



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

November 27, 2018

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

RE: Notice of Exempt Modification for Sprint DO Macro: 876346
Sprint Site ID: CT03XC208
23 Holland Rd. Stafford Springs, CT 06076
Latitude: 42° 1' 45.94"/ Longitude: -72° 8' 23.54"

Dear Ms. Bachman:

Sprint currently maintains four (4) antennas at the 150-foot level of the existing 159-foot monopole tower located at 23 Holland Rd. Stafford Springs, CT 06076. The tower is owned by Crown Castle. Transportation Alliance Bank owns the property. Sprint now intends to replace four (4) existing antennas with six (6) new antennas. These antennas would be installed at the 150-foot level of the tower. Sprint also intends to install twelve (12) RRH's, and replace 4 (4) coax cables with four (4) hybrid cables

This facility was approved by the Town of Stafford Springs Planning and Zoning commission and on 11/27/2018 an email was sent to ascertain the original zoning documents.

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Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to First Select woman Mary Mitta, Town of Stafford, Dennis Milanovich, Building Official, Town of Stafford, the property owner and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

The Foundation for a Wireless World.

CrownCastle.com

Melanie A. Bachman

November 21, 2018

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5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

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

Attachments:

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

cc: Mary Mitta, First Selectwoman
1 Main St. Stafford Springs, CT
06076

Dennis Milanovich, Building
Official 1 Main St. Stafford
Springs, CT 06076

Transportation Alliance Bank
Inc. 4185 Harrison Blvd. Suite
200 Pogdon, UT 84403



Sign in

1446

Bess Town

Buddy Holland Rd



23 Buddy Holland Road

Suncor



Bessemer City
Machine Shop



Bess Town Rd



Satellite

Google



Puetts

23 HOLLAND RD**Location** 23 HOLLAND RD**Mblu** 11/ 05/ 002/ /**Acct#** 00022000**Owner** TRANSPORTATION ALLIANCE
BANK INC**Assessment** \$80,780**Appraisal** \$115,390**PID** 364**Building Count** 1**Current Value**

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$0	\$115,390	\$115,390

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$0	\$80,780	\$80,780

Owner of Record

Owner	TRANSPORTATION ALLIANCE BANK INC	Sale Price	\$300,000
Co-Owner		Certificate	
Address	DBA TAB BANK 4185 HARRISON BLVD SUITE 200 P OGDEN, UT 84403	Book & Page	66/232
		Sale Date	05/29/2018
		Instrument	13

Ownership History

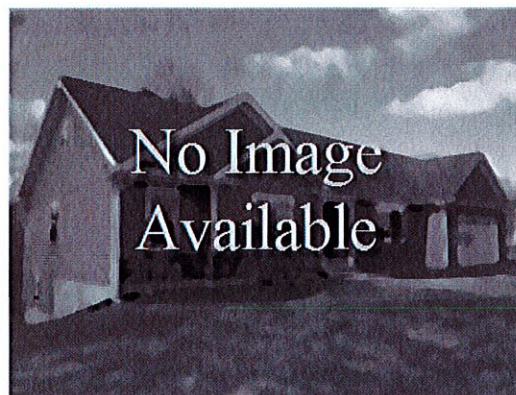
Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
TRANSPORTATION ALLIANCE BANK INC	\$300,000		66/232	13	05/29/2018
NEW ENGLAND LAND & LUMBER CORP	\$500,000		51/206	24	04/27/2005
UNION FUEL ASSOCIATES, LLC	\$245,000		40/68	00	07/01/1997
GOODHALL	\$0		0/0		01/01/1900

Building Information**Building 1 : Section 1**

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

Building Photo

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



(<http://images.vgsi.com/photos/UnionCTPhotos//default.jpg>)

Building Layout

(ParcelSketch.ashx?pid=364&bid=364)

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 3900
Description DEVEL LAND
Zone CI
Neighborhood 12
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 7.85
Frontage 0
Depth 0
Assessed Value \$80,780
Appraised Value \$115,390

Outbuildings

Outbuildings	Legend
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No Data for Outbuildings

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$0	\$125,770	\$125,770
2013	\$0	\$125,770	\$125,770
2012	\$0	\$178,940	\$178,940

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$0	\$88,040	\$88,040
2013	\$0	\$88,040	\$88,040
2012	\$0	\$125,260	\$125,260

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PROJECT:	DO MACRO UPGRADE
SITE NAME:	UNION
SITE CASCADE:	CT03XC208
SITE NUMBER:	876346
SITE ADDRESS:	23 HOLLAND RD STAFFORD SPRINGS, CT 06076
SITE TYPE:	MONOPOLE
MARKET:	NEW ENGLAND/UPSTATE NY

PLANS PREPARED FOR: -

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:



ENGINEERING LICENSE: -



— DRAWING NOTICE: —

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— REVISIONS: —

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	10/29/18	RWF	2
WIMO REDESIGN	07/26/18	RWF	1
ISSUED FOR CONSTRUCTION	01/31/18	RWF	0
ISSUED FOR REVIEW	12/11/17	RWF	A

SITE NAME: _____

UNION

SITE CASCADE:

CT03XC208

SITE ADDRESS: —

23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

SHEET DESCRIPTION: —

TITLE SHEET & PROJECT DATA

SHEET NUMBER: •

T-1

[illegible]

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)

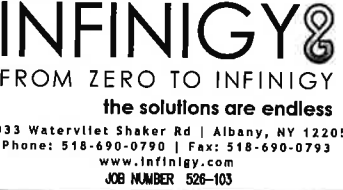
PART 3 – EXECUTION

- 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:



PLANS PREPARED BY:



MLA PARTNER:



ENGINEERING LICENSE:



DRAWING NOTICE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
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MIMO REDESIGN	07/26/18	RWF	1
ISSUED FOR CONSTRUCTION	01/31/18	RWF	0
ISSUED FOR REVIEW	12/11/17	RWF	A

SITE NAME:

UNION

SITE CASCADE:

CT03XC208

SITE ADDRESS:

23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

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 ANTENNA AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
 20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."
- 3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:
- A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
- B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
- C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
- D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION
- E. CONDUCT TESTING AS REQUIRED HEREIN.
- 3.3 DELIVERABLES:
- A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER
- B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.
1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
 2. PROJECT PROGRESS REPORTS.
 3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).

5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
 13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
 14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.
- SECTION 01 400 - SUBMITTALS & TESTS**
- PART 1 - GENERAL**
- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
- A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
- B. SPRINT 'STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES' ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.
- 1.3 SUBMITTALS:
- A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
- B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.
1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
 2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
 3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
 4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
 5. CHEMICAL GROUNDING DESIGN
- D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.
- 1.4 TESTS AND INSPECTIONS:
- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. COAX SWEEPS AND FIBER TESTS PER CURRENT VERSION OF SPRINT'S TS-0200 ANTENNA LINE ACCEPTANCE STANDARDS.
 2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
1. AZIMUTH, DOWNTILT, AGL - UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 485. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
 2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
 3. ALL AVAILABLE JURISDICTIONAL INFORMATION
 4. PDF SCAN OF REDLINES PRODUCED IN FIELD

5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
 6. LIEN WAIVERS
 7. FINAL PAYMENT APPLICATION
 8. REQUIRED FINAL CONSTRUCTION PHOTOS
 9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
 10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).
- 1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs
- 1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs
- PART 2 - PRODUCTS (NOT USED)**
- PART 3 - EXECUTION**
- 3.1 REQUIREMENTS FOR TESTING:
- A. THIRD PARTY TESTING AGENCY:
1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
 2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
 3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASHTO, AND OTHER METHODS IS NEEDED.
 4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASHTO, 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:



PLANS PREPARED BY:



MLA PARTNER:



ENGINEERING LICENSE:



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ISSUED FOR REVIEW	12/11/17	RWF	A

SITE NAME:

UNION

SITE CASCADE:

CT03XC208

SITE ADDRESS:

23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

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:



PLANS PREPARED BY:



MLA PARTNER:



ENGINEERING LICENSE:



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ISSUED FOR REVIEW	12/11/17	RWF	A

SITE NAME:

UNION

SITE CASCADE:

CT03XC208

SITE ADDRESS:

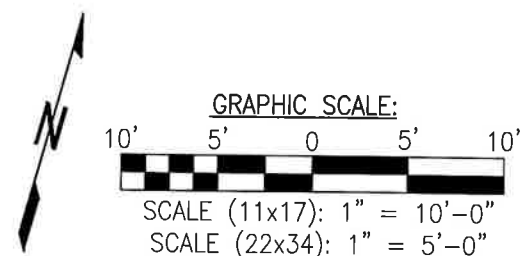
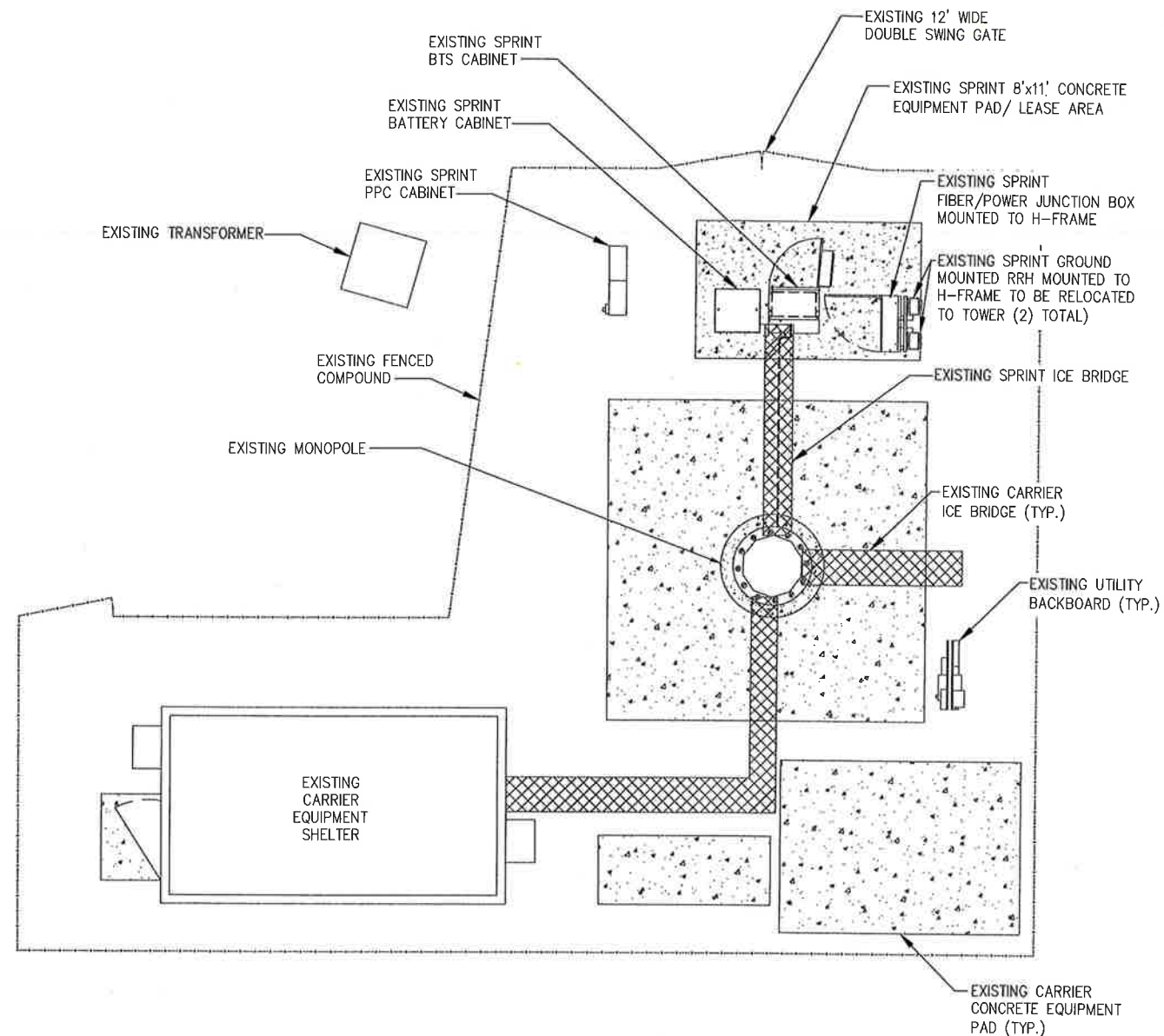
23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

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SPRINT SPECIFICATIONS

SHEET NUMBER:

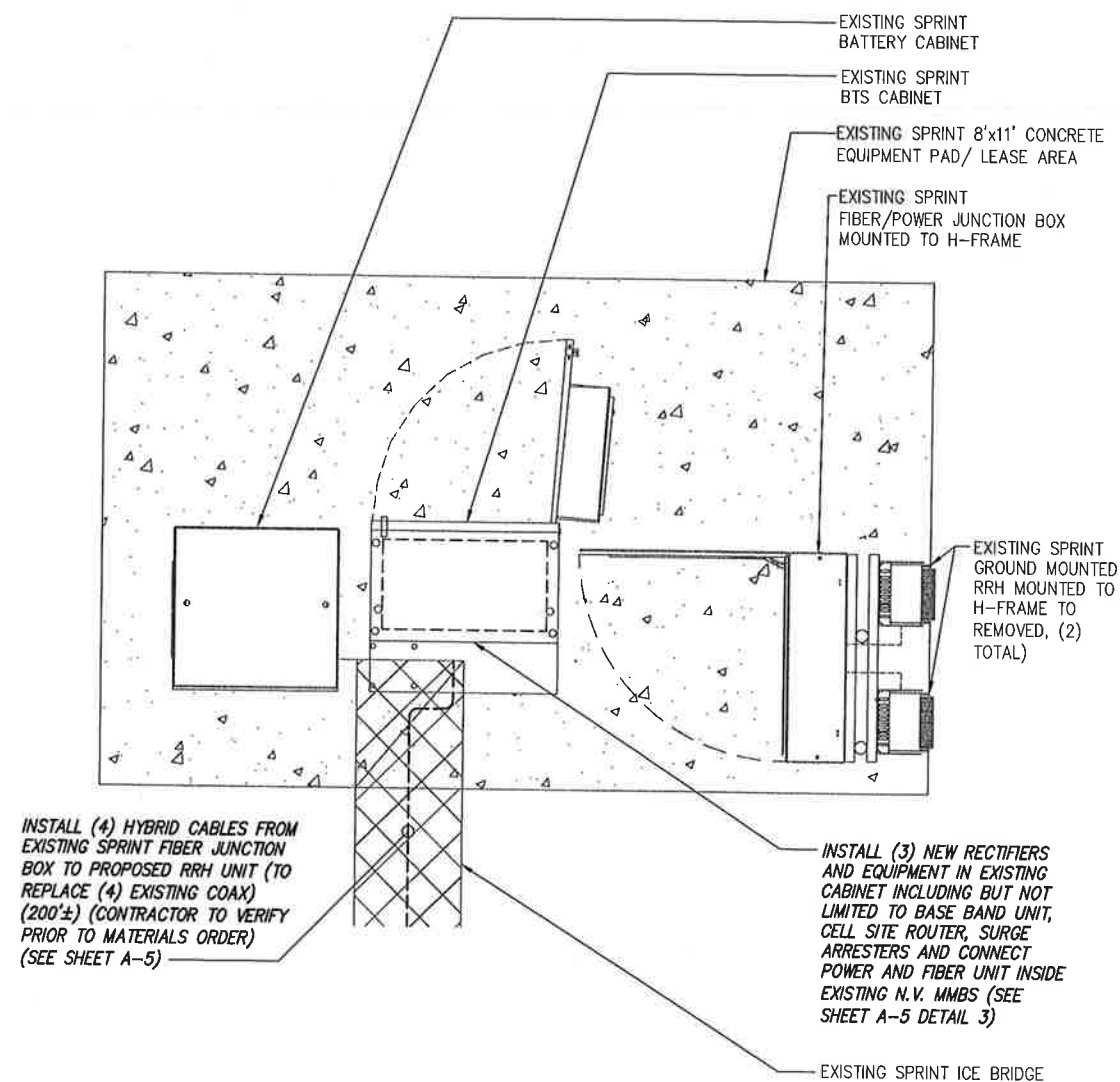
SP-3



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

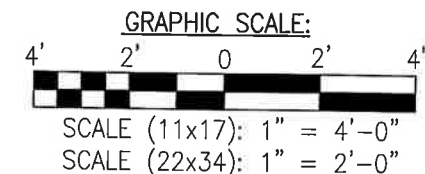
OVERALL SITE PLAN

SCALE: AS NOTED 1



INSTALL (4) HYBRID CABLES FROM EXISTING SPRINT FIBER JUNCTION BOX TO PROPOSED RRH UNIT (TO REPLACE (4) EXISTING COAX) (200'±) (CONTRACTOR TO VERIFY PRIOR TO MATERIALS ORDER) (SEE SHEET A-5)

