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

August 8, 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: 876345**
Sprint Site ID: CT03XC204
3 Janowski Road, Ashford, CT 06419
Latitude: 41° 57' 7.7"/ Longitude: -72° 11' 43.9"

Dear Ms. Bachman:

Sprint currently maintains six (6) antennas at the 192-foot level of the existing 192-foot self-support tower located at 33 Janoski Road, Ashford, CT. The tower is owned by Crown Castle. The property is owned by David H Martin C/O Sprint Spectrum CT-03XC204. Sprint now intends to replace six (6) antennas with six (6) new antennas. These antennas would be installed at the 192-foot level of the tower. Sprint also intends to install twelve (12) RRH's, add four (4) Hybrid cables and remove six (6) existing coaxial cables

The facility was approved by the Town of Ashford Planning and Zoning Commission at the annual meeting on November 12, 1996 with no 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 First Selectman, Mr. Michael J. Zambo, Zoning Enforcement Officer, Mr. Michael Gardner, the land owner is Sprint Spectrum and Crown Castle is the tower owner.

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

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

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

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

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

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

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: 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: Mr. Michael J. Zambo
Town of Ashford-First Selectman
5 Town Hall Road
Ashford, CT 06278
(860) 487-4400

Mr. Michael Gardner
Zoning Enforcement Officer
5 Town Hall Road
Ashford, CT 06278
(860) 487-4415

FILE SITE #204
SKY HILL
ZONING

RECEIVED
11-13-96 bk.

MINUTES - ASHFORD PLANNING AND ZONING COMMISSION

Annual Meeting - November 12, 1996

Members present: Organ, Lawrence, Nagy, Levaur, Rossman, McCarthy & White.

Alternates present: Bartok & Specyalski.

The meeting was called to order at 9:55 p.m. after the public hearing (Sprint Spectrum, tower & Moratorium, Lake Chaffee).

Specyalski is the voting alternate for this meeting.

At the Annual Town meeting, Alex Hastillo and Kevin McCarthy were elected to 4 year terms on the Commission ending in the year 2000 and Bartok was elected to a 3 year term as Alternate ending in 1999.

Moved and seconded to consider Old and New Business first. Passed without dissent.

The Commission considered the Sprint Spectrum application for a communications tower to be located on Sky Hill. There were no objections at tonights public hearing. The tower will be able to hold three sets of antennas. Sprint Spectrum will operate a PCS digital system. It is regulated by the FCC. There will be no lights on the tower. Access will be off Frontage Road to Janowski Road to avoid the wetlands on the east end of Janowski Road. Moved and seconded to approve with conditions the application for a Special Exception under Section 5.2.3 by Sprint Spectrum L.P., Meriden, CT for a 200' communications tower to be located on land leased from David H. Martin off Janowski Road on Sky Hill.

The conditions are:
1. Utilities to the site which is approximately 2500' from Janowski Road will be located underground in the right of way.
2. Space and installation of fire, emergency and municipal communications equipment to meet present and future needs will be provided at no cost.
3. A copy of the liability insurance will be submitted to the Commission.
4. A site plan including driveway design and sedimentation and erosion control measures will be submitted to the Commission before the construction begins.
5. A copy of the lease will be part of the land records.

Motion passed without dissent.

The Commission considered the proposed Moratorium at Lake Chaffee. Tim Backus, Chairman of the Water Pollution Control Authority was the only person to speak at the public hearing. Moved and seconded to approve the following:

Moratorium at Lake Chaffee

WHEREAS, the Department of Environmental Protection has cited the Town of Ashford and the Lake Chaffee Improvement Association, Inc. to study and report upon potential pollution at Lake Chaffee resulting from construction around the lake; and

WHEREAS, the Department of Environmental Protection has found pollution in the tributaries leading to the lake, and

WHEREAS, there is a reasonable expectation that the recommendation of the study may be to limit new construction in that area, or as an alterative to require that homes in the area be connected to an alternative type of sewage disposal system, and

WHEREAS, this Commission does not want to allow any deterioration of the water in the lake or tributaries;

The Planning and Zoning Commission of the Town of Ashford, pursuant to the authority vested in it by Section 8-2 of Connecticut General Statutes, hereby amends the zoning regulations of the Town of Ashford by adoption of the following Moratorium:

"Until December 31, 1997, there shall be no new house construction allowed within the area of Lake Chaffee Improvement Association, Inc. nor any enclosed addition to any existing house in that area. The Zoning Enforcement Officer may not in that period certify that any new construction is in conformity with the zoning regulations of the town."

Motion passed without dissent.

The reasons for reinstating the moratorium include:
1. There is need for more testing of the water and septic systems in the area.
2. There have been minimal applications for construction since the last moratorium was lifted.
3. The WPCA is seeking on-site solutions.
4. There are several sets of vacant lots that may be valuable for sewage disposal systems.

Specyalski stepped down for the next item of business.

Brialee Campground - Brian Specyalski submitted a plan for a six additional campsites at the campground. It was noted that three of these butt onto adjoining property that is owned by the State of Connecticut. The others have a 100' setback that has been the minimum acceptable to the Commission. Moved and seconded to receive the plan and hold a public hearing on December 9th. Passed without dissent. A new map showing only the three sites that meet the setback requirements will be submitted. The Commission will walk the site a 7 a.m. on Saturday November 16th.

The Commission returned to the top of the agenda.

Moved and seconded to approve the minutes of the October 15th meeting. Passed without dissent.

Moved and seconded to send a letter of appreciation to George Quirk Sr., retiring member for his many years of service to the Commission. Passed without dissent.

There were no bills.

A copy of the revised Small Cities Housing Plan was received from the Office of the Selectmen. It will go to a public hearing in December. Copies will be distributed to the Commission members for review.

The revised fee schedule was approved by Town Meeting in October.

Moved and seconded to add to the agenda the election of officers and reappointment of employees. Passed without dissent.

Moved and seconded to reelect the following officers to serve until the next annual meeting of the Commission: Sidney E. Organ, Chairman, Alex Hastillo, Vice Chairman and John Bartok, Secretary. Passed without dissent. The Secretary will cast one ballot for each.

Moved and seconded to reappoint Rudolph Makray, Zoning Enforcement Officer and John Bartok, Recording Secretary for one year or until the next annual meeting. Passed without dissent.

The Commission agreed to hold a Special Meeting on Monday, December 16th at 7 p.m. to review the draft of the revised Plan of Development.

The meeting adjourned at 10:55 p.m.

Respectfully submitted.

John W. Bartok, Jr.
Recording Secretary

LEGAL NOTICE

Town of Ashford

The Ashford Planning and Zoning Commission at its meeting on November 12, 1996 took the following aotions:

APPROVED with oonditions the applioation of Sprint Speotrum, L.P., Meriden, CT for a 200' communioations tower to be built on the David Matin property looated off Route 89 on Sky Hill.

APPROVED a request by the Ashford Water Pollution Control Authority to reenstate the moratorium at Lake Chaffee until December 31, 1997 that prohibits oonstruction of new houses or enolosed additions to any existing house.

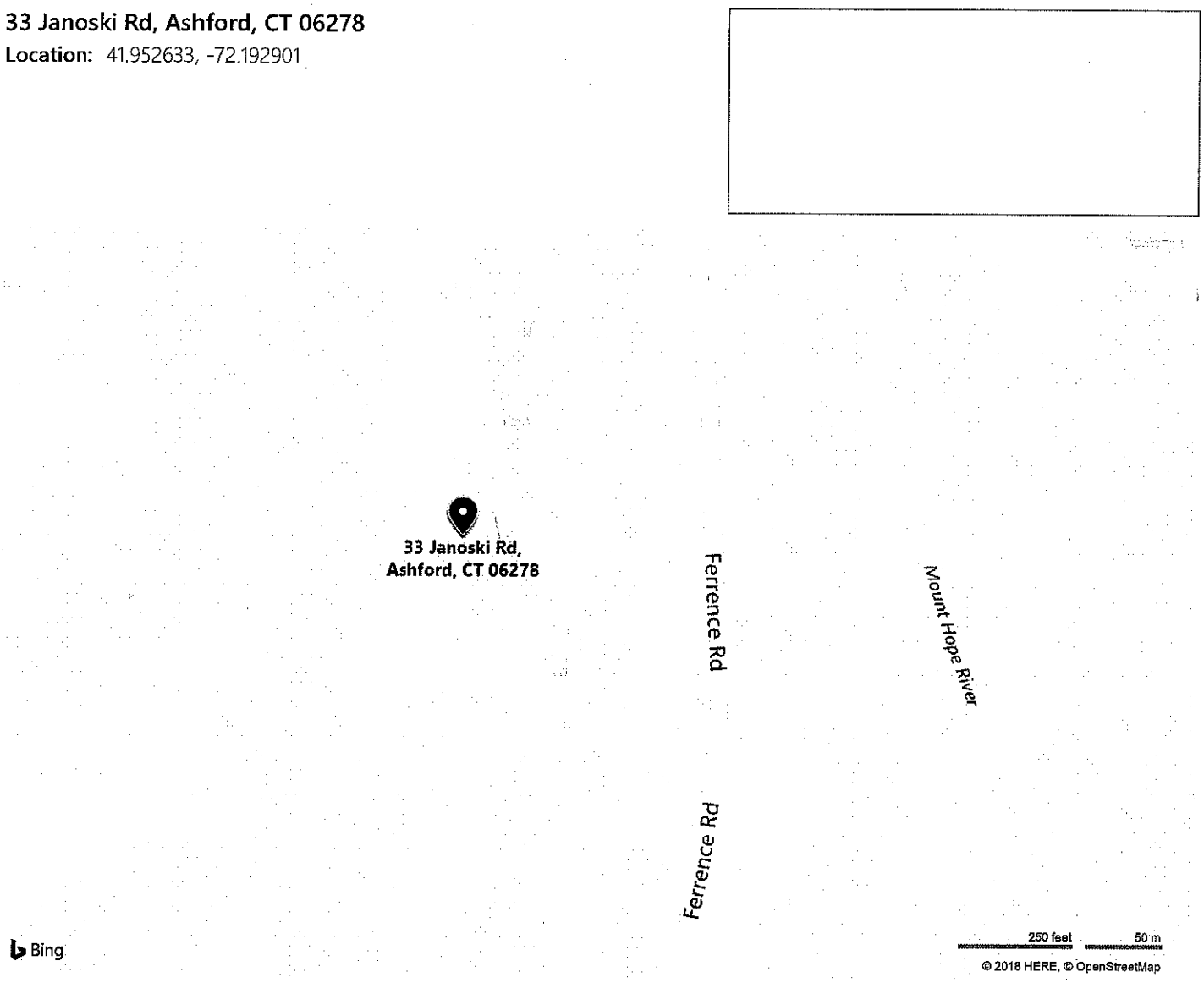
Dated in Ashford, Conneotiout this 14th day of November, 1996.

John W. Bartok,Jr.,Seo.
Ashford Planning and,
Zoning Commission

bing maps

33 Janoski Rd, Ashford, CT 06278

Location: 41.952633, -72.192901



33 JANOSKI RD

Location	33 JANOSKI RD	**Mblu**	02/ F/ 1.1/ /
Acct#	00007410	**Owner**	MARTIN DAVID H
Taxable Status		**Assessment**	$252,200
Appraisal	$360,200	**PID**	65
Building Count	1	**Legal Description**	
Lot Type		**topoTopo**	
Location			

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2018	$0	$0	$183,100	$177,100	$360,200
Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2018	$0	$0	$128,200	$124,000	$252,200

Parcel Addreses

Additional Addresses		
Address	**City, State Zip**	**Type**
33 JANOSKI RD		Primary

Owner of Record

Owner	MARTIN DAVID H
Co-Owner	C/O SPRINT SPECTRUM CT-03XC204
Care Of	
Address	PO BOX 8430 KANSAS CITY, MO 641148430

Sale Price	$0
Certificate	C
Book & Page	109/ 811
Sale Date	09/30/1996
Qualified	U

Ownership History

Ownership History
No Data for Ownership History

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Bsmt. Garages	

Building Photo

(http://images.vgsi.com/photos/AshfordCTPhotos//\00\00\25/30

Building Layout

Building Layout
(http://images.vgsi.com/photos/AshfordCTPhotos//Sketches/65_

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Parcel Information

Use Code	201
Description	Commercial Vacant
Deeded Acres	0.7

Land

Land Use

Use Code	201
Description	Commercial Vacant
Zone	
Neighborhood	C3
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.7
Frontage	
Depth	
Assessed Value	$124,000
Appraised Value	$177,100

Outbuildings

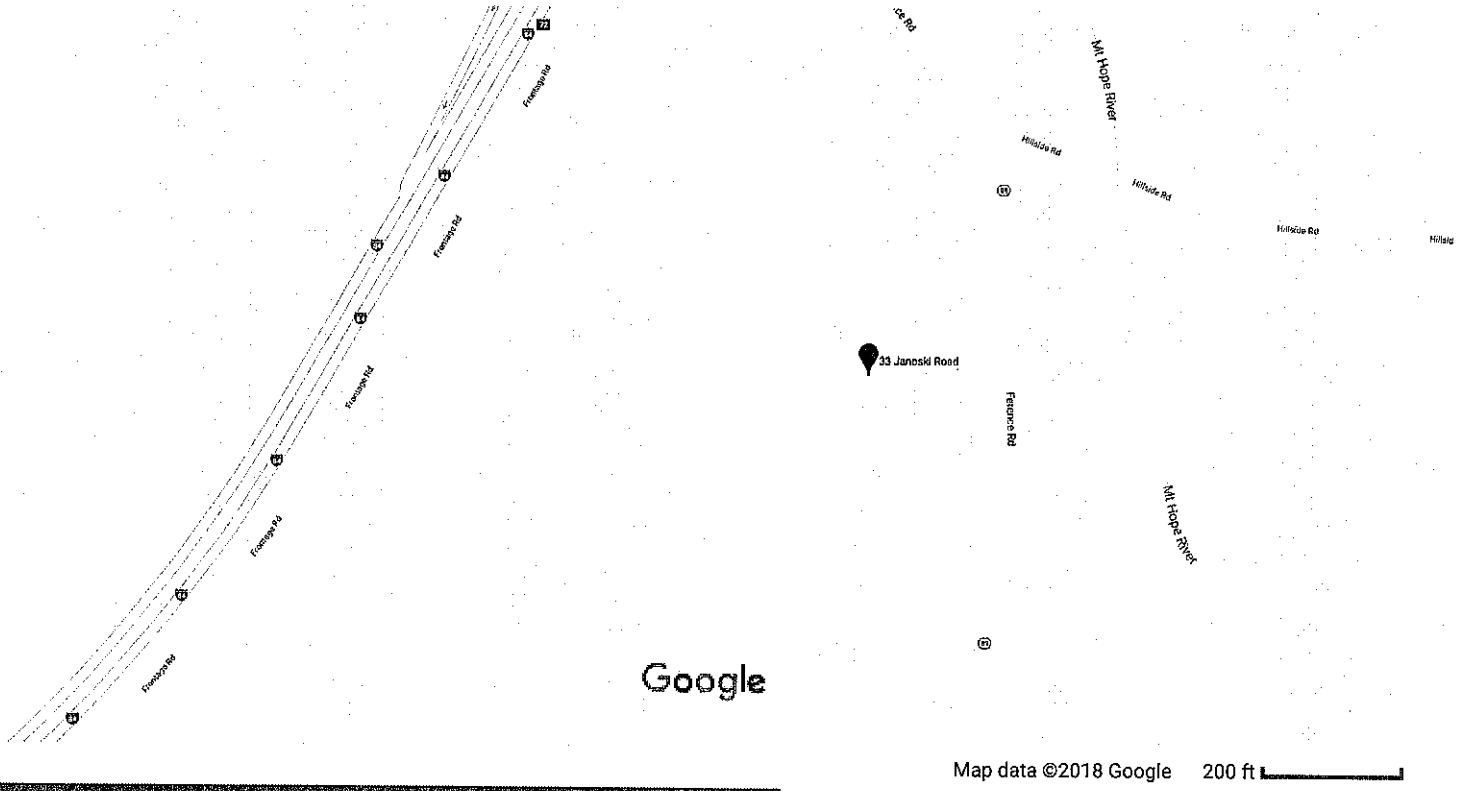
Outbuildings								Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Assessed Value**	**Bldg #**	**Comment**
TWR1	Cell Tower			192 HEIGHT	$73,400	$51,400	1	
SHD2	Pre Cast Cell			240 S.F.	$34,400	$24,100	1	
FN3	Fence 6'			260 L.F.	$3,600	$2,500	1	
SHD2	Pre Cast Cell			360 S.F.	$34,400	$24,100	1	
SHD2	Pre Cast Cell			260 S.F.	$37,300	$26,100	1	

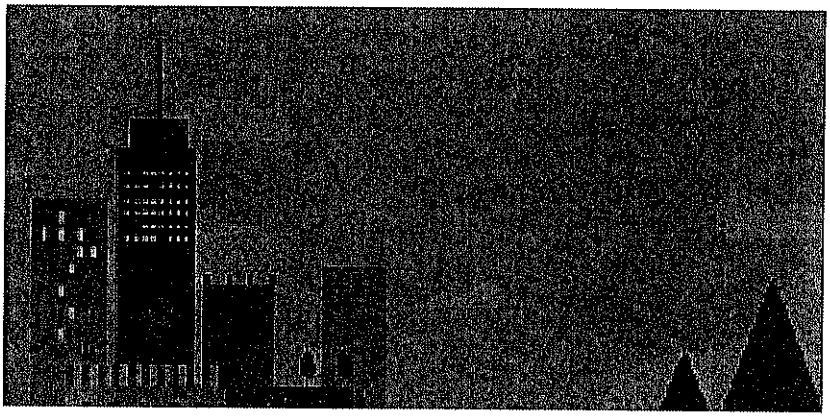
Valuation History

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2017	$0	$0	$183,100	$177,100	$360,200
2016	$0	$0	$183,100	$177,100	$360,200
2015	$0	$0	$182,200	$189,000	$371,200

Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2017	$0	$0	$128,200	$124,000	$252,200
2016	$0	$0	$128,200	$124,000	$252,200
2015	$0	$0	$127,600	$132,300	$259,900

