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@po.state.ct.us
www.ct.gov/csc

October 25, 2005

New Cingular Wireless PCS, LLC
c/o David Malko
36 Quarry Road
Chester, VT 05143

RE: **EM-CING-085-097-117-051011** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 230 Guinea Road, Monroe; 500 Moose Hill Road, Monroe; 6 Fairfield Drive, Newtown; Route 34, Newtown; and 100 Old Redding Road, Redding, Connecticut.

Dear Mr. Malko:

At a public meeting held on October 19, 2005, the Connecticut Siting Council (Council) acknowledged your notice to modify these existing telecommunications facilities, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated October 11, 2005, including the placement of all necessary equipment and shelters within the tower compounds. 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 existing facility sites that would not increase tower heights, extend the boundaries of the tower sites, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power densities measured at the tower site boundaries to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. These facilities have also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on these towers.

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 any of these facilities 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. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: See Attached List
List Attachment:

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CSC
CONNECTICUT SITING COUNCIL

c: The Honorable Herbert C. Rosenthal, First Selectman, Town of Newtown
Gary Frenette, Zoning Enforcement Officer, Town of Newtown
The Honorable Andrew J. Nunn, First Selectman, Town of Monroe
Daniel A. Tuba, Planning Administrator, Town of Monroe
The Honorable Natalie T. Ketcham, First Selectman, Town of Redding
Tom Gormley, Zoning Enforcement Officer, Town of Redding
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Christine Farrel, T-Mobile
Christopher B. Fisher, Esq., Cuddy & Feder LLP
Kenneth C. Baldwin, Esq., Robinson & Cole LLP
Thomas F. Flynn III, Esq., Nextel Communications, Inc.
Brian Benito, Bureau of Police Support – Telecommunications, Department of Public Safety
Jeffrey W. Barbadora, Crown Atlantic Company, LLC
Melanie Girton, Property Management Dept., Spectrasite Communications

cingular
raising the bar

EM-CING-097-117-085-051011

October 11, 2005

Mr. S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modifications to Various Facilities in the Town(s) of Newtown, Redding and Monroe, Connecticut**

Dear Mr. Phelps:

As part of its merger and integration efforts, New Cingular Wireless PCS, LLC ("Cingular" or "the Company") intends to modify instrumentation and/or antenna configurations at five existing facilities located in the Towns of Newtown, Redding and Monroe, Connecticut. Please accept this letter and attachments as notification, pursuant to R.C.S.A. § 16-50j-73, of construction that constitutes exempt modifications pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of each of the municipalities in which an affected cell is located.

The five sites which are the subject of this filing have been grouped based on their location and proximity and are discussed in more detail below. Additional exempt modification notifications will follow in the near future and will cover similarly grouped facilities within the balance of Fairfield County.

General

The current project involves changes at most of Cingular's cell sites in Fairfield County including over 40 sites under Council jurisdiction. The modifications will allow Cingular to operate its wireless communications services in the 1900 MHz frequency band in addition to its 850 MHz operations. At a typical site, this will be accomplished through the removal of nine (9) existing 850 MHz only antennas and their replacement with six (6) 850/1900 MHz dual-band antennas. Since each of the new, dual-band antennas is fed by two transmission lines, the typical number of such transmission lines at each site will increase from nine to a total of 12. In addition, tower mounted amplifiers, diplexers and small miscellaneous electronics will also be installed on the antenna platforms. The new antennas, transmission lines and tower mounted equipment have been properly reflected in the structural analyses performed for the towers and attached to this filir the five sites follows.

ORIGINAL ~

Site 1

Site 1 is located at 6 Fairfield Drive, Newtown, CT and is owned by Spectrasite (Cingular Site #2125). On the property are a 150-foot monopole tower, several equipment shelters and pad mounted equipment cabinets and a generator. In addition to Cingular, the tower currently supports antennas of wireless carriers AT&T Wireless, T-Mobile and Verizon.

Cingular proposes to remove their nine (9) existing single-band antennas and install six (6) Powerwave Model 7770.00 dual-band directional antennas. The new antennas are 55" in height and will be mounted on the same platform as the existing antennas will a center of radiation of 149' above ground level (AGL). Six (6) tower mounted amplifiers and six (6) diplexers along with miscellaneous electronics to provide remote downtilting capabilities will also be installed on the existing antenna platform. Technical specification sheets for the antennas, amplifiers and diplexers are included the General Information section of the attachments to this notice. Additional radio equipment will be located within the Company's existing 21' x 23' equipment shelter at the base of the tower. Since each new antenna requires two feeds from the radio equipment, new transmission lines will be added to the tower bringing the total number of lines to 12. A structural analysis has been performed for the tower taking into account the new antennas, transmission lines and other equipment and is included in the site specific section of the attachments. Site plans, elevations and photographs of the site are also included.

Based on the most recent filing for this site, the "worst-case" predicted RF power density for a point at the base of the tower, *excluding the operations of Cingular and AT&T Wireless*, is calculated to be approximately 8.50% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site. A similar "worst-case" calculation for a point at the base of the tower indicates that when fully implemented, New Cingular's dual-band operations together with the powering down of the AT&T site would contribute approximately 5.85% of the standard. The calculated "worst-case" power density for the combined operations at the site would therefore be approximately 14.35% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

Site 2

Site 2 is located on Route 34, Newtown, CT and is owned by Crown Castle (Cingular Site #2127). On the property are a 185-foot monopole tower, three equipment shelters, three pad mounted equipment cabinets and a generator. In addition to Cingular, the tower currently supports antennas of wireless carriers AT&T Wireless, T-Mobile, Sprint, Nextel and Verizon.

Cingular proposes to remove their nine (9) existing single-band antennas and install six (6) Powerwave Model 7770.00 dual-band directional antennas. The new

antennas are 55" in height and will be mounted on the same platform as the existing antennas will a center of radiation of 177' above ground level (AGL). Six (6) tower mounted amplifiers and six (6) diplexers along with miscellaneous electronics to provide remote downtilting capabilities will also be installed on the existing antenna platform. Technical specification sheets for the antennas, amplifiers and diplexers are included the General Information section of the attachments to this notice. Additional radio equipment will be located within the Company's existing 10' x 18' equipment shelter at the base of the tower. Since each new antenna requires two feeds from the radio equipment, new transmission lines will be added to the tower bringing the total number of lines to 12. A structural analysis has been performed for the tower taking into account the new antennas, transmission lines and other equipment and is included in the site specific section of the attachments. Site plans, elevations and photographs of the site are also included.

Based on the most recent filing for this site, the "worst-case" predicted RF power density for a point at the base of the tower, *excluding the operations of Cingular and AT&T Wireless*, is calculated to be approximately 9.21% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site. A similar "worst-case" calculation for a point at the base of the tower indicates that when fully implemented, New Cingular's dual-band operations together with the powering down of the AT&T site would contribute approximately 4.81% of the standard. The calculated "worst-case" power density for the combined operations at the site would therefore be approximately 14.02% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

Site 3

Site 3 is located at 100 Old Redding Road, Redding, CT and is owned by Spectrasite (Cingular Site #2152). On the property are a 180-foot lattice tower, several equipment shelters and pad mounted equipment cabinets and a generator. In addition to Cingular, the tower currently supports antennas of wireless carriers AT&T Wireless, T-Mobile, Sprint, Nextel and Verizon as well as the State Police, DMV, CMED and the FBI.

Cingular proposes to remove their nine (9) existing single-band antennas and install six (6) Powerwave Model 7770.00 dual-band directional antennas. The new antennas are 55" in height and will be mounted on the same platform as the existing antennas will a center of radiation of 180' above ground level (AGL). Six (6) tower mounted amplifiers and six (6) diplexers along with miscellaneous electronics to provide remote downtilting capabilities will also be installed on the existing antenna platform. Technical specification sheets for the antennas, amplifiers and diplexers are included the General Information section of the attachments to this notice. Additional radio equipment will be located within the Company's existing 14' x 16' equipment shelter at the base of the tower. Since each new antenna requires two feeds from the radio equipment, new transmission lines will be added to the tower bringing the total number of

lines to 12. A structural analysis has been performed for the tower taking into account the new antennas, transmission lines and other equipment and is included in the site specific section of the attachments. Site plans, elevations and photographs of the site are also included.

Based on the most recent filing for this site, the "worst-case" predicted RF power density for a point at the base of the tower, *excluding the operations of Cingular and AT&T Wireless*, is calculated to be approximately 14.90% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site. A similar "worst-case" calculation for a point at the base of the tower indicates that when fully implemented, New Cingular's dual-band operations together with the powering down of the AT&T site would contribute approximately 2.27% of the standard. The calculated "worst-case" power density for the combined operations at the site would therefore be approximately 17.17% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

Site 4

Site 4 is located at 230 Guinea Road, Monroe, CT and is owned by Cingular (Cingular Site #2144). On the property are a 240-foot lattice tower, several equipment shelters and a generator. In addition to Cingular, the tower currently supports antennas of wireless carriers Nextel and Verizon as well as RAM Mobile Data, Land Mobile Radio and PageNet.

Cingular proposes to remove their nine (9) existing single-band antennas and install six (6) Powerwave Model 7770.00 dual-band directional antennas. The new antennas are 55" in height and will be mounted on the same platform as the existing antennas will a center of radiation of 236' above ground level (AGL). Six (6) tower mounted amplifiers and six (6) diplexers along with miscellaneous electronics to provide remote downtilting capabilities will also be installed on the existing antenna platform. Technical specification sheets for the antennas, amplifiers and diplexers are included the General Information section of the attachments to this notice. Additional radio equipment will be located within the Company's existing 14' x 29' equipment shelter at the base of the tower. Since each new antenna requires two feeds from the radio equipment, new transmission lines will be added to the tower bringing the total number of lines to 12. A structural analysis has been performed for the tower taking into account the new antennas, transmission lines and other equipment and is included in the site specific section of the attachments. Site plans, elevations and photographs of the site are also included.

Based on the most recent filing for this site, the "worst-case" predicted RF power density for a point at the base of the tower, *excluding the operations of Cingular*, is calculated to be approximately 65.78% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site. A similar "worst-case" calculation for a point at the base of the tower indicates that when fully implemented, New Cingular's dual-band operations would contribute approximately 2.36% of the

standard. The calculated "worst-case" power density for the combined operations at the site would therefore be approximately 68.14% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

Site 5

Site 5 is located at 500 Moose Hill Road, Monroe, CT and is owned by Connecticut Architectural Towers (Cingular Site #2203). On the property are a 150-foot monopole tower, several equipment shelters and pad mounted equipment cabinets. In addition to Cingular, the tower currently supports antennas of wireless carriers AT&T Wireless, T-Mobile, Sprint, Nextel and Verizon and the Town Police Department.

Cingular proposes to remove their nine (9) existing single-band antennas and install six (6) Powerwave Model 7770.00 dual-band directional antennas. The new antennas are 55" in height and will be mounted on the same platform as the existing antennas will a center of radiation of 138' above ground level (AGL). Six (6) tower mounted amplifiers and six (6) diplexers along with miscellaneous electronics to provide remote downtilting capabilities will also be installed on the existing antenna platform. Technical specification sheets for the antennas, amplifiers and diplexers are included the General Information section of the attachments to this notice. Additional radio equipment will be located within the Company's existing 11' x 20' equipment shelter at the base of the tower. Since each new antenna requires two feeds from the radio equipment, new transmission lines will be added to the tower bringing the total number of lines to 12. A structural analysis has been performed for the tower taking into account the new antennas, transmission lines and other equipment and is included in the site specific section of the attachments. Site plans, elevations and photographs of the site are also included.

Based on the most recent filing for this site, the "worst-case" predicted RF power density for a point at the base of the tower, *excluding the operations of Cingular and AT&T Wireless*, is calculated to be approximately 30.72% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site. A similar "worst-case" calculation for a point at the base of the tower indicates that when fully implemented, New Cingular's dual-band operations together with the powering down of the AT&T site would contribute approximately 6.70% of the standard. The calculated "worst-case" power density for the combined operations at the site would therefore be approximately 37.42% of the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

Summary

The proposed changes to the facilities do not constitute modifications as defined in Connecticut General Statutes ('C.G.S.") § 16-50i(d) because the general physical characteristics of the facilities will not be significantly changed or altered. Rather, the planned modifications to

the facilities fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the heights of the towers. In all cases, the number of antennas will be reduced from nine to six and will result in a reduction in the towers' profiles. The enclosed tower drawings confirm that the planned modifications will not increase the heights or the profiles of the towers. Based on the attached structural analyses, the towers are capable of supporting the reconfigured loads discussed herein.

2. The installation of the proposed equipment, as reflected on the attached site plans, will not require an extension of the site boundaries.

3. The proposed modifications to the facility will not increase the noise levels at the existing facility by six decibels or more.

4. As discussed above, the operation of the reconfigured sites will not increase the total radio frequency (RF) power density to a level at or above the applicable standard.

For the foregoing reasons, New Cingular Wireless PCS, LLC respectfully submits that the proposed addition of antennas and equipment at the subject facilities constitute exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

David S. Malko, P.E.
Consultant for New Cingular Wireless

Enclosures

cc: Honorable Herbert C. Rosenthal, First Selectman, Newtown
Honorable Natalie T. Ketcham, First Selectman, Redding
Honorable Andrew J. Nunn, First Selectman, Monroe

General Information Attachments

1. Antenna Specifications
2. Tower Mounted Amplifier Specifications
3. Diplexer Specifications

Dual Broadband Antenna

90° 1.4 m MET Antenna

Part Number: 7770.00	Horizontal Beamwidth: 90° Gain: 13.5/16 dBi	Electrical Downtilt: Adjustable Connector Type: 7/16 female

The Powerwave dual band dual polarized broadband antenna has individual adjustable electrical downtilt per band (upgradeable to Remote Electrical Tilt (RET). Four connector ports allow separate tilts on each frequency band and ensure the use of diversity concepts. The phase shifter technology, based on a patented sliding dielectric, minimizes intermodulation distortion and maximizes efficiency. The slant +/- 45° dual polarization system provides the independent fading signals needed for achieving top-quality coverage via diversity concepts. The Powerwave Broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design which provides a very small variation of the –3dB horizontal beam width over the frequency band as well as a high front-to-back ratio.

Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

Preliminary

BASE STATION SYSTEMS

COVERAGE SYSTEMS

Dual Broadband Antenna

Electrical Specifications (Preliminary)

Frequency band (MHz)	806-960	1710-2170
Gain, ± 0.5dB (dBi)	13.5	16.0
Polarization	Dual linear ±45°	
Nominal Impedance (Ohm)	50	
VSWR	1.5:1	
VSWR		1.5:1
Isolation between inputs (dB)	30	
Isolation between inputs (dB)		30
Inter band isolation (dB)	40	
Horizontal -3 dB beamwidth	85 ± 5°	85 ± 5°
Tracking, Horizontal plane, ±60° (dB)	<2.0	
Tracking, Horizontal plane, ±60° (dB)		<2.0
Electrical downtilt range (adjustable)	0° to 10°	0° to 8°
Vertical -3 dB beamwidth	14.3 ± 2.0°	6.6 ± 1°
Sidelobe suppression, Vertical 1 st upper (dB)	>17,16,15 x=0, 5, 10° MET	> 17, 16,15 x=0, 4, 8° MET
Vertical beam squint	<0.8°	<0.5°
First null-fill (dB)	<-25	<-25
Front-to-back ratio (dB)	>25	>27
Front-to-back ratio, total power (dB)	>20	>23
IM3, 2Tx@43dBm (dBc)	<-153	
IM3, 2Tx@43dBm (dBc)		<-153
IM7, 2Tx@43dBm (dBc)		<-160
Power Handling, Average per input (W)	400	250
Power Handling, Average total (W)	800	500

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	4 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1408mm x 280mm x 125mm (55"x11"x5")
Weight Including Brackets	15.8 kg (35 lbs)
Wind Load, Frontal, 42m/s Cd=1	435N (98 lbf)
Survival Wind Speed (m/s)	70 (156mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted Standard Brackets
Packing Size	1550mm x 355mm x 255mm (61"x14"x10")

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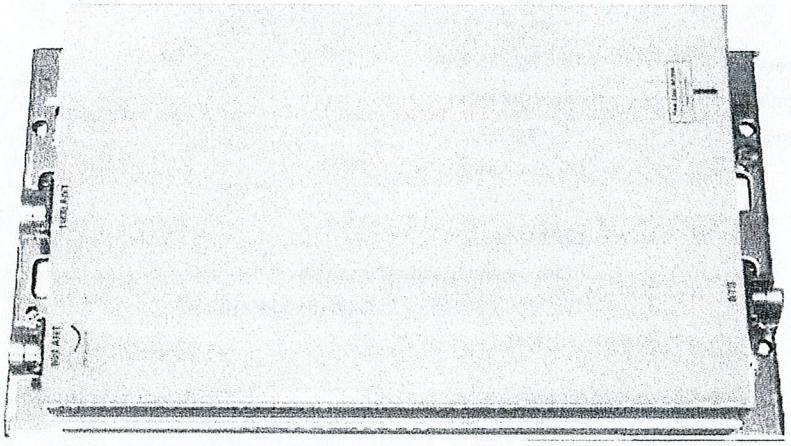
D031-08208 Rev A

Tower Mounted Amplifier

LGP21401 TMA-DD-1900 FB with 850 Bypass Tower Mounted Amplifier

Frequency: 1850-1990 MHz Band	IMD Specification: <-118dBm
Gain: 12 dBd	Return Loss:18 dB or better

Powerwave's 21401 Series of tower mounted amplifiers are designed for full band coverage of the PCS-1900 band with an 800 MHz cellular band bypass. It has dual duplex capability so you can use one line for RX/TX and transmit through the TMA while amplifying RX on the same line. Deployed in a network it will increase capacity and coverage as well as extend the battery life time for the handsets. The 800 MHz cellular band passes through the TMA without amplification.



BASE STATION SYSTEMS

COVERAGE SYSTEMS

LGP21401 - Tower Mount Amplifier

Gain	12 dB
Uplink frequency	1850-1910 MHz
Downlink frequency	1930 – 1990 MHz
Return loss	18 dB or better
Noise figure	1.5 dB typical
Intermodulation@2x43dBm carriers	<-118 dBm in receive band
Output 3rd order Intercept Point (OIP3)	>+22 dBm
Rejection 1912 MHz (RX in Filter)	10 dB
Rejection in TX band	80 dB
Alarm functionality	Two levels, individually supervised LNA branches
Power consumption	1.5 W per LNA @12 VDC
Supply voltage	9 - 15 V

Mechanical Specifications

RF connectors	7/16 DIN female(s)
Dimensions	14"x7"x2.7" (365x176x68mm)
Weight	17.5 lbs (<8kg)
Mounting kit	Mounting kit is included for pole and wall. Other types may be available on request.

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THE POWER IN WIRELESS®

Powerwave technologies

824-896/1850-1990 MHz Diplexer

Diplexer for 824-896/1850-1990MHz with Configurable DC Transparency

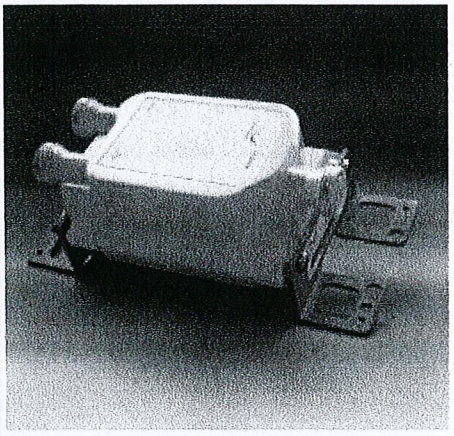
Part Number: LGP13519

Frequency Range: 824-894/1850-1990 MHz

Return Loss: >20 dB

Insertion Loss: 0.2 dB / 0.3 dB

The Powerwave® Diplexer filter DCT is available both as single and double unit. Each diplexer has one port for 824-894 systems, one port for 1850-1990 GSM systems and a common port. It is designed for outdoor use and intended for co-location of base stations to enable sharing of feeder, TMA system and antenna. The unit can be used both at the BTS and for combining frequency bands to a common port and at the antenna end for splitting the frequency bands to separate antennas.



824-894/1850-1990 MHz Diplexer

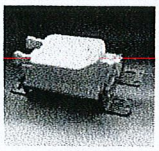
Key Benefits:

- Compact Design
- Inbuilt DC Transparency and Subcarrier Support
- Excellent Power Handling
- Negligible Transmit Band Loss
- Lightning Protected on All Ports

ANTENNA SYSTEMS

BASE STATION SYSTEMS

COVERAGE SYSTEMS



824-894/1850-1990 Diplexer

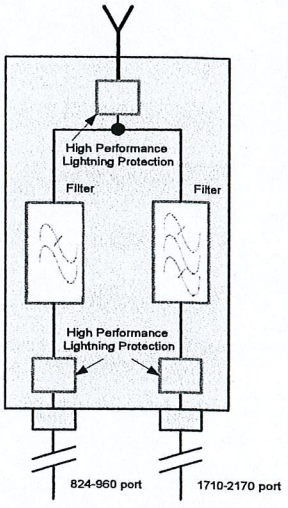
Electrical Specifications

800-900 Port	Frequency Range, Full Band (MHz)	824-894 MHz
	Insertion Loss (dB)	<0.2 dB
	Return Loss (dB)	>20 dB
	Rejection 1850-1990 MHz	>55 dB
	Rejection 2110-2170 MHz	>55 dB
	Average Power Handling	>500 W
	Peak Power	10 kW
	IM, 2Tx@43dBm (dBc)	<-153
1900 Port	Frequency Range, Full Band (MHz)	1850-1990 MHz
	Insertion Loss (dB)	<0.3 dB
	Return Loss (dB)	>20 dB
	Rejection 824-896 MHz	>54 dB
	Rejection 896-960 MHz	>54 dB
	Average Power Handling	>250 W
	Peak Power	5 kW
	IM, 2Tx@43dBm (dBc)	<-153

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, WxHxD (without mounting plate)	4.4" x 6.3" x 3" (112x158x74mm)
Weight	2.4 kg (5.3 lbs)
Color	Off White (NCS 1502-R)
Housing	Aluminum, IP 65
RF-connectors	DIN 7/16 female
Mounting Kit	Hose Clamps in Stainless Steel
Temperature Range	-40 °C to +65 °C
MTBF	30 Million Hours
Safety	EN 60 950, UL 69 950, ETL
Ingress Protection IP 65	EN 60 529
Environmental	ETS 300 019



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Powerwave technologies

COVERAGE AND CAPACITY | GLOBAL PARTNER | INTEGRATED SOLUTIONS | QUALITY AND RELIABILITY

PNLGP135nn

Site Specific Attachments

Site 1

1. Site Plans
2. Tower Structural Analysis
3. Site Photographs

APPROVALS

NAME (PRINT)	SIGNATURE	DATE
CINGULAR		
NAME (PRINT)	SIGNATURE	DATE
SAI		
NAME (PRINT)	SIGNATURE	DATE
SITING COUNCIL COMMITTEE		
NAME (PRINT)	SIGNATURE	DATE
OTHER		

cingular WIRELESS

SITE NUMBER: 2125
SITE NAME: NEWTOWN

DRAWING INDEX

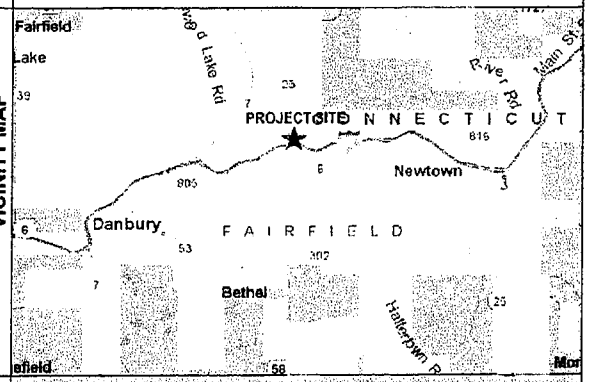
PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE NUMBER:	2125
SITE NAME:	NEWTOWN
ADDRESS:	6 FAIRFIELD DRIVE
CITY, STATE ZIP	NEWTON, CT
LATITUDE:	41.425433
LONGITUDE:	-73.374483
JURISDICTION:	FAIRFIELD COUNTY
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
SITE TYPE:	MONOPOLE TOWER
RAD CENTER:	149'-0"
OWNER:	-

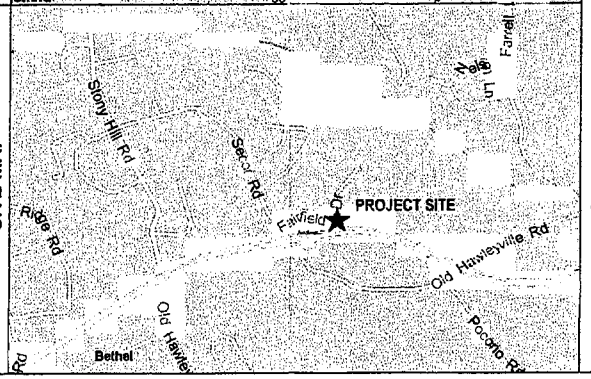
MAPS & DIRECTIONS

I-84 WEST TO EXIT 9. TURN RIGHT THEN TAKE 1ST LEFT ONTO OLD HAWLEYVILLE ROAD. BEAR LEFT AT "Y" .3 MILES. CROSS OVER I-84 TWICE. TURN RIGHT ONTO FAIRFIELD DRIVE. ACCESS ROAD .2 MILES ON RIGHT.

VICINITY MAP



SITE MAP



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ELECTRICAL CODE:
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70 - 2002 NATIONAL ELECTRICAL CODE

LIGHTNING PROTECTION CODE:
NFPA 780 - 2000, LIGHTNING PROTECTION CODE

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INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
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TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS

TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION

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cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2125
SITE NAME:
NEWTOWN
SITE ADDRESS:
6 FAIRFIELD DRIVE
NEWTON, CT

DRAWN BY: JR
CHECKED BY: DP
PROJECT NO: 05004142-A095150

SUBMITTALS

NO	DESCRIPTION	BY	DATE
1	SITING COMMITTEE CDS	JR	08/05/05

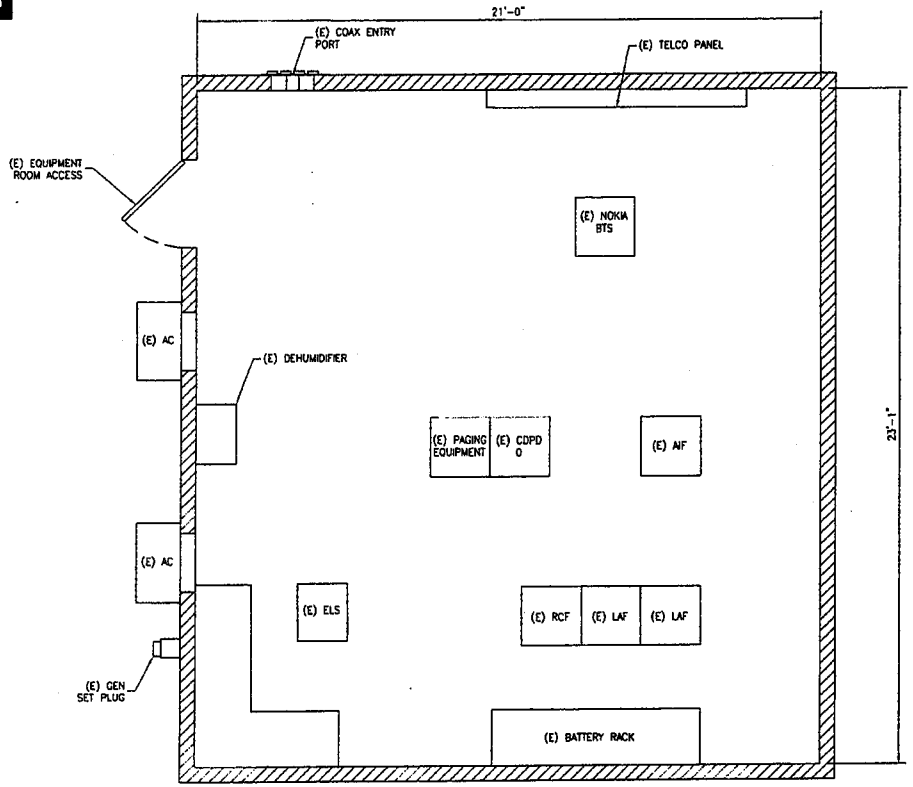
08-05-05

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T1

File Info: C:\Cingular\2125\2125 Cad Set.dwg Aug 05, 2005 - 11:28am Jross

PURPOSE OF THESE DESIGN DOCUMENTS ARE FOR 6 ANTENNA REPLACEMENTS, 3 ANTENNA REMOVALS, 9 EXISTING COAXIAL REMOVALS TO BE REPLACED WITH 12 PROPOSED 1 5/8" COAXIAL CABLES FOR CINGULAR WIRELESS.



SITE PLAN (1 / C1)
SCALE: 11x17 - 1/4"=1'-0"
SCALE: 22x34 - 1/2"=1'-0"

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.
245 COMMERCE GREEN BLVD. SUITE 240
SUGARLAND, TX 77478
PHONE: 281-242-7099
FAX: 281-242-7127

SITE NUMBER:
2125
SITE NAME:
NEWTOWN
SITE ADDRESS:
6 FAIRFIELD DRIVE
NEWTON, CT

DRAWN BY: JR
CHECKED BY: OP
PROJECT NO: 05041142-A005150

SUBMITTALS

NO	DESCRIPTION	BY	DATE
1	SITING COMMITTEE CDS	JR	08/05/05

08-05-05

SHEET TITLE
SITE PLAN

SHEET NUMBER
C1

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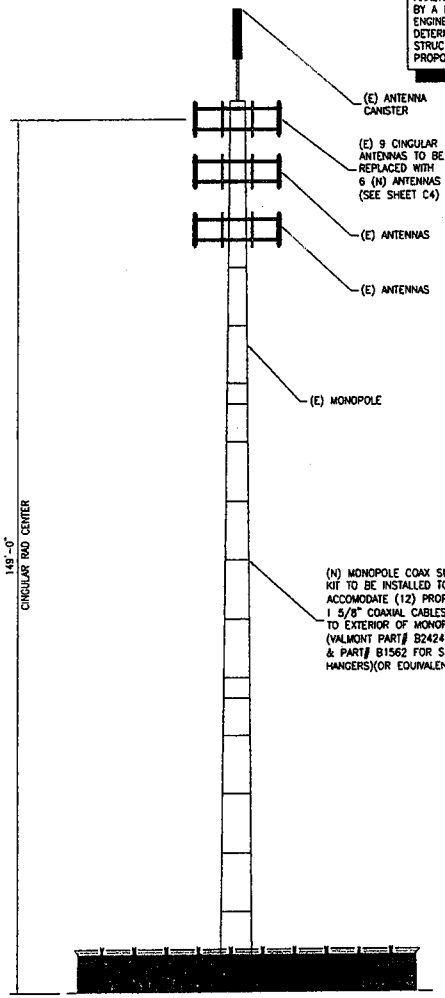
CONSTRUCTION SHALL NOT PROCEED UNTIL A STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN CT TO DETERMINE IF THE TOWER IS STRUCTURALLY ADEQUATE TO SUSTAIN PROPOSAL



SITE ELEVATION (1 / C2)
SCALE: 11x17 - 1"=20'-0"
SCALE: 22x34 - 1"=10'-0"

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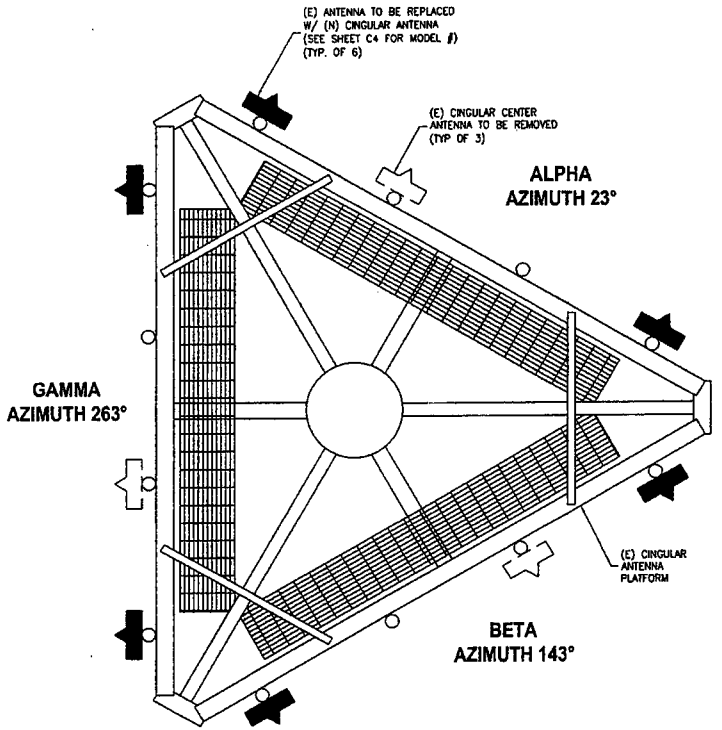


ANTENNA PLAN VIEW (2 / C2)
SCALE: 11x17 - NTS
SCALE: 22x34 - NTS

N

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.
PHONE: 781-343-7099
FAX: 781-343-7127

SITE NUMBER:
2125
SITE NAME:
NEWTOWN
SITE ADDRESS:
6 FAIRFIELD DRIVE
NEWTON, CT

DRAWN BY: JR
CHECKED BY: OP
PROJECT NO: 0504A142-A895150

SUBMITTALS

NO	DESCRIPTION	BY	DATE
1	SITING COMMITTEE CDS	JR	08/05/05

08-05-05

SHEET TITLE
SITE ELEVATION & ANT PLAN

SHEET NUMBER
C2

File Info: C:\Cingular\2125\2125 Civil Set.dwg Aug 05, 2005 - 11:28am Jross

SpectraSite

CT-0054
7/25/2005

Level 1 Structural Evaluation [1]

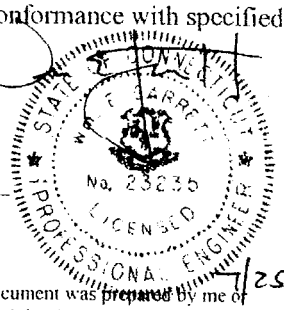
Site Number & Name	**CT-0054 Newtown** **App ID: 108472**	**Applicant ID: 2125 Newtown**
Site Address	6 Fairfield Dr (Brkfld) Newtown, CT 06470	
Tower Description	**150 ft EEI Monopole**	
Standards & Codes [2]	ANSI/TIA/EIA-222-F (1996) **85 mph (Fairfield County) w/ 0" radial ice**	1996 BOCA National Building Code **85 mph w/ 0" radial ice** **39 mph w/ 3/4" radial ice**

Table 1: Existing and Proposed Antenna Configuration

HEIGHT (ft)	ANTENNA MODEL & MOUNT TYPE	CARRIER	COAX SIZE	[I]/[O][a]	STATUS
162.5	**(3) EMS TRR90-17-000DP on Accelerator (Stealth)**	**Omnipoint**	**(6) 1-5/8"**	**I**	**Remove Existing**
162.5	**(3) EMS TDR85-17-222DPL2Q on Accelerator (Stealth)**	**Omnipoint**	**(12) 1-5/8"**	**I**	**Proposed Replacement**
161	(1) 12' Omni on Pipe Mount	Arch Wireless	(1) 7/8"	I	Existing
153.8	**(9) DECIBEL DB846H80-SX on Low Profile Platform**	**Cingular Wireless**	**(9) 1-1/4"**	**I**	**Remove Existing**
153.8	**(6) Powerwave 7770.00 (6) Powerwave LGP21401 on Low Profile Platform**	**Cingular Wireless**	**(12) 1-1/4"**	**I**	**Proposed Replacement**
146 145 145	(1) GPS (6) DECIBEL DB844H90 (6) DECIBEL DB948F85 on Low Profile Platform	Verizon	(1) 1/2" (6) 1-5/8" (6) 1-5/8"	I I	Existing
134	(9) 4' Panels on Low Profile Platform	AT&T	(9) 1-5/8"	I	Existing

[a] *[I]/[O] denotes coax installed inside or outside the monopole, respectively.*

The subject tower and foundation ***are adequate*** to support the above stated loads in conformance with specified requirements. [3]



Analysis prepared by:
Raphael Mohamed, P.E.
Senior Design Engineer
(919) 465-6629

Wm. E. Garrett, P.E.
Structural Design Manager
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Connecticut.

