



Filed by:  
Kri Pelletier, Property Specialist - SBA Communications  
134 Flanders Rd., Suite 125, Westborough, MA 01581  
508.251.0720 x 3804 - kpelletier@sbsite.com

June 26, 2018

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

**Notice of Exempt Modification**  
**160 Witch Meadow Road, Salem, CT**  
**41 30 10.18 N**  
**-72 17 49.39 W**  
**Sprint #: CT33XC060**

Dear Ms. Bachman:

Sprint currently maintains antennas at the 195-foot level of the existing 195-foot Monopole Tower at 160 Witch Meadow Road in Salem, CT. The tower is owned by SBA Properties, LLC . The property is owned by Ronald R. Renz . Sprint now intends to replace (6) existing cell antennas with (6) newer technology cell antennas at the 195-foot level of the tower. The proposed full scope of work is as follows:

Remove:

- (6) 1-5/8" lines

Remove and Replace:

- Remove:
  - (6) Decibel DB980H90E-M – Panel Antennas
- Replace with:
  - (3) RFS APXVTM14-C-I20 – Panel Antennas; and
  - (3) Commscope NNVV-65B-R4 – Panel Antennas

Install:

- (3) ALU 1900 Mhz RRUs
- (6) ALU 800 Mhz RRUs
- (3) ALU TC-RRH8x20-25 RRUs
- (1) HRK-14
- (1) PRK-SFS-H-L
- (1) PRK-1245L
- (4) 1-1/4" fiber

Existing Equipment to Remain (Including entitlements):

- (1) Low Profile Platform



This facility was originally approved on February 3, 2000, prior to the Council's jurisdiction, by the Salem Planning and Zoning Commission. Special Exception was issued for the construction of the tower with the following conditions:

- Extra silt to be used during construction
- Utilities to be below ground
- Street name should read Witch Meadow Rd
- Pole to be galvanized steel
- If the facility was not in use for 12 consecutive months, it was to be removed by the facility owner at his/her expense within 90 days.

This modification complies with all conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §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 the Town of Salem's First Selectman, Kevin T. Lyden, and Zoning Enforcement Officer, Liz Burdick, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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 structure.
2. The proposed modification 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 emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Kri Pelletier  
Property Specialist  
SBA COMMUNICATIONS CORPORATION  
134 Flanders Rd., Suite 125  
Westborough, MA 01581  
508.251.0720 x3804 + T  
508.366.2610 + F  
203.446.7700 + C  
kpelletier@sbsite.com  
Attachments



cc: Kevin T. Lyden, First Selectman / with attachments  
*Town of Salem, 270 Hartford Road, Salem, CT 06420*  
Liz Burdick, Zoning Enforcement Officer / with attachments  
*Town of Salem, 270 Hartford Road, Salem, CT 06420*  
Ronald R. Renz c/o Renz Construction Company / with attachments  
*44 Mustang Drive Monroe CT 06468*



## POWER DENSITY

### SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	195 feet	Height (AGL):	195 feet	Height (AGL):	195 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	0.91 %	Antenna B1 MPE%	0.91 %	Antenna C1 MPE%	0.91 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVTM14- ALU- I20	Make / Model:	RFS APXVTM14- ALU- I20	Make / Model:	RFS APXVTM14- ALU- I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	195 feet	Height (AGL):	195 feet	Height (AGL):	195 feet
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	0.63 %	Antenna B2 MPE%	0.63 %	Antenna C2 MPE%	0.63 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	1.54 %
T-Mobile	1.20 %
AT&T	1.07 %
<b>Site Total MPE %:</b>	<b>3.81 %</b>

SPRINT Sector A Total:	1.54 %
SPRINT Sector B Total:	1.54 %
SPRINT Sector C Total:	1.54 %
<b>Site Total:</b>	<b>3.81 %</b>

SPRINT _ Frequency Band / Technology Max Power Values (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu$ W/cm <sup>2</sup> )	Frequency (MHz)	Allowable MPE ( $\mu$ W/cm <sup>2</sup> )	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	195	0.38	850 MHz	567	0.07%
Sprint 850 MHz LTE	2	941.82	195	1.90	850 MHz	567	0.32%
Sprint 1900 MHz (PCS) CDMA	5	511.82	195	2.58	1900 MHz (PCS)	1000	0.26%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	195	2.58	1900 MHz (PCS)	1000	0.26%
Sprint 2500 MHz (BRS) LTE	8	778.09	195	6.26	2500 MHz (BRS)	1000	0.63%
						<b>Total:</b>	<b>1.54%</b>

ORIGIN ID: 98FA (508) 251-0720  
KRI BELLETTER  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

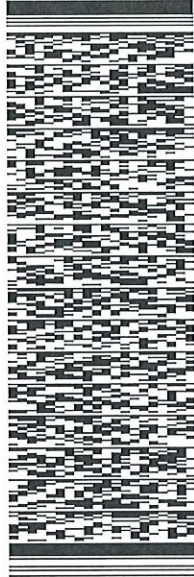
SHIP DATE: 26 JUN 18  
ACTWGT: 1.00 LB  
CAD: 105843304N/ET3980  
BILL SENDER

TO KEVIN T. LYDEN, FIRST SELECTMAN  
TOWN OF SALEM  
270 HARTFORD RD.  
SALEM CT 06420

PO: (508) 251-0720 X 304  
INVT: (508) 251-0720 X 304

REF: 10-56-92009-6099

DEPT:



J181118012601uv

552J293DF/DCA5

TRK# 0201 7725 6659 7366

WED - 27 JUN 12:00P  
PRIORITY OVERNIGHT

EB SKKA

06420  
CT-US BDL



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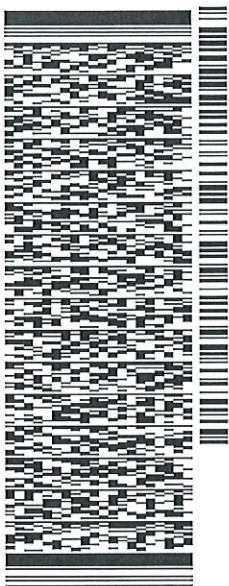
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ORIGIN ID:BBFA (508) 251-0720  
KRI PELLETIER  
SBA NETWORK SERVICES INC  
134 FLANDERS RD.  
SUITE 125  
WESTBOROUGH MA 01581  
UNITED STATES US

SHIP DATE: 26JUN'18  
ACTWGT: 1.00 LB  
CAD: 105843304/NET3980  
BILL SENDER

TO LIZ BURDICK, ZONING ENFORCEMENT OFF  
TOWN OF SALEM  
270 HARTFORD ROAD  
SALEM CT 06420

(508) 251-0720 X 302 REF: 10-56-92009-6099  
INV. DEPT:  
PO:



552J293DF/DCA5

TRK# 7725 6663 7422  
0201

WED - 27 JUN 12:00P  
PRIORITY OVERNIGHT

EB SKKA

06420  
CT-US BDL



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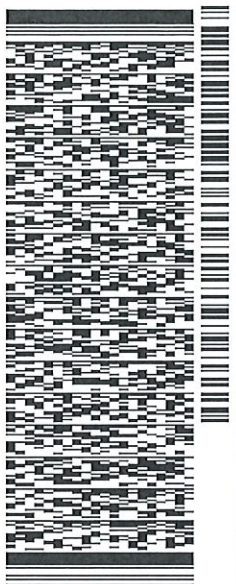
ORIGIN ID:BBFA (508) 251-0720  
KRI PELL LETTER  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH MA 01581  
UNITED STATES US

SHIP DATE: 26JUN18  
ACTWGT: 1.00 LB  
CAD: 105843304N/ET3980  
BILL SENDER

TO RONALD R. RENZ C/O RENZ CONSTRUCTIO  
RENZ CONSTRUCTIO  
44 MUSTANG DRIVE

MONROE CT 06468  
(508) 251-0720 X 3804 REF: 10-56-92009-6099  
INV. DEPT:  
PO:

552.I293DFIDCA5



J181118012601uv

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#0201  
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EB BCCA

CT-US BDL 06468



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**160 WITCH MEADOW RD**

**Location** 160 WITCH MEADOW RD

**Mblu** 10/ / 044/ 000/

**Acct#** 659

**Owner** RENZ RONALD R

**Assessment** \$626,580

**Appraisal** \$1,210,700

**PID** 626

**Building Count** 1

**Current Value**

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$361,200	\$849,500	\$1,210,700

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$252,800	\$373,780	\$626,580

