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

March 15, 2019

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

RE: **Notice of Exempt Modification for Crown Site BU: 822765**
AT&T Site ID: CTU5199
10 Sylvia Street, Branford, CT 06405
Latitude: 41° 17′ 38.16″/ Longitude: -72° 47′ 8.54″

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 100-foot level of the existing 125-foot monopole at 10 Sylvia Street in Branford, Connecticut. The tower is owned by Crown Castle. The property is owned by 322 East Main Street LLC. AT&T intends to replace (4) antennas, add (3) antennas, remove (6) TMAs, replace (6) RRHs, add (3) RRUs, add (2) DC6, (4) DC power cables and (1) fiber line.

The facility was approved by the Town of Branford Planning and Zoning Commission in application number 98-9.3 on November 10, 1998. Enclosed is a copy of the original approval which was given without conditions.

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 First Selectman James B. Cosgrove, Town of Branford, Town Planner, Harry Smith, as well as the property owner and Crown Castle is the tower owner.

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

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

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

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

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

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint 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: Anne Marie Zsamba.

Sincerely,

Anne Marie Zsamba, Esq.
Real Estate Specialist
3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065
(201) 236-9224
annemarie.zsamba@crowncastle.com

Attachments:

Exhibit-A: Compound Plan and Elevation Depicting the Planned Changes
Exhibit-B: Structural Modification Report
Exhibit-C: General Power Density Table Report (RF Emissions Analysis Report)

cc: First Selectman James. B Cosgrove
Town of Branford
1019 Main Street
Branford, CT 06405

Harry Smith, Town Planner
Town of Branford
1019 Main Street
Branford, CT 06405

322 East Main Street LLC
375 Fairfield Avenue, Building 1
Stamford, CT 06911

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

March □□, □□□□

Melanie A□□achman
Acting □□ecutive Director
Connecticut Siting Council
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□ew □ritain, CT □□□□□

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The facility was approved by the Town of □ranford Planning and □oning Commission in application number □□□□□□on □ovember □□, □□□□□□nclosed is a copy of the original approval which was given without conditions□

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

6. The e□isting structure and its foundation can support the proposed loading□

□or the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above□reference telecommunications facility constitutes an e□empt modification under □□C□S□A□□ □□□ □□j□□□(b)(□)□Please send approval/rejection letter to Attn□Anne Marie □samba□

Sincerely,

Anne Marie □samba, □s□□
□eal □state Specialist
□Corporate Par□Drive, Suite □□□, Clifton Par□, □□ □□□□□
(□□□) □□□□□□□□
annemarie□zsamba□ crowncastle□com

Attachments□

□□hibit□A□Compound Plan and □levation Depicting the Planned Changes
□□hibit□□□Structural Modification □eport
□□hibit□C□General Power Density Table □eport (□□□missions Analysis □eport)

cc□ □irst Selectman □ames□□ Cosgrove
Town of □ranford
□□□□Main Street
□ranford, CT □□□□□

Harry Smith, Town Planner
Town of □ranford
□□□□Main Street
□ranford, CT □□□□□

□□□□ast Main Street LLC
□□□□airfield Avenue, □uilding □
Stamford, CT □□□□□

ORIGIN ID:GFLA (518) 373-3523
WILL STONE
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 15MAR19
ACTWGT: 2.50 LB
CAD: 104924194/INET4100

BILL SENDER

TO **MELANIE BACHMAN**
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE

NEW BRITAIN CT 06051
(860) 827-2951
INV:
PO:
REF: 1765.6680
DEPT:

565J1/46D3/23AD

J191019010701uv

FedEx Express

MON - 18 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7747 1399 4720**

SE BDLA

06051
BDL
CT-US

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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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ORIGIN ID:GFLA (518) 373-3523
WILL STONE
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 15MAR19
ACTWGT: 1.50 LB
CAD: 104924194/INET4100

BILL SENDER

TO **HARRY SMITH, TOWNSHIP PLANNER**

TOWN OF BRANFORD
1019 MAIN STREET
BRANFORD CT 06405
(201) 236-9224

REF: 1734.7680
INV:
PO:
DEPT:

565J1/46D3/23AD

FedEx Express

J191019010701uv

MON - 18 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7747 1402 8238**

SE RSPA

06405
BDL
CT-US

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CTH-025

6740

VOL. 662 PAGE 502

PLANNING AND ZONING COMMISSION
TOWN OF BRANFORD TOWN HALL DRIVE P.O. BOX 150
Branford, Connecticut 06405 488-1255

NOTICE OF DECISION

November 10, 1998

J. Brendan Sharkey, Esq. For Omnipoint Communications, Inc.
25 VanZant Street #18E
East Norwalk, Connecticut 06855

SUBJECT: Special Exception APPLICATION # 98-9.3

LOCATION: 10 Sylvia Street

OWNERS OF RECORD: TKJ SYLVIA ASSOCIATES, LLC

Dear Sir:

At a meeting of the Branford Planning & Zoning Commission held on Thursday, November 5, 1998, the Commission voted to:

X Approve your above subject application with the conditions noted below.

Very truly yours,

Shirley Rasmussen

Shirley Rasmussen
Town Planner

NOTE: This Special Exception shall become effective only after it is filed on the Land Records in the office of the Town Clerk.

1. Omnipoint must construct tower so that it can easily be extended to provide spaces for two (2) other carriers for co-location purposes.

NOTE: Special Exception shall become null and void in the event the applicant fails to obtain a building permit within one (1) year of date of approval.
(Per Section 31.7 of the Branford Zoning Regulations)

RECEIVED FOR RECORD Nov. 19, 1998
at 3h 49m P M. AND RECORDED BY
GEORGETTE A. LASKE
BRANFORD TOWN CLERK

10 SYLVIA ST

Location	10 SYLVIA ST	**Mblu**	G05/F05 004/ 00017/ /
Acct#	000614	**Owner**	322 EAST MAIN STREET LLC
Assessment	$406,000	**Appraisal**	$580,000
PID	1103	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$112,500	$467,500	$580,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$78,700	$327,300	$406,000

Owner of Record

Owner	322 EAST MAIN STREET LLC	**Sale Price**	$468,000
Co-Owner		**Certificate**	
Address	375 FAIRFIELD AVE BUILDING 1 STAMFORD, CT 06902	**Book & Page**	1132/0054
		Sale Date	05/02/2013
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
322 EAST MAIN STREET LLC	$468,000		1132/0054	25	05/02/2013
T K J SYLVIA ASSOCIATES LLC	$0		0571/0583		06/07/1994

Building Information

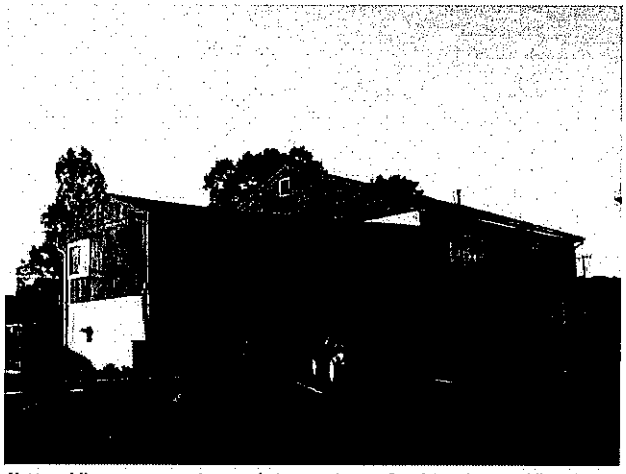
Building 1 : Section 1

Year Built:	1960
Living Area:	2,620
Replacement Cost:	$139,545
Building Percent Good:	63
Replacement Cost Less Depreciation:	$87,900

Building Attributes

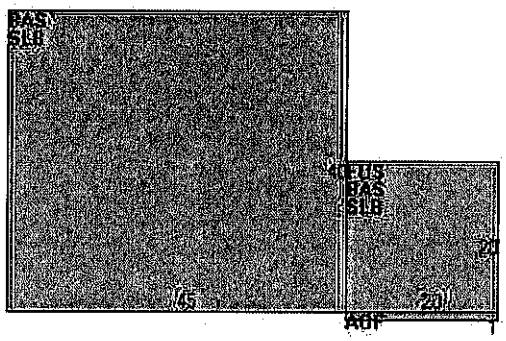
Field	Description
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	Linoleum
Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	COMM WHS MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3160
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & MIN WL
Rooms/Prtns	AVERAGE
Wall Height	16
% Comn Wall	0

Building Photo



(http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\21/6

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	2,200	2,200
FUS	Upper Story, Finished	400	400
AOF	Office	20	20
SLB	Slab	2,200	0
		4,820	2,620

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
MEZ2	FINISHED	420 S.F.	$4,500	1
GEN2	GEN 15-30KW PRMT BKP	1 UNITS	$3,200	1

Land

Land Use

Land Line Valuation

Use Code	3160	**Size (Acres)**	0.95
Description	COMM WHS MDL96	**Frontage**	
Zone	BL	**Depth**	
Neighborhood	400	**Assessed Value**	$327,300
Alt Land Appr	No	**Appraised Value**	$467,500
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	PAVING-ASPHALT			18000 S.F.	$14,900	1
FN3	FENCE-6' CHAIN			200 L.F.	$1,000	1
PAV2	PAVING-CONC			72 S.F.	$200	1
SHD6	SHED COM MAS			36 S.F.	$800	1

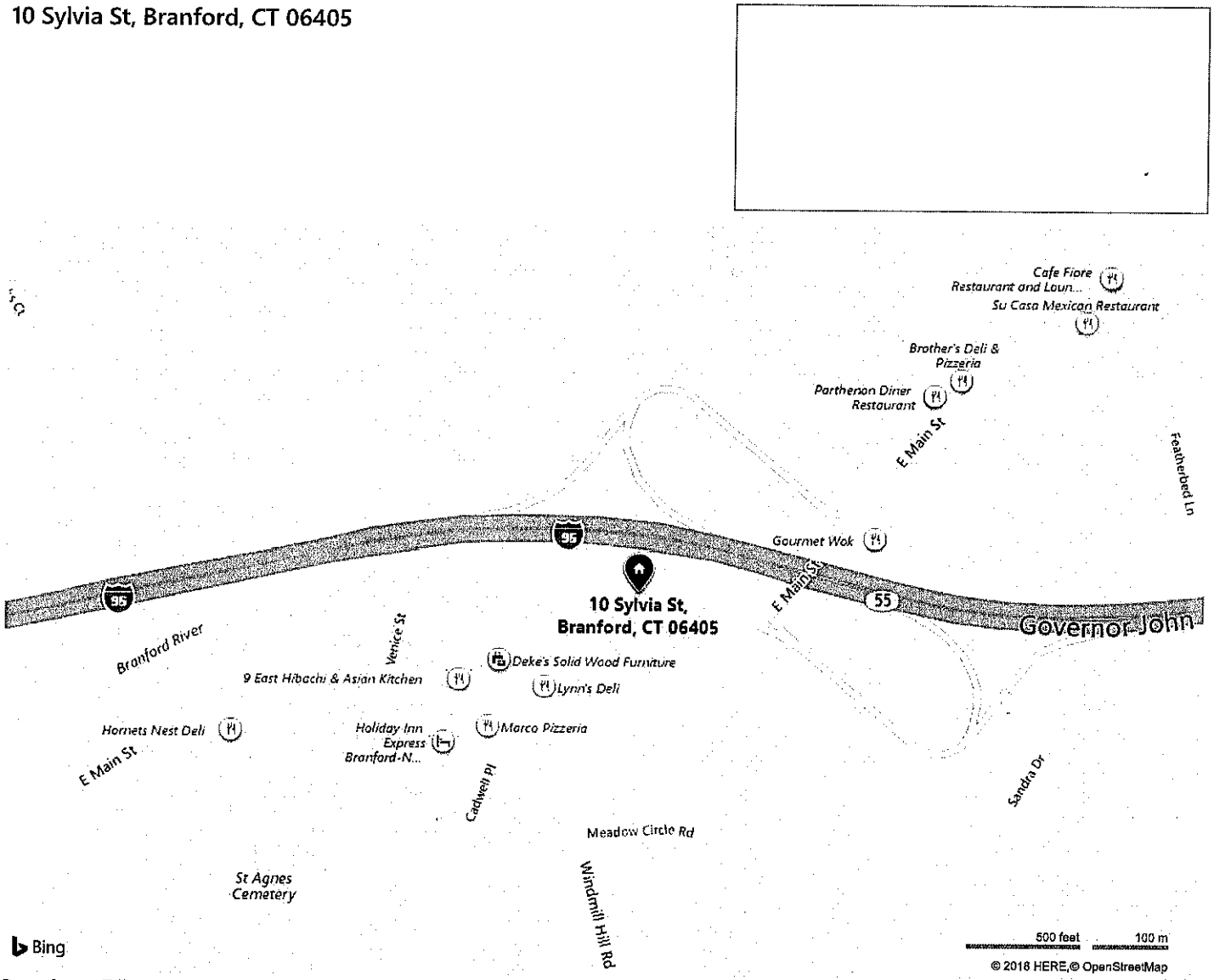
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$112,500	$467,500	$580,000
2016	$112,500	$467,500	$580,000
2015	$109,300	$467,500	$576,800

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$78,700	$327,300	$406,000
2016	$78,700	$327,300	$406,000
2015	$76,500	$327,300	$403,800

bing maps

10 Sylvia St, Branford, CT 06405



Data from: Zillow · GreatSchools

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING TOWER:

- REMOVE (3) EXISTING ANTENNAS, (6) RRH'S, (6) TMA'S

- INSTALL AT&T ANTENNA (SBNHH-1D65A) (TOTAL OF 1 IN BETA SECTOR)
- INSTALL AT&T ANTENNA (800-10965) (TOTAL OF 3 ALPHA SECTOR).
- INSTALL AT&T ANTENNA (800-10964) (TYP. OF 2 PER SECTOR BETA & GAMMA SECTORS, TOTAL OF 6)
- INSTALL AT&T RRUS-8843 B66A/B2 (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL AT&T RRUS-32 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL AT&T RRUS-4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL SURGE ARRESTOR (DC6-48-60-18-8F) (TOTAL OF 2).
- INSTALL (4) DC TRUNK CABLES & (1) FIBER TRUNK CABLE.
- SWAP EXISTING AT&T ANTENNA FROM POSITION 3 TO POSITION 2 (TYP. OF 1 PER SECTOR , TOTAL OF 3)
- INSTALL PIPE MOUNT FOR POSITION 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3)

ITEMS TO BE MOUNTED INSIDE EXISTING SHELTER:

- SWAP BB WITH NEW 5216
- ADD NEW XMU
- ADD NEW 6630

ITEMS TO REMAIN:

- (6) ANTENNAS, (6) TMAS, (6) DIPLEXER'S, (12) COAX, (2) DC TRUNK CABLES, (1) FIBER TRUNK CABLE & (1) SURGE SUPPRESSOR.

SITE ADDRESS:	10 SYLIVIA ST BANFORD, CT 06405
LATITUDE (NAD 83):	N 41° 17' 38.16"
LONGITUDE (NAD 83):	W 72° 47' 08.54"
LANDLORD:	CROWN CASTLE INTERNATIONAL 500 W. CUMMINGS PARK, STE 3600 WOBURN, MA 01801
TYPE OF SITE:	MONOPOLE/OUTDOOR
TOWER HEIGHT:	125'
RAD CENTER:	100'
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
GN-1	GENERAL NOTES I
GN-2	GENERAL NOTES II
C-1	SITE PLAN
C-2	EQUIPMENT LAYOUT & PROPOSED TOWER ELEVATION
C-3	EXISTING & PROPOSED ANTENNA LAYOUT
C-4	EQUIPMENT DETAILS I
C-5	EQUIPMENT DETAILS II
RF-1	ANTENNA CHART & RF EQUIPMENT SCHEMATIC
G-1	GROUNDING DETAILS

CROWN CASTLE SITE ID #: 822765
CROWN CASTLE SITE NAME: BRANFORD/I-95/X55/DTN1

ENGINEERING

2018 CONNECTICUT STATE BUILDING CODE
2018 AMENDMENT WITH 2015 INTERNATIONAL BUILDING CODE
2009 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
2015 INTERNATIONAL MECHANICAL CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE
2017 NATIONAL ELECTRICAL CODE (NFPA 70 2017)
ANSI/TIA-222-G

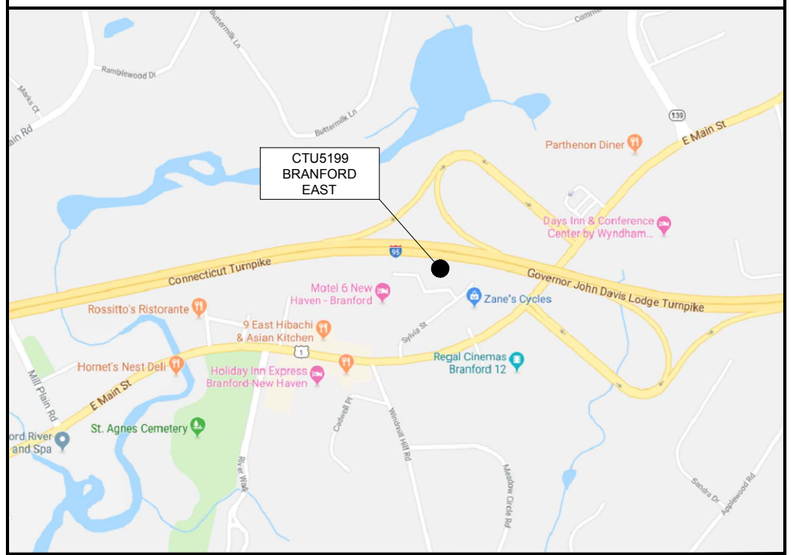
SITE NUMBER: CTU5199

FA LOCATION CODE: 10070944
SITE NAME: BRANFORD EAST
CROWN SITE NAME: BRANFORD/I-95/X55/DTN1
PROJECT:LTE 3C/4C/5C/4TX4RX SOFTWARE RETROFIT
PACE ID: MRCTB033592, MRCTB033644, MRCTB033742, MRCTB033792, MRCTB033800
BU#: 822765

NOTE:

ALL CONSTRUCTION ACTIVITIES ARE TO BE COMPLETED DIRECTLY THROUGH CROWN. CONTRACTOR MUST HAVE CONSTRUCTION PO AND NTP FROM CROWN DIRECT IN ORDER TO BEGIN. PRE-APPROVAL TO ENTER THE PROPERTY MUST BE OBTAINED. FOR ACCESS AUTHORIZATION, PLEASE CONTACT CROWN.

VICINITY MAP



5199 BRANFORD-STREAMI-95N TO EXIT 55 MAKE A LEFT OFF EXIT FOLLOW TO RT 1 MAKE RIGHT ON SYLVIA STREET FOLLOW TO MONOPOLE .

GENERAL NOTES

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

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

CONNECTICUT ONE CALL SYSTEM, INC. — STOP - CALL BEFORE YOU DIG! — 1-800-922-4455

UNDERGROUND SERVICE ALERT

CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

at&t
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT — CRAIG A. THOMAS — No. 0029052 — LICENSED PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	FLP
CHECKED BY:	CAT

SUBMITTALS

0	03/12/19	ISSUED FOR PERMITTING

FA# 10070944
SITE# CTU5199
BRANFORD EAST
10 SYLIVIA ST
BANFORD, CT 06405

TITLE SHEET

T-1

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

A. CONTRACTOR SHALL INSPECT THE EXISTING SITE CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.

B. THE CONTRACTOR SHALL OBTAIN PERMITS, LICENSES, MAKE ALL DEPOSITS, AND PAY ALL FEES REQUIRED FOR THE CONSTRUCTION PERFORMANCE FOR THE WORK UNDER THIS SECTION.

C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWING SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES. CONDUIT BENDS SHALL BE THE RADIUS BEND FOR THE TRADE SIZE OF CONDUIT IN COMPLIANCE WITH THE LATEST EDITIONS OF NEC.

1.3 REFERENCES:

A. THE PUBLICATIONS LISTED BELOW ARE PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE. THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS OTHERWISE NOTED. EXCEPT AS MODIFIED BY THE REQUIREMENT SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISION OF THESE PUBLICATIONS.

1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
2. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
3. ICEA (INSULATED CABLE ENGINEERS ASSOCIATION)
4. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
5. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
6. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
7. UL (UNDERWRITERS LABORATORIES INC.)
8. AT&T GROUNDING AND BONDING STANDARDS TP-76416

1.4 SCOPE OF WORK

A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL, AND ASSOCIATED SERVICES REQUIRED TO COMPLETE REQUIRED CONSTRUCTION AND BE OPERATIONAL.

B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE CONTRACTOR.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.

D. THE CONTRACTOR SHALL FURNISH TO THE OWNER WITH CERTIFICATES OF A FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.

E. THE CONTRACTOR SHALL PREPARE A COMPLETE SET OF AS-BUILT DRAWINGS, DOCUMENT ALL WIRING EQUIPMENT CONDITIONS, AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED AT COMPLETION OF THE PROJECT.

PART 2 - PRODUCTS

2.1 GENERAL:

A. ALL MATERIALS AND EQUIPMENT SHALL BE UL LISTED, NEW, AND FREE FROM DEFECTS.

B. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.

C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PER THE GOVERNING JURISDICTION.

2.2 MATERIALS AND EQUIPMENT:

A. CONDUIT:

1. RIGID METAL CONDUIT (RMC) SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
2. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE UL LISTED.
3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION AND CONCRETE TIGHT TYPE. GROUNDING BUSHINGS WITH INSULATED THROATS SHALL BE INSTALLED ON ALL CONDUIT TERMINATIONS.
4. NONMETALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 PVC. INSTALL USING SOLVENT-CEMENT-TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

B. CONDUCTORS AND CABLE:

1. CONDUCTORS AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, SIZE AS INDICATED, #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR USED.
2. #10 AWG AND SMALLER CONDUCTOR SHALL BE SOLID OR STRANDED AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, COMPRESSION-TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
4. STRAIN-RELIEF SUPPORTS GRIPS SHALL BE HUBBELL KELLEMS OR APPROVED EQUAL. CABLES SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC AND CABLE MANUFACTURER'S RECOMMENDATIONS.
5. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, J-BOXES, EQUIPMENT AND CABINETS AND SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS (ACTION CRAFT, BRADY, OR APPROVED EQUAL).

C. DISCONNECT SWITCHES:

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCK WITH COVER IN CLOSED POSITION, RATING AS INDICATED, UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, SQUARE-D OR ENGINEER APPROVED EQUAL.

D. CHEMICAL ELECTROLYTIC GROUNDING SYSTEM:

1. INSTALL CHEMICAL GROUNDING AS REQUIRED. THE SYSTEM SHALL BE ELECTROLYTIC MAINTENANCE FREE ELECTRODE CONSISTING OF RODS WITH A MINIMUM #2 AWG CU EXOTHERMICALLY WELDED PIGTAIL, PROTECTIVE BOXES, AND BACKFILL MATERIAL. MANUFACTURER SHALL BE LYNCOLE XIT GROUNDING ROD TYPES K2-(*)CS OR K2L-(*)CS (*) LENGTH AS REQUIRED.
2. GROUND ACCESS BOX SHALL BE A POLYPLASTIC BOX FOR NON-TRAFFIC APPLICATIONS, INCLUDING BOLT DOWN FLUSH COVER WITH "BREATHER" HOLES, XIT MODEL #XB-22. ALL DISCONNECT SWITCHES AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS ID NUMBERING, AND THE ELECTRICAL POWER SOURCE.
3. BACKFILL MATERIAL SHALL BE LYNCONITE AND LYNCOLE GROUNDING GRAVEL.

E. SYSTEM GROUNDING:

1. ALL GROUNDING COMPONENTS SHALL BE TINNED AND GROUNDING CONDUCTOR SHALL BE #2 AWG BARE, SOLID, TINNED, COPPER. ABOVE GRADE GROUNDING CONDUCTORS SHALL BE INSULATED WHERE NOTED.
2. GROUNDING BUSES SHALL BE BARE, TINNED, ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION. STANDARD BUS BARS MGB, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THEY SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD. ALL GROUNDING BUSES SHALL BE IDENTIFIED WITH MINIMUM 3/4" LETTERS BY WAY OF STENCILING OR DESIGNATION PLATE.
3. CONNECTORS SHALL BE HIGH-CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO-HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS. INTERIOR CONNECTIONS USE TWO-HOLE COMPRESSION LUGS WITH INSPECTION WINDOW AND CLEAR HEAT SHRINK.
4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
5. GROUND RODS SHALL BE COPPER-CLAD STEEL WITH HIGH-STRENGTH STEEL CORE AND ELECTROLYTIC-GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 5/8"x10'-0". ALL GROUNDING RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES.
6. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS IN COMPLIANCE WITH THE AT&T SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.

F. OTHER MATERIALS:

6. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.
7. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.

G. PANELS AND LOAD CENTERS:

1. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

PART 3 - EXECUTION

3.1 GENERAL:

A. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

3.2 LABOR AND WORKMANSHIP:

A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE INSTALLED BY EXPERIENCED WIREMEN, IN A NEAT AND WORKMAN-LIKE MANNER.

B. ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.

C. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, CRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION:

A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION:

A. CONDUIT:

1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH TRADE SIZE.
2. PROVIDE RIGID PVC SCHEDULE 80 CONDUITS FOR ALL RISERS, RMC OTHERWISE NOTED. EMT MAY BE INSTALLED FOR EXTERIOR CONDUITS WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
3. INSTALL SCHEDULE 40 PVC CONDUIT WITH A MINIMUM COVER OF 24" UNDER ROADWAYS, PARKING LOTS, STREETS, AND ALLEYS. CONDUIT SHALL HAVE A MINIMUM COVER OF 18" IN ALL OTHER NON-TRAFFIC APPLICATIONS (REFER TO 2017 NEC, TABLE 300.5).
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION TO EQUIPMENT WITH MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUID TIGHT, FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORT TO ALLOW FOR EXPANSION AND CONTRACTION.
5. A RUN OF CONDUIT BETWEEN BOXES OR EQUIPMENT SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE QUARTER-BENDS. CONDUIT BEND SHALL BE MADE WITH THE UL LISTED BENDER OR FACTORY 90 DEGREE ELBOWS MAY BE USED.
6. FIELD FABRICATED CONDUITS SHALL BE CUT SQUARE WITH A CONDUIT CUTTING TOOL AND REAMED TO PROVIDE A SMOOTH INSIDE SURFACE.
7. PROVIDE INSULATED GROUNDING BUSHING FOR ALL CONDUITS.
8. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
9. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
10. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
11. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUITS AND CONDUCTORS.
12. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
13. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS TO ALLOW FOR RACEWAYS AND CABLES TO BE ROUTED THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE, AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

B. CONDUCTORS AND CABLE:

1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:

DESCRIPTION	208/240/120 VOLT SYSTEMS
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUNDING	GREEN

2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAY CONDUITS APPROVED FOR THIS PURPOSE.
3. PULLING LUBRICANTS SHALL BE UL APPROVED. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CONDUCTOR OR CABLES INTO THE CONDUIT.
4. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES & EQUIPMENT TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS. CONDUCTORS SHALL BE PROTECTED FROM MECHANICAL INJURY AND MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS IS PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

C. DISCONNECT SWITCHES:

1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS INDICATED.

D. GROUNDING:

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING MANUFACTURER, AT&T GROUNDING AND BONDING STANDARDS TP-76416, ND-00135, AND THE NATIONAL ELECTRICAL CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUNDING CONDUCTORS SHALL NOT BE LOOPED OR SHARPLY BENT. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 AWG COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). SEE STANDARD 6.3.2.2.
5. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
6. CONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN-POINTS TO THE EXISTING GROUNDING SYSTEM. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION BEFORE BEING PERMANENTLY CONCEALED.
8. APPLY CORROSION-RESISTANT FINISH TO FIELD CONNECTIONS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED. USE KOPR-SHIELD ANTI-OXIDATION COMPOUND ON ALL COMPRESSION GROUNDING CONNECTIONS.
9. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.
10. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE #6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.
11. DIRECT BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 36" MINIMUM BELOW GRADE, OR 6" BELOW THE FROST LINE, USE THE GREATER OF THE TWO DISTANCES.
12. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.
13. THE INSTALLATION OF CHEMICAL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
14. DRIVE GROUND RODS UNTIL TOPS ARE A MINIMUM DISTANCE OF 36" DEPTH OR 6" BELOW FROST LINE, USING THE GREATER OF THE TWO DISTANCES.
15. IF COAX ON THE ICE BRIDGE IS MORE THAN 6 FT. FROM THE GROUNDING BAR AT THE BASE OF THE TOWER, A SECOND GROUNDING BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE, TO GROUND THE COAX CABLE GROUNDING KITS AND IN-LINE ARRESTORS.
16. CONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.

3.5 ACCEPTANCE TESTING:

A. CERTIFIED PERSONNEL USING CERTIFIED EQUIPMENT SHALL PERFORM REQUIRED TESTS AND SUBMIT WRITTEN TEST REPORTS UPON COMPLETION.

B. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NON-COMPLYING ITEMS SHALL BE REMOVED FROM THE PROJECT SITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE FOR NON-COMPLIANCE.

