STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

December 28, 2012

David Weisman
Vertical Development LLC
7 Sycamore Way, Unit 1
Branford, CT 06405

RE: **EM-SPRINT-NEXTEL-076-121213 –** Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 864 Opening Hill Road, Madison, Connecticut.

Dear Mr. Weisman:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not more than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated December 12, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding

the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Fillmore McPherson, First Selectman, Town of Madison
Christine Poutot, Chm., Planning & Zoning Administrator, Town of Madison

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
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www.ct.gov/csc

December 13, 2012

The Honorable Fillmore McPherson
First Selectman
Town of Madison
8 Campus Drive
Madison, CT 06443-2563

RE: **EM-SPRINT-NEXTEL-076-121213** – Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 864 Opening Hill Road, Madison, Connecticut.

Dear First Selectman McPherson:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72, a copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by December 27, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/cm

c: Christine Poutot, Chm., Planning & Zoning Administrator, Town of Madison

infinigy
engineering & surveying

ORIGINAL

2255 Sewell Mill Road, Suite 130
Marietta, Georgia 30062
Phone: (678) 444-4463
Fax: (678) 444-4472
www.infinigy.com

December 12, 2012

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

RECEIVED
DEC 13 2012
CONNECTICUT
SITING COUNCIL

Re: 864 Opening Hill Road, Madison, CT

Dear Ms. Roberts,

On behalf of Sprint Nextel Corporation ("Sprint"), enclosed for filing are an original and five (5) 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: David Weisman

Name: David Weisman
Vertical Development LLC, an authorized representative of Sprint Nextel
Vertical Development LLC
7 Sycamore Way, Unit 1
Branford, CT 06405
Phone – 401-743-9011
Fax – 401-633-6202
DWeisman@verticaldevelopmentllc.com

CC: Fillmore McPherson, First Selectman
Town of Madison
Town Hall
8 Campus Drive
Madison, CT 06443

Notice of Exempt Modification
864 Opening Hill Road, Madison, CT

Sprint Nextel 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 (1123-1245 Durham Road) in the Town of Madison. More particularly, Sprint plans to upgrade this site by adding 4G LTE technology to its facilities. The proposed modifications will not increase the tower height, extend the boundaries of the tower site or increase noise levels at the tower site boundary by six (6) decibels, and will probably 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 State Department of Environmental Protection pursuant to Connecticut General Statutes § 22a-162.

To better meet the growing voice and data demands of its wireless customers, Sprint is upgrading their network nationwide to include 4G technology, which will provide faster service and better overall performance. Pursuant to the 4G upgrade at this site, Sprint will add antennas, install RRHs and notch filters, and install related equipment to its equipment area within the fenced compound at the base of the tower.

The 180' self-support tower located at 864 Opening Hill Road (1123-1245 Durham Road) in the Town of Madison (lat. 41° 21' 26.34", long. 72° 38' 19.54") is owned by Cell Tower Lease Acquisition LLC. It is in an approximately 5,000+ square foot compound. Sprint currently has six (6) antennas (two (2) 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 add three (3) RFS APXVSPP18-C-A20 antennas (one (1) per sector), all with a centerline of 150'. Connected to each new antenna will be one (1)

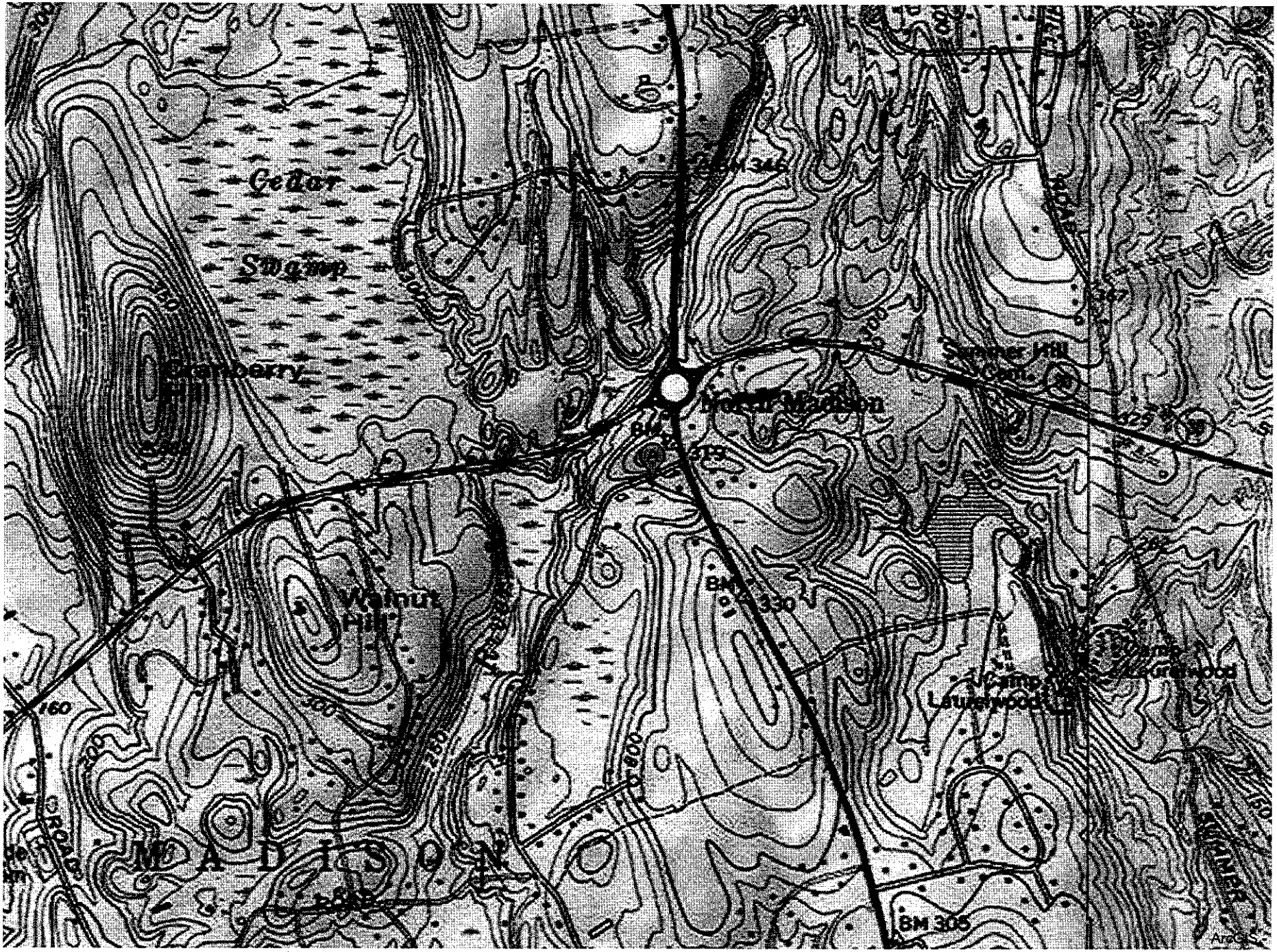
ALU 800 MHz RRH with one (1) ALU 800 MHz notch filter attached to it and one (1) ALU 1900 MHz RRH, which will be located behind the antenna. After the new antennas have been tested and are deployed on-air, the six (6) previously existing antennas will be removed. The height of the self-support tower will not need to be increased. Sprint also plans to install a new fiber junction box and a new Ciena equipment enclosure into their equipment space within the tower compound's border, and to replace the existing BTS cabinet. The compound's boundaries will not need to be extended. Other than brief, construction-related noise, these modifications will not increase noise levels at the tower site boundary by six (6) decibels.

Sprint commissioned Centek Engineering to perform a structural analysis of the tower to verify that it can support Sprint's proposed loading. The analysis concluded that "[T]he subject tower is adequate to support the proposed modified antenna configuration" (see the eighth page of Structural Analysis Report, November 12, 2012). The tower passed at 78.9% (see the seventh page of Structural Analysis Report, November 12, 2012). The foundation and anchors passed at 42.1% (see the eighth page of Structural Analysis Report, November 12, 2012).

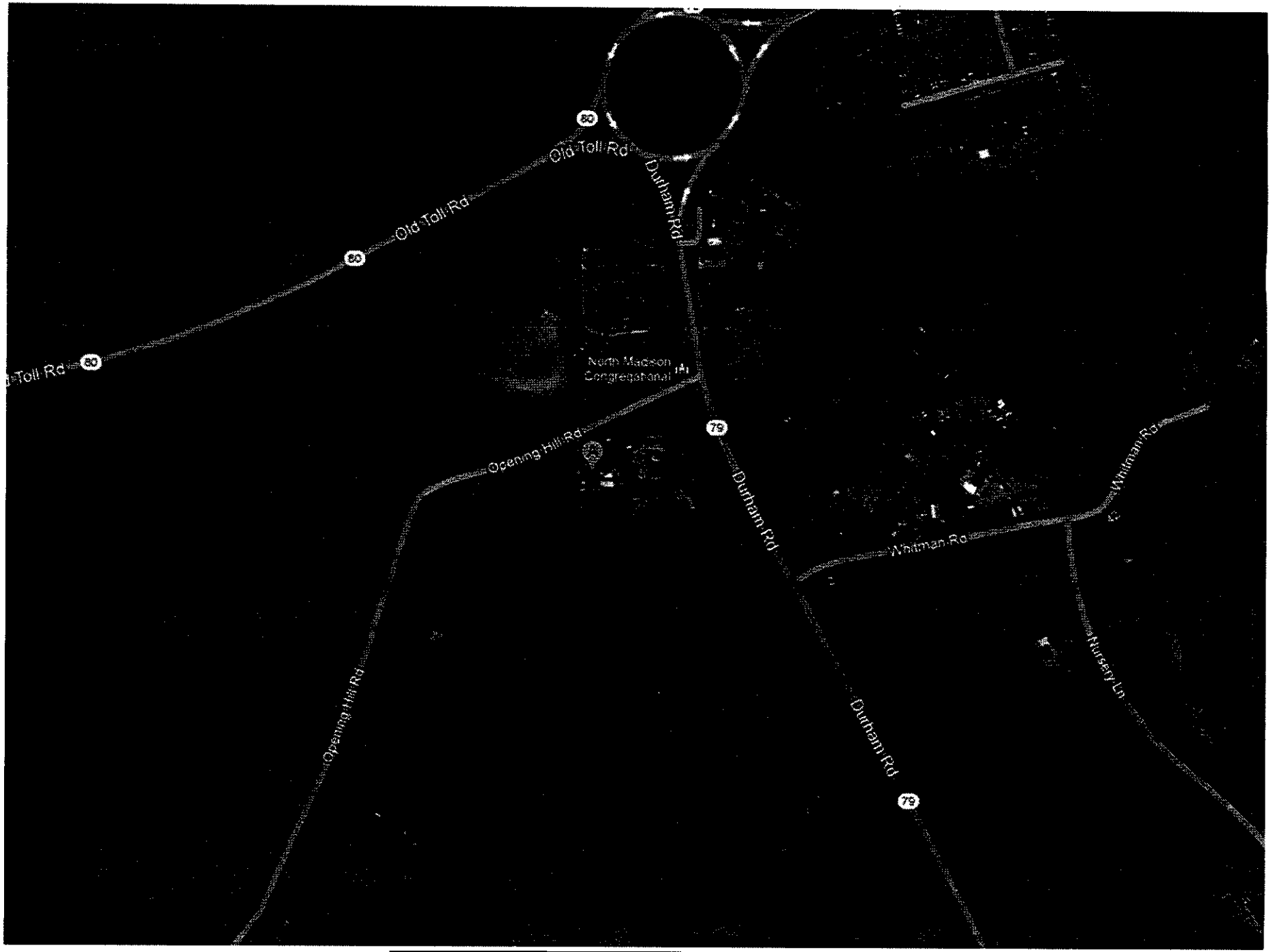
The proposed modifications will probably not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to Connecticut General Statutes § 22a-162. A radio frequency emissions analysis prepared by EBI Consulting indicates that the proposed final configuration for Sprint's equipment will emit 10.731% of the allowable FCC established general public limit sampled at the ground level (see the 5th page of Radio Frequency Emissions Analysis Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, August 21, 2012). Emission values for the Sprint antennas have been calculated from the sample point, which is the top of a six foot person standing at the base of the tower. Emissions values for additional carriers were based upon values listed in Connecticut Siting Council active database (see the 3rd and 4th page of Radio Frequency Emissions Analysis Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, August 21, 2012). However, it appears there were no reported emissions values from the other carriers in the

referenced database. But, since Sprint's antennas will emit only 10.731% of the allowable FCC established general public limit sampled at the ground level, the modifications will probably not increase the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to Connecticut General Statutes § 22a-162. 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 97-01and ANSI/IEEE Std C95.1 (see the second page of Radio Frequency Emissions Analysis Report - Evaluation of Human Exposure Potential to Non-Ionizing Emissions, August 21, 2012).

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 increase the noise levels at the site, and will probably not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards. Therefore, Sprint respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council's exemption criteria.



864 Opening Hill Road, Madison, CT



864 Opening Hill Road, Madison, CT

EBI Consulting
environmental | engineering | due diligence

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

Sprint Existing Facility

Site ID: CT03XC164

N. Madison / Volunteer Fire Dept.
1123-1245 Durham Road
Madison, CT 06443

August 21, 2012

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

EBI Consulting

environmental | engineering | due diligence

August 21, 2012

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

Re: Emissions Values for Site **CT03XC164 – N. Madison . Volunteer Fire Dept.**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 1123-1245 Durham Road, Madison, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 1123-1245 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 the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

1) 2 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
3) 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.
4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
5) The antenna used in this modeling is the RFS APXVSPP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna 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. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

6) The antenna mounting height centerline of the proposed antennas is **150.4 feet** above ground level (AGL)
7) 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 / Vol. Fire Dept
Site Addresss	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 in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	150.4	144.4	1/2 "	0.5	0	1386.9474	23.91286	2.39129%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	150.4	144.4	1/2 "	0.5	0	389.96892	6.723596	1.18582%
														Sector total Power Density Value:		3.577%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	150.4	144.4	1/2 "	0.5	0	1386.9474	23.91286	2.39129%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	150.4	144.4	1/2 "	0.5	0	389.96892	6.723596	1.18582%
														Sector total Power Density Value:		3.577%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	150.4	144.4	1/2 "	0.5	0	1386.9474	23.91286	2.39129%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	150.4	144.4	1/2 "	0.5	0	389.96892	6.723596	1.18582%
														Sector total Power Density Value:		3.577%	

Site Composite MPE %	
Carrier	MPE %
Sprint	10.731%
Total Site MPE %	10.731%

Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **10.731% (3.577% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **10.731%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

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

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

180' Existing Rohn Lattice Tower

Proposed Sprint
Antenna Upgrade

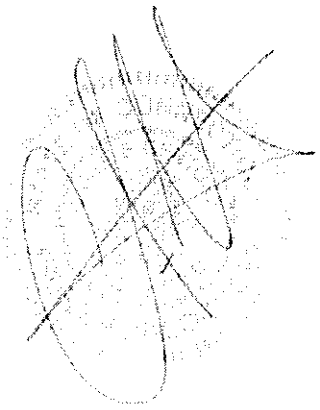
Sprint Site Ref: CT03XC164

GTP Site Ref: CT-9014

864 Opening Hill Road
Madison, CT

Centek Project No. 12126

Date: November 12, 2012



Prepared for:

Global Tower Partners
750 Park of Commerce Blvd, Suite 300
Boca Raton, FL 33487

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna installation/modification proposed by Sprint on the existing lattice tower located in Madison, Connecticut.

The host tower is a 180-ft, three legged, lattice tower originally manufactured by ROHN eng. file no. 35130AE dated 11/30/98. The tower geometry, structure member sizes and foundation information were taken from a previous structural report prepared by Centek Engineering job no. 11001.CO51 dated February 27, 2012.

Antenna and appurtenance inventory were taken from the aforementioned Centek structural report, and a Sprint collocation application.

The tower consists of nine (9) vertical sections consisting of steel pipe legs conforming to ASTM A572 Gr. 50 and lateral bracing conforming to ASTM A572 Gr. 50. The vertical tower sections are connected by bolted flange plates with the diagonal and horizontal bracing to pipe legs consisting of bolted connections. The width of the tower face is 8-ft 6-in at the top and 25-ft 4-in at the bottom.

Sprint proposes the installation of (3) panel antennas, six (6) Remote Radio Heads (RRH's) and three (3) notch filters mounted to the existing three boom gates. Refer to the Antenna and Appurtenance Summary below for a detailed description of the proposed antenna and appurtenance configuration.

Antenna and Appurtenance Summary

The existing tower supports several communication antennas. The existing and proposed loads considered in the analysis consist of the following:

- Town (Existing):
  Antenna: One (1) PD455 Omni-directional whip antenna, one (1) 4-bay dual dipole antenna and one (1) 2-bay dual dipole antenna mounted to the top of the tower on two (2) 6-ft side arms.
  Coax Cable: Two (2) 7/8" ∅ coax cables, one (1) 1/2" ∅ coax cable, one (1) 2" rigid conduit and one (1) 1" rigid conduit running on a leg/face of the existing tower as specified in Section 3 of this report.
- Town (Reserved):
  Antenna: One (1) PD455 Omni-directional whip antenna mounted to the top of the tower on one (1) 6-ft side arm.
  Coax Cable: One (1) 7/8" ∅ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing):
  Antennas: Two (2) Antel LPA-80080/6CF panel antennas, two (2) RFS APL868013-42T0 panel antennas, two (2) RFS APL866513-42T0 panel antennas, one (1) Antel BXA-171085/8BF panel antenna, two (2) Antel BXA-171063/8BF panel antennas, two (2) Antel BXA-70063/4CF panel antennas, one (1) Antel BXA-70063/6CF panel antennas and six (6) RFS FD9R6004/2C-3L Diplexers mounted on three (3) 15-ft boom gates with a RAD center elevation of ±170-ft above grade level
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.

- Nextel (Existing):
  Antenna: Twelve (12) Andrew DB844H90E-XY panel antennas mounted on three (3) 15-ft boom gates with a RAD center elevation of ±160-ft above grade level.
  Coax Cable: Twelve (12) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing):
  Antenna: Six (6) Powerwave 7770 panel antennas, six (6) Powerwave LGP21401 TMA's and six (6) Powerwave LGP21901 Diplexers mounted on three (3) 15-ft boom gates with a RAD center elevation of ±140-ft above grade level.
  Coax Cable: Twelve (12) 1-1/4" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- T-Mobile (Existing):
  Antenna: Three (3) EMS 72"x12"x4" panel antennas and six (6) 10"x8"x3" TMA's mounted on three (3) 15-ft T-Frames with a RAD center elevation of ±130-ft above grade level.
  Coax Cable: Six (6) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- T-Mobile (Reserved):
  Antenna: Three (3) EMS 72"x12"x4" panel antennas mounted on three (3) 15-ft T-Frames with a RAD center elevation of ±130-ft above grade level.
  Coax Cable: Six (6) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- Sprint (Existing):
  Antenna: One (1) GPS antenna on a 2-ft standoff with an elevation of ±75-ft above grade level.
  Coax Cable: One (1) 1/2" ∅ coax cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- Sprint (Existing):
  Antenna: Six (6) Andrew DB980H90E-M panel antennas mounted on three (3) 15-ft boom gates with a RAD center elevation of ±150-ft above grade level.
  Coax Cable: Six (6) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- **SPRINT (PROPOSED):**
  Antennas: Three (3) RFS APXVSPP18-C-A20 panel antennas, three (3) ALU 1900 MHz RRH's, three (3) ALU 800 MHz RRH's and three (3) 800 MHz notch filters mounted on three (3) 15-ft boom gates with a RAD center elevation of ±150-ft above grade level.
  Coax Cables: Three (3) 1-1/4" ∅ Hybriflex cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- **SPRINT (PROPOSED):**
  Antenna: One (1) GPS antenna on a 2-ft standoff with an elevation of ±75-ft above grade level.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables should be routed as specified in section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled RISATower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower shaft, and the model assumes that the shaft members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (fastest mile) with no ice and a 75% reduction of wind force with ½ inch accumulative ice to determine stresses in members as per guidelines of TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix K of the CSBC[1] and the wind speed data available in the TIA/EIA-222-F-96 Standard. The higher of the two wind speeds is utilized in preparation on the tower analysis.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice on the tower structure and its components.

Basic Wind Speed:	New Haven; v = 85 mph (fastest mile)	*[Section 16 of TIA/EIA-222-F-96]*
	Madison; v = 115 mph (3 second gust) equivalent to v = 95 mph (fastest mile)	*[Appendix K of the 2005 CT Building Code Supplement]*
	Appendix K wind speed controls.	
Load Cases:	Load Case 1; 95 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Section 2.3.16 of TIA/EIA-222-F-96]*
	Load Case 2; 82 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses. The 82 mph wind speed velocity represents 75% of the wind pressure generated by the 95 mph wind speed.	*[Section 2.3.16 of TIA/EIA-222-F-96]*
	Load Case 3; Seismic – not checked	*[Section 1614.5 of State Bldg. Code 2005] does not control in the design of this structure type*

[1] The 2005 Connecticut State Building Code as amended by the 2009 CT State Supplement. (CSBC)

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software RISATower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

- Calculated stresses were found to be within allowable limits. In Load Case 2, per RISATower "Section Capacity Table", this tower was found to be at **78.9%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Diagonal (T3)	120'-0"-140'-0"	78.9%	**PASS**
Horizontal (T9)	0'-0"-20'-0"	71.8%	**PASS**
Leg (T6)	60'-0"-80'-0"	71.7%	**PASS**

Foundation and Anchors

The existing foundation consists of a three (3) 6-ft ∅ x 25-ft long reinforced concrete caissons concentrically bearing on existing sub grade. The sub grade conditions used in the foundation analysis were derived from the aforementioned MEI structural analysis report. The base of the tower is connected to the foundation by means of (16) 1.00"∅, ASTM A354 Gr. BC anchor bolts per leg embedded into the concrete foundation structure.

Review of the foundation and anchor design consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The tower reactions developed from the governing Load Case 2 were used in the verification of the foundation:

Reactions	Vector	Proposed Base Reactions
Base	Shear	**67 kips**
	Compression	**72 kips**
	Moment	**7019 kip-ft**
Leg	Shear	**41 kips**
	Uplift	**295 kips**
	Compression	**341 kips**

- The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	41.1%	**PASS**

- The foundation was found to be within allowable limits.

Foundation	Design Limit	IBC 2003/2005 CT State Building Code Section 3108.4.2 (FS)[1]	Proposed Loading (FS)[1]	Result
Reinforced Concrete Caisson (3)	Uplift	2.0	2.88	**PASS**

Note 1: FS denotes Factor of Safety

Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by Sprint and GTP. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Carlo F. Centore, PE
Principal ~ Structural Engineer

Prepared by:

Timothy J. Lynn, EIT
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

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

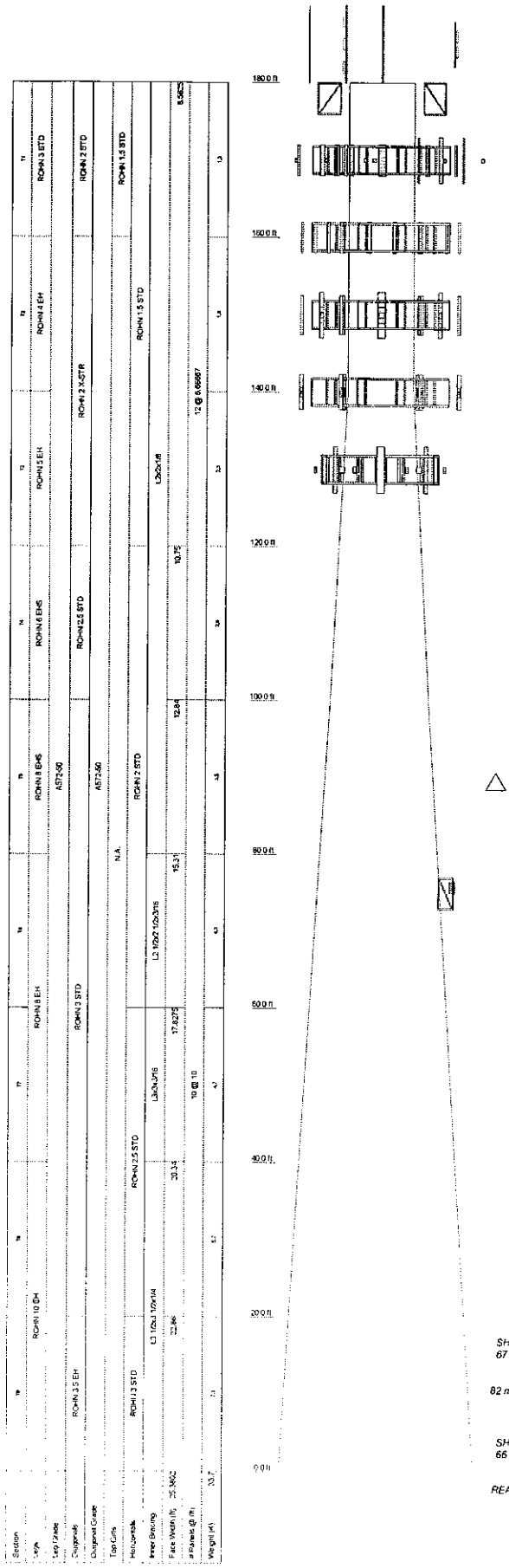
- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, 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 are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. 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. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

RISATower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, RISATower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

RISATower Features:

- RISATower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- RISATower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PD455 (Town Existing)	180	FD-RRH 2x50 800 (Sprint Proposed)	150
DB408 (Town Existing)	180	FD-RRH 2x50 800 (Sprint Proposed)	150
PD455 (Town Reserved)	180	FD-RRH 2x50 800 (Sprint Proposed)	150
DB404 (Town Existing)	180	FD-RRH 4x40 1900 (Sprint Proposed)	150
ROHN 8-ft Side Arm (Town Existing)	178	FD-RRH 4x40 1900 (Sprint Proposed)	150
ROHN 8-ft Side Arm (Town Existing)	178	FD-RRH 4x40 1900 (Sprint Proposed)	150
ROHN 8-ft Side Arm (Town Reserved)	178	Notch Filter (Sprint Proposed)	150
ROHN 6'x15' Boom Gate (1) (Verizon Existing)	170	Notch Filter (Sprint Proposed)	150
ROHN 6'x15' Boom Gate (1) (Verizon Existing)	170	Notch Filter (Sprint Proposed)	150
ROHN 6'x12' Boom Gate (1) (Verizon Existing)	170	ROHN 6'x15' Boom Gate (1) (AT[Existing)	140
APL868013-4ZT0 (Verizon Existing)	170	ROHN 6'x15' Boom Gate (1) (AT[Existing)	140
BXA-171085-8BF (Verizon Existing)	170	ROHN 6'x15' Boom Gate (1) (AT[Existing)	140
BXA-70063/4CF (Verizon Existing)	170	(2) 7770.00 (AT[Existing)	140
APL869013-4ZT0 (Verizon Existing)	170	(2) 7770.00 (AT[Existing)	140
LPA-80080-6CF (Verizon Existing)	170	(2) 7770.00 (AT[Existing)	140
BXA-171063/8BF (Verizon Existing)	170	(2) LGP21401 TMA (AT[Existing)	140
BXA-70063/6CF (Verizon Existing)	170	(2) LGP21401 TMA (AT[Existing)	140
LPA-80080-6CF (Verizon Existing)	170	(2) LGP21401 TMA (AT[Existing)	140
APL866513-4ZT0 (Verizon Existing)	170	(2) LGP21901 Diplexer (AT[Existing)	140
BXA-171063/8BF (Verizon Existing)	170	(2) LGP21901 Diplexer (AT[Existing)	140
BXA-70063/4CF (Verizon Existing)	170	(2) LGP21901 Diplexer (AT[Existing)	140
APL866513-4ZT0 (Verizon Existing)	170	Pirod 15' T-Frame Sector Mount (1) (T-Mobile Existing)	130
(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	170	Pirod 15' T-Frame Sector Mount (1) (T-Mobile Existing)	130
(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	170	Pirod 15' T-Frame Sector Mount (1) (T-Mobile Existing)	130
(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	170	72"x12"x4" Panel Antenna (T-Mobile Existing)	130
ROHN 6'x15' Boom Gate (1) (Nextel Existing)	160	72"x12"x4" Panel Antenna (T-Mobile Existing)	130
ROHN 6'x15' Boom Gate (1) (Nextel Existing)	160	72"x12"x4" Panel Antenna (T-Mobile Existing)	130
ROHN 6'x15' Boom Gate (1) (Nextel Existing)	160	72"x12"x4" Panel Antenna (T-Mobile Existing)	130
(4) DB844H90E-XY (Nextel Existing)	160	72"x12"x4" Panel Antenna (T-Mobile Reserved)	130
(4) DB844H90E-XY (Nextel Existing)	160	72"x12"x4" Panel Antenna (T-Mobile Reserved)	130
(4) DB844H90E-XY (Nextel Existing)	160	72"x12"x4" Panel Antenna (T-Mobile Reserved)	130
ROHN 6'x15' Boom Gate (1) (Sprint Existing)	150	(2) TMA 10"x8"x3" (T-Mobile Existing)	130
ROHN 6'x15' Boom Gate (1) (Sprint Existing)	150	(2) TMA 10"x8"x3" (T-Mobile Existing)	130
ROHN 6'x15' Boom Gate (1) (Sprint Existing)	150	(2) TMA 10"x8"x3" (T-Mobile Existing)	130
(2) DB980F90E-M (Sprint Existing)	150	GPS (Sprint Existing)	75
(2) DB980F90E-M (Sprint Existing)	150	2-ft Stand Off (Sprint Existing)	75
(2) DB980F90E-M (Sprint Existing)	150	GPS (Sprint Proposed)	75
APXVSPP18-C-A20 (Sprint Proposed)	150		
APXVSPP18-C-A20 (Sprint Proposed)	150		
APXVSPP18-C-A20 (Sprint Proposed)	150		

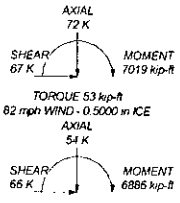
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower designed for a 95 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 82 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 50 mph wind.
4. TOWER RATING: 78.9%

MAX. CORNER REACTIONS AT BASE:
DOWN: 341 K
UPLIFT: -295 K
SHEAR: 41 K

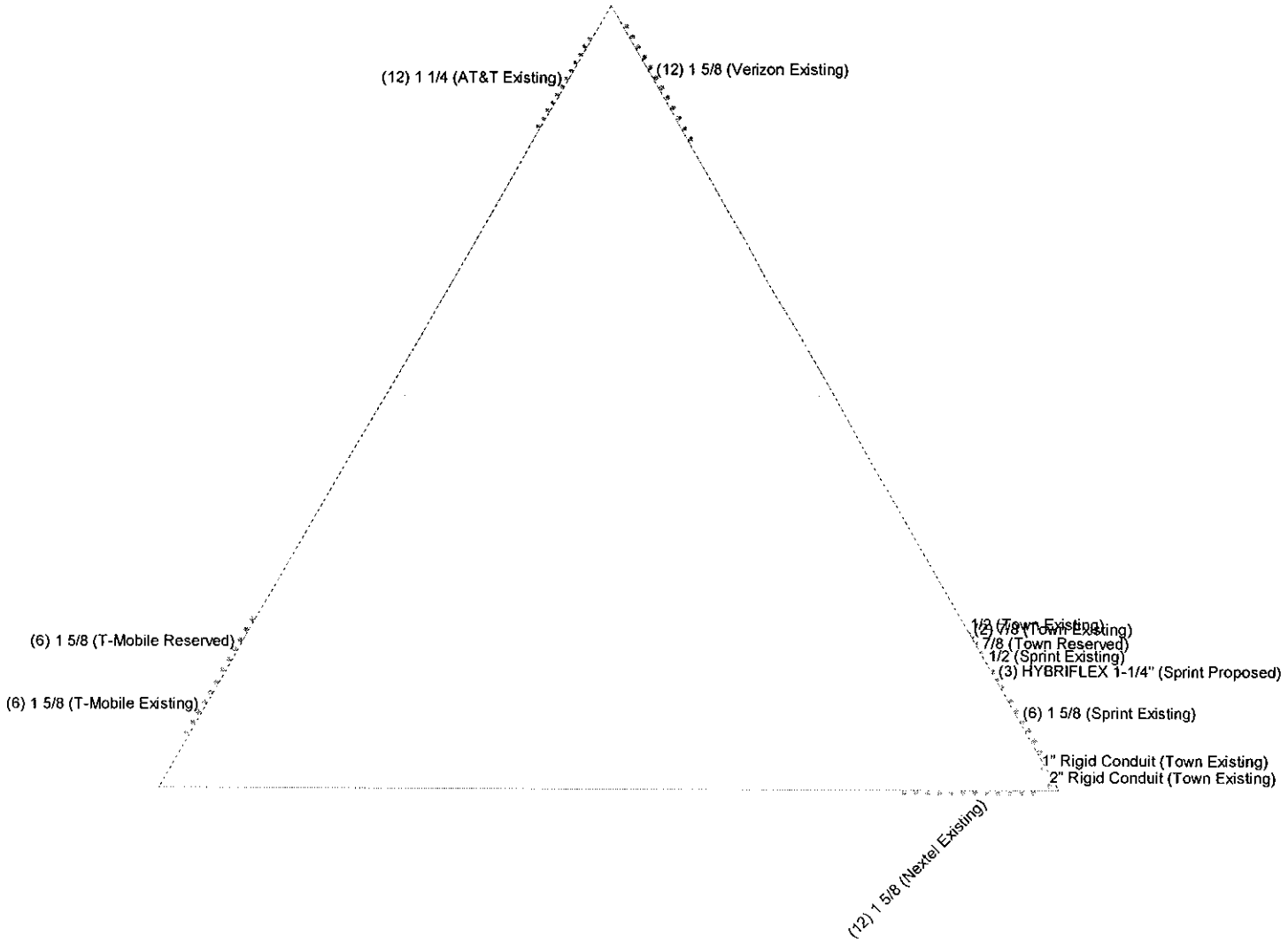


Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone (203) 488-0580
FAX (203) 488-8587