**Owner of Record**

**Owner** RENZ RONALD R  
**Co-Owner**  
**Address** PO BOX 2100  
 SALEM, CT 06420-0000

**Sale Price** \$0  
**Certificate**  
**Book & Page** 0133/0303  
**Sale Date** 11/05/2001  
**Instrument** 1N

**Ownership History**

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
RENZ RONALD R	\$0		0133/0303	1N	11/05/2001
NATIONWIDE 1031	\$1,167,000		127/ 439		01/12/2001
PHILLIPS ROGER L & LINDA F	\$80,500		35/ 609		12/26/1984

**Building Information**

**Building 1 : Section 1**

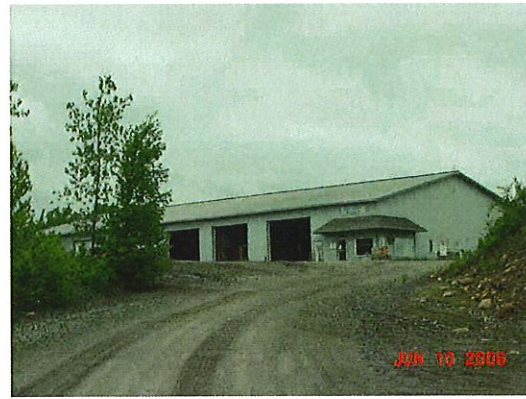
**Year Built:** 1990  
**Living Area:** 15,725  
**Replacement Cost:** \$490,719  
**Building Percent** 73  
**Good:**  
**Replacement Cost**  
**Less Depreciation:** \$358,200

**Building Photo**

Building Attributes	
Field	Description

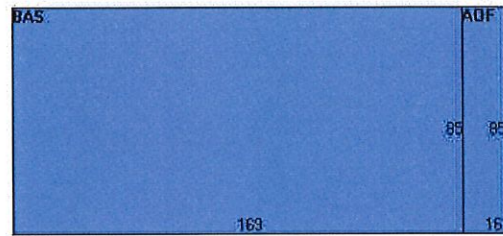


STYLE	Pre Engrd Gar
MODEL	Indus/Comm
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-Finsh Metl
Exterior Wall 2	
Roof Structure	Gable Or Hip
Roof Cover	Metal Or Tin
Interior Wall 1	Wall Brd/Wood
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Type	None/Partial
Bldg Use	Mu Comm
Total Rooms	00
Total Bedrms	00
Total Baths	00
1st Floor Use:	
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	Light
Ceiling/Wall	Sus-Ceil/Mn WI
Rooms/Prtns	Light
Wall Height	20
% Comn Wall	



(http://images.vgsi.com/photos/SalemCTPhotos/\00\00\17\53.jpg)

**Building Layout**



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	14,365	14,365
AOF	Office	1,360	1,360
		15,725	15,725

**Extra Features**

Extra Features				Legend
Code	Description	Size	Value	Bldg #
FHA	Forced air heat	1360 S.F	\$3,000	1

**Land**

**Land Use**

**Use Code** 3222  
**Description** Comm Bldg  
**Zone** I  
**Neighborhood** C075  
**Alt Land Appr** No  
**Category**

**Land Line Valuation**

**Size (Acres)** 100.8  
**Frontage**  
**Depth**  
**Assessed Value** \$373,780  
**Appraised Value** \$849,500

**Outbuildings**

<b>Outbuildings</b>	<b>Legend</b>
No Data for Outbuildings	

**Valuation History**

<b>Appraisal</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2016	\$361,200	\$849,500	\$1,210,700
2015	\$259,500	\$669,600	\$929,100
2014	\$259,500	\$669,600	\$929,100

<b>Assessment</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2016	\$252,800	\$373,780	\$626,580
2015	\$181,700	\$264,260	\$445,960
2014	\$181,700	\$264,260	\$445,960

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

SPRINT Existing Facility

Site ID: CT33XC060

North Salem  
160 Witch Meadow Road  
Salem, CT 06420

**June 20, 2018**

**EBI Project Number: 6218004560**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>3.81 %</b>



June 20, 2018

SPRINT

Attn: RF Engineering Manager  
1 International Boulevard, Suite 800  
Mahwah, NJ 07495

## Emissions Analysis for Site: **CT33XC060 – North Salem**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **160 Witch Meadow Road, Salem, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 850 MHz Band is approximately  $567 \mu\text{W}/\text{cm}^2$ . The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **160 Witch Meadow Road, Salem, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.
- 3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.
- 4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **195 feet** above ground level (AGL) for **Sector A**, **195 feet** above ground level (AGL) for **Sector B** and **195 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general population threshold limits.



## SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	<b>1</b>	Antenna #:	<b>1</b>	Antenna #:	<b>1</b>
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	<b>195 feet</b>	Height (AGL):	<b>195 feet</b>	Height (AGL):	<b>195 feet</b>
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	<b>0.91 %</b>	Antenna B1 MPE%	<b>0.91 %</b>	Antenna C1 MPE%	<b>0.91 %</b>
Antenna #:	<b>2</b>	Antenna #:	<b>2</b>	Antenna #:	<b>2</b>
Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	<b>195 feet</b>	Height (AGL):	<b>195 feet</b>	Height (AGL):	<b>195 feet</b>
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	<b>0.63 %</b>	Antenna B2 MPE%	<b>0.63 %</b>	Antenna C2 MPE%	<b>0.63 %</b>

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	<b>1.54 %</b>
T-Mobile	1.20 %
AT&T	1.07 %
<b>Site Total MPE %:</b>	<b>3.81 %</b>

SPRINT Sector A Total:	1.54 %
SPRINT Sector B Total:	1.54 %
SPRINT Sector C Total:	1.54 %
<b>Site Total:</b>	<b>3.81 %</b>

SPRINT _ Frequency Band / Technology Max Power Values (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	195	0.38	850 MHz	567	0.07%
Sprint 850 MHz LTE	2	941.82	195	1.90	850 MHz	567	0.32%
Sprint 1900 MHz (PCS) CDMA	5	511.82	195	2.58	1900 MHz (PCS)	1000	0.26%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	195	2.58	1900 MHz (PCS)	1000	0.26%
Sprint 2500 MHz (BRS) LTE	8	778.09	195	6.26	2500 MHz (BRS)	1000	0.63%
						<b>Total:</b>	<b>1.54%</b>



## Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	1.54 %
Sector B:	1.54 %
Sector C:	1.54 %
SPRINT Maximum Total (per sector):	1.54 %
Site Total:	3.81 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **3.81 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.





**Tower Engineering Solutions**

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8445 Freeport Parkway, Suite 375, Irving, Texas 75063

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**Structural Analysis Report**

**Existing 195 ft Nudd Corporation Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT01916-S**

**Customer Site Name: North Salem**

**Carrier Name: Sprint Nextel**

**Carrier Site ID / Name: CT33XC060 / North Salem**

**Site Location: 160 Witch Meadow Road**

**Salem, Connecticut**

**New London County**

**Latitude: 41.502828**

**Longitude: -72.297052**

**Analysis Result:**

**Max Structural Usage: 90.8% [Pass]**

**Max Foundation Usage: 34.0% [Pass]**

**Additional Usage Caused by Mount Modification: +6.5%**



*Handwritten signature and date:*  
5/29/18

**Report Prepared By: Khaibar Noorzad**

## Introduction

The purpose of this report is to summarize the analysis results on the 195 ft Nudd Corporation Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Nudd Corporation, Project #7014 dated February 2, 2000
<b>Foundation Drawing</b>	Nudd Corporation, Project #7014 dated February 2, 2000
<b>Geotechnical Report</b>	FDH Engineering, Project #1207124EG1 dated August 10, 2012
<b>Modification Drawings</b>	Semaan Engineering, Project #CT-01916 dated May 6, 2002 FDH Engineering, Inc., Project #13SBAH1400 dated September 25, 2013

## Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 135.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 105.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_5 = 0.171$ , $S_1 = 0.061$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

