STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Internet: ct.gov/csc

Daniel F. Caruso
Chairman

October 24, 2007

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-023-070925** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 540 Cherry Brook Road, Canton, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on October 16, 2007, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated September 25, 2007, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Daniel F. Caruso
Chairman

DFC/MP/cm

c: The Honorable Mary B. Tomolonius, First Selectman, Town of Canton
Neil Pade, Town Planner, Town of Canton
SBA

G:\EM\BAM-VERIZON\CANTON\dc101607.DOC

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
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Daniel F. Caruso
Chairman

October 2, 2007

The Honorable Mary B. Tomolonius
First Selectman
Town of Canton
4 Market Street
P. O. Box 168
Collinsville, CT 06022-0168

RE: **EM-VER-023-070925** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 540 Cherry Brook Road, Canton, Connecticut.

Dear Ms. Tomolonius:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for October 16, 2007, at 2:00 p.m. in Hearing Room Two, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the Council by October 15, 2007

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps

S. Derek Phelps
Executive Director

SDP/cm

Enclosure: Notice of Intent

c: Neil Pade, Town Planner, Town of Canton

ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

EM-VER-023-070925

September 25, 2007

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification**
540 Cherry Brook Road
Canton, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") intends to install antennas on an existing 150-foot self-supporting monopole tower owned by SBA at 540 Cherry Brook Road in Canton, Connecticut. Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that 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 Canton First Selectwoman, Mary B. Tomolonius. Pursuant to Council directive, a copy of this letter is also being sent to the North Canton Fire Department, the owner of the land on which the tower is located.

The facility consists of a 150-foot self-supporting monopole tower capable of supporting multiple carriers within a fenced compound at the North Canton Fire Department, 540 Cherry Brook Road in Canton. The tower is currently shared by AT&T with antennas at the 140-foot level and the Town of Canton with whip antennas extending off the top of the tower. The Council approved Cellco's initial request to place twelve cellular antennas at the 150-foot level of the tower on March 15, 2001 (TS-VER-023-010216-1). The antennas approved through TS-VER-023-010216-1 were never installed. Cellco now intends to move forward with development of this site and install twelve (12) panel-type antennas (six cellular and six PCS) at the 150-foot level on the tower. Cellco will also place a 12' x 30' equipment shelter on the ground at the base of the tower within the existing fenced compound. Cello's back-up generator will be fueled by propane. A 1000-gallon propane tank will also be installed inside to fenced compound. Attached behind Tab 1 are Project Plans for the proposed Cellco installation.

The planned modifications to the Canton 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 overall height of the existing tower. Cellco's antennas will be mounted with their centerline at the 150-foot level on the 150-foot tower.

2. The proposed installation of a 12' x 30' equipment shelter will not require an extension of the fenced compound or lease area.

3. The proposed installation will not increase the noise levels at the facility by six decibels or more.

4. The operation of the antennas will not increase radio frequency ("RF") power density levels at the facility to a level at or above the Federal Communications Commission ("FCC") adopted safety standard. The cumulative worst-case RF power density calculations for the existing antennas and Cellco antennas would be 19.50% of the FCC standard. A copy of the cumulative power density calculations table is attached behind Tab 2.

Also attached, behind Tab 3, is a Structural Analysis confirming that the tower can support the existing and proposed antennas and associated equipment. Please note that the Structural Analysis assumed the previously approved antennas had been installed.

For the foregoing reasons, Cellco respectfully submits that the proposed antenna installation at the facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Joey Lee Miranda

Attachments
Copy to:
Mary B. Tomolonius, Canton First Selectwoman
North Canton Fire Department
Sandy M. Carter

