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

July 27, 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: 876383**
Sprint Site ID: CT33XC543
7 Sherwood Forest Lane, Killingworth, CT 06419
Latitude: 41° 20' 17.24"/ Longitude: -72° 33' 23.44"

Dear Ms. Bachman:

Sprint currently maintains six (6) antennas at the 150-foot level of the existing 150-foot monopole tower at 7 Sherwood Forest Lane in Killingworth, CT. The tower is owned by Crown Castle. The property is owned by Anderson Sherwood & Dian Trustees, Global Signal ACQ II LLC (Crown Castle entity). Sprint now intends to replace six (6) antennas with six (6) new antennas. These antennas would be installed at the 150-foot level of the tower. Sprint also intends to install twelve (12) RRH's and four (4) hybrid cables.

This facility was approved by the Town of Killingworth, CT Certified # Z 455 232 287 on February 22, 2000. This approval was given without conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to First-Selectwomen Catherine Lino, Town of Killingworth, property owner stated on property card is Global Signal which is a Crown subsidiary, 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,

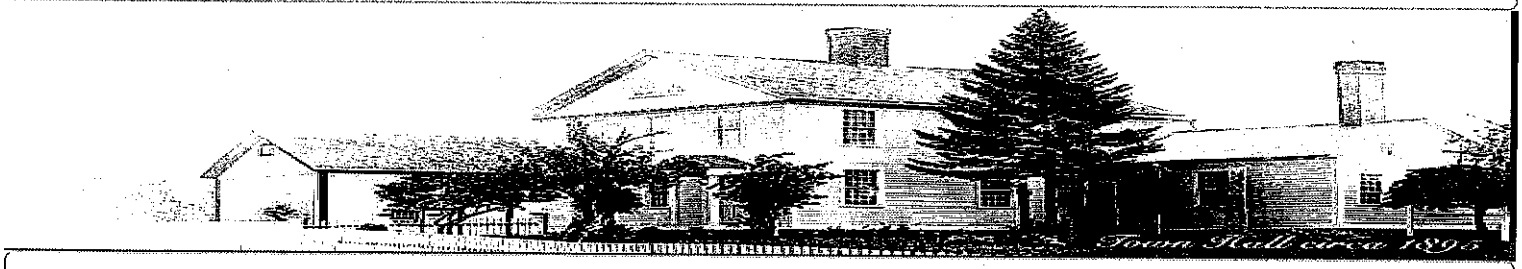
Jeffrey Barbadora
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-729-0053
Jeff.Barbadora@crowncastle.com

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: First-Selectwomen Catherine Lino
Town of Killingworth
323 Route 81
Killingworth, CT 06419

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2016.



Information on the Property Records for the Municipality of Killingworth was last updated on 7/21/2018.

Property Summary Information

Parcel Data And Values | Sales | Permits | Google Map

Parcel Information

Location:	7 SHERWOOD FOREST LANE	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00247300	Map Block Lot:	37-03	Acres:	2.14
490 Acres:	0.00	Zone:	R-2	Volume / Page:	0218/0491
Developers Map / Lot:	SM1902/SPRINT E	Census:	6401		

Value Information

	Appraised Value	Assessed Value
Land	247,499	173,250
Buildings	0	0

	Appraised Value	Assessed Value
Detached Outbuildings	0	0
Total	247,499	173,250

Owner's Information

Owner's Data

ANDERSON SHERWOOD & DIAN TRUSTEES
GLOBAL SIGNAL ACQ II LLC
PMB 331, 4017 WASHINGTON RD
MCMURRAY PA 15317

Back To Search (JavaScript:window.history.back(1);)

Print View (PrintPage.aspx?towncode=070&uniqueid=00247300)

Information Published With Permission From The Assessor

7 sherwood

Search Results

Parcel Details

7 SHERWOOD FOREST LANE

NO IMAGE AVAILABLE

ANDERSON SHERWOOD & DIAN TRUSTEES

PMB 331, 4017 WASHINGTON RD
MCMURRAY, PA 15317

Parcel ID: 37-03
Lot Size (ac): 2.14
Sale Price: $0

Links | Abutters

Parcel Details | Bing Bird's Eye

Photo | Add Parcel

Google Map | Remove Parcel

Abutter Distance: | Print Labels

Adjacent | Export List

Adjacent
50 ft
100 ft
200 ft
300 ft
400 ft
500 ft

Find Abutters

Clear Abutters

Parcel_ID 37-03

StreetAddr 7 SHERW

ERWOOD & DIAN TRUS

331, 4017 WASHINGTO

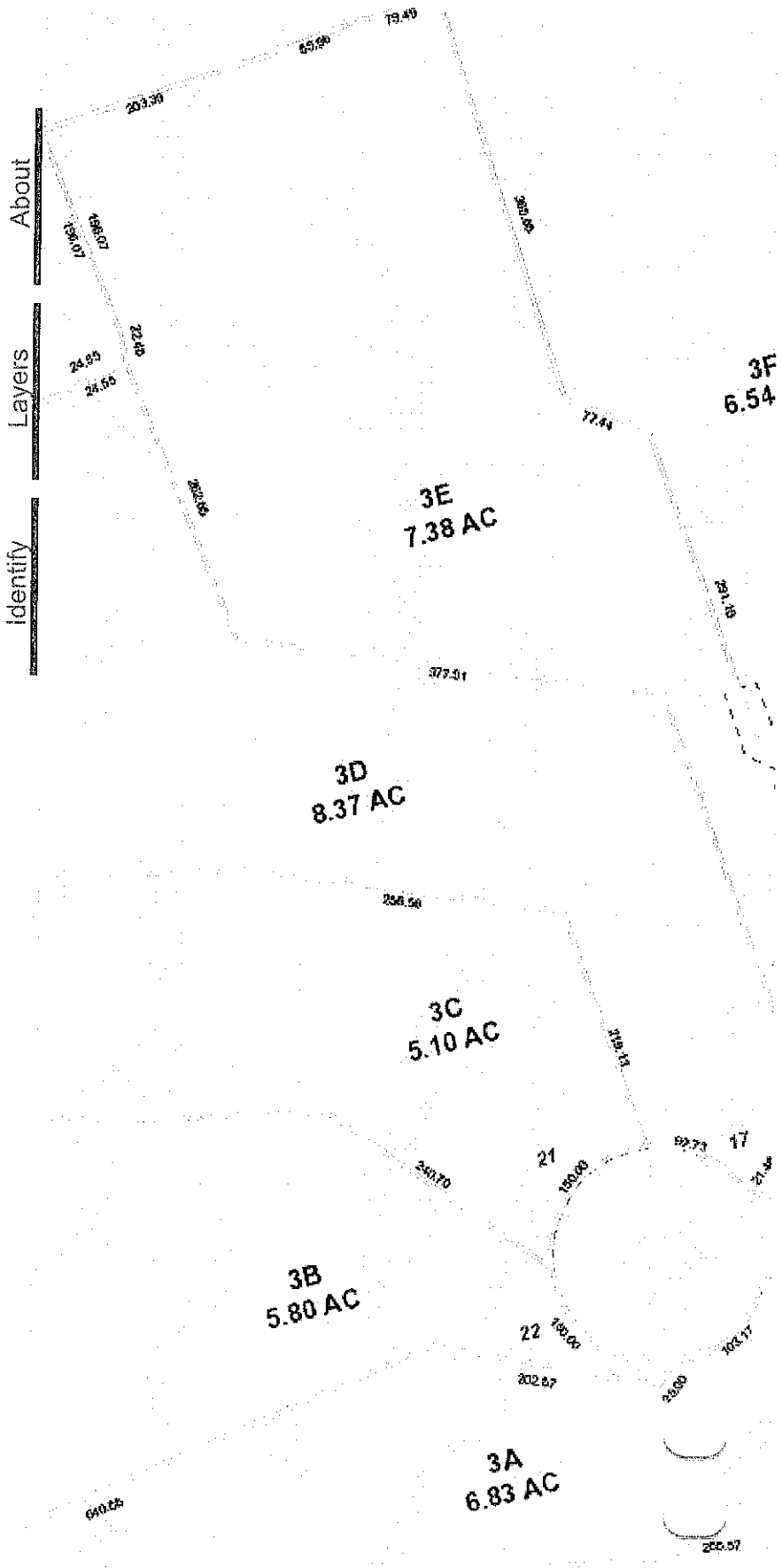
City MCMURRAY

State PA

Zipcode 15317

Scroll

About
Layers
Identify



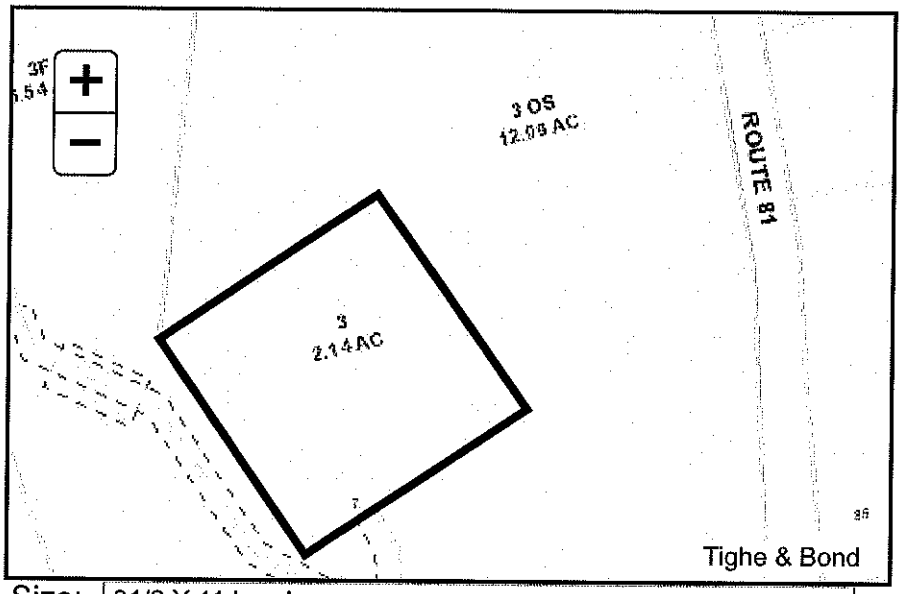
Email Map Link

lat:41.3371, long:-72.5601

Copy ar aste the following string into an email to link to the current map view:

40m
200ft
Close

Print Map



Size: 81/2 X 11 Landscape

Scale: 1" = 100 ft. Title: 7 Sherwood Forest Lane

Close Print

Town of Killingworth
Inland Wetlands and Watercourses Commission
Killingworth, Connecticut 06419

Certified # Z 455 232 287

Memorandum of Decision

At its Regular Meeting of February 22, 2000, the Commission approved the application of Sherwood R. Anderson (applicant, Sprint Spectrum, L.P.) for construction of a telecommunication facility, a 150 foot monopole, and upgrading of an existing woods road on Route 81, Map 37, Parcel 3.

This permit is granted subject to the following conditions:

1. The work is to be done exactly as shown on the revised plan "Sprint PCS, Anderson Property, Clinton Road (Connecticut Route 81), Killingworth, CT CT33XC543" prepared by Goodkind & O'Dea, Inc. Consulting Engineers and Planners, dated 11/19/99, with two revisions (12/15/99 and 2/22/00), consisting of 10 sheets.

2. All construction is to be carried out in a workman-like manner.

3. During construction, appropriate and effective measures must be taken to prevent silting and water discoloration downstream.

4. If during construction, it becomes apparent that rain and surface drainage runoff will cause silting or water discoloration of the adjacent wetlands and/or watercourse, then appropriate and effective protection against these conditions must be taken.

5. No excavation may commence until all erosion and sedimentation controls, as defined on the approved plans, are in place and have been inspected and approved by the Killingworth IWWC or its agent.

6. The Commission is to be notified when this project begins and when it is completed.

7. The Commission, or its representative, shall be free to make interim inspections of the site as it deems necessary.

8. In no way is it to be construed that this permit allows the applicant to perform any other activity than that which is stated above. Any additional activity requires an additional permit or an amendment to this permit.

[redacted]

9. This permit shall be valid for five (5) years from the date of the legal notice publication. However, the regulated activity or use authorized by the permit must be completed within two (2) years from the time such activity is commenced, unless otherwise specified.

10. Any application to renew this permit should be submitted at least sixty-five (65) days prior to the expiration date.

This permit is granted in the belief that there will be minimal adverse impact on the environment.

For the Commission,

Wayne Addy
Chairman

[redacted]

IN RE APPLICATION
SPECIAL EXCEPTION
SPRINT SPECTRUM L.P.

KILLINGWORTH PLANNING
AND ZONING COMMISSION
MARCH 21, 2000

MEMORANDUM OF DECISION

An application #149 of SPRINT SPECTRUM L.P. for a Special Exception under Section 120 of the Zoning Regulations for Communication Tower was submitted to the Planning & Zoning Commission at its meeting of February 1, 2000. The property is located at Route 81 and is shown on Tax Map 37, Parcel 3. The owner as recorded in the Killingworth Land Records (Volume 87, Page 642) is Sherwood R. Anderson. The application was considered under the standards prescribed in Section 120G of the Zoning Regulations.