**Existing Antennas, Mounts and Transmission Lines**

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	195.0	6	Decibel DB980H90E-M - Panel	Low Profile Platform	(6) 1 5/8"	Sprint
2	185.0	6	Powerwave 7770.00 - Panel	Low Profile Platform	(12) 1 1/4" (1) 1/2" Fiber (2) 3/4" DC inside (1) 3" Innerduct	AT&T
3		1	Raycap DC6-48-60-18-8F – Surge Arrestor			
4		6	Powerwave LGP21401 – TMA			
5		6	Powerwave LGP21903 - Diplexers			
6		2	Powerwave P65-17-XLH-RR - Panel			
7		6	Ericsson RRUS-11 - RRU			
8		1	Andrew SBNH-1D6565C - Panel			
9	175.0	3	RFS APX16DWV-16DWVS-E-A20 - Panel	Low Profile Platform	(2) 1 5/8" Hybrid (1) 1-1/4" Hybrid	T-Mobile
10		3	Commscope LNX-6515DS-A1M - Panel			
11		9	RRUS11			
12		3	96"x15.6"x9" Panel			
13		3	15" x 14" x 7.5" RRU			

**Proposed Carrier’s Final Configuration of Antennas, Mounts and Transmission Lines**

Information pertaining to the proposed carrier’s final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	195.0	3	RFS APXVTM14-C-I20 - Panel	Platform w/ Hand Rail Site Pro Modification Kits: (1) HRK-14 (1) PRK-SFS-H-L (1) PRK-1245L	(4) 1-1/4" Fiber	Sprint Nextel
2		3	Commscope NNVV-65B-R4 - Panel			
3		3	ALU 1900 Mhz - RRU			
4		6	ALU 800 Mhz - RRU			
5		3	ALU TD-RRH8x20-25 - RRU			

All transmission lines are considered running inside of the pole shafts.

## **Analysis Results**

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate	Flange
Max. Usage:	<b>79.6%</b>	<b>62.7%</b>	<b>90.8%</b>	<b>54.4%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	6090.0	44.2
Analysis Reactions	5224.1	37.2
Factored Reactions*	8221.5	59.7
% of Design Reactions	63.5%	62.4%

\* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

## **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.6675 degrees under the operational wind speed as specified in the Analysis Criteria.

## **Conclusions**

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

# Usage Diagram - Max Ratio 79.61% at 140.0ft

**Structure:** CT01916-S-SBA  
**Site Name:** North Salem  
**Height:** 195.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-G  
**Exposure:** B  
**Gh:** 1.1

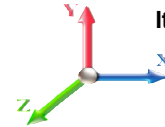
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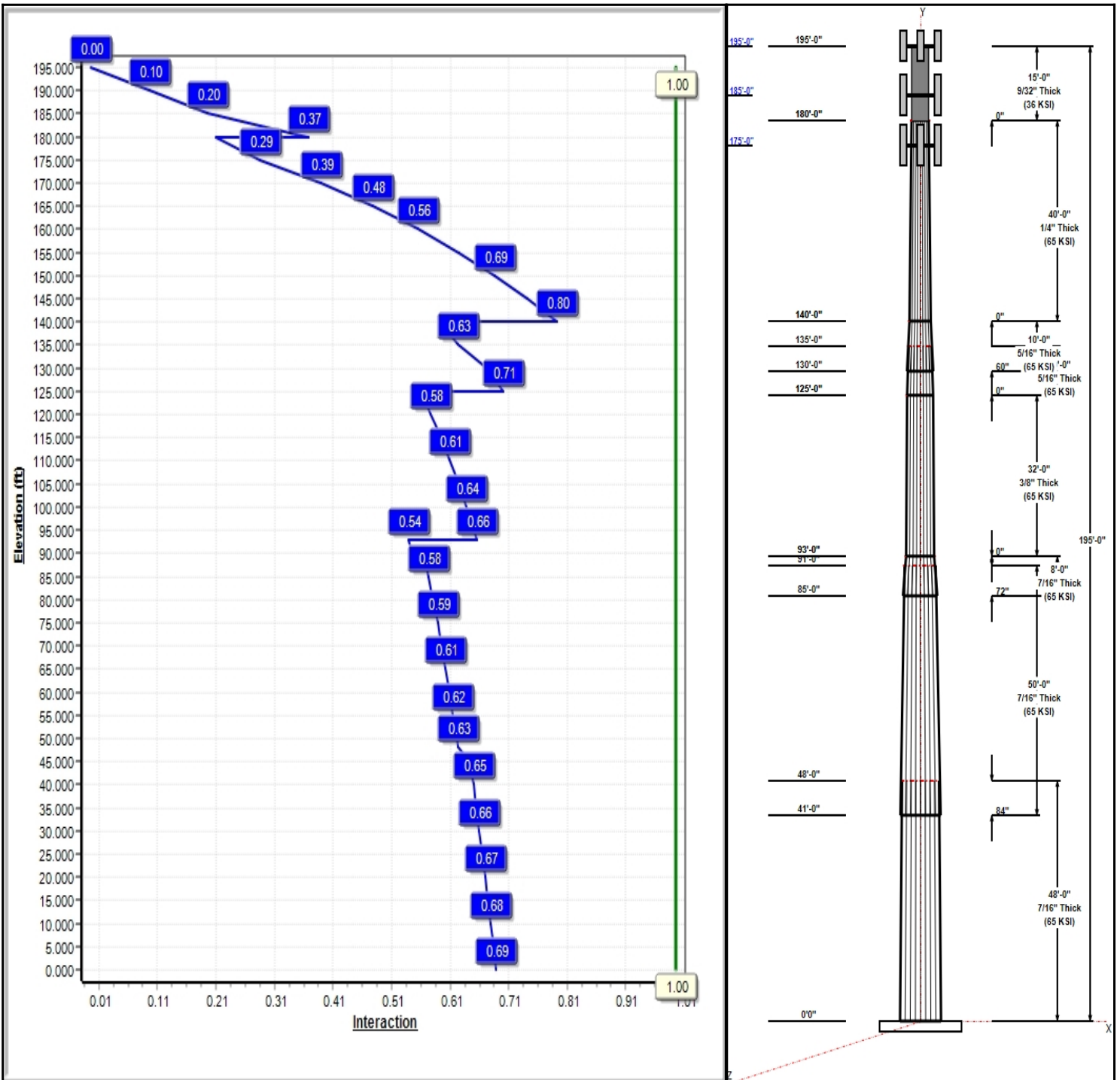
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 105 mph Wind**



**Iterations:** 25

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## Structure: CT01916-S-SBA

**Type:** Custom  
**Site Name:** North Salem  
**Height:** 195.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.00000

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### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	53.07	64.50	0.438		0.23819	65
2	50.00	43.70	55.61	0.438	Slip	0.23819	65
3	8.00	44.10	46.00	0.438	Slip	0.23819	65
4	32.00	36.48	44.10	0.375	Butt	0.23819	65
5	10.00	34.09	36.48	0.313	Butt	0.23819	65
6	10.00	33.53	35.91	0.313	Slip	0.23819	65
7	40.00	24.00	33.53	0.250	Butt	0.23819	65
8	15.00	24.00	24.00	0.281	Butt	0.00000	36

