EMPIRE telecom

April 20, 2018

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

Regarding:	Notice of Exempt Modification – Equipment Upgrades
Property Address:	200 Stanley Street aka 88 Stanley Street, New Britain, CT 06051
AT&T Site:	CT5194 // FA# 10091780

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 193-foot monopole tower at the above-referenced address, latitude 41.65448889, longitude -72.76976111. Said monopole tower is owned by Crown Castle, and the ground is owned by Downes Investments LLC.

AT&T desires to modify its existing telecommunications facility by installing three (3) additional panel antennas, twelve (12) remote radio units, and two (2) DC surge arrestors and accompanying feedlines as detailed in the enclosed plans. The centerline height of the existing antennas is and will remain at 195 feet.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72 (b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to The Honorable Erin E. Stewart, Mayor of the City of New Britain, David Zajac, Zoning Enforcement Officer/Building Inspector of the City of New Britain, and Sergio Lupo, the City of New Britain's Director of Licenses, Permits, and Inspections. A copy of this letter is also being sent to tower owner, Crown Castle, and ground owner Downes Investments LLC.

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

1. The planned modification will not result in an increase in the height of the existing structure. The equipment to be added will be installed at the existing height of 195 feet on the 193-foot tower.

2. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.

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

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.

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 AT&T's proposed modifications (please see enclosed structural analysis completed by Destek Engineering for Crown Castle dated January 9, 2018).

For the foregoing reasons, AT&T respectfully requests that the proposed installation be allowed within the exempt modifications under R.C.S.A. §16-50j-72 (b)(2).

Sincerely,

Jennifer Iliades

Jennifer Iliades
Site Acquisition Specialist

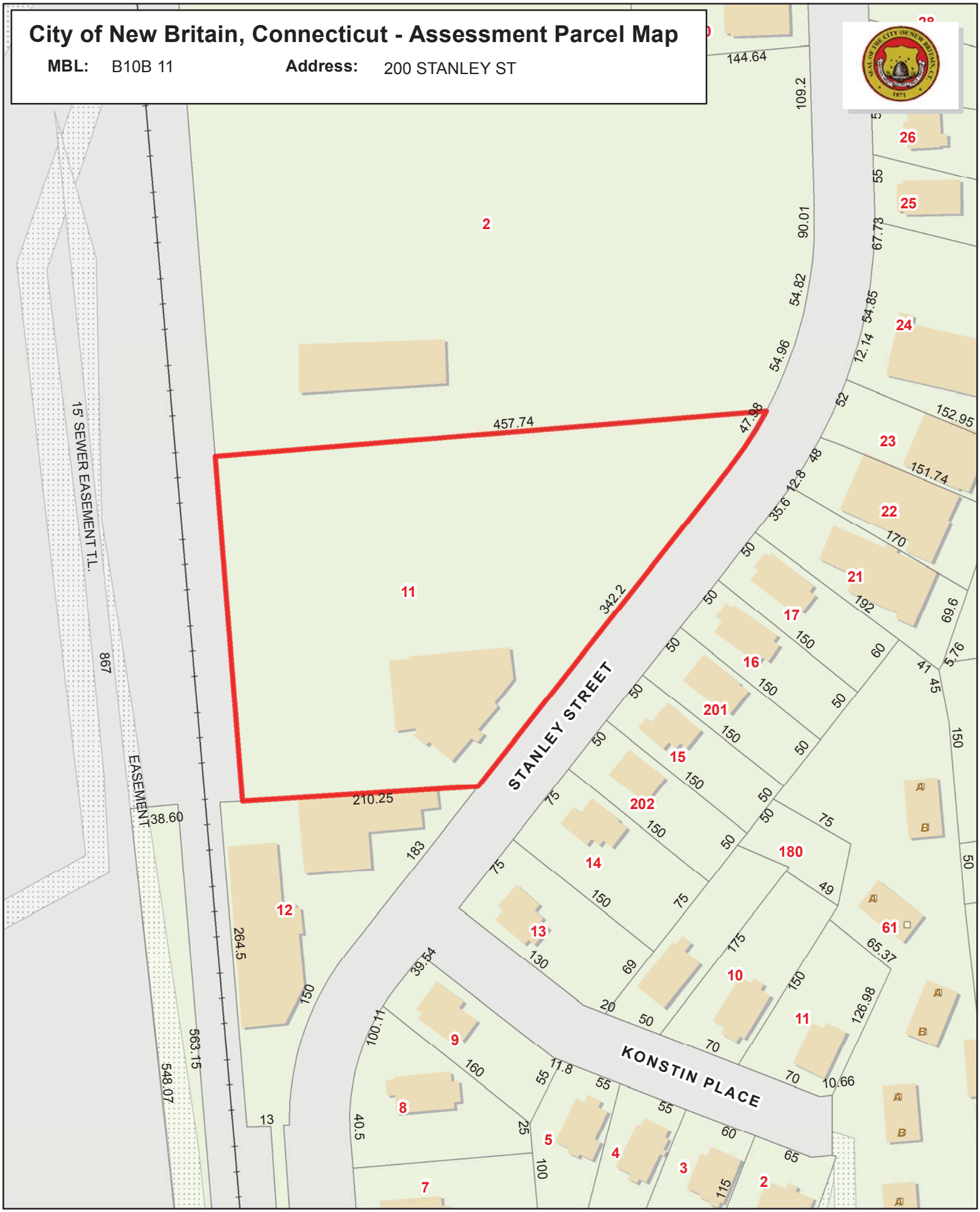
Enclosures: Exhibit 1 – Property Card and GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation

cc: The Honorable Erin E. Stewart, Mayor, City of New Britain
David Zajac, Zoning Enforcement Officer/Building Inspector, City of New Britain
Sergio Lupo, the City of New Britain's Director of Licenses, Permits, and Inspections.
Crown Castle
Downes Investments LLC

Exhibit 1

City of New Britain, Connecticut - Assessment Parcel Map

MBL: B10B 11 **Address:** 200 STANLEY ST



Approximate Scale:

1 inch = 100 feet

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

Map Produced January 2015

200 STANLEY ST

Location	200 STANLEY ST	**Mblu**	B10B/ 11/ / /
Acct#	81300200	**Owner**	DOWNES INVESTMENTS LLC
Assessment	$556,500	**Appraisal**	$795,000
PID	1486	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$626,600	$168,400	$795,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$438,620	$117,880	$556,500

Owner of Record

Owner	DOWNES INVESTMENTS LLC
Co-Owner	
Address	PO BOX 1508 NEW BRITAIN, CT 06050-1508

Sale Price	$327,818
Certificate	1
Book & Page	1827/ 193
Sale Date	10/17/2011
Instrument	19

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
DOWNES INVESTMENTS LLC	$327,818	1	1827/ 193	19	10/17/2011
DOWNES INVESTMENTS LLC	$0		1386/ 135		10/16/2001
DOWNES INVESTMENTS LLC	$0		1351/ 908		11/03/2000
JOHN E DOWNES TRUSTEE	$0		1104/ 267		07/03/1991
DOWNES JOHN E	$0		1105/ 413		06/24/1991

Building Information

Building 1 : Section 1

Year Built:	1954
Living Area:	11,912
Replacement Cost:	$1,230,749

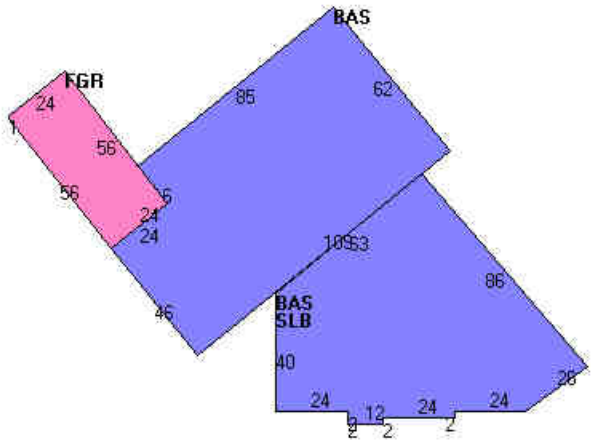
Building Percent Good:	44
Replacement Cost Less Depreciation:	$541,500

Building Attributes	
Field	**Description**
STYLE	Office
MODEL	Comm/Ind
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Block/Concrete
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Central Heat	Yes
AC Type	Central
Bldg Use	Office Bld MDL-94
Apt Units	
Total Bedrms	00
Total Baths	0
Comm Units	1
Ind Units	
1st Floor Use:	3400
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil & WL
Rooms/Prtns	Average
Wall Height	12
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/NewBritainCTPhotos//\00\02\11/

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	11,912	11,912
FGR	Garage	1,371	0
SLB	Slab	0	0
		13,283	11,912

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land

Land Use

Use Code	3400
Description	Office Bld MDL-94
Zone	I2
Neighborhood	107H
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.18
Depth	
Assessed Value	$117,880
Appraised Value	$168,400

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN1	Fence - Chain			2520 L.F.	$18,000	1
PAV1	Paving Asphalt			10000 S.F.	$9,600	1
CB3	PreCastConcCel			240 S.F.	$55,400	1
FN4	Fence-8' Chain			168 L.F.	$2,100	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$645,500	$165,400	$810,900
2015	$645,500	$165,400	$810,900
2014	$645,500	$165,400	$810,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$451,850	$115,780	$567,630
2015	$451,850	$115,780	$567,630
2014	$451,850	$115,780	$567,630

Exhibit 2

PROJECT INFORMATION

SCOPE OF WORK	UNMANNED COMMUNICATIONS FACILITY MODIFICATIONS INCLUDING: -(P) LTE700D Kathrein 800-10966 (ALPHA/BETA), 800-10965 (GAMMA), PANEL IN POSITION #3 (1/SECT., 3 TOT.) -(P) LTE700D RRUS-4478 UNITS BEHIND LTE700D PANEL POSITION #3 (1/SECT., 3 TOT.) -(P) LTE850 RRUS-12 UNITS BEHIND LTE700DE/WCS PANEL POSITION #4 (1/SECT., 3 TOT.) -(P) LTEAWS RRUS-32B66 UNITS BEHIND PANEL POSITION #2 (1/SECT., 3 TOT.) -(P) LTE700DE RRUS-E2 UNITS BEHIND PANEL POSITION #4 (1/SECT., 3 TOT.) -(P) 2-EXISTING, 2 PROPOSED DC6-48-60-18-8C SURGE SUPPRESSOR FOR A TOTAL OF 4 -(P) IN LTE CABINET: -UPGRADE DUS TO RBS5216, ADD 2nd RBS5216 -ADD 2nd XMU, ADD IDLe CABLE -REMOVE & DECOMMISSION NOKIA GSM CABINETS (2 TOT.)
SITE NUMBER:	CT5194
SITE NAME:	NEW BRITAIN SE
SITE ADDRESS:	200 STANLEY STREET NEW BRITAIN, CT 06051
TOWER OWNER:	CROWN ATLANTIC COMPANY 2000 CORPORATE DRIVE CANONSBURG , PA 15317
APPLICANT:	AT&T MOBILITY 550 COCHITUATE RD SUITES 13 & 14 FRAMINGHAM, MA 01701
NOC CONTACT:	TEL 866-915-5600
COORDINATES	LAT. N41°39'16.4" LONG. W72°46'09.5"
GROUND LEVEL:	±110'
DEED REFERENCE:	N/A
SITE PARCEL NO.:	N/A
CURRENT ZONING:	N/A
HORIZONTAL DATUM:	(NAD) 1983

DRAWING INDEX

		REV
01	TITLE SHEET	0
02	NOTES	0
03	SITE PLAN & EQUIPMENT PLAN	0
04	ELEVATION VIEW & ANTENNA LAYOUT	0
05	GROUNDING DETAILS	0

ONE CALL 1-800-922-4455

AT LEAST 2 WORKING DAYS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CONNECTICUT ONE CALL SYSTEM AT 1-800-922-4455

CONTACT & UTILITY INFORMATION

CONTACT	CONTACT	COMPANY	PHONE NO.
ENGINEERING:	MIGUEL NOBRE	VRG	(508) 981-9590
SITE ACQUISITION:	DAVID COOPER	EMPIRE	(484) 683-5349
CONSTRUCTION:	BILL DANIELS	EMPIRE	(484) 683-5349
UTILITIES			
POWER:	WORK REQUEST GROUP	NATIONAL GRID	(800) 375-7405
TELCO:	.	VERIZON	(800) 941-9900

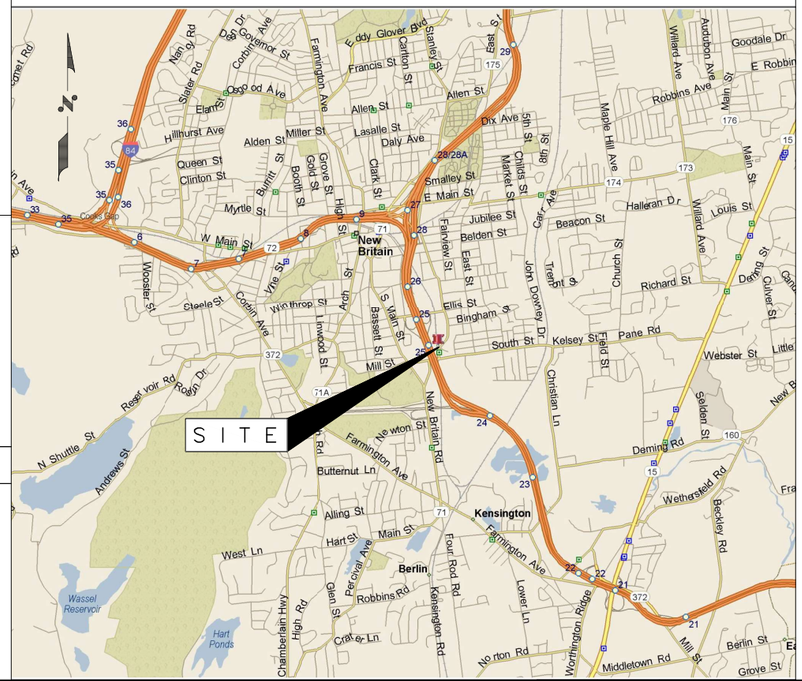
at&t Mobility

SITE NUMBER: CT5194
SITE NAME: NEW BRITAIN SE
PROJECT: LTE 4C 850 5C 700DE 6C AWS 7C 700B14
CROWN BU: 803843

LOCATION MAP

DIRECTIONS: FROM ROCKY HILL, TAKE EXIT 22 OFF I-91, GO WEST TO ROUTE 9. TAKE ROUTE 9 WEST. TAKE ROUTE 9 WEST EXIT 25 (ELLIS ST). AT END OF OFF RAMP TURN RIGHT ONTO ELLIS ST. TAKE FIRST RIGHT ONTO STANLEY ST. SITE WILL BE ON RIGHT JUST BEFORE SOUTH ST.

