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Marietta, Georgia 30062
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November 4, 2014

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051
Attn: Ms. Melanie Bachman, Executive Director

**Re: Notice of Exempt Modification Application
864 Opening Hill Road, Madison, CT 06443**

Dear Ms. Bachman,

On behalf of Sprint Nextel Corporation ("Sprint"), enclosed for filing are an original and two (2) copies of Sprint's Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site.

I also enclose herewith a check in the amount of \$625.00 representing the fee for the Notice of Exempt Modification.

If you have any questions, please feel free to contact me.

Thank you,

By: 

Name: David Weisman
Vertical Development LLC, an authorized representative of Sprint

Vertical Development LLC
20 Commercial Street
Branford, CT 06405
Phone – 401-743-9011
Fax – 401-633-6202
DWeisman@verticaldevelopmentllc.com

CC: Fillmore McPherson, First Selectman siting.council@ct.gov (electronic copy)
8 Campus Drive
Madison, CT 06443

Notice of Exempt Modification

864 Opening Hill Road, Madison, CT

Sprint Corporation ("Sprint") submits this Notice of Exempt Modification to the Connecticut Siting Council ("Council") pursuant to Sections 16-50j-73 and 16-50j-72(b) of the Regulations of Connecticut State Agencies ("Regulations") in connection with Sprint's planned modification of antennas and associated equipment on an existing 180' self support tower located at 864 Opening Hill Road in the Town of Madison, CT. More particularly, Sprint plans to upgrade this site by adding 2.5 GHz technology to its facilities. The proposed modifications will not increase the tower height, cause a significant adverse change or alteration in the physical or environmental characteristics of the site, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six (6) decibels, add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes, or impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

To better meet the growing voice and data demands of its wireless customers, Sprint is upgrading their network nationwide to include 2.5 GHz technology, which will provide faster service and better overall performance. Pursuant to the 2.5 GHz technology upgrade at this site, Sprint will add panel antennas, install RRHs, and install related equipment to its equipment area within the fenced tower compound.

The 180' monopole tower located at 864 Opening Hill Road in the Town of Madison, Connecticut (lat. 41° 21' 26.33", long. -72° 38' 19.51") is owned by

North Madison Volunteer Fire Department, Inc. Sprint's existing facility is located within the Landlord's existing fenced compound. Sprint currently has nine (9) panel antennas (three (3) per sector) with a centerline of 150' installed on the tower. Sprint's base station equipment is located adjacent to the base of the tower within the fenced compound. A site plan depicting this is attached.

Sprint plans to remove six (6) CDMA antennas and relocate three (3) panel antennas (one per sector) and six (6) RRHs (two (2) per sector) which will be connected and located behind the existing panel antennas. Sprint further plans to add three (3) RFS APXVTM14-C-120 panel antennas, one (1) per sector. Connected to each new RFS antenna will be one (1) ALU TD-RRH8X20 RRH, which will be located behind the new antenna. The height of the tower will not need to be increased and all antennas and RRHs will be installed at the 150' centerline.

Sprint also plans to install four (4) new batteries in the existing BBU cabinet, three (3) new rectifiers in the existing equipment cabinet, and one (1) fiber transmission cable on the existing Ice Bridge all within Sprint's leased Premises. The compound's boundaries will not need to be extended. The proposed modifications will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, since it is already a telecommunications installation and the modifications will be compatible with this. Other than brief, construction-related noise, these modifications will not increase noise levels at the tower site boundary by six (6) decibels.

The proposed modifications will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes. A radio frequency emissions analysis prepared by EBI Consulting concludes that the proposed final configuration (including other carriers on the tower) will emit 36.71% of the allowable FCC

established general public limits sampled at the ground level (see the 2nd and the 6th page of Radio Frequency FCC Regulatory Compliance Maximum Permissible Exposure (MPE) Assessment dated October 17, 2014). Emissions values for additional carriers were based upon values listed in Connecticut Siting Council active database (see the 2 and 6 page of Radio Frequency FCC Regulatory Compliance Maximum Permissible Exposure (MPE) Assessment dated October 17, 2014). The information used in the 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 (see the 2nd page of the Radio Frequency FCC Regulatory Compliance Maximum Permissible Exposure (MPE) assessment dated October 17, 2014).

The proposed modifications will not impair the structural integrity of the facility. Sprint commissioned American Tower Corporation to perform a structural analysis of the tower to verify that it can support the proposed loading. The structure and foundation were found to meet the specified TIA requirements and deemed adequate to support the existing and proposed loading, and was rated at 98% (see the first page of the Structural Analysis Report dated October 1, 2014.)

In conclusion, Sprint's proposed modifications do not constitute a modification subject to the Council's review because Sprint will not change the height of the tower, will not extend the boundaries of the compound, will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, will not increase the noise levels at the site, will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards, and will not impair the structural integrity of the facility. Therefore, Sprint respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council's exemption criteria.

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

Sprint Existing Facility

Site ID: CT03XC164

N. Madison/ Volunteer Fire Department

1173-1245 Durham Road
Madison, CT 06443

October 17, 2014

EBI Project Number: 62145543

October 17, 2014

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

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT03XC164 - N. Madison/ Volunteer Fire Department

Site Total: 36.71% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at **1173-1245 Durham Road, Madison, CT**, for the purpose of determining whether the radio frequency (RF) exposure levels from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 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 public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band (850 MHz Band) is approximately $567 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the 1900 MHz and 2500 MHz 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 upgrades to the existing Sprint Wireless antenna facility located at **1173-1245 Durham Road, Madison, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

- 1) 2 channels in the 1900 MHz Band were considered for each sector of the proposed installation.
- 2) 1 channel in the 800 MHz Band was considered for each sector of the proposed installation.
- 3) 2 channels in the 2500 MHz Band were considered for each sector of the proposed installation.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 6) The antennas used in this modeling are the RFS APXVSPP18-C-A20 and the RFS APXVTM14-C-I20. This is based on feedback from the carrier with regards to anticipated antenna selection. The RFS APXVSPP18-C-A20 has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. The RFS APXVTM14-C-I20 has a 15.9 dBd gain value at its main lobe at 2500 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline for the proposed antennas is **150 feet** above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT03XC164 - N. Madison/ Volunteer Fire Department
Site Address	1173-1245 Durham Road, Madison, CT, 06443
Site Type	Self Support Tower

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
1a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	5.9	150	144	1/2 "	0.5	0	138.69	0.24%
1a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	150	144	1/2 "	0.5	0	39.00	0.12%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	150	144	1/2 "	0.5	0	138.69	0.42%
Sector total Power Density Value:																0.78%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
2a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	5.9	150	144	1/2 "	0.5	0	138.69	0.24%
2a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	150	144	1/2 "	0.5	0	39.00	0.12%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	150	144	1/2 "	0.5	0	138.69	0.42%
Sector total Power Density Value:																0.78%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
3a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	5.9	150	144	1/2 "	0.5	0	138.69	0.24%
3a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	150	144	1/2 "	0.5	0	39.00	0.12%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	150	144	1/2 "	0.5	0	138.69	0.42%
Sector total Power Density Value:																0.78%

Site Composite MPE %	
Carrier	MPE %
Sprint	2.35%
T-Mobile	4.19%
Verizon Wireless	10.62%
Fire Company	0.55%
Police Department	0.37%
AT&T	16.40%
Nextel	2.23%
Total Site MPE %	36.71%

Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **2.35% (0.78% from sector 1, 0.78% from sector 2 and 0.78% from sector 3)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **36.71%** of the allowable FCC established general public limit sampled at 6 feet above ground level. This total composite site value is based upon MPE values listed in the Connecticut Siting Council database for existing carrier emissions.

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



Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

Sprint



PROJECT: 2.5 EQUIPMENT DEPLOYMENT
 SITE NAME: N. MADISON / VOL. FIRE DEPT.
 SITE CASCADE: CT03XC164
 SITE ADDRESS: (1173-1245) DURHAM RD.
 MADISON, CT 06443
 SITE TYPE: SELF SUPPORT TOWER
 MARKET: SOUTHERN CONNECTICUT

PLANS PREPARED FOR:

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 333-000

ENGINEERING LICENSE:

DRAWING NOTICE:
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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

SITE NAME:
N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:
CT03XC164

SITE ADDRESS:
 (1173-1245) DURHAM RD.
 MADISON, CT 06443

SHEET DESCRIPTION:
TITLE SHEET & PROJECT DATA

SHEET NUMBER:
T-1

SITE INFORMATION

PROPERTY OWNER:
 NO. MADISON VOLUNTEER FIRE CO., INC.
 864 OPENING HILL RD
 MADISON, CT 06443

LATITUDE (NAD83):
 41° 21' 20.99" N
 41.355831°

LONGITUDE (NAD83):
 72° 38' 17.99" W
 -72.638331°

COUNTY:
 NEW HAVEN

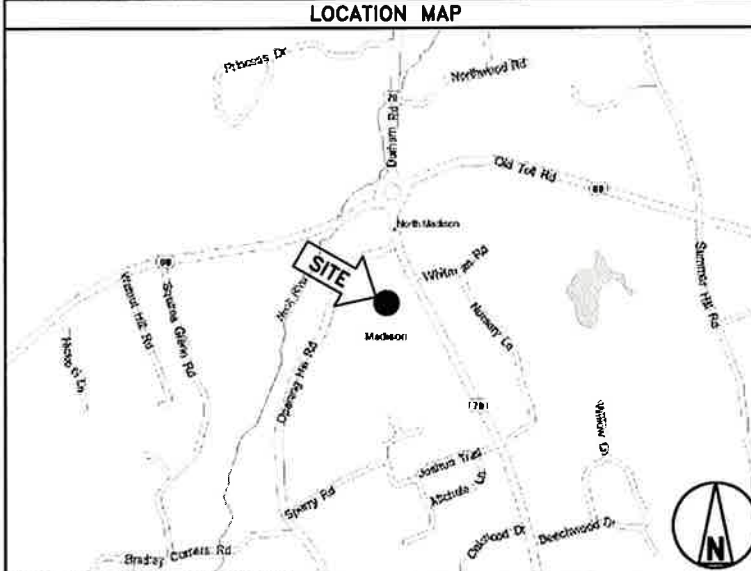
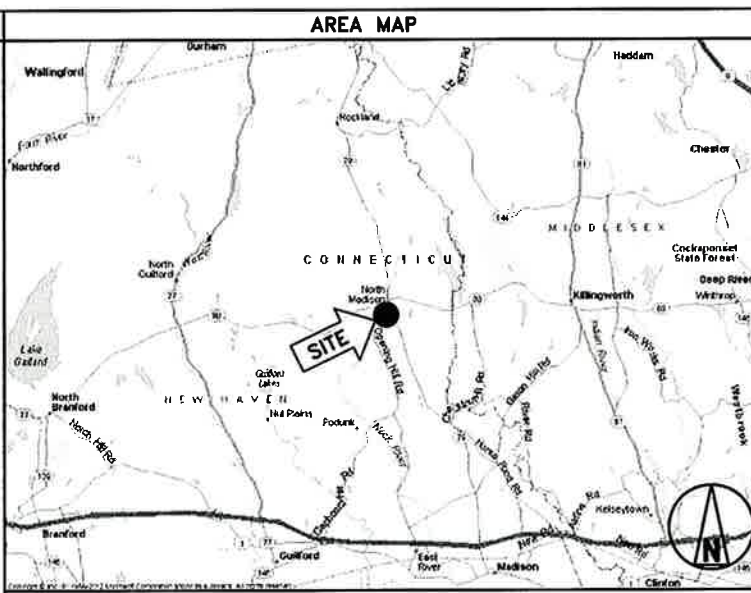
ZONING JURISDICTION:
 TOWN OF MADISON

ZONING DISTRICT:
 TBD

POWER COMPANY:
 CL&P
 (860) 947-2000

AAV PROVIDER:
 FIBERTECH
 (585) 697-5100

SPRINT CM:
 GARY WOOD
 PHONE: (860) 940-9168
 gary.wood@sprint.com



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

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

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- INTERNATIONAL BUILDING CODE (2012 IBC)
- TIA-EIA-222-G OR LATEST EDITION
- NFPA 780 - LIGHTNING PROTECTION CODE
- 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
- ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
- CT BUILDING CODE
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

DRAWING INDEX

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A-1A	EXISTING EQUIPMENT DETAILS	0
A-2	TOWER ELEVATION & CABLE PLAN	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	COLOR CODING & NOTES	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	CIVIL DETAILS	0
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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.

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:



6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:




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

DESIGN. BUILD. DELIVER.

JOB NUMBER 333-000

ENGINEERING LICENSE:



JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

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

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

SITE NAME:

N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:

CT03XC164

SITE ADDRESS:

(1173-1245) DURHAM RD. MADISON, CT 06443

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 TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
 2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
 1. AZIMUTH, DOWNTILT, AGL - UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
 2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
 3. ALL AVAILABLE JURISDICTIONAL INFORMATION
 4. PDF SCAN OF REDLINES PRODUCED IN FIELD

5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

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

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

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

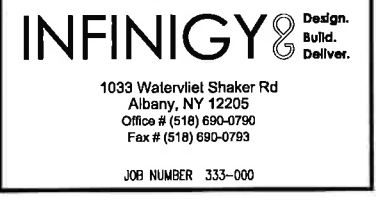
3.3 REQUIRED INSPECTIONS

- 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:



ENGINEERING LICENSE:



DRAWING NOTICE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

SITE NAME:

N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:

CT03XC164

SITE ADDRESS:

(1173-1245) DURHAM RD. MADISON, CT 06443

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. SHELTER 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:



ENGINEERING LICENSE:



DRAWING NOTICE:

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

SITE NAME:

**N. MADISON / VOL.
FIRE DEPT.**

SITE CASCADE:

CT03XC164

SITE ADDRESS:

**(1173-1245) DURHAM RD.
MADISON, CT 06443**

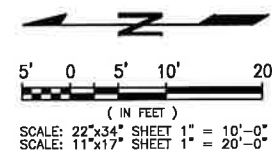
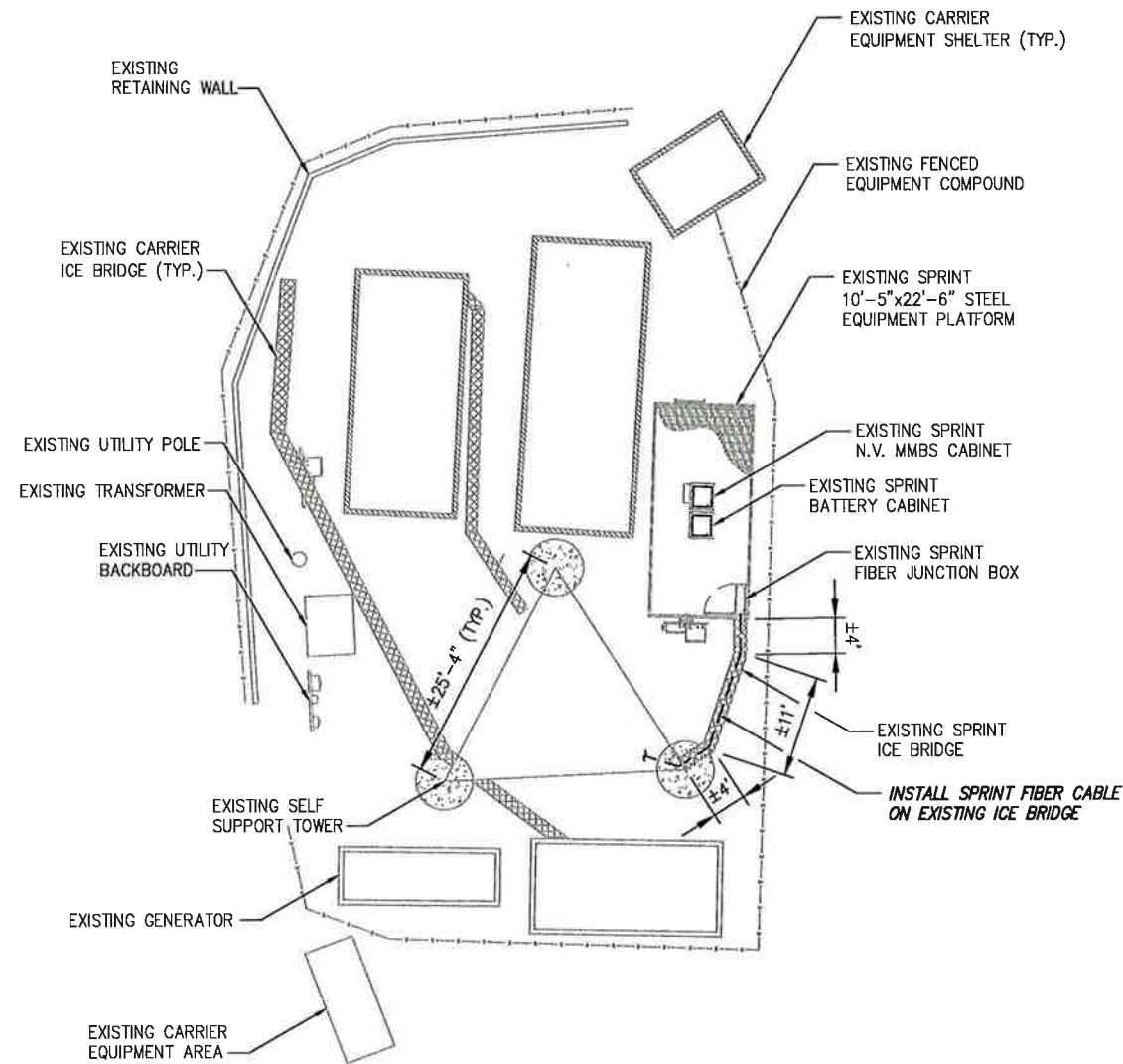
SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3