### Discrete Appurtenances

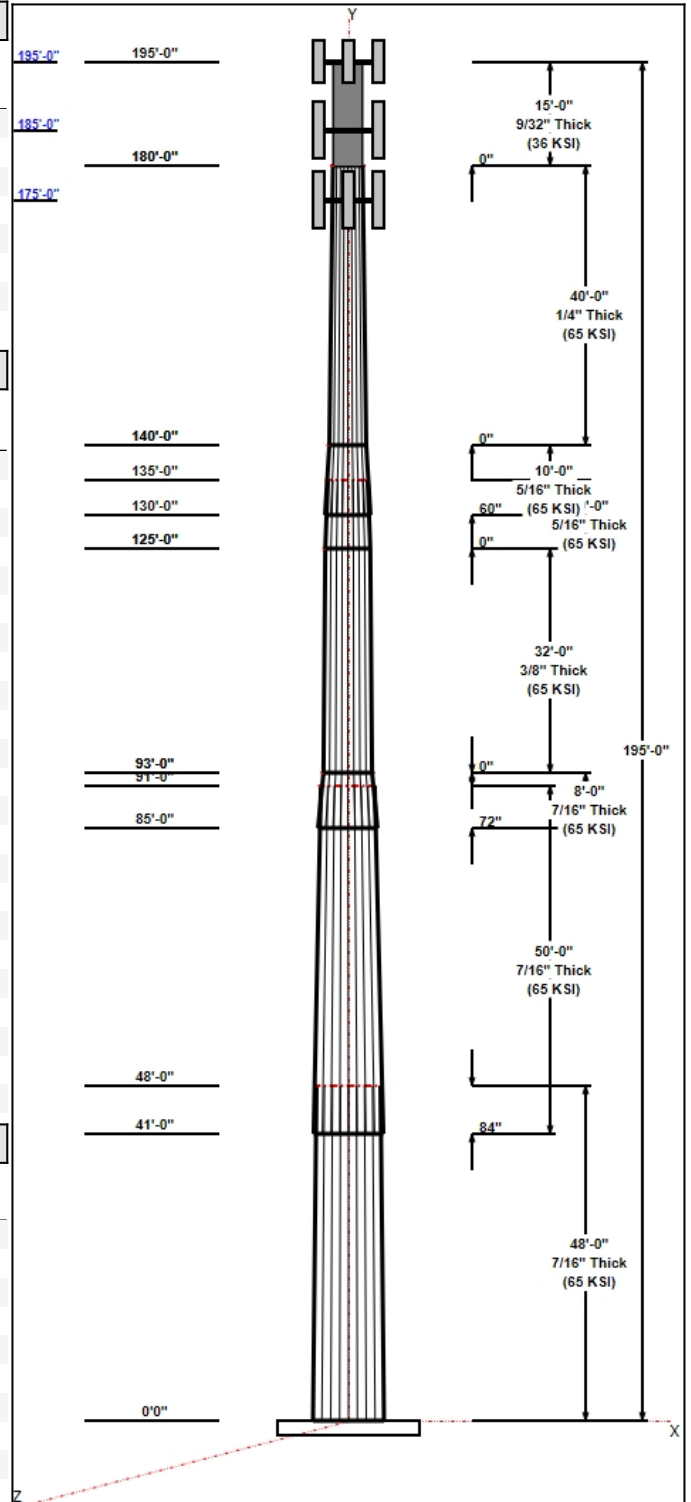
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
195.00	195.00	3	1900MHz RRH (65MHz)	Sprint Nextel
195.00	195.00	6	800 MHz RRH	Sprint Nextel
195.00	195.00	3	TD-RRH8x20-25	Sprint Nextel
195.00	195.00	1	Low Profile	Sprint Nextel
195.00	195.00	1	PRK-1245 (kicker kit)	Sprint Nextel
195.00	195.00	1	(3) SFS-H-L (V-Braces)	Sprint Nextel
195.00	195.00	1	HRK12 (Handrail Kit)	Sprint Nextel
195.00	195.00	3	APXVTM14-C-I20	Sprint Nextel
195.00	195.00	3	NNVV-65B-R4	Sprint Nextel
185.00	185.00	1	Low Profile	AT&T
185.00	185.00	6	7770.00	AT&T
185.00	185.00	2	P65-17-XLH-RR	AT&T
185.00	185.00	1	SBNH-1D6565C	AT&T
185.00	185.00	6	LGP21401	AT&T
185.00	185.00	6	LGP21903	AT&T
185.00	185.00	6	RRUS-11	AT&T
185.00	185.00	1	DC6-48-60-18-8F	AT&T
175.00	175.00	1	Low Profile	T-Mobile
175.00	175.00	3	APX16DWV-16DWVS-E-A	T-Mobile
175.00	175.00	3	LNx-6515DS-A1M	T-Mobile
175.00	175.00	9	RRUS11	T-Mobile
175.00	175.00	3	96"x15.6"x9" Panels	T-Mobile
175.00	175.00	3	15" x 14" x 7.5" RRU	T-Mobile

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	195.00	Inside	1-1/4" Fiber	Sprint
0.00	185.00	Inside	1 1/4" Coax	AT&T
0.00	185.00	Inside	1/2" Fiber	AT&T
0.00	185.00	Inside	3" Innerduct	AT&T
0.00	185.00	Inside	3/4" DC	AT&T
177.75	182.25	Outside	(3) Bypass Stiffeners	
0.00	175.00	Inside	1 5/8" Hybrid	T-Mobile
0.00	175.00	Inside	1-1/4" Hybrid	T-Mobile
0.00	143.00	Outside	(4) C6x10.5	
0.00	55.00	Outside	(4) C5x9	

### Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
29	2.00" A687	105.0	Radial



**Structure: CT01916-S-SBA**

**Type:** Custom  
**Site Name:** North Salem  
**Height:** 195.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.00000

5/29/2018

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**Base Plate**

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	64.5	50.0	Round

**Reactions**

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 105 mph Wind	5224.1	37.2	60.0
0.9D + 1.6W 105 mph Wind	5155.2	37.2	45.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1277.8	9.2	89.6
1.2D + 1.0E	405.1	2.7	60.1
0.9D + 1.0E	399.2	2.6	45.1
1.0D + 1.0W 60 mph Wind	1059.2	7.6	50.1



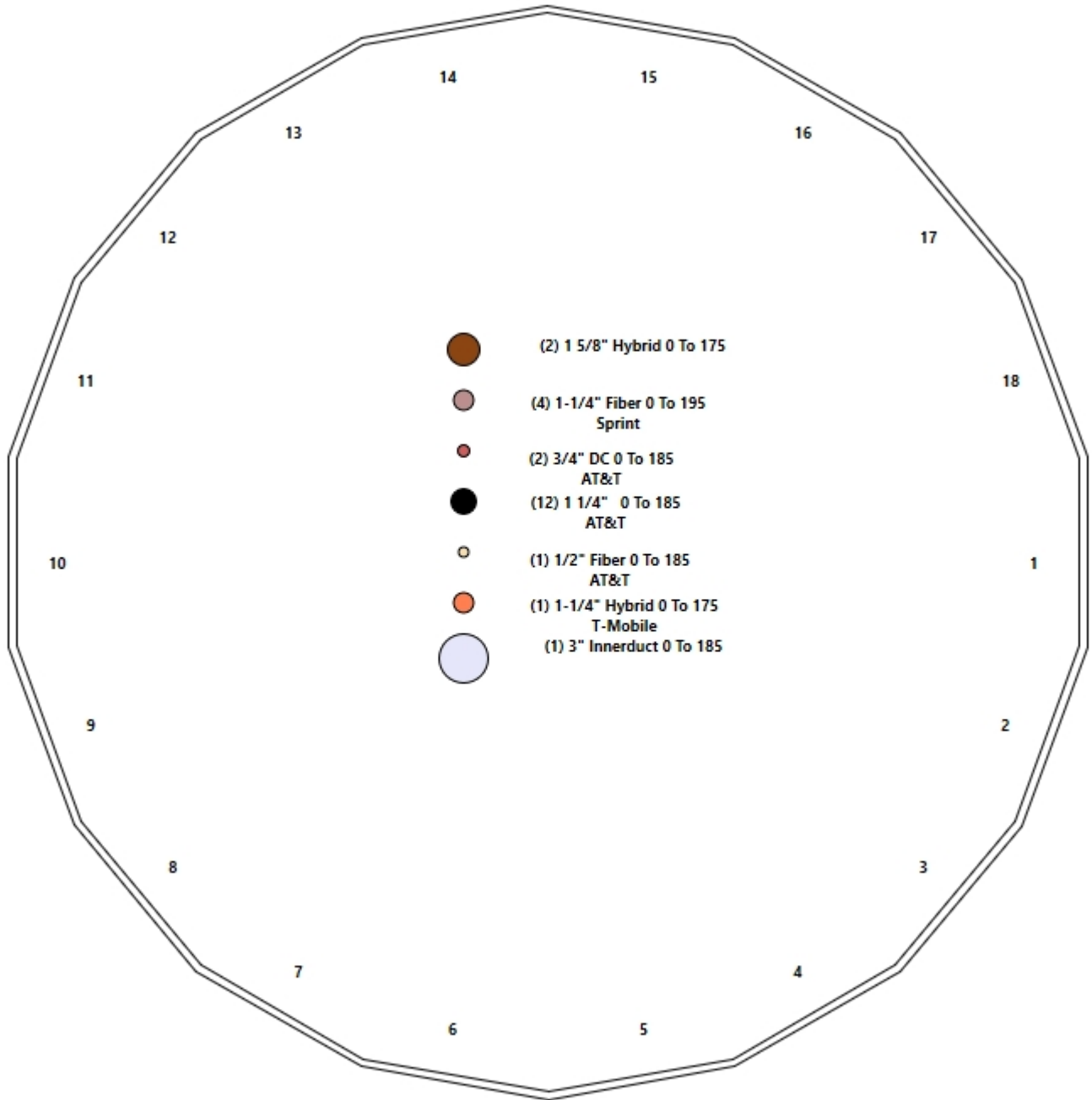
# Structure: CT01916-S-SBA - Coax Line Placement

Type: Monopole  
Site Name: North Salem  
Height: 195.00 (ft)