SITE ACCESS: LOCKED GATE



APPLICABLE BUILDING CODES AND STANDARDS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH PROJECT STANDARDS AND SPECIFICATIONS. SUBCONTRACTOR WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE:
CONNECTICUT STATE BUILDING CODE

ELECTRICAL CODE:
NATIONAL ELECTRICAL CODE LATEST EDITION
SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS.
AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
AMERICAN NATIONAL STANDARDS INSTITUTE/TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA) 222-F OR G AS APPLICABLE, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM – DC POWER SYSTEMS – TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

VRG
VERTICAL RESOURCES GRP.
489 Washington Street
Auburn, MA 01501
Tel. (508) 981- 9590
Fax (508) 519 – 8939
mnobre@verticalresourcesgrp.com

EMPIRE telecom
EMPIRE TELECOM USA, LLC
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5194
SITE NAME: NEW BRITAIN
PROJECT: LTE 4C5C6C7C
CROWN SITE ID: 803843
200 STANLEY ST
NEW BRITAIN, CT 06051
HARTFORD COUNTY

at&t Mobility
550 COCHITUATE RD
SUITES 13 & 14
FRAMINGHAM, MA 01701

NO.	DATE	REVISION	BY	CHK	APP'D
1	01/08/18	FOR CONSTRUCTION	E.L.P.	G.A.M.	

SCALE | DESIGNED BY: M.N. | DRAWN BY: G.A.M.

JAMES P. STRONE No. 8657 REGISTERED PROFESSIONAL ENGINEER

AT&T MOBILITY

TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV.
CT5194-LTE4C7C	01	0

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – PRIME CONTRACTOR
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T WIRELESS
OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.

ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. ROUTING OF CONDUIT FOR POWER AND TELCO SHALL BE APPROVED BY OWNER OF SITE.

9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

SITE WORK GENERAL NOTES

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.

6. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.

7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE OWNER SPECIFICATION FOR SITE SIGNAGE.

8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.

9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE DETAIL 303.

11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.

12. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

13. ALL EARTH WORK SHALL BE PERFORMED IN ACCORDANCE WITH TECHNICAL SPECIFICATION FOR CONSTRUCTION OF RADIO ACCESS NETWORK SITES.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 (HOT–DIP) UNLESS NOTED OTHERWISE. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. STEEL FASTENER HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 (HOT–DIP)

4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.

5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD, HILTI OR APPROVED EQUAL.

6. ALL STRUCTURAL STEEL SHALL BE SUPPLIED IN ACCORDANCE WITH TECHNICAL SPECIFICATION FOR CONSTRUCTION OF RADIO ACCESS NETWORK SITES.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000 PSI) MAY BE USED.

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

CONCRETE CAST AGAINST EARTH.....3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:

#6 AND LARGER .....2 INCH
#5 AND SMALLER & WWF.....1 1/2 INCH

CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:

SLAB AND WALL .....3/4 INCH
BEAMS AND COLUMNS.....1 1/2 INCH

5. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD HILTI OR APPROVED EQUAL.

7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC 1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
(A) RESULTS OF CONCRETE CYLINDER TESTS PERFORMED AT THE SUPPLIER'S PLANT,

(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.

FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

10. ALL CONCRETE SHALL BE SUPPLIED IN ACCORDANCE WITH TECHNICAL SPECIFICATION FOR CONSTRUCTION OF RADIO ACCESS NETWORK SITES.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL, EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATIVE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING 1" SIEVE.

5. AS AN ALTERNATIVE TO ITEMS 2 AND 3 PROOF ROLL THE SUBGRADE SOILS WITH 5 PASSES OF A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL, AND COMPACTED AS STATED ABOVE.

6. COMPACTION CRITERIA FOR OTHER FILL AREAS ON SITE SHALL MEET THE SAME REQUIREMENTS AS NOTED ABOVE.

7. SOIL COMPACTION SHALL BE PERFORMED IN ACCORDANCE WITH TECHNICAL SPECIFICATION FOR CONSTRUCTION OF RADIO ACCESS NETWORK SITES.

COMPACTION EQUIPMENT:

HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

ELECTRICAL INSTALLATION NOTES

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

5. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.

6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA.

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PERMANENT LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S). NO HAND WRITTEN LABELS ALLOWED.

8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED. NO HAND WRITTEN LABELS ALLOWED.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (SIZE 6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND POWER GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

ELECTRICAL INSTALLATION NOTES (cont.)

15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

18. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

19. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

20. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

21. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

22. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS

24. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

25. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

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EMPIRE TELECOM USA, LLC
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5194
SITE NAME: NEW BRITAIN
PROJECT: LTE 4C5C6C7C
CROWN SITE ID: 803843
200 STANLEY ST
NEW BRITAIN, CT 06051
HARTFORD COUNTY

at&t Mobility
550 COCHITUATE RD
SUITES 13 & 14
FRAMINGHAM, MA 01701

NO.	DATE	REVISION	BY	CHK	APP'D
0	01/08/18	FOR CONSTRUCTION	E.L.P.	G.A.M.	

SCALE | DESIGNED BY: M.N. | DRAWN BY: G.A.M.

JAMES P. STRONE No. 8657 REGISTERED PROFESSIONAL ENGINEER

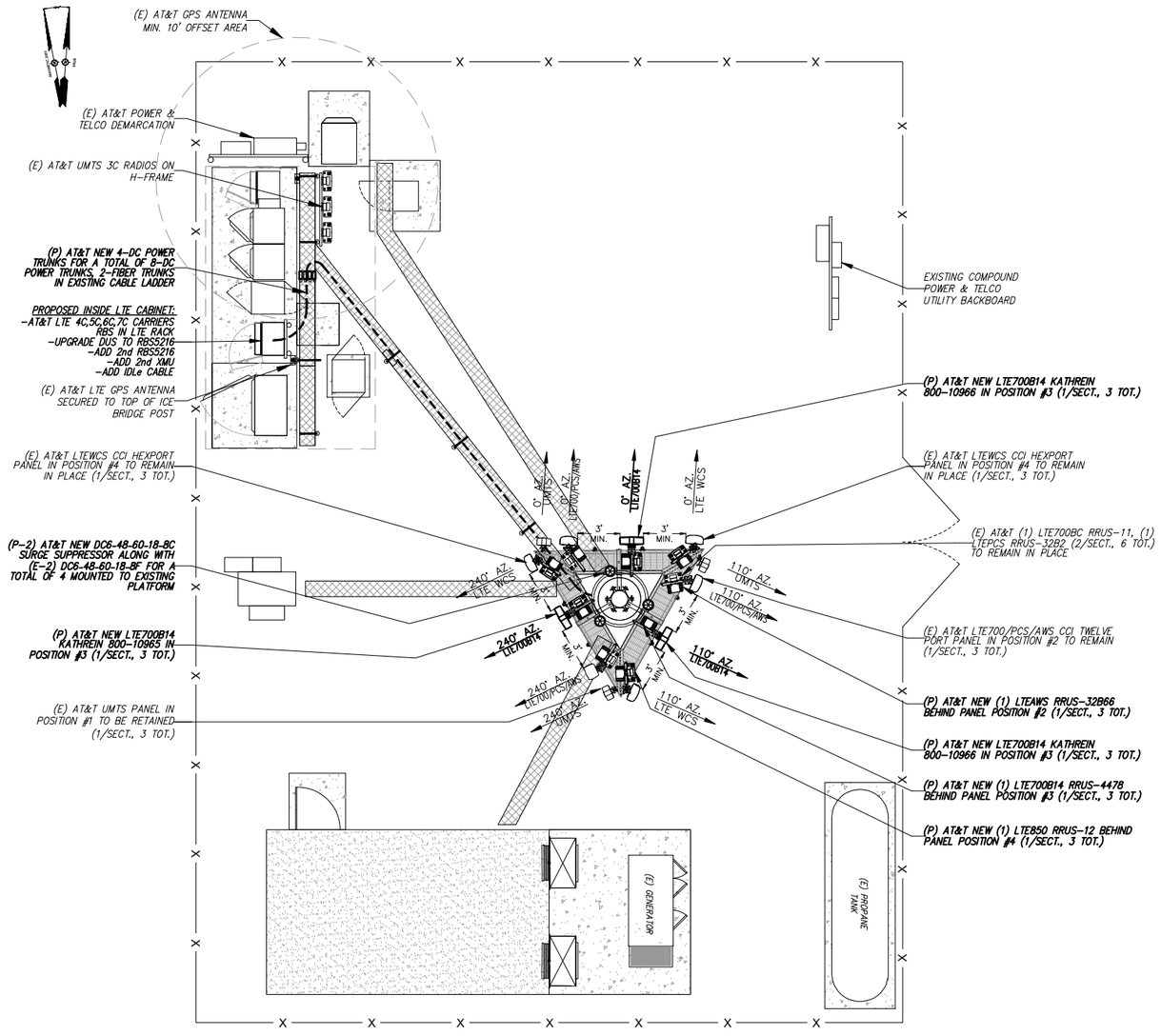
AT&T MOBILITY

NOTES

JOB NUMBER	DRAWING NUMBER	REV.
CT5194–LTE4C7C	02	0

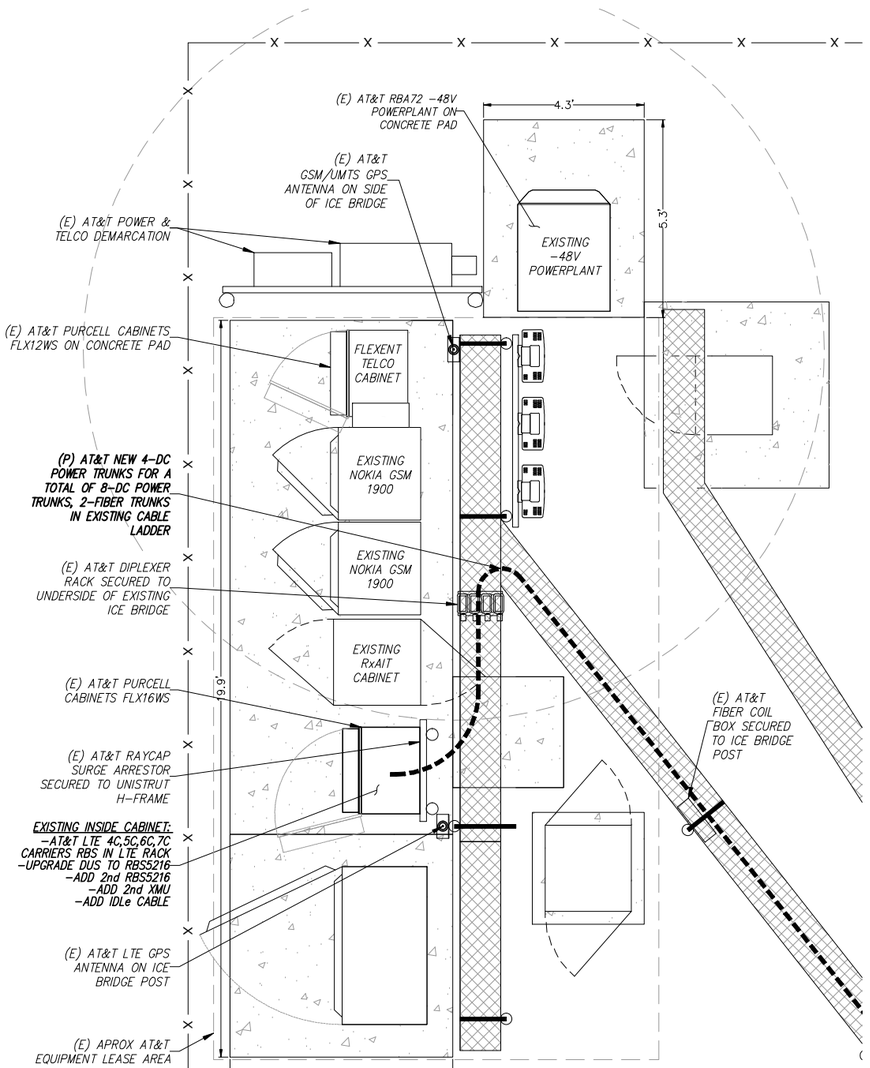
GENERAL NOTES

1. THE TYPE, DIMENSIONS, MOUNTING HARDWARE, AND THE POSITIONS OF ALL EQUIPMENT IN THE COMPOUND ARE SHOWN IN ILLUSTRATIVE FASHION. THESE DRAWINGS ARE NOT INTENDED FOR CONSTRUCTION. ACTUAL HARDWARE DETAILS AND FINAL LOCATIONS MAY DIFFER SLIGHTLY FROM WHAT IS SHOWN.
2. THE CELLULAR INSTALLATION IS AN UNMANNED PRIVATE AND SECURED COMPOUND. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONSTRUCTION, MAINTENANCE & OPERATION OF PROPOSED TOWER FACILITY WILL BE HELD IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE & FEDERAL REGULATIONS AND GUIDELINES.



COMPOUND PLAN 1 / 03
SCALE: 1" = 5'

GRAPHIC SCALE
5 0 2.5 5 10 20
(IN FEET)
1 inch = 5 ft.



EQUIPMENT PLAN 2 / 03
SCALE: 1" = 2'

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SCALE | DESIGNED BY: M.N. | DRAWN BY: G.A.M.