Cellco Partnership

d.b.a. verizon wireless

WIRELESS COMMUNICATIONS FACILITY

NORTH CANTON
540 CHERRY BROOK ROAD
NORTH CANTON, CT 06019

SITE DIRECTIONS

FROM: 99 EAST RIVER DRIVE, EAST HARTFORD, CONNECTICUT TO: 540 CHERRY BROOK ROAD, NORTH CANTON, CONNECTICUT

1. START AT 99 E RIVER DR TOWARD E RIVER DR	<0.1 MI.
2. TURN LEFT ON E RIVER DR.	0.3 MI.
3. TURN LEFT ON CONNECTICUT BLVD (US-44).	0.2 MI.
4. TAKE RAMP ONTO I-84 W.	0.3 MI.
5. TAKE EXIT #50/MAIN ST (I-91 S).	0.2 MI.
6. CONTINUE ON MORGAN ST N (US-44 W).	0.1 MI.
7. BEAR RIGHT TO FOLLOW US-44 W.	2.5 MI.
8. BEAR RIGHT ON BLOOMFIELD AVE(CT-189)	0.8 MI.
9. BEAR LEFT ON CT-185	6.4 MI.
10. BEAR RIGHT ON HOPMEADOW ST(US-202)	0.2 MI.
11. TURN LEFT ON STRATTON BROOK RD	2.6 MI.
12. TURN LEFT ON CT-309	2.9 MI.
13. TURN LEFT ON CHERRY BROOK RD(CT-179)	<0.1 MI.
14. ARRIVE AT 540 CHERRY BROOK RD	

GENERAL NOTES

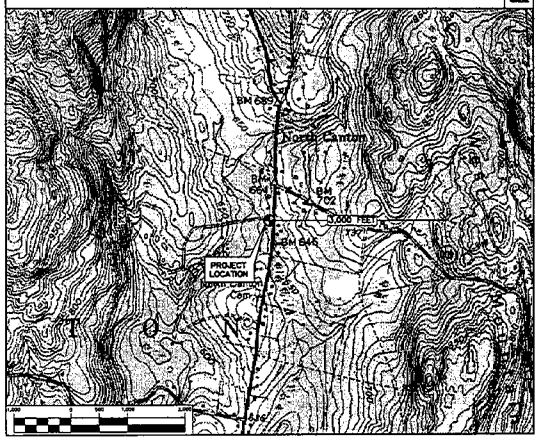
1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELLCO PARTNERSHIP.

PROJECT SCOPE

1. THE PROPOSED SCOPE OF WORK GENERALLY INCLUDES THE INSTALLATION OF A 12'-3.5" PREFABRICATED WIRELESS EQUIPMENT SHELTER ON A CONCRETE FOUNDATION WITHIN THE EXISTING WIRELESS COMMUNICATIONS COMPOUND.
2. A TOTAL OF TWELVE (12) DIRECTIONAL PANEL ANTENNAS ARE PROPOSED TO BE MOUNTED ON AN EXISTING 150' TALL MONOPOLE TOWER AT A RAD CENTER ELEVATION OF 150' ABOVE THE EXISTING TOWER BASE PLATE.
3. ELECTRIC AND TELCO UTILITIES SHALL BE ROUTED UNDERGROUND TO THE PROPOSED EQUIPMENT SHELTER FROM AN EXISTING UTILITY BACKBOARD LOCATED WITHIN THE FENCED COMPOUND.
4. A 1000 GALLON PROPANE TANK IS PROPOSED TO BE MOUNTED ON A CONCRETE PAD WITHIN THE EXISTING FENCED COMPOUND FOR FUELING THE EMERGENCY POWER GENERATOR LOCATED WITHIN THE PROPOSED EQUIPMENT SHELTER.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

SITE NAME:	NORTH CANTON
SITE ADDRESS:	540 CHERRY BROOK ROAD NORTH CANTON, CT 06019
PROPERTY OWNER:	SBA NETWORK SERVICES, INC. 5900 BROKEN SOUND PKWY NW BOCA RATON, FL 33487
LESSEE/ TENANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
CONTACT PERSON:	SANDY CARTER CELLCO PARTNERSHIP (860) 803-6219
TOWER COORDINATES:	LATITUDE: 41°53'38.62" LONGITUDE: 72°53'37.49" COORDINATES BASED ON CSC WEB LOG LAST UPDATED 07/26/07

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
C-1	COMPOUND PLAN AND ELEVATION	0

REVISIONS		
A	08/06/07	CSC - REVIEW
0	09/24/07	CSC

Cellco Partnership
d.b.a. verizon wireless

NATCOMM
CONSULTING ENGINEERS
p: 203.488.0580
f: 203.488.8587
w: natcomm.com
e: info@nat-eng.com
63-2 N. Branford Rd.
Branford, CT 06405