Google Maps 33 Janoski Rd



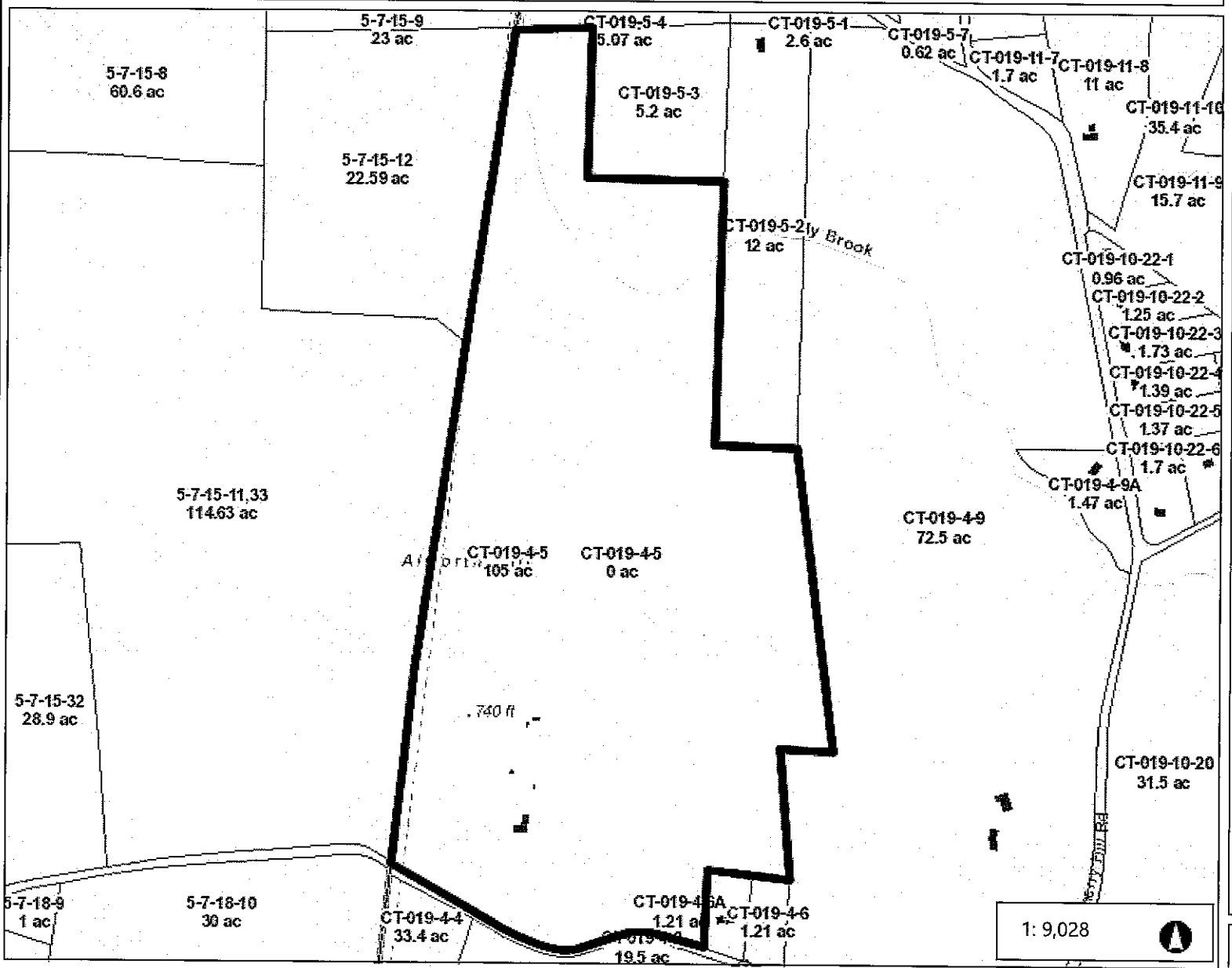


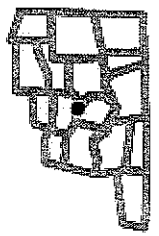
33 Janoski Rd

Ashford, CT 06278

neccog

Neccog GIS Site





Legend

- Town
- Buildings 2012
- Parcels

Notes

Enter Map Description

0.3 0 0.14 0.3 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Sprint

CROWN CASTLE

PROJECT:	DO MACRO UPGRADE
SITE NAME:	SKY HILL
SITE CASCADE:	CT03XC204
SITE NUMBER:	876345
SITE ADDRESS:	33 JANOWSKI ROAD ASHFORD, CT 06278
SITE TYPE:	SELF SUPPORT TOWER
MARKET:	NEW ENGLAND/UPSTATE NY

SITE INFORMATION

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

LATITUDE (NAD83):
41° 57' 7.7" N
41.952139

LONGITUDE (NAD83):
-72° 11' 43.9" W
-72.195528

COUNTY:
WINDHAM

ZONING JURISDICTION:
TOWN OF ASHFORD

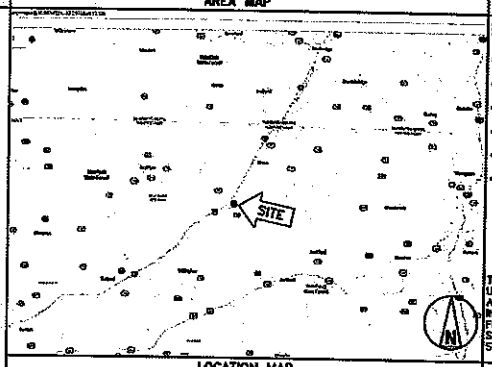
ZONING DISTRICT:
C3

POWER COMPANY:
EVERSOURCE
800-286-2000

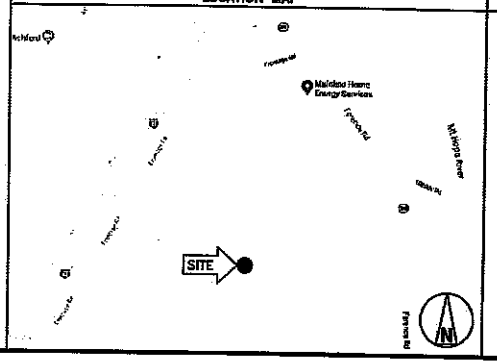
SPRINT CONSTRUCTION:
TBD

CROWN PM:
SCOTT WIATROSKI
(201) 236-9228

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT INSIDE EXISTING M.V. MMBS CABINET
- REMOVE (6) PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS (3 800/1900, 3 2500)
- INSTALL (12) RRH'S TO TOWER (6 800, 3 1900, 3 2500)
- INSTALL (4) HYBRID CABLES
- REMOVE (6) COAX 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.call811.com

DRAWING INDEX

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

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 559-165

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
JUN 04 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/02/18	RMS	2
RFDS REVISION	06/21/18	RDD	1
ISSUED FOR CONSTRUCTION	01/31/18	RMS	0
ISSUED FOR REVIEW	12/11/17	RMS	A

SITE NAME:
SKY HILL

SITE CASCADE:
CT03XC204

SITE ADDRESS:
33 JANOWSKI ROAD
ASHFORD, CT 06278

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 EVER 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
1037 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 205-165

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
MAY 04 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	RMS	2
AMD REVISION	06/21/18	RCD	1
ISSUED FOR CONSTRUCTION	04/01/18	RMS	B
ISSUED FOR REVIEW	12/11/17	RMS	A

SITE NAME:

SKY HILL

SITE CASCADE:

CT03XC204

SITE ADDRESS:

33 JANOWSKI ROAD
ASHFORD, CT 06278

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 (HOC 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 465. 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:

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 328-163

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED PROFESSIONAL ENGINEER
JAN 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	RMS	2
MINOR REVISION	06/01/18	RCD	1
ISSUED FOR CONSTRUCTION	01/31/18	RMS	0
ISSUED FOR REVIEW	12/11/17	RMS	A

SITE NAME:

SKY HILL

SITE CASCADE:

CT03XC204

SITE ADDRESS:

33 JANOWSKI ROAD
ASHFORD, CT 06278

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.

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 528-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	RMS	2
MMO REDESIGN	05/21/18	RCD	1
ISSUED FOR CONSTRUCTION	01/30/18	RMS	0
ISSUED FOR REVIEW	12/01/17	RMS	A

SITE NAME:

SKY HILL

SITE CASCADE:

CT03XC204

SITE ADDRESS:

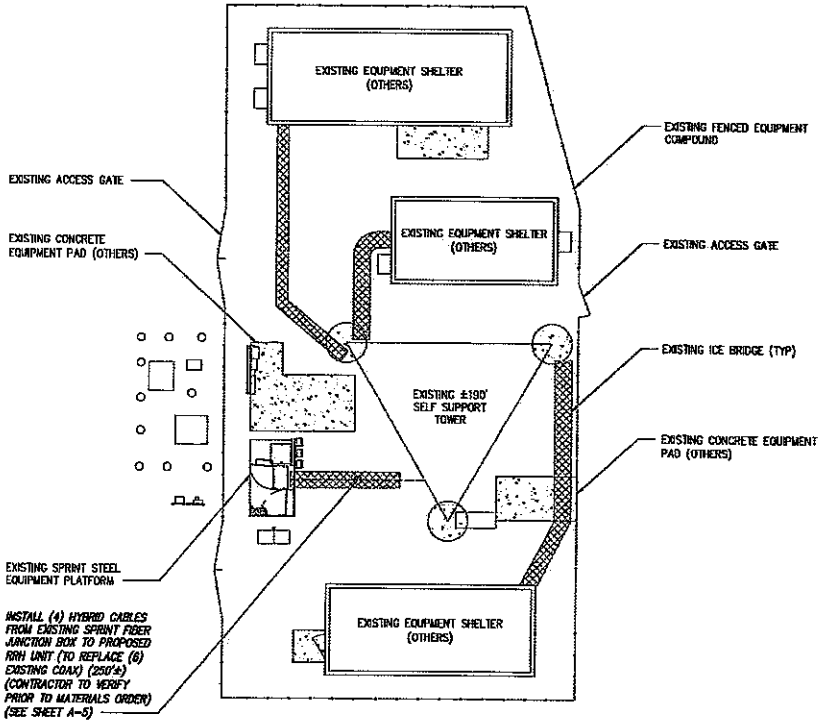
33 JANOWSKI ROAD
ASHFORD, CT 06278

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3

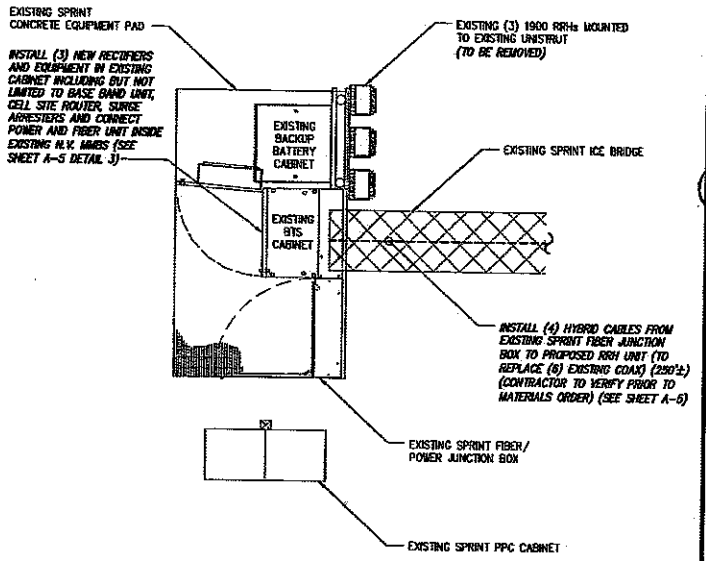


INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

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

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 528-165

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
PROFESSIONAL ENGINEER
LICENSED
JUL 04 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	RMS	2
MINOR REVISION	06/21/18	RCO	1
ISSUED FOR CONSTRUCTION	01/31/18	RMS	0
ISSUED FOR REVIEW	12/01/17	RMS	A

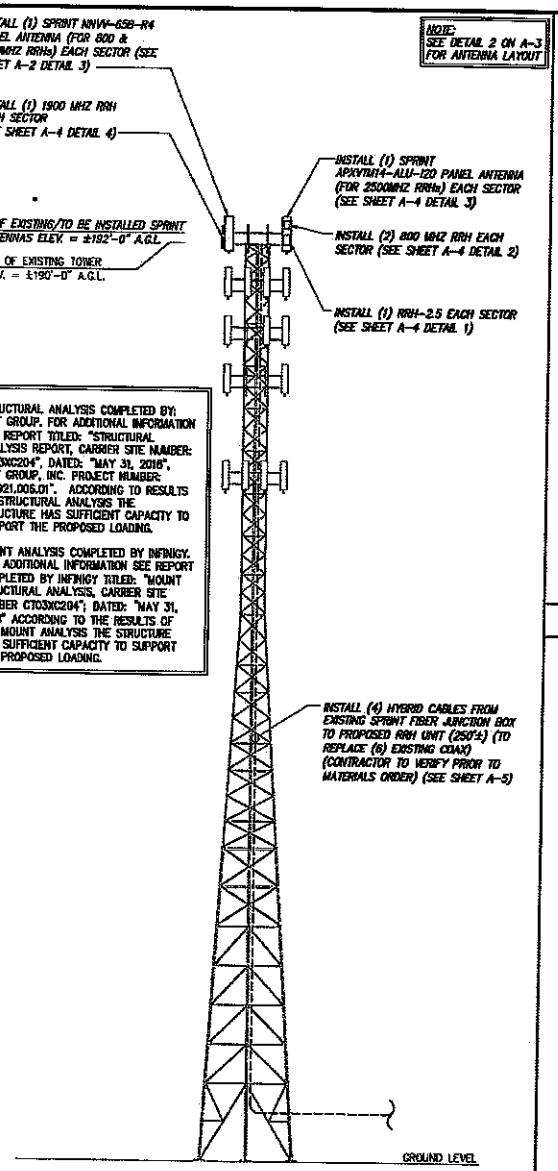
SITE NAME:
SKY HILL

SITE CASCADE:
CT03XC204

SITE ADDRESS:
33 JANOWSKI ROAD
ASHFORD, CT 06278

SHEET DESCRIPTION:
SITE PLAN

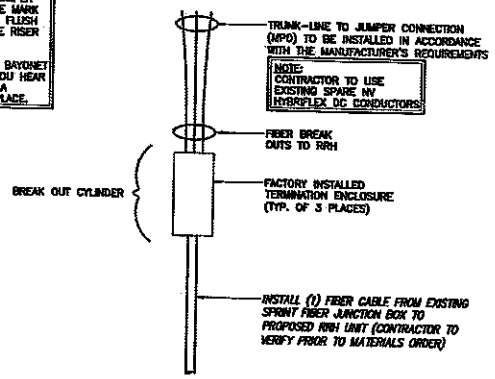
SHEET NUMBER:
A-1



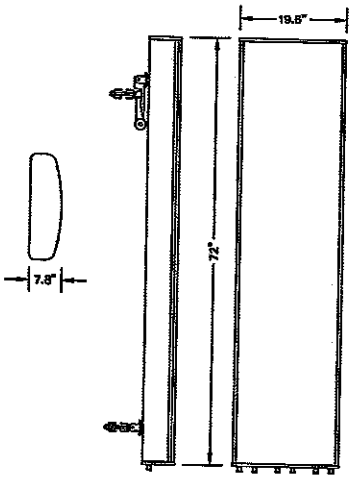
TOWER ELEVATION | NO SCALE | 1

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, H x W x D in(mm):	72"x19.8"x7.8"
WEIGHT:	77.4 lbs
CONNECTORS:	(8) 4.3-10 DIN FEMALE

ANTENNA | NO SCALE | 3

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

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1903 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER: 005-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
JUL. 02 2018
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/02/18	RMS	B
MINOR REDESIGN	05/21/18	RCB	A
ISSUED FOR CONSTRUCTION	01/31/18	RMS	0
ISSUED FOR REVIEW	12/11/17	RMS	A

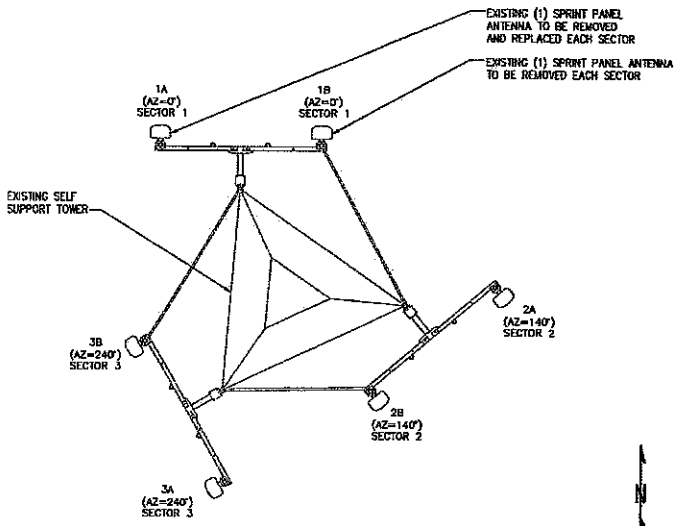
SITE NAME:
SKY HILL

SITE CASCADE:
CT03XC204

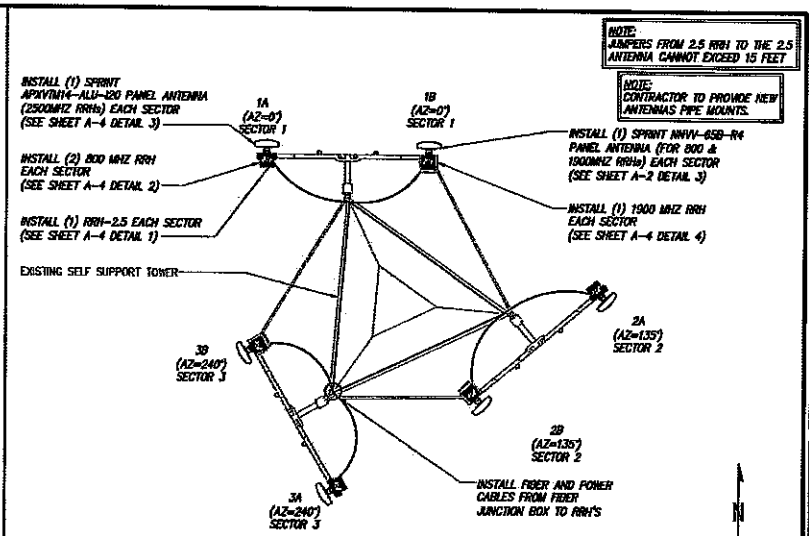
SITE ADDRESS:
33 JANOWSKI ROAD
ASHFORD, CT 06278

SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2



EXISTING ANTENNA LAYOUT | NO SCALE | 1



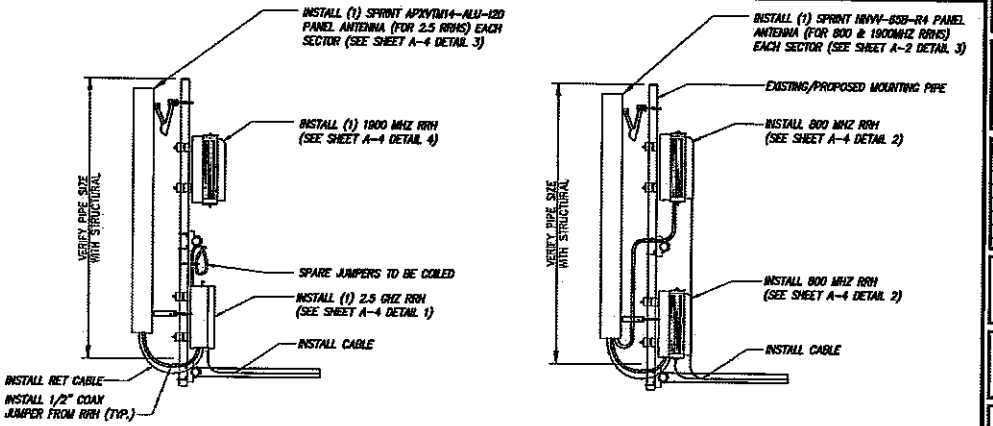
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

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 8" 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 SZ RF ALIGNMENT TOOL OR EQUIVALENT TOOL. HTTP://WWW.SZTELECOM.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 NY RRHS AT SPRINT ARRAY. THESE ARE TO BE USED TO POWER UP THE 2.5 RRHS AND RED 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

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

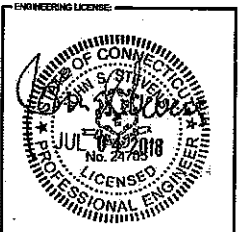
PLANS PREPARED BY:

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 828-403

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:



DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	RMS	2
MINOR REDESIGN	06/21/18	RCB	1
ISSUED FOR CONSTRUCTION	01/31/18	RMS	0
ISSUED FOR REVIEW	12/11/17	RMS	A

SITE NAME:

SKY HILL

SITE CASCADE:

CT03XC204

SITE ADDRESS:

33 JANOWSKI ROAD
ASHFORD, CT 06278

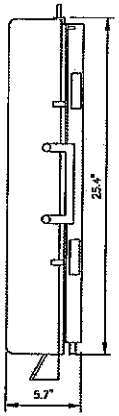
SHEET DESCRIPTION:

ANTENNA LAYOUT
& MOUNTING DETAILS

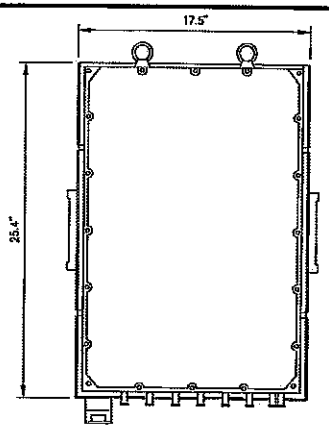
SHEET NUMBER:

A-3

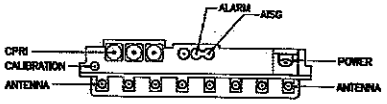
RRH: ALCATEL LUCENT TD-RRH8X20
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

NOTES

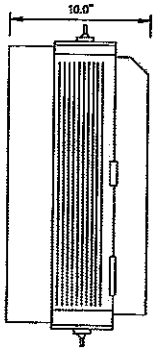
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.