STATE OF CONNECTICUT JAMES P. STROBE No. 8657 REGISTERED PROFESSIONAL ENGINEER

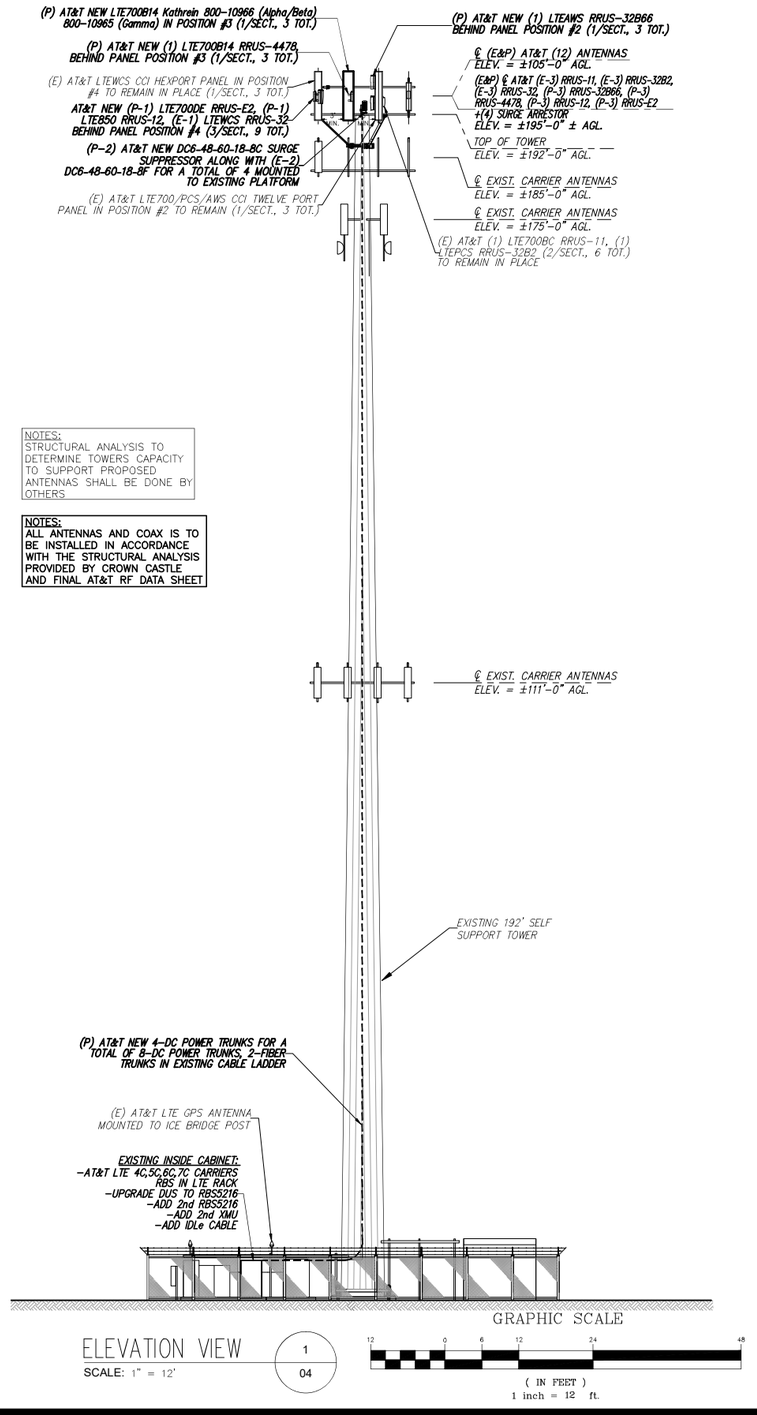
AT&T MOBILITY

SITE PLAN & EQUIPMENT PLAN

JOB NUMBER	DRAWING NUMBER	REV.
CT5194-LTE4C7C	03	0

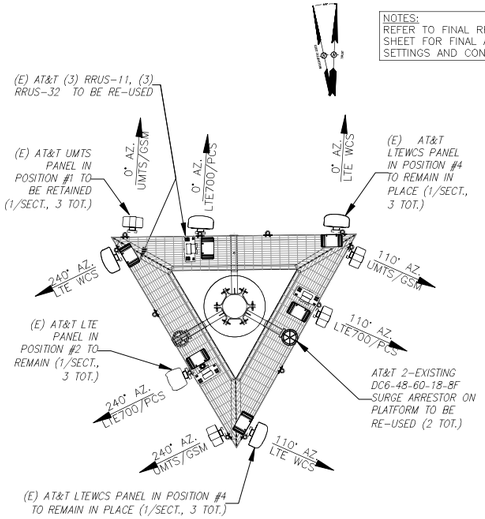
NOTES:
STRUCTURAL ANALYSIS TO DETERMINE TOWERS CAPACITY TO SUPPORT PROPOSED ANTENNAS SHALL BE DONE BY OTHERS

NOTES:
ALL ANTENNAS AND COAX IS TO BE INSTALLED IN ACCORDANCE WITH THE STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET



ELEVATION VIEW
SCALE: 1" = 12'
1 / 04

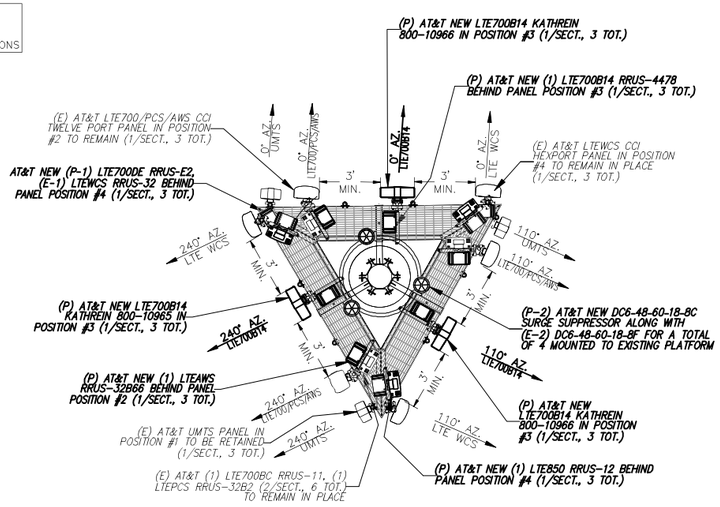
NOTES:
REFER TO FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS AND CONFIGURATIONS

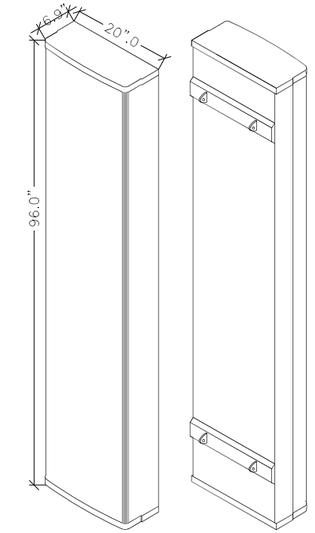


EXISTING

ANTENNA MOUNTING PLAN VIEW
SCALE: N.T.S.
2 / 04

PROPOSED



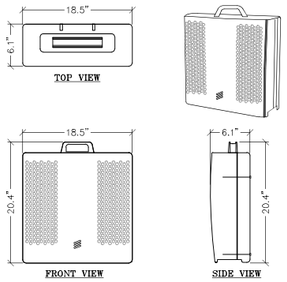


ISOMETRIC FRONT VIEW

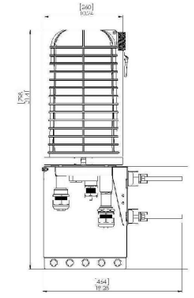
ISOMETRIC REAR VIEW

(P) LTE700B14 LTE PANEL ANTENNA
SCALE: N.T.S.
3 / 04

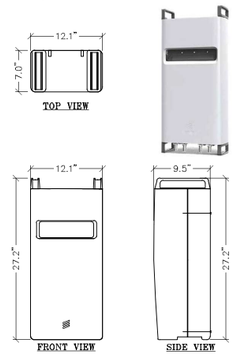
(P) ERICSSON RRU-4478(B14)
SCALE: N.T.S.
4 / 04



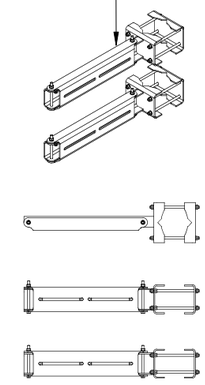
(P) ERICSSON DUAL PA RRUS-12
SCALE: N.T.S.
5 / 04



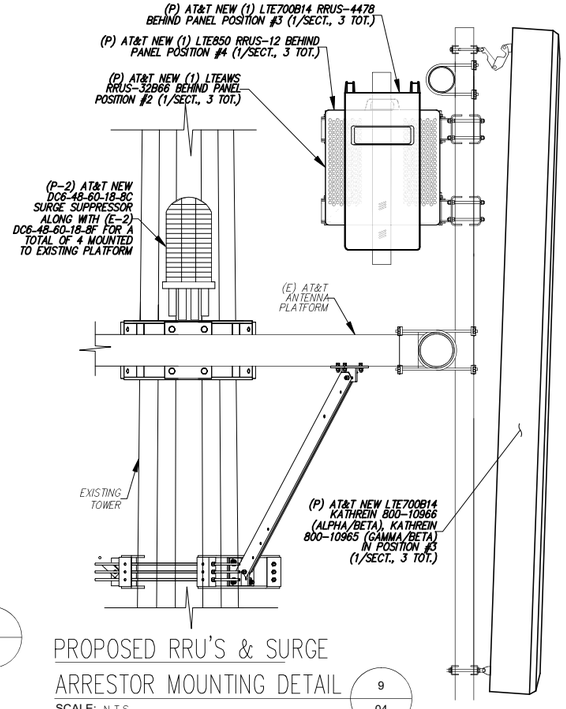
(P) RAYCAP SURGE SUPPRESSOR DC64860188C
SCALE: N.T.S.
6 / 04



PROPOSED ERICSSON DUAL PA RRUS-32B66
SCALE: N.T.S.
7 / 04



(P) AT&T RRU DUAL SWIVEL MOUNT
SCALE: N.T.S.
8 / 04



PROPOSED RRU'S & SURGE ARRESTOR MOUNTING DETAIL
SCALE: N.T.S.
9 / 04

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SCALE | DESIGNED BY: M.N. | DRAWN BY: G.A.M.

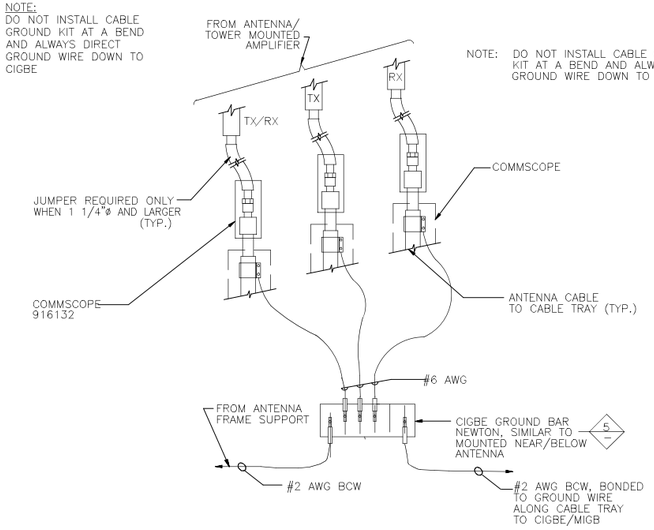
STATE OF CONNECTICUT · JAMES P. BEVONE · No. 8657 · REGISTERED PROFESSIONAL ENGINEER

AT&T MOBILITY

ELEVATION VIEW & ANTENNA LAYOUT

JOB NUMBER	DRAWING NUMBER	REV.
CT5194-LTE4C7C	04	0

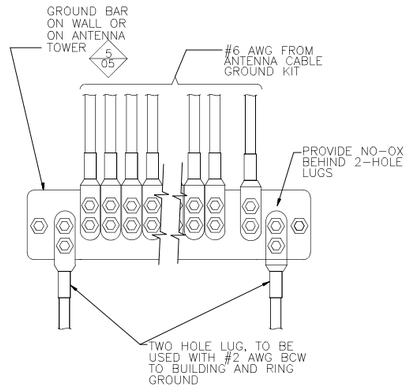
NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE



NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

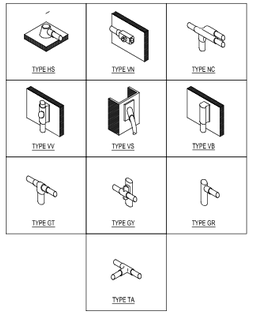
CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) 1/05

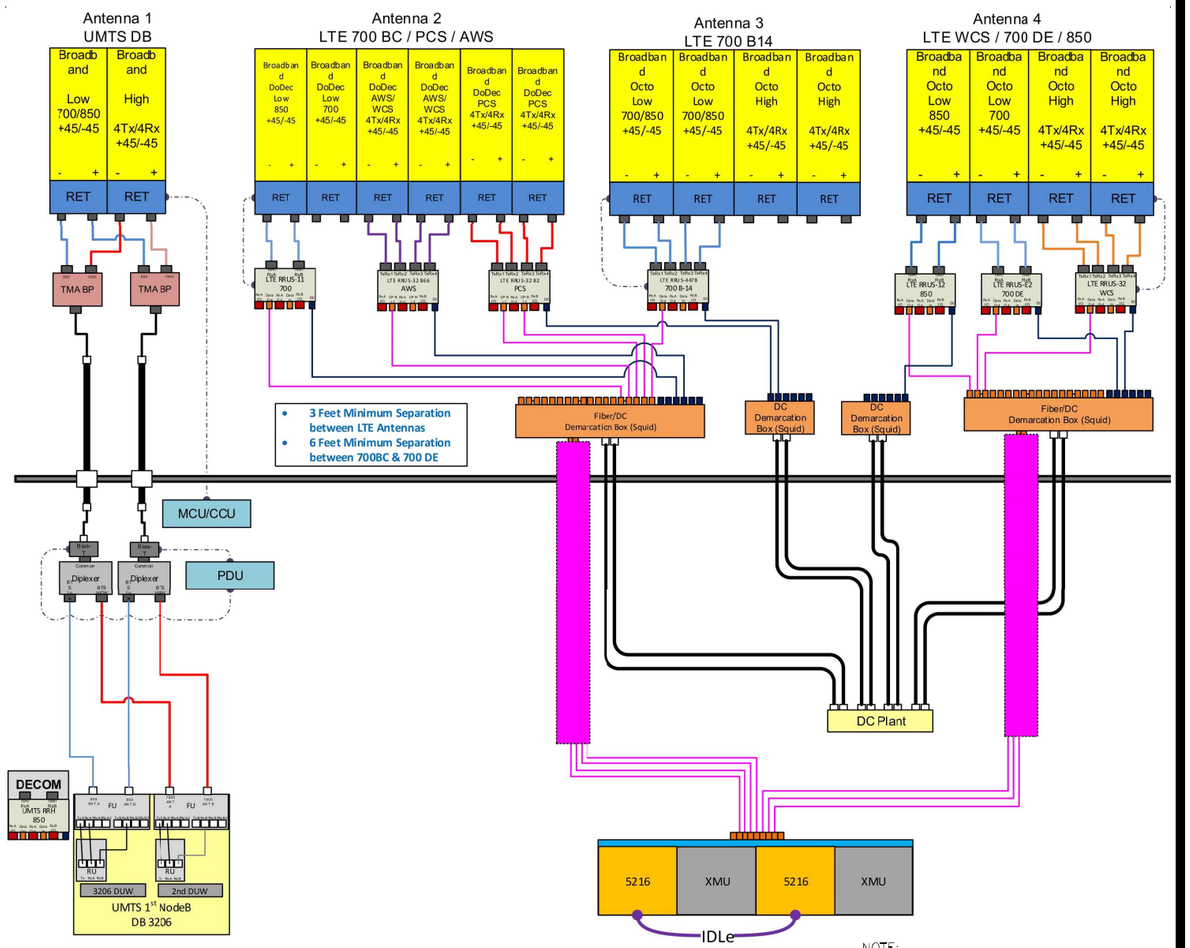
SCALE: N.T.S.



