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

April 9, 2015

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

RE: **Sprint PCS-Exempt Modification - Crown Site BU: 876325**
Sprint PCS Site ID: CT03XC064
Located at: 92 Weston Street, Hartford, CT 06103

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 The Honorable Pedro E. Segarra, Mayor for the City of Hartford, and Albemarle Weston Street, LLC, Property Owner.

Sprint plans to modify the existing wireless communications facility owned by Crown Castle and located at **92 Weston Street, Hartford, CT 06103**. 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,

Susan Vale
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: The Honorable Pedro E. Segarra, Mayor
Office of the Mayor
550 Main Street, Room 200
Hartford, CT 06103

Albemarle Weston Street, LLC
942 Main Street, Suite 300
Hartford, CT 06095

Sprint

CROWN CASTLE

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	WESTON SQUARE
SITE CASCADE:	CT03XC064
SITE NUMBER:	876325
SITE ADDRESS:	92 WESTON STREET HARTFORD, CT 06120
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
CROWN CASTLE
2000 CORPORATE DRIVE
CANONBURG, PA 15317

LATITUDE (NAD83):
41° 47' 12.2994" N
41.78675°

LONGITUDE (NAD83):
72° 39' 44.4204" W
-72.662339°

COUNTY:
HARTFORD

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

ZONING DISTRICT:
TBD

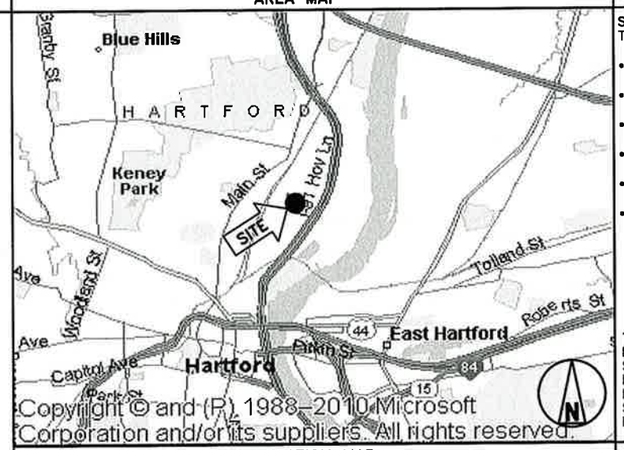
POWER COMPANY:
CL&P

AAV PROVIDER:
AT&T

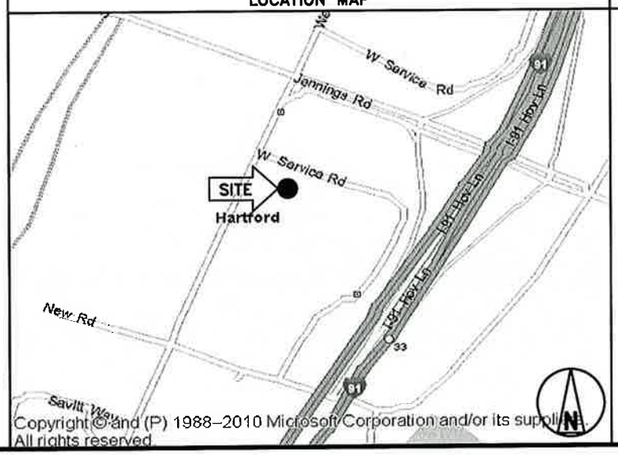
SPRINT CM:
PETER CULBERT
(603) 203-6446
(603) 969-0686
peter.culbert@sprint.com

CROWN CASTLE CM:
JASON D'AMICO
(860) 209-0104
JASON.D'AMICO@CROWNCASTLE.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) RRU'S TO TOWER
- INSTALL (27) JUMPER CABLES
- INSTALL (1) HYBRID CABLE
- INSTALL (8) NEW BATTERIES IN EXISTING BBU CABINET
- INSTALL (1) 9927 REPLACEMENT 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
T-1	TITLE SHEET & PROJECT DATA	C
SP-1	SPRINT SPECIFICATIONS	C
SP-2	SPRINT SPECIFICATIONS	C
SP-3	SPRINT SPECIFICATIONS	C
A-1	SITE PLAN	C
A-2	TOWER ELEVATION & CABLE PLAN	C
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	C
A-4	COLOR CODING AND NOTES	C
A-5	EQUIPMENT & MOUNTING DETAILS	C
A-6	CIVIL DETAILS	C
A-7	PLUMBING DIAGRAM	C
E-1	ELECTRICAL & GROUNDING PLAN	C
E-2	ELECTRICAL & GROUNDING DETAILS	C

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

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

MLA PARTNER:
CROWN CASTLE

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:
WESTON SQUARE

SITE CASCADE:
CT03XC064

SITE ADDRESS:
92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:
TITLE SHEET
& PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

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

1.5 DEFINITIONS:

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

B. COMPANY: SPRINT CORPORATION

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

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

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

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

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

3.2 DELIVERABLES:

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

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

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

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 NOTICE TO PROCEED

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

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

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

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

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:
WESTON SQUARE

SITE CASCADE:
CT03XC064

SITE ADDRESS:
92 WESTON STREET
HARTFORD, CT 06120

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.

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

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:

WESTON SQUARE

SITE CASCADE:

CT03XC064

SITE ADDRESS:

92 WESTON STREET
HARTFORD, CT 06120

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 353-000

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

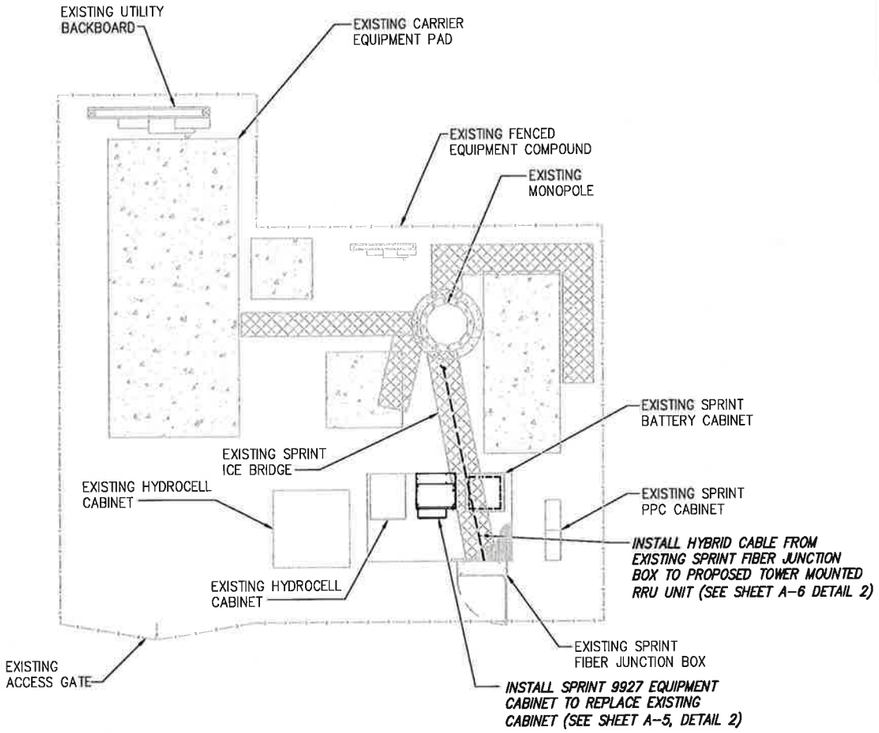
SITE NAME:
WESTON SQUARE

SITE CASCADE:
CT03XC064

SITE ADDRESS:
92 WESTON STREET
HARTFORD, CT 06120

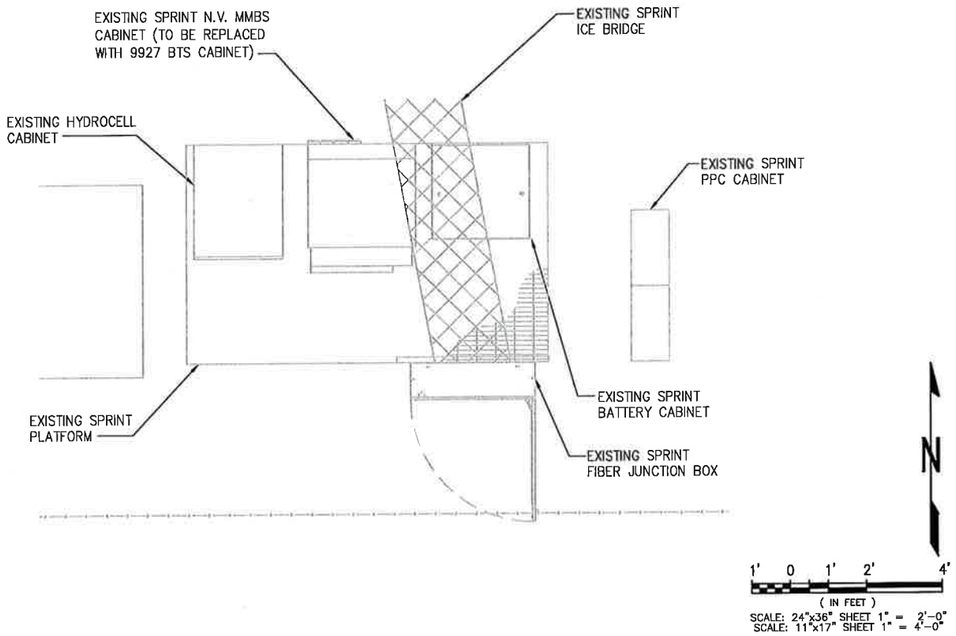
SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

SHEET NUMBER:
SP-3

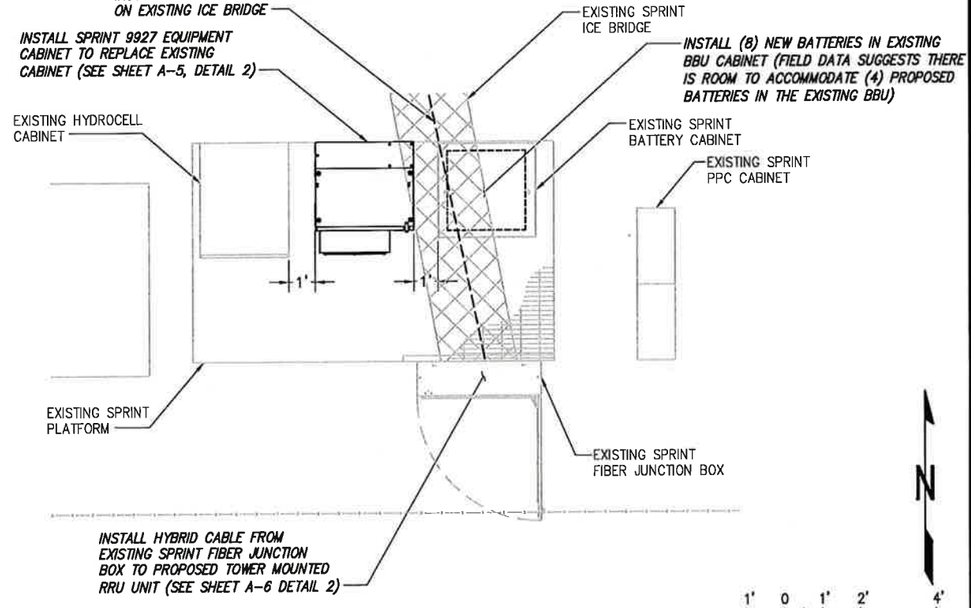


OVERALL SITE PLAN | SCALE: AS NOTED | 1

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



EXISTING EQUIPMENT PLAN | SCALE: AS NOTED | 2



PROPOSED EQUIPMENT PLAN | SCALE: AS NOTED | 3

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:

WESTON SQUARE

SITE CASCADE:

CT03XC064

SITE ADDRESS:

92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:

SITE PLAN

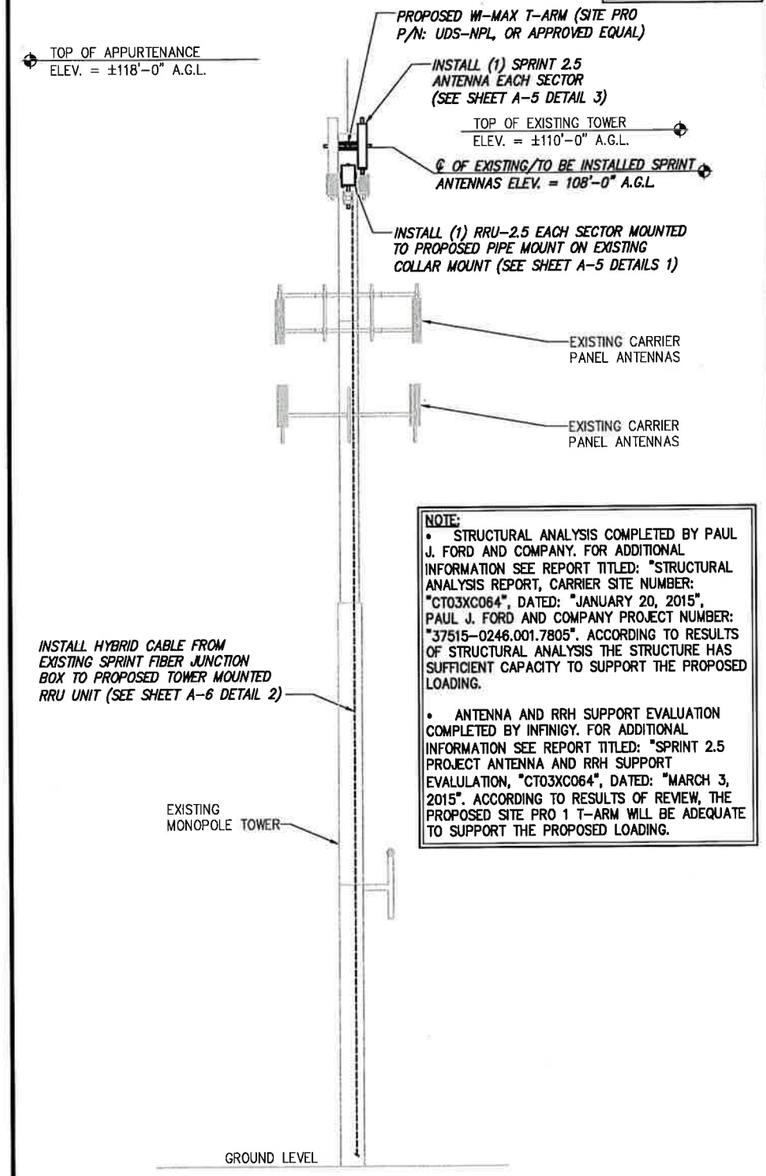
SHEET NUMBER:

A-1

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.

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



NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY PAUL J. FORD AND COMPANY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: "CT03XC064", DATED: "JANUARY 20, 2015", PAUL J. FORD AND COMPANY PROJECT NUMBER: "37515-0246.001.7805". ACCORDING TO RESULTS OF STRUCTURAL ANALYSIS THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.

- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "SPRINT 2.5 PROJECT ANTENNA AND RRH SUPPORT EVALULATION, "CT03XC064", DATED: "MARCH 3, 2015". ACCORDING TO RESULTS OF REVIEW, THE PROPOSED SITE PRO 1 T-ARM WILL BE ADEQUATE TO SUPPORT THE PROPOSED LOADING.

