COHEN and WOLF P.C.
ATTORNEYS AT LAW

JULIE D. KOHLER

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

March 21, 2014

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

Re: Notice of Exempt Modification
Site ID CTNL804B
387 Shore Road, Old Lyme, Connecticut

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, T-Mobile owns the existing monopole telecommunications tower and related facility located at 387 Shore Road, Old Lyme, Connecticut (Latitude: 41.29652867 Longitude: -72.2583376). T-Mobile intends to replace three antennas with six antennas and related equipment at this existing telecommunications facility in Old Lyme ("Old Lyme 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 First Selectwoman, Bonnie Reemsnyder and the property owner, Gregory Benoit.

The existing Old Lyme Facility consists of an 80 foot tall monopole tower, approved by the Council in Docket No. 392.[1] T-Mobile plans to replace three antennas and six TMAs (tower mounted amplifiers) with six antennas and three TMAs at a centerline of 77 feet. (See the plans revised to February 10, 2014 attached hereto as Exhibit A). T-Mobile will also upgrade an equipment cabinet, install fiber cable and reuse existing coax cable. The existing Old Lyme Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated March 19, 2014 and attached hereto as Exhibit B.

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

---

1 The Decision and Order in this Docket (dated September 23, 2010) contains no relevant requirements or limitations on the configuration of the Old Lyme Facility.

1. The proposed modification will not increase the height of the tower. T-Mobile's replacement antennas will be installed at a centerline of 77 feet, merely replacing existing antennas located at the same 77 foot elevation. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension of the site boundaries. T-Mobile's equipment will be located entirely within the existing compound and leased area as shown on Page 2 of Exhibit A.

3. The proposed modification to the Old Lyme 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 March 19, 2014 T-Mobile's operations would add 1.818% 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 1.818% 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 Old Lyme Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence construction approximately sixty days from the date of the Council's notice of acknowledgement.

Sincerely,

Julie D. Kohler, Esq.

cc: Town of Old Lyme, First Selectwoman Bonnie Reemsnyder
Gregory Benoit
Northeast Site Solutions, Sheldon Freincle

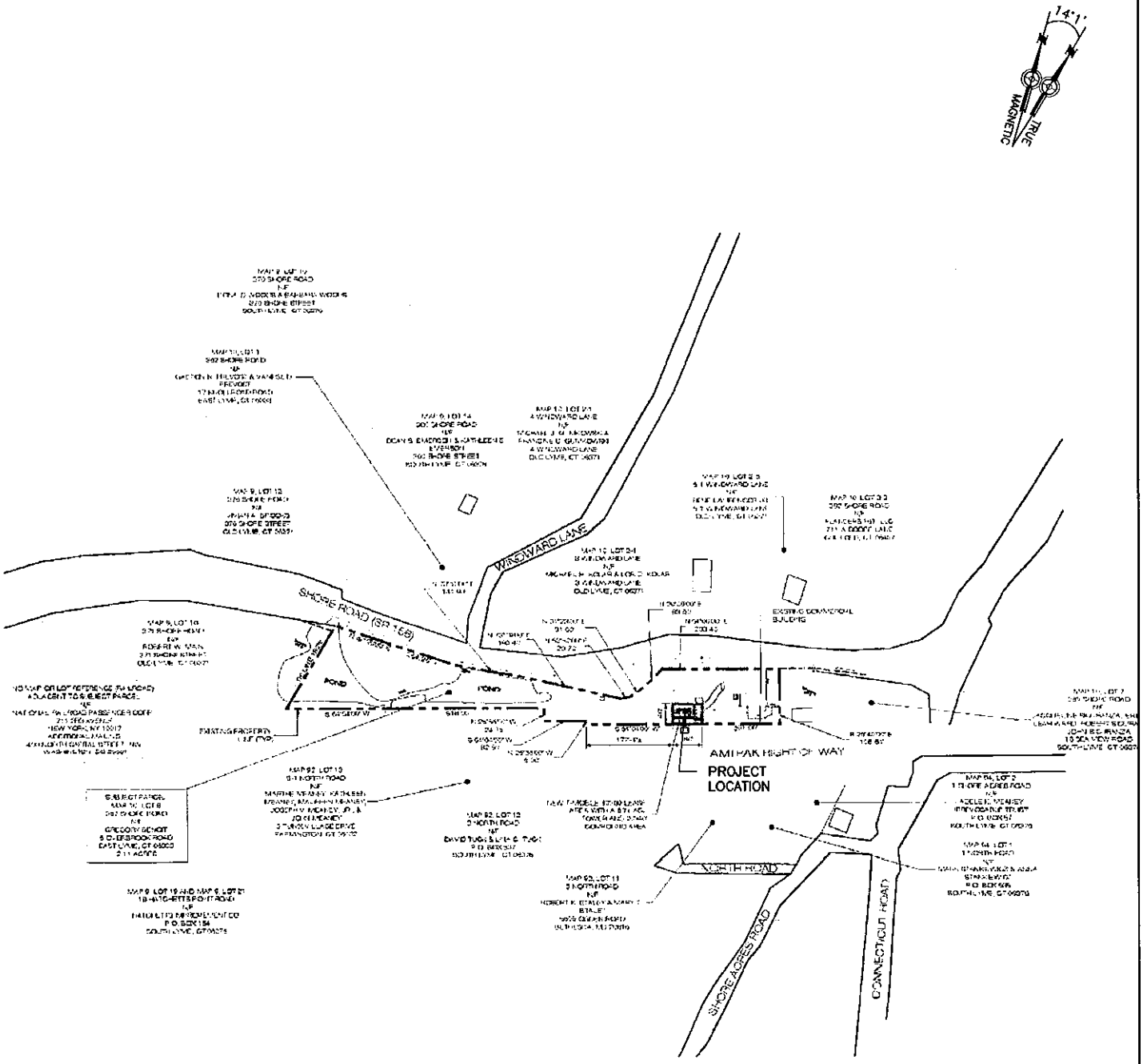
1115 Broad Street
P.O. Box 1821
Bridgeport, CT 06601-1821
Tel: (203) 368-0211
Fax: (203) 394-9901

158 Deer Hill Avenue
Danbury, CT 06810
Tel: (203) 792-2771
Fax: (203) 791-8149

320 Post Road West
Westport, CT 06880
Tel: (203) 222-1034
Fax: (203) 227-1373

657 Orange Center Road
Orange, CT 06477
Tel: (203) 298-4066
Fax: (203) 298-4068

EXHIBIT A



ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE'S STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.