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

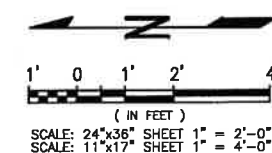
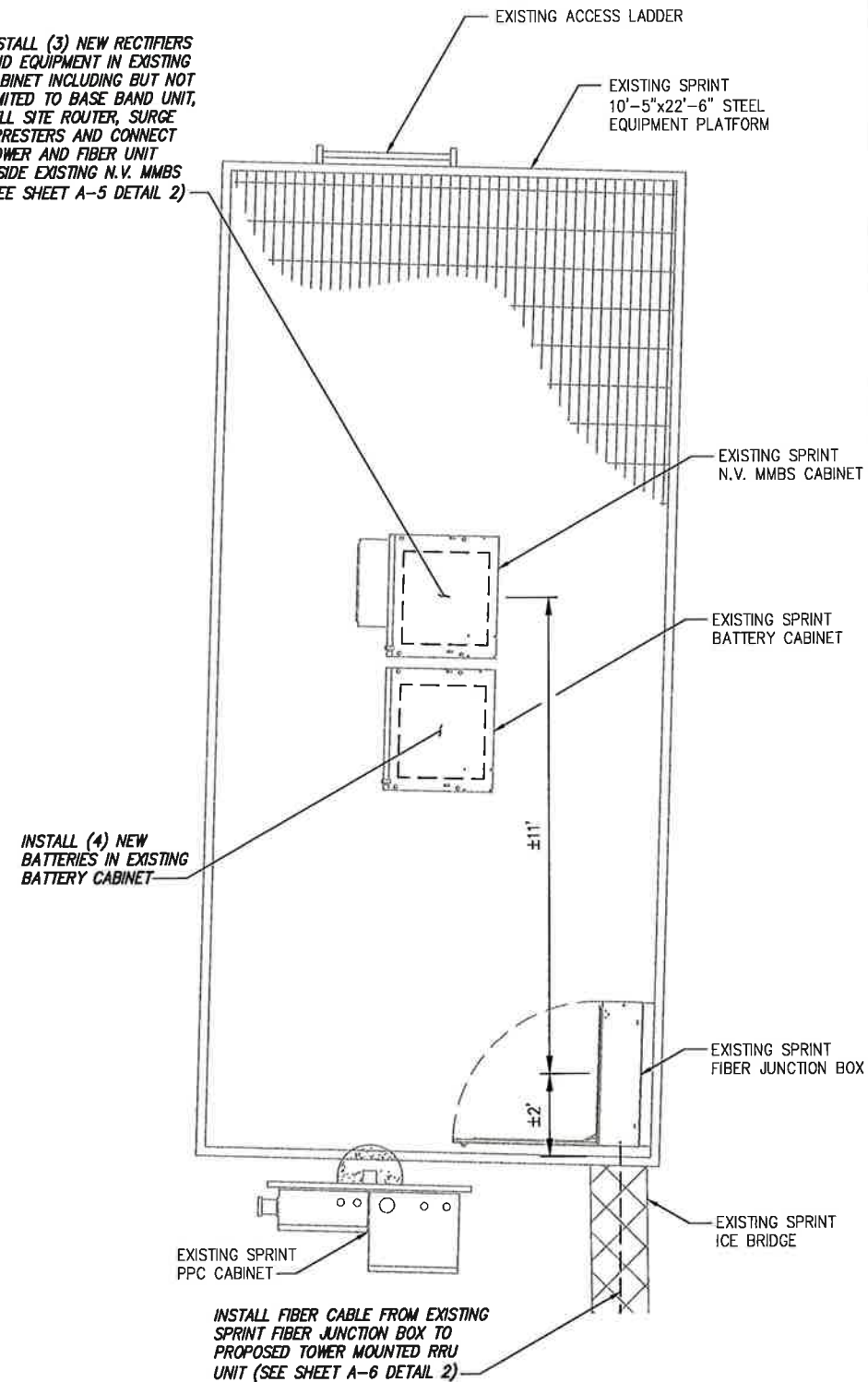


OVERALL SITE PLAN

SCALE: AS NOTED

1

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 2)



SPRINT EQUIPMENT PLAN

SCALE: AS NOTED

2

PLANS PREPARED FOR:



6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:



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

JOB NUMBER 333-000

ENGINEERING LICENSE:



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REVISIONS:

DESCRIPTION	DATE	BY	REV
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SITE NAME:

N. MADISON / VOL.
FIRE DEPT.

SITE CASCADE:

CT03XC164

SITE ADDRESS:

(1173-1245) DURHAM RD.
MADISON, CT 06443

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

PLANS PREPARED FOR:



PLANS PREPARED BY:

INFINIGY Design. Build. Deliver.

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 333-000

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

SITE NAME:

N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:

CT03XC164

SITE ADDRESS:

(1173-1245) DURHAM RD. MADISON, CT 06443

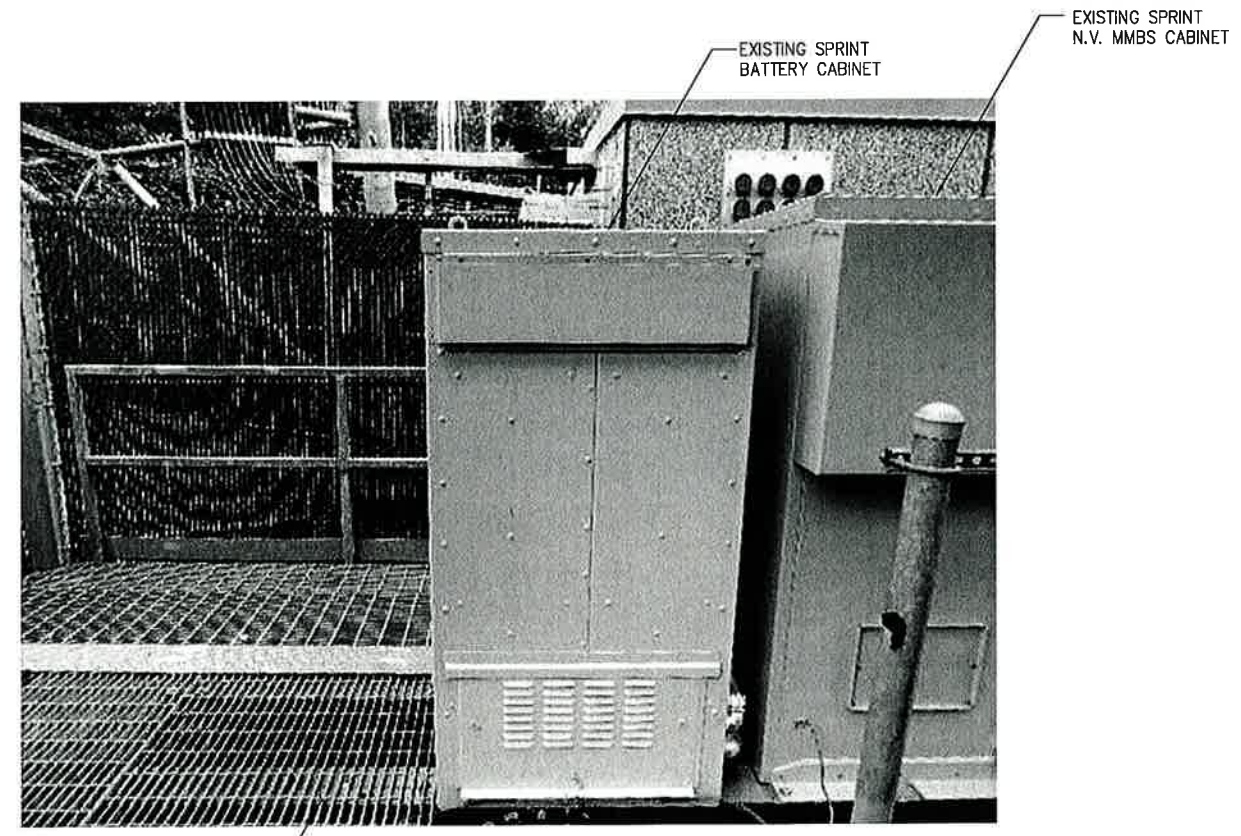
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EXISTING EQUIPMENT DETAILS

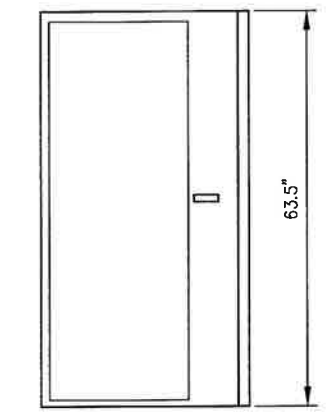
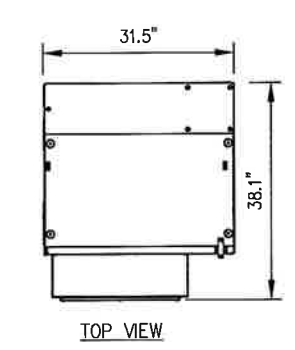
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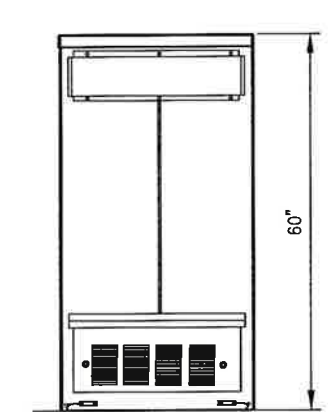
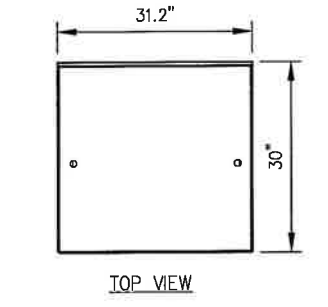
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EXISTING SPRINT 10'-5"x22'-6" STEEL EQUIPMENT PLATFORM

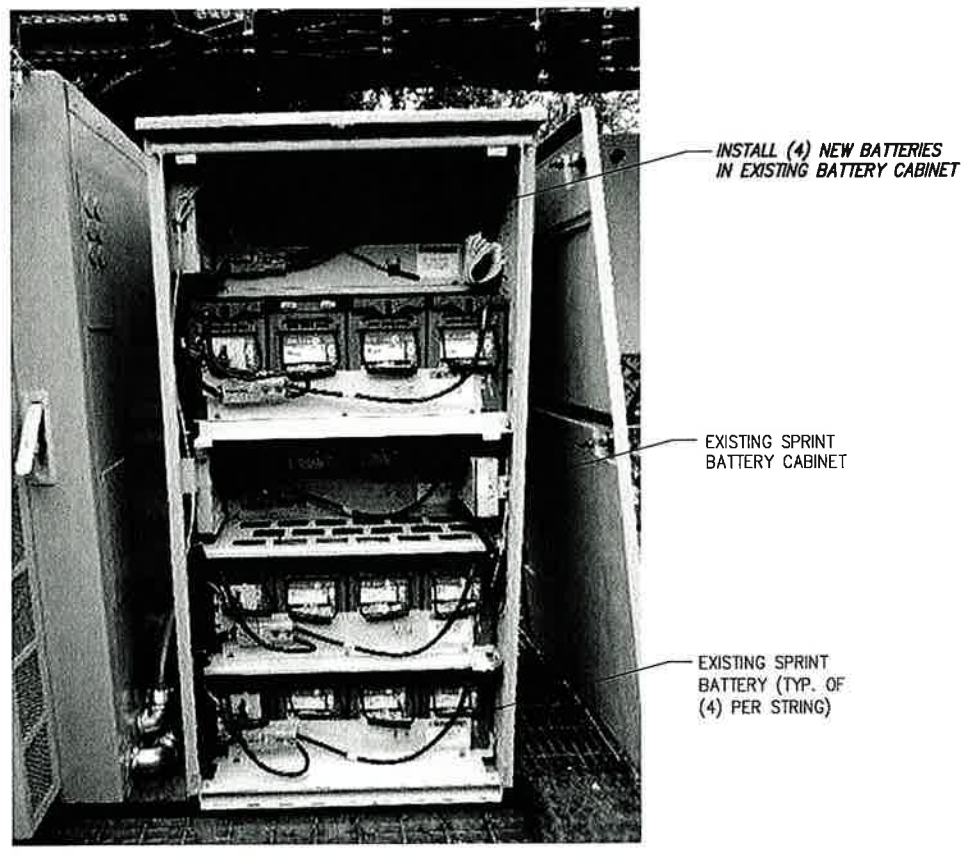


FRONT VIEW
MANUFACTURER: ALU
MODEL: 9927
N.V. MMBS CABINET



REAR VIEW
MANUFACTURER: TBD
MODEL: 60ECV2
BATTERY CABINET

EXISTING CABINET LINE UP SCALE: AS NOTED 1



EXISTING BATTERY CABINET SCALE: AS NOTED 2

EXISTING EQUIPMENT SCALE: AS NOTED 3



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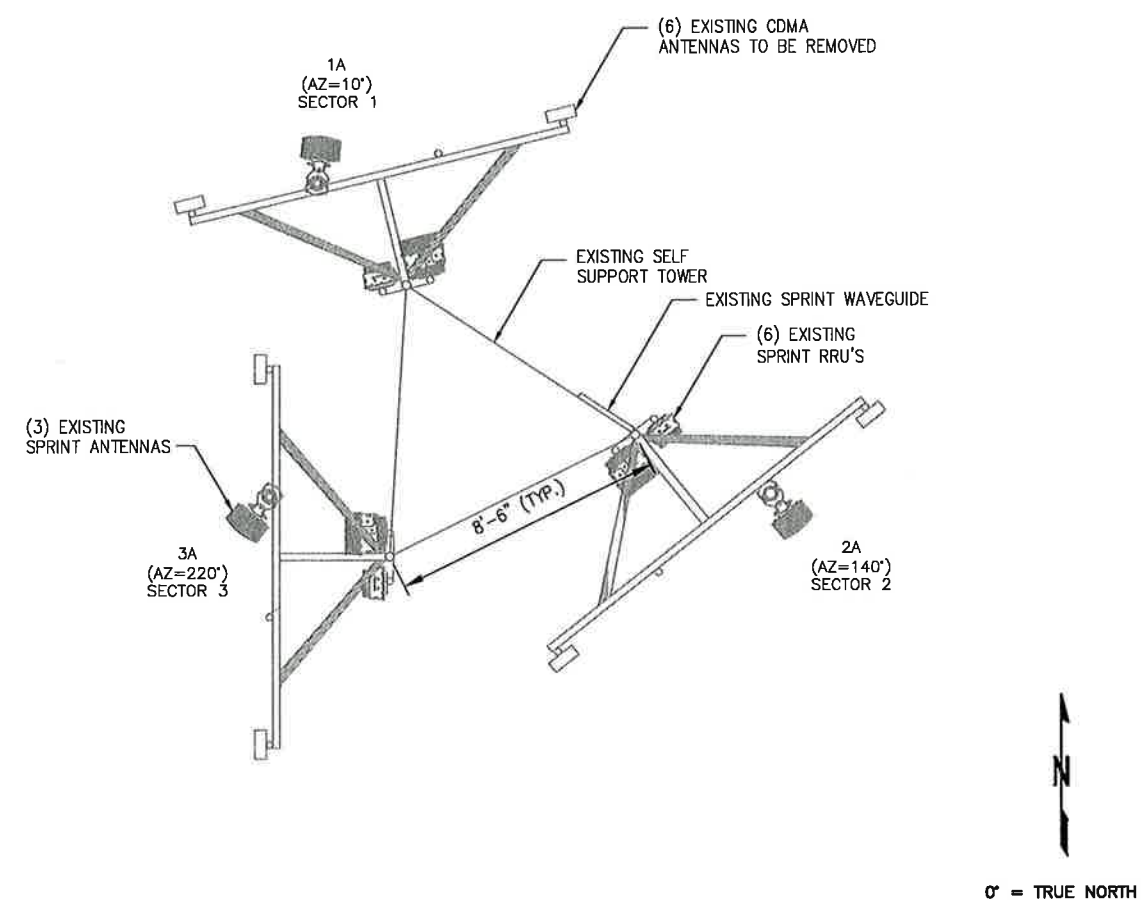
(1173-1245) DURHAM RD.
MADISON, CT 06443

