Crown Castle
3530 Toringdon Way
Suite 300
Charlotte, NC 28277

Tel: 704-405-6600

www.crowncastle.com

March 21, 2014

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

RE: **Sprint PCS-Exempt Modification - Crown Site BU: 876343**
Sprint PCS Site ID: CT03XC172
Located at: 1919 Boston Post Road, Guilford, CT 06437

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of Sprint PCS (Sprint). Sprint is making modifications to certain existing sites in its Connecticut system in order to implement their 2.5GHz LTE technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies ("R.C.S.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mr. Joseph S. Mazza, First Selectman for the Town of Guilford.

Sprint plans to modify the existing wireless communications facility owned by Crown Castle and located at **1919 Boston Post Road, Guilford, CT 06437**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to Sprint's operations at the site (Exhibit-3).

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") § 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in the R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Sprint's additional antennas will be located at the same elevation on the existing tower.

2. There will be no proposed modifications to the ground and no extension of boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. A Structural Modification Report confirming that the tower and foundation can support Sprint's proposed modifications is included as Exhibit-2.

5. The operation of the additional antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for Sprint's modified facility is included as Exhibit-3.

For the foregoing reasons, Sprint respectfully submits 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: Donna Neal.

Sincerely,

Jeff Barbadora
Real Estate Specialist

Enclosures

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

cc: Mr. Joseph S. Mazza, First Selectman
Town of Guilford
31 Park Street
Guilford, CT 06437

PROJECT: 2.5 EQUIPMENT DEPLOYMENT

SITE NAME: GUILFORD WEST/STONE PROPERTY

SITE CASCADE: CT03XC172

SITE NUMBER: 876343

SITE ADDRESS: 1919 BOSTON POST ROAD
GUILFORD, CT 06437

SITE TYPE: MONOPOLE TOWER

MARKET: SOUTHERN CONNECTICUT

SITE INFORMATION

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

LATITUDE (NAD83):
41° 18' 01.18" N
41.300330°

LONGITUDE (NAD83):
72° 42' 28.98" W
-72.708050°

COUNTY:
HARTFORD

ZONING JURISDICTION:
TOWN OF GUILFORD

ZONING DISTRICT:
TBD

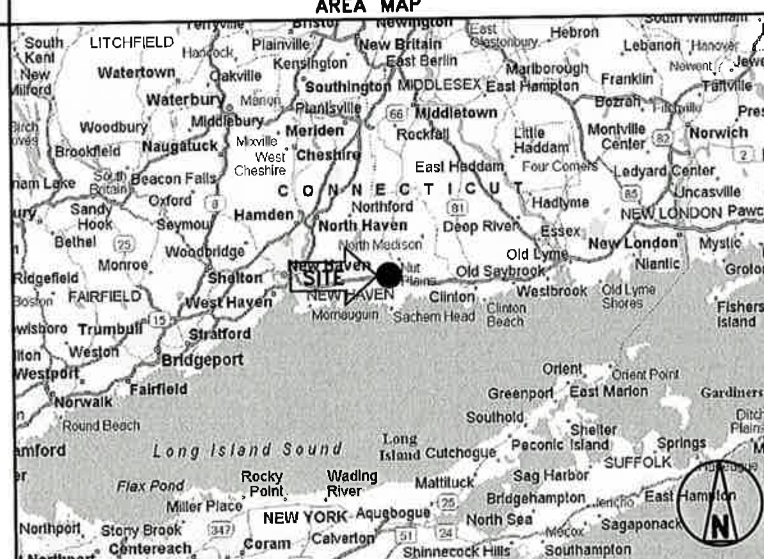
POWER COMPANY:
CONNECTICUT LIGHT & POWER
(860) 947-2000

AAV PROVIDER:
VERIZON
(855) 277-5195

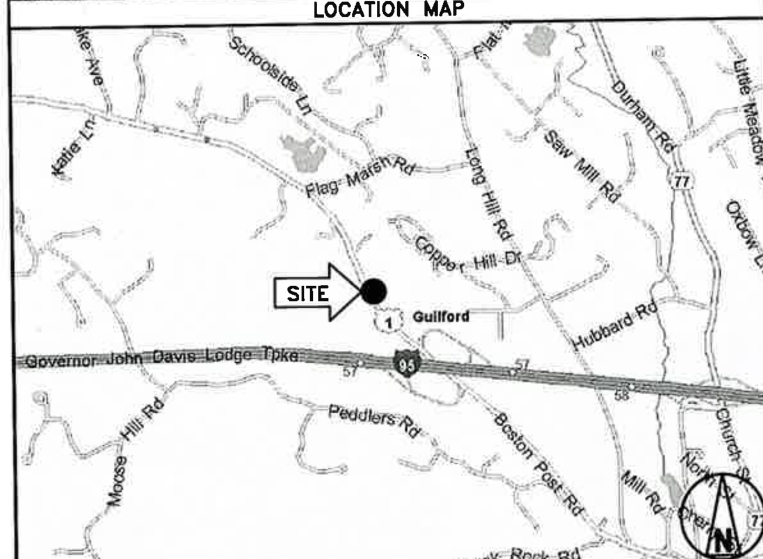
SPRINT CM:
GARY WOOD
GARY.WOOD@SPRINT.COM

CROWN CASTLE CM:
HARRY ATHAN
(518) 380-0041
HTAMANAGEMENT@NYCAP.RR.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT IN EXISTING N.V. MMBS
- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) RRU'S TO TOWER
- INSTALL (27) JUMPER CABLES
- INSTALL (1) FIBER CABLE
- INSTALL (4) BATTERIES IN EXISTING BBU CABINET

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 TOWER 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 (2012 IBC)
2. TIA-EIA-222-F 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. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

811
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PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY Design. Build. Deliver.
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 353-000

MLA PARTNER:
CROWN CASTLE

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

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	02/21/14	MJB	B
ISSUED FOR REVIEW	01/06/14	MJB	A

SITE NAME:
GUILFORD WEST/
STONE PROPERTY

SITE CASCADE:
CT03XC172

SITE ADDRESS:
1919 BOSTON POST ROAD
GUILFORD, CT 06437

SHEET DESCRIPTION:
TITLE SHEET
& PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

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

1.5 DEFINITIONS:

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

B. COMPANY: SPRINT CORPORATION

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

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

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

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.

4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

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

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

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

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 NOTICE TO PROCEED

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

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	02/21/14	MJB	B
ISSUED FOR REVIEW	01/06/14	MJB	A

SITE NAME:

GUILFORD WEST/
STONE PROPERTY

SITE CASCADE:

CT03XC172

SITE ADDRESS:

1919 BOSTON POST ROAD
GUILFORD, CT 06437

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 TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

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

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

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

3.2 REQUIRED TESTS:

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

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

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

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

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

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Sprint

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JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

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SITE NAME:

GUILFORD WEST/
STONE PROPERTY

SITE CASCADE:

CT03XC172

SITE ADDRESS:

1919 BOSTON POST ROAD
GUILFORD, CT 06437

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

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

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

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

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

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

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

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

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

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

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

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

3.2 PROJECT CONFERENCE CALLS:

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

3.3 PROJECT TRACKING IN SMS:

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

3.4 ADDITIONAL REPORTING:

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

3.5 PROJECT PHOTOGRAPHS:

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

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

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

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

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Fax # (518) 690-0793

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	02/21/14	MJB	B
ISSUED FOR REVIEW	01/06/14	MJB	A

SITE NAME:

GUILFORD WEST/
STONE PROPERTY

SITE CASCADE:

CT03XC172

SITE ADDRESS:

1919 BOSTON POST ROAD
GUILFORD, CT 06437

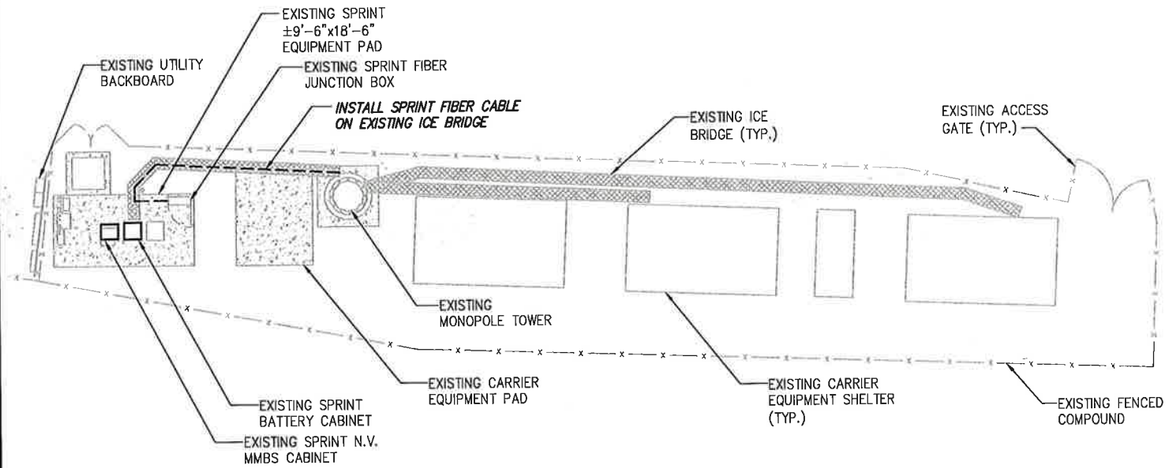
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

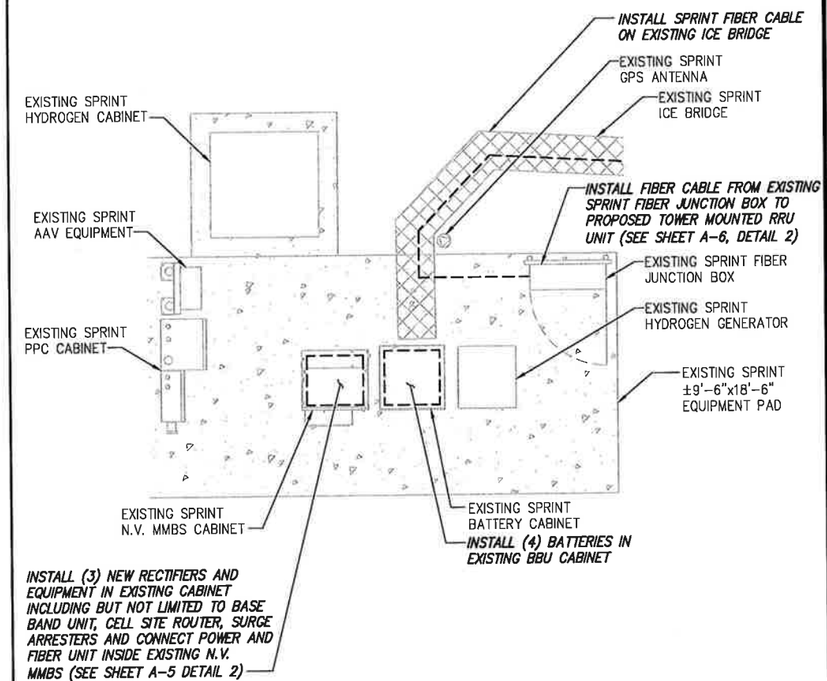
SP-3

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



5' 0 5' 10' 20'
(IN FEET)
SCALE: 24"x36" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



1.5' 0 1.5' 3' 6'
(IN FEET)
SCALE: 24"x36" SHEET 1" = 3'-0"
SCALE: 11"x17" SHEET 1" = 6'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:

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SITE ADDRESS:

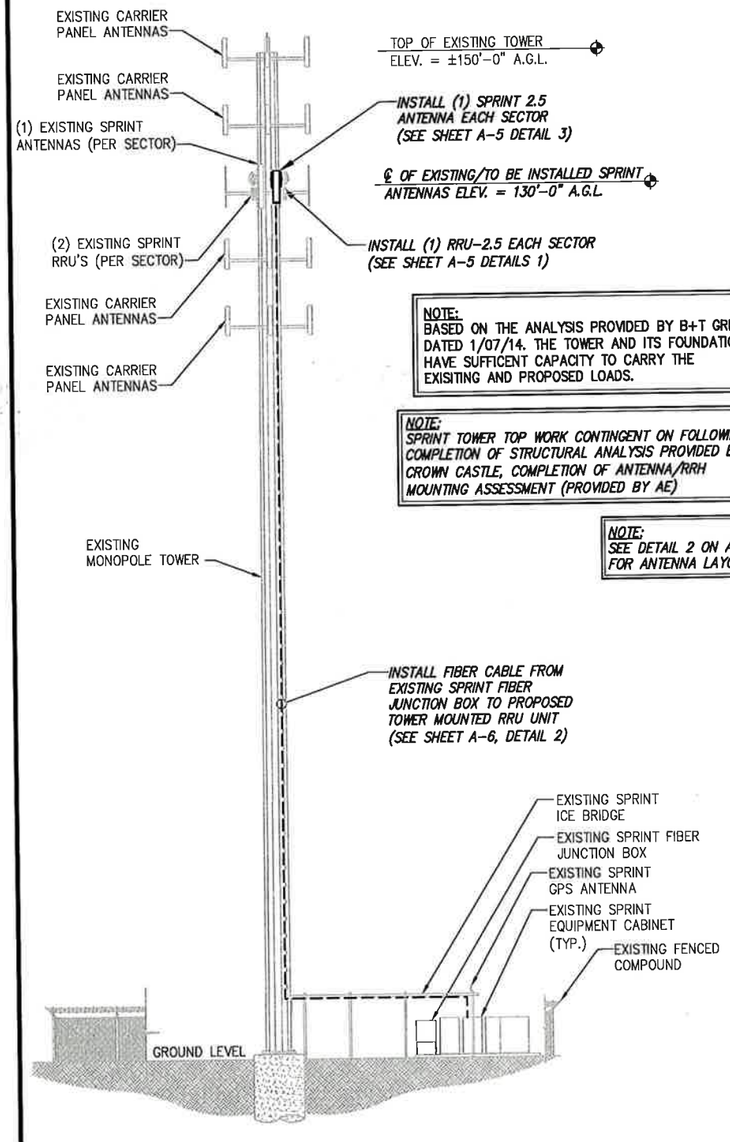
1919 BOSTON POST ROAD
GUILFORD, CT 06437

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1



NOTE:
BASED ON THE ANALYSIS PROVIDED BY B+T GRP, DATED 1/07/14. THE TOWER AND ITS FOUNDATION HAVE SUFFICENT CAPACITY TO CARRY THE EXISITING AND PROPOSED LOADS.