KEY MAP
N.T.S.

1
LE-1

CONFIGURATION
2C

SUBMITTALS	
LE REV A	02.10.14

ATLANTIS GROUP
1340 Centre Street
Suite 212
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

LEASE EXHIBIT

SITE NUMBER:
CTNL804B

SITE NAME:
AMTRAK_OLDLYME5

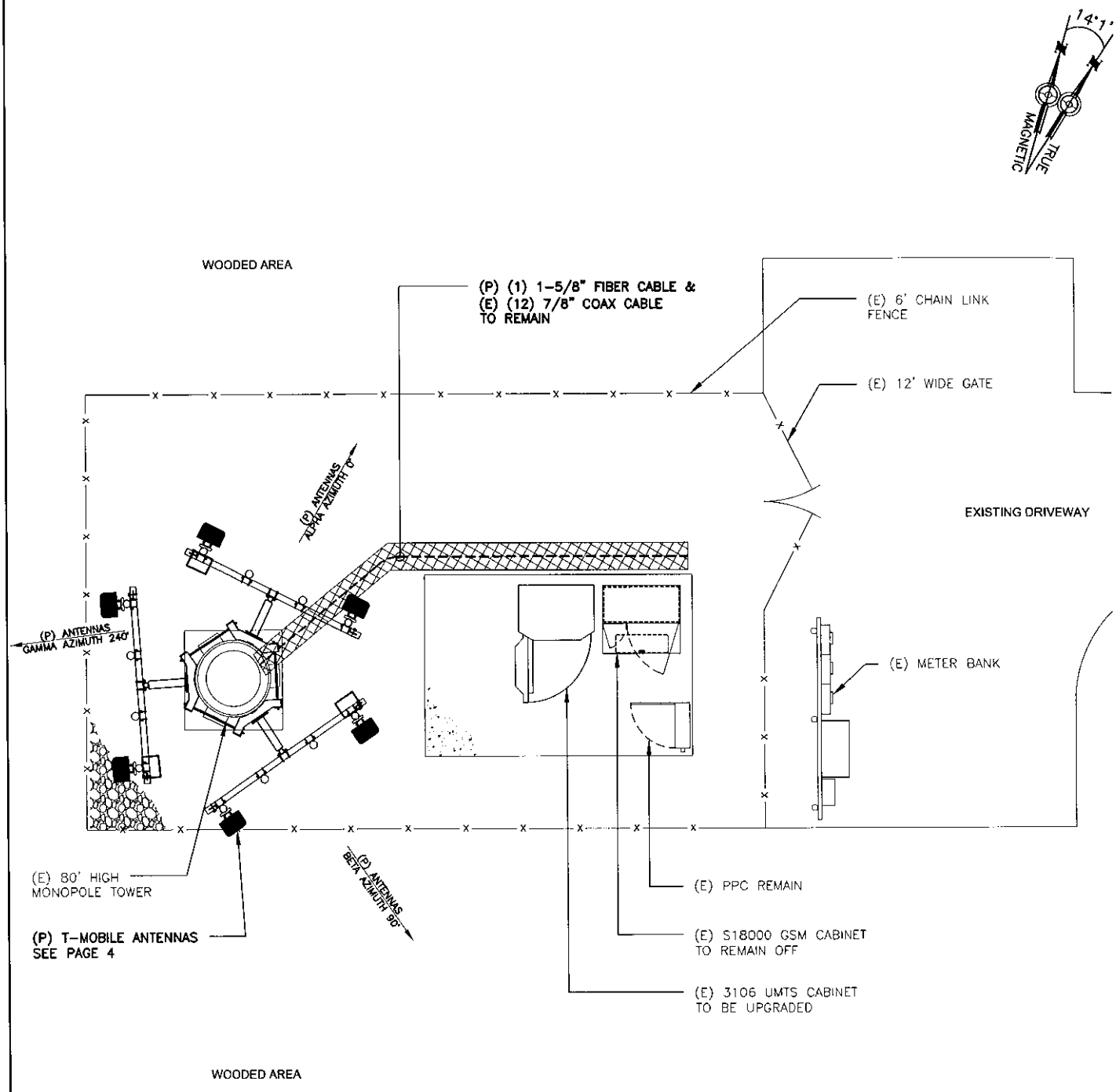
SITE ADDRESS:
387 SHORE ROAD
OLD LYME, CT 06376

NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237

FOR

T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

DRAWN BY: EB | CHECKED BY: SM



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SITE PLAN

N.T.S.