Job	12126 / CT9014/ CT03XC164
Project	180' Rohn Lattice Tower - 864 Opening Hill Rd., Madison, CT
Client	GTP / Sprint
Drawn By	TJL
App'd	
Code	TIA/EIA-222-F
Date	11/12/12
Scale	NTS
Dwg No.	E-1

Feedline Plan

Round _____ Flat _____ App In Face App Out Face



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Branford, CT 06405
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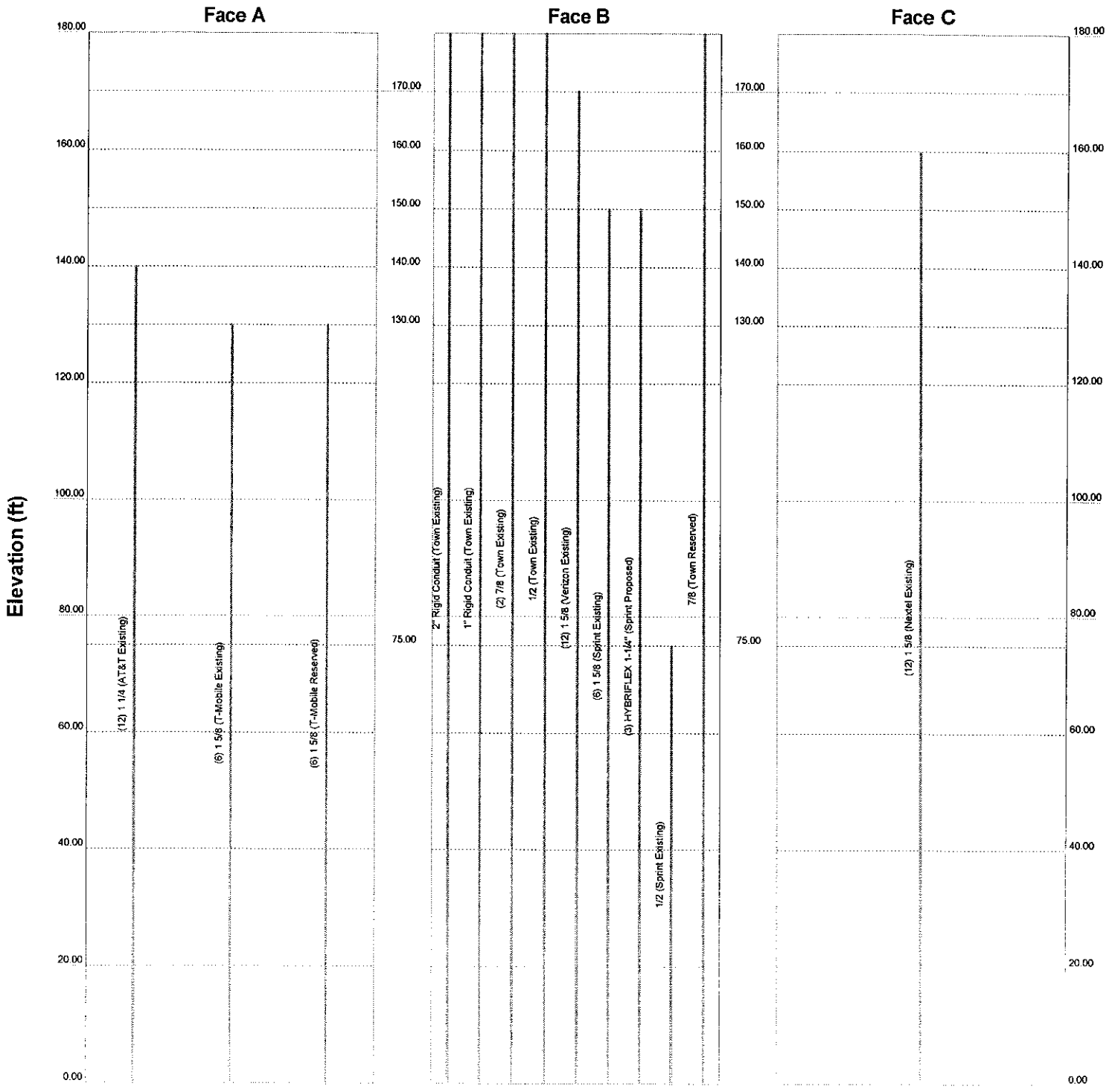
FAX: (203) 488-8587

Job: ***12126 / CT9014/ CT03XC164***		
Project: ***180' Rohn Lattice Tower - 864 Opening Hill Rd., Madison, CT***		
Client: GTP / Sprint	Drawn by: TJL	App'd:
Code: TIA/EIA-222-F	Date: 11/12/12	Scale: NTS
Path: J:\Jobs\12126\00 WTCad\cs\ERI Files\180ft Rohn Lattice Tower.ep		Dwg No. E-7

Feedline Distribution Chart
0' - 180'

Round Flat App In Face App Out Face Truss Leg



Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job: ***12126 / CT9014/ CT03XC164***		
	Project: ***180' Rohn Lattice Tower - 864 Opening Hill Rd., Madison, CT***		
	Client: GTP / Sprint	Drawn by: TJL	App'd:
	Code: TIA/EIA-222-F	Date: 11/12/12	Scale: NTS
	Path: J:\Jobs\12126\00 WI Calcs\ERI Files\180-ft Rohn Lattice Tower.eri		Dwg No. E-7

RISATower	Job	Page
	12126 / CT9014/ CT03XC164	1 of 40
Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Project 180' Rohn Lattice Tower - 864 Opening Hill Rd., Madison, CT	Date 15:34:22 11/12/12
	Client GTP / Sprint	Designed by TJL

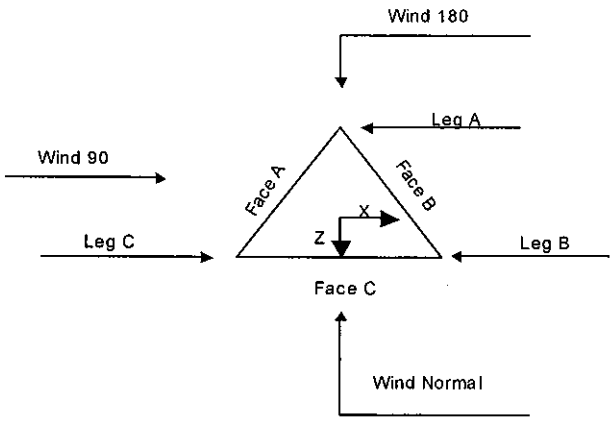
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 8.56 ft at the top and 25.38 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 95 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 82 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	√ All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	√ SR Members Have Cut Ends	Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	180.00-160.00			8.56	1	20.00
T2	160.00-140.00			8.56	1	20.00
T3	140.00-120.00			8.56	1	20.00
T4	120.00-100.00			10.75	1	20.00
T5	100.00-80.00			12.84	1	20.00
T6	80.00-60.00			15.31	1	20.00
T7	60.00-40.00			17.83	1	20.00
T8	40.00-20.00			20.34	1	20.00
T9	20.00-0.00			22.86	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	180.00-160.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T2	160.00-140.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T3	140.00-120.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T4	120.00-100.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T5	100.00-80.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T6	80.00-60.00	10.00	K Brace Down	No	Yes	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T7	60.00-40.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T8	40.00-20.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T9	20.00-0.00	10.00	K Brace Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-160.00	Pipe	ROHN 3 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T2 160.00-140.00	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Pipe	ROHN 2 X-STR	A572-50 (50 ksi)
T3 140.00-120.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Pipe	ROHN 2 X-STR	A572-50 (50 ksi)
T4 120.00-100.00	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T5 100.00-80.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T6 80.00-60.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T7 60.00-40.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T8 40.00-20.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T9 20.00-0.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-160.00	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 180.00-160.00	None	Single Angle		A36 (36 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 160.00-140.00	None	Solid Round		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 140.00-120.00	None	Single Angle		A36	Pipe	ROHN 1.5 STD	A572-50

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T4 120.00-100.00	None	Single Angle		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2 STD	(50 ksi) A572-50 (50 ksi)
T5 100.00-80.00	None	Single Angle		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2 STD	(50 ksi) A572-50 (50 ksi)
T6 80.00-60.00	None	Single Angle		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2 STD	(50 ksi) A572-50 (50 ksi)
T7 60.00-40.00	None	Single Angle		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2.5 STD	(50 ksi) A572-50 (50 ksi)
T8 40.00-20.00	None	Single Angle		(36 ksi) A36 (36 ksi)	Pipe	ROHN 2.5 STD	(50 ksi) A572-50 (50 ksi)
T9 20.00-0.00	None	Single Angle		(36 ksi) A36 (36 ksi)	Pipe	ROHN 3 STD	(50 ksi) A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 180.00-160.00	Single Angle		A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T2 160.00-140.00	Single Angle		A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T3 140.00-120.00	Single Angle		A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T4 120.00-100.00	Single Angle		A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T5 100.00-80.00	Single Angle		A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T6 80.00-60.00	Single Angle		A36 (36 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 60.00-40.00	Single Angle		A36 (36 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 40.00-20.00	Single Angle		A36 (36 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T9 20.00-0.00	Single Angle		A36 (36 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	30.0000	30.0000
T2 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3	0.00	0.0000	A36	1	1	1	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
140.00-120.00			(36 ksi)					
T4	0.00	0.0000	A36	1	1	1	36.0000	36.0000
120.00-100.00			(36 ksi)					
T5	0.00	0.0000	A36	1	1	1	36.0000	36.0000
100.00-80.00			(36 ksi)					
T6 80.00-60.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					
T7 60.00-40.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					
T8 40.00-20.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					
T9 20.00-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1	1	1	1	1	1
T9 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T2 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-160.00	Flange	0.8750 A325N	4	0.6250 A325N	3	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T2 160.00-140.00	Flange	1.0000 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T3 140.00-120.00	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T4 120.00-100.00	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T5 100.00-80.00	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T6 80.00-60.00	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T7 60.00-40.00	Flange	1.0000 A325N	12	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T8 40.00-20.00	Flange	1.0000 A325N	12	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T9 20.00-0.00	Flange	1.0000 A354-BC	16	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
2" Rigid Conduit	B	Yes	Ar (CfAe)	180.00 - 0.00	-1.0000	0.49	1	1	2.0000	2.0000		2.80

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(Town Existing) 1" Rigid Conduit	B	Yes	Ar (CfAe)	180.00 - 0.00	-1.0000	0.47	1	1	1.0000	1.0000		0.70
(Town Existing) 7/8	B	Yes	Ar (CfAe)	180.00 - 0.00	0.0000	0.31	2	2	1.1100	1.1100		0.54
(Town Existing) 1/2	B	Yes	Ar (CfAe)	180.00 - 0.00	0.0000	0.3	1	1	0.5800	0.5800		0.25
1 5/8 (Verizon Existing)	B	Yes	Ar (CfAe)	170.00 - 0.00	0.0000	-0.4	12	12	1.9800	1.9800		1.04
1 5/8 (Nextel Existing)	C	Yes	Ar (CfAe)	160.00 - 0.00	0.0000	-0.4	12	12	1.9800	1.9800		1.04
1 5/8 (Sprint Existing)	B	Yes	Ar (CfAe)	150.00 - 0.00	0.0000	0.42	6	6	1.9800	1.9800		1.04
HYBRIFLEX 1-1/4" (Sprint Proposed)	B	Yes	Ar (CfAe)	150.00 - 0.00	0.0000	0.36	3	3	1.5400	1.5400		1.30
1 1/4 (AT&T Existing)	A	Yes	Ar (CfAe)	140.00 - 0.00	0.0000	0.4	12	12	1.5500	1.5500		0.66
1 5/8 (T-Mobile Existing)	A	Yes	Ar (CfAe)	130.00 - 0.00	0.0000	-0.4	6	6	1.9800	1.9800		1.04
1 5/8 (T-Mobile Reserved)	A	Yes	Ar (CfAe)	130.00 - 0.00	0.0000	-0.32	6	6	1.9800	1.9800		1.04
1/2 (Sprint Existing)	B	Yes	Ar (CfAe)	75.00 - 0.00	0.0000	0.34	1	1	0.5800	0.5800		0.25
7/8 (Town Reserved)	B	Yes	Ar (CfAe)	180.00 - 0.00	0.0000	0.325	1	1	1.1100	1.1100		0.54

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
T1	180.00-160.00	A	0.000	0.000	0.000	0.000	0.00
		B	31.317	0.000	0.000	0.000	0.23
		C	0.000	0.000	0.000	0.000	0.00
T2	160.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	64.867	0.000	0.000	0.000	0.46
		C	39.600	0.000	0.000	0.000	0.25
T3	140.00-120.00	A	50.800	0.000	0.000	0.000	0.28
		B	78.617	0.000	0.000	0.000	0.56
		C	39.600	0.000	0.000	0.000	0.25
T4	120.00-100.00	A	70.600	0.000	0.000	0.000	0.41
		B	78.617	0.000	0.000	0.000	0.56

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	39.600	0.000	0.000	0.000	0.25
T5	100.00-80.00	A	70.600	0.000	0.000	0.000	0.41
		B	78.617	0.000	0.000	0.000	0.56
		C	39.600	0.000	0.000	0.000	0.25
T6	80.00-60.00	A	70.600	0.000	0.000	0.000	0.41
		B	79.342	0.000	0.000	0.000	0.56
		C	39.600	0.000	0.000	0.000	0.25
T7	60.00-40.00	A	70.600	0.000	0.000	0.000	0.41
		B	79.583	0.000	0.000	0.000	0.56
		C	39.600	0.000	0.000	0.000	0.25
T8	40.00-20.00	A	70.600	0.000	0.000	0.000	0.41
		B	79.583	0.000	0.000	0.000	0.56
		C	39.600	0.000	0.000	0.000	0.25
T9	20.00-0.00	A	70.600	0.000	0.000	0.000	0.41
		B	79.583	0.000	0.000	0.000	0.56
		C	39.600	0.000	0.000	0.000	0.25

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	180.00-160.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		51.317	0.000	0.000	0.000	0.54
		C		0.000	0.000	0.000	0.000	0.00
T2	160.00-140.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		102.367	0.000	0.000	0.000	1.07
		C		59.600	0.000	0.000	0.000	0.61
T3	140.00-120.00	A	0.500	80.800	0.000	0.000	0.000	0.77
		B		123.617	0.000	0.000	0.000	1.30
		C		59.600	0.000	0.000	0.000	0.61
T4	120.00-100.00	A	0.500	110.600	0.000	0.000	0.000	1.07
		B		123.617	0.000	0.000	0.000	1.30
		C		59.600	0.000	0.000	0.000	0.61
T5	100.00-80.00	A	0.500	110.600	0.000	0.000	0.000	1.07
		B		123.617	0.000	0.000	0.000	1.30
		C		59.600	0.000	0.000	0.000	0.61
T6	80.00-60.00	A	0.500	110.600	0.000	0.000	0.000	1.07
		B		125.592	0.000	0.000	0.000	1.31
		C		59.600	0.000	0.000	0.000	0.61
T7	60.00-40.00	A	0.500	110.600	0.000	0.000	0.000	1.07
		B		126.250	0.000	0.000	0.000	1.32
		C		59.600	0.000	0.000	0.000	0.61
T8	40.00-20.00	A	0.500	110.600	0.000	0.000	0.000	1.07
		B		126.250	0.000	0.000	0.000	1.32
		C		59.600	0.000	0.000	0.000	0.61
T9	20.00-0.00	A	0.500	110.600	0.000	0.000	0.000	1.07
		B		126.250	0.000	0.000	0.000	1.32
		C		59.600	0.000	0.000	0.000	0.61

Feed Line Shielding

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T1	180.00-160.00	A	0.000	0.000	0.000	0.000
		B	2.464	5.867	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	160.00-140.00	A	0.000	0.000	0.000	0.000
		B	5.104	11.703	0.000	0.000
		C	3.116	6.814	0.000	0.000
T3	140.00-120.00	A	3.722	8.615	0.000	0.000
		B	5.760	13.180	0.000	0.000
		C	2.901	6.354	0.000	0.000
T4	120.00-100.00	A	5.868	12.631	0.000	0.000
		B	6.535	14.118	0.000	0.000
		C	3.292	6.807	0.000	0.000
T5	100.00-80.00	A	4.877	10.120	0.000	0.000
		B	5.431	11.311	0.000	0.000
		C	2.736	5.454	0.000	0.000
T6	80.00-60.00	A	4.557	9.474	0.000	0.000
		B	5.121	10.759	0.000	0.000
		C	2.556	5.106	0.000	0.000
T7	60.00-40.00	A	4.626	9.482	0.000	0.000
		B	5.214	10.823	0.000	0.000
		C	2.595	5.109	0.000	0.000
T8	40.00-20.00	A	4.462	9.152	0.000	0.000
		B	5.030	10.447	0.000	0.000
		C	2.503	4.932	0.000	0.000
T9	20.00-0.00	A	5.085	10.073	0.000	0.000
		B	5.732	11.499	0.000	0.000
		C	2.852	5.428	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	180.00-160.00	5.7155	-6.9807	6.8706	-6.6727
T2	160.00-140.00	15.5327	-1.4903	16.5950	-1.2664
T3	140.00-120.00	10.5600	-5.0811	11.3211	-5.5537
T4	120.00-100.00	7.3377	-3.9055	8.2309	-4.4607
T5	100.00-80.00	8.2589	-4.3823	9.5284	-5.1482
T6	80.00-60.00	9.7298	-4.9936	11.3495	-5.8111
T7	60.00-40.00	10.9058	-5.5341	12.8169	-6.4482
T8	40.00-20.00	11.4222	-5.7881	13.6538	-6.8597
T9	20.00-0.00	11.9790	-6.0636	14.4815	-7.2675

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft	ft^2	ft^2	K

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
ROHN 6-ft Side Arm	A	From Leg	3.00	0.0000	178.00	No Ice	6.68	6.68	0.08
(Town Reserved)			0.00			1/2" Ice	10.00	10.00	0.10
			0.00						
ROHN 6-ft Side Arm	B	From Leg	3.00	0.0000	178.00	No Ice	6.68	6.68	0.08
(Town Existing)			0.00			1/2" Ice	10.00	10.00	0.10
			0.00						
ROHN 6-ft Side Arm	C	From Leg	3.00	0.0000	178.00	No Ice	6.68	6.68	0.08
(Town Existing)			0.00			1/2" Ice	10.00	10.00	0.10
			0.00						
PD455	C	From Leg	6.00	0.0000	180.00	No Ice	3.56	3.56	0.02
(Town Existing)			0.00			1/2" Ice	7.13	7.13	0.05
			5.00						
DB408	C	From Leg	0.50	0.0000	180.00	No Ice	1.65	1.65	0.02
(Town Existing)			0.00			1/2" Ice	2.61	2.61	0.03
			5.00						
PD455	A	From Leg	6.00	0.0000	180.00	No Ice	3.56	3.56	0.02
(Town Reserved)			0.00			1/2" Ice	7.13	7.13	0.05
			5.00						
DB404	B	From Leg	6.00	0.0000	180.00	No Ice	1.14	1.14	0.01
(Town Existing)			0.00			1/2" Ice	2.05	2.05	0.02
			5.00						
ROHN 6'x15' Boom Gate (1)	A	From Leg	2.00	0.0000	170.00	No Ice	17.75	17.75	0.60
(Verizon Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
ROHN 6'x15' Boom Gate (1)	B	From Leg	2.00	0.0000	170.00	No Ice	17.75	17.75	0.60
(Verizon Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
ROHN 6'x15' Boom Gate (1)	C	From Leg	2.00	0.0000	170.00	No Ice	17.75	17.75	0.60
(Verizon Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
APL868013-42T0	A	From Leg	4.00	0.0000	170.00	No Ice	2.87	3.73	0.02
(Verizon Existing)			-6.00			1/2" Ice	3.18	4.10	0.04
			0.00						
BXA-171085-8BF	A	From Leg	4.00	0.0000	170.00	No Ice	2.94	2.16	0.01
(Verizon Existing)			-4.00			1/2" Ice	3.26	2.46	0.03
			0.00						
BXA-70063/4CF	A	From Leg	4.00	0.0000	170.00	No Ice	5.16	2.44	0.01
(Verizon Existing)			0.00			1/2" Ice	5.55	2.74	0.04
			0.00						
APL868013-42T0	A	From Leg	4.00	0.0000	170.00	No Ice	2.87	3.73	0.02
(Verizon Existing)			6.00			1/2" Ice	3.18	4.10	0.04
			0.00						
LPA-80080-6CF	B	From Leg	4.00	0.0000	170.00	No Ice	4.33	9.09	0.02
(Verizon Existing)			-6.00			1/2" Ice	4.76	9.64	0.07
			0.00						
BXA-171063/8BF	B	From Leg	4.00	0.0000	170.00	No Ice	2.94	2.16	0.01
(Verizon Existing)			-4.00			1/2" Ice	3.26	2.46	0.03
			0.00						
BXA-70063/6CF	B	From Leg	4.00	0.0000	170.00	No Ice	7.73	4.16	0.02
(Verizon Existing)			0.00			1/2" Ice	8.27	4.60	0.06
			0.00						
LPA-80080-6CF	B	From Leg	4.00	0.0000	170.00	No Ice	4.33	9.09	0.02
(Verizon Existing)			6.00			1/2" Ice	4.76	9.64	0.07
			0.00						
APL866513-42T0	C	From Leg	4.00	0.0000	170.00	No Ice	4.29	3.73	0.02
(Verizon Existing)			-6.00			1/2" Ice	4.67	4.10	0.05
			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
BXA-171063/8BF	C	From Leg	4.00	0.0000	170.00	No Ice	2.94	2.16	0.01
(Verizon Existing)			-4.00			1/2" Ice	3.26	2.46	0.03
			0.00						
BXA-70063/4CF	C	From Leg	4.00	0.0000	170.00	No Ice	5.16	2.44	0.01
(Verizon Existing)			0.00			1/2" Ice	5.55	2.74	0.04
			0.00						
APL866513-42T0	C	From Leg	4.00	0.0000	170.00	No Ice	4.29	3.73	0.02
(Verizon Existing)			6.00			1/2" Ice	4.67	4.10	0.05
			0.00						
(2) FD9R6004/2C-3L	A	From Leg	4.00	0.0000	170.00	No Ice	0.37	0.08	0.00
Diplexer			-6.00			1/2" Ice	0.45	0.14	0.01
(Verizon Existing)			0.00						
(2) FD9R6004/2C-3L	B	From Leg	4.00	0.0000	170.00	No Ice	0.37	0.08	0.00
Diplexer			-6.00			1/2" Ice	0.45	0.14	0.01
(Verizon Existing)			0.00						
(2) FD9R6004/2C-3L	C	From Leg	4.00	0.0000	170.00	No Ice	0.37	0.08	0.00
Diplexer			-6.00			1/2" Ice	0.45	0.14	0.01
(Verizon Existing)			0.00						
ROHN 6'x15' Boom Gate (1)	A	From Leg	2.00	0.0000	160.00	No Ice	17.75	17.75	0.60
(Nextel Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
ROHN 6'x15' Boom Gate (1)	B	From Leg	2.00	0.0000	160.00	No Ice	17.75	17.75	0.60
(Nextel Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
ROHN 6'x15' Boom Gate (1)	C	From Leg	2.00	0.0000	160.00	No Ice	17.75	17.75	0.60
(Nextel Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
(4) DB844H90E-XY	A	From Leg	4.00	0.0000	160.00	No Ice	2.87	3.73	0.01
(Nextel Existing)			0.00			1/2" Ice	3.18	4.10	0.04
			0.00						
(4) DB844H90E-XY	B	From Leg	4.00	0.0000	160.00	No Ice	2.87	3.73	0.01
(Nextel Existing)			0.00			1/2" Ice	3.18	4.10	0.04
			0.00						
(4) DB844H90E-XY	C	From Leg	4.00	0.0000	160.00	No Ice	2.87	3.73	0.01
(Nextel Existing)			0.00			1/2" Ice	3.18	4.10	0.04
			0.00						
ROHN 6'x15' Boom Gate (1)	A	From Leg	2.00	0.0000	150.00	No Ice	17.75	17.75	0.60
(Sprint Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
ROHN 6'x15' Boom Gate (1)	B	From Leg	2.00	0.0000	150.00	No Ice	17.75	17.75	0.60
(Sprint Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
ROHN 6'x15' Boom Gate (1)	C	From Leg	2.00	0.0000	150.00	No Ice	17.75	17.75	0.60
(Sprint Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
(2) DB980F90E-M	A	From Leg	4.00	0.0000	150.00	No Ice	3.90	2.29	0.01
(Sprint Existing)			0.00			1/2" Ice	4.28	2.65	0.03
			0.00						
(2) DB980F90E-M	B	From Leg	4.00	0.0000	150.00	No Ice	3.90	2.29	0.01
(Sprint Existing)			0.00			1/2" Ice	4.28	2.65	0.03
			0.00						
(2) DB980F90E-M	C	From Leg	4.00	0.0000	150.00	No Ice	3.90	2.29	0.01
(Sprint Existing)			0.00			1/2" Ice	4.28	2.65	0.03
			0.00						
APXVSPP18-C-A20	A	From Leg	4.00	0.0000	150.00	No Ice	8.26	5.28	0.06
(Sprint Proposed)			0.00			1/2" Ice	8.81	5.74	0.11
			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVSPP18-C-A20	B	From Leg	4.00	0.0000	150.00	No Ice	8.26	5.28	0.06
(Sprint Proposed)			0.00			1/2" Ice	8.81	5.74	0.11
			0.00						
APXVSPP18-C-A20	C	From Leg	4.00	0.0000	150.00	No Ice	8.26	5.28	0.06
(Sprint Proposed)			0.00			1/2" Ice	8.81	5.74	0.11
			0.00						
FD-RRH 2x50 800	A	From Leg	4.00	0.0000	150.00	No Ice	2.48	2.06	0.05
(Sprint Proposed)			0.00			1/2" Ice	2.69	2.26	0.07
			0.00						
FD-RRH 2x50 800	B	From Leg	4.00	0.0000	150.00	No Ice	2.48	2.06	0.05
(Sprint Proposed)			0.00			1/2" Ice	2.69	2.26	0.07
			0.00						
FD-RRH 2x50 800	C	From Leg	4.00	0.0000	150.00	No Ice	2.48	2.06	0.05
(Sprint Proposed)			0.00			1/2" Ice	2.69	2.26	0.07
			0.00						
FD-RRH 4x40 1900	A	From Leg	4.00	0.0000	150.00	No Ice	2.82	2.82	0.04
(Sprint Proposed)			0.00			1/2" Ice	3.06	3.06	0.07
			0.00						
FD-RRH 4x40 1900	B	From Leg	4.00	0.0000	150.00	No Ice	2.82	2.82	0.04
(Sprint Proposed)			0.00			1/2" Ice	3.06	3.06	0.07
			0.00						
FD-RRH 4x40 1900	C	From Leg	4.00	0.0000	150.00	No Ice	2.82	2.82	0.04
(Sprint Proposed)			0.00			1/2" Ice	3.06	3.06	0.07
			0.00						
Notch Filter	A	From Leg	4.00	0.0000	150.00	No Ice	0.87	0.37	0.01
(Sprint Proposed)			0.00			1/2" Ice	0.99	0.46	0.02
			0.00						
Notch Filter	B	From Leg	4.00	0.0000	150.00	No Ice	0.87	0.37	0.01
(Sprint Proposed)			0.00			1/2" Ice	0.99	0.46	0.02
			0.00						
Notch Filter	C	From Leg	4.00	0.0000	150.00	No Ice	0.87	0.37	0.01
(Sprint Proposed)			0.00			1/2" Ice	0.99	0.46	0.02
			0.00						
ROHN 6'x15' Boom Gate (1)	A	From Leg	2.00	0.0000	140.00	No Ice	17.75	17.75	0.60
(AT&T Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
ROHN 6'x15' Boom Gate (1)	B	From Leg	2.00	0.0000	140.00	No Ice	17.75	17.75	0.60
(AT&T Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
ROHN 6'x15' Boom Gate (1)	C	From Leg	2.00	0.0000	140.00	No Ice	17.75	17.75	0.60
(AT&T Existing)			0.00			1/2" Ice	21.10	21.10	0.07
			0.00						
(2) 7770.00	A	From Leg	4.00	0.0000	140.00	No Ice	5.88	2.93	0.04
(AT&T Existing)			0.00			1/2" Ice	6.31	3.27	0.07
			0.00						
(2) 7770.00	B	From Leg	4.00	0.0000	140.00	No Ice	5.88	2.93	0.04
(AT&T Existing)			0.00			1/2" Ice	6.31	3.27	0.07
			0.00						
(2) 7770.00	C	From Leg	4.00	0.0000	140.00	No Ice	5.88	2.93	0.04
(AT&T Existing)			0.00			1/2" Ice	6.31	3.27	0.07
			0.00						
(2) LGP21401 TMA	A	From Leg	4.00	0.0000	140.00	No Ice	0.95	0.37	0.02
(AT&T Existing)			0.00			1/2" Ice	1.09	0.48	0.02
			0.00						
(2) LGP21401 TMA	B	From Leg	4.00	0.0000	140.00	No Ice	0.95	0.37	0.02
(AT&T Existing)			0.00			1/2" Ice	1.09	0.48	0.02
			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) LGP21401 TMA	C	From Leg	4.00	0.0000	140.00	No Ice	0.95	0.37	0.02
(AT&T Existing)			0.00			1/2" Ice	1.09	0.48	0.02
			0.00						
(2) LGP21901 Diplexer	A	From Leg	4.00	0.0000	140.00	No Ice	0.23	0.12	0.01
(AT&T Existing)			0.00			1/2" Ice	0.30	0.17	0.01
			0.00						
(2) LGP21901 Diplexer	B	From Leg	4.00	0.0000	140.00	No Ice	0.23	0.12	0.01
(AT&T Existing)			0.00			1/2" Ice	0.30	0.17	0.01
			0.00						
(2) LGP21901 Diplexer	C	From Leg	4.00	0.0000	140.00	No Ice	0.23	0.12	0.01
(AT&T Existing)			0.00			1/2" Ice	0.30	0.17	0.01
			0.00						
Pirod 15' T-Frame Sector	A	From Face	2.00	0.0000	130.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(T-Mobile Existing)			0.00						
Pirod 15' T-Frame Sector	B	From Face	2.00	0.0000	130.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(T-Mobile Existing)			0.00						
Pirod 15' T-Frame Sector	C	From Face	2.00	0.0000	130.00	No Ice	15.00	15.00	0.50
Mount (1)			0.00			1/2" Ice	20.60	20.60	0.65
(T-Mobile Existing)			0.00						
72"x12"x4" Panel Antenna	A	From Face	4.00	0.0000	130.00	No Ice	8.40	3.53	0.02
(T-Mobile Existing)			0.00			1/2" Ice	8.95	3.97	0.06
			0.00						
72"x12"x4" Panel Antenna	B	From Face	4.00	0.0000	130.00	No Ice	8.40	3.53	0.02
(T-Mobile Existing)			0.00			1/2" Ice	8.95	3.97	0.06
			0.00						
72"x12"x4" Panel Antenna	C	From Face	4.00	0.0000	130.00	No Ice	8.40	3.53	0.02
(T-Mobile Existing)			0.00			1/2" Ice	8.95	3.97	0.06
			0.00						
72"x12"x4" Panel Antenna	A	From Face	4.00	0.0000	130.00	No Ice	8.40	3.53	0.02
(T-Mobile Reserved)			0.00			1/2" Ice	8.95	3.97	0.06
			0.00						
72"x12"x4" Panel Antenna	B	From Face	4.00	0.0000	130.00	No Ice	8.40	3.53	0.02
(T-Mobile Reserved)			0.00			1/2" Ice	8.95	3.97	0.06
			0.00						
72"x12"x4" Panel Antenna	C	From Face	4.00	0.0000	130.00	No Ice	8.40	3.53	0.02
(T-Mobile Reserved)			0.00			1/2" Ice	8.95	3.97	0.06
			0.00						
(2) TMA 10"x8"x3"	A	From Face	4.00	0.0000	130.00	No Ice	0.78	0.29	0.02
(T-Mobile Existing)			0.00			1/2" Ice	0.90	0.38	0.02
			0.00						
(2) TMA 10"x8"x3"	B	From Face	4.00	0.0000	130.00	No Ice	0.78	0.29	0.02
(T-Mobile Existing)			0.00			1/2" Ice	0.90	0.38	0.02
			0.00						
(2) TMA 10"x8"x3"	C	From Face	4.00	0.0000	130.00	No Ice	0.78	0.29	0.02
(T-Mobile Existing)			0.00			1/2" Ice	0.90	0.38	0.02
			0.00						
GPS	B	From Leg	2.00	0.0000	75.00	No Ice	1.00	1.00	0.01
(Sprint Existing)			0.00			1/2" Ice	1.50	1.50	0.01
			0.00						
2-ft Stand Off	B	From Leg	1.00	0.0000	75.00	No Ice	1.07	1.07	0.02
(Sprint Existing)			0.00			1/2" Ice	1.62	1.62	0.03
			0.00						
GPS	B	From Leg	2.00	0.0000	75.00	No Ice	2.00	1.00	0.01
(Sprint Proposed)			0.00			1/2" Ice	1.50	1.50	0.01
			0.00						

