Village of Bayside
Plan Commission Meeting
October 17, 2019
Village Board Room, 5:45 pm

PLAN COMMISSION
AGENDA

PLEASE TAKE NOTICE that a meeting of the Village of Bayside Plan Commission will be held at the Bayside Village Hall, 9075 North Regent Road, Bayside, Wisconsin at the above noted time and date, at which the following items of business will be discussed and possibly acted upon:

I. **CALL TO ORDER AND ROLL CALL**

II. **APPROVAL OF MINUTES**

A. Plan Commission meeting minutes, August 6, 2019.

III. **BUSINESS**

A. Discussion/Recommendation on Amended Conditional Use Permit for 877 W Glencoe Place to replace and upgrade equipment on existing cell tower.

IV. **ANY OTHER BUSINESS AS MAY PROPERLY COME BEFORE THE COMMISSION**

V. **ADJOURNMENT**

Lynn Galyardt
Administrative Services Director
October 10, 2019

Upon reasonable notice, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. Contact Village Hall at 414-206-3915. It is possible that members of and possibly a quorum of members of other Boards, Commissions, or Committees of the Village including in particular the Board of Trustees may be in attendance in the above-stated meeting to gather information; no action will be taken by any other Boards, Commissions, or Committees of the Village except by the Board, Commission, or Committee noticed above. Agendas and minutes are available on the Village website (www.bayside-wi.gov)

Village of Bayside
Plan Commission Meeting Minutes
August 6, 2019

I. CALL TO ORDER

President Dickman called the meeting to order at 6:00pm

II. ROLL CALL

Chairman:	Sam Dickman	Jeff Jubelirer
Commissioners:	Edward Harris	Ari Friedman-excused
	John Krampf	Marisa Roberts
	Robb DeGraff	

Also present:
Village Manager Andy Pederson
Administrative Services Director Lynn Galyardt
Assistant Village Manager La'Neka Horton
Assistant to Administrative Service Director Richard Kerns
Village Attorney Chris Jaekels
There were 120 people in the audience

III. INFORMAL PUBLIC HEARING

A. Request for a Planned Unit Development District bounded by N. Port Washington Road, W. Brown Deer Road, W. White Oak Lane, and U.S. Highway Interstate 43 North.

Attorney Jaekels outlined the details of the process regarding the request for a Planned Unit Development District bounded by N. Port Washington Road, W. Brown Deer Road, W. White Oak Lane, and U.S. Highway Interstate 43 North.

Scott Yauck, President and Chief Executive Officer of Cobalt Partners provided an overview of the requested development parameters. Mr. Yauck stated the request is to create two zones for development generally bounded by N. Port Washington Road, W. Brown Deer Road, W. White Oak Lane and U.S. Highway Interstate 43 North.

The following people spoke at the meeting:
Robert F. Kohn, 8904 N Port Washington Rd
Barbara J. Becker, 9733 N Lake Dr
Ellen Daroga, 8950 N Bayside Dr
Ralph H. McClure, 8926 N King Dr
Kait Krueger, 664 W Aspenwood Ct
Kari Schmidt, 510 W Manor Cir
R. J. Siegel, 9260 N Pelham Pkwy
Mark Schrager, 9059 N Meadowlark Ln
Ellen La Fouge, 9154 N Fielding Rd
Sheila Schmitz-Lammers, 849 E Fairy Chasm Rd

provide a traffic study, review height of buildings, green space percentage, storm water discharge, and lighting spilling onto neighboring facilities within the next month.

VI. ANY OTHER BUSINESS AS MAY PROPERLY COME BEFORE THE COMMISSION

There was none.

VII. ADJOURNMENT

Motion by Chairman Dickman, seconded by Commissioner Harris, to adjourn the meeting at 8:00pm. Motion carried unanimously.

Lynn Galyardt
Administrative Services Director

Jennifer Nissen, 235 W Manor Cir
Gerald Feldman, 133 E Glencoe Pl
Gina Kilian, 1110 E Standish Pl
F. Tessa Bartels, 208 E Ravine Baye Rd
Hal Buell, 9481 N Sequoia Dr
Mary K Mc Cann, 9490 N Sleepy Hollow Ln
Pam Ringsred, 565 E Glencoe Pl
David Frick, 9317 N Lake Dr
Steve Schultz, 9359 N Lake Dr
Elizabeth Levins, 825 E Donges Rd
Linda Hauke, 9555 N Sequoia Dr
Mark McCormick, 809 E Ellsworth Ln
Herb Zien, 825 E Donges Rd
Gail Becker, 9280 N Lake Dr
Chris Marks, 306 W Ellsworth Ln
Karen Siegel, 9260 N Pelham Pkwy
Marcie Mangas Prill, 9109 N Bayside Dr

Chairman Dickman closed the public hearing at 7:31pm.

