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

August 15, 2018

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

RE: **Notice of Exempt Modification for Sprint DO Macro: 803843**
Sprint Site ID: CT52XC045
200 Stanly Street, New Britain, CT 06053
Latitude: 41° 39' 16.4"/ Longitude: -72° 46' 09.6"

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas and two (2) microwave dishes at the 175-foot level of the existing 192-foot monopole tower at 200 Stanly Street, New Britain, CT. The tower is owned by Crown Castle. The property is owned by the Downes Investments LLC. Sprint now intends to replace three (3) antennas with three (3) new antennas, add three (3) antenna. These antennas would be installed at the 175-foot level of the tower. Sprint also intends to remove three (3) existing RRH's, add three (3) 1900MHz RRH's, add six (6) 800MHz RRH's, replace exiting cluster antenna mounts with new Site Pro antenna mount and Sprint also intends to install nine (9) RRH's, three (3) hybrid cables and remove six (6) coax cables.

The facility was approved by the Connecticut Siting Council Petition No. 544 on February 11, 2002. This approval was given without conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Erin E. Stewart-Mayor, Steven P. Schiller, City Planner as well as the property owner, Downes Investments LLC. Crown Castle is the tower owner.

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

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

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

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

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

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

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

Sincerely,

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

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc:

The Honorable Erin E Stewart- City of New Britain Mayor
27 West Main Street
New Britain, CT 06051
(860) 826-3300

Steven P. Schiller- City of New Britain City Planner
27 West Main Street
New Britain, CT 06051
(860) 826-3430

Downes Investments LLC
PO Box 1508
New Britain, CT 06050

Petition No. 544
Crown Atlantic Company, LLC
New Britain, Connecticut
Staff Report
February 11, 2002

On February 11, 2002, Connecticut Siting Council (Council) member Gerald J. Heffernan with Robert Mercier of Council staff met Crown Atlantic Company LLC (Crown) representatives Kenneth Baldwin, Robert Stanford, and Shane Newhart for an inspection of an existing 195-foot monopole owned and operated by Crown and located at 200 Stanley Street in New Britain, Connecticut. Crown proposes to allow tower sharing for three wireless communications service providers; AT&T Wireless (AT&T), Northcoast Communications (Northcoast) and Verizon Wireless (Verizon) and is petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the tower share request.

The petition was filed to address the Council's concerns that the tower was built without a Certificate. Crown filed for a City of New Britain (City) building permit in May of 2001. A building permit was issued on June 8, 2001. The Council denied a tower share request (TS-NORTHCOAST-089-011031) at the Council's November 29, 2001 meeting since the City approved the tower after Judge Covello's US District Court decision dated January 9, 2001.

The tower is located on a commercial lot in an industrial zone. Commercial properties abut the site to the north and south. Route 9 is located west of the site. Residential properties are located to the east. A fenced, graveled compound measuring 50' x 70 with one vacant equipment shelter exists at the site.

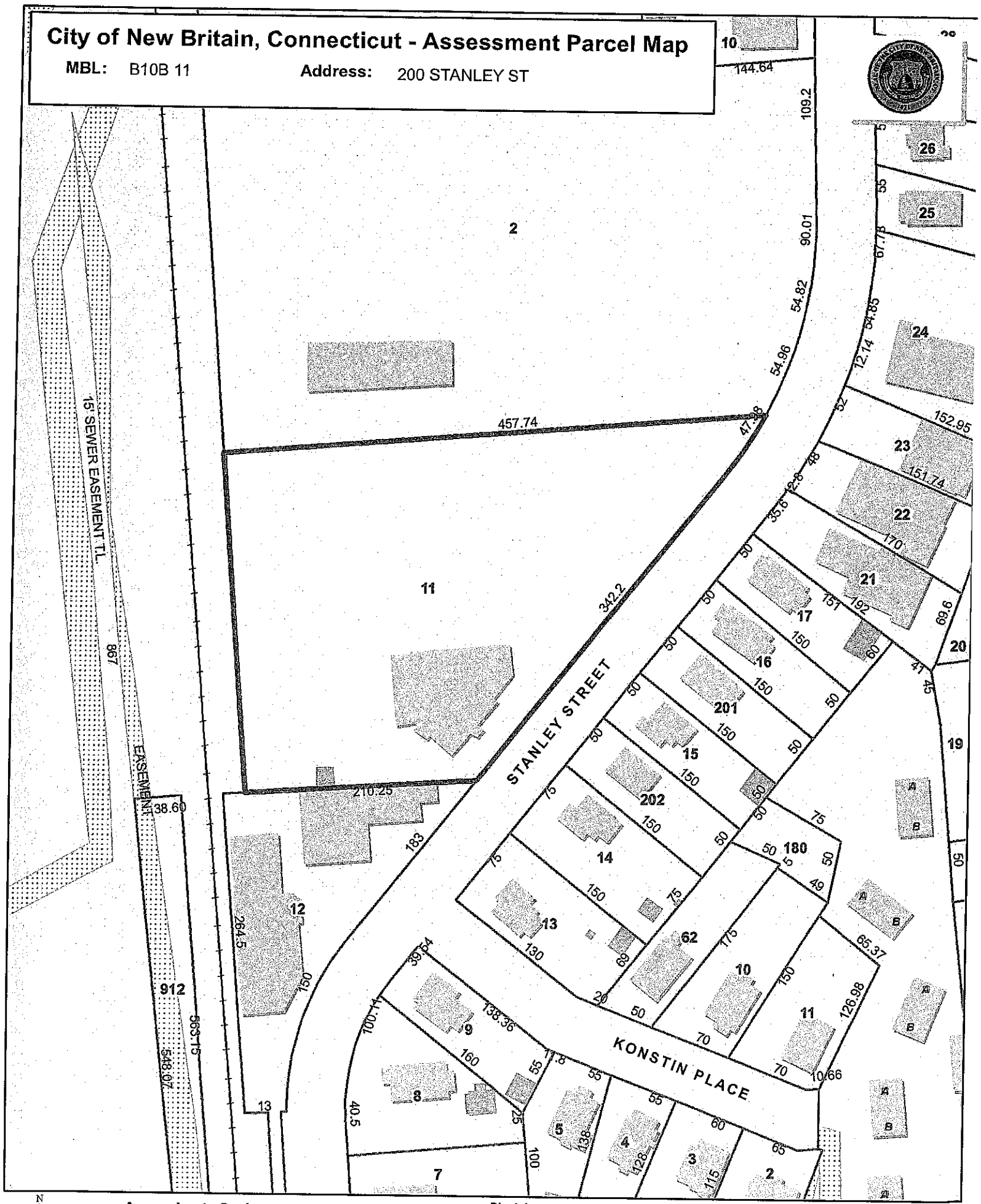
AT&T proposes to install six panel antennas at the 195-foot level and install equipment cabinets at the base of the tower. Northcoast proposes to install six panel antennas and three two-foot dishes at the 185-foot level and install a 10x20-foot equipment shelter at the base of the tower. Verizon proposes to install 12 panel antennas at the 100-foot level and install radio equipment in the existing building at the base of the tower.

The cumulative worst-case power density for the telecommunications operations at the site has been calculated to be 13.54% of the applicable standard for uncontrolled environments.

Crown contends that the proposed shared use of the existing tower and associated building compound would not cause a substantial adverse environmental effect.

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 Feb 2017

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

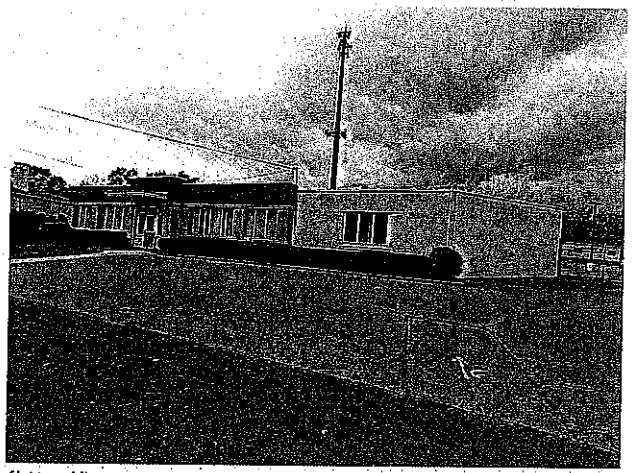
Year Built: 1954
Living Area: 11,912
Replacement Cost: $1,230,749

Building Percent Good: 44

Replacement Cost Less Depreciation: $541,500

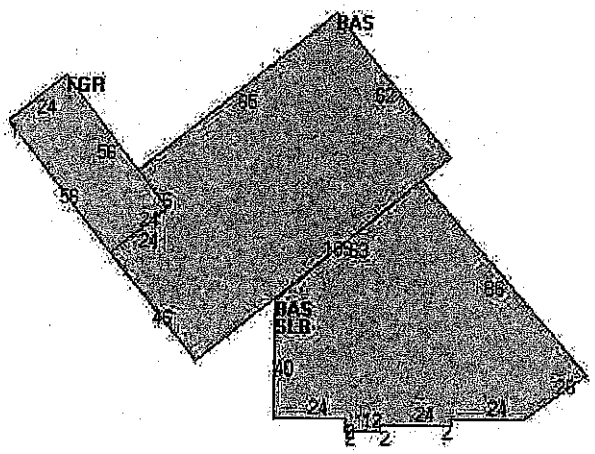
Building Attributes	
Field	**Description**
STYLE	Office
MODEL	Comm/Ind
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Block/Concrete
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Central Heat	Yes
AC Type	Central
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 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**
2017	$626,600	$168,400	$795,000
2016	$645,500	$165,400	$810,900
2015	$645,500	$165,400	$810,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$438,620	$117,880	$556,500
2016	$451,850	$115,780	$567,630
2015	$451,850	$115,780	$567,630

City of New Britain, CT

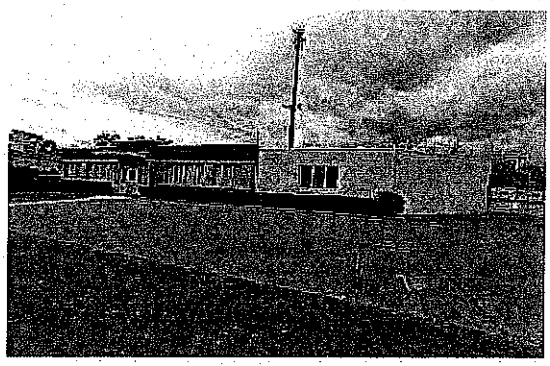
Property Listing Report | Map Block Lot B10B 11 | Account 81300200

Property Information

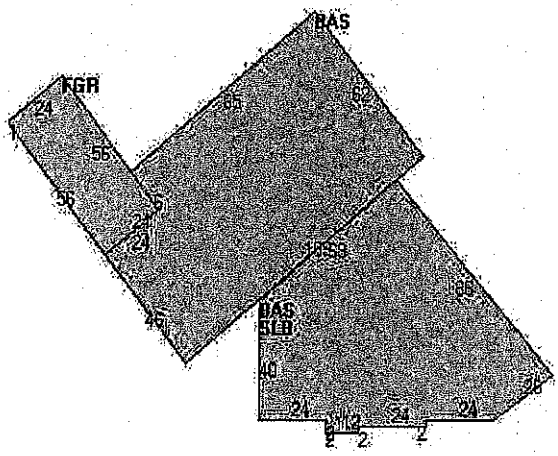
Property Location	200 STANLEY ST
Owner	DOWNES INVESTMENTS LLC
Co-Owner	
Mailing Address	PO BOX 1508 NEW BRITAIN CT 06050-1508
Land Use	3400 Office Bld MDL-94
Land Class	C
Zoning Code	I2
Census Tract	415500

Neighborhood	107H
Acreage	2.18
Utilities	All Public
Lot Setting/Desc	Level
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	1954
Stories	1
Building Style	Office
Building Use	Comm/Ind
Building Condition	C
Floors	Carpet
Total Rooms	

Bedrooms	
Full Bathrooms	0
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Flat
Roof Cover	T&G/Rubber

Exterior Walls	Block/Concrete
Interior Walls	Drywall
Heating Type	99
Heating Fuel	Yes
AC Type	Central
Gross Bldg Area	13283
Total Living Area	11912

Report Created On 8/9/2018

City of New Britain, CT

Property Listing Report | Map Block Lot B10B 11 | Account 81300200

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	541500	379050
Extras	0	0
Improvements	626600	438620
Outbuildings	85100	59570
Land	168400	117880
Total	795000	556500

Outbuilding and Extra Items

Type	Description
Fence - Chain	2520.00 L.F.
PreCastConcCel	240.00 S.F.
Fence-8' Chain	168.00 L.F.
Paving Asphalt	10000.00 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	11912	11912
Slab	0	0
Garage	1371	0
Total Area	13283	11912

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
DOWNES INVESTMENTS LLC	1827/ 193	10/17/2011	327818
DOWNES INVESTMENTS LLC	1386/ 135	10/16/2001	
DOWNES INVESTMENTS LLC	1351/ 908	11/3/2000	
JOHN E DOWNES TRUSTEE	1104/ 267	7/3/1991	
DOWNES JOHN E	1105/ 413	6/24/1991	
	1096/ 23	2/20/1991	
FRANK E DOWNES	363/ 493	1/13/1953	
LANDERS FRARY + CLARK	168/ 438	1/1/1900	

Report Created On 8/9/2018

Sprint

CROWN CASTLE

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	CT NEW BRITAIN 4 CAC 803843
SITE CASCADE:	CT52XC045
SITE NUMBER:	803843
SITE ADDRESS:	200 STANLEY STREET NEW BRITAIN, CT 06053
SITE TYPE:	MONOPOLE
MARKET:	N. ENGLAND

SITE INFORMATION

TOWER OWNER:
CROWN ATLANTIC COMPANY LLC
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
(704) 405-6555

LATITUDE (NAD83):
41° 39' 18.4" N
41.654566°

LONGITUDE (NAD83):
-72° 46' 09.6" W
-72.769333°

COUNTY:
HARTFORD

ZONING JURISDICTION:
HARTFORD COUNTY

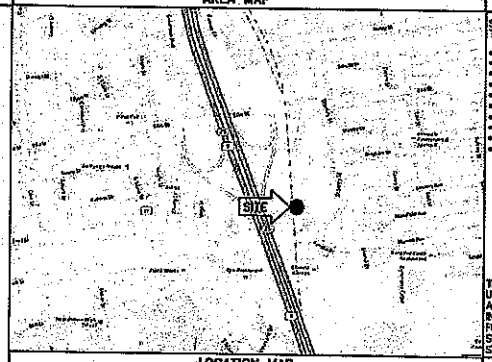
ZONING DISTRICT:
TBD

POWER COMPANY:
CONNECTICUT LIGHT & POWER
(860) 947-2000

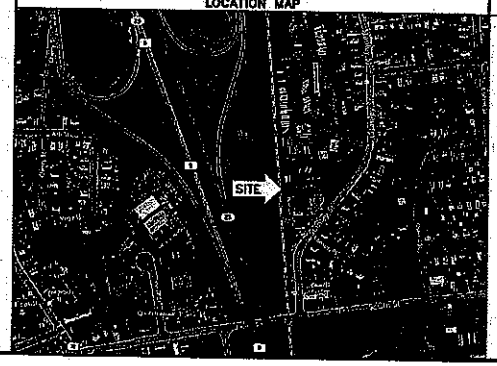
SPRINT CONSTRUCTION:
TBD

CROWN PM:
SCOTT WATROSKI
(201) 236-2228

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE EXISTING CLEARWIRE EQUIPMENT CABINET AND PAD
- INSTALL NEW ELTEK CABINET ON NEW PAD
- REMOVE EXISTING CLUSTER MOUNTS AND REPLACE W/ NEW PLATFORM
- REMOVE (3) EXISTING PANEL ANTENNAS FROM TOWER
- REMOVE (3) EXISTING RRH
- INSTALL (3) NNVV-65B-R4 PANEL ANTENNAS ON TOWER
- INSTALL (3) NOKIA/AAHC PANEL ANTENNAS ON TOWER
- INSTALL (3) 1900MHz 4x45W-65MHz RRHs ON TOWER
- INSTALL (6) RRH 2x50-800MHz RRHs ON TOWER
- INSTALL (3) HYBRID CABLES

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH STRUCTURE AND MOUNT.

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. LOCAL BUILDING CODE
7. CITY/COUNTY ORDINANCES

811 Know what's below. Call before you dig. www.cbd811.com

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION & CABLE PLAN	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	EQUIPMENT & MOUNTING DETAILS	0
A-5	CIVIL DETAILS	0
A-6	PLUMBING DIAGRAM	0
E-1	ELECTRICAL & GROUNDING DETAILS	0
E-2	ELECTRICAL & GROUNDING DETAILS	0

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER: 055-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24706
REGISTERED PROFESSIONAL ENGINEER
JUL 20 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	07/20/18	RKD	0

SITE NAME:
CT NEW BRITAIN 4 CAC 803843

SITE CASCADE:
CT52XC045

SITE ADDRESS:
200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
7. AMERICAN CONCRETE INSTITUTE (ACI)
8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.

B. COMPANY: SPRINT CORPORATION

C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A/E", THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.

D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.

E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A/E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.

C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED.

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

TOWER OWNER NOTIFICATION:
ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, CONTRACTOR WILL CONTACT THE CROWN CASTLE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED CALL 1-800-788-7011 TO NOTIFY THE CROWN CASTLE NOC WORK HAS BEGUN.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
5033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 539-153

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	07/20/18	RCG	0

SITE NAME:

CT NEW BRITAIN 4 CAC
803843

SITE CASCADE:

CT52XC045

SITE ADDRESS:

200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL, MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION.