C. TEST PROCEDURES:

1. ALL FEEDERS SHALL HAVE INSULATION TESTED AFTER INSTALLATION, BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. PROVIDE WRITTEN DOCUMENTATION FOR ALL TEST RESULTS.
2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE CONDUCTORS AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
4. PERFORM GROUNDING TEST TO MEASURE GROUNDING RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

at&t
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
CRAIG A. THOMAS
No. 0029052
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004

DRAWN BY: FLP

CHECKED BY: CAT

SUBMITTALS

0	03/12/19	ISSUED FOR PERMITTING

FA# 10070944
SITE# CTU5199
BRANFORD EAST

10 SYLVIA ST
BANFORD, CT 06405

GENERAL NOTES I

GN-1

ANTENNA MOUNTING

1. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
2. 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.
3. 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.
4. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
5. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
7. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
8. 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.
9. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
10. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
11. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.

TORQUE REQUIREMENTS

12. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
13. 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.
    C. ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
14. ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
15. ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
16. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 - 29.8 NM).
17. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).

FIBER & POWER CABLE MOUNTING

18. 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.
19. 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.
20. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

21. 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.
22. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
23. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027 LATEST VERSION.
24. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".
25. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" O.C.
26. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
27. CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.
28. 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.
29. 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.
30. 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

31. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
32. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
33. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
34. 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.
35. 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.
36. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
    A. GROUNDING AT THE ANTENNA LEVEL.
    B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDING REQUIRED.
    C. GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
    D. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
    E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
37. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND
38. BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
39. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ANTENNA AND THE COAX CONFIGURATION IS THE CORRECT MAKE AND MODELS, PRIOR TO INSTALLATION.
40. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S SPECIFICATION & RECOMMENDATIONS.
41. ANTENNA CONTRACTOR SHALL FURNISH AND INSTALL A 12'-0" T-BOOM SECTOR ANTENNA MOUNT, IF APPLICABLE, INCLUDING ALL HARDWARE.

GROUNDING NOTES

42. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
43. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND AT&T GROUNDING AND BONDING REQUIREMENTS (ATT-TP-76416) AND MANUFACTURER'S SPECIFICATIONS.
44. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.
45. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUNDING KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
    A. GROUNDING AT THE ANTENNA LEVEL.
    B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200', 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.
46. ALL PROPOSED GROUNDING BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUNDING BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUNDING BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.

EXOTHERMIC CONNECTION
MECHANICAL CONNECTION
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM (T)
EXOTHERMIC WITH INSPECTION SLEEVE
GROUNDING BAR
SHELTER GROUNDING BAR
GROUND ROD
TEST GROUND ROD WITH INSPECTION SLEEVE (T)
SINGLE POLE SWITCH ($)
DUPLEX RECEPTACLE
DUPLEX GFCI RECEPTACLE (GFCI)
FLUORESCENT LIGHTING FIXTURE (F)
(2) TWO LAMPS 48-T8
EXISTING SMOKE DETECTION (DC) (SD)
EXISTING EMERGENCY LIGHTING (DC)
SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED-1-25A400/51K-SR4-120-PE-DDBTXD
EXISTING UTILITY POLE
EXISTING CHAIN LINK FENCE
EXISTING WOOD/WROUGHT IRON FENCE
EXISTING WALL STRUCTURE
LEASE AREA
PROPERTY LINE (PL)
SETBACKS
PROPOSED/EXISTING ICE BRIDGE
PROPOSED/EXISTING CABLE TRAY
EXISTING WATER LINE
PROPOSED UNDERGROUND POWER (W)
PROPOSED UNDERGROUND TELCO (UGP)
PROPOSED OVERHEAD POWER (UGT)
PROPOSED OVERHEAD TELCO (OHP)
PROPOSED OVERHEAD UTILITIES (OHT)
PROPOSED ABOVE GROUND POWER (OHT)
PROPOSED ABOVE GROUND TELCO (AGP)
(AGT)

CALLOUT REFERENCE (X)
REVISION REFERENCE (1)
WORKPOINT (W.P.)
SECTION REFERENCE (XX / X-X)
DETAIL REFERENCE (XX / X-X)
ELEVATION REFERENCE (X / X)

THESE DOCUMENTS ARE IN COMPLIANCE WITH AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FOLLOW CODES AND STANDARDS AS APPLICABLE: 2018 CONNECTICUT STATE BUILDING CODE. 2017 NATIONAL ELECTRIC CODE OR LATEST EDITION.

AB	ANCHOR BOLT	COL	COLUMN	FIN	FINISH(ED)	MAS	MASONRY	QTY	QUANTITY	TOF	TOP OF FOUNDATION
ABV	ABOVE	COMM	COMMON	FLR	FLOOR	MAX	MAXIMUM	RAD	RADIUS	TOP	TOP OF PLATE (PARAPET)
AC	ALTERNATING CURRENT	CONC	CONCRETE	FDN	FOUNDATION	MB	MACHINE BOLT	RECT	RECTIFIER	TOS	TOP OF STEEL
ADDL	ADDITIONAL	CONSTR	CONSTRUCTION	FOC	FACE OF CONCRETE	MECH	MECHANICAL	REF	REFERENCE	TOW	TOP OF WALL
AFF	ABOVE FINISHED FLOOR	DBL	DOUBLE	FOM	FACE OF MASONRY	MFR	MANUFACTURER	REINF	REINFORCEMENT	TVSS	TRANSIENT VOLTAGE SUPPRESSION
AFG	ABOVE FINISHED GRADE	DC	DIRECT CURRENT	FOS	FACE OF STUD	MGB	MASTER GROUND BAR	REQ'D	REQUIRED		SYSTEM
AIC	AMPERAGE INTERRUPTION CAPACITY	DEPT	DEPARTMENT	FOW	FACE OF WALL	MIN	MINIMUM	RET	REMOTE ELECTRIC TILT	TYP	TYPICAL
ALUM	ALUMINUM	DF	DOUGLAS FIR	FS	FINISH SURFACE	MISC	MISCELLANEOUS	RMC	RIGID METALLIC CONDUIT	UG	UNDERGROUND
ALT	ALTERNATE	DIA	DIAMETER	FT	FOOT	MTL	METAL	RRH	REMOTE RADIO HEAD	UL	UNDERWRITERS LABORATORY
ANT	ANTENNA	DIAG	DIAGONAL	FTG	FOOTING	MTS	MANUAL TRANSFER SWITCH	RRU	REMOTE RADIO UNIT	UNO	UNLESS NOTED OTHERWISE
APPROX	APPROXIMATE	DIM	DIMENSION	GA	GAUGE	MW	MICROWAVE	RWY	RACEWAY	UMTS	UNIVERSAL MOBILE
ARCH	ARCHITECTURAL	DWG	DRAWING	GEN	GENERATOR	(N)	NEW	SCH	SCHEDULE		TELECOMMUNICATIONS SYSTEM
ATS	AUTOMATIC TRANSFER SWITCH	DWL	DOWEL	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	NEC	NATIONAL ELECTRIC CODE	SHT	SHEET	UPS	UNINTERRUPTIBLE POWER SYSTEM
AWG	AMERICAN WIRE GAUGE	(E)	EXISTING	GLB	GLUE LAMINATED BEAM	NO.(#)	NUMBER	SIAD	SMART INTEGRATED DEVICE		(DC POWER PLANT)
BATT	BATTERY	EA	EACH	GLV	GALVANIZED	NTS	NOT TO SCALE	SIM	SIMILAR	VIF	VERIFIED IN FIELD
BLDG	BUILDING	EC	ELECTRICAL CONDUCTOR	GPS	GLOBAL POSITIONING SYSTEM	OC	ON CENTER	SPEC	SPECIFICATION	W	WIDE
BLK	BLOCK	EL	ELEVATION	GND	GROUND	OPNG	OPENING	SQ	SQUARE	W/	WITH
BLKG	BLOCKING	ELEC	ELECTRICAL	GSM	GLOBAL SYSTEM FOR MOBILE	(P)	PROPOSED	SS	STAINLESS STEEL	WD	WOOD
BM	BEAM	EMT	ELECTRICAL METALLIC TUBING	HDR	HEADER	P/C	PRECAST CONCRETE	STD	STANDARD	W.P.	WORK POINT
BTC	BARE TINNED COPPER CONDUCTOR	ENG	ENGINEER	HGR	HANGER	PCS	PERSONAL COMMUNICATION SERVICES	STL	STEEL	WP	WEATHERPROOF
BOF	BOTTOM OF FOOTING	EQ	EQUAL	HVAC	HEAT/VENTILATION/AIR CONDITIONING	PCU	PRIMARY CONTROL UNIT	STRUCT	STRUCTURAL	WT	WEIGHT
CAB	CABINET	EXP	EXPANSION	HT	HEIGHT	PRC	PRIMARY RADIO CABINET	TEMP	TEMPORARY		
CANT	CANTILEVERED	EXT	EXTERIOR	IGR	INTERIOR GROUND RING	PP	POLARIZING PRESERVING	THK	THICKNESS		
CEC	CALIFORNIA ELECTRIC CODE	FAB	FABRICATION	IN	INCH	PSF	POUNDS PER SQUARE FOOT	TMA	TOWER MOUNTED AMPLIFIER		
CHG	CHARGING	FF	FINISH FLOOR	INT	INTERIOR	PSI	POUNDS PER SQUARE INCH	TN	TOE NAIL		
CLG	CEILING	FG	FINISH GRADE	LB(S)	POUND(S)	PT	PRESSURE TREATED	TOA	TOP OF ANTENNA		
CLR	CLEAR	FIF	FACILITY INTERFACE FRAME	LF	LINEAR FEET	PWR	POWER CABINET	TOC	TOP OF CURB		

at&t
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
CRAIG A. THOMAS
No. 0029052
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004

DRAWN BY: FLP

CHECKED BY: CAT

SUBMITTALS

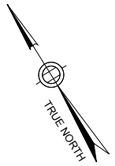
0	03/12/19	ISSUED FOR PERMITTING

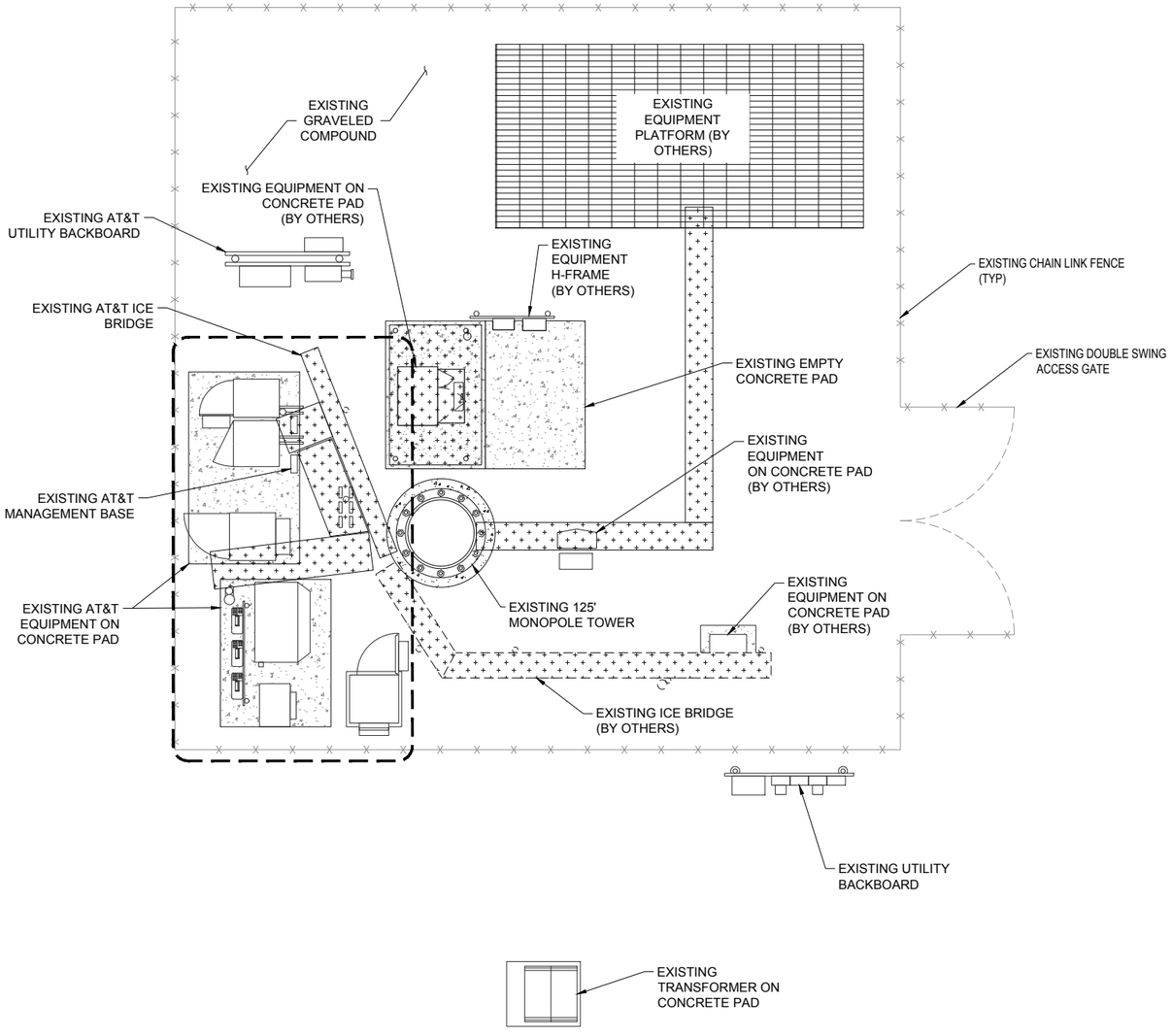
FA# 10070944
SITE# CTU5199
BRANFORD EAST

10 SYLIVIA ST
BANFORD, CT 06405

GENERAL NOTES II

GN-2





NOTES:

1. PLAN BASED ON AS-BUILT DRAWINGS ISSUED BY COM EX CONSULTANTS ON 01/25/16. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.

1 SITE PLAN

SCALE: 1/4" = 1'-0"

at&t
5841 BRIDGE STREET
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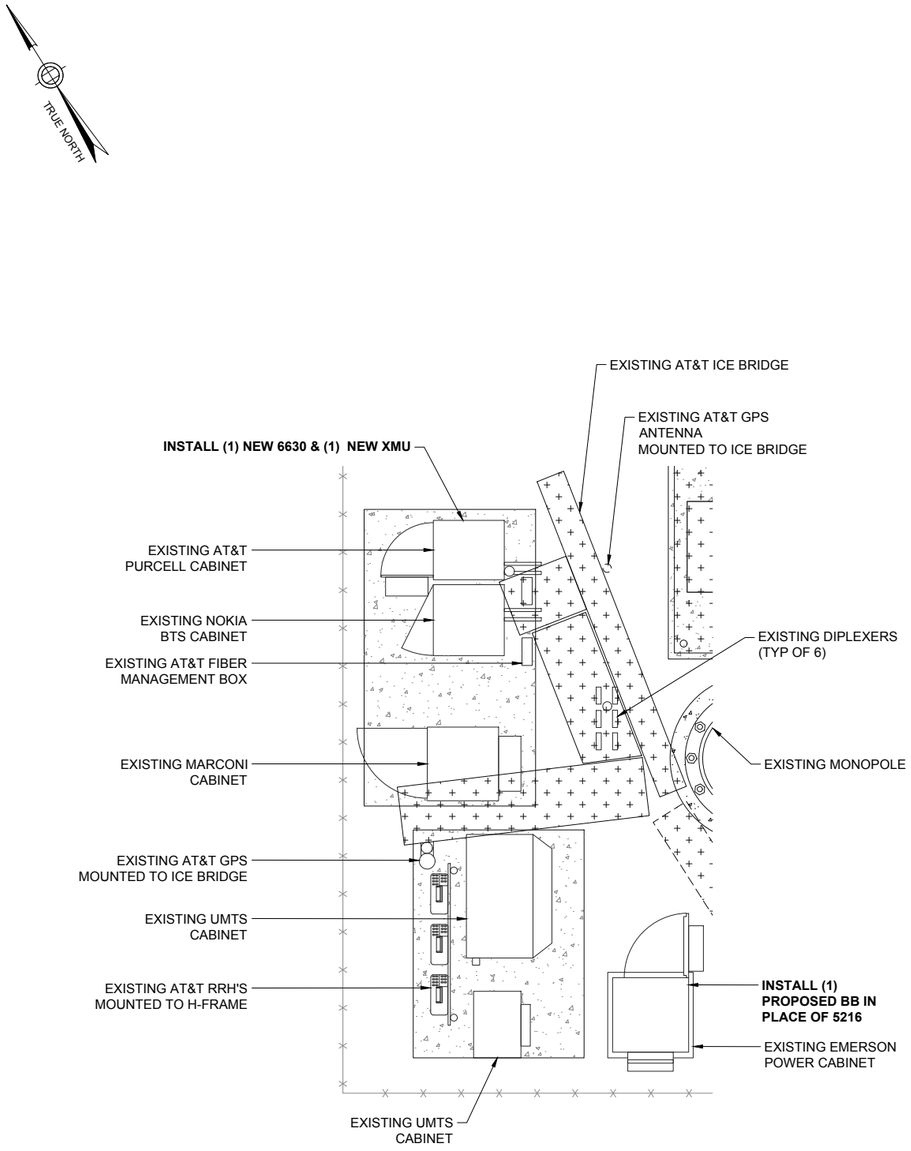
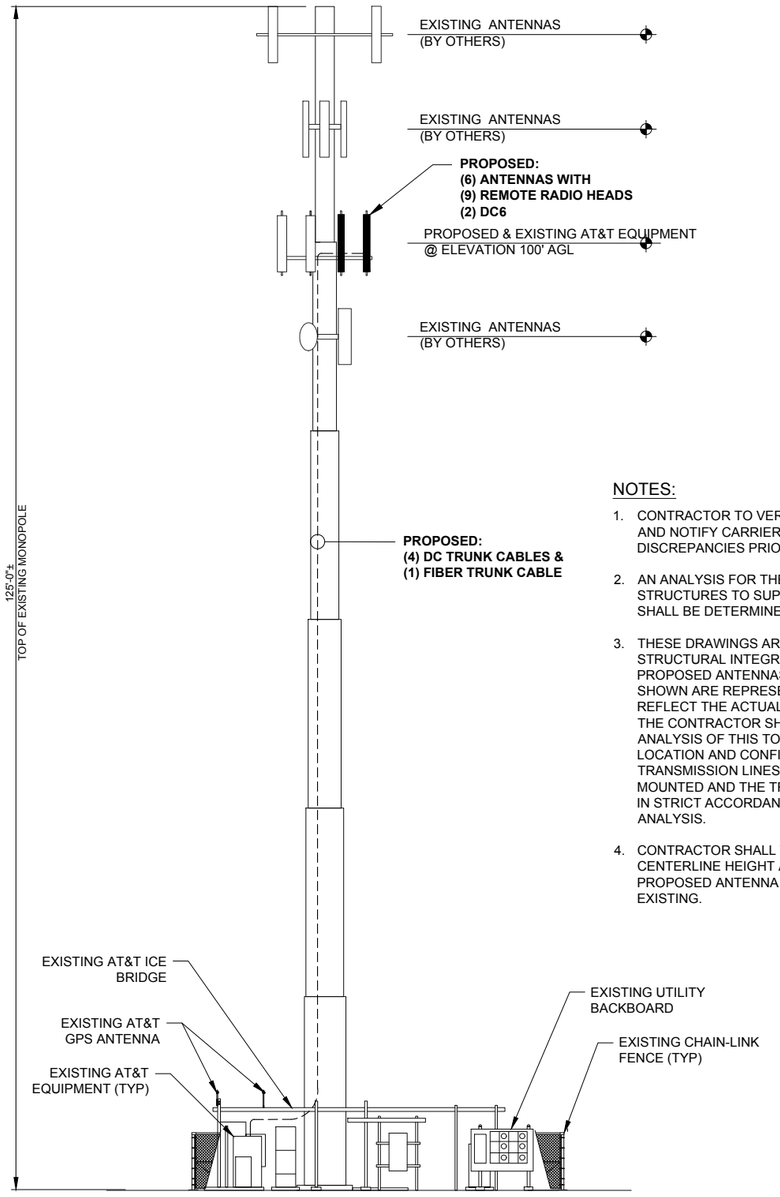
BANFORD, CT 06405

SITE PLAN

C-1





NOTES:

1. CONTRACTOR TO VERIFY FINAL RF CONFIGURATION AND NOTIFY CARRIER AND ENGINEER W/ ANY DISCREPANCIES PRIOR TO THE INSTALLATION.
2. AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.
3. THESE DRAWINGS ARE NOT INTENDED TO REFLECT THE STRUCTURAL INTEGRITY OF THE TOWER. THE PROPOSED ANTENNAS AND TRANSMISSION LINES SHOWN ARE REPRESENTATIVE IN NATURE AND DO NOT REFLECT THE ACTUAL CONFIGURATIONS REQUIRED. THE CONTRACTOR SHALL REFER TO THE STRUCTURAL ANALYSIS OF THIS TOWER SITE FOR THE APPROVED LOCATION AND CONFIGURATION OF ALL ANTENNAS AND TRANSMISSION LINES. ALL ANTENNAS MUST BE MOUNTED AND THE TRANSMISSION LINES CONFIGURED IN STRICT ACCORDANCE WITH THE STRUCTURAL ANALYSIS.
4. CONTRACTOR SHALL VERIFY THE EXISTING ANTENNA CENTERLINE HEIGHT ABOVE GROUND LEVEL. PROPOSED ANTENNA CENTERLINE SHALL MATCH EXISTING.

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SITE# CTU5199
BRANFORD EAST

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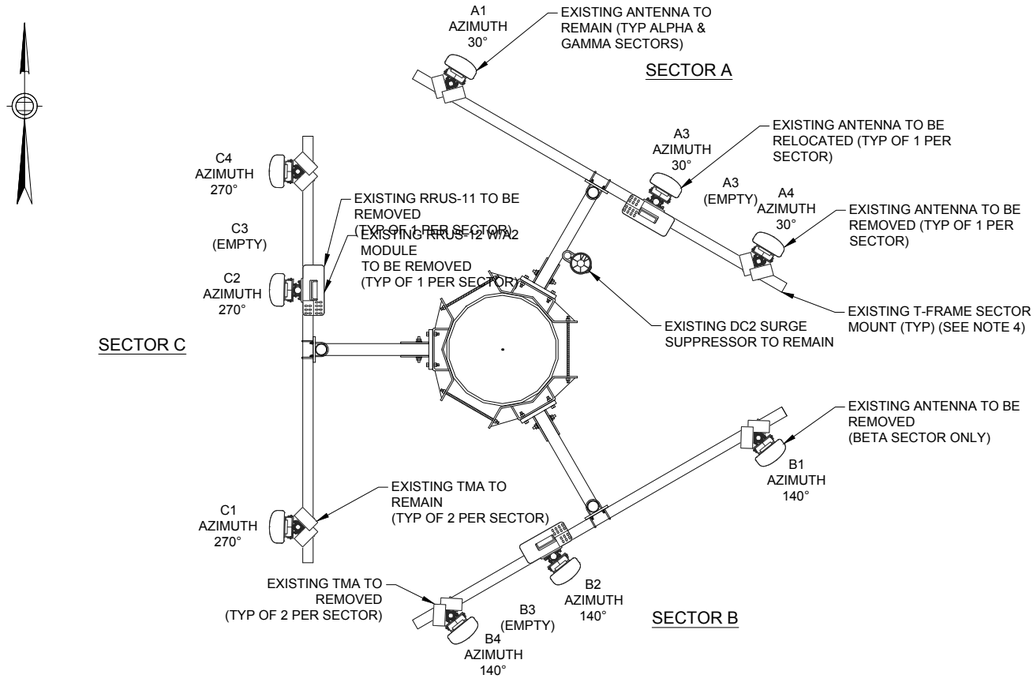
BANFORD, CT 06405

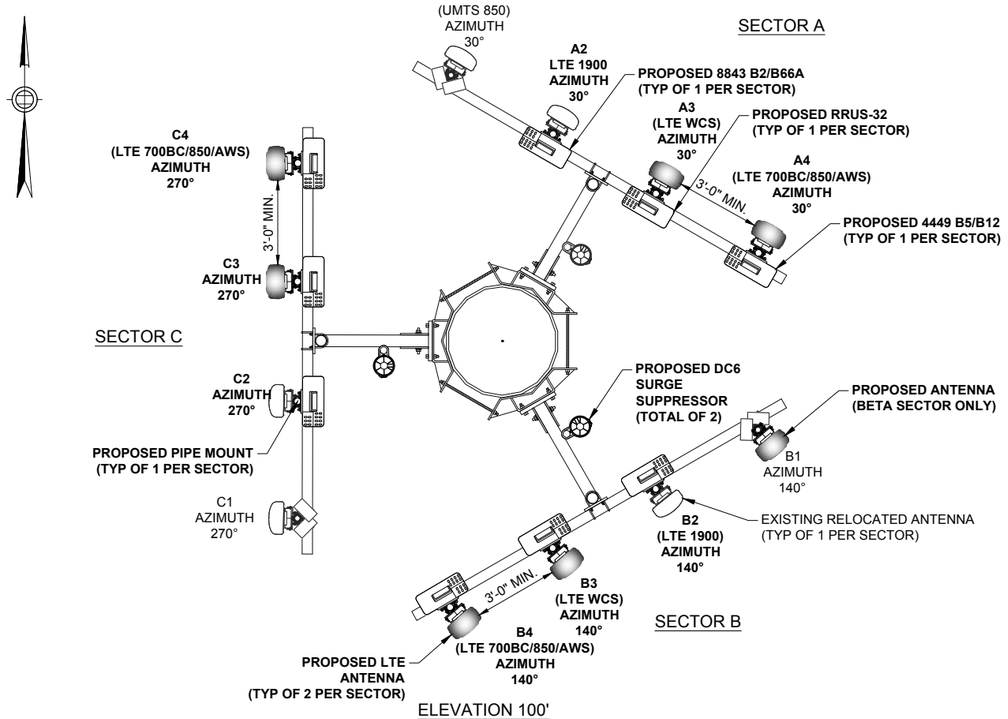
EQUIPMENT LAYOUT & PROPOSED TOWER ELEVATION



ELEVATION 100'

1 EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



ELEVATION 100'

1 PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.

NOTES:

1. CONTRACTOR SHALL REFER TO THE TOWER EQUIPMENT INSTALLATION MOUNT ANALYSIS REPORT; SITE NUMBER: CTU5199; SITE NAME: BRANFORD EAST; FA LOCATION: 10070944; CROWN BU NUMBER: 822765; CROWN SITE NAME: BRANFORD/I-95/X55/DTN1; CROWN ORDER NUMBER: 474807; ISSUED BY JACOBS ENGINEERING GROUP, INC. DATED ON 03/01/2019. PER THIS ANALYSIS NO MODIFICATIONS ARE REQUIRED FOR THE PROPOSED EQUIPMENT. CONTRACTOR SHALL CONFIRM ALL AT&T EXISTING AND PROPOSED EQUIPMENT ARE INSTALLED IN ACCORDANCE WITH THIS REPORT.
2. CONTRACTOR TO VERIFY FINAL RF CONFIGURATION AND NOTIFY CARRIER AND ENGINEER W/ ANY DISCREPANCIES PRIOR TO THE INSTALLATION.
3. CONTRACTOR SHALL NOT EXCEED MOUNTING MORE THAN (2) RRHS PER ANTENNA MOUNTING PIPE - RELOCATE TO AN ADJACENT ANTENNA MOUNTING PIPE AS NEEDED.
4. CONTRACTOR TO VERIFY FINAL RF CONFIGURATION AND NOTIFY CARRIER AND ENGINEER W/ ANY DISCREPANCIES PRIOR TO THE INSTALLATION.

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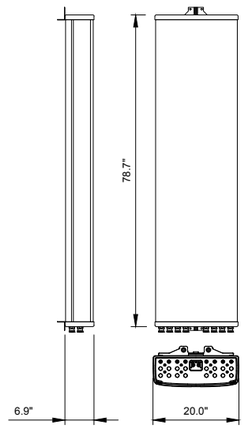
FA# 10070944
SITE# CTU5199
BRANFORD EAST

10 SYLIVIA ST
BANFORD, CT 06405

EXISTING & PROPOSED
ANTENNA LAYOUT

C-3

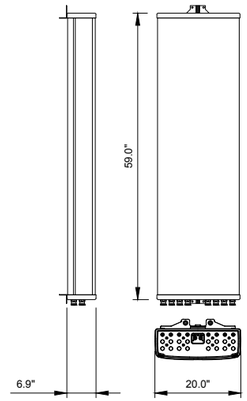
MANUFACTURER:	KATHREIN
MODEL NO.:	80010965
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
COLOR:	LIGHT GRAY
DIMENSIONS (LxWxD):	78.7" x 20.0" x 6.9" 1999mm x 508mm x 175mm
WEIGHT (lbs):	97.6
CONNECTOR:	8 x 4.3-10 FEMALE
FRONT WIND LOAD:	254 LBF @ 93 MPH 1130 N @ 150 KM/H
SIDE WIND LOAD:	256 LBF @ 93 MPH 1140 N @ 150 KM/H
WIND SPEED MAX.:	>150 MPH (>241 KM/H)



1 ANTENNA SPECIFICATIONS

SCALE: N.T.S.