TOWER ELEVATION | NO SCALE | 1

DETAIL NOT USED | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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 353-000

MLA PARTNER:
CROWN CASTLE

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

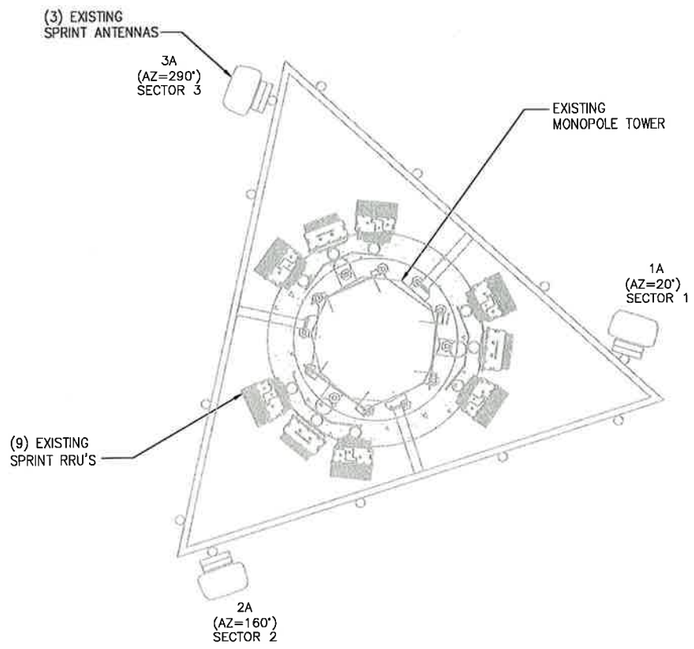
SITE NAME:
WESTON SQUARE

SITE CASCADE:
CT03XC064

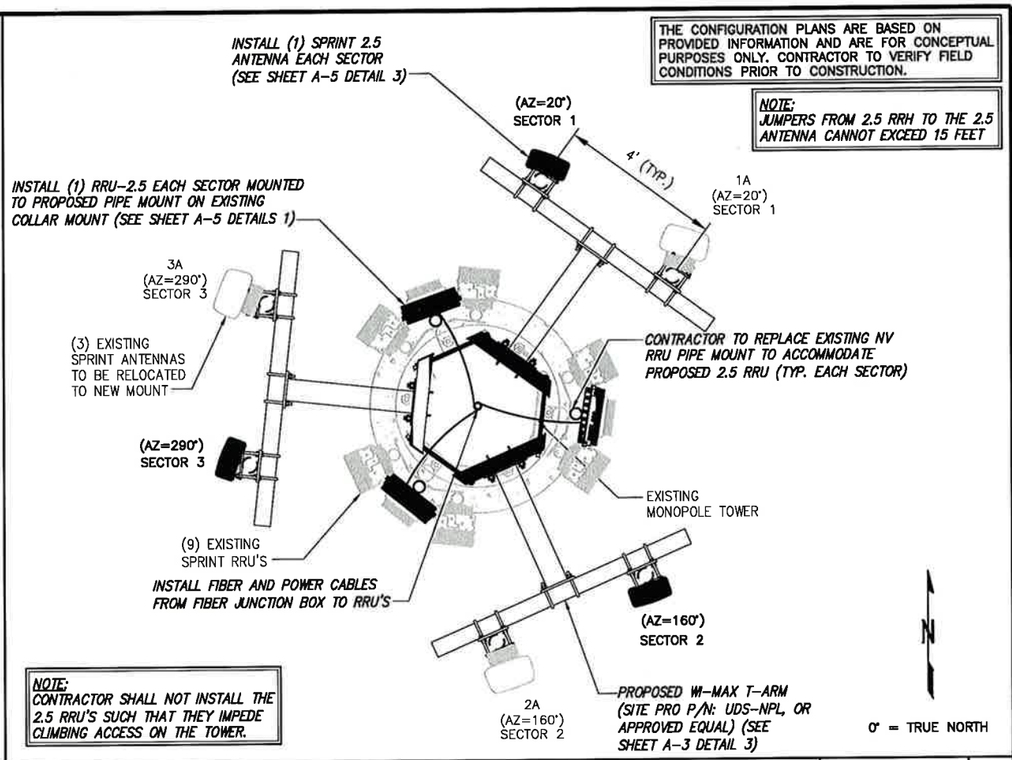
SITE ADDRESS:
92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2



EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

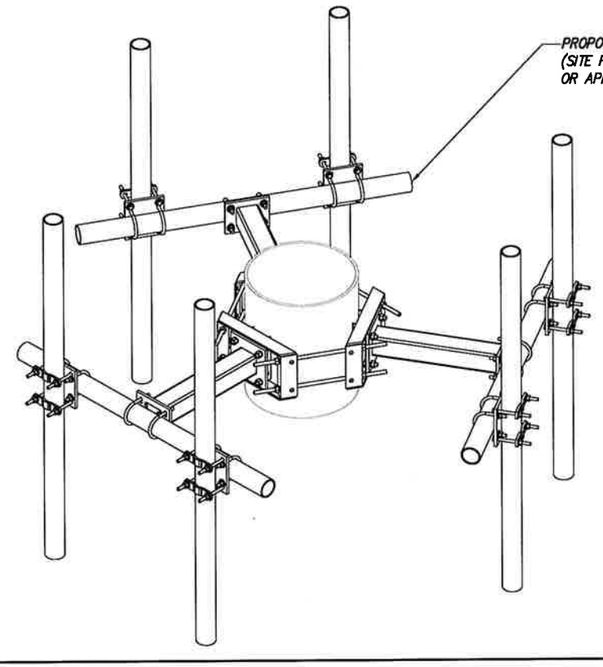


THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

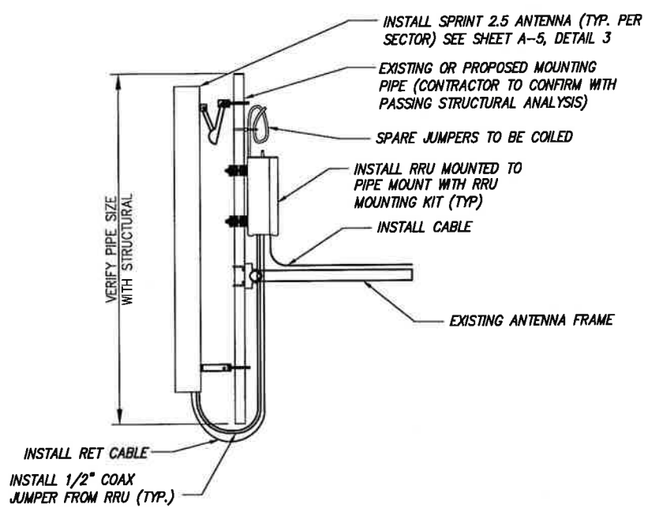
NOTE: JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

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

FINAL ANTENNA LAYOUT | NO SCALE | 2



PROPOSED MOUNT DETAIL | NO SCALE | 3



NOTES:

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

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

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

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

TYPICAL ANTENNA & RRU MOUNTING DETAILS | NO SCALE | 4

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:

WESTON SQUARE

SITE CASCADE:

CT03XC064

SITE ADDRESS:

92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:

ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

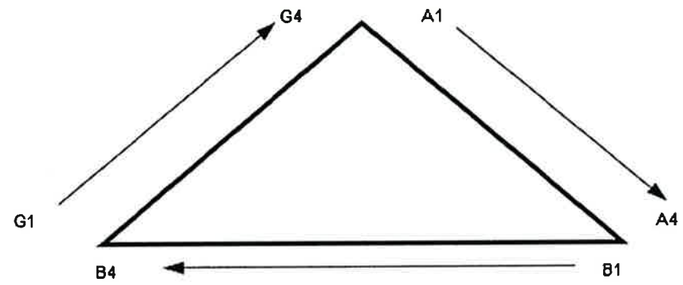
A-3

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

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

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

MLA PARTNER:
CROWN CASTLE

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:
WESTON SQUARE

SITE CASCADE:
CT03XC064

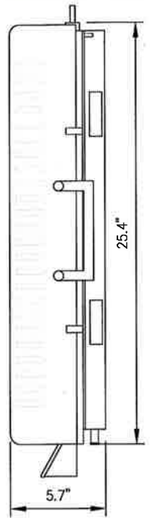
SITE ADDRESS:
92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:
COLOR CODING AND NOTES

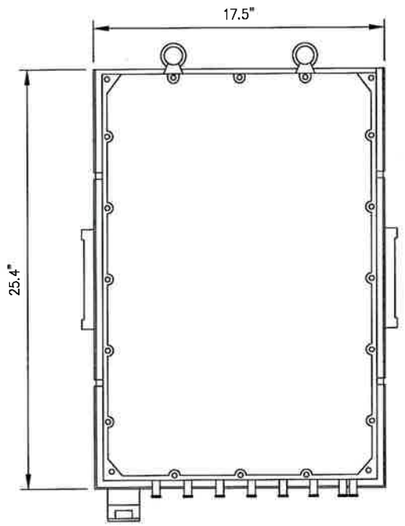
SHEET NUMBER:
A-4

2.5 RRU'S

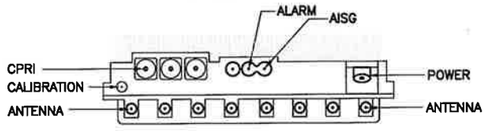
RRU: ALCATEL LUCENT TD-RRH8X20
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



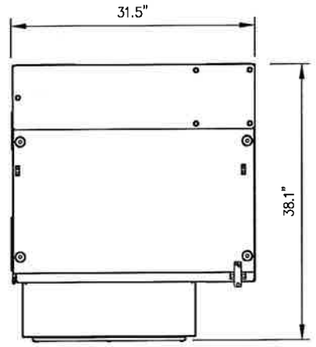
PLAN VIEW

NOTES

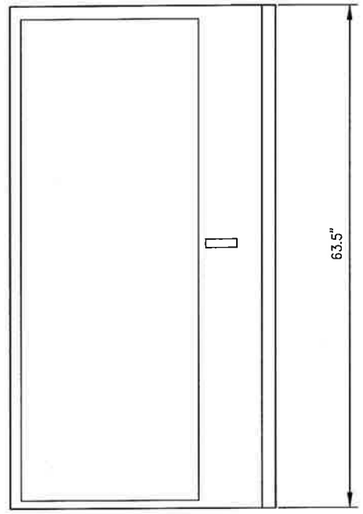
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN.

NO SCALE | 1

9927 BTS CABINET



TOP VIEW



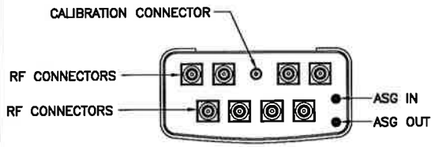
FRONT VIEW

NO SCALE | 2

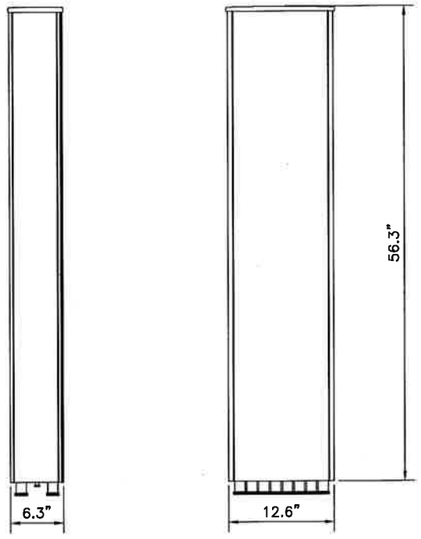
2.5 ANTENNA

ANTENNA RFS APXVTM14-C-I20

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

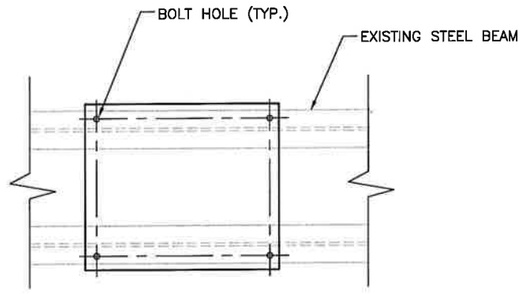


PLAN VIEW



NO SCALE | 3

MOUNTING DETAIL



1. VERIFY BOLT HOLE SPACING WITH EQUIPMENT CUT SHEETS.
2. NEW EQUIPMENT CABINET TO BE MOUNTED TO EXISTING SUPPORT SURFACE WITH BOLT-DOWN SYSTEM PER MANUFACTURER'S SPECIFICATION AND FIELD DRILL HOLES THROUGH EXISTING STEEL BEAMS AS REQUIRED.
3. MAINTAIN A MINIMUM OF 1" DISTANCE FROM CENTER OF BOLT HOLE TO EDGE OF FLANGE.

NO SCALE | 4

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:

WESTON SQUARE

SITE CASCADE:

CT03XC064

SITE ADDRESS:

92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-5

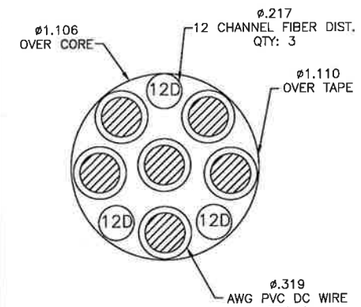
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

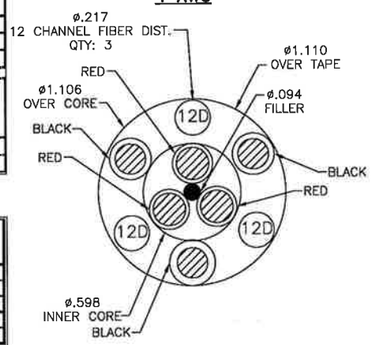
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

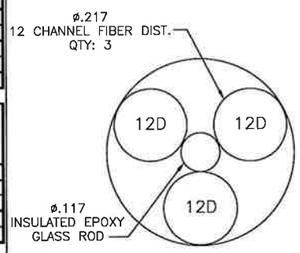
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG



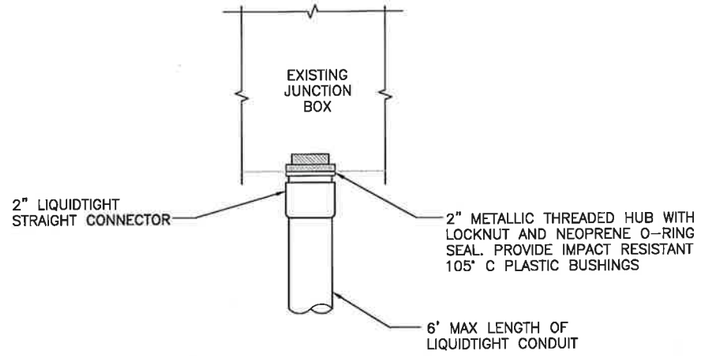
8 & 6 AWG



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

PLANS PREPARED BY:

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

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

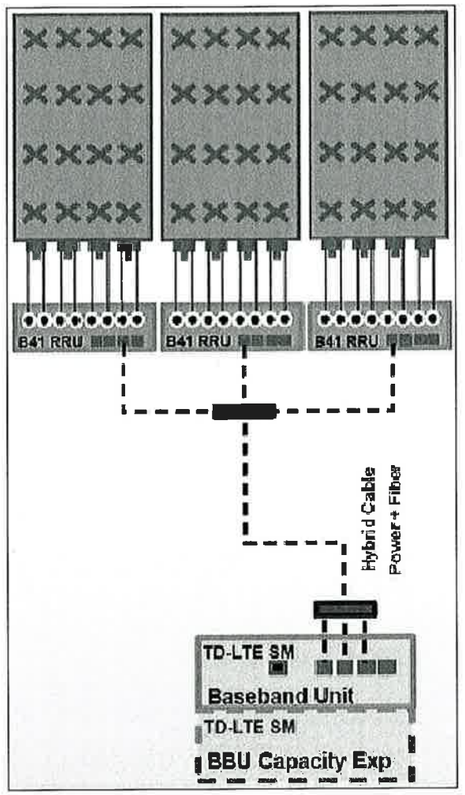
SITE NAME:
WESTON SQUARE

SITE CASCADE:
CT03XC064

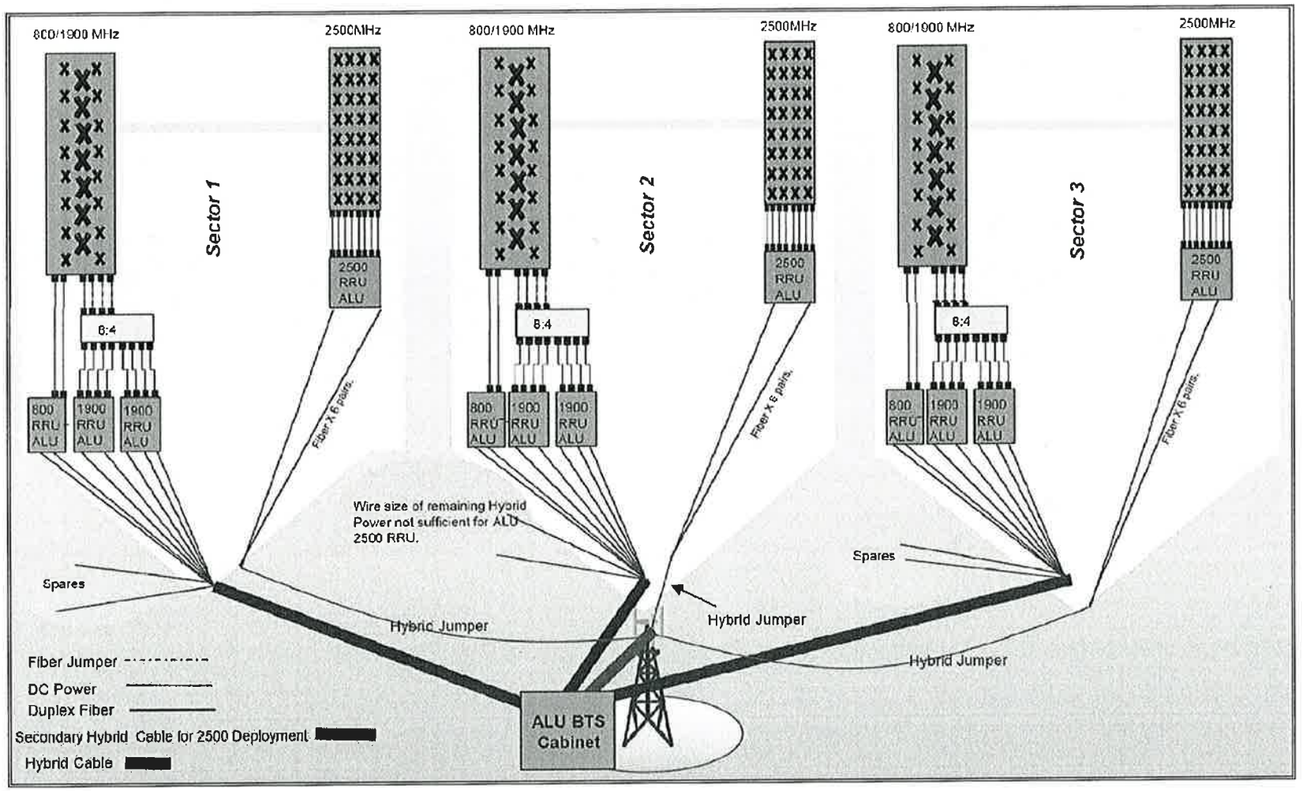
SITE ADDRESS:
92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:
CIVIL DETAILS