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (NOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 - SUBMITTALS & TESTS

PART 1 - GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN

D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. COAX SWEEPS AND FIBER TESTS PER CURRENT VERSION OF SPRINT'S TS-0200 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL - UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 485. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS - ANTENNALIGN ALIGNMENT TOOL (AAT)

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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1633 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0792
www.infinigy.com
JOB NUMBER: 803-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
DATE: 9.3.2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	07/20/18	ROI	0

SITE NAME:

CT NEW BRITAIN 4 CAC
803843

SITE CASCADE:

CT52XC045

SITE ADDRESS:

200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING; SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING; CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING—TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. 1SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION—FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING–TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING –TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

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www.infinigy.com
JOB NUMBER: 330-165

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
2-2-2018

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	01/26/18	RCD	0

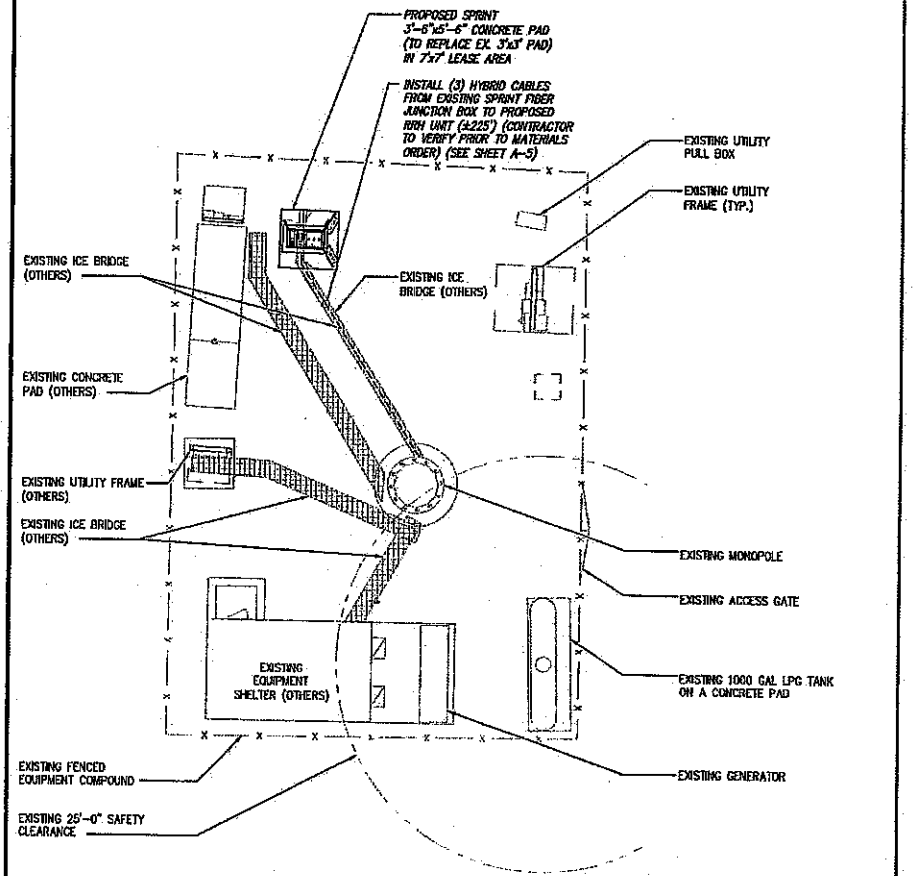
SITE NAME:
CT NEW BRITAIN 4 CAC 803843

SITE CASCADE:
CT52XC045

SITE ADDRESS:
200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

SHEET NUMBER:
SP-3

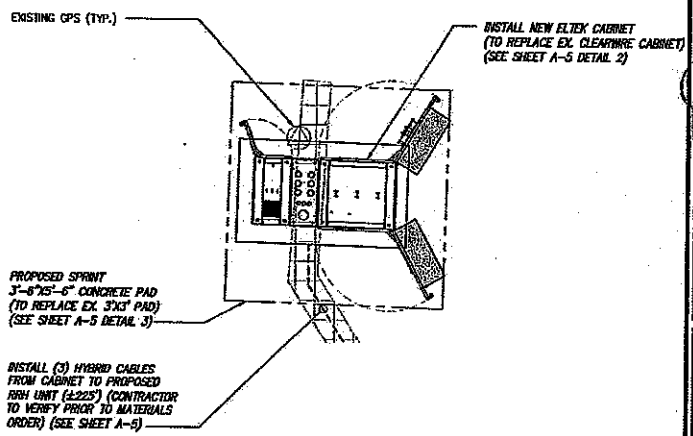


INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

N

GRAPHIC SCALE:
15' 7.5' 0 7.5' 15'
SCALE (11x17): 1" = 15'-0"
SCALE (22x34): 1" = 7'-6"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



NOTE:
NO LIQUID TIGHT FLEXIBLE METALLIC CONDUIT IS TO EXCEED 6 FEET PER SP-2 SECTION 26 200 ITEM E.

N

GRAPHIC SCALE:
4' 2' 0 2' 4'
SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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www.infinigy.com
JOB NUMBER: 326-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	07/20/18	RCD	0

SITE NAME:
CT NEW BRITAIN 4 CAC
803843

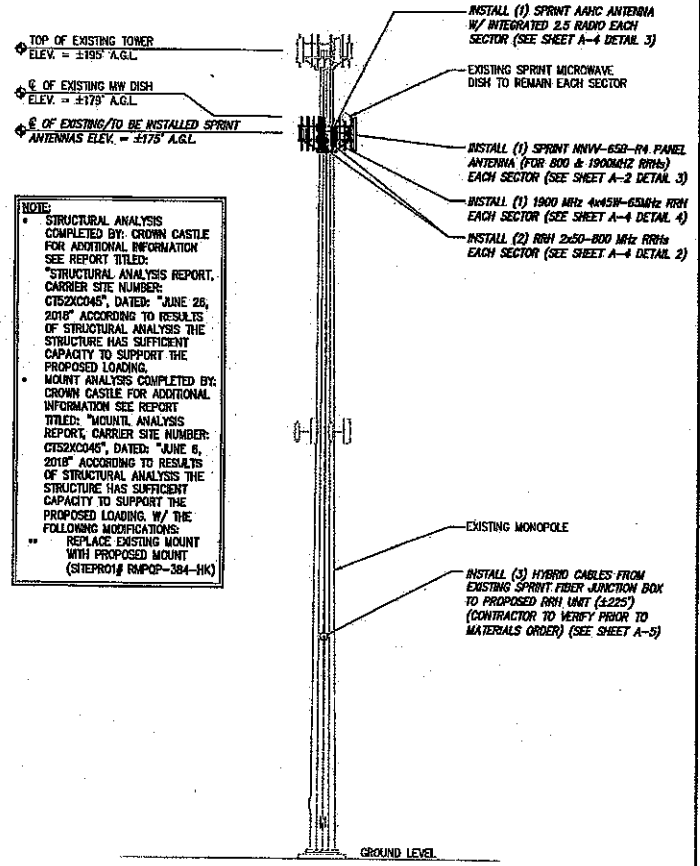
SITE CASCADE:
CT52XC045

SITE ADDRESS:
200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

NOTE:
SEE DETAIL 2 ON A-3 FOR ANTENNA LAYOUT

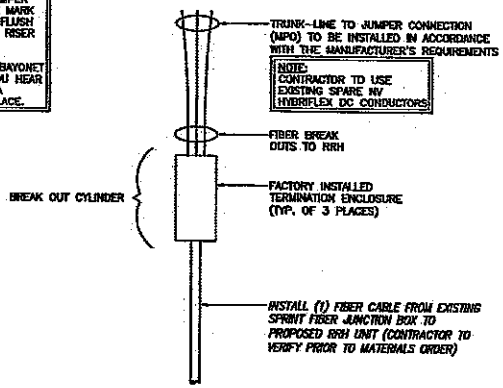


NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY: CROWN CASTLE FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT52XC045", DATED: "JUNE 25, 2018" ACCORDING TO RESULTS OF STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- MOUNT ANALYSIS COMPLETED BY: CROWN CASTLE FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "MOUNTL ANALYSIS REPORT, CARRIER SITE NUMBER: CT52XC045", DATED: "JUNE 6, 2018" ACCORDING TO RESULTS OF STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING. W/ THE FOLLOWING MODIFICATIONS:
  - REPLACE EXISTING MOUNT WITH PROPOSED MOUNT (SITEPRO1# RMPQP-384-HK)

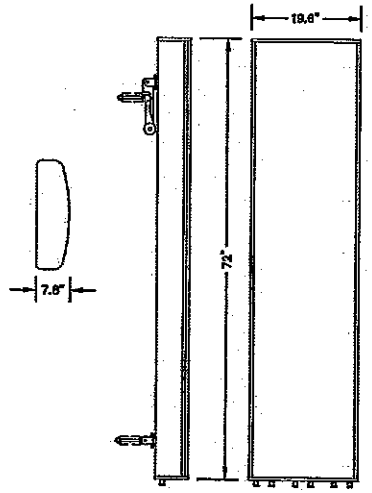
TOWER ELEVATION | NO SCALE | 1

NOTE:
CONTRACTOR TO LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.

CONTRACTOR TO ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND TO ENSURE A PROPER CONNECTION IS IN PLACE.



HYBRID BREAKOUT DETAIL | NO SCALE | 2



ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD,in(mm):	72"x19.6"x7.8"
WEIGHT:	77.4 lbs
CONNECTORS:	(6) 4.3-10 DIN FEMALE

800/1900 PANEL ANTENNA | NO SCALE | 3

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SITE PARTNER:
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ENGINEERING LICENSE:
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No. 24705
LICENSED PROFESSIONAL ENGINEER
07/23/2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	07/20/18	RCD	0

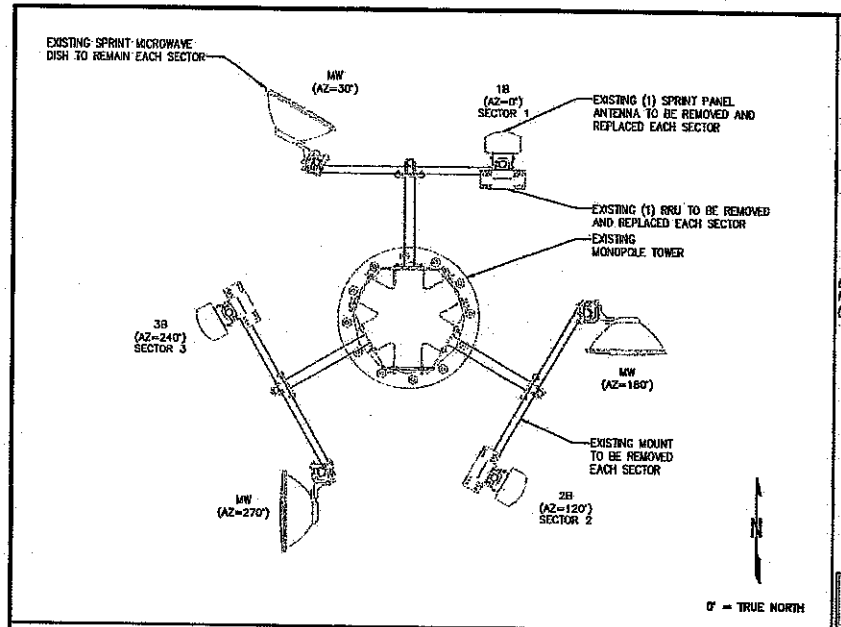
SITE NAME:
CT NEW BRITAIN 4 CAC
803843

SITE CASCADE:
CT52XC045

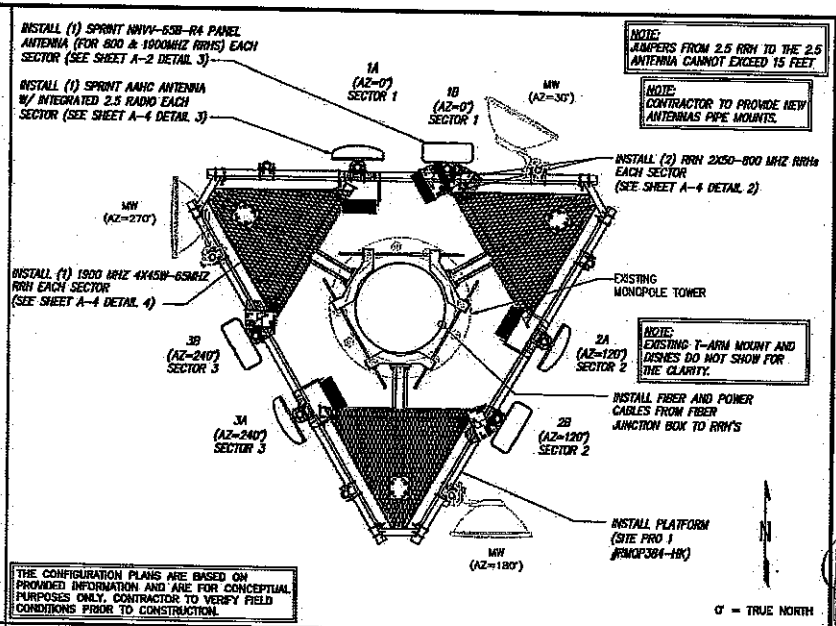
SITE ADDRESS:
200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2



EXISTING ANTENNA LAYOUT | NO SCALE | 1



FINAL ANTENNA & RRH LAYOUT | NO SCALE | 2

NOTES:

1. ALL ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA.

2. VERIFY AZIMUTH AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE.

3. NO OBJECT IS TO BE WITHIN 45 DEGREES OF BORE-SIGHT OF 2.5G OR ANY OTHER TOWER ANTENNA. IF NECESSARY, 2.5G ANTENNA CAN BE PLACED AT FAR EDGE OF HORIZONTAL ANTENNA MOUNT MEMBER FOR CLEAR LINE OF SITE OR EVEN ON ANOTHER SECTOR FOR CLEAR LINE OF SITE.

4. 2.5G ANTENNA MUST BE AT LEAST 6" FROM 1900MHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30MHZ FROM DUAL BAND 1900MHZ AND 800MHZ ANTENNA.

5. IF ANTENNAS ARE MOUNTED ON A FACE SURFACE SUCH AS A BUILDING WALL, PARAPET WALL, OR WATER TOWER WALL, THIS RFDS MUST BE ACCOMPANIED BY A SKETCH PROVIDED BY ITS ORIGINATING RF ENGINEER CALLING OUT THE EXACT LOCATION OF WHERE ANTENNA IS TO BE LOCATED. CONTACT SPRINT RF ENGINEER IF THE SKETCH IS MISSING.

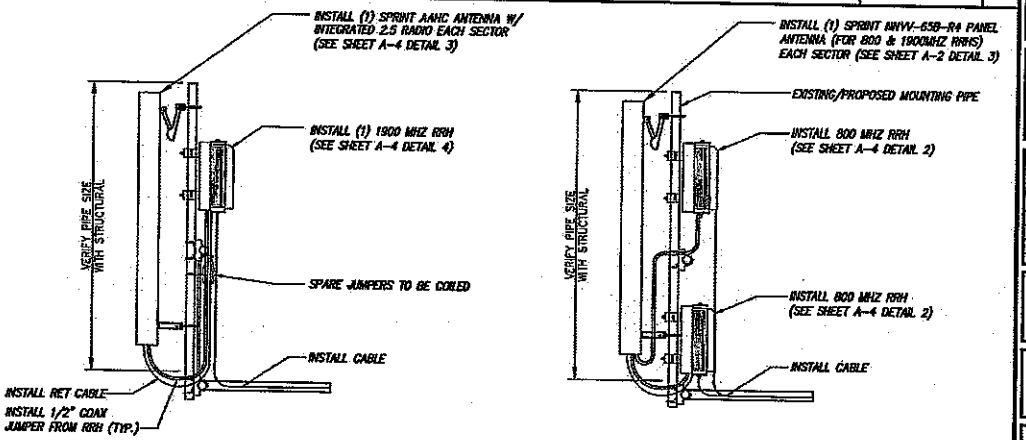
6. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5G ANTENNA AT SAME CL HEIGHT AS 1.9G ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILD DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900 MHZ AND 800 MHZ ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.

7. AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5G. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.

8. GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.

9. GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL. HTTP://WWW.3ZTELECOM.COM/ANTENNA-ALIGNMENT-TOOL/

NOTES | NO SCALE | 3



NOTES:

1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
3. DO NO EXCEED BEND RADIUS.

NOTE: CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

NOTE: SPARE DC CABLES ARE COILED UP ON HV RRHS AT SPRINT ARRAY. THESE ARE TO BE USED TO POWER UP THE 2.5 RRHS AND TIED INTO EXISTING DC BREAKERS INSIDE THE FIBER JUNCTION BOX LOCATED AT EQUIPMENT.

NOTE: THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRH MOUNTING DETAILS.

