NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

June 6, 2016

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
167 Coccomo Circle (f.k.a – 167 Lester Street) New Britain, CT 06051
Latitude: 41.686679
Longitude: -72.757857
T-Mobile Site#: CT11783B_L1900

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 163-foot level of the existing 188-foot monopole at 167 Coccomo Circle (Formally Known As – 167 Lester Street) New Britain, CT 06051. The tower is owned by Crown Castle. The property is owned by Crown Castle. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 1900 MHz antenna. The antenna would be installed at the 163-foot level of the tower.

This facility was approved by the City of New Britain PZC. The PZ approval file is no longer available – See attached letter from the City Zoning Director.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Mayor Erin Stewart, Elected Official for the City of New Britain, as well as the property owner and the tower owner.

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

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

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

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

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

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

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

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

Sincerely,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 199 Brickyard Rd, Farmington, CT 06032
Email: denise@northeastsitesolutions.com

Attachments

cc: Erin Stewart- Mayor - as elected official
Crown Castle - as tower owner
Crown Castle - as property owner

Exhibit A

City of New Britain

DEPARTMENT OF
LICENSES, PERMITS AND INSPECTIONS

"New Britain: A City for All People"

Tel (860) 826-3384 27 West Main Street, Suite 404 New Britain, CT 06051 Fax (860) 612-4212

June 1, 2016

Denise Sabo
Northeast Site Solutions
199 Brickyard Road
Farmington CT 06032

Subject: 167 Coccomo Street AKA 167 Lester Street
I-2 District (general industry) Zone

Dear Sir or Madam:

This is to advise you that the zoning and use of the above caption Premises are governed by the law and regulations of the City of New Britain and the Premises are located in an I-2 District (general industry) under the City of New Britain Zoning Ordinances Section 200.

The property is being used as a Telecommunication tower, 200-10-110 Industry--which is not specifically prohibited. Therefore is a permitted use.

A file check in this department revealed no violations or special conditions on file. Certificate of Occupancy (completion) was issued May 30, 2002. CT Siting Council approval TS-VER-089-010418

I hope this letter will suffice in satisfying your needs. If you have any questions, please call at (860) 612 5014.

Sincerely,

David D. Zajac
Building Inspector
Zoning Enforcement Officer

Cc:
enclosed
file

B

City of New Britain
Building Department

Date Issued 5/30/02

BUILDING PERMIT — CERTIFICATE OF OCCUPANCY

1/9/01
Date 5/17/01

Permit No. B1779 & B2093

Applicant Crown Castle Atlantic, LLC Address 703 Hebron Ave, Glastonbury, CT

Permit To _____ (___) Story _____ No. of Dwelling Units _____
(Type of Improvement) (No.) (Proposed Use)

At (Location) 167 LESTER STREET Zoning District I2
(No.) (Street)

Subdivision _____ Lot _____ Block _____ Lot Size _____

Building is to be _____ Ft. wide by _____ Ft. long by _____ Ft. in height and shall conform in construction

To Type _____ Use Group _____ Basement Walls or Foundation _____
(Type)

Remarks: 190' telecommunication tower per plan and 1999 State Building Code. B1779.

Area or Volume Install 12'x30' panelized land site steel frame shelter, 40 KW diesel generator and 12 panel antennas approved by Siting Council 4/27/01. B2093.
(Cubic/Square Feet)

Owner John & Helen Balavender

Address 30 Biltmore St. NB, CT

(Building Inspector)

To be posted on premises — See reverse side for conditions of certificate.

B 2093

CITY OF NEW BRITAIN
DEPARTMENT OF LICENSES, PERMITS
AND INSPECTIONS
TELEPHONE: 826-3383

BUILDING/ZONING PERMIT

DATE	5/17/01
COST	35,000.
FEE	555.

APPLICANT Crown Castle Atlantic LLC TEL. NO. 860 798-3295

ADDRESS 703 Hebron Ave., Glastonbury, CT

PERMIT FOR: Install 12'x30' panelized land site steel frame shelter, 40 KW diesel generator and twelve (12) panel antennas, approved by siting council 4/27/01.

LOCATION 167 LESTER STREET

BUILDING DIMENSIONS ____ FT. WIDE BY ____ FT. LONG AND ____ FT. IN HEIGHT

BUILDING TYPE 5B USE GROUP U LOT SIZE ____ ZONE I2

OWNER John & Helen Balavender

ADDRESS 30 Biltmore St. NB, CT

CERT. OF OCCUPANCY REQUIRED YES X NO ___

AS-BUILT SURVEY REQUIRED YES ___ NO X

THE MATCHING APPLICATION IS PART AND PARCEL OF THIS BUILDING PERMIT.

WHERE APPLICABLE SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING AND MECHANICAL INSTALLATIONS.

OFFICE COPY

BUILDING OFFICIAL

MANDATORY INSPECTIONS REQUIRED

POST PERMIT FOR DURATION OF WORK

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

April 27, 2001

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

RE: **TS-VER-089-010418 - Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 167 Lester Street, New Britain.**

Dear Attorney Baldwin:

At a public meeting held April 26, 2001, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated April 18, 2001.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/laf

c: Honorable Lucian J. Pawlak, Mayor, City of New Britain
Planning and Zoning Department, City of New Britain
Robert Stanford, Crown Atlantic Company LLC

Exhibit B

167 COCCOMO CIR

Location	167 COCCOMO CIR	**Mblu**	A5D/ 22/ / /
Acct#	15950167	**Owner**	CROWN ATLANTIC COMPANY LLC
Assessment	$50,890	**Appraisal**	$72,700
PID	10590	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2012	$39,900	$32,800	$72,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2012	$27,930	$22,960	$50,890

Owner of Record

Owner	CROWN ATLANTIC COMPANY LLC	**Sale Price**	$90,000
Co-Owner		**Certificate**	
Address	4017 WASHINGTON RD PMB 353 MCMURRAY, PA 15317	**Book & Page**	1359/ 428
		Sale Date	02/13/2001

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
CROWN ATLANTIC COMPANY LLC	$90,000		1359/ 428	02/13/2001
BALAVENDER JOHN S +	$44,000		1284/ 180	08/26/1998
	$0		1281/ 173	07/15/1998
	$0		770/ 808	10/29/1981
CLARA MARY DOUCETTE	$0		725/ 121	03/02/1977

Building Information

Building 1 : Section 1

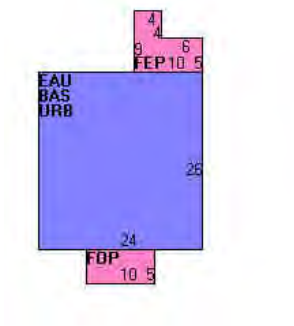
Year Built:	1918
Living Area:	624
Replacement Cost:	$88,587
Building Percent Good:	45
Replacement Cost Less Depreciation:	$39,900

Building Photo

Building Attributes	
Field	**Description**
Style	Conventional
Model	Residential
Grade	C
Stories	1 1/4 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Plaster
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Central Heat Sys	Yes
AC Type	None
Total Bedrooms	2 Bedrooms
Total Full Baths	1
Total Half Baths	0
Total Xtra Fixtrs	0
Total Rooms	4
Bath Style	Average
Kitchen Style	Average
Whirlpool Tub	
Fireplaces	
Rec Room Finish	
Rec Room Qual	
Bsmt Garages	
Bldg Nbhd	104A

(http://images.vgsi.com/photos/NewBritainCTPhotos//\00\02\86/91.JPG)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	624	624
EAU	Attic, Expansion, Unfinished	624	0
FEP	Enclosed Porch	66	0
FOP	Open Porch	50	0
URB	Unfin Raised Basement	624	0
		1,988	624

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	1010
Description	Single Family
Zone	I2
Neighborhood	104

Land Line Valuation

Size (Acres)	0.32
Depth	
Assessed Value	$22,960
Appraised Value	$32,800

Alt Land Appr Category No

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$39,900	$32,800	$72,700
2014	$39,900	$32,800	$72,700
2013	$39,900	$32,800	$72,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$27,930	$22,960	$50,890
2014	$27,930	$22,960	$50,890
2013	$27,930	$22,960	$50,890

Exhibit C

T-MOBILE NORTHEAST LLC

SITE #: CT11783B

SITE NAME: CROWN COMM. MONOPOLE

SITE ADDRESS:

167 COCCOMO CIRCLE

NEW BRITAIN, CT 06051

WIRELESS BROADBAND FACILITY

CONSTRUCTION DRAWINGS

(792DB CONFIGURATION)

CROWN SITE #: 803175
CROWN SITE NAME: CT NEW BRITAIN 3 CAC 803175

VICINITY MAP

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL BEFORE YOU DIG:

WWW.CBYD.COM

CALL 800 922 4455, OR 811

CALL THREE WORKING DAYS PRIOR TO DIGGING

SAFETY PRECAUTIONS SHALL BE IMPLEMENTED BY CONTRACTOR(S) AT ALL TRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

COLOR CODE FOR UTILITY LOCATIONS

ELECTRIC	– RED	SEWER	– GREEN
GAS/OIL	– YELLOW	SURVEY	– PINK
TEL/CATV	– ORANGE	PROPOSED EXCAVATION	– WHITE
WATER	– BLUE	RECLAIMED WATER	– PURPLE

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES. RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONSTRUCT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE T–MOBILE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF THE CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES, THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXPENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING OF ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUM OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND INSPECTIONS WHICH ARE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY, OR LOCAL GOVERNMENT AUTHORITY.
11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC., DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS, AS WELL AS THE LATEST EDITIONS OF ANY PERTINENT STATE SAFETY REGULATIONS.
14. THE CONTRACTOR SHALL NOTIFY THE T–MOBILE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE T–MOBILE REPRESENTATIVE.
15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC., ON THE JOB.
16. THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION AT THE COMPLETION OF WORK.
17. ATLANTIS DESIGN GROUP, INC. HAS NOT CONDUCTED A STRUCTURAL ANALYSIS FOR THIS PROJECT AND DOES NOT ASSUME ANY LIABILITY FOR THE ADEQUACY OF THE STRUCTURE AND COMPONENTS.
18. REFER TO STRUCTURAL ANALYSIS DOCUMENT ENTITLED, "STRUCTURAL ANALYSIS REPORT " PREPARED BY CROWN CASTLE, "T–MOBILE SITE ID CT11783B", DATED APRIL 26, 2016.

SITE INFORMATION

SITE NUMBER:	CT11783B
SITE NAME:	CROWN COMM. MONOPOLE
SITE ADDRESS:	167 COCCOMO CIRCLE NEW BRITAIN, CT 06051
LAT./LONG.:	N 41.686679 / W –72.757857
JURISDICTION:	CITY OF NEW BRITAIN, CT
PROPERTY OWNER:	PATRICIA PELON PROJECT MANAGER T: (518) 373–3507 | U: M: (518) 424–2396 CROWN CASTLE 3 CORPORATE PARK DRIVE, SUITE 101, CLIFTON PARK, NY 12065

CODE COMPLIANCE

CONNECTICUT STATE BUILDING CODE

2005 CONNECTICUT BUILDING CODE WITH 2013 AMENDMENT
2011 NATIONAL ELECTRICAL CODE

CONSTRUCTION TYPE: 2B USE GROUP: N/A

PROJECT SUB–CONTRACTORS

APPLICANT:	T–MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 (860) 692–7100
PROJECT MANAGER	LISA LIN ALLEN NORTHEAST SITE SOLUTIONS 54 MAIN STREET STURBRIDGE, MA 01566 (508) 434–5237
A&E:	ATLANTIS DESIGN GROUP INC. 54 JACQUELINE ROAD, SUITE #7 WALTHAM, MA 02452 (617)–852–3611

SHEET INDEX

SHEET	DESCRIPTION
T–1	TITLE SHEET
N–1	GENERAL AND ELECTRICAL NOTES
A–1	SITE PLAN
A–2	ELEVATION
A–3	DETAILS
E–1	GROUNDING AND COAX/FIBER DIAGRAM
E–2	GROUNDING DETAILS

T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX:(860) 692-7159

ATLANTIS DESIGN GROUP, INC.
54 Jacqueline Road, Suite #7
Waltham, MA 02452
Phone number: 617–852–3611
Fax Number : 781–742–2247

SUBMITTALS

DATE	DESCRIPTION	REVISION
05/09/16	ISSUED FOR REVIEW	A
06/01/16	FINAL CD	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	CT11783B
DRAWN BY:	FG
CHECKED BY:	KM

STATE OF CONNECTICUT
HOSSEIN VAHEDI
NO. ARI. 11162
LICENSED ARCHITECT

PROFESSIONAL SEAL

SITE NAME

CT11783B

CROWN COMM. MONOPOLE

167 COCCOMO CIRCLE
NEW BRITAIN, CT 06051

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

ELECTRICAL NOTES:

WORK INCLUDED

1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   A. PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS.
   B. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
   C. SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
   D. EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT. FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK. COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
   E. PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND EQUIPMENT PROVIDED OR INSTALLED UNDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS.
   F. MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS, CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION PURPOSES.
2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS, IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS

1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
3. LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY ENGINEER.
4. EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES. FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH SHADED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.
5. GENERAL
   A. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER, IN WRITING, OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND SPECIFICATIONS.
   B. VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
6. QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
   A. PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT. WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE PROPER FUNCTIONING OF THE WORK.
   B. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
   C. PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THE CONTRACT DOCUMENT OR NOT.
   D. MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR EXPLANATION THEREOF.
   E. PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVIATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY WITH ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT.

