Crown Castle
3530 Toringdon Way
Suite 300
Charlotte, NC 28277

Tel: 704-405-6600

www.crowncastle.com

March 24, 2014

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

RE: **Sprint PCS-Exempt Modification - Crown Site BU: 801367**
Sprint PCS Site ID: CT43XC844
Located at: 1121 Summit Road, Cheshire, CT 06410

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. Michael A. Milone, Manager for the Town of Cheshire.

Sprint plans to modify the existing wireless communications facility owned by Crown Castle and located at **1121 Summit Road, Cheshire, CT 06410**. 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. Michael A. Milone, Town Manager
Town of Cheshire
84 South Main Street
Cheshire, CT 06410

Sprint

CROWN CASTLE

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	CT NHV-2075 CAC 801367
SITE CASCADE:	CT43XC844
SITE NUMBER:	801367
SITE ADDRESS:	1121 SUMMIT ROAD CHESHIRE, CT 06410
SITE TYPE:	MONOPOLE TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
CROWN ATLANTIC COMPANY LLC
2000 CORPORATE DRIVE
CANNONSBURG, PA 15317

LATITUDE (NAD83):
41° 32' 11.2" N
41.536444°

LONGITUDE (NAD83):
72° 57' 26.3" W
-72.957306°

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL ONLY

ZONING DISTRICT:
TBD

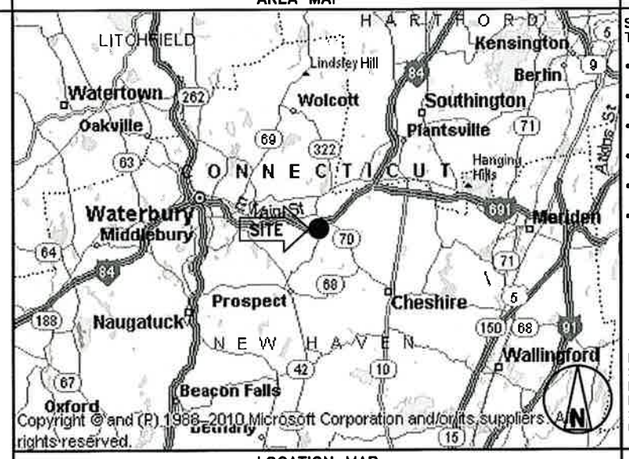
POWER COMPANY:
TBD

AAV PROVIDER:
TBD

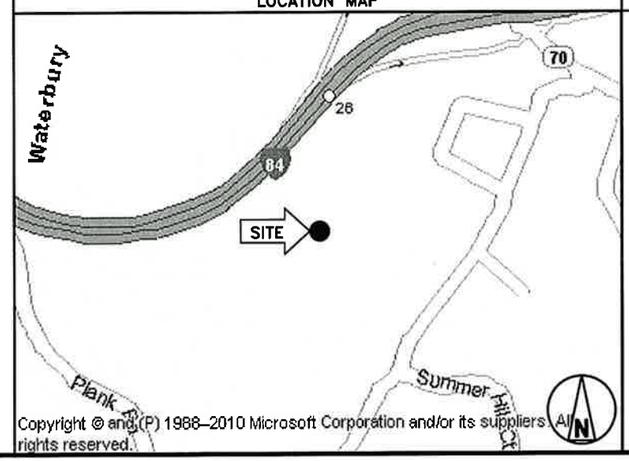
SPRINT CM:
GARY WOOD
GARY.WOOD@SPRINT.COM

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 Know what's below. Call before you dig. www.call811.com

DRAWING INDEX

SHEET NO:	SHEET TITLE	REV
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A-7	PLUMBING DIAGRAM	B
E-1	ELECTRICAL & GROUNDING PLAN	B
E-2	ELECTRICAL & GROUNDING DETAILS	B

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-XXX

MLA PARTNER:
CROWN CASTLE

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	2/20/14	MAP	B
ISSUED FOR REVIEW	1/10/14	AHS	A

SITE NAME:
CT NHV-2075
CAC 801367

SITE CASCADE:
CT43XC844

SITE ADDRESS:
1121 SUMMIT ROAD
CHESHIRE, CT 06410

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-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	2/20/14	MAP	B
ISSUED FOR REVIEW	1/10/14	AHS	A

SITE NAME:

CT NHV-2075
CAC 801367

SITE CASCADE:

CT43XC844

SITE ADDRESS:

1121 SUMMIT ROAD
CHESHIRE, CT 06410

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)

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

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Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	2/20/14	MAP	B
ISSUED FOR REVIEW	1/10/14	AHS	A

SITE NAME:

CT NHV-2075
CAC 801367

SITE CASCADE:

CT43XC844

SITE ADDRESS:

1121 SUMMIT ROAD
CHESHIRE, CT 06410

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.

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

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	2/20/14	MAP	B
ISSUED FOR REVIEW	1/10/14	AHS	A

SITE NAME:

CT NHV-2075
CAC 801367

SITE CASCADE:

CT43XC844

SITE ADDRESS:

1121 SUMMIT ROAD
CHESHIRE, CT 06410

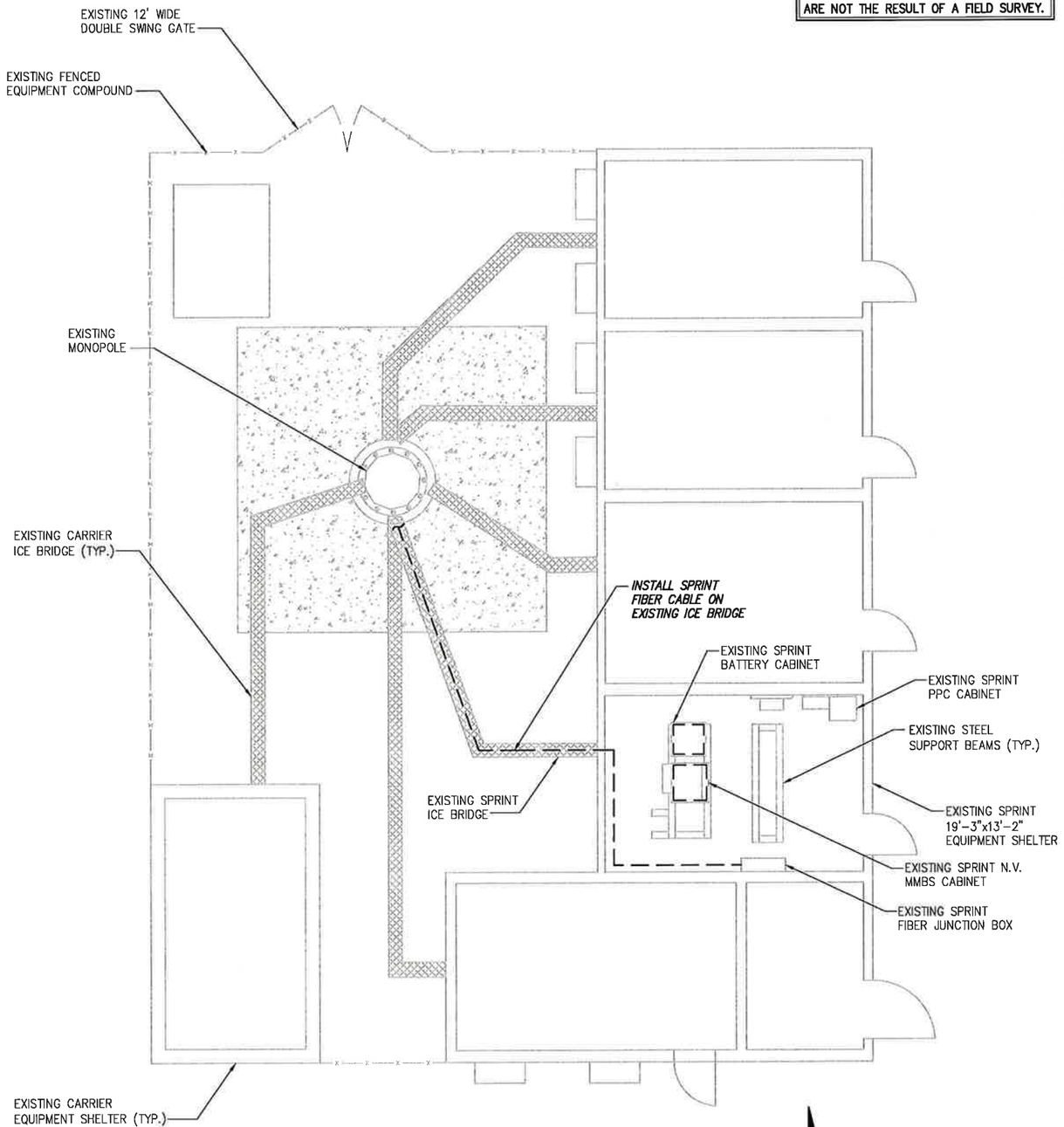
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

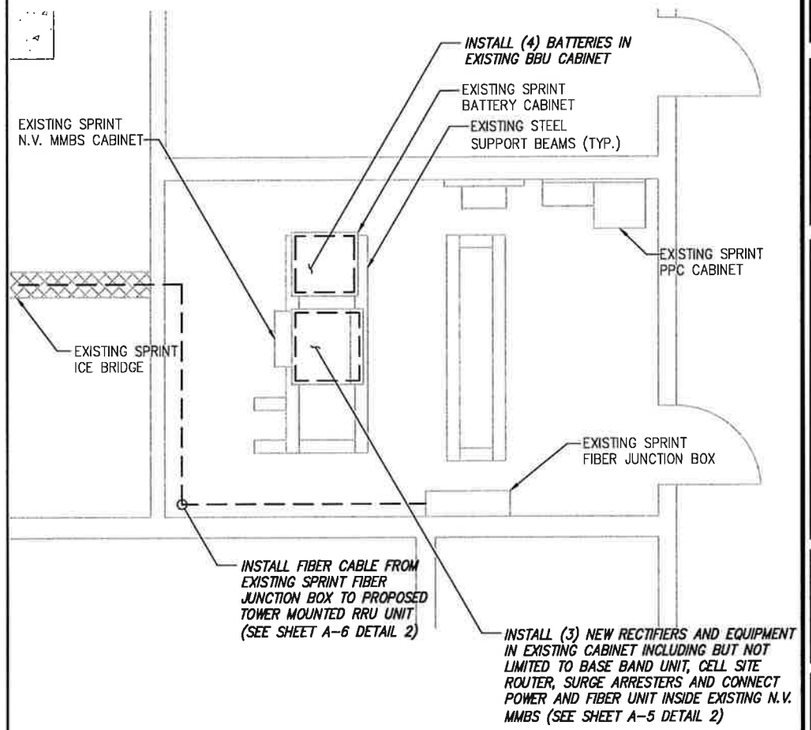
SHEET NUMBER:

SP-3

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



OVERALL SITE PLAN | SCALE: AS NOTED | 1



SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

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CAC 801367

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CT43XC844

SITE ADDRESS:

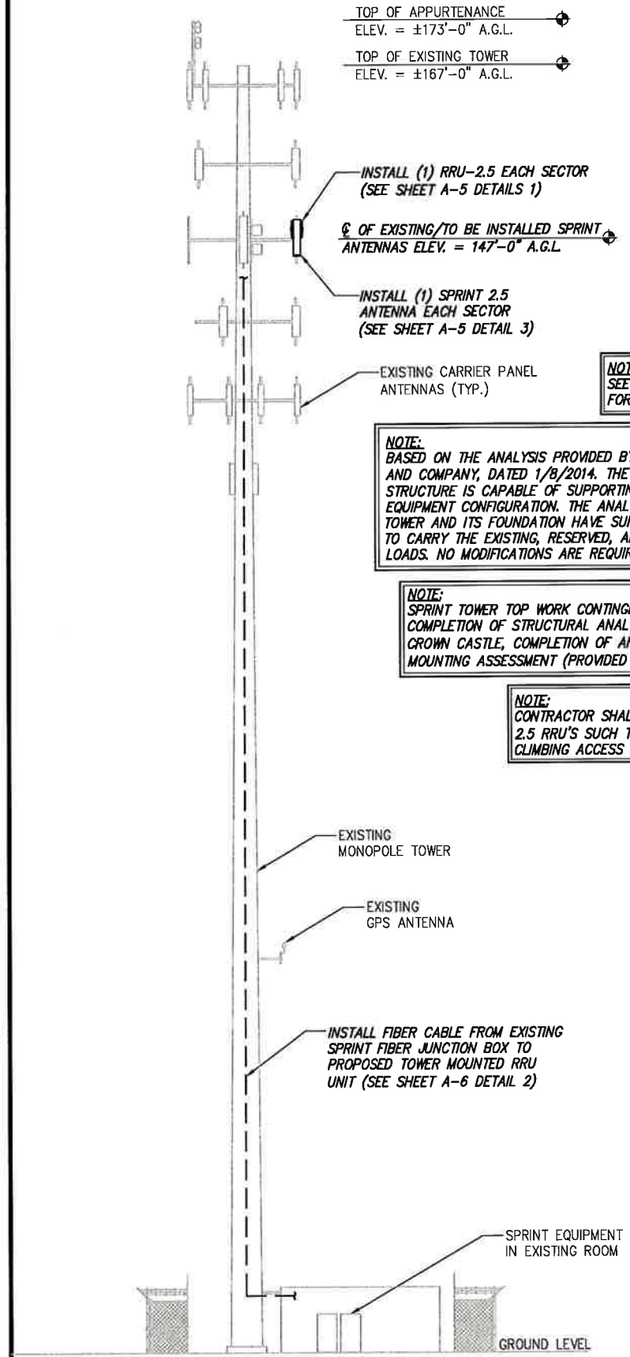
1121 SUMMIT ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1



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

NOTE:
BASED ON THE ANALYSIS PROVIDED BY PAUL J FORD AND COMPANY, DATED 1/8/2014. THE EXISTING STRUCTURE IS CAPABLE OF SUPPORTING THE PROPOSED EQUIPMENT CONFIGURATION. THE ANALYSIS INDICATES THE TOWER AND ITS FOUNDATION HAVE SUFFICIENT CAPACITY TO CARRY THE EXISTING, RESERVED, AND PROPOSED LOADS. NO MODIFICATIONS ARE REQUIRED AT THIS TIME.

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

TOWER ELEVATION | NO SCALE | 1

DETAIL NOT USED | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

DETAIL NOT USED | NO SCALE | 2

PLANS PREPARED FOR:

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PLANS PREPARED BY:

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CAC 801367

SITE CASCADE:

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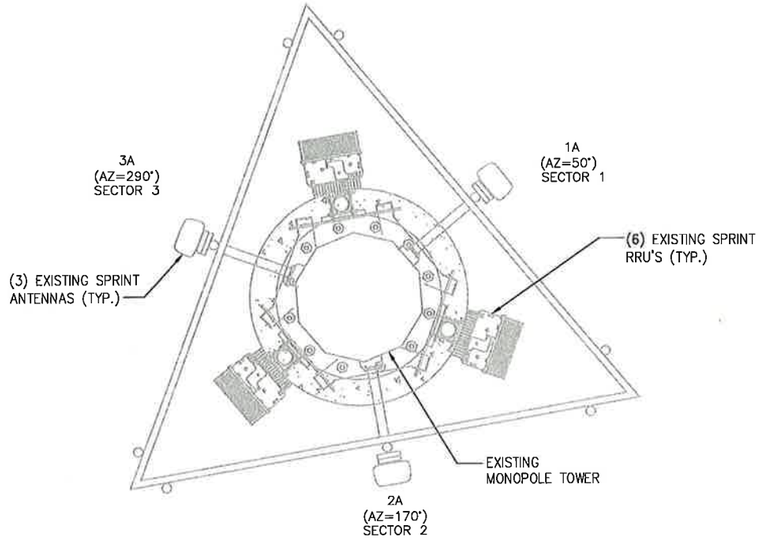
1121 SUMMIT ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

TOWER ELEVATION
& CABLE PLAN

SHEET NUMBER:

A-2



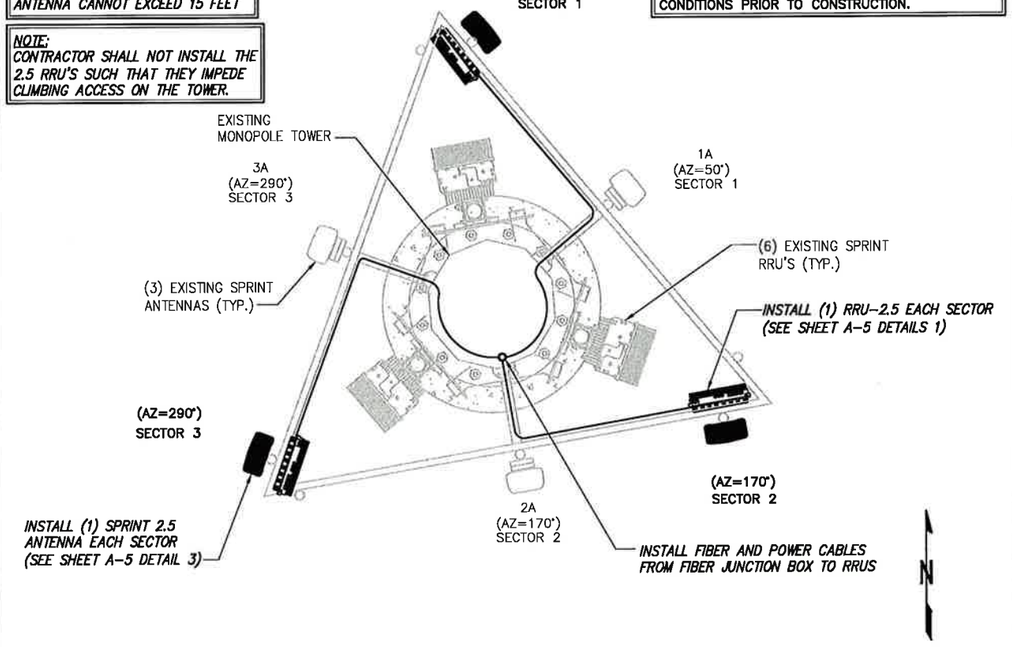
0° = TRUE NORTH

EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

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.