TYPICAL ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 4

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www.infinigy.com
JOB NUMBER: 330-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED PROFESSIONAL ENGINEER
8-3-2018

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	07/20/18	WCD	0

SITE NAME:
CT NEW BRITAIN 4 CAC
803843

SITE CASCADE:
CT52XC045

SITE ADDRESS:
200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:
ANTENNA LAYOUT
& MOUNTING DETAILS

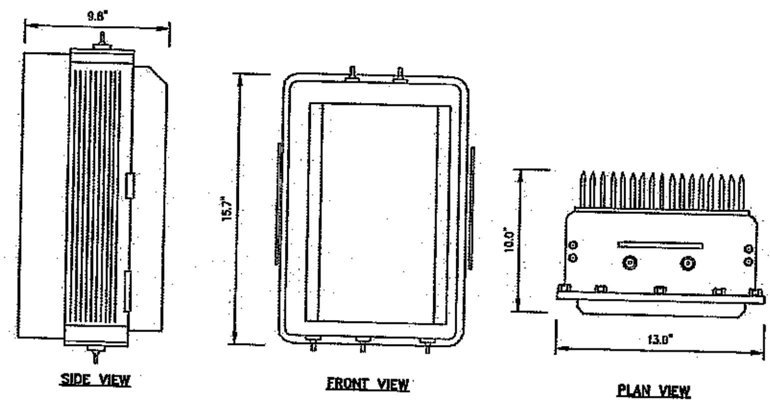
SHEET NUMBER:
A-3

NOT USED

NO SCALE 1

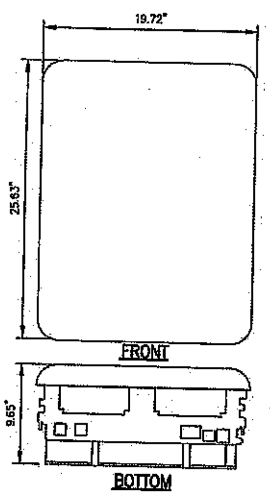
RRH: ALCATEL LUCENT RRH 800 MHz 2x50W
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



800 MHz RRH

NO SCALE 2



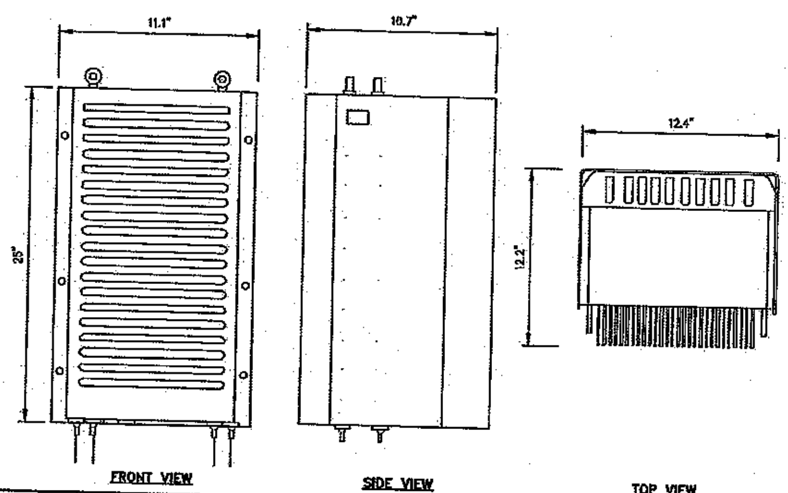
ANTENNA NOKIA AAHC

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mlm):	25.63"x19.72"x9.65"
WEIGHT:	103.6LBS

2.5 ANTENNA

NO SCALE 3

RRH: ALCATEL LUCENT 1900 MHz
COLOR: LIGHT GREY
WEIGHT: 60 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



1900 MHz RRH

NO SCALE 4

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JOB NUMBER 526-183

MLA PARTNER:
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JOHN S. STEVENS
No.
LICENSED
PROFESSIONAL ENGINEER
2-3-2018

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR REVIEW	07/20/16	RCD	0

SITE NAME:
CT NEW BRITAIN 4 CAC
803843

SITE CASCADE:
CT52XC045

SITE ADDRESS:
200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

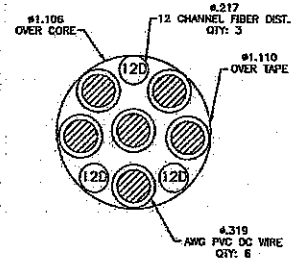
RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	Hybrid cable MN: HBO58-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 1/8 cable, 50 ft	50 ft
	MN: HBO58-M12-075F	75 ft
	MN: HBO58-M12-100F	100 ft
	MN: HBO58-M12-125F	125 ft
	MN: HBO58-M12-150F	150 ft
	MN: HBO58-M12-175F	175 ft
	MN: HBO58-M12-200F	200 ft
8 AWG Power	Hybrid cable MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	Hybrid cable MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	Hybrid cable MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

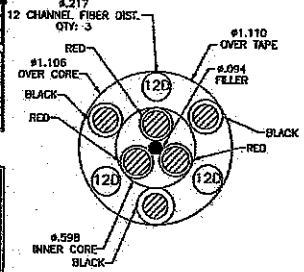
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Fiber Only	Hybrid Jumper cable MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	Hybrid Jumper cable MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	Hybrid Jumper cable MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	Hybrid Jumper cable MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

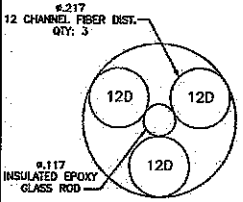
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG



8 & 6 AWG



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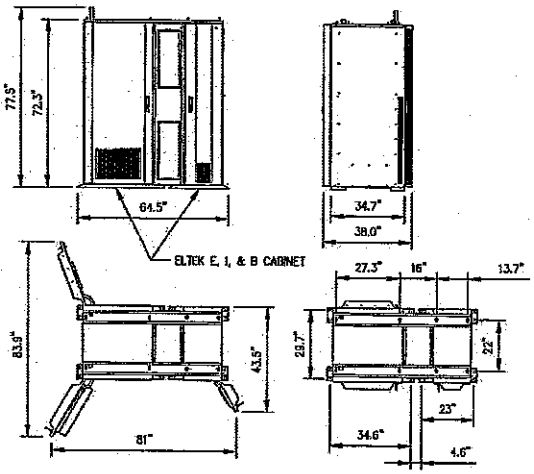
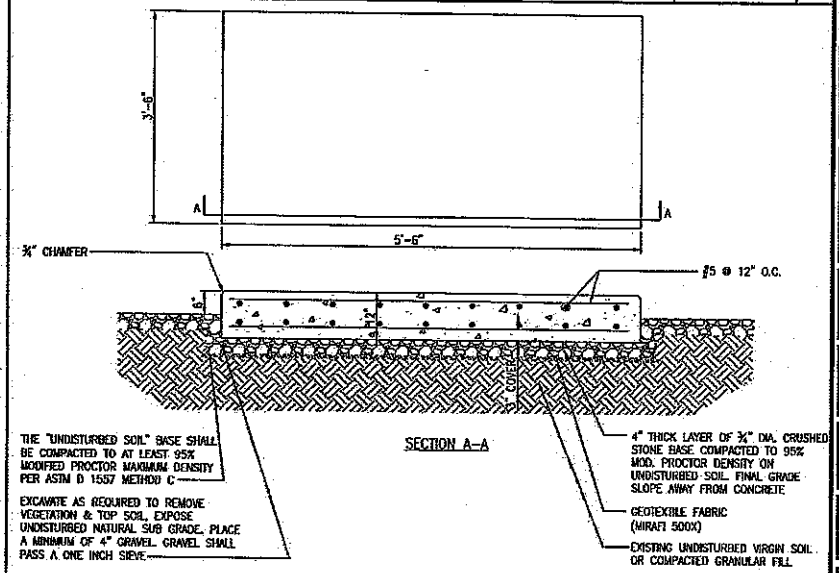


ELTEK CABINET DETAIL | NO SCALE | 2



SECTION A-A

CONCRETE PAD DETAIL | NO SCALE | 3

2.5 CABLE CROSS SECTION DATA | NO SCALE | 1

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Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

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MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
JUL 25 2018
PROFESSIONAL ENGINEER

DRAWING NOTICE:

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803843

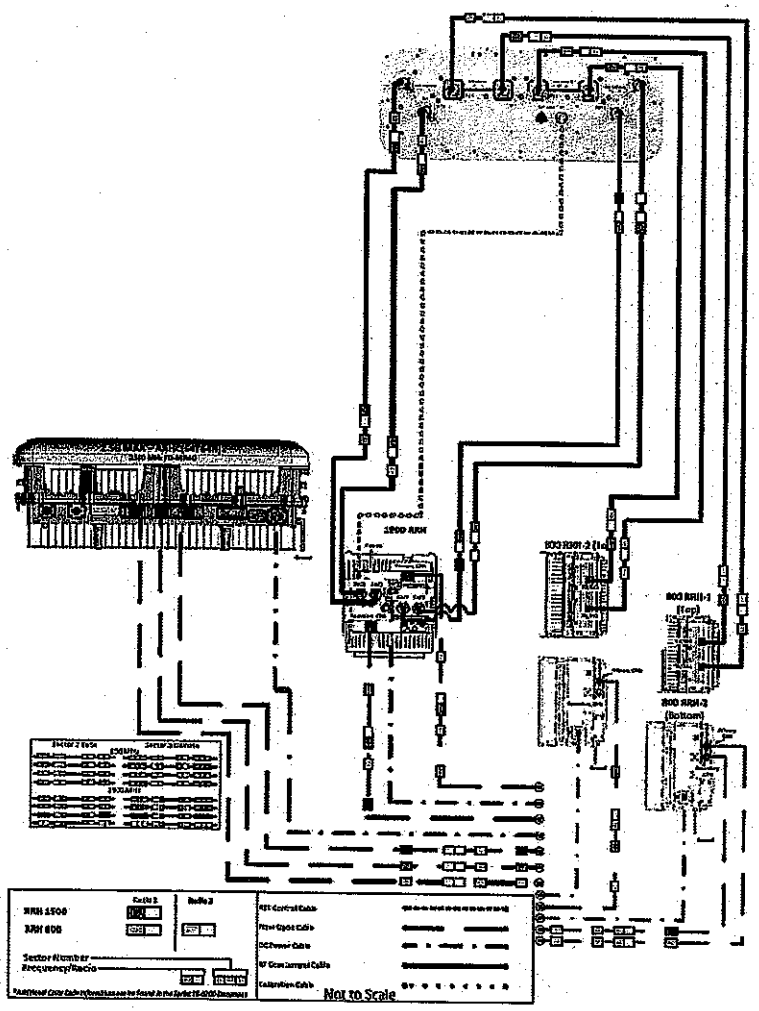
SITE CASCADE:
CT52XC045

SITE ADDRESS:
200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5

ALU 21-MIMO NNVV-65B-R4 wo Filters



PLUMBING DIAGRAM | NO SCALE | 1

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PLANS PREPARED BY:

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ENGINEERING LICENSE:

STATE OF CONNECTICUT
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No. 24708
LICENSED PROFESSIONAL ENGINEER
OCT 23 2018

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ISSUED FOR REVIEW	07/20/18	BDI	0

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SITE CASCADE:

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SITE ADDRESS:

200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH(S)/DIDI MAKE AND MODEL
1	NOKIA	AAHC	175'	0°	-
	COMMSCOPE	NNVV-65B-R4	175'	0°	(1) ALU 1900MHZ 4X45W-65MHZ (2) ALU 800MHZ 2x50-800
	ANDREW	VHLP2-23	179'	30'	(1) AIRPAIR ODU
2	NOKIA	AAHC	175'	120°	-
	COMMSCOPE	NNVV-65B-R4	175'	120°	(1) ALU 1900MHZ 4X45W-65MHZ (2) ALU 800MHZ 2x50-800
	ANDREW	FX2F-52	179'	180'	(1) AIRPAIR ODU
3	NOKIA	AAHC	175'	240°	-
	COMMSCOPE	NNVV-65B-R4	175'	240°	(1) ALU 1900MHZ 4X45W-65MHZ (2) ALU 800MHZ 2x50-800
	ANDREW	VHLP2-23	179'	270'	(1) AIRPAIR ODU

FEEDER CABLES

MANUFACTURER	MODEL	LENGTH	QTY
RFS/CELWAVE	HB158-21/8M48-30F	225'±	(3)
ANDREW	HJ4.5-50	225'±	(3)
BELDEN	9207	225'±	(1)

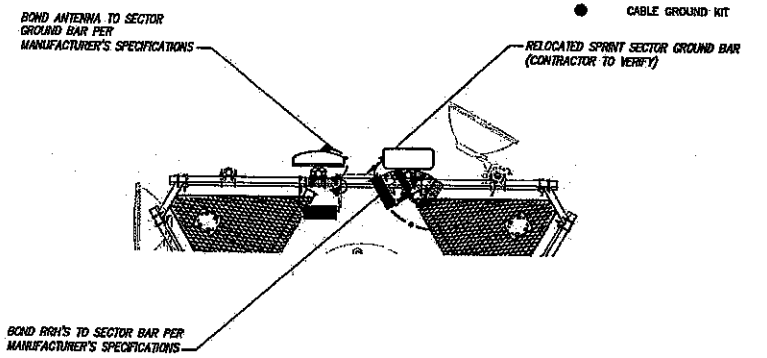
LEGEND
EXISTING
PROPOSED

NOTES:
1. CONTRACTOR TO VERIFY PROPOSED ANTENNA INFORMATION IS THE MOST CURRENT DATA AT TIME OF CONSTRUCTION.
2. CONTRACTOR TO CONFIRM CABLE LENGTHS PRIOR TO CONSTRUCTION.

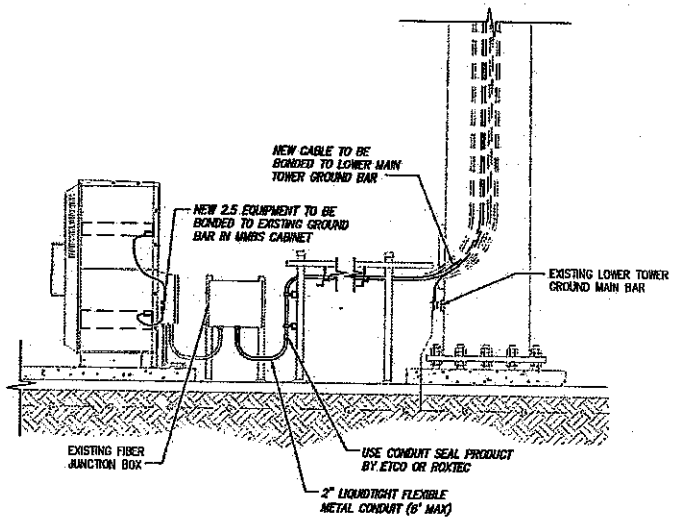
ANTENNA/CABLE SCHEDULE — NO SCALE — 1

LEGEND:

- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN — NO SCALE — 2



TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION) — NO SCALE — 3

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MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
DATE: 2-2-2018

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SITE CASCADE:
CT52XC045

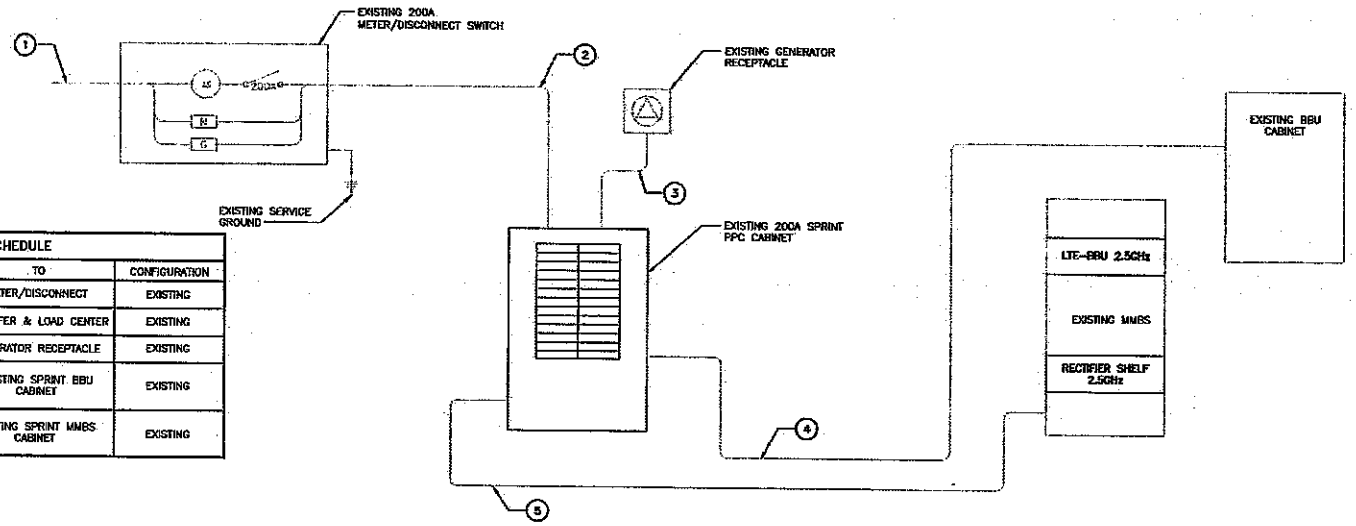
SITE ADDRESS:
200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-1

NOTES

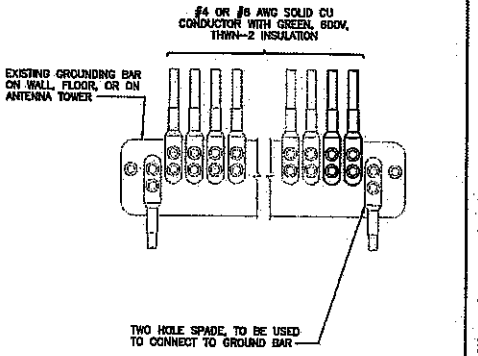
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE

NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

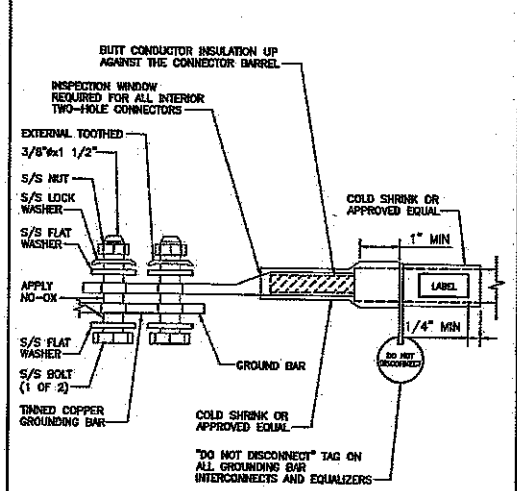
ELECTRICAL ONE-LINE DIAGRAM — NO SCALE — 1



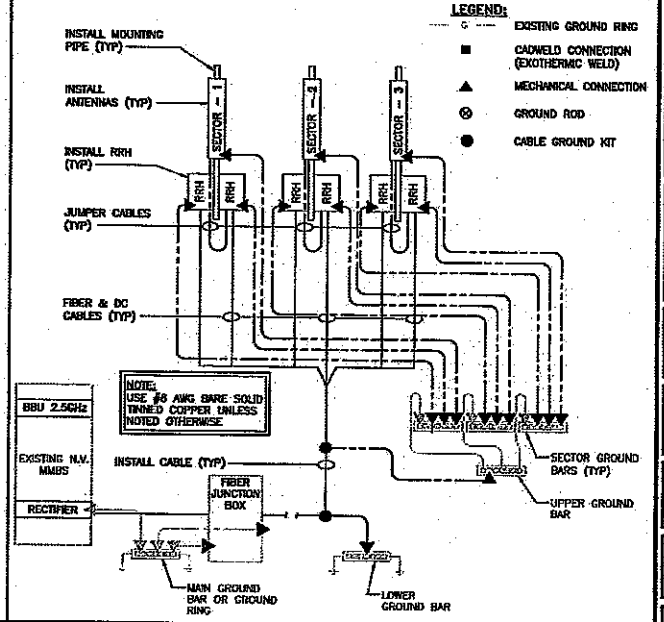
NOTES

1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR — NO SCALE — 2



TWO HOLE LUG — NO SCALE — 3



GROUNDING RISER DIAGRAM — NO SCALE — 4

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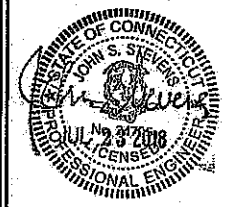

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SITE CASCADE:

CT52XC045

SITE ADDRESS:

200 STANLEY STREET
NEW BRITAIN, CT 06053

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

Date: **June 26, 2018**

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

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Clearwire Corp* Co-Locate** **Carrier Site Number:**	 CT52XC045
Crown Castle Designation:	**Crown Castle BU Number:** **Crown Castle Site Name:** **Crown Castle JDE Job Number:** **Crown Castle Work Order Number:** **Crown Castle Order Number:**	803843 CT NEW BRITAIN 4 CAC 803843 509210 1592273 443465 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1592273
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 Denice Nicholson,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1592273, in accordance with order 443465, revision 0.

