

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 9, 2013

Julie D. Kohler, Esq.
Cohen and Wolf, P.C.
1115 Broad Street
Bridgeport, CT 06604

RE: **EM-T-MOBILE-017-131114** – T-Mobile Northeast LLC notice of intent to modify an existing telecommunications facility located at 371 Terryville Avenue, Bristol, Connecticut.

Dear Attorney Kohler:

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

- The proposed coax shall be installed in accordance with the recommendations made in the Structural Analysis Report prepared by GPD Group dated October 30, 2013 and stamped by John Kabak;
- Within 45 days following completion of the antenna installation, T-Mobile shall provide documentation certified by a professional engineer that its installation complied with the recommendations of the structural analysis;
- Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated November 22, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.



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

Very truly yours,

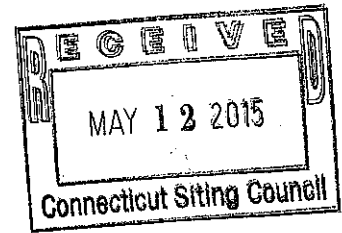


Melanie A. Bachman
Acting Executive Director

MAB/CDM/jb

- c: The Honorable Ken Cockayne, Mayor, City of Bristol
- William J. Veits, Planner Commission Chairman, City of Bristol
- Christopher B. Fisher, Esq., AT&T
- Bristol Hospital Inc.

T-Mobile



Please Reply To:
Sam Simons
35 Griffin Road South
Bloomfield, CT 06002
203-482-5156
Sam.Simons@T-Mobile.com

May 11, 2015

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

Re: EM-T-Mobile-017-131114
T-Mobile Site ID CTHA114B
371 Terryville Avenue , Bristol CT
Notice of Construction Completion

Dear Attorney Bachman:

The Connecticut Siting Council ("Council") acknowledged the above referenced T-Mobile Northeast LLC ("T-Mobile") notice of exempt modification on December 9, 2013. T-Mobile hereby notifies the Council that construction of the acknowledged modifications were complete as of March 10, 2015.

Please don't hesitate to contact me with any questions.

Sincerely,

Sam Simons

Samuel Simons, T-Mobile

cc: Mark Richard, T-Mobile

JULIE D. KOHLER

PLEASE REPLY TO: Bridgeport
WRITER'S DIRECT DIAL: (203) 337-4157
E-Mail Address: jkohler@cohenandwolf.com

November 13, 2013

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

**Re: Notice of Exempt Modification
AT&T/T-Mobile co-location
Site ID CTHA114B
371 Terryville Avenue, Bristol CT**

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, New Cingular Wireless ("AT&T") owns the existing monopole telecommunications tower and related facility at 371 Terryville Avenue, Bristol Connecticut (longitude -72.962679/ latitude 41.679906). T-Mobile intends to replace six antennas and related equipment at this existing telecommunications facility in Bristol ("Bristol Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Mayor, Arthur J. Ward, and the property owner, Saint Joseph's Church Corporation.

The existing Bristol Facility consists of a 170 foot tall monopole structure. T-Mobile plans to replace six antennas platforms and relocate 3 TMAs (tower mounted amplifiers) at a centerline of 130 feet. See the plans revised to October 30, 2013 attached hereto as Exhibit A. T-Mobile will also add hybrid cable, reuse (six) and remove (six) certain coax cabling, and replace an equipment cabinet all within the compound area. The existing Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated October 30, 2013 attached hereto as Exhibit B.

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

November 13, 2013
Site ID CTHA114B
Page 2

1. The proposed modification will not increase the height of the tower. T-Mobile's replacement antennas will be installed at the 130 foot level of the 170 foot monopole tower. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

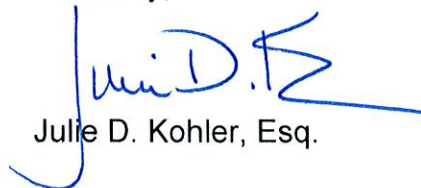
2. The installation of the T-Mobile equipment in the existing compound, as reflected on the attached site plan, will not require an extension of the site boundaries. T-Mobile's proposed equipment will be located entirely within the existing compound area.

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

4. The operation of the replacement antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated November 12, 2013 T-Mobile's operations would add 0.678% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 41.088% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the Bristol Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

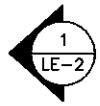
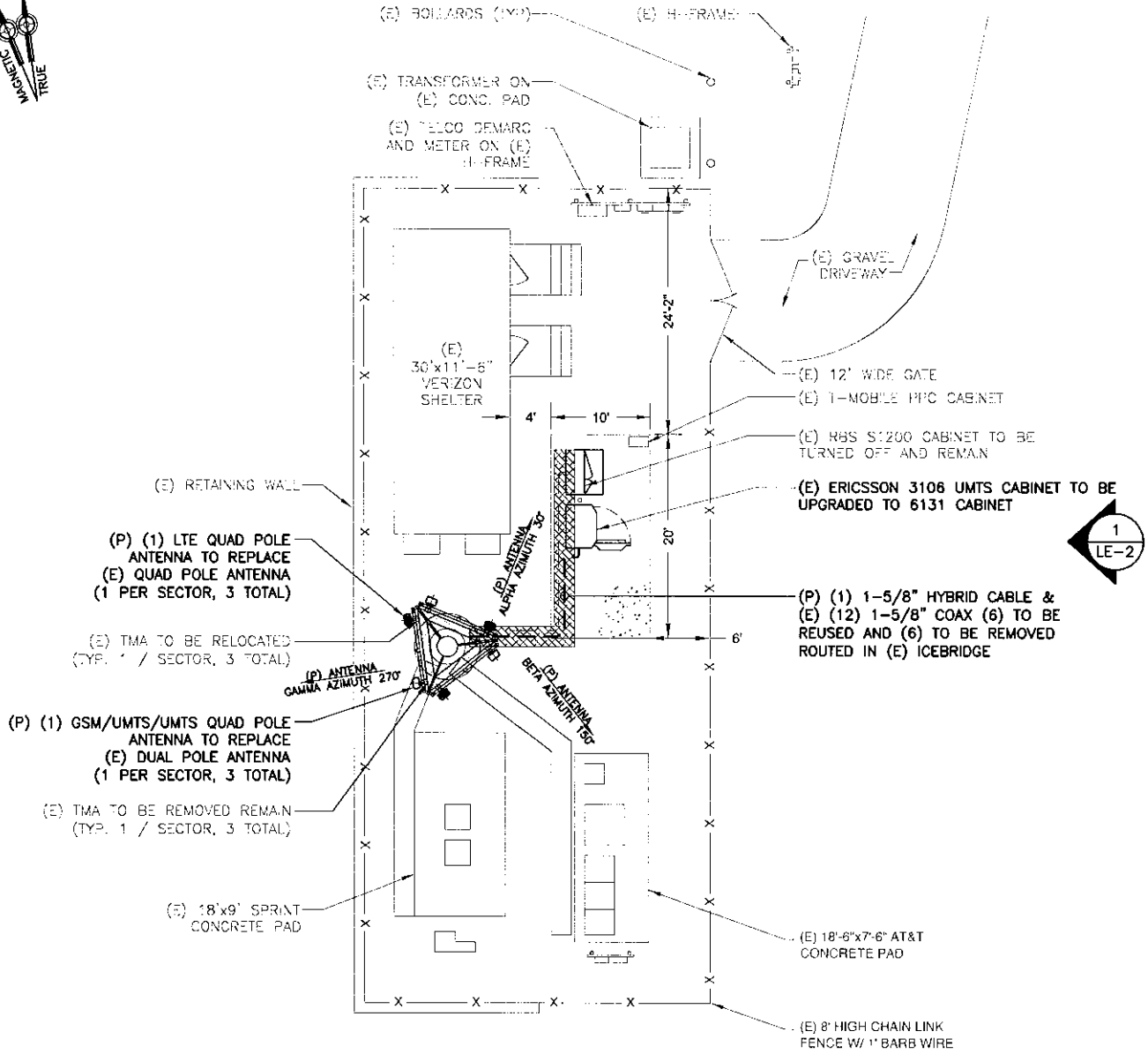
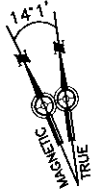
Sincerely,



Julie D. Kohler, Esq.

cc: City of Bristol, Mayor Arthur J. Ward
AT&T
Saint Joseph's Church Corporation
Scott Chase, NSS

EXHIBIT A



SITE PLAN

N.T.S.