INSTALLATION OF GROUND WIRE TO GROUND BAR 2/05

SCALE: N.T.S.

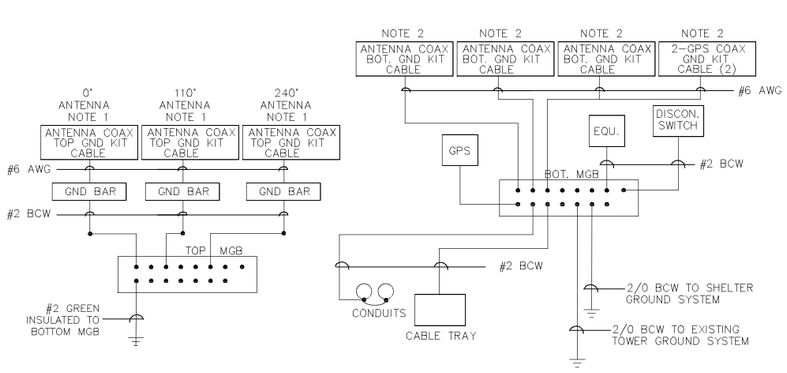




ALPHA/BETA/GAMMA SECTOR PLUMBING DIAGRAM 3/05

SCALE: N.T.S.

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS
2. INSTALL ALL EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS



NOTE:
1. BOND ANTENNA GROUNDING KIT CABLE TO TOP CIGBE
2. BOND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIGBE

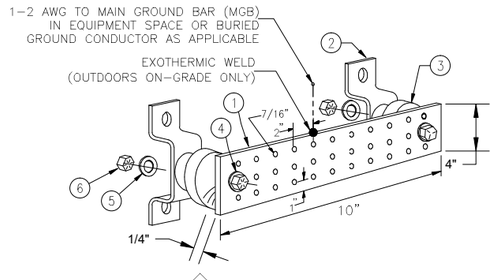
SCHEMATIC GROUNDING DIAGRAM 4/05

SCALE: N.T.S.

GROUNDING CONNECTION DETAIL 5/05

SCALE: N.T.S.

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C. OR APPROVED EQUAL			
ITEM	REQ.	PART NO.	DESCRIPTION
1	1	1/4"x4"x12"	PRE DRILLED GND. BAR
2	2	A-6056	WALL MTG. BRKT.
3	2	3061-4	INSULATORS
4	2	3012-13	5/8"-11x4" H.H.C.S.
5	4	3015-8	5/8 LOCKWASHER
6	2	3014-8	5/8"-11 HEX NUT



GROUND BAR DETAIL 6/05

SCALE: N.T.S.

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STATE OF CONNECTICUT JAMES P. BEROHE No. 8657 REGISTERED PROFESSIONAL ENGINEER

AT&T MOBILITY

GROUNDING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
CT5194-LTE4C7C	05	0

Exhibit 3

Date: **January 09, 2018**

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Destek Engineering, LLC
1281 Kennestone Circle, Ste. 100
Marietta, GA 30066
(770) 693-0835

Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT5194
	Carrier Site Name:	10000074
Crown Castle Designation:	**Crown Castle BU Number:**	803843
	Crown Castle Site Name:	CT NEW BRITAIN 4 CAC 803843
	Crown Castle JDE Job Number:	477476
	Crown Castle Work Order Number:	1508980
	Crown Castle Application Number:	420739 Rev. 2
Engineering Firm Designation:	**Destek Engineering, LLC Project Number:**	1802003
Site Data:	**200 Stanley Street, New Britain, Hartford County, CT** **Latitude *41° 39' 16.4"*, Longitude *-72° 46' 9.59"*** **192 Foot - Monopole Tower**	

Dear Charles McGuirt,

Destek Engineering, LLC 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 1126295, in accordance with application 420739, revision 2.

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 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

We at *Destek Engineering, LLC* 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: Evan Martin, EIT

Respectfully submitted by: 1/9/2018

STATE OF CONNECTICUT
AHMET COLAKOGLU
PEN 27057
LICENSED
PROFESSIONAL ENGINEER

Ahmet Colakoglu, PE
President

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 192 ft Monopole tower designed by SUMMIT in April of 2001. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
193.0	195.0	2	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe	1 4	3/8 3/4	--
		3	ericsson	RRUS 12			
		3	ericsson	RRUS 32			
		3	ericsson	RRUS 32 B2			
		3	ericsson	RRUS 32 B66			
		3	ericsson	RRUS 4478 B14			
		3	ericsson	RRUS E2 B29			
		1	kathrein	80010965 w/ Mount Pipe			
		2	kathrein	80010966 w/ Mount Pipe			
		6	kathrein	860 10025			
		1	quintel technology	QS66512-2 w/ Mount Pipe			
		2	raycap	DC6-48-60-0-8F			

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
193.0	195.0	1	andrew	SBNH-1D6565C w/ Mount Pipe	1 6	3/8 1-5/8	3
		3	ericsson	RRUS 32 B30			
		3	ericsson	RRUS-11			
		1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		1	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe			
		3	cci antennas	OPA-65R-LCUU-H8 w/ Mount Pipe	1 4 6	3/8 3/4 1-5/8	1
		1	ericsson	RRUS-11			
		3	kathrein	800 10121 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
193.0	193.0	2	ericsson	RRUS-11	--	--	1
		6	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Miscellaneous [NA 510-1]			
		1	tower mounts	Platform Mount [LP 1201-1]			
185.0	185.0	3	rfs celwave	APXV18-206517S-C w/ Mount Pipe	6	1-5/8	1
		1	tower mounts	Platform Mount [LP 1201-1]			
175.0	177.0	1	andrew	PX2F-52	3 1 3 3	1/4 5/16 1/2 5/8	1
		2	andrew	VHLP2-23			
	176.0	3	argus technologies	LLPX310R w/ Mount Pipe			
	175.0	2	dragonwave	HORIZON COMPACT			
		1	motorola	TIMING 2000			
		3	samsung telecommuni-cations	WIMAX DAP HEAD			
		1	tower mounts	Side Arm Mount [SO 101-3]			
100.0	102.0	3	alcatel lucent	RRH2X60-AWS	2	1-5/8	2
		3	alcatel lucent	RRH2X60-PCS			
		3	alcatel lucent	RRH2x60-700			
		9	andrew	SBNHH-1D65B w/ Mount Pipe			
		2	antel	BXA-80080/4CF w/ Mount Pipe	12	1-5/8	1
		1	antel	BXA-80090/4CF w/ Mount Pipe			
	100.0	1	tower mounts	Pipe Mount [PM 501-3]			
		1	tower mounts	T-Arm Mount [TA 602-3]			
		1	rfs celwave	DB-T1-6Z-8AB-0Z	--	--	2

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed

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)
192.0	192.0	--	--	14' Low Profile Platform	--	--
		--	--	Panel Antennas (CaAa = 75 sq. ft. total)		
185.0	185.0	--	--	14' Low Profile Platform	--	--
		--	--	Panel Antennas (CaAa = 75 sq. ft. total)		
175.0	175.0	--	--	14' Low Profile Platform	--	--
		--	--	Panel Antennas (CaAa = 75 sq. ft. total)		
165.0	165.0	--	--	Microwave w/ Mount (CaAa = 110 sq. ft.)	--	--
155.0	155.0	--	--	(3) 14' T-arm Mounts	--	--
		--	--	Panel Antennas (CaAa = 75 sq. ft. total)		
145.0	145.0	--	--	(3) 14' T-arm Mounts	--	--
		--	--	Panel Antennas (CaAa = 75 sq. ft. total)		
135.0	135.0	--	--	Microwave w/ Mount (CaAa = 110 sq. ft.)	--	--

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, P.E., P.C. Geotechnical Engineering, Pro. # 8516, dated 3/29/2001	2384583	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Summit Manufacturing, LLC, Job # 29201-0441, dated 4/24/2001	1118798	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Summit Manufacturing, LLC, Job # 29201-0441, dated 4/24/2001	925033	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Crown Castle, Pro. # 1397541, dated 4/26/2017	6830957	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.
4) At the time of analysis, CCI Sites had documentation on (2) different types of foundations: a combined footing and a drilled pier. Both foundations were analyzed with the worst-case scenario reported in Table 5 of this report.

This analysis may be affected if any assumptions are not valid or have been made in error. Destek Engineering, LLC 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	192 - 151.25	Pole	TP39.245x26x0.313	1	-14.70	2616.03	27.4	Pass
L2	151.25 - 111.25	Pole	TP51.621x36.995x0.438	2	-26.11	4908.93	26.2	Pass
L3	111.25 - 72.75	Pole	TP63.259x48.633x0.5	3	-45.37	6732.82	27.4	Pass
L4	72.75 - 35.75	Pole	TP74.285x59.659x0.563	4	-67.28	8776.63	27.3	Pass
L5	35.75 - 0	Pole	TP84.78x70.154x0.563	5	-99.75	9779.95	30.7	Pass
							Summary	
						Pole (L5)	30.7	Pass
						Rating =	30.7	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	44.5	Pass
1	Base Plate	0	34.5	Pass
1	Base Foundation	0	36.2	Pass
1	Base Foundation Soil Interaction	0	39.5	Pass

Structure Rating (max from all components) =	44.5%

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

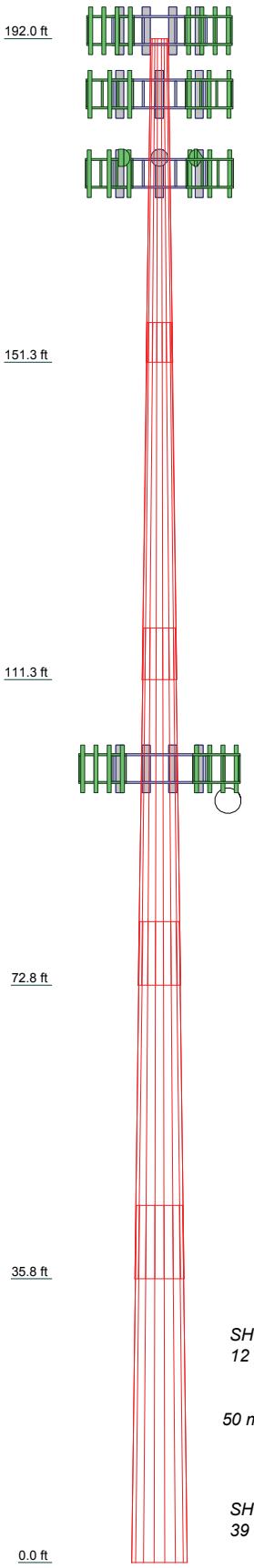
4.1) Recommendations

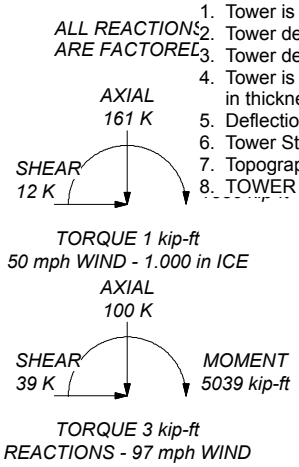
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

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	40.75	18	0.313	5.00	26.000	39.245		4.4
2	45.00	18	0.438	6.50	36.995	51.621		9.3
3	45.00	18	0.500	8.00	48.633	63.259	A607-65	13.5
4	45.00	18	0.563	9.25	59.659	74.285		18.2
5	45.00	18	0.563		70.154	84.780		21.0





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
800 10121 w/ Mount Pipe	193	APXV18-206517S-C w/ Mount Pipe	185
800 10121 w/ Mount Pipe	193	APXV18-206517S-C w/ Mount Pipe	185
800 10121 w/ Mount Pipe	193	APXV18-206517S-C w/ Mount Pipe	185
OPA-65R-LCUU-H8 w/ Mount Pipe	193	Platform Mount [LP 1201-1]	185
OPA-65R-LCUU-H8 w/ Mount Pipe	193	(3) 6' x 2" Mount Pipe	185
OPA-65R-LCUU-H8 w/ Mount Pipe	193	(3) 6' x 2" Mount Pipe	185
TPA-65R-LCUUUU-H8 w/ Mount Pipe	193	(3) 6' x 2" Mount Pipe	185
TPA-65R-LCUUUU-H8 w/ Mount Pipe	193	LLPX310R w/ Mount Pipe	175
QS66512-2 w/ Mount Pipe	193	LLPX310R w/ Mount Pipe	175
80010966 w/ Mount Pipe	193	LLPX310R w/ Mount Pipe	175
80010966 w/ Mount Pipe	193	TIMING 2000	175
80010965 w/ Mount Pipe	193	WIMAX DAP HEAD	175
RRUS-11	193	WIMAX DAP HEAD	175
RRUS-11	193	WIMAX DAP HEAD	175
RRUS-11	193	HORIZON COMPACT	175
(2) LGP21401	193	HORIZON COMPACT	175
(2) LGP21401	193	Side Arm Mount [SO 101-3]	175
(2) LGP21401	193	6' x 2" Mount Pipe	175
DC6-48-60-18-8F	193	6' x 2" Mount Pipe	175
DC6-48-60-18-8F	193	6' x 2" Mount Pipe	175
RRUS 12	193	VHLP2-23	175
RRUS 12	193	PX2F-52	175
RRUS 12	193	VHLP2-23	175
RRUS 32	193	(3) SBNHH-1D65B w/ Mount Pipe	100
RRUS 32	193	(3) SBNHH-1D65B w/ Mount Pipe	100
RRUS 32	193	(3) SBNHH-1D65B w/ Mount Pipe	100
RRUS 32 B2	193	RRH2x60-700	100
RRUS 32 B2	193	RRH2x60-700	100
RRUS 32 B2	193	RRH2x60-700	100
RRUS 32 B66	193	RRH2X60-AWS	100
RRUS 32 B66	193	RRH2X60-AWS	100
RRUS 32 B66	193	RRH2X60-AWS	100
RRUS 4478 B14	193	RRH2X60-PCS	100
RRUS 4478 B14	193	RRH2X60-PCS	100
RRUS 4478 B14	193	RRH2X60-PCS	100
RRUS E2 B29	193	DB-T1-6Z-8AB-0Z	100
RRUS E2 B29	193	T-Arm Mount [TA 602-3]	100
RRUS E2 B29	193	Pipe Mount [PM 501-3]	100
(2) 860 10025	193	(2) 4' ICE SHIELDS	100
(2) 860 10025	193	(2) 4' ICE SHIELDS	100
(2) 860 10025	193	(2) 4' ICE SHIELDS	100
(2) DC6-48-60-0-8F	193	BXA-80080/4CF w/ Mount Pipe	100
Platform Mount [LP 1201-1]	193	BXA-80080/4CF w/ Mount Pipe	100
Miscellaneous [NA 510-1]	193	BXA-80090/4CF w/ Mount Pipe	100
Lightning Rod 1"x10'	192		