PROFESSIONAL ENGINEER SEAL

NORTH CANTON

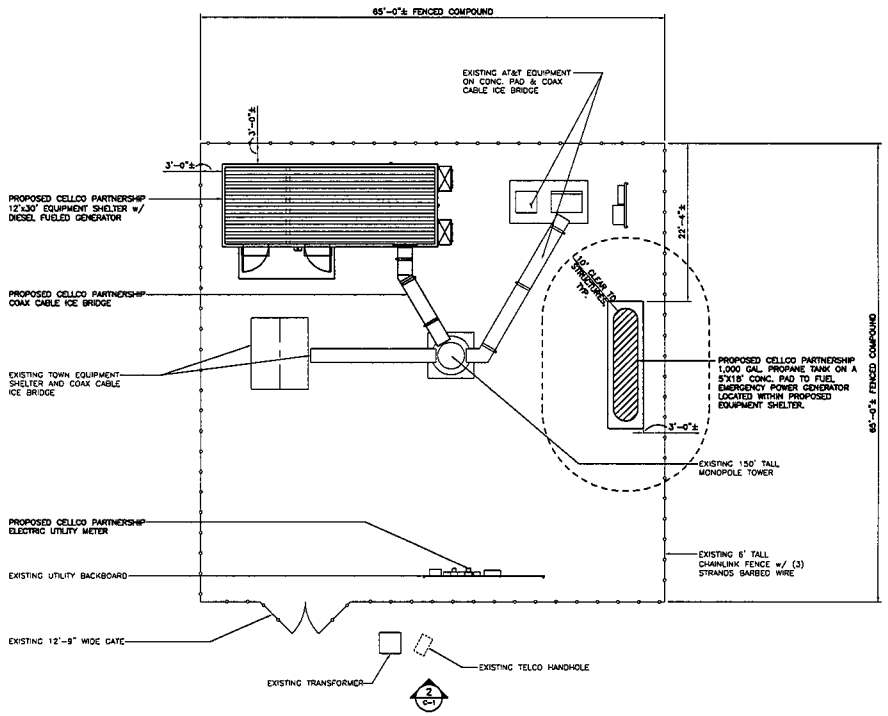
540 CHERRY BROOK ROAD
NORTH CANTON, CT 06019

PROJECT NO:	07069
DRAWN BY:	DEB
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	08/06/07

TITLE SHEET

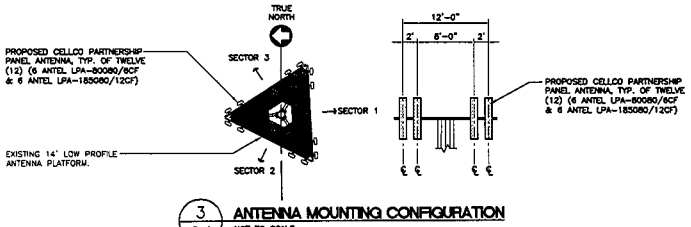
T-1

DWG. 1 OF 2

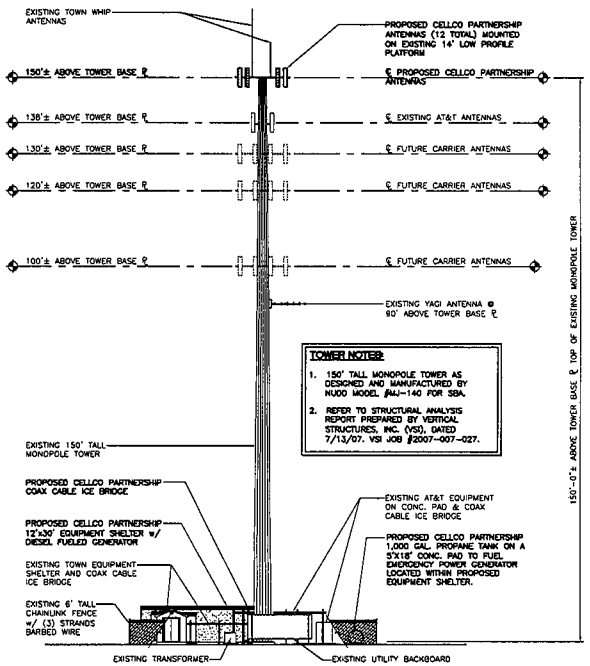


1 C-1 **COMPOUND PLAN** SCALE: 1/8" = 1'-0" TRUE NORTH

GRAPHIC SCALE
(IN FEET)
1/8 inch = 1 ft. 0 inch



3 C-1 **ANTENNA MOUNTING CONFIGURATION** NOT TO SCALE



2 C-1 **WEST ELEVATION** SCALE: 1" = 15'

GRAPHIC SCALE
(IN FEET)
1 inch = 15 ft.