IV. APPROVAL OF MINUTES

A. Plan Commission meeting minutes, June 18, 2019.

Motion by commissioner Harris, seconded by Commissioner Jubelirer, to approve the June 18, 2019 Plan Commission Public Hearing and Meeting minutes. Motion carried unanimously.

V. BUSINESS

A. Discussion/Recommendation on Amended Conditional Use Permit for 8989 N Port Washington Road to replace and upgrade equipment on existing cell tower.

Manager Pederson stated the request of the amended Conditional Use Permit is for ATT to upgrade its equipment on the existing cell tower.

Motion by Commissioner DeGraff, seconded by Commissioner Krampf, to recommend approval to the Board of Trustees on the request for an amended Conditional Use Permit for 8989 N Port Washington Road to replace and upgrade equipment on existing cell tower. Motion carried unanimously.

B. Discussion on Proposed Planned Unit Development District Presentation by Cobalt Partners LLC and La Macchia Holdings LLC for proposed planned unit development generally bounded by N. Port Washington Road, W. Brown Deer Road, W. White Oak Lane, and U.S. Highway Interstate 43 North.

The committee discussed the Proposed Planned Unit Development presented by Cobalt Partners LLC and questioned Mr. Yauck on the height of the buildings, aesthetic appearance, impervious surface, municipal water source, and how the area would be luminated. Chairman Dickman requested that staff provide additional information to the committee on parking,

Village of BAYSIDE

CONDITIONAL USE PERMIT APPLICATION

PLEASE PRINT OR TYPE

Applicant Name(s) Sprint C/O NTP Wireless attn: Kyra Ambrose

Name of business or development Sprint

Address of proposed business Cellular Antenna site, Bayside, WI 53217

Applicant address 125 S Clark St. Chicago, IL 60616

Applicant phone number(s) 773-941-6973

Property owner name Same as Applicant

Property owner address _____ Phone number _____

Parcel number _____

Conditional Use Permit Plan of Operation

Please Answer all questions and attach additional sheets as necessary. If you do not answer a question, provide a justification for why it does not apply to you.

New Conditional Use Permit ☐ **Amended Conditional Use Permit** ☑

Address of Business: 877 W. Glencoe Place. Bayside, WI 53217

Brief overview of specific uses of entire property or lease space and summary of type of business planned: Sprint is proposing to do an antenna & equipment upgrade.

A brief description of on-site operations:

Legal description of property:

Tax Key ID Number/Parcel Number:

Zoning of property:

Lot size or lease space size (in square feet): 12'x11' 132 sq ft.

Building dimensions and number of floors: N/A

Total floor area (in square feet): N/A

Number of shifts and maximum number of employees per shift: N/A

Days and hours of operation: N/A

Frequency of deliveries to site and type(s) of vehicles that will deliver: Technicians visit the site approximately once per month in a van-sized vehicle.

Projected traffic circulation: N/A

Signage (type, lighting, size, location, existing or new etc.) *All signs must be approved by the ARC: No new signage is proposed. All existing signs are in accordance with FCC regulations.

Describe proposed on-site security measures: The site is entirely self-monitored. The site has an alarm system which is connected to a regional switch office.

Describe the noise, odors, glare, dust, potential fire hazards, or smoke resulting from the proposed use: None. Site has existing wireless telecommunications facility.

Status of interior plans requiring State approval: N/A

Status of State License(s) and/or Certificate(s) required for operation: N/A

List the timetable for completion of all building construction or interior construction/remodeling and the anticipated opening date: TBD upon approval and order of equipment.

Anticipated maximum number of facility users and visitors at one time (including special events): N/A

Total number of estimated parking spots needed for operation: None

Dumpster enclosure and trash removal: N/A

Does the applicant have the legal authority to act for and obligate the company or corporation? Yes X No____

Does the applicant have the legal authority to act for and obligate the property owner? Yes X No____

Is the property owner(s) knowledgeable of the request for a Conditional Use? Yes X No____

Does the property owner agree with the Conditional Use request? Yes X No____

Signature of applicant (s)_____ Date 9/20/19

*Attach a legal description of the property requested for a conditional use, a plat of survey of the property, and a drawing of any proposed development.