The Commission, at its meeting of March 21, 2000, voted to approve the application for Special Exception with the following conditions:

1. *Leased area must encompass the fall zone of the tower.*
2. *Lighting be limited to time of service repairs.*

Charles E. Martens
Charles E. Martens, Chairman

Dated at Killingworth, Connecticut this 3rd day of April, 2000.

Certified a true and correct copy of that
which is on file with the Killingworth
Planning & Zoning Commission

Date: 4/5/00 Time: 12:50 PM

Clerk of KP&ZC: Judith R. Brown

Rec'd 4/5/00 at 12:50 PM

[redacted]

IN RE APPLICATION
SPECIAL EXCEPTION
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which is on file with the Killingworth
Planning & Zoning Commission

Date: 4/5/00 Time: 12:50 PM

Clerk of KP&ZC: Judith R. Brown

Received for record April 6, 2000
at 10 h 00 m A M and recorded by
Town Clerk

08

KILLINGWORTH PLANNING & ZONING COMMISSION

TOWN OFFICE BUILDING
323 ROUTE 81
KILLINGWORTH, CONNECTICUT 06419-1298

April 5, 2000

Sprint Spectrum LP
1 International Boulevard
Mahwah, NJ 07495

RE: **Memorandum of Decision**
March 21, 2000

Gentlemen:

Please be advised that your application for Special Exception for Telecommunications Tower dated 1/18/00 was approved with conditions by the Planning & Zoning Commission at its March 21, 2000 meeting. A copy of the Memorandum of Decision is enclosed. The Notice of Decision was published in The Hartford Courant on Friday, March 31, 2000.

Sincerely,

Charles E. Martens Jr.

Charles E. Martens, Jr. (ltr)
Chairman

CEM/jrb

CERTIFIED MAIL, RRR
Z 285 870 490

Sprint

CROWN CASTLE

PROJECT:	DO MACRO UPGRADE
SITE NAME:	CLINTON / ANDERSON PROPERTY
SITE CASCADE:	CT33XC543
SITE NUMBER:	876383
SITE ADDRESS:	7 SHERWOOD FOREST LANE KILLINGWORTH, CT 06419
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

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

LATITUDE (NAD83):
41° 20' 17.24" N
41.338122

LONGITUDE (NAD83):
-72° 33' 23.44" W
-72.556511

COUNTY:
MIDDLESEX

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

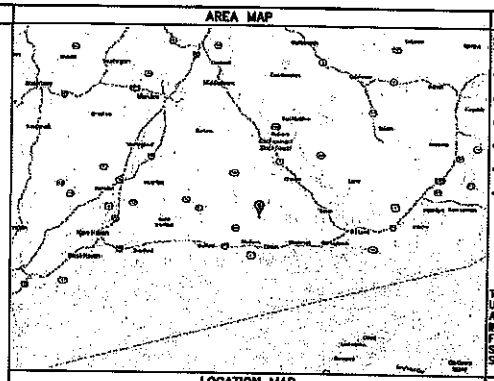
ZONING DISTRICT:
R-2

POWER COMPANY:
CONNECTICUT LINE & POWER
(800) 286-2000

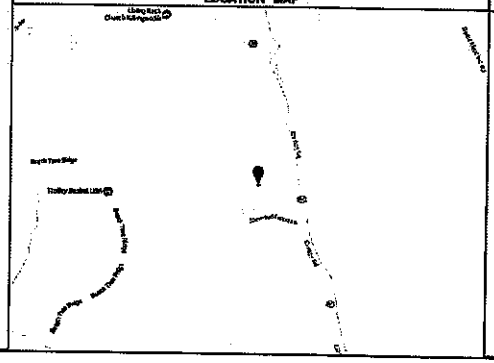
SPRINT CONSTRUCTION:
TBD

CROWN PM:
SCOTT WIATROSKI
(201) 236-8228

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MBBS 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

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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
1032 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 826-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
04-2018
REGISTERED 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	07/03/18	MRL	2
MINO REDESIGN	06/20/18	SDB	1
ISSUED FOR CONSTRUCTION	01/04/18	MRL	0
ISSUED FOR REVIEW	11/17/17	LTC	A

SITE NAME:
CLINTON / ANDERSON PROPERTY

SITE CASCADE:
CT33XC543

SITE ADDRESS:
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

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 OFFICALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL, AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

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

B. COMPANY: SPRINT CORPORATION

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

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

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

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

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

3.2 DELIVERABLES:

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

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

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

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 NOTICE TO PROCEED

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

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

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

PART 2 – PRODUCTS (NOT USED)
PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

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

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 528-403

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT · JOHN S. STEVENS · No. 24706 · LICENSED · PROFESSIONAL ENGINEER · JUL 04 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	MRL	2
MMO REDESIGN	06/20/18	SXB	1
ISSUED FOR CONSTRUCTION	01/04/18	MRL	0
ISSUED FOR REVIEW	11/17/17	EXC	A

SITE NAME:
CLINTON / ANDERSON PROPERTY

SITE CASCADE:
CT33XC543

SITE ADDRESS:
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

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

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

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

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS: AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)

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

PLANS PREPARED BY:
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 529-103

MLA PARTNER:
CROWN CASTLE

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	MRL	2
MMO REDESIGN	06/20/18	SKB	1
ISSUED FOR CONSTRUCTION	03/04/16	MRL	0
ISSUED FOR REVIEW	11/17/17	ETC	A

SITE NAME:
CLINTON / ANDERSON PROPERTY

SITE CASCADE:
CT33XC543

SITE ADDRESS:
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

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:

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M&A PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
PROFESSIONAL ENGINEER
LICENSED
04/24/2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	02/11/19	MAL	2
MINOR REVISION	08/20/18	SKB	1
ISSUED FOR CONSTRUCTION	05/04/18	MAL	0
ISSUED FOR REVIEW	11/17/17	EEC	A

SITE NAME:

CLINTON / ANDERSON PROPERTY

SITE CASCADE:

CT33XC543

SITE ADDRESS:

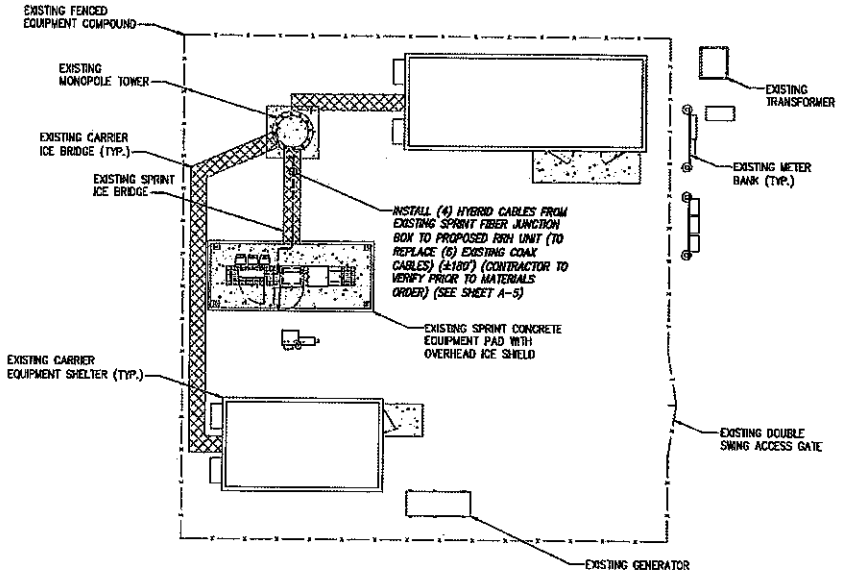
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

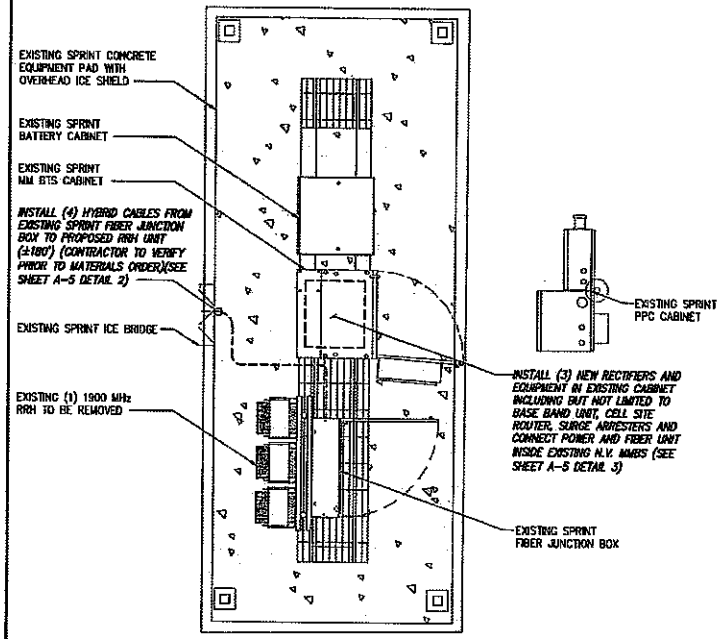
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3





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

3.75' 0 3.75' 7.5' 15'
(IN FEET)
SCALE: 22"x34" SHEET 1" = 7.5'-0"
SCALE: 11"x17" SHEET 1" = 15'-0"

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.

1' 0 1' 2' 4'
(IN FEET)
SCALE: 22"x34" SHEET 1" = 3'-0"
SCALE: 11"x17" SHEET 1" = 6'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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JOB NUMBER: 336-163

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED
PROFESSIONAL ENGINEER
JUL 14 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	MBL	B
RRHD REDESIGN	06/28/18	SMR	1
ISSUED FOR CONSTRUCTION	03/04/18	MBL	0
ISSUED FOR REVIEW	12/17/17	ETC	A

SITE NAME:
CLINTON / ANDERSON PROPERTY

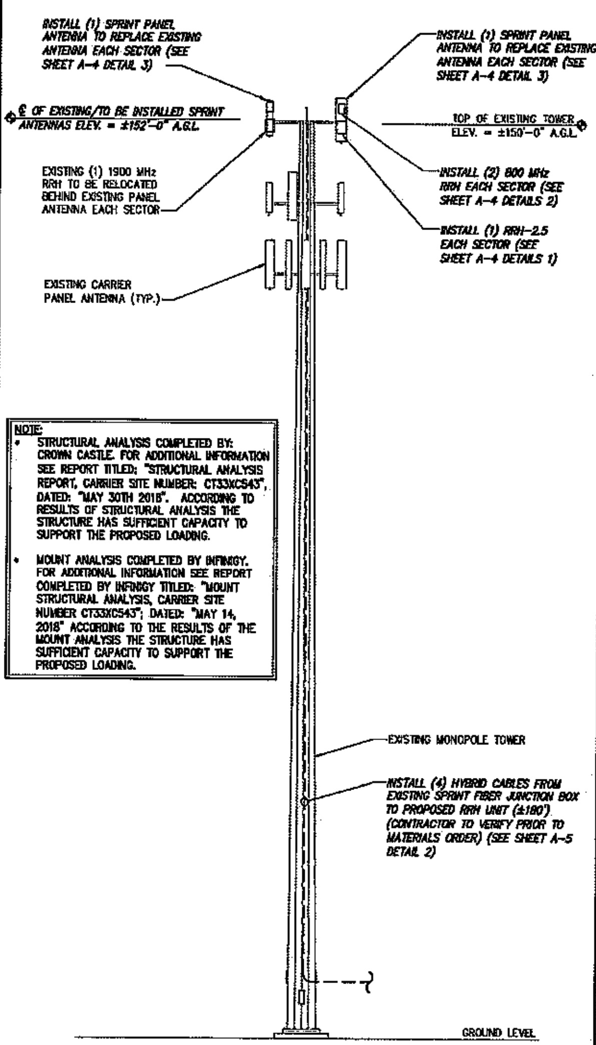
SITE CASCADE:
CT33XC543

SITE ADDRESS:
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

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

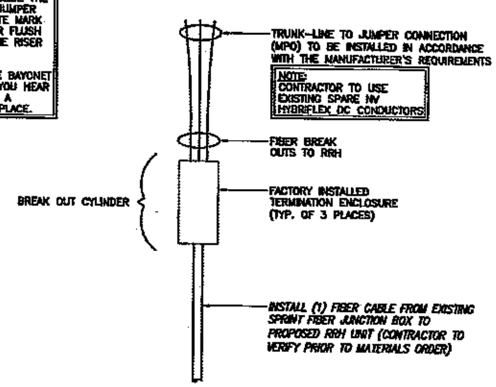


NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY: CROWN CASTLE. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT33XC543", DATED: "MAY 30TH 2018". ACCORDING TO RESULTS OF STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- MOUNT ANALYSIS COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT COMPLETED BY INFINIGY TITLED: "MOUNT STRUCTURAL ANALYSIS, CARRIER SITE NUMBER CT33XC543"; DATED: "MAY 14, 2018" ACCORDING TO THE RESULTS OF THE MOUNT ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.