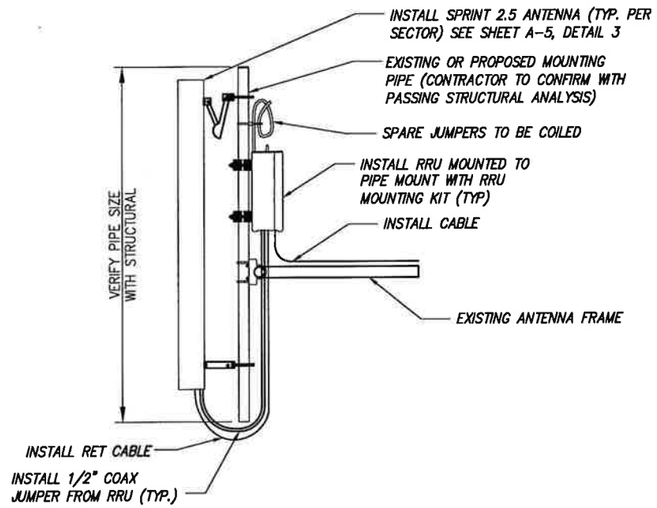
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.



0° = TRUE NORTH

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 & RAYCAP 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-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	2/20/14	MAP	B
ISSUED FOR REVIEW	1/10/14	AHS	A

SITE NAME:

CT NHV-2075
CAC 801367

SITE CASCADE:

CT43XC844

SITE ADDRESS:

1121 SUMMIT ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

ANTENNA LAYOUT
& MOUNTING DETAILS

SHEET NUMBER:

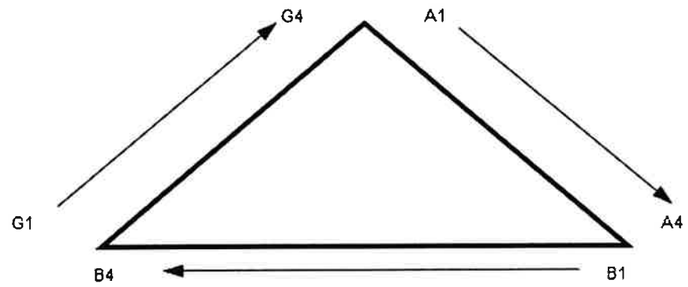
A-3

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	Blue	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	Blue	Blue	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	Blue	Blue	Blue
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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Fax # (518) 690-0793
JOB NUMBER 353-XXX

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

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CT NHV-2075
CAC 801367

SITE CASCADE:
CT43XC844

SITE ADDRESS:
1121 SUMMIT ROAD
CHESHIRE, CT 06410

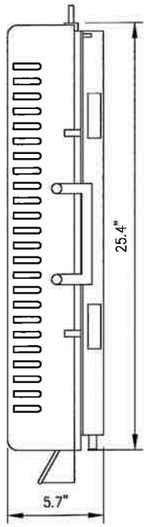
SHEET DESCRIPTION:
COLOR CODING AND NOTES

SHEET NUMBER:
A-4

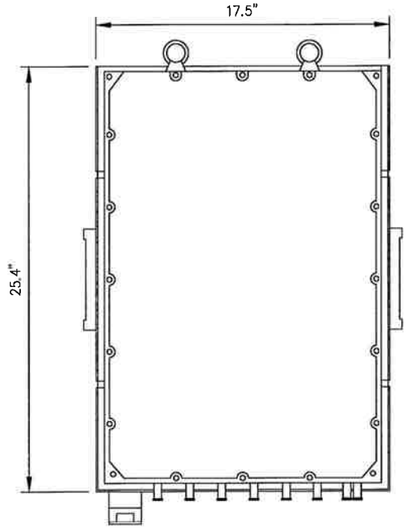
2.5 RRU'S

NO SCALE | 1

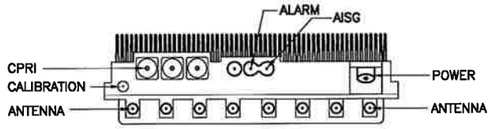
RRU: ALCATEL LUCENT TD-RRH8X20
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



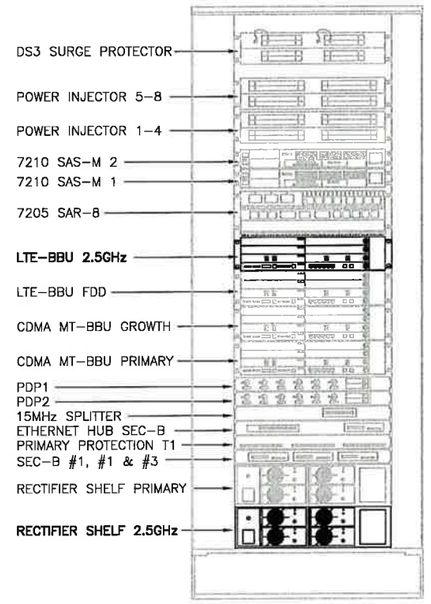
PLAN VIEW

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.

NEW EQUIPMENT IN EXISTING CABINET

NO SCALE | 2



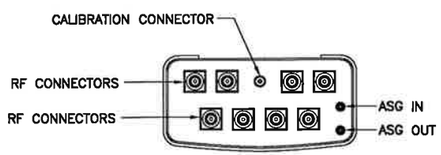
FRONT VIEW

2.5 ANTENNA

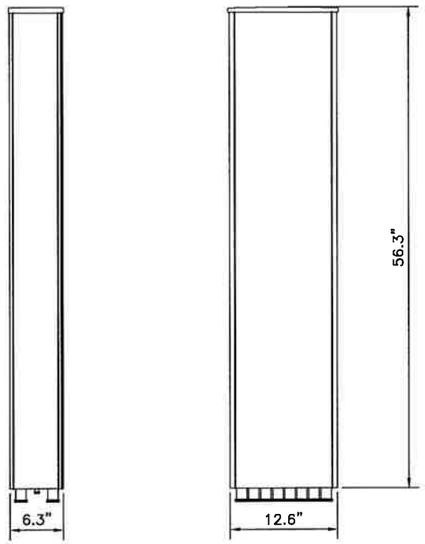
NO SCALE | 3

ANTENNA: RFS APXVTM14-C-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD.in(mm):	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



DETAIL NOT USED

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-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
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SITE NAME:

CT NHV-2075
CAC 801367

SITE CASCADE:

CT43XC844

SITE ADDRESS:

1121 SUMMIT ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-5

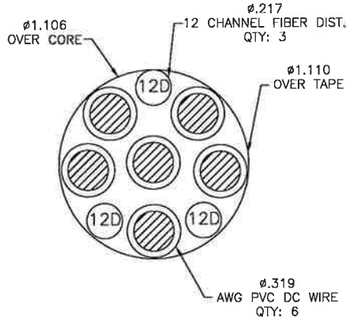
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

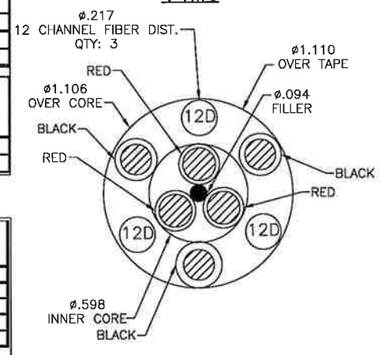
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

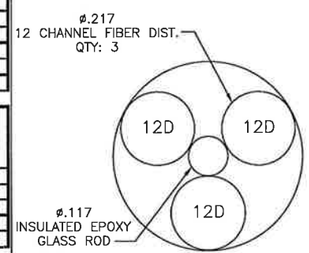
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

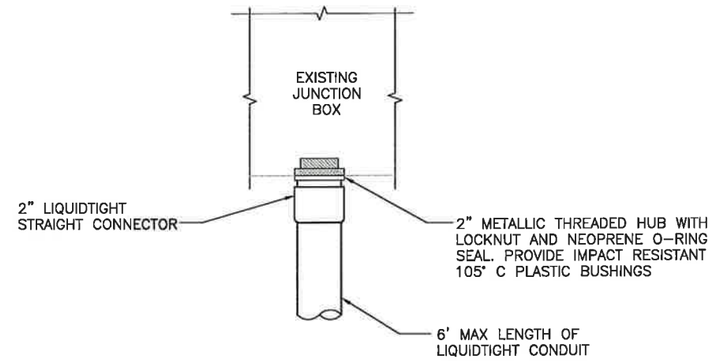


8 & 6 AWG



FIBER ONLY

2.5 CABLE CROSS SECTION DATA	NO SCALE	1



FIBER JUNCTION BOX PENETRATION	NO SCALE	2

DETAIL NOT USED	NO SCALE	3

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

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Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 353-XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
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CAC 801367

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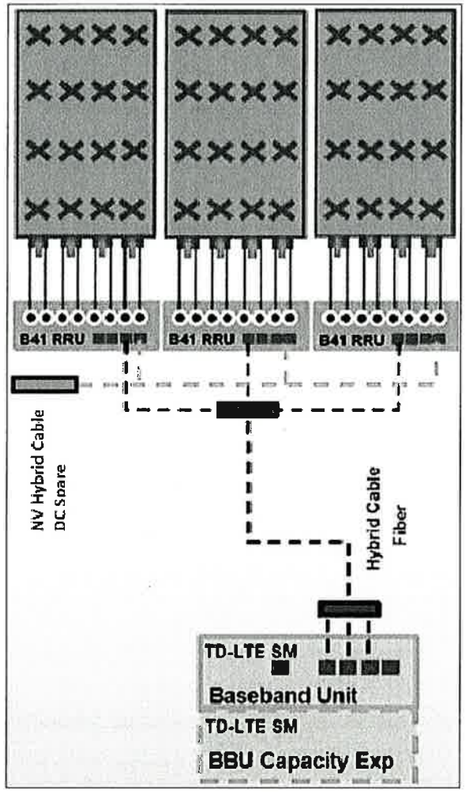
CT43XC844

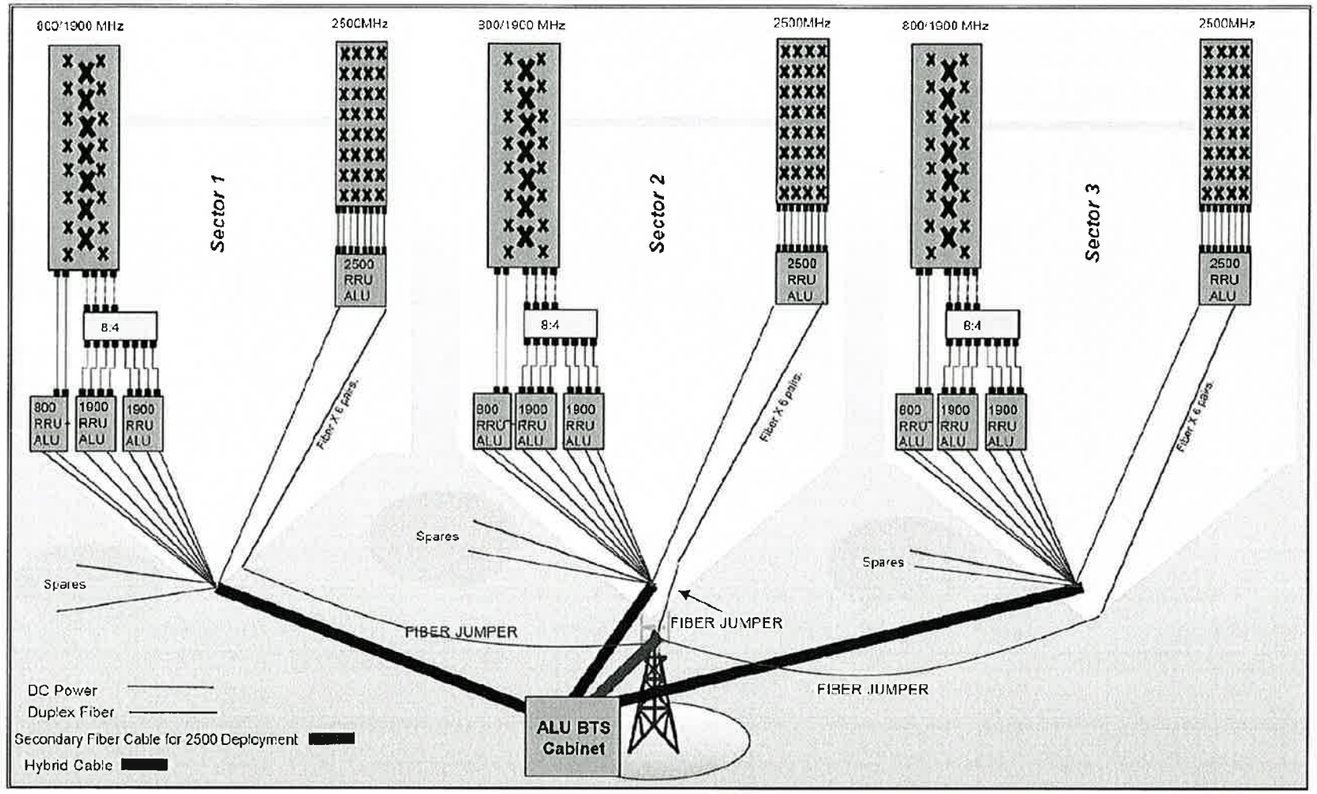
SITE ADDRESS:
1121 SUMMIT ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:
CIVIL DETAILS

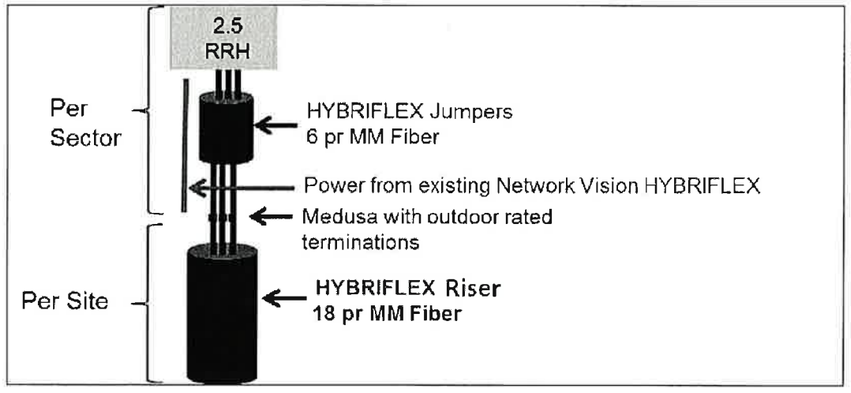
SHEET NUMBER:
A-6



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1

PLUMBING DIAGRAM | NO SCALE | 1

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Sprint
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Overland Park, Kansas 66251

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CAC 801367

SITE CASCADE:

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SHEET DESCRIPTION:

PLUMBING DIAGRAM

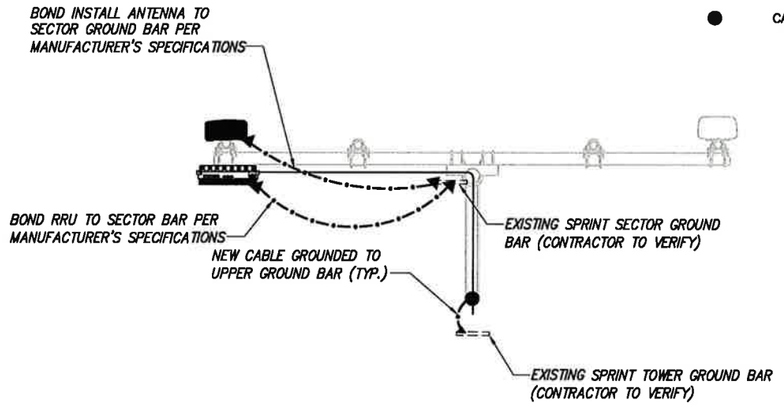
SHEET NUMBER:

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

NOTE:
DEPICTION IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO FIELD VERIFY PRIOR TO CONSTRUCTION

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

PLANS PREPARED FOR:

Sprint

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PLANS PREPARED BY:

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CHESHIRE, CT 06410

SHEET DESCRIPTION:

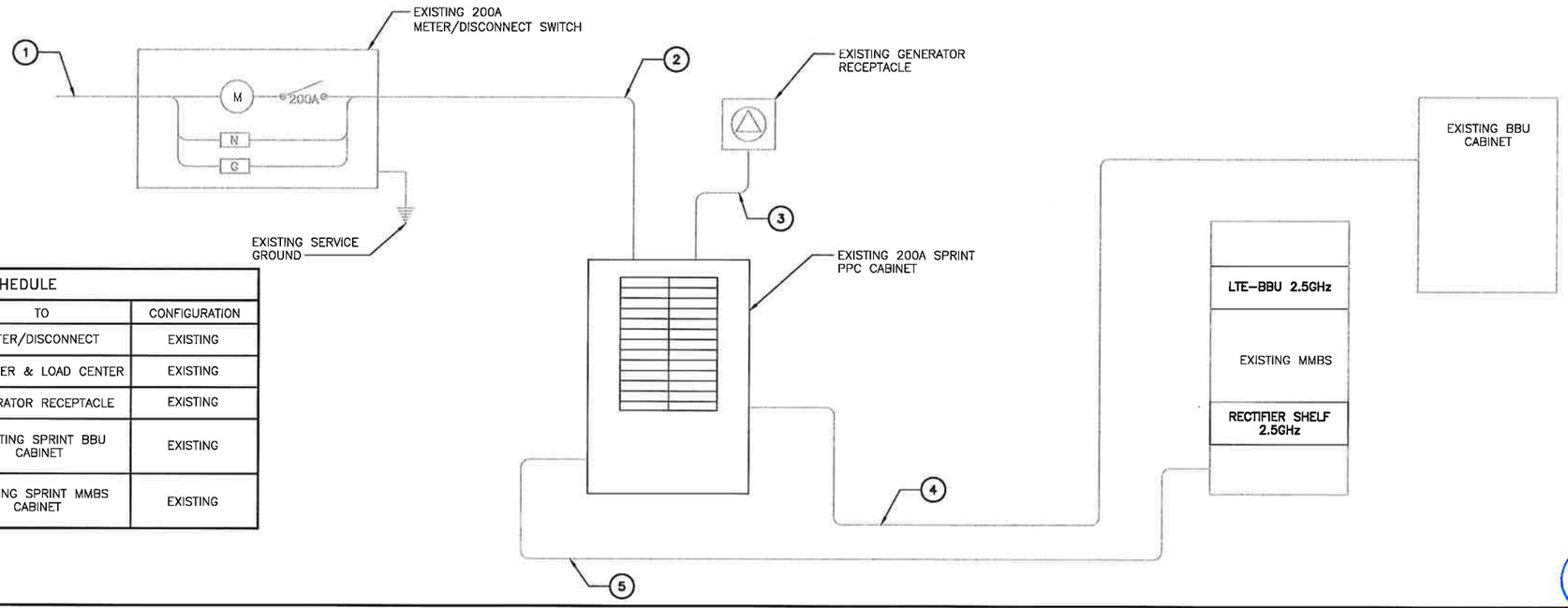
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

NOTES

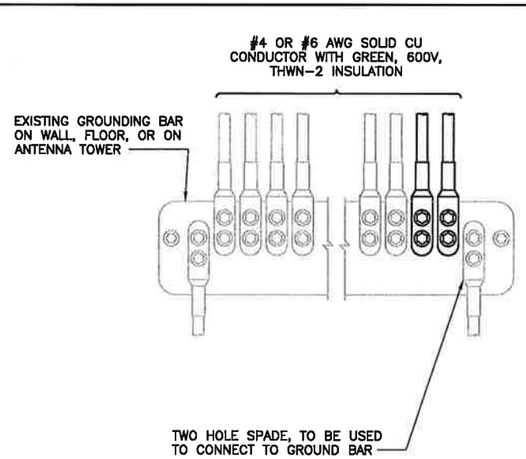
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



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

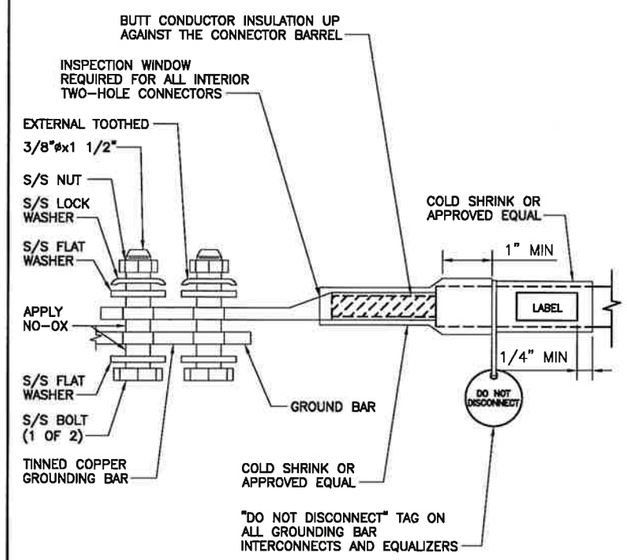
ELECTRICAL ONE–LINE DIAGRAM — NO SCALE — 1



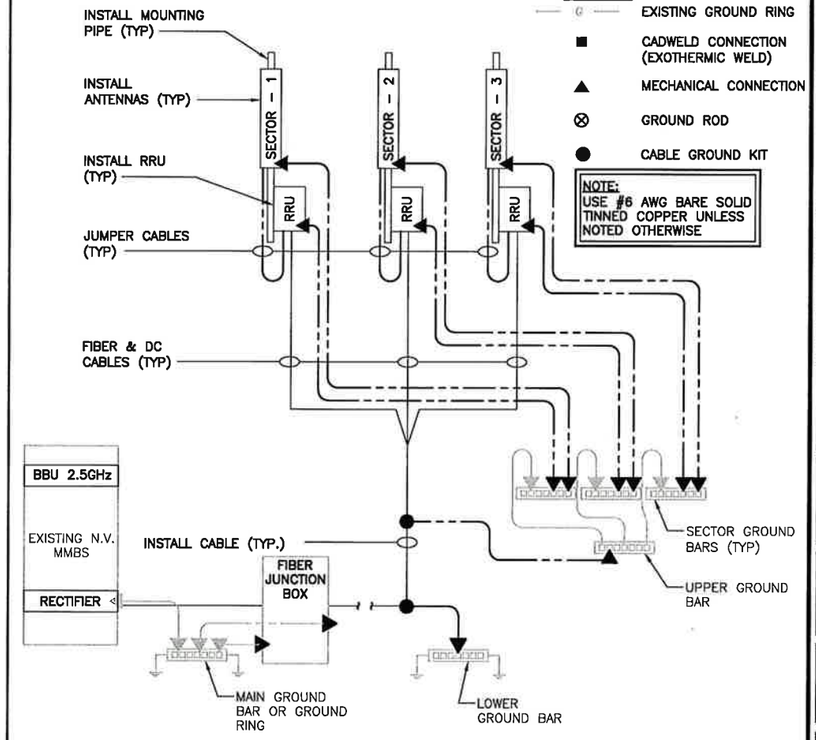
NOTES

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



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–XXX

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	2/20/14	MAP	B
ISSUED FOR REVIEW	1/10/14	AHS	A

SITE NAME:

CT NHV-2075
CAC 801367

SITE CASCADE:

CT43XC844

SITE ADDRESS:

1121 SUMMIT ROAD
CHESHIRE, CT 06410

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Date: **January 08, 2014**

Patrick Byrum
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679
jwoolley@pjfweb.com

Subject: **Structural Analysis Report**

Carrier Designation:	***Sprint PCS* Co-Locate**	Scenario 2.5A
	Carrier Site Number:	CT43XC844
	Carrier Site Name:	CHESHIRE-I 84/CROWN
Crown Castle Designation:	**Crown Castle BU Number:**	801367
	Crown Castle Site Name:	CT NHV-2075 CAC 801367
	Crown Castle JDE Job Number:	251889
	Crown Castle Work Order Number:	695204
	Crown Castle Application Number:	205543 Rev. 1
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37513-0349
Site Data:	**1121 Summit Road, Cheshire, New Haven County, CT** **Latitude *41° 32' 11.2"*, Longitude *-72° 57' 26.3"*** **167 Foot - Monopole Tower**	

Dear Patrick Byrum,

Paul J Ford and Company 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 607159, in accordance with application 205543, 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:

LC11: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

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 and 2005 CT state building code 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.

We at *Paul J Ford and Company* 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:

John J. Woolley, E.I.
Structural Designer

STATE OF CONNECTICUT
JOSEPH PACHICARAH JACOBS
No. PEN 22731
LICENSED PROFESSIONAL ENGINEER

tnxTower Report - version 6.1.3.1

JAN 0 9 2014

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Date: **January 08, 2014**

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Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

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250 E. Broad Street, Suite 600
Columbus, OH 43215
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jwoolley@pjfweb.com

Subject: Structural Analysis Report

Carrier Designation:	***Sprint PCS* Co-Locate**	Scenario 2.5A
	Carrier Site Number:	CT43XC844
	Carrier Site Name:	CHESHIRE-I 84/CROWN
Crown Castle Designation:	**Crown Castle BU Number:**	801367
	Crown Castle Site Name:	CT NHV-2075 CAC 801367
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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 and 2005 CT state building code 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.

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Respectfully submitted by:

John J. Woolley, E.I.
Structural Designer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 167 ft Monopole tower designed by SUMMIT in June of 2001. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

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 and 2005 CT state building code 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
148.0	147.0	3	alcatel lucent	TD-RRH8x20-25	1	5/8	-
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			

Table 2 – Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
167.0	172.0	1	decibel	DB222-A	1	1/2	1
	171.0	1	gps	GPS_A			
	168.0	3	antel	BXA-171063/8CFx2 w/ Mount Pipe	-	-	2
		3	antel	BXA-70063-6CF-EDIN-2 w/ Mount Pipe			
		6	antel	LPA-80063-6CF-EDIN w/ Mount Pipe	2 18	7/8 1-5/8	1
	167.0	1	tower mounts	Platform Mount [LP 712-1]			
158.0	160.0	3	andrew	SBNH-1D6565C w/ Mount Pipe	1 2 12	3/8 3/4 1-5/8	1
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP13519			
		6	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
	158.0	1	tower mounts	Platform Mount [LP 712-1]			
		6	ericsson	RRUS-11			
148.0	148.0	1	tower mounts	Platform Mount [LP 712-1]	3	1/2	1
		9	rfs celwave	ACU-A20-N			
	147.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
150.0	151.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	-	-	1
	150.0	3	alcatel lucent	TME-800MHZ RRH			
		1	tower mounts	Pipe Mount [PM 601-3]			
138.0	139.0	3	ericsson	KRY 112 134/1	18	1-5/8	1
		3	ericsson	KRY 112 89/5			
		6	remec	S20057A-1			
		3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe			
		3	rfs celwave	APX16PV-16PVL-E w/ Mount Pipe			
	138.0	1	tower mounts	Platform Mount [LP 712-1]			
128.0	128.0	12	decibel	DB846G90A-XY w/ Mount Pipe	12	1-1/4	3
		1	tower mounts	Platform Mount [LP 712-1]			
120.0	120.0	1	tower mounts	Pipe Mount [PM 601-3]	6	1-5/8	1
	119.0	3	rfs celwave	APXV18-206517S-C w/ Mount Pipe			

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

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Original Tower Drawings	Summit, Job #: 14620, dated 6/12/2001	799210	CCISITES
Foundation Drawings	PJF Job #: 29201-0692, dated 6/6/2001	842573	CCISITES
Geotechnical Report	CHA Project #: 8961.07.08, dated 5/15/2001	445076	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 131001.801367, 5/20/2013	3847627	CCISITES

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) Monopole has been reinforced in conformance with the referenced modification drawings.
5) This analysis analyzes both foundation options in the manufacturer's drawings as it is not clear which was installed.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	167 - 118.25	Pole	TP35.36x24x0.25	1	-12.02	1405.09	79.9	Pass
L2	118.25 - 90.5	Pole	TP41.3282x33.8114x0.3125	2	-19.22	2114.96	94.3	Pass
L3	90.5 - 77.75	Pole	TP44.3x41.3282x0.3819	3	-21.05	2347.81	92.4	Pass
L4	77.75 - 63.5	Pole	TP46.9913x42.2543x0.375	4	-27.16	2884.51	91.4	Pass
L5	63.5 - 51.5	Pole	TP49.7851x46.9913x0.4599	5	-30.99	3276.31	88.3	Pass
L6	51.5 - 45	Pole	TP51.2985x49.7851x0.4572	6	-33.13	3358.00	90.0	Pass
L7	45 - 0	Pole	TP61.04x51.2985x0.4375	7	-48.81	4374.92	88.3	Pass
							Summary	
						Pole (L2)	94.3	Pass
						RATING =	**94.3**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	84.9	Pass
1	Base Plate	0	72.8	Pass
1, 3	Base Foundation Structural Steel	0	59.1	Pass
1, 3	Base Foundation Soil Interaction	0	82.0	Pass
1, 2	Base Foundation Structural Steel	0	91.3	Pass
1, 2, 4	Base Foundation Soil Interaction	0	82.6	Pass

Structure Rating (max from all components) =	**94.3%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Caisson foundation
3) Spread footing foundation
4) Foundation Analysis Notes: According to the procedures prescribed and agreed to by the Crown Castle Engineering Foundation Committee, held in January 2010, the existing caisson foundation was analyzed using the methodology in the software ‘PLS-Caisson’ (Version 8.10, or newer, by Power Line Systems, Inc.). Per the methods in PLS-Caisson, the soil reactions of cohesive soils are calculated using 8CD independent of the depth of the soil layer. The depth of soil to be ignored at the top of the caisson is the greater of the geotechnical report’s recommendation, the frost depth of the site or half of the caisson diameter.

APPENDIX A

TNXTOWER OUTPUT

Tower Input Data

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

1) Tower is located in New Haven County, Connecticut.
2) Basic wind speed of 85.00 mph.
3) Nominal ice thickness of 0.7500 in.
4) Ice thickness is considered to increase with height.
5) Ice density of 56.00 pcf.
6) A wind speed of 37.60 mph is used in combination with ice.
7) Temperature drop of 50.00 °F.
8) Deflections calculated using a wind speed of 50.00 mph.
9) A non-linear (P-delta) analysis was used.
10) Pressures are calculated at each section.
11) Stress ratio used in pole design is 1.333.
12) 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	167.0000-118.2500	48.7500	4.50	18	24.0000	35.3600	0.2500	1.0000	A607-65 (65 ksi)
L2	118.2500-90.5000	32.2500	0.00	18	33.8114	41.3282	0.3125	1.2500	A607-65 (65 ksi)
L3	90.5000-77.7500	12.7500	5.50	18	41.3282	44.3000	0.3819	1.5276	Reinf 56.80 ksi (57 ksi)
L4	77.7500-63.5000	19.7500	0.00	18	42.2542	46.9913	0.3750	1.5000	A607-65 (65 ksi)
L5	63.5000-51.5000	12.0000	0.00	18	46.9913	49.7851	0.4599	1.8397	Reinf 56.89 ksi (57 ksi)
L6	51.5000-45.0000	6.5000	0.00	18	49.7851	51.2985	0.4572	1.8287	Reinf 56.91 ksi (57 ksi)
L7	45.0000-0.0000	45.0000		18	51.2985	61.0400	0.4375	1.7500	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.3702	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	35.9055	27.8598	4338.8723	12.4641	17.9629	241.5466	8683.4538	13.9325	5.7834	23.133
L2	35.3980	33.2267	4710.6979	11.8921	17.1762	274.2576	9427.5943	16.6165	5.4008	17.283
	41.9658	40.6825	8646.6072	14.5606	20.9947	411.8463	17304.5919	20.3451	6.7238	21.516
L3	41.9658	49.6331	10513.2981	14.5359	20.9947	500.7586	21040.4298	24.8213	6.6016	17.286
	44.9834	53.2354	12972.5293	15.5909	22.5044	576.4441	25962.1282	26.6227	7.1247	18.656
L4	44.2456	49.8468	11045.1680	14.8671	21.4652	514.5626	22104.8696	24.9281	6.7767	18.071
	47.7162	55.4851	15233.1262	16.5488	23.8716	638.1281	30486.2966	27.7478	7.6105	20.295
L5	47.7162	67.9273	18581.1945	16.5186	23.8716	778.3814	37186.8386	33.9701	7.4610	16.222
	50.5532	72.0058	22133.1353	17.5104	25.2909	875.1439	44295.3940	36.0098	7.9527	17.291
L6	50.5532	71.5793	22004.4775	17.5114	25.2909	870.0568	44037.9092	35.7964	7.9575	17.406
	52.0898	73.7753	24092.4674	18.0487	26.0596	924.5133	48216.6363	36.8946	8.2239	17.988
L7	52.0898	70.6268	23082.1546	18.0556	26.0596	885.7440	46194.6813	35.3201	8.2585	18.877
	61.9816	84.1541	39047.5735	21.5139	31.0083	1259.2612	78146.5267	42.0851	9.9730	22.796

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 167.0000-118.2500				1	1	1		
L2 118.2500-90.5000				1	1	1		
L3 90.5000-77.7500				1	1	1		
L4 77.7500-63.5000				1	1	1		
L5 63.5000-51.5000				1	1	1		
L6 51.5000-45.0000				1	1	1		
L7 45.0000-0.0000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
HJ7-50A(1-5/8")	C	No	Inside Pole	167.0000 - 0.0000	6	No Ice	0.0000	1.04
						1/2" Ice	0.0000	1.04
						1" Ice	0.0000	1.04
						2" Ice	0.0000	1.04
						4" Ice	0.0000	1.04
LDF7-50A(1-5/8")	C	No	Inside Pole	167.0000 - 0.0000	6	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
						2" Ice	0.0000	0.82