Configuration

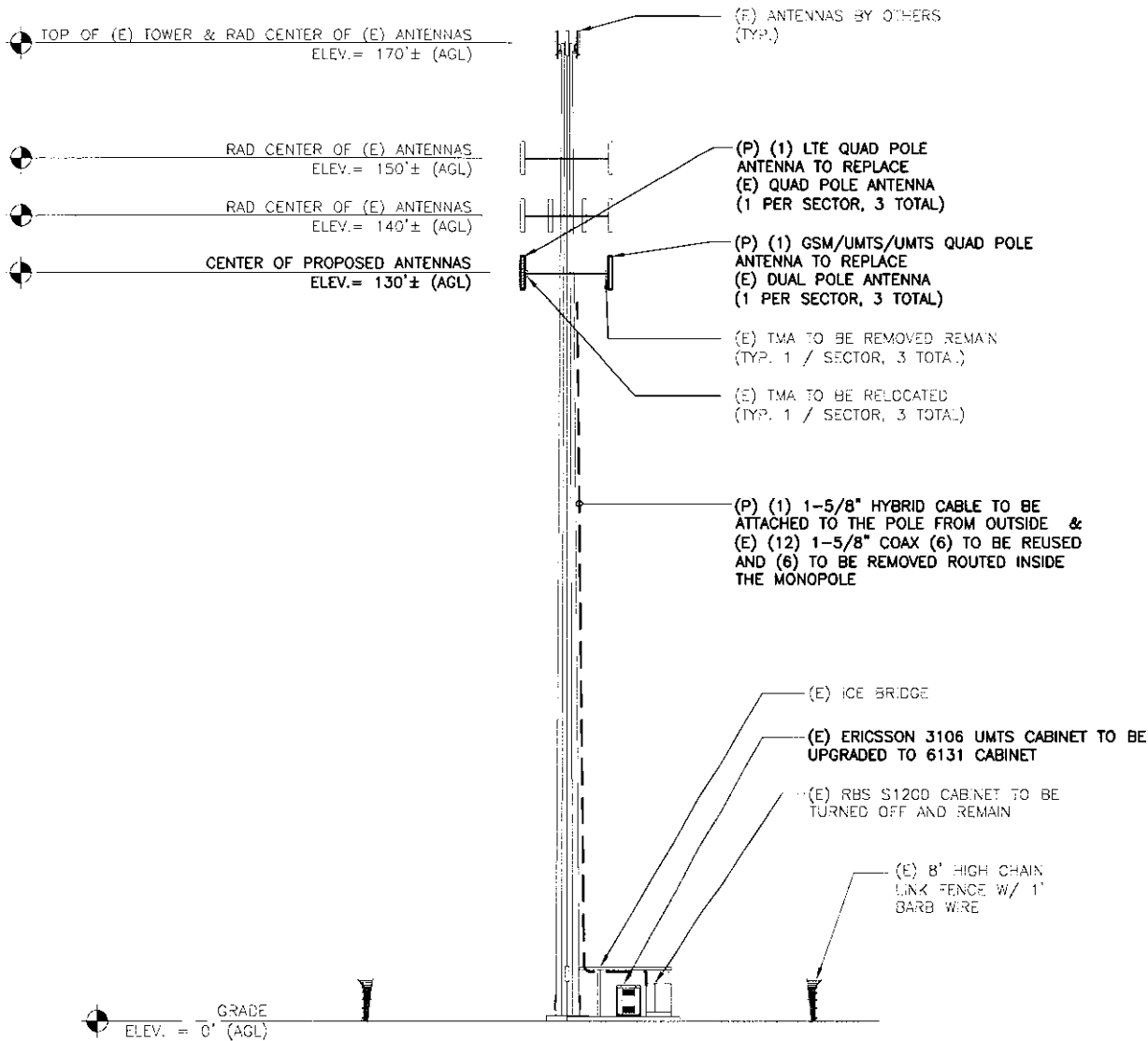
2C

SUBMITTALS	
LE REV A	04.22.13
LE REV 0	10.30.13

ATLANTIS GROUP
 1340 Centre Street
 Suite 203
 Newton, MA 02459
 Office: 617-965-0789
 Fax: 617-213-5056

LEASE EXHIBIT
 SITE NUMBER:
 CTHA114B
 SITE NAME:
 AT&T 27074
 SITE ADDRESS:
 371 TERRYVILLE AVENUE
 BRISTOL, CT 06010

NORTHEAST TOWERS
 199 BRICKYARD ROAD
 FARMINGTON, CT 06032
 OFFICE: (860) 677-1999
 FOR
T-MOBILE NORTHEAST, LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 692-7100
 FAX: (860) 692-7159



EAST ELEVATION

N.T.S.

1
LE-3

Configuration
2C

SUBMITTALS	
LE REV A	04.22.13
LE REV 0	10.30.13

ATLANTIS GROUP
 1340 Centre Street
 Suite 203
 Newton, MA 02459
 Office: 617-965-0789
 Fax: 617-213-5056

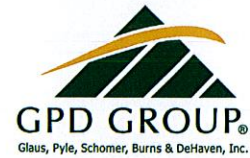
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 BLOOMFIELD, CT 06002
 OFFICE: (860) 692-7100
 FAX: (860) 692-7159

EXHIBIT B



AT&T Towers
2300 Northlake Center Dr Ste 405
Tucker, GA 30084-4032
(404) 532-5859



GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
Kevin Clements
520 South Main Street, Suite 2531
Akron, OH 44311
(330) 572-3546
kclements@gpdgroup.com

GPD# 2013723.01.27074.03 Rev 1
October 30, 2013

STRUCTURAL ANALYSIS REPORT

AT&T DESIGNATION: **Site USID:** 27074
 Site FA: 10070954
 Client #: CTHA114B
 Site Name: BRISTOL CENTER
 AT&T Project: 3_T-Mobile Modification 4-23-13

ANALYSIS CRITERIA: **Codes:** TIA/EIA-222-F, 2005 CTBC, 2003 IBC & ASCE 7-05
 80-mph (fastest-mile) with 0" ice
 28-mph (fastest-mile) with 1" ice

SITE DATA: **371 Terryville Ave, Bristol, CT 06010, Hartford County**
 Latitude 41° 40' 47.6616" N, Longitude 72° 57' 45.6438" W
 Market: NEW ENGLAND
 168.5' Modified EEI Monopole

Ms. Charlotte Malone,

GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	99.6%	Pass
Foundation Ratio with Proposed Equipment:	87.4%	Pass

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T Mobility. If you have any questions or need further assistance on this or any other projects please do not hesitate to call.

Respectfully submitted,




John N. Kabak, P.E.
Connecticut #: 28336

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing modified structure is capable of carrying the proposed loading configuration as specified by T-Mobile to AT&T Mobility. This report was commissioned by Ms. Charlotte Malone of AT&T Mobility.

The modifications by Black & Veatch (Project #: 166951, dated 5/3/2012) and by GPD (Project #: 2013801.01, dated 2/8/13 and Project #: 2013723.27074.02, dated 8/16/2013) were considered in this analysis.

The proposed coax shall be banded external to the monopole in order for the results of this analysis to be valid.

TOWER SUMMARY AND RESULTS

Monopole	99.6%	Pass
Anchor Rods	62.3 %	Pass
Base Plate	95.9%	Pass
Foundation	87.4%	Pass

ANALYSIS METHOD

tnxTower (Version 6.1.3.1), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and is being completed without the benefit of a detailed site visit.

DOCUMENTS PROVIDED

Notice of Co-lo Form (Part 2)	T-Mobile Co-Location Document, uploaded 5/9/2013	Siterra
Site Lease Application	T-Mobile Application, uploaded 4/23/2013	Siterra
Tower Design	EEl, Inc. Project #: 12027 Rev 1, dated 11/26/2003	Siterra
Foundation Design	EEl, Inc. Project #: 12027, dated 12/2/2003	Siterra
Geotechnical Report	VN Engineers Project #: 23-124G, dated 11/11/2003	Siterra
Previous Structural Analysis	GPD Project #: 2013723.01.27074.02, dated 8/16/2013	Siterra
Modification Drawings	GPD Project #: 2013801.01, dated 2/8/2013	Siterra
Modification Drawings	B&V Project #: 166951, dated 5/3/2012	Siterra
Modification Drawings	GPD Project #: 2013723.27074.02, dated 8/16/2013	Siterra
Post Modification Report	B&V Project #: 166951, dated 10/10/2012	Siterra

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower shaft sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations.
6. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
7. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
8. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
9. All prior structural modifications are assumed to be as per data supplied/available and to have been properly installed.
10. Loading interpreted from photos is accurate to $\pm 5'$ AGL, antenna size accurate to ± 3.3 sf, and coax equal to the number of existing antennas without reserve.
11. All existing loading was obtained from the previous analysis by GPD (Project #: 2013723.01.27074.02, dated 8/16/2013), site photos, the provided Site Lease Application, and the provided Notice of Co-Location Form and is assumed to be accurate.
12. The existing AT&T loading was based on the final configuration of the "1_MOD LTE 082912" project in Siterra.
13. The future AT&T loading was based on the generic future loading scenario.
14. The proposed coax shall be banded external to the monopole in order for the results of this analysis to be valid.

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

DISCLAIMER OF WARRANTIES

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

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

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

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

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

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

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

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info	
Site Name	BRISTOL CENTER
Site Number	27074
FA Number	10070954
Date of Analysis	10/30/2013
Company Performing Analysis	GPD

Tower Info	Description	Date
Tower Type (G, SST, MPI)		
Tower Height (top of steel AGL)	166.5'	
Tower Manufacturer	EEI	
Tower Model	n/a	
Tower Design	EEI, Inc. Project #: 12027 Rev 1	11/26/2003
Foundation Design	EEI, Inc. Project #: 12027	12/2/2003
Geotech Report	VN Engineers Project #: 23-124G	11/11/2003
Tower Mapping	n/a	
Previous Structural Analysis	GPD Project #: 2013725.01, 27074.02	8/16/2013
Modification Drawings	GPD Project #: 2013725.01, 27074.02	8/16/2013
Modification Drawings	GPD Project #: 2013801.01	2/6/2013
Modification Drawings	B&V Project #: 166951	5/3/2012
Post Modification Inspection	B&V Project #: 166951	10/15/2012

Steel Yield Strength (ksi)	65
Pole	60
Base Plate	60
Anchor Rods	75

Design Parameters	
Design Code Used	TIA/EIA-222-F, 2003 IBC, 2005 CTBC & ASCE 7-05 Hartford, CT
Location of Tower (County, State)	Hartford, CT
Basic Wind Speed (mph)	80 (fastest mile)
Ice Thickness (in)	1
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)	
Existing/Reserved + Proposed + Future Condition (Modified)	
Tower (%)	99.6%
Tower Base (%)	95.9%
Foundation (%)	87.4%
Foundation Adequate?	YES