INSTALL (3) NEW RECTIFIERS AND EQUIPMENT IN EXISTING CABINET INCLUDING BUT NOT LIMITED TO BASE BAND UNIT, CELL SITE ROUTER, SURGE ARRESTERS AND CONNECT POWER AND FIBER UNIT INSIDE EXISTING N.V. MMBS (SEE SHEET A-5 DETAIL 3)



NOTE:
NO LIQUID TIGHT FLEXIBLE METALLIC CONDUIT IS TO EXCEED 6 FEET PER SP-2 SECTION 26 200 ITEM E.

SPRINT EQUIPMENT PLAN

SCALE: AS NOTED 2

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66261

PLANS PREPARED BY:

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
J. S. STEVENSON
PROFESSIONAL ENGINEER
No. 24208
OCT 29 2018

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UNION

SITE CASCADE:

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SITE ADDRESS:

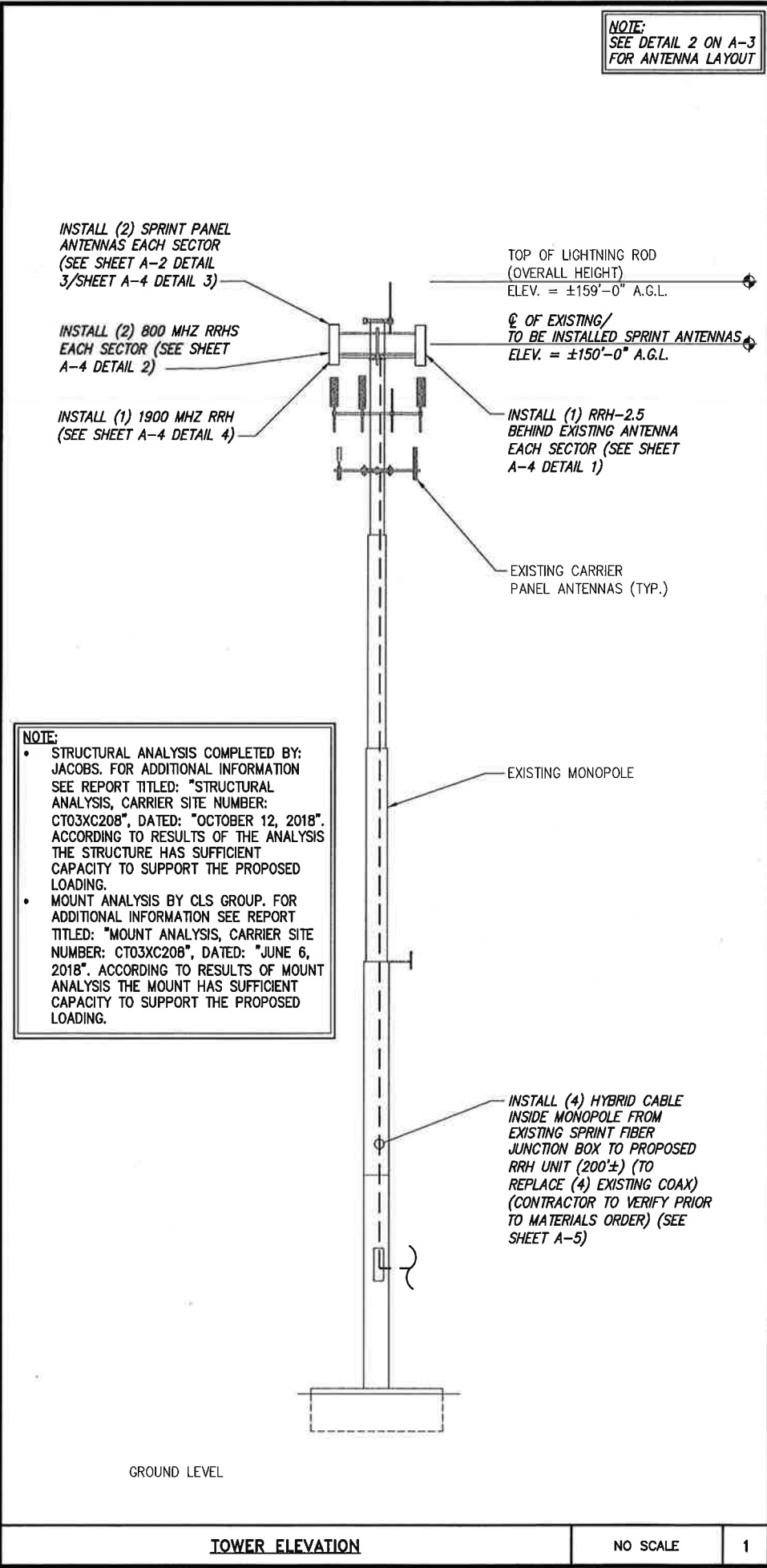
23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

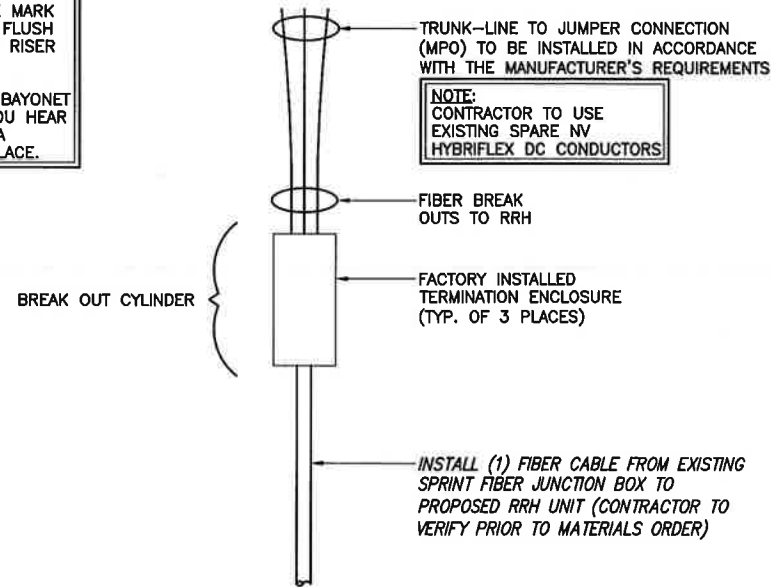


NO SCALE

1

NOTE:
CONTRACTOR TO LINE UP WHITE MARKINGS ON JUMPER AND RISER IP-MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.

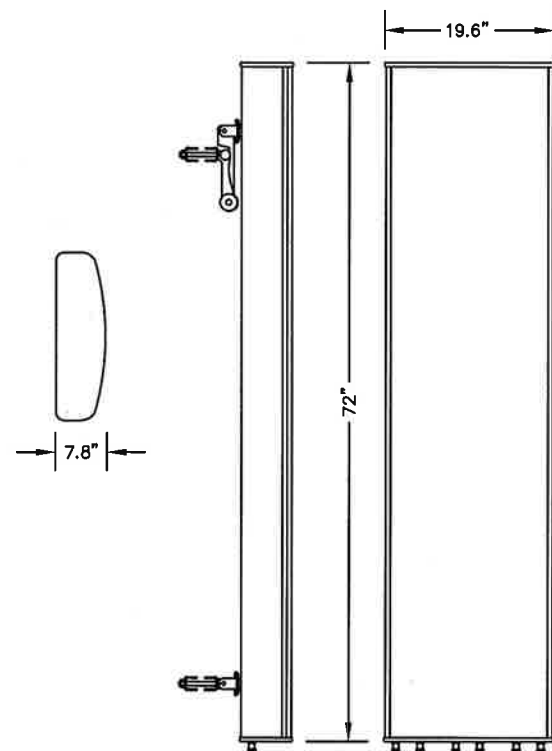
CONTRACTOR TO ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND TO ENSURE A PROPER CONNECTION IS IN PLACE.



HYBRID BREAKOUT DETAIL

NO SCALE

2



ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL: FIBERGLASS
RADOME COLOR: LIGHT GREY
DIMENSIONS, HxWxD.in(mim): 72"x19.6"x7.8"
WEIGHT: 77.4 lbs
CONNECTORS: (8) 4.3-10 DIN FEMALE

PANEL ANTENNA DETAIL

NO SCALE

3

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
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Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
Professional Engineer
October 2018

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ISSUED FOR REVIEW	12/11/17	RWF	A

SITE NAME:

UNION

SITE CASCADE:

CT03XC208

SITE ADDRESS:

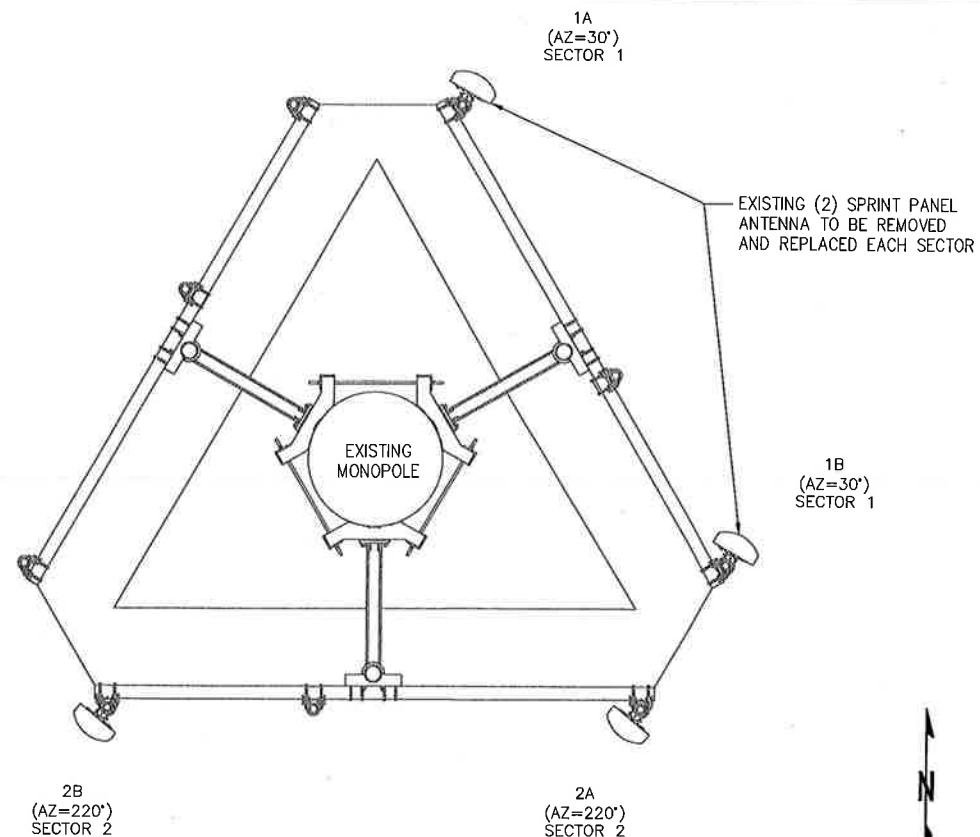
23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

SHEET DESCRIPTION:

TOWER ELEVATION
& CABLE PLAN

SHEET NUMBER:

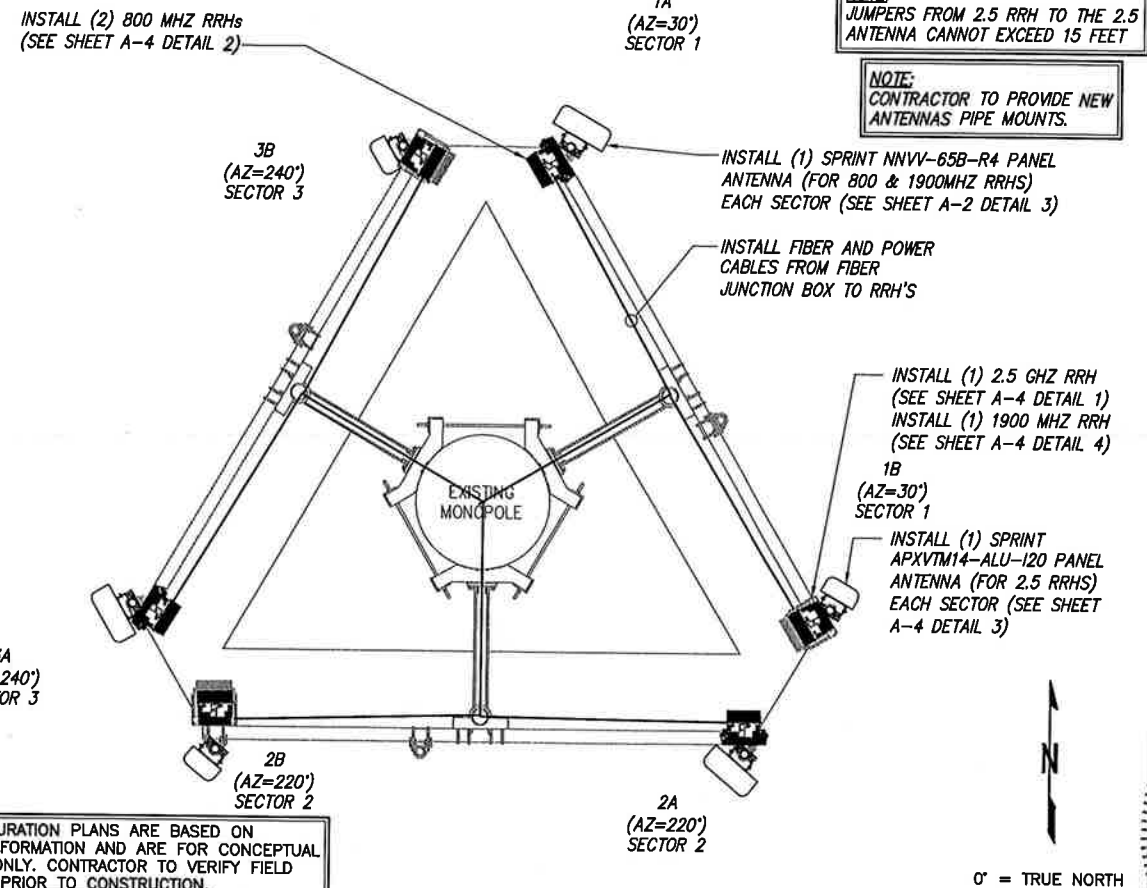
A-2



EXISTING ANTENNA & RRH LAYOUT

NO SCALE

1



FINAL ANTENNA & RRH LAYOUT

NO SCALE

2

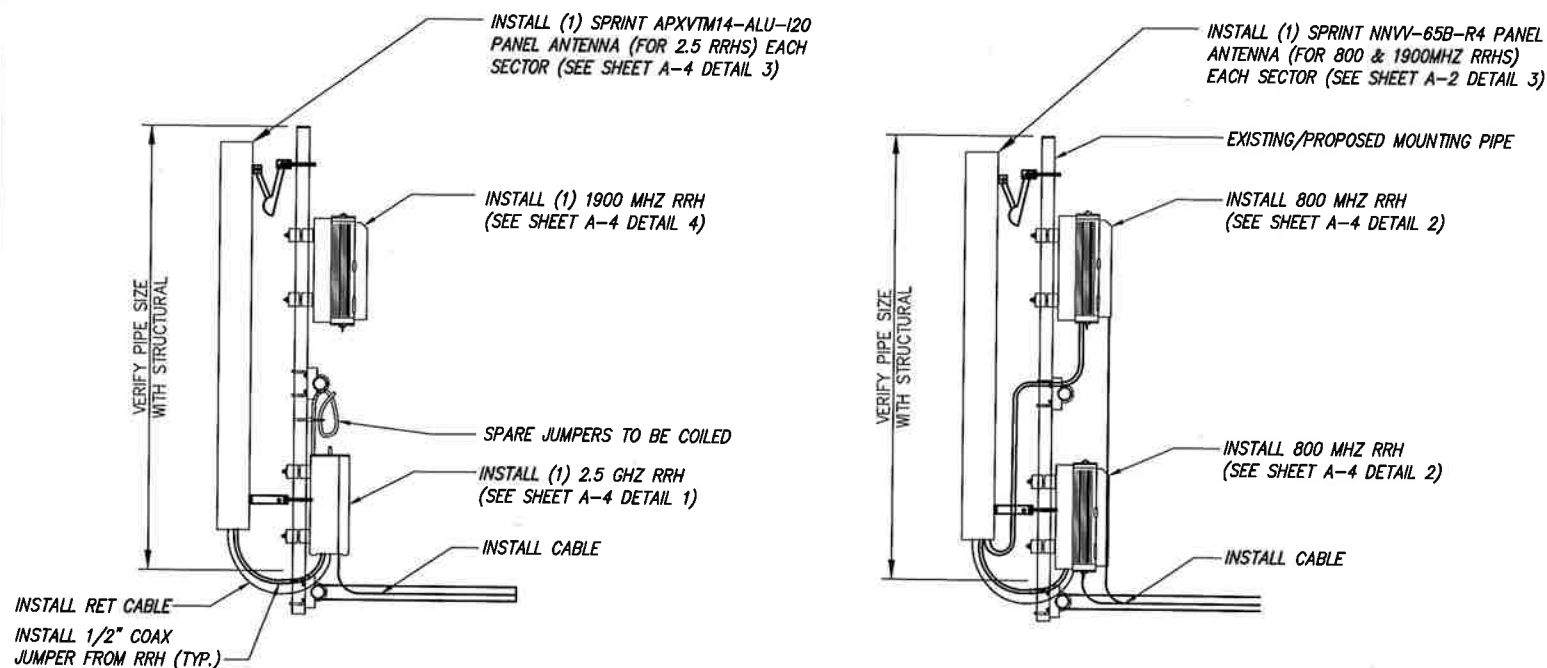
NOTES:

- ALL ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA.
- VERIFY AZIMUTH AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE.
- NO OBJECT IS TO BE WITHIN 45 DEGREES OF BORE-SIGHT OF 2.5G OR ANY OTHER TOWER ANTENNA. IF NECESSARY, 2.5G ANTENNA CAN BE PLACED AT FAR EDGE OF HORIZONTAL ANTENNA MOUNT MEMBER FOR CLEAR LINE OF SITE OR EVEN ON ANOTHER SECTOR FOR CLEAR LINE OF SITE.
- 2.5G ANTENNA MUST BE AT LEAST 6" FROM 1900MHZ ANTENNA, 30" FROM 800MHZ ANTENNA AND 30MHZ FROM DUAL BAND 1900MHZ AND 800MHZ ANTENNA.
- IF ANTENNAS ARE MOUNTED ON A FACE SURFACE SUCH AS A BUILDING WALL, PARAPET WALL, OR WATER TOWER WALL, THIS RFDS MUST BE ACCOMPANIED BY A SKETCH PROVIDED BY ITS ORIGINATING RF ENGINEER CALLING OUT THE EXACT LOCATION OF WHERE ANTENNA IS TO BE LOCATED. CONTACT SPRINT RF ENGINEER IF THE SKETCH IS MISSING.
- GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT BELOW, HALT ANTENNA WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5G ANTENNA AT SAME CL HEIGHT AS 1.9G ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS-BUILT DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900 MHZ AND 800 MHZ ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
- AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHZ, 1.9GHZ AND 2.5G. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
- GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.
- GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL (LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS-BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS-BUILT SETTINGS. USE 32 RF ALIGNMENT TOOL OR EQUIVALENT TOOL. [HTTP://WWW.3ZTECOM.COM/ANTENNA-ALIGNMENT-TOOL/](http://www.3ztecom.com/antenna-alignment-tool/)

NOTES

NO SCALE

3



NOTES:

- CUT DC CONDUCTORS TO LENGTH.
- COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
- DO NOT EXCEED BEND RADIUS.

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

NOTE:
SPARE DC CABLES ARE COILED UP ON 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 RRH MOUNTING DETAILS

TYPICAL ANTENNA & RRH MOUNTING DETAILS

NO SCALE

4

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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SITE NAME:

UNION

SITE CASCADE:

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SITE ADDRESS:

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STAFFORD SPRINGS, CT 06076

SHEET DESCRIPTION:

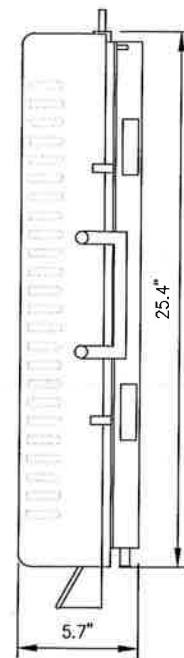
ANTENNA LAYOUT
& MOUNTING DETAILS

SHEET NUMBER:

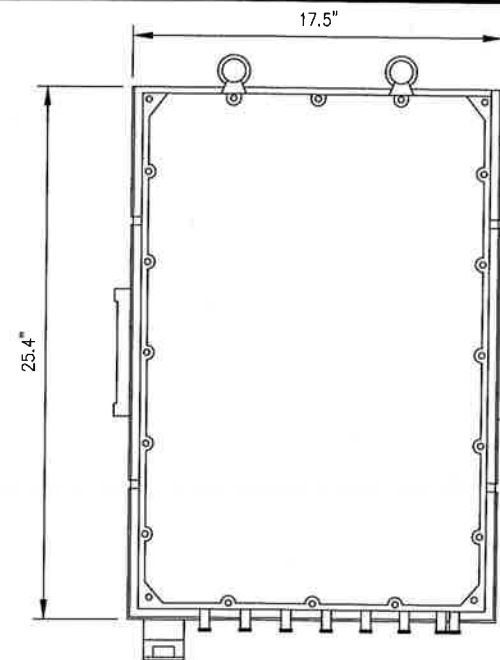
A-3

RRH: ALCATEL LUCENT TD-RRH8X20

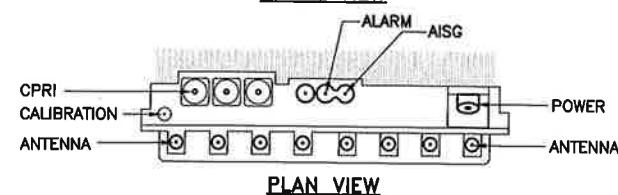
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

NOTES

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

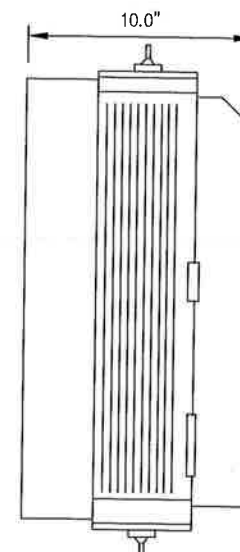
2.5 RRH'S

NO SCALE

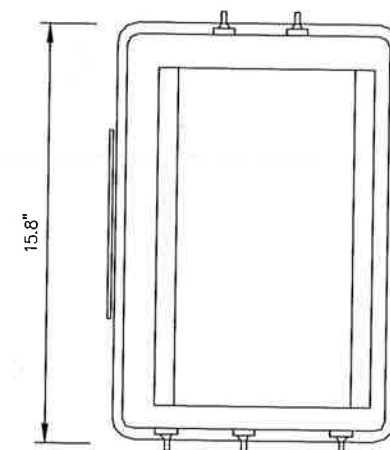
1

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

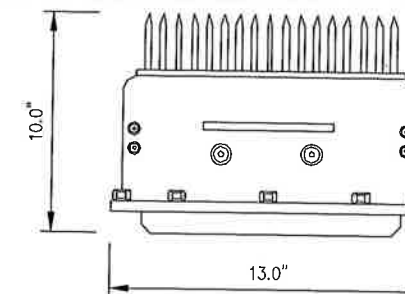
COLOR: LIGHT GREY
WEIGHT: 53 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

NOTES

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

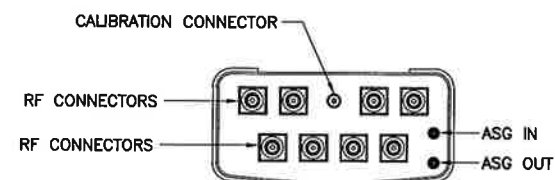
800 MHz RRH

NO SCALE

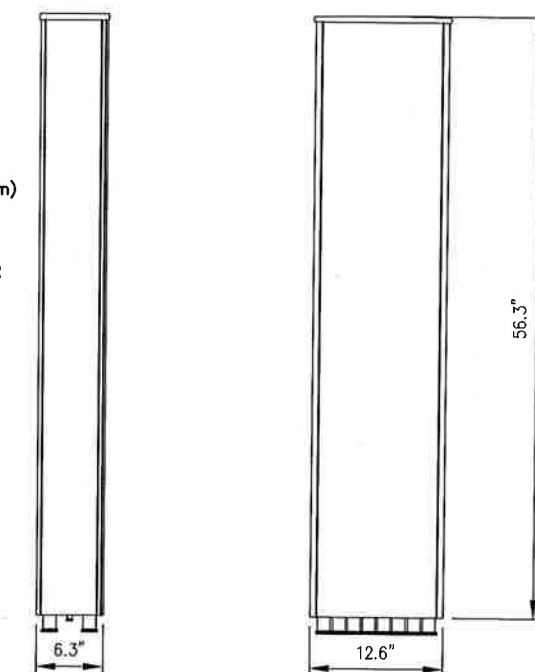
2

ANTENNA RFS APXVTM14-ALU-120

RADOME MATERIAL: ASA
RADOME COLOR: LIGHT GREY
DIMENSIONS, HxWxD.in(mlm): 56.3"x12.6"x6.3" (1430x320x160mm)
WEIGHT: 56.2 lbs
CONNECTORS: (8) 4.1/9.5 DIN FEMALE
(1) NF - CALIBRATION CONNECTOR



PLAN VIEW



SIDE VIEW

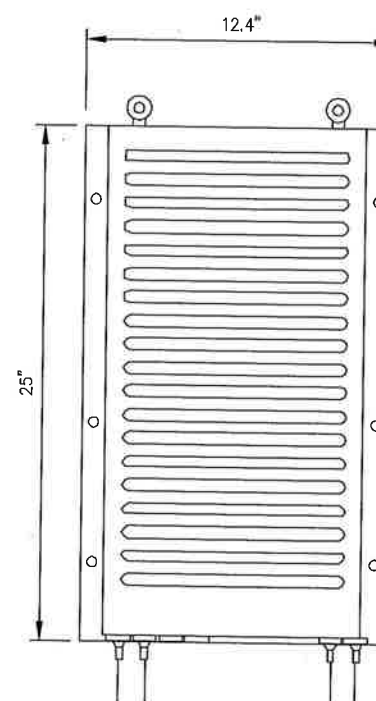
FRONT VIEW

PANEL ANTENNA DETAIL

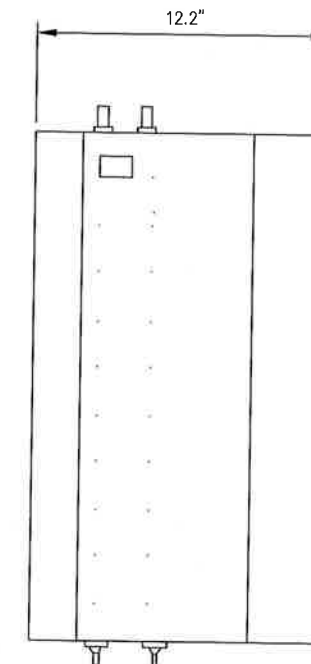
NO SCALE

3

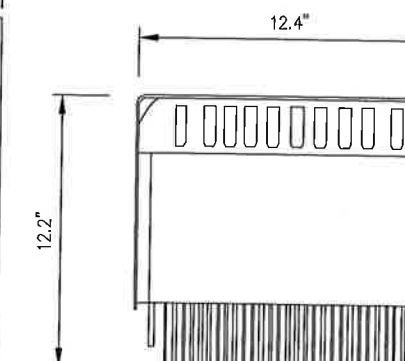
RRH: ALCATEL LUCENT 1900 MHz
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW



TOP VIEW

1900 RRH'S

NO SCALE

4

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UNION

SITE CASCADE:

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SITE ADDRESS:

23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

SHEET DESCRIPTION:

EQUIPMENT &
MOUNTING DETAILS

SHEET NUMBER:

A-4

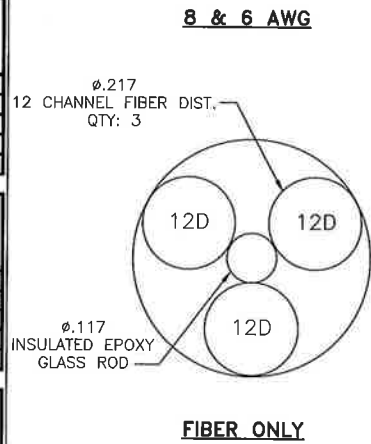
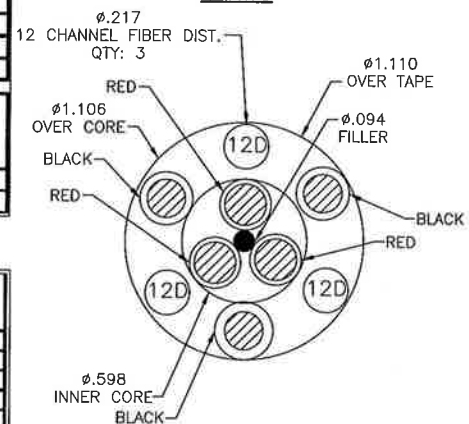
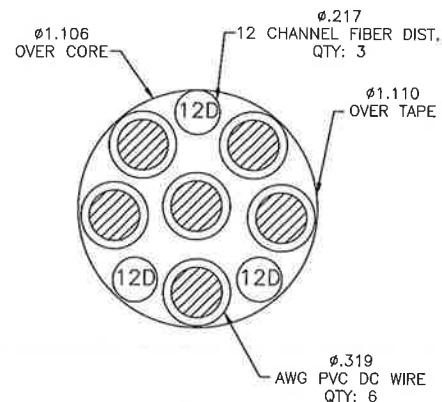
RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	Hybrid cable MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
8 AWG Power	MN: HB058-M12-200F	200 ft
	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
6 AWG Power	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
	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
4 AWG Power	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
	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.



2.5 CABLE CROSS SECTION DATA

NO SCALE

1

2" LIQUIDTIGHT
STRAIGHT CONNECTOR

EXISTING
JUNCTION
BOX

2" METALLIC THREADED HUB WITH
LOCKNUT AND NEOPRENE O-RING
SEAL. PROVIDE IMPACT RESISTANT
105' C PLASTIC BUSHINGS

6' MAX LENGTH OF
LIQUIDTIGHT CONDUIT

FIBER JUNCTION BOX PENETRATION

NO SCALE

2

DS3 SURGE PROTECTOR

POWER INJECTOR 5-8

POWER INJECTOR 1-4

7210 SAS-M 2

7210 SAS-M 1

7205 SAR-B

LTE-BBU 2.5GHz

LTE-BBU FDD

CDMA MT-BBU GROWTH

CDMA MT-BBU PRIMARY

PDP1

PDP2

15MHz SPLITTER

ETHERNET HUB SEC-B

PRIMARY PROTECTION T1

SEC-B #1, #1 & #3

RECTIFIER SHELF PRIMARY

RECTIFIER SHELF 2.5GHz

CABINET LAYOUT

NO SCALE

3

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6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 526-103

MLA PARTNER:

**CROWN
CASTLE**

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JAN S. STEVENSON
No. 24705
OCT 29 2018
PROFESSIONAL ENGINEER

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ISSUED FOR REVIEW	12/11/17	RWF	A

SITE NAME:

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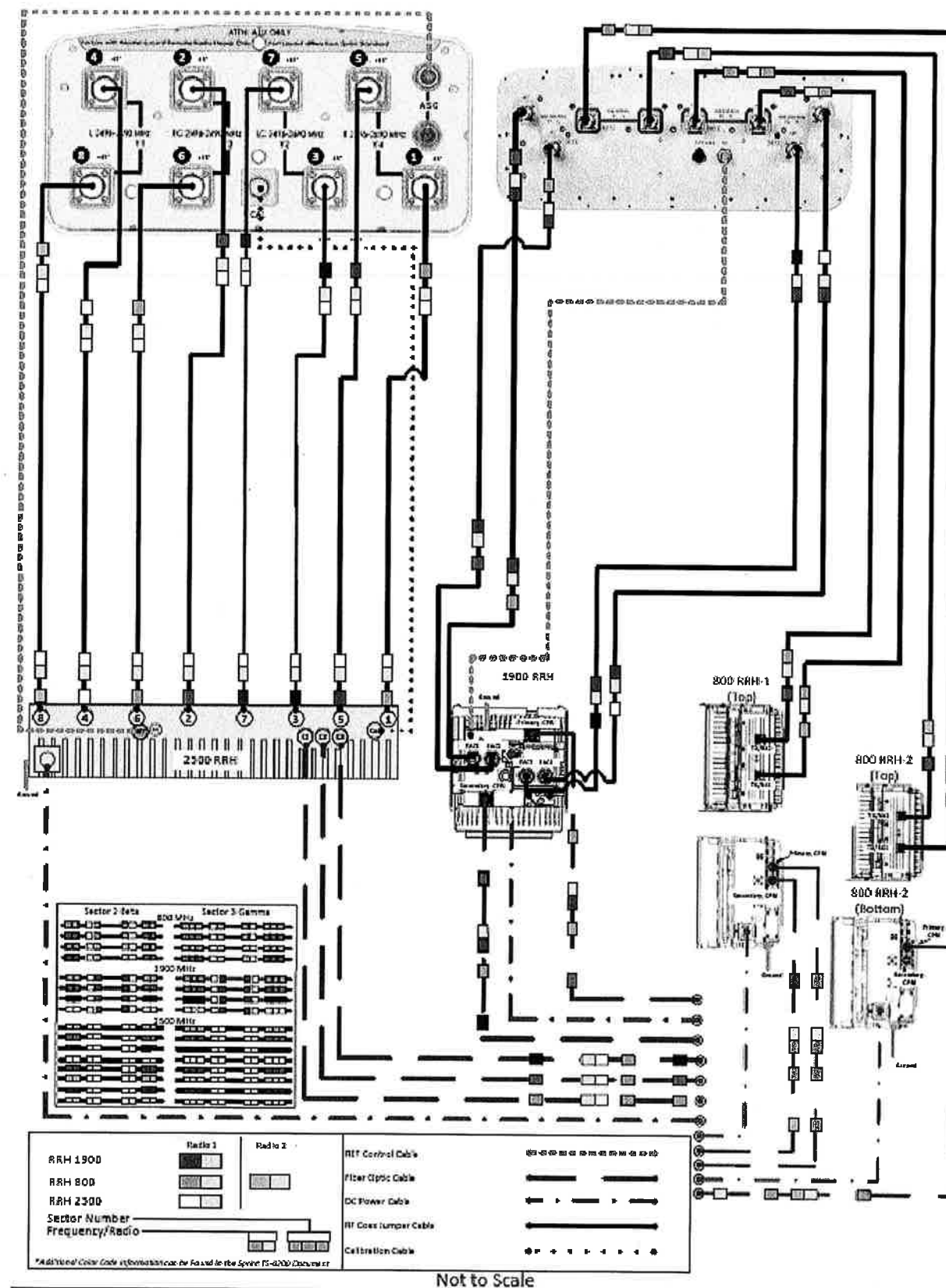
SHEET DESCRIPTION:

CIVIL DETAILS

SHEET NUMBER:

A-5

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



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STAFFORD SPRINGS, CT 06076

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

FINAL EQUIPMENT CONFIGURATION					
SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	AZIMUTH	RRH/ODU MAKE AND MODEL
1	COMMSCOPE	NNVV-65B-R4	183'	30°	(2) ALU 800MHZ 2x50-800
	RFS	APXVTM14-ALU-I20	183'	30°	(1) ALU 1900MHZ 4X45W-65MHZ (1) ALU TD-RRH8X20-25
2	COMMSCOPE	NNVV-65B-R4	183'	220°	(2) ALU 800MHZ 2x50-800
	RFS	APXVTM14-ALU-I20	183'	220°	(1) ALU 1900MHZ 4X45W-65MHZ (1) ALU TD-RRH8X20-25
3	COMMSCOPE	NNVV-65B-R4	183'	340°	(2) ALU 800MHZ 2x50-800
	RFS	APXVTM14-ALU-I20	183'	340°	(1) ALU 1900MHZ 4X45W-65MHZ (1) ALU TD-RRH8X20-25
FEEDER CABLES					
	MANUFACTURER	MODEL	LENGTH	QTY	
	RFS	HB114-1-08U4-M5J	200±	(3)	
	RFS	HB114-13U3M12-200F	200±	(1)	

LEGEND
EXISTING
PROPOSED

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

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Sprint

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STATE OF CONNECTICUT

JOHN S. STEVENS

PROFESSIONAL ENGINEER

NO. 14705

EXP. 2-28-2018

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SITE NAME:

UNION

SITE CASCADE:

CT03XC208

SITE ADDRESS:

23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-1

PLAN NOT USED

NO SCALE

1

LEGEND:

G

EXISTING GROUND RING

■

CADWELD CONNECTION (EXOTHERMIC WELD)

▲

MECHANICAL CONNECTION

⊗

GROUND ROD

●

CABLE GROUND KIT

BOND INSTALL ANTENNA TO SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS

EXISTING SPRINT TOWER GROUND BAR (CONTRACTOR TO VERIFY)

BOND RRH TO SECTOR BAR PER MANUFACTURER'S SPECIFICATIONS

NEW CABLE TO BE BONDED TO LOWER MAIN TOWER GROUND BAR

NEW 2.5 EQUIPMENT TO BE BONDED TO EXISTING GROUND BAR IN MMBS CABINET

EXISTING FIBER JUNCTION BOX

USE CONDUIT SEAL PRODUCT BY ETCO OR ROXTEC

2" LIQUIDTIGHT FLEXIBLE METAL CONDUIT (6" MAX)

EXISTING LOWER TOWER GROUND MAIN BAR

TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

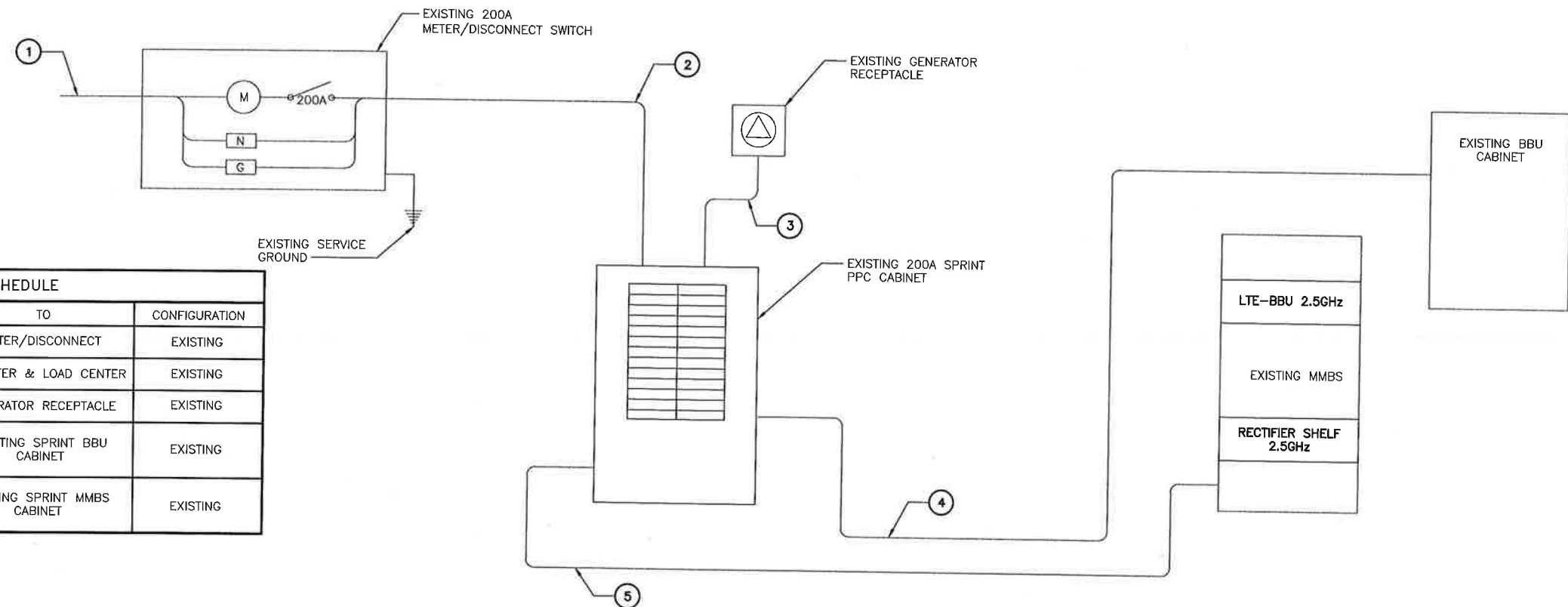
2

TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION)