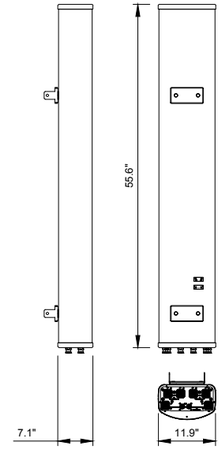
MANUFACTURER:	KATHREIN
MODEL NO.:	80010964
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
COLOR:	LIGHT GRAY
DIMENSIONS (LxWxD):	59.0" x 20.0" x 6.9" 1499mm x 508mm x 175mm
WEIGHT (lbs):	83.8
CONNECTOR:	8 x 4.3-10 FEMALE
FRONT WIND LOAD:	188 LBF @ 93 MPH 835 N @ 150 KM/H
SIDE WIND LOAD:	189 LBF @ 93 MPH 840 N @ 150 KM/H
WIND SPEED MAX.:	>150 MPH (>241 KM/H)



2 ANTENNA SPECIFICATIONS

SCALE: N.T.S.

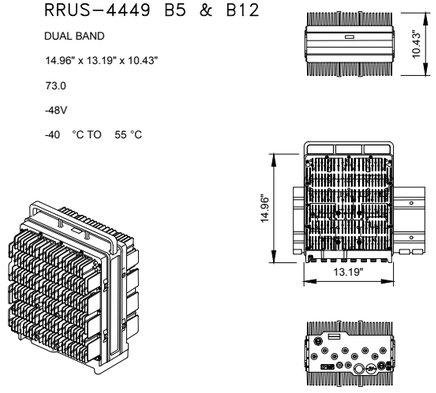
MANUFACTURER:	COMMSCOPE
MODEL NO.:	SBNHH-1D65A
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
COLOR:	LIGHT GRAY
DIMENSIONS (LxWxD):	55.6" x 11.9" x 7.1" 1413mm x 301mm x 180mm
WEIGHT (lbs):	33.5
CONNECTOR:	6 x 7-16 DIN FEMALE
FRONT WIND LOAD:	46.3 LBF @ 150 KM/H 206 N @ 150 KM/H
SIDE WIND LOAD:	38.0 LBF @ 150 KM/H 169 N @ 150 KM/H
WIND SPEED MAX.:	>150 MPH (>241 KM/H)
WIND LOADING, MAX.:	89.0 LBF @ 150 KM/H 396 N @ 150 KM/H



3 ANTENNA SPECIFICATIONS

SCALE: N.T.S.

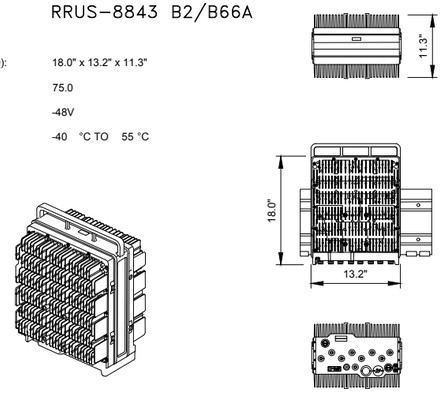
MANUFACTURER:	ERICSSON
MODEL NO.:	RRUS-4449 B5 & B12
TECHNOLOGY:	DUAL BAND
DIMENSIONS (HxWxD):	14.96" x 13.19" x 10.43"
WEIGHT (lbs):	73.0
POWER SUPPLY:	-48V
TEMPERATURE:	-40 °C TO 55 °C



4 RRUS SPECIFICATIONS

SCALE: N.T.S.

MANUFACTURER:	ERICSSON
MODEL NO.:	RRUS-8843 B2/B66A
DIMENSIONS (HxWxD):	18.0" x 13.2" x 11.3"
WEIGHT (lbs):	75.0
POWER SUPPLY:	-48V
TEMPERATURE:	-40 °C TO 55 °C

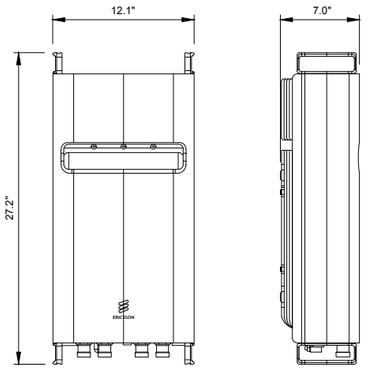


5 RRUS SPECIFICATIONS

SCALE: N.T.S.

MANUFACTURER:	ERICSSON
MODEL NO.:	RRUS-32
TECHNOLOGY:	WCS
DIMENSIONS (HxWxD):	27.2" x 12.1" x 7.0"
WEIGHT (lbs):	53
POWER SUPPLY:	-48V
TEMPERATURE:	-40 °C TO 55 °C

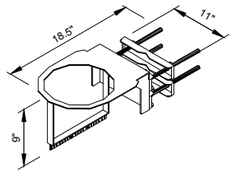
NOTE:
PENDING FINAL PRODUCT SPECIFICATION

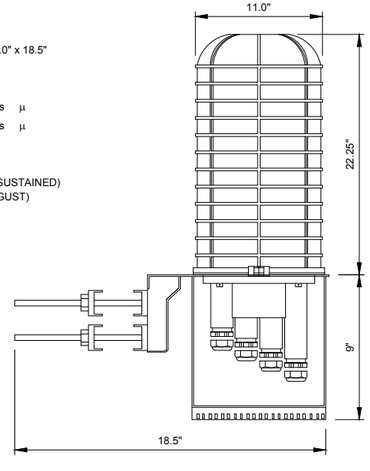


6 RRUS SPECIFICATIONS

SCALE: N.T.S.

RAYCAP	DC6-48-60-18-8F
DIMENSIONS (HxWxD):	31.27" x 11.0" x 18.5"
TOTAL WEIGHT (lbs):	32.8
NOMINAL OPERATING VOLTAGE:	48 VDC
NOMINAL DISCHARGE VOLTAGE:	20 kA 8/20 s μ
MAXIMUM DISCHARGE CURRENT:	60 kA 8/20 s μ
MAX. CONTINUOUS OPERATING CURRENT:	77 VDC
VOLTAGE PROTECTION RATING:	400 V
WIND LOADING:	170 MPH (SUSTAINED) 197 MPH (GUST)





7 DC SURGE PROTECTION SPECIFICATIONS

SCALE: N.T.S.

NOT USED

NOT USED

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5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

CROWN CASTLE
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BOSTON, MA 02116

STATE OF CONNECTICUT
CRAIG A. THOMAS
No. 0029052
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	FLP
CHECKED BY:	CAT

SUBMITTALS

0	03/12/19	ISSUED FOR PERMITTING

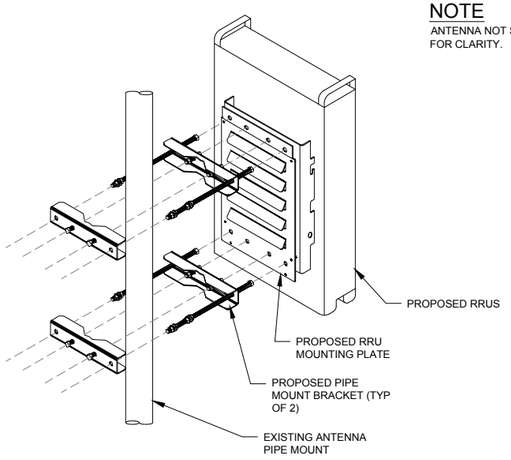
FA# 10070944
SITE# CTU5199
BRANFORD EAST

10 SYLVIA ST
BANFORD, CT 06405

EQUIPMENT
DETAILS I

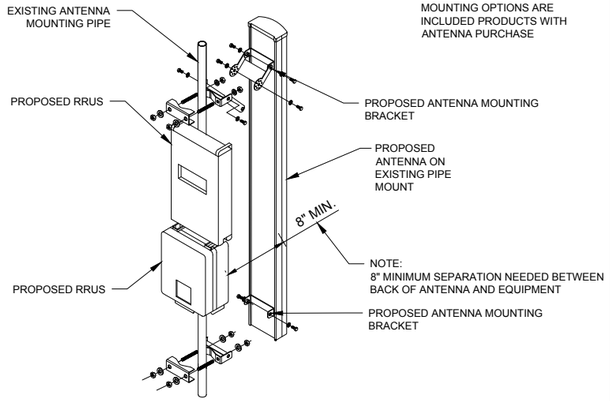
C-4

NOTE
ANTENNA NOT SHOWN FOR CLARITY.

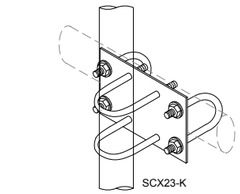


1 RRU MOUNTING DETAIL SCALE: N.T.S.

NOTE
MOUNTING OPTIONS ARE INCLUDED PRODUCTS WITH ANTENNA PURCHASE



2 RRU MOUNTING DETAIL W/ANTENNA SCALE: N.T.S.



* HEAVY DUTY CROSSOVER PLATE KITS ARE USED TO ATTACH PIPES IN 90° FASHION
* U-BOLTS AND HARDWARE INCLUDED
* HOT-DIP GALVANIZED

PART #	SMALLER PIPE SIZE	LARGER PIPE SIZE
SCX1-K	2-3/8"	2-3/8"
SCX2-K	2-3/8"	2-7/8"
2CX23-K	2-7/8"	2-7/8"
SCX3-K	3-1/2"	3-1/2"
SCX43-K	2-3/8"	3-1/2"
SCX4-K	2-3/8"	4-1/2"
SCX45-K	2-7/8"	3-1/2"
SCX6-K	2-7/8"	4-1/2"
SCX7-K	3-1/2"	4-1/2"

DC6 MOUNTING DETAIL

NOT USED SCALE: N.T.S.

NOT USED

NOT USED

NOT USED

NOT USED

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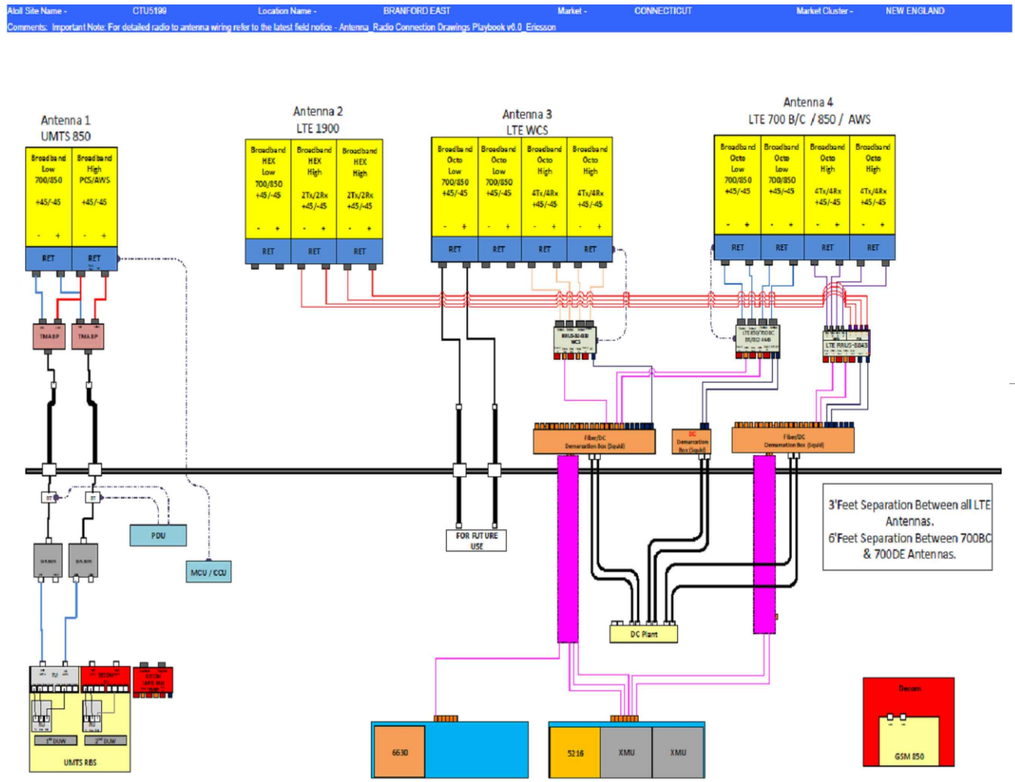
EQUIPMENT DETAILS II

C-5

ANTENNA NUMBER	ANTENNA MODEL	ANTENNA BAND	AZIMUTH	ANTENNA CENTERLINE FROM GROUND	TMA's	RRH's	FEEDER	RAYCAP
A1	7770 (55"x11"x5")	UMTS 850	30°	100'	(2) LGP 21401	-	(4) 1-1/4" EXISTING (LENGTH @ 130')	**(2) RAYCAP DC6-48-60-18-8F**
A2	HPA-65R-BUU-H6 (72"X14.8"X9")	LTE 1900	30°	100'	-	**(1) 8843 B2/B66A (PCS/AWS)**	(2) DC (E) (1) FIBER (E) (LENGTH @ 130')	
A3	**800-10965 (78.7"x20"x6.9")**	**LTE WCS**	**30°**	**100'**	**-**	**(1) RRUS-32 (WCS)**	**(4) FIBER (1) DC (LENGTH @ 130')**	(1) RAYCAP DC6-48-60-18-8F
A4	**800-10965 (78.7"x20"x6.9")**	**LTE 700B/C 850 AWS**	**30°**	**100'**	**-**	**(1) 4449 B5/B12 (850/700)**	**-**	
B1	**SBNHH-1D65A (55"x11.9"x7.1")**	UMTS 850	**140°**	**100'**	(2) LGP 21401	-	(4) 1-1/4" EXISTING (LENGTH @ 130')	
B2	SBNHH-1D65A (55"x11.9"x7.1")	LTE 1900	140°	100'	-	**(1) 8843 B2/B66A (PCS/AWS)**	-	
B3	**800-10964 (59"x20"x6.9")**	**LTE WCS**	**140°**	**100'**	**-**	**(1) RRUS-32 (WCS)**	**-**	
B4	**800-10964 (59"x20"x6.9")**	**LTE 700B/C 850 AWS**	**140°**	**100'**	**-**	**(1) 4449 B5/B12 (850/700)**	**-**	
G1	7770 (55"x11"x5")	UMTS 850	270°	100'	(2) LGP 21401	-	(4) 1-1/4" EXISTING (LENGTH @ 130')	
G2	SBNHH-1D65A (55"x11.9"x7.1")	LTE 1900	270°	100'	-	**(1) 8843 B2/B66A (PCS/AWS)**	-	
G3	**800-10964 (59"x20"x6.9")**	**LTE WCS**	**270°**	**100'**	**-**	**(1) RRUS-32 (WCS)**	**-**	
G4	**800-10964 (59"x20"x6.9")**	**LTE 700B/C 850 AWS**	**270°**	**100'**	**-**	**(1) 4449 B5/B12 (850/700)**	**-**	

*EQUIPMENT LISTED IN **BOLD**, DELINEATES THAT THE EQUIPMENT IS PROPOSED

1 ANTENNA INFORMATION CHART SCALE: NONE



2 RF EQUIPMENT SCHEMATIC SCALE: NONE

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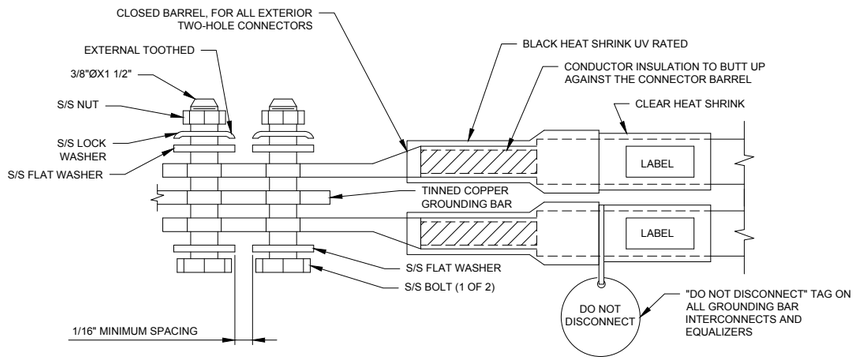
ANTENNA CHART & RF EQUIPMENT SCHEMATIC

RF-1

NOTES:

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL GROUNDING BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
3. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
5. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUNDING CONDUCTOR DOWN TO GROUNDING BUS.
6. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUNDING TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
7. SUPPLIED AND INSTALLED BY CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUNDING BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



1 EXTERIOR TWO HOLE LUG DETAIL

SCALE: NONE

GENERAL NOTES:

1. CONTRACTOR SHALL HAVE A COMPLETE UNDERSTANDING OF THE CONTENTS OF AT&T STANDARD TP-76416.
2. ALL INSTALLATIONS SHALL BE FIELD VERIFIED.
3. ALL GROUND CONNECTIONS FOR ALL RELOCATED EQUIPMENT SHALL BE RE-ESTABLISHED BY THE CONTRACTOR. CONTRACTOR SHALL FURNISH ALL MATERIALS AS REQUIRED.

GROUNDING NOTES:

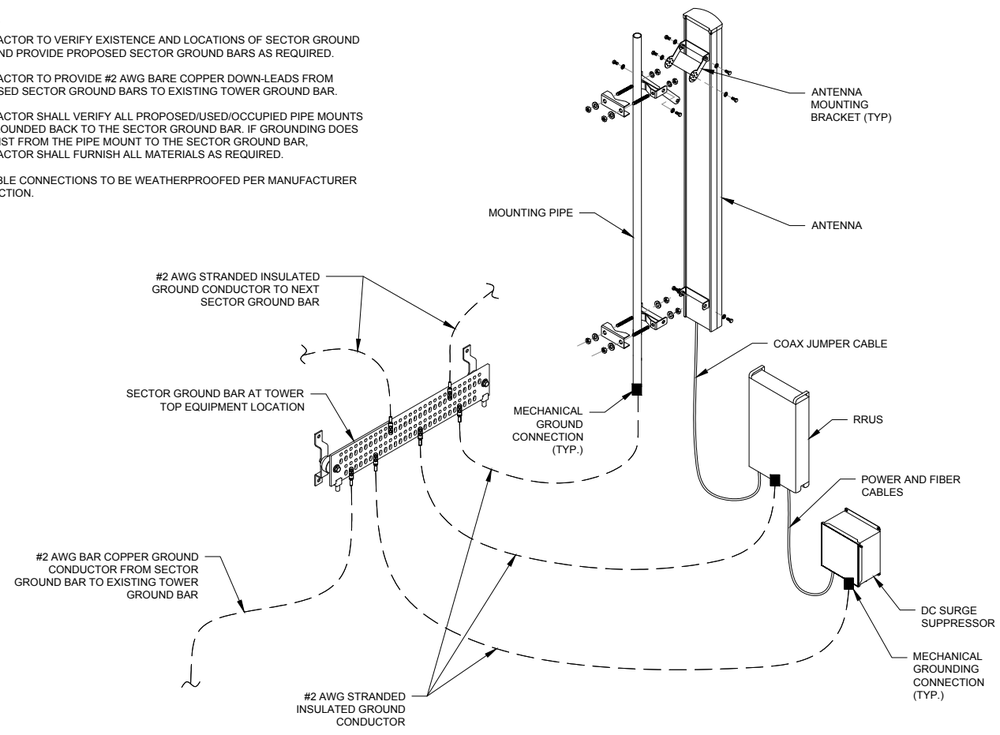
1. TOWER GROUNDING BAR: EXTEND (2) #2 AWG TINNED CU WIRE FROM BURIED GROUND RING UP TO THE TOWER GROUND BAR AND MAKE A MECHANICAL CONNECTION. SECURE GROUND BAR DIRECTLY TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.
2. ANTENNA GROUNDING BAR: ANDREW CORPORATION PART #UGBKIT-0424-T MOUNT GROUND BAR DIRECTLY TO TOWER. SECURE TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.
3. GROUNDING BAR: LOCATED CLOSE TO GRADE LOCK BOX TESSCO PART #351546: INSTALL PER MANUFACTURER GUIDELINES.
4. EXOTHERMIC OR COMPRESSION CONNECTION FOR PIPE MOUNT TO ANTENNA ROUTE CONDUCTOR TO NEAREST GROUNDING BAR SO THE GROUNDING CONDUCTORS PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND. USE #2 AWG SOLID TINNED COPPER CONDUCTOR. GROUNDING CONNECTION SHALL BE LOCATED AT THE TOP 2" OF PIPE.
5. ALL GROUNDING CONDUCTORS SHALL BE #2 AWG COPPER TINNED UNLESS NOTED OTHERWISE.
6. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
7. KOPR-SHIELD ANTI-OXIDATION COMPOUND SHALL BE USED ON ALL COMPRESSION GROUNDING CONNECTIONS.
8. ALL EXOTHERMIC CONNECTIONS SHALL BE INSTALLED UTILIZING THE PROPER CONNECTION/MOLD AND MATERIALS FOR THE PARTICULAR APPLICATION.
9. ALL BOLTED GROUNDING CONNECTIONS SHALL BE INSTALLED WITH AN EXTERNAL TOOTHED LOCK WASHER. GROUNDING BUS BARS MAY HAVE PRE-PUNCHED HOLES OR TAPPED HOLES. ALL HARDWARE SHALL BE SECURITY TORQUE HARDWARE 3/8" STAINLESS STEEL.
10. EXTERNAL GROUNDING CONDUCTOR SHALL NOT BE INSTALLED OR ROUTED THROUGH HOLES IN ANY METAL OBJECTS, CONDUITS, OR SUPPORTS TO PRECLUDE ESTABLISHING A MAGNETIC CHOKE POINT.
11. PLASTIC CLIPS SHALL BE USED TO FASTEN AND SUPPORT GROUNDING CONDUCTORS. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED.
12. IF COAX ON ICE BRIDGE IS MORE THAT 6' FROM THE GROUND BAR AT THE BASE OF THE TOWER, A SECOND GROUND BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE RUN TO GROUND THE COAX GROUND KIT AND THE IN-LINE SURGE ARRESTORS (SURGE ARRESTORS INSTALLED BY LUCENT ONLY HAVE 6' GROUND TAILS).
13. CONTRACTOR SHALL REPAIR/PLACE EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.
14. DO NOT ALLOW THE COPPER CONDUCTOR TO TOUCH THE GALVANIZED GUY WIRE AT THE CONNECTION POINT OR AT ANY OTHER POINT. NO EXOTHERMICALLY WELDED CONNECTION SHALL BE MADE TO THE GUY WIRE.
15. CONTRACTOR SHALL VERIFY EXISTING SECTOR GROUNDING CONDITION AND GROUND THE PROPOSED EQUIPMENT IN THE SAME MANNER. A PROPOSED SECTOR GROUND BAR SHALL BE INSTALLED IF REQUIRED.

2 GROUNDING BAR DETAIL

SCALE: NONE

NOTES:

1. CONTRACTOR TO VERIFY EXISTENCE AND LOCATIONS OF SECTOR GROUND BARS AND PROVIDE PROPOSED SECTOR GROUND BARS AS REQUIRED.
2. CONTRACTOR TO PROVIDE #2 AWG BARE COPPER DOWN-LEADS FROM PROPOSED SECTOR GROUND BARS TO EXISTING TOWER GROUND BAR.
3. CONTRACTOR SHALL VERIFY ALL PROPOSED/USED/OCCUPIED PIPE MOUNTS ARE GROUNDED BACK TO THE SECTOR GROUND BAR. IF GROUNDING DOES NOT EXIST FROM THE PIPE MOUNT TO THE SECTOR GROUND BAR, CONTRACTOR SHALL FURNISH ALL MATERIALS AS REQUIRED.
4. ALL CABLE CONNECTIONS TO BE WEATHERPROOFED PER MANUFACTURER INSTRUCTION.



3 TYPICAL ANTENNA GROUNDING SCHEMATIC

SCALE: NONE

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STATE OF CONNECTICUT
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PROJECT NO: ERCC0004

DRAWN BY: FLP

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SUBMITTALS

0	03/12/19	ISSUED FOR PERMITTING

FA# 10070944
SITE# CTU5199
BRANFORD EAST

10 SYLIVIA ST
BANFORD, CT 06405

GROUNDING DETAILS

G-1

Date: **January 16, 2019**

Heather Simeone
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CTU5199
	Carrier Site Name:	10070944
Crown Castle Designation:	**Crown Castle BU Number:**	822765
	Crown Castle Site Name:	Branford/ I-95/ X55/ Dtn1
	Crown Castle JDE Job Number:	552701
	Crown Castle Work Order Number:	1681617
	Crown Castle Order Number:	474807 Rev. 0
Engineering Firm Designation:	**TEP Project Number:**	25582.206176
Site Data:	**10 Sylvia St., Branford, New Haven County, CT 06405** **Latitude *41° 17' 38.16"*, Longitude *-72° 47' 08.54"*** **125 Foot - Monopole Tower**	

Dear Heather Simeone,

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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:

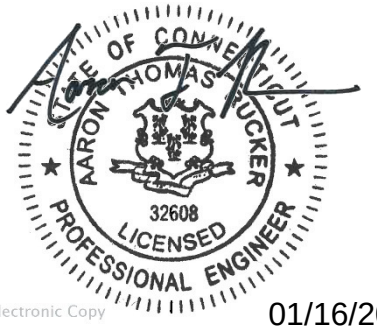
LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 127 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Gautam Sopal, E.I. / MGY

Respectfully submitted by:

Aaron T. Rucker, P.E.