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

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

This analysis has been performed in accordance with the 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.

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

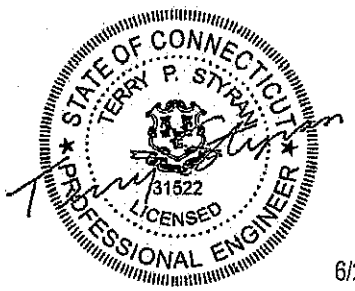
We at *Crown Castle* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Joseph Fischels/ BB

Respectfully submitted by:

Terry P. Styran, P.E.
Senior Project Engineer

tnxTower Report - version 7.0.5.1



6/27/2018

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 192 ft Monopole tower designed by Summit Manufacture, LLC 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.

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
175.0	175.0	6	alcatel lucent	800MHZ 2X50W RRH	3	1-5/8	-
		3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ			
		3	commscope	NNVV-65B-R4			
		3	nokia	AAHC			
		1	tower mount	Site Pro 1 RMQP-384			
		1	tower mount	Site Pro 1 HRK12			

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
197.0	197.0	1	tower mounts	Platform Mount [LP 1201-1]	-	-	1
	195.0	3	ericsson	RRUS 12	4 2 1	3/4 Conduit 3/8	2
		3	ericsson	RRUS 32			
		3	ericsson	RRUS 32 B2			
		3	ericsson	RRUS 32 B66			
		3	ericsson	RRUS 4478 B14			
		3	ericsson	RRUS E2 B29			
		6	kathrein	860 10025			
		2	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe			
		2	kathrein	80010966 w/ Mount Pipe			
		2	raycap	DC6-48-60-0-8F			
		1	quintel technology	QS66512-2 w/ Mount Pipe			
		1	kathrein	80010965 w/ Mount Pipe			
		3	cci antennas	OPA-65R-LCUU-H8 w/ Mount Pipe	6 4 2 1	1-5/8 3/4 Conduit 3/8	1
		3	kathrein	800 10121 w/ Mount Pipe			
		1	ericsson	RRUS-11			
		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	6	powerwave technologies	LGP21401			
		2	ericsson	RRUS-11			
		1	raycap	DC6-48-60-18-8F			
186.0	188.0	3	rfs/celwave	APXV18-206517S-C	6	1-5/8	1
	186.0	1	tower mounts	Platform Mount [LP 1201-1]			
175.0	179.0	2	dragonwave	HORIZON COMPACT	3	5/8	1
		2	andrew	VHLP2-23	1	5/16	
		1	andrew	PX2F-52	2	Conduit	
	178.0	3	argus technologies	LLPX310R w/ Mount Pipe	-	-	3
	175.0	1	motorola	TIMING 2000	-	-	1
		1	tower mounts	Side Arm Mount [SO 101-3]	3	1/2	3
	172.0	3	samsung telecommunications	RRH-2WB	3	1/4	
161.0	164.0	1	sigfox	CXL 900-3LW	1	1/2	2
	161.0	1	sigfox	CAVITY FILTER			
		1	sigfox	LNA			
		1	tower mounts	Side Arm Mount [SO 306-1]			
103.0	104.0	2	antel	BXA-80080/4CF w/ Mount Pipe	13	1-5/8	1
		1	antel	BXA-70063-6CF-EDIN-0 w/ Mount Pipe			
		1	antel	BXA-70063-6CF-EDIN-6 w/ Mount Pipe			
		1	andrew	LNX-6512DS-T4M w/ Mount Pipe			
		1	antel	BXA-80090/4CF w/ Mount Pipe			
	103.0	6	andrew	SBNHH-1D65B w/ Mount Pipe			
		1	tower mounts	Pipe Mount [PM 501-3]			
		1	tower mounts	T-Arm Mount [TA 602-3]			
	102.0	3	alcatel lucent	B13 RRH 4X30			
		3	alcatel lucent	B4 RRH2X60-4R			
	100.0	6	rfs celwave	FD9R6004/2C-3L			
		1	raycap	RRFDC-3315-PF-48			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be Removed; Not Considered in this Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
192	192	1	generic	Panel Antennas (CaAa = 75 sq. ft. total)	-	-
185	185	1	generic	Panel Antennas (CaAa = 75 sq. ft. total)	-	-
175	175	1	generic	Panel Antennas (CaAa = 75 sq. ft. total)	-	-
165	165	1	generic	Microwave w/ Mount (CaAa = 110 sq. ft.)	-	-
155	155	1	generic	Panel Antennas (CaAa = 75 sq. ft. total)	-	-
145	145	1	generic	Panel Antennas (CaAa = 75 sq. ft. total)	-	-
135	135	1	generic	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.	2384583	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Summit Manufacture, LLC	1118798	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Summit Manufacture, LLC	925033	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	192 - 151.25	Pole	TP39.245x26x0.3125	1	-17.8343	2616.0300	31.6	Pass
L2	151.25 - 111.25	Pole	TP51.621x36.9948x0.4375	2	-29.8580	4908.9300	30.4	Pass
L3	111.25 - 72.75	Pole	TP63.259x48.6333x0.5	3	-49.4371	6732.8200	31.3	Pass
L4	72.75 - 35.75	Pole	TP74.285x59.6589x0.5625	4	-71.8779	8776.6300	30.6	Pass
L5	35.75 - 0	Pole	TP84.78x70.1535x0.5625	5	-105.0000	9779.9500	33.9	Pass
							Summary	
						Pole (L5)	33.9	Pass
						Rating =	33.9	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	49.1	Pass
1	Base Plate	0	38.1	Pass
1,2	Drilled Pier Base Foundation (Structural)	0	40.3	Pass
1,2	Drilled Pier Base Foundation (Soil Interaction)	0	41.8	Pass
1,2	Pier and Pad Base Foundation (Structural)	0	25.8	Pass
1,2	Pier and Pad Base Foundation (Soil Interaction)	0	45.4	Pass

Structure Rating (max from all components) =	49.1%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) It is unknown whether the foundation is a drilled shaft or pier and pad. Both designs were analyzed and determined to be sufficient.

4.1) Recommendations

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

The results of the tilt and twist values for a 60 mph 3-second gust service wind speed per the TIA-222-G Standard are given below:

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	*°*	*°*	*ft*
179.0000	VHLP2-23	50	9.9889	0.5903	0.0022	27688

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5
Length (ft)	40.7500	45.0000	45.0000	45.0000	45.0000
Number of Sides	18	18	18	18	18
Thickness (in)	0.3125	0.4375	0.5000	0.5625	0.5625
Socket Length (ft)	5.0000	6.5000	8.0000	9.2500	
Top Dia (in)	26.0000	36.9948	48.6333	59.6588	70.1535
Bot Dia (in)	39.2450	51.6210	63.2590	74.2850	84.7800
Grade	A607-65				
Weight (K)	4.4	9.3	13.5	18.2	21.0

Weight (K) total: 66.4

192.0 ft

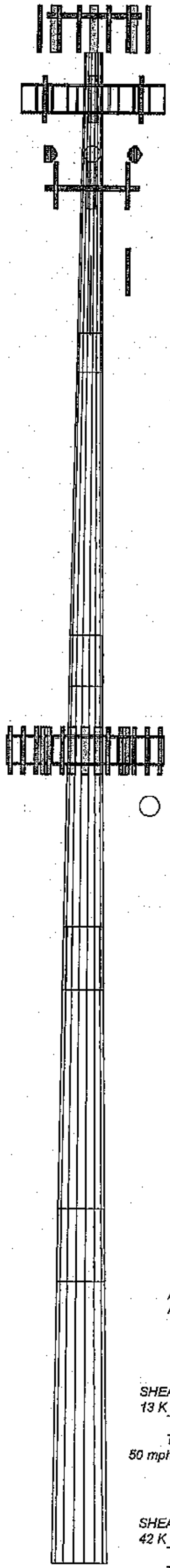
151.3 ft

111.3 ft

72.8 ft

35.8 ft

0.0 ft



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
800 10121 w/ Mount Pipe	197	(3) 6' x 2" Mount Pipe	186
800 10121 w/ Mount Pipe	197	(3) 6' x 2" Mount Pipe	186
800 10121 w/ Mount Pipe	197	Platform Mount [LP 1201-1]	186
OPA-65R-LCUU-H8 w/ Mount Pipe	197	TIMING 2000	175
OPA-65R-LCUU-H8 w/ Mount Pipe	197	HORIZON COMPACT	175
OPA-65R-LCUU-H8 w/ Mount Pipe	197	HORIZON COMPACT	175
(2) LGP21401	197	AAHC	175
(2) LGP21401	197	AAHC	175
(2) LGP21401	197	AAHC	175
RRUS-11	197	NNVV-65B-R4	175
RRUS-11	197	NNVV-65B-R4	175
RRUS-11	197	NNVV-65B-R4	175
DC6-48-60-18-8F	197	(3) PCS 1900MHZ 4X45W-65MHZ	175
DC6-48-60-18-8F	197	(2) 800MHZ 2X50W RRH	175
TPA-65R-LCUUUU-H8 w/ Mount Pipe	197	(3) 800MHZ 2X50W RRH	175
TPA-65R-LCUUUU-H8 w/ Mount Pipe	197	800MHZ 2X50W RRH	175
QS66512-2 w/ Mount Pipe	197	Platform Mount [LP 301-1]	175
80010966 w/ Mount Pipe	197	VHLP2-23	175
80010966 w/ Mount Pipe	197	PX2F-52	175
80010965 w/ Mount Pipe	197	VHLP2-23	175
(2) 860 10025	197	Side Arm Mount [SO 306-1]	161
(2) 860 10025	197	CXL 900-3LW	161
(2) 860 10025	197	CAVITY FILTER	161
RRUS 32 B2	197	LNA	161
RRUS 32 B2	197	LNX-6512DS-T4M w/ Mount Pipe	103
RRUS 32 B2	197	BXA-80080/4CF w/ Mount Pipe	103
RRUS 32 B66	197	BXA-80080/4CF w/ Mount Pipe	103
RRUS 32 B66	197	BXA-80080/4CF w/ Mount Pipe	103
RRUS 32 B66	197	BXA-70063-6CF-EDIN-0 w/ Mount Pipe	103
(2) DC6-48-60-0-8F	197		
RRUS 4478 B14	197	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	103
RRUS 4478 B14	197		
RRUS 4478 B14	197	B4 RRH2X60-4R	103
RRUS 32	197	B4 RRH2X60-4R	103
RRUS 32	197	B4 RRH2X60-4R	103
RRUS 32	197	B13 RRH 4X30	103
RRUS E2 B29	197	B13 RRH 4X30	103
RRUS E2 B29	197	B13 RRH 4X30	103
RRUS E2 B29	197	RRFDC-3315-PF-48	103
RRUS 12	197	(2) FD9R6004/2C-3L	103
RRUS 12	197	(2) FD9R6004/2C-3L	103
RRUS 12	197	(2) FD9R6004/2C-3L	103
Platform Mount [LP 1201-1]	197	T-Arm Mount [TA 602-3]	103
Miscellaneous [NA 510-1]	197	Pipe Mount [PM 501-3]	103
Miscellaneous [NA 509-3]	197	(2) 4' ICE SHIELDS	103
Lightning Rod 1"x10'	192	(2) 4' ICE SHIELDS	103
APXV18-206517S-C w/ Mount Pipe	186	(2) 4' ICE SHIELDS	103
APXV18-206517S-C w/ Mount Pipe	186	(2) SBNHH-1D65B w/ Mount Pipe	103
APXV18-206517S-C w/ Mount Pipe	186	(2) SBNHH-1D65B w/ Mount Pipe	103
(3) 6' x 2" Mount Pipe	186	(2) SBNHH-1D65B w/ Mount Pipe	103

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 0.0000 ft
8. TOWER RATING: 33.9%

ALL REACTIONS ARE FACTORED

AXIAL 169 K

SHEAR 13 K

MOMENT 1750 kip-ft

TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 105 K

SHEAR 42 K

MOMENT 5569 kip-ft

TORQUE 3 kip-ft
REACTIONS - 97 mph WIND

CROWN CASTLE	Crown Castle 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724) 416-2000 FAX:	Job: BU# 803843 Project: WO # 1592273 Client: Crown Castle — Drawn by: BBasirat — App'd: Code: TIA-222-G — Date: 05/26/18 — Scale: NTS Path: [illegible] — Dwg No. E-1
C:\Program Files (x86)\TNX\tnxTower 7.0\CClw.bpm		

Tower Input Data

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

1. Tower is located in Hartford County, Connecticut.
2. Basic wind speed of 97 mph.
3. Structure Class II.
4. Exposure Category B.
5. Topographic Category 1.
6. Crest Height 0.0000 ft.
7. Nominal ice thickness of 1.0000 in.
8. Ice thickness is considered to increase with height.
9. Ice density of 56.0000 pcf.
10. A wind speed of 50 mph is used in combination with ice.
11. Temperature drop of 50.0000 °F.
12. Deflections calculated using a wind speed of 60 mph.
13. A non-linear (P-delta) analysis was used.
14. Pressures are calculated at each section.
15. Stress ratio used in pole design is 1.
16. 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	192.0000-151.2500	40.7500	5.0000	18	26.0000	39.2450	0.3125	1.2500	A607-65 (65 ksi)
L2	151.2500-111.2500	45.0000	6.5000	18	36.9948	51.6210	0.4375	1.7500	A607-65 (65 ksi)
L3	111.2500-72.7500	45.0000	8.0000	18	48.6333	63.2590	0.5000	2.0000	A607-65 (65 ksi)
L4	72.7500-35.7500	45.0000	9.2500	18	59.6589	74.2850	0.5625	2.2500	A607-65 (65 ksi)
L5	35.7500-0.0000	45.0000		18	70.1535	84.7800	0.5625	2.2500	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	26.4011	25.4788	2124.0264	9.1191	13.2080	160.8136	4250.8477	12.7418	4.0260	12.883
	39.8504	38.6162	7394.8824	13.8210	19.9365	370.9225	14799.495 2	19.3118	6.3571	20.343
L2	39.2158	50.7644	8571.2950	12.9779	18.7934	456.0805	17153.868 4	25.3870	5.7411	13.122
	52.4173	71.0747	23524.065 0	18.1701	26.2235	897.0616	47079.083 6	35.5441	8.3153	19.006
L3	51.5288	76.3876	22358.990 1	17.0873	24.7057	905.0122	44747.400 7	38.2011	7.6795	15.359
	64.2349	99.5985	49561.269 5	22.2794	32.1356	1542.2557	99187.752 9	49.8087	10.2536	20.507
L4	63.2195	105.5092	46553.201 9	20.9792	30.3067	1536.0691	93167.659 8	52.7646	9.5100	16.907
	75.4310	131.6223	90378.902 2	26.1715	37.7368	2394.9818	180876.72 73	65.8237	12.0842	21.483
L5	74.2887	124.2461	76019.762 0	24.7048	35.6380	2133.1104	152139.55 27	62.1348	11.3570	20.19
	86.0879	150.3598	134732.98 61	29.8972	43.0682	3128.3606	269643.25 73	75.1942	13.9313	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 192.0000-151.2500				1	1	1			
L2 151.2500-111.2500				1	1	1			
L3 111.2500-72.7500				1	1	1			
L4 72.7500-35.7500				1	1	1			
L5 35.7500-0.0000				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
197								
2" Rigid Conduit	A	No	Inside Pole	192.0000 - 0.0000	2	No Ice	0.0000	2.8000
						1/2" Ice	0.0000	2.8000
						1" Ice	0.0000	2.8000
LDF7-50A(1-5/8)	A	No	Inside Pole	192.0000 - 0.0000	6	No Ice	0.0000	0.8200
						1/2" Ice	0.0000	0.8200