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Existing / Reserved Loading				Antenna				Mount				Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Attachment	Model	Size	Quantity	Attachment
AT&T Mobility	158	169	6	Panel	Kathrein	900-10121	30/150/270	1	Unknown	12.5' LP Platform	Internal	Unknown	1-5/8"	12	Internal
AT&T Mobility	158	169	1	Panel	Andrew	SRNH-1D6565C	150		Unknown	On the same mount	Internal	DC Line	7/8"	2	Internal
AT&T Mobility	158	169	1	Panel	Powernave	P65-17-XLH-RR	270		Unknown	On the same mount	Internal	Fiber	1/2"	1	Internal
AT&T Mobility	168	169	6	TMA	KMW	AM-X-CD-16-65-00T			Unknown	Behind the antennas	Internal	RET	3/16"	1	Internal
AT&T Mobility	168	169	6	RRH	Eriasson	LGP 21401			Unknown	On the same mount	Internal				
AT&T Mobility	168	167	1	DC Unit	Raycap	RBS 6601			Unknown	On the same mount	Internal				
AT&T Mobility	168	167	1	RET	Kathrein	DC6-48-60-18-8F			Unknown	On the same mount	Internal				
Sprint	158	158	9	Panel	Decibel	DB900F90TAE-M	60/160/280	3	Unknown	12' T-Arms	Internal	Unknown	1-5/8"	9	Internal
Sprint	158	158	2	Panel	Andrew	P40-16-XLPP-RR-A	15/205		Unknown	On the same mount	Internal	APXVSP18-C-A20	1-1/4"	3	Internal
Sprint	158	158	1	Panel	Andrew	1900 MHz RRH	300		Unknown	On the same mount	Internal				
Sprint	158	158	3	RRH	Alcatel Lucent	900 MHz RRH			Unknown	On the same mount	Internal				
Sprint	158	158	3	RRH	Alcatel Lucent				Unknown	On the same mount	Internal				
Pocket Communications	148	148	3	Panel	RFS	APXV18-206517S-C	25/130/250	3	Unknown	Pipe Mounts	Internal	Unknown	1-5/8"	6	Internal
Verizon	138	140	6	Panel	Antel	LPO-6513	60/180/300	1	Unknown	12.5' LP Platform	Internal	Unknown	1-5/8"	12	Internal
Verizon	138	140	2	Panel	Antel	SXA 70300/CE-4	60/300		Unknown	On the same mount	Internal				
Verizon	138	140	2	Panel	Antel	SXA 17185-13BF	60/300		Unknown	On the same mount	Internal				
Verizon	138	140	1	Panel	Antel	SXA 71065J4CF	180		Unknown	On the same mount	Internal				
Verizon	138	140	1	Panel	Antel	SXA 17185/8BF	180		Unknown	On the same mount	Internal				
Verizon	138	140	6	Diplexer	RFS	FD9R6042C-3L			Unknown	Behind the antennas	Internal				
T-Mobile	128	130	3	Panel	RFS	APXV18-206014-C	30/120/240	1	Unknown	12.5' LP Platform	Internal	Unknown	1-5/8"	12	Internal
T-Mobile	128	130	3	Panel	RFS	APX16DWV-16DWV-S-E-ACU	30/120/240	1	Unknown	On the same mount	Internal				
T-Mobile	128	130	6	TMA	Andrew	Twin Dual Duplex			Unknown	On the same mount	Internal				
Sprint	70	70	1	GPS	Unknown	GPS Unit		1	Unknown	Pipe Mount	Internal	Unknown	1/2"	1	Internal

Note: The (3) APXV18-206014-C panels, (3) APX16DWV-16DWV-S-E-ACU panels, and (3) Twin Dual Duplex TMAs at 130' shall be removed prior to installation of the proposed loading.

Proposed Loading				Antenna				Mount				Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Attachment	Model	Size	Quantity	Attachment
T-Mobile	128	130	6	Panel	Eriasson	ARR 21	30/150/270	1	Unknown	On the existing mount	Internal/External	Unknown	1-5/8"	1	External

Note: The proposed loading is in addition to the remaining existing loading at the same elevation.

Note: The proposed coax shall be banded external to the monopole in order for the results of this analysis to be valid.

Future Loading				Antenna				Mount				Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Attachment	Model	Size	Quantity	Attachment
AT&T Mobility	168	169	3	Panel	Powernave	P65-17-XLH-RR	30/150/270	6	Unknown	On the existing mounts	Internal/External	Unknown	1-5/8"	6	External

Note: The future loading shall be installed in addition to the existing/reserved loading at the same elevation.

APPENDIX B

tnxTower Output File

tnxTower GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:	Job 27074 BRISTOL CENTER	Page 1 of 8
	Project 2013723.01.27074.03	Date 13:31:37 10/30/13
	Client AT&T Mobility	Designed by acourtney

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 Hartford County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 28 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

TOWER RATING: 99.6%.

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, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A		Weight plf
						ft ² /ft		
Safety Line 3/8	C	No	CaAa (Out Of Face)	168.50 - 8.00	1	No Ice	0.04	0.22
						1/2" Ice	0.14	0.75
						1" Ice	0.24	1.28
						2" Ice	0.44	2.34
						4" Ice	0.84	4.46
Climbing Pegs	C	No	CaAa (Out Of Face)	168.50 - 8.00	1	No Ice	0.01	0.31
						1/2" Ice	0.12	0.71
						1" Ice	0.22	1.71
						2" Ice	0.41	5.56
						4" Ice	0.82	20.59
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	168.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	A	No	CaAa (Out Of Face)	168.00 - 8.00	1	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
						1" Ice	0.40	4.46
						2" Ice	0.60	10.54
						4" Ice	1.00	30.04
LDF7-50A (1-5/8 FOAM)	A	No	CaAa (Out Of Face)	168.00 - 8.00	5	No Ice	0.00	0.82
						1/2" Ice	0.00	2.33
						1" Ice	0.00	4.46
						2" Ice	0.00	10.54
						4" Ice	0.00	30.04
RET Cable	C	No	Inside Pole	168.00 - 8.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
						2" Ice	0.00	0.08
						4" Ice	0.00	0.08
7/8" DC Power Cable	C	No	Inside Pole	168.00 - 8.00	2	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60

tnxTower GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:	Job 27074 BRISTOL CENTER	Page 2 of 8
	Project 2013723.01.27074.03	Date 13:31:37 10/30/13
	Client AT&T Mobility	Designed by acourtney

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A	
						ft ² /ft	plf
1/2" Fiber Cable	C	No	Inside Pole	168.00 - 8.00	1	1" Ice	0.60
						2" Ice	0.60
						4" Ice	0.60
						No Ice	0.15
						1/2" Ice	0.15
						1" Ice	0.15
						2" Ice	0.15
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	158.00 - 8.00	9	No Ice	0.82
						1/2" Ice	0.82
						1" Ice	0.82
						2" Ice	0.82
						4" Ice	0.82
						No Ice	0.82
						1/2" Ice	0.82
1 1/4" Hybriflex Cable	C	No	Inside Pole	158.00 - 8.00	3	No Ice	0.70
						1/2" Ice	0.70
						1" Ice	0.70
						2" Ice	0.70
						4" Ice	0.70
						No Ice	0.70
						1/2" Ice	0.70
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	148.00 - 8.00	6	No Ice	0.82
						1/2" Ice	0.82
						1" Ice	0.82
						2" Ice	0.82
						4" Ice	0.82
						No Ice	0.82
						1/2" Ice	0.82
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	140.00 - 8.00	12	No Ice	0.82
						1/2" Ice	0.82
						1" Ice	0.82
						2" Ice	0.82
						4" Ice	0.82
						No Ice	0.82
						1/2" Ice	0.82
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	130.00 - 8.00	12	No Ice	0.82
						1/2" Ice	0.82
						1" Ice	0.82
						2" Ice	0.82
						4" Ice	0.82
						No Ice	0.82
						1/2" Ice	0.82
1-5/8" Hybrid Cable	B	No	CaAa (Out Of Face)	130.00 - 8.00	1	No Ice	0.82
						1/2" Ice	0.82
						1" Ice	0.82
						2" Ice	0.82
						4" Ice	0.82
						No Ice	0.82
						1/2" Ice	0.82
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	70.00 - 8.00	1	No Ice	0.15
						1/2" Ice	0.15
						1" Ice	0.15
						2" Ice	0.15
						4" Ice	0.15
						No Ice	0.00
						1/2" Ice	0.00
1-1/4" Mod Plate	A	No	CaAa (Out Of Face)	115.75 - 0.75	1	No Ice	0.00
						1/2" Ice	0.00
						1" Ice	0.00
						2" Ice	0.00
						4" Ice	0.00
						No Ice	0.00
						1/2" Ice	0.00
1-1/4" Mod Plate	B	No	CaAa (Out Of Face)	115.75 - 0.75	2	No Ice	0.00
						1/2" Ice	0.00
						1" Ice	0.00
						2" Ice	0.00
						4" Ice	0.00
						No Ice	0.00
						1/2" Ice	0.00
1-1/4" Mod Plate	C	No	CaAa (Out Of Face)	115.75 - 0.75	1	No Ice	0.21
						1/2" Ice	0.32
						1" Ice	0.43
						2" Ice	0.65
						4" Ice	1.10
						No Ice	0.00
						1/2" Ice	0.00

tnxTower GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:	Job 27074 BRISTOL CENTER	Page 3 of 8
	Project 2013723.01.27074.03	Date 13:31:37 10/30/13
	Client AT&T Mobility	Designed by acourtney

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight	
			Horz	Vert						
			Lateral		°	ft	ft ²	ft ²	lb	
			ft	ft						
12.5' LP Platform - Round (GPD)	B	None			0.0000	168.00	No Ice	16.12	16.12	1250.00
							1/2" Ice	19.89	19.89	1600.00
							1" Ice	23.66	23.66	1950.00
							2" Ice	31.20	31.20	2650.00
							4" Ice	46.28	46.28	4050.00
(2) 800 10121 w/ Mount Pipe	A	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	5.46	3.29	46.00
							1/2" Ice	5.88	3.64	78.91
							1" Ice	6.31	3.99	116.59
							2" Ice	7.21	4.76	207.06
							4" Ice	9.09	6.53	453.88
(2) 800 10121 w/ Mount Pipe	B	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	5.46	3.29	46.00
							1/2" Ice	5.88	3.64	78.91
							1" Ice	6.31	3.99	116.59
							2" Ice	7.21	4.76	207.06
							4" Ice	9.09	6.53	453.88
(2) 800 10121 w/ Mount Pipe	C	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	5.46	3.29	46.00
							1/2" Ice	5.88	3.64	78.91
							1" Ice	6.31	3.99	116.59
							2" Ice	7.21	4.76	207.06
							4" Ice	9.09	6.53	453.88
SBNH-1D6565C w/ mount Pipe	A	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	11.45	8.88	79.05
							1/2" Ice	12.06	9.78	158.20
							1" Ice	12.69	10.70	246.50
							2" Ice	14.03	12.57	453.46
							4" Ice	17.05	16.56	1015.97
AM-X-CD-16-65-00T w/ 2"x78" Mount Pipe	C	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	7.09	5.68	56.73
							1/2" Ice	7.71	6.69	115.40
							1" Ice	8.28	7.51	180.87
							2" Ice	9.45	9.18	335.66
							4" Ice	11.92	12.75	772.96
P65-17-XLH-RR w/ mount Pipe	A	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	11.47	7.99	88.25
							1/2" Ice	12.08	8.88	163.59
							1" Ice	12.71	9.78	247.99
							2" Ice	14.07	11.64	446.88
							4" Ice	17.08	15.60	992.17
(2) P65-17-XLH-RR w/ mount Pipe	B	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	11.47	7.99	88.25
							1/2" Ice	12.08	8.88	163.59
							1" Ice	12.71	9.78	247.99
							2" Ice	14.07	11.64	446.88
							4" Ice	17.08	15.60	992.17
P65-17-XLH-RR w/ mount Pipe	C	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	11.47	7.99	88.25
							1/2" Ice	12.08	8.88	163.59
							1" Ice	12.71	9.78	247.99
							2" Ice	14.07	11.64	446.88
							4" Ice	17.08	15.60	992.17
(2) LGP21401	A	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	0.00	0.23	14.10
							1/2" Ice	0.00	0.31	21.26
							1" Ice	0.00	0.40	30.32
							2" Ice	0.00	0.61	54.89
							4" Ice	0.00	1.12	135.29
(2) LGP21401	B	From Centroid-Left	3.46	2.00	30.0000	168.00	No Ice	0.00	0.23	14.10
							1/2" Ice	0.00	0.31	21.26
							1" Ice	0.00	0.40	30.32
							2" Ice	0.00	0.61	54.89
							4" Ice	0.00	1.12	135.29

tnxTower GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:	Job 27074 BRISTOL CENTER	Page 4 of 8
	Project 2013723.01.27074.03	Date 13:31:37 10/30/13
	Client AT&T Mobility	Designed by acourtney

