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Via Hand Delivery

October 16, 2009

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Clearwire Corporation - Exempt Modification

Dear Mr. Caruso:

On behalf of Clearwire Corporation, enclosed for filing is an original and five (5) copies of a Notice to Make an Exempt Modification to an Existing Facility at 150 North Main Street, Branford, CT.

I have also enclosed a copy of this transmittal letter which I would like to have date-stamped and returned to the courier delivering this package.

Also enclosed is a check in the amount of $500.00 to cover the filing fee. If you have any questions, please feel free to contact me.

Very truly yours,

BROWN RUDNICK LLP

By: _____
Thomas J. Regan

TJR/bh
Enclosures

40265501 v1 - REGANTJ - 025064/0017

cc/encls: via 1st Class Mail:

Town of Branford
Town Hall
First Selectman Anthony DaRos
1019 Main Street
Branford, CT 06405

ORIGINAL

EM-CLEARWIRE-014-0910160

CONNECTICUT SITING COUNCIL

In re:

Clearwire Corporation's Notice to Make an Exempt Modification to an Existing Facility at 150 North Main Street, Branford, Connecticut.	:	EXEMPT MODIFICATION NO. _____
	:	October 16, 2009

RECEIVED
OCT 16 2009
CONNECTICUT
SITING COUNCIL

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), Clearwire Corporation ("Clearwire") hereby gives notice to the Connecticut Siting Council ("Council") and the Town of Branford of Clearwire's intent to make an exempt modification to an existing monopole tower (the "Tower") located at 150 North Main Street in Branford, Connecticut. Specifically, Clearwire plans to add 3 WiMAX antennas, 3 Samsung Remote Radio Heads and 3 Dragonwave dishes required for backhaul. Under the Council's regulations (Conn. Agencies Regs. § 16-50j-72(b)), Clearwire's plans do not constitute a modification subject to the Council's review because Clearwire will not change the height of the tower, will not extend the boundaries of the compound, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

Clearwire is currently developing a 4G wireless broadband network to provide high-speed wireless data and VoIP service within the State of Connecticut. Clearwire's 4G service leverages the WiMAX technology to enable enhanced wireless data communications. In order to accomplish the upgrade at this site, Clearwire plans to add 3 WiMAX antennas, 3 Remote Radio Head, 3 dishes and install additional WiMAX-related electronic equipment at the base of the Tower.

The Tower is a 150-foot monopole tower located at 150 North Main Street in Branford, Connecticut (latitude 41° 17' 19", longitude -72° 48' 49.9"). The Tower is owned by Crown

ROWN RUDNICK LLP
TYPLACE I
5 ASYLUM STREET
ARTFORD, CT 06103
30) 509-6500

Castle. Multiple carriers are currently located on the Tower. Presently, Sprint has 6 CDMA antennas spread over three sectors with an antenna centerline at 150 feet. Sprint's base station equipment is located adjacent to the base of the Tower. A site plan with the Tower specifications is attached.

Clearwire's plans to locate 3 additional WiMAX antennas and 3 Remote Radio Heads on the Tower (one per sector). Clearwire will also add 3 Dragonwave dishes. The new antennas, Remote Radio Heads and Dragonwave dishes will have the same centerline as the existing antennas – 150 feet. Six cables, 5/16" in diameter, will run to the new WiMAX antennas (two per panel). Additionally, 3 cables, 1/2" in diameter, will run to the new Dragonwave dishes (one per dish). Also, Clearwire plans to mount a conduit to the exterior of the monopole and run the proposed cables through the conduit. To confirm that the Tower can support these changes, Clearwire commissioned Paul J. Ford and Company to perform a structural analysis of the Tower (attached). According to the structural analysis dated October 1, 2009, the "...the existing monopole structure and foundation have sufficient capacity to adequately support the existing and proposed loading" (Page 1, Structural Analysis Report).

Within the existing compound Clearwire will install one WiMAX equipment cabinet on an existing 11-foot by 8-foot (approximately) concrete pad and upgrade Sprint's existing PPC cabinet. Hence, no increase in the size of the concrete pad or the boundaries of the site is necessary. Excluding brief, minor, construction-related noise during the addition of the antennas, Dragonwave dishes and the installation of the equipment cabinets, the proposed changes to the Tower will not increase noise levels at the site.

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RTFORD, CT 06103
) 509-6500

The addition of the new WiMAX antennas, Remote Radio Heads and Dragonwave dishes will not adversely impact the health and safety of the surrounding community or the people working on the Tower. The total radio frequency exposure measured around the Tower will be well below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). The worst-case power density analysis for the antennas, measured at the base of the Tower, indicates that the proposed antennas will emit .00045 % of the NCRP's standard for maximum permissible exposure. A cumulative power density analysis indicates that together, all of the antennas on the Tower will emit 28.52% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be well below the FCC mandated radio frequency exposure limits in all locations around the Tower, even with extremely conservative assumptions. The power density analysis is attached.

In conclusion, Clearwire's proposed plan to add 3 WiMAX antennas, 3 Remote Radio Heads, 3 Dragonwave dishes and WiMAX associated base station equipment does not constitute a modification subject to the Council's jurisdiction because Clearwire will not increase the height of the Tower, will not extend the boundaries of the site, will not increase the noise levels at the site, and the total radio frequency electromagnetic radiation power density will stay within all applicable standards. *See* Conn. Agencies Regs. § 16-50j-72.

Clearwire Corporation

By: _____

Thomas J. Regan
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Hartford, CT 06103-3402
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Certificate of Service

This is to certify that on this 16th day of October, 2009, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

Town of Branford
Town Hall
First Selectman Anthony DaRos
1019 Main Street
Branford, CT 06405

By: _____
Thomas J. Regan

40265406 v1 - 025064/0017

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
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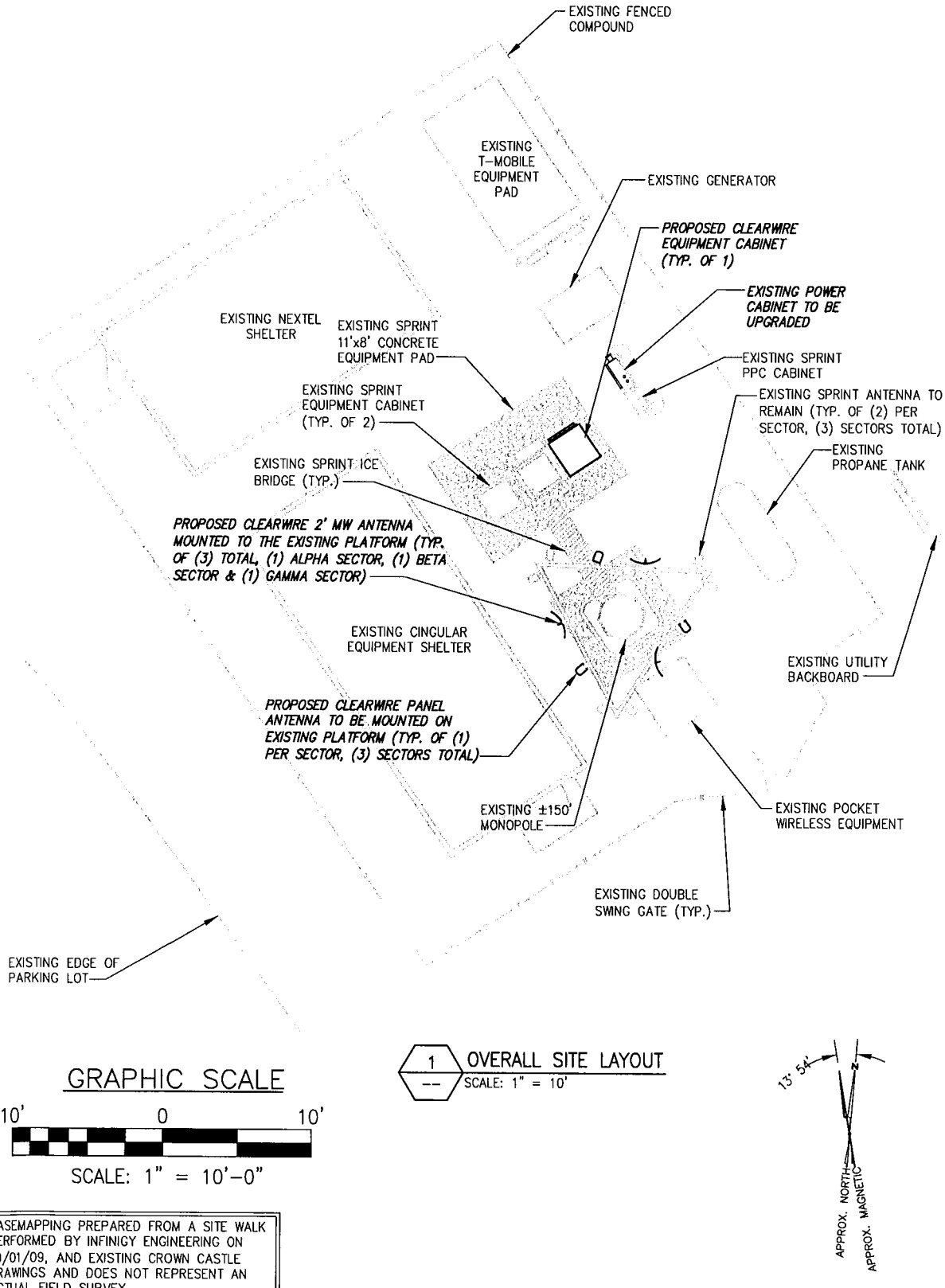


GRAPHIC SCALE

10' 0 10'

SCALE: 1" = 10'-0"

1 -- OVERALL SITE LAYOUT
SCALE: 1" = 10'

13° 54'
APPROX. NORTH
APPROX. MAGNETIC

BASEMAPPING PREPARED FROM A SITE WALK PERFORMED BY INFINIGY ENGINEERING ON 10/01/09, AND EXISTING CROWN CASTLE DRAWINGS AND DOES NOT REPRESENT AN ACTUAL FIELD SURVEY.

infinigy engineering & surveying
11 Herbert Drive
Latham, NY 12110
OFFICE: (518) 690-0790
FAX: (518) 690-0793

No.	Submittal / Revision	App'd	Date
1	ISSUED FOR ZONING	DJW	10/14/09
0	SUBMITTED FOR REVIEW	DJW	10/7/09

Drawn: DJW Date: 10/7/09
Designed: DJW Date: 10/7/09
Checked: DJW Date: 10/7/09

Project Number
233-007

Project Title

CT-NHN0097

150 NORTH MAIN ST
BRANFORD, CT 06405

Prepared For

clearwire

4400 CARILLON POINT
KIRKLAND, WA 98033

Drawing Scale:
AS NOTED

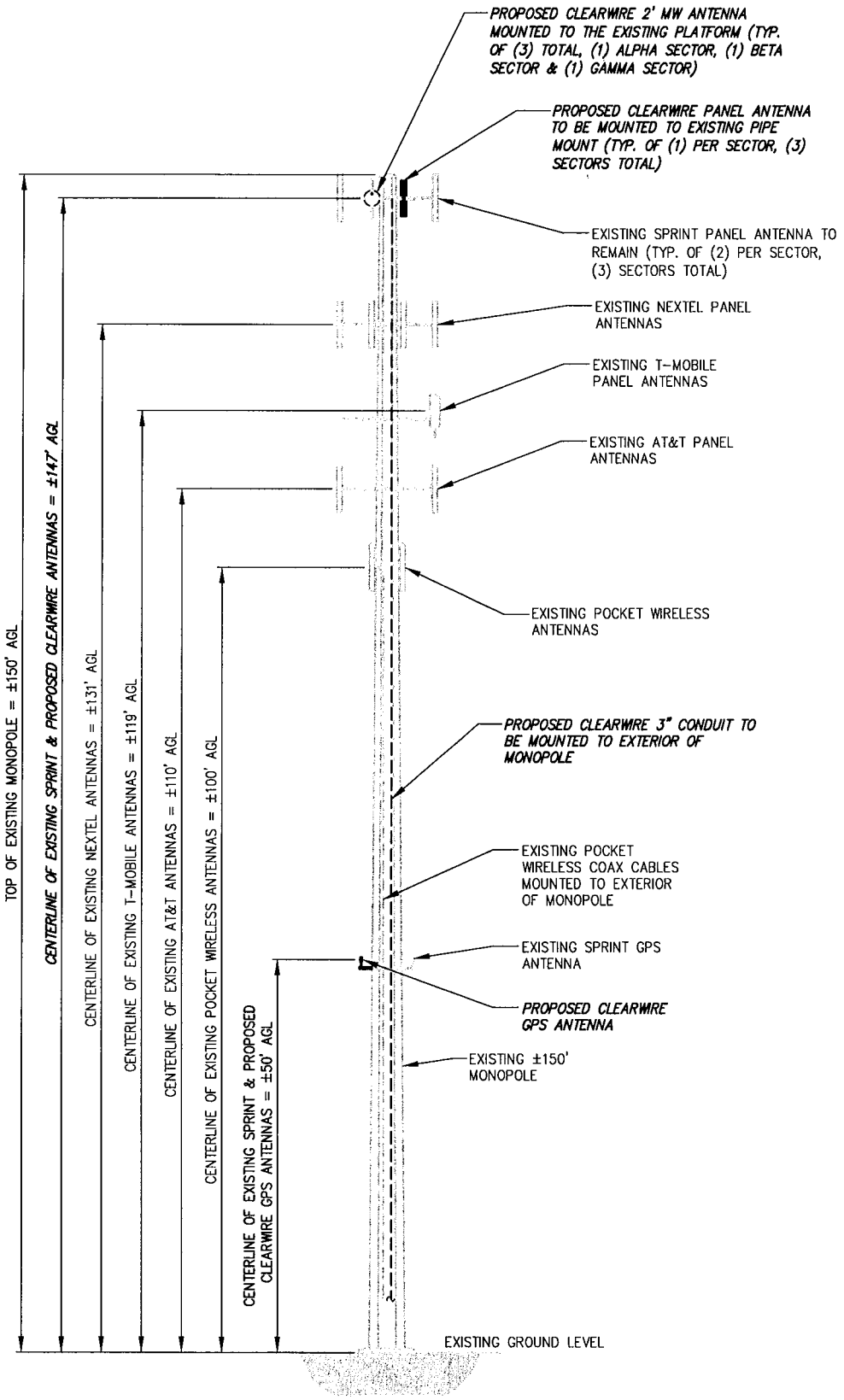
Date:
10/14/09

Drawing Title

OVERALL SITE LAYOUT

Drawing Number

SC-1



1 / -- MONOPOLE ELEVATION
NOT TO SCALE

INFINIGY ENGINEERING DID NOT PERFORM A STRUCTURAL ANALYSIS FOR THE PROPOSED WORK AND ACCEPTS NO LIABILITY FOR THE STRUCTURAL INTEGRITY OF THE PROPOSED OR EXISTING INSTALLATION. STRUCTURAL ANALYSIS TO BE COMPLETED PRIOR TO START OF CONSTRUCTION.

infinigy engineering & surveying
11 Herbert Drive
Latham, NY 12110
OFFICE: (518) 690-0790
FAX: (518) 690-0793

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Project Title

CT-NHN0097

150 NORTH MAIN ST
BRANFORD, CT 06405

Prepared For

clearwire

4400 CARILLON POINT
KIRKLAND, WA 98033

Drawing Scale:
AS NOTED

Date:
10/14/09

Drawing Title

TOWER ELEVATION

Drawing Number

SC-2

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 1500 • Columbus, Ohio 43215-3708

October 1, 2009
John Eigenbrode
Crown Castle International
3530 Toringdon WaySuite 300
Charlotte, NC 28277
(704) 405-6606

Structure is Adequate
Monopole is Adequate
Foundation is Adequate

Subject: Structural Analysis Report of Existing 147-Ft Monopole

Carrier Designation	Clearwire Corp Co-Locate	
	Carrier Site Number:	CT-NHN0097
	Carrier Site Name:	N/A
Crown Castle Designation	Crown Castle BU Number:	876321
	Crown Castle Site Name:	BRANFORD BANM TOWER
	Crown Castle JDE Job Number:	124235
	Crown Castle Application Number:	87138 Rev. 0
	Crown Castle PO Number:	347136
	Crown Castle WO Number:	296687
Engineering Firm Designation	Paul J. Ford and Company	37509-0678 R2
Site Data	150 North Main Street, BRANFORD, New Haven County, CT Latitude 41° 17' 19", Longitude -72° 48' 49.9"	

Dear John Eigenbrode,

Paul J. Ford and Company is pleased to submit this "Structural Analysis Report" to determine the structural adequacy of the above monopole. This analysis has been performed in accordance with the Crown Castle Structural "Statement of Work", the terms of the Purchase Order, and the TIA/EIA-222-F Standard for the following Basic Wind Speeds: 85 mph without ice, 74 mph with 0.5" radial ice, and 50 mph (Operational) without ice.

The monopole was analyzed with the addition of the proposed antenna loading shown in the table below combined with the existing loading on the structure (LC:5) :

Elevation - ft	Count	Antenna Description
149	3	Dragonwave A-ANT-23G-2-C
145	3	Argus Tech. LLPX310R W/ MOUNT PIPE
	3	Samsung Telecom FDD_R6_RRH

Based on our analysis, we have determined that the existing monopole structure and foundation have sufficient capacity to adequately support the existing and proposed loading. Modifications are not required at this time.

Respectfully submitted,

Udaykiran Yerra, E.I.T. U.Y.
Structural Engineer
uyerra@pjfweb.com

STATE OF CONNECTICUT
REGISTERED PROFESSIONAL ENGINEER
OCT 02 2009

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22

INTRODUCTION

At the request of Crown Castle International, Paul J. Ford and Company has analyzed the monopole at the BRANFORD BANM TOWER site located in BRANFORD, New Haven County, CT. This structural analysis has been performed in accordance with the TIA/EIA-222-F-1996 Standard, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures" to determine if the monopole structure has adequate capacity to support the existing and proposed antenna loading.

ANALYSIS CRITERIA

The existing monopole has been analyzed for the antenna and coax loading listed in Tables 1 and 2 below. The monopole has been analyzed in accordance with the TIA/EIA-222-F-1996 Standard for the following fastest-mile Basic Wind Speeds: 85 mph without ice, 74 with 0.5" radial ice, and 50 mph without ice as recommended for New Haven County, CT.

Table 1 - Proposed Antenna and Cable Information

Mounting Level ft	Center Line Elevation ft	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
147	149	3	Dragonwave	A-ANT-23G-2-C	6	5/16 (I)	Proposed
	145	3	Argus Tech.	LLPX310R W/ MOUNT PIPE	3	1/2 (I)	
		3	Samsung Telecom	FDD_R6_RRH	1	3" Rigid Conduit (E)	

(E) Conduit to be mounted externally and exposed to the wind. See coax layout in Appendix B.
(I) Coax to be mounted inside the conduit and shielded from the wind. See coax layout in Appendix B.

Table 2 - Existing Antenna and Cable Information

Mounting Level ft	Center Line Elevation ft	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
147	149	2	Decibel	DB980H90E-M w/Mount Pipe	6	1-5/8 (I)	Existing
		2		DB950F40T2E-M w/Mount Pipe			
		2		950F65T2ZE-M w/Mount Pipe			
	147	1	-	Platform Mount [LP 403-1]			
131	132	12	Decibel	DB844H90E-XY w/Mount Pipe	12	1-5/8 (I)	Existing
	131	1	-	12' Low Profile Platform			
119	122	3	RFS	APX16DWV-16DWVS-C w/ mount pipe	12	1-5/8 (I)	Existing
		6	Remec	S20057A-1			
	119	1	-	12' T-Arm Mounts			
110	112	6	Powerwave	7770 w/ Mount Pipe	12	1-1/4 (I)	Existing
		12		LGP2140X			
	110	1	-	12' Low Profile Platform			
100	100	3	RFS	APXV18-206517S-C-ACU w/ Mount Pipe	6	1-5/8 (E)	Existing
		1	-	(3) Flush Mounts			
60	60	-	-	-	1	1/2 (I)	Existing
49	49	1	-	GPS	1	1/2 (I)	Existing
		1	-	Side Arm Mount [SO 701-1]			

(E) Coax to be mounted externally and exposed to the wind. See coax layout in Appendix B.
(I) Coax to be mounted internally and shielded from the wind. See coax layout in Appendix B.

Information for the existing monopole and foundation is based on the available drawings, documents, and/or information listed in Table 3 below.

Table 3 - Reference Documents Provided

Document	Source	Reference	Remarks
Proposed Antenna Loading	Crown Castle	876321	
Existing Antenna Loading	Crown Castle	876321	
Tower Reinforcement Design/Drawings/Data	CCISITES	2431042	PJF, 41709-0058 Record, 06/15/09
Geotechnical Reports	CCISITES	2135657	Dr. Clarence Welti, 10/08/96
Tower Foundation Drawings/Design/Specs	CCISITES	1613620	PJF, 29299-111, 03/15/99
Tower Manufacturer Drawings	CCISITES	1614568	PJF, 29299-111, 03/15/99
Structural Analysis	CCISITES		PJF, 37509-0678 R1, 9/25/2009

ANALYSIS PROCEDURE

ANALYSIS METHODS

RISA Tower (Version 5.3.1.0), a commercially available software program, was used to create a three-dimensional model of the monopole and calculate member stresses for various dead, live, wind, and ice load cases. The analysis was performed in accordance with the TIA/EIA-222-F Standard. Selected output from the analysis is included in Appendix A.

ASSUMPTIONS

1. Monopole was fabricated and installed in accordance with the manufacturer's specifications.
2. Monopole has been properly 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 the referenced drawings.
4. Pole was analyzed for existing and proposed loading for Clearwire (LC:5) as per work order.

If any of the above assumptions are not valid or have been made in error, then the results of this analysis may be affected. In that case, please notify Paul J. Ford and Company immediately so that we can review any new and/or modified information and determine its affect on the analysis results regarding the structural adequacy of the monopole and foundation.

ANALYSIS RESULTS

Our structural analysis indicates that the existing monopole structure and foundation have sufficient capacity to adequately support the existing and proposed loading.

Table 4 - Component Stresses vs. Capacity

Notes	Component	Elevation ft	% Capacity	Pass / Fail
Risa Tower Analysis Summary:				
	L1	147 - 99.5	64.9	Pass
	L2	99.5 - 68.5	88.1	Pass
	L3	68.5 - 59	76	Pass
	L4	59 - 49.5	88.8	Pass
	L5	49.5 - 29.25	85.4	Pass
	L6	29.25 - 23	90.6	Pass
	L7	23 - 0	90.8	Pass
Additional Components:				
	Base Plate	0 - 0	40.6	Pass
	Anchor Rods	0 - 0	83.3	Pass
	Foundation (Soil) - PJF Pole	0 - 0	89.1	Pass
	Foundation (Structural) - PJF Pole	0 - 0	93.5	Pass
			Structural Rating (maximum capacity of all components) =	93.5

As summarized in Table 4 above, our analysis indicates that the existing monopole structure and foundation have sufficient capacity to adequately support the existing and proposed loading. Modifications are not required at this time.

Table 5 - Microwave Dish Tilt (Sway) Results for 50 mph Service Wind

Dish Elevation ft	Dish	Dish Diameter ft	Dish Frequency GHz	Analysis Results Tilt(Sway) at Service Wind deg
149	A-ANT-23G-2-C	2.18	23.60	2.04

APPENDIX A

Output From Computer Programs

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 New Haven 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.
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*	*Section Length*	*Splice Length*	*Number of*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*	*Sides*	*in*	*in*	*in*	*in*	
L1	147.00-99.50	47.50	3.75	12	22.0000	30.3130	0.2500	1.0000	A607-60 (60 ksi)
L2	99.50-68.50	34.75	0.00	12	29.1567	35.2376	0.3125	1.2500	A607-65 (65 ksi)
L3	68.50-59.00	9.50	4.75	12	35.2376	36.9000	0.3804	1.5217	65 ksi (w/ Reinf.) (65 ksi)
L4	59.00-49.50	14.25	0.00	12	35.3079	37.9374	0.3750	1.5000	A607-65 (65 ksi)
L5	49.50-29.25	20.25	5.25	12	37.9374	41.4810	0.4251	1.7002	65 ksi (w/ Reinf.) (65 ksi)

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
L6	29.25-23.00	11.50	0.00	12	39.7122	41.8248	0.4375	1.7500	A607-65 (65 ksi)
L7	23.00-0.00	23.00		12	41.8248	45.8500	0.4708	1.8830	65 ksi (w/ Reinf.) (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	22.7761	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	31.3823	24.2007	2791.7645	10.7626	15.7021	177.7952	5656.8718	11.9109	7.4539	29.816
L2	30.8646	29.0245	3082.2498	10.3262	15.1032	204.0796	6245.4738	14.2850	6.9765	22.325
	36.4806	35.1434	5471.4800	12.5032	18.2531	299.7566	11086.701 9	17.2965	8.6062	27.54
L3	36.4806	42.6995	6622.0576	12.4789	18.2531	362.7913	13418.084 0	21.0154	8.4241	22.144
	38.2017	44.7359	7615.4145	13.0740	19.1142	398.4166	15430.894 4	22.0177	8.8696	23.315
L4	37.4609	42.1815	6570.1987	12.5060	18.2895	359.2331	13313.003 8	20.7605	8.4575	22.553
	39.2757	45.3566	8168.3265	13.4473	19.6516	415.6576	16551.244 0	22.3231	9.1622	24.433
L5	39.2757	51.3429	9221.7751	13.4294	19.6516	469.2640	18685.816 6	25.2694	9.0281	21.24
	42.9443	56.1930	12089.826 3	14.6980	21.4872	562.6536	24497.265 7	27.6565	9.9777	23.474
L6	42.1115	55.3282	10893.250 2	14.0603	20.5709	529.5465	22072.678 3	27.2309	9.4704	21.647
	43.3002	58.3044	12747.386 8	14.8167	21.6652	588.3795	25829.661 7	28.6956	10.0365	22.941
L7	43.3002	62.6864	13683.437 3	14.8047	21.6652	631.5847	27726.353 7	30.8523	9.9474	21.131
	47.4674	68.7880	18080.608 0	16.2458	23.7503	761.2791	36636.213 7	33.8554	11.0262	23.422

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 147.00-99.50				1	1	1		
L2 99.50-68.50				1	1	1		
L3 68.50-59.00				1	1	1		
L4 59.00-49.50				1	1	1		
L5 49.50-29.25				1	1	1		
L6 29.25-23.00				1	1	1		
L7 23.00-0.00				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	147.00 - 0.00	6	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
9207 (5/16 FOEM)	C	No	Inside Pole	147.00 - 0.00	6	No Ice	0.00	1.00
						1/2" Ice	0.00	1.00
(1/2")	C	No	Inside Pole	147.00 - 0.00	3	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
3" Conduit ***	C	No	CaAa (Out Of Face)	147.00 - 0.00	1	No Ice	0.25	0.95
						1/2" Ice	0.35	0.95
LDF7-50A (1-5/8 FOAM) ***	C	No	Inside Pole	131.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1 5/8" foam) ***	C	No	Inside Pole	119.00 - 0.00	12	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
LDF6-50 (1 1/4" foam) ***	C	No	Inside Pole	110.00 - 0.00	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
LDF7-50A (1-5/8 FOAM) **	C	No	CaAa (Out Of Face)	100.00 - 0.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF4P-50A (1/2 FOAM) **	C	No	Inside Pole	60.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
LDF4P-50A (1/2 FOAM) **	C	No	Inside Pole	49.00 - 0.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
Aero MP3-04	C	No	CaAa (Out Of Face)	25.50 - 0.00	1	No Ice	0.27	0.00
						1/2" Ice	0.38	0.00
Aero MP3-04	C	No	CaAa (Out Of Face)	52.00 - 32.00	1	No Ice	0.27	0.00
						1/2" Ice	0.38	0.00
Aero MP3-04	C	No	CaAa (Out Of Face)	71.00 - 61.00	1	No Ice	0.27	0.00
						1/2" Ice	0.38	0.00
LDF7-50A (1-5/8 FOAM)	C	No	CaAa (Out Of Face)	32.00 - 25.50	1	No Ice	0.20	0.00
						1/2" Ice	0.30	0.00
LDF7-50A (1-5/8 FOAM)	C	No	CaAa (Out Of Face)	61.00 - 52.00	1	No Ice	0.20	0.00
						1/2" Ice	0.30	0.00
LDF7-50A (1-5/8 FOAM)	C	No	CaAa (Out Of Face)	100.00 - 71.00	1	No Ice	0.20	0.00
						1/2" Ice	0.30	0.00

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	147.00-99.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	11.974	1.21
L2	99.50-68.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	14.065	1.44
L3	68.50-59.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.789	0.44
L4	59.00-49.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.434	0.44
L5	49.50-29.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	10.315	0.94
L6	29.25-23.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.000	2.978	0.29
L7	23.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	11.938	1.07

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	147.00-99.50	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.774	1.21
L2	99.50-68.50	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	20.293	1.44
L3	68.50-59.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	6.772	0.44
L4	59.00-49.50	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	6.361	0.44
L5	49.50-29.25	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	14.560	0.94
L6	29.25-23.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	4.255	0.29
L7	23.00-0.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.793	1.07

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	147.00-99.50	-0.2939	0.1697	-0.3827	0.2210
L2	99.50-68.50	-0.5054	0.2918	-0.6689	0.3862
L3	68.50-59.00	-0.5605	0.3236	-0.7318	0.4225
L4	59.00-49.50	-0.5270	0.3043	-0.6998	0.4040
L5	49.50-29.25	-0.5730	0.3308	-0.7513	0.4338
L6	29.25-23.00	-0.5438	0.3140	-0.7239	0.4179
L7	23.00-0.00	-0.5904	0.3408	-0.7757	0.4479

Discrete Tower Loads

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

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
(2) DB980H90E-M w/Mount Pipe	A	From Face	4.00 0.00 0.00	0.0000	148.60	No Ice 1/2" Ice	4.27 4.86	3.86 4.95	0.03 0.07
(2) DB950F40T2E-M w/Mount Pipe	B	From Face	4.00 0.00 0.00	0.0000	148.60	No Ice 1/2" Ice	6.89 7.56	6.29 7.40	0.05 0.10
(2) 950F65T2ZE-M w/Mount Pipe	C	From Face	4.00 0.00 0.00	0.0000	148.60	No Ice 1/2" Ice	4.47 5.06	4.44 5.54	0.04 0.07
Platform Mount [LP 403-1]	C	None		0.0000	147.00	No Ice 1/2" Ice	18.85 24.30	18.85 24.30	1.50 1.80
**									
LLPX310R W/ MOUNT PIPE	A	From Face	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice	5.06 5.48	2.98 3.52	0.05 0.08
LLPX310R W/ MOUNT PIPE	B	From Face	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice	5.06 5.48	2.98 3.52	0.05 0.08
LLPX310R W/ MOUNT PIPE	C	From Face	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice	5.06 5.48	2.98 3.52	0.05 0.08
FDD_R6_RRH	A	From Face	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice	1.79 1.97	0.99 1.24	0.04 0.05
FDD_R6_RRH	B	From Face	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice	1.79 1.97	0.99 1.24	0.04 0.05
FDD_R6_RRH	C	From Face	4.00 0.00 0.00	0.0000	145.00	No Ice 1/2" Ice	1.79 1.97	0.99 1.24	0.04 0.05
**									
***									
(4) DB844H90E-XY w/Mount Pipe	A	From Face	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	0.04 0.08
(4) DB844H90E-XY w/Mount Pipe	B	From Face	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	0.04 0.08
(4) DB844H90E-XY w/Mount Pipe	C	From Face	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice	3.58 4.20	5.40 6.49	0.04 0.08
12' Low Profile Platform	C	None		0.0000	131.00	No Ice 1/2" Ice	22.61 25.26	22.61 25.26	0.93 1.20
***									
RFS APX16DWV-16DWVS-C w/ mount pipe	A	From Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice	7.15 7.62	3.34 3.99	0.06 0.10
RFS APX16DWV-16DWVS-C w/ mount pipe	B	From Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice	7.15 7.62	3.34 3.99	0.06 0.10
RFS APX16DWV-16DWVS-C w/ mount pipe	C	From Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice	7.15 7.62	3.34 3.99	0.06 0.10
(2) Remec S20057A-1	A	From Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice	0.83 0.96	0.39 0.50	0.01 0.01
(2) Remec S20057A-1	B	From Face	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice	0.83 0.96	0.39 0.50	0.01 0.01
(2) Remec S20057A-1	C	From Face	4.00	0.0000	122.00	No Ice	0.83	0.39	0.01

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
			0.00 0.00			1/2" Ice	0.96	0.50	0.01
12' T-Arm Mounts	C	None		0.0000	119.00	No Ice 1/2" Ice	12.00 15.00	12.00 15.00	0.80 0.88
***									
(2) Powerwave 7770 w/ Mount Pipe	A	From Face	4.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	5.98 6.44	4.12 4.77	0.06 0.11
(2) Powerwave 7770 w/ Mount Pipe	B	From Face	4.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	5.98 6.44	4.12 4.77	0.06 0.11
(2) Powerwave 7770 w/ Mount Pipe	C	From Face	4.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	5.98 6.44	4.12 4.77	0.06 0.11
(4) LGP2140X	A	From Face	4.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	1.23 1.38	0.26 0.34	0.00 0.01
(4) LGP2140X	B	From Face	4.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	1.23 1.38	0.26 0.34	0.00 0.01
(4) LGP2140X	C	From Face	4.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	1.23 1.38	0.26 0.34	0.00 0.01
12' Low Profile Platform	C	None		0.0000	110.00	No Ice 1/2" Ice	19.02 22.72	19.02 22.72	0.93 1.20
***									
APXV18-206517S-C-ACU w/ Mount Pipe	A	From Face	1.00 0.00 0.00	0.0000	100.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09
APXV18-206517S-C-ACU w/ Mount Pipe	B	From Face	1.00 0.00 0.00	0.0000	100.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09
APXV18-206517S-C-ACU w/ Mount Pipe	C	From Face	1.00 0.00 0.00	0.0000	100.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.09
(3) Flush Mounts	C	None		0.0000	100.00	No Ice 1/2" Ice	5.00 7.00	5.00 7.00	0.12 0.20
**									
GPS	C	From Face	2.00 0.00 0.00	0.0000	49.00	No Ice 1/2" Ice	0.20 0.27	0.20 0.27	0.02 0.02
Side Arm Mount [SO 701-1]	C	None		0.0000	49.00	No Ice 1/2" Ice	0.85 1.14	1.67 2.34	0.07 0.08

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
A-ANT-23G-2-C	A	Paraboloid w/o	From	4.00	0.0000		149.00	2.17	No Ice	3.72	0.01

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight K
		Radome	Face	0.00 0.00					1/2" Ice	4.01	0.02
A-ANT-23G-2-C	B	Paraboloid w/o Radome	From Face	4.00 0.00 0.00	0.0000		149.00	2.17	No Ice 1/2" Ice	3.72 4.01	0.01 0.02
A-ANT-23G-2-C	C	Paraboloid w/o Radome	From Face	4.00 0.00 0.00	0.0000		149.00	2.17	No Ice 1/2" Ice	3.72 4.01	0.01 0.02

Tower Pressures - No Ice

G_H = 1.690

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 147.00-99.50	122.32	1.454	27	103.536	A	0.000	103.536	103.536	100.00	0.000	0.000
					B	0.000	103.536		100.00	0.000	0.000
					C	0.000	103.536		100.00	0.000	11.974
L2 99.50-68.50	83.77	1.305	24	84.024	A	0.000	84.024	84.024	100.00	0.000	0.000
					B	0.000	84.024		100.00	0.000	0.000
					C	0.000	84.024		100.00	0.000	14.065
L3 68.50-59.00	63.71	1.207	22	28.554	A	0.000	28.554	28.554	100.00	0.000	0.000
					B	0.000	28.554		100.00	0.000	0.000
					C	0.000	28.554		100.00	0.000	4.789
L4 59.00-49.50	54.21	1.152	21	29.340	A	0.000	29.340	29.340	100.00	0.000	0.000
					B	0.000	29.340		100.00	0.000	0.000
					C	0.000	29.340		100.00	0.000	4.434
L5 49.50-29.25	39.22	1.051	19	67.009	A	0.000	67.009	67.009	100.00	0.000	0.000
					B	0.000	67.009		100.00	0.000	0.000
					C	0.000	67.009		100.00	0.000	10.315
L6 29.25-23.00	26.11	1	18	21.485	A	0.000	21.485	21.485	100.00	0.000	0.000
					B	0.000	21.485		100.00	0.000	0.000
					C	0.000	21.485		100.00	0.000	2.978
L7 23.00-0.00	11.32	1	18	84.022	A	0.000	84.022	84.022	100.00	0.000	0.000
					B	0.000	84.022		100.00	0.000	0.000
					C	0.000	84.022		100.00	0.000	11.938

Tower Pressure - With Ice

G_H = 1.690

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 147.00-99.50	122.32	1.454	20	0.5000	107.494	A	0.000	107.494	107.494	100.00	0.000	0.000
						B	0.000	107.494		100.00	0.000	0.000
						C	0.000	107.494		100.00	0.000	16.774
L2 99.50-68.50	83.77	1.305	18	0.5000	86.607	A	0.000	86.607	86.607	100.00	0.000	0.000
						B	0.000	86.607		100.00	0.000	0.000
						C	0.000	86.607		100.00	0.000	20.293
L3 68.50-59.00	63.71	1.207	17	0.5000	29.346	A	0.000	29.346	29.346	100.00	0.000	0.000
						B	0.000	29.346		100.00	0.000	0.000
						C	0.000	29.346		100.00	0.000	6.772
L4 59.00-49.50	54.21	1.152	16	0.5000	30.132	A	0.000	30.132	30.132	100.00	0.000	0.000

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						B	0.000	30.132		100.00	0.000	0.000
						C	0.000	30.132		100.00	0.000	6.361
L5 49.50-29.25	39.22	1.051	15	0.5000	68.697	A	0.000	68.697	68.697	100.00	0.000	0.000
						B	0.000	68.697		100.00	0.000	0.000
						C	0.000	68.697		100.00	0.000	14.560
L6 29.25-23.00	26.11	1	14	0.5000	22.006	A	0.000	22.006	22.006	100.00	0.000	0.000
						B	0.000	22.006		100.00	0.000	0.000
						C	0.000	22.006		100.00	0.000	4.255
L7 23.00-0.00	11.32	1	14	0.5000	85.938	A	0.000	85.938	85.938	100.00	0.000	0.000
						B	0.000	85.938		100.00	0.000	0.000
						C	0.000	85.938		100.00	0.000	16.793

Tower Pressure - Service

G_H = 1.690

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 147.00-99.50	122.32	1.454	9	103.536	A	0.000	103.536	103.536	100.00	0.000	0.000
					B	0.000	103.536		100.00	0.000	0.000
					C	0.000	103.536		100.00	0.000	11.974
L2 99.50-68.50	83.77	1.305	8	84.024	A	0.000	84.024	84.024	100.00	0.000	0.000
					B	0.000	84.024		100.00	0.000	0.000
					C	0.000	84.024		100.00	0.000	14.065
L3 68.50-59.00	63.71	1.207	8	28.554	A	0.000	28.554	28.554	100.00	0.000	0.000
					B	0.000	28.554		100.00	0.000	0.000
					C	0.000	28.554		100.00	0.000	4.789
L4 59.00-49.50	54.21	1.152	7	29.340	A	0.000	29.340	29.340	100.00	0.000	0.000
					B	0.000	29.340		100.00	0.000	0.000
					C	0.000	29.340		100.00	0.000	4.434
L5 49.50-29.25	39.22	1.051	7	67.009	A	0.000	67.009	67.009	100.00	0.000	0.000
					B	0.000	67.009		100.00	0.000	0.000
					C	0.000	67.009		100.00	0.000	10.315
L6 29.25-23.00	26.11	1	6	21.485	A	0.000	21.485	21.485	100.00	0.000	0.000
					B	0.000	21.485		100.00	0.000	0.000
					C	0.000	21.485		100.00	0.000	2.978
L7 23.00-0.00	11.32	1	6	84.022	A	0.000	84.022	84.022	100.00	0.000	0.000
					B	0.000	84.022		100.00	0.000	0.000
					C	0.000	84.022		100.00	0.000	11.938

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

Comb. No.	Description
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice
15	Dead+Wind 0 deg+Ice
16	Dead+Wind 30 deg+Ice
17	Dead+Wind 60 deg+Ice
18	Dead+Wind 90 deg+Ice
19	Dead+Wind 120 deg+Ice
20	Dead+Wind 150 deg+Ice
21	Dead+Wind 180 deg+Ice
22	Dead+Wind 210 deg+Ice
23	Dead+Wind 240 deg+Ice
24	Dead+Wind 270 deg+Ice
25	Dead+Wind 300 deg+Ice
26	Dead+Wind 330 deg+Ice
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 K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	147 - 99.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-12.96	-0.24	0.10
			Max. Mx	5	-8.54	-430.95	-6.18
			Max. My	8	-8.53	0.29	-433.59
			Max. Vy	11	-16.85	430.69	-6.91
			Max. Vx	8	16.91	0.29	-433.59
			Max. Torque	7			1.03
L2	99.5 - 68.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-19.78	-0.02	-0.03
			Max. Mx	11	-14.63	1124.49	-12.36
			Max. My	8	-14.62	0.77	-1129.41
			Max. Vy	11	-22.35	1124.49	-12.36
			Max. Vx	8	22.41	0.77	-1129.41
			Max. Torque	7			0.88
L3	68.5 - 59	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-20.81	0.01	-0.05
			Max. Mx	11	-15.61	1232.09	-13.11
			Max. My	8	-15.60	0.84	-1237.28
			Max. Vy	11	-22.97	1232.09	-13.11
			Max. Vx	8	23.03	0.84	-1237.28
			Max. Torque	2			-0.70
L4	59 - 49.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-24.64	0.12	-0.11
			Max. Mx	11	-19.28	1573.13	-15.34
			Max. My	8	-19.28	1.06	-1579.14
			Max. Vy	11	-24.83	1573.13	-15.34
			Max. Vx	8	24.89	1.06	-1579.14
			Max. Torque	2			-0.64
L5	49.5 - 29.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-28.53	0.25	-0.25
			Max. Mx	11	-23.05	1959.59	-17.75

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	8	-23.04	1.31	-1966.52
			Max. Vy	11	-26.65	1959.59	-17.75
			Max. Vx	8	26.71	1.31	-1966.52
			Max. Torque	2			-0.59
L6	29.25 - 23	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.58	0.35	-0.31
			Max. Mx	11	-26.98	2274.29	-19.54
			Max. My	8	-26.97	1.50	-2281.87
			Max. Vy	11	-28.02	2274.29	-19.54
			Max. Vx	8	28.08	1.50	-2281.87
			Max. Torque	2			-0.46
L7	23 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-39.44	0.56	-0.43
			Max. Mx	11	-33.72	2948.03	-23.05
			Max. My	8	-33.72	1.90	-2956.87
			Max. Vy	11	-30.59	2948.03	-23.05
			Max. Vx	8	30.64	1.90	-2956.87
			Max. Torque	2			-0.42

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	21	39.44	0.01	-25.62
	Max. H_x	11	33.73	30.57	-0.15
	Max. H_z	2	33.73	-0.01	30.57
	Max. M_x	2	2946.81	-0.01	30.57
	Max. M_z	5	2946.66	-30.57	-0.13
	Max. Torsion	9	0.29	15.41	-26.37
	Min. Vert	1	33.73	0.00	0.00
	Min. H_x	5	33.73	-30.57	-0.13
	Min. H_z	8	33.73	0.01	-30.63
	Min. M_x	8	-2956.87	0.01	-30.63
	Min. M_z	11	-2948.03	30.57	-0.15
	Min. Torsion	3	-0.30	-15.17	26.51

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	33.73	0.00	0.00	0.56	0.67	0.00
Dead+Wind 0 deg - No Ice	33.73	0.01	-30.57	-2946.81	-0.51	0.27
Dead+Wind 30 deg - No Ice	33.73	15.17	-26.51	-2556.96	-1455.62	0.30
Dead+Wind 60 deg - No Ice	33.73	26.57	-15.32	-1478.61	-2566.33	0.27
Dead+Wind 90 deg - No Ice	33.73	30.57	0.13	20.64	-2946.66	0.16
Dead+Wind 120 deg - No Ice	33.73	26.51	15.28	1473.22	-2557.41	-0.01
Dead+Wind 150 deg - No Ice	33.73	15.40	26.36	2535.64	-1490.37	-0.18
Dead+Wind 180 deg - No Ice	33.73	-0.01	30.63	2956.87	1.90	-0.27
Dead+Wind 210 deg - No Ice	33.73	-15.41	26.37	2536.83	1493.84	-0.29
Dead+Wind 240 deg - No Ice	33.73	-26.52	15.29	1475.30	2559.98	-0.26
Dead+Wind 270 deg - No Ice	33.73	-30.57	0.15	23.05	2948.03	-0.16
Dead+Wind 300 deg - No Ice	33.73	-26.56	-15.31	-1476.52	2566.50	0.00
Dead+Wind 330 deg - No Ice	33.73	-15.16	-26.50	-2555.75	1454.92	0.17
Dead+Ice	39.44	0.00	0.00	0.43	0.56	0.00
Dead+Wind 0 deg+Ice	39.44	0.01	-25.57	-2519.29	-0.63	-0.00
Dead+Wind 30 deg+Ice	39.44	12.70	-22.17	-2185.93	-1245.25	0.11

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead+Wind 60 deg+Ice	39.44	22.22	-12.82	-1264.11	-2193.54	0.21
Dead+Wind 90 deg+Ice	39.44	25.57	0.10	16.64	-2519.09	0.24
Dead+Wind 120 deg+Ice	39.44	22.17	12.78	1259.28	-2186.02	0.20
Dead+Wind 150 deg+Ice	39.44	12.87	22.05	2168.23	-1273.30	0.11
Dead+Wind 180 deg+Ice	39.44	-0.01	25.62	2527.48	1.77	0.00
Dead+Wind 210 deg+Ice	39.44	-12.89	22.06	2169.42	1276.51	-0.11
Dead+Wind 240 deg+Ice	39.44	-22.18	12.79	1261.34	2188.35	-0.20
Dead+Wind 270 deg+Ice	39.44	-25.57	0.12	19.03	2520.23	-0.25
Dead+Wind 300 deg+Ice	39.44	-22.21	-12.80	-1262.04	2193.48	-0.21
Dead+Wind 330 deg+Ice	39.44	-12.68	-22.16	-2184.74	1244.31	-0.11
Dead+Wind 0 deg - Service	33.73	0.00	-10.58	-1020.67	0.27	0.10
Dead+Wind 30 deg - Service	33.73	5.25	-9.17	-885.59	-503.91	0.11
Dead+Wind 60 deg - Service	33.73	9.19	-5.30	-511.96	-888.79	0.09
Dead+Wind 90 deg - Service	33.73	10.58	0.04	7.53	-1020.55	0.05
Dead+Wind 120 deg - Service	33.73	9.17	5.29	510.84	-885.68	-0.00
Dead+Wind 150 deg - Service	33.73	5.33	9.12	878.95	-515.96	-0.06
Dead+Wind 180 deg - Service	33.73	-0.00	10.60	1024.93	1.11	-0.10
Dead+Wind 210 deg - Service	33.73	-5.33	9.12	879.37	518.06	-0.11
Dead+Wind 240 deg - Service	33.73	-9.18	5.29	511.56	887.48	-0.09
Dead+Wind 270 deg - Service	33.73	-10.58	0.05	8.37	1021.92	-0.05
Dead+Wind 300 deg - Service	33.73	-9.19	-5.30	-511.24	889.74	0.00
Dead+Wind 330 deg - Service	33.73	-5.25	-9.17	-885.17	504.56	0.06

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-33.73	0.00	0.00	33.73	0.00	0.000%
2	0.01	-33.73	-30.57	-0.01	33.73	30.57	0.000%
3	15.17	-33.73	-26.51	-15.17	33.73	26.51	0.000%
4	26.57	-33.73	-15.32	-26.57	33.73	15.32	0.000%
5	30.57	-33.73	0.13	-30.57	33.73	-0.13	0.000%
6	26.51	-33.73	15.28	-26.51	33.73	-15.28	0.000%
7	15.40	-33.73	26.36	-15.40	33.73	-26.36	0.000%
8	-0.01	-33.73	30.63	0.01	33.73	-30.63	0.000%
9	-15.41	-33.73	26.37	15.41	33.73	-26.37	0.000%
10	-26.52	-33.73	15.29	26.52	33.73	-15.29	0.000%
11	-30.57	-33.73	0.15	30.57	33.73	-0.15	0.000%
12	-26.56	-33.73	-15.31	26.56	33.73	15.31	0.000%
13	-15.16	-33.73	-26.50	15.16	33.73	26.50	0.000%
14	0.00	-39.44	0.00	0.00	39.44	0.00	0.000%
15	0.01	-39.44	-25.57	-0.01	39.44	25.57	0.000%
16	12.70	-39.44	-22.17	-12.70	39.44	22.17	0.000%
17	22.22	-39.44	-12.82	-22.22	39.44	12.82	0.000%
18	25.57	-39.44	0.10	-25.57	39.44	-0.10	0.000%
19	22.17	-39.44	12.78	-22.17	39.44	-12.78	0.000%
20	12.87	-39.44	22.05	-12.87	39.44	-22.05	0.000%
21	-0.01	-39.44	25.62	0.01	39.44	-25.62	0.000%
22	-12.89	-39.44	22.06	12.89	39.44	-22.06	0.000%
23	-22.18	-39.44	12.79	22.18	39.44	-12.79	0.000%
24	-25.57	-39.44	0.12	25.57	39.44	-0.12	0.000%
25	-22.21	-39.44	-12.80	22.21	39.44	12.80	0.000%
26	-12.68	-39.44	-22.16	12.68	39.44	22.16	0.000%
27	0.00	-33.73	-10.58	-0.00	33.73	10.58	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
28	5.25	-33.73	-9.17	-5.25	33.73	9.17	0.000%
29	9.19	-33.73	-5.30	-9.19	33.73	5.30	0.000%
30	10.58	-33.73	0.04	-10.58	33.73	-0.04	0.000%
31	9.17	-33.73	5.29	-9.17	33.73	-5.29	0.000%
32	5.33	-33.73	9.12	-5.33	33.73	-9.12	0.000%
33	-0.00	-33.73	10.60	0.00	33.73	-10.60	0.000%
34	-5.33	-33.73	9.12	5.33	33.73	-9.12	0.000%
35	-9.18	-33.73	5.29	9.18	33.73	-5.29	0.000%
36	-10.58	-33.73	0.05	10.58	33.73	-0.05	0.000%
37	-9.19	-33.73	-5.30	9.19	33.73	5.30	0.000%
38	-5.25	-33.73	-9.17	5.25	33.73	9.17	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00047314
3	Yes	5	0.00000001	0.00068341
4	Yes	5	0.00000001	0.00068711
5	Yes	4	0.00000001	0.00045211
6	Yes	5	0.00000001	0.00068099
7	Yes	5	0.00000001	0.00069208
8	Yes	4	0.00000001	0.00044110
9	Yes	5	0.00000001	0.00068153
10	Yes	5	0.00000001	0.00068994
11	Yes	4	0.00000001	0.00048685
12	Yes	5	0.00000001	0.00069348
13	Yes	5	0.00000001	0.00066942
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00062471
16	Yes	6	0.00000001	0.00005121
17	Yes	6	0.00000001	0.00005166
18	Yes	4	0.00000001	0.00066955
19	Yes	6	0.00000001	0.00005127
20	Yes	6	0.00000001	0.00005174
21	Yes	4	0.00000001	0.00060247
22	Yes	6	0.00000001	0.00005123
23	Yes	6	0.00000001	0.00005180
24	Yes	4	0.00000001	0.00070337
25	Yes	6	0.00000001	0.00005193
26	Yes	6	0.00000001	0.00005039
27	Yes	4	0.00000001	0.00016426
28	Yes	5	0.00000001	0.00005815
29	Yes	5	0.00000001	0.00005807
30	Yes	4	0.00000001	0.00015102
31	Yes	5	0.00000001	0.00005731
32	Yes	5	0.00000001	0.00005914
33	Yes	4	0.00000001	0.00016388
34	Yes	5	0.00000001	0.00005724
35	Yes	5	0.00000001	0.00005888
36	Yes	4	0.00000001	0.00015159
37	Yes	5	0.00000001	0.00005932
38	Yes	5	0.00000001	0.00005576

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 99.5	35.829	29	2.0391	0.0044
L2	103.25 - 68.5	18.211	29	1.6863	0.0012
L3	68.5 - 59	7.886	37	1.0931	0.0004
L4	63.75 - 49.5	6.838	37	1.0121	0.0003
L5	49.5 - 29.25	4.103	37	0.7888	0.0002
L6	34.5 - 23	2.027	37	0.5325	0.0001
L7	23 - 0	0.902	37	0.3757	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	A-ANT-23G-2-C	29	35.829	2.0391	0.0044	34257
148.60	(2) DB980H90E-M w/Mount Pipe	29	35.829	2.0391	0.0044	34257
147.00	Platform Mount [LP 403-1]	29	35.829	2.0391	0.0044	34257
145.00	LLPX310R W/ MOUNT PIPE	29	34.979	2.0285	0.0042	34257
132.00	(4) DB844H90E-XY w/Mount Pipe	29	29.492	1.9545	0.0031	11418
131.00	12' Low Profile Platform	29	29.076	1.9482	0.0030	10705
122.00	RFS APX16DWV-16DWVS-C w/ mount pipe	29	25.385	1.8838	0.0023	6850
119.00	12' T-Arm Mounts	29	24.184	1.8588	0.0021	6116
112.00	(2) Powerwave 7770 w/ Mount Pipe	29	21.453	1.7915	0.0017	4892
110.00	12' Low Profile Platform	29	20.694	1.7697	0.0015	4628
100.00	APXV18-206517S-C-ACU w/ Mount Pipe	37	17.065	1.6403	0.0011	3769
49.00	GPS	37	4.021	0.7807	0.0002	2939

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 99.5	103.155	4	5.8762	0.0125
L2	103.25 - 68.5	52.494	4	4.8626	0.0034
L3	68.5 - 59	22.746	4	3.1537	0.0011
L4	63.75 - 49.5	19.726	4	2.9201	0.0009
L5	49.5 - 29.25	11.839	4	2.2763	0.0006
L6	34.5 - 23	5.848	4	1.5366	0.0003
L7	23 - 0	2.603	4	1.0842	0.0002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	A-ANT-23G-2-C	4	103.155	5.8762	0.0126	12151
148.60	(2) DB980H90E-M w/Mount Pipe	4	103.155	5.8762	0.0126	12151
147.00	Platform Mount [LP 403-1]	4	103.155	5.8762	0.0126	12151
145.00	LLPX310R W/ MOUNT PIPE	4	100.712	5.8457	0.0121	12151
132.00	(4) DB844H90E-XY w/Mount Pipe	4	84.939	5.6337	0.0089	4048

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	12' Low Profile Platform	4	83.741	5.6154	0.0087	3795
122.00	RFS APX16DWV-16DWVS-C w/ mount pipe	4	73.129	5.4305	0.0067	2427
119.00	12' T-Arm Mounts	4	69.675	5.3586	0.0061	2166
112.00	(2) Powerwave 7770 w/ Mount Pipe	4	61.820	5.1653	0.0047	1731
110.00	12' Low Profile Platform	4	59.637	5.1026	0.0044	1637
100.00	APXV18-206517S-C-ACU w/ Mount Pipe	4	49.194	4.7303	0.0030	1330
49.00	GPS	4	11.601	2.2523	0.0006	1022

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	147 - 99.5 (1)	TP30.313x22x0.25	47.50	0.00	0.0	36.000	23.6724	-8.52	852.21	0.010
L2	99.5 - 68.5 (2)	TP35.2376x29.1567x0.3125	34.75	0.00	0.0	39.000	35.1434	-14.61	1370.59	0.011
L3	68.5 - 59 (3)	TP36.9x35.2376x0.3804	9.50	0.00	0.0	39.000	43.7177	-15.60	1704.99	0.009
L4	59 - 49.5 (4)	TP37.9374x35.3079x0.375	14.25	0.00	0.0	39.000	45.3566	-19.28	1768.91	0.011
L5	49.5 - 29.25 (5)	TP41.481x37.9374x0.4251	20.25	0.00	0.0	39.000	54.9356	-23.04	2142.49	0.011
L6	29.25 - 23 (6)	TP41.8248x39.7122x0.4375	11.50	0.00	0.0	39.000	58.3044	-26.97	2273.87	0.012
L7	23 - 0 (7)	TP45.85x41.8248x0.4708	23.00	0.00	0.0	39.000	68.7880	-33.72	2682.73	0.013

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	147 - 99.5 (1)	TP30.313x22x0.25	435.60	30.733	36.000	0.854	0.00	0.000	36.000	0.000
L2	99.5 - 68.5 (2)	TP35.2376x29.1567x0.3125	1132.55	45.339	39.000	1.163	0.00	0.000	39.000	0.000
L3	68.5 - 59 (3)	TP36.9x35.2376x0.3804	1240.57	39.135	39.000	1.003	0.00	0.000	39.000	0.000
L4	59 - 49.5 (4)	TP37.9374x35.3079x0.375	1582.84	45.697	39.000	1.172	0.00	0.000	39.000	0.000
L5	49.5 - 29.25 (5)	TP41.481x37.9374x0.4251	1970.54	43.983	39.000	1.128	0.00	0.000	39.000	0.000
L6	29.25 - 23 (6)	TP41.8248x39.7122x0.4375	2286.21	46.627	39.000	1.196	0.00	0.000	39.000	0.000
L7	23 - 0 (7)	TP45.85x41.8248x0.4708	2961.81	46.687	39.000	1.197	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	147 - 99.5 (1)	TP30.313x22x0.25	16.96	0.716	24.000	0.061	0.25	0.008	24.000	0.000
L2	99.5 - 68.5 (2)	TP35.2376x29.1567x0.3125	22.45	0.639	26.000	0.050	0.25	0.005	26.000	0.000
L3	68.5 - 59 (3)	TP36.9x35.2376x0.3804	23.07	0.528	26.000	0.041	0.25	0.004	26.000	0.000
L4	59 - 49.5 (4)	TP37.9374x35.3079x0.375	24.93	0.550	26.000	0.043	0.25	0.003	26.000	0.000
L5	49.5 - 29.25 (5)	TP41.481x37.9374x0.4251	26.75	0.487	26.000	0.038	0.27	0.003	26.000	0.000
L6	29.25 - 23 (6)	TP41.8248x39.7122x0.4375	28.12	0.482	26.000	0.038	0.27	0.003	26.000	0.000
L7	23 - 0 (7)	TP45.85x41.8248x0.4708	30.69	0.446	26.000	0.035	0.27	0.002	26.000	0.000

Pole Interaction Design Data

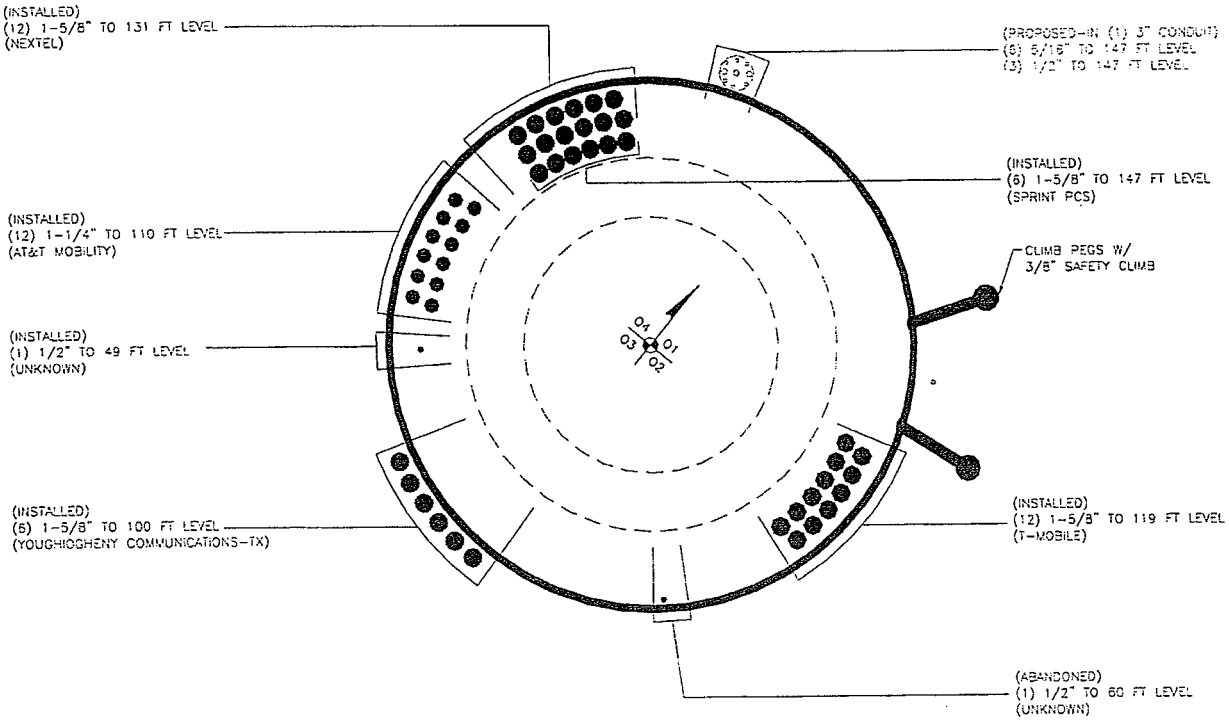
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	147 - 99.5 (1)	0.010	0.854	0.000	0.061	0.000	0.865 ✓	1.333	H1-3+VT ✓
L2	99.5 - 68.5 (2)	0.011	1.163	0.000	0.050	0.000	1.174 ✓	1.333	H1-3+VT ✓
L3	68.5 - 59 (3)	0.009	1.003	0.000	0.041	0.000	1.013 ✓	1.333	H1-3+VT ✓
L4	59 - 49.5 (4)	0.011	1.172	0.000	0.043	0.000	1.183 ✓	1.333	H1-3+VT ✓
L5	49.5 - 29.25 (5)	0.011	1.128	0.000	0.038	0.000	1.139 ✓	1.333	H1-3+VT ✓
L6	29.25 - 23 (6)	0.012	1.196	0.000	0.038	0.000	1.208 ✓	1.333	H1-3+VT ✓
L7	23 - 0 (7)	0.013	1.197	0.000	0.035	0.000	1.210 ✓	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	147 - 99.5	Pole	TP30.313x22x0.25	1	-8.52	1135.99	64.9	Pass
L2	99.5 - 68.5	Pole	TP35.2376x29.1567x0.3125	2	-14.61	1827.00	88.1	Pass
L3	68.5 - 59	Pole	TP36.9x35.2376x0.3804	3	-15.60	2272.75	76.0	Pass
L4	59 - 49.5	Pole	TP37.9374x35.3079x0.375	4	-19.28	2357.96	88.8	Pass
L5	49.5 - 29.25	Pole	TP41.481x37.9374x0.4251	5	-23.04	2855.94	85.4	Pass
L6	29.25 - 23	Pole	TP41.8248x39.7122x0.4375	6	-26.97	3031.07	90.6	Pass
L7	23 - 0	Pole	TP45.85x41.8248x0.4708	7	-33.72	3576.08	90.8	Pass
							Summary	
						Pole (L7)	90.8	Pass
						RATING =	90.8	Pass

APPENDIX B

Cable Routing Drawing

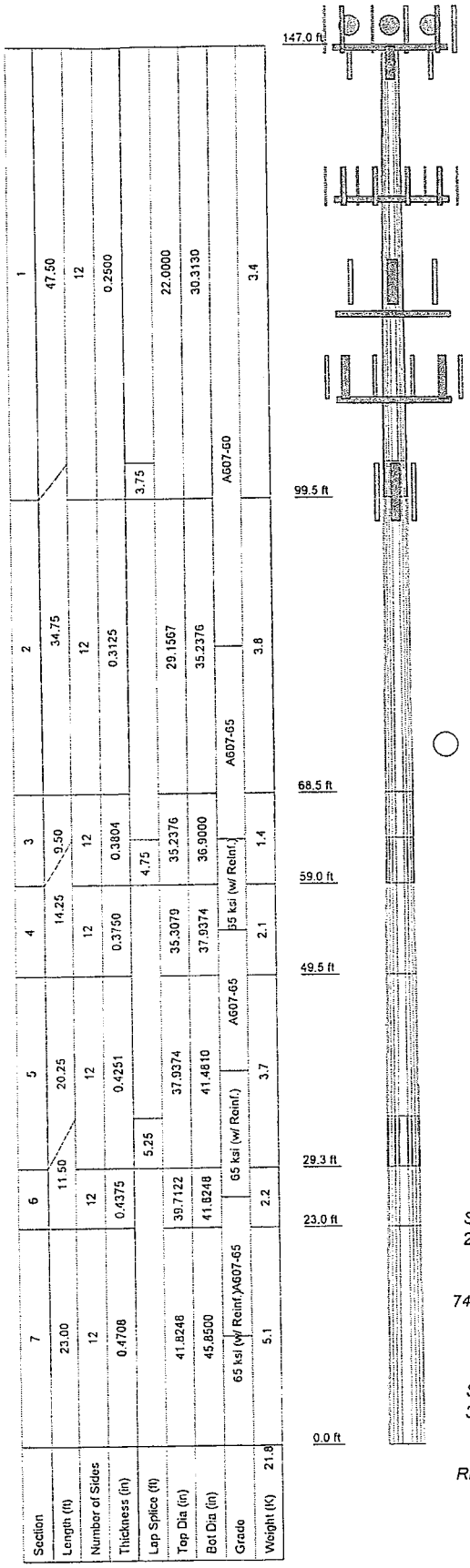


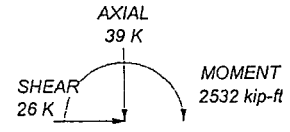
APPENDIX C

Table C1 - List of Attached Documents

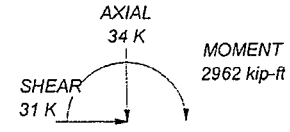
Attachment
ERI Monopole Profile
Base Plate Calculations
Foundation Calculations

Program Version 5.3.1.0 - 10/3/2008 File:T:/375_Crown_Castle/2009/37509-0678 BU 876321/WO 296687 BU 876321/37509-0678 R2.eri





TORQUE 0 kip-ft
74 mph WIND - 0.5000 in ICE



TORQUE 0 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
A-ANT-23G-2-C	149	RFS APX16DWV-16DWVS-C w/ mount pipe	122
A-ANT-23G-2-C	149	RFS APX16DWV-16DWVS-C w/ mount pipe	122
A-ANT-23G-2-C	149	12' T-Arm Mounts	119
(2) DB980H90E-M w/Mount Pipe	148.6	(4) LGP2140X	112
(2) DB950F40T2E-M w/Mount Pipe	148.6	(4) LGP2140X	112
(2) 950F65T2ZE-M w/Mount Pipe	148.6	(4) LGP2140X	112
Platform Mount [LP 403-1]	147	(2) Powerwave 7770 w/ Mount Pipe	112
FDD_R6_RRH	145	(2) Powerwave 7770 w/ Mount Pipe	112
FDD_R6_RRH	145	(2) Powerwave 7770 w/ Mount Pipe	112
FDD_R6_RRH	145	12' Low Profile Platform	110
LLPX310R W/ MOUNT PIPE	145	(3) Flush Mounts	100
LLPX310R W/ MOUNT PIPE	145	APXV18-206517S-C-ACU w/ Mount Pipe	100
LLPX310R W/ MOUNT PIPE	145	APXV18-206517S-C-ACU w/ Mount Pipe	100
(4) DB844H90E-XY w/Mount Pipe	132	APXV18-206517S-C-ACU w/ Mount Pipe	100
(4) DB844H90E-XY w/Mount Pipe	132	Side Arm Mount [SO 701-1]	49
(4) DB844H90E-XY w/Mount Pipe	132	GPS	49
12' Low Profile Platform	131		
(2) Remec S20057A-1	122		
(2) Remec S20057A-1	122		
(2) Remec S20057A-1	122		
RFS APX16DWV-16DWVS-C w/ mount pipe	122		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	65 ksi (w/ Reinf.)	65 ksi	80 ksi
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven 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: 90.8%

Paul J Ford and Company
250 E. Broad Street Suite 1500
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job: *147' MP; BRANFORD, CT*			
Project: *BU 876321 (PJF 37509-0678 R1)*			
Client: Crown Castle	Drawn by: Udaykiran Yerra		App'd:
Code: TIA/EIA-222-F	Date: 10/01/09		Scale: NTS
Path: T:\375 Crown Castle\2009\37509-0678 BU 876321\WD\294687 BU 876321 37509-0678 R2.dwg			Dwg No. E-1

Square, Unstiffened Base Plate, Any Rod Material - Rev. F

Assumptions: Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48.
Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)

Site Data

BU#: *876321*
Site Name:
App #:

Reactions		
Moment:	2962	ft-kips
Axial:	34	kips
Shear:	31	kips

Connection Type: *Butt*

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Grade(Fy):	75	ksi
Bolt Circle:	54	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	54	in
Thick:	3.5	in
Grade:	50	ksi
B effective	27.52	in

Pole Data		
Diam:	48.85	in
Thick:	0.4375	in
Grade:	65	ksi

Stress Increase Factor		
ASIF:	1.333	

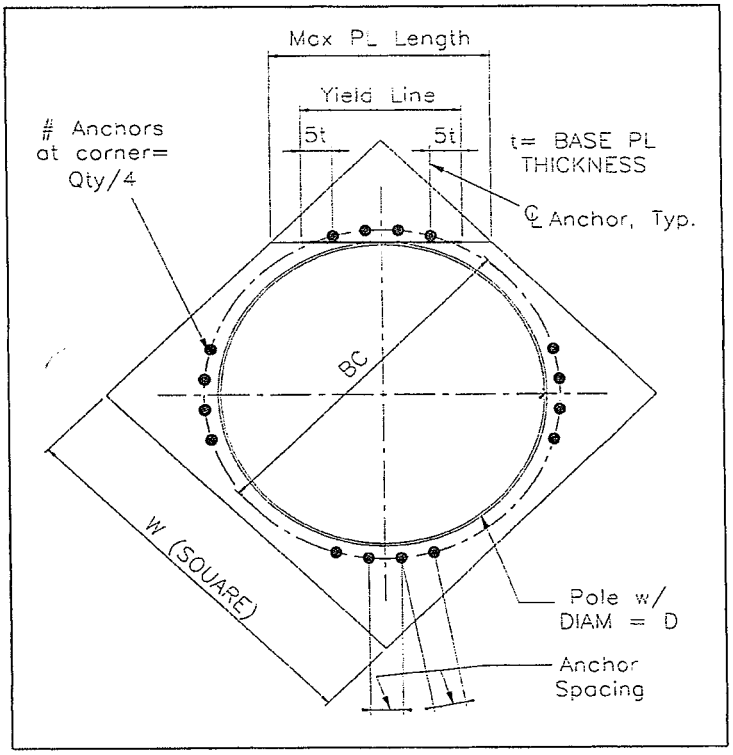
Anchor Rod Results

Maximum Rod Tension:	162.4 Kips	
Allowable Tension:	195.0 Kips	
Anchor Rod Stress Ratio:	83.3%	**Pass**

Base Plate Results

Base Plate Stress:	20.3 ksi	
Allowable Plate Stress:	50.0 ksi	
Base Plate Stress Ratio:	40.6%	**Pass**

PL Ref. Data
Yield Line (in):
27.52
Max PL Length:
27.52



PJF job no. **37509-0678R2** Project name **BU 876321**

Foundation Loads:

Tower leg compression =	34	(kips)
Horizontal load at top of pier =	31	(kips)
Overturning moment at top of pier=	2962	(ft-kips)

Design criteria:

Safety factor against overturning =	1.5	

Soil Properties:

Soil density =	125	(pcf)
Allowable soil bearing =	4	(ksf)
Depth to water table =	4.5	(ft)

Dimensions:

Pier shape (round or square)	S	("R" or "S")
Pier width =	7	(ft)
Pier height above grade =	0.5	(ft)
depth to bottom of footing =	11	(ft)
Footing thickness =	3	(ft)
Footing width =	20.5	(ft)
Footing length =	20.5	(ft)

Concrete:

Concrete strength =	3	(ksi)
Rebar strength =	60	(ksi)
ultimate load factor =	1.3	

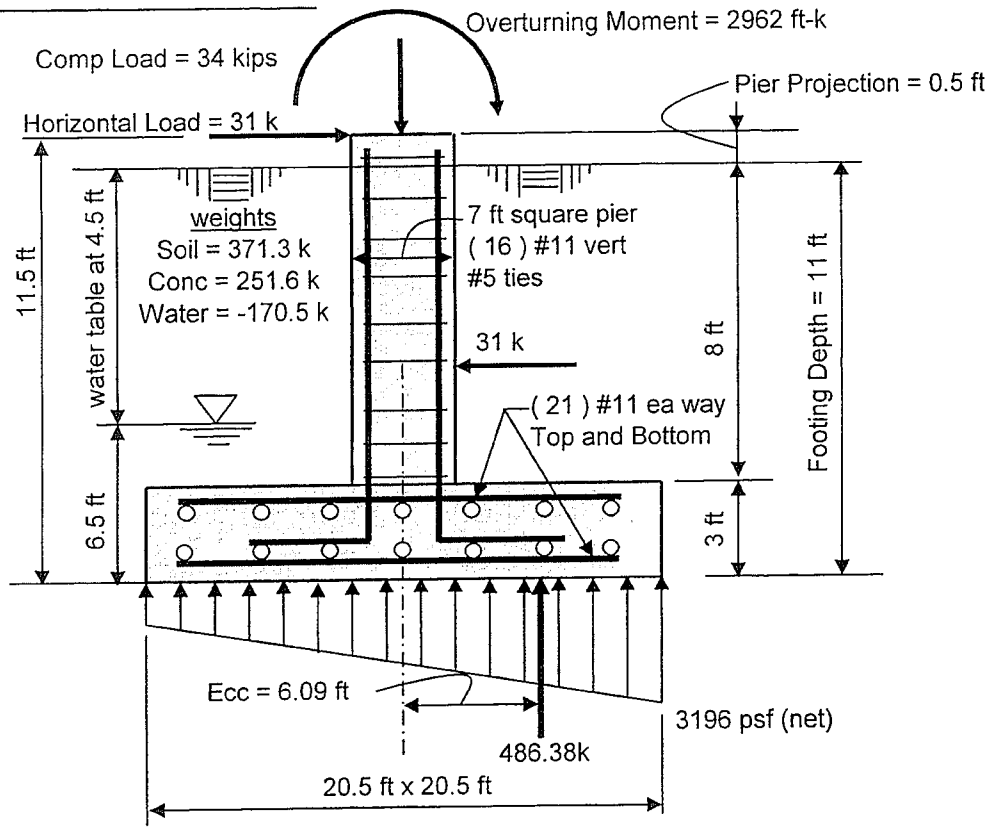
Reinforcing Steel:

	Pad	
minimum cover over rebar =	3	inches
size of pad rebar =	#11	bar
quantity of pad rebar =	21	(ea direction)

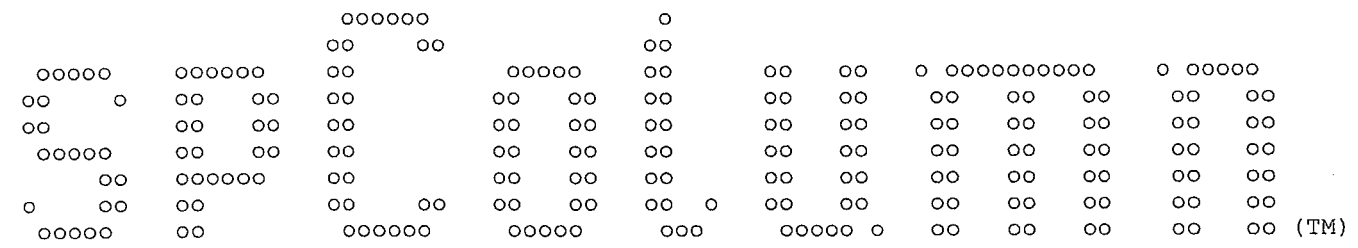
Reinforcing Steel:

	Pier	
size of vert rebar in pier=	#11	bar
vertical rebar quantity =	16	
size of pier ties =	#5	bar
minimum cover over rebar =	3	inches

Total volume of concrete = 62.1 cu yd



Summary of analysis results	
Maximum Net Soil Bearing = 3.196 ksf Allowable Net Soil Bearing = 4 ksf **Soil Bearing Stress Ratio = 0.8 Okay**	Ult Bending Shear Capacity = 110 psi Ult Bending Shear Stress = 43 psi **Bending Shear Stress Ratio = 0.4 Okay**
Ftg Overturning Resistance = 4985 ft-kips Overturning Moment = 2962 ft-kips Required Overturning Safety Factor = 1.5 Overturning Safety Factor = 1.683 **Ratio = 0.89 Okay**	Pad Bending Moment Capacity= 4330 ft-k Pad Bending Moment = 1258 ft-k **Bending Moment Stress Ratio = 0.29 OK**



spColumn v4.20 (TM)
Computer program for the Strength Design of Reinforced Concrete Sections

General Information:
==========

File Name: untitled.col
Project:
Column:
Code: ACI 318-02

Engineer:
Units: English

Run Option: Investigation
Run Axis: X-axis

Slenderness: Not considered
Column Type: Structural

Material Properties:
==========

f'c = 3 ksi
Ec = 3122.02 ksi
Ultimate strain = 0.003 in/in
Betal = 0.85

fy = 60 ksi
Es = 29000 ksi

Section:
==========

Rectangular: Width = 84 in

Depth = 84 in

Gross section area, Ag = 7056 in^2
Ix = 4.14893e+006 in^4
Xo = 0 in

Iy = 4.14893e+006 in^4
Yo = 0 in

Reinforcement:
==========

Bar Set: ASTM A615

Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)
# 3	0.38	0.11	# 4	0.50	0.20	# 5	0.63	0.31
# 6	0.75	0.44	# 7	0.88	0.60	# 8	1.00	0.79
# 9	1.13	1.00	# 10	1.27	1.27	# 11	1.41	1.56
# 14	1.69	2.25	# 18	2.26	4.00			

Confinement: Tied; #5 ties with #10 bars, #5 with larger bars.
phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Layout: Rectangular
Pattern: All Sides Equal (Cover to transverse reinforcement)
Total steel area: As = 24.96 in^2 at rho = 0.35% (Note: rho < 0.50%)
16 #11 Cover = 3 in

Factored Loads and Moments with Corresponding Capacities:
==========

No.	Pu kip	Mux k-ft	fMnx k-ft	fMn/Mu	N.A. depth in	eps_t	Phi
1	34.00	4193.20	4488.20	1.070	5.29	0.04215	0.900

*** End of output ***

CLEAR

4400 Carillon Point
Kirkland, WA 98033

To: HPC
From: Mark Brauer – Radio Frequency Engineer
Cc: Cameron Syme
Subject: Power Density Report for CT-NHN0097
Date: October 8, 2009

---

1. Introduction:

This report is the result of Electromagnetic Field Intensities (EMF – Power Densities) study for the Clearwire broadband antenna installation on a monopole Tower at 150 North Main St, Branford, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location:

2: Discussion:

The following assumptions were used in the calculations:

1) The emissions from Clearwire transmitters are in the (2496 – 2960) Frequency Band
2) The emissions from the Clearwire Microwave dishes are in the 11 GHz Frequency Band
3) The model number for Clearwire Antenna is Argus LLPX310R
4) The model number for the Microwave dish is Andrew VHLP2-23 with 24" Diameter.
5) The Clearwire Panel antenna centerline is 145 feet.
6) The Clearwire Microwave dish centerline is 145 feet.
7) The Maximum Transmit power from any Clearwire panel antenna is 251 Watts Effective Isotropic Radiated Power (EiRP) assuming 2 channels per sector.
8) The Maximum Transmit power from any Clearwire Microwave Dish is 346 Watts Effective Isotropic Radiated Power (EiRP) assuming 1 channel per dish.
9) All antennas are simultaneously transmitting and receiving 24 hours per day.
10) The average ground level of the studied area does not change significantly with respect to the transmitting location.

Equations given in "FCC OET Bulletin 65, Edition 97-01" were used with the above information to perform the calculations.

3: Conclusion:

Based on the above worst case assumptions, the power density calculation from the Clearwire antenna installation on a Self Support Tower at 150 North Main St, Branford, CT is 0.0000045 mW/cm^2. This value represents 0.00045% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) set forth in the FCC/ANSI/IEEE C95-1-1991. Furthermore, the proposed antenna location for Clearwire will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

The combined Power Density from all other carriers is 28.51 %. The combined Power Density for this site is 28.52% of the M.P.E. standard.