5/29/2018



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## Shaft Properties

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.4375	65		0.00	13,233
2	18	50.000	0.4375	65	Slip	84.00	11,627
3	18	8.000	0.4375	65	Slip	72.00	1,686
4	18	32.000	0.3750	65	Flange	0.00	5,173
5	18	10.000	0.3125	65	Flange	0.00	1,180
6	18	10.000	0.3125	65	Slip	60.00	1,161
7	18	40.000	0.2500	65	Flange	0.00	3,080
8	R	15.000	0.2810	36	Flange	0.00	1,069
<b>Total Shaft Weight:</b>							<b>38,209</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper
1	64.50	0.00	88.96	46124.76	24.59	147.43	53.07	48.00	73.08	25574.1	19.98	121.3	0.238194
2	55.61	41.00	76.61	29462.36	21.00	127.11	43.70	91.00	60.07	14204.8	16.20	99.88	0.238194
3	46.00	85.00	63.27	16597.56	17.13	105.15	44.10	93.00	60.63	14601.1	16.36	100.8	0.238194
4	44.10	93.00	52.04	12569.07	19.32	117.59	36.48	125.00	42.97	7074.93	15.74	97.27	0.238194
5	36.48	125.0	35.87	5926.45	19.17	116.72	34.09	135.00	33.51	4830.83	17.83	109.1	0.238194
6	35.91	130.0	35.31	5652.53	18.85	114.91	33.53	140.00	32.94	4592.07	17.51	107.2	0.238194
7	33.53	140.0	26.40	3694.43	22.24	134.11	24.00	180.00	18.84	1343.00	15.52	96.00	0.238194
8	24.00	180.0	20.94	1473.63	0.00	85.41	24.00	195.00	20.94	1473.63	0.00	85.41	0.000000

## Load Summary

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	195.00	1900MHz RRH (65MHz)	3	60.00	2.77	0.67	145.65	4.072	0.67	0.00	0.00
2	195.00	800 MHz RRH	6	53.00	2.49	0.67	128.93	3.664	0.67	0.00	0.00
3	195.00	TD-RRH8x20-25	3	70.00	4.05	0.67	184.03	4.886	0.67	0.00	0.00
4	195.00	Low Profile Platform-Round	1	1800.00	26.00	1.00	3412.45	47.428	1.00	0.00	0.00
5	195.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	798.08	19.712	1.00	0.00	0.00
6	195.00	(3) SFS-H-L (V-Braces)	1	230.00	6.70	1.00	559.66	13.902	1.00	0.00	0.00
7	195.00	HRK12 (Handrail Kit)	1	261.72	6.75	1.00	580.57	13.522	1.00	0.00	0.00
8	195.00	APXVTM14-C-I20	3	56.20	6.34	0.78	221.76	7.485	0.81	0.00	0.00
9	195.00	NNVV-65B-R4	3	77.40	12.27	0.73	370.55	13.765	0.76	0.00	0.00
10	185.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2836.65	40.036	1.00	0.00	0.00
11	185.00	7770.00	6	35.00	5.50	0.73	173.71	6.589	0.73	0.00	0.00
12	185.00	P65-17-XLH-RR	2	59.00	11.44	0.75	280.19	14.743	0.75	0.00	0.00
13	185.00	SBNH-1D6565C	1	66.10	11.47	0.80	300.86	14.790	0.80	0.00	0.00
14	185.00	LGP21401	6	14.10	1.29	0.67	39.63	2.143	0.67	0.00	0.00
15	185.00	LGP21903	6	5.50	0.27	0.67	14.11	0.676	0.67	0.00	0.00
16	185.00	RRUS-11	6	51.00	2.52	0.75	124.80	3.167	0.75	0.00	0.00
17	185.00	DC6-48-60-18-8F	1	31.80	0.92	0.75	94.93	1.367	0.75	0.00	0.00
18	175.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2829.24	39.936	1.00	0.00	0.00
19	175.00	APX16DWW-16DWWVS-E-A20	3	40.70	6.46	0.62	180.31	7.593	0.62	0.00	0.00
20	175.00	LNx-6515DS-A1M	3	50.30	11.47	0.80	285.76	14.788	0.80	0.00	0.00
21	175.00	RRUS11	9	50.60	2.52	0.71	138.36	3.474	0.72	0.00	0.00
22	175.00	96"x15.6"x9" Panels	3	67.50	13.70	0.80	397.98	15.428	0.80	0.00	0.00
23	175.00	15" x 14" x 7.5" RRU	3	70.00	1.75	0.77	135.41	2.311	0.77	0.00	0.00
<b>Totals:</b>			<b>73</b>	<b>8,855.83</b>			<b>21,869.44</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	195.00	(4) 1-1/4" Fiber	0.00	Inside
0.00	185.00	(12) 1 1/4" Coax	0.00	Inside
0.00	185.00	(1) 1/2" Fiber	0.00	Inside
0.00	185.00	(1) 3" Innerduct	0.00	Inside
0.00	185.00	(2) 3/4" DC	0.00	Inside
177.7	182.25	(3) (3) Bypass Stiffeners	12.60	Outside
0.00	175.00	(2) 1 5/8" Hybrid	0.00	Inside
0.00	175.00	(1) 1-1/4" Hybrid	0.00	Inside
0.00	143.00	(4) (4) C6x10.5	4.00	Outside
0.00	55.00	(4) (4) C5x9	3.78	Outside

## Shaft Section Properties

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Increment Length:** 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in <sup>3</sup> )	Weight (lb)
0.00		0.4375	64.500	88.956	46124.8	24.59	147.43	72.5	1408.	0.0
5.00		0.4375	63.309	87.302	43599.8	24.11	144.71	73.0	1356.	1499.4
10.00		0.4375	62.118	85.648	41168.7	23.63	141.98	73.6	1305.	1471.3
15.00		0.4375	60.927	83.994	38829.7	23.15	139.26	74.2	1255.	1443.1
20.00		0.4375	59.736	82.341	36581.0	22.67	136.54	74.7	1206.	1415.0
25.00		0.4375	58.545	80.687	34420.9	22.19	133.82	75.3	1158.	1386.9
30.00		0.4375	57.354	79.033	32347.5	21.71	131.10	75.9	1110.	1358.7
35.00		0.4375	56.163	77.379	30359.1	21.23	128.37	76.4	1064.	1330.6
40.00		0.4375	54.972	75.726	28453.9	20.75	125.65	77.0	1019.	1302.5
41.00	Bot - Section 2	0.4375	54.734	75.395	28082.7	20.65	125.11	77.1	1010.	257.1
45.00		0.4375	53.781	74.072	26630.1	20.27	122.93	77.6	975.3	2050.9
48.00	Top - Section 1	0.4375	53.942	74.295	26871.1	20.33	123.30	0.0	0.0	1514.6
50.00		0.4375	53.465	73.633	26159.7	20.14	122.21	77.7	963.7	503.4
55.00		0.4375	52.274	71.979	24436.4	19.66	119.48	78.3	920.7	1238.7
60.00		0.4375	51.083	70.326	22790.5	19.18	116.76	78.8	878.7	1210.6
65.00		0.4375	49.892	68.672	21220.2	18.70	114.04	79.4	837.7	1182.4
70.00		0.4375	48.701	67.018	19723.7	18.22	111.32	80.0	797.7	1154.3
75.00		0.4375	47.510	65.364	18299.4	17.74	108.60	80.5	758.6	1126.2
80.00		0.4375	46.319	63.711	16945.2	17.26	105.87	81.1	720.6	1098.0
85.00	Bot - Section 3	0.4375	45.128	62.057	15659.6	16.78	103.15	81.7	683.5	1069.9
90.00		0.4375	43.938	60.403	14440.8	16.30	100.43	82.2	647.3	2104.2
91.00	Top - Section 2	0.4375	44.574	61.287	15084.3	16.55	101.88	0.0	0.0	414.1
93.00	Top - Section 3	0.4375	44.098	60.626	14601.1	16.36	100.80	82.2	652.2	414.8
93.00	Bot - Section 4	0.3750	44.098	52.039	12569.1	19.09	117.59	78.7	561.4	
95.00		0.3750	43.622	51.472	12162.7	19.10	116.32	78.9	549.2	352.2
100.00		0.3750	42.431	50.055	11185.3	18.54	113.15	79.6	519.2	863.7
105.00		0.3750	41.240	48.637	10261.6	17.98	109.97	80.3	490.1	839.6
110.00		0.3750	40.049	47.220	9390.3	17.42	106.80	80.9	461.8	815.5
115.00		0.3750	38.858	45.802	8569.8	16.86	103.62	81.6	434.4	791.3
120.00		0.3750	37.667	44.385	7798.5	16.30	100.44	82.2	407.8	767.2
125.00	Top - Section 4	0.3750	36.476	42.967	7074.9	15.74	97.27	82.5	382.0	743.1
125.00	Bot - Section 5	0.3125	36.476	35.868	5926.5	18.89	116.72	78.9	320.0	
130.00	Bot - Section 6	0.3125	35.285	34.687	5360.0	18.50	112.91	79.6	299.2	600.2
135.00	Top - Section 5	0.3125	34.719	34.125	5104.0	18.18	111.10	0.0	0.0	1170.8
140.00	Top - Section 6	0.3125	33.528	32.944	4592.1	17.51	107.29	80.8	269.8	570.6
140.00	Bot - Section 7	0.2500	33.528	26.405	3694.4	21.88	134.11	75.2	217.0	
145.00		0.2500	32.337	25.460	3311.8	21.40	129.35	76.2	201.7	441.2
150.00		0.2500	31.146	24.515	2956.5	20.56	124.58	77.2	187.0	425.1
155.00		0.2500	29.955	23.570	2627.6	19.72	119.82	78.2	172.8	409.1
160.00		0.2500	28.764	22.625	2324.1	18.88	115.06	79.2	159.1	393.0
165.00		0.2500	27.573	21.680	2044.9	18.04	110.29	80.2	146.1	376.9
170.00		0.2500	26.382	20.735	1789.0	17.20	105.53	81.2	133.6	360.8
175.00		0.2500	25.191	19.790	1555.3	16.36	100.76	82.2	121.6	344.7
180.00	Top - Section 7	0.2500	24.000	18.845	1343.0	15.52	96.00	82.5	110.2	328.7
180.00	Bot - Section 8	0.2810	24.000	20.939	1473.6	13.80	85.41	36.0	122.8	
185.00		0.2810	24.000	20.939	1473.6	0.00	85.41	36.0	122.8	356.3
190.00		0.2810	24.000	20.939	1473.6	0.00	85.41	36.0	122.8	356.3
195.00		0.2810	24.000	20.939	1473.6	0.00	85.41	36.0	122.8	356.3