ANTENNA LAYOUT & MOUNTING DETAILS

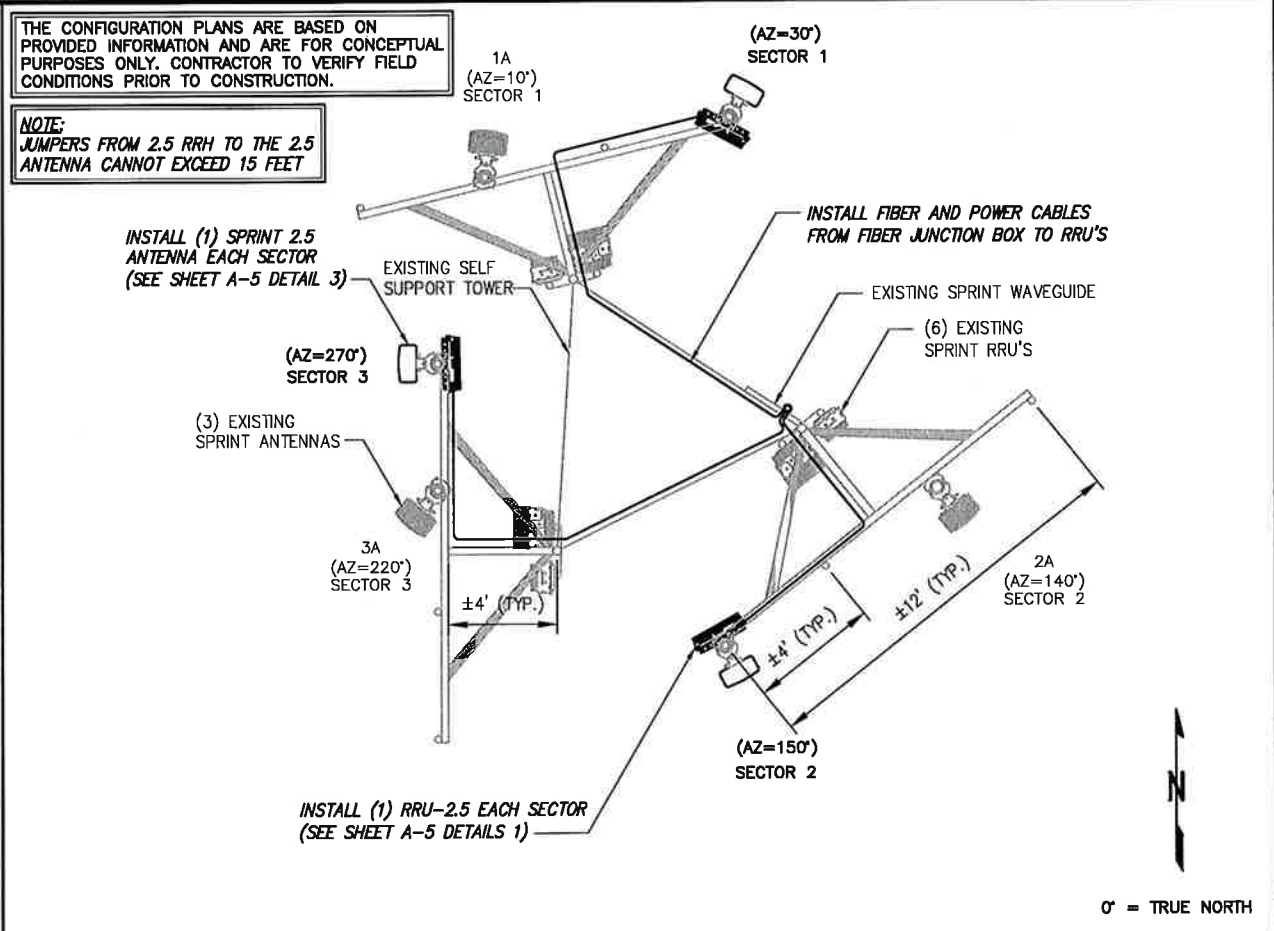
A-3

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

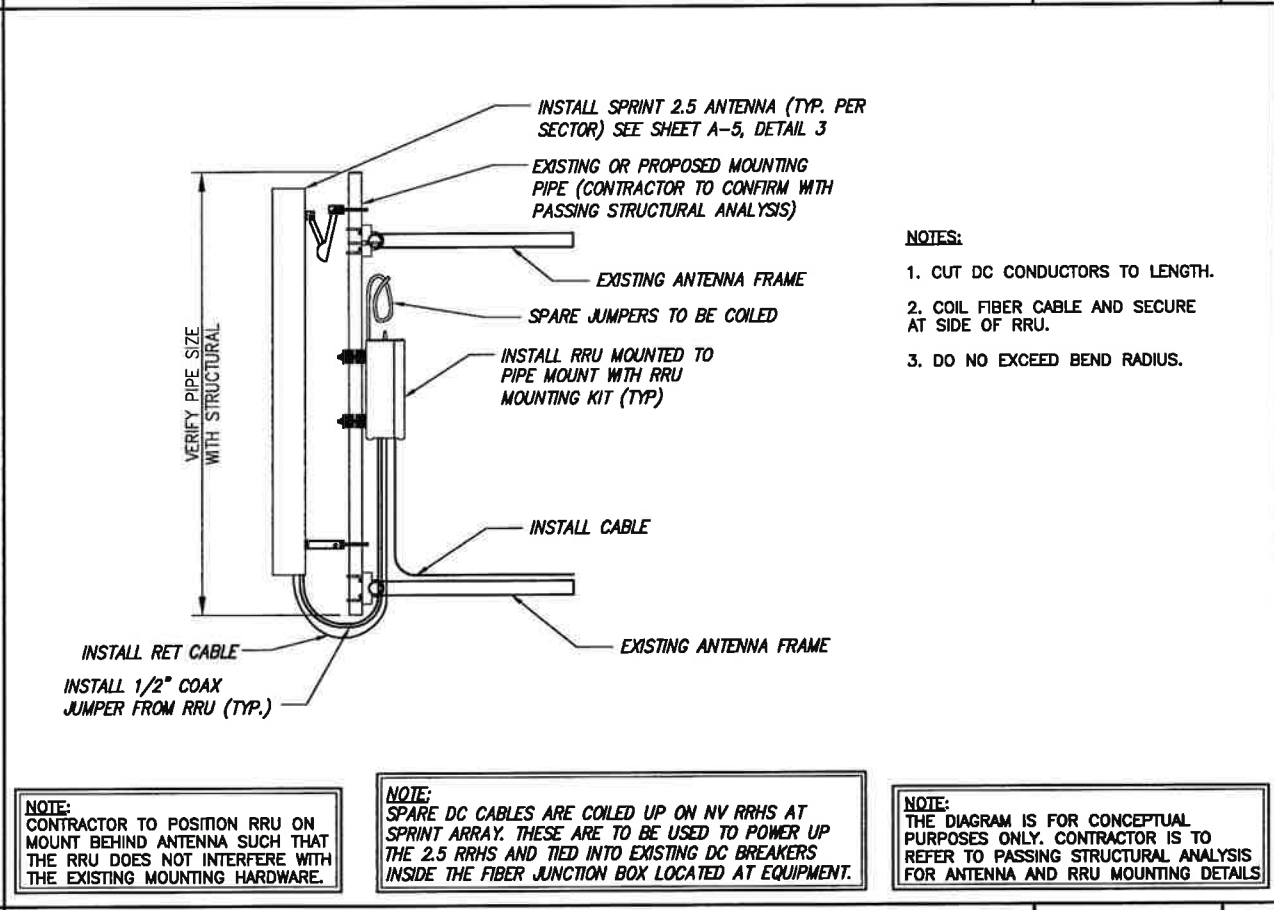
NOTE:
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET



EXISTING ANTENNA & RRU LAYOUT NO SCALE 1



FINAL ANTENNA LAYOUT NO SCALE 2



TYPICAL ANTENNA & RRU MOUNTING DETAILS NO SCALE 4

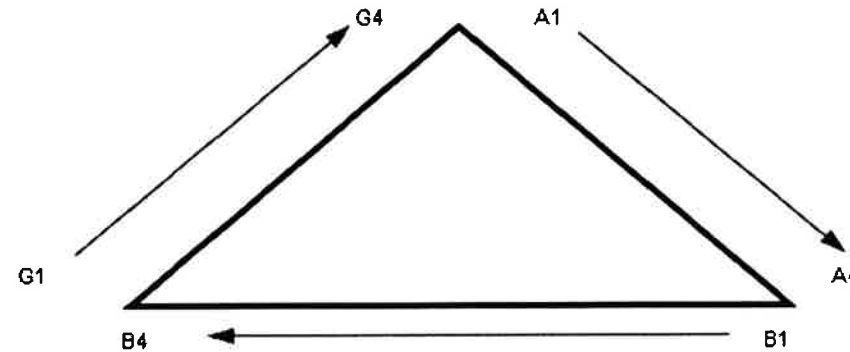
DETAIL NOT USED NO SCALE 3

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

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

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

Figure 1: Antenna Orientation



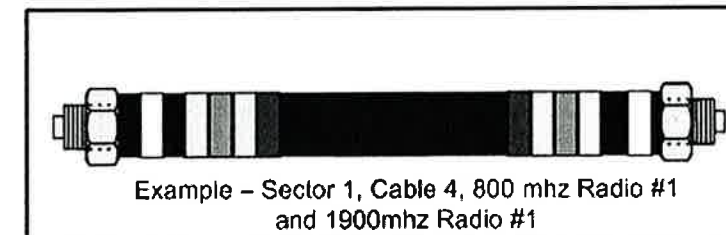
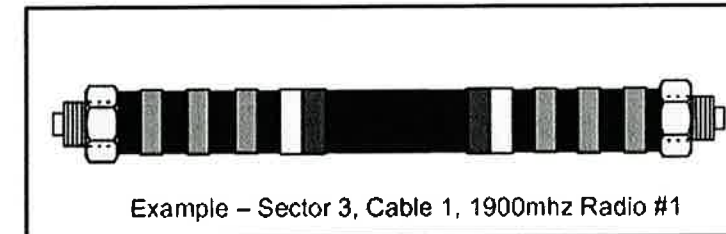
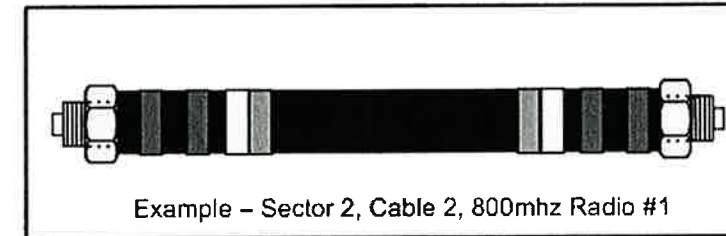
NOTES:

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

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

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

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



PLANS PREPARED FOR:

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 680-0790
Fax # (518) 680-0793
JOB NUMBER 333-000

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REVISIONS:	DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT		10/15/14	AHS	0

SITE NAME:

N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:

CT03XC164

SITE ADDRESS:

(1173-1245) DURHAM RD.
MADISON, CT 06443

SHEET DESCRIPTION:

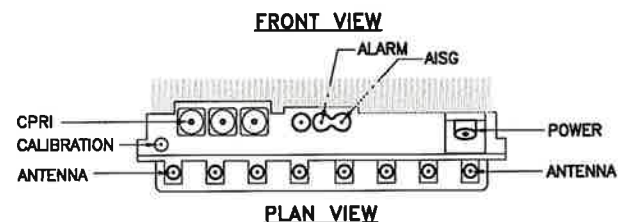
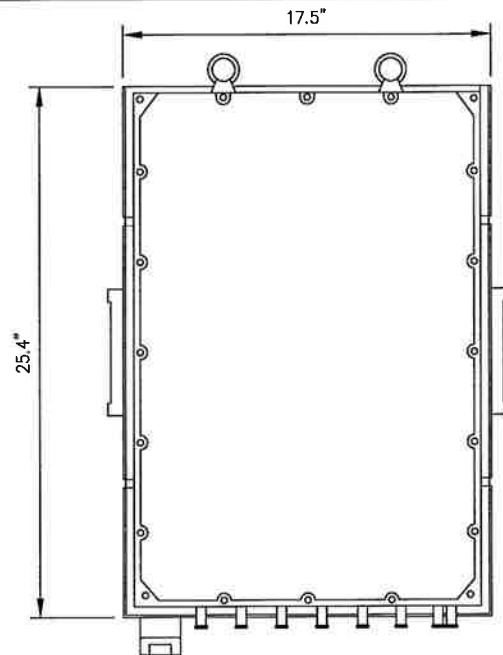
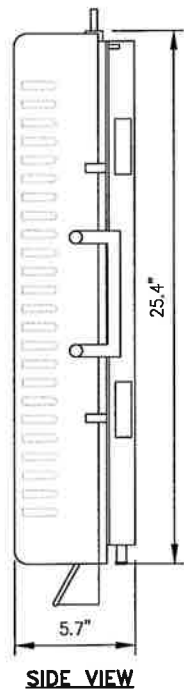
COLOR CODING AND NOTES

SHEET NUMBER:

A-4

RRU: ALCATEL LUCENT TD-RRHBX20

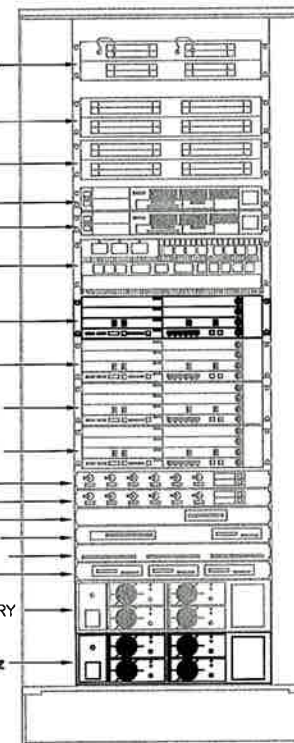
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



NOTES

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

- DS3 SURGE PROTECTOR
- POWER INJECTOR 5-8
- POWER INJECTOR 1-4
- 7210 SAS-M 2
- 7210 SAS-M 1
- 7205 SAR-8
- 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



FRONT VIEW

2.5 RRU'S

NO SCALE

1

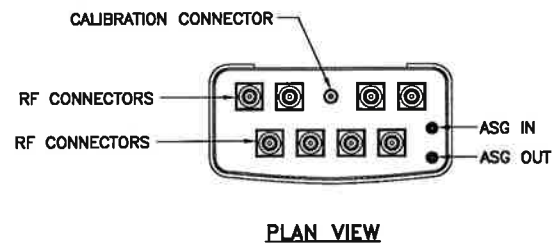
2.5 EQUIPMENT IN EXISTING N.V. MMBS

NO SCALE

2

ANTENNA RFS APXVTM14-C-120

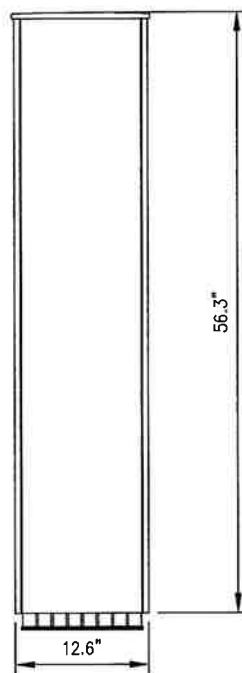
- RADOME MATERIAL: ASA
- RADOME COLOR: LIGHT GREY
- DIMENSIONS, HxWxD.in(mim): 56.3"x12.6"x6.3" (1430x320x160mm)
- WEIGHT: 52.9 lbs
- CONNECTORS: (8) 4.1/9.5 DIN FEMALE
(1) NF - CALIBRATION CONNECTOR



PLAN VIEW



SIDE VIEW

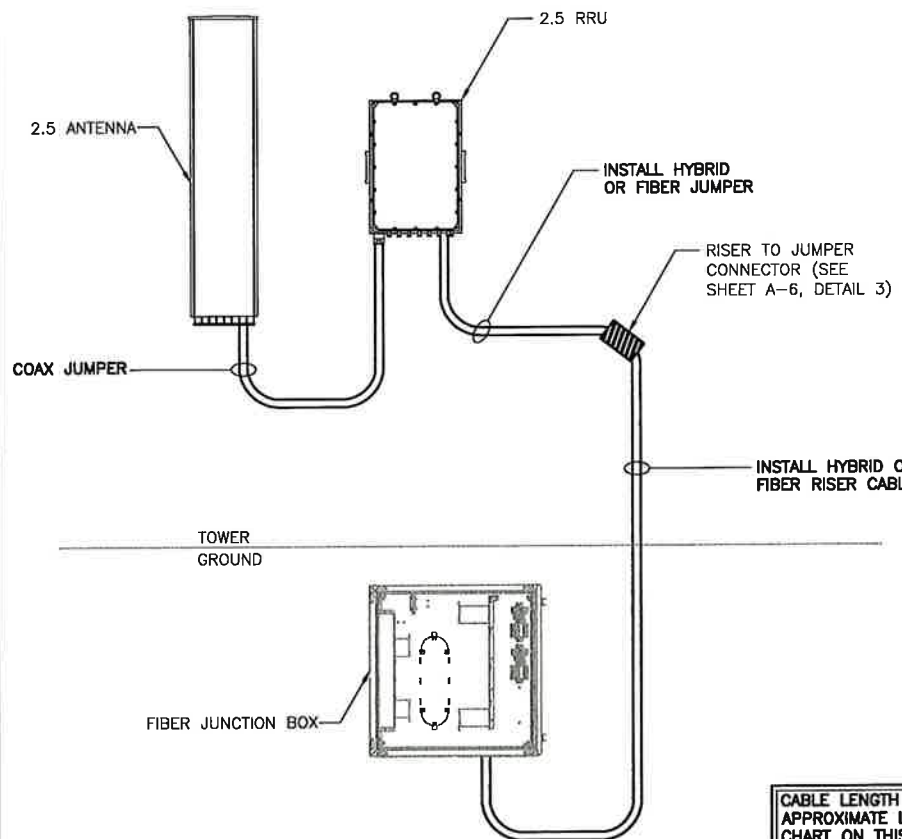


FRONT VIEW

2.5 ANTENNA

NO SCALE

3



INFINIGY ESTIMATES

*Riser Cable Length Estimate	
At Grade	21 Feet
Vertical Rise	150 Feet
At Sprint Centerline	0 Feet
Sub-Total	171 Feet
15% Buffer	26 Feet
Total	197 Feet

ABOVE LENGTH IS AN ESTIMATE AND SHOULD BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

** Hybrid/Fiber Jumper Length Estimate	
From Connector To RRU	20 Feet

ABOVE LENGTH IS AN ESTIMATE AND SHOULD BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

Coax Jumper Length Estimate	
From RRU to Antenna	5 Feet

ABOVE LENGTH IS AN ESTIMATE AND SHOULD BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

NOTE:
* & **: REFERENCE SHEET A-6, DETAIL 1 FOR CORRESPONDING PART NUMBERS.

CABLE LENGTH NOTE:
APPROXIMATE LENGTH OF NEW CABLE IS SHOWN IN CHART ON THIS SHEET. CONTRACTOR TO CONFIRM EXACT CABLE LENGTH REQUIRED PRIOR TO ORDERING MATERIALS.

CABLING SCHEMATIC

NO SCALE

4

PLANS PREPARED FOR:

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

Design. Build. Deliver.