Description	*Face or Leg*	*Allow Shield*	*Component Type*	*Placement* ft	*Total Number*		C_AA_A ft^2/ft	*Weight* plf
						4" Ice	0.0000	0.82
LDF4-50A(1/2")	C	No	Inside Pole	167.0000 - 0.0000	1	No Ice	0.0000	0.15
						1/2" Ice	0.0000	0.15
						1" Ice	0.0000	0.15
						2" Ice	0.0000	0.15
						4" Ice	0.0000	0.15
LDF5-50A(7/8")	C	No	Inside Pole	167.0000 - 0.0000	1	No Ice	0.0000	0.33
						1/2" Ice	0.0000	0.33
						1" Ice	0.0000	0.33
						2" Ice	0.0000	0.33
						4" Ice	0.0000	0.33
561(1-5/8")	C	No	CaAa (Out Of Face)	167.0000 - 138.0000	1	No Ice	0.1625	1.35
						1/2" Ice	0.2625	2.65
						1" Ice	0.3625	4.56
						2" Ice	0.5625	10.21
						4" Ice	0.9625	28.84
561(1-5/8")	C	No	CaAa (Out Of Face)	167.0000 - 0.0000	5	No Ice	0.0000	1.35
						1/2" Ice	0.0000	2.65
						1" Ice	0.0000	4.56
						2" Ice	0.0000	10.21
						4" Ice	0.0000	28.84
561(1-5/8")	C	No	CaAa (Out Of Face)	138.0000 - 0.0000	1	No Ice	0.0000	1.35
						1/2" Ice	0.0000	2.65
						1" Ice	0.0000	4.56
						2" Ice	0.0000	10.21
						4" Ice	0.0000	28.84
***								
LDF7-50A(1-5/8")	C	No	Inside Pole	158.0000 - 0.0000	12	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
						2" Ice	0.0000	0.82
						4" Ice	0.0000	0.82
FB-L98B-002-75000(3/8")	C	No	Inside Pole	158.0000 - 0.0000	1	No Ice	0.0000	0.06
						1/2" Ice	0.0000	0.06
						1" Ice	0.0000	0.06
						2" Ice	0.0000	0.06
						4" Ice	0.0000	0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	158.0000 - 0.0000	2	No Ice	0.0000	0.59
						1/2" Ice	0.0000	0.59
						1" Ice	0.0000	0.59
						2" Ice	0.0000	0.59
						4" Ice	0.0000	0.59
***								
LDF7-50A(1-5/8")	C	No	Inside Pole	148.0000 - 0.0000	6	No Ice	0.0000	0.82
						1/2" Ice	0.0000	0.82
						1" Ice	0.0000	0.82
						2" Ice	0.0000	0.82
						4" Ice	0.0000	0.82
***								
FLC 158-50J(1-5/8")	C	No	Inside Pole	138.0000 - 0.0000	14	No Ice	0.0000	0.92
						1/2" Ice	0.0000	0.92
						1" Ice	0.0000	0.92
						2" Ice	0.0000	0.92
						4" Ice	0.0000	0.92
FLC 158-50J(1-5/8")	C	No	CaAa (Out Of Face)	138.0000 - 0.0000	2	No Ice	0.0000	0.92
						1/2" Ice	0.0000	2.46
						1" Ice	0.0000	4.60
						2" Ice	0.0000	10.73
						4" Ice	0.0000	30.31
FLC 158-50J(1-5/8")	C	No	CaAa (Out Of Face)	138.0000 - 0.0000	2	No Ice	0.2015	0.92
						1/2" Ice	0.3015	2.46
						1" Ice	0.4015	4.60
						2" Ice	0.6015	10.73
						4" Ice	1.0015	30.31
LDF6-50A(1-1/4")	C	No	Inside Pole	128.0000 - 0.0000	12	No Ice	0.0000	0.66
						1/2" Ice	0.0000	0.66
						1" Ice	0.0000	0.66
						2" Ice	0.0000	0.66
						4" Ice	0.0000	0.66

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LCF158-50JL(1-5/8")	C	No	CaAa (Out Of Face)	120.0000 - 0.0000	6	No Ice	0.0000	0.52
						1/2" Ice	0.0000	2.03
						1" Ice	0.0000	4.16
						2" Ice	0.0000	10.24
						4" Ice	0.0000	29.74
**********								
Aero MP3-04	C	No	CaAa (Out Of Face)	65.0000 - 43.0000	1	No Ice	0.2690	0.00
						1/2" Ice	0.3801	0.00
						1" Ice	0.4913	0.00
						2" Ice	0.7135	0.00
						4" Ice	1.1579	0.00
Aero MP3-03	C	No	CaAa (Out Of Face)	91.5000 - 81.5000	1	No Ice	0.2625	0.00
						1/2" Ice	0.3736	0.00
						1" Ice	0.4847	0.00
						2" Ice	0.7069	0.00
						4" Ice	1.1514	0.00
***								
HYBRIFLEX RRH 1-SECTOR(1/2")	C	No	CaAa (Out Of Face)	148.0000 - 0.0000	3	No Ice	0.0000	0.15
						1/2" Ice	0.0000	0.83
						1" Ice	0.0000	2.13
						2" Ice	0.0000	6.55
						4" Ice	0.0000	22.73

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	167.0000-118.2500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	12.672	1.97
L2	118.2500-90.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	11.446	1.77
L3	90.5000-77.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	7.501	0.81
L4	77.7500-63.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.146	0.91
L5	63.5000-51.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	8.064	0.77
L6	51.5000-45.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.368	0.41
L7	45.0000-0.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	18.673	2.87

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	167.0000-118.2500	A	0.893	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	24.906	3.23
L2	118.2500-90.5000	A	0.861	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	21.557	3.27
L3	90.5000-77.7500	A	0.839	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00

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
		C		0.000	0.000	0.000	13.458	1.45
L4	77.7500-63.5000	A	0.822	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.208	1.62
L5	63.5000-51.5000	A	0.802	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	14.049	1.33
L6	51.5000-45.0000	A	0.785	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	7.543	0.71
L7	45.0000-0.0000	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	32.506	4.82

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	167.0000-118.2500	-0.3186	0.1839	-0.5437	0.3139
L2	118.2500-90.5000	-0.4751	0.2743	-0.7827	0.4519
L3	90.5000-77.7500	-0.6539	0.3775	-1.0239	0.5911
L4	77.7500-63.5000	-0.5039	0.2910	-0.8221	0.4746
L5	63.5000-51.5000	-0.7483	0.4320	-1.1492	0.6635
L6	51.5000-45.0000	-0.7529	0.4347	-1.1537	0.6661
L7	45.0000-0.0000	-0.4940	0.2852	-0.7928	0.4577

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod 5/8x4'	C	From Face	0.0000 0.00 2.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.2500 0.6635 0.9732 1.4936 2.6833	0.2500 0.6635 0.9732 1.4936 2.6833	0.03 0.03 0.04 0.06 0.14
****									
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.7445 11.4117 12.0450 13.3414 16.0541	10.7001 11.9672 12.9479 14.9632 19.2085	0.05 0.15 0.25 0.48 1.10
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.7445 11.4117 12.0450 13.3414 16.0541	10.7001 11.9672 12.9479 14.9632 19.2085	0.05 0.15 0.25 0.48 1.10
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice	10.7445 11.4117 12.0450 13.3414 16.0541	10.7001 11.9672 12.9479 14.9632 19.2085	0.05 0.15 0.25 0.48 1.10

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			
DB222-A	A	From Leg	4.0000 0.00 5.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.6000 2.8800 4.1600 6.7200 11.8400	1.6000 2.8800 4.1600 6.7200 11.8400	0.02 0.02 0.03 0.04 0.05
GPS_A	A	From Leg	4.0000 0.00 4.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.2975 0.3739 0.4589 0.6549 1.1506	0.2975 0.3739 0.4589 0.6549 1.1506	0.00 0.00 0.01 0.02 0.08
BXA-171063/8CFx2 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1396 3.5152 3.9152 4.8036 6.7148	3.5101 4.1303 4.7565 6.0591 9.0948	0.03 0.06 0.10 0.20 0.49
BXA-171063/8CFx2 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1396 3.5152 3.9152 4.8036 6.7148	3.5101 4.1303 4.7565 6.0591 9.0948	0.03 0.06 0.10 0.20 0.49
BXA-171063/8CFx2 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1396 3.5152 3.9152 4.8036 6.7148	3.5101 4.1303 4.7565 6.0591 9.0948	0.03 0.06 0.10 0.20 0.49
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.8008 6.9529 7.8191 9.6015 13.3662	0.04 0.10 0.17 0.34 0.80
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.8008 6.9529 7.8191 9.6015 13.3662	0.04 0.10 0.17 0.34 0.80
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.9686 8.6091 9.2158 10.4591 13.0655	5.8008 6.9529 7.8191 9.6015 13.3662	0.04 0.10 0.17 0.34 0.80
Platform Mount [LP 712-1]	C	None		0.0000	167.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	24.5300 29.9400 35.3500 46.1700 67.8100	24.5300 29.9400 35.3500 46.1700 67.8100	1.34 1.65 1.96 2.58 3.82
***									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1194 6.6258 7.1283 8.1643 10.3599	4.2543 5.0137 5.7109 7.1553 10.4117	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice 1/2" Ice	6.1194 6.6258 7.1283	4.2543 5.0137 5.7109	0.06 0.10 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	8.1643	7.1553	0.29
						2" Ice	10.3599	10.4117	0.66
						4" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	6.1194	4.2543	0.06
						1/2" Ice	6.6258	5.0137	0.10
						1" Ice	7.1283	5.7109	0.16
						2" Ice	8.1643	7.1553	0.29
						4" Ice	10.3599	10.4117	0.66
(2) LGP13519	A	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	0.3379	0.2074	0.01
						1/2" Ice	0.4220	0.2804	0.01
						1" Ice	0.5147	0.3621	0.01
						2" Ice	0.7260	0.5513	0.02
						4" Ice	1.2523	1.0335	0.07
(2) LGP13519	B	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	0.3379	0.2074	0.01
						1/2" Ice	0.4220	0.2804	0.01
						1" Ice	0.5147	0.3621	0.01
						2" Ice	0.7260	0.5513	0.02
						4" Ice	1.2523	1.0335	0.07
(2) LGP13519	C	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	0.3379	0.2074	0.01
						1/2" Ice	0.4220	0.2804	0.01
						1" Ice	0.5147	0.3621	0.01
						2" Ice	0.7260	0.5513	0.02
						4" Ice	1.2523	1.0335	0.07
(2) LGP21401	A	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	1.2880	0.2326	0.01
						1/2" Ice	1.4453	0.3134	0.02
						1" Ice	1.6112	0.4028	0.03
						2" Ice	1.9690	0.6076	0.05
						4" Ice	2.7882	1.1210	0.14
(2) LGP21401	B	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	1.2880	0.2326	0.01
						1/2" Ice	1.4453	0.3134	0.02
						1" Ice	1.6112	0.4028	0.03
						2" Ice	1.9690	0.6076	0.05
						4" Ice	2.7882	1.1210	0.14
(2) LGP21401	C	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	1.2880	0.2326	0.01
						1/2" Ice	1.4453	0.3134	0.02
						1" Ice	1.6112	0.4028	0.03
						2" Ice	1.9690	0.6076	0.05
						4" Ice	2.7882	1.1210	0.14
SBNH-1D6565C w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	11.5561	9.7151	0.10
						1/2" Ice	12.2227	11.1857	0.19
						1" Ice	12.8929	12.5942	0.28
						2" Ice	14.2911	14.8689	0.51
						4" Ice	17.4280	19.6184	1.15
SBNH-1D6565C w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	11.5561	9.7151	0.10
						1/2" Ice	12.2227	11.1857	0.19
						1" Ice	12.8929	12.5942	0.28
						2" Ice	14.2911	14.8689	0.51
						4" Ice	17.4280	19.6184	1.15
SBNH-1D6565C w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice	11.5561	9.7151	0.10
						1/2" Ice	12.2227	11.1857	0.19
						1" Ice	12.8929	12.5942	0.28
						2" Ice	14.2911	14.8689	0.51
						4" Ice	17.4280	19.6184	1.15
(2) RRUS-11	A	From Leg	4.0000 0.00	0.0000	156.0000	No Ice	3.2486	1.3726	0.05
						1/2" Ice	3.4905	1.5510	0.07

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* °	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
			2.00			Ice	3.7411	1.7380	0.09
						1" Ice	4.2682	2.1381	0.15
						2" Ice	5.4260	3.0418	0.31
						4" Ice			
(2) RRUS-11	B	From Leg	4.0000 0.00 2.00	0.0000	156.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.2486 3.4905 3.7411 4.2682 5.4260	1.3726 1.5510 1.7380 2.1381 3.0418	0.05 0.07 0.09 0.15 0.31
(2) RRUS-11	C	From Leg	4.0000 0.00 2.00	0.0000	156.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.2486 3.4905 3.7411 4.2682 5.4260	1.3726 1.5510 1.7380 2.1381 3.0418	0.05 0.07 0.09 0.15 0.31
DC6-48-60-18-8F	A	From Leg	4.0000 0.00 2.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.5667 2.7978 3.0377 3.5432 4.6580	2.5667 2.7978 3.0377 3.5432 4.6580	0.02 0.04 0.07 0.13 0.30
Platform Mount [LP 712-1]	C	None		0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	24.5300 29.9400 35.3500 46.1700 67.8100	24.5300 29.9400 35.3500 46.1700 67.8100	1.34 1.65 1.96 2.58 3.82
6' x 2" Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.02 0.03 0.05 0.09 0.23
6' x 2" Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.02 0.03 0.05 0.09 0.23
6' x 2" Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	158.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.02 0.03 0.05 0.09 0.23
****									
Platform Mount [LP 712-1]	C	None		0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	24.5300 29.9400 35.3500 46.1700 67.8100	24.5300 29.9400 35.3500 46.1700 67.8100	1.34 1.65 1.96 2.58 3.82
****									
APX16PV-16PVL-E w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.9361 7.4389 7.9415 8.9779 11.1750	3.2893 3.9953 4.6615 6.0439 9.0230	0.06 0.11 0.16 0.28 0.65
APX16PV-16PVL-E w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.9361 7.4389 7.9415 8.9779 11.1750	3.2893 3.9953 4.6615 6.0439 9.0230	0.06 0.11 0.16 0.28 0.65

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			
APX16PV-16PVL-E w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.9361 7.4389 7.9415 8.9779 11.1750	3.2893 3.9953 4.6615 6.0439 9.0230	0.06 0.11 0.16 0.28 0.65
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.4657 7.9944 8.5176 9.5949 11.8728	3.4938 4.2631 4.9598 6.4031 9.4897	0.06 0.11 0.16 0.30 0.68
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.4657 7.9944 8.5176 9.5949 11.8728	3.4938 4.2631 4.9598 6.4031 9.4897	0.06 0.11 0.16 0.30 0.68
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.4657 7.9944 8.5176 9.5949 11.8728	3.4938 4.2631 4.9598 6.4031 9.4897	0.06 0.11 0.16 0.30 0.68
KRY 112 134/1	A	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.0082 1.1488 1.2980 1.6223 2.3747	0.4869 0.6009 0.7236 0.9950 1.6413	0.01 0.02 0.03 0.05 0.13
KRY 112 134/1	B	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.0082 1.1488 1.2980 1.6223 2.3747	0.4869 0.6009 0.7236 0.9950 1.6413	0.01 0.02 0.03 0.05 0.13
KRY 112 134/1	C	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.0082 1.1488 1.2980 1.6223 2.3747	0.4869 0.6009 0.7236 0.9950 1.6413	0.01 0.02 0.03 0.05 0.13
KRY 112 89/5	A	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.6417 0.7562 0.8793 1.1515 1.7997	0.4278 0.5293 0.6395 0.8858 1.4821	0.02 0.02 0.03 0.05 0.11
KRY 112 89/5	B	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.6417 0.7562 0.8793 1.1515 1.7997	0.4278 0.5293 0.6395 0.8858 1.4821	0.02 0.02 0.03 0.05 0.11
KRY 112 89/5	C	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.6417 0.7562 0.8793 1.1515 1.7997	0.4278 0.5293 0.6395 0.8858 1.4821	0.02 0.02 0.03 0.05 0.11
(2) S20057A-1	A	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2" Ice 1" Ice	0.8286 0.9610 1.1019 1.4098	0.3942 0.5048 0.6242 0.8887	0.01 0.01 0.02 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2'' Ice 4'' Ice	2.1292	1.5216	0.11
(2) S20057A-1	B	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	0.8286 0.9610 1.1019 1.4098 2.1292	0.3942 0.5048 0.6242 0.8887 1.5216	0.01 0.01 0.02 0.04 0.11
(2) S20057A-1	C	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	0.8286 0.9610 1.1019 1.4098 2.1292	0.3942 0.5048 0.6242 0.8887 1.5216	0.01 0.01 0.02 0.04 0.11
Platform Mount [LP 712-1]	C	None		0.0000	138.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	24.5300 29.9400 35.3500 46.1700 67.8100	24.5300 29.9400 35.3500 46.1700 67.8100	1.34 1.65 1.96 2.58 3.82
6' x 2'' Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.02 0.03 0.05 0.09 0.23
6' x 2'' Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.02 0.03 0.05 0.09 0.23
6' x 2'' Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	138.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.02 0.03 0.05 0.09 0.23
**** ***									
APXV18-206517S-C w/ Mount Pipe	A	From Leg	1.0000 0.00 -1.00	30.0000	120.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	5.4042 5.9597 6.4808 7.5467 9.9193	4.7000 5.8600 6.7338 8.5150 12.2774	0.05 0.10 0.15 0.28 0.68
APXV18-206517S-C w/ Mount Pipe	B	From Leg	1.0000 0.00 -1.00	30.0000	120.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	5.4042 5.9597 6.4808 7.5467 9.9193	4.7000 5.8600 6.7338 8.5150 12.2774	0.05 0.10 0.15 0.28 0.68
APXV18-206517S-C w/ Mount Pipe	C	From Leg	1.0000 0.00 -1.00	30.0000	120.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	5.4042 5.9597 6.4808 7.5467 9.9193	4.7000 5.8600 6.7338 8.5150 12.2774	0.05 0.10 0.15 0.28 0.68
Pipe Mount [PM 601-3]	C	None		0.0000	120.0000	No Ice 1/2'' Ice 1'' Ice 2'' Ice 4'' Ice	4.3900 5.4800 6.5700 8.7500 13.1100	4.3900 5.4800 6.5700 8.7500 13.1100	0.20 0.24 0.28 0.36 0.53
***									