**38209.1**

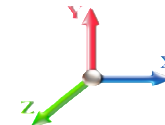
## Wind Loading - Shaft

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 1.2D + 1.6W 105 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	18.769	20.65	479.47	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	18.769	20.65	470.62	0.689 *	0.000	5.00	27.038	18.62	615.2	0.0	1799.3
10.00		1.00	0.70	18.769	20.65	461.77	0.693 *	0.000	5.00	26.534	18.39	607.6	0.0	1765.5
15.00		1.00	0.70	18.769	20.65	452.91	0.698 *	0.000	5.00	26.030	18.16	600.0	0.0	1731.8
20.00		1.00	0.70	18.769	20.65	444.06	0.703 *	0.000	5.00	25.526	17.94	592.5	0.0	1698.0
25.00		1.00	0.70	18.769	20.65	435.21	0.708 *	0.000	5.00	25.022	17.71	584.9	0.0	1664.2
30.00		1.00	0.70	18.785	20.66	426.53	0.713 *	0.000	5.00	24.518	17.48	577.8	0.0	1630.5
35.00		1.00	0.73	19.631	21.59	426.98	0.718 *	0.000	5.00	24.014	17.25	595.9	0.0	1596.7
40.00		1.00	0.76	20.394	22.43	425.97	0.724 *	0.000	5.00	23.510	17.02	610.9	0.0	1562.9
41.00	Bot - Section 2	1.00	0.77	20.538	22.59	425.62	0.727 *	0.000	1.00	4.642	3.38	122.0	0.0	308.5
45.00		1.00	0.79	21.092	23.20	423.81	0.730 *	0.000	4.00	18.661	13.63	505.9	0.0	2461.1
48.00	Top - Section 1	1.00	0.80	21.485	23.63	422.06	0.735 *	0.000	3.00	13.784	10.13	382.9	0.0	1817.5
50.00		1.00	0.81	21.737	23.91	427.71	0.733 *	0.000	2.00	9.089	6.66	254.9	0.0	604.0
55.00		1.00	0.83	22.337	24.57	423.92	0.738 *	0.000	5.00	22.369	16.50	648.6	0.0	1486.5
60.00		1.00	0.85	22.899	25.19	419.44	0.650	0.000	5.00	21.865	14.21	572.8	0.0	1452.7
65.00		1.00	0.87	23.429	25.77	414.37	0.650	0.000	5.00	21.361	13.88	572.5	0.0	1418.9
70.00		1.00	0.89	23.930	26.32	408.79	0.650	0.000	5.00	20.857	13.56	571.0	0.0	1385.2
75.00		1.00	0.91	24.406	26.85	402.74	0.650	0.000	5.00	20.353	13.23	568.3	0.0	1351.4
80.00		1.00	0.93	24.861	27.35	396.28	0.650	0.000	5.00	19.849	12.90	564.5	0.0	1317.6
85.00	Bot - Section 3	1.00	0.94	25.295	27.82	389.45	0.650	0.000	5.00	19.346	12.57	559.8	0.0	1283.9
90.00		1.00	0.96	25.711	28.28	382.28	0.650	0.000	5.00	19.212	12.49	565.1	0.0	2525.0
91.00	Top - Section 2	1.00	0.96	25.793	28.37	380.81	0.650	0.000	1.00	3.782	2.46	111.6	0.0	496.9
93.00	Top - Section 3	1.00	0.97	25.953	28.55	385.48	0.650	0.000	2.00	7.503	4.88	222.8	0.0	497.8
95.00		1.00	0.97	26.112	28.72	382.48	0.650	0.000	2.00	7.423	4.82	221.7	0.0	422.7
100.00		1.00	0.99	26.497	29.15	374.77	0.650	0.000	5.00	18.204	11.83	551.8	0.0	1036.4
105.00		1.00	1.00	26.869	29.56	366.80	0.650	0.000	5.00	17.700	11.51	544.1	0.0	1007.5
110.00		1.00	1.02	27.229	29.95	358.58	0.650	0.000	5.00	17.196	11.18	535.7	0.0	978.5
115.00		1.00	1.03	27.577	30.33	350.13	0.650	0.000	5.00	16.692	10.85	526.6	0.0	949.6
120.00		1.00	1.04	27.914	30.71	341.47	0.656 *	0.000	5.00	16.189	10.62	521.5	0.0	920.7
125.00	Top - Section 4	1.00	1.05	28.242	31.07	332.61	0.662 *	0.000	5.00	15.685	10.39	516.3	0.0	891.7
130.00	Bot - Section 6	1.00	1.07	28.560	31.42	323.56	0.669 *	0.000	5.00	15.181	10.16	510.6	0.0	720.2
135.00	Top - Section 5	1.00	1.08	28.869	31.76	314.33	0.676 *	0.000	5.00	14.941	10.11	513.5	0.0	1404.9
140.00	Top - Section 6	1.00	1.09	29.171	32.09	310.72	0.680 *	0.000	5.00	14.437	9.82	504.1	0.0	684.7
145.00		1.00	1.10	29.465	32.41	301.19	0.650	0.000	5.00	13.933	9.06	469.7	0.0	529.5
150.00		1.00	1.11	29.752	32.73	291.50	0.650	0.000	5.00	13.430	8.73	457.1	0.0	510.2
155.00		1.00	1.12	30.032	33.03	281.67	0.650	0.000	5.00	12.926	8.40	444.1	0.0	490.9
160.00		1.00	1.13	30.305	33.34	271.70	0.650	0.000	5.00	12.422	8.07	430.7	0.0	471.6
165.00		1.00	1.14	30.573	33.63	261.60	0.650	0.000	5.00	11.918	7.75	416.8	0.0	452.3
170.00		1.00	1.15	30.835	33.92	251.37	0.650	0.000	5.00	11.414	7.42	402.6	0.0	433.0
175.00	Appurtenance(s)	1.00	1.16	31.091	34.20	241.02	0.650	0.000	5.00	10.910	7.09	388.1	0.0	413.7
180.00	Top - Section 7	1.00	1.17	31.343	34.48	230.55	1.200 *	0.000	5.00	10.406	12.49	688.8	0.0	394.4
185.00	Appurtenance(s)	1.00	1.18	31.589	34.75	227.94	1.200 *	0.000	5.00	10.000	12.00	667.2	0.0	427.5
190.00		1.00	1.19	31.831	35.01	228.81	0.600	0.000	5.00	10.000	6.00	336.1	0.0	427.5
195.00	Appurtenance(s)	1.00	1.20	32.068	35.27	229.66	0.600	0.000	5.00	10.000	6.00	338.6	0.0	427.5
<b>Totals:</b>									<b>195.00</b>			<b>20,993.3</b>	<b>45,850.9</b>	