1033 Watervliet Shaker Rd
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REVISIONS:

DESCRIPTION	DATE	BY	REV

ISSUED FOR PERMIT: 10/15/14 AHS 0

SITE NAME:
N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:
CT03XC164

SITE ADDRESS:
(1173-1245) DURHAM RD. MADISON, CT 06443

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

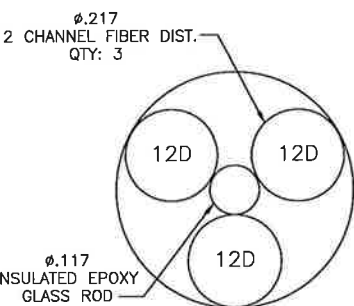
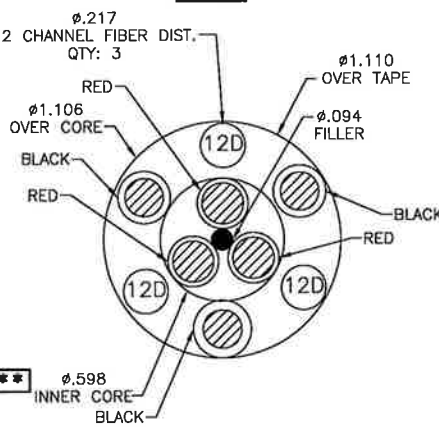
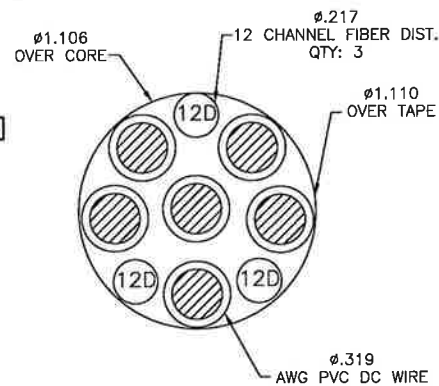
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

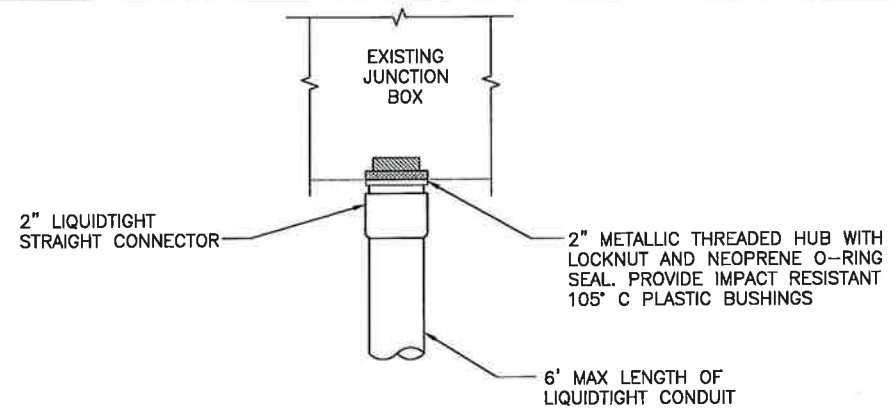
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

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

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



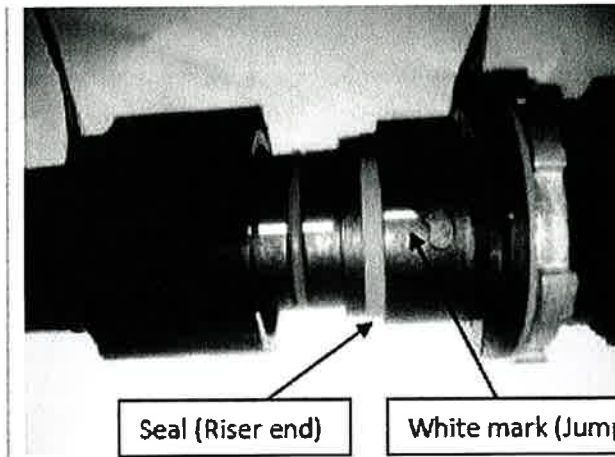
FIBER ONLY



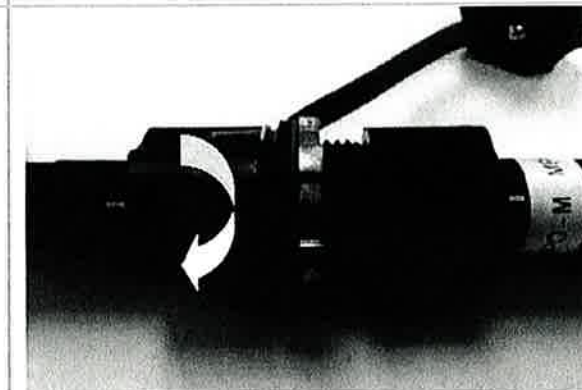
FIBER JUNCTION BOX PENETRATION

NO SCALE 2

IMPORTANT!! 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.



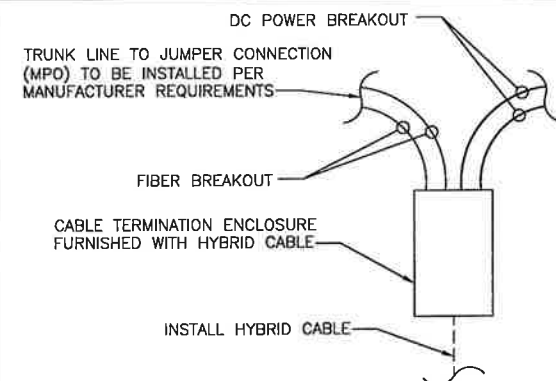
IMPORTANT!! Rotate the bayonet housing clock wise until you hear a click sound (means a good connection is in place).



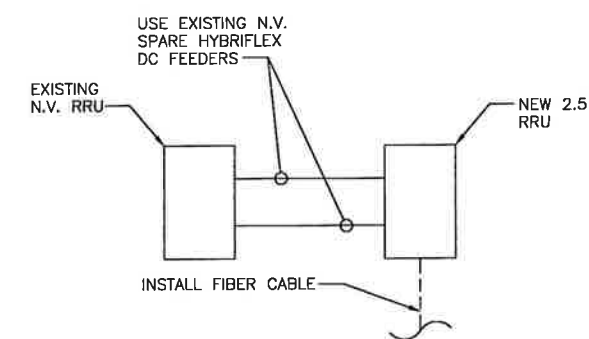
INFORMATION BASED ON PROVIDED INFORMATION FROM ALCATEL-LUCENT 2.5 GHz UPGRADE INSTALLATION GUIDE.

HYBRIFLEX RISER/JUMPER CONNECTION DETAIL

NO SCALE 3



2.5 HYBRID RISER CABLE (FIBER AND DC FEEDERS)



FIBER ONLY RISER CABLE

TRUNK LINE DETAIL (TYP.)

NO SCALE 4

2.5 CABLE CROSS SECTION DATA

NO SCALE 1

PLANS PREPARED FOR:



PLANS PREPARED BY:



ENGINEERING LICENSE:



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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

SITE NAME:

N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:

CT03XC164

SITE ADDRESS:

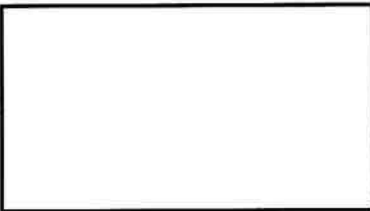
(1173-1245) DURHAM RD. MADISON, CT 06443

SHEET DESCRIPTION:

CIVIL DETAILS

SHEET NUMBER:

A-6



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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

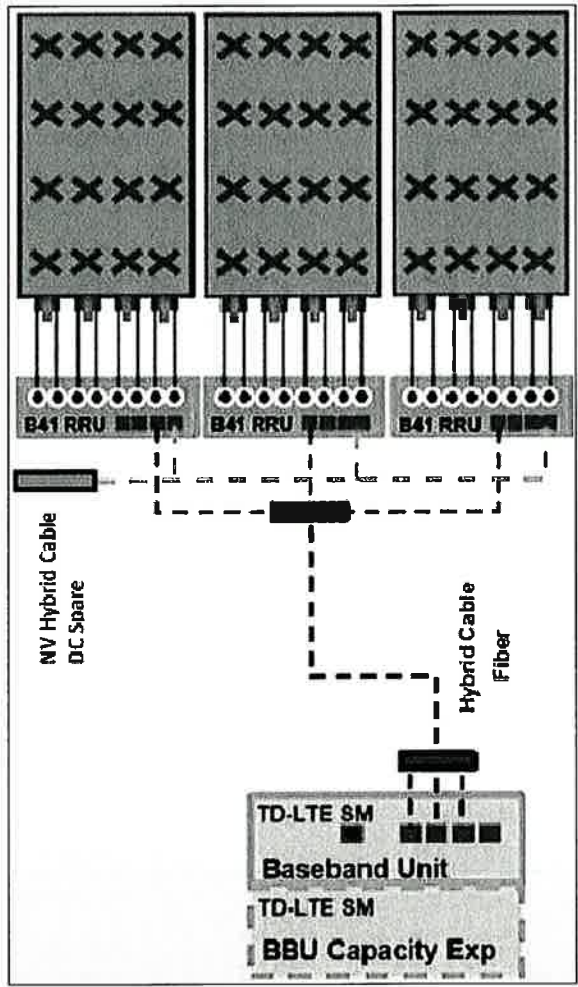
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N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:
CT03XC164

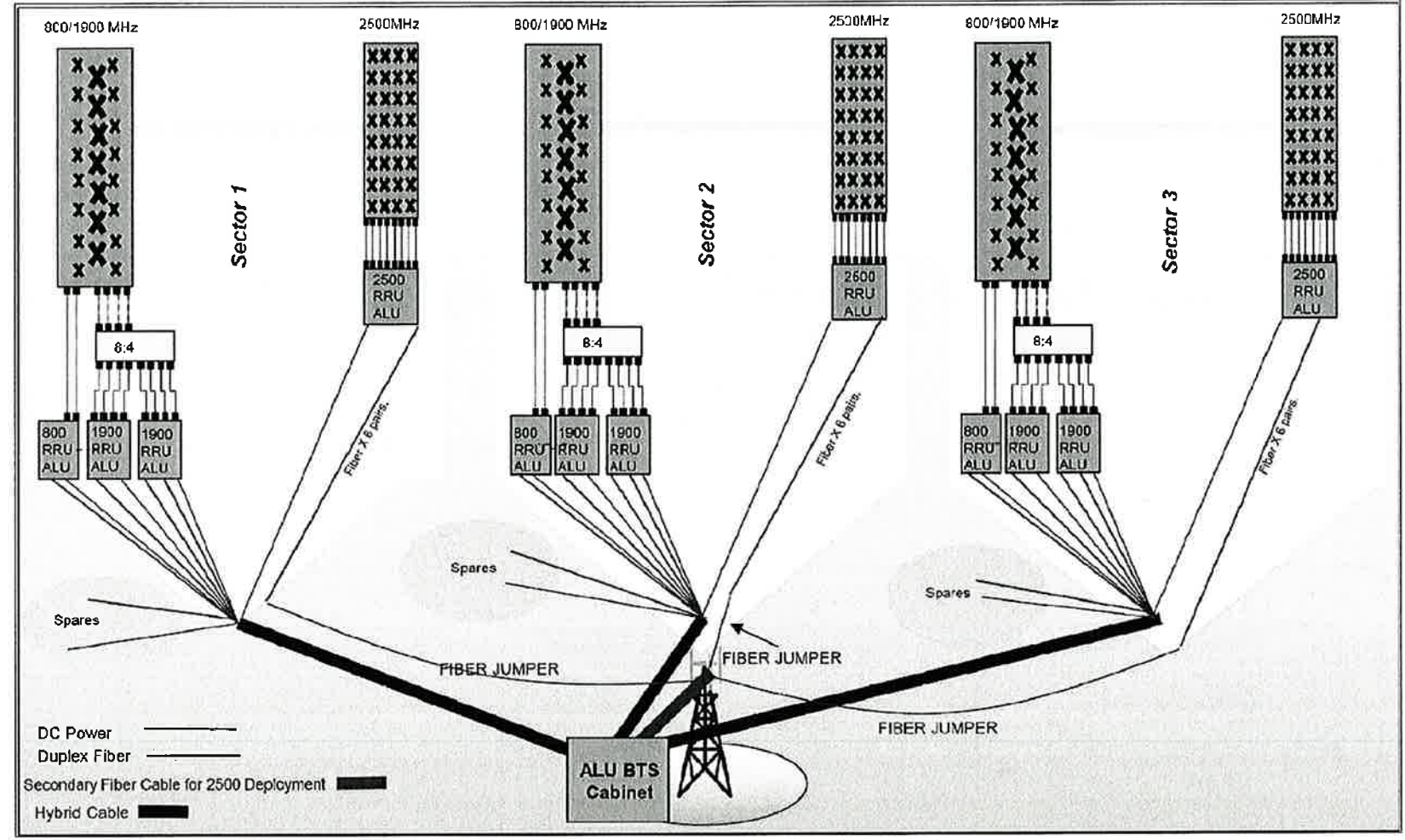
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 (1173-1245) DURHAM RD.
 MADISON, CT 06443

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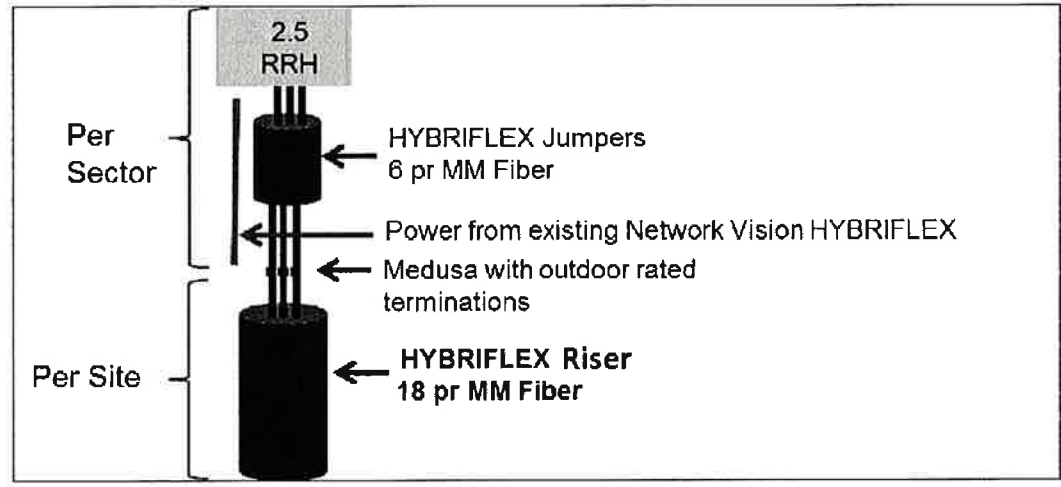
SHEET NUMBER:



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

SITE NAME:
N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:
CT03XC164

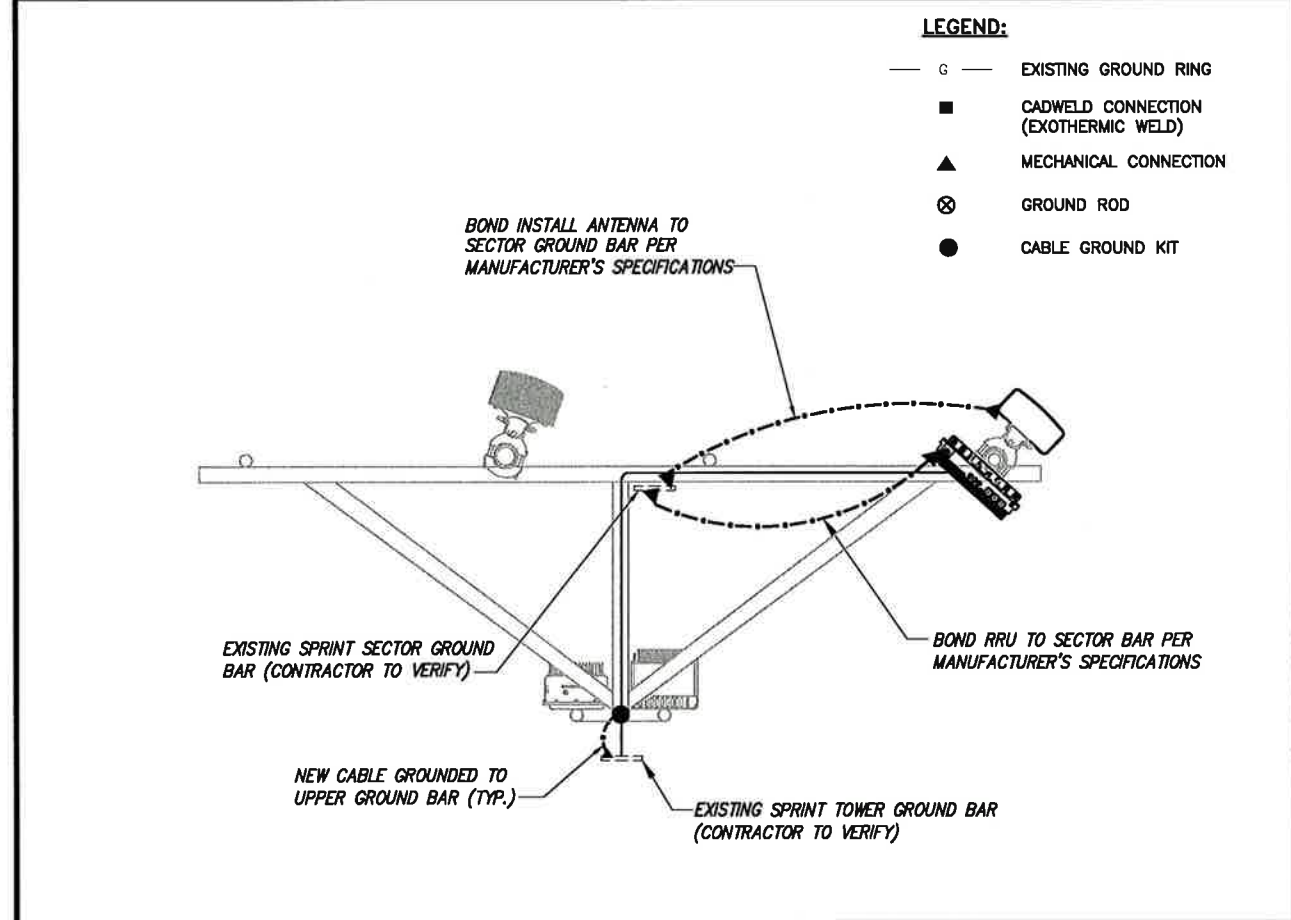
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**(1173-1245) DURHAM RD.
MADISON, CT 06443**