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A		Weight	
			Horz	Lateral			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	lb	
(2) LGP21401	C	From Centroid-Le g	3.46	3.46	30.0000	168.00	4" Ice	0.00	1.12	135.29
			2.00	2.00			No Ice	0.00	0.23	14.10
			1.00	1.00			1/2" Ice	0.00	0.31	21.26
							1" Ice	0.00	0.40	30.32
							2" Ice	0.00	0.61	54.89
(2) RBS 6601	A	From Centroid-Le g	3.46	3.46	30.0000	168.00	4" Ice	0.00	1.12	135.29
			2.00	2.00			No Ice	0.55	0.40	22.00
			1.00	1.00			1/2" Ice	0.70	0.52	34.88
							1" Ice	0.86	0.64	50.27
							2" Ice	1.19	0.91	89.38
(2) RBS 6601	B	From Centroid-Le g	3.46	3.46	30.0000	168.00	4" Ice	1.97	1.55	206.33
			2.00	2.00			No Ice	0.55	0.40	22.00
			1.00	1.00			1/2" Ice	0.70	0.52	34.88
							1" Ice	0.86	0.64	50.27
							2" Ice	1.19	0.91	89.38
(2) RBS 6601	C	From Centroid-Le g	3.46	3.46	30.0000	168.00	4" Ice	1.97	1.55	206.33
			2.00	2.00			No Ice	0.55	0.40	22.00
			1.00	1.00			1/2" Ice	0.70	0.52	34.88
							1" Ice	0.86	0.64	50.27
							2" Ice	1.19	0.91	89.38
DC6-48-60-18-8F Surge Suppression Unit	A	From Centroid-Le g	3.46	3.46	30.0000	168.00	4" Ice	1.97	1.55	206.33
			2.00	2.00			No Ice	1.47	1.47	18.90
			-1.00	-1.00			1/2" Ice	1.67	1.67	36.62
							1" Ice	1.88	1.88	56.82
							2" Ice	2.33	2.33	105.34
(2) 860 10025	A	From Centroid-Le g	3.46	3.46	30.0000	168.00	4" Ice	3.38	3.38	239.02
			2.00	2.00			No Ice	0.16	0.14	1.16
			-1.00	-1.00			1/2" Ice	0.23	0.20	2.72
							1" Ice	0.30	0.27	5.20
							2" Ice	0.48	0.44	13.76
(2) 860 10025	B	From Centroid-Le g	3.46	3.46	30.0000	168.00	4" Ice	0.93	0.88	50.63
			2.00	2.00			No Ice	0.16	0.14	1.16
			-1.00	-1.00			1/2" Ice	0.23	0.20	2.72
							1" Ice	0.30	0.27	5.20
							2" Ice	0.48	0.44	13.76
(2) 860 10025	C	From Centroid-Le g	3.46	3.46	30.0000	168.00	4" Ice	0.93	0.88	50.63
			2.00	2.00			No Ice	0.16	0.14	1.16
			-1.00	-1.00			1/2" Ice	0.23	0.20	2.72
							1" Ice	0.30	0.27	5.20
							2" Ice	0.48	0.44	13.76
12' T-Arm - Round (GPD)	B	From Face	2.00	2.00	0.0000	158.00	4" Ice	0.93	0.88	50.63
			0.00	0.00			No Ice	4.70	2.33	333.00
			0.00	0.00			1/2" Ice	5.33	2.96	400.00
							1" Ice	6.00	3.60	467.00
							2" Ice	6.67	4.87	533.00
12' T-Arm - Round (GPD)	C	From Face	1.88	1.88	-20.0000	158.00	4" Ice	8.33	7.41	600.00
			-0.68	-0.68			No Ice	4.70	2.33	333.00
			0.00	0.00			1/2" Ice	5.33	2.96	400.00
							1" Ice	6.00	3.60	467.00
							2" Ice	6.67	4.87	533.00
12' T-Arm - Round (GPD)	A	From Face	1.88	1.88	-20.0000	158.00	4" Ice	8.33	7.41	600.00
			-0.68	-0.68			No Ice	4.70	2.33	333.00
			0.00	0.00			1/2" Ice	5.33	2.96	400.00
							1" Ice	6.00	3.60	467.00
							2" Ice	6.67	4.87	533.00
(3) DB980F90T4E-M	B	From Face	4.00	4.00	0.0000	158.00	4" Ice	8.33	7.41	600.00
							No Ice	3.99	3.72	31.40

tnxTower GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:	Job 27074 BRISTOL CENTER	Page 5 of 8
	Project 2013723.01.27074.03	Date 13:31:37 10/30/13
	Client AT&T Mobility	Designed by acourtney

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
w/Mount Pipe			0.00			1/2" Ice	4.45	4.58	67.64
			0.00			1" Ice	4.90	5.32	110.22
						2" Ice	5.82	6.85	217.69
						4" Ice	7.98	10.10	552.44
(3) DB980F90T4E-M	C	From Face	3.76		-20.0000	No Ice	3.99	3.72	31.40
w/Mount Pipe			-1.36			1/2" Ice	4.45	4.58	67.64
			0.00			1" Ice	4.90	5.32	110.22
						2" Ice	5.82	6.85	217.69
						4" Ice	7.98	10.10	552.44
(3) DB980F90T4E-M	A	From Face	3.76		-20.0000	No Ice	3.99	3.72	31.40
w/Mount Pipe			-1.36			1/2" Ice	4.45	4.58	67.64
			0.00			1" Ice	4.90	5.32	110.22
						2" Ice	5.82	6.85	217.69
						4" Ice	7.98	10.10	552.44
P40-16-XLPP-RR-A w/	B	From Face	4.00		-45.0000	No Ice	7.04	4.24	74.90
Mount Pipe			0.00			1/2" Ice	7.61	5.08	126.13
			0.00			1" Ice	8.15	5.79	183.84
						2" Ice	9.25	7.26	321.96
						4" Ice	11.60	10.59	719.65
P40-16-XLPP-RR-A w/	C	From Face	3.76		-35.0000	No Ice	7.04	4.24	74.90
Mount Pipe			-1.36			1/2" Ice	7.61	5.08	126.13
			0.00			1" Ice	8.15	5.79	183.84
						2" Ice	9.25	7.26	321.96
						4" Ice	11.60	10.59	719.65
APXVSP18-C-A20	A	From Face	3.76		0.0000	No Ice	8.26	6.71	78.90
w/mount pipe			-1.36			1/2" Ice	8.81	7.66	144.31
			0.00			1" Ice	9.36	8.49	217.47
						2" Ice	10.50	10.20	390.34
						4" Ice	12.88	13.98	872.84
1900MHz RRH	B	From Face	4.00		-45.0000	No Ice	2.91	3.80	44.00
			0.00			1/2" Ice	3.14	4.06	75.27
			0.00			1" Ice	3.39	4.34	110.18
						2" Ice	3.91	4.91	191.65
						4" Ice	5.05	6.15	406.70
1900MHz RRH	C	From Face	3.76		-35.0000	No Ice	2.91	3.80	44.00
			-1.36			1/2" Ice	3.14	4.06	75.27
			0.00			1" Ice	3.39	4.34	110.18
						2" Ice	3.91	4.91	191.65
						4" Ice	5.05	6.15	406.70
1900MHz RRH	A	From Face	3.76		0.0000	No Ice	2.91	3.80	44.00
			-1.36			1/2" Ice	3.14	4.06	75.27
			0.00			1" Ice	3.39	4.34	110.18
						2" Ice	3.91	4.91	191.65
						4" Ice	5.05	6.15	406.70
800 MHZ RRH	B	From Face	4.00		-45.0000	No Ice	2.49	2.07	53.00
			0.00			1/2" Ice	2.71	2.27	74.19
			0.00			1" Ice	2.93	2.48	98.39
						2" Ice	3.41	2.93	156.61
						4" Ice	4.46	3.93	317.77
800 MHZ RRH	C	From Face	3.76		-35.0000	No Ice	2.49	2.07	53.00
			-1.36			1/2" Ice	2.71	2.27	74.19
			0.00			1" Ice	2.93	2.48	98.39
						2" Ice	3.41	2.93	156.61
						4" Ice	4.46	3.93	317.77
800 MHZ RRH	A	From Face	3.76		0.0000	No Ice	2.49	2.07	53.00
			-1.36			1/2" Ice	2.71	2.27	74.19
			0.00			1" Ice	2.93	2.48	98.39

tnxTower GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:	Job 27074 BRISTOL CENTER	Page 6 of 8
	Project 2013723.01.27074.03	Date 13:31:37 10/30/13
	Client AT&T Mobility	Designed by acourtney