REVISIONS		
A	08/06/07	CSC - REVIEW
0	09/24/07	CSC

Cellco Partnership
d.b.a. verizon wireless

NATCOMM
CONSULTING ENGINEERS
p: 203.488.0580
f: 203.488.8587
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63-2 N. Branford Rd.
Branford, CT 06405

PROFESSIONAL ENGINEER SEAL

NORTH CANTON

540 CHERRY BROOK ROAD
NORTH CANTON, CT 06019

PROJECT NO:	07069
DRAWN BY:	DEB
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	08/06/07

COMPOUND PLAN AND ELEVATION

C-1
DWG. 2 OF 2

	General	Power	Density					
Site Name: North Canton								
Tower Height: Verizon @ 150Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T	16	250	140	0.0734	1945	1.0000	7.34%	
*Town	1	100	150	0.0064	160	0.2000	3.20%	
*Town	1	400	150	0.0032	37.74	0.2000	1.60%	
*Town	1	200	150	0.0003	454	0.3027	0.10%	
Verizon	**9**	**200**	**150**	**0.0288**	**875**	**0.5830**	4.93%	
Verizon PCS	**3**	**485**	**150**	**0.0233**	**1970**	**1.0000**	2.33%	
* Source: Siting Council								
								19.50%

VERTICAL STRUCTURES, INC.

July 13, 2007

Mr. Mark Luther
SBA Network Services
800 South Washington Ave.
Scranton, PA 18505
(570) 558-3450

Subject:

Structural Analysis Report
Verizon Wireless Change-Out
SBA Site Name: Canton 2, CT
SBA Site Number: CT01500-S
150' Nudd MJ-140 Monopole Tower
Vertical Structures Job Number: 2007-007-027

Dear Mr. Luther,

Vertical Structures is pleased to provide you with the results of the structural analysis performed on the 150' tall monopole tower at the Canton 2 site in Canton, Connecticut. The purpose of the analysis was to determine the suitability of the tower upon replacing the twelve (12) existing Decibel DB844H80-XY panel antennas mounted on an existing low-profile platform at 150' with six (6) proposed Antel LPA-80080/6CF panel antennas and six (6) proposed Antel LPA-185080/12CF panel antennas for Verizon Wireless when combined with the existing and reserved equipment on the structure. This analysis has been performed in accordance with the TIA/EIA-222-F standard and local code requirements based upon an 80 MPH basic "fastest mile" wind speed, equivalent to a 95 MPH basic "3-second gust" wind speed per IBC Table 1609.3.1.

Based on our analysis we have determined the tower superstructure and foundation are sufficient for the existing and proposed loading.

Vertical Structures appreciates the opportunity to provide this report and our continuing professional services. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

Craig Aseltyne, P.E.
Project Engineer

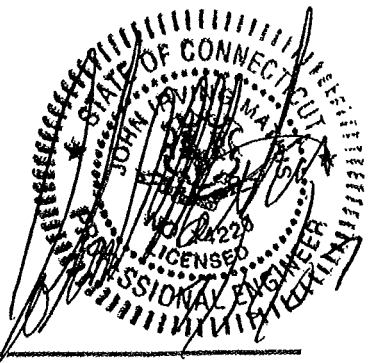


TABLE OF CONTENTS

INTRODUCTION

The subject tower is located in Canton Center, Connecticut. The 150' tall Nudd MJ-140 monopole tower was designed and manufactured in 2000 for SBA. The tower consists of three (4) 18-sided tapered polygonal sections joined via slip joint connections and one (1) pipe section joined via a bolted flange connection. The tower is founded on a 30' square by 4' thick mat bearing 6' below grade.

ANALYSIS CRITERIA

The Canton 2 monopole tower was analyzed in accordance with the current EIA-222-F publication, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures." The existing and proposed antennas, lines and mounts considered in this analysis are listed in Table 1. Applied forces were derived from an 80 MPH basic "fastest mile" wind speed with no ice and a reduced 69 MPH basic "fastest mile" wind speed with a 1/2" of radial ice accumulation. The tower was originally designed for an 80 MPH basic "fastest mile" wind speed with no ice and a reduced 69 MPH basic "fastest mile" wind speed with a 1/2" of radial ice accumulation. The original design loads are listed in Table 2. The EIA minimum basic wind speed for Hartford County, Connecticut is 80 MPH. All coax are assumed to be routed up the interior of the pole unless otherwise noted.