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
FB-L98B-034-XXXXXX(3/8)	A	No	Inside Pole	192.0000 - 0.0000	1	1" Ice	0.0000	0.8200
						No Ice	0.0000	0.0500
						1/2" Ice	0.0000	0.0500
WR-VG86ST-BRD(3/4)	A	No	Inside Pole	192.0000 - 0.0000	4	1" Ice	0.0000	0.0500
						No Ice	0.0000	0.5840
						1/2" Ice	0.0000	0.5840
FB-L98B-034-XXXXXX(3/8)	A	No	Inside Pole	192.0000 - 0.0000	1	1" Ice	0.0000	0.5840
						No Ice	0.0000	0.0500
						1/2" Ice	0.0000	0.0500
WR-VG86ST-BRD(3/4)	A	No	Inside Pole	192.0000 - 0.0000	4	1" Ice	0.0000	0.0500
						No Ice	0.0000	0.5840
						1/2" Ice	0.0000	0.5840
2" Rigid Conduit	A	No	Inside Pole	192.0000 - 0.0000	2	1" Ice	0.0000	0.5840
						No Ice	0.0000	2.8000
						1/2" Ice	0.0000	2.8000
186						1" Ice	0.0000	2.8000
LCF158-50JL(1-5/8)	C	No	Inside Pole	186.0000 - 0.0000	6	No Ice	0.0000	0.5200
						1/2" Ice	0.0000	0.5200
						1" Ice	0.0000	0.5200
175								
2" Rigid Conduit	B	No	Inside Pole	175.0000 - 0.0000	2	No Ice	0.0000	2.8000
						1/2" Ice	0.0000	2.8000
						1" Ice	0.0000	2.8000
HJ4.5-50(5/8)	B	No	Inside Pole	175.0000 - 0.0000	3	No Ice	0.0000	0.4000
						1/2" Ice	0.0000	0.4000
						1" Ice	0.0000	0.4000
9207(5/16)	B	No	Inside Pole	175.0000 - 0.0000	1	No Ice	0.0000	0.6000
						1/2" Ice	0.0000	0.6000
						1" Ice	0.0000	0.6000
HB158-21U6M48-30F(1-5/8)	B	No	Inside Pole	175.0000 - 0.0000	3	No Ice	0.0000	2.3900
						1/2" Ice	0.0000	2.3900
						1" Ice	0.0000	2.3900
161								
EC4-50(1/2)	B	No	Inside Pole	161.0000 - 0.0000	1	No Ice	0.0000	0.1600
						1/2" Ice	0.0000	0.1600
						1" Ice	0.0000	0.1600
103								
LDF7-50A(1-5/8)	C	No	Inside Pole	103.0000 - 0.0000	12	No Ice	0.0000	0.8200
						1/2" Ice	0.0000	0.8200
						1" Ice	0.0000	0.8200
HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	103.0000 - 0.0000	1	No Ice	0.0000	1.3000
						1/2" Ice	0.0000	1.3000
						1" Ice	0.0000	1.3000
***								
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	192.0000-151.2500	A	0.000	0.000	0.000	0.000	0.8513
		B	0.000	0.000	0.000	0.000	0.3476
		C	0.000	0.000	0.000	0.000	0.1084
L2	151.2500-111.2500	A	0.000	0.000	0.000	0.000	0.8357
		B	0.000	0.000	0.000	0.000	0.5892
		C	0.000	0.000	0.000	0.000	0.1248
L3	111.2500-72.7500	A	0.000	0.000	0.000	0.000	0.8043
		B	0.000	0.000	0.000	0.000	0.5671
		C	0.000	0.000	0.000	0.000	0.4571
L4	72.7500-35.7500	A	0.000	0.000	0.000	0.000	0.7730
		B	0.000	0.000	0.000	0.000	0.5450
		C	0.000	0.000	0.000	0.000	0.5276
L5	35.7500-0.0000	A	0.000	0.000	0.000	0.000	0.7469
		B	0.000	0.000	0.000	0.000	0.5266

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.000	0.000	0.5098

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	192.0000-151.2500	A	2.357	0.000	0.000	0.000	0.000	0.8513
		B		0.000	0.000	0.000	0.000	0.3476
		C		0.000	0.000	0.000	0.000	0.1084
L2	151.2500-111.2500	A	2.295	0.000	0.000	0.000	0.000	0.8357
		B		0.000	0.000	0.000	0.000	0.5892
		C		0.000	0.000	0.000	0.000	0.1248
L3	111.2500-72.7500	A	2.215	0.000	0.000	0.000	0.000	0.8043
		B		0.000	0.000	0.000	0.000	0.5671
		C		0.000	0.000	0.000	0.000	0.4571
L4	72.7500-35.7500	A	2.102	0.000	0.000	0.000	0.000	0.7730
		B		0.000	0.000	0.000	0.000	0.5450
		C		0.000	0.000	0.000	0.000	0.5276
L5	35.7500-0.0000	A	1.876	0.000	0.000	0.000	0.000	0.7469
		B		0.000	0.000	0.000	0.000	0.5266
		C		0.000	0.000	0.000	0.000	0.5098

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	192.0000-151.2500	0.0000	0.0000	0.0000	0.0000
L2	151.2500-111.2500	0.0000	0.0000	0.0000	0.0000
L3	111.2500-72.7500	0.0000	0.0000	0.0000	0.0000
L4	72.7500-35.7500	0.0000	0.0000	0.0000	0.0000
L5	35.7500-0.0000	0.0000	0.0000	0.0000	0.0000

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 / 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		0.0000	192.0000	No Ice	1.0000	1.0000	0.0400
						1/2" Ice	2.0167	2.0167	0.0493
						1" Ice	3.0500	3.0500	0.0649

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
*** 193 R ***									
800 10121 w/ Mount Pipe	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	5.3879 5.8131 6.2340	4.5996 5.3507 6.0464	0.0665 0.1140 0.1679
800 10121 w/ Mount Pipe	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	5.3879 5.8131 6.2340	4.5996 5.3507 6.0464	0.0665 0.1140 0.1679
800 10121 w/ Mount Pipe	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	5.3879 5.8131 6.2340	4.5996 5.3507 6.0464	0.0665 0.1140 0.1679
OPA-65R-LCUU-H8 w/ Mount Pipe	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	12.9838 13.6685 14.3572	9.3187 10.7901 12.2416	0.1198 0.2141 0.3182
OPA-65R-LCUU-H8 w/ Mount Pipe	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	12.9838 13.6685 14.3572	9.3187 10.7901 12.2416	0.1198 0.2141 0.3182
OPA-65R-LCUU-H8 w/ Mount Pipe	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	12.9838 13.6685 14.3572	9.3187 10.7901 12.2416	0.1198 0.2141 0.3182
(2) LGP21401	A	From Leg	4.0000 0.0000 -4.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	1.1040 1.2388 1.3810	0.2070 0.2738 0.3475	0.0141 0.0213 0.0303
(2) LGP21401	B	From Leg	4.0000 0.0000 -4.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	1.1040 1.2388 1.3810	0.2070 0.2738 0.3475	0.0141 0.0213 0.0303
(2) LGP21401	C	From Leg	4.0000 0.0000 -4.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	1.1040 1.2388 1.3810	0.2070 0.2738 0.3475	0.0141 0.0213 0.0303
RRUS-11	A	From Leg	4.0000 0.0000 -4.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7845 2.9919 3.2066	1.1872 1.3342 1.4897	0.0476 0.0684 0.0923
RRUS-11	B	From Leg	4.0000 0.0000 -4.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7845 2.9919 3.2066	1.1872 1.3342 1.4897	0.0476 0.0684 0.0923
RRUS-11	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7845 2.9919 3.2066	1.1872 1.3342 1.4897	0.0476 0.0684 0.0923
DC6-48-60-18-8F	A	From Leg	4.0000 0.0000 -4.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	0.7915 1.2743 1.4503	0.7915 1.2743 1.4503	0.0200 0.0351 0.0526
DC6-48-60-18-8F	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	0.7915 1.2743 1.4503	0.7915 1.2743 1.4503	0.0200 0.0351 0.0526
TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	13.5353 14.2380 14.9495	10.9597 12.4861 14.0367	0.1145 0.2176 0.3310
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	13.5353 14.2380 14.9495	10.9597 12.4861 14.0367	0.1145 0.2176 0.3310

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
QS66512-2 w/ Mount Pipe	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	8.3708 8.9314 9.4571	8.4625 9.6573 10.5478	0.1366 0.2122 0.2961
80010966 w/ Mount Pipe	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	17.6005 18.3314 19.0711	9.6375 11.1547 12.6961	0.1475 0.2633 0.3897
80010966 w/ Mount Pipe	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	17.6005 18.3314 19.0711	9.6375 11.1547 12.6961	0.1475 0.2633 0.3897
80010965 w/ Mount Pipe	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	14.0513 14.6885 15.3033	7.6284 8.9027 9.9625	0.1252 0.2217 0.3272
(2) 860 10025	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	0.1422 0.1959 0.2593	0.1210 0.1727 0.2315	0.0012 0.0027 0.0052
(2) 860 10025	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	0.1422 0.1959 0.2593	0.1210 0.1727 0.2315	0.0012 0.0027 0.0052
(2) 860 10025	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	0.1422 0.1959 0.2593	0.1210 0.1727 0.2315	0.0012 0.0027 0.0052
RRUS 32 B2	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7313 2.9531 3.1823	1.6681 1.8552 2.0493	0.0529 0.0740 0.0982
RRUS 32 B2	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7313 2.9531 3.1823	1.6681 1.8552 2.0493	0.0529 0.0740 0.0982
RRUS 32 B2	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7313 2.9531 3.1823	1.6681 1.8552 2.0493	0.0529 0.0740 0.0982
RRUS 32 B66	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7427 2.9647 3.1941	1.6681 1.8552 2.0493	0.0530 0.0741 0.0984
RRUS 32 B66	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7427 2.9647 3.1941	1.6681 1.8552 2.0493	0.0530 0.0741 0.0984
RRUS 32 B66	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.7427 2.9647 3.1941	1.6681 1.8552 2.0493	0.0530 0.0741 0.0984
(2) DC6-48-60-0-8F	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	0.9167 1.4583 1.6431	0.9167 1.4583 1.6431	0.0328 0.0505 0.0707
RRUS 4478 B14	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	1.8425 2.0123 2.1895	1.0588 1.1969 1.3425	0.0599 0.0758 0.0943
RRUS 4478 B14	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	1.8425 2.0123 2.1895	1.0588 1.1969 1.3425	0.0599 0.0758 0.0943
RRUS 4478 B14	C	From Leg	4.0000	0.0000	197.0000	No Ice	1.8425	1.0588	0.0599

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
			0.0000 -2.0000			1/2" Ice	2.0123 2.1895	1.1969 1.3425	0.0758 0.0943
RRUS 32	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	1" Ice No Ice 1/2" Ice 1" Ice	2.8571 3.0830 3.3163	1.7766 1.9677 2.1658	0.0551 0.0774 0.1029
RRUS 32	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.8571 3.0830 3.3163	1.7766 1.9677 2.1658	0.0551 0.0774 0.1029
RRUS 32	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	2.8571 3.0830 3.3163	1.7766 1.9677 2.1658	0.0551 0.0774 0.1029
RRUS E2 B29	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	3.1450 3.3648 3.5920	1.2854 1.4379 1.5998	0.0600 0.0832 0.1096
RRUS E2 B29	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	3.1450 3.3648 3.5920	1.2854 1.4379 1.5998	0.0600 0.0832 0.1096
RRUS E2 B29	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	3.1450 3.3648 3.5920	1.2854 1.4379 1.5998	0.0600 0.0832 0.1096
RRUS 12	A	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	3.1450 3.3648 3.5920	1.2854 1.4379 1.5998	0.0580 0.0812 0.1076
RRUS 12	B	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	3.1450 3.3648 3.5920	1.2854 1.4379 1.5998	0.0580 0.0812 0.1076
RRUS 12	C	From Leg	4.0000 0.0000 -2.0000	0.0000	197.0000	No Ice 1/2" Ice 1" Ice	3.1450 3.3648 3.5920	1.2854 1.4379 1.5998	0.0580 0.0812 0.1076
Platform Mount [LP 1201-1]	C	None		0.0000	197.0000	No Ice 1/2" Ice 1" Ice	23.1000 26.8000 30.5000	23.1000 26.8000 30.5000	2.1000 2.5000 2.9000
Miscellaneous [NA 510-1]	C	None		0.0000	197.0000	No Ice 1/2" Ice 1" Ice	6.0000 8.5000 11.0000	6.0000 8.5000 11.0000	0.2557 0.3395 0.4233
Miscellaneous [NA 509-3]	C	None		0.0000	197.0000	No Ice 1/2" Ice 1" Ice	11.8400 16.9600 22.0800	11.8400 16.9600 22.0800	0.2750 0.2962 0.3174
*** 186 ' ***									
APXV18-206517S-C w/ Mount Pipe	A	From Leg	4.0000 0.0000 2.0000	0.0000	186.0000	No Ice 1/2" Ice 1" Ice	5.4042 5.9597 6.4808	4.7000 5.8600 6.7338	0.0520 0.0970 0.1495
APXV18-206517S-C w/ Mount Pipe	B	From Leg	4.0000 0.0000 2.0000	0.0000	186.0000	No Ice 1/2" Ice 1" Ice	5.4042 5.9597 6.4808	4.7000 5.8600 6.7338	0.0520 0.0970 0.1495
APXV18-206517S-C w/ Mount Pipe	C	From Leg	4.0000 0.0000 2.0000	0.0000	186.0000	No Ice 1/2" Ice 1" Ice	5.4042 5.9597 6.4808	4.7000 5.8600 6.7338	0.0520 0.0970 0.1495
(3) 6' x 2" Mount Pipe	A	From Leg	4.0000	0.0000	186.0000	No Ice	1.4250	1.4250	0.0220

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
			0.0000 0.0000			1/2" Ice	1.9250 2.2939	1.9250 2.2939	0.0328 0.0477
(3) 6' x 2" Mount Pipe	B	From Leg	4.0000 0.0000 0.0000	0.0000	186.0000	1" Ice No Ice 1/2" Ice 1" Ice	1.4250 1.9250 2.2939	1.4250 1.9250 2.2939	0.0220 0.0328 0.0477
(3) 6' x 2" Mount Pipe	C	From Leg	4.0000 0.0000 0.0000	0.0000	186.0000	No Ice 1/2" Ice 1" Ice	1.4250 1.9250 2.2939	1.4250 1.9250 2.2939	0.0220 0.0328 0.0477
Platform Mount [LP 1201-1]	C	None		0.0000	186.0000	No Ice 1/2" Ice 1" Ice	23.1000 26.8000 30.5000	23.1000 26.8000 30.5000	2.1000 2.5000 2.9000
*** 175 P *** TIMING 2000	B	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	0.1079 0.1518 0.2031	0.1079 0.1518 0.2031	0.0007 0.0024 0.0051
HORIZON COMPACT	A	From Leg	4.0000 0.0000 4.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	0.7208 0.8278 0.9422	0.3681 0.4499 0.5391	0.0115 0.0180 0.0261
HORIZON COMPACT	B	From Leg	4.0000 0.0000 4.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	0.7208 0.8278 0.9422	0.3681 0.4499 0.5391	0.0115 0.0180 0.0261
AAHC	A	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	4.2119 4.4675 4.7306	2.0730 2.2649 2.4679	0.1036 0.1360 0.1721
AAHC	B	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	4.2119 4.4675 4.7306	2.0730 2.2649 2.4679	0.1036 0.1360 0.1721
AAHC	C	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	4.2119 4.4675 4.7306	2.0730 2.2649 2.4679	0.1036 0.1360 0.1721
NNVV-65B-R4	A	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	12.2711 12.7660 13.2679	5.7500 6.2069 6.6713	0.0774 0.1495 0.2283
NNVV-65B-R4	B	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	12.2711 12.7660 13.2679	5.7500 6.2069 6.6713	0.0774 0.1495 0.2283
NNVV-65B-R4	C	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	12.2711 12.7660 13.2679	5.7500 6.2069 6.6713	0.0774 0.1495 0.2283
(3) PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	2.3218 2.5266 2.7388	2.2381 2.4407 2.6507	0.0600 0.0831 0.1095
(2) 800MHZ 2X50W RRH	A	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	2.1342 2.3195 2.5123	1.7730 1.9461 2.1267	0.0530 0.0742 0.0984
(3) 800MHZ 2X50W RRH	B	From Leg	4.0000 0.0000 0.0000	0.0000	175.0000	No Ice 1/2" Ice 1" Ice	2.1342 2.3195 2.5123	1.7730 1.9461 2.1267	0.0530 0.0742 0.0984
800MHZ 2X50W RRH	C	From Leg	4.0000	0.0000	175.0000	No Ice	2.1342	1.7730	0.0530

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
			0.0000 0.0000			1/2" Ice 1" Ice	2.3195 2.5123	1.9461 2.1267	0.0742 0.0984
Platform Mount [LP 301-1]	C	None		0.0000	175.0000	No Ice 1/2" Ice 1" Ice	30.1000 40.8000 51.5000	30.1000 40.8000 51.5000	1.5885 2.0292 2.4699
*** 161 R ***									
CXL 900-3LW	B	From Leg	4.0000 0.0000 3.0000	0.0000	161.0000	No Ice 1/2" Ice 1" Ice	0.1447 0.3342 0.4828	0.1447 0.3342 0.4828	0.0015 0.0031 0.0064
CAVITY FILTER	B	From Leg	4.0000 0.0000 0.0000	0.0000	161.0000	No Ice 1/2" Ice 1" Ice	0.1945 0.2531 0.3190	0.0838 0.1236 0.1708	0.0015 0.0036 0.0066
LNA	B	From Leg	4.0000 0.0000 0.0000	0.0000	161.0000	No Ice 1/2" Ice 1" Ice	0.1424 0.1923 0.2496	0.0541 0.0895 0.1335	0.0015 0.0028 0.0049
Side Arm Mount [SO 306-1]	B	None		0.0000	161.0000	No Ice 1/2" Ice 1" Ice	0.9800 1.7000 2.4200	2.1800 3.8000 5.4200	0.0420 0.0624 0.0827
*** 103 I ***									
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.0000 0.0000 0.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	8.3858 8.9496 9.4797	7.0840 8.2754 9.1876	0.0765 0.1455 0.2226
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.0000 0.0000 0.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	8.3858 8.9496 9.4797	7.0840 8.2754 9.1876	0.0765 0.1455 0.2226
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.0000 0.0000 0.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	8.3858 8.9496 9.4797	7.0840 8.2754 9.1876	0.0765 0.1455 0.2226
LNX-6512DS-T4M w/ Mount Pipe	A	From Leg	4.0000 0.0000 1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	5.2679 5.6547 6.0492	4.4756 5.0847 5.7043	0.0383 0.0860 0.1398
BXA-80080/4CF w/ Mount Pipe	A	From Leg	4.0000 0.0000 1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	5.0367 5.4214 5.8135	4.0332 4.6550 5.2815	0.0326 0.0769 0.1272
BXA-80080/4CF w/ Mount Pipe	B	From Leg	4.0000 0.0000 1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	5.0367 5.4214 5.8135	4.0332 4.6550 5.2815	0.0326 0.0769 0.1272
BXA-80090/4CF w/ Mount Pipe	C	From Leg	4.0000 0.0000 1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	3.8342 4.1975 4.5697	3.8847 4.4895 5.1088	0.0301 0.0679 0.1114
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	B	From Leg	4.0000 0.0000 1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	7.8065 8.3569 8.8720	5.8008 6.9529 7.8191	0.0422 0.1030 0.1715
BXA-70063-6CF-EDIN-6 w/ Mount Pipe	C	From Leg	4.0000 0.0000 1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	7.8065 8.3569 8.8720	5.8008 6.9529 7.8191	0.0422 0.1030 0.1715
B4 RRH2X60-4R	A	From Leg	4.0000 0.0000 -1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	3.3554 3.6120 3.8757	2.0048 2.2369 2.4759	0.0550 0.0782 0.1049

