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

May 28, 2014

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

Re: Notice of Exempt Modification
Town of Ridgefield/T-Mobile co-location
Site ID CT11103A
76 East Ridge Road, Ridgefield, 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, the Town of Ridgefield owns the existing monopole tower and related facility located at 76 East Ridge Road, Ridgefield, Connecticut (Latitude: 41.280789 Longitude: -73.492836). T-Mobile intends to replace six antennas and related equipment at this existing telecommunications facility in Ridgefield ("Ridgefield 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 Selectman, Rudy Marconi. The Town of Ridgefield is also the property owner.

The existing Ridgefield Facility consists of a 130 foot tall monopole tower.[1] T-Mobile plans to replace six antennas and three TMAs (tower mounted amplifiers) with six antennas and three TMAs mounted at a centerline of 100 feet. (See the plans revised to May 27, 2014 attached hereto as Exhibit A). T-Mobile will also will also install a new equipment cabinet on the existing concrete pad, install hybrid cable and reuse existing coax cable. The existing Ridgefield Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated May 19, 2014 and attached hereto

[1] While the online docket for the Connecticut Siting Council does not provide a docket or petition number for the approval of this structure, it does reference this structure in connection with notices of intent captioned EM-VER-118-101020, EM-VER-118-110819, and EM-SPRINT-118-130322.

as Exhibit B.[2]

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

1. The proposed modification will not increase the height of the tower. T-Mobile's replacement antennas will be installed at a centerline of 100 feet, merely replacing existing antennas located at the same 100 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 equipment pad as shown on Sheet L-1 of Exhibit A.

3. The proposed modification to the Ridgefield 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 May 27, 2014, T-Mobile's operations would add 1.180% 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 36.340% 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 Ridgefield 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.

[2] The structural analysis provides that the tower is adequate to support the proposed equipment with the reinforcement of the existing pole shaft detailed in the Tectonic Construction Drawings in the report. Those reinforcements will be completed prior to the installation of the proposed modifications.

cc: Town of Ridgefield, First Selectman Rudy Marconi
HPC Wireless Services, Halene Fujimoto

COHEN and WOLF P.C.
ATTORNEYS AT LAW

JOHNPATRICK C. O'BRIEN

PLEASE REPLY TO: Bridgeport
Writer's Direct Dial: (203) 337-4113
E-Mail Address: jobrien@cohenandwolf.com

May 28, 2014

UI Holdings Company
180 Marsh Hill Road
Orange, CT 06477

ATTN: Supervisor/Manager

Re: Our Client: Jessica Hill
Date of Loss: 2/7/2013

Dear Sir/Madam:

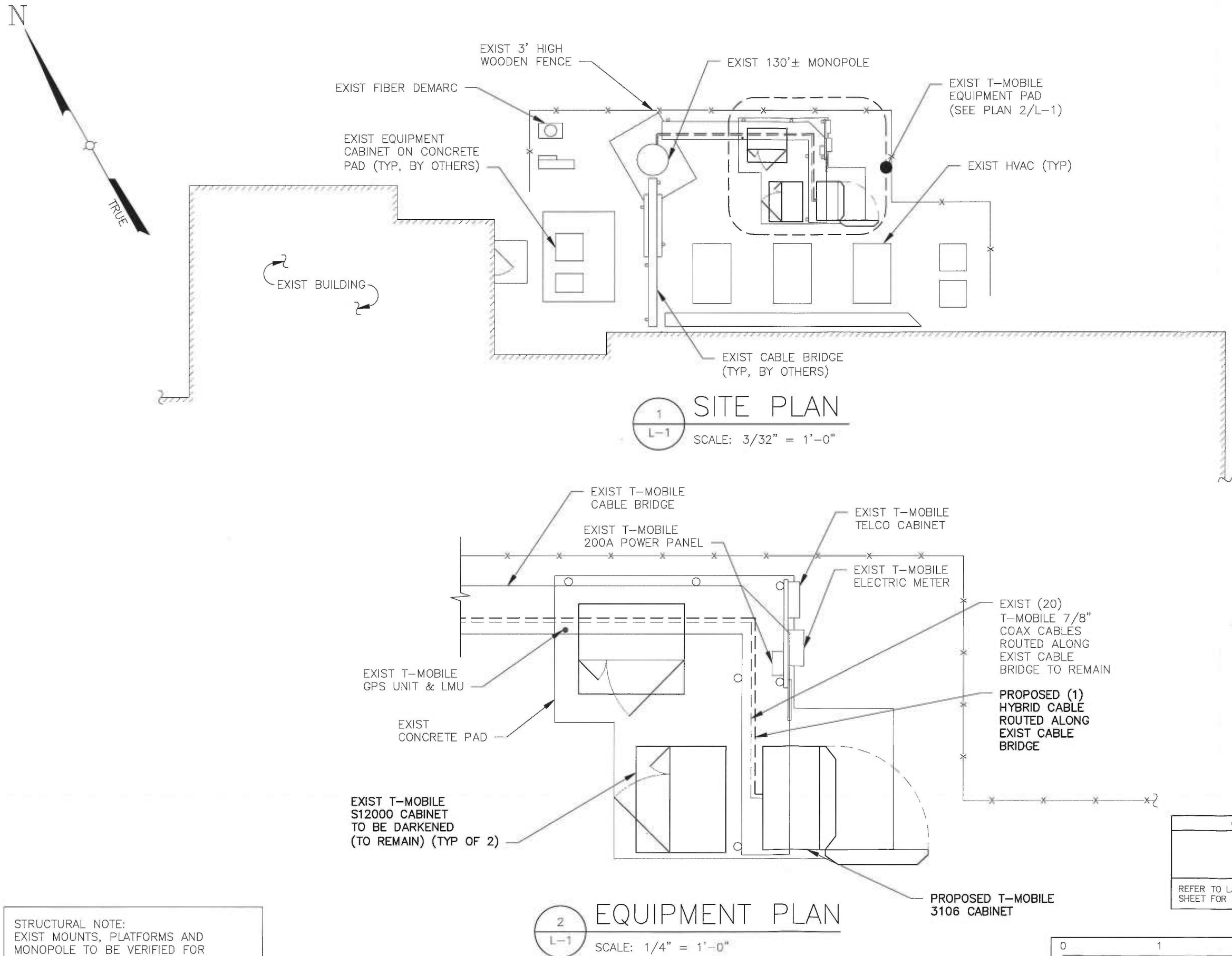
Please be advised I represent Ms. Hill in regard to an injury that occurred in the Operations Café on your premises. Please turn this letter over to your insurance carrier so that they may contact me immediately in regard to this claim.

Very truly yours,

Johnpatrick C. O'Brien

JCO:nmt

EXHIBIT A



1/L-1 SITE PLAN

SCALE: 3/32" = 1'-0"

2/L-1 EQUIPMENT PLAN

SCALE: 1/4" = 1'-0"

STRUCTURAL NOTE:
EXIST MOUNTS, PLATFORMS AND MONOPOLE TO BE VERIFIED FOR STRUCTURAL SUITABILITY OF PROPOSED INSTALLATION BY A STATE LICENSED P.E.

CONFIGURATION
2C
REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.

1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
6644.CT11103A	JQ

REV	DATE	REVISION	DRAWN BY
0	03/26/14	FOR COMMENT	JT
1	05/27/14	PER COMMENTS	AS

ISSUED BY	DATE

SITE INFORMATION

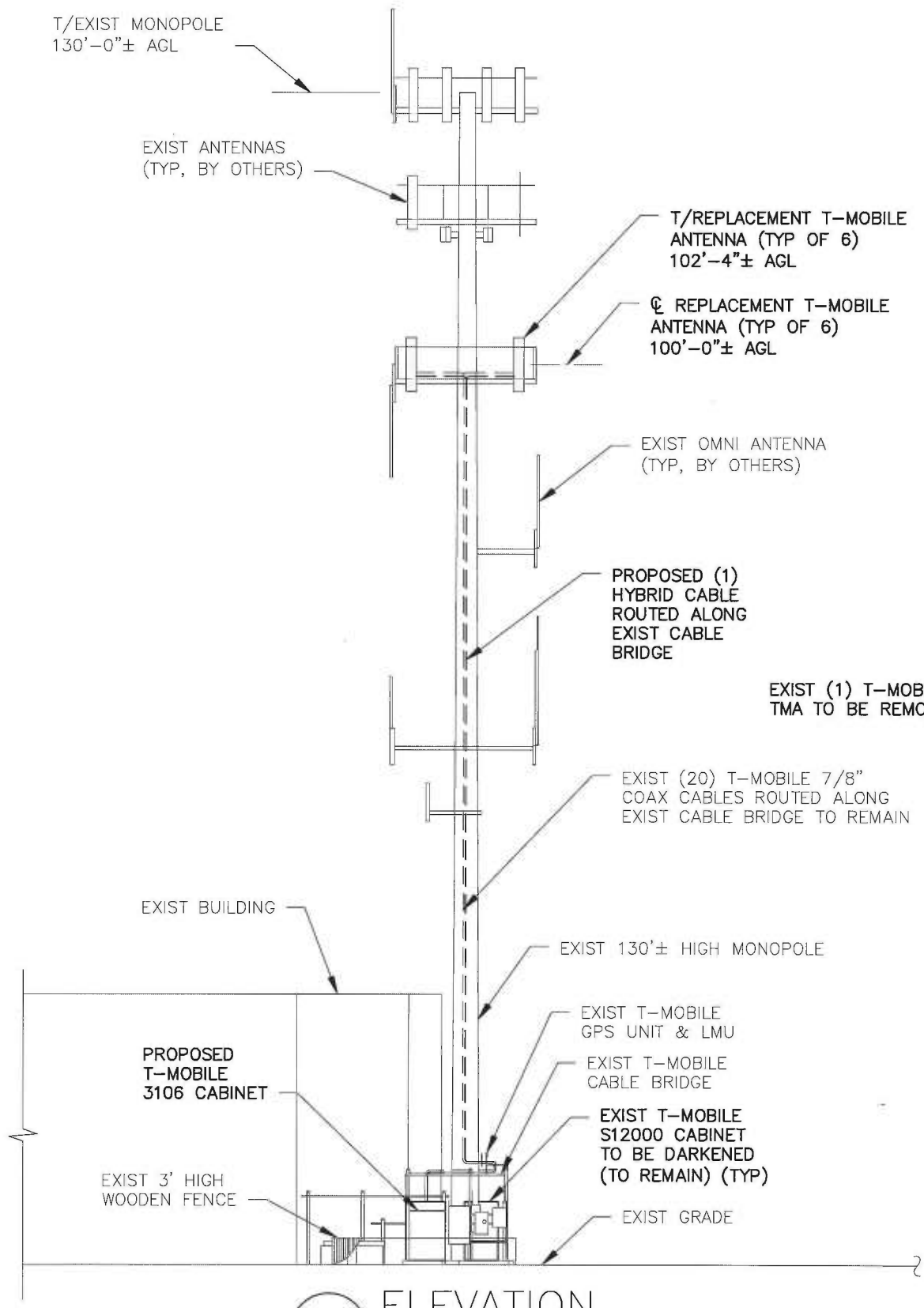
CT11103A
RIDGEFIELD/ DOWNTOWN 1
76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE

SITE PLAN & EQUIPMENT PLAN

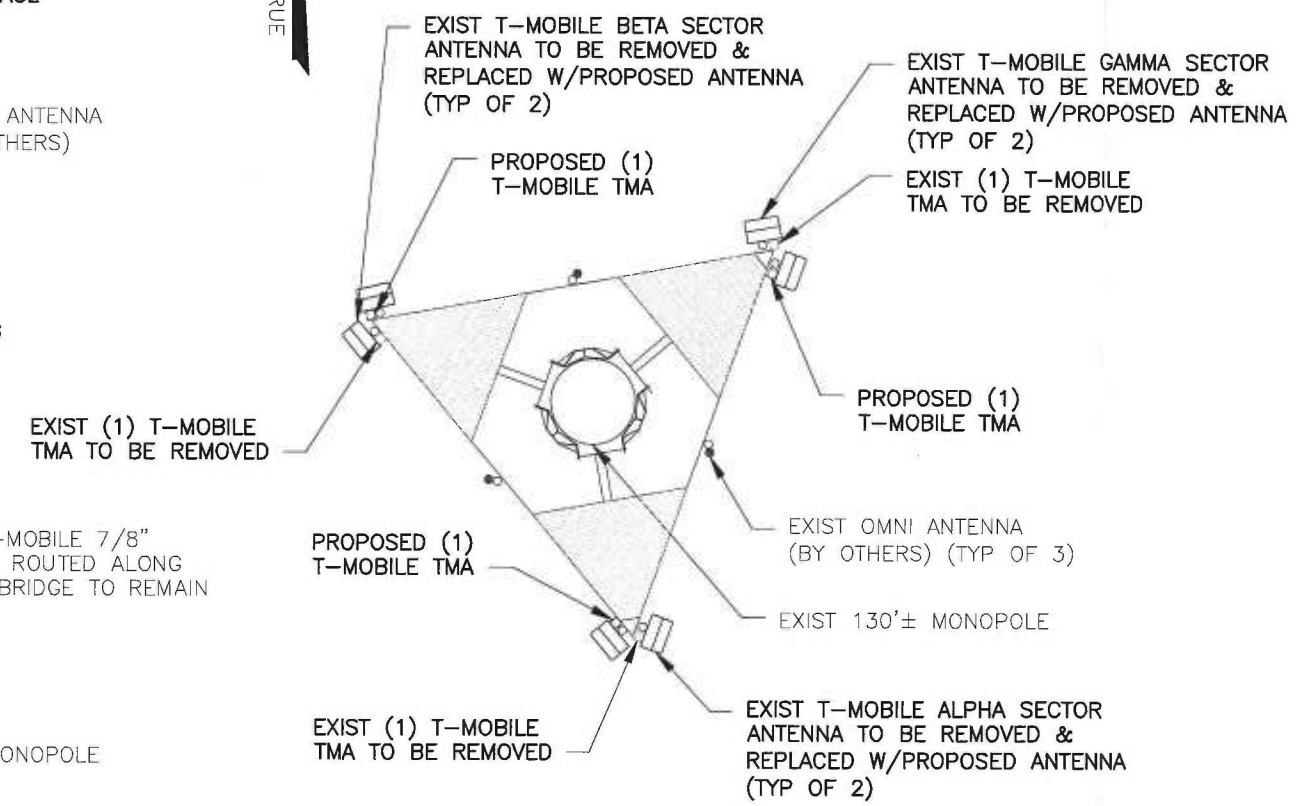
SHEET NUMBER

L-1



1/L-2 ELEVATION

SCALE: 1/16" = 1'-0"



2/L-2 ANTENNA PLAN

SCALE: 3/16" = 1'-0"

STRUCTURAL NOTE:
EXIST MOUNTS, PLATFORMS AND MONOPOLE TO BE VERIFIED FOR STRUCTURAL SUITABILITY OF PROPOSED INSTALLATION BY A STATE LICENSED P.E.