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*
Side Arm Mount [SO 102-3]	C	None		0.0000	156.0000	No Ice	3.0000	3.0000	0.08
						1/2" Ice	3.4800	3.4800	0.11
						1" Ice	3.9600	3.9600	0.14
						2" Ice	4.9200	4.9200	0.20
						4" Ice	6.8400	6.8400	0.32
****									
800 EXTERNAL NOTCH FILTER	A	From Leg	4.0000 0.00 -1.00	0.0000	148.0000	No Ice	0.7701	0.3747	0.01
						1/2" Ice	0.8898	0.4647	0.02
						1" Ice	1.0181	0.5634	0.02
						2" Ice	1.3007	0.7868	0.04
						4" Ice	1.9696	1.3372	0.11
(3) ACU-A20-N	A	From Leg	4.0000 0.00 0.00	0.0000	148.0000	No Ice	0.0778	0.1361	0.00
						1/2" Ice	0.1210	0.1890	0.00
						1" Ice	0.1728	0.2506	0.00
						2" Ice	0.3025	0.3997	0.01
						4" Ice	0.6654	0.8015	0.04
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000 0.00 -1.00	30.0000	148.0000	No Ice	8.4975	6.9458	0.08
						1/2" Ice	9.1490	8.1266	0.15
						1" Ice	9.7672	9.0212	0.23
						2" Ice	11.0311	10.8440	0.41
						4" Ice	13.6786	14.8507	0.91
800 EXTERNAL NOTCH FILTER	B	From Leg	4.0000 0.00 -1.00	0.0000	148.0000	No Ice	0.7701	0.3747	0.01
						1/2" Ice	0.8898	0.4647	0.02
						1" Ice	1.0181	0.5634	0.02
						2" Ice	1.3007	0.7868	0.04
						4" Ice	1.9696	1.3372	0.11
(3) ACU-A20-N	B	From Leg	4.0000 0.00 0.00	0.0000	148.0000	No Ice	0.0778	0.1361	0.00
						1/2" Ice	0.1210	0.1890	0.00
						1" Ice	0.1728	0.2506	0.00
						2" Ice	0.3025	0.3997	0.01
						4" Ice	0.6654	0.8015	0.04
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000 0.00 -1.00	70.0000	148.0000	No Ice	8.4975	6.9458	0.08
						1/2" Ice	9.1490	8.1266	0.15
						1" Ice	9.7672	9.0212	0.23
						2" Ice	11.0311	10.8440	0.41
						4" Ice	13.6786	14.8507	0.91
800 EXTERNAL NOTCH FILTER	C	From Leg	4.0000 0.00 -1.00	0.0000	148.0000	No Ice	0.7701	0.3747	0.01
						1/2" Ice	0.8898	0.4647	0.02
						1" Ice	1.0181	0.5634	0.02
						2" Ice	1.3007	0.7868	0.04
						4" Ice	1.9696	1.3372	0.11
(3) ACU-A20-N	C	From Leg	4.0000 0.00 0.00	0.0000	148.0000	No Ice	0.0778	0.1361	0.00
						1/2" Ice	0.1210	0.1890	0.00
						1" Ice	0.1728	0.2506	0.00
						2" Ice	0.3025	0.3997	0.01
						4" Ice	0.6654	0.8015	0.04
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.0000 0.00 -1.00	30.0000	148.0000	No Ice	8.4975	6.9458	0.08
						1/2" Ice	9.1490	8.1266	0.15
						1" Ice	9.7672	9.0212	0.23
						2" Ice	11.0311	10.8440	0.41
						4" Ice	13.6786	14.8507	0.91
6' x 2" Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	148.0000	No Ice	1.4250	1.4250	0.02
						1/2" Ice	1.9250	1.9250	0.03
						1" Ice	2.2939	2.2939	0.05
						1" Ice	3.0596	3.0596	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice 4" Ice	4.7022	4.7022	0.23
6' x 2" Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.02 0.03 0.05 0.09 0.23
6' x 2" Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.02 0.03 0.05 0.09 0.23
***** Pipe Mount [PM 601-3]	C	None		0.0000	150.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.3900 5.4800 6.5700 8.7500 13.1100	4.3900 5.4800 6.5700 8.7500 13.1100	0.20 0.24 0.28 0.36 0.53
PCS 1900MHz 4x45W-65MHz	A	From Leg	4.0000 0.00 1.00	30.0000	150.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.7087 2.9477 3.1953 3.7164 4.8623	2.6111 2.8475 3.0925 3.6084 4.7439	0.06 0.08 0.11 0.17 0.35
TME-800MHZ RRH	A	From Leg	4.0000 0.00 0.00	30.0000	150.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.4899 2.7061 2.9310 3.4068 4.4620	2.0685 2.2705 2.4812 2.9284 3.9265	0.05 0.07 0.10 0.16 0.32
PCS 1900MHz 4x45W-65MHz	B	From Leg	4.0000 0.00 1.00	70.0000	150.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.7087 2.9477 3.1953 3.7164 4.8623	2.6111 2.8475 3.0925 3.6084 4.7439	0.06 0.08 0.11 0.17 0.35
TME-800MHZ RRH	B	From Leg	4.0000 0.00 0.00	70.0000	150.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.4899 2.7061 2.9310 3.4068 4.4620	2.0685 2.2705 2.4812 2.9284 3.9265	0.05 0.07 0.10 0.16 0.32
PCS 1900MHz 4x45W-65MHz	C	From Leg	4.0000 0.00 1.00	30.0000	150.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.7087 2.9477 3.1953 3.7164 4.8623	2.6111 2.8475 3.0925 3.6084 4.7439	0.06 0.08 0.11 0.17 0.35
TME-800MHZ RRH	C	From Leg	4.0000 0.00 0.00	30.0000	150.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.4899 2.7061 2.9310 3.4068 4.4620	2.0685 2.2705 2.4812 2.9284 3.9265	0.05 0.07 0.10 0.16 0.32
*** TD-RRH8x20-25	A	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.7198 5.0138 5.3165 5.9478 7.3141	1.7027 1.9196 2.1453 2.6224 3.6805	0.07 0.10 0.13 0.20 0.40
APXVTM14-C-120 w/	A	From Leg	4.0000	0.0000	148.0000	No Ice	7.1342	4.9591	0.08

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
Mount Pipe			0.00 1.00			1/2" Ice 1" Ice 2" Ice 4" Ice	7.6618 8.1830 9.2563 11.5262	5.7544 6.4723 8.0099 11.4120	0.13 0.19 0.34 0.75
TD-RRH8x20-25	B	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.7198 5.0138 5.3165 5.9478 7.3141	1.7027 1.9196 2.1453 2.6224 3.6805	0.07 0.10 0.13 0.20 0.40
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.1342 7.6618 8.1830 9.2563 11.5262	4.9591 5.7544 6.4723 8.0099 11.4120	0.08 0.13 0.19 0.34 0.75
TD-RRH8x20-25	C	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.7198 5.0138 5.3165 5.9478 7.3141	1.7027 1.9196 2.1453 2.6224 3.6805	0.07 0.10 0.13 0.20 0.40
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.0000	148.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.1342 7.6618 8.1830 9.2563 11.5262	4.9591 5.7544 6.4723 8.0099 11.4120	0.08 0.13 0.19 0.34 0.75

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	1.97	3.87	A	1	0.65	1	1	1	120.575	4.31	88.35	C
			B	1	0.65	1	1	1	120.575			
			C	1	0.65	1	1	1	120.575			
L2 118.2500-90.5000	1.77	4.06	A	1	0.65	1	1	1	88.093	2.98	107.43	C
			B	1	0.65	1	1	1	88.093			
			C	1	0.65	1	1	1	88.093			
L3 90.5000-77.7500	0.81	2.23	A	1	0.65	1	1	1	45.490	1.51	118.71	C
			B	1	0.65	1	1	1	45.490			
			C	1	0.65	1	1	1	45.490			
L4 77.7500-63.5000	0.91	3.54	A	1	0.65	1	1	1	53.773	1.60	112.00	C
			B	1	0.65	1	1	1	53.773			
			C	1	0.65	1	1	1	53.773			
L5 63.5000-51.5000	0.77	2.86	A	1	0.65	1	1	1	48.388	1.45	120.60	C
			B	1	0.65	1	1	1	48.388			
			C	1	0.65	1	1	1	48.388			
L6 51.5000-45.0000	0.41	1.61	A	1	0.65	1	1	1	27.377	0.77	118.79	C
			B	1	0.65	1	1	1	27.377			
			C	1	0.65	1	1	1	27.377			
L7 45.0000-0.0000	2.87	11.85	A	1	0.65	1	1	1	210.635	4.87	108.33	C
			B	1	0.65	1	1	1	210.635			
			C	1	0.65	1	1	1	210.635			
Sum Weight:	9.52	30.02						OTM	1385.64 kip-ft	17.49		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	1.97	3.87	A	1	0.65	1	1	1	120.575	4.31	88.35	C
			B	1	0.65	1	1	1	120.575			
			C	1	0.65	1	1	1	120.575			
L2 118.2500-90.5000	1.77	4.06	A	1	0.65	1	1	1	88.093	2.98	107.43	C
			B	1	0.65	1	1	1	88.093			
			C	1	0.65	1	1	1	88.093			
L3 90.5000-77.7500	0.81	2.23	A	1	0.65	1	1	1	45.490	1.51	118.71	C
			B	1	0.65	1	1	1	45.490			
			C	1	0.65	1	1	1	45.490			
L4 77.7500-63.5000	0.91	3.54	A	1	0.65	1	1	1	53.773	1.60	112.00	C
			B	1	0.65	1	1	1	53.773			
			C	1	0.65	1	1	1	53.773			
L5 63.5000-51.5000	0.77	2.86	A	1	0.65	1	1	1	48.388	1.45	120.60	C
			B	1	0.65	1	1	1	48.388			
			C	1	0.65	1	1	1	48.388			
L6 51.5000-45.0000	0.41	1.61	A	1	0.65	1	1	1	27.377	0.77	118.79	C
			B	1	0.65	1	1	1	27.377			
			C	1	0.65	1	1	1	27.377			
L7 45.0000-0.0000	2.87	11.85	A	1	0.65	1	1	1	210.635	4.87	108.33	C
			B	1	0.65	1	1	1	210.635			
			C	1	0.65	1	1	1	210.635			
Sum Weight:	9.52	30.02						OTM	1385.64 kip-ft	17.49		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	1.97	3.87	A	1	0.65	1	1	1	120.575	4.31	88.35	C
			B	1	0.65	1	1	1	120.575			
			C	1	0.65	1	1	1	120.575			
L2 118.2500-90.5000	1.77	4.06	A	1	0.65	1	1	1	88.093	2.98	107.43	C
			B	1	0.65	1	1	1	88.093			
			C	1	0.65	1	1	1	88.093			
L3 90.5000-77.7500	0.81	2.23	A	1	0.65	1	1	1	45.490	1.51	118.71	C
			B	1	0.65	1	1	1	45.490			
			C	1	0.65	1	1	1	45.490			
L4 77.7500-63.5000	0.91	3.54	A	1	0.65	1	1	1	53.773	1.60	112.00	C
			B	1	0.65	1	1	1	53.773			
			C	1	0.65	1	1	1	53.773			
L5 63.5000-51.5000	0.77	2.86	A	1	0.65	1	1	1	48.388	1.45	120.60	C
			B	1	0.65	1	1	1	48.388			
			C	1	0.65	1	1	1	48.388			
L6 51.5000-45.0000	0.41	1.61	A	1	0.65	1	1	1	27.377	0.77	118.79	C
			B	1	0.65	1	1	1	27.377			
			C	1	0.65	1	1	1	27.377			
L7 45.0000-0.0000	2.87	11.85	A	1	0.65	1	1	1	210.635	4.87	108.33	C
			B	1	0.65	1	1	1	210.635			
			C	1	0.65	1	1	1	210.635			
Sum Weight:	9.52	30.02						OTM	1385.64 kip-ft	17.49		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	3.23	5.52	A	1	0.65	1	1	1	127.831	1.00	20.51	C
			B	1	0.65	1	1	1	127.831			
			C	1	0.65	1	1	1	127.831			
L2 118.2500-90.5000	3.27	5.20	A	1	0.65	1	1	1	92.223	0.69	24.94	C
			B	1	0.65	1	1	1	92.223			
			C	1	0.65	1	1	1	92.223			
L3 90.5000-77.7500	1.45	2.81	A	1	0.65	1	1	1	47.273	0.35	27.69	C
			B	1	0.65	1	1	1	47.273			
			C	1	0.65	1	1	1	47.273			
L4 77.7500-63.5000	1.62	4.21	A	1	0.65	1	1	1	55.766	0.36	25.31	C
			B	1	0.65	1	1	1	55.766			
			C	1	0.65	1	1	1	55.766			
L5 63.5000-51.5000	1.33	3.44	A	1	0.65	1	1	1	49.991	0.33	27.79	C
			B	1	0.65	1	1	1	49.991			
			C	1	0.65	1	1	1	49.991			
L6 51.5000-45.0000	0.71	1.93	A	1	0.65	1	1	1	28.227	0.18	27.15	C
			B	1	0.65	1	1	1	28.227			
			C	1	0.65	1	1	1	28.227			
L7 45.0000-0.0000	4.82	14.22	A	1	0.65	1	1	1	216.260	1.06	23.58	C
			B	1	0.65	1	1	1	216.260			
			C	1	0.65	1	1	1	216.260			
Sum Weight:	16.44	37.33						OTM	319.26 kip-ft	3.98		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	3.23	5.52	A	1	0.65	1	1	1	127.831	1.00	20.51	C
			B	1	0.65	1	1	1	127.831			
			C	1	0.65	1	1	1	127.831			
L2 118.2500-90.5000	3.27	5.20	A	1	0.65	1	1	1	92.223	0.69	24.94	C
			B	1	0.65	1	1	1	92.223			
			C	1	0.65	1	1	1	92.223			
L3 90.5000-77.7500	1.45	2.81	A	1	0.65	1	1	1	47.273	0.35	27.69	C
			B	1	0.65	1	1	1	47.273			
			C	1	0.65	1	1	1	47.273			
L4 77.7500-63.5000	1.62	4.21	A	1	0.65	1	1	1	55.766	0.36	25.31	C
			B	1	0.65	1	1	1	55.766			
			C	1	0.65	1	1	1	55.766			
L5 63.5000-51.5000	1.33	3.44	A	1	0.65	1	1	1	49.991	0.33	27.79	C
			B	1	0.65	1	1	1	49.991			
			C	1	0.65	1	1	1	49.991			
L6 51.5000-45.0000	0.71	1.93	A	1	0.65	1	1	1	28.227	0.18	27.15	C
			B	1	0.65	1	1	1	28.227			
			C	1	0.65	1	1	1	28.227			
L7 45.0000-0.0000	4.82	14.22	A	1	0.65	1	1	1	216.260	1.06	23.58	C
			B	1	0.65	1	1	1	216.260			
			C	1	0.65	1	1	1	216.260			
Sum Weight:	16.44	37.33						OTM	319.26 kip-ft	3.98		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	3.23	5.52	A	1	0.65	1	1	1	127.831	1.00	20.51	C
			B	1	0.65	1	1	1	127.831			
			C	1	0.65	1	1	1	127.831			
L2 118.2500-90.5000	3.27	5.20	A	1	0.65	1	1	1	92.223	0.69	24.94	C
			B	1	0.65	1	1	1	92.223			
			C	1	0.65	1	1	1	92.223			
L3 90.5000-77.7500	1.45	2.81	A	1	0.65	1	1	1	47.273	0.35	27.69	C
			B	1	0.65	1	1	1	47.273			
			C	1	0.65	1	1	1	47.273			
L4 77.7500-63.5000	1.62	4.21	A	1	0.65	1	1	1	55.766	0.36	25.31	C
			B	1	0.65	1	1	1	55.766			
			C	1	0.65	1	1	1	55.766			
L5 63.5000-51.5000	1.33	3.44	A	1	0.65	1	1	1	49.991	0.33	27.79	C
			B	1	0.65	1	1	1	49.991			
			C	1	0.65	1	1	1	49.991			
L6 51.5000-45.0000	0.71	1.93	A	1	0.65	1	1	1	28.227	0.18	27.15	C
			B	1	0.65	1	1	1	28.227			
			C	1	0.65	1	1	1	28.227			
L7 45.0000-0.0000	4.82	14.22	A	1	0.65	1	1	1	216.260	1.06	23.58	C
			B	1	0.65	1	1	1	216.260			
			C	1	0.65	1	1	1	216.260			
Sum Weight:	16.44	37.33						OTM	319.26 kip-ft	3.98		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	1.97	3.87	A	1	0.65	1	1	1	120.575	1.49	30.57	C
			B	1	0.65	1	1	1	120.575			
			C	1	0.65	1	1	1	120.575			
L2 118.2500-90.5000	1.77	4.06	A	1	0.65	1	1	1	88.093	1.03	37.17	C
			B	1	0.65	1	1	1	88.093			
			C	1	0.65	1	1	1	88.093			
L3 90.5000-77.7500	0.81	2.23	A	1	0.65	1	1	1	45.490	0.52	41.07	C
			B	1	0.65	1	1	1	45.490			
			C	1	0.65	1	1	1	45.490			
L4 77.7500-63.5000	0.91	3.54	A	1	0.65	1	1	1	53.773	0.55	38.76	C
			B	1	0.65	1	1	1	53.773			
			C	1	0.65	1	1	1	53.773			
L5 63.5000-51.5000	0.77	2.86	A	1	0.65	1	1	1	48.388	0.50	41.73	C
			B	1	0.65	1	1	1	48.388			
			C	1	0.65	1	1	1	48.388			
L6 51.5000-45.0000	0.41	1.61	A	1	0.65	1	1	1	27.377	0.27	41.10	C
			B	1	0.65	1	1	1	27.377			
			C	1	0.65	1	1	1	27.377			
L7 45.0000-0.0000	2.87	11.85	A	1	0.65	1	1	1	210.635	1.69	37.49	C
			B	1	0.65	1	1	1	210.635			
			C	1	0.65	1	1	1	210.635			
Sum Weight:	9.52	30.02						OTM	479.46 kip-ft	6.05		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	1.97	3.87	A	1	0.65	1	1	1	120.575	1.49	30.57	C
			B	1	0.65	1	1	1	120.575			
			C	1	0.65	1	1	1	120.575			
L2 118.2500-90.5000	1.77	4.06	A	1	0.65	1	1	1	88.093	1.03	37.17	C
			B	1	0.65	1	1	1	88.093			
			C	1	0.65	1	1	1	88.093			
L3 90.5000-77.7500	0.81	2.23	A	1	0.65	1	1	1	45.490	0.52	41.07	C
			B	1	0.65	1	1	1	45.490			
			C	1	0.65	1	1	1	45.490			
L4 77.7500-63.5000	0.91	3.54	A	1	0.65	1	1	1	53.773	0.55	38.76	C
			B	1	0.65	1	1	1	53.773			
			C	1	0.65	1	1	1	53.773			
L5 63.5000-51.5000	0.77	2.86	A	1	0.65	1	1	1	48.388	0.50	41.73	C
			B	1	0.65	1	1	1	48.388			
			C	1	0.65	1	1	1	48.388			
L6 51.5000-45.0000	0.41	1.61	A	1	0.65	1	1	1	27.377	0.27	41.10	C
			B	1	0.65	1	1	1	27.377			
			C	1	0.65	1	1	1	27.377			
L7 45.0000-0.0000	2.87	11.85	A	1	0.65	1	1	1	210.635	1.69	37.49	C
			B	1	0.65	1	1	1	210.635			
			C	1	0.65	1	1	1	210.635			
Sum Weight:	9.52	30.02						OTM	479.46 kip-ft	6.05		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1 167.0000-118.2500	1.97	3.87	A	1	0.65	1	1	1	120.575	1.49	30.57	C
			B	1	0.65	1	1	1	120.575			
			C	1	0.65	1	1	1	120.575			
L2 118.2500-90.5000	1.77	4.06	A	1	0.65	1	1	1	88.093	1.03	37.17	C
			B	1	0.65	1	1	1	88.093			
			C	1	0.65	1	1	1	88.093			
L3 90.5000-77.7500	0.81	2.23	A	1	0.65	1	1	1	45.490	0.52	41.07	C
			B	1	0.65	1	1	1	45.490			
			C	1	0.65	1	1	1	45.490			
L4 77.7500-63.5000	0.91	3.54	A	1	0.65	1	1	1	53.773	0.55	38.76	C
			B	1	0.65	1	1	1	53.773			
			C	1	0.65	1	1	1	53.773			
L5 63.5000-51.5000	0.77	2.86	A	1	0.65	1	1	1	48.388	0.50	41.73	C
			B	1	0.65	1	1	1	48.388			
			C	1	0.65	1	1	1	48.388			
L6 51.5000-45.0000	0.41	1.61	A	1	0.65	1	1	1	27.377	0.27	41.10	C
			B	1	0.65	1	1	1	27.377			
			C	1	0.65	1	1	1	27.377			
L7 45.0000-0.0000	2.87	11.85	A	1	0.65	1	1	1	210.635	1.69	37.49	C
			B	1	0.65	1	1	1	210.635			
			C	1	0.65	1	1	1	210.635			
Sum Weight:	9.52	30.02						OTM	479.46 kip-ft	6.05		