GUARANTEE

1. GUARANTEE MATERIALS, PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD, MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.

CLEANING

1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.

COORDINATION AND SUPERVISION

1. CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS. IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

SUBMITTALS

1. AS-BUILT DRAWINGS:
   A. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
2. SERVICE MANUALS:
   A. UPON COMPLETION OF THE WORK, FULLY INSTRUCT T-MOBILE AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, EQUIPMENT AND SYSTEMS.
   B. PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING

1. PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
2. OBTAIN OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS OR WALLS FOR PIPING OR CONDUIT.

TESTS, INSPECTION AND APPROVAL

1. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE, OPERATIONAL CONDITION.
2. PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS

1. DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
2. WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON.
   SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

GROUNDING

1. ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
2. ROUTE 500 KCMIL CU. THHN CONDUCTOR FROM THE MGB LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE GROUNDING ELECTRODE CONDUCTOR (GEC).
3. MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS, SIZED AS REQUIRED.
4. USE 1 HOLE, CRIMP TYPE, BURNDY COMPRESSIONS TERMINATIONS, SIZED AS REQUIRED, AT EQUIPMENT GROUND CONNECTIONS.
5. HIRE AN INDEPENDENT LAB TO PERFORM THE SPECIFIED OHMS TESTING. PROVIDE 4 SETS OF THE CERTIFIED DOCUMENTS TO THE OWNER FOR VERIFICATION PRIOR TO THE PROJECT COMPLETION.

RACEWAYS

1. ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
   A. EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
   B. EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
   C. ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO BE EMT.
   D. INSTALL PULL ROPES IN ALL NEW EMPTY CONDUITS INSTALLED ON THIS PROJECT.
   E. ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "T-MOBILE". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL.
   F. INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL COMPRESSION FITTINGS.
   G. MINIMUM SIZE CONDUIT TO BE ¾" TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
   H. FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
   I. CONDUIT TO BE RUN CONCEALED IN CEILINGS, FINISHED AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED.
   J. THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND CLEARANCES.
   K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D

   L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR CEILING.
   M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
   N. CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
   O. PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
   P. WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS, PER BUILDING.

WIRES AND CABLES

1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER-CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE, PRIOR TO BID.
2. ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR.
3. ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THWN/THHN INSULATION, EXCEPT AS NOTED.
4. WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO. 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED.
5. CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE. CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED FOR PLENUM USE. ALL CONTROL WIRE TO BE 600VOLT RATED.
6. WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED.
7. HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V CIRCUITS:

LENGTH (FT.)	HOME RUN WIRE SIZE
0 TO 50	NO. 12
51 TO 100	NO. 10
101 TO 150	NO. 8

8. VOLTAGE DROP IS NOT TO EXCEED 3%.
9. MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.

WIRING DEVICES

1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION.

DISCONNECT SWITCHES AND FUSES

1. DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
2. PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
3. PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
4. DISCONNECT SWITCHES TO BE MANUFACTURED BY:
   A. GENERAL ELECTRIC COMPANY
   B. SQUARE-D
5. PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE.

INSTALLATION

1. INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS.
2. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES MUST MATCH IN TYPE AND RATING.
3. FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.
4. FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:
   A. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60A, USED FOR INITIAL FUSING.
   B. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING. IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.

GENERAL NOTES:

INTENT

1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH
3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
4. THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

CONFLICTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
2. THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
3. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

CONTRACTS AND WARRANTIES

1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
2. SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE

1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

CLEANUP

1. THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK. THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE.
2. EXTERIOR
   A. VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.
3. INTERIOR
   A. VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS, FLOOR, AND CEILING.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. REMOVE PAINT DROPPINGS, SPOTS, STAINS, AND DIRT FROM FINISHED SURFACES.

CHANGE ORDER PROCEDURE:

1. REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA.

RELATED DOCUMENTS AND COORDINATION

1. GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHOP DRAWINGS

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
2. ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

PRODUCTS AND SUBSTITUTIONS

1. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
2. SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

QUALITY ASSURANCE

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY. SEE "CODE COMPLIANCE" T-1.

ADMINISTRATION

1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
3. PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
4. CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
5. DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL WPCS SAFETY REQUIREMENTS IN THEIR AGREEMENT.
6. PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE OWNER.
7. COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.
8. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

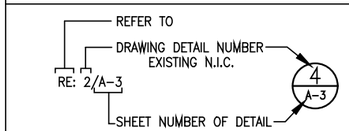
INSURANCE AND BONDS

1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
2. THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
3. CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

ARCHITECTURAL SYMBOLS

STORAGE
38
3

DETAIL REFERENCE KEY



ABBREVIATIONS

ADJ	ADJUSTABLE
AGL	ABOVE GROUND LINE
&	AND
APPROX	APPROXIMATE
@	AT
BTS	BASE TRANSMISSION STATION
CAB	CABINET
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
DIA OR ø	DIAMETER
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EGB	EQUIPMENT GROUND BAR
(E)	EXISTING
EXT	EXTERIOR
FF	FINISHED FLOOR
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRND	GROUND
LG	LONG
MAX	MAXIMUM
MECH	MECHANICAL
MW	MICROWAVE DISH
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
(P)	PROPOSED
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SS	STAINLESS STEEL
STL	STEEL
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TYP	TYPICAL
VIF	VERIFY IN FIELD
UON	UNLESS OTHERWISE NOTED
WWF	WELDED WIRE FABRIC
W/	WITH

T-MOBILE NORTHEAST, LLC
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54 Jacqueline Road, Suite #7
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Phone number: 617-852-3611
Fax Number : 781-742-2247

SUBMITTALS

DATE	DESCRIPTION	REVISION
05/09/16	ISSUED FOR REVIEW	A
06/01/16	FINAL CD	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: CT11783B
DRAWN BY: FG
CHECKED BY: KM

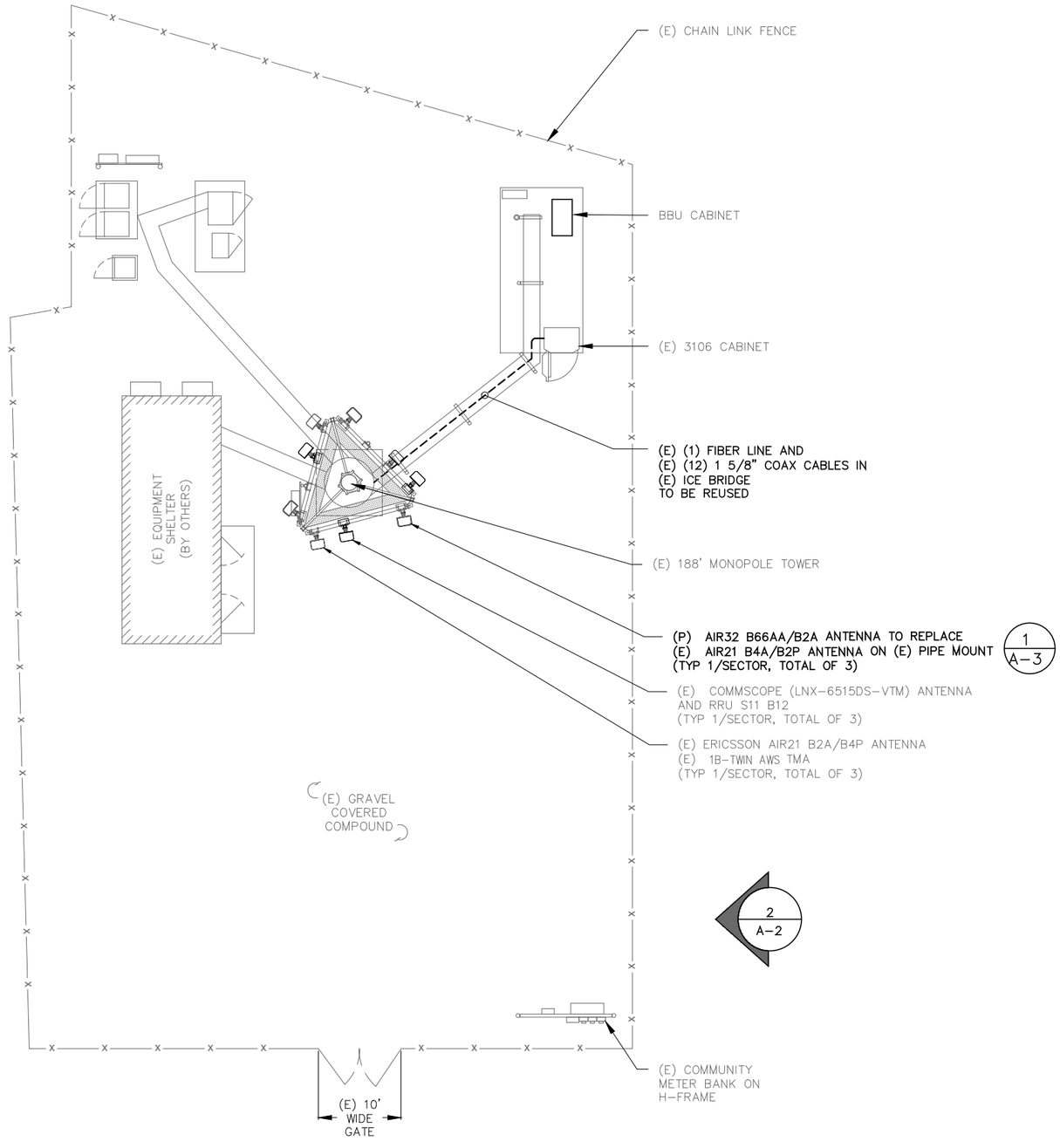
STATE OF CONNECTICUT
HOSSEIN VAHEDI
NO. ARI. 11162
LICENSED ARCHITECT

PROFESSIONAL SEAL

SITE NAME
CT11783B
CROWN COMM. MONOPOLE
167 COCCOMO CIRCLE
NEW BRITAIN, CT 06051

SHEET TITLE
GENERAL AND ELECTRICAL NOTES

SHEET NUMBER
N-1



1 A-1 COMPOUND PLAN
SCALE: 1/16" = 1'-0" (11x17)
1/8 " = 1'-0" (24x36)

8 0 8 16 24

GENERAL SITE NOTES

1. SITE INFORMATION WAS OBTAINED FROM A FIELD INVESTIGATION PERFORMED BY ATLANTIS DESIGN GROUP, INC. CONTRACTOR TO FIELD VERIFY DIMENSIONS AS NECESSARY BEFORE CONSTRUCTION.

2. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE SIGNS OF ADVERTISING.

3. THE PROPOSED DEVELOPMENT IS UNMANNED AND THEREFORE DOES NOT REQUIRE A MEANS OF WATER SUPPLY OR SEWAGE DISPOSAL.

4. NO LANDSCAPING WORK IS PROPOSED IN CONJUNCTION WITH THIS DEVELOPMENT OTHER THAN THAT WHICH IS SHOWN.

5. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.

6. UTILITIES SHOWN ON PLAN ARE TAKEN FROM OWNERS RECORDS AND FIELD LOCATION OF VISIBLE SURFACE FEATURES. THE EXISTENCE, EXTENT AND EXACT HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES HAS NOT BEEN VERIFIED. ANY CONTRACTOR PERFORMING WORK ON THIS SITE MUST CONTACT CALL BEFORE YOU DIG THREE WORKING DAYS PRIOR TO COMMENCING WORK.