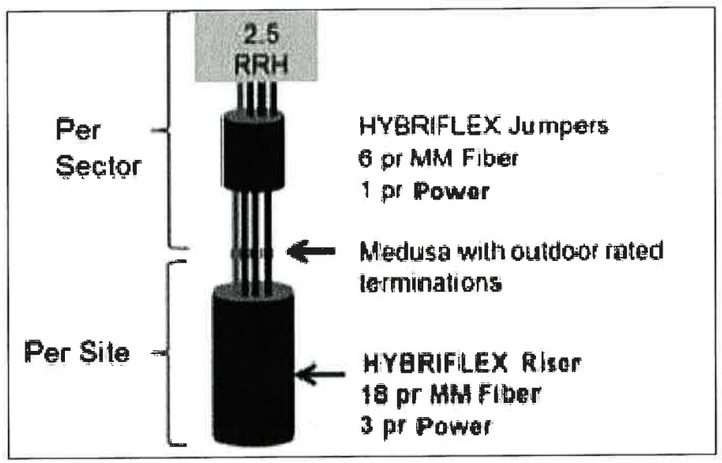
SHEET NUMBER:
A-6



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1

PLUMBING DIAGRAM | NO SCALE | 1

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:

WESTON SQUARE

SITE CASCADE:

CT03XC064

SITE ADDRESS:

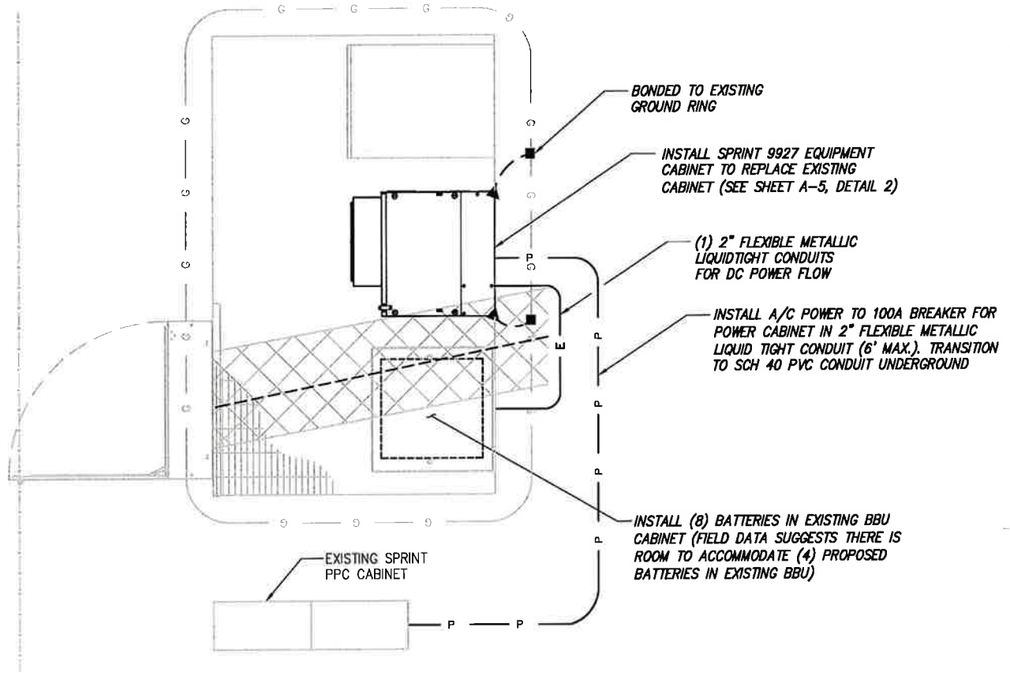
92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-7



NOTE:
CONTRACTOR IS TO ENSURE THE INSTALLATION INSTRUCTIONS FOR EACH CABINET ARE FOLLOWED AND THAT THE MANUFACTURER'S REQUIREMENTS ARE MET.

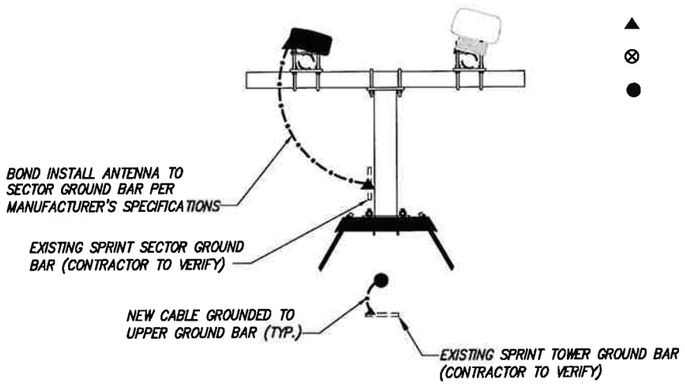
LEGEND:

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

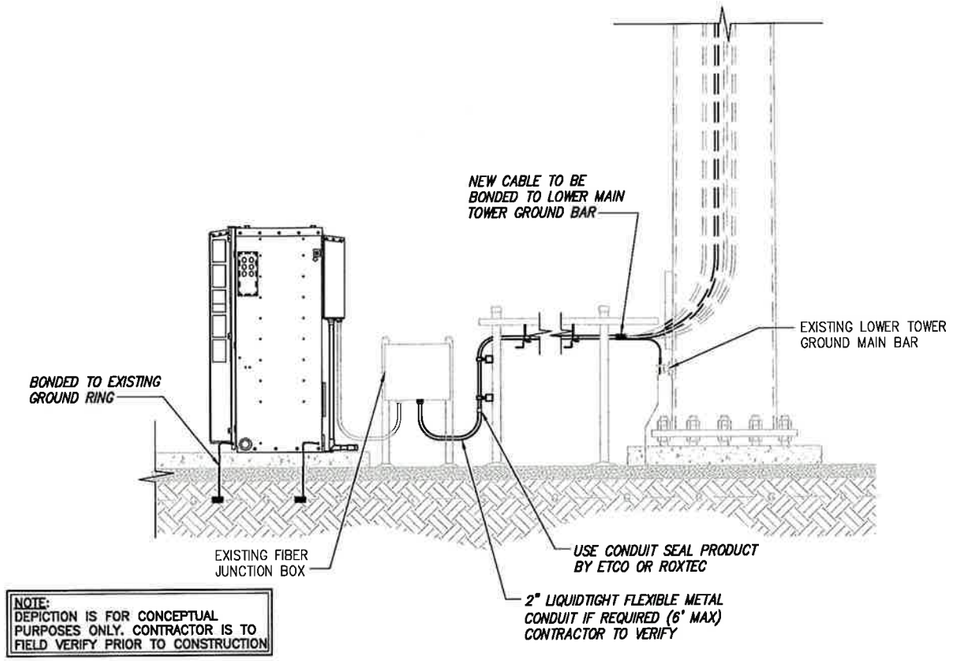
ELECTRICAL & GROUNDING PLAN | NO SCALE | 1

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
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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

JOB NUMBER 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:

WESTON SQUARE

SITE CASCADE:

CT03XC064

SITE ADDRESS:

92 WESTON STREET
HARTFORD, CT 06120

SHEET DESCRIPTION:

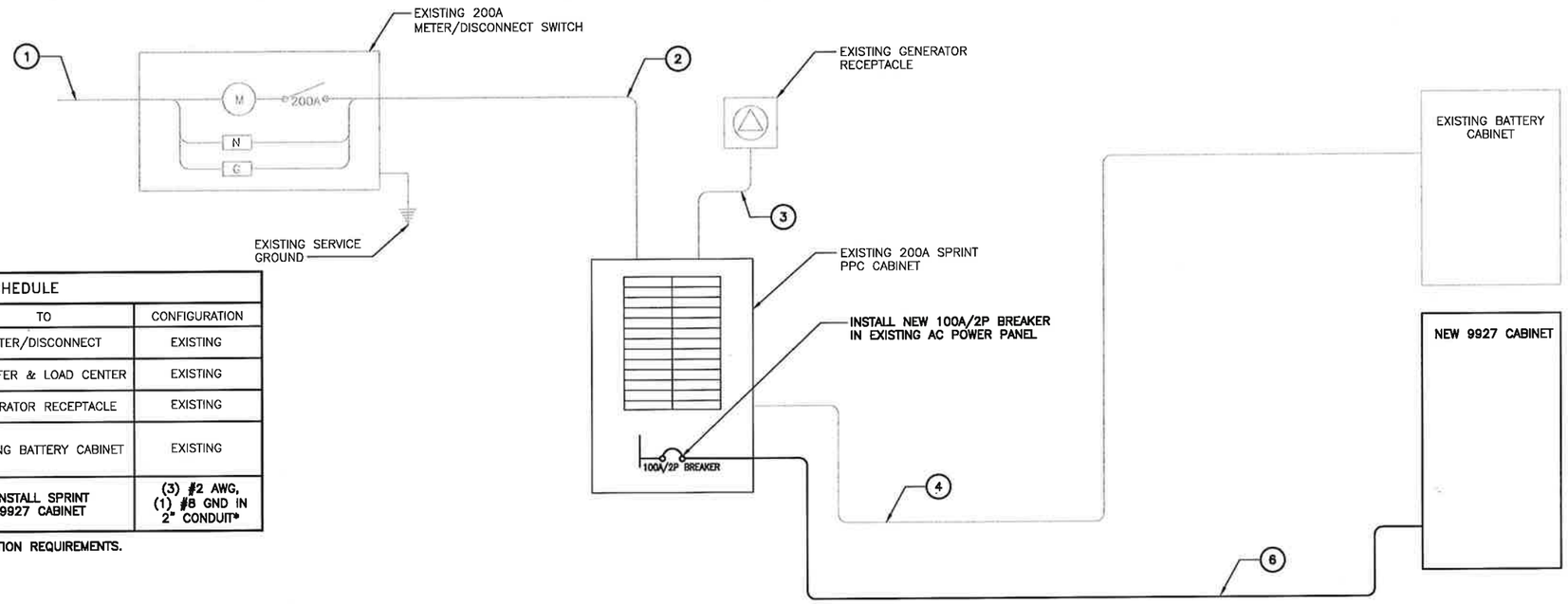
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

NOTES

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



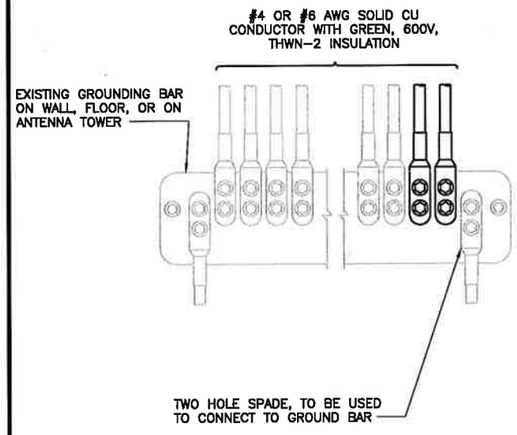
CIRCUIT SCHEDULE

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 BATTERY CABINET	EXISTING
5	**TRANSFER & LOAD CENTER**	**INSTALL SPRINT 9927 CABINET**	**(3) #2 AWG, (1) #8 GND IN 2" CONDUIT***

*CONTRACTOR TO VERIFY WITH 9927 INSTALLATION REQUIREMENTS.

ELECTRICAL ONE-LINE DIAGRAM

NO SCALE | 1

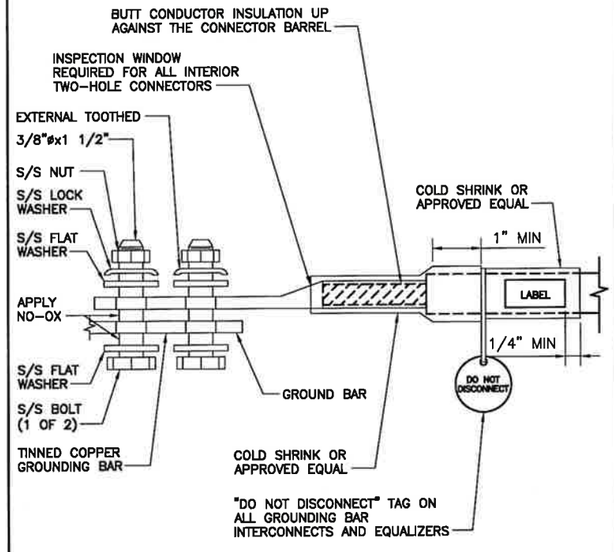


INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE | 2

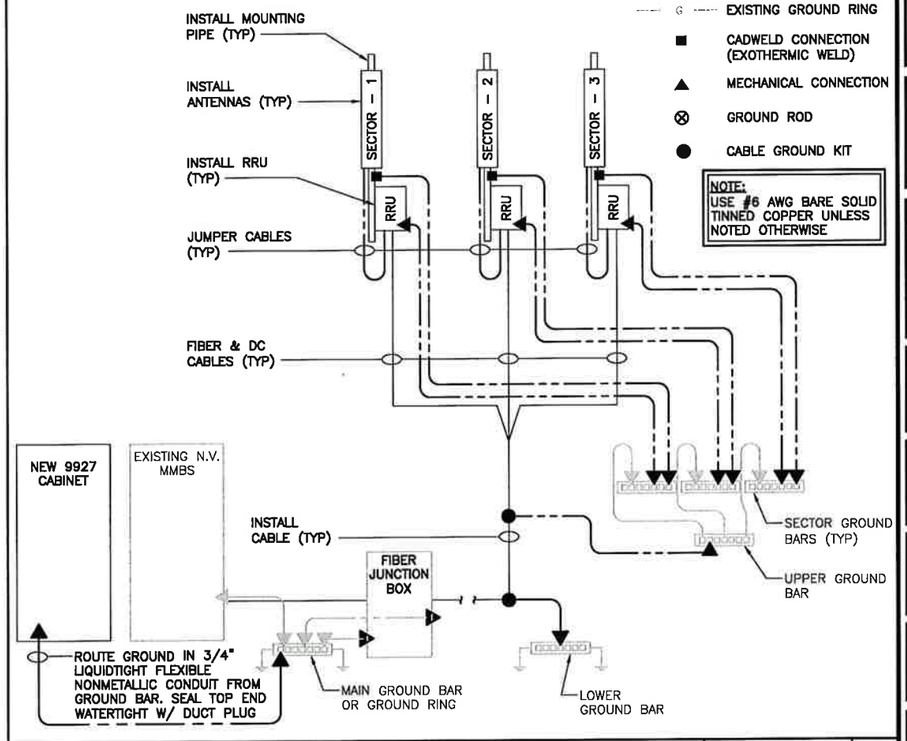
NOTES

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.



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 353-000

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED PER COMMENT	3/13/15	SKB	C
REVISED PER COMMENT	3/5/14	MAP	B
ISSUED FOR REVIEW	01/16/14	MER	A

SITE NAME:

WESTON SQUARE

SITE CASCADE:

CT03XC064

SITE ADDRESS:

92 WESTON STREET
HARTFORD, CT 06120

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 20, 2015**

Sean Dempsey
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Paul J. Ford and Company
250 East Broad St., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject: **Structural Analysis Report**

Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT03XC064
	Carrier Site Name:	WESTON SQUARE
Crown Castle Designation:	**Crown Castle BU Number:**	876325
	Crown Castle Site Name:	WESTON SQUARE
	Crown Castle JDE Job Number:	253007
	Crown Castle Work Order Number:	995484
	Crown Castle Application Number:	208205 Rev. 8
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37515-0246.001.7805
Site Data:	**92 Weston Street, Hartford, Hartford County, CT** **Latitude *41° 47' 12.3"*, Longitude *-72° 39' 44.42"*** **110 Foot - Monopole Tower**	

Dear Sean Dempsey,

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 747771, in accordance with application 208205, revision 8.

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

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 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:

María C. López, P.E.
Project Manager

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

JAN 2 0 2015

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

Date: **January 20, 2015**

Sean Dempsey
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Paul J. Ford and Company
250 East Broad St., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject: Structural Analysis Report

Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT03XC064
	Carrier Site Name:	WESTON SQUARE
Crown Castle Designation:	**Crown Castle BU Number:**	876325
	Crown Castle Site Name:	WESTON SQUARE
	Crown Castle JDE Job Number:	253007
	Crown Castle Work Order Number:	995484
	Crown Castle Application Number:	208205 Rev. 8
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37515-0246.001.7805
Site Data:	**92 Weston Street, Hartford, Hartford County, CT** **Latitude *41° 47' 12.3"*, Longitude *-72° 39' 44.42"*** **110 Foot - Monopole Tower**	

Dear Sean Dempsey,

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 747771, in accordance with application 208205, revision 8.