7/25/05

[1] The existing and proposed loads of *Table 1* are compared to the original tower design loads or previous analysis.

[2] The design wind criteria are compared to the current code requirements.

[3] The tower should be re-evaluated as future loads are added or if actual loads are found different from those mentioned in *Table 1*.

Site 1

Site 1

Site Specific Attachments

Site 2

1. Site Plans
2. Tower Structural Analysis
3. Site Photographs

cingular WIRELESS

SITE NUMBER: 2127

SITE NAME: NEWTOWN EAST

APPROVALS

NAME (PRINT)	SIGNATURE	DATE
CINGULAR		
NAME (PRINT)	SIGNATURE	DATE
SAI		
NAME (PRINT)	SIGNATURE	DATE
SITING COUNCIL COMMITTEE		
NAME (PRINT)	SIGNATURE	DATE
OTHER		

DRAWING INDEX

DRAWING INDEX		REV
2127 - T1	TITLE SHEET	1
2127 - C1	SITE PLAN	1
2127 - C2	SITE ELEVATION & ANTENNA PLAN	1
2127 - C3	ANTENNA PLUMBING DIAGRAM-ALPHA	1
2127 - C4	ANTENNA PLUMBING DIAGRAM-BETA	1
2127 - C5	ANTENNA PLUMBING DIAGRAM-GAMMA	1
2127 - C6	RF DATA INFORMATION	1

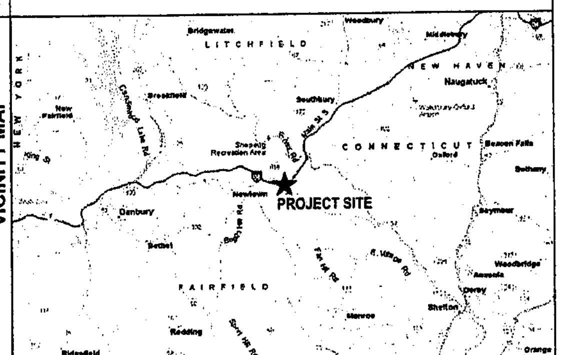
PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE NUMBER:	2127
SITE NAME:	NEWTOWN EAST
ADDRESS:	ROUTE 34 – WASHINGTON AVE
CITY, STATE ZIP	NEWTOWN, CT 06482
LATITUDE:	41° 24' 45.53"
LONGITUDE:	-73° 16' 12.34"
JURISDICTION:	FAIRFIELD COUNTY
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
SITE TYPE:	MONOPOLE TOWER
RAD CENTER:	177'–0"
OWNER:	CROWN CASTLE BU# 806354

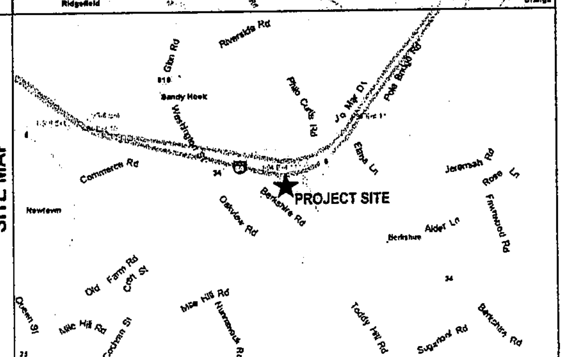
MAPS & DIRECTIONS

MASS PIKE WEST TO RT 84 SOUTH/WEST TO EXIT 11 (RT 34 CONNECTOR). TAKE THIS TO RT 34 NORTH. SITE IS ON RIGHT 1/4 MILE.

VICINITY MAP



SITE MAP



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cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2127
SITE NAME:
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SITE ADDRESS:
ROUTE 34 – WASHINGTON AVE
NEWTOWN EAST, CT 06482

DRAWN BY: JR

CHECKED BY: OP

PROJECT NO: [illegible]

SUBMITTALS

NO	DESCRIPTION	BY	DATE
1	SITING COMMITTEE CDS	JR	07/15/05

STATE OF CONNECTICUT * OSCAR PEDRAZA * No. 21292 * LICENSED PROFESSIONAL ENGINEER

7/16/05

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T1

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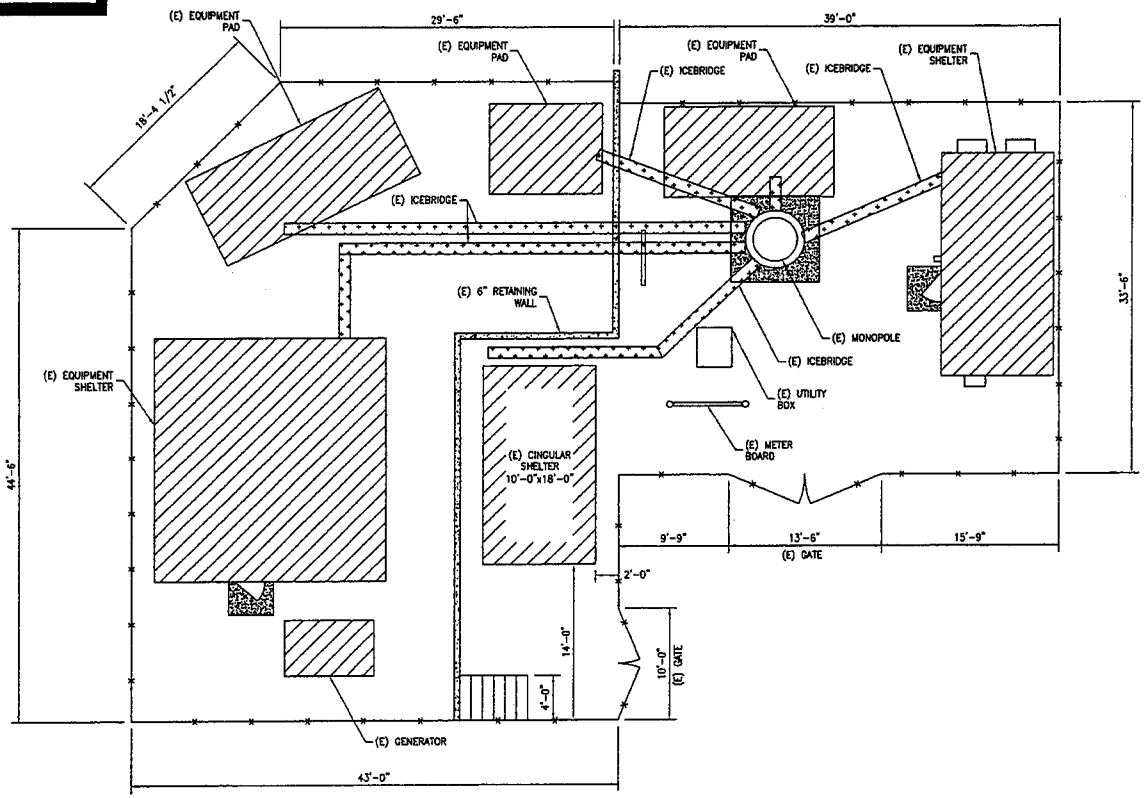

SITE PLAN (1 / C1)
SCALE: 11x17 - 1"=10'-0"
SCALE: 22x34 - 1"=5'-0"

N

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

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2127
SITE NAME:
NEWTOWN EAST
SITE ADDRESS:
ROUTE 34 - WASHINGTON AVE
NEWTOWN EAST, CT 06482

DRAWN BY: JR
CHECKED BY: OP
PROJECT NO: 0504A107-A895165

SUBMITTALS

NO	DESCRIPTION	BY	DATE
1	SITING COMMITTEE CDS	JR	07/19/05

STATE OF CONNECTICUT
OSCAR PEDRAZA
No. 21292
LICENSED PROFESSIONAL ENGINEER
7/19/05

SHEET TITLE
SITE PLAN

SHEET NUMBER
C1

File Info: C:\Documents and Settings\opedraza.PSGLOBAL\Desktop\SAI\2127\2127 Cmd SiteLog Jul 18, 2005 - 10:50am opedraza

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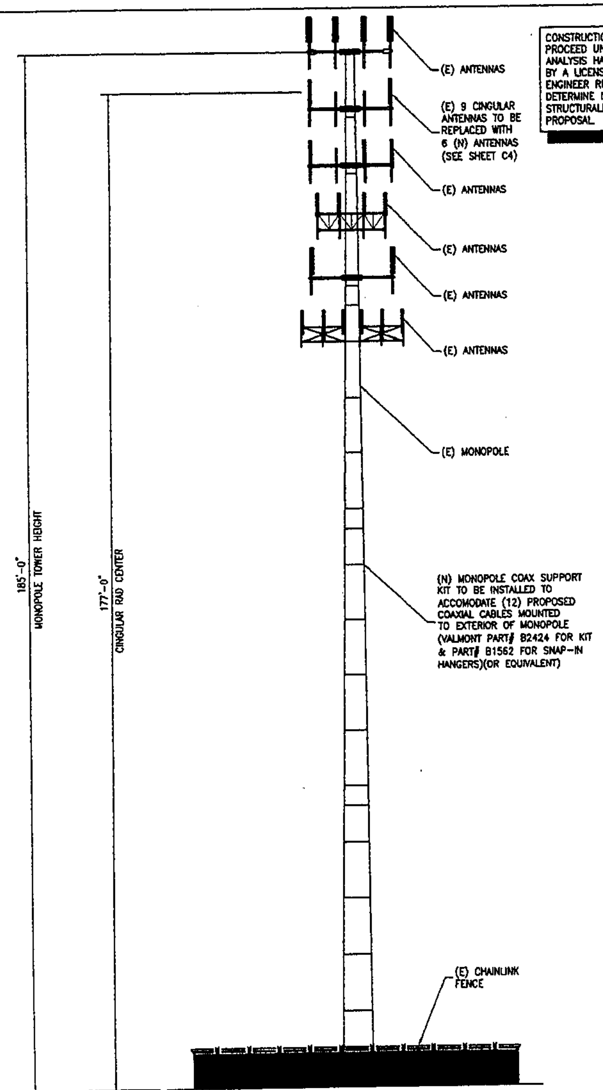

SITE ELEVATION (1/C2)
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SCALE: 22x34 – 1"=10'-0"

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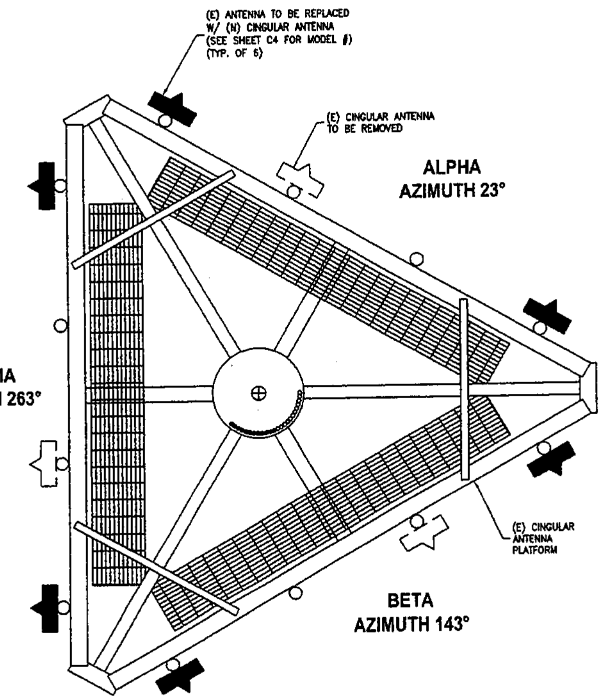

ANTENNA PLAN VIEW (2/C2)
SCALE: 11x17 – NTS
SCALE: 22x34 – NTS

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2127
SITE NAME:
NEWTOWN EAST
SITE ADDRESS:
ROUTE 34 – WASHINGTON AVE
NEWTOWN EAST, CT 06482

IT IS A VIOLATION OF THE PROPRIETARY RIGHTS OF THE WIRELESS CARRIER TO ALTER THIS DOCUMENT UNLESS THEY ARE INSTRUCTED ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

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CHECKED BY: OP
PROJECT NO: [illegible]

SUBMITTALS

NO	DESCRIPTION	BY	DATE
1	SITING COMMITTEE CDS	JR	07/13/05

STATE OF CONNECTICUT * OSCAR PEDRAZA * No. 21292 * LICENSED PROFESSIONAL ENGINEER
7/16/05

SHEET TITLE
SITE ELEVATION & ANT PLAN

SHEET NUMBER
C2

File info: C:\Documents and Settings\opedraza.PSGLOBAL\Desktop\SAI\2127\2127 Civil Set.dwg Jul 16, 2005 - 10:50am opedraza

July 29, 2005

John Murphy
Crown Castle International
500 West Cummings Park, Suite 3400
Woburn, MA 01801
(781) 729-4406

Vertical Structures, Inc.
309 Spangler Drive, Suite E
Richmond, KY 40475
(859) 624-8360
ptaneja@verticalstructures.com

Subject: Structural Analysis Report

Carrier Designation	**Cingular Change-Out** **Carrier Site Number: 2127** **Carrier Site Name: Newton-East**
Crown Castle Designation	**Crown Castle BU Number: 806354** **Crown Castle Site Name: BRG 123** **Crown Castle JDE Job Number: 64022**
Engineering Firm Designation	**Vertical Structures Project Number: 2005-004-075**
Site Data	**Route 34-Washington Avenue, Newtown, CT, Fairfield County** **Latitude 41°-24'-45.53", Longitude -73°-16'-12.34"** **185' EEI Monopole Tower**

Dear Mr. Murphy,

Vertical Structures is pleased to submit this structural analysis report to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 187105. The purpose of the analysis is to determine the suitability of the tower upon replacing nine (9) existing panel antennas mounted on the existing platform at 175' with six (6) proposed Powerwave Technologies 7770.00 panel antennas, six (6) proposed Powerwave Technologies LGP2140X tower mounted amplifiers and six (6) proposed Powerwave Technologies LGP13519 diplexers for Cingular when combined with the existing and reserved equipment on the structure. This analysis has been performed in accordance with the TIA/EIA-222-F standard and local code requirements based upon a "fastest mile" wind speed condition of 85 MPH.

Based on our analysis we have determined the tower structure and foundation are sufficient for the proposed loading.

Vertical Structures appreciates the opportunity of providing our continuing professional services to you and Crown Castle International. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

Pankaj Taneja
Project Engineer

TABLE OF CONTENTS

INTRODUCTION

The 185' tall monopole tower was designed and manufactured by EEI for Crown Communications in 1999. The existing structure consists of five (5) 18-sided tapered polygonal tubes joined via slip joint connections and is founded on a 28'-6" square by 3' thick mat buried 6' deep.

ANALYSIS CRITERIA

The BRG 123 monopole tower was analyzed in accordance with the current EIA-222-F publication, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures." The proposed, existing and reserved antennas, cables and mounts considered in this analysis are listed in Tables 1 and 2. Applied forces in this study were derived from an 85 MPH basic "fastest mile" wind speed with no ice and a reduced 74 MPH basic "fastest mile" wind speed with a 1/2" of radial ice accumulation. The tower was originally designed for a 90 MPH basic "fastest mile" wind speed with a 1/2" of radial ice accumulation. The original design loads are listed in Table 3. All cables are assumed to be routed up the interior of the pole unless otherwise noted.

Table 1 – Proposed Antenna and Cable Information

Center Line Elevation (feet)	Carrier Name	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount Manufacturer	Mount Model	Number Of Feed Lines	Feed Line Size (inches)
175	Cingular	6	Powerwave Technologies	7770.00			12	1 5/8
		6	Powerwave Technologies	LGP2140X TMA				
		6	Powerwave Technologies	LGP13519 Diplexer				

Table 2 – Existing and Reserved Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount Manufacturer	Mount Model	Number Of Feed Lines	Feed Line Size (inches)
185	6	Swedcom	ALP 9212-N	EEI	10'-8" L.P. Platform	12	1 5/8
	6	Decibel	DB948F85T2E-M				
	1	Decibel	DB222			1	1/2
175*	9		Panel	EEI	12' L.P. Platform	9	1 1/4
165	9	Decibel	DB980H90T2E-M	EEI	12' L.P. Platform	9	1 5/8
155	12	Decibel	DB844H90	EEI	12' Platform	12	1 1/4
145	6	EMS Wireless	RR90-17-02DP	EEI	12' L.P. Platform	9	7/8
	6		TMA				
135	9	Allgon	7184		(3) 12' T-Arm Mounts	9	1 5/8

*Indicates antennas and cables to be removed. Existing platform to be reused.

Table 3 – Design Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount Manufacturer	Mount Model	Number Of Feed Lines	Feed Line Size (inches)
185	12	Swedcom	ALP 9212	EEI	10'-8" L.P. Platform		
175	12	Swedcom	ALP 11011	EEI	12' L.P. Platform		
165	9	Decibel	DB 980	EEI	12' L.P. Platform		
155	12	Swedcom	ALP 9011	EEI	12' L.P. Platform		
145	6	EMS Wireless	RR-65-18	EEI	12' L.P. Platform		
	1	Scala	OGB9-900 Omni				
110	1		GPS		(1) Sidearm		
50	1		GPS		(1) Sidearm		

ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Reference	Source
Online Application	Cingular Change-Out Revision #2	23336	CCI iSite
Tower Drawing	EEI Drawing No. GS5132	822035	CCI iSite
Foundation Drawing	EEI Drawing No. F4743-185	822037	CCI iSite

Analysis Methods

ERI Tower (Version 3.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA-222-F or the local building code requirements. Selected output from the analysis is included in Appendix A.

Assumptions

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and any referenced drawings.
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222-F.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and Vertical Structures should be allowed to review any new information to determine its effect on the structural integrity of the tower.

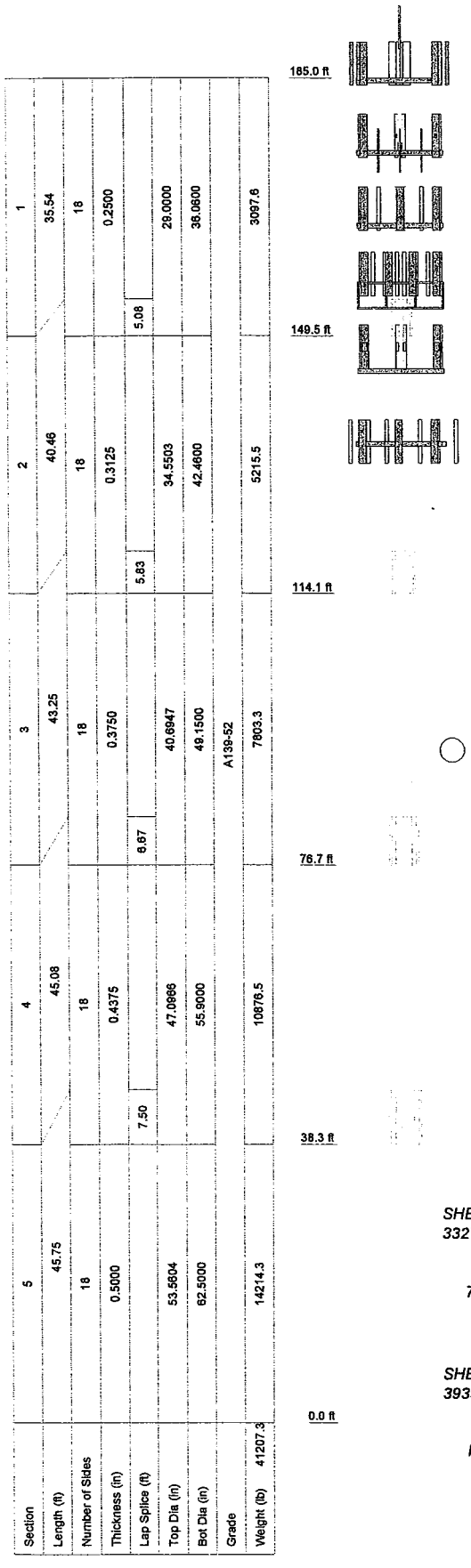
ANALYSIS RESULTS

Table 5 – Tower Component Stresses vs. Capacity

Section Number	Elevation (feet)	Combined Stress Ratio	Allowable Stress Ratio	Percent Capacity Used
1	185.0 – 149.5	0.556	1.333	41.7
2	149.5 – 114.1	1.130	1.333	84.7
3	114.1 – 76.7	1.357	1.333	101.8*
4	76.7 – 38.3	1.400	1.333	105.0*
5	38.3 – 0.0	1.378	1.333	103.4*
Anchor Bolts – Tension				81.8
Base Plate – Bending				92.8
Foundation – Moment (Comparing actual loads to design loads)				79.1

* Indicates an overstress of less than 5% and is considered acceptable based on the analysis procedure used.

APPENDIX A



Section	1	2	3	4	5
Length (ft)	35.54	40.46	43.25	45.08	45.75
Number of Sides	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.4375	0.5000
Lap Splice (ft)	5.08	5.83	8.67	7.50	
Top Dia (in)	29.0000	34.5503	40.6947	47.0866	53.5804
Bot Dia (in)	36.0800	42.4600	49.1500	55.9000	62.5000
Grade			A139-52		
Weight (lb)	3097.6	5215.5	7803.3	10876.5	14214.3

Total Weight: 41207.3

APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
EEI 10'-8" Low-Profile Platform	185	EEI 12' L.P. Platform	175
ALP 9212-N w/Mount Pipe	185	(3) DB980H90T2E-M w/Mount Pipe	165
(2) DB948F85T2E-M w/Mount Pipe	185	(3) DB980H90T2E-M w/Mount Pipe	165
ALP 9212-N w/Mount Pipe	185	(3) DB980H90T2E-M w/Mount Pipe	165
ALP 9212-N w/Mount Pipe	185	EEI 12' L.P. Platform	165
(2) DB948F85T2E-M w/Mount Pipe	185	(4) DB844H90 w/Mount Pipe	155
ALP 9212-N w/Mount Pipe	185	(4) DB844H90 w/Mount Pipe	155
ALP 9212-N w/Mount Pipe	185	(4) DB844H90 w/Mount Pipe	155
(2) DB948F85T2E-M w/Mount Pipe	185	EEI 12' Platform w/ Rails	155
ALP 9212-N w/Mount Pipe	185	(2) RR90-17-02DP w/Mount Pipe	145
DB222	185	(2) RR90-17-02DP w/Mount Pipe	145
6'x4" Pipe Mount	185	(2) RR90-17-02DP w/Mount Pipe	145
(2) 7770.00 w/ mount pipe (Cingular)	175	EEI 12' L.P. Platform	145
(2) 7770.00 w/ mount pipe (Cingular)	175	(2) Generic TMA	145
(2) 7770.00 w/ mount pipe (Cingular)	175	(2) Generic TMA	145
(2) LGP2140X (Cingular)	175	(2) Generic TMA	145
(2) LGP2140X (Cingular)	175	(3) 7184 w/Mount Pipe	135
(2) LGP2140X (Cingular)	175	(3) 7184 w/Mount Pipe	135
(2) LGP13519 Diplexer (Cingular)	175	12' T-Arm Mount	135
(2) LGP13519 Diplexer (Cingular)	175	12' T-Arm Mount	135
(2) LGP13519 Diplexer (Cingular)	175	12' T-Arm Mount	135
(2) 6' x 2" Antenna Mount Pipe (VSI)	175	(3) 7184 w/Mount Pipe	135
(2) 6' x 2" Antenna Mount Pipe (VSI)	175	2' Sidearm (1 1/4" pipe) (VSI)	110
(2) 6' x 2" Antenna Mount Pipe (VSI)	175	2' Sidearm (1 1/4" pipe) (VSI)	50

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A139-52	52 ksi	66 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 105%

Vertical Structures, Inc.
309 Spangler Drive, Suite E
Richmond, KY 40475
Phone: (859) 624-8360
FAX: (859) 624-8369

Job:	***BRG 123, CT BU#806354***		
Project:	***Vertical Structures Job 2005-004-075***		
Client: Crown Castle	Drawn by: Pankaj Taneja		App'd:
Code: TIA/EIA-222-F	Date: 07/29/05		Scale: NTS
Path:			Dwg No. E-1

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 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 pole 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		

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	185.00-149.46	35.54	5.08	18	29.0000	36.0600	0.2500	1.0000	A139-52 (52 ksi)
L2	149.46-114.08	40.46	5.83	18	34.5503	42.4600	0.3125	1.2500	A139-52 (52 ksi)
L3	114.08-76.67	43.25	6.67	18	40.6947	49.1500	0.3750	1.5000	A139-52 (52 ksi)
L4	76.67-38.25	45.08	7.50	18	47.0966	55.9000	0.4375	1.7500	A139-52 (52 ksi)
L5	38.25-0.00	45.75		18	53.5604	62.5000	0.5000	2.0000	A139-52 (52 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	29.4474	22.8131	2382.3081	10.2063	14.7320	161.7098	4767.7509	11.4087	4.6640	18.656
	36.6163	28.4152	4603.5975	12.7126	18.3185	251.3089	9213.2525	14.2103	5.9066	23.626
L2	36.0923	33.9596	5029.3356	12.1544	17.5515	286.5468	10065.2889	16.9830	5.5308	17.699
	43.1150	41.8051	9382.3116	14.9624	21.5697	434.9769	18776.9687	20.9065	6.9230	22.153
L3	42.4804	47.9905	9856.5919	14.3135	20.6729	476.7882	19726.1533	23.9998	6.5023	17.339
	49.9082	58.0544	17448.8767	17.3151	24.9682	698.8440	34920.7131	29.0327	7.9904	21.308
L4	49.1452	64.7920	17820.9870	16.5640	23.9251	744.8664	35665.4233	32.4022	7.5190	17.186
	56.7623	77.0166	29930.9675	19.6892	28.3972	1054.0112	59901.3189	38.5156	9.0684	20.728
L5	55.8747	84.2068	29951.9601	18.8364	27.2087	1100.8242	59943.3317	42.1114	8.5466	17.093
	63.4642	98.3940	47784.7640	22.0100	31.7500	1505.0319	95632.4044	49.2063	10.1200	20.24

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 185.00-149.46				1	1	1		
L2 149.46-114.08				1	1	1		
L3 114.08-76.67				1	1	1		
L4 76.67-38.25				1	1	1		
L5 38.25-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	185.00 - 5.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	185.00 - 5.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
CR 50 1873 (1-5/8 FOAM) (Cingular)	B	No	Inside Pole	177.00 - 5.00	12	No Ice	0.00	0.83
						1/2" Ice	0.00	0.83
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	167.00 - 5.00	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF6-50A (1-1/4 FOAM)	B	No	Inside Pole	158.00 - 5.00	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	148.00 - 5.00	9	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	135.00 - 5.00	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	185.00-149.46	A	0.000	0.000	0.000	0.000	5.33
		B	0.000	0.000	0.000	0.000	341.94
		C	0.000	0.000	0.000	0.000	479.16
L2	149.46-114.08	A	0.000	0.000	0.000	0.000	106.04
		B	0.000	0.000	0.000	0.000	632.54
		C	0.000	0.000	0.000	0.000	763.56
L3	114.08-76.67	A	0.000	0.000	0.000	0.000	116.74
		B	0.000	0.000	0.000	0.000	669.02
		C	0.000	0.000	0.000	0.000	920.46
L4	76.67-38.25	A	0.000	0.000	0.000	0.000	119.85
		B	0.000	0.000	0.000	0.000	686.82
		C	0.000	0.000	0.000	0.000	944.96
L5	38.25-0.00	A	0.000	0.000	0.000	0.000	103.75
		B	0.000	0.000	0.000	0.000	594.56
		C	0.000	0.000	0.000	0.000	818.02

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 lb
L1	185.00-149.46	A	0.500	0.000	0.000	0.000	0.000	5.33
		B		0.000	0.000	0.000	0.000	341.94
		C		0.000	0.000	0.000	0.000	479.16
L2	149.46-114.08	A	0.500	0.000	0.000	0.000	0.000	106.04
		B		0.000	0.000	0.000	0.000	632.54
		C		0.000	0.000	0.000	0.000	763.56
L3	114.08-76.67	A	0.500	0.000	0.000	0.000	0.000	116.74
		B		0.000	0.000	0.000	0.000	669.02
		C		0.000	0.000	0.000	0.000	920.46
L4	76.67-38.25	A	0.500	0.000	0.000	0.000	0.000	119.85
		B		0.000	0.000	0.000	0.000	686.82
		C		0.000	0.000	0.000	0.000	944.96
L5	38.25-0.00	A	0.500	0.000	0.000	0.000	0.000	103.75
		B		0.000	0.000	0.000	0.000	594.56
		C		0.000	0.000	0.000	0.000	818.02

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	185.00-149.46	0.0000	0.0000	0.0000	0.0000
L2	149.46-114.08	0.0000	0.0000	0.0000	0.0000
L3	114.08-76.67	0.0000	0.0000	0.0000	0.0000
L4	76.67-38.25	0.0000	0.0000	0.0000	0.0000
L5	38.25-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
EEI 10'-8" Low-Profile Platform	C	From Centroid-Face	0.00 0.00 0.00	0.0000	185.00	No Ice 1/2" Ice	28.00 34.00	28.00 34.00	1500.00 2250.00
ALP 9212-N w/Mount Pipe	C	From Centroid-Leg	7.16 1.00 2.00	60.0000	185.00	No Ice 1/2" Ice	6.42 7.11	7.45 8.59	42.71 103.63
(2) DB948F85T2E-M w/Mount Pipe	A	From Centroid-Face	3.08 0.00 2.00	0.0000	185.00	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	34.05 68.79
ALP 9212-N w/Mount Pipe	A	From Centroid-Leg	7.16 -1.00 2.00	-60.0000	185.00	No Ice 1/2" Ice	6.42 7.11	7.45 8.59	42.71 103.63
ALP 9212-N w/Mount Pipe	A	From Centroid-Leg	7.16 1.00 2.00	60.0000	185.00	No Ice 1/2" Ice	6.42 7.11	7.45 8.59	42.71 103.63
(2) DB948F85T2E-M w/Mount Pipe	B	From Centroid-Face	3.08 0.00 2.00	0.0000	185.00	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	34.05 68.79
ALP 9212-N w/Mount Pipe	B	From Centroid-Leg	7.16 -1.00 2.00	-60.0000	185.00	No Ice 1/2" Ice	6.42 7.11	7.45 8.59	42.71 103.63
ALP 9212-N w/Mount Pipe	B	From Centroid-Leg	7.16 1.00 2.00	60.0000	185.00	No Ice 1/2" Ice	6.42 7.11	7.45 8.59	42.71 103.63
(2) DB948F85T2E-M w/Mount Pipe	C	From Centroid-Face	3.08 0.00 2.00	0.0000	185.00	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	34.05 68.79
ALP 9212-N w/Mount Pipe	C	From Centroid-Leg	7.16 -1.00 2.00	-60.0000	185.00	No Ice 1/2" Ice	6.42 7.11	7.45 8.59	42.71 103.63
DB222	C	From Centroid-Face	3.08 0.00 7.00	0.0000	185.00	No Ice 1/2" Ice	1.60 2.88	1.60 2.88	16.00 20.80
EEI 12' L.P. Platform	C	None		0.0000	175.00	No Ice 1/2" Ice	25.00 29.00	25.00 29.00	1700.00 2530.00
(2) 7770.00 w/ mount pipe (Cingular)	A	From Centroid-Face	3.46 0.00 2.00	-4.0000	175.00	No Ice 1/2" Ice	6.22 6.77	4.35 5.20	56.90 102.99
(2) 7770.00 w/ mount pipe (Cingular)	B	From Centroid-Face	3.46 0.00 2.00	-4.0000	175.00	No Ice 1/2" Ice	6.22 6.77	4.35 5.20	56.90 102.99
(2) 7770.00 w/ mount pipe (Cingular)	C	From Centroid-Face	3.46 0.00 2.00	-4.0000	175.00	No Ice 1/2" Ice	6.22 6.77	4.35 5.20	56.90 102.99
(2) LGP2140X (Cingular)	A	From Centroid-Face	3.46 0.00 2.00	-4.0000	175.00	No Ice 1/2" Ice	1.23 1.38	0.37 0.48	17.50 24.46
(2) LGP2140X (Cingular)	B	From Centroid-Face	3.46 0.00 2.00	-4.0000	175.00	No Ice 1/2" Ice	1.23 1.38	0.37 0.48	17.50 24.46
(2) LGP2140X (Cingular)	C	From Centroid-Face	3.46 0.00 2.00	-4.0000	175.00	No Ice 1/2" Ice	1.23 1.38	0.37 0.48	17.50 24.46
(2) LGP13519 Diplexer (Cingular)	A	From Centroid-Face	3.46 0.00 2.00	-4.0000	175.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	5.50 7.92
(2) LGP13519 Diplexer	B	From	3.46	-4.0000	175.00	No Ice	0.27	0.18	5.50