OFFICE USE ONLY:

Application received by:	9/23/19	$300.00 application fee:	DD 9/23/19
Public Hearing date:	n/a	$100.00 occupancy permit fee:	_____
Board of Trustees Meeting:	_____	Approved by Board of Trustees:	_____
Occupancy Permit Issued?:	_____	NSFD Permit Issued?:	_____

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

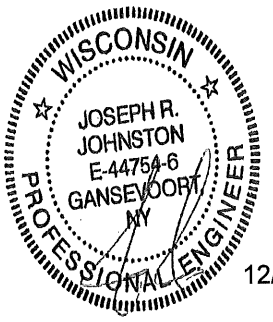
1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Structural Analysis Report

December 4, 2018

Site ID	ML03XC113
Infinigy Job Number	3086-B0002-B
Client	NTP Wireless
Proposed Carrier	Sprint
Site Location	877 W. Glencoe Place, Bayside, WI 53217 43° 10' 43.9" N NAD83 87° 55' 3.5" W NAD83
Structure Type	116' Monopole
Structural Usage Ratio	**94.7%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.



12/4/18

Ian Geery
Structural Engineer II

Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 116' Monopole. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnxTower version 8.0.2.1 tower analysis software.

Supporting Documentation

Construction Drawings	Infinigy CDs, dated December 5, 2017
Previous Analysis	W-T Job #T140908, dated March 27, 2015
Previous Analysis	Infinigy SA, dated May 18, 2018
Tower Drawings	EEI Job # WI 1854, dated July 26, 1996
Tower Loading Form	Semaan Engineering solutions, Inc., dated October 9, 2018

Analysis Code Requirements

Wind Speed	90 mph (3-Second Gust, V_{ASD}) / 115 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	30 mph (3-Second Gust, V_{ASD}) w/ 3/4" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC
Structure Class	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Ian Geery
Structural Engineer II | **INFINIGY**
4636 E University Dr, Phoenix, AZ 85034
(M) (623) 670-2138
igeery@infinigy.com | www.infinigy.com

Existing and Reserved Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
115.0	12	Amphenol BXA-70080 / 8' Panels	Platform w/ Handrails	(12) 1 5/8"	Verizon
	12	RRUS A2 Modules		(3) Hybrid Cables 1.56"	
	6	RRH 3JR52709AA 2X60			
	3	RRH 4X30-4T4R-B13			
	3	RRH 4X30-4T4R-BAND 25 (PCS 60W RRH)			
	3	OVP Junction Boxes			
	12	10"x7"x2" TMAs			
103.0	1	KMW ET-X-TS-70-15-62-18-iR-RD	Platform w/ Handrails	(3) 1 ¼" Hybrid	Sprint
	2	KMW ET-X-WM-18-65-8P			
	2	Commscope SBCHH-1D90B			
	1	Alpha AW3266			
	3	Samsung RRH-C2A			
	3	Samsung RRH-P4			
	3	Samsung RRH-RRU 2.5LTEV3 10 KM			
90.0	9	Celwave APL199014-42T2	Platform	(9) 1 5/8"	TeleCorp

To be Removed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
103.0	1	KMW ET-X-TS-70-15-62-18-iR-RD	--	--	Sprint
	2	KMW ET-X-WM-18-65-8P			
	2	Commscope SBCHH-1D90B			
	3	Samsung RRH-RRU 2.5LTEV3 10 KM			
	1	Alpha AW3266			

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
103.0	3	KMW ETCR-654L12H6	--	--	Sprint
	3	Samsung RRH-B8			

□

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
115.0	12	Amphenol BXA-70080 / 8' Panels	Platform w/ Handrails	(12) 1 5/8"	Verizon
	12	RRUS A2 Modules		(3) Hybrid Cables 1.56"	
	6	RRH 3JR52709AA 2X60			
	3	RRH 4X30-4T4R-B13			
	3	RRH 4X30-4T4R-BAND 25 (PCS 60W RRH)			
	3	OVP Junction Boxes			
	12	10"x7"x2" TMAs			
103.0	3	KMW ETCR-654L12H6	Platform w/ Handrails	(3) 1 ¼" Hybrid	Sprint
	3	Samsung RRH-C2A			
	3	Samsung RRH-P4			
	3	Samsung RRH-B8			
90.0	9	Celwave APL199014-42T2	Platform	(9) 1 5/8"	TeleCorp

Structure Usages

	Summary	
Pole (L1)	84.2	Pass
Base Plate	86.1	Pass
RATING =	**86.1**	**Pass**

Foundation Reactions

Reaction Data	Design Reactions x 1.35	Analysis Reactions	Result
Moment (kip-ft)	2104.5	1992.9	94.7%
Shear (kip)	24.5	22.7	92.7%

*** Design reactions are multiplied by 1.35 per ANSI/TIA-222-G 15.5.1**

Tower base reactions are acceptable when compared to the original design reactions.