Tower Pressures - No Ice

$G_H = 1.121$

Section Elevation	z	K_z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
T1	170.00	1.597	37	177.083	A	0.000	24.683	11.667	47.27	0.000	0.000
180.00-160.00					B	0.000	53.536		21.79	0.000	0.000
					C	0.000	24.683		47.27	0.000	0.000
T2	150.00	1.541	36	178.750	A	0.000	27.899	15.000	53.77	0.000	0.000
160.00-140.00					B	0.000	87.661		17.11	0.000	0.000
					C	0.000	64.383		23.30	0.000	0.000
T3	130.00	1.48	34	202.411	A	0.000	79.317	18.580	23.43	0.000	0.000
140.00-120.00					B	0.000	105.096		17.68	0.000	0.000
					C	0.000	68.938		26.95	0.000	0.000
T4	110.00	1.411	33	246.957	A	0.000	105.720	22.123	20.93	0.000	0.000
120.00-100.00					B	0.000	113.071		19.57	0.000	0.000
					C	0.000	77.297		28.62	0.000	0.000
T5	90.00	1.332	31	295.902	A	0.000	113.398	28.823	25.42	0.000	0.000
100.00-80.00					B	0.000	120.861		23.85	0.000	0.000
					C	0.000	84.539		34.09	0.000	0.000
T6 80.00-60.00	70.00	1.24	29	345.778	A	0.000	115.646	28.826	24.93	0.000	0.000
					B	0.000	123.823		23.28	0.000	0.000
					C	0.000	86.647		33.27	0.000	0.000
T7 60.00-40.00	50.00	1.126	26	396.078	A	0.000	119.089	28.826	24.20	0.000	0.000
					B	0.000	127.484		22.61	0.000	0.000
					C	0.000	90.121		31.99	0.000	0.000
T8 40.00-20.00	30.00	1	23	449.952	A	0.000	128.474	35.928	27.97	0.000	0.000
					B	0.000	136.890		26.25	0.000	0.000
					C	0.000	99.434		36.13	0.000	0.000
T9 20.00-0.00	10.00	1	23	500.354	A	0.000	135.076	35.928	26.60	0.000	0.000
					B	0.000	143.412		25.05	0.000	0.000
					C	0.000	106.309		33.80	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.121$

Section Elevation	z	K_z	q_z	t_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	in	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
T1	170.00	1.597	28	0.5000	178.750	A	0.000	33.911	15.000	44.23	0.000	0.000
180.00-160.00						B	0.000	79.361		18.90	0.000	0.000
						C	0.000	33.911		44.23	0.000	0.000
T2	150.00	1.541	27	0.5000	180.417	A	0.000	37.074	18.333	49.45	0.000	0.000
160.00-140.00						B	0.000	127.738		14.35	0.000	0.000
						C	0.000	89.860		20.40	0.000	0.000
T3	130.00	1.48	26	0.5000	204.080	A	0.000	113.958	21.920	19.24	0.000	0.000
140.00-120.00						B	0.000	152.210		14.40	0.000	0.000
						C	0.000	95.019		23.07	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T4	110.00	1.411	24	0.5000	248.626	A	0.000	149.333	25.463	17.05	0.000	0.000
120.00-100.00						B	0.000	160.863		15.83	0.000	0.000
						C	0.000	104.158		24.45	0.000	0.000
T5 100.00-80.00	90.00	1.332	23	0.5000	297.572	A	0.000	157.570	32.165	20.41	0.000	0.000
						B	0.000	169.396		18.99	0.000	0.000
						C	0.000	111.237		28.92	0.000	0.000
T6 80.00-60.00	70.00	1.24	21	0.5000	347.448	A	0.000	160.822	32.168	20.00	0.000	0.000
						B	0.000	174.529		18.43	0.000	0.000
						C	0.000	114.191		28.17	0.000	0.000
T7 60.00-40.00	50.00	1.126	20	0.5000	397.748	A	0.000	165.043	32.168	19.49	0.000	0.000
						B	0.000	179.352		17.94	0.000	0.000
						C	0.000	118.416		27.16	0.000	0.000
T8 40.00-20.00	30.00	1	17	0.5000	451.622	A	0.000	175.272	39.270	22.41	0.000	0.000
						B	0.000	189.627		20.71	0.000	0.000
						C	0.000	128.492		30.56	0.000	0.000
T9 20.00-0.00	10.00	1	17	0.5000	502.024	A	0.000	182.309	39.270	21.54	0.000	0.000
						B	0.000	196.534		19.98	0.000	0.000
						C	0.000	135.954		28.88	0.000	0.000

Tower Pressure - Service

$G_H = 1.121$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	170.00	1.597	10	177.083	A	0.000	24.683	11.667	47.27	0.000	0.000
180.00-160.00					B	0.000	53.536		21.79	0.000	0.000
					C	0.000	24.683		47.27	0.000	0.000
T2	150.00	1.541	10	178.750	A	0.000	27.899	15.000	53.77	0.000	0.000
160.00-140.00					B	0.000	87.661		17.11	0.000	0.000
					C	0.000	64.383		23.30	0.000	0.000
T3	130.00	1.48	9	202.411	A	0.000	79.317	18.580	23.43	0.000	0.000
140.00-120.00					B	0.000	105.096		17.68	0.000	0.000
					C	0.000	68.938		26.95	0.000	0.000
T4	110.00	1.411	9	246.957	A	0.000	105.720	22.123	20.93	0.000	0.000
120.00-100.00					B	0.000	113.071		19.57	0.000	0.000
					C	0.000	77.297		28.62	0.000	0.000
T5	90.00	1.332	9	295.902	A	0.000	113.398	28.823	25.42	0.000	0.000
100.00-80.00					B	0.000	120.861		23.85	0.000	0.000
					C	0.000	84.539		34.09	0.000	0.000
T6 80.00-60.00	70.00	1.24	8	345.778	A	0.000	115.646	28.826	24.93	0.000	0.000
					B	0.000	123.823		23.28	0.000	0.000
					C	0.000	86.647		33.27	0.000	0.000
T7 60.00-40.00	50.00	1.126	7	396.078	A	0.000	119.089	28.826	24.20	0.000	0.000
					B	0.000	127.484		22.61	0.000	0.000
					C	0.000	90.121		31.99	0.000	0.000
T8 40.00-20.00	30.00	1	6	449.952	A	0.000	128.474	35.928	27.97	0.000	0.000
					B	0.000	136.890		26.25	0.000	0.000
					C	0.000	99.434		36.13	0.000	0.000
T9 20.00-0.00	10.00	1	6	500.354	A	0.000	135.076	35.928	26.60	0.000	0.000
					B	0.000	143.412		25.05	0.000	0.000
					C	0.000	106.309		33.80	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.23	1.25	A	0.139	2.811	0.58	1	1	14.314	3.13	156.35	B
180.00-160.00			B	0.302	2.29	0.617	1	1	33.011			
			C	0.139	2.811	0.58	1	1	14.314			
T2	0.71	1.89	A	0.156	2.749	0.582	1	1	16.249	4.64	231.78	B
160.00-140.00			B	0.49	1.913	0.693	1	1	60.719			
			C	0.36	2.148	0.636	1	1	40.958			
T3	1.09	2.30	A	0.392	2.08	0.648	1	1	51.422	5.35	267.26	B
140.00-120.00			B	0.519	1.876	0.707	1	1	74.354			
			C	0.341	2.194	0.629	1	1	43.373			
T4	1.22	2.78	A	0.428	2.011	0.663	1	1	70.142	5.48	274.11	B
120.00-100.00			B	0.458	1.961	0.677	1	1	76.539			
			C	0.313	2.262	0.62	1	1	47.921			
T5	1.22	3.48	A	0.383	2.098	0.645	1	1	73.130	5.59	279.59	B
100.00-80.00			B	0.408	2.048	0.655	1	1	79.174			
			C	0.286	2.335	0.612	1	1	51.707			
T6	1.22	4.31	A	0.334	2.208	0.627	1	1	72.515	5.44	271.89	B
80.00-60.00			B	0.358	2.153	0.635	1	1	78.677			
			C	0.251	2.436	0.602	1	1	52.163			
T7	1.22	4.74	A	0.301	2.294	0.616	1	1	73.372	5.19	259.26	B
60.00-40.00			B	0.322	2.239	0.623	1	1	79.402			
			C	0.228	2.507	0.596	1	1	53.748			
T8	1.22	5.75	A	0.286	2.335	0.612	1	1	78.572	5.00	249.95	B
40.00-20.00			B	0.304	2.285	0.617	1	1	84.489			
			C	0.221	2.527	0.595	1	1	59.154			
T9 20.00-0.00	1.22	7.16	A	0.27	2.379	0.607	1	1	82.014	5.30	265.00	B
			B	0.287	2.332	0.612	1	1	87.753			
			C	0.212	2.555	0.593	1	1	63.044			
Sum Weight:	9.36	33.66						OTM	3870.99 kip-ft	45.10		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.23	1.25	A	0.139	2.811	0.58	0.825	1	14.314	3.13	156.35	B
180.00-160.00			B	0.302	2.29	0.617	0.825	1	33.011			
			C	0.139	2.811	0.58	0.825	1	14.314			
T2	0.71	1.89	A	0.156	2.749	0.582	0.825	1	16.249	4.64	231.78	B
160.00-140.00			B	0.49	1.913	0.693	0.825	1	60.719			
			C	0.36	2.148	0.636	0.825	1	40.958			
T3	1.09	2.30	A	0.392	2.08	0.648	0.825	1	51.422	5.35	267.26	B
140.00-120.00			B	0.519	1.876	0.707	0.825	1	74.354			
			C	0.341	2.194	0.629	0.825	1	43.373			
T4	1.22	2.78	A	0.428	2.011	0.663	0.825	1	70.142	5.48	274.11	B
120.00-100.00			B	0.458	1.961	0.677	0.825	1	76.539			
			C	0.313	2.262	0.62	0.825	1	47.921			
T5	1.22	3.48	A	0.383	2.098	0.645	0.825	1	73.130	5.59	279.59	B
100.00-80.00			B	0.408	2.048	0.655	0.825	1	79.174			
			C	0.286	2.335	0.612	0.825	1	51.707			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T6	1.22	4.31	A	0.334	2.208	0.627	0.825	1	72.515	5.44	271.89	B
80.00-60.00			B	0.358	2.153	0.635	0.825	1	78.677			
			C	0.251	2.436	0.602	0.825	1	52.163			
T7	1.22	4.74	A	0.301	2.294	0.616	0.825	1	73.372	5.19	259.26	B
60.00-40.00			B	0.322	2.239	0.623	0.825	1	79.402			
			C	0.228	2.507	0.596	0.825	1	53.748			
T8	1.22	5.75	A	0.286	2.335	0.612	0.825	1	78.572	5.00	249.95	B
40.00-20.00			B	0.304	2.285	0.617	0.825	1	84.489			
			C	0.221	2.527	0.595	0.825	1	59.154			
T9 20.00-0.00	1.22	7.16	A	0.27	2.379	0.607	0.825	1	82.014	5.30	265.00	B
			B	0.287	2.332	0.612	0.825	1	87.753			
			C	0.212	2.555	0.593	0.825	1	63.044			
Sum Weight:	9.36	33.66						OTM	3870.99 kip-ft	45.10		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.23	1.25	A	0.139	2.811	0.58	0.8	1	14.314	3.13	156.35	B
180.00-160.00			B	0.302	2.29	0.617	0.8	1	33.011			
			C	0.139	2.811	0.58	0.8	1	14.314			
T2	0.71	1.89	A	0.156	2.749	0.582	0.8	1	16.249	4.64	231.78	B
160.00-140.00			B	0.49	1.913	0.693	0.8	1	60.719			
			C	0.36	2.148	0.636	0.8	1	40.958			
T3	1.09	2.30	A	0.392	2.08	0.648	0.8	1	51.422	5.35	267.26	B
140.00-120.00			B	0.519	1.876	0.707	0.8	1	74.354			
			C	0.341	2.194	0.629	0.8	1	43.373			
T4	1.22	2.78	A	0.428	2.011	0.663	0.8	1	70.142	5.48	274.11	B
120.00-100.00			B	0.458	1.961	0.677	0.8	1	76.539			
			C	0.313	2.262	0.62	0.8	1	47.921			
T5	1.22	3.48	A	0.383	2.098	0.645	0.8	1	73.130	5.59	279.59	B
100.00-80.00			B	0.408	2.048	0.655	0.8	1	79.174			
			C	0.286	2.335	0.612	0.8	1	51.707			
T6	1.22	4.31	A	0.334	2.208	0.627	0.8	1	72.515	5.44	271.89	B
80.00-60.00			B	0.358	2.153	0.635	0.8	1	78.677			
			C	0.251	2.436	0.602	0.8	1	52.163			
T7	1.22	4.74	A	0.301	2.294	0.616	0.8	1	73.372	5.19	259.26	B
60.00-40.00			B	0.322	2.239	0.623	0.8	1	79.402			
			C	0.228	2.507	0.596	0.8	1	53.748			
T8	1.22	5.75	A	0.286	2.335	0.612	0.8	1	78.572	5.00	249.95	B
40.00-20.00			B	0.304	2.285	0.617	0.8	1	84.489			
			C	0.221	2.527	0.595	0.8	1	59.154			
T9 20.00-0.00	1.22	7.16	A	0.27	2.379	0.607	0.8	1	82.014	5.30	265.00	B
			B	0.287	2.332	0.612	0.8	1	87.753			
			C	0.212	2.555	0.593	0.8	1	63.044			
Sum Weight:	9.36	33.66						OTM	3870.99 kip-ft	45.10		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.23	1.25	A	0.139	2.811	0.58	0.85	1	14.314	3.13	156.35	B
180.00-160.00			B	0.302	2.29	0.617	0.85	1	33.011			
			C	0.139	2.811	0.58	0.85	1	14.314			
T2	0.71	1.89	A	0.156	2.749	0.582	0.85	1	16.249	4.64	231.78	B
160.00-140.00			B	0.49	1.913	0.693	0.85	1	60.719			
			C	0.36	2.148	0.636	0.85	1	40.958			
T3	1.09	2.30	A	0.392	2.08	0.648	0.85	1	51.422	5.35	267.26	B
140.00-120.00			B	0.519	1.876	0.707	0.85	1	74.354			
			C	0.341	2.194	0.629	0.85	1	43.373			
T4	1.22	2.78	A	0.428	2.011	0.663	0.85	1	70.142	5.48	274.11	B
120.00-100.00			B	0.458	1.961	0.677	0.85	1	76.539			
			C	0.313	2.262	0.62	0.85	1	47.921			
T5	1.22	3.48	A	0.383	2.098	0.645	0.85	1	73.130	5.59	279.59	B
100.00-80.00			B	0.408	2.048	0.655	0.85	1	79.174			
			C	0.286	2.335	0.612	0.85	1	51.707			
T6	1.22	4.31	A	0.334	2.208	0.627	0.85	1	72.515	5.44	271.89	B
80.00-60.00			B	0.358	2.153	0.635	0.85	1	78.677			
			C	0.251	2.436	0.602	0.85	1	52.163			
T7	1.22	4.74	A	0.301	2.294	0.616	0.85	1	73.372	5.19	259.26	B
60.00-40.00			B	0.322	2.239	0.623	0.85	1	79.402			
			C	0.228	2.507	0.596	0.85	1	53.748			
T8	1.22	5.75	A	0.286	2.335	0.612	0.85	1	78.572	5.00	249.95	B
40.00-20.00			B	0.304	2.285	0.617	0.85	1	84.489			
			C	0.221	2.527	0.595	0.85	1	59.154			
T9 20.00-0.00	1.22	7.16	A	0.27	2.379	0.607	0.85	1	82.014	5.30	265.00	B
			B	0.287	2.332	0.612	0.85	1	87.753			
			C	0.212	2.555	0.593	0.85	1	63.044			
Sum Weight:	9.36	33.66						OTM	3870.99 kip-ft	45.10		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.54	1.83	A	0.19	2.631	0.588	1	1	19.952	3.27	163.73	B
180.00-160.00			B	0.444	1.984	0.671	1	1	53.214			
			C	0.19	2.631	0.588	1	1	19.952			
T2	1.68	2.51	A	0.205	2.578	0.592	1	1	21.931	5.61	280.47	B
160.00-140.00			B	0.708	1.777	0.826	1	1	105.467			
			C	0.498	1.903	0.697	1	1	62.589			
T3	2.68	2.99	A	0.558	1.836	0.729	1	1	83.078	6.67	333.43	B
140.00-120.00			B	0.746	1.786	0.854	1	1	129.941			
			C	0.466	1.949	0.681	1	1	64.666			
T4	2.99	3.65	A	0.601	1.804	0.754	1	1	112.596	6.15	307.72	B
120.00-100.00			B	0.647	1.782	0.783	1	1	126.036			
			C	0.419	2.028	0.66	1	1	68.693			
T5	2.99	4.40	A	0.53	1.865	0.713	1	1	112.347	5.88	294.23	B
100.00-80.00			B	0.569	1.826	0.735	1	1	124.551			
			C	0.374	2.118	0.641	1	1	71.332			
T6	3.00	5.31	A	0.463	1.953	0.679	1	1	109.241	5.57	278.48	B
80.00-60.00			B	0.502	1.897	0.699	1	1	121.941			
			C	0.329	2.223	0.625	1	1	71.379			
T7	3.00	5.86	A	0.415	2.035	0.658	1	1	108.567	5.21	260.56	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
60.00-40.00			B	0.451	1.972	0.674	1	1	120.829			
			C	0.298	2.302	0.615	1	1	72.850			
T8	3.00	7.05	A	0.388	2.088	0.647	1	1	113.369	4.92	246.20	B
40.00-20.00			B	0.42	2.026	0.66	1	1	125.137			
			C	0.285	2.338	0.611	1	1	78.545			
T9 20.00-0.00	3.00	8.66	A	0.363	2.142	0.637	1	1	116.178	5.15	257.45	B
			B	0.391	2.081	0.648	1	1	127.386			
			C	0.271	2.377	0.607	1	1	82.579			
Sum Weight:	22.89	42.28						OTM	4321.26 kip-ft	48.45		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.54	1.83	A	0.19	2.631	0.588	0.825	1	19.952	3.27	163.73	B
180.00-160.00			B	0.444	1.984	0.671	0.825	1	53.214			
			C	0.19	2.631	0.588	0.825	1	19.952			
T2	1.68	2.51	A	0.205	2.578	0.592	0.825	1	21.931	5.61	280.47	B
160.00-140.00			B	0.708	1.777	0.826	0.825	1	105.467			
			C	0.498	1.903	0.697	0.825	1	62.589			
T3	2.68	2.99	A	0.558	1.836	0.729	0.825	1	83.078	6.67	333.43	B
140.00-120.00			B	0.746	1.786	0.854	0.825	1	129.941			
			C	0.466	1.949	0.681	0.825	1	64.666			
T4	2.99	3.65	A	0.601	1.804	0.754	0.825	1	112.596	6.15	307.72	B
120.00-100.00			B	0.647	1.782	0.783	0.825	1	126.036			
			C	0.419	2.028	0.66	0.825	1	68.693			
T5	2.99	4.40	A	0.53	1.865	0.713	0.825	1	112.347	5.88	294.23	B
100.00-80.00			B	0.569	1.826	0.735	0.825	1	124.551			
			C	0.374	2.118	0.641	0.825	1	71.332			
T6	3.00	5.31	A	0.463	1.953	0.679	0.825	1	109.241	5.57	278.48	B
80.00-60.00			B	0.502	1.897	0.699	0.825	1	121.941			
			C	0.329	2.223	0.625	0.825	1	71.379			
T7	3.00	5.86	A	0.415	2.035	0.658	0.825	1	108.567	5.21	260.56	B
60.00-40.00			B	0.451	1.972	0.674	0.825	1	120.829			
			C	0.298	2.302	0.615	0.825	1	72.850			
T8	3.00	7.05	A	0.388	2.088	0.647	0.825	1	113.369	4.92	246.20	B
40.00-20.00			B	0.42	2.026	0.66	0.825	1	125.137			
			C	0.285	2.338	0.611	0.825	1	78.545			
T9 20.00-0.00	3.00	8.66	A	0.363	2.142	0.637	0.825	1	116.178	5.15	257.45	B
			B	0.391	2.081	0.648	0.825	1	127.386			
			C	0.271	2.377	0.607	0.825	1	82.579			
Sum Weight:	22.89	42.28						OTM	4321.26 kip-ft	48.45		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.54	1.83	A	0.19	2.631	0.588	0.8	1	19.952	3.27	163.73	B
180.00-160.00			B	0.444	1.984	0.671	0.8	1	53.214			
			C	0.19	2.631	0.588	0.8	1	19.952			
T2	1.68	2.51	A	0.205	2.578	0.592	0.8	1	21.931	5.61	280.47	B
160.00-140.00			B	0.708	1.777	0.826	0.8	1	105.467			
			C	0.498	1.903	0.697	0.8	1	62.589			
T3	2.68	2.99	A	0.558	1.836	0.729	0.8	1	83.078	6.67	333.43	B
140.00-120.00			B	0.746	1.786	0.854	0.8	1	129.941			
			C	0.466	1.949	0.681	0.8	1	64.666			
T4	2.99	3.65	A	0.601	1.804	0.754	0.8	1	112.596	6.15	307.72	B
120.00-100.00			B	0.647	1.782	0.783	0.8	1	126.036			
			C	0.419	2.028	0.66	0.8	1	68.693			
T5	2.99	4.40	A	0.53	1.865	0.713	0.8	1	112.347	5.88	294.23	B
100.00-80.00			B	0.569	1.826	0.735	0.8	1	124.551			
			C	0.374	2.118	0.641	0.8	1	71.332			
T6	3.00	5.31	A	0.463	1.953	0.679	0.8	1	109.241	5.57	278.48	B
80.00-60.00			B	0.502	1.897	0.699	0.8	1	121.941			
			C	0.329	2.223	0.625	0.8	1	71.379			
T7	3.00	5.86	A	0.415	2.035	0.658	0.8	1	108.567	5.21	260.56	B
60.00-40.00			B	0.451	1.972	0.674	0.8	1	120.829			
			C	0.298	2.302	0.615	0.8	1	72.850			
T8	3.00	7.05	A	0.388	2.088	0.647	0.8	1	113.369	4.92	246.20	B
40.00-20.00			B	0.42	2.026	0.66	0.8	1	125.137			
			C	0.285	2.338	0.611	0.8	1	78.545			
T9 20.00-0.00	3.00	8.66	A	0.363	2.142	0.637	0.8	1	116.178	5.15	257.45	B
			B	0.391	2.081	0.648	0.8	1	127.386			
			C	0.271	2.377	0.607	0.8	1	82.579			
Sum Weight:	22.89	42.28						OTM	4321.26 kip-ft	48.45		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.54	1.83	A	0.19	2.631	0.588	0.85	1	19.952	3.27	163.73	B
180.00-160.00			B	0.444	1.984	0.671	0.85	1	53.214			
			C	0.19	2.631	0.588	0.85	1	19.952			
T2	1.68	2.51	A	0.205	2.578	0.592	0.85	1	21.931	5.61	280.47	B
160.00-140.00			B	0.708	1.777	0.826	0.85	1	105.467			
			C	0.498	1.903	0.697	0.85	1	62.589			
T3	2.68	2.99	A	0.558	1.836	0.729	0.85	1	83.078	6.67	333.43	B
140.00-120.00			B	0.746	1.786	0.854	0.85	1	129.941			
			C	0.466	1.949	0.681	0.85	1	64.666			
T4	2.99	3.65	A	0.601	1.804	0.754	0.85	1	112.596	6.15	307.72	B
120.00-100.00			B	0.647	1.782	0.783	0.85	1	126.036			
			C	0.419	2.028	0.66	0.85	1	68.693			
T5	2.99	4.40	A	0.53	1.865	0.713	0.85	1	112.347	5.88	294.23	B
100.00-80.00			B	0.569	1.826	0.735	0.85	1	124.551			
			C	0.374	2.118	0.641	0.85	1	71.332			
T6	3.00	5.31	A	0.463	1.953	0.679	0.85	1	109.241	5.57	278.48	B
80.00-60.00			B	0.502	1.897	0.699	0.85	1	121.941			
			C	0.329	2.223	0.625	0.85	1	71.379			
T7	3.00	5.86	A	0.415	2.035	0.658	0.85	1	108.567	5.21	260.56	B
60.00-40.00			B	0.451	1.972	0.674	0.85	1	120.829			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.298	2.302	0.615	0.85	1	72.850			
T8	3.00	7.05	A	0.388	2.088	0.647	0.85	1	113.369	4.92	246.20	B
40.00-20.00			B	0.42	2.026	0.66	0.85	1	125.137			
			C	0.285	2.338	0.611	0.85	1	78.545			
T9 20.00-0.00	3.00	8.66	A	0.363	2.142	0.637	0.85	1	116.178	5.15	257.45	B
			B	0.391	2.081	0.648	0.85	1	127.386			
			C	0.271	2.377	0.607	0.85	1	82.579			
Sum Weight:	22.89	42.28						OTM	4321.26 kip-ft	48.45		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.23	1.25	A	0.139	2.811	0.58	1	1	14.314	0.87	43.31	B
180.00-160.00			B	0.302	2.29	0.617	1	1	33.011			
			C	0.139	2.811	0.58	1	1	14.314			
T2	0.71	1.89	A	0.156	2.749	0.582	1	1	16.249	1.28	64.21	B
160.00-140.00			B	0.49	1.913	0.693	1	1	60.719			
			C	0.36	2.148	0.636	1	1	40.958			
T3	1.09	2.30	A	0.392	2.08	0.648	1	1	51.422	1.48	74.03	B
140.00-120.00			B	0.519	1.876	0.707	1	1	74.354			
			C	0.341	2.194	0.629	1	1	43.373			
T4	1.22	2.78	A	0.428	2.011	0.663	1	1	70.142	1.52	75.93	B
120.00-100.00			B	0.458	1.961	0.677	1	1	76.539			
			C	0.313	2.262	0.62	1	1	47.921			
T5	1.22	3.48	A	0.383	2.098	0.645	1	1	73.130	1.55	77.45	B
100.00-80.00			B	0.408	2.048	0.655	1	1	79.174			
			C	0.286	2.335	0.612	1	1	51.707			
T6	1.22	4.31	A	0.334	2.208	0.627	1	1	72.515	1.51	75.32	B
80.00-60.00			B	0.358	2.153	0.635	1	1	78.677			
			C	0.251	2.436	0.602	1	1	52.163			
T7	1.22	4.74	A	0.301	2.294	0.616	1	1	73.372	1.44	71.82	B
60.00-40.00			B	0.322	2.239	0.623	1	1	79.402			
			C	0.228	2.507	0.596	1	1	53.748			
T8	1.22	5.75	A	0.286	2.335	0.612	1	1	78.572	1.38	69.24	B
40.00-20.00			B	0.304	2.285	0.617	1	1	84.489			
			C	0.221	2.527	0.595	1	1	59.154			
T9 20.00-0.00	1.22	7.16	A	0.27	2.379	0.607	1	1	82.014	1.47	73.41	B
			B	0.287	2.332	0.612	1	1	87.753			
			C	0.212	2.555	0.593	1	1	63.044			
Sum Weight:	9.36	33.66						OTM	1072.30 kip-ft	12.49		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.23	1.25	A	0.139	2.811	0.58	0.825	1	14.314	0.87	43.31	B
180.00-160.00			B	0.302	2.29	0.617	0.825	1	33.011			
			C	0.139	2.811	0.58	0.825	1	14.314			
T2	0.71	1.89	A	0.156	2.749	0.582	0.825	1	16.249	1.28	64.21	B
160.00-140.00			B	0.49	1.913	0.693	0.825	1	60.719			
			C	0.36	2.148	0.636	0.825	1	40.958			
T3	1.09	2.30	A	0.392	2.08	0.648	0.825	1	51.422	1.48	74.03	B
140.00-120.00			B	0.519	1.876	0.707	0.825	1	74.354			
			C	0.341	2.194	0.629	0.825	1	43.373			
T4	1.22	2.78	A	0.428	2.011	0.663	0.825	1	70.142	1.52	75.93	B
120.00-100.00			B	0.458	1.961	0.677	0.825	1	76.539			
			C	0.313	2.262	0.62	0.825	1	47.921			
T5	1.22	3.48	A	0.383	2.098	0.645	0.825	1	73.130	1.55	77.45	B
100.00-80.00			B	0.408	2.048	0.655	0.825	1	79.174			
			C	0.286	2.335	0.612	0.825	1	51.707			
T6	1.22	4.31	A	0.334	2.208	0.627	0.825	1	72.515	1.51	75.32	B
80.00-60.00			B	0.358	2.153	0.635	0.825	1	78.677			
			C	0.251	2.436	0.602	0.825	1	52.163			
T7	1.22	4.74	A	0.301	2.294	0.616	0.825	1	73.372	1.44	71.82	B
60.00-40.00			B	0.322	2.239	0.623	0.825	1	79.402			
			C	0.228	2.507	0.596	0.825	1	53.748			
T8	1.22	5.75	A	0.286	2.335	0.612	0.825	1	78.572	1.38	69.24	B
40.00-20.00			B	0.304	2.285	0.617	0.825	1	84.489			
			C	0.221	2.527	0.595	0.825	1	59.154			
T9 20.00-0.00	1.22	7.16	A	0.27	2.379	0.607	0.825	1	82.014	1.47	73.41	B
			B	0.287	2.332	0.612	0.825	1	87.753			
			C	0.212	2.555	0.593	0.825	1	63.044			
Sum Weight:	9.36	33.66						OTM	1072.30 kip-ft	12.49		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.23	1.25	A	0.139	2.811	0.58	0.8	1	14.314	0.87	43.31	B
180.00-160.00			B	0.302	2.29	0.617	0.8	1	33.011			
			C	0.139	2.811	0.58	0.8	1	14.314			
T2	0.71	1.89	A	0.156	2.749	0.582	0.8	1	16.249	1.28	64.21	B
160.00-140.00			B	0.49	1.913	0.693	0.8	1	60.719			
			C	0.36	2.148	0.636	0.8	1	40.958			
T3	1.09	2.30	A	0.392	2.08	0.648	0.8	1	51.422	1.48	74.03	B
140.00-120.00			B	0.519	1.876	0.707	0.8	1	74.354			
			C	0.341	2.194	0.629	0.8	1	43.373			
T4	1.22	2.78	A	0.428	2.011	0.663	0.8	1	70.142	1.52	75.93	B
120.00-100.00			B	0.458	1.961	0.677	0.8	1	76.539			
			C	0.313	2.262	0.62	0.8	1	47.921			
T5	1.22	3.48	A	0.383	2.098	0.645	0.8	1	73.130	1.55	77.45	B
100.00-80.00			B	0.408	2.048	0.655	0.8	1	79.174			
			C	0.286	2.335	0.612	0.8	1	51.707			
T6	1.22	4.31	A	0.334	2.208	0.627	0.8	1	72.515	1.51	75.32	B
80.00-60.00			B	0.358	2.153	0.635	0.8	1	78.677			
			C	0.251	2.436	0.602	0.8	1	52.163			
T7	1.22	4.74	A	0.301	2.294	0.616	0.8	1	73.372	1.44	71.82	B
60.00-40.00			B	0.322	2.239	0.623	0.8	1	79.402			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.228	2.507	0.596	0.8	1	53.748			
T8	1.22	5.75	A	0.286	2.335	0.612	0.8	1	78.572	1.38	69.24	B
40.00-20.00			B	0.304	2.285	0.617	0.8	1	84.489			
			C	0.221	2.527	0.595	0.8	1	59.154			
T9 20.00-0.00	1.22	7.16	A	0.27	2.379	0.607	0.8	1	82.014	1.47	73.41	B
			B	0.287	2.332	0.612	0.8	1	87.753			
			C	0.212	2.555	0.593	0.8	1	63.044			
Sum Weight:	9.36	33.66						OTM	1072.30 kip-ft	12.49		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.23	1.25	A	0.139	2.811	0.58	0.85	1	14.314	0.87	43.31	B
180.00-160.00			B	0.302	2.29	0.617	0.85	1	33.011			
			C	0.139	2.811	0.58	0.85	1	14.314			
T2	0.71	1.89	A	0.156	2.749	0.582	0.85	1	16.249	1.28	64.21	B
160.00-140.00			B	0.49	1.913	0.693	0.85	1	60.719			
			C	0.36	2.148	0.636	0.85	1	40.958			
T3	1.09	2.30	A	0.392	2.08	0.648	0.85	1	51.422	1.48	74.03	B
140.00-120.00			B	0.519	1.876	0.707	0.85	1	74.354			
			C	0.341	2.194	0.629	0.85	1	43.373			
T4	1.22	2.78	A	0.428	2.011	0.663	0.85	1	70.142	1.52	75.93	B
120.00-100.00			B	0.458	1.961	0.677	0.85	1	76.539			
			C	0.313	2.262	0.62	0.85	1	47.921			
T5	1.22	3.48	A	0.383	2.098	0.645	0.85	1	73.130	1.55	77.45	B
100.00-80.00			B	0.408	2.048	0.655	0.85	1	79.174			
			C	0.286	2.335	0.612	0.85	1	51.707			
T6	1.22	4.31	A	0.334	2.208	0.627	0.85	1	72.515	1.51	75.32	B
80.00-60.00			B	0.358	2.153	0.635	0.85	1	78.677			
			C	0.251	2.436	0.602	0.85	1	52.163			
T7	1.22	4.74	A	0.301	2.294	0.616	0.85	1	73.372	1.44	71.82	B
60.00-40.00			B	0.322	2.239	0.623	0.85	1	79.402			
			C	0.228	2.507	0.596	0.85	1	53.748			
T8	1.22	5.75	A	0.286	2.335	0.612	0.85	1	78.572	1.38	69.24	B
40.00-20.00			B	0.304	2.285	0.617	0.85	1	84.489			
			C	0.221	2.527	0.595	0.85	1	59.154			
T9 20.00-0.00	1.22	7.16	A	0.27	2.379	0.607	0.85	1	82.014	1.47	73.41	B
			B	0.287	2.332	0.612	0.85	1	87.753			
			C	0.212	2.555	0.593	0.85	1	63.044			
Sum Weight:	9.36	33.66						OTM	1072.30 kip-ft	12.49		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	17.78					
Bracing Weight	15.87					
Total Member Self-Weight	33.66			-2.83	-19.28	
Total Weight	53.57			-2.83	-19.28	
Wind 0 deg - No Ice		0.16	-65.48	-6987.13	-48.03	42.19
Wind 30 deg - No Ice		32.85	-56.79	-6065.79	-3529.76	28.66
Wind 45 deg - No Ice		46.37	-46.41	-4961.81	-4968.96	18.69
Wind 60 deg - No Ice		56.73	-32.88	-3519.88	-6070.85	7.45
Wind 90 deg - No Ice		65.41	-0.16	-31.59	-6990.43	-15.75
Wind 120 deg - No Ice		56.57	32.60	3464.41	-6042.10	-34.74
Wind 135 deg - No Ice		46.14	46.19	4915.48	-4928.30	-40.97
Wind 150 deg - No Ice		32.57	56.63	6031.37	-3479.95	-44.41
Wind 180 deg - No Ice		-0.16	65.48	6981.46	9.48	-42.19
Wind 210 deg - No Ice		-32.85	56.79	6060.12	3491.20	-28.66
Wind 225 deg - No Ice		-46.37	46.41	4956.14	4930.41	-18.69
Wind 240 deg - No Ice		-56.73	32.88	3514.22	6032.30	-7.45
Wind 270 deg - No Ice		-65.41	0.16	25.92	6951.88	15.75
Wind 300 deg - No Ice		-56.57	-32.60	-3470.08	6003.55	34.74
Wind 315 deg - No Ice		-46.14	-46.19	-4921.14	4889.75	40.97
Wind 330 deg - No Ice		-32.57	-56.63	-6037.03	3441.40	44.41
Member Ice	8.63					
Total Weight Ice	71.59			-13.47	-42.56	
Wind 0 deg - Ice		0.13	-66.70	-7129.56	-65.43	49.72
Wind 30 deg - Ice		33.43	-57.83	-6187.62	-3615.07	33.06
Wind 45 deg - Ice		47.21	-47.26	-5061.47	-5083.02	21.02
Wind 60 deg - Ice		57.77	-33.47	-3591.32	-6207.46	7.55
Wind 90 deg - Ice		66.63	-0.13	-36.34	-7147.97	-19.99
Wind 120 deg - Ice		57.64	33.23	3524.76	-6184.60	-42.17
Wind 135 deg - Ice		47.02	47.07	5002.19	-5050.68	-49.29
Wind 150 deg - Ice		33.20	57.69	6137.80	-3575.47	-53.05
Wind 180 deg - Ice		-0.13	66.70	7102.61	-19.70	-49.72
Wind 210 deg - Ice		-33.43	57.83	6160.67	3529.95	-33.06
Wind 225 deg - Ice		-47.21	47.26	5034.52	4997.89	-21.02
Wind 240 deg - Ice		-57.77	33.47	3564.37	6122.34	-7.55
Wind 270 deg - Ice		-66.63	0.13	9.39	7062.85	19.99
Wind 300 deg - Ice		-57.64	-33.23	-3551.71	6099.47	42.17
Wind 315 deg - Ice		-47.02	-47.07	-5029.14	4965.55	49.29
Wind 330 deg - Ice		-33.20	-57.69	-6164.75	3490.34	53.05
Total Weight	53.57			-2.83	-19.28	
Wind 0 deg - Service		0.04	-18.14	-1934.44	-8.23	11.69
Wind 30 deg - Service		9.10	-15.73	-1679.22	-972.70	7.94
Wind 45 deg - Service		12.84	-12.86	-1373.41	-1371.37	5.18
Wind 60 deg - Service		15.71	-9.11	-973.99	-1676.61	2.06
Wind 90 deg - Service		18.12	-0.04	-7.70	-1931.34	-4.36
Wind 120 deg - Service		15.67	9.03	960.72	-1668.64	-9.62
Wind 135 deg - Service		12.78	12.79	1362.68	-1360.11	-11.35
Wind 150 deg - Service		9.02	15.69	1671.79	-958.91	-12.30
Wind 180 deg - Service		-0.04	18.14	1934.97	7.70	-11.69
Wind 210 deg - Service		-9.10	15.73	1679.75	972.16	-7.94
Wind 225 deg - Service		-12.84	12.86	1373.94	1370.84	-5.18
Wind 240 deg - Service		-15.71	9.11	974.52	1676.07	-2.06
Wind 270 deg - Service		-18.12	0.04	8.23	1930.80	4.36
Wind 300 deg - Service		-15.67	-9.03	-960.19	1668.10	9.62
Wind 315 deg - Service		-12.78	-12.79	-1362.15	1359.57	11.35
Wind 330 deg - Service		-9.02	-15.69	-1671.26	958.37	12.30