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

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 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:

María C. López, P.E.
Project Manager

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 110 ft Monopole tower designed by ROHN in October of 1996. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-E. The tower has been modified multiple times in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 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
107.0	108.0	3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe	1	5/8	-
	107.0	1	tower mounts	T-Arm UDS-NPL 32”			
105.0	104.0	3	alcatel lucent	TD-RRH8x20-25	-	-	-

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
107.0	108.0	3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe	3	1-1/4	1
	107.0	3	rfs celwave	IBC1900HG-2A			
		3	rfs celwave	IBC1900BB-1			
		1	tower mounts	Platform Mount [LP 502-1]	-	-	2
105.0	106.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER W/Mount pipes	-	-	1
	105.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz w/Mount Pipe			
		1	tower mounts	Side Arm Mount [SO 102-3]			
		3	alcatel lucent	PCS 1900MHz 4x45W-65MHz w/Mount Pipe	-	-	2
89.0	90.0	6	ericsson	RRUS-11	12 2 1	1-5/8 3/4 3/8	1
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	7750.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21903			
		1	raycap	DC6-48-60-18-8F			
	89.0	1	tower mounts	Platform Mount [LP 502-1]			
		1	tower mounts	Side Arm Mount [SO 102-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
80.0	81.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	7 6 1	7/8 1-1/4 1-5/8	1
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
	80.0	1	tower mounts	Platform Mount [LP 305-1]			

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

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
-	-	-	-	-	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH, 07-11432G, 01/24/08	2192540	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 060671, 06/28/06	1956491	CCISITES
4-POST-MODIFICATION INSPECTION	B&T, 79760, 11/24/09	2561266	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 126558, 10/22/12	3355603	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 131001.876325, 08/06/13	4075332	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Rohn, 34738SW, 10/18/96	1615433	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Rohn, 34738SW, 10/17/96	1615400	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B&T, 79760, 11/24/09	2356066	CCISITES

3.1) Analysis Method

tnxTower (version 6.1.4.1), 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) In accordance with discussions with CCI Corporate Engineering: Based on the assumption that the monopole manufacturer (ROHN/PiRod) has designed the flange plates at splices to adequately develop the full capacity of the unreinforced shaft section using unpublished and/or proprietary methodologies, we are assuming that if our analysis shows that both the existing shaft and the existing flange bolts are at a usage capacity of 105% or less, then the existing flange plates are at a usage capacity of 105% or less and no additional analysis of the flange plate is required.
5) Monopole was reinforced in conformance with the referenced modification drawings.

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 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	110 - 90	Pole	P24x1/4	1	-2.92	589.19	24.5	Pass
L2	90 - 60	Pole	P24x3/8	2	-10.37	934.94	81.7	Pass
L3	60 - 39.5	Pole	30" x 0.375"	3	-13.45	1166.57	95.6	Pass
L4	39.5 - 30	Pole	RPS 30" x 0.483"	4	-15.21	1359.81	89.9	Pass
L5	30 - 18.75	Pole	P30x1/2	5	-17.74	1556.58	94.7	Pass
L6	18.75 - 8.25	Pole	RPS 30" x 0.71979"	6	-20.47	2050.43	84.9	Pass
L7	8.25 - 0	Pole	RPS 30" x 0.801"	7	-22.83	2467.02	79.1	Pass
							Summary	
						Pole (L3)	95.6	Pass
						Rating =	95.6	Pass

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,3	Anchor Rods	0	95.4	Pass
1	Base Plate	0	71.4	Pass
1	Base Foundation Steel	0	96.3	Pass
1,2	Base Foundation Soil Interaction	0	24.3	Pass
1,4	Flange Connection	90	24.5	Pass
1,4	Flange Connection	60	81.7	Pass
1	Flange Connection	30	89.0	Pass

Structure Rating (max from all components) =	96.3%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) According to the procedures prescribed and agreed to by the Crown Castle Engineering Foundation Committee 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.
3) Worst case scenario between existing and post installed anchors.
4) See assumptions #4.

4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

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 Hartford County, Connecticut.
2) Basic wind speed of 80 mph.
3) Nominal ice thickness of 1.0000 in.
4) Ice thickness is considered to increase with height.
5) Ice density of 56.00 pcf.
6) A wind speed of 38 mph is used in combination with ice.
7) Deflections calculated using a wind speed of 50 mph.
8) A non-linear (P-delta) analysis was used.
9) Pressures are calculated at each section.
10) Stress ratio used in pole design is 1.333.
11) 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		

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	110.0000-90.0000	20.0000	P24x1/4	A53-B-42 (42 ksi)	
L2	90.0000-60.0000	30.0000	P24x3/8	A53-B-42 (42 ksi)	
L3	60.0000-39.5000	20.5000	30" x 0.375"	A53-B-42 (42 ksi)	
L4	39.5000-30.0000	9.5000	RPS 30" x 0.483"	Reinf 37.96 ksi (38 ksi)	
L5	30.0000-18.7500	11.2500	P30x1/2	A53-B-42 (42 ksi)	
L6	18.7500-8.2500	10.5000	RPS 30" x 0.71979"	Reinf 38.72 ksi (39 ksi)	
L7	8.2500-0.0000	8.2500	RPS 30" x 0.801"	Reinf 41.98 ksi (42 ksi)	

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 110.0000-90.0000				1	1	1		
L2 90.0000-60.0000				1	1	1		
L3 60.0000-39.5000				1	1	1		
L4 39.5000-30.0000				1	1	1		
L5 30.0000-18.7500				1	1	1		
L6 18.7500-8.2500				1	1	1		
L7 8.2500-0.0000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
HB114-1-08U4-M5J(1 1/4")	A	No	Inside Pole	107.0000 - 0.0000	3	No Ice	0.0000	1.08
						1/2" Ice	0.0000	1.08
						1" Ice	0.0000	1.08
						2" Ice	0.0000	1.08
						4" Ice	0.0000	1.08
HB058-M12-XXXF(5/8")	C	No	Inside Pole	107.0000 - 0.0000	1	No Ice	0.0000	0.24
						1/2" Ice	0.0000	0.24
						1" Ice	0.0000	0.24
						2" Ice	0.0000	0.24
						4" Ice	0.0000	0.24
***								
WR-VG86ST-BRD (3/4")	B	No	Inside Pole	89.0000 - 0.0000	2	No Ice	0.0000	0.88
						1/2" Ice	0.0000	0.88
						1" Ice	0.0000	0.88
						2" Ice	0.0000	0.88
						4" Ice	0.0000	0.88
LDF2-50A (3/8 FOAM)	B	No	Inside Pole	89.0000 - 0.0000	1	No Ice	0.0000	0.08
						1/2" Ice	0.0000	0.08
						1" Ice	0.0000	0.08
						2" Ice	0.0000	0.08
						4" Ice	0.0000	0.08
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	89.0000 - 0.0000	9	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
LDF7-50A (1-5/8 FOAM)	B	No	CaAa (Out Of Face)	89.0000 - 0.0000	1	No Ice	0.1980	0.82
						1/2" Ice	0.2980	2.33
						1" Ice	0.3980	4.46
						2" Ice	0.5980	10.54
						4" Ice	0.9980	30.04

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
2" Rigid Conduit (1-1/2" Thick-wall Conduit)	C	No	Inside Pole	89.0000 - 0.0000	1	No Ice	0.0000	2.60
						1/2" Ice	0.0000	2.60
						1" Ice	0.0000	2.60
						2" Ice	0.0000	2.60
						4" Ice	0.0000	2.60
1-5/8 FOAM	B	No	CaAa (Out Of Face)	89.0000 - 0.0000	2	No Ice	0.0000	0.82
						1/2" Ice	0.0000	2.33
						1" Ice	0.0000	4.46
						2" Ice	0.0000	10.54
						4" Ice	0.0000	30.04
***								
LDF5-50A(7/8")	C	No	Inside Pole	80.0000 - 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
VXL6-50(1-1/4")	C	No	Inside Pole	80.0000 - 0.0000	6	No Ice	0.0000	0.50
						1/2" Ice	0.0000	0.50
						1" Ice	0.0000	0.50
						2" Ice	0.0000	0.50
						4" Ice	0.0000	0.50
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	C	No	CaAa (Out Of Face)	80.0000 - 0.0000	1	No Ice	0.1625	1.07
						1/2" Ice	0.2625	2.37
						1" Ice	0.3625	4.28
						2" Ice	0.5625	9.93
						4" Ice	0.9625	28.56
810921-001(7/8")	C	No	CaAa (Out Of Face)	80.0000 - 0.0000	6	No Ice	0.0000	0.40
						1/2" Ice	0.0000	1.38
						1" Ice	0.0000	2.98
						2" Ice	0.0000	8.00
						4" Ice	0.0000	25.38
***								
Aero MP3-05	C	No	CaAa (Out Of Face)	10.5000 - 0.0000	1	No Ice	0.3478	0.00
						1/2" Ice	0.4001	0.00
						1" Ice	0.6566	0.00
						2" Ice	0.8788	0.00
						4" Ice	1.3232	0.00
Aero MP3-05	C	No	CaAa (Out Of Face)	21.0000 - 6.0000	1	No Ice	0.3478	0.00
						1/2" Ice	0.4001	0.00
						1" Ice	0.6566	0.00
						2" Ice	0.8788	0.00
						4" Ice	1.3232	0.00
Aero MP3-03	C	No	CaAa (Out Of Face)	40.5000 - 30.0000	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
**								

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	110.0000-90.0000	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	90.0000-60.0000	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	5.742	0.34
		C	0.000	0.000	0.000	3.250	0.22
L3	60.0000-39.5000	A	0.000	0.000	0.000	0.000	0.07
		B	0.000	0.000	0.000	4.059	0.24
		C	0.000	0.000	0.000	3.594	0.20
L4	39.5000-30.0000	A	0.000	0.000	0.000	0.000	0.03
		B	0.000	0.000	0.000	1.881	0.11
		C	0.000	0.000	0.000	4.037	0.09

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
L5	30.0000-18.7500	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.000	2.228	0.13
		C	0.000	0.000	0.000	2.611	0.11
L6	18.7500-8.2500	A	0.000	0.000	0.000	0.000	0.03
		B	0.000	0.000	0.000	2.079	0.12
		C	0.000	0.000	0.000	6.141	0.10
L7	8.2500-0.0000	A	0.000	0.000	0.000	0.000	0.03
		B	0.000	0.000	0.000	1.634	0.10
		C	0.000	0.000	0.000	4.992	0.08

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	110.0000-90.0000	A	1.142	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	90.0000-60.0000	A	1.104	0.000	0.000	0.000	0.000	0.10
		B		0.000	0.000	0.000	12.142	0.71
		C		0.000	0.000	0.000	7.664	0.67
L3	60.0000-39.5000	A	1.050	0.000	0.000	0.000	0.000	0.07
		B		0.000	0.000	0.000	8.366	0.48
		C		0.000	0.000	0.000	8.134	0.62
L4	39.5000-30.0000	A	1.006	0.000	0.000	0.000	0.000	0.03
		B		0.000	0.000	0.000	3.793	0.22
		C		0.000	0.000	0.000	8.073	0.27
L5	30.0000-18.7500	A	1.000	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	0.000	4.478	0.25
		C		0.000	0.000	0.000	5.555	0.32
L6	18.7500-8.2500	A	1.000	0.000	0.000	0.000	0.000	0.03
		B		0.000	0.000	0.000	4.179	0.24
		C		0.000	0.000	0.000	12.177	0.30
L7	8.2500-0.0000	A	1.000	0.000	0.000	0.000	0.000	0.03
		B		0.000	0.000	0.000	3.284	0.19
		C		0.000	0.000	0.000	9.884	0.23

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	110.0000-90.0000	0.0000	0.0000	0.0000	0.0000
L2	90.0000-60.0000	0.0938	0.1955	0.1364	0.3482
L3	60.0000-39.5000	0.0257	0.2436	0.0106	0.4337
L4	39.5000-30.0000	-0.2360	0.3740	-0.3736	0.5979
L5	30.0000-18.7500	-0.0378	0.2752	-0.0874	0.4699
L6	18.7500-8.2500	-0.3827	0.4471	-0.5856	0.6914
L7	8.2500-0.0000	-0.4003	0.4559	-0.6096	0.7021

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVSPP18-C-A20 w/ Mount Pipe	A	From Face	2.0000 0.00 1.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.4975 9.1490 9.7672 11.0311 13.6786	6.9458 8.1266 9.0212 10.8440 14.8507	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	B	From Face	2.0000 0.00 1.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.4975 9.1490 9.7672 11.0311 13.6786	6.9458 8.1266 9.0212 10.8440 14.8507	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	C	From Face	2.0000 0.00 1.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.4975 9.1490 9.7672 11.0311 13.6786	6.9458 8.1266 9.0212 10.8440 14.8507	0.08 0.15 0.23 0.41 0.91
IBC1900HG-2A	A	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.1270 1.2726 1.4269 1.7613 2.5339	0.5329 0.6471 0.7699 1.0415 1.6883	0.02 0.03 0.04 0.06 0.15
IBC1900HG-2A	B	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.1270 1.2726 1.4269 1.7613 2.5339	0.5329 0.6471 0.7699 1.0415 1.6883	0.02 0.03 0.04 0.06 0.15
IBC1900HG-2A	C	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.1270 1.2726 1.4269 1.7613 2.5339	0.5329 0.6471 0.7699 1.0415 1.6883	0.02 0.03 0.04 0.06 0.15
IBC1900BB-1	A	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.1270 1.2726 1.4269 1.7613 2.5339	0.5329 0.6471 0.7699 1.0415 1.6883	0.02 0.03 0.04 0.06 0.15
IBC1900BB-1	B	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.1270 1.2726 1.4269 1.7613 2.5339	0.5329 0.6471 0.7699 1.0415 1.6883	0.02 0.03 0.04 0.06 0.15
IBC1900BB-1	C	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.1270 1.2726 1.4269 1.7613 2.5339	0.5329 0.6471 0.7699 1.0415 1.6883	0.02 0.03 0.04 0.06 0.15
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	2.0000 0.00 1.00	0.00	107.0000	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
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	2.0000 0.00 1.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" 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

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*
						4" Ice			
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	2.0000 0.00 1.00	0.00	107.0000	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
(2) 4'x2" Pipe Mount	A	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.7852 1.0284 1.2809 1.8136 3.1111	0.7852 1.0284 1.2809 1.8136 3.1111	0.03 0.03 0.04 0.07 0.16
(2) 4'x2" Pipe Mount	B	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.7852 1.0284 1.2809 1.8136 3.1111	0.7852 1.0284 1.2809 1.8136 3.1111	0.03 0.03 0.04 0.07 0.16
(2) 4'x2" Pipe Mount	C	From Face	2.0000 0.00 0.00	0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.7852 1.0284 1.2809 1.8136 3.1111	0.7852 1.0284 1.2809 1.8136 3.1111	0.03 0.03 0.04 0.07 0.16
T-Arm Mount [TA 702-3]	C	None		0.00	107.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.6400 6.5500 7.4600 9.2800 12.9200	5.6400 6.5500 7.4600 9.2800 12.9200	0.34 0.43 0.52 0.70 1.06
****									
PCS 1900MHz 4x45W-65MHz w/Mount Pipe	A	From Face	2.0000 0.00 0.00	0.00	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1217 3.4775 3.8464 4.6232 6.4022	3.4768 3.9581 4.4572 5.5092 7.9717	0.07 0.11 0.15 0.24 0.51
PCS 1900MHz 4x45W-65MHz w/Mount Pipe	B	From Face	2.0000 0.00 0.00	0.00	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1217 3.4775 3.8464 4.6232 6.4022	3.4768 3.9581 4.4572 5.5092 7.9717	0.07 0.11 0.15 0.24 0.51
PCS 1900MHz 4x45W-65MHz w/Mount Pipe	C	From Face	2.0000 0.00 0.00	0.00	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.1217 3.4775 3.8464 4.6232 6.4022	3.4768 3.9581 4.4572 5.5092 7.9717	0.07 0.11 0.15 0.24 0.51
800MHz 2X50W RRH W/FILTER W/Mount pipes	A	From Face	2.0000 0.00 1.00	0.00	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.7148 3.0250 3.3485 4.0439 5.6629	2.8803 3.2839 3.7054 4.6191 6.7993	0.08 0.11 0.14 0.23 0.47
800MHz 2X50W RRH W/FILTER W/Mount pipes	B	From Face	2.0000 0.00 1.00	0.00	105.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.7148 3.0250 3.3485 4.0439 5.6629	2.8803 3.2839 3.7054 4.6191 6.7993	0.08 0.11 0.14 0.23 0.47
800MHz 2X50W RRH W/FILTER W/Mount pipes	C	From Face	2.0000 0.00 1.00	0.00	105.0000	No Ice 1/2" Ice	2.7148 3.0250 3.3485	2.8803 3.2839 3.7054	0.08 0.11 0.14