2.5 RRH'S | NO SCALE | 1

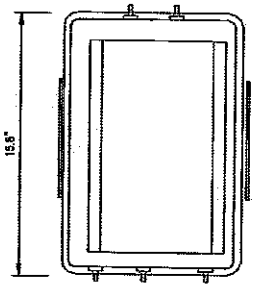
RRH: ALCATEL LUCENT RRH 800 MHz 2x50W
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

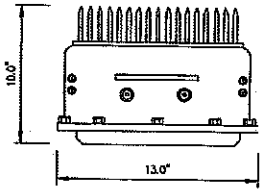
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW

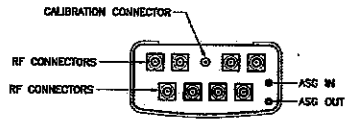


PLAN VIEW

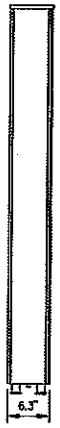
800 MHz RRH | NO SCALE | 2

ANTENNA RFS APXVTM14-ALU-I20

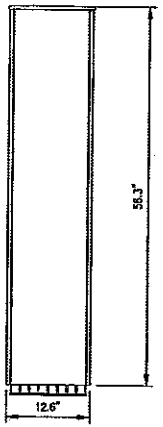
RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.In(mim):	58.3"x12.6"x6.3" (1430x320x160mm)
WEIGHT:	56.2 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF – CALIBRATION CONNECTOR



PLAN VIEW



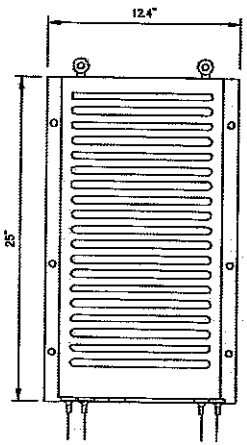
SIDE VIEW



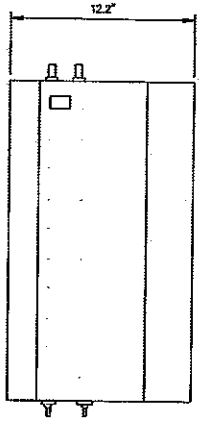
FRONT VIEW

2.5 ANTENNA | NO SCALE | 3

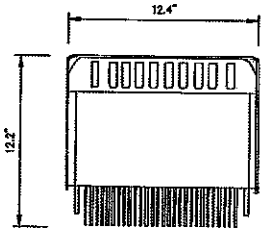
RRH: ALCATEL LUCENT 1900 MHz
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW



TOP VIEW

1900 MHz RRH | NO SCALE | 4

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 325-165

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN E. STEVENS
JUL 04 2018
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:
THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF SPRINT AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/23/18	RMS	J
MINOR REVISION	06/21/18	ROD	I
ISSUED FOR CONSTRUCTION	01/31/18	RMS	H
ISSUED FOR REVIEW	12/01/17	RMS	A

SITE NAME:
SKY HILL

SITE CASCADE:
CT03XC204

SITE ADDRESS:
33 JANOWSKI ROAD
ASHFORD, CT 06278

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

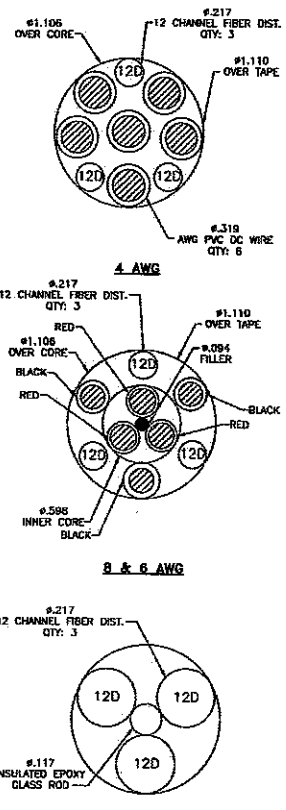
RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	Hybrid cable MN: HBF50-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HBF50-M12-075F	75 ft
	MN: HBF50-M12-100F	100 ft
	MN: HBF50-M12-125F	125 ft
	MN: HBF50-M12-150F	150 ft
	MN: HBF50-M12-175F	175 ft
	MN: HBF50-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: HB114-21U3M12-325F	325 ft

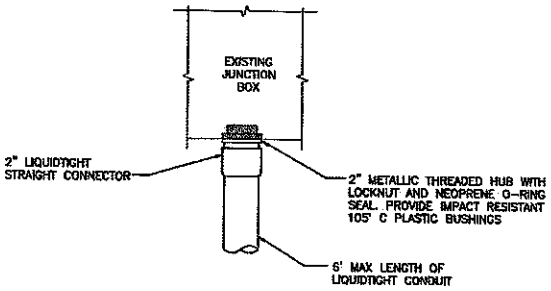
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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: HBF05B-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF05B-08U1M3-10F1	10 ft
	MN: HBF05B-08U1M3-15F1	15 ft
	MN: HBF05B-08U1M3-20F1	20 ft
	MN: HBF05B-08U1M3-25F1	25 ft
	MN: HBF05B-08U1M3-30F1	30 ft
6 AWG Power	Hybrid Jumper cable MN: HBF05B-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF05B-13U1M3-10F1	10 ft
	MN: HBF05B-13U1M3-15F1	15 ft
	MN: HBF05B-13U1M3-20F1	20 ft
	MN: HBF05B-13U1M3-25F1	25 ft
	MN: HBF05B-13U1M3-30F1	30 ft
4 AWG Power	Hybrid Jumper cable MN: HBF07B-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF07B-21U1M3-10F1	10 ft
	MN: HBF07B-21U1M3-15F1	15 ft
	MN: HBF07B-21U1M3-20F1	20 ft
	MN: HBF07B-21U1M3-25F1	25 ft
	MN: HBF07B-21U1M3-30F1	30 ft

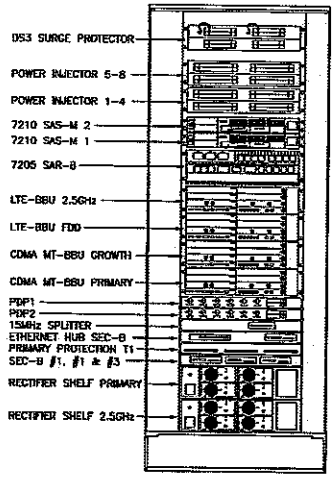
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



2.5 CABLE CROSS SECTION DATA | NO SCALE | 1



FIBER JUNCTION BOX PENETRATION | NO SCALE | 2



CABINET LAYOUT | NO SCALE | 3

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

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1933 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER: 826-198

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24765
JUL 24 2018
LICENSED
PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	RMS	2
MINO REVISION	06/20/18	RCD	1
ISSUED FOR CONSTRUCTION	01/31/18	RMS	0
ISSUED FOR REVIEW	12/11/17	RMS	A

SITE NAME:
SKY HILL

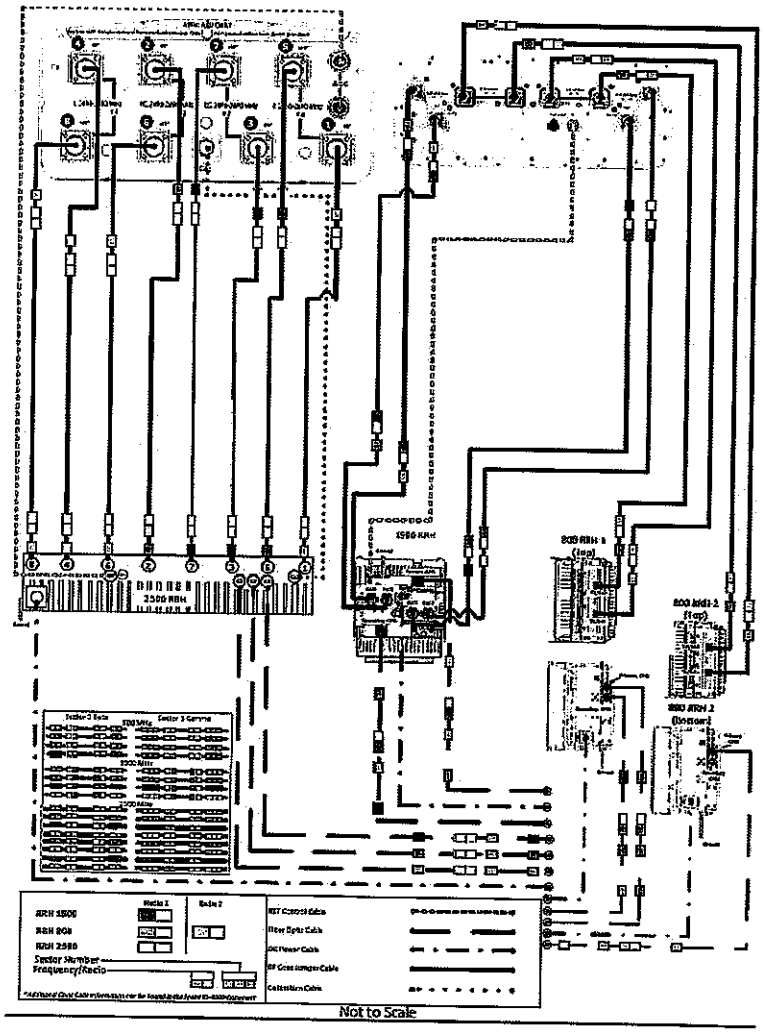
SITE CASCADE:
CT03XC204

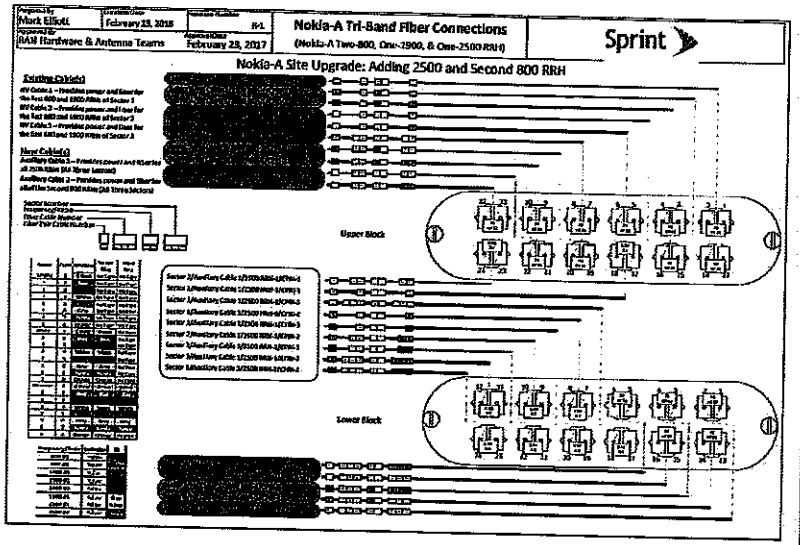
SITE ADDRESS:
33 JANOWSKI ROAD
ASHFORD, CT 06278

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5

ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters





PLUMBING DIAGRAM

NO SCALE | 1

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: 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24706
LICENSED
PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/05/18	RMS	2
RRHD REDESIGN	06/21/18	RCD	1
ISSUED FOR CONSTRUCTION	01/31/18	RMS	0
ISSUED FOR REVIEW	12/11/17	RMS	A

SITE NAME:

SKY HILL

SITE CASCADE:

CT03XC204

SITE ADDRESS:

33 JANOWSKI ROAD
ASHFORD, CT 06278

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH/DDU MAKE AND MODEL
1	RFS	APXVTM14-ALU-I20	90'	0°	(1) ALU 2.5GHZ RRH8X20-25
	COMMSCOPE	NNVV-65B-R4	90'	0°	(1) ALU 1900MHZ 4X45W-65BHZ (2) ALU 800MHZ 2x50-800
2	RFS	APXVTM14-ALU-I20	90'	135°	(1) ALU 2.5GHZ RRH8X20-25
	COMMSCOPE	NNVV-65B-R4	90'	135°	(1) ALU 1900MHZ 4X45W-65BHZ (2) ALU 800MHZ 2x50-800
3	RFS	APXVTM14-ALU-I20	90'	240°	(1) ALU 2.5GHZ RRH8X20-25
	COMMSCOPE	NNVV-65B-R4	90'	240°	(1) ALU 1900MHZ 4X45W-65BHZ (2) ALU 800MHZ 2x50-800

FEEDER CABLES

	MANUFACTURER	MODEL	LENGTH	QTY
	RFS	HD114-1SUSM12-250F	250'±	(3)
	RFS	HB114-21USM12-250F	250'±	(1)

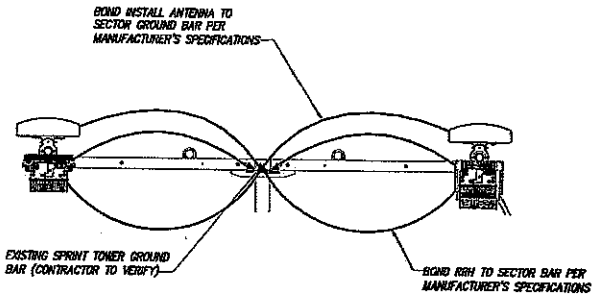
LEGEND
EXISTING
PROPOSED

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.

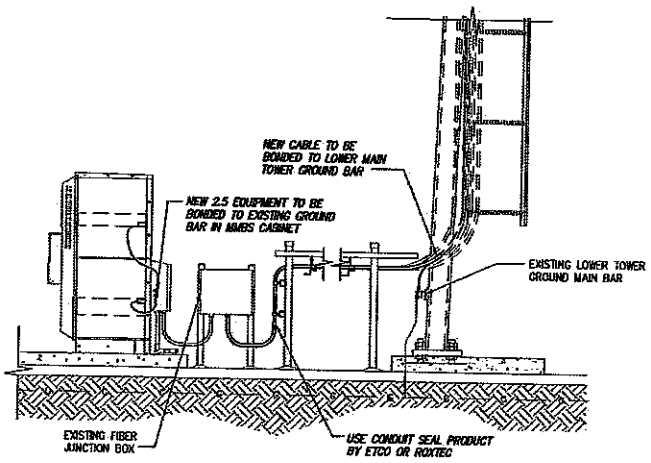
ANTENNA/CABLE SCHEDULE — NO SCALE — 1

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

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1037 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 626-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24795
LICENSED
PROFESSIONAL ENGINEER
04 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	BMS	2
AMBD REDESIGN	06/25/18	BCD	1
ISSUED FOR CONSTRUCTION	01/24/18	BMS	0
ISSUED FOR REVIEW	12/11/17	BMS	A

SITE NAME:

SKY HILL

SITE CASCADE:

CT03XC204

SITE ADDRESS:

33 JANOWSKI ROAD
ASHFORD, CT 06278

SHEET DESCRIPTION:

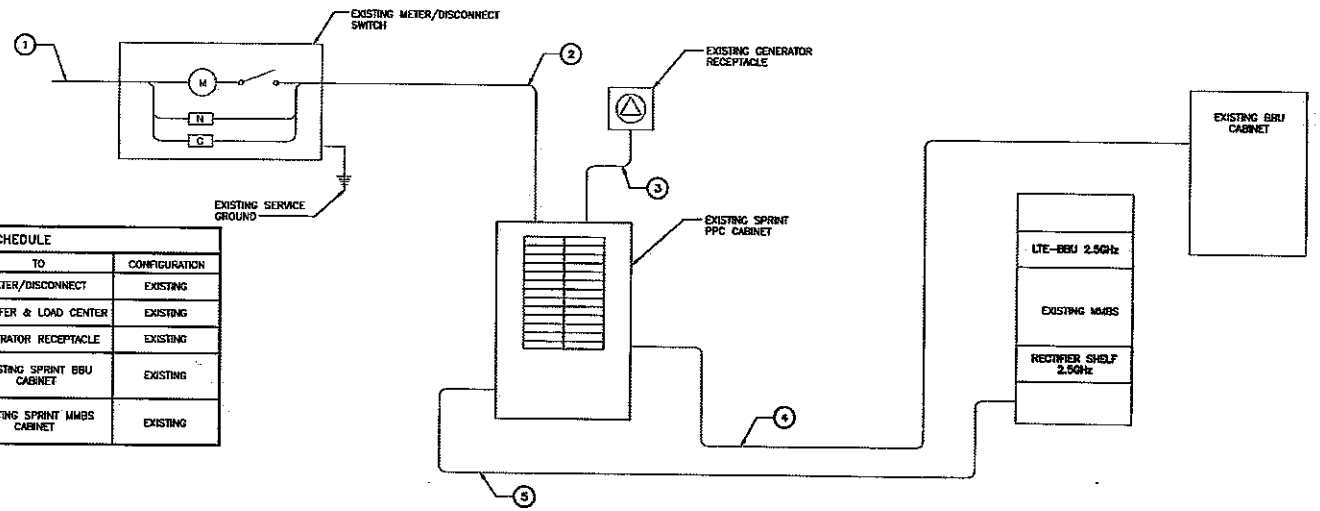
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-1

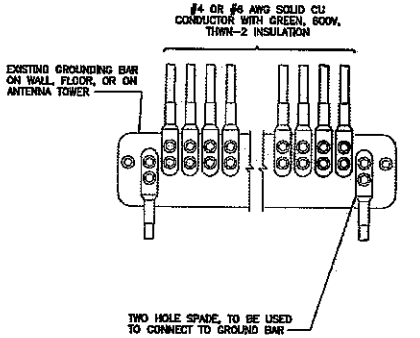
NOTES

CC 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

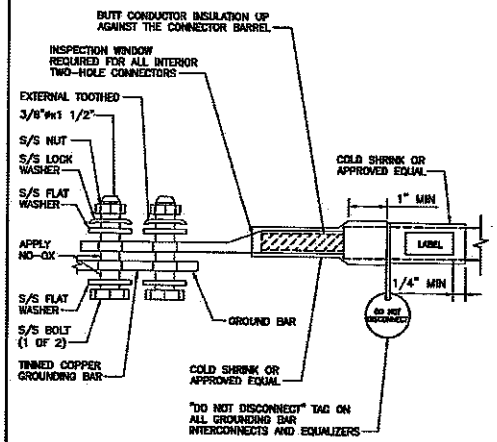
ELECTRICAL ONE-LINE DIAGRAM — NO SCALE — 1



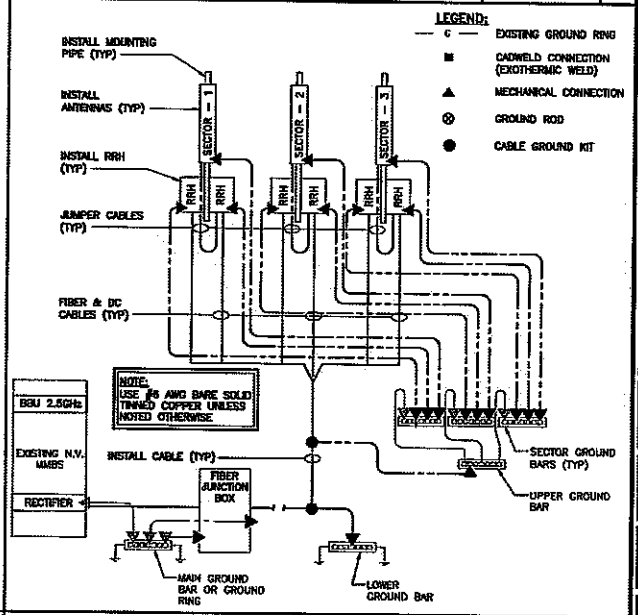
NOTES

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

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

1933 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 536-105

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSE
PROFESSIONAL ENGINEER
JULY 04 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	RMS	2
MMO REVISION	06/21/18	RCD	1
ISSUED FOR CONSTRUCTION	01/31/18	RMS	0
ISSUED FOR REVIEW	12/11/17	RMS	A

SITE NAME:

SKY HILL

SITE CASCADE:

CT03XC204

SITE ADDRESS:

33 JANOWSKI ROAD
ASHFORD, CT 06278

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

Date: **May 31, 2018**

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

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT03XC204
	Carrier Site Name:	CT03XC204
Crown Castle Designation:	**Crown Castle BU Number:**	876345
	Crown Castle Site Name:	SKY HILL
	Crown Castle JDE Job Number:	505815
	Crown Castle Work Order Number:	1580544
	Crown Castle Order Number:	441316 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1580544
Site Data:	**33 Janowski Road, Ashford, Windham County, CT** **Latitude *41° 57' 7.7"*, Longitude *-72° 11' 43.9"*** **192 Foot - Self Support 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 1580544, in accordance with order 441316, 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 130 mph converted to a nominal 3-second gust wind speed of 101 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: Mahdis Arianpour / KB

Respectfully submitted by:

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

tnxTower Report - version 7.0.5.1

STATE OF CONNECTICUT
TERRY P. STYRAN
31522
LICENSED PROFESSIONAL ENGINEER

6/5/2018

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 192 ft Self Support tower designed by Rohn in December of 1996. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E.