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

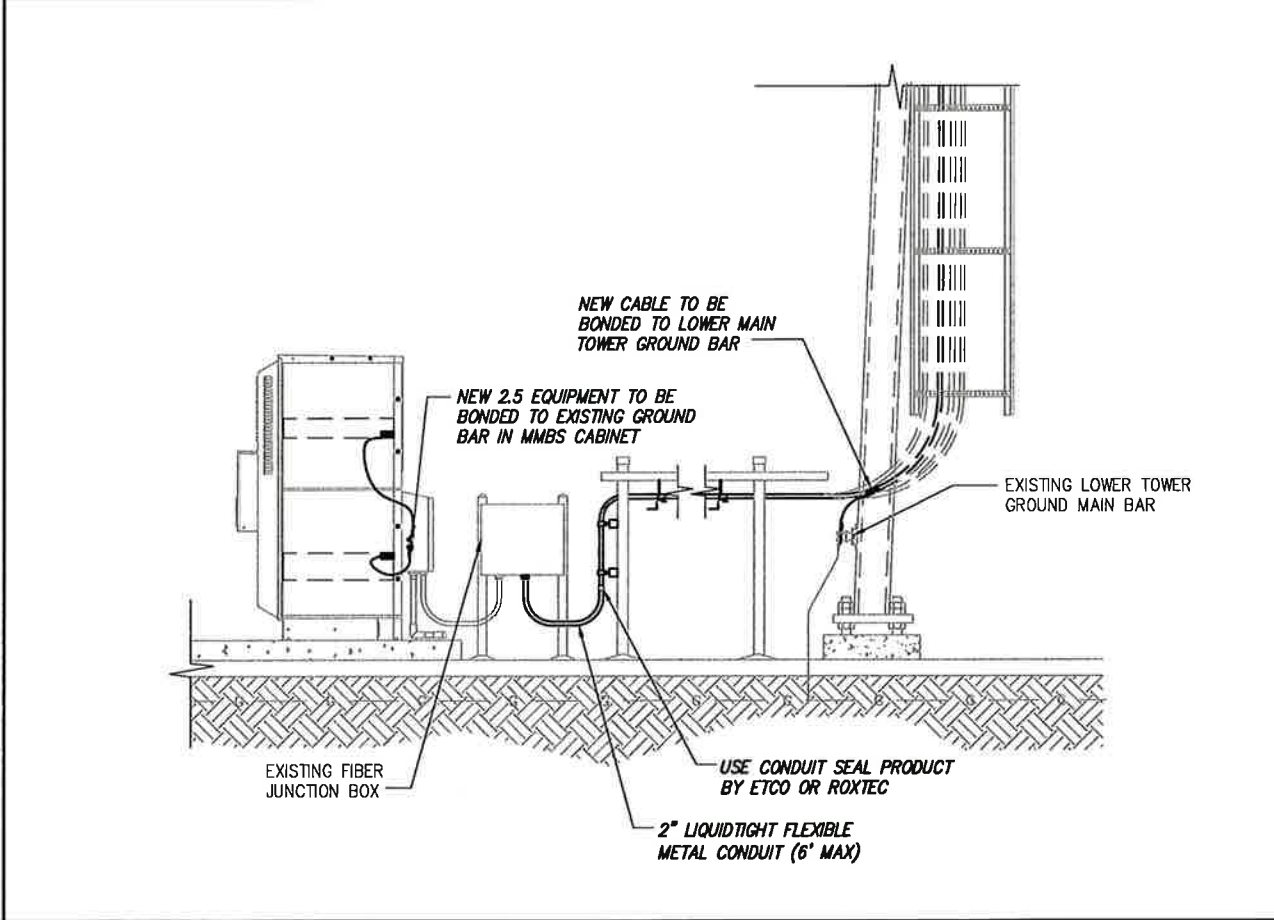
SHEET NUMBER:
E-1

PLAN NOT USED

NO SCALE 1

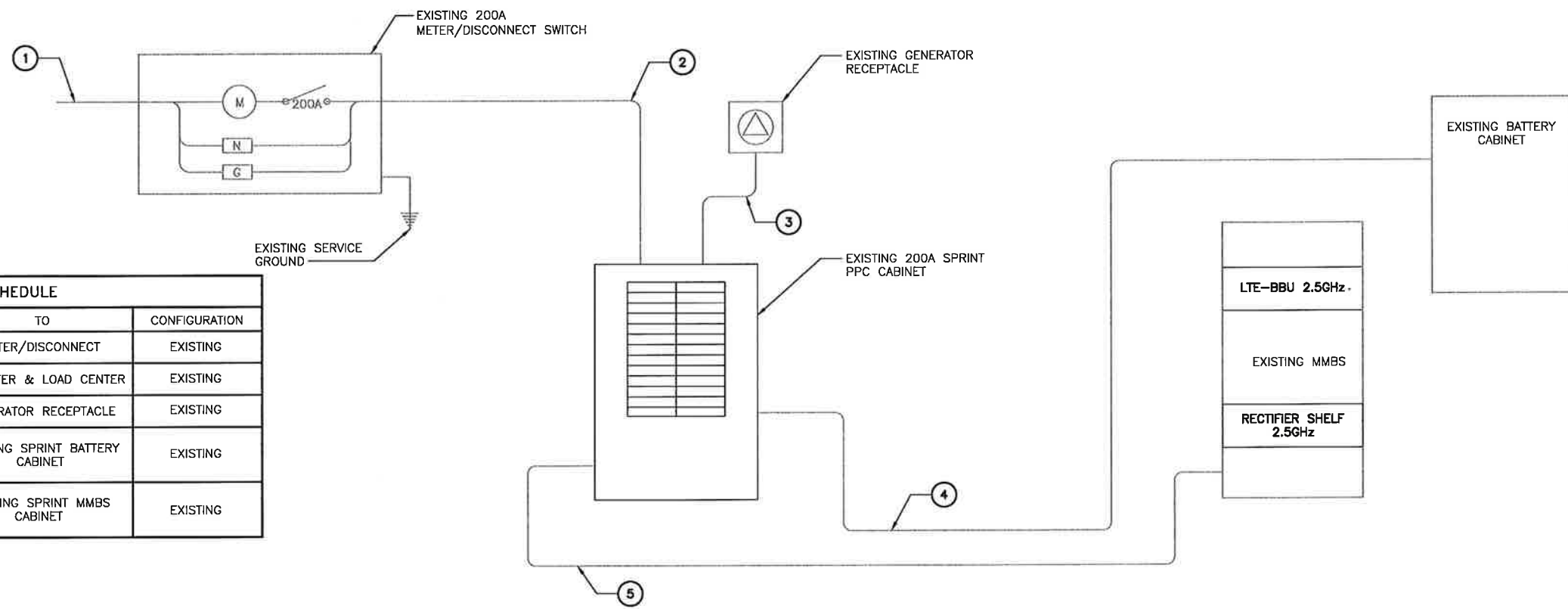


TYPICAL ANTENNA GROUNDING PLAN NO SCALE 2



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 BATTERY CABINET	EXISTING
⑤	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

PLANS PREPARED FOR:

6580 Sprint Parkway
 Overland Park, Kansas 66251

PLANS PREPARED BY:

Design. Build. Deliver.

1033 Watervliet Shaker Rd
 Albany, NY 12205
 Office # (518) 890-0790
 Fax # (518) 890-0793

JOB NUMBER 333-000

ENGINEERING LICENSE:

JOHN S. STEVENS
 No. 24705
 LICENSED PROFESSIONAL ENGINEER

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	10/15/14	AHS	0

SITE NAME:
N. MADISON / VOL. FIRE DEPT.

SITE CASCADE:
CT03XC164

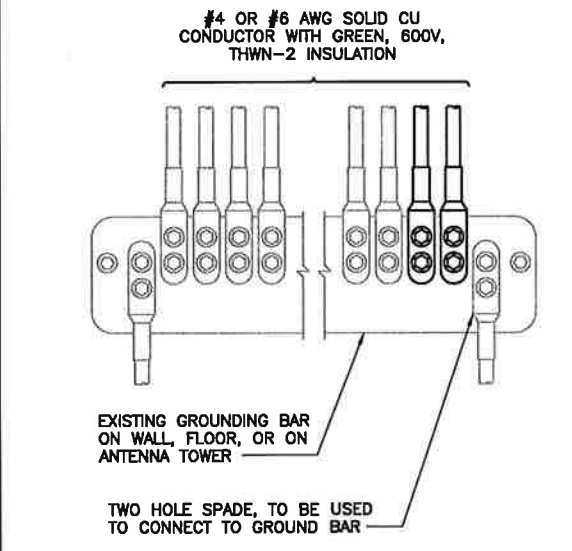
SITE ADDRESS:
 (1173-1245) DURHAM RD.
 MADISON, CT 06443

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:
E-2

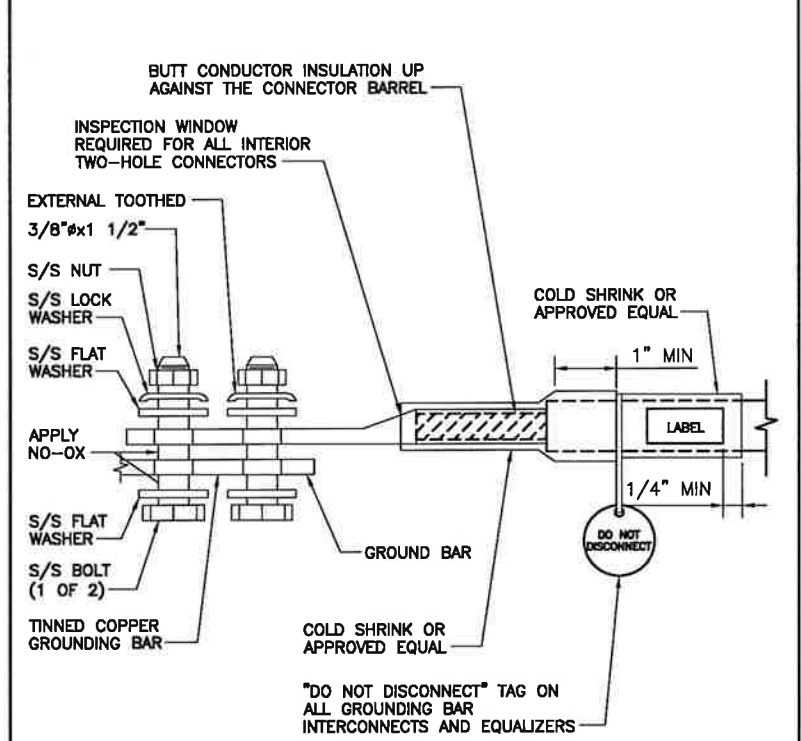
ELECTRICAL ONE-LINE DIAGRAM

NO SCALE 1



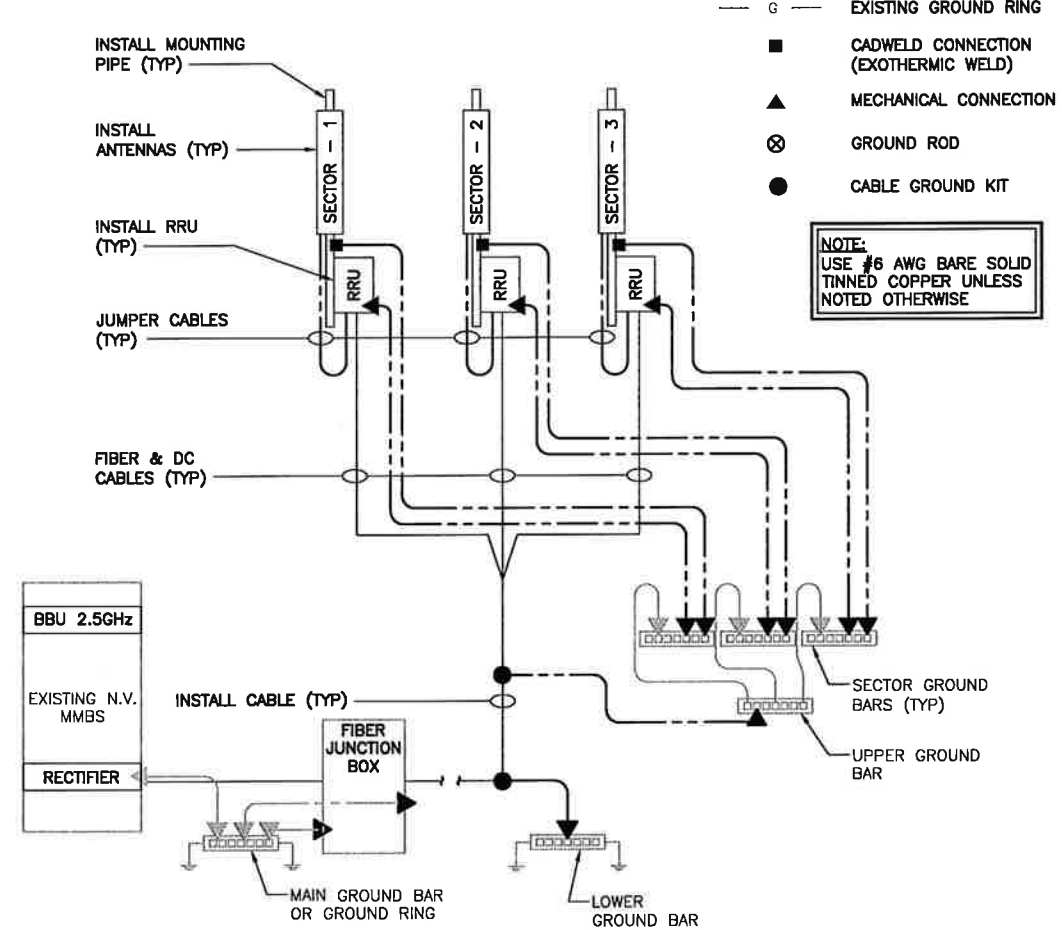
NOTES

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.



TWO HOLE LUG

NO SCALE 3



GROUNDING RISER DIAGRAM

NO SCALE 4

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE 2



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 180 ft Self Supported Tower
GTP Site Name : North Madison Volunteer FD, CT
GTP Site Number : CT-9014
Engineering Number : 60049921
Proposed Carrier : Sprint Nextel
Carrier Site Name : N. Madison / Vol. Fire Dept.
Carrier Site Number : CT03XC164-A
Site Location : 864 Opening Hill Road
Madison, CT 06443
41.35694000, -72.64013000
County : New Haven
Date : October 1, 2014
Max Usage : 98%
Result : Pass

Robert D. Barrett, E.I.
Structural Engineer I

Robert D. Barrett



Oct 1 2014 4:08 PM



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
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Proposed Equipment	2
Structure Usages	3
Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft self supported tower to reflect the change in loading by Sprint Nextel.

Supporting Documents

Tower Drawings	Rohn Drawing #C981756, dated December 2, 1998
Foundation Drawing	Rohn Drawing #A992935-1, dated July 20, 1999
Geotechnical Report	Clarence Welti Assoc. Job #35130AE, dated June 9, 1997

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/EIA-222.

Basic Wind Speed:	100 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	87 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
180.0	190.8	2	RFS PD455	Side Arms	(3) 7/8" Coax (1) 1/2" Coax (1) 2" Conduit (1) 1" Conduit	Town of Madison
	186.0	1	4-Bay Dipole			
	183.0	1	2-Bay Dipole			
170.0	170.0	1	RFS DB-T1-6Z-8AB-0Z	Sector Frames	(12) 1 5/8" Coax (1) 1 5/8" Fiber	Verizon Wireless
		3	Alcatel-Lucent RRH2x40-AWS			
		3	Andrew LNX-6514			
		3	Andrew HBX-6517DS			
		6	RFS FD9R6004/2C-3L			
		1	Antel BXA-70063/6CF			
		2	Antel BXA-70063/4CF			
		2	Antel BXA-171063/8BF			
1	Antel BXA-171085/8BF					
160.0	160.0	12	Andrew DB844H90E-XY	Sector Frames	(12) 1 5/8" Coax	Sprint Nextel
150.0	150.0	3	ALU 800MHz 2X50W RRH w/ Filter	Sector Frames	(3) 1 1/4" Hybriflex	Sprint Nextel
		3	ALU 1900MHz 4X45 RRH			
		3	RFS APXVSP18-C-A20			
140.0	140.0	1	Raycap DC6-48-60-18-8F	Sector Frames	(12) 1 1/4" Coax (2) 0.76" 8 AWG 6 (1) 0.39" Fiber	AT&T Mobility
		6	Ericsson RRUS-11			
		6	KMW AM-X-CD-16-65-00T-RET			
		6	Powerwave LGP21901			
		6	Powerwave LGP21401			
		6	Powerwave 7770			
130.0	130.0	3	RFS ATM1900D-1A20	Sector Frames	(12) 1 5/8" Coax	T-Mobile
		6	EMS DR65-19-00DPQ			
75.0	75.0	1	PCTEL GPS-TMG-HR-26N	Standoff	(1) 1/2" Coax	Sprint Nextel

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	150.0	6	Andrew DB980H90E-M	-	(6) 1 5/8" Coax	Sprint Nextel

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	150.0	3	ALU TD-RRH8X20	Sector Frames	(1) 1 1/4" Hybriflex	Sprint Nextel
		3	RFS APXVTM14-C-I20			

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax alongside existing Sprint Nextel coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	76%	Pass
Diagonals	98%	Pass
Horizontals	77%	Pass
Anchor Bolts	47%	Pass
Leg Bolts	73%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Uplift (Kips)	441.2	369.6	84%
Axial (Kips)	517.1	429.5	83%
Shear (Kips)	66.3	49.3	74%

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
150.0	0.193	0.009	0.163

*Deflection, Twist and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.



Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Tower Services, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

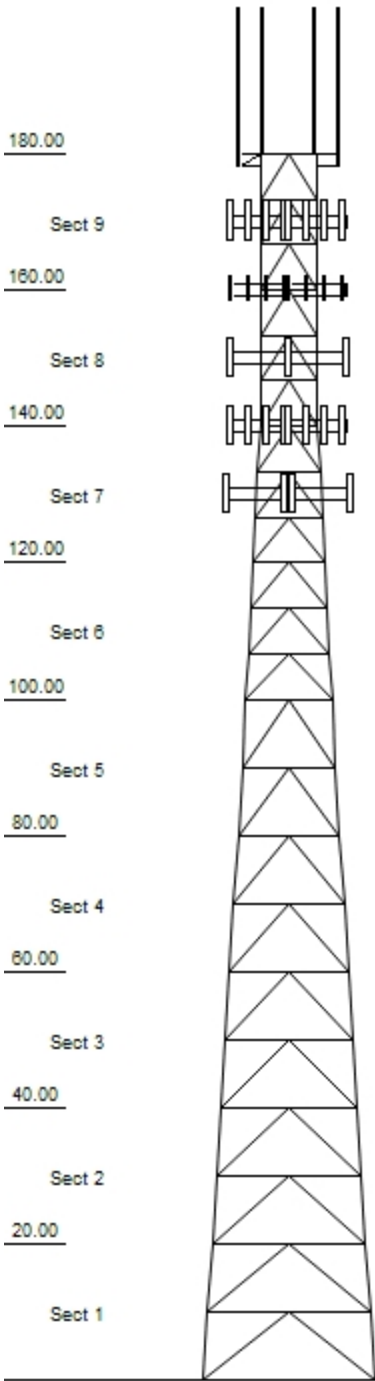
All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Tower Services, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Job Information		
Tower : CT-9014	Location : North Madison Volunteer FD, CT	
Code : TIA/EIA-222 Rev F	Shape : Triangle	Base Width : 25.33 ft
Client : Sprint Nextel	Top Width : 8.54 ft	

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Loads: 100 mph no ice
87 mph w / 1/2" radial ice
50 mph no ice

Sections Properties				
Section	Leg Members		Diagonal Members	Horizontal Members
1	PX 50 ksi	10" DIA PIPE	PX 50 ksi 3-1/2" DIA PIPE	PST 50 ksi 3" DIA PIPE
2	PX 50 ksi	10" DIA PIPE	PST 50 ksi 3" DIA PIPE	PST 50 ksi 2-1/2" DIA PIPE
3	PX 50 ksi	8" DIA PIPE	PST 50 ksi 3" DIA PIPE	PST 50 ksi 2-1/2" DIA PIPE
4	PX 50 ksi	8" DIA PIPE	PST 50 ksi 3" DIA PIPE	PST 50 ksi 2" DIA PIPE
5	PSP 50 ksi	ROHN 8 EHS	PST 50 ksi 3" DIA PIPE	PST 50 ksi 2" DIA PIPE
6	PSP 50 ksi	ROHN 6 EHS	PST 50 ksi 2-1/2" DIA PIPE	PST 50 ksi 2" DIA PIPE
7	PSP 50 ksi	ROHN 5 EH	PX 50 ksi 2" DIA PIPE	PST 50 ksi 1-1/2" DIA PIPE
8	PX 50 ksi	4" DIA PIPE	PX 50 ksi 2" DIA PIPE	PST 50 ksi 1-1/2" DIA PIPE
9	PST 50 ksi	3" DIA PIPE	PST 50 ksi 2" DIA PIPE	PST 50 ksi 1-1/2" DIA PIPE



Uplift 369.80 k Moment 8,309.81 k Moment Ice 8,795.86 k-ft
 Vert 429.50 k Tot Down 56.78 k Tot Down Ice 85.73 k
 Horiz 49.27 k Tot Shear 76.48 k Tot Shear Ice 80.91 k

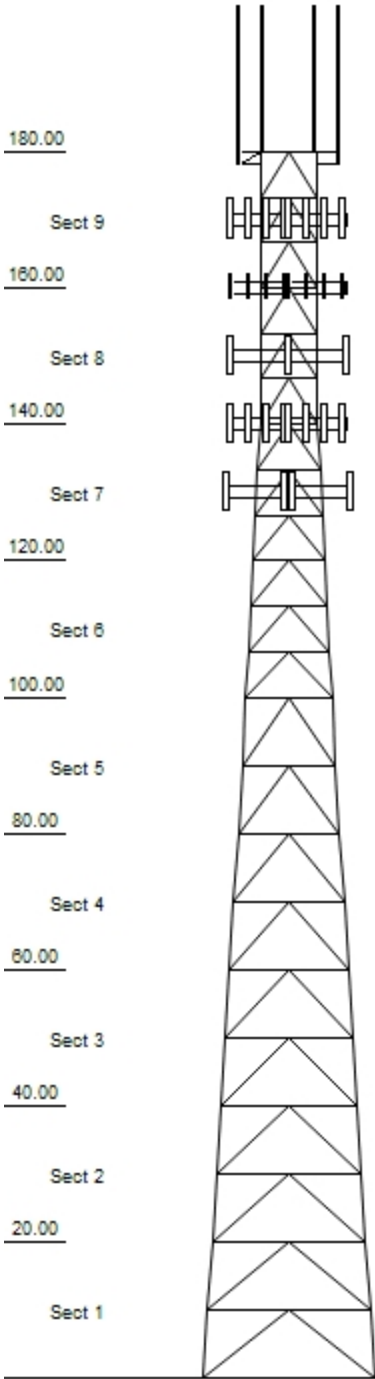
Discrete Appurtenance			
Elev (ft)	Type	Qty	Description
180.00	Whip	1	2-Bay Dipole
180.00	Whip	1	4-Bay Dipole
180.00	Whip	2	RFS PD455
180.00	Straight Arm	3	Flat Side Arm
170.00		1	RFS DB-T1-6Z-8AB-0Z
170.00		3	Acatel-Lucent RRH2x40-AWS
170.00	Panel	3	Andrew LNX-6514
170.00	Panel	3	Andrew HBX-6517DS
170.00		6	RFS FD9R6004/2C-3L
170.00	Panel	1	Antel BXA-70063/6CF
170.00	Panel	2	Antel BXA-70063/4CF
170.00	Panel	2	Antel BXA-171063/8BF
170.00	Panel	1	Antel BXA-171085/8BF
170.00	Mounting Frame	3	Flat Light Sector Frame
160.00	Panel	12	Andrew DB844H90E-XY
160.00	Mounting Frame	3	Flat Light Sector Frame
150.00		3	ALU 800 MHz 2X50W RRH w/ Filte
150.00		3	ALU 1900 MHz 4X45 RRH
150.00		3	ALU TD-RRH8X20
150.00	Panel	3	RFS APXVSP18-C-A20
150.00	Panel	3	RFS APXVTM14-C-I20
150.00	Mounting Frame	3	Flat Light Sector Frame
140.00		1	Raycap DC6-48-60-18-8F
140.00		6	Ericsson RRUS-11
140.00	Panel	6	KMW AM-X-CD-16-65-00T-RET
140.00		6	Powerwave LGP21901
140.00		6	Powerwave LGP21401
140.00	Panel	6	Powerwave 7770
140.00	Mounting Frame	3	Flat Light Sector Frame
130.00		3	RFS ATM1900D-1A20
130.00	Panel	6	EMS DR65-19-00DPQ
130.00	Mounting Frame	3	Flat Light Sector Frame
75.00		1	PCTEL GPS-TMG-HR-26N
75.00	Straight Arm	1	Standoff

Linear Appurtenance			
Elev (ft)		Qty	Description
From	To		
0.000	180.00	3	7/8" Coax
0.000	180.00	1	2" Conduit
0.000	180.00	1	1/2" Coax
0.000	180.00	1	1" Conduit
0.000	170.00	1	Waveguide
0.000	170.00	1	1 5/8" Fiber
0.000	170.00	12	1 5/8" Coax
0.000	160.00	1	Waveguide
0.000	160.00	1	Waveguide
0.000	160.00	12	1 5/8" Coax

Job Information			
Tower :	CT-9014	Location :	North Madison Volunteer FD, CT
Code :	TIA/EIA-222 Rev F	Shape :	Triangle
Client :	Sprint Nextel	Base Width :	25.33 ft
		Top Width :	8.54 ft

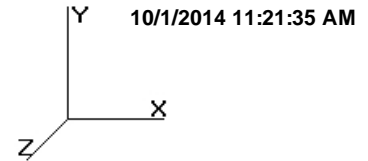
0.000	150.00	1	Waveguide
0.000	150.00	3	1 1/4" Hybriflex
0.000	150.00	1	1 1/4" Hybriflex
0.000	140.00	1	Waveguide
0.000	140.00	12	1 1/4" Coax
0.000	140.00	2	0.76" 8 AWG 6
0.000	140.00	1	0.39" Fiber
0.000	130.00	1	Waveguide
0.000	130.00	12	1 5/8" Coax
0.000	75.000	1	1/2" Coax

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Uplift 369.60 k Moment 8,309.81 k Moment Ice 8,795.86 k-ft
 Vert 429.50 k Tot Down 56.78 k Tot Down Ice 85.73 k
 Horiz 49.27 k Tot Shear 76.48 k Tot Shear Ice 80.91 k

Site Number: CT-9014
 Location: North Madison Volunteer
 FD, CT
 Code: TIA/EIA-222 Rev F



Gh : 1.12

Section Forces

LoadCase Normal No Ice 100.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total	Total	Ice	Sol Ratio	Cf	Df	Dr	Rr	Eff	Linear	Linear	Total	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face				
			Flat Area (sqft)	Round Area (sqft)	Round Area (sqft)						Area (sqft)	Area (sqft)	Area (sqft)	Weight (lb)									
9	170.0	40.89	1.67	58.41	0.00	0.35	2.17	1.00	1.00	0.63	38.61	0.00	0.00	1,594.5	0.0	3,842.96	0.00	3,842.96	2				
8	150.0	39.46	5.00	88.01	0.00	0.54	1.86	1.00	1.00	0.72	68.09	0.00	0.00	2,950.5	0.0	5,592.02	0.00	5,592.02	2				
7	130.0	37.88	6.67	97.27	0.00	0.53	1.86	1.00	1.00	0.71	76.20	0.00	0.00	3,917.9	0.0	6,019.76	0.00	6,019.76	2				
6	110.0	36.11	6.67	114.66	0.00	0.51	1.89	1.00	1.00	0.70	87.33	0.00	0.00	4,608.5	0.0	6,664.30	0.00	6,664.30	3				
5	90.00	34.10	6.67	121.40	0.00	0.46	1.96	1.00	1.00	0.68	88.72	0.00	0.00	5,284.5	0.0	6,660.75	0.00	6,660.75	3				
4	70.00	31.74	6.67	123.21	0.00	0.40	2.07	1.00	1.00	0.65	86.72	0.00	0.00	6,053.3	0.0	6,395.68	0.00	6,395.68	3				
3	50.00	28.83	6.67	126.65	0.00	0.35	2.17	1.00	1.00	0.63	86.81	0.00	0.00	6,572.0	0.0	6,085.72	0.00	6,085.72	3				
2	30.00	25.60	6.67	135.93	0.00	0.33	2.22	1.00	1.00	0.63	91.71	0.00	0.00	7,473.6	0.0	5,838.02	0.00	5,838.02	3				
1	10.00	25.60	6.67	143.06	0.00	0.31	2.27	1.00	1.00	0.62	95.26	0.00	0.00	9,007.0	0.0	6,198.04	0.00	6,198.04	3				
															47,461.8	0.0			53,297.25				

LoadCase 60 deg No Ice 100.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

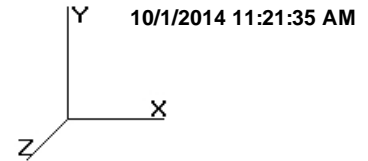
Sect Seq	Wind Height (ft)	qz (psf)	Total	Total	Ice	Sol Ratio	Cf	Df	Dr	Rr	Eff	Linear	Linear	Total	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face				
			Flat Area (sqft)	Round Area (sqft)	Round Area (sqft)						Area (sqft)	Area (sqft)	Area (sqft)	Weight (lb)									
9	170.0	40.89	1.67	58.41	0.00	0.35	2.17	0.80	1.00	0.63	38.27	0.00	0.00	1,594.5	0.0	3,809.78	0.00	3,809.78	2				
8	150.0	39.46	5.00	88.01	0.00	0.54	1.86	0.80	1.00	0.72	67.09	0.00	0.00	2,950.5	0.0	5,509.89	0.00	5,509.89	2				
7	130.0	37.88	6.67	97.27	0.00	0.53	1.86	0.80	1.00	0.71	74.87	0.00	0.00	3,917.9	0.0	5,914.42	0.00	5,914.42	2				
6	110.0	36.11	6.67	114.66	0.00	0.51	1.89	0.80	1.00	0.70	85.99	0.00	0.00	4,608.5	0.0	6,562.55	0.00	6,562.55	3				
5	90.00	34.10	6.67	121.40	0.00	0.46	1.96	0.80	1.00	0.68	87.39	0.00	0.00	5,284.5	0.0	6,560.65	0.00	6,560.65	3				
4	70.00	31.74	6.67	123.21	0.00	0.40	2.07	0.80	1.00	0.65	85.39	0.00	0.00	6,053.3	0.0	6,297.35	0.00	6,297.35	3				
3	50.00	28.83	6.67	126.65	0.00	0.35	2.17	0.80	1.00	0.63	85.47	0.00	0.00	6,572.0	0.0	5,992.24	0.00	5,992.24	3				
2	30.00	25.60	6.67	135.93	0.00	0.33	2.22	0.80	1.00	0.63	90.38	0.00	0.00	7,473.6	0.0	5,753.15	0.00	5,753.15	3				
1	10.00	25.60	6.67	143.06	0.00	0.31	2.27	0.80	1.00	0.62	93.93	0.00	0.00	9,007.0	0.0	6,111.29	0.00	6,111.29	3				
															47,461.8	0.0			52,511.32				

LoadCase 90 deg No Ice 100.00 mph Wind at 90 deg From Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total	Total	Ice	Sol Ratio	Cf	Df	Dr	Rr	Eff	Linear	Linear	Total	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
			Flat Area (sqft)	Round Area (sqft)	Round Area (sqft)						Area (sqft)	Area (sqft)	Area (sqft)	Weight (lb)					
9	170.0	40.89	1.67	58.41	0.00	0.35	2.17	0.85	1.00	0.63	38.36	0.00	0.00	1,594.5	0.0	3,818.08	0.00	3,818.08	2
8	150.0	39.46	5.00	88.01	0.00	0.54	1.86	0.85	1.00	0.72	67.34	0.00	0.00	2,950.5	0.0	5,530.42	0.00	5,530.42	2

Site Number: CT-9014
 Location: North Madison Volunteer
 FD, CT
 Code: TIA/EIA-222 Rev F



Gh : 1.12

Section Forces

7	130.0	37.88	6.67	97.27	0.00	0.53	1.86	0.85	1.00	0.71	75.20	0.00	0.00	3,917.9	0.0	5,940.76	0.00	5,940.76	2	
6	110.0	36.11	6.67	114.66	0.00	0.51	1.89	0.85	1.00	0.70	86.33	0.00	0.00	4,608.5	0.0	6,587.98	0.00	6,587.98	3	
5	90.00	34.10	6.67	121.40	0.00	0.46	1.96	0.85	1.00	0.68	87.72	0.00	0.00	5,284.5	0.0	6,585.67	0.00	6,585.67	3	
4	70.00	31.74	6.67	123.21	0.00	0.40	2.07	0.85	1.00	0.65	85.72	0.00	0.00	6,053.3	0.0	6,321.93	0.00	6,321.93	3	
3	50.00	28.83	6.67	126.65	0.00	0.35	2.17	0.85	1.00	0.63	85.81	0.00	0.00	6,572.0	0.0	6,015.61	0.00	6,015.61	3	
2	30.00	25.60	6.67	135.93	0.00	0.33	2.22	0.85	1.00	0.63	90.71	0.00	0.00	7,473.6	0.0	5,774.37	0.00	5,774.37	3	
1	10.00	25.60	6.67	143.06	0.00	0.31	2.27	0.85	1.00	0.62	94.26	0.00	0.00	9,007.0	0.0	6,132.98	0.00	6,132.98	3	
														47,461.8	0.0			52,707.80		

LoadCase Normal Ice

86.60 mph Wind Normal To Face with Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Ice		Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face			
												Linear Area (sqft)	Total Weight (lb)							
9	170.0	30.67	1.67	89.52	31.11	0.53	1.86	1.00	1.00	0.71	65.57	0.00	0.00	2,522.1	927.6	4,198.79	0.00	4,198.79	2	
8	150.0	29.59	5.00	134.99	46.97	0.81	1.82	1.00	1.00	0.90	126.84	0.00	0.00	4,744.5	1,794.0	7,664.44	0.00	7,664.44	2	
7	130.0	28.41	6.67	148.81	51.54	0.80	1.81	1.00	1.00	0.89	139.73	0.00	0.00	6,496.8	2,578.9	8,070.23	0.00	8,070.23	2	
6	110.0	27.08	6.67	173.74	59.07	0.76	1.79	1.00	1.00	0.87	156.95	0.00	0.00	7,604.8	2,996.4	8,538.08	0.00	8,538.08	3	
5	90.00	25.57	6.67	179.45	58.05	0.66	1.78	1.00	1.00	0.79	149.09	0.00	0.00	8,322.4	3,038.0	7,600.81	0.00	7,600.81	3	
4	70.00	23.80	6.67	181.91	58.69	0.57	1.82	1.00	1.00	0.74	140.92	0.00	0.00	9,160.5	3,107.2	6,850.98	0.00	6,850.98	3	
3	50.00	21.62	6.67	186.06	59.41	0.51	1.89	1.00	1.00	0.70	137.12	0.00	0.00	9,799.3	3,227.3	6,283.21	0.00	6,283.21	3	
2	30.00	19.20	6.67	196.08	60.15	0.47	1.94	1.00	1.00	0.68	140.50	0.00	0.00	10,854.3	3,380.7	5,872.97	0.00	5,872.97	3	
1	10.00	19.20	6.67	203.94	60.88	0.44	1.99	1.00	1.00	0.67	142.80	0.00	0.00	12,600.8	3,593.8	6,130.40	0.00	6,130.40	3	
														72,105.6	24,643.8			61,209.92		

LoadCase 60 deg Ice

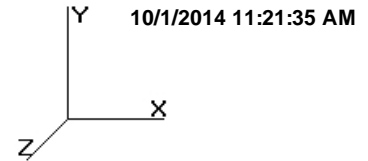
86.60 mph Wind at 60 deg From Face with Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Ice		Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face			
												Linear Area (sqft)	Total Weight (lb)							
9	170.0	30.67	1.67	89.52	31.11	0.53	1.86	0.80	1.00	0.71	65.24	0.00	0.00	2,522.1	927.6	4,177.45	0.00	4,177.45	2	
8	150.0	29.59	5.00	134.99	46.97	0.81	1.82	0.80	1.00	0.90	125.84	0.00	0.00	4,744.5	1,794.0	7,604.02	0.00	7,604.02	2	
7	130.0	28.41	6.67	148.81	51.54	0.80	1.81	0.80	1.00	0.89	138.40	0.00	0.00	6,496.8	2,578.9	7,993.22	0.00	7,993.22	2	
6	110.0	27.08	6.67	173.74	59.07	0.76	1.79	0.80	1.00	0.87	155.62	0.00	0.00	7,604.8	2,996.4	8,465.55	0.00	8,465.55	3	
5	90.00	25.57	6.67	179.45	58.05	0.66	1.78	0.80	1.00	0.79	147.76	0.00	0.00	8,322.4	3,038.0	7,532.84	0.00	7,532.84	3	
4	70.00	23.80	6.67	181.91	58.69	0.57	1.82	0.80	1.00	0.74	139.58	0.00	0.00	9,160.5	3,107.2	6,786.16	0.00	6,786.16	3	
3	50.00	21.62	6.67	186.06	59.41	0.51	1.89	0.80	1.00	0.70	135.79	0.00	0.00	9,799.3	3,227.3	6,222.11	0.00	6,222.11	3	
2	30.00	19.20	6.67	196.08	60.15	0.47	1.94	0.80	1.00	0.68	139.16	0.00	0.00	10,854.3	3,380.7	5,817.24	0.00	5,817.24	3	
1	10.00	19.20	6.67	203.94	60.88	0.44	1.99	0.80	1.00	0.67	141.47	0.00	0.00	12,600.8	3,593.8	6,073.16	0.00	6,073.16	3	
														72,105.6	24,643.8			60,671.74		