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(Cingular)		Centroid-Face	0.00 2.00			1/2" Ice	0.34	0.25	7.92
(2) LGP13519 Diplexer	C	From	3.46	-4.0000	175.00	No Ice	0.27	0.18	5.50
(Cingular)		Centroid-Face	0.00 2.00			1/2" Ice	0.34	0.25	7.92
(2) 6' x 2" Antenna Mount Pipe (VSI)	A	From Centroid-Face	3.46 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	1.43 1.92	1.43 1.92	23.00 33.83
(2) 6' x 2" Antenna Mount Pipe (VSI)	B	From Centroid-Face	3.46 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	1.43 1.92	1.43 1.92	23.00 33.83
(2) 6' x 2" Antenna Mount Pipe (VSI)	C	From Centroid-Face	3.46 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	1.43 1.92	1.43 1.92	23.00 33.83
EEI 12' L.P. Platform	C	None		0.0000	165.00	No Ice 1/2" Ice	25.00 29.00	25.00 29.00	1700.00 2530.00
(3) DB980H90T2E-M w/Mount Pipe	A	From Centroid-Face	3.46 0.00 2.00	3.0000	165.00	No Ice 1/2" Ice	4.27 4.86	3.86 4.95	34.05 69.84
(3) DB980H90T2E-M w/Mount Pipe	B	From Centroid-Face	3.46 0.00 2.00	3.0000	165.00	No Ice 1/2" Ice	4.27 4.86	3.86 4.95	34.05 69.84
(3) DB980H90T2E-M w/Mount Pipe	C	From Centroid-Face	3.46 0.00 2.00	3.0000	165.00	No Ice 1/2" Ice	4.27 4.86	3.86 4.95	34.05 69.84
EEI 12' Platform w/ Rails	C	None		0.0000	155.00	No Ice 1/2" Ice	38.50 56.00	38.50 56.00	1900.00 2870.00
(4) DB844H90 w/Mount Pipe	A	From Centroid-Face	3.46 0.00 3.00	3.0000	155.00	No Ice 1/2" Ice	3.58 4.20	5.63 6.73	35.55 77.48
(4) DB844H90 w/Mount Pipe	B	From Centroid-Face	3.46 0.00 3.00	3.0000	155.00	No Ice 1/2" Ice	3.58 4.20	5.63 6.73	35.55 77.48
(4) DB844H90 w/Mount Pipe	C	From Centroid-Face	3.46 0.00 3.00	3.0000	155.00	No Ice 1/2" Ice	3.58 4.20	5.63 6.73	35.55 77.48
EEI 12' L.P. Platform	C	None		0.0000	145.00	No Ice 1/2" Ice	25.00 29.00	25.00 29.00	1700.00 2530.00
(2) RR90-17-02DP w/Mount Pipe	A	From Centroid-Face	3.46 0.00 3.00	3.0000	145.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	43.55 81.64
(2) RR90-17-02DP w/Mount Pipe	B	From Centroid-Face	3.46 0.00 3.00	3.0000	145.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	43.55 81.64
(2) RR90-17-02DP w/Mount Pipe	C	From Centroid-Face	3.46 0.00 3.00	3.0000	145.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	43.55 81.64
12' T-Arm Mount	A	From Centroid-Face	3.60 0.30 0.00	3.0000	135.00	No Ice 1/2" Ice	8.00 9.90	4.00 4.95	200.00 250.00
12' T-Arm Mount	B	From Centroid-Face	3.60 0.30 0.00	3.0000	135.00	No Ice 1/2" Ice	8.00 9.90	4.00 4.95	200.00 250.00
12' T-Arm Mount	C	From Centroid-Face	3.60 0.30 0.00	3.0000	135.00	No Ice 1/2" Ice	8.00 9.90	4.00 4.95	200.00 250.00
(3) 7184 w/Mount Pipe	A	From	5.60	3.0000	135.00	No Ice	3.33	3.56	36.75

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
		Centroid-Face	0.45 0.00			1/2" Ice	3.94	4.60	68.31
(3) 7184 w/Mount Pipe	B	From	5.60	3.0000	135.00	No Ice	3.33	3.56	36.75
		Centroid-Face	0.45 0.00			1/2" Ice	3.94	4.60	68.31
(3) 7184 w/Mount Pipe	C	From	5.60	3.0000	135.00	No Ice	3.33	3.56	36.75
		Centroid-Face	0.45 0.00			1/2" Ice	3.94	4.60	68.31
6'x4" Pipe Mount	C	From	3.08	0.0000	185.00	No Ice	2.25	2.25	65.00
		Centroid-Face	0.00 7.00			1/2" Ice	2.62	2.62	84.10
(2) Generic TMA	A	From	3.46	3.0000	145.00	No Ice	1.09	0.54	25.00
		Centroid-Face	0.00 3.00			1/2" Ice	1.24	0.67	32.36
(2) Generic TMA	B	From	3.46	3.0000	145.00	No Ice	1.09	0.54	25.00
		Centroid-Face	0.00 3.00			1/2" Ice	1.24	0.67	32.36
(2) Generic TMA	C	From	3.46	3.0000	145.00	No Ice	1.09	0.54	25.00
		Centroid-Face	0.00 3.00			1/2" Ice	1.24	0.67	32.36
2' Sidearm (1 1/4" pipe) (VSI)	A	From	1.78	0.0000	110.00	No Ice	0.30	0.85	20.00
		Centroid-Leg	0.00 0.00			1/2" Ice	0.45	1.35	30.00
2' Sidearm (1 1/4" pipe) (VSI)	A	From	2.23	0.0000	50.00	No Ice	0.30	0.85	20.00
		Centroid-Leg	0.00 0.00			1/2" Ice	0.45	1.35	30.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp

Comb. No.	Description
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	185 - 149.46	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-17825.69	0.00	-323.08
			Max. Mx	11	-10334.61	335307.54	-210.74
			Max. My	8	-10334.91	-0.00	-335555.25
			Max. Vy	11	-19760.50	335307.54	-210.74
			Max. Vx	8	19760.34	-0.00	-335555.25
			Max. Torque	18			-681.02
L2	149.46 - 114.083	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-29481.61	0.00	-323.08
			Max. Mx	5	-19366.05	-1192518.50	-234.19
			Max. My	8	-19366.65	-0.00	-1192756.28
			Max. Vy	5	28500.11	-1192518.50	-234.19
			Max. Vx	8	28499.70	-0.00	-1192756.28
			Max. Torque	18			-680.76
L3	114.083 - 76.666	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-39496.98	0.00	-269.68
			Max. Mx	5	-28812.50	-2306324.76	-216.69
			Max. My	8	-28814.32	-0.00	-2305861.87
			Max. Vy	5	32286.37	-2306324.76	-216.69
			Max. Vx	8	32261.54	-0.00	-2305861.87
			Max. Torque	18			-679.77
L4	76.666 - 38.253	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-52669.13	0.00	-202.78
			Max. Mx	5	-41397.06	-	-179.90

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
						3589347.66	
			Max. My	8	-41398.64	-0.00	-3587823.55
			Max. Vy	5	35855.67	-3589347.66	-179.90
			Max. Vx	8	35811.49	-0.00	-3587823.55
			Max. Torque	18			-600.68
L5	38.253 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-72338.13	0.00	-202.78
			Max. Mx	5	-60262.11	-5314766.73	-180.23
			Max. My	8	-60262.14	-0.00	-5311230.32
			Max. Vy	5	39430.49	-5314766.73	-180.23
			Max. Vx	8	39386.86	-0.00	-5311230.32
			Max. Torque	18			-521.35

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	185 - 149.46 (1)	TP36.06x29x0.25	35.54	0.00	0.0	31.200	27.6140	-10334.90	861557.00	0.012
L2	149.46 - 114.083 (2)	TP42.46x34.5503x0.3125	40.46	0.00	0.0	31.200	40.6740	-19366.60	1269030.00	0.015
L3	114.083 - 76.666 (3)	TP49.15x40.6947x0.375	43.25	0.00	0.0	31.200	56.5031	-28812.50	1762900.00	0.016
L4	76.666 - 38.253 (4)	H1-3 (1.36 CR) - 3 TP55.9x47.0966x0.4375	45.08	0.00	0.0	31.200	74.9828	-41397.10	2339460.00	0.018
L5	38.253 - 0 (5)	H1-3 (1.40 CR) - 4 TP62.5x53.5604x0.5 H1-3 (1.38 CR) - 5	45.75	0.00	0.0	31.200	98.3940	-60262.10	3069890.00	0.020

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	185 - 149.46 (1)	TP36.06x29x0.25	335555.00	-16.970	31.200	0.544	0.00	0.000	31.200	0.000
L2	149.46 - 114.083 (2)	TP42.46x34.5503x0.3125	1192758.33	-34.768	31.200	1.114	0.00	0.000	31.200	0.000
L3	114.083 - 76.666 (3)	TP49.15x40.6947x0.375	2306325.00	-41.816	31.200	1.340	0.00	0.000	31.200	0.000

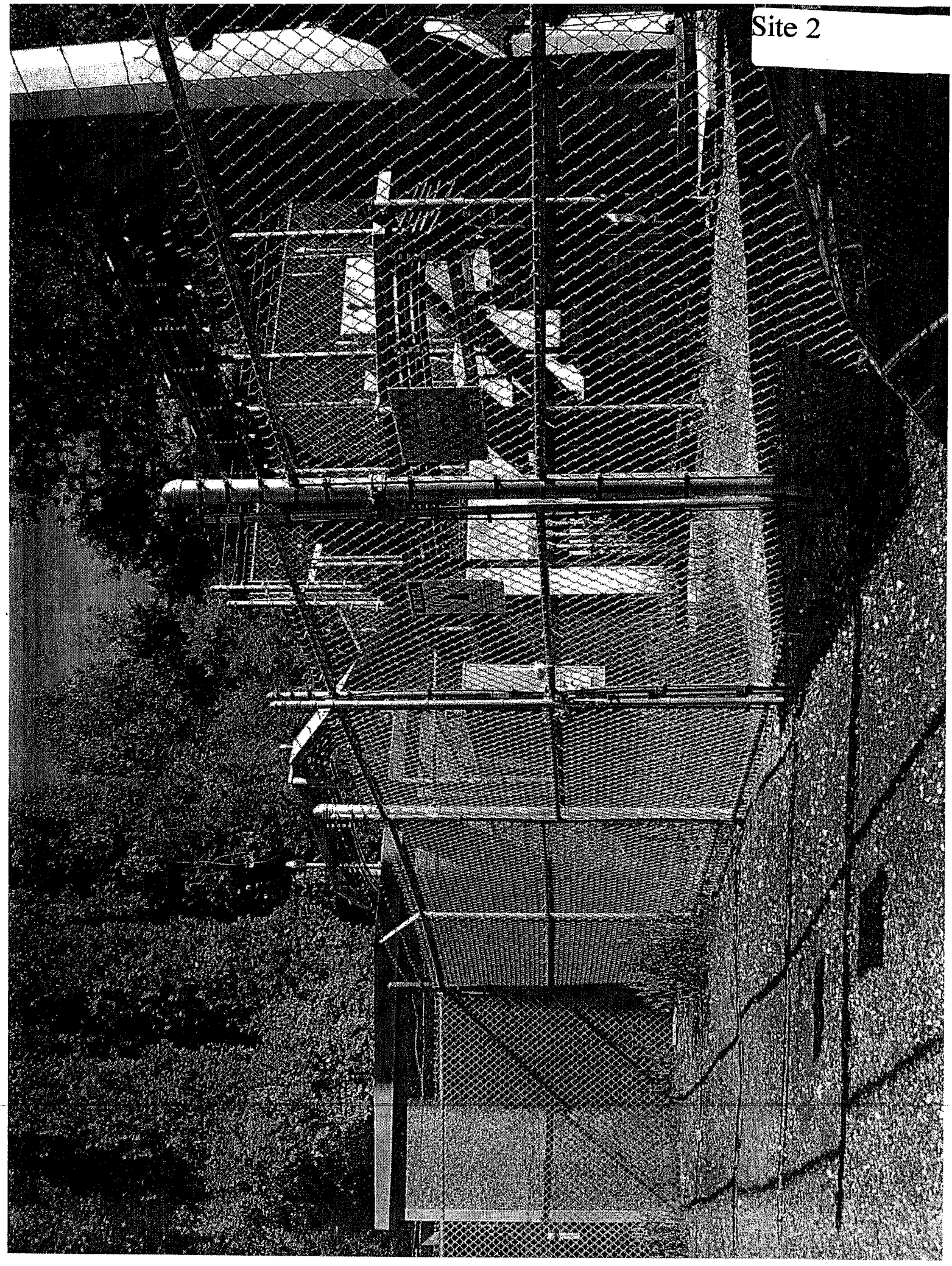
Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L4	76.666 - 38.253 (4)	TP55.9x47.0966x0.4375	3589350.00	-43.121	31.200	1.382	0.00	0.000	31.200	0.000
L5	38.253 - 0 (5)	TP62.5x53.5604x0.5	5314766.67	-42.376	31.200	1.358	0.00	0.000	31.200	0.000

Pole Interaction Design Data

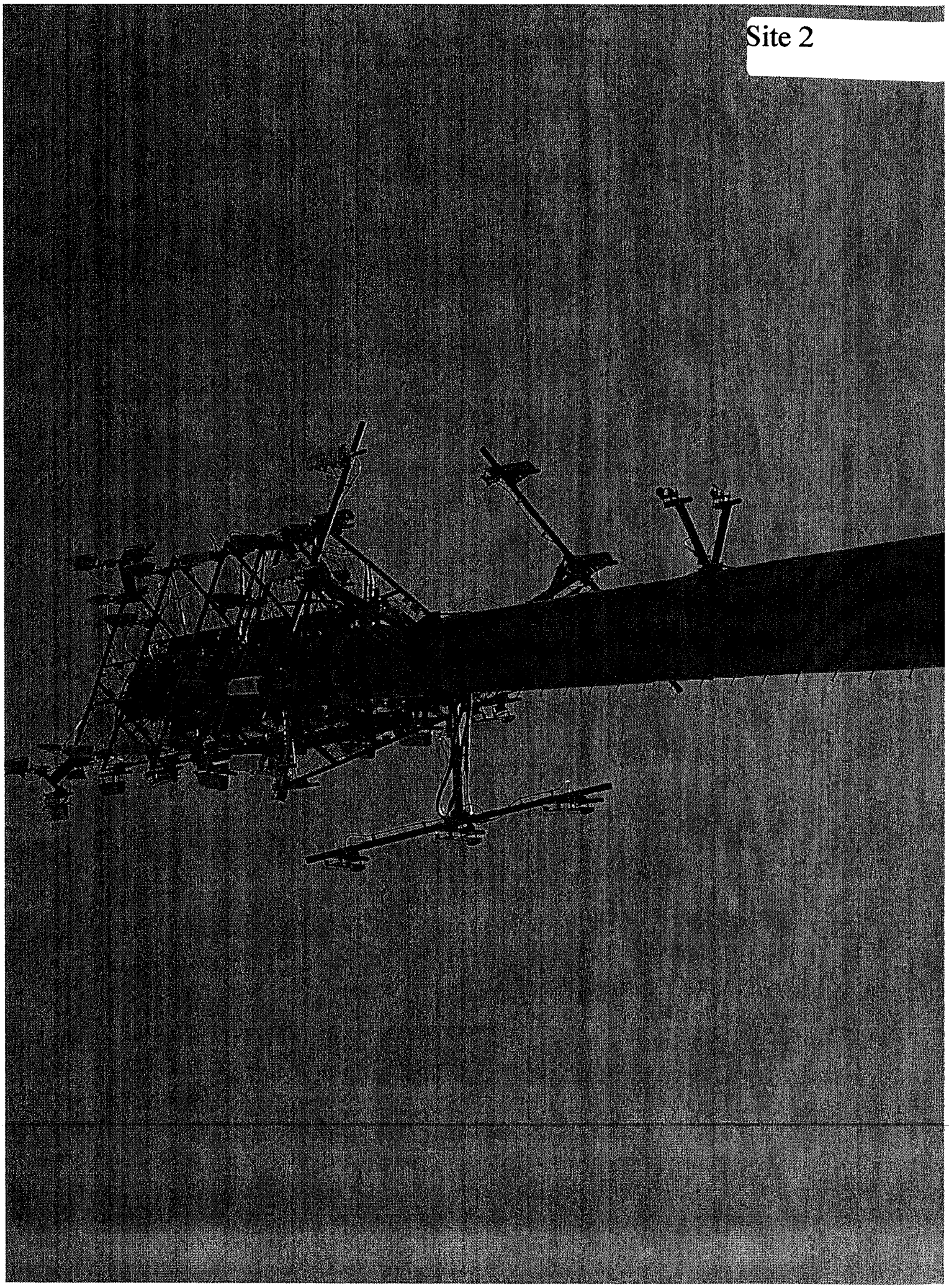
Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	185 - 149.46 (1)	TP36.06x29x0.25	0.012	0.544	0.000	0.556 ✓	1.333	H1-3 ✓
L2	149.46 - 114.083 (2)	TP42.46x34.5503x0.3125	0.015	1.114	0.000	1.130 ✓	1.333	H1-3 ✓
L3	114.083 - 76.666 (3)	TP49.15x40.6947x0.375	0.016	1.340	0.000	1.357 ✗	1.333	H1-3 ✗
L4	76.666 - 38.253 (4)	TP55.9x47.0966x0.4375	0.018	1.382	0.000	1.400 ✗	1.333	H1-3 ✗
L5	38.253 - 0 (5)	TP62.5x53.5604x0.5	0.020	1.358	0.000	1.378 ✗	1.333	H1-3 ✗

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	185 - 149.46	Pole	TP36.06x29x0.25	1	-10334.90	1148455.43	41.7	Pass
L2	149.46 - 114.083	Pole	TP42.46x34.5503x0.3125	2	-19366.60	1691616.92	84.7	Pass
L3	114.083 - 76.666	Pole	TP49.15x40.6947x0.375	3	-28812.50	2349945.60	101.8	Fail ✗
L4	76.666 - 38.253	Pole	TP55.9x47.0966x0.4375	4	-41397.10	3118500.05	105.0	Fail ✗
L5	38.253 - 0	Pole	TP62.5x53.5604x0.5	5	-60262.10	4092163.20	103.4	Fail ✗
							Summary	
						Pole (L4)	105.0	Fail ✗
						RATING =	**105.0**	**Fail ✗**


Site 2

Site 2



Site Specific Attachments

Site 3

1. Site Plans
2. Tower Structural Analysis
3. Site Photographs

APPROVALS

NAME (PRINT)	SIGNATURE	DATE
CINGULAR		
NAME (PRINT)	SIGNATURE	DATE
SAI		
NAME (PRINT)	SIGNATURE	DATE
SITING COUNCIL COMMITTEE		
NAME (PRINT)	SIGNATURE	DATE
OTHER		

cingular WIRELESS

SITE NUMBER: 2152
SITE NAME: REDDING

DRAWING INDEX

		REV
2152 - T1	TITLE SHEET	0
2152 - C1	EQUIPMENT PLAN	0
2152 - C2	SITE ELEVATION & ANTENNA PLAN	0
2152 - C3	ANTENNA PLUMBING DIAGRAM-ALPHA-BETA-GAMMA	0
2152 - C4	RF DATA INFORMATION	0

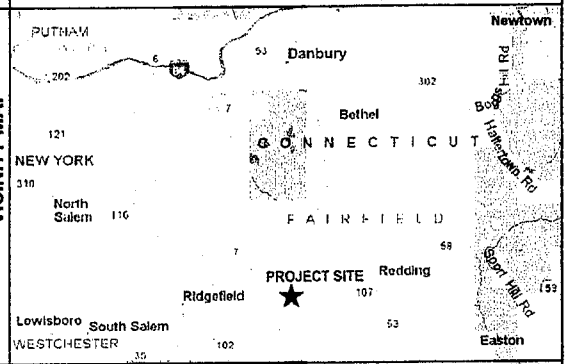
PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE NUMBER:	2152
SITE NAME:	REDDING
ADDRESS:	OLD REDDING RD
CITY, STATE ZIP	REDDING, CT
LATITUDE:	41.287000°
LONGITUDE:	-73.438594°
JURISDICTION:	FAIRFIELD COUNTY
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
SITE TYPE:	SELF SUPPORT
RAD CENTER:	180'-0"
OWNER:	SPECTRASITE

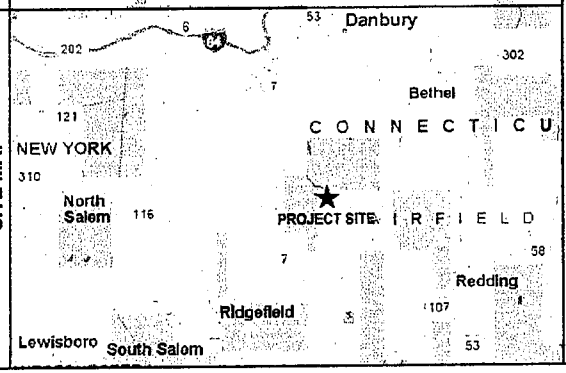
MAPS & DIRECTIONS

FROM I-84 EAST TAKE EXIT 3 TURN ONTO US-7 SOUTH. TURN LEFT ONTO OLD REDDING RD AND CONTINUE ON MOUNTAIN RD. TURN LEFT ONTO SEVENTY ACRE RD. THE SITE IS ON THE LEFT.

VICINITY MAP



SITE MAP



BLDG. CODES AND STANDARDS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE:
INTERNATIONAL BUILDING CODE (IBC), 2003

ELECTRICAL CODE:
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70 – 2002 NATIONAL ELECTRICAL CODE

LIGHTNING PROTECTION CODE:
NFPA 780 – 2000, LIGHTNING PROTECTION CODE

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS.
AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS

TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM – DC POWER SYSTEMS – TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.
245 COMMERCE GREEN BLVD, SUITE 200
SUGAR LAND, TX 77478
PHONE: 281-242-7000
FAX: 281-242-7107

SITE NUMBER:
2152
SITE NAME:
REDDING
SITE ADDRESS:
OLD REDDING RD
REDDING, CT

DRAWN BY: CH

CHECKED BY: DP

PROJECT NO: 0504A170-B995180

SUBMITTALS

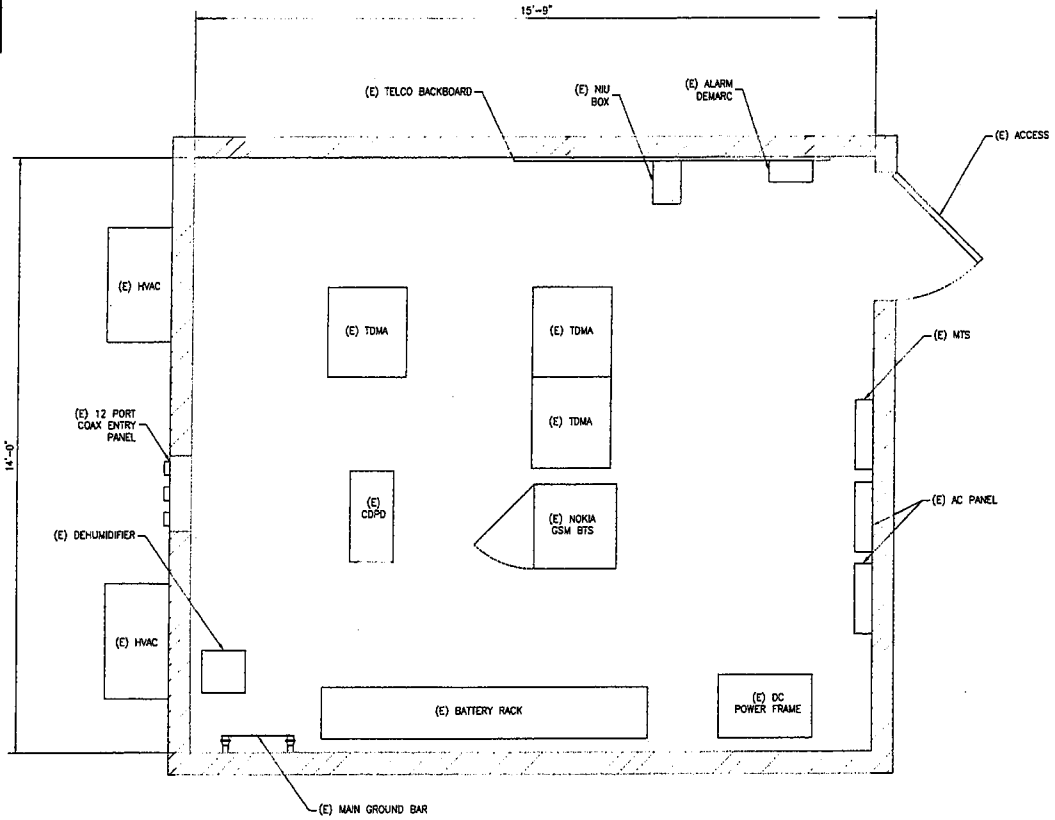
NO	DESCRIPTION	BY	DATE
0	SITING COMMITTEE COS	CH	09/16/05

9-3-05

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T1

PURPOSE OF THESE DESIGN DOCUMENTS ARE FOR 6 ANTENNA REPLACEMENTS, 3 ANTENNA REMOVALS, AND 3 PROPOSED 1 1/4" COAXIAL CABLES FOR CINGULAR WIRELESS.



EQUIPMENT PLAN

1 / C1

SCALE: 11x17 - 3/8"=1'-0"
SCALE: 22x34 - 3/4"=1'-0"

N

cingular WIRELESS

SAI communications

PSG

PSG ENGINEERING, LTD.
348 COMMERCE DISTRICT BLVD. SUITE 240
BUCKLAND, CT 06278
PHONE: 860-343-7006
FAX: 860-343-7127

SITE NUMBER:
2152
SITE NAME:
REDDING
SITE ADDRESS:
OLD REDDING RD
REDDING, CT

DRAWN BY: CH

CHECKED BY: OP

PROJECT NO: 0504A170-8985180

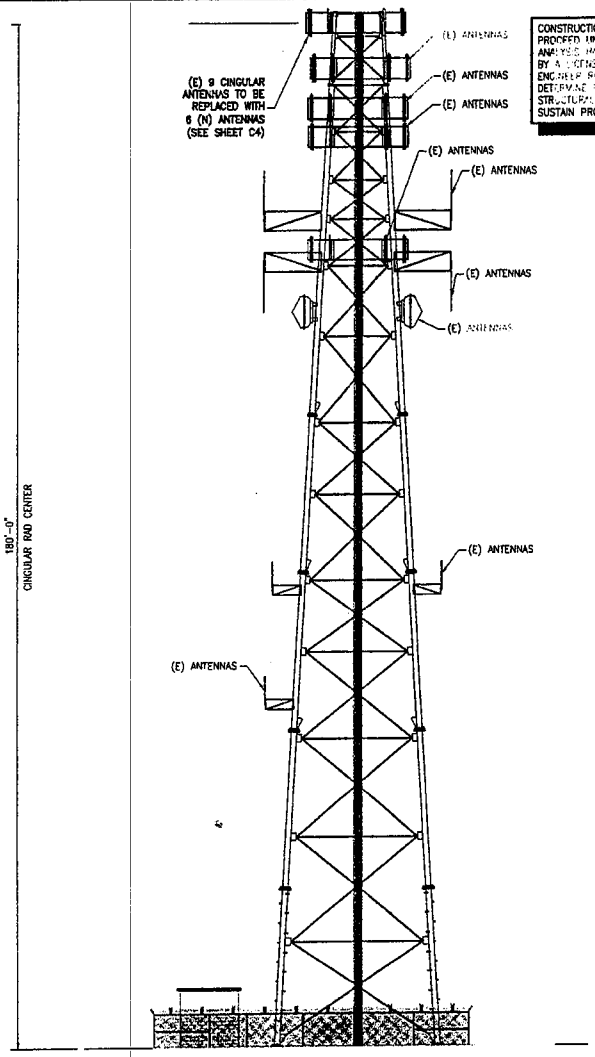
SUBMITTALS

NO	DESCRIPTION	BY	DATE
0	SITING COMMITTEE COS	CH	09/19/05

10-3-05

SHEET TITLE
EQUIPMENT PLAN

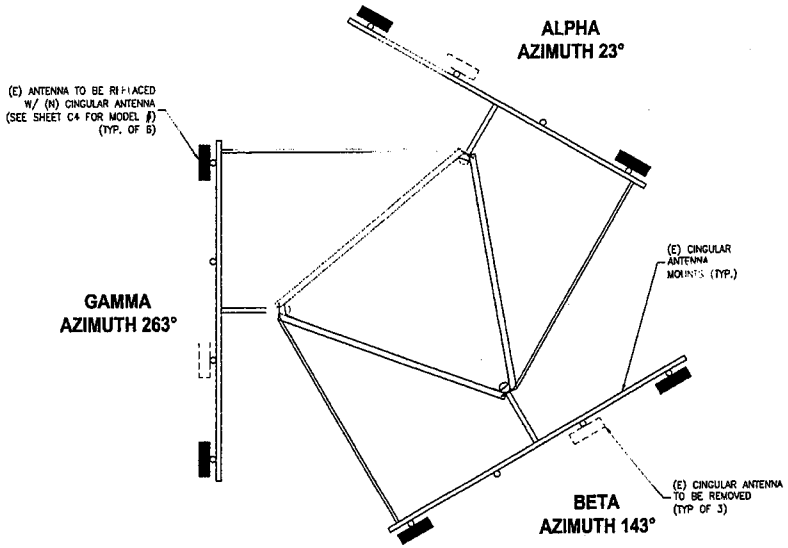
SHEET NUMBER
C1



CONSTRUCTION SHALL NOT PROCEED UNTIL A STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN CT TO DETERMINE IF THE TOWER IS STRUCTURALLY ADEQUATE TO SUSTAIN PROPOSAL.

SITE ELEVATION (1 / C2)
SCALE: 11x17 – NTS
SCALE: 22x34 – NTS

PURPOSE OF THESE DESIGN DOCUMENTS ARE FOR 6 ANTENNA REPLACEMENTS, 3 ANTENNA REMOVALS, AND 3 PROPOSED 1 1/4" COAXIAL CABLES FOR CINGULAR WIRELESS.



ANTENNA PLAN VIEW (2 / C2)
SCALE: 11x17 – NTS
SCALE: 22x34 – NTS

N

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2152
SITE NAME:
REDDING
SITE ADDRESS:
OLD REDDING RD
REDDING, CT

DRAWN BY: CH
CHECKED BY: DP
PROJECT NO: 05044170-B005180

SUBMITTALS

NO	DESCRIPTION	BY	DATE
0	ZONING COMMITTEE SET	CH	09/15/05

10-7-05

SHEET TITLE
SITE ELEVATION & ANT PLAN

SHEET NUMBER
C2

SpectraSite

Structural Analysis Summary	
Tower Site	**CT-0058 Redding (2152)**
Application ID	**108473-0**
Address	100 Old Redding Road Redding, CT 06896 Fairfield County
Tower Height & Type	**180 ft Rohn Self Support Tower**
Building Code	ANSI/TIA/EIA-222-F (1996) **90 mph w/ 0" radial ice** 2003 International Building Code **100 mph w/ 0" radial ice** **50 mph w/ ¾" radial ice**

Tower Information	
Tower Geometry	Rohn Engineering File Number 31707JC, dated 12/26/1995
Foundation	Rohn Engineering File Number 31707JC, dated 01/19/1996
Geotechnical	SoilTesting, Inc. Job Number 591, dated 12/26/1995

Results Summary*	
Tower Structure	***Adequate***
Foundation	***Adequate***

** See following pages for detailed analysis results.*

STATE OF CONNECTICUT
WM. E. GARRETT
No. 23236
LICENSED
PROFESSIONAL ENGINEER

AUG 24 2005

Analysis prepared by:
Bryan Lanier, E.I.
Project Engineer
Contact (919) 466-5777
with any questions.