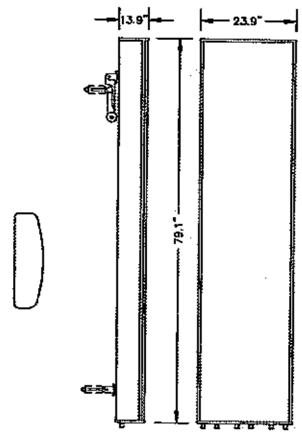
TOWER ELEVATION | NO SCALE | 1

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
DIMENSIONS (HxWxD): 79.1"x23.9"x13.9"
WEIGHT: 108 LBS.

PANEL ANTENNA DETAIL | NO SCALE | 3

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ENGINEERING LICENSE:
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LICENSED PROFESSIONAL ENGINEER
JUL 06 2018

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REVISIONS:

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ISSUED FOR CONSTRUCTION	07/05/18	ABL	2
MMO REDESIGN	06/20/18	SKB	1
ISSUED FOR CONSTRUCTION	05/04/18	NML	0
ISSUED FOR REVIEW	11/17/17	EJC	A

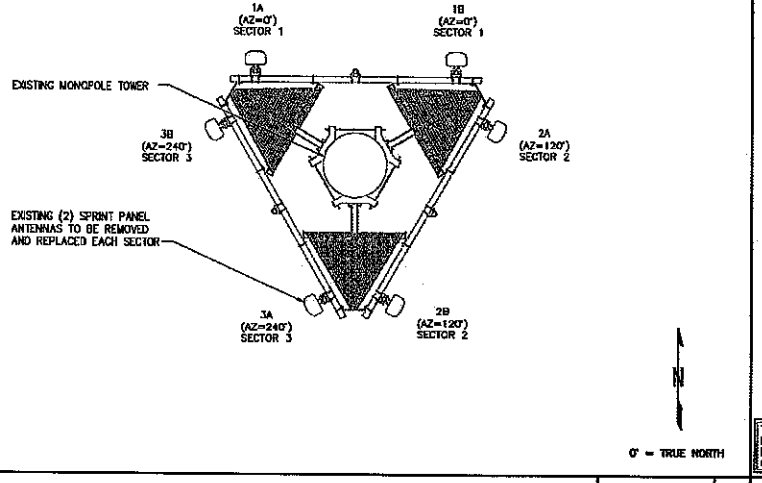
SITE NAME:
CLINTON / ANDERSON PROPERTY

SITE CASCADE:
CT33XC543

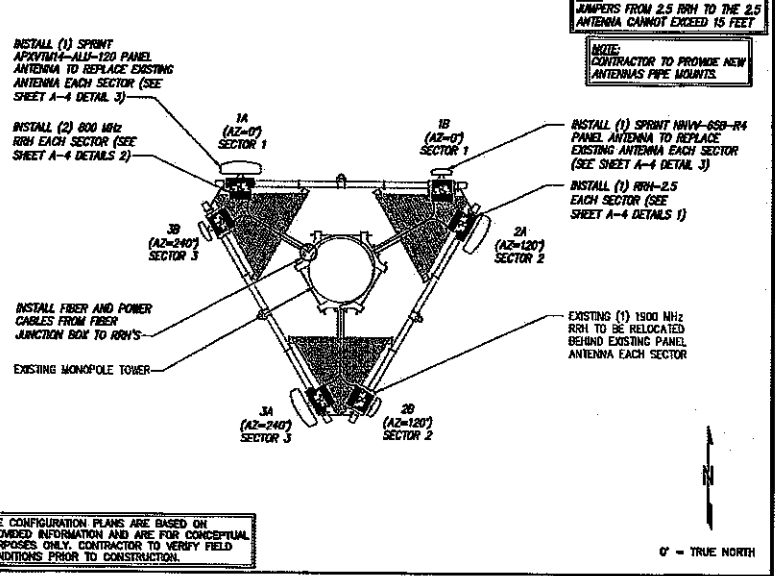
SITE ADDRESS:
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2



EXISTING ANTENNA LAYOUT | NO SCALE | 1



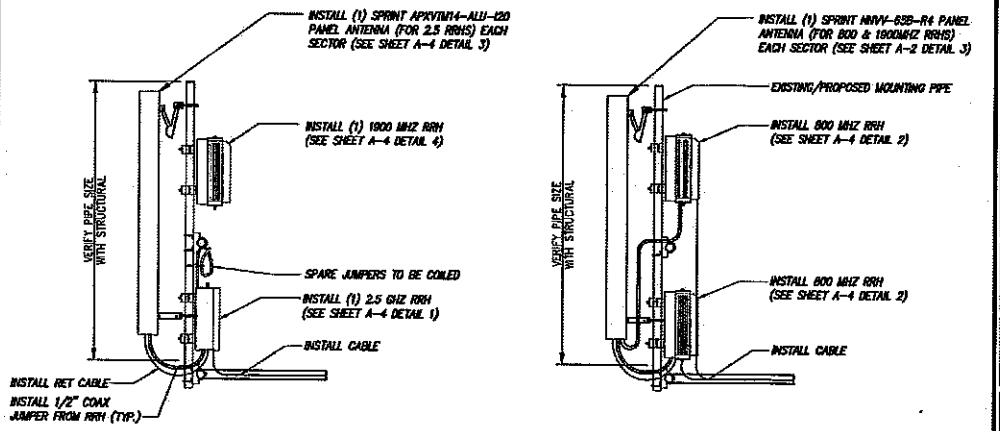
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

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 6" FROM 1900MHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30MHZ FROM DUAL BAND 1900MHZ AND 800MHZ ANTENNA.
5. IF ANTENNAS ARE MOUNTED ON A FACE SURFACE SUCH AS A BUILDING WALL, PARAPET WALL, OR WATER TOWER WALL, THIS RFDS MUST BE ACCOMPANIED BY A SKETCH PROVIDED BY ITS ORIGINATING RF ENGINEER CALLING OUT THE EXACT LOCATION OF WHERE ANTENNA IS TO BE LOCATED. CONTACT SPRINT RF ENGINEER IF THE SKETCH IS MISSING.
6. GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5G ANTENNA AT SAME CL HEIGHT AS 1.9G ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILD DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900 MHZ AND 800 MHZ ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
7. AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5G. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
8. GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.
9. GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL. HTTP://WWW.3ZTELECOM.COM/ANTENNA-ALIGNMENT-TOOL/

NOTES | NO SCALE | 3



NOTES:

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

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

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

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

TYPICAL ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 4

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JOB NUMBER: 539-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	MRL	E
MMO REVISION	06/20/18	SNS	D
ISSUED FOR CONSTRUCTION	01/04/18	MRL	D
ISSUED FOR REVIEW	11/17/17	ETC	A

SITE NAME:

CLINTON / ANDERSON PROPERTY

SITE CASCADE:

CT33XC543

SITE ADDRESS:

7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

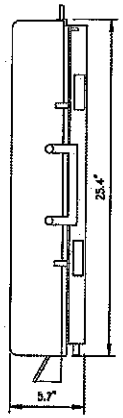
SHEET DESCRIPTION:

ANTENNA LAYOUT & MOUNTING DETAILS

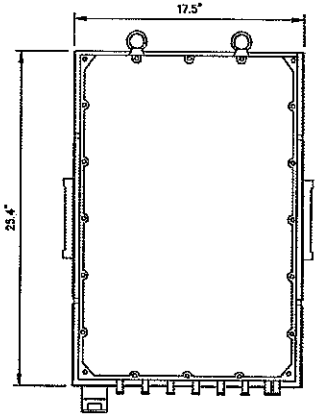
SHEET NUMBER:

A-3

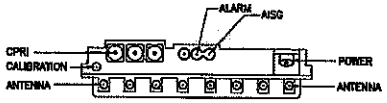
RRH: ALCATEL LUCENT 7D-RRH8X20
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

NOTES

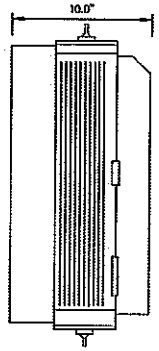
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.

2.5 RRH'S | NO SCALE | 1

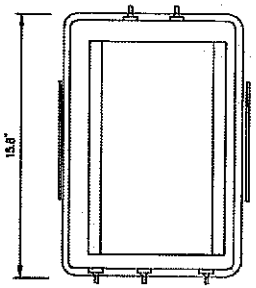
RRH: ALCATEL LUCENT RRH 800 MHz 2x50W
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

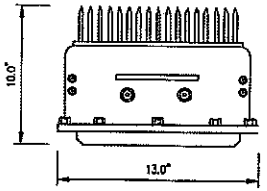
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW

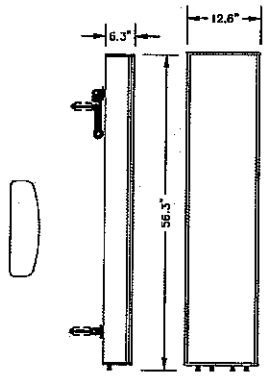


FRONT VIEW



PLAN VIEW

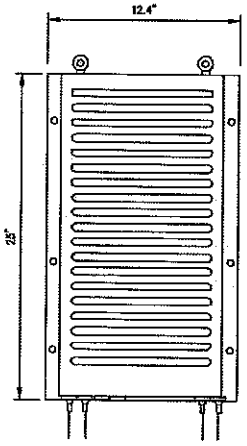
800 MHz RRH | NO SCALE | 2



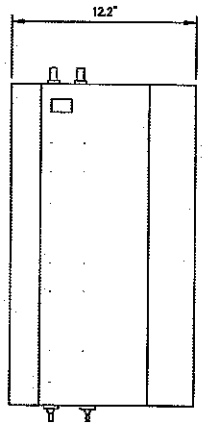
ANTENNA: RFS APXVTM14-ALU-I20
DIMENSIONS (HxWxD): 56.3"x12.6"x6.3"
WEIGHT: 56.2 LBS.

2.5 ANTENNA DETAIL | NO SCALE | 3

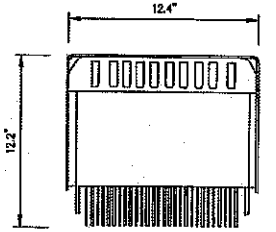
RRH: ALCATEL LUCENT 1900 MHz
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW



TOP VIEW

1900 MHz RRH | NO SCALE | 4

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www.infinigy.com
SDI NUMBER 626-153

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
10 / 4 / 2018

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2ND REVISION	06/20/18	SKB	1
ISSUED FOR CONSTRUCTION	01/04/18	MRL	0
ISSUED FOR REVIEW	11/12/17	ETC	A

SITE NAME:
CLINTON / ANDERSON PROPERTY

SITE CASCADE:
CT33XC543

SITE ADDRESS:
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4

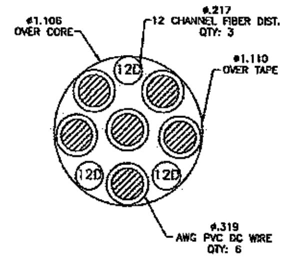
RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	Hybrid cable MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	Hybrid cable MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	Hybrid cable MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	Hybrid cable MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

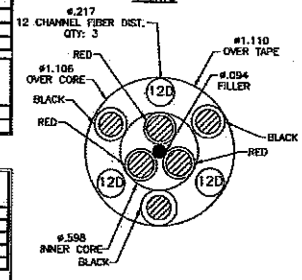
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

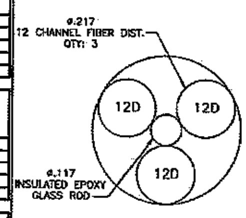
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

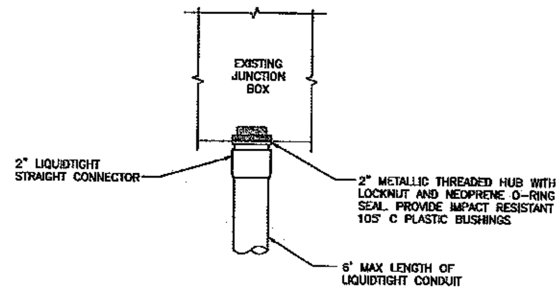


8 & 6 AWG

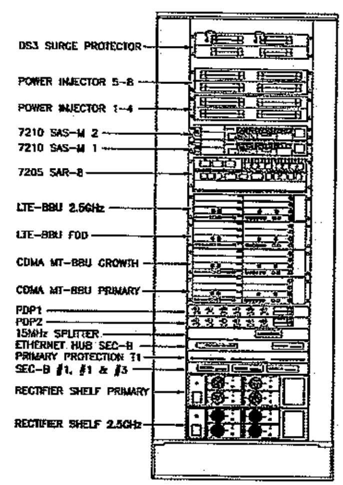


FIBER ONLY

2.5 CABLE CROSS SECTION DATA	NO SCALE	1



FIBER JUNCTION BOX PENETRATION	NO SCALE	2



CABINET LAYOUT	NO SCALE	3

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JOB NUMBER 536-103

MLA PARTNER:
CROWN CASTLE

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 21396
LICENSED
PROFESSIONAL ENGINEER
JUL 24 2018