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 Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 30.7%

Destek Engineering, LLC
1281 Kennestone Circle, Suite 100
Marietta, GA 30066
Phone: (770) 693-0835
FAX:

Job: 803843 - CT NEW BRITAIN 4 CAC 803843			
Project: 1802003			
Client: Crown Castle	Drawn by: Ahmet Colakoglu		App'd:
Code: TIA-222-G	Date: 01/09/18		Scale: NTS
Path: Z:\Projects\2018\02 - Crown Castle\1802003 - 803843 CT New Britain 4 CAC 803843 WO 1508980\TNXTower\803843.eri			Dwg No. E-1

Tower Input Data

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

4) Tower is located in Hartford County, Connecticut.
5) Basic wind speed of 97 mph.
6) Structure Class II.
7) Exposure Category B.
8) Topographic Category 1.
9) Crest Height 0.00 ft.
10) Nominal ice thickness of 1.000 in.
11) Ice thickness is considered to increase with height.
12) Ice density of 56 pcf.
13) A wind speed of 50 mph is used in combination with ice.
14) Temperature drop of 50 °F.
15) Deflections calculated using a wind speed of 60 mph.
16) A non-linear (P-delta) analysis was used.
17) Pressures are calculated at each section.
18) Stress ratio used in pole design is 1.
19) 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	192.00-151.25	40.75	5.00	18	26.000	39.245	0.313	1.250	A607-65 (65 ksi)
L2	151.25-111.25	45.00	6.50	18	36.995	51.621	0.438	1.750	A607-65 (65 ksi)
L3	111.25-72.75	45.00	8.00	18	48.633	63.259	0.500	2.000	A607-65 (65 ksi)
L4	72.75-35.75	45.00	9.25	18	59.659	74.285	0.563	2.250	A607-65 (65 ksi)
L5	35.75-0.00	45.00		18	70.154	84.780	0.563	2.250	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	26.401	25.479	2124.026	9.119	13.208	160.814	4250.848	12.742	4.026	12.883
	39.850	38.616	7394.882	13.821	19.936	370.923	14799.495	19.312	6.357	20.343
L2	39.216	50.764	8571.295	12.978	18.793	456.080	17153.868	25.387	5.741	13.122
	52.417	71.075	23524.065	18.170	26.223	897.062	47079.084	35.544	8.315	19.006
L3	51.529	76.388	22358.991	17.087	24.706	905.012	44747.402	38.201	7.679	15.359
	64.235	99.599	49561.269	22.279	32.136	1542.256	99187.753	49.809	10.254	20.507
L4	63.220	105.509	46553.203	20.979	30.307	1536.069	93167.662	52.765	9.510	16.907
	75.431	131.622	90378.902	26.171	37.737	2394.982	180876.727	65.824	12.084	21.483
L5	74.289	124.246	76019.762	24.705	35.638	2133.110	152139.553	62.135	11.357	20.19
	86.088	150.360	134732.986	29.897	43.068	3128.361	269643.257	75.194	13.931	24.767

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 192.00-151.25				1	1	1			
L2 151.25-111.25				1	1	1			
L3 111.25-72.75				1	1	1			
L4 72.75-35.75				1	1	1			
L5 35.75-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***										

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
***								
WR-VG86ST-BRD(3/4")	A	No	Inside Pole	192.00 - 0.00	4	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
FB-L98B-034-XXXXXX(3/8")	A	No	Inside Pole	192.00 - 0.00	1	No Ice	0.00	0.05
						1/2" Ice	0.00	0.05
						1" Ice	0.00	0.05
LDF7-50A(1-5/8")	A	No	Inside Pole	192.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
WR-VG86ST-BRD(3/4")	A	No	Inside Pole	192.00 - 0.00	4	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
FB-L98B-034-XXXXXX(3/8")	A	No	Inside Pole	192.00 - 0.00	1	No Ice	0.00	0.05
						1/2" Ice	0.00	0.05

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight plf
						1" Ice	0.00	0.05
2" Rigid Conduit	A	No	Inside Pole	192.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
2" Rigid Conduit	A	No	Inside Pole	192.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
***								
LCF158-50JL(1-5/8)	C	No	Inside Pole	185.00 - 0.00	6	No Ice	0.00	0.52
						1/2" Ice	0.00	0.52
						1" Ice	0.00	0.52
***								
FSJ1-50A(1/4")	B	No	Inside Pole	175.00 - 0.00	3	No Ice	0.00	0.04
						1/2" Ice	0.00	0.04
						1" Ice	0.00	0.04
FSJ4-50B(1/2")	B	No	Inside Pole	175.00 - 0.00	3	No Ice	0.00	0.14
						1/2" Ice	0.00	0.14
						1" Ice	0.00	0.14
HJ4.5-50(5/8")	B	No	Inside Pole	175.00 - 0.00	3	No Ice	0.00	0.40
						1/2" Ice	0.00	0.40
						1" Ice	0.00	0.40
9207(5/16")	B	No	Inside Pole	175.00 - 0.00	1	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
						1" Ice	0.00	0.60
2" Rigid Conduit	B	No	Inside Pole	175.00 - 0.00	2	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
***								
LDF7-50A(1-5/8")	A	No	Inside Pole	100.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
HB158-1-08U8-S8J18(1-5/8")	A	No	Inside Pole	100.00 - 0.00	2	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L1	192.00-151.25	A	0.000	0.000	0.000	0.000	0.62
		B	0.000	0.000	0.000	0.000	0.19
		C	0.000	0.000	0.000	0.000	0.11
L2	151.25-111.25	A	0.000	0.000	0.000	0.000	0.61
		B	0.000	0.000	0.000	0.000	0.32
		C	0.000	0.000	0.000	0.000	0.12
L3	111.25-72.75	A	0.000	0.000	0.000	0.000	0.93
		B	0.000	0.000	0.000	0.000	0.31
		C	0.000	0.000	0.000	0.000	0.12
L4	72.75-35.75	A	0.000	0.000	0.000	0.000	1.03
		B	0.000	0.000	0.000	0.000	0.29
		C	0.000	0.000	0.000	0.000	0.12
L5	35.75-0.00	A	0.000	0.000	0.000	0.000	0.99
		B	0.000	0.000	0.000	0.000	0.28
		C	0.000	0.000	0.000	0.000	0.11

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L1	192.00-151.25	A	2.357	0.000	0.000	0.000	0.000	0.62

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	0.19
		C		0.000	0.000	0.000	0.000	0.11
L2	151.25-111.25	A	2.295	0.000	0.000	0.000	0.000	0.61
		B		0.000	0.000	0.000	0.000	0.32
		C		0.000	0.000	0.000	0.000	0.12
L3	111.25-72.75	A	2.215	0.000	0.000	0.000	0.000	0.93
		B		0.000	0.000	0.000	0.000	0.31
		C		0.000	0.000	0.000	0.000	0.12
L4	72.75-35.75	A	2.102	0.000	0.000	0.000	0.000	1.03
		B		0.000	0.000	0.000	0.000	0.29
		C		0.000	0.000	0.000	0.000	0.12
L5	35.75-0.00	A	1.876	0.000	0.000	0.000	0.000	0.99
		B		0.000	0.000	0.000	0.000	0.28
		C		0.000	0.000	0.000	0.000	0.11

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	192.00-151.25	0.000	0.000	0.000	0.000
L2	151.25-111.25	0.000	0.000	0.000	0.000
L3	111.25-72.75	0.000	0.000	0.000	0.000
L4	72.75-35.75	0.000	0.000	0.000	0.000
L5	35.75-0.00	0.000	0.000	0.000	0.000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod 1"x10'	C	None		0.00	192.00	No Ice	1.00	1.00	0.04
						1/2" Ice	2.02	2.02	0.05
						1" Ice	3.05	3.05	0.06
193									
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	0.07 0.11 0.17
800 10121 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	0.07 0.11 0.17
800 10121 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	0.07 0.11 0.17

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
OPA-65R-LCUU-H8 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	12.98 13.67 14.36	9.32 10.79 12.24	0.12 0.21 0.32
OPA-65R-LCUU-H8 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	12.98 13.67 14.36	9.32 10.79 12.24	0.12 0.21 0.32
OPA-65R-LCUU-H8 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	12.98 13.67 14.36	9.32 10.79 12.24	0.12 0.21 0.32
TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	13.54 14.24 14.95	10.96 12.49 14.04	0.11 0.22 0.33
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	13.54 14.24 14.95	10.96 12.49 14.04	0.11 0.22 0.33
QS66512-2 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	8.37 8.93 9.46	8.46 9.66 10.55	0.14 0.21 0.30
80010966 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	17.60 18.33 19.07	9.64 11.15 12.70	0.15 0.26 0.39
80010966 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	17.60 18.33 19.07	9.64 11.15 12.70	0.15 0.26 0.39
80010965 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	14.05 14.69 15.30	7.63 8.90 9.96	0.13 0.22 0.33
RRUS-11	A	From Leg	4.00 0.00 0.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS-11	B	From Leg	4.00 0.00 0.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS-11	C	From Leg	4.00 0.00 2.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
(2) LGP21401	A	From Leg	4.00 0.00 0.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	B	From Leg	4.00 0.00 0.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	C	From Leg	4.00 0.00 0.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.00	193.00	No Ice 1/2" Ice 1" Ice	0.79 1.27 1.45	0.79 1.27 1.45	0.02 0.03 0.05
DC6-48-60-18-8F	A	From Leg	4.00	0.00	193.00	No Ice	0.79	0.79	0.02

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" Ice	1.27	1.27	0.03
			2.00			1" Ice	1.45	1.45	0.05
RRUS 12	A	From Leg	4.00	0.00	193.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			2.00			1" Ice	3.59	1.60	0.11
RRUS 12	B	From Leg	4.00	0.00	193.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			2.00			1" Ice	3.59	1.60	0.11
RRUS 12	C	From Leg	4.00	0.00	193.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			2.00			1" Ice	3.59	1.60	0.11
RRUS 32	A	From Leg	4.00	0.00	193.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			2.00			1" Ice	3.32	2.17	0.10
RRUS 32	B	From Leg	4.00	0.00	193.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			2.00			1" Ice	3.32	2.17	0.10
RRUS 32	C	From Leg	4.00	0.00	193.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			2.00			1" Ice	3.32	2.17	0.10
RRUS 32 B2	A	From Leg	4.00	0.00	193.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			2.00			1" Ice	3.18	2.05	0.10
RRUS 32 B2	B	From Leg	4.00	0.00	193.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			2.00			1" Ice	3.18	2.05	0.10
RRUS 32 B2	C	From Leg	4.00	0.00	193.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			2.00			1" Ice	3.18	2.05	0.10
RRUS 32 B66	A	From Leg	4.00	0.00	193.00	No Ice	2.74	1.67	0.05
			0.00			1/2" Ice	2.96	1.86	0.07
			2.00			1" Ice	3.19	2.05	0.10
RRUS 32 B66	B	From Leg	4.00	0.00	193.00	No Ice	2.74	1.67	0.05
			0.00			1/2" Ice	2.96	1.86	0.07
			2.00			1" Ice	3.19	2.05	0.10
RRUS 32 B66	C	From Leg	4.00	0.00	193.00	No Ice	2.74	1.67	0.05
			0.00			1/2" Ice	2.96	1.86	0.07
			2.00			1" Ice	3.19	2.05	0.10
RRUS 4478 B14	A	From Leg	4.00	0.00	193.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			2.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	B	From Leg	4.00	0.00	193.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			2.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	C	From Leg	4.00	0.00	193.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			2.00			1" Ice	2.19	1.34	0.09
RRUS E2 B29	A	From Leg	4.00	0.00	193.00	No Ice	3.15	1.29	0.06
			0.00				3.36	1.44	0.08