7. ALL OBSOLETE OR UNUSED FACILITIES SHALL BE REMOVED WITHIN 12 MONTHS OF CESSATION OF OPERATIONS.

SITE LEGEND

—— - ——	SITE PROPERTY LINE
————	STREET OR ROAD
—x—x—x—	CHAIN LINK FENCE
—o—o—	OPAQUE WOODEN FENCE
—o—o—	BOARD ON BOARD FENCE
	DECIDUOUS TREES/SHRUBS
	EVERGREEN TREES/SHRUBS
	TREE LINE
⊠	UTILITY POLE
(E)	EXISTING
(N)	NEW
(P)	PROPOSED
(F)	FUTURE
	PROP. LTE ANTENNA
	PROP. UMTS/GSM ANTENNA
	EX. GSM ANTENNA
	EX. UMTS ANTENNA

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06/01/16	FINAL CD	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	CT11783B
DRAWN BY:	FG
CHECKED BY:	KM

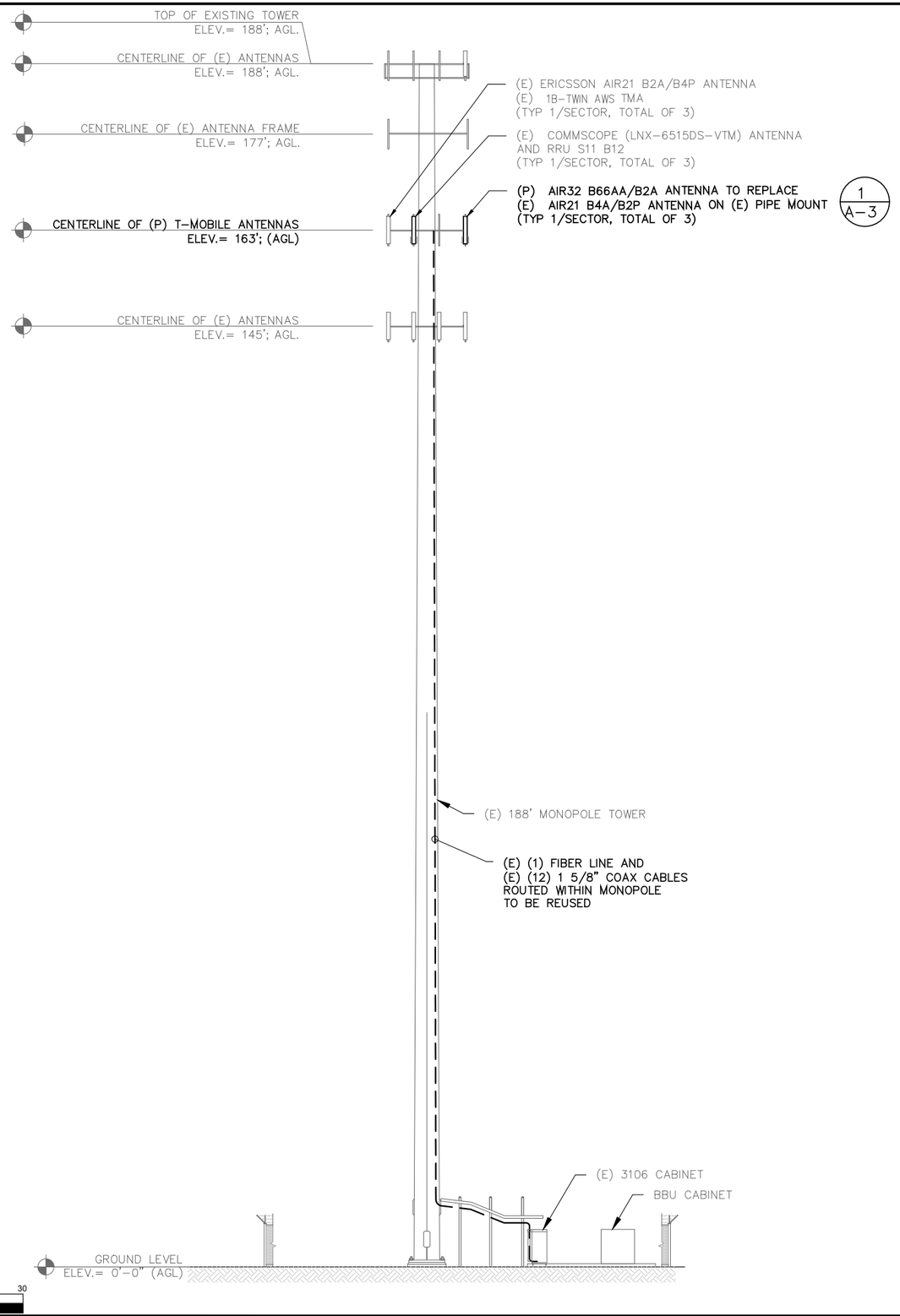
STATE OF CONNECTICUT
HOSSEIN VAHEDI
NO. ARI. 11167
LICENSED ARCHITECT

PROFESSIONAL SEAL

SITE NAME
CT11783B
CROWN COMM. MONOPOLE
167 COCCOMO CIRCLE
NEW BRITAIN, CT 06051

SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A-1



1 A-2 SOUTH ELEVATION
SCALE: 1" = 20'-0" (11x17)
1" = 10'-0" (24x36)

10 0 10 20 30

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PROFESSIONAL SEAL

SITE NAME

CT11783B

CROWN COMM.
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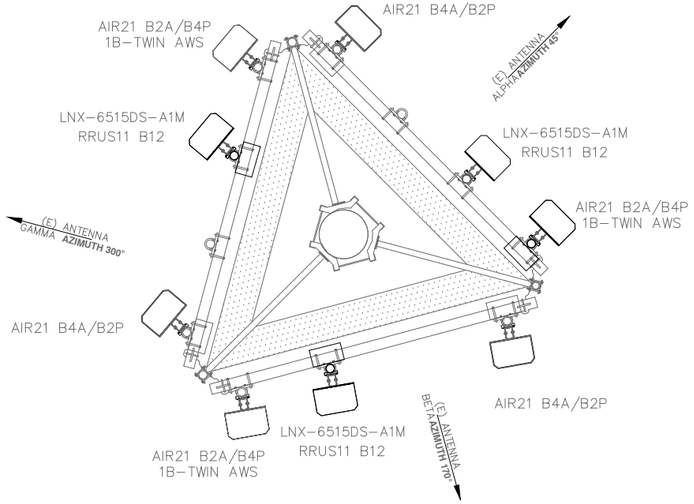
167 COCCOMO CIRCLE
NEW BRITAIN, CT 06051

SHEET TITLE

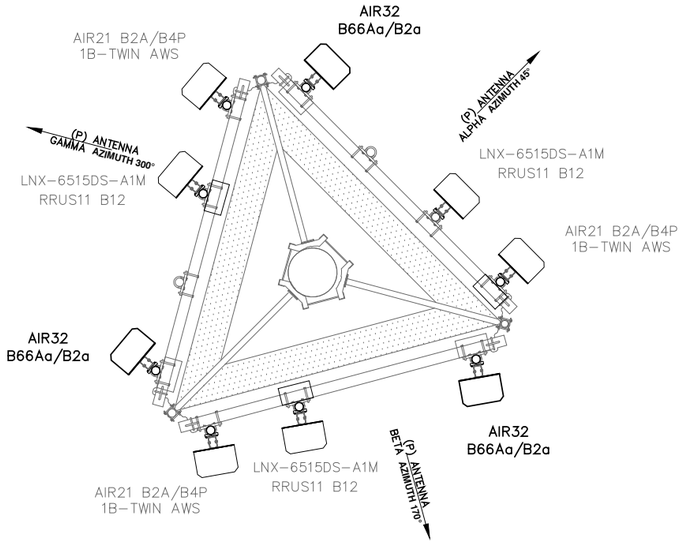
ELEVATION
AND ANTENNA PLAN

SHEET NUMBER

A-2



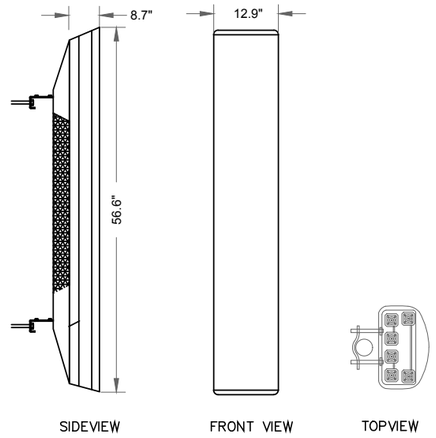
EXISTING ANTENNA CONFIGURATION



PROPOSED ANTENNA CONFIGURATION

ANTENNA PLAN — 1 / A–3

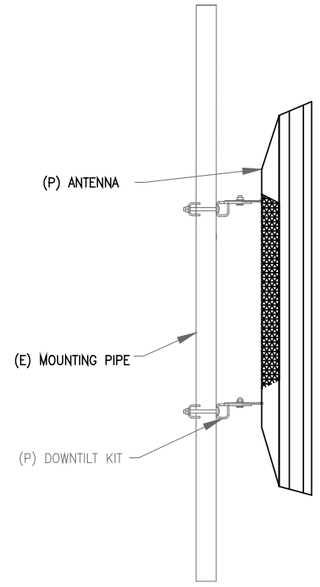
SCALE: NTS



MANUFACTURER: ERICSSON
MODEL NO.:ERICSSON AIR32 AIR32 B66Aa/B2a
DIMENSIONS – HxWxD, (IN) 56.6"x12.9"x8.7"

ERICSSON AIR32 B66Aa/B2a
ANTENNA DETAILS — 1 / A–3

SCALE: N.T.S



ANTENNA MOUNT DETAILS — 2 / A–3

SCALE: N.T.S

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DEPT.	DATE	APP'D	REVISIONS
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RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	CT11783B
DRAWN BY:	FG
CHECKED BY:	KM

STATE OF CONNECTICUT
HOSSEIN VAHEDI
NO. ARI. 11167
LICENSED ARCHITECT

PROFESSIONAL SEAL

SITE NAME

CT11783B

CROWN COMM. MONOPOLE

167 COCCOMO CIRCLE
NEW BRITAIN, CT 06051

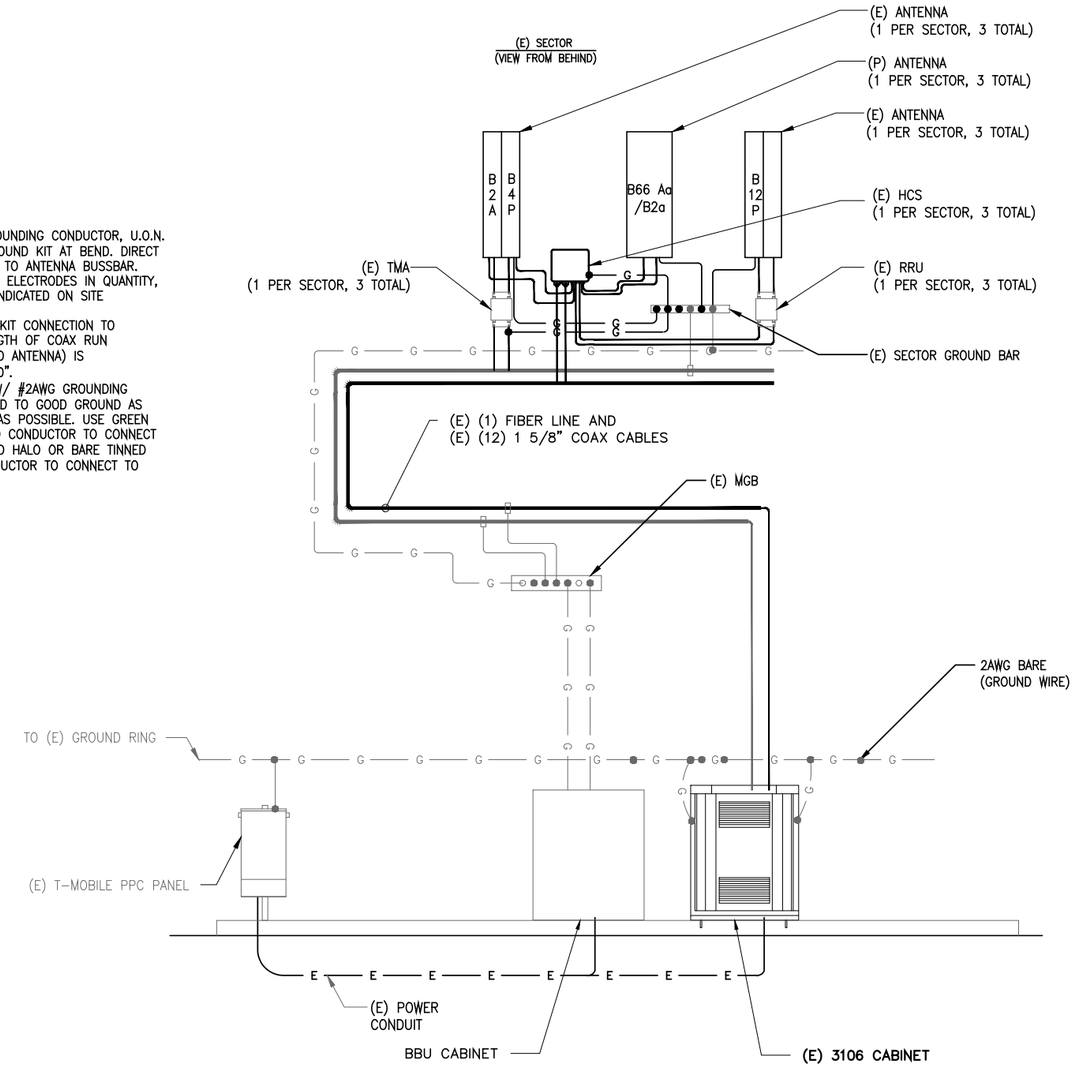
SHEET TITLE

ANTENNA AND MOUNTING DETAILS

SHEET NUMBER

A-3

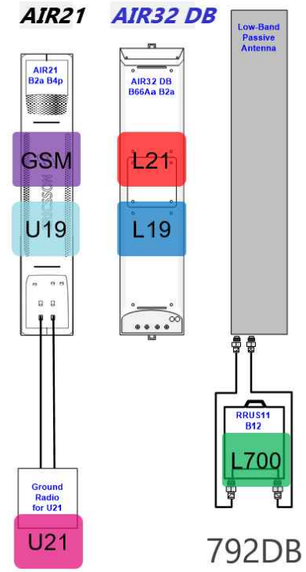
NOTES:
A. PROVIDE #2AWG GROUNDING CONDUCTOR, U.O.N.
B. DO NOT INSTALL GROUND KIT AT BEND. DIRECT GROUND WIRE DOWN TO ANTENNA BUSSBAR.
C. PROVIDE GROUNDING ELECTRODES IN QUANTITY, TYPE AND SIZE AS INDICATED ON SITE GROUNDING PLAN.
D. ADD COAX GROUND KIT CONNECTION TO BUSSBAR WHEN LENGTH OF COAX RUN (FROM EQUIPMENT TO ANTENNA) IS GREATER THAN 20'-0".
E. GROUND HCS BOX W/ #2AWG GROUNDING CONDUCTOR ATTACHED TO GOOD GROUND AS DIRECT AND SHORT AS POSSIBLE. USE GREEN STRANDED INSULATED CONDUCTOR TO CONNECT TO BUSSBAR/GROUND HALO OR BARE TINNED SOLID COPPER CONDUCTOR TO CONNECT TO GROUND RING.