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	MRL	2
MMO REDESIGN	06/20/18	SRB	1
ISSUED FOR CONSTRUCTION	01/04/18	MRL	0
ISSUED FOR REVIEW	11/17/17	ETC	A

SITE NAME:
CLINTON / ANDERSON PROPERTY

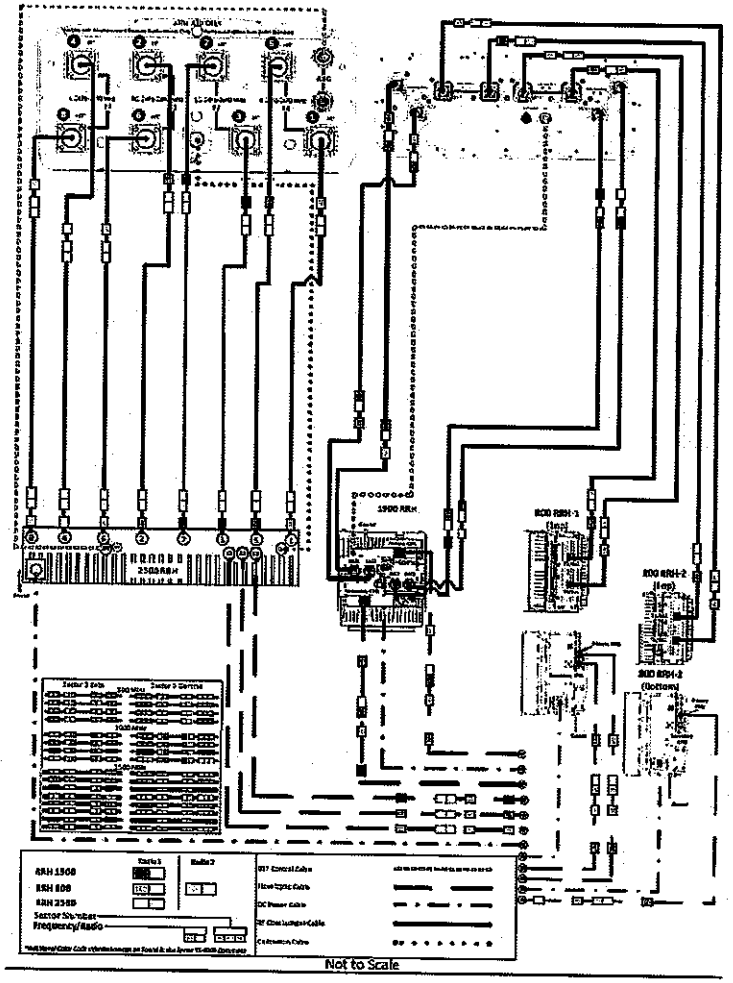
SITE CASCADE:
CT33XC543

SITE ADDRESS:
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5

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



PLUMBING DIAGRAM | NO SCALE | 1

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RAD REVISION	06/20/18	SNB	1
ISSUED FOR CONSTRUCTION	05/04/18	MRL	0
ISSUED FOR REVIEW	11/17/17	ERC	A

SITE NAME:

CLINTON / ANDERSON PROPERTY

SITE CASCADE:

CT33XC543

SITE ADDRESS:

7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH/ODU MAKE AND MODEL
1	RFS	APXVTM14-ALU-I20	152'	0°	(1) ALU 2.5GHZ RRH8X20-25
	COMMSCOPE	NNVV-65B-R4	152'	0°	(1) ALU 1900MHZ 4X45W-65MHZ (2) ALU 800MHZ 2x50-800
2	RFS	APXVTM14-ALU-I20	152'	120°	(1) ALU 2.5GHZ RRH8X20-25
	COMMSCOPE	NNVV-65B-R4	152'	120°	(1) ALU 1900MHZ 4X45W-65MHZ (2) ALU 800MHZ 2x50-800
3	RFS	APXVTM14-ALU-I20	152'	240°	(1) ALU 2.5GHZ RRH8X20-25
	COMMSCOPE	NNVV-65B-R4	152'	240°	(1) ALU 1900MHZ 4X45W-65MHZ (2) ALU 800MHZ 2x50-800

FEEDER CABLES

MANUFACTURER	MODEL	LENGTH	QTY
RFS	HB114-13U3M12-225F	225±	(3)
RFS	HB114-21U3M12-225F	225±	(1)

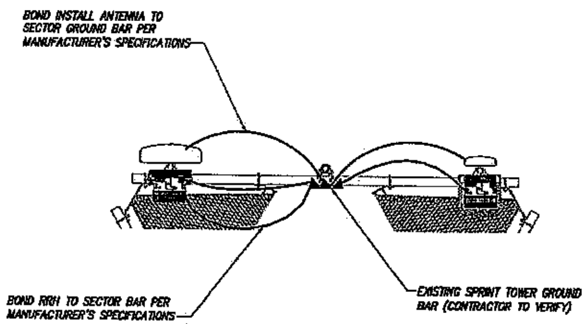
LEGEND
EXISTING
PROPOSED

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

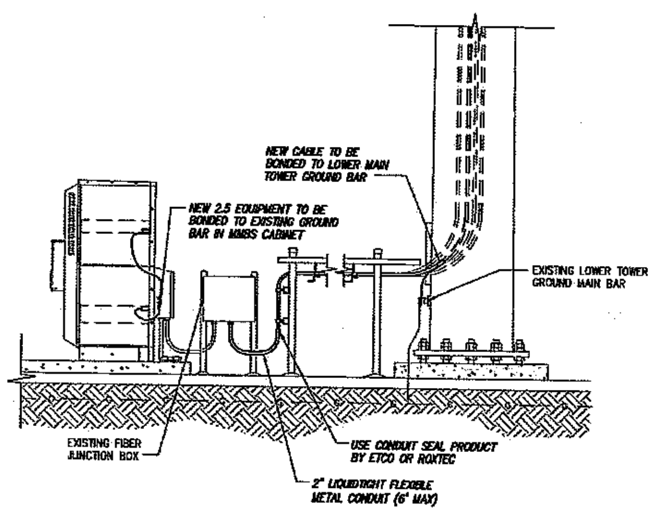
ANTENNA/CABLE SCHEDULE | NO SCALE | 1

LEGEND:

- — G — EXISTING GROUND RING
- ■ CADWELD CONNECTION (EXOTHERMIC WELD)
- ▲ MECHANICAL CONNECTION
- ⊗ GROUND ROD
- ● CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



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

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DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	07/03/18	MRL	2
MMO REDESIGN	06/20/18	SKB	1
ISSUED FOR CONSTRUCTION	03/04/18	MRL	0
ISSUED FOR REVIEW	11/17/17	ETC	A

SITE NAME:
CLINTON / ANDERSON PROPERTY

SITE CASCADE:
CT33XC543

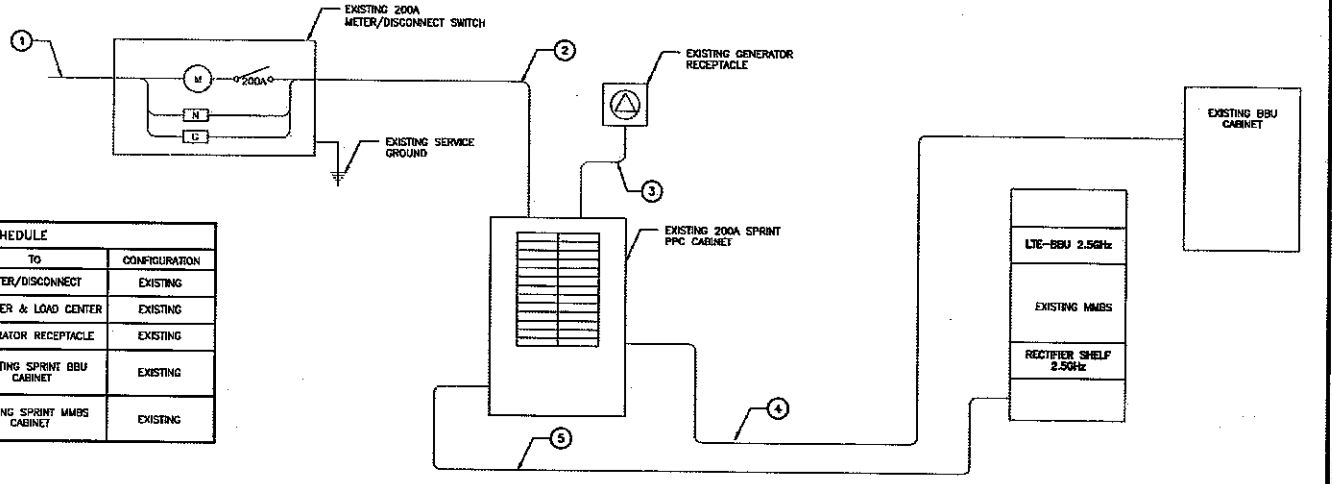
SITE ADDRESS:
7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-1

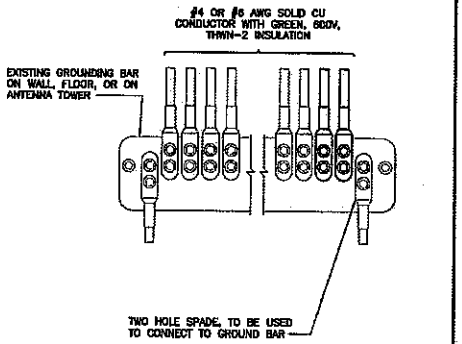
NOTES

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



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

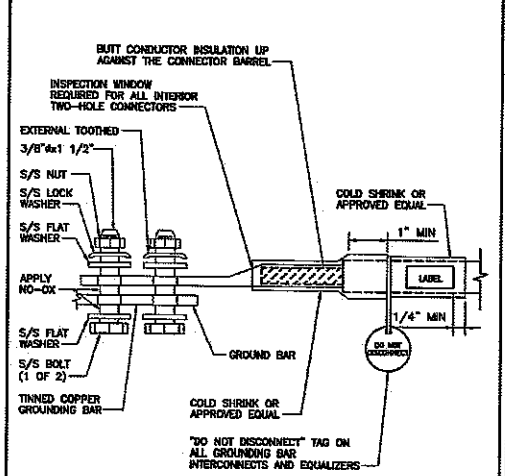
ELECTRICAL ONE-LINE DIAGRAM — NO SCALE — 1



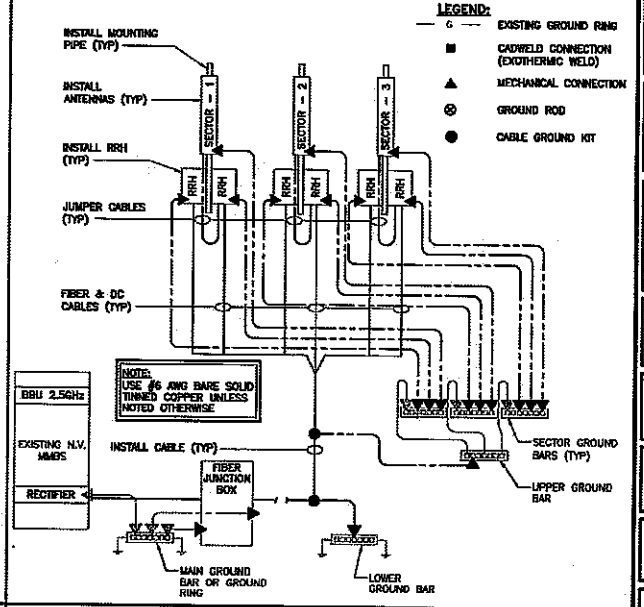
NOTES

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

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



TWO HOLE LUG — NO SCALE — 3



GROUNDING RISER DIAGRAM — NO SCALE — 4

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JOHN S. STEVENS
PAUL M. 24305
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04 2018

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90% REDESIGN	06/20/18	SKD	1
ISSUED FOR CONSTRUCTION	01/04/18	ABL	0
ISSUED FOR REVIEW	11/17/17	ETC	A

SITE NAME:

CLINTON / ANDERSON PROPERTY

SITE CASCADE:

CT33XC543

SITE ADDRESS:

7 SHERWOOD FOREST
KILLINGWORTH, CT 06419

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

Date: **May 30, 2018**

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

Crown Castle
2000 Corporate Drive
Canonsburg
724-416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT33XC543
	Carrier Site Name:	CT33XC543
Crown Castle Designation:	**Crown Castle BU Number:**	876383
	Crown Castle Site Name:	CLINTON / ANDERSON'S PROPERTY
	Crown Castle JDE Job Number:	505983
	Crown Castle Work Order Number:	1580562
	Crown Castle Order Number:	441479 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1580562
Site Data:	**7 Sherwood Forest Lane, KILLINGWORTH, Middlesex County, CT** **Latitude *41° 20' 17.24"*, Longitude *-72° 33' 23.44"*** **149.9 Foot - Monopole Tower**	

Dear Denice Nicholson,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1580562, in accordance with order 441479, 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: Benjamin McMurray / KB

Respectfully submitted by:

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

STATE OF CONNECTICUT
TERRY P. STYRAN
31522
LICENSED PROFESSIONAL ENGINEER

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 149.9 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in April of 2000. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

The tower has been modified per reinforcement drawings prepared by Paul J. Ford, in August of 2009. Reinforcement consists of addition of baseplate stiffeners. The modification is effective and was considered in this analysis.