NO SCALE

3

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



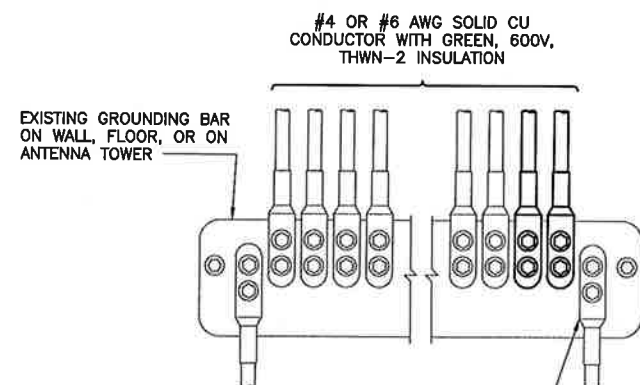
CIRCUIT SCHEDULE

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

ELECTRICAL ONE-LINE DIAGRAM

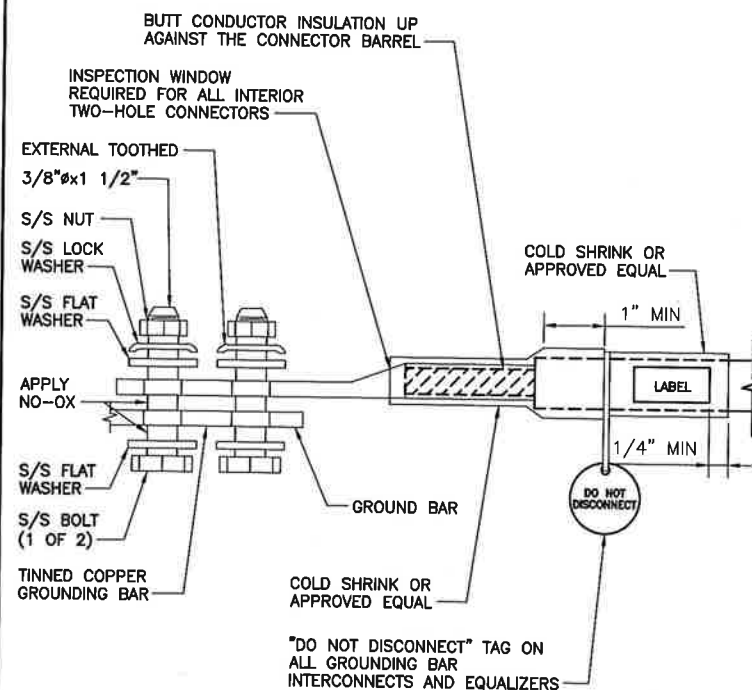
NO SCALE

1



NOTES

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



INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

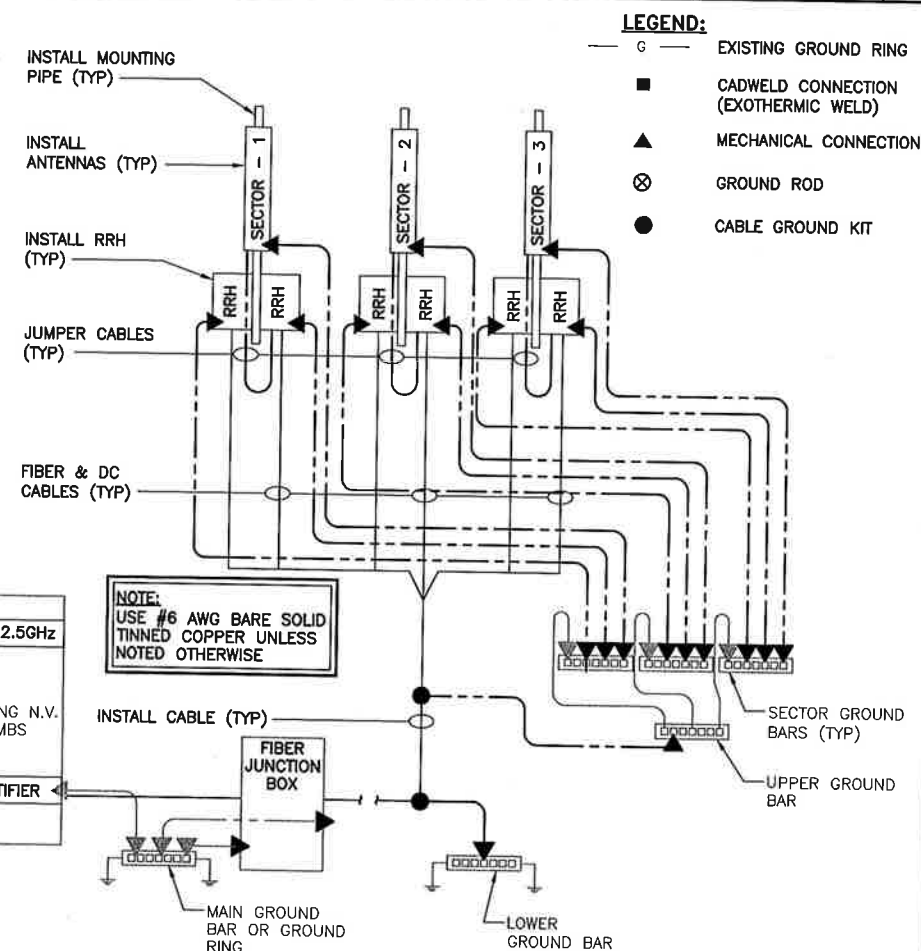
NO SCALE

2

TWO HOLE LUG

NO SCALE

3



GROUNDING RISER DIAGRAM

NO SCALE

4

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
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1033 Watervliet Shaker Rd | Albany, NY 12205
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MLA PARTNER:

CROWN CASTLE

ENGINEERING LICENSE:



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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION	10/29/18	RWF	2
MMO REDESIGN	07/26/18	RWF	1
ISSUED FOR CONSTRUCTION	01/31/18	RWF	0
ISSUED FOR REVIEW	12/11/17	RWF	A

SITE NAME:

UNION

SITE CASCADE:

CT03XC208

SHEET ADDRESS:

23 HOLLAND RD
STAFFORD SPRINGS, CT 06076

SHEET DESCRIPTION:

ELECTRICAL &
GROUNDING DETAILS

SHEET NUMBER:

E-2

Date: **October 12, 2018**

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

JACOBS
Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
(770)701-2500

Subject: **Structural Analysis Report**

Carrier Designation: **Sprint PCS Co-Locate**
Carrier Site Number: CT03XC208
Carrier Site Name: CT03XC208

Crown Castle Designation: **Crown Castle BU Number:** 876346
Crown Castle Site Name: UNION
Crown Castle JDE Job Number: 505816
Crown Castle Work Order Number: 1647155
Crown Castle Order Number: 441324 Rev. 0

Engineering Firm Designation: **Jacobs Engineering Group, Inc. Project Number:** 1647155

Site Data: **23 Holland Road, Stafford Springs, Tolland County, CT**
Latitude 42° 1' 45.94", Longitude -72° 8' 23.54"
150 Foot - Monopole Tower

Dear Timothy Howell,

Jacobs Engineering Group, Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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: Proposed Equipment Configuration

Sufficient Capacity

This analysis utilizes an ultimate 3-second gust wind speed of 124 mph as required by the 2016 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by:

Engineer of Record:



Nikhil Sharma
Structural Engineer



Paul L. Mucci, P.E.
Sr. Project Manager

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1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by ROHN.

The tower has been modified per reinforcement drawing prepared by FDH Engineering, Inc. in June of 2012. The reinforcement consists of addition of flat plate reinforcement, bridge stiffener, transition stiffener and new anchor rods to the tower and new concrete blocks to the foundation.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	124 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.0	150.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	4	1-1/4
		6	alcatel lucent	RRH2X50-800		
		3	alcatel lucent	TD-RRH8x20-25		
		3	commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
	147.0	1	tower mounts (crown)	Platform Mount [LP 502-1]		

Table 2 – Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
137.0	140.0	4	powerwave technologies	TT19-08BP111-001	1 2 4 4	3/8 3/4 1-1/4 1-5/8
		3	ericsson	RRUS 11 B12		
		2	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe		
		4	powerwave technologies	7770.00 w/ Mount Pipe		
		1	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8F		
	137.0	1	tower mounts (crown)	Platform Mount [LP 601-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
129.0	130.0	3	kathrein	800 10504 w/ Mount Pipe	1 6	3/8 1-5/8
		3	kathrein	860 10118		
	129.0	1	tower mounts (crown)	T-Arm Mount [TA 602-3]		
60.0	61.0	1	lucent	KS24019-L112A	1	1/2
	60.0	1	tower mounts (crown)	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering, Inc.	1855010	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Rohn	1447038	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Rohn / Tower Engineering Professionals (Mapped)	1406212	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	3716688	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Engineering, Inc.	3252388	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.4.0), 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 and maintained in accordance with the manufacturer's specifications.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) Base and flange plate design methodology of the manufacturer has been reviewed and found to be an acceptable means of designing to resist the full capacity of the bolts and shaft.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP24x24x0.25	Pole	5.9%	Pass
145 - 140	Pole	TP24x24x0.25	Pole	13.3%	Pass
140 - 135	Pole	TP24x24x0.25	Pole	24.8%	Pass
135 - 130	Pole	TP24x24x0.25	Pole	37.3%	Pass
130 - 125	Pole	TP24x24x0.25	Pole	51.8%	Pass
125 - 120	Pole	TP24x24x0.25	Pole	66.7%	Pass
120 - 115	Pole	TP30x30x0.375	Pole	34.4%	Pass
115 - 110	Pole	TP30x30x0.375	Pole	41.1%	Pass
110 - 105	Pole	TP30x30x0.375	Pole	47.9%	Pass
105 - 100	Pole	TP30x30x0.375	Pole	55.0%	Pass
100 - 95	Pole	TP30x30x0.375	Pole	62.2%	Pass
95 - 90	Pole	TP30x30x0.375	Pole	69.6%	Pass
90 - 85	Pole	TP36x36x0.375	Pole	54.9%	Pass
85 - 80	Pole	TP36x36x0.375	Pole	60.5%	Pass
80 - 75	Pole	TP36x36x0.375	Pole	66.2%	Pass
75 - 70	Pole	TP36x36x0.375	Pole	72.0%	Pass
70 - 65	Pole	TP36x36x0.375	Pole	78.0%	Pass
65 - 60	Pole	TP36x36x0.375	Pole	84.2%	Pass
60 - 55	Pole	TP42x42x0.375	Pole	67.6%	Pass
55 - 50	Pole	TP42x42x0.375	Pole	72.4%	Pass
50 - 45	Pole	TP42x42x0.375	Pole	77.4%	Pass
45 - 40.2	Pole	TP42x42x0.375	Pole	82.2%	Pass
40.2 - 39.95	Pole	TP42x42x0.375	Pole	82.4%	Pass
39.95 - 34.95	Pole	TP42x42x0.375	Pole	87.6%	Pass
34.95 - 31.2	Pole	TP42x42x0.375	Pole	91.5%	Pass
31.2 - 30.95	Pole	TP42x42x0.375	Pole	91.8%	Pass
30.95 - 30	Pole	TP42x42x0.375	Pole	92.8%	Pass
30 - 25	Pole	TP42x42x0.5	Pole	71.7%	Pass
25 - 20	Pole	TP42x42x0.5	Pole	75.7%	Pass
20 - 15	Pole	TP42x42x0.5	Pole	79.9%	Pass
15 - 10	Pole	TP42x42x0.5	Pole	84.1%	Pass
10 - 7.8	Pole	TP42x42x0.5	Pole	85.9%	Pass
7.8 - 7.55	Pole	TP42x42x0.5	Pole	86.2%	Pass
7.55 - 2.55	Pole	TP42x42x0.5	Pole	90.4%	Pass
2.55 - 1.92	Pole	TP42x42x0.5	Pole	91.0%	Pass
1.92 - 1.67	Pole + Reinf.	TP42x42x0.75	Pole	62.6%	Pass

1.67 - 1.3	Pole + Reinf.	TP42x42x0.75	Pole	62.8%	Pass
1.3 - 1.05	Pole + Reinf.	TP42x42x0.75	Pole	62.9%	Pass
1.05 - 0	Pole + Reinf.	TP42x42x0.75	Pole	63.6%	Pass
				Summary	
			Pole	92.8%	Pass
			Reinforcement	53.2%	Pass
			Overall	92.8%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	87.3	Pass
1	Base Plate	0	51.3	Pass
1	Base Foundation Structural	0	27.3	Pass
1	Base Foundation Soil Interaction	0	86.1	Pass
1, 2	Flange Connection	60	84.2	Pass
1, 2	Flange Connection	90	69.6	Pass
1, 2	Flange Connection	120	66.7	Pass

Structure Rating (max from all components) =	92.8%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Flange plates are assumed to have the same capacity as their respective splice bolts or shaft.

4.1) Recommendations

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

Mount Analysis of Existing Platform w/ Support Rails for Crown Castle BU #876346 - Union

CLS Group Project #42284-CT03XC208-01-MA
June 6, 2018

PROPOSED CARRIER	Sprint
CARRIER SITE	CT03XC208
CCI ORDER #	441324 Rev.0
MOUNT DESCRIPTION	Existing Platform w/ Support Rails at 147 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 150 ft AGL (Eccentricity of ~3 ft)
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	23 Holland Road, Stafford Springs, CT 06076, Tolland County
GPS COORDINATES	42.029428, -72.139872
ANALYSIS STANDARD	2012 IBC / 2016 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 1" Ice

■ ANALYSIS RESULT:

Pass

MEMBER USAGE	67%	Pass
CONNECTION USAGE	8%	Pass

Prepared by:
Bhishan Poudel, E.I.

Reviewed and Approved by:
Michael Lassiter, P.E.



June 08, 2018

Mount Analysis of Existing Platform w/ Support Rails for Crown Castle BU #876346 - Union

CLS Group Project #42284-CT03XC208-01-MA
June 6, 2018

PROPOSED CARRIER	Sprint
CARRIER SITE	CT03XC208
CCI ORDER #	441324 Rev.0
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■ ANALYSIS RESULT: **Pass**

MEMBER USAGE	67%	Pass
CONNECTION USAGE	8%	Pass

Prepared by:
Bhishan Poudel, E.I.

Reviewed and Approved by:
Michael Lassiter, P.E.

■ INTRODUCTION

The proposed equipment is to be mounted to the existing Platform w/ Support Rails. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

■ STRUCTURAL DOCUMENTS PROVIDED

STRUCTURAL DATA	Tower Mapping by TEP, Project #082609, dated October 6, 2008 Site Photos, dated November 29, 2017
PREVIOUS ANALYSES	Tower SA by PJF, Project #37517-3721.002.7700, dated December 1, 2017
LOADING DATA	Crown Application, Order ID #441324, Revision 0

■ ANALYSIS CRITERIA

STANDARD	2012 IBC / 2016 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
EXPOSURE CATEGORY	C
MAX. TOPOGRAPHIC FACTOR, K_{zt}	1.00
RISK CATEGORY	II
MAINTENANCE LIVE LOAD	L_M : 500 lb

■ FINAL EQUIPMENT

ELEVATION (ft)		ANTENNAS	
MOUNT	RAD.	#	NAME
147.0	150.0	3	Commscope NNVV-65B-R4
		3	RFS Celwave APXVTM14-ALU-I20
		3	Alcatel Lucent TD-RRH8x20-25
		3	Alcatel Lucent PCS 1900MHz 4x45W-65MHz
		6	Alcatel Lucent RRH2x50-800

■ RESULTS SUMMARY

COMPONENT	PEAK USAGE	RESULT
Bracing Members	67%	Pass
Stand-Off Horizontals	54%	Pass
Face Horizontals	49%	Pass
Support Rail	35%	Pass
Mount Pipes	21%	Pass
Connections	8%	Pass

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **PASS**. The mounting configuration considered in this analysis is capable of supporting the referenced loading pursuant to applicable standards.