1 / LE-2

1 / LE-3

CONFIGURATION

2C

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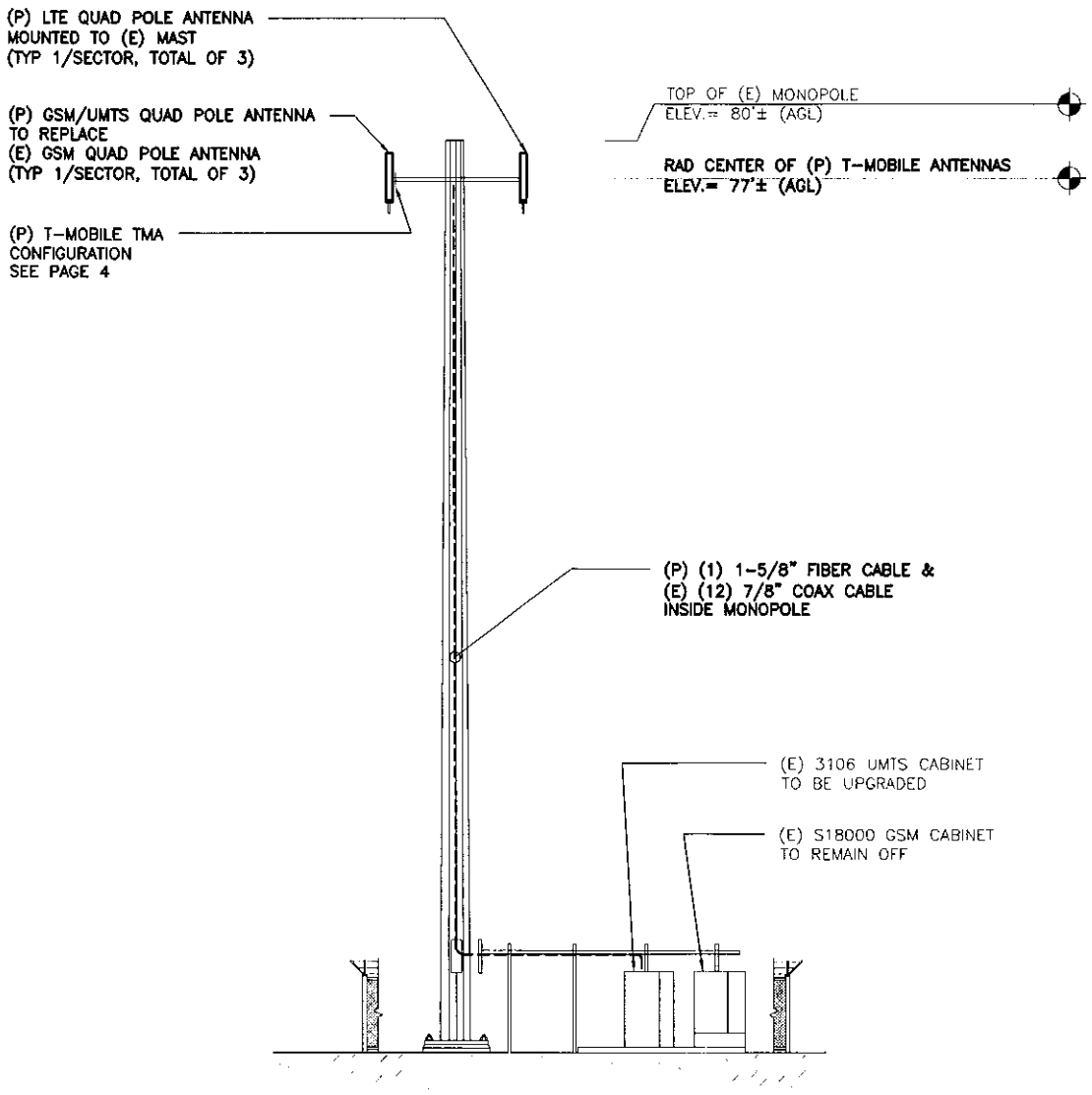

ELEVATION 1 / LE-3

N.T.S.

CONFIGURATION **2C**

SUBMITTALS	
LE REV A	02.10.14

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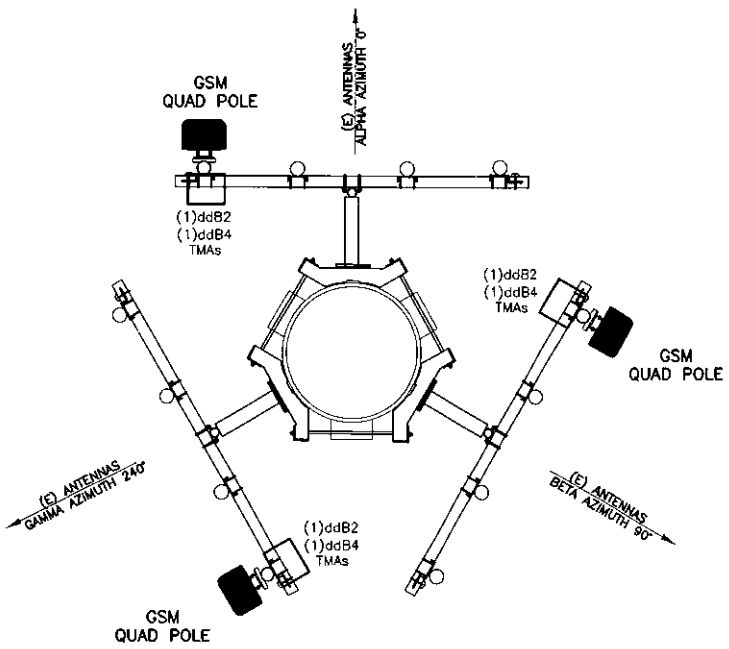
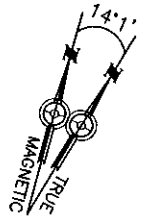
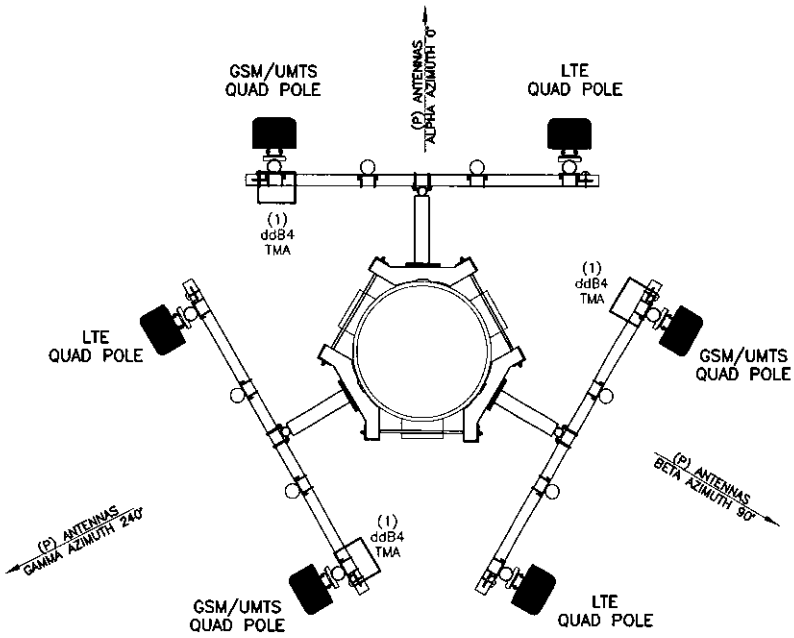