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 0.75 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
150.0	152.0	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
150.0	152.0	6	decibel	DB980H90A-M w/ Mount Pipe	6	1-5/8	3
	150.0	1	tower mounts	Platform Mount [LP 601-1]	-	-	1
140.0	143.0	1	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	-	-	2
		2	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe			
		3	ericsson	RRUS 11			
		3	ericsson	RRUS 32 B2			
		6	powerwave technologies	7770.00 w/ Mount Pipe	1 2 12 1	3/8 7/16 1-5/8 2" Conduit	1
		6	powerwave technologies	LGP21401			
		4	powerwave technologies	LGP21901			
		1	raycap	DC6-48-60-18-8F			
	140.0	1	tower mounts	Platform Mount [LP 304-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
128.0	128.0	3	alcatel lucent	RRH2X40-AWS	12	1-5/8	1
		6	andrew	DB846F65ZAXY w/ Mount Pipe			
		3	antel	BXA-70063/6CF w/ Mount Pipe			
		1	tower mounts	T-Arm Mount [TA 602-3]			
		6	kathrein	742 213 w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
50.0	51.0	1	lucent	KS24019-L112A	-	-	1
	50.0	1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be removed; not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150.0	150.0	12	dapa	48000	-	-
140.0	140.0	12	dapa	48000	-	-
130.0	130.0	12	dapa	48000	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Goodkind & O'Dea, Inc.	2122536	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors, Inc.	1440547	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	1613582	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Semaan Engineering Solutions, Inc.	1595940	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford and Company.	2418226	CCISITES
4-POST-MODIFICATION INSPECTION	Paul J. Ford and Company.	2471721	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) The existing base plate grout was not considered in this analysis.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	149.854 - 111.934	Pole	TP26.59x18x0.1875	1	-8.83	1026.75	74.1	Pass
L2	111.934 - 76.434	Pole	TP34.14x25.3474x0.3125	2	-14.69	2384.60	63.1	Pass
L3	76.434 - 43.014	Pole	TP40.97x32.4352x0.3125	3	-21.87	2713.66	76.3	Pass
L4	43.014 - 0	Pole	TP50x39.0798x0.375	4	-35.80	4033.20	68.1	Pass
							Summary	
						Pole (L3)	76.3	Pass
						Rating =	76.3	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	74.8	Pass
1	Base Plate	0	73.3	Pass
1	Base Foundation Structure	0	61.2	Pass
1	Base Foundation Soil Interaction	0	63.5	Pass

Structure Rating (max from all components) =	76.3%

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

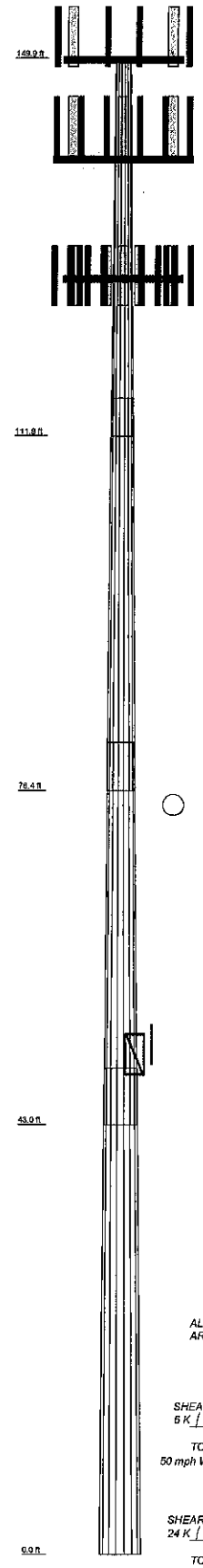
4.1) Recommendations

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	4	3	2	1
Length (ft)	46.68	35.25	39.33	37.92
Number of Sides	18	18	18	18
Thickness (in)	0.3750	0.3125	0.2425	0.1875
Socket Length (ft)		5.67	4.83	5.83
Top Dia (in)	38.0798	32.4352	25.3474	18.0000
Bot Dia (in)	50.0000	40.9700	34.1400	26.5900
Grade	A572-65			
Weight (K)	19.0	4.7	3.9	1.7



ALL REACTIONS ARE FACTORED

AXIAL 64 K
SHEAR 5 K
MOMENT 749 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 0.7500 in ICE

AXIAL 36 K
SHEAR 24 K
MOMENT 2766 kip-ft
TORQUE 1 kip-ft
REACTIONS - 101 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVTM14-ALU-I20 w/ Mount Pipe	150	(2) LGP21901	140
APXVTM14-ALU-I20 w/ Mount Pipe	150	(2) LGP21901	140
APXVTM14-ALU-I20 w/ Mount Pipe	150	DC6-48-60-18-8F	140
NNVV-65B-R4 w/ Mount Pipe	150	RRUS 11	140
NNVV-65B-R4 w/ Mount Pipe	150	RRUS 11	140
NNVV-65B-R4 w/ Mount Pipe	150	RRUS 11	140
(2) RRH2X50-800	150	RRUS 32 B2	140
(2) RRH2X50-800	150	RRUS 32 B2	140
(2) RRH2X50-800	150	RRUS 32 B2	140
TD-RRH8X20-25	150	8' x 2" Mount Pipe	140
TD-RRH8X20-25	150	Platform Mount [LP 304-1]	140
TD-RRH8X20-25	150	(2) DB846F65ZAXY w/ Mount Pipe	128
PCS 1900MHZ 4X45W-65MHZ	150	(2) DB846F65ZAXY w/ Mount Pipe	128
PCS 1900MHZ 4X45W-65MHZ	150	(2) DB846F65ZAXY w/ Mount Pipe	128
PCS 1900MHZ 4X45W-65MHZ	150	(2) 742 213 w/ Mount Pipe	128
8' x 2" Mount Pipe	150	(2) 742 213 w/ Mount Pipe	128
(2) 8' x 2" Mount Pipe	150	(2) 742 213 w/ Mount Pipe	128
8' x 2" Mount Pipe	150	BXA-70063/6CF w/ Mount Pipe	128
Transition Ladder	150	BXA-70063/6CF w/ Mount Pipe	128
Platform Mount [LP 601-1]	150	BXA-70063/6CF w/ Mount Pipe	128
(2) 7770.00 w/ Mount Pipe	140	RRH2X40-AWS	128
(2) 7770.00 w/ Mount Pipe	140	RRH2X40-AWS	128
(2) 7770.00 w/ Mount Pipe	140	RRH2X40-AWS	128
HPA-65R-BUU-H6 w/ Mount Pipe	140	DB-T1-6Z-8AB-0Z	128
HPA-65R-BUU-H6 w/ Mount Pipe	140	T-Arm Mount [TA 602-3]	128
HPA-65R-BUU-H6 w/ Mount Pipe	140	KS24019-L112A	60
(2) LGP21401	140	Side Arm Mount [SO 701-1]	60
(2) LGP21401	140	2' x 2" Pipe Mount	60
(2) LGP21401	140		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Middlesex 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 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 76.3%

CROWN CASTLE The Pathway to Possible	Crown Castle 2000 Corporate Drive Canonsburg Phone: 724-416-2000 FAX:	Job: BU# 876383	
		Project:	
		Client: Crown Castle	Drawn by: BMcMurray / App'd:
		Code: TIA-222-G	Date: 05/30/18 / Scale: NTS
		Path:	Dwg No. E-1

Tower Input Data

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

1) Tower is located in Middlesex County, Connecticut.
2) Basic wind speed of 101 mph.
3) Structure Class II.
4) Exposure Category B.
5) Topographic Category 1.
6) Crest Height 0.00 ft.
7) Nominal ice thickness of 0.7500 in.
8) Ice thickness is considered to increase with height.
9) Ice density of 56 pcf.
10) A wind speed of 50 mph is used in combination with ice.
11) Temperature drop of 50 °F.
12) Deflections calculated using a wind speed of 60 mph.
13) A non-linear (P-delta) analysis was used.
14) Pressures are calculated at each section.
15) Stress ratio used in pole design is 1.
16) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	149.85-111.93	37.92	3.83	18	18.0000	26.5900	0.1875	0.7500	A572-65 (65 ksi)
L2	111.93-76.43	39.33	4.83	18	25.3474	34.1400	0.3125	1.2500	A572-65 (65 ksi)
L3	76.43-43.01	38.25	5.67	18	32.4352	40.9700	0.3125	1.2500	A572-65 (65 ksi)
L4	43.01-0.00	48.68		18	39.0798	50.0000	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	18.2777	10.6007	424.9328	6.3234	9.1440	46.4712	850.4248	5.3013	2.8380	15.136
	27.0002	15.7128	1383.8238	9.3729	13.5077	102.4469	2769.4685	7.8579	4.3498	23.199
L2	26.6079	24.8315	1966.2175	8.8874	12.8765	152.6984	3935.0222	12.4181	3.9111	12.516
	34.6667	33.5527	4850.6965	12.0088	17.3431	279.6900	9707.7757	16.7795	5.4586	17.468
L3	34.0299	31.8617	4153.6583	11.4036	16.4771	252.0870	8312.7820	15.9339	5.1586	16.508
	41.6020	40.3272	8422.0227	14.4334	20.8128	404.6567	16855.1273	20.1674	6.6607	21.314
L4	40.9742	46.0684	8719.0978	13.7402	19.8526	439.1926	17449.6683	23.0386	6.2181	16.581
	50.7713	59.0662	18377.1094	17.6169	25.4000	723.5082	36778.3998	29.5387	8.1400	21.707

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 149.85-111.93				1	1	1			
L2 111.93-76.43				1	1	1			
L3 76.43-43.01				1	1	1			
L4 43.01-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
AVA7-50(1-5/8)	C	Surface Ar (CaAa)	128.00 - 0.00	7	6	-0.500 -0.350	2.0100		0.70
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***									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
HB114-13U3M12-XXXF(1-1/4)	C	No	Inside Pole	149.85 - 0.00	2	No Ice	0.00	0.99
						1/2" Ice	0.00	0.99
						1" Ice	0.00	0.99
HB114-13U3M12-XXXF(1-1/4)	C	No	Inside Pole	149.85 - 0.00	2	No Ice	0.00	0.99
						1/2" Ice	0.00	0.99
						1" Ice	0.00	0.99
***								
LDF7-50A(1-5/8)	A	No	Inside Pole	140.00 - 0.00	10	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
LCF158-50A(1-5/8)	A	No	Inside Pole	140.00 - 0.00	2	No Ice	0.00	0.80
						1/2" Ice	0.00	0.80
						1" Ice	0.00	0.80
FB-L98B-002-75000(3/8)	A	No	Inside Pole	140.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
WR-VG122ST-BRDA(7/16)	A	No	Inside Pole	140.00 - 0.00	2	No Ice	0.00	0.14
						1/2" Ice	0.00	0.14
						1" Ice	0.00	0.14
2" Rigid Conduit	A	No	Inside Pole	140.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
***								
AVA7-50(1-5/8)	C	No	Inside Pole	128.00 - 0.00	12	No Ice	0.00	0.70
						1/2" Ice	0.00	0.70
						1" Ice	0.00	0.70
**								
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Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	149.85-111.93	A	0.000	0.000	0.000	0.000	0.36
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	19.376	0.000	0.36
L2	111.93-76.43	A	0.000	0.000	0.000	0.000	0.46
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	42.813	0.000	0.61
L3	76.43-43.01	A	0.000	0.000	0.000	0.000	0.43
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	40.305	0.000	0.58
L4	43.01-0.00	A	0.000	0.000	0.000	0.000	0.56
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	51.875	0.000	0.74

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	149.85-111.93	A	1.720	0.000	0.000	0.000	0.000	0.36
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	31.129	0.000	0.77
L2	111.93-76.43	A	1.665	0.000	0.000	0.000	0.000	0.46
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	68.783	0.000	1.51
L3	76.43-43.01	A	1.591	0.000	0.000	0.000	0.000	0.43
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	64.291	0.000	1.40
L4	43.01-0.00	A	1.433	0.000	0.000	0.000	0.000	0.56
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	81.953	0.000	1.75

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	149.85-111.93	0.5960	0.4827	0.6994	0.5663
L2	111.93-76.43	1.0656	0.8629	1.1790	0.9547
L3	76.43-43.01	1.1094	0.8984	1.2809	1.0372
L4	43.01-0.00	1.1461	0.9281	1.3708	1.1101