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01/16/2019

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 125-ft monopole tower designed by Pirod, Inc. The tower has been modified per reinforcement drawings prepared by B&T Group in October of 2015. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	127 mph
Exposure Category:	B
Topographic Factor:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
100.0	100.0	2	Powerwave Technologies	7770.00 w/ Mount Pipe	2 6 12	3/8 3/4 1-1/4
		1	CCI Antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		3	Andrew	SBNHH-1D65A w/ Mount Pipe		
		2	Kathrein	80010965 w/ Mount Pipe		
		4	Kathrein	80010964 w/ Mount Pipe		
		3	Raycap	DC6-48-60-18-8F		
		6	Powerwave Technologies	LGP21401		
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 8843 B2/B66A		
		1	Tower Mounts	T-Arm Mount [TA 602-3]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
122.0	122.0	3	Ericsson	AIR 21 B2A B4P w/ Mount Pipe	13	1-5/8
		3	Commscope	LNX-6515DS-VTM w/ Mount Pipe		
		3	Ericsson	AIR 21 B4A B2P w/ Mount Pipe		
		3	Ericsson	RRUS 11 B12		
		3	Ericsson	KRY 112 144/1		
		1	Tower Mounts	Platform Mount [LP 405-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
112.0	113.0	6	Andrew	HBXX-6517DS-A2M w/ Mount Pipe	2	1-5/8
		6	Andrew	LNX-6514DS-A1M w/ Mount Pipe		
		3	Alcatel Lucent	B4 RRH2X60-4R		
		3	Alcatel Lucent	B13 RRH 4X30		
		2	Raycap	RXXDC-3315-PF-48		
	112.0	1	Tower Mounts	Platform Mount [LP 303-1]		
90.0	90.0	2	Dragonwave	A-ANT-18G-2-C	2 4	1/2 1-1/4
		3	Dragonwave	AIRPAIR ODU		
		3	Commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	RFS Celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
		6	Alcatel Lucent	RRH2X50-800		
		3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ		
		3	Alcatel Lucent	TD-RRH8X20-25		
		1	Site Pro 1	HRK12 Handrail Kit		
		1	Site Pro 1	RMQP Low Profile Platform Mount		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	French & Parrello Associates, P.A.	3552247	CCISites
Tower Foundation Drawings	Pirod, Inc.	3910040	CCISites
Tower Manufacturer Drawings	Pirod, Inc.	3552248	CCISites
Tower Reinforcement Drawings	B&T Group	5952282	CCISites
Post Modification Inspection	Tower Engineering Professionals	6215120	CCISites

3.1) Analysis Method

tnxTower (version 8.0.5.0), 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.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)[1,2]

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
125 - 120	Pole	TP24x24x0.375	Pole	1.6%	Pass
120 - 115	Pole	TP24x24x0.375	Pole	4.9%	Pass
115 - 110	Pole	TP24x24x0.375	Pole	10.7%	Pass
110 - 105	Pole	TP24x24x0.375	Pole	17.8%	Pass
105 - 100	Pole	TP24x24x0.375	Pole	25.2%	Pass
100 - 95	Pole	TP30x30x0.375	Pole	24.2%	Pass
95 - 90	Pole	TP30x30x0.375	Pole	31.6%	Pass
90 - 85	Pole	TP30x30x0.375	Pole	41.1%	Pass
85 - 84.75	Pole + Reinf.	TP30x30x0.5438	Reinf. 12 Tension Rupture	30.8%	Pass
84.75 - 80.5	Pole + Reinf.	TP30x30x0.5438	Reinf. 12 Tension Rupture	36.9%	Pass
80.5 - 80.25	Pole + Reinf.	TP30x30x0.6125	Reinf. 11 Tension Rupture	39.4%	Pass
80.25 - 80	Pole + Reinf.	TP30x30x0.6125	Reinf. 11 Tension Rupture	39.8%	Pass
80 - 79.75	Pole + Reinf.	TP36x36x0.5125	Reinf. 10 Tension Rupture	27.7%	Pass
79.75 - 79	Pole + Reinf.	TP36x36x0.5125	Reinf. 10 Tension Rupture	28.5%	Pass
79 - 78.75	Pole	TP36x36x0.375	Pole	37.9%	Pass
78.75 - 73.75	Pole	TP36x36x0.375	Pole	44.9%	Pass
73.75 - 73.5	Pole	TP36x36x0.375	Pole	45.2%	Pass
73.5 - 73.25	Pole + Reinf.	TP36x36x0.5625	Reinf. 9 Compression	35.9%	Pass
73.25 - 68.25	Pole + Reinf.	TP36x36x0.5625	Reinf. 9 Compression	41.6%	Pass
68.25 - 63.25	Pole + Reinf.	TP36x36x0.5625	Reinf. 9 Compression	47.5%	Pass
63.25 - 60.5	Pole + Reinf.	TP36x36x0.5625	Reinf. 9 Compression	50.9%	Pass
60.5 - 60.25	Pole + Reinf.	TP36x36x0.625	Reinf. 8 Tension Rupture	43.4%	Pass
60.25 - 60	Pole + Reinf.	TP36x36x0.625	Reinf. 8 Tension Rupture	43.7%	Pass
60 - 59.75	Pole + Reinf.	TP42x42x0.525	Pole	35.2%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
59.75 - 54.75	Pole + Reinf.	TP42x42x0.525	Pole	39.4%	Pass
54.75 - 49.75	Pole + Reinf.	TP42x42x0.525	Pole	43.8%	Pass
49.75 - 44.75	Pole + Reinf.	TP42x42x0.525	Pole	48.3%	Pass
44.75 - 40.5	Pole + Reinf.	TP42x42x0.525	Pole	52.2%	Pass
40.5 - 40.25	Pole + Reinf.	TP42x42x0.65	Reinf. 6 Tension Rupture	44.4%	Pass
40.25 - 40	Pole + Reinf.	TP42x42x0.65	Reinf. 6 Tension Rupture	44.6%	Pass
40 - 39.75	Pole + Reinf.	TP48x48x0.5563	Pole	39.0%	Pass
39.75 - 34.75	Pole + Reinf.	TP48x48x0.5563	Pole	42.5%	Pass
34.75 - 29.75	Pole + Reinf.	TP48x48x0.5563	Pole	46.2%	Pass
29.75 - 24.75	Pole + Reinf.	TP48x48x0.5563	Pole	49.9%	Pass
24.75 - 20.5	Pole + Reinf.	TP48x48x0.5563	Pole	53.1%	Pass
20.5 - 20.25	Pole + Reinf.	TP48x48x0.675	Reinf. 4 Compression	47.9%	Pass
20.25 - 20	Pole + Reinf.	TP48x48x0.675	Reinf. 4 Compression	48.1%	Pass
20 - 19.75	Pole + Reinf.	TP54x54x0.5875	Pole	41.0%	Pass
19.75 - 14.75	Pole + Reinf.	TP54x54x0.5875	Pole	44.0%	Pass
14.75 - 9.75	Pole + Reinf.	TP54x54x0.5875	Pole	47.0%	Pass
9.75 - 4.75	Pole + Reinf.	TP54x54x0.5875	Pole	50.2%	Pass
4.75 - 4.25	Pole + Reinf.	TP54x54x0.5875	Pole	50.5%	Pass
4.25 - 4	Pole + Reinf.	TP54x54x0.5125	Pole	57.5%	Pass
4 - 0	Pole + Reinf.	TP54x54x0.5125	Pole	60.4%	Pass
				Summary	
			Pole	60.4%	Pass
			Reinforcement	50.9%	Pass
			Overall	**60.4%**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2,3	Flange Connection	100.0	25.2	Pass
1,2	Flange Connection	80.0	34.9	Pass
1,2	Flange Connection	60.0	45.2	Pass
1,2	Flange Connection	40.0	49.6	Pass
1,2	Flange Connection	20.0	51.6	Pass
1,2	Anchor Rods	-	52.0	Pass
1,2	Base Plate	-	96.3	Pass
1,2	Base Foundation Soil Interaction	-	57.1	Pass
1,2	Base Foundation Structural	-	72.9	Pass

Structure Rating (max from all components) =	**96.3%**

Notes:
1) See additional documentation in “Appendix C - Additional Calculations” for calculations supporting the % capacity listed.
2) Rating per TIA-222-H Section 15.5
3) Flange plates are assumed to have the same capacity as their respective splice bolts or shaft.

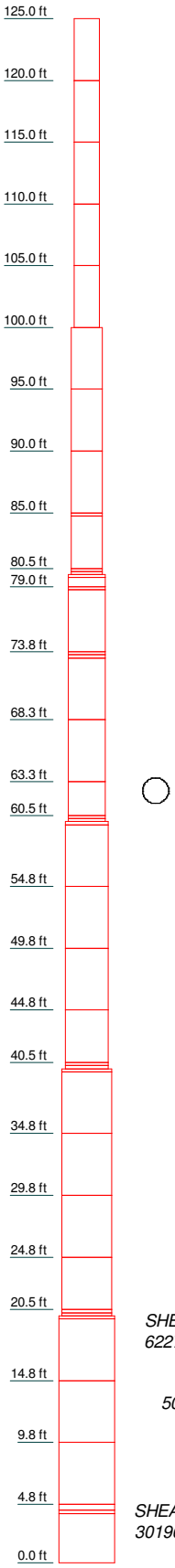
4.1) Recommendations

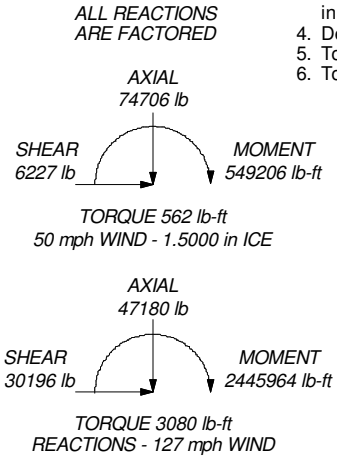
1) If the load differs from that described in Tables 1 and 2 of this report, the referenced drawings, or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its foundation have sufficient capacity to carry the proposed load configuration.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

APPENDIX A

TNXTOWER OUTPUT

Section	Size	Length (ft)	Grade	Weight (lb)
1	P24x0.375	5.00	A53-B-42	473.5
2	P24x0.375	5.00		473.5
3	P24x0.375	5.00		473.5
4	P24x0.375	5.00		473.5
5	P24x0.375	5.00		473.5
6	P30x0.375	5.00		593.8
7	P30x0.375	5.00		593.8
8	P30x0.375	5.00		593.8
9		4.25		
10				700.04
16		5.00		714.1
19	P36x0.562	5.00		1020.3
20	P36x0.562	5.00		1020.3
21		2.75		
25	P42x0.525	5.00		1140.6
26	P42x0.525	5.00		1140.6
27	P42x0.525	5.00		1140.6
28		4.25		969.5
32	P48x0.562	5.00		1369.3
33	P48x0.562	5.00		1369.3
34	P48x0.562	5.00		1369.3
35		4.25		1163.9
39	P54x0.587	5.00		1617.2
40	P54x0.587	5.00		1617.2
41	P54x0.587	5.00		1617.2
44	P54x0.587	4.00		1281.8
		125.0 ft		25220.1





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	122	(2) SBNHH-1D65A w/ Mount Pipe	100
		SBNHH-1D65A w/ Mount Pipe	100
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	122	(2) LGP21401	100
		(2) LGP21401	100
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	122	(2) LGP21401	100
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	122	RRUS 32	100
		RRUS 32	100
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	122	RRUS 32	100
		RRUS 4449 B5/B12	100
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	122	RRUS 4449 B5/B12	100
		RRUS 4449 B5/B12	100
LNX-6515DS-VTM w/ Mount Pipe	122	RRUS 8843 B2/B66A	100
LNX-6515DS-VTM w/ Mount Pipe	122	RRUS 8843 B2/B66A	100
LNX-6515DS-VTM w/ Mount Pipe	122	RRUS 8843 B2/B66A	100
KRY 112 144/1	122	(2) DC6-48-60-18-8F	100
KRY 112 144/1	122	DC6-48-60-18-8F	100
KRY 112 144/1	122	2.4" Dia x 6-ft Pipe	100
RRUS 11 B12	122	2.4" Dia x 6-ft Pipe	100
RRUS 11 B12	122	2.4" Dia x 6-ft Pipe	100
RRUS 11 B12	122	T-Arm Mount [TA 602-3]	100
Platform Mount [LP 405-1]	122	NNVV-65B-R4 w/ Mount Pipe	90
(2) HBXX-6517DS-A2M w/ Mount Pipe	112	NNVV-65B-R4 w/ Mount Pipe	90
(2) HBXX-6517DS-A2M w/ Mount Pipe	112	NNVV-65B-R4 w/ Mount Pipe	90
(2) HBXX-6517DS-A2M w/ Mount Pipe	112	APXVTM14-ALU-I20 w/ Mount Pipe	90
(2) LNX-6514DS-A1M w/ Mount Pipe	112	APXVTM14-ALU-I20 w/ Mount Pipe	90
(2) LNX-6514DS-A1M w/ Mount Pipe	112	APXVTM14-ALU-I20 w/ Mount Pipe	90
(2) LNX-6514DS-A1M w/ Mount Pipe	112	(3) RRH2X50-800	90
B4 RRH2X60-4R	112	(3) RRH2X50-800	90
B4 RRH2X60-4R	112	AIRPAIR ODU	90
B4 RRH2X60-4R	112	AIRPAIR ODU	90
B13 RRH 4X30	112	AIRPAIR ODU	90
B13 RRH 4X30	112	PCS 1900MHZ 4X45W-65MHZ	90
B13 RRH 4X30	112	(2) PCS 1900MHZ 4X45W-65MHZ	90
RXXDC-3315-PF-48	112	(2) TD-RRH8X20-25	90
RXXDC-3315-PF-48	112	TD-RRH8X20-25	90
Platform Mount [LP 303-1]	112	2.4" Dia x 6-ft Pipe	90
7770.00 w/ Mount Pipe	100	2.4" Dia x 6-ft Pipe	90
7770.00 w/ Mount Pipe	100	2.4" Dia x 6-ft Pipe	90
HPA-65R-BUU-H6 w/ Mount Pipe	100	Miscellaneous [NA 507-1]	90
(2) 80010965 w/ Mount Pipe	100	Platform Mount [LP 303-1]	90
(2) 80010964 w/ Mount Pipe	100	A-ANT-18G-2-C	90
(2) 80010964 w/ Mount Pipe	100	A-ANT-18G-2-C	90

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 127 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job:	Branford/ I-95/ X55/ Dtn1 (BU 822765)		
Project:	TEP No. 25582.206176		
Client: Crown Castle	Drawn by: myoung		App'd:
Code: TIA-222-H	Date: 01/16/19		Scale: NTS
Path: C:\Users\myoung\Desktop\tnx\822765-Branford-I95-X55-Dtn1\822765_LC7.eri			Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower base elevation above sea level: 56.00 ft.
Basic wind speed of 127 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.05.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	125.00-120.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L2	120.00-115.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L3	115.00-110.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L4	110.00-105.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L5	105.00-100.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L6	100.00-95.00	5.00	P30x0.375	A53-B-42 (42 ksi)	
L7	95.00-90.00	5.00	P30x0.375	A53-B-42 (42 ksi)	
L8	90.00-85.00	5.00	P30x0.375	A53-B-42 (42 ksi)	
L9	85.00-84.75	0.25	P30x0.54375	A53-B-42 (42 ksi)	
L10	84.75-80.50	4.25	P30x0.54375	A53-B-42 (42 ksi)	
L11	80.50-80.25	0.25	P30x0.6125	A53-B-42 (42 ksi)	
L12	80.25-80.00	0.25	P30x0.6125	A53-B-42 (42 ksi)	
L13	80.00-79.75	0.25	P36x0.5125	A53-B-42 (42 ksi)	
L14	79.75-79.00	0.75	P36x0.5125	A53-B-42 (42 ksi)	
L15	79.00-78.75	0.25	P36x0.375	A53-B-42 (42 ksi)	
L16	78.75-73.75	5.00	P36x0.375	A53-B-42 (42 ksi)	
L17	73.75-73.50	0.25	P36x0.375	A53-B-42 (42 ksi)	
L18	73.50-73.25	0.25	P36x0.5625	A53-B-42 (42 ksi)	
L19	73.25-68.25	5.00	P36x0.5625	A53-B-42 (42 ksi)	
L20	68.25-63.25	5.00	P36x0.5625	A53-B-42 (42 ksi)	
L21	63.25-60.50	2.75	P36x0.5625	A53-B-42 (42 ksi)	
L22	60.50-60.25	0.25	P36x0.625	A53-B-42 (42 ksi)	
L23	60.25-60.00	0.25	P36x0.625	A53-B-42 (42 ksi)	
L24	60.00-59.75	0.25	P42x0.525	A53-B-42 (42 ksi)	
L25	59.75-54.75	5.00	P42x0.525	A53-B-42 (42 ksi)	
L26	54.75-49.75	5.00	P42x0.525	A53-B-42 (42 ksi)	
L27	49.75-44.75	5.00	P42x0.525	A53-B-42 (42 ksi)	
L28	44.75-40.50	4.25	P42x0.525	A53-B-42 (42 ksi)	
L29	40.50-40.25	0.25	P42x0.65	A53-B-42 (42 ksi)	
L30	40.25-40.00	0.25	P42x0.65	A53-B-42 (42 ksi)	
L31	40.00-39.75	0.25	P48x0.55625	A53-B-42	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L32	39.75-34.75	5.00	P48x0.55625	(42 ksi) A53-B-42 (42 ksi)	
L33	34.75-29.75	5.00	P48x0.55625	A53-B-42 (42 ksi)	
L34	29.75-24.75	5.00	P48x0.55625	A53-B-42 (42 ksi)	
L35	24.75-20.50	4.25	P48x0.55625	A53-B-42 (42 ksi)	
L36	20.50-20.25	0.25	P48x0.675	A53-B-42 (42 ksi)	
L37	20.25-20.00	0.25	P48x0.675	A53-B-42 (42 ksi)	
L38	20.00-19.75	0.25	P54x0.5875	A53-B-42 (42 ksi)	
L39	19.75-14.75	5.00	P54x0.5875	A53-B-42 (42 ksi)	
L40	14.75-9.75	5.00	P54x0.5875	A53-B-42 (42 ksi)	
L41	9.75-4.75	5.00	P54x0.5875	A53-B-42 (42 ksi)	
L42	4.75-4.25	0.50	P54x0.5875	A53-B-42 (42 ksi)	
L43	4.25-4.00	0.25	P54x0.5125	A53-B-42 (42 ksi)	
L44	4.00-0.00	4.00	P54x0.5125	A53-B-42 (42 ksi)	

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 125.00-120.00				1	1	1			
L2 120.00-115.00				1	1	1			
L3 115.00-110.00				1	1	1			
L4 110.00-105.00				1	1	1			
L5 105.00-100.00				1	1	1			
L6 100.00-95.00				1	1	1			
L7 95.00-90.00				1	1	1			
L8 90.00-85.00				1	1	1			
L9 85.00-84.75				1	1	0.961898			
L10 84.75-80.50				1	1	0.961898			
L11 80.50-80.25				1	1	0.855927			
L12 80.25-80.00				1	1	0.855927			
L13 80.00-79.75				1	1	0.970816			
L14 79.75-79.00				1	1	0.970816			

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
L15 79.00-78.75				1	1	1			
L16 78.75-73.75				1	1	1			
L17 73.75-73.50				1	1	1			
L18 73.50-73.25				1	1	0.957627			
L19 73.25-68.25				1	1	0.957627			
L20 68.25-63.25				1	1	0.957627			
L21 63.25-60.50				1	1	0.957627			
L22 60.50-60.25				1	1	0.863387			
L23 60.25-60.00				1	1	0.863387			
L24 60.00-59.75				1	1	0.980003			
L25 59.75-54.75				1	1	0.980003			
L26 54.75-49.75				1	1	0.980003			
L27 49.75-44.75				1	1	0.980003			
L28 44.75-40.50				1	1	0.980003			
L29 40.50-40.25				1	1	0.869433			
L30 40.25-40.00				1	1	0.869433			
L31 40.00-39.75				1	1	0.970732			
L32 39.75-34.75				1	1	0.970732			
L33 34.75-29.75				1	1	0.970732			
L34 29.75-24.75				1	1	0.970732			
L35 24.75-20.50				1	1	0.970732			
L36 20.50-20.25				1	1	0.876696			
L37 20.25-20.00				1	1	0.876696			
L38 20.00-19.75				1	1	0.96417			
L39 19.75-14.75				1	1	0.96417			
L40 14.75-9.75				1	1	0.96417			
L41 9.75-4.75				1	1	0.96417			
L42 4.75-4.25				1	1	0.96417			
L43 4.25-4.00				1	1	1.09283			
L44 4.00-0.00				1	1	1.09283			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
HB114-1-0813U4-M5J(1 -1/4)	A	No	Surface Ar (CaAa)	90.00 - 0.00	4	4	-0.250 -0.250	1.5400		1.20
Step & Safety										
Safety Line 3/8	C	No	Surface Ar (CaAa)	125.00 - 0.00	1	1	0.000 0.000	0.3750		0.22
Mods										
(Area) CCI-65FP-085125	A	No	Surface Af (CaAa)	28.50 - 0.00	1	1	0.500 0.500	8.5000	17.0000	0.00
(Area) CCI-65FP-085125	B	No	Surface Af (CaAa)	28.50 - 0.00	1	1	0.250 0.250	8.5000	19.5000	0.00
(Area) CCI-65FP-085125	C	No	Surface Af (CaAa)	28.50 - 0.00	1	1	0.000 0.000	8.5000	19.5000	0.00
(Area) CCI-65FP-065125	A	No	Surface Af (CaAa)	46.50 - 20.50	1	1	0.500 0.500	6.5000	13.0000	0.00
(Area) CCI-65FP-065125	B	No	Surface Af (CaAa)	46.50 - 20.50	1	1	0.250 0.250	6.5000	15.5000	0.00
(Area) CCI-65FP-065125	C	No	Surface Af (CaAa)	46.50 - 20.50	1	1	0.000 0.000	6.5000	15.5000	0.00
(Area) CCI-65FP-060100	A	No	Surface Af (CaAa)	75.50 - 40.50	1	1	0.500 0.500	6.0000	12.0000	0.00
(Area) CCI-65FP-060100	B	No	Surface Af (CaAa)	75.50 - 40.50	1	1	0.250 0.250	6.0000	14.0000	0.00
(Area) CCI-65FP-060100	C	No	Surface Af (CaAa)	75.50 - 40.50	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100	A	No	Surface Af (CaAa)	66.50 - 60.50	1	1	0.500 0.500	6.0000	12.0000	0.00
(Area) CCI-65FP-060100	B	No	Surface Af (CaAa)	66.50 - 60.50	1	1	0.250 0.250	6.0000	14.0000	0.00
(Area) CCI-65FP-060100	C	No	Surface Af (CaAa)	66.50 - 60.50	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-045100	A	No	Surface Af (CaAa)	86.50 - 77.50	1	1	0.500 0.500	4.5000	9.0000	0.00
(Area) CCI-65FP-045100	B	No	Surface Af (CaAa)	86.50 - 77.50	1	1	0.250 0.250	4.5000	11.0000	0.00
(Area) CCI-65FP-045100	C	No	Surface Af (CaAa)	86.50 - 77.50	1	1	0.000 0.000	4.5000	11.0000	0.00
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Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
122									
LDF7-50A(1-5/8")	A	No	No	Inside Pole	122.00 - 0.00	13	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
112									
HB158-1-08U8-S8J 18(1-5/8)	B	No	No	Inside Pole	112.00 - 0.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
							2" Ice	0.00	1.30

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
100									
LDF6-50A(1-1/4)	A	No	No	Inside Pole	100.00 - 0.00	12	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
100266(3/8)	A	No	No	Inside Pole	100.00 - 0.00	1	No Ice	0.00	0.09
							1/2" Ice	0.00	0.09
							1" Ice	0.00	0.09
							2" Ice	0.00	0.09
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	100.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	100.00 - 0.00	6	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
2" Flexible Conduit	A	No	No	Inside Pole	100.00 - 0.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34
90									
LDF4-50A(1/2")	A	No	No	CaAa (Out Of Face)	90.00 - 0.00	2	No Ice	0.00	0.15
							1/2" Ice	0.00	0.84
							1" Ice	0.00	2.14
							2" Ice	0.00	6.58
*****									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	125.00-120.00	A	0.000	0.000	0.000	0.000	21
		B	0.000	0.000	0.000	0.000	0
		C	0.000	0.000	0.188	0.000	1
L2	120.00-115.00	A	0.000	0.000	0.000	0.000	53
		B	0.000	0.000	0.000	0.000	0
		C	0.000	0.000	0.188	0.000	1
L3	115.00-110.00	A	0.000	0.000	0.000	0.000	53
		B	0.000	0.000	0.000	0.000	5
		C	0.000	0.000	0.188	0.000	1
L4	110.00-105.00	A	0.000	0.000	0.000	0.000	53
		B	0.000	0.000	0.000	0.000	13
		C	0.000	0.000	0.188	0.000	1
L5	105.00-100.00	A	0.000	0.000	0.000	0.000	53
		B	0.000	0.000	0.000	0.000	13
		C	0.000	0.000	0.188	0.000	1
L6	100.00-95.00	A	0.000	0.000	0.000	0.000	109
		B	0.000	0.000	0.000	0.000	13
		C	0.000	0.000	0.188	0.000	1
L7	95.00-90.00	A	0.000	0.000	0.000	0.000	109
		B	0.000	0.000	0.000	0.000	13
		C	0.000	0.000	0.188	0.000	1

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L8	90.00-85.00	A	0.000	0.000	4.186	0.000	135
		B	0.000	0.000	1.096	0.000	13
		C	0.000	0.000	1.283	0.000	1
L9	85.00-84.75	A	0.000	0.000	0.338	0.000	7
		B	0.000	0.000	0.183	0.000	1
		C	0.000	0.000	0.192	0.000	0
L10	84.75-80.50	A	0.000	0.000	5.752	0.000	115
		B	0.000	0.000	3.104	0.000	11
		C	0.000	0.000	3.263	0.000	1
L11	80.50-80.25	A	0.000	0.000	0.338	0.000	7
		B	0.000	0.000	0.183	0.000	1
		C	0.000	0.000	0.192	0.000	0
L12	80.25-80.00	A	0.000	0.000	0.338	0.000	7
		B	0.000	0.000	0.183	0.000	1
		C	0.000	0.000	0.192	0.000	0
L13	80.00-79.75	A	0.000	0.000	0.338	0.000	7
		B	0.000	0.000	0.183	0.000	1
		C	0.000	0.000	0.192	0.000	0
L14	79.75-79.00	A	0.000	0.000	1.015	0.000	20
		B	0.000	0.000	0.548	0.000	2
		C	0.000	0.000	0.576	0.000	0
L15	79.00-78.75	A	0.000	0.000	0.338	0.000	7
		B	0.000	0.000	0.183	0.000	1
		C	0.000	0.000	0.192	0.000	0
L16	78.75-73.75	A	0.000	0.000	5.752	0.000	135
		B	0.000	0.000	2.663	0.000	13
		C	0.000	0.000	2.850	0.000	1
L17	73.75-73.50	A	0.000	0.000	0.404	0.000	7
		B	0.000	0.000	0.250	0.000	1
		C	0.000	0.000	0.259	0.000	0
L18	73.50-73.25	A	0.000	0.000	0.404	0.000	7
		B	0.000	0.000	0.250	0.000	1
		C	0.000	0.000	0.259	0.000	0
L19	73.25-68.25	A	0.000	0.000	8.080	0.000	135
		B	0.000	0.000	5.000	0.000	13
		C	0.000	0.000	5.188	0.000	1
L20	68.25-63.25	A	0.000	0.000	10.626	0.000	135
		B	0.000	0.000	7.537	0.000	13
		C	0.000	0.000	7.724	0.000	1
L21	63.25-60.50	A	0.000	0.000	6.598	0.000	74
		B	0.000	0.000	4.897	0.000	7
		C	0.000	0.000	5.000	0.000	1
L22	60.50-60.25	A	0.000	0.000	0.404	0.000	7
		B	0.000	0.000	0.250	0.000	1
		C	0.000	0.000	0.259	0.000	0
L23	60.25-60.00	A	0.000	0.000	0.404	0.000	7
		B	0.000	0.000	0.250	0.000	1
		C	0.000	0.000	0.259	0.000	0
L24	60.00-59.75	A	0.000	0.000	0.404	0.000	7
		B	0.000	0.000	0.250	0.000	1
		C	0.000	0.000	0.259	0.000	0
L25	59.75-54.75	A	0.000	0.000	8.080	0.000	135
		B	0.000	0.000	5.000	0.000	13
		C	0.000	0.000	5.188	0.000	1
L26	54.75-49.75	A	0.000	0.000	8.080	0.000	135
		B	0.000	0.000	5.000	0.000	13
		C	0.000	0.000	5.188	0.000	1
L27	49.75-44.75	A	0.000	0.000	9.976	0.000	135
		B	0.000	0.000	6.896	0.000	13
		C	0.000	0.000	7.083	0.000	1
L28	44.75-40.50	A	0.000	0.000	11.472	0.000	115

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B	0.000	0.000	8.854	0.000	11
		C	0.000	0.000	9.014	0.000	1
L29	40.50-40.25	A	0.000	0.000	0.425	0.000	7
		B	0.000	0.000	0.271	0.000	1
		C	0.000	0.000	0.280	0.000	0
L30	40.25-40.00	A	0.000	0.000	0.425	0.000	7
		B	0.000	0.000	0.271	0.000	1
		C	0.000	0.000	0.280	0.000	0
L31	40.00-39.75	A	0.000	0.000	0.425	0.000	7
		B	0.000	0.000	0.271	0.000	1
		C	0.000	0.000	0.280	0.000	0
L32	39.75-34.75	A	0.000	0.000	8.497	0.000	135
		B	0.000	0.000	5.417	0.000	13
		C	0.000	0.000	5.604	0.000	1
L33	34.75-29.75	A	0.000	0.000	8.497	0.000	135
		B	0.000	0.000	5.417	0.000	13
		C	0.000	0.000	5.604	0.000	1
L34	29.75-24.75	A	0.000	0.000	13.809	0.000	135
		B	0.000	0.000	10.729	0.000	13
		C	0.000	0.000	10.917	0.000	1
L35	24.75-20.50	A	0.000	0.000	13.243	0.000	115
		B	0.000	0.000	10.625	0.000	11
		C	0.000	0.000	10.784	0.000	1
L36	20.50-20.25	A	0.000	0.000	0.508	0.000	7
		B	0.000	0.000	0.354	0.000	1
		C	0.000	0.000	0.364	0.000	0
L37	20.25-20.00	A	0.000	0.000	0.508	0.000	7
		B	0.000	0.000	0.354	0.000	1
		C	0.000	0.000	0.364	0.000	0
L38	20.00-19.75	A	0.000	0.000	0.508	0.000	7
		B	0.000	0.000	0.354	0.000	1
		C	0.000	0.000	0.364	0.000	0
L39	19.75-14.75	A	0.000	0.000	10.163	0.000	135
		B	0.000	0.000	7.083	0.000	13
		C	0.000	0.000	7.271	0.000	1
L40	14.75-9.75	A	0.000	0.000	10.163	0.000	135
		B	0.000	0.000	7.083	0.000	13
		C	0.000	0.000	7.271	0.000	1
L41	9.75-4.75	A	0.000	0.000	10.163	0.000	135
		B	0.000	0.000	7.083	0.000	13
		C	0.000	0.000	7.271	0.000	1
L42	4.75-4.25	A	0.000	0.000	1.016	0.000	13
		B	0.000	0.000	0.708	0.000	1
		C	0.000	0.000	0.727	0.000	0
L43	4.25-4.00	A	0.000	0.000	0.508	0.000	7
		B	0.000	0.000	0.354	0.000	1
		C	0.000	0.000	0.364	0.000	0
L44	4.00-0.00	A	0.000	0.000	8.131	0.000	108
		B	0.000	0.000	5.667	0.000	10
		C	0.000	0.000	5.817	0.000	1

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	125.00-120.00	A	1.454	0.000	0.000	0.000	0.000	21
		B		0.000	0.000	0.000	0.000	0