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb	
APXV18-206517S-C w/mount pipe	A	From Leg	0.91 0.42 0.00	25.0000	148.00	2" Ice	3.41	2.93	156.61
						4" Ice	4.46	3.93	317.77
						No Ice	5.17	3.04	26.40
						1/2" Ice	5.62	3.47	53.00
						1" Ice	6.08	3.91	85.10
						2" Ice	7.02	4.81	166.61
APXV18-206517S-C w/mount pipe	B	From Leg	0.98 0.17 0.00	10.0000	148.00	4" Ice	9.12	6.70	404.25
						No Ice	5.17	3.04	26.40
						1/2" Ice	5.62	3.47	53.00
						1" Ice	6.08	3.91	85.10
						2" Ice	7.02	4.81	166.61
						4" Ice	9.12	6.70	404.25
APXV18-206517S-C w/mount pipe	C	From Leg	0.98 0.17 0.00	10.0000	148.00	No Ice	5.17	3.04	26.40
						1/2" Ice	5.62	3.47	53.00
						1" Ice	6.08	3.91	85.10
						2" Ice	7.02	4.81	166.61
						4" Ice	9.12	6.70	404.25
						No Ice	5.17	3.04	26.40
MTS 12.5' LP Platform	B	None		0.0000	138.00	No Ice	14.66	14.66	1250.00
						1/2" Ice	18.87	18.87	1481.33
						1" Ice	23.08	23.08	1712.66
						2" Ice	31.50	31.50	2175.32
						4" Ice	48.34	48.34	3100.64
						No Ice	7.14	6.81	53.55
(2) LPD-6513 w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 2.00	0.0000	138.00	1/2" Ice	7.86	7.92	118.05
						1" Ice	8.46	8.75	189.32
						2" Ice	9.69	10.44	355.79
						4" Ice	12.31	14.03	818.48
						No Ice	7.14	6.81	53.55
						1/2" Ice	7.86	7.92	118.05
(2) LPD-6513 w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 2.00	0.0000	138.00	1" Ice	8.46	8.75	189.32
						2" Ice	9.69	10.44	355.79
						4" Ice	12.31	14.03	818.48
						No Ice	7.14	6.81	53.55
						1/2" Ice	7.86	7.92	118.05
						1" Ice	8.46	8.75	189.32
(2) LPD-6513 w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 2.00	0.0000	138.00	2" Ice	9.69	10.44	355.79
						4" Ice	12.31	14.03	818.48
						No Ice	7.14	6.81	53.55
						1/2" Ice	7.86	7.92	118.05
						1" Ice	8.46	8.75	189.32
						2" Ice	9.69	10.44	355.79
BXA-70080/6CFx4 w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 2.00	0.0000	138.00	4" Ice	12.31	14.03	818.48
						No Ice	6.01	6.21	43.55
						1/2" Ice	6.58	7.38	98.24
						1" Ice	7.10	8.26	160.50
						2" Ice	8.20	10.05	311.34
						4" Ice	10.75	13.89	752.33
BXA-70080/6CFx4 w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 2.00	0.0000	138.00	No Ice	6.01	6.21	43.55
						1/2" Ice	6.58	7.38	98.24
						1" Ice	7.10	8.26	160.50
						2" Ice	8.20	10.05	311.34
						4" Ice	10.75	13.89	752.33
						No Ice	5.65	3.87	31.80
BXA-70063/4CF w/ mount pipe	C	From Centroid-Face	4.00 0.00 2.00	0.0000	138.00	1/2" Ice	6.20	4.67	76.48
						1" Ice	6.72	5.34	127.16
						2" Ice	7.80	6.79	249.76
						4" Ice	10.08	10.00	610.57
						No Ice	4.74	5.30	49.74
						1/2" Ice	5.19	6.10	95.67
BXA-171085-12BF w/Mount Pipe	A	From Centroid-Face	4.00 0.00 2.00	0.0000	138.00	1" Ice	5.64	6.91	149.57
						2" Ice	6.58	8.59	279.78
						4" Ice	8.58	12.14	669.13
						No Ice	4.74	5.30	49.74
						1/2" Ice	5.19	6.10	95.67
						1" Ice	5.64	6.91	149.57

tnxTower GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:	Job	27074 BRISTOL CENTER	Page	7 of 8
	Project	2013723.01.27074.03	Date	13:31:37 10/30/13
	Client	AT&T Mobility	Designed by	acourtney

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A		Weight	
			Horz	Vert			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	lb	
BXA-171085-12BF w/Mount Pipe	B	From Centroid-Face	4.00	0.00	0.0000	138.00	No Ice	4.74	5.30	49.74
			2.00	0.00			1/2" Ice	5.19	6.10	95.67
							1" Ice	5.64	6.91	149.57
							2" Ice	6.58	8.59	279.78
							4" Ice	8.58	12.14	669.13
BXA-171063/8BF w/Mount Pipe	C	From Centroid-Face	4.00	0.00	0.0000	138.00	No Ice	3.44	3.81	45.24
			2.00	0.00			1/2" Ice	3.87	4.48	82.21
							1" Ice	4.34	5.15	125.62
							2" Ice	5.35	6.56	230.18
							4" Ice	7.50	9.72	549.63
(2) FD9R6004/2C-3L	A	From Centroid-Face	4.00	0.00	0.0000	138.00	No Ice	0.00	0.08	3.10
			2.00	0.00			1/2" Ice	0.00	0.14	5.40
							1" Ice	0.00	0.20	8.79
							2" Ice	0.00	0.34	19.61
							4" Ice	0.00	0.74	62.87
(2) FD9R6004/2C-3L	B	From Centroid-Face	4.00	0.00	0.0000	138.00	No Ice	0.00	0.08	3.10
			2.00	0.00			1/2" Ice	0.00	0.14	5.40
							1" Ice	0.00	0.20	8.79
							2" Ice	0.00	0.34	19.61
							4" Ice	0.00	0.74	62.87
(2) FD9R6004/2C-3L	C	From Centroid-Face	4.00	0.00	0.0000	138.00	No Ice	0.00	0.08	3.10
			2.00	0.00			1/2" Ice	0.00	0.14	5.40
							1" Ice	0.00	0.20	8.79
							2" Ice	0.00	0.34	19.61
							4" Ice	0.00	0.74	62.87
MTS 12.5' LP Platform	B	None			0.0000	128.00	No Ice	14.66	14.66	1250.00
							1/2" Ice	18.87	18.87	1481.33
							1" Ice	23.08	23.08	1712.66
							2" Ice	31.50	31.50	2175.32
							4" Ice	48.34	48.34	3100.64
(2) AIR 21 w/ Mount Pipe	A	From Centroid-Le g	4.00	0.00	30.0000	128.00	No Ice	6.85	5.78	112.90
			2.00	0.00			1/2" Ice	7.41	6.70	170.69
							1" Ice	7.94	7.50	235.28
							2" Ice	9.05	9.14	388.12
							4" Ice	11.38	12.65	819.05
(2) AIR 21 w/ Mount Pipe	B	From Centroid-Le g	4.00	0.00	30.0000	128.00	No Ice	6.85	5.78	112.90
			2.00	0.00			1/2" Ice	7.41	6.70	170.69
							1" Ice	7.94	7.50	235.28
							2" Ice	9.05	9.14	388.12
							4" Ice	11.38	12.65	819.05
(2) AIR 21 w/ Mount Pipe	C	From Centroid-Le g	4.00	0.00	30.0000	128.00	No Ice	6.85	5.78	112.90
			2.00	0.00			1/2" Ice	7.41	6.70	170.69
							1" Ice	7.94	7.50	235.28
							2" Ice	9.05	9.14	388.12
							4" Ice	11.38	12.65	819.05
Twin Dual Duplex TMA	A	From Centroid-Le g	4.00	0.00	30.0000	128.00	No Ice	0.00	0.31	11.00
			2.00	0.00			1/2" Ice	0.00	0.39	15.83
							1" Ice	0.00	0.49	22.16
							2" Ice	0.00	0.70	40.11
							4" Ice	0.00	1.23	102.61
Twin Dual Duplex TMA	B	From Centroid-Le g	4.00	0.00	30.0000	128.00	No Ice	0.00	0.31	11.00
			2.00	0.00			1/2" Ice	0.00	0.39	15.83
							1" Ice	0.00	0.49	22.16
							2" Ice	0.00	0.70	40.11
							4" Ice	0.00	1.23	102.61
Twin Dual Duplex TMA	C	From Centroid-Le	4.00	0.00	30.0000	128.00	No Ice	0.00	0.31	11.00
							1/2" Ice	0.00	0.39	15.83

tnxTower GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:	Job 27074 BRISTOL CENTER	Page 8 of 8
	Project 2013723.01.27074.03	Date 13:31:37 10/30/13
	Client AT&T Mobility	Designed by acourtney

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	lb
		g	2.00			1" Ice 0.00	0.49	22.16
						2" Ice 0.00	0.70	40.11
						4" Ice 0.00	1.23	102.61
Pipe Mount 2'x2.375"	A	From Leg	0.50	0.0000	70.00	No Ice 0.34	0.34	7.60
			0.00			1/2" Ice 0.47	0.47	11.40
			0.00			1" Ice 0.63	0.63	16.82
						2" Ice 0.99	0.99	33.12
						4" Ice 1.84	1.84	91.83
GPS	A	From Leg	1.00	0.0000	70.00	No Ice 0.17	0.17	0.87
			0.00			1/2" Ice 0.24	0.24	3.85
			0.00			1" Ice 0.32	0.32	7.85
						2" Ice 0.51	0.51	19.56
						4" Ice 1.02	1.02	62.07

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
168.00	12.5' LP Platform - Round (GPD)	32	47.640	2.8573	0.0089	13442
158.00	12' T-Arm - Round (GPD)	32	41.739	2.7305	0.0070	6400
148.00	APXV18-206517S-C w/mount pipe	32	36.026	2.5791	0.0051	3277
138.00	MTS 12.5' LP Platform	32	30.680	2.3799	0.0036	2202
128.00	MTS 12.5' LP Platform	32	25.874	2.1149	0.0025	1911
70.00	Pipe Mount 2'x2.375"	38	7.484	1.0319	0.0006	3285

Section Capacity Table

Section No.	Elevation	Component Type	Size	Critical Element	P	SF*P _{allow}	% Capacity	Pass Fail
	ft				lb	lb		
L1	168.5 - 130.667	Pole	TP25.3135x19x0.1875	1	-6917.33	*	85.3	Pass
L2	130.667 - 118.75	Pole	TP26.8917x24.3271x0.25	2	-10854.90	*	99.6	Pass
L3	118.75 - 114.75	Pole	TP27.5501x26.8917x0.38	3	-11549.10	*	93.2	Pass
L4	114.75 - 84.7188	Pole	TP32.4932x27.5501x0.5802	4	-17470.90	*	83.3	Pass
L5	84.7188 - 75.67	Pole	TP33.4763x31.2422x0.6865	5	-22188.40	*	83.3	Pass
L6	75.67 - 73	Pole	TP33.9145x33.4763x0.7931	6	-23062.10	*	73.1	Pass
L7	73 - 43.8308	Pole	TP38.7021x33.9145x0.7022	7	-30966.50	*	84.2	Pass
L8	43.8308 - 28	Pole	TP40.6663x37.2009x0.8108	8	-40608.10	*	83.6	Pass
L9	28 - 0	Pole	TP45.25x40.6663x0.7283	9	-51487.00	*	90.0	Pass
						Summary	ELC:	Existing + Proposed + Reserved
						Pole (L2)	99.6	Pass
						Rating =	99.6	Pass