■ ASSUMPTIONS AND CONDITIONS

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Group should be notified immediately to revise results.

This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Group.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Group is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

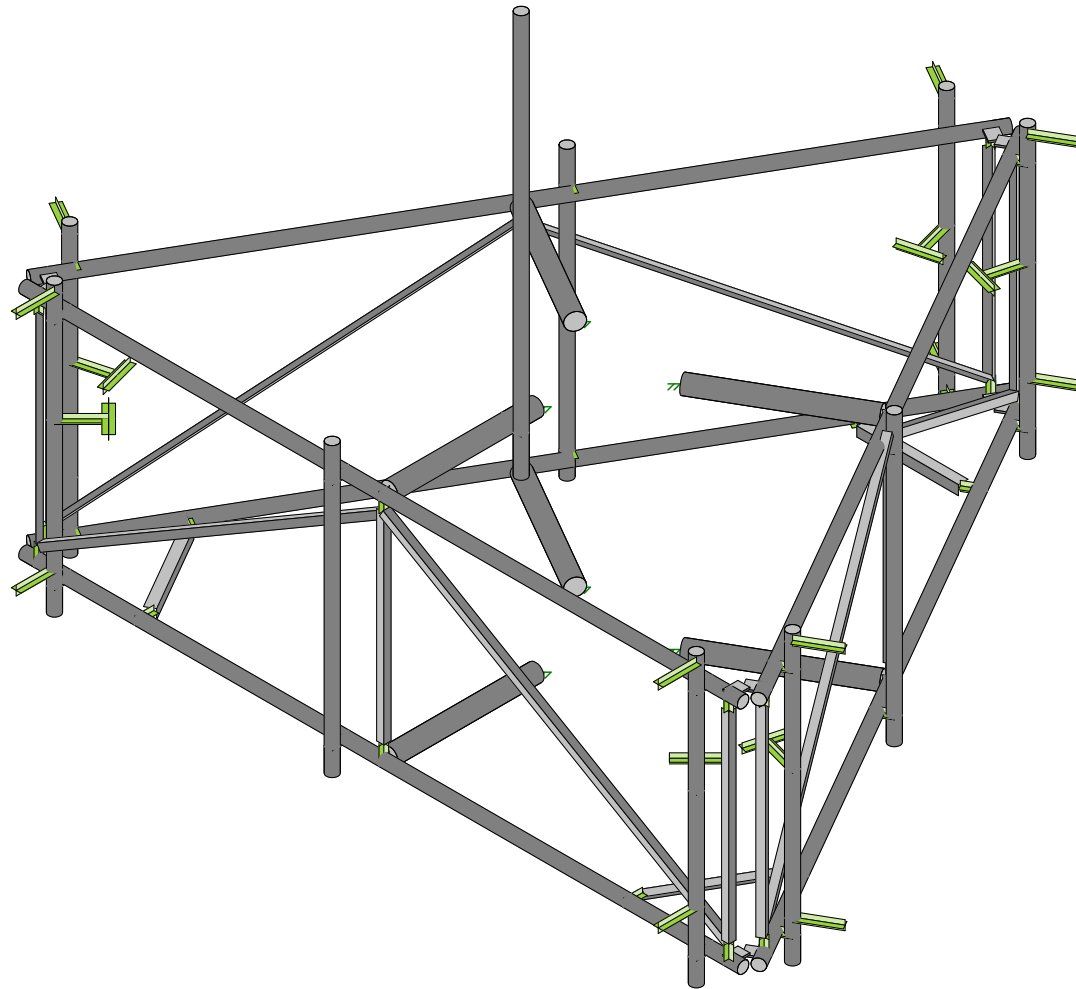
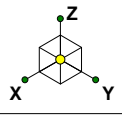
It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Group verifies the adequacy of the primary members of the structure. CLS Group provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

Wind & Ice Loading			
Nominal Mount Elevation (AGL), z_{mount}	147 ft	K_a	1.00
Nominal Rad Elevation (AGL), z_{rad}	150 ft	K_d	0.95
TIA Standard	G	K_z	1.37
Basic Wind Speed, V_{ult} (bare)	125 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	I (wind)	-
Design Ice Thickness, t_i	1 in	t_{iz}	2.32 in
Exposure Category	C	G_h	1.00
Risk Category	II	q_z (bare)	52.2 psf
Seismic Response Coeff., C_s	-	q_z (ice)	8.3 psf

Live Loading	
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3

Member Distributed Loading				
Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Bracing Angles	1.5x1.5x0.125	13.04	5.65	12.61
Conneciton Plate	PL2.5x0.375	21.73	5.99	11.78
Grating Angle	L2x2x4	17.39	6.24	14.61
Horizontal Face Pipe	HSS2.375x0.154	12.39	5.86	13.33
Mount Pipe	PIPE_2.0	12.41	5.86	13.34
Offset Pipe	HSS3.500x0.250	18.25	6.80	16.52

Appurtenances																														
Appurtenance Model	Status	Azimuth Offset (°, ′)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA _A (Bare) (ft²)		EPA _A (Ice) (ft²)		F _A (Bare) (lb)		F _A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
PCS 1900MHz 4x45W-65MHz				☑		0.5	1	1	1	3	R1		R5		R9		25.1	11.1	10.7	60	Flat	107.66	2.24	1.16	3.81	1.95	117.23	60.81	31.91	16.37
RRH2x50-800				☑		0.5	2	2	2	6	R4	R3	R7	R8	R11	R12	15.7	13	9.8	52.9	Flat	79.16	1.28	0.85	2.45	1.50	67.16	44.54	20.55	12.55
TD-RRH8x20-25				☑		0.5	1	1	1	3	R2		R6		R10		26.1	18.6	6.71	70	Flat	126.36	1.53	2.02	2.93	2.98	80.38	105.95	24.59	24.97
APXVTM14-ALU-I20				☐			1	1	1	3	A3	A4	A7	A8	A11	A12	56.3	12.6	6.3	56.2	Flat	228.51	6.34	3.61	9.10	6.20	332.21	188.95	76.26	51.92
NNVV-65B-R4				☐			1	1	1	3	A1	A2	A5	A6	A9	A10	72	19.6	7.8	77.4	Flat	335.74	12.27	5.75	15.87	9.03	642.75	301.18	133.02	75.70

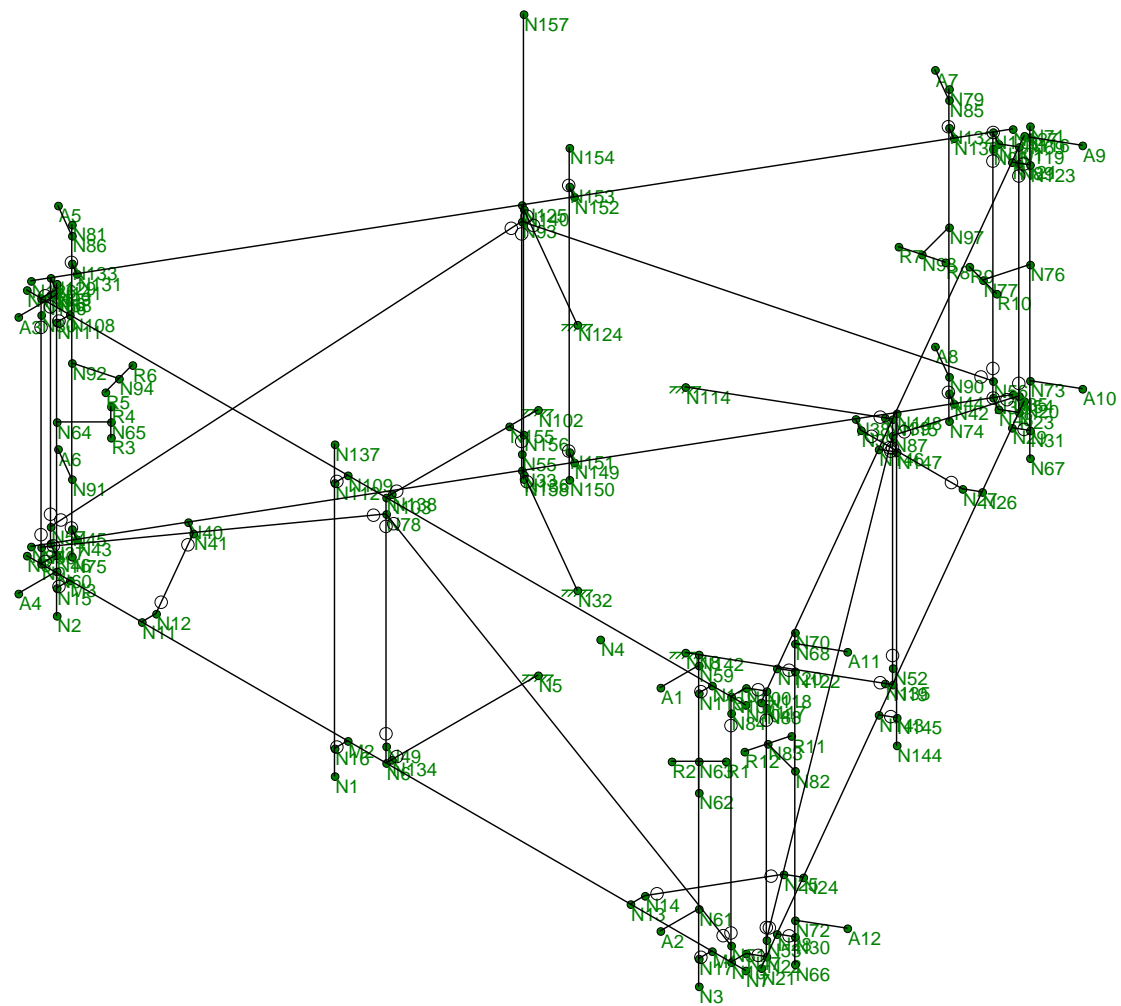
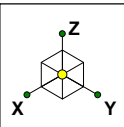


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CLS
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42284-CT03XC208-01-MA

42284-CT03XC208-Union
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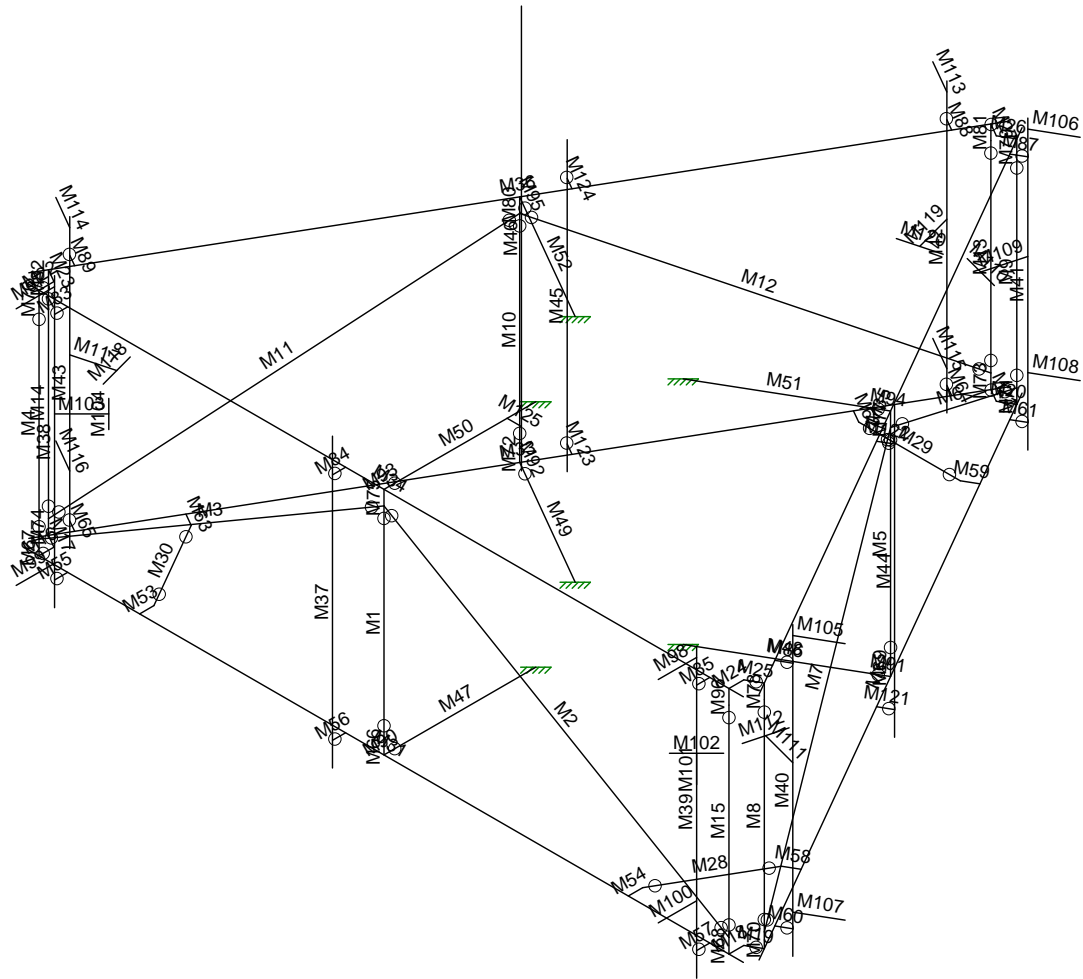
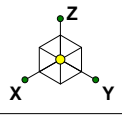


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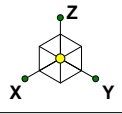