CONFIGURATION

2C

REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • SURVEYING
• ENGINEERING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile
NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
6544.CT11103A	JQ

REV	DATE	REVISION	DRAWN BY
0	03/26/14	FOR COMMENT	JT
1	05/27/14	PER COMMENTS	AS

ISSUED BY _____ DATE _____

SITE INFORMATION

CT11103A
RIDGEFIELD/ DOWNTOWN 1
76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE

ELEVATION &
ANTENNA PLAN

SHEET NUMBER

L-2

EXHIBIT B

STRUCTURAL ANALYSIS REPORT – REV 1

T-MOBILE UPGRADE

EXISTING 130' MONOPOLE

SITE: RIDGEFIELD / DOWNTOWN 1

76 EAST RIDGE ROAD

RIDGEFIELD, CT 06877

MAY 19, 2014

TEC W.O. 6644.CT11103A

TECTONIC

Practical Solutions, Exceptional Service

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STRUCTURAL ANALYSIS REPORT

Project Information

W.O. Number:	6644.CT11103A	Report Date:	5/19/2014
Client:	T-Mobile	Revision:	1
Site Name:	Ridgefield / Downtown 1		
Owner:	Town of Ridgefield		
Site Address:	76 East Ridge Road	FCC Registration Number:	-
City, State:	Ridgefield, CT 06877	County:	Fairfield

Structure Information

Structure Type:	Monopole	Manufacturer:	Valmont
Structure Height:	130'	Year Built:	1989

Original Drawings: Structure: No Foundation: No

Documents provided:

Item	By	No.	Date
Structural Analysis Report (21 Pages)	Centek Engineering	13001.067	11/13/13
RFDS v3.0 (via email)	T-Mobile	-	1/14/14
Foundation Mapping Report (7 Pages)	FDH Engineering	1463IW1500	4/30/14
Geotechnical Investigation Report (9 Pages)	TECTONIC	6644.CT11103A	5/5/14

Inspection

Type: Visual Inspection from ground Date: 4/22/2014

General Condition:
Tower: Good
Foundation: Good

Observations: None

Finish: Galvanized Condition: Intact

Proposed Installation

T-Mobile is proposing to replace all its existing panel antennas and TMA's with newer model antennas as part of this upgrade. The final T-Mobile configuration upon this installation will be as follows:

Antennas:

Height (ft.)	Carrier	Qty	Manuf.	Model	Mount
100	T-Mobile	3	Ericsson	AIR 21 B2A B4P	Existing Low-Profile Platform w/handrail
		3	Ericsson	AIR 21 B4A B2P	
		3	--	TMA's	

Cables:

Height (ft.)	Qty	Nom. Size	Location / Support
100	24	7/8" dia	Existing along the interior of the pole to remain.
100	1	Hybrid Cable	Proposed along the existing coax cables.

Analysis Criteria

Design Standard: ANSI/TIA/EIA-222-F-1996
Building Code: 2005 Connecticut State Building Code

	Capacity (no ice)	Capacity w/ ice
Wind Speed:	85 mph	74 mph
Basic Ice Thickness:	0 inch	0.5 inch

Assumptions:

1. The tower was designed, manufactured, and constructed in accordance with the approved tower drawings.
2. The foundation was designed and constructed based on site-specific geotechnical information.
3. The yield stress for the pole shaft is 65 ksi (minimum)
4. Anchor bolts are assumed to be ASTM A615, Grade 75.
5. Base plate has a minimum yield stress of 50 ksi.
6. Information on the existing antennas and mounts are solely based on the previous analysis report referenced above.

W.O. Number:	6644.CT11103A	Report Date:	5/19/2014
Client:	T-Mobile	Revision:	1
Site Name:	Ridgefield / Downtown 1		

Analysis Results

Element	% Usage
Pole*	98%
Anchor Rods	97%
Base Plate	65%
Foundation	65%

*Results indicated herein are upon reinforcement of the existing pole shaft as shown on the Construction Drawings prepared by TECTONIC. The pole shaft rating as shown is governed by the unreinforced section of the pole.

Foundation Reactions (Envelope):

Tower Base	Current Analysis
Vertical	25 kips
Shear	26 kips
Moment	2377 kip-ft

Conclusions

Based on our analysis, once the existing monopole has been reinforced as shown on the Tectonic drawings, it will have adequate capacity to support the proposed T-Mobile upgrade as described herein in accordance with current code requirements.

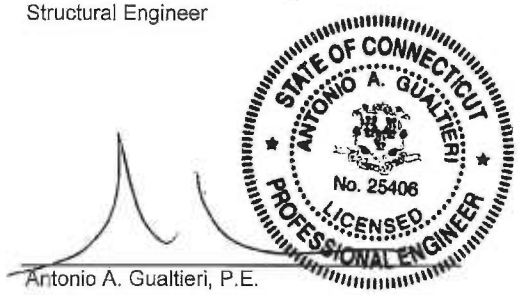
Based on the review and analysis of the existing foundation and geotechnical information provided, the existing foundation is also adequate to support the proposed T-Mobile upgrade.

If the existing conditions are not as represented in this report, the design engineer should be immediately notified prior to construction. Any further changes to the antenna configuration or other appurtenances should be reviewed with respect to their effect on structural loads prior to implementation.

Prepared by: Veronica Elson, EIT
Structural Engineer

Reviewed by: Vinod Ramesh, EIT
Structural Engineer

Approved by:



Antonio A. Gualtieri, P.E.
Sr. Vice-President

Date: 5/19/14.

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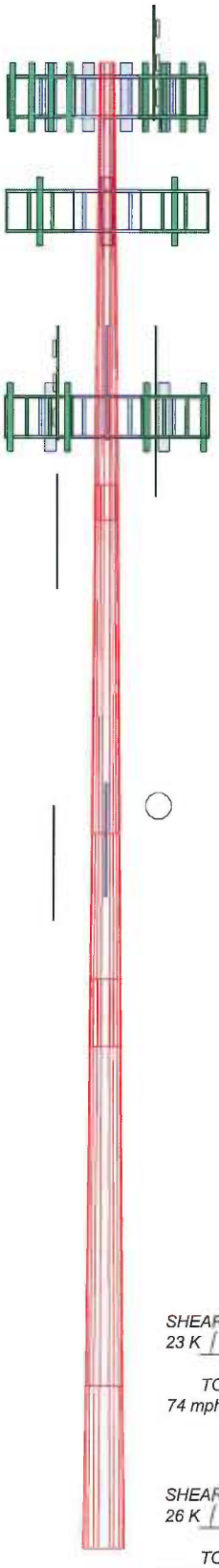
Tectonic Engineering & Surveying Consultants, P.C.
1279 Route 300
Newburgh, NY 12550

Phone: (845) 567-6656
Fax: (845) 567-8703
Web: www.tectonicengineering.com

TNX TOWER SUMMARY REPORT

Section	5	4	3	2	1
Length (ft)	14.21	35.62	18.68	30.49	40.00
Number of Sides	12	12	12	12	12
Thickness (in)	0.5	0.4	0.4	0.3	0.2
Socket Length (ft)			5.90		3.10
Top Dia (in)	40.8	32.6	30.9	24.0	16.3
Bot Dia (in)	43.8	40.6	34.6	30.9	25.1
Grade	56.065976ksi	A572-65	55.549508ksi	A572-65	
Weight (K)	3.0	5.3	2.8	2.8	2.0

130.0 ft
90.0 ft
62.6 ft
43.9 ft
14.2 ft
0.0 ft



AXIAL
32 K
SHEAR
23 K
MOMENT
2161 kip-ft
TORQUE 4 kip-ft
74 mph WIND - 0.5 in ICE
AXIAL
25 K
SHEAR
26 K
MOMENT
2377 kip-ft
TORQUE 4 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
MG D3-800Tx w/ Mount Pipe	127	PD1142-1	99
MG D3-800Tx w/ Mount Pipe	127	PD1142-1	99
MG D3-800Tx w/ Mount Pipe	127	440-3	99
APX75-866514-CT0 w/ Mount Pipe	127	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	99
APX75-866514-CT0 w/ Mount Pipe	127		
APX75-866514-CT0 w/ Mount Pipe	127	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	99
BXA-80080/4CF w/ Mount Pipe	127		
BXA-80080/4CF w/ Mount Pipe	127	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	99
BXA-80080/4CF w/ Mount Pipe	127		
BXA-171063/12CF w/ Mount Pipe	127	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	99
BXA-171063/12CF w/ Mount Pipe	127		
BXA-171063/12CF w/ Mount Pipe	127	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	99
RRH2x40-AWS	127		
RRH2x40-AWS	127	Low-Profile Platform w/handrails	99
RRH2x40-AWS	127	TMA	99
DB-T1-6Z-8AB-0Z	127	TMA	99
440-3	127	TMA	99
15' Low-Profile Platform w/handrails	127	PD1142-1	86
APXVSPP18-C-A20 w/ Mount pipe	117	PD1121	86
APXVSPP18-C-A20 w/ Mount pipe	117	Stand-Off Arm	86
APXVSPP18-C-A20 w/ Mount pipe	117	Stand-Off Arm	58
1900 MHz RRH	117	PD1142-1	58
1900 MHz RRH	117	PD1167	58
1900 MHz RRH	117	Stand-Off Arm	58
800MHz 2X50W RRH W/FILTER	117	Stand-Off Arm	50
800MHz 2X50W RRH W/FILTER	117	GPS_A	50
800MHz 2X50W RRH W/FILTER	117		
Low-Profile Platform w/handrails	117		
10'x2" Unknown Whip	99		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	56.065976ksi	56 ksi	71 ksi
55.549508ksi	56 ksi	71 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 98.2%

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TECTONIC
1279 Route 300
Newburgh, NY
Phone: (845)-567-6656
FAX: (845)-567-8703

Job: 6644.CT11103A - Rev 1		
Project: Ridgefield / Downtown 1		
Client: T-Mobile	Drawn by: Vinod Ramesh	App'd:
Code: TIA/EIA-222-F	Date: 05/19/14	Scale: NTS
Path: G:\Newburgh\Projects\6644 - HPC-TMobile Praxair II\CT11103A\Structural\Rev 1\CT11103A Ridgefield - Structural Analysis R1.eri		Dwg No. E-1

tnxTower	Job	Page
	6644.CT11103A - Rev 1	1 of 26
TECTONIC 1279 Route 300 Newburgh, NY Phone: (845)-567-6656 FAX: (845)-567-8703	Project Ridgefield / Downtown 1	Date 16:39:30 05/19/14
	Client T-Mobile	Designed by Vinod Ramesh

2377

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
√ Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	√ Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination	Use TIA-222-G Tension Splice Capacity Exemption	

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	130.00-90.00	40.00	3.10	12	16.3	25.1	0.2	0.9	A572-65 (65 ksi)
L2	90.00-62.61	30.49	0.00	12	24.0	30.9	0.3	1.3	A572-65 (65 ksi)
L3	62.61-43.93	18.68	5.90	12	30.9	34.6	0.4	1.7	55.549508ksi (56 ksi)
L4	43.93-14.21	35.62	0.00	12	32.6	40.6	0.4	1.5	A572-65 (65 ksi)
L5	14.21-0.00	14.21		12	40.6	43.8	0.5	1.9	56.065976ksi

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
									(56 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.8	11.3	371.1	5.7	8.4	44.1	752.0	5.6	3.8	17.241
	26.0	17.5	1381.5	8.9	13.0	106.3	2799.3	8.6	6.1	28.047
L2	25.5	23.8	1698.3	8.5	12.4	136.8	3441.1	11.7	5.6	17.867
	32.0	30.8	3690.8	11.0	16.0	230.3	7478.6	15.2	7.5	23.856
L3	32.0	42.1	5003.6	10.9	16.0	312.2	10138.6	20.7	7.1	16.672
	35.8	47.1	7002.6	12.2	17.9	391.2	14189.1	23.2	8.1	18.935
L4	35.1	38.9	5138.5	11.5	16.9	304.7	10412.1	19.1	7.7	20.59
	42.1	48.6	10049.6	14.4	21.0	477.6	20363.2	23.9	9.9	26.353
L5	42.1	60.5	12455.2	14.4	21.0	591.9	25237.6	29.8	9.6	20.584
	45.3	65.3	15650.0	15.5	22.7	689.8	31711.1	32.1	10.5	22.402

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1				1	1	1		
130.00-90.00								
L2 90.00-62.61				1	1	1		
L3 62.61-43.93				1	1	0.976291		
L4 43.93-14.21				1	1	1		
L5 14.21-0.00				1	1	0.986754		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF5-50A(7/8")	C	No	CaAa (Out Of Face)	130.00 - 10.00	4	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.01
						4" Ice	0.00	0.03
LDF5-50A(7/8")	A	No	Inside Pole	130.00 - 10.00	6	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
LDF5-50A(7/8")	C	No	CaAa (Out Of Face)	130.00 - 10.00	2	No Ice	0.11	0.00
						1/2" Ice	0.21	0.00
						1" Ice	0.31	0.00
						2" Ice	0.51	0.01
						4" Ice	0.91	0.03
LDF4-50A(1/2")	C	No	Inside Pole	130.00 - 28.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
LDF7-50A(1-5/8")	A	No	Inside Pole	118.00 - 8.00	3	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
LDF5-50A(7/8")	C	No	Inside Pole	100.00 - 10.00	24	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
LDF4-50A(1/2")	C	No	Inside Pole	100.00 - 28.00	3	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
LDF4-50A(1/2")	C	No	Inside Pole	86.00 - 28.00	2	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
LDF4-50A(1/2")	C	No	Inside Pole	58.00 - 28.00	2	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
LDF4-50A(1/2")	C	No	Inside Pole	50.00 - 28.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
Hybrid Cable	C	No	Inside Pole	100.00 - 10.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
**								
MP303	C	No	CaAa (Out Of Face)	15.50 - 0.50	1	No Ice	0.26	0.00
						1/2" Ice	0.26	0.00
						1" Ice	0.26	0.00
						2" Ice	0.26	0.00
						4" Ice	0.26	0.00
MP303	C	No	CaAa (Out Of Face)	64.00 - 44.00	1	No Ice	0.26	0.00
						1/2" Ice	0.26	0.00
						1" Ice	0.26	0.00
						2" Ice	0.26	0.00
						4" Ice	0.26	0.00
**								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-90.00	A	0.000	0.000	0.000	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	8.720	0.17