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	4.0439	4.6191	0.23
						2" Ice	5.6629	6.7993	0.47
						4" Ice			
Side Arm Mount [SO 102-3]	C	None		0.00	105.0000	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
TD-RRH8x20-25	A	From Leg	2.0000	0.00	105.0000	No Ice	4.7198	1.7027	0.07
			0.00			1/2" Ice	5.0138	1.9196	0.10
			-1.00			1" Ice	5.3165	2.1453	0.13
						2" Ice	5.9478	2.6224	0.20
						4" Ice	7.3141	3.6805	0.40
TD-RRH8x20-25	B	From Leg	2.0000	0.00	105.0000	No Ice	4.7198	1.7027	0.07
			0.00			1/2" Ice	5.0138	1.9196	0.10
			1.00			1" Ice	5.3165	2.1453	0.13
						2" Ice	5.9478	2.6224	0.20
						4" Ice	7.3141	3.6805	0.40
TD-RRH8x20-25	C	From Leg	2.0000	0.00	105.0000	No Ice	4.7198	1.7027	0.07
			0.00			1/2" Ice	5.0138	1.9196	0.10
			1.00			1" Ice	5.3165	2.1453	0.13
						2" Ice	5.9478	2.6224	0.20
						4" Ice	7.3141	3.6805	0.40
****									
(2) RRUS-11	A	From Face	4.0000	0.00	89.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2" Ice	3.4905	1.5510	0.07
			1.00			1" Ice	3.7411	1.7380	0.09
						2" Ice	4.2682	2.1381	0.15
						4" Ice	5.4260	3.0418	0.31
(2) RRUS-11	B	From Face	4.0000	0.00	89.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2" Ice	3.4905	1.5510	0.07
			1.00			1" Ice	3.7411	1.7380	0.09
						2" Ice	4.2682	2.1381	0.15
						4" Ice	5.4260	3.0418	0.31
(2) RRUS-11	C	From Face	4.0000	0.00	89.0000	No Ice	3.2486	1.3726	0.05
			0.00			1/2" Ice	3.4905	1.5510	0.07
			1.00			1" Ice	3.7411	1.7380	0.09
						2" Ice	4.2682	2.1381	0.15
						4" Ice	5.4260	3.0418	0.31
Side Arm Mount [SO 102-3]	C	None		0.00	89.0000	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
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Face	4.0000	0.00	89.0000	No Ice	8.4975	6.3042	0.07
			0.00			1/2" Ice	9.1490	7.4790	0.14
			1.00			1" Ice	9.7672	8.3676	0.21
						2" Ice	11.0311	10.1785	0.38
						4" Ice	13.6786	14.0237	0.87
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Face	4.0000	0.00	89.0000	No Ice	8.4975	6.3042	0.07
			0.00			1/2" Ice	9.1490	7.4790	0.14
			1.00			1" Ice	9.7672	8.3676	0.21
						2" Ice	11.0311	10.1785	0.38
						4" Ice	13.6786	14.0237	0.87
AM-X-CD-16-65-00T-RET	C	From Face	4.0000	0.00	89.0000	No Ice	8.4975	6.3042	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
w/ Mount Pipe			0.00			1/2"	9.1490	7.4790	0.14
			1.00			Ice	9.7672	8.3676	0.21
						1" Ice	11.0311	10.1785	0.38
						2" Ice	13.6786	14.0237	0.87
						4" Ice			
DC6-48-60-18-8F	A	From Face	4.0000	0.00	89.0000	No Ice	1.4667	1.4667	0.02
			0.00			1/2"	1.6667	1.6667	0.04
			1.00			Ice	1.8778	1.8778	0.06
						1" Ice	2.3333	2.3333	0.11
						2" Ice	3.3778	3.3778	0.24
						4" Ice			
(2) 7750.00 w/ Mount Pipe	A	From Face	4.0000	0.00	89.0000	No Ice	6.1194	4.2543	0.06
			0.00			1/2"	6.6258	5.0137	0.10
			1.00			Ice	7.1283	5.7109	0.16
						1" Ice	8.1643	7.1553	0.29
						2" Ice	10.3599	10.4117	0.66
						4" Ice			
(2) 7750.00 w/ Mount Pipe	B	From Face	4.0000	0.00	89.0000	No Ice	6.1194	4.2543	0.06
			0.00			1/2"	6.6258	5.0137	0.10
			1.00			Ice	7.1283	5.7109	0.16
						1" Ice	8.1643	7.1553	0.29
						2" Ice	10.3599	10.4117	0.66
						4" Ice			
(2) 7750.00 w/ Mount Pipe	C	From Face	4.0000	0.00	89.0000	No Ice	6.1194	4.2543	0.06
			0.00			1/2"	6.6258	5.0137	0.10
			1.00			Ice	7.1283	5.7109	0.16
						1" Ice	8.1643	7.1553	0.29
						2" Ice	10.3599	10.4117	0.66
						4" Ice			
(2) LGP21401	A	From Face	4.0000	0.00	89.0000	No Ice	1.2880	0.3640	0.01
			0.00			1/2"	1.4453	0.4785	0.02
			1.00			Ice	1.6112	0.6017	0.03
						1" Ice	1.9690	0.8739	0.05
						2" Ice	2.7882	1.5220	0.14
						4" Ice			
(2) LGP21401	B	From Face	4.0000	0.00	89.0000	No Ice	1.2880	0.3640	0.01
			0.00			1/2"	1.4453	0.4785	0.02
			1.00			Ice	1.6112	0.6017	0.03
						1" Ice	1.9690	0.8739	0.05
						2" Ice	2.7882	1.5220	0.14
						4" Ice			
(2) LGP21401	C	From Face	4.0000	0.00	89.0000	No Ice	1.2880	0.3640	0.01
			0.00			1/2"	1.4453	0.4785	0.02
			1.00			Ice	1.6112	0.6017	0.03
						1" Ice	1.9690	0.8739	0.05
						2" Ice	2.7882	1.5220	0.14
						4" Ice			
(2) LGP21903	A	From Face	4.0000	0.00	89.0000	No Ice	0.2695	0.1838	0.01
			0.00			1/2"	0.3432	0.2483	0.01
			1.00			Ice	0.4255	0.3216	0.02
						1" Ice	0.6160	0.4940	0.03
						2" Ice	1.1009	0.9425	0.07
						4" Ice			
(2) LGP21903	B	From Face	4.0000	0.00	89.0000	No Ice	0.2695	0.1838	0.01
			0.00			1/2"	0.3432	0.2483	0.01
			1.00			Ice	0.4255	0.3216	0.02
						1" Ice	0.6160	0.4940	0.03
						2" Ice	1.1009	0.9425	0.07
						4" Ice			
(2) LGP21903	C	From Face	4.0000	0.00	89.0000	No Ice	0.2695	0.1838	0.01
			0.00			1/2"	0.3432	0.2483	0.01
			1.00			Ice	0.4255	0.3216	0.02
						1" Ice	0.6160	0.4940	0.03
						2" Ice	1.1009	0.9425	0.07
						4" Ice			

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
6'x2" Pipe Mount	A	From Face	4.0000 0.00 0.00	0.00	89.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2000 1.8025 2.1698 2.9321 4.5679	1.2000 1.8025 2.1698 2.9321 4.5679	0.07 0.08 0.09 0.13 0.27
6'x2" Pipe Mount	B	From Face	4.0000 0.00 0.00	0.00	89.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2000 1.8025 2.1698 2.9321 4.5679	1.2000 1.8025 2.1698 2.9321 4.5679	0.07 0.08 0.09 0.13 0.27
6'x2" Pipe Mount	C	From Face	4.0000 0.00 0.00	0.00	89.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2000 1.8025 2.1698 2.9321 4.5679	1.2000 1.8025 2.1698 2.9321 4.5679	0.07 0.08 0.09 0.13 0.27
Platform Mount [LP 502-1]	C	None		0.00	89.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	30.0000 44.0000 58.9882 85.6292 138.9112	30.0000 44.0000 58.9882 85.6292 138.9112	0.93 1.19 1.46 2.00 3.07
****									
6'x2" Pipe Mount	A	From Face	4.0000 0.00 0.00	0.00	80.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2000 1.8025 2.1698 2.9321 4.5679	1.2000 1.8025 2.1698 2.9321 4.5679	0.07 0.08 0.09 0.13 0.27
6'x2" Pipe Mount	B	From Face	4.0000 0.00 0.00	0.00	80.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2000 1.8025 2.1698 2.9321 4.5679	1.2000 1.8025 2.1698 2.9321 4.5679	0.07 0.08 0.09 0.13 0.27
6'x2" Pipe Mount	C	From Face	4.0000 0.00 0.00	0.00	80.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.2000 1.8025 2.1698 2.9321 4.5679	1.2000 1.8025 2.1698 2.9321 4.5679	0.07 0.08 0.09 0.13 0.27
Platform Mount [LP 305-1]	C	None		0.00	80.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	18.0100 23.3300 28.6500 39.2900 60.5700	18.0100 23.3300 28.6500 39.2900 60.5700	1.12 1.35 1.58 2.05 2.97
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.8155 7.3373 7.8532 8.9160 11.1650	5.6334 6.4717 7.2478 8.8537 12.2804	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.8155 7.3373 7.8532 8.9160 11.1650	5.6334 6.4717 7.2478 8.8537 12.2804	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice 1/2" Ice 1" Ice	6.8155 7.3373 7.8532 8.9160	5.6334 6.4717 7.2478 8.8537	0.11 0.17 0.23 0.38

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	11.1650	12.2804	0.81
						4" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
							7.8631	7.2567	0.23
						1" Ice	8.9261	8.8640	0.38
						2" Ice	11.1755	12.2932	0.81
						4" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
							7.8631	7.2567	0.23
						1" Ice	8.9261	8.8640	0.38
						2" Ice	11.1755	12.2932	0.81
						4" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice	6.8253	5.6424	0.11
						1/2" Ice	7.3471	6.4800	0.17
							7.8631	7.2567	0.23
						1" Ice	8.9261	8.8640	0.38
						2" Ice	11.1755	12.2932	0.81
						4" Ice			
KRY 112 144/1	A	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
							0.5941	0.3511	0.02
						1" Ice	0.8145	0.5326	0.03
						2" Ice	1.3590	0.9992	0.08
						4" Ice			
KRY 112 144/1	B	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
							0.5941	0.3511	0.02
						1" Ice	0.8145	0.5326	0.03
						2" Ice	1.3590	0.9992	0.08
						4" Ice			
KRY 112 144/1	C	From Face	4.0000 0.00 1.00	0.00	80.0000	No Ice	0.4083	0.2042	0.01
						1/2" Ice	0.4969	0.2733	0.01
							0.5941	0.3511	0.02
						1" Ice	0.8145	0.5326	0.03
						2" Ice	1.3590	0.9992	0.08
						4" Ice			
****									
Bridge Stiffener (72" x 11" x 1.25")	C	None		0.00	30.0000	No Ice	1.2500	7.7000	0.35
						1/2" Ice	1.9344	8.2423	0.38
							2.6312	8.7932	0.42
						1" Ice	3.6599	9.9210	0.51
						2" Ice	5.5091	12.2802	0.77
						4" Ice			
**									

Tower Pressures - No Ice

G_H = 1.690

Section Elevation ft	*z* ft	K_z	q_z psf	A_G ft^2	*Face*	A_F ft^2	A_R ft^2	A_{leg} ft^2	*Leg %*	C_AA_A *In Face* ft^2	C_AA_A *Out Face* ft^2
L1 110.0000-90.0000	100.0000	1.373	22.49	40.000	A	0.000	40.000	40.000	100.00	0.000	0.000
					B	0.000	40.000		100.00	0.000	0.000
					C	0.000	40.000		100.00	0.000	0.000
L2 90.0000-	75.0000	1.264	20.72	60.000	A	0.000	60.000	60.000	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
60.0000					B	0.000	60.000		100.00	0.000	5.742
					C	0.000	60.000		100.00	0.000	3.250
L3 60.0000-39.5000	49.7500	1.124	18.42	51.250	A	0.000	51.250	51.250	100.00	0.000	0.000
					B	0.000	51.250		100.00	0.000	4.059
					C	0.000	51.250		100.00	0.000	3.594
L4 39.5000-30.0000	34.7500	1.015	16.63	23.750	A	0.000	23.750	23.750	100.00	0.000	0.000
					B	0.000	23.750		100.00	0.000	1.881
					C	0.000	23.750		100.00	0.000	4.037
L5 30.0000-18.7500	24.3750	1	16.38	28.125	A	0.000	28.125	28.125	100.00	0.000	0.000
					B	0.000	28.125		100.00	0.000	2.228
					C	0.000	28.125		100.00	0.000	2.611
L6 18.7500-8.2500	13.5000	1	16.38	26.250	A	0.000	26.250	26.250	100.00	0.000	0.000
					B	0.000	26.250		100.00	0.000	2.079
					C	0.000	26.250		100.00	0.000	6.141
L7 8.2500-0.0000	4.1250	1	16.38	20.625	A	0.000	20.625	20.625	100.00	0.000	0.000
					B	0.000	20.625		100.00	0.000	1.634
					C	0.000	20.625		100.00	0.000	4.992

Tower Pressure - With Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 110.0000-90.0000	100.0000	1.373	4.97	1.1423	43.808	A	0.000	43.808	43.808	100.00	0.000	0.000
						B	0.000	43.808		100.00	0.000	0.000
						C	0.000	43.808		100.00	0.000	0.000
L2 90.0000-60.0000	75.0000	1.264	4.58	1.1035	65.518	A	0.000	65.518	65.518	100.00	0.000	0.000
						B	0.000	65.518		100.00	0.000	12.142
						C	0.000	65.518		100.00	0.000	7.664
L3 60.0000-39.5000	49.7500	1.124	4.07	1.0505	54.839	A	0.000	54.839	54.839	100.00	0.000	0.000
						B	0.000	54.839		100.00	0.000	8.366
						C	0.000	54.839		100.00	0.000	8.134
L4 39.5000-30.0000	34.7500	1.015	3.67	1.0062	25.343	A	0.000	25.343	25.343	100.00	0.000	0.000
						B	0.000	25.343		100.00	0.000	3.793
						C	0.000	25.343		100.00	0.000	8.073
L5 30.0000-18.7500	24.3750	1	3.62	1.0000	30.000	A	0.000	30.000	30.000	100.00	0.000	0.000
						B	0.000	30.000		100.00	0.000	4.478
						C	0.000	30.000		100.00	0.000	5.555
L6 18.7500-8.2500	13.5000	1	3.62	1.0000	28.000	A	0.000	28.000	28.000	100.00	0.000	0.000
						B	0.000	28.000		100.00	0.000	4.179
						C	0.000	28.000		100.00	0.000	12.177
L7 8.2500-0.0000	4.1250	1	3.62	1.0000	22.000	A	0.000	22.000	22.000	100.00	0.000	0.000
						B	0.000	22.000		100.00	0.000	3.284
						C	0.000	22.000		100.00	0.000	9.884

Tower Pressure - Service

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 110.0000-90.0000	100.0000	1.373	8.79	40.000	A	0.000	40.000	40.000	100.00	0.000	0.000
					B	0.000	40.000		100.00	0.000	0.000
					C	0.000	40.000		100.00	0.000	0.000
L2 90.0000-	75.0000	1.264	8.09	60.000	A	0.000	60.000	60.000	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
60.0000					B	0.000	60.000		100.00	0.000	5.742
					C	0.000	60.000		100.00	0.000	3.250
L3 60.0000-39.5000	49.7500	1.124	7.20	51.250	A	0.000	51.250	51.250	100.00	0.000	0.000
					B	0.000	51.250		100.00	0.000	4.059
					C	0.000	51.250		100.00	0.000	3.594
L4 39.5000-30.0000	34.7500	1.015	6.50	23.750	A	0.000	23.750	23.750	100.00	0.000	0.000
					B	0.000	23.750		100.00	0.000	1.881
					C	0.000	23.750		100.00	0.000	4.037
L5 30.0000-18.7500	24.3750	1	6.40	28.125	A	0.000	28.125	28.125	100.00	0.000	0.000
					B	0.000	28.125		100.00	0.000	2.228
					C	0.000	28.125		100.00	0.000	2.611
L6 18.7500-8.2500	13.5000	1	6.40	26.250	A	0.000	26.250	26.250	100.00	0.000	0.000
					B	0.000	26.250		100.00	0.000	2.079
					C	0.000	26.250		100.00	0.000	6.141
L7 8.2500-0.0000	4.1250	1	6.40	20.625	A	0.000	20.625	20.625	100.00	0.000	0.000
					B	0.000	20.625		100.00	0.000	1.634
					C	0.000	20.625		100.00	0.000	4.992

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice
15	Dead+Wind 0 deg+Ice
16	Dead+Wind 30 deg+Ice
17	Dead+Wind 60 deg+Ice
18	Dead+Wind 90 deg+Ice
19	Dead+Wind 120 deg+Ice
20	Dead+Wind 150 deg+Ice
21	Dead+Wind 180 deg+Ice
22	Dead+Wind 210 deg+Ice
23	Dead+Wind 240 deg+Ice
24	Dead+Wind 270 deg+Ice
25	Dead+Wind 300 deg+Ice
26	Dead+Wind 330 deg+Ice
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	110 - 90	Pole	Max Tension	21	0.00	-0.00	0.00
			Max. Compression	14	-6.03	0.00	0.00
			Max. Mx	11	-2.92	69.05	0.00
			Max. My	8	-2.92	0.00	-68.80
			Max. Vy	11	-4.48	69.05	0.00
			Max. Vx	8	4.48	0.00	-68.80
			Max. Torque	4			-0.01
L2	90 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-19.54	0.34	-0.32
			Max. Mx	11	-10.37	400.62	-0.03
			Max. My	8	-10.37	0.08	-400.29
			Max. Vy	11	-12.58	400.62	-0.03
			Max. Vx	8	12.58	0.08	-400.29
			Max. Torque	9			-0.27
L3	60 - 39.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-23.95	0.55	-0.81
			Max. Mx	11	-13.45	670.20	-0.10
			Max. My	8	-13.45	0.11	-669.91
			Max. Vy	11	-13.70	670.20	-0.10
			Max. Vx	8	13.70	0.11	-669.91
			Max. Torque	9			-0.25
L4	39.5 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-26.28	0.64	-1.03
			Max. Mx	11	-15.21	802.75	-0.14
			Max. My	8	-15.21	0.12	-802.47
			Max. Vy	11	-14.21	802.75	-0.14
			Max. Vx	8	14.21	0.12	-802.47
			Max. Torque	9			-0.24
L5	30 - 18.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-29.51	0.75	-1.28
			Max. Mx	11	-17.74	967.70	-0.18
			Max. My	8	-17.74	0.14	-967.45
			Max. Vy	11	-14.90	967.70	-0.18
			Max. Vx	8	14.90	0.14	-967.45
			Max. Torque	9			-0.24
L6	18.75 - 8.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.84	0.85	-1.51
			Max. Mx	11	-20.47	1126.93	-0.22
			Max. My	8	-20.47	0.15	-1126.69
			Max. Vy	11	-15.43	1126.93	-0.22
			Max. Vx	8	15.43	0.15	-1126.69
			Max. Torque	2			0.25
L7	8.25 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-35.66	0.93	-1.69
			Max. Mx	11	-22.83	1255.84	-0.25
			Max. My	8	-22.83	0.16	-1255.62
			Max. Vy	11	-15.83	1255.84	-0.25
			Max. Vx	8	15.83	0.16	-1255.62
			Max. Torque	2			0.27