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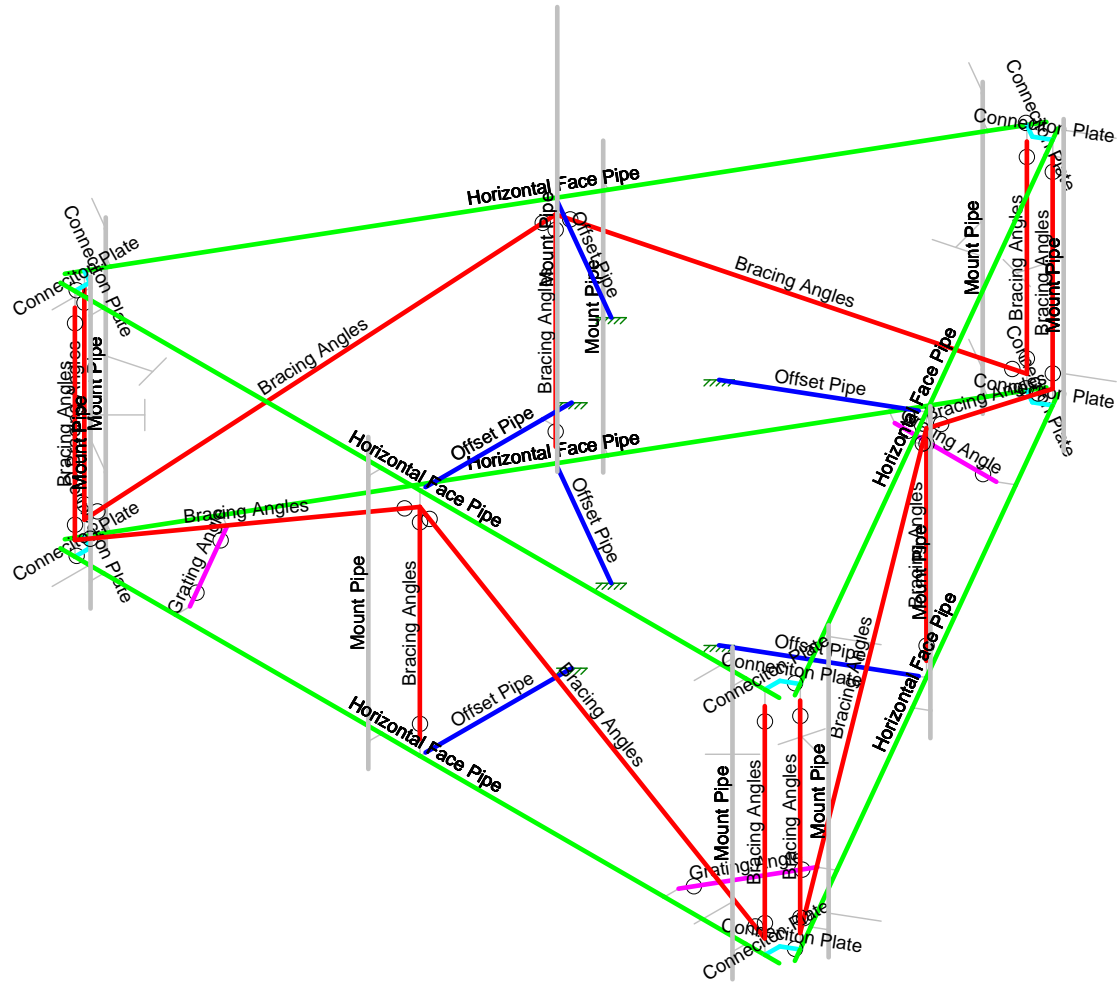
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42284-CT03XC208-Union
Member Labels

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- Section Sets
- Offset Pipe
 - Horizontal Face Pipe
 - Bracing Angles
 - Mount Pipe
 - Grating Angle
 - Connection Plate
 - RIGID

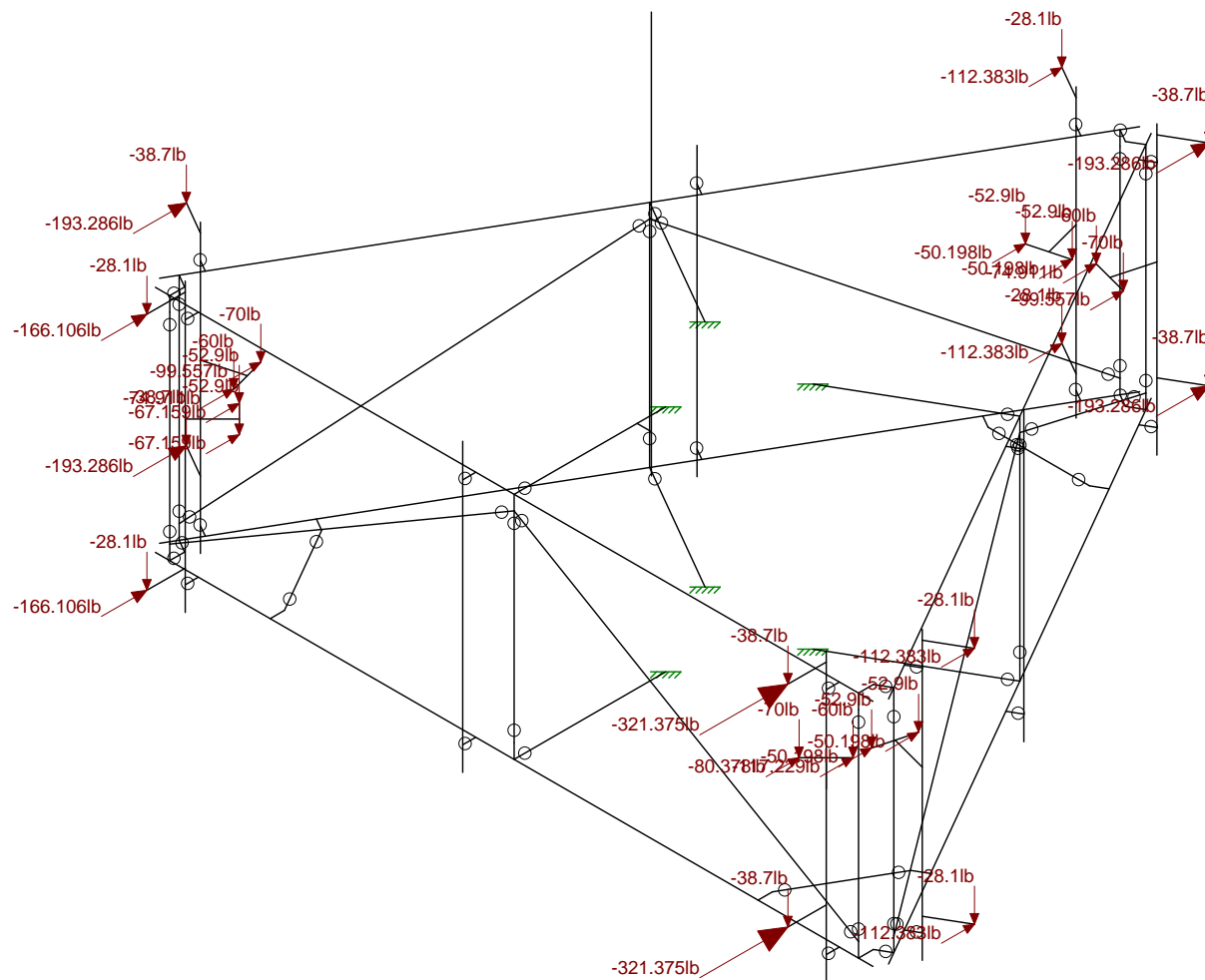


Envelope Only Solution

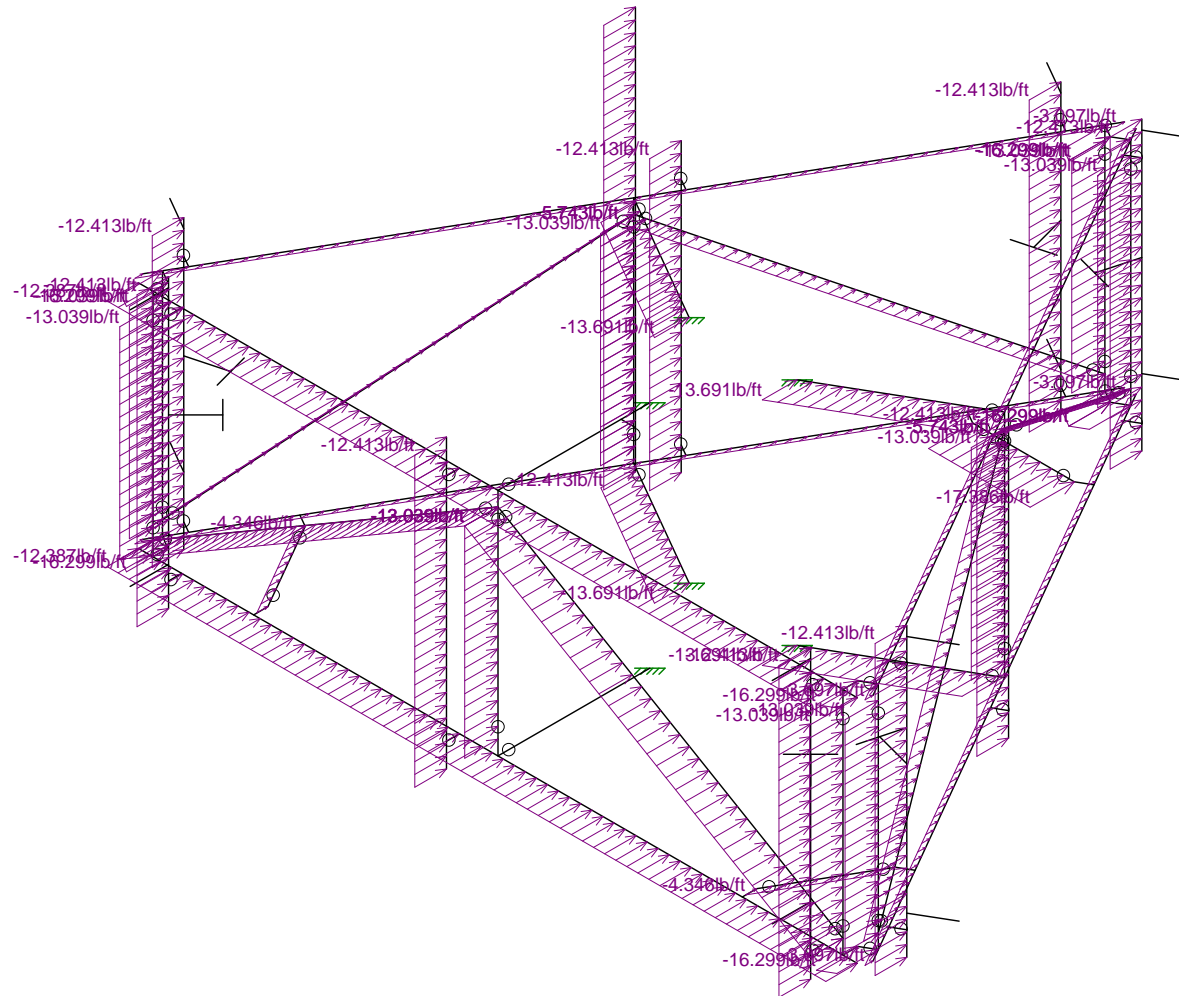
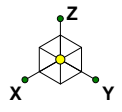
CLS
BP
42284-CT03XC208-01-MA

42284-CT03XC208-Union
Section Sets

SK - 4
June 6, 2018 at 8:48 AM
42284-CT03XC208-01-MA.r3d

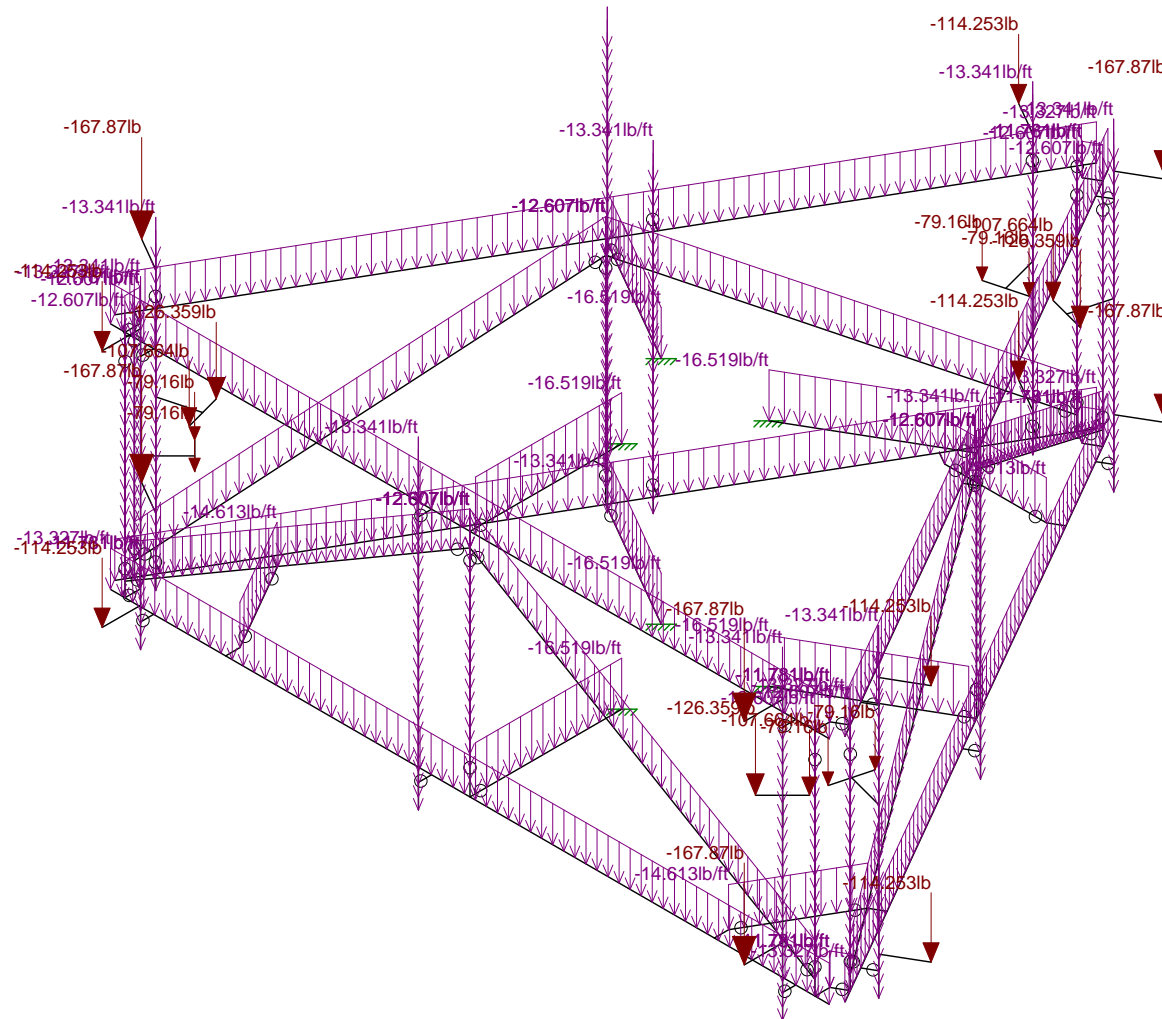
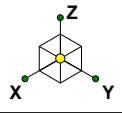


42284-CT03XC208-01-MA.r3d



Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

CLS	42284-CT03XC208-Union Distributed Load - Normal Wind	SK - 6
BP		June 6, 2018 at 8:49 AM
42284-CT03XC208-01-MA		42284-CT03XC208-01-MA.r3d