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L2	90.00-62.61	A	0.000	0.000	0.000	0.000	0.12
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.335	0.30
L3	62.61-43.93	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	8.948	0.21
L4	43.93-14.21	A	0.000	0.000	0.000	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	6.816	0.33
L5	14.21-0.00	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.510	0.04

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	130.00-90.00	A	0.577	0.000	0.000	0.000	0.000	0.15
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	17.952	0.46
L2	90.00-62.61	A	0.552	0.000	0.000	0.000	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	12.657	0.50
L3	62.61-43.93	A	0.529	0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	12.903	0.33
L4	43.93-14.21	A	0.500	0.000	0.000	0.000	0.000	0.13
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	13.109	0.52
L5	14.21-0.00	A	0.500	0.000	0.000	0.000	0.000	0.02
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.352	0.07

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-90.00	-0.3	0.1	-0.4	0.3
L2	90.00-62.61	-0.3	0.2	-0.5	0.3
L3	62.61-43.93	-0.5	0.3	-0.7	0.4
L4	43.93-14.21	-0.3	0.2	-0.5	0.3
L5	14.21-0.00	-0.4	0.2	-0.4	0.2

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 K
LEVEL 127									
MG D3-800Tx w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.57 3.98 4.39 5.33 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
MG D3-800Tx w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.57 3.98 4.39 5.33 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
MG D3-800Tx w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.57 3.98 4.39 5.33 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
APX75-866514-CT0 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.00 10.72 11.43 12.82 15.74	6.57 7.88 9.02 11.02 15.24	0.06 0.13 0.21 0.40 0.93
APX75-866514-CT0 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.00 10.72 11.43 12.82 15.74	6.57 7.88 9.02 11.02 15.24	0.06 0.13 0.21 0.40 0.93
APX75-866514-CT0 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	10.00 10.72 11.43 12.82 15.74	6.57 7.88 9.02 11.02 15.24	0.06 0.13 0.21 0.40 0.93
BXA-80080/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.49 5.94 6.40 7.35 9.39	4.03 4.65 5.30 6.70 9.78	0.03 0.08 0.13 0.25 0.60
BXA-80080/4CF w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.49 5.94 6.40 7.35 9.39	4.03 4.65 5.30 6.70 9.78	0.03 0.08 0.13 0.25 0.60
BXA-80080/4CF w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.49 5.94 6.40 7.35 9.39	4.03 4.65 5.30 6.70 9.78	0.03 0.08 0.13 0.25 0.60
BXA-171063/12CF w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.03 5.58 6.10 7.17 9.44	5.29 6.46 7.35 9.15 12.95	0.04 0.09 0.14 0.27 0.68
BXA-171063/12CF w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.03 5.58 6.10 7.17 9.44	5.29 6.46 7.35 9.15 12.95	0.04 0.09 0.14 0.27 0.68
BXA-171063/12CF w/ Mount	C	From Leg	4.00	0.0000	127.00	No Ice	5.03	5.29	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe			0.00			1/2" Ice	5.58	6.46	0.09
			1.00			1" Ice	6.10	7.35	0.14
						2" Ice	7.17	9.15	0.27
						4" Ice	9.44	12.95	0.68
RRH2x40-AWS	A	From Leg	4.00	0.0000	127.00	No Ice	2.52	1.59	0.04
			0.00			1/2" Ice	2.75	1.80	0.06
			1.00			1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RRH2x40-AWS	B	From Leg	4.00	0.0000	127.00	No Ice	2.52	1.59	0.04
			0.00			1/2" Ice	2.75	1.80	0.06
			1.00			1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RRH2x40-AWS	C	From Leg	4.00	0.0000	127.00	No Ice	2.52	1.59	0.04
			0.00			1/2" Ice	2.75	1.80	0.06
			1.00			1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
DB-T1-6Z-8AB-0Z	A	From Leg	4.00	0.0000	127.00	No Ice	5.60	2.33	0.04
			0.00			1/2" Ice	5.92	2.56	0.08
			1.00			1" Ice	6.24	2.79	0.12
						2" Ice	6.91	3.28	0.21
						4" Ice	8.37	4.37	0.45
440-3	B	From Leg	4.00	0.0000	127.00	No Ice	1.48	1.48	0.01
			0.00			1/2" Ice	2.65	2.65	0.02
			3.00			1" Ice	3.84	3.84	0.04
						2" Ice	6.26	6.26	0.10
						4" Ice	9.36	9.36	0.32
15' Low-Profile Platform w/handrails	A	None		0.0000	127.00	No Ice	44.21	44.21	1.77
						1/2" Ice	53.97	53.97	2.32
						1" Ice	63.73	63.73	2.87
						2" Ice	83.25	83.25	3.97
						4" Ice	122.29	122.29	6.16
***									
LEVEL 117									
APXVSPP18-C-A20 w/ Mount pipe	C	From Leg	4.00	0.0000	117.00	No Ice	8.26	7.01	0.09
			0.00			1/2" Ice	8.81	7.82	0.16
			1.00			1" Ice	9.36	8.66	0.24
						2" Ice	10.50	10.37	0.41
						4" Ice	12.88	14.15	0.91
APXVSPP18-C-A20 w/ Mount pipe	C	From Leg	4.00	0.0000	117.00	No Ice	8.26	7.01	0.09
			0.00			1/2" Ice	8.81	7.82	0.16
			1.00			1" Ice	9.36	8.66	0.24
						2" Ice	10.50	10.37	0.41
						4" Ice	12.88	14.15	0.91
APXVSPP18-C-A20 w/ Mount pipe	C	From Leg	4.00	0.0000	117.00	No Ice	8.26	7.01	0.09
			0.00			1/2" Ice	8.81	7.82	0.16
			1.00			1" Ice	9.36	8.66	0.24
						2" Ice	10.50	10.37	0.41
						4" Ice	12.88	14.15	0.91
1900 MHz RRH	A	From Leg	4.00	0.0000	117.00	No Ice	2.69	2.79	0.06
			0.00			1/2" Ice	2.93	3.03	0.08
			2.00			1" Ice	3.18	3.28	0.11
						2" Ice	3.70	3.81	0.18
						4" Ice	4.85	4.97	0.35
1900 MHz RRH	B	From Leg	4.00	0.0000	117.00	No Ice	2.69	2.79	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	2.93	3.03	0.08
			2.00			1" Ice	3.18	3.28	0.11
						2" Ice	3.70	3.81	0.18
						4" Ice	4.85	4.97	0.35
1900 MHz RRH	C	From Leg	4.00	0.0000	117.00	No Ice	2.69	2.79	0.06
			0.00			1/2" Ice	2.93	3.03	0.08
			2.00			1" Ice	3.18	3.28	0.11
						2" Ice	3.70	3.81	0.18
						4" Ice	4.85	4.97	0.35
800MHz 2X50W RRH W/FILTER	A	From Leg	4.00	0.0000	117.00	No Ice	2.40	2.25	0.06
			0.00			1/2" Ice	2.61	2.46	0.09
			1.00			1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
						4" Ice	4.34	4.15	0.34
800MHz 2X50W RRH W/FILTER	B	From Leg	4.00	0.0000	117.00	No Ice	2.40	2.25	0.06
			0.00			1/2" Ice	2.61	2.46	0.09
			1.00			1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
						4" Ice	4.34	4.15	0.34
800MHz 2X50W RRH W/FILTER	C	From Leg	4.00	0.0000	117.00	No Ice	2.40	2.25	0.06
			0.00			1/2" Ice	2.61	2.46	0.09
			1.00			1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
						4" Ice	4.34	4.15	0.34
Low-Profile Platform w/handrails	C	None		0.0000	117.00	No Ice	39.31	39.31	1.70
						1/2" Ice	47.72	47.72	2.07
						1" Ice	56.13	56.13	2.45
						2" Ice	72.95	72.95	3.21
						4" Ice	106.59	106.59	4.72
***									
10'x2" Unknown Whip	B	From Leg	4.00	0.0000	99.00	No Ice	2.00	2.00	0.02
			0.00			1/2" Ice	3.00	3.00	0.03
			-2.00			1" Ice	4.00	4.00	0.03
						2" Ice	6.00	6.00	0.04
						4" Ice	10.00	10.00	0.06
PD1142-1	A	From Leg	4.00	0.0000	99.00	No Ice	0.94	0.94	0.01
			0.00			1/2" Ice	2.83	2.83	0.02
			3.00			1" Ice	4.74	4.74	0.04
						2" Ice	8.61	8.61	0.13
						4" Ice	16.55	16.55	0.44
PD1142-1	B	From Leg	4.00	0.0000	99.00	No Ice	0.94	0.94	0.01
			0.00			1/2" Ice	2.83	2.83	0.02
			3.00			1" Ice	4.74	4.74	0.04
						2" Ice	8.61	8.61	0.13
						4" Ice	16.55	16.55	0.44
440-3	C	From Leg	4.00	0.0000	99.00	No Ice	1.48	1.48	0.01
			0.00			1/2" Ice	2.65	2.65	0.02
			3.00			1" Ice	3.84	3.84	0.04
						2" Ice	6.26	6.26	0.10
						4" Ice	9.36	9.36	0.32
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.0000	99.00	No Ice	6.83	5.64	0.11
			0.00			1/2" Ice	7.35	6.48	0.17
			1.00			1" Ice	7.86	7.26	0.23
						2" Ice	8.93	8.86	0.38
						4" Ice	11.18	12.29	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00	0.0000	99.00	No Ice	6.83	5.64	0.11
			0.00			1/2" Ice	7.35	6.48	0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1" Ice	7.86	7.26	0.23
						2" Ice	8.93	8.86	0.38
						4" Ice	11.18	12.29	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
Low-Profile Platform w/handrails	A	None		0.0000	99.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	31.27 39.68 48.09 64.91 98.55	31.27 39.68 48.09 64.91 98.55	1.51 1.93 2.35 3.19 4.86
*** ***LEVEL 86*** PD1142-1	C	From Leg	4.00 0.00 3.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.94 2.83 4.74 8.61 16.55	0.94 2.83 4.74 8.61 16.55	0.01 0.02 0.04 0.13 0.44
PD1121	C	From Leg	4.00 0.00 -1.00	0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 1.52 2.63 4.85 9.29	0.41 1.52 2.63 4.85 9.29	0.00 0.01 0.02 0.04 0.07
Stand-Off Arm	C	None		0.0000	86.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.85 1.14 1.43 2.01 3.17	1.67 2.34 3.01 4.35 7.03	0.07 0.08 0.09 0.12 0.18
*** ***LEVEL 58*** PD1142-1	A	From Leg	4.00 0.00 4.00	0.0000	58.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.94 2.83 4.74 8.61 16.55	0.94 2.83 4.74 8.61 16.55	0.01 0.02 0.04 0.13 0.44
PD1167	C	From Leg	4.00 0.00 2.00	0.0000	58.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.03 3.39 4.75 7.47 12.91	2.03 3.39 4.75 7.47 12.91	0.01 0.01 0.02 0.03 0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Stand-Off Arm	A	None		0.0000	58.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
						4" Ice	3.17	7.03	0.18
Stand-Off Arm	C	None		0.0000	58.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
						4" Ice	3.17	7.03	0.18
***									
LEVEL 50									
GPS_A	C	From Leg	4.00 0.00 0.00	0.0000	50.00	No Ice	0.30	0.30	0.00
						1/2" Ice	0.37	0.37	0.00
						1" Ice	0.46	0.46	0.01
						2" Ice	0.65	0.65	0.02
						4" Ice	1.15	1.15	0.08
Stand-Off Arm	C	None		0.0000	50.00	No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
						4" Ice	3.17	7.03	0.18
***									
TMA	A	From Leg	4.00 0.00 1.00	0.0000	99.00	No Ice	1.66	1.66	0.01
						1/2" Ice	1.98	1.98	0.02
						1" Ice	2.30	2.30	0.03
						2" Ice	2.94	2.94	0.04
						4" Ice	4.22	4.22	0.07
TMA	B	From Leg	4.00 0.00 1.00	0.0000	99.00	No Ice	1.66	1.66	0.01
						1/2" Ice	1.98	1.98	0.02
						1" Ice	2.30	2.30	0.03
						2" Ice	2.94	2.94	0.04
						4" Ice	4.22	4.22	0.07
TMA	C	From Leg	4.00 0.00 1.00	0.0000	99.00	No Ice	1.66	1.66	0.01
						1/2" Ice	1.98	1.98	0.02
						1" Ice	2.30	2.30	0.03
						2" Ice	2.94	2.94	0.04
						4" Ice	4.22	4.22	0.07

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 90 deg - No Ice
4	Dead+Wind 180 deg - No Ice
5	Dead+Ice+Temp
6	Dead+Wind 0 deg+Ice+Temp
7	Dead+Wind 90 deg+Ice+Temp
8	Dead+Wind 180 deg+Ice+Temp

Comb. No.	Description
9	Dead+Wind 0 deg - Service
10	Dead+Wind 90 deg - Service
11	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	130 - 90	Pole	Max Tension	10	0.00	0.00	0.00
			Max. Compression	5	-13.25	2.31	-1.16
			Max. Mx	3	-7.58	-370.54	1.44
			Max. My	4	-7.57	2.82	-375.41
			Max. Vy	3	16.36	-370.54	1.44
			Max. Vx	4	16.43	2.82	-375.41
			Max. Torque	2			3.63
L2	90 - 62.6094	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-17.70	2.84	-1.45
			Max. Mx	3	-11.51	-918.31	3.62
			Max. My	4	-11.50	5.39	-925.51
			Max. Vy	3	19.56	-918.31	3.62
			Max. Vx	4	19.63	5.39	-925.51
			Max. Torque	2			3.67
L3	62.6094 - 43.9297	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-20.40	3.07	-1.46
			Max. Mx	3	-13.94	-1179.44	4.59
			Max. My	4	-13.93	6.44	-1187.58
			Max. Vy	3	21.30	-1179.44	4.59
			Max. Vx	4	21.37	6.44	-1187.58
			Max. Torque	2			4.13
L4	43.9297 - 14.2109	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-28.36	3.46	-1.69
			Max. Mx	3	-21.37	-2002.39	7.19
			Max. My	4	-21.37	9.25	-2013.13
			Max. Vy	3	24.80	-2002.39	7.19
			Max. Vx	4	24.87	9.25	-2013.13
			Max. Torque	2			4.22
L5	14.2109 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-31.84	3.51	-1.72
			Max. Mx	3	-24.72	-2365.27	8.24
			Max. My	4	-24.72	10.30	-2376.97
			Max. Vy	3	26.31	-2365.27	8.24
			Max. Vx	4	26.37	10.30	-2376.97
			Max. Torque	2			4.28