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

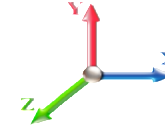
<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 105 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	195.00	Low Profile	1	32.068	35.274	1.00	1.00	26.00	2160.00	0.000	0.000	1467.42	0.00	0.00
2	195.00	1900MHz RRH (65MHz)	3	32.068	35.274	0.67	1.00	5.57	216.00	0.000	0.000	314.24	0.00	0.00
3	195.00	800 MHz RRH	6	32.068	35.274	0.67	1.00	10.01	381.60	0.000	0.000	564.94	0.00	0.00
4	195.00	TD-RRH8x20-25	3	32.068	35.274	0.67	1.00	8.14	252.00	0.000	0.000	459.44	0.00	0.00
5	195.00	NNVV-65B-R4	3	32.068	35.274	0.73	1.00	26.87	278.64	0.000	0.000	1516.59	0.00	0.00
6	195.00	PRK-1245 (kicker kit)	1	32.068	35.274	1.00	1.00	9.50	557.89	0.000	0.000	536.17	0.00	0.00
7	195.00	(3) SFS-H-L (V-Braces)	1	32.068	35.274	1.00	1.00	6.70	276.00	0.000	0.000	378.14	0.00	0.00
8	195.00	HRK12 (Handrail Kit)	1	32.068	35.274	1.00	1.00	6.75	314.06	0.000	0.000	380.96	0.00	0.00
9	195.00	APXVTM14-C-I20	3	32.068	35.274	0.78	1.00	14.84	202.32	0.000	0.000	837.31	0.00	0.00
10	185.00	DC6-48-60-18-8F	1	31.589	34.748	0.60	0.80	0.55	38.16	0.000	0.000	30.69	0.00	0.00
11	185.00	RRUS-11	6	31.589	34.748	0.60	0.80	9.07	367.20	0.000	0.000	504.37	0.00	0.00
12	185.00	LGP21903	6	31.589	34.748	0.54	0.80	0.87	39.60	0.000	0.000	48.28	0.00	0.00
13	185.00	SBNH-1D6565C	1	31.589	34.748	0.64	0.80	7.34	79.32	0.000	0.000	408.12	0.00	0.00
14	185.00	P65-17-XLH-RR	2	31.589	34.748	0.60	0.80	13.73	141.60	0.000	0.000	763.23	0.00	0.00
15	185.00	7770.00	6	31.589	34.748	0.58	0.80	19.27	252.00	0.000	0.000	1071.46	0.00	0.00
16	185.00	Low Profile	1	31.589	34.748	1.00	1.00	22.00	1800.00	0.000	0.000	1223.13	0.00	0.00
17	185.00	LGP21401	6	31.589	34.748	0.54	0.80	4.15	101.52	0.000	0.000	230.65	0.00	0.00
18	175.00	LNx-6515DS-A1M	3	31.091	34.201	0.64	0.80	22.02	181.08	0.000	0.000	1205.08	0.00	0.00
19	175.00	Low Profile	1	31.091	34.201	1.00	1.00	22.00	1800.00	0.000	0.000	1203.86	0.00	0.00
20	175.00	APX16DWV-16DWVS-E-A	3	31.091	34.201	0.50	0.80	9.61	146.52	0.000	0.000	526.00	0.00	0.00
21	175.00	15" x 14" x 7.5" RRU	3	31.091	34.201	0.62	0.80	3.23	252.00	0.000	0.000	176.97	0.00	0.00
22	175.00	RRUS11	9	31.091	34.201	0.57	0.80	12.88	546.48	0.000	0.000	704.93	0.00	0.00
23	175.00	96"x15.6"x9" Panels	3	31.091	34.201	0.64	0.80	26.30	243.00	0.000	0.000	1439.38	0.00	0.00
<b>Totals:</b>									<b>10,627.00</b>			<b>15,991.36</b>		

## Total Applied Force Summary

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 105 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		615.19	1896.19	0.00	0.00
10.00		607.62	1862.43	0.00	0.00
15.00		600.05	1828.67	0.00	0.00
20.00		592.47	1794.90	0.00	0.00
25.00		584.90	1761.14	0.00	0.00
30.00		577.81	1727.37	0.00	0.00
35.00		595.91	1693.61	0.00	0.00
40.00		610.85	1659.85	0.00	0.00
41.00		122.04	327.92	0.00	0.00
45.00		505.95	2538.65	0.00	0.00
48.00		382.92	1875.63	0.00	0.00
50.00		254.93	642.80	0.00	0.00
55.00		648.62	1583.36	0.00	0.00
60.00		572.78	1549.60	0.00	0.00
65.00		572.53	1515.83	0.00	0.00
70.00		570.99	1482.07	0.00	0.00
75.00		568.28	1448.30	0.00	0.00
80.00		564.53	1414.54	0.00	0.00
85.00		559.81	1380.77	0.00	0.00
90.00		565.10	2621.93	0.00	0.00
91.00		111.59	516.28	0.00	0.00
93.00		222.78	536.57	0.00	0.00
95.00		221.73	461.43	0.00	0.00
100.00		551.82	1133.32	0.00	0.00
105.00		544.07	1104.38	0.00	0.00
110.00		535.66	1075.44	0.00	0.00
115.00		526.61	1046.50	0.00	0.00
120.00		521.54	1017.56	0.00	0.00
125.00		516.26	988.62	0.00	0.00
130.00		510.56	817.15	0.00	0.00
135.00		513.53	1501.82	0.00	0.00
140.00		504.12	781.57	0.00	0.00
145.00		469.67	626.35	0.00	0.00
150.00		457.09	607.06	0.00	0.00
155.00		444.08	587.77	0.00	0.00
160.00		430.66	568.47	0.00	0.00
165.00		416.84	549.18	0.00	0.00
170.00		402.63	529.89	0.00	0.00
175.00	(22) attachments	5644.27	3679.67	0.00	0.00
180.00		767.04	472.37	0.00	0.00
185.00	(29) attachments	5025.89	3324.88	0.00	0.00
190.00		336.13	450.40	0.00	0.00
195.00	(22) attachments	6793.86	5088.91	0.00	0.00
	<b>Totals:</b>	<b>37,141.71</b>	<b>60,071.15</b>	<b>0.00</b>	<b>0.00</b>