EXISTING ANTENNA CONFIGURATION



PROPOSED ANTENNA CONFIGURATION

CONFIGURATION

2C

SUBMITTALS	
LE REV A	02.10.14

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

DRAWN BY: EB | CHECKED BY: SM

EXHIBIT B

T-Mobile Towers
12920 SE 38th Street
Bellevue, WA 98006
(425) 383-3978

GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
Chris Scheks
400 N 34th Street, Suite
Seattle, WA 98103
(206) 204-7399
cschecks@gpdgroup.com

GPD# 2014790.25 Rev 2
March 19, 2014

REVISED STRUCTURAL ANALYSIS REPORT

T-MOBILE DESIGNATION:	**Site Number:**	**CTNL804B**
	Site Name:	**AMTRAK_OldLyme5**
	T-Mobile Project:	**Network Modification**
ANALYSIS CRITERIA:	**Codes:**	**TIA/EIA-222-F, 2003 IBC & 2005 CTBC** **104-mph fastest-mile (equivalent 120mph 3 second gust) with 0" ice** **38-mph fastest-mile (equivalent 50mph 3 second gust) with 0.75" ice**
SITE DATA:		**387 Shore Road, Old Lyme, CT 06371, New London County** **Latitude 41° 17' 47.36" N, Longitude 72° 15' 34.89" W** **80' Sabre Monopole**

Mr. Kenny Fann,

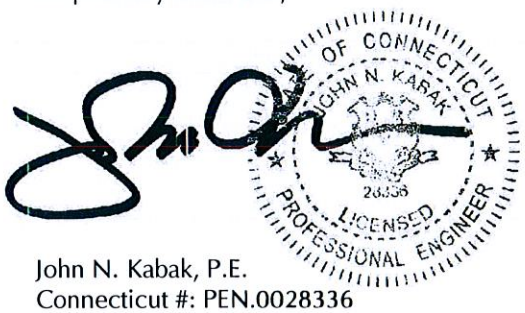
GPD is pleased to submit this Revised Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	59.0%	Pass
Foundation Ratio with Proposed Equipment:	51.0%	Pass
Twist:	0.0019°	
Sway:	0.5240°	

We at GPD appreciate the opportunity of providing our continuing professional services to you and T-Mobile Towers. 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 #: PEN.0028336

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by T-Mobile to T-Mobile Towers. This report was commissioned by Mr. Kenny Fann of T-Mobile Towers.

The proposed coax shall be installed inside the monopole in order for the results of this analysis to be valid. Please see Appendix C for feedline plan.

TOWER SUMMARY AND RESULTS

Monopole	52.5%	Pass
Anchor Rods	34.4%	Pass
Base Plate	38.0%	Pass
Flange Plates	33.0%	Pass
Flange Bolts	59.0%	Pass
Foundation	51.0%	Pass

ANALYSIS METHOD

tnxTower (Version 6.1.4.1), 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

Structrual Analysis Worksheet	CTNL804B TMO NET MOD , dated 2/12/2014	T-Mobile
Tower Design	Sabre Job #: 40204, dated 2/7/2011	T-Mobile
Foundation Design	Sabre Job #: 40204, dated 2/7/2011	T-Mobile
Geotechnical Report	Terracon Project #: J2105225, dated 11/11/2010	T-Mobile
Previous Structural Analysis	Not Provided	N/A

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 member 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. 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.
10. The proposed loading is taken from the provided Structural Analysis Worksheet titled: CTNL804B TMO NET MOD, dated 2/12/2014, and is assumed to be accurate.
11. Appurtenance azimuths have not been provided and have been assumed.
12. The proposed coax shall be installed inside 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.

Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

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	AMTRAK_OldLyme5
Site Number	CTNL804B
Proposed Carrier	T-Mobile
Date of Analysis	March 19, 2014
Company Performing Analysis	GPD

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

Tower Info	Description	Date
Tower Type (G, SST, MP)	MP	
Tower Height (top of steel AGL)	80'	
Tower Manufacturer	Sabre	
Tower Model	n/a	
Tower Design	Sabre Job #: 40204	2/7/2011
Foundation Design	Sabre Job #: 40204	2/7/2011
Geotech Report	Terracon Project #: J2105225	11/11/2010
Tower Mapping	n/a	
Previous Structural Analysis	n/a	
Foundation Mapping	n/a	

Design Parameters	
Design Code Used	TIA/EIA-222-F, 2003 IBC & 2005 CTBC
Location of Tower (County, State)	New London, CT
Basic Wind Speed (mph)	104 (fastest-mile)
Ice Thickness (in)	0.75
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)	
Existing/Reserved + Future + Proposed Condition	
Tower (%)	59.0%
Tower Base (%)	38.0%
Foundation (%)	51.0%
Foundation Adequate?	Yes

Steel Yield Strength (ksi)

Pole	65
Base Plate	50
Anchor Rods	75
Flange Plate	60
Flange Bolts	A325

Proposed / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Int./Ext.
T-Mobile	77	77	6	Panel	Ericsson	AIR 21		1	Unknown	12' Platform w/ Rails	12	Unknown	7/8"	Internal
T-Mobile	77	77	3	TMA	Ericsson	KRY 112 71				on the same mounts	1	Hybrid	1-5/8"	Internal

Future Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Int./Ext.
T-Mobile	77	77	3	Panel	Ericsson	AIR 21				on the existing mounts				
T-Mobile	77	77	3	Panel	Ericsson	AIR 33				on the existing mounts				
T-Mobile	77	77	1	COVP	Raycap	DC4-48-60-8-20F				on the existing mounts	1	Hybrid	1-5/8"	Internal
T-Mobile	77	77	1	Dish	Unknown	2' HP Dish				on the existing mounts				

Note: The proposed/future coax shall be installed inside the monopole in order for the results of this analysis to be valid. Please see Appendix C for feedline plan.