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 101 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
190.0	192.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	4	1-1/4	-
		6	alcatel lucent	RRH2X50-800			
		3	alcatel lucent	TD-RRH8x20-25			
		3	commscope	NNVV-65B-R4 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe			

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
190.0	192.0	6	decibel	DB980H90E-M w/ Mount Pipe	6	1-5/8	3
	190.0	1	tower mounts	Sector Mount [SM 506-3]	-	-	1
180.0	184.0	1	symmetricom	58532A	6 1	1-5/8 1/2	1
	181.0	6	antel	LPA-80080/4CF			
		3	alcatel lucent	RRH2X60-700	2	1-5/8	2
		3	alcatel lucent	RRH4X45-AWS4 B66			
		6	commscope	JAHH-65B-R3B			
		3	nokia	BAND 5 AHCA RRH4X40			
		2	raycap	RC3DC-3315-PF-48			
	180.0	1	tower mounts	Sector Mount [SM 304-3]	-	-	1
170.0	172.0	9	allgon	7130.16.33.00 w/ Mount Pipe	9	1-5/8	4
	170.0	1	tower mounts	Sector Mount [SM 502-3]			
160.0	160.0	3	andrew	HBX-6516DS-VTM w/ Mount Pipe	6	1-5/8	1
		1	tower mounts	Sector Mount [SM 104-3]			
153.0	153.0	2	commscope	ATBT-BOTTOM-24V	8	7/8	1
		2	commscope	LNX-6515DS-VTM w/ Mount Pipe			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		2	ems wireless	RR90-17-02DP w/ Mount Pipe			
		2	ericsson	KRY 112 144/1			
		2	tower mounts	Side Arm Mount [SO 301-1]			
140.0	141.0	3	communication components inc.	DTMABP7819VG12A	12 2 1 1	7/8 3/4 3/8 Conduit	1
		6	ericsson	RRUS-11			
		3	kathrein	800 10121 w/ Mount Pipe			
		4	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe			
		2	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		3	powerwave technologies	7020.00			
		3	powerwave technologies	LGP13519			
		1	raycap	DC6-48-60-18-8F			
	140.0	1	tower mounts	Sector Mount [SM 504-3]			
98.0	102.0	1	symmetricom	58532A	-	-	1
	98.0	1	tower mounts	Side Arm Mount [SO 301-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be Removed, Considered in this Analysis
4) Abandoned Equipment; 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)
189	189	12	Decibel	DB980H90E-M	12	2-1/4
170	170	1	generic	Mounting Frame	12	1 5/8
		12	Swedcom	ALP9212		
150	150	12	Swedcom	ALP9212	12	1 5/8
80	80	1	generic	12' Gate Boom	1	7/8
		1	generic	GPS Antenna		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering	2189896	CCI Sites
4-TOWER MANUFACTURER DRAWINGS	Rohn	1631630	CCI Sites
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Rohn	1631622	CCI Sites

3.1) Analysis Method

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

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically and must be replaced if damaged or cracked. Refer to Crown Castle document ENG-PRC-10012, Base Plate Grout Repair.

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
T1	192 - 180	Leg	ROHN 2.5 STD	1	-8.388	63.560	13.2	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	27	-40.997	57.139	71.8	Pass
T3	160 - 140	Leg	ROHN 3 EH	57	-75.920	94.337	80.5	Pass
T4	140 - 120	Leg	ROHN 4 EH	78	-116.623	159.899	72.9	Pass
T5	120 - 100	Leg	ROHN 5 EH	99	-155.166	239.348	64.8	Pass
T6	100 - 80	Leg	ROHN 6 EHS	120	-189.129	244.047	77.5	Pass
T7	80 - 60	Leg	ROHN 6 EH	135	-226.462	303.757	74.6	Pass
T8	60 - 40	Leg	ROHN 8 EHS	150	-261.827	393.649	66.5	Pass
T9	40 - 20	Leg	ROHN 8 EHS	165	-297.486	393.703	75.6	Pass
T10	20 - 0	Leg	ROHN 8 EHS	180	-333.211	393.691	84.6	Pass
T1	192 - 180	Diagonal	L1 3/4x1 3/4x3/16	11	-1.838	8.789	20.9 27.0 (b)	Pass
T2	180 - 160	Diagonal	L2x2x3/16	36	-4.691	7.794	60.2 60.8 (b)	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	63	-6.691	12.367	54.1 63.0 (b)	Pass
T4	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	84	-7.908	9.447	83.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T5	120 - 100	Diagonal	L3x3x1/4	105	-8.418	13.104	64.2	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	126	-9.824	14.295	68.7 72.4 (b)	Pass
T7	80 - 60	Diagonal	L4x4x1/4	141	-10.765	18.143	59.3 78.8 (b)	Pass
T8	60 - 40	Diagonal	L4x4x5/16	156	-10.319	18.754	55.0 76.5 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	171	-12.234	16.165	75.7 88.7 (b)	Pass
T10	20 - 0	Diagonal	L4x4x3/8	183	-12.710	16.496	77.0 92.2 (b)	Pass
T1	192 - 180	Top Girt	L1 3/4x1 3/4x3/16	4	-0.119	3.099	3.9	Pass
T2	180 - 160	Top Girt	L2x2x3/16	28	-1.010	4.694	21.5	Pass
							Summary	
						Leg (T10)	84.6	Pass
						Diagonal (T10)	92.2	Pass
						Top Girt (T2)	21.5	Pass
						Bolt Checks	92.2	Pass
						Rating =	92.2	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	57.9	Pass
1	Base Foundation (Structure)	0	16.7	Pass
1	Base Foundation (Soil Interaction)	0	46.6	Pass

Structure Rating (max from all components) =	92.2%

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

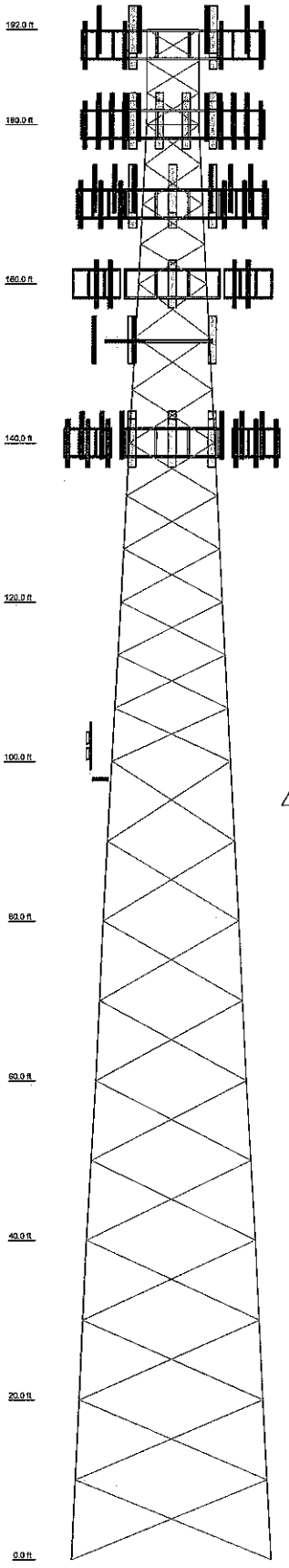
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	11	10	9	8	7	6	5	4	3	2	1
Legs	RDHN 2.5 STD	RDHN 8 EHS	RDHN 8 EHS	RDHN 8 EH	RDHN 5 EH	RDHN 4 EH	RDHN 3 EH	RDHN 2.5 STD			
Leg Grade	A572-50										
Diagonals	L1 3/4x1 3/4x3/16	L4x4x5/16		L4x4x1/4	L3x3x1/4	L3 1/2x3 1/2x1/4		L2x2x3/16			
Diagonal Grade	A36	A572-50									
Top Girts	L1 3/4x1 3/4x3/16	N.A.						L2x2x3/16			
Face Width (ft)	6.58	23.05	21.13	19.88	16.92	14.83	12.74	10.67	8.54		
# Panels @ (ft)	3 @ 4	10 @ 10				9 @ 6.66667		4 @ 5			
Weights (K)	0.8	26.5	4.5	4.4	3.5	3.9	3.7	2.9	1.5		



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
NNVV-65B-R4 w/ Mount Pipe	190	HBX-6516DS-VTM w/ Mount Pipe	160
NNVV-65B-R4 w/ Mount Pipe	190	HBX-6516DS-VTM w/ Mount Pipe	160
NNVV-65B-R4 w/ Mount Pipe	190	8' x 2" Mount Pipe	160
APXVTM14-ALU-I20 w/ Mount Pipe	190	8' x 2" Mount Pipe	160
APXVTM14-ALU-I20 w/ Mount Pipe	190	8' x 2" Mount Pipe	160
APXVTM14-ALU-I20 w/ Mount Pipe	190	Sector Mount [SM 104-3]	160
TD-RRH8x20-25	190	RR90-17-02DP w/ Mount Pipe	153
TD-RRH8x20-25	190	RR90-17-02DP w/ Mount Pipe	153
TD-RRH8x20-25	190	LNX-6515DS-VTM w/ Mount Pipe	153
PCS 1900MHz 4x45W-65MHz	190	LNX-6515DS-VTM w/ Mount Pipe	153
PCS 1900MHz 4x45W-65MHz	190	KRY 112 144/1	153
PCS 1900MHz 4x45W-65MHz	190	KRY 112 144/1	153
(2) RRH2X50-800	190	ATBT-BOTTOM-24V	153
(2) RRH2X50-800	190	ATBT-BOTTOM-24V	153
(2) RRH2X50-800	190	Side Arm Mount [SO 301-1]	153
Sector Mount [SM 506-3]	190	Side Arm Mount [SO 301-1]	153
58532A	180	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	140
(2) LPA-80080/4CF	180	(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe	140
(2) LPA-80080/4CF	180	(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe	140
(2) LPA-80080/4CF	180	800 10121 w/ Mount Pipe	140
(2) JAHH-65B-R3B	180	800 10121 w/ Mount Pipe	140
(2) JAHH-65B-R3B	180	800 10121 w/ Mount Pipe	140
(2) JAHH-65B-R3B	180	DC6-48-60-18-8F	140
BAND 5 AHCA RRH40X40	180	(2) RRUS-11	140
BAND 5 AHCA RRH40X40	180	(2) RRUS-11	140
BAND 5 AHCA RRH40X40	180	(2) RRUS-11	140
RRH2X60-700	180	7020.00	140
RRH2X60-700	180	7020.00	140
RRH2X60-700	180	7020.00	140
RRH4X45-AWS4 B66	180	LGP13519	140
RRH4X45-AWS4 B66	180	LGP13519	140
RRH4X45-AWS4 B66	180	LGP13519	140
(2) RC3DC-3315-PF-48	180	DTMABP7819VG12A	140
Sector Mount [SM 304-3]	180	DTMABP7819VG12A	140
(3) 7130.16.33.00 w/ Mount Pipe	170	DTMABP7819VG12A	140
(3) 7130.16.33.00 w/ Mount Pipe	170	Sector Mount [SM 504-3]	140
(3) 7130.16.33.00 w/ Mount Pipe	170	58532A	99
Sector Mount [SM 502-3]	170	Side Arm Mount [SO 301-1]	99
HBX-6516DS-VTM w/ Mount Pipe	160		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

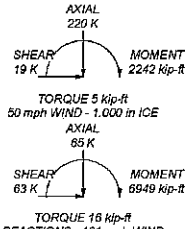
TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in Ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 92.2%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 342 K
SHEAR: 39 K

UPLIFT: -289 K
SHEAR: 34 K



TORQUE 5 kip-ft
50 mph WIND - 1.000 in ICE

TORQUE 16 kip-ft
REACTIONS - 101 mph WIND

CROWN CASTLE
The Pathway to Possible

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX: (724) 416-4623

Job:	**BU# 876345**		
Project:			
Client: Crown Castle	Drawn by: Mahdis Arianpour		App'd:
Code: TIA-222-G	Date: 05/31/18		Scale: NTS
Path:			Dwg No. E-1

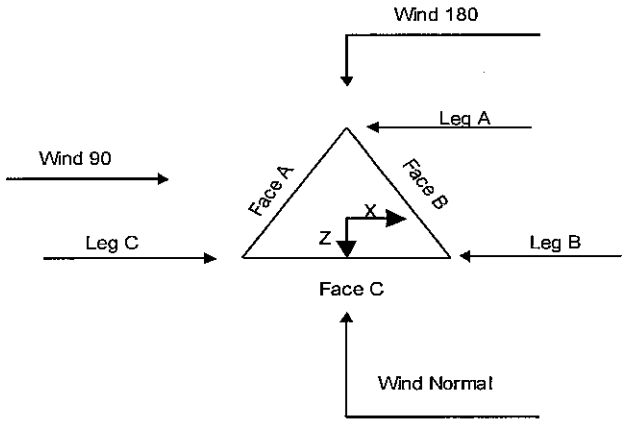
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 192.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 6.580 ft at the top and 25.050 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

1) Tower is located in Windham County, Connecticut.
2) Basic wind speed of 101 mph.
3) Structure Class II.
4) Exposure Category B.
5) Topographic Category 1.
6) Crest Height 0.000 ft.
7) Nominal ice thickness of 1.000 in.
8) Ice thickness is considered to increase with height.
9) Ice density of 56.000 pcf.
10) A wind speed of 50 mph is used in combination with ice.
11) Temperature drop of 50.000 °F.
12) Deflections calculated using a wind speed of 60 mph.
13) Pressures are calculated at each section.
14) Stress ratio used in tower member design is 1.
15) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	192.000-180.000			6.580	1	12.000
T2	180.000-160.000			6.580	1	20.000
T3	160.000-140.000			8.540	1	20.000
T4	140.000-120.000			10.610	1	20.000
T5	120.000-100.000			12.740	1	20.000
T6	100.000-80.000			14.830	1	20.000
T7	80.000-60.000			16.920	1	20.000
T8	60.000-40.000			18.880	1	20.000
T9	40.000-20.000			21.130	1	20.000
T10	20.000-0.000			23.050	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in.	in
T1	192.000-180.000	4.000	X Brace	No	No	0.000	0.000
T2	180.000-160.000	5.000	X Brace	No	No	0.000	0.000
T3	160.000-140.000	6.667	X Brace	No	No	0.000	0.000
T4	140.000-120.000	6.667	X Brace	No	No	0.000	0.000
T5	120.000-100.000	6.667	X Brace	No	No	0.000	0.000
T6	100.000-80.000	10.000	X Brace	No	No	0.000	0.000
T7	80.000-60.000	10.000	X Brace	No	No	0.000	0.000
T8	60.000-40.000	10.000	X Brace	No	No	0.000	0.000
T9	40.000-20.000	10.000	X Brace	No	No	0.000	0.000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T10	20.000-0.000	10.000	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 192.000-180.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 180.000-160.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 160.000-140.000	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 140.000-120.000	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 120.000-100.000	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T6 100.000-80.000	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T7 80.000-60.000	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A572-50 (50 ksi)
T8 60.000-40.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T9 40.000-20.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T10 20.000-0.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 192.000-180.000	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T2 180.000-160.000	Equal Angle	L2x2x3/16	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	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
T1 192.000-180.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 180.000-160.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 160.000-140.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 140.000-120.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 120.000-100.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 100.000-80.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 80.000-60.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 60.000-40.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 40.000-20.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_r	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
T10 20.000-0.000	0.000	0.250	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 192.000-180.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T2 180.000-160.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T3 160.000-140.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T4 140.000-120.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T5 120.000-100.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T6 100.000-80.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T7 80.000-60.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T8 60.000-40.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T9 40.000-20.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T10 20.000-0.000	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1 192.000-180.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 180.000-160.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 160.000-140.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 140.000-120.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 120.000-100.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 100.000-80.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 80.000-60.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 60.000-40.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 192.000-180.000	Flange	0.625 A325N	4	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T2 180.000-160.000	Flange	0.625 A325N	4	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T3 160.000-140.000	Flange	0.875 A325N	4	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T4 140.000-120.000	Flange	1.000 A325N	4	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T5 120.000-100.000	Flange	1.000 A325N	6	0.750 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T6 100.000-80.000	Flange	1.000 A325N	6	0.750 A325N	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T7 80.000-60.000	Flange	1.000 A325N	8	0.750 A325N	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T8 60.000-40.000	Flange	1.000 A325N	8	0.750 A325X	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T9 40.000-20.000	Flange	1.000 A325N	8	0.750 A325X	1	0.625 A325N	0	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0
T10 20.000-0.000	Flange	1.000 A354-BC	10	0.750 A325X	1	0.625 A325N	0	0.000 A325N	0	0.625 A325X	0	0.625 A325N	0	0.625 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
HB114-1-0813U4-M5J(1-1/4) ***** *****	A	No	Ar (CaAa)	190.000 - 0.000	2.000	-0.45	4	4	0.850 0.750	1.540		0.001
LDF4-50A(1/2")	A	No	Ar (CaAa)	180.000 - 0.000	0.000	0.45	1	1	0.850 0.750	0.630		0.000
LDF7-50A(1-5/8") *****	A	No	Ar (CaAa)	180.000 - 0.000	0.000	0.41	8	8	0.850 0.750	1.980		0.001
LDF7-50A(1-5/8") *****	B	No	Ar (CaAa)	170.000 - 0.000	0.000	-0.4	9	9	0.850 75.000	1.980		0.001
FXL 1873 PE(1 5/8") *****	B	No	Ar (CaAa)	160.000 - 0.000	-2.000	0.45	6	3	0.850 0.750	1.980		0.000
AVA5-50(7/8") *****	C	No	Ar (CaAa)	153.000 - 0.000	0.000	0.4	8	8	0.850 0.750	1.102		0.000
FLC 78-50J(7/8")	C	No	Ar (CaAa)	140.000 - 0.000	0.000	-0.45	12	12	0.850 0.750	1.112		0.000
FB-L98B-002-75000(3/8)	C	No	Ar (CaAa)	140.000 - 0.000	1.500	-0.46	1	1	0.300	0.394		0.000
WR-VG86ST-BRD(3/4)	C	No	Ar (CaAa)	140.000 - 0.000	1.500	-0.47	2	2	0.300	0.795		0.001
2" Rigid Conduit *****	C	No	Ar (CaAa)	140.000 - 0.000	0.000	-0.405	1	1	2.000	2.000		0.003
Feedline Ladder (Af)	A	No	Af (CaAa)	190.000 - 0.000	0.000	-0.45	1	1	3.000	3.000		0.008
Feedline Ladder (Af)	A	No	Af (CaAa)	180.000 - 0.000	0.000	0.41	1	1	3.000	3.000		0.008