NOTE:
SPRINT TOWER TOP WORK CONTINGENT ON FOLLOWING: COMPLETION OF STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE, COMPLETION OF ANTENNA/RRH MOUNTING ASSESSMENT (PROVIDED BY AE)

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

TOWER ELEVATION | NO SCALE | 1

DETAIL NOT USED | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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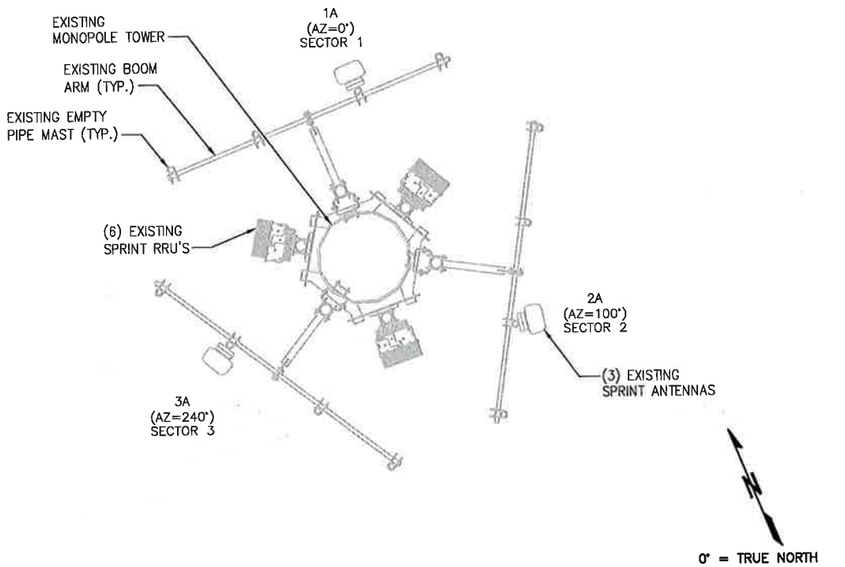
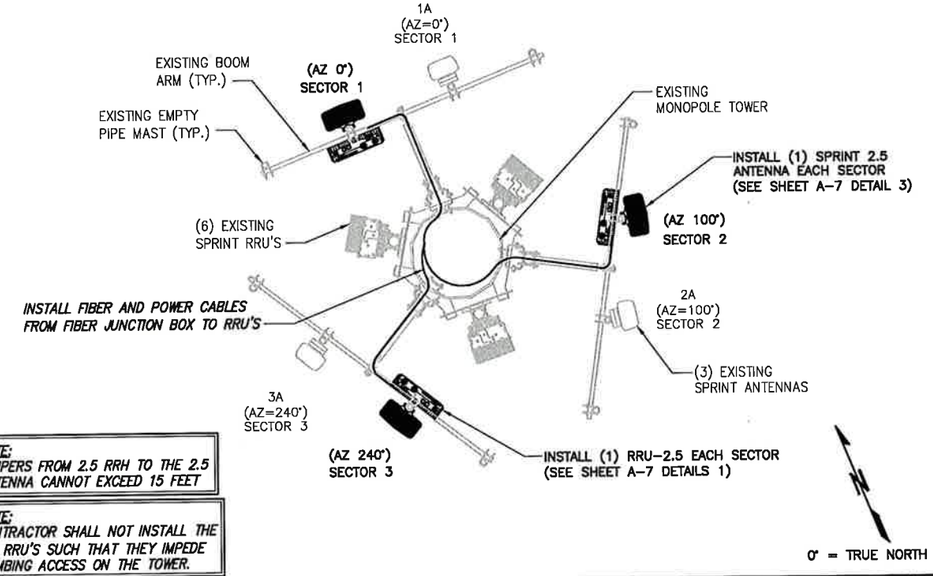
SHEET DESCRIPTION:
TOWER ELEVATION
& CABLE PLAN

SHEET NUMBER:
A-2



EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1



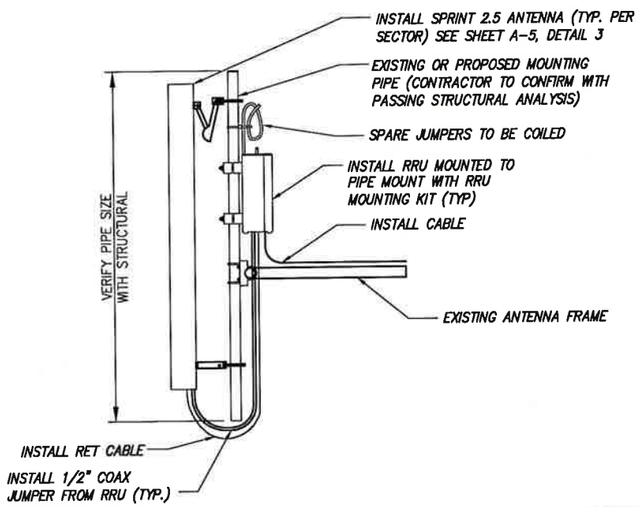
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

NOTE: JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

NOTE: CONTRACTOR SHALL NOT INSTALL THE 2.5 RRU'S SUCH THAT THEY IMPEDE CLIMBING ACCESS ON THE TOWER.

FINAL ANTENNA LAYOUT | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3



NOTES:

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

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

NOTE: SPARE DC CABLES ARE COILED UP ON NV 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 RRU MOUNTING DETAILS

TYPICAL ANTENNA, & RRU MOUNTING DETAILS | NO SCALE | 4

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	02/21/14	MJB	B
ISSUED FOR REVIEW	01/06/14	MJB	A

SITE NAME:

GUILFORD WEST/
STONE PROPERTY

SITE CASCADE:

CT03XC172

SITE ADDRESS:

1919 BOSTON POST ROAD
GUILFORD, CT 06437

SHEET DESCRIPTION:

ANTENNA LAYOUT
& MOUNTING DETAILS

SHEET NUMBER:

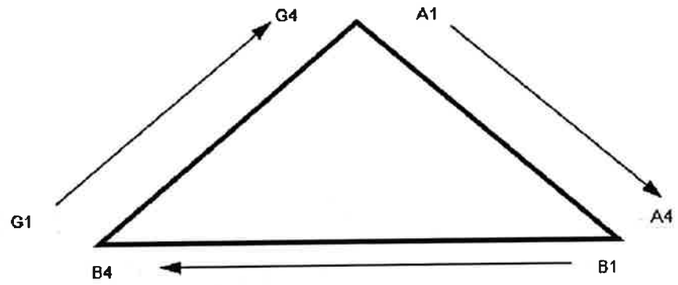
A-3

NV CABLES			
BAND	INDICATOR	PORT	COLOR
800-1	YEL GRN	NV-1	GRN
1900-1	YEL RED	NV-2	BLU
1900-2	YEL BRN	NV-3	BRN
1900-3	YEL BLU	NV-4	WHT
1900-4	YEL SLT	NV-5	RED
800-2	YEL ORG	NV-6	SLT
SPARE	YEL WHT	NV-7	PPL
2500	YEL PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band	
2500 Radio 1	COLOR
YEL WHT	GRN
YEL WHT	BLU
YEL WHT	BRN
YEL WHT	WHT
YEL WHT	RED
YEL WHT	SLT
YEL WHT	PPL
YEL WHT	ORG

Figure 1: Antenna Orientation



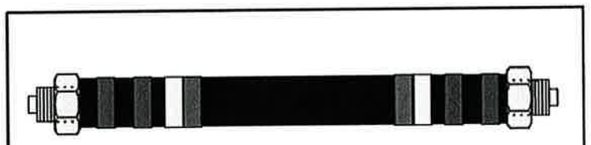
NOTES:

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAK-OUT CYLINDER. THERE SHALL BE A 1" SPACE BETWEEN EACH RING FOR THE CABLE IDENTIFIER, AND NO SPACES BETWEEN THE FREQUENCY BANDS.
3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
4. THE 2" COLORED TAPE(S) SHALL EACH BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE NEXT COLOR IN THE SEQUENCE FOR ADDITIONAL CABLES IN EACH SECTOR.
6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2		No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2			No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2			
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

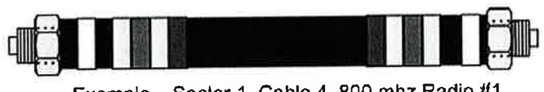
NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL



Example – Sector 2, Cable 2, 800mhz Radio #1

Example – Sector 3, Cable 1, 1900mhz Radio #1



Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

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6580 Sprint Parkway
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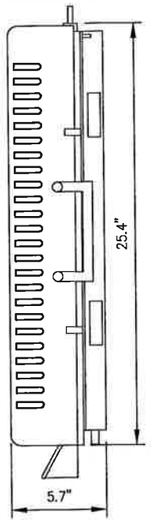
SITE ADDRESS:
1919 BOSTON POST ROAD
GUILFORD, CT 06437

SHEET DESCRIPTION:
COLOR CODING AND NOTES

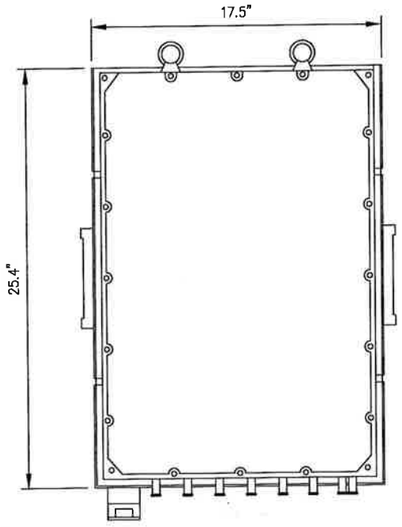
SHEET NUMBER:
A-4

RRU: ALCATEL LUCENT TD-RRH8X20

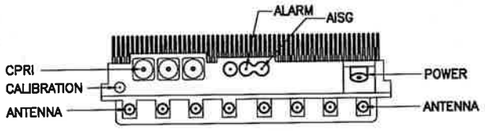
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW

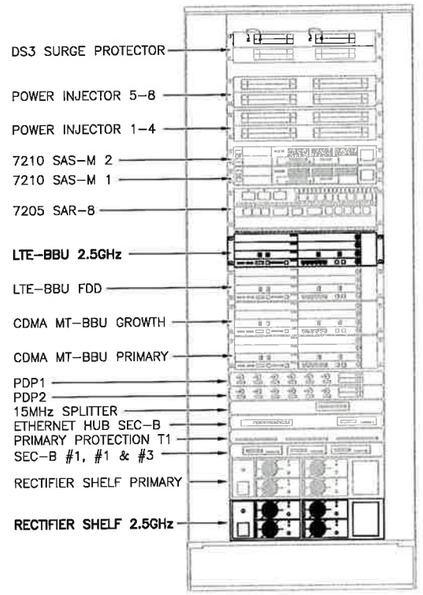


PLAN VIEW

NOTES

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

2.5 RRU'S | NO SCALE | 1

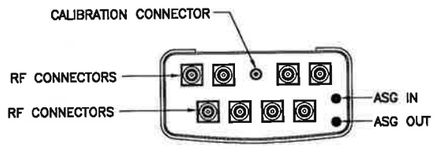


FRONT VIEW

N.V. MMBS RETROFIT DETAIL | NO SCALE | 2

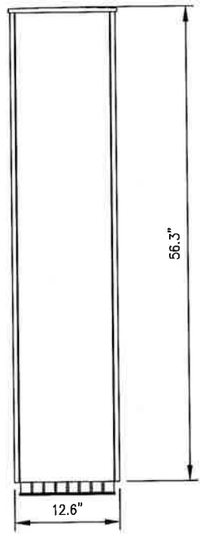
ANTENNA RFS APXVTM14-C-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	56.3"x12.6"x6.3" (1430x320x160mm)
WEIGHT:	52.9 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF - CALIBRATION CONNECTOR



PLAN VIEW

SIDE VIEW



FRONT VIEW

2.5 ANTENNA | NO SCALE | 3

NOT USED | NO SCALE | 4

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Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

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CT03XC172

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1919 BOSTON POST ROAD
GUILFORD, CT 06437

SHEET DESCRIPTION:

EQUIPMENT &
MOUNTING DETAILS

SHEET NUMBER:

A-5

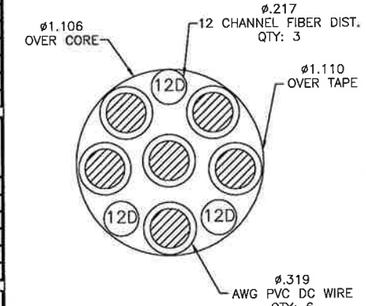
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

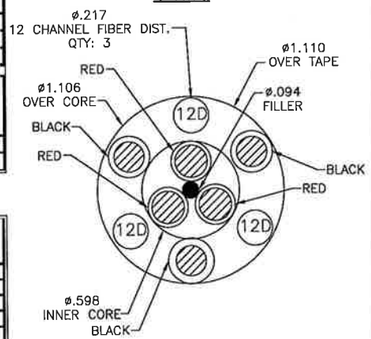
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

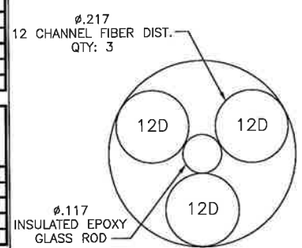
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

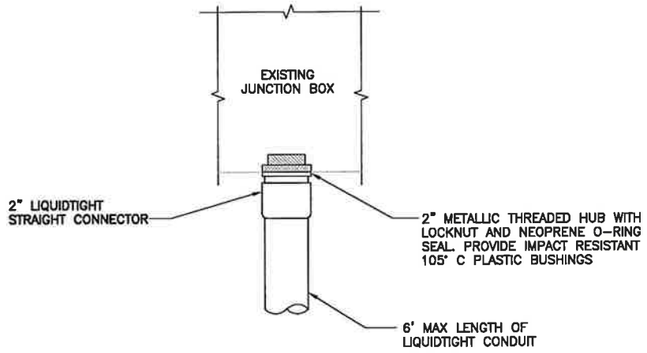


8 & 6 AWG



FIBER ONLY

2.5 CABLE CROSS SECTION DATA | NO SCALE | 1



FIBER JUNCTION BOX PENETRATION | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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Overland Park, Kansas 66251

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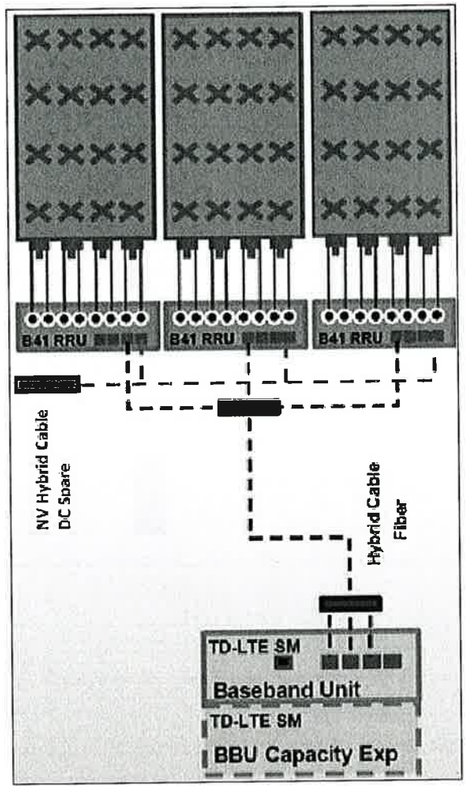
SHEET DESCRIPTION:

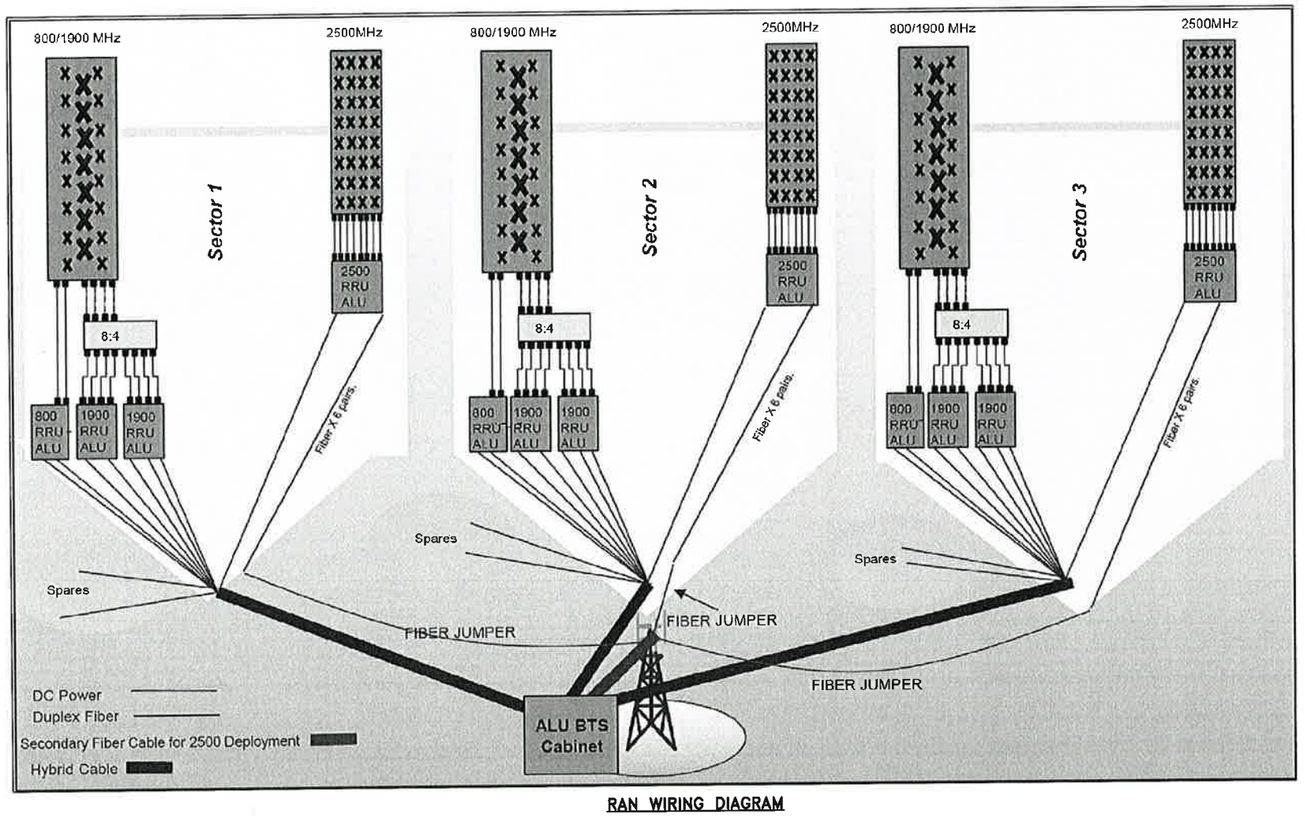
CIVIL DETAILS

SHEET NUMBER:

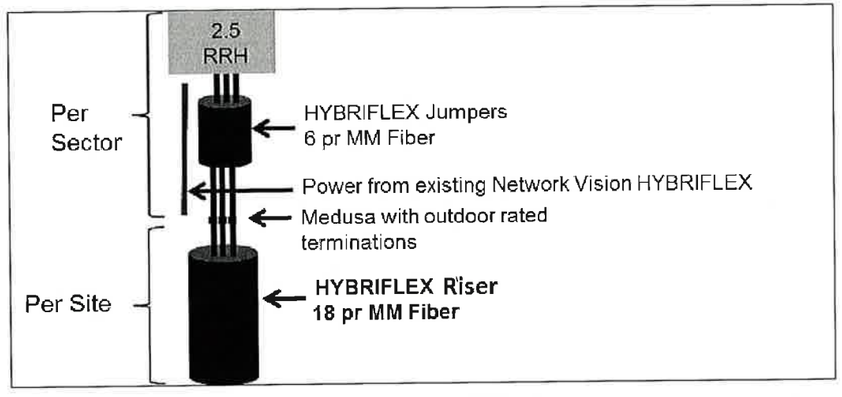
A-6



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1

PLUMBING DIAGRAM | NO SCALE | 1

PLANS PREPARED FOR:

Sprint
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Overland Park, Kansas 66251

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GUILFORD, CT 06437

SHEET DESCRIPTION:

PLUMBING DIAGRAM

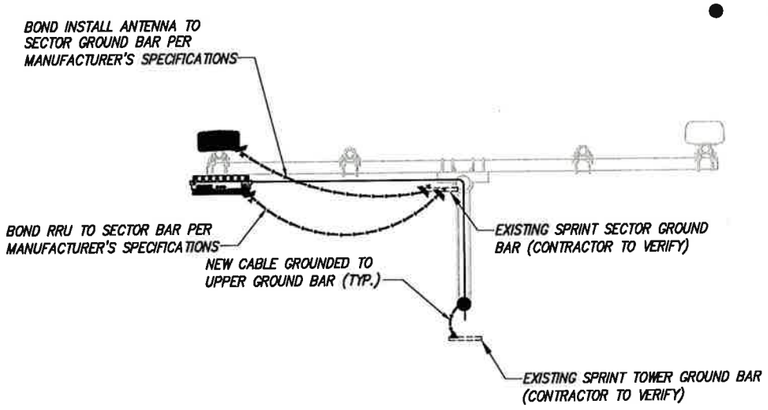
SHEET NUMBER:

A-7

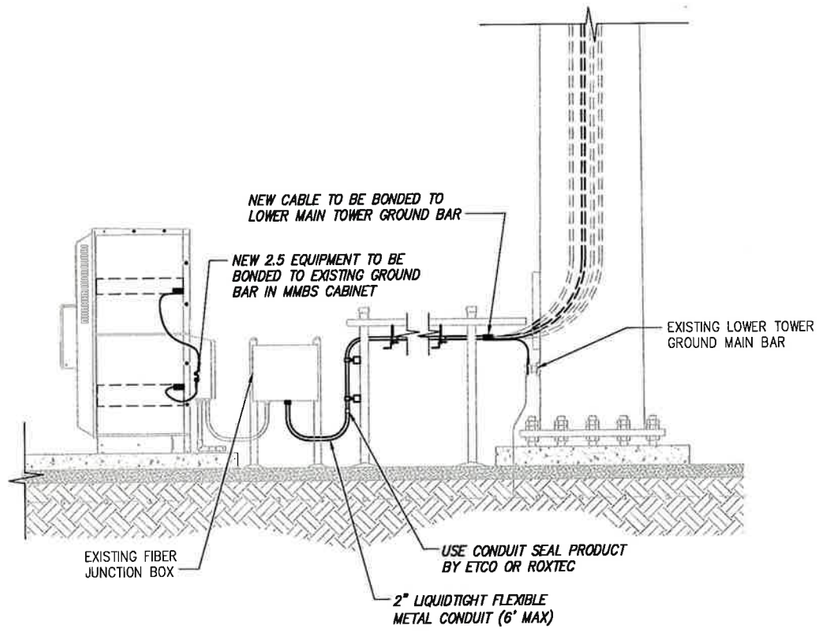
PLAN NOT USED | NO SCALE | 1

LEGEND:

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2



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

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Overland Park, Kansas 66251

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MLA PARTNER:

CROWN CASTLE

ENGINEER OF RECORD:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	02/21/14	MJB	B
ISSUED FOR REVIEW	01/06/14	MJB	A

SITE NAME:

GUILFORD WEST/ STONE PROPERTY

SITE CASCADE:

CT03XC172

SITE ADDRESS:

1919 BOSTON POST ROAD
GUILFORD, CT 06437

SHEET DESCRIPTION:

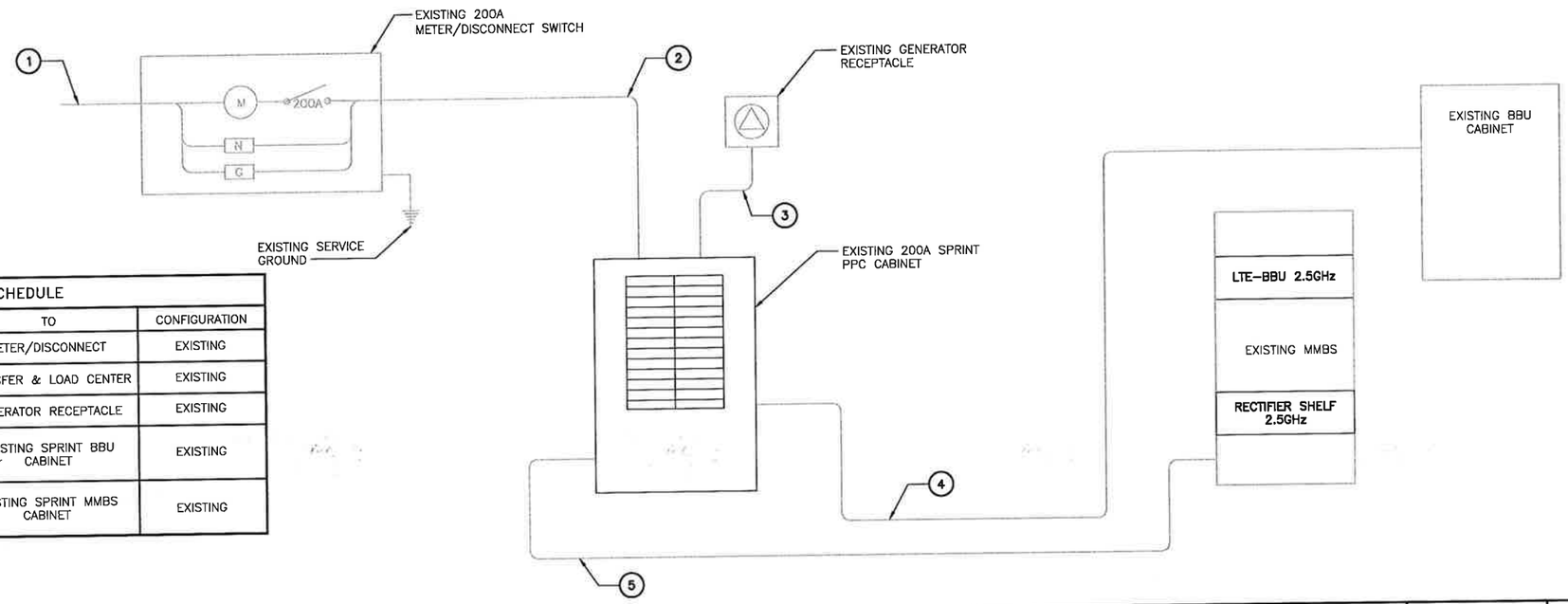
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

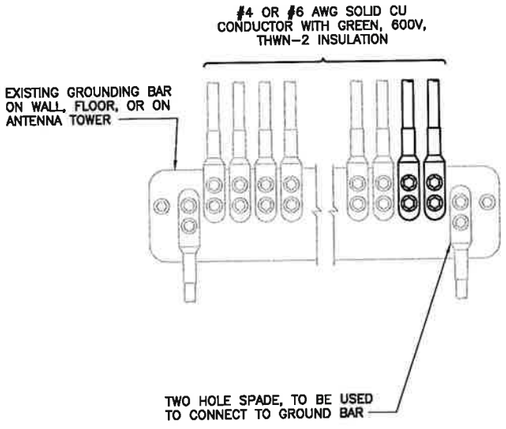
NOTES

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

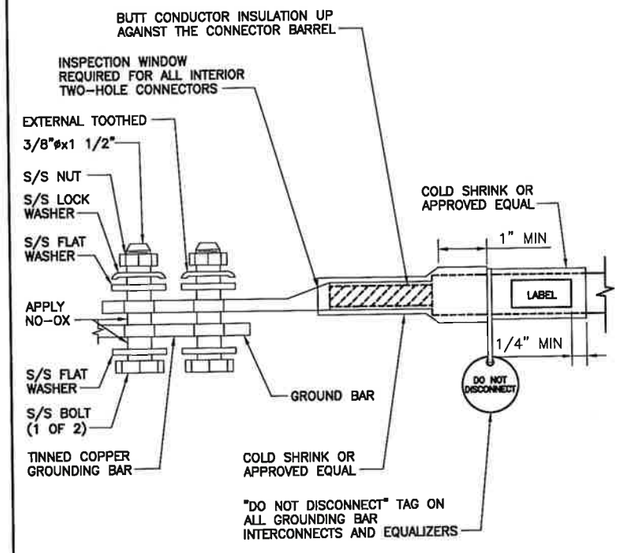
ELECTRICAL ONE–LINE DIAGRAM — NO SCALE — 1



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.

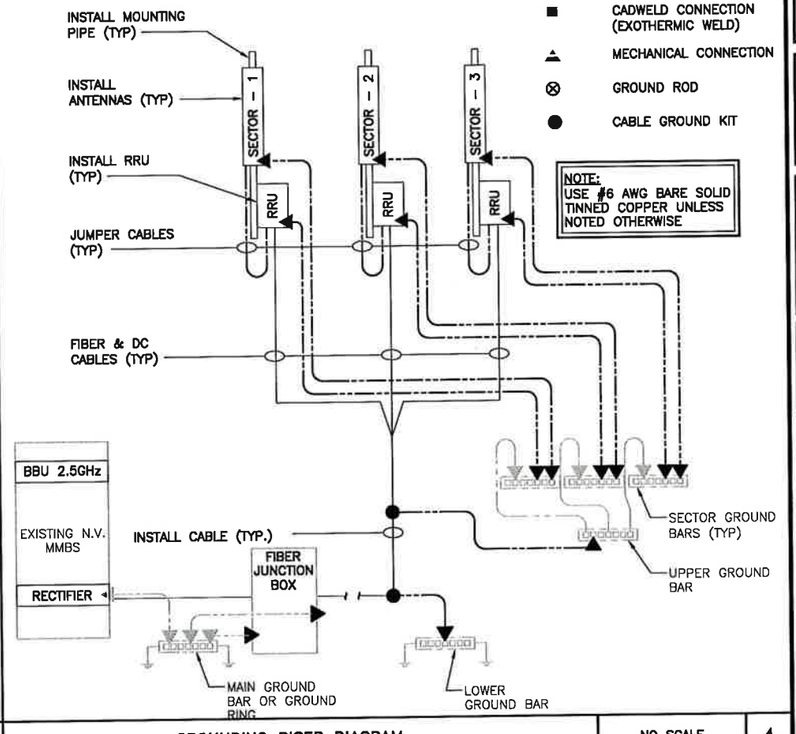
INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR — NO SCALE — 2



TWO HOLE LUG — NO SCALE — 3

LEGEND:

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



GROUNDING RISER DIAGRAM — NO SCALE — 4

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353–000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT · JOHN S. STEVENS · NO 24705 · LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	02/21/14	MJB	B
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SITE NAME:

GUILFORD WEST/ STONE PROPERTY

SITE CASCADE:

CT03XC172

SITE ADDRESS:

1919 BOSTON POST ROAD
GUILFORD, CT 06437

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

January 07, 2014

Veronica Harris
Crown Castle
1200 McArthur Blvd
Mahwah, NJ 07430
(201) 236-9094

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Sprint PCS* Co-Locate- Scenario A**	
	Carrier Site Number:	CT03XC172
	Carrier Site Name:	Guilford West Stone Property
Crown Castle Designation:	**Crown Castle BU Number:**	876343
	Crown Castle Site Name:	Guilford West Stone Property
	Crown Castle JDE Job Number:	252022
	Crown Castle Work Order Number:	693414
	Crown Castle Application Number:	205521 Rev. 1
Engineering Firm Designation:	**B+T Group Project Number:**	84701.002.01
Site Data:	**1919 Boston Post Rd., GUILFORD, New Haven County, CT** **Latitude *41° 18' 1.27"*, Longitude *-72° 42' 29.13"*** **149 Foot - Monopole Tower**	

Dear Veronica Harris,

B+T Group 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 606330, in accordance with application 205521, revision 1.

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:

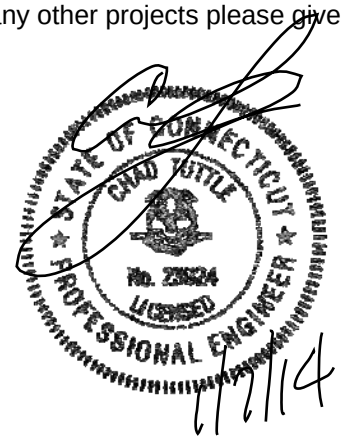
LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing loading respectively.

This analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code based upon a wind speed of 85 mph fastest mile.

All 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 *B+T Group* 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.

Respectfully submitted by:
B+T Engineering, Inc.