APPENDIX B

tnxTower Output File

Tower Input Data

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

Tower is located in New London County, Connecticut.
Basic wind speed of 104 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, 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_AA_A *ft²/ft*	*Weight* *plf*
Step Pegs	C	No	CaAa (Out Of Face)	80.00 - 8.00	1	No Ice	0.08	2.72
						1/2" Ice	0.18	3.51
						1" Ice	0.28	4.92
						2" Ice	0.48	9.56
						4" Ice	0.88	26.18
Safety Line (3/8")	C	No	CaAa (Out Of Face)	80.00 - 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
LDF5-50A (7/8 FOAM)	C	No	Inside Pole	77.00 - 8.00	12	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
						2" Ice	0.00	0.33
						4" Ice	0.00	0.33
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	77.00 - 8.00	1	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
1-5/8" Hybrid Cable	C	No	Inside Pole	77.00 - 8.00	1	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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
12' LP Platform - Flat (GPD)	C	None		0.0000	77.00	No Ice	20.01	20.01	1200.00
						1/2" Ice	24.78	24.78	1560.00
						1" Ice	29.55	29.55	1920.00
						2" Ice	39.09	39.09	2640.00
						4" Ice	58.17	58.17	4080.00
(3) AIR 21 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	6.85	5.78	112.90
						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
(3) AIR 21 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	6.85	5.78	112.90
						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
(3) AIR 21 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	6.85	5.78	112.90
						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
AIR 33 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	7.13	6.42	137.70
						1/2" Ice	7.93	7.65	200.64
						1" Ice	8.66	8.74	270.70
						2" Ice	10.00	10.60	436.13
						4" Ice	12.84	14.54	905.76
AIR 33 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	7.13	6.42	137.70
						1/2" Ice	7.93	7.65	200.64
						1" Ice	8.66	8.74	270.70
						2" Ice	10.00	10.60	436.13
						4" Ice	12.84	14.54	905.76
AIR 33 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	7.13	6.42	137.70
						1/2" Ice	7.93	7.65	200.64
						1" Ice	8.66	8.74	270.70
						2" Ice	10.00	10.60	436.13
						4" Ice	12.84	14.54	905.76
KRY 112 71	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	0.68	0.45	13.20
						1/2" Ice	0.80	0.56	18.38
						1" Ice	0.93	0.68	25.16
						2" Ice	1.22	0.94	44.33
						4" Ice	1.90	1.57	110.52
KRY 112 71	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	0.68	0.45	13.20
						1/2" Ice	0.80	0.56	18.38
						1" Ice	0.93	0.68	25.16
						2" Ice	1.22	0.94	44.33
						4" Ice	1.90	1.57	110.52
KRY 112 71	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	77.00	No Ice	0.68	0.45	13.20
						1/2" Ice	0.80	0.56	18.38
						1" Ice	0.93	0.68	25.16
						2" Ice	1.22	0.94	44.33
						4" Ice	1.90	1.57	110.52
DC4-48-60-8-20F	C	From Centroid-Leg	1.00 0.00 0.00	0.0000	77.00	No Ice	1.67	0.69	9.00
						1/2" Ice	1.85	0.81	20.06
						1" Ice	2.03	0.95	33.36
						2" Ice	2.42	1.24	67.43
						4" Ice	3.31	1.94	170.93

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
2' HP Dish	C	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 0.00 0.00	0.0000		77.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.14 3.41 3.68 4.27 5.58	20.00 50.00 80.00 150.00 330.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
77.00	2' HP Dish	35	4.601	0.5240	0.0019	30803

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	80 - 55 (1)	TP25.42x20x0.1875	25.00	79.00	105.8	13.333	15.0165	-3772.38	200207.00	0.019
L2	55 - 43 (2)	TP28.03x25.42x0.1875	12.00	79.00	98.6	15.358	16.1167	-4328.79	247517.00	0.017
L3	43 - 1 (3)	TP36.77x26.8938x0.3125	45.50	79.00	73.2	23.791	36.1613	-9912.97	860301.00	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	80 - 55 (1)	TP25.42x20x0.1875	162716.67	20.875	39.000	0.535	0.00	0.000	39.000	0.000
L2	55 - 43 (2)	TP28.03x25.42x0.1875	235933.33	26.263	39.000	0.673	0.00	0.000	39.000	0.000
L3	43 - 1 (3)	TP36.77x26.8938x0.3125	727515.00	26.855	39.000	0.689	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V lb	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T lb-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	80 - 55 (1)	TP25.42x20x0.1875	8283.87	0.552	26.000	0.042	0.00	0.000	26.000	0.000
L2	55 - 43 (2)	TP28.03x25.42x0.1875	8960.12	0.556	26.000	0.043	0.00	0.000	26.000	0.000
L3	43 - 1 (3)	TP36.77x26.8938x0.3125	12770.80	0.353	26.000	0.027	0.00	0.000	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	80 - 55 (1)	0.019	0.535	0.000	0.042	0.000	0.555 ✔	1.333	H1-3+VT ✔
L2	55 - 43 (2)	0.017	0.673	0.000	0.043	0.000	0.691 ✔	1.333	H1-3+VT ✔
L3	43 - 1 (3)	0.012	0.689	0.000	0.027	0.000	0.700 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	80 - 55	Pole	TP25.42x20x0.1875	1	-3772.38	266875.92	41.6	Pass
L2	55 - 43	Pole	TP28.03x25.42x0.1875	2	-4328.79	329940.15	51.9	Pass
L3	43 - 1	Pole	TP36.77x26.8938x0.3125	3	-9912.97	1146781.19	52.5	Pass