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
B4 RRH2X60-4R	B	From Leg	4.0000 0.0000 -1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	3.3554 3.6120 3.8757	2.0048 2.2369 2.4759	0.0550 0.0782 0.1049
B4 RRH2X60-4R	C	From Leg	4.0000 0.0000 -1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	3.3554 3.6120 3.8757	2.0048 2.2369 2.4759	0.0550 0.0782 0.1049
B13 RRH 4X30	A	From Leg	4.0000 0.0000 -1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	2.0552 2.2405 2.4333	1.3201 1.4754 1.6376	0.0556 0.0729 0.0930
B13 RRH 4X30	B	From Leg	4.0000 0.0000 -1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	2.0552 2.2405 2.4333	1.3201 1.4754 1.6376	0.0556 0.0729 0.0930
B13 RRH 4X30	C	From Leg	4.0000 0.0000 -1.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	2.0552 2.2405 2.4333	1.3201 1.4754 1.6376	0.0556 0.0729 0.0930
RRFDC-3315-PF-48	A	From Leg	4.0000 0.0000 -3.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	3.3636 3.5972 3.8383	2.1921 2.3950 2.6056	0.0320 0.0605 0.0926
(2) FD9R6004/2C-3L	A	From Leg	4.0000 0.0000 -3.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	0.3142 0.3862 0.4656	0.0762 0.1189 0.1685	0.0031 0.0054 0.0088
(2) FD9R6004/2C-3L	B	From Leg	4.0000 0.0000 -3.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	0.3142 0.3862 0.4656	0.0762 0.1189 0.1685	0.0031 0.0054 0.0088
(2) FD9R6004/2C-3L	C	From Leg	4.0000 0.0000 -3.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	0.3142 0.3862 0.4656	0.0762 0.1189 0.1685	0.0031 0.0054 0.0088
T-Arm Mount [TA 602-3]	C	None		0.0000	103.0000	No Ice 1/2" Ice 1" Ice	11.5900 15.4400 19.2900	11.5900 15.4400 19.2900	0.7743 0.9904 1.2064
Pipe Mount [PM 501-3]	C	None		0.0000	103.0000	No Ice 1/2" Ice 1" Ice	5.7800 7.3700 8.9600	5.7800 7.3700 8.9600	0.1560 0.1769 0.1979
(2) 4' ICE SHIELDS	A	From Leg	2.0000 0.0000 0.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	1.4000 1.8840 2.3765	0.4667 0.6395 0.8210	0.0300 0.0954 0.1674
(2) 4' ICE SHIELDS	B	From Leg	2.0000 0.0000 0.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	1.4000 1.8840 2.3765	0.4667 0.6395 0.8210	0.0300 0.0954 0.1674
(2) 4' ICE SHIELDS	C	From Leg	2.0000 0.0000 0.0000	0.0000	103.0000	No Ice 1/2" Ice 1" Ice	1.4000 1.8840 2.3765	0.4667 0.6395 0.8210	0.0300 0.0954 0.1674
***									
**									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight K
***											
VHLP2-23	A	Paraboloid w/Shroud (HP)	From Leg	4.0000 0.0000 4.0000	0.0000		175.0000	2.1750	No Ice 1/2" Ice 1" Ice	3.7200 4.0000 4.3100	0.0300 0.0300 0.0400
PX2F-52	B	Paraboloid w/Radome	From Leg	4.0000 0.0000 4.0000	0.0000		175.0000	2.0917	No Ice 1/2" Ice 1" Ice	3.4400 3.7200 3.9900	0.0100 0.0200 0.0230
VHLP2-23	C	Paraboloid w/Shroud (HP)	From Leg	4.0000 0.0000 4.0000	0.0000		175.0000	2.1750	No Ice 1/2" Ice 1" Ice	3.7200 4.0000 4.3100	0.0300 0.0300 0.0400
***											

Load Combinations

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

Comb. No.	Description
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	0.0000	0.0000	-0.0000
			Max. Compression	26	-44.0405	-3.7508	7.2375
			Max. Mx	8	-17.8492	-611.8033	0.0520
			Max. My	2	-17.8386	1.0842	617.6722
			Max. Vy	20	-20.0661	610.6780	4.8607
			Max. Vx	2	-20.1944	1.0842	617.6722
			Max. Torque	22			-3.2771
L2	151.25 - 111.25	Pole	Max Tension	1	0.0000	0.0000	0.0000
			Max. Compression	26	-61.5884	-3.8616	7.4577
			Max. Mx	8	-29.8685	-1461.1175	-0.8258
			Max. My	2	-29.8611	1.7139	1471.9680
			Max. Vy	20	-24.1346	1460.0306	7.9392
			Max. Vx	2	-24.2628	1.7139	1471.9680
			Max. Torque	22			-3.2756
L3	111.25 - 72.75	Pole	Max Tension	1	0.0000	0.0000	0.0000
			Max. Compression	26	-96.1650	-4.0476	8.3073
			Max. Mx	8	-49.4450	-2524.0451	-1.8192
			Max. My	2	-49.4395	2.6570	2540.0924
			Max. Vy	20	-32.4844	2522.9666	11.4330
			Max. Vx	2	-32.6275	2.6570	2540.0924
			Max. Torque	22			-3.4462
L4	72.75 - 35.75	Pole	Max Tension	1	0.0000	0.0000	0.0000
			Max. Compression	26	-126.2061	-4.0476	8.3072
			Max. Mx	8	-71.8822	-3763.6431	-3.1913
			Max. My	2	-71.8792	3.7804	3784.8336
			Max. Vy	20	-36.7598	3762.6075	14.7641
			Max. Vx	2	-36.9015	3.7804	3784.8336
			Max. Torque	22			-3.4451
L5	35.75 - 0	Pole	Max Tension	1	0.0000	0.0000	0.0000
			Max. Compression	26	-169.1142	-4.0476	8.3071
			Max. Mx	8	-104.9997	-5529.8578	-4.9152
			Max. My	2	-104.9996	5.1833	5557.4208
			Max. Vy	20	-41.6667	5528.8812	18.8740
			Max. Vx	2	-41.8050	5.1833	5557.4208
			Max. Torque	22			-3.4444

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	169.1142	-0.0000	0.0000
	Max. H_x	20	105.0077	41.6465	0.0899
	Max. H_z	2	105.0077	0.0308	41.7846
	Max. M_x	2	5557.4208	0.0308	41.7846

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M_z	8	5529.8578	-41.6451	-0.0379
	Max. Torsion	10	3.4413	-36.1105	-20.9838
	Min. Vert	19	78.7558	35.9675	-20.8657
	Min. H_x	8	105.0077	-41.6451	-0.0379
	Min. H_z	14	105.0077	-0.0492	-41.7759
	Min. M_x	14	-5551.4243	-0.0492	-41.7759
	Min. M_z	20	-5528.8812	41.6465	0.0899
	Min. Torsion	22	-3.4442	36.1175	20.9878

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	87.5064	0.0000	0.0000	-1.7454	-0.4886	0.0000
1.2 Dead+1.6 Wind 0 deg - No Ice	105.0077	-0.0308	-41.7846	-5557.4208	5.1834	1.8336
0.9 Dead+1.6 Wind 0 deg - No Ice	78.7558	-0.0308	-41.7846	-5522.2830	5.2976	1.8283
1.2 Dead+1.6 Wind 30 deg - No Ice	105.0077	20.7193	-36.1376	-4804.1088	-2746.1221	0.0487
0.9 Dead+1.6 Wind 30 deg - No Ice	78.7558	20.7193	-36.1376	-4773.6645	-2728.9087	0.0540
1.2 Dead+1.6 Wind 60 deg - No Ice	105.0077	35.9692	-20.8454	-2771.0762	-4771.2628	-1.7804
0.9 Dead+1.6 Wind 60 deg - No Ice	78.7558	35.9692	-20.8454	-2753.2852	-4741.4534	-1.7658
1.2 Dead+1.6 Wind 90 deg - No Ice	105.0077	41.6451	0.0379	4.9154	-5529.8578	-3.1241
0.9 Dead+1.6 Wind 90 deg - No Ice	78.7558	41.6451	0.0379	5.4315	-5495.3187	-3.1041
1.2 Dead+1.6 Wind 120 deg - No Ice	105.0077	36.1105	20.9838	2792.3599	-4797.3727	-3.4413
0.9 Dead+1.6 Wind 120 deg - No Ice	78.7558	36.1105	20.9838	2775.5233	-4767.3785	-3.4212
1.2 Dead+1.6 Wind 150 deg - No Ice	105.0077	20.8554	36.2812	4826.2422	-2771.3788	-2.8374
0.9 Dead+1.6 Wind 150 deg - No Ice	78.7558	20.8554	36.2812	4796.7513	-2753.9830	-2.8226
1.2 Dead+1.6 Wind 180 deg - No Ice	105.0077	0.0492	41.7759	5551.4243	-9.7927	-1.6636
0.9 Dead+1.6 Wind 180 deg - No Ice	78.7558	0.0492	41.7759	5517.4406	-9.5653	-1.6582
1.2 Dead+1.6 Wind 210 deg - No Ice	105.0077	-20.7334	36.1294	4798.2064	2747.4876	-0.0516
0.9 Dead+1.6 Wind 210 deg - No Ice	78.7558	-20.7334	36.1294	4768.9159	2730.5758	-0.0569
1.2 Dead+1.6 Wind 240 deg - No Ice	105.0077	-35.9675	20.8657	2770.4068	4769.7156	1.6073
0.9 Dead+1.6 Wind 240 deg - No Ice	78.7558	-35.9675	20.8657	2753.7316	4740.2294	1.5926
1.2 Dead+1.6 Wind 270 deg - No Ice	105.0077	-41.6465	-0.0899	-18.8739	5528.8812	3.0827
0.9 Dead+1.6 Wind 270 deg - No Ice	78.7558	-41.6465	-0.0899	-18.1831	5494.6607	3.0626
1.2 Dead+1.6 Wind 300 deg - No Ice	105.0077	-36.1175	-20.9878	-2797.4952	4797.4367	3.4442
0.9 Dead+1.6 Wind 300 deg - No Ice	78.7558	-36.1175	-20.9878	-2779.5136	4767.7519	3.4241
1.2 Dead+1.6 Wind 330 deg - No Ice	105.0077	-20.9011	-36.2564	-4826.0766	2778.5702	2.8818
0.9 Dead+1.6 Wind 330 deg - No Ice	78.7558	-20.9011	-36.2564	-4795.4762	2761.4331	2.8670
1.2 Dead+1.0 Ice+1.0 Temp	169.1142	0.0000	-0.0000	-8.3071	-4.0476	-0.0001
1.2 Dead+1.0 Wind 0	169.1142	0.0061	-12.9888	-1749.6414	-5.4824	0.5741

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
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	169.1142	6.4709	-11.2439	-1515.5526	-870.5934	0.0291
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	169.1142	11.2139	-6.4949	-879.3540	-1505.8278	-0.5311
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	169.1142	12.9668	-0.0044	-9.6106	-1741.5152	-0.9471
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	169.1142	11.2334	6.5042	863.5754	-1509.4269	-1.0640
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	169.1142	6.4796	11.2641	1501.9105	-872.0637	-0.8957
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	169.1142	-0.0017	12.9869	1731.9214	-3.7952	-0.5326
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	169.1142	-6.4741	11.2421	1497.8461	862.7396	-0.0292
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	169.1142	-11.2133	6.4996	862.8888	1497.2729	0.4891
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	169.1142	-12.9670	-0.0077	-10.0344	1733.0977	0.9354
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	169.1142	-11.2350	-6.5051	-881.1034	1501.2674	1.0637
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	169.1142	-6.4902	-11.2582	-1518.1581	865.6094	0.9068
Dead+Wind 0 deg - Service	87.5064	-0.0066	-8.9403	-1185.7865	0.7241	0.3938
Dead+Wind 30 deg - Service	87.5064	4.4331	-7.7320	-1025.2330	-585.6524	0.0114
Dead+Wind 60 deg - Service	87.5064	7.6960	-4.4601	-591.9409	-1017.2608	-0.3806
Dead+Wind 90 deg - Service	87.5064	8.9104	0.0081	-0.3070	-1178.9381	-0.6685
Dead+Wind 120 deg - Service	87.5064	7.7262	4.4897	593.7699	-1022.8276	-0.7357
Dead+Wind 150 deg - Service	87.5064	4.4622	7.7628	1027.2464	-591.0352	-0.6058
Dead+Wind 180 deg - Service	87.5064	0.0105	8.9384	1181.8036	-2.4652	-0.3552
Dead+Wind 210 deg - Service	87.5064	-4.4361	7.7303	1021.2707	585.1852	-0.0115
Dead+Wind 240 deg - Service	87.5064	-7.6956	4.4644	589.0925	1016.1741	0.3418
Dead+Wind 270 deg - Service	87.5064	-8.9107	-0.0192	-5.3737	1177.9723	0.6579
Dead+Wind 300 deg - Service	87.5064	-7.7277	-4.4906	-597.5712	1022.0825	0.7358
Dead+Wind 330 deg - Service	87.5064	-4.4720	-7.7575	-1029.9174	591.8077	0.6166

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	0.0000	-87.5064	0.0000	0.0000	87.5064	0.0000	0.000%
2	-0.0308	-105.0077	-41.7846	0.0308	105.0077	41.7846	0.000%
3	-0.0308	-78.7558	-41.7846	0.0308	78.7558	41.7846	0.000%
4	20.7193	-105.0077	-36.1376	-20.7193	105.0077	36.1376	0.000%
5	20.7193	-78.7558	-36.1376	-20.7193	78.7558	36.1376	0.000%
6	35.9692	-105.0077	-20.8454	-35.9692	105.0077	20.8454	0.000%
7	35.9692	-78.7558	-20.8454	-35.9692	78.7558	20.8454	0.000%
8	41.6451	-105.0077	0.0379	-41.6451	105.0077	-0.0379	0.000%
9	41.6451	-78.7558	0.0379	-41.6451	78.7558	-0.0379	0.000%
10	36.1105	-105.0077	20.9838	-36.1105	105.0077	-20.9838	0.000%
11	36.1105	-78.7558	20.9838	-36.1105	78.7558	-20.9838	0.000%
12	20.8554	-105.0077	36.2812	-20.8554	105.0077	-36.2812	0.000%
13	20.8554	-78.7558	36.2812	-20.8554	78.7558	-36.2812	0.000%
14	0.0492	-105.0077	41.7759	-0.0492	105.0077	-41.7759	0.000%
15	0.0492	-78.7558	41.7759	-0.0492	78.7558	-41.7759	0.000%
16	-20.7334	-105.0077	36.1294	20.7334	105.0077	-36.1294	0.000%
17	-20.7334	-78.7558	36.1294	20.7334	78.7558	-36.1294	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
18	-35.9675	-105.0077	20.8657	35.9675	105.0077	-20.8657	0.000%
19	-35.9675	-78.7558	20.8657	35.9675	78.7558	-20.8657	0.000%
20	-41.6465	-105.0077	-0.0899	41.6465	105.0077	0.0899	0.000%
21	-41.6465	-78.7558	-0.0899	41.6465	78.7558	0.0899	0.000%
22	-36.1175	-105.0077	-20.9878	36.1175	105.0077	20.9878	0.000%
23	-36.1175	-78.7558	-20.9878	36.1175	78.7558	20.9878	0.000%
24	-20.9011	-105.0077	-36.2564	20.9011	105.0077	36.2564	0.000%
25	-20.9011	-78.7558	-36.2564	20.9011	78.7558	36.2564	0.000%
26	0.0000	-169.1142	0.0000	-0.0000	169.1142	0.0000	0.000%
27	0.0061	-169.1142	-12.9888	-0.0061	169.1142	12.9888	0.000%
28	6.4709	-169.1142	-11.2439	-6.4709	169.1142	11.2439	0.000%
29	11.2138	-169.1142	-6.4949	-11.2139	169.1142	6.4949	0.000%
30	12.9668	-169.1142	-0.0044	-12.9668	169.1142	0.0044	0.000%
31	11.2334	-169.1142	6.5042	-11.2334	169.1142	-6.5042	0.000%
32	6.4796	-169.1142	11.2640	-6.4796	169.1142	-11.2641	0.000%
33	-0.0017	-169.1142	12.9869	0.0017	169.1142	-12.9869	0.000%
34	-6.4741	-169.1142	11.2420	6.4741	169.1142	-11.2421	0.000%
35	-11.2133	-169.1142	6.4996	11.2133	169.1142	-6.4996	0.000%
36	-12.9670	-169.1142	-0.0077	12.9670	169.1142	0.0077	0.000%
37	-11.2349	-169.1142	-6.5051	11.2350	169.1142	6.5051	0.000%
38	-6.4902	-169.1142	-11.2582	6.4902	169.1142	11.2582	0.000%
39	-0.0066	-87.5064	-8.9403	0.0066	87.5064	8.9403	0.000%
40	4.4331	-87.5064	-7.7320	-4.4331	87.5064	7.7320	0.000%
41	7.6960	-87.5064	-4.4601	-7.6960	87.5064	4.4601	0.000%
42	8.9104	-87.5064	0.0081	-8.9104	87.5064	-0.0081	0.000%
43	7.7262	-87.5064	4.4897	-7.7262	87.5064	-4.4897	0.000%
44	4.4622	-87.5064	7.7628	-4.4622	87.5064	-7.7628	0.000%
45	0.0105	-87.5064	8.9384	-0.0105	87.5064	-8.9384	0.000%
46	-4.4361	-87.5064	7.7303	4.4361	87.5064	-7.7303	0.000%
47	-7.6956	-87.5064	4.4644	7.6956	87.5064	-4.4644	0.000%
48	-8.9107	-87.5064	-0.0192	8.9107	87.5064	0.0192	0.000%
49	-7.7277	-87.5064	-4.4906	7.7277	87.5064	4.4906	0.000%
50	-4.4720	-87.5064	-7.7575	4.4720	87.5064	7.7575	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	0.00016806
3	Yes	4	0.00000001	0.00010460
4	Yes	5	0.00000001	0.00005111
5	Yes	5	0.00000001	0.00002527
6	Yes	5	0.00000001	0.00005299
7	Yes	5	0.00000001	0.00002625
8	Yes	4	0.00000001	0.00024183
9	Yes	4	0.00000001	0.00015838
10	Yes	5	0.00000001	0.00004868
11	Yes	5	0.00000001	0.00002399
12	Yes	5	0.00000001	0.00005538
13	Yes	5	0.00000001	0.00002747
14	Yes	4	0.00000001	0.00016739
15	Yes	4	0.00000001	0.00010407
16	Yes	5	0.00000001	0.00005069
17	Yes	5	0.00000001	0.00002508
18	Yes	5	0.00000001	0.00004920
19	Yes	5	0.00000001	0.00002432
20	Yes	4	0.00000001	0.00025556
21	Yes	4	0.00000001	0.00016810
22	Yes	5	0.00000001	0.00005622
23	Yes	5	0.00000001	0.00002789
24	Yes	5	0.00000001	0.00004933
25	Yes	5	0.00000001	0.00002430
26	Yes	4	0.00000001	0.00002537
27	Yes	5	0.00000001	0.00014881