GROUNDING DIAGRAM

SCALE: N.T.S

1
E-1



TRUNK FIBER NOTES:
1. IN GENERAL THIS CABLE WILL HANDLE SIMILARLY TO 7/8" COAXIAL CABLE, AND SIMILAR INSTALLATION TECHNIQUES APPLY. ALL CABLES ARE INDIVIDUALLY SERIALIZED, BE SURE TO WRITE DOWN THE CABLE SERIAL NUMBER FOR FUTURE REFERENCE.
2. THE TERMINATED FIBER ENDS (THE BROKEN OUT FIBERS PLUS CONNECTORS) HOWEVER ARE FRAGILE, AND THESE MUST BE PROTECTED DURING THE INSTALLATION PROCESS.
3. LEAVE THE PROTECTIVE TUBE AND SOCK AROUND THE FIBER TAILS AND CONNECTORS IN PLACE DURING HOISTING AND SECURING THE CABLE. REMOVE THIS ONLY JUST PRIOR TO MAKING THE FINAL CONNECTIONS TO THE OVP BOX.
4. DO NOT BEND THE FIBER ENDS (IN THE ORANGE FURCATION TUBES) TIGHTER THAN 3/4" (19MM) BEND RADIUS, ELSE THERE IS A RISK OF BREAKING THE GLASS FIBERS.
5. BE SURE THAT THE LACE UP ENDS AND FIBER CONNECTORS ARE NOT DAMAGED BY ATTACHMENT OF A HOISTING GRIP OR DURING THE HOISTING PROCESS. ATTACH A HOISTING GRIP ON THE JACKETED CABLE NO LESS THAN 6 INCHES BELOW THE FIBER BREAKOUT POINT. IF A HOISTING GRIP IS NOT EASILY ATTACHED, USE A SIMPLE LINE ATTACHED BELOW THE FIBER BREAK-OUT POINT (I.E. AT THE CABLE OUTER JACKET). PREVENT THE FIBER TAILS (IN PROTECTIVE TUBE) AT THE CABLE END FROM UNDUE MOVEMENT DURING HOISTING BY SECURING THE PROTECTIVE TUBE (WITH OUTER SOCK) TO THE HOISTING LINE.
6. DURING HOISTING ENSURE THAT THERE IS A FREE PATH AND THAT THE CABLE, AND ESPECIALLY THE FIBER ENDS, WILL NOT BE SNAGGED ON TOWER MEMBERS OR OTHER OBSTACLES.
7. INSTALLATION TEMPERATURE RANGE IS -22F TO 158F (-30C TO +70C).
8. MINIMUM CABLE BEND RADII ARE 22.2" (565MM) LOADED (WITH TENSION ON THE CABLE) AND 11.1" (280MM) UNLOADED.
9. MAXIMUM CABLE TENSILE LOAD IS 3560 N (800 LB) SHORT TERM (DURING INSTALLATION) AND 1070 N (240 LB) LONG TERM.
10. COMMSCOPE NON LACE UP GRIP RECOMMENDED FOR MONOPOLE INSTALLATIONS.
11. MAXIMUM HANGER SPACING 3FT (0.9 M).

HYBRID FIBER/POWER JUMPER NOTES:
1. IN GENERAL THIS CABLE WILL HANDLE SIMILARLY TO A 3/8" COAXIAL CABLE.
2. THE TERMINATED FIBER ENDS HOWEVER ARE FRAGILE AND MUST BE PROTECTED DURING INSTALLATION. LEAVE THE PACKAGING AROUND THE FIBER ENDS IN PLACE UNTIL READY TO CONNECT THE JUMPER BETWEEN OVP AND RRU OR BBU.
3. DO NOT BEND THE FIBER BREAKOUT CABLE (BETWEEN THE MAIN CABLE AND THE FIBER CONNECTOR) TIGHTER THAN 3/4" (19MM) RADIUS, ELSE THERE IS A RISK OF BREAKING THE GLASS.
4. ATTACH THE MAIN CABLE SECURELY TO THE STRUCTURE OR EQUIPMENT USING HANGERS AND/OR CABLE TIES TO PREVENT STRAIN ON CONNECTIONS FROM MOVEMENT IN WIND OR SNOW/ICE CONDITIONS.
5. ENSURE THE LC FIBER CONNECTORS ARE SEATED FIRMLY IN PANEL IN OVP OR IN EQUIPMENT.
6. INSTALLATION TEMPERATURE RANGE IS -22F TO 158F (-30C TO 70C).
7. MINIMUM CABLE BEND RADII ARE 10.3 INCH (265MM) LOADED (WITH TENSION ON THE CABLE) AND 5.2 INCH (130MM) UNLOADED.
8. MAXIMUM CABLE TENSILE LOAD IS 350 LB (1560N) SHORT TERM (DURING INSTALLATION) AND 105 LB (470N) LONG TERM.
9. STANDARD LENGTHS AVAILABLE ARE 6 FEET, 15 FEET AND 20 FEET

792DB CONFIGURATION
COAX/FIBER PLUMBING DIAGRAM

SCALE: N.T.S

2
E-1

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PROJECT NO: CT11783B
DRAWN BY: FG
CHECKED BY: KM

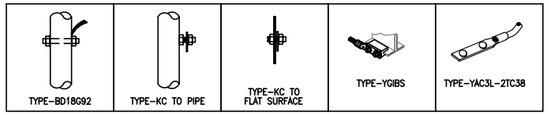
STATE OF CONNECTICUT
HOSSEIN VAHEDI
NO. ARI. 11162
LICENSED ARCHITECT

PROFESSIONAL SEAL

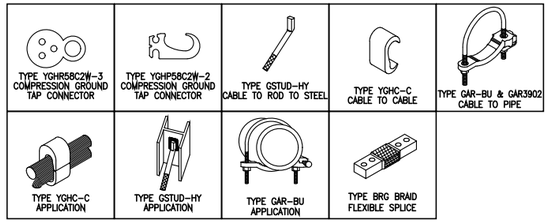
SITE NAME
CT11783B
CROWN COMM. MONOPOLE
167 COCCOMO CIRCLE
NEW BRITAIN, CT 06051

SHEET TITLE
GROUNDING AND POWER DIAGRAMS

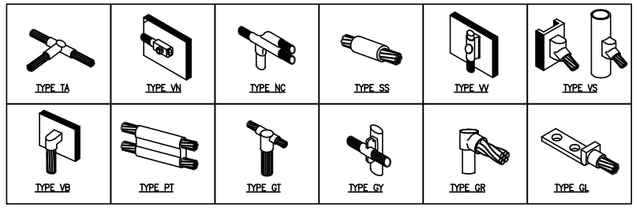
SHEET NUMBER
E-1



1 E-3 BURNDY GROUNDING DETAILS
SCALE: NTS



2 E-3 BURNDY GROUNDING PRODUCTS
SCALE: NTS

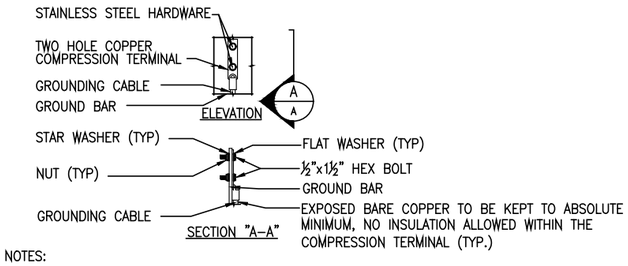


3 E-3 CADWELD GROUNDING CONNECTION PRODUCTS
SCALE: NTS

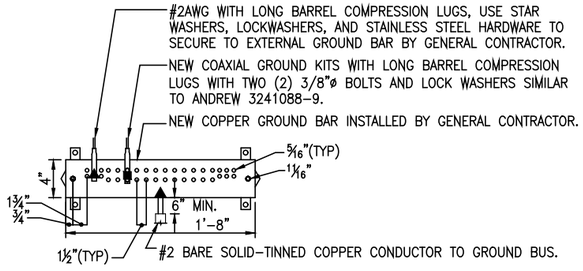
TERMINATION TYPES:
A. MECHANICAL COMPRESSION LUG
B. DOUBLE BARRELL COMPRESSION CONNECTOR
C. EXOTHERMIC TERMINATION
D. BEAM CLAMP

	SOLID #2 TINNED COPPER	#6 GROUND LEAD	#2/0 STRANDED MAIN DOWN CONDUCTOR	MASTER GRND BAR	STRUCTURAL OR TOWER STEEL	BLDG SERVICE ENTR OR GRND RING	GROUND ROD
SOLID #2 TINNED COPPER	B OR C	B OR C		C	A, C, OR D		C
#6 GROUND LEAD	B OR C			A	A, C, OR D		
#2/0 STRANDED GRNDG ELECTRODE CONDUCTOR				A	A, C, OR D	A	
MASTER GROUND BAR	C	A	A				
STRUCTURAL OR TOWER STEEL	A, C, OR D	A, C, OR D	A, C, OR D				
GROUND RING	C		C				C

7 E-3 GROUNDING TERMINATION MATRIX
SCALE: NTS

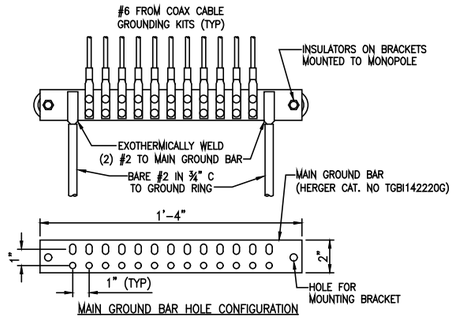


NOTES:
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

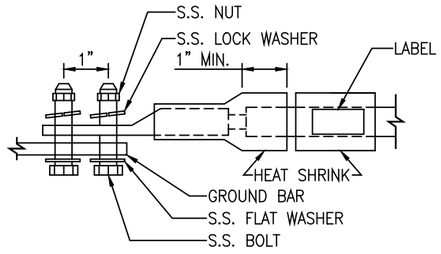


NOTES:
1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HOLES ARE COUNTERSUNK 1/16".

4 E-3 TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: NTS



5 E-3 GROUND BAR DETAIL
SCALE: NTS



LUG NOTES:
1. ALL HARDWARE IS 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS.
2. ALL HARDWARE SHALL BE S.S. ⅜"ø OR LARGER.
3. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH ANTI-OXIDIZATION COMPOUND PRIOR TO MATING.

6 E-3 GROUND BAR DETAILS
SCALE: NTS

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STATE OF CONNECTICUT
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SITE NAME
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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-2

Exhibit D

Date: **April 26, 2016**

Sean Dempsey
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corporate Drive
Canonsburg, PA
724-416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11783B
	Carrier Site Name:	Crown Comm. Monopole
Crown Castle Designation:	**Crown Castle BU Number:**	803175
	Crown Castle Site Name:	CT NEW BRITAIN 3 CAC 803175
	Crown Castle JDE Job Number:	374072
	Crown Castle Work Order Number:	1226851
	Crown Castle Application Number:	343347 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1226851
Site Data:	**Lester Road, New Britain, Hartford County, CT**	
	Latitude *41° 41' 11.8"*, Longitude *-72° 45' 27.8"*	
	188 Foot - Monopole Tower	

Dear Sean Dempsey,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1226851, in accordance with application 343347, revision 0.

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

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

This analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code with 2009 amendment based upon a wind speed of 80 mph fastest mile.

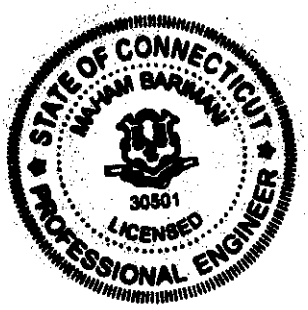
All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

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

Structural analysis prepared by: Ryan T. Conway, EIT / DMC

Respectfully submitted by:

Maham Barimani, P.E.
Sr. Project Engineer



tnxTower Report - version 7.0.5.1 04-27-2016

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Antenna and Cable Information
Table 2 - Existing and Reserved Antenna and Cable Information
Table 3 - Design Antenna and Cable Information

3) ANALYSIS PROCEDURE
Table 4 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 5 - Section Capacity (Summary)
Table 6 – Tower Components vs. Capacity
4.1) Recommendations

5) APPENDIX A
tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This tower is a 188ft Monopole tower designed by SUMMIT MANUFACTURING LLC in December of 2000. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 28.1 mph with 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
160.0	163.0	3	ericsson	AIR -32 B2A/B66AA w/ Mount Pipe	1	1-5/8"	-

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
188.0	189.0	1	cci antennas	OPA-65R-LCUU-H4	2 2 1	3/4 1-5/8 3/8	2
		2	cci antennas	OPA-65R-LCUU-H6			
		3	ericsson	RRUS 32 B30			
		1	raycap	DC6-48-60-18-8F			
		3	kathrein	800 10121	2 7 1	3/4 1-5/8 3/8	1
		1	kmw communications	AM-X-CD-14-65-00T-RET			
		2	kmw communications	AM-X-CD-16-65-00T-RET			
	188.0	6	ericsson	RRUS-11			
		6	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Miscellaneous [NA 507-3]			
		1	tower mounts	Platform Mount [LP 1201-1]			
160.0	163.0	3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	1	1-5/8	3
		3	commscope	LNX-6515DS-VTM w/ Mount Pipe	12	1-5/8	1
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	RRUS 11 B12			
		1	rfs celwave	ATMAA1412D-1A20			
	160.0	1	rfs cellwave	ATMAA1412D-1A20			
		1	rfs celwave	ATMAA1412D-1A20			
		1	tower mounts	Platform Mount [LP 601-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
145.0	150.0	1	gps	GPS_A	-	-	1
	145.0	3	alcatel lucent	RRH2X60-AWS	1	1-5/8"	2
		3	alcatel lucent	RRH2X60-PCS			
		3	alcatel lucent	RRH2x60-700			
		6	andrew	SBNHH-1D65B w/ Mount Pipe			
		1	kathrein	800 10735V01 w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			
		2	andrew	LNX-6512DS-T4M w/ Mount Pipe	13	1-5/8"	1
		3	antel	BXA-80063/6 w/ Mount Pipe	1	1/2"	
		1	tower mounts	Platform Mount [LP 601-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed; Not Considered In Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
188	188	12	generic	1' x 5' x 3" Panel	-	-
177	177	12	generic	1' x 5' x 3" Panel	-	-
162	162	12	generic	1' x 5' x 3" Panel	-	-
147	147	12	generic	1' x 5' x 3" Panel	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clough, Harbor & Associates	679661	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Tower Engineering Professionals, Inc. (Mapping)	679660	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Summit Manufacturing LLC	679659	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	188 - 137	Pole	TP32.711x22x0.25	1	-10.76	1302.25	58.2	Pass
L2	137 - 90.25	Pole	TP42.03x31.3184x0.3125	2	-18.74	2094.29	87.5	Pass
L3	90.25 - 44.5	Pole	TP51.014x40.3023x0.375	3	-29.79	3048.94	87.5	Pass
L4	44.5 - 0	Pole	TP59.61x48.8988x0.5	4	-48.47	4876.78	71.5	Pass
							Summary	
						Pole (L3)	87.5	Pass
						Rating =	87.5	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	75.5	Pass
1	Base Plate	0	75.9	Pass
1	Base Foundation	0	59.2	Pass
1	Base Foundation Soil Interaction	0	89.7	Pass

Structure Rating (max from all components) =	**89.7%**

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

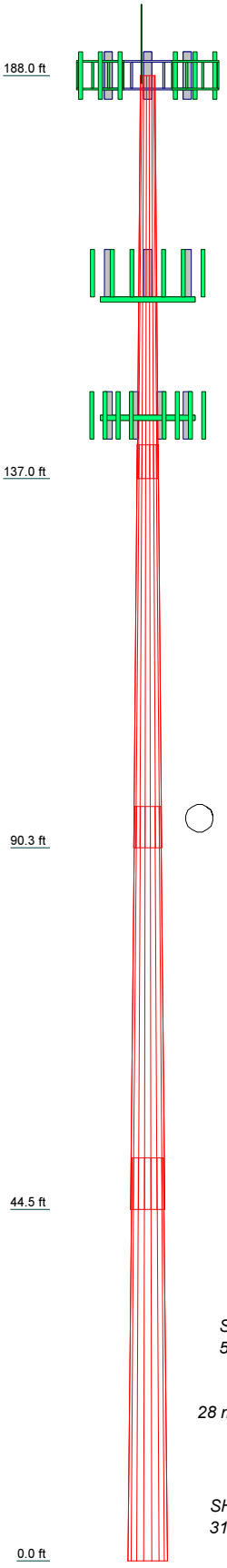
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing, reserved, and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	51.00	18	0.2500	4.25	22.0000	32.7110	A607-65	3.7
2	51.00	18	0.3125	5.25	31.3184	42.0300		6.3
3	51.00	18	0.3750	6.50	40.3023	51.0140		9.4
4	51.00	18	0.5000		48.8988	59.6100		14.8
								34.1



AXIAL
70 K
SHEAR
5 K
MOMENT
667 kip-ft
TORQUE 0 kip-ft
28 mph WIND - 1.0000 in ICE

AXIAL
48 K
SHEAR
31 K
MOMENT
4177 kip-ft
TORQUE 2 kip-ft
REACTIONS - 80 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lighting Rod 3/4" x 8'	188	RRUS 11 B12	160
800 10121	188	RRUS 11 B12	160
800 10121	188	RRUS 11 B12	160
800 10121	188	ATMAA1412D-1A20	160
AM-X-CD-16-65-00T-RET	188	ATMAA1412D-1A20	160
AM-X-CD-14-65-00T-RET	188	ATMAA1412D-1A20	160
AM-X-CD-16-65-00T-RET	188	AIR -32 B2A/B66AA w/ Mount Pipe	160
(2) RRUS-11	188	AIR -32 B2A/B66AA w/ Mount Pipe	160
(2) RRUS-11	188	AIR -32 B2A/B66AA w/ Mount Pipe	160
(2) RRUS-11	188	Platform Mount [LP 601-1]	160
(2) LGP21401	188	BXA-80063/6 w/ Mount Pipe	145
(2) LGP21401	188	BXA-80063/6 w/ Mount Pipe	145
(2) LGP21401	188	BXA-80063/6 w/ Mount Pipe	145
DC6-48-60-18-8F	188	LNX-6512DS-T4M w/ Mount Pipe	145
OPA-65R-LCUU-H6	188	LNX-6512DS-T4M w/ Mount Pipe	145
OPA-65R-LCUU-H4	188	GPS_A	145
OPA-65R-LCUU-H6	188	(2) SBNHH-1D65B w/ Mount Pipe	145
RRUS 32 B30	188	(2) SBNHH-1D65B w/ Mount Pipe	145
RRUS 32 B30	188	(2) SBNHH-1D65B w/ Mount Pipe	145
RRUS 32 B30	188	800 10735V01 w/ Mount Pipe	145
DC6-48-60-18-8F	188	RRH2x60-700	145
Platform Mount [LP 1201-1]	188	RRH2x60-700	145
Miscellaneous [NA 507-3]	188	RRH2x60-700	145
LNX-6515DS-VTM w/ Mount Pipe	160	RRH2X60-AWS	145
LNX-6515DS-VTM w/ Mount Pipe	160	RRH2X60-AWS	145
LNX-6515DS-VTM w/ Mount Pipe	160	RRH2X60-AWS	145
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	160	RRH2X60-PCS	145
		RRH2X60-PCS	145
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	160	RRH2X60-PCS	145
		(2) DB-T1-6Z-8AB-0Z	145
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	160	Platform Mount [LP 601-1]	145

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 28 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 87.5%

CROWN CASTLE
The Foundation For A Wireless World
Crown Castle
2000 Corporate Drive
Canonsburg, PA
Phone: 724-416-2000
FAX:

Job: ***BU 803175***			
Project:			
Client: Crown Castle	Drawn by: rconway		App'd:
Code: TIA/EIA-222-F	Date: 04/26/16		Scale: NTS
Path: X:\ENG Work Area\RConway\2. WIP\803175 WO1226851\803175.en			Dwg No. E-1

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

4) Tower is located in Hartford County, Connecticut.
5) Basic wind speed of 80 mph.
6) Nominal ice thickness of 1.0000 in.
7) Ice thickness is considered to increase with height.
8) Ice density of 56 pcf.
9) A wind speed of 28 mph is used in combination with ice.
10) Temperature drop of 50 °F.
11) Deflections calculated using a wind speed of 50 mph.
12) A non-linear (P-delta) analysis was used.
13) Pressures are calculated at each section.
14) Stress ratio used in pole design is 1.333.
15) 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-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G 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				

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	188.00-137.00	51.00	4.25	18	22.0000	32.7110	0.2500	1.0000	A607-65 (65 ksi)
L2	137.00-90.25	51.00	5.25	18	31.3184	42.0300	0.3125	1.2500	A607-65 (65 ksi)
L3	90.25-44.50	51.00	6.50	18	40.3023	51.0140	0.3750	1.5000	A607-65 (65 ksi)
L4	44.50-0.00	51.00		18	48.8988	59.6100	0.5000	2.0000	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.3394	17.2586	1031.4832	7.7212	11.1760	92.2945	2064.3237	8.6310	3.4320	13.728

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	33.2156	25.7578	3429.0204	11.5237	16.6172	206.3538	6862.5527	12.8813	5.3171	21.269
L2	32.7080	30.7540	3735.3226	11.0071	15.9098	234.7819	7475.5603	15.3799	4.9620	15.879
	42.6784	41.3785	9098.0688	14.8097	21.3512	426.1143	18208.1091	20.6932	6.8473	21.911
L3	42.0437	47.5235	9571.6471	14.1742	20.4736	467.5120	19155.8888	23.7663	6.4332	17.155
	51.8010	60.2731	19526.7966	17.9768	25.9151	753.4907	39079.2871	30.1423	8.3185	22.183
L4	51.0393	76.8089	22730.9631	17.1816	24.8406	915.0736	45491.8362	38.4117	7.7262	15.452
	60.5296	93.8076	41409.2395	20.9841	30.2819	1367.4593	82872.9664	46.9127	9.6114	19.223

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 188.00-137.00				1	1	1			
L2 137.00-90.25				1	1	1			
L3 90.25-44.50				1	1	1			
L4 44.50-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
188								
LDF7-50A(1-5/8")	B	No	Inside Pole	188.00 - 0.00	7	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
						4" Ice	0.00	0.82
FB-L98B-002-75000(3/8")	B	No	Inside Pole	188.00 - 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
						4" Ice	0.00	0.06
WR-VG86ST-BRD(3/4")	B	No	Inside Pole	188.00 - 0.00	2	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
						4" Ice	0.00	0.58
LDF7-50A(1-5/8")	B	No	Inside Pole	188.00 - 0.00	2	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
						4" Ice	0.00	0.82
FB-L98B-034-XXXXXX(3/8")	B	No	Inside Pole	188.00 - 0.00	1	No Ice	0.00	0.05
						1/2" Ice	0.00	0.05
						1" Ice	0.00	0.05
						2" Ice	0.00	0.05
						4" Ice	0.00	0.05
WR-VG86ST-BRD(3/4")	B	No	Inside Pole	188.00 - 0.00	2	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
						4" Ice	0.00	0.58
2" Flex Conduit	B	No	Inside Pole	188.00 - 0.00	1	No Ice	0.00	0.36
						1/2" Ice	0.00	0.36
						1" Ice	0.00	0.36
						2" Ice	0.00	0.36
						4" Ice	0.00	0.36

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
160								
LCF158-50J(1-5/8")	C	No	Inside Pole	160.00 - 0.00	12	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92
						2" Ice	0.00	0.92
						4" Ice	0.00	0.92
MLE Hybrid 9Power/18Fiber RL 2(1-5/8")	C	No	Inside Pole	160.00 - 0.00	1	No Ice	0.00	1.07
						1/2" Ice	0.00	1.07
						1" Ice	0.00	1.07
						2" Ice	0.00	1.07
						4" Ice	0.00	1.07
145								
HB158-1-08U8-S8J18(1-5/8")	C	No	Inside Pole	145.00 - 0.00	1	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
						4" Ice	0.00	1.30
LCF12-50J(1/2")	C	No	Inside Pole	145.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
LCF158-50J(1-5/8")	C	No	Inside Pole	145.00 - 0.00	12	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
						1" Ice	0.00	0.92
						2" Ice	0.00	0.92
						4" Ice	0.00	0.92
HB158-1-08U8-S8J18(1-5/8")	C	No	Inside Pole	145.00 - 0.00	1	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
						4" Ice	0.00	1.30

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 K
L1	188.00-137.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.52
		C	0.000	0.000	0.000	0.000	0.39
L2	137.00-90.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.48
		C	0.000	0.000	0.000	0.000	1.21
L3	90.25-44.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.47
		C	0.000	0.000	0.000	0.000	1.18
L4	44.50-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.45
		C	0.000	0.000	0.000	0.000	1.15

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 K
L1	188.00-137.00	A	1.210	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.52
		C		0.000	0.000	0.000	0.000	0.39
L2	137.00-90.25	A	1.159	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.48
		C		0.000	0.000	0.000	0.000	1.21
L3	90.25-44.50	A	1.089	0.000	0.000	0.000	0.000	0.00

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 K
		B		0.000	0.000	0.000	0.000	0.47
		C		0.000	0.000	0.000	0.000	1.18
L4	44.50-0.00	A	1.000	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.45
		C		0.000	0.000	0.000	0.000	1.15

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	188.00-137.00	0.0000	0.0000	0.0000	0.0000
L2	137.00-90.25	0.0000	0.0000	0.0000	0.0000
L3	90.25-44.50	0.0000	0.0000	0.0000	0.0000
L4	44.50-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lighting Rod 3/4" x 8'	C	From Leg	0.00 0.00 4.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.60 1.41 2.25 3.67 5.74	0.60 1.41 2.25 3.67 5.74	0.03 0.04 0.05 0.09 0.23
188									
800 10121	A	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.45 5.87 6.30 7.19 9.08	3.29 3.63 3.99 4.75 6.52	0.05 0.08 0.12 0.21 0.45
800 10121	B	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.45 5.87 6.30 7.19 9.08	3.29 3.63 3.99 4.75 6.52	0.05 0.08 0.12 0.21 0.45
800 10121	C	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.45 5.87 6.30 7.19 9.08	3.29 3.63 3.99 4.75 6.52	0.05 0.08 0.12 0.21 0.45
AM-X-CD-16-65-00T-RET	A	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.26 8.81 9.36 10.50 12.88	4.64 5.09 5.54 6.47 8.45	0.05 0.09 0.15 0.27 0.60
AM-X-CD-14-65-00T-RET	B	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.51 5.90 6.30 7.13 8.88	2.83 3.14 3.47 4.22 5.82	0.02 0.05 0.08 0.17 0.41
AM-X-CD-16-65-00T-RET	C	From Leg	4.00	0.0000	188.00	No Ice	8.26	4.64	0.05

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 K
			0.00			1/2"	8.81	5.09	0.09
			1.00			Ice	9.36	5.54	0.15
						1" Ice	10.50	6.47	0.27
						2" Ice	12.88	8.45	0.60
						4" Ice			
(2) RRUS-11	A	From Leg	4.00	0.0000	188.00	No Ice	3.25	1.37	0.05
			0.00			1/2"	3.49	1.55	0.07
			0.00			Ice	3.74	1.74	0.09
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(2) RRUS-11	B	From Leg	4.00	0.0000	188.00	No Ice	3.25	1.37	0.05
			0.00			1/2"	3.49	1.55	0.07
			0.00			Ice	3.74	1.74	0.09
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(2) RRUS-11	C	From Leg	4.00	0.0000	188.00	No Ice	3.25	1.37	0.05
			0.00			1/2"	3.49	1.55	0.07
			0.00			Ice	3.74	1.74	0.09
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(2) LGP21401	A	From Leg	4.00	0.0000	188.00	No Ice	1.29	0.23	0.01
			0.00			1/2"	1.45	0.31	0.02
			0.00			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
(2) LGP21401	B	From Leg	4.00	0.0000	188.00	No Ice	1.29	0.23	0.01
			0.00			1/2"	1.45	0.31	0.02
			0.00			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
(2) LGP21401	C	From Leg	4.00	0.0000	188.00	No Ice	1.29	0.23	0.01
			0.00			1/2"	1.45	0.31	0.02
			0.00			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
DC6-48-60-18-8F	B	From Leg	4.00	0.0000	188.00	No Ice	1.27	1.27	0.02
			0.00			1/2"	1.46	1.46	0.04
			0.00			Ice	1.66	1.66	0.05
						1" Ice	2.09	2.09	0.10
						2" Ice	3.10	3.10	0.21
						4" Ice			
OPA-65R-LCUU-H6	A	From Leg	4.00	0.0000	188.00	No Ice	10.36	5.52	0.07
			0.00			1/2"	10.93	5.97	0.13
			1.00			Ice	11.50	6.43	0.20
						1" Ice	12.68	7.38	0.35
						2" Ice	15.14	9.57	0.73
						4" Ice			
OPA-65R-LCUU-H4	B	From Leg	4.00	0.0000	188.00	No Ice	6.72	3.41	0.06
			0.00			1/2"	7.13	3.77	0.10
			1.00			Ice	7.55	4.14	0.14
						1" Ice	8.41	4.91	0.24
						2" Ice	10.23	6.55	0.52
						4" Ice			
OPA-65R-LCUU-H6	C	From Leg	4.00	0.0000	188.00	No Ice	10.36	5.52	0.07
			0.00			1/2"	10.93	5.97	0.13
			1.00			Ice	11.50	6.43	0.20
						1" Ice	12.68	7.38	0.35
						2" Ice	15.14	9.57	0.73
						4" Ice			

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 K
RRUS 32 B30	A	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.14 3.40 3.66 4.22 5.43	1.74 1.96 2.19 2.67 3.75	0.06 0.08 0.10 0.16 0.32
RRUS 32 B30	B	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.14 3.40 3.66 4.22 5.43	1.74 1.96 2.19 2.67 3.75	0.06 0.08 0.10 0.16 0.32
RRUS 32 B30	C	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.14 3.40 3.66 4.22 5.43	1.74 1.96 2.19 2.67 3.75	0.06 0.08 0.10 0.16 0.32
DC6-48-60-18-8F	B	From Leg	4.00 0.00 1.00	0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.27 1.46 1.66 2.09 3.10	1.27 1.46 1.66 2.09 3.10	0.02 0.04 0.05 0.10 0.21
Platform Mount [LP 1201-1]	C	None		0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	23.10 26.80 30.50 37.90 52.70	23.10 26.80 30.50 37.90 52.70	2.10 2.50 2.90 3.70 5.30
Miscellaneous [NA 507-3]	C	None		0.0000	188.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	18.50 26.40 34.30 50.10 81.70	18.50 26.40 34.30 50.10 81.70	0.51 0.70 0.90 1.29 2.06
160									
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	6.83 7.35 7.86 8.93	5.64 6.48 7.26 8.86	0.11 0.17 0.23 0.38

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* K
						2" Ice	11.18	12.29	0.81
						4" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
RRUS 11 B12	A	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11 B12	B	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11 B12	C	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
ATMAA1412D-1A20	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.47 0.57 0.69 0.95 1.57	1.17 1.31 1.47 1.81 2.58	0.01 0.02 0.03 0.06 0.14
ATMAA1412D-1A20	B	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.47 0.57 0.69 0.95 1.57	1.17 1.31 1.47 1.81 2.58	0.01 0.02 0.03 0.06 0.14
ATMAA1412D-1A20	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.34 7.87 8.39 9.47 11.76	6.15 7.01 7.80 9.43 12.91	0.15 0.21 0.28 0.44 0.89
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.34 7.87 8.39 9.47 11.76	6.15 7.01 7.80 9.43 12.91	0.15 0.21 0.28 0.44 0.89
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.34 7.87 8.39 9.47 11.76	6.15 7.01 7.80 9.43 12.91	0.15 0.21 0.28 0.44 0.89
Platform Mount [LP 601-1]	C	None		0.0000	160.00	No Ice 1/2" Ice	28.47 33.59 38.71	28.47 33.59 38.71	1.12 1.51 1.91

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 K
						1" Ice	48.95	48.95	2.69
						2" Ice	69.43	69.43	4.26
						4" Ice			
145									
BXA-80063/6 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.98 8.62 9.23 10.47 13.08	5.41 6.56 7.42 9.20 12.95	0.04 0.10 0.17 0.33 0.79
BXA-80063/6 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.98 8.62 9.23 10.47 13.08	5.41 6.56 7.42 9.20 12.95	0.04 0.10 0.17 0.33 0.79
BXA-80063/6 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.98 8.62 9.23 10.47 13.08	5.41 6.56 7.42 9.20 12.95	0.04 0.10 0.17 0.33 0.79
LNX-6512DS-T4M w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.79 6.25 6.71 7.67 9.72	4.50 5.17 5.85 7.27 10.37	0.04 0.09 0.14 0.27 0.64
LNX-6512DS-T4M w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.79 6.25 6.71 7.67 9.72	4.50 5.17 5.85 7.27 10.37	0.04 0.09 0.14 0.27 0.64
GPS_A	A	From Leg	4.00 0.00 5.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.30 0.37 0.46 0.65 1.15	0.30 0.37 0.46 0.65 1.15	0.00 0.00 0.01 0.02 0.08
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.62 9.27 9.90 11.17 13.84	7.08 8.28 9.19 11.03 15.07	0.08 0.15 0.22 0.40 0.91
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.62 9.27 9.90 11.17 13.84	7.08 8.28 9.19 11.03 15.07	0.08 0.15 0.22 0.40 0.91
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.62 9.27 9.90 11.17 13.84	7.08 8.28 9.19 11.03 15.07	0.08 0.15 0.22 0.40 0.91
800 10735V01 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	9.04 9.72 10.37 11.69 14.45	5.49 6.71 7.69 9.56 13.51	0.06 0.12 0.19 0.36 0.85
RRH2x60-700	A	From Leg	4.00	0.0000	145.00	No Ice	3.96	1.82	0.06

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 K
			0.00			1/2"	4.27	2.08	0.08
			0.00			Ice	4.60	2.36	0.11
						1" Ice	5.27	2.96	0.17
						2" Ice	6.72	4.25	0.35
						4" Ice			
RRH2x60-700	B	From Leg	4.00	0.0000	145.00	No Ice	3.96	1.82	0.06
			0.00			1/2"	4.27	2.08	0.08
			0.00			Ice	4.60	2.36	0.11
						1" Ice	5.27	2.96	0.17
						2" Ice	6.72	4.25	0.35
						4" Ice			
RRH2x60-700	C	From Leg	4.00	0.0000	145.00	No Ice	3.96	1.82	0.06
			0.00			1/2"	4.27	2.08	0.08
			0.00			Ice	4.60	2.36	0.11
						1" Ice	5.27	2.96	0.17
						2" Ice	6.72	4.25	0.35
						4" Ice			
RRH2X60-AWS	A	From Leg	4.00	0.0000	145.00	No Ice	3.96	1.82	0.06
			0.00			1/2"	4.27	2.08	0.08
			0.00			Ice	4.60	2.36	0.11
						1" Ice	5.27	2.96	0.17
						2" Ice	6.72	4.25	0.35
						4" Ice			
RRH2X60-AWS	B	From Leg	4.00	0.0000	145.00	No Ice	3.96	1.82	0.06
			0.00			1/2"	4.27	2.08	0.08
			0.00			Ice	4.60	2.36	0.11
						1" Ice	5.27	2.96	0.17
						2" Ice	6.72	4.25	0.35
						4" Ice			
RRH2X60-AWS	C	From Leg	4.00	0.0000	145.00	No Ice	3.96	1.82	0.06
			0.00			1/2"	4.27	2.08	0.08
			0.00			Ice	4.60	2.36	0.11
						1" Ice	5.27	2.96	0.17
						2" Ice	6.72	4.25	0.35
						4" Ice			
RRH2X60-PCS	A	From Leg	4.00	0.0000	145.00	No Ice	2.57	2.01	0.06
			0.00			1/2"	2.79	2.22	0.08
			0.00			Ice	3.02	2.43	0.10
						1" Ice	3.52	2.89	0.16
						2" Ice	4.61	3.92	0.31
						4" Ice			
RRH2X60-PCS	B	From Leg	4.00	0.0000	145.00	No Ice	2.57	2.01	0.06
			0.00			1/2"	2.79	2.22	0.08
			0.00			Ice	3.02	2.43	0.10
						1" Ice	3.52	2.89	0.16
						2" Ice	4.61	3.92	0.31
						4" Ice			
RRH2X60-PCS	C	From Leg	4.00	0.0000	145.00	No Ice	2.57	2.01	0.06
			0.00			1/2"	2.79	2.22	0.08
			0.00			Ice	3.02	2.43	0.10
						1" Ice	3.52	2.89	0.16
						2" Ice	4.61	3.92	0.31
						4" Ice			
(2) DB-T1-6Z-8AB-0Z	A	From Leg	4.00	0.0000	145.00	No Ice	5.60	2.33	0.04
			0.00			1/2"	5.92	2.56	0.08
			0.00			Ice	6.24	2.79	0.12
						1" Ice	6.91	3.28	0.21
						2" Ice	8.37	4.37	0.45
						4" Ice			
Platform Mount [LP 601-1]	C	None		0.0000	145.00	No Ice	28.47	28.47	1.12
						1/2"	33.59	33.59	1.51
						Ice	38.71	38.71	1.91
						1" Ice	48.95	48.95	2.69
						2" Ice	69.43	69.43	4.26
						4" Ice			