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway (°)
103.0	18.151	0.014	1.757

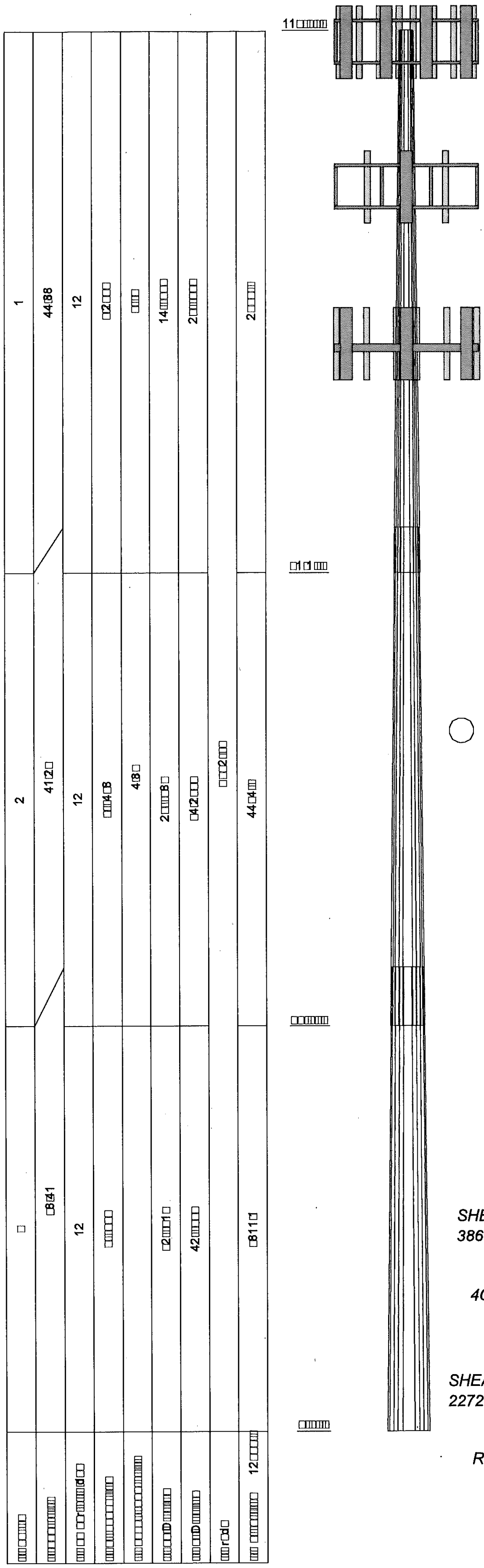
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.
*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.
*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or cable mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.



DESIGNED APPURTENANCE LOADING

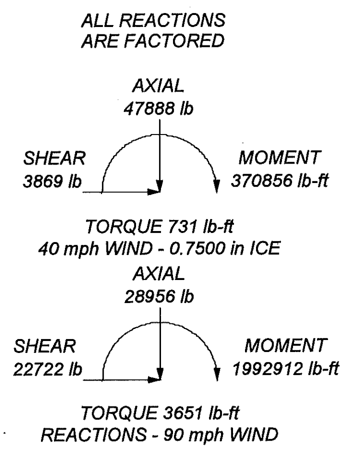
TYPE	ELEVATION	TYPE	ELEVATION
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
[illegible]	[illegible]	[illegible]			

TOWER DESIGN NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]



Infinigy Engineering	ML03XC113
[illegible]	568-401
[illegible]	12/[illegible]4/18

tnxTower	Job	Page
Infinigy Engineering 1033 Watervliet Shaker Rd. Albany, NY 12205 Phone: (518) 690-0790 FAX:	M11	1
	Project 84 1	Date 12/4/18
	Client	Designed by

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

- Tower is located in Milwaukee County, Wisconsin.
- Basic wind speed of 90 mph.
- Structure Class II.
- Exposure Category C.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Nominal ice thickness of 0.7500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 40 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
√ Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	√ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	√ Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	116.00-71.12	44.88	3.75	12	14.0000	25.3900	0.2500	1.0000	A572-65