28	Yes	5	0.00000001	0.00015554
29	Yes	5	0.00000001	0.00015516
30	Yes	5	0.00000001	0.00014752
31	Yes	5	0.00000001	0.00015285
32	Yes	5	0.00000001	0.00015247
33	Yes	5	0.00000001	0.00014477
34	Yes	5	0.00000001	0.00015060
35	Yes	5	0.00000001	0.00015068
36	Yes	5	0.00000001	0.00014556
37	Yes	5	0.00000001	0.00015396
38	Yes	5	0.00000001	0.00015466
39	Yes	4	0.00000001	0.00001989
40	Yes	4	0.00000001	0.00002989
41	Yes	4	0.00000001	0.00003161
42	Yes	4	0.00000001	0.00002123
43	Yes	4	0.00000001	0.00002912
44	Yes	4	0.00000001	0.00003339
45	Yes	4	0.00000001	0.00001960
46	Yes	4	0.00000001	0.00002937
47	Yes	4	0.00000001	0.00002859
48	Yes	4	0.00000001	0.00002120
49	Yes	4	0.00000001	0.00003450
50	Yes	4	0.00000001	0.00002922

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	192 - 151.25	11.6580	50	0.6415	0.0030
L2	156.25 - 111.25	7.2884	50	0.4975	0.0012
L3	117.75 - 72.75	3.9034	50	0.3346	0.0005
L4	80.75 - 35.75	1.7715	50	0.2081	0.0002
L5	45 - 0	0.5531	50	0.1100	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
197.0000	800 10121 w/ Mount Pipe	50	11.6580	0.6415	0.0030	71991
192.0000	Lightning Rod 1"x10'	50	11.6580	0.6415	0.0030	71991
186.0000	APXV18-206517S-C w/ Mount Pipe	50	10.8832	0.6179	0.0026	59992
179.0000	VHLP2-23	50	9.9889	0.5903	0.0022	27688
175.0000	TIMING 2000	50	9.4867	0.5743	0.0020	21173
161.0000	CXL 900-3LW	50	7.8144	0.5174	0.0014	11611
103.0000	(2) SBNHH-1D65B w/ Mount Pipe	50	2.9408	0.2800	0.0004	17245

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	192 - 151.25	54.6171	24	3.0008	0.0138
L2	156.25 - 111.25	34.1717	24	2.3317	0.0056
L3	117.75 - 72.75	18.3055	24	1.5692	0.0024
L4	80.75 - 35.75	8.3081	24	0.9762	0.0011
L5	45 - 0	2.5938	24	0.5159	0.0005

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
197.0000	800 10121 w/ Mount Pipe	24	54.6171	3.0008	0.0139	15535
192.0000	Lightning Rod 1"x10'	24	54.6171	3.0008	0.0139	15535
186.0000	APXV18-206517S-C w/ Mount Pipe	24	50.9931	2.8914	0.0124	12946
179.0000	VHLP2-23	24	46.8098	2.7631	0.0105	5974
175.0000	TIMING 2000	24	44.4602	2.6892	0.0096	4568
161.0000	CXL 900-3LW	24	36.6342	2.4244	0.0065	2504
103.0000	(2) SBNHH-1D65B w/ Mount Pipe	24	13.7915	1.3132	0.0019	3679

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)	TP39.245x26x0.3125	40.7500	0.0000	0.0	37.0042	-17.8343	2616.0300	0.007
L2	151.25 - 111.25 (2)	TP51.621x36.9948x0.4375	45.0000	0.0000	0.0	68.1410	-29.8580	4908.9300	0.006
L3	111.25 - 72.75 (3)	TP63.259x48.6333x0.5	45.0000	0.0000	0.0	95.4721	-49.4371	6732.8200	0.007
L4	72.75 - 35.75 (4)	TP74.285x59.6589x0.5625	45.0000	0.0000	0.0	126.2550	-71.8779	8776.6300	0.008
L5	35.75 - 0 (5)	TP84.78x70.1535x0.5625	45.0000	0.0000	0.0	150.3600	-105.0000	9779.9500	0.011

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)	TP39.245x26x0.3125	619.1200	2005.8833	0.309	0.0000	2005.8833	0.000
L2	151.25 - 111.25 (2)	TP51.621x36.9948x0.4375	1475.6417	4948.2083	0.298	0.0000	4948.2083	0.000
L3	111.25 - 72.75 (3)	TP63.259x48.6333x0.5	2546.1250	8325.2000	0.306	0.0000	8325.2000	0.000
L4	72.75 - 35.75 (4)	TP74.285x59.6589x0.5625	3793.2500	12761.3333	0.297	0.0000	12761.3333	0.000
L5	35.75 - 0 (5)	TP84.78x70.1535x0.5625	5568.7917	16956.6667	0.328	0.0000	16956.6667	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)	TP39.245x26x0.3125	20.2521	1308.0100	0.015	2.7712	4016.6833	0.001
L2	151.25 - 111.25 (2)	TP51.621x36.9948x0.4375	24.3206	2454.4600	0.010	2.7693	9908.5000	0.000
L3	111.25 - 72.75 (3)	TP63.259x48.6333x0.5	32.6941	3366.4100	0.010	2.8827	16670.7493	0.000
L4	72.75 - 35.75 (4)	TP74.285x59.6589x0.5625	36.9675	4388.3200	0.008	2.8820	25554.0000	0.000
L5	35.75 - 0 (5)	TP84.78x70.1535x0.5625	41.8699	4889.9700	0.009	2.8818	33954.8320	0.000

Pole Interaction Design Data

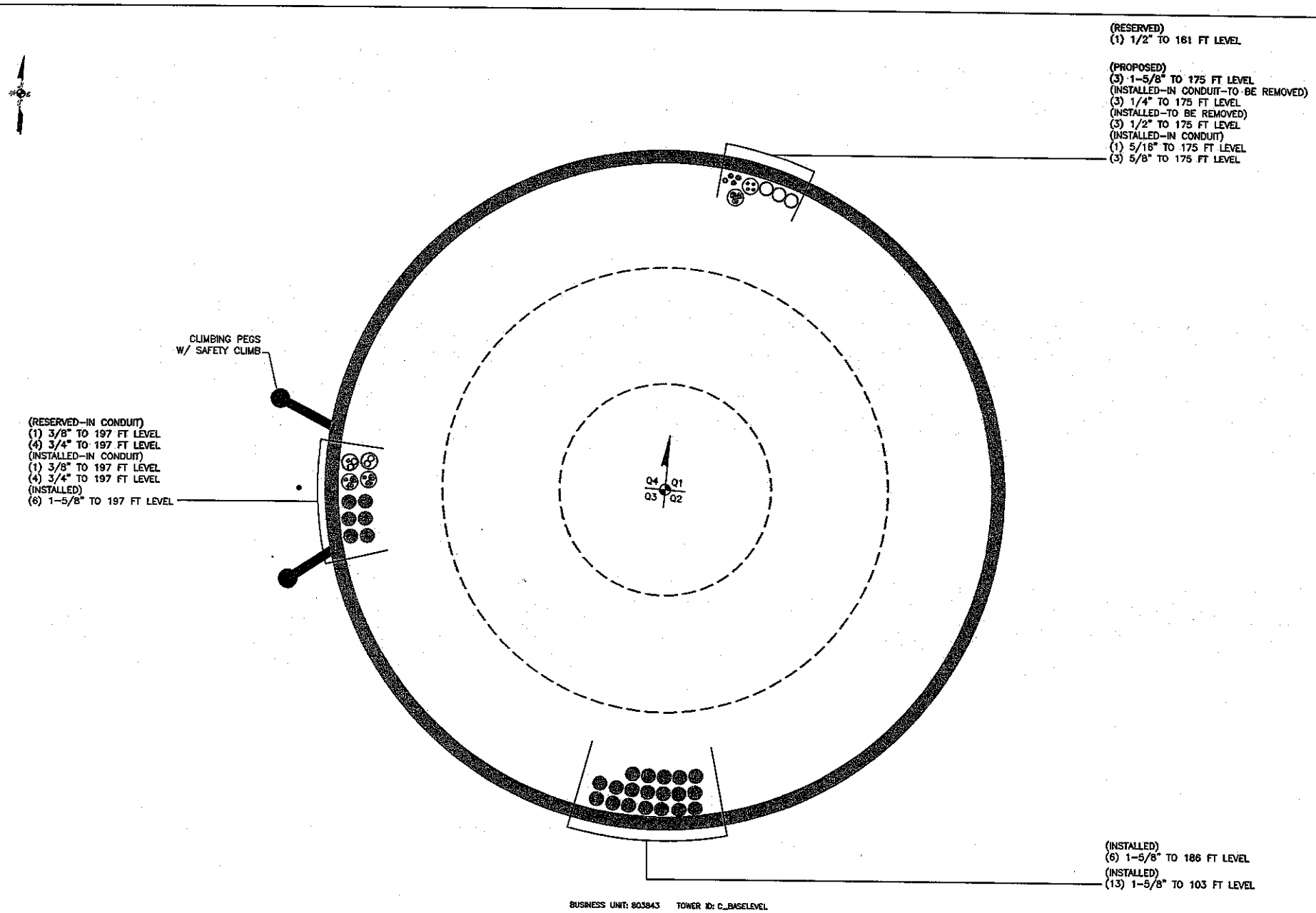
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	192 - 151.25 (1)	0.007	0.309	0.000	0.015	0.001	0.316	1.000	4.8.2
L2	151.25 - 111.25 (2)	0.006	0.298	0.000	0.010	0.000	0.304	1.000	4.8.2
L3	111.25 - 72.75 (3)	0.007	0.306	0.000	0.010	0.000	0.313	1.000	4.8.2
L4	72.75 - 35.75 (4)	0.008	0.297	0.000	0.008	0.000	0.306	1.000	4.8.2
L5	35.75 - 0 (5)	0.011	0.328	0.000	0.009	0.000	0.339	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	TP39.245x26x0.3125	1	-17.8343	2616.0300	31.6	Pass
L2	151.25 - 111.25	Pole	TP51.621x36.9948x0.4375	2	-29.8580	4908.9300	30.4	Pass
L3	111.25 - 72.75	Pole	TP63.259x48.6333x0.5	3	-49.4371	6732.8200	31.3	Pass
L4	72.75 - 35.75	Pole	TP74.285x59.6589x0.5625	4	-71.8779	8776.6300	30.6	Pass
L5	35.75 - 0	Pole	TP84.78x70.1535x0.5625	5	-105.0000	9779.9500	33.9	Pass
						Summary		
						Pole (L5)	33.9	Pass
						RATING =	**33.9**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(RESERVED)
(1) 1/2" TO 161 FT LEVEL
(PROPOSED)
(3) 1-5/8" TO 175 FT LEVEL
(INSTALLED-IN CONDUIT-TO BE REMOVED)
(3) 1/4" TO 175 FT LEVEL
(INSTALLED-TO BE REMOVED)
(3) 1/2" TO 175 FT LEVEL
(INSTALLED-IN CONDUIT)
(1) 5/16" TO 175 FT LEVEL
(3) 5/8" TO 175 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
(RESERVED-IN CONDUIT)
(1) 3/8" TO 197 FT LEVEL
(4) 3/4" TO 197 FT LEVEL
(INSTALLED-IN CONDUIT)
(1) 3/8" TO 197 FT LEVEL
(4) 3/4" TO 197 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 197 FT LEVEL
Q4
Q1
Q3
Q2
(INSTALLED)
(6) 1-5/8" TO 186 FT LEVEL
(INSTALLED)
(13) 1-5/8" TO 103 FT LEVEL
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 803*
App #: *443465 Rev. 0*

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

Plate Data		
W=Side:	91	in
Thick:	3.25	in
Grade:	55	ksi
Clip Distance:	6	in

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

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

Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	5569	ft-kips
Factored Axial, Pu:	105	kips
Factored Shear, Vu:	42	kips

Anchor Rod Results

TIA G --> Max Rod (Cu+ Vu/η):	127.6 Kips
Axial Design Strength, Φ*Fu*Anet:	260.0 Kips
Anchor Rod Stress Ratio:	49.1% **Pass**

Base Plate Results	Flexural Check
Base Plate Stress:	18.9 ksi
PL Design Bending Strength, Φ*Fy:	49.5 ksi
Base Plate Stress Ratio:	38.1% **Pass**

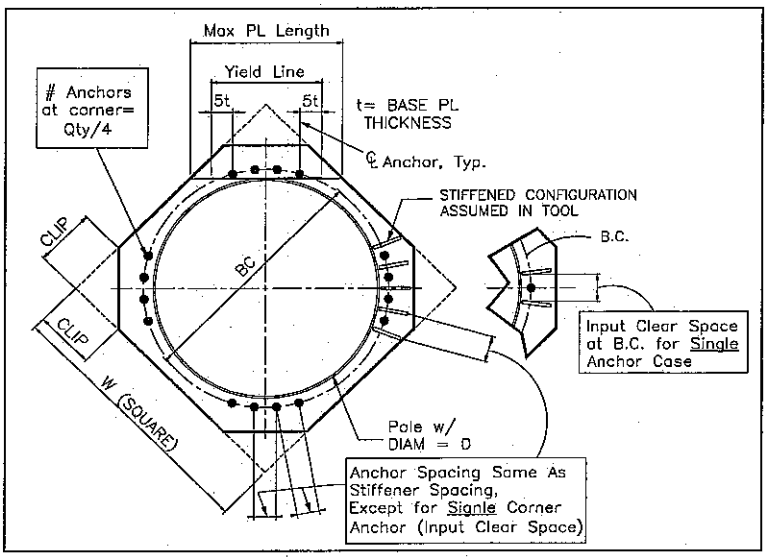
PL Ref. Data
Yield Line (in):
43.91
Max PL Length:
43.91

N/A - Unstiffened
Stiffener Results

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

Pole Results

Pole Punching Shear Check:	N/A



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

Drilled Pier Foundation

BU # :	803843
Site Name:	CT NEW BRITAIN 4 C
App. Number:	443465 Rev. 0

TIA-222 Revison:	G
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	5569	
Axial Force (kips)	105	
Shear Force (kips)	42	

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)	7.63	-
Soil Safety Factor	3.18	-
Max Moment (kip-ft)	5907.71	-
Rating	*41.8%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	764.64	-
End Bearing (kips)	1413.72	-
Weight of Concrete (kips)	318.82	-
Total Capacity (kips)	2178.36	-
Axial (kips)	423.82	-
Rating	*19.5%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.22	-
Critical Moment (kip-ft)	5905.84	-
Critical Moment Capacity	14660.89	-
Rating	*40.3%*	-

Soil Interaction Rating	**41.8%**
Structural Foundation Rating	**40.3%**

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	0.756	0.756				10	Cohesionless
3	13	15	2	52.6	87.6	0	30	1.026	1.026				10	Cohesionless
4	15	28.5	13.5	70	87.6	0	34	1.804	1.804			24	50	Cohesionless

Pier and Pad Foundation

BU # :	803843
Site Name:	CT NEW BRITAIN
App. Number:	443465 Rev. 0

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?: ☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	105	kips
Base Shear, Vu_comp:	42	kips
Moment, M_u:	5569	ft-kips
Tower Height, H:	192	ft
BP Dist. Above Fdn, bp_{dist}:	4	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, dpier:	10.0	ft
Ext. Above Grade, E:	0.50	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, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	6.000	ksf
Cohesion, Cu:	0.000	ksf
Friction Angle, φ:	32	degrees
SPT Blow Count, N_{blows}:	13	
Base Friction, μ:	0.5	
Neglected Depth, N:	5.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw:	13	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	500.08	42.00	8.4%	Pass
Bearing Pressure (ksf)	4.50	2.01	44.6%	Pass
*Overturning (kip*ft)*	12993.29	5898.00	45.4%	Pass
*Pier Flexure (Comp.) (kip*ft)*	22134.53	5716.00	25.8%	Pass
Pier Compression (kip)	37491.77	154.48	0.4%	Pass
*Pad Flexure (kip*ft)*	16873.89	1862.85	11.0%	Pass
Pad Shear - 1-way (kips)	1374.11	224.58	16.3%	Pass
Pad Shear - 2-way (ksi)	0.16	0.02	14.7%	Pass

Soil Rating:	45.4%
Structural Rating:	25.8%

Version 2.5.5

USGS Design Maps Summary Report

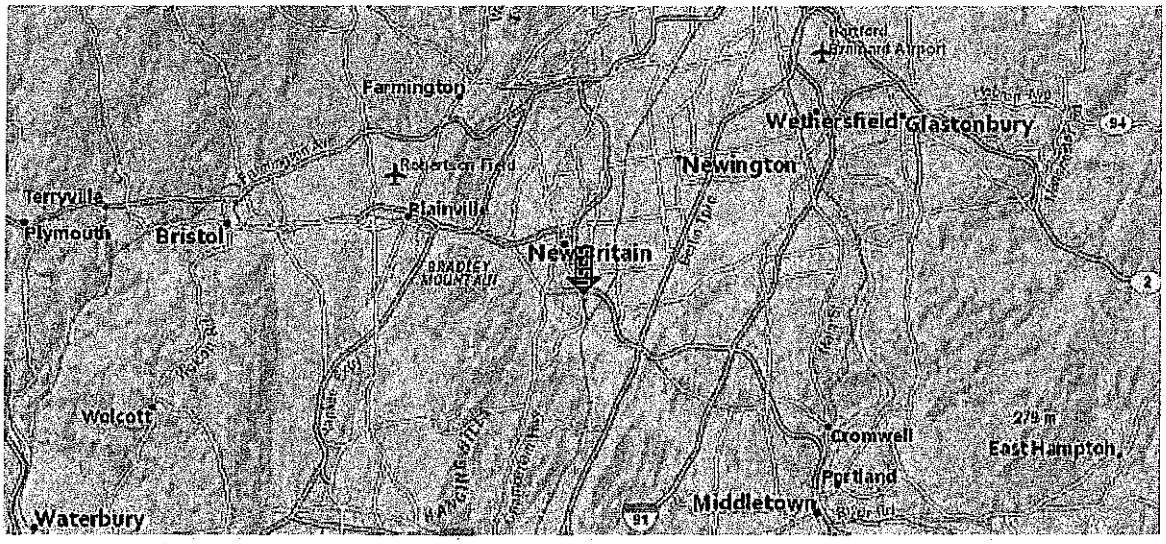
User-Specified Input

Building Code Reference Document 2012/2015 International Building Code
(which utilizes USGS hazard data available in 2008)