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice

Comb. No.	Description
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
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	167 - 118.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-24.34	1.96	-0.66
			Max. Mx	11	-12.04	775.00	-1.75
			Max. My	8	-12.03	2.10	-775.76
			Max. Vy	11	-24.90	775.00	-1.75
			Max. Vx	8	24.95	2.10	-775.76
			Max. Torque	11			-1.10
L2	118.25 - 90.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-34.55	5.01	-2.41
			Max. Mx	11	-19.23	1660.37	-4.13
			Max. My	8	-19.22	4.78	-1662.31
			Max. Vy	11	-29.28	1660.37	-4.13
			Max. Vx	8	29.32	4.78	-1662.31
			Max. Torque	11			-0.83
L3	90.5 - 77.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-36.95	5.79	-2.85
			Max. Mx	11	-21.06	1875.69	-4.68
			Max. My	8	-21.06	5.41	-1877.89
			Max. Vy	11	-30.10	1875.69	-4.68
			Max. Vx	8	30.15	5.41	-1877.89
			Max. Torque	11			-0.76
L4	77.75 - 63.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.89	7.99	-4.12
			Max. Mx	11	-27.17	2493.39	-6.20

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	8	-27.16	7.14	-2496.27
			Max. Vy	11	-32.30	2493.39	-6.20
			Max. Vx	8	32.35	7.14	-2496.27
			Max. Torque	11			-0.71
L5	63.5 - 51.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-49.66	9.37	-4.91
			Max. Mx	11	-31.00	2889.26	-7.13
			Max. My	8	-30.99	8.22	-2892.54
			Max. Vy	11	-33.65	2889.26	-7.13
			Max. Vx	8	33.70	8.22	-2892.54
			Max. Torque	11			-0.67
L6	51.5 - 45	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-52.31	10.13	-5.35
			Max. Mx	11	-33.13	3110.37	-7.64
			Max. My	8	-33.13	8.81	-3113.87
			Max. Vy	11	-34.35	3110.37	-7.64
			Max. Vx	8	34.40	8.81	-3113.87
			Max. Torque	10			-0.65
L7	45 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-71.35	15.50	-8.45
			Max. Mx	11	-48.81	4744.70	-11.21
			Max. My	8	-48.81	12.97	-4749.60
			Max. Vy	11	-38.28	4744.70	-11.21
			Max. Vx	8	38.33	12.97	-4749.60
			Max. Torque	10			-0.65

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	23	71.35	7.91	-4.57
	Max. H_x	11	48.84	38.25	-0.06
	Max. H_z	2	48.84	-0.06	38.29
	Max. M_x	2	4745.56	-0.06	38.29
	Max. M_z	5	4737.14	-38.25	0.06
	Max. Torsion	3	0.64	-19.18	33.19
	Min. Vert	1	48.84	0.00	0.00
	Min. H_x	5	48.84	-38.25	0.06
	Min. H_z	8	48.84	0.06	-38.29
	Min. M_x	8	-4749.60	0.06	-38.29
	Min. M_z	11	-4744.70	38.25	-0.06
	Min. Torsion	10	-0.65	33.16	-19.20

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	48.84	0.00	0.00	1.97	3.68	0.00
Dead+Wind 0 deg - No Ice	48.84	0.06	-38.29	-4745.56	-5.38	-0.47
Dead+Wind 30 deg - No Ice	48.84	19.18	-33.19	-4114.08	-2374.60	-0.64
Dead+Wind 60 deg - No Ice	48.84	33.16	-19.20	-2379.71	-4106.54	-0.64
Dead+Wind 90 deg - No Ice	48.84	38.25	-0.06	-7.15	-4737.14	-0.47
Dead+Wind 120 deg - No Ice	48.84	33.10	19.09	2367.90	-4097.40	-0.18
Dead+Wind 150 deg - No Ice	48.84	19.07	33.13	4109.00	-2358.72	0.16
Dead+Wind 180 deg - No Ice	48.84	-0.06	38.29	4749.60	12.97	0.46
Dead+Wind 210 deg - No Ice	48.84	-19.18	33.19	4118.11	2382.18	0.64
Dead+Wind 240 deg - No Ice	48.84	-33.16	19.20	2383.76	4114.10	0.65
Dead+Wind 270 deg - No Ice	48.84	-38.25	0.06	11.21	4744.70	0.48
Dead+Wind 300 deg - No Ice	48.84	-33.10	-19.09	-2363.83	4104.99	0.18

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 330 deg - No Ice	48.84	-19.07	-33.13	-4104.94	2366.32	-0.17
Dead+Ice+Temp	71.35	-0.00	0.00	8.45	15.50	0.00
Dead+Wind 0 deg+Ice+Temp	71.35	0.01	-9.14	-1172.04	14.40	-0.23
Dead+Wind 30 deg+Ice+Temp	71.35	4.57	-7.92	-1014.48	-575.27	-0.29
Dead+Wind 60 deg+Ice+Temp	71.35	7.91	-4.57	-582.81	-1006.62	-0.27
Dead+Wind 90 deg+Ice+Temp	71.35	9.13	-0.01	7.30	-1164.07	-0.18
Dead+Wind 120 deg+Ice+Temp	71.35	7.90	4.56	597.74	-1005.41	-0.04
Dead+Wind 150 deg+Ice+Temp	71.35	4.56	7.91	1030.30	-573.18	0.11
Dead+Wind 180 deg+Ice+Temp	71.35	-0.01	9.14	1189.06	16.82	0.23
Dead+Wind 210 deg+Ice+Temp	71.35	-4.57	7.92	1031.50	606.49	0.29
Dead+Wind 240 deg+Ice+Temp	71.35	-7.91	4.57	599.83	1037.84	0.27
Dead+Wind 270 deg+Ice+Temp	71.35	-9.13	0.01	9.72	1195.28	0.18
Dead+Wind 300 deg+Ice+Temp	71.35	-7.90	-4.56	-580.72	1036.63	0.04
Dead+Wind 330 deg+Ice+Temp	71.35	-4.56	-7.91	-1013.27	604.40	-0.11
Dead+Wind 0 deg - Service	48.84	0.02	-13.25	-1643.28	0.62	-0.16
Dead+Wind 30 deg - Service	48.84	6.64	-11.49	-1424.45	-820.45	-0.22
Dead+Wind 60 deg - Service	48.84	11.47	-6.64	-823.38	-1420.67	-0.23
Dead+Wind 90 deg - Service	48.84	13.24	-0.02	-1.15	-1639.20	-0.17
Dead+Wind 120 deg - Service	48.84	11.45	6.61	821.93	-1417.49	-0.06
Dead+Wind 150 deg - Service	48.84	6.60	11.46	1425.32	-814.94	0.06
Dead+Wind 180 deg - Service	48.84	-0.02	13.25	1647.34	6.98	0.16
Dead+Wind 210 deg - Service	48.84	-6.64	11.49	1428.50	828.06	0.22
Dead+Wind 240 deg - Service	48.84	-11.47	6.64	827.44	1428.27	0.23
Dead+Wind 270 deg - Service	48.84	-13.24	0.02	5.21	1646.80	0.17
Dead+Wind 300 deg - Service	48.84	-11.45	-6.61	-817.88	1425.09	0.06
Dead+Wind 330 deg - Service	48.84	-6.60	-11.46	-1421.27	822.55	-0.06

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-48.84	0.00	0.00	48.84	0.00	0.000%
2	0.06	-48.84	-38.29	-0.06	48.84	38.29	0.000%
3	19.18	-48.84	-33.19	-19.18	48.84	33.19	0.000%
4	33.16	-48.84	-19.20	-33.16	48.84	19.20	0.000%
5	38.25	-48.84	-0.06	-38.25	48.84	0.06	0.000%
6	33.10	-48.84	19.09	-33.10	48.84	-19.09	0.000%
7	19.07	-48.84	33.13	-19.07	48.84	-33.13	0.000%
8	-0.06	-48.84	38.29	0.06	48.84	-38.29	0.000%
9	-19.18	-48.84	33.19	19.18	48.84	-33.19	0.000%
10	-33.16	-48.84	19.20	33.16	48.84	-19.20	0.000%
11	-38.25	-48.84	0.06	38.25	48.84	-0.06	0.000%
12	-33.10	-48.84	-19.09	33.10	48.84	19.09	0.000%
13	-19.07	-48.84	-33.13	19.07	48.84	33.13	0.000%
14	0.00	-71.35	0.00	0.00	71.35	-0.00	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
15	0.01	-71.35	-9.14	-0.01	71.35	9.14	0.000%
16	4.57	-71.35	-7.92	-4.57	71.35	7.92	0.000%
17	7.91	-71.35	-4.57	-7.91	71.35	4.57	0.000%
18	9.13	-71.35	-0.01	-9.13	71.35	0.01	0.000%
19	7.90	-71.35	4.56	-7.90	71.35	-4.56	0.000%
20	4.56	-71.35	7.91	-4.56	71.35	-7.91	0.000%
21	-0.01	-71.35	9.14	0.01	71.35	-9.14	0.000%
22	-4.57	-71.35	7.92	4.57	71.35	-7.92	0.000%
23	-7.91	-71.35	4.57	7.91	71.35	-4.57	0.000%
24	-9.13	-71.35	0.01	9.13	71.35	-0.01	0.000%
25	-7.90	-71.35	-4.56	7.90	71.35	4.56	0.000%
26	-4.56	-71.35	-7.91	4.56	71.35	7.91	0.000%
27	0.02	-48.84	-13.25	-0.02	48.84	13.25	0.000%
28	6.64	-48.84	-11.49	-6.64	48.84	11.49	0.000%
29	11.47	-48.84	-6.64	-11.47	48.84	6.64	0.000%
30	13.24	-48.84	-0.02	-13.24	48.84	0.02	0.000%
31	11.45	-48.84	6.61	-11.45	48.84	-6.61	0.000%
32	6.60	-48.84	11.46	-6.60	48.84	-11.46	0.000%
33	-0.02	-48.84	13.25	0.02	48.84	-13.25	0.000%
34	-6.64	-48.84	11.49	6.64	48.84	-11.49	0.000%
35	-11.47	-48.84	6.64	11.47	48.84	-6.64	0.000%
36	-13.24	-48.84	0.02	13.24	48.84	-0.02	0.000%
37	-11.45	-48.84	-6.61	11.45	48.84	6.61	0.000%
38	-6.60	-48.84	-11.46	6.60	48.84	11.46	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	0.00052916
3	Yes	6	0.00000001	0.00004811
4	Yes	6	0.00000001	0.00004882
5	Yes	4	0.00000001	0.00080225
6	Yes	6	0.00000001	0.00004792
7	Yes	6	0.00000001	0.00004827
8	Yes	4	0.00000001	0.00065844
9	Yes	6	0.00000001	0.00004887
10	Yes	6	0.00000001	0.00004816
11	Yes	4	0.00000001	0.00058142
12	Yes	6	0.00000001	0.00004851
13	Yes	6	0.00000001	0.00004815
14	Yes	4	0.00000001	0.00013271
15	Yes	5	0.00000001	0.00065266
16	Yes	5	0.00000001	0.00074473
17	Yes	5	0.00000001	0.00074573
18	Yes	5	0.00000001	0.00064803
19	Yes	5	0.00000001	0.00075087
20	Yes	5	0.00000001	0.00075239
21	Yes	5	0.00000001	0.00066067
22	Yes	5	0.00000001	0.00077195
23	Yes	5	0.00000001	0.00077038
24	Yes	5	0.00000001	0.00066405
25	Yes	5	0.00000001	0.00076118
26	Yes	5	0.00000001	0.00076009
27	Yes	4	0.00000001	0.00029089
28	Yes	5	0.00000001	0.00011598
29	Yes	5	0.00000001	0.00011911
30	Yes	4	0.00000001	0.00030322
31	Yes	5	0.00000001	0.00011531
32	Yes	5	0.00000001	0.00011681
33	Yes	4	0.00000001	0.00029480
34	Yes	5	0.00000001	0.00012032
35	Yes	5	0.00000001	0.00011710
36	Yes	4	0.00000001	0.00029825