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	13	AVA7-50(1-5/8)	111.93 - 128.00	1.0000	1.0000
L2	13	AVA7-50(1-5/8)	76.43 - 111.93	1.0000	1.0000
L3	13	AVA7-50(1-5/8)	43.01 - 76.43	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*** **********									
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	12.51 13.11 13.67	7.41 8.60 9.50	0.10 0.19 0.29
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	12.51 13.11 13.67	7.41 8.60 9.50	0.10 0.19 0.29
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	12.51 13.11 13.67	7.41 8.60 9.50	0.10 0.19 0.29
(2) RRH2X50-800	A	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03	1.28 1.43 1.58	0.05 0.07 0.09
(2) RRH2X50-800	B	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03	1.28 1.43 1.58	0.05 0.07 0.09
(2) RRH2X50-800	C	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03	1.28 1.43 1.58	0.05 0.07 0.09

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
TD-RRH8X20-25	A	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
TD-RRH8X20-25	B	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
TD-RRH8X20-25	C	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.00 0.00 2.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
6' x 2" Mount Pipe	A	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(2) 6' x 2" Mount Pipe	B	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	C	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Transition Ladder	C	None		0.0000	150.00	No Ice 1/2" Ice 1" Ice	6.00 8.00 10.00	6.00 8.00 10.00	0.16 0.24 0.32
Platform Mount [LP 601-1]	C	None		0.0000	150.00	No Ice 1/2" Ice 1" Ice	28.47 33.59 38.71	28.47 33.59 38.71	1.12 1.51 1.91
**** *****									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	9.90 10.47 11.01	8.11 9.30 10.21	0.08 0.16 0.25
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	140.00	No Ice 1/2" Ice Ice	13.21 13.90 14.59	9.58 11.05 12.50	0.10 0.20 0.30

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
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	13.21 13.90 14.59	9.58 11.05 12.50	0.10 0.20 0.30
(2) LGP21401	A	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	B	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	C	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21901	A	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	0.23 0.29 0.36	0.16 0.21 0.28	0.01 0.01 0.01
(2) LGP21901	B	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	0.23 0.29 0.36	0.16 0.21 0.28	0.01 0.01 0.01
DC6-48-60-18-8F	B	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	0.79 1.27 1.45	0.79 1.27 1.45	0.02 0.04 0.05
RRUS 11	A	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS 11	B	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS 11	C	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS 32 B2	A	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2	B	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2	C	From Leg	4.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
6' x 2" Mount Pipe	B	From Leg	1.00 0.00 3.00	0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Platform Mount [LP 304-1]	C	None		0.0000	140.00	1" Ice No Ice 1/2" Ice 1" Ice	17.46 22.44 27.42	17.46 22.44 27.42	1.35 1.62 1.90
***									
(2) DB846F65ZAXY w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	7.27 7.83 8.35	7.82 9.01 9.91	0.05 0.11 0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice			
(2) DB846F65ZAXY w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	7.27 7.83 8.35	7.82 9.01 9.91	0.05 0.11 0.19
						1" Ice			
(2) DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	7.27 7.83 8.35	7.82 9.01 9.91	0.05 0.11 0.19
						1" Ice			
(2) 742 213 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	5.37 5.95 6.50	4.62 6.00 6.98	0.05 0.09 0.15
						1" Ice			
(2) 742 213 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	5.37 5.95 6.50	4.62 6.00 6.98	0.05 0.09 0.15
						1" Ice			
(2) 742 213 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	5.37 5.95 6.50	4.62 6.00 6.98	0.05 0.09 0.15
						1" Ice			
BXA-70063/6CF w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	7.82 8.37 8.89	5.70 6.85 7.71	0.04 0.10 0.17
						1" Ice			
BXA-70063/6CF w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	7.82 8.37 8.89	5.70 6.85 7.71	0.04 0.10 0.17
						1" Ice			
BXA-70063/6CF w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	7.82 8.37 8.89	5.70 6.85 7.71	0.04 0.10 0.17
						1" Ice			
RRH2X40-AWS	A	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	2.16 2.36 2.57	1.42 1.59 1.77	0.04 0.06 0.08
						1" Ice			
RRH2X40-AWS	B	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	2.16 2.36 2.57	1.42 1.59 1.77	0.04 0.06 0.08
						1" Ice			
RRH2X40-AWS	C	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	2.16 2.36 2.57	1.42 1.59 1.77	0.04 0.06 0.08
						1" Ice			
DB-T1-6Z-8AB-0Z	A	From Leg	4.00 0.00 0.00	0.0000	128.00	No Ice 1/2" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
						1" Ice			
T-Arm Mount [TA 602-3]	C	None		0.0000	128.00	No Ice 1/2" Ice	11.59 15.44 19.29	11.59 15.44 19.29	0.77 0.99 1.21
***						1" Ice			
KS24019-L112A	B	From Leg	2.00 0.00 1.00	0.0000	50.00	No Ice 1/2" Ice	0.10 0.18 0.26	0.10 0.18 0.26	0.01 0.01 0.01
						1" Ice			
Side Arm Mount [SO 701-1]	B	From Leg	0.00 0.00 0.00	0.0000	50.00	No Ice 1/2" Ice	0.85 1.14 1.43	1.67 2.34 3.01	0.07 0.08 0.09
						1" Ice			
2' x 2" Pipe Mount	B	From Leg	2.00 0.00 0.00	0.0000	50.00	No Ice 1/2" Ice	0.02 0.05 0.09	0.02 0.05 0.09	0.01 0.01 0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
					1" Ice			
*****								
******								
*****								

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
L1	149.854 - 111.934	Pole	Max Tension	26	0.00	0.00	0.00
			Max. Compression	26	-26.12	-1.69	0.14
			Max. Mx	8	-8.83	-394.49	-0.02
			Max. My	2	-8.83	-0.29	393.61
			Max. Vy	8	16.28	-394.49	-0.02
			Max. Vx	14	16.32	-0.43	-393.48
			Max. Torque	17			0.55
L2	111.934 - 76.434	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.87	-3.08	-0.86
			Max. Mx	8	-14.72	-998.43	-0.27
			Max. My	14	-14.71	-0.77	-998.63
			Max. Vy	8	18.71	-998.43	-0.27
			Max. Vx	14	18.75	-0.77	-998.63
			Max. Torque	24			-0.53
L3	76.434 - 43.014	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.17	-4.83	-2.15
			Max. Mx	8	-21.89	-1645.76	-0.64
			Max. My	14	-21.89	-1.26	-1647.07
			Max. Vy	8	20.96	-1645.76	-0.64
			Max. Vx	14	21.01	-1.26	-1647.07
			Max. Torque	2			-0.61
L4	43.014 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.90	-7.10	-3.98
			Max. Mx	8	-35.80	-2738.83	-0.51
			Max. My	14	-35.80	-1.23	-2742.54
			Max. Vy	8	23.86	-2738.83	-0.51
			Max. Vx	14	23.91	-1.23	-2742.54
			Max. Torque	2			-0.61

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	63.90	-6.33	0.00
	Max. H_x	21	26.87	23.83	-0.01
	Max. H_z	3	26.87	-0.01	23.88
	Max. M_x	2	2740.97	-0.01	23.88
	Max. M_z	8	2738.83	-23.83	0.01
	Max. Torsion	14	0.61	0.01	-23.88
	Min. Vert	11	26.87	-20.63	-11.93
	Min. H_x	9	26.87	-23.83	0.01
	Min. H_z	15	26.87	0.01	-23.88
	Min. M_x	14	-2742.54	0.01	-23.88
	Min. M_z	20	-2735.83	23.83	-0.01
	Min. Torsion	2	-0.61	-0.01	23.88

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	29.85	0.00	0.00	0.63	-1.20	-0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.6 Wind 0 deg - No Ice	35.82	0.01	-23.88	-2740.97	-1.78	0.61
0.9 Dead+1.6 Wind 0 deg - No Ice	26.87	0.01	-23.88	-2706.61	-1.39	0.61
1.2 Dead+1.6 Wind 30 deg - No Ice	35.82	12.06	-20.93	-2395.85	-1383.14	0.47
0.9 Dead+1.6 Wind 30 deg - No Ice	26.87	12.06	-20.93	-2365.93	-1365.38	0.47
1.2 Dead+1.6 Wind 60 deg - No Ice	35.82	20.74	-12.01	-1375.90	-2381.88	0.20
0.9 Dead+1.6 Wind 60 deg - No Ice	26.87	20.74	-12.01	-1358.77	-2351.50	0.21
1.2 Dead+1.6 Wind 90 deg - No Ice	35.82	23.83	-0.01	0.51	-2738.83	-0.11
0.9 Dead+1.6 Wind 90 deg - No Ice	26.87	23.83	-0.01	0.31	-2703.91	-0.11
1.2 Dead+1.6 Wind 120 deg - No Ice	35.82	20.63	11.93	1371.43	-2371.96	-0.39
0.9 Dead+1.6 Wind 120 deg - No Ice	26.87	20.63	11.93	1353.94	-2341.67	-0.39
1.2 Dead+1.6 Wind 150 deg - No Ice	35.82	11.91	20.68	2375.08	-1369.93	-0.58
0.9 Dead+1.6 Wind 150 deg - No Ice	26.87	11.91	20.68	2344.94	-1352.27	-0.57
1.2 Dead+1.6 Wind 180 deg - No Ice	35.82	-0.01	23.88	2742.54	-1.23	-0.61
0.9 Dead+1.6 Wind 180 deg - No Ice	26.87	-0.01	23.88	2707.77	-0.84	-0.61
1.2 Dead+1.6 Wind 210 deg - No Ice	35.82	-12.06	20.93	2397.42	1380.13	-0.47
0.9 Dead+1.6 Wind 210 deg - No Ice	26.87	-12.06	20.93	2367.09	1363.15	-0.48
1.2 Dead+1.6 Wind 240 deg - No Ice	35.82	-20.74	12.01	1377.47	2378.87	-0.21
0.9 Dead+1.6 Wind 240 deg - No Ice	26.87	-20.74	12.01	1359.94	2349.27	-0.22
1.2 Dead+1.6 Wind 270 deg - No Ice	35.82	-23.83	0.01	1.06	2735.83	0.11
0.9 Dead+1.6 Wind 270 deg - No Ice	26.87	-23.83	0.01	0.86	2701.68	0.10
1.2 Dead+1.6 Wind 300 deg - No Ice	35.82	-20.63	-11.93	-1369.86	2368.96	0.40
0.9 Dead+1.6 Wind 300 deg - No Ice	26.87	-20.63	-11.93	-1352.78	2339.44	0.40
1.2 Dead+1.6 Wind 330 deg - No Ice	35.82	-11.91	-20.68	-2373.51	1366.92	0.59
0.9 Dead+1.6 Wind 330 deg - No Ice	26.87	-11.91	-20.68	-2343.78	1350.05	0.58
1.2 Dead+1.0 Ice+1.0 Temp	63.90	0.00	0.00	3.98	-7.10	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	63.90	0.00	-6.34	-738.63	-7.36	0.20
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	63.90	3.17	-5.50	-639.21	-377.76	0.17
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	63.90	5.48	-3.18	-367.44	-648.87	0.09
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	63.90	6.33	-0.00	3.87	-748.04	-0.02
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	63.90	5.48	3.17	375.22	-648.71	-0.12
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	63.90	3.16	5.49	647.11	-377.48	-0.19
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	63.90	-0.00	6.34	746.69	-7.03	-0.21
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	63.90	-3.17	5.50	647.27	363.37	-0.17
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	63.90	-5.48	3.18	375.50	634.48	-0.09
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	63.90	-6.33	0.00	4.19	733.65	0.02

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 300 deg+1.0 Ice+1.0 Temp	63.90	-5.48	-3.17	-367.16	634.32	0.12
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	63.90	-3.16	-5.49	-639.05	363.09	0.19
Dead+Wind 0 deg - Service	29.85	0.00	-4.71	-537.18	-1.31	0.12
Dead+Wind 30 deg - Service	29.85	2.38	-4.13	-469.49	-272.29	0.09
Dead+Wind 60 deg - Service	29.85	4.09	-2.37	-269.41	-468.20	0.04
Dead+Wind 90 deg - Service	29.85	4.70	-0.00	0.60	-538.21	-0.02
Dead+Wind 120 deg - Service	29.85	4.07	2.35	269.52	-466.24	-0.08
Dead+Wind 150 deg - Service	29.85	2.35	4.08	466.40	-269.68	-0.12
Dead+Wind 180 deg - Service	29.85	-0.00	4.71	538.48	-1.20	-0.12
Dead+Wind 210 deg - Service	29.85	-2.38	4.13	470.80	269.78	-0.10
Dead+Wind 240 deg - Service	29.85	-4.09	2.37	270.71	465.69	-0.04
Dead+Wind 270 deg - Service	29.85	-4.70	0.00	0.70	535.70	0.02
Dead+Wind 300 deg - Service	29.85	-4.07	-2.35	-268.22	463.74	0.08
Dead+Wind 330 deg - Service	29.85	-2.35	-4.08	-465.09	267.18	0.12