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	21	35.66	0.00	-4.76
	Max. H_x	11	22.84	15.82	0.00
	Max. H_z	2	22.84	0.00	15.82
	Max. M_x	2	1255.13	0.00	15.82
	Max. M_z	5	1255.53	-15.82	0.00
	Max. Torsion	2	0.27	0.00	15.82
	Min. Vert	1	22.84	0.00	0.00
	Min. H_x	5	22.84	-15.82	0.00
	Min. H_z	8	22.84	0.00	-15.82
	Min. M_x	8	-1255.62	0.00	-15.82

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. M_z	11	-1255.84	15.82	0.00
	Min. Torsion	8	-0.27	0.00	-15.82

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	22.84	0.00	0.00	0.24	0.15	0.00
Dead+Wind 0 deg - No Ice	22.84	-0.00	-15.82	-1255.13	0.16	-0.27
Dead+Wind 30 deg - No Ice	22.84	7.91	-13.70	-1086.94	-627.69	-0.23
Dead+Wind 60 deg - No Ice	22.84	13.70	-7.91	-627.44	-1087.30	-0.13
Dead+Wind 90 deg - No Ice	22.84	15.82	0.00	0.25	-1255.53	-0.01
Dead+Wind 120 deg - No Ice	22.84	13.70	7.91	627.94	-1087.30	0.12
Dead+Wind 150 deg - No Ice	22.84	7.91	13.70	1087.44	-627.69	0.22
Dead+Wind 180 deg - No Ice	22.84	-0.00	15.82	1255.62	0.16	0.27
Dead+Wind 210 deg - No Ice	22.84	-7.91	13.70	1087.44	628.00	0.24
Dead+Wind 240 deg - No Ice	22.84	-13.70	7.91	627.94	1087.61	0.15
Dead+Wind 270 deg - No Ice	22.84	-15.82	0.00	0.25	1255.84	0.01
Dead+Wind 300 deg - No Ice	22.84	-13.70	-7.91	-627.44	1087.62	-0.13
Dead+Wind 330 deg - No Ice	22.84	-7.91	-13.70	-1086.94	628.00	-0.23
Dead+Ice	35.66	0.00	0.00	1.69	0.93	0.00
Dead+Wind 0 deg+Ice	35.66	-0.00	-4.76	-385.75	0.98	-0.09
Dead+Wind 30 deg+Ice	35.66	2.38	-4.13	-333.84	-192.82	-0.06
Dead+Wind 60 deg+Ice	35.66	4.13	-2.38	-191.99	-334.69	-0.02
Dead+Wind 90 deg+Ice	35.66	4.76	0.00	1.78	-386.62	0.02
Dead+Wind 120 deg+Ice	35.66	4.13	2.38	195.54	-334.69	0.06
Dead+Wind 150 deg+Ice	35.66	2.38	4.13	337.39	-192.82	0.08
Dead+Wind 180 deg+Ice	35.66	-0.00	4.76	389.30	0.98	0.09
Dead+Wind 210 deg+Ice	35.66	-2.38	4.13	337.39	194.79	0.06
Dead+Wind 240 deg+Ice	35.66	-4.13	2.38	195.54	336.66	0.02
Dead+Wind 270 deg+Ice	35.66	-4.76	0.00	1.78	388.59	-0.02
Dead+Wind 300 deg+Ice	35.66	-4.13	-2.38	-191.99	336.66	-0.06
Dead+Wind 330 deg+Ice	35.66	-2.38	-4.13	-333.84	194.79	-0.09
Dead+Wind 0 deg - Service	22.84	0.00	-6.18	-490.45	0.16	-0.10
Dead+Wind 30 deg - Service	22.84	3.09	-5.35	-424.71	-245.25	-0.09
Dead+Wind 60 deg - Service	22.84	5.35	-3.09	-245.10	-424.91	-0.05
Dead+Wind 90 deg - Service	22.84	6.18	0.00	0.25	-490.66	-0.00
Dead+Wind 120 deg - Service	22.84	5.35	3.09	245.60	-424.91	0.05
Dead+Wind 150 deg - Service	22.84	3.09	5.35	425.20	-245.25	0.09
Dead+Wind 180 deg - Service	22.84	0.00	6.18	490.94	0.16	0.10
Dead+Wind 210 deg - Service	22.84	-3.09	5.35	425.20	245.57	0.09
Dead+Wind 240 deg - Service	22.84	-5.35	3.09	245.60	425.22	0.06
Dead+Wind 270 deg - Service	22.84	-6.18	0.00	0.25	490.97	0.00
Dead+Wind 300 deg - Service	22.84	-5.35	-3.09	-245.10	425.22	-0.05
Dead+Wind 330 deg - Service	22.84	-3.09	-5.35	-424.71	245.57	-0.09

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-22.84	0.00	0.00	22.84	0.00	0.000%
2	0.00	-22.84	-15.82	0.00	22.84	15.82	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
3	7.91	-22.84	-13.70	-7.91	22.84	13.70	0.000%
4	13.70	-22.84	-7.91	-13.70	22.84	7.91	0.000%
5	15.82	-22.84	0.00	-15.82	22.84	0.00	0.000%
6	13.70	-22.84	7.91	-13.70	22.84	-7.91	0.000%
7	7.91	-22.84	13.70	-7.91	22.84	-13.70	0.000%
8	0.00	-22.84	15.82	0.00	22.84	-15.82	0.000%
9	-7.91	-22.84	13.70	7.91	22.84	-13.70	0.000%
10	-13.70	-22.84	7.91	13.70	22.84	-7.91	0.000%
11	-15.82	-22.84	0.00	15.82	22.84	0.00	0.000%
12	-13.70	-22.84	-7.91	13.70	22.84	7.91	0.000%
13	-7.91	-22.84	-13.70	7.91	22.84	13.70	0.000%
14	0.00	-35.66	0.00	0.00	35.66	0.00	0.000%
15	0.00	-35.66	-4.76	0.00	35.66	4.76	0.000%
16	2.38	-35.66	-4.13	-2.38	35.66	4.13	0.000%
17	4.13	-35.66	-2.38	-4.13	35.66	2.38	0.000%
18	4.76	-35.66	0.00	-4.76	35.66	-0.00	0.000%
19	4.13	-35.66	2.38	-4.13	35.66	-2.38	0.000%
20	2.38	-35.66	4.13	-2.38	35.66	-4.13	0.000%
21	0.00	-35.66	4.76	0.00	35.66	-4.76	0.000%
22	-2.38	-35.66	4.13	2.38	35.66	-4.13	0.000%
23	-4.13	-35.66	2.38	4.13	35.66	-2.38	0.000%
24	-4.76	-35.66	0.00	4.76	35.66	-0.00	0.000%
25	-4.13	-35.66	-2.38	4.13	35.66	2.38	0.000%
26	-2.38	-35.66	-4.13	2.38	35.66	4.13	0.000%
27	0.00	-22.84	-6.18	0.00	22.84	6.18	0.000%
28	3.09	-22.84	-5.35	-3.09	22.84	5.35	0.000%
29	5.35	-22.84	-3.09	-5.35	22.84	3.09	0.000%
30	6.18	-22.84	0.00	-6.18	22.84	0.00	0.000%
31	5.35	-22.84	3.09	-5.35	22.84	-3.09	0.000%
32	3.09	-22.84	5.35	-3.09	22.84	-5.35	0.000%
33	0.00	-22.84	6.18	0.00	22.84	-6.18	0.000%
34	-3.09	-22.84	5.35	3.09	22.84	-5.35	0.000%
35	-5.35	-22.84	3.09	5.35	22.84	-3.09	0.000%
36	-6.18	-22.84	0.00	6.18	22.84	0.00	0.000%
37	-5.35	-22.84	-3.09	5.35	22.84	3.09	0.000%
38	-3.09	-22.84	-5.35	3.09	22.84	5.35	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	0.00033896
3	Yes	5	0.00000001	0.00043962
4	Yes	5	0.00000001	0.00044997
5	Yes	4	0.00000001	0.00017972
6	Yes	5	0.00000001	0.00044641
7	Yes	5	0.00000001	0.00044191
8	Yes	4	0.00000001	0.00033905
9	Yes	5	0.00000001	0.00045197
10	Yes	5	0.00000001	0.00044119
11	Yes	4	0.00000001	0.00017977
12	Yes	5	0.00000001	0.00044460
13	Yes	5	0.00000001	0.00044952
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00020960
16	Yes	5	0.00000001	0.00007769
17	Yes	5	0.00000001	0.00008126
18	Yes	4	0.00000001	0.00019468
19	Yes	5	0.00000001	0.00008177
20	Yes	5	0.00000001	0.00007925
21	Yes	4	0.00000001	0.00021142
22	Yes	5	0.00000001	0.00008425
23	Yes	5	0.00000001	0.00008054
24	Yes	4	0.00000001	0.00019590

25	Yes	5	0.00000001	0.00007989
26	Yes	5	0.00000001	0.00008252
27	Yes	4	0.00000001	0.00009478
28	Yes	5	0.00000001	0.00004023
29	Yes	5	0.00000001	0.00004230
30	Yes	4	0.00000001	0.00007396
31	Yes	5	0.00000001	0.00004159
32	Yes	5	0.00000001	0.00004068
33	Yes	4	0.00000001	0.00009485
34	Yes	5	0.00000001	0.00004273
35	Yes	5	0.00000001	0.00004059
36	Yes	4	0.00000001	0.00007403
37	Yes	5	0.00000001	0.00004124
38	Yes	5	0.00000001	0.00004221

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 90	20.37	36	1.44	0.00
L2	90 - 60	14.40	36	1.39	0.00
L3	60 - 39.5	6.55	35	1.01	0.00
L4	39.5 - 30	2.85	35	0.69	0.00
L5	30 - 18.75	1.62	35	0.53	0.00
L6	18.75 - 8.25	0.62	35	0.31	0.00
L7	8.25 - 0	0.12	35	0.14	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.0000	APXVSPP18-C-A20 w/ Mount Pipe	36	19.47	1.44	0.00	44007
105.0000	PCS 1900MHz 4x45W-65MHz w/Mount Pipe	36	18.86	1.44	0.00	44007
89.0000	(2) RRUS-11	36	14.11	1.39	0.00	10030
80.0000	6'x2" Pipe Mount	35	11.55	1.30	0.00	6017
30.0000	Bridge Stiffener (72" x 11" x 1.25")	35	1.62	0.53	0.00	3091

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 90	52.06	11	3.68	0.00
L2	90 - 60	36.80	11	3.56	0.00
L3	60 - 39.5	16.75	11	2.58	0.00
L4	39.5 - 30	7.28	11	1.77	0.00
L5	30 - 18.75	4.16	11	1.36	0.00
L6	18.75 - 8.25	1.59	10	0.80	0.00
L7	8.25 - 0	0.31	10	0.36	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.0000	APXVSPP18-C-A20 w/ Mount Pipe	11	49.75	3.68	0.00	17358
105.0000	PCS 1900MHz 4x45W-65MHz w/Mount Pipe	11	48.20	3.68	0.00	17358
89.0000	(2) RRUS-11	11	36.06	3.54	0.00	3954
80.0000	6'x2" Pipe Mount	11	29.53	3.32	0.00	2369
30.0000	Bridge Stiffener (72" x 11" x 1.25")	11	4.16	1.36	0.00	1210

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	110 - 90 (1)	P24x1/4	20.0000	0.0000	0.0	23.70	18.6532	-2.92	442.00	0.007
L2	90 - 60 (2)	P24x3/8	30.0000	0.0000	0.0	25.20	27.8325	-10.37	701.38	0.015
L3	60 - 39.5 (3)	30" x 0.375"	20.5000	0.0000	0.0	25.07	34.9011	-13.45	875.15	0.015
L4	39.5 - 30 (4)	RPS 30" x 0.483"	9.5000	0.0000	0.0	22.78	44.7888	-15.21	1020.11	0.015
L5	30 - 18.75 (5)	P30x1/2	11.2500	0.0000	0.0	25.20	46.3385	-17.74	1167.73	0.015
L6	18.75 - 8.25 (6)	RPS 30" x 0.71979"	10.5000	0.0000	0.0	23.23	66.2110	-20.47	1538.21	0.013
L7	8.25 - 0 (7)	RPS 30" x 0.801"	8.2500	0.0000	0.0	25.19	73.4768	-22.83	1850.73	0.012

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	110 - 90 (1)	P24x1/4	69.05	7.56	23.70	0.319	0.00	0.00	23.70	0.000
L2	90 - 60 (2)	P24x3/8	400.62	29.70	27.72	1.071	0.00	0.00	27.72	0.000
L3	60 - 39.5 (3)	30" x 0.375"	670.20	31.50	25.07	1.256	0.00	0.00	25.07	0.000
L4	39.5 - 30 (4)	RPS 30" x 0.483"	802.75	29.62	25.05	1.182	0.00	0.00	25.05	0.000
L5	30 - 18.75 (5)	P30x1/2	967.70	34.55	27.72	1.246	0.00	0.00	27.72	0.000
L6	18.75 - 8.25 (6)	RPS 30" x 0.71979"	1126.94	28.57	25.56	1.118	0.00	0.00	25.56	0.000
L7	8.25 - 0 (7)	RPS 30" x 0.801"	1255.87	28.85	27.71	1.041	0.00	0.00	27.71	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	110 - 90 (1)	P24x1/4	4.48	0.48	16.80	0.029	0.00	0.00	11.90	0.000
L2	90 - 60 (2)	P24x3/8	12.58	0.90	16.80	0.054	0.11	0.00	16.80	0.000
L3	60 - 39.5 (3)	30" x 0.375"	13.70	0.79	16.80	0.047	0.08	0.00	15.64	0.000
L4	39.5 - 30 (4)	RPS 30" x 0.483"	14.21	0.63	15.18	0.042	0.07	0.00	15.18	0.000
L5	30 - 18.75 (5)	P30x1/2	14.90	0.64	16.80	0.038	0.17	0.00	16.80	0.000
L6	18.75 - 8.25 (6)	RPS 30" x 0.71979"	15.43	0.47	15.49	0.030	0.16	0.00	15.49	0.000
L7	8.25 - 0 (7)	RPS 30" x 0.801"	15.83	0.43	16.79	0.026	0.15	0.00	16.79	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 $\frac{f_{vt}}{F_{vt}}$

Pole Interaction Design Data

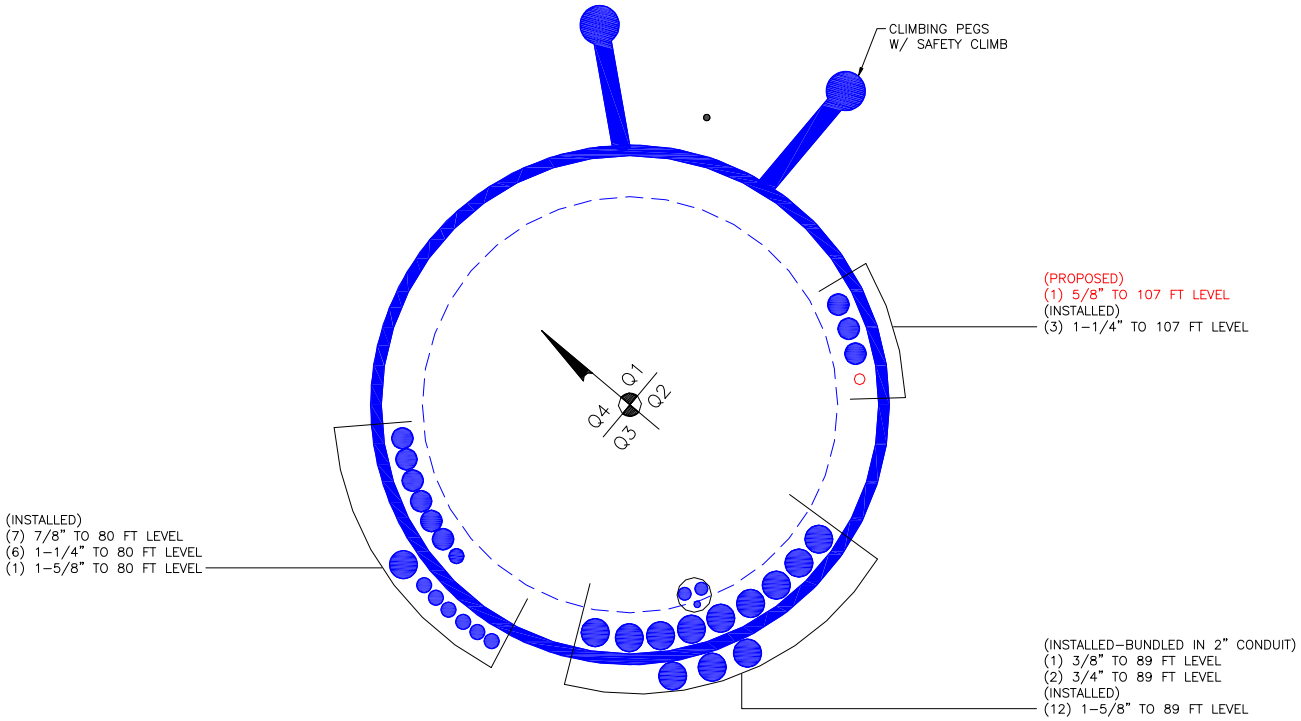
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	110 - 90 (1)	0.007	0.319	0.000	0.029	0.000	0.326 ✔	1.333	H1-3+VT ✔
L2	90 - 60 (2)	0.015	1.071	0.000	0.054	0.000	1.089 ✔	1.333	H1-3+VT ✔
L3	60 - 39.5 (3)	0.015	1.256	0.000	0.047	0.000	1.274 ✔	1.333	H1-3+VT ✔
L4	39.5 - 30 (4)	0.015	1.182	0.000	0.042	0.000	1.199 ✔	1.333	H1-3+VT ✔
L5	30 - 18.75 (5)	0.015	1.246	0.000	0.038	0.000	1.263 ✔	1.333	H1-3+VT ✔
L6	18.75 - 8.25 (6)	0.013	1.118	0.000	0.030	0.000	1.132 ✔	1.333	H1-3+VT ✔
L7	8.25 - 0 (7)	0.012	1.041	0.000	0.026	0.000	1.054 ✔	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	110 - 90	Pole	P24x1/4	1	-2.92	589.19	24.5	Pass
L2	90 - 60	Pole	P24x3/8	2	-10.37	934.94	81.7	Pass
L3	60 - 39.5	Pole	30" x 0.375"	3	-13.45	1166.57	95.6	Pass
L4	39.5 - 30	Pole	RPS 30" x 0.483"	4	-15.21	1359.81	89.9	Pass
L5	30 - 18.75	Pole	P30x1/2	5	-17.74	1556.58	94.7	Pass
L6	18.75 - 8.25	Pole	RPS 30" x 0.71979"	6	-20.47	2050.43	84.9	Pass
L7	8.25 - 0	Pole	RPS 30" x 0.801"	7	-22.83	2467.02	79.1	Pass
							Summary	
						Pole (L3)	95.6	Pass
						RATING =	**95.6**	**Pass**