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 45 deg - No Ice
5	Dead+Wind 60 deg - No Ice
6	Dead+Wind 90 deg - No Ice
7	Dead+Wind 120 deg - No Ice
8	Dead+Wind 135 deg - No Ice
9	Dead+Wind 150 deg - No Ice
10	Dead+Wind 180 deg - No Ice
11	Dead+Wind 210 deg - No Ice
12	Dead+Wind 225 deg - No Ice
13	Dead+Wind 240 deg - No Ice
14	Dead+Wind 270 deg - No Ice
15	Dead+Wind 300 deg - No Ice
16	Dead+Wind 315 deg - No Ice
17	Dead+Wind 330 deg - No Ice
18	Dead+Ice+Temp
19	Dead+Wind 0 deg+Ice+Temp
20	Dead+Wind 30 deg+Ice+Temp
21	Dead+Wind 45 deg+Ice+Temp
22	Dead+Wind 60 deg+Ice+Temp
23	Dead+Wind 90 deg+Ice+Temp
24	Dead+Wind 120 deg+Ice+Temp
25	Dead+Wind 135 deg+Ice+Temp
26	Dead+Wind 150 deg+Ice+Temp
27	Dead+Wind 180 deg+Ice+Temp
28	Dead+Wind 210 deg+Ice+Temp
29	Dead+Wind 225 deg+Ice+Temp
30	Dead+Wind 240 deg+Ice+Temp
31	Dead+Wind 270 deg+Ice+Temp
32	Dead+Wind 300 deg+Ice+Temp
33	Dead+Wind 315 deg+Ice+Temp
34	Dead+Wind 330 deg+Ice+Temp
35	Dead+Wind 0 deg - Service
36	Dead+Wind 30 deg - Service
37	Dead+Wind 45 deg - Service
38	Dead+Wind 60 deg - Service
39	Dead+Wind 90 deg - Service
40	Dead+Wind 120 deg - Service
41	Dead+Wind 135 deg - Service
42	Dead+Wind 150 deg - Service
43	Dead+Wind 180 deg - Service
44	Dead+Wind 210 deg - Service
45	Dead+Wind 225 deg - Service
46	Dead+Wind 240 deg - Service
47	Dead+Wind 270 deg - Service
48	Dead+Wind 300 deg - Service
49	Dead+Wind 315 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	180 - 160	Leg	Max Tension	22	4.71	-0.66	0.28
			Max. Compression	19	-6.59	0.01	-0.28
			Max. Mx	14	0.57	-1.69	-0.06
			Max. My	2	0.22	-0.10	-1.92
			Max. Vy	14	0.78	0.87	-0.06
			Max. Vx	2	0.90	-0.10	0.99
		Diagonal	Max Tension	9	5.44	0.00	0.00
			Max. Compression	9	-5.50	0.00	0.00
			Max. Mx	20	2.85	0.02	0.00
			Max. My	19	0.09	0.00	-0.00
			Max. Vy	20	-0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	10	3.06	-0.01	0.00
			Max. Compression	2	-3.02	0.00	0.00
			Max. Mx	22	0.07	-0.01	-0.01
			Max. My	5	-0.48	-0.01	-0.01
			Max. Vy	22	-0.01	-0.01	-0.01
			Max. Vx	5	0.00	-0.01	-0.01
		Top Girt	Max Tension	27	0.52	-0.01	0.00
			Max. Compression	19	-0.52	-0.01	-0.00
			Max. Mx	22	-0.07	-0.01	-0.00
			Max. My	32	-0.21	-0.01	-0.00
			Max. Vy	22	-0.01	-0.01	-0.00
			Max. Vx	32	0.00	-0.01	-0.00
		Inner Bracing	Max Tension	19	0.01	0.00	0.00
			Max. Compression	19	-0.01	0.00	0.00
			Max. Mx	18	0.00	-0.01	0.00
			Max. My	22	-0.00	0.00	0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T2	160 - 140	Leg	Max Tension	5	35.56	-0.77	0.42
			Max. Compression	2	-41.64	0.14	-0.03
			Max. Mx	14	-2.69	-1.63	-0.01
			Max. My	10	-13.73	0.04	1.66
			Max. Vy	14	1.14	-0.28	0.01
			Max. Vx	2	1.17	0.02	-0.35
		Diagonal	Max Tension	9	13.58	0.00	0.00
			Max. Compression	17	-13.66	0.00	0.00
			Max. Mx	20	6.74	0.03	0.00
			Max. My	19	0.58	0.00	-0.00
			Max. Vy	20	-0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	9	7.36	-0.01	0.00
			Max. Compression	17	-7.33	-0.01	-0.00
			Max. Mx	22	0.38	-0.02	-0.01
			Max. My	5	-0.48	-0.02	-0.02
			Max. Vy	22	-0.01	-0.02	-0.01
			Max. Vx	5	0.00	-0.02	-0.02
		Inner Bracing	Max Tension	12	0.01	0.00	0.00
			Max. Compression	26	-0.01	0.00	0.00
			Max. Mx	18	0.00	-0.01	0.00
			Max. My	22	-0.01	0.00	0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
T3	140 - 120	Leg	Max Tension	5	84.82	-0.89	-0.00
			Max. Compression	2	-95.34	0.46	-0.06
			Max. Mx	15	67.01	1.05	-0.03
			Max. My	11	-4.75	-0.03	-1.02
			Max. Vy	15	-1.06	0.06	-0.10
			Max. Vx	11	1.04	0.01	-0.03
		Diagonal	Max Tension	34	13.95	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	34	-14.08	0.00	0.00
			Max. Mx	20	11.42	0.04	0.00
			Max. My	19	1.42	0.00	-0.00
			Max. Vy	20	-0.02	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	34	8.74	0.00	0.00
			Max. Compression	34	-8.81	-0.01	-0.00
			Max. Mx	22	0.86	-0.03	-0.01
			Max. My	13	2.00	0.00	0.02
			Max. Vy	22	-0.02	-0.03	-0.01
			Max. Vx	13	-0.00	0.00	0.02
		Inner Bracing	Max Tension	12	0.01	0.00	0.00
			Max. Compression	26	-0.01	0.00	0.00
			Max. Mx	18	-0.00	-0.01	0.00
			Max. My	22	-0.01	0.00	0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T4	120 - 100	Leg	Max Tension	5	132.32	-0.56	0.00
			Max. Compression	2	-145.24	1.25	-0.06
			Max. Mx	5	132.23	-1.26	-0.01
			Max. My	3	-7.84	-0.00	-1.18
			Max. Vy	15	0.17	-1.24	-0.06
			Max. Vx	3	0.15	-0.00	-1.18
		Diagonal	Max Tension	34	13.95	0.00	0.00
			Max. Compression	34	-14.12	0.00	0.00
			Max. Mx	20	11.17	0.06	0.00
			Max. My	19	1.43	0.00	-0.00
			Max. Vy	20	-0.03	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	34	9.44	0.00	0.00
			Max. Compression	34	-9.51	-0.03	-0.00
			Max. Mx	22	1.33	-0.05	-0.02
			Max. My	27	-1.33	-0.05	-0.02
			Max. Vy	22	-0.03	-0.05	-0.02
			Max. Vx	27	0.00	-0.05	-0.02
		Inner Bracing	Max Tension	12	0.01	0.00	0.00
			Max. Compression	34	-0.01	0.00	0.00
			Max. Mx	18	-0.00	-0.02	0.00
			Max. My	22	-0.01	0.00	0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T5	100 - 80	Leg	Max Tension	5	164.88	-1.46	0.01
			Max. Compression	19	-182.15	1.04	-0.07
			Max. Mx	5	146.54	-1.46	0.01
			Max. My	3	-8.53	-0.02	-1.52
			Max. Vy	15	-0.16	-1.44	-0.05
			Max. Vx	6	0.17	-0.02	1.51
		Diagonal	Max Tension	34	15.63	0.00	0.00
			Max. Compression	34	-15.87	0.00	0.00
			Max. Mx	26	15.33	0.12	0.00
			Max. My	19	1.65	0.00	-0.00
			Max. Vy	26	-0.04	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	34	9.30	0.00	0.00
			Max. Compression	34	-9.46	-0.04	-0.00
			Max. Mx	22	1.68	-0.06	-0.02
			Max. My	30	0.68	-0.00	0.02
			Max. Vy	22	-0.03	-0.06	-0.02
			Max. Vx	30	-0.00	-0.00	0.02
		Inner Bracing	Max Tension	11	0.00	0.00	0.00
			Max. Compression	34	-0.01	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	18	-0.00	-0.02	0.00
			Max. My	22	-0.01	0.00	0.00
			Max. Vy	18	0.01	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T6	80 - 60	Leg	Max Tension	5	198.25	-1.34	-0.02
			Max. Compression	19	-221.61	1.53	-0.11
			Max. Mx	5	197.91	-1.60	-0.01
			Max. My	20	-14.31	-0.03	-1.67
			Max. Vy	15	0.17	-1.34	-0.03
			Max. Vx	3	0.18	-0.03	-1.31
		Diagonal	Max Tension	34	14.89	0.00	0.00
			Max. Compression	34	-15.19	0.00	0.00
			Max. Mx	26	14.69	0.15	0.00
			Max. My	19	1.49	0.00	-0.00
			Max. Vy	26	0.04	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Horizontal	Max Tension	34	9.82	0.00	0.00
			Max. Compression	34	-9.93	-0.05	-0.00
			Max. Mx	22	2.04	-0.06	-0.01
			Max. My	30	0.44	-0.02	0.02
			Max. Vy	22	-0.03	-0.06	-0.01
			Max. Vx	30	-0.00	-0.02	0.02
		Inner Bracing	Max Tension	11	0.00	0.00	0.00
			Max. Compression	34	-0.01	0.00	0.00
			Max. Mx	18	-0.00	-0.05	0.00
			Max. My	22	-0.01	0.00	0.00
			Max. Vy	18	0.02	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T7	60 - 40	Leg	Max Tension	22	228.94	-1.26	-0.00
			Max. Compression	19	-258.26	1.21	-0.03
			Max. Mx	5	213.65	-1.60	-0.01
			Max. My	20	-15.16	-0.03	-1.67
			Max. Vy	15	-0.15	-1.59	-0.08
			Max. Vx	11	0.16	-0.03	1.66
		Diagonal	Max Tension	34	14.76	0.00	0.00
			Max. Compression	34	-15.17	0.00	0.00
			Max. Mx	26	14.56	0.18	0.00
			Max. My	19	1.38	0.00	-0.00
			Max. Vy	26	-0.05	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	34	10.50	0.00	0.00
			Max. Compression	34	-10.56	-0.09	-0.00
			Max. Mx	22	2.39	-0.13	-0.02
			Max. My	30	0.44	-0.05	0.02
			Max. Vy	22	-0.05	-0.13	-0.02
			Max. Vx	30	-0.00	-0.05	0.02
		Inner Bracing	Max Tension	11	0.00	0.00	0.00
			Max. Compression	34	-0.01	0.00	0.00
			Max. Mx	18	-0.01	-0.07	0.00
			Max. My	24	-0.00	0.00	-0.00
			Max. Vy	18	0.03	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
T8	40 - 20	Leg	Max Tension	22	257.35	-1.72	0.01
			Max. Compression	19	-293.03	2.59	-0.31
			Max. Mx	27	253.90	-3.93	0.31
			Max. My	20	-20.67	-0.68	-3.45
			Max. Vy	32	0.33	-3.93	-0.26
			Max. Vx	11	-0.29	-0.02	3.39
		Diagonal	Max Tension	34	14.48	0.00	0.00
			Max. Compression	34	-14.99	0.00	0.00
			Max. Mx	26	14.24	0.22	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	19	1.25	0.00	-0.00
			Max. Vy	26	0.06	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	34	10.98	0.00	0.00
			Max. Compression	34	-10.84	-0.12	-0.00
			Max. Mx	22	2.72	-0.14	-0.02
			Max. My	30	0.41	-0.08	0.02
			Max. Vy	22	-0.06	-0.14	-0.02
			Max. Vx	27	0.00	-0.13	-0.02
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	34	-0.01	0.00	0.00
			Max. Mx	18	-0.01	-0.13	0.00
			Max. My	24	-0.00	0.00	-0.00
			Max. Vy	18	0.05	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
T9	20 - 0	Leg	Max Tension	22	283.45	0.82	0.01
			Max. Compression	19	-326.35	-0.00	0.00
			Max. Mx	19	-309.61	5.14	0.05
			Max. My	20	-21.73	-0.68	-3.45
			Max. Vy	32	-0.59	-3.93	-0.26
			Max. Vx	3	-0.33	-0.07	-1.99
		Diagonal	Max Tension	34	14.76	0.00	0.00
			Max. Compression	34	-15.57	0.00	0.00
			Max. Mx	34	14.76	0.39	0.00
			Max. My	19	1.13	0.00	-0.00
			Max. Vy	34	-0.10	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Horizontal	Max Tension	34	12.33	0.00	0.00
			Max. Compression	34	-11.81	-0.17	0.00
			Max. Mx	22	3.04	-0.21	-0.03
			Max. My	30	0.37	-0.12	0.03
			Max. Vy	22	-0.08	-0.21	-0.03
			Max. Vx	30	-0.00	-0.12	0.03
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	33	-0.02	0.00	0.00
			Max. Mx	18	-0.01	-0.16	0.00
			Max. My	24	-0.01	0.00	-0.00
			Max. Vy	18	0.05	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	30	339.15	35.27	-20.16
	Max. H_x	30	339.15	35.27	-20.16
	Max. H_z	21	-284.77	-30.56	18.80
	Min. Vert	22	-295.39	-32.29	18.45
	Min. H_x	22	-295.39	-32.29	18.45
	Min. H_z	29	328.52	33.60	-20.48
Leg B	Max. Vert	24	340.70	-34.63	-21.11
	Max. H_x	32	-290.22	31.54	19.31
	Max. H_z	33	-279.39	29.57	20.07
	Min. Vert	15	-291.45	31.17	18.91
	Min. H_x	24	340.70	-34.63	-21.11
	Min. H_z	25	329.87	-32.70	-21.81

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg A	Max. Vert	19	341.21	1.14	40.64
	Max. H_x	31	23.44	6.09	1.81
	Max. H_z	19	341.21	1.14	40.64
	Min. Vert	10	-293.60	-0.96	-36.58
	Min. H_x	23	25.52	-6.02	1.99
	Min. H_z	27	-292.25	-1.12	-37.09

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	53.57	0.00	0.00	-2.83	-19.28	0.00
Dead+Wind 0 deg - No Ice	53.57	0.16	-65.48	-6851.45	-48.25	42.25
Dead+Wind 30 deg - No Ice	53.57	32.85	-56.79	-5948.29	-3462.06	28.72
Dead+Wind 45 deg - No Ice	53.57	46.37	-46.41	-4865.88	-4873.10	18.74
Dead+Wind 60 deg - No Ice	53.57	56.73	-32.88	-3452.09	-5953.39	7.49
Dead+Wind 90 deg - No Ice	53.57	65.41	-0.16	-31.70	-6854.74	-15.77
Dead+Wind 120 deg - No Ice	53.57	56.57	32.60	3396.43	-5924.58	-34.79
Dead+Wind 135 deg - No Ice	53.57	46.14	46.19	4819.41	-4832.36	-41.04
Dead+Wind 150 deg - No Ice	53.57	32.57	56.63	5913.77	-3412.14	-44.49
Dead+Wind 180 deg - No Ice	53.57	-0.16	65.48	6845.77	9.42	-42.25
Dead+Wind 210 deg - No Ice	53.57	-32.85	56.79	5942.68	3423.30	-28.72
Dead+Wind 225 deg - No Ice	53.57	-46.37	46.41	4860.27	4834.39	-18.75
Dead+Wind 240 deg - No Ice	53.57	-56.73	32.88	3446.46	5914.73	-7.49
Dead+Wind 270 deg - No Ice	53.57	-65.41	0.16	25.97	6816.10	15.77
Dead+Wind 300 deg - No Ice	53.57	-56.57	-32.60	-3402.24	5885.88	34.79
Dead+Wind 315 deg - No Ice	53.57	-46.14	-46.19	-4825.21	4793.60	41.04
Dead+Wind 330 deg - No Ice	53.57	-32.57	-56.63	-5919.54	3373.34	44.48
Dead+Ice+Temp	71.59	0.00	0.00	-13.47	-42.55	0.00
Dead+Wind 0 deg+Ice+Temp	71.59	0.13	-66.70	-6975.20	-65.67	49.86
Dead+Wind 30 deg+Ice+Temp	71.59	33.43	-57.83	-6053.94	-3538.04	33.18
Dead+Wind 45 deg+Ice+Temp	71.59	47.21	-47.26	-4952.33	-4973.96	21.10
Dead+Wind 60 deg+Ice+Temp	71.59	57.77	-33.47	-3514.18	-6073.83	7.60
Dead+Wind 90 deg+Ice+Temp	71.59	66.63	-0.13	-36.45	-6993.61	-20.03
Dead+Wind 120 deg+Ice+Temp	71.59	57.64	33.23	3447.43	-6050.94	-42.29
Dead+Wind 135 deg+Ice+Temp	71.59	47.02	47.07	4892.89	-4941.59	-49.43
Dead+Wind 150 deg+Ice+Temp	71.59	33.20	57.69	6004.00	-3498.38	-53.20
Dead+Wind 180 deg+Ice+Temp	71.59	-0.13	66.70	6948.21	-19.84	-49.86
Dead+Wind 210 deg+Ice+Temp	71.59	-33.43	57.83	6027.01	3452.61	-33.17
Dead+Wind 225 deg+Ice+Temp	71.59	-47.21	47.26	4925.41	4888.59	-21.11
Dead+Wind 240 deg+Ice+Temp	71.59	-57.77	33.47	3487.36	5988.65	-7.60
Dead+Wind 270 deg+Ice+Temp	71.59	-66.63	0.13	9.38	6908.33	20.04
Dead+Wind 300 deg+Ice+Temp	71.59	-57.64	-33.23	-3474.58	5965.57	42.29
Dead+Wind 315 deg+Ice+Temp	71.59	-47.02	-47.07	-4920.04	4856.15	49.43
Dead+Wind 330 deg+Ice+Temp	71.59	-33.20	-57.69	-6031.11	3412.89	53.20
Dead+Wind 0 deg - Service	53.57	0.04	-18.14	-1899.98	-27.31	11.71
Dead+Wind 30 deg - Service	53.57	9.10	-15.73	-1649.80	-972.98	7.95
Dead+Wind 45 deg - Service	53.57	12.84	-12.86	-1349.97	-1363.87	5.19
Dead+Wind 60 deg - Service	53.57	15.71	-9.11	-958.33	-1663.12	2.07
Dead+Wind 90 deg - Service	53.57	18.12	-0.04	-10.83	-1912.80	-4.37
Dead+Wind 120 deg - Service	53.57	15.67	9.03	938.81	-1655.13	-9.64
Dead+Wind 135 deg - Service	53.57	12.78	12.79	1332.99	-1352.57	-11.37
Dead+Wind 150 deg - Service	53.57	9.02	15.69	1636.14	-959.15	-12.32
Dead+Wind 180 deg - Service	53.57	-0.04	18.14	1894.30	-11.34	-11.71
Dead+Wind 210 deg - Service	53.57	-9.10	15.73	1644.13	934.34	-7.96
Dead+Wind 225 deg - Service	53.57	-12.84	12.86	1344.29	1325.22	-5.19

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 240 deg - Service	53.57	-15.71	9.11	952.65	1624.48	-2.07
Dead+Wind 270 deg - Service	53.57	-18.12	0.04	5.15	1874.17	4.37
Dead+Wind 300 deg - Service	53.57	-15.67	-9.03	-944.50	1616.50	9.64
Dead+Wind 315 deg - Service	53.57	-12.78	-12.79	-1338.68	1313.93	11.37
Dead+Wind 330 deg - Service	53.57	-9.02	-15.69	-1641.82	920.50	12.32

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-53.57	0.00	0.00	53.57	0.00	0.000%
2	0.16	-53.57	-65.48	-0.16	53.57	65.48	0.000%
3	32.85	-53.57	-56.79	-32.85	53.57	56.79	0.000%
4	46.37	-53.57	-46.41	-46.37	53.57	46.41	0.000%
5	56.73	-53.57	-32.88	-56.73	53.57	32.88	0.000%
6	65.41	-53.57	-0.16	-65.41	53.57	0.16	0.000%
7	56.57	-53.57	32.60	-56.57	53.57	-32.60	0.000%
8	46.14	-53.57	46.19	-46.14	53.57	-46.19	0.000%
9	32.57	-53.57	56.63	-32.57	53.57	-56.63	0.000%
10	-0.16	-53.57	65.48	0.16	53.57	-65.48	0.000%
11	-32.85	-53.57	56.79	32.85	53.57	-56.79	0.000%
12	-46.37	-53.57	46.41	46.37	53.57	-46.41	0.000%
13	-56.73	-53.57	32.88	56.73	53.57	-32.88	0.000%
14	-65.41	-53.57	0.16	65.41	53.57	-0.16	0.000%
15	-56.57	-53.57	-32.60	56.57	53.57	32.60	0.000%
16	-46.14	-53.57	-46.19	46.14	53.57	46.19	0.000%
17	-32.57	-53.57	-56.63	32.57	53.57	56.63	0.000%
18	0.00	-71.59	0.00	0.00	71.59	0.00	0.000%
19	0.13	-71.59	-66.70	-0.13	71.59	66.70	0.000%
20	33.43	-71.59	-57.83	-33.43	71.59	57.83	0.000%
21	47.21	-71.59	-47.26	-47.21	71.59	47.26	0.000%
22	57.77	-71.59	-33.47	-57.77	71.59	33.47	0.000%
23	66.63	-71.59	-0.13	-66.63	71.59	0.13	0.000%
24	57.64	-71.59	33.23	-57.64	71.59	-33.23	0.000%
25	47.02	-71.59	47.07	-47.02	71.59	-47.07	0.000%
26	33.20	-71.59	57.69	-33.20	71.59	-57.69	0.000%
27	-0.13	-71.59	66.70	0.13	71.59	-66.70	0.000%
28	-33.43	-71.59	57.83	33.43	71.59	-57.83	0.000%
29	-47.21	-71.59	47.26	47.21	71.59	-47.26	0.000%
30	-57.77	-71.59	33.47	57.77	71.59	-33.47	0.000%
31	-66.63	-71.59	0.13	66.63	71.59	-0.13	0.000%
32	-57.64	-71.59	-33.23	57.64	71.59	33.23	0.000%
33	-47.02	-71.59	-47.07	47.02	71.59	47.07	0.000%
34	-33.20	-71.59	-57.69	33.20	71.59	57.69	0.000%
35	0.04	-53.57	-18.14	-0.04	53.57	18.14	0.000%
36	9.10	-53.57	-15.73	-9.10	53.57	15.73	0.000%
37	12.84	-53.57	-12.86	-12.84	53.57	12.86	0.000%
38	15.71	-53.57	-9.11	-15.71	53.57	9.11	0.000%
39	18.12	-53.57	-0.04	-18.12	53.57	0.04	0.000%
40	15.67	-53.57	9.03	-15.67	53.57	-9.03	0.000%
41	12.78	-53.57	12.79	-12.78	53.57	-12.79	0.000%
42	9.02	-53.57	15.69	-9.02	53.57	-15.69	0.000%
43	-0.04	-53.57	18.14	0.04	53.57	-18.14	0.000%
44	-9.10	-53.57	15.73	9.10	53.57	-15.73	0.000%
45	-12.84	-53.57	12.86	12.84	53.57	-12.86	0.000%
46	-15.71	-53.57	9.11	15.71	53.57	-9.11	0.000%
47	-18.12	-53.57	0.04	18.12	53.57	-0.04	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
48	-15.67	-53.57	-9.03	15.67	53.57	9.03	0.000%
49	-12.78	-53.57	-12.79	12.78	53.57	12.79	0.000%
50	-9.02	-53.57	-15.69	9.02	53.57	15.69	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000001
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000001
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00000001
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000001
17	Yes	4	0.00000001	0.00000001
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000001
21	Yes	4	0.00000001	0.00000001
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000001
24	Yes	4	0.00000001	0.00000001
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001