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
L2	71.12-33.58	41.29	4.83	12	23.9383	34.2900	0.3438	1.3750	(65 ksi) A572-65
L3	33.58-0.00	38.41		12	32.3916	42.0000	0.3750	1.5000	(65 ksi) 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	14.4057	11.0688	267.1099	4.9225	7.2520	36.8326	541.2370	5.4477	3.0820	12.328
	26.1975	20.2377	1632.5919	9.0001	13.1520	124.1324	3308.0739	9.9604	6.1345	24.538
L2	25.6348	26.1162	1855.7495	8.4468	12.4000	149.6568	3760.2516	12.8536	5.4942	15.983
	35.3784	37.5743	5526.6243	12.1528	17.7622	311.1449	11198.4392	18.4929	8.2685	24.054
L3	34.6528	38.6600	5058.2241	11.4619	16.7788	301.4645	10249.3334	19.0273	7.6759	20.469
	43.3493	50.2622	11115.6747	14.9018	21.7560	510.9246	22523.3706	24.7375	10.2510	27.336

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	Double Angle Stitch Bolt Spacing Redundants in
L1 116.00-71.12				1	1	1			
L2 71.12-33.58				1	1	1			
L3 33.58-0.00				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
1 5/8" Coax	C	No	Inside Pole	115.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
1.56" Hybrid	C	No	Inside Pole	115.00 - 0.00	3	No Ice	0.00	1.66
						1/2" Ice	0.00	1.66
						1" Ice	0.00	1.66
***								
1 1/4" Hybriflex Cable	C	No	Inside Pole	103.00 - 0.00	3	No Ice	0.00	1.00
						1/2" Ice	0.00	1.00
						1" Ice	0.00	1.00
***								
1 5/8" Coax	C	No	Inside Pole	90.00 - 0.00	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82

Feed Line/Linear Appurtenances Section Areas

tnxTower	Job	Page
Infinigy Engineering 1033 Watervliet Shaker Rd. Albany, NY 12205 Phone: (518) 690-0790 FAX:	M11	
	Project	Date
	8412	12/4/18
	Client	Designed by

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight lb
L1	116.00-71.12	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	885.28
L2	71.12-33.58	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	946.01
L3	33.58-0.00	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	846.22

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight lb
L1	116.00-71.12	A	1.661	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	885.28
L2	71.12-33.58	A	1.569	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	946.01
L3	33.58-0.00	A	1.400	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	846.22

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight lb
Angle Platform w/ Handrails	C	From Face	0.00		0.0000	115.00	No Ice	42.40	42.40	2000.00
			0.00				1/2" Ice	48.40	48.40	2450.00
			0.00				1" Ice	54.40	54.40	2900.00
(4) BXA-70080-8CF	A	From Face	3.00		0.0000	115.00	No Ice	8.32	8.35	52.20
			0.00				1/2" Ice	8.92	9.75	120.70
			0.00				1" Ice	9.52	11.01	198.50
(4) BXA-70080-8CF	B	From Face	3.00		0.0000	115.00	No Ice	8.32	8.35	52.20
			0.00				1/2" Ice	8.92	9.75	120.70
			0.00				1" Ice	9.52	11.01	198.50
(4) BXA-70080-8CF	C	From Face	3.00		0.0000	115.00	No Ice	8.32	8.35	52.20
			0.00				1/2" Ice	8.92	9.75	120.70
			0.00				1" Ice	9.52	11.01	198.50

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Offsets: ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(4) RRUS-12 W/ A2	A	From Face	3.00			0.0000	115.00	No Ice	2.49	1.33	79.10
			0.00					1/2" Ice	2.68	1.48	101.12
			0.00					1" Ice	2.89	1.64	126.21
(4) RRUS-12 W/ A2	B	From Face	3.00			0.0000	115.00	No Ice	2.49	1.33	79.10
			0.00					1/2" Ice	2.68	1.48	101.12
			0.00					1" Ice	2.89	1.64	126.21
(4) RRUS-12 W/ A2	C	From Face	3.00			0.0000	115.00	No Ice	2.49	1.33	79.10
			0.00					1/2" Ice	2.68	1.48	101.12
			0.00					1" Ice	2.89	1.64	126.21
COVP	A	From Face	3.00			0.0000	115.00	No Ice	3.20	1.01	19.00
			0.00					1/2" Ice	3.42	1.15	40.19
			0.00					1" Ice	3.65	1.30	64.49
COVP	B	From Face	3.00			0.0000	115.00	No Ice	3.20	1.01	19.00
			0.00					1/2" Ice	3.42	1.15	40.19
			0.00					1" Ice	3.65	1.30	64.49
COVP	C	From Face	3.00			0.0000	115.00	No Ice	3.20	1.01	19.00
			0.00					1/2" Ice	3.42	1.15	40.19
			0.00					1" Ice	3.65	1.30	64.49
B13 RRH4x30-4R	A	From Face	3.00			0.0000	115.00	No Ice	2.16	1.62	51.00
			0.00					1/2" Ice	2.35	1.79	70.61
			0.00					1" Ice	2.55	1.97	93.18
B13 RRH4x30-4R	B	From Face	3.00			0.0000	115.00	No Ice	2.16	1.62	51.00
			0.00					1/2" Ice	2.35	1.79	70.61
			0.00					1" Ice	2.55	1.97	93.18
B13 RRH4x30-4R	C	From Face	3.00			0.0000	115.00	No Ice	2.16	1.62	51.00
			0.00					1/2" Ice	2.35	1.79	70.61
			0.00					1" Ice	2.55	1.97	93.18
B25 RRH4x30-4R	A	From Face	3.00			0.0000	115.00	No Ice	2.14	1.31	51.00
			0.00					1/2" Ice	2.33	1.46	68.46
			0.00					1" Ice	2.53	1.63	88.75
B25 RRH4x30-4R	B	From Face	3.00			0.0000	115.00	No Ice	2.14	1.31	51.00
			0.00					1/2" Ice	2.33	1.46	68.46
			0.00					1" Ice	2.53	1.63	88.75
B25 RRH4x30-4R	C	From Face	3.00			0.0000	115.00	No Ice	2.14	1.31	51.00
			0.00					1/2" Ice	2.33	1.46	68.46
			0.00					1" Ice	2.53	1.63	88.75
(4) 10"x7"x2" TMA	A	From Face	3.00			0.0000	115.00	No Ice	0.58	0.18	15.00
			0.00					1/2" Ice	0.68	0.25	19.02
			0.00					1" Ice	0.79	0.33	24.46
(4) 10"x7"x2" TMA	B	From Face	3.00			0.0000	115.00	No Ice	0.58	0.18	15.00
			0.00					1/2" Ice	0.68	0.25	19.02
			0.00					1" Ice	0.79	0.33	24.46
(4) 10"x7"x2" TMA	C	From Face	3.00			0.0000	115.00	No Ice	0.58	0.18	15.00
			0.00					1/2" Ice	0.68	0.25	19.02
			0.00					1" Ice	0.79	0.33	24.46
(2) RRH 3JR52709AA 2X60	A	From Face	3.00			0.0000	115.00	No Ice	3.50	2.10	60.00
			0.00					1/2" Ice	3.76	2.34	84.31
			0.00					1" Ice	4.03	2.58	112.31
(2) RRH 3JR52709AA 2X60	B	From Face	3.00			0.0000	115.00	No Ice	3.50	2.10	60.00
			0.00					1/2" Ice	3.76	2.34	84.31
			0.00					1" Ice	4.03	2.58	112.31
(2) RRH 3JR52709AA 2X60	C	From Face	3.00			0.0000	115.00	No Ice	3.50	2.10	60.00
			0.00					1/2" Ice	3.76	2.34	84.31
			0.00					1" Ice	4.03	2.58	112.31
***											
Angle Platform w/ Handrails	C	From Face	0.00			0.0000	103.00	No Ice	42.40	42.40	2000.00
			0.00					1/2" Ice	48.40	48.40	2450.00

tnxTower	Job	Page
Infinigy Engineering 1033 Watervliet Shaker Rd. Albany, NY 12205 Phone: (518) 690-0790 FAX:	Project	Date
	Client	Designed by

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
			0.00			1" Ice	54.40	54.40	2900.00
ETCR-654L12H6	A	From Face	3.00	0.0000	103.00	No Ice	15.71	6.00	84.90
			0.00			1/2" Ice	16.28	6.52	167.97
			0.00			1" Ice	16.86	7.05	258.50
ETCR-654L12H6	B	From Face	3.00	0.0000	103.00	No Ice	15.71	6.00	84.90
			0.00			1/2" Ice	16.28	6.52	167.97
			0.00			1" Ice	16.86	7.05	258.50
ETCR-654L12H6	C	From Face	3.00	0.0000	103.00	No Ice	15.71	6.00	84.90
			0.00			1/2" Ice	16.28	6.52	167.97
			0.00			1" Ice	16.86	7.05	258.50
RRH-C2A (28.8")	A	From Face	3.00	0.0000	103.00	No Ice	5.47	2.61	55.00
			0.00			1/2" Ice	5.76	2.82	96.39
			0.00			1" Ice	6.06	3.05	142.03
RRH-C2A (28.8")	B	From Face	3.00	0.0000	103.00	No Ice	5.47	2.61	55.00
			0.00			1/2" Ice	5.76	2.82	96.39
			0.00			1" Ice	6.06	3.05	142.03
RRH-C2A (28.8")	C	From Face	3.00	0.0000	103.00	No Ice	5.47	2.61	55.00
			0.00			1/2" Ice	5.76	2.82	96.39
			0.00			1" Ice	6.06	3.05	142.03
RRH-P4	A	From Face	3.00	0.0000	103.00	No Ice	2.25	1.05	60.00
			0.00			1/2" Ice	2.44	1.19	77.56
			0.00			1" Ice	2.63	1.34	97.92
RRH-P4	B	From Face	3.00	0.0000	103.00	No Ice	2.25	1.05	60.00
			0.00			1/2" Ice	2.44	1.19	77.56
			0.00			1" Ice	2.63	1.34	97.92
RRH-P4	C	From Face	3.00	0.0000	103.00	No Ice	2.25	1.05	60.00
			0.00			1/2" Ice	2.44	1.19	77.56
			0.00			1" Ice	2.63	1.34	97.92
RRH-B8	A	From Face	3.00	0.0000	103.00	No Ice	2.64	1.66	60.00
			0.00			1/2" Ice	2.85	1.84	82.85
			0.00			1" Ice	3.06	2.02	108.85
RRH-B8	B	From Face	3.00	0.0000	103.00	No Ice	2.64	1.66	60.00
			0.00			1/2" Ice	2.85	1.84	82.85
			0.00			1" Ice	3.06	2.02	108.85
RRH-B8	C	From Face	3.00	0.0000	103.00	No Ice	2.64	1.66	60.00
			0.00			1/2" Ice	2.85	1.84	82.85
			0.00			1" Ice	3.06	2.02	108.85
***									
Angle Low Profile Platform	C	From Face	0.00	0.0000	90.00	No Ice	26.10	26.10	1500.00
			0.00			1/2" Ice	31.60	31.60	1700.00
			0.00			1" Ice	37.10	37.10	1900.00
APL199014-42T2	A	From Face	3.00	0.0000	90.00	No Ice	2.09	2.09	6.00
			0.00			1/2" Ice	2.39	2.39	20.81
			0.00			1" Ice	2.70	2.70	39.44
APL199014-42T2	B	From Face	3.00	0.0000	90.00	No Ice	2.09	2.09	6.00
			0.00			1/2" Ice	2.39	2.39	20.81
			0.00			1" Ice	2.70	2.70	39.44
APL199014-42T2	C	From Face	3.00	0.0000	90.00	No Ice	2.09	2.09	6.00
			0.00			1/2" Ice	2.39	2.39	20.81
			0.00			1" Ice	2.70	2.70	39.44

tnxTower	Job	Page
Infinigy Engineering 1033 Watervliet Shaker Rd. Albany, NY 12205 Phone: (518) 690-0790 FAX:	M 11	
	Project 84 1	Date 12/4/18
	Client	Designed by

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	116 - 71.12	22.634	45	1.9251	0.0167
L2	74.87 - 33.58	8.590	45	1.1678	0.0052
L3	38.41 - 0	2.121	45	0.5177	0.0016

Critical Deflections and Radius of Curvature - Service Wind□

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
115.00	Angle Platform w/ Handrails	45	22.255	1.9068	0.0163	17949
103.00	Angle Platform w/ Handrails	45	17.753	1.6873	0.0125	6903
90.00	Angle Low Profile Platform	45	13.167	1.4484	0.0087	3451

Maximum Tower Deflections - Design Wind □

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	116 - 71.12	90.378	14	7.6375	0.0663
L2	74.87 - 33.58	34.499	14	4.6835	0.0210
L3	38.41 - 0	8.534	14	2.0826	0.0062

Critical Deflections and Radius of Curvature - Design Wind□

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
115.00	Angle Platform w/ Handrails	14	88.871	7.5667	0.0650	4674
103.00	Angle Platform w/ Handrails	14	70.982	6.7159	0.0497	1795
90.00	Angle Low Profile Platform	14	52.742	5.7863	0.0347	894

Compression Checks □

Pole Design Data □

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	116 - 71.12 (1)	TP25.39x14x0.25	44.88	116.00	160.8	19.4716	-12735.90	170231.00	0.075
L2	71.12 - 33.58 (2)	TP34.29x23.9383x0.3438	41.29	116.00	118.8	36.2339	-19374.40	580198.00	0.033
L3	33.58 - 0 (3)	TP42x32.3916x0.375	38.41	116.00	93.4	50.2622	-28937.50	1301300.00	0.022

tnxTower	Job	Page
Infinigy Engineering 1033 Watervliet Shaker Rd. Albany, NY 12205 Phone: (518) 690-0790 FAX:	M 11	8
	Project 8 4 1	Date 8 2 8 12/ 4/18
	Client	Designed by D

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	116 - 71.12 (1)	TP25.39x14x0.25	522473.33	681150.00	0.767	0.00	681150.00	0.000
L2	71.12 - 33.58 (2)	TP34.29x23.9383x0.3438	1178916.67	1724791.67	0.684	0.00	1724791.67	0.000
L3	33.58 - 0 (3)	TP42x32.3916x0.375	1992908.33	2870150.00	0.694	0.00	2870150.00	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	116 - 71.12 (1)	TP25.39x14x0.25	16490.80	692784.00	0.024	0.00	1385991.67	0.000
L2	71.12 - 33.58 (2)	TP34.29x23.9383x0.3438	19564.00	1296440.00	0.015	0.00	3509758.33	0.000
L3	33.58 - 0 (3)	TP42x32.3916x0.375	22743.40	1694100.00	0.013	0.00	5837516.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	116 - 71.12 (1)	0.075	0.767	0.000	0.024	0.000	0.842 ✔	1.000	4.8.2 ✔
L2	71.12 - 33.58 (2)	0.033	0.684	0.000	0.015	0.000	0.717 ✔	1.000	4.8.2 ✔
L3	33.58 - 0 (3)	0.022	0.694	0.000	0.013	0.000	0.717 ✔	1.000	4.8.2 ✔

Section Capacity Table

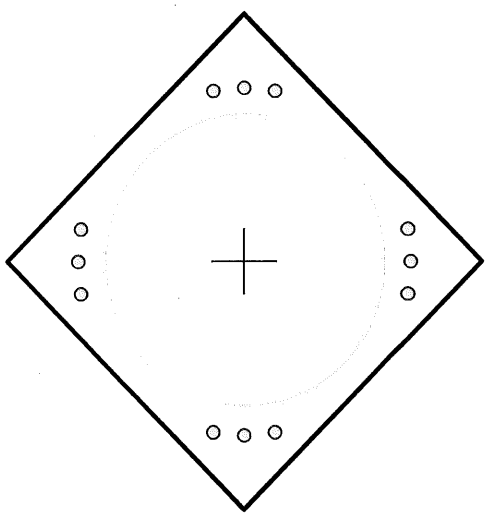
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	116 - 71.12	Pole	TP25.39x14x0.25	1	-12735.90	170231.00	84.2	Pass

tnxTower	Job	Page
Infinigy Engineering 1033 Watervliet Shaker Rd. Albany, NY 12205 Phone: (518) 690-0790 FAX:	M□□□□□11□□	□□□□□□□
	Project □□8□4□1□	Date□ □8□2□□□8□12/□4/18□
	Client□ □□□□ □□□□□□	Designed by□ □D□□□□□□r□

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L2	71.12 - 33.58	Pole	TP34.29x23.9383x0.3438	2	-19374.40	580198.00	71.7	Pass
L3	33.58 - 0	Pole	TP42x32.3916x0.375	3	-28937.50	1301300.00	71.7	Pass
							Summary	
						Pole (L1)	84.2	Pass
						RATING =	**84.2**	**Pass**

Program Version 8.0.2.1 - 5/2/2018 File:C:/Users/BDavenport/Desktop/ML03XC113.eri

Date:	12/4/2018
Customer:	NTP Wireless
Engineer:	BD
Job #:	568-401
Baseplate/Flange:	Base Plate
Plate Shape:	Square



Loading Data		
TIA Code Revision:	Rev-G	
Axial:	29	kips
Moment:	1992.9	k-ft
Shear:	22.7	kips
Plate Data		
Pole Base Diameter:	42	in
Pole Base Shape:	12 Sided	
Pole thickness:	0.375	in
Base Weld Size:	0.25	in
Plate Width	50.5	in
Plate Thickness:	2.75	in
Plate Steel Grade:	A572 Gr. 60	ksi
Bolt Data		
Bolt Hole Diameter:	2.375	in
Bolt Diameter	2.25	in
Bolt Quantity:	12	
Bolt Grade:	A615 Gr. 75	psi
Bolt Circle:	50	in
Bolt Spacing:	6	in
Stiffener Data		
Stiffener Quantity:		
Stiffener Height:		in
Stiffener Width:		in
Stiffener Thickness:		in
Stifferner Steel Grade:		
Vertical Weld Size:		in
Horizontal Weld Size:		in
Stiffener Notch width:		in

Plate Ratio:	86.14	%
Bolt Ratio:	55.29	%
Bolt Shear Ratio:	63.57	%
Vertical Weld Ratio:	-	%
Horizontal Weld Ratio:	-	%
Stiffener Ratio:	-	%