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C		0.000	0.000	1.641	0.000	17
L2	120.00-115.00	A	1.448	0.000	0.000	0.000	0.000	53
		B		0.000	0.000	0.000	0.000	0
		C		0.000	0.000	1.635	0.000	17
L3	115.00-110.00	A	1.441	0.000	0.000	0.000	0.000	53
		B		0.000	0.000	0.000	0.000	5
		C		0.000	0.000	1.629	0.000	17
L4	110.00-105.00	A	1.435	0.000	0.000	0.000	0.000	53
		B		0.000	0.000	0.000	0.000	13
		C		0.000	0.000	1.622	0.000	17
L5	105.00-100.00	A	1.428	0.000	0.000	0.000	0.000	53
		B		0.000	0.000	0.000	0.000	13
		C		0.000	0.000	1.616	0.000	17
L6	100.00-95.00	A	1.421	0.000	0.000	0.000	0.000	109
		B		0.000	0.000	0.000	0.000	13
		C		0.000	0.000	1.608	0.000	17
L7	95.00-90.00	A	1.413	0.000	0.000	0.000	0.000	109
		B		0.000	0.000	0.000	0.000	13
		C		0.000	0.000	1.601	0.000	17
L8	90.00-85.00	A	1.406	0.000	0.000	6.931	0.000	238
		B		0.000	0.000	1.317	0.000	26
		C		0.000	0.000	2.910	0.000	30
L9	85.00-84.75	A	1.401	0.000	0.000	0.501	0.000	13
		B		0.000	0.000	0.219	0.000	3
		C		0.000	0.000	0.299	0.000	3
L10	84.75-80.50	A	1.398	0.000	0.000	8.506	0.000	225
		B		0.000	0.000	3.728	0.000	49
		C		0.000	0.000	5.075	0.000	51
L11	80.50-80.25	A	1.394	0.000	0.000	0.500	0.000	13
		B		0.000	0.000	0.219	0.000	3
		C		0.000	0.000	0.298	0.000	3
L12	80.25-80.00	A	1.393	0.000	0.000	0.500	0.000	13
		B		0.000	0.000	0.219	0.000	3
		C		0.000	0.000	0.298	0.000	3
L13	80.00-79.75	A	1.393	0.000	0.000	0.500	0.000	13
		B		0.000	0.000	0.219	0.000	3
		C		0.000	0.000	0.298	0.000	3
L14	79.75-79.00	A	1.392	0.000	0.000	1.500	0.000	40
		B		0.000	0.000	0.657	0.000	9
		C		0.000	0.000	0.894	0.000	9
L15	79.00-78.75	A	1.391	0.000	0.000	0.500	0.000	13
		B		0.000	0.000	0.219	0.000	3
		C		0.000	0.000	0.298	0.000	3
L16	78.75-73.75	A	1.386	0.000	0.000	8.919	0.000	250
		B		0.000	0.000	3.330	0.000	42
		C		0.000	0.000	4.904	0.000	45
L17	73.75-73.50	A	1.382	0.000	0.000	0.598	0.000	14
		B		0.000	0.000	0.319	0.000	3
		C		0.000	0.000	0.398	0.000	3
L18	73.50-73.25	A	1.381	0.000	0.000	0.598	0.000	14
		B		0.000	0.000	0.319	0.000	3
		C		0.000	0.000	0.397	0.000	3
L19	73.25-68.25	A	1.376	0.000	0.000	11.946	0.000	270
		B		0.000	0.000	6.376	0.000	64
		C		0.000	0.000	7.940	0.000	67
L20	68.25-63.25	A	1.366	0.000	0.000	14.948	0.000	298
		B		0.000	0.000	9.384	0.000	97
		C		0.000	0.000	10.937	0.000	100
L21	63.25-60.50	A	1.358	0.000	0.000	9.105	0.000	172
		B		0.000	0.000	6.048	0.000	63
		C		0.000	0.000	6.898	0.000	64

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L22	60.50-60.25	A	1.354	0.000	0.000	0.595	0.000	13
		B		0.000	0.000	0.318	0.000	3
		C		0.000	0.000	0.395	0.000	3
L23	60.25-60.00	A	1.354	0.000	0.000	0.595	0.000	13
		B		0.000	0.000	0.318	0.000	3
		C		0.000	0.000	0.395	0.000	3
L24	60.00-59.75	A	1.353	0.000	0.000	0.595	0.000	13
		B		0.000	0.000	0.318	0.000	3
		C		0.000	0.000	0.395	0.000	3
L25	59.75-54.75	A	1.347	0.000	0.000	11.881	0.000	266
		B		0.000	0.000	6.347	0.000	63
		C		0.000	0.000	7.882	0.000	65
L26	54.75-49.75	A	1.335	0.000	0.000	11.854	0.000	264
		B		0.000	0.000	6.335	0.000	62
		C		0.000	0.000	7.857	0.000	65
L27	49.75-44.75	A	1.322	0.000	0.000	14.182	0.000	279
		B		0.000	0.000	8.680	0.000	80
		C		0.000	0.000	10.189	0.000	82
L28	44.75-40.50	A	1.308	0.000	0.000	15.740	0.000	260
		B		0.000	0.000	11.078	0.000	96
		C		0.000	0.000	12.349	0.000	98
L29	40.50-40.25	A	1.301	0.000	0.000	0.610	0.000	13
		B		0.000	0.000	0.336	0.000	3
		C		0.000	0.000	0.410	0.000	3
L30	40.25-40.00	A	1.300	0.000	0.000	0.610	0.000	13
		B		0.000	0.000	0.336	0.000	3
		C		0.000	0.000	0.410	0.000	3
L31	40.00-39.75	A	1.299	0.000	0.000	0.610	0.000	13
		B		0.000	0.000	0.336	0.000	3
		C		0.000	0.000	0.410	0.000	3
L32	39.75-34.75	A	1.291	0.000	0.000	12.170	0.000	261
		B		0.000	0.000	6.707	0.000	64
		C		0.000	0.000	8.185	0.000	65
L33	34.75-29.75	A	1.272	0.000	0.000	12.129	0.000	258
		B		0.000	0.000	6.689	0.000	63
		C		0.000	0.000	8.148	0.000	64
L34	29.75-24.75	A	1.251	0.000	0.000	18.332	0.000	295
		B		0.000	0.000	12.918	0.000	106
		C		0.000	0.000	14.356	0.000	107
L35	24.75-20.50	A	1.228	0.000	0.000	17.289	0.000	259
		B		0.000	0.000	12.712	0.000	101
		C		0.000	0.000	13.915	0.000	101
L36	20.50-20.25	A	1.215	0.000	0.000	0.683	0.000	13
		B		0.000	0.000	0.415	0.000	3
		C		0.000	0.000	0.485	0.000	3
L37	20.25-20.00	A	1.213	0.000	0.000	0.683	0.000	13
		B		0.000	0.000	0.415	0.000	3
		C		0.000	0.000	0.485	0.000	3
L38	20.00-19.75	A	1.212	0.000	0.000	0.683	0.000	13
		B		0.000	0.000	0.415	0.000	3
		C		0.000	0.000	0.485	0.000	3
L39	19.75-14.75	A	1.195	0.000	0.000	13.622	0.000	258
		B		0.000	0.000	8.278	0.000	69
		C		0.000	0.000	9.661	0.000	68
L40	14.75-9.75	A	1.155	0.000	0.000	13.531	0.000	252
		B		0.000	0.000	8.238	0.000	67
		C		0.000	0.000	9.580	0.000	65
L41	9.75-4.75	A	1.096	0.000	0.000	13.399	0.000	244
		B		0.000	0.000	8.179	0.000	63
		C		0.000	0.000	9.462	0.000	61
L42	4.75-4.25	A	1.045	0.000	0.000	1.328	0.000	24

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B		0.000	0.000	0.813	0.000	6
		C		0.000	0.000	0.936	0.000	6
L43	4.25-4.00	A	1.036	0.000	0.000	0.663	0.000	12
		B		0.000	0.000	0.406	0.000	3
		C		0.000	0.000	0.467	0.000	3
L44	4.00-0.00	A	0.963	0.000	0.000	10.481	0.000	182
		B		0.000	0.000	6.437	0.000	45
		C		0.000	0.000	7.358	0.000	42

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	125.00-120.00	0.0000	0.3693	0.0000	1.3251
L2	120.00-115.00	0.0000	0.3693	0.0000	1.3213
L3	115.00-110.00	0.0000	0.3693	0.0000	1.3173
L4	110.00-105.00	0.0000	0.3693	0.0000	1.3131
L5	105.00-100.00	0.0000	0.3693	0.0000	1.3088
L6	100.00-95.00	0.0000	0.3704	0.0000	1.3549
L7	95.00-90.00	0.0000	0.3704	0.0000	1.3497
L8	90.00-85.00	-1.0663	0.8142	-1.5898	1.1433
L9	85.00-84.75	2.9112	1.4489	1.1611	1.4907
L10	84.75-80.50	2.9112	1.4489	1.1622	1.4897
L11	80.50-80.25	2.9112	1.4489	1.1633	1.4887
L12	80.25-80.00	2.9112	1.4489	1.1634	1.4885
L13	80.00-79.75	3.2728	1.6106	1.3075	1.6481
L14	79.75-79.00	3.2728	1.6106	1.3077	1.6479
L15	79.00-78.75	3.2728	1.6106	1.3080	1.6476
L16	78.75-73.75	1.9514	1.4087	0.4300	1.5331
L17	73.75-73.50	4.5728	1.8671	2.6518	1.8436
L18	73.50-73.25	4.5728	1.8671	2.6519	1.8435
L19	73.25-68.25	4.5728	1.8671	2.6526	1.8421
L20	68.25-63.25	4.9075	1.6893	4.1261	2.0305
L21	63.25-60.50	5.4861	1.8002	4.7275	2.1041
L22	60.50-60.25	4.5728	1.8671	2.6557	1.8358
L23	60.25-60.00	4.5728	1.8671	2.6558	1.8357
L24	60.00-59.75	5.0560	2.0500	2.9203	2.0045
L25	59.75-54.75	5.0560	2.0500	2.9211	2.0025
L26	54.75-49.75	5.0560	2.0500	2.9227	1.9984
L27	49.75-44.75	6.5668	2.3237	4.3012	2.2031
L28	44.75-40.50	6.7013	2.1232	6.0744	2.4543
L29	40.50-40.25	5.4579	2.1399	3.2134	2.0434
L30	40.25-40.00	5.4579	2.1399	3.2136	2.0431
L31	40.00-39.75	5.9362	2.3137	3.4725	2.1957
L32	39.75-34.75	5.9362	2.3137	3.4738	2.1924
L33	34.75-29.75	5.9362	2.3137	3.4767	2.1856
L34	29.75-24.75	7.4277	2.3345	6.6834	2.6769
L35	24.75-20.50	8.1011	2.4744	7.3972	2.7784
L36	20.50-20.25	7.3427	2.5731	4.5571	2.3363
L37	20.25-20.00	7.3427	2.5731	4.5576	2.3358
L38	20.00-19.75	7.9278	2.7658	4.8788	2.4899
L39	19.75-14.75	7.9278	2.7658	4.8834	2.4837
L40	14.75-9.75	7.9278	2.7658	4.8943	2.4690
L41	9.75-4.75	7.9278	2.7658	4.9104	2.4471
L42	4.75-4.25	7.9278	2.7658	4.9245	2.4279
L43	4.25-4.00	7.9278	2.7658	4.9270	2.4245

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L44	4.00-0.00	7.9278	2.7658	4.9474	2.3968

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	20	Safety Line 3/8	120.00 - 125.00	1.0000	1.0000
L2	20	Safety Line 3/8	115.00 - 120.00	1.0000	1.0000
L3	20	Safety Line 3/8	110.00 - 115.00	1.0000	1.0000
L4	20	Safety Line 3/8	105.00 - 110.00	1.0000	1.0000
L5	20	Safety Line 3/8	100.00 - 105.00	1.0000	1.0000
L6	20	Safety Line 3/8	95.00 - 100.00	1.0000	1.0000
L7	20	Safety Line 3/8	90.00 - 95.00	1.0000	1.0000
L8	17	HB114-1-0813U4-M5J(1-1/4)	85.00 - 90.00	1.0000	1.0000
L8	20	Safety Line 3/8	85.00 - 90.00	1.0000	1.0000
L8	34	(Area) CCI-65FP-045100	85.00 - 86.50	1.0000	1.0000
L8	35	(Area) CCI-65FP-045100	85.00 - 86.50	1.0000	1.0000
L8	36	(Area) CCI-65FP-045100	85.00 - 86.50	1.0000	1.0000
L9	17	HB114-1-0813U4-M5J(1-1/4)	84.75 - 85.00	1.0000	1.0000
L9	20	Safety Line 3/8	84.75 - 85.00	1.0000	1.0000
L9	34	(Area) CCI-65FP-045100	84.75 - 85.00	1.0000	1.0000
L9	35	(Area) CCI-65FP-045100	84.75 - 85.00	1.0000	1.0000
L9	36	(Area) CCI-65FP-045100	84.75 - 85.00	1.0000	1.0000
L10	17	HB114-1-0813U4-M5J(1-1/4)	80.50 - 84.75	1.0000	1.0000
L10	20	Safety Line 3/8	80.50 - 84.75	1.0000	1.0000
L10	34	(Area) CCI-65FP-045100	80.50 - 84.75	1.0000	1.0000
L10	35	(Area) CCI-65FP-045100	80.50 - 84.75	1.0000	1.0000
L10	36	(Area) CCI-65FP-045100	80.50 - 84.75	1.0000	1.0000
L11	17	HB114-1-0813U4-M5J(1-1/4)	80.25 - 80.50	1.0000	1.0000
L11	20	Safety Line 3/8	80.25 - 80.50	1.0000	1.0000
L11	34	(Area) CCI-65FP-045100	80.25 - 80.50	1.0000	1.0000
L11	35	(Area) CCI-65FP-045100	80.25 - 80.50	1.0000	1.0000
L11	36	(Area) CCI-65FP-045100	80.25 - 80.50	1.0000	1.0000
L12	17	HB114-1-0813U4-M5J(1-1/4)	80.00 - 80.25	1.0000	1.0000
L12	20	Safety Line 3/8	80.00 - 80.25	1.0000	1.0000
L12	34	(Area) CCI-65FP-045100	80.00 - 80.25	1.0000	1.0000
L12	35	(Area) CCI-65FP-045100	80.00 - 80.25	1.0000	1.0000
L12	36	(Area) CCI-65FP-045100	80.00 - 80.25	1.0000	1.0000
L13	17	HB114-1-0813U4-M5J(1-1/4)	79.75 - 80.00	1.0000	1.0000
L13	20	Safety Line 3/8	79.75 - 80.00	1.0000	1.0000
L13	34	(Area) CCI-65FP-045100	79.75 - 80.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L13	35	(Area) CCI-65FP-045100	79.75 - 80.00	1.0000	1.0000
L13	36	(Area) CCI-65FP-045100	79.75 - 80.00	1.0000	1.0000
L14	17	HB114-1-0813U4-M5J(1-1/4)	79.00 - 79.75	1.0000	1.0000
L14	20	Safety Line 3/8	79.00 - 79.75	1.0000	1.0000
L14	34	(Area) CCI-65FP-045100	79.00 - 79.75	1.0000	1.0000
L14	35	(Area) CCI-65FP-045100	79.00 - 79.75	1.0000	1.0000
L14	36	(Area) CCI-65FP-045100	79.00 - 79.75	1.0000	1.0000
L15	17	HB114-1-0813U4-M5J(1-1/4)	78.75 - 79.00	1.0000	1.0000
L15	20	Safety Line 3/8	78.75 - 79.00	1.0000	1.0000
L15	34	(Area) CCI-65FP-045100	78.75 - 79.00	1.0000	1.0000
L15	35	(Area) CCI-65FP-045100	78.75 - 79.00	1.0000	1.0000
L15	36	(Area) CCI-65FP-045100	78.75 - 79.00	1.0000	1.0000
L16	17	HB114-1-0813U4-M5J(1-1/4)	73.75 - 78.75	1.0000	1.0000
L16	20	Safety Line 3/8	73.75 - 78.75	1.0000	1.0000
L16	28	(Area) CCI-65FP-060100	73.75 - 75.50	1.0000	1.0000
L16	29	(Area) CCI-65FP-060100	73.75 - 75.50	1.0000	1.0000
L16	30	(Area) CCI-65FP-060100	73.75 - 75.50	1.0000	1.0000
L16	34	(Area) CCI-65FP-045100	77.50 - 78.75	1.0000	1.0000
L16	35	(Area) CCI-65FP-045100	77.50 - 78.75	1.0000	1.0000
L16	36	(Area) CCI-65FP-045100	77.50 - 78.75	1.0000	1.0000
L17	17	HB114-1-0813U4-M5J(1-1/4)	73.50 - 73.75	1.0000	1.0000
L17	20	Safety Line 3/8	73.50 - 73.75	1.0000	1.0000
L17	28	(Area) CCI-65FP-060100	73.50 - 73.75	1.0000	1.0000
L17	29	(Area) CCI-65FP-060100	73.50 - 73.75	1.0000	1.0000
L17	30	(Area) CCI-65FP-060100	73.50 - 73.75	1.0000	1.0000
L18	17	HB114-1-0813U4-M5J(1-1/4)	73.25 - 73.50	1.0000	1.0000
L18	20	Safety Line 3/8	73.25 - 73.50	1.0000	1.0000
L18	28	(Area) CCI-65FP-060100	73.25 - 73.50	1.0000	1.0000
L18	29	(Area) CCI-65FP-060100	73.25 - 73.50	1.0000	1.0000
L18	30	(Area) CCI-65FP-060100	73.25 - 73.50	1.0000	1.0000
L19	17	HB114-1-0813U4-M5J(1-1/4)	68.25 - 73.25	1.0000	1.0000
L19	20	Safety Line 3/8	68.25 - 73.25	1.0000	1.0000
L19	28	(Area) CCI-65FP-060100	68.25 - 73.25	1.0000	1.0000
L19	29	(Area) CCI-65FP-060100	68.25 - 73.25	1.0000	1.0000
L19	30	(Area) CCI-65FP-060100	68.25 - 73.25	1.0000	1.0000
L20	17	HB114-1-0813U4-M5J(1-1/4)	63.25 - 68.25	1.0000	1.0000
L20	20	Safety Line 3/8	63.25 - 68.25	1.0000	1.0000
L20	28	(Area) CCI-65FP-060100	63.25 - 68.25	1.0000	1.0000
L20	29	(Area) CCI-65FP-060100	63.25 - 68.25	1.0000	1.0000
L20	30	(Area) CCI-65FP-060100	63.25 - 68.25	1.0000	1.0000
L20	31	(Area) CCI-65FP-060100	63.25 - 66.50	1.0000	1.0000
L20	32	(Area) CCI-65FP-060100	63.25 - 66.50	1.0000	1.0000
L20	33	(Area) CCI-65FP-060100	63.25 - 66.50	1.0000	1.0000
L21	17	HB114-1-0813U4-M5J(1-1/4)	60.50 - 63.25	1.0000	1.0000
L21	20	Safety Line 3/8	60.50 - 63.25	1.0000	1.0000
L21	28	(Area) CCI-65FP-060100	60.50 - 63.25	1.0000	1.0000
L21	29	(Area) CCI-65FP-060100	60.50 - 63.25	1.0000	1.0000
L21	30	(Area) CCI-65FP-060100	60.50 - 63.25	1.0000	1.0000
L21	31	(Area) CCI-65FP-060100	60.50 - 63.25	1.0000	1.0000
L21	32	(Area) CCI-65FP-060100	60.50 - 63.25	1.0000	1.0000
L21	33	(Area) CCI-65FP-060100	60.50 - 63.25	1.0000	1.0000
L22	17	HB114-1-0813U4-M5J(1-1/4)	60.25 - 60.50	1.0000	1.0000
L22	20	Safety Line 3/8	60.25 - 60.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	28	(Area) CCI-65FP-060100	60.25 - 60.50	1.0000	1.0000
L22	29	(Area) CCI-65FP-060100	60.25 - 60.50	1.0000	1.0000
L22	30	(Area) CCI-65FP-060100	60.25 - 60.50	1.0000	1.0000
L23	17	HB114-1-0813U4-M5J(1-1/4)	60.00 - 60.25	1.0000	1.0000
L23	20	Safety Line 3/8	60.00 - 60.25	1.0000	1.0000
L23	28	(Area) CCI-65FP-060100	60.00 - 60.25	1.0000	1.0000
L23	29	(Area) CCI-65FP-060100	60.00 - 60.25	1.0000	1.0000
L23	30	(Area) CCI-65FP-060100	60.00 - 60.25	1.0000	1.0000
L24	17	HB114-1-0813U4-M5J(1-1/4)	59.75 - 60.00	1.0000	1.0000
L24	20	Safety Line 3/8	59.75 - 60.00	1.0000	1.0000
L24	28	(Area) CCI-65FP-060100	59.75 - 60.00	1.0000	1.0000
L24	29	(Area) CCI-65FP-060100	59.75 - 60.00	1.0000	1.0000
L24	30	(Area) CCI-65FP-060100	59.75 - 60.00	1.0000	1.0000
L25	17	HB114-1-0813U4-M5J(1-1/4)	54.75 - 59.75	1.0000	1.0000
L25	20	Safety Line 3/8	54.75 - 59.75	1.0000	1.0000
L25	28	(Area) CCI-65FP-060100	54.75 - 59.75	1.0000	1.0000
L25	29	(Area) CCI-65FP-060100	54.75 - 59.75	1.0000	1.0000
L25	30	(Area) CCI-65FP-060100	54.75 - 59.75	1.0000	1.0000
L26	17	HB114-1-0813U4-M5J(1-1/4)	49.75 - 54.75	1.0000	1.0000
L26	20	Safety Line 3/8	49.75 - 54.75	1.0000	1.0000
L26	28	(Area) CCI-65FP-060100	49.75 - 54.75	1.0000	1.0000
L26	29	(Area) CCI-65FP-060100	49.75 - 54.75	1.0000	1.0000
L26	30	(Area) CCI-65FP-060100	49.75 - 54.75	1.0000	1.0000
L27	17	HB114-1-0813U4-M5J(1-1/4)	44.75 - 49.75	1.0000	1.0000
L27	20	Safety Line 3/8	44.75 - 49.75	1.0000	1.0000
L27	25	(Area) CCI-65FP-065125	44.75 - 46.50	1.0000	1.0000
L27	26	(Area) CCI-65FP-065125	44.75 - 46.50	1.0000	1.0000
L27	27	(Area) CCI-65FP-065125	44.75 - 46.50	1.0000	1.0000
L27	28	(Area) CCI-65FP-060100	44.75 - 49.75	1.0000	1.0000
L27	29	(Area) CCI-65FP-060100	44.75 - 49.75	1.0000	1.0000
L27	30	(Area) CCI-65FP-060100	44.75 - 49.75	1.0000	1.0000
L28	17	HB114-1-0813U4-M5J(1-1/4)	40.50 - 44.75	1.0000	1.0000
L28	20	Safety Line 3/8	40.50 - 44.75	1.0000	1.0000
L28	25	(Area) CCI-65FP-065125	40.50 - 44.75	1.0000	1.0000
L28	26	(Area) CCI-65FP-065125	40.50 - 44.75	1.0000	1.0000
L28	27	(Area) CCI-65FP-065125	40.50 - 44.75	1.0000	1.0000
L28	28	(Area) CCI-65FP-060100	40.50 - 44.75	1.0000	1.0000
L28	29	(Area) CCI-65FP-060100	40.50 - 44.75	1.0000	1.0000
L28	30	(Area) CCI-65FP-060100	40.50 - 44.75	1.0000	1.0000
L29	17	HB114-1-0813U4-M5J(1-1/4)	40.25 - 40.50	1.0000	1.0000
L29	20	Safety Line 3/8	40.25 - 40.50	1.0000	1.0000
L29	25	(Area) CCI-65FP-065125	40.25 - 40.50	1.0000	1.0000
L29	26	(Area) CCI-65FP-065125	40.25 - 40.50	1.0000	1.0000
L29	27	(Area) CCI-65FP-065125	40.25 - 40.50	1.0000	1.0000
L30	17	HB114-1-0813U4-M5J(1-1/4)	40.00 - 40.25	1.0000	1.0000
L30	20	Safety Line 3/8	40.00 - 40.25	1.0000	1.0000
L30	25	(Area) CCI-65FP-065125	40.00 - 40.25	1.0000	1.0000
L30	26	(Area) CCI-65FP-065125	40.00 - 40.25	1.0000	1.0000
L30	27	(Area) CCI-65FP-065125	40.00 - 40.25	1.0000	1.0000
L31	17	HB114-1-0813U4-M5J(1-1/4)	39.75 - 40.00	1.0000	1.0000
L31	20	Safety Line 3/8	39.75 - 40.00	1.0000	1.0000
L31	25	(Area) CCI-65FP-065125	39.75 - 40.00	1.0000	1.0000
L31	26	(Area) CCI-65FP-065125	39.75 - 40.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L31	27	(Area) CCI-65FP-065125	39.75 - 40.00	1.0000	1.0000
L32	17	HB114-1-0813U4-M5J(1-1/4)	34.75 - 39.75	1.0000	1.0000
L32	20	Safety Line 3/8	34.75 - 39.75	1.0000	1.0000
L32	25	(Area) CCI-65FP-065125	34.75 - 39.75	1.0000	1.0000
L32	26	(Area) CCI-65FP-065125	34.75 - 39.75	1.0000	1.0000
L32	27	(Area) CCI-65FP-065125	34.75 - 39.75	1.0000	1.0000
L33	17	HB114-1-0813U4-M5J(1-1/4)	29.75 - 34.75	1.0000	1.0000
L33	20	Safety Line 3/8	29.75 - 34.75	1.0000	1.0000
L33	25	(Area) CCI-65FP-065125	29.75 - 34.75	1.0000	1.0000
L33	26	(Area) CCI-65FP-065125	29.75 - 34.75	1.0000	1.0000
L33	27	(Area) CCI-65FP-065125	29.75 - 34.75	1.0000	1.0000
L34	17	HB114-1-0813U4-M5J(1-1/4)	24.75 - 29.75	1.0000	1.0000
L34	20	Safety Line 3/8	24.75 - 29.75	1.0000	1.0000
L34	22	(Area) CCI-65FP-085125	24.75 - 28.50	1.0000	1.0000
L34	23	(Area) CCI-65FP-085125	24.75 - 28.50	1.0000	1.0000
L34	24	(Area) CCI-65FP-085125	24.75 - 28.50	1.0000	1.0000
L34	25	(Area) CCI-65FP-065125	24.75 - 29.75	1.0000	1.0000
L34	26	(Area) CCI-65FP-065125	24.75 - 29.75	1.0000	1.0000
L34	27	(Area) CCI-65FP-065125	24.75 - 29.75	1.0000	1.0000
L35	17	HB114-1-0813U4-M5J(1-1/4)	20.50 - 24.75	1.0000	1.0000
L35	20	Safety Line 3/8	20.50 - 24.75	1.0000	1.0000
L35	22	(Area) CCI-65FP-085125	20.50 - 24.75	1.0000	1.0000
L35	23	(Area) CCI-65FP-085125	20.50 - 24.75	1.0000	1.0000
L35	24	(Area) CCI-65FP-085125	20.50 - 24.75	1.0000	1.0000
L35	25	(Area) CCI-65FP-065125	20.50 - 24.75	1.0000	1.0000
L35	26	(Area) CCI-65FP-065125	20.50 - 24.75	1.0000	1.0000
L35	27	(Area) CCI-65FP-065125	20.50 - 24.75	1.0000	1.0000
L36	17	HB114-1-0813U4-M5J(1-1/4)	20.25 - 20.50	1.0000	1.0000
L36	20	Safety Line 3/8	20.25 - 20.50	1.0000	1.0000
L36	22	(Area) CCI-65FP-085125	20.25 - 20.50	1.0000	1.0000
L36	23	(Area) CCI-65FP-085125	20.25 - 20.50	1.0000	1.0000
L36	24	(Area) CCI-65FP-085125	20.25 - 20.50	1.0000	1.0000
L37	17	HB114-1-0813U4-M5J(1-1/4)	20.00 - 20.25	1.0000	1.0000
L37	20	Safety Line 3/8	20.00 - 20.25	1.0000	1.0000
L37	22	(Area) CCI-65FP-085125	20.00 - 20.25	1.0000	1.0000
L37	23	(Area) CCI-65FP-085125	20.00 - 20.25	1.0000	1.0000
L37	24	(Area) CCI-65FP-085125	20.00 - 20.25	1.0000	1.0000
L38	17	HB114-1-0813U4-M5J(1-1/4)	19.75 - 20.00	1.0000	1.0000
L38	20	Safety Line 3/8	19.75 - 20.00	1.0000	1.0000
L38	22	(Area) CCI-65FP-085125	19.75 - 20.00	1.0000	1.0000
L38	23	(Area) CCI-65FP-085125	19.75 - 20.00	1.0000	1.0000
L38	24	(Area) CCI-65FP-085125	19.75 - 20.00	1.0000	1.0000
L39	17	HB114-1-0813U4-M5J(1-1/4)	14.75 - 19.75	1.0000	1.0000
L39	20	Safety Line 3/8	14.75 - 19.75	1.0000	1.0000
L39	22	(Area) CCI-65FP-085125	14.75 - 19.75	1.0000	1.0000
L39	23	(Area) CCI-65FP-085125	14.75 - 19.75	1.0000	1.0000
L39	24	(Area) CCI-65FP-085125	14.75 - 19.75	1.0000	1.0000
L40	17	HB114-1-0813U4-M5J(1-1/4)	9.75 - 14.75	1.0000	1.0000
L40	20	Safety Line 3/8	9.75 - 14.75	1.0000	1.0000
L40	22	(Area) CCI-65FP-085125	9.75 - 14.75	1.0000	1.0000
L40	23	(Area) CCI-65FP-085125	9.75 - 14.75	1.0000	1.0000
L40	24	(Area) CCI-65FP-085125	9.75 - 14.75	1.0000	1.0000
L41	17	HB114-1-0813U4-M5J(1-1/4	4.75 - 9.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		)			
L41	20	Safety Line 3/8	4.75 - 9.75	1.0000	1.0000
L41	22	(Area) CCI-65FP-085125	4.75 - 9.75	1.0000	1.0000
L41	23	(Area) CCI-65FP-085125	4.75 - 9.75	1.0000	1.0000
L41	24	(Area) CCI-65FP-085125	4.75 - 9.75	1.0000	1.0000
L42	17	HB114-1-0813U4-M5J(1-1/4	4.25 - 4.75	1.0000	1.0000
		)			
L42	20	Safety Line 3/8	4.25 - 4.75	1.0000	1.0000
L42	22	(Area) CCI-65FP-085125	4.25 - 4.75	1.0000	1.0000
L42	23	(Area) CCI-65FP-085125	4.25 - 4.75	1.0000	1.0000
L42	24	(Area) CCI-65FP-085125	4.25 - 4.75	1.0000	1.0000
L43	17	HB114-1-0813U4-M5J(1-1/4	4.00 - 4.25	1.0000	1.0000
		)			
L43	20	Safety Line 3/8	4.00 - 4.25	1.0000	1.0000
L43	22	(Area) CCI-65FP-085125	4.00 - 4.25	1.0000	1.0000
L43	23	(Area) CCI-65FP-085125	4.00 - 4.25	1.0000	1.0000
L43	24	(Area) CCI-65FP-085125	4.00 - 4.25	1.0000	1.0000
L44	17	HB114-1-0813U4-M5J(1-1/4	0.00 - 4.00	1.0000	1.0000
		)			
L44	20	Safety Line 3/8	0.00 - 4.00	1.0000	1.0000
L44	22	(Area) CCI-65FP-085125	0.00 - 4.00	1.0000	1.0000
L44	23	(Area) CCI-65FP-085125	0.00 - 4.00	1.0000	1.0000
L44	24	(Area) CCI-65FP-085125	0.00 - 4.00	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_A Front ft^2	C_AA_A Side ft^2	Weight lb
122									
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Centroid-Face	4.00 7.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	112 169 233 383
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Centroid-Face	4.00 7.00 0.00	30.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	112 169 233 383
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Centroid-Face	4.00 7.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	112 169 233 383
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Centroid-Face	4.00 -7.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	112 169 233 383
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Centroid-Face	4.00 -7.00 0.00	30.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	112 169 233 383
ERICSSON AIR 21 B2A	C	From	4.00	0.0000	122.00	No Ice	6.33	5.64	112