Venu Ambati
Project Engineer

Chad E. Tuttle, P.E.
President

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1) INTRODUCTION

This tower is a 149 ft. Monopole tower designed by EEI in June of 2008. The tower was originally designed for a wind speed of 115 mph per TIA-222-G.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
128.0	130.0	3	Alcatel Lucent	TD-RRH8x20-25	1	5/8	--
		3	RFS Celwave	APXVTM14-C-120			

Table 2 - Existing 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
148.0	148.0	3	EMS Wireless	RR90-17-02DP	6	1 5/8	1
		6	Ericsson	KRY 112 71/1			
		1	--	Sector Mount [SM 901-3]			
139.0	140.0	12	Decibel	DB848H90E-XY	12	1 1/4	1
	139.0	1	--	Sector Mount [SM 901-3]			
128.0	130.0	3	RFS Celwave	APXVSPP18-C-A20	3	1 1/4	1
	128.0	3	Alcatel Lucent	800 External Notch Filter			
		9	RFS Celwave	ACU-A20-N			
		1	--	Sector Mount [SM 901-3]			
126.0	126.0	3	Alcatel Lucent	1900MHz RRH (25MHz)	--	--	1
		3	Alcatel Lucent	800MHZ RRH			
		1	--	Side Arm Mount [SO 102-3)			
116.0	118.0	4	Andrew	DB846F65ZAXY	12 1	1 5/8 1/2	1
		1	Antel	BXA-171063-12BF			
		1	Antel	BXA-171063-8BF-2			
		1	Antel	BXA-171085-12BF-2			
		3	Antel	BXA-70063/6CF-2			
		2	Decibel	DB846H80E-SX			
		1	Maxrad	GPS-TMG-26NMS			
		6	RFS Celwave	FD9R6004/2C-3L			
	116.0	1	--	Sector Mount [SM 901-3]			
110.0	110.0	3	Ericsson	RRUS 11	--	--	1
		1	--	Side Arm Mount [SO 102-3)			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
106.0	108.0	3	Ericsson	RRUS-11	12 1 2	1 5/8 3/8 3/4	1
		1	KMW	AM-X-CD-14-65-00T-RET			
		2	KMW	AM-X-CD-16-65-00T-RET			
		6	Powerwave	7200.40			
		12	Powerwave	LGP 21403			
		1	Raycap	DC6-48-60-18-8F			
	106.0	1	--	T-Arm Mount [TA 602-3]			
98.0	98.0	3	RFS Celwave	APXV18-206517S-C	6	1 5/8	1
55.0	57.0	1	Lucent	KS24019-L112A	1	1/2	1
	55.0	1	--	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment

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	150	3	Generic	10' Universal T-Arms	--	--
		12	Generic	72" x 12" Panel		
140	140	3	Generic	10' Universal T-Arms	--	--
		12	Generic	72" x 12" Panel		
130	130	3	Generic	10' Universal T-Arms	--	--
		12	Generic	72" x 12" Panel		
120	120	3	Generic	10' Universal T-Arms	--	--
		12	Generic	72" x 12" Panel		
110	110	3	Generic	10' Universal T-Arms	--	--
		12	Generic	72" x 12" Panel		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	Sprint Co-locate Revision#1	205521	CCI Sites
Tower Manufacturer Drawings	EEI, Project No:15475	2302343	CCI Sites
Tower Foundation Drawings	EEI, Project No:15475	2302348	CCI Sites
Geotech Report	Terracon Project No:J2085178	2302346	CCI Sites
Antenna Configuration	Crown CAD Package	Dated:12/24/2013	CCI Sites

3.1) Analysis Method

tnxTower (version 6.1.3.1), 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) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group 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 - 135.08	Pole	TP26.743x22x0.188	1	-3.714	781.111	7.5	Pass
L2	135.08 - 92.2	Pole	TP40.914x25.06x0.25	2	-14.457	1576.126	58.3	Pass
L3	92.2 - 45.24	Pole	TP56.356x38.51x0.313	3	-24.525	2591.019	70.8	Pass
L4	45.24 - 0	Pole	TP71x53.171x0.375	4	-42.114	3890.107	67.6	Pass
							Summary	
						Pole (L3)	70.8	Pass
						RATING =	**70.8**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	41.1	Pass
1	Base Plate	Base	41.3	Pass
1	Base Foundation	Base	76.5	Pass

Structure Rating (max from all components) =	**76.5%**

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

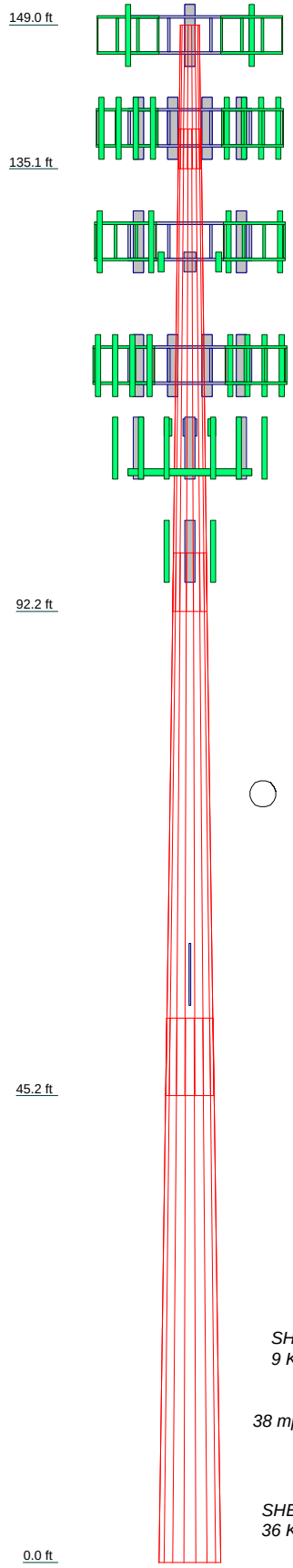
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	13.920	18	0.188	3.840	22.000	26.743		0.7
2	46.720	18	0.250	5.610	25.060	40.914		4.1
3	52.570	18	0.313	7.540	38.510	56.356		8.4
4	52.780	18	0.375		53.171	71.000		13.2
							A572-65	26.4



AXIAL
59 K

SHEAR
9 K

MOMENT
915 kip-ft

TORQUE 0 kip-ft
38 mph WIND - 0.750 in ICE

AXIAL
42 K

SHEAR
36 K

MOMENT
3766 kip-ft

TORQUE 0 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
RR90-17-02DP w/ Mount Pipe (E)	148	BXA-70063/6CF-2 w/ Mount Pipe (E)	116
RR90-17-02DP w/ Mount Pipe (E)	148	BXA-171063-8BF-2 w/ Mount Pipe (E)	116
RR90-17-02DP w/ Mount Pipe (E)	148	BXA-171085-12BF-2 w/ Mount Pipe (E)	116
(2) KRY 112 71/1 (E)	148	BXA-171063-12BF w/ Mount Pipe (E)	116
(2) KRY 112 71/1 (E)	148	GPS-TMG-26NMS (E)	116
(2) KRY 112 71/1 (E)	148	(2) FD9R6004/2C-3L (E)	116
(3) 7' x 2" Pipe Mount (E)	148	(2) FD9R6004/2C-3L (E)	116
(3) 7' x 2" Pipe Mount (E)	148	(2) FD9R6004/2C-3L (E)	116
(3) 7' x 2" Pipe Mount (E)	148	Sector Mount [SM 901-3] (E)	116
Sector Mount [SM 901-3] (E)	148	RRUS 11 (E)	110
(4) DB848H90E-XY w/ Mount Pipe (E)	139	RRUS 11 (E)	110
(4) DB848H90E-XY w/ Mount Pipe (E)	139	RRUS 11 (E)	110
(4) DB848H90E-XY w/ Mount Pipe (E)	139	4' x 2" Pipe Mount (E)	110
Sector Mount [SM 901-3] (E)	139	4' x 2" Pipe Mount (E)	110
APXVSPP18-C-A20 w/ Mount Pipe (E)	128	4' x 2" Pipe Mount (E)	110
APXVSPP18-C-A20 w/ Mount Pipe (E)	128	Side Arm Mount [SO 102-3] (E)	110
APXVSPP18-C-A20 w/ Mount Pipe (E)	128	(2) 7200.40 w/ Mount Pipe (E)	106
(3) ACU-A20-N (E)	128	(2) 7200.40 w/ Mount Pipe (E)	106
(3) ACU-A20-N (E)	128	(2) 7200.40 w/ Mount Pipe (E)	106
(3) ACU-A20-N (E)	128	AM-X-CD-14-65-00T-RET w/ Mount Pipe (E)	106
800 EXTERNAL NOTCH FILTER (E)	128	AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	106
800 EXTERNAL NOTCH FILTER (E)	128	AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	106
800 EXTERNAL NOTCH FILTER (E)	128	(4) LGP 21403 (E)	106
APXVTM14-C-120 w/ Mount Pipe (P)	128	(4) LGP 21403 (E)	106
APXVTM14-C-120 w/ Mount Pipe (P)	128	(4) LGP 21403 (E)	106
APXVTM14-C-120 w/ Mount Pipe (P)	128	RRUS-11 (E)	106
TD-RRH8x20-25 (P)	128	RRUS-11 (E)	106
TD-RRH8x20-25 (P)	128	RRUS-11 (E)	106
TD-RRH8x20-25 (P)	128	DC6-48-60-18-8F (E)	106
(2) 7' x 2" Pipe Mount (E)	128	7'x2" Pipe Mount (E)	106
(2) 7' x 2" Pipe Mount (E)	128	7'x2" Pipe Mount (E)	106
(2) 7' x 2" Pipe Mount (E)	128	7'x2" Pipe Mount (E)	106
Sector Mount [SM 901-3] (E)	128	T-Arm Mount [TA 602-3] (E)	106
1900MHz RRH (25MHz) (E)	126	APXV18-206517S-C w/ Mount Pipe (E)	98
1900MHz RRH (25MHz) (E)	126	APXV18-206517S-C w/ Mount Pipe (E)	98
1900MHz RRH (25MHz) (E)	126	APXV18-206517S-C w/ Mount Pipe (E)	98
800MHZ RRH (E)	126	KS24019-L112A (E)	55
800MHZ RRH (E)	126	Side Arm Mount [SO 701-1] (E)	55
800MHZ RRH (E)	126		
Side Arm Mount [SO 102-3] (E)	126		
(2) DB846F65ZAXY w/ Mount Pipe (E)	116		
(2) DB846H80E-SX w/ Mount Pipe (E)	116		
(2) DB846F65ZAXY w/ Mount Pipe (E)	116		
BXA-70063/6CF-2 w/ Mount Pipe (E)	116		
BXA-70063/6CF-2 w/ Mount Pipe (E)	116		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 70.8%

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 84701.002.01- Guilford West StoneProperty,CT (BU# 87634			
Project:			
Client: Crown Casstle	Drawn by: VenuAmbati	App'd:	
Code: TIA/EIA-222-F	Date: 01/07/14	Scale: NTS	
Path:		Dwg No. E-1	

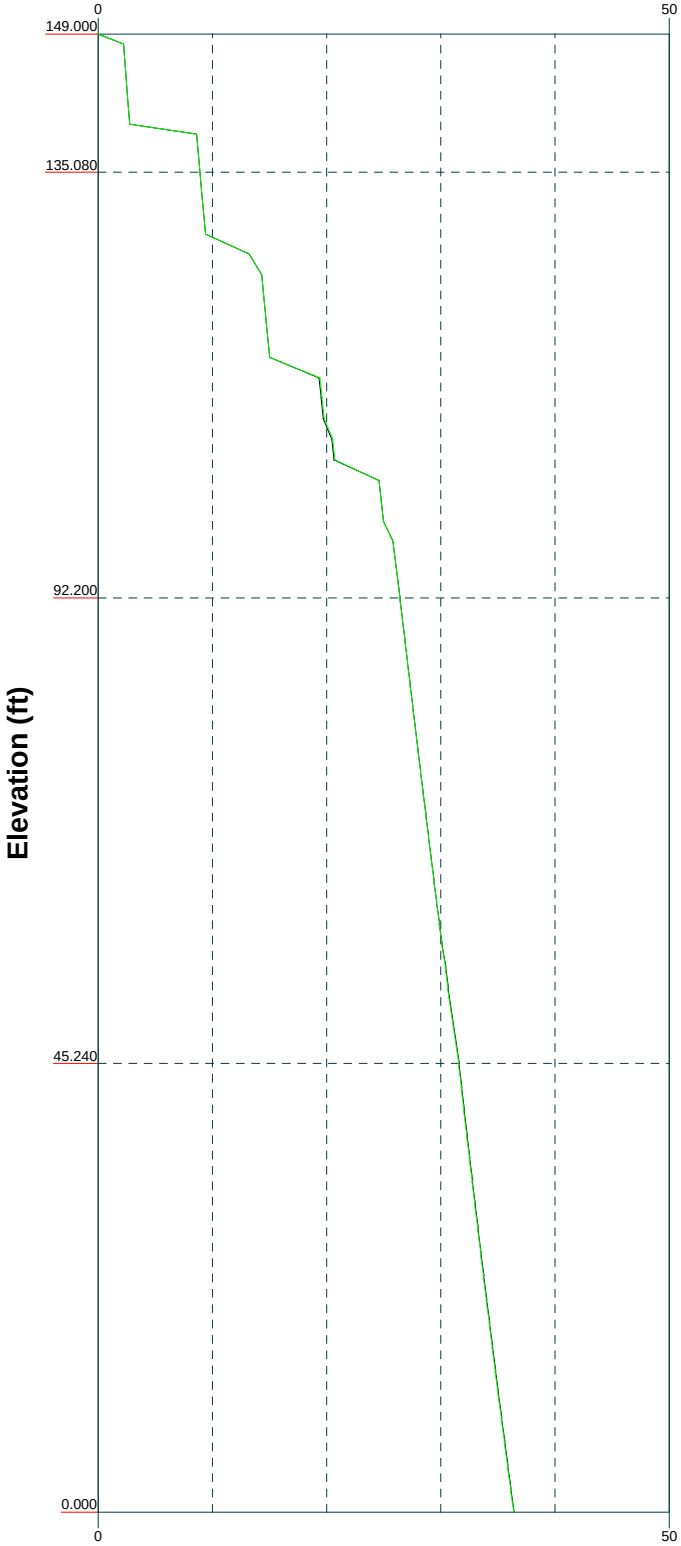
TIA/EIA-222-F - 85 mph/38 mph 0.750 in Ice

Vx Vz

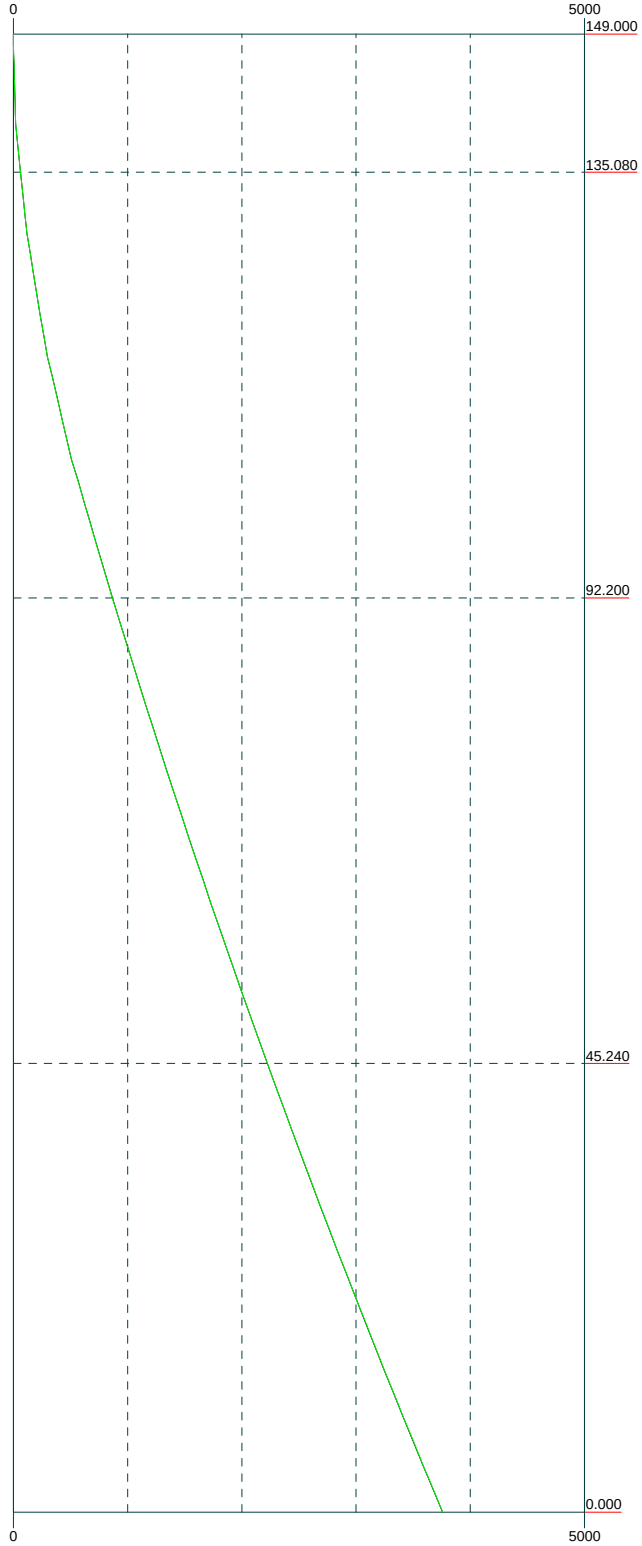
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