Site Number: CT-9014
 Location: North Madison Volunteer
 FD, CT

Code: TIA/EIA-222 Rev F



Gh : 1.12

Section Forces

LoadCase 90 deg Ice

86.60 mph Wind at 90 deg From Face with Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
9	170.0	30.67	1.67	89.52	31.11	0.53	1.86	0.85	1.00	0.71	65.32	0.00	0.00	2,522.1	927.6	4,182.78	0.00	4,182.78	2
8	150.0	29.59	5.00	134.99	46.97	0.81	1.82	0.85	1.00	0.90	126.09	0.00	0.00	4,744.5	1,794.0	7,619.12	0.00	7,619.12	2
7	130.0	28.41	6.67	148.81	51.54	0.80	1.81	0.85	1.00	0.89	138.73	0.00	0.00	6,496.8	2,578.9	8,012.47	0.00	8,012.47	2
6	110.0	27.08	6.67	173.74	59.07	0.76	1.79	0.85	1.00	0.87	155.95	0.00	0.00	7,604.8	2,996.4	8,483.69	0.00	8,483.69	3
5	90.00	25.57	6.67	179.45	58.05	0.66	1.78	0.85	1.00	0.79	148.09	0.00	0.00	8,322.4	3,038.0	7,549.83	0.00	7,549.83	3
4	70.00	23.80	6.67	181.91	58.69	0.57	1.82	0.85	1.00	0.74	139.92	0.00	0.00	9,160.5	3,107.2	6,802.36	0.00	6,802.36	3
3	50.00	21.62	6.67	186.06	59.41	0.51	1.89	0.85	1.00	0.70	136.12	0.00	0.00	9,799.3	3,227.3	6,237.39	0.00	6,237.39	3
2	30.00	19.20	6.67	196.08	60.15	0.47	1.94	0.85	1.00	0.68	139.50	0.00	0.00	10,854.3	3,380.7	5,831.17	0.00	5,831.17	3
1	10.00	19.20	6.67	203.94	60.88	0.44	1.99	0.85	1.00	0.67	141.80	0.00	0.00	12,600.8	3,593.8	6,087.47	0.00	6,087.47	3
														72,105.6	24,643.8			60,806.28	

LoadCase Normal

50.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
9	170.0	10.22	1.67	58.41	0.00	0.35	2.17	1.00	1.00	0.63	38.61	0.00	0.00	1,594.5	0.0	960.74	0.00	960.74	2
8	150.0	9.86	5.00	88.01	0.00	0.54	1.86	1.00	1.00	0.72	68.09	0.00	0.00	2,950.5	0.0	1,398.00	0.00	1,398.00	2
7	130.0	9.47	6.67	97.27	0.00	0.53	1.86	1.00	1.00	0.71	76.20	0.00	0.00	3,917.9	0.0	1,504.94	0.00	1,504.94	2
6	110.0	9.03	6.67	114.66	0.00	0.51	1.89	1.00	1.00	0.70	87.33	0.00	0.00	4,608.5	0.0	1,666.07	0.00	1,666.07	3
5	90.00	8.52	6.67	121.40	0.00	0.46	1.96	1.00	1.00	0.68	88.72	0.00	0.00	5,284.5	0.0	1,665.19	0.00	1,665.19	3
4	70.00	7.93	6.67	123.21	0.00	0.40	2.07	1.00	1.00	0.65	86.72	0.00	0.00	6,053.3	0.0	1,598.92	0.00	1,598.92	3
3	50.00	7.21	6.67	126.65	0.00	0.35	2.17	1.00	1.00	0.63	86.81	0.00	0.00	6,572.0	0.0	1,521.43	0.00	1,521.43	3
2	30.00	6.40	6.67	135.93	0.00	0.33	2.22	1.00	1.00	0.63	91.71	0.00	0.00	7,473.6	0.0	1,459.51	0.00	1,459.51	3
1	10.00	6.40	6.67	143.06	0.00	0.31	2.27	1.00	1.00	0.62	95.26	0.00	0.00	9,007.0	0.0	1,549.51	0.00	1,549.51	3
														47,461.8	0.0			13,324.31	

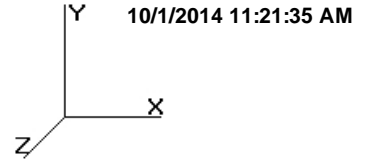
LoadCase 60 deg

50.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
9	170.0	10.22	1.67	58.41	0.00	0.35	2.17	0.80	1.00	0.63	38.27	0.00	0.00	1,594.5	0.0	952.45	0.00	952.45	2
8	150.0	9.86	5.00	88.01	0.00	0.54	1.86	0.80	1.00	0.72	67.09	0.00	0.00	2,950.5	0.0	1,377.47	0.00	1,377.47	2

Site Number: CT-9014
 Location: North Madison Volunteer
 FD, CT
 Code: TIA/EIA-222 Rev F



Gh : 1.12

Section Forces

7	130.0	9.47	6.67	97.27	0.00	0.53	1.86	0.80	1.00	0.71	74.87	0.00	0.00	3,917.9	0.0	1,478.61	0.00	1,478.61	2
6	110.0	9.03	6.67	114.66	0.00	0.51	1.89	0.80	1.00	0.70	85.99	0.00	0.00	4,608.5	0.0	1,640.64	0.00	1,640.64	3
5	90.00	8.52	6.67	121.40	0.00	0.46	1.96	0.80	1.00	0.68	87.39	0.00	0.00	5,284.5	0.0	1,640.16	0.00	1,640.16	3
4	70.00	7.93	6.67	123.21	0.00	0.40	2.07	0.80	1.00	0.65	85.39	0.00	0.00	6,053.3	0.0	1,574.34	0.00	1,574.34	3
3	50.00	7.21	6.67	126.65	0.00	0.35	2.17	0.80	1.00	0.63	85.47	0.00	0.00	6,572.0	0.0	1,498.06	0.00	1,498.06	3
2	30.00	6.40	6.67	135.93	0.00	0.33	2.22	0.80	1.00	0.63	90.38	0.00	0.00	7,473.6	0.0	1,438.29	0.00	1,438.29	3
1	10.00	6.40	6.67	143.06	0.00	0.31	2.27	0.80	1.00	0.62	93.93	0.00	0.00	9,007.0	0.0	1,527.82	0.00	1,527.82	3
														47,461.8	0.0			13,127.83	

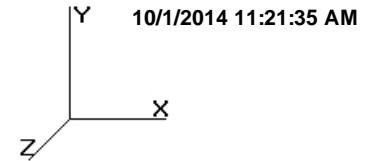
LoadCase 90 deg

50.00 mph Wind at 90 deg From Face with No Ice

Allow Stress Inc: 1.333
 Dead LF: 1.000
 Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
9	170.0	10.22	1.67	58.41	0.00	0.35	2.17	0.85	1.00	0.63	38.36	0.00	0.00	1,594.5	0.0	954.52	0.00	954.52	2
8	150.0	9.86	5.00	88.01	0.00	0.54	1.86	0.85	1.00	0.72	67.34	0.00	0.00	2,950.5	0.0	1,382.61	0.00	1,382.61	2
7	130.0	9.47	6.67	97.27	0.00	0.53	1.86	0.85	1.00	0.71	75.20	0.00	0.00	3,917.9	0.0	1,485.19	0.00	1,485.19	2
6	110.0	9.03	6.67	114.66	0.00	0.51	1.89	0.85	1.00	0.70	86.33	0.00	0.00	4,608.5	0.0	1,647.00	0.00	1,647.00	3
5	90.00	8.52	6.67	121.40	0.00	0.46	1.96	0.85	1.00	0.68	87.72	0.00	0.00	5,284.5	0.0	1,646.42	0.00	1,646.42	3
4	70.00	7.93	6.67	123.21	0.00	0.40	2.07	0.85	1.00	0.65	85.72	0.00	0.00	6,053.3	0.0	1,580.48	0.00	1,580.48	3
3	50.00	7.21	6.67	126.65	0.00	0.35	2.17	0.85	1.00	0.63	85.81	0.00	0.00	6,572.0	0.0	1,503.90	0.00	1,503.90	3
2	30.00	6.40	6.67	135.93	0.00	0.33	2.22	0.85	1.00	0.63	90.71	0.00	0.00	7,473.6	0.0	1,443.59	0.00	1,443.59	3
1	10.00	6.40	6.67	143.06	0.00	0.31	2.27	0.85	1.00	0.62	94.26	0.00	0.00	9,007.0	0.0	1,533.24	0.00	1,533.24	3
														47,461.8	0.0			13,176.95	

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Tower Loading

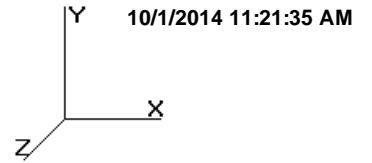
Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice CaAa (sf)	CaAa Factor	Weight (lb)	Ice CaAa (sf)	CaAa Factor	Distance From Face (ft)	X Angle (deg)	Vert Ecc (ft)
180.0	2-Bay Dipole	1	17.50	1.950	1.00	39.31	2.130	1.00	0.000	0.00	3.000
180.0	4-Bay Dipole	1	35.00	3.900	1.00	62.10	5.410	1.00	0.000	0.00	6.000
180.0	RFS PD455	2	24.00	6.020	1.00	67.70	8.200	1.00	0.000	0.00	10.750
180.0	Flat Side Arm	3	150.00	6.300	1.00	230.00	7.000	1.00	0.000	0.00	0.000
170.0	RFS DB-T1-6Z-8AB-0Z	1	44.00	5.600	1.00	61.37	3.470	1.00	0.000	0.00	0.000
170.0	Alcatel-Lucent RRH2x40-AWS	3	44.00	2.520	0.67	61.40	2.870	0.67	0.000	0.00	0.000
170.0	Andrew LNX-6514	3	38.80	8.410	0.82	89.31	9.240	0.82	0.000	0.00	0.000
170.0	Andrew HBX-6517DS	3	13.70	5.240	0.81	40.96	5.940	0.81	0.000	0.00	0.000
170.0	RFS FD9R6004/2C-3L	6	2.60	0.370	0.50	4.90	0.500	0.50	0.000	0.00	0.000
170.0	Antel BXA-70063/6CF	1	17.00	7.730	0.77	59.49	8.540	0.77	0.000	0.00	0.000
170.0	Antel BXA-70063/4CF	2	9.90	5.170	0.74	39.14	5.750	0.74	0.000	0.00	0.000
170.0	Antel BXA-171063/8BF	2	10.50	2.940	0.87	29.28	3.420	0.87	0.000	0.00	0.000
170.0	Antel BXA-171085/8BF	1	10.50	2.940	0.87	29.28	3.420	0.87	0.000	0.00	0.000
170.0	Flat Light Sector Frame	3	400.00	17.900	0.75	510.00	22.200	0.75	0.000	0.00	0.000
160.0	Andrew DB844H90E-XY	12	14.00	3.730	0.81	36.60	4.290	0.81	0.000	0.00	0.000
160.0	Flat Light Sector Frame	3	400.00	17.900	0.75	510.00	22.200	0.75	0.000	0.00	0.000
150.0	ALU 800 MHz 2X50W RRH w/	3	64.00	2.400	0.67	86.12	1.560	0.67	0.000	0.00	0.000
150.0	ALU 1900 MHz 4X45 RRH	3	60.00	2.710	0.67	83.13	1.750	0.67	0.000	0.00	0.000
150.0	ALU TD-RRH8X20	3	66.10	4.300	0.67	89.96	2.700	0.67	0.000	0.00	0.000
150.0	RFS APXVSP18-C-A20	3	57.00	8.260	0.82	106.52	9.080	0.82	0.000	0.00	0.000
150.0	RFS APXVTM14-C-I20	3	52.90	6.900	0.76	92.43	7.580	0.76	0.000	0.00	0.000
150.0	Flat Light Sector Frame	3	400.00	17.900	0.75	510.00	22.200	0.75	0.000	0.00	0.000
140.0	Raycap DC6-48-60-18-8F	1	18.90	1.470	1.00	36.62	1.670	1.00	0.000	0.00	0.000
140.0	Ericsson RRUS-11	6	55.00	4.420	0.67	80.77	2.770	0.67	0.000	0.00	0.000
140.0	KMW AM-X-CD-16-65-00T-	6	48.50	8.260	0.78	95.00	9.080	0.78	0.000	0.00	0.000
140.0	Powerwave LGP21901	6	5.50	0.230	0.50	7.70	0.190	0.50	0.000	0.00	0.000
140.0	Powerwave LGP21401	6	17.50	0.950	0.50	23.31	0.670	0.50	0.000	0.00	0.000
140.0	Powerwave 7770	6	35.00	5.880	0.75	67.63	6.530	0.75	0.000	0.00	0.000
140.0	Flat Light Sector Frame	3	400.00	17.900	0.75	510.00	22.200	0.75	0.000	0.00	0.000
130.0	RFS ATM1900D-1A20	3	8.40	0.850	0.50	13.69	0.600	0.50	0.000	0.00	0.000
130.0	EMS DR65-19-00DPQ	6	32.00	8.400	0.71	73.77	9.230	0.71	0.000	0.00	0.000
130.0	Flat Light Sector Frame	3	400.00	17.900	0.75	510.00	22.200	0.75	0.000	0.00	0.000
75.00	PCTEL GPS-TMG-HR-26N	1	0.60	0.160	1.00	2.37	0.140	1.00	0.000	0.00	0.000
75.00	Standoff	1	75.00	2.500	1.00	175.00	5.900	1.00	0.000	0.00	0.000
Totals		113	9316.60			13626.02			Number of Appurtenances : 34		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Wind	Spread On Faces	Bundling Arrangement
0.00	180.0	1" Conduit	1	1.30	1.68	100.00	2	Separate
0.00	180.0	1/2" Coax	1	0.63	0.15	100.00	2	Separate
0.00	180.0	2" Conduit	1	2.38	3.65	100.00	2	Separate
0.00	180.0	7/8" Coax	3	1.09	0.33	100.00	2	Separate
0.00	170.0	1 5/8" Coax	12	1.98	0.82	100.00	2	Separate
0.00	170.0	1 5/8" Fiber	1	1.63	1.61	100.00	2	Separate

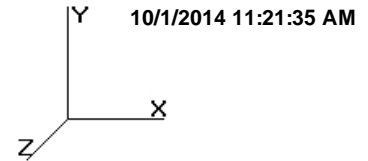
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Tower Loading

0.00	170.0	Waveguide	1	2.00	6.00	100.00	2	Separate
0.00	160.0	1 5/8" Coax	12	1.98	0.82	100.00	1	Separate
0.00	160.0	Waveguide	1	2.00	6.00	100.00	1	Separate
0.00	160.0	Waveguide	1	2.00	6.00	100.00	1	Separate
0.00	150.0	1 1/4" Hybriflex	1	1.54	1.00	100.00	2	Separate
0.00	150.0	1 1/4" Hybriflex	3	1.54	1.00	100.00	2	Separate
0.00	150.0	Waveguide	1	2.00	6.00	100.00	2	Separate
0.00	140.0	0.39" Fiber	1	0.39	0.07	100.00	3	Separate
0.00	140.0	0.76" 8 AWG 6	2	0.76	0.53	100.00	3	Separate
0.00	140.0	1 1/4" Coax	12	1.55	0.63	100.00	3	Separate
0.00	140.0	Waveguide	1	2.00	6.00	100.00	3	Separate
0.00	130.0	1 5/8" Coax	12	1.98	0.82	100.00	3	Separate
0.00	130.0	Waveguide	1	2.00	6.00	100.00	3	Separate
0.00	75.00	1/2" Coax	1	0.63	0.15	100.00	2	Separate

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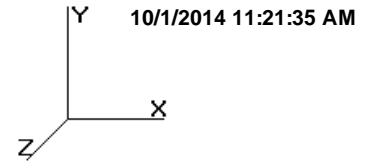


Force/Stress Summary

Section: 1		1		Bot Elev (ft): 0.00				Height (ft): 20.000							
		Force	Len	Bracing %			Fa	Member		Num	Shear	Bear	Use		
		(kip)	(ft)	X	Y	Z	(ksi)	Cap	Num	Holes	Cap	Cap	%	Controls	
		Load Case		KL/R				(kip)	Bolts		(kip)	(kip)			
Max Compression Member															
LEG	PX - 10" DIA PIPE	-412.11	10.03	100	100	100	33.1	35.7	574.34	0	0	0.00	0.00	71	Member X
HORIZ	PST - 3" DIA PIPE	-10.96	12.04	100	100	100	124.6	12.8	28.61	2	0	0.00	33.70	38	Member X
DIAG	PX - 3-1/2" DIA PIPE	-16.24	16.14	100	100	100	147.9	9.1	33.51	3	0	0.00	74.41	48	Member X
Max Tension Member															
		Force	Fy	Cap	Num	Num	Shear	Bear	Use						
		(kip)	(ksi)	(kip)	Bolts	Holes	Cap (kip)	Cap (kip)	%	Controls					
		Load Case													
LEG	PX - 10" DIA PIPE	355.66	50	643.98	0	0	0.00	0.00	55	Member					
HORIZ	PST - 3" DIA PIPE	12.66	50	89.20	2	0	0.00	27.38	46	Bolt Bear					
DIAG	PX - 3-1/2" DIA PIPE	15.98	50	147.20	3	0	0.00	65.11	24	Bolt Bear					
Max Splice Forces															
		Force	Capacity	Use	Num										
		(kip)	(kip)	%	Bolts	Bolt Type									
		Load Case													
	Top Tension	337.52	0.00	0											
	Top Compression	390.59	0.00	0											
	Bot Tension	372.70	785.47	47	16	1" A354-BC									
	Bot Compression	431.07	0.00	0											