Table 1 – Proposed, Existing, and Reserved Loads

Mount Elevation	Carrier Name	Status	Antennas	Mounts	Feedlines
150'	Verizon Wireless	**Proposed**	**(6) Antel LPA-80080/6CF Panels**		
			(6) Antel LPA-185080/12CF Panels		
		Remove	**(12) Decibel DB844H80-XY Panels**		
		Existing		(1) Nudd 14' L.P. Platform	(12) 1 5/8" Coax
	NCVFD	Existing	(1) Celwave PD220 Omni		(2) 1 5/8" Coax
			(1) Celwave TD1142 Omni		
138'	AT&T	Existing	(3) Allgon 7250 Panels	(3) 2' Sidearms	(6) 1 5/8" Coax
		Reserved	(3) Allgon 7250 Panels	(1) L.P. Platform	(6) 1 5/8" Coax
			(3) Decibel 978QNB120E-M		(3) 1/2" Coax

Table 2 – Original Design Loads

Mount Elevation	Carrier Name	Status	Antennas	Mounts	Feedlines
150'		Design	(12) Decibel DB896 Panels	14' L.P. Platform	(14) 1 5/8" Coax
			(1) Celwave PD220 Omni		
			(1) Celwave TD1142 Omni		
141'		Design	(12) Decibel DB896 Panels	14' L.P. Platform	(12) 1 5/8" Coax
130'		Design	(12) Decibel DB896 Panels	14' L.P. Platform	(12) 1 5/8" Coax
120'		Design	(12) Decibel DB896 Panels	14' L.P. Platform	(12) 1 5/8" Coax
100'		Design	(12) Decibel DB896 Panels	14' L.P. Platform	(12) 1 5/8" Coax
90'		Design	(1) MYA 4505		(1) 1 5/8" Coax

ANALYSIS PROCEDURE

Table 3 – Resources Utilized

Resource	Remarks
Proposed Loads	SBA E-mail
Existing Loads	SBA E-mail
Tower Drawings	Nudd Drawing No. 00-7221-1
Foundation Drawings	Nudd Drawing No. 00-7221-1
Geotechnical Report	Jaworski Geotech Project No. 99336G

Analysis Methods

RISA Tower (Version 5.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA-222-F or the local building code requirements. Selected output from the analysis is included in Appendix A.

Assumptions

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 1 and any referenced drawings.
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222-F.

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

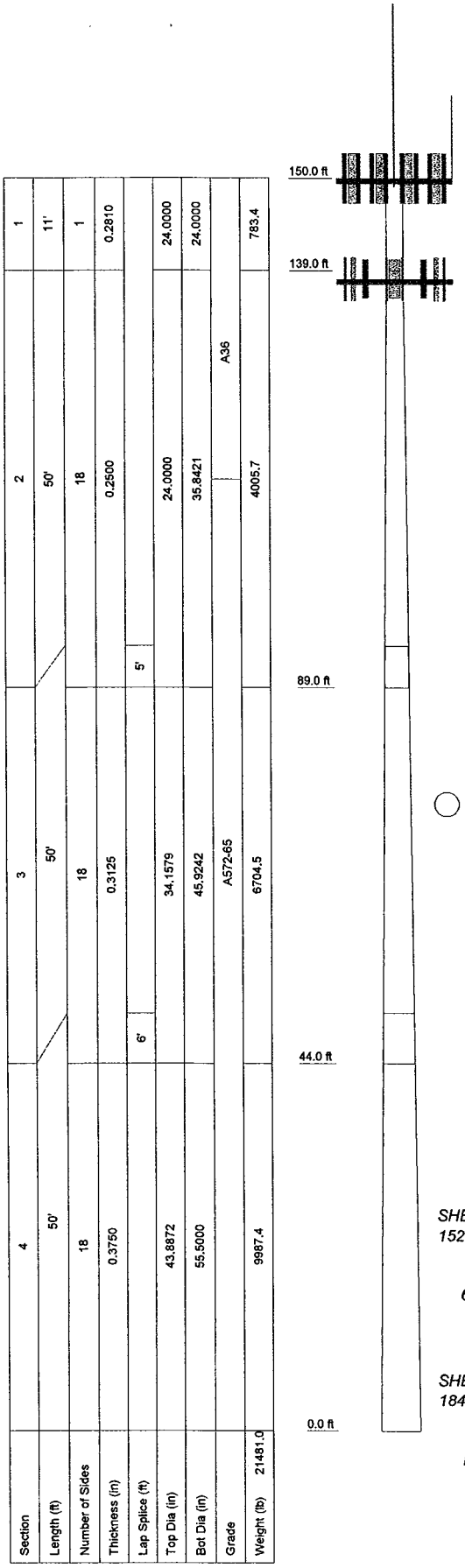
ANALYSIS RESULTS

The Canton 2 tower superstructure is found to be adequate for the intended loading at the wind and ice conditions considered. Calculated foundation reactions are within the allowable limits based on the geotechnical information provided. Table 4 summarizes the condition of the tower. Capacities up to 105% are considered acceptable based on the analysis procedures used.