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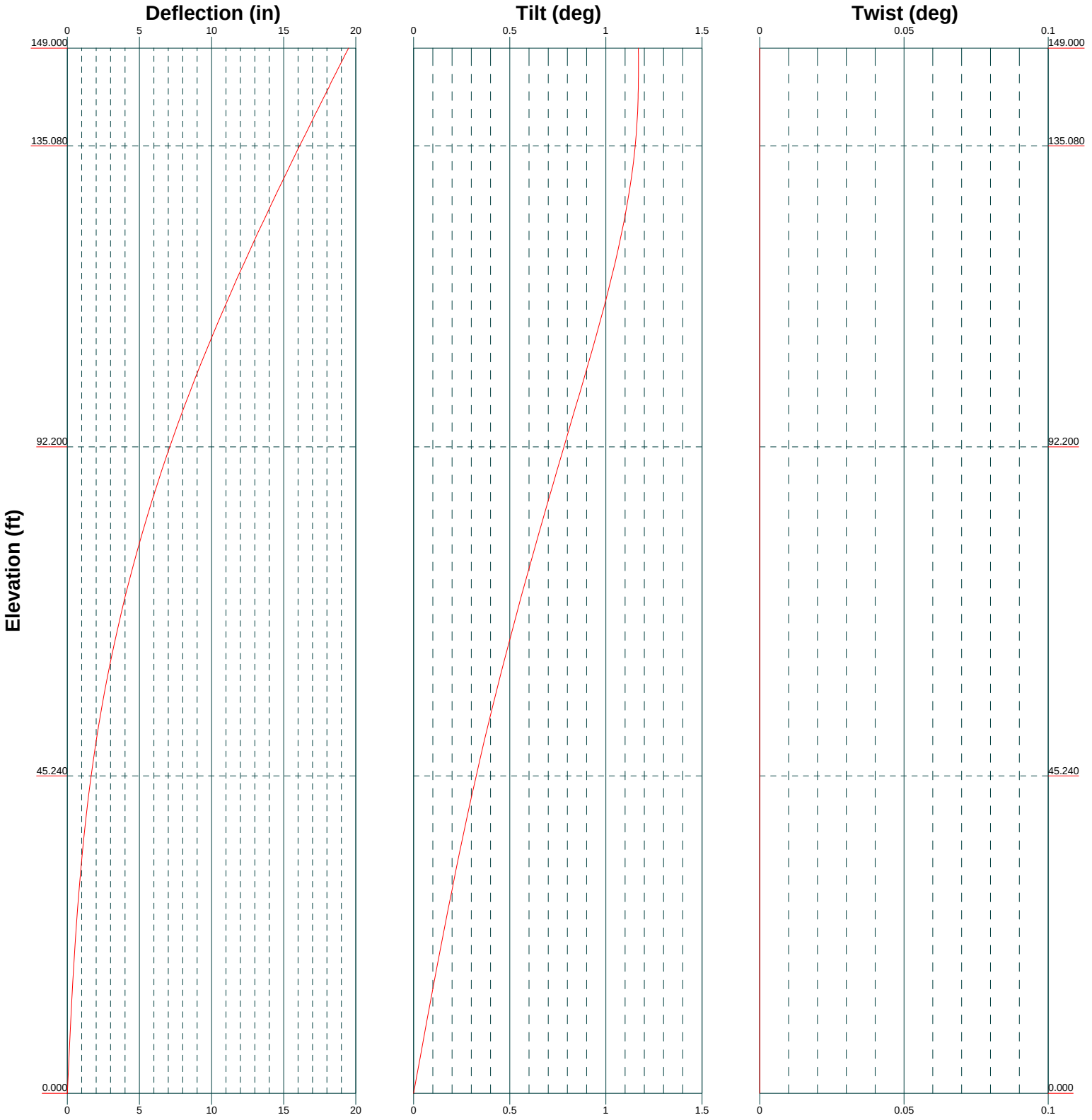
Job: 84701.002.01- Guilford West StoneProperty,CT (BU# 87634			
Project:			
Client: Crown Casstle	Drawn by: VenuAmbati	App'd:	
Code: TIA/EIA-222-F	Date: 01/07/14	Scale: NTS	
Path:		Dwg No. E-4	

TIA/EIA-222-F - Service - 50 mph

Maximum Values



B+T GRP

B+T Group
1717 S. Boulder, Suite 300
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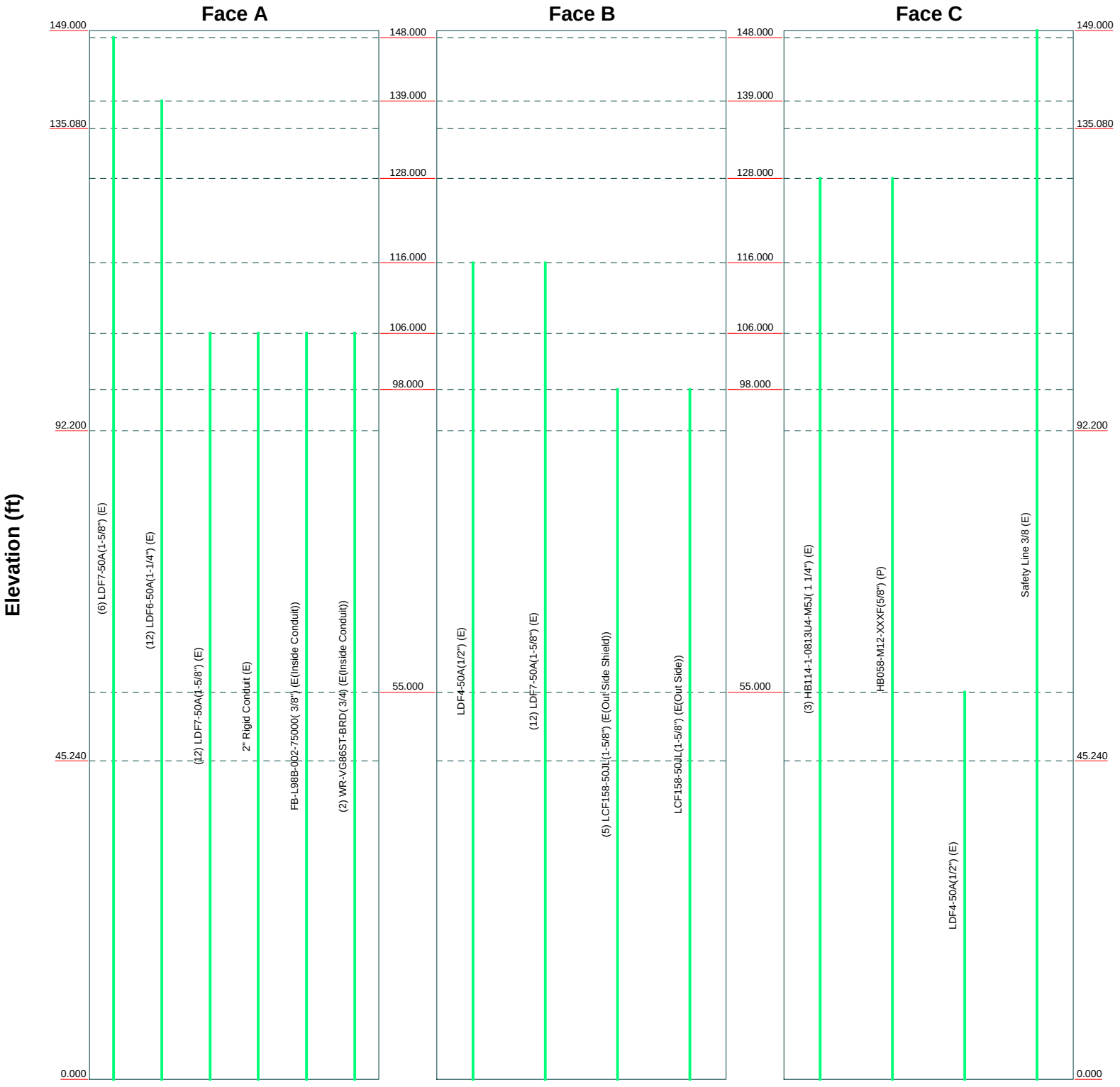
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***84701.002.01- Guilford West StoneProperty,CT (BU# 87634***			
Project:			
Client: Crown Casstle	Drawn by: VenuAmbati	App'd:	
Code: TIA/EIA-222-F	Date: 01/07/14	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 149'

Round | Flat | App In Face | App Out Face | Truss Leg



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Phone: (918) 587-4630
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Job: ***84701.002.01- Guilford West StoneProperty,CT (BU# 87634***			
Project:			
Client: Crown Casstle	Drawn by: VenuAmbati	App'd:	
Code: TIA/EIA-222-F	Date: 01/07/14	Scale: NTS	
Path:		Dwg No. E-7	

Tower Input Data

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

Tower is located in New Haven County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
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		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios		Use Clear Spans For KL/r		SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		All Leg Panels Have Same Allowable
√	Escalate Ice	√	Bypass Mast Stability Checks		Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Include Angle Block Shear Check
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Poles
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends	√	Include Shear-Torsion Interaction
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice Capacity Exemption		

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	149.000-135.080	13.920	3.840	18	22.000	26.743	0.188	0.750	A572-65 (65 ksi)
L2	135.080-92.200	46.720	5.610	18	25.060	40.914	0.250	1.000	A572-65 (65 ksi)
L3	92.200-45.240	52.570	7.540	18	38.510	56.356	0.313	1.250	A572-65 (65 ksi)
L4	45.240-0.000	52.780		18	53.171	71.000	0.375	1.500	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	22.339	12.981	780.301	7.743	11.176	69.819	1561.628	6.492	3.542	18.891
	27.155	15.804	1408.005	9.427	13.585	103.641	2817.863	7.903	4.377	23.343
L2	26.769	19.686	1530.873	8.807	12.730	120.255	3063.760	9.845	3.970	15.882
	41.545	32.267	6740.950	14.436	20.784	324.327	13490.769	16.137	6.761	27.044
L3	41.038	37.888	6984.147	13.560	19.563	357.003	13977.485	18.947	6.228	19.929
	57.225	55.588	22058.204	19.895	28.629	770.489	44145.432	27.799	9.369	29.98
L4	56.578	62.841	22130.424	18.743	27.011	819.309	44289.967	31.426	8.698	23.195
	72.095	84.061	52972.567	25.072	36.068	1468.686	106014.838	42.039	11.836	31.563

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
L1 149.000-135.080				1	1	1		
L2 135.080-92.200				1	1	1		
L3 92.200-45.240				1	1	1		
L4 45.240-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF7-50A(1-5/8") (E)	A	No	Inside Pole	148.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
//								
LDF6-50A(1-1/4") (E)	A	No	Inside Pole	139.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
//								

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
HB114-1-0813U4-M5J(1 1/4") (E)	C	No	Inside Pole	128.000 - 0.000	3	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
HB058-M12-XXXF(5/8") (P)	C	No	CaAa (Out Of Face)	128.000 - 0.000	1	No Ice	0.084	0.000
						1/2" Ice	0.184	0.001
						1" Ice	0.284	0.002
						2" Ice	0.484	0.007
						4" Ice	0.884	0.024
//								
LDF4-50A(1/2") (E)	B	No	Inside Pole	116.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
LDF7-50A(1-5/8") (E)	B	No	Inside Pole	116.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
//								
LDF7-50A(1-5/8") (E)	A	No	Inside Pole	106.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
2" Rigid Conduit (E)	A	No	Inside Pole	106.000 - 0.000	1	No Ice	0.000	0.003
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.003
						2" Ice	0.000	0.003
						4" Ice	0.000	0.003
FB-L98B-002-75000(3/8") (E(Inside Conduit))	A	No	Inside Pole	106.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
WR-VG86ST-BRD(3/4) (E(Inside Conduit))	A	No	Inside Pole	106.000 - 0.000	2	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
//								
LCF158-50JL(1-5/8") (E(Out Side Shield))	B	No	CaAa (Out Of Face)	98.000 - 0.000	5	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
LCF158-50JL(1-5/8") (E(Out Side))	B	No	CaAa (Out Of Face)	98.000 - 0.000	1	No Ice	0.198	0.001
						1/2" Ice	0.298	0.002
						1" Ice	0.398	0.004
						2" Ice	0.598	0.010
						4" Ice	0.998	0.030
//								
LDF4-50A(1/2") (E)	C	No	Inside Pole	55.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
//								
Safety Line 3/8	C	No	CaAa (Out Of	149.000 - 0.000	1	No Ice	0.037	0.000

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
(E)			Face)		1/2" Ice	0.137	0.001
					1" Ice	0.238	0.001
					2" Ice	0.437	0.002
					4" Ice	0.838	0.004
//							

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	149.000-135.080	A	0.000	0.000	0.000	0.000	0.095
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.522	0.003
L2	135.080-92.200	A	0.000	0.000	0.000	0.000	0.742
		B	0.000	0.000	0.000	1.148	0.265
		C	0.000	0.000	0.000	4.615	0.147
L3	92.200-45.240	A	0.000	0.000	0.000	0.000	1.255
		B	0.000	0.000	0.000	9.298	0.688
		C	0.000	0.000	0.000	5.706	0.192
L4	45.240-0.000	A	0.000	0.000	0.000	0.000	1.209
		B	0.000	0.000	0.000	8.958	0.663
		C	0.000	0.000	0.000	5.497	0.191

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	149.000-135.080	A	0.893	0.000	0.000	0.000	0.000	0.095
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	3.009	0.016
L2	135.080-92.200	A	0.869	0.000	0.000	0.000	0.000	0.742
		B		0.000	0.000	0.000	2.185	0.283
		C		0.000	0.000	0.000	18.674	0.257
L3	92.200-45.240	A	0.818	0.000	0.000	0.000	0.000	1.255
		B		0.000	0.000	0.000	17.458	0.833
		C		0.000	0.000	0.000	22.025	0.323
L4	45.240-0.000	A	0.750	0.000	0.000	0.000	0.000	1.209
		B		0.000	0.000	0.000	16.359	0.793
		C		0.000	0.000	0.000	20.299	0.308

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	149.000-135.080	-0.048	0.028	-0.238	0.137
L2	135.080-92.200	-0.097	0.102	-0.405	0.308
L3	92.200-45.240	0.092	0.222	-0.102	0.507
L4	45.240-0.000	0.094	0.226	-0.096	0.515