APPENDIX B

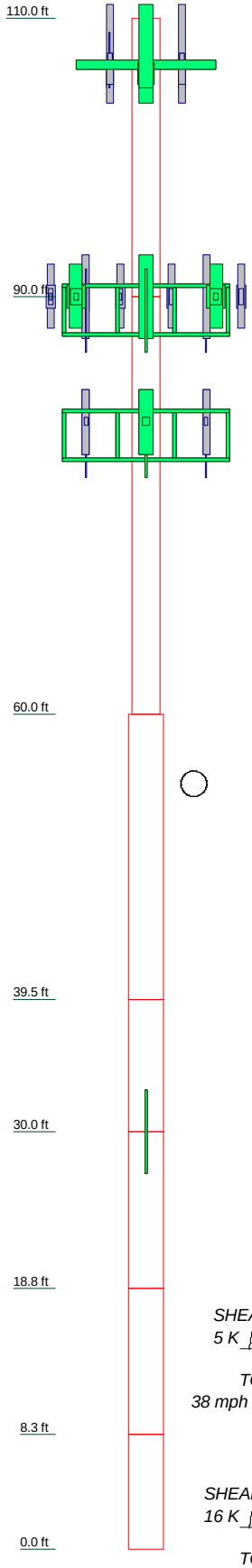
BASE LEVEL DRAWING

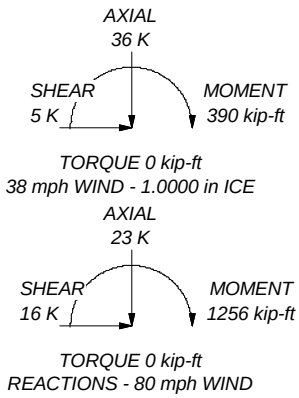

CLIMBING PEGS
W/ SAFETY CLIMB
(PROPOSED)
(1) 5/8" TO 107 FT LEVEL
(INSTALLED)
(3) 1-1/4" TO 107 FT LEVEL
Q1
Q2
Q3
Q4
(INSTALLED)
(7) 7/8" TO 80 FT LEVEL
(6) 1-1/4" TO 80 FT LEVEL
(1) 1-5/8" TO 80 FT LEVEL
(INSTALLED-BUNDLED IN 2" CONDUIT)
(1) 3/8" TO 89 FT LEVEL
(2) 3/4" TO 89 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 89 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Section	Size	Length (ft)	Grade	Weight (K)
1	P24x1/4	20.0000	A53-B-42	1.3
2	P24x3/8	30.0000		2.8
3	30" x 0.375"	20.5000		2.4
4	RPS 30" x 0.483"	9.5000	Reinf 37.96 ksi	1.4
5	P30x1/2	11.2500	A53-B-42	1.8
6	RPS 30" x 0.71979"	10.5000	Reinf 38.72 ksi	2.4
7	RPS 30" x 0.801"	8.2500	Reinf 41.98 ksi	2.1
				14.2





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20 w/ Mount Pipe	107	AM-X-CD-16-65-00T-RET w/ Mount Pipe	89
APXVSPP18-C-A20 w/ Mount Pipe	107	AM-X-CD-16-65-00T-RET w/ Mount Pipe	89
APXVSPP18-C-A20 w/ Mount Pipe	107	DC6-48-60-18-8F	89
IBC1900HG-2A	107	(2) 7750.00 w/ Mount Pipe	89
IBC1900HG-2A	107	(2) 7750.00 w/ Mount Pipe	89
IBC1900HG-2A	107	(2) 7750.00 w/ Mount Pipe	89
IBC1900BB-1	107	(2) LGP21401	89
IBC1900BB-1	107	(2) LGP21401	89
IBC1900BB-1	107	(2) LGP21401	89
APXVTM14-C-120 w/ Mount Pipe	107	(2) LGP21903	89
APXVTM14-C-120 w/ Mount Pipe	107	(2) LGP21903	89
APXVTM14-C-120 w/ Mount Pipe	107	(2) LGP21903	89
(2) 4'x2" Pipe Mount	107	6'x2" Pipe Mount	89
(2) 4'x2" Pipe Mount	107	6'x2" Pipe Mount	89
(2) 4'x2" Pipe Mount	107	6'x2" Pipe Mount	89
T-Arm Mount [TA 702-3]	107	Platform Mount [LP 502-1]	89
PCS 1900MHz 4x45W-65MHz w/Mount Pipe	105	6'x2" Pipe Mount	80
PCS 1900MHz 4x45W-65MHz w/Mount Pipe	105	6'x2" Pipe Mount	80
PCS 1900MHz 4x45W-65MHz w/Mount Pipe	105	6'x2" Pipe Mount	80
800MHz 2X50W RRH W/FILTER W/Mount pipes	105	Platform Mount [LP 305-1]	80
800MHz 2X50W RRH W/FILTER W/Mount pipes	105	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	80
800MHz 2X50W RRH W/FILTER W/Mount pipes	105	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	80
Side Arm Mount [SO 102-3]	105	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	80
TD-RRH8x20-25	105	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	80
TD-RRH8x20-25	105	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	80
TD-RRH8x20-25	105	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	80
(2) RRUS-11	89	KRY 112 144/1	80
(2) RRUS-11	89	KRY 112 144/1	80
(2) RRUS-11	89	KRY 112 144/1	80
Side Arm Mount [SO 102-3]	89	Bridge Stiffener (72" x 11" x 1.25")	30
AM-X-CD-16-65-00T-RET w/ Mount Pipe	89		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi	Reinf 38.72 ksi	39 ksi	49 ksi
Reinf 37.96 ksi	38 ksi	48 ksi	Reinf 41.98 ksi	42 ksi	53 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 95.6%

Paul J. Ford and Company
250 East Broad St., Suite 600
Columbus, OH 43215
Phone: (614) 221-6679
FAX: (614) 448-4105

Job: 110' MP; Weston Square; Hartford, CT		
Project: PJF# 37515-0246.001.7805 (BU# 876325)		
Client: CCI	Drawn by: Maria C Lopez	App'd:
Code: TIA/EIA-222-F	Date: 01/20/15	Scale: NTS
Path: G:\TOWER\375_Crown_Castle\2015\37515-0246_876325_WESTON SQUARE\37515-0246.001.7805_SA_995484\37515-0246.001.7805.eri		Dwg No. E-1

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 1500 • Columbus, Ohio 43215-3708
Phone 614-221-6679 • Fax 614-448-4105 • www.PJFweb.com

v4.1 - Effective 7-3-12

Date: 1/20/2015
PJF Project: 37515-0246.001
Client Ref. # BU 876325
Site Name: Weston Square
Description: 110' MP
Owner: CCI
Engineer: CMM

Asymmetric Anchor Rod Analysis

Moment =	1256	k-ft	TIA Ref.	F		Location =	Base Plate	
Axial =	23.0	kips	ASIF =	1.3333		η =	N/A	for BP, Rev. G Sect. 4.9.9
Shear =	16.0	kips	Max Ratio =	100.0%		Threads =	N/A	for FP, Rev. G
Anchor Qty =	15							

**** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. ****

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Area Override, in^2	Area, in^2	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	1.500	A354 Gr BC	109	125	0.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
2	1.500	A354 Gr BC	109	125	30.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
3	1.500	A354 Gr BC	109	125	60.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
4	1.500	A354 Gr BC	109	125	90.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
5	1.500	A354 Gr BC	109	125	120.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
6	1.500	A354 Gr BC	109	125	150.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
7	1.500	A354 Gr BC	109	125	180.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
8	1.500	A354 Gr BC	109	125	210.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
9	1.500	A354 Gr BC	109	125	240.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
10	1.500	A354 Gr BC	109	125	270.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
11	1.500	A354 Gr BC	109	125	300.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
12	1.500	A354 Gr BC	109	125	330.0	35.00	0.00	1.77	89.98	87.21	87.21	0.00	97.19	89.7%
13	1.750	Dywidag (150 ksi)	127.7	150	15.0	44.50	0.00	2.71	175.00	170.74	170.74	0.00	178.99	95.4%
14	1.750	Dywidag (150 ksi)	127.7	150	135.0	44.50	0.00	2.71	175.00	170.74	170.74	0.00	178.99	95.4%
15	1.750	Dywidag (150 ksi)	127.7	150	255.0	44.50	0.00	2.71	175.00	170.74	170.74	0.00	178.99	95.4%
								29.34						

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

TIA Rev F

Site Data

BU#:	
Site Name:	
App #:	
Pole Manufacturer:	*Other*

Reactions		
Moment:	775.2	ft-kips
Axial:	16.6	kips
Shear:	11.6	kips

Moment adjusted to account for additional anchor rods.

Anchor Rod Data		
Qty:	12	
Diam:	1.5	in
Rod Material:	Other	
Strength (Fu):	125	ksi
Yield (Fy):	109	ksi
Bolt Circle:	35	in

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

Plate Data		
Diam:	41	in
Thick:	2	in
Grade:	36	ksi
Single-Rod B-eff:	7.85	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.375	in
Fillet V. Weld:	0.375	in
Width:	5	in
Height:	10	in
Thick:	0.5	in
Notch:	0.75	in
Grade:	65	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	30	in
Thick:	0.5	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Anchor Rod Results

Maximum Rod Tension:	87.2 Kips	
Allowable Tension:	97.2 Kips	
Anchor Rod Stress Ratio:	89.8%	**Pass**

Stiffened
Service, ASD
Fty*ASIF

Base Plate Results Flexural Check

Base Plate Stress:	25.7 ksi	
Allowable Plate Stress:	36.0 ksi	
Base Plate Stress Ratio:	71.4%	**Pass**

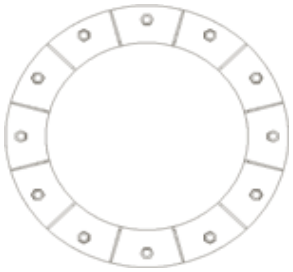
Stiffened
Service, ASD
0.75*Fy*ASIF
Y.L. Length: N/A, Roark

Stiffener Results

Horizontal Weld :	67.6%	**Pass**
Vertical Weld:	36.5%	**Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	19.0%	**Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	40.7%	**Pass**
Plate Comp. (AISC Bracket):	52.3%	**Pass**

Pole Results

Pole Punching Shear Check:	15.1%	**Pass**



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

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

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *876325*
Site Name: *Weston Square*
App #:

Pole Manufacturer:	Rohn

Bolt Data			
Qty:	20		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle (in.):	29		

Plate Data		
Diam:	32	in
Thick, t:	1.5	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.77	in

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

Pole Data		
Diam:	24	in
Thick:	0.25	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.3333333	

Reactions		
Moment:	69.05	ft-kips
Axial:	2.92	kips
Shear:	4.48	kips
Elevation:	90	feet

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

Flange Bolt Results — Rigid (Service, ASD; Fty*ASIF)

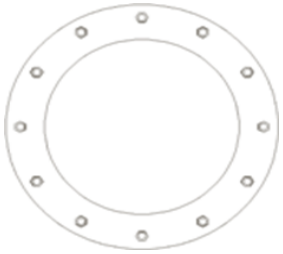
Bolt Tension Capacity, **B**:	46.08	kips	
Max Bolt directly applied T:	5.57	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	2.018	in	
Min PL "treq" for actual **T w/ Pry**:	0.535	in	
Min PL "t1" for actual **T w/o Pry**:	0.702	in	
T allowable with Prying:	35.76	kips	0≤α'≤1 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	5.57	kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	12.1%	**Pass**	

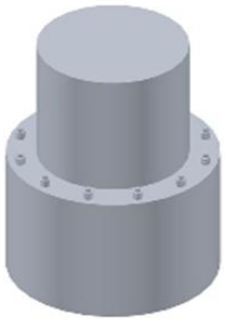
Exterior Flange Plate Results — Flexural Check — Rigid (Service ASD; 0.75*Fy*ASIF; Comp. Y.L. Length: 16.28)

Compression Side Plate Stress:	Rohn/Pirod,	OK
Allowable Plate Stress:	36.0	ksi
Compression Plate Stress Ratio:	Rohn/Pirod,	OK
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	12.7%	**Pass**

n/a

Stiffener Results	N/A for Rohn / Pirod
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A
Pole Results	
Pole Punching Shear Check:	N/A





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *876325*
Site Name: *Weston Square*
App #:

Pole Manufacturer:	Rohn

Reactions		
Moment:	69.05	ft-kips
Axial:	2.92	kips
Shear:	4.48	kips
Elevation:	90	feet

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

Bolt Data			
Qty:	20		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle (in.):	29		

Plate Data		
Diam:	32	in
Thick, t:	1.5	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.77	in

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

Pole Data		
Diam:	24	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.3333333	

Flange Bolt Results — Rigid (Service, ASD; Fty*ASIF)

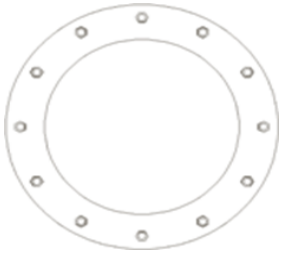
Bolt Tension Capacity, **B**:	46.08	kips	
Max Bolt directly applied T:	5.57	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	2.018	in	
Min PL "treq" for actual **T w/ Pry**:	0.535	in	
Min PL "t1" for actual **T w/o Pry**:	0.702	in	
T allowable with Prying:	35.76	kips	0≤α'≤1 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	5.57	kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	12.1%	**Pass**	

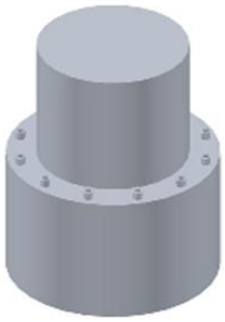
Exterior Flange Plate Results — Flexural Check — Rigid (Service ASD; 0.75*Fy*ASIF; Comp. Y.L. Length: 16.28)

Compression Side Plate Stress:	Rohn/Pirod,	OK
Allowable Plate Stress:	36.0	ksi
Compression Plate Stress Ratio:	Rohn/Pirod,	OK
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	12.7%	**Pass**

n/a

Stiffener Results	N/A for Rohn / Pirod
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A
Pole Results	
Pole Punching Shear Check:	N/A





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *876325*
Site Name: *Weston Square*
App #:

Pole Manufacturer:	Rohn

Bolt Data			
Qty:	12		
Diameter (in.):	1.5	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle (in.):	35		

Plate Data		
Diam:	41	in
Thick, t:	2	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	6.28	in

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

Pole Data		
Diam:	24	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.3333333	

Reactions		
Moment:	400.62	ft-kips
Axial:	10.37	kips
Shear:	12.58	kips
Elevation:	60	feet

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

Flange Bolt Results — Rigid (Service, ASD; Fty*ASIF)

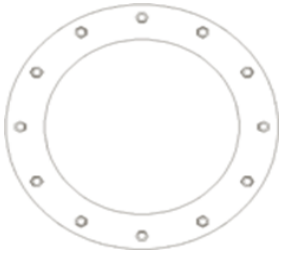
Bolt Tension Capacity, **B**:	103.67	kips	
Max Bolt directly applied T:	44.92	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	3.614	in	
Min PL "treq" for actual **T w/ Pry**:	1.798	in	
Min PL "t1" for actual **T w/o Pry**:	2.379	in	
T allowable with Prying:	55.60	kips	α'>1 case
Prying Force, Q:	16.69	kips	
Total Bolt Tension=T+Q:	61.61	kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	59.4%	**Pass**	