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
*****												
Feedline Ladder (Af)	B	No	Af (CaAa)	170.000 - 0.000	0.000	-0.4	1	1	3.000	3.000		0.008
Feedline Ladder (Af)	B	No	Af (CaAa)	160.000 - 0.000	-1.000	0.45	1	1	3.000	3.000		0.008
*****												
Feedline Ladder (Af)	C	No	Af (CaAa)	150.000 - 0.000	0.000	0.4	1	1	3.000	3.000		0.008
Feedline Ladder (Af)	C	No	Af (CaAa)	140.000 - 0.000	0.000	-0.45	1	1	3.000	3.000		0.008
*****												
Thin Flat Bar Climbing Ladder	A	No	Af (CaAa)	192.000 - 0.000	-6.000	0.45	1	1	2.000	2.000		0.004
Safety Line 3/8	A	No	Ar (CaAa)	192.000 - 0.000	-6.000	0.45	1	1	0.375	0.375		0.000
*****												

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 klf
*****							

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
T1	192.000-180.000	A	0.000	0.000	15.610	0.000	0.183
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T2	180.000-160.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	22.820	0.000	0.158
		C	0.000	0.000	0.000	0.000	0.000
T3	160.000-140.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	16.461	0.000	0.115
T4	140.000-120.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	72.287	0.000	0.561
T5	120.000-100.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	72.287	0.000	0.561
T6	100.000-80.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	72.287	0.000	0.561
T7	80.000-60.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	72.287	0.000	0.561
T8	60.000-40.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	72.287	0.000	0.561
T9	40.000-20.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	72.287	0.000	0.561
T10	20.000-0.000	A	0.000	0.000	72.677	0.000	0.651
		B	0.000	0.000	79.400	0.000	0.484
		C	0.000	0.000	72.287	0.000	0.561

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
T1	192.000-180.000	A	2.378	0.000	0.000	44.197	0.000	0.929
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
T2	180.000-160.000	A	2.356	0.000	0.000	181.157	0.000	3.699
		B		0.000	0.000	47.320	0.000	0.968
		C		0.000	0.000	0.000	0.000	0.000
T3	160.000-140.000	A	2.327	0.000	0.000	180.198	0.000	3.651
		B		0.000	0.000	152.291	0.000	3.137
		C		0.000	0.000	42.568	0.000	0.794
T4	140.000-120.000	A	2.294	0.000	0.000	179.117	0.000	3.597
		B		0.000	0.000	151.597	0.000	3.095
		C		0.000	0.000	202.655	0.000	3.713
T5	120.000-100.000	A	2.256	0.000	0.000	177.875	0.000	3.535
		B		0.000	0.000	150.800	0.000	3.048
		C		0.000	0.000	201.319	0.000	3.648
T6	100.000-80.000	A	2.211	0.000	0.000	176.410	0.000	3.463
		B		0.000	0.000	149.860	0.000	2.992
		C		0.000	0.000	199.744	0.000	3.572
T7	80.000-60.000	A	2.156	0.000	0.000	174.618	0.000	3.375
		B		0.000	0.000	148.710	0.000	2.924
		C		0.000	0.000	197.817	0.000	3.480
T8	60.000-40.000	A	2.085	0.000	0.000	172.291	0.000	3.264
		B		0.000	0.000	147.216	0.000	2.837
		C		0.000	0.000	195.314	0.000	3.362
T9	40.000-20.000	A	1.981	0.000	0.000	168.906	0.000	3.104
		B		0.000	0.000	145.043	0.000	2.712
		C		0.000	0.000	191.676	0.000	3.194
T10	20.000-0.000	A	1.775	0.000	0.000	162.202	0.000	2.800
		B		0.000	0.000	140.738	0.000	2.470
		C		0.000	0.000	184.471	0.000	2.872

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	192.000-180.000	-3.243	0.243	-2.365	-1.087
T2	180.000-160.000	-2.129	-5.892	-1.892	-5.713
T3	160.000-140.000	-0.450	-4.328	-1.103	-4.736
T4	140.000-120.000	1.483	-2.018	0.986	-2.178
T5	120.000-100.000	1.679	-2.282	1.129	-2.511
T6	100.000-80.000	1.919	-2.604	1.311	-2.926
T7	80.000-60.000	2.115	-2.867	1.455	-3.251
T8	60.000-40.000	2.271	-3.078	1.589	-3.551
T9	40.000-20.000	2.485	-3.365	1.744	-3.884
T10	20.000-0.000	2.680	-3.628	1.900	-4.186

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	HB114-1-0813U4-M5J(1-1/4)	180.00 - 190.00	0.6000	0.5011
T1	21	Feedline Ladder (Af)	180.00 - 190.00	0.6000	0.5011
T1	30	Thin Flat Bar Climbing Ladder	180.00 - 192.00	0.6000	0.5011
T1	31	Safety Line 3/8	180.00 - 192.00	0.6000	0.5011
T2	2	HB114-1-0813U4-M5J(1-1/4)	160.00 - 180.00	0.6000	0.5800
T2	7	LDF4-50A(1/2")	160.00 -	0.6000	0.5800

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T2	8	LDF7-50A(1-5/8")	180.00 160.00 - 180.00	0.6000	0.5800
T2	10	LDF7-50A(1-5/8")	160.00 - 170.00	0.6000	0.5800
T2	21	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.5800
T2	22	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.5800
T2	24	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.5800
T2	30	Thin Flat Bar Climbing Ladder	160.00 - 180.00	0.6000	0.5800
T2	31	Safety Line 3/8	160.00 - 180.00	0.6000	0.5800
T3	2	HB114-1-0813U4-M5J(1-1/4)	140.00 - 160.00	0.6000	0.6000
T3	7	LDF4-50A(1/2")	140.00 - 160.00	0.6000	0.6000
T3	8	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.6000
T3	10	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.6000
T3	12	FXL 1873 PE(1 5/8")	140.00 - 160.00	0.6000	0.6000
T3	14	AVA5-50(7/8")	140.00 - 153.00	0.6000	0.6000
T3	21	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	22	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	24	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	25	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	27	Feedline Ladder (Af)	140.00 - 150.00	0.6000	0.6000
T3	30	Thin Flat Bar Climbing Ladder	140.00 - 160.00	0.6000	0.6000
T3	31	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T4	2	HB114-1-0813U4-M5J(1-1/4)	120.00 - 140.00	0.6000	0.6000
T4	7	LDF4-50A(1/2")	120.00 - 140.00	0.6000	0.6000
T4	8	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.6000
T4	10	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.6000
T4	12	FXL 1873 PE(1 5/8")	120.00 - 140.00	0.6000	0.6000
T4	14	AVA5-50(7/8")	120.00 - 140.00	0.6000	0.6000
T4	16	FLC 78-50J(7/8")	120.00 - 140.00	0.6000	0.6000
T4	17	FB-L98B-002-75000(3/8)	120.00 - 140.00	0.0000	0.0000
T4	18	WR-VG86ST-BRD(3/4)	120.00 - 140.00	0.0000	0.0000
T4	19	2" Rigid Conduit	120.00 - 140.00	0.6000	0.6000
T4	21	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	22	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	24	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	25	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	27	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	28	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	30	Thin Flat Bar Climbing Ladder	120.00 - 140.00	0.6000	0.6000
T4	31	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T5	2	HB114-1-0813U4-M5J(1-1/4)	100.00 - 120.00	0.6000	0.6000
T5	7	LDF4-50A(1/2")	100.00 - 120.00	0.6000	0.6000
T5	8	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T5	10	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T5	12	FXL 1873 PE(1 5/8")	100.00 - 120.00	0.6000	0.6000
T5	14	AVA5-50(7/8")	100.00 - 120.00	0.6000	0.6000
T5	16	FLC 78-50J(7/8")	100.00 - 120.00	0.6000	0.6000
T5	17	FB-L98B-002-75000(3/8)	100.00 - 120.00	0.0000	0.0000
T5	18	WR-VG86ST-BRD(3/4)	100.00 - 120.00	0.0000	0.0000
T5	19	2" Rigid Conduit	100.00 - 120.00	0.6000	0.6000
T5	21	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	22	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	24	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	25	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	27	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	28	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	30	Thin Flat Bar Climbing Ladder	100.00 - 120.00	0.6000	0.6000
T5	31	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T6	2	HB114-1-0813U4-M5J(1-1/4)	80.00 - 100.00	0.6000	0.6000
T6	7	LDF4-50A(1/2")	80.00 - 100.00	0.6000	0.6000
T6	8	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T6	10	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T6	12	FXL 1873 PE(1 5/8")	80.00 - 100.00	0.6000	0.6000
T6	14	AVA5-50(7/8")	80.00 - 100.00	0.6000	0.6000
T6	16	FLC 78-50J(7/8")	80.00 - 100.00	0.6000	0.6000
T6	17	FB-L98B-002-75000(3/8)	80.00 - 100.00	0.0000	0.0000
T6	18	WR-VG86ST-BRD(3/4)	80.00 - 100.00	0.0000	0.0000
T6	19	2" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T6	21	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	22	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	24	Feedline Ladder (Af)	80.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	25	Feedline Ladder (Af)	100.00 80.00 - 100.00	0.6000	0.6000
T6	27	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	28	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	30	Thin Flat Bar Climbing Ladder	80.00 - 100.00	0.6000	0.6000
T6	31	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T7	2	HB114-1-0813U4-M5J(1-1/4)	60.00 - 80.00	0.6000	0.6000
T7	7	LDF4-50A(1/2")	60.00 - 80.00	0.6000	0.6000
T7	8	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T7	10	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T7	12	FXL 1873 PE(1 5/8")	60.00 - 80.00	0.6000	0.6000
T7	14	AVA5-50(7/8")	60.00 - 80.00	0.6000	0.6000
T7	16	FLC 78-50J(7/8")	60.00 - 80.00	0.6000	0.6000
T7	17	FB-L98B-002-75000(3/8)	60.00 - 80.00	0.0000	0.0000
T7	18	WR-VG86ST-BRD(3/4)	60.00 - 80.00	0.0000	0.0000
T7	19	2" Rigid Conduit	60.00 - 80.00	0.6000	0.6000
T7	21	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	22	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	24	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	25	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	27	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	28	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	30	Thin Flat Bar Climbing Ladder	60.00 - 80.00	0.6000	0.6000
T7	31	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T8	2	HB114-1-0813U4-M5J(1-1/4)	40.00 - 60.00	0.6000	0.6000
T8	7	LDF4-50A(1/2")	40.00 - 60.00	0.6000	0.6000
T8	8	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T8	10	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T8	12	FXL 1873 PE(1 5/8")	40.00 - 60.00	0.6000	0.6000
T8	14	AVA5-50(7/8")	40.00 - 60.00	0.6000	0.6000
T8	16	FLC 78-50J(7/8")	40.00 - 60.00	0.6000	0.6000
T8	17	FB-L98B-002-75000(3/8)	40.00 - 60.00	0.0000	0.0000
T8	18	WR-VG86ST-BRD(3/4)	40.00 - 60.00	0.0000	0.0000
T8	19	2" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T8	21	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	22	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	24	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	25	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	27	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	28	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	30	Thin Flat Bar Climbing Ladder	40.00 - 60.00	0.6000	0.6000
T8	31	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T9	2	HB114-1-0813U4-M5J(1-1/4)	20.00 - 40.00	0.6000	0.6000
T9	7	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T9	8	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	10	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	12	FXL 1873 PE(1 5/8")	20.00 - 40.00	0.6000	0.6000
T9	14	AVA5-50(7/8")	20.00 - 40.00	0.6000	0.6000
T9	16	FLC 78-50J(7/8")	20.00 - 40.00	0.6000	0.6000
T9	17	FB-L98B-002-75000(3/8)	20.00 - 40.00	0.0000	0.0000
T9	18	WR-VG86ST-BRD(3/4)	20.00 - 40.00	0.0000	0.0000
T9	19	2" Rigid Conduit	20.00 - 40.00	0.6000	0.6000
T9	21	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	22	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	24	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	25	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	27	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	28	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	30	Thin Flat Bar Climbing Ladder	20.00 - 40.00	0.6000	0.6000
T9	31	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T10	2	HB114-1-0813U4-M5J(1-1/4)	0.00 - 20.00	0.6000	0.6000
T10	7	LDF4-50A(1/2")	0.00 - 20.00	0.6000	0.6000
T10	8	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	10	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T10	12	FXL 1873 PE(1 5/8")	0.00 - 20.00	0.6000	0.6000
T10	14	AVA5-50(7/8")	0.00 - 20.00	0.6000	0.6000
T10	16	FLC 78-50J(7/8")	0.00 - 20.00	0.6000	0.6000
T10	17	FB-L98B-002-75000(3/8)	0.00 - 20.00	0.0000	0.0000
T10	18	WR-VG86ST-BRD(3/4)	0.00 - 20.00	0.0000	0.0000
T10	19	2" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T10	21	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	22	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	24	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	25	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	27	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	28	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	30	Thin Flat Bar Climbing Ladder	0.00 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	31	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	12.509 13.108 13.672	7.413 8.598 9.496	0.103 0.194 0.293
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	12.509 13.108 13.672	7.413 8.598 9.496	0.103 0.194 0.293
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	12.509 13.108 13.672	7.413 8.598 9.496	0.103 0.194 0.293
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.132 0.193
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.132 0.193
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.132 0.193
TD-RRH8x20-25	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
TD-RRH8x20-25	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
TD-RRH8x20-25	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
PCS 1900MHz 4x45W-65MHz	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.060 0.083 0.110
PCS 1900MHz 4x45W-65MHz	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.060 0.083 0.110
PCS 1900MHz 4x45W-65MHz	C	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.060 0.083 0.110
(2) RRH2X50-800	A	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	1.701 1.864 2.035	1.282 1.428 1.580	0.053 0.070 0.090
(2) RRH2X50-800	B	From Leg	4.000 0.000 2.000	0.000	190.000	No Ice 1/2" Ice 1" Ice	1.701 1.864 2.035	1.282 1.428 1.580	0.053 0.070 0.090

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) RRH2X50-800	C	From Leg	4.000	0.000	0.000	190.000	No Ice	1.701	1.282	0.053
			0.000				1/2" Ice	1.864	1.428	0.070
			2.000				1" Ice	2.035	1.580	0.090
Sector Mount [SM 506-3]	C	None			0.000	190.000	No Ice	35.470	35.470	1.742
							1/2" Ice	50.600	50.600	2.348
							1" Ice	65.730	65.730	2.953
*******										
58532A	C	From Leg	4.000	0.000	180.000	No Ice		0.189	0.189	0.000
			0.000				1/2" Ice	0.248	0.248	0.003
			4.000				1" Ice	0.315	0.315	0.006
(2) LPA-80080/4CF	A	From Leg	4.000	0.000	180.000	No Ice		2.619	5.399	0.012
			0.000				1/2" Ice	2.922	5.726	0.045
			1.000				1" Ice	3.232	6.061	0.083
(2) LPA-80080/4CF	B	From Leg	4.000	0.000	180.000	No Ice		2.619	5.399	0.012
			0.000				1/2" Ice	2.922	5.726	0.045
			1.000				1" Ice	3.232	6.061	0.083
(2) LPA-80080/4CF	C	From Leg	4.000	0.000	180.000	No Ice		2.619	5.399	0.012
			0.000				1/2" Ice	2.922	5.726	0.045
			1.000				1" Ice	3.232	6.061	0.083
(2) JAHH-65B-R3B	A	From Leg	4.000	0.000	180.000	No Ice		9.113	5.983	0.061
			0.000				1/2" Ice	9.579	6.442	0.119
			1.000				1" Ice	10.052	6.909	0.183
(2) JAHH-65B-R3B	B	From Leg	4.000	0.000	180.000	No Ice		9.113	5.983	0.061
			0.000				1/2" Ice	9.579	6.442	0.119
			1.000				1" Ice	10.052	6.909	0.183
(2) JAHH-65B-R3B	C	From Leg	4.000	0.000	180.000	No Ice		9.113	5.983	0.061
			0.000				1/2" Ice	9.579	6.442	0.119
			1.000				1" Ice	10.052	6.909	0.183
BAND 5 AHCA RRH4X40	A	From Leg	4.000	0.000	180.000	No Ice		1.313	0.746	0.040
			0.000				1/2" Ice	1.456	0.860	0.052
			1.000				1" Ice	1.607	0.982	0.066
BAND 5 AHCA RRH4X40	B	From Leg	4.000	0.000	180.000	No Ice		1.313	0.746	0.040
			0.000				1/2" Ice	1.456	0.860	0.052
			1.000				1" Ice	1.607	0.982	0.066
BAND 5 AHCA RRH4X40	C	From Leg	4.000	0.000	180.000	No Ice		1.313	0.746	0.040
			0.000				1/2" Ice	1.456	0.860	0.052
			1.000				1" Ice	1.607	0.982	0.066
RRH2X60-700	A	From Leg	4.000	0.000	180.000	No Ice		3.500	1.816	0.060
			0.000				1/2" Ice	3.761	2.052	0.083
			1.000				1" Ice	4.029	2.289	0.109
RRH2X60-700	B	From Leg	4.000	0.000	180.000	No Ice		3.500	1.816	0.060
			0.000				1/2" Ice	3.761	2.052	0.083
			1.000				1" Ice	4.029	2.289	0.109
RRH2X60-700	C	From Leg	4.000	0.000	180.000	No Ice		3.500	1.816	0.060
			0.000				1/2" Ice	3.761	2.052	0.083
			1.000				1" Ice	4.029	2.289	0.109
RRH4X45-AWS4 B66	A	From Leg	4.000	0.000	180.000	No Ice		2.660	1.586	0.064
			0.000				1/2" Ice	2.878	1.769	0.084
			1.000				1" Ice	3.104	1.959	0.108

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRH4X45-AWS4 B66	B	From Leg	4.000		0.000	180.000	No Ice	2.660	1.586	0.064
			0.000				1/2" Ice	2.878	1.769	0.084
			1.000				1" Ice	3.104	1.959	0.108
RRH4X45-AWS4 B66	C	From Leg	4.000		0.000	180.000	No Ice	2.660	1.586	0.064
			0.000				1/2" Ice	2.878	1.769	0.084
			1.000				1" Ice	3.104	1.959	0.108
(2) RC3DC-3315-PF-48	A	From Leg	4.000		0.000	180.000	No Ice	3.792	2.512	0.032
			0.000				1/2" Ice	4.044	2.725	0.063
			1.000				1" Ice	4.303	2.945	0.099
Sector Mount [SM 304-3]	C	None			0.000	180.000	No Ice	44.820	44.820	1.920
							1/2" Ice	63.480	63.480	2.772
							1" Ice	82.140	82.140	3.624
******										
(3) 7130.16.33.00 w/ Mount Pipe	A	From Leg	4.000		0.000	170.000	No Ice	5.555	6.584	0.037
			0.000				1/2" Ice	5.968	7.295	0.096
			2.000				1" Ice	6.382	7.978	0.162
(3) 7130.16.33.00 w/ Mount Pipe	B	From Leg	4.000		0.000	170.000	No Ice	5.555	6.584	0.037
			0.000				1/2" Ice	5.968	7.295	0.096
			2.000				1" Ice	6.382	7.978	0.162
(3) 7130.16.33.00 w/ Mount Pipe	C	From Leg	4.000		0.000	170.000	No Ice	5.555	6.584	0.037
			0.000				1/2" Ice	5.968	7.295	0.096
			2.000				1" Ice	6.382	7.978	0.162
Sector Mount [SM 502-3]	C	None			0.000	170.000	No Ice	33.020	33.020	1.673
							1/2" Ice	47.360	47.360	2.224
							1" Ice	61.700	61.700	2.775
*******										
HBX-6516DS-VTM w/ Mount Pipe	A	From Leg	4.000		0.000	160.000	No Ice	3.598	3.241	0.029
			0.000				1/2" Ice	3.998	3.914	0.062
			0.000				1" Ice	4.389	4.564	0.101
HBX-6516DS-VTM w/ Mount Pipe	B	From Leg	4.000		0.000	160.000	No Ice	3.598	3.241	0.029
			0.000				1/2" Ice	3.998	3.914	0.062
			0.000				1" Ice	4.389	4.564	0.101
HBX-6516DS-VTM w/ Mount Pipe	C	From Leg	4.000		0.000	160.000	No Ice	3.598	3.241	0.029
			0.000				1/2" Ice	3.998	3.914	0.062
			0.000				1" Ice	4.389	4.564	0.101
6' x 2" Mount Pipe	A	From Leg	4.000		0.000	160.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	B	From Leg	4.000		0.000	160.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	4.000		0.000	160.000	No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
			0.000				1" Ice	2.294	2.294	0.048
Sector Mount [SM 104-3]	C	None			0.000	160.000	No Ice	30.020	30.020	0.953
							1/2" Ice	40.480	40.480	1.405
							1" Ice	50.940	50.940	1.857
*******										
RR90-17-02DP w/ Mount Pipe	A	From Leg	3.000		0.000	153.000	No Ice	4.593	3.319	0.034
			0.000				1/2" Ice	5.018	4.089	0.072