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
B4P w/ Mount Pipe		Centroid-Face	-7.00 0.00			1/2" Ice 1" Ice 2" Ice	6.78 7.21 8.12	6.43 7.13 8.59	169 233 383
LNX-6515DS-VTM w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.68 12.40 13.14 14.51	9.84 11.37 12.91 15.27	83 173 273 506
LNX-6515DS-VTM w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	30.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.68 12.40 13.14 14.51	9.84 11.37 12.91 15.27	83 173 273 506
LNX-6515DS-VTM w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.68 12.40 13.14 14.51	9.84 11.37 12.91 15.27	83 173 273 506
KRY 112 144/1	A	From Centroid-Face	4.00 7.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.16 0.22 0.28 0.44	11 14 18 32
KRY 112 144/1	B	From Centroid-Face	4.00 7.00 0.00	30.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.16 0.22 0.28 0.44	11 14 18 32
KRY 112 144/1	C	From Centroid-Face	4.00 7.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.16 0.22 0.28 0.44	11 14 18 32
RRUS 11 B12	A	From Centroid-Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.79 3.00 3.21 3.67	1.19 1.34 1.50 1.84	51 72 95 153
RRUS 11 B12	B	From Centroid-Face	4.00 0.00 0.00	30.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.79 3.00 3.21 3.67	1.19 1.34 1.50 1.84	51 72 95 153
RRUS 11 B12	C	From Centroid-Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.79 3.00 3.21 3.67	1.19 1.34 1.50 1.84	51 72 95 153
Platform Mount [LP 405-1]	C	None		0.0000	122.00	No Ice 1/2" Ice 1" Ice 2" Ice	20.80 28.10 35.40 50.00	20.80 28.10 35.40 50.00	1800 2066 2332 2864
112									
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Centroid-Leg	4.00 -2.00 1.00	0.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.77 9.34 9.89 10.99	6.96 8.18 9.14 11.02	67 137 215 398
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Centroid-Leg	4.00 -2.00 1.00	25.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.77 9.34 9.89 10.99	6.96 8.18 9.14 11.02	67 137 215 398
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Centroid-Leg	4.00 -2.00 1.00	10.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.77 9.34 9.89 10.99	6.96 8.18 9.14 11.02	67 137 215 398
(2) LNX-6514DS-A1M w/	A	From	4.00	0.0000	112.00	No Ice	8.28	6.95	63

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Mount Pipe		Centroid-Leg	3.00 1.00			1/2" Ice 1" Ice 2" Ice	8.78 9.27 10.28	8.02 8.88 10.66	130 206 384
(2) LNX-6514DS-A1M w/ Mount Pipe	B	From Centroid-Leg	4.00 3.00 1.00	25.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.28 8.78 9.27 10.28	6.95 8.02 8.88 10.66	63 130 206 384
(2) LNX-6514DS-A1M w/ Mount Pipe	C	From Centroid-Leg	4.00 3.00 1.00	10.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.28 8.78 9.27 10.28	6.95 8.02 8.88 10.66	63 130 206 384
B4 RRH2X60-4R	A	From Centroid-Leg	4.00 -6.00 1.00	0.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.36 3.61 3.88 4.42	2.00 2.24 2.48 2.97	55 78 105 170
B4 RRH2X60-4R	B	From Centroid-Leg	4.00 -6.00 1.00	25.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.36 3.61 3.88 4.42	2.00 2.24 2.48 2.97	55 78 105 170
B4 RRH2X60-4R	C	From Centroid-Leg	4.00 -6.00 1.00	10.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.36 3.61 3.88 4.42	2.00 2.24 2.48 2.97	55 78 105 170
B13 RRH 4X30	A	From Centroid-Leg	4.00 0.00 1.00	0.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.84	1.32 1.48 1.64 2.00	56 73 93 142
B13 RRH 4X30	B	From Centroid-Leg	4.00 0.00 1.00	25.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.84	1.32 1.48 1.64 2.00	56 73 93 142
B13 RRH 4X30	C	From Centroid-Leg	4.00 0.00 1.00	10.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.84	1.32 1.48 1.64 2.00	56 73 93 142
RXXDC-3315-PF-48	A	From Centroid-Leg	4.00 6.00 1.00	0.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.92 4.18 4.45 5.00	2.61 2.83 3.05 3.53	32 64 101 185
RXXDC-3315-PF-48	B	From Centroid-Leg	4.00 6.00 1.00	25.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.92 4.18 4.45 5.00	2.61 2.83 3.05 3.53	32 64 101 185
Platform Mount [LP 303-1]	C	None		0.0000	112.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.66 18.87 23.08 31.50	14.66 18.87 23.08 31.50	1250 1481 1713 2175
100									
7770.00 w/ Mount Pipe	A	From Leg	4.00 -6.00 0.00	30.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	55 103 157 287
7770.00 w/ Mount Pipe	C	From Leg	4.00 -6.00 0.00	30.0000	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	55 103 157 287
HPA-65R-BUU-H6 w/	A	From Leg	4.00	30.0000	100.00	No Ice	9.90	8.11	77

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Mount Pipe			2.00			1/2" Ice	10.47	9.30	158
			0.00			1" Ice	11.01	10.21	248
						2" Ice	12.11	12.01	456
(2) 80010965 w/ Mount Pipe	A	From Leg	4.00	30.0000	100.00	No Ice	14.05	7.63	125
			2.00			1/2" Ice	14.69	8.90	222
			0.00			1" Ice	15.30	9.96	327
						2" Ice	16.53	11.92	569
(2) 80010964 w/ Mount Pipe	B	From Leg	4.00	20.0000	100.00	No Ice	10.23	5.51	105
			-4.00			1/2" Ice	10.74	6.37	180
			0.00			1" Ice	11.24	7.12	262
						2" Ice	12.25	8.64	451
(2) 80010964 w/ Mount Pipe	C	From Leg	4.00	30.0000	100.00	No Ice	10.23	5.51	105
			2.00			1/2" Ice	10.74	6.37	180
			0.00			1" Ice	11.24	7.12	262
						2" Ice	12.25	8.64	451
(2) SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.00	20.0000	100.00	No Ice	6.29	5.59	68
			4.00			1/2" Ice	6.74	6.31	126
			0.00			1" Ice	7.20	7.03	191
						2" Ice	8.14	8.51	343
SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.00	30.0000	100.00	No Ice	6.29	5.59	68
			2.00			1/2" Ice	6.74	6.31	126
			0.00			1" Ice	7.20	7.03	191
						2" Ice	8.14	8.51	343
(2) LGP21401	A	From Leg	4.00	30.0000	100.00	No Ice	1.10	0.21	14
			0.00			1/2" Ice	1.24	0.27	21
			0.00			1" Ice	1.38	0.35	30
						2" Ice	1.69	0.52	55
(2) LGP21401	B	From Leg	4.00	20.0000	100.00	No Ice	1.10	0.21	14
			0.00			1/2" Ice	1.24	0.27	21
			0.00			1" Ice	1.38	0.35	30
						2" Ice	1.69	0.52	55
(2) LGP21401	C	From Leg	4.00	30.0000	100.00	No Ice	1.10	0.21	14
			0.00			1/2" Ice	1.24	0.27	21
			0.00			1" Ice	1.38	0.35	30
						2" Ice	1.69	0.52	55
RRUS 32	A	From Leg	4.00	30.0000	100.00	No Ice	2.86	1.78	55
			6.00			1/2" Ice	3.08	1.97	77
			0.00			1" Ice	3.32	2.17	103
						2" Ice	3.81	2.58	165
RRUS 32	B	From Leg	4.00	20.0000	100.00	No Ice	2.86	1.78	55
			6.00			1/2" Ice	3.08	1.97	77
			0.00			1" Ice	3.32	2.17	103
						2" Ice	3.81	2.58	165
RRUS 32	C	From Leg	4.00	30.0000	100.00	No Ice	2.86	1.78	55
			6.00			1/2" Ice	3.08	1.97	77
			0.00			1" Ice	3.32	2.17	103
						2" Ice	3.81	2.58	165
RRUS 4449 B5/B12	A	From Leg	4.00	30.0000	100.00	No Ice	1.97	1.41	71
			-2.00			1/2" Ice	2.14	1.56	90
			0.00			1" Ice	2.33	1.73	111
						2" Ice	2.72	2.07	163
RRUS 4449 B5/B12	B	From Leg	4.00	20.0000	100.00	No Ice	1.97	1.41	71
			-2.00			1/2" Ice	2.14	1.56	90
			0.00			1" Ice	2.33	1.73	111
						2" Ice	2.72	2.07	163
RRUS 4449 B5/B12	C	From Leg	4.00	30.0000	100.00	No Ice	1.97	1.41	71
			-2.00			1/2" Ice	2.14	1.56	90

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	2.33	1.73	111
						2" Ice	2.72	2.07	163
RRUS 8843 B2/B66A	A	From Leg	4.00	30.0000	100.00	No Ice	1.64	1.35	72
			-6.00			1/2" Ice	1.80	1.50	90
			0.00			1" Ice	1.97	1.65	110
						2" Ice	2.32	1.99	159
RRUS 8843 B2/B66A	B	From Leg	4.00	20.0000	100.00	No Ice	1.64	1.35	72
			-6.00			1/2" Ice	1.80	1.50	90
			0.00			1" Ice	1.97	1.65	110
						2" Ice	2.32	1.99	159
RRUS 8843 B2/B66A	C	From Leg	4.00	30.0000	100.00	No Ice	1.64	1.35	72
			-6.00			1/2" Ice	1.80	1.50	90
			0.00			1" Ice	1.97	1.65	110
						2" Ice	2.32	1.99	159
(2) DC6-48-60-18-8F	A	From Leg	4.00	30.0000	100.00	No Ice	1.21	1.21	33
			-2.00			1/2" Ice	1.89	1.89	55
			0.00			1" Ice	2.11	2.11	80
						2" Ice	2.57	2.57	138
DC6-48-60-18-8F	B	From Leg	4.00	20.0000	100.00	No Ice	1.21	1.21	33
			-2.00			1/2" Ice	1.89	1.89	55
			0.00			1" Ice	2.11	2.11	80
						2" Ice	2.57	2.57	138
2.4" Dia x 6-ft Pipe	A	From Leg	4.00	0.0000	100.00	No Ice	1.43	1.43	22
			2.00			1/2" Ice	1.93	1.93	33
			0.00			1" Ice	2.30	2.30	48
						2" Ice	3.06	3.06	90
2.4" Dia x 6-ft Pipe	B	From Leg	4.00	0.0000	100.00	No Ice	1.43	1.43	22
			2.00			1/2" Ice	1.93	1.93	33
			0.00			1" Ice	2.30	2.30	48
						2" Ice	3.06	3.06	90
2.4" Dia x 6-ft Pipe	C	From Leg	4.00	0.0000	100.00	No Ice	1.43	1.43	22
			2.00			1/2" Ice	1.93	1.93	33
			0.00			1" Ice	2.30	2.30	48
						2" Ice	3.06	3.06	90
T-Arm Mount [TA 602-3]	C	None		0.0000	100.00	No Ice	11.59	11.59	774
						1/2" Ice	15.44	15.44	990
						1" Ice	19.29	19.29	1206
						2" Ice	26.99	26.99	1639
90									
NNVV-65B-R4 w/ Mount Pipe	A	From Centroid-Leg	4.00	0.0000	90.00	No Ice	12.51	7.41	103
			-6.00			1/2" Ice	13.11	8.60	194
			0.00			1" Ice	13.67	9.50	293
						2" Ice	14.82	11.33	520
NNVV-65B-R4 w/ Mount Pipe	B	From Centroid-Leg	4.00	0.0000	90.00	No Ice	12.51	7.41	103
			-6.00			1/2" Ice	13.11	8.60	194
			0.00			1" Ice	13.67	9.50	293
						2" Ice	14.82	11.33	520
NNVV-65B-R4 w/ Mount Pipe	C	From Centroid-Leg	4.00	0.0000	90.00	No Ice	12.51	7.41	103
			-6.00			1/2" Ice	13.11	8.60	194
			0.00			1" Ice	13.67	9.50	293
						2" Ice	14.82	11.33	520
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Centroid-Leg	4.00	0.0000	90.00	No Ice	6.58	4.96	77
			6.00			1/2" Ice	7.03	5.75	132
			0.00			1" Ice	7.47	6.47	193
						2" Ice	8.38	7.94	339
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Centroid-Le	4.00	0.0000	90.00	No Ice	6.58	4.96	77
			6.00			1/2" Ice	7.03	5.75	132

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
		g	0.00			1" Ice	7.47	6.47	193
						2" Ice	8.38	7.94	339
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Centroid-Le g	4.00 6.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	77 132 193
						2" Ice	8.38	7.94	339
(3) RRH2X50-800	A	From Centroid-Le g	4.00 -2.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	53 74 98
						2" Ice	2.92	2.51	157
(3) RRH2X50-800	C	From Centroid-Le g	4.00 2.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	53 74 98
						2" Ice	2.92	2.51	157
AIRPAIR ODU	A	From Centroid-Le g	4.00 6.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	1.01 1.14 1.28	0.46 0.56 0.67	12 19 28
						2" Ice	1.59	0.92	53
AIRPAIR ODU	B	From Centroid-Le g	4.00 6.00 0.00	-30.0000	90.00	No Ice 1/2" Ice 1" Ice	1.01 1.14 1.28	0.46 0.56 0.67	12 19 28
						2" Ice	1.59	0.92	53
AIRPAIR ODU	C	From Centroid-Le g	4.00 6.00 0.00	30.0000	90.00	No Ice 1/2" Ice 1" Ice	1.01 1.14 1.28	0.46 0.56 0.67	12 19 28
						2" Ice	1.59	0.92	53
PCS 1900MHZ 4X45W-65MHZ	A	From Centroid-Le g	4.00 6.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	60 83 110
						2" Ice	3.19	3.09	173
(2) PCS 1900MHZ 4X45W-65MHZ	B	From Centroid-Le g	4.00 -6.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	60 83 110
						2" Ice	3.19	3.09	173
(2) TD-RRH8X20-25	B	From Centroid-Le g	4.00 6.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	66 90 117
						2" Ice	4.72	2.02	183
TD-RRH8X20-25	C	From Centroid-Le g	4.00 -6.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	66 90 117
						2" Ice	4.72	2.02	183
2.4" Dia x 6-ft Pipe	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 1.93 2.30	22 33 48
						2" Ice	3.06	3.06	90
2.4" Dia x 6-ft Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 1.93 2.30	22 33 48
						2" Ice	3.06	3.06	90
2.4" Dia x 6-ft Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	1.43 1.93 2.30	1.43 1.93 2.30	22 33 48
						2" Ice	3.06	3.06	90
Miscellaneous [NA 507-1]	C	None		0.0000	90.00	No Ice	4.80	4.80	245
						1/2" Ice	6.70	6.70	294
						1" Ice	8.60	8.60	343

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Platform Mount [LP 303-1]	C	None		0.0000	90.00	2" Ice	12.40	12.40	441
						No Ice	14.66	14.66	1250
						1/2" Ice	18.87	18.87	1481
						1" Ice	23.08	23.08	1713
						2" Ice	31.50	31.50	2175
****									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
90											
A-ANT-18G-2-C	B	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 6.00 0.00	90.0000		90.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	27 48 68 109
A-ANT-18G-2-C	C	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 6.00 0.00	30.0000		90.00	2.17	No Ice 1/2" Ice 1" Ice 2" Ice	3.72 4.01 4.30 4.88	27 48 68 109
****											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice

Comb. No.	Description
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 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
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 Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 120	6.786	50	0.4704	0.0029
L2	120 - 115	6.294	50	0.4701	0.0029
L3	115 - 110	5.803	50	0.4673	0.0029
L4	110 - 105	5.316	50	0.4607	0.0028
L5	105 - 100	4.840	50	0.4474	0.0026
L6	100 - 95	4.382	50	0.4268	0.0024
L7	95 - 90	3.943	50	0.4116	0.0021
L8	90 - 85	3.522	50	0.3907	0.0017
L9	85 - 84.75	3.127	50	0.3635	0.0014
L10	84.75 - 80.5	3.108	50	0.3625	0.0014
L11	80.5 - 80.25	2.794	50	0.3421	0.0012
L12	80.25 - 80	2.776	50	0.3409	0.0012
L13	80 - 79.75	2.758	50	0.3397	0.0012
L14	79.75 - 79	2.740	50	0.3389	0.0012
L15	79 - 78.75	2.687	50	0.3364	0.0012
L16	78.75 - 73.75	2.670	50	0.3352	0.0012
L17	73.75 - 73.5	2.331	49	0.3101	0.0010
L18	73.5 - 73.25	2.315	49	0.3087	0.0010
L19	73.25 - 68.25	2.299	49	0.3078	0.0010
L20	68.25 - 63.25	1.987	49	0.2875	0.0009
L21	63.25 - 60.5	1.698	49	0.2641	0.0007
L22	60.5 - 60.25	1.550	49	0.2498	0.0007

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L23	60.25 - 60	1.537	49	0.2486	0.0007
L24	60 - 59.75	1.524	49	0.2474	0.0007
L25	59.75 - 54.75	1.511	49	0.2465	0.0007
L26	54.75 - 49.75	1.263	49	0.2272	0.0006
L27	49.75 - 44.75	1.036	49	0.2056	0.0005
L28	44.75 - 40.5	0.833	49	0.1817	0.0004
L29	40.5 - 40.25	0.681	49	0.1595	0.0003
L30	40.25 - 40	0.673	49	0.1584	0.0003
L31	40 - 39.75	0.665	49	0.1572	0.0003
L32	39.75 - 34.75	0.657	49	0.1564	0.0003
L33	34.75 - 29.75	0.502	49	0.1382	0.0003
L34	29.75 - 24.75	0.368	49	0.1185	0.0002
L35	24.75 - 20.5	0.255	49	0.0970	0.0002
L36	20.5 - 20.25	0.177	49	0.0775	0.0001
L37	20.25 - 20	0.173	49	0.0765	0.0001
L38	20 - 19.75	0.169	49	0.0755	0.0001
L39	19.75 - 14.75	0.165	49	0.0747	0.0001
L40	14.75 - 9.75	0.095	49	0.0582	0.0001
L41	9.75 - 4.75	0.044	49	0.0405	0.0001
L42	4.75 - 4.25	0.011	49	0.0216	0.0000
L43	4.25 - 4	0.009	49	0.0196	0.0000
L44	4 - 0	0.008	49	0.0185	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
122.00	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	50	6.491	0.4704	0.0029	204743
112.00	(2) HBXX-6517DS-A2M w/ Mount Pipe	50	5.510	0.4639	0.0028	38076
100.00	7770.00 w/ Mount Pipe	50	4.382	0.4268	0.0024	15820
90.00	A-ANT-18G-2-C	50	3.522	0.3907	0.0017	11997

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 120	32.375	22	2.2455	0.0140
L2	120 - 115	30.025	22	2.2442	0.0139
L3	115 - 110	27.682	22	2.2306	0.0138
L4	110 - 105	25.363	22	2.1987	0.0133
L5	105 - 100	23.093	22	2.1346	0.0123
L6	100 - 95	20.908	22	2.0358	0.0114
L7	95 - 90	18.814	22	1.9633	0.0098
L8	90 - 85	16.808	22	1.8642	0.0083
L9	85 - 84.75	14.921	22	1.7350	0.0068
L10	84.75 - 80.5	14.830	22	1.7298	0.0068
L11	80.5 - 80.25	13.333	22	1.6326	0.0059
L12	80.25 - 80	13.248	22	1.6270	0.0058

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L13	80 - 79.75	13.163	22	1.6213	0.0058
L14	79.75 - 79	13.078	22	1.6174	0.0058
L15	79 - 78.75	12.825	22	1.6056	0.0057
L16	78.75 - 73.75	12.741	22	1.6001	0.0056
L17	73.75 - 73.5	11.127	22	1.4802	0.0048
L18	73.5 - 73.25	11.049	22	1.4736	0.0047
L19	73.25 - 68.25	10.972	22	1.4692	0.0047
L20	68.25 - 63.25	9.484	22	1.3722	0.0041
L21	63.25 - 60.5	8.104	22	1.2605	0.0035
L22	60.5 - 60.25	7.397	22	1.1926	0.0032
L23	60.25 - 60	7.335	22	1.1868	0.0032
L24	60 - 59.75	7.273	22	1.1809	0.0032
L25	59.75 - 54.75	7.211	22	1.1766	0.0031
L26	54.75 - 49.75	6.027	22	1.0843	0.0028
L27	49.75 - 44.75	4.945	22	0.9813	0.0024
L28	44.75 - 40.5	3.976	22	0.8671	0.0020
L29	40.5 - 40.25	3.251	22	0.7610	0.0017
L30	40.25 - 40	3.211	22	0.7557	0.0016
L31	40 - 39.75	3.172	22	0.7503	0.0016
L32	39.75 - 34.75	3.132	22	0.7462	0.0016
L33	34.75 - 29.75	2.396	22	0.6595	0.0014
L34	29.75 - 24.75	1.754	22	0.5651	0.0011
L35	24.75 - 20.5	1.215	22	0.4628	0.0009
L36	20.5 - 20.25	0.844	22	0.3695	0.0007
L37	20.25 - 20	0.825	22	0.3648	0.0007
L38	20 - 19.75	0.806	22	0.3601	0.0007
L39	19.75 - 14.75	0.787	22	0.3563	0.0007
L40	14.75 - 9.75	0.455	22	0.2776	0.0005
L41	9.75 - 4.75	0.208	22	0.1931	0.0003
L42	4.75 - 4.25	0.052	22	0.1029	0.0002
L43	4.25 - 4	0.042	22	0.0935	0.0002
L44	4 - 0	0.037	22	0.0882	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
122.00	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	22	30.965	2.2457	0.0140	42914
112.00	(2) HBXX-6517DS-A2M w/ Mount Pipe	22	26.287	2.2143	0.0135	8055
100.00	7770.00 w/ Mount Pipe	22	20.908	2.0358	0.0114	3327
90.00	A-ANT-18G-2-C	22	16.808	1.8642	0.0083	2523

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	125 - 120 (1)	P24x0.375	5.00	0.00	0.0	27.8325	-3926	1052070	0.004
L2	120 - 115 (2)	P24x0.375	5.00	0.00	0.0	27.8325	-4550	1052070	0.004
L3	115 - 110 (3)	P24x0.375	5.00	0.00	0.0	27.8325	-7933	1052070	0.008
L4	110 - 105 (4)	P24x0.375	5.00	0.00	0.0	27.8325	-8580	1052070	0.008
L5	105 - 100 (5)	P24x0.375	5.00	0.00	0.0	27.8325	-9236	1052070	0.009
L6	100 - 95 (6)	P30x0.375	5.00	0.00	0.0	34.9011	-13155	1311060	0.010
L7	95 - 90 (7)	P30x0.375	5.00	0.00	0.0	34.9011	-14030	1311060	0.011
L8	90 - 85 (8)	P30x0.375	5.00	0.00	0.0	34.9011	-18301	1311060	0.014
L9	85 - 84.75 (9)	P30x0.54375	0.25	0.00	0.0	50.3184	-18364	1902030	0.010
L10	84.75 - 80.5 (10)	P30x0.54375	4.25	0.00	0.0	50.3184	-19369	1902030	0.010
L11	80.5 - 80.25 (11)	P30x0.6125	0.25	0.00	0.0	56.5482	-19432	2137520	0.009
L12	80.25 - 80 (12)	P30x0.6125	0.25	0.00	0.0	56.5482	-19491	2137520	0.009
L13	80 - 79.75 (13)	P36x0.5125	0.25	0.00	0.0	57.1372	-19557	2159790	0.009
L14	79.75 - 79 (14)	P36x0.5125	0.75	0.00	0.0	57.1372	-19753	2159790	0.009
L15	79 - 78.75 (15)	P36x0.375	0.25	0.00	0.0	41.9697	-19807	1490100	0.013
L16	78.75 - 73.75 (16)	P36x0.375	5.00	0.00	0.0	41.9697	-20870	1490100	0.014
L17	73.75 - 73.5 (17)	P36x0.375	0.25	0.00	0.0	41.9697	-20927	1490100	0.014
L18	73.5 - 73.25 (18)	P36x0.5625	0.25	0.00	0.0	62.6232	-20998	2367160	0.009
L19	73.25 - 68.25 (19)	P36x0.5625	5.00	0.00	0.0	62.6232	-22415	2367160	0.009
L20	68.25 - 63.25 (20)	P36x0.5625	5.00	0.00	0.0	62.6232	-23841	2367160	0.010
L21	63.25 - 60.5 (21)	P36x0.5625	2.75	0.00	0.0	62.6232	-24625	2367160	0.010
L22	60.5 - 60.25 (22)	P36x0.625	0.25	0.00	0.0	69.4586	-24702	2625540	0.009
L23	60.25 - 60 (23)	P36x0.625	0.25	0.00	0.0	69.4586	-24774	2625540	0.009
L24	60 - 59.75 (24)	P42x0.525	0.25	0.00	0.0	68.4062	-24852	2569670	0.010
L25	59.75 - 54.75 (25)	P42x0.525	5.00	0.00	0.0	68.4062	-26417	2569670	0.010
L26	54.75 - 49.75 (26)	P42x0.525	5.00	0.00	0.0	68.4062	-27992	2569670	0.011
L27	49.75 - 44.75 (27)	P42x0.525	5.00	0.00	0.0	68.4062	-29573	2569670	0.012
L28	44.75 - 40.5 (28)	P42x0.525	4.25	0.00	0.0	68.4062	-30923	2569670	0.012
L29	40.5 - 40.25 (29)	P42x0.65	0.25	0.00	0.0	84.4382	-31013	3191760	0.010
L30	40.25 - 40 (30)	P42x0.65	0.25	0.00	0.0	84.4382	-31099	3191760	0.010
L31	40 - 39.75 (31)	P48x0.55625	0.25	0.00	0.0	82.9085	-31191	3039700	0.010
L32	39.75 - 34.75 (32)	P48x0.55625	5.00	0.00	0.0	82.9085	-33038	3039700	0.011
L33	34.75 - 29.75 (33)	P48x0.55625	5.00	0.00	0.0	82.9085	-34894	3039700	0.011
L34	29.75 - 24.75 (34)	P48x0.55625	5.00	0.00	0.0	82.9085	-36755	3039700	0.012
L35	24.75 - 20.5 (35)	P48x0.55625	4.25	0.00	0.0	82.9085	-38342	3039700	0.013
L36	20.5 - 20.25 (36)	P48x0.675	0.25	0.00	0.0	100.3560	-38447	3793470	0.010
L37	20.25 - 20 (37)	P48x0.675	0.25	0.00	0.0	100.3560	-38548	3793470	0.010
L38	20 - 19.75 (38)	P54x0.5875	0.25	0.00	0.0	98.5827	-38656	3545230	0.011
L39	19.75 - 14.75 (39)	P54x0.5875	5.00	0.00	0.0	98.5827	-40805	3545230	0.012