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
RR90-17-02DP w/ Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.072 0.115 0.224 0.557
RR90-17-02DP w/ Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.072 0.115 0.224 0.557
RR90-17-02DP w/ Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.072 0.115 0.224 0.557
(2) KRY 112 71/1 (E)	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.681 0.802 0.932 1.219 1.896	0.450 0.559 0.677 0.939 1.566	0.013 0.018 0.025 0.044 0.111
(2) KRY 112 71/1 (E)	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.681 0.802 0.932 1.219 1.896	0.450 0.559 0.677 0.939 1.566	0.013 0.018 0.025 0.044 0.111
(2) KRY 112 71/1 (E)	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.681 0.802 0.932 1.219 1.896	0.450 0.559 0.677 0.939 1.566	0.013 0.018 0.025 0.044 0.111
(3) 7' x 2" Pipe Mount (E)	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.663 2.391 2.825 3.706 5.578	1.663 2.391 2.825 3.706 5.578	0.026 0.038 0.055 0.105 0.266
(3) 7' x 2" Pipe Mount (E)	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.663 2.391 2.825 3.706 5.578	1.663 2.391 2.825 3.706 5.578	0.026 0.038 0.055 0.105 0.266
(3) 7' x 2" Pipe Mount (E)	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.663 2.391 2.825 3.706 5.578	1.663 2.391 2.825 3.706 5.578	0.026 0.038 0.055 0.105 0.266
Sector Mount [SM 901-3] (E)	C	None		0.000	148.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	12.900 12.900 12.900 12.900 12.900	12.900 12.900 12.900 12.900 12.900	1.257 1.432 1.607 1.956 2.654
//									
(4) DB848H90E-XY w/ Mount Pipe (E)	A	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice 1/2" Ice 1" Ice	7.426 8.116 8.816	10.493 12.016 13.564	0.061 0.135 0.219

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	10.151	15.911	0.419
						4" Ice	12.921	20.786	0.995
(4) DB848H90E-XY w/ Mount Pipe (E)	B	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice	7.426	10.493	0.061
						1/2" Ice	8.116	12.016	0.135
						1" Ice	8.816	13.564	0.219
						2" Ice	10.151	15.911	0.419
						4" Ice	12.921	20.786	0.995
(4) DB848H90E-XY w/ Mount Pipe (E)	C	From Leg	4.000 0.000 1.000	0.000	139.000	No Ice	7.426	10.493	0.061
						1/2" Ice	8.116	12.016	0.135
						1" Ice	8.816	13.564	0.219
						2" Ice	10.151	15.911	0.419
						4" Ice	12.921	20.786	0.995
Sector Mount [SM 901-3] (E)	C	None		0.000	139.000	No Ice	12.900	12.900	1.257
						1/2" Ice	12.900	12.900	1.432
						1" Ice	12.900	12.900	1.607
						2" Ice	12.900	12.900	1.956
						4" Ice	12.900	12.900	2.654
//									
APXVSPP18-C-A20 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice	8.498	6.946	0.083
						1/2" Ice	9.149	8.127	0.151
						1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
APXVSPP18-C-A20 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice	8.498	6.946	0.083
						1/2" Ice	9.149	8.127	0.151
						1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
APXVSPP18-C-A20 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice	8.498	6.946	0.083
						1/2" Ice	9.149	8.127	0.151
						1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
(3) ACU-A20-N (E)	A	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice	0.078	0.136	0.001
						1/2" Ice	0.121	0.189	0.002
						1" Ice	0.173	0.251	0.004
						2" Ice	0.302	0.400	0.012
						4" Ice	0.665	0.802	0.045
(3) ACU-A20-N (E)	B	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice	0.078	0.136	0.001
						1/2" Ice	0.121	0.189	0.002
						1" Ice	0.173	0.251	0.004
						2" Ice	0.302	0.400	0.012
						4" Ice	0.665	0.802	0.045
(3) ACU-A20-N (E)	C	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice	0.078	0.136	0.001
						1/2" Ice	0.121	0.189	0.002
						1" Ice	0.173	0.251	0.004
						2" Ice	0.302	0.400	0.012
						4" Ice	0.665	0.802	0.045
800 EXTERNAL NOTCH FILTER (E)	A	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice	0.770	0.375	0.011
						1/2" Ice	0.890	0.465	0.017
						1" Ice	1.018	0.563	0.024
						2" Ice	1.301	0.787	0.045
						4" Ice	1.970	1.337	0.114
800 EXTERNAL NOTCH FILTER (E)	B	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice	0.770	0.375	0.011
						1/2" Ice	0.890	0.465	0.017
						1" Ice	1.018	0.563	0.024
						2" Ice	1.301	0.787	0.045

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	1.970	1.337	0.114
800 EXTERNAL NOTCH FILTER (E)	C	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.770 0.890 1.018 1.301 1.970	0.375 0.465 0.563 0.787 1.337	0.011 0.017 0.024 0.045 0.114
APXVTM14-C-120 w/ Mount Pipe (P)	A	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.077 0.131 0.193 0.338 0.752
APXVTM14-C-120 w/ Mount Pipe (P)	B	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.077 0.131 0.193 0.338 0.752
APXVTM14-C-120 w/ Mount Pipe (P)	C	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.077 0.131 0.193 0.338 0.752
TD-RRH8x20-25 (P)	A	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.720 5.014 5.316 5.948 7.314	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
TD-RRH8x20-25 (P)	B	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.720 5.014 5.316 5.948 7.314	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
TD-RRH8x20-25 (P)	C	From Leg	4.000 0.000 2.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.720 5.014 5.316 5.948 7.314	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
(2) 7' x 2" Pipe Mount (E)	A	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.663 2.391 2.825 3.706 5.578	1.663 2.391 2.825 3.706 5.578	0.026 0.038 0.055 0.105 0.266
(2) 7' x 2" Pipe Mount (E)	B	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.663 2.391 2.825 3.706 5.578	1.663 2.391 2.825 3.706 5.578	0.026 0.038 0.055 0.105 0.266
(2) 7' x 2" Pipe Mount (E)	C	From Leg	4.000 0.000 0.000	0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.663 2.391 2.825 3.706 5.578	1.663 2.391 2.825 3.706 5.578	0.026 0.038 0.055 0.105 0.266
Sector Mount [SM 901-3] (E)	C	None		0.000	128.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	12.900 12.900 12.900 12.900 12.900	12.900 12.900 12.900 12.900 12.900	1.257 1.432 1.607 1.956 2.654

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
1900MHz RRH (25MHz)	A	From Leg	2.000	0.000	126.000	No Ice	2.907	3.801	0.088
(E)			0.000			1/2" Ice	3.145	4.065	0.119
			0.000			1" Ice	3.391	4.337	0.154
						2" Ice	3.909	4.908	0.236
						4" Ice	5.050	6.152	0.451
1900MHz RRH (25MHz)	B	From Leg	2.000	0.000	126.000	No Ice	2.907	3.801	0.088
(E)			0.000			1/2" Ice	3.145	4.065	0.119
			0.000			1" Ice	3.391	4.337	0.154
						2" Ice	3.909	4.908	0.236
						4" Ice	5.050	6.152	0.451
1900MHz RRH (25MHz)	C	From Leg	2.000	0.000	126.000	No Ice	2.907	3.801	0.088
(E)			0.000			1/2" Ice	3.145	4.065	0.119
			0.000			1" Ice	3.391	4.337	0.154
						2" Ice	3.909	4.908	0.236
						4" Ice	5.050	6.152	0.451
800MHZ RRH	A	From Leg	2.000	0.000	126.000	No Ice	2.490	2.068	0.053
(E)			0.000			1/2" Ice	2.706	2.271	0.074
			0.000			1" Ice	2.931	2.481	0.098
						2" Ice	3.407	2.928	0.157
						4" Ice	4.462	3.927	0.318
800MHZ RRH	B	From Leg	2.000	0.000	126.000	No Ice	2.490	2.068	0.053
(E)			0.000			1/2" Ice	2.706	2.271	0.074
			0.000			1" Ice	2.931	2.481	0.098
						2" Ice	3.407	2.928	0.157
						4" Ice	4.462	3.927	0.318
800MHZ RRH	C	From Leg	2.000	0.000	126.000	No Ice	2.490	2.068	0.053
(E)			0.000			1/2" Ice	2.706	2.271	0.074
			0.000			1" Ice	2.931	2.481	0.098
						2" Ice	3.407	2.928	0.157
						4" Ice	4.462	3.927	0.318
Side Arm Mount [SO 102-3)	C	None		0.000	126.000	No Ice	3.000	3.000	0.081
(E)						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
						2" Ice	4.920	4.920	0.201
						4" Ice	6.840	6.840	0.321
//									
(2) DB846F65ZAXY w/ Mount Pipe	A	From Leg	4.000	0.000	116.000	No Ice	7.271	7.821	0.047
			0.000			1/2" Ice	7.877	9.010	0.114
(E)			2.000			1" Ice	8.484	9.912	0.189
						2" Ice	9.724	11.812	0.367
						4" Ice	12.325	15.978	0.867
(2) DB846H80E-SX w/ Mount Pipe	B	From Leg	4.000	0.000	116.000	No Ice	5.331	7.735	0.041
			0.000			1/2" Ice	5.888	8.930	0.099
(E)			2.000			1" Ice	6.412	9.843	0.165
						2" Ice	7.481	11.711	0.323
						4" Ice	9.828	15.894	0.782
(2) DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.000	0.000	116.000	No Ice	7.271	7.821	0.047
			0.000			1/2" Ice	7.877	9.010	0.114
(E)			2.000			1" Ice	8.484	9.912	0.189
						2" Ice	9.724	11.812	0.367
						4" Ice	12.325	15.978	0.867
BXA-70063/6CF-2 w/ Mount Pipe	A	From Leg	4.000	0.000	116.000	No Ice	7.969	5.398	0.042
			0.000			1/2" Ice	8.609	6.546	0.101
(E)			2.000			1" Ice	9.216	7.409	0.168
						2" Ice	10.459	9.184	0.327
						4" Ice	13.066	12.933	0.787
BXA-70063/6CF-2 w/ Mount	B	From Leg	4.000	0.000	116.000	No Ice	7.969	5.398	0.042

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe			0.000			1/2" Ice	8.609	6.546	0.101
(E)			2.000			1" Ice	9.216	7.409	0.168
						2" Ice	10.459	9.184	0.327
						4" Ice	13.066	12.933	0.787
BXA-70063/6CF-2 w/ Mount	C	From Leg	4.000	0.000	116.000	No Ice	7.969	5.398	0.042
Pipe			0.000			1/2" Ice	8.609	6.546	0.101
(E)			2.000			1" Ice	9.216	7.409	0.168
						2" Ice	10.459	9.184	0.327
						4" Ice	13.066	12.933	0.787
BXA-171063-8BF-2 w/	A	From Leg	4.000	0.000	116.000	No Ice	3.179	3.353	0.029
Mount Pipe			0.000			1/2" Ice	3.555	3.971	0.061
(E)			2.000			1" Ice	3.964	4.595	0.099
						2" Ice	4.853	5.893	0.193
						4" Ice	6.767	8.885	0.488
BXA-171085-12BF-2 w/	B	From Leg	4.000	0.000	116.000	No Ice	4.971	5.228	0.040
Mount Pipe			0.000			1/2" Ice	5.521	6.389	0.086
(E)			2.000			1" Ice	6.036	7.261	0.139
						2" Ice	7.091	9.046	0.271
						4" Ice	9.359	12.817	0.671
BXA-171063-12BF w/	C	From Leg	4.000	0.000	116.000	No Ice	4.971	5.228	0.040
Mount Pipe			0.000			1/2" Ice	5.521	6.389	0.086
(E)			2.000			1" Ice	6.036	7.261	0.139
						2" Ice	7.091	9.046	0.271
						4" Ice	9.359	12.817	0.671
GPS-TMG-26NMS	B	From Leg	4.000	0.000	116.000	No Ice	0.156	0.156	0.001
(E)			0.000			1/2" Ice	0.213	0.213	0.002
			2.000			1" Ice	0.279	0.279	0.005
						2" Ice	0.437	0.437	0.014
						4" Ice	0.857	0.857	0.052
(2) FD9R6004/2C-3L	A	From Leg	4.000	0.000	116.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			2.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	B	From Leg	4.000	0.000	116.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			2.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	C	From Leg	4.000	0.000	116.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			2.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
Sector Mount [SM 901-3]	C	None		0.000	116.000	No Ice	12.900	12.900	1.257
(E)						1/2" Ice	12.900	12.900	1.432
						1" Ice	12.900	12.900	1.607
						2" Ice	12.900	12.900	1.956
						4" Ice	12.900	12.900	2.654
//									
RRUS 11	A	From Leg	1.000	0.000	110.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			0.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
RRUS 11	B	From Leg	1.000	0.000	110.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
RRUS 11	C	From Leg	1.000	0.000	110.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			0.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
4' x 2" Pipe Mount	A	From Leg	0.500	0.000	110.000	No Ice	0.866	0.866	0.015
(E)			0.000			1/2" Ice	1.111	1.111	0.022
			0.000			1" Ice	1.365	1.365	0.032
						2" Ice	1.901	1.901	0.062
						4" Ice	3.228	3.228	0.161
4' x 2" Pipe Mount	B	From Leg	0.500	0.000	110.000	No Ice	0.866	0.866	0.015
(E)			0.000			1/2" Ice	1.111	1.111	0.022
			0.000			1" Ice	1.365	1.365	0.032
						2" Ice	1.901	1.901	0.062
						4" Ice	3.228	3.228	0.161
4' x 2" Pipe Mount	C	From Leg	0.500	0.000	110.000	No Ice	0.866	0.866	0.015
(E)			0.000			1/2" Ice	1.111	1.111	0.022
			0.000			1" Ice	1.365	1.365	0.032
						2" Ice	1.901	1.901	0.062
						4" Ice	3.228	3.228	0.161
Side Arm Mount [SO 102-3)	C	None		0.000	110.000	No Ice	3.000	3.000	0.081
(E)						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
						2" Ice	4.920	4.920	0.201
						4" Ice	6.840	6.840	0.321
//									
(2) 7200.40 w/ Mount Pipe	A	From Leg	4.000	0.000	106.000	No Ice	4.354	4.612	0.049
(E)			0.000			1/2" Ice	4.900	5.772	0.090
			2.000			1" Ice	5.411	6.645	0.137
						2" Ice	6.458	8.424	0.258
						4" Ice	8.655	12.183	0.634
(2) 7200.40 w/ Mount Pipe	B	From Leg	4.000	0.000	106.000	No Ice	4.354	4.612	0.049
(E)			0.000			1/2" Ice	4.900	5.772	0.090
			2.000			1" Ice	5.411	6.645	0.137
						2" Ice	6.458	8.424	0.258
						4" Ice	8.655	12.183	0.634
(2) 7200.40 w/ Mount Pipe	C	From Leg	4.000	0.000	106.000	No Ice	4.354	4.612	0.049
(E)			0.000			1/2" Ice	4.900	5.772	0.090
			2.000			1" Ice	5.411	6.645	0.137
						2" Ice	6.458	8.424	0.258
						4" Ice	8.655	12.183	0.634
AM-X-CD-14-65-00T-RET w/ Mount Pipe	A	From Leg	4.000	0.000	106.000	No Ice	5.744	4.015	0.035
			0.000			1/2" Ice	6.198	4.633	0.080
(E)			2.000			1" Ice	6.661	5.276	0.131
						2" Ice	7.618	6.678	0.254
						4" Ice	9.668	9.744	0.610
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.000	0.000	106.000	No Ice	8.498	6.304	0.074
			0.000			1/2" Ice	9.149	7.479	0.139
(E)			2.000			1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.000	0.000	106.000	No Ice	8.498	6.304	0.074
			0.000			1/2" Ice	9.149	7.479	0.139
(E)			2.000			1" Ice	9.767	8.368	0.212