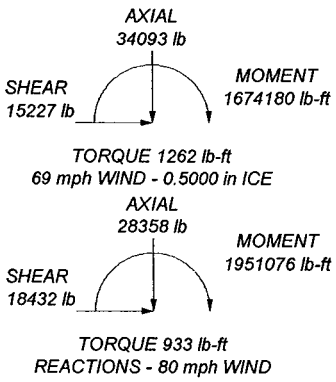
Table 4 – Tower Component Capacities

Section Number	Elevation	Percent Capacity Used		
		Pole	Flange Plate	Splice Bolts
1	150' – 139'	20.8	55.7	55.7
2	139' – 89'	53.1	-	-
3	89' – 44'	54.5	-	-
4	44' – 0'	51.2	-	-
Anchor Bolts – Tension		47.7		
Base Plate – Bending		98.0		
Foundation – Moment		29.2		

APPENDIX A



Section	1	2	3	4
Length (ft)	11'	50'	50'	50'
Number of Sides	1	18	18	18
Thickness (in)	0.2810	0.2500	0.3125	0.3750
Lap Splice (ft)		5'	6'	
Top Dia (in)	24.0000	24.0000	34.1579	43.8872
Bot Dia (in)	24.0000	35.8421	45.9242	55.5000
Grade	A36	A36	A572-65	21481.0
Weight (lb)	783.4	4005.7	6704.5	9987.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Nudd 14' Low Profile Platform (VSI) (Verizon Wireless)	150	(2) LPA-185080/12CF w/Mount Pipe (Verizon Wireless)	150
(2) LPA-80080/8CF w/Mount Pipe (Verizon Wireless)	150	TD1142 (NCVFD)	150
(2) LPA-80080/8CF w/Mount Pipe (Verizon Wireless)	150	PD220 (NCVFD)	150
(2) LPA-80080/8CF w/Mount Pipe (Verizon Wireless)	150	Pirod 15' Low Profile Platform (VSI) (ATI)	138
(2) LPA-80080/12CF w/Mount Pipe (Verizon Wireless)	150	(2) 7250.00 w/Mount Pipe (ATI)	138
(2) LPA-185080/12CF w/Mount Pipe (Verizon Wireless)	150	(2) 7250.00 w/Mount Pipe (ATI)	138
		(2) 7250.00 w/Mount Pipe (ATI)	138
		978QNB120E-M w/Mount Pipe (ATI)	138
		978QNB120E-M w/Mount Pipe (ATI)	138
		978QNB120E-M w/Mount Pipe (ATI)	138

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 54.5%

Vertical Structures, Inc.
309 Spangler Drive, Suite E
Richmond, KY 40475
Phone: (859) 624-8360
FAX: (859) 624-8369

Job: *Canton 2, CT (CT01500-S)*		
Project: *Vertical Structures Job No. 2007-007-027*		
Client: SBA	Drawn by: Asel	App'd:
Code: TIA/EIA-222-F	Date: 07/13/07	Scale: NTS
Path:		Dwg No. E-1

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 69 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, feedline supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation 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	150'-139'	11'	0'	Round	24.0000	24.0000	0.2810		A36 (36 ksi)
L2	139'-89'	50'	5'	18	24.0000	35.8421	0.2500	1.0000	A572-65 (65 ksi)
L3	89'-44'	50'	6'	18	34.1579	45.9242	0.3125	1.2500	A572-65 (65 ksi)
L4	44'-0'	50'		18	43.8872	55.5000	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.0000	20.9282	1473.6284	8.3965	12.0000	122.8024	2943.2423	10.4632	0.0000	0
	24.0000	20.9282	1473.6284	8.3965	12.0000	122.8024	2943.2423	10.4632	0.0000	0
L2	24.3702	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	36.3950	28.2423	4520.0706	12.6352	18.2078	248.2493	9046.0889	14.1238	5.8682	23.473
L3	35.8796	33.5704	4858.3966	12.0151	17.3522	279.9872	9723.1860	16.7884	5.4618	17.478
	46.6327	45.2411	11891.1312	16.1922	23.3295	509.7038	23797.9091	22.6249	7.5327	24.105
L4	45.9793	51.7904	12388.2527	15.4468	22.2947	555.6586	24792.8061	25.9001	7.0642	18.838
	56.3562	65.6125	25189.6102	19.5694	28.1940	893.4387	50412.3656	32.8125	9.1080	24.288

