 800-10121	Panel	850	50	87.6	4.5	11.35	0	1	0	252.3	48.7'	45.6'	143.7'
1	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	50	85.7	4.5	14.32	0	1	0	493.2	48.7'	45.6'	143.7'
2	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	50	85.7	4.5	14.32	1	0	0	260.6	54.6'	42.2'	143.7'
3	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	737	50	64.9	7.7	13.26	0	0	1	1044.7	57.6'	40.4'	142.2'
3	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H8	Panel	1900	50	63.1	7.7	14.76	0	0	1	2233.6	57.6'	40.4'	142.2'
4	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	160	87.6	4.5	11.35	0	1	0	252.3	57.4'	39.8'	143.7'
4	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	160	85.7	4.5	14.32	0	1	0	493.2	57.4'	39.8'	143.7'
5	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	160	85.7	4.5	14.32	1	0	0	233.9	51.5'	36.4'	143.7'
6	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	737	160	66.2	6	11.68	0	0	1	827.9	48.5'	34.7'	143'
6	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H8	Panel	1900	160	61.1	6	14.53	0	0	1	2152.8	48.5'	34.7'	143'
7	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	280	87.6	4.5	11.35	0	1	0	252.3	48'	35'	143.7'
7	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	280	85.7	4.5	14.32	0	1	0	493.2	48'	35'	143.7'
8	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	1900	280	85.7	4.5	14.32	1	0	0	233.9	48'	41.9'	143.7'
9	AT&T MOBILITY LLC	CCI Antennas HPA-65R-BUU-H8	Panel	737	280	66.2	6	11.68	0	0	1	827.9	48'	45.4'	143'
9	AT&T MOBILITY LLC (Proposed)	CCI Antennas HPA-65R-BUU-H8	Panel	1900	280	61.1	6	14.53	0	0	1	2152.8	48'	45.4'	143'

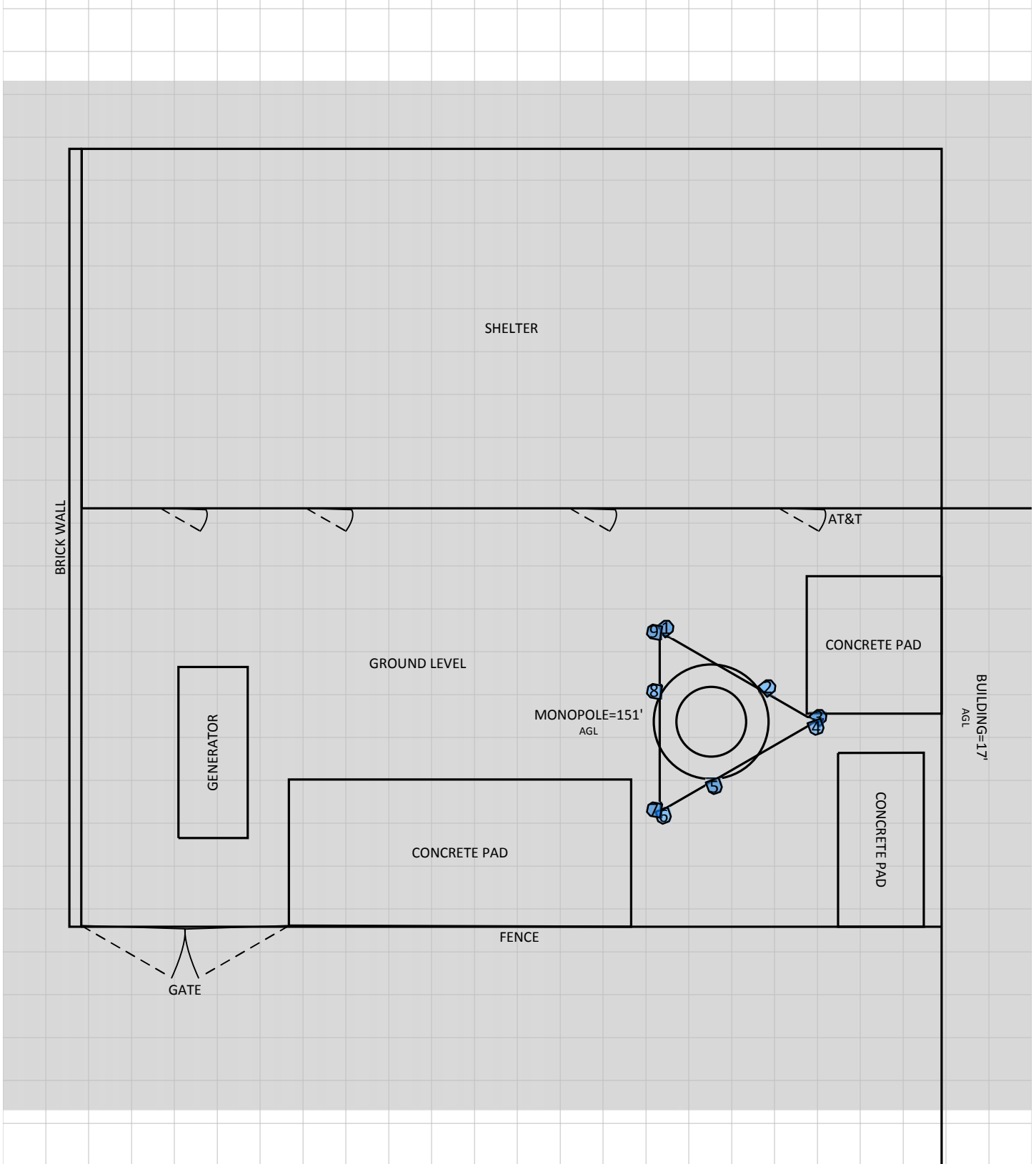
NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed.