37	Yes	5	0.00000001	0.00011815
38	Yes	5	0.00000001	0.00011673

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	167 - 118.25	40.404	34	2.2260	0.0028
L2	122.75 - 90.5	21.252	34	1.7584	0.0008
L3	90.5 - 77.75	11.092	34	1.2070	0.0004
L4	83.25 - 63.5	9.345	34	1.0933	0.0003
L5	63.5 - 51.5	5.334	34	0.8138	0.0002
L6	51.5 - 45	3.487	34	0.6564	0.0001
L7	45 - 0	2.651	34	0.5725	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
167.0000	Lightning Rod 5/8x4'	34	40.404	2.2260	0.0028	27978
158.0000	(2) 7770.00 w/ Mount Pipe	34	36.267	2.1501	0.0023	15543
156.0000	(2) RRUS-11	34	35.354	2.1328	0.0022	12717
150.0000	Pipe Mount [PM 601-3]	34	32.640	2.0787	0.0019	8228
148.0000	Platform Mount [LP 712-1]	34	31.746	2.0598	0.0018	7362
138.0000	APX16PV-16PVL-E w/ Mount Pipe	34	27.388	1.9565	0.0014	4822
120.0000	APXV18-206517S-C w/ Mount Pipe	34	20.231	1.7160	0.0008	3160

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	167 - 118.25	116.085	9	6.4044	0.0080
L2	122.75 - 90.5	61.132	9	5.0608	0.0024
L3	90.5 - 77.75	31.929	9	3.4751	0.0010
L4	83.25 - 63.5	26.905	9	3.1481	0.0009
L5	63.5 - 51.5	15.361	9	2.3439	0.0006
L6	51.5 - 45	10.044	9	1.8905	0.0004
L7	45 - 0	7.636	9	1.6490	0.0004

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
167.0000	Lightning Rod 5/8x4'	9	116.085	6.4044	0.0081	9942
158.0000	(2) 7770.00 w/ Mount Pipe	9	104.218	6.1865	0.0067	5522
156.0000	(2) RRUS-11	9	101.598	6.1367	0.0064	4518
150.0000	Pipe Mount [PM 601-3]	9	93.813	5.9813	0.0055	2922
148.0000	Platform Mount [LP 712-1]	9	91.249	5.9270	0.0052	2613
138.0000	APX16PV-16PVL-E w/ Mount Pipe	9	78.746	5.6301	0.0039	1710

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.0000	APXV18-206517S-C w/ Mount Pipe	9	58.198	4.9388	0.0022	1116

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	167 - 118.25 (1)	TP35.36x24x0.25	48.7500	0.0000	0.0	39.000	27.0277	-12.02	1054.08	0.011
L2	118.25 - 90.5 (2)	TP41.3282x33.8114x0.3125	32.2500	0.0000	0.0	39.000	40.6825	-19.22	1586.62	0.012
L3	90.5 - 77.75 (3)	TP44.3x41.3282x0.3819	12.7500	0.0000	0.0	34.080	51.6814	-21.05	1761.30	0.012
L4	77.75 - 63.5 (4)	TP46.9913x42.2543x0.375	19.7500	0.0000	0.0	39.000	55.4851	-27.16	2163.92	0.013
L5	63.5 - 51.5 (5)	TP49.7851x46.9913x0.4599	12.0000	0.0000	0.0	34.134	72.0058	-30.99	2457.85	0.013
L6	51.5 - 45 (6)	TP51.2985x49.7851x0.4572	6.5000	0.0000	0.0	34.146	73.7753	-33.13	2519.13	0.013
L7	45 - 0 (7)	TP61.04x51.2985x0.4375	45.0000	0.0000	0.0	39.000	84.1541	-48.81	3282.01	0.015

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	167 - 118.25 (1)	TP35.36x24x0.25	777.06	41.027	39.000	1.052	0.00	0.000	39.000	0.000
L2	118.25 - 90.5 (2)	TP41.3282x33.8114x0.3125	1665.27	48.521	39.000	1.244	0.00	0.000	39.000	0.000
L3	90.5 - 77.75 (3)	TP44.3x41.3282x0.3819	1881.22	41.563	34.080	1.220	0.00	0.000	34.080	0.000
L4	77.75 - 63.5 (4)	TP46.9913x42.2543x0.375	2500.67	47.025	39.000	1.206	0.00	0.000	39.000	0.000
L5	63.5 - 51.5 (5)	TP49.7851x46.9913x0.4599	2897.58	39.732	34.134	1.164	0.00	0.000	34.134	0.000
L6	51.5 - 45 (6)	TP51.2985x49.7851x0.4572	3119.27	40.487	34.146	1.186	0.00	0.000	34.146	0.000
L7	45 - 0 (7)	TP61.04x51.2985x0.4375	4757.48	45.336	39.000	1.162	0.00	0.000	39.000	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	167 - 118.25 (1)	TP35.36x24x0.25	24.99	0.925	26.000	0.071	0.29	0.007	26.000	0.000
L2	118.25 - 90.5 (2)	TP41.3282x33.8114x0.3125	29.36	0.722	26.000	0.056	0.36	0.005	26.000	0.000
L3	90.5 - 77.75	TP44.3x41.3282x0.3819	30.19	0.584	22.720	0.051	0.39	0.004	22.720	0.000

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 $\frac{f_{vt}}{F_{vt}}$
L4	77.75 - 63.5 (3)	TP46.9913x42.2543x0.375	32.39	0.584	26.000	0.045	0.44	0.004	26.000	0.000
L5	63.5 - 51.5 (4)	TP49.7851x46.9913x0.4599	33.74	0.469	22.756	0.041	0.50	0.003	22.756	0.000
L6	51.5 - 45 (5)	TP51.2985x49.7851x0.4572	34.44	0.467	22.764	0.041	0.52	0.003	22.764	0.000
L7	45 - 0 (6)	TP61.04x51.2985x0.4375	38.37	0.456	26.000	0.035	0.64	0.003	26.000	0.000

Pole Interaction Design Data

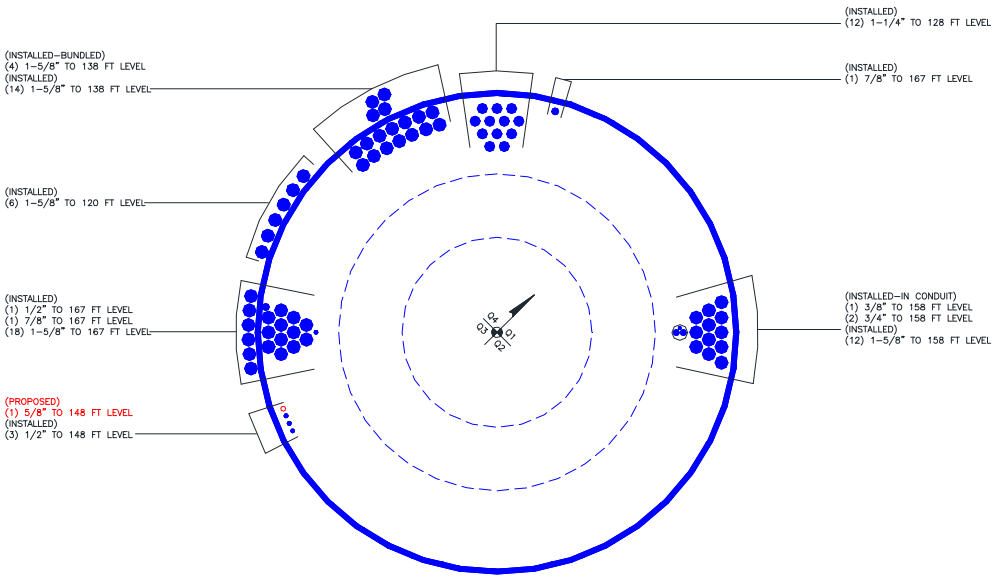
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	167 - 118.25 (1)	0.011	1.052	0.000	0.071	0.000	1.065 ✔	1.333	H1-3+VT ✔
L2	118.25 - 90.5 (2)	0.012	1.244	0.000	0.056	0.000	1.257 ✔	1.333	H1-3+VT ✔
L3	90.5 - 77.75 (3)	0.012	1.220	0.000	0.051	0.000	1.232 ✔	1.333	H1-3+VT ✔
L4	77.75 - 63.5 (4)	0.013	1.206	0.000	0.045	0.000	1.219 ✔	1.333	H1-3+VT ✔
L5	63.5 - 51.5 (5)	0.013	1.164	0.000	0.041	0.000	1.177 ✔	1.333	H1-3+VT ✔
L6	51.5 - 45 (6)	0.013	1.186	0.000	0.041	0.000	1.199 ✔	1.333	H1-3+VT ✔
L7	45 - 0 (7)	0.015	1.162	0.000	0.035	0.000	1.178 ✔	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	167 - 118.25	Pole	TP35.36x24x0.25	1	-12.02	1405.09	79.9	Pass
L2	118.25 - 90.5	Pole	TP41.3282x33.8114x0.3125	2	-19.22	2114.96	94.3	Pass
L3	90.5 - 77.75	Pole	TP44.3x41.3282x0.3819	3	-21.05	2347.81	92.4	Pass
L4	77.75 - 63.5	Pole	TP46.9913x42.2543x0.375	4	-27.16	2884.51	91.4	Pass
L5	63.5 - 51.5	Pole	TP49.7851x46.9913x0.4599	5	-30.99	3276.31	88.3	Pass
L6	51.5 - 45	Pole	TP51.2985x49.7851x0.4572	6	-33.13	3358.00	90.0	Pass
L7	45 - 0	Pole	TP61.04x51.2985x0.4375	7	-48.81	4374.92	88.3	Pass
							Summary	
						Pole (L2)	94.3	Pass
						RATING =	**94.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

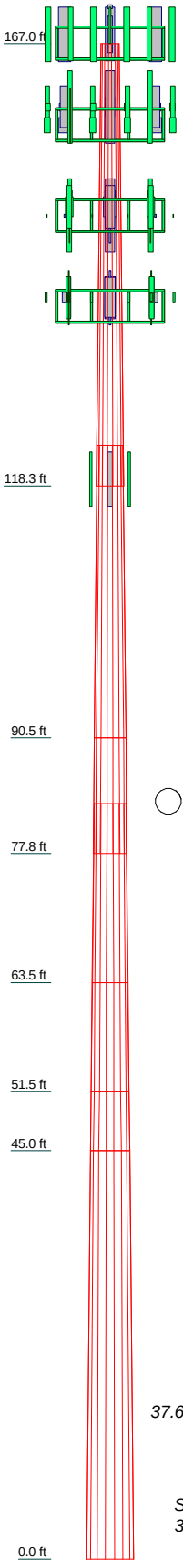

(INSTALLED)
(12) 1-1/4" TO 128 FT LEVEL
(INSTALLED)
(1) 7/8" TO 167 FT LEVEL
(INSTALLED-BUNDLED)
(4) 1-5/8" TO 138 FT LEVEL
(INSTALLED)
(14) 1-5/8" TO 138 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 120 FT LEVEL
(INSTALLED)
(1) 1/2" TO 167 FT LEVEL
(1) 7/8" TO 167 FT LEVEL
(18) 1-5/8" TO 167 FT LEVEL
(INSTALLED-IN CONDUIT)
(1) 3/8" TO 158 FT LEVEL
(2) 3/4" TO 158 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 158 FT LEVEL
(PROPOSED)
(1) 5/8" TO 148 FT LEVEL
(INSTALLED)
(3) 1/2" TO 148 FT LEVEL
A
B
C

APPENDIX C

ADDITIONAL CALCULATIONS

Program Version 6.1.3.1 - 7/25/2013 File:G:/TOWER/375_Crown_Castle/2013/37513-0349 BU 801367/37513-0349 SA WO 695204 BU 801367/37513-0349 Reinforced.eri

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	48.7500	18	0.2500	4.5000	24.0000	35.3600	A607-65	3.9
2	32.2500	18	0.3125		33.8114	41.3282		4.1
3	12.7500	18	0.3819	5.5000	41.3282	44.3000	Reinf 56.80 ksi	2.2
4	19.7500	18	0.3750		42.2542	46.9913		3.5
5	12.0000	18	0.4599		46.9913	49.7851	A607-65	2.9
6	6.5000	18	0.4572		49.7851	51.2985	Reinf 56.89 ksi	1.6
7	45.0000	18	0.4375		51.2985	61.0400	Reinf 56.91 ksi A607-65	11.9
								30.0



AXIAL
71 K

SHEAR
9 K

MOMENT
1199 kip-ft

TORQUE 0 kip-ft
37.60 mph WIND - 0.7500 in ICE

AXIAL
49 K

SHEAR
38 K

MOMENT
4757 kip-ft

TORQUE 1 kip-ft
REACTIONS - 85.00 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x4'	167	TME-800MHZ RRH	150
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	167	Platform Mount [LP 712-1]	148
		800 EXTERNAL NOTCH FILTER	148
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	167	(3) ACU-A20-N	148
		APXVSPP18-C-A20 w/ Mount Pipe	148
(2) LPA-80063-6CF-EDIN w/ Mount Pipe	167	800 EXTERNAL NOTCH FILTER	148
		(3) ACU-A20-N	148
DB222-A	167	APXVSPP18-C-A20 w/ Mount Pipe	148
GPS_A	167	800 EXTERNAL NOTCH FILTER	148
BXA-171063/8CFx2 w/ Mount Pipe	167	(3) ACU-A20-N	148
BXA-171063/8CFx2 w/ Mount Pipe	167	APXVSPP18-C-A20 w/ Mount Pipe	148
BXA-171063/8CFx2 w/ Mount Pipe	167	6' x 2" Mount Pipe	148
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	167	6' x 2" Mount Pipe	148
		6' x 2" Mount Pipe	148
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	167	TD-RRH8x20-25	148
		APXVTM14-C-120 w/ Mount Pipe	148
BXA-70063-6CF-EDIN-2 w/ Mount Pipe	167	TD-RRH8x20-25	148
		APXVTM14-C-120 w/ Mount Pipe	148
Platform Mount [LP 712-1]	167	TD-RRH8x20-25	148
(2) 7770.00 w/ Mount Pipe	158	APXVTM14-C-120 w/ Mount Pipe	148
(2) 7770.00 w/ Mount Pipe	158	KRY 112 89/5	138
(2) 7770.00 w/ Mount Pipe	158	KRY 112 89/5	138
(2) LGP13519	158	(2) S20057A-1	138
(2) LGP13519	158	(2) S20057A-1	138
(2) LGP13519	158	(2) S20057A-1	138
(2) LGP21401	158	Platform Mount [LP 712-1]	138
(2) LGP21401	158	6' x 2" Mount Pipe	138
(2) LGP21401	158	6' x 2" Mount Pipe	138
SBNH-1D6565C w/ Mount Pipe	158	6' x 2" Mount Pipe	138
SBNH-1D6565C w/ Mount Pipe	158	APX16PV-16PVL-E w/ Mount Pipe	138
SBNH-1D6565C w/ Mount Pipe	158	APX16PV-16PVL-E w/ Mount Pipe	138
DC6-48-60-18-8F	158	APX16PV-16PVL-E w/ Mount Pipe	138
Platform Mount [LP 712-1]	158	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	138
6' x 2" Mount Pipe	158		
6' x 2" Mount Pipe	158		
6' x 2" Mount Pipe	158	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	138
(2) RRUS-11	156		
(2) RRUS-11	156	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	138
(2) RRUS-11	156		
Side Arm Mount [SO 102-3]	156	KRY 112 134/1	138
Pipe Mount [PM 601-3]	150	KRY 112 134/1	138
PCS 1900MHz 4x45W-65MHz	150	KRY 112 134/1	138
TME-800MHZ RRH	150	KRY 112 89/5	138
PCS 1900MHz 4x45W-65MHz	150	Pipe Mount [PM 601-3]	120
TME-800MHZ RRH	150	APXV18-206517S-C w/ Mount Pipe	120
PCS 1900MHz 4x45W-65MHz	150	APXV18-206517S-C w/ Mount Pipe	120
		APXV18-206517S-C w/ Mount Pipe	120

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi	Reinf 56.89 ksi	57 ksi	72 ksi
Reinf 56.80 ksi	57 ksi	71 ksi	Reinf 56.91 ksi	57 ksi	72 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85.00 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 37.60 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50.00 mph wind.
5. TOWER RATING: 94.3%

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job:	***Ex. 167-ft Monopole / Cheshire, CT***		
Project:	***BU# 801367 / PJF# 37512-1657***		
Client: Crown Castle	Drawn by: John J Woolley	App'd:	
Code: TIA/EIA-222-F	Date: 01/09/14	Scale: NTS	
Path: G:\TOWER\375_Crown_Castle\2013\37513-0349 BU 801367\37513-0349 SA WO 695204 BU 801367\37513-0349 Reinforced.eri		Dwg No. E-1	

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#:
Site Name:
App #:

Anchor Rod Data		
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	68	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	67	in
Thick:	3	in
Grade:	55	ksi
Clip Distance:	14	in

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

Pole Data		
Diam:	61.04	in
Thick:	0.4375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Stress Increase Factor		
ASD ASIF:	1.333	

Base Reactions		
TIA Revision:	F	
Unfactored Moment, M:	4757	ft-kips
Unfactored Axial, P:	49	kips
Unfactored Shear, V:	38	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension	165.4	Kips
Allowable Tension:	195.0	Kips
Anchor Rod Stress Ratio:	84.9%	**Pass**

Base Plate Results Flexural Check

Base Plate Stress:	40.0	ksi
Allowable PL Bending Stress:	55.0	ksi
Base Plate Stress Ratio:	72.8%	**Pass**