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L40	14.75 - 9.75 (40)	P54x0.5875	5.00	0.00	0.0	98.5827	-42963	3545230	0.012
L41	9.75 - 4.75 (41)	P54x0.5875	5.00	0.00	0.0	98.5827	-45125	3545230	0.013
L42	4.75 - 4.25 (42)	P54x0.5875	0.50	0.00	0.0	98.5827	-45344	3545230	0.013
L43	4.25 - 4 (43)	P54x0.5125	0.25	0.00	0.0	86.1184	-45453	2978680	0.015
L44	4 - 0 (44)	P54x0.5125	4.00	0.00	0.0	86.1184	-47174	2978680	0.016

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	125 - 120 (1)	P24x0.375	8334	623717	0.013	0	623717	0.000
L2	120 - 115 (2)	P24x0.375	29514	623717	0.047	0	623717	0.000
L3	115 - 110 (3)	P24x0.375	65038	623717	0.104	0	623717	0.000
L4	110 - 105 (4)	P24x0.375	111403	623717	0.179	0	623717	0.000
L5	105 - 100 (5)	P24x0.375	159306	623717	0.255	0	623717	0.000
L6	100 - 95 (6)	P30x0.375	230795	947858	0.243	0	947858	0.000
L7	95 - 90 (7)	P30x0.375	303423	947858	0.320	0	947858	0.000
L8	90 - 85 (8)	P30x0.375	395164	947858	0.417	0	947858	0.000
L9	85 - 84.75 (9)	P30x0.54375	399805	1443458	0.277	0	1443458	0.000
L10	84.75 - 80.5 (10)	P30x0.54375	479834	1443458	0.332	0	1443458	0.000
L11	80.5 - 80.25 (11)	P30x0.6125	484608	1666500	0.291	0	1666500	0.000
L12	80.25 - 80 (12)	P30x0.6125	489389	1666500	0.294	0	1666500	0.000
L13	80 - 79.75 (13)	P36x0.5125	494178	1894725	0.261	0	1894725	0.000
L14	79.75 - 79 (14)	P36x0.5125	508598	1894725	0.268	0	1894725	0.000
L15	79 - 78.75 (15)	P36x0.375	513423	1338808	0.383	0	1338808	0.000
L16	78.75 - 73.75 (16)	P36x0.375	610800	1338808	0.456	0	1338808	0.000
L17	73.75 - 73.5 (17)	P36x0.375	615713	1338808	0.460	0	1338808	0.000
L18	73.5 - 73.25 (18)	P36x0.5625	620635	2105042	0.295	0	2105042	0.000
L19	73.25 - 68.25 (19)	P36x0.5625	720869	2105042	0.342	0	2105042	0.000
L20	68.25 - 63.25 (20)	P36x0.5625	824573	2105042	0.392	0	2105042	0.000
L21	63.25 - 60.5 (21)	P36x0.5625	883217	2105042	0.420	0	2105042	0.000
L22	60.5 - 60.25 (22)	P36x0.625	888600	2373917	0.374	0	2373917	0.000
L23	60.25 - 60 (23)	P36x0.625	893992	2373917	0.377	0	2373917	0.000
L24	60 - 59.75 (24)	P42x0.525	899392	2600925	0.346	0	2600925	0.000
L25	59.75 - 54.75 (25)	P42x0.525	1009342	2600925	0.388	0	2600925	0.000
L26	54.75 - 49.75 (26)	P42x0.525	1122883	2600925	0.432	0	2600925	0.000
L27	49.75 - 44.75 (27)	P42x0.525	1239925	2600925	0.477	0	2600925	0.000
L28	44.75 - 40.5 (28)	P42x0.525	1342150	2600925	0.516	0	2600925	0.000
L29	40.5 - 40.25 (29)	P42x0.65	1348242	3306625	0.408	0	3306625	0.000
L30	40.25 - 40 (30)	P42x0.65	1354342	3306625	0.410	0	3306625	0.000

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L31	40 - 39.75 (31)	P48x0.55625	1360450	3569342	0.381	0	3569342	0.000
L32	39.75 - 34.75 (32)	P48x0.55625	1484525	3569342	0.416	0	3569342	0.000
L33	34.75 - 29.75 (33)	P48x0.55625	1612117	3569342	0.452	0	3569342	0.000
L34	29.75 - 24.75 (34)	P48x0.55625	1743183	3569342	0.488	0	3569342	0.000
L35	24.75 - 20.5 (35)	P48x0.55625	1857400	3569342	0.520	0	3569342	0.000
L36	20.5 - 20.25 (36)	P48x0.675	1864200	4429592	0.421	0	4429592	0.000
L37	20.25 - 20 (37)	P48x0.675	1871008	4429592	0.422	0	4429592	0.000
L38	20 - 19.75 (38)	P54x0.5875	1877825	4739867	0.396	0	4739867	0.000
L39	19.75 - 14.75 (39)	P54x0.5875	2016158	4739867	0.425	0	4739867	0.000
L40	14.75 - 9.75 (40)	P54x0.5875	2158258	4739867	0.455	0	4739867	0.000
L41	9.75 - 4.75 (41)	P54x0.5875	2304075	4739867	0.486	0	4739867	0.000
L42	4.75 - 4.25 (42)	P54x0.5875	2318858	4739867	0.489	0	4739867	0.000
L43	4.25 - 4 (43)	P54x0.5125	2326267	4080767	0.570	0	4080767	0.000
L44	4 - 0 (44)	P54x0.5125	2445967	4080767	0.599	0	4080767	0.000

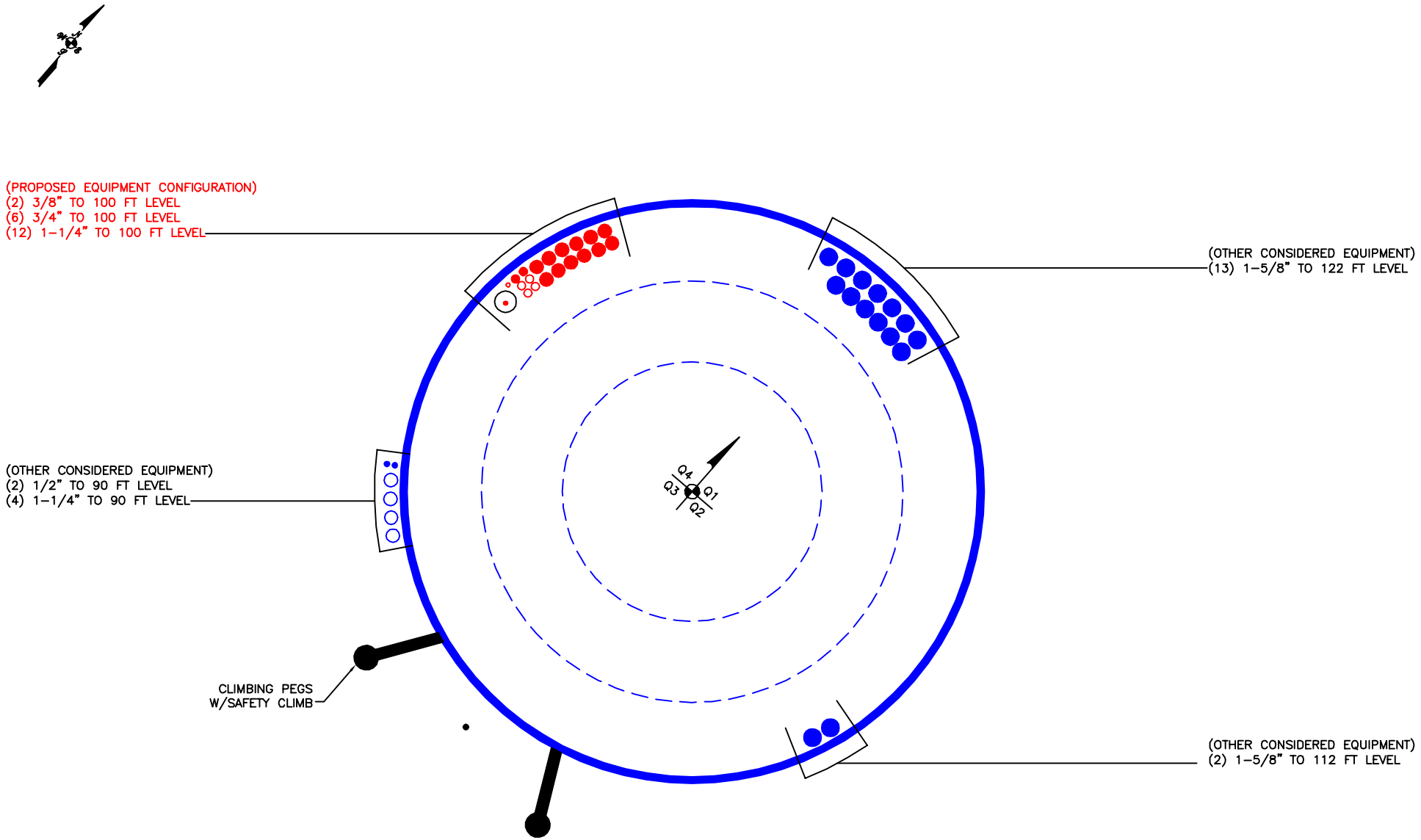
Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	125 - 120 (1)	P24x0.375	4097	315621	0.013	299	655568	0.000
L2	120 - 115 (2)	P24x0.375	4375	315621	0.014	299	655568	0.000
L3	115 - 110 (3)	P24x0.375	9129	315621	0.029	545	655568	0.001
L4	110 - 105 (4)	P24x0.375	9455	315621	0.030	979	655568	0.001
L5	105 - 100 (5)	P24x0.375	9707	315621	0.031	979	655568	0.001
L6	100 - 95 (6)	P30x0.375	14376	395779	0.036	3249	994725	0.003
L7	95 - 90 (7)	P30x0.375	14679	395779	0.037	3249	994725	0.003
L8	90 - 85 (8)	P30x0.375	18548	395779	0.047	3083	994725	0.003
L9	85 - 84.75 (9)	P30x0.54375	18575	570610	0.033	3083	1477733	0.002
L10	84.75 - 80.5 (10)	P30x0.54375	19078	570610	0.033	3083	1477733	0.002
L11	80.5 - 80.25 (11)	P30x0.6125	19104	641256	0.030	3083	1656817	0.002
L12	80.25 - 80 (12)	P30x0.6125	19133	641256	0.030	3083	1656817	0.002
L13	80 - 79.75 (13)	P36x0.5125	19168	647936	0.030	3083	2021567	0.002
L14	79.75 - 79 (14)	P36x0.5125	19274	647936	0.030	3083	2021567	0.002
L15	79 - 78.75 (15)	P36x0.375	19308	454187	0.043	3083	1094275	0.003
L16	78.75 - 73.75 (16)	P36x0.375	19632	454187	0.043	3082	1094275	0.003
L17	73.75 - 73.5 (17)	P36x0.375	19663	454187	0.043	3082	1094275	0.003
L18	73.5 - 73.25 (18)	P36x0.5625	19698	710147	0.028	3082	2212542	0.001
L19	73.25 - 68.25 (19)	P36x0.5625	20385	710147	0.029	3082	2212542	0.001
L20	68.25 - 63.25 (20)	P36x0.5625	21088	710147	0.030	3082	2212542	0.001
L21	63.25 - 60.5 (21)	P36x0.5625	21520	710147	0.030	2242	2212542	0.001

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L22	60.5 - 60.25 (22)	P36x0.625	21546	787661	0.027	2242	2449717	0.001
L23	60.25 - 60 (23)	P36x0.625	21578	787661	0.027	2242	2449717	0.001
L24	60 - 59.75 (24)	P42x0.525	21615	775727	0.028	2242	2800233	0.001
L25	59.75 - 54.75 (25)	P42x0.525	22350	775727	0.029	2242	2800233	0.001
L26	54.75 - 49.75 (26)	P42x0.525	23054	775727	0.030	2241	2800233	0.001
L27	49.75 - 44.75 (27)	P42x0.525	23749	775727	0.031	2241	2800233	0.001
L28	44.75 - 40.5 (28)	P42x0.525	24348	775727	0.031	2241	2800233	0.001
L29	40.5 - 40.25 (29)	P42x0.65	24375	957529	0.025	2241	3481025	0.001
L30	40.25 - 40 (30)	P42x0.65	24407	957529	0.025	2241	3481025	0.001
L31	40 - 39.75 (31)	P48x0.55625	24444	940182	0.026	2241	3775583	0.001
L32	39.75 - 34.75 (32)	P48x0.55625	25169	940182	0.027	2241	3775583	0.001
L33	34.75 - 29.75 (33)	P48x0.55625	25851	940182	0.027	2241	3775583	0.001
L34	29.75 - 24.75 (34)	P48x0.55625	26564	940182	0.028	2241	3775583	0.001
L35	24.75 - 20.5 (35)	P48x0.55625	27177	940182	0.029	2241	3775583	0.001
L36	20.5 - 20.25 (36)	P48x0.675	27204	1138040	0.024	2241	4735083	0.000
L37	20.25 - 20 (37)	P48x0.675	27237	1138040	0.024	2241	4735083	0.000
L38	20 - 19.75 (38)	P54x0.5875	27275	1117930	0.024	2241	4954017	0.000
L39	19.75 - 14.75 (39)	P54x0.5875	28038	1117930	0.025	2241	4954017	0.000
L40	14.75 - 9.75 (40)	P54x0.5875	28786	1117930	0.026	2241	4954017	0.000
L41	9.75 - 4.75 (41)	P54x0.5875	29524	1117930	0.026	2241	4954017	0.000
L42	4.75 - 4.25 (42)	P54x0.5875	29593	1117930	0.026	2241	4954017	0.000
L43	4.25 - 4 (43)	P54x0.5125	29628	976583	0.030	2241	3653592	0.001
L44	4 - 0 (44)	P54x0.5125	30206	976583	0.031	2241	3653592	0.001

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 822765 TOWER ID: C_BASELEVEL

APPENDIX C

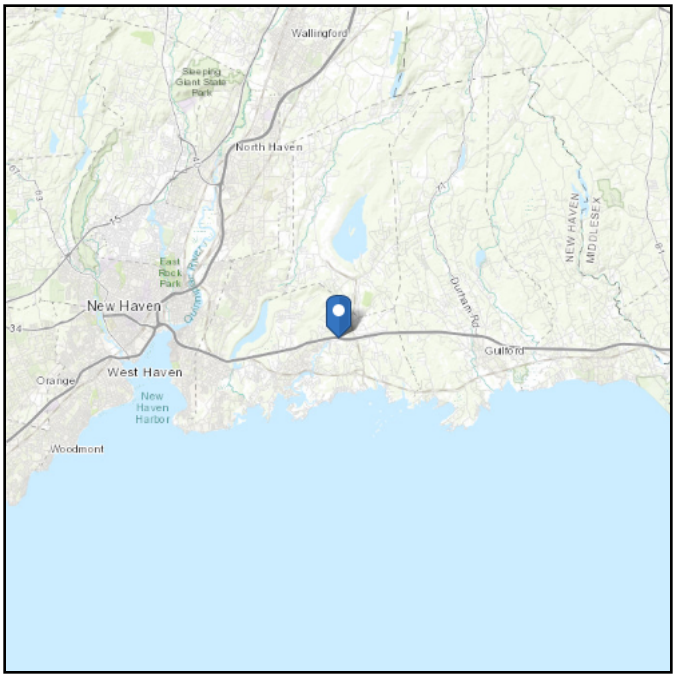
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 56.16 ft (NAVD 88)
Latitude: 41.293933
Longitude: -72.785706



Wind

Results:

Wind Speed:	127 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	104 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Tue Jan 15 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

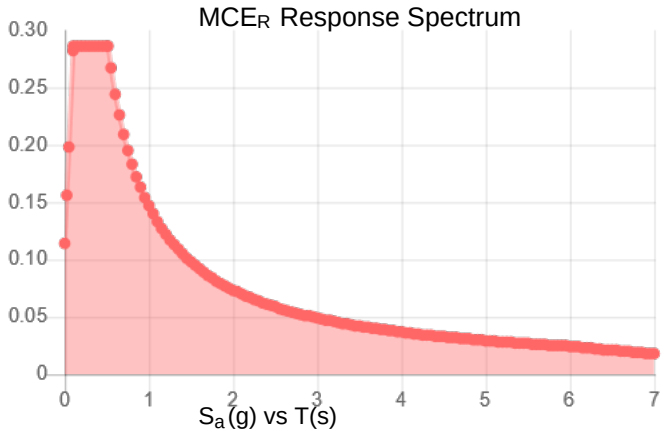
Seismic

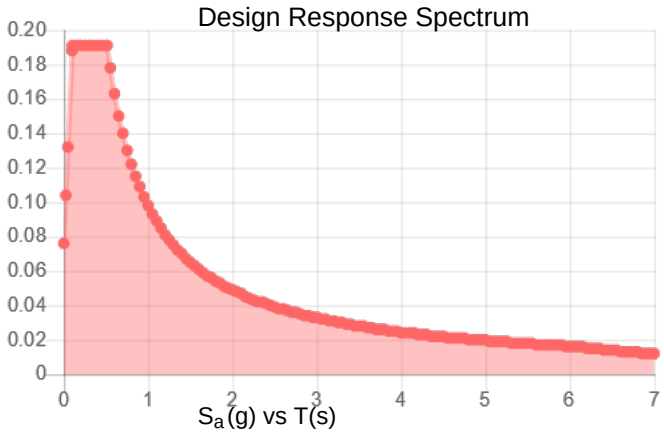
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.179	S_{DS} :	0.191
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.092
S_{MS} :	0.286	PGA_M :	0.147
S_{M1} :	0.147	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Jan 15 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Jan 15 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

CCIpole

per TIA-222- H

Site BU: 822765

Work Order: 1681617

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	125	25		0	24	24	0.375		A53-B-42
2	100	20		0	30.00	30	0.375		A53-B-42
3	80	20		0	36.00	36	0.375		A53-B-42
4	60	20		0	42.00	42	0.375		A53-B-42
5	40	20		0	48.00	48	0.375		A53-B-42
6	20	20		0	54.00	54	0.375		A53-B-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	4.25	plate	(TS) 1.25x6.50 (65 ksi)	3						139				214								349
2	0	4.25	plate	TS) 1.25x1.6875 (65 ks	8	19			64		109		154		199	215				289		334	
3	4.25	20	plate	CFP-085125 - Lower P	3	0					120						240						
4	20	20.5	plate	CI-CFP-085125 - Offse	3	0					120						240						
5	20.5	40	plate	CFP-065125 - Lower P	3	0					120						240						
6	40	40.5	plate	CI-CFP-065125 - Offse	3	0					120						240						
7	40.5	60	plate	FP-060100-25 - Lower	3	0					120						240						
8	60	60.5	plate	-CFP-060100-25 - Off	3	0					120						240						
9	60.5	73.5	plate	CCI-CFP-060100-15	3	0					120						240						
10	79	80	plate	Stiffener 4.5x1 - Lowe	3	0					120						240						
11	80	80.5	plate	ge Stiffener 4.5x1 - Of	3	0					120						240						
12	80.5	85	plate	Stiffener 4.5x1 - Uppe	3	0					120						240						
13																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	1.25	5.75	7.1875	3.625	n/a	n/a	0.750	7.188	0.0000	A572-65
2	1.25	0.9375	1.171875	1.21875	n/a	n/a	0.750	1.172	0.0000	A572-65
3	8.5	1.25	10.625	0.625	45.000	n/a	24.000	9.063	1.1875	A572-65
4	8.5	1.25	10.625	3.625	n/a	n/a	24.000	9.063	1.1875	A572-65
5	6.5	1.25	8.125	0.625	90.000	n/a	16.000	6.563	1.1875	A572-65
6	6.5	1.25	8.125	3.625	n/a	n/a	16.000	6.563	1.1875	A572-65
7	6	1	6	0.5	66.000	n/a	16.000	4.750	1.1875	A572-65
8	6	1	6	3.5	n/a	n/a	16.000	4.750	1.1875	A572-65
9	6	1	6	0.5	24.000	24.000	24.000	4.750	1.1875	A572-65
10	4.5	1	4.5	0.5	18.000	n/a	16.000	3.250	1.1875	A572-65
11	4.5	1	4.5	3.5	n/a	n/a	16.000	3.250	1.1875	A572-65
12	4.5	1	4.5	0.5	n/a	18.000	16.000	3.250	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	125 - 120	5		0	24.000	24.000	0.375	A53-B-42	1.000
2	120 - 115	5		0	24.000	24.000	0.375	A53-B-42	1.000
3	115 - 110	5		0	24.000	24.000	0.375	A53-B-42	1.000
4	110 - 105	5		0	24.000	24.000	0.375	A53-B-42	1.000
5	105 - 100	5	0	0	24.000	24.000	0.375	A53-B-42	1.000
6	100 - 95	5		0	30.000	30.000	0.375	A53-B-42	1.000
7	95 - 90	5		0	30.000	30.000	0.375	A53-B-42	1.000
8	90 - 85	5		0	30.000	30.000	0.375	A53-B-42	1.000
9	85 - 84.75	0.25		0	30.000	30.000	0.54375	A53-B-42	0.962
10	84.75 - 80.5	4.25		0	30.000	30.000	0.54375	A53-B-42	0.962
11	80.5 - 80.25	0.25		0	30.000	30.000	0.6125	A53-B-42	0.856
12	80.25 - 80	0.25	0	0	30.000	30.000	0.6125	A53-B-42	0.856
13	80 - 79.75	0.25		0	36.000	36.000	0.5125	A53-B-42	0.971
14	79.75 - 79	0.75		0	36.000	36.000	0.5125	A53-B-42	0.971
15	79 - 78.75	0.25		0	36.000	36.000	0.375	A53-B-42	1.000
16	78.75 - 73.75	5		0	36.000	36.000	0.375	A53-B-42	1.000
17	73.75 - 73.5	0.25		0	36.000	36.000	0.375	A53-B-42	1.000
18	73.5 - 73.25	0.25		0	36.000	36.000	0.5625	A53-B-42	0.958
19	73.25 - 68.25	5		0	36.000	36.000	0.5625	A53-B-42	0.958
20	68.25 - 63.25	5		0	36.000	36.000	0.5625	A53-B-42	0.958
21	63.25 - 60.5	2.75		0	36.000	36.000	0.5625	A53-B-42	0.958
22	60.5 - 60.25	0.25		0	36.000	36.000	0.625	A53-B-42	0.863
23	60.25 - 60	0.25	0	0	36.000	36.000	0.625	A53-B-42	0.863
24	60 - 59.75	0.25		0	42.000	42.000	0.525	A53-B-42	0.980
25	59.75 - 54.75	5		0	42.000	42.000	0.525	A53-B-42	0.980
26	54.75 - 49.75	5		0	42.000	42.000	0.525	A53-B-42	0.980
27	49.75 - 44.75	5		0	42.000	42.000	0.525	A53-B-42	0.980
28	44.75 - 40.5	4.25		0	42.000	42.000	0.525	A53-B-42	0.980
29	40.5 - 40.25	0.25		0	42.000	42.000	0.65	A53-B-42	0.869
30	40.25 - 40	0.25	0	0	42.000	42.000	0.65	A53-B-42	0.869
31	40 - 39.75	0.25		0	48.000	48.000	0.55625	A53-B-42	0.971
32	39.75 - 34.75	5		0	48.000	48.000	0.55625	A53-B-42	0.971
33	34.75 - 29.75	5		0	48.000	48.000	0.55625	A53-B-42	0.971
34	29.75 - 24.75	5		0	48.000	48.000	0.55625	A53-B-42	0.971
35	24.75 - 20.5	4.25		0	48.000	48.000	0.55625	A53-B-42	0.971
36	20.5 - 20.25	0.25		0	48.000	48.000	0.675	A53-B-42	0.877
37	20.25 - 20	0.25	0	0	48.000	48.000	0.675	A53-B-42	0.877
38	20 - 19.75	0.25		0	54.000	54.000	0.5875	A53-B-42	0.964
39	19.75 - 14.75	5		0	54.000	54.000	0.5875	A53-B-42	0.964
40	14.75 - 9.75	5		0	54.000	54.000	0.5875	A53-B-42	0.964
41	9.75 - 4.75	5		0	54.000	54.000	0.5875	A53-B-42	0.964
42	4.75 - 4.25	0.5		0	54.000	54.000	0.5875	A53-B-42	0.964
43	4.25 - 4	0.25		0	54.000	54.000	0.5125	A53-B-42	1.093
44	4 - 0	4		0	54.000	54.000	0.5125	A53-B-42	1.093

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	125 - 120	3.93	8.33	4.10
2	120 - 115	4.55	29.51	4.37
3	115 - 110	7.93	65.04	9.13
4	110 - 105	8.58	111.40	9.46
5	105 - 100	9.24	159.31	9.71
6	100 - 95	13.16	230.80	14.38
7	95 - 90	14.03	303.42	14.68
8	90 - 85	18.30	395.16	18.55
9	85 - 84.75	18.36	399.81	18.57
10	84.75 - 80.5	19.37	479.83	19.08
11	80.5 - 80.25	19.43	484.61	19.10
12	80.25 - 80	19.49	489.39	19.13
13	80 - 79.75	19.56	494.18	19.17
14	79.75 - 79	19.75	508.60	19.27
15	79 - 78.75	19.81	513.42	19.31
16	78.75 - 73.75	20.87	610.80	19.63
17	73.75 - 73.5	20.93	615.71	19.66
18	73.5 - 73.25	21.00	620.63	19.70
19	73.25 - 68.25	22.41	720.87	20.38
20	68.25 - 63.25	23.84	824.57	21.09
21	63.25 - 60.5	24.63	883.21	21.52
22	60.5 - 60.25	24.70	888.60	21.55
23	60.25 - 60	24.77	893.99	21.58
24	60 - 59.75	24.85	899.39	21.62
25	59.75 - 54.75	26.42	1009.34	22.35
26	54.75 - 49.75	27.99	1122.89	23.05
27	49.75 - 44.75	29.57	1239.92	23.75
28	44.75 - 40.5	30.92	1342.15	24.35
29	40.5 - 40.25	31.01	1348.24	24.37
30	40.25 - 40	31.10	1354.34	24.41
31	40 - 39.75	31.19	1360.45	24.44
32	39.75 - 34.75	33.04	1484.53	25.17
33	34.75 - 29.75	34.89	1612.11	25.85
34	29.75 - 24.75	36.76	1743.18	26.56
35	24.75 - 20.5	38.34	1857.40	27.18
36	20.5 - 20.25	38.45	1864.20	27.20
37	20.25 - 20	38.55	1871.01	27.24
38	20 - 19.75	38.66	1877.83	27.28
39	19.75 - 14.75	40.81	2016.16	28.04
40	14.75 - 9.75	42.96	2158.26	28.79
41	9.75 - 4.75	45.13	2304.07	29.52
42	4.75 - 4.25	45.34	2318.86	29.59
43	4.25 - 4	45.45	2326.26	29.63
44	4 - 0	47.17	2445.96	30.21