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
(4) LGP 21403	A	From Leg	4.000	0.000	106.000	No Ice	0.953	0.367	0.018
(E)			0.000			1/2" Ice	1.093	0.480	0.023
			2.000			1" Ice	1.242	0.601	0.031
						2" Ice	1.566	0.870	0.052
						4" Ice	2.318	1.510	0.123
(4) LGP 21403	B	From Leg	4.000	0.000	106.000	No Ice	0.953	0.367	0.018
(E)			0.000			1/2" Ice	1.093	0.480	0.023
			2.000			1" Ice	1.242	0.601	0.031
						2" Ice	1.566	0.870	0.052
						4" Ice	2.318	1.510	0.123
(4) LGP 21403	C	From Leg	4.000	0.000	106.000	No Ice	0.953	0.367	0.018
(E)			0.000			1/2" Ice	1.093	0.480	0.023
			2.000			1" Ice	1.242	0.601	0.031
						2" Ice	1.566	0.870	0.052
						4" Ice	2.318	1.510	0.123
RRUS-11	A	From Leg	4.000	0.000	106.000	No Ice	4.424	1.186	0.055
(E)			0.000			1/2" Ice	4.708	1.351	0.081
			2.000			1" Ice	5.001	1.526	0.110
						2" Ice	5.613	1.900	0.179
						4" Ice	6.940	2.753	0.368
RRUS-11	B	From Leg	4.000	0.000	106.000	No Ice	4.424	1.186	0.055
(E)			0.000			1/2" Ice	4.708	1.351	0.081
			2.000			1" Ice	5.001	1.526	0.110
						2" Ice	5.613	1.900	0.179
						4" Ice	6.940	2.753	0.368
RRUS-11	C	From Leg	4.000	0.000	106.000	No Ice	4.424	1.186	0.055
(E)			0.000			1/2" Ice	4.708	1.351	0.081
			2.000			1" Ice	5.001	1.526	0.110
						2" Ice	5.613	1.900	0.179
						4" Ice	6.940	2.753	0.368
DC6-48-60-18-8F	A	From Leg	4.000	0.000	106.000	No Ice	2.567	4.317	0.019
(E)			0.000			1/2" Ice	2.798	4.596	0.050
			2.000			1" Ice	3.038	4.885	0.085
						2" Ice	3.543	5.488	0.167
						4" Ice	4.658	6.797	0.383
7'x2" Pipe Mount	A	From Leg	4.000	0.000	106.000	No Ice	1.663	1.663	0.026
(E)			0.000			1/2" Ice	2.391	2.391	0.039
			0.000			1" Ice	2.825	2.825	0.056
						2" Ice	3.706	3.706	0.105
						4" Ice	5.578	5.578	0.266
7'x2" Pipe Mount	B	From Leg	4.000	0.000	106.000	No Ice	1.663	1.663	0.026
(E)			0.000			1/2" Ice	2.391	2.391	0.039
			0.000			1" Ice	2.825	2.825	0.056
						2" Ice	3.706	3.706	0.105
						4" Ice	5.578	5.578	0.266
7'x2" Pipe Mount	C	From Leg	4.000	0.000	106.000	No Ice	1.663	1.663	0.026
(E)			0.000			1/2" Ice	2.391	2.391	0.039
			0.000			1" Ice	2.825	2.825	0.056
						2" Ice	3.706	3.706	0.105
						4" Ice	5.578	5.578	0.266
T-Arm Mount [TA 602-3]	C	None		0.000	106.000	No Ice	11.590	11.590	0.774
(E)						1/2" Ice	15.440	15.440	0.990
						1" Ice	19.290	19.290	1.206
						2" Ice	26.990	26.990	1.639
						4" Ice	42.390	42.390	2.503

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
//									
APXV18-206517S-C w/ Mount Pipe (E)	A	From Leg	1.000 0.000 0.000	0.000	98.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.404 5.960 6.481 7.547 9.919	4.700 5.860 6.734 8.515 12.277	0.052 0.097 0.150 0.280 0.679
APXV18-206517S-C w/ Mount Pipe (E)	B	From Leg	1.000 0.000 0.000	0.000	98.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.404 5.960 6.481 7.547 9.919	4.700 5.860 6.734 8.515 12.277	0.052 0.097 0.150 0.280 0.679
APXV18-206517S-C w/ Mount Pipe (E)	C	From Leg	1.000 0.000 0.000	0.000	98.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.404 5.960 6.481 7.547 9.919	4.700 5.860 6.734 8.515 12.277	0.052 0.097 0.150 0.280 0.679
//									
KS24019-L112A (E)	A	From Leg	2.000 0.000 2.000	0.000	55.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.156 0.225 0.302 0.484 0.951	0.156 0.225 0.302 0.484 0.951	0.005 0.007 0.009 0.018 0.056
Side Arm Mount [SO 701-1] (E)	A	From Leg	1.000 0.000 0.000	0.000	55.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.850 1.140 1.430 2.010 3.170	1.670 2.340 3.010 4.350 7.030	0.065 0.079 0.093 0.121 0.177
//									

Load Combinations

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

Comb. No.	Description
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	149 - 135.08	Pole	Max Tension	18	0.000	0.000	0.000
			Max. Compression	14	-7.316	0.010	-0.006
			Max. Mx	11	-3.715	28.450	-0.003
			Max. My	8	-3.714	0.004	-28.449
			Max. Vy	5	8.620	-28.446	0.001
			Max. Vx	8	8.620	0.004	-28.449
			Max. Torque	26			0.003
L2	135.08 - 92.2	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-25.703	0.281	-0.205
			Max. Mx	11	-14.462	719.244	-1.677
			Max. My	8	-14.462	1.541	-720.152
			Max. Vy	5	25.833	-719.164	1.329
			Max. Vx	8	25.823	1.541	-720.152
			Max. Torque	5			-0.473
L3	92.2 - 45.24	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-38.004	-0.016	-0.345
			Max. Mx	5	-24.528	-1988.689	4.663
			Max. My	8	-24.529	4.564	-1988.848
			Max. Vy	5	30.679	-1988.689	4.663
			Max. Vx	8	30.640	4.564	-1988.848
			Max. Torque	11			-0.150
L4	45.24 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-58.793	-0.539	-1.062
			Max. Mx	5	-42.114	-3758.822	8.167
			Max. My	8	-42.114	7.922	-3756.737
			Max. Vy	5	36.430	-3758.822	8.167
			Max. Vx	8	36.391	7.922	-3756.737
			Max. Torque	11			-0.128

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	22	58.793	4.356	-7.526
	Max. H_x	11	42.130	36.413	-0.072
	Max. H_z	2	42.130	-0.072	36.373
	Max. M_x	2	3755.729	-0.072	36.373
	Max. M_z	5	3758.822	-36.413	0.072
	Max. Torsion	25	0.111	7.514	4.328
	Min. Vert	1	42.130	0.000	0.000
	Min. H_x	5	42.130	-36.413	0.072
	Min. H_z	8	42.130	0.072	-36.373
	Min. M_x	8	-3756.737	0.072	-36.373
	Min. M_z	11	-3757.323	36.413	-0.072
	Min. Torsion	19	-0.111	-7.514	-4.328

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	42.130	0.000	0.000	0.495	-0.741	0.000
Dead+Wind 0 deg - No Ice	42.130	0.072	-36.373	-3755.729	-9.421	0.044
Dead+Wind 30 deg - No Ice	42.130	18.269	-31.536	-3256.820	-1887.293	0.029
Dead+Wind 60 deg - No Ice	42.130	31.570	-18.249	-1885.119	-3259.666	0.004
Dead+Wind 90 deg - No Ice	42.130	36.413	-0.072	-8.167	-3758.822	-0.025
Dead+Wind 120 deg - No Ice	42.130	31.498	18.124	1871.115	-3251.006	-0.048
Dead+Wind 150 deg - No Ice	42.130	18.144	31.464	3249.168	-1872.279	-0.056
Dead+Wind 180 deg - No Ice	42.130	-0.072	36.373	3756.737	7.922	-0.046
Dead+Wind 210 deg - No Ice	42.130	-18.269	31.536	3257.828	1885.793	-0.023
Dead+Wind 240 deg - No Ice	42.130	-31.570	18.249	1886.128	3258.167	0.004
Dead+Wind 270 deg - No Ice	42.130	-36.413	0.072	9.176	3757.323	0.027
Dead+Wind 300 deg - No Ice	42.130	-31.498	-18.124	-1870.107	3249.507	0.043
Dead+Wind 330 deg - No Ice	42.130	-18.144	-31.464	-3248.160	1870.780	0.048
Dead+Ice+Temp	58.793	0.000	0.000	1.062	-0.539	0.000
Dead+Wind 0 deg+Ice+Temp	58.793	0.015	-8.681	-911.982	-2.369	-0.050
Dead+Wind 30 deg+Ice+Temp	58.793	4.356	-7.526	-790.569	-458.478	0.007
Dead+Wind 60 deg+Ice+Temp	58.793	7.529	-4.354	-457.031	-791.882	0.061
Dead+Wind 90 deg+Ice+Temp	58.793	8.685	-0.015	-0.740	-913.247	0.099
Dead+Wind 120 deg+Ice+Temp	58.793	7.514	4.328	456.041	-790.052	0.111
Dead+Wind 150 deg+Ice+Temp	58.793	4.330	7.511	790.919	-455.308	0.093
Dead+Wind 180 deg+Ice+Temp	58.793	-0.015	8.681	914.162	1.291	0.050
Dead+Wind 210 deg+Ice+Temp	58.793	-4.356	7.526	792.749	457.400	-0.006
Dead+Wind 240 deg+Ice+Temp	58.793	-7.529	4.354	459.211	790.804	-0.061
Dead+Wind 270 deg+Ice+Temp	58.793	-8.685	0.015	2.920	912.169	-0.099
Dead+Wind 300 deg+Ice+Temp	58.793	-7.514	-4.328	-453.861	788.974	-0.111
Dead+Wind 330 deg+Ice+Temp	58.793	-4.330	-7.511	-788.739	454.230	-0.093
Dead+Wind 0 deg - Service	42.130	0.025	-12.586	-1299.753	-3.752	0.015
Dead+Wind 30 deg - Service	42.130	6.321	-10.912	-1127.052	-653.796	0.009
Dead+Wind 60 deg - Service	42.130	10.924	-6.315	-652.223	-1128.857	0.000
Dead+Wind 90 deg - Service	42.130	12.600	-0.025	-2.497	-1301.643	-0.009
Dead+Wind 120 deg - Service	42.130	10.899	6.271	648.034	-1125.856	-0.016
Dead+Wind 150 deg - Service	42.130	6.278	10.887	1125.060	-648.597	-0.018
Dead+Wind 180 deg - Service	42.130	-0.025	12.586	1300.762	2.252	-0.016
Dead+Wind 210 deg - Service	42.130	-6.321	10.912	1128.061	652.296	-0.009
Dead+Wind 240 deg - Service	42.130	-10.924	6.315	653.233	1127.357	0.000
Dead+Wind 270 deg - Service	42.130	-12.600	0.025	3.506	1300.143	0.009

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 300 deg - Service	42.130	-10.899	-6.271	-647.025	1124.356	0.015
Dead+Wind 330 deg - Service	42.130	-6.278	-10.887	-1124.051	647.097	0.018

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-42.130	0.000	0.000	42.130	0.000	0.000%
2	0.072	-42.130	-36.373	-0.072	42.130	36.373	0.000%
3	18.269	-42.130	-31.536	-18.269	42.130	31.536	0.000%
4	31.570	-42.130	-18.249	-31.570	42.130	18.249	0.000%
5	36.413	-42.130	-0.072	-36.413	42.130	0.072	0.000%
6	31.498	-42.130	18.124	-31.498	42.130	-18.124	0.000%
7	18.144	-42.130	31.464	-18.144	42.130	-31.464	0.000%
8	-0.072	-42.130	36.373	0.072	42.130	-36.373	0.000%
9	-18.269	-42.130	31.536	18.269	42.130	-31.536	0.000%
10	-31.570	-42.130	18.249	31.570	42.130	-18.249	0.000%
11	-36.413	-42.130	0.072	36.413	42.130	-0.072	0.000%
12	-31.498	-42.130	-18.124	31.498	42.130	18.124	0.000%
13	-18.144	-42.130	-31.464	18.144	42.130	31.464	0.000%
14	0.000	-58.793	0.000	0.000	58.793	0.000	0.000%
15	0.015	-58.793	-8.681	-0.015	58.793	8.681	0.000%
16	4.356	-58.793	-7.526	-4.356	58.793	7.526	0.000%
17	7.529	-58.793	-4.354	-7.529	58.793	4.354	0.000%
18	8.685	-58.793	-0.015	-8.685	58.793	0.015	0.000%
19	7.514	-58.793	4.328	-7.514	58.793	-4.328	0.000%
20	4.330	-58.793	7.511	-4.330	58.793	-7.511	0.000%
21	-0.015	-58.793	8.681	0.015	58.793	-8.681	0.000%
22	-4.356	-58.793	7.526	4.356	58.793	-7.526	0.000%
23	-7.529	-58.793	4.354	7.529	58.793	-4.354	0.000%
24	-8.685	-58.793	0.015	8.685	58.793	-0.015	0.000%
25	-7.514	-58.793	-4.328	7.514	58.793	4.328	0.000%
26	-4.330	-58.793	-7.511	4.330	58.793	7.511	0.000%
27	0.025	-42.130	-12.586	-0.025	42.130	12.586	0.000%
28	6.321	-42.130	-10.912	-6.321	42.130	10.912	0.000%
29	10.924	-42.130	-6.315	-10.924	42.130	6.315	0.000%
30	12.599	-42.130	-0.025	-12.600	42.130	0.025	0.000%
31	10.899	-42.130	6.271	-10.899	42.130	-6.271	0.000%
32	6.278	-42.130	10.887	-6.278	42.130	-10.887	0.000%
33	-0.025	-42.130	12.586	0.025	42.130	-12.586	0.000%
34	-6.321	-42.130	10.912	6.321	42.130	-10.912	0.000%
35	-10.924	-42.130	6.315	10.924	42.130	-6.315	0.000%
36	-12.599	-42.130	0.025	12.600	42.130	-0.025	0.000%
37	-10.899	-42.130	-6.271	10.899	42.130	6.271	0.000%
38	-6.278	-42.130	-10.887	6.278	42.130	10.887	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00002391

3	Yes	5	0.00000001	0.00003662
4	Yes	5	0.00000001	0.00003651
5	Yes	4	0.00000001	0.00002290
6	Yes	5	0.00000001	0.00003634
7	Yes	5	0.00000001	0.00003622
8	Yes	4	0.00000001	0.00002467
9	Yes	5	0.00000001	0.00003658
10	Yes	5	0.00000001	0.00003665
11	Yes	4	0.00000001	0.00002816
12	Yes	5	0.00000001	0.00003614
13	Yes	5	0.00000001	0.00003630
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00045325
16	Yes	4	0.00000001	0.00050307
17	Yes	4	0.00000001	0.00050270
18	Yes	4	0.00000001	0.00045317
19	Yes	4	0.00000001	0.00050203
20	Yes	4	0.00000001	0.00050177
21	Yes	4	0.00000001	0.00045421
22	Yes	4	0.00000001	0.00050422
23	Yes	4	0.00000001	0.00050419
24	Yes	4	0.00000001	0.00045343
25	Yes	4	0.00000001	0.00050069
26	Yes	4	0.00000001	0.00050134
27	Yes	4	0.00000001	0.00001150
28	Yes	4	0.00000001	0.00011506
29	Yes	4	0.00000001	0.00011435
30	Yes	4	0.00000001	0.00001155
31	Yes	4	0.00000001	0.00011413
32	Yes	4	0.00000001	0.00011322
33	Yes	4	0.00000001	0.00001153
34	Yes	4	0.00000001	0.00011474
35	Yes	4	0.00000001	0.00011536
36	Yes	4	0.00000001	0.00001167
37	Yes	4	0.00000001	0.00011267
38	Yes	4	0.00000001	0.00011366

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 135.08	19.497	34	1.171	0.000
L2	138.92 - 92.2	17.032	34	1.161	0.000
L3	97.81 - 45.24	8.096	29	0.841	0.000
L4	52.78 - 0	2.198	29	0.388	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.000	RR90-17-02DP w/ Mount Pipe	34	19.251	1.170	0.000	35619
139.000	(4) DB848H90E-XY w/ Mount Pipe	34	17.052	1.161	0.000	18440
128.000	APXVSPP18-C-A20 w/ Mount Pipe	34	14.436	1.115	0.000	10914
126.000	1900MHz RRH (25MHz)	34	13.973	1.102	0.000	10197
116.000	(2) DB846F65ZAXY w/ Mount Pipe	34	11.736	1.023	0.000	7674