*See additional calculations

APPENDIX C

Modification Calculations

Reinforcement 1		Reinforcement 2		Reinforcement 3	
Bottom	Top	Bottom	Top	Bottom	Top
0	75.67	0	28	0	0
75.67	118.75	45.25	45.25	45.25	73
		85.75	85.75	85.75	114.75

Reinforcement 1		Reinforcement 2		Reinforcement 3	
QTY	Type	QTY	Type	QTY	Type
6	P10.675x5-11	4	P11.25x6-18	18	18
3	P10.675x5-11	4	P11.25x6-18	4	P11.25x6-18
		4	P11.25x6-18	4	P11.25x6-18
		3	P11.25x6-18	3	P11.25x6-18

Reinforcement 1		Reinforcement 2		Reinforcement 3	
Position	Gap	Position	Gap	Position	Gap
F	0	F	0	F	0
F	0	F	0	F	0
F	0	F	0	F	0
F	0	F	0	F	0
F	0	F	0	F	0
F	0	F	0	F	0
F	0	F	0	F	0

Reinforcement 1		Reinforcement 2		Reinforcement 3	
Temp/Comp	Temp/Comp	Temp/Comp	Temp/Comp	Temp/Comp	Temp/Comp
T&C	T&C	T&C	T&C	T&C	T&C
T&C	T&C	T&C	T&C	T&C	T&C
T&C	T&C	T&C	T&C	T&C	T&C
T&C	T&C	T&C	T&C	T&C	T&C
T&C	T&C	T&C	T&C	T&C	T&C
T&C	T&C	T&C	T&C	T&C	T&C
T&C	T&C	T&C	T&C	T&C	T&C
T&C	T&C	T&C	T&C	T&C	T&C

Bottom Elevation	Top Elevation	Original Thickness	Original Yield Stress	Reinforced Capacity	Rein. 1 QTY	Rein. 1 Type	Rein. 1 Capacity	Rein. 2 QTY	Rein. 2 Type	Rein. 2 Capacity	Rein. 3 QTY	Rein. 3 Type	Rein. 3 Capacity	Control Stress Ratio
130.67	168.5000	0.1875	65	85.3%	3	3-10.675x5-11	93.2%	3	P11.25x6-18	83.3%	18	18-18	65.0	85.3%
114.7500	134.3308	0.2500	65	80	3	3-10.675x5-11	76.9%	4	P11.25x6-18	69.6%	18	18-18	65.0	93.2%
84.7188	114.7500	0.2500	65	80	3	3-10.675x5-11	83.3%	4	P11.25x6-18	69.6%	18	18-18	65.0	83.3%
75.6700	89.2813	0.3125	65	80	6	6-10.675x5-11	73.1%	4	P11.25x6-18	62.2%	18	18-18	65.0	73.1%
43.8308	73.0000	0.3125	65	80	6	6-10.675x5-11	84.2%	4	P11.25x6-18	65.7%	18	18-18	65.0	84.2%
28.0000	49.1693	0.3750	65	80	6	6-10.675x5-11	83.6%	4	P11.25x6-18	67.4%	18	18-18	65.0	83.6%
0.0000	28.0000	0.3750	65	80	6	6-10.675x5-11	90.0%	4	P11.25x6-18	66.3%	18	18-18	65.0	90.0%

Section Length	Lap Splice	# of Sides	Top Diameter	Bottom Diameter	Equivalent Shaft Fy	Equivalent Weight Mult.
37.8333	3.6641	18	19.0000	25.3135	65.0	1.00
15.5808	0.0000	18	24.3271	26.8916	0.2500	1.00
4.0000	0.0000	18	26.8916	27.5501	0.3800	0.97
30.0312	4.5625	18	27.5501	31.4932	0.5802	0.94
13.6113	0.0000	18	31.2422	33.4763	0.6865	0.95
2.6700	0.0000	18	33.4763	33.9145	0.7931	0.94
29.6992	5.3385	18	33.9145	38.7021	0.7022	1.00
21.6993	0.0000	18	37.2009	40.6663	0.8108	0.96
28.0000	0.0000	18	40.6663	45.2500	0.7283	1.01

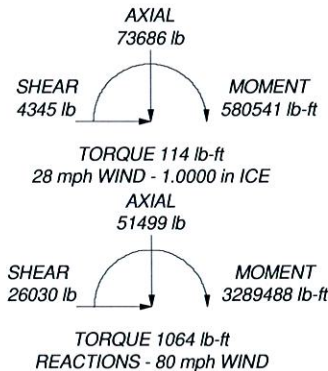
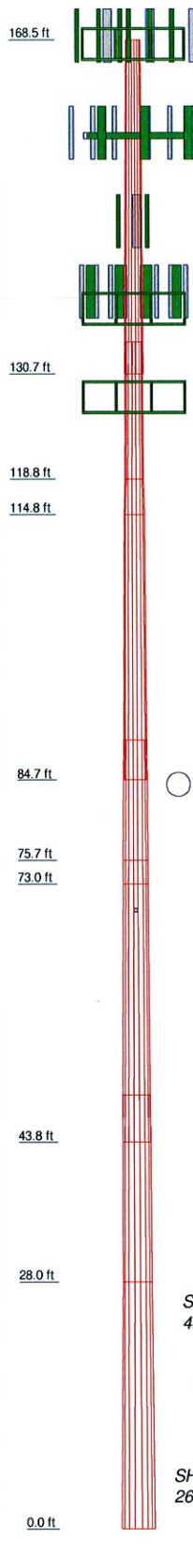
Top Elevation	Bottom Elevation	Section Failure	Bottom Section Failure %
130.67	168.5000		
114.7500	134.3308		
84.7188	114.7500		
75.6700	89.2813		
43.8308	73.0000		
28.0000	49.1693		
0.0000	28.0000		

Bottom	Top	Bottom	Top	Bottom	Top
0	28	0	28	0	28
75.67	118.75	45.25	45.25	45.25	73
		85.75	85.75	85.75	114.75

APPENDIX D

Tower Elevation Drawing

Section	1	2	3	4	5	6	7	8	9
Length (ft)	37.83	15.58	4.00	30.03	13.61	2.67	28.17	21.17	25.00
Number of Sides	18	18	18	18	18	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3800	0.5802	0.6865	0.7931	0.7022	0.8108	0.7283
Socket Length (ft)	3.66			4.56			5.34		
Top Dia (in)	19.0000	24.3271	26.8916	27.5501	33.4763	31.2422	33.9145	37.2009	40.6663
Bot Dia (in)	25.3135	26.8916	27.5501	32.4932	33.9145	33.4763	38.7021	40.6663	45.2500
Grade	A572-65		48.397552ksi	47.704733ksi	50.605082ksi	51.015276ksi	47.99721ksi	51.484489ksi	48.854564ksi
Weight (lb)	1683.2	1066.9	427.7	5205.2	3045.6	709.8	7857.1	6772.3	9376.3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12.5' LP Platform - Round (GPD)	168	1900MHz RRH	158
(2) 800 10121 w/ Mount Pipe	168	1900MHz RRH	158
(2) 800 10121 w/ Mount Pipe	168	800 MHZ RRH	158
(2) 800 10121 w/ Mount Pipe	168	800 MHZ RRH	158
SBNH-1D6565C w/ mount Pipe	168	800 MHZ RRH	158
AM-X-CD-16-65-00T w/ 2"x78" Mount Pipe	168	APXV18-206517S-C w/mount pipe	148
P65-17-XLH-RR w/ mount Pipe	168	APXV18-206517S-C w/mount pipe	148
(2) P65-17-XLH-RR w/ mount Pipe	168	APXV18-206517S-C w/mount pipe	148
P65-17-XLH-RR w/ mount Pipe	168	MTS 12.5' LP Platform	138
(2) LGP21401	168	(2) LPD-6513 w/ Mount Pipe	138
(2) LGP21401	168	(2) LPD-6513 w/ Mount Pipe	138
(2) LGP21401	168	(2) LPD-6513 w/ Mount Pipe	138
(2) RBS 6601	168	BXA-70080/6CFx4 w/ Mount Pipe	138
(2) RBS 6601	168	BXA-70080/6CFx4 w/ Mount Pipe	138
(2) RBS 6601	168	BXA-70063/4CF w/ mount pipe	138
DC6-48-60-18-8F Surge Suppression Unit	168	BXA-171085-12BF w/Mount Pipe	138
(2) 860 10025	168	BXA-171085-12BF w/Mount Pipe	138
(2) 860 10025	168	(2) FD9R6004/2C-3L	138
(2) 860 10025	168	(2) FD9R6004/2C-3L	138
12' T-Arm - Round (GPD)	158	(2) FD9R6004/2C-3L	138
12' T-Arm - Round (GPD)	158	MTS 12.5' LP Platform	128
12' T-Arm - Round (GPD)	158	(2) AIR 21 w/ Mount Pipe	128
(3) DB980F90T4E-M w/Mount Pipe	158	(2) AIR 21 w/ Mount Pipe	128
(3) DB980F90T4E-M w/Mount Pipe	158	(2) AIR 21 w/ Mount Pipe	128
(3) DB980F90T4E-M w/Mount Pipe	158	Twin Dual Duplex TMA	128
P40-16-XLPP-RR-A w/ Mount Pipe	158	Twin Dual Duplex TMA	128
P40-16-XLPP-RR-A w/ Mount Pipe	158	Twin Dual Duplex TMA	128
APXVSP18-C-A20 w/mount pipe	158	Pipe Mount 2'x2.375"	70
1900MHz RRH	158	GPS	70

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	50.605082ksi	51 ksi	66 ksi
48.397552ksi	48 ksi	63 ksi	47.99721ksi	48 ksi	63 ksi
47.704733ksi	48 ksi	63 ksi	51.484489ksi	51 ksi	66 ksi
51.015276ksi	51 ksi	66 ksi	48.854564ksi	49 ksi	64 ksi