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 150'-139'				1	1	1		
L2 139'-89'				1	1	1		
L3 89'-44'				1	1	1		
L4 44'-0'				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A (1-5/8 FOAM) (Verizon Wireless)	C	No	Inside Pole	150' - 5'	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM) (NCVFD) ****	C	No	Inside Pole	150' - 5'	2	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM) (AT&T)	C	No	Inside Pole	138' - 5'	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF4-50A (1/2 FOAM) (AT&T)	C	No	Inside Pole	138' - 5'	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15

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 lb
L1	150'-139'	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	126.28
L2	139'-89'	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1078.21
L3	89'-44'	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C	0.000	0.000	0.000	0.000	979.65
L4	44'-0'	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	849.03

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 lb
L1	150'-139'	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	126.28
L2	139'-89'	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1078.21
L3	89'-44'	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	979.65
L4	44'-0'	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	849.03

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150'-139'	0.0000	0.0000	0.0000	0.0000
L2	139'-89'	0.0000	0.0000	0.0000	0.0000
L3	89'-44'	0.0000	0.0000	0.0000	0.0000
L4	44'-0'	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Nudd 14' Low Profile Platform (VSI) (Verizon Wireless)	C	None		0.0000	150'	No Ice 1/2" Ice	32.00 42.00	32.00 42.00	1350.00 1750.00
(2) LPA-80080/8CF w/Mount Pipe (Verizon Wireless)	A	From Centroid-Leg	4.00 0' 0'	0.0000	150'	No Ice 1/2" Ice	6.31 6.89	14.07 15.56	53.20 134.40
(2) LPA-80080/8CF w/Mount	B	From	4.00	0.0000	150'	No Ice	6.31	14.07	53.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Pipe		Centroid-	0'			1/2" Ice	6.89	15.56	134.40
(Verizon Wireless)		Leg	0'						
(2) LPA-80080/8CF w/Mount	C	From	4.00	0.0000	150'	No Ice	6.31	14.07	53.20
Pipe		Centroid-	0'			1/2" Ice	6.89	15.56	134.40
(Verizon Wireless)		Leg	0'						
(2) LPA-185080/12CF	A	From	4.00	0.0000	150'	No Ice	3.55	5.99	32.40
w/Mount Pipe		Centroid-	0'			1/2" Ice	3.99	6.94	72.35
(Verizon Wireless)		Leg	0'						
(2) LPA-185080/12CF	B	From	4.00	0.0000	150'	No Ice	3.55	5.99	32.40
w/Mount Pipe		Centroid-	0'			1/2" Ice	3.99	6.94	72.35
(Verizon Wireless)		Leg	0'						
(2) LPA-185080/12CF	C	From	4.00	0.0000	150'	No Ice	3.55	5.99	32.40
w/Mount Pipe		Centroid-	0'			1/2" Ice	3.99	6.94	72.35
(Verizon Wireless)		Leg	0'						
****									
TD1142	B	From	8.00	0.0000	150'	No Ice	2.08	2.08	15.00
(NCVFD)		Centroid-	0'			1/2" Ice	4.30	4.30	40.00
		Face	5'						
PD220	C	From	8.00	0.0000	150'	No Ice	3.08	3.08	23.00
(NCVFD)		Centroid-	0'			1/2" Ice	5.30	5.30	48.68
		Face	10'						
****									
Pirod 15' Low Profile	C	None		0.0000	138'	No Ice	17.30	17.30	1500.00
Platform (VSI)						1/2" Ice	22.10	22.10	2030.00
(AT&T)									
(2) 7250.00 w/Mount Pipe	A	From	4.00	0.0000	138'	No Ice	4.45	3.54	40.95
(AT&T)		Centroid-	0'			1/2" Ice	5.03	4.72	76.25
		Leg	0'						
(2) 7250.00 w/Mount Pipe	B	From	4.00	0.0000	138'	No Ice	4.45	3.54	40.95
(AT&T)		Centroid-	0'			1/2" Ice	5.03	4.72	76.25
		Leg	0'						
(2) 7250.00 w/Mount Pipe	C	From	4.00	0.0000	138'	No Ice	4.45	3.54	40.95
(AT&T)		Centroid-	0'			1/2" Ice	5.03	4.72	76.25
		Leg	0'						
978QNB120E-M w/Mount	A	From	4.00	0.0000	138'	No Ice	9.13	5.48	65.55
Pipe		Centroid-	0'			1/2" Ice	9.85	6.57	128.40
(AT&T)		Leg	0'						
978QNB120E-M w/Mount	B	From	4.00	0.0000	138'	No Ice	9.13	5.48	65.55
Pipe		Centroid-	0'			1/2" Ice	9.85	6.57	128.40
(AT&T)		Leg	0'						
978QNB120E-M w/Mount	C	From	4.00	0.0000	138'	No Ice	9.13	5.48	65.55
Pipe		Centroid-	0'			1/2" Ice	9.85	6.57	128.40
(AT&T)		Leg	0'						