Site Coordinates 41.65456°N, 72.76933°W

Site Soil Classification Site Class D – "Stiff Soil"

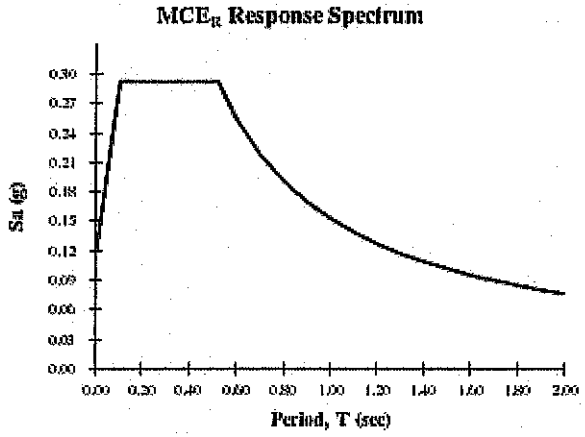
Risk Category I/II/III

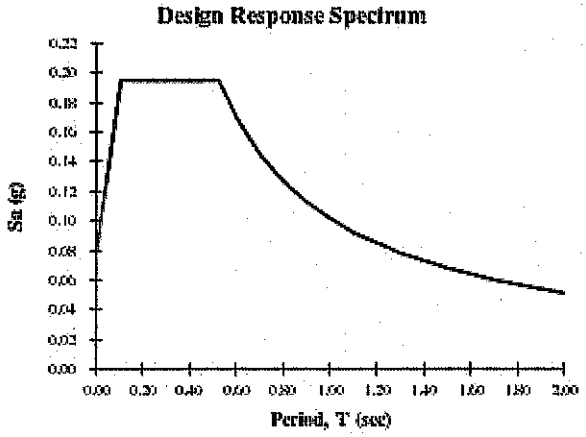


USGS-Provided Output

S_S =	0.183 g	S_{MS} =	0.292 g	S_{DS} =	0.195 g
S_1 =	0.064 g	S_{M1} =	0.153 g	S_{D1} =	0.102 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

CCISeismic - Design Category

Per *2012/2015 IBC*

Site BU: 803843
Work Order: 1592273
Application: 443465 Rev. 0

	Degrees	Minutes	Seconds		
Site Latitude =	41	39	16.40	41.6546	degrees
Site Longitude =	-72	46	9.59	-72.7693	degrees
Ground Supported Structure =	Yes				
Structure Class =	II			*(Table 2-1)*	
Site Class =	D - Stiff Soil			*(Table 2-11)*	

Spectral response acceleration short periods, S_S =	0.183	USGS Seismic Tool
Spectral response acceleration 1 s period, S_1 =	0.064	

Importance Factor, I =	1.0	*(Table 2-3)*
Acceleration-based site coefficient, F_a =	1.6	*(Table 2-12)*
Velocity-based site coefficient, F_v =	2.4	*(Table 2-13)*

Design spectral response acceleration short period, S_{DS} =	0.195	*(2.7.6)*
Design spectral response acceleration 1 s period, S_{D1} =	0.102	*(2.7.6)*

Seismic Design Category - Short Period Response =	B	*ASCE 7-05 Table 11.6-1*
Seismic Design Category - 1s Period Response =	B	*ASCE 7-05 Table 11.6-2*

Worst Case Seismic Design Category =	B	*ASCE 7-05 Tables 11.6-1 and 6-2*

EBI Consulting

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

SPRINT Existing Facility

Site ID: CT52XC045

CT New Britain 4 CAC 803843
200 Stanley Street
New Britain, CT 06053

August 3, 2018

EBI Project Number: 6218005333

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**13.96 %**

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

August 3, 2018

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT52XC045 – CT New Britain 4 CAC 803843**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **200 Stanley Street, New Britain, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT 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.

General 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 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS), 2500 MHz (BRS) and 5 GHz & 23 GHz microwave bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT 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 SPRINT 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 for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) 1 microwave channel (23 GHz) was considered for both sectors A & C of the proposed installation. These channels have a transmit power of 1 Watt each.

7) 1 microwave channel (5 GHz) was considered for sector B of the proposed installation. This channel has a transmit power of 1 Watt.

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

9) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the Nokia AAHC** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands as well as **Andrew VHLP2-23** for 23 GHz microwave transmission on sectors A & C and **Andrew PX2F-52** for 5 GHz microwave transmission on sector B. 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 for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

11) The antenna mounting height centerlines of the proposed panel antennas and microwave dishes are **175 feet** above ground level (AGL) for **Sector A, 175 feet** above ground level (AGL) for **Sector B** and **175 feet** above ground level (AGL) for Sector C.

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

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

EBI Consulting

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SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**175 feet**	Height (AGL):	**175 feet**	Height (AGL):	**175 feet**
Frequency Bands:	850 MHz / 1900 MHz (PCS)	Frequency Bands:	850 MHz / 1900 MHz (PCS)	Frequency Bands:	850 MHz / 1900 MHz (PCS)
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%:	**1.15 %**	Antenna B1 MPE%:	**1.15 %**	Antenna C1 MPE%:	**1.15 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	**175 feet**	Height (AGL):	**175 feet**	Height (AGL):	**175 feet**
Frequency Bands:	2500 MHz (BRS)	Frequency Bands:	2500 MHz (BRS)	Frequency Bands:	2500 MHz (BRS)
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	5,118.23	ERP (W):	5,118.23	ERP (W):	5,118.23
Antenna A2 MPE%:	**0.64 %**	Antenna B2 MPE%:	**0.64 %**	Antenna C2 MPE%:	**0.64 %**

Microwave Backhaul Data

Antenna Type:	Gain (dBd)	Height (feet AGL):	Frequency Bands	Channel Count	Total TX Power(W)	ERP (W)	MPE %	Sector
Andrew VHLP2-23	38.55 dBd	175	23 GHz	1	1	7,131.43	**0.09**	A
Andrew PX2F-52	27.25 dBd	175	5 GHz	1	1	530.88	**0.01**	B
Andrew VHLP2-23	38.55 dBd	175	23 GHz	1	1	7,131.43	**0.09**	C

Site Composite MPE%	
Carrier	MPE %
SPRINT -Sectors A & C	**1.88 %**
Sigfox	0.05 %
AT&T	2.27 %
Clearwire	0.07 %
MetroPCS	0.38 %
Verizon Wireless	9.31 %
Site Total MPE %:	**13.96 %**

SPRINT Sector A Total:	1.88 %
SPRINT Sector B Total:	1.80 %
SPRINT Sector C Total:	1.88 %
Site Total:	13.96 %

Sprint Maximum MPE power values (Sectors A & C)

SPRINT Frequency Band / Technology (Sectors A & C)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	175	0.47	850 MHz	567	0.09%
Sprint 850 MHz LTE	2	941.82	175	2.37	850 MHz	567	0.42%
Sprint 1900 MHz (PCS) CDMA	5	511.82	175	3.22	1900 MHz (PCS)	1000	0.32%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	175	3.22	1900 MHz (PCS)	1000	0.32%
Sprint 2500 MHz (BRS) LTE	8	639.78	175	6.44	2500 MHz (BRS)	1000	0.64%
Sprint 23 GHz Microwave	1	7,161.43	175	0.90	23 GHz	1000	0.09%
						Total:	**1.88%**

Summary

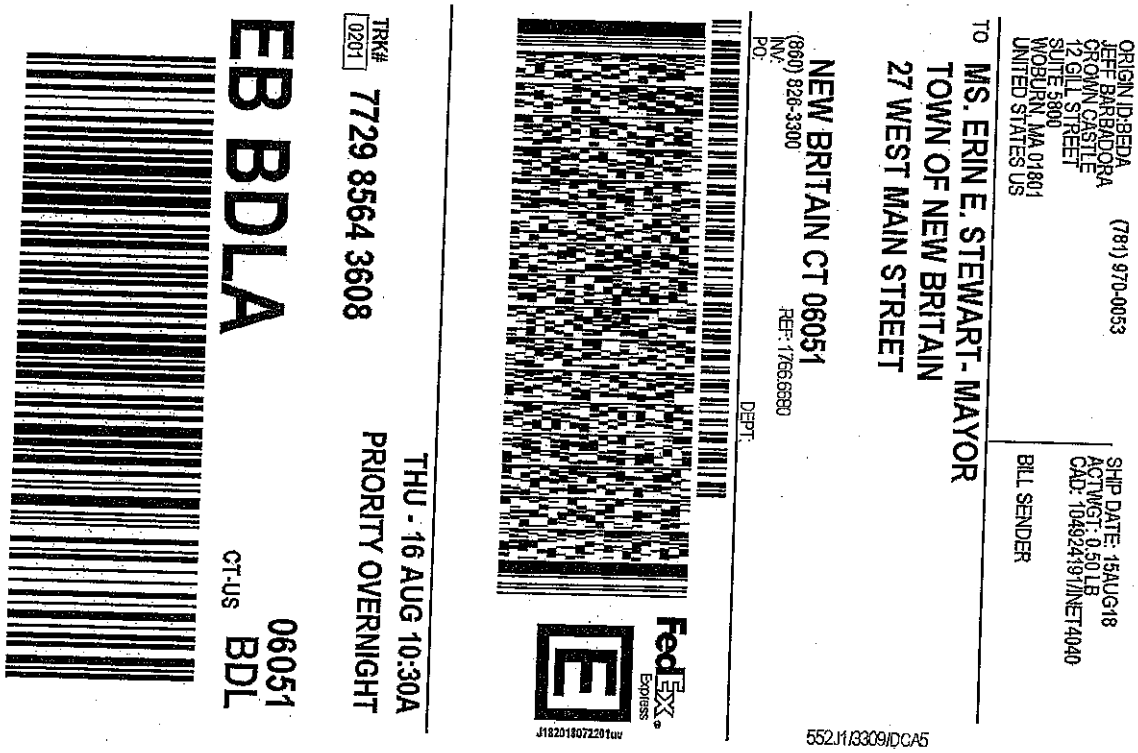
All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the SPRINT 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:

SPRINT Sector	Power Density Value (%)
Sector A:	1.88 %
Sector B:	1.80 %
Sector C:	1.88 %
SPRINT Maximum MPE % (Sectors A & C)	1.88 %
Site Total:	13.96 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **13.96 %** 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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Barbadora, Jeff

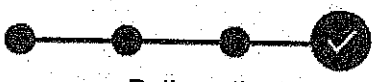
From: TrackingUpdates@fedex.com
Sent: Thursday, August 16, 2018 9:02 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772985643608 Delivered

Your package has been delivered

Tracking # 772985643608

Ship date:
Wed, 8/15/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US



Delivered

Delivery date:
Thu, 8/16/2018 8:56 am

Ms. Erin E. Stewart- Mayor
Town of New Britain
27 West Main Street
NEW BRITAIN, CT 06051
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772985643608
Status:	Delivered: 08/16/2018 08:56 AM Signed for By: G.ROSARIO
Reference:	1766.6680
Signed for by:	G.ROSARIO
Delivery location:	NEW BRITAIN, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	1.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	8/16/2018 by 10:30 am

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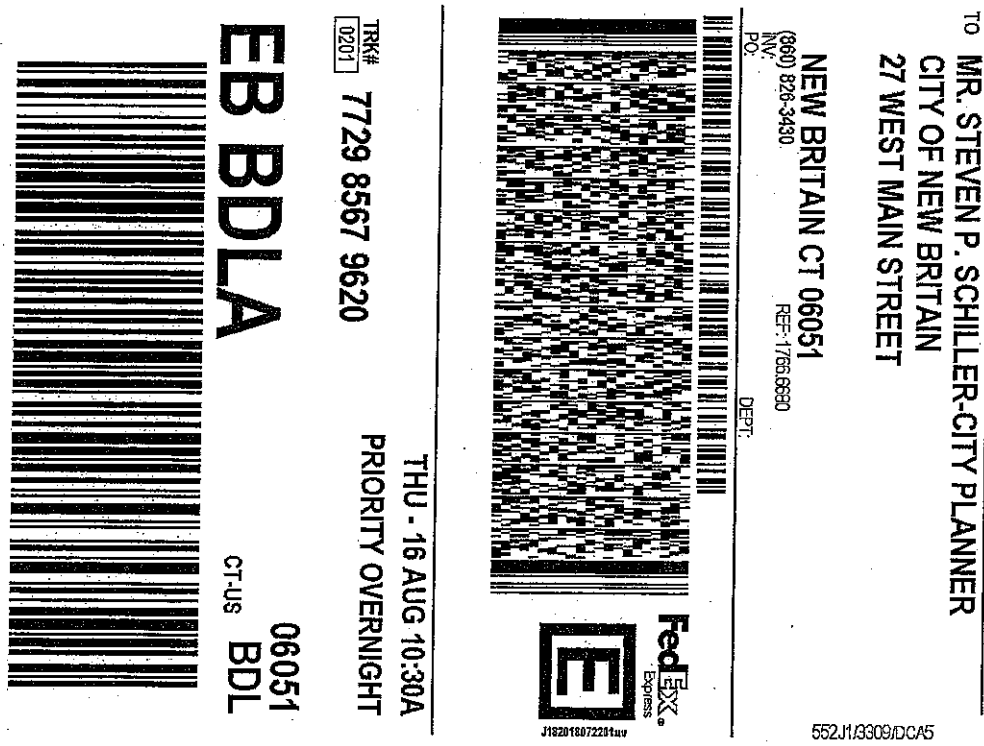

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Barbadora, Jeff

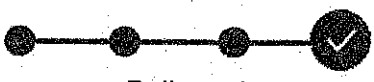
From: TrackingUpdates@fedex.com
Sent: Thursday, August 16, 2018 9:03 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772985679620 Delivered

Your package has been delivered

Tracking # 772985679620

Ship date:
Wed, 8/15/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US



Delivered

Delivery date:
Thu, 8/16/2018 8:56 am

Mr. Steven P. Schiller-City Planner
City of New Britain
27 West Main Street
NEW BRITAIN, CT 06051
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772985679620
Status:	Delivered: 08/16/2018 08:56 AM Signed for By: G.ROSARIO
Reference:	1766.6680
Signed for by:	G.ROSARIO
Delivery location:	NEW BRITAIN, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	1.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	8/16/2018 by 10:30 am

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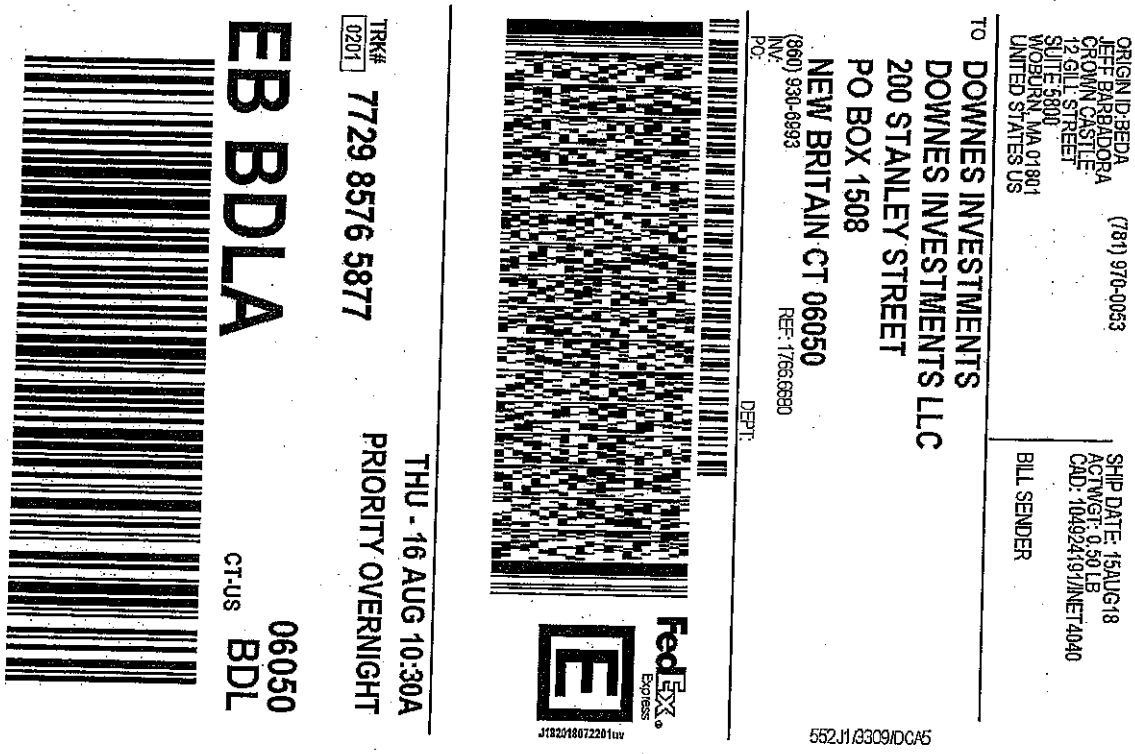

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Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Thursday, August 16, 2018 9:51 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772985765877 Delivered

Your package has been delivered

Tracking # 772985765877

Ship date:
Wed, 8/15/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US

Delivered

Delivery date:
Thu, 8/16/2018 9:45 am

Downes Investments
Downes Investments LLC
200 Stanley Street
PO Box 1508
NEW BRITAIN, CT 06050
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772985765877
Status:	Delivered: 08/16/2018 09:45 AM Signed for By: A.HALIA
Reference:	1766.6680
Signed for by:	A.HALIA
Delivery location:	NEW BRITAIN, CT
Delivered to:	Shipping/Receiving
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	1.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	8/16/2018 by 10:30 am

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