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-29.85	0.00	0.00	29.85	0.00	0.000%
2	0.01	-35.82	-23.88	-0.01	35.82	23.88	0.000%
3	0.01	-26.87	-23.88	-0.01	26.87	23.88	0.000%
4	12.06	-35.82	-20.93	-12.06	35.82	20.93	0.000%
5	12.06	-26.87	-20.93	-12.06	26.87	20.93	0.000%
6	20.74	-35.82	-12.01	-20.74	35.82	12.01	0.000%
7	20.74	-26.87	-12.01	-20.74	26.87	12.01	0.000%
8	23.83	-35.82	-0.01	-23.83	35.82	0.01	0.000%
9	23.83	-26.87	-0.01	-23.83	26.87	0.01	0.000%
10	20.63	-35.82	11.93	-20.63	35.82	-11.93	0.000%
11	20.63	-26.87	11.93	-20.63	26.87	-11.93	0.000%
12	11.91	-35.82	20.68	-11.91	35.82	-20.68	0.000%
13	11.91	-26.87	20.68	-11.91	26.87	-20.68	0.000%
14	-0.01	-35.82	23.88	0.01	35.82	-23.88	0.000%
15	-0.01	-26.87	23.88	0.01	26.87	-23.88	0.000%
16	-12.06	-35.82	20.93	12.06	35.82	-20.93	0.000%
17	-12.06	-26.87	20.93	12.06	26.87	-20.93	0.000%
18	-20.74	-35.82	12.01	20.74	35.82	-12.01	0.000%
19	-20.74	-26.87	12.01	20.74	26.87	-12.01	0.000%
20	-23.83	-35.82	0.01	23.83	35.82	-0.01	0.000%
21	-23.83	-26.87	0.01	23.83	26.87	-0.01	0.000%
22	-20.63	-35.82	-11.93	20.63	35.82	11.93	0.000%
23	-20.63	-26.87	-11.93	20.63	26.87	11.93	0.000%
24	-11.91	-35.82	-20.68	11.91	35.82	20.68	0.000%
25	-11.91	-26.87	-20.68	11.91	26.87	20.68	0.000%
26	0.00	-63.90	0.00	-0.00	63.90	-0.00	0.000%
27	0.00	-63.90	-6.34	-0.00	63.90	6.34	0.000%
28	3.17	-63.90	-5.50	-3.17	63.90	5.50	0.000%
29	5.48	-63.90	-3.18	-5.48	63.90	3.18	0.000%
30	6.33	-63.90	-0.00	-6.33	63.90	0.00	0.000%
31	5.48	-63.90	3.17	-5.48	63.90	-3.17	0.000%
32	3.16	-63.90	5.49	-3.16	63.90	-5.49	0.000%
33	-0.00	-63.90	6.34	0.00	63.90	-6.34	0.000%
34	-3.17	-63.90	5.50	3.17	63.90	-5.50	0.000%
35	-5.48	-63.90	3.18	5.48	63.90	-3.18	0.000%
36	-6.33	-63.90	0.00	6.33	63.90	-0.00	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
37	-5.48	-63.90	-3.17	5.48	63.90	3.17	0.000%
38	-3.16	-63.90	-5.49	3.16	63.90	5.49	0.000%
39	0.00	-29.85	-4.71	-0.00	29.85	4.71	0.000%
40	2.38	-29.85	-4.13	-2.38	29.85	4.13	0.000%
41	4.09	-29.85	-2.37	-4.09	29.85	2.37	0.000%
42	4.70	-29.85	-0.00	-4.70	29.85	0.00	0.000%
43	4.07	-29.85	2.35	-4.07	29.85	-2.35	0.000%
44	2.35	-29.85	4.08	-2.35	29.85	-4.08	0.000%
45	-0.00	-29.85	4.71	0.00	29.85	-4.71	0.000%
46	-2.38	-29.85	4.13	2.38	29.85	-4.13	0.000%
47	-4.09	-29.85	2.37	4.09	29.85	-2.37	0.000%
48	-4.70	-29.85	0.00	4.70	29.85	-0.00	0.000%
49	-4.07	-29.85	-2.35	4.07	29.85	2.35	0.000%
50	-2.35	-29.85	-4.08	2.35	29.85	4.08	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00005836
3	Yes	4	0.00000001	0.00067757
4	Yes	6	0.00000001	0.00016574
5	Yes	6	0.00000001	0.00004783
6	Yes	6	0.00000001	0.00016331
7	Yes	6	0.00000001	0.00004710
8	Yes	5	0.00000001	0.00002068
9	Yes	4	0.00000001	0.00032468
10	Yes	6	0.00000001	0.00016209
11	Yes	6	0.00000001	0.00004677
12	Yes	6	0.00000001	0.00016504
13	Yes	6	0.00000001	0.00004779
14	Yes	5	0.00000001	0.00005893
15	Yes	4	0.00000001	0.00068327
16	Yes	6	0.00000001	0.00016290
17	Yes	6	0.00000001	0.00004688
18	Yes	6	0.00000001	0.00016420
19	Yes	6	0.00000001	0.00004745
20	Yes	5	0.00000001	0.00002098
21	Yes	4	0.00000001	0.00032683
22	Yes	6	0.00000001	0.00016435
23	Yes	6	0.00000001	0.00004761
24	Yes	6	0.00000001	0.00016125
25	Yes	6	0.00000001	0.00004654
26	Yes	4	0.00000001	0.00010080
27	Yes	6	0.00000001	0.00016462
28	Yes	6	0.00000001	0.00024577
29	Yes	6	0.00000001	0.00024336
30	Yes	6	0.00000001	0.00016651
31	Yes	6	0.00000001	0.00024576
32	Yes	6	0.00000001	0.00024823
33	Yes	6	0.00000001	0.00016587
34	Yes	6	0.00000001	0.00023857
35	Yes	6	0.00000001	0.00024065
36	Yes	6	0.00000001	0.00016280
37	Yes	6	0.00000001	0.00023837
38	Yes	6	0.00000001	0.00023631
39	Yes	4	0.00000001	0.00009095
40	Yes	4	0.00000001	0.00067691
41	Yes	4	0.00000001	0.00064717
42	Yes	4	0.00000001	0.00007675
43	Yes	4	0.00000001	0.00063666
44	Yes	4	0.00000001	0.00067406
45	Yes	4	0.00000001	0.00009117
46	Yes	4	0.00000001	0.00063801

47	Yes	4	0.00000001	0.00065539
48	Yes	4	0.00000001	0.00007625
49	Yes	4	0.00000001	0.00065779
50	Yes	4	0.00000001	0.00062148

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149.854 - 111.934	24.417	40	1.5748	0.0022
L2	115.764 - 76.434	14.060	40	1.2299	0.0008
L3	81.264 - 43.014	6.581	40	0.8176	0.0004
L4	48.684 - 0	2.243	40	0.4331	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	APXVTM14-ALU-I20 w/ Mount Pipe	40	24.417	1.5748	0.0022	25114
140.00	(2) 7770.00 w/ Mount Pipe	40	21.257	1.4792	0.0017	12743
128.00	(2) DB846F65ZAXY w/ Mount Pipe	40	17.540	1.3596	0.0012	5745
50.00	KS24019-L112A	40	2.365	0.4472	0.0002	4411

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149.854 - 111.934	124.146	4	8.0240	0.0109
L2	115.764 - 76.434	71.601	4	6.2721	0.0040
L3	81.264 - 43.014	33.545	4	4.1713	0.0018
L4	48.684 - 0	11.436	4	2.2095	0.0008

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	APXVTM14-ALU-I20 w/ Mount Pipe	4	124.146	8.0240	0.0109	5114
140.00	(2) 7770.00 w/ Mount Pipe	4	108.121	7.5390	0.0085	2594
128.00	(2) DB846F65ZAXY w/ Mount Pipe	4	89.268	6.9314	0.0060	1166
50.00	KS24019-L112A	4	12.058	2.2813	0.0008	867

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	149.854 - 111.934 (1)	TP26.59x18x0.1875	37.92	0.00	0.0	15.1965	-8.83	1026.75	0.009
L2	111.934 - 76.434 (2)	TP34.14x25.3474x0.3125	39.33	0.00	0.0	32.4816	-14.69	2384.60	0.006
L3	76.434 - 43.014 (3)	TP40.97x32.4352x0.3125	38.25	0.00	0.0	39.0723	-21.87	2713.66	0.008
L4	43.014 - 0 (4)	TP50x39.0798x0.375	48.68	0.00	0.0	59.0662	-35.80	4033.20	0.009

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	149.854 - 111.934 (1)	TP26.59x18x0.1875	394.49	539.40	0.731	0.00	539.40	0.000
L2	111.934 - 76.434 (2)	TP34.14x25.3474x0.3125	1001.71	1603.11	0.625	0.00	1603.11	0.000
L3	76.434 - 43.014 (3)	TP40.97x32.4352x0.3125	1657.74	2198.00	0.754	0.00	2198.00	0.000
L4	43.014 - 0 (4)	TP50x39.0798x0.375	2766.44	4116.93	0.672	0.00	4116.93	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	149.854 - 111.934 (1)	TP26.59x18x0.1875	16.28	513.37	0.032	0.17	1080.13	0.000
L2	111.934 - 76.434 (2)	TP34.14x25.3474x0.3125	18.95	1192.30	0.016	0.35	3210.14	0.000
L3	76.434 - 43.014 (3)	TP40.97x32.4352x0.3125	21.29	1356.83	0.016	0.47	4401.38	0.000
L4	43.014 - 0 (4)	TP50x39.0798x0.375	24.19	2016.60	0.012	0.47	8243.93	0.000

Pole Interaction Design Data

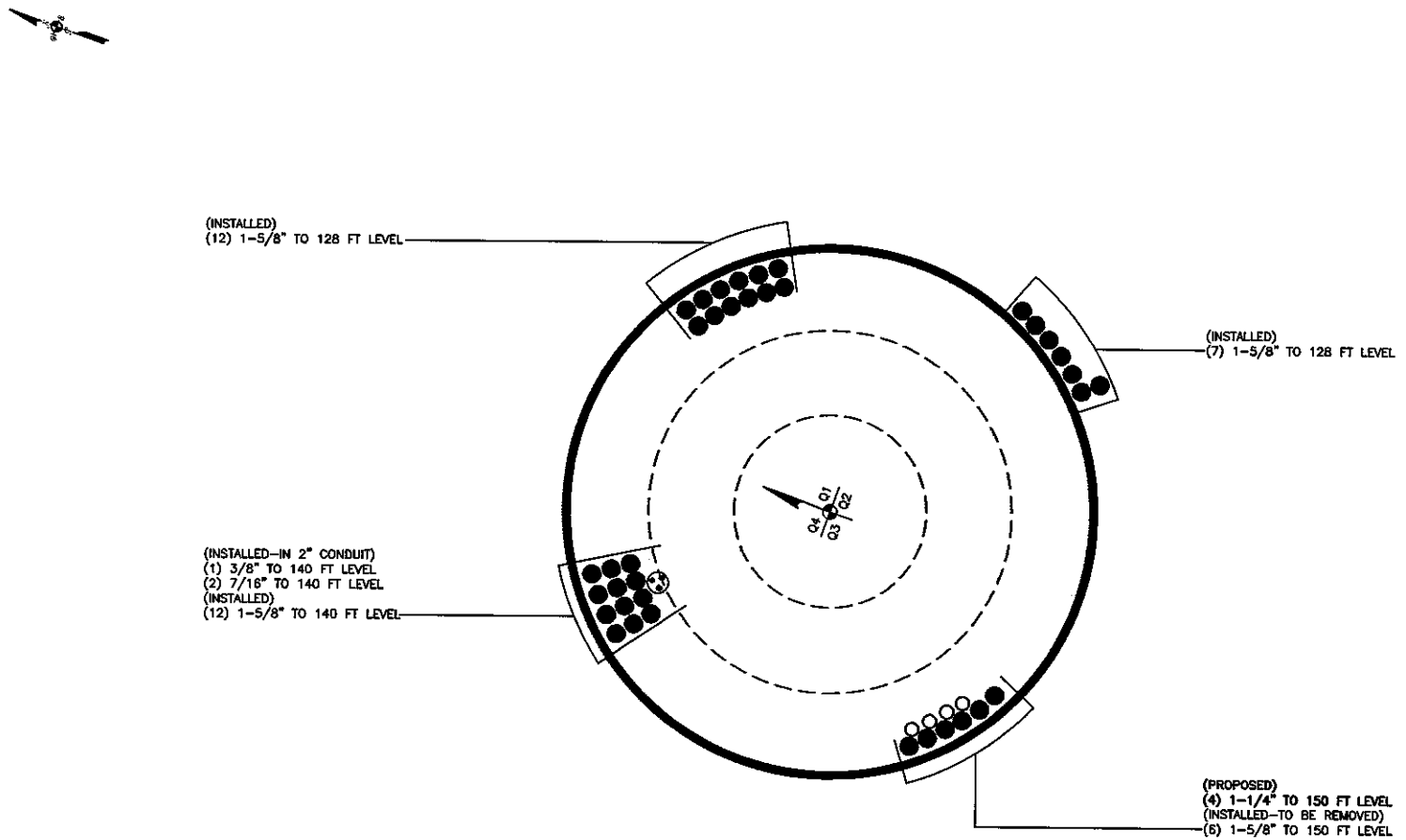
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	149.854 - 111.934 (1)	0.009	0.731	0.000	0.032	0.000	0.741	1.000	4.8.2
L2	111.934 - 76.434 (2)	0.006	0.625	0.000	0.016	0.000	0.631	1.000	4.8.2
L3	76.434 - 43.014 (3)	0.008	0.754	0.000	0.016	0.000	0.763	1.000	4.8.2
L4	43.014 - 0 (4)	0.009	0.672	0.000	0.012	0.000	0.681	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	149.854 - 111.934	Pole	TP26.59x18x0.1875	1	-8.83	1026.75	74.1	Pass
L2	111.934 - 76.434	Pole	TP34.14x25.3474x0.3125	2	-14.69	2384.60	63.1	Pass
L3	76.434 - 43.014	Pole	TP40.97x32.4352x0.3125	3	-21.87	2713.66	76.3	Pass
L4	43.014 - 0	Pole	TP50x39.0798x0.375	4	-35.80	4033.20	68.1	Pass
							Summary	
						Pole (L3)	76.3	Pass
						RATING =	**76.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876383 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876383*
Site Name: *CLINTON / ANDERSON'S PROPER*
App #: *441479 Rev. 0*