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	8	31.84	0.04	-23.20
	Max. H_x	4	24.73	0.07	-26.36
	Max. H_z	2	24.73	-0.07	26.36

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M_x	2	2375.56	-0.07	26.36
	Max. M_z	3	2365.27	-26.30	0.07
	Max. Torsion	2	4.28	-0.07	26.36
	Min. Vert	1	24.73	0.00	0.00
	Min. H_x	3	24.73	-26.30	0.07
	Min. H_z	4	24.73	0.07	-26.36
	Min. M_x	4	-2376.97	0.07	-26.36
	Min. M_z	4	-10.30	0.07	-26.36
	Min. Torsion	4	-4.28	0.07	-26.36

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	24.73	0.00	0.00	0.70	1.39	-0.00
Dead+Wind 0 deg - No Ice	24.73	0.07	-26.36	-2375.56	-7.55	-4.28
Dead+Wind 90 deg - No Ice	24.73	26.30	-0.07	-8.24	-2365.27	2.54
Dead+Wind 180 deg - No Ice	24.73	-0.07	26.36	2376.97	10.30	4.28
Dead+Ice+Temp	31.84	-0.00	0.00	1.72	3.51	-0.00
Dead+Wind 0 deg+Ice+Temp	31.84	0.04	-23.20	-2157.63	-1.60	-3.96
Dead+Wind 90 deg+Ice+Temp	31.84	23.13	-0.04	-3.39	-2146.03	2.41
Dead+Wind 180 deg+Ice+Temp	31.84	-0.04	23.20	2161.07	8.60	3.96
Dead+Wind 0 deg - Service	24.73	0.03	-9.12	-822.96	-1.67	-1.50
Dead+Wind 90 deg - Service	24.73	9.10	-0.03	-2.38	-818.90	0.89
Dead+Wind 180 deg - Service	24.73	-0.03	9.12	824.39	4.52	1.50

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-24.73	0.00	0.00	24.73	0.00	0.000%
2	0.07	-24.73	-26.36	-0.07	24.73	26.36	0.000%
3	26.30	-24.73	-0.07	-26.30	24.73	0.07	0.000%
4	-0.07	-24.73	26.36	0.07	24.73	-26.36	0.000%
5	0.00	-31.84	0.00	0.00	31.84	-0.00	0.000%
6	0.04	-31.84	-23.20	-0.04	31.84	23.20	0.000%
7	23.13	-31.84	-0.04	-23.13	31.84	0.04	0.000%
8	-0.04	-31.84	23.20	0.04	31.84	-23.20	0.000%
9	0.03	-24.73	-9.12	-0.03	24.73	9.12	0.000%
10	9.10	-24.73	-0.03	-9.10	24.73	0.03	0.000%
11	-0.03	-24.73	9.12	0.03	24.73	-9.12	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00011306

3	Yes	5	0.00000001	0.00006524
4	Yes	5	0.00000001	0.00012898
5	Yes	4	0.00000001	0.00005057
6	Yes	5	0.00000001	0.00062003
7	Yes	5	0.00000001	0.00057178
8	Yes	5	0.00000001	0.00063264
9	Yes	4	0.00000001	0.00067857
10	Yes	4	0.00000001	0.00040708
11	Yes	4	0.00000001	0.00071207

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 90	34.48	11	2.4450	0.0207
L2	93.099 - 62.6094	17.13	11	1.8525	0.0092
L3	62.6094 - 43.9297	7.43	11	1.1434	0.0040
L4	49.8307 - 14.2109	4.69	11	0.9074	0.0029
L5	14.2109 - 0	0.32	11	0.2198	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
127.00	MG D3-800Tx w/ Mount Pipe	11	32.96	2.4049	0.0197	15475
117.00	APXVSPP18-C-A20 w/ Mount pipe	11	27.96	2.2670	0.0163	5951
99.00	10'x2" Unknown Whip	11	19.58	1.9718	0.0108	2494
86.00	PD1142-1	11	14.43	1.6910	0.0076	2193
58.00	PD1142-1	11	6.37	1.0549	0.0036	2883
50.00	GPS A	11	4.72	0.9105	0.0029	3469

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 90	99.07	4	7.0254	0.0593
L2	93.099 - 62.6094	49.28	4	5.3292	0.0262
L3	62.6094 - 43.9297	21.41	4	3.2930	0.0114
L4	49.8307 - 14.2109	13.51	4	2.6141	0.0082
L5	14.2109 - 0	0.93	4	0.6336	0.0016

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
127.00	MG D3-800Tx w/ Mount Pipe	4	94.72	6.9106	0.0564	5533
117.00	APXVSPP18-C-A20 w/ Mount pipe	4	80.38	6.5164	0.0466	2126
99.00	10'x2" Unknown Whip	4	56.33	5.6714	0.0308	887
86.00	PD1142-1	4	41.54	4.8660	0.0218	776
58.00	PD1142-1	4	18.34	3.0386	0.0102	1007
50.00	GPS_A	4	13.60	2.6230	0.0083	1210

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	130 - 128.058	TP25.1x16.3x0.2	40.00	0.00	0.0	39.000	11.6	-0.12	452.43	0.000
	128.058 - 126.116					39.000	11.9	-1.87	464.19	0.004
	126.116 - 124.174					39.000	12.2	-1.94	475.96	0.004
	124.174 - 122.231					39.000	12.5	-2.02	487.72	0.004
	122.231 - 120.289					39.000	12.8	-2.11	499.48	0.004
	120.289 - 118.347					39.000	13.1	-2.20	511.25	0.004
	118.347 - 116.405					39.000	13.4	-4.18	523.01	0.008
	116.405 - 114.463					39.000	13.7	-4.28	534.78	0.008
	114.463 - 112.521					39.000	14.0	-4.38	546.54	0.008
	112.521 - 110.578					39.000	14.3	-4.49	558.30	0.008
	110.578 - 108.636					39.000	14.6	-4.60	570.07	0.008
	108.636 - 106.694					39.000	14.9	-4.72	581.83	0.008
	106.694 - 104.752					39.000	15.2	-4.84	593.60	0.008
	104.752 - 102.81					39.000	15.5	-4.96	605.36	0.008
	102.81 - 100.868					39.000	15.8	-5.09	617.13	0.008
	100.868 - 98.9254					39.000	16.1	-7.12	628.89	0.011
	98.9254 - 96.9833					39.000	16.4	-7.26	640.65	0.011
	96.9833 - 95.0411					39.000	16.7	-7.41	652.42	0.011
	95.0411 - 93.099					39.000	17.0	-7.57	664.18	0.011
	93.099 - 90					39.000	17.5	-3.35	682.95	0.005
L2	93.099 - 90	TP30.9x24x0.3	30.49	0.00	0.0	39.000	24.5	-4.69	955.84	0.005
	90 - 88.5584					39.000	24.8	-8.20	968.79	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
	88.5584 - 87.1168					39.000	25.2	-8.36	981.75	0.009
	87.1168 - 85.6752					39.000	25.5	-8.59	994.71	0.009
	85.6752 - 84.2336					39.000	25.8	-8.75	1007.67	0.009
	84.2336 - 82.7919					39.000	26.2	-8.92	1020.62	0.009
	82.7919 - 81.3503					39.000	26.5	-9.09	1033.58	0.009
	81.3503 - 79.9087					39.000	26.8	-9.26	1046.54	0.009
	79.9087 - 78.4671					39.000	27.2	-9.44	1059.50	0.009
	78.4671 - 77.0255					39.000	27.5	-9.61	1072.45	0.009
	77.0255 - 75.5839					39.000	27.8	-9.79	1085.41	0.009
	75.5839 - 74.1423					39.000	28.2	-9.97	1098.37	0.009
	74.1423 - 72.7007					39.000	28.5	-10.16	1111.33	0.009
	72.7007 - 71.259					39.000	28.8	-10.34	1124.28	0.009
	71.259 - 69.8174					39.000	29.2	-10.53	1137.24	0.009
	69.8174 - 68.3758					39.000	29.5	-10.72	1150.20	0.009
	68.3758 - 66.9342					39.000	29.8	-10.91	1163.15	0.009
	66.9342 - 65.4926					39.000	30.2	-11.11	1176.11	0.009
	65.4926 - 64.051					39.000	30.5	-11.30	1189.07	0.010
	64.051 - 62.6094					39.000	30.8	-11.50	1202.03	0.010
L3	62.6094 - 61.5445	TP34.6x30.9x0.4	18.68	0.00	0.0	33.330	42.4	-11.69	1412.73	0.008
	61.5445 - 60.4796					33.330	42.7	-11.86	1422.21	0.008
	60.4796 - 59.4147					33.330	43.0	-12.05	1431.70	0.008
	59.4147 - 58.3498					33.330	43.2	-12.23	1441.18	0.008
	58.3498 - 57.2849					33.330	43.5	-12.55	1450.67	0.009
	57.2849 - 56.2201					33.330	43.8	-12.73	1460.15	0.009
	56.2201 - 55.1552					33.330	44.1	-12.92	1469.64	0.009
	55.1552 - 54.0903					33.330	44.4	-13.11	1479.12	0.009
	54.0903 - 53.0254					33.330	44.7	-13.29	1488.61	0.009
	53.0254 - 51.9605					33.330	44.9	-13.48	1498.09	0.009
	51.9605 - 50.8956					33.330	45.2	-13.68	1507.57	0.009
	50.8956 - 49.8307					33.330	45.5	-13.93	1517.06	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
	49.8307 - 43.9297					33.330	47.1	-8.48	1569.62	0.005
L4	49.8307 - 43.9297	TP40.6x32.6x0.4	35.62	0.00	0.0	39.000	40.5	-7.25	1578.59	0.005
	43.9297 - 42.3655					39.000	40.9	-16.02	1595.27	0.010
	42.3655 - 40.8014					39.000	41.3	-16.30	1611.95	0.010
	40.8014 - 39.2373					39.000	41.8	-16.58	1628.62	0.010
	39.2373 - 37.6731					39.000	42.2	-16.86	1645.30	0.010
	37.6731 - 36.109					39.000	42.6	-17.14	1661.97	0.010
	36.109 - 34.5448					39.000	43.0	-17.43	1678.65	0.010
	34.5448 - 32.9807					39.000	43.5	-17.71	1695.33	0.010
	32.9807 - 31.4165					39.000	43.9	-18.01	1712.00	0.011
	31.4165 - 29.8524					39.000	44.3	-18.30	1728.68	0.011
	29.8524 - 28.2882					39.000	44.8	-18.59	1745.36	0.011
	28.2882 - 26.7241					39.000	45.2	-18.89	1762.03	0.011
	26.7241 - 25.1599					39.000	45.6	-19.19	1778.71	0.011
	25.1599 - 23.5958					39.000	46.0	-19.50	1795.38	0.011
	23.5958 - 22.0317					39.000	46.5	-19.80	1812.06	0.011
	22.0317 - 20.4675					39.000	46.9	-20.11	1828.74	0.011
	20.4675 - 18.9034					39.000	47.3	-20.42	1845.41	0.011
	18.9034 - 17.3392					39.000	47.7	-20.73	1862.09	0.011
	17.3392 - 15.7751					39.000	48.2	-21.05	1878.77	0.011
	15.7751 - 14.2109					39.000	48.6	-21.37	1895.44	0.011
L5	14.2109 - 13.1959	TP43.8x40.6x0.5	14.21	0.00	0.0	33.640	60.9	-21.61	2047.16	0.011
	13.1959 - 12.1808					33.640	61.2	-21.84	2058.66	0.011
	12.1808 - 11.1657					33.640	61.5	-22.07	2070.16	0.011
	11.1657 - 10.1507					33.640	61.9	-22.31	2081.66	0.011
	10.1507 - 9.1356					33.640	62.2	-22.54	2093.16	0.011
	9.1356 - 8.12054					33.640	62.6	-22.78	2104.66	0.011
	8.12054 - 7.10547					33.640	62.9	-23.02	2116.16	0.011
	7.10547 - 6.0904					33.640	63.2	-23.26	2127.66	0.011
	6.0904 - 5.07533					33.640	63.6	-23.50	2139.16	0.011