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice

Comb. No.	Description
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	150 - 139	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-4153.32	-277.13	-229.45
			Max. Mx	5	-2415.35	-66100.91	-87.20
			Max. My	8	-2415.34	-71.86	-66121.05
			Max. Vy	5	6139.05	-66100.91	-87.20
			Max. Vx	8	6139.05	-71.86	-66121.05
			Max. Torque	22			1265.48
L2	139 - 89	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-12358.05	-277.16	-229.47
			Max. Mx	5	-8763.32	-526810.26	-116.23
			Max. My	8	-8763.30	-97.04	-526830.85
			Max. Vy	5	11802.29	-526810.26	-116.23
			Max. Vx	8	11802.29	-97.04	-526830.85
			Max. Torque	22			1265.40
L3	89 - 44	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-20665.78	-277.20	-229.50
			Max. Mx	5	-16183.69	-1115938.97	-126.58

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	8	-16183.69	-106.00	-1115959.84
			Max. Vy	5	14969.33	-1115938.97	-126.58
			Max. Vx	8	14969.34	-106.00	-1115959.84
			Max. Torque	16			-1263.53
L4	44 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-34093.46	-277.24	-229.54
			Max. Mx	5	-28349.77	-1950907.79	-127.68
			Max. My	8	-28349.77	-106.93	-1950928.79
			Max. Vy	5	18444.03	-1950907.79	-127.68
			Max. Vx	8	18444.03	-106.93	-1950928.79
			Max. Torque	16			-1262.34

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	150 - 139 (1)	TP24x24x0.281	11'	0'	0.0	21.600	20.9282	-2415.26	452050.00	0.005
L2	139 - 89 (2)	TP35.8421x24x0.25	50'	0'	0.0	39.000	27.3027	-8763.22	1064800.00	0.008
L3	89 - 44 (3)	TP45.9242x34.1579x0.3125	50'	0'	0.0	39.000	43.8406	-16183.70	1709780.00	0.009
L4	44 - 0 (4)	TP55.5x43.8872x0.375	50'	0'	0.0	39.000	65.6125	-28349.80	2558890.00	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	150 - 139 (1)	TP24x24x0.281	66159.75	-6.465	23.760	0.272	0.00	0.000	23.760	0.000
L2	139 - 89 (2)	TP35.8421x24x0.25	526896.67	-27.259	39.000	0.699	0.00	0.000	39.000	0.000
L3	89 - 44 (3)	TP45.9242x34.1579x0.3125	1116066.67	-27.987	39.000	0.718	0.00	0.000	39.000	0.000
L4	44 - 0 (4)	TP55.5x43.8872x0.375	1951075.00	-26.205	39.000	0.672	0.00	0.000	39.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 139 (1)	TP24x24x0.281	0.005	0.272	0.000	0.277 ✔	1.333	H1-3 ✔
L2	139 - 89 (2)	TP35.8421x24x0.25	0.008	0.699	0.000	0.707 ✔	1.333	H1-3 ✔
L3	89 - 44 (3)	TP45.9242x34.1579x0.3125	0.009	0.718	0.000	0.727 ✔	1.333	H1-3 ✔
L4	44 - 0 (4)	TP55.5x43.8872x0.375	0.011	0.672	0.000	0.683 ✔	1.333	H1-3 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	150 - 139	Pole	TP24x24x0.281	1	-2415.26	602582.62	20.8	Pass
L2	139 - 89	Pole	TP35.8421x24x0.25	2	-8763.22	1419378.34	53.1	Pass
L3	89 - 44	Pole	TP45.9242x34.1579x0.3125	3	-16183.70	2279136.65	54.5	Pass
L4	44 - 0	Pole	TP55.5x43.8872x0.375	4	-28349.80	3411000.23	51.2	Pass
							Summary	
						Pole (L3)	54.5	Pass
						RATING =	**54.5**	**Pass**