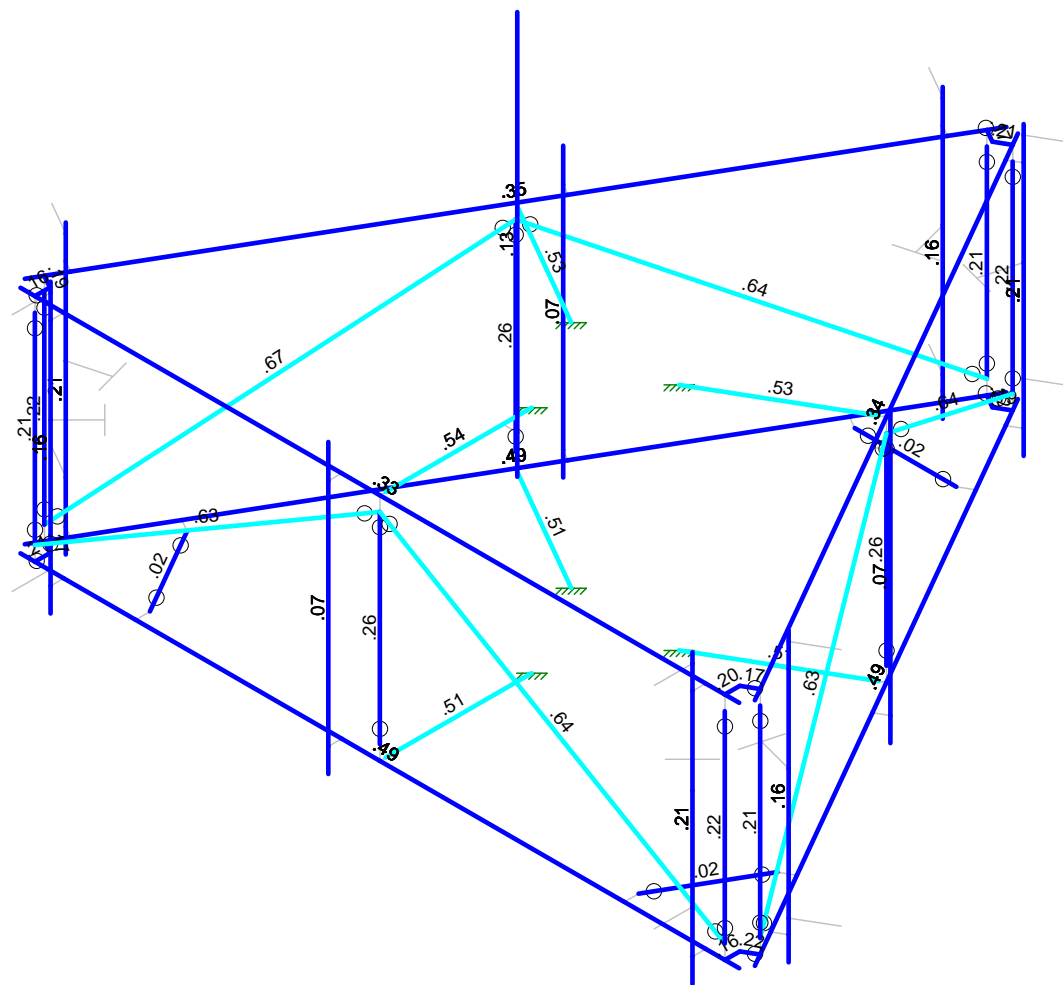


Loads: BLC 2, Ice Dead
Envelope Only Solution

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42284-CT03XC208-01-MA

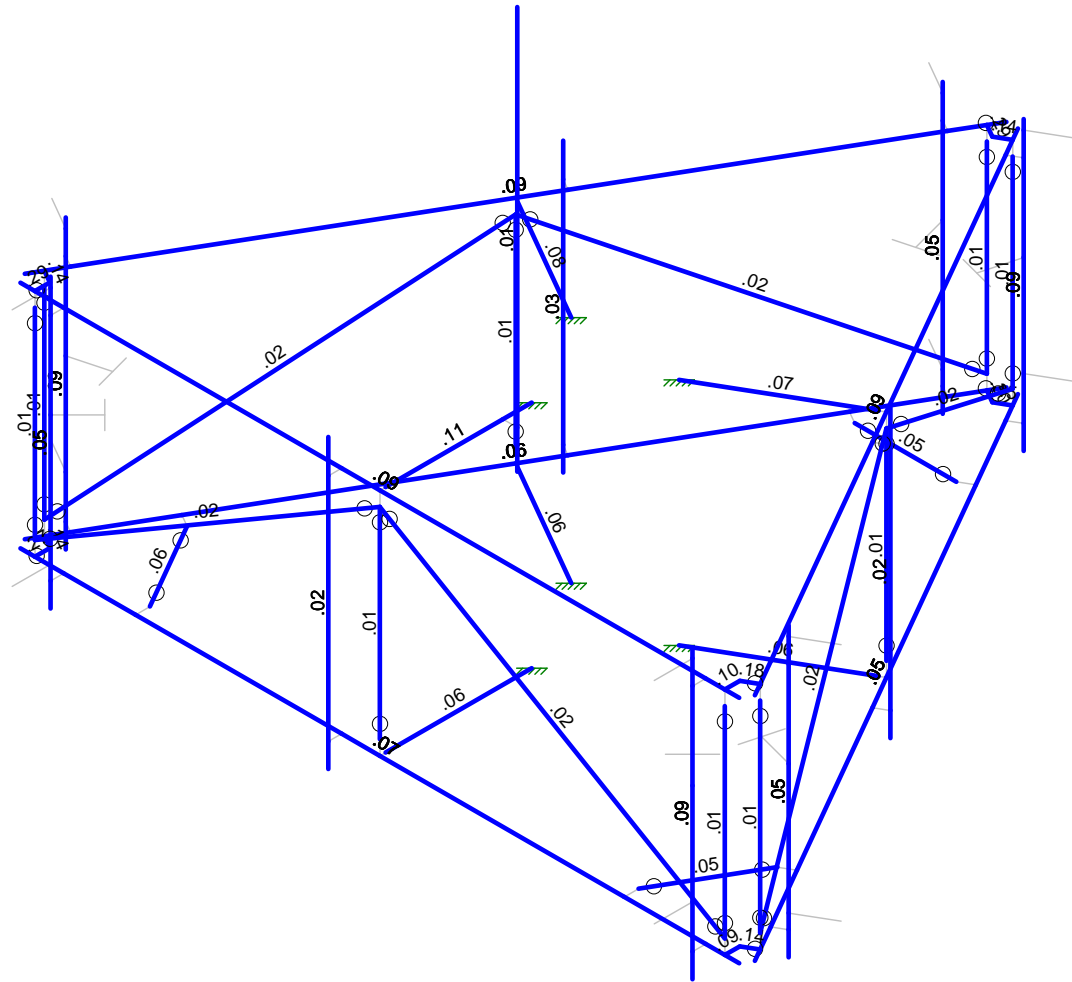
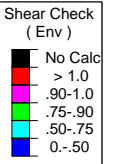
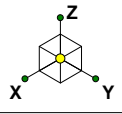
42284-CT03XC208-Union
Ice Dead Loads

SK - 7
June 6, 2018 at 8:49 AM
42284-CT03XC208-01-MA.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	42284-CT03XC208-Union Envelope Member Unity Check Results - Bending	SK - 8
BP		June 6, 2018 at 8:50 AM
42284-CT03XC208-01-MA		42284-CT03XC208-01-MA.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS
BP
42284-CT03XC208-01-MA

42284-CT03XC208-Union
Envelope Member Check Results - Shear

SK - 9
June 6, 2018 at 8:50 AM
42284-CT03XC208-01-MA.r3d

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Í €	TÍ €	U~^ çJæ^	HÉFI	Sà^	Sæ^'æ
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G				{	a	f	e	f	i	f	f	e	f	i	f	g	e	f	i	f	i	f	e	f	i	f	f	f	i	e	f
H	p	f	f	{	æ	f	f	j	e	f	i	f	e	f	i	g	e	f	i	g	f	j	e	f	g	f	g	f	i	e	f
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Ï	p	f	g	{	æ	f	g	f	i	f	j	e	f	i	f	g	e	f	i	f	g	e	f	i	f	g	e	f	i	f	
Ì				{	a	f	g	f	i	f	j	e	f	i	f	g	e	f	i	f	g	e	f	i	f	g	e	f	i	f	
J	p	i		{	æ	f	i	f	j	e	f	i	f	g	e	f	i	f	g	e	f	i	f	g	e	f	i	f	i	f	
Fe				{	a	f	i	f	j	e	f	i	f	g	e	f	i	f	g	e	f	i	f	g	e	f	i	f	i	f	
FF	p	f	e	g	{	æ	f	i	f	j	e	f	i	f	g	e	f	i	f	g	e	f	i	f	g	e	f	i	f	i	
FG				{	a	f	i	f	j	e	f	i	f	g	e	f	i	f	g	e	f	i	f	g	e	f	i	f	i	f	
FH	V	æ	k	{	æ	f	i	f	j	e	f	i	f	g	e	f	i	f	g	e	f	i	f	g	e	f	i	f	i	f	
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CLS Group
Bolt Strength Check
AISC 14th Edition (360-10)

Member/Node Number	Load Comb.	Tensile Load, T_u (kips)	Shear Load, V_u (kips)	Bolt Diameter (in)	Number of Bolts	Shear Planes per Bolt	Bolt Tensile Strength, F_{nt} (ksi)	Bolt Shear Strength, F_{nv} (ksi)	Connected Member Thickness (in)	Connected Member Edge Clear Distance (in)	Connected Member Ultimate Strength, F_u (ksi)	Bolt Tensile Usage	Bolt Shear Usage	Member Bearing Usage
M93	30	0.061	1.308	0.5	2	1	90	54	0.375	0.75	58	0%	8%	4%
M23	10	0.025	0.665	0.675	1	1	90	54	0.375	0.75	58	0%	5%	5%
M36	15	0.042	1.103	0.675	1	3	90	54	0.375	0.75	58	0%	3%	1%



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

SPRINT Existing Facility

Site ID: CT03XC208

Union
23 Holland Road
Stafford Springs, CT 06076

November 19, 2018

EBI Project Number: 6218007090

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	5.14 %



November 19, 2018

SPRINT

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

Emissions Analysis for Site: CT03XC208 – Union

EBI Consulting was directed to analyze the proposed SPRINT facility located at **23 Holland Road, Stafford Springs, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 850 MHz Band is approximately $567 \mu\text{W}/\text{cm}^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **23 Holland Road, Stafford Springs, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.
- 3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.
- 4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed panel antennas are **150 feet** above ground level (AGL) for **Sector A**, **150 feet** above ground level (AGL) for **Sector B** and **150 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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



SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	1.58 %	Antenna B1 MPE%	1.58 %	Antenna C1 MPE%	1.58 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	1.08 %	Antenna B2 MPE%	1.08 %	Antenna C2 MPE%	1.08 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	2.66 %
AT&T	1.97 %
MetroPCS	0.51 %
Site Total MPE %:	5.14 %

SPRINT Sector A Total:	2.66 %
SPRINT Sector B Total:	2.66 %
SPRINT Sector C Total:	2.66 %
Site Total:	5.14 %

SPRINT _ Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	150	0.65	850 MHz	567	0.12%
Sprint 850 MHz LTE	2	941.82	150	3.27	850 MHz	567	0.58%
Sprint 1900 MHz (PCS) CDMA	5	511.82	150	4.44	1900 MHz (PCS)	1000	0.44%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	150	4.44	1900 MHz (PCS)	1000	0.44%
Sprint 2500 MHz (BRS) LTE	8	778.09	150	10.79	2500 MHz (BRS)	1000	1.08%
						Total:	2.66%



Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	2.66 %
Sector B:	2.66 %
Sector C:	2.66 %
SPRINT Maximum MPE % (per sector):	2.66 %
Site Total:	5.14 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **5.14 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



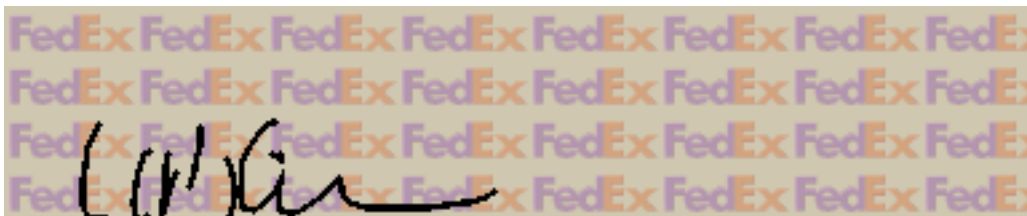
December 4, 2018

Dear Customer:

The following is the proof-of-delivery for tracking number **773842321330**.

Delivery Information:

Status:	Delivered	Delivered to:	Receptionist/Front Desk
Signed for by:	C.CORSINI	Delivery location:	1 MAIN ST. STAFFORD SPRINGS, CT 06076
Service type:	FedEx Priority Overnight	Delivery date:	Dec 3, 2018 09:17
Special Handling:	Deliver Weekday		



Shipping Information:

Tracking number:	773842321330	Ship date:	Nov 29, 2018
		Weight:	1.0 lbs/0.5 kg

Recipient:

Dennis Milanovich
Town of Stafford Springs
1 Main st.
STAFFORD SPRINGS, CT 06076 US

Reference**Shipper:**

Kristian McKay
3530 Toringdon Way
STE 300
CHARLOTTE, NC 28277 US

1766.6680

Thank you for choosing FedEx.



December 4, 2018

Dear Customer:

The following is the proof-of-delivery for tracking number **773842303721**.

Delivery Information:

Status:	Delivered	Delivered to:	Receptionist/Front Desk
Signed for by:	M.MITTA	Delivery location:	1 MAIN ST STAFFORD SPRINGS, CT 06076
Service type:	FedEx Priority Overnight	Delivery date:	Dec 3, 2018 09:16
Special Handling:	Deliver Weekday		



Shipping Information:

Tracking number:	773842303721	Ship date:	Nov 29, 2018
		Weight:	1.0 lbs/0.5 kg

Recipient:

Mary Mitta
Town of Stafford Springs
1 Main st.
STAFFORD SPRINGS, CT 06076 US

Reference**Shipper:**

Kristian McKay
3530 Toringdon Way
STE 300
CHARLOTTE, NC 28277 US

1766.6680

Thank you for choosing FedEx.



December 4, 2018

Dear Customer:

The following is the proof-of-delivery for tracking number **773842414401**.

Delivery Information:

Status:	Delivered	Delivered to:	Mailroom
Signed for by:	M.RODRIGUEZ	Delivery location:	4185 HARRISON BLVD OGDEN, UT 84403
Service type:	FedEx Priority Overnight	Delivery date:	Nov 30, 2018 09:33
Special Handling:	Deliver Weekday		



Shipping Information:

Tracking number:	773842414401	Ship date:	Nov 29, 2018
		Weight:	1.0 lbs/0.5 kg

Recipient:

Admin
Transportation Alliance Bank
4185 Harrison Blvd.
Suite 200
OGDEN, UT 84403 US

Reference**Shipper:**

Kristian McKay
3530 Toringdon Way
STE 300
CHARLOTTE, NC 28277 US

1766.6680

Thank you for choosing FedEx.