49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	3.201	37	0.1511	0.0455
T2	160 - 140	2.556	37	0.1489	0.0435
T3	140 - 120	1.918	37	0.1360	0.0360
T4	120 - 100	1.353	37	0.1141	0.0259
T5	100 - 80	0.906	37	0.0854	0.0190
T6	80 - 60	0.579	37	0.0631	0.0136
T7	60 - 40	0.329	37	0.0457	0.0089
T8	40 - 20	0.156	37	0.0280	0.0053
T9	20 - 0	0.044	46	0.0141	0.0021

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	PD455	37	3.201	0.1511	0.0455	Inf
178.00	ROHN 6-ft Side Arm	37	3.137	0.1511	0.0454	Inf
170.00	ROHN 6'x15' Boom Gate (1)	37	2.879	0.1509	0.0449	801686
160.00	ROHN 6'x15' Boom Gate (1)	37	2.556	0.1489	0.0435	610778
150.00	ROHN 6'x15' Boom Gate (1)	37	2.233	0.1438	0.0404	134707
140.00	ROHN 6'x15' Boom Gate (1)	37	1.918	0.1360	0.0360	60383
130.00	Pirod 15' T-Frame Sector Mount (1)	37	1.622	0.1262	0.0307	46716
75.00	GPS	37	0.509	0.0586	0.0123	70740

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	11.529	21	0.5402	0.1812
T2	160 - 140	9.227	21	0.5325	0.1772
T3	140 - 120	6.956	21	0.4867	0.1525
T4	120 - 100	4.932	21	0.4094	0.1128
T5	100 - 80	3.317	21	0.3084	0.0829
T6	80 - 60	2.124	21	0.2289	0.0591
T7	60 - 40	1.209	21	0.1664	0.0387
T8	40 - 20	0.576	21	0.1020	0.0230
T9	20 - 0	0.162	30	0.0515	0.0090

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	PD455	21	11.529	0.5402	0.1812	461483
178.00	ROHN 6-ft Side Arm	21	11.300	0.5402	0.1812	461483
170.00	ROHN 6'x15' Boom Gate (1)	21	10.380	0.5395	0.1808	230742
160.00	ROHN 6'x15' Boom Gate (1)	21	9.227	0.5325	0.1772	179384
150.00	ROHN 6'x15' Boom Gate (1)	21	8.076	0.5144	0.1677	38388
140.00	ROHN 6'x15' Boom Gate (1)	21	6.956	0.4867	0.1525	17051
130.00	Pirod 15' T-Frame Sector Mount (1)	21	5.900	0.4516	0.1328	13112
75.00	GPS	21	1.871	0.2128	0.0536	19642

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Leg	A325N	0.8750	4	1.18	26.46	0.045	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	1.83	6.44	0.285	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1.53	6.44	0.238	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	0.26	6.44	0.041	1.333	Bolt Shear
T2	160	Leg	A325N	1.0000	4	8.89	34.56	0.257	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.55	6.44	0.707	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.68	6.44	0.571	1.333	Bolt Shear
T3	140	Leg	A325N	1.0000	6	14.14	34.56	0.409	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.69	6.44	0.728	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	4.40	6.44	0.683	1.333	Bolt Shear
T4	120	Leg	A325N	1.0000	6	22.05	34.56	0.638	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.71	6.44	0.731	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	4.75	6.44	0.738	1.333	Bolt Shear
T5	100	Leg	A325N	1.0000	6	27.48	34.56	0.795	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	5.29	6.44	0.821	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	4.73	6.44	0.734	1.333	Bolt Shear
T6	80	Leg	A325N	1.0000	6	33.04	34.56	0.956	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	5.06	6.44	0.786	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	4.96	6.44	0.770	1.333	Bolt Shear
T7	60	Leg	A325N	1.0000	12	19.08	34.56	0.552	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	5.06	6.44	0.785	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	5.28	6.44	0.819	1.333	Bolt Shear
T8	40	Leg	A325N	1.0000	12	21.45	34.56	0.621	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	5.00	6.44	0.776	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	5.49	6.44	0.852	1.333	Bolt Shear
T9	20	Leg	A354-BC	1.0000	16	17.72	32.40	0.547	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	5.19	9.28	0.559	1.333	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Horizontal	A325N	0.6250	2	6.17	6.44	0.957 ✓	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T1	180 - 160	ROHN 3 STD	20.00	6.67	68.8 K=1.00	21.168	2.2285	-6.59	47.17	0.140 ✓
T2	160 - 140	ROHN 4 EH	20.00	6.67	54.2 K=1.00	23.687	4.4074	-41.64	104.40	0.399 ✓
T3	140 - 120	ROHN 5 EH	20.04	6.68	43.6 K=1.00	25.319	6.1120	-95.34	154.75	0.616 ✓
T4	120 - 100	ROHN 6 EHS	20.04	6.68	36.0 K=1.00	26.378	6.7133	-145.24	177.09	0.820 ✓
T5	100 - 80	ROHN 8 EHS	20.05	10.03	41.2 K=1.00	25.662	9.7193	-182.15	249.42	0.730 ✓
T6	80 - 60	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-221.61	326.42	0.679 ✓
T7	60 - 40	ROHN 8 EH	20.05	10.03	41.8 K=1.00	25.576	12.7627	-258.26	326.42	0.791 ✓
T8	40 - 20	ROHN 10 EH	20.05	10.03	33.2 K=1.00	26.753	16.1007	-293.03	430.75	0.680 ✓
T9	20 - 0	ROHN 10 EH	20.05	10.03	33.2 K=1.00	26.753	16.1007	-326.35	430.75	0.758 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T1	180 - 160	ROHN 2 STD	7.92	7.65	116.7 K=1.00	10.970	1.0745	-5.50	11.79	0.467 ✓
T2	160 - 140	ROHN 2 X-STR	7.92	7.58	118.6 K=1.00	10.615	1.4773	-13.66	15.68	0.871 ✓
T3	140 - 120	ROHN 2 X-STR	8.57	8.20	128.3 K=1.00	9.068	1.4773	-14.08	13.40	1.051 ✓
T4	120 - 100	ROHN 2.5 STD	9.26	8.86	112.2 K=1.00	11.859	1.7040	-13.79	20.21	0.683 ✓
T5	100 - 80	ROHN 3 STD	12.60	12.01	123.8 K=1.00	9.738	2.2285	-15.63	21.70	0.720 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T6	80 - 60	ROHN 3 STD	13.40	12.86	132.6 K=1.00	8.488	2.2285	-15.06	18.92	0.796 ✓
T7	60 - 40	ROHN 3 STD	14.27	13.76	141.9 K=1.00	7.412	2.2285	-15.04	16.52	0.911 ✓
T8	40 - 20	ROHN 3 STD	15.19	14.60	150.5 K=1.00	6.590	2.2285	-14.82	14.69	1.009 ✓
T9	20 - 0	ROHN 3.5 EH	16.16	15.59	143.2 K=1.00	7.284	3.6784	-15.57	26.79	0.581 ✓

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 160	ROHN 1.5 STD	8.56	4.14	79.7 K=1.00	19.071	0.7995	-3.02	15.25	0.198 ✓
T2	160 - 140	ROHN 1.5 STD	8.56	4.09	78.9 K=1.00	19.231	0.7995	-7.33	15.37	0.477 ✓
T3	140 - 120	ROHN 1.5 STD	10.02	4.78	92.1 K=1.00	16.482	0.7995	-8.81	13.18	0.668 ✓
T4	120 - 100	ROHN 2 STD	12.14	5.80	88.4 K=1.00	17.289	1.0745	-9.51	18.58	0.512 ✓
T5	100 - 80	ROHN 2 STD	14.07	6.68	101.8 K=1.00	14.284	1.0745	-9.46	15.35	0.617 ✓
T6	80 - 60	ROHN 2 STD	16.57	7.92	120.8 K=1.00	10.230	1.0745	-9.93	10.99	0.903 ✓
T7	60 - 40	ROHN 2.5 STD	19.08	9.18	116.3 K=1.00	11.040	1.7040	-10.56	18.81	0.561 ✓
T8	40 - 20	ROHN 2.5 STD	21.60	10.35	131.1 K=1.00	8.686	1.7040	-10.84	14.80	0.732 ✓
T9	20 - 0	ROHN 3 STD	24.12	11.61	119.8 K=1.00	10.413	2.2285	-11.42	23.20	0.492 ✓

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 160	ROHN 1.5 STD	8.56	4.14	79.7 K=1.00	19.071	0.7995	-0.52	15.25	0.034 ✓

Inner Bracing Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	180 - 160	L2x2x1/8	4.28	4.28	129.2 K=1.00	8.942	0.4844	-0.01	4.33	0.002 ✓
T2	160 - 140	L2x2x1/8	4.28	4.28	129.2 K=1.00	8.942	0.4844	-0.01	4.33	0.002 ✓
T3	140 - 120	L2x2x1/8	5.01	5.01	151.2 K=1.00	6.528	0.4844	-0.01	3.16	0.003 ✓
T4	120 - 100	L2x2x1/8	6.07	6.07	183.3 K=1.00	4.446	0.4844	-0.01	2.15	0.005 ✓
T5	100 - 80	L2x2x1/8	7.04	7.04	212.4 K=1.00	3.309	0.4844	-0.01	1.60	0.007 ✓
T6	80 - 60	L2 1/2x2 1/2x3/16	8.28	8.28	200.8 K=1.00	3.702	0.9020	-0.01	3.34	0.003 ✓
T7	60 - 40	L3x3x3/16	9.54	9.54	192.1 K=1.00	4.046	1.0900	-0.01	4.41	0.003 ✓
T8	40 - 20	L3 1/2x3 1/2x1/4	10.80	10.80	186.7 K=1.00	4.282	1.6900	-0.01	7.24	0.002 ✓
T9	20 - 0	L3 1/2x3 1/2x1/4	12.06	12.06	208.5 K=1.00	3.434	1.6900	-0.02	5.80	0.003 ✓

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	180 - 160	ROHN 3 STD	20.00	6.67	68.8	30.000	2.2285	4.71	66.85	0.070 ✓
T2	160 - 140	ROHN 4 EH	20.00	6.67	54.2	30.000	4.4074	35.56	132.22	0.269 ✓
T3	140 - 120	ROHN 5 EH	20.04	6.68	43.6	30.000	6.1120	84.82	183.36	0.463 ✓
T4	120 - 100	ROHN 6 EHS	20.04	6.68	36.0	30.000	6.7133	132.32	201.40	0.657 ✓
T5	100 - 80	ROHN 8 EHS	20.05	10.03	41.2	30.000	9.7193	164.88	291.58	0.565 ✓
T6	80 - 60	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	198.25	382.88	0.518 ✓
T7	60 - 40	ROHN 8 EH	20.05	10.03	41.8	30.000	12.7627	228.94	382.88	0.598 ✓
T8	40 - 20	ROHN 10 EH	20.05	10.03	33.2	30.000	16.1007	257.35	483.02	0.533 ✓
T9	20 - 0	ROHN 10 EH	20.05	10.03	33.2	30.000	16.1007	283.45	483.02	0.587 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 160	ROHN 2 STD	7.92	7.65	116.7	30.000	1.0745	5.44	32.24	0.169
T2	160 - 140	ROHN 2 X-STR	7.92	7.58	118.6	30.000	1.4773	13.58	44.32	0.307
T3	140 - 120	ROHN 2 X-STR	8.57	8.20	128.3	30.000	1.4773	13.95	44.32	0.315
T4	120 - 100	ROHN 2.5 STD	8.79	8.39	106.3	30.000	1.7040	13.95	51.12	0.273
T5	100 - 80	ROHN 3 STD	12.23	11.64	120.1	30.000	2.2285	15.63	66.85	0.234
T6	80 - 60	ROHN 3 STD	12.99	12.45	128.4	30.000	2.2285	14.89	66.85	0.223
T7	60 - 40	ROHN 3 STD	13.83	13.32	137.4	30.000	2.2285	14.76	66.85	0.221
T8	40 - 20	ROHN 3 STD	14.72	14.13	145.7	30.000	2.2285	14.48	66.85	0.217
T9	20 - 0	ROHN 3.5 EH	16.16	15.59	143.2	30.000	3.6784	14.76	110.35	0.134

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 160	ROHN 1.5 STD	8.56	4.14	79.7	30.000	0.7995	3.06	23.98	0.128
T2	160 - 140	ROHN 1.5 STD	8.56	4.09	78.9	30.000	0.7995	7.36	23.98	0.307
T3	140 - 120	ROHN 1.5 STD	10.02	4.78	92.1	30.000	0.7995	8.74	23.98	0.365
T4	120 - 100	ROHN 2 STD	12.14	5.80	88.4	30.000	1.0745	9.44	32.24	0.293
T5	100 - 80	ROHN 2 STD	14.07	6.68	101.8	30.000	1.0745	9.30	32.24	0.289
T6	80 - 60	ROHN 2 STD	16.57	7.92	120.8	30.000	1.0745	9.82	32.24	0.305
T7	60 - 40	ROHN 2.5 STD	19.08	9.18	116.3	30.000	1.7040	10.50	51.12	0.205
T8	40 - 20	ROHN 2.5 STD	21.60	10.35	131.1	30.000	1.7040	10.98	51.12	0.215
T9	20 - 0	ROHN 3 STD	24.12	11.61	119.8	30.000	2.2285	12.33	66.85	0.184

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 160	ROHN 1.5 STD	8.56	4.14	79.7	30.000	0.7995	0.52	23.98	0.022 ✓

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 160	L2x2x1/8	4.28	4.28	82.0	21.600	0.4844	0.01	10.46	0.001 ✓
T2	160 - 140	L2x2x1/8	4.28	4.28	82.0	21.600	0.4844	0.01	10.46	0.001 ✓
T3	140 - 120	L2x2x1/8	4.28	4.28	82.0	21.600	0.4844	0.01	10.46	0.001 ✓
T4	120 - 100	L2x2x1/8	5.38	5.38	103.0	21.600	0.4844	0.01	10.46	0.001 ✓
T5	100 - 80	L2x2x1/8	6.42	6.42	123.0	21.600	0.4844	0.00	10.46	0.000 ✓
T6	80 - 60	L2 1/2x2 1/2x3/16	7.66	7.66	118.1	21.600	0.9020	0.00	19.48	0.000 ✓
T7	60 - 40	L3x3x3/16	8.91	8.91	113.9	21.600	1.0900	0.00	23.54	0.000 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	180 - 160	Leg	ROHN 3 STD	3	-6.59	62.88	10.5	Pass
T2	160 - 140	Leg	ROHN 4 EH	42	-41.64	139.16	29.9	Pass
T3	140 - 120	Leg	ROHN 5 EH	81	-95.34	206.28	46.2	Pass
T4	120 - 100	Leg	ROHN 6 EHS	120	-145.24	236.05	61.5	Pass
T5	100 - 80	Leg	ROHN 8 EHS	159	-182.15	332.48	54.8 59.7 (b)	Pass
T6	80 - 60	Leg	ROHN 8 EH	186	-221.61	435.12	50.9 71.7 (b)	Pass
T7	60 - 40	Leg	ROHN 8 EH	213	-258.26	435.12	59.4	Pass
T8	40 - 20	Leg	ROHN 10 EH	240	-293.03	574.19	51.0	Pass
T9	20 - 0	Leg	ROHN 10 EH	267	-326.35	574.19	56.8	Pass
T1	180 - 160	Diagonal	ROHN 2 STD	11	-5.50	15.71	35.0	Pass
T2	160 - 140	Diagonal	ROHN 2 X-STR	48	-13.66	20.90	65.3	Pass
T3	140 - 120	Diagonal	ROHN 2 X-STR	87	-14.08	17.86	78.9	Pass
T4	120 - 100	Diagonal	ROHN 2.5 STD	126	-13.79	26.94	51.2 54.8 (b)	Pass
T5	100 - 80	Diagonal	ROHN 3 STD	165	-15.63	28.93	54.0 61.6 (b)	Pass
T6	80 - 60	Diagonal	ROHN 3 STD	192	-15.06	25.21	59.7	Pass
T7	60 - 40	Diagonal	ROHN 3 STD	219	-15.04	22.02	68.3	Pass
T8	40 - 20	Diagonal	ROHN 3 STD	246	-14.82	19.58	75.7	Pass
T9	20 - 0	Diagonal	ROHN 3.5 EH	273	-15.57	35.72	43.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	180 - 160	Horizontal	ROHN 1.5 STD	10	-3.02	20.32	14.9 17.8 (b)	Pass
T2	160 - 140	Horizontal	ROHN 1.5 STD	46	-7.33	20.49	35.8 42.8 (b)	Pass
T3	140 - 120	Horizontal	ROHN 1.5 STD	85	-8.81	17.56	50.1 51.3 (b)	Pass
T4	120 - 100	Horizontal	ROHN 2 STD	124	-9.51	24.76	38.4 55.3 (b)	Pass
T5	100 - 80	Horizontal	ROHN 2 STD	163	-9.46	20.46	46.2 55.1 (b)	Pass
T6	80 - 60	Horizontal	ROHN 2 STD	190	-9.93	14.65	67.7	Pass
T7	60 - 40	Horizontal	ROHN 2.5 STD	217	-10.56	25.08	42.1 61.5 (b)	Pass
T8	40 - 20	Horizontal	ROHN 2.5 STD	244	-10.84	19.73	54.9 63.9 (b)	Pass
T9	20 - 0	Horizontal	ROHN 3 STD	271	-11.42	30.93	36.9 71.8 (b)	Pass
T1	180 - 160	Top Girt	ROHN 1.5 STD	6	-0.52	20.32	2.5 3.0 (b)	Pass
T1	180 - 160	Inner Bracing	L2x2x1/8	16	-0.00	5.77	0.2	Pass
T2	160 - 140	Inner Bracing	L2x2x1/8	52	-0.01	5.77	0.2	Pass
T3	140 - 120	Inner Bracing	L2x2x1/8	91	-0.01	4.22	0.3	Pass
T4	120 - 100	Inner Bracing	L2x2x1/8	130	-0.01	2.87	0.4	Pass
T5	100 - 80	Inner Bracing	L2x2x1/8	169	-0.01	2.14	0.6	Pass
T6	80 - 60	Inner Bracing	L2 1/2x2 1/2x3/16	196	-0.01	4.45	0.3	Pass
T7	60 - 40	Inner Bracing	L3x3x3/16	223	-0.01	5.88	0.3	Pass
T8	40 - 20	Inner Bracing	L3 1/2x3 1/2x1/4	250	-0.01	9.65	0.3	Pass
T9	20 - 0	Inner Bracing	L3 1/2x3 1/2x1/4	277	-0.02	7.74	0.3	Pass
							Summary	
						Leg (T6)	71.7	Pass
						Diagonal (T3)	78.9	Pass
						Horizontal (T9)	71.8	Pass
						Top Girt (T1)	3.0	Pass
						Inner Bracing (T5)	0.6	Pass
						Bolt Checks	71.8	Pass
						RATING =	**78.9**	**Pass**

CENTEK engineering
Centered on Solutions℠
63-2 North Branford Road
Branford, CT 06405
www.centekeng.com
P: (203) 488-0580
F: (203) 488-8587

Subject:	FOUNDATION ANALYSIS
Location:	Madison, CT
Rev. 0: 11/12/12	Prepared by: T.J.L. Checked by: C.F.C. Job No. 12126

Foundation Analysis:

Input Data:

Tower Data

Max Compression Force =	$C_t := 341 \cdot kip$	(User Input from RISATower)
Max Uplift Force =	$U_t := 295 \cdot kip$	(User Input from RISATower)

Footing Data:

Caisson Length =	$L_c := 25 \cdot ft$	(User Input)
Diameter of Caisson =	$d_c := 6 \cdot ft$	(User Input)
Height of Pier Above Grade =	$h_c := 0.5 \cdot ft$	(User Input)
Depth Neglected =	$n := 8 \cdot ft$	(User Input)
Water Table Below Grade =	$w_d := 1 \cdot ft$	(User Input)

Material Properties:

Allowable Soil Bearing Capacity =	$q_s := 30000 \cdot psf$	(User Input)
Unit Weight of Soil =	$\gamma_{soil} := 120 \cdot pcf$	(User Input)
Unit Weight of Concrete =	$\gamma_{conc} := 150 \cdot pcf$	(User Input)
Unit Weight of Water =	$\gamma_{water} := 62.5 \cdot pcf$	(User Input)
Ave Allowable Shear @ 8-ft to 14-ft	$f_1 := 600 \cdot psf$	(User Input per MEI Report)
Ave Allowable Shear @ 14-ft to 20-ft	$f_2 := 3000 \cdot psf$	(User Input per MEI Report)
Ave Allowable Shear @ 20-ft to 25-ft	$f_3 := 4000 \cdot psf$	(User Input per MEI Report)
	$h_1 := 6 \cdot ft$	(User Input per MEI Report)
	$h_2 := 6 \cdot ft$	(User Input per MEI Report)
	$h_3 := 5 \cdot ft$	(User Input per MEI Report)

Loading:

Total Compressive Force =

$$Tot_{comp} := C_t + \frac{\pi}{4}\cdot d_c^{\,2}\cdot\left[h_c\cdot\gamma_{conc} + \left(L_c - h_c\right)\cdot\left(\gamma_{conc} - \gamma_{soil}\right)\right] = 363.9\cdot kips$$

Weight of the Caisson =

$$W_{caisson} := \frac{\pi}{4}\cdot d_c^{\,2}\cdot\left[\left(w_d + h_c\right)\cdot\gamma_{conc} + \left(L_c - w_d - h_c\right)\cdot\left(\gamma_{conc} - \gamma_{water}\right)\right] = 64.5\cdot kips$$

Soil Shear =

$$Soil_{shear} := \pi\cdot d_c\cdot\left(f_1\cdot h_1 + f_2\cdot h_2 + f_3\cdot h_3\right) = 784.1\cdot kips$$

Compression Check:

Compression Capacity =

$$Comp_{cap} := 0.5\cdot\left[Soil_{shear} + q_s\cdot\left(\frac{\pi}{4}\cdot d_c^{\,2}\right)\right] = 816.2\cdot kips$$

$$Compression\_Check := if\left(Comp_{cap} > Tot_{comp}, "Ok", "NG"\right)$$

Compression_Check = "Ok"

Uplift Check:

Uplift Capacity =

$$Uplift_{cap} := 0.5\cdot\left(Soil_{shear} + W_{caisson}\right) = 424.3\cdot kips$$

$$Uplift\_Check := if\left(Uplift_{cap} > U_t, "Ok", "NG"\right)$$

Uplift_Check = "Ok"

Cone Failure Check:

Cone Failure Capacity =

$$CF_{cap} := \frac{\left[\left(L_c - h_c\right)\cdot\tan(30\cdot deg)\cdot 2 + d_c\right]^2\cdot\pi}{4}\cdot\frac{\left(L_c - h_c\right)}{3}\cdot\gamma_{soil} = 905\cdot kips$$

$$Cone\_Failure\_Check := if\left(CF_{cap} > U_t, "Ok", "NG"\right)$$

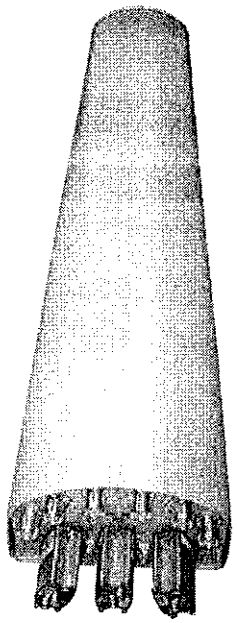
Cone_Failure_Check = "Ok"

Product Data Sheet | APXVSPP18-C

Triple Band Dual Polarized Antenna, 806-1995, 65deg, 16-18dBi, 1.8m, VET, 0-10deg, 0.5m AISG Cable

Product Description

This antenna is an ideal choice for dual band site upgrade for high traffic areas. It features 4 ports in 1900 MHz and 2 ports in 800 MHz.



Features/Benefits

- **Variable electrical downtilt – provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.**
- **High suppression of all upper sidelobes (Typically < 18 dB)**
- **Independent control of electrical downtilt for 800 and PCS bands**
- **Low profile for low visual impact**
- **Quick and easy to adjust**
- **High front-to-back ratio**
- **AISG compatible remote tilt available – Add suffix -A20 to the model number**

Technical Specifications

Electrical Specifications

Frequency Range, MHz	806-869	1850-1995	1850-1995
Horizontal Beamwidth, deg	65	65	65
Vertical Beamwidth, deg	11.5	5.5	5.5
Electrical Downtilt, deg		0-10	
Gain, dBi (dBd)	15.5 (13.4)	18.0 (15.9)	18.0 (15.9)
1st Upper Sidelobe Suppression, dB, typ. @ T0° & T8°		>18	
Front-To-Back Ratio, dB, @ 180° ± 15°	>30	>27	>27
Polarization		Dual pol +/-45°	
Return Loss, dB		> 14	
Isolation between Ports, dB		>28	
3rd Order IMP @ 2 x 43 dBm, @ 2 min. duration		>110	
Cross Polar Discrimination (XPD) 0°, dB	>15	>20	>20
Cross Polar Discrimination (XPD) ± 60°, dB	>9.5	>11	>11
HBW Squint across same band ports, °		±5	
Impedance, Ohms		50	
Maximum Power Input, W		250	
Lightning Protection		Direct Ground	
Connector Type		(6) 7-16 DIN Female	

Mechanical Specifications

Dimensions - HxWxD, mm (in)	1829 x 302 x 178 (72.0 x 11.8 x 7)
Weight w/o Mtg Hardware, kg (lb)	25.8 (57)
Rated Wind Speed, km/h (mph)	241 (150)
Radome Material	ASA
Radome Color	Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum and Galvanized Steel

Ordering Information

Mounting Hardware	APM40-2 Downtilt Kit
AISG System Cable	0.5 m, included
Mounting Pipe Diameter, mm (in)	60-120 (2.4-4.7)
Mounting Hardware Weight, kg (lb)	3.4 (7.5)

SHEET INDEX

NO.	DESCRIPTION
T1	TITLE SHEET
AAV1	OVERALL AND ENLARGED SITE PLANS
AAV2	NOTES AND DETAILS
C1	GENERAL NOTES
C2	COMPOUND SITE PLAN
C3	EQUIPMENT SITE PLANS
C4	SITE ELEVATION AND ANTENNA/RRH DETAILS
C5	ANTENNA PLANS
C6	ANTENNA CABLE RISER AND H-FRAME DETAILS
C7	RF AND CABLE DETAILS
C8	JUNCTION BOX DETAILS
C9	DETAILS
E1	UTILITY SITE PLAN
E2	ONE-LINE DIAGRAMS AND DETAILS
E3	GROUNDING PLAN AND DETAILS

DRIVING DIRECTIONS

DEPART FROM SPRINT:
1 INTERNATIONAL BLVD. MAHWAH, NJ 07495

HEAD NORTH ON INTERNATIONAL BLVD TOWARD QUEENSLAND RD. TURN RIGHT ONTO PARK LN. CONTINUE STRAIGHT ONTO LEISURE LN. SLIGHT RIGHT ONTO NJ-17 N. MERGE ONTO I-287 N/NJ-17 N VIA THE RAMP ON THE LEFT TO I-87/N Y. THRUWAY ENTERING NEW YORK. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-87 S/-287/TAPPAN ZEE BR/NEW YORK CITY/NEW YORK THRUWAY AND MERGE ONTO I-287 E/-87 N CONTINUE TO FOLLOW I-287 E PARTIAL TOLL ROAD. TAKE THE EXIT ONTO I-95 N ENTERING CONNECTICUT. TAKE EXIT 69 TO MERGE ONTO CT-9 N TOWARD ESSEX/HARTFORD. TAKE EXIT 6 FOR CT-148 TOWARD CHESTER/HADLYME. TURN LEFT ONTO CT-148 W/W MAIN ST. TURN RIGHT ONTO S WIG HILL RD. TURN RIGHT ONTO WIG HILL RD. DESTINATION WILL BE ON THE LEFT.

Sprint

NETWORK VISION MMBTS LAUNCH
CONNECTICUT MARKET

SITE NAME

N. MADISON/ VOL. FIRE DEPT.

SITE NUMBER

CT03XC164

SITE ADDRESS

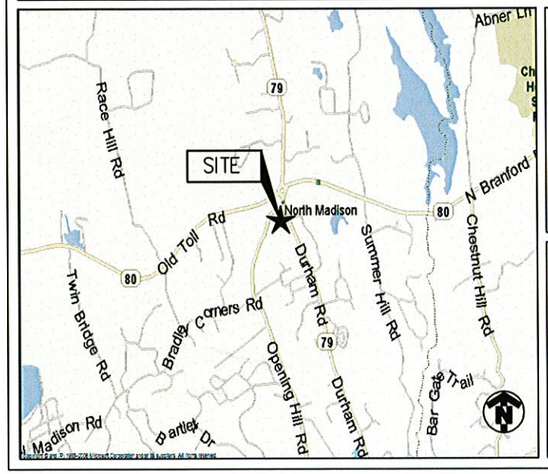
(1173-1245) DURHAM RD.
MADISON, CT 06443

STRUCTURE TYPE

SELF SUPPORT TOWER

UNDERGROUND SERVICE ALERT
CALL TOLL FREE
1-800-922-4455
THREE WORKING DAYS BEFORE YOU DIG

VICINITY MAP



PROJECT TEAM

ALCATEL·LUCENT

808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27650

PROJECT MANAGER

infinigy engineering

11 Herbert Drive
Latham, NY 12110
OFFICE #: (518) 690-0790
FAX #: (518) 690-0793

ENGINEER

SCOPE OF WORK:

- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
- FACILITY HAS NO PLUMBING OR REFRIGERANTS
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS
- ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. CABINETS, ANTENNAS/RRU AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR
- INSTALL NEW ANTENNAS/RRH'S ON EXISTING TOWER
- INSTALL NEW BTS OR RETROFIT EXISTING BTS IN EXISTING EQUIPMENT AREA
- REMOVE EXISTING CDMA ANTENNAS AND COAX CABLES
- SPRINT TO REPLACE EXISTING POWER CABINET WITH NEW SECOND BATTERY CABINET OR INSTALL NEW SECOND BATTERY CABINET IF THERE IS AVAILABLE SPACE IN EXISTING SPRINT LEASE AREA.

PROJECT SUMMARY

SITE NAME:	N. MADISON/ VOL. FIRE DEPT.	
SITE NO.:	CT03XC164	
SITE ADDRESS:	(1173-1245) DURHAM RD. MADISON, CT 06443	
COUNTY:	NEW HAVEN	
SITE COORDINATES:		
LATITUDE:	41° 21' 20.99 N	(NAD 83)
LONGITUDE:	72° 38' 17.99" W	(NAD 83)
GROUND ELEV.:	±308'	(AMSL)
JURISDICTION:	TOWN OF MADISON	
APPLICANT:	SPRINT 1 INTERNATIONAL BLVD. MAHWAH, NJ 07495	
LAND OWNER:	NO MADISON VOLUNTARY FIRE CO INC 864 OPENING HILL RD MADISON, CT 06443	
CONSTRUCTION MANAGER:	TODD AMANN 914-715-9363	
BUILDING CODE:	2003 INTERNATIONAL BUILDING CODE 2005 CONNECTICUT BUILDING CODE W/ 2009 AMENDMENT	
ELECTRICAL CODE:	2005 NATIONAL ELECTRIC CODE	

ENGINEER'S LICENSE

CERTIFICATION STATEMENT:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

LICENSED ENGINEER – STATE OF CONNECTICUT

APPROVALS

SPRINT CONST.		DATE
ALU RF		DATE
ALU LEASING/SITE ACQ.		DATE
IN-MARKET CONSTRUCTION LEAD		DATE
SITE OWNER	NAME/COMPANY: TITLE:	DATE

A/E Consultant:
infinigy engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

STATE OF CONNECTICUT
JOHN S. [illegible]
No. 24705
LICENSED
PROFESSIONAL ENGINEER

No.	Submittal / Revision	App'd	Date
4	FINAL CDs	EXM	12/06/12
3	REVISED PER COMMENTS	EXM	7/03/12
2	REVISED PER COMMENTS	EXM	5/11/12
1	REVISED PER COMMENTS	EXM	5/22/12
0	ISSUED FOR REVIEW	EXM	4/25/12

Drawn: EXM Date: 4/25/12
Designed: EXM Date: 4/25/12
Checked: AJD Date: 4/25/12

Project Number
286-031

Project Title
CT03XC164
N. MADISON /
VOL. FIRE DEPT.