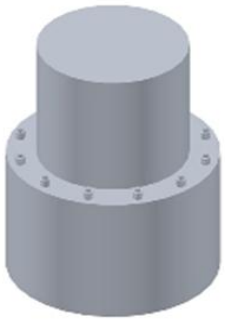
Exterior Flange Plate Results — Flexural Check — Rigid (Service ASD; 0.75*Fy*ASIF; Comp. Y.L. Length: 25.48)

Compression Side Plate Stress:	Rohn/Pirod,	OK	
Allowable Plate Stress:	36.0	ksi	
Compression Plate Stress Ratio:	Rohn/Pirod,	OK	
Prying Occurs, PL Check:			
Tension Side Stress Ratio, (treq/t)^2:	80.8%	**Pass**	

n/a

Stiffener Results	N/A for Rohn / Pirod
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A
Pole Results	
Pole Punching Shear Check:	N/A





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *876325*
Site Name: *Weston Square*
App #:

Pole Manufacturer:	Rohn

Reactions		
Moment:	400.62	ft-kips
Axial:	10.37	kips
Shear:	12.58	kips
Elevation:	60	feet

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

Bolt Data			
Qty:	12		
Diameter (in.):	1.5	Bolt Fu:	105
Bolt Material:	A325	Bolt Fy:	81
N/A:	0	<-- Disregard	Bolt Fty:
N/A:	0	<-- Disregard	44.00
Circle (in.):	35		

Plate Data		
Diam:	41	in
Thick, t:	2	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	7.85	in

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

Pole Data		
Diam:	30	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.3333333	

Flange Bolt Results — Rigid (Service, ASD; Fty*ASIF)

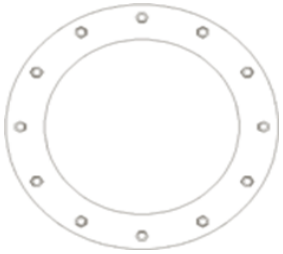
Bolt Tension Capacity, **B**:	103.67	kips	
Max Bolt directly applied T:	44.92	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	1.962	in	
Min PL "treq" for actual **T w/ Pry**:	0.962	in	
Min PL "t1" for actual **T w/o Pry**:	1.292	in	
T allowable w/o Prying:	103.67	kips	α'<0 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	44.92	kips	
Non-Prying Bolt Stress Ratio, T/B:	43.3%	**Pass**	

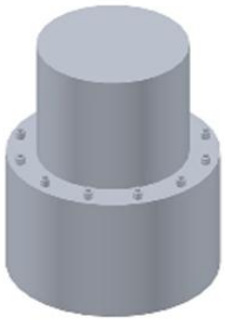
Exterior Flange Plate Results — Flexural Check — Rigid (Service ASD; 0.75*Fy*ASIF; Comp. Y.L. Length: 18.03)

Compression Side Plate Stress:	Rohn/Pirod,	OK
Allowable Plate Stress:	36.0	ksi
Compression Plate Stress Ratio:	Rohn/Pirod,	OK
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	23.2%	**Pass**

n/a

Stiffener Results	N/A for Rohn / Pirod
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A
Pole Results	
Pole Punching Shear Check:	N/A





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

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

v2.0, Effective Date: 1-12-12

Date: 1/20/2015
Project No: 37515-0246.001.7805
Site Name: Weston Square
Site Number/BUN: 876325
Description:
Owner:
Engineer:

Welded Bridge Stiffener Analysis per TIA/EIA-222-F & AISC 9th Ed. (Green)

General Parameters and Loading:

Flange Elevation:	30.00	ft
TIA Reference Standard:	TIA/EIA-222-F	
AISC Manual:	9th Ed. (Green)	
Method:	ASD	
ASD Stress Increase, ASIF:	1.333333333	
Moment, Mf:	802.8	k-ft
Axial, Pf:	15.2	kips
Shear, Vf:	14.2	kips

Pole Parameters:

	Upper Pole	Lower Pole	
Pole Diameter, Dp:	30.00	30.00	in
Pole Thickness, tp:	0.3750	0.5000	in
Pole Fy:	42	42	ksi
Pole Fu:	63	63	ksi
Flange Diameter, Df:	41.00	41.00	in

Bridge Stiffener Parameters:

	Stiffener Type 1	Stiffener Type 2	
Qty. Stiffeners:	3	0	
Upper Weld Length, L1:	34.00	0.00	in
Lower Weld Length, L2:	32.38	0.00	in
Weld Size, w:	0.3750	0.0000	in
Electrode:	E70	E70	
Effective Stiffener Width, Ws:	5.00	0.00	in
Stiffener Thickness, ts:	1.25	0.00	in
Notch, n:	0.50	0.00	in
Stiffener Fy:	65	0	ksi
Stiffener Fu:	80	0	ksi
Unbraced Length, L:	5.63	0.00	in
K:	0.80	0.00	
Stiffener Spacing:	Symmetric	Symmetric	
Start Angle, for Symmetric:	0	0	degrees
Stiffener Circle:	47.00	41.00	in = Df + 2 n + Ws
Upper Eccentricity, e1:	8.50	5.50	in = (Df - Dp) / 2 + n + Ws / 2
Lower Eccentricity, e2:	8.50	5.50	in = (Df - Dp) / 2 + n + Ws / 2

Flange Bolt Parameters:

Number of Bolt Circles: (1) Bolt Circle

	Bolt Circle 1	Bolt Circle 2	
Qty. Bolts:	0	0	
Bolt Diameter:	1.50	0.00	in
Bolt Circle:	35.00	0.00	in
Bolt Spacing:	Symmetric	Symmetric	
Start Angle, for Symmetric:	0	0	degrees
Bolt Area, Ag:	0.0000	0.0000	in
Max. Tension:	0.00	0.00	kips
Max. Net Tension:	0.00	0.00	kips
Max. Net Compression:	0.00	0.00	kips
Moment to Bolt Circle:	0.00	0.00	k-ft
Axial to Bolt Circle:	0.00	0.00	kips
Shear to Bolt Circle:	0.00	0.00	kips
Equivalent Bolt Circle:	0.00	0.00	in

Weld Analysis per AISC Table XIX & pg. 4-72:

Upper Pole	Stiffener Type 1	Stiffener Type 2	
D:	6	0	Num. of Sixteenths in Weld
a:	0.2500	0.0000	= e1 / L1
k:	0	0	
C:	1.2600	0.0000	Tabulated Cofficient
C1:	1.0000	1.0000	Coefficient for Electrode
ASIF:	1.3333	1.3333	
Stiffener Axial, Ps:	278.5	0.0	kips
Allowable Axial, Pa:	342.7	0.0	kips = ASIF C C1 D L
Ratio:	81.3%	0.0%	
Lower Pole			
D:	6	0	Num. of Sixteenths in Weld
a:	0.2625	0.0000	= e2 / L2
k:	0	0	
C:	1.2299	0.0000	Tabulated Cofficient
C1:	1.0000	1.0000	Coefficient for Electrode
ASIF:	1.3333	1.3333	
Stiffener Axial, Ps:	278.5	0.0	kips
Allowable Axial, Pa:	318.5	0.0	kips = ASIF C C1 D L
Ratio:	87.4%	0.0%	

Pole Analysis per AISC Sect. F4:

Upper Pole	Stiffener Type 1	Stiffener Type 2	
Stiffener Axial, P:	278.5	0.0	kips
Effective Throat, te:	0.2651	0.0000	in = 0.707 w
Shear Stress, fv:	4.1	0.0	kips/in= P / (2 L1)
Section Modulus, S:	385.3	0.0	in^2 = $L1^2$ / 3
Bending Stress, fb:	6.1	0.0	kips/in = P e1 / S
Combined Stress, f:	7.4	0.0	kips/in = $(fv^2 + fb^2)^{1/2}$
ASIF:	1.3333	0.0000	
Allowable Stress, F:	8.4	0.0	kips/in = ASIF (0.4 Fy) tp
Ratio:	87.9%	0.0%	
Lower Pole			
Stiffener Axial, P:	278.5	0.0	kips
Effective Throat, te:	0.2651	0.0000	in = 0.707 w
Shear Stress, fv:	4.3	0.0	ksi = P / (2 L2)
Section Modulus, S:	349.4	0.0	in^2 = $L2^2$ / 3
Bending Stress, fb:	6.8	0.0	ksi = P e2 / S
Combined Stress, f:	8.0	0.0	kips/in = $(fv^2 + fb^2)^{1/2}$
ASIF:	1.3333	0.0000	
Allowable Stress, F:	11.2	0.0	kips/in = ASIF (0.4 Fy) tp
Ratio:	71.6%	0.0%	

Stiffener 1 Analysis per AISC Sect. D1, E2, F1.2 & App. B

	Stiffener Type 1	
Gross Area, Ag:	6.2500	in^2
Net Area, An:	6.2500	in^2
Stiffener Axial, P:	278.5	kips
Stiffener Stress, f:	44.6	ksi = P / Ag
b:	11.0000	in = (Df - Dp) / 2 + n + Ws, Upper Pole
b / ts:	8.8000	in
Q, Where Qa = 1.0:	1.0000	
r:	0.3608	in^3
K L / r:	12.4708	
ASIF:	1.3333	
Allowable Axial, Fa:	50.05	ksi = ASIF [1 - (K L / r) / 2 Cc^2] Fy / [5/3 + 3(K L / r) / 8 Cc - (K L / r)^3 / 8 Cc^3]
ASIF:	1.3333	
Allowable Bending, Fb:	52.00	ksi = ASIF 0.6 Fy
ASIF:	1.3333	
Allowable Net Tension, Ft:	53.33	ksi = ASIF 0.5 Fu
Ratio:	89.0%	

Stiffener 2 Analysis per AISC Sect. D1, E2, F1.2 & App. B

	Stiffener Type 2	
Gross Area, Ag:	0.0000	in^2
Net Area, An:	0.0000	in^2
Stiffener Axial, P:	0.0	kips
Stiffener Stress, f:	0.0	ksi = P / Ag
b:	0.0000	in = (Df - Dp) / 2 + n + Ws, Upper Pole
b / ts:	0.0000	in
Q, Where Qa = 1.0:	0.0000	
r:	0.0000	in^3
K L / r:	0.0000	
ASIF:	0.0000	
Allowable Axial, Fa:	0.00	ksi = ASIF [1 - (K L / r) / 2 Cc^2] Fy / [5/3 + 3(K L / r) / 8 Cc - (K L / r)^3 / 8 Cc^3]
ASIF:	0.0000	
Allowable Bending, Fb:	0.00	ksi = ASIF 0.6 Fy
ASIF:	0.0000	
Allowable Net Tension, Ft:	0.00	ksi = ASIF 0.5 Fu
Ratio:	0.0%	

Analysis Summary:

Bridge Stiffener Type 1	Bridge Stiffener Type 2
Weld Analysis Ratio: 87.4% PASS	Weld Analysis Ratio: 0.0% PASS
Pole Analysis Ratio: 87.9% PASS	Pole Analysis Ratio: 0.0% PASS
Stiffener Analysis Ratio: 89.0% PASS	Stiffener Analysis Ratio: 0.0% PASS

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

Job Number: 37515-0246.001.7805
Site Number: 876325
Site Name: Weston Square

By: CMM
Date: 1/20/2015

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

Unfactored Base Reactions from RISA

	Comp. (+)	Tension (-)	
Moment, M =	1256.0		k-ft
Shear, V =	16.0		kips
Axial Load, P =	23.0		kips
OTM =	1264.0	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 =	5	ft
Height Above Grade =	0.5	ft
Depth Below Grade =	37	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 =	16	
Rebar Size =	#9	
Rebar Fy =	60	ksi
Rebar MOE =	29000	ksi
Tie Size =	#4	
Side Clear Cover to Ties =	3	in

Soil Parameters

Water Table Depth =	15.00	ft
Depth to Ignore Soil =	3.33	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	2	120	1000		Clay		946	946	2
2	4	110		30	Sand		946	946	6
3	7	110	750		Clay		946	946	13
4	2	105		30	Sand		946	946	15
5	13	115		32	Sand		946	946	28
6	5	100	750		Clay		946	946	33
7	7	120	1500		Clay	9100	946	946	40
8									
9									
10									
11									
12									

Soil Results: Overturning

Depth to COR =	22.59	ft, from Grade	Shear, V =	16.00	kips
Bending Moment, M =	1625.45	k-ft, from COR	Resisting Shear, Va =	65.85	kips
Resisting Moment, Ma =	6690.19	k-ft, from COR			

MOMENT RATIO = 24.3% OK **SHEAR RATIO = 24.3% OK**

Soil Results: Uplift

Uplift, T =	0.00	kips
Allowable Uplift Cap., Ta =	316.93	kips

UPLIFT RATIO = 0.0% OK

Soil Results: Compression

Compression, C =	23.00	kips
Allowable Comp. Cap., Ca =	310.22	kips

COMPRESSION RATIO = 7.4% OK

Steel Results (ACI 318-02):

Minimum Steel Area =	9.42	sq in	Axial Load, P =	33.22	kips @ 8.26 ft Below Grade
Actual Steel Area =	16.00	sq in	Moment, M =	1359.86	k-ft @ 8.26 ft Below Grade
			Allowable Moment, Ma =	1411.76	k-ft
Allowable Min Axial, Pa =	-664.62	kips, Where Ma = 0 k-ft			
Allowable Max Axial, Pa =	3251.66	kips, Where Ma = 0 k-ft			

MOMENT RATIO = 96.3% 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#: *876325*
Site Name: *Weston Square*
App #:

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

Pier Properties

Concrete:

Pier Diameter =	5.0	ft
Concrete Area =	2827.4	in^2

Reinforcement:

Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	4	
Vert. Cage Diameter =	4.32	ft
Vert. Cage Diameter =	51.87	in
Vertical Bar Size =	9	
Bar Diameter =	1.13	in
Bar Area =	1	in^2
Number of Bars =	16	
As Total=	16	in^2
A s/ Aconc, Rho:	0.0057	0.57%

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

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.57%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	4227.16	kips
at Mu=(ϕ=0.65)Mn=	1823.95	ft-kips
Max Tu, (φ=0.9) Tn =	864	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	F	
Max. Service Shaft M:	1359.86	ft-kips **(* Note)**
Max. Service Shaft P:	33.22	kips
Max Axial Force Type:	Comp.	

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

Load Factor	**Shaft Factored Loads**		
1.30	Mu:	1767.818	ft-kips
1.30	Pu:	43.186	kips

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

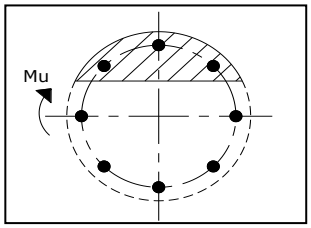
Seismic Properties

Seismic Design Category =	D
Seismic Risk =	**High**

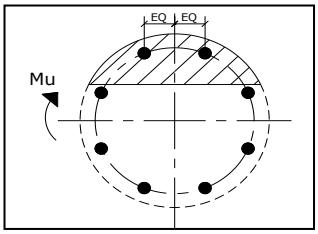
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**10.00**	in
Extreme Steel Strain, ϵt:	**0.0138**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	43.19	kips
Drilled Shaft Moment Capacity, φMn:	**1835.29**	ft-kips
Drilled Shaft Superimposed Mu:	**1767.82**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**96.3%**

EBI Consulting
environmental | engineering | due diligence

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

Sprint Existing Facility

Site ID: CT03XC064

Weston Square

92 Weston Street
Hartford, CT 06120

March 31, 2015

EBI Project Number: 6215001883

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

EBI Consulting
environmental | engineering | due diligence

March 31, 2015

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

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT03XC064 - Weston Square

Site Total: 49.94% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at **92 Weston Street, Hartford, 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 ($\mu W/cm^2$). The general population exposure limit for the cellular band (850 MHz Band) is approximately 567 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz and 2500 MHz bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at **92 Weston Street, Hartford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

1) 9 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 minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the RFS APXVSPP18-C-A20 and the RFS APXVTM14-C-I20. 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 APXVTM14-C-I20 has a 15.9 dBd gain value at its main lobe at 2500 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline for the proposed antennas is **108 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	CT03XC064 - Weston Square
Site Addresss	92 Weston Street, Hartford, CT, 06120
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 (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
1a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	9	180	5.9	108	102	1/2 "	0.5	0	624.13	2.16%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	108	102	1/2 "	0.5	0	39.00	0.24%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	108	102	1/2 "	0.5	0	138.69	0.85%
														Sector total Power Density Value:		3.24%

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 (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	9	180	5.9	108	102	1/2 "	0.5	0	624.13	2.16%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	108	102	1/2 "	0.5	0	39.00	0.24%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	108	102	1/2 "	0.5	0	138.69	0.85%
														Sector total Power Density Value:		3.24%

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 (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	9	180	5.9	108	102	1/2 "	0.5	0	624.13	2.16%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	108	102	1/2 "	0.5	0	39.00	0.24%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	108	102	1/2 "	0.5	0	138.69	0.85%
														Sector total Power Density Value:		3.24%

Site Composite MPE %	
Carrier	MPE %
Sprint	9.72%
T-Mobile	0.53%
AT&T	39.69%
Total Site MPE %	**49.94%**

EBI Consulting
environmental | engineering | due diligence

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 **9.72% (3.24% from sector 1, 3.24% from sector 2 and 3.24% from sector 3)** 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 **49.94%** 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