Section: 2		2		Bot Elev (ft): 20.00				Height (ft): 20.000							
		Force	Len	Bracing %			Fa	Member		Num	Shear	Bear	Use		
		(kip)	(ft)	X	Y	Z	(ksi)	Cap	Num	Holes	Cap	Cap	%	Controls	
		Load Case		KL/R				(kip)	Bolts		(kip)	(kip)			
Max Compression Member															
LEG	PX - 10" DIA PIPE	-371.52	10.03	100	100	100	33.1	35.7	574.34	0	0	0.00	0.00	64	Member X
HORIZ	PST - 2-1/2" DIA PIP	-11.41	10.79	100	100	100	136.7	10.6	18.14	2	0	0.00	26.39	62	Member X
DIAG	PST - 3" DIA PIPE	-16.92	15.18	100	100	100	157.0	8.1	18.00	3	0	0.00	42.12	93	Member X
Max Tension Member															
		Force	Fy	Cap	Num	Num	Shear	Bear	Use						
		(kip)	(ksi)	(kip)	Bolts	Holes	Cap (kip)	Cap (kip)	%	Controls					
		Load Case													
LEG	PX - 10" DIA PIPE	322.13	50	643.98	0	0	0.00	0.00	50	Member					
HORIZ	PST - 2-1/2" DIA PIP	12.02	50	68.16	2	0	0.00	21.44	56	Bolt Bear					
DIAG	PST - 3" DIA PIPE	15.53	50	89.20	3	0	0.00	36.85	42	Bolt Bear					
Max Splice Forces															
		Force	Capacity	Use	Num										
		(kip)	(kip)	%	Bolts	Bolt Type									
		Load Case													
	Top Tension	303.37	0.00	0											
	Top Compression	348.92	0.00	0											
	Bot Tension	337.52	552.95	61	12	1 A325									
	Bot Compression	390.59	0.00	0											

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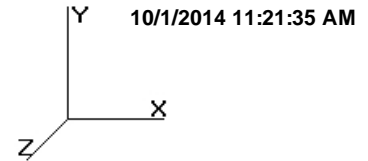


Force/Stress Summary

Section: 3 3		Bot Elev (ft): 40.00		Height (ft): 20.000								Shear Cap Bear Cap		Use % Controls	
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	PX - 8" DIA PIPE	-329.45	Normal Ice	10.03	100	100	100	41.8	34.1	436.53	0	0	0.00	0.00	75 Member X
HORIZ	PST - 2-1/2" DIA PIP	-10.51	90 deg Ice	9.503	100	100	100	120.4	13.7	23.40	2	0	0.00	26.39	44 Member X
DIAG	PST - 3" DIA PIPE	-16.28	90 deg Ice	14.26	100	100	100	147.6	9.1	20.39	3	0	0.00	42.12	79 Member X
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
LEG	PX - 8" DIA PIPE	287.36	60 deg Ice	50	511.99	0	0	0.00	0.00	56	Member				
HORIZ	PST - 2-1/2" DIA PIP	10.81	90 deg Ice	50	68.16	2	0	0.00	21.44	50	Bolt Bear				
DIAG	PST - 3" DIA PIPE	15.35	90 deg Ice	50	89.20	3	0	0.00	36.85	41	Bolt Bear				
Max Splice Forces		Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type								
Top Tension		267.88	60 deg Ice	0.00	0										
Top Compression		306.55	Normal Ice	0.00	0										
Bot Tension		303.37	60 deg Ice	552.95	55	12	1 A325								
Bot Compression		348.92	Normal Ice	0.00	0										

Section: 4 4		Bot Elev (ft): 60.00		Height (ft): 20.000								Shear Cap Bear Cap		Use % Controls	
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	PX - 8" DIA PIPE	-283.88	Normal Ice	10.03	100	100	100	41.8	34.1	436.56	0	0	0.00	0.00	65 Member X
HORIZ	PST - 2" DIA PIPE	-10.59	90 deg Ice	8.214	100	100	100	125.2	12.7	13.58	2	0	0.00	20.15	77 Member X
DIAG	PST - 3" DIA PIPE	-17.52	90 deg Ice	13.35	100	100	100	138.1	10.4	23.28	3	0	0.00	42.12	75 Member X
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
LEG	PX - 8" DIA PIPE	248.48	60 deg Ice	50	511.99	0	0	0.00	0.00	48	Member				
HORIZ	PST - 2" DIA PIPE	10.79	90 deg Ice	50	42.80	2	0	0.00	16.37	65	Bolt Bear				
DIAG	PST - 3" DIA PIPE	16.78	90 deg Ice	50	89.20	3	0	0.00	36.85	45	Bolt Bear				
Max Splice Forces		Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type								
Top Tension		225.89	60 deg Ice	0.00	0										
Top Compression		258.00	Normal Ice	0.00	0										
Bot Tension		267.88	60 deg Ice	368.63	73	8	1 A325								
Bot Compression		306.55	Normal Ice	0.00	0										

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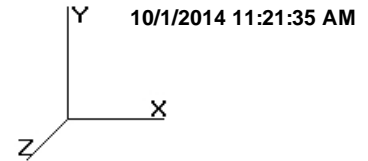


Force/Stress Summary

Section: 5		5	Bot Elev (ft): 80.00				Height (ft): 20.000								
		Force	Len	Bracing %			Fa	Member		Num	Shear	Bear	Use		
Max Compression Member		(kip)	(ft)	X	Y	Z	(ksi)	Cap (kip)	Num Bolts	Holes	Cap (kip)	Cap (kip)	%	Controls	
	Load Case														
LEG	PSP - ROHN 8 EHS	-230.94	10.02	100	100	100	41.2	34.2	332.61	0	0	0.00	0.00	69	Member X
HORIZ	PST - 2" DIA PIPE	-10.92	7.026	100	100	100	107.1	17.3	18.56	2	0	0.00	20.15	58	Member X
DIAG	PST - 3" DIA PIPE	-19.62	12.55	100	100	100	129.9	11.8	26.31	3	0	0.00	42.12	74	Member X
Max Tension Member		Force (kip)		Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
	Load Case														
LEG	PSP - ROHN 8 EHS	198.60		50	388.79	0	0	0.00	0.00	51	Member				
HORIZ	PST - 2" DIA PIPE	11.00		50	42.80	2	0	0.00	16.37	67	Bolt Bear				
DIAG	PST - 3" DIA PIPE	19.00		50	89.20	3	0	0.00	36.85	51	Bolt Bear				
Max Splice Forces		Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type								
Top Tension		174.78	60 deg Ice	0.00	0										
Top Compression		200.96	Normal Ice	0.00	0										
Bot Tension		225.89	60 deg Ice	368.63	61	8	1 A325								
Bot Compression		258.00	Normal Ice	0.00	0										

Section: 6		6	Bot Elev (ft): 100.0				Height (ft): 20.000								
		Force	Len	Bracing %			Fa	Member		Num	Shear	Bear	Use		
Max Compression Member		(kip)	(ft)	X	Y	Z	(ksi)	Cap (kip)	Num Bolts	Holes	Cap (kip)	Cap (kip)	%	Controls	
	Load Case														
LEG	PSP - ROHN 6 EHS	-181.50	6.68	100	100	100	36.0	35.2	235.98	0	0	0.00	0.00	76	Member X
HORIZ	PST - 2" DIA PIPE	-10.24	6.108	100	100	100	93.1	21.7	23.19	2	0	0.00	20.15	50	Bolt Bear
DIAG	PST - 2-1/2" DIA PIP	-15.79	9.288	100	100	100	117.7	14.4	24.49	3	0	0.00	39.58	64	Member X
Max Tension Member		Force (kip)		Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
	Load Case														
LEG	PSP - ROHN 6 EHS	157.35		50	268.39	0	0	0.00	0.00	58	Member				
HORIZ	PST - 2" DIA PIPE	10.37		50	42.80	2	0	0.00	16.37	63	Bolt Bear				
DIAG	PST - 2-1/2" DIA PIP	15.30		50	68.16	3	0	0.00	34.64	44	Bolt Bear				
Max Splice Forces		Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type								
Top Tension		119.50	60 deg No Ice	0.00	0										
Top Compression		138.46	Normal Ice	0.00	0										
Bot Tension		174.78	60 deg Ice	368.63	47	8	1 A325								
Bot Compression		200.96	Normal Ice	0.00	0										

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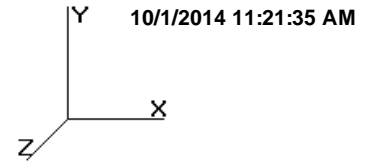


Force/Stress Summary

Section: 7		7		Bot Elev (ft): 120.0	Height (ft): 20.000											
		Force		Len	Bracing %			Fa	Member		Num	Shear	Bear	Use		
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Num Bolts	Holes	(kip)	(kip)	%	Controls
LEG	PSP - ROHN 5 EH	-117.33	Normal Ice	6.68	100	100	100	43.6	33.8	206.29	0	0	0.00	0.00	56	Member X
HORIZ	PST - 1-1/2" DIA PIP	-9.42	90 deg Ice	5.049	100	100	100	97.2	20.4	16.34	2	0	0.00	18.85	57	Member X
DIAG	PX - 2" DIA PIPE	-16.00	90 deg Ice	8.579	100	100	100	134.4	11.0	16.31	3	0	0.00	42.51	98	Member X
Max Tension Member		(kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls					
LEG	PSP - ROHN 5 EH	100.31	60 deg No Ice	50	244.39	0	0	0.00	0.00	41	Member					
HORIZ	PST - 1-1/2" DIA PIP	9.52	90 deg Ice	50	31.96	2	0	0.00	15.32	62	Bolt Bear					
DIAG	PX - 2" DIA PIPE	15.54	90 deg Ice	50	59.20	3	0	0.00	37.20	41	Bolt Bear					
Max Splice Forces		Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type									
Top Tension		60.82	60 deg No Ice	0.00	0											
Top Compression		73.89	Normal Ice	0.00	0											
Bot Tension		119.50	60 deg No Ice	276.47	43	6	1 A325									
Bot Compression		138.46	Normal Ice	0.00	0											

Section: 8		8		Bot Elev (ft): 140.0	Height (ft): 20.000											
		Force		Len	Bracing %			Fa	Member		Num	Shear	Bear	Use		
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Num Bolts	Holes	(kip)	(kip)	%	Controls
LEG	PX - 4" DIA PIPE	-51.42	Normal Ice	6.67	100	100	100	54.1	31.6	139.39	0	0	0.00	0.00	36	Member X
HORIZ	PST - 1-1/2" DIA PIP	-7.49	90 deg No Ice	4.340	100	100	100	83.6	24.4	19.48	2	0	0.00	18.85	39	Bolt Bear
DIAG	PX - 2" DIA PIPE	-14.77	90 deg Ice	7.963	100	100	100	124.7	12.8	18.94	3	0	0.00	42.51	78	Member X
Max Tension Member		(kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls					
LEG	PX - 4" DIA PIPE	41.66	60 deg No Ice	50	176.40	0	0	0.00	0.00	23	Member					
HORIZ	PST - 1-1/2" DIA PIP	7.57	90 deg No Ice	50	31.96	2	0	0.00	15.32	49	Bolt Bear					
DIAG	PX - 2" DIA PIPE	14.24	90 deg No Ice	50	59.20	3	0	0.00	37.20	38	Bolt Bear					
Max Splice Forces		Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type									
Top Tension		13.47	60 deg No Ice	0.00	0											
Top Compression		19.40	Normal Ice	0.00	0											
Bot Tension		60.82	60 deg No Ice	184.32	33	4	1 A325									
Bot Compression		73.89	Normal Ice	0.00	0											

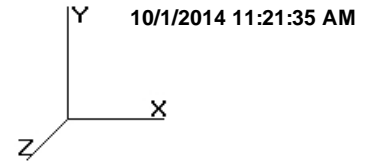
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Force/Stress Summary

Section: 9		9		Bot Elev (ft): 160.0	Height (ft): 20.000										
Max Compression Member		Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	PST - 3" DIA PIPE	-9.37	Normal Ice	6.67	100	100	100	69.0	28.2	62.82	0	0	0.00	0.00	14 Member X
HORIZ	PST - 1-1/2" DIA PIP	-3.41	Normal No Ice	4.299	100	100	100	82.8	24.6	19.65	2	0	0.00	18.85	18 Bolt Bear
DIAG	PST - 2" DIA PIPE	-6.38	90 deg No Ice	7.940	100	100	100	121.1	13.6	14.53	3	0	0.00	30.22	43 Member X
Max Tension Member		Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls				
LEG	PST - 3" DIA PIPE	4.93	60 deg No Ice	50	89.20	0	0	0.00	0.00	5	Member				
HORIZ	PST - 1-1/2" DIA PIP	3.39	60 deg No Ice	50	31.96	2	0	0.00	15.32	22	Bolt Bear				
DIAG	PST - 2" DIA PIPE	6.28	90 deg No Ice	50	42.80	3	0	0.00	26.45	23	Bolt Bear				
Max Splice Forces		Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type								
Top Tension		0.00		0.00	0										
Top Compression		0.44	Normal Ice	0.00	0										
Bot Tension		13.47	60 deg No Ice	141.12	10	4	7/8 A325								
Bot Compression		19.40	Normal Ice	0.00	0										

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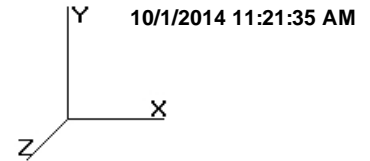


Support Forces Summary

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
90 deg	1b	-7.00	-62.33	-3.13	
	1a	-10.38	100.18	5.09	
	1	-1.57	18.93	-1.96	
60 deg	1b	-7.87	-74.75	-4.54	
	1a	-7.15	65.70	2.57	
	1	-1.35	65.83	-7.48	
Normal	1b	-2.44	-28.37	-3.00	
	1a	2.44	-28.37	-3.00	
	1	0.00	113.52	-13.11	
90 deg Ice	1b	-35.22	-316.58	-16.41	
	1a	-38.66	373.74	18.59	
	1	-6.63	28.58	-2.19	
60 deg Ice	1b	-38.96	-369.60	-22.49	
	1a	-25.00	227.40	7.93	
	1	-5.64	227.93	-25.63	
Normal Ice	1b	-15.70	-171.88	-15.82	
	1a	15.70	-171.88	-15.82	
	1	0.00	429.50	-49.27	
90 deg No Ice	1b	-33.25	-306.43	-15.47	
	1a	-36.36	344.29	17.45	
	1	-6.29	18.93	-1.98	
60 deg No Ice	1b	-36.72	-356.15	-21.19	
	1a	-23.48	206.20	7.38	
	1	-5.35	206.72	-24.04	
Normal No Ice	1b	-14.88	-170.46	-15.02	
	1a	14.88	-170.46	-15.02	
	1	0.00	397.69	-46.45	

Max Uplift:	369.60 (kip)	Moment:	8,309.81 (ft-kip)	Normal No Ice
Max Down:	429.50 (kip)	Total Down:	56.78 (kip)	
Max Shear:	49.27 (kip)	Total Shear:	76.48 (kip)	

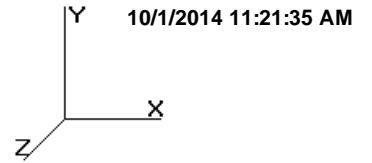
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Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
100.00 mph Wind at 60 deg From Face with No Ice	70.00	0.1591	0.0173	0.2594
	126.67	0.5516	0.0420	0.5633
	140.00	0.6897	0.0498	0.6220
	146.67	0.7631	0.0559	0.6419
	160.00	0.9148	0.0681	0.6657
	166.67	0.9918	0.0875	0.6437
	180.00	1.1431	0.1231	0.5897
100.00 mph Wind at 90 deg From Face with No Ice	70.00	0.1595	0.0082	0.2600
	126.67	0.5523	0.0178	0.5631
	140.00	0.6907	0.0199	0.6222
	146.67	0.7638	0.0206	0.6402
	160.00	0.9152	0.0221	0.6673
	166.67	0.9921	0.0244	0.6256
	180.00	1.1425	0.0288	0.1838
100.00 mph Wind Normal To Face with No Ice	70.00	0.1607	0.0126	0.2618
	126.67	0.5570	0.0245	0.5692
	140.00	0.6969	0.0257	0.6289
	146.67	0.7710	0.0244	0.6505
	160.00	0.9248	0.0218	0.6699
	166.67	1.0032	0.0176	0.7000
	180.00	1.1580	0.0101	1.1320
50.00 mph Wind at 60 deg From Face with No Ice	70.00	0.0398	0.0036	0.0647
	126.67	0.1377	0.0077	0.1407
	140.00	0.1723	0.0086	0.1551
	146.67	0.1906	0.0090	0.1601
	160.00	0.2284	0.0097	0.1662
	166.67	0.2477	0.0108	0.1606
	180.00	0.2854	0.0130	0.1464
50.00 mph Wind at 90 deg From Face with No Ice	70.00	0.0398	0.0020	0.0649
	126.67	0.1379	0.0044	0.1406
	140.00	0.1725	0.0049	0.1554
	146.67	0.1907	0.0051	0.1600
	160.00	0.2285	0.0055	0.1666
	166.67	0.2477	0.0060	0.1562
	180.00	0.2852	0.0071	0.0458
50.00 mph Wind Normal To Face with No Ice	70.00	0.0401	0.0031	0.0654
	126.67	0.1391	0.0061	0.1421
	140.00	0.1740	0.0064	0.1571
	146.67	0.1925	0.0060	0.1626
	160.00	0.2309	0.0054	0.1673
	166.67	0.2505	0.0043	0.1748
	180.00	0.2891	0.0023	0.2828
86.60 mph Wind at 60 deg From Face with Ice	70.00	0.1713	0.0182	0.2760
	126.67	0.5832	0.0431	0.5849
	140.00	0.7257	0.0509	0.6418
	146.67	0.8018	0.0572	0.6635
	160.00	0.9583	0.0700	0.6845

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	166.67	1.0375	0.0903	0.6628
	180.00	1.1934	0.1276	0.6063
86.60 mph Wind at 90 deg From Face with Ice	70.00	0.1713	0.0087	0.2765
	126.67	0.5833	0.0181	0.5844
	140.00	0.7260	0.0200	0.6416
	146.67	0.8019	0.0207	0.6619
	160.00	0.9581	0.0223	0.6857
	166.67	1.0371	0.0246	0.6441
	180.00	1.1921	0.0290	0.1954
86.60 mph Wind Normal To Face with Ice	70.00	0.1717	0.0133	0.2778
	126.67	0.5869	0.0249	0.5897
	140.00	0.7312	0.0257	0.6479
	146.67	0.8077	0.0244	0.6714
	160.00	0.9660	0.0217	0.6877
	166.67	1.0465	0.0175	0.7189
	180.00	1.2057	0.0098	1.1586
		0.0000	0.0000	0.0000