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
	5.07533 - 4.06027					33.640	63.9	-23.74	2150.66	0.011
	4.06027 - 3.0452					33.640	64.3	-23.98	2162.15	0.011
	3.0452 - 2.03013					33.640	64.6	-24.23	2173.65	0.011
	2.03013 - 1.01507					33.640	65.0	-24.47	2185.15	0.011
	1.01507 - 0					33.640	65.3	-24.72	2196.65	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	130 - 128.058	TP25.1x16.3x0.2	0.14	0.037	39.000	0.001	0.00	0.000	39.000	0.000
	128.058 - 126.116		9.67	2.372	39.000	0.061	0.00	0.000	39.000	0.000
	126.116 - 124.174		21.86	5.098	39.000	0.131	0.00	0.000	39.000	0.000
	124.174 - 122.231		34.36	7.629	39.000	0.196	0.00	0.000	39.000	0.000
	122.231 - 120.289		47.17	9.983	39.000	0.256	0.00	0.000	39.000	0.000
	120.289 - 118.347		60.30	12.177	39.000	0.312	0.00	0.000	39.000	0.000
	118.347 - 116.405		78.32	15.110	39.000	0.387	0.00	0.000	39.000	0.000
	116.405 - 114.463		99.27	18.313	39.000	0.470	0.00	0.000	39.000	0.000
	114.463 - 112.521		120.54	21.286	39.000	0.546	0.00	0.000	39.000	0.000
	112.521 - 110.578		142.14	24.049	39.000	0.617	0.00	0.000	39.000	0.000
	110.578 - 108.636		164.08	26.620	39.000	0.683	0.00	0.000	39.000	0.000
	108.636 - 106.694		186.36	29.018	39.000	0.744	0.00	0.000	39.000	0.000
	106.694 - 104.752		208.98	31.257	39.000	0.801	0.00	0.000	39.000	0.000
	104.752 - 102.81		231.94	33.350	39.000	0.855	0.00	0.000	39.000	0.000
	102.81 - 100.868		255.26	35.310	39.000	0.905	0.00	0.000	39.000	0.000
	100.868 - 98.9254		281.33	37.467	39.000	0.961	0.00	0.000	39.000	0.000
	98.9254 - 96.9833		312.34	40.076	39.000	1.028	0.00	0.000	39.000	0.000
	96.9833 - 95.0411		343.70	42.517	39.000	1.090	0.00	0.000	39.000	0.000
	95.0411 - 93.099		375.42	44.803	39.000	1.149	0.00	0.000	39.000	0.000
	93.099 - 90		182.45	20.589	39.000	0.528	0.00	0.000	39.000	0.000
L2	93.099 - 90	TP30.9x24x0.3	244.38	20.193	39.000	0.518	0.00	0.000	39.000	0.000
	90 - 88.5584		451.10	36.277	39.000	0.930	0.00	0.000	39.000	0.000
	88.5584 -		475.55	37.234	39.000	0.955	0.00	0.000	39.000	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	87.1168									
	87.1168 - 85.6752		500.37	38.158	39.000	0.978	0.00	0.000	39.000	0.000
	85.6752 - 84.2336		525.40	39.037	39.000	1.001	0.00	0.000	39.000	0.000
	84.2336 - 82.7919		550.63	39.873	39.000	1.022	0.00	0.000	39.000	0.000
	82.7919 - 81.3503		576.06	40.669	39.000	1.043	0.00	0.000	39.000	0.000
	81.3503 - 79.9087		601.68	41.426	39.000	1.062	0.00	0.000	39.000	0.000
	79.9087 - 78.4671		627.51	42.149	39.000	1.081	0.00	0.000	39.000	0.000
	78.4671 - 77.0255		653.55	42.837	39.000	1.098	0.00	0.000	39.000	0.000
	77.0255 - 75.5839		679.79	43.494	39.000	1.115	0.00	0.000	39.000	0.000
	75.5839 - 74.1423		706.24	44.120	39.000	1.131	0.00	0.000	39.000	0.000
	74.1423 - 72.7007		732.89	44.718	39.000	1.147	0.00	0.000	39.000	0.000
	72.7007 - 71.259		759.76	45.290	39.000	1.161	0.00	0.000	39.000	0.000
	71.259 - 69.8174		786.85	45.836	39.000	1.175	0.00	0.000	39.000	0.000
	69.8174 - 68.3758		814.14	46.358	39.000	1.189	0.00	0.000	39.000	0.000
	68.3758 - 66.9342		841.66	46.857	39.000	1.201	0.00	0.000	39.000	0.000
	66.9342 - 65.4926		869.39	47.335	39.000	1.214	0.00	0.000	39.000	0.000
	65.4926 - 64.051		897.35	47.793	39.000	1.225	0.00	0.000	39.000	0.000
	64.051 - 62.6094		925.52	48.231	39.000	1.237	0.00	0.000	39.000	0.000
L3	62.6094 - 61.5445	TP34.6x30.9x0.4	946.48	35.893	33.330	1.077	0.00	0.000	33.330	0.000
	61.5445 - 60.4796		967.57	36.201	33.330	1.086	0.00	0.000	33.330	0.000
	60.4796 - 59.4147		988.77	36.503	33.330	1.095	0.00	0.000	33.330	0.000
	59.4147 - 58.3498		1010.11	36.798	33.330	1.104	0.00	0.000	33.330	0.000
	58.3498 - 57.2849		1032.00	37.102	33.330	1.113	0.00	0.000	33.330	0.000
	57.2849 - 56.2201		1053.84	37.393	33.330	1.122	0.00	0.000	33.330	0.000
	56.2201 - 55.1552		1075.81	37.679	33.330	1.130	0.00	0.000	33.330	0.000
	55.1552 - 54.0903		1097.91	37.958	33.330	1.139	0.00	0.000	33.330	0.000
	54.0903 - 53.0254		1120.13	38.231	33.330	1.147	0.00	0.000	33.330	0.000
	53.0254 - 51.9605		1142.49	38.499	33.330	1.155	0.00	0.000	33.330	0.000
	51.9605 - 50.8956		1164.97	38.761	33.330	1.163	0.00	0.000	33.330	0.000
	50.8956 - 49.8307		1187.60	39.018	33.330	1.171	0.00	0.000	33.330	0.000
	49.8307 -		722.68	22.170	33.330	0.665	0.00	0.000	33.330	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	43.9297									
L4	49.8307 - 43.9297	TP40.6x32.6x0.4	593.24	21.531	39.000	0.552	0.00	0.000	39.000	0.000
	43.9297 - 42.3655		1350.63	47.995	39.000	1.231	0.00	0.000	39.000	0.000
	42.3655 - 40.8014		1385.56	48.217	39.000	1.236	0.00	0.000	39.000	0.000
	40.8014 - 39.2373		1420.69	48.427	39.000	1.242	0.00	0.000	39.000	0.000
	39.2373 - 37.6731		1456.04	48.626	39.000	1.247	0.00	0.000	39.000	0.000
	37.6731 - 36.109		1491.62	48.813	39.000	1.252	0.00	0.000	39.000	0.000
	36.109 - 34.5448		1527.40	48.991	39.000	1.256	0.00	0.000	39.000	0.000
	34.5448 - 32.9807		1563.41	49.160	39.000	1.260	0.00	0.000	39.000	0.000
	32.9807 - 31.4165		1599.63	49.319	39.000	1.265	0.00	0.000	39.000	0.000
	31.4165 - 29.8524		1636.08	49.469	39.000	1.268	0.00	0.000	39.000	0.000
	29.8524 - 28.2882		1672.76	49.611	39.000	1.272	0.00	0.000	39.000	0.000
	28.2882 - 26.7241		1709.66	49.746	39.000	1.276	0.00	0.000	39.000	0.000
	26.7241 - 25.1599		1746.78	49.873	39.000	1.279	0.00	0.000	39.000	0.000
	25.1599 - 23.5958		1784.14	49.993	39.000	1.282	0.00	0.000	39.000	0.000
	23.5958 - 22.0317		1821.72	50.106	39.000	1.285	0.00	0.000	39.000	0.000
	22.0317 - 20.4675		1859.54	50.213	39.000	1.288	0.00	0.000	39.000	0.000
	20.4675 - 18.9034		1897.59	50.315	39.000	1.290	0.00	0.000	39.000	0.000
	18.9034 - 17.3392		1935.88	50.410	39.000	1.293	0.00	0.000	39.000	0.000
	17.3392 - 15.7751		1974.39	50.500	39.000	1.295	0.00	0.000	39.000	0.000
	15.7751 - 14.2109		2013.15	50.585	39.000	1.297	0.00	0.000	39.000	0.000
L5	14.2109 - 13.1959	TP43.8x40.6x0.5	2038.43	40.862	33.640	1.215	0.00	0.000	33.640	0.000
	13.1959 - 12.1808		2063.82	40.908	33.640	1.216	0.00	0.000	33.640	0.000
	12.1808 - 11.1657		2089.32	40.952	33.640	1.217	0.00	0.000	33.640	0.000
	11.1657 - 10.1507		2114.92	40.994	33.640	1.219	0.00	0.000	33.640	0.000
	10.1507 - 9.1356		2140.63	41.035	33.640	1.220	0.00	0.000	33.640	0.000
	9.1356 - 8.12054		2166.46	41.075	33.640	1.221	0.00	0.000	33.640	0.000
	8.12054 - 7.10547		2192.38	41.114	33.640	1.222	0.00	0.000	33.640	0.000
	7.10547 - 6.0904		2218.43	41.151	33.640	1.223	0.00	0.000	33.640	0.000
	6.0904 - 5.07533		2244.57	41.188	33.640	1.224	0.00	0.000	33.640	0.000
	5.07533 -		2270.83	41.223	33.640	1.225	0.00	0.000	33.640	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	4.06027									
	4.06027 - 3.0452		2297.21	41.257	33.640	1.226	0.00	0.000	33.640	0.000
	3.0452 - 2.03013		2323.69	41.290	33.640	1.227	0.00	0.000	33.640	0.000
	2.03013 - 1.01507		2350.28	41.321	33.640	1.228	0.00	0.000	33.640	0.000
	1.01507 - 0		2376.99	41.352	33.640	1.229	0.00	0.000	33.640	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	130 - 128.058	TP25.1x16.3x0.2	0.14	0.012	26.000	0.001	0.00	0.001	26.000	0.000
	128.058 - 126.116		6.20	0.521	26.000	0.041	0.27	0.031	26.000	0.001
	126.116 - 124.174		6.36	0.521	26.000	0.041	0.27	0.030	26.000	0.001
	124.174 - 122.231		6.52	0.521	26.000	0.041	0.27	0.028	26.000	0.001
	122.231 - 120.289		6.68	0.522	26.000	0.041	0.26	0.026	26.000	0.001
	120.289 - 118.347		6.84	0.522	26.000	0.041	0.26	0.025	26.000	0.001
	118.347 - 116.405		10.70	0.798	26.000	0.062	3.61	0.328	26.000	0.013
	116.405 - 114.463		10.87	0.793	26.000	0.062	3.61	0.314	26.000	0.012
	114.463 - 112.521		11.04	0.788	26.000	0.062	3.62	0.301	26.000	0.012
	112.521 - 110.578		11.21	0.783	26.000	0.061	3.62	0.289	26.000	0.011
	110.578 - 108.636		11.39	0.779	26.000	0.061	3.62	0.277	26.000	0.011
	108.636 - 106.694		11.56	0.775	26.000	0.061	3.62	0.266	26.000	0.010
	106.694 - 104.752		11.74	0.771	26.000	0.060	3.63	0.256	26.000	0.010
	104.752 - 102.81		11.92	0.768	26.000	0.060	3.63	0.246	26.000	0.009
	102.81 - 100.868		12.10	0.765	26.000	0.060	3.63	0.237	26.000	0.009
	100.868 - 98.9254		15.88	0.985	26.000	0.077	3.63	0.228	26.000	0.009
	98.9254 - 96.9833		16.07	0.978	26.000	0.076	3.37	0.204	26.000	0.008
	96.9833 - 95.0411		16.25	0.971	26.000	0.076	3.37	0.197	26.000	0.008
	95.0411 - 93.099		16.43	0.965	26.000	0.075	3.37	0.190	26.000	0.007
	93.099 - 90		7.26	0.414	26.000	0.032	1.45	0.077	26.000	0.003
L2	93.099 - 90	TP30.9x24x0.3	9.51	0.388	26.000	0.030	1.93	0.075	26.000	0.003
	90 - 88.5584		16.90	0.680	26.000	0.053	3.38	0.128	26.000	0.005
	88.5584 - 87.1168		17.04	0.677	26.000	0.053	3.38	0.125	26.000	0.005

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	87.1168 - 85.6752		17.30	0.678	26.000	0.053	3.63	0.130	26.000	0.005
	85.6752 - 84.2336		17.44	0.675	26.000	0.053	3.63	0.127	26.000	0.005
	84.2336 - 82.7919		17.58	0.672	26.000	0.052	3.63	0.124	26.000	0.005
	82.7919 - 81.3503		17.71	0.668	26.000	0.052	3.64	0.121	26.000	0.005
	81.3503 - 79.9087		17.85	0.665	26.000	0.052	3.64	0.118	26.000	0.005
	79.9087 - 78.4671		18.00	0.662	26.000	0.052	3.64	0.115	26.000	0.004
	78.4671 - 77.0255		18.14	0.660	26.000	0.052	3.64	0.112	26.000	0.004
	77.0255 - 75.5839		18.28	0.657	26.000	0.051	3.65	0.110	26.000	0.004
	75.5839 - 74.1423		18.43	0.654	26.000	0.051	3.65	0.107	26.000	0.004
	74.1423 - 72.7007		18.57	0.652	26.000	0.051	3.65	0.105	26.000	0.004
	72.7007 - 71.259		18.72	0.649	26.000	0.051	3.65	0.103	26.000	0.004
	71.259 - 69.8174		18.87	0.647	26.000	0.051	3.66	0.100	26.000	0.004
	69.8174 - 68.3758		19.02	0.645	26.000	0.050	3.66	0.098	26.000	0.004
	68.3758 - 66.9342		19.17	0.643	26.000	0.050	3.66	0.096	26.000	0.004
	66.9342 - 65.4926		19.32	0.641	26.000	0.050	3.66	0.094	26.000	0.004
	65.4926 - 64.051		19.48	0.639	26.000	0.050	3.67	0.092	26.000	0.004
	64.051 - 62.6094		19.63	0.637	26.000	0.050	3.67	0.090	26.000	0.003
L3	62.6094 - 61.5445	TP34.6x30.9x0.4	19.74	0.466	22.220	0.043	3.68	0.065	22.220	0.003
	61.5445 - 60.4796		19.86	0.465	22.220	0.043	3.68	0.065	22.220	0.003
	60.4796 - 59.4147		19.98	0.465	22.220	0.043	3.69	0.064	22.220	0.003
	59.4147 - 58.3498		20.10	0.465	22.220	0.043	3.69	0.063	22.220	0.003
	58.3498 - 57.2849		20.46	0.470	22.220	0.043	4.04	0.068	22.220	0.003
	57.2849 - 56.2201		20.58	0.470	22.220	0.043	4.05	0.067	22.220	0.003
	56.2201 - 55.1552		20.70	0.469	22.220	0.043	4.05	0.067	22.220	0.003
	55.1552 - 54.0903		20.82	0.469	22.220	0.043	4.06	0.066	22.220	0.003
	54.0903 - 53.0254		20.94	0.469	22.220	0.043	4.06	0.065	22.220	0.003
	53.0254 - 51.9605		21.06	0.469	22.220	0.043	4.07	0.064	22.220	0.003
	51.9605 - 50.8956		21.18	0.468	22.220	0.043	4.07	0.064	22.220	0.003
	50.8956 - 49.8307		21.37	0.470	22.220	0.043	4.13	0.064	22.220	0.003
	49.8307 - 43.9297		12.32	0.262	22.220	0.024	2.29	0.033	22.220	0.001