Wm. E. Garrett, P.E.
Director of Engineering

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Connecticut.

SpectraSite Communications Inc.
www.spectrasite.com
100 Regency Forest Drive, Suite 400 • Cary, NC 27511 • Tel 919.468.0112 • Fax 919.468.8522

1.0 Introduction

A structural analysis was performed on the above noted tower for the addition of proposed antennas as listed. The analysis consisted of applying the forces caused by the existing and proposed loads, and determining the resulting stresses in the structure and its foundation.

Antenna and Transmission Line Loading				
ELEVATION *(Ft.A.G.L.)*	**ANTENNA**	**CARRIER**	**COAX***	**NOTES**
180	(9) Celwave APL868012-42T4 On Sector Frame Mounts	Cingular	(9) 1-1/4"	Remove Existing
180	(6) Powerwave 7770.00 (6) Powerwave LGP21401 On Sector Frame Mounts	Cingular	(12) 1-1/4"	Proposed Replacement
173	(12) Swedcom ALP-9011 (1) GPS Unit On Sector Frame Mounts	Verizon	(12) 1-5/8" (1) 1/2"	Existing
164	(12) Decibel DB844H90E-XY On Sector Frame Mounts	Nextel	(12) 1-1/4"	Existing
155	(6) Decibel DB980H90E-M On Sector Frame Mounts	Sprint[A]	(6) 1-5/8"	Existing
147 147 144	(1) 12' Omni (1) 10' Omni (1) 5' Omni On Side Arm Mounts	Connecticut State Police Department	(2) 1-5/8" (1) 1/2" (4) 3/8"	Existing
140	(9) 4' Panels On Sector Frame Mounts	AT&T	(9) 1-5/8"	Existing
138 133 133	(1) 10' Omni (1) 12' Omni (1) 10' Omni On Side Arm Mounts	Connecticut State Police Department	(3) 1-5/8"	Existing
129	(2) RFS 6' Dishes on Pipe Mounts	Connecticut State Police Department	(1) 1-5/8" (1) EW52	Existing
121	(1) 10' Omni on Side Arm Mount	Connecticut State Police Department	(1) 1-5/8"	Existing
93	(1) 21' Dipole on Side Arm Mount	FBI	(1) 1/2"	Existing
91.3	(1) 13' Omi on Side Arm Mount	Connecticut DMV	(1) 7/8"	Existing
90	(1) GPS Unit on Side Arm Mount	Sprint	(1) 1/2"	Existing
74	(1) 21' Dipole on Side Arm Mount	CMED	(1) 7/8"	Existing

** Refer to attached drawing CT-0058-TP for required coax layout.*

[A] Sprint is reserved an installation of (3) Decibel DB980H90E-M and (3) 1-5/8" coax in addition to their existing equipment.

2.0 Detailed Analysis Results

2.1 Tower Member Stress Levels

ELEVATION *(Ft. A.G.L.)*	LEGS*	BRACING / DIAGONALS*
160 to 180	0.38	0.64
140 to 160	0.83	0.59
120 to 140	0.73	0.74
100 to 120	0.71	0.64
80 to 100	0.90	0.75
60 to 80	0.82	0.78
40 to 60	0.96	0.82
20 to 40	0.87	0.85
0 to 20	0.97	0.88

**Maximum Stress Ratio: 1.00=Full Allowable.*

2.2 Foundation Capacity

BASE REACTIONS	MAXIMUM	RESULT*
Shear (*kips*)	59.2	*Adequate*
Moment (*kip-feet*)	6291.9	*Adequate*
Axial (*kips*)	90.4	*Adequate*

**Based on comparison to original foundation design reactions by Rohn.*

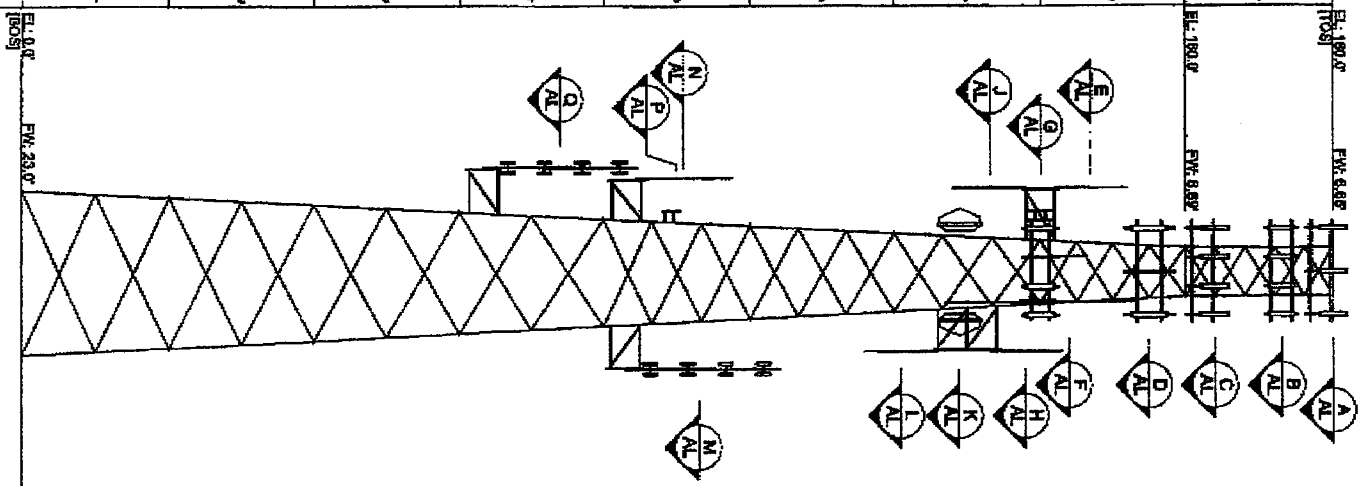
3.0 Conclusions and Recommendations

1. The tower and foundation ***are structurally adequate*** to accommodate the existing and proposed antenna and transmission line loading used in this analysis.

2. Any future changes in loading must be reviewed by the SpectraSite Engineering Department.

LEGS	50 KSI	8.625" OD x 0.375"		6.625" OD x 0.432"		5.500" OD x 0.375"		4.500" OD x 0.337"	3.500" OD x 0.216"	2.875" OD x 0.203"
DIAGONALS	50 KSI	L 4 x 4 x 0.313"	L 4 x 4 x 0.25"		L 3.5 x 3.5 x 0.25"	L 3 x 3 x 0.25"		L 2.5 x 2.5 x 0.25" *	L 2 x 2 x 0.25" *	L 1.75x1.75x0.188" *
HORIZONTALS	36 KSI	N/A							A	N/A A
DIAGONAL BOLTS	A325	(1) 3/4"Ø							(1) 5/8"Ø	
HORIZONTAL BOLTS	A325	N/A							B	N/A B
SPLICE BOLTS	A325	(8) 1"Ø			(6) 1"Ø			(4) 1"Ø	(4) 7/8"Ø	(4) 3/4"Ø
ANCHOR BOLTS	A354, GR. BC	(10) 1"Ø x 76" LG								
SECTION		1	2	3	4	5	6	7	8	9

MATERIAL SCHEDULE
A = L 2 x 2 x 0.125"
B = (1) 5/8"Ø
* = 36 KSI



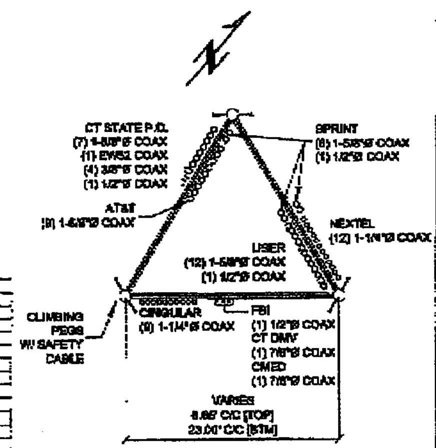
NOTE:
[TOS] TOP OF SELF SUPPORT STRUCTURE
[BOS] BOTTOM OF SELF SUPPORT STRUCTURE

DESIGN SPECIFICATIONS	
CODE:	ANSI/TIA/EIA-222-F 2003 INTERNATIONAL BUILDING CODE
WIND:	85 MPH [FAIRFIELD COUNTY EIA] 100 MPH [2003 IBC]
ICE:	50 MPH W/ 3/4" RADIAL [2003 IBC]

TOWER IDENTIFICATION	
MANUFACTURER:	ROHN
IDENTIFICATION No:	31707JC; DWG. C961762

NO.	ELEV.	ANTENNA TYPE	ANT. DIMS. (LxWxD)	AZIMUTH	MOUNT	TX-LINE	CUSTOMER	STATUS
A	180.0'	(6) CELWAVE APL868013-42T4	48" x 6" x 8"	23°,143°,263°	SECTOR FRAME	(9) 1-1/4"	CINGULAR	REDO
B	175.0'	(12) SWEDCOM ALP-9211	43" x 6.5" x 8"	40°,160°,280°	SECTOR FRAME	(12) 1-5/8"	USER	E
B	173.0'	(1) GENERIC GPS	-	0°	SECTOR FRAME	(1) 1/2"	USER	E
C	164.0'	(12) DECIBEL DB844H90E-XY	48" x 6.5" x 8"	60°,180°,300°	SECTOR FRAME	(12) 1-1/4"	NEXTEL	E
D	156.0'	(6) DECIBEL DB980H90E-M	60" x 6" x 2.75"	0°,120°,240°	SECTOR FRAME	(6) 1-5/8"	SPRINT	E
E	147.0'	(1) GENERIC OMNI	144"	0°	SECTOR FRAME	(1) 1-5/8"	CT STATE P.D.	E
E	147.0'	(1) GENERIC OMNI	120"	0°	SIDE ARM	(1) 1-5/8" / (4) 3/8"	CT STATE P.D.	E
F	144.0'	(1) GENERIC OMNI	60"	0°	SECTOR FRAME	(1) 1/2"	CT STATE P.D.	E
G	140.0'	(8) GENERIC PANELS	48" x 8"±	0°,120°,240°	SECTOR FRAME	(8) 1-5/8"	AT&T	E
H	138.0'	(1) GENERIC OMNI	120"	0°	SIDE ARM	(1) 1-5/8"	CT STATE P.D.	E
J	135.0'	(1) GENERIC OMNI	144"	0°	SECTOR FRAME	(1) 1-5/8"	CT STATE P.D.	E
J	135.0'	(1) GENERIC OMNI	120"	0°	SIDE ARM	(1) 1-5/8"	CT STATE P.D.	E
K	129.0'	(2) RFS DISH W/ RADOMES	72"Ø	0°,205°	PIPE	(1) 1-5/8" / (1) EW52	CT STATE P.D.	E
L	121.0'	(1) GENERIC OMNI	120"	0°	SIDE ARM	(1) 1-5/8"	CT STATE P.D.	E
M	93.0'	(1) GENERIC DIPOLE	256"	0°	SIDE ARM	(1) 1/2"	FBI	E
N	91.3'	(1) GENERIC OMNI	156"	0°	SIDE ARM	(1) 7/8"	CT DMV	E
P	80.0'	(1) GENERIC GPS	-	0°	SIDE ARM	(1) 1/2"	SPRINT	E
Q	74.0'	(1) GENERIC DIPOLE	256"	0°	SIDE ARM	(1) 7/8"	CMED	E

EXISTING ANTENNA INFORMATION



PLAN VIEW

ANTENNA STATUS LEGEND			
A	ABANDON	P	PROPOSED
E	EXISTING	R	RESERVED
I	INQUIRY	T	TEMPORARY
TBR	TO BE REMOVED		
RECO	RECONFIG. IN PROGRESS		

GENERAL NOTES
1) INSTALLATION SHALL NOT INTERFERE WITH OR DENY ACCESS TO OPERATIONAL AND SAFETY EQUIPMENT

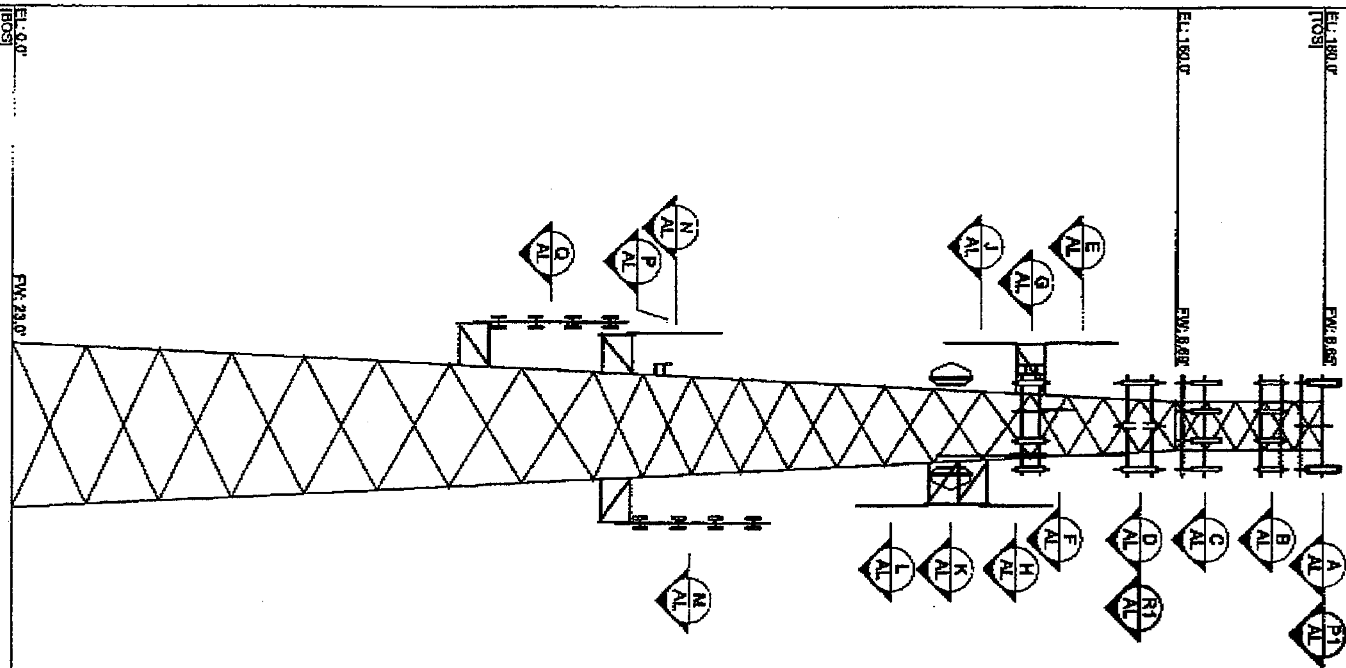
SEAL:

REV	DWN	CHK	DATE	DESCRIPTION
0	PAT	JMB	08/09/05	CREATED D1

SpectraSite
400 REGENCY FOREST DRIVE
CARY, NORTH CAROLINA 27511
PHONE: (919) 468-0112 / FAX: (919) 468-8522

TITLE: DESIGN PROFILE
PROJECT: 180' ROHN SSV SELF SUPPORT TOWER
SITE: REDDING, CT

DATE:	DWN:	CHK:	SITE #:	DWG #:	REV:
08/09/05	PAT		CT-0058	D1	0



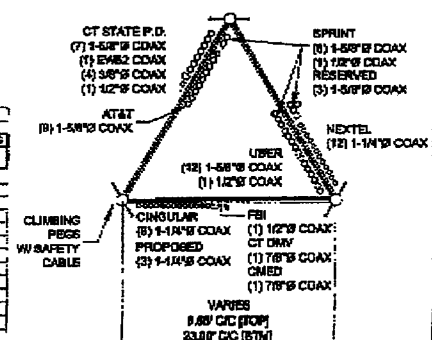
NOTE:
[TOS] TOP OF SELF SUPPORT STRUCTURE
[BOS] BOTTOM OF SELF SUPPORT STRUCTURE

NO.	ELEV	ANTENNA TYPE	ANT. DIMS. (LxWxD)	AZIMUTH	MOUNT	TX-LINE	CUSTOMER	STATUS
P1	180.0'	(6) POWERWAVE 7770.00	55" x 11" x 5"	23°,143°,263°	SECTOR FRAME	(12) 1-1/4"	CINGULAR	P
R1	155.0'	(3) DECIBEL DB980H90E-M	60" x 8" x 2.75"	0°,120°,240°	SECTOR FRAME	(3) 1-5/8"	SPRINT	R

PROPOSED ANTENNA INFORMATION

NO.	ELEV	ANTENNA TYPE	ANT. DIMS. (LxWxD)	AZIMUTH	MOUNT	TX-LINE	CUSTOMER	STATUS
A	180.0'	(6) CELWAVE APL868013-4214	48" x 8" x 8"	23°,143°,263°	SECTOR FRAME	(6) 1-1/4"	CINGULAR	REDO
B	173.0'	(12) SWEDCOM ALP-9011	43" x 8.5" x 8"	40°,160°,280°	SECTOR FRAME	(12) 1-5/8"	USER	E
B	173.0'	(1) GENERIC GPS	-	0°	SECTOR FRAME	(1) 1/2"	USER	E
C	164.0'	(12) DECIBEL DB844H90E-XY	48" x 6.5" x 8"	60°,180°,300°	SECTOR FRAME	(12) 1-1/4"	NEXTEL	E
D	155.0'	(6) DECIBEL DB980H90E-M	60" x 8" x 2.75"	0°,120°,240°	SECTOR FRAME	(6) 1-5/8"	SPRINT	E
E	147.0'	(1) GENERIC OMNI	144"	0°	SECTOR FRAME	(1) 1-5/8"	CT STATE P.D.	E
E	147.0'	(1) GENERIC OMNI	120"	0°	SIDE ARM	(1) 1-5/8" / (4) 3/8"	CT STATE P.D.	E
F	144.0'	(1) GENERIC OMNI	60"	0°	SECTOR FRAME	(1) 1/2"	CT STATE P.D.	E
G	140.0'	(9) GENERIC PANELS	45" x 8" ±	0°,120°,240°	SECTOR FRAME	(9) 1-5/8"	AT&T	E
H	138.0'	(1) GENERIC OMNI	120"	0°	SIDE ARM	(1) 1-5/8"	CT STATE P.D.	E
J	133.0'	(1) GENERIC OMNI	144"	0°	SECTOR FRAME	(1) 1-5/8"	CT STATE P.D.	E
J	133.0'	(1) GENERIC OMNI	120"	0°	SIDE ARM	(1) 1-5/8"	CT STATE P.D.	E
K	129.0'	(2) RFS DISH W/ RADOMES	72"Ø	0°,200°	PIPE	(1) 1-5/8" / (1) EW52	CT STATE P.D.	E
L	121.0'	(1) GENERIC OMNI	120"	0°	SIDE ARM	(1) 1-5/8"	CT STATE P.D.	E
M	93.0'	(1) GENERIC DIPOLE	255"	0°	SIDE ARM	(1) 1/2"	FBI	E
N	91.3'	(1) GENERIC OMNI	158"	0°	SIDE ARM	(1) 7/8"	CT DMV	E
P	80.0'	(1) GENERIC GPS	-	0°	SIDE ARM	(1) 1/2"	SPRINT	E
Q	74.0'	(1) GENERIC DIPOLE	265"	0°	SIDE ARM	(1) 7/8"	CMED	E

EXISTING ANTENNA INFORMATION



PLAN VIEW

ANTENNA STATUS LEGEND			
A	ABANDON	P	PROPOSED
E	EXISTING	R	RESERVED
I	INQUIRY	T	TEMPORARY
TBR	TO BE REMOVED		
REDO	REDO FOR IN PROGRESS		

GENERAL NOTES
1) INSTALLATION SHALL NOT INTERFERE WITH OR DENY ACCESS TO OPERATIONAL AND SAFETY EQUIPMENT

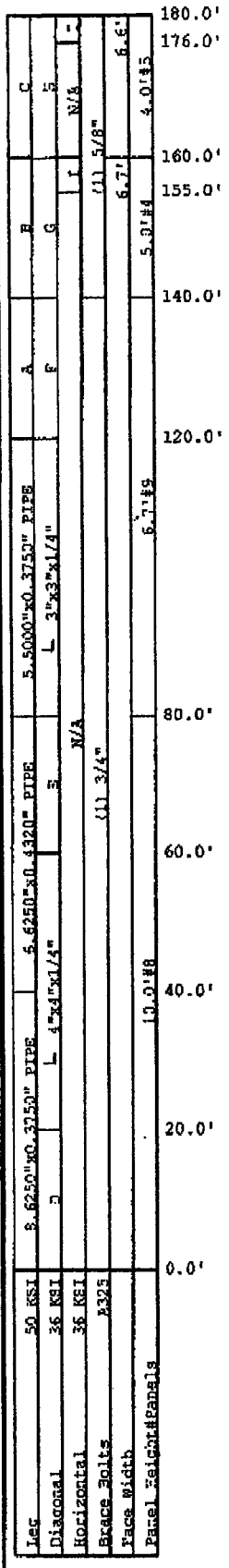
SEAL:

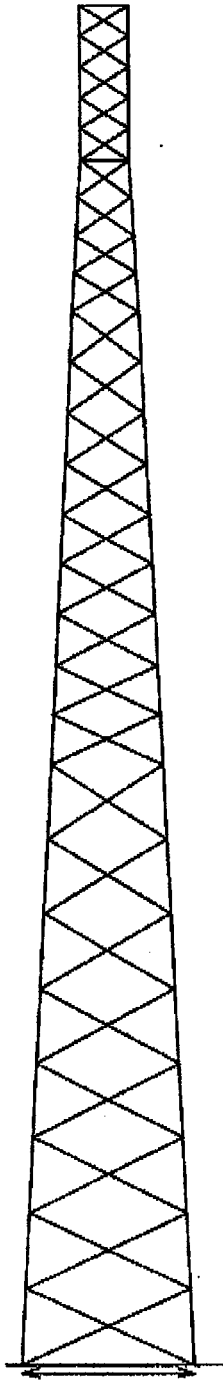
REV	DWN	CHK	DATE	DESCRIPTION
0	PAT	JMB	08/09/05	CREATED TP, PROPOSED CINGULAR RECO

SpectraSite
400 REGENCY FOREST DRIVE
CARY NORTH CAROLINA 27511
PHONE:(919)468-0112 / FAX:(919)468-8522

TITLE: TOWER PROFILE
PROJECT: 180' ROHN SSV SELF SUPPORT TOWER
SITE: REDDING, CT

DATE:	DWN:	CHK:	SITE #:	DWG #:	REV:
08/09/05	PAT		CT-0058	TP	C





ELEVATION

PLAN AT BASE

PLAN AT TOP

NOTES:
1. Horizontal connections are (1) 5/8", A325, bolt, full height.
2. Anchor bolts are (10) 1" x 78", A354, Gd. BC, per leg.

MATERIAL LIST

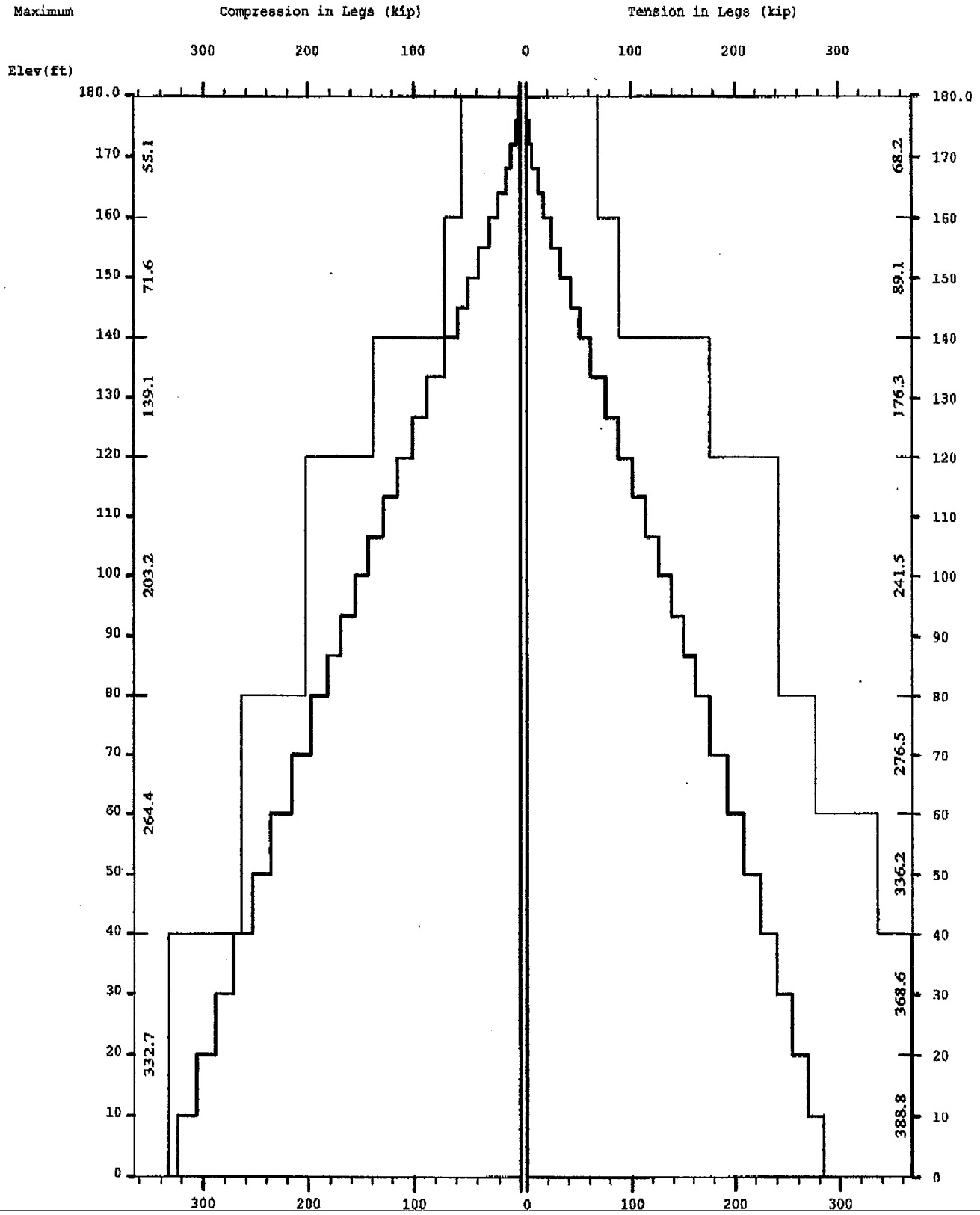
NO	TYPE
A	4.5000"x0.3370" PIPE
B	3.5000"x0.2160" PIPE
C	2.8750"x0.2030" PIPE
D	L 4"x4"x5/16"
E	L 3-1/2"x3-1/2"x1/4"
F	L 2-1/2"x2-1/2"x1/4"
G	L 2"x2"x1/4"
H	L 1-3/4"x1-3/4"x3/16"
I	L 2"x2"x1/8"

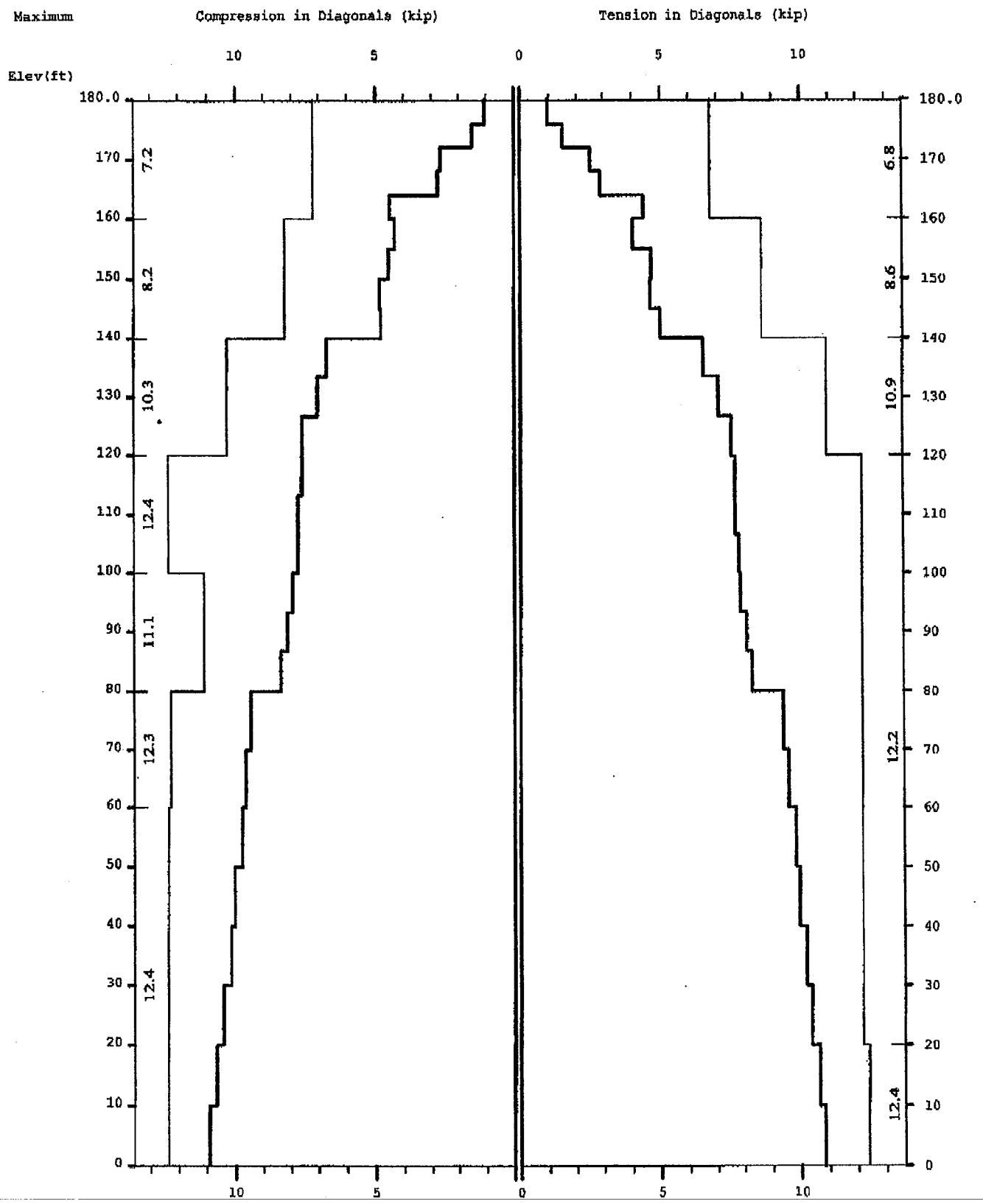
TOTAL FOUNDATION LOADS
R=59.22k
V=90.43k
M=6291.90k-ft
T=-5.31k-ft

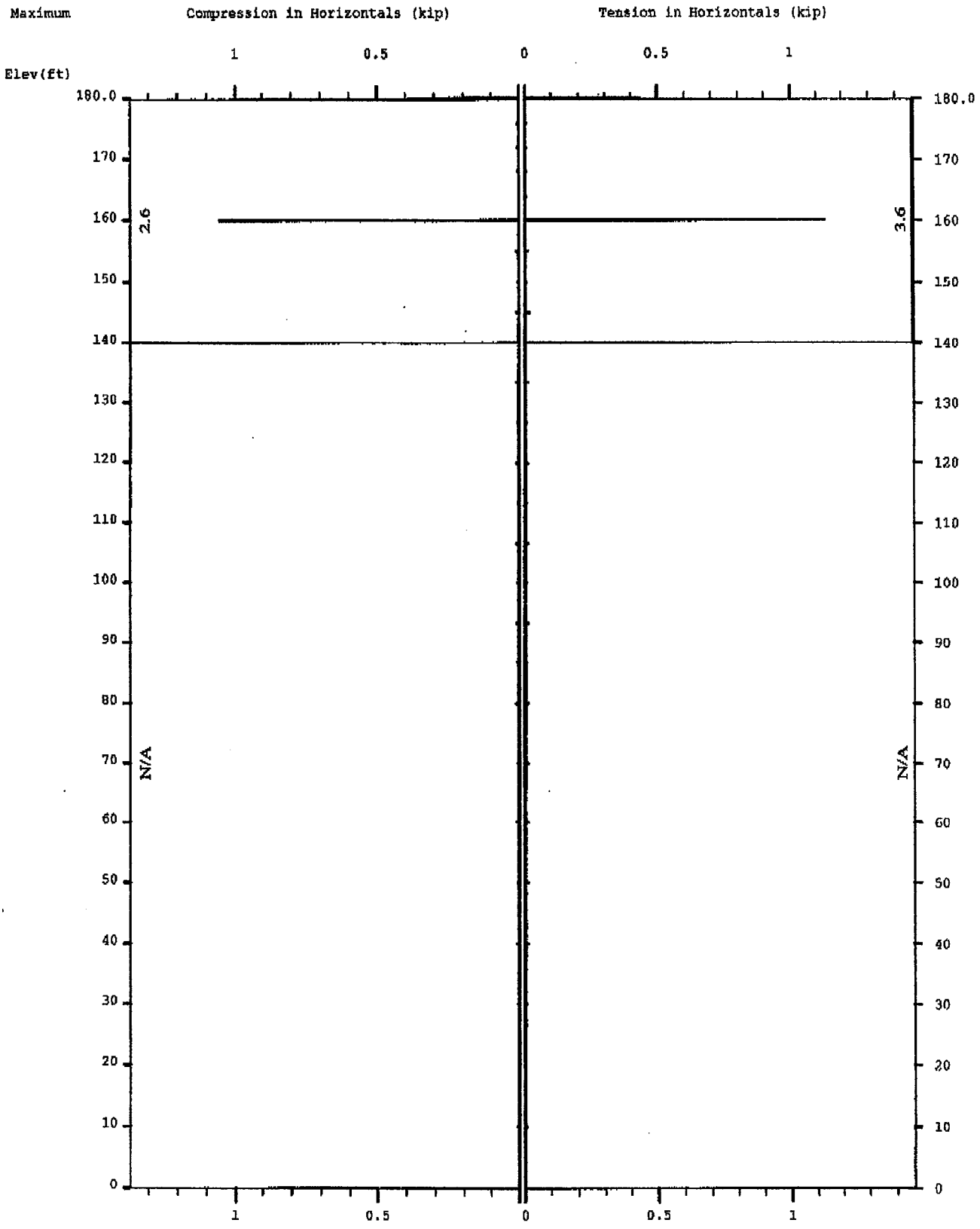
INDIVIDUAL FOOTING LOADS
R=35.30k
V=331.21k
U=-290.75k

SpectraSite Communications, Inc.
100 Regency Forest Drive, Suite 400, Cary, NC 27511
Phone: (919) 468-0112 Fax: (919) 468-8522

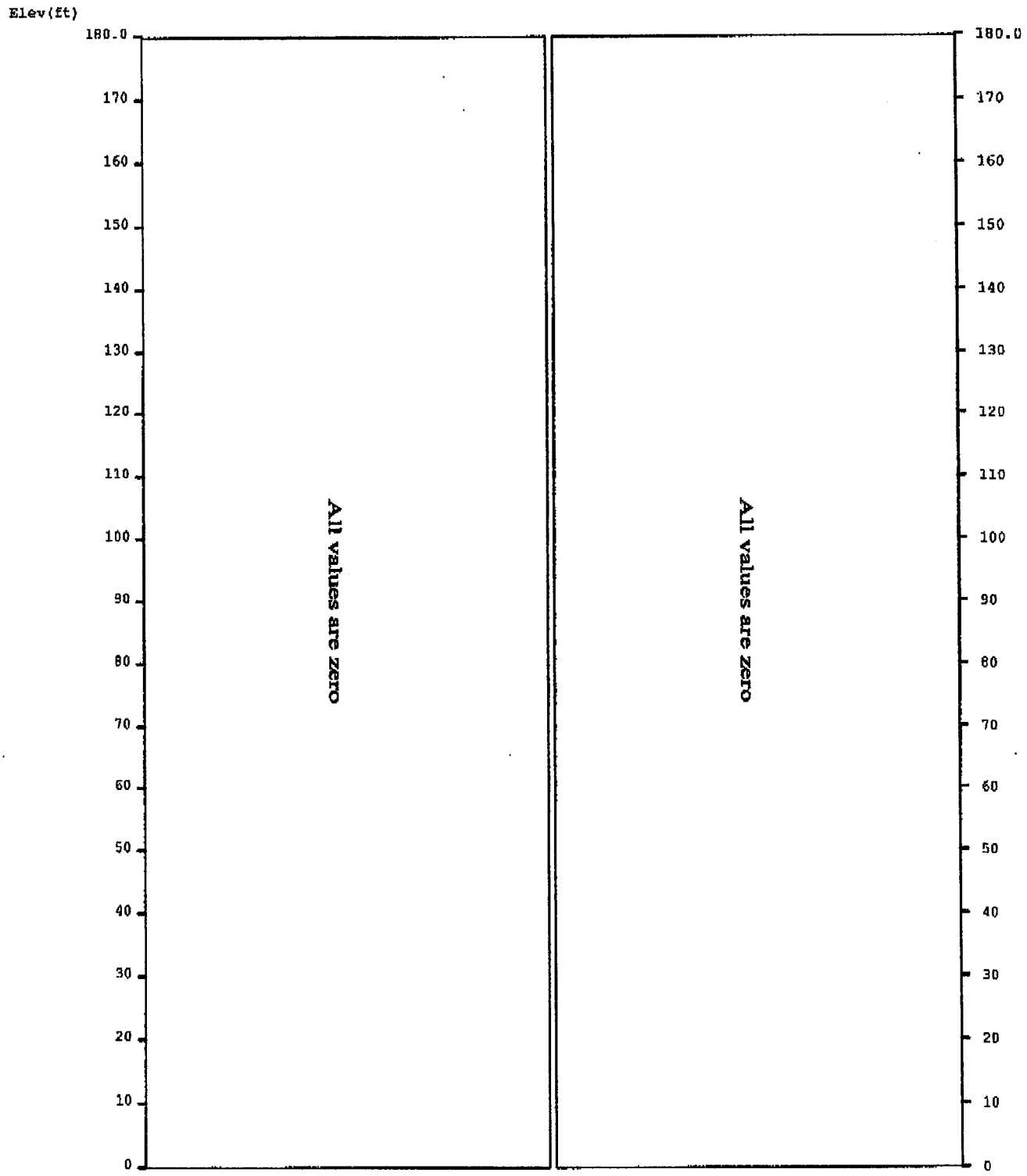
Client: Cingular Job No: CT-0058 Date: 22 aug 2005
Location: Redding, CT Tower Height: 180.00'
Standard: TIA/EIA-222-F / 2003 IBC Design Wind & Ice: 90 / 100 mph - 3/4" radial ice

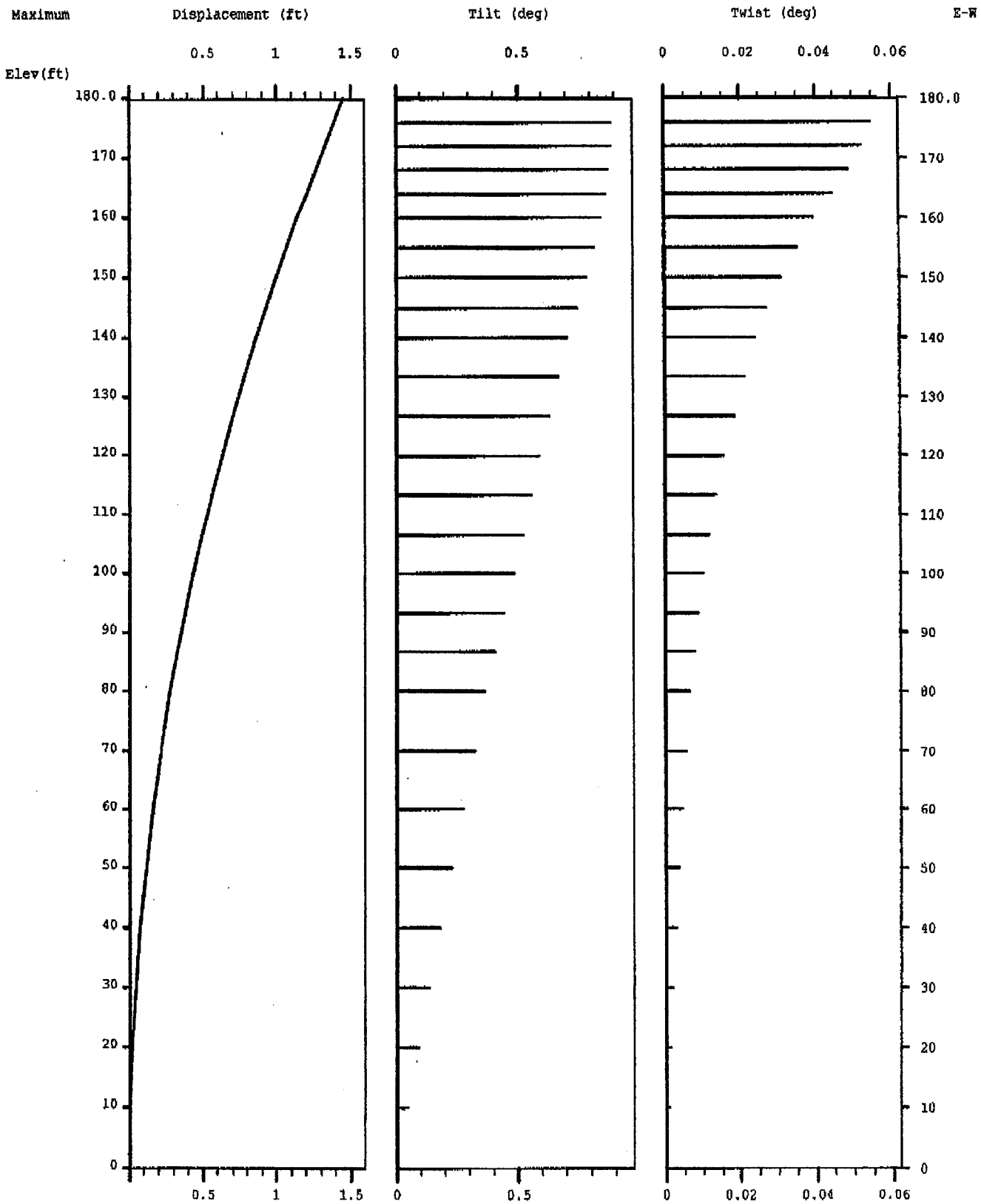

Maximum
Compression in Legs (kip)
Tension in Legs (kip)
Elev(ft)
300
200
100
0
100
200
300
180.0
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
55.1
71.6
139.1
203.2
264.4
332.7
68.2
89.1
176.3
241.5
276.5
336.2
368.6
388.8

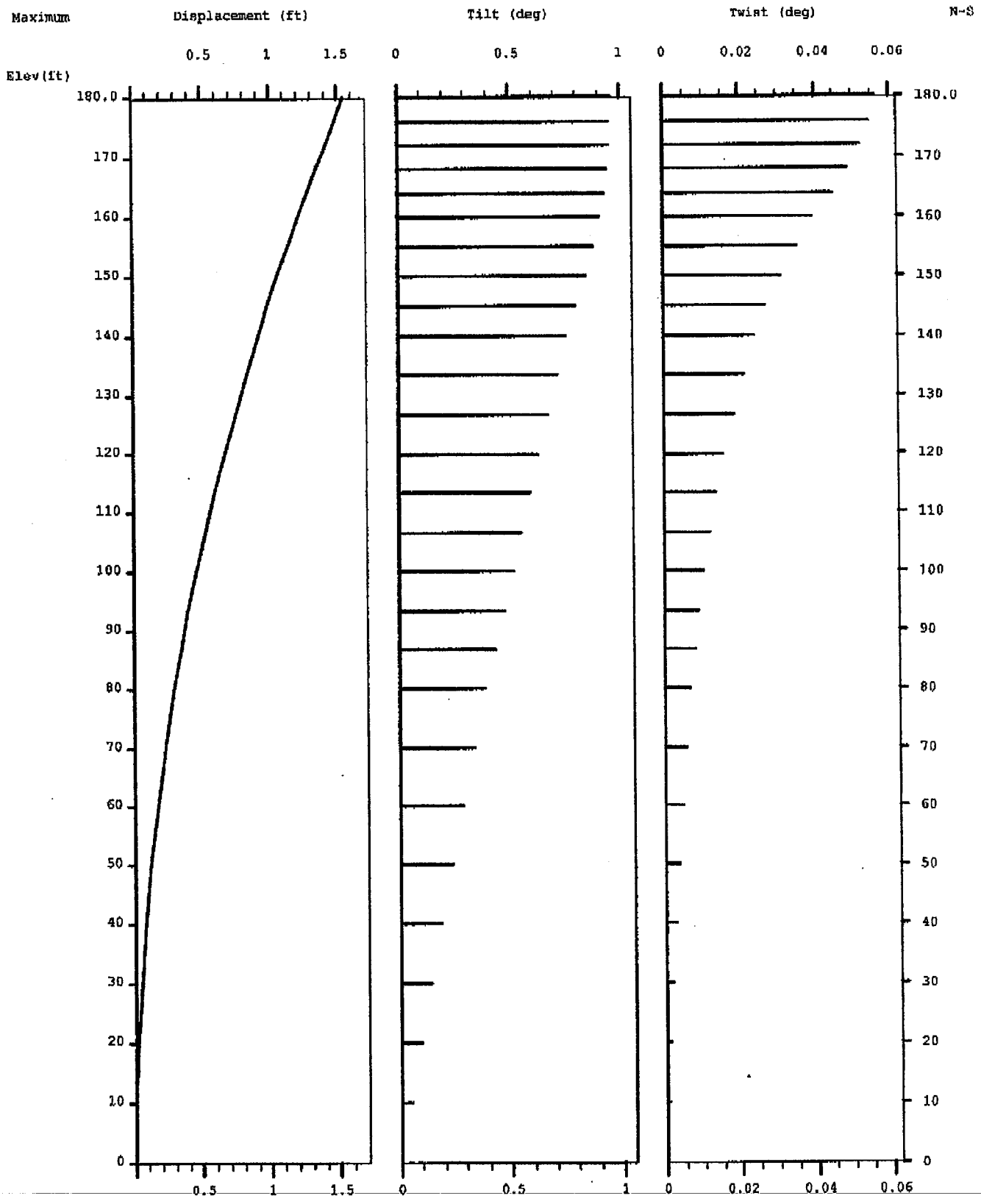

Maximum
Compression in Diagonals (kip)
Tension in Diagonals (kip)
Elev(ft)
10
5
0
5
10
180.0
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
7.2
8.2
10.3
12.4
11.1
12.3
12.4
6.8
8.6
10.9
12.2
12.4

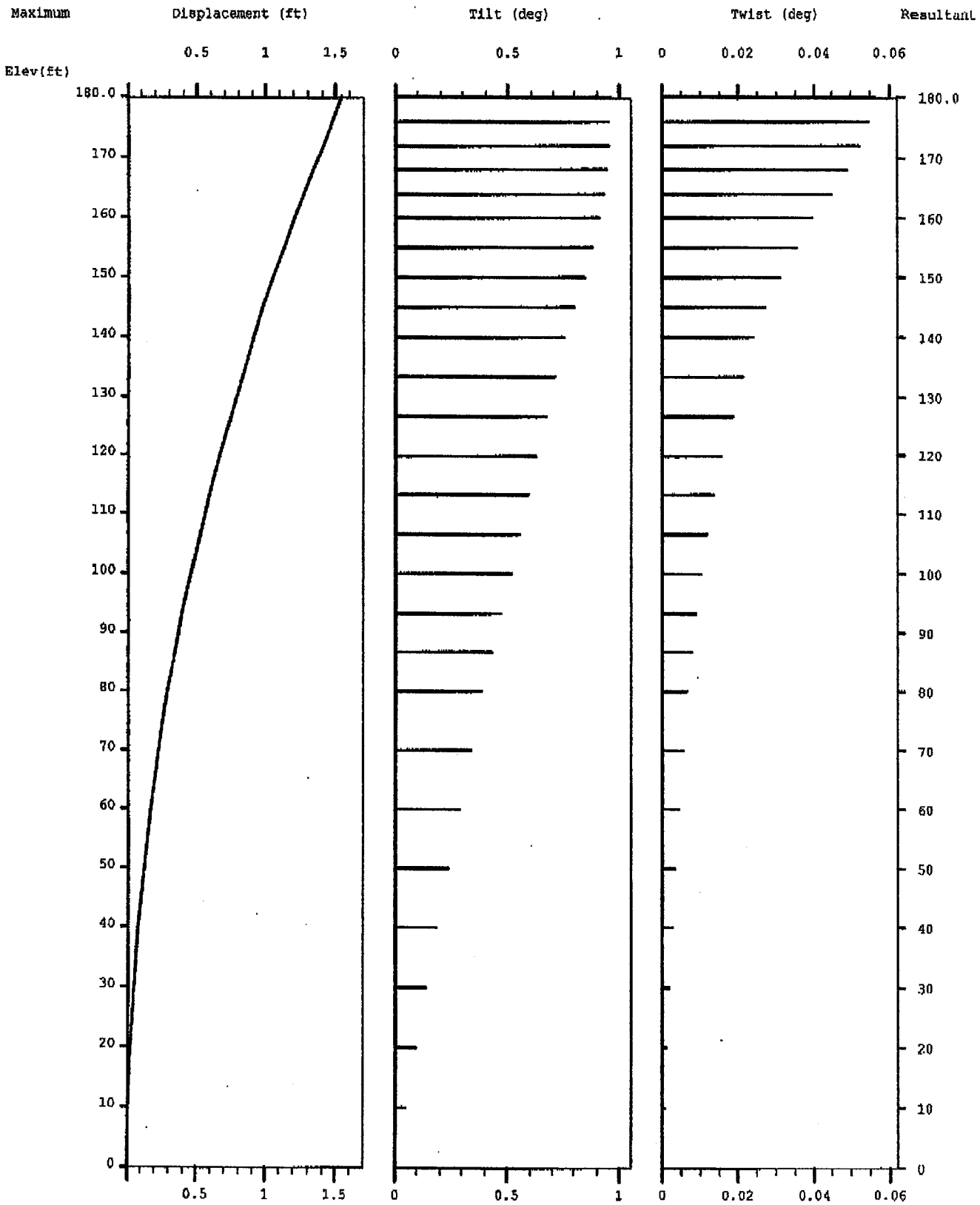

Maximum
Compression in Horizontals (kip)
Tension in Horizontals (kip)
Elev(ft)
1
0.5
0
0.5
1
180.0
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
2.6
3.6
N/A
N/A

Maximum Compression in Internal Braces (kip) Tension in Internal Braces (kip)



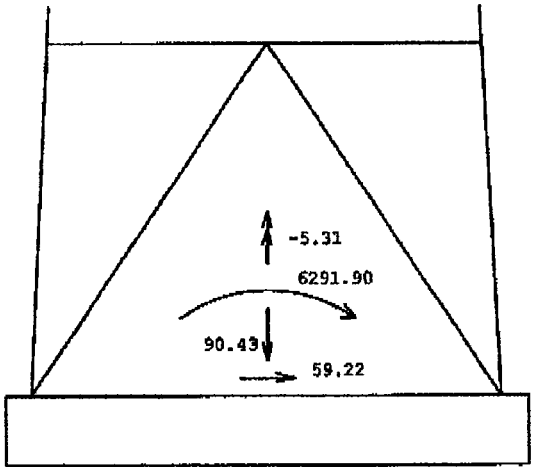

Maximum
Displacement (ft)
Tilt (deg)
Twist (deg)
E-W
Elev(ft)
0.5
1
1.5
0
0.5
0
0.02
0.04
0.06
180.0
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


Maximum
Displacement (ft)
Tilt (deg)
Twist (deg)
N-S
Elev(ft)
0.5 1 1.5
0 0.5 1
0 0.02 0.04 0.06
180.0
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


Maximum
Displacement (ft)
Tilt (deg)
Twist (deg)
Resultant
Elev(ft)
0.5
1
1.5
0
0.5
1
0
0.02
0.04
0.06
180.0
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

MAXIMUM FOR ALL LOAD CASES

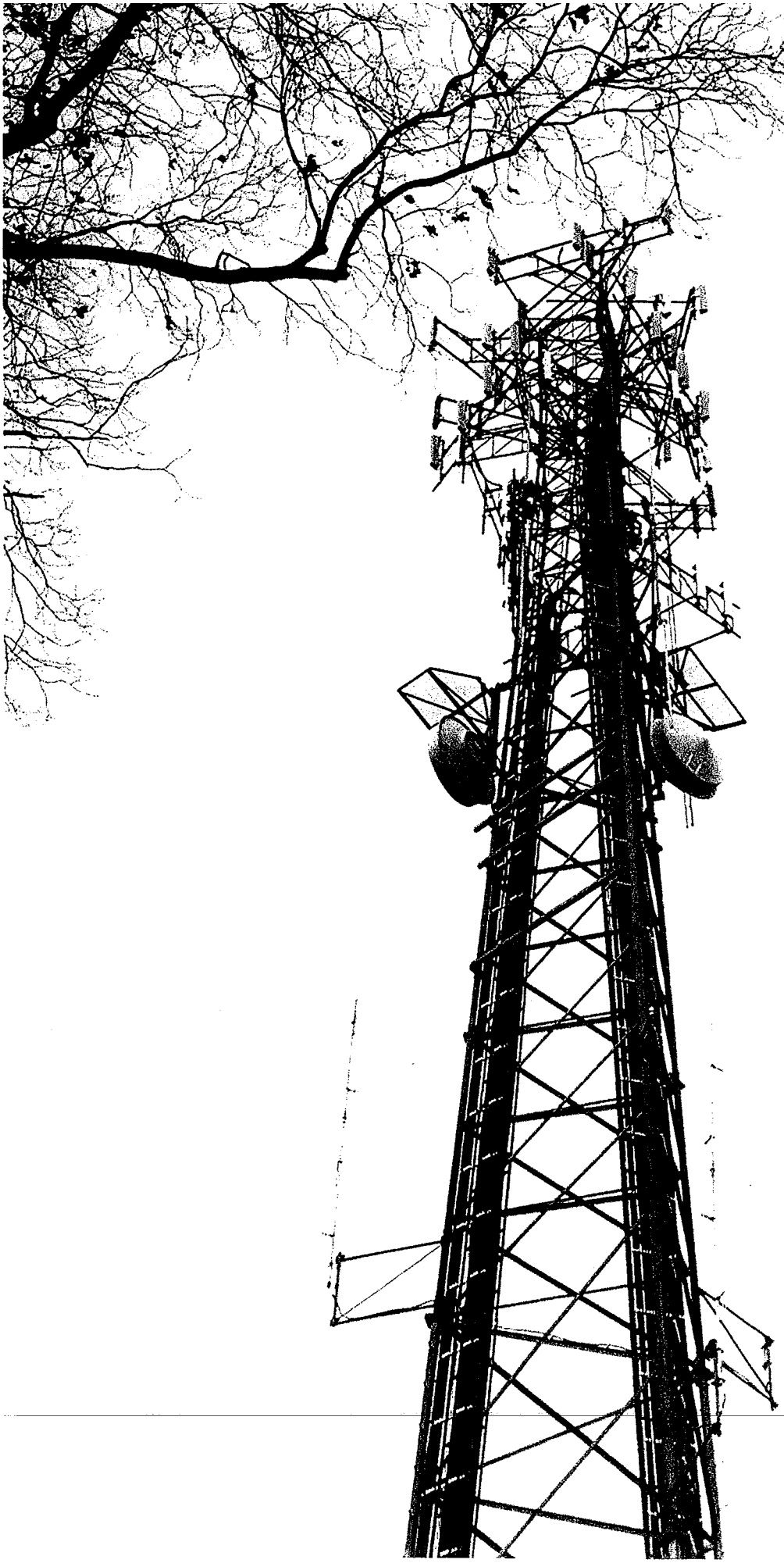
TOTAL FOUNDATION LOADS (kip, ft-kip)



INDIVIDUAL FOOTING LOADS (kip)

Site 3

Site 3



Site Specific Attachments

Site 4

1. Site Plans
2. Tower Structural Analysis
3. Site Photographs

APPROVALS

NAME (PRINT)	SIGNATURE	DATE
CINGULAR		
NAME (PRINT)	SIGNATURE	DATE
SAI		
NAME (PRINT)	SIGNATURE	DATE
SITING COUNCIL COMMITTEE		
NAME (PRINT)	SIGNATURE	DATE
OTHER		

DRAWING INDEX

		REV
2144 - T1	TITLE SHEET	0
2144 - C1	EQUIPMENT PLAN	0
2144 - C2	SITE ELEVATION & ANTENNA PLAN	0
2144 - C3	ANTENNA PLUMBING DIAGRAM-ALPHA-BETA-GAMMA	0
2144 - C4	RF DATA INFORMATION	0

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE NUMBER:	2144
SITE NAME:	MONROE
ADDRESS:	230 GUINRA RD
CITY, STATE ZIP	MONROE, CT
LATITUDE:	41.341761°
LONGITUDE:	-73.274961°
JURISDICTION:	FAIRFIELD COUNTY
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
SITE TYPE:	TRANSMISSION TOWER
RAD CENTER:	236'-0"
OWNER:	CINGULAR

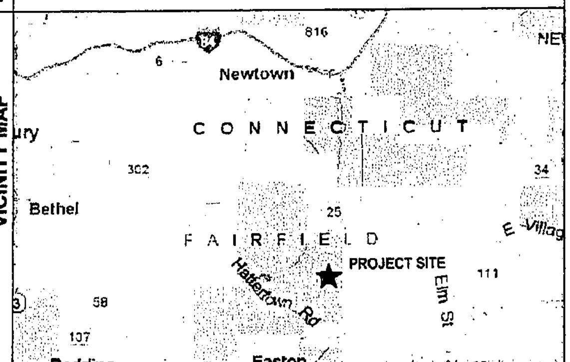
cingular WIRELESS

SITE NUMBER: 2144
SITE NAME: MONROE

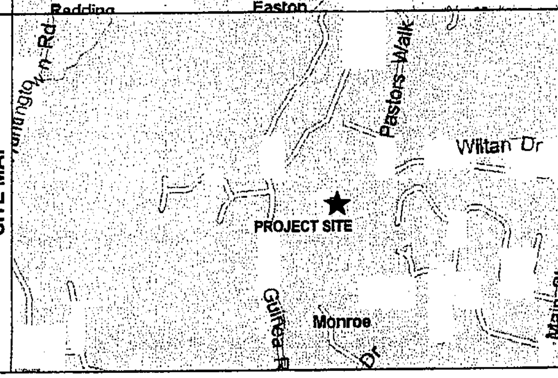
MAPS & DIRECTIONS

FROM I-84 EAST TAKE EXIT 10 TAKE THE RAMP TO THE US-6 EXIT AND TURN LEFT ON US-6 [CHURCH HILL RD]. TURN LEFT ONTO SR-25 [MAIN ST]. TURN RIGHT ONTO BRADFORD DR. TURN LEFT ONTO PASTORS WALK AND THE SITE WILL BE ON THE LEFT.

VICINITY MAP



SITE MAP



BLDG. CODES AND STANDARDS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE:
INTERNATIONAL BUILDING CODE (IBC), 2003

ELECTRICAL CODE:
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70 - 2002 NATIONAL ELECTRICAL CODE

LIGHTNING PROTECTION CODE:
NFPA 780 - 2000, LIGHTNING PROTECTION CODE

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS.
AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS

TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2144
SITE NAME:
MONROE
SITE ADDRESS:
230 GUINEA RD
MONROE, CT

IT IS A VIOLATION OF THE PROPRIETARY RIGHTS OF THE WIRELESS CARRIER TO ALTER THIS DOCUMENT UNLESS THEY ARE INSTRUCTED ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

DRAWN BY: GH

CHECKED BY: CP

PROJECT NO: [illegible]

SUBMITTALS

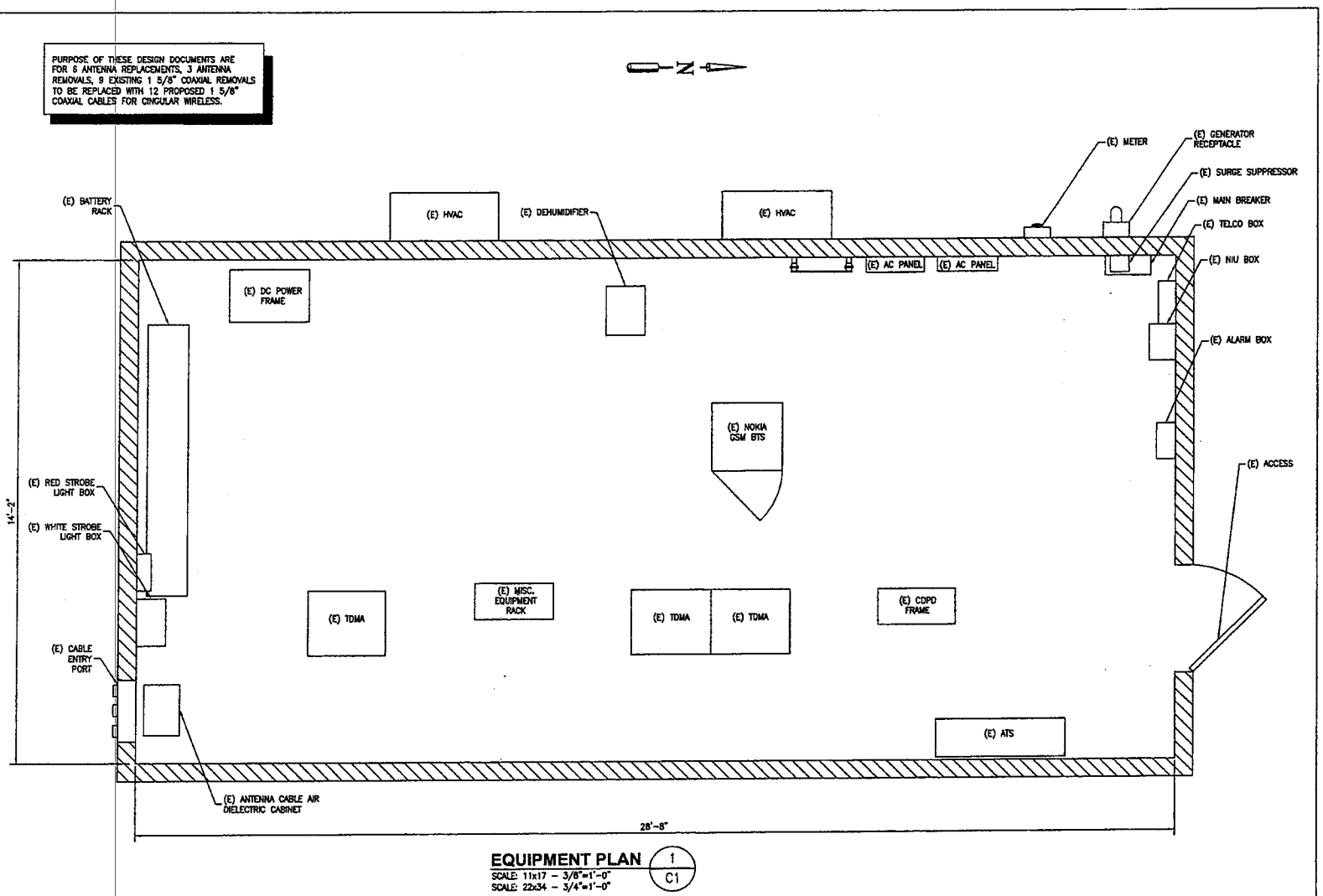
NO	DESCRIPTION	BY	DATE
0	SITING COMMITTEE CDB	GH	[illegible]

STATE OF CONNECTICUT — LICENSED PROFESSIONAL ENGINEER 1/8/06

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T1

PURPOSE OF THESE DESIGN DOCUMENTS ARE FOR 6 ANTENNA REPLACEMENTS, 3 ANTENNA REMOVALS, 9 EXISTING 1 5/8" COAXIAL REMOVALS TO BE REPLACED WITH 12 PROPOSED 1 5/8" COAXIAL CABLES FOR CINGULAR WIRELESS.



EQUIPMENT PLAN (1 / C1)

SCALE: 11x17 - 3/8"=1'-0"
SCALE: 22x34 - 3/4"=1'-0"

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2144
SITE NAME:
MONROE
SITE ADDRESS:
230 GUINEA RD
MONROE, CT

DRAWN BY: GH
CHECKED BY: CP
PROJECT NO: 0304A184-4005183

SUBMITTALS

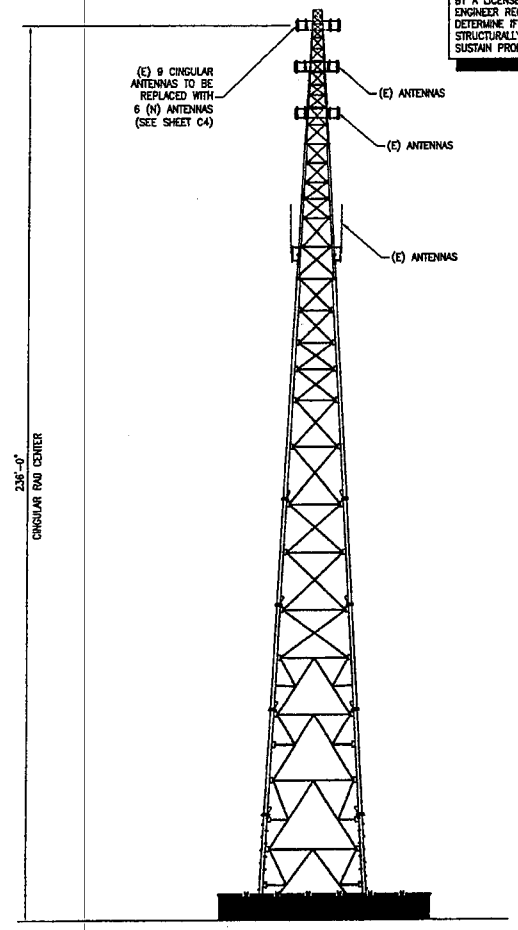
NO	DESCRIPTION	BY	DATE
0	ZONING COMMITTEE CDS	GH	08/24/05

9/8/05

SHEET TITLE
EQUIPMENT PLAN

SHEET NUMBER
C1

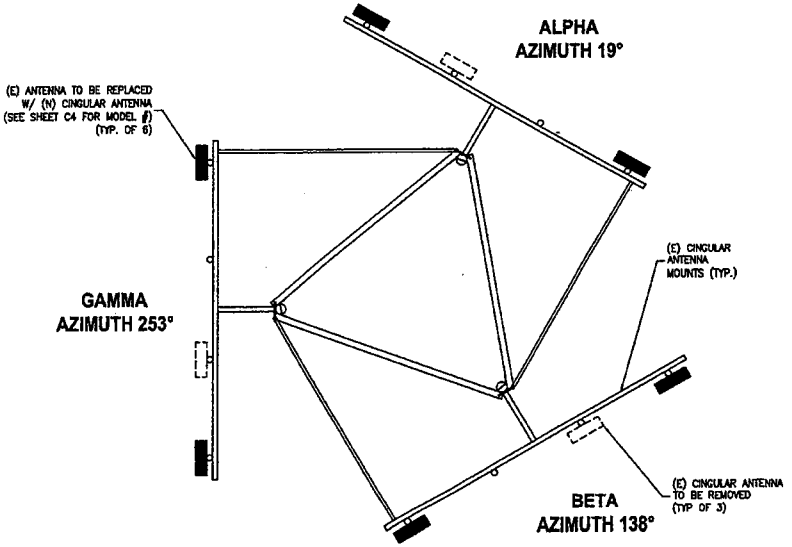
CONSTRUCTION SHALL NOT PROCEED UNTIL A STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN CT TO DETERMINE IF THE TOWER IS STRUCTURALLY ADEQUATE TO SUSTAIN PROPOSAL.



SITE ELEVATION 1 / C2

SCALE: 11x17 – NTS
SCALE: 22x34 – NTS

PURPOSE OF THESE DESIGN DOCUMENTS ARE FOR 6 ANTENNA REPLACEMENTS, 3 ANTENNA REMOVALS, 9 EXISTING 1 5/8" COAXIAL REMOVALS TO BE REPLACED WITH 12 PROPOSED 1 5/8" COAXIAL CABLES FOR CINGULAR WIRELESS.



ANTENNA PLAN VIEW 2 / C2

SCALE: 11x17 – NTS
SCALE: 22x34 – NTS

N

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2144
SITE NAME:
MONROE
SITE ADDRESS:
230 GUINEA RD
MONROE, CT

DRAWN BY: GH
CHECKED BY: CP
PROJECT NO: 05004184-M805183

SUBMITTALS

NO	DESCRIPTION	BY	DATE
0	SITING COMMITTEE CDS	GH	05/24/05

9/7/05

SHEET TITLE
SITE ELEVATION & ANT PLAN

SHEET NUMBER
C2

October 3, 2005

George Bullock
Site Acquisitions, Inc.
184 Rockingham Road
Unit A
Londonderry, NH 03052
(512) 921-1681

PSG Engineering, Ltd.
245 Commerce Green Blvd.
Suite 240
Sugar Land, TX 77478
Phone: (281) 343-7099
Fax: (281) 343-7127

Subject: **Structural Analysis Report**

Carrier Designation	***Cingular Wireless* Co-Locate** **Carrier Site Number:** *"2144"* **Carrier Site Name:** *"MONROE"*
Engineering Firm Designation	**PSG Engineering Project Number:** *0504A164-B010240*
Site Data	**230 Guinea Rd., Monroe, CT, Fairfield County** **Latitude *41°-20'-30.34"*, Longitude *-73°-16'-29.86"*.** *240* **Foot -** *Self Supporting* **Tower**

Dear Mr. Bullock,

PSG Engineering, Ltd. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the terms of Site Acquisitions, Inc. Purchase Order Number *CT-PSG-009*. The purpose of the analysis is to determine the suitability of the tower with the addition of the proposed equipment listed in Table 1 of this report when combined with the existing and reserved equipment on the structure. This analysis has been performed in accordance with the TIA/EIA 222-F standard based upon wind speed condition of 85 mph.

Based on our analysis we have determined the tower and foundation ***ARE*** sufficient for the proposed loading.

We at *PSG Engineering* appreciate the opportunity of providing our continuing professional services to you and Site Acquisitions, Inc. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

Oscar Pedraza, P.E.
President

TABLE OF CONTENTS

INTRODUCTION

This tower was designed by Rohn Industries on July 05, 1990 per RS-222-C using 40 psf with no ice.

ANALYSIS CRITERIA

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

- Basic wind speed of 85 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 74 mph is used in combination with ice.
- Deflections calculated using a wind speed of 50 mph.
- Feedline torque is considered.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.333

Table 1 – Proposed Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
236	6	Powerwave Technologies	7770.00	-	*12	*1 5/8
	6		LGP21401			
	6		LGP13519			

*Note: See Appendix B for Coaxial Cable Routing Plan.

Table 2 – Installed (I) and Reserved (R) Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
245	2(I)	Standard	10' Whip Antenna	Standoff Mounts (2)	2(I)	1 1/4
**236	**9(I)	**Allgon	**7120.16	T-Frames (3)	**9(I)	1 5/8
229	1(I)	Standard	6' Yagi Antenna	Leg Mount (1)	1(I)	1/2
226	9(I)	Decibel	DB844H90E-XY	T-Frames (3)	9(I)	1 5/8
206	2(I)	Standard	10' Whip Antenna	Standoff Mounts (2)	2(I)	1 1/4

**Note: Existing antennas and associated coax lines to be removed and replaced with proposed loads. Existing mounts to remain.

Table 3 – Original Tower Manufacturer Design Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
270	1	Unknown	35CP-2 Antenna	-	Unknown	
250	1	Unknown	5' Grid Dish	-		
240	3	Decibel	ASP8951	6' Side Arms		
220	4	Decibel	ASP951	-		
200	3	Unknown	5' Grid Dish	-		
	2	Unknown	VHF Antenna	6' Side Arms		
180	3	Unknown	VHF Antenna	6' Side Arms		
170	2	Unknown	VHF Antenna	6' Side Arms		
150	3	Unknown	VHF Antenna	8' Side Arms		

ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Reference	Source
Original Tower Manufacturer Design Drawing	Rohn Industries	Drawing No. C901329	Site Acquisitions, Inc.
Previous Tower Analysis	Walker Engineering	Site No. CT-0057	
Proposed Tower Loading	Cingular Wireless RF Data Sheet	RF Engineer: Francis Malabanan (860.513.7625)	

Analysis Methods

ERI Tower (Version 3.0.0.16), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA 222F or the local building code requirements. Selected output from the analysis is included in Appendix A.

Assumptions

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2.
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222F.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and PSG Engineering should be allowed to review any new information to determine its effect on the structural integrity of the tower.

ANALYSIS RESULTS

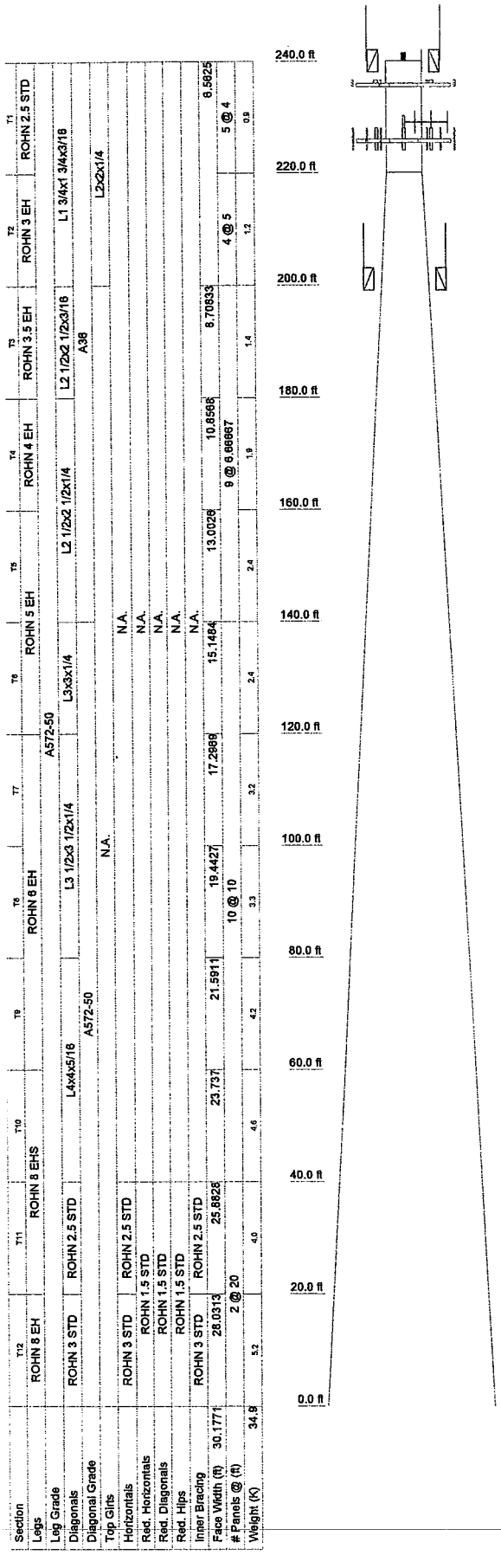
Table 5 – Tower Section Capacity

Section Number	Elevation (feet)	Leg Capacity (%)	Bracing Capacity (%)	Pass/Fail
1	220 - 240	29.8	62.5	Pass
2	200 - 220	42.9	80.6	Pass
3	180 - 200	57.9	77.7	Pass
4	160 - 180	62.7	88.8	Pass
5	140 - 160	53.6	100.5***	Pass
6	120 - 140	74.5	92.9	Pass
7	100 - 120	69.9	87.6	Pass
8	80 - 100	68.4	99.7	Pass
9	60 - 80	77.8	73.6	Pass
10	40 - 60	69.5	87.4	Pass
11	20 - 40	71.8	84.5	Pass
12	0 - 20	60.3	46.0	Pass
Base Foundation (Compared with original design loads)			≤109.4****	Pass

*** An overstress of 0.5% on the tower is deemed sufficient.
**** An overstress in the foundation of less than 10% when compared to the manufacturer's design reactions is deemed sufficient.

APPENDIX A

Output from Computer Programs



APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
10' Whip	245	PiROD 12' Lightweight T-Frame	236
10' Whip	245	(2) 7770.00 w/Mount Pipe	236
Pirod 4' Side Mount Standoff (1)	240	(2) LGP2140X (TMA)	236
Pirod 4' Side Mount Standoff (1)	240	6' Yagi	229
Generic C-2 Lightning Spur	240	2'6"x4" Pipe Mount	229
Flash Beacon Lighting	240	(3) DB844H90E-XY w/Mount Pipe	226
(2) LGP13519	236	PiROD 12' T-Frame	226
PiROD 12' Lightweight T-Frame	236	(3) DB844H90E-XY w/Mount Pipe	226
(2) 7770.00 w/Mount Pipe	236	PiROD 12' T-Frame	226
(2) LGP2140X (TMA)	236	(3) DB844H90E-XY w/Mount Pipe	226
(2) LGP13519	236	PiROD 12' T-Frame	226
PiROD 12' Lightweight T-Frame	236	10' Whip	206
(2) 7770.00 w/Mount Pipe	236	10' Whip	206
(2) LGP2140X (TMA)	236	Pirod 4' Side Mount Standoff (1)	201
(2) LGP13519	236	Pirod 4' Side Mount Standoff (1)	201

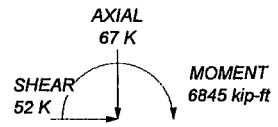
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

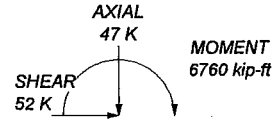
TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 100.5%

MAX PIER FORCES:
DOWN: 284 K
UPLIFT: -228 K
SHEAR: 31 K



TORQUE 46 kip-ft
74 mph WIND - 0.5000 in ICE



TORQUE 63 kip-ft
REACTIONS - 85 mph WIND

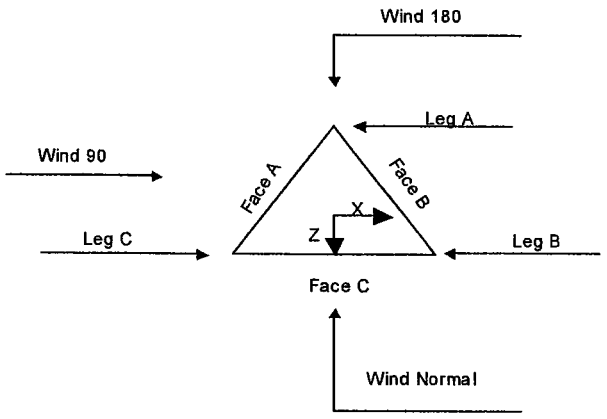
PSG Engineering, Ltd.
8206 Forest Gate Drive
Sugar Land, Texas
Phone: 281.343.7099
FAX: 281.343.7127

Job: ***PSG Engineering Project Number: 0504A164-B01024***
Project: ***(2144) (MONROE)***
Client: Site Acquisitions, Inc. | Drawn by: Jamal Huwel | App'd:
Code: TIA/EIA-222-F | Date: 10/03/05 | Scale: NTS
Path: C:\Documents and Settings\lopedraza.PSG\Desktop\New Job Format\0504A164\2144.eri | Dwg No. E-1

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 240' above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 6'6-3/4" at the top and 30'2-1/8" at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
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.



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	240'-220'			6'6-23/32"	1	20'
T2	220'-200'			6'6-23/32"	1	20'
T3	200'-180'			8'8-17/32"	1	20'
T4	180'-160'			10'10-5/16"	1	20'
T5	160'-140'			13'	1	20'
T6	140'-120'			15'1-13/16"	1	20'
T7	120'-100'			17'3-19/32"	1	20'
T8	100'-80'			19'5-9/32"	1	20'
T9	80'-60'			21'7-3/32"	1	20'
T10	60'-40'			23'8-7/8"	1	20'
T11	40'-20'			25'10-9/16"	1	20'
T12	20'-0'			28'3/8"	1	20'

Tower Section Geometry *(cont'd)*

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
T1	240'-220'	4'	X Brace	No	No	0.0000	0.0000
T2	220'-200'	5'	X Brace	No	No	0.0000	0.0000
T3	200'-180'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T4	180'-160'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T5	160'-140'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T6	140'-120'	10'	X Brace	No	No	0.0000	0.0000
T7	120'-100'	10'	X Brace	No	No	0.0000	0.0000
T8	100'-80'	10'	X Brace	No	No	0.0000	0.0000
T9	80'-60'	10'	X Brace	No	No	0.0000	0.0000
T10	60'-40'	10'	X Brace	No	No	0.0000	0.0000
T11	40'-20'	20'	K1 Down	No	Yes	0.0000	0.0000
T12	20'-0'	20'	K1 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 240'-220'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 220'-200'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T3 200'-180'	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T4 180'-160'	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 160'-140'	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T6 140'-120'	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T7 120'-100'	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T8 100'-80'	Pipe	ROHN 6 EH	A572-50	Equal Angle	L3 1/2x3 1/2x1/4	A572-50

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T9 80'-60'	Pipe	ROHN 6 EH	(50 ksi) A572-50 (50 ksi)	Equal Angle	L4x4x5/16	(50 ksi) A572-50 (50 ksi)
T10 60'-40'	Pipe	ROHN 8 EHS	(50 ksi) A572-50 (50 ksi)	Equal Angle	L4x4x5/16	(50 ksi) A572-50 (50 ksi)
T11 40'-20'	Pipe	ROHN 8 EHS	(50 ksi) A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	(50 ksi) A572-50 (50 ksi)
T12 20'-0'	Pipe	ROHN 8 EH	(50 ksi) A572-50 (50 ksi)	Pipe	ROHN 3 STD	(50 ksi) 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 240'-220'	Equal Angle	L2x2x1/4	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T2 220'-200'	Equal Angle	L2x2x1/4	A36 (36 ksi)	Flat Bar		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
T11 40'-20'	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T12 20'-0'	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	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
T11 40'-20'	Solid Round		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T12 20'-0'	Solid Round		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T11 40'-20'	A570-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 1.5 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 1.5 STD	1
T12 20'-0'	A570-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 1.5 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 1.5 STD	1

Tower Section Geometry *(cont'd)*

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
T1 240'-220'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 220'-200'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 200'-180'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 180'-160'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 160'-140'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 140'-120'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 120'-100'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 100'-80'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 80'-60'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T10 60'-40'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T11 40'-20'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T12 20'-0'	0.50	0.5000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 240'-220'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T2 220'-200'	No	No	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] X Brace Diags X	K Brace Diags X	Single Diags X	Girts X	Horiz. X	Sec. Horiz. X	Inner Brace X
				Y	Y	Y	Y	Y	Y	Y
				1	1	1	1	1	1	1
T3 200'-180'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T4 180'-160'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T5 160'-140'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T6 140'-120'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T7 120'-100'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T8 100'-80'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T9 80'-60'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T10 60'-40'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T11 40'-20'	No	No	1	1	0.85	1	1	1	1	1
				1	0.85	1	1	1	1	1
T12 20'-0'	No	No	1	1	0.85	1	1	1	1	1
				1	0.85	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 240'-220'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 220'-200'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 200'-180'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 180'-160'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 160'-140'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 140'-120'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 120'-100'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 100'-80'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 80'-60'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 60'-40'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 40'-20'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 20'-0'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

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 240'-220'	Flange	0.7500 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 220'-200'	Flange	0.8750 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 200'-180'	Flange	0.8750 A325N	4	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 180'-160'	Flange	1.0000 A325N	4	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 160'-140'	Flange	1.0000 A325N	4	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 140'-120'	Flange	1.0000 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 120'-100'	Flange	1.0000 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 100'-80'	Flange	1.0000 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 80'-60'	Flange	1.0000 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 60'-40'	Flange	1.0000 A325N	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 40'-20'	Flange	1.0000 A325N	8	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	2	0.6250 A325N	0
T12 20'-0'	Flange	1.0000 A325N	10	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	2	0.6250 A325N	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
EL. 236', 201'												
LDF6-50A (1-1/4 FOAM)	C	Yes	Ar (CfAe)	201' - 10'	0.0000	-0.4	2	2	0.0000	1.5500		0.66
CR 50 1873PE (1-5/8 FOAM)	C	Yes	Ar (CfAe)	236' - 10'	0.0000	-0.4	12	6	0.0000	1.9800		0.83
Feedline Ladder (Af)	C	No	Af (CfAe)	236' - 10'	0.0000	-0.4	1	1	0.0000	3.0000	12.0000	8.40
*												
*												
EL. 240',229',226' LEVEL												
LDF7-50A (1-5/8 FOAM)	A	Yes	Ar (CfAe)	226' - 10'	0.0000	-0.4	9	9	0.0000	1.9800		0.82
LDF4RN-50A (1/2 FOAM)	A	Yes	Ar (CfAe)	229' - 10'	0.0000	-0.4	1	1	0.0000	0.6300		0.15
LDF6-50A (1-1/4 FOAM)	A	Yes	Ar (CfAe)	240' - 10'	0.0000	-0.4	2	2	0.0000	1.5500		0.66
Feedline Ladder (Af)	A	Yes	Af (CfAe)	240' - 10'	0.0000	-0.4	1	1	0.0000	3.0000	12.0000	8.40
*												
*												
***TOWER												

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
HARDWARE ***												
Climbing Ladder (Ar)	A	No	Ar (Leg)	240' - 10'	0.0000	0	1	1	0.3750	0.3750		1.00
Climbing Ladder (Ar)	B	No	Ar (Leg)	240' - 10'	0.0000	0	1	1	0.3750	0.3750		1.00
Climbing Ladder (Ar)	C	No	Ar (Leg)	240' - 10'	0.0000	0	1	1	0.3750	0.3750		1.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
*							
*							
*							
*							

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	240'-220'	A	15.799	5.000	0.000	0.000	0.26
		B	1.250	0.000	0.000	0.000	0.02
		C	17.090	4.000	0.000	0.000	0.31
T2	220'-200'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	21.308	5.000	0.000	0.000	0.39
T3	200'-180'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41
T4	180'-160'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41
T5	160'-140'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41
T6	140'-120'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41
T7	120'-100'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41
T8	100'-80'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41
T9	80'-60'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41
T10	60'-40'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41

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
T11	40'-20'	A	37.167	5.000	0.000	0.000	0.36
		B	1.250	0.000	0.000	0.000	0.02
		C	26.217	5.000	0.000	0.000	0.41
T12	20'-0'	A	18.583	2.500	0.000	0.000	0.18
		B	0.625	0.000	0.000	0.000	0.01
		C	13.108	2.500	0.000	0.000	0.21

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
T1	240'-220'	A	0.500	11.546	16.614	0.000	0.000	0.43
		B		4.583	0.000	0.000	0.000	0.03
		C		8.557	18.089	0.000	0.000	0.52
T2	220'-200'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		9.762	22.740	0.000	0.000	0.65
T3	200'-180'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T4	180'-160'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T5	160'-140'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T6	140'-120'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T7	120'-100'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T8	100'-80'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T9	80'-60'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T10	60'-40'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T11	40'-20'	A	0.500	16.517	35.094	0.000	0.000	0.69
		B		4.583	0.000	0.000	0.000	0.03
		C		13.800	25.194	0.000	0.000	0.71
T12	20'-0'	A	0.500	8.258	17.547	0.000	0.000	0.35
		B		2.292	0.000	0.000	0.000	0.02
		C		6.900	12.597	0.000	0.000	0.36

Feed Line Shielding

Section	Elevation ft	Face	A_R ft²	A_R Ice ft²	A_F ft²	A_F Ice ft²

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T1	240'-220'	A	0.000	0.000	1.832	3.114
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.485	2.216
T2	220'-200'	A	0.000	0.000	3.201	5.122
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.569	2.347
T3	200'-180'	A	0.000	0.000	3.099	4.565
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.891	2.715
T4	180'-160'	A	0.000	0.000	2.932	4.319
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.789	2.568
T5	160'-140'	A	0.000	0.000	2.831	4.170
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.727	2.480
T6	140'-120'	A	0.000	0.000	2.404	3.417
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.467	2.032
T7	120'-100'	A	0.000	0.000	2.718	3.763
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.659	2.238
T8	100'-80'	A	0.000	0.000	2.656	3.677
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.620	2.187
T9	80'-60'	A	0.000	0.000	2.982	4.046
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.819	2.406
T10	60'-40'	A	0.000	0.000	2.941	3.991
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.795	2.373
T11	40'-20'	A	2.302	3.807	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	1.404	2.264	0.000	0.000
T12	20'-0'	A	1.253	2.003	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.765	1.191	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	240'-220'	-0.6192	6.8252	-0.2481	4.2764
T2	220'-200'	-5.3395	9.8946	-3.5851	6.6484
T3	200'-180'	-4.6065	12.1360	-3.7484	8.0782
T4	180'-160'	-5.1993	13.7493	-4.2718	9.2329
T5	160'-140'	-5.5332	14.6739	-4.6083	9.9822
T6	140'-120'	-6.4557	17.0897	-5.4917	11.8634
T7	120'-100'	-6.3243	16.8376	-5.4766	11.8802
T8	100'-80'	-6.8404	18.2316	-5.9321	12.8797
T9	80'-60'	-6.8700	18.4044	-6.0051	13.0866
T10	60'-40'	-6.7298	18.0423	-5.9641	13.0052
T11	40'-20'	-8.2257	21.9188	-6.7352	14.6802
T12	20'-0'	-4.7159	12.6029	-3.8973	8.5108

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert (ft / ft / ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (K)
EL. 240' LEVEL									
10' Whip	B	From Leg	4.00 0' 0'	0.0000	245'	No Ice 1/2" Ice	2.75 3.78	2.75 3.78	0.03 0.05
60" Standoff - Stub Mount	B	From Leg	2.67 0' 0'	0.0000	240'	No Ice 1/2" Ice	7.20 9.30	7.20 9.30	0.23 0.29
10' Whip	C	From Leg	4.00 0' 0'	0.0000	245'	No Ice 1/2" Ice	2.75 3.78	2.75 3.78	0.03 0.05
60" Standoff - Stub Mount	C	From Leg	2.67 0' 0'	0.0000	240'	No Ice 1/2" Ice	7.20 9.30	7.20 9.30	0.23 0.29
*									
*									
EL. 236' LEVEL									
(2) 7770.00 w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	5.98 6.44	4.12 4.77	0.05 0.10
(2) LGP2140X (TMA)	A	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	1.23 1.38	0.37 0.48	0.02 0.02
(2) LGP13519	A	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	0.34 0.42	0.21 0.28	0.01 0.01
PiROD 12' T-Frame	A	From Leg	2.67 0' 0'	0.0000	236'	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	0.36 0.49
(2) 7770.00 w/Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	5.98 6.44	4.12 4.77	0.05 0.10
(2) LGP2140X (TMA)	B	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	1.23 1.38	0.37 0.48	0.02 0.02
(2) LGP13519	B	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	0.34 0.42	0.21 0.28	0.01 0.01
PiROD 12' T-Frame	B	From Leg	2.67 0' 0'	0.0000	236'	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	0.36 0.49
(2) 7770.00 w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	5.98 6.44	4.12 4.77	0.05 0.10
(2) LGP2140X (TMA)	C	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	1.23 1.38	0.37 0.48	0.02 0.02
(2) LGP13519	C	From Leg	4.00 0' 0'	0.0000	236'	No Ice 1/2" Ice	0.34 0.42	0.21 0.28	0.01 0.01
PiROD 12' T-Frame	C	From Leg	2.67 0' 0'	0.0000	236'	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	0.36 0.49

ERITower	Job: PSG Engineering Project Number: 0504A164-B010240	Page: 11 of 19
PSG Engineering, Ltd. 8206 Forest Gate Drive Sugar Land, Texas Phone: 281.343.7099 FAX: 281.343.7127	Project: (2144) (MONROE)	Date: 17:30:32 10/03/05
	Client: Site Acquisitions, Inc.	Designed by: Jamal Huwel

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
*									
*									
EL. 229' LEVEL									
6' Yagi	A	From Leg	4.00 0' 0'	0.0000	229'	No Ice 1/2" Ice	4.20 4.68	4.20 4.68	0.01 0.03
2'6"x4" Pipe Mount	A	From Leg	2.67 0' 0'	0.0000	229'	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	0.03 0.04
*									
*									
EL. 226' LEVEL									
(3) DB844H90E-XY w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	226'	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	0.04 0.08
PiROD 12' T-Frame	A	From Leg	2.67 0' 0'	0.0000	226'	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	0.36 0.49
(3) DB844H90E-XY w/Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	226'	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	0.04 0.08
PiROD 12' T-Frame	B	From Leg	2.67 0' 0'	0.0000	226'	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	0.36 0.49
(3) DB844H90E-XY w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	226'	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	0.04 0.08
PiROD 12' T-Frame	C	From Leg	2.67 0' 0'	0.0000	226'	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	0.36 0.49
*									
*									
EL. 201' LEVEL									
10' Whip	B	From Leg	4.00 0' 0'	0.0000	206'	No Ice 1/2" Ice	2.75 3.78	2.75 3.78	0.03 0.05
60" Standoff - Stub Mount	B	From Leg	2.67 0' 0'	0.0000	201'	No Ice 1/2" Ice	7.20 9.30	7.20 9.30	0.23 0.29
10' Whip	C	From Leg	4.00 0' 0'	0.0000	206'	No Ice 1/2" Ice	2.75 3.78	2.75 3.78	0.03 0.05
60" Standoff - Stub Mount	C	From Leg	2.67 0' 0'	0.0000	201'	No Ice 1/2" Ice	7.20 9.30	7.20 9.30	0.23 0.29
*									
*									
TOWER HARDWARE									
Generic C-2 Lightning Spur	B	From Leg	0.00 0' 0'	0.0000	240'	No Ice 1/2" Ice	4.00 7.00	4.00 7.00	0.00 0.00
Flash Beacon Lighting	A	From Leg	0.00 0' 0'	0.0000	240'	No Ice 1/2" Ice	2.70 3.10	2.70 3.10	0.05 0.07

Load Combinations

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

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	240 - 220	7.101	35	0.2911	0.0605
T2	220 - 200	5.879	35	0.2760	0.0553
T3	200 - 180	4.749	35	0.2461	0.0483
T4	180 - 160	3.762	35	0.2112	0.0407
T5	160 - 140	2.924	35	0.1772	0.0348
T6	140 - 120	2.206	35	0.1507	0.0287
T7	120 - 100	1.608	31	0.1224	0.0241
T8	100 - 80	1.113	31	0.1010	0.0201

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T9	80 - 60	0.706	31	0.0788	0.0161
T10	60 - 40	0.398	31	0.0557	0.0131
T11	40 - 20	0.179	27	0.0354	0.0101
T12	20 - 0	0.051	27	0.0155	0.0041

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
245'	10' Whip	35	7.101	0.2911	0.0605	187129
240'	60" Standoff - Stub Mount	35	7.101	0.2911	0.0605	187129
236'	(2) 7770.00 w/Mount Pipe	35	6.854	0.2888	0.0595	187129
229'	6' Yagi	35	6.423	0.2842	0.0578	85058
226'	(3) DB844H90E-XY w/Mount Pipe	35	6.240	0.2818	0.0570	66832
206'	10' Whip	35	5.074	0.2562	0.0505	35265
201'	60" Standoff - Stub Mount	35	4.802	0.2478	0.0486	32379

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	240 - 220	20.493	23	0.8361	0.1749
T2	220 - 200	16.981	23	0.7942	0.1600
T3	200 - 180	13.725	23	0.7095	0.1396
T4	180 - 160	10.878	23	0.6098	0.1177
T5	160 - 140	8.456	23	0.5122	0.1008
T6	140 - 120	6.380	23	0.4360	0.0832
T7	120 - 100	4.647	23	0.3541	0.0699
T8	100 - 80	3.216	23	0.2921	0.0584
T9	80 - 60	2.036	23	0.2279	0.0466
T10	60 - 40	1.148	6	0.1611	0.0381
T11	40 - 20	0.516	2	0.1024	0.0294
T12	20 - 0	0.146	2	0.0447	0.0120

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
245'	10' Whip	23	20.493	0.8361	0.1749	69056
240'	60" Standoff - Stub Mount	23	20.493	0.8361	0.1749	69056
236'	(2) 7770.00 w/Mount Pipe	23	19.781	0.8298	0.1721	69056
229'	6' Yagi	23	18.544	0.8171	0.1672	31389
226'	(3) DB844H90E-XY w/Mount Pipe	23	18.018	0.8106	0.1649	24663
206'	10' Whip	23	14.664	0.7381	0.1462	12410
201'	60" Standoff - Stub Mount	23	13.879	0.7143	0.1408	11353

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 $\frac{P}{P_a}$
T1	240 - 220	ROHN 2.5 STD	20'	4'	50.7 K=1.00	24.247	1.7040	-17.84	41.32	0.432 ✓
T2	220 - 200	ROHN 3 EH	20'15/32"	5'1/8"	52.9 K=1.00	23.892	3.0159	-43.55	72.06	0.604 ✓
T3	200 - 180	ROHN 3.5 EH	20'15/32"	6'8-5/32"	61.3 K=1.00	22.487	3.6784	-66.98	82.72	0.810 ✓
T4	180 - 160	ROHN 4 EH	20'15/32"	6'8-5/32"	54.3 K=1.00	23.670	4.4074	-90.85	104.32	0.871 ✓
T5	160 - 140	ROHN 5 EH	20'15/32"	6'8-5/32"	43.6 K=1.00	25.319	6.1120	-114.81	154.75	0.742 ✓
T6	140 - 120	ROHN 5 EH	20'15/32"	10'1/4"	65.4 K=1.00	21.779	6.1120	-136.67	133.11	1.027 ✓
T7	120 - 100	ROHN 6 EH	20'15/32"	10'1/4"	54.8 K=1.00	23.589	8.4049	-160.96	198.26	0.812 ✓
T8	100 - 80	ROHN 6 EH	20'15/32"	10'1/4"	54.8 K=1.00	23.589	8.4049	-185.63	198.26	0.936 ✓
T9	80 - 60	ROHN 6 EH	20'15/32"	10'1/4"	54.8 K=1.00	23.589	8.4049	-210.77	198.26	1.063 ✓
T10	60 - 40	ROHN 8 EHS	20'15/32"	10'1/4"	41.2 K=1.00	25.666	9.7193	-236.15	249.45	0.947 ✓
T11	40 - 20	ROHN 8 EHS	20'15/32"	10'1/4"	41.2 K=1.00	25.666	9.7193	-243.85	249.45	0.978 ✓
T12	20 - 0	ROHN 8 EH	20'15/32"	10'1/4"	41.8 K=1.00	25.581	12.7627	-267.84	326.48	0.820 ✓

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 $\frac{P}{P_a}$
T1	240 - 220	L1 3/4x1 3/4x3/16	7'8-9/32"	3'8-13/32"	129.4 K=1.00	8.924	0.6211	-3.72	5.54	0.672 ✓
T2	220 - 200	L1 3/4x1 3/4x3/16	9'9-23/32"	4'10-11/16"	170.9 K=1.00	5.111	0.6211	-3.64	3.17	1.147 ✓
T3	200 - 180	L2 1/2x2 1/2x3/16	12'5-9/32"	6'2-3/4"	151.1 K=1.00	6.539	0.9020	-4.61	5.90	0.782 ✓
T4	180 - 160	L2 1/2x2 1/2x1/4	14'3-19/32"	7'1-11/16"	174.5 K=1.00	4.906	1.1900	-5.15	5.84	0.882 ✓
T5	160 - 140	L2 1/2x2 1/2x1/4	16'2-3/4"	8'19/32"	196.9 K=1.00	3.854	1.1900	-5.74	4.59	1.253 ✓

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	140 - 120	L3x3x1/4	19'6-1/4"	9'9-19/32"	198.7 K=1.00	3.782	1.4400	-6.95	5.45	1.276 ✓
T7	120 - 100	L3 1/2x3 1/2x1/4	21'4-11/16"	10'8-9/32"	184.8 K=1.00	4.374	1.6900	-7.70	7.39	1.042 ✓
T8	100 - 80	L3 1/2x3 1/2x1/4	23'3-23/32"	11'7-13/16"	201.4 K=1.00	3.682	1.6900	-8.43	6.22	1.354 ✗
		KL/R > 200 (C) - 164								
T9	80 - 60	L4x4x5/16	25'3-1/4"	12'7-7/16"	191.5 K=1.00	4.071	2.4000	-9.25	9.77	0.946 ✓
T10	60 - 40	L4x4x5/16	27'3"	13'6-3/8"	205.2 K=1.00	3.546	2.4000	-10.04	8.51	1.179 ✓
		KL/R > 200 (C) - 193								
T11	40 - 20	ROHN 2.5 STD	24'5-5/32"	12'2-5/8"	131.5 K=0.85	8.635	1.7040	-16.77	14.71	1.140 ✓
T12	20 - 0	ROHN 3 STD	25'23/32"	12'6-3/8"	109.8 K=0.85	12.377	2.2285	-17.09	27.58	0.620 ✓

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 $\frac{P}{P_a}$
T11	40 - 20	ROHN 2.5 STD	25'10-9/16"	12'6-31/32"	159.4 K=1.00	5.880	1.7040	-9.27	10.02	0.925 ✓
T12	20 - 0	ROHN 3 STD	28'3/8"	13'7-29/32"	140.8 K=1.00	7.529	2.2285	-9.99	16.78	0.595 ✓

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	240 - 220	L2x2x1/4	6'6-23/32"	6'3-27/32"	194.1 K=1.00	3.966	0.9380	-0.23	3.72	0.061 ✓
T2	220 - 200	L2x2x1/4	6'6-23/32"	6'3-27/32"	194.1 K=1.00	3.966	0.9380	-0.08	3.72	0.022 ✓

Inner Bracing 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 $\frac{P}{P_a}$
T11	40 - 20	ROHN 2.5 STD	12'11-9/32"	12'11-9/32"	163.9 K=1.00	5.558	1.7040	-0.02	9.47	0.002* ✓
T12	20 - 0	ROHN 3 STD	14'1/4"	14'1/4"	144.5	7.148	2.2285	-0.02	15.93	0.001*

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 $\frac{P}{P_a}$
					K=1.00					✓

* DL controls

Tension Checks

Leg 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	240 - 220	ROHN 2.5 STD	20'	4'	50.7	30.000	1.7040	13.64	51.12	0.267 ✓
T2	220 - 200	ROHN 3 EH	20'15/32"	5'1/8"	52.9	30.000	3.0159	36.62	90.48	0.405 ✓
T3	200 - 180	ROHN 3.5 EH	20'15/32"	6'8-5/32"	61.3	30.000	3.6784	57.21	110.35	0.518 ✓
T4	180 - 160	ROHN 4 EH	20'15/32"	6'8-5/32"	54.3	30.000	4.4074	77.49	132.22	0.586 ✓
T5	160 - 140	ROHN 5 EH	20'15/32"	6'8-5/32"	43.6	30.000	6.1120	97.29	183.36	0.531 ✓
T6	140 - 120	ROHN 5 EH	20'15/32"	10'1/4"	65.4	30.000	6.1120	115.26	183.36	0.629 ✓
T7	120 - 100	ROHN 6 EH	20'15/32"	10'1/4"	54.8	30.000	8.4049	134.78	252.15	0.535 ✓
T8	100 - 80	ROHN 6 EH	20'15/32"	10'1/4"	54.8	30.000	8.4049	154.47	252.15	0.613 ✓
T9	80 - 60	ROHN 6 EH	20'15/32"	10'1/4"	54.8	30.000	8.4049	174.06	252.15	0.690 ✓
T10	60 - 40	ROHN 8 EHS	20'15/32"	10'1/4"	41.2	30.000	9.7193	193.52	291.58	0.664 ✓
T11	40 - 20	ROHN 8 EHS	20'15/32"	10'1/4"	41.2	30.000	9.7193	198.46	291.58	0.681 ✓
T12	20 - 0	ROHN 8 EH	20'15/32"	10'1/4"	41.8	30.000	12.7627	216.99	382.88	0.567 ✓

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	240 - 220	L1 3/4x1 3/4x3/16	7'8-9/32"	3'8-13/32"	82.7	29.000	0.3779	3.67	10.96	0.335 ✓
T2	220 - 200	L1 3/4x1 3/4x3/16	9'9-23/32"	4'10-11/16"	109.3	29.000	0.3779	3.65	10.96	0.333 ✓

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 $\frac{P}{P_a}$
T3	200 - 180	L2 1/2x2 1/2x3/16	12'5-9/32"	6'2-3/4"	96.2	29.000	0.5886	4.57	17.07	0.268 ✓
T4	180 - 160	L2 1/2x2 1/2x1/4	14'3-19/32"	7'1-11/16"	111.4	29.000	0.7753	5.12	22.48	0.228 ✓
T5	160 - 140	L2 1/2x2 1/2x1/4	16'2-3/4"	8'19/32"	125.7	29.000	0.7753	5.75	22.48	0.256 ✓
T6	140 - 120	L3x3x1/4	19'6-1/4"	9'9-19/32"	126.5	32.500	0.9394	6.91	30.53	0.226 ✓
T7	120 - 100	L3 1/2x3 1/2x1/4	21'4-11/16"	10'8-9/32"	117.6	32.500	1.1269	7.65	36.62	0.209 ✓
T8	100 - 80	L3 1/2x3 1/2x1/4	23'3-23/32"	11'7-13/16"	128.2	32.500	1.1034	8.35	35.86	0.233 ✓
T9	80 - 60	L4x4x5/16	25'3-1/4"	12'7-7/16"	122.2	32.500	1.5949	9.20	51.84	0.177 ✓
T10	60 - 40	L4x4x5/16	27'3"	13'6-3/8"	130.9	32.500	1.5949	9.95	51.84	0.192 ✓
T11	40 - 20	ROHN 2.5 STD	24'5-5/32"	12'2-5/8"	154.7	30.000	1.7040	16.33	51.12	0.319 ✓
T12	20 - 0	ROHN 3 STD	25'23/32"	12'6-3/8"	129.2	30.000	2.2285	16.48	66.85	0.247 ✓

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 $\frac{P}{P_a}$
T11	40 - 20	ROHN 2.5 STD	25'10-9/16"	12'6-31/32"	159.4	30.000	1.7040	9.63	51.12	0.188 ✓
T12	20 - 0	ROHN 3 STD	28'3/8"	13'7-29/32"	140.8	30.000	2.2285	10.10	66.85	0.151 ✓

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	240 - 220	L2x2x1/4	6'6-23/32"	6'3-27/32"	124.6	29.000	0.5863	0.22	17.00	0.013 ✓
T2	220 - 200	L2x2x1/4	6'6-23/32"	6'3-27/32"	124.6	29.000	0.5863	0.05	17.00	0.003 ✓

Redundant Diagonal (1) 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 $\frac{P}{P_a}$
T11	40 - 20	ROHN 1.5 STD	11'7-9/16"	10'11-5/32"	210.6	30.000	0.7995	0.04	23.98	0.002* ✓
T12	20 - 0	ROHN 1.5 STD	11'11-1/32"	11'3"	216.9	30.000	0.7995	0.04	23.98	0.002* ✓

* DL controls

Redundant Hip 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 $\frac{P}{P_a}$
T11	40 - 20	ROHN 1.5 STD	15'3-1/8"	15'3-1/8"	294.2	30.000	0.7995	0.04	23.98	0.002* ✓
T12	20 - 0	ROHN 1.5 STD	15'11-3/4"	15'11-3/4"	307.9	30.000	0.7995	0.04	23.98	0.002* ✓

* DL controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	240 - 220	Leg	ROHN 2.5 STD	2	-17.84	55.08	32.4	Pass
T2	220 - 200	Leg	ROHN 3 EH	37	-43.55	96.05	45.3	Pass
T3	200 - 180	Leg	ROHN 3.5 EH	67	-66.98	110.26	60.8	Pass
T4	180 - 160	Leg	ROHN 4 EH	88	-90.85	139.06	65.3	Pass
T5	160 - 140	Leg	ROHN 5 EH	109	-114.81	206.28	55.7	Pass
T6	140 - 120	Leg	ROHN 5 EH	130	-136.67	177.44	77.0	Pass
T7	120 - 100	Leg	ROHN 6 EH	145	-160.96	264.28	60.9 73.1 (b)	Pass
T8	100 - 80	Leg	ROHN 6 EH	160	-185.63	264.28	70.2	Pass
T9	80 - 60	Leg	ROHN 6 EH	175	-210.77	264.28	79.8	Pass
T10	60 - 40	Leg	ROHN 8 EHS	190	-236.15	332.52	71.0	Pass
T11	40 - 20	Leg	ROHN 8 EHS	205	-243.85	332.52	73.3	Pass
T12	20 - 0	Leg	ROHN 8 EH	238	-267.84	435.20	61.5	Pass
T1	240 - 220	Diagonal	L1 3/4x1 3/4x3/16	8	-3.72	7.39	50.4 67.8 (b)	Pass
T2	220 - 200	Diagonal	L1 3/4x1 3/4x3/16	44	-3.64	4.23	86.0	Pass
T3	200 - 180	Diagonal	L2 1/2x2 1/2x3/16	71	-4.61	7.86	58.6 83.9 (b)	Pass
T4	180 - 160	Diagonal	L2 1/2x2 1/2x1/4	92	-5.15	7.78	66.1 93.6 (b)	Pass
T5	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	113	-5.74	6.11	94.0 104.5 (b)	Sufficient
T6	140 - 120	Diagonal	L3x3x1/4	134	-6.95	7.26	95.8	Pass
T7	120 - 100	Diagonal	L3 1/2x3 1/2x1/4	149	-7.70	9.85	78.2 89.7 (b)	Pass
T8	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	164	-8.43	8.29	101.6	Sufficient
T9	80 - 60	Diagonal	L4x4x5/16	179	-9.25	13.02	71.0 74.8 (b)	Pass

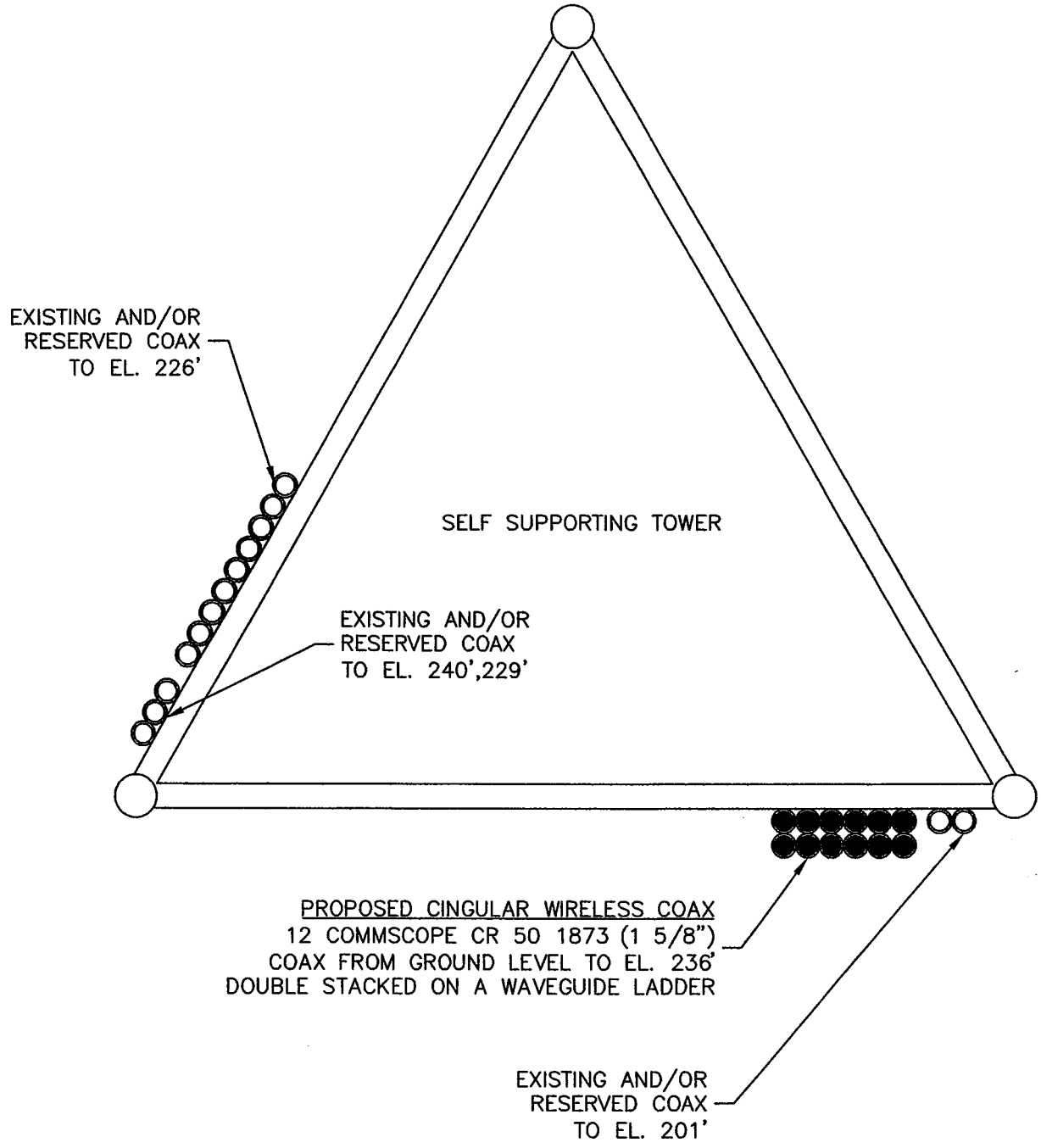
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T10	60 - 40	Diagonal	L4x4x5/16	193	-10.04	11.34	88.5	Pass
T11	40 - 20	Diagonal	ROHN 2.5 STD	209	-16.77	19.61	85.5	Pass
T12	20 - 0	Diagonal	ROHN 3 STD	242	-17.09	36.77	46.5	Pass
T11	40 - 20	Horizontal	ROHN 2.5 STD	208	-9.27	13.36	69.4	Pass
T12	20 - 0	Horizontal	ROHN 3 STD	241	-9.99	22.36	44.7	Pass
T1	240 - 220	Top Girt	L2x2x1/4	6	-0.23	4.96	4.5	Pass
T2	220 - 200	Top Girt	L2x2x1/4	42	-0.08	4.96	1.7	Pass
T11	40 - 20	Redund Horz 1 Bracing	ROHN 1.5 STD	210	0.00	0.00	0.1	Pass
T12	20 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	243	0.00	0.00	0.1	Pass
T11	40 - 20	Redund Diag 1 Bracing	ROHN 1.5 STD	211	0.04	23.98	0.2	Pass
T12	20 - 0	Redund Diag 1 Bracing	ROHN 1.5 STD	244	0.04	23.98	0.2	Pass
T11	40 - 20	Redund Hip 1 Bracing	ROHN 1.5 STD	222	0.00	0.00	0.1	Pass
T12	20 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	255	0.00	0.00	0.1	Pass
T11	40 - 20	Redund Hip Diagonal Bracing	ROHN 1.5 STD	232	0.04	23.98	0.2	Pass
T12	20 - 0	Redund Hip Diagonal Bracing	ROHN 1.5 STD	256	0.04	23.98	0.2	Pass
T11	40 - 20	Inner Bracing	ROHN 2.5 STD	235	-0.02	9.47	0.4	Pass
T12	20 - 0	Inner Bracing	ROHN 3 STD	270	-0.02	15.93	0.4	Pass

Summary

Leg (T9)	79.8	Pass
Diagonal (T5)	104.5	Sufficient
Horizontal (T11)	69.4	Pass
Top Girt (T1)	4.5	Pass
Redund Horz 1 Bracing (T12)	0.1	Pass
Redund Diag 1 Bracing (T11)	0.2	Pass
Redund Hip 1 Bracing (T12)	0.1	Pass
Redund Hip Diagonal Bracing (T12)	0.2	Pass
Inner Bracing (T12)	0.4	Pass
Bolt Checks	104.5	Sufficient
RATING =	**104.5**	**Sufficient**

APPENDIX B

Coaxial Cable Routing Plan



PSG

COAXIAL CABLE ROUTING PLAN

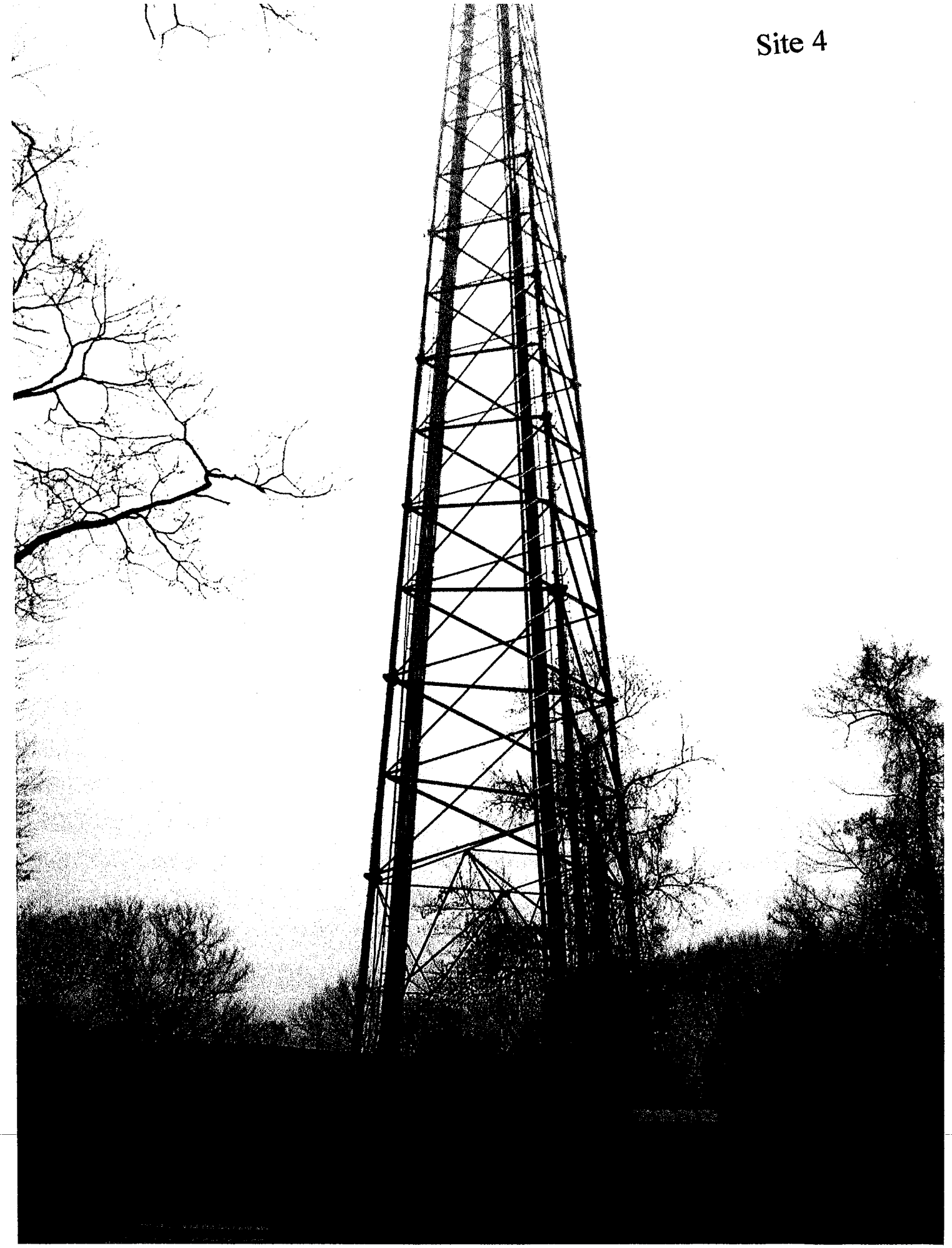
CINGULAR WIRELESS # 2144

PSG ENGINEERING PROJECT #0504A164-B010240

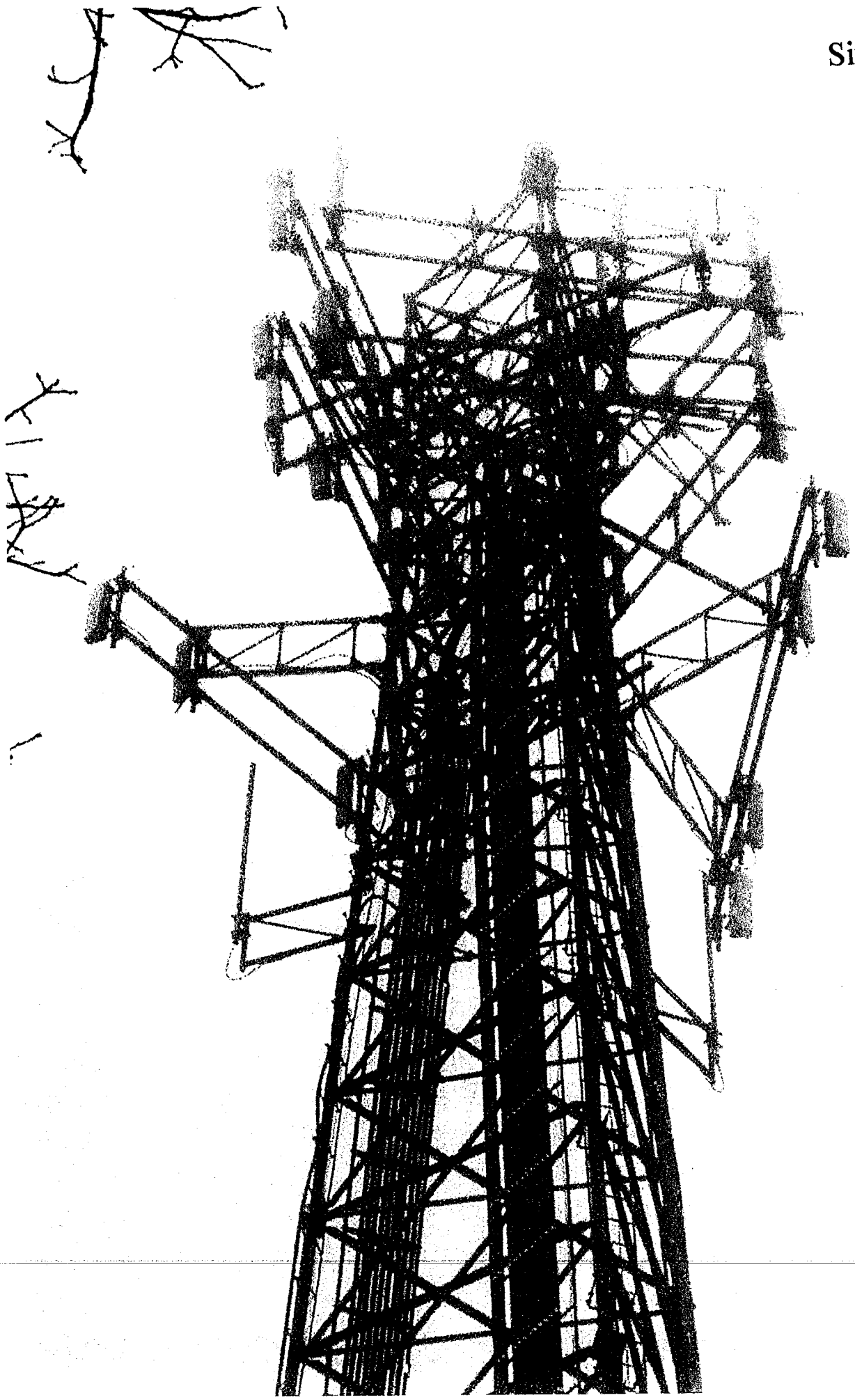
SCALE: N.T.S.	DATE: 10.03.05

Site 4

Site 4



Site 4



Site Specific Attachments

Site 5

1. Site Plans
2. Tower Structural Analysis
3. Site Photographs

APPROVALS

NAME (PRINT)	SIGNATURE	DATE
CINGULAR		
NAME (PRINT)	SIGNATURE	DATE
SAI		
NAME (PRINT)	SIGNATURE	DATE
SITING COUNCIL COMMITTEE		
NAME (PRINT)	SIGNATURE	DATE
OTHER		

cingular WIRELESS

SITE NUMBER: 2203

SITE NAME: MONROE - MOOSE HILL RD

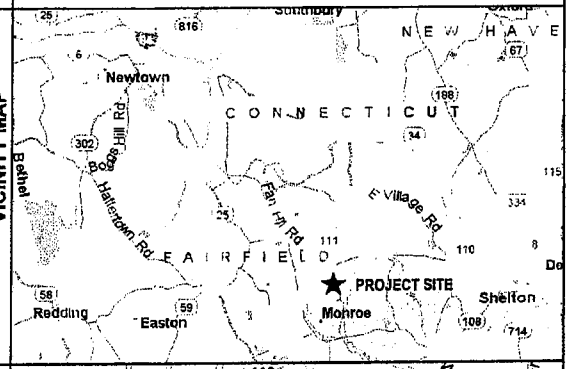
DRAWING INDEX

		REV
2203 - T1	TITLE SHEET	0
2203 - C1	EQUIPMENT PLAN	0
2203 - C2	SITE ELEVATION & ANTENNA PLAN	0
2203 - C3	ANTENNA PLUMBING DIAGRAM-ALPHA-BETA-GAMMA	0
2203 - C4	RF DATA INFORMATION	0

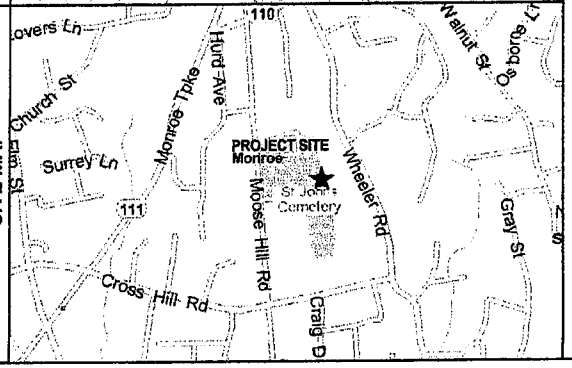
MAPS & DIRECTIONS

FROM I-84 EAST TAKE EXIT 11 AND TURN RIGHT ONTO MILE HILL RD. TURN RIGHT ONTO SR-34 [BERKSHIRE RD]. TURN RIGHT ONTO SR-111 [MONROE TPKE]. BEAR LEFT ONTO MOOSE HILL RD. SITE IS ON THE LEFT.

VICINITY MAP



SITE MAP



BLDG. CODES AND STANDARDS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE:
INTERNATIONAL BUILDING CODE (IBC), 2003

ELECTRICAL CODE:
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 70 – 2002 NATIONAL ELECTRICAL CODE

LIGHTNING PROTECTION CODE
NFPA 780 – 2000, LIGHTNING PROTECTION CODE

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS.
AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222 F, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICE ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS

TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM – DC POWER SYSTEMS – TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE NUMBER:	2203
SITE NAME:	MONROE – MOOSE HILL RD
ADDRESS:	500 MOOSE HILL RD
CITY, STATE ZIP	MONROE, CT
LATITUDE:	41.[illegible]964°
LONGITUDE:	-73.201425°
JURISDICTION:	FAIRFIELD COUNTY
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
SITE TYPE:	MONOPOLE
RAD CENTER:	138'-0"
OWNER:	CONNECTICUT ARCHITECTURAL TOWER

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2203
SITE NAME:
MONROE - MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL RD
MONROE, CT

DRAWN BY: DH

CHECKED BY: DP

PROJECT NO: 0504A172-A095100

SUBMITTALS

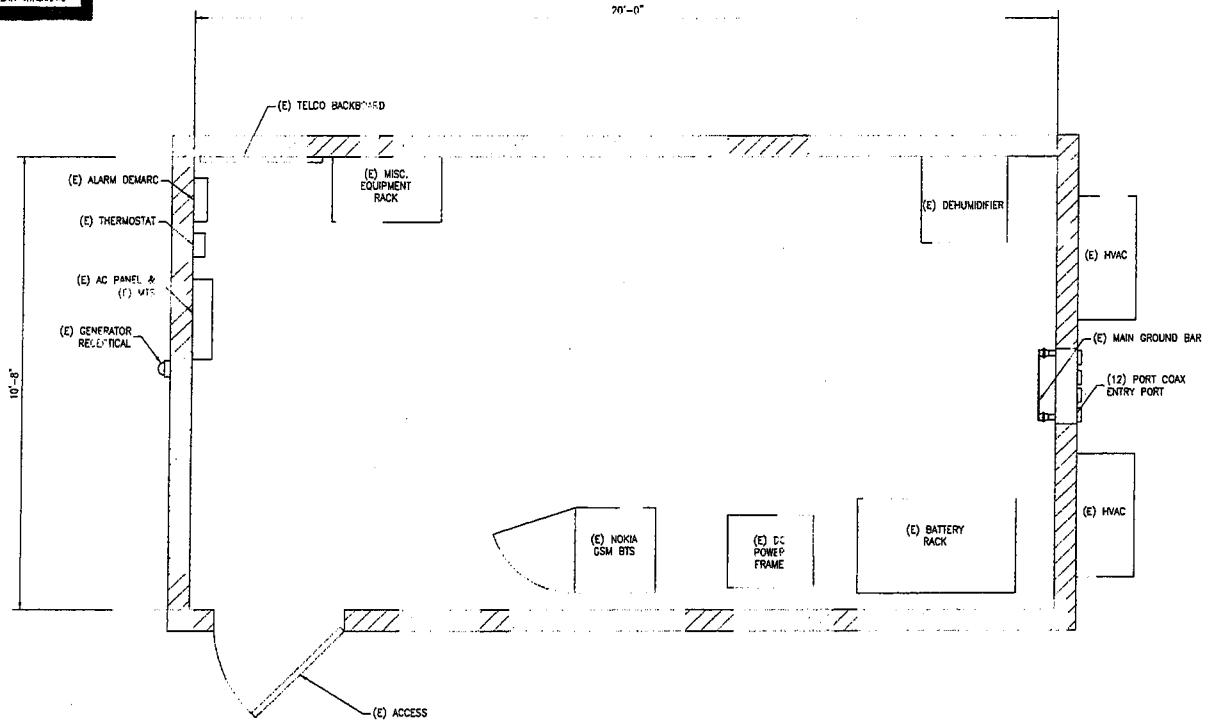
NO	DESCRIPTION	BY	DATE
0	ZONING SUBMITTAL (CSC)	DH	09/14/05

9/14/05

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T1

PURPOSE OF THESE DRAWINGS
DRAWINGS ARE FOR 6
ANTENNA REPLACEMENT,
3 ANTENNA REMOVALS,
AND 3 PROPOSED 1 1/4" COAXIAL
CABLES FOR CINGULAR WIRELESS



EQUIPMENT PLAN 1/C1
SCALE 11x17 - 3/8"=1'-0"
SCALE 22x34 - 3/4"=1'-0"

cingular WIRELESS

SAI communications

PSG ENGINEERING, LTD.

SITE NUMBER:
2203
SITE NAME:
MONROE - MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL RD
MONROE, CT

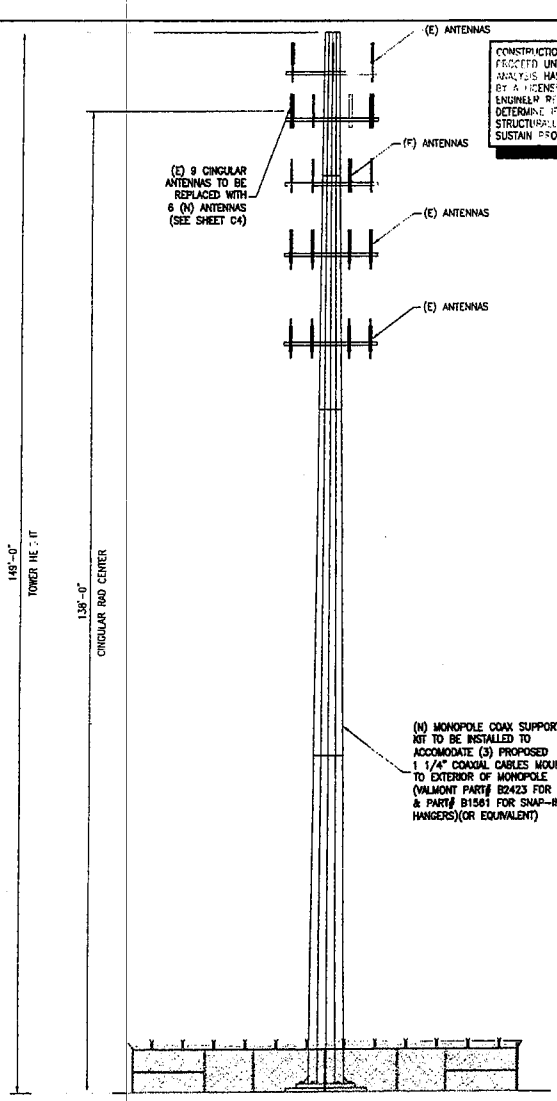
DRAWN BY: GH
CHECKED BY: GP
PROJECT NO: 0304A172-A005100

SUBMITTALS

NO	DESCRIPTION	BY	DATE
0	ZONING SUBMITTAL SET	GH	08/19/05

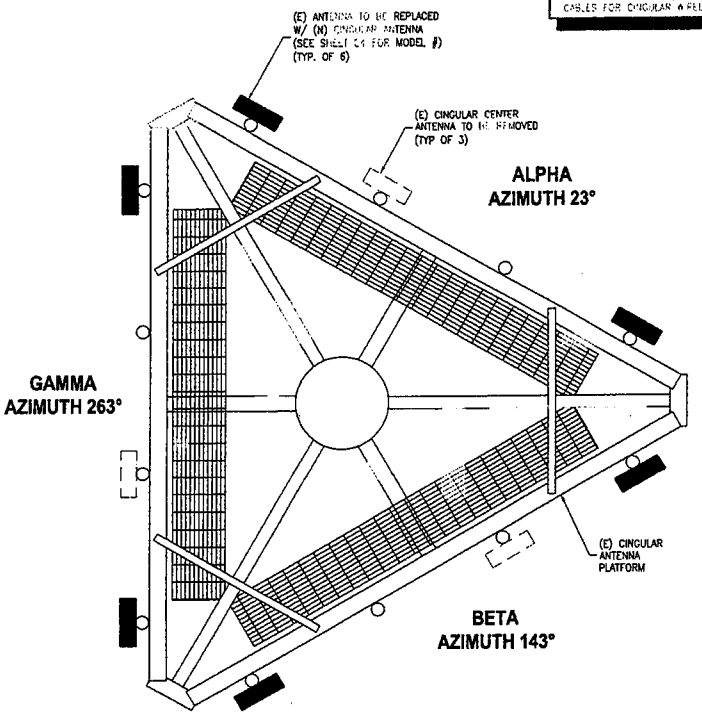
SHEET TITLE
EQUIPMENT PLAN

SHEET NUMBER
C1



CONSTRUCTION SHALL NOT PROCEED UNTIL A STRUCTURAL ANALYSIS HAS BEEN PERFORMED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN CT TO DETERMINE IF THE TOWER IS STRUCTURALLY ADEQUATE TO SUSTAIN PROPOSAL.

SITE ELEVATION (1 / C2)
SCALE: 11x17 – NTS
SCALE: 22x34 – NTS



PURPOSE OF THESE DESIGN DOCUMENTS ARE FOR 6 ANTENNA REPLACEMENTS, 3 ANTENNA REMOVALS, AND 3 PROPOSED 1 1/4" COAXIAL CABLES FOR CINGULAR WIRELESS

ANTENNA PLAN VIEW (2 / C2)
SCALE: 11x17 – NTS
SCALE: 22x34 – NTS

cingular WIRELESS

SAI communications

PSG
PSG ENGINEERING, LTD.
245 COMMERCE GREEN BLVD, SUITE 240
SUGAR LAND, TX 77478
PHONE: 281-242-7099
FAX: 281-242-7197

SITE NUMBER:
2203
SITE NAME:
MONROE - MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL RD
MONROE, CT

DRAWN BY: CH
CHECKED BY: DP
PROJECT NO: [illegible]

SUBMITTALS

NO	DESCRIPTION	BY	DATE
0	ZONING SUBMITTAL SET	CH	09/19/05

9/14/05

SHEET TITLE
SITE ELEVATION & ANT PLAN

SHEET NUMBER
C2

October 3, 2005

George Bullock
Site Acquisitions, Inc.
184 Rockingham Road
Unit A
Londonderry, NH 03052
(512) 921-1681

PSG Engineering, Ltd.
245 Commerce Green Blvd.
Suite 240
Sugar Land, TX 77478
Phone: (281) 343-7099
Fax: (281) 343-7127

Subject: **Structural Analysis Report**

Carrier Designation	***Cingular Wireless* Co-Locate** **Carrier Site Number:** *"2203"* **Carrier Site Name:** *"MONROE – MOOSE HILL RD"*
Engineering Firm Designation	**PSG Engineering Project Number:** *0504A172-A100149*
Site Data	**500 Moose Hill Rd., Monroe, CT, Fairfield County** **Latitude *41°-19'-15.47"*, Longitude *-73°-12'-05.13"*.** *150* **Foot -** *Monopole* **Tower**

Dear Mr. Bullock,

PSG Engineering, Ltd. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the terms of Site Acquisitions, Inc. Purchase Order Number *CT-PSG-009*. The purpose of the analysis is to determine the suitability of the tower with the addition of the proposed equipment listed in Table 1 of this report when combined with the existing and reserved equipment on the structure. This analysis has been performed in accordance with the TIA/EIA 222-F standard based upon wind speed condition of 85 mph.

Based on our analysis we have determined the tower and foundation ***ARE*** sufficient for the proposed loading.

We at *PSG Engineering* appreciate the opportunity of providing our continuing professional services to you and Site Acquisitions, Inc. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

Oscar Pedraza, P.E.
President

TABLE OF CONTENTS

INTRODUCTION
This tower was designed by Sabre Communications on April 02, 2002 per TIA/EIA-222-F using a basic wind speed of 85 mph and 74 mph with ½" radial ice.

ANALYSIS CRITERIA
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

- Basic wind speed of 85 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 74 mph is used in combination with ice.
- Deflections calculated using a wind speed of 50 mph.
- Feedline torque is considered.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.333

Table 1 – Proposed Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
138	6	Powerwave Technologies	7770.00	-	3	*1 1/4 (External)
	6		LGP21401			
	6		LGP13519			

*Note: Coax shall be flush mounted to the pole exterior.

Table 2 – Installed (I) and Reserved (R) Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
150	1(I)	Decibel	DB404	Pipe Mount (1)	1(I)	7/8 (Internal)
144	6(I)+3(R)	Decibel	DB948F85T2E-M	Low Profile Platform (1)	6(I)+3(R)	1 5/8 (Internal)
**138	**9(I)	Decibel	DB846H80E-SX	Low Profile Platform (1)	9(I)	1 1/4 (Internal)
127	3(I)+6(R)	Allgon	7250.03	Low Profile Platform (1)	6(I)+3(R)	1 5/8 (Internal)
120	12(I)	EMS Wireless	RR90-17-02DPL2	Low Profile Platform (1)	24(I)	1 5/8 (Internal)
110	12(I)	Standard	6' Panel Antennas	Low Profile Platform (1)	12(I)	1 5/8 (Internal)
70	1(I)	Standard	GPS Antenna	Side Arm Mount (1)	2(I)	1/2 (External)

**Note: Existing antennas to be removed and replaced with proposed loads. Existing mount and coax lines to remain.

Table 3 – Original Tower Manufacturer Design Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
150	12	Standard	5'x1' Panel Antenna	12' LP Rotatable Platform	Unknown	
	2		10' Whips			
140	12	Standard	5'x1' Panel Antenna	12' LP Rotatable Platform	Unknown	
130	12	Standard	5'x1' Panel Antenna	12' LP Rotatable Platform	Unknown	
120	12	Standard	5'x1' Panel Antenna	12' LP Rotatable Platform	Unknown	
110	12	Standard	5'x1' Panel Antenna	12' LP Rotatable Platform	Unknown	
100	12	Standard	5'x1' Panel Antenna	12' LP Rotatable Platform	Unknown	
90	12	Standard	5'x1' Panel Antenna	12' LP Rotatable Platform	Unknown	

ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Reference	Source
Original Tower Manufacturer Design Drawings	Sabre Communications	Drawing No. 02-03107-01 Rev. A	Site Acquisitions, Inc.
Existing Tower Loading	Moosehill Loading Spreadsheet	January 30, 2005	
Proposed Tower Loading	Cingular Wireless RF Data Sheet	RF Engineer: Francis Malabanan (860.513.7625)	

Analysis Methods

ERI Tower (Version 3.0.0.16), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA 222F or the local building code requirements. Selected output from the analysis is included in Appendix A.

Assumptions

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2.
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222F.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and PSG Engineering should be allowed to review any new information to determine its effect on the structural integrity of the tower.

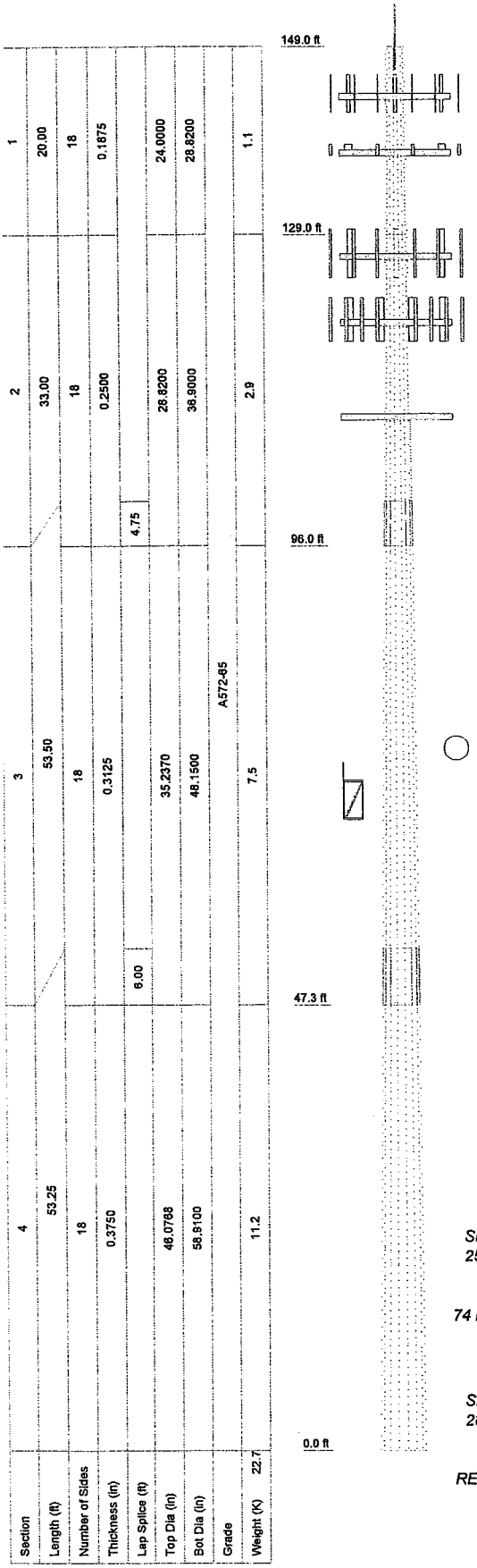
ANALYSIS RESULTS

Table 5 – Tower Section Capacity

Section Number	Elevation (feet)	Percent Capacity Used	Pass / Fail
1	129.0 – 149	16.2	Pass
2	96.0 – 129.0	44.8	Pass
3	47.3 – 96.0	65.3	Pass
4	0 – 47.3	67.3	Pass
Base Plate		44.4	Pass
Anchor Bolts		72.0	Pass
Base Foundation		67.9	Pass

APPENDIX A

Output from Computer Programs



Section	1	2	3	4
Length (ft)	20.00	33.00	53.50	53.25
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3125	0.3750
Lap Splice (ft)		4.75	6.00	
Top Dia (in)	24.0000	28.8200	35.2370	48.0788
Bot Dia (in)	28.8200	38.9000	48.1500	58.8100
Grade			A572-65	
Weight (K)	1.1	2.9	7.5	11.2

22.7

AXIAL 47 K
SHEAR 25 K
MOMENT 2554 kip-ft
TORQUE 2 kip-ft
74 mph WIND - 0.5000 in ICE

AXIAL 38 K
SHEAR 28 K
MOMENT 2843 kip-ft
TORQUE 2 kip-ft
REACTIONS - 85 mph WIND

APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
DB404	150	(2) 7770.00 w/Mount Pipe	138
7'x2" Antenna Mount Pipe	150	(3) 7250.03 w/Mount Pipe	127
Generic C-2 Lightning Spur	150	(3) 7250.03 w/Mount Pipe	127
(3) DB948F85T2E-M w/Mount Pipe	144	PiROD 13' Low Profile Platform (Monopole)	127
(3) DB948F85T2E-M w/Mount Pipe	144	(3) 7250.03 w/Mount Pipe	127
PiROD 13' Low Profile Platform (Monopole)	144	(4) RR90-17-02DPL2 w/Mount Pipe	120
(3) DB948F85T2E-M w/Mount Pipe	144	(4) RR90-17-02DPL2 w/Mount Pipe	120
(2) LGP2140X (TMA)	138	PiROD 13' Low Profile Platform (Monopole)	120
(2) LGP13519	138	(4) RR90-17-02DPL2 w/Mount Pipe	120
(2) 7770.00 w/Mount Pipe	138	(4) 6' Panel Antenna w/Mount Pipe	110
(2) LGP2140X (TMA)	138	(4) 6' Panel Antenna w/Mount Pipe	110
(2) LGP13519	138	PiROD 13' Low Profile Platform (Monopole)	110
(2) 7770.00 w/Mount Pipe	138	(4) 6' Panel Antenna w/Mount Pipe	110
(2) LGP2140X (TMA)	138	GPS antenna w/ sidearm mount	70
(2) LGP13519	138		
PiROD 13' Low Profile Platform (Monopole)	138		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 67.3%

PSG Engineering, Ltd.
8206 Forest Gate Drive
Sugar Land, Texas
Phone: 281.343.7099
FAX: 281.343.7127

Job: ***PSG Engineering Project Number: 0504A172-A10014***		
Project: ***(2203) (MONROE-MOOSE HILL RD)***		
Client: Site Acquisitions, Inc.	Drawn by: Jamal Huwel	App'd:
Code: TIA/EIA-222-F	Date: 10/03/05	Scale: NTS
Path: C:\Documents and Settings\opedraza.PSG\Desktop\New Job Format\0504A172203.eri		Dwg No. E-1

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 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 pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	149.00-129.00	20.00	0.00	18	24.0000	28.8200	0.1875	0.7500	A572-65 (65 ksi)
L2	129.00-96.00	33.00	4.75	18	28.8200	36.9000	0.2500	1.0000	A572-65 (65 ksi)
L3	96.00-47.25	53.50	6.00	18	35.2370	48.1500	0.3125	1.2500	A572-65 (65 ksi)
L4	47.25-0.00	53.25		18	46.0768	58.9100	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.3702	14.1714	1015.2211	8.4534	12.1920	83.2694	2031.7780	7.0871	3.8940	20.768
	29.2646	17.0399	1764.9136	10.1645	14.6406	120.5496	3532.1495	8.5216	4.7423	25.292
L2	29.2646	22.6703	2337.8417	10.1424	14.6406	159.6825	4678.7596	11.3373	4.6323	18.529
	37.4692	29.0818	4935.2177	13.0108	18.7452	263.2790	9876.9294	14.5437	6.0544	24.218
L3	36.9447	34.6407	5338.0651	12.3982	17.9004	298.2096	10683.1542	17.3236	5.6517	18.085
	48.8928	47.4488	13718.2850	16.9823	24.4602	560.8411	27454.6208	23.7289	7.9244	25.358
L4	48.2559	54.3966	14354.0958	16.2241	23.4070	613.2389	28727.0792	27.2035	7.4495	19.865
	59.8188	69.6713	30159.3869	20.7799	29.9263	1007.7894	60358.4583	34.8423	9.7082	25.888

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

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 149.00-129.00				1	1	1		
L2 129.00-96.00				1	1	1		
L3 96.00-47.25				1	1	1		
L4 47.25-0.00				1	1	1		

Monopole Base Plate Data

Base Plate Data	
Base plate is square	√
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	16
Embedment length	72.0000 in
f'_c	3 ksi
Grout space	2.5000 in
Base plate grade	A633-60
Base plate thickness	3.0000 in
Bolt circle diameter	66.0000 in
Outer diameter	64.0000 in
Inner diameter	24.0000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
EL. 150' LEVEL								
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	149.00 - 10.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
*								
*								
EL. 144' LEVEL								
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	144.00 - 10.00	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
*								
*								
EL. 138' LEVEL								
LDF6-50A (1-1/4 FOAM)	A	No	Inside Pole	138.00 - 10.00	9	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
LDF6-50A (1-1/4 FOAM)	A	No	CaAa (Out Of Face)	138.00 - 10.00	2	No Ice	0.00	0.66
						1/2" Ice	0.00	1.91
LDF6-50A (1-1/4 FOAM)	A	No	CaAa (Out Of Face)	138.00 - 10.00	1	No Ice	0.16	0.66
						1/2" Ice	0.25	1.91
*								
*								
EL. 127' LEVEL								
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	127.00 - 10.00	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
*								
*								
EL. 120' LEVEL								
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	120.00 - 10.00	24	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
*								
*								
EL. 110' LEVEL								
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	110.00 - 10.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
*								
*								
EL. 70' LEVEL								
LDF4P-50A (1/2 FOAM)	C	No	CaAa (Out Of Face)	70.00 - 10.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.84
LDF4P-50A (1/2 FOAM)	C	No	CaAa (Out Of Face)	70.00 - 10.00	1	No Ice	0.06	0.15
						1/2" Ice	0.16	0.84
*								
*								
TOWER HARDWARE								
Climbing Ladder (Ar)	C	No	CaAa (Out Of Face)	149.00 - 10.00	1	No Ice	0.04	1.00
						1/2" Ice	0.14	1.53

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	149.00-129.00	A	0.000	0.000	0.000	1.395	0.19
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.750	0.02
L2	129.00-96.00	A	0.000	0.000	0.000	5.115	0.74
		B	0.000	0.000	0.000	0.000	0.61
		C	0.000	0.000	0.000	1.238	0.03
L3	96.00-47.25	A	0.000	0.000	0.000	7.556	1.12

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
		B	0.000	0.000	0.000	0.000	1.44
		C	0.000	0.000	0.000	3.261	0.06
L4	47.25-0.00	A	0.000	0.000	0.000	5.774	0.86
		B	0.000	0.000	0.000	0.000	1.10
		C	0.000	0.000	0.000	3.744	0.05

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	149.00-129.00	A	0.500	0.000	0.000	0.000	2.295	0.22
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.750	0.03
L2	129.00-96.00	A	0.500	0.000	0.000	0.000	8.415	0.87
		B		0.000	0.000	0.000	0.000	0.61
		C		0.000	0.000	0.000	4.537	0.05
L3	96.00-47.25	A	0.500	0.000	0.000	0.000	12.431	1.30
		B		0.000	0.000	0.000	0.000	1.44
		C		0.000	0.000	0.000	10.411	0.11
L4	47.25-0.00	A	0.500	0.000	0.000	0.000	9.499	1.00
		B		0.000	0.000	0.000	0.000	1.10
		C		0.000	0.000	0.000	11.193	0.12

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	149.00-129.00	-0.0465	-0.0780	-0.1550	-0.0674
L2	129.00-96.00	-0.0455	-0.1910	-0.1522	-0.2380
L3	96.00-47.25	-0.0844	-0.1700	-0.2462	-0.1886
L4	47.25-0.00	-0.0962	-0.1158	-0.2691	-0.1083

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
EL. 150' LEVEL									
DB404	C	From Leg	0.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.14 2.05	1.14 2.05	0.01 0.02
7'x2" Antenna Mount Pipe	C	From Face	0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	1.66 2.39	1.66 2.39	0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00						
*									
*									
EL. 144' LEVEL									
(3) DB948F85T2E-M	A	From Leg	4.00	0.0000	144.00	No Ice	2.62	4.92	0.03
w/Mount Pipe			0.00			1/2" Ice	3.23	6.01	0.07
			0.00						
(3) DB948F85T2E-M	B	From Leg	4.00	0.0000	144.00	No Ice	2.62	4.92	0.03
w/Mount Pipe			0.00			1/2" Ice	3.23	6.01	0.07
			0.00						
(3) DB948F85T2E-M	C	From Leg	4.00	0.0000	144.00	No Ice	2.62	4.92	0.03
w/Mount Pipe			0.00			1/2" Ice	3.23	6.01	0.07
			0.00						
PiROD 13' Low Profile	C	None		0.0000	144.00	No Ice	15.70	15.70	1.30
Platform (Monopole)						1/2" Ice	20.10	20.10	1.76
*									
*									
EL. 138' LEVEL									
(2) 7770.00 w/Mount Pipe	A	From Leg	4.00	0.0000	138.00	No Ice	5.98	4.12	0.05
			0.00			1/2" Ice	6.44	4.77	0.10
			0.00						
(2) LGP2140X (TMA)	A	From Leg	4.00	0.0000	138.00	No Ice	1.23	0.37	0.02
			0.00			1/2" Ice	1.38	0.48	0.02
			0.00						
(2) LGP13519	A	From Leg	4.00	0.0000	138.00	No Ice	0.34	0.21	0.01
			0.00			1/2" Ice	0.42	0.28	0.01
			0.00						
(2) 7770.00 w/Mount Pipe	B	From Leg	4.00	0.0000	138.00	No Ice	5.98	4.12	0.05
			0.00			1/2" Ice	6.44	4.77	0.10
			0.00						
(2) LGP2140X (TMA)	B	From Leg	4.00	0.0000	138.00	No Ice	1.23	0.37	0.02
			0.00			1/2" Ice	1.38	0.48	0.02
			0.00						
(2) LGP13519	B	From Leg	4.00	0.0000	138.00	No Ice	0.34	0.21	0.01
			0.00			1/2" Ice	0.42	0.28	0.01
			0.00						
(2) 7770.00 w/Mount Pipe	C	From Leg	4.00	0.0000	138.00	No Ice	5.98	4.12	0.05
			0.00			1/2" Ice	6.44	4.77	0.10
			0.00						
(2) LGP2140X (TMA)	C	From Leg	4.00	0.0000	138.00	No Ice	1.23	0.37	0.02
			0.00			1/2" Ice	1.38	0.48	0.02
			0.00						
(2) LGP13519	C	From Leg	4.00	0.0000	138.00	No Ice	0.34	0.21	0.01
			0.00			1/2" Ice	0.42	0.28	0.01
			0.00						
PiROD 13' Low Profile	C	None		0.0000	138.00	No Ice	15.70	15.70	1.30
Platform (Monopole)						1/2" Ice	20.10	20.10	1.76
*									
*									
EL. 127' LEVEL									
(3) 7250.03 w/Mount Pipe	A	From Leg	4.00	0.0000	127.00	No Ice	4.45	3.54	0.04
			0.00			1/2" Ice	5.03	4.72	0.08
			0.00						
(3) 7250.03 w/Mount Pipe	B	From Leg	4.00	0.0000	127.00	No Ice	4.45	3.54	0.04
			0.00			1/2" Ice	5.03	4.72	0.08
			0.00						
(3) 7250.03 w/Mount Pipe	C	From Leg	4.00	0.0000	127.00	No Ice	4.45	3.54	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00 0.00			1/2" Ice	5.03	4.72	0.08
PiROD 13' Low Profile Platform (Monopole)	C	None		0.0000	127.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
*									
*									
EL. 120' LEVEL									
(4) RR90-17-02DPL2 w/Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	0.04 0.08
(4) RR90-17-02DPL2 w/Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	0.04 0.08
(4) RR90-17-02DPL2 w/Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	0.04 0.08
PiROD 13' Low Profile Platform (Monopole)	C	None		0.0000	120.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
*									
*									
EL. 110' LEVEL									
(4) 6' Panel Antenna w/Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.87 6.32	4.96 5.89	0.04 0.09
(4) 6' Panel Antenna w/Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.87 6.32	4.96 5.89	0.04 0.09
(4) 6' Panel Antenna w/Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.87 6.32	4.96 5.89	0.04 0.09
PiROD 13' Low Profile Platform (Monopole)	C	None		0.0000	110.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
*									
*									
EL. 70' LEVEL									
GPS antenna w/ sidearm mount	C	From Leg	4.00 0.00 0.00	0.0000	70.00	No Ice 1/2" Ice	8.00 12.00	8.00 12.00	0.28 0.38
*									
*									
TOWER HARDWARE									
Generic C-2 Lightning Spur	A	From Leg	0.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice	4.00 7.00	4.00 7.00	0.00 0.00

Load Combinations

Comb. No.	Description
1	Dead Only

Comb. No.	Description
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 129	21.941	35	1.2145	0.0010
L2	129 - 96	16.894	35	1.1792	0.0010
L3	100.75 - 47.25	10.397	35	0.9838	0.0009
L4	53.25 - 0	2.852	35	0.4938	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	DB404	35	21.941	1.2145	0.0011	55645
144.00	(3) DB948F85T2E-M w/Mount Pipe	35	20.666	1.2098	0.0010	55645

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.00	(2) 7770.00 w/Mount Pipe	35	19.143	1.2018	0.0010	25293
127.00	(3) 7250.03 w/Mount Pipe	35	16.402	1.1717	0.0009	12936
120.00	(4) RR90-17-02DPL2 w/Mount Pipe	35	14.713	1.1372	0.0009	10317
110.00	(4) 6' Panel Antenna w/Mount Pipe	35	12.402	1.0677	0.0009	8013
70.00	GPS antenna w/ sidearm mount	35	4.919	0.6394	0.0007	5020

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 129	63.250	11	3.5021	0.0038
L2	129 - 96	48.702	11	3.4007	0.0034
L3	100.75 - 47.25	29.974	11	2.8370	0.0031
L4	53.25 - 0	8.224	11	1.4240	0.0019

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	DB404	11	63.250	3.5021	0.0038	19441
144.00	(3) DB948F85T2E-M w/Mount Pipe	11	59.574	3.4895	0.0037	19441
138.00	(2) 7770.00 w/Mount Pipe	11	55.185	3.4672	0.0035	8836
127.00	(3) 7250.03 w/Mount Pipe	11	47.285	3.3781	0.0034	4516
120.00	(4) RR90-17-02DPL2 w/Mount Pipe	11	42.416	3.2751	0.0033	3598
110.00	(4) 6' Panel Antenna w/Mount Pipe	11	35.754	3.0719	0.0032	2791
70.00	GPS antenna w/ sidearm mount	11	14.185	1.9019	0.0024	1744

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual / Allowable Ratio Bolt Tension K	Actual / Allowable Ratio Bolt Compression K	Actual / Allowable Ratio Plate Stress ksi	Actual / Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
3.0000	16	2.2500	126.20 174.90 0.72	130.92 290.34 0.45	26.749 45.000 0.59		Bolt T	0.72

Compression Checks

ERITower	Job	Page
	PSG Engineering Project Number: 0504A172-A100149	9 of 9
PSG Engineering, Ltd. 8206 Forest Gate Drive Sugar Land, Texas Phone: 281.343.7099 FAX: 281.343.7127	**Project** (2203) (MONROE-MOOSE HILL RD)	**Date** 12:39:43 10/03/05
	Client Site Acquisitions, Inc.	**Designed by** Jamal Huwel

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	149 - 129 (1)	TP28.82x24x0.1875	20.00	0.00	0.0	38.705	17.0399	-4.26	659.53	0.006
L2	129 - 96 (2)	TP36.9x28.82x0.25	33.00	0.00	0.0	39.000	28.1589	-12.60	1098.20	0.011
L3	96 - 47.25 (3)	TP48.15x35.237x0.3125	53.50	0.00	0.0	39.000	46.0124	-22.67	1794.48	0.013
L4	47.25 - 0 (4)	TP58.91x46.0768x0.375	53.25	0.00	0.0	38.326	69.6713	-37.77	2670.23	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	149 - 129 (1)	TP28.82x24x0.1875	81.66	-8.128	38.705	0.210	0.00	0.000	38.705	0.000
L2	129 - 96 (2)	TP36.9x28.82x0.25	469.68	-22.839	39.000	0.586	0.00	0.000	39.000	0.000
L3	96 - 47.25 (3)	TP48.15x35.237x0.3125	1469.44	-33.441	39.000	0.857	0.00	0.000	39.000	0.000
L4	47.25 - 0 (4)	TP58.91x46.0768x0.375	2843.08	-33.853	38.326	0.883	0.00	0.000	38.326	0.000

Pole Interaction Design Data

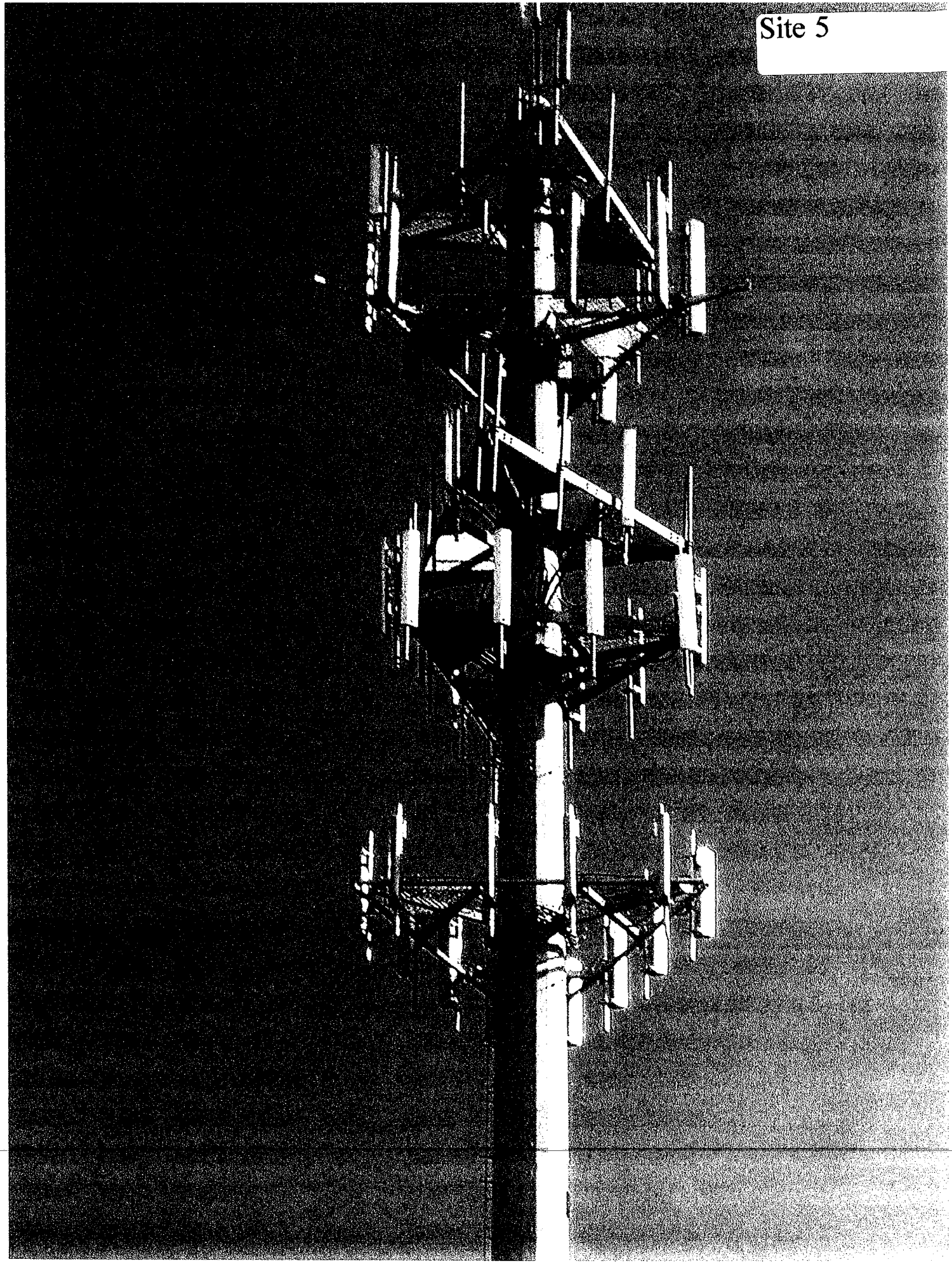
Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	149 - 129 (1)	TP28.82x24x0.1875	0.006	0.210	0.000	0.216	1.333	H1-3
L2	129 - 96 (2)	TP36.9x28.82x0.25	0.011	0.586	0.000	0.597	1.333	H1-3
L3	96 - 47.25 (3)	TP48.15x35.237x0.3125	0.013	0.857	0.000	0.870	1.333	H1-3
L4	47.25 - 0 (4)	TP58.91x46.0768x0.375	0.014	0.883	0.000	0.897	1.333	H1-3

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	149 - 129	Pole	TP28.82x24x0.1875	1	-4.26	879.16	16.2	Pass
L2	129 - 96	Pole	TP36.9x28.82x0.25	2	-12.60	1463.90	44.8	Pass
L3	96 - 47.25	Pole	TP48.15x35.237x0.3125	3	-22.67	2392.04	65.3	Pass
L4	47.25 - 0	Pole	TP58.91x46.0768x0.375	4	-37.77	3559.42	67.3	Pass
							Summary	
						Pole (L4)	67.3	Pass
						Base Plate	54.1	Pass
						RATING =	**67.3**	**Pass**


Site 5

Site 5



Letters to Chief Elected Officials

cingular
raising the bar

October 11, 2005

Honorable Andrew J. Nunn, First Selectman
Town of Monroe
Town Hall
7 Fan Hill Road
Monroe, CT 06468

Re: **Notice of Exempt Modifications to Various Facilities in the Town(s) of Newtown, Redding and Monroe, Connecticut**

Dear Mr. Nunn,

As part of its merger and integration efforts, New Cingular Wireless PCS, LLC ("Cingular" or "the Company") intends to modify instrumentation and/or antenna configurations at certain wireless telecommunications facilities. As required by the Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review the Company's proposal. Please accept this letter and attachments as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter fully describes Cingular's proposal. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at (860) 301-6378 or Mr. Derek Phelps, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

David S. Malko, P.E.
Consultant for New Cingular Wireless

Enclosure

cingular
raising the bar

October 11, 2005

Honorable Natalie T. Ketcham, First Selectman
Town of Redding
Town Hall
100 Hill Road, P.O. Box 1028
Redding, CT 06875

Re: **Notice of Exempt Modifications to Various Facilities in the Town(s) of Newtown, Redding and Monroe, Connecticut**

Dear Ms. Ketcham,

As part of its merger and integration efforts, New Cingular Wireless PCS, LLC ("Cingular" or "the Company") intends to modify instrumentation and/or antenna configurations at certain wireless telecommunications facilities. As required by the Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review the Company's proposal. Please accept this letter and attachments as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter fully describes Cingular's proposal. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at (860) 301-6378 or Mr. Derek Phelps, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

David S. Malko, P.E.
Consultant for New Cingular Wireless

Enclosure

cingular
raising the bar

October 11, 2005

Honorable Herbert C. Rosenthal, First Selectman
Town of Newtown
Edmond Town Hall
45 Main Street
Newtown, CT 06470

Re: **Notice of Exempt Modifications to Various Facilities in the Town(s) of Newtown, Redding and Monroe, Connecticut**

Dear Mr. Rosenthal,

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