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.

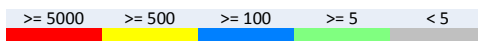
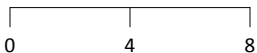
The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: Windsorcentral



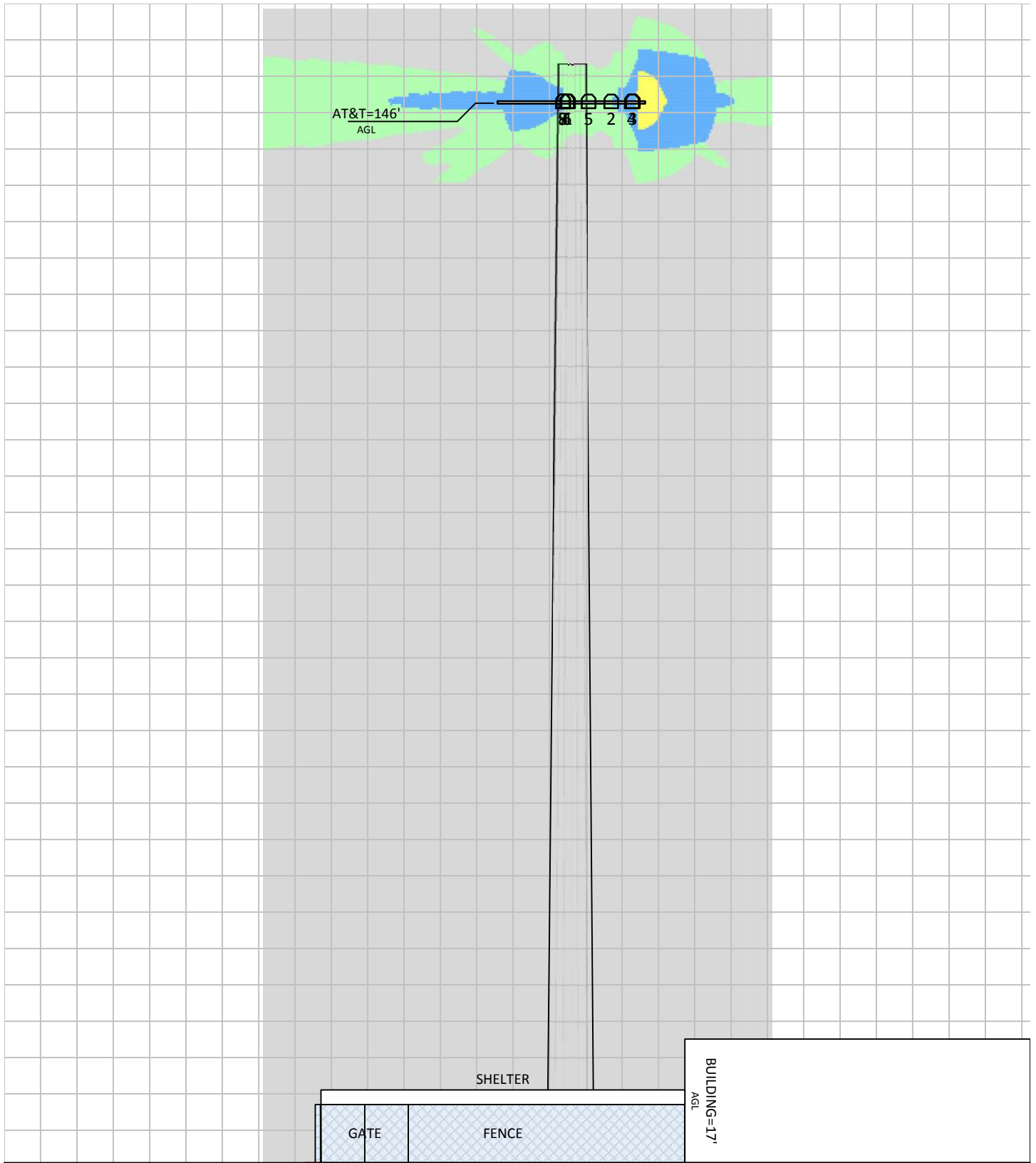
% of FCC Public Exposure Limit
Spatial average 0' - 6'

(Feet)



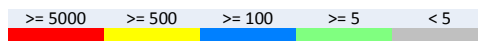
AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPICS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT
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RF Exposure Simulation For: Windsorcentral Elevation View



% of FCC Public Exposure Limit

(Feet)
 0 9.4 18.8
 www.sitesafe.com
 Site Name: Windsorcentral
 2/15/2017 12:51:38 PM



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