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L4	49.8307 - 43.9297	TP40.6x32.6x0.4	9.82	0.243	26.000	0.019	1.87	0.032	26.000	0.001
	43.9297 - 42.3655		22.27	0.544	26.000	0.043	4.16	0.070	26.000	0.003
	42.3655 - 40.8014		22.41	0.542	26.000	0.042	4.16	0.068	26.000	0.003
	40.8014 - 39.2373		22.55	0.540	26.000	0.042	4.17	0.067	26.000	0.003
	39.2373 - 37.6731		22.68	0.538	26.000	0.042	4.17	0.066	26.000	0.003
	37.6731 - 36.109		22.82	0.536	26.000	0.042	4.17	0.064	26.000	0.002
	36.109 - 34.5448		22.96	0.533	26.000	0.042	4.18	0.063	26.000	0.002
	34.5448 - 32.9807		23.10	0.531	26.000	0.042	4.18	0.062	26.000	0.002
	32.9807 - 31.4165		23.25	0.530	26.000	0.041	4.18	0.061	26.000	0.002
	31.4165 - 29.8524		23.39	0.528	26.000	0.041	4.19	0.060	26.000	0.002
	29.8524 - 28.2882		23.53	0.526	26.000	0.041	4.19	0.059	26.000	0.002
	28.2882 - 26.7241		23.68	0.524	26.000	0.041	4.19	0.058	26.000	0.002
	26.7241 - 25.1599		23.82	0.522	26.000	0.041	4.20	0.057	26.000	0.002
	25.1599 - 23.5958		23.97	0.521	26.000	0.041	4.20	0.056	26.000	0.002
	23.5958 - 22.0317		24.12	0.519	26.000	0.041	4.20	0.055	26.000	0.002
	22.0317 - 20.4675		24.27	0.518	26.000	0.040	4.21	0.054	26.000	0.002
	20.4675 - 18.9034		24.42	0.516	26.000	0.040	4.21	0.053	26.000	0.002
	18.9034 - 17.3392		24.57	0.515	26.000	0.040	4.21	0.052	26.000	0.002
	17.3392 - 15.7751		24.72	0.513	26.000	0.040	4.22	0.051	26.000	0.002
	15.7751 - 14.2109		24.87	0.512	26.000	0.040	4.22	0.050	26.000	0.002
L5	14.2109 - 13.1959	TP43.8x40.6x0.5	24.97	0.410	22.426	0.037	4.23	0.040	22.426	0.002
	13.1959 - 12.1808		25.07	0.410	22.426	0.037	4.23	0.039	22.426	0.002
	12.1808 - 11.1657		25.18	0.409	22.426	0.037	4.23	0.039	22.426	0.002
	11.1657 - 10.1507		25.29	0.409	22.426	0.037	4.24	0.039	22.426	0.002
	10.1507 - 9.1356		25.39	0.408	22.426	0.037	4.24	0.038	22.426	0.002
	9.1356 - 8.12054		25.50	0.408	22.426	0.037	4.25	0.038	22.426	0.002
	8.12054 - 7.10547		25.61	0.407	22.426	0.037	4.25	0.038	22.426	0.002
	7.10547 - 6.0904		25.72	0.407	22.426	0.037	4.25	0.037	22.426	0.002
	6.0904 - 5.07533		25.83	0.406	22.426	0.037	4.26	0.037	22.426	0.002
	5.07533 - 4.06027		25.93	0.406	22.426	0.037	4.26	0.036	22.426	0.002

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	4.06027 - 3.0452		26.04	0.405	22.426	0.037	4.26	0.036	22.426	0.002
	3.0452 - 2.03013		26.15	0.405	22.426	0.037	4.27	0.036	22.426	0.002
	2.03013 - 1.01507		26.26	0.404	22.426	0.037	4.27	0.035	22.426	0.002
	1.01507 - 0		26.37	0.404	22.426	0.037	4.28	0.035	22.426	0.002

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	130 - 128.058	0.000	0.001	0.000	0.001	0.000	0.001 ✔	1.333	H1-3+VT ✔
	128.058 - 126.116	0.004	0.061	0.000	0.041	0.001	0.065 ✔	1.333	H1-3+VT ✔
	126.116 - 124.174	0.004	0.131	0.000	0.041	0.001	0.135 ✔	1.333	H1-3+VT ✔
	124.174 - 122.231	0.004	0.196	0.000	0.041	0.001	0.200 ✔	1.333	H1-3+VT ✔
	122.231 - 120.289	0.004	0.256	0.000	0.041	0.001	0.261 ✔	1.333	H1-3+VT ✔
	120.289 - 118.347	0.004	0.312	0.000	0.041	0.001	0.317 ✔	1.333	H1-3+VT ✔
	118.347 - 116.405	0.008	0.387	0.000	0.062	0.013	0.397 ✔	1.333	H1-3+VT ✔
	116.405 - 114.463	0.008	0.470	0.000	0.062	0.012	0.479 ✔	1.333	H1-3+VT ✔
	114.463 - 112.521	0.008	0.546	0.000	0.062	0.012	0.556 ✔	1.333	H1-3+VT ✔
	112.521 - 110.578	0.008	0.617	0.000	0.061	0.011	0.626 ✔	1.333	H1-3+VT ✔
	110.578 - 108.636	0.008	0.683	0.000	0.061	0.011	0.692 ✔	1.333	H1-3+VT ✔
	108.636 - 106.694	0.008	0.744	0.000	0.061	0.010	0.754 ✔	1.333	H1-3+VT ✔
	106.694 - 104.752	0.008	0.801	0.000	0.060	0.010	0.811 ✔	1.333	H1-3+VT ✔
	104.752 - 102.81	0.008	0.855	0.000	0.060	0.009	0.865 ✔	1.333	H1-3+VT ✔
	102.81 - 100.868	0.008	0.905	0.000	0.060	0.009	0.915 ✔	1.333	H1-3+VT ✔
	100.868 - 98.9254	0.011	0.961	0.000	0.077	0.009	0.974 ✔	1.333	H1-3+VT ✔
	98.9254 - 96.9833	0.011	1.028	0.000	0.076	0.008	1.041 ✔	1.333	H1-3+VT ✔
	96.9833 - 95.0411	0.011	1.090	0.000	0.076	0.008	1.104 ✔	1.333	H1-3+VT ✔

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
	95.0411 - 93.099	0.011	1.149	0.000	0.075	0.007	1.162 ✔	1.333	H1-3+VT ✔
	93.099 - 90	0.005	0.528	0.000	0.032	0.003	0.533 ✔	1.333	H1-3+VT ✔
L2	93.099 - 90	0.005	0.518	0.000	0.030	0.003	0.523 ✔	1.333	H1-3+VT ✔
	90 - 88.5584	0.008	0.930	0.000	0.053	0.005	0.940 ✔	1.333	H1-3+VT ✔
	88.5584 - 87.1168	0.009	0.955	0.000	0.053	0.005	0.964 ✔	1.333	H1-3+VT ✔
	87.1168 - 85.6752	0.009	0.978	0.000	0.053	0.005	0.988 ✔	1.333	H1-3+VT ✔
	85.6752 - 84.2336	0.009	1.001	0.000	0.053	0.005	1.011 ✔	1.333	H1-3+VT ✔
	84.2336 - 82.7919	0.009	1.022	0.000	0.052	0.005	1.032 ✔	1.333	H1-3+VT ✔
	82.7919 - 81.3503	0.009	1.043	0.000	0.052	0.005	1.053 ✔	1.333	H1-3+VT ✔
	81.3503 - 79.9087	0.009	1.062	0.000	0.052	0.005	1.072 ✔	1.333	H1-3+VT ✔
	79.9087 - 78.4671	0.009	1.081	0.000	0.052	0.004	1.091 ✔	1.333	H1-3+VT ✔
	78.4671 - 77.0255	0.009	1.098	0.000	0.052	0.004	1.108 ✔	1.333	H1-3+VT ✔
	77.0255 - 75.5839	0.009	1.115	0.000	0.051	0.004	1.125 ✔	1.333	H1-3+VT ✔
	75.5839 - 74.1423	0.009	1.131	0.000	0.051	0.004	1.141 ✔	1.333	H1-3+VT ✔
	74.1423 - 72.7007	0.009	1.147	0.000	0.051	0.004	1.157 ✔	1.333	H1-3+VT ✔
	72.7007 - 71.259	0.009	1.161	0.000	0.051	0.004	1.171 ✔	1.333	H1-3+VT ✔
	71.259 - 69.8174	0.009	1.175	0.000	0.051	0.004	1.185 ✔	1.333	H1-3+VT ✔
	69.8174 - 68.3758	0.009	1.189	0.000	0.050	0.004	1.199 ✔	1.333	H1-3+VT ✔
	68.3758 - 66.9342	0.009	1.201	0.000	0.050	0.004	1.212 ✔	1.333	H1-3+VT ✔
	66.9342 - 65.4926	0.009	1.214	0.000	0.050	0.004	1.224 ✔	1.333	H1-3+VT ✔
	65.4926 - 64.051	0.010	1.225	0.000	0.050	0.004	1.236 ✔	1.333	H1-3+VT ✔
	64.051 - 62.6094	0.010	1.237	0.000	0.050	0.003	1.247 ✔	1.333	H1-3+VT ✔
L3	62.6094 - 61.5445	0.008	1.077	0.000	0.043	0.003	1.086 ✔	1.333	H1-3+VT ✔
	61.5445 - 60.4796	0.008	1.086	0.000	0.043	0.003	1.095 ✔	1.333	H1-3+VT ✔
	60.4796 - 59.4147	0.008	1.095	0.000	0.043	0.003	1.104 ✔	1.333	H1-3+VT ✔
	59.4147 - 58.3498	0.008	1.104	0.000	0.043	0.003	1.113 ✔	1.333	H1-3+VT ✔

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
	58.3498 - 57.2849	0.009	1.113	0.000	0.043	0.003	1.122 ✔	1.333	H1-3+VT ✔
	57.2849 - 56.2201	0.009	1.122	0.000	0.043	0.003	1.131 ✔	1.333	H1-3+VT ✔
	56.2201 - 55.1552	0.009	1.130	0.000	0.043	0.003	1.140 ✔	1.333	H1-3+VT ✔
	55.1552 - 54.0903	0.009	1.139	0.000	0.043	0.003	1.148 ✔	1.333	H1-3+VT ✔
	54.0903 - 53.0254	0.009	1.147	0.000	0.043	0.003	1.157 ✔	1.333	H1-3+VT ✔
	53.0254 - 51.9605	0.009	1.155	0.000	0.043	0.003	1.165 ✔	1.333	H1-3+VT ✔
	51.9605 - 50.8956	0.009	1.163	0.000	0.043	0.003	1.173 ✔	1.333	H1-3+VT ✔
	50.8956 - 49.8307	0.009	1.171	0.000	0.043	0.003	1.180 ✔	1.333	H1-3+VT ✔
	49.8307 - 43.9297	0.005	0.665	0.000	0.024	0.001	0.671 ✔	1.333	H1-3+VT ✔
L4	49.8307 - 43.9297	0.005	0.552	0.000	0.019	0.001	0.557 ✔	1.333	H1-3+VT ✔
	43.9297 - 42.3655	0.010	1.231	0.000	0.043	0.003	1.241 ✔	1.333	H1-3+VT ✔
	42.3655 - 40.8014	0.010	1.236	0.000	0.042	0.003	1.247 ✔	1.333	H1-3+VT ✔
	40.8014 - 39.2373	0.010	1.242	0.000	0.042	0.003	1.252 ✔	1.333	H1-3+VT ✔
	39.2373 - 37.6731	0.010	1.247	0.000	0.042	0.003	1.258 ✔	1.333	H1-3+VT ✔
	37.6731 - 36.109	0.010	1.252	0.000	0.042	0.002	1.262 ✔	1.333	H1-3+VT ✔
	36.109 - 34.5448	0.010	1.256	0.000	0.042	0.002	1.267 ✔	1.333	H1-3+VT ✔
	34.5448 - 32.9807	0.010	1.260	0.000	0.042	0.002	1.271 ✔	1.333	H1-3+VT ✔
	32.9807 - 31.4165	0.011	1.265	0.000	0.041	0.002	1.276 ✔	1.333	H1-3+VT ✔
	31.4165 - 29.8524	0.011	1.268	0.000	0.041	0.002	1.280 ✔	1.333	H1-3+VT ✔
	29.8524 - 28.2882	0.011	1.272	0.000	0.041	0.002	1.283 ✔	1.333	H1-3+VT ✔
	28.2882 - 26.7241	0.011	1.276	0.000	0.041	0.002	1.287 ✔	1.333	H1-3+VT ✔
	26.7241 - 25.1599	0.011	1.279	0.000	0.041	0.002	1.290 ✔	1.333	H1-3+VT ✔
	25.1599 - 23.5958	0.011	1.282	0.000	0.041	0.002	1.293 ✔	1.333	H1-3+VT ✔
	23.5958 - 22.0317	0.011	1.285	0.000	0.041	0.002	1.296 ✔	1.333	H1-3+VT ✔
	22.0317 - 20.4675	0.011	1.288	0.000	0.040	0.002	1.299 ✔	1.333	H1-3+VT ✔
	20.4675 - 18.9034	0.011	1.290	0.000	0.040	0.002	1.302 ✔	1.333	H1-3+VT ✔

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
	18.9034 - 17.3392	0.011	1.293	0.000	0.040	0.002	1.304 ✔	1.333	H1-3+VT ✔
	17.3392 - 15.7751	0.011	1.295	0.000	0.040	0.002	1.307 ✔	1.333	H1-3+VT ✔
	15.7751 - 14.2109	0.011	1.297	0.000	0.040	0.002	1.309 ✔	1.333	H1-3+VT ✔
L5	14.2109 - 13.1959	0.011	1.215	0.000	0.037	0.002	1.226 ✔	1.333	H1-3+VT ✔
	13.1959 - 12.1808	0.011	1.216	0.000	0.037	0.002	1.227 ✔	1.333	H1-3+VT ✔
	12.1808 - 11.1657	0.011	1.217	0.000	0.037	0.002	1.228 ✔	1.333	H1-3+VT ✔
	11.1657 - 10.1507	0.011	1.219	0.000	0.037	0.002	1.230 ✔	1.333	H1-3+VT ✔
	10.1507 - 9.1356	0.011	1.220	0.000	0.037	0.002	1.231 ✔	1.333	H1-3+VT ✔
	9.1356 - 8.12054	0.011	1.221	0.000	0.037	0.002	1.232 ✔	1.333	H1-3+VT ✔
	8.12054 - 7.10547	0.011	1.222	0.000	0.037	0.002	1.233 ✔	1.333	H1-3+VT ✔
	7.10547 - 6.0904	0.011	1.223	0.000	0.037	0.002	1.235 ✔	1.333	H1-3+VT ✔
	6.0904 - 5.07533	0.011	1.224	0.000	0.037	0.002	1.236 ✔	1.333	H1-3+VT ✔
	5.07533 - 4.06027	0.011	1.225	0.000	0.037	0.002	1.237 ✔	1.333	H1-3+VT ✔
	4.06027 - 3.0452	0.011	1.226	0.000	0.037	0.002	1.238 ✔	1.333	H1-3+VT ✔
	3.0452 - 2.03013	0.011	1.227	0.000	0.037	0.002	1.239 ✔	1.333	H1-3+VT ✔
	2.03013 - 1.01507	0.011	1.228	0.000	0.037	0.002	1.240 ✔	1.333	H1-3+VT ✔
	1.01507 - 0	0.011	1.229	0.000	0.037	0.002	1.241 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	130 - 90	Pole	TP25.1x16.3x0.2	1	-7.57	885.36	87.2	Pass
L2	90 - 62.6094	Pole	TP30.9x24x0.3	2	-11.50	1602.31	93.6	Pass
L3	62.6094 - 43.9297	Pole	TP34.6x30.9x0.4	3	-13.93	2022.24	88.6	Pass
L4	43.9297 - 14.2109	Pole	TP40.6x32.6x0.4	4	-21.37	2526.62	98.2	Pass
L5	14.2109 - 0	Pole	TP43.8x40.6x0.5	5	-24.72	2928.13	93.1	Pass
							Summary	
						Pole (L4)	98.2	Pass
						RATING =	**98.2**	**Pass**