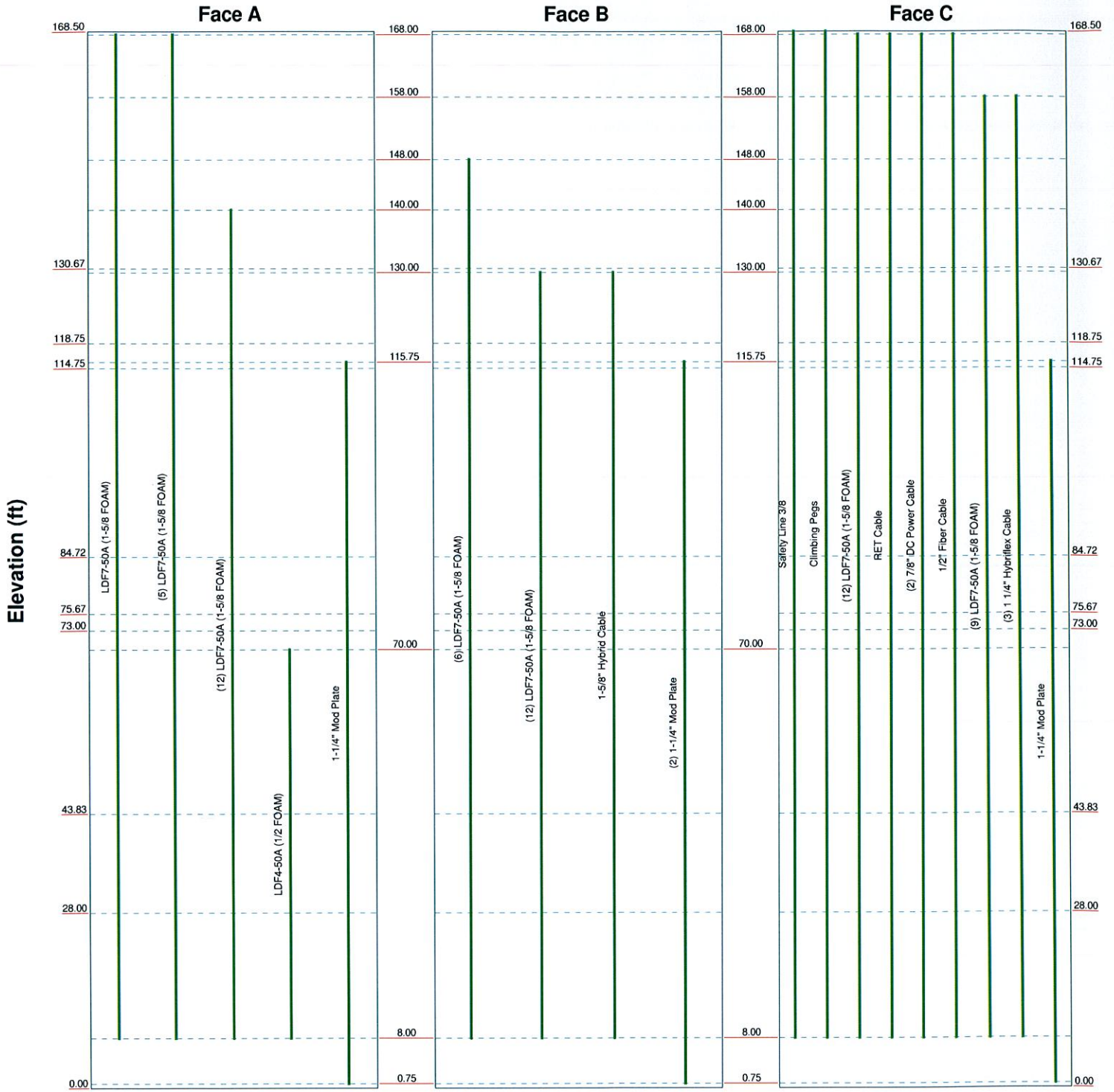
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 28 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 99.6%

<p>GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:</p>	<p>Job: 27074 BRISTOL CENTER</p>		
	<p>Project: 2013723.01.27074.03</p>		
<p>Client: AT&T Mobility</p>	<p>Drawn by: acourtney</p>	<p>App'd:</p>	
<p>Code: TIA/EIA-222-F</p>	<p>Date: 10/30/13</p>	<p>Scale: NTS</p>	
<p>Path:</p>	<p>Dwg No. E-1</p>		

Feed Line Distribution Chart 0' - 168'6"

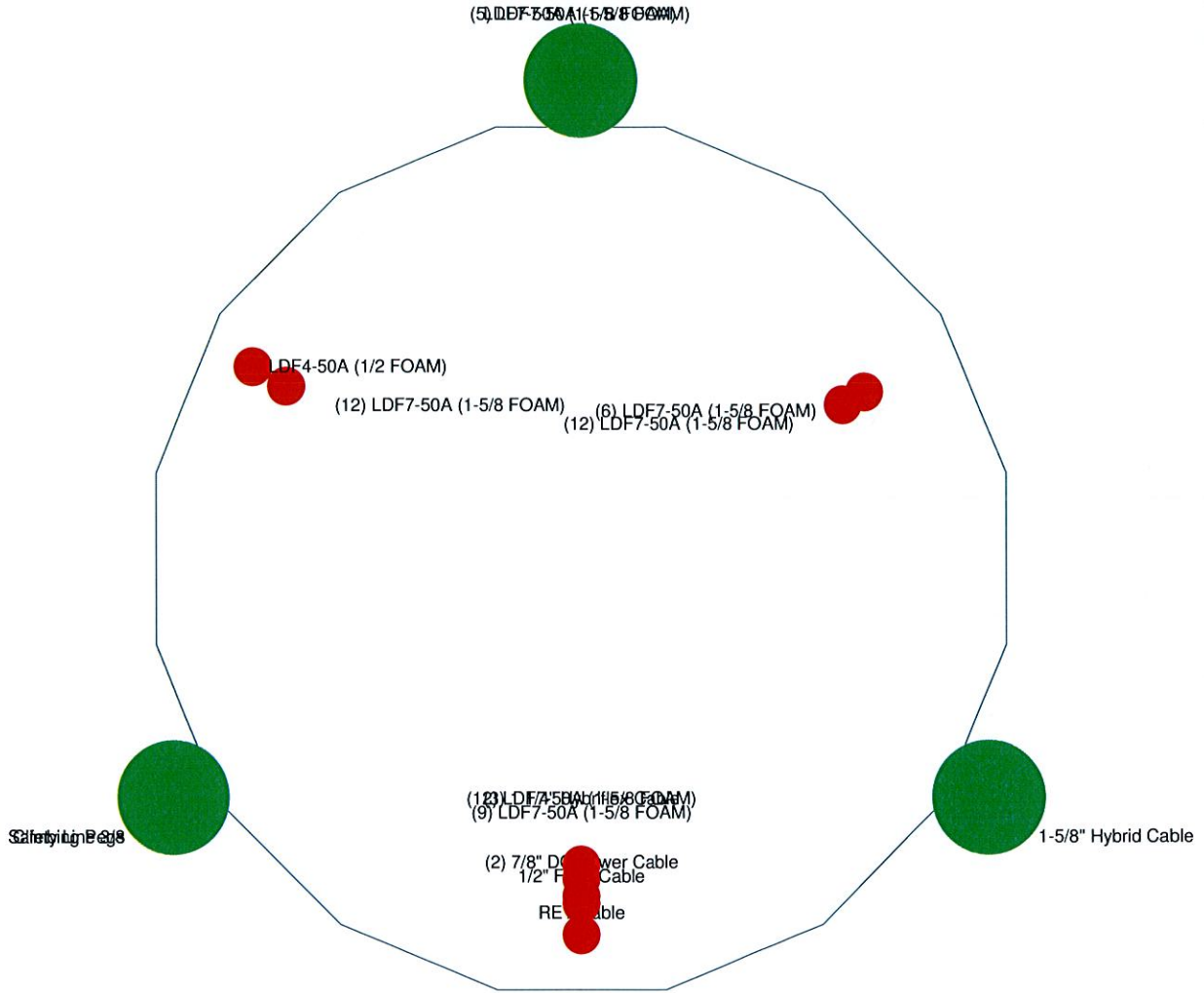
— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



<p>GPD Group 520 S. Main Street Akron, OH 44311 Phone: 330.572.2201 FAX:</p>	Job: 27074 BRISTOL CENTER		
	Project: 2013723.01.27074.03		
	Client: AT&T Mobility	Drawn by: acourtney	App'd:
	Code: TIA/EIA-222-F	Date: 10/30/13	Scale: NTS
	Path:		Dwg No. E-7

Feed Line Plan

— Round
 — Flat
 — App In Face
 — App Out Face



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	Project: 2013723.01.27074.03		
	Client: AT&T Mobility	Drawn by: acourtney	App'd:
	Code: TIA/EIA-222-F	Date: 10/30/13	Scale: NTS
	Path:	Dwg No. E-7	

APPENDIX E

Base Plate & Anchor Rod Analysis



Anchor Rod and Base Plate Stresses
27074 BRISTOL CENTER
2013723.01.27074.03

Overturning Moment =	3339.48 k*ft
Axial Force =	51.50 k
Shear Force =	4.55 k

Acceptable Stress Ratio	=	100.0%
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Anchor Rods	
Number of Rods =	24
Type =	Upset Rod
Rod Yield Strength (F _y) =	75 ksi
ASIF =	1.333
Rod Circle =	54 in
Rod Diameter =	2.25 in
Net Tensile Area =	3.25 in ²
Max Tension on Rod =	121.43 kips
Max Compression on Rod =	125.72 kips
Allow. Rod Force =	195.00 kips
Anchor Rod Capacity =	62.3% OK

Base Plate	
Location =	External
Plate Strength (F _y) =	60 ksi
Outside Diameter =	60 in
Plate Thickness =	2 in
b =	6.57 in
Le =	7.00 in
fb =	31.18 ksi
Fb =	60 ksi
BP Capacity =	52.0% OK

Stiffeners	
Configuration =	Every Rod
Thickness =	0.5 in
Width =	7 in
Notch =	0.5 in
Height =	12 in
Stiffener Strength (F _y) =	65 ksi
Weld Info. Known? =	Yes
Vertical Weld Size =	0.375 in
Horiz. Weld Type =	Both
Groove Angle =	45 deg
Groove Size =	0.25 in
Fillet Size =	0.375 in
Weld Strength =	70 ksi
Stiffener Vertical Force =	85.38 kips
Vert. Weld Capacity =	67.2% kips
Horiz. Weld Capacity =	29.1% kips
Stiffener Capacity =	95.9% kips
Controlling Capacity =	95.9% OK