PL Ref. Data	
Yield Line (in):	33.71
Max PL Length:	33.71

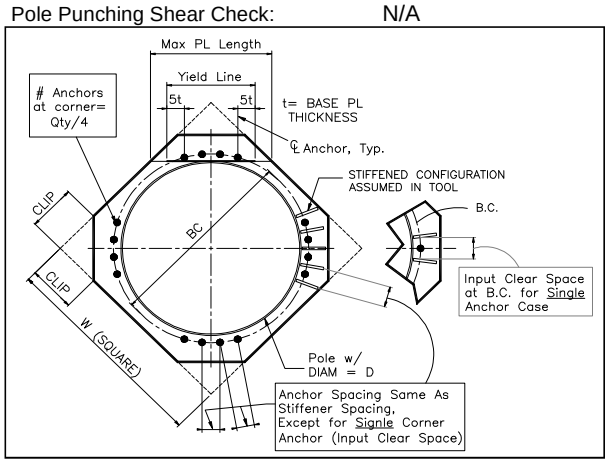
N/A - Unstiffened

Stiffener Results

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

Pole Results

Pole Punching Shear Check: N/A



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

Foundation Loads:

Pole weight or tower leg compression =	**49**	(kips)
Horizontal load at top of pier =	**38**	(kips)
Overturning moment at top of pier=	**4757**	(ft-kips)

Design criteria:

Safety factor against overturning =	**1.5**	

Soil Properties:

Soil density =	**100**	(pcf)
Allowable soil bearing =	**8**	(ksf)
Depth to water table =	**99**	(ft)

Dimensions:

Pier shape (round or square)	**R**	("R" or "S")
Pier width =	**8**	(ft)
Pier height above grade =	**0.5**	(ft)
depth to bottom of footing =	**7**	(ft)
Footing thickness =	**4**	(ft)
Footing width =	**26**	(ft)
Footing length =	**26**	(ft)

Concrete:

Concrete strength =	**3**	(ksi)
Rebar strength =	**60**	(ksi)
ultimate load factor =	**1.3**	

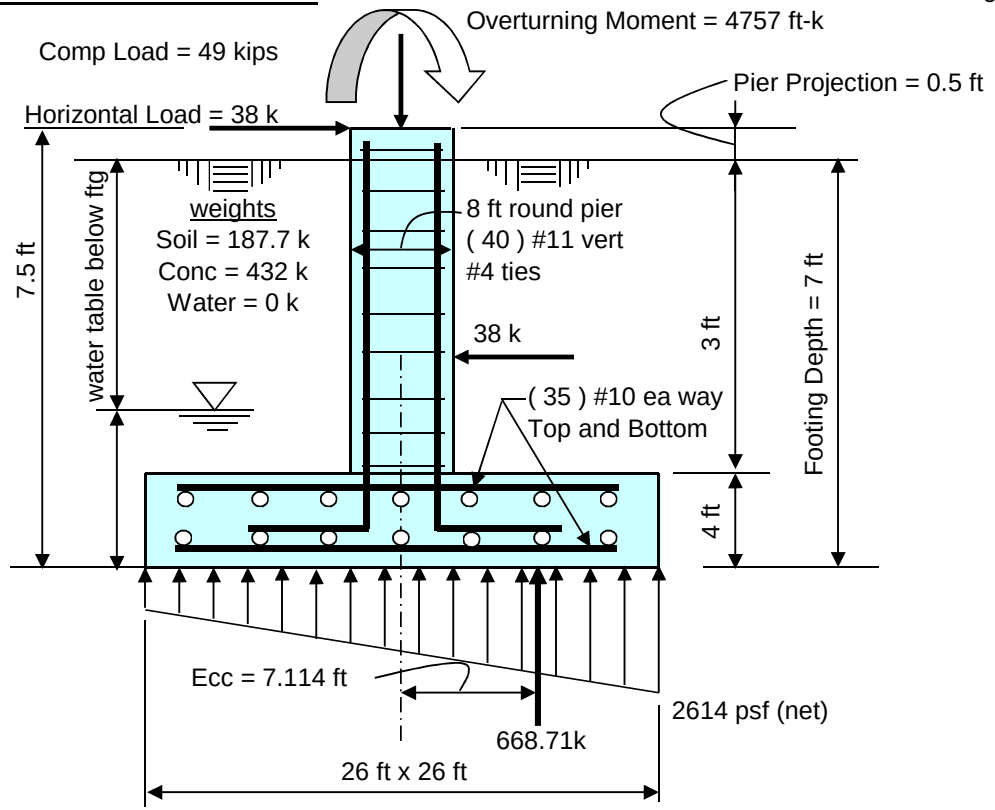
Reinforcing Steel:

	Pad	
minimum cover over rebar =	**3**	inches
size of pad rebar =	**#10**	bar
quantity of pad rebar =	**35**	(ea direction)

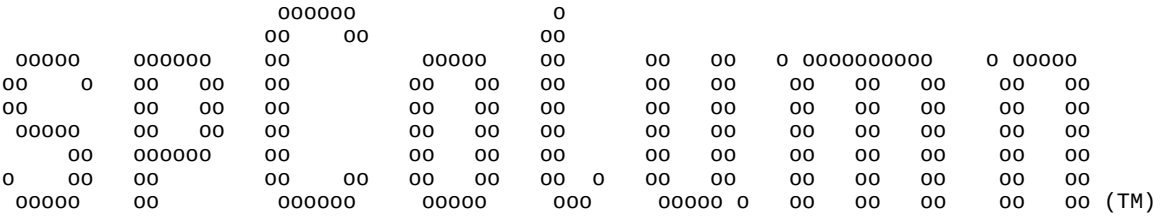
Reinforcing Steel:

	Pier	
size of vert rebar in pier=	**#11**	bar
vertical rebar quantity =	**40**	
size of pier ties =	**#4**	bar
minimum cover over rebar =	**3**	inches

Total volume of concrete = #### cu yd



Summary of analysis results	
Maximum Net Soil Bearing = 2.614 ksf Allowable Net Soil Bearing = 8 ksf **Soil Bearing Stress Ratio = 0.33 Okay**	Ult Bending Shear Capacity = 110 psi Ult Bending Shear Stress = 30 psi **Bending Shear Stress Ratio = 0.28 Okay**
Ftg Overturning Resistance = 8693 ft-kips Overturning Moment = 4757 ft-kips Required Overturning Safety Factor = 1.5 Overturning Safety Factor = 1.827 **Ratio = 0.82 Okay**	Pad Bending Moment Capacity= 8291 ft-k Pad Bending Moment = 2078 ft-k **Bending Moment Stress Ratio = 0.25 OK**



spColumn v4.80 (TM)
Computer program for the Strength Design of Reinforced Concrete Sections

General Information:
==========
File Name: g:\tower\375_crown_castle\2013\37513-0349 bu 801367\37513-0349 sa wo 69...\37513-0349.col
Project:
Column: Engineer:
Code: ACI 318-02 Units: English

Run Option: Investigation Slenderness: Not considered
Run Axis: X-axis Column Type: Architectural

Material Properties:
==========
f'c = 3 ksi fy = 60 ksi
Ec = 3122.02 ksi Es = 29000 ksi
Ultimate strain = 0.003 in/in
Beta1 = 0.85

Section:
========
Circular: Diameter = 96 in

Gross section area, Ag = 7238.23 in^2
Ix = 4.16922e+006 in^4 Iy = 4.16922e+006 in^4
rx = 24 in ry = 24 in
Xo = 0 in Yo = 0 in

Reinforcement:
==========
Bar Set: ASTM A615

Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)
# 3	0.38	0.11	# 4	0.50	0.20	# 5	0.63	0.31
# 6	0.75	0.44	# 7	0.88	0.60	# 8	1.00	0.79
# 9	1.13	1.00	# 10	1.27	1.27	# 11	1.41	1.56
# 14	1.69	2.25	# 18	2.26	4.00			

Confinement: Tied; #4 ties with #10 bars, #4 with larger bars.
phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Layout: Circular
Pattern: All Sides Equal (Cover to transverse reinforcement)
Total steel area: As = 62.40 in^2 at rho = 0.86% (Note: rho < 1.0%)
Minimum clear spacing = 5.46 in

40 #11 Cover = 3 in

Factored Loads and Moments with Corresponding Capacities:
==========

No.	Pu kip	Mux k-ft	PhiMnx k-ft	PhiMn/Mu	NA depth in	Dt depth in	eps_t	Phi
1	49.00	6381.70	10794.51	1.691	19.54	91.79	0.01109	0.900

*** End of output ***

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Job Number:	37513-0349 SA	**Page:**	1
Site Number:	801367	**By:**	JJW
Site Name:	CT NHV-2075 CAC 801367	**Date:**	1/9/2014

DRILLED PIER SOIL AND STEEL ANALYSIS - TIA/EIA-222-F

Unfactored Base Reactions from RISA

	Comp. (+)	Tension (-)	
Moment, M =	4757.0		k-ft
Shear, V =	38.0		kips
Axial Load, P =	49.0		kips
OTM =	4776.0	0.0	k-ft @ Ground

Safety Factors / Load Factors / Φ Factors

Tower Type =	Monopole DP
ACI Code =	ACI 318-02
Seismic Design Category =	D
Reference Standard =	TIA/EIA-222-F
Use 1.3 Load Factor?	Yes
Load Factor =	1.30

Drilled Pier Parameters

Diameter =	8	ft
Height Above Grade =	0.5	ft
Depth Below Grade =	23	ft
fc' =	3	ksi
εc =	0.003	in/in
Mat Ftdn. Cap Width =		ft
Mat Ftdn. Cap Length =		ft
Depth Below Grade =		ft

	Safety Factor	Φ Factor
Soil Lateral Resistance =	2.00	0.75
Skin Friction =	2.00	0.75
End Bearing =	2.00	0.75
Concrete Wt. Resist Uplift =	1.25	

Load Combinations Checked per TIA/EIA-222-F

1. Ult. Skin Friction/2.00 + Ult. End Bearing/2.00 + Effective Soil Wt. - Buoyant Conc. Wt. ≥ Comp.
2. Ult. Skin Friction/2.00 + Buoyant Conc. Wt./1.25 ≥ Uplift
3. Ult. Skin Friction/1.50 + Buoyant Conc. Wt./1.50 ≥ Uplift

Steel Parameters

Number of Bars =	24	
Rebar Size =	#11	
Rebar Fy =	60	ksi
Rebar MOE =	29000	ksi
Tie Size =	#5	
Side Clear Cover to Ties =	4	in

Soil Parameters

Water Table Depth =	99.00	ft
Depth to Ignore Soil =	4.00	ft
Depth to Full Cohesion =	0	ft
Full Cohesion Starts at?	Ground	

Above Full Cohesion Lateral Resistance = 4(Cohesion)(Dia)(H)
Below Full Cohesion Lateral Resistance = 8(Cohesion)(Dia)(H)

Direct Embed Pole Shaft Parameters

Dia @ Grade =		in
Dia @ Depth Below Grade =		in
Number of Sides =		
Thickness =		in
Fy =		ksi
Backfill Condition =		

Maximum Capacity Ratios

Maximum Soil Ratio =	100.0%
Maximum Steel Ratio =	100.0%

Define Soil Layers

Note: Cohesion = Undrained Shear Strengh = Unconfined Compressive Strength / 2

Layer	Thickness ft	Unit Weight pcf	Cohesion psf	Friction Angle degrees	Soil Type	Ultimate End Bearing psf	Comp. Ult. Skin Friction psf	Tension Ult. Skin Friction psf	Depth ft
1	13.5	135	0	35	Sand				13.5
2	15.5	150	0	35	Sand	80000			29
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Soil Results: Overturning

Depth to COR =	16.85	ft, from Grade	Shear, V =	38.00	kips
Bending Moment, M =	5416.34	k-ft, from COR	Resisting Shear, Va =	45.99	kips
Resisting Moment, Ma =	6554.56	k-ft, from COR			

MOMENT RATIO = 82.6% OK **SHEAR RATIO = 82.6% OK**

Soil Results: Uplift

Uplift, T =	0.00	kips
Allowable Uplift Cap., Ta =	141.75	kips

UPLIFT RATIO = 0.0% OK

Soil Results: Compression

Compression, C =	49.00	kips
Allowable Comp. Cap., Ca =	1996.67	kips

COMPRESSION RATIO = 2.5% OK

Steel Results (ACI 318-02):

Minimum Steel Area =	24.13	sq in
Actual Steel Area =	37.44	sq in
Allowable Min Axial, Pa =	-1555.20	kips, Where Ma = 0 k-ft
Allowable Max Axial, Pa =	8243.37	kips, Where Ma = 0 k-ft

Axial Load, P =	88.58	kips @ 4.75 ft Below Grade
Moment, M =	4950.60	k-ft @ 4.75 ft Below Grade
Allowable Moment, Ma =	5425.30	k-ft

MOMENT RATIO = 91.3% OK

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *801367*
Site Name: *CT NHV-2075 CAC 801367*
App #:

Maximum Shaft Superimposed Forces		
TIA Revision:	F	
Max. Service Shaft M:	4950.6	ft-kips **(* Note)**
Max. Service Shaft P:	88.58	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Load Factor	Shaft Factored Loads		
1.30	Mu:	6435.78	ft-kips
1.30	Pu:	115.154	kips

Pier Properties

Concrete:

Pier Diameter =	8.0	ft
Concrete Area =	7238.2	in^2

Reinforcement:

Clear Cover to **Tie**=	4.00	in
Horiz. **Tie** Bar Size=	5	
Vert. Cage Diameter =	7.11	ft
Vert. Cage Diameter =	85.34	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	24	
As Total=	37.44	in^2
A s/ Aconc, Rho:	0.0052	0.52%

Material Properties		
Concrete Comp. strength, f'c =	3000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	
ACI 318 Code		
Select Analysis ACI Code=	2002	
Seismic Properties		
Seismic Design Category =	D	
Seismic Risk =	**High**	

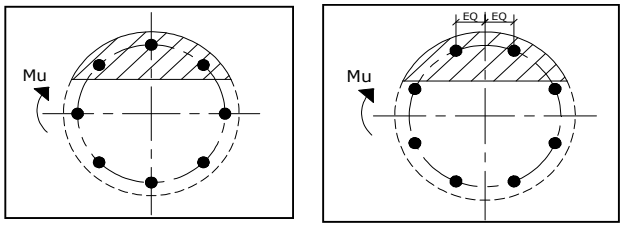
Solve (Run) <-- Press Upon Completing All Input

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:

(3)*(Sqrt(f'c)/Fy:	0.0027
200 / Fy:	0.0033

Results:

Governing Orientation Case: **2**



Case 1 Case 2

Dist. From Edge to Neutral Axis: **15.07** in
Extreme Steel Strain, ϵt: **0.0150**
ϵt > 0.0050, Tension Controlled
Reduction Factor,φ: **0.900**

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.52%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	10716.37	kips
at Mu=(ϕ=0.65)Mn=	7467.49	ft-kips
Max Tu, (φ=0.9) Tn =	2021.76	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	115.15	kips
Drilled Shaft Moment Capacity, φMn:	**7052.88**	ft-kips
Drilled Shaft Superimposed Mu:	**6435.78**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**91.3%**

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

Sprint Existing Facility

Site ID: CT43XC844

CT NHV-2075 CAC 801367

1121 Summit Road
Cheshire, CT 06410

March 14, 2014

EBI Project Number: 62140955

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

EBI Consulting
environmental | engineering | due diligence

March 14, 2014

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

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT43XC844 - CT NHV-2075 CAC 801367

Site Total: 54.182% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 1121 Summit Road, Cheshire, 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 1121 Summit Road, Cheshire, 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) 4 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 **147 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	CT43XC844 - CT NHV-2075 CAC 801367
Site Addresss	1121 Summit Road, Cheshire, CT 06410
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	4	80	15.9	147	141	42.97732	1/2 "	0.5	3	17.378008	1390.2407	25.13956	2.51396%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	147	141	42.97732	1/2 "	0.5	3	9.7723722	195.44744	3.534254	0.62333%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	13.4	147	141	42.97732	1/2 "	0.5	3	9.7723722	390.89489	7.068508	1.24665%
																Sector total Power Density Value:			4.384%

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	4	80	15.9	147	141	42.97732	1/2 "	0.5	3	17.378008	1390.2407	25.13956	2.51396%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	147	141	42.97732	1/2 "	0.5	3	9.7723722	195.44744	3.534254	0.62333%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	13.4	147	141	42.97732	1/2 "	0.5	3	9.7723722	390.89489	7.068508	1.24665%
																Sector total Power Density Value:			4.384%

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	4	80	15.9	147	141	42.97732	1/2 "	0.5	3	17.378008	1390.2407	25.13956	2.51396%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	147	141	42.97732	1/2 "	0.5	3	9.7723722	195.44744	3.534254	0.62333%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	13.4	147	141	42.97732	1/2 "	0.5	3	9.7723722	390.89489	7.068508	1.24665%
																Sector total Power Density Value:			4.384%

Site Composite MPE %	
Carrier	MPE %
Sprint	13.152%
T-Mobile	5.180%
MetroPCS	8.730%
Verizon Wireless	9.740%
AT&T	12.740%
Nextel	4.640%
Total Site MPE %	**54.182%**

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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 **13.152% (4.384% 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 **54.182%** 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

EBI Consulting
21 B Street
Burlington, MA 01803