Robinson+Cole

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April 28, 2015

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
47-51 Unity Street, Plainfield, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 130-foot level on an existing 160-foot monopole tower at 47-51 Unity Street in Plainfield (the "Property"). The tower is owned by Crown Castle. Cellco's use of the tower was approved by the Council in 2007. Cellco now intends to modify its facility by replacing all of its existing antennas with three (3) model LNX-6514DS-VTM, 700 MHz antennas; three (3) model LNX-6514DS-VTM, 850 MHz antennas; three (3) model HBXX-6517DS-VTM, 1900 MHz antennas; and three (3) model HBXX-6517DS-VTM, 2100 MHz antennas, all at the 130-foot level on the tower. Cellco also intends to install nine (9) remote radio heads ("RRHs"), one (1) each behind its 700 MHz, 1900 MHz and 2100 MHz antennas and two (2) HYBRIFLEX™ antenna cables, inside the monopole tower. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

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 Paul E. Sweet, First Selectman of the Town of Plainfield. The Town of Plainfield is the owner of the Property.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed on its existing antenna platform at the 130-foot level on the tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table with Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation, with certain modifications, can support Cellco's proposed modifications. (*See* Structural Modification Report included in Attachment 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Paul E. Sweet, Plainfield First Selectman
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

LNX-6514DS-VTM

Andrew® Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

- Great solution to maximize network coverage and capacity
- Excellent gain, VSWR, front-to-back ratio, and PIM specifications for robust network performance
- Ideal choice for site collocations and tough zoning restrictions
- Excellent solution for site sharing and maximizing capacity
- Fully compatible with Andrew remote electrical tilt system for greater OpEx savings
- The RF connectors are designed for IP67 rating and the radome for IP56 rating

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**
Gain, dBi	15.8	15.9
Beamwidth, Horizontal, degrees	65	64
Beamwidth, Vertical, degrees	12.4	11.2
Beam Tilt, degrees	0–10	0–10
USLS, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	23	23
CPR at Sector, dB	12	10
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	**698–806**	**806–896**
Gain by all Beam Tilts, average, dBi	15.6	15.7
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.5
Gain by Beam Tilt, average, dBi	0 ° | 15.7 5 ° | 15.7 10 ° | 15.3	0 ° | 15.9 5 ° | 15.8 10 ° | 15.3
Beamwidth, Horizontal Tolerance, degrees	±0.9	±1.4
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.6
USLS, dB	18	20
Front-to-Back Total Power at 180° ± 30°, dB	25	23
CPR at Boresight, dB	25	24
CPR at Sector, dB	15	12

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol®
Band	Single band
Brand	DualPol® | Teletilt®

Product Specifications

LNX-6514DS-VTM

Operating Frequency Band	698 – 896 MHz

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum
Radome Material	Fiberglass, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	1847.0 mm | 72.7 in
Width	301.0 mm | 11.9 in
Net Weight	14.2 kg | 31.3 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	LNX-6514DS-A1M
RET System	Teletilt®

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

DB380 — Pipe Mounting Kit for 2.4"-4.5" (60-115mm) OD round members on wide panel antennas. Includes 2 clamp sets and double nuts.

DB5083 — Downtilt Mounting Kit for 2.4"-4.5" (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel downtilt mounting bracket assembly and associated hardware. This kit is compatible with the DB380 pipe mount kit for panel antennas that are equipped with two mounting brackets.

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

HBXX-6517DS-VTM

Andrew® Quad Port Antenna, 1710–2180 MHz, 65° horizontal beamwidth, RET compatible

- Superior azimuth tracking and pattern symmetry with excellent passive intermodulation suppression

Electrical Specifications

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain, dBi	19.0	19.1	19.2
Beamwidth, Horizontal, degrees	67	66	65
Beamwidth, Vertical, degrees	5.0	4.7	4.4
Beam Tilt, degrees	0–6	0–6	0–6
USLS, dB	18	18	18
Front-to-Back Ratio at 180°, dB	30	30	30
CPR at Boresight, dB	21	22	21
CPR at Sector, dB	10	11	9
Isolation, dB	30	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain by all Beam Tilts, average, dBi	18.5	18.6	18.8
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.3	±0.4
Gain by Beam Tilt, average, dBi	0 ° | 18.4	0 ° | 18.4	0 ° | 18.7
	3 ° | 18.7	3 ° | 18.7	3 ° | 18.9
	6 ° | 18.4	6 ° | 18.5	6 ° | 18.6
Beamwidth, Horizontal Tolerance, degrees	±2.4	±1.7	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.3	±0.3	±0.3
USLS, dB	18	19	19
Front-to-Back Total Power at 180° ± 30°, dB	25	26	26
CPR at Boresight, dB	22	23	22
CPR at Sector, dB	10	10	9

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® quad
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	1710 – 2180 MHz

Product Specifications

HBXX-6517DS-VTM

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	4
Wind Loading, maximum	668.0 N @ 150 km/h 150.2 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	166.0 mm | 6.5 in
Length	1903.0 mm | 74.9 in
Width	305.0 mm | 12.0 in
Net Weight	19.5 kg | 43.0 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	HBXX-6517DS-A2M
RET System	Teletilt®

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

600899A-2 — Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

Alcatel-Lucent RRH2x40-07-U

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-U is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Band 13). The Alcatel-Lucent RRH2x40-07-U is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-U is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-07-U has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 10 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-U is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-U installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-U is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-U is compact and weights less than 23 kg (50 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

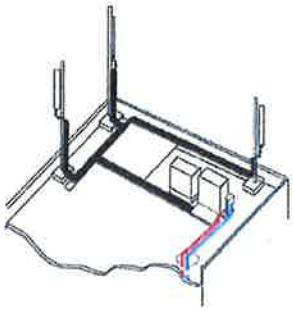
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-U provides more RF power while at the same time consuming less electricity.

Features

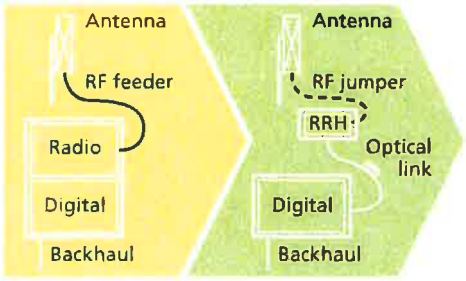
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

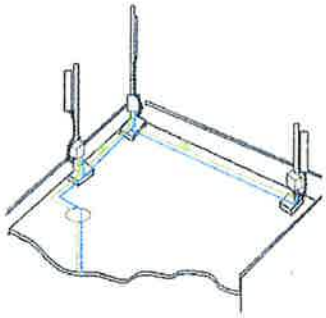
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 390 mm (15.4 in.)
- Width: 380 mm (15 in.)
- Depth: 210 mm (8.2 in.)
- Weight (without mounting kit): less than 23 kg (50 lb)

Power

- Power supply: -48V

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 700 MHz; 3GPP Band 13
- Bandwidth: up to 10 MHz
- RF output power at antenna port:
  - ¬ 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
  - ¬ TMA
  - ¬ Remote electrical tilt (RET) support (AISG v2.0)

Optical characteristics

Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
  - ¬ One SM fiber (9/125 µm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
  - ¬ Two MM fibers (50/125 µm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Alarms and ports

- Six external alarms
- Two optical ports to support daisy-chaining

CPG2809100913 (09)

Alcatel·Lucent

PCS RF MODULES

RRH1900 2X60 - HW CHARACTERISTICS

LA6.0.1/13.3

	RRH2x60
RF Output Power	2x60W
Instantaneous Bandwidth	20MHz
Transmitter	2 TX
Receiver 1900 HW version 1900A HW version	2 Branch RX – LA6.0.1 4 Branch RX – LR13.3
Features	AISG 2.0 for RET/TMA
	Internal Smart Bias-T
Power	-48VDC
CPRI Ports	2 CPRI Rate 3 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (top mounted)

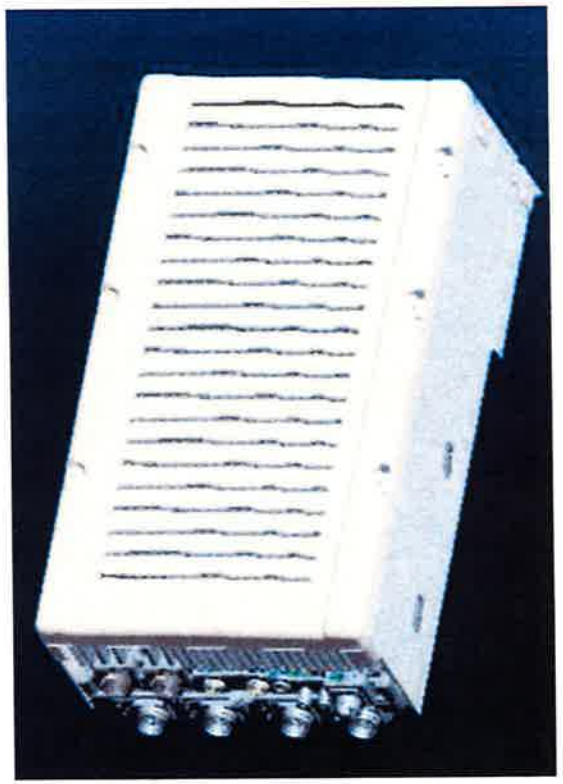
** Not a Verizon Wireless deployed product

Alcatel·Lucent

NEW PCS RF MODULES FOR VZW
RRH2X60 - HW CHARACTERISTICS

LR14.3

	RRH2x60
RF Output Power	2x60W (4x30W HW Ready)
Instantaneous Bandwidth	60MHz
Target Reliability (Annual Return Rate)	<2%
Receiver	4 Branch Rx
Features	AISG 2.0 for RET/TMA
Power	-48VDC
	Internal Smart Bias-T
CPRI Ports	2 CPRI Rate 5 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX, RX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (downward facing)
Dimensions	22"(h) x 12"(w)x 9.4" (d)**
Weight	55lb**



**- Includes solar shield but not mounting brackets (8 lbs.)

Alcatel·Lucent

ALCATEL-LUCENT
WIRELESS PRODUCT DATASHEET
RRH2X60-AWS FOR BAND 4 APPLICATIONS

The Alcatel-Lucent RRH2x60-AWS is a high power, small form factor Remote Radio Head operating in the AWS frequency band (3GPP Band 4) for LTE technology. It is designed with an eco-efficient approach, providing operators with the means to achieve high quality and high capacity coverage with minimum site requirements and efficient operation.

A distributed Node B expands the deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of a Node B to be installed separately, within the same site or several kilometers apart.

The Alcatel-Lucent RRH2x60-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information.

SUPERIOR RF PERFORMANCE

The Alcatel-Lucent RRH2x60-AWS integrates all the latest technologies. This allows to offer best-in-class characteristics.

It delivers an outstanding 120 watts of total RF power thanks to its two transmit RF paths of 60 W each.

It is ideally suited to support multiple-input multiple-output (MIMO) 2x2 operation.

It includes four RF receivers to natively support 4-way uplink reception diversity. This improves the radio uplink coverage and this can be used to extend the cell radius commensurate with 2x2MIMO 2x60 W for the downlink.

It supports multiple discontinuous LTE carriers within an instantaneous bandwidth of 45 MHz corresponding to the entire AWS B4 spectrum.

The latest generation power amplifiers (PA) used in this product achieve high efficiency (>40%), resulting in improved power consumption figures.

OPTIMIZED TCO

The Alcatel-Lucent RRH2x60-AWS is designed to make available all the benefits of a distributed Node B, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX).

The Alcatel-Lucent RRH2x60-AWS is a very cost-effective solution to deploy LTE MIMO.

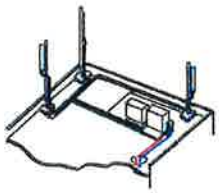
EASY INSTALLATION

The RRH2x60-AWS includes a reversible mounting bracket which allows for ease of installation behind an antenna, or on a rooftop knee wall while providing easy access to the mid body RF connectors.

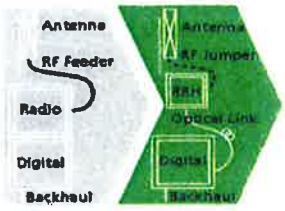
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent RRH2x60-AWS is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

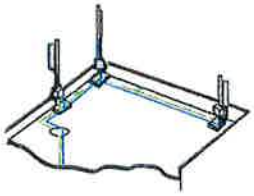
Installation can easily be done by a single person as the Alcatel-Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- RRH2x60-AWS integrates two power amplifiers of 60W rating (at each antenna connector)
- Support multiple carriers over the entire 3GPP band 4
- RRH2x60-AWS is optimized for LTE operation
- RRH2x60-AWS is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

BENEFITS

- MIMO LTE operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and silent solutions, with minimum impact on the neighborhood, which ease the deployment
- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

Specifications listed are hardware capabilities. Some capabilities depend on support in a specific software release or future release.

Dimensions and weights

- HxWxD : 510x285x186mm (27 l with solar shield)
- Weight : 20 kg (44 lbs)

Electrical Data

- Power Supply : -48V DC (-40.5 to -57V)
- Power Consumption (ETSI average traffic load reference) : 250W @2x60W

RF Characteristics

- Frequency band: 1710-1755, UL / 2110-2155 MHz, DL (3GPP band 4)
- Output power: 2x60W at antenna connectors
- Technology supported: LTE
- Instantaneous bandwidth: 45 MHz
- Rx diversity: 2-way and 4-way uplink reception
- Typical sensitivity without Rx diversity: -105 dBm for LTE

Connectivity

- Two CPRI optical ports for daisychaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 20km using SM fiber
- TMA/RETA : AISG 2.0 (RS485 connector and internal Bias-Tee)
- Six external alarms
- Surge protection for all external ports (DC and RF)

Environmental specifications

- Operating temperature: -40°C to 55°C including solar load
- Operating relative humidity: 8% to 100%
- Environmental Conditions : ETS 300 019-1-4 class 4.1E
- Ingress Protection : IEC 60529 IP65
- Acoustic Noise : Noiseless (natural convection cooling)

Safety and Regulatory Data

- EMC : 3GPP 25113, EN 301 489-1, EN 301 489-23, GR 1089, GR 3108, OET-65
- Safety : IEC60950-1, EN 60825-1, UL, ANSI/NFPA 70, CAN/CSA-C22.2
- Regulatory : FCC Part 15 Class B, CE Mark – European Directive : 2002/95/EC (ROHS); 2002/96/EC (WEEE); 1999/5/EC (R&TTE)
- Health : EN 50385

Alcatel·Lucent

AT THE SPEED OF IDEAS™

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

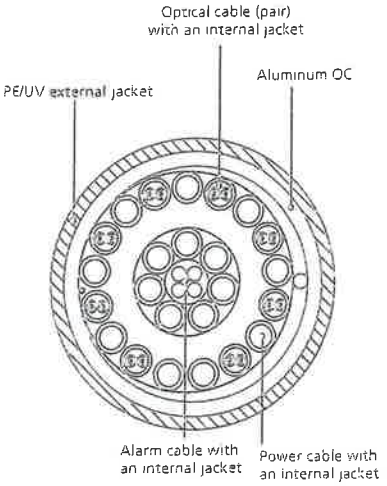


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Plainfoeld N 2								
Tower Height: 160Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Sprint CDMA/LTE	2	693	159	0.0197	1900	1.0000	1.97%	
*Sprint CDMA/LTE	1	390	159	0.0055	850	0.5667	0.98%	
*MetroPCS	3	443.61	105	0.0434	2140	1.0000	4.34%	
*AT&T UMTS	2	565	150	0.0181	880	0.5867	3.08%	
*AT&T UMTS	2	875	150	0.0280	1900	1.0000	2.80%	
*AT&T GSM	1	283	150	0.0045	880	0.5867	0.77%	
*AT&T GSM	4	525	150	0.0336	1900	1.0000	3.36%	
*AT&T LTE	1	1771	150	0.0283	734	0.4893	5.78%	
*Town	2	250	115	0.0136	806	0.5373	2.53%	
*T-Mobile	8	178	137	0.0273	1935	1.0000	2.73%	
Verizon PCS	**11**	**428**	**130**	**0.1002**	**1970**	**1.0000**	**10.02%**	
Verizon Cellular	**9**	**397**	**130**	**0.0760**	**869**	**0.5793**	**13.12%**	
Verizon AWS	**1**	**1750**	**130**	**0.0372**	**2145**	**1.0000**	**3.72%**	
Verizon 700	**1**	**1050**	**130**	**0.0223**	**746**	**0.4973**	**4.49%**	
								59.69%
* Source: Siting Council								

ATTACHMENT 3

Date: **November 25, 2014**

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

BLACK & VEATCH
Building a world of difference.
Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
(913) 458-7245

Subject:	**Structural Modification Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	118624
	Carrier Site Name:	Plainfield North 2 CT
Crown Castle Designation:	**Crown Castle BU Number:**	876401
	Crown Castle Site Name:	TOWN OF PLAINFIELD/SSUSA
	Crown Castle JDE Job Number:	296541
	Crown Castle Work Order Number:	963576
	Crown Castle Application Number:	253183 Rev. 6
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	182896
Site Data:	**47-51 Unity Street, Plainfield, Windham County, CT** **Latitude *41° 42' 54.49"*, Longitude *-71° 53' 46.73"*** **160 Foot - Monopole Tower**	

Dear Darcy Tarr,

Black & Veatch Corp. is pleased to submit this **"Structural Modification Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 727827, in accordance with application 253183, revision 6.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC4: Modified Structure w/ Existing + Reserved + Proposed **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 Connecticut State Building Code with 2009 amendment based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Black & Veatch Corp.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Stephen Austin, E.I.T.

Respectfully submitted by: Chris A. Krafft. P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in December of 1997. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
127.0	130.0	3	alcatel lucent	RRH2X40-07-U	2	1 5/8	1
		3	alcatel lucent	RRH2X60-PCS			
		3	alcatel lucent	RRH2x60-AWS			
		6	commscope	HBXX-6517DS-A2M w/ Mount Pipe			
		6	commscope	LNX-6514DS-AIM w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			

Notes:
1) Refer Appendix B for detailed coax layout

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
159.0	159.0	3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe	3	1 1/4	1
		1	tower mounts	Platform Mount [LP 712-1]			
157.0	157.0	2	alcatel lucent	800MHz 2X50W RRH W/FILTER	-	-	1
		1	alcatel lucent	PCS 1900MHz 4x45W-65MHz			
		1	tower mounts	Side Arm Mount [SO 102-3]			
	154.0	1	alcatel lucent	800MHz 2X50W RRH W/FILTER			
		2	alcatel lucent	PCS 1900MHz 4x45W-65MHz			
150.0	150.0	3	kmw communications	AM-X-CD-17-65-00T-RET w/ Mount Pipe	2 12 1	7/16 1 5/8 3/8	1
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21901			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		1	raycap	DC6-48-60-18-8F	-	-	1
		1	tower mounts	Platform Mount [LP 303-1]			
148.0	148.0	6	ericsson	TME-RRUS-11	-	-	1
		1	tower mounts	Side Arm Mount [SO 102-3]			
139.0	139.0	6	ems wireless	DR85-17-02DPL2Q w/ Mount Pipe	12	1 5/8	1
		3	ems wireless	DR85-17-02DPL2Q w/ Mount Pipe			
		6	ericsson	KRY 112 71/3			
		3	tower mounts	T-Arm Mount [TA 602-1]			
127.0	127.0	4	antel	LPA-185080/12CFx2 w/ Mount Pipe	12	1 5/8	3
		4	antel	LPA-80080/6CF w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 303-1]	-	-	1
109.0	114.0	1	decibel	DB589	1	1/2	1
	109.0	1	tower mounts	Side Arm Mount [SO 701-1]			
105.0	105.0	6	kathrein	800 10504 w/ Mount Pipe	1 12	3/8 7/8	2
		6	kathrein	860 10025			
		1	tower mounts	Sector Mount [SM 506-3]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed, Not Considered in This Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
Unavailable						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Welti	1610729	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors, Inc.	1615418	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	1615382	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford & Company	3667143	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Solutions, Inc.	2819430	CCISITES

Document	Remarks	Reference	Source
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals, Inc.	3986355	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Black & Veatch Corp.	5326638	CCISITES

3.1) Analysis Method

tnxTower (version 6.1.4.1) was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are included in Appendix C.

3.2) 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 the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) The existing base plate grout was not considered in this analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. Black & Veatch Corp. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP17.62x16.5x0.1875	Pole	7.4%	Pass
155 - 150	Pole	TP18.741x17.62x0.1875	Pole	16.1%	Pass
150 - 145	Pole	TP19.861x18.741x0.1875	Pole	33.4%	Pass
145 - 140	Pole	TP20.981x19.861x0.1875	Pole	47.8%	Pass
140 - 135	Pole	TP22.102x20.981x0.1875	Pole	64.2%	Pass
135 - 130	Pole	TP23.222x22.102x0.1875	Pole	78.7%	Pass
130 - 125.75	Pole	TP24.174x23.222x0.1875	Pole	96.3%	Pass[2]
125.75 - 125.5	Pole + Reinf.	TP24.23x24.174x0.3688	Reinf. 6 Tension Rupture	86.3%	Pass
125.5 - 122.87	Pole + Reinf.	TP25.66x24.23x0.3625	Reinf. 6 Tension Rupture	96.2%	Pass[2]
122.87 - 119	Pole + Reinf.	TP25.296x24.445x0.425	Reinf. 6 Tension Rupture	96.1%	Pass[2]
119 - 118.75	Pole + Reinf.	TP25.351x25.296x0.5	Reinf. 5 Bolt Shear	92.3%	Pass
118.75 - 113.75	Pole + Reinf.	TP26.45x25.351x0.4875	Reinf. 5 Tension Rupture	79.3%	Pass
113.75 - 108.75	Pole + Reinf.	TP27.549x26.45x0.475	Reinf. 5 Tension Rupture	88.5%	Pass
108.75 - 103.75	Pole + Reinf.	TP28.649x27.549x0.4625	Reinf. 5 Tension Rupture	97.0%	Pass[2]
103.75 - 103	Pole + Reinf.	TP28.814x28.649x0.4625	Reinf. 5 Tension Rupture	98.4%	Pass[2]
103 - 102.75	Pole + Reinf.	TP28.869x28.814x0.5375	Reinf. 5 Tension Rupture	88.7%	Pass

102.75 - 100.2	Pole + Reinf.	TP29.429x28.869x0.5375	Reinf. 5 Tension Rupture	93.0%	Pass
100.2 - 100.16	Pole + Reinf.	TP30.39x29.429x0.6875	Reinf. 5 Tension Rupture	69.0%	Pass
100.16 - 94.83	Pole + Reinf.	TP30.119x28.938x0.7375	Reinf. 5 Tension Rupture	71.5%	Pass
94.83 - 93.5	Pole + Reinf.	TP30.413x30.119x0.7375	Reinf. 5 Tension Rupture	72.9%	Pass
93.5 - 93.25	Pole + Reinf.	TP30.469x30.413x0.9125	Reinf. 5 Tension Rupture	60.1%	Pass
93.25 - 89.25	Pole + Reinf.	TP31.355x30.469x0.8875	Reinf. 5 Bolt Shear	84.2%	Pass
89.25 - 89	Pole + Reinf.	TP31.41x31.355x0.9375	Reinf. 4 Bolt Shear	61.9%	Pass
89 - 86.5	Pole + Reinf.	TP31.964x31.41x0.925	Reinf. 11 Compression	61.0%	Pass
86.5 - 86.25	Pole + Reinf.	TP32.019x31.964x0.7625	Reinf. 4 Tension Rupture	69.7%	Pass
86.25 - 81.25	Pole + Reinf.	TP33.127x32.019x0.7375	Reinf. 4 Tension Rupture	73.9%	Pass
81.25 - 76.25	Pole + Reinf.	TP34.235x33.127x0.725	Reinf. 4 Tension Rupture	77.5%	Pass
76.25 - 75.08	Pole + Reinf.	TP34.493x34.235x0.7125	Reinf. 4 Tension Rupture	78.3%	Pass
75.08 - 74.83	Pole + Reinf.	TP34.548x34.493x0.8125	Reinf. 4 Tension Rupture	69.7%	Pass
74.83 - 69.83	Pole + Reinf.	TP35.656x34.548x0.8	Reinf. 4 Tension Rupture	72.8%	Pass
69.83 - 64.83	Pole + Reinf.	TP36.764x35.656x0.775	Reinf. 4 Tension Rupture	73.2%	Pass
64.83 - 59.83	Pole + Reinf.	TP37.871x36.764x0.7625	Reinf. 4 Tension Rupture	78.5%	Pass
59.83 - 59.5	Pole + Reinf.	TP37.945x37.871x0.7625	Reinf. 4 Bolt Shear	86.0%	Pass
59.5 - 59.25	Pole + Reinf.	TP38.001x37.945x0.7625	Reinf. 3 Tension Rupture	78.5%	Pass
59.25 - 54.25	Pole + Reinf.	TP39.108x38.001x0.7375	Reinf. 3 Tension Rupture	81.4%	Pass
54.25 - 53	Pole + Reinf.	TP39.385x39.108x0.7375	Reinf. 3 Tension Rupture	82.0%	Pass
53 - 52.78	Pole + Reinf.	TP40.67x39.385x0.7375	Reinf. 3 Tension Rupture	82.6%	Pass
52.78 - 46.2	Pole + Reinf.	TP40.266x38.809x0.7625	Reinf. 3 Tension Rupture	82.6%	Pass
46.2 - 41.2	Pole + Reinf.	TP41.374x40.266x0.775	Reinf. 3 Tension Rupture	84.1%	Pass
41.2 - 39	Pole + Reinf.	TP41.861x41.374x0.775	Reinf. 3 Tension Rupture	84.9%	Pass
39 - 38.75	Pole + Reinf.	TP41.917x41.861x0.825	Reinf. 3 Tension Rupture	78.0%	Pass
38.75 - 38.08	Pole + Reinf.	TP42.064x41.917x0.85	Reinf. 3 Tension Rupture	78.1%	Pass
38.08 - 37.83	Pole + Reinf.	TP42.12x42.064x0.75	Reinf. 3 Tension Rupture	85.8%	Pass
37.83 - 32.83	Pole + Reinf.	TP43.227x42.12x0.7625	Reinf. 3 Tension Rupture	87.2%	Pass
32.83 - 27.83	Pole + Reinf.	TP44.335x43.227x0.75	Reinf. 3 Tension Rupture	88.9%	Pass
27.83 - 22.83	Pole + Reinf.	TP45.442x44.335x0.725	Reinf. 3 Tension Rupture	87.3%	Pass
22.83 - 21.25	Pole + Reinf.	TP45.793x45.442x0.7375	Reinf. 3 Tension Rupture	90.9%	Pass
21.25 - 21	Pole + Reinf.	TP45.848x45.793x0.75	Reinf. 3 Tension Rupture	85.3%	Pass
21 - 20	Pole + Reinf.	TP46.07x45.848x0.725	Reinf. 8 Bolt Shear	87.8%	Pass
20 - 19.75	Pole + Reinf.	TP46.125x46.07x0.825	Reinf. 3 Tension Rupture	80.9%	Pass
19.75 - 17	Pole + Reinf.	TP46.734x46.125x0.8125	Reinf. 3 Tension Rupture	82.4%	Pass
17 - 16.75	Pole + Reinf.	TP46.79x46.734x0.7625	Reinf. 3 Tension Rupture	89.8%	Pass
16.75 - 11.75	Pole + Reinf.	TP47.897x46.79x0.7625	Reinf. 3 Tension Rupture	90.8%	Pass
11.75 - 6.75	Pole + Reinf.	TP49.005x47.897x0.75	Reinf. 3 Tension Rupture	92.2%	Pass
6.75 - 1.75	Pole + Reinf.	TP50.112x49.005x0.725	Reinf. 3 Tension Rupture	92.5%	Pass

1.75 - 0	Pole + Reinf.	TP50.5x50.112x0.75	Reinf. 3 Tension Rupture	93.8%	Pass
				Summary	
			Pole	96.3%	Pass
			Reinforcement	98.4%	Pass
			Overall	98.4%	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC4

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	83.0	Pass
	Base Plate		90.7	Pass
1	Base Foundation	0	59.5	Pass
	Base Foundation Soil Interaction		50.9	Pass

Structure Rating (max from all components) =	98.4%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Capacities up to 105% are considered acceptable based on analysis methods used.

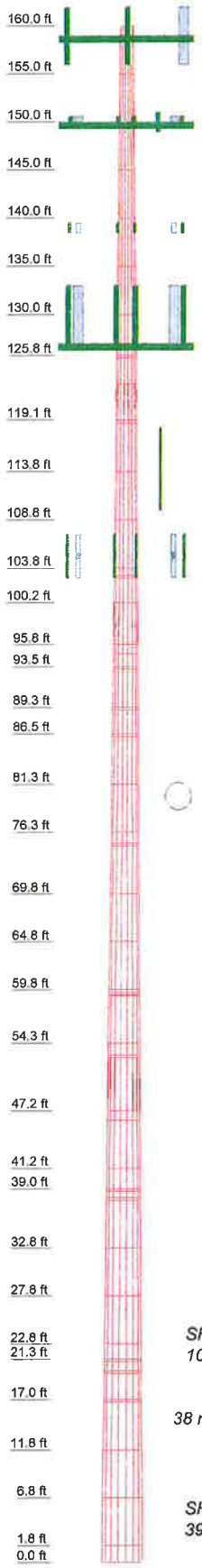
4.1) Recommendations

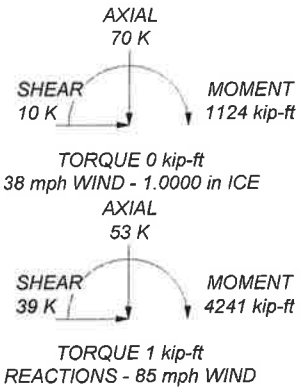
This tower will have sufficient capacity to carry the existing, reserved, and proposed loads after proper installation of the reinforcements shown in Appendix D.

APPENDIX A

TNXTOWER OUTPUT

Length (ft)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	1.75
Number of Sides	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Thickness (in)	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.7500
Socket Length (ft)																														
Top Dia (in)	16.5000	18.7407	19.8611	20.9814	22.1018	23.2222	24.3425	25.4629	26.5832	27.7036	28.8239	29.9443	31.0646	32.1850	33.3053	34.4257	35.5460	36.6664	37.7867	38.9071	40.0274	41.1478	42.2681	43.3885	44.5088	45.6292	46.7495	47.8699	48.9902	50.1106
Bot Dia (in)	17.6204	18.7407	19.8611	20.9814	22.1018	23.2222	24.3425	25.4629	26.5832	27.7036	28.8239	29.9443	31.0646	32.1850	33.3053	34.4257	35.5460	36.6664	37.7867	38.9071	40.0274	41.1478	42.2681	43.3885	44.5088	45.6292	46.7495	47.8699	48.9902	50.1106
Grade	A572-65																													
Weight (K)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.6	0.6	0.6	0.4	0.9	1.1	1.2	1.2	1.4	1.4	1.4	0.4	1.8	2.1	1.6	1.6	1.7	1.7	1.5	2.0	2.0	2.0





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20 w/ Mount Pipe	159	(2) DR85-17-02DPL2Q w/ Mount Pipe	139
APXVSPP18-C-A20 w/ Mount Pipe	159	(2) DR85-17-02DPL2Q w/ Mount Pipe	139
APXVSPP18-C-A20 w/ Mount Pipe	159	(2) KRY 112 71/3	139
2.375" OD x 5' Mount Pipe	159	(2) KRY 112 71/3	139
2.375" OD x 5' Mount Pipe	159	(2) DR85-17-02DPL2Q w/ Mount Pipe	139
2.375" OD x 5' Mount Pipe	159	(2) KRY 112 71/3	139
2.375" OD x 5' Mount Pipe	159	DR85-17-02DPL2Q w/ Mount Pipe	139
2.375" OD x 5' Mount Pipe	159	DR85-17-02DPL2Q w/ Mount Pipe	139
2.375" OD x 5' Mount Pipe	159	DR85-17-02DPL2Q w/ Mount Pipe	139
Platform Mount [LP 712-1]	159	T-Arm Mount [TA 602-1]	139
PCS 1900MHz 4x45W-65MHz	157	T-Arm Mount [TA 602-1]	139
800MHz 2X50W RRH W/FILTER	157	T-Arm Mount [TA 602-1]	139
PCS 1900MHz 4x45W-65MHz	157	RRH2X40-07-U	127
800MHz 2X50W RRH W/FILTER	157	RRH2x60-AWS	127
PCS 1900MHz 4x45W-65MHz	157	RRH2X60-PCS	127
800MHz 2X50W RRH W/FILTER	157	(2) HBXX-6517DS-A2M w/ Mount Pipe	127
Side Arm Mount [SO 102-3]	157	(2) LNX-6514DS-AIM w/ Mount Pipe	127
(2) 7770.00 w/ Mount Pipe	150	(2) DB-T1-6Z-8AB-0Z	127
(2) LGP21401	150	RRH2X40-07-U	127
(2) LGP21901	150	RRH2x60-AWS	127
AM-X-CD-17-65-00T-RET w/ Mount Pipe	150	RRH2X60-PCS	127
		(2) HBXX-6517DS-A2M w/ Mount Pipe	127
(2) 7770.00 w/ Mount Pipe	150	(2) LNX-6514DS-AIM w/ Mount Pipe	127
(2) LGP21401	150	RRH2X40-07-U	127
(2) LGP21901	150	RRH2x60-AWS	127
AM-X-CD-17-65-00T-RET w/ Mount Pipe	150	RRH2X60-PCS	127
		(2) HBXX-6517DS-A2M w/ Mount Pipe	127
DC6-48-60-18-8F	150	(2) LNX-6514DS-AIM w/ Mount Pipe	127
(2) 7770.00 w/ Mount Pipe	150	Platform Mount [LP 303-1]	127
(2) LGP21401	150	Side Arm Mount [SO 701-1]	109
(2) LGP21901	150	DB589	109
AM-X-CD-17-65-00T-RET w/ Mount Pipe	150	(2) 800 10504 w/ Mount Pipe	105
		(2) 860 10025	105
Platform Mount [LP 303-1]	150	(2) 800 10504 w/ Mount Pipe	105
(2) TME-RRUS-11	148	(2) 860 10025	105
(2) TME-RRUS-11	148	(2) 800 10504 w/ Mount Pipe	105
(2) TME-RRUS-11	148	(2) 860 10025	105
Side Arm Mount [SO 102-3]	148	Sector Mount [SM 506-3]	105

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Windham 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 38 mph basic wind with 1.00 in ice.
4. Deflections are based upon a 50 mph wind.

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Job: 876401 TOWN OF PLAINFIELD/SSUSA			
Project: 182896 (876401.945749)			
Client: Crown Castle	Drawn by: Stephen M. Austin, E.I.T.	App'd:	
Code: TIA/EIA-222-F	Date: 12/03/14	Scale: N	
Path:		Dwg No.	

Tower Input Data

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

2) Tower is located in Windham County, Connecticut.
3) Basic wind speed of 85 mph.
4) Nominal ice thickness of 1.0000 in.
5) Ice density of 56 pcf.
6) A wind speed of 38 mph is used in combination with ice.
7) Deflections calculated using a wind speed of 50 mph.
8) A non-linear (P-delta) analysis was used.
9) Pressures are calculated at each section.
10) Stress ratio used in pole design is 1.333.
11) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

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	160.00-155.00	5.00	0.00	18	16.5000	17.6204	0.1875	0.7500	A572-65 (65 ksi)
L2	155.00-150.00	5.00	0.00	18	17.6204	18.7407	0.1875	0.7500	A572-65 (65 ksi)
L3	150.00-145.00	5.00	0.00	18	18.7407	19.8611	0.1875	0.7500	A572-65 (65 ksi)
L4	145.00-140.00	5.00	0.00	18	19.8611	20.9814	0.1875	0.7500	A572-65 (65 ksi)
L5	140.00-135.00	5.00	0.00	18	20.9814	22.1018	0.1875	0.7500	A572-65 (65 ksi)
L6	135.00-130.00	5.00	0.00	18	22.1018	23.2221	0.1875	0.7500	A572-65 (65 ksi)
L7	130.00-125.75	4.25	0.00	18	23.2221	24.1744	0.1875	0.7500	A572-65 (65 ksi)
L8	125.75-125.50	0.25	0.00	18	24.1744	24.2304	0.3688	1.4750	A572-65 (65 ksi)
L9	125.50-119.12	6.38	3.75	18	24.2304	25.6600	0.3625	1.4500	A572-65 (65 ksi)
L10	119.12-119.00	3.87	0.00	18	24.4447	25.2956	0.4250	1.7000	A572-65 (65 ksi)
L11	119.00-118.75	0.25	0.00	18	25.2956	25.3506	0.5000	2.0000	A572-65 (65 ksi)
L12	118.75-113.75	5.00	0.00	18	25.3506	26.4499	0.4875	1.9500	A572-65 (65 ksi)
L13	113.75-108.75	5.00	0.00	18	26.4499	27.5493	0.4750	1.9000	A572-65 (65 ksi)
L14	108.75-103.75	5.00	0.00	18	27.5493	28.6486	0.4625	1.8500	A572-65 (65 ksi)
L15	103.75-103.00	0.75	0.00	18	28.6486	28.8135	0.4625	1.8500	A572-65 (65 ksi)
L16	103.00-102.75	0.25	0.00	18	28.8135	28.8685	0.5375	2.1500	A572-65 (65 ksi)
L17	102.75-100.20	2.55	0.00	18	28.8685	29.4292	0.5375	2.1500	A572-65 (65 ksi)
L18	100.20-95.83	4.37	4.33	18	29.4292	30.3900	0.6875	2.7500	A572-65 (65 ksi)
L19	95.83-94.83	5.33	0.00	18	28.9380	30.1187	0.7375	2.9500	A572-65 (65 ksi)
L20	94.83-93.50	1.33	0.00	18	30.1187	30.4133	0.7375	2.9500	A572-65 (65 ksi)
L21	93.50-93.25	0.25	0.00	18	30.4133	30.4687	0.9125	3.6500	A572-65 (65 ksi)
L22	93.25-89.25	4.00	0.00	18	30.4687	31.3548	0.8875	3.5500	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
									(65 ksi)
L23	89.25-89.00	0.25	0.00	18	31.3548	31.4102	0.9375	3.7500	A572-65 (65 ksi)
L24	89.00-86.50	2.50	0.00	18	31.4102	31.9640	0.9250	3.7000	A572-65 (65 ksi)
L25	86.50-86.25	0.25	0.00	18	31.9640	32.0194	0.7625	3.0500	A572-65 (65 ksi)
L26	86.25-81.25	5.00	0.00	18	32.0194	33.1270	0.7375	2.9500	A572-65 (65 ksi)
L27	81.25-76.25	5.00	0.00	18	33.1270	34.2347	0.7250	2.9000	A572-65 (65 ksi)
L28	76.25-75.08	1.17	0.00	18	34.2347	34.4931	0.7125	2.8500	A572-65 (65 ksi)
L29	75.08-74.83	0.25	0.00	18	34.4931	34.5485	0.8125	3.2500	A572-65 (65 ksi)
L30	74.83-69.83	5.00	0.00	18	34.5485	35.6561	0.8000	3.2000	A572-65 (65 ksi)
L31	69.83-64.83	5.00	0.00	18	35.6561	36.7638	0.7750	3.1000	A572-65 (65 ksi)
L32	64.83-59.83	5.00	0.00	18	36.7638	37.8714	0.7625	3.0500	A572-65 (65 ksi)
L33	59.83-59.50	0.33	0.00	18	37.8714	37.9452	0.7625	3.0500	A572-65 (65 ksi)
L34	59.50-59.25	0.25	0.00	18	37.9452	38.0006	0.7625	3.0500	A572-65 (65 ksi)
L35	59.25-54.25	5.00	0.00	18	38.0006	39.1082	0.7375	2.9500	A572-65 (65 ksi)
L36	54.25-53.00	1.25	0.00	18	39.1082	39.3851	0.7375	2.9500	A572-65 (65 ksi)
L37	53.00-47.20	5.80	5.58	18	39.3851	40.6700	0.7375	2.9500	A572-65 (65 ksi)
L38	47.20-46.20	6.58	0.00	18	38.8089	40.2664	0.7625	3.0500	A572-65 (65 ksi)
L39	46.20-41.20	5.00	0.00	18	40.2664	41.3739	0.7750	3.1000	A572-65 (65 ksi)
L40	41.20-39.00	2.20	0.00	18	41.3739	41.8612	0.7750	3.1000	A572-65 (65 ksi)
L41	39.00-38.75	0.25	0.00	18	41.8612	41.9166	0.8250	3.3000	A572-65 (65 ksi)
L42	38.75-38.08	0.67	0.00	18	41.9166	42.0643	0.8500	3.4000	A572-65 (65 ksi)
L43	38.08-37.83	0.25	0.00	18	42.0643	42.1197	0.7500	3.0000	A572-65 (65 ksi)
L44	37.83-32.83	5.00	0.00	18	42.1197	43.2272	0.7625	3.0500	A572-65 (65 ksi)
L45	32.83-27.83	5.00	0.00	18	43.2272	44.3347	0.7500	3.0000	A572-65 (65 ksi)
L46	27.83-22.83	5.00	0.00	18	44.3347	45.4423	0.7250	2.9000	A572-65 (65 ksi)
L47	22.83-21.25	1.58	0.00	18	45.4423	45.7930	0.7375	2.9500	A572-65 (65 ksi)
L48	21.25-21.00	0.25	0.00	18	45.7930	45.8484	0.7500	3.0000	A572-65 (65 ksi)
L49	21.00-20.00	1.00	0.00	18	45.8484	46.0699	0.7250	2.9000	A572-65 (65 ksi)
L50	20.00-19.75	0.25	0.00	18	46.0699	46.1252	0.8250	3.3000	A572-65 (65 ksi)
L51	19.75-17.00	2.75	0.00	18	46.1252	46.7344	0.8125	3.2500	A572-65 (65 ksi)
L52	17.00-16.75	0.25	0.00	18	46.7344	46.7898	0.7625	3.0500	A572-65 (65 ksi)
L53	16.75-11.75	5.00	0.00	18	46.7898	47.8973	0.7625	3.0500	A572-65 (65 ksi)
L54	11.75-6.75	5.00	0.00	18	47.8973	49.0048	0.7500	3.0000	A572-65 (65 ksi)
L55	6.75-1.75	5.00	0.00	18	49.0048	50.1124	0.7250	2.9000	A572-65 (65 ksi)
L56	1.75-0.00	1.75		18	50.1124	50.5000	0.7500	3.0000	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	16.7545	9.7080	326.3677	5.7909	8.3820	38.9367	653.1649	4.8549	2.5740	13.728
	17.8922	10.3747	398.3373	6.1887	8.9511	44.5013	797.1988	5.1883	2.7712	14.78
L2	17.8922	10.3747	398.3373	6.1887	8.9511	44.5013	797.1988	5.1883	2.7712	14.78
	19.0298	11.0415	480.1782	6.5864	9.5203	50.4374	960.9882	5.5218	2.9684	15.831
L3	19.0298	11.0415	480.1782	6.5864	9.5203	50.4374	960.9882	5.5218	2.9684	15.831
	20.1674	11.7082	572.5248	6.9841	10.0894	56.7451	1145.8029	5.8552	3.1655	16.883
L4	20.1674	11.7082	572.5248	6.9841	10.0894	56.7451	1145.8029	5.8552	3.1655	16.883
	21.3051	12.3750	676.0115	7.3818	10.6586	63.4243	1352.9124	6.1887	3.3627	17.935
L5	21.3051	12.3750	676.0115	7.3818	10.6586	63.4243	1352.9124	6.1887	3.3627	17.935
	22.4427	13.0417	791.2726	7.7796	11.2277	70.4751	1583.5865	6.5221	3.5599	18.986
L6	22.4427	13.0417	791.2726	7.7796	11.2277	70.4751	1583.5865	6.5221	3.5599	18.986
	23.5804	13.7085	918.9427	8.1773	11.7968	77.8974	1839.0946	6.8555	3.7571	20.038
L7	23.5804	13.7085	918.9427	8.1773	11.7968	77.8974	1839.0946	6.8555	3.7571	20.038
	24.5473	14.2752	1037.6926	8.5154	12.2806	84.4985	2076.7506	7.1390	3.9247	20.932
L8	24.5473	27.8624	1994.8821	8.4510	12.2806	162.4417	3992.3892	13.9339	3.6057	9.778
	24.6042	27.9280	2008.9979	8.4709	12.3091	163.2130	4020.6393	13.9667	3.6156	9.805
L9	24.6042	27.4618	1976.4994	8.4731	12.3091	160.5727	3955.5995	13.7335	3.6266	10.004
	26.0558	29.1067	2353.3428	8.9806	13.0353	180.5364	4709.7822	14.5561	3.8782	10.698
L10	25.6591	32.4014	2361.7721	8.5270	12.4179	190.1905	4726.6518	16.2038	3.5543	8.363
	25.6859	33.5492	2621.7643	8.8291	12.8502	204.0255	5246.9784	16.7778	3.7040	8.715
L11	25.6859	39.3507	3056.6084	8.8024	12.8502	237.8650	6117.2388	19.6791	3.5720	7.144
	25.7417	39.4379	3076.9813	8.8220	12.8781	238.9313	6158.0114	19.7227	3.5817	7.163
L12	25.7417	38.4713	3004.5862	8.8264	12.8781	233.3097	6013.1259	19.2393	3.6037	7.392
	26.8580	40.1723	3421.0205	9.2167	13.4366	254.6052	6846.5424	20.0900	3.7972	7.789
L13	26.8580	39.1611	3338.1189	9.2211	13.4366	248.4353	6680.6302	19.5843	3.8192	8.04
	27.9743	40.8186	3780.1513	9.6114	13.9950	270.1065	7565.2767	20.4132	4.0127	8.448
L14	27.9743	39.7627	3685.7740	9.6158	13.9950	263.3629	7376.3979	19.8851	4.0347	8.724
	29.0906	41.3765	4153.0076	10.0061	14.5535	285.3613	8311.4798	20.6922	4.2282	9.142
L15	29.0906	41.3765	4153.0076	10.0061	14.5535	285.3613	8311.4798	20.6922	4.2282	9.142
	29.2580	41.6186	4226.3259	10.0646	14.6373	288.7372	8458.2129	20.8133	4.2572	9.205
L16	29.2580	48.2396	4872.7989	10.0380	14.6373	332.9034	9752.0096	24.1244	4.1252	7.675
	29.3138	48.3334	4901.2717	10.0575	14.6652	334.2110	9808.9926	24.1713	4.1349	7.693
L17	29.3138	48.3334	4901.2717	10.0575	14.6652	334.2110	9808.9926	24.1713	4.1349	7.693
	29.8832	49.2899	5198.0547	10.2565	14.9500	347.6955	10402.949 1	24.6496	4.2335	7.876
L18	29.8832	62.7179	6545.6554	10.2033	14.9500	437.8359	13099.923 7	31.3649	3.9695	5.774
	30.8588	64.8146	7224.3053	10.5444	15.4381	467.9524	14458.116 5	32.4134	4.1386	6.02
L19	30.3584	66.0124	6632.4695	10.0112	14.7005	451.1735	13273.666 2	33.0125	3.7951	5.146
	30.5833	68.7763	7500.9289	10.4303	15.3003	490.2472	15011.727 8	34.3947	4.0029	5.428
L20	30.5833	68.7763	7500.9289	10.4303	15.3003	490.2472	15011.727 8	34.3947	4.0029	5.428
	30.8825	69.4659	7728.8537	10.5349	15.4500	500.2503	15467.877 2	34.7396	4.0547	5.498
L21	30.8825	85.4425	9394.6373	10.4728	15.4500	608.0682	18801.636 2	42.7294	3.7467	4.106
	30.9387	85.6029	9447.6460	10.4925	15.4781	610.3877	18907.723 4	42.8096	3.7565	4.117
L22	30.9387	83.3281	9212.1430	10.5013	15.4781	595.1725	18436.407 7	41.6719	3.8005	4.282
	31.8385	85.8242	10065.038 1	10.8159	15.9282	631.8986	20143.320 1	42.9202	3.9564	4.458
L23	31.8385	90.5105	10579.823 4	10.7981	15.9282	664.2177	21173.568 0	45.2639	3.8684	4.126
	31.8948	90.6753	10637.717 5	10.8178	15.9564	666.6748	21289.432 4	45.3463	3.8782	4.137
L24	31.8948	89.5030	10508.802 9	10.8222	15.9564	658.5956	21031.433 6	44.7600	3.9002	4.216
	32.4571	91.1290	11092.001 7	11.0189	16.2377	683.1009	22198.598 5	45.5732	3.9977	4.322

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
L25	32.4571	75.5131	9287.7667	11.0765	16.2377	571.9871	18587.7544	37.7637	4.2837	5.618
	32.5133	75.6472	9337.3109	11.0962	16.2659	574.0437	18686.9080	37.8308	4.2934	5.631
L26	32.5133	73.2254	9052.8569	11.1051	16.2659	556.5559	18117.6257	36.6197	4.3374	5.881
	33.6381	75.8182	10048.9409	11.4983	16.8285	597.1372	20111.1044	37.9163	4.5324	6.146
L27	33.6381	74.5619	9890.0615	11.5027	16.8285	587.6961	19793.1366	37.2880	4.5544	6.282
	34.7628	77.1108	10939.3738	11.8959	17.3912	629.0175	21893.1418	38.5627	4.7493	6.551
L28	34.7628	75.8095	10762.7993	11.9004	17.3912	618.8644	21539.7606	37.9120	4.7713	6.697
	35.0252	76.3940	11013.6661	11.9921	17.5225	628.5441	22041.8242	38.2043	4.8168	6.76
L29	35.0252	86.8581	12448.2353	11.9566	17.5225	710.4142	24912.8504	43.4373	4.6408	5.712
	35.0815	87.0009	12509.7429	11.9763	17.5506	712.7800	25035.9464	43.5087	4.6505	5.724
L30	35.0815	85.6942	12330.9819	11.9807	17.5506	702.5946	24678.1892	42.8552	4.6725	5.841
	36.2062	88.5067	13585.3803	12.3739	18.1133	750.0218	27188.6365	44.2618	4.8675	6.084
L31	36.2062	85.8023	13189.1757	12.3828	18.1133	728.1482	26395.7060	42.9093	4.9115	6.337
	37.3309	88.5270	14485.9414	12.7760	18.6760	775.6452	28990.9438	44.2719	5.1064	6.589
L32	37.3309	87.1293	14267.1531	12.7804	18.6760	763.9302	28553.0793	43.5730	5.1284	6.726
	38.4556	89.8100	15624.9331	13.1737	19.2387	812.1630	31270.4260	44.9135	5.3234	6.981
L33	38.4556	89.8100	15624.9331	13.1737	19.2387	812.1630	31270.4260	44.9135	5.3234	6.981
	38.5306	89.9887	15718.3846	13.1999	19.2762	815.4307	31457.4518	45.0029	5.3364	6.999
L34	38.5306	89.9887	15718.3846	13.1999	19.2762	815.4307	31457.4518	45.0029	5.3364	6.999
	38.5868	90.1227	15788.7242	13.2195	19.3043	817.8860	31598.2235	45.0699	5.3461	7.011
L35	38.5868	87.2264	15301.8387	13.2284	19.3043	792.6644	30623.8119	43.6215	5.3901	7.309
	39.7115	89.8192	16707.3243	13.6216	19.8670	840.9592	33436.6326	44.9181	5.5851	7.573
L36	39.7115	89.8192	16707.3243	13.6216	19.8670	840.9592	33436.6326	44.9181	5.5851	7.573
	39.9927	90.4674	17071.6533	13.7199	20.0077	853.2561	34165.7699	45.2423	5.6338	7.639
L37	39.9927	90.4674	17071.6533	13.7199	20.0077	853.2561	34165.7699	45.2423	5.6338	7.639
	41.2974	93.4750	18831.5427	14.1760	20.6604	911.4818	37687.8643	46.7464	5.8599	7.946
L38	40.6626	92.0789	16839.3123	13.5065	19.7149	854.1409	33700.7823	46.0482	5.4884	7.198
	40.8876	95.6063	18849.6817	14.0239	20.4553	921.5047	37724.1663	47.8123	5.7449	7.534
L39	40.8876	97.1429	19140.5118	14.0194	20.4553	935.7225	38306.2092	48.5807	5.7229	7.384
	42.0122	99.8673	20796.4791	14.4126	21.0180	989.4625	41620.3228	49.9431	5.9178	7.636
L40	42.0122	99.8673	20796.4791	14.4126	21.0180	989.4625	41620.3228	49.9431	5.9178	7.636
	42.5070	101.0660	21554.3727	14.5856	21.2655	1013.5835	43137.1073	50.5426	6.0036	7.747
L41	42.5070	107.4555	22861.3105	14.5679	21.2655	1075.0416	45752.7025	53.7379	5.9156	7.17
	42.5633	107.6005	22953.9865	14.5875	21.2936	1077.9737	45938.1765	53.8105	5.9253	7.182
L42	42.5633	110.7936	23606.4232	14.5787	21.2936	1108.6136	47243.9083	55.4073	5.8813	6.919

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
	42.7132	111.1921	23862.0111	14.6311	21.3687	1116.6824	47755.4205	55.6066	5.9073	6.95
L43	42.7132	98.3487	21208.3457	14.6666	21.3687	992.4975	42444.5979	49.1837	6.0833	8.111
	42.7694	98.4805	21293.7415	14.6862	21.3968	995.1837	42615.5018	49.2496	6.0931	8.124
L44	42.7694	100.0916	21629.0194	14.6818	21.3968	1010.8532	43286.4989	50.0553	6.0711	7.962
	43.8941	102.7720	23413.6248	15.0750	21.9594	1066.2223	46858.0580	51.3958	6.2660	8.218
L45	43.8941	101.1170	23050.1382	15.0794	21.9594	1049.6696	46130.6064	50.5681	6.2880	8.384
	45.0187	103.7535	24900.5562	15.4726	22.5220	1105.6080	49833.8773	51.8866	6.4829	8.644
L46	45.0187	100.3526	24111.9817	15.4815	22.5220	1070.5945	48255.6906	50.1858	6.5269	9.003
	46.1433	102.9012	25996.1085	15.8746	23.0847	1126.1197	52026.4234	51.4604	6.7218	9.272
L47	46.1433	104.6461	26422.1472	15.8702	23.0847	1144.5752	52879.0614	52.3330	6.6998	9.085
	46.4994	105.4670	27048.8879	15.9947	23.2628	1162.7511	54133.3675	52.7435	6.7616	9.168
L48	46.4994	107.2248	27484.4554	15.9903	23.2628	1181.4748	55005.0757	53.6226	6.7396	8.986
	46.5556	107.3567	27585.9498	16.0099	23.2910	1184.4055	55208.1978	53.6885	6.7493	8.999
L49	46.5556	103.8356	26710.7898	16.0188	23.2910	1146.8304	53456.7263	51.9277	6.7933	9.37
	46.7806	104.3453	27106.0866	16.0974	23.4035	1158.2069	54247.8401	52.1826	6.8323	9.424
L50	46.7806	118.4760	30641.2384	16.0619	23.4035	1309.2592	61322.7954	59.2492	6.6563	8.068
	46.8368	118.6210	30753.8846	16.0816	23.4316	1312.4948	61548.2359	59.3217	6.6660	8.08
L51	46.8368	116.8559	30312.9962	16.0860	23.4316	1293.6788	60665.8790	58.4391	6.6880	8.231
	47.4553	118.4268	31552.0045	16.3023	23.7411	1329.0052	63145.5260	59.2247	6.7953	8.363
L52	47.4553	111.2600	29707.1677	16.3200	23.7411	1251.2986	59453.4249	55.6406	6.8833	9.027
	47.5116	111.3940	29814.6508	16.3397	23.7692	1254.3397	59668.5324	55.7076	6.8930	9.04
L53	47.5116	111.3940	29814.6508	16.3397	23.7692	1254.3397	59668.5324	55.7076	6.8930	9.04
	48.6362	114.0745	32019.1033	16.7329	24.3318	1315.9350	64080.3382	57.0481	7.0879	9.296
L54	48.6362	112.2341	31519.2631	16.7373	24.3318	1295.3924	63080.0001	56.1277	7.1099	9.48
	49.7608	114.8706	33793.0992	17.1305	24.8945	1357.4549	67630.6642	57.4462	7.3049	9.74
L55	49.7608	111.0991	32717.4610	17.1393	24.8945	1314.2470	65477.9724	55.5601	7.3489	10.136
	50.8854	113.6477	35021.1099	17.5325	25.4571	1375.6923	70088.3016	56.8347	7.5438	10.405
L56	50.8854	117.5071	36173.7451	17.5236	25.4571	1420.9699	72395.0885	58.7647	7.4998	10
	51.2790	118.4299	37032.6586	17.6612	25.6540	1443.5433	74114.0457	59.2262	7.5680	10.091

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 160.00-155.00				1	1	1		
L2 155.00-150.00				1	1	1		
L3 150.00-				1	1	1		

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft^2	in					in	in
145.00								
L4 145.00-140.00				1	1	1		
L5 140.00-135.00				1	1	1		
L6 135.00-130.00				1	1	1		
L7 130.00-125.75				1	1	1		
L8 125.75-125.50				1	1	0.931958		
L9 125.50-119.12				1	1	0.937404		
L10 119.12-119.00				1	1	0.941687		
L11 119.00-118.75				1	1	0.921047		
L12 118.75-113.75				1	1	0.925923		
L13 113.75-108.75				1	1	0.932635		
L14 108.75-103.75				1	1	0.941141		
L15 103.75-103.00				1	1	0.938811		
L16 103.00-102.75				1	1	1.05757		
L17 102.75-100.20				1	1	1.04607		
L18 100.20-95.83				1	1	0.917609		
L19 95.83-94.83				1	1	0.93014		
L20 94.83-93.50				1	1	0.925112		
L21 93.50-93.25				1	1	0.909071		
L22 93.25-89.25				1	1	0.916969		
L23 89.25-89.00				1	1	0.909874		
L24 89.00-86.50				1	1	0.911372		
L25 86.50-86.25				1	1	0.920152		
L26 86.25-81.25				1	1	0.932567		
L27 81.25-76.25				1	1	0.931182		
L28 76.25-75.08				1	1	0.943274		
L29 75.08-74.83				1	1	0.929597		
L30 74.83-69.83				1	1	0.926195		
L31 69.83-64.83				1	1	0.938393		
L32 64.83-59.83				1	1	0.937219		
L33 59.83-59.50				1	1	0.936172		
L34 59.50-59.25				1	1	0.935389		
L35 59.25-54.25				1	1	0.950782		
L36 54.25-53.00				1	1	0.947006		

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
L37 53.00-47.20				1	1	1.01259		
L38 47.20-46.20				1	1	0.987368		
L39 46.20-41.20				1	1	0.958441		
L40 41.20-39.00				1	1	0.952812		
L41 39.00-38.75				1	1	0.976977		
L42 38.75-38.08				1	1	0.947001		
L43 38.08-37.83				1	1	0.980951		
L44 37.83-32.83				1	1	0.952816		
L45 32.83-27.83				1	1	0.956508		
L46 27.83-22.83				1	1	0.977241		
L47 22.83-21.25				1	1	0.957425		
L48 21.25-21.00				1	1	1.04016		
L49 21.00-20.00				1	1	1.0727		
L50 20.00-19.75				1	1	1.02215		
L51 19.75-17.00				1	1	1.02994		
L52 17.00-16.75				1	1	1.0417		
L53 16.75-11.75				1	1	1.02877		
L54 11.75-6.75				1	1	1.03312		
L55 6.75-1.75				1	1	1.05584		
L56 1.75-0.00				1	1	1.0171		

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
HB114-21U3M12-XXXF(1-1/4")	C	No	Inside Pole	159.00 - 0.00	1	No Ice	0.00	1.22
						1/2" Ice	0.00	1.22
						1" Ice	0.00	1.22
HB114-1-08U4-M5J(1 1/4")	C	No	Inside Pole	159.00 - 0.00	3	No Ice	0.00	1.08
						1/2" Ice	0.00	1.08
						1" Ice	0.00	1.08
LDF7-50A(1-5/8")	C	No	Inside Pole	150.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
FB-L98B-002-75000(3/8")	C	No	Inside Pole	150.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG122ST-BRDA(7/16)	C	No	Inside Pole	150.00 - 0.00	2	No Ice	0.00	0.14
						1/2" Ice	0.00	0.14
						1" Ice	0.00	0.14
LDF7-50A(1-5/8")	C	No	Inside Pole	139.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
LDF4-50A(1/2")	C	No	Inside Pole	109.00 - 0.00	1	No Ice	0.00	0.15

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
FSJ2-50(3/8")	C	No	Inside Pole	105.00 - 0.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
FXL 780 PE(7/8)	C	No	Inside Pole	105.00 - 0.00	12	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25
HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	127.00 - 0.00	2	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
***								
Aero MP3-03	A	No	CaAa (Out Of Face)	76.58 - 36.58	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
Aero MP3-03	B	No	CaAa (Out Of Face)	76.58 - 36.58	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
Aero MP3-03	C	No	CaAa (Out Of Face)	76.58 - 36.58	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
Aero MP3-03	A	No	CaAa (Out Of Face)	40.50 - 0.50	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
Aero MP3-03	B	No	CaAa (Out Of Face)	40.50 - 0.50	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
Aero MP3-03	C	No	CaAa (Out Of Face)	40.50 - 0.50	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
PL1.25x5 Reinforcement - Wind Area	A	No	CaAa (Out Of Face)	127.00 - 1.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
PL1.25x5 Reinforcement - Wind Area	B	No	CaAa (Out Of Face)	127.00 - 1.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
PL1.25x5 Reinforcement - Wind Area	C	No	CaAa (Out Of Face)	127.00 - 1.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
****								
CCI-SFP-085125	A	No	CaAa (Out Of Face)	25.00 - 0.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
CCI-SFP-085125	B	No	CaAa (Out Of Face)	20.00 - 0.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
CCI-SFP-085125	C	No	CaAa (Out Of Face)	20.00 - 0.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
CCI-SFP-060100	A	No	CaAa (Out Of Face)	105.00 - 15.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
CCI-SFP-060100	C	No	CaAa (Out Of Face)	105.00 - 20.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
CCI-SFP-060100	B	No	CaAa (Out Of Face)	55.00 - 20.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
CCI-SFP-060100	B	No	CaAa (Out Of Face)	102.20 - 47.20	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
CCI-SFP-045100	A	No	CaAa (Out Of Face)	95.00 - 85.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
CCI-SFP-045100	B	No	CaAa (Out Of Face)	95.00 - 85.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
CCI-SFP-045100	C	No	CaAa (Out Of Face)	95.00 - 85.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.33	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	160.00-155.00	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	0.02
L2	155.00-150.00	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	0.02
L3	150.00-145.00	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	0.07
L4	145.00-140.00	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	0.07
L5	140.00-135.00	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	0.11
L6	135.00-130.00	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	0.12
L7	130.00-125.75	A	0.000	0.000	0.000	0.260	0.00
		B	0.000	0.000	0.000	0.260	0.00
		C	0.000	0.000	0.000	0.260	0.11
L8	125.75-125.50	A	0.000	0.000	0.000	0.052	0.00
		B	0.000	0.000	0.000	0.052	0.00
		C	0.000	0.000	0.000	0.052	0.01
L9	125.50-119.12	A	0.000	0.000	0.000	1.327	0.00
		B	0.000	0.000	0.000	1.327	0.00
		C	0.000	0.000	0.000	1.327	0.17
L10	119.12-119.00	A	0.000	0.000	0.000	0.025	0.00
		B	0.000	0.000	0.000	0.025	0.00
		C	0.000	0.000	0.000	0.025	0.00
L11	119.00-118.75	A	0.000	0.000	0.000	0.052	0.00
		B	0.000	0.000	0.000	0.052	0.00
		C	0.000	0.000	0.000	0.052	0.01
L12	118.75-113.75	A	0.000	0.000	0.000	1.040	0.00
		B	0.000	0.000	0.000	1.040	0.00
		C	0.000	0.000	0.000	1.040	0.14
L13	113.75-108.75	A	0.000	0.000	0.000	1.040	0.00
		B	0.000	0.000	0.000	1.040	0.00
		C	0.000	0.000	0.000	1.040	0.14
L14	108.75-103.75	A	0.000	0.000	0.000	1.248	0.00
		B	0.000	0.000	0.000	1.040	0.00
		C	0.000	0.000	0.000	1.248	0.14
L15	103.75-103.00	A	0.000	0.000	0.000	0.281	0.00
		B	0.000	0.000	0.000	0.156	0.00
		C	0.000	0.000	0.000	0.281	0.02
L16	103.00-102.75	A	0.000	0.000	0.000	0.094	0.00
		B	0.000	0.000	0.000	0.052	0.00
		C	0.000	0.000	0.000	0.094	0.01
L17	102.75-100.20	A	0.000	0.000	0.000	0.955	0.00
		B	0.000	0.000	0.000	0.864	0.00
		C	0.000	0.000	0.000	0.955	0.08
L18	100.20-95.83	A	0.000	0.000	0.000	1.637	0.00
		B	0.000	0.000	0.000	1.637	0.00
		C	0.000	0.000	0.000	1.637	0.13
L19	95.83-94.83	A	0.000	0.000	0.000	0.403	0.00
		B	0.000	0.000	0.000	0.403	0.00
		C	0.000	0.000	0.000	0.403	0.03
L20	94.83-93.50	A	0.000	0.000	0.000	0.720	0.00
		B	0.000	0.000	0.000	0.720	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 K
		C	0.000	0.000	0.000	0.720	0.04
L21	93.50-93.25	A	0.000	0.000	0.000	0.135	0.00
		B	0.000	0.000	0.000	0.135	0.00
		C	0.000	0.000	0.000	0.135	0.01
L22	93.25-89.25	A	0.000	0.000	0.000	2.165	0.00
		B	0.000	0.000	0.000	2.165	0.00
		C	0.000	0.000	0.000	2.165	0.12
L23	89.25-89.00	A	0.000	0.000	0.000	0.135	0.00
		B	0.000	0.000	0.000	0.135	0.00
		C	0.000	0.000	0.000	0.135	0.01
L24	89.00-86.50	A	0.000	0.000	0.000	1.353	0.00
		B	0.000	0.000	0.000	1.353	0.00
		C	0.000	0.000	0.000	1.353	0.08
L25	86.50-86.25	A	0.000	0.000	0.000	0.135	0.00
		B	0.000	0.000	0.000	0.135	0.00
		C	0.000	0.000	0.000	0.135	0.01
L26	86.25-81.25	A	0.000	0.000	0.000	2.082	0.00
		B	0.000	0.000	0.000	2.082	0.00
		C	0.000	0.000	0.000	2.082	0.15
L27	81.25-76.25	A	0.000	0.000	0.000	1.961	0.00
		B	0.000	0.000	0.000	1.961	0.00
		C	0.000	0.000	0.000	1.961	0.15
L28	76.25-75.08	A	0.000	0.000	0.000	0.743	0.00
		B	0.000	0.000	0.000	0.743	0.00
		C	0.000	0.000	0.000	0.743	0.04
L29	75.08-74.83	A	0.000	0.000	0.000	0.159	0.00
		B	0.000	0.000	0.000	0.159	0.00
		C	0.000	0.000	0.000	0.159	0.01
L30	74.83-69.83	A	0.000	0.000	0.000	3.186	0.00
		B	0.000	0.000	0.000	3.186	0.00
		C	0.000	0.000	0.000	3.186	0.15
L31	69.83-64.83	A	0.000	0.000	0.000	3.186	0.00
		B	0.000	0.000	0.000	3.186	0.00
		C	0.000	0.000	0.000	3.186	0.15
L32	64.83-59.83	A	0.000	0.000	0.000	3.186	0.00
		B	0.000	0.000	0.000	3.186	0.00
		C	0.000	0.000	0.000	3.186	0.15
L33	59.83-59.50	A	0.000	0.000	0.000	0.212	0.00
		B	0.000	0.000	0.000	0.212	0.00
		C	0.000	0.000	0.000	0.212	0.01
L34	59.50-59.25	A	0.000	0.000	0.000	0.159	0.00
		B	0.000	0.000	0.000	0.159	0.00
		C	0.000	0.000	0.000	0.159	0.01
L35	59.25-54.25	A	0.000	0.000	0.000	3.186	0.00
		B	0.000	0.000	0.000	3.311	0.00
		C	0.000	0.000	0.000	3.186	0.15
L36	54.25-53.00	A	0.000	0.000	0.000	0.796	0.00
		B	0.000	0.000	0.000	1.005	0.00
		C	0.000	0.000	0.000	0.796	0.04
L37	53.00-47.20	A	0.000	0.000	0.000	3.695	0.00
		B	0.000	0.000	0.000	4.662	0.00
		C	0.000	0.000	0.000	3.695	0.18
L38	47.20-46.20	A	0.000	0.000	0.000	0.637	0.00
		B	0.000	0.000	0.000	0.637	0.00
		C	0.000	0.000	0.000	0.637	0.03
L39	46.20-41.20	A	0.000	0.000	0.000	3.186	0.00
		B	0.000	0.000	0.000	3.186	0.00
		C	0.000	0.000	0.000	3.186	0.15
L40	41.20-39.00	A	0.000	0.000	0.000	1.795	0.00
		B	0.000	0.000	0.000	1.795	0.00
		C	0.000	0.000	0.000	1.795	0.07
L41	39.00-38.75	A	0.000	0.000	0.000	0.225	0.00
		B	0.000	0.000	0.000	0.225	0.00
		C	0.000	0.000	0.000	0.225	0.01
L42	38.75-38.08	A	0.000	0.000	0.000	0.600	0.00
		B	0.000	0.000	0.000	0.600	0.00
		C	0.000	0.000	0.000	0.600	0.02
L43	38.08-37.83	A	0.000	0.000	0.000	0.225	0.00
		B	0.000	0.000	0.000	0.225	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 K
		C	0.000	0.000	0.000	0.225	0.01
L44	37.83-32.83	A	0.000	0.000	0.000	3.514	0.00
		B	0.000	0.000	0.000	3.514	0.00
		C	0.000	0.000	0.000	3.514	0.15
L45	32.83-27.83	A	0.000	0.000	0.000	3.186	0.00
		B	0.000	0.000	0.000	3.186	0.00
		C	0.000	0.000	0.000	3.186	0.15
L46	27.83-22.83	A	0.000	0.000	0.000	3.637	0.00
		B	0.000	0.000	0.000	3.186	0.00
		C	0.000	0.000	0.000	3.186	0.15
L47	22.83-21.25	A	0.000	0.000	0.000	1.339	0.00
		B	0.000	0.000	0.000	1.009	0.00
		C	0.000	0.000	0.000	1.009	0.05
L48	21.25-21.00	A	0.000	0.000	0.000	0.211	0.00
		B	0.000	0.000	0.000	0.159	0.00
		C	0.000	0.000	0.000	0.159	0.01
L49	21.00-20.00	A	0.000	0.000	0.000	0.845	0.00
		B	0.000	0.000	0.000	0.637	0.00
		C	0.000	0.000	0.000	0.637	0.03
L50	20.00-19.75	A	0.000	0.000	0.000	0.211	0.00
		B	0.000	0.000	0.000	0.170	0.00
		C	0.000	0.000	0.000	0.170	0.01
L51	19.75-17.00	A	0.000	0.000	0.000	2.325	0.00
		B	0.000	0.000	0.000	1.867	0.00
		C	0.000	0.000	0.000	1.867	0.08
L52	17.00-16.75	A	0.000	0.000	0.000	0.211	0.00
		B	0.000	0.000	0.000	0.170	0.00
		C	0.000	0.000	0.000	0.170	0.01
L53	16.75-11.75	A	0.000	0.000	0.000	3.686	0.00
		B	0.000	0.000	0.000	3.394	0.00
		C	0.000	0.000	0.000	3.394	0.15
L54	11.75-6.75	A	0.000	0.000	0.000	3.394	0.00
		B	0.000	0.000	0.000	3.394	0.00
		C	0.000	0.000	0.000	3.394	0.15
L55	6.75-1.75	A	0.000	0.000	0.000	3.394	0.00
		B	0.000	0.000	0.000	3.394	0.00
		C	0.000	0.000	0.000	3.394	0.15
L56	1.75-0.00	A	0.000	0.000	0.000	0.849	0.00
		B	0.000	0.000	0.000	0.849	0.00
		C	0.000	0.000	0.000	0.849	0.05

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	160.00-155.00	A	1.000	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	0.02
L2	155.00-150.00	A	1.000	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	0.02
L3	150.00-145.00	A	1.000	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	0.07
L4	145.00-140.00	A	1.000	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	0.07
L5	140.00-135.00	A	1.000	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	0.11
L6	135.00-130.00	A	1.000	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	0.12
L7	130.00-125.75	A	1.000	0.000	0.000	0.000	0.469	0.00
		B		0.000	0.000	0.000	0.469	0.00

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
		C		0.000	0.000	0.000	0.469	0.11
L8	125.75-125.50	A	1.000	0.000	0.000	0.000	0.094	0.00
		B		0.000	0.000	0.000	0.094	0.00
		C		0.000	0.000	0.000	0.094	0.01
L9	125.50-119.12	A	1.000	0.000	0.000	0.000	2.393	0.00
		B		0.000	0.000	0.000	2.393	0.00
		C		0.000	0.000	0.000	2.393	0.17
L10	119.12-119.00	A	1.000	0.000	0.000	0.000	0.045	0.00
		B		0.000	0.000	0.000	0.045	0.00
		C		0.000	0.000	0.000	0.045	0.00
L11	119.00-118.75	A	1.000	0.000	0.000	0.000	0.094	0.00
		B		0.000	0.000	0.000	0.094	0.00
		C		0.000	0.000	0.000	0.094	0.01
L12	118.75-113.75	A	1.000	0.000	0.000	0.000	1.875	0.00
		B		0.000	0.000	0.000	1.875	0.00
		C		0.000	0.000	0.000	1.875	0.14
L13	113.75-108.75	A	1.000	0.000	0.000	0.000	1.875	0.00
		B		0.000	0.000	0.000	1.875	0.00
		C		0.000	0.000	0.000	1.875	0.14
L14	108.75-103.75	A	1.000	0.000	0.000	0.000	2.292	0.00
		B		0.000	0.000	0.000	1.875	0.00
		C		0.000	0.000	0.000	2.292	0.14
L15	103.75-103.00	A	1.000	0.000	0.000	0.000	0.531	0.00
		B		0.000	0.000	0.000	0.281	0.00
		C		0.000	0.000	0.000	0.531	0.02
L16	103.00-102.75	A	1.000	0.000	0.000	0.000	0.177	0.00
		B		0.000	0.000	0.000	0.094	0.00
		C		0.000	0.000	0.000	0.177	0.01
L17	102.75-100.20	A	1.000	0.000	0.000	0.000	1.806	0.00
		B		0.000	0.000	0.000	1.623	0.00
		C		0.000	0.000	0.000	1.806	0.08
L18	100.20-95.83	A	1.000	0.000	0.000	0.000	3.095	0.00
		B		0.000	0.000	0.000	3.095	0.00
		C		0.000	0.000	0.000	3.095	0.13
L19	95.83-94.83	A	1.000	0.000	0.000	0.000	0.765	0.00
		B		0.000	0.000	0.000	0.765	0.00
		C		0.000	0.000	0.000	0.765	0.03
L20	94.83-93.50	A	1.000	0.000	0.000	0.000	1.385	0.00
		B		0.000	0.000	0.000	1.385	0.00
		C		0.000	0.000	0.000	1.385	0.04
L21	93.50-93.25	A	1.000	0.000	0.000	0.000	0.260	0.00
		B		0.000	0.000	0.000	0.260	0.00
		C		0.000	0.000	0.000	0.260	0.01
L22	93.25-89.25	A	1.000	0.000	0.000	0.000	4.167	0.00
		B		0.000	0.000	0.000	4.167	0.00
		C		0.000	0.000	0.000	4.167	0.12
L23	89.25-89.00	A	1.000	0.000	0.000	0.000	0.260	0.00
		B		0.000	0.000	0.000	0.260	0.00
		C		0.000	0.000	0.000	0.260	0.01
L24	89.00-86.50	A	1.000	0.000	0.000	0.000	2.604	0.00
		B		0.000	0.000	0.000	2.604	0.00
		C		0.000	0.000	0.000	2.604	0.08
L25	86.50-86.25	A	1.000	0.000	0.000	0.000	0.260	0.00
		B		0.000	0.000	0.000	0.260	0.00
		C		0.000	0.000	0.000	0.260	0.01
L26	86.25-81.25	A	1.000	0.000	0.000	0.000	3.958	0.00
		B		0.000	0.000	0.000	3.958	0.00
		C		0.000	0.000	0.000	3.958	0.15
L27	81.25-76.25	A	1.000	0.000	0.000	0.000	3.703	0.00
		B		0.000	0.000	0.000	3.703	0.00
		C		0.000	0.000	0.000	3.703	0.15
L28	76.25-75.08	A	1.000	0.000	0.000	0.000	1.392	0.00
		B		0.000	0.000	0.000	1.392	0.00
		C		0.000	0.000	0.000	1.392	0.04
L29	75.08-74.83	A	1.000	0.000	0.000	0.000	0.298	0.00
		B		0.000	0.000	0.000	0.298	0.00
		C		0.000	0.000	0.000	0.298	0.01
L30	74.83-69.83	A	1.000	0.000	0.000	0.000	5.965	0.00
		B		0.000	0.000	0.000	5.965	0.00

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
		C		0.000	0.000	0.000	5.965	0.15
L31	69.83-64.83	A	1.000	0.000	0.000	0.000	5.965	0.00
		B		0.000	0.000	0.000	5.965	0.00
		C		0.000	0.000	0.000	5.965	0.15
L32	64.83-59.83	A	1.000	0.000	0.000	0.000	5.965	0.00
		B		0.000	0.000	0.000	5.965	0.00
		C		0.000	0.000	0.000	5.965	0.15
L33	59.83-59.50	A	1.000	0.000	0.000	0.000	0.398	0.00
		B		0.000	0.000	0.000	0.398	0.00
		C		0.000	0.000	0.000	0.398	0.01
L34	59.50-59.25	A	1.000	0.000	0.000	0.000	0.298	0.00
		B		0.000	0.000	0.000	0.298	0.00
		C		0.000	0.000	0.000	0.298	0.01
L35	59.25-54.25	A	1.000	0.000	0.000	0.000	5.965	0.00
		B		0.000	0.000	0.000	6.215	0.00
		C		0.000	0.000	0.000	5.965	0.15
L36	54.25-53.00	A	1.000	0.000	0.000	0.000	1.491	0.00
		B		0.000	0.000	0.000	1.908	0.00
		C		0.000	0.000	0.000	1.491	0.04
L37	53.00-47.20	A	1.000	0.000	0.000	0.000	6.920	0.00
		B		0.000	0.000	0.000	8.853	0.00
		C		0.000	0.000	0.000	6.920	0.18
L38	47.20-46.20	A	1.000	0.000	0.000	0.000	1.193	0.00
		B		0.000	0.000	0.000	1.193	0.00
		C		0.000	0.000	0.000	1.193	0.03
L39	46.20-41.20	A	1.000	0.000	0.000	0.000	5.965	0.00
		B		0.000	0.000	0.000	5.965	0.00
		C		0.000	0.000	0.000	5.965	0.15
L40	41.20-39.00	A	1.000	0.000	0.000	0.000	3.352	0.00
		B		0.000	0.000	0.000	3.352	0.00
		C		0.000	0.000	0.000	3.352	0.07
L41	39.00-38.75	A	1.000	0.000	0.000	0.000	0.419	0.00
		B		0.000	0.000	0.000	0.419	0.00
		C		0.000	0.000	0.000	0.419	0.01
L42	38.75-38.08	A	1.000	0.000	0.000	0.000	1.119	0.00
		B		0.000	0.000	0.000	1.119	0.00
		C		0.000	0.000	0.000	1.119	0.02
L43	38.08-37.83	A	1.000	0.000	0.000	0.000	0.419	0.00
		B		0.000	0.000	0.000	0.419	0.00
		C		0.000	0.000	0.000	0.419	0.01
L44	37.83-32.83	A	1.000	0.000	0.000	0.000	6.571	0.00
		B		0.000	0.000	0.000	6.571	0.00
		C		0.000	0.000	0.000	6.571	0.15
L45	32.83-27.83	A	1.000	0.000	0.000	0.000	5.965	0.00
		B		0.000	0.000	0.000	5.965	0.00
		C		0.000	0.000	0.000	5.965	0.15
L46	27.83-22.83	A	1.000	0.000	0.000	0.000	6.778	0.00
		B		0.000	0.000	0.000	5.965	0.00
		C		0.000	0.000	0.000	5.965	0.15
L47	22.83-21.25	A	1.000	0.000	0.000	0.000	2.483	0.00
		B		0.000	0.000	0.000	1.889	0.00
		C		0.000	0.000	0.000	1.889	0.05
L48	21.25-21.00	A	1.000	0.000	0.000	0.000	0.392	0.00
		B		0.000	0.000	0.000	0.298	0.00
		C		0.000	0.000	0.000	0.298	0.01
L49	21.00-20.00	A	1.000	0.000	0.000	0.000	1.568	0.00
		B		0.000	0.000	0.000	1.193	0.00
		C		0.000	0.000	0.000	1.193	0.03
L50	20.00-19.75	A	1.000	0.000	0.000	0.000	0.392	0.00
		B		0.000	0.000	0.000	0.309	0.00
		C		0.000	0.000	0.000	0.309	0.01
L51	19.75-17.00	A	1.000	0.000	0.000	0.000	4.312	0.00
		B		0.000	0.000	0.000	3.395	0.00
		C		0.000	0.000	0.000	3.395	0.08
L52	17.00-16.75	A	1.000	0.000	0.000	0.000	0.392	0.00
		B		0.000	0.000	0.000	0.309	0.00
		C		0.000	0.000	0.000	0.309	0.01
L53	16.75-11.75	A	1.000	0.000	0.000	0.000	6.757	0.00
		B		0.000	0.000	0.000	6.173	0.00

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
		C		0.000	0.000	0.000	6.173	0.15
L54	11.75-6.75	A	1.000	0.000	0.000	0.000	6.173	0.00
		B		0.000	0.000	0.000	6.173	0.00
		C		0.000	0.000	0.000	6.173	0.15
L55	6.75-1.75	A	1.000	0.000	0.000	0.000	6.173	0.00
		B		0.000	0.000	0.000	6.173	0.00
		C		0.000	0.000	0.000	6.173	0.15
L56	1.75-0.00	A	1.000	0.000	0.000	0.000	1.543	0.00
		B		0.000	0.000	0.000	1.543	0.00
		C		0.000	0.000	0.000	1.543	0.05

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.00-155.00	0.0000	0.0000	0.0000	0.0000
L2	155.00-150.00	0.0000	0.0000	0.0000	0.0000
L3	150.00-145.00	0.0000	0.0000	0.0000	0.0000
L4	145.00-140.00	0.0000	0.0000	0.0000	0.0000
L5	140.00-135.00	0.0000	0.0000	0.0000	0.0000
L6	135.00-130.00	0.0000	0.0000	0.0000	0.0000
L7	130.00-125.75	0.0000	0.0000	0.0000	0.0000
L8	125.75-125.50	0.0000	0.0000	0.0000	0.0000
L9	125.50-119.12	0.0000	0.0000	0.0000	0.0000
L10	119.12-119.00	0.0000	0.0000	0.0000	0.0000
L11	119.00-118.75	0.0000	0.0000	0.0000	0.0000
L12	118.75-113.75	0.0000	0.0000	0.0000	0.0000
L13	113.75-108.75	0.0000	0.0000	0.0000	0.0000
L14	108.75-103.75	-0.0422	-0.0244	-0.0677	-0.0391
L15	103.75-103.00	-0.1547	-0.0893	-0.2382	-0.1375
L16	103.00-102.75	-0.1548	-0.0894	-0.2386	-0.1378
L17	102.75-100.20	-0.0320	-0.0185	-0.0484	-0.0280
L18	100.20-95.83	0.0000	0.0000	0.0000	0.0000
L19	95.83-94.83	0.0000	0.0000	0.0000	0.0000
L20	94.83-93.50	0.0000	0.0000	0.0000	0.0000
L21	93.50-93.25	0.0000	0.0000	0.0000	0.0000
L22	93.25-89.25	0.0000	0.0000	0.0000	0.0000
L23	89.25-89.00	0.0000	0.0000	0.0000	0.0000
L24	89.00-86.50	0.0000	0.0000	0.0000	0.0000
L25	86.50-86.25	0.0000	0.0000	0.0000	0.0000
L26	86.25-81.25	0.0000	0.0000	0.0000	0.0000
L27	81.25-76.25	0.0000	0.0000	0.0000	0.0000
L28	76.25-75.08	0.0000	0.0000	0.0000	0.0000
L29	75.08-74.83	0.0000	0.0000	0.0000	0.0000
L30	74.83-69.83	0.0000	0.0000	0.0000	0.0000
L31	69.83-64.83	0.0000	0.0000	0.0000	0.0000
L32	64.83-59.83	0.0000	0.0000	0.0000	0.0000
L33	59.83-59.50	0.0000	0.0000	0.0000	0.0000
L34	59.50-59.25	0.0000	0.0000	0.0000	0.0000
L35	59.25-54.25	0.0205	0.0118	0.0301	0.0174
L36	54.25-53.00	0.1324	0.0764	0.1927	0.1112
L37	53.00-47.20	0.1334	0.0770	0.1948	0.1125
L38	47.20-46.20	0.0000	0.0000	0.0000	0.0000
L39	46.20-41.20	0.0000	0.0000	0.0000	0.0000
L40	41.20-39.00	0.0000	0.0000	0.0000	0.0000
L41	39.00-38.75	0.0000	0.0000	0.0000	0.0000
L42	38.75-38.08	0.0000	0.0000	0.0000	0.0000
L43	38.08-37.83	0.0000	0.0000	0.0000	0.0000
L44	37.83-32.83	0.0000	0.0000	0.0000	0.0000
L45	32.83-27.83	0.0000	0.0000	0.0000	0.0000
L46	27.83-22.83	0.0000	-0.0888	0.0000	-0.1200
L47	22.83-21.25	0.0000	-0.2006	0.0000	-0.2699
L48	21.25-21.00	0.0000	-0.2009	0.0000	-0.2705
L49	21.00-20.00	0.0000	-0.2012	0.0000	-0.2710

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L50	20.00-19.75	0.0000	-0.1589	0.0000	-0.2387
L51	19.75-17.00	0.0000	-0.1593	0.0000	-0.2396
L52	17.00-16.75	0.0000	-0.1597	0.0000	-0.2405
L53	16.75-11.75	0.0000	-0.0567	0.0000	-0.0864
L54	11.75-6.75	0.0000	0.0000	0.0000	0.0000
L55	6.75-1.75	0.0000	0.0000	0.0000	0.0000
L56	1.75-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

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
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	3.00 6.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	8.50 9.15 9.77	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	3.00 6.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	8.50 9.15 9.77	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	3.00 6.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	8.50 9.15 9.77	6.95 8.13 9.02	0.08 0.15 0.23
800MHz 2X50W RRH W/FILTER	A	From Leg	3.00 0.00 -3.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	2.40 2.61 2.83	2.25 2.46 2.68	0.06 0.09 0.11
PCS 1900MHz 4x45W-65MHz	A	From Leg	3.00 0.00 -3.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	2.71 2.95 3.20	2.61 2.85 3.09	0.06 0.08 0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	3.00 0.00 0.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	2.40 2.61 2.83	2.25 2.46 2.68	0.06 0.09 0.11
PCS 1900MHz 4x45W-65MHz	B	From Leg	3.00 0.00 -3.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	2.71 2.95 3.20	2.61 2.85 3.09	0.06 0.08 0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	3.00 0.00 0.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	2.40 2.61 2.83	2.25 2.46 2.68	0.06 0.09 0.11
PCS 1900MHz 4x45W-65MHz	C	From Leg	3.00 0.00 0.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	2.71 2.95 3.20	2.61 2.85 3.09	0.06 0.08 0.11
2.375" OD x 5' Mount Pipe	A	From Leg	3.00 2.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
2.375" OD x 5' Mount Pipe	A	From Leg	3.00 -2.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
2.375" OD x 5' Mount Pipe	B	From Leg	3.00 2.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 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
2.375" OD x 5' Mount Pipe	B	From Leg	3.00 -2.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
2.375" OD x 5' Mount Pipe	C	From Leg	3.00 2.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
2.375" OD x 5' Mount Pipe	C	From Leg	3.00 -2.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	1.19 1.50 1.81	1.19 1.50 1.81	0.02 0.03 0.04
Platform Mount [LP 712-1]	C	From Leg	0.00 0.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice	24.53 29.94 35.35	24.53 29.94 35.35	1.34 1.65 1.96
Side Arm Mount [SO 102-3]	C	None		0.0000	157.00	No Ice 1/2" Ice 1" Ice	3.00 3.48 3.96	3.00 3.48 3.96	0.08 0.11 0.14
(2) 7770.00 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	6.12 6.63 7.13	4.25 5.01 5.71	0.06 0.10 0.16
(2) LGP21401	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.45 1.61	0.36 0.48 0.60	0.01 0.02 0.03
(2) LGP21901	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.27 0.34 0.43	0.18 0.25 0.32	0.01 0.01 0.01
AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	11.55 12.27 13.00	8.94 10.45 11.99	0.09 0.18 0.27
(2) 7770.00 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	6.12 6.63 7.13	4.25 5.01 5.71	0.06 0.10 0.16
(2) LGP21401	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.45 1.61	0.36 0.48 0.60	0.01 0.02 0.03
(2) LGP21901	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.27 0.34 0.43	0.18 0.25 0.32	0.01 0.01 0.01
AM-X-CD-17-65-00T-RET w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	11.55 12.27 13.00	8.94 10.45 11.99	0.09 0.18 0.27
DC6-48-60-18-8F	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.57 2.80 3.04	2.57 2.80 3.04	0.02 0.04 0.07
(2) 7770.00 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	6.12 6.63 7.13	4.25 5.01 5.71	0.06 0.10 0.16
(2) LGP21401	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.29 1.45 1.61	0.36 0.48 0.60	0.01 0.02 0.03
(2) LGP21901	C	From Leg	3.00	0.0000	150.00	No Ice	0.27	0.18	0.01

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	0.34	0.25	0.01
			0.00				1" Ice	0.43	0.32	0.01
AM-X-CD-17-65-00T-RET w/ Mount Pipe	C	From Leg	3.00		0.0000	150.00	No Ice	11.55	8.94	0.09
			0.00				1/2" Ice	12.27	10.45	0.18
			0.00				1" Ice	13.00	11.99	0.27
Platform Mount [LP 303-1]	C	None			0.0000	150.00	No Ice	14.66	14.66	1.25
							1/2" Ice	18.87	18.87	1.48
							1" Ice	23.08	23.08	1.71
**										
(2) TME-RRUS-11	A	From Leg	3.00		0.0000	148.00	No Ice	3.25	1.37	0.05
			0.00				1/2" Ice	3.49	1.55	0.07
			0.00				1" Ice	3.74	1.74	0.09
(2) TME-RRUS-11	B	From Leg	3.00		0.0000	148.00	No Ice	3.25	1.37	0.05
			0.00				1/2" Ice	3.49	1.55	0.07
			0.00				1" Ice	3.74	1.74	0.09
(2) TME-RRUS-11	C	From Leg	3.00		0.0000	148.00	No Ice	3.25	1.37	0.05
			0.00				1/2" Ice	3.49	1.55	0.07
			0.00				1" Ice	3.74	1.74	0.09
Side Arm Mount [SO 102-3]	C	None			0.0000	148.00	No Ice	3.00	3.00	0.08
							1/2" Ice	3.48	3.48	0.11
							1" Ice	3.96	3.96	0.14
**										
(2) DR85-17-02DPL2Q w/ Mount Pipe	A	From Leg	3.00		30.0000	139.00	No Ice	6.54	3.73	0.04
			0.00				1/2" Ice	7.04	4.46	0.09
			0.00				1" Ice	7.54	5.14	0.14
(2) DR85-17-02DPL2Q w/ Mount Pipe	B	From Leg	3.00		70.0000	139.00	No Ice	6.54	3.73	0.04
			0.00				1/2" Ice	7.04	4.46	0.09
			0.00				1" Ice	7.54	5.14	0.14
(2) KRY 112 71/3	A	From Leg	3.00		30.0000	139.00	No Ice	0.69	0.41	0.01
			0.00				1/2" Ice	0.81	0.51	0.02
			0.00				1" Ice	0.94	0.63	0.02
(2) KRY 112 71/3	B	From Leg	3.00		70.0000	139.00	No Ice	0.69	0.41	0.01
			0.00				1/2" Ice	0.81	0.51	0.02
			0.00				1" Ice	0.94	0.63	0.02
(2) DR85-17-02DPL2Q w/ Mount Pipe	C	From Leg	3.00		60.0000	139.00	No Ice	6.54	3.73	0.04
			0.00				1/2" Ice	7.04	4.46	0.09
			0.00				1" Ice	7.54	5.14	0.14
(2) KRY 112 71/3	C	From Leg	3.00		60.0000	139.00	No Ice	0.69	0.41	0.01
			0.00				1/2" Ice	0.81	0.51	0.02
			0.00				1" Ice	0.94	0.63	0.02
DR85-17-02DPL2Q w/ Mount Pipe	A	From Leg	3.00		30.0000	139.00	No Ice	6.54	3.73	0.04
			0.00				1/2" Ice	7.04	4.46	0.09
			0.00				1" Ice	7.54	5.14	0.14
DR85-17-02DPL2Q w/ Mount Pipe	B	From Leg	3.00		70.0000	139.00	No Ice	6.54	3.73	0.04
			0.00				1/2" Ice	7.04	4.46	0.09
			0.00				1" Ice	7.54	5.14	0.14
DR85-17-02DPL2Q w/ Mount Pipe	C	From Leg	3.00		60.0000	139.00	No Ice	6.54	3.73	0.04
			0.00				1/2" Ice	7.04	4.46	0.09
			0.00				1" Ice	7.54	5.14	0.14

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
T-Arm Mount [TA 602-1]	A	From Leg	0.00 0.00 0.00	30.0000	139.00	No Ice 1/2" Ice 1" Ice	7.28 9.52 11.76	3.02 4.20 5.38	0.26 0.33 0.40
T-Arm Mount [TA 602-1]	B	From Leg	0.00 0.00 0.00	70.0000	139.00	No Ice 1/2" Ice 1" Ice	7.28 9.52 11.76	3.02 4.20 5.38	0.26 0.33 0.40
T-Arm Mount [TA 602-1]	C	From Leg	0.00 0.00 0.00	60.0000	139.00	No Ice 1/2" Ice 1" Ice	7.28 9.52 11.76	3.02 4.20 5.38	0.26 0.33 0.40
RRH2X40-07-U	A	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	2.25 2.45 2.66	1.23 1.39 1.55	0.05 0.07 0.09
RRH2x60-AWS	A	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	3.96 4.27 4.60	2.16 2.44 2.73	0.06 0.08 0.11
RRH2X60-PCS	A	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	2.57 2.79 3.02	2.01 2.22 2.43	0.06 0.08 0.10
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	8.98 9.65 10.29	6.96 8.18 9.14	0.07 0.14 0.21
(2) LNX-6514DS-AIM w/ Mount Pipe	A	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	8.65 9.31 9.93	7.08 8.27 9.18	0.06 0.13 0.21
(2) DB-T1-6Z-8AB-0Z	A	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	5.60 5.92 6.24	2.33 2.56 2.79	0.04 0.08 0.12
RRH2X40-07-U	B	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	2.25 2.45 2.66	1.23 1.39 1.55	0.05 0.07 0.09
RRH2x60-AWS	B	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	3.96 4.27 4.60	2.16 2.44 2.73	0.06 0.08 0.11
RRH2X60-PCS	B	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	2.57 2.79 3.02	2.01 2.22 2.43	0.06 0.08 0.10
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	8.98 9.65 10.29	6.96 8.18 9.14	0.07 0.14 0.21
(2) LNX-6514DS-AIM w/ Mount Pipe	B	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	8.65 9.31 9.93	7.08 8.27 9.18	0.06 0.13 0.21
RRH2X40-07-U	C	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	2.25 2.45 2.66	1.23 1.39 1.55	0.05 0.07 0.09
RRH2x60-AWS	C	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	3.96 4.27 4.60	2.16 2.44 2.73	0.06 0.08 0.11
RRH2X60-PCS	C	From Leg	3.00	0.0000	127.00	No Ice	2.57	2.01	0.06

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
			0.00 3.00			1/2" Ice 1" Ice	2.79 3.02	2.22 2.43	0.08 0.10
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	8.98 9.65 10.29	6.96 8.18 9.14	0.07 0.14 0.21
(2) LNX-6514DS-AIM w/ Mount Pipe	C	From Leg	3.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice	8.65 9.31 9.93	7.08 8.27 9.18	0.06 0.13 0.21
Platform Mount [LP 303-1]	C	None		0.0000	127.00	No Ice 1/2" Ice 1" Ice	14.66 18.87 23.08	14.66 18.87 23.08	1.25 1.48 1.71
**									
Side Arm Mount [SO 701-1]	C	None		0.0000	109.00	No Ice 1/2" Ice 1" Ice	0.85 1.14 1.43	1.67 2.34 3.01	0.07 0.08 0.09
DB589	B	From Leg	3.00 0.00 5.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	2.13 3.00 3.76	2.13 3.00 3.76	0.01 0.03 0.05
**									
(2) 800 10504 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	3.59 4.01 4.42	3.18 3.91 4.58	0.04 0.07 0.11
(2) 860 10025	A	From Leg	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	0.16 0.23 0.30	0.14 0.20 0.27	0.00 0.00 0.01
(2) 800 10504 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	3.59 4.01 4.42	3.18 3.91 4.58	0.04 0.07 0.11
(2) 860 10025	B	From Leg	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	0.16 0.23 0.30	0.14 0.20 0.27	0.00 0.00 0.01
(2) 800 10504 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	3.59 4.01 4.42	3.18 3.91 4.58	0.04 0.07 0.11
(2) 860 10025	C	From Leg	3.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice 1" Ice	0.16 0.23 0.30	0.14 0.20 0.27	0.00 0.00 0.01
Sector Mount [SM 506-3]	C	None		0.0000	105.00	No Ice 1/2" Ice 1" Ice	35.47 50.60 65.73	35.47 50.60 65.73	1.74 2.35 2.95
***									

Load Combinations

Comb. No.	Description

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
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
15	Dead+Wind 0 deg+Ice
16	Dead+Wind 30 deg+Ice
17	Dead+Wind 60 deg+Ice
18	Dead+Wind 90 deg+Ice
19	Dead+Wind 120 deg+Ice
20	Dead+Wind 150 deg+Ice
21	Dead+Wind 180 deg+Ice
22	Dead+Wind 210 deg+Ice
23	Dead+Wind 240 deg+Ice
24	Dead+Wind 270 deg+Ice
25	Dead+Wind 300 deg+Ice
26	Dead+Wind 330 deg+Ice
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 K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	160 - 155	Pole	Max Tension	27	0.00	-0.00	-0.00
			Max. Compression	14	-3.98	1.19	-0.68
			Max. Mx	11	-1.91	13.55	-0.43
			Max. My	8	-1.89	0.73	-13.20
			Max. Vy	11	-4.01	13.55	-0.43
			Max. Vx	8	4.02	0.73	-13.20
			Max. Torque	7			-0.94
L2	155 - 150	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-4.30	1.19	-0.69
			Max. Mx	11	-2.09	34.25	-0.45
			Max. My	8	-2.08	0.74	-33.93
			Max. Vy	11	-4.27	34.25	-0.45
			Max. Vx	8	4.28	0.74	-33.93
			Max. Torque	7			-0.94
L3	150 - 145	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-9.18	0.98	-0.82
			Max. Mx	11	-4.19	80.23	-0.48
			Max. My	8	-4.16	0.74	-80.07
			Max. Vy	11	-9.68	80.23	-0.48
			Max. Vx	8	9.70	0.74	-80.07
			Max. Torque	7			-0.94
L4	145 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-9.59	0.99	-0.82

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	11	-4.48	129.32	-0.51
			Max. My	8	-4.45	0.75	-129.22
			Max. Vy	11	-9.95	129.32	-0.51
			Max. Vx	8	9.97	0.75	-129.22
			Max. Torque	12			0.81
L5	140 - 135	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-12.70	0.99	-0.83
			Max. Mx	11	-5.76	191.26	-0.84
			Max. My	8	-5.67	1.20	-193.58
			Max. Vy	11	-13.10	191.26	-0.84
			Max. Vx	8	13.70	1.20	-193.58
			Max. Torque	11			1.91
L6	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-13.20	1.00	-0.83
			Max. Mx	11	-6.17	257.45	-1.40
			Max. My	8	-6.08	1.75	-262.78
			Max. Vy	11	-13.38	257.45	-1.40
			Max. Vx	8	13.98	1.75	-262.78
			Max. Torque	11			1.91
L7	130 - 125.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-19.03	1.00	0.13
			Max. Mx	11	-8.64	339.68	-1.62
			Max. My	8	-8.51	2.22	-348.53
			Max. Vy	11	-20.11	339.68	-1.62
			Max. Vx	8	21.02	2.22	-348.53
			Max. Torque	11			1.91
L8	125.75 - 125.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-19.07	1.00	0.13
			Max. Mx	11	-8.68	344.71	-1.65
			Max. My	8	-8.56	2.25	-353.79
			Max. Vy	11	-20.13	344.71	-1.65
			Max. Vx	8	21.04	2.25	-353.79
			Max. Torque	6			-1.05
L9	125.5 - 119.12	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-19.46	1.00	0.13
			Max. Mx	11	-9.01	397.96	-1.94
			Max. My	8	-8.88	2.54	-409.43
			Max. Vy	11	-20.37	397.96	-1.94
			Max. Vx	8	21.28	2.54	-409.43
			Max. Torque	6			-1.05
L10	119.12 - 119	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-20.44	1.00	0.13
			Max. Mx	11	-9.88	477.54	-2.38
			Max. My	8	-9.76	2.97	-492.53
			Max. Vy	11	-20.76	477.54	-2.38
			Max. Vx	8	21.67	2.97	-492.53
			Max. Torque	6			-1.05
L11	119 - 118.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-20.48	1.00	0.13
			Max. Mx	11	-9.92	482.73	-2.40
			Max. My	8	-9.80	3.00	-497.95
			Max. Vy	11	-20.79	482.73	-2.40
			Max. Vx	8	21.70	3.00	-497.95
			Max. Torque	6			-1.05
L12	118.75 - 113.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-21.40	1.00	0.13
			Max. Mx	11	-10.72	587.82	-2.96
			Max. My	8	-10.60	3.55	-607.60
			Max. Vy	11	-21.26	587.82	-2.96
			Max. Vx	8	22.17	3.55	-607.60
			Max. Torque	6			-1.05
L13	113.75 - 108.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.49	0.82	0.03
			Max. Mx	11	-11.62	695.72	-3.53
			Max. My	8	-11.50	4.09	-720.11

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	11	-21.89	695.72	-3.53
			Max. Vx	8	22.81	4.09	-720.11
			Max. Torque	11			1.24
L14	108.75 - 103.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-27.10	0.82	0.03
			Max. Mx	11	-14.31	809.59	-4.08
			Max. My	8	-14.19	4.64	-838.55
			Max. Vy	11	-24.96	809.59	-4.08
			Max. Vx	8	25.88	4.64	-838.55
			Max. Torque	11			1.24
L15	103.75 - 103	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-27.25	0.82	0.03
			Max. Mx	11	-14.44	828.33	-4.17
			Max. My	8	-14.33	4.73	-857.98
			Max. Vy	11	-25.04	828.33	-4.17
			Max. Vx	8	25.96	4.73	-857.98
			Max. Torque	11			1.23
L16	103 - 102.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-27.31	0.82	0.03
			Max. Mx	11	-14.50	834.60	-4.20
			Max. My	8	-14.39	4.75	-864.47
			Max. Vy	11	-25.06	834.60	-4.20
			Max. Vx	8	25.98	4.75	-864.47
			Max. Torque	11			1.23
L17	102.75 - 100.2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-27.92	0.82	0.03
			Max. Mx	11	-15.05	898.87	-4.48
			Max. My	8	-14.94	5.04	-931.09
			Max. Vy	11	-25.36	898.87	-4.48
			Max. Vx	8	26.28	5.04	-931.09
			Max. Torque	11			1.23
L18	100.2 - 95.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-27.93	0.82	0.03
			Max. Mx	11	-15.07	899.89	-4.49
			Max. My	8	-14.97	5.04	-932.14
			Max. Vy	11	-25.36	899.89	-4.49
			Max. Vx	2	-26.28	-3.57	931.71
			Max. Torque	11			1.23
L19	95.83 - 94.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-30.30	0.82	0.03
			Max. Mx	11	-17.24	1036.98	-5.08
			Max. My	8	-17.14	5.63	-1074.13
			Max. Vy	11	-26.08	1036.98	-5.08
			Max. Vx	8	27.00	5.63	-1074.13
			Max. Torque	11			1.23
L20	94.83 - 93.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-30.68	0.82	0.03
			Max. Mx	11	-17.58	1071.78	-5.23
			Max. My	8	-17.48	5.78	-1110.16
			Max. Vy	11	-26.27	1071.78	-5.23
			Max. Vx	8	27.19	5.78	-1110.16
			Max. Torque	11			1.23
L21	93.5 - 93.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-30.76	0.82	0.03
			Max. Mx	11	-17.66	1078.35	-5.26
			Max. My	8	-17.56	5.81	-1116.95
			Max. Vy	11	-26.30	1078.35	-5.26
			Max. Vx	8	27.22	5.81	-1116.95
			Max. Torque	11			1.23
L22	93.25 - 89.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.10	0.82	0.03
			Max. Mx	11	-18.86	1184.68	-5.71
			Max. My	8	-18.77	6.26	-1226.97
			Max. Vy	11	-26.88	1184.68	-5.71

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	8	27.80	6.26	-1226.97
			Max. Torque	11			1.23
L23	89.25 - 89	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.18	0.82	0.03
			Max. Mx	11	-18.95	1191.40	-5.74
			Max. My	8	-18.85	6.28	-1233.92
			Max. Vy	11	-26.91	1191.40	-5.74
			Max. Vx	8	27.83	6.28	-1233.92
			Max. Torque	11			1.23
L24	89 - 86.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.06	0.82	0.03
			Max. Mx	11	-19.74	1259.11	-6.02
			Max. My	8	-19.64	6.56	-1303.93
			Max. Vy	11	-27.27	1259.11	-6.02
			Max. Vx	8	28.19	6.56	-1303.93
			Max. Torque	11			1.23
L25	86.5 - 86.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.14	0.82	0.03
			Max. Mx	11	-19.81	1265.93	-6.04
			Max. My	8	-19.72	6.59	-1310.98
			Max. Vy	11	-27.30	1265.93	-6.04
			Max. Vx	8	28.22	6.59	-1310.98
			Max. Torque	11			1.23
L26	86.25 - 81.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-34.68	0.82	0.03
			Max. Mx	11	-21.20	1403.95	-6.60
			Max. My	8	-21.11	7.15	-1453.61
			Max. Vy	11	-27.92	1403.95	-6.60
			Max. Vx	8	28.84	7.15	-1453.61
			Max. Torque	11			1.23
L27	81.25 - 76.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-36.25	0.82	0.03
			Max. Mx	11	-22.63	1544.96	-7.16
			Max. My	8	-22.54	7.71	-1599.22
			Max. Vy	11	-28.50	1544.96	-7.16
			Max. Vx	8	29.43	7.71	-1599.22
			Max. Torque	11			1.23
L28	76.25 - 75.0833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-36.62	0.82	0.03
			Max. Mx	11	-22.96	1578.31	-7.29
			Max. My	8	-22.88	7.84	-1633.64
			Max. Vy	11	-28.68	1578.31	-7.29
			Max. Vx	8	29.60	7.84	-1633.64
			Max. Torque	11			1.23
L29	75.0833 - 74.8333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-36.70	0.82	0.03
			Max. Mx	11	-23.05	1585.48	-7.32
			Max. My	8	-22.96	7.86	-1641.04
			Max. Vy	11	-28.71	1585.48	-7.32
			Max. Vx	8	29.63	7.86	-1641.04
			Max. Torque	11			1.23
L30	74.8333 - 69.8333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-38.45	0.82	0.03
			Max. Mx	11	-24.62	1730.82	-7.88
			Max. My	8	-24.55	8.42	-1791.00
			Max. Vy	11	-29.45	1730.82	-7.88
			Max. Vx	8	30.37	8.42	-1791.00
			Max. Torque	11			1.23
L31	69.8333 - 64.8333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-40.22	0.82	0.03
			Max. Mx	11	-26.23	1879.81	-8.44
			Max. My	8	-26.16	8.98	-1944.59
			Max. Vy	11	-30.17	1879.81	-8.44

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	8	31.09	8.98	-1944.59
			Max. Torque	11			1.23
L32	64.8333 - 59.8333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-42.02	0.82	0.03
			Max. Mx	11	-27.87	2032.36	-8.99
			Max. My	8	-27.80	9.53	-2101.73
			Max. Vy	11	-30.87	2032.36	-8.99
			Max. Vx	8	31.79	9.53	-2101.73
			Max. Torque	11			1.23
L33	59.8333 - 59.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-42.14	0.82	0.03
			Max. Mx	11	-27.98	2042.66	-9.03
			Max. My	8	-27.92	9.57	-2112.34
			Max. Vy	11	-30.91	2042.66	-9.03
			Max. Vx	8	31.83	9.57	-2112.34
			Max. Torque	11			1.23
L34	59.5 - 59.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-42.24	0.82	0.03
			Max. Mx	11	-28.07	2050.39	-9.06
			Max. My	8	-28.00	9.60	-2120.30
			Max. Vy	11	-30.95	2050.39	-9.06
			Max. Vx	8	31.87	9.60	-2120.30
			Max. Torque	11			1.23
L35	59.25 - 54.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.06	0.82	0.03
			Max. Mx	11	-29.72	2206.84	-9.61
			Max. My	8	-29.66	10.15	-2281.34
			Max. Vy	11	-31.65	2206.84	-9.61
			Max. Vx	8	32.56	10.15	-2281.34
			Max. Torque	11			1.23
L36	54.25 - 53	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.53	0.82	0.03
			Max. Mx	11	-30.14	2246.49	-9.75
			Max. My	8	-30.08	10.29	-2322.14
			Max. Vy	11	-31.82	2246.49	-9.75
			Max. Vx	8	32.74	10.29	-2322.14
			Max. Torque	11			1.23
L37	53 - 47.2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.61	0.82	0.03
			Max. Mx	11	-30.23	2253.49	-9.77
			Max. My	8	-30.17	10.31	-2329.34
			Max. Vy	11	-31.85	2253.49	-9.77
			Max. Vx	8	32.76	10.31	-2329.34
			Max. Torque	11			1.23
L38	47.2 - 46.2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-48.99	0.82	0.03
			Max. Mx	11	-34.31	2466.44	-10.50
			Max. My	8	-34.26	11.04	-2548.33
			Max. Vy	11	-32.87	2466.44	-10.50
			Max. Vx	8	33.79	11.04	-2548.33
			Max. Torque	11			1.24
L39	46.2 - 41.2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-51.01	0.82	0.03
			Max. Mx	11	-36.16	2632.29	-11.06
			Max. My	8	-36.11	11.59	-2718.77
			Max. Vy	11	-33.50	2632.29	-11.06
			Max. Vx	8	34.42	11.59	-2718.77
			Max. Torque	11			1.24
L40	41.2 - 39	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-51.90	0.82	0.03
			Max. Mx	11	-36.98	2706.31	-11.30
			Max. My	8	-36.93	11.84	-2794.80
			Max. Vy	11	-33.81	2706.31	-11.30
			Max. Vx	8	34.73	11.84	-2794.80
			Max. Torque	11			1.24
L41	39 - 38.75	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	14	-52.01	0.82	0.03
			Max. Mx	11	-37.09	2714.76	-11.33
			Max. My	8	-37.04	11.86	-2803.48
			Max. Vy	11	-33.84	2714.76	-11.33
			Max. Vx	8	34.75	11.86	-2803.48
			Max. Torque	11			1.24
L42	38.75 - 38.0833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-52.31	0.82	0.03
			Max. Mx	11	-37.35	2737.35	-11.40
			Max. My	8	-37.31	11.94	-2826.68
			Max. Vy	11	-33.94	2737.35	-11.40
			Max. Vx	8	34.86	11.94	-2826.68
			Max. Torque	11			1.24
L43	38.0833 - 37.8333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-52.41	0.82	0.03
			Max. Mx	11	-37.45	2745.84	-11.43
			Max. My	8	-37.41	11.97	-2835.40
			Max. Vy	11	-33.98	2745.84	-11.43
			Max. Vx	8	34.89	11.97	-2835.40
			Max. Torque	11			1.24
L44	37.8333 - 32.8333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-54.48	0.82	0.03
			Max. Mx	11	-39.33	2917.25	-11.98
			Max. My	8	-39.29	12.52	-3011.38
			Max. Vy	11	-34.61	2917.25	-11.98
			Max. Vx	8	35.52	12.52	-3011.38
			Max. Torque	11			1.24
L45	32.8333 - 27.8333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-56.57	0.82	0.03
			Max. Mx	11	-41.25	3091.66	-12.53
			Max. My	8	-41.21	13.06	-3190.34
			Max. Vy	11	-35.18	3091.66	-12.53
			Max. Vx	8	36.09	13.06	-3190.34
			Max. Torque	11			1.24
L46	27.8333 - 22.8333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-58.70	0.82	0.03
			Max. Mx	11	-43.19	3268.98	-13.07
			Max. My	8	-43.16	13.61	-3372.19
			Max. Vy	11	-35.77	3268.98	-13.07
			Max. Vx	8	36.68	13.61	-3372.19
			Max. Torque	11			1.24
L47	22.8333 - 21.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-59.38	0.82	0.03
			Max. Mx	11	-43.80	3325.74	-13.25
			Max. My	8	-43.78	13.78	-3430.39
			Max. Vy	11	-35.97	3325.74	-13.25
			Max. Vx	8	36.88	13.78	-3430.39
			Max. Torque	11			1.23
L48	21.25 - 21	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-59.49	0.82	0.03
			Max. Mx	11	-43.92	3334.73	-13.27
			Max. My	8	-43.90	13.81	-3439.61
			Max. Vy	11	-35.98	3334.73	-13.27
			Max. Vx	8	36.89	13.81	-3439.61
			Max. Torque	11			1.23
L49	21 - 20	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-59.96	0.82	0.03
			Max. Mx	11	-44.35	3370.78	-13.38
			Max. My	8	-44.32	13.92	-3476.56
			Max. Vy	11	-36.12	3370.78	-13.38
			Max. Vx	8	37.02	13.92	-3476.56
			Max. Torque	11			1.23
L50	20 - 19.75	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	14	-60.09	0.82	0.03
			Max. Mx	11	-44.47	3379.81	-13.41
			Max. My	8	-44.45	13.95	-3485.81
			Max. Vy	11	-36.14	3379.81	-13.41
			Max. Vx	8	37.04	13.95	-3485.81
			Max. Torque	11			1.22
L51	19.75 - 17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-61.47	0.82	0.03
			Max. Mx	11	-45.73	3479.66	-13.71
			Max. My	8	-45.71	14.25	-3588.14
			Max. Vy	11	-36.50	3479.66	-13.71
			Max. Vx	8	37.40	14.25	-3588.14
			Max. Torque	11			1.22
L52	17 - 16.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-61.59	0.82	0.03
			Max. Mx	11	-45.85	3488.78	-13.73
			Max. My	8	-45.83	14.27	-3597.50
			Max. Vy	11	-36.52	3488.78	-13.73
			Max. Vx	8	37.42	14.27	-3597.50
			Max. Torque	11			1.22
L53	16.75 - 11.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-64.01	0.82	0.03
			Max. Mx	11	-48.07	3672.88	-14.27
			Max. My	8	-48.05	14.81	-3786.10
			Max. Vy	11	-37.14	3672.88	-14.27
			Max. Vx	8	38.04	14.81	-3786.10
			Max. Torque	11			1.22
L54	11.75 - 6.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-66.46	0.82	0.03
			Max. Mx	11	-50.32	3860.01	-14.81
			Max. My	8	-50.31	15.35	-3977.71
			Max. Vy	11	-37.74	3860.01	-14.81
			Max. Vx	8	38.63	15.35	-3977.71
			Max. Torque	11			1.21
L55	6.75 - 1.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-68.94	0.82	0.03
			Max. Mx	11	-52.60	4050.11	-15.35
			Max. My	8	-52.59	15.89	-4172.27
			Max. Vy	11	-38.33	4050.11	-15.35
			Max. Vx	8	39.22	15.89	-4172.27
			Max. Torque	11			1.21
L56	1.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-69.82	0.82	0.03
			Max. Mx	11	-53.39	4117.33	-15.53
			Max. My	8	-53.39	16.08	-4241.04
			Max. Vy	11	-38.52	4117.33	-15.53
			Max. Vx	8	39.41	16.08	-4241.04
			Max. Torque	11			1.21

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	21	69.82	0.02	-10.45
	Max. H_x	11	53.41	38.50	-0.11
	Max. H_z	2	53.41	-0.11	39.39
	Max. M_x	2	4240.60	-0.11	39.39
	Max. M_z	5	4115.83	-38.50	0.11
	Max. Torsion	11	1.21	38.50	-0.11
	Min. Vert	1	53.41	0.00	0.00
	Min. H_x	5	53.41	-38.50	0.11
	Min. H_z	8	53.41	0.11	-39.39
	Min. M_x	8	-4241.04	0.11	-39.39

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. M_z	11	-4117.33	38.50	-0.11
	Min. Torsion	5	-1.21	-38.50	0.11

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	53.41	0.00	0.00	0.21	0.72	0.00
Dead+Wind 0 deg - No Ice	53.41	0.11	-39.39	-4240.60	-14.56	0.05
Dead+Wind 30 deg - No Ice	53.41	19.34	-34.16	-3680.14	-2070.66	0.65
Dead+Wind 60 deg - No Ice	53.41	33.39	-19.79	-2133.57	-3571.87	1.08
Dead+Wind 90 deg - No Ice	53.41	38.50	-0.11	-15.11	-4115.83	1.21
Dead+Wind 120 deg - No Ice	53.41	33.29	19.60	2107.50	-3556.61	1.03
Dead+Wind 150 deg - No Ice	53.41	19.16	34.06	3665.32	-2044.17	0.56
Dead+Wind 180 deg - No Ice	53.41	-0.11	39.39	4241.04	16.08	-0.05
Dead+Wind 210 deg - No Ice	53.41	-19.34	34.16	3680.58	2072.18	-0.66
Dead+Wind 240 deg - No Ice	53.41	-33.39	19.79	2134.00	3573.38	-1.08
Dead+Wind 270 deg - No Ice	53.41	-38.50	0.11	15.53	4117.33	-1.21
Dead+Wind 300 deg - No Ice	53.41	-33.29	-19.60	-2107.07	3558.11	-1.02
Dead+Wind 330 deg - No Ice	53.41	-19.16	-34.06	-3664.88	2045.67	-0.56
Dead+Ice	69.82	0.00	0.00	-0.03	0.82	0.00
Dead+Wind 0 deg+Ice	69.82	0.02	-10.45	-1123.52	-2.39	0.00
Dead+Wind 30 deg+Ice	69.82	5.15	-9.06	-974.64	-550.42	0.14
Dead+Wind 60 deg+Ice	69.82	8.90	-5.25	-564.62	-950.73	0.24
Dead+Wind 90 deg+Ice	69.82	10.27	-0.02	-3.32	-1096.05	0.27
Dead+Wind 120 deg+Ice	69.82	8.88	5.21	558.86	-947.45	0.24
Dead+Wind 150 deg+Ice	69.82	5.11	9.04	971.29	-544.73	0.14
Dead+Wind 180 deg+Ice	69.82	-0.02	10.45	1123.45	4.18	-0.00
Dead+Wind 210 deg+Ice	69.82	-5.15	9.06	974.57	552.20	-0.14
Dead+Wind 240 deg+Ice	69.82	-8.90	5.25	564.55	952.51	-0.24
Dead+Wind 270 deg+Ice	69.82	-10.27	0.02	3.25	1097.83	-0.27
Dead+Wind 300 deg+Ice	69.82	-8.88	-5.21	-558.94	949.23	-0.24
Dead+Wind 330 deg+Ice	69.82	-5.11	-9.04	-971.36	546.52	-0.13
Dead+Wind 0 deg - Service	53.41	0.04	-13.63	-1468.78	-4.55	0.02
Dead+Wind 30 deg - Service	53.41	6.69	-11.82	-1274.63	-716.77	0.23
Dead+Wind 60 deg - Service	53.41	11.55	-6.85	-738.88	-1236.73	0.38
Dead+Wind 90 deg - Service	53.41	13.32	-0.04	-5.09	-1425.11	0.43
Dead+Wind 120 deg - Service	53.41	11.52	6.78	730.14	-1231.43	0.36
Dead+Wind 150 deg - Service	53.41	6.63	11.78	1269.77	-707.58	0.20
Dead+Wind 180 deg - Service	53.41	-0.04	13.63	1469.23	6.06	-0.02
Dead+Wind 210 deg - Service	53.41	-6.69	11.82	1275.08	718.28	-0.23
Dead+Wind 240 deg - Service	53.41	-11.55	6.85	739.33	1238.25	-0.38
Dead+Wind 270 deg - Service	53.41	-13.32	0.04	5.53	1426.63	-0.43
Dead+Wind 300 deg - Service	53.41	-11.52	-6.78	-729.69	1232.94	-0.36
Dead+Wind 330 deg - Service	53.41	-6.63	-11.78	-1269.33	709.09	-0.20

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	-53.41	0.00	0.00	53.41	0.00	0.000%
2	0.11	-53.41	-39.39	-0.11	53.41	39.39	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
3	19.34	-53.41	-34.16	-19.34	53.41	34.16	0.000%
4	33.39	-53.41	-19.79	-33.39	53.41	19.79	0.000%
5	38.50	-53.41	-0.11	-38.50	53.41	0.11	0.000%
6	33.29	-53.41	19.60	-33.29	53.41	-19.60	0.000%
7	19.16	-53.41	34.06	-19.16	53.41	-34.06	0.000%
8	-0.11	-53.41	39.39	0.11	53.41	-39.39	0.000%
9	-19.34	-53.41	34.16	19.34	53.41	-34.16	0.000%
10	-33.39	-53.41	19.79	33.39	53.41	-19.79	0.000%
11	-38.50	-53.41	0.11	38.50	53.41	-0.11	0.000%
12	-33.29	-53.41	-19.60	33.29	53.41	19.60	0.000%
13	-19.16	-53.41	-34.06	19.16	53.41	34.06	0.000%
14	0.00	-69.82	0.00	0.00	69.82	0.00	0.000%
15	0.02	-69.82	-10.45	-0.02	69.82	10.45	0.000%
16	5.15	-69.82	-9.06	-5.15	69.82	9.06	0.000%
17	8.90	-69.82	-5.25	-8.90	69.82	5.25	0.000%
18	10.27	-69.82	-0.02	-10.27	69.82	0.02	0.000%
19	8.88	-69.82	5.21	-8.88	69.82	-5.21	0.000%
20	5.11	-69.82	9.04	-5.11	69.82	-9.04	0.000%
21	-0.02	-69.82	10.45	0.02	69.82	-10.45	0.000%
22	-5.15	-69.82	9.06	5.15	69.82	-9.06	0.000%
23	-8.90	-69.82	5.25	8.90	69.82	-5.25	0.000%
24	-10.27	-69.82	0.02	10.27	69.82	-0.02	0.000%
25	-8.88	-69.82	-5.21	8.88	69.82	5.21	0.000%
26	-5.11	-69.82	-9.04	5.11	69.82	9.04	0.000%
27	0.04	-53.41	-13.63	-0.04	53.41	13.63	0.000%
28	6.69	-53.41	-11.82	-6.69	53.41	11.82	0.000%
29	11.55	-53.41	-6.85	-11.55	53.41	6.85	0.000%
30	13.32	-53.41	-0.04	-13.32	53.41	0.04	0.000%
31	11.52	-53.41	6.78	-11.52	53.41	-6.78	0.000%
32	6.63	-53.41	11.78	-6.63	53.41	-11.78	0.000%
33	-0.04	-53.41	13.63	0.04	53.41	-13.63	0.000%
34	-6.69	-53.41	11.82	6.69	53.41	-11.82	0.000%
35	-11.55	-53.41	6.85	11.55	53.41	-6.85	0.000%
36	-13.32	-53.41	0.04	13.32	53.41	-0.04	0.000%
37	-11.52	-53.41	-6.78	11.52	53.41	6.78	0.000%
38	-6.63	-53.41	-11.78	6.63	53.41	11.78	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	0.00092826
3	Yes	7	0.00000001	0.00008611
4	Yes	7	0.00000001	0.00008216
5	Yes	6	0.00000001	0.00006215
6	Yes	7	0.00000001	0.00008593
7	Yes	7	0.00000001	0.00008354
8	Yes	5	0.00000001	0.00087057
9	Yes	7	0.00000001	0.00008399
10	Yes	7	0.00000001	0.00008624
11	Yes	6	0.00000001	0.00011415
12	Yes	7	0.00000001	0.00008202
13	Yes	7	0.00000001	0.00008477
14	Yes	4	0.00000001	0.00002194
15	Yes	6	0.00000001	0.00007465
16	Yes	6	0.00000001	0.00061634
17	Yes	6	0.00000001	0.00058059
18	Yes	6	0.00000001	0.00008617
19	Yes	6	0.00000001	0.00060675
20	Yes	6	0.00000001	0.00058093
21	Yes	6	0.00000001	0.00007498
22	Yes	6	0.00000001	0.00059884
23	Yes	6	0.00000001	0.00062345
24	Yes	6	0.00000001	0.00009116

25	Yes	6	0.00000001	0.00057348
26	Yes	6	0.00000001	0.00061014
27	Yes	5	0.00000001	0.00027599
28	Yes	6	0.00000001	0.00023286
29	Yes	6	0.00000001	0.00021762
30	Yes	5	0.00000001	0.00050430
31	Yes	6	0.00000001	0.00022722
32	Yes	6	0.00000001	0.00021809
33	Yes	5	0.00000001	0.00027457
34	Yes	6	0.00000001	0.00022419
35	Yes	6	0.00000001	0.00023405
36	Yes	5	0.00000001	0.00059478
37	Yes	6	0.00000001	0.00021335
38	Yes	6	0.00000001	0.00022807

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	160 - 159	TP17.6204x16.5x0.1875	5.00	0.00	0.0	39.000	9.8413	-0.03	383.81	0.000
	159 - 158					39.000	9.9747	-1.46	389.01	0.004
	158 - 157					39.000	10.1080	-1.49	394.21	0.004
	157 - 156					39.000	10.2414	-1.87	399.41	0.005
	156 - 155					39.000	10.3747	-1.90	404.61	0.005
L2	155 - 154	TP18.7407x17.6204x0.1875	5.00	0.00	0.0	39.000	10.5081	-1.94	409.82	0.005
	154 - 153					39.000	10.6414	-1.97	415.02	0.005
	153 - 152					39.000	10.7748	-2.01	420.22	0.005
	152 - 151					39.000	10.9081	-2.05	425.42	0.005
	151 - 150					39.000	11.0415	-2.08	430.62	0.005
L3	150 - 149	TP19.8611x18.7407x0.1875	5.00	0.00	0.0	39.000	11.1748	-3.68	435.82	0.008
	149 - 148					39.000	11.3082	-3.73	441.02	0.008
	148 - 147					39.000	11.4415	-4.07	446.22	0.009
	147 - 146					39.000	11.5749	-4.13	451.42	0.009
	146 - 145					39.000	11.7082	-4.18	456.62	0.009
L4	145 - 144	TP20.9814x19.8611x0.1875	5.00	0.00	0.0	39.000	11.8416	-4.24	461.82	0.009
	144 - 143					39.000	11.9749	-4.29	467.02	0.009
	143 - 142					39.000	12.1083	-4.35	472.22	0.009
	142 - 141					39.000	12.2416	-4.41	477.42	0.009
	141 - 140					39.000	12.3750	-4.47	482.62	0.009
L5	140 - 139	TP22.1018x20.9814x0.1875	5.00	0.00	0.0	39.000	12.5083	-4.54	487.82	0.009
	139 - 138					39.000	12.6417	-5.45	493.02	0.011
	138 - 137					39.000	12.7750	-5.53	498.23	0.011
	137 - 136					39.000	12.9084	-5.60	503.43	0.011
	136 - 135					39.000	13.0417	-5.68	508.63	0.011
L6	135 - 134	TP23.2221x22.1018x0.1875	5.00	0.00	0.0	39.000	13.1751	-5.76	513.83	0.011
	134 - 133					39.000	13.3084	-5.83	519.03	0.011
	133 - 132					39.000	13.4418	-5.91	524.23	0.011
	132 - 131					39.000	13.5751	-6.00	529.43	0.011
	131 - 130					39.000	13.7085	-6.08	534.63	0.011
L7	130 - 128.938	TP24.1744x23.2221x0.1875	4.25	0.00	0.0	39.000	13.8502	-6.17	540.16	0.011
	128.938 - 127.875					39.000	13.9918	-6.26	545.68	0.011
	127.875 - 126.813					39.000	14.1335	-8.40	551.21	0.015
	126.813 - 125.75					39.000	14.2752	-8.51	556.73	0.015
L8	125.75 - 125.5	TP24.2304x24.1744x0.368	0.25	0.00	0.0	39.000	27.9280	-8.56	1089.19	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 $\frac{P}{P_a}$
	(8)	8								
L9	125.5 - 124.185	TP25.66x24.2304x0.3625	6.38	0.00	0.0	39.000	27.8009	-8.71	1084.23	0.008
	124.185 - 122.87					39.000	28.1399	-8.88	1097.46	0.008
	122.87 - 119.12					39.000	29.1067	-4.54	1135.16	0.004
L10	122.87 - 119.12	TP25.2956x24.4447x0.425	3.87	0.00	0.0	39.000	33.5136	-9.76	1307.03	0.007
	119.12 - 119					39.000	33.5492	-9.76	1308.42	0.007
L11	119 - 118.75	TP25.3506x25.2956x0.5	0.25	0.00	0.0	39.000	39.4379	-9.80	1538.08	0.006
	(11)									
L12	118.75 - 117.75	TP26.4499x25.3506x0.4875	5.00	0.00	0.0	39.000	38.8115	-9.95	1513.65	0.007
	117.75 - 116.75					39.000	39.1517	-10.11	1526.92	0.007
	116.75 - 115.75					39.000	39.4919	-10.27	1540.18	0.007
	115.75 - 114.75					39.000	39.8321	-10.44	1553.45	0.007
	114.75 - 113.75					39.000	40.1723	-10.60	1566.72	0.007
L13	113.75 - 112.75	TP27.5493x26.4499x0.475	5.00	0.00	0.0	39.000	39.4926	-10.77	1540.21	0.007
	112.75 - 111.75					39.000	39.8241	-10.93	1553.14	0.007
	111.75 - 110.75					39.000	40.1556	-11.10	1566.07	0.007
	110.75 - 109.75					39.000	40.4871	-11.27	1579.00	0.007
	109.75 - 108.75					39.000	40.8186	-11.50	1591.92	0.007
L14	108.75 - 107.75	TP28.6486x27.5493x0.4625	5.00	0.00	0.0	39.000	40.0855	-11.67	1563.33	0.007
	107.75 - 106.75					39.000	40.4083	-11.85	1575.92	0.008
	106.75 - 105.75					39.000	40.7310	-12.02	1588.51	0.008
	105.75 - 104.75					39.000	41.0538	-14.02	1601.10	0.009
	104.75 - 103.75					39.000	41.3765	-14.19	1613.69	0.009
L15	103.75 - 103	TP28.8135x28.6486x0.4625	0.75	0.00	0.0	39.000	41.6186	-14.33	1623.13	0.009
	(15)									
L16	103 - 102.75	TP28.8685x28.8135x0.5375	0.25	0.00	0.0	39.000	48.3334	-14.39	1885.00	0.008
	(16)									
L17	102.75 - 101.475	TP29.4292x28.8685x0.5375	2.55	0.00	0.0	39.000	48.8117	-14.66	1903.65	0.008
	101.475 - 100.2					39.000	49.2899	-14.94	1922.31	0.008
L18	100.2 - 100.16	TP30.39x29.4292x0.6875	4.37	0.00	0.0	39.000	62.7371	-14.97	2446.75	0.006
	100.16 - 95.83					39.000	64.8146	-8.24	2527.77	0.003
L19	100.16 - 95.83	TP30.1187x28.938x0.7375	5.33	0.00	0.0	39.000	68.2577	-8.63	2662.05	0.003
	95.83 - 94.83					39.000	68.7763	-17.14	2682.27	0.006
L20	94.83 - 93.5	TP30.4133x30.1187x0.7375	1.33	0.00	0.0	39.000	69.4659	-17.48	2709.17	0.006
	(20)									
L21	93.5 - 93.25	TP30.4687x30.4133x0.9125	0.25	0.00	0.0	39.000	85.6029	-17.56	3338.51	0.005
	(21)									
L22	93.25 - 92.25	TP31.3548x30.4687x0.8875	4.00	0.00	0.0	39.000	83.9521	-17.86	3274.13	0.005
	92.25 - 91.25					39.000	84.5761	-18.16	3298.47	0.006
	91.25 - 90.25					39.000	85.2001	-18.46	3322.81	0.006
	90.25 - 89.25					39.000	85.8242	-18.77	3347.14	0.006
L23	89.25 - 89 (23)	TP31.4102x31.3548x0.9375	0.25	0.00	0.0	39.000	90.6753	-18.85	3536.34	0.005
L24	89 - 87.75	TP31.964x31.4102x0.925	2.50	0.00	0.0	39.000	90.3160	-19.24	3522.32	0.005
	87.75 - 86.5					39.000	91.1290	-19.64	3554.03	0.006
L25	86.5 - 86.25	TP32.0194x31.964x0.7625	0.25	0.00	0.0	39.000	75.6472	-19.72	2950.24	0.007
	(25)									

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 $\frac{P}{P_a}$
L26	86.25 - 85.25	TP33.127x32.0194x0.7375	5.00	0.00	0.0	39.000	73.7440	-19.99	2876.02	0.007
	85.25 - 84.25					39.000	74.2626	-20.27	2896.24	0.007
	84.25 - 83.25					39.000	74.7811	-20.55	2916.46	0.007
	83.25 - 82.25					39.000	75.2997	-20.83	2936.69	0.007
	82.25 - 81.25					39.000	75.8182	-21.11	2956.91	0.007
L27	81.25 - 80.25	TP34.2347x33.127x0.725	5.00	0.00	0.0	39.000	75.0717	-21.39	2927.80	0.007
	80.25 - 79.25					39.000	75.5815	-21.68	2947.68	0.007
	79.25 - 78.25					39.000	76.0912	-21.96	2967.56	0.007
	78.25 - 77.25					39.000	76.6010	-22.25	2987.44	0.007
	77.25 - 76.25					39.000	77.1108	-22.54	3007.32	0.007
L28	76.25 - 75.0833 (28)	TP34.4931x34.2347x0.7125	1.17	0.00	0.0	39.000	76.3940	-22.88	2979.37	0.008
L29	75.0833 - 74.8333 (29)	TP34.5485x34.4931x0.8125	0.25	0.00	0.0	39.000	87.0009	-22.96	3393.04	0.007
L30	74.8333 - 73.8333	TP35.6561x34.5485x0.8	5.00	0.00	0.0	39.000	86.2567	-23.27	3364.01	0.007
	73.8333 - 72.8333					39.000	86.8192	-23.59	3385.95	0.007
	72.8333 - 71.8333					39.000	87.3817	-23.90	3407.89	0.007
	71.8333 - 70.8333					39.000	87.9442	-24.22	3429.82	0.007
	70.8333 - 69.8333					39.000	88.5067	-24.55	3451.76	0.007
L31	69.8333 - 68.8333	TP36.7638x35.6561x0.775	5.00	0.00	0.0	39.000	86.3473	-24.86	3367.54	0.007
	68.8333 - 67.8333					39.000	86.8922	-25.19	3388.80	0.007
	67.8333 - 66.8333					39.000	87.4371	-25.51	3410.05	0.007
	66.8333 - 65.8333					39.000	87.9820	-25.83	3431.30	0.008
	65.8333 - 64.8333					39.000	88.5270	-26.16	3452.55	0.008
L32	64.8333 - 63.8333	TP37.8714x36.7638x0.7625	5.00	0.00	0.0	39.000	87.6655	-26.48	3418.95	0.008
	63.8333 - 62.8333					39.000	88.2016	-26.81	3439.86	0.008
	62.8333 - 61.8333					39.000	88.7377	-27.14	3460.77	0.008
	61.8333 - 60.8333					39.000	89.2739	-27.47	3481.68	0.008
	60.8333 - 59.8333					39.000	89.8100	-27.80	3502.59	0.008
L33	59.8333 - 59.5 (33)	TP37.9452x37.8714x0.7625	0.33	0.00	0.0	39.000	89.9887	-27.92	3509.56	0.008
L34	59.5 - 59.25 (34)	TP38.0006x37.9452x0.7625	0.25	0.00	0.0	39.000	90.1227	-28.00	3514.79	0.008
L35	59.25 - 58.25	TP39.1082x38.0006x0.7375	5.00	0.00	0.0	39.000	87.7450	-28.32	3422.05	0.008
	58.25 - 57.25					39.000	88.2635	-28.65	3442.28	0.008
	57.25 - 56.25					39.000	88.7821	-28.99	3462.50	0.008
	56.25 - 55.25					39.000	89.3006	-29.32	3482.72	0.008
	55.25 - 54.25					39.000	89.8192	-29.66	3502.95	0.008
L36	54.25 - 53 (36)	TP39.3851x39.1082x0.7375	1.25	0.00	0.0	39.000	90.4674	-30.08	3528.23	0.009
L37	53 - 52.78	TP40.67x39.3851x0.7375	5.80	0.00	0.0	39.000	90.5815	-30.17	3532.68	0.009
	52.78 - 47.2					39.000	93.4750	-16.84	3645.52	0.005
L38	52.78 - 47.2	TP40.2664x38.8089x0.7625	6.58	0.00	0.0	39.000	95.0703	-17.03	3707.74	0.005
	47.2 - 46.2					39.000	95.6063	-34.26	3728.65	0.009
L39	46.2 - 45.2	TP41.3739x40.2664x0.775	5.00	0.00	0.0	39.000	97.6878	-34.62	3809.82	0.009
	45.2 - 44.2					39.000	98.2327	-34.99	3831.07	0.009
	44.2 - 43.2					39.000	98.7775	-35.36	3852.32	0.009
	43.2 - 42.2					39.000	99.3224	-35.73	3873.57	0.009
	42.2 - 41.2					39.000	99.8673	-36.11	3894.82	0.009
L40	41.2 - 40.1	TP41.8612x41.3739x0.775	2.20	0.00	0.0	39.000	100.4670	-36.52	3918.20	0.009
	40.1 - 39					39.000	101.066	-36.93	3941.57	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 $\frac{P}{P_a}$
							0			
L41	39 - 38.75 (41)	TP41.9166x41.8612x0.825	0.25	0.00	0.0	39.000	107.600	-37.04	4196.42	0.009
							0			
L42	38.75 - 38.0833 (42)	TP42.0643x41.9166x0.85	0.67	0.00	0.0	39.000	111.192	-37.31	4336.49	0.009
							0			
L43	38.0833 - 37.8333 (43)	TP42.1197x42.0643x0.75	0.25	0.00	0.0	39.000	98.4805	-37.41	3840.74	0.010
L44	37.8333 - 36.8333	TP43.2272x42.1197x0.7625	5.00	0.00	0.0	39.000	100.628	-37.77	3924.48	0.010
							0			
	36.8333 - 35.8333					39.000	101.164	-38.15	3945.39	0.010
							0			
	35.8333 - 34.8333					39.000	101.700	-38.53	3966.29	0.010
							0			
	34.8333 - 33.8333					39.000	102.236	-38.91	3987.20	0.010
							0			
	33.8333 - 32.8333					39.000	102.772	-39.29	4008.11	0.010
							0			
L45	32.8333 - 31.8333	TP44.3347x43.2272x0.75	5.00	0.00	0.0	39.000	101.644	-39.67	3964.13	0.010
							0			
	31.8333 - 30.8333					39.000	102.172	-40.05	3984.69	0.010
							0			
	30.8333 - 29.8333					39.000	102.699	-40.44	4005.26	0.010
							0			
	29.8333 - 28.8333					39.000	103.226	-40.82	4025.82	0.010
							0			
	28.8333 - 27.8333					39.000	103.753	-41.21	4046.39	0.010
							0			
L46	27.8333 - 26.8333	TP45.4423x44.3347x0.725	5.00	0.00	0.0	39.000	100.862	-41.60	3933.63	0.011
							0			
	26.8333 - 25.8333					39.000	101.372	-41.99	3953.51	0.011
							0			
	25.8333 - 24.8333					39.000	101.882	-42.38	3973.39	0.011
							0			
	24.8333 - 23.8333					39.000	102.391	-42.77	3993.27	0.011
							0			
	23.8333 - 22.8333					39.000	102.901	-43.16	4013.15	0.011
							0			
L47	22.8333 - 21.25 (47)	TP45.793x45.4423x0.7375	1.58	0.00	0.0	39.000	105.467	-43.78	4113.21	0.011
							0			
L48	21.25 - 21 (48)	TP45.8484x45.793x0.75	0.25	0.00	0.0	39.000	107.357	-43.90	4186.91	0.010
							0			
L49	21 - 20 (49)	TP46.0699x45.8484x0.725	1.00	0.00	0.0	39.000	104.345	-44.32	4069.47	0.011
							0			
L50	20 - 19.75 (50)	TP46.1252x46.0699x0.825	0.25	0.00	0.0	39.000	118.621	-44.45	4626.22	0.010
							0			
L51	19.75 - 18.375	TP46.7344x46.1252x0.8125	2.75	0.00	0.0	39.000	117.641	-45.07	4588.01	0.010
							0			
	18.375 - 17					39.000	118.427	-45.71	4618.65	0.010
							0			
L52	17 - 16.75 (52)	TP46.7898x46.7344x0.7625	0.25	0.00	0.0	39.000	111.394	-45.83	4344.37	0.011
							0			
L53	16.75 - 15.75	TP47.8973x46.7898x0.7625	5.00	0.00	0.0	39.000	111.930	-46.26	4365.27	0.011
							0			
	15.75 - 14.75					39.000	112.466	-46.71	4386.18	0.011
							0			
	14.75 - 13.75					39.000	113.002	-47.15	4407.09	0.011
							0			
	13.75 - 12.75					39.000	113.538	-47.60	4428.00	0.011
							0			
	12.75 - 11.75					39.000	114.074	-48.05	4448.90	0.011
							0			
L54	11.75 - 10.75	TP49.0048x47.8973x0.75	5.00	0.00	0.0	39.000	112.761	-48.50	4397.70	0.011
							0			
	10.75 - 9.75					39.000	113.289	-48.95	4418.26	0.011
							0			
	9.75 - 8.75					39.000	113.816	-49.40	4438.83	0.011
							0			
	8.75 - 7.75					39.000	114.343	-49.85	4459.39	0.011
							0			

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 $\frac{P}{P_a}$
	7.75 - 6.75					39.000	114.8710	-50.31	4479.95	0.011
L55	6.75 - 5.75	TP50.1124x49.0048x0.725	5.00	0.00	0.0	39.000	111.6090	-50.76	4352.75	0.012
	5.75 - 4.75					39.000	112.1190	-51.22	4372.62	0.012
	4.75 - 3.75					39.000	112.6280	-51.67	4392.50	0.012
	3.75 - 2.75					39.000	113.1380	-52.13	4412.38	0.012
	2.75 - 1.75					39.000	113.6480	-52.59	4432.26	0.012
L56	1.75 - 0 (56)	TP50.5x50.1124x0.75	1.75	0.00	0.0	39.000	118.4300	-53.39	4618.77	0.012

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	160 - 159	TP17.6204x16.5x0.1875	0.02	0.007	39.000	0.000	0.00	0.000	39.000	0.000
	159 - 158		3.88	1.132	39.000	0.029	0.00	0.000	39.000	0.000
	158 - 157		6.85	1.947	39.000	0.050	0.00	0.000	39.000	0.000
	157 - 156		9.69	2.682	39.000	0.069	0.00	0.000	39.000	0.000
	156 - 155		13.68	3.689	39.000	0.095	0.00	0.000	39.000	0.000
L2	155 - 154	TP18.7407x17.6204x0.1875	17.72	4.658	39.000	0.119	0.00	0.000	39.000	0.000
	154 - 153		21.81	5.589	39.000	0.143	0.00	0.000	39.000	0.000
	153 - 152		25.95	6.486	39.000	0.166	0.00	0.000	39.000	0.000
	152 - 151		30.15	7.350	39.000	0.188	0.00	0.000	39.000	0.000
	151 - 150		34.39	8.182	39.000	0.210	0.00	0.000	39.000	0.000
L3	150 - 149	TP19.8611x18.7407x0.1875	42.96	9.976	39.000	0.256	0.00	0.000	39.000	0.000
	149 - 148		51.61	11.704	39.000	0.300	0.00	0.000	39.000	0.000
	148 - 147		61.16	13.547	39.000	0.347	0.00	0.000	39.000	0.000
	147 - 146		70.77	15.314	39.000	0.393	0.00	0.000	39.000	0.000
	146 - 145		80.43	17.008	39.000	0.436	0.00	0.000	39.000	0.000
L4	145 - 144	TP20.9814x19.8611x0.1875	90.14	18.633	39.000	0.478	0.00	0.000	39.000	0.000
	144 - 143		99.91	20.192	39.000	0.518	0.00	0.000	39.000	0.000
	143 - 142		109.73	21.690	39.000	0.556	0.00	0.000	39.000	0.000
	142 - 141		119.60	23.127	39.000	0.593	0.00	0.000	39.000	0.000
	141 - 140		129.53	24.508	39.000	0.628	0.00	0.000	39.000	0.000
L5	140 - 139	TP22.1018x20.9814x0.1875	139.52	25.835	39.000	0.662	0.00	0.000	39.000	0.000
	139 - 138		152.96	27.727	39.000	0.711	0.00	0.000	39.000	0.000
	138 - 137		166.47	29.546	39.000	0.758	0.00	0.000	39.000	0.000
	137 - 136		180.03	31.294	39.000	0.802	0.00	0.000	39.000	0.000
	136 - 135		193.65	32.973	39.000	0.845	0.00	0.000	39.000	0.000
L6	135 - 134	TP23.2221x22.1018x0.1875	207.32	34.587	39.000	0.887	0.00	0.000	39.000	0.000
	134 - 133		221.09	36.147	39.000	0.927	0.00	0.000	39.000	0.000
	133 - 132		234.93	37.648	39.000	0.965	0.00	0.000	39.000	0.000
	132 - 131		248.83	39.092	39.000	1.002	0.00	0.000	39.000	0.000
	131 - 130		262.78	40.481	39.000	1.038	0.00	0.000	39.000	0.000
L7	130 - 128.938	TP24.1744x23.2221x0.1875	277.67	41.901	39.000	1.074	0.00	0.000	39.000	0.000
	128.938 - 127.875		292.63	43.265	39.000	1.109	0.00	0.000	39.000	0.000
	127.875 - 126.813		326.24	47.269	39.000	1.212	0.00	0.000	39.000	0.000
	126.813 - 125.75		348.54	49.498	39.000	1.269	0.00	0.000	39.000	0.000
L8	125.75 - 125.5 (8)	TP24.2304x24.1744x0.3688	353.80	26.012	39.000	0.667	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 $\frac{f_{by}}{F_{by}}$
L9	125.5 - 124.185	TP25.66x24.2304x0.3625	381.54	27.817	39.000	0.713	0.00	0.000	39.000	0.000
	124.185 - 122.87		409.43	29.131	39.000	0.747	0.00	0.000	39.000	0.000
	122.87 - 119.12		232.19	15.433	39.000	0.396	0.00	0.000	39.000	0.000
L10	122.87 - 119.12	TP25.2956x24.4447x0.425	257.75	15.192	39.000	0.390	0.00	0.000	39.000	0.000
	119.12 - 119		492.54	28.969	39.000	0.743	0.00	0.000	39.000	0.000
L11	119 - 118.75 (11)	TP25.3506x25.2956x0.5	497.96	25.009	39.000	0.641	0.00	0.000	39.000	0.000
L12	118.75 - 117.75	TP26.4499x25.3506x0.4875	519.70	26.259	39.000	0.673	0.00	0.000	39.000	0.000
	117.75 - 116.75		541.54	26.885	39.000	0.689	0.00	0.000	39.000	0.000
	116.75 - 115.75		563.47	27.489	39.000	0.705	0.00	0.000	39.000	0.000
	115.75 - 114.75		585.49	28.073	39.000	0.720	0.00	0.000	39.000	0.000
	114.75 - 113.75		607.61	28.638	39.000	0.734	0.00	0.000	39.000	0.000
L13	113.75 - 112.75	TP27.5493x26.4499x0.475	629.82	29.909	39.000	0.767	0.00	0.000	39.000	0.000
	112.75 - 111.75		652.12	30.450	39.000	0.781	0.00	0.000	39.000	0.000
	111.75 - 110.75		674.51	30.973	39.000	0.794	0.00	0.000	39.000	0.000
	110.75 - 109.75		697.00	31.479	39.000	0.807	0.00	0.000	39.000	0.000
	109.75 - 108.75		720.12	31.993	39.000	0.820	0.00	0.000	39.000	0.000
L14	108.75 - 107.75	TP28.6486x27.5493x0.4625	742.97	33.306	39.000	0.854	0.00	0.000	39.000	0.000
	107.75 - 106.75		765.91	33.783	39.000	0.866	0.00	0.000	39.000	0.000
	106.75 - 105.75		788.96	34.246	39.000	0.878	0.00	0.000	39.000	0.000
	105.75 - 104.75		812.74	34.721	39.000	0.890	0.00	0.000	39.000	0.000
	104.75 - 103.75		838.57	35.263	39.000	0.904	0.00	0.000	39.000	0.000
L15	103.75 - 103 (15)	TP28.8135x28.6486x0.4625	858.00	35.659	39.000	0.914	0.00	0.000	39.000	0.000
L16	103 - 102.75 (16)	TP28.8685x28.8135x0.5375	864.48	31.040	39.000	0.796	0.00	0.000	39.000	0.000
L17	102.75 - 101.475	TP29.4292x28.8685x0.5375	897.70	31.598	39.000	0.810	0.00	0.000	39.000	0.000
	101.475 - 100.2		931.10	32.135	39.000	0.824	0.00	0.000	39.000	0.000
L18	100.2 - 100.16	TP30.39x29.4292x0.6875	932.15	25.532	39.000	0.655	0.00	0.000	39.000	0.000
	100.16 - 95.83		520.13	13.338	39.000	0.342	0.00	0.000	39.000	0.000
L19	100.16 - 95.83	TP30.1187x28.938x0.7375	527.08	13.101	39.000	0.336	0.00	0.000	39.000	0.000
	95.83 - 94.83		1074.14	26.292	39.000	0.674	0.00	0.000	39.000	0.000
L20	94.83 - 93.5 (20)	TP30.4133x30.1187x0.7375	1110.17	26.631	39.000	0.683	0.00	0.000	39.000	0.000
L21	93.5 - 93.25 (21)	TP30.4687x30.4133x0.9125	1116.97	21.959	39.000	0.563	0.00	0.000	39.000	0.000
L22	93.25 - 92.25	TP31.3548x30.4687x0.8875	1144.26	22.724	39.000	0.583	0.00	0.000	39.000	0.000
	92.25 - 91.25		1171.69	22.922	39.000	0.588	0.00	0.000	39.000	0.000
	91.25 - 90.25		1199.27	23.114	39.000	0.593	0.00	0.000	39.000	0.000
	90.25 - 89.25		1226.98	23.301	39.000	0.597	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 $\frac{f_{by}}{F_{by}}$
L23	89.25 - 89 (23)	TP31.4102x31.3548x0.9375	1233.93	22.211	39.000	0.570	0.00	0.000	39.000	0.000
L24	89 - 87.75	TP31.964x31.4102x0.925	1268.83	22.698	39.000	0.582	0.00	0.000	39.000	0.000
	87.75 - 86.5		1303.95	22.906	39.000	0.587	0.00	0.000	39.000	0.000
L25	86.5 - 86.25 (25)	TP32.0194x31.964x0.7625	1311.00	27.406	39.000	0.703	0.00	0.000	39.000	0.000
L26	86.25 - 85.25	TP33.127x32.0194x0.7375	1339.28	28.467	39.000	0.730	0.00	0.000	39.000	0.000
	85.25 - 84.25		1367.68	28.662	39.000	0.735	0.00	0.000	39.000	0.000
	84.25 - 83.25		1396.21	28.851	39.000	0.740	0.00	0.000	39.000	0.000
	83.25 - 82.25		1424.85	29.034	39.000	0.744	0.00	0.000	39.000	0.000
	82.25 - 81.25		1453.63	29.212	39.000	0.749	0.00	0.000	39.000	0.000
L27	81.25 - 80.25	TP34.2347x33.127x0.725	1482.52	29.857	39.000	0.766	0.00	0.000	39.000	0.000
	80.25 - 79.25		1511.52	30.027	39.000	0.770	0.00	0.000	39.000	0.000
	79.25 - 78.25		1540.64	30.193	39.000	0.774	0.00	0.000	39.000	0.000
	78.25 - 77.25		1569.88	30.353	39.000	0.778	0.00	0.000	39.000	0.000
	77.25 - 76.25		1599.24	30.509	39.000	0.782	0.00	0.000	39.000	0.000
L28	76.25 - 75.0833 (28)	TP34.4931x34.2347x0.7125	1633.66	31.189	39.000	0.800	0.00	0.000	39.000	0.000
L29	75.0833 - 74.8333 (29)	TP34.5485x34.4931x0.8125	1641.07	27.628	39.000	0.708	0.00	0.000	39.000	0.000
L30	74.8333 - 73.8333	TP35.6561x34.5485x0.8	1670.76	28.161	39.000	0.722	0.00	0.000	39.000	0.000
	73.8333 - 72.8333		1700.61	28.289	39.000	0.725	0.00	0.000	39.000	0.000
	72.8333 - 71.8333		1730.59	28.415	39.000	0.729	0.00	0.000	39.000	0.000
	71.8333 - 70.8333		1760.73	28.537	39.000	0.732	0.00	0.000	39.000	0.000
	70.8333 - 69.8333		1791.02	28.655	39.000	0.735	0.00	0.000	39.000	0.000
L31	69.8333 - 68.8333	TP36.7638x35.6561x0.775	1821.45	29.636	39.000	0.760	0.00	0.000	39.000	0.000
	68.8333 - 67.8333		1852.03	29.753	39.000	0.763	0.00	0.000	39.000	0.000
	67.8333 - 66.8333		1882.74	29.866	39.000	0.766	0.00	0.000	39.000	0.000
	66.8333 - 65.8333		1913.60	29.977	39.000	0.769	0.00	0.000	39.000	0.000
	65.8333 - 64.8333		1944.61	30.085	39.000	0.771	0.00	0.000	39.000	0.000
L32	64.8333 - 63.8333	TP37.8714x36.7638x0.7625	1975.76	30.653	39.000	0.786	0.00	0.000	39.000	0.000
	63.8333 - 62.8333		2007.04	30.758	39.000	0.789	0.00	0.000	39.000	0.000
	62.8333 - 61.8333		2038.47	30.859	39.000	0.791	0.00	0.000	39.000	0.000
	61.8333 - 60.8333		2070.04	30.958	39.000	0.794	0.00	0.000	39.000	0.000
	60.8333 - 59.8333		2101.76	31.054	39.000	0.796	0.00	0.000	39.000	0.000
L33	59.8333 - 59.5 (33)	TP37.9452x37.8714x0.7625	2112.36	31.086	39.000	0.797	0.00	0.000	39.000	0.000
L34	59.5 - 59.25 (34)	TP38.0006x37.9452x0.7625	2120.32	31.109	39.000	0.798	0.00	0.000	39.000	0.000
L35	59.25 - 58.25	TP39.1082x38.0006x0.7375	2152.25	32.195	39.000	0.826	0.00	0.000	39.000	0.000
	58.25 - 57.25		2184.3	32.288	39.000	0.828	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 $\frac{f_{by}}{F_{by}}$
			2							
	57.25 - 56.25		2216.53	32.379	39.000	0.830	0.00	0.000	39.000	0.000
	56.25 - 55.25		2248.88	32.468	39.000	0.832	0.00	0.000	39.000	0.000
	55.25 - 54.25		2281.36	32.554	39.000	0.835	0.00	0.000	39.000	0.000
L36	54.25 - 53 (36)	TP39.3851x39.1082x0.7375	2322.16	32.658	39.000	0.837	0.00	0.000	39.000	0.000
L37	53 - 52.78	TP40.67x39.3851x0.7375	2329.37	32.676	39.000	0.838	0.00	0.000	39.000	0.000
	52.78 - 47.2		1267.98	16.694	39.000	0.428	0.00	0.000	39.000	0.000
L38	52.78 - 47.2	TP40.2664x38.8089x0.7625	1246.66	16.419	39.000	0.421	0.00	0.000	39.000	0.000
	47.2 - 46.2		2548.35	33.185	39.000	0.851	0.00	0.000	39.000	0.000
L39	46.2 - 45.2	TP41.3739x40.2664x0.775	2582.18	32.743	39.000	0.840	0.00	0.000	39.000	0.000
	45.2 - 44.2		2616.15	32.803	39.000	0.841	0.00	0.000	39.000	0.000
	44.2 - 43.2		2650.23	32.861	39.000	0.843	0.00	0.000	39.000	0.000
	43.2 - 42.2		2684.45	32.918	39.000	0.844	0.00	0.000	39.000	0.000
	42.2 - 41.2		2718.79	32.973	39.000	0.845	0.00	0.000	39.000	0.000
L40	41.2 - 40.1	TP41.8612x41.3739x0.775	2756.72	33.032	39.000	0.847	0.00	0.000	39.000	0.000
	40.1 - 39		2794.82	33.088	39.000	0.848	0.00	0.000	39.000	0.000
L41	39 - 38.75 (41)	TP41.9166x41.8612x0.825	2803.51	31.209	39.000	0.800	0.00	0.000	39.000	0.000
L42	38.75 - 38.0833 (42)	TP42.0643x41.9166x0.85	2826.71	30.376	39.000	0.779	0.00	0.000	39.000	0.000
L43	38.0833 - 37.8333 (43)	TP42.1197x42.0643x0.75	2835.43	34.190	39.000	0.877	0.00	0.000	39.000	0.000
L44	37.8333 - 36.8333	TP43.2272x42.1197x0.7625	2870.38	33.709	39.000	0.864	0.00	0.000	39.000	0.000
	36.8333 - 35.8333		2905.44	33.757	39.000	0.866	0.00	0.000	39.000	0.000
	35.8333 - 34.8333		2940.64	33.804	39.000	0.867	0.00	0.000	39.000	0.000
	34.8333 - 33.8333		2975.96	33.849	39.000	0.868	0.00	0.000	39.000	0.000
	33.8333 - 32.8333		3011.40	33.892	39.000	0.869	0.00	0.000	39.000	0.000
L45	32.8333 - 31.8333	TP44.3347x43.2272x0.75	3046.97	34.470	39.000	0.884	0.00	0.000	39.000	0.000
	31.8333 - 30.8333		3082.64	34.511	39.000	0.885	0.00	0.000	39.000	0.000
	30.8333 - 29.8333		3118.43	34.551	39.000	0.886	0.00	0.000	39.000	0.000
	29.8333 - 28.8333		3154.34	34.590	39.000	0.887	0.00	0.000	39.000	0.000
	28.8333 - 27.8333		3190.37	34.627	39.000	0.888	0.00	0.000	39.000	0.000
L46	27.8333 - 26.8333	TP45.4423x44.3347x0.725	3226.50	35.797	39.000	0.918	0.00	0.000	39.000	0.000
	26.8333 - 25.8333		3262.76	35.834	39.000	0.919	0.00	0.000	39.000	0.000
	25.8333 - 24.8333		3299.13	35.868	39.000	0.920	0.00	0.000	39.000	0.000
	24.8333 - 23.8333		3335.62	35.902	39.000	0.921	0.00	0.000	39.000	0.000
	23.8333 - 22.8333		3372.22	35.935	39.000	0.921	0.00	0.000	39.000	0.000
L47	22.8333 - 21.25 (47)	TP45.793x45.4423x0.7375	3430.42	35.403	39.000	0.908	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 $\frac{f_{by}}{F_{by}}$
L48	21.25 - 21 (48)	TP45.8484x45.793x0.75	3439.64	34.849	39.000	0.894	0.00	0.000	39.000	0.000
L49	21 - 20 (49)	TP46.0699x45.8484x0.725	3476.58	36.020	39.000	0.924	0.00	0.000	39.000	0.000
L50	20 - 19.75 (50)	TP46.1252x46.0699x0.825	3485.84	31.871	39.000	0.817	0.00	0.000	39.000	0.000
L51	19.75 - 18.375	TP46.7344x46.1252x0.8125	3536.88	32.367	39.000	0.830	0.00	0.000	39.000	0.000
	18.375 - 17		3588.18	32.399	39.000	0.831	0.00	0.000	39.000	0.000
L52	17 - 16.75 (52)	TP46.7898x46.7344x0.7625	3597.53	34.417	39.000	0.882	0.00	0.000	39.000	0.000
L53	16.75 - 15.75	TP47.8973x46.7898x0.7625	3635.00	34.440	39.000	0.883	0.00	0.000	39.000	0.000
	15.75 - 14.75		3672.60	34.463	39.000	0.884	0.00	0.000	39.000	0.000
	14.75 - 13.75		3710.32	34.485	39.000	0.884	0.00	0.000	39.000	0.000
	13.75 - 12.75		3748.17	34.506	39.000	0.885	0.00	0.000	39.000	0.000
	12.75 - 11.75		3786.13	34.526	39.000	0.885	0.00	0.000	39.000	0.000
L54	11.75 - 10.75	TP49.0048x47.8973x0.75	3824.21	35.093	39.000	0.900	0.00	0.000	39.000	0.000
	10.75 - 9.75		3862.42	35.112	39.000	0.900	0.00	0.000	39.000	0.000
	9.75 - 8.75		3900.73	35.130	39.000	0.901	0.00	0.000	39.000	0.000
	8.75 - 7.75		3939.18	35.147	39.000	0.901	0.00	0.000	39.000	0.000
	7.75 - 6.75		3977.73	35.163	39.000	0.902	0.00	0.000	39.000	0.000
L55	6.75 - 5.75	TP50.1124x49.0048x0.725	4016.42	36.336	39.000	0.932	0.00	0.000	39.000	0.000
	5.75 - 4.75		4055.21	36.352	39.000	0.932	0.00	0.000	39.000	0.000
	4.75 - 3.75		4094.13	36.367	39.000	0.932	0.00	0.000	39.000	0.000
	3.75 - 2.75		4133.15	36.381	39.000	0.933	0.00	0.000	39.000	0.000
	2.75 - 1.75		4172.30	36.395	39.000	0.933	0.00	0.000	39.000	0.000
L56	1.75 - 0 (56)	TP50.5x50.1124x0.75	4241.07	35.255	39.000	0.904	0.00	0.000	39.000	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	160 - 159	TP17.6204x16.5x0.1875	0.05	0.005	26.000	0.000	0.00	0.000	26.000	0.000
	159 - 158		2.95	0.296	26.000	0.023	0.00	0.000	26.000	0.000
	158 - 157		3.00	0.297	26.000	0.023	0.00	0.000	26.000	0.000
	157 - 156		3.97	0.387	26.000	0.030	0.00	0.000	26.000	0.000
	156 - 155		4.02	0.387	26.000	0.030	0.00	0.000	26.000	0.000
L2	155 - 154	TP18.7407x17.6204x0.1875	4.07	0.387	26.000	0.030	0.00	0.000	26.000	0.000
	154 - 153		4.12	0.387	26.000	0.030	0.00	0.000	26.000	0.000
	153 - 152		4.17	0.387	26.000	0.030	0.00	0.000	26.000	0.000
	152 - 151		4.22	0.387	26.000	0.030	0.00	0.000	26.000	0.000
	151 - 150		4.27	0.387	26.000	0.030	0.00	0.000	26.000	0.000
L3	150 - 149	TP19.8611x18.7407x0.1875	8.63	0.772	26.000	0.059	0.41	0.046	26.000	0.002
	149 - 148		8.68	0.768	26.000	0.059	0.41	0.045	26.000	0.002
	148 - 147		9.58	0.837	26.000	0.064	0.41	0.044	26.000	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 $\frac{f_{vt}}{F_{vt}}$
	147 - 146		9.63	0.832	26.000	0.064	0.41	0.043	26.000	0.002
	146 - 145		9.69	0.827	26.000	0.064	0.41	0.042	26.000	0.002
L4	145 - 144	TP20.9814x19.8611x0.1875	9.74	0.823	26.000	0.063	0.41	0.041	26.000	0.002
	144 - 143		9.80	0.818	26.000	0.063	0.41	0.040	26.000	0.002
	143 - 142		9.85	0.814	26.000	0.063	0.41	0.040	26.000	0.002
	142 - 141		9.90	0.809	26.000	0.062	0.41	0.039	26.000	0.001
	141 - 140		9.96	0.805	26.000	0.062	0.41	0.038	26.000	0.001
L5	140 - 139	TP22.1018x20.9814x0.1875	10.02	0.801	26.000	0.062	0.41	0.037	26.000	0.001
	139 - 138		13.48	1.067	26.000	0.082	0.70	0.062	26.000	0.002
	138 - 137		13.54	1.060	26.000	0.082	0.70	0.060	26.000	0.002
	137 - 136		13.59	1.053	26.000	0.081	0.70	0.059	26.000	0.002
	136 - 135		13.65	1.047	26.000	0.080	0.70	0.058	26.000	0.002
L6	135 - 134	TP23.2221x22.1018x0.1875	13.71	1.040	26.000	0.080	0.70	0.057	26.000	0.002
	134 - 133		13.82	1.038	26.000	0.080	0.30	0.024	26.000	0.001
	133 - 132		13.87	1.032	26.000	0.079	0.30	0.023	26.000	0.001
	132 - 131		13.93	1.026	26.000	0.079	0.30	0.023	26.000	0.001
	131 - 130		13.98	1.020	26.000	0.078	0.30	0.022	26.000	0.001
L7	130 - 128.938	TP24.1744x23.2221x0.1875	14.05	1.015	26.000	0.078	0.30	0.022	26.000	0.001
	128.938 - 127.875		14.12	1.009	26.000	0.078	0.30	0.021	26.000	0.001
	127.875 - 126.813		20.96	1.483	26.000	0.114	0.29	0.021	26.000	0.001
	126.813 - 125.75		21.02	1.473	26.000	0.113	0.29	0.020	26.000	0.001
L8	125.75 - 125.5 (8)	TP24.2304x24.1744x0.3688	21.04	0.753	26.000	0.058	0.29	0.010	26.000	0.000
L9	125.5 - 124.185	TP25.66x24.2304x0.3625	21.16	0.761	26.000	0.059	0.29	0.010	26.000	0.000
	124.185 - 122.87		21.28	0.756	26.000	0.058	0.29	0.010	26.000	0.000
	122.87 - 119.12		10.36	0.356	26.000	0.027	0.14	0.004	26.000	0.000
L10	122.87 - 119.12	TP25.2956x24.4447x0.425	11.31	0.338	26.000	0.026	0.15	0.004	26.000	0.000
	119.12 - 119		21.68	0.646	26.000	0.050	0.29	0.008	26.000	0.000
L11	119 - 118.75 (11)	TP25.3506x25.2956x0.5	21.70	0.550	26.000	0.042	0.29	0.007	26.000	0.000
L12	118.75 - 117.75	TP26.4499x25.3506x0.4875	21.79	0.562	26.000	0.043	0.29	0.007	26.000	0.000
	117.75 - 116.75		21.89	0.559	26.000	0.043	0.29	0.007	26.000	0.000
	116.75 - 115.75		21.98	0.557	26.000	0.043	0.29	0.007	26.000	0.000
	115.75 - 114.75		22.07	0.554	26.000	0.043	0.29	0.007	26.000	0.000
	114.75 - 113.75		22.17	0.552	26.000	0.042	0.29	0.007	26.000	0.000
L13	113.75 - 112.75	TP27.5493x26.4499x0.475	22.26	0.564	26.000	0.043	0.29	0.007	26.000	0.000
	112.75 - 111.75		22.35	0.561	26.000	0.043	0.29	0.007	26.000	0.000
	111.75 - 110.75		22.45	0.559	26.000	0.043	0.29	0.007	26.000	0.000
	110.75 - 109.75		22.54	0.557	26.000	0.043	0.29	0.006	26.000	0.000
	109.75 - 108.75		22.81	0.559	26.000	0.043	0.29	0.006	26.000	0.000
L14	108.75 - 107.75	TP28.6486x27.5493x0.4625	22.90	0.571	26.000	0.044	0.05	0.001	26.000	0.000
	107.75 - 106.75		23.00	0.569	26.000	0.044	0.04	0.001	26.000	0.000
	106.75 - 105.75		23.09	0.567	26.000	0.044	0.04	0.001	26.000	0.000
	105.75 - 104.75		25.78	0.628	26.000	0.048	0.04	0.001	26.000	0.000

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 $\frac{f_{vt}}{F_{vt}}$
	104.75 - 103.75		25.88	0.625	26.000	0.048	0.04	0.001	26.000	0.000
L15	103.75 - 103 (15)	TP28.8135x28.6486x0.4625	25.96	0.624	26.000	0.048	0.04	0.001	26.000	0.000
L16	103 - 102.75 (16)	TP28.8685x28.8135x0.5375	25.98	0.537	26.000	0.041	0.04	0.001	26.000	0.000
L17	102.75 - 101.475	TP29.4292x28.8685x0.5375	26.13	0.535	26.000	0.041	0.04	0.001	26.000	0.000
	101.475 - 100.2		26.28	0.533	26.000	0.041	0.04	0.001	26.000	0.000
L18	100.2 - 100.16	TP30.39x29.4292x0.6875	26.28	0.419	26.000	0.032	0.04	0.001	26.000	0.000
	100.16 - 95.83		13.48	0.208	26.000	0.016	0.02	0.000	26.000	0.000
L19	100.16 - 95.83	TP30.1187x28.938x0.7375	13.40	0.196	26.000	0.015	0.02	0.000	26.000	0.000
	95.83 - 94.83		27.00	0.393	26.000	0.030	0.04	0.000	26.000	0.000
L20	94.83 - 93.5 (20)	TP30.4133x30.1187x0.7375	27.19	0.391	26.000	0.030	0.04	0.000	26.000	0.000
L21	93.5 - 93.25 (21)	TP30.4687x30.4133x0.9125	27.22	0.318	26.000	0.024	0.04	0.000	26.000	0.000
L22	93.25 - 92.25	TP31.3548x30.4687x0.8875	27.36	0.326	26.000	0.025	0.04	0.000	26.000	0.000
	92.25 - 91.25		27.51	0.325	26.000	0.025	0.04	0.000	26.000	0.000
	91.25 - 90.25		27.65	0.325	26.000	0.025	0.04	0.000	26.000	0.000
	90.25 - 89.25		27.80	0.324	26.000	0.025	0.04	0.000	26.000	0.000
L23	89.25 - 89 (23)	TP31.4102x31.3548x0.9375	27.83	0.307	26.000	0.024	0.04	0.000	26.000	0.000
L24	89 - 87.75	TP31.964x31.4102x0.925	28.01	0.310	26.000	0.024	0.04	0.000	26.000	0.000
	87.75 - 86.5		28.19	0.309	26.000	0.024	0.04	0.000	26.000	0.000
L25	86.5 - 86.25 (25)	TP32.0194x31.964x0.7625	28.22	0.373	26.000	0.029	0.04	0.000	26.000	0.000
L26	86.25 - 85.25	TP33.127x32.0194x0.7375	28.35	0.384	26.000	0.030	0.04	0.000	26.000	0.000
	85.25 - 84.25		28.47	0.383	26.000	0.029	0.04	0.000	26.000	0.000
	84.25 - 83.25		28.59	0.382	26.000	0.029	0.04	0.000	26.000	0.000
	83.25 - 82.25		28.72	0.381	26.000	0.029	0.04	0.000	26.000	0.000
	82.25 - 81.25		28.84	0.380	26.000	0.029	0.04	0.000	26.000	0.000
L27	81.25 - 80.25	TP34.2347x33.127x0.725	28.96	0.386	26.000	0.030	0.04	0.000	26.000	0.000
	80.25 - 79.25		29.07	0.385	26.000	0.030	0.04	0.000	26.000	0.000
	79.25 - 78.25		29.19	0.384	26.000	0.030	0.04	0.000	26.000	0.000
	78.25 - 77.25		29.31	0.383	26.000	0.029	0.04	0.000	26.000	0.000
	77.25 - 76.25		29.43	0.382	26.000	0.029	0.04	0.000	26.000	0.000
L28	76.25 - 75.0833 (28)	TP34.4931x34.2347x0.7125	29.60	0.387	26.000	0.030	0.04	0.000	26.000	0.000
L29	75.0833 - 74.8333 (29)	TP34.5485x34.4931x0.8125	29.63	0.341	26.000	0.026	0.04	0.000	26.000	0.000
L30	74.8333 - 73.8333	TP35.6561x34.5485x0.8	29.78	0.345	26.000	0.027	0.04	0.000	26.000	0.000
	73.8333 - 72.8333		29.92	0.345	26.000	0.027	0.04	0.000	26.000	0.000
	72.8333 - 71.8333		30.07	0.344	26.000	0.026	0.04	0.000	26.000	0.000
	71.8333 - 70.8333		30.22	0.344	26.000	0.026	0.04	0.000	26.000	0.000
	70.8333 - 69.8333		30.37	0.343	26.000	0.026	0.04	0.000	26.000	0.000
L31	69.8333 - 68.8333	TP36.7638x35.6561x0.775	30.51	0.353	26.000	0.027	0.04	0.000	26.000	0.000
	68.8333 - 67.8333		30.65	0.353	26.000	0.027	0.04	0.000	26.000	0.000
	67.8333 - 66.8333		30.80	0.352	26.000	0.027	0.04	0.000	26.000	0.000
	66.8333 - 65.8333		30.94	0.352	26.000	0.027	0.04	0.000	26.000	0.000
	65.8333 - 64.8333		31.09	0.351	26.000	0.027	0.04	0.000	26.000	0.000
L32	64.8333 - 63.8333	TP37.8714x36.7638x0.7625	31.23	0.356	26.000	0.027	0.04	0.000	26.000	0.000

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 $\frac{f_{vt}}{F_{vt}}$
	63.8333 - 62.8333		31.37	0.356	26.000	0.027	0.04	0.000	26.000	0.000
	62.8333 - 61.8333		31.51	0.355	26.000	0.027	0.04	0.000	26.000	0.000
	61.8333 - 60.8333		31.65	0.355	26.000	0.027	0.04	0.000	26.000	0.000
	60.8333 - 59.8333		31.79	0.354	26.000	0.027	0.04	0.000	26.000	0.000
L33	59.8333 - 59.5 (33)	TP37.9452x37.8714x0.7625	31.83	0.354	26.000	0.027	0.04	0.000	26.000	0.000
L34	59.5 - 59.25 (34)	TP38.0006x37.9452x0.7625	31.87	0.354	26.000	0.027	0.04	0.000	26.000	0.000
L35	59.25 - 58.25	TP39.1082x38.0006x0.7375	32.01	0.365	26.000	0.028	0.04	0.000	26.000	0.000
	58.25 - 57.25		32.15	0.364	26.000	0.028	0.04	0.000	26.000	0.000
	57.25 - 56.25		32.29	0.364	26.000	0.028	0.04	0.000	26.000	0.000
	56.25 - 55.25		32.42	0.363	26.000	0.028	0.04	0.000	26.000	0.000
	55.25 - 54.25		32.56	0.363	26.000	0.028	0.04	0.000	26.000	0.000
L36	54.25 - 53 (36)	TP39.3851x39.1082x0.7375	32.74	0.362	26.000	0.028	0.04	0.000	26.000	0.000
L37	53 - 52.78	TP40.67x39.3851x0.7375	32.76	0.362	26.000	0.028	0.04	0.000	26.000	0.000
	52.78 - 47.2		17.19	0.184	26.000	0.014	0.03	0.000	26.000	0.000
L38	52.78 - 47.2	TP40.2664x38.8089x0.7625	16.49	0.173	26.000	0.013	0.02	0.000	26.000	0.000
	47.2 - 46.2		33.79	0.353	26.000	0.027	0.05	0.000	26.000	0.000
L39	46.2 - 45.2	TP41.3739x40.2664x0.775	33.91	0.347	26.000	0.027	0.05	0.000	26.000	0.000
	45.2 - 44.2		34.04	0.346	26.000	0.027	0.05	0.000	26.000	0.000
	44.2 - 43.2		34.16	0.346	26.000	0.027	0.05	0.000	26.000	0.000
	43.2 - 42.2		34.29	0.345	26.000	0.027	0.05	0.000	26.000	0.000
	42.2 - 41.2		34.42	0.345	26.000	0.027	0.05	0.000	26.000	0.000
L40	41.2 - 40.1	TP41.8612x41.3739x0.775	34.57	0.344	26.000	0.026	0.05	0.000	26.000	0.000
	40.1 - 39		34.73	0.344	26.000	0.026	0.05	0.000	26.000	0.000
L41	39 - 38.75 (41)	TP41.9166x41.8612x0.825	34.75	0.323	26.000	0.025	0.05	0.000	26.000	0.000
L42	38.75 - 38.0833 (42)	TP42.0643x41.9166x0.85	34.86	0.313	26.000	0.024	0.05	0.000	26.000	0.000
L43	38.0833 - 37.8333 (43)	TP42.1197x42.0643x0.75	34.89	0.354	26.000	0.027	0.05	0.000	26.000	0.000
L44	37.8333 - 36.8333	TP43.2272x42.1197x0.7625	35.02	0.348	26.000	0.027	0.05	0.000	26.000	0.000
	36.8333 - 35.8333		35.15	0.347	26.000	0.027	0.05	0.000	26.000	0.000
	35.8333 - 34.8333		35.27	0.347	26.000	0.027	0.05	0.000	26.000	0.000
	34.8333 - 33.8333		35.39	0.346	26.000	0.027	0.05	0.000	26.000	0.000
	33.8333 - 32.8333		35.52	0.346	26.000	0.027	0.05	0.000	26.000	0.000
L45	32.8333 - 31.8333	TP44.3347x43.2272x0.75	35.63	0.351	26.000	0.027	0.05	0.000	26.000	0.000
	31.8333 - 30.8333		35.75	0.350	26.000	0.027	0.05	0.000	26.000	0.000
	30.8333 - 29.8333		35.86	0.349	26.000	0.027	0.05	0.000	26.000	0.000
	29.8333 - 28.8333		35.98	0.349	26.000	0.027	0.05	0.000	26.000	0.000
	28.8333 - 27.8333		36.09	0.348	26.000	0.027	0.05	0.000	26.000	0.000
L46	27.8333 - 26.8333	TP45.4423x44.3347x0.725	36.21	0.359	26.000	0.028	0.05	0.000	26.000	0.000
	26.8333 - 25.8333		36.33	0.358	26.000	0.028	0.05	0.000	26.000	0.000
	25.8333 - 24.8333		36.44	0.358	26.000	0.028	0.05	0.000	26.000	0.000
	24.8333 - 23.8333		36.56	0.357	26.000	0.027	0.05	0.000	26.000	0.000
	23.8333 -		36.68	0.356	26.000	0.027	0.05	0.000	26.000	0.000

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 $\frac{f_{vt}}{F_{vt}}$
	22.8333									
L47	22.8333 - 21.25 (47)	TP45.793x45.4423x0.7375	36.88	0.350	26.000	0.027	0.05	0.000	26.000	0.000
L48	21.25 - 21 (48)	TP45.8484x45.793x0.75	36.89	0.344	26.000	0.026	0.05	0.000	26.000	0.000
L49	21 - 20 (49)	TP46.0699x45.8484x0.725	37.02	0.355	26.000	0.027	0.05	0.000	26.000	0.000
L50	20 - 19.75 (50)	TP46.1252x46.0699x0.825	37.04	0.312	26.000	0.024	0.05	0.000	26.000	0.000
L51	19.75 - 18.375	TP46.7344x46.1252x0.8125	37.23	0.316	26.000	0.024	0.05	0.000	26.000	0.000
	18.375 - 17		37.40	0.316	26.000	0.024	0.05	0.000	26.000	0.000
L52	17 - 16.75 (52)	TP46.7898x46.7344x0.7625	37.42	0.336	26.000	0.026	0.05	0.000	26.000	0.000
L53	16.75 - 15.75	TP47.8973x46.7898x0.7625	37.55	0.335	26.000	0.026	0.05	0.000	26.000	0.000
	15.75 - 14.75		37.67	0.335	26.000	0.026	0.05	0.000	26.000	0.000
	14.75 - 13.75		37.80	0.334	26.000	0.026	0.05	0.000	26.000	0.000
	13.75 - 12.75		37.92	0.334	26.000	0.026	0.05	0.000	26.000	0.000
	12.75 - 11.75		38.04	0.333	26.000	0.026	0.05	0.000	26.000	0.000
L54	11.75 - 10.75	TP49.0048x47.8973x0.75	38.16	0.338	26.000	0.026	0.05	0.000	26.000	0.000
	10.75 - 9.75		38.28	0.338	26.000	0.026	0.05	0.000	26.000	0.000
	9.75 - 8.75		38.40	0.337	26.000	0.026	0.05	0.000	26.000	0.000
	8.75 - 7.75		38.51	0.337	26.000	0.026	0.05	0.000	26.000	0.000
	7.75 - 6.75		38.63	0.336	26.000	0.026	0.05	0.000	26.000	0.000
L55	6.75 - 5.75	TP50.1124x49.0048x0.725	38.75	0.347	26.000	0.027	0.05	0.000	26.000	0.000
	5.75 - 4.75		38.87	0.347	26.000	0.027	0.05	0.000	26.000	0.000
	4.75 - 3.75		38.99	0.346	26.000	0.027	0.05	0.000	26.000	0.000
	3.75 - 2.75		39.11	0.346	26.000	0.027	0.05	0.000	26.000	0.000
	2.75 - 1.75		39.22	0.345	26.000	0.027	0.05	0.000	26.000	0.000
L56	1.75 - 0 (56)	TP50.5x50.1124x0.75	39.41	0.333	26.000	0.026	0.05	0.000	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 159	0.000	0.000	0.000	0.000	0.000	0.000 ✔	1.333	H1-3+VT ✔
	159 - 158	0.004	0.029	0.000	0.023	0.000	0.033 ✔	1.333	H1-3+VT ✔
	158 - 157	0.004	0.050	0.000	0.023	0.000	0.054 ✔	1.333	H1-3+VT ✔
	157 - 156	0.005	0.069	0.000	0.030	0.000	0.074 ✔	1.333	H1-3+VT ✔
	156 - 155	0.005	0.095	0.000	0.030	0.000	0.100 ✔	1.333	H1-3+VT ✔
L2	155 - 154	0.005	0.119	0.000	0.030	0.000	0.124 ✔	1.333	H1-3+VT ✔
	154 - 153	0.005	0.143	0.000	0.030	0.000	0.148 ✔	1.333	H1-3+VT ✔
	153 - 152	0.005	0.166	0.000	0.030	0.000	0.171 ✔	1.333	H1-3+VT ✔
	152 - 151	0.005	0.188	0.000	0.030	0.000	0.193 ✔	1.333	H1-3+VT ✔
	151 - 150	0.005	0.210	0.000	0.030	0.000	0.215 ✔	1.333	H1-3+VT ✔
L3	150 - 149	0.008	0.256	0.000	0.059	0.002	0.265 ✔	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
	149 - 148	0.008	0.300	0.000	0.059	0.002	0.310	1.333	H1-3+VT
	148 - 147	0.009	0.347	0.000	0.064	0.002	0.358	1.333	H1-3+VT
	147 - 146	0.009	0.393	0.000	0.064	0.002	0.403	1.333	H1-3+VT
	146 - 145	0.009	0.436	0.000	0.064	0.002	0.446	1.333	H1-3+VT
L4	145 - 144	0.009	0.478	0.000	0.063	0.002	0.488	1.333	H1-3+VT
	144 - 143	0.009	0.518	0.000	0.063	0.002	0.528	1.333	H1-3+VT
	143 - 142	0.009	0.556	0.000	0.063	0.002	0.566	1.333	H1-3+VT
	142 - 141	0.009	0.593	0.000	0.062	0.001	0.603	1.333	H1-3+VT
	141 - 140	0.009	0.628	0.000	0.062	0.001	0.639	1.333	H1-3+VT
L5	140 - 139	0.009	0.662	0.000	0.062	0.001	0.673	1.333	H1-3+VT
	139 - 138	0.011	0.711	0.000	0.082	0.002	0.724	1.333	H1-3+VT
	138 - 137	0.011	0.758	0.000	0.082	0.002	0.771	1.333	H1-3+VT
	137 - 136	0.011	0.802	0.000	0.081	0.002	0.815	1.333	H1-3+VT
	136 - 135	0.011	0.845	0.000	0.080	0.002	0.858	1.333	H1-3+VT
L6	135 - 134	0.011	0.887	0.000	0.080	0.002	0.900	1.333	H1-3+VT
	134 - 133	0.011	0.927	0.000	0.080	0.001	0.940	1.333	H1-3+VT
	133 - 132	0.011	0.965	0.000	0.079	0.001	0.978	1.333	H1-3+VT
	132 - 131	0.011	1.002	0.000	0.079	0.001	1.015	1.333	H1-3+VT
	131 - 130	0.011	1.038	0.000	0.078	0.001	1.051	1.333	H1-3+VT
L7	130 - 128.938	0.011	1.074	0.000	0.078	0.001	1.087	1.333	H1-3+VT
	128.938 - 127.875	0.011	1.109	0.000	0.078	0.001	1.122	1.333	H1-3+VT
	127.875 - 126.813	0.015	1.212	0.000	0.114	0.001	1.231	1.333	H1-3+VT
	126.813 - 125.75	0.015	1.269	0.000	0.113	0.001	1.288	1.333	H1-3+VT
L8	125.75 - 125.5 (8)	0.008	0.667	0.000	0.058	0.000	0.676	1.333	H1-3+VT
L9	125.5 - 124.185	0.008	0.713	0.000	0.059	0.000	0.722	1.333	H1-3+VT
	124.185 - 122.87	0.008	0.747	0.000	0.058	0.000	0.756	1.333	H1-3+VT
	122.87 - 119.12	0.004	0.396	0.000	0.027	0.000	0.400	1.333	H1-3+VT
L10	122.87 - 119.12	0.007	0.390	0.000	0.026	0.000	0.397	1.333	H1-3+VT
	119.12 - 119	0.007	0.743	0.000	0.050	0.000	0.751	1.333	H1-3+VT
L11	119 - 118.75 (11)	0.006	0.641	0.000	0.042	0.000	0.648	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
L12	118.75 - 117.75	0.007	0.673	0.000	0.043	0.000	0.680 ✔	1.333	H1-3+VT ✔
	117.75 - 116.75	0.007	0.689	0.000	0.043	0.000	0.696 ✔	1.333	H1-3+VT ✔
	116.75 - 115.75	0.007	0.705	0.000	0.043	0.000	0.712 ✔	1.333	H1-3+VT ✔
	115.75 - 114.75	0.007	0.720	0.000	0.043	0.000	0.727 ✔	1.333	H1-3+VT ✔
	114.75 - 113.75	0.007	0.734	0.000	0.042	0.000	0.742 ✔	1.333	H1-3+VT ✔
L13	113.75 - 112.75	0.007	0.767	0.000	0.043	0.000	0.774 ✔	1.333	H1-3+VT ✔
	112.75 - 111.75	0.007	0.781	0.000	0.043	0.000	0.788 ✔	1.333	H1-3+VT ✔
	111.75 - 110.75	0.007	0.794	0.000	0.043	0.000	0.802 ✔	1.333	H1-3+VT ✔
	110.75 - 109.75	0.007	0.807	0.000	0.043	0.000	0.815 ✔	1.333	H1-3+VT ✔
	109.75 - 108.75	0.007	0.820	0.000	0.043	0.000	0.828 ✔	1.333	H1-3+VT ✔
L14	108.75 - 107.75	0.007	0.854	0.000	0.044	0.000	0.862 ✔	1.333	H1-3+VT ✔
	107.75 - 106.75	0.008	0.866	0.000	0.044	0.000	0.874 ✔	1.333	H1-3+VT ✔
	106.75 - 105.75	0.008	0.878	0.000	0.044	0.000	0.886 ✔	1.333	H1-3+VT ✔
	105.75 - 104.75	0.009	0.890	0.000	0.048	0.000	0.900 ✔	1.333	H1-3+VT ✔
	104.75 - 103.75	0.009	0.904	0.000	0.048	0.000	0.914 ✔	1.333	H1-3+VT ✔
L15	103.75 - 103 (15)	0.009	0.914	0.000	0.048	0.000	0.924 ✔	1.333	H1-3+VT ✔
L16	103 - 102.75 (16)	0.008	0.796	0.000	0.041	0.000	0.804 ✔	1.333	H1-3+VT ✔
L17	102.75 - 101.475	0.008	0.810	0.000	0.041	0.000	0.818 ✔	1.333	H1-3+VT ✔
	101.475 - 100.2	0.008	0.824	0.000	0.041	0.000	0.832 ✔	1.333	H1-3+VT ✔
L18	100.2 - 100.16	0.006	0.655	0.000	0.032	0.000	0.661 ✔	1.333	H1-3+VT ✔
	100.16 - 95.83	0.003	0.342	0.000	0.016	0.000	0.345 ✔	1.333	H1-3+VT ✔
L19	100.16 - 95.83	0.003	0.336	0.000	0.015	0.000	0.339 ✔	1.333	H1-3+VT ✔
	95.83 - 94.83	0.006	0.674	0.000	0.030	0.000	0.681 ✔	1.333	H1-3+VT ✔
L20	94.83 - 93.5 (20)	0.006	0.683	0.000	0.030	0.000	0.690 ✔	1.333	H1-3+VT ✔
L21	93.5 - 93.25 (21)	0.005	0.563	0.000	0.024	0.000	0.568 ✔	1.333	H1-3+VT ✔
L22	93.25 - 92.25	0.005	0.583	0.000	0.025	0.000	0.588 ✔	1.333	H1-3+VT ✔
	92.25 - 91.25	0.006	0.588	0.000	0.025	0.000	0.593 ✔	1.333	H1-3+VT ✔
	91.25 - 90.25	0.006	0.593	0.000	0.025	0.000	0.598 ✔	1.333	H1-3+VT ✔
	90.25 - 89.25	0.006	0.597	0.000	0.025	0.000	0.603 ✔	1.333	H1-3+VT ✔
L23	89.25 - 89 (23)	0.005	0.570	0.000	0.024	0.000	0.575 ✔	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
L24	89 - 87.75	0.005	0.582	0.000	0.024	0.000	0.588	1.333	H1-3+VT
	87.75 - 86.5	0.006	0.587	0.000	0.024	0.000	0.593	1.333	H1-3+VT
L25	86.5 - 86.25 (25)	0.007	0.703	0.000	0.029	0.000	0.710	1.333	H1-3+VT
L26	86.25 - 85.25	0.007	0.730	0.000	0.030	0.000	0.737	1.333	H1-3+VT
	85.25 - 84.25	0.007	0.735	0.000	0.029	0.000	0.742	1.333	H1-3+VT
	84.25 - 83.25	0.007	0.740	0.000	0.029	0.000	0.747	1.333	H1-3+VT
	83.25 - 82.25	0.007	0.744	0.000	0.029	0.000	0.752	1.333	H1-3+VT
	82.25 - 81.25	0.007	0.749	0.000	0.029	0.000	0.756	1.333	H1-3+VT
L27	81.25 - 80.25	0.007	0.766	0.000	0.030	0.000	0.773	1.333	H1-3+VT
	80.25 - 79.25	0.007	0.770	0.000	0.030	0.000	0.778	1.333	H1-3+VT
	79.25 - 78.25	0.007	0.774	0.000	0.030	0.000	0.782	1.333	H1-3+VT
	78.25 - 77.25	0.007	0.778	0.000	0.029	0.000	0.786	1.333	H1-3+VT
	77.25 - 76.25	0.007	0.782	0.000	0.029	0.000	0.790	1.333	H1-3+VT
L28	76.25 - 75.0833 (28)	0.008	0.800	0.000	0.030	0.000	0.808	1.333	H1-3+VT
L29	75.0833 - 74.8333 (29)	0.007	0.708	0.000	0.026	0.000	0.715	1.333	H1-3+VT
L30	74.8333 - 73.8333	0.007	0.722	0.000	0.027	0.000	0.729	1.333	H1-3+VT
	73.8333 - 72.8333	0.007	0.725	0.000	0.027	0.000	0.733	1.333	H1-3+VT
	72.8333 - 71.8333	0.007	0.729	0.000	0.026	0.000	0.736	1.333	H1-3+VT
	71.8333 - 70.8333	0.007	0.732	0.000	0.026	0.000	0.739	1.333	H1-3+VT
	70.8333 - 69.8333	0.007	0.735	0.000	0.026	0.000	0.742	1.333	H1-3+VT
L31	69.8333 - 68.8333	0.007	0.760	0.000	0.027	0.000	0.767	1.333	H1-3+VT
	68.8333 - 67.8333	0.007	0.763	0.000	0.027	0.000	0.771	1.333	H1-3+VT
	67.8333 - 66.8333	0.007	0.766	0.000	0.027	0.000	0.773	1.333	H1-3+VT
	66.8333 - 65.8333	0.008	0.769	0.000	0.027	0.000	0.776	1.333	H1-3+VT
	65.8333 - 64.8333	0.008	0.771	0.000	0.027	0.000	0.779	1.333	H1-3+VT
L32	64.8333 - 63.8333	0.008	0.786	0.000	0.027	0.000	0.794	1.333	H1-3+VT
	63.8333 - 62.8333	0.008	0.789	0.000	0.027	0.000	0.797	1.333	H1-3+VT
	62.8333 - 61.8333	0.008	0.791	0.000	0.027	0.000	0.799	1.333	H1-3+VT
	61.8333 - 60.8333	0.008	0.794	0.000	0.027	0.000	0.802	1.333	H1-3+VT
	60.8333 - 59.8333	0.008	0.796	0.000	0.027	0.000	0.804	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
L33	59.8333 - 59.5 (33)	0.008	0.797	0.000	0.027	0.000	0.805 ✔	1.333	H1-3+VT ✔
L34	59.5 - 59.25 (34)	0.008	0.798	0.000	0.027	0.000	0.806 ✔	1.333	H1-3+VT ✔
L35	59.25 - 58.25	0.008	0.826	0.000	0.028	0.000	0.834 ✔	1.333	H1-3+VT ✔
	58.25 - 57.25	0.008	0.828	0.000	0.028	0.000	0.836 ✔	1.333	H1-3+VT ✔
	57.25 - 56.25	0.008	0.830	0.000	0.028	0.000	0.839 ✔	1.333	H1-3+VT ✔
	56.25 - 55.25	0.008	0.832	0.000	0.028	0.000	0.841 ✔	1.333	H1-3+VT ✔
	55.25 - 54.25	0.008	0.835	0.000	0.028	0.000	0.843 ✔	1.333	H1-3+VT ✔
L36	54.25 - 53 (36)	0.009	0.837	0.000	0.028	0.000	0.846 ✔	1.333	H1-3+VT ✔
L37	53 - 52.78	0.009	0.838	0.000	0.028	0.000	0.847 ✔	1.333	H1-3+VT ✔
	52.78 - 47.2	0.005	0.428	0.000	0.014	0.000	0.433 ✔	1.333	H1-3+VT ✔
L38	52.78 - 47.2	0.005	0.421	0.000	0.013	0.000	0.426 ✔	1.333	H1-3+VT ✔
	47.2 - 46.2	0.009	0.851	0.000	0.027	0.000	0.860 ✔	1.333	H1-3+VT ✔
L39	46.2 - 45.2	0.009	0.840	0.000	0.027	0.000	0.849 ✔	1.333	H1-3+VT ✔
	45.2 - 44.2	0.009	0.841	0.000	0.027	0.000	0.850 ✔	1.333	H1-3+VT ✔
	44.2 - 43.2	0.009	0.843	0.000	0.027	0.000	0.852 ✔	1.333	H1-3+VT ✔
	43.2 - 42.2	0.009	0.844	0.000	0.027	0.000	0.853 ✔	1.333	H1-3+VT ✔
	42.2 - 41.2	0.009	0.845	0.000	0.027	0.000	0.855 ✔	1.333	H1-3+VT ✔
L40	41.2 - 40.1	0.009	0.847	0.000	0.026	0.000	0.856 ✔	1.333	H1-3+VT ✔
	40.1 - 39	0.009	0.848	0.000	0.026	0.000	0.858 ✔	1.333	H1-3+VT ✔
L41	39 - 38.75 (41)	0.009	0.800	0.000	0.025	0.000	0.809 ✔	1.333	H1-3+VT ✔
L42	38.75 - 38.0833 (42)	0.009	0.779	0.000	0.024	0.000	0.788 ✔	1.333	H1-3+VT ✔
L43	38.0833 - 37.8333 (43)	0.010	0.877	0.000	0.027	0.000	0.887 ✔	1.333	H1-3+VT ✔
L44	37.8333 - 36.8333	0.010	0.864	0.000	0.027	0.000	0.874 ✔	1.333	H1-3+VT ✔
	36.8333 - 35.8333	0.010	0.866	0.000	0.027	0.000	0.875 ✔	1.333	H1-3+VT ✔
	35.8333 - 34.8333	0.010	0.867	0.000	0.027	0.000	0.877 ✔	1.333	H1-3+VT ✔
	34.8333 - 33.8333	0.010	0.868	0.000	0.027	0.000	0.878 ✔	1.333	H1-3+VT ✔
	33.8333 - 32.8333	0.010	0.869	0.000	0.027	0.000	0.879 ✔	1.333	H1-3+VT ✔
L45	32.8333 - 31.8333	0.010	0.884	0.000	0.027	0.000	0.894 ✔	1.333	H1-3+VT ✔
	31.8333 - 30.8333	0.010	0.885	0.000	0.027	0.000	0.895 ✔	1.333	H1-3+VT ✔
	30.8333 - 29.8333	0.010	0.886	0.000	0.027	0.000	0.896 ✔	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
	29.8333 - 28.8333	0.010	0.887	0.000	0.027	0.000	0.897 ✔	1.333	H1-3+VT ✔
	28.8333 - 27.8333	0.010	0.888	0.000	0.027	0.000	0.898 ✔	1.333	H1-3+VT ✔
L46	27.8333 - 26.8333	0.011	0.918	0.000	0.028	0.000	0.929 ✔	1.333	H1-3+VT ✔
	26.8333 - 25.8333	0.011	0.919	0.000	0.028	0.000	0.930 ✔	1.333	H1-3+VT ✔
	25.8333 - 24.8333	0.011	0.920	0.000	0.028	0.000	0.931 ✔	1.333	H1-3+VT ✔
	24.8333 - 23.8333	0.011	0.921	0.000	0.027	0.000	0.931 ✔	1.333	H1-3+VT ✔
	23.8333 - 22.8333	0.011	0.921	0.000	0.027	0.000	0.932 ✔	1.333	H1-3+VT ✔
L47	22.8333 - 21.25 (47)	0.011	0.908	0.000	0.027	0.000	0.919 ✔	1.333	H1-3+VT ✔
L48	21.25 - 21 (48)	0.010	0.894	0.000	0.026	0.000	0.904 ✔	1.333	H1-3+VT ✔
L49	21 - 20 (49)	0.011	0.924	0.000	0.027	0.000	0.935 ✔	1.333	H1-3+VT ✔
L50	20 - 19.75 (50)	0.010	0.817	0.000	0.024	0.000	0.827 ✔	1.333	H1-3+VT ✔
L51	19.75 - 18.375	0.010	0.830	0.000	0.024	0.000	0.840 ✔	1.333	H1-3+VT ✔
	18.375 - 17	0.010	0.831	0.000	0.024	0.000	0.841 ✔	1.333	H1-3+VT ✔
L52	17 - 16.75 (52)	0.011	0.882	0.000	0.026	0.000	0.893 ✔	1.333	H1-3+VT ✔
L53	16.75 - 15.75	0.011	0.883	0.000	0.026	0.000	0.894 ✔	1.333	H1-3+VT ✔
	15.75 - 14.75	0.011	0.884	0.000	0.026	0.000	0.894 ✔	1.333	H1-3+VT ✔
	14.75 - 13.75	0.011	0.884	0.000	0.026	0.000	0.895 ✔	1.333	H1-3+VT ✔
	13.75 - 12.75	0.011	0.885	0.000	0.026	0.000	0.896 ✔	1.333	H1-3+VT ✔
	12.75 - 11.75	0.011	0.885	0.000	0.026	0.000	0.896 ✔	1.333	H1-3+VT ✔
L54	11.75 - 10.75	0.011	0.900	0.000	0.026	0.000	0.911 ✔	1.333	H1-3+VT ✔
	10.75 - 9.75	0.011	0.900	0.000	0.026	0.000	0.912 ✔	1.333	H1-3+VT ✔
	9.75 - 8.75	0.011	0.901	0.000	0.026	0.000	0.912 ✔	1.333	H1-3+VT ✔
	8.75 - 7.75	0.011	0.901	0.000	0.026	0.000	0.913 ✔	1.333	H1-3+VT ✔
	7.75 - 6.75	0.011	0.902	0.000	0.026	0.000	0.913 ✔	1.333	H1-3+VT ✔
L55	6.75 - 5.75	0.012	0.932	0.000	0.027	0.000	0.944 ✔	1.333	H1-3+VT ✔
	5.75 - 4.75	0.012	0.932	0.000	0.027	0.000	0.944 ✔	1.333	H1-3+VT ✔
	4.75 - 3.75	0.012	0.932	0.000	0.027	0.000	0.944 ✔	1.333	H1-3+VT ✔
	3.75 - 2.75	0.012	0.933	0.000	0.027	0.000	0.945 ✔	1.333	H1-3+VT ✔
	2.75 - 1.75	0.012	0.933	0.000	0.027	0.000	0.945 ✔	1.333	H1-3+VT ✔
L56	1.75 - 0 (56)	0.012	0.904	0.000	0.026	0.000	0.916 ✔	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

Section Capacity Table

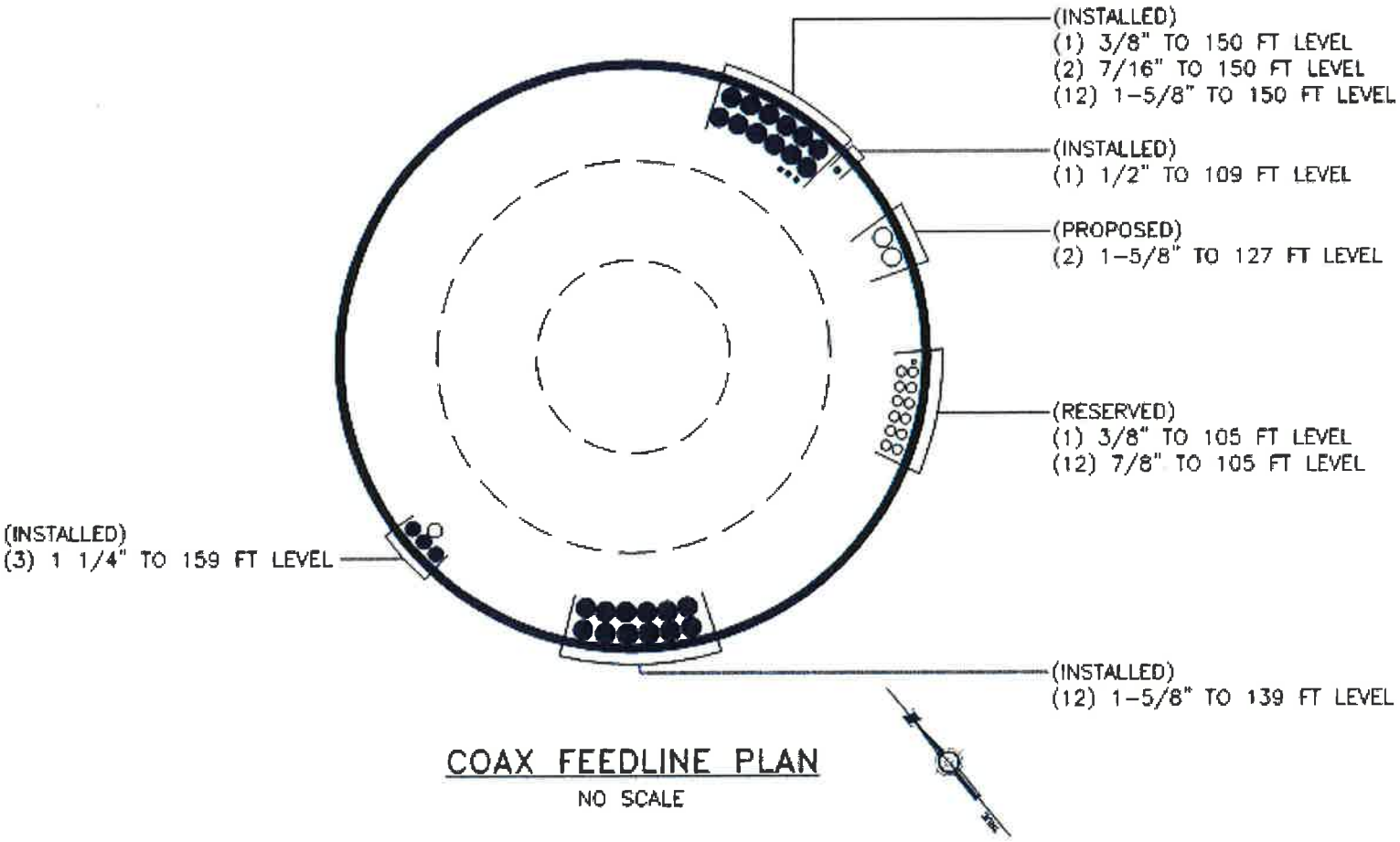
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	160 - 155	Pole	TP17.6204x16.5x0.1875	1	-1.90	539.35	7.5	Pass
L2	155 - 150	Pole	TP18.7407x17.6204x0.1875	2	-2.08	574.01	16.1	Pass
L3	150 - 145	Pole	TP19.8611x18.7407x0.1875	3	-4.18	608.68	33.5	Pass
L4	145 - 140	Pole	TP20.9814x19.8611x0.1875	4	-4.47	643.34	47.9	Pass
L5	140 - 135	Pole	TP22.1018x20.9814x0.1875	5	-5.68	678.00	64.4	Pass
L6	135 - 130	Pole	TP23.2221x22.1018x0.1875	6	-6.08	712.66	78.8	Pass
L7	130 - 125.75	Pole	TP24.1744x23.2221x0.1875	7	-8.51	742.13	96.6	Pass
L8	125.75 - 125.5	Pole	TP24.2304x24.1744x0.3688	8	-8.56	1451.89	50.7	Pass
L9	125.5 - 119.12	Pole	TP25.66x24.2304x0.3625	9	-8.88	1462.91	56.7	Pass
L10	119.12 - 119	Pole	TP25.2956x24.4447x0.425	10	-9.76	1744.12	56.3	Pass
L11	119 - 118.75	Pole	TP25.3506x25.2956x0.5	11	-9.80	2050.26	48.6	Pass
L12	118.75 - 113.75	Pole	TP26.4499x25.3506x0.4875	12	-10.60	2088.44	55.6	Pass
L13	113.75 - 108.75	Pole	TP27.5493x26.4499x0.475	13	-11.50	2122.03	62.1	Pass
L14	108.75 - 103.75	Pole	TP28.6486x27.5493x0.4625	14	-14.19	2151.05	68.5	Pass
L15	103.75 - 103	Pole	TP28.8135x28.6486x0.4625	15	-14.33	2163.63	69.3	Pass
L16	103 - 102.75	Pole	TP28.8685x28.8135x0.5375	16	-14.39	2512.70	60.3	Pass
L17	102.75 - 100.2	Pole	TP29.4292x28.8685x0.5375	17	-14.94	2562.44	62.4	Pass
L18	100.2 - 95.83	Pole	TP30.39x29.4292x0.6875	18	-14.97	3261.52	49.6	Pass
L19	95.83 - 94.83	Pole	TP30.1187x28.938x0.7375	19	-17.14	3575.47	51.1	Pass
L20	94.83 - 93.5	Pole	TP30.4133x30.1187x0.7375	20	-17.48	3611.32	51.7	Pass
L21	93.5 - 93.25	Pole	TP30.4687x30.4133x0.9125	21	-17.56	4450.23	42.6	Pass
L22	93.25 - 89.25	Pole	TP31.3548x30.4687x0.8875	22	-18.77	4461.74	45.3	Pass
L23	89.25 - 89	Pole	TP31.4102x31.3548x0.9375	23	-18.85	4713.94	43.1	Pass
L24	89 - 86.5	Pole	TP31.964x31.4102x0.925	24	-19.64	4737.52	44.5	Pass
L25	86.5 - 86.25	Pole	TP32.0194x31.964x0.7625	25	-19.72	3932.67	53.2	Pass
L26	86.25 - 81.25	Pole	TP33.127x32.0194x0.7375	26	-21.11	3941.56	56.7	Pass
L27	81.25 - 76.25	Pole	TP34.2347x33.127x0.725	27	-22.54	4008.76	59.3	Pass
L28	76.25 - 75.0833	Pole	TP34.4931x34.2347x0.7125	28	-22.88	3971.50	60.6	Pass
L29	75.0833 - 74.8333	Pole	TP34.5485x34.4931x0.8125	29	-22.96	4522.92	53.7	Pass
L30	74.8333 - 69.8333	Pole	TP35.6561x34.5485x0.8	30	-24.55	4601.20	55.7	Pass
L31	69.8333 - 64.8333	Pole	TP36.7638x35.6561x0.775	31	-26.16	4602.25	58.5	Pass
L32	64.8333 - 59.8333	Pole	TP37.8714x36.7638x0.7625	32	-27.80	4668.95	60.3	Pass
L33	59.8333 - 59.5	Pole	TP37.9452x37.8714x0.7625	33	-27.92	4678.24	60.4	Pass
L34	59.5 - 59.25	Pole	TP38.0006x37.9452x0.7625	34	-28.00	4685.21	60.5	Pass
L35	59.25 - 54.25	Pole	TP39.1082x38.0006x0.7375	35	-29.66	4669.43	63.3	Pass
L36	54.25 - 53	Pole	TP39.3851x39.1082x0.7375	36	-30.08	4703.13	63.5	Pass
L37	53 - 47.2	Pole	TP40.67x39.3851x0.7375	37	-30.17	4709.06	63.5	Pass
L38	47.2 - 46.2	Pole	TP40.2664x38.8089x0.7625	38	-34.26	4970.29	64.5	Pass
L39	46.2 - 41.2	Pole	TP41.3739x40.2664x0.775	39	-36.11	5191.79	64.1	Pass
L40	41.2 - 39	Pole	TP41.8612x41.3739x0.775	40	-36.93	5254.11	64.4	Pass
L41	39 - 38.75	Pole	TP41.9166x41.8612x0.825	41	-37.04	5593.83	60.7	Pass
L42	38.75 - 38.0833	Pole	TP42.0643x41.9166x0.85	42	-37.31	5780.54	59.1	Pass
L43	38.0833 - 37.8333	Pole	TP42.1197x42.0643x0.75	43	-37.41	5119.71	66.5	Pass
L44	37.8333 - 32.8333	Pole	TP43.2272x42.1197x0.7625	44	-39.29	5342.81	65.9	Pass
L45	32.8333 - 27.8333	Pole	TP44.3347x43.2272x0.75	45	-41.21	5393.84	67.4	Pass
L46	27.8333 - 22.8333	Pole	TP45.4423x44.3347x0.725	46	-43.16	5349.53	69.9	Pass
L47	22.8333 - 21.25	Pole	TP45.793x45.4423x0.7375	47	-43.78	5482.91	68.9	Pass
L48	21.25 - 21	Pole	TP45.8484x45.793x0.75	48	-43.90	5581.15	67.8	Pass
L49	21 - 20	Pole	TP46.0699x45.8484x0.725	49	-44.32	5424.60	70.1	Pass
L50	20 - 19.75	Pole	TP46.1252x46.0699x0.825	50	-44.45	6166.75	62.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L51	19.75 - 17	Pole	TP46.7344x46.1252x0.8125	51	-45.71	6156.66	63.1	Pass
L52	17 - 16.75	Pole	TP46.7898x46.7344x0.7625	52	-45.83	5791.04	67.0	Pass
L53	16.75 - 11.75	Pole	TP47.8973x46.7898x0.7625	53	-48.05	5930.38	67.2	Pass
L54	11.75 - 6.75	Pole	TP49.0048x47.8973x0.75	54	-50.31	5971.77	68.5	Pass
L55	6.75 - 1.75	Pole	TP50.1124x49.0048x0.725	55	-52.59	5908.20	70.9	Pass
L56	1.75 - 0	Pole	TP50.5x50.1124x0.75	56	-53.39	6156.82	68.7	Pass
							Summary	
						Pole (L7)	96.6	Pass
						RATING =	**96.6**	**Pass**

NOTE: The above stress ratios for reinforced sections are approximate. See Appendix C for more exact calculations.

APPENDIX B

BASE LEVEL DRAWING



COAX FEEDLINE PLAN

NO SCALE

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- F

Site BU: 876401

Work Order: 963576

CROWN CASTLE

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	160	40.88	3.75	18	16.5	25.66	0.1875	0.75	A572-65
2	122.87	27.04	4.33	18	24.44	30.39	0.25	1	A572-65
3	100.16	52.96	5.58	18	28.94	40.67	0.3125	1.25	A572-65
4	52.78	52.78	0	18	38.81	50.5	0.375	1.5	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	39	channel	MP3-03 (1.1875")	3						E						E						E
2	38.0833	75.0833	channel	MP3-03 (1.1875")	3	E						E						E					
3	0	59.5	plate	PL 5.375x1.25 (10)	3					E						E						E	
4	59.5	89.25	plate	PL 5.375x1.25 (8)	3					E						E						E	
5	89.25	119	plate	PL 4.375x1.25	3					E						E						E	
6	119	125.75	plate	PL 3.125x1.25	3					E						E						E	
7	0	20	plate	CCI-WSFP-085125	2										P					P			
8	20	103	plate	CCI-SFP-060100	1															P			
9	20	53	plate	CCI-SFP-060100	1										P								
10	49.2	100.2	plate	CCI-SFP-060100	1									P									
11	86.5	93.5	plate	CCI-SFP-045100	3	P						P						P					
12	0	21.25	plate	CCI-WSFP-085125	1		P																
13	17	103	plate	CCI-SFP-060100	1			P															
14																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.545	1.1875	A572-65
2	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.545	1.1875	A572-65
3	5.375	1.25	6.71875	0.625	n/a	30.000	12.000	5.116	1.2200	A572-65
4	5.375	1.25	6.71875	0.625	24.000	24.000	12.000	5.116	1.2200	A572-65
5	4.375	1.25	5.46875	0.625	15.000	15.000	12.000	3.866	1.2200	A572-65
6	3.125	1.25	3.90625	0.625	15.000	15.000	12.000	2.303	1.2200	A572-65
7	8.5	1.25	10.625	0.625	n/a	45.000	17.000	9.063	1.1875	A572-65
8	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
9	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
10	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
11	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
12	8.5	1.25	10.625	0.625	n/a	45.000	17.000	9.063	1.1875	A572-65
13	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	160 - 155	5		18	16.500	17.620	0.1875	A572-65	1.000
2	155 - 150	5		18	17.620	18.741	0.1875	A572-65	1.000
3	150 - 145	5		18	18.741	19.861	0.1875	A572-65	1.000
4	145 - 140	5		18	19.861	20.981	0.1875	A572-65	1.000
5	140 - 135	5		18	20.981	22.102	0.1875	A572-65	1.000
6	135 - 130	5		18	22.102	23.222	0.1875	A572-65	1.000
7	130 - 125.75	4.25		18	23.222	24.174	0.1875	A572-65	1.000
8	125.75 - 125.5	0.25		18	24.174	24.230	0.36875	A572-65	0.932
9	125.5 - 122.87	6.38	3.75	18	24.230	25.660	0.3625	A572-65	0.937
10	122.87 - 119	3.87		18	24.445	25.296	0.425	A572-65	0.942
11	119 - 118.75	0.25		18	25.296	25.351	0.5	A572-65	0.921
12	118.75 - 113.75	5		18	25.351	26.450	0.4875	A572-65	0.926
13	113.75 - 108.75	5		18	26.450	27.549	0.475	A572-65	0.933
14	108.75 - 103.75	5		18	27.549	28.649	0.4625	A572-65	0.941
15	103.75 - 103	0.75		18	28.649	28.814	0.4625	A572-65	0.939
16	103 - 102.75	0.25		18	28.814	28.869	0.5375	A572-65	1.058
17	102.75 - 100.2	2.55		18	28.869	29.429	0.5375	A572-65	1.046
18	100.2 - 100.16	4.37	4.33	18	29.429	30.390	0.6875	A572-65	0.918
19	100.16 - 94.83	5.33		18	28.938	30.119	0.7375	A572-65	0.930
20	94.83 - 93.5	1.33		18	30.119	30.413	0.7375	A572-65	0.925
21	93.5 - 93.25	0.25		18	30.413	30.469	0.9125	A572-65	0.909
22	93.25 - 89.25	4		18	30.469	31.355	0.8875	A572-65	0.917
23	89.25 - 89	0.25		18	31.355	31.410	0.9375	A572-65	0.910
24	89 - 86.5	2.5		18	31.410	31.964	0.925	A572-65	0.911
25	86.5 - 86.25	0.25		18	31.964	32.019	0.7625	A572-65	0.920
26	86.25 - 81.25	5		18	32.019	33.127	0.7375	A572-65	0.933
27	81.25 - 76.25	5		18	33.127	34.235	0.725	A572-65	0.931
28	76.25 - 75.0833	1.1667		18	34.235	34.493	0.7125	A572-65	0.943
29	75.0833 - 74.8333	0.25		18	34.493	34.548	0.8125	A572-65	0.930
30	74.8333 - 69.8333	5		18	34.548	35.656	0.8	A572-65	0.926
31	69.8333 - 64.8333	5		18	35.656	36.764	0.775	A572-65	0.938
32	64.8333 - 59.8333	5		18	36.764	37.871	0.7625	A572-65	0.937
33	59.8333 - 59.5	0.3333		18	37.871	37.945	0.7625	A572-65	0.936
34	59.5 - 59.25	0.25		18	37.945	38.001	0.7625	A572-65	0.935
35	59.25 - 54.25	5		18	38.001	39.108	0.7375	A572-65	0.951
36	54.25 - 53	1.25		18	39.108	39.385	0.7375	A572-65	0.947
37	53 - 52.78	5.8	5.58	18	39.385	40.670	0.7375	A572-65	1.013
38	52.78 - 46.2	6.58		18	38.809	40.266	0.7625	A572-65	0.987
39	46.2 - 41.2	5		18	40.266	41.374	0.775	A572-65	0.958
40	41.2 - 39	2.2		18	41.374	41.861	0.775	A572-65	0.953
41	39 - 38.75	0.25		18	41.861	41.917	0.825	A572-65	0.977
42	38.75 - 38.0833	0.6667		18	41.917	42.064	0.85	A572-65	0.947
43	38.0833 - 37.8333	0.25		18	42.064	42.120	0.75	A572-65	0.981
44	37.8333 - 32.8333	5		18	42.120	43.227	0.7625	A572-65	0.953
45	32.8333 - 27.8333	5		18	43.227	44.335	0.75	A572-65	0.957
46	27.8333 - 22.8333	5		18	44.335	45.442	0.725	A572-65	0.977
47	22.8333 - 21.25	1.5833		18	45.442	45.793	0.7375	A572-65	0.957
48	21.25 - 21	0.25		18	45.793	45.848	0.75	A572-65	1.040
49	21 - 20	1		18	45.848	46.070	0.725	A572-65	1.073
50	20 - 19.75	0.25		18	46.070	46.125	0.825	A572-65	1.022
51	19.75 - 17	2.75		18	46.125	46.734	0.8125	A572-65	1.030
52	17 - 16.75	0.25		18	46.734	46.790	0.7625	A572-65	1.042
53	16.75 - 11.75	5		18	46.790	47.897	0.7625	A572-65	1.029
54	11.75 - 6.75	5		18	47.897	49.005	0.75	A572-65	1.033
55	6.75 - 1.75	5		18	49.005	50.112	0.725	A572-65	1.056
56	1.75 - 0	1.75		18	50.112	50.500	0.75	A572-65	1.017

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160 - 155	1.9016	13.682	4.0151
2	155 - 150	2.0844	34.392	4.2715
3	150 - 145	4.1809	80.426	9.6878
4	145 - 140	4.4702	129.53	9.96
5	140 - 135	5.678	193.65	13.65
6	135 - 130	6.0797	262.78	13.984
7	130 - 125.75	8.5086	348.54	21.023
8	125.75 - 125.5	8.5563	353.8	21.039
9	125.5 - 122.87	8.881	409.43	21.278
10	122.87 - 119	9.7589	492.54	21.675
11	119 - 118.75	9.798	497.96	21.698
12	118.75 - 113.75	10.602	607.61	22.169
13	113.75 - 108.75	11.502	720.12	22.807
14	108.75 - 103.75	14.194	838.56	25.878
15	103.75 - 103	14.333	858	25.955
16	103 - 102.75	14.395	864.49	25.979
17	102.75 - 100.2	14.943	931.1	26.278
18	100.2 - 100.16	14.967	932.15	26.282
19	100.16 - 94.83	17.136	1074.1	27.001
20	94.83 - 93.5	17.476	1110.2	27.189
21	93.5 - 93.25	17.563	1117	27.218
22	93.25 - 89.25	18.766	1227	27.796
23	89.25 - 89	18.852	1233.9	27.828
24	89 - 86.5	19.64	1303.9	28.193
25	86.5 - 86.25	19.718	1311	28.223
26	86.25 - 81.25	21.113	1453.6	28.839
27	81.25 - 76.25	22.54	1599.2	29.426
28	76.25 - 75.0833	22.875	1633.7	29.598
29	75.0833 - 74.8333	22.965	1641.1	29.627
30	74.8333 - 69.8333	24.546	1791	30.367
31	69.8333 - 64.8333	26.16	1944.6	31.088
32	64.8333 - 59.8333	27.798	2101.8	31.793
33	59.8333 - 59.5	27.916	2112.4	31.833
34	59.5 - 59.25	28	2120.3	31.867
35	59.25 - 54.25	29.66	2281.4	32.564
36	54.25 - 53	30.079	2322.2	32.743
37	53 - 52.78	30.17	2329.4	32.763
38	52.78 - 46.2	34.258	2548.3	33.786
39	46.2 - 41.2	36.1	2718.8	34.4
40	41.2 - 39	36.9	2794.8	34.7
41	39 - 38.75	37.0	2803.5	34.8
42	38.75 - 38.0833	37.3	2826.7	34.9
43	38.0833 - 37.8333	37.4	2835.4	34.9
44	37.8333 - 32.8333	39.3	3011.4	35.5
45	32.8333 - 27.8333	41.2	3190.4	36.1
46	27.8333 - 22.8333	43.2	3372.2	36.7
47	22.8333 - 21.25	43.8	3430.4	36.9
48	21.25 - 21	43.9	3439.6	36.9
49	21 - 20	44.3	3476.6	37.0
50	20 - 19.75	44.4	3485.8	37.0
51	19.75 - 17	45.7	3588.2	37.4
52	17 - 16.75	45.8	3597.5	37.4
53	16.75 - 11.75	48.1	3786.1	38.0
54	11.75 - 6.75	50.3	3977.7	38.6
55	6.75 - 1.75	52.6	4172.3	39.2
56	1.75 - 0	53.4	4241.1	39.4

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP17.62x16.5x0.1875	Pole	7.4%	Pass
155 - 150	Pole	TP18.741x17.62x0.1875	Pole	16.1%	Pass
150 - 145	Pole	TP19.861x18.741x0.1875	Pole	33.4%	Pass
145 - 140	Pole	TP20.981x19.861x0.1875	Pole	47.8%	Pass
140 - 135	Pole	TP22.102x20.981x0.1875	Pole	64.2%	Pass
135 - 130	Pole	TP23.222x22.102x0.1875	Pole	78.7%	Pass
130 - 125.75	Pole	TP24.174x23.222x0.1875	Pole	96.3%	Pass
125.75 - 125.5	Pole + Reinf.	TP24.23x24.174x0.3688	Reinf. 6 Tension Rupture	86.3%	Pass
125.5 - 122.87	Pole + Reinf.	TP25.66x24.23x0.3625	Reinf. 6 Tension Rupture	96.2%	Pass
122.87 - 119	Pole + Reinf.	TP25.296x24.445x0.425	Reinf. 6 Tension Rupture	96.1%	Pass
119 - 118.75	Pole + Reinf.	TP25.351x25.296x0.5	Reinf. 5 Bolt Shear	92.3%	Pass
118.75 - 113.75	Pole + Reinf.	TP26.45x25.351x0.4875	Reinf. 5 Tension Rupture	79.3%	Pass
113.75 - 108.75	Pole + Reinf.	TP27.549x26.45x0.475	Reinf. 5 Tension Rupture	88.5%	Pass
108.75 - 103.75	Pole + Reinf.	TP28.649x27.549x0.4625	Reinf. 5 Tension Rupture	97.0%	Pass
103.75 - 103	Pole + Reinf.	TP28.814x28.649x0.4625	Reinf. 5 Tension Rupture	98.4%	Pass
103 - 102.75	Pole + Reinf.	TP28.869x28.814x0.5375	Reinf. 5 Tension Rupture	88.7%	Pass
102.75 - 100.2	Pole + Reinf.	TP29.429x28.869x0.5375	Reinf. 5 Tension Rupture	93.0%	Pass
100.2 - 100.16	Pole + Reinf.	TP30.39x29.429x0.6875	Reinf. 5 Tension Rupture	69.0%	Pass
100.16 - 94.83	Pole + Reinf.	TP30.119x28.938x0.7375	Reinf. 5 Tension Rupture	71.5%	Pass
94.83 - 93.5	Pole + Reinf.	TP30.413x30.119x0.7375	Reinf. 5 Tension Rupture	72.9%	Pass
93.5 - 93.25	Pole + Reinf.	TP30.469x30.413x0.9125	Reinf. 5 Tension Rupture	60.1%	Pass
93.25 - 89.25	Pole + Reinf.	TP31.355x30.469x0.8875	Reinf. 5 Bolt Shear	84.2%	Pass
89.25 - 89	Pole + Reinf.	TP31.41x31.355x0.9375	Reinf. 4 Bolt Shear	61.9%	Pass
89 - 86.5	Pole + Reinf.	TP31.964x31.41x0.925	Reinf. 11 Compression	61.0%	Pass
86.5 - 86.25	Pole + Reinf.	TP32.019x31.964x0.7625	Reinf. 4 Tension Rupture	69.7%	Pass
86.25 - 81.25	Pole + Reinf.	TP33.127x32.019x0.7375	Reinf. 4 Tension Rupture	73.9%	Pass
81.25 - 76.25	Pole + Reinf.	TP34.235x33.127x0.725	Reinf. 4 Tension Rupture	77.5%	Pass
76.25 - 75.08	Pole + Reinf.	TP34.493x34.235x0.7125	Reinf. 4 Tension Rupture	78.3%	Pass
75.08 - 74.83	Pole + Reinf.	TP34.548x34.493x0.8125	Reinf. 4 Tension Rupture	69.7%	Pass
74.83 - 69.83	Pole + Reinf.	TP35.656x34.548x0.8	Reinf. 4 Tension Rupture	72.8%	Pass
69.83 - 64.83	Pole + Reinf.	TP36.764x35.656x0.775	Reinf. 4 Tension Rupture	73.2%	Pass
64.83 - 59.83	Pole + Reinf.	TP37.871x36.764x0.7625	Reinf. 4 Tension Rupture	78.5%	Pass
59.83 - 59.5	Pole + Reinf.	TP37.945x37.871x0.7625	Reinf. 4 Bolt Shear	86.0%	Pass
59.5 - 59.25	Pole + Reinf.	TP38.001x37.945x0.7625	Reinf. 3 Tension Rupture	78.5%	Pass
59.25 - 54.25	Pole + Reinf.	TP39.108x38.001x0.7375	Reinf. 3 Tension Rupture	81.4%	Pass
54.25 - 53	Pole + Reinf.	TP39.385x39.108x0.7375	Reinf. 3 Tension Rupture	82.0%	Pass
53 - 52.78	Pole + Reinf.	TP40.67x39.385x0.7375	Reinf. 3 Tension Rupture	82.6%	Pass
52.78 - 46.2	Pole + Reinf.	TP40.266x38.809x0.7625	Reinf. 3 Tension Rupture	82.6%	Pass
46.2 - 41.2	Pole + Reinf.	TP41.374x40.266x0.775	Reinf. 3 Tension Rupture	84.1%	Pass
41.2 - 39	Pole + Reinf.	TP41.861x41.374x0.775	Reinf. 3 Tension Rupture	84.9%	Pass
39 - 38.75	Pole + Reinf.	TP41.917x41.861x0.825	Reinf. 3 Tension Rupture	78.0%	Pass
38.75 - 38.08	Pole + Reinf.	TP42.064x41.917x0.85	Reinf. 3 Tension Rupture	78.1%	Pass
38.08 - 37.83	Pole + Reinf.	TP42.12x42.064x0.75	Reinf. 3 Tension Rupture	85.8%	Pass
37.83 - 32.83	Pole + Reinf.	TP43.227x42.12x0.7625	Reinf. 3 Tension Rupture	87.2%	Pass
32.83 - 27.83	Pole + Reinf.	TP44.335x43.227x0.75	Reinf. 3 Tension Rupture	88.9%	Pass
27.83 - 22.83	Pole + Reinf.	TP45.442x44.335x0.725	Reinf. 3 Tension Rupture	87.3%	Pass
22.83 - 21.25	Pole + Reinf.	TP45.793x45.442x0.7375	Reinf. 3 Tension Rupture	90.9%	Pass
21.25 - 21	Pole + Reinf.	TP45.848x45.793x0.75	Reinf. 3 Tension Rupture	85.3%	Pass
21 - 20	Pole + Reinf.	TP46.07x45.848x0.725	Reinf. 8 Bolt Shear	87.8%	Pass
20 - 19.75	Pole + Reinf.	TP46.125x46.07x0.825	Reinf. 3 Tension Rupture	80.9%	Pass
19.75 - 17	Pole + Reinf.	TP46.734x46.125x0.8125	Reinf. 3 Tension Rupture	82.4%	Pass
17 - 16.75	Pole + Reinf.	TP46.79x46.734x0.7625	Reinf. 3 Tension Rupture	89.8%	Pass
16.75 - 11.75	Pole + Reinf.	TP47.897x46.79x0.7625	Reinf. 3 Tension Rupture	90.8%	Pass
11.75 - 6.75	Pole + Reinf.	TP49.005x47.897x0.75	Reinf. 3 Tension Rupture	92.2%	Pass
6.75 - 1.75	Pole + Reinf.	TP50.112x49.005x0.725	Reinf. 3 Tension Rupture	92.5%	Pass
1.75 - 0	Pole + Reinf.	TP50.5x50.112x0.75	Reinf. 3 Tension Rupture	93.8%	Pass
				Summary	
			Pole	96.3%	Pass
			Reinforcement	98.4%	Pass
			Overall	98.4%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity												
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
160 - 155	398	n/a	398	10.37	n/a	10.37	7.4%													
155 - 150	480	n/a	480	11.04	n/a	11.04	16.1%													
150 - 145	572	n/a	572	11.71	n/a	11.71	33.4%													
145 - 140	676	n/a	676	12.37	n/a	12.37	47.8%													
140 - 135	791	n/a	791	13.04	n/a	13.04	64.2%													
135 - 130	919	n/a	919	13.71	n/a	13.71	78.7%													
130 - 125.75	1037	n/a	1037	14.27	n/a	14.27	98.3%													
125.75 - 125.5	1045	957	2001	14.31	11.72	26.03	50.7%						66.6%							
125.5 - 122.87	1123	1001	2124	14.66	11.72	26.38	56.5%						96.5%							
122.87 - 119	1574	1038	2612	19.87	11.72	31.59	55.6%						96.1%							
119 - 118.75	1585	1465	3050	19.92	16.41	36.32	48.3%					92.3%								
118.75 - 113.75	1802	1588	3390	20.79	16.41	37.20	55.9%					79.6%								
113.75 - 108.75	2039	1715	3754	21.66	16.41	38.07	61.6%					88.5%								
108.75 - 103.75	2295	1847	4143	22.53	16.41	38.94	67.6%					97.1%								
103.75 - 103	2335	1868	4203	22.66	16.41	39.07	68.6%					98.4%								
103 - 102.75	2411	2525	4936	22.71	28.41	51.11	65.6%					88.9%			61.0%					61.0%
102.75 - 100.2	2549	2719	5268	23.15	28.41	51.56	67.9%					93.0%			63.0%					63.0%
100.2 - 100.16	2492	4058	6550	23.16	34.41	57.57	49.6%					70.1%			62.3%		63.3%			62.3%
100.16 - 94.83	3317	4239	7556	29.56	34.41	63.97	50.0%					71.5%			63.7%		63.7%			63.7%
94.83 - 93.5	3416	4318	7735	29.86	34.41	64.26	50.9%					72.9%			64.9%		64.9%			64.9%
93.5 - 93.25	3435	6016	9452	29.91	47.91	77.82	42.0%					60.1%			53.5%		53.5%	58.6%		53.5%
93.25 - 89.25	3747	6356	10103	30.79	47.91	78.70	44.5%					64.2%			56.6%		56.8%	61.9%		56.6%
89.25 - 89	3767	6889	10656	30.84	51.66	82.50	42.5%				61.8%				54.0%		54.0%	59.1%		54.0%
89 - 86.5	3972	7123	11096	31.39	51.66	83.05	43.9%				58.2%				55.8%		55.8%	61.0%		55.8%
86.5 - 86.25	3993	5295	9288	31.45	38.16	69.60	53.3%				70.0%				67.1%		67.1%			67.1%
86.25 - 81.25	4426	5651	10078	32.55	38.16	70.70	55.8%				73.9%				70.8%		70.8%			70.8%
81.25 - 76.25	4890	6019	10909	33.65	38.16	71.80	58.8%				77.5%				74.3%		74.3%			74.3%
76.25 - 75.08	5002	6107	11109	33.90	38.16	72.06	59.2%				78.3%				75.1%		75.1%			75.1%
75.08 - 74.83	5027	7526	12553	33.96	46.92	80.87	52.7%		64.0%		69.7%				66.9%		66.9%			66.9%
74.83 - 69.83	5531	7997	13528	35.06	46.92	81.97	55.1%		66.8%		72.8%				69.9%		69.9%			69.9%
69.83 - 64.83	6067	8482	14549	36.15	46.92	83.07	58.0%		69.5%		75.7%				72.7%		72.7%			72.7%
64.83 - 59.83	6637	8982	15619	37.25	46.92	84.17	59.5%		72.0%		78.5%				75.3%		75.3%			75.3%
59.83 - 59.5	6676	9016	15692	37.33	46.92	84.24	60.3%		72.2%		80.3%				75.5%		75.5%			75.5%
59.5 - 59.25	6706	9041	15747	37.38	46.92	84.30	60.4%		72.3%	78.8%					75.6%		75.6%			75.6%
59.25 - 54.25	7315	9557	16871	38.48	46.92	85.40	61.7%		74.7%	81.4%					78.1%		78.1%			78.1%
54.25 - 53	7472	9688	17160	38.75	46.92	85.67	62.2%		75.2%	82.0%					78.7%		78.7%			78.7%
53 - 52.78	7502	9796	17298	38.80	52.92	91.72	62.7%		71.3%	82.6%					79.2%	66.1%	67.7%			77.0%
52.78 - 46.2	9545	9353	18897	47.48	46.92	94.40	64.1%		78.3%	82.6%					77.9%	76.1%				75.2%
46.2 - 41.2	10370	10626	20996	48.80	46.92	95.71	64.0%		80.2%	84.6%					79.8%	78.0%				77.1%
41.2 - 39	10744	10869	21613	49.38	46.92	96.29	64.8%		81.0%	85.4%					80.6%	78.7%				77.9%
39 - 38.75	10779	12145	22924	49.44	55.68	105.12	80.5%	73.0%	73.7%	78.0%					73.7%	72.1%				71.4%
38.75 - 38.08	10901	12862	23762	49.62	55.68	105.30	80.3%	73.2%	74.0%	78.2%					73.9%	72.4%				71.6%
38.08 - 37.83	10938	10203	21141	49.68	46.92	96.60	66.7%	80.6%		85.8%					81.1%	79.2%				78.3%
37.83 - 32.83	11840	11568	23408	51.00	46.92	97.92	66.4%	82.2%		87.6%					82.8%	80.9%				80.0%
32.83 - 27.83	12782	12150	24932	52.32	46.92	99.24	67.7%	83.8%		89.3%					84.4%	82.5%				81.6%
27.83 - 22.83	13771	12043	25814	53.64	46.92	100.56	70.7%	85.2%		90.9%					85.9%	84.0%				83.1%
22.83 - 21.25	14096	12938	27034	54.06	46.92	100.97	69.4%	85.7%		91.4%					86.4%	84.5%				83.5%
21.25 - 21	14141	13349	27490	54.12	57.54	111.66	69.0%	84.6%		85.8%					87.0%	79.6%			61.2%	86.3%
21 - 20	14344	13016	27360	54.39	57.54	111.93	69.6%	84.9%		86.0%					88.6%	81.1%			61.2%	68.6%
20 - 19.75	14407	16562	30969	54.45	66.79	121.24	62.6%	79.0%		81.6%				74.3%					59.6%	65.6%
19.75 - 17	14996	16476	31472	55.18	66.79	121.97	64.7%	79.7%		82.4%				74.6%					60.2%	67.3%
17 - 16.75	15141	14807	29948	55.24	60.79	116.03	70.6%	84.2%		90.1%				75.2%					69.0%	
16.75 - 11.75	16238	16010	32248	56.56	60.79	117.35	69.4%	85.5%		91.5%				76.4%					70.2%	
11.75 - 6.75	17398	16735	34133	57.88	60.79	118.67	70.5%	86.7%		92.8%				77.6%					71.4%	
6.75 - 1.75	18625	16766	35391	59.20	60.79	119.99	73.9%	87.8%		94.0%				78.7%					72.5%	
1.75 - 0	19048	17741	36789	59.66	60.79	120.45	71.8%	88.2%		94.4%				79.1%					72.9%	

Note: Section capacity checked in 5 degree increments.

Anchor Rod Information for TIA/EIA-222-F and TIA-222-G-2

Site Information	
ID:	876401
Name:	TOWN OF PLAINFIELD / SSUSA
App. #:	253183

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Base Reactions		
Moment:	4241	ft-kip
Axial:	53	kip
Shear:	39	kip
Base Plate Type:	Circular	

Design Information	
TIA Code:	F
ASIF:	1.333
Failure:	95%
eta Factor:	0.50

Original Anchor Rod Data		
Quantity:	14	
Diameter:	2.25	in
Material:	#18J	
Bolt Circle:	59.0	in
Bolt Spacing:		in
Bolt Group Area:	55.67	in^2
Bolt Group MOIx:	24224	in^4

Reactions Seen by Original AR Group		
Moment:	2092.8	kip-ft
Axial:	28.7	kip
Shear:	21.2	kip

Original AR Capacity Check		
Tension Load:	120.5	kip
Allowable load:	194.8	kip
AR Capacity:	61.9%	Pass

First Added Anchor Rod Data		
Quantity:	3	
Diameter:	2.00	in
Material:	A193 B7	
Bolt Circle:	62.5	in
Bolt Group Area:	9.42	in^2
Bolt Group MOIx:	4146	in^4

Reactions Seen by First Added AR Group		
Moment:	358.2	kip-ft
Axial:	16.7	kip
Shear:	16.7	kip

First Added AR Capacity Check		
Tension Load:	79.7	kip
Allowable load:	172.7	kip
AR Capacity:	46.1%	Pass

Second Added Anchor Rod Data		
Quantity:	9	
Diameter:	2.25	in
Material:	#18J	
Bolt Circle:	71.1	in
Bolt Group Area:	35.78	in^2
Bolt Group MOIx:	20719	in^4

Reactions Seen by Second Added AR Group		
Moment:	1790.0	kip-ft
Axial:	18.5	kip
Shear:	13.6	kip

Second Added AR Capacity Check		
Tension Load:	145.2	kip
Allowable load:	174.9	kip
AR Capacity:	83.0%	Pass

Third Added Anchor Rod Data		
Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group		
Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check		
Tension Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

BU: 876401
WO: 963576

Done By: JW
Checked By:
Date:

CROWN CASTLE

Additional Anchor Rod Calculations - Rev F.

Tower Reactions From tnx

$Moment := 4241 \cdot kip \cdot ft$ $Axial := 53 \cdot kip$ $Shear := 39 \cdot kip$

Calculation of Reactions to Existing and New Anchor Rods

$N_{existing} := 0$
$BC_{existing} := 0 \cdot in$
$D_{existing} := 0 \cdot in$

Gross: $A_{existing} := \left(\frac{1}{4}\right) \cdot \pi \cdot D_{existing}^{2} = 0 \cdot in^{2}$

$N_{new} := 3$ $Fu_{rod} := 125ksi$
$BC_{new} := 71.1 \cdot in$
$D_{new} := 2.25 \cdot in$

Gross: $A_{new} := \left(\frac{1}{4}\right) \cdot \pi \cdot D_{new}^{2} = 3.98 \cdot in^{2}$

Net $An_{new} := 3.25in^{2}$

Reactions to Existing Anchor Rods:

$M_{existing} := Moment \cdot \left(Percentage_{existing}\right) = 0 \cdot kip \cdot ft$

$Ax_{existing} := Axial = 53 \cdot kip$

$S_{existing} := Shear = 39 \cdot kip$

Reactions to New Anchor Rods:

$M_{new} := Moment \cdot \left(Percentage_{new}\right) = 4241 \cdot kip \cdot ft$

$Ax_{new} := 0 \cdot kip$

$S_{new} := 0 \cdot kip$

*It is assumed that all of the Axial and Shear loads will go to the existing anchor rods

Anchor Rod Bracket Calculations

Bracket Design Load

$P_n := (.33)Fu_{rod} \cdot A_{new} \cdot (1.333) = 218.63 \cdot kip$

Pipe Design (Bearing Capacity):

TRY :

Size :=
- HSS 3.5x3.5x0.3125
- HSS 4x4x0.375
- HSS 4x4x0.5
- (•) HSS 5x5x0.5

$F_{ypipe} := 46 \cdot ksi$

Check = "OK"

Horizontal and Vertical Weld to Pole Checks

Bracket plate thickness	$T := 1.25 \cdot in$	
Pole Grade	$Fy_{pole} := 65ksi$	$Fu_{pole} := 80ksi$
Base Plate Grade	$Fy_{base} := 60ksi$	$Fu_{base} := 75ksi$
Bracket Plate Grade	$Fy_{plate} := 65ksi$	$Fu_{plate} := 80ksi$
Height of vertical weld from base plate	$H := 44 \cdot in$	
	$Notch := 0 \cdot in$	
Plate width	$W := 8.13 \cdot in$	
Gap between Base Plate and Pipe	$Gap := 8.13 \cdot in$	
Vertical fillet weld size (bracket to pole) in sixteenths of an inch	$D_{vpole} := 5$	$weldsize_{pole} := \frac{D_{vpole}}{16} = \frac{5}{16}$
Weld Material Grade	$F_{EXX} := 70ksi$	

Check = "OK"

Vertical Weld to Pipe (weld on both sides)

Length of Vertical Weld to Pipe	$l_{vweldpipe} := 36in$	
Vertical fillet weld size (bracket to pipe) in sixteenths of an inch	$D_{vpipe} := 5$	$weldsize_{pipe} = \frac{5}{16}$ Dvpipe = weld size in sixteenths of an inch
Electrode Strength Coefficient	$C_1 := 1.00$	AISC, 13th Edition, Table 8-4 pg 8-66
Coefficient for eccentrically Loaded Weld Groups	$C := 3.72$	

Check = "OK"

Plate Check:

Bracket plate thickness	$T = 1.25 \cdot in$
Plate Fy	$Fy_{plate} = 65 \cdot ksi$

Check = "OK"

Embedment Depth Calculations:

Projected Embedment Depth: $L_{em} := 6 \cdot ft$

Yield Strength of Rebar: $f_y := 60ksi$

Concrete Strength: $f'_c := 4000psi$

Transverse Reinforcement Index: $k_{rt} := 0$ — k_{rt} can be taken as 0 for design per ACI 318

Rebar Location Factor: $\psi_t := 1$ — 1.0 typical for vertical pier application

Rebar Coating Factor: $\psi_e := 1$ — 1.0 non coated rebar

Rebar Size Factor: $\psi_s := 1$ — 0.8 for No. 6 and smaller bars, 1.0 for No. 7 and larger bars

Concrete Weight Factor: $\lambda := 1 \cdot \sqrt{psi}$ — 1.0 for normal weight concrete

Pier Diameter: $D_{pier} := 7ft$

Cover: $c_c := 4in$

Rebar Size: $d_s := 11$

$$d_b := \frac{d_s}{8} in = 1.38 \cdot in$$

Tie Size: $Tie := 5$

Number of Vertical Rebar: $n := 18$

Bracket Design Load

$$\phi := 0.8$$

$$\phi P_n := \phi \cdot Fu_{rod} \cdot An_{new} = 325 \cdot kip$$

Development Length of Rebar:

$$BC_{rebar} := D_{pier} - 2 \cdot c_c - \frac{Tie \cdot in}{4} - d_b = 73.38 \cdot in$$

$$S_{rebar} := \frac{\pi \cdot BC_{rebar}}{n} = 12.806 \cdot in$$

$$c_b := \min\left(c_c + \frac{Tie}{8} in + \frac{d_b}{2}, S_{rebar} \cdot 0.5\right) = 5.31 \cdot in$$

$$l_d := \left[\frac{3}{40} \cdot \frac{f_y}{\lambda \cdot \sqrt{f'_c}} \cdot \frac{\psi_t \cdot \psi_e \cdot \psi_s}{\min\left[\left(\frac{c_b + k_{rt}}{d_b}\right), 2.5\right]}\right] \cdot d_b = 39.13 \cdot in \quad \text{(Eq. 12-1 from ACI 318)}$$

Calculate Max Distance Between Rebar and New Anchor Rods:

$$A := \frac{1}{2} \cdot S_{rebar} = 6.403 \cdot in$$

$$B := \frac{BC_{rebar}}{2} - \frac{BC_{new}}{2} = 1.137 \cdot in$$

$$G := \sqrt{A^2 + B^2} = 6.503 \cdot in$$

$$l'_d := l_d + \frac{G}{1.5} + 3in = 3.87\ ft$$

Epoxy Development Length:

Bond Strength: $S_b := 1800psi$

$$\phi_{bond} := 0.50$$

$$L_{be} := \frac{\phi P_n}{\pi \cdot D_{new} \cdot S_b \cdot \phi_{bond}} = 51.09 \cdot in$$

Required Embedment Length:

$$L_{min} := \max\left(L_{be}, l'_d + 0.25 \cdot L_{be}\right) = 4.94\ ft$$

$$L_{min} := ceil\left(\frac{L_{min}}{0.5ft}\right) \cdot 0.5ft$$

$$L_{min} = 5\ ft$$

$$Check := \begin{cases} "OK" & \text{if } L_{min} \le L_{em} \\ "N/G" & \text{otherwise} \end{cases}$$

Check = "OK"

Anchor Rod Pullout Test:

$$\phi_p := 0.75$$

$$Pullout := \frac{\phi_p \cdot Fu_{rod} \cdot An_{new}}{1.6} = 190.43 \cdot kip$$

Anchor Rod Length:

Base Plate Thickness: $t_{bp} := 1.75 \cdot in$

The 1.75" is the washer plate thickness. (Constant)

Grout Thickness: $t_g := 5 \cdot in$ The 2.375" is the projection length. (Constant)

Nut Thickness: $t_{nut} := \begin{cases} 3.5 \cdot in & \text{if } D_{new} = 1.75 \cdot in \\ 4.375 \cdot in & \text{if } D_{new} = 2.25 \cdot in \end{cases}$ $t_{nut} = 4.38 \cdot in$

$L_{rod} := L_{em} + t_{bp} + t_g + t_{nut} + l_{vweldpipe} + 3 \cdot in + 1.75 \cdot in + 2.375 \cdot in = 10.52\,ft$

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

TIA Rev F

Site Data

BU#: *876401*
Site Name: *TOWN OF PLAINFIELD/SS*
App #: *253183*

Pole Manufacturer:	*Other*

Reactions		
Moment:	2093	ft-kips
Axial:	29	kips
Shear:	21	kips

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

Anchor Rod Data		
Qty:	14	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	59	in

Plate Data		
Diam:	65	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	11.45	in

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

Pole Data		
Diam:	50.5	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Base Plate Results	Flexural Check
Base Plate Stress:	54.4 ksi
Allowable Plate Stress:	60.0 ksi
Base Plate Stress Ratio:	90.7% Pass

Non-Rigid
Service ASD
0.75*Fy*ASIF
Y.L. Length: 30.51

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

CCI Foundation Tool Suite - Monopole Pier

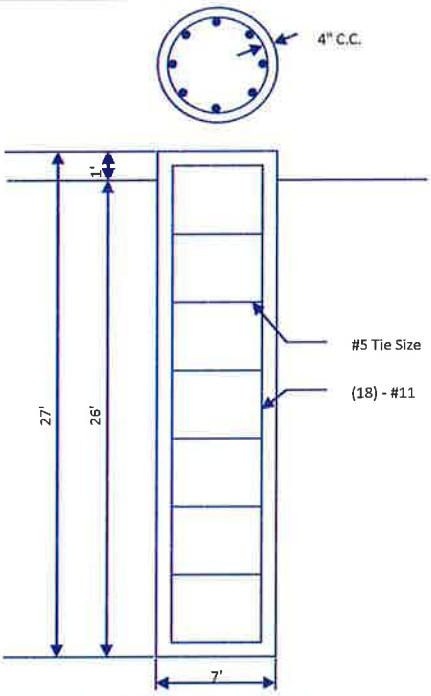
CCIFTS 1.2.108.14286 - Phase 1-2 Date: 12/3/2014

BU:	876401
Site Name:	TOWN OF PLAINFIELD/SSUSA
App Number:	253183
Work Order:	963576

CROWN CASTLE

Monopole Drilled Pier

Input



Criteria

TIA Revision:	F
ACI 318 Revision:	2002
Seismic Category:	D

Forces

Compression	53.4 kips
Shear	39.4 kips
Moment	4241.1 k-ft
Swelling Force	0 kips

Foundation Dimensions

Pier Diameter:	7 ft
Ext. above grade:	1 ft
Depth below grade:	26 ft

Material Properties

Number of Rebar:	18
Rebar Size:	11
Tie Size	5
Rebar tensile strength:	60 ksi
Concrete Strength:	4000 psi
Ultimate Concrete Strain	0.003 in/in
Clear Cover to Ties:	4 in

Soil Profile: Soil

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	4.5	0	4.5	125	0	0	0	0	0	
2	1.5	4.5	6	115	0	32	0	0	0	
3	4	6	10	120		38	0	0	0	
4	16	10	26	125	0	43	0	0	12	

Analysis Results

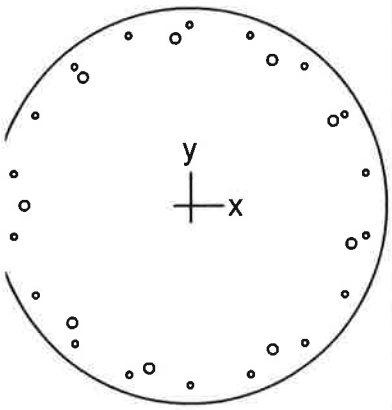
Soil Lateral Capacity

Depth to Zero Shear:	7.24 ft
Max Moment, Mu:	4508.52 k-ft
Soil Safety Factor:	3.93
Safety Factor Req'd:	2
RATING:	50.9%

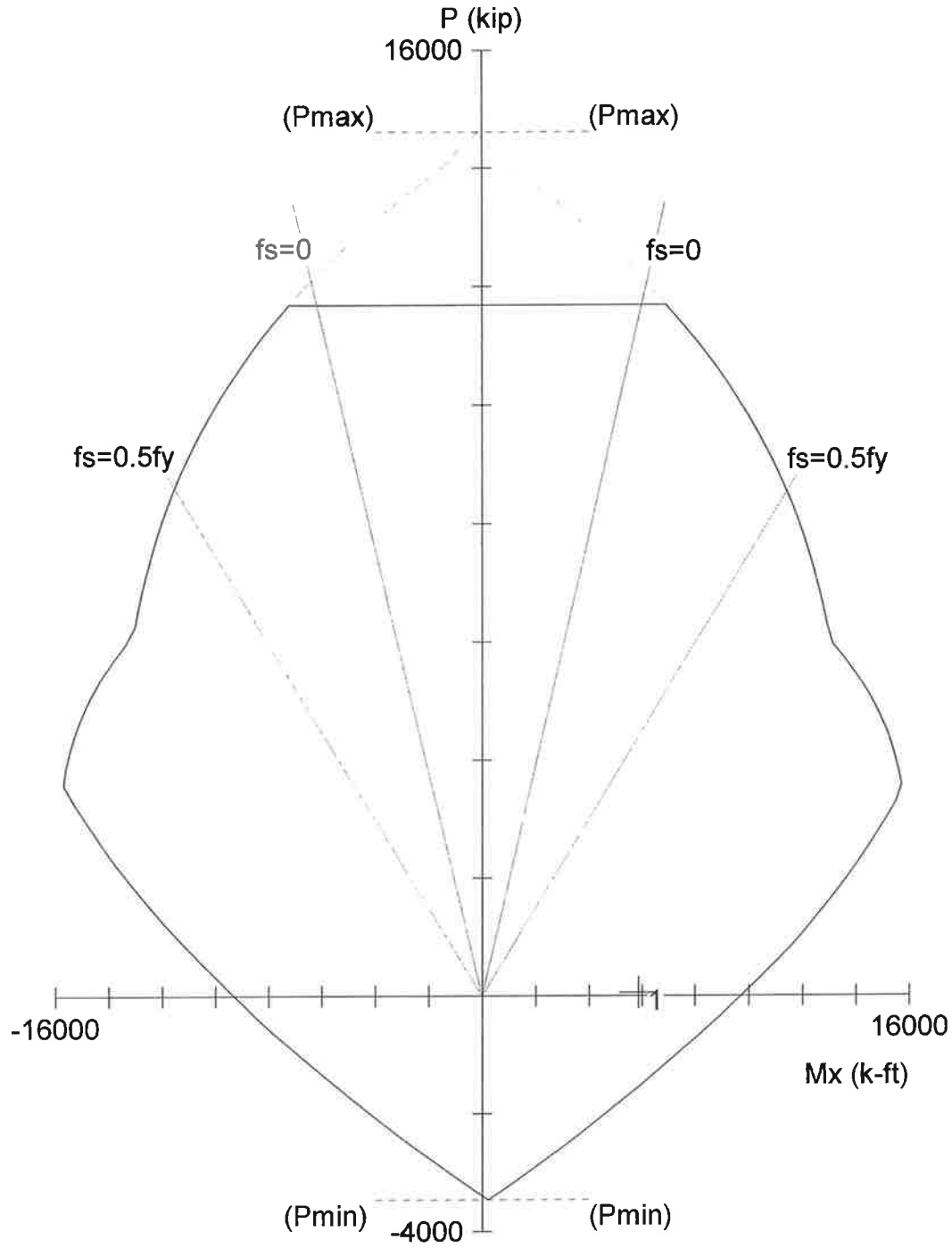
Soil Axial Capacity

Skin Friction (k):	0.00 kips
End Bearing (k):	230.91 kips
Comp. Capacity (k), ϕCn:	230.91 kips
Comp. (k), Cu:	69.42 kips
RATING:	30.1%

Overall Foundation Rating: 50.9%



84 in diam.



Code: ACI 318-02

Units: English

Run axis: About X-axis

Run option: Investigation

Slenderness: Not considered

Column type: Structural

Bars: ASTM A615

Date: 12/03/14

Time: 15:06:54

File: c:\users\aus75609\documents\structural\mod sites\876401\newnew (verified)\876401.963576 sp column rebar.col

Project: 876401

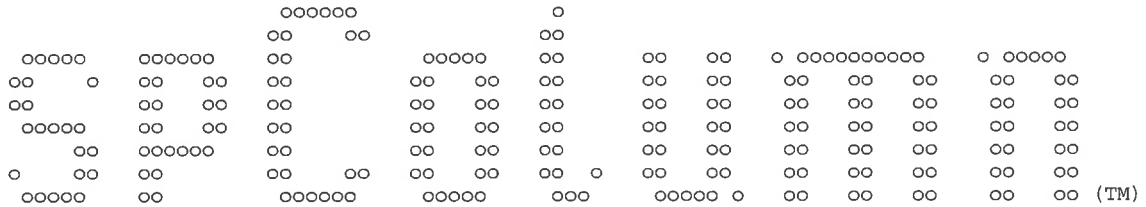
Column: 963576

Engineer: SMA

f'c = 4 ksi	fy = 60 ksi	Ag = 5541.77 in^2	27 bars
Ec = 3605 ksi	Es = 29000 ksi	As = 64.08 in^2	rho = 1.16%
fc = 3.4 ksi		Xo = 0.00 in	Ix = 2.44392e+006 in^4
e_u = 0.003 in/in		Yo = 0.00 in	Iy = 2.44392e+006 in^4
Beta1 = 0.85		Min clear spacing = 0.96 in	Clear cover = 2.58 in

Confinement: Tied

phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65



spColumn v4.80 (TM)
Computer program for the Strength Design of Reinforced Concrete Sections

General Information:
==========
File Name: c:\users\aus75609\documents\structural\mod sites\876...\876401.963576 sp column rebar.col
Project: 876401
Column: 963576 Engineer: SMA
Code: ACI 318-02 Units: English

Run Option: Investigation Slenderness: Not considered
Run Axis: X-axis Column Type: Structural

Material Properties:
==========
f'c = 4 ksi fy = 60 ksi
Ec = 3605 ksi Es = 29000 ksi
Ultimate strain = 0.003 in/in
Beta1 = 0.85

Section:
==========
Circular: Diameter = 84 in

Gross section area, Ag = 5541.77 in^2
Ix = 2.44392e+006 in^4 Iy = 2.44392e+006 in^4
rx = 21 in ry = 21 in
Xo = 0 in Yo = 0 in

Reinforcement:
==========
Bar Set: ASTM A615

Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)
# 3	0.38	0.11	# 4	0.50	0.20	# 5	0.63	0.31
# 6	0.75	0.44	# 7	0.88	0.60	# 8	1.00	0.79
# 9	1.13	1.00	# 10	1.27	1.27	# 11	1.41	1.56
# 14	1.69	2.25	# 18	2.26	4.00			

Confinement: Tied; #3 ties with #10 bars, #4 with larger bars.
phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Pattern: Irregular
Total steel area: As = 64.08 in^2 at rho = 1.16%
Minimum clear spacing = 0.96 in

Area in^2	X (in)	Y (in)	Area in^2	X (in)	Y (in)	Area in^2	X (in)	Y (in)
1.56	0.0	38.3	1.56	13.1	36.0	1.56	24.6	29.3
1.56	33.2	19.1	1.56	37.7	6.6	1.56	37.7	-6.6
1.56	33.2	-19.1	1.56	24.6	-29.3	1.56	13.1	-36.0
1.56	0.0	-38.3	1.56	-13.1	-36.0	1.56	-24.6	-29.3
1.56	-33.2	-19.1	1.56	-37.7	-6.6	1.56	-37.7	6.6
1.56	-33.2	19.1	1.56	-24.6	29.3	1.56	-13.1	36.0
4.00	-3.1	35.4	4.00	-22.8	27.2	4.00	-35.5	0.0
4.00	-25.3	-24.9	4.00	-8.8	-34.6	4.00	17.8	-30.7
4.00	34.6	-8.4	4.00	30.7	17.8	4.00	17.8	30.7

Factored Loads and Moments with Corresponding Capacities:
==========

No.	Pu kip	Mux k-ft	PhiMnx k-ft	PhiMn/Mu	NA depth in	Dt depth in	eps_t	Phi
1	53.40	5861.07	9844.75	1.680	16.50	80.29	0.01160	0.900

*** End of output ***

Foundation Stress Ratio = 1/1.680 = 59.5%

APPENDIX D

REQUIRED MODIFICATION DRAWINGS

MONOPOLE REINFORCEMENT DRAWINGS

SITE NAME: TOWN OF PLAINFIELD/SSUSA
BU NUMBER: 876401

SITE ADDRESS:
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

CODE COMPLIANCE

THIS REINFORCEMENT DESIGN IS BASED ON THE REQUIREMENTS OF TIA/EIA-222-F STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES USING A FASTEST MILE WIND SPEED OF 85 MPH WITH NO ICE, 37.6 MPH WITH 0.75 INCH ICE THICKNESS AND 50 MPH UNDER SERVICE LOADS.

TOWER INFORMATION

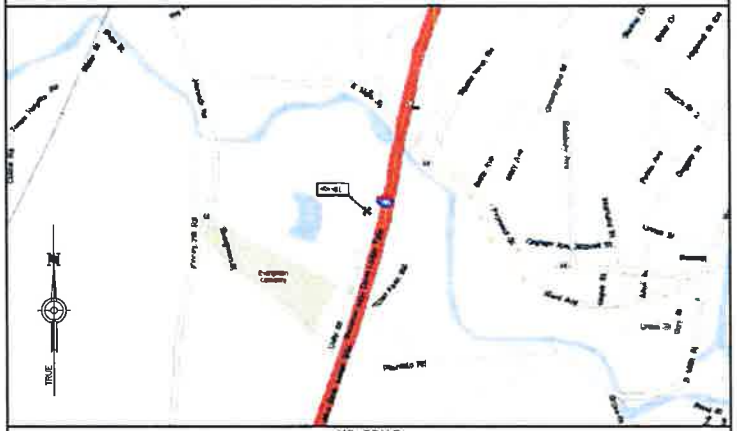
TOWER MANUFACTURER / DWG#:	ENGINEERED ENDEAVORS, INC., GS54614
TOWER HEIGHT / TYPE:	160 FT MONOPOLE TOWER
TOWER LOCATION: DATUM: NAD 1983	LATITUDE 41° 42' 54.49" LONGITUDE -71° 53' 46.73"
STRUCTURAL DESIGN DRAWING:	B&V / WO #963576
STRUCTURAL ANALYSIS REPORT:	B&V / WO #928355
APPLICATION ID:	253183 REV #6

PROJECT CONTACTS

CROWN TOWER STRUCTURAL ANALYST
DARCY TARR
(704) 405-6589
DARCY.TARR@CROWNCASTLE.COM
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

BLACK & VEATCH STRUCTURAL LEAD ENGINEER
ERIC S. BRANDSTADTER, P.E.
(913) 458-7360
BRANDSTADTERES@BV.COM
10950 GRANDVIEW DRIVE
OVERLAND PARK, KS 66210

LOCATION MAP



NO SCALE

DRIVING DIRECTIONS

FROM DISTRICT OFFICE: RT. 395 TO EXIT 89. RT 14W IS PROSPECT ST. FOLLOW TO LIGHT AND TAKE LEFT ONTO NORWICH ST. FOLLOW APROX. 1/4 MI TAKE LEFT ONTO PLAINFIELD RD.. GO APOX 1/4 AND TURN LEFT ONTO UNITY ST. SITE IS BEHIND TOWN GARAGE.

DRAWING INDEX

SHEET NO:	SHEET TITLE
TM-1	TITLE PAGE
TM-2	MODIFICATION INSPECTION CHECKLIST
TM-3	NOTES
TM-4	AJAX/DTI BOLT SPECIFICATIONS & TIGHTENING PROCEDURE
TM-5	TOWER ELEVATION
TM-6	TOWER SECTIONS
TM-7	BASE PLATE WELD DETAILS
TM-8	BASE PLATE ANCHOR CHAIRS

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH
10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027383
LICENSED
PROFESSIONAL ENGINEER
12/03/14

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
TITLE PAGE

SHEET NUMBER
TM-1

MODIFICATION INSPECTION NOTES

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD.
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION ITSELF, NOR DOES THE MODIFICATION INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD AT ALL TIMES.
3. ALL MI'S SHALL BE CONDUCTED BY A CROWN ENGINEERING SERVICE VENDOR (AESV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CROWN. SEE CROWN ENG-BUL-10173, "APPROVED MI VENDORS".
4. TO ENSURE THAT THE REQUIREMENTS OF THE MODIFICATION INSPECTION ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS PO OR PAYMENT IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN COMMUNICATION WITH THE OTHER PARTY. CONTACT LISTED ON TITLE SHEET SHALL BE CONTACTED IF SPECIFIC INSPECTOR CONTACT INFORMATION IS NOT KNOWN.
5. ALL REQUEST FOR INFORMATION (RFI'S) SHALL BE MADE AVAILABLE TO THE MODIFICATION INSPECTOR BY GC.
6. REFER TO CROWN ENG-SOW-10007, "MODIFICATION INSPECTION SOW", FOR FURTHER DETAILS AND REQUIREMENTS.

MODIFICATION INSPECTOR

1. THE MODIFICATION INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PURCHASE ORDER (PO) OR PAYMENT FOR THE MODIFICATION INSPECTION TO:
   - REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.
   - WORK WITH GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
   - DISCUSS ANY SITE SPECIFIC INSPECTIONS OR CONCERNS.
2. THE MODIFICATION INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MODIFICATION INSPECTION REPORT TO CROWN.

GENERAL CONTRACTOR

1. THE GC IS REQUIRED TO CONTACT THE MODIFICATION INSPECTOR AS SOON AS RECEIVING A PO OR PAYMENT FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO:
   - REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.
   - WORK WITH MODIFICATION INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MODIFICATION INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
   - BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.
2. THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST AND CROWN ENG-SOW-10007.

RECOMMENDATIONS

1. THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MODIFICATION INSPECTION REPORT:
   - IT IS SUGGESTED THAT THE GC PROVIDE MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10 BUSINESS DAYS, TO THE MODIFICATION INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MODIFICATION INSPECTION TO BE CONDUCTED.
   - THE GC AND MODIFICATION INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
   - WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MODIFICATION INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
   - IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MODIFICATION INSPECTION(S) TO COMMENCE IN ONE SITE VISIT.
   - WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MODIFICATION INSPECTOR ON-SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MODIFICATION INSPECTION. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MODIFICATION INSPECTION CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MODIFICATION INSPECTOR IS ON SITE.

CANCELLATION OR DELAY IN SCHEDULED MODIFICATION INSPECTION

1. IF THE GC AND MODIFICATION INSPECTOR AGREE TO A DATE ON WHICH THE MODIFICATION INSPECTION WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, THE TOWER OWNER SHALL NOT BE RESPONSIBLE FOR COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC). EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MODIFICATION INSPECTION

1. IF THE MODIFICATION INSTALLATION SHOULD FAIL THE MODIFICATION INSPECTION ("FAILED MODIFICATION INSPECTION"), THE GC SHALL WORK WITH MODIFICATION INSPECTOR TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
   - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENTAL MODIFICATION INSPECTION.
   - OR, WITH TOWER OWNER'S APPROVAL, THE GC MAY WORK WITH ENGINEER OF RECORD TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.

VERIFICATION INSPECTIONS

1. TOWER OWNER RESERVES THE RIGHT TO CONDUCT A VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MODIFICATION INSPECTION(S) ON TOWER MODIFICATION PROJECTS.
2. ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH CROWN ENG-SOW-10007.
3. VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MODIFICATION INSPECTION" OR "PASS AS NOTED MODIFICATION INSPECTION" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

1. BETWEEN THE GC AND THE MODIFICATION INSPECTOR, THE FOLLOWING PHOTOGRAPHS ARE TO BE TAKEN AND INCLUDED IN THE MODIFICATION INSPECTION REPORT:
   - PRE-CONSTRUCTION GENERAL SITE CONDITIONS.
   - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION.
     - ** RAW MATERIALS
     - ** PHOTOS OF CRITICAL DETAILS
     - ** FOUNDATION MODIFICATIONS
     - ** REBAR PLACEMENT
     - ** FOUNDATION DEPTH VERIFICATION
     - ** SOIL COMPACTION PROCESS
     - ** COLD GALVANIZED VERIFICATION
     - ** GUY WIRE GROUNDING SYSTEM VERIFICATION
     - ** POST INSTALL ANCHOR DRILL HOLE DIAMETER AND DEPTH
     - ** WELD PREPARATION
     - ** WELD INSTALLATION PRIOR TO SURFACE COATING
     - ** BOLT INSTALLATION AND TORQUE
     - ** FINAL INSTALLED CONDITION
     - ** SURFACE COATING REPAIR
   - POST CONSTRUCTION PHOTOGRAPHS.
     - ** FINAL IN FIELD CONDITION
   - ANY OTHER PHOTOS DEEMED RELEVANT TO SHOW COMPLETE DETAILS OF MODIFICATION.

   THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS PLEASE REFER TO CROWN ENG-SOW-10007.
2. PHOTOS OF ABOVE GROUND MODIFICATIONS TAKEN FROM GROUND LEVEL SHALL BE CONSIDERED INADEQUATE.

MODIFICATION INSPECTION CHECKLIST

BEFORE CONSTRUCTION		DURING CONSTRUCTION		AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM	CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM	CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
X	MODIFICATION INSPECTION CHECKLIST DRAWING	X	CONSTRUCTION INSPECTION	X	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWING(S)
X	FABRICATOR QUALITY MANAGEMENT DOCUMENTATION	-	FOUNDATION INSPECTION/REBAR INSPECTION	X	POST INSTALLED ANCHOR ROD PULL-OUT TESTING (OR ALTERNATE MANUFACTURER'S APPROVED METHOD)
X	FABRICATOR CERTIFIED WELD INSPECTION	-	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS (7 DAY AND 28 DAY CYLINDER BREAKS - REPORT REQUIRED)	-	HELICAL PILE PULL-OUT TESTING (OR ALTERNATE MANUFACTURER'S APPROVED METHOD)
X	MATERIAL TEST REPORTS	X	POST INSTALLED ANCHOR ROD VERIFICATION	-	HOLLOW BAR ANCHOR PULL-OUT TESTING (OR ALTERNATE MANUFACTURER'S APPROVED METHOD)
X	FABRICATION NDE INSPECTION	-	BASE PLATE GROUT VERIFICATION	X	PHOTOGRAPHS
X	PACKING SLIPS	X	THIRD PARTY CERTIFIED WELD INSPECTION (NDE REPORT REQUIRED)	ADDITIONAL TESTING AND INSPECTIONS:	
-	NDE REPORT OF MONOPOLE BASE PLATE PER ENG-SOW-10033	-	EARTHWORK: LIFT PLACEMENT AND DENSITY (REPORT REQUIRED)		
ADDITIONAL TESTING AND INSPECTIONS:		X	ON-SITE COLD GALVANIZED VERIFICATION		
		-	GUY WIRE TENSION REPORT		
		X	GC AS-BUILT DOCUMENTS		
		ADDITIONAL TESTING AND INSPECTIONS:			

NOTE: NDE DENOTES NON-DESTRUCTIVE EXAMINATION

NOTE: X DENOTES A DOCUMENT REQUIRED FOR THE MODIFICATION INSPECTION REPORT
- DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MODIFICATION INSPECTION REPORT

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH
10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027395
LICENSED
PROFESSIONAL ENGINEER
12/02/14

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
MODIFICATION INSPECTION CHECKLIST

SHEET NUMBER
TM-2

GENERAL NOTES

1. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED, THAT HE IS PROPERLY LICENSED, AND THAT HE IS PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH IT IS TO BE PERFORMED.
2. THE GENERAL NOTES AND TYPICAL DETAILS ARE APPLICABLE TO ALL PARTS OF THE STRUCTURE AND SHALL BE READ IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS AND PROJECT SPECIFICATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVALS FROM ALL AUTHORITIES HAVING JURISDICTION FOR THIS PROJECT AND SHALL NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY, OR CITY) ENGINEER 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
5. ERECT GUARDS AND BARRIERS PER APPLICABLE LABOR AND CONSTRUCTION SAFETY REGULATIONS.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, POSSIBLE INTERFERENCES, AND DIMENSIONS BEFORE PROCEEDING WITH THE WORK. REPORT ANY AND ALL DISCREPANCIES TO THE ENGINEER OF RECORD (EOR) AND FIELD PERSONNEL IMMEDIATELY. ANY AND ALL FIELD CHANGES SHALL BE APPROVED AND DOCUMENTED BY THE EOR PRIOR TO FIELD IMPLEMENTATION.
7. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR TWO (2) YEARS FROM THE DATE OF COMPLETED CONSTRUCTION.
8. USE ONLY THE LATEST ISSUES OF ANY APPLICABLE CODES, STANDARDS, OR REGULATIONS MENTIONED IN THE FOLLOWING NOTES AND SPECIFICATIONS, UNO.
9. ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH ANSI, ASTM, ACI, TIA, AND AISC STANDARDS AS REFERENCED IN THE APPLICABLE CODE.
10. STRUCTURAL ELEMENTS SHOWN ON THESE DRAWINGS ARE DESIGNED IN ACCORDANCE WITH APPLICABLE BUILDING CODES/STANDARDS. ALL CONSTRUCTION, EXCEPT WHERE NOTED OTHERWISE, SHALL COMPLY WITH THOSE CODES/STANDARDS.
11. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS, AND IN CONFORMANCE WITH THE DRAWINGS. ANY AND ALL SUBSTITUTIONS MUST BE DULY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER OF RECORD PRIOR TO FABRICATION AND INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
12. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION PROCEDURES MEET THE REQUIREMENTS OF OSHA, THE OWNER, AND ALL OTHER APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. CONSTRUCTION SHALL BE PERFORMED ONLY IN "GOOD WEATHER". "GOOD WEATHER" MEANS LITTLE OR NO WIND AND RAIN AND MINIMUM TEMPERATURE OF 50 DEGREES F. CONTACT ENGINEER FOR ADDITIONAL INSTRUCTIONS IF "GOOD WEATHER" CANNOT BE ACHIEVED.
14. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIAL ACCESS, WITH THE RESIDENT LEASING AGENT.
15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SAFEGUARD ALL EXISTING STRUCTURES OR BURIED SERVICES AFFECTED BY THIS CONSTRUCTION. CONTRACTOR IS ALSO RESPONSIBLE FOR TEMPORARILY RELOCATING ANY LINES OR STRUTS AS NECESSARY TO COMPLETE THE REQUIRED WORK.
16. STRUCTURAL DESIGN IS FOR THE COMPLETE CONDITION ONLY. THE CONTRACTOR MUST BE COGNIZANT THAT THE REMOVAL OF ANY STRUCTURAL COMPONENT OF AN EXISTING TOWER HAS THE POTENTIAL TO CAUSE THE PARTIAL OR COMPLETE COLLAPSE OF THE STRUCTURE. ALL NECESSARY PRECAUTIONS MUST BE TAKEN TO ENSURE STRUCTURAL INTEGRITY, INCLUDING, BUT NOT LIMITED TO, ENGINEERING ASSESSMENT OF CONSTRUCTION STRESSES WITH INSTALLATION MAXIMUM WIND SPEED AND/OR TEMPORARY BRACING AND SHORING.
17. DO NOT SCALE DRAWINGS.
18. FOR THIS ANALYSIS AND MODIFICATION, THE TOWER HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY DEFECTS. IF THE CONTRACTOR DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE ENGINEER OF RECORD IMMEDIATELY.
19. MODIFICATION WORK SHALL BE COMPLETED IN CALM WIND CONDITIONS / OR APPROPRIATE WIND SPEED FOR THE TYPE OF MODIFICATION WORK TO BE INSTALLED.
20. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS APPROVAL OF THE ENGINEER OF RECORD.
21. CONTRACTOR TO VERIFY REQUIRED STEEL PLATE LENGTHS FROM BOTTOM OF SECTION TO BOTTOM OF NEXT SECTION.
22. THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
23. ALL CHANGES/ALTERNATES/REVISIONS TO THESE DRAWINGS SHALL BE DOCUMENTED BY REQUEST FOR INFORMATION (RFI) FORM APPROVED BY ENGINEER OF RECORD. FINAL WORK AUTHORIZATION AND ALL CHANGE ORDERS SHALL BE APPROVED BY CLIENT AND/OR CLIENT REPRESENTATIVE PRIOR TO PROCEEDING WITH ANY WORK THAT DEVIATES FROM THE ORIGINAL DESIGN, SCOPE, PRICE AND/OR SCHEDULE.
24. IN THE EVENT OF AN EMERGENCY, CONTRACTOR SHALL CONTACT BLACK & VEATCH AND CROWN CASTLE PERSONNEL TO REPORT ANY EVENT OR EMERGENCY INCIDENT AT ANY CROWN CASTLE TOWER SITE PER THE CONTACT INFORMATION PROVIDED ON SHEET TM-1.

STRUCTURAL STEEL NOTES

1. DESIGN, FABRICATION, ERECTION, ALTERATION AND MAINTENANCE SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE (UNO).
   A. TIA-222: STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS
   B. TIA-1019-A: INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS
   C. AISC: MANUAL OF STEEL CONSTRUCTION
2. ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS, UNO.
   A. STRUCTURAL STEEL, ASTM A572 GRADE 65 (FY = 65KSI).
   B. ALL BOLTS, ASTM A325 TYPE 1 GALVANIZED HIGH STRENGTH BOLTS.
   C. ALL NUTS, ASTM A563 CARBON AND ALLOY STEEL NUTS.
   D. ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS.
3. ALL HOLES SHALL BE CUT WITH A GRINDER OR DRILLED. HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER OF RECORD.
4. ALL FASTENERS SHALL NOT BE REUSED.
5. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED ASTM A325 BOLTS.
6. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
7. HOT-DIP GALVANIZE ALL ITEMS, UNO.
   GALVANIZE PER ASTM A123, ASTM A153/A153M OR ASTM A653 G90, AS APPLICABLE.
8. FOR A LIST OF CROWN APPROVED COLD GALVANIZING COMPOUNDS, REFER TO CROWN ENG-BUL-10149, "TOWER PROTECTIVE COATINGS BULLETIN".
9. AFTER FINAL INSPECTION, ALL EXPOSED STRUCTURAL STEEL AS THE RESULT OF THIS SCOPE OF WORK INCLUDING WELDS, FIELD DRILLED HOLES, AND SHAFT INTERIORS (WHERE ACCESSIBLE), SHALL BE CLEANED AND COLD GALVANIZING APPLIED BY BRUSH IN ACCORDANCE WITH CROWN ENG-BUL-10149, "TOWER PROTECTIVE COATINGS BULLETIN". PHOTO DOCUMENTATION IS REQUIRED TO BE SUBMITTED TO THE MI INSPECTOR.

WELDING NOTES

1. ALL WELDING SHALL BE IN ACCORDANCE WITH THE AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE-STEEL".
2. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.
3. ALL ARC WELDING ON CROWN STRUCTURES SHALL BE DONE IN ACCORDANCE WITH THE CROWN ENG-PLN-10015, "CUTTING AND WELDING SAFETY PLAN" AND AWS D1.1 (LATEST EDITION). THIS SHALL INCLUDE A CERTIFIED WELDING INSPECTOR (CWI) FOR ACCEPTANCE OR REJECTION OF ALL WELDING OPERATIONS, PRE-DURING-POST, USING THE ACCEPTANCE CRITERIA OF AWS D1.1. THE CWI SHALL WORK WITH THE GC ON THE LEVEL OF INTERACTION NEEDED TO CONDUCT THE WELDING INSPECTION. THE CERTIFIED WELDING INSPECTION IS THE RESPONSIBILITY OF THE GC.
4. FOR ALL WELDING, USE E80XX ELECTRODES FOR SMAW PROCESS AND E8XT-XX ELECTRODES FOR FCAW PROCESS, UNO.
5. SURFACES TO BE WELDED SHALL BE FREE FROM SCALE, SLAG, RUST, MOISTURE, GREASE OR ANY OTHER FOREIGN MATERIAL THAT WOULD PREVENT PROPER WELDING. GRIND THE SURFACE ADJACENT TO THE WELD FOR A DISTANCE OF 2" MINIMUM ALL AROUND. ENSURE BOTH AREAS ARE 100% FREE OF ALL GALVANIZING.
6. REPAIR THE GALVANIZED COATING. ALL AREAS AFFECTED BY THE FIELD DRILLING, FIELD GRINDING AND FIELD WELDING, BOTH INSIDE AND OUTSIDE THE MONOPOLE, SHALL BE REPAIRED PER CROWN DOCUMENT ENG-STD-10149. PRODUCTS TO BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. AREAS THAT HAVE BEEN TOUCHED UP SHOULD BE INSPECTED AS PART OF THE ROUTINE MAINTENANCE OS THE STRUCTURE. NO SPRAY PAINT IS ALLOWED. AFTER ZINC-RICH PAINT IS DRY, OVERCOAT WITH OWNER'S PAINT SPECIFICATIONS, APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. DO NOT WELD IF THE TEMPERATURE OF THE STEEL IN THE VICINITY OF THE WELD AREA IS BELOW 0° F. WHEN THE TEMPERATURE IS BETWEEN 0° F AND 32° F, PREHEAT AND MAINTAIN THE STEEL IN THE VICINITY OF THE WELD AREA AT 70° F DURING THE WELDING PROCESS.
8. DO NOT WELD ON WET OR FROST-COVERED SURFACES & PROVIDE ADEQUATE PROTECTION FROM HIGH WINDS.
9. FULL PENETRATION WELDS IN THE VICINITY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 100% NDE INSPECTED BY UT IN ACCORDANCE WITH AWS D1.1.
10. PARTIAL PENETRATION AND FILLET WELDS IN THE VICINITY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 50% NDE INSPECTED BY MP IN ACCORDANCE WITH AWS D1.1.
11. MOVE ALL COAX AND OTHER FLAMMABLE MATERIALS FROM ANY AREA THAT MAY BE HEATED DURING CONSTRUCTION.
12. CONTRACTOR SHALL MAKE PROPER PRECAUTIONS AND PROCEDURES TO PROTECT THE STRUCTURE FROM CATCHING FIRE DURING ALL WELDING OPERATIONS. THE FOLLOWING FIRE SAFETY PREVENTION PROTOCOL IS THE MINIMUM REQUIREMENTS DURING WELDING OPERATIONS.ALSO REFERENCE CROWN DOCUMENT ENG-BUL-10172 FOR ADDITIONAL WELDING REQUIREMENTS.
   - 500 GALLON WATER TANK WITH PUMP TO BE ON SITE AT ALL TIMES.
   - 2 FIRE EXTINGUISHERS ON SITE AT ALL TIMES.
   - 2 MAN FIRE WATCH ON ANY ADJACENT STRUCTURES, FIELDS AND POLE.
   - INTERMITTENT COOLING OF WELDED SURFACE TO REDUCE HEAT IN STRUCTURE.

NEW ANCHOR ROD PROOF LOADING[1]

ANCHOR ROD MATERIAL	ROD DIAMETER (IN)	PROOF LOAD (KIPS)	NOTES
A193 GR B7	1.75	111	3, 4
	2.25	190	3, 4
F1554-105	1.75	111	4
	2.25	190	4
	2.50	234	4
A615 GR 75	1.75 (#14)	89	2, 5
	2.25 (#18)	152	2, 5

NOTES

1. PROOF LOAD PER SECTION 1.4.6 OF CROWN DOCUMENT ENG-PRC-10119 REVISION G: PULL-OUT TESTING POST-INSTALLED ANCHOR RODS, FOR SPECIFICATIONS.
2. FOR WILLIAMS R61 ALL-THREAD, TORQUE TENSION TESTING IS AN APPROVED ALTERNATE FOR BARS EQUAL TO OR GREATER THAN #11 IN SIZE, TESTING PER MANUFACTURER'S RECOMMENDATIONS. TIGHTEN ALL HEX NUTS TO SNUG PLUS 1/8 TURN OF NUT.
3. CONTRACTOR MAY SUBSTITUTE F1554-105 FOR A193 GR B7.
4. MATERIAL IS TO BE ALL-THREADED ROD.
5. CONTRACTOR MAY SUBSTITUTE WILLIAMS R61 GR 75 ALL-THREADED REBAR ASTM A615 WITH EOR APPROVAL PRIOR TO INSTALLATION. PROOF LOADS SHALL BE IN ACCORDANCE PER NOTES 1 AND 2.

DETAIL DRAWINGS SHALL GOVERN OVER ANY VARIANCE FROM THIS SHEET

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH

10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027383
LICENSED
PROFESSIONAL ENGINEER

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
NOTES

SHEET NUMBER
TM-3

AJAX/DTI BOLT SPECIFICATIONS AND TIGHTENING PROCEDURE

M20 AJAX/DTI BOLT ASSEMBLY COMPONENT SPECIFICATIONS:

BOLT:
AJAX ONESIDE™ BLIND BOLT (M8.8; EQUIVALENT TO A325)
FINISH: HOT DIP GALVANIZED PER ASTM A153.

SPLIT WASHER:
AJAX ONESIDE™ SPLIT WASHER
FINISH: HOT DIP GALVANIZED PER ASTM A153.

SHEAR SLEEVE:
F_u = 120 KSI MIN. (ASTM A519)
29MM O.D. x 20MM I.D.
LENGTH = NOMINAL [GRIP-6MM] = [GRIP-0.25"] (TOL. -0", +1/32")
SLEEVES SHALL BE ROUND, WITH ENDS CUT SQUARE AND DEBURRED.
FINISH: GALVANIZED (COLD GALVANIZED AS PER CROWN ENG-BUL-10149, HOT DIP GALVANIZED PER ASTM A123, MECHANICALLY GALVANIZED AND SPUN) OR CADMIUM PLATED.

SOLID WASHER:
AJAX ONESIDE™ SOLID WASHER
FINISH: HOT DIP GALVANIZED PER ASTM A153.

DIRECT TENSION INDICATOR WASHER:
SQUIRTER® DTI, ASTM F959M
FINISH: COLD MECHANICALLY GALVANIZED (TO ASTM B695) AND EPOXY COATED.

MANUFACTURER:
APPLIED BOLTING TECHNOLOGY PRODUCTS, INC.
1413 ROCKINGHAM ROAD, BELLOWS FALLS, VERMONT, USA 05101
PHONE: 1-800-552-1999
WEBSITE: WWW.APPLIEDBOLTING.COM

DISTRIBUTORS OF SQUIRTER® DTI'S:
http://www.appliedbolting.com/applied-bolting-distributors.html

FLAT WASHER:
HARDENED FLAT WASHER, ASTM F436M (MINIMUM HARDNESS RC38)
FINISH: COLD MECHANICALLY GALVANIZED

HEX NUT:
AJAX ONESIDE™ HEAVY HEX NUT
FINISH: HOT DIP GALVANIZED PER ASTM A153.

BOLT ASSEMBLY AND INSTALLATION:
BOLT ASSEMBLY SHALL ADHERE TO THE REQUIREMENTS OF DETAIL A, THIS DRAWING.
NON-PETROLEUM BASED, WATER SOLUBLE, INERT BOLT LUBRICANT SHALL BE USED ON ALL AJAX BOLTS TO ENSURE PROPER TENSIONING OF THE ASSEMBLY. CARE SHOULD BE TAKEN TO ENSURE THE BOLT HEAD AND SPLIT WASHER ARE NOT LUBRICATED AS THIS MAY CAUSE EXCESSIVE BOLT SLIPPAGE UPON APPLYING TORQUE, WHICH MAY LEAD TO DIFFICULTIES IN ENGAGING THE SQUIRTER® DTI WASHER PROPERLY. NOTE: ONLY LUBRICATING THE THREADS OF THE NUT MAY ACHIEVE BETTER RESULTS.
THE TYPICAL RULE OF THUMB WHEN USING AN IMPACT WRENCH IS TO ENGAGE FOR NO MORE THAN 10 SECONDS. IF THE BOLT IS NOT SPINNING AND THE SQUIRTER HAS NOT ENGAGED AFTER 10 SECONDS USING AN IMPACT WRENCH, REMOVE THE NUT AND REAPPLY LUBRICANT. NOTE: PROLONGED USE OF THE IMPACT WRENCH TENDS TO HEAT THE BOLT THREAD/NUT, THEREBY, INCREASING FRICTION ON THE THREADS WHICH WOULD REQUIRE ADDITIONAL TORQUE. HOLDING FOR LONGER THAN 10 SECONDS CAN BE COUNTERPRODUCTIVE.

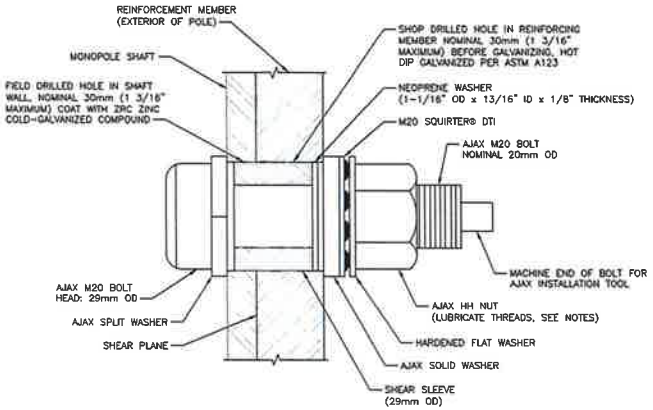
A MINIMUM OF 4 OUT OF 5 SQUIRTER® DTI "BUMPS" SHALL BE ENGAGED IN ANY AJAX/DTI BOLT ASSEMBLY IN THE END CONNECTION OF REINFORCING MEMBERS. INTERMEDIATE BOLTS SHALL ENGAGE A MINIMUM OF 3 OUT OF 5 SQUIRTER® DTI "BUMPS".

DTI WASHERS MUST BE PLACED DIRECTLY AGAINST THE OUTER AJAX WASHER WITH THE "BUMPS" FACING AWAY FROM THE AJAX WASHER. PLACE A HARDENED WASHER BETWEEN THE DTI AND THE AJAX NUT. THE DTI "BUMPS" SHALL BEAR AGAINST THE UNDERSIDE OF A HARDENED FLAT WASHER, NEVER DIRECTLY AGAINST THE NUT.

FOLLOW THE DTI MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION, LUBRICATION, TIGHTENING, AND INSPECTION.

INSPECTION:
VISUALLY INSPECT ALL BOLT ASSEMBLIES TO ENSURE THE MINIMUM "BUMP" ENGAGEMENT AS DEFINED IN THE SECTION "BOLT ASSEMBLY AND INSTALLATION" HAS BEEN ACHIEVED.
FOR MORE INFORMATION ON INSPECTION, SEE THE MANUFACTURER'S GUIDELINES.
WHERE FEASIBLE, CHECK A SAMPLE OF THE END CONNECTION DTI WASHERS WITH THE APPROPRIATE FEELER GAGE. IF THE FEELER GAGE CANNOT BE INSERTED TO THE BOLT SHANK HALF WAY AROUND THE BOLT, THE INSTALLATION IS OKAY. IF YOU CAN INSERT THE FEELER GAGE TO THE SHANK ALL THE WAY AROUND THE BOLT, THE INSTALLATION IS NOT OKAY. IF YOU FIND MORE THAN ONE SUCH "NOT OKAY" BOLT IN ANY ONE END CONNECTION, CHECK ALL BOLTS IN THAT END CONNECTION. A MINIMUM OF THREE BOLTS SHALL BE CHECKED IN EACH END CONNECTION. PHOTOS SHALL BE TAKEN TO INDICATE THE BOLTS TESTED.

ALL BOLT ASSEMBLIES AND DTI WASHERS SHALL BE VISUALLY INSPECTED. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE PHOTO DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THE CONDITION OF THE DTI WASHERS.



DETAIL A
M20 AJAX/DTI BOLT ASSEMBLY
NO SCALE

PREPARED FOR:
CROWN CASTLE

BLACK & VEATCH
10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

RCV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
027387
LICENSED PROFESSIONAL ENGINEER
12/03/14

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

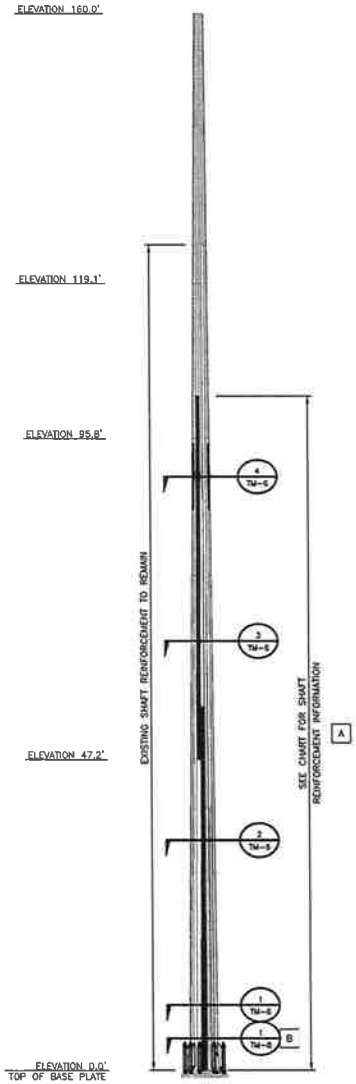
SHEET TITLE
AJAX/DTI BOLT SPECS & TIGHTENING PROCEDURE

SHEET NUMBER
TM-4

POLE MODIFICATION SCHEDULE			
CALLOUT	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
A	0.0 – 105.0	INSTALL NEW PLATE REINFORCEMENT	TM-6 TM-7
B	0.0	INSTALL (8) NEW 2 1/4"ø A615 GR 75 HOT DIP GALVANIZED ALL-THREAD BAR 216" EMBEDDED WITH ANCHOR ROD CHAIRS	TM-8

CONTRACTOR SHALL FIELD VERIFY AND MEASURE DIMENSIONS OF THE SITE STRUCTURE BEFORE FABRICATION OF MATERIALS FOR ALL TOWER MODIFICATION INSTALLATIONS.

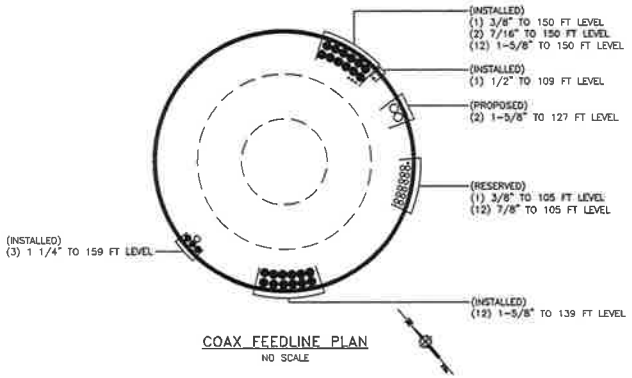
CCI FLAT PLATE (65 KSI) REINFORCEMENT SCHEDULE										
BOTTOM ELEVATION	TOP ELEVATION	PART NUMBER	FLATS / DEGREES (°)	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAX INTERMEDIATE BOLT SPACING	AJAX BOLT QUANTITY PER PLATE	STEEL WEIGHT PER PLATE (BLACK)	TOTAL AJAX BOLT QUANTITY	TOTAL STEEL WEIGHT (BLACK)
0'-0"	20'-0"	CCI-WSFP-08512520	10, 15	0	15	1'-5"	26	722.5	52	1445.0
0'-0"	25'-0"	CCI-WSFP-08512525	2	0	15	1'-5"	29	903.1	29	903.1
20'-0"	55'-0"	CCI-SFP-06010035	10, 15	8	8	1'-4"	39	714.0	78	1428.0
55'-0"	85'-0"	CCI-SFP-06010030	15	8	8	1'-4"	35	612.0	35	612.0
85'-0"	105'-0"	CCI-SFP-06010020	15	8	8	1'-4"	27	408.0	27	408.0
47'-2.5"	77'-2.5"	CCI-SFP-06010030	9	8	8	1'-4"	35	612.0	35	612.0
77'-2.5"	102'-2.5"	CCI-SFP-06010025	9	8	8	1'-4"	31	510.0	31	510.0
15'-0"	50'-0"	CCI-SFP-06010035	3	8	8	1'-4"	39	714.0	39	714.0
50'-0"	80'-0"	CCI-SFP-06010030	3	8	8	1'-4"	35	612.0	35	612.0
80'-0"	105'-0"	CCI-SFP-06010025	3	8	8	1'-4"	31	510.0	31	510.0
85'-0"	95'-0"	CCI-SFP-04510010	1, 7, 13	6	6	1'-8"	16	153.0	48	459.0
								TOTAL	440	8213.1



TOWER ELEVATION
NO SCALE

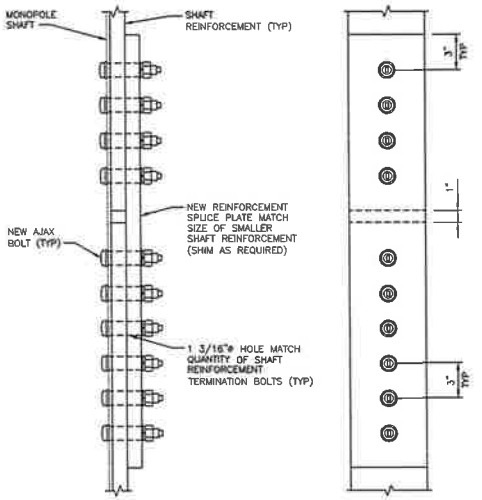
NOTES FOR CROWN REINFORCING (65 KSI) MATERIAL

1. DO NOT WELD WITHOUT APPROVAL FROM THE EOR.
2. SHIMS FOR MONOPOLE REINFORCEMENT MEMBER SHALL BE REQUIRED WHERE GAPS BETWEEN THE POLE SHAFT AND REINFORCING MEMBER EXIST AT FASTENER LOCATIONS. FOR INTERMEDIATE CONNECTIONS, THE MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE WIDTH OF THE REINFORCING MEMBER. FOR TERMINATION CONNECTIONS, A CONTINUOUS SHIM PLATE (PREFERRED) OR EQUIVALENT INDIVIDUAL SHIM PLATES THE WIDTH OF THE REINFORCING MEMBER MAY BE USED. SHIM THICKNESS SHALL BE NO LESS THAN 1/16". STACKING OF SHIMS IS PERMITTED.
3. ALL FLAT PLATE REINFORCEMENT IS TO BE INSTALLED CENTERED ON ITS DESIGNATED FLAT, UNO.
4. SEE CMRP 65 KSI PARTS CATALOG 2nd EDITION FOR PART DETAILS.
5. AS AN ALTERNATIVE TO USING DTI WASHERS, AJAX BOLTS MAY BE PRETENSIONED PER THE AISC TURN-OF-NUT METHOD.



COAX FEEDLINE PLAN
NO SCALE

EXISTING FEEDLINE PLAN SHOWN ON THIS DRAWING IS BASED ON CURRENT BEST KNOWLEDGE OF THE EXISTING CONDITION. IF THE EXISTING FEEDLINE LAYOUT IS NOT AS SHOWN ON THIS DRAWING CONTRACTOR SHALL NOTIFY ENGINEER.



REINFORCED SPLICE PLATE DETAIL
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH

10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182895
DRAWN BY:	SAC
CHECKED BY:	SA

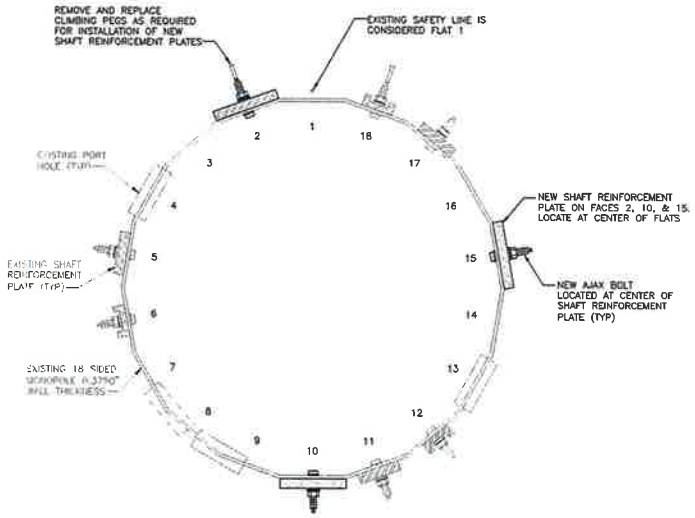
REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027387
LICENSED PROFESSIONAL ENGINEER
12/02/14

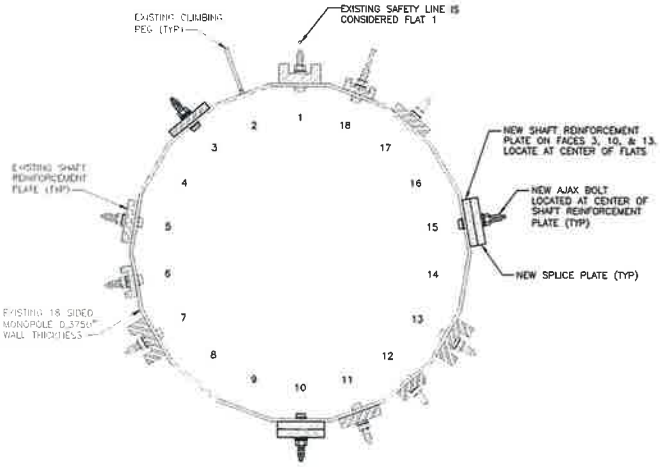
BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
TOWER ELEVATION

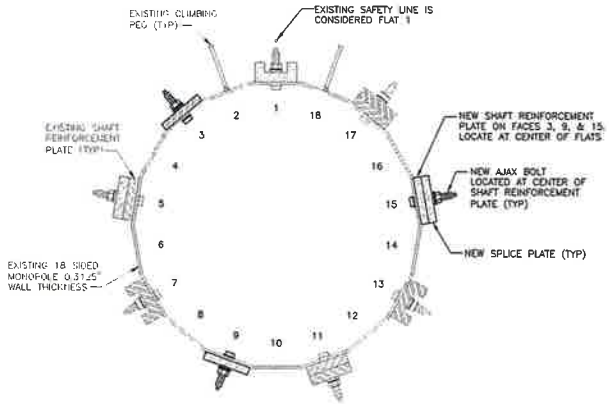
SHEET NUMBER
TM-5



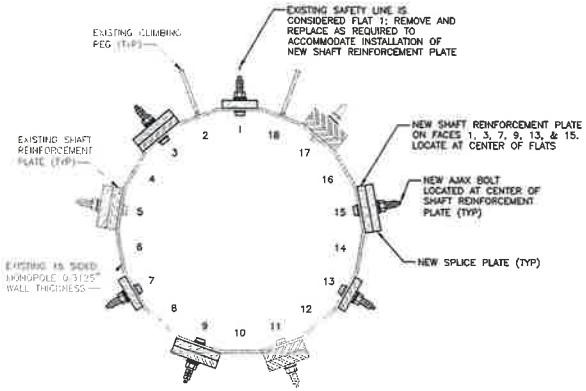
SECTION 1
NO SCALE



SECTION 2
NO SCALE



SECTION 3
NO SCALE



SECTION 4
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH
10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFT
0027396
LICENSED
PROFESSIONAL ENGINEER
12/2/2014

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

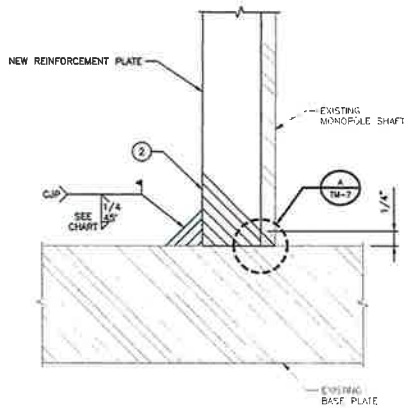
SHEET TITLE
TOWER SECTIONS

SHEET NUMBER
TM-6

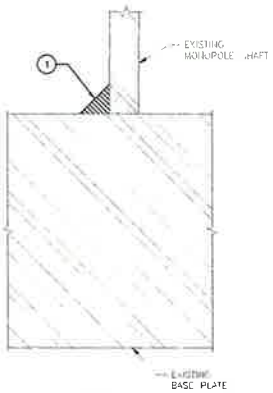
OPTION 1

NOTES

1. GRIND EXISTING FILLET WELD FLUSH TO BASE PLATE & POLE FOR THE WIDTH OF THE REINFORCEMENT PLATE PLUS 1/4" ON EACH SIDE (DO NOT OVER GRIND).
2. PERFORM CJP WELD WITH REINFORCING FILLET WELD USING POLE AS BACKING BAR.



WELD DETAIL
NO SCALE



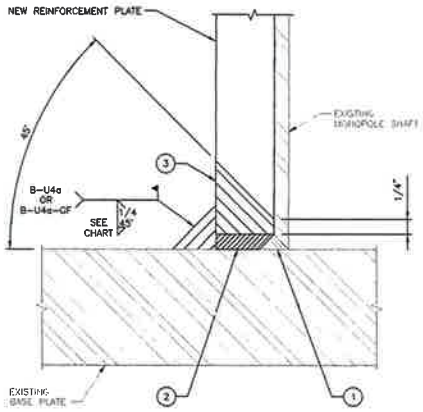
DETAIL A
EXISTING WELD
NO SCALE

PART NUMBER	PLATE SIZE	MINIMUM REINFORCING WELD
CCI-WSFP-040075 CCI-WAFP-040075	3/4" x 4"	1/4"
CCI-WSFP-045100 CCI-WAFP-045100	1" x 4 1/2"	1/4"
CCI-WSFP-060100 CCI-WAFP-060100	1" x 6"	3/8"
CCI-WSFP-065125 CCI-WAFP-065125	1 1/4" x 6 1/2"	1/2"
CCI-WSFP-085125 CCI-WAFP-085125	1 1/4" x 8 1/2"	5/8"

OPTION 2

NOTES

1. CLEAN EXISTING WELD FROM GALVANIZING
2. BUILD A PLATFORM WITH WELD AT THE SAME HEIGHT OF THE EXISTING FILLET WELD (TO REDUCE THE AMOUNT OF WELD TO BUILD THE PLATFORM, IT IS ALLOWABLE TO PARTIALLY GRIND THE HEIGHT OF THE EXISTING FILLET WELD TO A 1/4" MINIMUM).
3. PERFORM CJP WELD WITH REINFORCING FILLET WELD USING POLE AS BACKING BAR.



WELD DETAIL
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH

10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFT
0027383
LICENSED
PROFESSIONAL ENGINEER

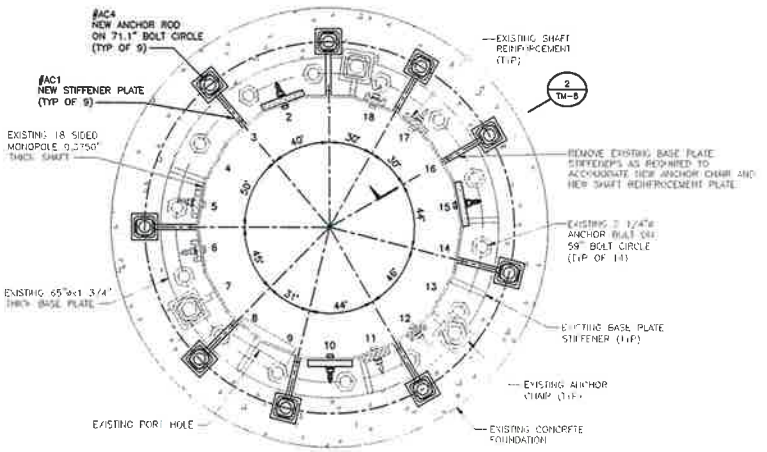
BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE

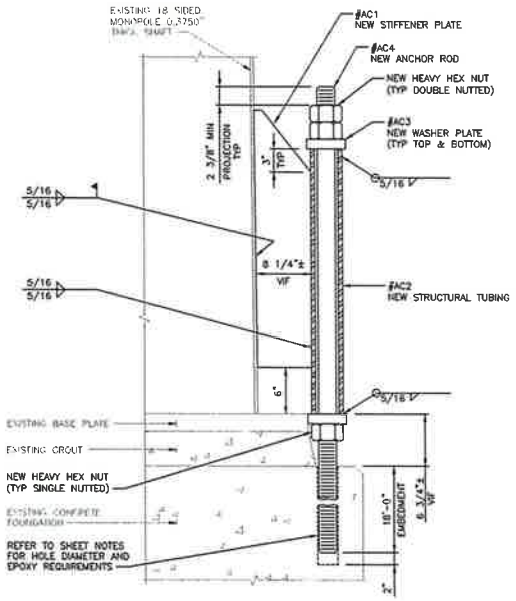
BASE PLATE
WELD DETAILS

SHEET NUMBER

TM-7



SECTION 1
ANCHOR ROD PLAN
NO SCALE

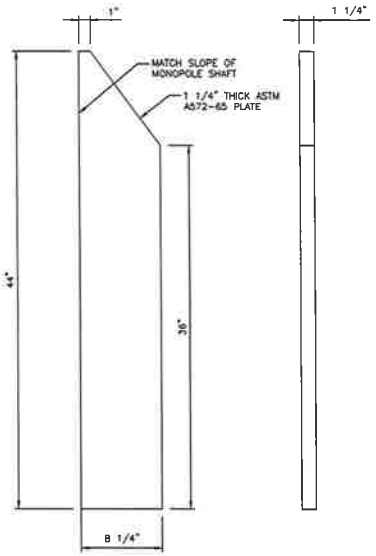


SECTION 2
NO SCALE

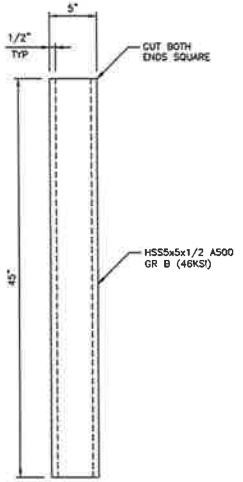
NOTES

1. ALL HSS SHAPES SHALL BE A500 GRADE B, 46 KSI.
2. NEW ANCHOR RODS TO BE DRILLED AND EPOXIED INTO FOUNDATION USING HILTI HIT-RE 500-SD EPOXY PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR TO HAMMER DRILL HOLE WITH CARBIDE BIT (OR EQUIVALENT). FOR CORE DRILLING OPTION, CLEAN AND MECHANICALLY ROUGHEN HOLES PRIOR TO ANCHOR INSTALLATION.

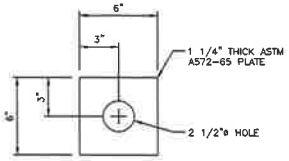
   HOLE SIZE IN FOUNDATION SHALL BE AS FOLLOWS:
   - FOR NEW 1 3/4"ø ANCHOR ROD, A 2"ø HOLE IS REQUIRED.
   - FOR NEW 2 1/4"ø ANCHOR RODS, A 2 1/2"ø HOLE IS REQUIRED.
3. ALL NEW ANCHOR RODS SHALL BE INSTALLED WITH DOUBLE HEAVY HEX NUTS ON THE TOP OF THE NEW ANCHOR ROD CHAIR AND ONE LEVELING HEAVY HEX NUT ON THE BOTTOM OF THE NEW ANCHOR ROD CHAIR. CONTRACTOR SHALL CAREFULLY REMOVE EXISTING GROUT AS NECESSARY TO ENSURE PROPER INSTALLATION OF LEVELING NUTS.
4. TAKE ALL MEASUREMENTS NECESSARY TO AVOID DAMAGING EXISTING REINFORCING BARS DURING DRILLING OPERATIONS. NOTIFY CROWN CASTLE IMMEDIATELY IF EXISTING REINFORCING BARS ARE ENCOUNTERED AND INTERFERE WITH PLACEMENT OF NEW ANCHORS. MINOR ADJUSTMENTS TO PROPOSED LOCATION OF NEW ANCHORS MAY BE REQUIRED.
5. NEW ANCHOR ROD REINFORCING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ONCE ALL RESIN & GROUT HAVE CURED, NEW ANCHOR ROD REINFORCING SHALL BE PROOF LOADED REFERENCE TABLE ON SHEET TM-3 FOR REQUIRED PROOF LOADING VALUES.



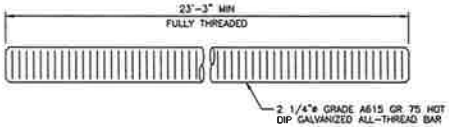
#AC1
STIFFENER PLATE
NO SCALE



#AC2
STRUCTURAL TUBING
NO SCALE



#AC3
WASHER PLATE
NO SCALE



#AC4
ANCHOR ROD
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH

10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

REV.	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFT
0027383
LICENSED
PROFESSIONAL ENGINEER

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
BASE PLATE
ANCHOR CHAIRS

SHEET NUMBER
TM-8

MONOPOLE REINFORCEMENT DRAWINGS

SITE NAME: TOWN OF PLAINFIELD/SSUSA
BU NUMBER: 876401

SITE ADDRESS:
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

CODE COMPLIANCE

THIS REINFORCEMENT DESIGN IS BASED ON THE REQUIREMENTS OF TIA/EIA-222-F STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES USING A FASTEST MILE WIND SPEED OF 85 MPH WITH NO ICE, 37.6 MPH WITH 0.75 INCH ICE THICKNESS AND 50 MPH UNDER SERVICE LOADS.

TOWER INFORMATION

TOWER MANUFACTURER / DWG#:	ENGINEERED ENDEAVORS, INC., GS54614
TOWER HEIGHT / TYPE:	160 FT MONOPOLE TOWER
TOWER LOCATION: DATUM: NAD 1983	LATITUDE 41° 42' 54.49" LONGITUDE -71° 53' 46.73"
STRUCTURAL DESIGN DRAWING:	B&V / WO #963576
STRUCTURAL ANALYSIS REPORT:	B&V / WO #928355
APPLICATION ID:	253183 REV #6

PROJECT CONTACTS

CROWN TOWER STRUCTURAL ANALYST
DARCY TARR
(704) 405-6589
DARCY.TARR@CROWNCASTLE.COM
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

BLACK & VEATCH STRUCTURAL LEAD ENGINEER
ERIC S. BRANDSTADTER, P.E.
(913) 458-7360
BRANDSTADTERES@BV.COM
10950 GRANDVIEW DRIVE
OVERLAND PARK, KS 66210

LOCATION MAP

NO SCALE

DRIVING DIRECTIONS

FROM DISTRICT OFFICE: RT. 395 TO EXIT 89. RT 14W IS PROSPECT ST. FOLLOW TO LIGHT AND TAKE LEFT ONTO NORWICH ST. FOLLOW APROX. 1/4 MI TAKE LEFT ONTO PLAINFIELD RD.. GO APOX 1/4 AND TURN LEFT ONTO UNITY ST. SITE IS BEHIND TOWN GARAGE.

DRAWING INDEX

SHEET NO:	SHEET TITLE
TM-1	TITLE PAGE
TM-2	MODIFICATION INSPECTION CHECKLIST
TM-3	NOTES
TM-4	AJAX/DTI BOLT SPECIFICATIONS & TIGHTENING PROCEDURE
TM-5	TOWER ELEVATION
TM-6	TOWER SECTIONS
TM-7	BASE PLATE WELD DETAILS
TM-8	BASE PLATE ANCHOR CHAIRS

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH
10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

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STATE OF CONNECTICUT
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12/03/14

BU #876401
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PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
TITLE PAGE

SHEET NUMBER
TM-1

MODIFICATION INSPECTION NOTES

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD.
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION ITSELF, NOR DOES THE MODIFICATION INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD AT ALL TIMES.
3. ALL MI'S SHALL BE CONDUCTED BY A CROWN ENGINEERING SERVICE VENDOR (AESV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CROWN. SEE CROWN ENG-BUL-10173, "APPROVED MI VENDORS".
4. TO ENSURE THAT THE REQUIREMENTS OF THE MODIFICATION INSPECTION ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS PO OR PAYMENT IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN COMMUNICATION WITH THE OTHER PARTY. CONTACT LISTED ON TITLE SHEET SHALL BE CONTACTED IF SPECIFIC INSPECTOR CONTACT INFORMATION IS NOT KNOWN.
5. ALL REQUEST FOR INFORMATION (RFI'S) SHALL BE MADE AVAILABLE TO THE MODIFICATION INSPECTOR BY GC.
6. REFER TO CROWN ENG-SOW-10007, "MODIFICATION INSPECTION SOW", FOR FURTHER DETAILS AND REQUIREMENTS.

MODIFICATION INSPECTOR

1. THE MODIFICATION INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PURCHASE ORDER (PO) OR PAYMENT FOR THE MODIFICATION INSPECTION TO:
   - REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.
   - WORK WITH GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
   - DISCUSS ANY SITE SPECIFIC INSPECTIONS OR CONCERNS.
2. THE MODIFICATION INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MODIFICATION INSPECTION REPORT TO CROWN.

GENERAL CONTRACTOR

1. THE GC IS REQUIRED TO CONTACT THE MODIFICATION INSPECTOR AS SOON AS RECEIVING A PO OR PAYMENT FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO:
   - REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.
   - WORK WITH MODIFICATION INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MODIFICATION INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
   - BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.
2. THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST AND CROWN ENG-SOW-10007.

RECOMMENDATIONS

1. THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MODIFICATION INSPECTION REPORT:
   - IT IS SUGGESTED THAT THE GC PROVIDE MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10 BUSINESS DAYS, TO THE MODIFICATION INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MODIFICATION INSPECTION TO BE CONDUCTED.
   - THE GC AND MODIFICATION INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
     - WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MODIFICATION INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
   - IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MODIFICATION INSPECTION(S) TO COMMENCE IN ONE SITE VISIT.
     - WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MODIFICATION INSPECTOR ON-SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MODIFICATION INSPECTION. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MODIFICATION INSPECTION CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MODIFICATION INSPECTOR IS ON SITE.

CANCELLATION OR DELAY IN SCHEDULED MODIFICATION INSPECTION

1. IF THE GC AND MODIFICATION INSPECTOR AGREE TO A DATE ON WHICH THE MODIFICATION INSPECTION WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, THE TOWER OWNER SHALL NOT BE RESPONSIBLE FOR COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC). EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MODIFICATION INSPECTION

1. IF THE MODIFICATION INSTALLATION SHOULD FAIL THE MODIFICATION INSPECTION ("FAILED MODIFICATION INSPECTION"), THE GC SHALL WORK WITH MODIFICATION INSPECTOR TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
   - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENTAL MODIFICATION INSPECTION.
   - OR, WITH TOWER OWNER'S APPROVAL, THE GC MAY WORK WITH ENGINEER OF RECORD TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.

VERIFICATION INSPECTIONS

1. TOWER OWNER RESERVES THE RIGHT TO CONDUCT A VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MODIFICATION INSPECTION(S) ON TOWER MODIFICATION PROJECTS.
2. ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH CROWN ENG-SOW-10007.
3. VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MODIFICATION INSPECTION" OR "PASS AS NOTED MODIFICATION INSPECTION" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

1. BETWEEN THE GC AND THE MODIFICATION INSPECTOR, THE FOLLOWING PHOTOGRAPHS ARE TO BE TAKEN AND INCLUDED IN THE MODIFICATION INSPECTION REPORT:
   - PRE-CONSTRUCTION GENERAL SITE CONDITIONS.
   - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION.
     - RAW MATERIALS
     - PHOTOS OF CRITICAL DETAILS
     - FOUNDATION MODIFICATIONS
     - REBAR PLACEMENT
     - FOUNDATION DEPTH VERIFICATION
     - SOIL COMPACTION PROCESS
     - COLD GALVANIZED VERIFICATION
     - GUY WIRE GROUNDING SYSTEM VERIFICATION
     - POST INSTALL ANCHOR DRILL HOLE DIAMETER AND DEPTH
     - WELD PREPARATION
     - WELD INSTALLATION PRIOR TO SURFACE COATING
     - BOLT INSTALLATION AND TORQUE
     - FINAL INSTALLED CONDITION
     - SURFACE COATING REPAIR
   - POST CONSTRUCTION PHOTOGRAPHS.
     - FINAL IN FIELD CONDITION
   - ANY OTHER PHOTOS DEEMED RELEVANT TO SHOW COMPLETE DETAILS OF MODIFICATION.

   THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS PLEASE REFER TO CROWN ENG-SOW-10007.
2. PHOTOS OF ABOVE GROUND MODIFICATIONS TAKEN FROM GROUND LEVEL SHALL BE CONSIDERED INADEQUATE.

MODIFICATION INSPECTION CHECKLIST

BEFORE CONSTRUCTION		DURING CONSTRUCTION		AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM	CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM	CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
X	MODIFICATION INSPECTION CHECKLIST DRAWING	X	CONSTRUCTION INSPECTION	X	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWING(S)
X	FABRICATOR QUALITY MANAGEMENT DOCUMENTATION	–	FOUNDATION INSPECTION/REBAR INSPECTION	X	POST INSTALLED ANCHOR ROD PULL-OUT TESTING (OR ALTERNATE MANUFACTURER'S APPROVED METHOD)
X	FABRICATOR CERTIFIED WELD INSPECTION	–	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS (7 DAY AND 28 DAY CYLINDER BREAKS – REPORT REQUIRED)	–	HELICAL PILE PULL-OUT TESTING (OR ALTERNATE MANUFACTURER'S APPROVED METHOD)
X	MATERIAL TEST REPORTS	X	POST INSTALLED ANCHOR ROD VERIFICATION		
X	FABRICATION NDE INSPECTION	–	BASE PLATE GROUT VERIFICATION	–	HOLLOW BAR ANCHOR PULL-OUT TESTING (OR ALTERNATE MANUFACTURER'S APPROVED METHOD)
X	PACKING SLIPS	X	THIRD PARTY CERTIFIED WELD INSPECTION (NDE REPORT REQUIRED)		
–	NDE REPORT OF MONOPOLE BASE PLATE PER ENG-SOW-10033	–	EARTHWORK: LIFT PLACEMENT AND DENSITY (REPORT REQUIRED)	X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:		X	ON-SITE COLD GALVANIZED VERIFICATION	ADDITIONAL TESTING AND INSPECTIONS:	
		–	GUY WIRE TENSION REPORT		
		X	GC AS-BUILT DOCUMENTS		
		ADDITIONAL TESTING AND INSPECTIONS:			

NOTE: NDE DENOTES NON-DESTRUCTIVE EXAMINATION

NOTE: X DENOTES A DOCUMENT REQUIRED FOR THE MODIFICATION INSPECTION REPORT
– DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MODIFICATION INSPECTION REPORT

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH

10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

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STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027395
LICENSED PROFESSIONAL ENGINEER
12/02/14

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
MODIFICATION INSPECTION CHECKLIST

SHEET NUMBER
TM-2

GENERAL NOTES

1. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED, THAT HE IS PROPERLY LICENSED, AND THAT HE IS PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH IT IS TO BE PERFORMED.
2. THE GENERAL NOTES AND TYPICAL DETAILS ARE APPLICABLE TO ALL PARTS OF THE STRUCTURE AND SHALL BE READ IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS AND PROJECT SPECIFICATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVALS FROM ALL AUTHORITIES HAVING JURISDICTION FOR THIS PROJECT AND SHALL NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY, OR CITY) ENGINEER 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
5. ERECT GUARDS AND BARRIERS PER APPLICABLE LABOR AND CONSTRUCTION SAFETY REGULATIONS.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, POSSIBLE INTERFERENCES, AND DIMENSIONS BEFORE PROCEEDING WITH THE WORK. REPORT ANY AND ALL DISCREPANCIES TO THE ENGINEER OF RECORD (EOR) AND FIELD PERSONNEL IMMEDIATELY. ANY AND ALL FIELD CHANGES SHALL BE APPROVED AND DOCUMENTED BY THE EOR PRIOR TO FIELD IMPLEMENTATION.
7. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR TWO (2) YEARS FROM THE DATE OF COMPLETED CONSTRUCTION.
8. USE ONLY THE LATEST ISSUES OF ANY APPLICABLE CODES, STANDARDS, OR REGULATIONS MENTIONED IN THE FOLLOWING NOTES AND SPECIFICATIONS, UNO.
9. ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH ANSI, ASTM, ACI, TIA, AND AISC STANDARDS AS REFERENCED IN THE APPLICABLE CODE.
10. STRUCTURAL ELEMENTS SHOWN ON THESE DRAWINGS ARE DESIGNED IN ACCORDANCE WITH APPLICABLE BUILDING CODES/STANDARDS. ALL CONSTRUCTION, EXCEPT WHERE NOTED OTHERWISE, SHALL COMPLY WITH THOSE CODES/STANDARDS.
11. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS, AND IN CONFORMANCE WITH THE DRAWINGS. ANY AND ALL SUBSTITUTIONS MUST BE DULY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER OF RECORD PRIOR TO FABRICATION AND INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
12. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION PROCEDURES MEET THE REQUIREMENTS OF OSHA, THE OWNER, AND ALL OTHER APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. CONSTRUCTION SHALL BE PERFORMED ONLY IN "GOOD WEATHER". "GOOD WEATHER" MEANS LITTLE OR NO WIND AND RAIN AND MINIMUM TEMPERATURE OF 50 DEGREES F. CONTACT ENGINEER FOR ADDITIONAL INSTRUCTIONS IF "GOOD WEATHER" CANNOT BE ACHIEVED.
14. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIAL ACCESS, WITH THE RESIDENT LEASING AGENT.
15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SAFEGUARD ALL EXISTING STRUCTURES OR BURIED SERVICES AFFECTED BY THIS CONSTRUCTION. CONTRACTOR IS ALSO RESPONSIBLE FOR TEMPORARILY RELOCATING ANY LINES OR STRUTS AS NECESSARY TO COMPLETE THE REQUIRED WORK.
16. STRUCTURAL DESIGN IS FOR THE COMPLETE CONDITION ONLY. THE CONTRACTOR MUST BE COGNIZANT THAT THE REMOVAL OF ANY STRUCTURAL COMPONENT OF AN EXISTING TOWER HAS THE POTENTIAL TO CAUSE THE PARTIAL OR COMPLETE COLLAPSE OF THE STRUCTURE. ALL NECESSARY PRECAUTIONS MUST BE TAKEN TO ENSURE STRUCTURAL INTEGRITY, INCLUDING, BUT NOT LIMITED TO, ENGINEERING ASSESSMENT OF CONSTRUCTION STRESSES WITH INSTALLATION MAXIMUM WIND SPEED AND/OR TEMPORARY BRACING AND SHORING.
17. DO NOT SCALE DRAWINGS.
18. FOR THIS ANALYSIS AND MODIFICATION, THE TOWER HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY DEFECTS. IF THE CONTRACTOR DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE ENGINEER OF RECORD IMMEDIATELY.
19. MODIFICATION WORK SHALL BE COMPLETED IN CALM WIND CONDITIONS / OR APPROPRIATE WIND SPEED FOR THE TYPE OF MODIFICATION WORK TO BE INSTALLED.
20. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS APPROVAL OF THE ENGINEER OF RECORD.
21. CONTRACTOR TO VERIFY REQUIRED STEEL PLATE LENGTHS FROM BOTTOM OF SECTION TO BOTTOM OF NEXT SECTION.
22. THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
23. ALL CHANGES/ALTERNATES/REVISIONS TO THESE DRAWINGS SHALL BE DOCUMENTED BY REQUEST FOR INFORMATION (RFI) FORM APPROVED BY ENGINEER OF RECORD. FINAL WORK AUTHORIZATION AND ALL CHANGE ORDERS SHALL BE APPROVED BY CLIENT AND/OR CLIENT REPRESENTATIVE PRIOR TO PROCEEDING WITH ANY WORK THAT DEVIATES FROM THE ORIGINAL DESIGN, SCOPE, PRICE AND/OR SCHEDULE.
24. IN THE EVENT OF AN EMERGENCY, CONTRACTOR SHALL CONTACT BLACK & VEATCH AND CROWN CASTLE PERSONNEL TO REPORT ANY EVENT OR EMERGENCY INCIDENT AT ANY CROWN CASTLE TOWER SITE PER THE CONTACT INFORMATION PROVIDED ON SHEET TM-1.

STRUCTURAL STEEL NOTES

1. DESIGN, FABRICATION, ERECTION, ALTERATION AND MAINTENANCE SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE (UNO).
   A. TIA-222: STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS
   B. TIA-1019-A: INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS
   C. AISC: MANUAL OF STEEL CONSTRUCTION
2. ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS, UNO.
   A. STRUCTURAL STEEL, ASTM A572 GRADE 55 (FY = 65KSI).
   B. ALL BOLTS, ASTM A325 TYPE 1 GALVANIZED HIGH STRENGTH BOLTS.
   C. ALL NUTS, ASTM A563 CARBON AND ALLOY STEEL NUTS.
   D. ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS.
3. ALL HOLES SHALL BE CUT WITH A GRINDER OR DRILLED. HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER OF RECORD.
4. ALL FASTENERS SHALL NOT BE REUSED.
5. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED ASTM A325 BOLTS.
6. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
7. HOT-DIP GALVANIZE ALL ITEMS, UNO.
   GALVANIZE PER ASTM A123, ASTM A153/A153M OR ASTM A653 G90, AS APPLICABLE.
8. FOR A LIST OF CROWN APPROVED COLD GALVANIZING COMPOUNDS, REFER TO CROWN ENG-BUL-10149, "TOWER PROTECTIVE COATINGS BULLETIN".
9. AFTER FINAL INSPECTION, ALL EXPOSED STRUCTURAL STEEL AS THE RESULT OF THIS SCOPE OF WORK INCLUDING WELDS, FIELD DRILLED HOLES, AND SHAFT INTERIORS (WHERE ACCESSIBLE), SHALL BE CLEANED AND COLD GALVANIZING APPLIED BY BRUSH IN ACCORDANCE WITH CROWN ENG-BUL-10149, "TOWER PROTECTIVE COATINGS BULLETIN". PHOTO DOCUMENTATION IS REQUIRED TO BE SUBMITTED TO THE MI INSPECTOR.

WELDING NOTES

1. ALL WELDING SHALL BE IN ACCORDANCE WITH THE AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE-STEEL".
2. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.
3. ALL ARC WELDING ON CROWN STRUCTURES SHALL BE DONE IN ACCORDANCE WITH THE CROWN ENG-PLN-10015, "CUTTING AND WELDING SAFETY PLAN" AND AWS D1.1 (LATEST EDITION). THIS SHALL INCLUDE A CERTIFIED WELDING INSPECTOR (CWI) FOR ACCEPTANCE OR REJECTION OF ALL WELDING OPERATIONS, PRE-DURING-POST, USING THE ACCEPTANCE CRITERIA OF AWS D1.1. THE CWI SHALL WORK WITH THE GC ON THE LEVEL OF INTERACTION NEEDED TO CONDUCT THE WELDING INSPECTION. THE CERTIFIED WELDING INSPECTION IS THE RESPONSIBILITY OF THE GC.
4. FOR ALL WELDING, USE E8XX ELECTRODES FOR SMAW PROCESS AND E8XT-XX ELECTRODES FOR FCAW PROCESS, UNO.
5. SURFACES TO BE WELDED SHALL BE FREE FROM SCALE, SLAG, RUST, MOISTURE, GREASE OR ANY OTHER FOREIGN MATERIAL THAT WOULD PREVENT PROPER WELDING. GRIND THE SURFACE ADJACENT TO THE WELD FOR A DISTANCE OF 2" MINIMUM ALL AROUND. ENSURE BOTH AREAS ARE 100% FREE OF ALL GALVANIZING.
6. REPAIR THE GALVANIZED COATING. ALL AREAS AFFECTED BY THE FIELD DRILLING, FIELD GRINDING AND FIELD WELDING, BOTH INSIDE AND OUTSIDE THE MONOPOLE, SHALL BE REPAIRED PER CROWN DOCUMENT ENG-STD-10149. PRODUCTS TO BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. AREAS THAT HAVE BEEN TOUCHED UP SHOULD BE INSPECTED AS PART OF THE ROUTINE MAINTENANCE OS THE STRUCTURE. NO SPRAY PAINT IS ALLOWED. AFTER ZINC-RICH PAINT IS DRY, OVERCOAT WITH OWNER'S PAINT SPECIFICATIONS, APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. DO NOT WELD IF THE TEMPERATURE OF THE STEEL IN THE VICINITY OF THE WELD AREA IS BELOW 0° F. WHEN THE TEMPERATURE IS BETWEEN 0° F AND 32° F, PREHEAT AND MAINTAIN THE STEEL IN THE VICINITY OF THE WELD AREA AT 70° F DURING THE WELDING PROCESS.
8. DO NOT WELD ON WET OR FROST-COVERED SURFACES & PROVIDE ADEQUATE PROTECTION FROM HIGH WINDS.
9. FULL PENETRATION WELDS IN THE VICINITY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 100% NDE INSPECTED BY UT IN ACCORDANCE WITH AWS D1.1.
10. PARTIAL PENETRATION AND FILLET WELDS IN THE VICINITY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 50% NDE INSPECTED BY MP IN ACCORDANCE WITH AWS D1.1.
11. MOVE ALL COAX AND OTHER FLAMMABLE MATERIALS FROM ANY AREA THAT MAY BE HEATED DURING CONSTRUCTION.
12. CONTRACTOR SHALL MAKE PROPER PRECAUTIONS AND PROCEDURES TO PROTECT THE STRUCTURE FROM CATCHING FIRE DURING ALL WELDING OPERATIONS. THE FOLLOWING FIRE SAFETY PREVENTION PROTOCOL IS THE MINIMUM REQUIREMENTS DURING WELDING OPERATIONS.ALSO REFERENCE CROWN DOCUMENT ENG-BUL-10172 FOR ADDITIONAL WELDING REQUIREMENTS.
    - 500 GALLON WATER TANK WITH PUMP TO BE ON SITE AT ALL TIMES.
    - 2 FIRE EXTINGUISHERS ON SITE AT ALL TIMES.
    - 2 MAN FIRE WATCH ON ANY ADJACENT STRUCTURES, FIELDS AND POLE.
    - INTERMITTENT COOLING OF WELDED SURFACE TO REDUCE HEAT IN STRUCTURE.

NEW ANCHOR ROD PROOF LOADING[1]

ANCHOR ROD MATERIAL	ROD DIAMETER (IN)	PROOF LOAD (KIPS)	NOTES
A193 GR B7	1.75	111	3, 4
	2.25	190	3, 4
F1554-105	1.75	111	4
	2.25	190	4
	2.50	234	4
A615 GR 75	1.75 (#14)	89	2, 5
	2.25 (#18)	152	2, 5

NOTES

1. PROOF LOAD PER SECTION 1.4.6 OF CROWN DOCUMENT ENG-PRC-10119 REVISION G: PULL-OUT TESTING POST-INSTALLED ANCHOR RODS, FOR SPECIFICATIONS.
2. FOR WILLIAMS R61 ALL-THREAD, TORQUE TENSION TESTING IS AN APPROVED ALTERNATE FOR BARS EQUAL TO OR GREATER THAN #11 IN SIZE. TESTING PER MANUFACTURER'S RECOMMENDATIONS. TIGHTEN ALL HEX NUTS TO SNUG PLUS 1/8 TURN OF NUT.
3. CONTRACTOR MAY SUBSTITUTE F1554-105 FOR A193 GR B7.
4. MATERIAL IS TO BE ALL-THREADED ROD.
5. CONTRACTOR MAY SUBSTITUTE WILLIAMS R61 GR 75 ALL-THREADED REBAR ASTM A615 WITH EOR APPROVAL PRIOR TO INSTALLATION. PROOF LOADS SHALL BE IN ACCORDANCE PER NOTES 1 AND 2.

DETAIL DRAWINGS SHALL GOVERN OVER ANY VARIANCE FROM THIS SHEET

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH
10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027383
LICENSED
PROFESSIONAL ENGINEER

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
NOTES

SHEET NUMBER
TM-3

AJAX/DTI BOLT SPECIFICATIONS AND TIGHTENING PROCEDURE

M20 AJAX/DTI BOLT ASSEMBLY COMPONENT SPECIFICATIONS:

BOLT:
AJAX ONESIDE™ BLIND BOLT (M8.8; EQUIVALENT TO A325)
FINISH: HOT DIP GALVANIZED PER ASTM A153.

SPLIT WASHER:
AJAX ONESIDE™ SPLIT WASHER
FINISH: HOT DIP GALVANIZED PER ASTM A153.

SHEAR SLEEVE:
F_u = 120 KSI MIN. (ASTM A519)
29MM O.D. x 20MM I.D.
LENGTH = NOMINAL [GRIP-6MM] = [GRIP-0.25"] (TOL. -0", +1/32")
SLEEVES SHALL BE ROUND, WITH ENDS CUT SQUARE AND DEBURRED.
FINISH: GALVANIZED (COLD GALVANIZED AS PER CROWN ENG-SUL-10149, HOT DIP GALVANIZED PER ASTM A123, MECHANICALLY GALVANIZED AND SPUN) OR CADMIUM PLATED.

SOLID WASHER:
AJAX ONESIDE™ SOLID WASHER
FINISH: HOT DIP GALVANIZED PER ASTM A153.

DIRECT TENSION INDICATOR WASHER:
SQUIRTER® DTI, ASTM F959M
FINISH: COLD MECHANICALLY GALVANIZED (TO ASTM B695) AND EPOXY COATED.

MANUFACTURER:
APPLIED BOLTING TECHNOLOGY PRODUCTS, INC.
1413 ROCKINGHAM ROAD, BELLOWS FALLS, VERMONT, USA 05101
PHONE: 1-800-552-1999
WEBSITE: WWW.APPLIEDBOLTING.COM

DISTRIBUTORS OF SQUIRTER® DTI'S:
http://www.appliedbolting.com/applied-bolting-distributors.html

FLAT WASHER:
HARDENED FLAT WASHER, ASTM F436M (MINIMUM HARDNESS RC38)
FINISH: COLD MECHANICALLY GALVANIZED

HEX NUT:
AJAX ONESIDE™ HEAVY HEX NUT
FINISH: HOT DIP GALVANIZED PER ASTM A153.

BOLT ASSEMBLY AND INSTALLATION:
BOLT ASSEMBLY SHALL ADHERE TO THE REQUIREMENTS OF DETAIL A, THIS DRAWING.
NON-PETROLEUM BASED, WATER SOLUBLE, INERT BOLT LUBRICANT SHALL BE USED ON ALL AJAX BOLTS TO ENSURE PROPER TENSIONING OF THE ASSEMBLY. CARE SHOULD BE TAKEN TO ENSURE THE BOLT HEAD AND SPLIT WASHER ARE NOT LUBRICATED AS THIS MAY CAUSE EXCESSIVE BOLT SLIPPAGE UPON APPLYING TORQUE, WHICH MAY LEAD TO DIFFICULTIES IN ENGAGING THE SQUIRTER® DTI WASHER PROPERLY. NOTE: ONLY LUBRICATING THE THREADS OF THE NUT MAY ACHIEVE BETTER RESULTS.
THE TYPICAL RULE OF THUMB WHEN USING AN IMPACT WRENCH IS TO ENGAGE FOR NO MORE THAN 10 SECONDS. IF THE BOLT IS NOT SPINNING AND THE SQUIRTER HAS NOT ENGAGED AFTER 10 SECONDS USING AN IMPACT WRENCH, REMOVE THE NUT AND REAPPLY LUBRICANT. NOTE: PROLONGED USE OF THE IMPACT WRENCH TENDS TO HEAT THE BOLT THREAD/NUT, THEREBY, INCREASING FRICTION ON THE THREADS WHICH WOULD REQUIRE ADDITIONAL TORQUE. HOLDING FOR LONGER THAN 10 SECONDS CAN BE COUNTERPRODUCTIVE.

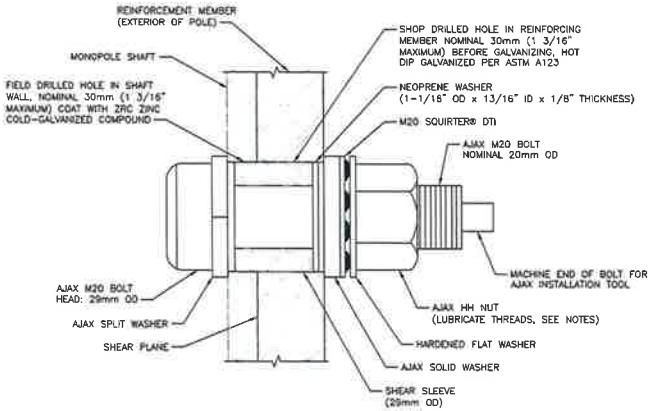
A MINIMUM OF 4 OUT OF 5 SQUIRTER® DTI "BUMPS" SHALL BE ENGAGED IN ANY AJAX/DTI BOLT ASSEMBLY IN THE END CONNECTION OF REINFORCING MEMBERS. INTERMEDIATE BOLTS SHALL ENGAGE A MINIMUM OF 3 OUT OF 5 SQUIRTER® DTI "BUMPS".

DTI WASHERS MUST BE PLACED DIRECTLY AGAINST THE OUTER AJAX WASHER WITH THE "BUMPS" FACING AWAY FROM THE AJAX WASHER. PLACE A HARDENED WASHER BETWEEN THE DTI AND THE AJAX NUT. THE DTI "BUMPS" SHALL BEAR AGAINST THE UNDERSIDE OF A HARDENED FLAT WASHER, NEVER DIRECTLY AGAINST THE NUT.

FOLLOW THE DTI MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION, LUBRICATION, TIGHTENING, AND INSPECTION.

INSPECTION:
VISUALLY INSPECT ALL BOLT ASSEMBLIES TO ENSURE THE MINIMUM "BUMP" ENGAGEMENT AS DEFINED IN THE SECTION "BOLT ASSEMBLY AND INSTALLATION" HAS BEEN ACHIEVED.
FOR MORE INFORMATION ON INSPECTION, SEE THE MANUFACTURER'S GUIDELINES.
WHERE FEASIBLE, CHECK A SAMPLE OF THE END CONNECTION DTI WASHERS WITH THE APPROPRIATE FEELER GAGE. IF THE FEELER GAGE CANNOT BE INSERTED TO THE BOLT SHANK HALF WAY AROUND THE BOLT, THE INSTALLATION IS OKAY. IF YOU CAN INSERT THE FEELER GAGE TO THE SHANK ALL THE WAY AROUND THE BOLT, THE INSTALLATION IS NOT OKAY. IF YOU FIND MORE THAN ONE SUCH "NOT OKAY" BOLT IN ANY ONE END CONNECTION, CHECK ALL BOLTS IN THAT END CONNECTION. A MINIMUM OF THREE BOLTS SHALL BE CHECKED IN EACH END CONNECTION. PHOTOS SHALL BE TAKEN TO INDICATE THE BOLTS TESTED.

ALL BOLT ASSEMBLIES AND DTI WASHERS SHALL BE VISUALLY INSPECTED. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE PHOTO DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THE CONDITION OF THE DTI WASHERS.



DETAIL A
M20 AJAX/DTI BOLT ASSEMBLY
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH
10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT · CHRIS A. KRAFFT · 0027367 · LICENSED PROFESSIONAL ENGINEER · 12/03/14

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

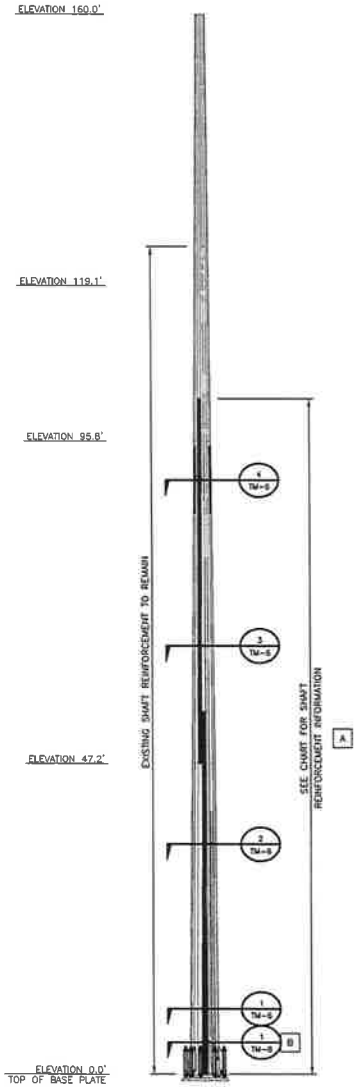
SHEET TITLE
AJAX/DTI BOLT SPECS & TIGHTENING PROCEDURE

SHEET NUMBER
TM-4

POLE MODIFICATION SCHEDULE			
CALLOUT	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
A	0.0 - 105.0	INSTALL NEW PLATE REINFORCEMENT	TM-6 TM-7
B	0.0	INSTALL (8) NEW 2 1/4"ø A615 GR 75 HOT DIP GALVANIZED ALL-THREAD BAR 216" EMBEDDED WITH ANCHOR ROD CHAIRS	TM-8

CONTRACTOR SHALL FIELD VERIFY AND MEASURE DIMENSIONS OF THE SITE STRUCTURE BEFORE FABRICATION OF MATERIALS FOR ALL TOWER MODIFICATION INSTALLATIONS.

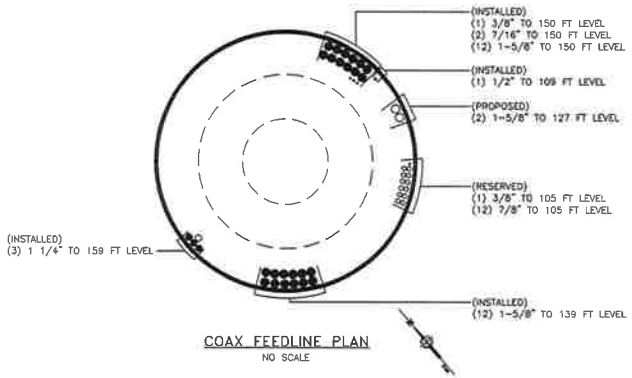
CCI FLAT PLATE (65 KSI) REINFORCEMENT SCHEDULE										
BOTTOM ELEVATION	TOP ELEVATION	PART NUMBER	FLATS / DEGREES (°)	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAX INTERMEDIATE BOLT SPACING	AJAX BOLT QUANTITY PER PLATE	STEEL WEIGHT PER PLATE (BLACK)	TOTAL AJAX BOLT QUANTITY	TOTAL STEEL WEIGHT (BLACK)
0'-0"	20'-0"	CCI-WSFP-08512520	10, 15	0	15	1'-5"	26	722.5	52	1445.0
0'-0"	25'-0"	CCI-WSFP-08512525	2	0	15	1'-5"	29	903.1	29	903.1
20'-0"	55'-0"	CCI-SFP-06010035	10, 15	6	8	1'-4"	39	714.0	78	1428.0
55'-0"	85'-0"	CCI-SFP-06010030	15	8	8	1'-4"	35	612.0	35	612.0
85'-0"	105'-0"	CCI-SFP-06010020	15	8	8	1'-4"	27	408.0	27	408.0
47'-2.5"	77'-2.5"	CCI-SFP-06010030	9	8	8	1'-4"	35	612.0	35	612.0
77'-2.5"	102'-2.5"	CCI-SFP-06010025	9	8	8	1'-4"	31	510.0	31	510.0
15'-0"	50'-0"	CCI-SFP-06010035	3	8	8	1'-4"	39	714.0	39	714.0
50'-0"	80'-0"	CCI-SFP-06010030	3	8	8	1'-4"	35	612.0	35	612.0
80'-0"	105'-0"	CCI-SFP-06010025	3	8	8	1'-4"	31	510.0	31	510.0
85'-0"	95'-0"	CCI-SFP-04510010	1, 7, 13	6	6	1'-8"	16	153.0	48	459.0
								TOTAL	440	8213.1



TOWER ELEVATION
NO SCALE

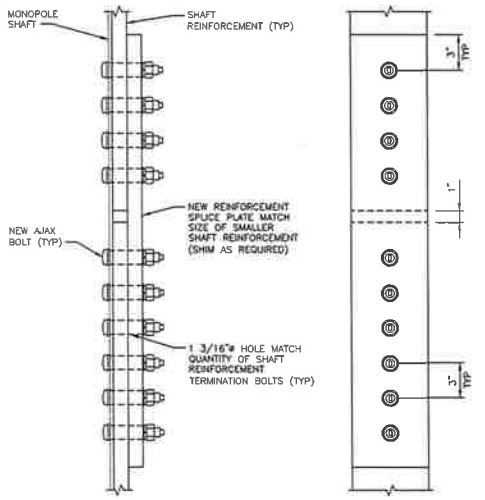
NOTES FOR CROWN REINFORCING (65 KSI) MATERIAL

1. DO NOT WELD WITHOUT APPROVAL FROM THE EOR.
2. SHIMS FOR MONOPOLE REINFORCEMENT MEMBER SHALL BE REQUIRED WHERE GAPS BETWEEN THE POLE SHAFT AND REINFORCING MEMBER EXIST AT FASTENER LOCATIONS. FOR INTERMEDIATE CONNECTIONS, THE MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE WIDTH OF THE REINFORCING MEMBER. FOR TERMINATION CONNECTIONS, A CONTINUOUS SHIM PLATE (PREFERRED) OR EQUIVALENT INDIVIDUAL SHIM PLATES THE WIDTH OF THE REINFORCING MEMBER MAY BE USED. SHIM THICKNESS SHALL BE NO LESS THAN 1/16". STACKING OF SHIMS IS PERMITTED.
3. ALL FLAT PLATE REINFORCEMENT IS TO BE INSTALLED CENTERED ON ITS DESIGNATED FLAT, UNO.
4. SEE CMRP 65 KSI PARTS CATALOG 2nd EDITION FOR PART DETAILS.
5. AS AN ALTERNATIVE TO USING DTI WASHERS, AJAX BOLTS MAY BE PRETENSIONED PER THE AISC TURN-OF-NUT METHOD.



COAX FEEDLINE PLAN
NO SCALE

EXISTING FEEDLINE PLAN SHOWN ON THIS DRAWING IS BASED ON CURRENT BEST KNOWLEDGE OF THE EXISTING CONDITION. IF THE EXISTING FEEDLINE LAYOUT IS NOT AS SHOWN ON THIS DRAWING CONTRACTOR SHALL NOTIFY ENGINEER.



REINFORCED SPLICE PLATE DETAIL
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH

10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

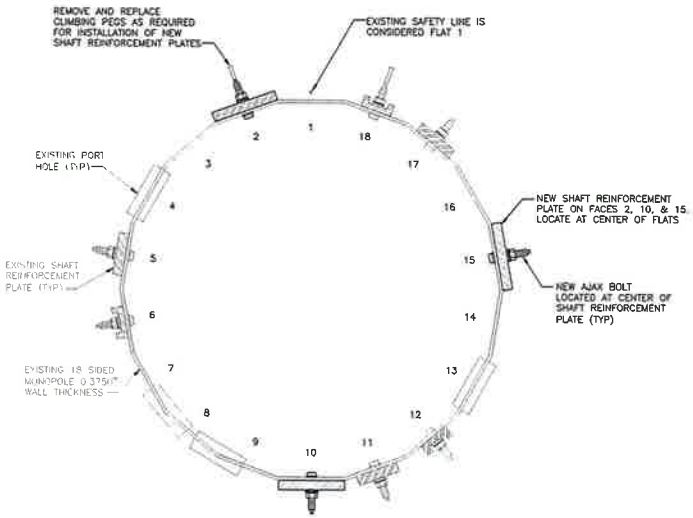
REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
002738
LICENSED
PROFESSIONAL ENGINEER

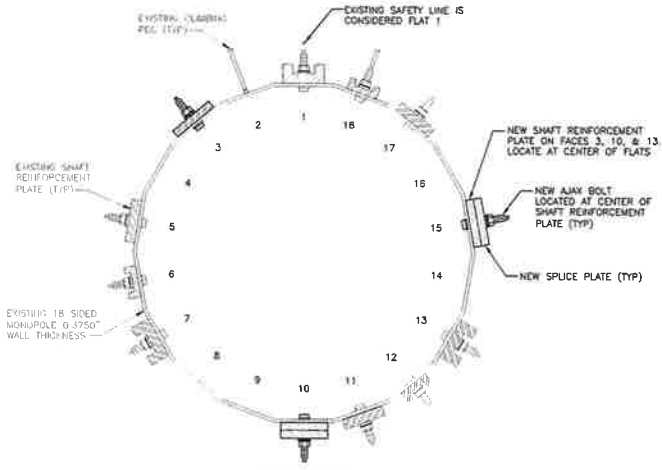
BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
TOWER ELEVATION

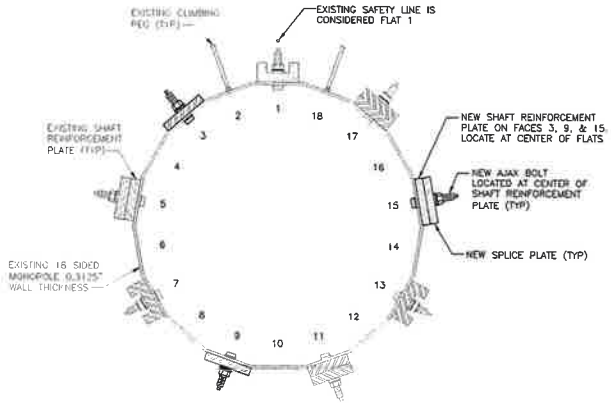
SHEET NUMBER
TM-5



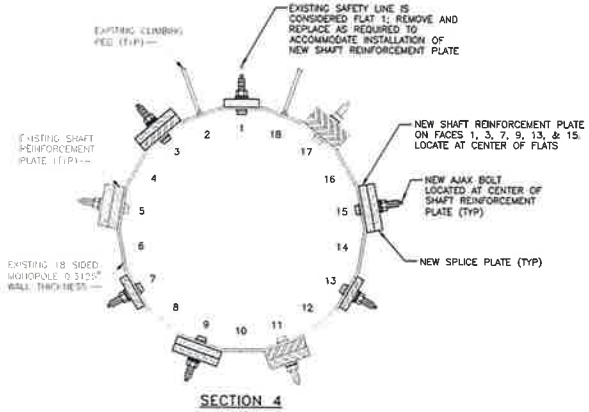
SECTION 1
NO SCALE



SECTION 2
NO SCALE



SECTION 3
NO SCALE



SECTION 4
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH

10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182696
DRAWN BY:	SAC
CHECKED BY:	SA

REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027396
LICENSED PROFESSIONAL ENGINEER
12/2/14

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

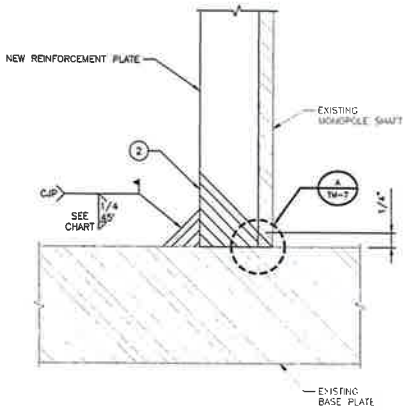
SHEET TITLE
TOWER SECTIONS

SHEET NUMBER
TM-6

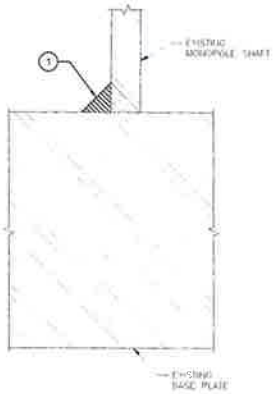
OPTION 1

NOTES

1. GRIND EXISTING FILLET WELD FLUSH TO BASE PLATE & POLE FOR THE WIDTH OF THE REINFORCEMENT PLATE PLUS 1/4" ON EACH SIDE (DO NOT OVER GRIND).
2. PERFORM CJP WELD WITH REINFORCING FILLET WELD USING POLE AS BACKING BAR.



WELD DETAIL
NO SCALE



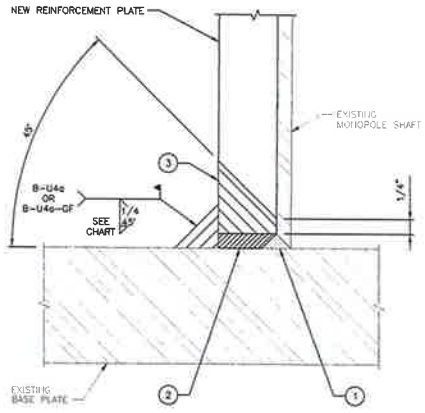
DETAIL A
EXISTING WELD
NO SCALE

PART NUMBER	PLATE SIZE	MINIMUM REINFORCING WELD
CCI-WSFP-040075 CCI-WAFP-040075	3/4" x 4"	1/4"
CCI-WSFP-045100 CCI-WAFP-045100	1" x 4 1/2"	1/4"
CCI-WSFP-060100 CCI-WAFP-060100	1" x 6"	3/8"
CCI-WSFP-065125 CCI-WAFP-065125	1 1/4" x 6 1/2"	1/2"
CCI-WSFP-085125 CCI-WAFP-085125	1 1/4" x 8 1/2"	5/8"

OPTION 2

NOTES

1. CLEAN EXISTING WELD FROM GALVANIZING
2. BUILD A PLATFORM WITH WELD AT THE SAME HEIGHT OF THE EXISTING FILLET WELD (TO REDUCE THE AMOUNT OF WELD TO BUILD THE PLATFORM, IT IS ALLOWABLE TO PARTIALLY GRIND THE HEIGHT OF THE EXISTING FILLET WELD TO A 1/4" MINIMUM).
3. PERFORM CJP WELD WITH REINFORCING FILLET WELD USING POLE AS BACKING BAR.



WELD DETAIL
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH
10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
(913) 458-2000

PROJECT NO:	182896
DRAWN BY:	SAC
CHECKED BY:	SA

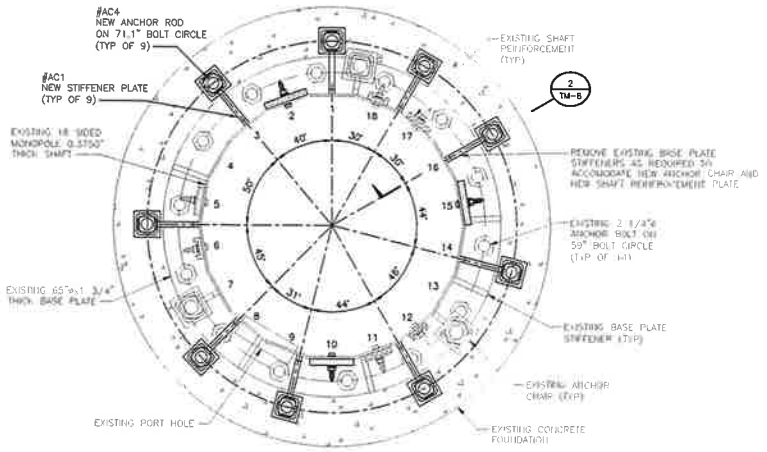
REV	DATE	DESCRIPTION
0	12/02/14	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027383
LICENSED PROFESSIONAL ENGINEER

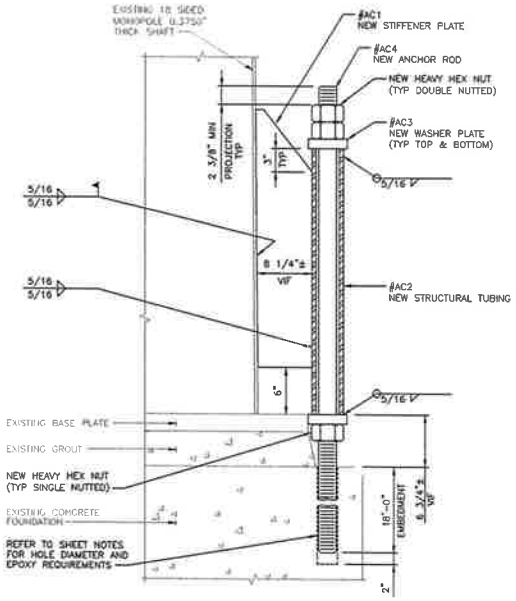
BU #876401
WO #963576
TOWN OF PLAINFIELD/SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06374
WINDHAM COUNTY, USA

SHEET TITLE
BASE PLATE
WELD DETAILS

SHEET NUMBER
TM-7



SECTION 1
ANCHOR ROD PLAN
NO SCALE

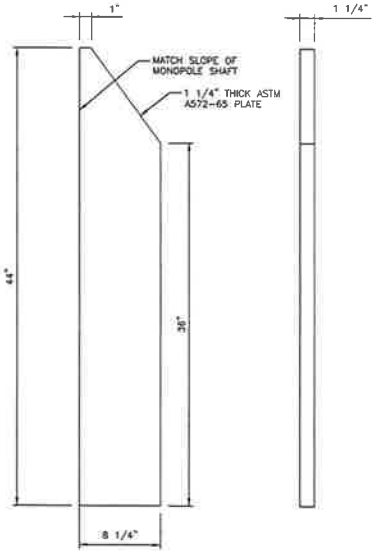


SECTION 2
NO SCALE

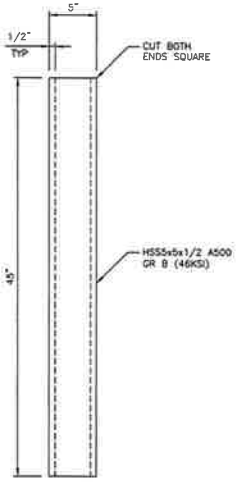
NOTES

1. ALL HSS SHAPES SHALL BE A500 GRADE B, 46 KSI.
2. NEW ANCHOR RODS TO BE DRILLED AND EPOXIED INTO FOUNDATION USING HILTI HIT-RE 500-SD EPOXY PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR TO HAMMER DRILL HOLE WITH CARBIDE BIT (OR EQUIVALENT). FOR CORE DRILLING OPTION, CLEAN AND MECHANICALLY ROUGHEN HOLES PRIOR TO ANCHOR INSTALLATION.

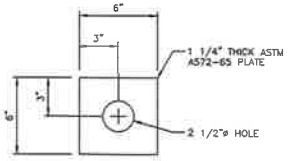
   HOLE SIZE IN FOUNDATION SHALL BE AS FOLLOWS:
   - FOR NEW 1 3/4"ø ANCHOR ROD, A 2"ø HOLE IS REQUIRED.
   - FOR NEW 2 1/4"ø ANCHOR RODS, A 2 1/2"ø HOLE IS REQUIRED.
3. ALL NEW ANCHOR RODS SHALL BE INSTALLED WITH DOUBLE HEAVY HEX NUTS ON THE TOP OF THE NEW ANCHOR ROD CHAIR AND ONE LEVELING HEAVY HEX NUT ON THE BOTTOM OF THE NEW ANCHOR ROD CHAIR. CONTRACTOR SHALL CAREFULLY REMOVE EXISTING GROUT AS NECESSARY TO ENSURE PROPER INSTALLATION OF LEVELING NUTS.
4. TAKE ALL MEASUREMENTS NECESSARY TO AVOID DAMAGING EXISTING REINFORCING BARS DURING DRILLING OPERATIONS. NOTIFY CROWN CASTLE IMMEDIATELY IF EXISTING REINFORCING BARS ARE ENCOUNTERED AND INTERFERE WITH PLACEMENT OF NEW ANCHORS. MINOR ADJUSTMENTS TO PROPOSED LOCATION OF NEW ANCHORS MAY BE REQUIRED.
5. NEW ANCHOR ROD REINFORCING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ONCE ALL RESIN & GROUT HAVE CURED, NEW ANCHOR ROD REINFORCING SHALL BE PROOF LOADED REFERENCE TABLE ON SHEET TM-3 FOR REQUIRED PROOF LOADING VALUES.



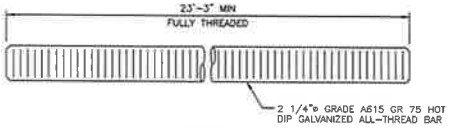
#AC1
STIFFENER PLATE
NO SCALE



#AC2
STRUCTURAL TUBING
NO SCALE



#AC3
WASHER PLATE
NO SCALE



#AC4
ANCHOR ROD
NO SCALE

PREPARED FOR:

CROWN CASTLE

BLACK & VEATCH

10950 GRANVIEW DRIVE
OVERLAND PARK, KS 66210
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