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
			0.000			Ice	5.436	4.784	0.115
						1" Ice			
RR90-17-02DP w/ Mount Pipe	C	From Leg	3.000	0.000	153.000	No Ice	4.593	3.319	0.034
			0.000			1/2"	5.018	4.089	0.072
			0.000			Ice	5.436	4.784	0.115
						1" Ice			
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	3.000	0.000	153.000	No Ice	11.683	9.842	0.083
			0.000			1/2"	12.404	11.366	0.173
			0.000			Ice	13.135	12.914	0.273
						1" Ice			
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	3.000	0.000	153.000	No Ice	11.683	9.842	0.083
			0.000			1/2"	12.404	11.366	0.173
			0.000			Ice	13.135	12.914	0.273
						1" Ice			
KRY 112 144/1	A	From Leg	3.000	0.000	153.000	No Ice	0.350	0.175	0.011
			0.000			1/2"	0.426	0.234	0.014
			0.000			Ice	0.509	0.301	0.019
						1" Ice			
KRY 112 144/1	C	From Leg	3.000	0.000	153.000	No Ice	0.350	0.175	0.011
			0.000			1/2"	0.426	0.234	0.014
			0.000			Ice	0.509	0.301	0.019
						1" Ice			
ATBT-BOTTOM-24V	A	From Leg	3.000	0.000	153.000	No Ice	0.104	0.065	0.003
			0.000			1/2"	0.148	0.102	0.004
			0.000			Ice	0.199	0.147	0.006
						1" Ice			
ATBT-BOTTOM-24V	C	From Leg	3.000	0.000	153.000	No Ice	0.104	0.065	0.003
			0.000			1/2"	0.148	0.102	0.004
			0.000			Ice	0.199	0.147	0.006
						1" Ice			
Side Arm Mount [SO 301-1]	A	From Leg	1.500	0.000	153.000	No Ice	1.000	0.900	0.023
			0.000			1/2"	1.390	1.420	0.033
			0.000			Ice	1.780	1.940	0.042
						1" Ice			
Side Arm Mount [SO 301-1]	C	From Leg	1.500	0.000	153.000	No Ice	1.000	0.900	0.023
			0.000			1/2"	1.390	1.420	0.033
			0.000			Ice	1.780	1.940	0.042
						1" Ice			
*******									
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.000	0.000	140.000	No Ice	8.262	6.304	0.074
			0.000			1/2"	8.822	7.479	0.139
			1.000			Ice	9.346	8.368	0.212
						1" Ice			
(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe	B	From Leg	4.000	0.000	140.000	No Ice	5.232	4.015	0.035
			0.000			1/2"	5.618	4.633	0.080
			1.000			Ice	6.012	5.257	0.131
						1" Ice			
(2) AM-X-CD-14-65-00T-RET w/ Mount Pipe	C	From Leg	4.000	0.000	140.000	No Ice	5.232	4.015	0.035
			0.000			1/2"	5.618	4.633	0.080
			1.000			Ice	6.012	5.257	0.131
						1" Ice			
800 10121 w/ Mount Pipe	A	From Leg	4.000	0.000	140.000	No Ice	5.388	4.600	0.066
			0.000			1/2"	5.813	5.351	0.114
			1.000			Ice	6.234	6.046	0.168
						1" Ice			
800 10121 w/ Mount Pipe	B	From Leg	4.000	0.000	140.000	No Ice	5.388	4.600	0.066
			0.000			1/2"	5.813	5.351	0.114
			1.000			Ice	6.234	6.046	0.168
						1" Ice			
800 10121 w/ Mount Pipe	C	From Leg	4.000	0.000	140.000	No Ice	5.388	4.600	0.066
			0.000			1/2"	5.813	5.351	0.114
			1.000			Ice	6.234	6.046	0.168
						1" Ice			
DC6-48-60-18-8F	A	From Leg	4.000	0.000	140.000	No Ice	0.791	0.791	0.020
			0.000			1/2"	1.274	1.274	0.035

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.000			Ice	1.450	1.450	0.053
						1" Ice			
(2) RRUS-11	A	From Leg	4.000	0.000	140.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068
			1.000			Ice	3.207	1.490	0.092
						1" Ice			
(2) RRUS-11	B	From Leg	4.000	0.000	140.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068
			1.000			Ice	3.207	1.490	0.092
						1" Ice			
(2) RRUS-11	C	From Leg	4.000	0.000	140.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068
			1.000			Ice	3.207	1.490	0.092
						1" Ice			
7020.00	A	From Leg	4.000	0.000	140.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			1.000			Ice	0.199	0.311	0.009
						1" Ice			
7020.00	B	From Leg	4.000	0.000	140.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			1.000			Ice	0.199	0.311	0.009
						1" Ice			
7020.00	C	From Leg	4.000	0.000	140.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			1.000			Ice	0.199	0.311	0.009
						1" Ice			
LGP13519	A	From Leg	4.000	0.000	140.000	No Ice	0.290	0.181	0.005
			0.000			1/2"	0.362	0.241	0.008
			1.000			Ice	0.441	0.310	0.012
						1" Ice			
LGP13519	B	From Leg	4.000	0.000	140.000	No Ice	0.290	0.181	0.005
			0.000			1/2"	0.362	0.241	0.008
			1.000			Ice	0.441	0.310	0.012
						1" Ice			
LGP13519	C	From Leg	4.000	0.000	140.000	No Ice	0.290	0.181	0.005
			0.000			1/2"	0.362	0.241	0.008
			1.000			Ice	0.441	0.310	0.012
						1" Ice			
DTMABP7819VG12A	A	From Leg	4.000	0.000	140.000	No Ice	0.976	0.339	0.019
			0.000			1/2"	1.100	0.419	0.026
			1.000			Ice	1.232	0.510	0.036
						1" Ice			
DTMABP7819VG12A	B	From Leg	4.000	0.000	140.000	No Ice	0.976	0.339	0.019
			0.000			1/2"	1.100	0.419	0.026
			1.000			Ice	1.232	0.510	0.036
						1" Ice			
DTMABP7819VG12A	C	From Leg	4.000	0.000	140.000	No Ice	0.976	0.339	0.019
			0.000			1/2"	1.100	0.419	0.026
			1.000			Ice	1.232	0.510	0.036
						1" Ice			
Sector Mount [SM 504-3]	C	None		0.000	140.000	No Ice	34.250	34.250	1.708
						1/2"	48.980	48.980	2.286
						Ice	63.710	63.710	2.864
						1" Ice			
*******									
58532A	C	From Leg	3.000	0.000	98.000	No Ice	0.189	0.189	0.000
			0.000			1/2"	0.248	0.248	0.003
			4.000			Ice	0.315	0.315	0.006
						1" Ice			
Side Arm Mount [SO 301-1]	C	From Leg	1.500	0.000	98.000	No Ice	1.000	0.900	0.023
			0.000			1/2"	1.390	1.420	0.033
			0.000			Ice	1.780	1.940	0.042
						1" Ice			
*******									

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
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
T1	192 - 180	Leg	Max Tension	23	5.743	-0.106	-0.065
			Max. Compression	18	-8.388	0.079	-0.058
			Max. Mx	20	-1.251	-1.008	0.002
			Max. My	2	-0.722	-0.035	-1.002
			Max. Vy	20	-0.741	0.485	-0.041
			Max. Vx	2	-0.749	-0.004	0.510
		Diagonal	Max Tension	4	1.844	0.000	0.000
			Max. Compression	4	-1.838	0.000	0.000
			Max. Mx	36	0.239	0.031	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	16	1.821	0.004	-0.002
			Max. Vy	36	-0.036	0.031	0.000
			Max. Vx	16	-0.001	0.004	-0.002
		Top Girt	Max Tension	14	0.131	0.000	0.000
			Max. Compression	3	-0.119	0.000	0.000
			Max. Mx	26	-0.006	-0.091	0.000
			Max. Vy	26	0.055	0.000	0.000
T2	180 - 160	Leg	Max Tension	23	32.760	-0.104	-0.013
			Max. Compression	2	-40.997	0.126	0.000
			Max. Mx	10	-40.123	0.131	0.013
			Max. My	20	-3.111	-0.017	-0.153
			Max. Vy	14	-1.500	-0.071	-0.005
			Max. Vx	8	1.498	0.011	-0.030
		Diagonal	Max Tension	16	4.758	0.000	0.000
			Max. Compression	16	-4.766	0.000	0.000
			Max. Mx	27	1.402	0.058	0.006
			Max. My	28	-1.731	0.029	0.007
			Max. Vy	27	-0.048	0.058	0.006
			Max. Vx	28	-0.003	0.000	0.000
		Top Girt	Max Tension	3	0.977	0.000	0.000
			Max. Compression	14	-1.010	0.000	0.000
			Max. Mx	26	-0.060	-0.097	0.000
			Max. My	26	-0.056	0.000	0.003
			Max. Vy	26	0.059	0.000	0.000
			Max. Vx	26	-0.002	0.000	0.000
T3	160 - 140	Leg	Max Tension	23	63.875	-0.177	-0.009
			Max. Compression	2	-75.920	0.175	-0.007
			Max. Mx	14	39.613	-0.206	-0.027
			Max. My	20	-5.962	-0.002	-0.266
			Max. Vy	14	-0.532	-0.104	-0.001
			Max. Vx	19	-0.549	-0.114	-0.186
		Diagonal	Max Tension	17	6.575	0.000	0.000
			Max. Compression	16	-6.691	0.000	0.000
			Max. Mx	27	1.534	0.106	-0.013
			Max. My	36	1.668	0.100	-0.014
			Max. Vy	37	0.072	0.093	0.013
			Max. Vx	36	0.004	0.000	0.000
T4	140 - 120	Leg	Max Tension	23	98.702	-0.241	-0.008
			Max. Compression	2	-116.623	0.388	-0.002
			Max. Mx	2	-116.623	0.388	-0.002
			Max. My	20	-8.769	0.009	-0.361
			Max. Vy	14	-1.046	-0.181	0.006
			Max. Vx	8	1.029	-0.008	0.069
		Diagonal	Max Tension	16	7.848	0.000	0.000
			Max. Compression	16	-7.908	0.000	0.000
			Max. Mx	27	2.008	0.130	-0.016
			Max. My	35	1.556	0.123	-0.017
			Max. Vy	37	0.086	0.127	0.016
			Max. Vx	35	0.005	0.000	0.000
T5	120 - 100	Leg	Max Tension	23	132.529	-0.365	-0.007
			Max. Compression	2	-155.166	0.798	0.002
			Max. Mx	3	-152.495	0.798	0.002
			Max. My	20	-10.487	-0.001	-0.645
			Max. Vy	19	-0.125	0.797	-0.020
			Max. Vx	8	-0.123	0.001	0.644
		Diagonal	Max Tension	16	8.434	0.000	0.000
			Max. Compression	16	-8.418	0.000	0.000
			Max. Mx	27	2.513	0.181	-0.022
			Max. My	29	-2.375	0.162	0.024
			Max. Vy	37	0.111	0.180	-0.023
			Max. Vx	29	-0.006	0.000	0.000
T6	100 - 80	Leg	Max Tension	7	162.115	-0.660	0.010
			Max. Compression	2	-189.128	0.971	-0.011
			Max. Mx	2	-189.128	0.971	-0.011
			Max. My	4	-10.491	-0.056	-1.084
			Max. Vy	18	-0.139	0.971	-0.014
			Max. Vx	20	-0.160	-0.055	-1.083
		Diagonal	Max Tension	16	9.769	0.000	0.000
			Max. Compression	16	-9.824	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	27	2.741	0.289	-0.038
			Max. My	36	2.626	0.282	-0.039
			Max. Vy	29	0.141	0.284	-0.037
			Max. Vx	36	0.008	0.000	0.000
T7	80 - 60	Leg	Max Tension	7	194.226	-0.617	0.007
			Max. Compression	2	-226.462	1.310	-0.009
			Max. Mx	2	-226.462	1.310	-0.009
			Max. My	20	-14.136	0.030	-1.056
			Max. Vy	18	-0.174	1.308	-0.021
			Max. Vx	20	0.135	-0.062	-0.864
		Diagonal	Max Tension	16	10.629	0.000	0.000
			Max. Compression	16	-10.765	0.000	0.000
			Max. Mx	27	2.942	0.373	-0.045
			Max. My	36	2.794	0.365	-0.046
			Max. Vy	29	0.171	0.368	-0.044
			Max. Vx	36	0.009	0.000	0.000
T8	60 - 40	Leg	Max Tension	7	223.513	-1.453	0.009
			Max. Compression	2	-261.827	1.231	-0.008
			Max. Mx	37	18.277	-2.093	-0.027
			Max. My	4	-14.837	-0.073	-1.346
			Max. Vy	33	0.314	-2.081	0.009
			Max. Vx	20	0.144	-0.069	-1.342
		Diagonal	Max Tension	16	10.316	0.000	0.000
			Max. Compression	16	-10.319	0.000	0.000
			Max. Mx	29	2.667	0.450	0.063
			Max. My	29	-2.415	0.411	0.065
			Max. Vy	29	0.197	0.450	0.063
			Max. Vx	29	-0.011	0.000	0.000
T9	40 - 20	Leg	Max Tension	7	253.031	-1.292	0.009
			Max. Compression	2	-297.486	2.086	-0.009
			Max. Mx	37	19.982	-4.211	-0.012
			Max. My	4	-17.229	-0.120	-1.667
			Max. Vy	33	0.683	-4.193	0.003
			Max. Vx	20	-0.209	-0.116	-1.660
		Diagonal	Max Tension	16	11.967	0.000	0.000
			Max. Compression	16	-12.234	0.000	0.000
			Max. Mx	29	1.740	0.518	-0.056
			Max. My	30	4.237	0.476	0.062
			Max. Vy	29	0.204	0.478	-0.060
			Max. Vx	30	-0.010	0.000	0.000
T10	20 - 0	Leg	Max Tension	7	281.913	-1.340	0.016
			Max. Compression	2	-333.211	0.000	-0.000
			Max. Mx	27	-174.224	4.256	0.017
			Max. My	4	-19.965	-0.198	-3.067
			Max. Vy	33	-0.815	-4.193	0.003
			Max. Vx	20	-0.409	-0.196	-3.055
		Diagonal	Max Tension	12	12.437	0.000	0.000
			Max. Compression	12	-12.710	0.000	0.000
			Max. Mx	29	-0.093	0.648	0.065
			Max. My	30	5.755	0.481	0.076
			Max. Vy	29	0.220	0.648	0.065
			Max. Vx	30	-0.011	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	340.216	33.588	-19.767
	Max. H_x	18	340.216	33.588	-19.767
	Max. H_z	7	-289.016	-29.070	17.114
	Min. Vert	7	-289.016	-29.070	17.114
	Min. H_x	7	-289.016	-29.070	17.114
	Min. H_z	18	340.216	33.588	-19.767
Leg B	Max. Vert	10	339.488	-33.522	-19.766
	Max. H_x	23	-288.475	29.010	17.108

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_z	23	-288.475	29.010	17.108
	Min. Vert	23	-288.475	29.010	17.108
	Min. H_x	10	339.488	-33.522	-19.766
	Min. H_z	10	339.488	-33.522	-19.766
Leg A	Max. Vert	2	342.098	0.032	39.047
	Max. H_x	21	16.639	4.731	1.391
	Max. H_z	2	342.098	0.032	39.047
	Min. Vert	15	-288.713	-0.025	-33.767
	Min. H_x	8	23.022	-4.733	1.930
	Min. H_z	15	-288.713	-0.025	-33.767

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	54.488	0.000	0.000	-15.690	1.110	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	65.386	0.051	-62.660	-6948.625	-6.446	1.506
0.9 Dead+1.6 Wind 0 deg - No Ice	49.039	0.051	-62.660	-6943.918	-6.779	1.506
1.2 Dead+1.6 Wind 30 deg - No Ice	65.386	30.097	-52.223	-5870.472	-3367.954	-6.518
0.9 Dead+1.6 Wind 30 deg - No Ice	49.039	30.097	-52.223	-5865.765	-3368.287	-6.518
1.2 Dead+1.6 Wind 60 deg - No Ice	65.386	51.184	-29.665	-3341.598	-5722.448	-12.777
0.9 Dead+1.6 Wind 60 deg - No Ice	49.039	51.184	-29.665	-3336.891	-5722.781	-12.777
1.2 Dead+1.6 Wind 90 deg - No Ice	65.386	60.104	-0.051	-26.607	-6723.767	-15.777
0.9 Dead+1.6 Wind 90 deg - No Ice	49.039	60.104	-0.051	-21.900	-6724.100	-15.777
1.2 Dead+1.6 Wind 120 deg - No Ice	65.386	54.094	31.286	3439.333	-5972.510	-14.832
0.9 Dead+1.6 Wind 120 deg - No Ice	49.039	54.094	31.286	3444.040	-5972.844	-14.832
1.2 Dead+1.6 Wind 150 deg - No Ice	65.386	30.008	52.171	5825.036	-3354.480	-8.792
0.9 Dead+1.6 Wind 150 deg - No Ice	49.039	30.008	52.171	5829.743	-3354.814	-8.792
1.2 Dead+1.6 Wind 180 deg - No Ice	65.386	-0.051	59.240	6613.238	9.111	-1.121
0.9 Dead+1.6 Wind 180 deg - No Ice	49.039	-0.051	59.240	6617.945	8.778	-1.121
1.2 Dead+1.6 Wind 210 deg - No Ice	65.386	-30.097	52.223	5832.815	3370.619	6.518
0.9 Dead+1.6 Wind 210 deg - No Ice	49.039	-30.097	52.223	5837.522	3370.286	6.518
1.2 Dead+1.6 Wind 240 deg - No Ice	65.386	-54.146	31.375	3452.806	5982.954	13.345
0.9 Dead+1.6 Wind 240 deg - No Ice	49.039	-54.146	31.375	3457.513	5982.621	13.345
1.2 Dead+1.6 Wind 270 deg - No Ice	65.386	-60.104	0.051	-11.050	6726.432	15.777
0.9 Dead+1.6 Wind 270 deg - No Ice	49.039	-60.104	0.051	-6.343	6726.099	15.777
1.2 Dead+1.6 Wind 300 deg - No Ice	65.386	-51.133	-29.576	-3328.125	5717.334	13.879
0.9 Dead+1.6 Wind 300 deg - No Ice	49.039	-51.133	-29.576	-3323.418	5717.001	13.879
1.2 Dead+1.6 Wind 330 deg - No Ice	65.386	-30.008	-52.171	-5862.693	3357.146	8.792
0.9 Dead+1.6 Wind 330 deg - No Ice	49.039	-30.008	-52.171	-5857.986	3356.812	8.792
1.2 Dead+1.0 Ice+1.0 Temp	220.265	0.000	0.000	-97.856	-44.306	0.000