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

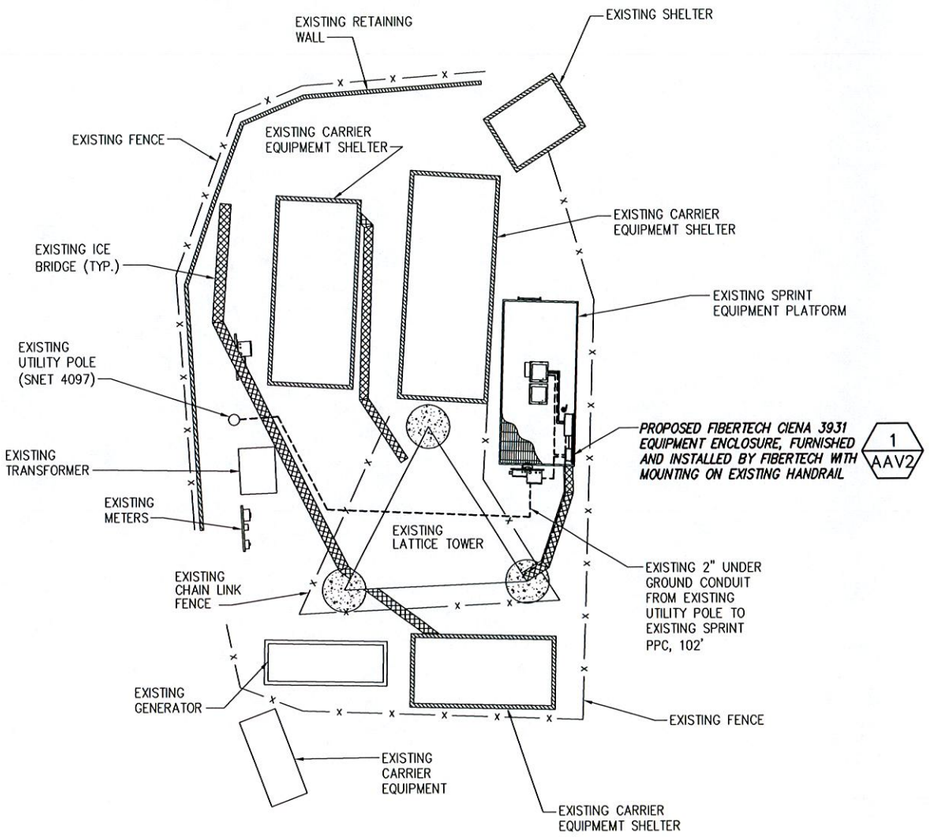
Client: Sprint
1 INTERNATIONAL BLVD. MAHWAH, NJ 07495

Implementation Team: ALCATEL·LUCENT
808 AVIATION PARKWAY SUITE 700 MORRISVILLE, NC 27650

Drawing Scale: AS NOTED
Date: 12/06/12

Drawing Title
TITLE SHEET

Drawing Number
T1

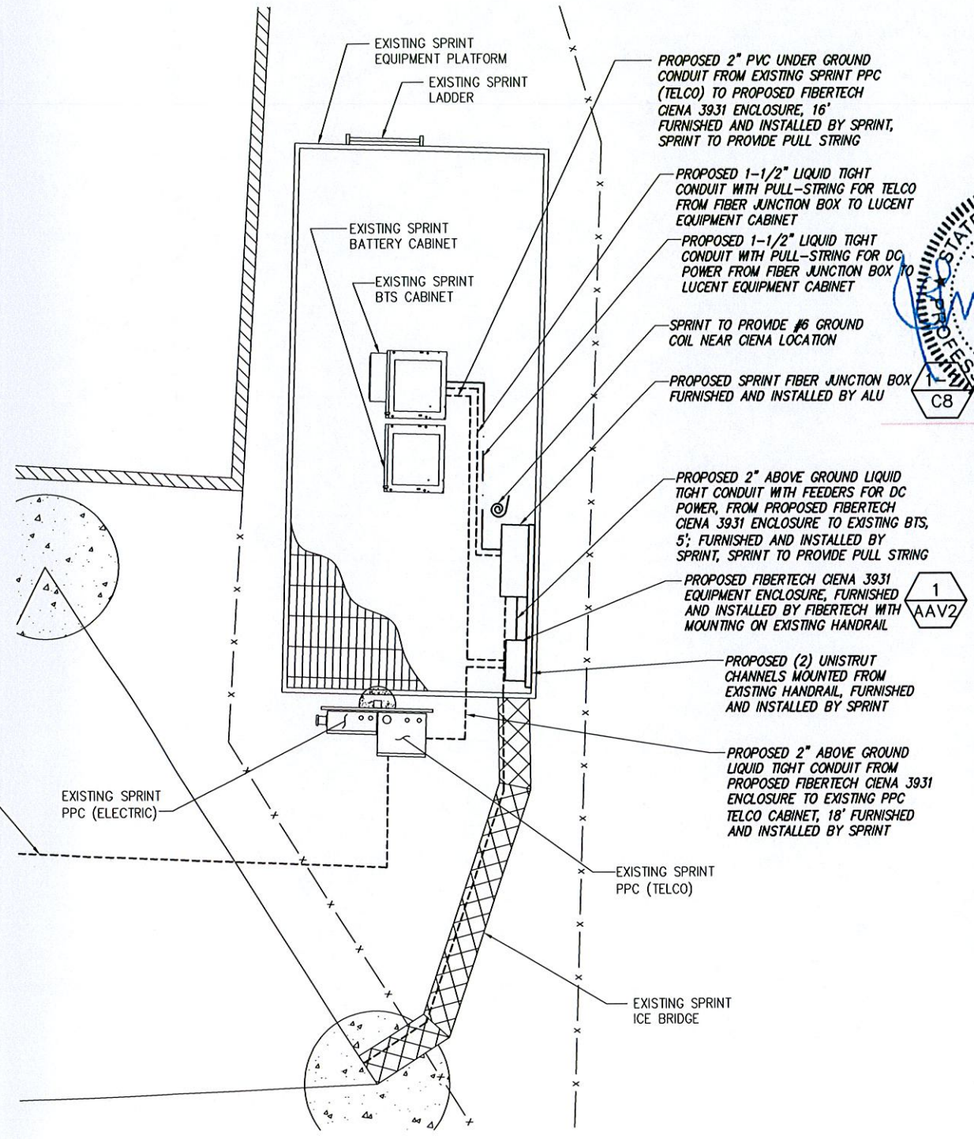


1 OVERALL SITE PLAN
SCALE:

CALLED NORTH

5' 0 5' 10' 20'
(IN FEET)
SCALE: 24"X 36" SHEET 1"= 10'
SCALE: 11"X 17" SHEET 1"= 20'

BASEMAPPING PREPARED FROM A SITE VISIT PERFORMED BY INFINIGY ENGINEERING, AND INFORMATION PROVIDED BY SPRINT NEXTEL, AND DOES NOT REPRESENT AN ACTUAL FIELD SURVEY.



1 EQUIPMENT AREA
SCALE:

CALLED NORTH

1.5' 0 1.5' 3' 6'
(IN FEET)
SCALE: 24"X 36" SHEET 1"= 3'
SCALE: 11"X 17" SHEET 1"= 6'

A/E Consultant:
infinigy engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF APPLICABLE STATE AND/OR LOCAL LAWS

No.	Submittal / Revision	App'd	Date
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Project Number
286-031

Project Title
CT03XC164
N. MADISON /
VOL. FIRE DEPT.

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

Client:
Sprint
1 INTERNATIONAL BLVD.
MAHWAH, NJ 07430

Implementation Team:
ALCATEL-LUCENT
808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27650

Drawing Scale:
AS NOTED

Date:
12/06/12

Drawing Title
OVERALL & ENLARGED SITE PLANS

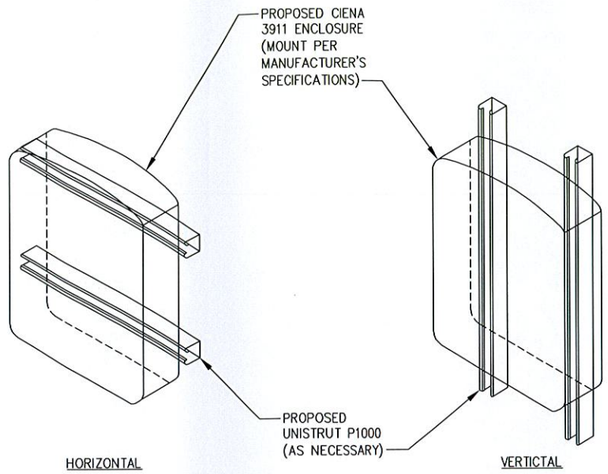
Drawing Number
AAV1

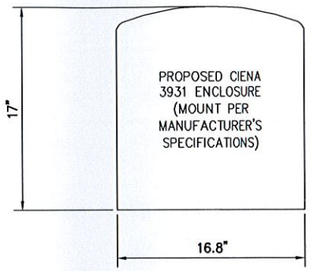
GENERAL NOTES:

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
4. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OF PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
5. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDORS SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
7. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
8. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
10. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
11. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
12. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
13. THE CONTRACTOR SHALL NOTIFY THE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE REPRESENTATIVE.
14. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
15. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD OR VIA A REPRESENTATIVE. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. SEE UNDERGROUND UTILITY COMPANY SHEET T-1 (DIG SAFE, MISS UTILITY, ETC.)
16. IF ASSUMED EXISTING CONDITION DIFFERS, ENGINEER MUST BE INFORMED OF ACTUAL FIELD CONDITION.
17. REFER TO THE SITE PLAN FOR APPROXIMATE LENGTH OF ALL U/G WORK AND LOCATION. FINAL LOCATION TO BE DETERMINED BY CLIENT. ALL MATERIALS TO BE USED AS ACCORDING TO DETAIL INSTRUCTIONS. ALL MATERIALS NOT INCLUDED IN THE DETAILS SHALL BE USED ACCORDING TO CODE AND/OR LOCAL JURISDICTION REGULATIONS INCLUDING MATERIALS, PREPARATION, EXACERBATION, EQUIPMENT AND INSTALLATION FOR UNDERGROUND WORK.
18. CONTRACTOR TO COORDINATE WITH SPRINT & PROVIDE GROUND BOND PER NE-250 & SPRINT STANDARDS FOR CLIENT EQUIPMENT AS REQUIRED.
19. ALL ELECTRICAL SPECIFICATIONS SHALL BE IN STRICT ACCORDANCE TO SECTIONS 16010, 16075, 16110, 16120, 16410 AND 16450 OF THE N.E.C.

ELECTRICAL AND GROUNDING NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AN PROCURED PER SPECIFICATION REQUIREMENTS. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
3. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIREMENT IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS
4. PROVISION OF AC/DC POWER IS UNDER SEPARATE SCOPE OF WORK
5. GROUNDING SHALL COMPLY WITH NEC ART. 250. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION FITTINGS. TEST COMPLETED GROUND SYSTEM AND ENSURE ADEQUACY.
6. CONTRACTOR TO PROVIDE GALV. P1000 UNISTRUT FRAMING AND 3/8" GALV. U-BOLTS/BOLTS AS NECESSARY FOR EXISTING CONDITIONS AND TO VERIFY SPACE IS APPROVED BY ALL NECESSARY PARTIES.





1 TYPICAL CIENA 3931 MOUNTING DETAIL
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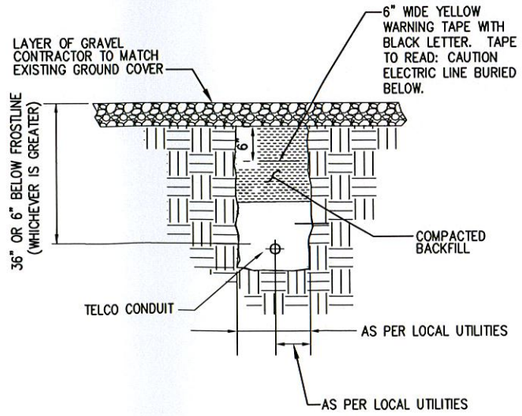

NOTE:
NUMBER AND SIZE OF CONDUITS MAY VARY. SEE DWG FOR CONDUIT SIZE AND LOCATION. CONFIRM CONDUIT SEPARATION AND DIMENSIONS SHOWN WITH LOCAL UTILITY COMPANY.

2 CONDUIT TRENCH DETAIL
NO SCALE

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STATE OF CONNECTICUT
JOHN S. KLEIS
No. 24705
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PROFESSIONAL ENGINEER

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Project Number
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CT03XC164
N. MADISON /
VOL. FIRE DEPT.

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

Client:
Sprint
1 INTERNATIONAL BLVD.
MAHWAH, NJ 07495

Implementation Team:
ALCATEL-LUCENT
808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27560

Drawing Scale:
AS NOTED

Date:
12/06/12

Drawing Title
NOTES & DETAILS

Drawing Number
AAV2

GENERAL NOTES

PART 1 – GENERAL REQUIREMENTS

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

A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
C. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC").
D. AND NFPA 101 (LIFE SAFETY CODE).
E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM).
F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE).

1.2 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: SPRINT NEXTEL 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.

1.3 POINT OF CONTACT: COMMUNICATION BETWEEN THE COMPANY AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE COMPANY SITE DEVELOPMENT SPECIALIST OR OTHER PROJECT COORDINATOR APPOINTED TO MANAGE THE PROJECT FOR THE COMPANY.

1.4 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.

1.5 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 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.

1.6 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.

1.7 NOTICE TO PROCEED:

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED.
B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT NEXTEL WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – EXECUTION

2.1 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.

2.2 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.

2.3 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.

2.4 COMPANY FURNISHED MATERIAL AND EQUIPMENT: ALL HANDLING, STORAGE AND INSTALLATION OF COMPANY FURNISHED MATERIAL AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

A. CONTRACTOR SHALL PROCURE ALL OTHER REQUIRED WORK RELATED MATERIALS NOT PROVIDED BY SPRINT NEXTEL TO SUCCESSFULLY CONSTRUCT A WIRELESS FACILITY.

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

2.6 EXISTING CONDITIONS: NOTIFY THE COMPANY REPRESENTATIVE 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.

PART 3 – RECEIPT OF MATERIAL & EQUIPMENT

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:
CONTRACTOR IS RESPONSIBLE FOR SPRINT NEXTEL PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

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

PART 4 – GENERAL REQUIREMENTS FOR CONSTRUCTION

4.1 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.

4.2 EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

4.3 CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

A. 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.
B. 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.

4.4 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

4.5 CONDUCT TESTING AS REQUIRED HEREIN.

PART 5 – TESTS AND INSPECTIONS

5.1 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
B. CONTRACTOR SHALL COORDINATE TEST AND INSPECTION SCHEDULES WITH COMPANY'S REPRESENTATIVE WHO MUST BE ON SITE TO WITNESS SUCH TESTS AND INSPECTIONS.
C. 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.
D. 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.
E. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
F. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS. HYBERFLEX TESTING NOT LIMITED TO COAX SWEEPS.
G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PART 6 – TRENCHING AND BACKFILLING

6.1 TRENCHING AND BACKFILLING: THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.

A. PROTECTION OF EXISTING UTILITIES: THE CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND THE RESPECTIVE UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION OPERATIONS IN EACH RESPECTIVE AREA TO ASCERTAIN THE LOCATIONS OF KNOWN UTILITY LINES. THE LOCATIONS, NUMBER AND TYPES OF EXISTING UTILITY LINES DETAILED ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE AND DO NOT REPRESENT EXACT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL LINES DAMAGED DURING EXCAVATION AND ALL ASSOCIATED OPERATIONS. ALL UTILITY LINES UNCOVERED DURING THE EXCAVATION OPERATIONS, SHALL BE PROTECTED FROM DAMAGE DURING EXCAVATION AND ASSOCIATED OPERATIONS. ALL REPAIRS SHALL BE APPROVED BY THE UTILITY COMPANY.
B. HAND DIGGING: UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.
C. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING AND TO PREVENT SLIDES OR CAVE-INS. ALL EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
D. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING OR BY OTHER APPROVED METHOD.
E. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. UNLESS OTHERWISE INDICATED, EXCAVATION SHALL BE BY OPEN CUT, EXCEPT THAT SHORT SECTIONS OF A TRENCH MAY BE TUNNELED IF, THE CONDUIT CAN BE SAFELY AND PROPERLY INSTALLED AND BACKFILL CAN BE PROPERLY TAMPED IN SUCH TUNNEL SECTIONS. EARTH EXCAVATION SHALL COMPRISE ALL MATERIALS AND SHALL INCLUDE CLAY, SILT, SAND, MUCK, GRAVEL, HARDPAN, LOOSE SHALE, AND LOOSE STONE.
F. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE, AND THE BANKS SHALL BE AS NEARLY VERTICAL AS PRACTICABLE. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE NECESSARY, THE ROCK SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF 6 INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR SPECIFIED. OVER DEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVER DEPTHS SHALL BE THOROUGHLY BACK FILLED AND TAMPED TO THE APPROPRIATE GRADE. WHENEVER WET OR OTHERWISE UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE CONDUIT OR CABLE IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SUCH SOLID SHALL BE REMOVED TO A MINIMUM OVER DEPTH OF 6 INCHES AND THE TRENCH BACKFILLED TO THE PROPER GRADE WITH EARTH OF OTHER SUITABLE MATERIAL, AS HEREINAFTER SPECIFIED.
G. BACKFILLING OF TRENCHES. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. WHERE COMPACTED BACKFILL IS NOT INDICATED THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH SELECT MATERIAL SUCH AS EXCAVATED SOILS THAT ARE FREE OF ROOTS, SOD, RUBBISH OR STONES, DEPOSITED IN 6 INCH LAYERS AND THOROUGHLY AND CAREFULLY RAMMED UNTIL THE CONDUIT OR CABLE HAS A COVER OF NOT LESS THAN 1 FOOT. THE REMAINDER OF THE BACKFILL MATERIAL SHALL BE GRANULAR IN NATURE AND SHALL NOT CONTAIN ROOTS, SOD, RUBBING, OR STONES OF 2-1/2 INCH MAXIMUM DIMENSION. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED. SETTLING THE BACKFILL WITH WATER WILL BE PERMITTED. THE SURFACE SHALL BE GRADED TO A REASONABLE UNIFORMITY AND THE MOUNDING OVER THE TRENCHES LEFT IN A UNIFORM AND NEAT CONDITION.

PROJECT INFORMATION

THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT FACILITY AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNALS FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS COMMUNICATIONS SERVICE.

NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.

NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.

NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

SPRINT MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.

LEGEND

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH
F	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
T	TRANSFORMER
KWH	KILOWATT HOUR METER
JB	JUNCTION BOX
PB	PULL BOX TO NEC/TELCO STANDARDS
----------	UNDERGROUND UTILITIES
#	DENOTES REFERENCE NOTE
•	EXOTHERMIC WELD CONNECTION
■	MECHANICAL CONNECTION (E.G.LUG,) C–
OR	GROUND ROD
OR	GROUND ROD WITH INSPECTION SSLEEVE
	GROUND BAR
	PIN AND SLEEVE RECEPTACLE
	120AC DUPLEX RECEPTACLE
G OR	GROUND CONDUCTOR
# / #	REPRESENTS DETAIL NUMBER / REF. DRAWING NUMBER

ABBREVIATIONS

CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MIGB	MASTER ISOLATED GROUND BAR
SST	SELF SUPPORTING TOWER
GPS	GLOBAL POSITIONING SYSTEM
TYP.	TYPICAL
DWG	DRAWING
BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
PVC	POLYVINYL CHLORIDE
CAB	CABINET
C	CONDUIT
SS	STAINLESS STEEL
G	GROUND
AWG	AMERICAN WIRE GAUGE
RGS	RIGID GALVANIZED STEEL
AHJ	AUTHORITY HAVING JURISDICTION
TTLNA	TOWER TOP LOW NOISE AMPLIFIER
UNO	UNLESS NOTED OTHERWISE
EMT	ELECTRICAL METALLIC TUBING
AGL	ABOVE GROUND LEVEL
PVC	POLYVINYL CHLORIDE

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STATE OF CONNECTICUT
No. 24705
LICENSED
PROFESSIONAL ENGINEER

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Project Number: 286-031

Project Title:
CT03XC164
N. MADISON /
VOL. FIRE DEPT.

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

Client: Sprint, 1 INTERNATIONAL BLVD. MAHWAH, NJ 07495

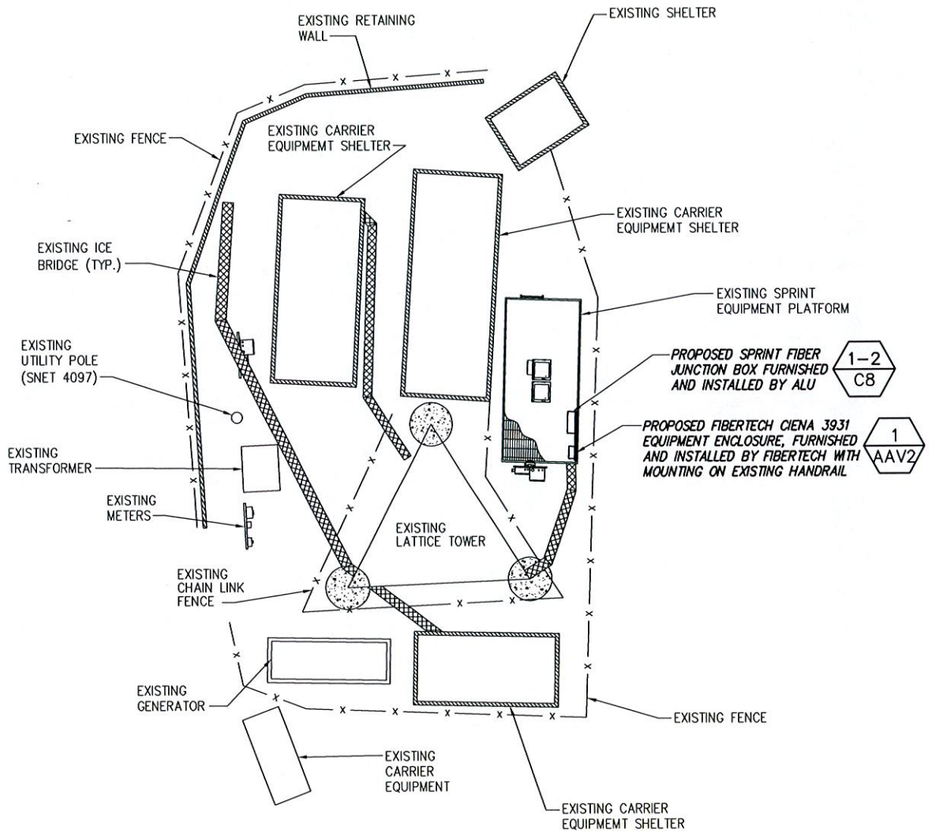
Implementation Team: ALCATEL-LUCENT, 808 AVIATION PARKWAY SUITE 700 MORRISVILLE, NC 27650

Drawing Scale: AS NOTED

Date: 12/06/12

Drawing Title:
GENERAL NOTES

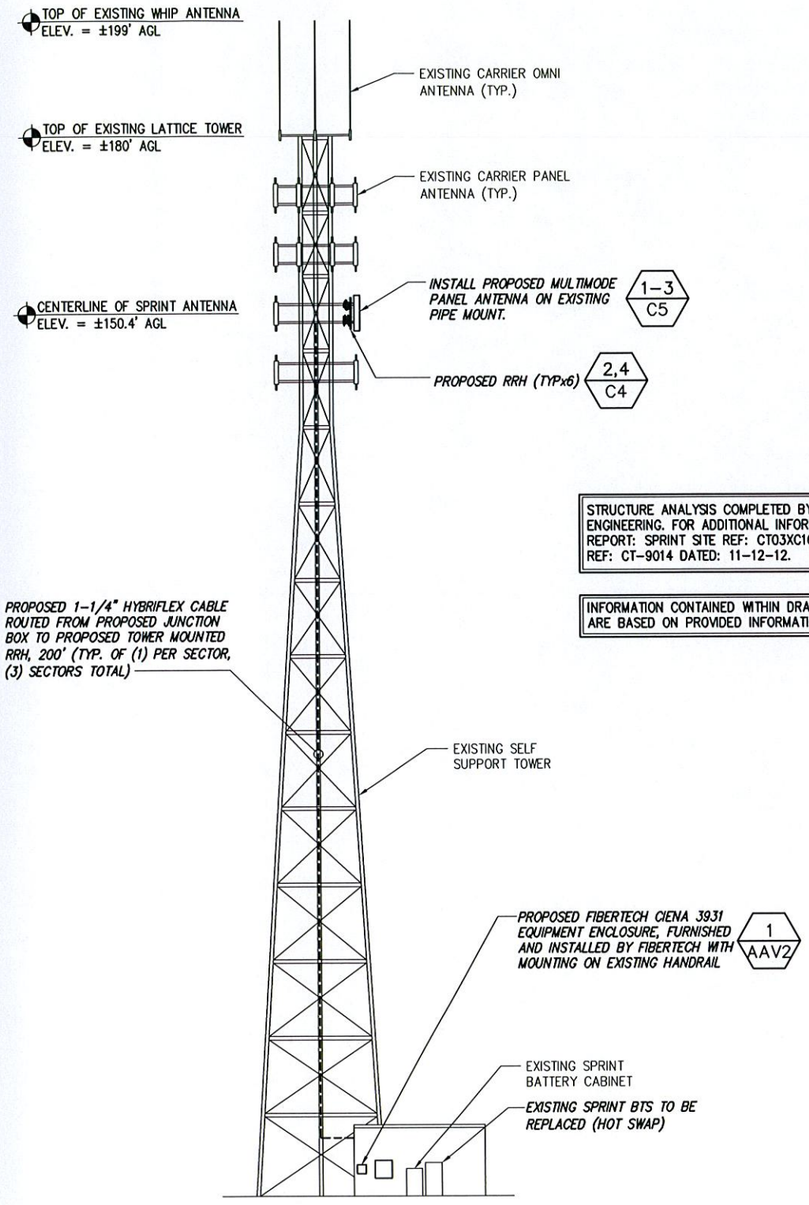
Drawing Number:
C1



1 -- OVERALL SITE PLAN
SCALE:

CALLED NORTH

5' 0 5' 10' 20'
(IN FEET)
SCALE: 24"X 36" SHEET 1"= 10'
SCALE: 11"X 17" SHEET 1"= 20'



2 -- SITE ELEVATION
NOT TO SCALE

STRUCTURE ANALYSIS COMPLETED BY CENTEK ENGINEERING. FOR ADDITIONAL INFORMATION, SEE REPORT: SPRINT SITE REF: CT03XC164, GTP STE REF: CT-9014 DATED: 11-12-12.

INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION.