SitesafeTC Version: 1.0.0.0 - 0.0.0.254
 Sitesafe OET-65 Model
 Near Field Boundary: 1.5 * Aperture
 Reflection Factor: 1
 Single Level (0)

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:

Monopole Base

Yellow caution 2 sign required.

Gate

Information 1 sign required.

6 Reviewer Certification

The Reviewer whose signature appears below hereby certifies and affirms:

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

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

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

February 15, 2017

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.

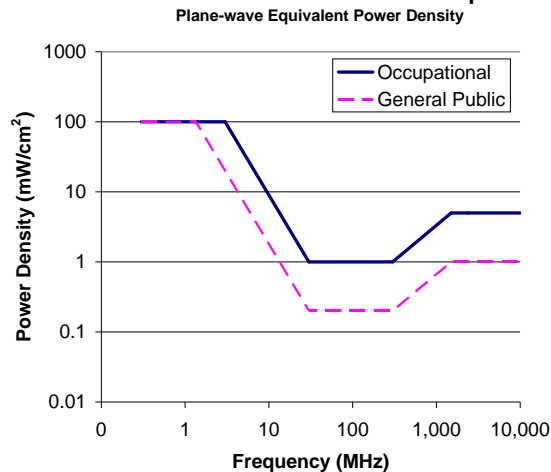
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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>