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	220.265	-0.004	-18.842	-2241.813	-43.726	-0.242
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	220.265	9.220	-15.981	-1927.299	-1099.370	-2.673
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	220.265	15.928	-9.198	-1151.030	-1867.598	-4.358
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	220.265	18.446	0.004	-97.277	-2155.439	-4.909
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	220.265	16.312	9.424	974.624	-1899.879	-4.198
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	220.265	9.227	15.985	1732.166	-1100.374	-2.205
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	220.265	0.004	18.404	2009.495	-44.885	0.275
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	220.265	-9.220	15.981	1731.586	1010.759	2.673
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	220.265	-16.308	9.417	973.620	1810.688	4.451
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	220.265	-18.446	-0.004	-98.436	2066.827	4.909
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	220.265	-15.932	-9.205	-1152.034	1779.567	4.072
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	220.265	-9.227	-15.985	-1927.879	1011.763	2.205
Dead+Wind 0 deg - Service	54.488	0.011	-13.821	-1544.172	-0.605	0.332
Dead+Wind 30 deg - Service	54.488	6.638	-11.519	-1306.368	-742.042	-1.438
Dead+Wind 60 deg - Service	54.488	11.289	-6.543	-748.582	-1261.364	-2.818
Dead+Wind 90 deg - Service	54.488	13.257	-0.011	-17.406	-1482.222	-3.480
Dead+Wind 120 deg - Service	54.488	11.931	6.901	747.065	-1316.520	-3.271
Dead+Wind 150 deg - Service	54.488	6.619	11.507	1273.271	-739.070	-1.939
Dead+Wind 180 deg - Service	54.488	-0.011	13.066	1447.122	2.826	-0.247
Dead+Wind 210 deg - Service	54.488	-6.638	11.519	1274.987	744.262	1.438
Dead+Wind 240 deg - Service	54.488	-11.943	6.920	750.036	1320.456	2.944
Dead+Wind 270 deg - Service	54.488	-13.257	0.011	-13.975	1484.443	3.480
Dead+Wind 300 deg - Service	54.488	-11.278	-6.523	-745.611	1261.869	3.061
Dead+Wind 330 deg - Service	54.488	-6.619	-11.507	-1304.652	741.291	1.939

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-54.488	0.000	0.000	54.488	-0.000	0.000%
2	0.051	-65.386	-62.660	-0.051	65.386	62.660	0.000%
3	0.051	-49.039	-62.660	-0.051	49.039	62.660	0.000%
4	30.097	-65.386	-52.223	-30.097	65.386	52.223	0.000%
5	30.097	-49.039	-52.223	-30.097	49.039	52.223	0.000%
6	51.184	-65.386	-29.665	-51.184	65.386	29.665	0.000%
7	51.184	-49.039	-29.665	-51.184	49.039	29.665	0.000%
8	60.104	-65.386	-0.051	-60.104	65.386	0.051	0.000%
9	60.104	-49.039	-0.051	-60.104	49.039	0.051	0.000%
10	54.094	-65.386	31.286	-54.094	65.386	-31.286	0.000%
11	54.094	-49.039	31.286	-54.094	49.039	-31.286	0.000%
12	30.008	-65.386	52.171	-30.008	65.386	-52.171	0.000%
13	30.008	-49.039	52.171	-30.008	49.039	-52.171	0.000%
14	-0.051	-65.386	59.240	0.051	65.386	-59.240	0.000%
15	-0.051	-49.039	59.240	0.051	49.039	-59.240	0.000%
16	-30.097	-65.386	52.223	30.097	65.386	-52.223	0.000%
17	-30.097	-49.039	52.223	30.097	49.039	-52.223	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	-54.146	-65.386	31.375	54.146	65.386	-31.375	0.000%
19	-54.146	-49.039	31.375	54.146	49.039	-31.375	0.000%
20	-60.104	-65.386	0.051	60.104	65.386	-0.051	0.000%
21	-60.104	-49.039	0.051	60.104	49.039	-0.051	0.000%
22	-51.133	-65.386	-29.576	51.133	65.386	29.576	0.000%
23	-51.133	-49.039	-29.576	51.133	49.039	29.576	0.000%
24	-30.008	-65.386	-52.171	30.008	65.386	52.171	0.000%
25	-30.008	-49.039	-52.171	30.008	49.039	52.171	0.000%
26	0.000	-220.265	0.000	-0.000	220.265	-0.000	0.000%
27	-0.004	-220.265	-18.842	0.004	220.265	18.842	0.000%
28	9.220	-220.265	-15.981	-9.220	220.265	15.981	0.000%
29	15.928	-220.265	-9.198	-15.928	220.265	9.198	0.000%
30	18.446	-220.265	0.004	-18.446	220.265	-0.004	0.000%
31	16.312	-220.265	9.424	-16.312	220.265	-9.424	0.000%
32	9.227	-220.265	15.985	-9.227	220.265	-15.985	0.000%
33	0.004	-220.265	18.404	-0.004	220.265	-18.404	0.000%
34	-9.220	-220.265	15.981	9.220	220.265	-15.981	0.000%
35	-16.308	-220.265	9.417	16.308	220.265	-9.417	0.000%
36	-18.446	-220.265	-0.004	18.446	220.265	0.004	0.000%
37	-15.932	-220.265	-9.205	15.932	220.265	9.205	0.000%
38	-9.227	-220.265	-15.985	9.227	220.265	15.985	0.000%
39	0.011	-54.488	-13.821	-0.011	54.488	13.821	0.000%
40	6.638	-54.488	-11.519	-6.638	54.488	11.519	0.000%
41	11.289	-54.488	-6.543	-11.289	54.488	6.543	0.000%
42	13.257	-54.488	-0.011	-13.257	54.488	0.011	0.000%
43	11.931	-54.488	6.901	-11.931	54.488	-6.901	0.000%
44	6.619	-54.488	11.507	-6.619	54.488	-11.507	0.000%
45	-0.011	-54.488	13.066	0.011	54.488	-13.066	0.000%
46	-6.638	-54.488	11.519	6.638	54.488	-11.519	0.000%
47	-11.943	-54.488	6.920	11.943	54.488	-6.920	0.000%
48	-13.257	-54.488	0.011	13.257	54.488	-0.011	0.000%
49	-11.278	-54.488	-6.523	11.278	54.488	6.523	0.000%
50	-6.619	-54.488	-11.507	6.619	54.488	11.507	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	192 - 180	4.285	39	0.211	0.012
T2	180 - 160	3.753	39	0.208	0.012
T3	160 - 140	2.907	39	0.180	0.010
T4	140 - 120	2.192	39	0.150	0.008
T5	120 - 100	1.594	39	0.122	0.005
T6	100 - 80	1.103	39	0.099	0.004
T7	80 - 60	0.714	39	0.076	0.003
T8	60 - 40	0.417	39	0.055	0.002
T9	40 - 20	0.203	39	0.038	0.001
T10	20 - 0	0.061	39	0.019	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.000	NNVV-65B-R4 w/ Mount Pipe	39	4.196	0.211	0.012	409868
180.000	58532A	39	3.753	0.208	0.012	151635
170.000	(3) 7130.16.33.00 w/ Mount Pipe	39	3.318	0.196	0.011	50344
160.000	HBX-6516DS-VTM w/ Mount Pipe	39	2.907	0.180	0.010	30868
153.000	RR90-17-02DP w/ Mount Pipe	39	2.641	0.169	0.009	33495
140.000	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	39	2.192	0.150	0.008	44370
98.000	58532A	39	1.060	0.097	0.004	47133

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	192 - 180	19.200	2	0.940	0.056
T2	180 - 160	16.824	2	0.926	0.056
T3	160 - 140	13.048	2	0.805	0.046
T4	140 - 120	9.852	2	0.672	0.036
T5	120 - 100	7.168	2	0.549	0.024
T6	100 - 80	4.964	2	0.445	0.017
T7	80 - 60	3.216	2	0.340	0.012
T8	60 - 40	1.878	2	0.249	0.008
T9	40 - 20	0.915	2	0.169	0.005
T10	20 - 0	0.274	2	0.086	0.002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.000	NNVV-65B-R4 w/ Mount Pipe	2	18.803	0.939	0.056	98217
180.000	58532A	2	16.824	0.926	0.056	35891
170.000	(3) 7130.16.33.00 w/ Mount Pipe	2	14.884	0.876	0.052	11417
160.000	HBX-6516DS-VTM w/ Mount Pipe	2	13.048	0.805	0.046	6971
153.000	RR90-17-02DP w/ Mount Pipe	2	11.861	0.757	0.043	7575
140.000	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	2	9.852	0.672	0.036	10081
98.000	58532A	2	4.769	0.435	0.016	10526

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	192	Leg	A325N	0.625	4	1.436	20.709	0.069	1	Bolt Tension
		Diagonal	A325N	0.625	1	1.844	6.831	0.270	1	Member Block Shear
		Top Girt	A325N	0.625	1	0.131	7.116	0.018	1	Member Block Shear
T2	180	Leg	A325N	0.625	4	8.190	20.709	0.395	1	Bolt Tension
		Diagonal	A325N	0.625	1	4.758	7.830	0.608	1	Member Bearing
		Top Girt	A325N	0.625	1	0.977	8.135	0.120	1	Member Block Shear
T3	160	Leg	A325N	0.875	4	15.969	40.589	0.393	1	Bolt Tension
		Diagonal	A325N	0.625	1	6.575	10.440	0.630	1	Member Bearing
T4	140	Leg	A325N	1.000	4	24.675	53.014	0.465	1	Bolt Tension
		Diagonal	A325N	0.625	1	7.848	10.440	0.752	1	Member Bearing
T5	120	Leg	A325N	1.000	6	22.088	53.014	0.417	1	Bolt Tension
		Diagonal	A325N	0.750	1	8.434	13.485	0.625	1	Gusset Bearing
T6	100	Leg	A325N	1.000	6	27.019	53.014	0.510	1	Bolt Tension
		Diagonal	A325N	0.750	1	9.769	13.485	0.724	1	Gusset Bearing
T7	80	Leg	A325N	1.000	8	24.278	53.014	0.458	1	Bolt Tension
		Diagonal	A325N	0.750	1	10.630	13.485	0.788	1	Gusset Bearing
T8	60	Leg	A325N	1.000	8	27.939	53.014	0.527	1	Bolt Tension
		Diagonal	A325X	0.750	1	10.316	13.485	0.765	1	Gusset Bearing
T9	40	Leg	A325N	1.000	8	31.629	53.014	0.597	1	Bolt Tension
		Diagonal	A325X	0.750	1	11.967	13.485	0.887	1	Gusset Bearing
T10	20	Leg	A354-BC	1.000	10	28.191	55.223	0.510	1	Bolt Tension
		Diagonal	A325X	0.750	1	12.437	13.485	0.922	1	Gusset Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192 - 180	ROHN 2.5 STD	12.000	4.000	50.7 K=1.00	1.704	-8.388	63.560	0.132 [1]
T2	180 - 160	ROHN 2.5 STD	20.032	5.008	63.4 K=1.00	1.704	-40.997	57.139	0.718 [1]
T3	160 - 140	ROHN 3 EH	20.036	6.679	70.5 K=1.00	3.016	-75.920	94.337	0.805 [1]
T4	140 - 120	ROHN 4 EH	20.038	6.679	54.3 K=1.00	4.407	-116.623	159.899	0.729 [1]
T5	120 - 100	ROHN 5 EH	20.036	6.679	43.6 K=1.00	6.111	-155.166	239.348	0.648 [1]
T6	100 - 80	ROHN 6 EHS	20.036	10.018	54.0 K=1.00	6.713	-189.129	244.047	0.775 [1]
T7	80 - 60	ROHN 6 EH	20.032	10.016	54.8 K=1.00	8.405	-226.462	303.757	0.746 [1]
T8	60 - 40	ROHN 8 EHS	20.042	10.021	40.6 K=1.00	9.867	-261.827	393.649	0.665 [1]
T9	40 - 20	ROHN 8 EHS	20.031	10.015	40.5 K=1.00	9.867	-297.486	393.703	0.756 [1]
T10	20 - 0	ROHN 8 EHS	20.033	10.017	40.6 K=1.00	9.867	-333.211	393.691	0.846 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192 - 180	L1 3/4x1 3/4x3/16	7.700	3.590	125.4 K=1.00	0.621	-1.838	8.789	0.209 [1]
T2	180 - 160	L2x2x3/16	9.686	4.727	144.0 K=1.00	0.715	-4.691	7.794	0.602 [1]
T3	160 - 140	L2 1/2x2 1/2x1/4	12.241	6.033	147.4 K=1.00	1.190	-6.691	12.367	0.541 [1]
T4	140 - 120	L2 1/2x2 1/2x1/4	14.067	6.902	168.7 K=1.00	1.190	-7.908	9.447	0.837 [1]
T5	120 - 100	L3x3x1/4	15.944	7.773	157.6 K=1.00	1.440	-8.418	13.104	0.642 [1]
T6	100 - 80	L3 1/2x3 1/2x1/4	19.209	9.452	163.4 K=1.00	1.690	-9.824	14.295	0.687 [1]
T7	80 - 60	L4x4x1/4	20.935	10.297	155.4 K=1.00	1.940	-10.765	18.143	0.593 [1]
T8	60 - 40	L4x4x5/16	22.872	11.208	170.0 K=1.00	2.400	-10.319	18.754	0.550 [1]
T9	40 - 20	L4x4x5/16	24.688	12.072	183.1 K=1.00	2.400	-12.234	16.165	0.757 [1]
T10	20 - 0	L4x4x3/8	26.510	12.996	197.9 K=1.00	2.860	-12.710	16.496	0.770 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	192 - 180	L1 3/4x1 3/4x3/16	6.580	6.090	212.8 K=1.00	0.621	-0.119	3.099	0.039 [1]
T2	180 - 160	KL/R > 200 (C) - 4 L2x2x3/16	6.580	6.090	185.5 K=1.00	0.715	-1.010	4.694	0.215 [1]

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	192 - 180	ROHN 2.5 STD	12.000	4.000	50.7	1.704	5.743	76.682	0.075 [1]
T2	180 - 160	ROHN 2.5 STD	20.032	5.008	63.4	1.704	32.760	76.682	0.427 [1]
T3	160 - 140	ROHN 3 EH	20.036	6.679	70.5	3.016	63.875	135.717	0.471 [1]
T4	140 - 120	ROHN 4 EH	20.038	6.679	54.3	4.407	98.702	198.335	0.498 [1]
T5	120 - 100	ROHN 5 EH	20.036	6.679	43.6	6.111	132.529	275.012	0.482 [1]
T6	100 - 80	ROHN 6 EHS	20.036	10.018	54.0	6.713	162.115	302.097	0.537 [1]
T7	80 - 60	ROHN 6 EH	20.032	10.016	54.8	8.405	194.226	378.222	0.514 [1]
T8	60 - 40	ROHN 8 EHS	20.042	10.021	40.6	9.867	223.513	443.995	0.503 [1]
T9	40 - 20	ROHN 8 EHS	20.031	10.015	40.5	9.867	253.031	443.995	0.570 [1]
T10	20 - 0	ROHN 8 EHS	20.033	10.017	40.6	9.867	281.913	443.995	0.635 [1]

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	192 - 180	L1 3/4x1 3/4x3/16	7.700	3.590	82.9	0.360	1.844	15.675	0.118 [1]
T2	180 - 160	L2x2x3/16	9.686	4.727	94.3	0.431	4.758	18.739	0.254 [1]
T3	160 - 140	L2 1/2x2 1/2x1/4	12.241	6.033	96.0	0.752	6.575	32.707	0.201 [1]
T4	140 - 120	L2 1/2x2 1/2x1/4	14.067	6.902	109.6	0.752	7.848	32.707	0.240 [1]
T5	120 - 100	L3x3x1/4	15.944	7.773	102.0	0.916	8.434	44.652	0.189 [1]
T6	100 - 80	L3 1/2x3 1/2x1/4	19.209	9.452	105.5	1.103	9.769	53.793	0.182 [1]
T7	80 - 60	L4x4x1/4	20.935	10.297	100.1	1.291	10.630	62.933	0.169 [1]
T8	60 - 40	L4x4x5/16	22.872	11.208	109.8	1.595	10.316	77.752	0.133 [1]
T9	40 - 20	L4x4x5/16	24.688	12.072	118.1	1.595	11.967	77.752	0.154 [1]
T10	20 - 0	L4x4x3/8	26.510	12.996	128.1	1.899	12.437	92.572	0.134 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	192 - 180	L1 3/4x1 3/4x3/16	6.580	6.090	141.7	0.360	0.131	15.675	0.008 [1]
T2	180 - 160	L2x2x3/16	6.580	6.090	123.3	0.431	0.977	18.739	0.052 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	192 - 180	Leg	ROHN 2.5 STD	1	-8.388	63.560	13.2	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	27	-40.997	57.139	71.8	Pass
T3	160 - 140	Leg	ROHN 3 EH	57	-75.920	94.337	80.5	Pass
T4	140 - 120	Leg	ROHN 4 EH	78	-116.623	159.899	72.9	Pass
T5	120 - 100	Leg	ROHN 5 EH	99	-155.166	239.348	64.8	Pass
T6	100 - 80	Leg	ROHN 6 EHS	120	-189.129	244.047	77.5	Pass
T7	80 - 60	Leg	ROHN 6 EH	135	-226.462	303.757	74.6	Pass
T8	60 - 40	Leg	ROHN 8 EHS	150	-261.827	393.649	66.5	Pass
T9	40 - 20	Leg	ROHN 8 EHS	165	-297.486	393.703	75.6	Pass
T10	20 - 0	Leg	ROHN 8 EHS	180	-333.211	393.691	84.6	Pass
T1	192 - 180	Diagonal	L1 3/4x1 3/4x3/16	11	-1.838	8.789	20.9 27.0 (b)	Pass
T2	180 - 160	Diagonal	L2x2x3/16	36	-4.691	7.794	60.2 60.8 (b)	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	63	-6.691	12.367	54.1 63.0 (b)	Pass
T4	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	84	-7.908	9.447	83.7	Pass
T5	120 - 100	Diagonal	L3x3x1/4	105	-8.418	13.104	64.2	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	126	-9.824	14.295	68.7 72.4 (b)	Pass
T7	80 - 60	Diagonal	L4x4x1/4	141	-10.765	18.143	59.3 78.8 (b)	Pass
T8	60 - 40	Diagonal	L4x4x5/16	156	-10.319	18.754	55.0 76.5 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	171	-12.234	16.165	75.7 88.7 (b)	Pass
T10	20 - 0	Diagonal	L4x4x3/8	183	-12.710	16.496	77.0 92.2 (b)	Pass
T1	192 - 180	Top Girt	L1 3/4x1 3/4x3/16	4	-0.119	3.099	3.9	Pass
T2	180 - 160	Top Girt	L2x2x3/16	28	-1.010	4.694	21.5	Pass
							Summary	
						Leg (T10)	84.6	Pass
						Diagonal (T10)	92.2	Pass
						Top Girt (T2)	21.5	Pass
						Bolt Checks	92.2	Pass
						RATING =	**92.2**	**Pass**

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering	2189896	CCI Sites
4-TOWER MANUFACTURER DRAWINGS	Rohn	1631630	CCI Sites
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Rohn	1631622	CCI Sites

3.1) Analysis Method

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

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically and must be replaced if damaged or cracked. Refer to Crown Castle document ENG-PRC-10012, Base Plate Grout Repair.