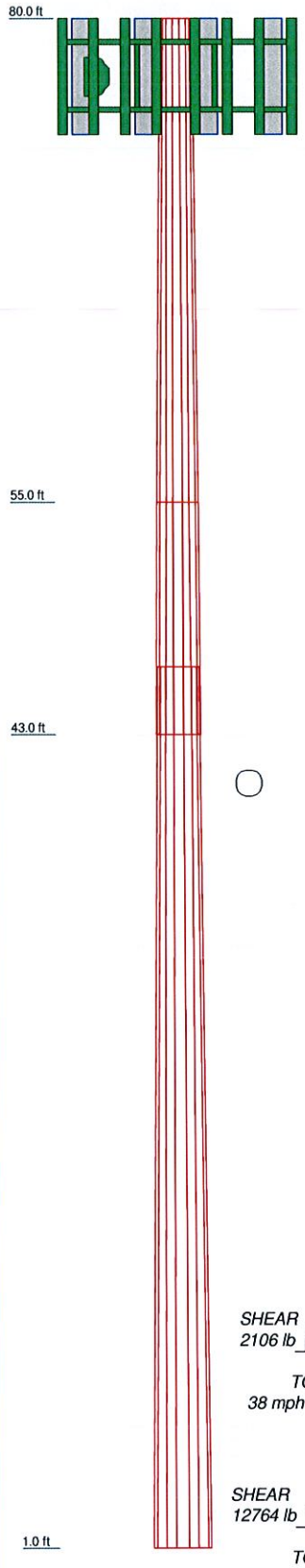
Summary	ELC:	Proposed
Pole (L3)	52.5	Pass
Rating =	52.5	Pass

APPENDIX C

Tower Elevation Drawing

Section	1	2	3
Length (ft)	25.00	12.00	45.50
Number of Sides	18	18	18
Thickness (in)	0.1875	0.1875	0.3125
Socket Length (ft)		3.50	
Top Dia (in)	20.0000	25.4200	26.8938
Bot Dia (in)	25.4200	28.0300	36.7700
Grade	A572-65		
Weight (lb)	1140.3	644.9	4840.4

Total Weight (lb): 6625.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12' LP Platform - Flat (GPD)	77	AIR 33 w/ Mount Pipe	77
(3) AIR 21 w/ Mount Pipe	77	KRY 112 71	77
(3) AIR 21 w/ Mount Pipe	77	KRY 112 71	77
(3) AIR 21 w/ Mount Pipe	77	KRY 112 71	77
AIR 33 w/ Mount Pipe	77	DC4-48-60-8-20F	77
AIR 33 w/ Mount Pipe	77	2' HP Dish	77

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for a 104 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 52.5%

AXIAL
14329 lb

SHEAR
2106 lb

MOMENT
122154 lb-ft

TORQUE 126 lb-ft
38 mph WIND - 0.7500 in ICE

AXIAL
9921 lb

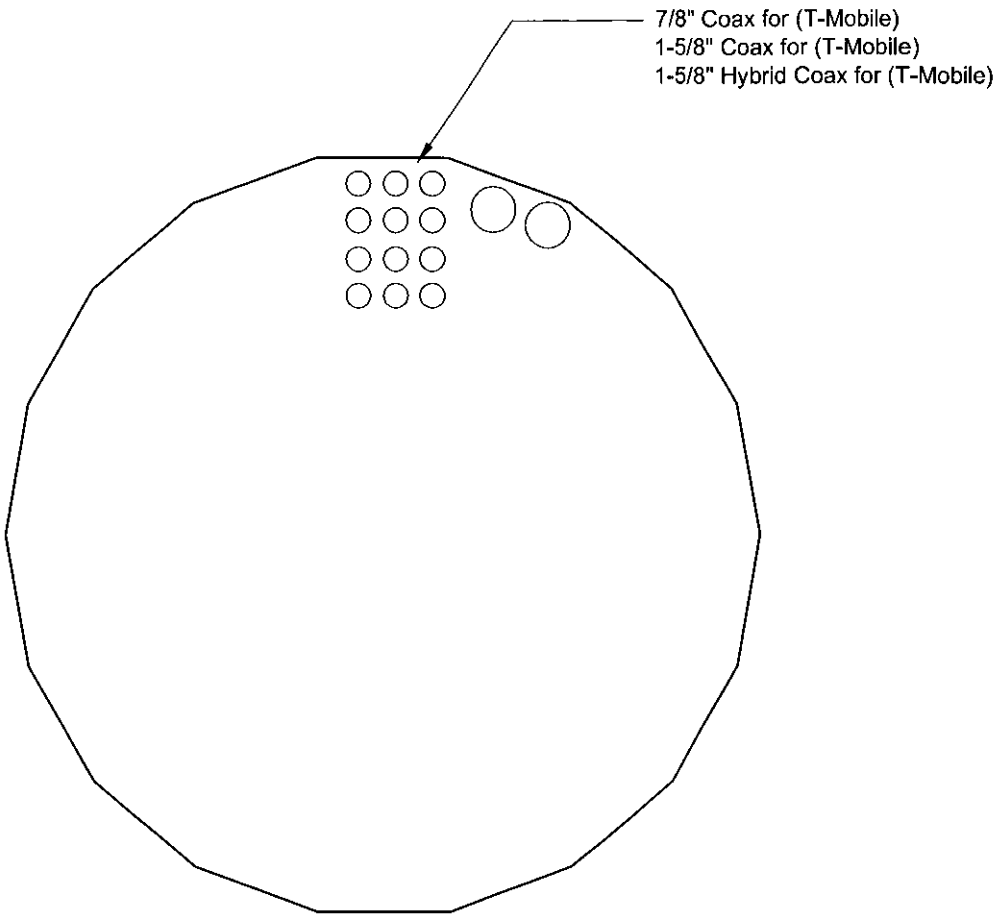
SHEAR
12764 lb

MOMENT
727515 lb-ft

TORQUE 625 lb-ft
REACTIONS - 104 mph WIND

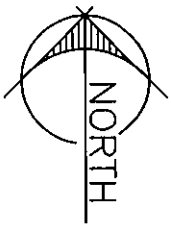
GPD Group
520 South Main Street, Suite 2531
Akron, OH 44311
Phone: (330) 572-2100
FAX: (330) 572-3709
Consulting Engineers