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Drawing Scale:
AS NOTED

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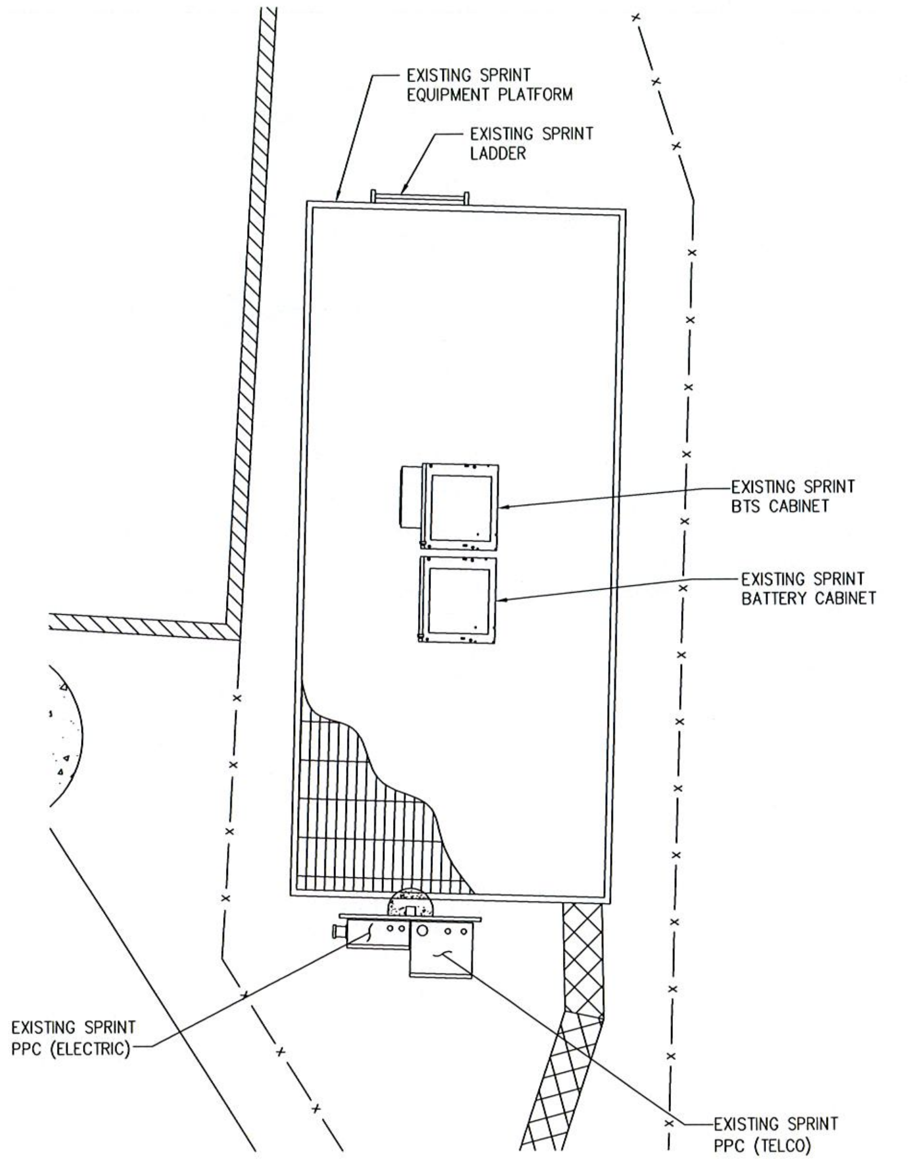
12/06/12

Drawing Title
COMPOUND SITE PLAN

Drawing Number
C2

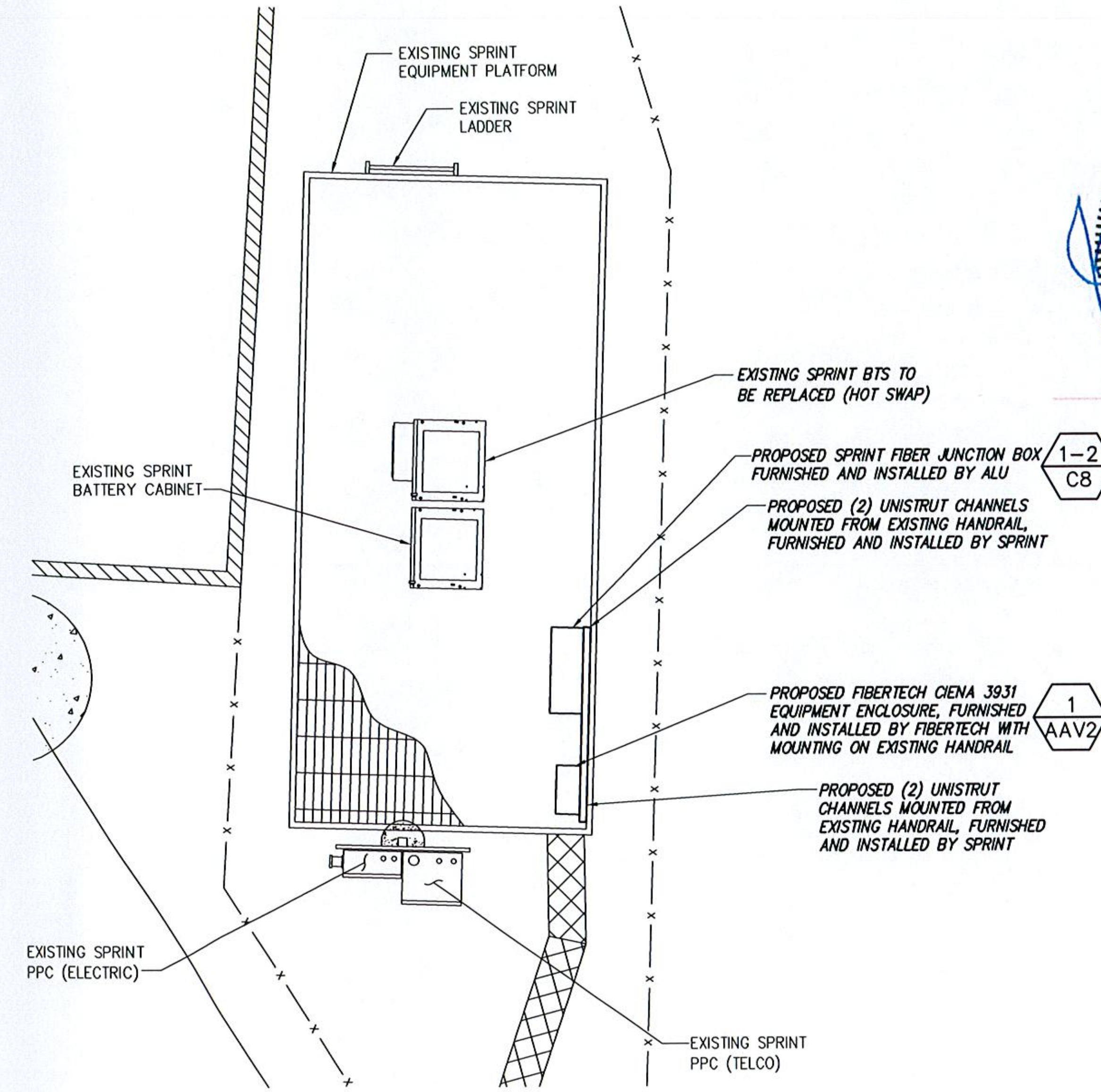


CALLED NORTH

1 EQUIPMENT SITE PLAN (EXISTING)

SCALE:

1.5' 0 1.5' 3' 6'
(IN FEET)
SCALE: 24"X 36" SHEET 1"= 3'
SCALE: 11"X 17" SHEET 1"= 6'



CALLED NORTH

2 EQUIPMENT SITE PLAN (FINAL/PERMANENT)

SCALE:

1.5' 0 1.5' 3' 6'
(IN FEET)
SCALE: 24"X 36" SHEET 1"= 3'
SCALE: 11"X 17" SHEET 1"= 6'

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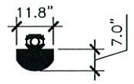
MORRISVILLE, NC 27650

Drawing Scale: AS NOTED

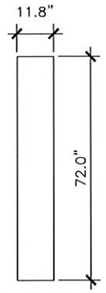
Date: 12/06/12

Drawing Title:
EQUIPMENT SITE PLANS

Drawing Number: **C3**



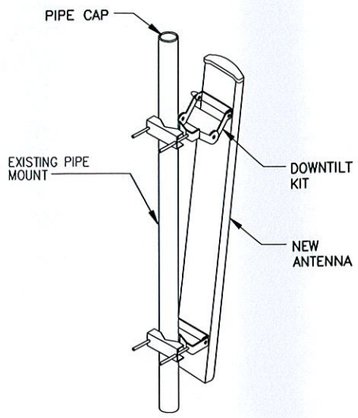
TOP VIEW



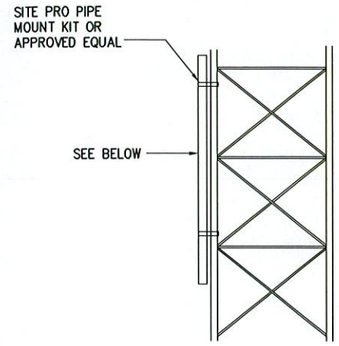
FRONT VIEW
800/1900
MULTI-MODE

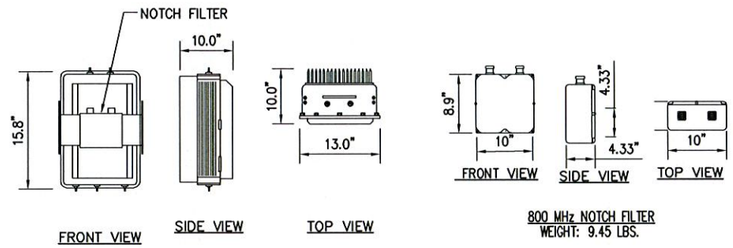
RFS ANTENNA
P/N: APXVSPP18-C-A20

1 ANTENNA DETAILS
NOT TO SCALE



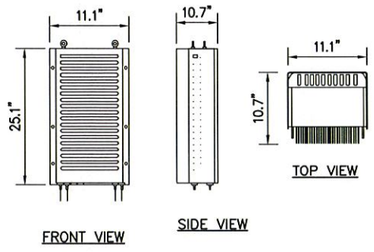
3 PANEL ANTENNA MOUNT DETAIL
NOT TO SCALE





800 MHz NOTCH FILTER
WEIGHT: 9.45 LBS.

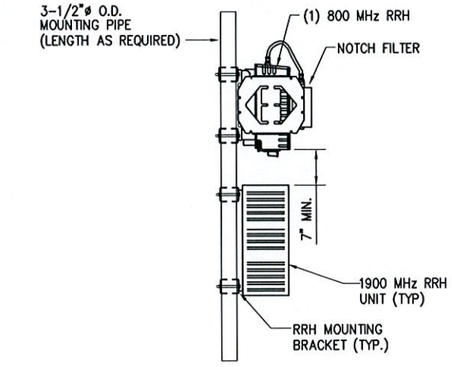
800 MHz RRH
(ALU)
WEIGHT = 50.6 LBS.



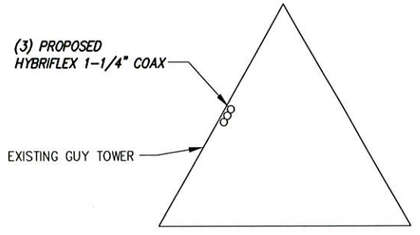
1900 MHZ RRH
(ALU)
WEIGHT = 60 LBS.

2 RRH EQUIPMENT DETAILS
NOT TO SCALE

NOTE:
REFER TO R.F. SYSTEM SCHEDULE FOR EXACT RRH SPECIFICATIONS AND QUANTITIES.



4 RRH MOUNTING DETAIL (TYP.)
NOT TO SCALE



5 COAX ROUTING DETAIL
NOT TO SCALE

NOTE:
1. SUBCONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.

A/E Consultant:
infinigy engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

No.	Submittal / Revision	App'd	Date
4	FINAL CDs	EKM	12/06/12
3	REVISED PER COMMENTS	EKM	7/03/12
2	REVISED PER COMMENTS	EKM	6/11/12
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0	ISSUED FOR REVIEW	EKM	4/25/12

Drawn: EKM Date: 4/25/12
Designed: EKM Date: 4/25/12
Checked: AJD Date: 4/25/12

Project Number
286-031

Project Title
CT03XC164
N. MADISON /
VOL. FIRE DEPT.

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

Client:
Sprint
INTERNATIONAL BLVD.
RESTON, VA 20190

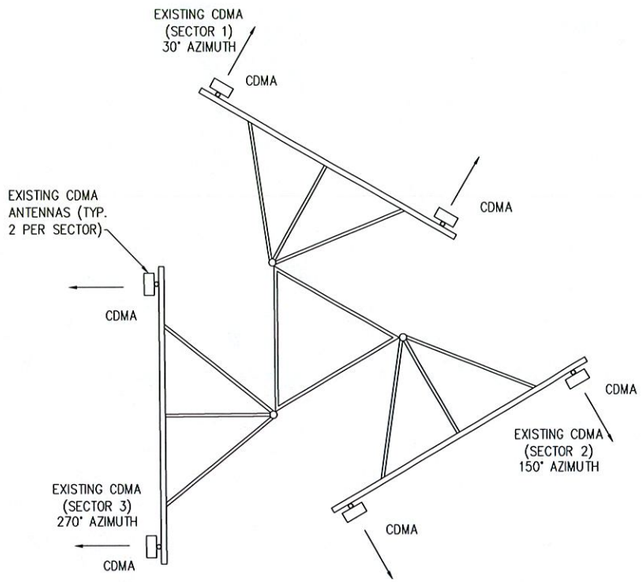
Implementation Team:
ALCATEL-LUCENT
808 AMATION PARKWAY
SUITE 100
MORRISVILLE, NC 27650

Drawing Scale:
AS NOTED

Date:
12/06/12

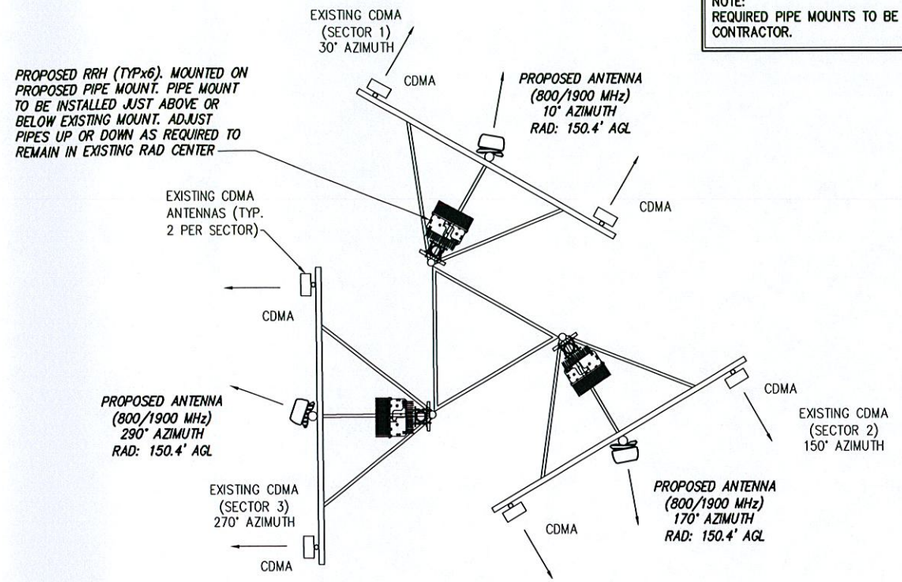
Drawing Title
SITE ELEVATION & ANTENNA/RRH DETAILS

Drawing Number
C4



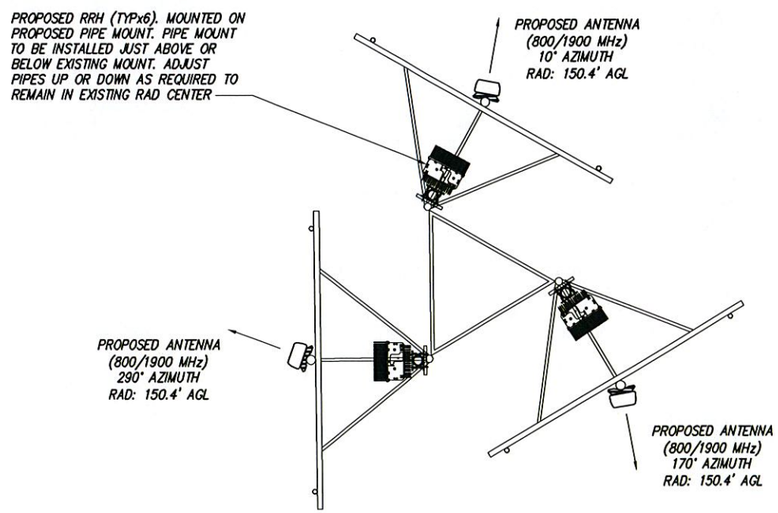
CALLED NORTH

1 / -- ANTENNA CONFIGURATION (EXISTING)
NOT TO SCALE



CALLED NORTH

2 / -- ANTENNA CONFIGURATION (INTERIM/TEMPORARY)
NOT TO SCALE



CALLED NORTH

3 / -- ANTENNA CONFIGURATION (FINAL/PERMANENT)
NOT TO SCALE

NOTE:
REQUIRED PIPE MOUNTS TO BE SUPPLIED BY CONTRACTOR.

NOTES:

EXISTING RF DATA PROVIDED BY SPRINT SITERRA, SPRINT PCS DRAWINGS, TITLED "NORTH MADISON VOLUNTEER FIRE COMPANY", DATED 6/29/99.

RRH NOTES:

- SEE PAGE C4 FOR RRH MOUNTING INFORMATION (TYP. ALL SECTORS).
- REFER TO RF SCHEDULE ON SHEET C7 FOR RRH UNIT SPECS AND QUANTITIES.

GENERAL NOTES:

1. NEW SPRINT PANEL ANTENNAS TO MEET RF DESIGN REQUIREMENTS PER EBTS, PER APPROVED STRUCTURAL ANALYSIS.
2. CONTRACTOR TO PROVIDE EXISTING ANTENNA VERIFICATION AND TO INCLUDE MOUNTING HEIGHT, RAD CENTER, TOP AND BOTTOM OF ANTENNA AND AZIMUTHS FOR ALL ANTENNAS.
3. CONTRACTOR SHALL VERIFY NEW PARTS BEFORE ORDERING.
4. REFER TO SHEET C7 FOR ANTENNAS SPECS.
5. CONTRACTOR TO USE PROPER TORQUE WHEN INSTALLING AND TIGHTENING CONNECTORS TO INSURE PROPER FIT.
6. ALL HYBRID CABLES SHALL BE MARKED WITHIN 24" OF THE END OF EACH CABLE WITH 2" WIDE VINYL TAPE. THIS INCLUDES ALL JUMPERS AND MAIN LINE HYBRID CABLE.
7. CDMA ANTENNAS SHALL NOT BE REMOVED UNTIL ALL NEW MULTI-MODE ANTENNAS ARE INSTALLED AND ON-AIR.

A/E Consultant:
infinigy engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

STATE OF CONNECTICUT
JOHN S. [illegible]
No. 24705
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Project Number
286-031

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CT03XC164
N. MADISON /
VOL. FIRE DEPT.

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

Client:
Sprint
1 INTERNATIONAL BLVD.
MAHWAH, NJ 07-495

Implementation Team:
ALCATEL-LUCENT
808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27650

Drawing Scale:
AS NOTED

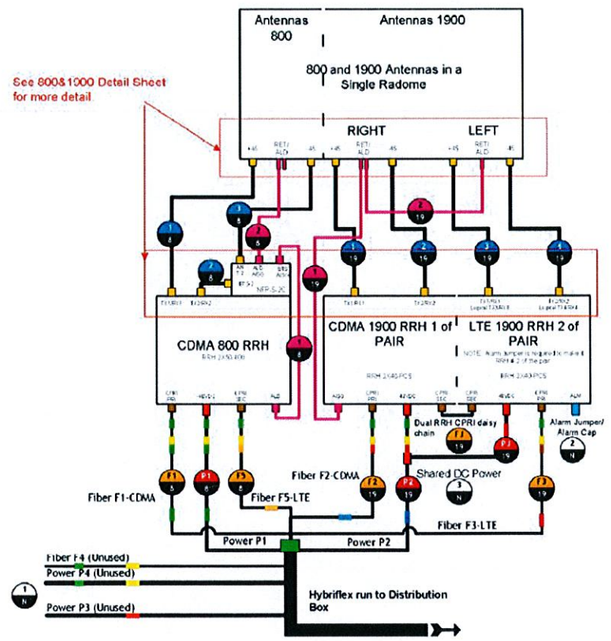
Date:
12/06/12

Drawing Title
ANTENNA PLANS

Drawing Number
C5

TOWER TOP SCENARIO 2

800 AND SINGLE 1900 RRH PAIR WITH SINGLE 800/1900 RADOME ANTENNA

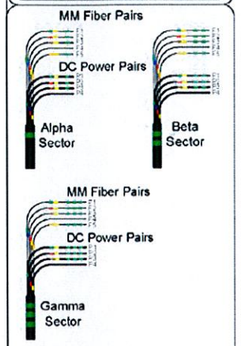


Power Feed Polarity Definition:
Black= -48VDC Feed (Battery)
Black/White Stripe= Return

NOTE: For power feed use the same Hybriflex OEM color designator as the fiber

MM Pair 1= F1= Green= P1(Green)
MM Pair 2= F2= Blue= P2(Blue)
MM Pair 3= F3= Red= P3(Red)
MM Pair 4= F4= Yellow= P4(Yellow)
MM Pair 5= F5= Orange= (No P5 power feed)

OEM COLOR CODE
HYBRIFLEX



DRAWING LEGEND

AISG
COAX
FIBER
POWER
NOTES
FREQ

SEE CONNECTION LEGEND FOR MORE DETAILS

NOTES:
CONTRACTOR TO FIELD VERIFY GPS LOCATION.

INSTALLER VERIFY LATEST PLUMBING/WIRING DIAGRAMS, PRIOR TO INSTALLATION.

PLUMBING DIAGRAM VERSION 1.9

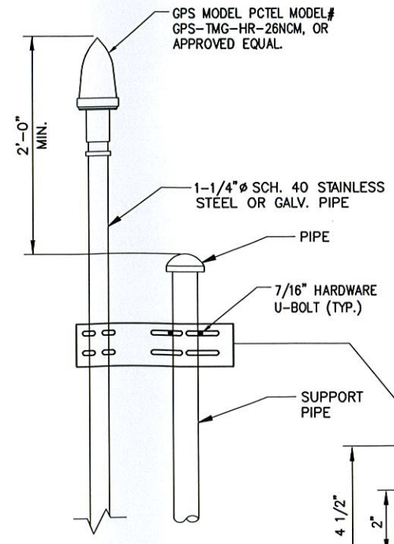
WEATHERPROOFING CONNECTORS AND GROUND KITS NOTE:

A. ALL CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED USING BUTYL RUBBER WEATHERPROOFING AND TAPE, THIS INSTALLATION MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION OR PER THE FOLLOWING INSTRUCTIONS (WHICHEVER IS GREATER):

1. THE COAXIAL CABLE CONNECTION OR GROUND KIT CAN BE ENCOMPASSED INTO COLD SHRINK AND COMPLETELY WRAPPED WITH 2 IN. WIDE ELECTRICAL TAPE OVERLAPPING EACH ROW BY APPROXIMATELY 1/2" AND EXTENDING PAST THE CONNECTION BY TWO INCHES AS DISCUSSED BELOW; OR
2. THE COAXIAL CABLE CONNECTION OR GROUND KIT CAN BE WRAPPED WITH LAYERS OR ELECTRICAL/BUTYL RUBBER/ELECTRICAL TAPE AS DISCUSSED BELOW; OR
3. THE COAXIAL CABLE CONNECTION OR GROUND KIT CAN BE WRAPPED WITH TWO LAYERS OF 1.5 INCH WIDE SELF-AMALGAMATING TAPE COVERED WITH TWO LAYERS OF ELECTRICAL TAPE.

RRH JUMPERS NOTES:

1. FOR DISTANCES BETWEEN RRH'S AND ANTENNAS LESS THAN 10'-0" USE A 1/2" JUMPER.
2. FOR DISTANCES BETWEEN RRH'S AND ANTENNAS GREATER THAN 10'-0" USE A 7/8" JUMPER.

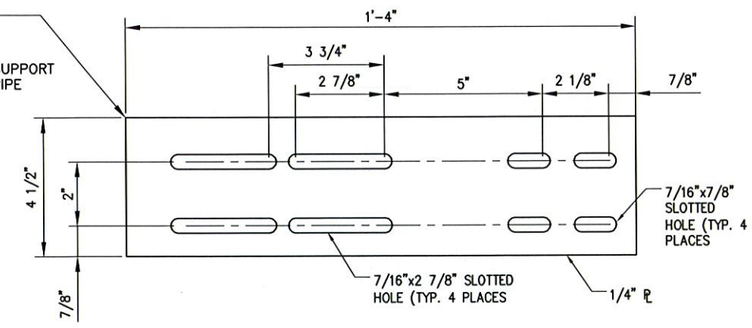


1 GPS ANTENNA DETAIL
NOT TO SCALE

GPS MINIMUM SKY VIEW REQUIREMENTS

NOTES:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1-1/4" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBARRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
3. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF LEVEL.
4. DO NOT SWEEP TEST GPS ANTENNA.



A/E Consultant:
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STATE OF CONNECTICUT
JOHN S. WILLIS
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No.	Submittal / Revision	App'd	Date
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1	REVISED PER COMMENTS	DXM	5/22/12
0	ISSUED FOR REVIEW	DXM	4/25/12

Drawn: DXM Date: 4/25/12
Designed: DXM Date: 4/25/12
Checked: AJD Date: 4/25/12

Project Number: 286-031

Project Title:
CT03XC164
N. MADISON /
VOL. FIRE DEPT.

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

Client: Sprint
Implementation Team: ALCATEL-LUCENT
808 AVIATION PARKWAY SUITE 700 MORRISVILLE, NC 27560

Drawing Scale: AS NOTED
Date: 12/06/12

Drawing Title:
ANTENNA CABLE RISER AND H-FRAME DETAILS

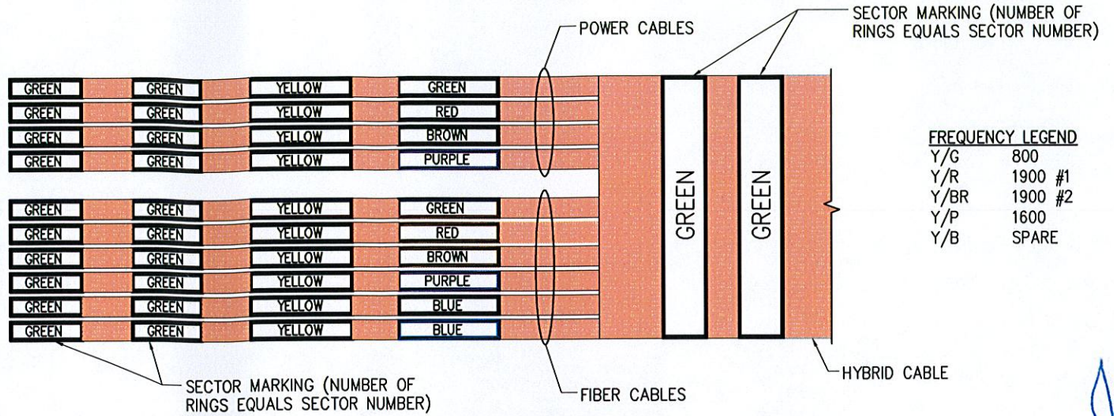
Drawing Number:
C6

		Market	Southern Connecticut		
		Cascade ID	CT03XC164		
			SECTOR 1	SECTOR 2	SECTOR 3
	Split sector present		No	No	No
1900	1900MHz_Azimuth		10	170	290
1900	1900MHz_No_of_Antennas		1	1	1
1900	1900MHz_RADCenter(ft)		150.4	150.4	150.4
1900	1900MHz_Antenna Make		RFS	RFS	RFS
1900	1900MHz_Antenna Model		APXVSPP18-C-A20	APXVSPP18-C-A20	APXVSPP18-C-A20
1900	1900MHz_Horizontal_Beamwidth		65	65	65
1900	1900MHz_Vertical_Beamwidth		5.5	5.5	5.5
1900	1900MHz_AntennaHeight (ft)		6	6	6
1900	1900MHz_AntennaGain(dBd)		15.9	15.9	15.9
1900	1900MHz_E_Tilt		0	-2	0
1900	1900MHz _M_Tilt		0	0	0
1900	1900MHz_Carrier_Forecast_Year_2013		2	2	2
1900	1900MHz_RRH Manufacturer		ALU	ALU	ALU
1900	1900MHz_RRH Model		RRH 1900 4X45 65MHz	RRH 1900 4X45 65MHz	RRH 1900 4X45 65MHz
1900	1900MHz_RRH Count		1	1	1
1900	1900MHz_RRH Location		Top of the Pole/Tower	Top of the Pole/Tower	Top of the Pole/Tower
1900	1900MHz Combiner Model		No Combiner Required	No Combiner Required	No Combiner Required
1900	1900MHz_Top_Jumper #1_Length (RRH or Combiner-to-Antenna for TT or Main Coax to		10	10	10
1900	1900MHz_Top_Jumper #1_Cable_Model (RRH or Combiner-to-Antenna for TT or Main Coax		LCF12-50J	LCF12-50J	LCF12-50J
1900	1900MHz_Top_Jumper #2_Length (RRH to Combiner for TT if applicable, ft)		N/A	N/A	N/A
1900	1900MHz_Top_Jumper #2_Cable_Model (RRH to Combiner for TT if applicable)		N/A	N/A	N/A
1900	1900MHz_Main_Coax_Cable_Length (ft)		N/A	N/A	N/A
1900	1900MHz_Main_Coax_Cable_Model		N/A	N/A	N/A
1900	1900MHz_Bottom_Jumper #1_Length (Ground based RRH to Combiner-OR-Main Coax, ft)		N/A	N/A	N/A
1900	1900MHz_Bottom_Jumper #1_Cable_Model (Ground based RRH to Combiner-OR-Main Coax)		N/A	N/A	N/A
1900	1900MHz_Bottom_Jumper #2_Length (Ground based-Combiner to Main Coax, ft)		N/A	N/A	N/A
1900	1900MHz_Bottom_Jumper #2_Cable_Model (Ground based-Combiner to Main Coax)		N/A	N/A	N/A
800	800MHz_Azimuth		10	170	290
800	800MHz_No_of_Antennas		0	0	0
800	800MHz_RADCenter(ft)		150.4	150.4	150.4
800	800MHz_AntennaMake		RFS	RFS	RFS
800	800MHz_AntennaModel		APXVSPP18-C-A20 (Shared w/1900)	APXVSPP18-C-A20 (Shared w/1900)	APXVSPP18-C-A20 (Shared w/1900)
800	800MHz_Horizontal_Beamwidth		65	65	65
800	800MHz_Vertical_Beamwidth		11.5	11.5	11.5
800	800MHz_AntennaHeight (ft)		6	6	6
800	800MHz_AntennaGain (dBd)		13.4	13.4	13.4
800	800MHz_E_Tilt		-1	-1	-1
800	800MHz_M_Tilt		0	0	0
800	800MHz_RRH Manufacturer		ALU	ALU	ALU
800	800MHz_RRH Model		RRH 800 MHz 2x50W	RRH 800 MHz 2x50W	RRH 800 MHz 2x50W
800	800MHz_RRH Count		1	1	1
800	800MHz_RRH Location		Top of the Pole/Tower	Top of the Pole/Tower	Top of the Pole/Tower
800	800_Top_Jumper #1_Length (RRH to Antenna for TT or Main Coax to Antenna for GM)		10	10	10
800	800_Top_Jumper_Cable_Model (RRH to Antenna for TT or Main Coax to Antenna for GM)		LCF12-50J	LCF12-50J	LCF12-50J
800	800MHz_Main_Coax_Cable_Length (ft)		N/A	N/A	N/A
800	800MHz_Main_Coax_Cable_Model		N/A	N/A	N/A
800	800_Bottom_Jumper #1_Length (Ground based RRH to Main Coax)		N/A	N/A	N/A
800	800_Bottom_Jumper #1_Cable_Model (Ground based RRH to Main Coax)		N/A	N/A	N/A
	Plumbing Scenario *		124	124	124
Comments	* If plumbing scenario does not match the material received, please contact your Construction Manager				
Comments	11/9/2012				

1 SPRINT RFDS
NOT TO SCALE

NOTE:
COORDINATE RF ANTENNA INSTALLATION WITH FINAL SPRINT RFDS. COORDINATE RF MW DISH (IF APPLICABLE) INSTALLATION WITH FINAL SPRINT RFDS.

NOTE:
RFDS SHOWN PROVIDED BY SPRINT DATED 11/09/12.



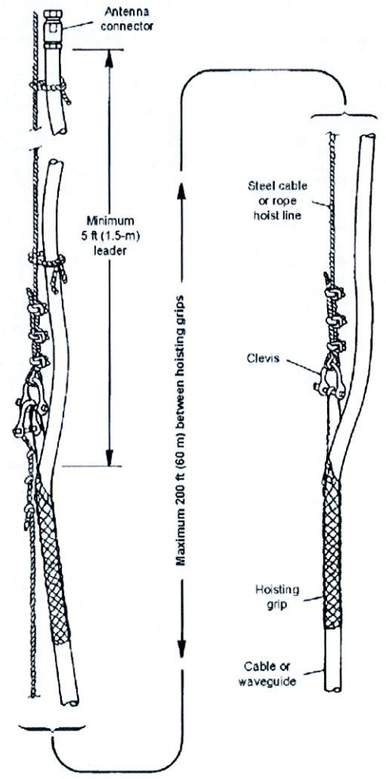
FREQUENCY LEGEND

Y/G	800
Y/R	1900 #1
Y/BR	1900 #2
Y/P	1600
Y/B	SPARE

HYBRID CABLE WILL BE MARKED IN A SIMILAR MANNER AS COAX CABLES. THE MAIN TRUNK OF THE HYBRID CABLE IS TO BE MARKED WITH THE SECTOR MARKINGS ONLY. THE INDIVIDUAL POWER PAIRS AND FIBER CABLES WILL BE LABELED WITH BOTH THE SECTOR CABLE MARKINGS AND FREQUENCY (EXAMPLE ABOVE IS FOR SECTOR 2)

2 COLOR CODING
NOT TO SCALE

1. DO NOT USE ONE HOISTING GRIP FOR HOISTING TWO OR MORE CABLES OR CABLE TRAYS. THIS CAN CAUSE THE HOISTING GRIP TO BREAK OR THE CABLES OR WAVE-GUIDES TO FALL.
2. DO NOT USE THE HOISTING GRIP FOR LOWERING CABLE OR CABLE TRAY. SNAGGING OF THE CABLE OR CABLE TRAY MAY LOOSEN THE GRIP AND POSSIBLY CAUSE THE CABLE TO CABLE TRAY TO SWAY OR FALL.
3. DO NOT REUSE HOISTING GRIPS. USED GRIPS MAY HAVE LOST ELASTICITY, STRETCHED, OR BECOME WEAK-ENED. REUSING A GRIP CAN CAUSE THE CABLE OR CABLE TRAY TO SLIP, BREAK, OR FALL.
4. USE HOISTING GRIPS AT INTERVALS OF NO MORE THAN 200 FT (60 M).
5. MAKE SURE THAT THE PROPER HOISTING GRIP IS USED FOR THE CABLE OR CABLE TRAY BEING INSTALLED. SLIPPAGE OR INSUFFICIENT GRIPPING STRENGTH WILL RESULT IF YOU ARE USING THE WRONG HOISTING GRIP.