Pole Manufacturer:	*Other*

Reactions		
Mu:	2766	ft-kips
Axial, Pu:	36	kips
Shear, Vu:	24	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	59	in

Plate Data		
Diam:	65	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	13.22	in

Stiffener Data (Welding at both sides)		
Config:	3	*
Weld Type:	Both	
Groove Depth:	0.5	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.5	in
Fillet V. Weld:	0.375	in
Width:	6	in
Height:	18	in
Thick:	1.25	in
Notch:	0.75	in
Grade:	50	ksi
Weld str.:	70	ksi
Clear Space between	6	in

Pole Data		
Diam:	50	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Anchor Rod Results

		Stiffened
Max Rod (Cu+ Vu/ή):	194.6 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	260.0 Kips	φ*Tn
Anchor Rod Stress Ratio:	74.8% **Pass**	

Base Plate Results

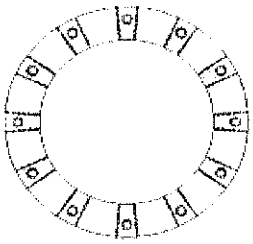
	Flexural Check	Stiffened
Base Plate Stress:	39.6 ksi	AISC LRFD
Allowable Plate Stress:	54.0 ksi	φ*Fy
Base Plate Stress Ratio:	73.3% **Pass**	Y.L. Length:
		N/A, Roark

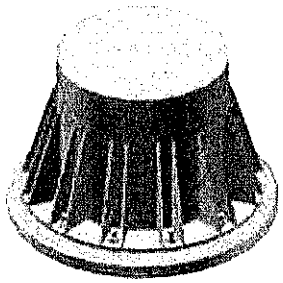
Stiffener Results

Horizontal Weld :	45.3% **Pass**
Vertical Weld:	30.2% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	6.0% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	27.4% **Pass**
Plate Comp. (AISC Bracket):	28.7% **Pass**

Pole Results

Pole Punching Shear Check:	9.1% **Pass**





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

Pier and Pad Foundation

BU # :	876383
Site Name:	CLINTON / ANDEF
App. Number:	441479 Rev. 0

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	36	kips
Base Shear, Vu_comp:	24	kips
Moment, M_u:	2766	ft-kips
Tower Height, H:	150	ft
BP Dist. Above Fdn, bp_{dist}:	4	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, dpier:	6.5	ft
Ext. Above Grade, E:	0.50	ft
Pier Rebar Size, Sc:	8	
Pier Rebar Quantity, mc:	39	
Pier Tie/Spiral Size, St:	4	
Pier Tie/Spiral Quantity, mt:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, D:	5.0	ft
Pad Width, W:	24.5	ft
Pad Thickness, T:	3.0	ft
Pad Rebar Size, Sp:	8	
Pad Rebar Quantity, mp:	40	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, Fy:	60000	psi
Concrete Compressive Strength, F'c:	4000	psi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	100	pcf
Ultimate Gross Bearing, Qult:	20.000	ksf
Cohesion, Cu:		ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	6	
Base Friction, μ:		
Neglected Depth, N:	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw:	n/a	ft

<--Toggle between Gross and Net

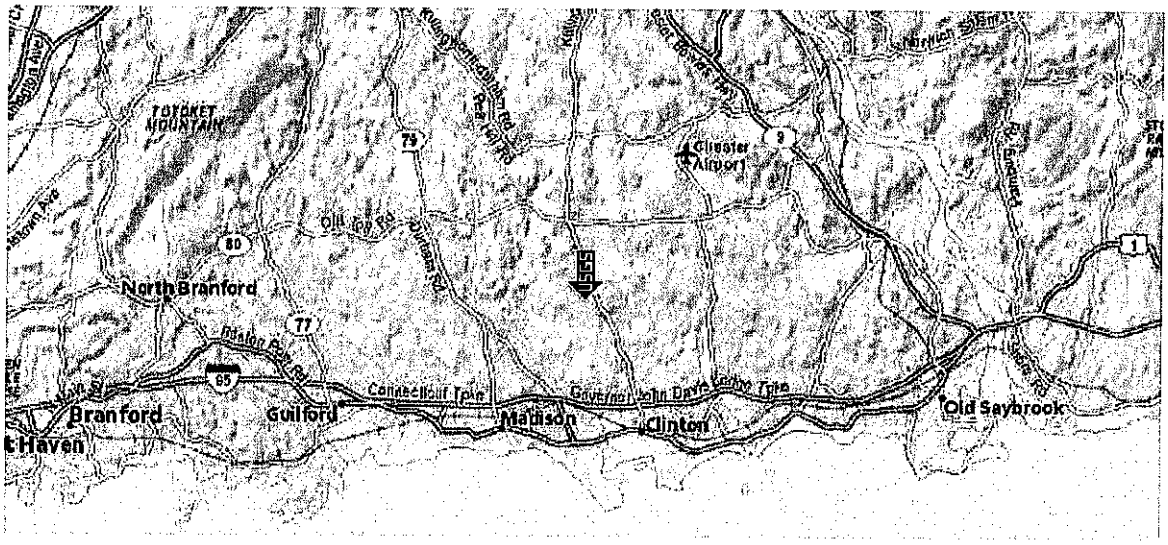
Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	143.93	24.00	**16.7%**	**Pass**
Bearing Pressure (ksf)	15.00	2.90	**19.3%**	**Pass**
*Overturning (kip*ft)*	4578.32	2906.00	**63.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	4616.29	2826.00	**61.2%**	**Pass**
Pier Compression (kip)	26891.28	55.01	**0.2%**	**Pass**
*Pad Flexure (kip*ft)*	4344.44	1160.29	**26.7%**	**Pass**
Pad Shear - 1-way (kips)	878.58	178.01	**20.3%**	**Pass**
Pad Shear - 2-way (ksi)	0.19	0.03	**15.6%**	**Pass**

Soil Rating:	**63.5%**
Structural Rating:	**61.2%**

USGS Design Maps Summary Report

User–Specified Input

Report Title	876383 Fri June 1, 2018 21:07:37 UTC
Building Code Reference Document	2012/2015 International Building Code (which utilizes USGS hazard data available in 2008)
Site Coordinates	41.3381°N, 72.5565°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

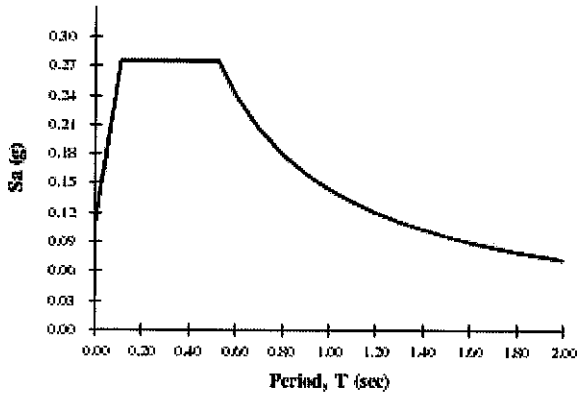


USGS–Provided Output

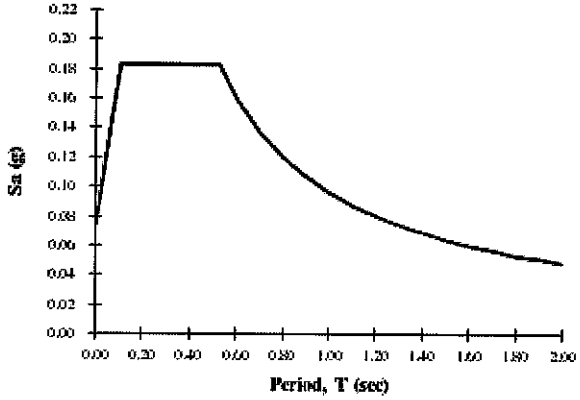
S_S =	0.172 g	S_{MS} =	0.275 g	S_{DS} =	0.183 g
S_1 =	0.060 g	S_{M1} =	0.144 g	S_{D1} =	0.096 g

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

MCE_R Response Spectrum



Design Response Spectrum



CCISeismic - Design Category

Per *2012/2015 IBC*

Site BU:	876383
Work Order:	1580562
Application:	441479 Rev. 0

CROWN CASTLE

	Degrees	Minutes	Seconds		
Site Latitude =	41	20	17.23	41.3381	degrees
Site Longitude =	-72	33	23.43	-72.5565	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 =	0.172	USGS Seismic Tool
Spectral response acceleration 1 s period, S_1 =	0.060	

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} =	0.183	*(2.7.6)*
Design spectral response acceleration 1 s period, S_{D1} =	0.096	*(2.7.6)*

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

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

EBI Consulting

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

SPRINT Existing Facility

Site ID: CT33XC543

Clinton / Anderson Property
7 Sherwood Forest Lane
Killingworth, CT 06419

July 26, 2018

EBI Project Number: 6218005224

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.84 %**

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

EBI Consulting
environmental | engineering | due diligence

July 26, 2018

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

Emissions Analysis for Site: **CT33XC543 – Clinton / Anderson Property**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **7 Sherwood Forest Lane, Killingworth, 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 **7 Sherwood Forest Lane, Killingworth, 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, 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 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, 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 antennas are **152 feet** above ground level (AGL) for **Sector A, 152 feet** above ground level (AGL) for **Sector B** and **152 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.

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SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**152 feet**	Height (AGL):	**152 feet**	Height (AGL):	**152 feet**
Frequency Bands:	850 MHz / 1900 MHz (PCS)	Frequency Bands:	850 MHz / 1900 MHz (PCS)	Frequency Bands:	850 MHz / 1900 MHz (PCS)
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%:	**1.54 %**	Antenna B1 MPE%:	**1.54 %**	Antenna C1 MPE%:	**1.54 %**
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):	**152 feet**	Height (AGL):	**152 feet**	Height (AGL):	**152 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%:	**1.05 %**	Antenna B2 MPE%:	**1.05 %**	Antenna C2 MPE%:	**1.05 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.59 %**
AT&T	2.38 %
Verizon Wireless	3.87 %
Site Total MPE %:	**8.84 %**

SPRINT Sector A Total:	2.59 %
SPRINT Sector B Total:	2.59 %
SPRINT Sector C Total:	2.59 %
Site Total:	8.84 %

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	152	0.64	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	941.82	152	3.18	850 MHz	567	0.56%
Sprint 1900 MHz (PCS) CDMA	5	511.82	152	4.32	1900 MHz (PCS)	1000	0.43%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	152	4.32	1900 MHz (PCS)	1000	0.43%
Sprint 2500 MHz (BRS) LTE	8	778.09	152	10.50	2500 MHz (BRS)	1000	1.05%
						Total:	**2.59%**

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:	2.59 %
Sector B:	2.59 %
Sector C:	2.59 %
SPRINT Maximum MPE % (per sector):	2.59 %
Site Total:	8.84 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.84 %** 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.

Ex. Shipping Tracking Printing Services Locations Support Jeff

772837014839

Delivered
Monday 7/30/2018 at 10:43 am

DELIVERED

Signed for by: E.LINO

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FROM

Crown Castle
Jeff Barbadora
Suite 5800
12 Gill Street
WOBURN, MA US 01801
781 970-0053

TO

Town of Killingworth
First Selectwomen- Cathrine Lino
323 Route 81
KILLINGWORTH, CT US 06419
860 663-1765

Travel History

Shipment Facts

7/30/2018 - Monday	10:43 am	Delivered KILLINGWORTH, CT

Expand History

7/27/2018 - Friday	12:18 pm	Shipment information sent to FedEx

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