Job: *CTNL804B AMTRAK_ OldLyme5*			
Project: *2014790.25*			
Client: T-Mobile Towers	Drawn by: tbeltz	App'd:	
Code: TIA/EIA-222-F	Date: 03/13/14	Scale: NTS	
Path: \\AKRN03.gpdco.com\DATA\2011\TMT\CTNL804B\01 2014790.25\tnx\CTNL804B.eri		Dwg No. E-1	



FEEDLINE PLAN

NOT TO SCALE



GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
520 South Main Street, Suite 2531
Akron, Ohio 44311
330-572-2100 Fax 330-572-2101

CTNL804B AMTRAK_OldLyme5

JOB NO.
2014790.25
DATE
3/13/2014
DRAWN BY
TTB

APPENDIX D

Flange Analysis

GPD GROUP

Existing Flange Connection @ 55'
CTNL804B AMTRAK _ Old Lyme5
2014790.25

O.T. Moment =	162.72	k*ft
Axial =	3.77	kips
Shear =	8.28	kips

Acceptable Stress Ratio =	100.0%

Flange Bolts		
# Bolts =	10	
Bolt Type =	A325	
F_t =	44	ksi
ASIF =	1.333	
Bolt Circle =	28.375	in
Bolt Diameter =	1	in
Tension & Shear (ASD, Section J3.5)		
F_v =	21	ksi
Nominal Area =	0.79	in^2
f_v =	1.05	ksi
Applied Shear =	0.83	kips
Allowable Shear =	21.99	kips
Ft^2 - 4.39(fv^2))^1/2 =	43.94	ksi
Allowable Bolt Stress =	58.59269	ksi
B =	46.02	kips
Prying Action Check		
N/A, top flange thickness > tc		
Max Comp. on Bolt =	27.89	kips
Max Tension on Bolt =	27.13	kips
Shear Capacity =	3.8%	
Tensile Capacity =	59.0%	
Bolt Capacity =	**59.0% OK**	

Pole Information		
Shaft Diam. (Upper) =	25.42	in
Thickness (Upper)=	0.1875	in
# of Sides (Upper) =	18	
F_y (Upper) =	65	ksi
Shaft Diam. (Lower) =	25.42	in
Thickness (Lower)=	0.1875	in
# of Sides (Lower) =	18	
F_y (Lower) =	65	ksi

Upper Flange Plate		
Location =	External	
Plate Strength (F_y) =	60	ksi
Plate Thickness =	1	in
Outer Diameter =	32.625	in
wcalc =	12.61	in
wmax =	18.77	in
w =	12.61	in
S =	2.10	in^3
f_b =	19.78	ksi
F_b =	60	ksi
UP Capacity =	**33.0% OK**	

Lower Flange Plate		
Location =	External	
Plate Strength (F_y) =	60	ksi
Plate Thickness =	1	in
Outer Diameter =	32.625	in
wcalc =	12.61	in
wmax =	18.77	in
w =	12.61	in
S =	2.10	in^3
f_b =	19.78	ksi
F_b =	60	ksi
LP Capacity =	**33.0% OK**	

UpperStiffeners	
Configuration =	None

Lower Stiffeners	
Configuration =	None

APPENDIX E

Anchor Rod & Base Plate Analysis

GPD GROUP

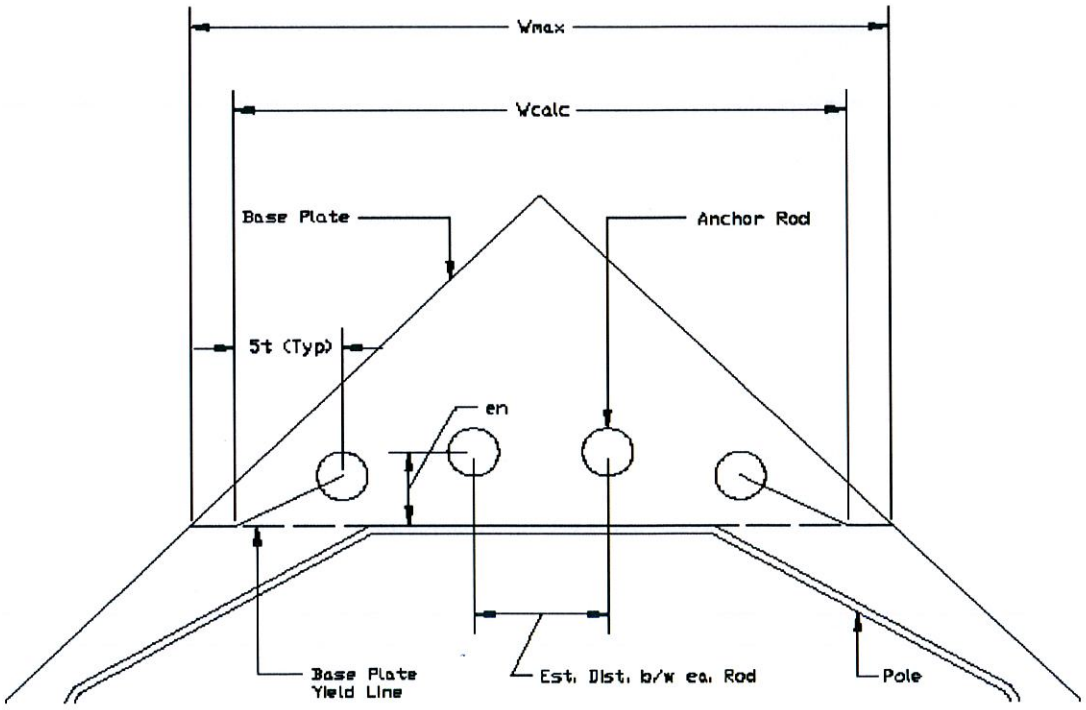
Anchor Rod and Base Plate Stresses
CTNL804B AMTRAK _ Old Lyme5
2014790.25

