STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

December 20, 2011

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

RE: **EM-VER-085-111130** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 88 Main Street, Monroe, Connecticut.

Dear Attorney Baldwin:

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

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

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated November 28, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Stephen Vavrek, First Selectman, Town of Monroe
David Killeen, Planning Administrator, Town of Monroe
Hans Fiedler, T-Mobile
Julie Kohler, Esq., Cohen and Wolf P.C.

CSC
CONNECTICUT SITING COUNCIL

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Ten Franklin Square, New Britain, CT 06051
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www.ct.gov/csc

December 6, 2011

The Honorable Stephen Vavrek
First Selectman
Town of Monroe
Town Hall
7 Fan Hill Road
Monroe, CT 06468-1800

RE: **EM-VER-085-111130** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 88 Main Street, Monroe, Connecticut.

Dear First Selectman Vavrek:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by December 20, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: David Killeen, Planning Administrator, Town of Monroe

ROBINSON & COLE

EM-VER-085-111130

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

November 28, 2011

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
88 Main Street, Monroe, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains wireless telecommunications antennas at the 165-foot level on the existing 195-foot tower at the above-referenced address. The tower is owned by T-Mobile. The Council approved Cellco's shared use of the existing tower in 2003. Cellco now intends to modify its facility by replacing six (6) of its cellular antennas with six (6) model APL 868013-42T0 cellular antennas, at the same 165-foot level on the tower. Attached behind Tab 1 are the specifications for the proposed replacement antennas.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Steve Vavrek, First Selectman for the Town of Monroe. A copy of this letter is also being sent to Stepney Volunteer Fire Company, the owner of the property on which the tower is located.

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

1. The proposed antenna modifications will not result in an increase in the overall height of the existing tower. Cellco's antennas will be located at the same 165-foot level on the existing 195-foot tower.

2. The proposed modifications do not involve any ground-mounted equipment and, therefore, will not require the extension of the site boundaries.

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

4. The operation of the replacement antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for Cellco's modified facility is included behind Tab 2.

Also attached is a Structural Analysis Report confirming that the tower and foundation can support Cellco's proposed antenna modifications. (See Tab 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

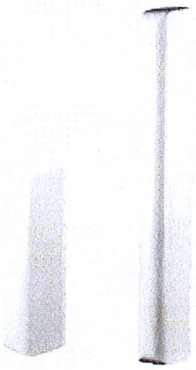
Enclosures
Copy to:
Steve Vavrek, Monroe First Selectman
Stepney Volunteer Fire Company
Sandy M. Carter

Product Data Sheet **APL868013-42T0**

Maximizer® Log Periodic Antenna, 806-894, 80deg, 14.1dBi, 1.2m, FET, 0deg

Product Description

The Celwave® Maximizer series is a log periodic dipole array which uses a patented design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use RFS's patented monolithic CELlite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELlite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths. Patent number 6,133,889.



Features/Benefits

• 45 dB front-to-back ratio reduces co-channel interference.• Monolithic construction reduces IM.• No solder joints, high reliability.• Surface treated components prevent galvanic corrosion.• UV stabilized radome assures long life without radome deterioration due to UV exposure.

Technical Specifications

Electrical Specifications

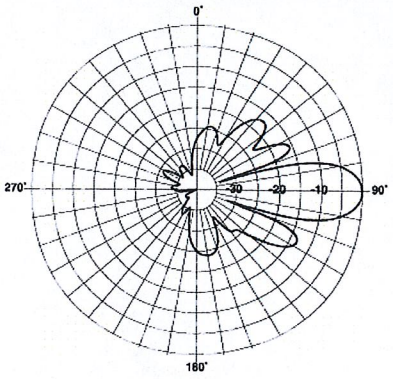
Frequency Range, MHz	806-894
Horizontal Beamwidth, deg	80
Vertical Beamwidth, deg	15
Electrical Downtilt, deg	0
Gain, dBi (dBd)	14.1 (12)
Front-To-Back Ratio, dB	45
Polarization	Vertical
VSWR	< 1.5:1
Impedance, Ohms	50
Maximum Power Input, W	500
Lightning Protection	Direct Ground
Connector Type	7-16 DIN Female

Mechanical Specifications

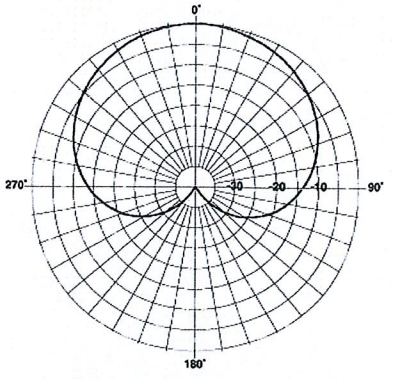
Dimensions - HxWxD, mm (in)	1219 x 152 x 203 (48 x 6 x 8)
Weight w/o Mtg Hardware, kg (lb)	2.8 (6.32)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.307 (3.3)
Maximum Thrust @ Rated Wind, N (lbf)	916 (206)
Wind Load - Side @ Rated Wind, N (lbf)	743 (167)
Radome Material	UV Stabilized High Impact ABS
Shipping Weight, kg (lb)	7.9 (17.5)
Packing Dimensions, HxWxD, mm (in)	1270 x 305 x 203 (50 x 12 x 8)

Ordering Information

Mounting Hardware	APM21-3



Vertical Pattern



Horizontal Pattern

Other Documentation

	General	Power	Density					
Site Name: Monroe S								
Tower Height: Verizon @ 165ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Cingular GSM	2	427	175	0.0100	1900	1.0000	1.00%	
*Cingular UMTS	1	500	175	0.0059	880	0.5867	1.00%	
*T-Mobile GSM	8	126	195	0.0095	1945	1.0000	0.95%	
*T-Mobile UMTS	2	589	195	0.0111	2100	1.0000	1.11%	
Verizon	**15**	**259**	**165**	**0.0513**	**1970**	**1.0000**	**5.13%**	
Verizon	**9**	**258**	**165**	**0.0307**	**869**	**0.5793**	**5.29%**	
								14.49%
* Source: Siting Council								

GPD GROUP
Gruen, Pyle, Schermer, Burns & Dettmann, Inc

STRUCTURAL ANALYSIS REPORT

APPROVED
By Aaron T. Chandler at 5:33 pm, Oct 24, 2011

T-Mobile

SITE NUMBER: CT11215A
SITE NAME: MONROE – 1/RT 25

SITE ADDRES: 88 MAIN STREET
MONROE, CT 06468

NEW ANTENNA INSTALLATION BY:

verizonwireless

ON AN EXISTING
195' MONOPOLE

October 19, 2011

2011704.81

MONOPOLE

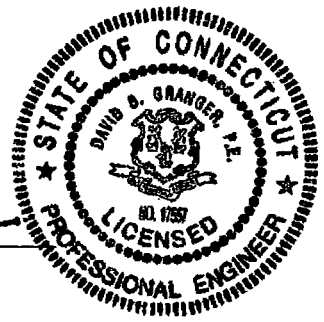
STRUCTURAL ANALYSIS REPORT

CT11215A MONROE – 1/RT 25
88 Main Street
Monroe, CT 06468
GPD Project #: 2011704.81

New Antenna Installation
Existing 195 ft Monopole

For:
T-Mobile Towers
Bellevue, Washington

Prepared By:



David B Granger, P.E.
Registered Professional Engineer
Connecticut #: 17557

October 19, 2011

Glaus, Pyle, Schomer, Burns, and DeHaven, Inc. dba GPD Group ENGINEERS • ARCHITECTS • PLANNERS
520 South Main Street • Suite 2531 • Akron • Ohio • 44311-1010 • Tel: 330-572-2100 • Fax: 330-572-2101

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APPENDICES

EXECUTIVE SUMMARY

The purpose of this analysis is to verify whether the design for the existing tower is structurally capable of carrying the new antenna and coax loads as specified by Verizon to T-Mobile Towers. This report was commissioned by Mr. Kenneth Fann of T-Mobile Towers.

The design for the existing structure meets the requirements of TIA/EIA-222-F for a fastest-mile wind speed of 85 mph with 1/2" radial ice (w/ 25% wind load reduction) for the proposed loading configuration.

The foundation reactions, with the proposed loading, were found to be less than the capacity of the existing foundation design. Therefore the existing foundation is adequate for the proposed loading, assuming it was properly constructed according to original design.

Section Results

Monopole	% Capacity	Result
157.5′ – 195′	37.0%	Pass
116.8′ – 157.5′	65.5%	Pass
77′ – 116.8′	72.5%	Pass
38′ – 77′	84.1%	Pass
0′ – 38′	79.5%	Pass
Base Plate	70.3%	Pass
Anchor Rods	76.3%	Pass
Foundation	**% Capacity**	**Result**
Structure	74.9%	Pass
Soil Interaction	57.3%	Pass
Tower Rating:	**84.1%**	

TOWER DESCRIPTION

The existing 195' monopole is located in Monroe, Connecticut. It was originally designed for Voicestream Wireless by Paul J Ford & Company of Columbus, Ohio. The original design load for the tower was for an 85 mph basic wind speed with 1/2" radial ice (w/ 25% wind load reduction) in accordance with TIA/EIA-222-F-1996. The tower was originally designed to hold the following:

Original Configuration

Elevation	Antennas
Elev. 195'	(1) 5/8" Lightning Rod
Elev. 195'	(12) EMS RR90-17-00DP PCS Antennas, on (3) 14' T-Arm Mounts, w/ internal coax
Elev. 185'	(12) EMS RR90-17-00DP PCS Antennas, on (1) 14' LP Platform, w/ internal coax
Elev. 175'	(12) EMS RR90-17-00DP PCS Antennas, on (1) 14' LP Platform, w/ internal coax
Elev. 165'	(12) EMS RR90-17-00DP PCS Antennas, on (1) 14' LP Platform, w/ internal coax
Elev. 155'	(12) EMS RR90-17-00DP PCS Antennas, on (1) 14' LP Platform, w/ internal coax
Elev. 140'	(2) 10' Whip Antennas, on (2) 6' Side Arm Mounts, w/ internal coax
Elev. 120'	(2) 10' Whip Antennas, on (2) 6' Side Arm Mounts, w/ internal coax

The monopole has five major sections connected by slip joints. It has 18 sides and is evenly tapered from 61.60" (flat-flat) at the base to 26.00" (flat-flat) at the top. The structure is galvanized and has no tower lighting.

All structural information was provided by T-Mobile Towers in the form of the original tower and foundation drawings by PJF (Design #: 29201-0505, dated May 11, 2001). Geotechnical information provided in the form of a soils report by Jaworski Geotech, Inc (Project #: 01129G, dated February 15, 2001). A site inspection report was performed by SiteMaster (dated December 8, 2007). The proposed antenna information was provided by T-Mobile Towers. This analysis and report are based solely on this information.

TOWER MATERIALS

Data on steel strength was available from the information provided. The following table details the steel strength used in the analysis.

Monopole	ASTM A607 (65 KSI Yield Strength)
Base Plate	ASTM A572 (55 KSI Yield Strength)
Anchor Rods	ASTM A615 (75 KSI Yield Strength)

TOWER LOADING

The following data shows the major loading that the tower supports. The proposed antenna information was provided by T-Mobile Towers.

Existing & Reserved Configuration

Elevation	Carrier	Antennas
195′	T-Mobile	(12) Andrew TMBXX-6516-R2M Antennas, (6) Andrew ETW190VS12UB TMAs, & (1) 4′ HP MW Dish on (3) 14′ T-Arm Mounts, w/ (25) 1-5/8″ internal coax
175′	AT&T	(3) Powerwave 7770 Antennas, (3) Powerwave P65-16-XLH-RR Antennas, (6) Powerwave LGP-21401 TMAs, (6) Ericsson RRUS-11 RRHs, & (1) Raycap DC6-48-60-18-8F on a 13′ Low Profile Platform, w/ (12) 1-5/8″ internal coax, (1) internal LTE fiber cable, & (2) internal LTE DC cables
165′	Verizon	(12) Decibel DB844G65ZA-XY Antennas on a 15′ Low Profile Platform, w/ (12) 1-5/8″ internal coax

Proposed Configuration

Elevation	Carrier	Antennas
195′	T-Mobile	(12) Andrew TMBXX-6516-R2M Antennas, (6) Andrew ETW190VS12UB TMAs, & (1) 4′ HP MW Dish on (3) 14′ T-Arm Mounts, w/ (25) 1-5/8″ internal coax
175′	AT&T	(3) Powerwave 7770 Antennas, (3) Powerwave P65-16-XLH-RR Antennas, (6) Powerwave LGP-21401 TMAs, (6) Ericsson RRUS-11 RRHs, & (1) Raycap DC6-48-60-18-8F on a 13′ Low Profile Platform, w/ (12) 1-5/8″ internal coax, (1) internal LTE fiber cable, & (2) internal LTE DC cables
165′	**Verizon**	**(6) Celwave APL 868013-42TO Antennas & (6) Decibel DB948F85FE-M Antennas on a 15′ Low Profile Platform, w/ (12) 1-5/8″ internal coax**

Note: - BOLD type indicates proposed carriers final configuration.
- See Appendix 2 for coax layout.

ANALYSIS

The purpose of this structural analysis review is to determine if the design for the existing tower is in conformance to the latest TIA/EIA-222-F standard requirements. RISA Tower (Version v5.4.2.0), 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/TIA/EIA-222-F standard and all local building code requirements. Selected output from the analysis is included in Appendix 1.

The current requirements of TIA/EIA-222-F are for a fastest-mile wind speed of 85 mph with 1/2" of radial ice. A 25% reduction in wind load is allowed when wind and ice are applied simultaneously. TIA/EIA-222-F requires towers within Fairfield County, Connecticut be analyzed with an 85 mph fastest-mile wind speed.

ANALYSIS FASTEST-MILE WIND SPEED:	85 MPH

The tower and foundations are assumed, for the purpose of this analysis, to have been properly fabricated, constructed, maintained, and to be in good condition with no structural defects. This is not a condition assessment of the tower and has been provided without the benefit of recent detailed tower photos, a detailed tower mapping, or a GPD Group site visit. This analysis assumes all antennas and coax have been installed in a neat and orderly fashion. Proposed antennas are assumed to be installed on standard sized mounts. The existing/proposed mounts are assumed to have been verified by the carrier to support the existing/proposed loading for the required various load cases.

CONCLUSIONS AND RECOMMENDATIONS

Based on the computer structural analysis results, the design for the existing 195' monopole meets the requirements of TIA/EIA-222-F for a fastest-mile wind speed of 85 mph with 1/2" radial ice (w/ 25% wind load reduction) for the proposed loading configuration.

The foundation reactions, with the proposed loading, were found to be less than the capacity of the existing foundation design. Therefore, the existing foundation is adequate, assuming it was properly constructed according to original design.

Summary of Findings

Monopole	Satisfactory
Base Plate	Satisfactory
Anchor Rods	Satisfactory
Foundation	Satisfactory

Therefore, based on our analysis results, the design for the existing structure is structurally satisfactory for the proposed loading configuration.

DISCLAIMER OF WARRANTIES

GPD GROUP has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD GROUP will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDICES

1. RISA Analysis Printout

2. Tower Elevation Drawing and Coax Layout

3. Anchor Rod and Base Plate Calculations

4. Foundation Analysis

RISA ANALYSIS PRINTOUT

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.

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)	B	No	Inside Pole	195.00 - 8.00	25	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	175.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
3/8" Fiber Cable	C	No	Inside Pole	175.00 - 8.00	1	No Ice	0.00	0.10
						1/2" Ice	0.00	0.10
7/8" DC Power Cable	C	No	Inside Pole	175.00 - 8.00	2	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	165.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
Climbing Pegs	C	No	CaAa (Out Of Face)	195.00 - 8.00	1	No Ice	0.01	0.31
						1/2" Ice	0.12	0.71
Safety Line 3/8	C	No	CaAa (Out Of Face)	195.00 - 8.00	1	No Ice	0.04	0.22
						1/2" Ice	0.14	0.75

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 lb
5/8"x4' Lightning Rod	C	None		0.0000	195.00	No Ice	0.01	0.01	30.00
						1/2" Ice	0.05	0.05	30.30
14' T-Arm	A	From Leg	1.93 -0.52 0.00	-15.0000	195.00	No Ice	5.80	3.33	336.00
						1/2" Ice	9.71	5.58	412.00
14' T-Arm	B	From Face	1.00 1.73 0.00	60.0000	195.00	No Ice	5.80	3.33	336.00
						1/2" Ice	9.71	5.58	412.00
14' T-Arm	C	From Face	1.93 -0.52	-15.0000	195.00	No Ice	5.80	3.33	336.00
						1/2" Ice	9.71	5.58	412.00

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
			0.00						
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	A	From Leg	3.86	-15.0000	195.00	No Ice	7.32	5.48	60.15
			-1.04			1/2" Ice	8.00	6.58	115.58
			0.00						
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	B	From Face	2.00	60.0000	195.00	No Ice	7.32	5.48	60.15
			3.46			1/2" Ice	8.00	6.58	115.58
			0.00						
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	C	From Face	3.86	-15.0000	195.00	No Ice	7.32	5.48	60.15
			-1.04			1/2" Ice	8.00	6.58	115.58
			0.00						
(2) ETW190VS12UB	A	From Leg	3.86	-15.0000	195.00	No Ice	0.66	0.35	11.00
			-1.04			1/2" Ice	0.78	0.44	15.83
			0.00						
(2) ETW190VS12UB	B	From Face	2.00	60.0000	195.00	No Ice	0.66	0.35	11.00
			3.46			1/2" Ice	0.78	0.44	15.83
			0.00						
(2) ETW190VS12UB	C	From Face	3.86	-15.0000	195.00	No Ice	0.66	0.35	11.00
			-1.04			1/2" Ice	0.78	0.44	15.83
			0.00						
4.5" Dia x 4' Dish Mount	B	From Face	0.50	0.0000	195.00	No Ice	1.32	1.32	43.20
			0.00			1/2" Ice	1.58	1.58	56.19
			0.00						
PiROD 13' Low Profile Platform	C	None		0.0000	175.00	No Ice	15.70	15.70	1300.00
						1/2" Ice	20.10	20.10	1765.00
7770.00 w/ 2"x96" Mount Pipe	A	From Centroid-Face	4.00	0.0000	175.00	No Ice	6.69	4.83	64.20
			0.00			1/2" Ice	7.48	6.00	114.71
			0.00						
7770.00 w/ 2"x96" Mount Pipe	B	From Centroid-Face	4.00	0.0000	175.00	No Ice	6.69	4.83	64.20
			0.00			1/2" Ice	7.48	6.00	114.71
			0.00						
7770.00 w/ 2"x96" Mount Pipe	C	From Centroid-Face	4.00	0.0000	175.00	No Ice	6.69	4.83	64.20
			0.00			1/2" Ice	7.48	6.00	114.71
			0.00						
P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	A	From Centroid-Face	4.00	0.0000	175.00	No Ice	8.69	6.71	104.53
			0.00			1/2" Ice	9.32	7.74	171.37
			0.00						
P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	B	From Centroid-Face	4.00	0.0000	175.00	No Ice	8.69	6.71	104.53
			0.00			1/2" Ice	9.32	7.74	171.37
			0.00						
P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	C	From Centroid-Face	4.00	0.0000	175.00	No Ice	8.69	6.71	104.53
			0.00			1/2" Ice	9.32	7.74	171.37
			0.00						
(2) LGP21401	A	From Centroid-Face	4.00	0.0000	175.00	No Ice	1.29	0.23	14.10
			0.00			1/2" Ice	1.45	0.31	21.26
			0.00						
(2) LGP21401	B	From Centroid-Face	4.00	0.0000	175.00	No Ice	1.29	0.23	14.10
			0.00			1/2" Ice	1.45	0.31	21.26
			0.00						
(2) LGP21401	C	From Centroid-Face	4.00	0.0000	175.00	No Ice	1.29	0.23	14.10
			0.00			1/2" Ice	1.45	0.31	21.26
			0.00						
(2) RRUS-11	A	From Centroid-Face	4.00	0.0000	175.00	No Ice	4.42	1.19	55.00
			0.00			1/2" Ice	4.71	1.35	80.77
			0.00						
(2) RRUS-11	B	From Centroid-Face	4.00	0.0000	175.00	No Ice	4.42	1.19	55.00
			0.00			1/2" Ice	4.71	1.35	80.77
			0.00						

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
(2) RRUS-11	C	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	4.42 4.71	1.19 1.35	55.00 80.77
DC6-48-60-18-8F	C	None		0.0000	175.00	No Ice 1/2" Ice	2.22 2.44	2.22 2.44	20.00 39.25
PiROD 15' Low Profile Platform	C	None		0.0000	165.00	No Ice 1/2" Ice	17.30 22.10	17.30 22.10	1500.00 2030.00
(2) APL868013-42T0 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	31.87 72.91
(2) APL868013-42T0 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	31.87 72.91
(2) APL868013-42T0 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	31.87 72.91
(2) DB948F85E-M w/Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	34.05 68.79
(2) DB948F85E-M w/Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	34.05 68.79
(2) DB948F85E-M w/Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	34.05 68.79

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
4' HP	B	Paraboloid w/Shroud (HP)	From Face	0.50 0.00 0.00	0.0000		195.00	4.00	No Ice 1/2" Ice	12.57 13.10	50.00 130.00

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	195 - 157.5	44.820	32	1.9980	0.0235
L2	161.75 - 116.75	31.302	32	1.8368	0.0114
L3	122 - 77	17.638	32	1.3950	0.0055
L4	83 - 38	8.009	32	0.9320	0.0028
L5	45 - 0	2.316	32	0.4665	0.0011

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	4' HP	32	44.820	1.9980	0.0235	42890
175.00	PiROD 13' Low Profile Platform	32	36.557	1.9202	0.0156	10722
165.00	PiROD 15' Low Profile Platform	32	32.566	1.8609	0.0123	7153

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	195 - 157.5	128.812	7	5.7366	0.0686
L2	161.75 - 116.75	90.054	7	5.2840	0.0333
L3	122 - 77	50.795	7	4.0174	0.0160
L4	83 - 38	23.081	7	2.6859	0.0080
L5	45 - 0	6.679	7	1.3450	0.0032

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	4' HP	7	128.812	5.7366	0.0686	15388
175.00	PiROD 13' Low Profile Platform	7	105.127	5.5203	0.0456	3844
165.00	PiROD 15' Low Profile Platform	7	93.680	5.3527	0.0360	2562

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	195 - 157.5 (1)	TP33.351x26x0.25	37.50	0.00	0.0	39.000	25.6046	-8075.18	998578.00	0.008
L2	157.5 - 116.75 (2)	TP40.839x32.0179x0.3125	45.00	0.00	0.0	39.000	39.1765	-14920.30	1527880.00	0.010
L3	116.75 - 77 (3)	TP48.006x39.1849x0.375	45.00	0.00	0.0	39.000	55.2929	-24283.80	2156420.00	0.011
L4	77 - 38 (4)	TP54.901x46.0798x0.375	45.00	0.00	0.0	39.000	63.2663	-35111.30	2467390.00	0.014
L5	38 - 0 (5)	TP61.6x52.7788x0.4375	45.00	0.00	0.0	39.000	84.9318	-50919.10	3312340.00	0.015

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	195 - 157.5 (1)	TP33.351x26x0.25	320917.50	18.887	39.000	0.484	0.00	0.000	39.000	0.000
L2	157.5 - 116.75 (2)	TP40.839x32.0179x0.3125	1070216.67	33.636	39.000	0.862	0.00	0.000	39.000	0.000
L3	116.75 - 77 (3)	TP48.006x39.1849x0.375	1965275	37.215	39.000	0.954	0.00	0.000	39.000	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	77 - 38 (4)	TP54.901x46.0798x0.375	2985000.00	43.132	39.000	1.106	0.00	0.000	39.000	0.000
L5	38 - 0 (5)	TP61.6x52.7788x0.4375	4354983.33	40.741	39.000	1.045	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V lb	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T lb-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	195 - 157.5 (1)	TP33.351x26x0.25	16835.30	0.658	26.000	0.051	5551.16	0.159	26.000	0.006
L2	157.5 - 116.75 (2)	TP40.839x32.0179x0.3125	20883.80	0.533	26.000	0.041	5514.02	0.085	26.000	0.003
L3	116.75 - 77 (3)	TP48.006x39.1849x0.375	24963.80	0.451	26.000	0.035	5474.96	0.051	26.000	0.002
L4	77 - 38 (4)	TP54.901x46.0798x0.375	28564.20	0.451	26.000	0.035	5439.90	0.038	26.000	0.001
L5	38 - 0 (5)	TP61.6x52.7788x0.4375	32230.80	0.379	26.000	0.029	5412.29	0.025	26.000	0.001

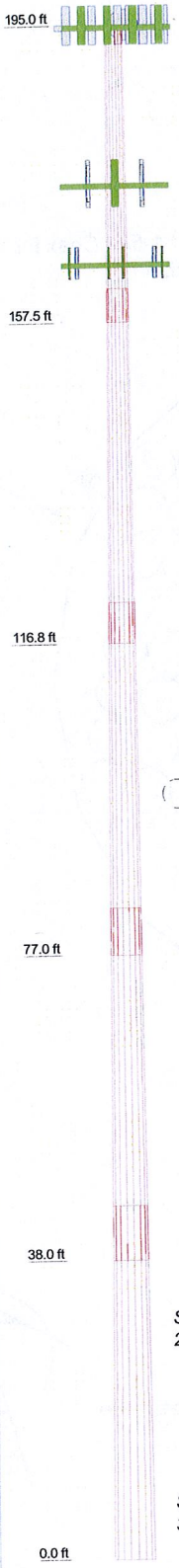
Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	195 - 157.5 (1)	0.008	0.484	0.000	0.051	0.006	0.493 ✔	1.333	H1-3+VT ✔
L2	157.5 - 116.75 (2)	0.010	0.862	0.000	0.041	0.003	0.873 ✔	1.333	H1-3+VT ✔
L3	116.75 - 77 (3)	0.011	0.954	0.000	0.035	0.002	0.966 ✔	1.333	H1-3+VT ✔
L4	77 - 38 (4)	0.014	1.106	0.000	0.035	0.001	1.121 ✔	1.333	H1-3+VT ✔
L5	38 - 0 (5)	0.015	1.045	0.000	0.029	0.001	1.060 ✔	1.333	H1-3+VT ✔

Section Capacity Table

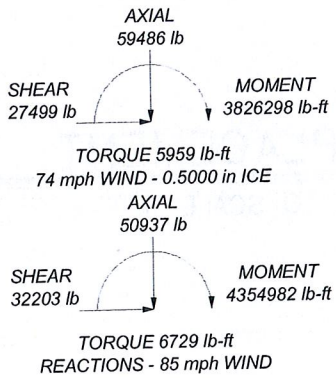
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	195 - 157.5	Pole	TP33.351x26x0.25	1	-8075.18	1331104.42	37.0	Pass
L2	157.5 - 116.75	Pole	TP40.839x32.0179x0.3125	2	-14920.30	2036663.96	65.5	Pass
L3	116.75 - 77	Pole	TP48.006x39.1849x0.375	3	-24283.80	2874507.74	72.5	Pass
L4	77 - 38	Pole	TP54.901x46.0798x0.375	4	-35111.30	3289030.73	84.1	Pass
L5	38 - 0	Pole	TP61.6x52.7788x0.4375	5	-50919.10	4415349.04	79.5	Pass
							Summary	
							Pole (L4) 84.1	Pass
							RATING = **84.1**	**Pass**

TOWER ELEVATION DRAWING AND COAX LAYOUT



Section	1	2	3	4	5
Length (ft)	37.50	45.00	45.00	45.00	45.00
Number of Sides	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.3750	0.4375
Socket Length (ft)	4.25	5.25	6.00	7.00	
Top Dia (in)	26.0000	32.0179	39.1849	46.0798	52.7788
Bot Dia (in)	33.3510	40.8390	48.0060	54.9010	61.6000
Grade			A607-65		
Weight (lb)	2979.5	5485.3	7877.3	9133.9	12067.4

Total Weight (lb): 37543.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5/8"x4' Lightning Rod	195	P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	175
14' T-Arm	195	P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	175
14' T-Arm	195	(2) LGP21401	175
14' T-Arm	195	(2) LGP21401	175
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	195	(2) LGP21401	175
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	195	(2) RRUS-11	175
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	195	(2) RRUS-11	175
(2) ETW190VS12UB	195	(2) RRUS-11	175
(2) ETW190VS12UB	195	DC6-48-60-18-8F	175
(2) ETW190VS12UB	195	PiROD 13' Low Profile Platform	175
4.5" Dia x 4' Dish Mount	195	(2) APL868013-42T0 w/ Mount Pipe	165
4' HP	195	(2) APL868013-42T0 w/ Mount Pipe	165
7770.00 w/ 2"x96" Mount Pipe	175	(2) APL868013-42T0 w/ Mount Pipe	165
7770.00 w/ 2"x96" Mount Pipe	175	(2) DB948F85E-M w/Mount Pipe	165
7770.00 w/ 2"x96" Mount Pipe	175	(2) DB948F85E-M w/Mount Pipe	165
P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	175	PiROD 15' Low Profile Platform	165

MATERIAL STRENGTH

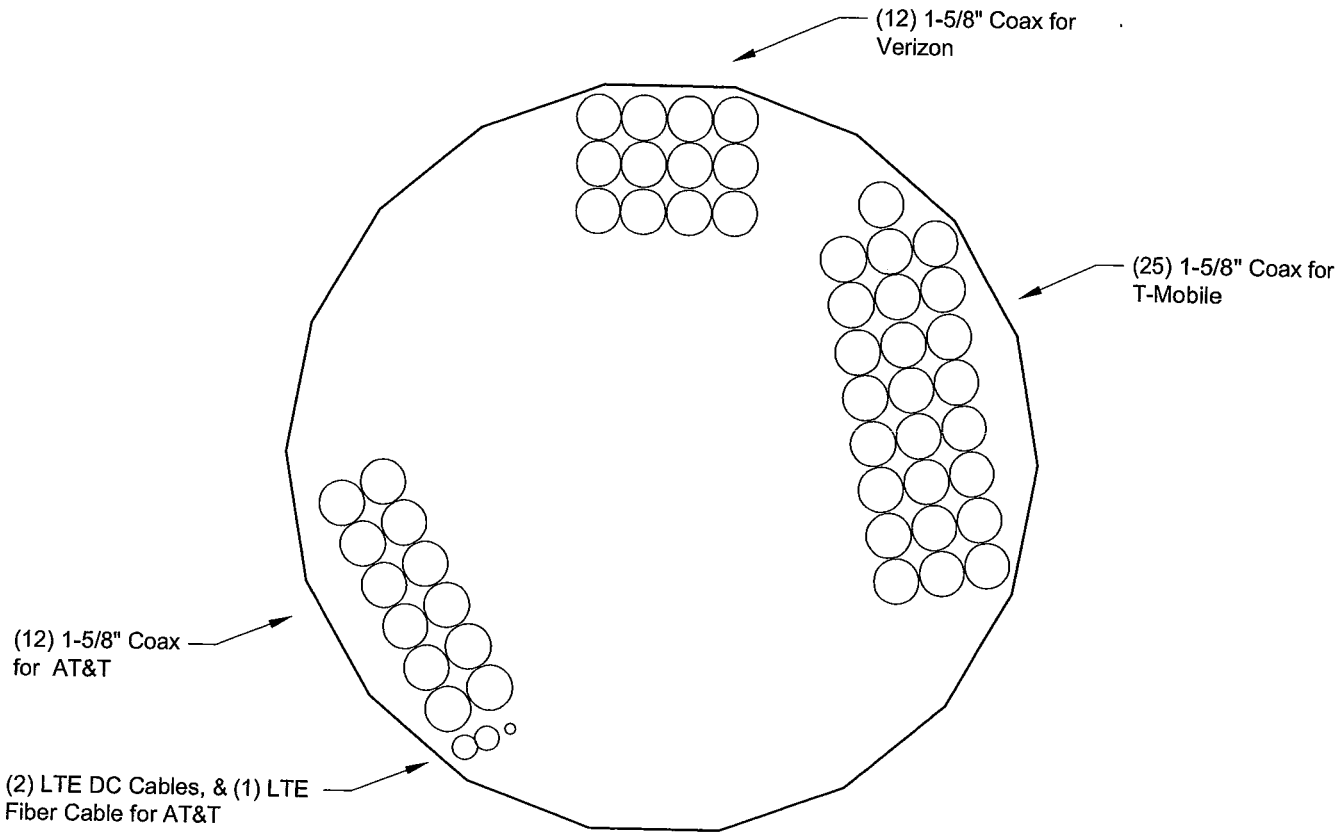
GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

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: 84.1%

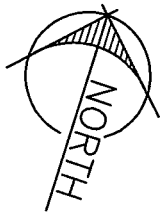
GPD Group
520 South Main St. Suite 2531
Akron, OH 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: CT11215A MONROE - 1/RT 25			
Project: 2011704.81			
Client: T-Mobile Towers	Drawn by: dkarhoff	App'd:	
Code: TIA/EIA-222-F	Date: 10/18/11	Scale: NTS	
Path: \\AKRN03\Data\2011\2011704\81\RISA\CT11215A MONROE - 1RT 25.eri		Dwg No. E-1	



COAX PLACEMENT

NOT TO SCALE



GPD GROUP®
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330-572-2100 Fax 330-572-2101

CT11215A MONROE – 1/RT 25

JOB NO.
2011704.81
DATE
10/18/2011
DRAWN BY
DJK

ANCHOR ROD AND BASE PLATE CALCULATIONS

GPD GROUP

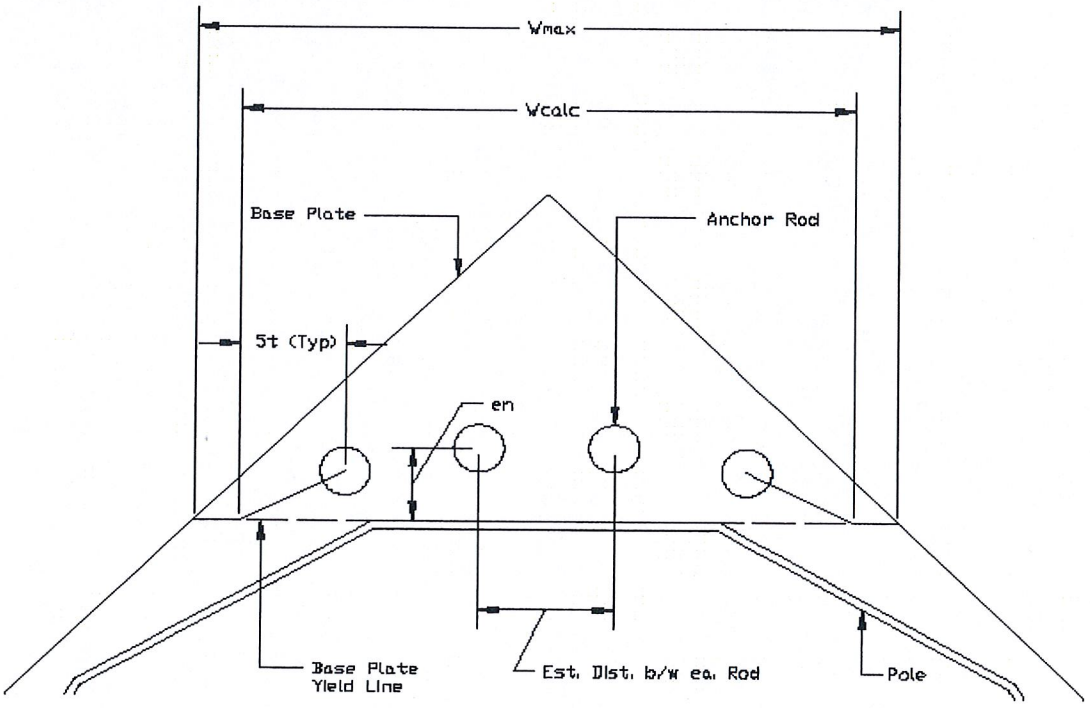
Anchor Rod and Base Plate Stresses
CT11215A MONROE - 1/RT 25
2011704.81

Overturning Moment =	4354.98	k*ft
Axial Force =	50.94	k
Shear Force =	32.20	k

Acceptable Stress Ratio =	105.0%

Anchor Rods		
Pole Diameter =	61.6	in
Number of Rods =	20	
Type =	Upset Rod	
Rod Yield Strength (Fy) =	75	ksi
ASIF =	1.333	
Rod Circle =	69	in
Rod Diameter =	2.25	in
Net Tensile Area =	3.25	in^2
Max Tension on Rod =	148.85	kips
Max Compression on Rod =	153.94	kips
Allow. Rod Force =	195.00	kips
Anchor Rod Capacity =	**76.3%**	**OK**

Base Plate		
Plate Strength (Fy) =	55	ksi
Plate Thickness =	3	in
Plate Width =	68	in
Est. Dist. b/w ea. Rod =	6	in
w_{calc} =	53.548	in
w_{max} =	34.567	in
w =	34.57	in
S =	51.85	in^3
fb =	38.68	ksi
Fb =	55	ksi
Base Plate Capacity =	**70.3%**	**OK**



CAISSON ANALYSIS WORKSHEET

GPD GROUP

Client: T-Mobile Towers
Site ID: CT11215A
Site Name: MONROE - 1/RT 25
Location: Fairfield County, Connecticut
Loading Type: Wind

Job No.: 2011704.81
Sheet No: 1 Of 1
Made By: DJK Date: 10/19/2011
Chk'd By: Date:
Code: F

FOUNDATION DATA

Diameter =	8	ft
Length =	37.5	ft
Rebar Size =	#11	
# of bars =	28	
Tie Size =	#5	
Clear Cover =	4	inches
Edge to Bar Center =	5.33	inches
f'c =	4.5	ksi

RISA Reactions (Service)

Moment =	4354.982	ft-k
Axial =	50.937	kips
Shear =	32.203	kips

LPILE TYPE 2 ANALYSIS FOR REINFORCING CAPACITY

Mn =	111622.70	in-k
Mn =	9301.89	ft-k
Load Factor =	1.3	
ϕ (flexure) =	0.9	
ϕMn =	8371.70	ft-k

MOMENT FROM CAISSON PROGRAM USING ADJUSTED S.F. AND ACTUAL CAISSON LENGTH

Moment = 4825.6 ft-k (max. moment along caisson)

REINFORCING STEEL CAPACITY

$$\text{Capacity} = \frac{\text{LF*Moment from Caisson}}{\phi\text{Mn}} = \frac{6273.28 \text{ ft-k}}{8371.70 \text{ ft-k}} = 74.9\% \quad \text{O.K.}$$

SOIL CAPACITY FROM CAISSON PROGRAM USING ADDITIONAL SAFETY FACTORS

ADDITIONAL SAFETY FACTOR FROM CAISSON = 3.49

$$\text{Capacity} = \frac{\text{Safety Factor of 2}}{\text{Additional Safety Factor}} = \frac{2.00}{3.49} = 57.3\% \quad \text{O.K.}$$

CAISSON Version 4.46 Wed Oct 19 17:05:22 2011
U.W. Short Course - 1998

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**************************************************************************
*                                                                        *
*  PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995, POWER LINE SYSTEMS, INC.*
*                                                                        *
**************************************************************************
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*** ANALYSIS IDENTIFICATION : CT11215A MONROE - 1/RT 25
NOTES : 2011704.81

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.50 STEEL STRENGTH (ksi) = 60.00
DIAMETER (ft) = 8.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

*** SOIL PROPERTIES

LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	C	3.00	0.00	120.0	0.0		
2	C	0.50	3.00	57.6	0.0		
3	C	9.50	3.50	57.6	0.0		
4	S	23.00	13.00	52.6		3.537	34.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 4355.0 VERTICAL (k) = 50.9 SHEAR (k) = 32.2
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 3.49

*** CALCULATED PIER LENGTH (ft) = 37.500

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
C	0.50	3.00	120.0	0.0		0.00	2.00
C	3.50	0.50	57.6	0.0		0.00	3.75
C	4.00	9.50	57.6	0.0		0.00	8.75
S	13.50	14.72	52.6		3.537	1652.98	21.58
S	28.22	9.28	52.6		3.537	-1540.19	33.05

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR SHEAR (k)	WITH THE ADDITIONAL SAFETY FACTOR MOMENT (ft-k)	WITHOUT ADDITIONAL SAFETY FACTOR SHEAR (k)	WITHOUT ADDITIONAL SAFETY FACTOR MOMENT (ft-k)
0.00	112.8	15241.4	32.3	4367.2
3.75	112.8	15664.3	32.3	4488.4
7.50	112.8	16087.3	32.3	4609.5
11.25	112.8	16510.2	32.3	4730.7
15.00	-11.4	16841.3	-3.3	4825.6
18.75	-365.9	16153.4	-104.9	4628.5
22.50	-783.2	14018.3	-224.4	4016.7
26.25	-1263.3	10200.7	-362.0	2922.8
30.00	-1274.2	4935.1	-365.1	1414.1

33.75	-668.5	1273.0	-191.5	364.8
37.50	0.0	-0.0	0.0	-0.0

*** TOTAL REINFORCEMENT PCT = 0.46 REINFORCEMENT AREA (in^2) = 33.30
*** USABLE AXIAL CAP. (k) = 50.9 USABLE MOMENT CAP. (ft-k) = 6065.3

*** US Standard Re-Bars (Select one of the following):

167	BARS #4	(AREA = 0.20 in^2	DIA = 0.500 in)	AT SPACING (in) =	1.62
108	BARS #5	(AREA = 0.31 in^2	DIA = 0.625 in)	AT SPACING (in) =	2.50
76	BARS #6	(AREA = 0.44 in^2	DIA = 0.750 in)	AT SPACING (in) =	3.55
56	BARS #7	(AREA = 0.60 in^2	DIA = 0.875 in)	AT SPACING (in) =	4.82
43	BARS #8	(AREA = 0.79 in^2	DIA = 1.000 in)	AT SPACING (in) =	6.28
34	BARS #9	(AREA = 1.00 in^2	DIA = 1.128 in)	AT SPACING (in) =	7.95
27	BARS #10	(AREA = 1.27 in^2	DIA = 1.270 in)	AT SPACING (in) =	10.01
22	BARS #11	(AREA = 1.56 in^2	DIA = 1.410 in)	AT SPACING (in) =	12.28
15	BARS #14	(AREA = 2.25 in^2	DIA = 1.693 in)	AT SPACING (in) =	18.01

*** PRESSURE UNDER CAISSON DUE TO DESIGN AXIAL LOAD (psf) = 1013.4

LPILE Plus for Windows, Version 5.0 (5.0.39)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This program is licensed to:

dkarhoff
GPD Group

Path to file locations: C:\Documents and Settings\dkarhoff\Desktop\
Name of input data file: CT11215A.lpd
Name of output file: CT11215A.lpo
Name of plot output file: CT11215A.lpp
Name of runtime file: CT11215A.lpr

Time and Date of Analysis

Date: October 17, 2011 Time: 15:26:05

Problem Title

New LPILE Plus 5.0 Data File

Program Options

Units Used in Computations - US Customary Units: Inches, Pounds

Basic Program Options:

Analysis Type 2:
- Computation of Ultimate Bending Moment of Cross Section (Section Design)

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Number of sections = 1

Pile Section No. 1

The sectional shape is a circular drilled shaft (bored pile).

Outside Diameter = 96.0000 in

Material Properties:

Compressive Strength of Concrete = 4.500 kip/in**2
Yield Stress of Reinforcement = 60. kip/in**2
Modulus of Elasticity of Reinforcement = 29000. kip/in**2

Number of Reinforcing Bars	=	28	
Area of Single Bar	=	1.56000	in**2
Number of Rows of Reinforcing Bars	=	15	
Area of Steel	=	43.680	in**2
Area of Shaft	=	7238.229	in**2
Percentage of Steel Reinforcement	=	.603	percent
Cover Thickness (edge to bar center)	=	5.330	in

Unfactored Axial Squash Load Capacity = 30139.95 kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement in**2	Distance to Centroidal Axis in
1	1.560	42.670
2	3.120	41.600
3	3.120	38.444
4	3.120	33.361
5	3.120	26.604
6	3.120	18.514
7	3.120	9.495
8	3.120	0.000
9	3.120	-9.495
10	3.120	-18.514
11	3.120	-26.604
12	3.120	-33.361
13	3.120	-38.444
14	3.120	-41.600
15	1.560	-42.670

Axial Thrust Force = 50937.00 lbs

Unfactored (Nominal) Moment Capacity at Concrete Strain of 0.003 = 111622.69874 in-kip

The analysis ended normally.