Pole	
Pole Diameter =	45.25 in
Number of Sides =	18
Thickness =	0.375 in
Pole Yield Strength =	65 ksi

APPENDIX F

Foundation Analysis



Caisson Analysis
27074 BRISTOL CENTER
2013723.01.27074.03

General Info	
Code	TIA/EIA-222-F
Concrete Code	ACI 318-05
Seismic Design Category	B
Max Stress Ratio	1.00
Reinforcing Known?	Yes
Modified?	No

General Soil	
Ground Water	99.00 ft
Soil Depth to Neglect	3.00 ft

Reactions	
Moment, M	3339.48 k-ft
Axial, P	51.50 k
Shear, V	26.82 k

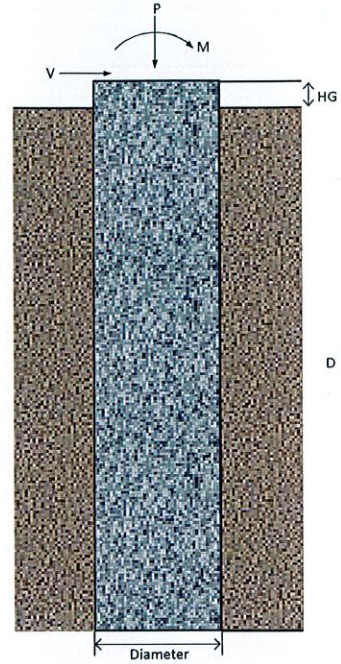
Pier Information	
Pier Diameter	6.5 ft
Pier Length Below Grade	26 ft
Distance Above Grade	1 ft
Vertical Bar Size	# 11
Vertical Bar Quantity	16
Tie Size	# 5 ft
fc'	4 ksi
fy	60 ksi
Clear Cover	4 in

Soil Summary (Req. FS=2.0)	
Mu =	3339.48 k-ft
Mr =	9721.92 k-ft
FS =	2.91
Capacity =	68.7% Pass

Reinforcing Summary (Above 13.5')	
φMn =	5189.66* k-ft
Mu =	4533.56 k-ft
Capacity =	87.4% Pass

*See L-Pile output

Reinforcing Summary (Below 13.5')	
φMn =	3848.45 k-ft
Mu =	3185.80 k-ft
Capacity =	82.8% Pass



Soil Info									
Layer	Soil Type	Thickness	γ, pcf	Cu, psf	φ	Kp	Top of Layer	Bot. of Layer	
Layer 1	Clay	3	110	0	0	0.00	0.00	3.00	
Layer 2	Sand	25	120	0	30	3.00	3.00	28.00	
Layer 3	Clay					0.00	28.00	28.00	
Layer 4	Clay					0.00	28.00	28.00	
Layer 5	Clay					1.00	28.00	28.00	
Layer 6	Sand					1.00	28.00	28.00	
Layer 7	Sand					1.00	28.00	28.00	
Layer 8	Clay					0.00	28.00	28.00	
Layer 9	Sand					1.00	28.00	28.00	
Layer 10	Clay					0.00	28.00	28.00	

 * PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995, POWER LINE SYSTEMS, INC.*

*** ANALYSIS IDENTIFICATION : 27074 BRISTOL CENTER
 NOTES : 2013723.01.27074.03

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.00 STEEL STRENGTH (ksi) = 60.00
 DIAMETER (ft) = 6.500 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 1.00

*** SOIL PROPERTIES	LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
	1	C	3.00	0.00	110.0	0.0		
	2	S	25.00	3.00	120.0	3.000	30.00	

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 3339.5 VERTICAL (k) = 51.5 SHEAR (k) = 26.8
 ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 2.80

*** CALCULATED PIER LENGTH (ft) = 27.000

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

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
C	1.00	3.00	110.0	0.0		0.00	2.50
S	4.00	15.85	120.0		3.000	1188.36	13.89
S	19.85	7.15	120.0		3.000	-1112.44	23.62

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR			WITHOUT ADDITIONAL SAFETY FACTOR		
	SHEAR (k)	MOMENT (ft-k)	FACTOR	SHEAR (k)	MOMENT (ft-k)	FACTOR
0.00	75.9	9769.6		27.1	3489.2	
2.70	75.9	9974.6		27.1	3562.4	
5.40	42.0	10157.5		15.0	3627.7	
8.10	-62.2	10141.7		-22.2	3622.0	
10.80	-217.7	9775.4		-77.7	3491.2	
13.50	-424.3	8920.3		-151.5	3185.8	
16.20	-682.0	7438.3		-243.6	2656.5	
18.90	-991.0	5191.3		-353.9	1854.0	
21.60	-873.8	2451.3		-312.1	875.5	
24.30	-462.5	635.9		-165.2	227.1	
27.00	0.0	-0.0		0.0	-0.0	

*** TOTAL REINFORCEMENT PCT = 0.54 REINFORCEMENT AREA (in^2) = 25.80
 *** USABLE AXIAL CAP. (k) = 51.5 USABLE MOMENT CAP. (ft-k) = 3732.1

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*** US Standard Re-Bars (Select one of the following):
130 BARS #4 (AREA = 0.20 in^2 DIA = 0.500 in) AT SPACING (in) = 1.64
84 BARS #5 (AREA = 0.31 in^2 DIA = 0.625 in) AT SPACING (in) = 2.54
59 BARS #6 (AREA = 0.44 in^2 DIA = 0.750 in) AT SPACING (in) = 3.62
44 BARS #7 (AREA = 0.60 in^2 DIA = 0.875 in) AT SPACING (in) = 4.86
33 BARS #8 (AREA = 0.79 in^2 DIA = 1.000 in) AT SPACING (in) = 6.47
26 BARS #9 (AREA = 1.00 in^2 DIA = 1.128 in) AT SPACING (in) = 8.22
21 BARS #10 (AREA = 1.27 in^2 DIA = 1.270 in) AT SPACING (in) = 10.17
17 BARS #11 (AREA = 1.56 in^2 DIA = 1.410 in) AT SPACING (in) = 12.57
12 BARS #14 (AREA = 2.25 in^2 DIA = 1.693 in) AT SPACING (in) = 17.80

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*** PRESSURE UNDER CAISSON DUE TO DESIGN AXIAL LOAD (psf) = 1552.0

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LPILE Plus for windows, Version 5.0 (5.0.39)

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

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Analysis Type 2:

- Computation of Ultimate Bending Moment of Cross Section (Section Design)

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Number of sections = 1

Pile Section No. 1

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

Outside Diameter = 78.0000 in

Material Properties:

Compressive Strength of Concrete = 4.000 kip/in**2
Yield Stress of Reinforcement = 60. kip/in**2
Modulus of Elasticity of Reinforcement = 29000. kip/in**2
Number of Reinforcing Bars = 0
Area of Single Bar = .00000 in**2
Number of Rows of Reinforcing Bars = 11
Area of Steel = .000 in**2
Area of Shaft = 4778.362 in**2
Percentage of Steel Reinforcement = .000 percent
Cover Thickness (edge to bar center) = 4.000 in

Unfactored Axial Squash Load Capacity = 18012.35 kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement in**2	Distance to Centroidal Axis in
----	-----	-----
1	1.560	33.670
2	3.120	31.107
3	3.120	23.808
4	3.120	17.778
5	3.120	12.885
6	3.120	0.000
7	3.120	-12.885
8	3.120	-17.778
9	3.120	-23.808
10	3.120	-31.107
11	1.560	-33.670

27074.lpo

Axial Thrust Force = 51499.00 lbs

Unfactored (Nominal) Moment Capacity at Concrete Strain of 0.003 = 62275.85508
in-kip

The analysis ended normally.

EXHIBIT C

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

T-Mobile Existing Facility

Site ID: CTHA114B

**AT&T 27074 Bristol
371 Terryville Avenue
Bristol, CT 06010**

November 12, 2013

EBI Project Number: 69131984

November 12, 2013

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CTHA114B - AT&T 27074 Bristol**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **371 Terryville Avenue, Bristol, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **371 Terryville Avenue, Bristol, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is a 6 foot person standing at the base of the tower

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (1935.000 MHz—to 1945.000 MHz) were considered for each sector of the proposed installation.
- 2) 2 UMTS channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
- 3) 2 LTE channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 6) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications

- 7) The antenna mounting height centerline of the proposed antennas is **130 feet** above ground level (AGL)
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CTHA114B-AT&T 27074 Bristol
Site Address	371 Terryville Avenue, Bristol, CT 06010
Site Type	Monopole

Sector 1														
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	Cable Loss (dB)	Additional Loss	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS-2100 MHz	LTE	60	2	120	-3.95	130	None	0	48.326044	0.112991
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	0	0	0	-3.95	130	None	0	0	0.000000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS-1950 MHz	GSM / UMTS	30	2	60	-3.95	130	1-5/8"	0	24.163022	0.564955
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS-2100 MHz	UMTS	30	2	60	-3.95	130	1-5/8"	0	24.163022	0.564955
Sector total Power Density Value: 0.226%														

Sector 2														
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	Cable Loss (dB)	Additional Loss	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS-2100 MHz	LTE	60	2	120	-3.95	130	None	0	48.326044	0.112991
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	0	0	0	-3.95	130	None	0	0	0.000000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS-1950 MHz	GSM / UMTS	30	2	60	-3.95	130	1-5/8"	0	24.163022	0.564955
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS-2100 MHz	UMTS	30	2	60	-3.95	130	1-5/8"	0	24.163022	0.564955
Sector total Power Density Value: 0.226%														

Sector 3														
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	Cable Loss (dB)	Additional Loss	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS-2100 MHz	LTE	60	2	120	-3.95	130	None	0	48.326044	0.112991
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	0	0	0	-3.95	130	None	0	0	0.000000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS-1950 MHz	GSM / UMTS	30	2	60	-3.95	130	1-5/8"	0	24.163022	0.564955
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS-2100 MHz	UMTS	30	2	60	-3.95	130	1-5/8"	0	24.163022	0.564955
Sector total Power Density Value: 0.226%														

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.678%
AT&T	13.150%
Sprint	5.330%
Metro PCS	5.000%
Verizon Wireless	16.930%
Total Site MPE %	41.088%

Summary

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

The anticipated Maximum Composite contributions from the T-Mobile facility are **0.678% (0.226% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **41.088%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



Scott Heffernan
RF Engineering Director

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