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
T1	192 - 180	Leg	ROHN 2.5 STD	1	-8.388	63.560	13.2	Pass
T2	180 - 160	Leg	ROHN 2.5 STD	27	-40.997	57.139	71.8	Pass
T3	160 - 140	Leg	ROHN 3 EH	57	-75.920	94.337	80.5	Pass
T4	140 - 120	Leg	ROHN 4 EH	78	-116.623	159.899	72.9	Pass
T5	120 - 100	Leg	ROHN 5 EH	99	-155.166	239.348	64.8	Pass
T6	100 - 80	Leg	ROHN 6 EHS	120	-189.129	244.047	77.5	Pass
T7	80 - 60	Leg	ROHN 6 EH	135	-226.462	303.757	74.6	Pass
T8	60 - 40	Leg	ROHN 8 EHS	150	-261.827	393.649	66.5	Pass
T9	40 - 20	Leg	ROHN 8 EHS	165	-297.486	393.703	75.6	Pass
T10	20 - 0	Leg	ROHN 8 EHS	180	-333.211	393.691	84.6	Pass
T1	192 - 180	Diagonal	L1 3/4x1 3/4x3/16	11	-1.838	8.789	20.9 27.0 (b)	Pass
T2	180 - 160	Diagonal	L2x2x3/16	36	-4.691	7.794	60.2 60.8 (b)	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	63	-6.691	12.367	54.1 63.0 (b)	Pass
T4	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	84	-7.908	9.447	83.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T5	120 - 100	Diagonal	L3x3x1/4	105	-8.418	13.104	64.2	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	126	-9.824	14.295	68.7 72.4 (b)	Pass
T7	80 - 60	Diagonal	L4x4x1/4	141	-10.765	18.143	59.3 78.8 (b)	Pass
T8	60 - 40	Diagonal	L4x4x5/16	156	-10.319	18.754	55.0 76.5 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	171	-12.234	16.165	75.7 88.7 (b)	Pass
T10	20 - 0	Diagonal	L4x4x3/8	183	-12.710	16.496	77.0 92.2 (b)	Pass
T1	192 - 180	Top Girt	L1 3/4x1 3/4x3/16	4	-0.119	3.099	3.9	Pass
T2	180 - 160	Top Girt	L2x2x3/16	28	-1.010	4.694	21.5	Pass
							Summary	
						Leg (T10)	84.6	Pass
						Diagonal (T10)	92.2	Pass
						Top Girt (T2)	21.5	Pass
						Bolt Checks	92.2	Pass
						Rating =	92.2	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	57.9	Pass
1	Base Foundation (Structure)	0	16.7	Pass
1	Base Foundation (Soil Interaction)	0	46.6	Pass

Structure Rating (max from all components) =	92.2%

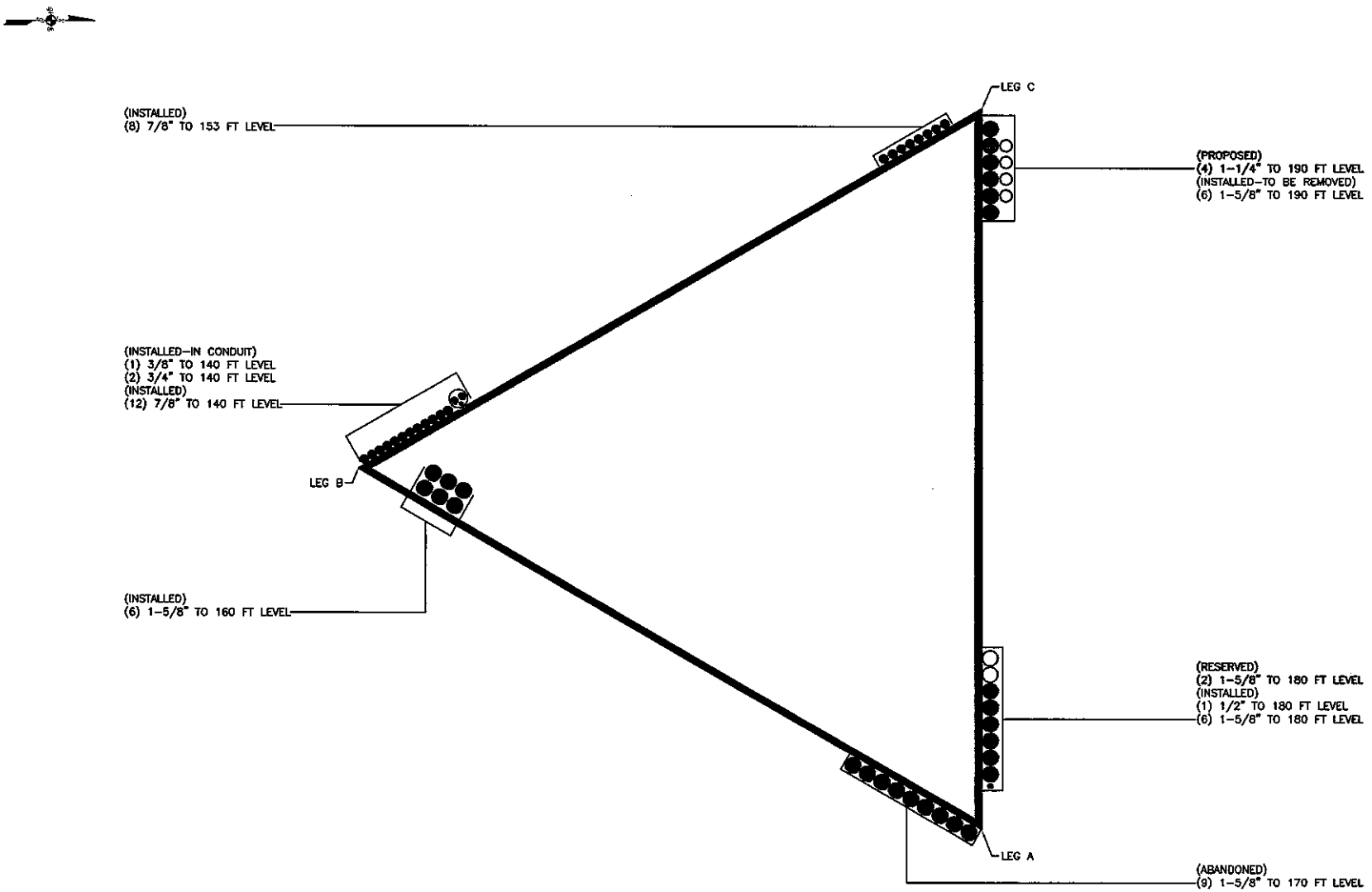
Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876345 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Anchor Rod Check for Self Supporting Towers

TIA-222-G, Section 4.9.9 Rev. 6.1

CROWN CASTLE

Site Data	
BU#:	**876345**
Site Name:	**SKY HILL**
App #:	**441316 Rev. 0**

Reactions		
Eta Factor, η	**0.55**	Detail Type
Uplift, Pu:	**289**	kips
Shear, Vu:	**34**	kips

Anchor Rod Data		
Qty:	**10**	
Diam:	**1**	in
Rod Material:	**A354 Gr. BC (1/4 to 2-1/2 incl.)**	
Strength (Fu):	125	ksi
Yield (Fy):	109	ksi

* Rod Circle:		in
* e:		in
* # of Rods		1 or 2

Mu= Pu x e:		ft-kips

** Only enter rod circle, offset (e) and number of anchor rods at the extreme fiber to consider if eccentric load due to leg reinforcement exist.*

l_{ar}:		in
Mu = 0.65*l_{ar}*V_u		ft-kips

Anchor Rod Results:

Max Rod (Cu+ Vu/ή):	35.1	Kips
Design Axial, Φ*Fu*Anet:	60.6	Kips
Anchor Rod Stress Ratio:	57.9%	

If Applicable;

Anchor Rod Results with Bending Considered:

When the clear distance from the top of concrete to the bottom of level nut excceeds 1.0 times the diameter of the anchor rod, the following interaction equation shall also be satisfied (see Figure 4-4 of Rev. G):

$$(V_u/\phi R_{nv})^2 + [(P_u/\phi R_{nt}) + (M_u/\phi R_{nm})]^2 <= 1$$

$\phi R_{nv}=\phi*0.45*F_{ub}*A_b=$		kips
$\phi R_{nt}=\phi*F_u*A_{net}=$		kips
$\phi R_{nm}=\phi*F_y*Z=$		ft-kips

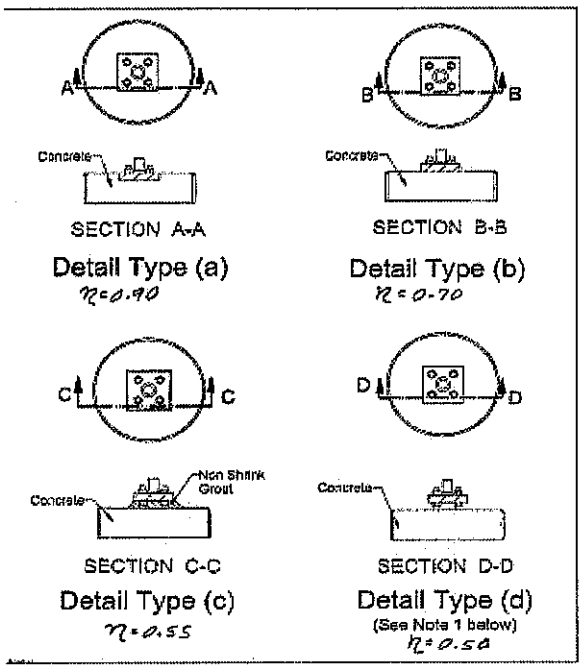


Figure 4-4 of TIA-222-G

Maximum Acceptable Ratio: **105** %

Governing Stress Ratio: **57.9%** **Pass**

Drilled Pier Foundation

BU # :	876345
Site Name:	SKY HILL
App. Number:	441316 Rev.0

TIA-222 Revison:	G
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	342	289
Shear Force (kips)	39	34

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

Pier Design Data		
Depth	26	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 26' below grade		
Pier Diameter	5	ft
Rebar Quantity	18	
Rebar Size	9	
Rebar Cage Diameter	51	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	11.53	11.53
Soil Safety Factor	36.18	41.50
Max Moment (kip-ft)	309.84	270.12
Rating	*3.7%*	*3.2%*
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	560.77	560.77
End Bearing (kips)	374.93	-
Weight of Concrete (kips)	93.66	70.24
Total Capacity (kips)	935.70	631.02
Axial (kips)	435.66	289.00
Rating	*46.6%*	*45.8%*
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	11.87	10.67
Critical Moment (kip-ft)	309.51	268.33
Critical Moment Capacity	2385.66	1607.61
Rating	*13.0%*	*16.7%*

Soil Interaction Rating	**46.6%**
Structural Foundation Rating	**16.7%**

Soil Profile

Groundwater Depth	N/A	ft	# of Layers: 5

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	2	2	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	3.3	1.3	130	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	3.3	5	1.7	130	150	3	0	1.650	1.650	0.00	0.00			Cohesive
4	5	6	1	135	150	5	0	2.321	2.321	0.00	0.00			Cohesive
5	6	26	20	135	150	5	0	2.321	2.321	2.38	2.38	25.46		Cohesive

CCISeismic - Design Category

Per *2012/2015 IBC*

Site BU: 876345
Work Order: 1580544
Application: 441316 Rev. 0

CROWN CASTLE

	Degrees	Minutes	Seconds		
Site Latitude =	41	57	7.70	0.0000	degrees
Site Longitude =	-72	11	43.90	0.0000	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 =	0.173	USGS Seismic Tool
Spectral response acceleration 1 s period, S_1 =	0.063	

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} =	0.185	*(2.7.6)*
Design spectral response acceleration 1 s period, S_{D1} =	0.101	*(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

environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT03XC204

Sky Hill
33 Janowski Road
Ashford, CT 06278

July 31, 2018

EBI Project Number: 6218005226

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.09 %**

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

EBI Consulting
environmental | engineering | due diligence

July 31, 2018

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

Emissions Analysis for Site: **CT03XC204 – Sky Hill**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **33 Janowski Road, Ashford, 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) and 2500 MHz (BRS) 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 **33 Janowski Road, Ashford, 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, 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) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations, the sample point was the top of a 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, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed panel antennas are **192 feet** above ground level (AGL) for **Sector A, 192 feet** above ground level (AGL) for **Sector B** and **192 feet** above ground level (AGL) for Sector C.

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

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

EBI Consulting

environmental | engineering | due diligence

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):	**192 feet**	Height (AGL):	**192 feet**	Height (AGL):	**192 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%:	**0.94 %**	Antenna B1 MPE%:	**0.94%**	Antenna C1 MPE%:	**0.94 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**192 feet**	Height (AGL):	**192 feet**	Height (AGL):	**192 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):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%:	**0.65 %**	Antenna B2 MPE%:	**0.65 %**	Antenna C2 MPE%:	**0.65 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**1.59 %**
AT&T	2.14 %
Verizon Wireless	2.80 %
T-Mobile	1.35 %
Nextel	0.21 %
Site Total MPE %:	**8.09 %**

SPRINT Sector A Total:	1.59 %
SPRINT Sector B Total:	1.59 %
SPRINT Sector C Total:	1.59 %
Site Total:	8.09 %

SPRINT _ Frequency Band / Technology (All Sectors)	# 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	192	0.39	850 MHz	567	0.06%
Sprint 850 MHz LTE	2	941.82	192	1.96	850 MHz	567	0.34%
Sprint 1900 MHz (PCS) CDMA	5	511.82	192	2.66	1900 MHz (PCS)	1000	0.27%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	192	2.66	1900 MHz (PCS)	1000	0.27%
Sprint 2500 MHz (BRS) LTE	8	778.09	192	6.47	2500 MHz (BRS)	1000	0.65%
						Total:	**1.59%**

Summary

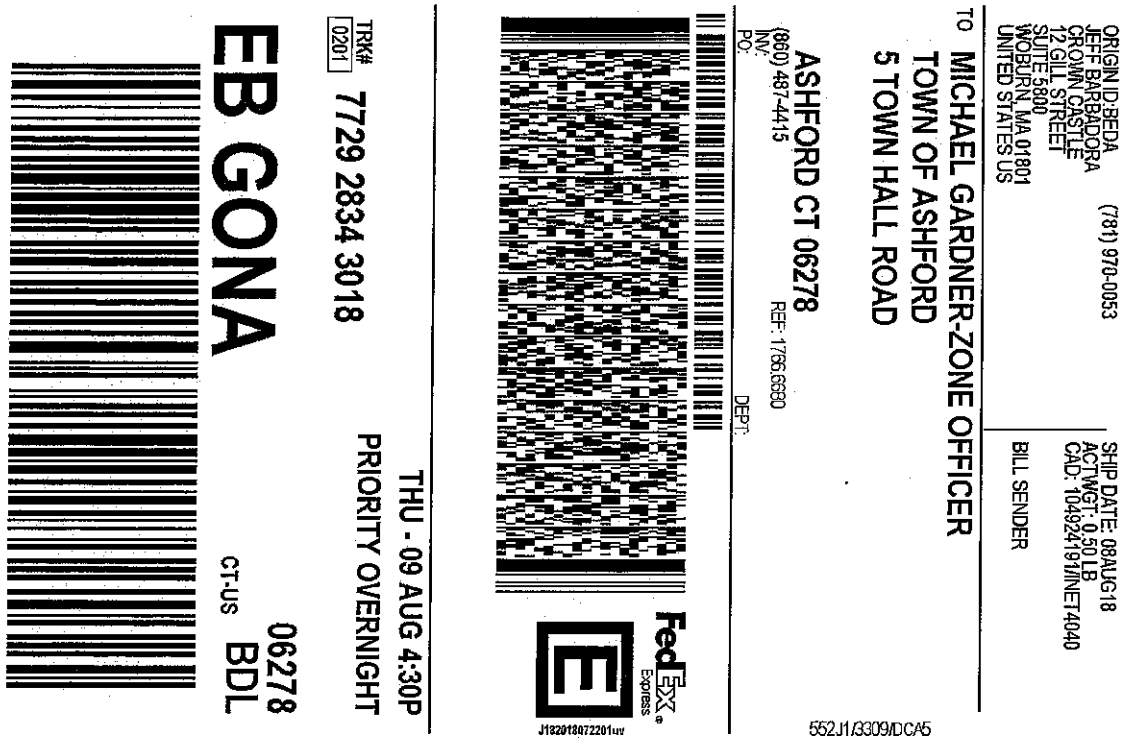
All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

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:	1.59 %
Sector B:	1.59 %
Sector C:	1.59 %
SPRINT Maximum MPE % (per sector):	1.59 %
Site Total:	8.09 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.09 %** 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.



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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

Barbadora, Jeff

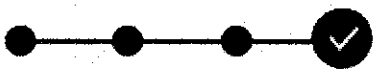
From: TrackingUpdates@fedex.com
Sent: Friday, August 10, 2018 11:59 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772928343018 Delivered

Your package has been delivered

Tracking # 772928343018

Ship date:
Wed, 8/8/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US



Delivery date:
Fri, 8/10/2018 11:56 am

Michael Gardner-Zone Officer
Town of Ashford
5 Town Hall Road
ASHFORD, CT 06278
US

Shipment Facts

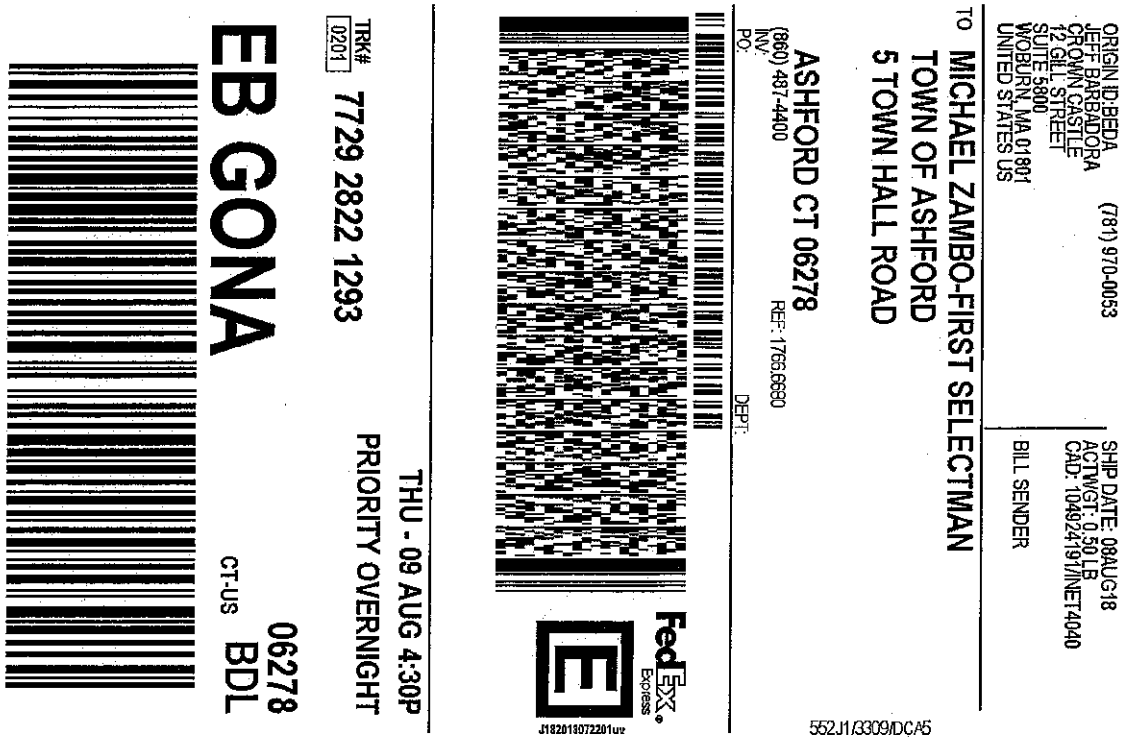
Our records indicate that the following package has been delivered.

Tracking number:	772928343018
Status:	Delivered: 08/10/2018 11:56 AM Signed for By: B.FERENNCE
Reference:	1766.6680
Signed for by:	B.FERENNCE
Delivery location:	ASHFORD, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	2.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	8/10/2018 by 4:30 pm

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:58 AM CDT on 08/10/2018.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, August 10, 2018 11:59 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 772928221293 Delivered

Your package has been delivered

Tracking # 772928221293

Ship date:
Wed, 8/8/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US

Delivered

Delivery date:
Fri, 8/10/2018 11:55 am

Michael Zambo-First Selectman
Town of Ashford
5 Town Hall Road
ASHFORD, CT 06278
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772928221293
Status:	Delivered: 08/10/2018 11:55 AM Signed for By: A.RUCHOLL
Reference:	1766.6680
Signed for by:	A.RUCHOLL
Delivery location:	ASHFORD, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight®
Packaging type:	FedEx® Envelope
Number of pieces:	1
Weight:	2.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	8/10/2018 by 4:30 pm

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:58 AM CDT on 08/10/2018.

All weights are estimated.