Program Version 6.1.4.1 - 12/30/2013 File:G:/Newburgh/Projects/6644 - HPC-TMobile Phase II/CT11103A/Structural/Rev 1/CT11103A Ridgefield - Structural Analysis R1.eri

FOUNDATION CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

WO#: *6644.CT11103A*
Site Name: *Ridgefield / Downtown 1*

Pole Manufacturer:	*Other*

Anchor Rod Data		
Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	49.75	in

Plate Data		
Diam:	56	in
Thick:	2.5	in
Grade:	50	ksi
Single-Rod B-eff:	11.74	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	43.8	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Reactions		
Moment:	2377	ft-kips
Axial:	25	kips
Shear:	26	kips

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Anchor Rod Results

		Rigid
Maximum Rod Tension:	189.0 Kips	Service, ASD
Allowable Tension:	195.0 Kips	Fty*ASIF
Anchor Rod Stress Ratio:	97.0% **Pass**	

Base Plate Results Flexural Check

		Rigid
Base Plate Stress:	32.3 ksi	Service ASD
Allowable Plate Stress:	50.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	64.7% **Pass**	Y.L. Length: 23.59

n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a

* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

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Tectonic Engineering

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*****************************************************************************************
*                                                                                       *
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*                                                                                       *
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Project Title: RIDGEFIELD / DOWNTOWN 1
Project Notes: 6644.CT11103A

Calculation Method: Full 8CD

******* I N P U T D A T A

Pier Properties

Diameter (ft)	Distance of Top of Pier above Ground (ft)	Concrete Strength (ksi)	Steel Yield Strength (ksi)
6.50	0.20	3.00	60.00

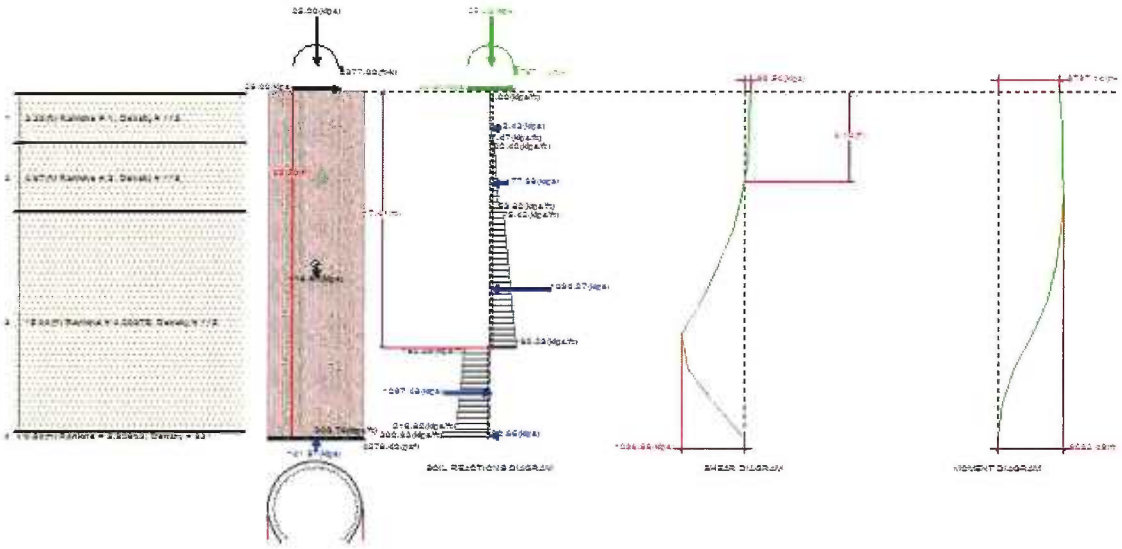
Soil Properties

Layer	Type	Thickness (ft)	Depth at Top of Layer (ft)	Density (lbs/ft^3)	CU (psf)	KP	PHI (deg)
1	Sand	3.33	0.00	115.0	1.000		
2	Sand	4.67	3.33	115.0	3.000		30.00
3	Sand	15.00	8.00	115.0	4.204		38.00
4	Sand	0.50	23.00	93.0	5.828		45.00

Design (Factored) Loads at Top of Pier

Moment (ft-k)	Axial Load (kips)	Shear Load (kips)	Additional Safety Factor Against Soil Failure
2377.0	25.0	26.00	3.70 --> Approximate Lateral Capacity = 54%

******* R E S U L T S



Calculated Pier Properties

Length (ft)	Weight (kips)	Pressure Due To Axial Load (psf)	Pressure Due To Weight (psf)	Total End-Bearing Pressure (psf)
23.500	116.970	753.4	3525.0	4278.4

Ultimate Resisting Forces Along Pier

Type	Distance of Top of Layer to Top of Pier (ft)	Thickness (ft)	Density (lbs/ft^3)	CU (psf)	KP	Force (kips)	Arm (ft)
Sand	0.20	3.33	115.0		1.000	12.43	2.42
Sand	3.53	4.67	115.0		3.000	177.98	6.19
Sand	8.20	9.21	115.0		4.204	1094.27	13.37

Sand	17.41	5.79	115.0	4.204	-1097.48	20.44
Sand	23.20	0.30	93.0	5.828	-90.66	23.35

Shear and Moments Along Pier

Distance below Top of Pier (ft)	Shear (with Safety Factor) (kips)	Moment (with Safety Factor) (ft-k)	Shear (without Safety Factor) (kips)	Moment (without Safety Factor) (ft-k)
0.00	96.5	8797.1	26.1	2377.6
2.35	91.4	9020.3	24.7	2437.9
4.70	53.3	9205.4	14.4	2487.9
7.05	-36.4	9232.5	-9.8	2495.3
9.40	-191.2	8988.8	-51.7	2429.4
11.75	-421.0	8279.7	-113.8	2237.7
14.10	-702.9	6969.3	-190.0	1883.6
16.45	-1036.9	4935.3	-280.2	1333.9
18.80	-953.4	2377.5	-257.7	642.6
21.15	-515.3	641.5	-139.3	173.4
23.50	-25.2	-3.8	-6.8	-1.0

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

WO#: *6644.CT11103A*
Site Name: *RIDGEFIELD / DOWNTOWN 1*

Maximum Shaft Superimposed Forces		
TIA Revision:	F	
Max. Service Shaft M:	2495.3	ft-kips **(* Note)**
Max. Service Shaft P:	25	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Load Factor	Shaft Factored Loads		
1.30	Mu:	3243.89	ft-kips
1.30	Pu:	32.5	kips

Pier Properties		
Concrete:		
Pier Diameter =	6.5	ft
Concrete Area =	4778.4	in^2
Reinforcement:		
Clear Cover to **Tie**=	4.50	in
Horiz. **Tie** Bar Size=	4	
Vert. Cage Diameter =	5.55	ft
Vert. Cage Diameter =	66.59	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	23	
As Total=	35.88	in^2
A s/ Aconc, Rho:	0.0075	0.75%

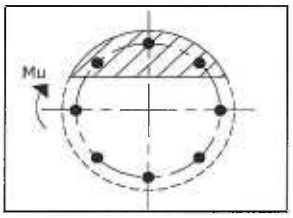
Material Properties		
Concrete Comp. strength, f'c =	3000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	
ACI 318 Code		
Select Analysis ACI Code=	2002	
Seismic Properties		
Seismic Design Category =	B	
Seismic Risk =	**Low**	

Solve (Run) <-- Press Upon Completing All Input

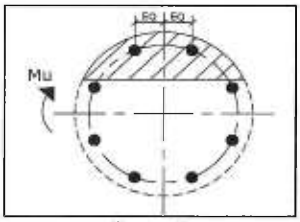
ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
(3)*(Sqrt(f'c)/Fy: 0.0027
200 / Fy: 0.0033

Results:

Governing Orientation Case: **2**



Case 1



Case 2

Dist. From Edge to Neutral Axis: **14.62** in
Extreme Steel Strain, εt: **0.0118**
εt > 0.0050, Tension Controlled
Reduction Factor,φ: **0.900**

Minimum Rho Check:
Actual Req'd Min. Rho: 0.33% Flexural
Provided Rho: 0.75% OK

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	7407.99	kips
at Mu=(ϕ=0.65)Mn=	4121.29	ft-kips
Max Tu, (φ=0.9) Tn =	1937.52	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	32.50	kips
Drilled Shaft Moment Capacity, φMn:	**5023.73**	ft-kips
Drilled Shaft Superimposed Mu:	**3243.89**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**64.6%**

Analysis Date: 5/13/2014

NOTES:
1. CONTRACTOR SHALL IDENTIFY EXISTING CABLES, CABLE ATTACHMENTS, ANTENNAS & ANTENNA SUPPORT FRAMES THAT WILL NEED TO BE TEMPORARILY RELOCATED/PROTECTED FOR INSTALLING THE PROPOSED REINFORCEMENT. WRITTEN AUTHORIZATION FROM THE RESPECTIVE CARRIERS OR OWNERS SHALL BE OBTAINED BY THE CONTRACTOR/CLIENT PRIOR TO PROCEEDING WITH THE WORK.
2. THE PROPOSED POLE REINFORCEMENT IS DESIGNED USING PROPRIETARY SYSTEM "POLEMAX SYSTEMS" AS MANUFACTURED BY AEROSOLUTIONS, LLC. CONNECTION DETAILS AS SHOWN ARE BASED ON MANUFACTURER RECOMMENDATIONS. CONTRACTOR SHALL COORDINATE FINAL INSTALLATION METHOD AND PROCEDURE WITH THE MANUFACTURER (CONTACT NUMBER: 1-720-304-6882).
3. REMOVE AND REPLACE EXISTING STEP BOLTS AS REQUIRED TO ALLOW FOR INSTALLATION OF MONOPOLE REINFORCING.
4. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FROM THE MANUFACTURER TO THE ENGINEER OF RECORD FOR FINAL APPROVAL. ALL INSTALLATIONS SHALL BE BASED ON APPROVED SHOP DRAWINGS.

ORIGINAL SIZE IN INCHES

0 1 2 3

1/S-1 MONOPOLE REINF. ELEVATION

SCALE: 3/16" = 1'-0"

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APPROVALS
T-MOBILE
LANDLORD
RF
CONSTRUCTION

DESIGNED BY: VR
PROJECT NUMBER: 6644.CT11103A

REV	DATE	REVISION	DRAWN BY
2	5/19/14	FOR COMMENT	RT

DRAWN BY
DATE

SITE INFORMATION
CT11103A
RIDGEFIELD / DOWNTOWN 1
76 EAST RIDGE ROAD
RIDGEFIELD, CT 06877

SHEET TITLE
REINFORCING ELEVATION

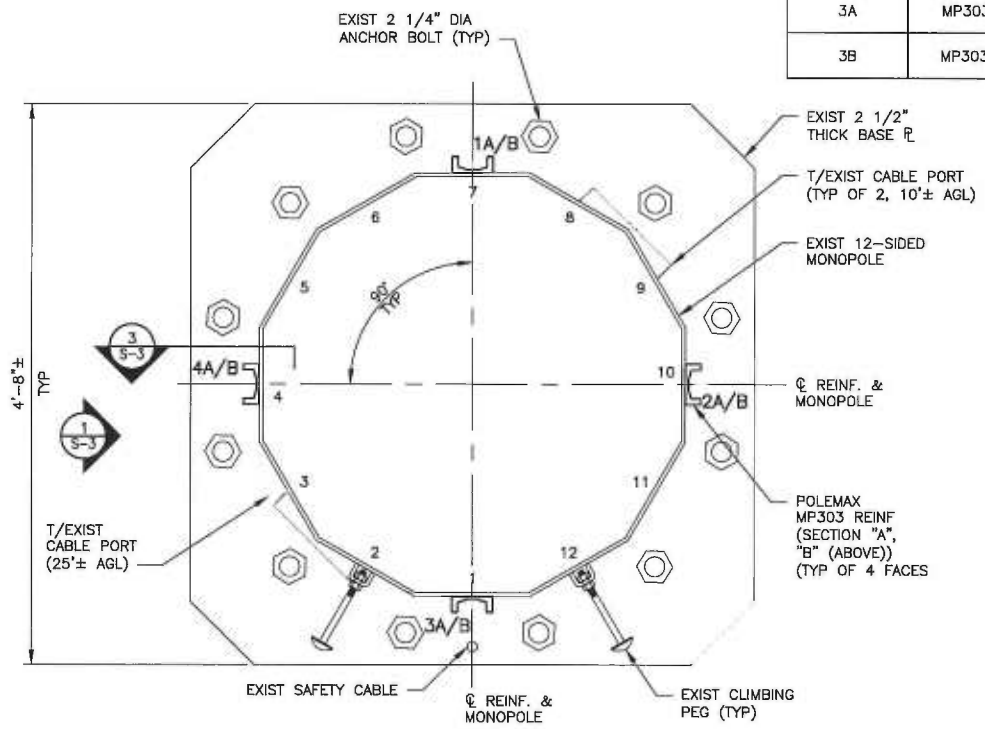
SHEET NUMBER
S-1

N

APPROX.

REINFORCING SCHEDULE

REINFORCING MEMBER NO.	POLEMAX CHANNEL TYPE	ELEVATION (BOT TO TOP) (FROM T/BASE ℄)	REMARKS
1A	MP303–15BC	0'–6" TO 15'–6"	BASE CONNECTION
1B	MP303–20NSI	44'–0" TO 64'–0"	NO SPLICE INDEPENDENT
2A	MP303–15BC	0'–6" TO 15'–6"	BASE CONNECTION
2B	MP303–20NSI	44'–0" TO 64'–0"	NO SPLICE INDEPENDENT
3A	MP303–15BC	0'–6" TO 15'–6"	BASE CONNECTION
3B	MP303–20NSI	44'–0" TO 64'–0"	NO SPLICE INDEPENDENT



NOTE: LOCATION OF PROPOSED REINFORCING CHANNELS IS BASED ON A VISUAL INSPECTION FROM GROUND LEVEL. FINAL LOCATION SHALL BE BASED ON EXISTING FIELD CONDITIONS AND SHALL BE APPROVED BY THE ENGINEER OF RECORD.