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
			2.00			1/2" Ice	3.59	1.60	0.11
						1" Ice			
RRUS E2 B29	B	From Leg	4.00	0.00	193.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			2.00			1" Ice	3.59	1.60	0.11
RRUS E2 B29	C	From Leg	4.00	0.00	193.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			2.00			1" Ice	3.59	1.60	0.11
(2) 860 10025	A	From Leg	4.00	0.00	193.00	No Ice	0.14	0.12	0.00
			0.00			1/2" Ice	0.19	0.17	0.00
			2.00			1" Ice	0.25	0.23	0.01
(2) 860 10025	B	From Leg	4.00	0.00	193.00	No Ice	0.14	0.12	0.00
			0.00			1/2" Ice	0.19	0.17	0.00
			2.00			1" Ice	0.25	0.23	0.01
(2) 860 10025	C	From Leg	4.00	0.00	193.00	No Ice	0.14	0.12	0.00
			0.00			1/2" Ice	0.19	0.17	0.00
			2.00			1" Ice	0.25	0.23	0.01
(2) DC6-48-60-0-8F	A	From Leg	4.00	0.00	193.00	No Ice	2.20	2.20	0.02
			0.00			1/2" Ice	2.40	2.40	0.04
			2.00			1" Ice	2.60	2.60	0.07
Platform Mount [LP 1201-1]	C	None		0.00	193.00	No Ice	23.10	23.10	2.10
						1/2" Ice	26.80	26.80	2.50
						1" Ice	30.50	30.50	2.90
Miscellaneous [NA 510-1]	C	None		0.00	193.00	No Ice	6.00	6.00	0.26
						1/2" Ice	8.50	8.50	0.34
						1" Ice	11.00	11.00	0.42
185									
APXV18-206517S-C w/ Mount Pipe	A	From Leg	4.00	0.00	185.00	No Ice	5.40	4.70	0.05
			0.00			1/2" Ice	5.96	5.86	0.10
			0.00			1" Ice	6.48	6.73	0.15
APXV18-206517S-C w/ Mount Pipe	B	From Leg	4.00	0.00	185.00	No Ice	5.40	4.70	0.05
			0.00			1/2" Ice	5.96	5.86	0.10
			0.00			1" Ice	6.48	6.73	0.15
APXV18-206517S-C w/ Mount Pipe	C	From Leg	4.00	0.00	185.00	No Ice	5.40	4.70	0.05
			0.00			1/2" Ice	5.96	5.86	0.10
			0.00			1" Ice	6.48	6.73	0.15
Platform Mount [LP 1201-1]	C	None		0.00	185.00	No Ice	23.10	23.10	2.10
						1/2" Ice	26.80	26.80	2.50
						1" Ice	30.50	30.50	2.90
(3) 6' x 2" Mount Pipe	A	From Leg	3.00	0.00	185.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(3) 6' x 2" Mount Pipe	B	From Leg	3.00	0.00	185.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(3) 6' x 2" Mount Pipe	C	From Leg	3.00	0.00	185.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
175									

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
LLPX310R w/ Mount Pipe	A	From Leg	3.00 0.00 1.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	4.54 4.89 5.25	2.98 3.53 4.09	0.05 0.08 0.13
LLPX310R w/ Mount Pipe	B	From Leg	3.00 0.00 1.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	4.54 4.89 5.25	2.98 3.53 4.09	0.05 0.08 0.13
LLPX310R w/ Mount Pipe	C	From Leg	3.00 0.00 1.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	4.54 4.89 5.25	2.98 3.53 4.09	0.05 0.08 0.13
TIMING 2000	C	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	0.11 0.15 0.20	0.11 0.15 0.20	0.00 0.00 0.01
WIMAX DAP HEAD	A	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
WIMAX DAP HEAD	B	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
WIMAX DAP HEAD	C	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
HORIZON COMPACT	A	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
HORIZON COMPACT	C	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
Side Arm Mount [SO 101-3]	C	None		0.00	175.00	No Ice 1/2" Ice 1" Ice	7.50 8.90 10.30	7.50 8.90 10.30	0.25 0.33 0.41
6' x 2" Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	175.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
100									
BXA-80080/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	5.04 5.42 5.81	4.03 4.65 5.28	0.03 0.08 0.13
BXA-80080/4CF w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	5.04 5.42 5.81	4.03 4.65 5.28	0.03 0.08 0.13
BXA-80090/4CF w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	3.83 4.20 4.57	3.88 4.49 5.11	0.03 0.07 0.11

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
(3) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	8.40 8.96 9.49	7.07 8.26 9.17	0.07 0.13 0.21
(3) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	8.40 8.96 9.49	7.07 8.26 9.17	0.07 0.13 0.21
(3) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	8.40 8.96 9.49	7.07 8.26 9.17	0.07 0.13 0.21
RRH2x60-700	A	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2x60-700	B	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2x60-700	C	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2X60-AWS	A	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	2.10 2.34 2.58	0.06 0.08 0.11
RRH2X60-AWS	B	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	2.10 2.34 2.58	0.06 0.08 0.11
RRH2X60-AWS	C	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	2.10 2.34 2.58	0.06 0.08 0.11
RRH2X60-PCS	A	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.72 1.90 2.09	0.06 0.08 0.10
RRH2X60-PCS	B	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.72 1.90 2.09	0.06 0.08 0.10
RRH2X60-PCS	C	From Leg	4.00 0.00 2.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.72 1.90 2.09	0.06 0.08 0.10
DB-T1-6Z-8AB-0Z	A	From Leg	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
T-Arm Mount [TA 602-3]	C	None		0.00	100.00	No Ice 1/2" Ice 1" Ice	11.59 15.44 19.29	11.59 15.44 19.29	0.77 0.99 1.21
Pipe Mount [PM 501-3]	C	None		0.00	100.00	No Ice 1/2" Ice 1" Ice	5.78 7.37 8.96	5.78 7.37 8.96	0.16 0.18 0.20
(2) 4' ICE SHIELDS	A	From Leg	2.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	1.40 1.88 2.38	0.47 0.64 0.82	0.03 0.10 0.17
(2) 4' ICE SHIELDS	B	From Leg	2.00	0.00	100.00	No Ice	1.40	0.47	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00				1/2" Ice	1.88	0.64	0.10
			0.00				1" Ice	2.38	0.82	0.17
(2) 4' ICE SHIELDS	C	From Leg	2.00	0.00	0.00	100.00	No Ice	1.40	0.47	0.03
			0.00				1/2" Ice	1.88	0.64	0.10
			0.00				1" Ice	2.38	0.82	0.17
***										

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
***												
VHLP2-23	A	Paraboloid w/Shroud (HP)	From Leg	3.00	0.00	0.00		175.00	2.17	No Ice	3.72	0.03
				0.00						1/2" Ice	4.00	0.03
				2.00						1" Ice	4.31	0.04
PX2F-52	B	Paraboloid w/Radome	From Leg	3.00	0.00	30.00		175.00	2.09	No Ice	3.44	0.01
				0.00						1/2" Ice	3.72	0.02
				2.00						1" Ice	3.99	0.02
VHLP2-23	C	Paraboloid w/Shroud (HP)	From Leg	3.00	0.00	0.00		175.00	2.17	No Ice	3.72	0.03
				0.00						1/2" Ice	4.00	0.03
				2.00						1" Ice	4.31	0.04
***												

Load Combinations

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

Comb. No.	Description
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	192 - 151.25	Pole	Max Tension	26	0.00	0.00	-0.00
			Max. Compression	26	-36.99	-0.79	3.91
			Max. Mx	20	-14.71	531.18	3.38
			Max. My	2	-14.70	1.24	537.36
			Max. Vy	8	16.84	-530.84	-0.78
			Max. Vx	2	-17.03	1.24	537.36
			Max. Torque	22			-2.29
L2	151.25 - 111.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.98	-0.79	3.92
			Max. Mx	20	-26.12	1256.40	5.90
			Max. My	2	-26.11	0.28	1270.13
			Max. Vy	8	20.93	-1256.12	-0.28
			Max. Vx	2	-21.12	0.28	1270.13
			Max. Torque	22			-2.28
L3	111.25 - 72.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.79	-0.97	5.59
			Max. Mx	20	-45.38	2203.33	8.91
			Max. My	2	-45.37	-0.33	2226.72
			Max. Vy	8	29.72	-2203.10	0.17
			Max. Vx	2	-30.02	-0.33	2226.72
			Max. Torque	20			-2.66
L4	72.75 - 35.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-118.34	-0.97	5.59
			Max. Mx	20	-67.29	3344.74	11.74
			Max. My	2	-67.28	-0.70	3378.95
			Max. Vy	8	34.05	-3344.58	0.10
			Max. Vx	2	-34.34	-0.70	3378.95
			Max. Torque	20			-2.66
L5	35.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-160.65	-0.97	5.59
			Max. Mx	20	-99.75	4990.77	15.25
			Max. My	2	-99.75	-1.15	5038.44

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	39.06	-4990.69	-0.00
			Max. Vx	2	-39.35	-1.15	5038.44
			Max. Torque	20			-2.66

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	160.65	-0.00	0.00
	Max. H_x	20	99.76	39.04	0.08
	Max. H_z	2	99.76	-0.01	39.33
	Max. M_x	2	5038.44	-0.01	39.33
	Max. M_z	8	4990.69	-39.04	-0.00
	Max. Torsion	8	2.60	-39.04	-0.00
	Min. Vert	19	74.82	33.72	-19.62
	Min. H_x	8	99.76	-39.04	-0.00
	Min. H_z	14	99.76	-0.03	-39.32
	Min. M_x	14	-5034.58	-0.03	-39.32
	Min. M_z	20	-4990.77	39.04	0.08
	Min. Torsion	20	-2.66	39.04	0.08

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	83.13	0.00	0.00	-0.69	0.16	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	99.76	0.01	-39.33	-5038.44	-1.15	1.10
0.9 Dead+1.6 Wind 0 deg - No Ice	74.82	0.01	-39.33	-5010.89	-1.20	1.10
1.2 Dead+1.6 Wind 30 deg - No Ice	99.76	19.48	-34.03	-4356.92	-2487.32	-0.32
0.9 Dead+1.6 Wind 30 deg - No Ice	74.82	19.48	-34.03	-4333.07	-2473.90	-0.31
1.2 Dead+1.6 Wind 60 deg - No Ice	99.76	33.75	-19.64	-2514.63	-4311.04	-1.70
0.9 Dead+1.6 Wind 60 deg - No Ice	74.82	33.75	-19.64	-2500.78	-4287.73	-1.70
1.2 Dead+1.6 Wind 90 deg - No Ice	99.76	39.04	0.00	0.00	-4990.69	-2.60
0.9 Dead+1.6 Wind 90 deg - No Ice	74.82	39.04	0.00	0.21	-4963.68	-2.60
1.2 Dead+1.6 Wind 120 deg - No Ice	99.76	33.85	19.71	2526.45	-4330.08	-2.58
0.9 Dead+1.6 Wind 120 deg - No Ice	74.82	33.85	19.71	2512.95	-4306.66	-2.58
1.2 Dead+1.6 Wind 150 deg - No Ice	99.76	19.55	34.13	4374.06	-2501.28	-1.91
0.9 Dead+1.6 Wind 150 deg - No Ice	74.82	19.55	34.13	4350.54	-2487.77	-1.91
1.2 Dead+1.6 Wind 180 deg - No Ice	99.76	0.03	39.32	5034.58	-5.89	-0.90
0.9 Dead+1.6 Wind 180 deg - No Ice	74.82	0.03	39.32	5007.49	-5.90	-0.91
1.2 Dead+1.6 Wind 210 deg - No Ice	99.76	-19.45	33.99	4348.94	2483.41	0.44
0.9 Dead+1.6 Wind 210 deg - No Ice	74.82	-19.45	33.99	4325.58	2469.91	0.44

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
1.2 Dead+1.6 Wind 240 deg - No Ice	99.76	-33.72	19.62	2509.69	4306.36	1.71
0.9 Dead+1.6 Wind 240 deg - No Ice	74.82	-33.72	19.62	2496.31	4282.98	1.70
1.2 Dead+1.6 Wind 270 deg - No Ice	99.76	-39.04	-0.08	-15.25	4990.77	2.66
0.9 Dead+1.6 Wind 270 deg - No Ice	74.82	-39.04	-0.08	-14.93	4963.67	2.66
1.2 Dead+1.6 Wind 300 deg - No Ice	99.76	-33.87	-19.72	-2530.53	4334.40	2.64
0.9 Dead+1.6 Wind 300 deg - No Ice	74.82	-33.87	-19.72	-2516.57	4310.84	2.64
1.2 Dead+1.6 Wind 330 deg - No Ice	99.76	-19.59	-34.09	-4368.66	2508.34	1.96
0.9 Dead+1.6 Wind 330 deg - No Ice	74.82	-19.59	-34.09	-4344.74	2494.67	1.96
1.2 Dead+1.0 Ice+1.0 Temp	160.65	0.00	-0.00	-5.59	-0.97	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	160.65	0.02	-11.97	-1529.73	-3.90	0.30
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	160.65	5.96	-10.36	-1325.28	-759.40	-0.12
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	160.65	10.31	-5.99	-768.83	-1312.68	-0.51
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	160.65	11.92	-0.01	-8.25	-1517.15	-0.76
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	160.65	10.32	5.98	755.83	-1314.67	-0.75
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	160.65	5.95	10.37	1315.41	-758.32	-0.56
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	160.65	-0.01	11.96	1517.41	0.06	-0.25
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	160.65	-5.95	10.35	1311.98	756.31	0.14
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	160.65	-10.31	5.98	756.25	1309.40	0.51
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	160.65	-11.92	-0.00	-6.80	1515.00	0.77
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	160.65	-10.33	-5.99	-768.21	1313.52	0.77
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	160.65	-5.96	-10.36	-1325.53	757.84	0.57
Dead+Wind 0 deg - Service	83.13	0.00	-8.42	-1074.87	-0.12	0.24
Dead+Wind 30 deg - Service	83.13	4.17	-7.28	-929.55	-530.24	-0.07
Dead+Wind 60 deg - Service	83.13	7.22	-4.20	-536.72	-919.11	-0.37
Dead+Wind 90 deg - Service	83.13	8.35	0.00	-0.54	-1064.03	-0.56
Dead+Wind 120 deg - Service	83.13	7.24	4.22	538.17	-923.17	-0.55
Dead+Wind 150 deg - Service	83.13	4.18	7.30	932.13	-533.22	-0.41
Dead+Wind 180 deg - Service	83.13	0.01	8.41	1072.98	-1.13	-0.19
Dead+Wind 210 deg - Service	83.13	-4.16	7.27	926.78	529.65	0.09
Dead+Wind 240 deg - Service	83.13	-7.21	4.20	534.60	918.36	0.36
Dead+Wind 270 deg - Service	83.13	-8.35	-0.02	-3.78	1064.29	0.57
Dead+Wind 300 deg - Service	83.13	-7.25	-4.22	-540.11	924.33	0.57
Dead+Wind 330 deg - Service	83.13	-4.19	-7.29	-932.05	534.97	0.42