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	188 - 137	Pole	Max Tension	14	0.00	0.00	-0.00
			Max. Compression	14	-24.41	-0.06	2.03
			Max. Mx	5	-10.83	-478.41	3.20
			Max. My	2	-10.76	-2.76	483.17
			Max. Vy	11	-20.29	478.37	-2.27
			Max. Vx	2	-20.72	-2.76	483.17
			Max. Torque	5			1.57
L2	137 - 90.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-34.56	-0.06	2.07
			Max. Mx	5	-18.79	-1489.19	6.30
			Max. My	2	-18.74	-5.79	1513.60
			Max. Vy	11	-23.88	1489.13	-5.22
			Max. Vx	2	-24.31	-5.79	1513.60
			Max. Torque	5			1.57
L3	90.25 - 44.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-48.05	-0.06	2.07
			Max. Mx	5	-29.82	-2629.94	9.24
			Max. My	2	-29.79	-8.69	2673.44
			Max. Vy	11	-27.29	2629.89	-8.10

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-27.72	-8.69	2673.44
			Max. Torque	5			1.57
L4	44.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-69.95	-0.06	2.07
			Max. Mx	5	-48.47	-4112.05	12.47
			Max. My	2	-48.47	-11.93	4176.99
			Max. Vy	11	-30.75	4111.98	-11.34
			Max. Vx	2	-31.17	-11.93	4176.99
			Max. Torque	5			1.56

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	69.95	-0.00	0.00
	Max. H_x	11	48.49	30.73	-0.06
	Max. H_z	2	48.49	-0.06	31.14
	Max. M_x	2	4176.99	-0.06	31.14
	Max. M_z	5	4112.05	-30.73	0.06
	Max. Torsion	5	1.56	-30.73	0.06
	Min. Vert	1	48.49	0.00	0.00
	Min. H_x	5	48.49	-30.73	0.06
	Min. H_z	8	48.49	0.06	-31.14
	Min. M_x	8	-4175.83	0.06	-31.14
	Min. M_z	11	-4111.98	30.73	-0.06
	Min. Torsion	11	-1.55	30.73	-0.06

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	48.49	0.00	0.00	-0.55	-0.02	0.00
Dead+Wind 0 deg - No Ice	48.49	0.06	-31.14	-4176.99	-11.93	-0.06
Dead+Wind 30 deg - No Ice	48.49	15.42	-27.00	-3623.43	-2066.25	-0.84
Dead+Wind 60 deg - No Ice	48.49	26.64	-15.62	-2099.15	-3567.01	-1.39
Dead+Wind 90 deg - No Ice	48.49	30.73	-0.06	-12.47	-4112.05	-1.56
Dead+Wind 120 deg - No Ice	48.49	26.58	15.52	2077.43	-3555.17	-1.31
Dead+Wind 150 deg - No Ice	48.49	15.31	26.94	3610.44	-2045.66	-0.71
Dead+Wind 180 deg - No Ice	48.49	-0.06	31.14	4175.83	11.88	0.07
Dead+Wind 210 deg - No Ice	48.49	-15.42	27.00	3622.27	2066.19	0.84
Dead+Wind 240 deg - No Ice	48.49	-26.64	15.62	2098.01	3566.96	1.38
Dead+Wind 270 deg - No Ice	48.49	-30.73	0.06	11.34	4111.98	1.55
Dead+Wind 300 deg - No Ice	48.49	-26.58	-15.52	-2078.58	3555.14	1.31
Dead+Wind 330 deg - No Ice	48.49	-15.31	-26.94	-3611.60	2045.63	0.72
Dead+Ice+Temp	69.95	0.00	-0.00	-2.07	-0.06	-0.00
Dead+Wind 0 deg+Ice+Temp	69.95	0.01	-4.61	-666.63	-1.76	0.00
Dead+Wind 30 deg+Ice+Temp	69.95	2.29	-4.00	-578.46	-329.57	-0.12
Dead+Wind 60 deg+Ice+Temp	69.95	3.96	-2.31	-335.89	-569.09	-0.21
Dead+Wind 90 deg+Ice+Temp	69.95	4.56	-0.01	-3.92	-656.15	-0.24
Dead+Wind 120 deg+Ice+Temp	69.95	3.95	2.30	328.51	-567.40	-0.21
Dead+Wind 150 deg+Ice+Temp	69.95	2.27	3.99	572.31	-326.64	-0.12
Dead+Wind 180 deg+Ice+Temp	69.95	-0.01	4.61	662.17	1.62	-0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 210 deg+Ice+Temp	69.95	-2.29	4.00	574.00	329.43	0.12
Dead+Wind 240 deg+Ice+Temp	69.95	-3.96	2.31	331.44	568.96	0.21
Dead+Wind 270 deg+Ice+Temp	69.95	-4.56	0.01	-0.54	656.01	0.24
Dead+Wind 300 deg+Ice+Temp	69.95	-3.95	-2.30	-332.96	567.27	0.21
Dead+Wind 330 deg+Ice+Temp	69.95	-2.27	-3.99	-576.77	326.51	0.12
Dead+Wind 0 deg - Service	48.49	0.02	-12.16	-1634.41	-4.68	-0.03
Dead+Wind 30 deg - Service	48.49	6.02	-10.55	-1417.85	-808.33	-0.33
Dead+Wind 60 deg - Service	48.49	10.41	-6.10	-821.54	-1395.41	-0.55
Dead+Wind 90 deg - Service	48.49	12.00	-0.02	-5.25	-1608.58	-0.62
Dead+Wind 120 deg - Service	48.49	10.38	6.06	812.30	-1390.75	-0.52
Dead+Wind 150 deg - Service	48.49	5.98	10.52	1412.02	-800.27	-0.28
Dead+Wind 180 deg - Service	48.49	-0.02	12.16	1633.23	4.64	0.03
Dead+Wind 210 deg - Service	48.49	-6.02	10.55	1416.68	808.29	0.33
Dead+Wind 240 deg - Service	48.49	-10.41	6.10	820.37	1395.36	0.55
Dead+Wind 270 deg - Service	48.49	-12.00	0.02	4.07	1608.53	0.61
Dead+Wind 300 deg - Service	48.49	-10.38	-6.06	-813.47	1390.71	0.52
Dead+Wind 330 deg - Service	48.49	-5.98	-10.52	-1413.20	800.22	0.29

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-48.49	0.00	0.00	48.49	0.00	0.000%
2	0.06	-48.49	-31.14	-0.06	48.49	31.14	0.000%
3	15.42	-48.49	-27.00	-15.42	48.49	27.00	0.000%
4	26.64	-48.49	-15.62	-26.64	48.49	15.62	0.000%
5	30.73	-48.49	-0.06	-30.73	48.49	0.06	0.000%
6	26.58	-48.49	15.52	-26.58	48.49	-15.52	0.000%
7	15.31	-48.49	26.94	-15.31	48.49	-26.94	0.000%
8	-0.06	-48.49	31.14	0.06	48.49	-31.14	0.000%
9	-15.42	-48.49	27.00	15.42	48.49	-27.00	0.000%
10	-26.64	-48.49	15.62	26.64	48.49	-15.62	0.000%
11	-30.73	-48.49	0.06	30.73	48.49	-0.06	0.000%
12	-26.58	-48.49	-15.52	26.58	48.49	15.52	0.000%
13	-15.31	-48.49	-26.94	15.31	48.49	26.94	0.000%
14	0.00	-69.95	0.00	-0.00	69.95	0.00	0.000%
15	0.01	-69.95	-4.61	-0.01	69.95	4.61	0.000%
16	2.29	-69.95	-4.00	-2.29	69.95	4.00	0.000%
17	3.96	-69.95	-2.31	-3.96	69.95	2.31	0.000%
18	4.56	-69.95	-0.01	-4.56	69.95	0.01	0.000%
19	3.95	-69.95	2.30	-3.95	69.95	-2.30	0.000%
20	2.27	-69.95	3.99	-2.27	69.95	-3.99	0.000%
21	-0.01	-69.95	4.61	0.01	69.95	-4.61	0.000%
22	-2.29	-69.95	4.00	2.29	69.95	-4.00	0.000%
23	-3.96	-69.95	2.31	3.96	69.95	-2.31	0.000%
24	-4.56	-69.95	0.01	4.56	69.95	-0.01	0.000%
25	-3.95	-69.95	-2.30	3.95	69.95	2.30	0.000%
26	-2.27	-69.95	-3.99	2.27	69.95	3.99	0.000%
27	0.02	-48.49	-12.16	-0.02	48.49	12.16	0.000%
28	6.02	-48.49	-10.55	-6.02	48.49	10.55	0.000%
29	10.41	-48.49	-6.10	-10.41	48.49	6.10	0.000%
30	12.00	-48.49	-0.02	-12.00	48.49	0.02	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
31	10.38	-48.49	6.06	-10.38	48.49	-6.06	0.000%
32	5.98	-48.49	10.52	-5.98	48.49	-10.52	0.000%
33	-0.02	-48.49	12.16	0.02	48.49	-12.16	0.000%
34	-6.02	-48.49	10.55	6.02	48.49	-10.55	0.000%
35	-10.41	-48.49	6.10	10.41	48.49	-6.10	0.000%
36	-12.00	-48.49	0.02	12.00	48.49	-0.02	0.000%
37	-10.38	-48.49	-6.06	10.38	48.49	6.06	0.000%
38	-5.98	-48.49	-10.52	5.98	48.49	10.52	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00043229
3	Yes	5	0.00000001	0.00099377
4	Yes	6	0.00000001	0.00004687
5	Yes	5	0.00000001	0.00004509
6	Yes	5	0.00000001	0.00097192
7	Yes	5	0.00000001	0.00099920
8	Yes	4	0.00000001	0.00046884
9	Yes	6	0.00000001	0.00004657
10	Yes	5	0.00000001	0.00098512
11	Yes	4	0.00000001	0.00069775
12	Yes	6	0.00000001	0.00004630
13	Yes	5	0.00000001	0.00098156
14	Yes	4	0.00000001	0.00000810
15	Yes	5	0.00000001	0.00017631
16	Yes	5	0.00000001	0.00019576
17	Yes	5	0.00000001	0.00019512
18	Yes	5	0.00000001	0.00017312
19	Yes	5	0.00000001	0.00019098
20	Yes	5	0.00000001	0.00019217
21	Yes	5	0.00000001	0.00017387
22	Yes	5	0.00000001	0.00019352
23	Yes	5	0.00000001	0.00019229
24	Yes	5	0.00000001	0.00017302
25	Yes	5	0.00000001	0.00019363
26	Yes	5	0.00000001	0.00019431
27	Yes	4	0.00000001	0.00012061
28	Yes	5	0.00000001	0.00010312
29	Yes	5	0.00000001	0.00010869
30	Yes	4	0.00000001	0.00021067
31	Yes	5	0.00000001	0.00009901
32	Yes	5	0.00000001	0.00010483
33	Yes	4	0.00000001	0.00012282
34	Yes	5	0.00000001	0.00010752
35	Yes	5	0.00000001	0.00010101
36	Yes	4	0.00000001	0.00018671
37	Yes	5	0.00000001	0.00010620
38	Yes	5	0.00000001	0.00010130

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	188 - 137	52.431	27	2.5629	0.0038
L2	141.25 - 90.25	28.911	27	2.1221	0.0028
L3	95.5 - 44.5	12.159	27	1.3082	0.0011
L4	51 - 0	3.205	27	0.5834	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
188.00	Lighting Rod 3/4" x 8'	27	52.431	2.5629	0.0038	31920
160.00	LNX-6515DS-VTM w/ Mount Pipe	27	37.852	2.3400	0.0033	5698
145.00	BXA-80063/6 w/ Mount Pipe	27	30.616	2.1726	0.0029	3710

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	188 - 137	133.650	2	6.5365	0.0099
L2	141.25 - 90.25	73.760	2	5.4135	0.0073
L3	95.5 - 44.5	31.048	2	3.3401	0.0027
L4	51 - 0	8.188	2	1.4904	0.0009