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
125 - 120	Pole	TP24x24x0.375	Pole	1.6%	Pass
120 - 115	Pole	TP24x24x0.375	Pole	4.9%	Pass
115 - 110	Pole	TP24x24x0.375	Pole	10.7%	Pass
110 - 105	Pole	TP24x24x0.375	Pole	17.8%	Pass
105 - 100	Pole	TP24x24x0.375	Pole	25.2%	Pass
100 - 95	Pole	TP30x30x0.375	Pole	24.2%	Pass
95 - 90	Pole	TP30x30x0.375	Pole	31.6%	Pass
90 - 85	Pole	TP30x30x0.375	Pole	41.1%	Pass
85 - 84.75	Pole + Reinf.	TP30x30x0.5438	Reinf. 12 Tension Rupture	30.8%	Pass
84.75 - 80.5	Pole + Reinf.	TP30x30x0.5438	Reinf. 12 Tension Rupture	36.9%	Pass
80.5 - 80.25	Pole + Reinf.	TP30x30x0.6125	Reinf. 11 Tension Rupture	39.4%	Pass
80.25 - 80	Pole + Reinf.	TP30x30x0.6125	Reinf. 11 Tension Rupture	39.8%	Pass
80 - 79.75	Pole + Reinf.	TP36x36x0.5125	Reinf. 10 Tension Rupture	27.7%	Pass
79.75 - 79	Pole + Reinf.	TP36x36x0.5125	Reinf. 10 Tension Rupture	28.5%	Pass
79 - 78.75	Pole	TP36x36x0.375	Pole	37.9%	Pass
78.75 - 73.75	Pole	TP36x36x0.375	Pole	44.9%	Pass
73.75 - 73.5	Pole	TP36x36x0.375	Pole	45.2%	Pass
73.5 - 73.25	Pole + Reinf.	TP36x36x0.5625	Reinf. 9 Compression	35.9%	Pass
73.25 - 68.25	Pole + Reinf.	TP36x36x0.5625	Reinf. 9 Compression	41.6%	Pass
68.25 - 63.25	Pole + Reinf.	TP36x36x0.5625	Reinf. 9 Compression	47.5%	Pass
63.25 - 60.5	Pole + Reinf.	TP36x36x0.5625	Reinf. 9 Compression	50.9%	Pass
60.5 - 60.25	Pole + Reinf.	TP36x36x0.625	Reinf. 8 Tension Rupture	43.4%	Pass
60.25 - 60	Pole + Reinf.	TP36x36x0.625	Reinf. 8 Tension Rupture	43.7%	Pass
60 - 59.75	Pole + Reinf.	TP42x42x0.525	Pole	35.2%	Pass
59.75 - 54.75	Pole + Reinf.	TP42x42x0.525	Pole	39.4%	Pass
54.75 - 49.75	Pole + Reinf.	TP42x42x0.525	Pole	43.8%	Pass
49.75 - 44.75	Pole + Reinf.	TP42x42x0.525	Pole	48.3%	Pass
44.75 - 40.5	Pole + Reinf.	TP42x42x0.525	Pole	52.2%	Pass
40.5 - 40.25	Pole + Reinf.	TP42x42x0.65	Reinf. 6 Tension Rupture	44.4%	Pass
40.25 - 40	Pole + Reinf.	TP42x42x0.65	Reinf. 6 Tension Rupture	44.6%	Pass
40 - 39.75	Pole + Reinf.	TP48x48x0.5563	Pole	39.0%	Pass
39.75 - 34.75	Pole + Reinf.	TP48x48x0.5563	Pole	42.5%	Pass
34.75 - 29.75	Pole + Reinf.	TP48x48x0.5563	Pole	46.2%	Pass
29.75 - 24.75	Pole + Reinf.	TP48x48x0.5563	Pole	49.9%	Pass
24.75 - 20.5	Pole + Reinf.	TP48x48x0.5563	Pole	53.1%	Pass
20.5 - 20.25	Pole + Reinf.	TP48x48x0.675	Reinf. 4 Compression	47.9%	Pass
20.25 - 20	Pole + Reinf.	TP48x48x0.675	Reinf. 4 Compression	48.1%	Pass
20 - 19.75	Pole + Reinf.	TP54x54x0.5875	Pole	41.0%	Pass
19.75 - 14.75	Pole + Reinf.	TP54x54x0.5875	Pole	44.0%	Pass
14.75 - 9.75	Pole + Reinf.	TP54x54x0.5875	Pole	47.0%	Pass
9.75 - 4.75	Pole + Reinf.	TP54x54x0.5875	Pole	50.2%	Pass
4.75 - 4.25	Pole + Reinf.	TP54x54x0.5875	Pole	50.5%	Pass
4.25 - 4	Pole + Reinf.	TP54x54x0.5125	Pole	57.5%	Pass
4 - 0	Pole + Reinf.	TP54x54x0.5125	Pole	60.4%	Pass
				Summary	
			Pole	60.4%	Pass
			Reinforcement	50.9%	Pass
			Overall	60.4%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*												
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
125 - 120	1942	n/a	1942	27.83	n/a	27.83	1.6%												
120 - 115	1942	n/a	1942	27.83	n/a	27.83	4.9%												
115 - 110	1942	n/a	1942	27.83	n/a	27.83	10.7%												
110 - 105	1942	n/a	1942	27.83	n/a	27.83	17.8%												
105 - 100	1942	n/a	1942	27.83	n/a	27.83	25.2%												
100 - 95	3829	n/a	3829	34.90	n/a	34.90	24.2%												
95 - 90	3829	n/a	3829	34.90	n/a	34.90	31.6%												
90 - 85	3829	n/a	3829	34.90	n/a	34.90	41.1%												
85 - 84.75	3829	1634	5463	34.90	13.50	48.40	29.1%												30.8%
84.75 - 80.5	3829	1634	5463	34.90	13.50	48.40	34.8%												36.9%
80.5 - 80.25	3829	2322	6152	34.90	13.50	48.40	31.3%											39.4%	
80.25 - 80	3829	2322	6152	34.90	13.50	48.40	31.6%											39.8%	
80 - 79.75	6659	2322	8981	41.97	13.50	55.47	27.0%										27.7%		
79.75 - 79	6659	2322	8981	41.97	13.50	55.47	27.7%										28.5%		
79 - 78.75	6659	n/a	6659	41.97	n/a	41.97	37.9%												
78.75 - 73.75	6659	n/a	6659	41.97	n/a	41.97	44.9%												
73.75 - 73.5	6659	n/a	6659	41.97	n/a	41.97	45.2%												
73.5 - 73.25	6659	3108	9767	41.97	18.00	59.97	31.0%									35.9%			
73.25 - 68.25	6659	3108	9767	41.97	18.00	59.97	36.0%									41.6%			
68.25 - 63.25	6659	3108	9767	41.97	18.00	59.97	41.1%									47.5%			
63.25 - 60.5	6659	3108	9767	41.97	18.00	59.97	43.9%									50.9%			
60.5 - 60.25	6659	4188	10847	41.97	18.00	59.97	39.8%								43.4%				
60.25 - 60	6659	4188	10847	41.97	18.00	59.97	40.1%								43.7%				
60 - 59.75	10622	4188	14810	49.04	18.00	67.04	35.2%							32.4%					
59.75 - 54.75	10622	4188	14810	49.04	18.00	67.04	39.4%							36.3%					
54.75 - 49.75	10622	4188	14810	49.04	18.00	67.04	43.8%							40.3%					
49.75 - 44.75	10622	4188	14810	49.04	18.00	67.04	48.3%							44.4%					
44.75 - 40.5	10622	4188	14810	49.04	18.00	67.04	52.2%							48.1%					
40.5 - 40.25	10622	7435	18056	49.04	24.38	73.41	43.1%						44.4%						
40.25 - 40	10622	7435	18056	49.04	24.38	73.41	43.3%						44.6%						
40 - 39.75	15908	7435	23343	56.11	24.38	80.48	39.0%					34.8%							
39.75 - 34.75	15908	7435	23343	56.11	24.38	80.48	42.5%					38.0%							
34.75 - 29.75	15908	7435	23343	56.11	24.38	80.48	46.2%					41.2%							
29.75 - 24.75	15908	7435	23343	56.11	24.38	80.48	49.9%					44.5%							
24.75 - 20.5	15908	7435	23343	56.11	24.38	80.48	53.1%					47.4%							
20.5 - 20.25	15908	12261	28169	56.11	31.88	87.98	44.3%				47.9%								
20.25 - 20	15908	12261	28169	56.11	31.88	87.98	44.5%				48.1%								
20 - 19.75	22710	12261	34970	63.18	31.88	95.05	41.0%			39.0%									
19.75 - 14.75	22710	12261	34970	63.18	31.88	95.05	44.0%			41.9%									
14.75 - 9.75	22710	12261	34970	63.18	31.88	95.05	47.0%			44.8%									
9.75 - 4.75	22710	12261	34970	63.18	31.88	95.05	50.2%			47.8%									
4.75 - 4.25	22710	12261	34970	63.18	31.88	95.05	50.5%			48.1%									
4.25 - 4	22718	8375	31093	63.18	30.94	94.11	57.5%	38.9%	42.5%										
4 - 0	22718	8375	31093	63.18	30.94	94.11	60.4%	40.9%	44.7%										

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

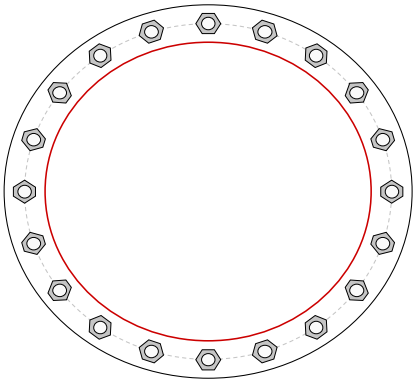
Elevation = 100 ft.

BU #	822765
Site Name	anford/ I-95/ X55/ Dtr
Order #	474807 Rev. 0
TIA-222 Revision	H

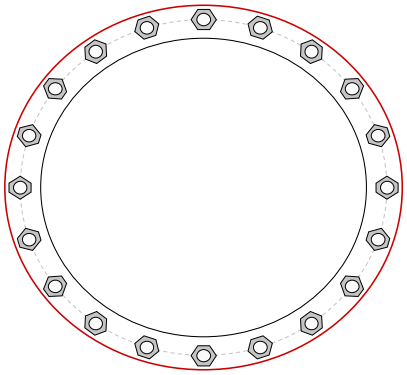
Applied Loads	
Moment (kip-ft)	159.31
Axial Force (kips)	9.24
Shear Force (kips)	9.71

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(20) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 27" BC

Top Plate Data

30" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

24" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	13.69	
Allowable (kips)	54.53	
Stress Rating:	**23.9%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Monopole Flange Plate Connection

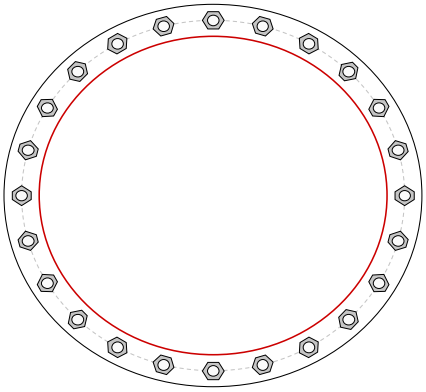
Elevation = 80 ft.

BU #	822765
Site Name	anford/ I-95/ X55/ Dtr
Order #	474807 Rev. 0
TIA-222 Revision	H

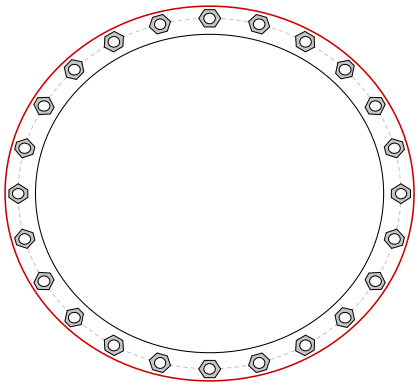
Applied Loads	
Moment (kip-ft)	304.65
Axial Force (kips)	14.05
Shear Force (kips)	13.80

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(24) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 33" BC

Top Plate Data

36" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

30" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	17.87	
Allowable (kips)	54.53	
Stress Rating:	**31.2%**	Pass

Top Plate Capacity

Max Stress (ksi):	11.75	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**34.5%**	Pass
Tension Side Stress Rating:	**12.3%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	11.89	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**34.9%**	Pass
Tension Side Stress Rating:	**N/A**	

Monopole Flange Plate Connection

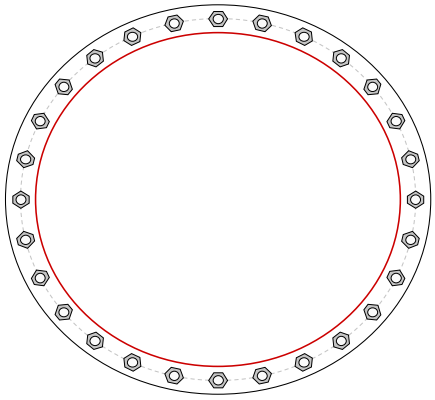
Elevation = 60 ft.

BU #	822765
Site Name	anford/ I-95/ X55/ Dtr
Order #	474807 Rev. 0
TIA-222 Revision	H

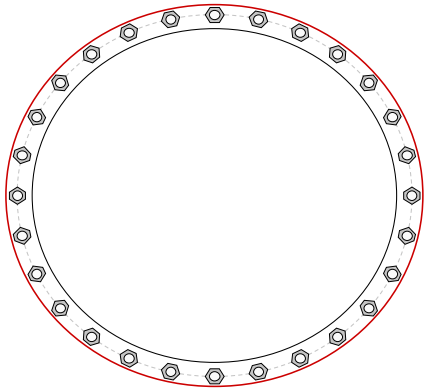
Applied Loads	
Moment (kip-ft)	548.81
Axial Force (kips)	17.34
Shear Force (kips)	15.10

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(28) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 39" BC

Top Plate Data

42" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

36" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	23.50	
Allowable (kips)	54.53	
Stress Rating:	**41.0%**	Pass

Top Plate Capacity

Max Stress (ksi):	14.80	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**43.5%**	Pass
Tension Side Stress Rating:	**15.6%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	15.39	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**45.2%**	Pass
Tension Side Stress Rating:	**N/A**	

Monopole Flange Plate Connection

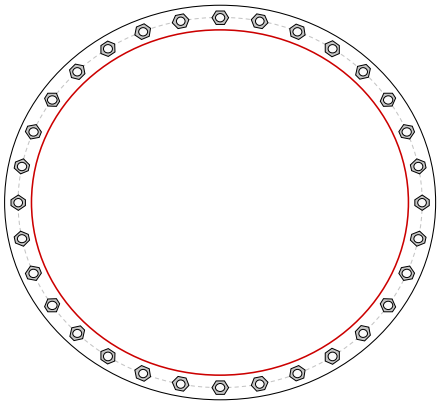
Elevation = 40 ft.

BU #	822765
Site Name	anford/ I-95/ X55/ Dtr
Order #	474807 Rev. 0
TIA-222 Revision	H

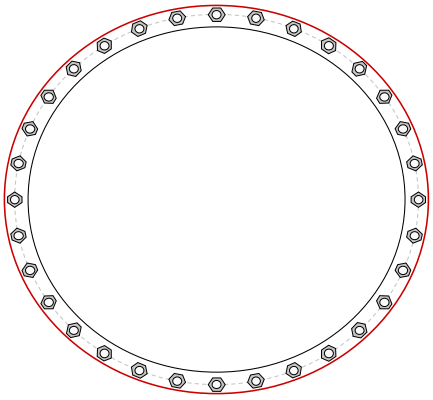
Applied Loads	
Moment (kip-ft)	796.68
Axial Force (kips)	20.76
Shear Force (kips)	16.30

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(32) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 45" BC

Top Plate Data

48" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

42" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

48" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	25.90	
Allowable (kips)	54.53	
Stress Rating:	**45.2%**	Pass

Top Plate Capacity

Max Stress (ksi):	16.33	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**48.0%**	Pass
Tension Side Stress Rating:	**16.8%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	16.89	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**49.6%**	Pass
Tension Side Stress Rating:	**N/A**	

Monopole Flange Plate Connection

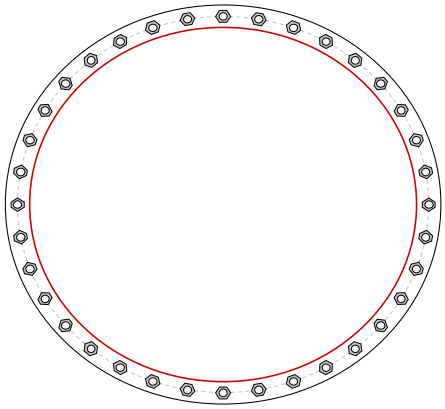
Elevation = 20 ft.

BU #	822765
Site Name	anford/ I-95/ X55/ Dtr
Order #	474807 Rev. 0
TIA-222 Revision	H

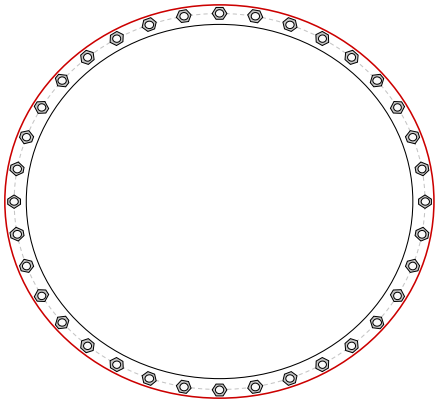
Applied Loads	
Moment (kip-ft)	1056.65
Axial Force (kips)	24.58
Shear Force (kips)	17.37

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(36) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 51" BC

Top Plate Data

54" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

48" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

48" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

54" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	26.94	
Allowable (kips)	54.53	
Stress Rating:	**47.0%**	Pass

Top Plate Capacity

Max Stress (ksi):	16.88	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**49.6%**	Pass
Tension Side Stress Rating:	**17.2%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	17.54	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**51.6%**	Pass
Tension Side Stress Rating:	**N/A**	

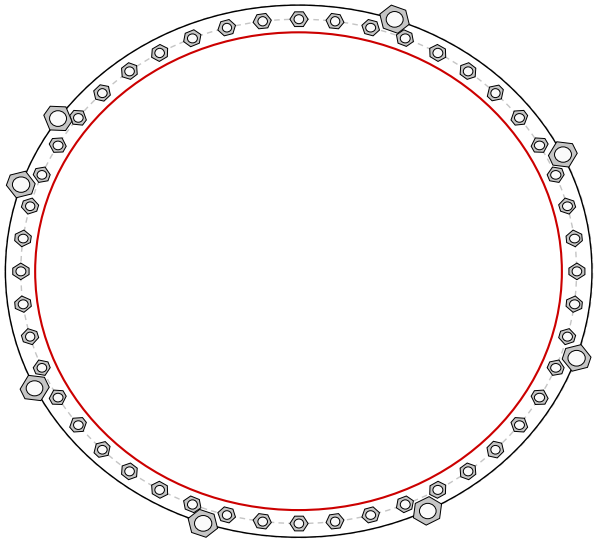
Monopole Base Plate Connection

Site Info	
BU #	822765
Site Name	anford/ I-95/ X55/ Dtr
Order #	474807 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2

Applied Loads	
Moment (kip-ft)	2445.96
Axial Force (kips)	47.18
Shear Force (kips)	30.20

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (48) 1" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 57" BC

GROUP 2: (8) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 60.25" BC

pos. (deg): 341, 296, 251, 206, 161, 145, 71, 26

Base Plate Data

60.125" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Stiffener Data

N/A

Pole Data

54" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_c = 29.8	ϕPn_c = 63.63	**Stress Rating**
Vu = 0.63	ϕVn = 19.09	**52.0%**
Mu = 0.82	ϕMn = 10.67	**Pass**
GROUP 2:		
Pu_c = 95.18	ϕPn_c = 199.5	**Stress Rating**
Vu = 0	ϕVn = 59.85	**45.4%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	32.76	(Flexural)
Allowable Stress (ksi):	32.4	
Stress Rating:	**96.3%**	**Pass**

Drilled Pier Foundation

BU # :	822765
Site Name:	Branford/ I-95/ X55/ Dtr
Order Number:	474807 Rev. 0

TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2445.964	
Axial Force (kips)	47.18	
Shear Force (kips)	30.196	

Material Properties		
Concrete Strength, f'c:	4	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	21	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 21' below grade		
Pier Diameter	6	ft
Rebar Quantity	24	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	5.88	-
Soil Safety Factor	2.22	-
Max Moment (kip-ft)	2598.50	-
Rating*	*57.1%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	387.09	-
End Bearing (kips)	254.47	-
Weight of Concrete (kips)	109.42	-
Total Capacity (kips)	641.56	-
Axial (kips)	156.60	-
Rating*	*23.2%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	5.85	-
Critical Moment (kip-ft)	2598.48	-
Critical Moment Capacity	3393.40	-
Rating*	*72.9%*	-

Soil Interaction Rating*	**57.1%**
Structural Foundation Rating*	**72.9%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑

Soil Profile				
Groundwater Depth	n/a	ft	# of Layers	3

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.33	3.33	120	150	0		0.000	0.000					Cohesionless
2	3.33	11	7.67	120	150		34	0.979	0.979				20	Cohesionless
3	11	21	10	150	150		33	1.987	1.987			12	100	Cohesionless

RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of AT&T Mobility, LLC

Crown Castle Site Name: Branford/ I-95/ X55/ Dtn1
Crown Castle Site BU: 822765
AT&T Mobility, LLC FA #: 10070944
10 Sylvia Street
Branford, CT
2/1/2019

Report Status:

AT&T Mobility, LLC Compliant

Sealed 1Feb2019 mike@h2dc.com
H2DC PLLC Ct CoA#: 0001714

Prepared By:

Sitesafe, LLC

8618 Westwood Center Drive,
Suite 315

Vienna, VA 22182

Voice 703-276-1100
Fax 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
Crown Castle
Branford, CT

My signature on the cover of this document indicates:

That I, Michael A McGuire, am currently and actively licensed to provide (in this state/jurisdiction as indicated within the professional electrical engineering seal on the cover of this document) professional electrical engineering services, as an employee of Hurricane Hill Development Company, PLLC , a duly authorized/registered engineering firm (in this state, as applicable) on behalf of SiteSafe, LLC; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Crown Castle (See attached Site Summary and Carrier documents), and that AT&T Mobility, LLC's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "Branford/ I-95/ X55/ Dtn1" ("the site"); and

That AT&T Mobility, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by AT&T Mobility, LLC and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That in addition to the emitters specified in the worksheet, there are additional collocated point-to-point microwave facilities on this structure and, the antennas used are highly directional oriented at angles at or just below the horizontal and, that the energy present at ground level is typically so low as to be considered insignificant and have not been included in this analysis; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for

licensees of AT&T Mobility, LLC's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed AT&T Mobility, LLC operation is no more than 4.966% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 9.833% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that AT&T Mobility, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

Crown Castle
Branford/ I-95/ X55/ Dtn1
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.832 %
AT&T Mobility, LLC	1.042 %
AT&T Mobility, LLC	0.349 %
AT&T Mobility, LLC (Proposed)	0.719 %
AT&T Mobility, LLC (Proposed)	0.663 %
AT&T Mobility, LLC (Proposed)	0.818 %
AT&T Mobility, LLC (Proposed)	0.543 %
Sprint	0.692 %
Sprint	0.395 %
Sprint	0.395 %
Sprint	0.458 %
T-Mobile	0.137 %
T-Mobile	0.283 %
T-Mobile	0.137 %
Verizon Wireless	0.62 %
Verizon Wireless	0.632 %
Verizon Wireless	0.648 %
Verizon Wireless	0.466 %
Composite Site MPE:	9.833 %

AT&T Mobility, LLC
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	2300	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	8.31679	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.83168	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
CCI Antennas	HPA-65R-BUU-H6	100	30	2831	6.219317	0.621932	7.403421	0.740342
ANDREW	SBNHH-1D65A	100	140	4297	5.259377	0.525938	8.301857	0.830186
ANDREW	SBNHH-1D65A	100	270	2685	3.287112	0.328711	5.188663	0.518866

AT&T Mobility, LLC
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	737	MHz
Maximum Permissible Exposure (MPE):	491.33	µW/cm^2
Maximum power density at ground level:	5.11971	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	1.042	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
CCI Antennas	HPA-65R-BUU-H6	100	30	2350	2.427634	0.494091	3.728478	0.758849
ANDREW	SBNHH-1D65A	100	140	2148	3.280843	0.667743	4.424158	0.900439
ANDREW	SBNHH-1D65A	100	270	2148	3.280843	0.667743	4.424158	0.900439

AT&T Mobility, LLC
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	1.98035	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.34947	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Powerwave	7770	100	30	1094	1.093212	0.19292	1.700207	0.300037
ANDREW	SBNHH-1D65A	100	140	1120	1.255199	0.221506	1.782996	0.314646
Powerwave	7770	100	270	1094	1.093212	0.19292	1.700207	0.300037

AT&T Mobility, LLC (Proposed)
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	7.1929	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.71929	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10965	100	30	6168	2.788729	0.278873	5.952308	0.595231
Kathrein-Scala	800-10964	100	140	5154	2.330386	0.233039	4.999907	0.499991
Kathrein-Scala	800-10964	100	270	5154	2.330386	0.233039	4.999907	0.499991

AT&T Mobility, LLC (Proposed)
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	763	MHz
Maximum Permissible Exposure (MPE):	508.67	µW/cm^2
Maximum power density at ground level:	3.37337	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.66318	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10965	100	30	2959	2.414856	0.474742	3.097181	0.608882
Kathrein-Scala	800-10964	100	140	2209	1.833397	0.360432	2.57226	0.505687
Kathrein-Scala	800-10964	100	270	2209	1.833397	0.360432	2.57226	0.505687

AT&T Mobility, LLC (Proposed)
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	8.18009	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.81801	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10965	100	30	7114	3.232354	0.323235	7.669658	0.766966
Kathrein-Scala	800-10964	100	140	5274	2.338316	0.233832	5.685598	0.56856
Kathrein-Scala	800-10964	100	270	5274	2.396178	0.239618	5.685598	0.56856

AT&T Mobility, LLC (Proposed)
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	3.0768	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.54296	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10965	100	30	3607	2.291766	0.404429	2.398416	0.42325
Kathrein-Scala	800-10964	100	140	2631	1.582039	0.279183	1.954903	0.344983
Kathrein-Scala	800-10964	100	270	2631	1.582039	0.279183	1.954903	0.344983

Sprint
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	2500	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	6.9166	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.69166	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVTM14-C-I20	90	0	6168	2.612088	0.261209	5.552213	0.555221
RFS	APXVTM14-C-I20	90	120	6168	2.610091	0.261009	5.552213	0.555221
RFS	APXVTM14-C-I20	90	240	6168	2.612088	0.261209	5.552212	0.555221

Sprint
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	1990	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	3.9541	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.39541	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Commscope	NNVV-65B-R4	90	0	2781	2.218144	0.221814	3.924004	0.3924
Commscope	NNVV-65B-R4	90	120	2781	2.218144	0.221814	3.924004	0.3924
Commscope	NNVV-65B-R4	90	240	2781	2.218144	0.221814	3.924004	0.3924

Sprint
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	3.9541	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.39541	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Commscope	NNVV-65B-R4	90	0	2781	2.218144	0.221814	3.924004	0.3924
Commscope	NNVV-65B-R4	90	120	2781	2.218144	0.221814	3.924004	0.3924
Commscope	NNVV-65B-R4	90	240	2781	2.218144	0.221814	3.924004	0.3924

Sprint
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	862	MHz
Maximum Permissible Exposure (MPE):	574.67	µW/cm^2
Maximum power density at ground level:	2.63304	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.45819	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Commscope	NNVV-65B-R4	90	0	1901	2.312943	0.402484	2.367383	0.411958
Commscope	NNVV-65B-R4	90	120	1901	2.312943	0.402484	2.367383	0.411958
Commscope	NNVV-65B-R4	90	240	1901	2.312943	0.402484	2.367383	0.411958

T-Mobile
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.37426	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.13743	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B4A B2P	122	90	2061	0.683245	0.068324	0.780794	0.078079
Ericsson	AIR 21 B4A B2P	122	180	2061	0.683245	0.068324	0.780794	0.078079
Ericsson	AIR 21 B4A B2P	122	300	2061	0.683245	0.068324	0.780794	0.078079

T-Mobile
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	µW/cm^2
Maximum power density at ground level:	1.31991	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.28284	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	LNX-6515DS-VTM	122	90	1715	0.651159	0.139534	0.686916	0.147196
ANDREW	LNX-6515DS-VTM	122	180	1715	0.651159	0.139534	0.686916	0.147196
ANDREW	LNX-6515DS-VTM	122	300	1715	0.651159	0.139534	0.686916	0.147196

T-Mobile
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.37426	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.13743	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B2A B4P	122	90	2061	0.683245	0.068324	0.780794	0.078079
Ericsson	AIR 21 B2A B4P	122	180	2061	0.683245	0.068324	0.780794	0.078079
Ericsson	AIR 21 B2A B4P	122	300	2061	0.683245	0.068324	0.780794	0.078079

Verizon Wireless
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	751	MHz
Maximum Permissible Exposure (MPE):	500.67	µW/cm^2
Maximum power density at ground level:	3.10644	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.62046	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	LNX-6514DS-VTM	113	0	2827	2.015075	0.402478	3.030166	0.605226
ANDREW	LNX-6514DS-VTM	113	145	2827	2.015075	0.402478	3.030166	0.605226
ANDREW	LNX-6514DS-VTM	113	250	2827	2.015075	0.402478	3.030166	0.605226

Verizon Wireless
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	6.32491	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.63249	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	HBXX-6517DS-VTM	113	0	5130	2.245022	0.224502	4.018085	0.401808
ANDREW	HBXX-6517DS-VTM	113	145	5130	2.245022	0.224502	4.018084	0.401808
ANDREW	HBXX-6517DS-VTM	113	250	5130	2.245022	0.224502	4.018085	0.401808

Verizon Wireless
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	3.67294	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.64817	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	LNX-6514DS-VTM	113	0	3784	2.333083	0.411721	3.565505	0.629207
ANDREW	LNX-6514DS-VTM	113	145	3784	2.329903	0.411159	3.565505	0.629207
ANDREW	LNX-6514DS-VTM	113	250	3784	2.329903	0.411159	3.565505	0.629207

Verizon Wireless
Branford/ I-95/ X55/ Dtn1
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	4.66499	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.4665	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	HBXX-6517DS-VTM	113	0	5621	2.025599	0.20256	4.023173	0.402317
ANDREW	HBXX-6517DS-VTM	113	145	5621	2.025599	0.20256	4.023174	0.402317
ANDREW	HBXX-6517DS-VTM	113	250	5621	2.025599	0.20256	4.023173	0.402317