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-83.13	0.00	0.00	83.13	0.00	0.000%
2	0.01	-99.76	-39.33	-0.01	99.76	39.33	0.000%
3	0.01	-74.82	-39.33	-0.01	74.82	39.33	0.000%
4	19.48	-99.76	-34.03	-19.48	99.76	34.03	0.000%
5	19.48	-74.82	-34.03	-19.48	74.82	34.03	0.000%
6	33.75	-99.76	-19.64	-33.75	99.76	19.64	0.000%
7	33.75	-74.82	-19.64	-33.75	74.82	19.64	0.000%
8	39.04	-99.76	0.00	-39.04	99.76	-0.00	0.002%
9	39.04	-74.82	0.00	-39.04	74.82	-0.00	0.000%
10	33.85	-99.76	19.71	-33.85	99.76	-19.71	0.000%
11	33.85	-74.82	19.71	-33.85	74.82	-19.71	0.000%
12	19.55	-99.76	34.13	-19.55	99.76	-34.13	0.000%
13	19.55	-74.82	34.13	-19.55	74.82	-34.13	0.000%
14	0.03	-99.76	39.32	-0.03	99.76	-39.32	0.000%
15	0.03	-74.82	39.32	-0.03	74.82	-39.32	0.000%
16	-19.45	-99.76	33.99	19.45	99.76	-33.99	0.000%
17	-19.45	-74.82	33.99	19.45	74.82	-33.99	0.000%
18	-33.72	-99.76	19.62	33.72	99.76	-19.62	0.000%
19	-33.72	-74.82	19.62	33.72	74.82	-19.62	0.000%
20	-39.04	-99.76	-0.08	39.04	99.76	0.08	0.000%
21	-39.04	-74.82	-0.08	39.04	74.82	0.08	0.000%
22	-33.87	-99.76	-19.72	33.87	99.76	19.72	0.000%
23	-33.87	-74.82	-19.72	33.87	74.82	19.72	0.000%
24	-19.59	-99.76	-34.09	19.59	99.76	34.09	0.000%
25	-19.59	-74.82	-34.09	19.59	74.82	34.09	0.000%
26	0.00	-160.65	0.00	-0.00	160.65	0.00	0.000%
27	0.02	-160.65	-11.97	-0.02	160.65	11.97	0.000%
28	5.96	-160.65	-10.36	-5.96	160.65	10.36	0.000%
29	10.31	-160.65	-5.99	-10.31	160.65	5.99	0.000%
30	11.92	-160.65	-0.01	-11.92	160.65	0.01	0.000%
31	10.32	-160.65	5.98	-10.32	160.65	-5.98	0.000%
32	5.95	-160.65	10.37	-5.95	160.65	-10.37	0.000%
33	-0.01	-160.65	11.96	0.01	160.65	-11.96	0.000%
34	-5.95	-160.65	10.35	5.95	160.65	-10.35	0.000%
35	-10.31	-160.65	5.98	10.31	160.65	-5.98	0.000%
36	-11.92	-160.65	-0.00	11.92	160.65	0.00	0.000%
37	-10.33	-160.65	-5.99	10.33	160.65	5.99	0.000%
38	-5.96	-160.65	-10.36	5.96	160.65	10.36	0.000%
39	0.00	-83.13	-8.42	-0.00	83.13	8.42	0.000%
40	4.17	-83.13	-7.28	-4.17	83.13	7.28	0.000%
41	7.22	-83.13	-4.20	-7.22	83.13	4.20	0.000%
42	8.35	-83.13	0.00	-8.35	83.13	-0.00	0.000%
43	7.24	-83.13	4.22	-7.24	83.13	-4.22	0.000%
44	4.18	-83.13	7.30	-4.18	83.13	-7.30	0.000%
45	0.01	-83.13	8.41	-0.01	83.13	-8.41	0.000%
46	-4.16	-83.13	7.27	4.16	83.13	-7.27	0.000%
47	-7.21	-83.13	4.20	7.21	83.13	-4.20	0.000%
48	-8.35	-83.13	-0.02	8.35	83.13	0.02	0.000%
49	-7.25	-83.13	-4.22	7.25	83.13	4.22	0.000%
50	-4.19	-83.13	-7.29	4.19	83.13	7.29	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	0.00009483
3	Yes	4	0.00000001	0.00005621
4	Yes	4	0.00000001	0.00093551
5	Yes	4	0.00000001	0.00062903
6	Yes	4	0.00000001	0.00097933
7	Yes	4	0.00000001	0.00066021
8	Yes	4	0.00000001	0.00016226
9	Yes	4	0.00000001	0.00009648
10	Yes	4	0.00000001	0.00089883
11	Yes	4	0.00000001	0.00060322
12	Yes	5	0.00000001	0.00002737
13	Yes	4	0.00000001	0.00067882
14	Yes	4	0.00000001	0.00009044
15	Yes	4	0.00000001	0.00005263
16	Yes	4	0.00000001	0.00094510
17	Yes	4	0.00000001	0.00063610
18	Yes	4	0.00000001	0.00089738
19	Yes	4	0.00000001	0.00060309
20	Yes	4	0.00000001	0.00015736
21	Yes	4	0.00000001	0.00010338
22	Yes	5	0.00000001	0.00002790
23	Yes	4	0.00000001	0.00069213
24	Yes	4	0.00000001	0.00091447
25	Yes	4	0.00000001	0.00061330
26	Yes	4	0.00000001	0.00001325
27	Yes	5	0.00000001	0.00009403
28	Yes	5	0.00000001	0.00009685
29	Yes	5	0.00000001	0.00009640
30	Yes	5	0.00000001	0.00009283
31	Yes	5	0.00000001	0.00009532
32	Yes	5	0.00000001	0.00009533
33	Yes	5	0.00000001	0.00009215
34	Yes	5	0.00000001	0.00009484
35	Yes	5	0.00000001	0.00009479
36	Yes	5	0.00000001	0.00009246
37	Yes	5	0.00000001	0.00009629
38	Yes	5	0.00000001	0.00009667
39	Yes	4	0.00000001	0.00001311
40	Yes	4	0.00000001	0.00001853
41	Yes	4	0.00000001	0.00001970
42	Yes	4	0.00000001	0.00001391
43	Yes	4	0.00000001	0.00001829
44	Yes	4	0.00000001	0.00002020
45	Yes	4	0.00000001	0.00001299
46	Yes	4	0.00000001	0.00001874
47	Yes	4	0.00000001	0.00001802
48	Yes	4	0.00000001	0.00001400
49	Yes	4	0.00000001	0.00002093
50	Yes	4	0.00000001	0.00001836

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	192 - 151.25	10.27	50	0.56	0.00
L2	156.25 - 111.25	6.45	50	0.44	0.00
L3	117.75 - 72.75	3.48	39	0.30	0.00
L4	80.75 - 35.75	1.59	39	0.19	0.00
L5	45 - 0	0.50	39	0.10	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
193.00	800 10121 w/ Mount Pipe	50	10.27	0.56	0.00	82345
192.00	Lightning Rod 1"x10'	50	10.27	0.56	0.00	82345
185.00	APXV18-206517S-C w/ Mount Pipe	50	9.48	0.54	0.00	58818
177.00	VHLP2-23	50	8.59	0.51	0.00	27448
175.00	LLPX310R w/ Mount Pipe	50	8.37	0.50	0.00	24219
100.00	BXA-80080/4CF w/ Mount Pipe	39	2.47	0.24	0.00	20322

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	192 - 151.25	48.16	24	2.63	0.01
L2	156.25 - 111.25	30.23	12	2.04	0.00
L3	117.75 - 72.75	16.31	12	1.38	0.00
L4	80.75 - 35.75	7.45	12	0.87	0.00
L5	45 - 0	2.34	12	0.46	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
193.00	800 10121 w/ Mount Pipe	24	48.16	2.63	0.01	17683
192.00	Lightning Rod 1"x10'	24	48.16	2.63	0.01	17683
185.00	APXV18-206517S-C w/ Mount Pipe	24	44.45	2.52	0.01	12631
177.00	VHLP2-23	24	40.28	2.39	0.01	5894
175.00	LLPX310R w/ Mount Pipe	24	39.25	2.36	0.01	5200
100.00	BXA-80080/4CF w/ Mount Pipe	12	11.58	1.12	0.00	4333

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	192 - 151.25 (1)	TP39.245x26x0.313	40.75	0.00	0.0	37.004	-14.70	2616.03	0.006
L2	151.25 - 111.25 (2)	TP51.621x36.995x0.438	45.00	0.00	0.0	68.141	-26.11	4908.93	0.005
L3	111.25 - 72.75 (3)	TP63.259x48.633x0.5	45.00	0.00	0.0	95.472	-45.37	6732.82	0.007
L4	72.75 - 35.75 (4)	TP74.285x59.659x0.563	45.00	0.00	0.0	126.255	-67.28	8776.63	0.008
L5	35.75 - 0 (5)	TP84.78x70.154x0.563	45.00	0.00	0.0	150.360	-99.75	9779.95	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	192 - 151.25 (1)	TP39.245x26x0.313	538.24	2005.88	0.268	0.00	2005.88	0.000
L2	151.25 - 111.25 (2)	TP51.621x36.995x0.438	1270.93	4948.21	0.257	0.00	4948.21	0.000
L3	111.25 - 72.75 (3)	TP63.259x48.633x0.5	2227.13	8325.20	0.268	0.00	8325.20	0.000
L4	72.75 - 35.75 (4)	TP74.285x59.659x0.563	3379.25	12761.33	0.265	0.00	12761.33	0.000
L5	35.75 - 0 (5)	TP84.78x70.154x0.563	5038.73	16956.67	0.297	0.00	16956.67	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	192 - 151.25 (1)	TP39.245x26x0.313	17.03	1308.01	0.013	1.74	4016.68	0.000
L2	151.25 - 111.25 (2)	TP51.621x36.995x0.438	21.12	2454.46	0.009	1.74	9908.50	0.000
L3	111.25 - 72.75 (3)	TP63.259x48.633x0.5	30.00	3366.41	0.009	1.96	16670.75	0.000
L4	72.75 - 35.75 (4)	TP74.285x59.659x0.563	34.34	4388.32	0.008	1.91	25554.00	0.000
L5	35.75 - 0 (5)	TP84.78x70.154x0.563	39.35	4889.97	0.008	1.91	33954.83	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	192 - 151.25 (1)	0.006	0.268	0.000	0.013	0.000	0.274	1.000	4.8.2
L2	151.25 - 111.25 (2)	0.005	0.257	0.000	0.009	0.000	0.262	1.000	4.8.2
L3	111.25 - 72.75 (3)	0.007	0.268	0.000	0.009	0.000	0.274	1.000	4.8.2
L4	72.75 - 35.75 (4)	0.008	0.265	0.000	0.008	0.000	0.273	1.000	4.8.2
L5	35.75 - 0 (5)	0.010	0.297	0.000	0.008	0.000	0.307	1.000	4.8.2

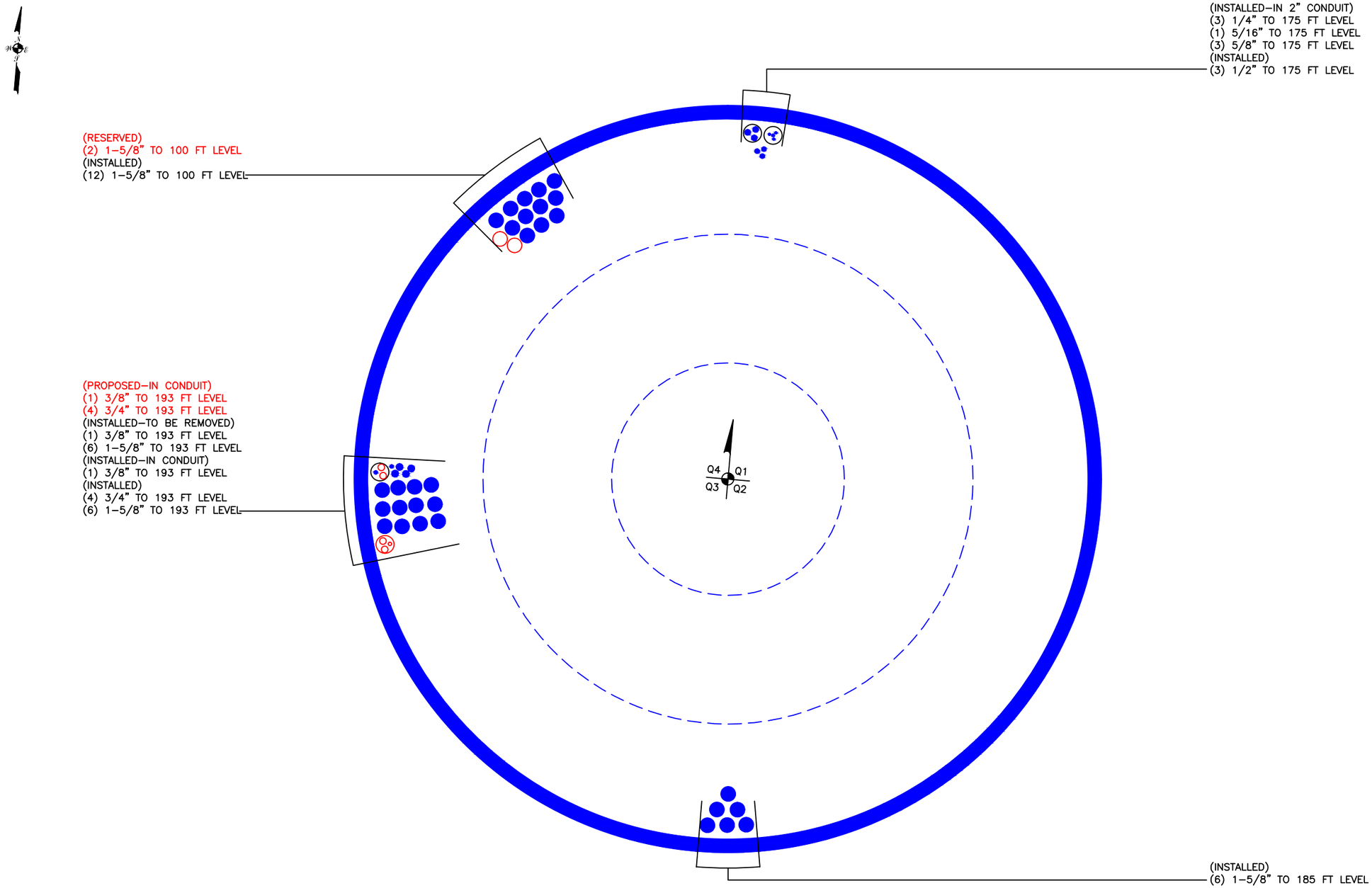
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	192 - 151.25	Pole	TP39.245x26x0.313	1	-14.70	2616.03	27.4	Pass
L2	151.25 - 111.25	Pole	TP51.621x36.995x0.438	2	-26.11	4908.93	26.2	Pass
L3	111.25 - 72.75	Pole	TP63.259x48.633x0.5	3	-45.37	6732.82	27.4	Pass
L4	72.75 - 35.75	Pole	TP74.285x59.659x0.563	4	-67.28	8776.63	27.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L5	35.75 - 0	Pole	TP84.78x70.154x0.563	5	-99.75	9779.95	30.7	Pass
							Summary	
						Pole (L5)	30.7	Pass
						RATING =	**30.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 803843 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#: *803843*
Site Name: *CT NEW BRITAIN 4 CAC &*
App #: *420739 Rev. 2*

Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	5039	ft-kips
Factored Axial, Pu:	100	kips
Factored Shear, Vu:	39	kips

Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	93	in
Anchor Spacing:	6	in

Anchor Rod Results

TIA G --> Max Rod (Cu+ Vu/η):	115.8	Kips
Axial Design Strength, Φ*Fu*Anet:	260.0	Kips
Anchor Rod Stress Ratio:	44.5%	**Pass**

Plate Data		
W=Side:	91	in
Thick:	3.25	in
Grade:	55	ksi
Clip Distance:	16	in

Base Plate Results Flexural Check

Base Plate Stress:	17.1	ksi
PL Design Bending Strength, Φ*Fy:	49.5	ksi
Base Plate Stress Ratio:	34.5%	**Pass**

PL Ref. Data	
Yield Line (in):	43.91
Max PL Length:	43.91

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

N/A - Unstiffened

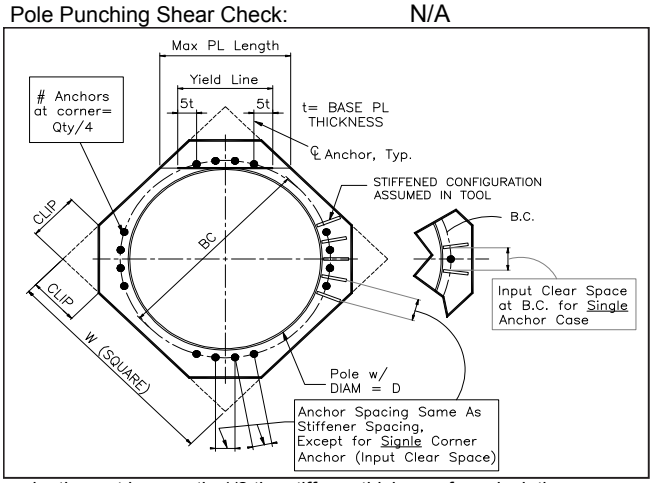
Stiffener Results

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

Pole Data		
Diam:	84.78	in
Thick:	0.5625	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round



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

Drilled Pier Foundation

BU # :	803843
Site Name:	CT NEW BRITAIN 4 C
App. Number:	420739 Rev. 2

TIA-222 Revison:	G
Tower Type:	Monopole

Applied Loads	**Comp.**	**Uplift**
Moment (kip-ft)	5039	
Axial Force (kips)	100	
Shear Force (kips)	39	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	28.5	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 28.5' below grade		
Pier Diameter	10	ft
Rebar Quantity	40	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	7.71	-
Soil Safety Factor	3.53	-
Max Moment (kip-ft)	5303.06	-
Rating	*37.7%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	553.71	-
End Bearing (kips)	1413.72	-
Weight of Concrete (kips)	318.82	-
Total Capacity (kips)	1967.42	-
Axial (kips)	418.82	-
Rating	*21.3%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.40	-
Critical Moment (kip-ft)	5302.03	-
Critical Moment Capacity	14639.30	-
Rating	*36.2%*	-

Soil Interaction Rating	**37.7%**
Structural Foundation Rating	**36.2%**

Soil Profile

Groundwater Depth	13	ft	# of Layers: 4

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	5	5	115	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	5	13	8	115	150	0	30	0.000	0.000	1.00	1.00			Cohesionless
3	13	15	2	52.6	87.6	0	30	0.000	0.000	1.00	1.00			Cohesionless
4	15	28.5	13.5	70	87.6	0	34	0.000	0.000	1.00	1.00	24		Cohesionless

Pier and Pad Foundation

BU # :	803843
Site Name:	CT NEW BRITAIN
App. Number:	420739 Rev. 2

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	100	kips
Base Shear, Vu_comp:	39	kips
Moment, M_u:	5039	ft-kips
Tower Height, **H**:	192	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	10.0	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	64	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	7.0	ft
Pad Width, **W**:	32.5	ft
Pad Thickness, **T**:	4.0	ft
Pad Rebar Size, **Sp**:	11	
Pad Rebar Quantity, **mp**:	60	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	3000	psi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	115	pcf
Ultimate Net Bearing, Qnet:	6.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	32	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.5	
Neglected Depth, **N**:	5.0	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	None	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	479.25	39.00	**8.1%**	**Pass**
Bearing Pressure (ksf)	5.10	1.89	**37.0%**	**Pass**
*Overturning (kip*ft)*	13524.50	5341.25	**39.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	22119.94	5175.50	**23.4%**	**Pass**
Pier Compression (kip)	37491.77	149.48	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	16873.89	1704.67	**10.1%**	**Pass**
Pad Shear - 1-way (kips)	1374.11	205.52	**15.0%**	**Pass**
Pad Shear - 2-way (ksi)	0.16	0.02	**13.6%**	**Pass**

Soil Rating:	**39.5%**
Structural Rating:	**23.4%**

Exhibit 4

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5194
FA#: 10091780

New Britain SE
200 Stanley Street
New Britain, CT 06051

March 16, 2018

Centerline Communications Project Number: 950006-108

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**12.02 %**

March 16, 2018

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5194 – New Britain SE**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **200 Stanley Street, New Britain, CT**, for the purpose of determining whether the emissions from the Proposed AT&T 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 population 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 population 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.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) 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 performed for the proposed AT&T Wireless antenna facility located at **200 Stanley Street, New Britain, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	1	30
UMTS	1900 MHz (PCS)	1	30
LTE	700 MHz	2	40
LTE	1900 MHz (PCS)	4	40
LTE	700 MHz (Band 14)	4	40
LTE	850 MHz	2	40
LTE	700 MHz	2	40
LTE	2300 MHz (WCS)	2	60

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Kathrein 800-10121	195
A	2	CCI TPA-65R-LCUUUU-H8	195
A	3	Kathrein 800-10966	195
A	4	CCI OPA-65R-LCUU-H8	195
B	1	Kathrein 800-10121	195
B	2	CCI TPA-65R-LCUUUU-H8	195
B	3	Kathrein 800-10966	195
B	4	CCI OPA-65R-LCUU-H8	195
C	1	Kathrein 800-10121	195
C	2	Quintel QS66512-2	195
C	3	Kathrein 800-10965	195
C	4	CCI OPA-65R-LCUU-H8	195

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	2	60	1,235.72	0.16
Antenna A2	CCI TPA-65R-LCUUUU-H8	700 MHz / 1900 MHz (PCS)	12.95 / 13.75	6	240	5,372.14	0.72
Antenna A3	Kathrein 800-10966	700 MHz	13.55	2	80	1,811.72	0.39
Antenna A4	CCI OPA-65R-LCUU-H8	850 MHz / 700 MHz / 2300 MHz (WCS)	13.35 / 12.55 / 14.95	8	280	6,920.57	0.99
						Sector A Composite MPE%	**2.26**
Antenna B1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	2	60	1,235.72	0.16
Antenna B2	CCI TPA-65R-LCUUUU-H8	700 MHz / 1900 MHz (PCS)	12.95 / 13.75	6	240	5,372.14	0.72
Antenna B3	Kathrein 800-10966	700 MHz	13.55	2	80	1,811.72	0.39
Antenna B4	CCI OPA-65R-LCUU-H8	850 MHz / 700 MHz / 2300 MHz (WCS)	13.35 / 12.55 / 14.95	8	280	6,920.57	0.99
						Sector B Composite MPE%	**2.26**
Antenna C1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	2	60	1,235.72	0.16
Antenna C2	Quintel QS66512-2	700 MHz / 1900 MHz (PCS)	10.85 / 13.85	6	240	4,855.52	0.60
Antenna C3	Kathrein 800-10965	700 MHz	13.55	2	80	1,472.62	0.32
Antenna C4	CCI OPA-65R-LCUU-H8	850 MHz / 700 MHz / 2300 MHz (WCS)	13.35 / 12.55 / 14.95	8	280	6,920.57	0.99
						Sector C Composite MPE%	**2.07**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, the sectors with the largest calculated MPE% are Sectors A & B. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Sector Values (Sectors A & B)	**2.26 %**
Clearwire	0.07 %
MetroPCS	0.38 %
Verizon	9.31 %
Site Total MPE %:	**12.02 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	2.26 %
AT&T Sector B Total:	2.26 %
AT&T Sector C Total:	2.07 %
Site Total:	12.02 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, the sector with the largest calculated MPE% is Sectors A & B.

AT&T _ Frequency Band / Technology Max Power Values (Sectors A & B)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS (Antenna 1)	1	418.91	195	0.42	850 MHz	567	0.07%
AT&T 1900 MHz (PCS) UMTS (Antenna 1)	1	816.81	195	0.82	1900 MHz (PCS)	1000	0.08%
AT&T 700 MHz LTE (Antenna 2)	2	788.97	195	1.59	700 MHz	467	0.34%
AT&T 1900 MHz (PCS) LTE (Antenna 2)	4	948.55	195	3.82	1900 MHz (PCS)	1000	0.38%
AT&T 700 MHz LTE (Antenna 3)	2	905.86	195	1.82	700 MHz	467	0.39%
AT&T 850 MHz LTE (Antenna 4)	2	865.09	195	1.74	850 MHz	567	0.31%
AT&T 700 MHz LTE (Antenna 4)	2	719.55	195	1.45	700 MHz	467	0.31%
AT&T 2300 MHz (WCS) LTE (Antenna 4)	4	937.82	195	3.78	2300 MHz (WCS)	1000	0.38%
						Total:	**2.26%**

Table 6: AT&T Maximum Sector MPE Power Values

Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	2.26 %
Sector B:	2.26 %
Sector C:	2.07 %
AT&T Maximum Total (per sector):	2.26 %
Site Total:	12.02 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.02 %** of the allowable FCC established general population 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.

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04/20/2018
BILLERICA POST OFFICE BILLERICA MA 01821

Sent To: Mr. Sergio Lupo
Street and Apt. No.: Director of Licenses, Permits, and Inspections
City, State, ZIP+4: 27 West Main Street, Room 404
New Britain, CT 06051

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Sergio Lupo
Director of Licenses, Permits, and Inspections
27 West Main Street, Room 404
New Britain, CT 06051

9590 9402 1223 5246 6380 80

2. Article Number (Transfer from service label)
7017 0190 0000 5797 8452

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X M Bouffard ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

7017 0190 0000 5797 8469

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT CTS194
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

NEW BRITAIN, CT 06051

OFFICIAL USE

Certified Mail Fee	$3.45
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$0.00
Postage	$2.05
Total Postage and Fees	$8.25

Postmark Here
APR 20 2018
04/20/2018
BILLERICA POST OFFICE BILLERICA MA 01821

Sent To: Mr. David Zajac
Street and Apt. No.: Zoning Enforcement Officer/Building Inspector
City, State, ZIP+4: 27 West Main Street, Room 404
New Britain, CT 06051

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. David Zajac
Zoning Enforcement Officer/Building Inspector
27 West Main Street, Room 404
New Britain, CT 06051

9590 9402 3315 7196 6102 95

2. Article Number (Transfer from service label)
7017 0190 0000 5797 8469

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X M Bouffard ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

7017 0190 0000 5797 8445

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT CT5194
Domestic Mail Only

For delivery information, visit our website at www.usps.com®
NEW BRITAIN, CT 06050

OFFICIAL USE

Certified Mail Fee	$3.45
Extra Services & Fees (check box, add fee as appropriate)	$2.75
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$2.47
Total Postage and Fees	$8.67

Postmark Here
APR 20 2018
04/20/2018
BILLERICA MA 01821

Sent To
Street and Apt. No., or PO
City, State, ZIP+4®

DOWNES INVESTMENTS LLC
PO BOX 1508
NEW BRITAIN, CT 06050-1508

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

DOWNES INVESTMENTS LLC
PO BOX 1508
NEW BRITAIN, CT 06050-1508

9590 9402 3315 7196 6102 71

2. Article Number (Transfer from service label)
7017 0190 0000 5797 8445

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Lisa Martin ☐ Agent ☐ Addressee

B. Received by (Printed Name) Lisa Martin
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

7017 0190 0000 5797 8438

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT CT5194
Domestic Mail Only

For delivery information, visit our website at www.usps.com®
CLIFTON PARK, NY 12065

OFFICIAL USE

Certified Mail Fee	$3.45
Extra Services & Fees (check box, add fee as appropriate)	$2.75
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.84
Total Postage and Fees	$8.04

Postmark Here
APR 20 2018
04/20/2018
BILLERICA MA 01821

Sent To
Street and Apt. No., or P
City, State, ZIP+4®

Paul Pedicone, Project Manager
CROWN CASTLE USA INC
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Paul Pedicone, Project Manager
CROWN CASTLE USA INC
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

9590 9402 1864 6104 9544 28

2. Article Number (Transfer from service label)
7017 0190 0000 5797 8438

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) Lindsay Bianco
C. Date of Delivery 4/23/18

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

7017 0190 0000 5797 8421

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT CT5144
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.
NEW BRITAIN, CT 06051

OFFICIAL USE

Certified Mail Fee	$3.45
$	$2.75
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$2.05
$	
Total Postage and Fees	$8.25
$	

Postmark Here
APR 20 2018
04/20/2018

Sent To
Hon. Mayor Erin E Stewart
Street and Apt. No., or PO Box
27 West Main Street
City, State, ZIP+4®
New Britain, CT 06051

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Hon. Mayor Erin E Stewart
27 West Main Street
New Britain, CT 06051

9590 9402 3315 7196 6104 55

2. Article Number (Transfer from service label)
7017 0190 0000 5797 8421

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Pauline Santoro ☐ Agent ☐ Addressee

B. Received by (Printed Name) PAULINE SANTORO
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt