

Via Overnight Delivery

April 4, 2014

Melanie A. Bachman Acting Executive Director Connecticut Siting Council 10 Franklin Square New Britain, CT 06051

Re: Request to Amend a Previously Approved Tower Share

Application

Property Address: 50 Devine Street, North Haven, CT 06473 (the "Property")

Applicant: New Cingular Wireless PCS, LLC d/b/a AT&T ("AT&T")

Dear Ms. Bachman:

On behalf of AT&T, please accept this correspondence as a <u>request to amend</u> a previously approved tower share installation. Enclosed please find an original and fifteen (15) copies of the correspondence package along with a check in the amount of six hundred and twenty five (\$625.00) dollars.

On November 7, 2013 AT&T submitted an application to the Connecticut Siting Council (the "Council") for an order to approve the shared use of an existing tower and compound on the Property (the "Tower" and collectively, the "Facility"), pursuant to Connecticut General Status § 16-50aa, as amended (the "Statute"). During its hearing on December 12, 2013, the Council approved AT&T's shared use application. Subsequently, the Council issued the approval order on December 13, 2013 (see Tab 1 attached herewith).

AT&T requests to revise its previously approved installation as follows:

- Panel Antennas (no change):
 - o Previous Design: Twelve (12), eight foot (8') panel antennas
 - Revised Design: Twelve (12), eight foot (8') panel antennas
 - Note that the number and size of the antennas has not changed but their models have (see attached structural analysis)

Connecticut Siting Council AT&T Tower Sharing Application 50 Devine Street, North Haven, CT 06473 April 4, 2014

• Remote Radio Head:

o Previous Design:

18

o Revised Design:

27

• Equipment Shelter

o Previous Design:

11.5' x 16'

Revised Design:

11.5' x 16'

Structural Analysis Conclusion:

o Previous Design:

"the pole and foundation have sufficient capacity..."

Revised Design:

"the pole and foundation have sufficient capacity..."

Power Density Calculations:

o Previous Design:

AT&T's MPE: 11.85%

Total MPE:

20.73%

Revised Design

■ AT&T's MPE: 13.42%

Total MPE:

22.3%

AT&T's proposed revisions to its previously approved shared use installation continue to meet all of the requirements set forth in the Statute. AT&T's revised design is technically, legally, economically and environmentally feasible, will meet public safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. Consequently, AT&T respectfully requests that the Council issue an order approving the proposed sharing use of the Facility.

Sincerely,

Steven J. Quinn

Enclosures

Cc w/enclosurers:

Honorable Michael J. Freda: First Selectman, Town of North Haven, CT

Betsy Henley-Cohn, 424 Chapel Street, LLC: Property Owner

A REQUEST TO THE CONNECTICUT SITING COUNCIL TO REVISED A PREVIOUSLY APPROVED APPLICATION FOR A SHARED USE OF AN EXISTING TOWER

<u>APPLICANT</u>

New Cingular Wireless PCS, LLC (AT&T) 500 Enterprise Drive, Suite 3A Rocky Hill, CT 06067

TOWER/PROPERTY ADDRESS

50 Devine Street North Haven, Connecticut 06473

PREPARED BY:

Steven J. Quinn

Real Estate and Land Use Specialist

Smartlink, LLC

33 Boston Post Road West

Marlborough, Massachusetts 01752

774-219-8022

steven.quinn@smartlinkllc.com

Date Submitted:

April 4, 2014

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APPLICANT

New Cingular Wireless PCS, LLC (AT&T) 500 Enterprise Drive, Suite 3A Rocky Hill, CT 06067

TOWER/PROPERTY ADDRESS

50 Devine Street North Haven, Connecticut 06473

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Certificate of Service	Tab 2
Engineering Drawings	Tab 3
Structural Analysis	Tab 4
Memorandum of Lease	Tab 5
Power Density Calculations	Tab 6

CASH ONLY IF ALL CheckLock SECURITY FEATURES LISTED ON BACK INDICATE NO TAMPERING OR COPYING -- CONTINUE -- CONTIN

SMARTLINK, LLC 1997 Annapolis Exchange Pkwy Suite 200 Annapolis, MD 21401 BRANCH BANKING AND TRUST COMPANY 65-330/550 0386

3/26/14

PAYTO THE Connecticut Siting Council \$ 625.00

SIX hundred twenty-five 00/100 DOLLARS

MEMO S3506 DE BILING Council Fel

S 2011 INTUIT INC. # 614 1-800-433-8810

#000386# #055003308#0005158694044#

DEREGARD FOR THE CONTROL OF THE CONT

TAB 1

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 13, 2013

Adam F. Braillard Regional Land Use Manager Smartlink, LLC 33 Boston Post Road West Marlborough, MA 01752

RE:

TS-AT&T-101-131108 - New Cingular Wireless PCS, LLC (AT&T) Request for an Order to Approve the Shared Use of an Existing Telecommunications Facility located at 50 Devine Street, North Haven, Connecticut.

Dear Mr. Braillard:

At a public meeting held December 12, 2013, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

- Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;
- Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including 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;
- Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation 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.

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

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated November 7, 2013, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Verx truly yours.

Robert Stein Chairman

RS/CDM/laf

c: The Honorable Michael J. Freda, First Selectman, Town of North Haven Arthur Hausman, Zoning Enforcement Officer, Town of North Haven Florida Tower Partners Betsy Henley-Cohn, Property Owner

TAB 2

CERTIFICATE OF SERVICE

This is to certify that on the 4th day of April, 2014, the foregoing application by AT&T for an Order to Amend an Approved Shared Use of an Existing Tower was sent, via UPS, to the following:

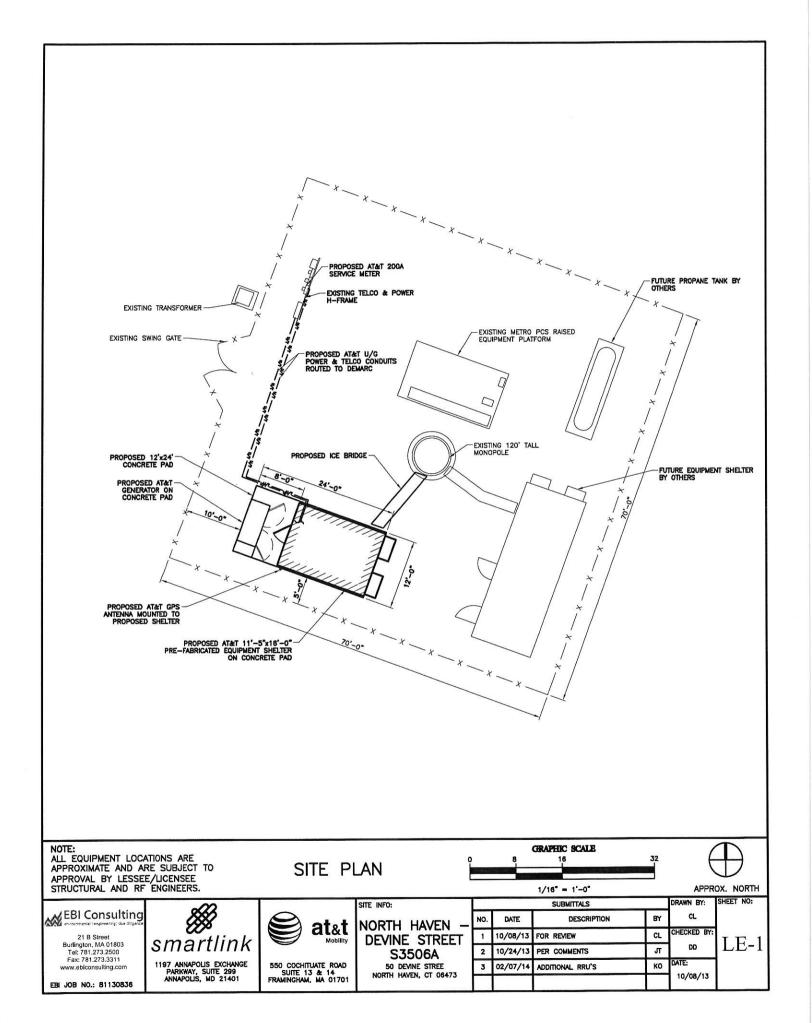
Honorable Michael J. Freda: First Selectman Town of North Haven, CT 18 Church Street North Haven, CT 06473 (203) 239-5321

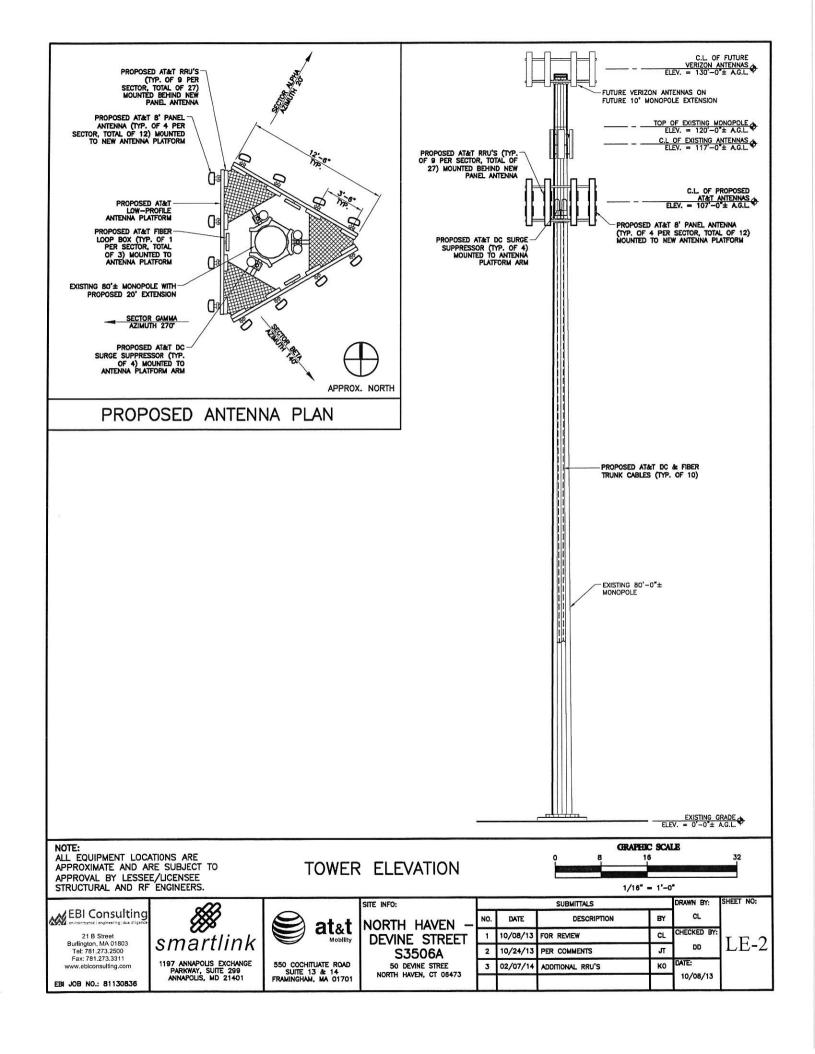
and

Betsy Henley-Cohn 424 Chapel Street, LLC 50 Devine Street North Haven, CT 06473 (203) 467-1759

Steven J. Quinn

TAB 3





TAB 4

Structural Analysis 130-ft Monopole

Prepared For: Florida Tower Partners, LLC 1001 3rd Ave. West, Suite 420 Bradenton, FL 34205

MFP Project #40913-015 r3

Site Location:
CT1003 North Haven
New Haven Co., Connecticut
Lat/Long: 41°22'40.1", -72°52'34.1"

Analysis Type: ANSI/TIA-222-G

March 20, 2014



Michael F. Plahovinsak, P.E. 1830| State Route | 6| W, Plain City, OH 43064 6|4-398-6250 - mlke@mfpeng.com Page 2 of 4 3/20/2014

Project Summary:

We have completed a structural analysis of the existing monopole for the proposed configuration:

AT&T - 107' - (12) CCI HPA-65R-BUU-H8 Panel

- (9) Ericsson RRUS-11 + (6) RRUS-12 + (6) RRUS-32 + (6) RRUS-A2
- (4) Raycap DC6-48-60-18-8F Suppressors
- (8) $\frac{3}{4}$ " + (2) $\frac{1}{2}$ " + (3) $\frac{3}{8}$ " Cable / 12' T-Arm Mounts

The pole has been analyzed in accordance with the requirements of the 2006 - 2012 International Building Code, and the recommendations of the Telecommunications Industry Association "Structural Standard for Steel Antenna Supporting Structures" ANSI/TIA-222-G.

This analysis may be considered a "Rigorous Structural Analysis" as defined in ANSI/TIA-222-G 15.5.2.

As indicated in the conclusions of this analysis, we have determined that the existing pole and foundation have *sufficient capacity* to support the existing, reserved and proposed antenna loads as detailed herein. Based on the results of our analysis, structural modifications are not required at this time.

Source of Data:

Resource	Source	Job Number	Date
Pole and Foundation Drawings	Sabre Towers	11-05062	05/12/10
Geotechnical Report	Terracon	J2105136	04/20/10

Analysis Criteria:

International Building Code (All Versions) Section 3108.4 Structural Standards for Steel Antenna Supporting Structures ANSI/TIA-222-G 2

•	Basic Wind Speed	115 mph (3-Sec Gust)
•	Basic Wind Speed w/ 3/4" Ice	50 mph (3-Sec Gust)
•	Operational Wind Speed	60 mph (3-Sec Gust)

Structure Class	Exposure Category	Topographic Category
II $(I = 1.0)$	C	I

Appurtenance Listing:

Status	Elev.	Antenna / Mounting	Coax	Owner	
Existing	(1) Antel BXA-70080/6CF + (1) BXA-80080/6CF (4) Antel BXA-70063/6CF + (6) BXA-171063/12CF				
Existing	Existing 117' (6) Andrew HBX-6516DS Panel 12' T-Arm Mounts		(12) 1 5/8"	MetroPCS	
Proposed	(12) CCI HPA-65R-BUU-H8 Panel (9) RRUS-11 + (6) RRUS-12 + (6) RRUS-32 + (6) RRUS-A2 (4) Raycap DC6-48-60-18-8F Suppressor 12' T-Arm Mounts		(8) 3/4" + (2) 1/2" + (3) 3/8"	AT&T	

All antenna lines assumed internally mounted, not exposed to the wind.

Foundation Analysis:

The existing monopole foundation design was analyzed in conjunction with site specific geotechnical report. The existing foundation has sufficient capacity to support the pole with the proposed antenna configuration.

Conclusion:

We have completed a structural analysis of the existing monopole and foundation in accordance with the project specifics outlined above. Our analysis indicates that the existing monopole and foundation is stressed to a maximum of 77.0% of its usable capacity when considering the existing plus proposed loading. Please refer to the attached calculations for an itemized listing of all member stress ratios. The existing pole is safe and adequate to support the proposed loads, and no structural reinforcing is required to support the above loading.

If you have any questions about the contents of this structural report or require any additional information, please feel free to contact my office.

Sincerely,

Michael F. Plahovinsak, P.E.

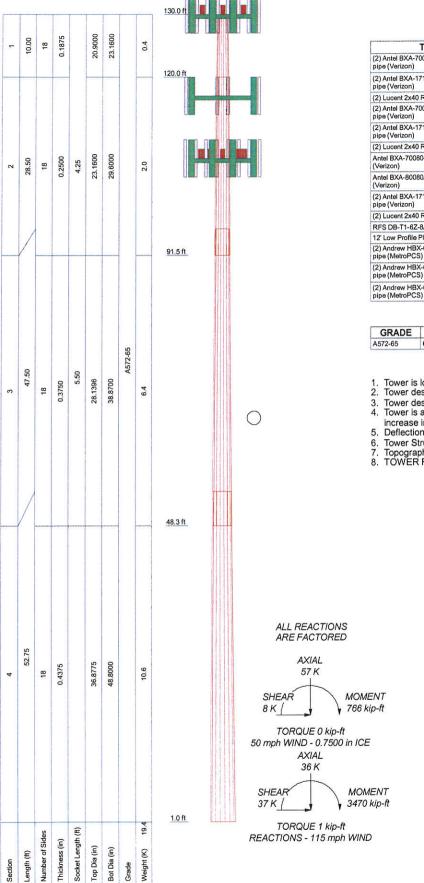
mike@mfpeng.com - 614.398-6250

Michael F. Plahovinsak, P.E. - 2014

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Standard Conditions for Providing Structural Consulting Services on Existing Structures

- 1. The following standard conditions are a general overview of key issues regarding the work product supplied.
- 2. If the existing conditions are not as represented in this structural report or attached sketches, we should be contacted to evaluate the significance of the deviation and revise the structural assessment accordingly.
- 3. The structural analysis has been performed assuming that the structure is in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, etc. If there are any known deficiencies in the structure that potentially compromise structural integrity, we should be made aware of the deficiencies. If we are aware of a deficiency that exists in a structure at the time of our analysis, a general explanation of the structural concern due to the deficiency will be included in the structural report, but the deficiency will not be reflected in capacity calculations.
- 4. The structural analysis provided is an assessment of the primary load carrying capacity of the structure. We provide a limited scope of service in that we have not verified the capacity of every weld, plate, connection detail, etc. In most cases, structural fabrication details are unknown at the time of our analysis, and the detailed field measurement of this information is beyond the scope of our services. In instances where we have not performed connection capacity calculations, it is assumed that existing manufactured connections develop the full capacity of the primary members being connected.
- 5. The structural integrity of the existing foundation system can only be verified if exact foundation sizes and soils conditions are known. We will not accept any responsibility for the adequacy of the existing foundations unless this site-specific data is supplied.
- 6. Miscellaneous items such as antenna mounts, coax supports, etc. have not been designed, detailed, or specified as part of our work. It is assumed that material of adequate size and strength will be purchased from a reputable component manufacturer. The attached report and sketches are schematic in nature and should not be used to fabricate or purchase hardware and accessories to be attached to the structure. We recommend field measurement of the structure before fabricating or purchasing new hardware and accessories. We are not responsible for proper fit and clearance of hardware and accessory items in the field.
- 7. The structural analysis has been performed considering minimum code requirements or recommendations. If alternate wind, ice, or deflection criteria are to be considered, then We shall be made aware of the alternate criteria.



DESIGNED APPURTENANCE LOADING

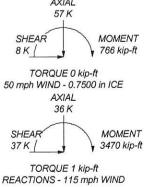
TYPE	ELEVATION	TYPE	ELEVATION	
(2) Antel BXA-70063/6CF w/ mount	130	12' T-Arm Mounts (MetroPCS)	117	
pipe (Verizon)		(4) CCI HPA-65R-BUU-H8 w/ mount	107	
(2) Antel BXA-171063/12CF w/ mount pipe (Verizon)	130	pipe (ATT) (3) Ericsson RRUS-11 (ATT)	107	
(2) Lucent 2x40 RRH (Verizon)	130	(2) Ericsson RRUS 12 (ATT)	107	
(2) Antel BXA-70063/6CF w/ mount	130	(2) Ericsson RRUS-32 (ATT)	107	
pipe (Verizon)		(2) Ericsson RRUS A2 (ATT)	107	
(2) Antel BXA-171063/12CF w/ mount pipe (Verizon)	130	(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	107	
(2) Lucent 2x40 RRH (Verizon)	130	(3) Ericsson RRUS-11 (ATT)	107	
Antel BXA-70080-6CF w/ mount pipe (Verizon)	130	(2) Ericsson RRUS 12 (ATT)	107	
		(2) Ericsson RRUS-32 (ATT)	107	
Antel BXA-80080/6CF w/ mount pipe (Verizon)	130	(2) Ericsson RRUS A2 (ATT)	107	
(2) Antel BXA-171063/12CF w/ mount pipe (Verizon)	130	(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	107	
(2) Lucent 2x40 RRH (Verizon)	130	(3) Ericsson RRUS-11 (ATT)	107	
RFS DB-T1-6Z-8AB-OZ Box (Verizon)	130	(2) Ericsson RRUS 12 (ATT)	107	
12' Low Profile Platform (Verizon)	130	(2) Ericsson RRUS-32 (ATT)	107	
(2) Andrew HBX-6516DS w/ mount	117	(2) Ericsson RRUS A2 (ATT)	107	
pipe (MetroPCS)	1988	(4) Raycap DC6-48-60-18-8F	107	
(2) Andrew HBX-6516DS w/ mount	117	Supressor (ATT)	107	
pipe (MetroPCS)		12' T-Arm Mounts (ATT)	107	
(2) Andrew HBX-6516DS w/ mount pipe (MetroPCS)	117			

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

- Tower is located in New Haven County, Connecticut.
 Tower designed for Exposure C to the TIA-222-G Standard.
 Tower designed for a 115 mph basic wind in accordance with the TIA-222-G Standard.
 Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
- 5. Deflections are based upon a 60 mph wind.
- 6. Tower Structure Class II.
 7. Topographic Category 1 with Crest Height of 0.00 ft
 8. TOWER RATING: 72.7%



Michael F. Plahovinsak, P.E.	^{Job:} 130-ft Monopole (Prop. 130-ft) - MFP #40913-015 r3				
	Project: CT1003, North Haven				
Plain City, OH 43064	Client: Florida Tower Partners				
Phone: 614-398-6250	Code: TIA-222-G	Date: 03/20/14	Scale: NTS		
FAX: mike@mfpeng.com	Path: J:\Projects\409-Misc\40913-015\40913-	015 r3.eri	Dwg No. E-1		

Michael F. Plahovinsak, P.E. 18301 State Route 161 W

> Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com

Job 130-ft Monopole (Prop. 130-ft) - MFP #40913-015 r3	Page 1 of 7
Project CT1003, North Haven	Date 19:59:19 03/20/14
Client Florida Tower Partners	Designed by Mike

Tower Input Data

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 115 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
LI	130.00-120.00	10.00	0.00	18	20.9000	23.1600	0.1875	0.7500	A572-65 (65 ksi)
L2	120.00-91.50	28.50	4.25	18	23.1600	29.6000	0.2500	1.0000	A572-65 (65 ksi)
L3	91.50-48.25	47.50	5.50	18	28.1396	38.8700	0.3750	1.5000	A572-65 (65 ksi)
L4	48.25-1.00	52.75		18	36.8775	48.8000	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	21.2224	12.3265	668.1027	7.3529	10.6172	62.9264	1337.0845	6.1644	3.3484	17.858
LI	23.5173	13.6715	911.5289	8.1552	11.7653	77.4762	1824.2571	6.8371	3.7462	19.98
L2	23.5173	18.1791	1205.4790	8.1331	11.7653	102,4607	2412.5442	9.0913	3.6362	14.545
L2	30.0566	23.2892	2534.5957	10.4193	15.0368	168.5595	5072.5265	11.6468	4.7696	19.078
L3	29.5486	33.0469	3218.4903	9.8565	14.2949	225,1489	6441.2155	16.5266	4.2926	11.447
L3	39.4696	45.8187	8578.0508	13.6657	19.7460	434,4205	17167.3888	22.9137	6.1811	16.483
1.4	38.7087	50.6015	8489.0461	12.9362	18.7338	453.1409	16989.2624	25.3056	5.7204	13.075
L/4	49.5528	67.1574	19844.8883	17.1687	24.7904	800.5070	39715.8890	33.5851	7.8188	17.872

Michael F. Plahovinsak, P.E. 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com

Јоь 130-ft Monopole (Prop. 130-ft) - MFP #40913-015 r3	Page 2 of 7
Project CT1003, North Haven	Date 19:59:19 03/20/14
Client Florida Tower Partners	Designed by Mike

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or	Allow Shield	Component Type	Placement	Total Number	10 E - 210 7 CYCL 258 10 11 11	C_AA_A	Weigh
	Leg	Ditteta	Type	ft			ft²/ft	plf
1 5/8"	C	No	Inside Pole	130.00 - 1.00	12	No Ice	0.00	0.92
(Verizon)						1/2" Ice	0.00	0.92
(1" Ice	0.00	0.92

1 5/8"	C	No	Inside Pole	117.00 - 1.00	12	No Ice	0.00	0.92
(MetroPCS)						1/2" Ice	0.00	0.92
(1.10001 00)						1" Ice	0.00	0.92
**								
3/4"	C	No	Inside Pole	107.00 - 1.00	8	No Ice	0.00	0.33
(ATT)						1/2" Ice	0.00	0.33
(/						1" Ice	0.00	0.33
1/2"	C	No	Inside Pole	107.00 - 1.00	2	No Ice	0.00	0.15
(ATT)						1/2" Ice	0.00	0.15
(/						1" Ice	0.00	0.15
3/8"	C	No	Inside Pole	107.00 - 1.00	3	No Ice	0.00	0.08
(ATT)	~					1/2" Ice	0.00	0.08
()						1" Ice	0.00	0.08

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement	Commission of the Commission o	C _A A _A Front	C _A A _A Side	Weight
			Vert ft ft ft	o	ft		ft^2	ft²	K
(2) Antel BXA-70063/6CF w/ mount pipe	A	From Face	3.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	7.75 8.29 8.85	5.18 6.11 6.92	0.04 0.09 0.16
(Verizon) (2) Antel BXA-171063/12CF w/ mount pipe	A	From Face	0.00 3.00 0.00	0.0000	130.00	No Ice 1/2" Ice	4.98 5.43	5.93 6.87	0.04 0.08 0.14
(Verizon) (2) Lucent 2x40 RRH (Verizon)	A	From Face	0.00 3.00 0.00	0.0000	130.00	1" Ice No Ice 1/2" Ice	5.89 1.20 1.35	7.69 2.25 2.45	0.01 0.03
(2) Antel BXA-70063/6CF w/	В	From Face	0.00 3.00 0.00	0.0000	130.00	1" Ice No Ice 1/2" Ice	1.51 7.75 8.29	2.66 5.18 6.11	0.05 0.04 0.09
(Verizon) (2) Antel BXA-171063/12CF w/ mount pipe	В	From Face	0.00 3.00 0.00	0.0000	130.00	1" Ice No Ice 1/2" Ice	8.85 4.98 5.43	6.92 5.93 6.87	0.16 0.04 0.08
(Verizon) (2) Lucent 2x40 RRH (Verizon)	В	From Face	0.00 3.00 0.00	0.0000	130.00	1" Ice No Ice 1/2" Ice	5.89 1.20 1.35	7.69 2.25 2.45	0.14 0.01 0.03
Antel BXA-70080-6CF w/	С	From Face	0.00 3.00	0.0000	130.00	1" Ice No Ice 1/2" Ice	1.51 5.79 6.25	2.66 5.99 6.93	0.05 0.04 0.09
mount pipe (Verizon) Antel BXA-80080/6CF w/	С	From Face	0.00 0.00 3.00	0.0000	130.00	1" Ice No Ice	6.71 5.79	7.74 5.99	0.15 0.08
mount pipe (Verizon) (2) Antel BXA-171063/12CF	С	From Face	0.00 0.00 3.00	0.0000	130.00	1/2" Ice 1" Ice No Ice	6.25 6.71 4.98	6.93 7.74 5.93	0.13 0.19 0.04
w/ mount pipe (Verizon)			0.00	0.0000	130.00	1/2" Ice 1" Ice No Ice	5.43 5.89 1.20	6.87 7.69 2.25	0.08 0.14 0.01
(2) Lucent 2x40 RRH (Verizon)	С	From Face	3.00 0.00	0.0000	130.00	1/2" Ice	1.35	2.45	0.03

Michael F. Plahovinsak, P.E. 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com

Job 130-ft Monopole (Pr	rop. 130-ft) - MFP #40913-015 r3	Page 3 of 7
Project CT1	003, North Haven	Date 19:59:19 03/20/14
Client Flori	da Tower Partners	Designed by Mike

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement	227	C _A A _A Front	C _A A _A Side	Weight
	Leg		Vert ft ft	o	ft		ft²	ft²	K
						1" Ice	1.51	2.66	0.05
RFS DB-T1-6Z-8AB-OZ Box	С	None	0.00	0.0000	130.00	No Ice	5.60	2.33	0.04
(Verizon)	C	TVOIC		0.0000	120.00	1/2" Ice	5.92	2.56	0.08
(Verizon)						1" Ice	6.24	2.79	0.12
12' Low Profile Platform	C	None		0.0000	130.00	No Ice	14.00	14.00	1.10
(Verizon)						1/2" Ice 1" Ice	16.00 18.00	16.00 18.00	1.70 2.30
***						1 100	10.00	10.00	
(2) Andrew HBX-6516DS w/	Α	From Face	3.00	0.0000	117.00	No Ice	3.49	3.17	0.12
mount pipe			0.00			1/2" Ice	3.87	3.80	0.15
(MetroPCS)			0.00			1" Ice	4.28	4.43	0.19
(2) Andrew HBX-6516DS w/	В	From Face	3.00	0.0000	117.00	No Ice	3.49	3.17	0.12
mount pipe			0.00			1/2" Ice	3.87	3.80	0.15
(MetroPCS)			0.00	0.202222	115.00	1" Ice	4.28	4.43	0.19
(2) Andrew HBX-6516DS w/	C	From Face	3.00	0.0000	117.00	No Ice	3.49	3.17	0.12
mount pipe			0.00			1/2" Ice	3.87	3.80	0.15 0.19
(MetroPCS)		129	0.00	0.0000	117.00	1" Ice	4.28	4.43 12.00	1.14
12' T-Arm Mounts	C	None		0.0000	117.00	No Ice 1/2" Ice	12.00 18.00	18.00	1.14
(MetroPCS)						1" Ice	24.00	24.00	0.47
***					107.00	NT T	12.62	0.10	0.10
(4) CCI HPA-65R-BUU-H8	Α	From Face	3.00	0.0000	107.00	No Ice	13.62	9.18	0.10 0.19
w/ mount pipe			0.00			1/2" Ice	14.35	10.58 11.83	0.19
(ATT)	260	-	0.00	0.0000	107.00	1" Ice No Ice	15.09 2.55	0.92	0.25
(3) Ericsson RRUS-11	Α	From Face	3.00	0.0000	107.00	1/2" Ice	2.77	1.07	0.06
(ATT)			0.00			1" Ice	2.99	1.23	0.08
(2) F-i BBUS 12	Α	From Face	2.50	0.0000	107.00	No Ice	3.67	1.46	0.06
(2) Ericsson RRUS 12	А	From Face	0.00	0.0000	107.00	1/2" Ice	3.92	1.64	0.08
(ATT)			0.00			1" Ice	4.19	1.84	0.11
(2) Ericsson RRUS-32	Α	From Face	2.00	0.0000	107.00	No Ice	3.87	2.76	0.08
(ATT)	**	11011111100	0.00	****		1/2" Ice	4.15	3.02	0.10
(1111)			0.00			1" Ice	4.44	3.29	0.14
(2) Ericsson RRUS A2	Α	From Face	1.50	0.0000	107.00	No Ice	1.87	0.50	0.03
(ATT)			0.00			1/2" Ice	2.05	0.62	0.04
()			0.00			1" Ice	2.24	0.75	0.05
(4) CCI HPA-65R-BUU-H8	В	From Face	3.00	0.0000	107.00	No Ice	13.62	9.18	0.10
w/ mount pipe			0.00			1/2" Ice	14.35	10.58	0.19
(ATT)			0.00	elidelikanin maloude alatik		1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS-11	В	From Face	3.00	0.0000	107.00	No Ice	2.55	0.92	0.05
(ATT)			0.00			1/2" Ice	2.77	1.07	0.06
			0.00		107.00	1" Ice	2.99	1.23	0.08
(2) Ericsson RRUS 12	В	From Face	2.50	0.0000	107.00	No Ice	3.67	1.46	0.08
(ATT)			0.00			1/2" Ice	3.92 4.19	1.64 1.84	0.08
			0.00	0.0000	107.00	1" Ice No Ice	3.87	2.76	0.08
(2) Ericsson RRUS-32	В	From Face	2.00	0.0000	107.00	1/2" Ice	4.15	3.02	0.10
(ATT)			0.00			1" Ice	4.13	3.29	0.14
(2) Eminager DRIE 42	D	From Face	1.50	0.0000	107.00	No Ice	1.87	0.50	0.03
(2) Ericsson RRUS A2	В	rioiii race	0.00	0.0000	107.00	1/2" Ice	2.05	0.62	0.04
(ATT)			0.00			1" Ice	2.24	0.75	0.05
(4) CCI HPA-65R-BUU-H8	C	From Face	3.00	0.0000	107.00	No Ice	13.62	9.18	0.10
w/ mount pipe	C	1 Ioni i ace	0.00	0.0000	. 57.00	1/2" Ice	14.35	10.58	0.19
(ATT)			0.00			1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS-11	C	From Face	3.00	0.0000	107.00	No Ice	2.55	0.92	0.05
(ATT)		1 total i doc	0.00	0.000	200000000	1/2" Ice	2.77	1.07	0.06
			0.00			1" Ice	2.99	1.23	0.08

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Јоь 130-ft Monopole (Prop. 130-ft) - MFP #40913-015	Page r3 4 of 7
Project CT1003, North Haven	Date 19:59:19 03/20/14
Client Florida Tower Partners	Designed by Mike

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement	Sec. (N. Promose at Profit A. Chron	C _A A _A Front	C _A A _A Side	Weight
			Vert ft ft	٥	ft		ft²	ft^2	K
(2) Ericsson RRUS 12	С	From Face	2.50	0.0000	107.00	No Ice	3.67	1.46	0.06
(ATT)			0.00			1/2" Ice	3.92	1.64	0.08
• 0000000			0.00			1" Ice	4.19	1.84	0.11
(2) Ericsson RRUS-32	C	From Face	2.00	0.0000	107.00	No Ice	3.87	2.76	0.08
(ATT)			0.00			1/2" Ice	4.15	3.02	0.10
()			0.00			1" Ice	4.44	3.29	0.14
(2) Ericsson RRUS A2	C	From Face	1.50	0.0000	107.00	No Ice	1.87	0.50	0.03
(ATT)	-	T.T. T.	0.00			1/2" Ice	2.05	0.62	0.04
()			0.00			1" Ice	2.24	0.75	0.05
4) Raycap DC6-48-60-18-8F	C	None		0.0000	107.00	No Ice	1.47	1.47	0.03
Supressor				-10.00	707000000000	1/2" Ice	1.67	1.67	0.05
(ATT)						1" Ice	1.88	1.88	0.07
12' T-Arm Mounts	C	None		0.0000	107.00	No Ice	12.00	12.00	1.14
(ATT)		1.0110		2.2000		1/2" Ice	18.00	18.00	1.27
(2111)						1" Ice	24.00	24.00	0.47

Load Combinations

Comb. No.	Desc	ription
1	Dead Only	and a property of the control of the
2	1.2 Dead+1.6 Wind 0 deg - No Ice	
3	0.9 Dead+1.6 Wind 0 deg - No Ice	
4	1.2 Dead+1.6 Wind 90 deg - No Ice	
5	0.9 Dead+1.6 Wind 90 deg - No Ice	
6	1.2 Dead+1.6 Wind 180 deg - No Ice	
7	0.9 Dead+1.6 Wind 180 deg - No Ice	
8	1.2 Dead+1.0 Ice+1.0 Temp	
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	
12	Dead+Wind 0 deg - Service	
13	Dead+Wind 90 deg - Service	
14	Dead+Wind 180 deg - Service	

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
	120 120	D 1	M T	Comb.		0.00	0.00
Ll	130 - 120	Pole	Max Tension	1	0.00		
			Max. Compression	8	-8.42	0.00	-0.08
			Max. Mx	4	-1.93	-73.77	-0.09
			Max. My	6	-1.98	0.00	-70.52
			Max. Vy	4	7.87	-73.77	-0.09
			Max. Vx	6	7.53	0.00	-70.52
			Max. Torque	4			-1.09
L2	120 - 91.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-25.69	0.00	-0.08
			Max. Mx	4	-10.13	-490.99	-0.13
			Max. My	6	-10.20	0.00	-479.22
			Max. Vy	4	25.81	-490.99	-0.13
			Max. Vx	6	25.45	0.00	-479.22

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Job 130-ft Monopole (Prop. 130-ft) - MF	Page 5 of 7
Project CT1003, North Have	Date 19:59:19 03/20/14
Client Florida Tower Partne	Designed by Mike

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	4			-1.09
L3	91.5 - 48.25	Pole	Max Tension	1	0.00	0.00	0.00
	71.5 10.20		Max. Compression	8	-37.22	0.00	-0.08
			Max. Mx	4	-19.18	-1681.42	-0.18
		Max. My	6	-19.22	0.00	-1654.67	
			Max. Vy	4	30.88	-1681.42	-0.18
			Max. Vx	6	30.53	0.00	-1654.67
			Max. Torque	4			-1.09
L4	48.25 - 1	Pole	Max Tension	1	0.00	0.00	0.00
2.	10.20	7.305	Max. Compression	8	-57.16	0.00	-0.08
			Max. Mx	4	-35.90	-3470.39	-0.19
			Max. My	6	-35.90	0.00	-3425.12
			Max. Vy	4	36.65	-3470.39	-0.19
			Max. Vx	6	36.31	0.00	-3425.12
			Max. Torque	4			-1.09

Maximum Tower Deflections - Service Wind

Section	Elevation	Horz.	Gov.	Tilt	Twist
No.		Deflection	Load		
	ft	in	Comb.	0	0
L1	130 - 120	13.677	13	0.9085	0.0024
1.2	120 - 91.5	11.788	13	0.8895	0.0016
L3	95.75 - 48.25	7.544	13	0.7545	0.0007
L4	53.75 - 1	2.310	13	0.4071	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	0	0	ft
130.00	(2) Antel BXA-70063/6CF w/	13	13.677	0.9085	0.0024	34042
117.00	mount pipe (2) Andrew HBX-6516DS w/ mount	13	11.232	0.8796	0.0014	15115
107.00	pipe (4) CCI HPA-65R-BUU-H8 w/	13	9.434	0.8306	0.0010	10913
	mount pipe					On the Assessment of the Control of

Maximum Tower Deflections - Design Wind

Section	Elevation	Horz.	Gov.	Tilt	Twist
No.		Deflection	Load		
	ft	in	Comb.	0	٥
L1	130 - 120	90.092	4	5.9891	0.0156
1.2	120 - 91.5	77.661	4	5.8643	0.0105
L3	95.75 - 48.25	49.721	4	4.9750	0.0047
1.4	53.75 - 1	15.227	4	2.6845	0.0015

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Critical Deflections and	Radius	of	Curvature -	Design	Wind
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Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	0	0	ft
130.00	(2) Antel BXA-70063/6CF w/ mount pipe	4	90.092	5.9891	0.0156	5287
117.00	(2) Andrew HBX-6516DS w/ mount pipe	4	74.000	5.7991	0.0093	2344
107.00	(4) CCI HPA-65R-BUU-H8 w/ mount pipe	4	62.164	5.4763	0.0065	1687

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio P_u
140.	ft		ft	ft		in ²	K	K	ϕP_n
L1	130 - 120 (1)	TP23.16x20.9x0.1875	10.00	0.00	0.0	13.6715	-1.93	958.52	0.002
L2	120 - 91.5 (2)	TP29.6x23.16x0.25	28.50	0.00	0.0	22.5272	-10.13	1617.01	0.006
L3	91.5 - 48.25 (3)	TP38.87x28.1396x0.375	47.50	0.00	0.0	44.3398	-19.18	3294.23	0.006
L4	48.25 - 1 (4)	TP48.8x36.8775x0.4375	52.75	0.00	0.0	67.1574	-35.90	4858.33	0.007

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio M _{ux}	M_{uy}	ϕM_{ny}	Ratio M_{uy}
	ft		kip-ft	kip-ft	ϕM_{nx}	kip-ft	kip-ft	M_{uv} ϕM_{nv}
I.I	130 - 120 (1)	TP23.16x20.9x0.1875	73.77	452.66	0.163	0.00	452.66	0.000
L2	120 - 91.5 (2)	TP29.6x23.16x0.25	490.99	943.10	0.521	0.00	943.10	0.000
1.3	91.5 - 48.25 (3)	TP38.87x28.1396x0.375	1681.43	2517.97	0.668	0.00	2517.97	0.000
L4	48.25 - 1 (4)	TP48.8x36.8775x0.4375	3470.39	4825.88	0.719	0.00	4825.88	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V _u	ϕV_n	$Ratio$ V_u	$Actual T_u$	ϕT_n	Ratio T_u
	ft		K	K	ϕV_n	kip-ft	kip-ft	ϕT_n
T.1	130 - 120 (1)	TP23.16x20.9x0.1875	7.87	479.26	0.016	1.09	906.43	0.001
L2	120 - 91.5 (2)	TP29.6x23.16x0.25	25.81	808.51	0.032	1.09	1888.51	0.001
L3	91.5 - 48.25 (3)	TP38.87x28.1396x0.375	30.88	1647.11	0.019	1.09	5042.12	0.000
L4	48.25 - 1 (4)	TP48.8x36.8775x0.4375	36.65	2429.16	0.015	1.08	9663.58	0.000

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Јоь 130-ft Monopole (Prop. 130-ft) - MFP #40913-015 r3	Page 7 of 7
Project CT1003, North Haven	Date 19:59:19 03/20/14
Client Florida Tower Partners	Designed by Mike

Pole	Interaction	Design	Data
I VIV	IIILGIAGUGII	PCOLMII	

Section No.	Elevation	Ratio P _u	Ratio M _{ux}	Ratio M _{uv}	Ratio V _u	Ratio T _u	Comb. Stress	Allow. Stress	Criteria
	ft	ϕP_n	ϕM_{nx}	ϕM_{nv}	ϕV_n	ϕT_n	Ratio	Ratio	
L1	130 - 120 (1)	0.002	0.163	0.000	0.016	0.001	0.165	1.000	4.8.2
L2	120 - 91.5 (2)	0.006	0.521	0.000	0.032	0.001	0.528	1.000	4.8.2
L3	91.5 - 48.25 (3)	0.006	0.668	0.000	0.019	0.000	0.674	1.000	4.8.2
L4	48.25 - 1 (4)	0.007	0.719	0.000	0.015	0.000	0.727	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ø P_{allow} K	% Capacity	Pass Fail
LI	130 - 120	Pole	TP23.16x20.9x0.1875	1	-1.93	958.52	16.5	Pass
L2	120 - 91.5	Pole	TP29.6x23.16x0.25	2	-10.13	1617.01	52.8	Pass
L3	91.5 - 48.25	Pole	TP38.87x28.1396x0.375	3	-19.18	3294.23	67.4	Pass
L4	48.25 - 1	Pole	TP48.8x36.8775x0.4375	4	-35.90	4858.33	72.7	Pass
							Summary	
						Pole (L4)	72.7	Pass
						RATING =	72.7	Pass

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Job	130-ft monopole - MFP #40913-015	Page	BP-G
Project	CT1003, North Haven	Date	3/20/2014
Client	FLORIDA TOWER PARTNERS	Designe	d by Mike

Anchor Rod and Base Plate Calculation

ANSI/TIA-222-G-2

Factored Base Reactions:

Pole Shape:

Anchor Rods:

Base Plate:

Moment:

3470 ft-kips

18-Sided

(20) 2.25 in. A615 GR. 75

2.75 in. x 58 in. Round

Shear:

37 kips

Pole Dia. (D_f) :

Anchor Rods Evenly Spaced

fy = 50 ksi

Axial:

36 kips

48.80 in

On a 55.25 in Bolt Circle

Anchor Rod Calculation According to TIA-222-G section 4.9.9

0.80 TIA 4.9.9

 $I_{\text{bolts}} =$

7631.41 in Momet of Inertia

 $P_{u} =$

151 kips Tension Force

 $V_{ii} =$

2 kips Shear Force

 $\mathbf{R}_{\mathrm{nt}} =$

325.00 kips Nominal Tensile Strength

 $\eta =$

0.50 for detail type (d)

The following Interation Equation Shall Be Satisfied:

$$\left(\frac{P_{u} + \frac{V_{u}}{\eta}}{\phi R_{nt}}\right) \leq 1.0$$

$$0.594 \le 1$$

Base Plate Calculation According to TIA-222-G

$$\phi =$$

0.90 TIA 4.7

 $M_{PL} =$

320.3 in-kip Plate Moment

 $\mathbf{L} =$

7.7 in Section Length

Calculated Moment vs Factored Resistance

 $\mathbf{Z} =$

14.5 Plastic Section Modulus

320.32 in-kip ≤

652 in-kip

 $M_P =$

724.6 in-kip Plastic Moment

 $\phi M_n =$

652.2 in-kip Factored Resistance

Anchor Rods Are Adequate

59.4% 🗹

Base Plate is Adequate

49.1%

Monopole Spread Footing Calculation

ANSI/TIA-222-G-2

Moment: 3470 ft-kips 24 ft x 24 ft 7 ft Square Pier fc = 4000 psi Shear: 37 kips x 2 ft thick w6 in Reveal Steel fy = 60 ksi Axial: 36 kips Bearing 8 ft B.G. 54.5 Yd3 Concrete fe = 0.75 Soil Backfill 120 pcf Ultimate Bearing: 6000 psf Water Table 5.5 Foundation Weight Weight of Pole 36.0 kips Weight of Soil 379.44 kips 4 kips 4 kips 4 kips 4 kips 4 kips 4 kips 5 kips x 0 ft) 6 kips x 0 ft) 6 kips x 0 ft) 6 kips x 24 ft / 2 kips 5 kips x 24 ft / 2 kips 7 kips x 24 ft / 2 kips 2 kips x	Factored Base	Reactions:	Footing Dimensions:		Concrete:	
Shear: 37 kips			· ·	7 ft Square Pier	f'c = 4000 psi	
Axial: 36 kips Bearing 8 ft B.G. 54.5 Yd3 Concrete f = 0.75			x 2 ft thick	•	Steel fy $= 60 \text{ ksi}$	
Soil Backfill 120 pcf Ultimate Bearing: 6000 psf Water Table 5.5		Marketine Training to Walter's an		54.5 Yd3 Concrete	f = 0.75	
Foundation Weight Weight of Pole 36.0 kips Weight of Concrete 220.575 kips Weight of Soil 379.44 kips Bouyancy of Water -89.9 kips Total 546.2 kips Overturning Resistance: Overturning Moment (M _w) 3784.5 fl-kips fl-kips + (1.05 kips x 0 ft) Resisting Moment (R _x) 6553.908 fl-kips 546.159 kips x 24 ft / 2 77.0% OK Soil Bearing Pressure: Eccentricity (e) 6.93 ft 3784.5 fl-kips / 546.159 kips 6(e) 41.6 ft > 24.0 ft 6e > 24 Maximum Soil Bearing 3325.2015 psf Calculated across corners Soil Overburden -804 psf Overburden - Bouyancy Net Soil Bearing (R _x) 6000 psf Overburden - Bouyancy Net Soil Bearing < φ x R _x Net Bearing / f R _s 56.0% OK Bending Moment in Pier: Bending Moment in Footing: 3470 ft-kips + (37 kips x 6.5 ft) Bending Moment in Footing: Max Bending Moment 2110.8435 ft-kips Σ Moments about pier face		r				
Foundation Weight Weight of Pole 36.0 kips Weight of Concrete 220.575 kips Weight of Soil 379.44 kips Bouyancy of Water -89.9 kips Total 546.2 kips Overturning Resistance: Overturning Moment (M_u) 3784.5 ft-kips ft-kips + (1.05 kips x 0 ft) Resisting Moment (R_x) 6553.908 ft-kips 546.159 kips x 24 ft / 2 ϕ x $R_x > M_u$ $M_{overturning}$ / f M_{resist} 77.0% OK Soil Bearing Pressure: Eccentricity (e) 6.93 ft 3784.5 ft-kips / 546.159 kips 6(e) 41.6 ft > 24.0 ft 6e > 24 Maximum Soil Bearing 3325.2015 psf Calculated across corners Net Soil Bearing 2521.2015 psf Overburden - Bouyancy Net Soil Bearing (R_y) 6000 psf Overburden - Bouyancy Net Soil Bearing R_y Net Bearing / f R_y 56.0% OK Bending Moment in Pier: Bending Moment in Footing: Max Bending Moment 2110.8435 ft-kips Σ Moments about pier face	Soil Backfill	120 pcf	Ultimate Bearing:	6000 psf	Water Table	5.5
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$		-				
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Foundation We	eight				
Weight of Soil 379.44 kips -89.9 kips -8	Weig	ght of Pole	36.0 kips			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Weight	of Concrete	220.575 kips			
Total 546.2 kips Overturning Resistance: Overturning Moment (M_u) 3784.5 ft-kips ft-kips + (1.05 kips x 0 ft) Resisting Moment (R_s) 6553.908 ft-kips 546.159 kips x 24 ft / 2 ϕ x $R_s > M_u$ $M_{overturning}$ / f M_{resist} 77.0% OK Soil Bearing Pressure: Eccentricity (e) 6.93 ft 3784.5 ft-kips / 546.159 kips 6(e) 41.6 ft > 24.0 ft 6e > 24 Maximum Soil Bearing 3325.2015 psf Calculated across corners Soil Overburden -804 psf Overburden - Bouyancy Net Soil Bearing 2521.2015 psf Overburden - Bouyancy Net Soil Bearing (R_s) 6000 psf OK Net Soil Bearing < ϕ x R_s Net Bearing / f R_s 56.0% OK Bending Moment in Pier: Bending Moment in Footing: Max Bending Moment 2110.8435 ft-kips Σ Moments about pier face	Weig	ght of Soil	379.44 kips			
	Bouyar	ncy of Water	-89.9 kips			
Overturning Moment (M_u) 3784.5 ft-kips ft-kips $(1.05 \text{ kips x 0 ft})$ Resisting Moment (R_s) 6553.908 ft-kips 546.159 kips x 24 ft / 2 77.0% OK Soil Bearing Pressure: Eccentricity (e) 6.93 ft 3784.5 ft-kips / 546.159 kips 6(e) 41.6 ft > 24.0 ft 6e > 24		Total	546.2 kips			
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Maximum Soil Bearing 3325.2015 psf Calculated across corners Soil Overburden -804 psf Overburden - Bouyancy Net Soil Bearing 2521.2015 psf Resisting Soil Bearing (R_s) 6000 psf Net Soil Bearing $< \phi \times R_s$ Net Bearing $/ fR_s$ 56.0% OK Bending Moment in Pier: Bending Moment in Footing: Max Bending Moment 2110.8435 ft-kips Σ Moments about pier face	Ecce	ntricity (e)				
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Bending Moment in Footing: Max Bending Moment 2110.8435 ft-kips Σ Moments about pier face	Bending Mome	ent in Pier:				
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Max Bending Moment 2110.8435 ft-kips Σ Moments about pier face						
Max Bending Moment 2110.8435 ft-kips Σ Moments about pier face						
2	Bending Mome	ent in Footing:				
0.70 : 2/0	Max Ber	nding Moment	2110.8435 ft-kips	Σ Momer	nts about pier face	
0.70 : 2/6						
Min. Footing Steel 0.52 in ² /ft 0.18%	Min. F	Footing Steel	$0.52 \text{ in}^2/\text{ft}$	0.18%		

TAB 5

MEMORANDUM OF LEASE

Prepared by:
Elizabeth Jamieson
Smartlink, LLC
33 Boston Post Road, W
Marlborough, MA 01752

Return to: 33 Boston Post Road, W Marlborough, MA 01752

Re:

Cell Site #: S3506A; Cell Site Name: North Haven Devine Street, (S3506A)

Fixed Asset Number: 10578263

State: Connecticut County: New Haven

MEMORANDUM OF LEASE

This Memorandum of Lease is entered into on this day of other, 2013, by and between Florida Tower Partners, LLC, a Delaware limited liability company, having a mailing address of 1001 Third Avenue West, Suite 420, Bradenton, FL 34205 (hereinafter referred to as "Landlord") and New Cingular Wireless PCS, LLC, a Delaware limited liability company, having a mailing address of Suite 13-F West Tower, 575 Morosgo Drive, Atlanta, GA 30324 (hereinafter referred to as "Tenant").

- 1. Landlord and Tenant entered into a certain Lease Agreement ("Agreement") on the 3/ day of October, 2013, for the purpose of installing, operating and maintaining a communications facility and other improvements. All of the foregoing is set forth in the Agreement.
- 2. The initial lease term will be five (5) years commencing on the Rent Commencement Date of the Agreement, with four (4) successive five (5) year options to renew.
- 3. The portion of the land being leased to Tenant and associated easements (the "Premises") are described in **Exhibit 1** annexed hereto.
- 4. This Memorandum of Lease is not intended to amend or modify, and shall not be deemed or construed as amending or modifying, any of the terms, conditions or provisions of the Agreement, all of which are hereby ratified and affirmed. In the event of a conflict between the provisions of this Memorandum of Lease and the provisions of the Agreement, the provisions of the Agreement shall control. The Agreement shall be binding upon and inure to the benefit of the parties and their respective heirs, successors, and assigns, subject to the provisions of the Agreement.

IN WITNESS WHEREOF, the parties have executed this Memorandum of Lease as of the day and year first above written.

"LANDLORD"

By:
Print Name: Brett Buggeln

Its: Manager/President
Date: 16 3 13

FLORIDA TOWER PARTNERS, LLC

"TENANT"

New Cingular Wireless PCS, LLC, a Delaware limited liability company

By: AT&T Mobility Corporation

Its: Manager

Print Name: Keyin L. Mason

Its: Area Manager

Date: 10-3= 2013

[ACKNOWLEDGMENTS APPEAR ON THE NEXT PAGE]

TENANT ACKNOWLEDGMENT

State of Massachusetts
County of Middlesex
On this the 30th day of 0ctober, 2013, before me,, the undersigned officer, personally appeared Kevin L. Mason who acknowledged himself to be the Area Manager of AT&T Mobility Corporation, manager of New Cingular Wireless PCS, LLC, a (member managed or manager managed) limited liability company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the limited liability company by himself as Area Manager
In witness whereof I hereunto set my hand.
Notary Public
Print Name:
My Commission Expires:
LANDLORD ACKNOWLEDGMENT
State of Floride
State of Florida County of Magket
On this the Y day of Oct, 2013, before me, Oss. Breme, the undersigned officer, personally appeared Brett Buggeln who acknowledged himself to be the Manager/President of Florida Tower Partners, LLC, a (member managed or manager managed) limited liability company, and that he, as such Manager/President, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the limited liability company by himself as Manager/President.
In witness whereof I hereunto set my hand. TODD J. BOWMAN AIY COMMISSION # EE 016243
Print Name:
My Commission Expires:

EXHIBIT 1

DESCRIPTION OF PREMISES

Page of		
to the Memorandum of Lease dated Partners, LLC, a Delaware limited liability company, as La LLC, a Delaware limited liability company, as Tenant. The Premises is a portion of the Property, which is legally described.		

Schedule A

50 Devine Street:

All that certain piece or parcel of land with the buildings and all other improvements thereon, situated in the Town of North Haven, in the County of New Haven and State of Connecticut, bounded and described as follows:

WEST by land formerly of The New York, New Haven and Hartford Railroad Company, more lately of Consolidated Rail Corporation 584 feet;

NORTHEAST by land now or formerly of The Humphrey Chemical Company, 645 feet;

EAST by land now or formerly of The Humphrey Chemical Company, 242.98 feet;

NORTHEAST again by land now or formerly of The Humphrey Chemical Company, 50 feet;

SOUTHEAST by land now or formerly of The Humphrey Chemical Company, 100 feet;

SOUTHWEST by land now or formerly of The Humphrey Chemical Company, 710 feet;

Being the premises shown on a map entitled, "MAP OF PROPERTY OF ROBERT E. WRIGHT TO BE CONVEYED TO ANTHONY S. PAPA OFF DEVINE STREET, North Haven, Connecticut, Aug. 11, 1980 Scale 1" = 40", by Joseph B. Burns, Land Surveyor

Together with a right of way in common with others in, through, over and across land now or formerly of The I.L. Stiles & Son Brick Company, known as Devine Street to State Street.

Together with and subject to rights of way and pole line easement heretofore granted and reserved as set forth in a deed from The Alfred B. King Company to Humphrey-Wilkinson, Incorporated, dated January 6, 1949 and recorded in Volume 108 on Page 306 of the North Haven Land Records, to which deed reference is hereby made; except as modified in a deed from The Alfred B. King Company to The Humphrey Chemical Company, dated August 20, 1969 and recorded in Volume 248 on Page 27 of said Land Records.

Together with and subject to a Mutual Easement and Sewer Tie-in Agreement by and between The Humphrey Chemical Company, Inc. and Anthony S. Papa dated July 20, 1990 and recorded July 24, 1990 in Volume 410 at Page 80 of the North Haven Land Records.

Excepting therefrom the property conveyed to Humphrey Chemical Company in a deed recorded in Volume 410, Page 102 of the North Haven Land Records.

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TAB 6

Power Density Calculations

Applicant: New Cingular Wireless PCS, LLC d/b/a AT&T

Site ID: S3506

Site Type: Existing 120' Monopole Tower

Address: 50 Devine Street, North Haven, CT 06473

Date: April 4, 2014

1. Existing Power Density ¹

Carrier	#Channels	ERP/Ch	Ant Ht	Power Density (mW/cm2)	Frequency MHz	Limit	%МРЕ
Metro PCS CDMA	3	727	117'	0.0573	2135 Band	1.0000	5.73%
Metro PCS LTE	1	1200	117'	0.0315	2130 Band	1.0000	3.15%
						TOTAL	8.88%

2. Proposed AT&T Power Density ²

Carrier	#Channels	ERP/Ch	Ant Ht	Power Density (mW/cm2)	Frequency MHz	Limit	%МРЕ
AT&T UMTS	2	500	107'	0.0314	800 Band	0.5867	5.35
AT&T UMTS	1	500	107'	0.0157	1900 Band	1.0000	1.57
AT&T LTE	1	500	107'	0.0157	700 Band	0.4667	3.36
AT&T LTE	1	500	107'	0.0157	1900 Band	1.0000	1.57
AT&T LTE	1	500	107'	0.0157	2300 Band	1.0000	1.57
			•			TOTAL	13.42%

3. Cumulative Power Density Calculation Results

Carrier	#Channels	ERP/Ch	Ant Ht	Power Density (mW/cm2)	Frequency MHz	Limit	%MPE
Metro PCS CDMA	3	727	117'	0.0573	2135 Band	1.0000	5.73%
Metro PCS LTE	1	1200	117'	0.0315	2130 Band	1.0000	3.15%
AT&T UMTS	2	500	107'	0.0314	800 Band	0.5867	5.35
AT&T UMTS	1	500	107'	0.0157	1900 Band	1.0000	1.57
AT&T LTE	1	500	107'	0.0157	700 Band	0.4667	3.36
AT&T LTE	1	500	107'	0.0157	1900 Band	1.0000	1.57
AT&T LTE	1	500	107'	0.0157	2300 Band	1.0000	1.57
						TOTAL	22.3%

¹ This Power Density information was taken from the Connecticut Siting Council database dated October 1, 2013. ² This Power Density information is based on worse case assumptions from AT&T's radio frequency engineers.

4. Conclusion:

The addition of AT&T's antennas on the existing tower will result in the cumulative maximum permissible exposure (MPE) level of 22.3%. The proposal complies with the National Council on Radiation Protection and Measurements standard for MPE adopted by the Federal Communications Commission ("FCC"). Moreover, the maximum level of radio-frequency energy emitted from AT&T's installation will be well below the FCC's mandated radio frequency exposure limits.