2 HOIST GRIB DETAIL
NOT TO SCALE

A/E Consultant:
infinigy engineering
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Latham, NY 12110
(518) 690-0790

STATE OF CONNECTICUT
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Sprint
1 INTERNATIONAL BLVD.
MAHWAH, NJ 07495

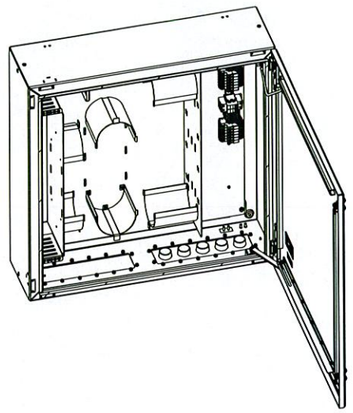
Implementation Team:
ALCATEL-LUCENT
808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27560

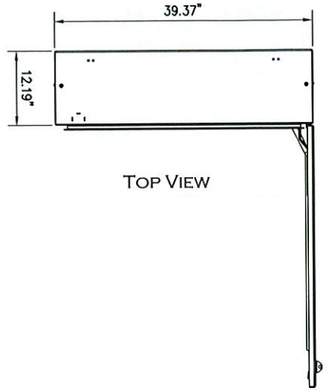
Drawing Scale:
AS NOTED

Date:
12/06/12

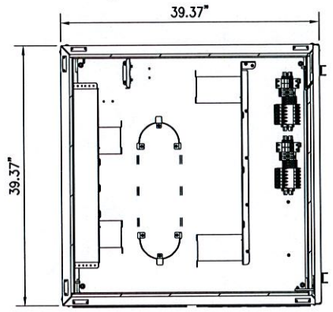
Drawing Title
RF AND CABLE DETAILS

Drawing Number
C7





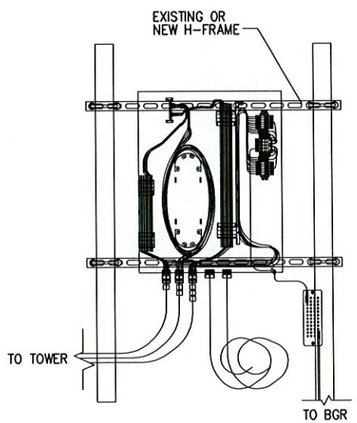
TOP VIEW



FRONT VIEW

SIDE VIEW

1 DISTRIBUTION BOX DETAIL
NOT TO SCALE



FRONT VIEW WITH DOOR REMOVED TO SHOW DETAIL

2 DISTRIBUTION BOX INSTALL COMPLETE VIEW
NOT TO SCALE

NOTES:

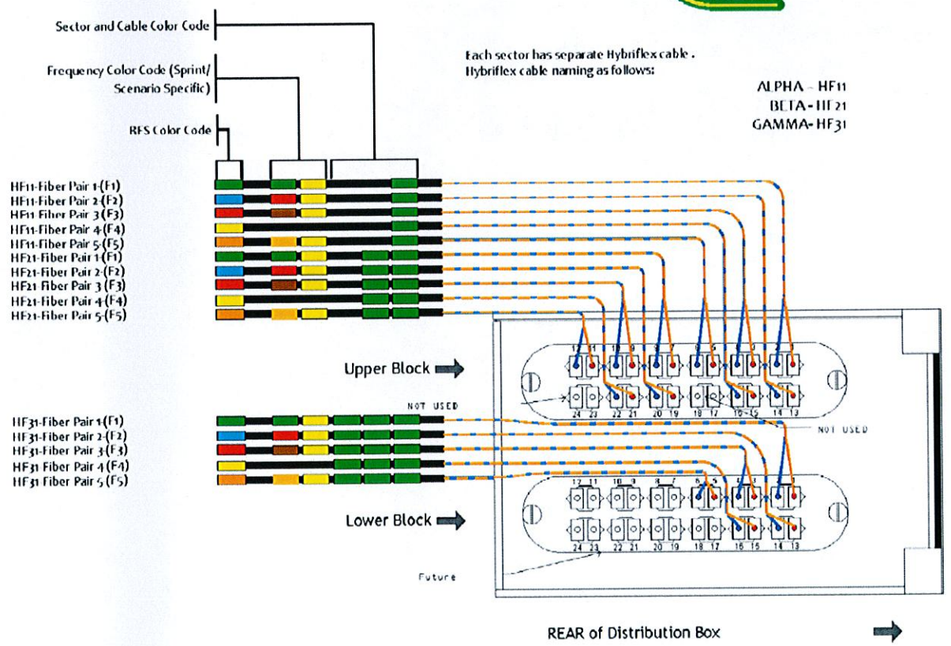
– DISTRIBUTION BOX IS KITTED WITH 1-1/2" LIQUID-TIGHT CONDUIT AND CONNECTORS. THIS SHOULD BE:
* SPLIT IN HALF,
* TERMINATED TO THE DISTRIBUTION BOX AS SHOWN,
* RAN TO AND COILED AS CLOSE TO WHERE THE CABINET IS GOING TO BE MOUNTED AS POSSIBLE.

– DISTRIBUTION BOX IS KITTED WITH 24AWG, POWER CABLE 27' x 2EA. RUNS RED AND 2EA. RUNS BLACK. THIS SHOULD BE COILED AND LEFT INSIDE DISTRIBUTION BOX.

– BTS INSTALLATION TEAM WILL TERMINATE LIQUID-TIGHT, RUN THE FIBER JUMPERS AND POWER CABLES FROM BTS CABINET TO DISTRIBUTION BOX.

Unused DC pairs as follows:
Terminate RETURNS ONLY to Return bar. Tape ends, and coil battery (#8AWG=Black, #6AWG=Red) in distribution box.

On tower short Battery and Return together and weatherproof well.



3 FIBER & DC CONNECTION DETAILS
NOT TO SCALE

INSTALLER VERIFY LATEST PLUMBING/WIRING DIAGRAMS, PRIOR TO INSTALLATION.

PLUMBING DIAGRAM VERSION 1.9

A/E Consultant:
nfiniGy engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

STATE OF CONNECTICUT
JOHN S. [illegible]
No. 24705
LICENSED
PROFESSIONAL ENGINEER

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Drawn: EKM Date: 4/25/12
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Project Number: 286-031

Project Title:
CT03XC164
N. MADISON /
VOL. FIRE DEPT.

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

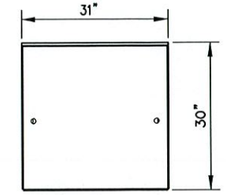
Client: Sprint
1 INTERNATIONAL BLVD.
MAHWAH, NJ 07495

Implementation Team:
ALCATEL-LUCENT
808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27560

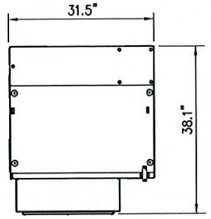
Drawing Scale: AS NOTED
Date: 12/06/12

Drawing Title:
JUNCTION BOX DETAILS

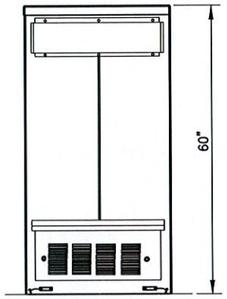
Drawing Number:
C8



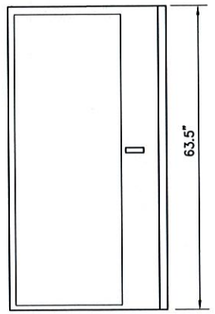
TOP VIEW



TOP VIEW



REAR VIEW



FRONT VIEW

1 BATTERY CABINET PROFILE
NOT TO SCALE

2 BTS CABINET PROFILE
NOT TO SCALE

DESIGN CRITERIA:

2009 INTERNATIONAL BUILDING CODE W/ STATE MODIFICATION	
WIND SPEED (ASCE-7-05)	90 MPH
EXPOSURE B	
IMPORTANCE FACTOR	1.0
SEISMIC SITE CLASS	D
Ss=0.152 S¹ = 0.050	
SEISMIC IMPORTANCE FACTOR	1.0
SEISMIC DESIGN CATEGORY	B
CABINET WEIGHT:	
9927 MM BTS CABINET	594 lbs.
60EC V2 BATTERY CABINET	2830 lbs.

MATERIAL SPECIFICATIONS

C-, M-, AND ANGLE SHAPES:	ASTM A36
HIGH-STRENGTH BOLTS:	ASTM A325SC OR (A325N
STRUCTURAL WF SHAPES:	ASTM A572-GR50
TUBE STEEL & PIPE COLUMNS:	ASTM A500, GRADE B
WELDING ELECTRODES:	E70XX
W - SHAPES:	ASTM A992, GRADE 50
U-BOLTS:	ASTM A36

A/E Consultant:
infinigy engineering
11 Herbert Drive
Latham, NY 12110
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SUITE 700
MORRISVILLE, NC 27560

Drawing Scale:
AS NOTED

Date:
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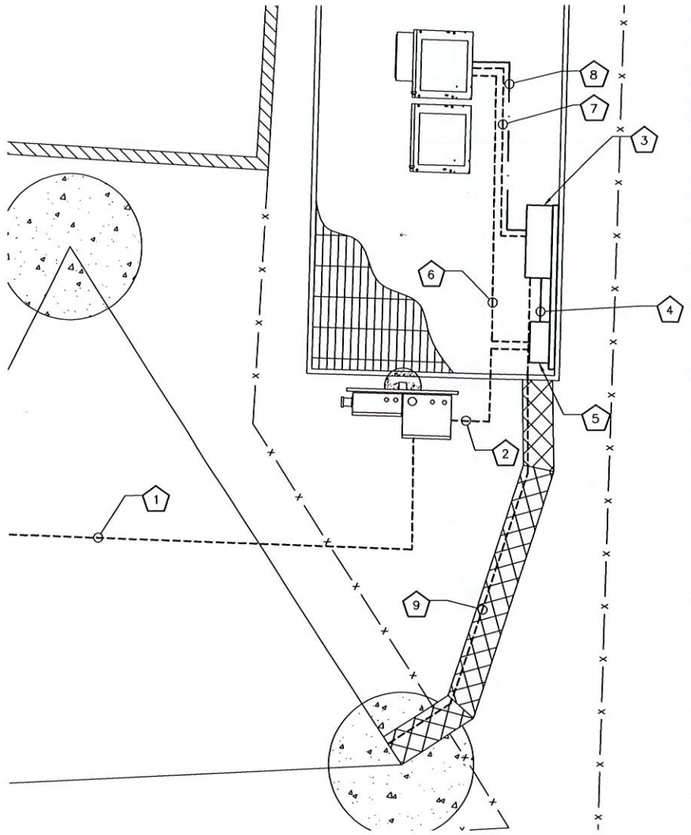
Drawing Title
DETAILS

Drawing Number
C9

CODED NOTES:

1. EXISTING 2" UNDER GROUND CONDUIT FROM EXISTING UTILITY POLE TO EXISTING SPRINT PPC, 102'
2. PROPOSED 2" ABOVE GROUND LIQUID TIGHT CONDUIT FROM PROPOSED FIBERTECH CIENA 3931 ENCLOSURE TO EXISTING PPC TELCO CABINET, 18' FURNISHED AND INSTALLED BY SPRINT
3. PROPOSED SPRINT FIBER JUNCTION BOX FURNISHED AND INSTALLED BY ALU MOUNTED ON (2) UNISTRUTS
4. PROPOSED 2" ABOVE GROUND LIQUID TIGHT CONDUIT WITH FEEDERS FOR DC POWER, FROM PROPOSED FIBERTECH CIENA 3931 ENCLOSURE TO EXISTING BTS, 5'; FURNISHED AND INSTALLED BY SPRINT, SPRINT TO PROVIDE PULL STRING
5. PROPOSED FIBERTECH CIENA 3931 EQUIPMENT ENCLOSURE, FURNISHED AND INSTALLED BY FIBERTECH WITH MOUNTING ON (2) UNISTRUTS
6. PROPOSED 2" PVC UNDER GROUND CONDUIT FROM EXISTING SPRINT PPC (TELCO) TO PROPOSED FIBERTECH CIENA 3931 ENCLOSURE, 16' FURNISHED AND INSTALLED BY SPRINT, SPRINT TO PROVIDE PULL STRING
7. PROPOSED 1-1/2" LIQUID TIGHT CONDUIT WITH PULL-STRING FOR TELCO FROM FIBER JUNCTION BOX TO LUCENT EQUIPMENT CABINET
8. PROPOSED 1-1/2" LIQUID TIGHT CONDUIT WITH PULL-STRING FOR DC POWER FROM FIBER JUNCTION BOX TO LUCENT EQUIPMENT CABINET
9. PROPOSED 1-1/4" HYBRIFLEX CABLE ROUTED FROM PROPOSED JUNCTION BOX TO PROPOSED TOWER MOUNTED RRH, 200' (TYP. OF (1) PER SECTOR, (3) SECTORS TOTAL)



CALLED NORTH

1 UTILITY SITE PLAN
SCALE:

1.5' 0 1.5' 3' 6'
(IN FEET)
SCALE: 24"X 36" SHEET 1"= 3'
SCALE: 11"X 17" SHEET 1"= 6'

NOTES:

1. CONTRACTOR TO USE EXISTING SPARE CONDUITS, IF AVAILABLE. CONDUIT SIZES MUST BE EQUAL TO OR GREATER THAN THAT ALLOWED BY CODE.
2. EXISTING ALARMS NEED TO BE RE-ROUTED AND VERIFIED IN PROPER WORKING CONDITION WHEN NEW MMBTS EQUIPMENT IS INSTALLED.
3. REMAINING GROUND LEADS FROM REMOVED CABINETS TO BE COILED (NOT ON WALKING SURFACE).
4. REMAINING UNUSED CONDUITS FROM EXISTING CABINETS TO BE COVERED WITH WATERPROOF CAPS (NOT DUCT TAPE).

UNDERGROUND SERVICE ALERT
CALL TOLL FREE 1-800-922-4455
THREE WORKING DAYS BEFORE YOU DIG

ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (N.E.C.), AND APPLICABLE LOCAL CODES
2. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF NATIONAL ELECTRICAL CODE.
3. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED.
4. ALL WIRES SHALL BE AWG MIN #12 THHN COPPER UNLESS NOTED.
5. CONDUCTORS SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT UNLESS NOTED OTHERWISE.
6. LABEL SPRINT SERVICE DISCONNECT SWITCH AND PPC CABINET WITH ENGRAVED LAMACOID LABELS, LETTERS 1" IN HEIGHT.
7. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 8" RADIUS.
8. ENGAGE AN INDEPENDENT TESTING FIRM TO TEST AND VERIFY THAT RESISTANCE DOES NOT EXCEED 5 OHMS TO GROUND. TEST GROUND RING RESISTANCE PRIOR TO MAKING FINAL GROUND CONNECTIONS TO INFRASTRUCTURE AND EQUIPMENT. GROUNDING AND OTHER OPERATIONAL TESTING SHALL BE WITNESSED BY SPRINTS REPRESENTATIVE.
9. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE REQUIRED SO THAT CONDUIT BENDS DO NOT EXCEED 360°.
10. OBTAIN PERMITS AND PAY FEES RELATED TO ELECTRICAL WORK PERFORMED ON THIS PROJECT. DELIVER COPIES OF ALL PERMITS TO SPRINT REPRESENTATIVE.
11. SCHEDULE AND ATTEND INSPECTIONS RELATED TO ELECTRICAL WORK REQUIRED BY JURISDICTION HAVING AUTHORITY. CORRECT AND PAY FOR ANY WORK REQUIRED TO PASS ANY FAILED INSPECTION.
12. REDLINED AS-BUILTS ARE TO BE DELIVERED TO SPRINT REPRESENTATIVE.
13. PROVIDE TWO COPIES OF OPERATION AND MAINTENANCE MANUALS IN THREE-RING BINDER.
14. FURNISH AND INSTALL THE COMPLETE ELECTRICAL SERVICE, TELCO CONDUIT, AND THE COMPLETE GROUNDING SYSTEM.
15. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A NEAT MANNER, AND SHALL BE SUBJECT TO APPROVAL BY SPRINT REPRESENTATIVE.
16. CONDUCT A PRE-CONSTRUCTION SITE VISIT AND VERIFY EXISTING SITE CONDITIONS AFFECTING THIS WORK. REPORT ANY OMISSIONS OR DISCREPANCIES FOR CLARIFICATION PRIOR TO THE START OF CONSTRUCTION.
17. PROJECT ADJACENT STRUCTURES AND FINISHES FROM DAMAGE. REPAIR TO ORIGINAL CONDITION ANY DAMAGED AREA.
18. REMOVE DEBRIS ON A DAILY BASIS. DEBRIS NOT REMOVED IN A TIMELY FASHION WILL BE REMOVED BY OTHERS AND THE RESPONSIBLE SUBCONTRACTOR SHALL BE CHARGED ACCORDINGLY. REMOVAL OF DEBRIS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE. DEBRIS SHALL BE REMOVED FROM THE PROPERTY AND DISPOSED OF LEGALLY.
19. UPON COMPLETION OF WORK, THE SITE SHALL BE CLEAN AND FREE OF DUST AND FINGERPRINTS.
20. PRIOR TO ANY TRENCHING, CONTACT LOCAL UTILITY TO VERIFY LOCATION OF ANY EXISTING BURIED SERVICE CONDUITS.
21. DOCUMENT GROUND RING INSTALLATION AND CONNECTIONS TO IT WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PRESENT PHOTO ARCHIVE AT SITE "PUNCH LIST" WALK TO SPRINT'S REPRESENTATIVE.
22. ALL ABOVE GRADE CONDUIT TO BE RIGID METALLIC.

A/E Consultant:
infinigy engineering
11 Herbert Drive
Latham, NY 12110
(518) 690-0790

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

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

Client:
Sprint
1 INTERNATIONAL BLVD.
MAHWAH, NJ 07495

Implementation Team:
ALCATEL•LUCENT
808 AVIATION PARKWAY
SUITE 700
MORRISVILLE, NC 27650

Drawing Scale:
AS NOTED

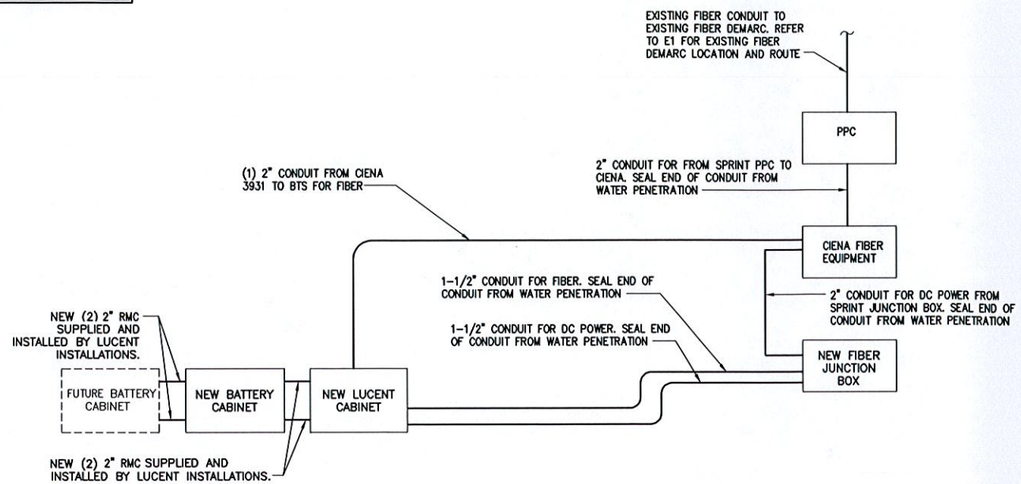
Date:
12/06/12

Drawing Title
UTILITY SITE PLAN

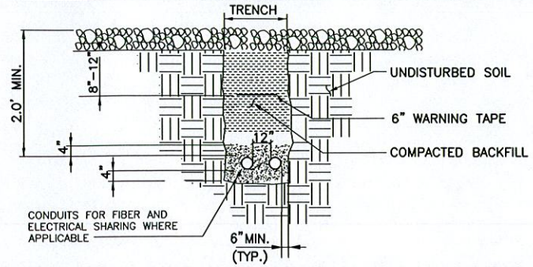
Drawing Number
E1

GROUNDING NOTE:

IN ADDITION TO POWER SERVICE GROUNDING AS REQUIRED BY NEC. CONTRACTOR SHALL BE RESPONSIBLE TO COORD AND INSTALL ALL SURGE AND LIGHTING PROTECTION GROUNDING AS REQUIRED AND SPECIFIED BY SPRINT

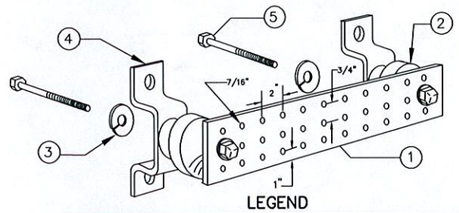


1 ONE-LINE DIAGRAM
NOT TO SCALE



– SEPARATION DIMENSIONS MUST BE VERIFIED WITH LOCAL UTILITY CO. REQUIREMENTS.
*HAND DIG INSIDE COMPOUND

2 UTILITY TRENCH DETAIL
NOT TO SCALE

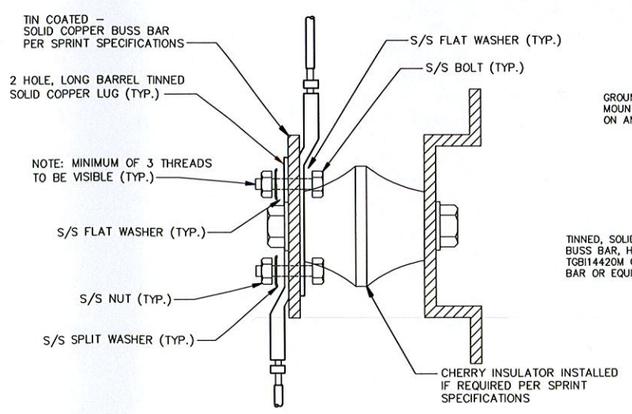


LEGEND

1. TINNED COPPER GROUND BAR, ¼" x 4" x 20", NEWTON INSTRUMENT Co., HARGER TGBI14420M, OR EQUIVALENT. HOLE CENTERS TO MATCH
2. NEMA DOUBLE LUG CONFIGURATION.
3. INSULATORS, NEWTON INSTRUMENT Co. CAT. NO. 3061-4 OR HARGER
4. EQUIVALENT.
5. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
   WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
   5/8-11 x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

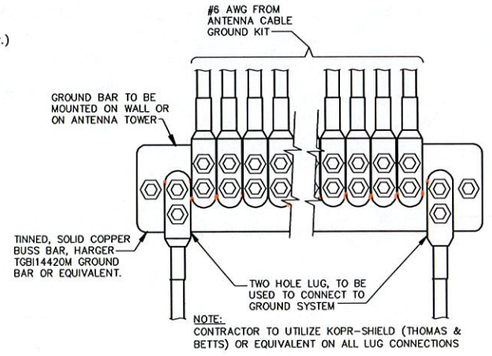
NOTE:
1) ALL MOUNTING HARDWARE CAN ALSO BE USED ON 6", 12", 18", ETC. GROUND BARS.
2) ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGBI14420M.

GROUND BAR



NOTES:
1) ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
2) COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
3) APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

GROUND LUG



NOTE:
CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) OR EQUIVALENT ON ALL LUG CONNECTIONS

ANTENNA GROUND BAR

3 GROUND BAR DETAILS
NOT TO SCALE

A/E Consultant:
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STATE OF CONNECTICUT
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N. MADISON / VOL. FIRE DEPT.

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

Client: Sprint, 1 INTERNATIONAL BLVD. MAHWAH, NJ 07495

Implementation Team: ALCATEL-LUCENT, 808 AVIATION PARKWAY SUITE 700 MORRISVILLE, NC 27560

Drawing Scale: AS NOTED

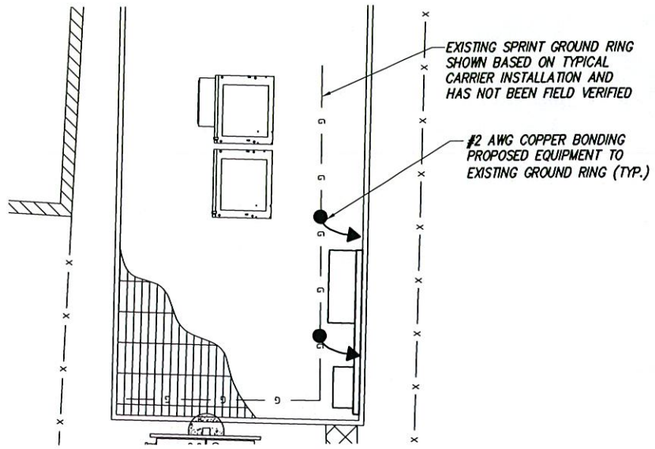
Date: 12/06/12

Drawing Title:
ONE-LINE DIAGRAM AND DETAILS

Drawing Number:
E2

SYMBOL

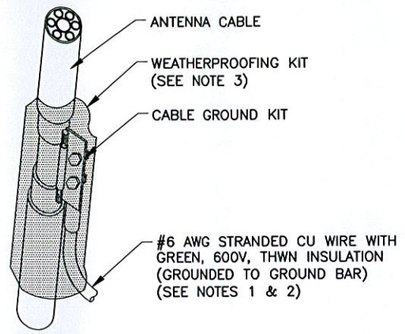
- COPPER GROUND ROD
- CONNECT PER MANUFACTURER SPECS
- CADWELD CONNECTION
- GROUND BAR



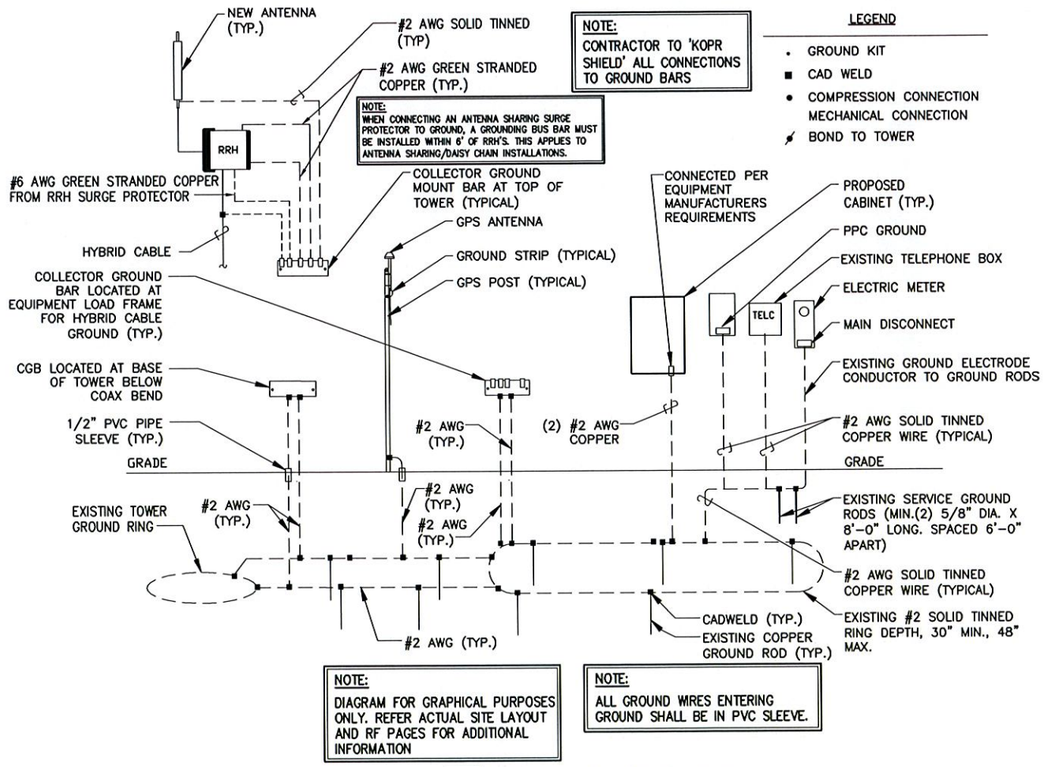
CALLED NORTH

1 EQUIPMENT GROUNDING PLAN
NOT TO SCALE

NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.



3 CONNECTION OF GROUND KIT TO ANTENNA CABLE
NOT TO SCALE



NOTE:
WHEN CONNECTING AN ANTENNA SHARING SURGE PROTECTOR TO GROUND, A GROUNDING BUS BAR MUST BE INSTALLED WITHIN 6' OF RRH'S. THIS APPLIES TO ANTENNA SHARING/DAISY CHAIN INSTALLATIONS.

NOTE:
CONTRACTOR TO 'KOPR SHIELD' ALL CONNECTIONS TO GROUND BARS

LEGEND
- GROUND KIT
- CAD WELD
- COMPRESSION CONNECTION MECHANICAL CONNECTION
- BOND TO TOWER

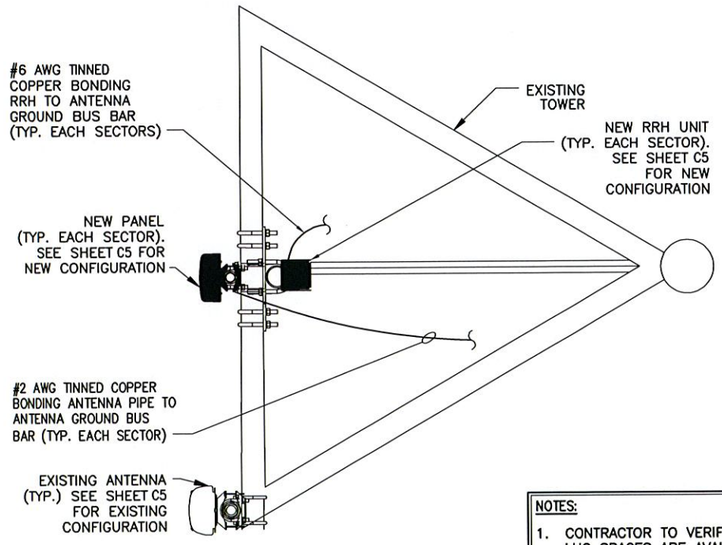
NOTE:
DIAGRAM FOR GRAPHICAL PURPOSES ONLY. REFER ACTUAL SITE LAYOUT AND RF PAGES FOR ADDITIONAL INFORMATION

NOTE:
ALL GROUND WIRES ENTERING GROUND SHALL BE IN PVC SLEEVE.

2 GROUNDING RISER DIAGRAM
NOT TO SCALE

GROUNDING NOTES:

1. ALL DOWN CONDUCTORS AND GROUND RING CONDUCTOR SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNO. ALL CONNECTIONS TO GROUND RING SHALL BE EXOTHERMICALLY WELDED. CONDUCTOR SHALL BE A MINIMUM DEPTH BELOW GRADE OF 30 INCHES OR TO THE LEDGE. MINIMUM BEND RADIUS SHALL BE 8 INCHES. CONDUCTOR SHALL BE AT LEAST 24 INCHES FROM ANY FOUNDATION, UNO.
2. WHERE MECHANICAL CONDUCTOR CONNECTIONS ARE SPECIFIED, BOLTED, COMPRESSION-TYPE CLAMPS OR SPLIT-BOLT TYPE CONNECTORS SHALL BE USED.
3. GRIND OFF GALVANIZING IN AFFECTED AREA. EXOTHERMICALLY WELD #2 CONDUCTOR AT 6 INCHES ABOVE GRADE OR FOUNDATION, WHICHEVER IS HIGHER. COLD-GALV AFTER. EXOTHERMICALLY WELD OTHER END TO GROUND.
4. GROUND CONDUCTORS ON EXTERIOR WALL OF SHELTER SHALL BE ENCASED IN 3/4" PVC CONDUIT TO GRADE. MOUNT PVC WITH GALVANIZED "C" CLAMPS. SEAL TOP ENDS.
5. FOLLOWING COMPLETION OF WORK, CONDUCT GROUND TEST. SUBMIT WRITTEN TEST TO CONSTRUCTION MANAGER AND PROJECT MANAGER.
6. ALL GROUNDING WORK SHALL COMPLY WITH CARRIER(S) STANDARDS.
7. GROUNDING REQUIREMENTS SHOWN ON THIS PLAN ARE FOR ITEMS THAT ARE LOCATED NEAR GRADE LEVEL AND THAT NEED TO BE TIED TO THE BELOW GRADE GROUND RING.
8. UNLESS NOTED OTHERWISE, ALL GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT'S SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES", AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING". ALL GROUNDING SHALL ALSO COMPLY WITH ALL STATE AND LOCAL CODES, AND THE NATIONAL ELECTRICAL CODE (NEC).
9. UNLESS NOTED OTHERWISE, ALL GROUNDING CONNECTIONS SHALL BE MADE BY AN EXOTHERMIC WELD.
10. RESISTANCE TO EARTH TESTING IS REQUIRED PER SPRINT STANDARDS ON ALL NEW SITES.



4 TYPICAL ANTENNA GROUNDING PLAN
NOT TO SCALE

NOTES:
1. CONTRACTOR TO VERIFY EXISTING LUG SPACES ARE AVAILABLE ON GROUND BAR. ADD ADDITIONAL BUS BAR IF NO LUG SPACES ARE AVAILABLE.
2. ANTENNA GROUNDING CONNECTIONS SHOWN ARE NOT EXACT TO THIS SITE. FOR EXACT ANTENNA LAYOUT REFER TO SHEET C5.

A/E Consultant:
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808 AVIATION PARKWAY SUITE 700 MORRISVILLE, NC 27560

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Drawing Title
GROUNDING PLAN AND DETAILS

Drawing Number
E3