Overturning Moment =	727.52	k*ft
Axial Force =	9.92	k
Shear Force =	12.76	k

Acceptable Stress Ratio =	100.0%

Anchor Rods		
Pole Diameter =	36.77	in
Number of Rods =	12	
Type =	Upset Rod	
Rod Yield Strength (Fy) =	75	ksi
ASIF =	1.333	
Rod Circle =	42.75	in
Rod Diameter =	2.25	in
Net Tensile Area =	3.25	in^2
Max Tension on Rod =	67.15	kips
Max Compression on Rod =	68.80	kips
Allow. Rod Force =	195.00	kips
Anchor Rod Capacity =	**34.4%**	**OK**

Base Plate		
Plate Strength (Fy) =	50	ksi
Plate Thickness =	2.5	in
Plate Width =	43.5	in
Est. Dist. b/w ea. Rod =	6	in
w_{calc} =	36.881	in
w_{max} =	24.748	in
w =	24.75	in
S =	25.78	in^3
fb =	19.00	ksi
Fb =	50	ksi
Base Plate Capacity =	**38.0%**	**OK**



APPENDIX F

Foundation Analysis

GPD GROUP

Mat Foundation Analysis
CTNL804B AMTRAK _ Old Lyme5
2014790.25

General Info	
Code	TIA/EIA-222-F (ASD)
Bearing On	Soil
Foundation Type	Mono Pad
Pier Type	Round
Reinforcing Known	Yes
Max Capacity	1

Tower Reactions		
Moment, M	727.52	k-ft
Axial, P	9.92	k
Shear, V	12.76	k

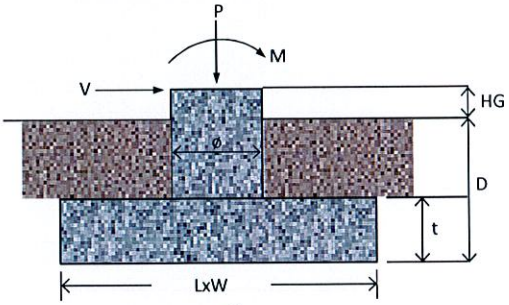
Pad & Pier Geometry		
Pier Diameter, ø	5.5	ft
Pad Length, L	18.5	ft
Pad Width, W	18.5	ft
Pad Thickness, t	1.5	ft
Depth, D	5.6	ft
Height Above Grade, HG	1	ft

Pad & Pier Reinforcing		
Rebar Fy	60	ksi
Concrete Fc'	4	ksi
Clear Cover	3	in
Reinforced Top & Bottom?	Yes	
Pad Reinforcing Size	# 8	
Pad Quantity Per Layer	20	
Pier Rebar Size	# 7	
Pier Quantity of Rebar	30	

Soil Properties		
Soil Type	Granular	
Soil Unit Weight	120	pcf
Angle of Friction, ø	30	°
Bearing Type	Net	
Ultimate Bearing	6	ksf
Water Table Depth	99	ft
Frost Depth	3.5	ft

Bearing Summary			Load Case
Qxmax	1.38	ksf	1D+1W
Qymax	1.38	ksf	1D+1W
Qmax @ 45°	1.70	ksf	1D+1W
$Q_{(all)\ Gross}$	3.34	ksf	
Controlling Capacity	**51.0%**	**Pass**	

Overturning Summary (Required FS=1.5)			Load Case
FS(ot)x	3.71	≥1.5	1D+1W
FS(ot)y	3.71	≥1.5	1D+1W
Controlling Capacity	**40.4%**	**Pass**	



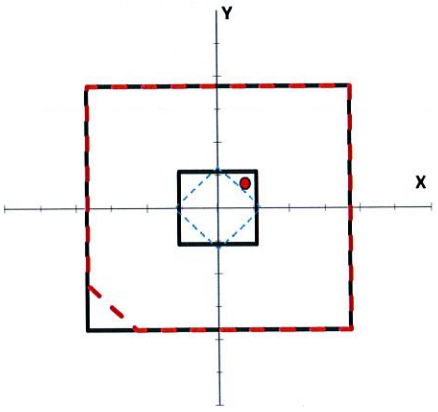


EXHIBIT C

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNL804B

Amtrak Old Lyme 5

387 Shore Road
Old Lyme, CT 06376

March 19, 2014

EBI Project Number: 62141488

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

March 19, 2014

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

Re: Emissions Values for Site: **CTNL804B - Amtrak Old Lyme 5**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 387 Shore Road, Old Lyme, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 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 (μW/cm2). The general population exposure limit for the cellular band is 567 μW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 μW/cm2. 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 387 Shore Road, Old Lyme, 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 / UMTS channels (1935.000 MHz to 1945.000 MHz / 1983.000 MHz to 1984.000 MHz) were considered for each sector of the proposed installation.
2) 4 UMTS / LTE channels (2110.000 to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
3) 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.
4) 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.
5) 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

6) The antenna mounting height centerline of the proposed antennas is **77 feet** above ground level (AGL)
7) 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	CTNL804B - Amtrak Old Lyme 5
Site Addresss	387 Shore Road, Old Lyme, CT 06376
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 (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	77	71	None	0	0	48.326044	3.446438	0.34464%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	77	71	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	77	71	None	0	0	24.163022	1.723219	0.17232%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	77	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.606%	

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 (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	77	71	None	0	0	48.326044	3.446438	0.34464%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	77	71	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	77	71	None	0	0	24.163022	1.723219	0.17232%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	77	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.606%	

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 (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	77	71	None	0	0	48.326044	3.446438	0.34464%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	77	71	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	77	71	None	0	0	24.163022	1.723219	0.17232%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	77	114	None	0	0	32.217363	0.891223	0.08912%
														Sector total Power Density Value:		0.606%	

Site Composite MPE %	
Carrier	MPE %
T-Mobile	1.818%
Total Site MPE %	**1.818%**

EBI Consulting
environmental | engineering | due diligence

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 **1.818% (0.606% 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 **1.818%** 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.

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