1/S-2 REINF SECTION @ BASE PLATE

SCALE: 1" = 1'–0"

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • SURVEYING
• ENGINEERING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567–0656
Fax: (845) 567–8703

T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
6644.CT11103A	VR

REV	DATE	REVISION	DRAWN BY
0	5/19/14	FOR COMMENT	RT

ISSUED BY _____ DATE _____

SITE INFORMATION

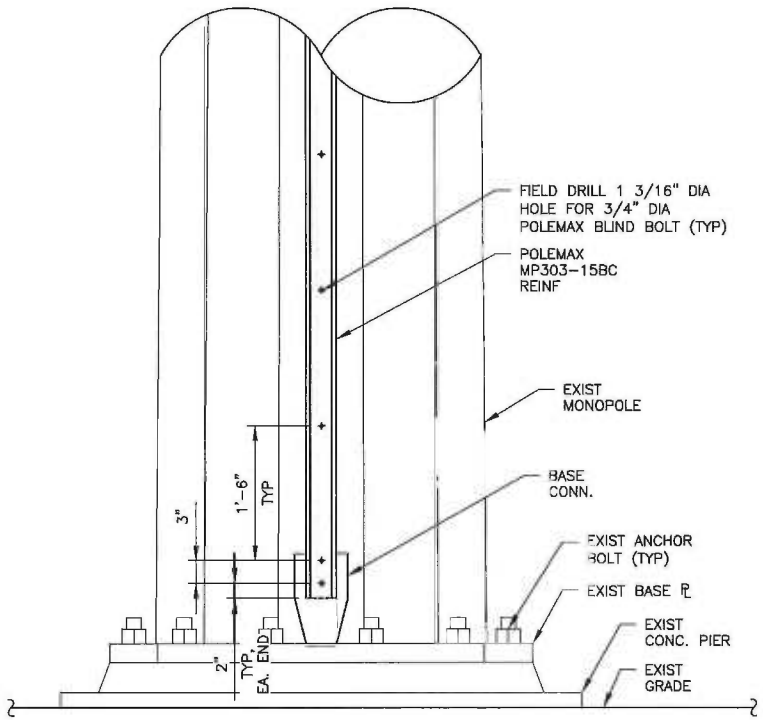
CT11103A
RIDGEFIELD / DOWNTOWN 1
76 EAST RIDGE ROAD
RIDEFIELD, CT 06877

SHEET TITLE

REINFORCING PLAN & SCHEDULE

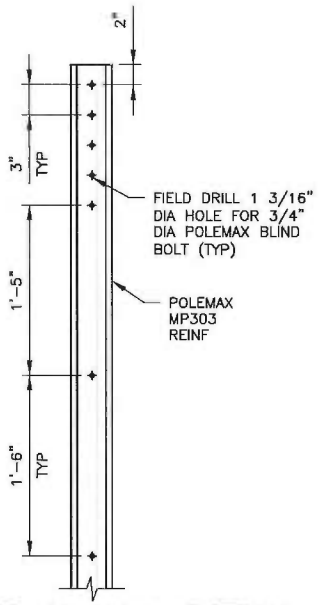
SHEET NUMBER

S–2



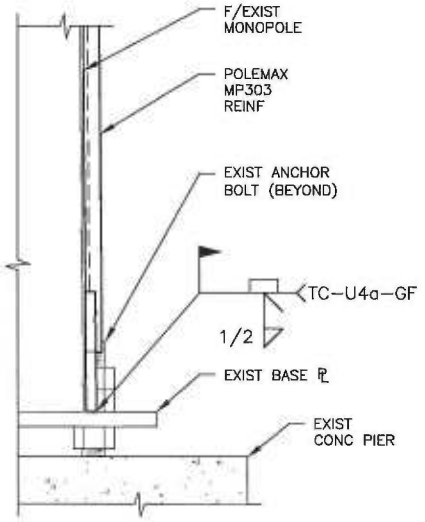
1 S-3 REINF. DETAIL @ BASE

SCALE: 3/4" = 1'-0"



2 S-3 REINF. DETAIL

SCALE: 1" = 1'-0"



3 S-3 SECTION

SCALE: 1" = 1'-0"

0 1 2 3

ORIGINAL SIZE IN INCHES

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• ENGINEERING • CONSTRUCTION MANAGEMENT
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T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE
LANDLORD
RF
CONSTRUCTION

PROJECT NUMBER	DESIGNED BY
6844.CT11103A	VR

REV	DATE	REVISION	DRAWN BY
0	5/19/14	FOR COMMENT	RT

ISSUED BY | DATE

SITE INFORMATION

CT11103A
RIDGEFIELD / DOWNTOWN 1
76 EAST RIDGE ROAD
RIDEFIELD, CT 06877

SHEET TITLE

DETAILS & SECTIONS

SHEET NUMBER

S-3

NOTES

GENERAL

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF 2003 IBC; 2003 IRC (STATE BUILDING CODE, 2005 CONNECTICUT SUPPLEMENT) AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. REINFORCEMENT OF THE EXISTING MONOPOLE HAS BEEN DESIGNED TO SUPPORT THE ANTENNAS AND CABLES LISTED IN THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REVISION 1, DATED 5/19/14.
3. MONOPOLE REINFORCEMENT IS DESIGNED IN CONFORMANCE TO ANSI/TIA-222-G, "STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS".
4. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
5. CONTRACTOR SHALL INSPECT THE EXISTING STRUCTURE PRIOR TO STARTING ANY WORK. IF CONDITIONS OR MATERIALS FOUND IN THE FIELD DIFFER FROM THOSE INDICATED, CONTACT THE ENGINEER FOR APPROVAL.
6. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
9. ALL MONOPOLE REINFORCEMENT SHALL BE COMPLETED PRIOR TO INSTALLATION OF PROPOSED ANTENNAS, MOUNTS, AND CABLES.
10. ALL WORK SHALL BE PERFORMED IN CALM WEATHER, WITH WIND GUSTS LESS THAN 10 MPH.
11. PROVIDE TEMPORARY BRACING, AS REQUIRED, TO MAINTAIN MONOPOLE ALIGNMENT AND PLUMBNESS DURING REINFORCEMENT OF MEMBERS AND FOUNDATION.
12. PROTECT EXISTING CABLES AND EQUIPMENT FROM DAMAGE DURING INSTALLATION OF ANTENNAS AND REINFORCING.
13. GROUNDING SYSTEM SHALL BE CHECKED AND UPGRADED AS NECESSARY, AS DIRECTED BY THE CONSTRUCTION MANAGER.

STEEL

1. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 2005".
2. CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED:
   - A. CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THE CITED AISC SPECIFICATION.
   - B. STRUCTURAL BOLTS SHALL CONFORM TO THE LATEST ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS".
   - C. WHERE THE REACTION VALUES OF BEAMS, BRACING, STRUTS, ETC., ARE NOT SHOWN ON THE DRAWINGS THE CONNECTIONS SHALL BE DESIGNED TO SUPPORT THE END REACTION DERIVED FROM THE TABLES AND FORMULA OF UNIFORM LOAD CONSTANTS IN PART 2, NINTH EDITION, OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN MEMBER SIZE, SPAN, AND YIELD STRENGTH.
   - D. MINIMUM 3/16" FILLET E70-XX WELD SHALL APPLY UNLESS NOTED.
   - E. MINIMUM 1/2" DIA. A325 BOLTS SHALL APPLY UNLESS NOTED.
   - F. MINIMUM SIZE OF CLIP ANGLES SHALL BE L3x3x1/4" UNLESS NOTED.
   - G. ALL GUSSET PLATES SHALL BE 3/8" THICK UNLESS NOTED.
   - H. ALL HOLES FOR BOLTS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER WITH AN EDGE DISTANCE OF AT LEAST 1 1/2 TIMES THE BOLT DIAMETER AND A SPACING OF AT LEAST 3 TIMES THE BOLT DIAMETER. ALL BOLTS SHALL BE PROVIDED WITH PALNUTS OR LOCK NUTS.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 2005".
4. CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED:
5. STEEL ANGLES AND PLATES SHALL CONFORM TO ASTM A36 "CARBON STRUCTURAL STEEL", UNLESS OTHERWISE INDICATED.
6. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZALL BOLTS SHALL BE HIGH STRENGTH BOLTS (HSB) CONFORMING TO ASTM A325 "STRUCTURAL BOLTS, STEEL, HEAT TREATED, 120/105 KSI MINIMUM TENSILE STRENGTH", WITH THREADS EXCLUDED FROM SHEAR PLANES (TYPE X). FULLY THREADED BOLTS (A325T) SHALL NOT BE USED.
7. ALL BOLTS SHALL BE HIGH STRENGTH BOLTS (HSB) CONFORMING TO ASTM A325 "STRUCTURAL BOLTS, STEEL, HEAT TREATED, 120/105 KSI MINIMUM TENSILE STRENGTH", WITH THREADS EXCLUDED FROM SHEAR PLANES (TYPE X). FULLY THREADED BOLTS (A325T) SHALL NOT BE USED.
8. U-BOLTS SHALL CONFORM TO ASTM A36 OR A307 "CARBON STEEL BOLTS AND STUDS, 60,000 PSI TENSILE STRENGTH". INSTALL DOUBLE NUTS ON ALL CONNECTIONS.
9. MATCHING NUTS SHALL BE HEAVY HEX TYPE, CONFORMING TO ASTM A563, "CARBON AND ALLOY STEEL NUTS".
10. ALL U-BOLTS SHALL BE 1/2" DIAMETER IN 9/16" DIAMETER HOLES, UNLESS OTHERWISE NOTED.
11. ALL BOLTS, U-BOLTS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780 "REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS". "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
12. ALL BOLT HOLES SHALL BE DRILLED OR PUNCHED 1/16" LARGER IN DIAMETER THAN THE CONNECTING BOLT, UNLESS OTHERWISE NOTED. THERMAL CUTTING OF HOLES (ARC OR TORCH) IS NOT PERMITTED.
13. ALL CONNECTIONS TO BE SNUG TIGHT TYPE IN ACCORDANCE WITH THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
14. CONTRACTOR SHALL COMPLY WITH AWS D1.1 "STRUCTURAL WELDING CODE - STEEL" FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES".
15. REMOVE ALL GALVANIZING IN AREAS TO BE WELDED BY GRINDING. AFTER WELDING, PROTECT ALL EXPOSED STEEL AND WELDS BY COLD GALVANIZING.
16. SPACES BETWEEN INTERMITTENT WELDS SHALL BE FILLED USING CHEM-CALK 500 AS MANUFACTURED AND MARKETED BY BOSTIK SEALANTS, MIDDLETON, MA 01949 (800) 523-2678 OR APPROVED EQUAL.
17. ALL WELDING TO THE TOWER SHALL BE PERFORMED WITH E70XX LOW HYDROGEN ELECTRODES. LOW HYDROGEN ELECTRODES SHALL BE PURCHASED IN HERMETICALLY SEALED CONTAINERS AND SHALL BE USED WITHIN 4 HOURS AFTER OPENING THE CONTAINER. ELECTRODES NOT USED WITHIN 4 HOURS SHALL BE REDRIED AT A TEMPERATURE BETWEEN 450°F AND 500°F FOR AT LEAST 2 HOURS AND THEN STORED AT 250°F. REDRIED ELECTRODES SHALL BE USED WITHIN 4 HOURS AFTER REMOVAL FROM THE STORAGE OVEN. REDRIED ELECTRODES NOT USED WITHIN 4 HOURS SHALL BE DISCARDED.
18. ALL FIELD WELDING SHALL BE VISUALLY INSPECTED BY AN AWS CERTIFIED WELDING INSPECTOR PRIOR TO INSTALLATION OF THE PROPOSED ANTENNAS.
19. FIELD VERIFY LENGTHS OF ALL MATERIAL PRIOR TO FABRICATION.
20. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.
21. REINFORCING CHANNEL SHALL BE POLEMAX MP3-03 SYSTEM AS MANUFACTURED BY AEROSOLUTIONS, LLC. A SHOP DRAWING DETAILING THE PROPOSED REINFORCING SHALL BE SUPPLIED TO THE CONTRACTOR BY THE MANUFACTURER.
22. BLIND-BOLT FASTENERS SHALL AS MANUFACTURED BY AJAX., OR APPROVED EQUAL.
23. BASE CONNECTIONS, TRANSITION STIFFENERS, AND CHANNEL SPLICES SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

0 1 2 3

ORIGINAL SIZE IN INCHES

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• ENGINEERING • CONSTRUCTION MANAGEMENT
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T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
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REV	DATE	REVISION	DRAWN BY
1	5/19/14	FOR COMMENT	RT

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SITE INFORMATION

CT11103A
RIDGEFIELD / DOWNTOWN 1
76 EAST RIDGE ROAD
RIDEFIELD, CT 06877

SHEET TITLE

NOTES

SHEET NUMBER

S-4

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: CT11103A
Ridgefield/Downtown1

76 East Ridge Road
Ridgefield, CT 06877

May 27, 2014

EBI Project Number: 62143208

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

EBI Consulting
environmental | engineering | due diligence

May 27, 2014

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

Re: Emissions Values for Site: **CT11103A – Ridgefield/Downtown1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 76 East Ridge Road, Ridgefield, 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 76 East Ridge Road, Ridgefield, 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 (1940.000 MHz—to 1950.000 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 **100 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 calculations were done with respect to uncontrolled / general public threshold limits.

Site ID	CT11103A - Ridgefield/Downtown1
Site Addresss	76 East Ridge, Ridgefield, CT 06877
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	100	94	None	0	0	48.326044	1.966217	0.19662%
1b	Ericsson	AIR21 B4A/B2P	Not Used	"	"			0	-3.95	100	94	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	100	94	1-5/8"	0	0	24.163022	0.983109	0.09831%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	100	94	1-5/8"	0	0	24.163022	0.983109	0.09831%
														Sector total Power Density Value:			0.393%

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	100	94	None	0	0	48.326044	1.966217	0.19662%
1b	Ericsson	AIR21 B4A/B2P	Not Used	"	"			0	-3.95	100	94	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	100	94	1-5/8"	0	0	24.163022	0.983109	0.09831%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	100	94	1-5/8"	0	0	24.163022	0.983109	0.09831%
														Sector total Power Density Value:			0.393%

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	100	94	None	0	0	48.326044	1.966217	0.19662%
1b	Ericsson	AIR21 B4A/B2P	Not Used	"	"			0	-3.95	100	94	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	100	94	1-5/8"	0	0	24.163022	0.983109	0.09831%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	100	94	1-5/8"	0	0	24.163022	0.983109	0.09831%
														Sector total Power Density Value:			0.393%

Site Composite MPE %	
Carrier	MPE %
T-Mobile	1.180%
Verizon	28.010%
Sprint	7.150%
Total Site MPE %	36.340%

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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 **1.180% (0.393% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously.

The anticipated composite MPE value for this site assuming all carriers present is **36.340%** of the allowable FCC established general public limit. 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 within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803