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
188.00	Lighting Rod 3/4" x 8'	2	133.650	6.5365	0.0099	12820
160.00	LNX-6515DS-VTM w/ Mount Pipe	2	96.532	5.9684	0.0086	2285
145.00	BXA-80063/6 w/ Mount Pipe	2	78.104	5.5422	0.0076	1484

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	188 - 137 (1)	TP32.711x22x0.25	51.00	0.00	0.0	39.000	25.0495	-10.76	976.93	0.011
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	51.00	0.00	0.0	39.000	40.2848	-18.74	1571.11	0.012
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	51.00	0.00	0.0	39.000	58.6481	-29.79	2287.28	0.013
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	51.00	0.00	0.0	39.000	93.8076	-48.47	3658.50	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	188 - 137 (1)	TP32.711x22x0.25	484.41	29.791	39.000	0.764	0.00	0.000	39.000	0.000
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	1513.61	44.980	39.000	1.153	0.00	0.000	39.000	0.000
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	2673.45	44.978	39.000	1.153	0.00	0.000	39.000	0.000
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	4177.00	36.655	39.000	0.940	0.00	0.000	39.000	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	188 - 137 (1)	TP32.711x22x0.25	20.67	0.825	26.000	0.063	0.84	0.025	26.000	0.001
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	24.31	0.604	26.000	0.046	0.06	0.001	26.000	0.000
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	27.72	0.473	26.000	0.036	0.06	0.001	26.000	0.000
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	31.17	0.332	26.000	0.026	0.06	0.000	26.000	0.000

Pole Interaction Design Data

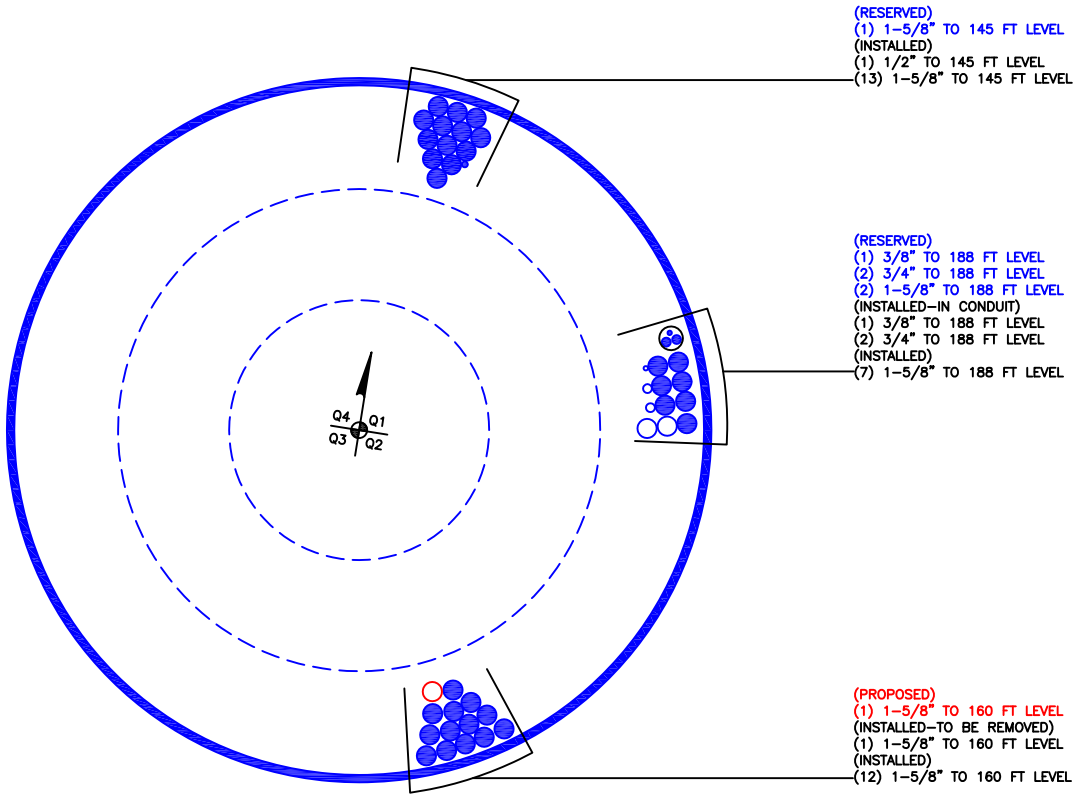
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	188 - 137 (1)	0.011	0.764	0.000	0.063	0.001	0.776 ✔	1.333	H1-3+VT ✔
L2	137 - 90.25 (2)	0.012	1.153	0.000	0.046	0.000	1.166 ✔	1.333	H1-3+VT ✔
L3	90.25 - 44.5 (3)	0.013	1.153	0.000	0.036	0.000	1.167 ✔	1.333	H1-3+VT ✔
L4	44.5 - 0 (4)	0.013	0.940	0.000	0.026	0.000	0.953 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	188 - 137	Pole	TP32.711x22x0.25	1	-10.76	1302.25	58.2	Pass
L2	137 - 90.25	Pole	TP42.03x31.3184x0.3125	2	-18.74	2094.29	87.5	Pass
L3	90.25 - 44.5	Pole	TP51.014x40.3023x0.375	3	-29.79	3048.94	87.5	Pass
L4	44.5 - 0	Pole	TP59.61x48.8988x0.5	4	-48.47	4876.78	71.5	Pass
							Summary	
						Pole (L3)	87.5	Pass
						RATING =	**87.5**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 803175 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

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

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

Site Data

BU#: *803175*
Site Name: *CT NEW BRITAIN 3 CAC 803*
App #: *343347 REV 0*

Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	67	in
Anchor Spacing:	6.125	in

Plate Data		
W=Side:	66	in
Thick:	3	in
Grade:	50	ksi
Clip Distance:	19.625	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	59.61	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Stress Increase Factor		
ASD ASIF:	1.333	

Base Reactions		
TIA Revision:	F	
Unfactored Moment, M:	4177	ft-kips
Unfactored Axial, P:	48	kips
Unfactored Shear, V:	31	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension	147.2	Kips
Allowable Tension:	195.0	Kips
Anchor Rod Stress Ratio:	75.5%	**Pass**

Base Plate Results — Flexural Check

Base Plate Stress:	37.9	ksi
Allowable PL Bending Stress:	50.0	ksi
Base Plate Stress Ratio:	75.9%	**Pass**

PL Ref. Data
Yield Line (in): 33.73
Max PL Length: 33.73

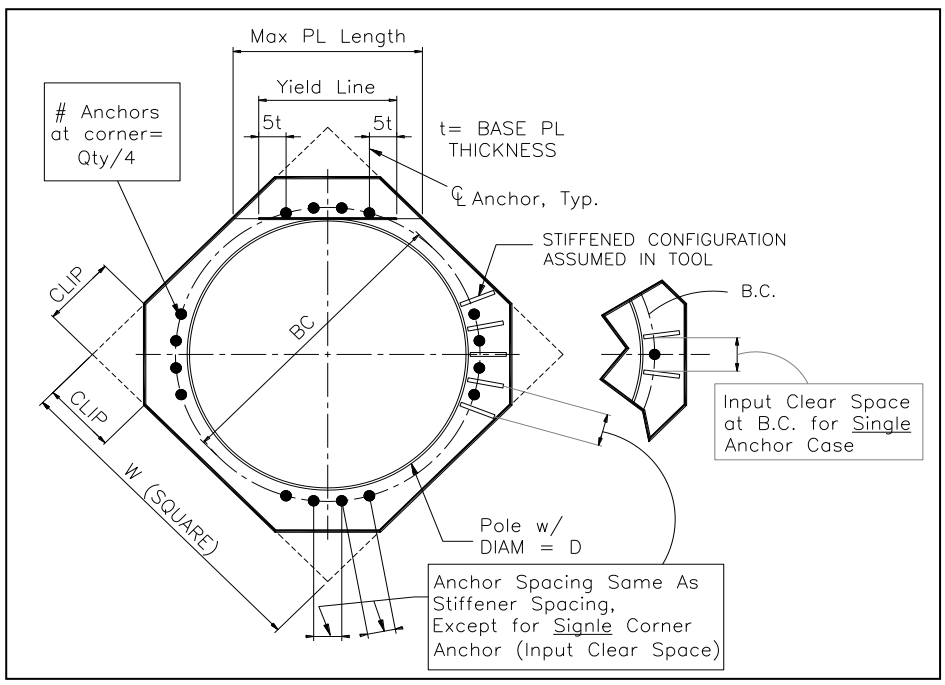
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check:	N/A



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

Monopole Pier and Pad Foundation

BU # : 803175
Site Name: CT NEW BRITAIN 3 CAC 80
App. Number: 343347 REV 0

TIA-222 Revision: F

Design Reactions		
Shear, **S**:	31	kips
Moment, **M**:	4177	ft-kips
Tower Height, **H**:	188	ft
Tower Weight, **Wt**:	48	kips
Base Diameter, **BD**:	4.96	ft

Foundation Dimensions		
Depth, **D**:	5.92	ft
Pad Width, **W**:	26	ft
Neglected Depth, **N**:	4.5	ft
Thickness, **T**:	3.00	ft
Pier Diameter, **Pd**:	8.00	ft
Ext. Above Grade, **E**:	0.88	ft
BP Dist. Above Pier:	3.75	in.
Clear Cover, **Cc**:	4.0	in

Soil Properties		
Soil Unit Weight, **γ**:	0.110	kcf
Ult. Bearing Capacity, Bc:	12.0	ksf
Angle of Friction, **Φ**:	30	deg
Cohesion, **Co**:	0.000	ksf
Passive Pressure, **Pp**:	0.000	ksf
Base Friction, **μ**:	0.30	

Material Properties		
Rebar Yield Strength, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Concrete Unit Weight, **δc**:	0.150	kcf
Seismic Zone, **z**:	1	

Rebar Properties		
Pier Rebar Size, **Sp**:	11	
Pier Rebar Quanity, **mp**:	36	24
Pad Rebar Size, **Spad**:	11	
Pad Rebar Quanity, **mpad**:	35	8
Pier Tie Size, **St**:	5	4
Tie Quanity, **mt**:	12	5

Design Checks	Capacity/ Availability	Demand/ Limits	Check
Req'd Pier Diam.(ft)	8	6.46	**OK**
Overturning (ft-kips)	4654.64	4177.00	**89.7%**
Shear Capacity (kips)	91.68	31.00	**33.8%**
Bearing (ksf)	9.00	3.52	**39.1%**
Pad Shear - 1-way (kips)	802.20	475.20	**59.2%**
Pad Shear - 2-way (kips)	2056.45	129.00	**6.3%**
Pad Moment Capacity (k-ft)	7183.33	1911.80	**26.6%**
Pier Moment Capacity (k-ft)	7654.84	4294.65	**56.1%**

Exhibit E

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

T-Mobile Existing Facility

Site ID: CT11783B

Crown Comm. Monopole
167 Lester Street
New Britain, CT 06051

May 16, 2016

EBI Project Number: 6216002335

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	6.82 %

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

EBI Consulting
environmental | engineering | due diligence

May 16, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11783B – Crown Comm. Monopole**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **167 Lester Street, New Britain, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **167 Lester Street, New Britain, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **Ericsson AIR32 B66A/B2A & AIR 21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR32 B66A/B2A & AIR 21B2A/B4P** have a maximum gain of **15.9 dBd** at their main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is **163 feet** above ground level (AGL).

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	163	Height (AGL):	163	Height (AGL):	163
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	1.36	Antenna B1 MPE%	1.36	Antenna C1 MPE%	1.36
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	163	Height (AGL):	163	Height (AGL):	163
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	0.68	Antenna B2 MPE%	0.68	Antenna C2 MPE%	0.68
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	163	Height (AGL):	163	Height (AGL):	163
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.27	Antenna B3 MPE%	0.27	Antenna C3 MPE%	0.27

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**2.31 %**
AT&T	1.05 %
Verizon Wireless	3.46 %
Site Total MPE %:	**6.82 %**

T-Mobile Sector 1 Total:	2.31 %
T-Mobile Sector 2 Total:	2.31 %
T-Mobile Sector 3 Total:	2.31 %
Site Total:	6.82 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**2334.27**	**163**	**6.81**	**2100**	**1000**	**0.68 %**
T-Mobile 1900 MHz (PCS) LTE	**2**	**2334.27**	**163**	**6.81**	**2100**	**1000**	**0.68 %**
T-Mobile 1900 MHz (PCS) GSM/UMTS	**2**	**1167.14**	**163**	**0.34**	**1900**	**1000**	**0.34 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**1167.14**	**163**	**0.34**	**2100**	**1000**	**0.34 %**
T-Mobile 700 MHz LTE	**1**	**865.21**	**163**	**0.27**	**700**	**467**	**0.27 %**
						Total:	**2.31%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	2.31 %
Sector 2:	2.31 %
Sector 3 :	2.31 %
T-Mobile Per Sector Maximum:	2.31 %
Site Total:	6.82 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.82%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.