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
110.000	RRUS 11	29	10.466	0.967	0.000	6682
106.000	(2) 7200.40 w/ Mount Pipe	29	9.656	0.927	0.000	6151
98.000	APXV18-206517S-C w/ Mount Pipe	29	8.130	0.843	0.000	5379
55.000	KS24019-L112A	29	2.382	0.408	0.000	5417

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 135.08	56.266	9	3.379	0.000
L2	138.92 - 92.2	49.157	9	3.352	0.000
L3	97.81 - 45.24	23.374	4	2.428	0.000
L4	52.78 - 0	6.347	4	1.120	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.000	RR90-17-02DP w/ Mount Pipe	9	55.557	3.378	0.000	12437
139.000	(4) DB848H90E-XY w/ Mount Pipe	9	49.213	3.353	0.000	6436
128.000	APXVSPP18-C-A20 w/ Mount Pipe	9	41.668	3.218	0.000	3803
126.000	1900MHz RRH (25MHz)	9	40.333	3.181	0.000	3553
116.000	(2) DB846F65ZAXY w/ Mount Pipe	9	33.879	2.955	0.000	2674
110.000	RRUS 11	4	30.216	2.792	0.000	2327
106.000	(2) 7200.40 w/ Mount Pipe	4	27.877	2.676	0.000	2142
98.000	APXV18-206517S-C w/ Mount Pipe	4	23.474	2.434	0.000	1872
55.000	KS24019-L112A	4	6.880	1.177	0.000	1877

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	149 - 135.08 (1)	TP26.743x22x0.188	13.920	0.000	0.0	39.000	15.025	-3.714	585.980	0.006
L2	135.08 - 92.2 (2)	TP40.914x25.06x0.25	46.720	0.000	0.0	38.444	30.756	-14.457	1182.390	0.012
L3	92.2 - 45.24 (3)	TP56.356x38.51x0.313	52.570	0.000	0.0	36.640	53.049	-24.525	1943.750	0.013
L4	45.24 - 0 (4)	TP71x53.171x0.375	52.780	0.000	0.0	34.716	84.061	-42.114	2918.310	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	149 - 135.08 (1)	TP26.743x22x0.188	28.452	3.646	39.000	0.093	0.000	0.000	39.000	0.000
L2	135.08 - 92.2 (2)	TP40.914x25.06x0.25	721.253	29.381	38.444	0.764	0.000	0.000	38.444	0.000
L3	92.2 - 45.24 (3)	TP56.356x38.51x0.313	1992.808	34.088	36.640	0.930	0.000	0.000	36.640	0.000
L4	45.24 - 0 (4)	TP71x53.171x0.375	3765.517	30.766	34.716	0.886	0.000	0.000	34.716	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	149 - 135.08 (1)	TP26.743x22x0.188	8.620	0.574	26.000	0.044	0.000	0.000	26.000	0.000
L2	135.08 - 92.2 (2)	TP40.914x25.06x0.25	25.889	0.842	26.000	0.065	0.034	0.001	26.000	0.000
L3	92.2 - 45.24 (3)	TP56.356x38.51x0.313	30.733	0.579	26.000	0.045	0.127	0.001	26.000	0.000
L4	45.24 - 0 (4)	TP71x53.171x0.375	36.483	0.434	26.000	0.033	0.004	0.000	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	149 - 135.08 (1)	0.006	0.093	0.000	0.044	0.000	0.100 ✔	1.333	H1-3+VT ✔
L2	135.08 - 92.2 (2)	0.012	0.764	0.000	0.065	0.000	0.778 ✔	1.333	H1-3+VT ✔
L3	92.2 - 45.24 (3)	0.013	0.930	0.000	0.045	0.000	0.943 ✔	1.333	H1-3+VT ✔
L4	45.24 - 0 (4)	0.014	0.886	0.000	0.033	0.000	0.901 ✔	1.333	H1-3+VT ✔

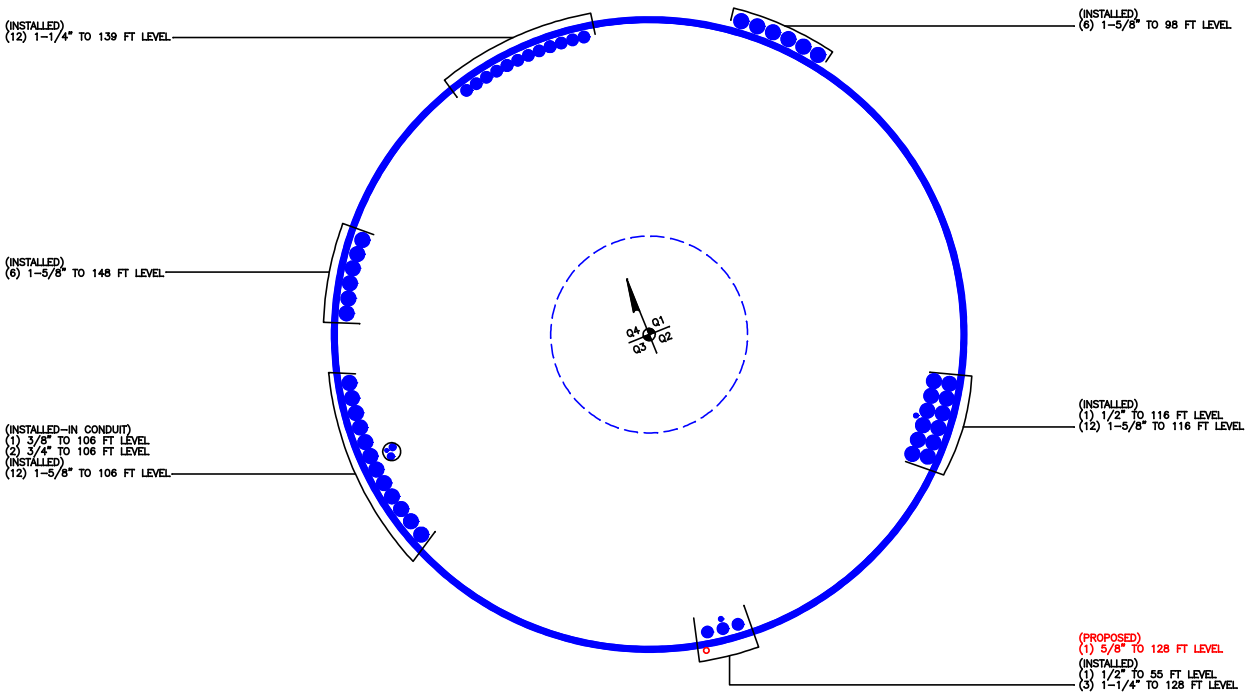
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	149 - 135.08	Pole	TP26.743x22x0.188	1	-3.714	781.111	7.5	Pass
L2	135.08 - 92.2	Pole	TP40.914x25.06x0.25	2	-14.457	1576.126	58.3	Pass
L3	92.2 - 45.24	Pole	TP56.356x38.51x0.313	3	-24.525	2591.019	70.8	Pass
L4	45.24 - 0	Pole	TP71x53.171x0.375	4	-42.114	3890.107	67.6	Pass
							Summary	
						Pole (L3)	70.8	Pass
						RATING =	**70.8**	**Pass**

Program Version 6.1.4.1 - 12/17/2013

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876343 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

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

TIA Rev F

Site Data

BU#:	*876343*
Site Name:	*GUILFORD WEST STONE*
App #:	*205521 Rev:1*
Pole Manufacturer:	*Other*

Reactions		
Moment:	3766	ft-kips
Axial:	42	kips
Shear:	36	kips

Anchor Rod Data		
Qty:	28	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	79	in

Plate Data		
Diam:	85	in
Thick:	2.75	in
Grade:	50	ksi
Single-Rod B-eff:	8.05	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	71	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

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

Anchor Rod Results

			Rigid
Maximum Rod Tension:	80.2	Kips	Service, ASD
Allowable Tension:	195.0	Kips	Fty*ASIF
Anchor Rod Stress Ratio:	41.1%	**Pass**	

Base Plate Results

	Flexural Check		Rigid
Base Plate Stress:	20.6	ksi	Service ASD
Allowable Plate Stress:	50.0	ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	41.3%	**Pass**	Y.L. Length: 34.64

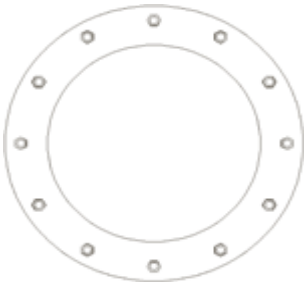
n/a

Stiffener Results

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

Pole Results

Pole Punching Shear Check:	n/a



* 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

PROJECT	**876343 - GUILFORD WEST STONE PROPERTY, CT**				
SUBJECT	**Foundation Analysis**				
DATE	**01/07/14**	PAGE	1	OF	1

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Monopole Pad & Pier Foundation Analysis

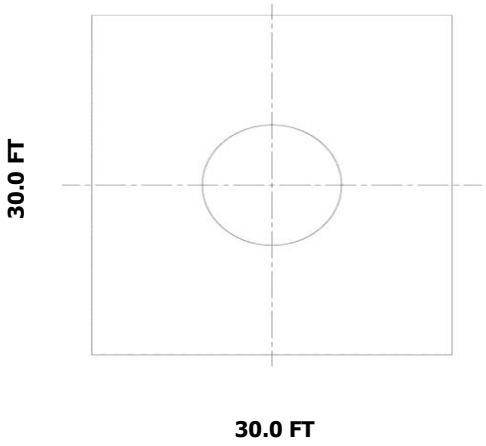
Rev. Type: F

Design Loads:

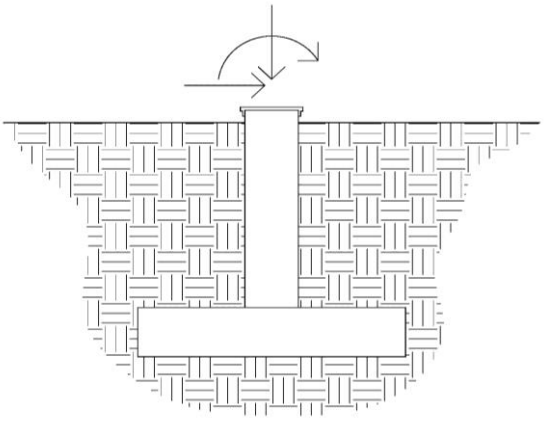
	Input unfactored loads	
Shear:	36.0	kips
Moment:	3,766.0	ft-kips
Tower Height:	149.0	ft
Tower Weight:	42.0	kips

Pad & Pier Dimensions / Properties:

Pole Diameter at Base:	71.04	in
Bearing Depth:	12.0	ft
Pad Width:	30.0	ft
Neglected Depth:	3.3	ft
Thickness:	3.0	ft
Pier Diameter:	8.5	ft
Pier Height Above Grade:	1.0	ft
BP Dist. Above Pier:	3.0	in
Clear Cover:	3.0	in
Pier Rebar Size:	9	
Pier Rebar Quanity:	48	
Pad Rebar Size:	8	
Pad Rebar Quanity:	34	
Pier Tie Size:	4	
Tie Quanity:	20	
Rebar Yield Strength:	60000	psi
Concrete Strength:	4000	psi
Concrete Unit Weight:	0.15	kcf



Elevation Overview



Soil Data:

	Allowable Values	
Soil Unit Weight:	0.120	kcf
Ult. Bearing Capacity:	10.700	ksf
Angle of Friction:	30.000	deg
Cohesion:	0.000	ksf
Passive Pressure:	0.000	ksf
Base Friction:	0.300	

Summary of Results

Req'd Pier Diam.	OK
Overturning	27.1%
Shear Capacity	13.2%
Bearing	34.4%
Pad Shear - 1-way	76.5%
Pad Shear - 2-way	7.6%
Pad Moment Capacity	44.7%
Pier Moment Capacity	55.7%

** Notes:

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RADIO FREQUENCY FCC REGULATORY COMPLIANCE MAXIMUM PERMISSIBLE EXPOSURE (MPE) ASSESSMENT

Sprint Existing Facility

Site ID: CT03XC172

Guilford West / Stone Property

1919 Boston Post Road
Guilford, CT 06437

March 10, 2014

EBI Project Number: 62140951

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

EBI Consulting
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March 10, 2014

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

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT03XC172 - Guilford West / Stone Property

Site Total: 84.857% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 1919 Boston Post Road, Guilford, CT, for the purpose of determining whether the radio frequency (RF) exposure levels from the proposed Sprint equipment upgrades 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 µW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm^2). The general population exposure limit for the cellular band (850 MHz Band) is approximately 567 µW/cm^2, and the general population exposure limit for the 1900 MHz and 2500 MHz bands band is 1000 µW/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 upgrades to the existing Sprint Wireless antenna facility located at 1919 Boston Post Road, Guilford, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. 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 emissions were calculated using the following assumptions:

1) 3 channels in the 1900 MHz Band were considered for each sector of the proposed installation.
2) 1 channel in the 800 MHz Band was considered for each sector of the proposed installation
3) 2 channels in the 2500 MHz Band were considered for each sector of the proposed installation.
4) 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.
5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications was used in this direction.

6) The antennas used in this modeling are the RFS APXVSPP18-C-A20 and the RFS APXVTMM-C-120. This is based on feedback from the carrier with regards to anticipated antenna selection. The RFS APXVSPP18-C-A20 has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. The RFS APXVTMM-C-120 has a 15.9 dBd gain value at its main lobe at 2500 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.
7) The antenna mounting height centerline for the proposed antennas is **130 feet** above ground level (AGL).
8) 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 calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT03XC172 - Guilford West / Stone Property
Site Addresss	1919 Boston Post Road, Guilford, CT 06437
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Antenna Height Meters	Cable Size	Cable Loss (dB)	Additional Loss (dB)	Gain Factor	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	130	124	37.79566	1/2 "	0.5	3	17.378008	1042.6805	24.37889	2.43789%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	130	124	37.79566	1/2 "	0.5	3	9.7723722	195.44744	4.569752	0.80595%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	13.4	130	124	37.79566	1/2 "	0.5	3	9.7723722	390.89489	9.139503	1.61191%
																Sector total Power Density Value:			4.856%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Antenna Height Meters	Cable Size	Cable Loss (dB)	Additional Loss (dB)	Gain Factor	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	130	124	37.79566	1/2 "	0.5	3	17.378008	1042.6805	24.37889	2.43789%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	130	124	37.79566	1/2 "	0.5	3	9.7723722	195.44744	4.569752	0.80595%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	13.4	130	124	37.79566	1/2 "	0.5	3	9.7723722	390.89489	9.139503	1.61191%
																Sector total Power Density Value:			4.856%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Antenna Height Meters	Cable Size	Cable Loss (dB)	Additional Loss (dB)	Gain Factor	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	130	124	37.79566	1/2 "	0.5	3	17.378008	1042.6805	24.37889	2.43789%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	130	124	37.79566	1/2 "	0.5	3	9.7723722	195.44744	4.569752	0.80595%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	13.4	130	124	37.79566	1/2 "	0.5	3	9.7723722	390.89489	9.139503	1.61191%
																Sector total Power Density Value:			4.856%

Site Composite MPE %	
Carrier	MPE %
Sprint	14.567%
Verizon Wireless	29.610%
AT&T	27.560%
MetroPCS	6.420%
T-Mobile	3.790%
Nextel	2.910%
Total Site MPE %	**84.857%**

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Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public Maximum Permissible Exposure (MPE) to radio frequency energy.

The anticipated Maximum Composite contributions from the Sprint facility are **14.567% (4.856% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **84.857%** of the allowable FCC established general public limit sampled at 6 feet above ground level. This total composite site value is based upon MPE 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.

Scott Heffernan
RF Engineering Director

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