## Linear Appurtenance Segment Forces (Factored)

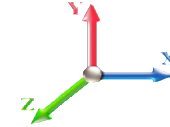
<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 105 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.120	1.060	18.769	0.00	0.00
5.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.120	1.060	18.769	0.00	0.00
10.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.122	1.067	18.769	0.00	0.00
10.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.122	1.067	18.769	0.00	0.00
15.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.125	1.074	18.769	0.00	0.00
15.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.125	1.074	18.769	0.00	0.00
20.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.127	1.081	18.769	0.00	0.00
20.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.127	1.081	18.769	0.00	0.00
25.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.130	1.089	18.769	0.00	0.00
25.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.130	1.089	18.769	0.00	0.00
30.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.132	1.097	18.785	0.00	0.00
30.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.132	1.097	18.785	0.00	0.00
35.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.135	1.105	19.631	0.00	0.00
35.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.135	1.105	19.631	0.00	0.00
40.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.138	1.114	20.394	0.00	0.00
40.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.138	1.114	20.394	0.00	0.00
41.00	(4) C6x10.5	Yes	1.00	0.000	4.00	0.33	0.00	0.140	1.119	20.538	0.00	0.00
41.00	(4) C5x9	Yes	1.00	0.000	3.78	0.32	0.00	0.140	1.119	20.538	0.00	0.00
45.00	(4) C6x10.5	Yes	4.00	0.000	4.00	1.33	0.00	0.141	1.124	21.092	0.00	0.00
45.00	(4) C5x9	Yes	4.00	0.000	3.78	1.26	0.00	0.141	1.124	21.092	0.00	0.00
48.00	(4) C6x10.5	Yes	3.00	0.000	4.00	1.00	0.00	0.143	1.130	21.485	0.00	0.00
48.00	(4) C5x9	Yes	3.00	0.000	3.78	0.94	0.00	0.143	1.130	21.485	0.00	0.00
50.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.143	1.128	21.737	0.00	0.00
50.00	(4) C5x9	Yes	2.00	0.000	3.78	0.63	0.00	0.143	1.128	21.737	0.00	0.00
55.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.145	1.135	22.337	0.00	0.00
55.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.145	1.135	22.337	0.00	0.00
60.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.076	0.000	22.899	0.00	0.00
65.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.078	0.000	23.429	0.00	0.00
70.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.080	0.000	23.930	0.00	0.00
75.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.082	0.000	24.406	0.00	0.00
80.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.084	0.000	24.861	0.00	0.00
85.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.086	0.000	25.295	0.00	0.00
90.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.088	0.000	25.711	0.00	0.00
91.00	(4) C6x10.5	Yes	1.00	0.000	4.00	0.33	0.00	0.090	0.000	25.793	0.00	0.00
93.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.089	0.000	25.953	0.00	0.00
95.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.090	0.000	26.112	0.00	0.00
100.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.092	0.000	26.497	0.00	0.00
105.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.094	0.000	26.869	0.00	0.00
110.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.097	0.000	27.229	0.00	0.00
115.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.100	0.000	27.577	0.00	0.00
120.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.103	1.009	27.914	0.00	0.00
125.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.106	1.019	28.242	0.00	0.00
130.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.110	1.029	28.560	0.00	0.00
135.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.114	1.041	28.869	0.00	0.00
140.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.115	1.046	29.171	0.00	0.00
145.00	(4) C6x10.5	Yes	3.00	0.000	4.00	1.00	0.00	0.072	0.000	29.465	0.00	0.00
180.00	(3) Bypass Stiffeners	Yes	2.25	0.600	12.60	2.36	1.42	0.227	0.000	31.343	78.19	0.00



## Linear Appurtenance Segment Forces (Factored)

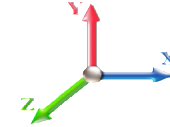
<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 105 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
185.00	(3) Bypass Stiffeners	Yes	2.25	0.600	12.60	2.36	1.42	0.236	0.000	31.589	78.81	0.00
<b>Totals:</b>											<b>157.0</b>	<b>0.0</b>

## Calculated Forces

**Structure:** CT01916-S-SBA  
**Site Name:** North Salem  
**Height:** 195.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

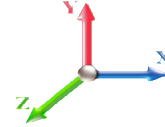
**Code:** EIA/TIA-222-G 5/29/2018  
**Exposure:** B  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II



**Load Case:** 1.2D + 1.6W 105 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-60.02	-37.23	0.00	-5224.1	0.00	5224.14	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.693
5.00	-58.02	-36.77	0.00	-5038.0	0.00	5038.02	5739.58	2869.79	14840.9	7431.48	0.09	-0.158	0.000	0.688
10.00	-56.06	-36.31	0.00	-4854.1	0.00	4854.17	5674.37	2837.18	14392.4	7206.92	0.34	-0.320	0.000	0.684
15.00	-54.13	-35.86	0.00	-4672.6	0.00	4672.60	5607.48	2803.74	13946.2	6983.48	0.76	-0.484	0.000	0.679
20.00	-52.24	-35.40	0.00	-4493.3	0.00	4493.31	5538.91	2769.46	13502.5	6761.30	1.36	-0.652	0.000	0.674
25.00	-50.38	-34.95	0.00	-4316.3	0.00	4316.30	5468.67	2734.33	13061.5	6540.49	2.13	-0.823	0.000	0.669
30.00	-48.55	-34.49	0.00	-4141.5	0.00	4141.57	5396.74	2698.37	12623.6	6321.18	3.09	-0.998	0.000	0.664
35.00	-46.76	-34.01	0.00	-3969.1	0.00	3969.11	5323.13	2661.56	12188.8	6103.50	4.23	-1.177	0.000	0.659
40.00	-45.05	-33.45	0.00	-3799.0	0.00	3799.05	5247.84	2623.92	11757.6	5887.58	5.56	-1.358	0.000	0.654
41.00	-44.68	-33.39	0.00	-3765.6	0.00	3765.60	5232.58	2616.29	11671.8	5844.61	5.85	-1.396	0.000	0.653
45.00	-42.07	-32.92	0.00	-3632.0	0.00	3632.03	5170.87	2585.43	11330.2	5673.52	7.08	-1.546	0.000	0.648
48.00	-40.16	-32.55	0.00	-3533.2	0.00	3533.27	5181.33	2590.67	11387.5	5702.24	8.09	-1.661	0.000	0.628
50.00	-39.45	-32.37	0.00	-3468.1	0.00	3468.17	5150.16	2575.08	11217.4	5617.06	8.80	-1.739	0.000	0.625
55.00	-37.78	-31.79	0.00	-3306.3	0.00	3306.33	5071.07	2535.53	10795.0	5405.56	10.72	-1.923	0.000	0.619
60.00	-36.15	-31.29	0.00	-3147.3	0.00	3147.37	4990.29	2495.14	10377.0	5196.21	12.84	-2.111	0.000	0.613
65.00	-34.55	-30.77	0.00	-2990.9	0.00	2990.94	4907.83	2453.91	9963.49	4989.15	15.15	-2.303	0.000	0.607
70.00	-32.99	-30.25	0.00	-2837.0	0.00	2837.08	4823.69	2411.85	9554.79	4784.49	17.67	-2.498	0.000	0.600
75.00	-31.47	-29.73	0.00	-2685.8	0.00	2685.82	4737.87	2368.94	9151.13	4582.37	20.39	-2.697	0.000	0.593
80.00	-29.98	-29.20	0.00	-2537.1	0.00	2537.17	4650.37	2325.19	8752.78	4382.90	23.32	-2.900	0.000	0.585
85.00	-28.52	-28.68	0.00	-2391.1	0.00	2391.15	4561.19	2280.60	8359.98	4186.21	26.47	-3.107	0.000	0.578
90.00	-25.88	-28.02	0.00	-2247.7	0.00	2247.76	4470.33	2235.17	7972.99	3992.42	29.83	-3.318	0.000	0.569
91.00	-25.34	-27.91	0.00	-2219.7	0.00	2219.74	4519.12	2259.56	8179.18	4095.67	30.53	-3.362	0.000	0.548
93.00	-24.77	-27.69	0.00	-2163.9	0.00	2163.92	4482.67	2241.33	8024.77	4018.35	31.96	-3.449	0.000	0.544
93.00	-24.77	-27.69	0.00	-2163.9	0.00	2163.92	3684.61	1842.31	6615.01	3312.42	31.96	-3.449	0.000	0.660
95.00	-24.25	-27.51	0.00	-2108.5	0.00	2108.53	3656.67	1828.34	6492.71	3251.18	33.42	-3.533	0.000	0.655
100.00	-23.04	-26.99	0.00	-1970.9	0.00	1970.97	3585.64	1792.82	6189.75	3099.48	37.25	-3.771	0.000	0.643
105.00	-21.86	-26.46	0.00	-1836.0	0.00	1836.03	3512.93	1756.47	5890.99	2949.87	41.32	-4.013	0.000	0.629
110.00	-20.71	-25.94	0.00	-1703.7	0.00	1703.72	3438.54	1719.27	5596.65	2802.49	45.65	-4.259	0.000	0.614
115.00	-19.60	-25.42	0.00	-1574.0	0.00	1574.02	3362.47	1681.23	5307.01	2657.45	50.24	-4.507	0.000	0.598
120.00	-18.52	-24.90	0.00	-1446.9	0.00	1446.91	3284.72	1642.36	5022.30	2514.88	55.09	-4.758	0.000	0.581
125.00	-17.47	-24.38	0.00	-1322.4	0.00	1322.41	3192.26	1596.13	4723.49	2365.26	60.20	-5.010	0.000	0.565
125.00	-17.47	-24.38	0.00	-1322.4	0.00	1322.41	2545.46	1272.73	3779.50	1892.56	60.20	-5.010	0.000	0.706
130.00	-16.59	-23.88	0.00	-1200.5	0.00	1200.52	2486.30	1243.15	3569.04	1787.17	65.58	-5.264	0.000	0.679
135.00	-15.02	-23.31	0.00	-1081.1	0.00	1081.13	2457.60	1228.80	3470.24	1737.70	71.25	-5.567	0.000	0.629
140.00	-14.17	-22.80	0.00	-964.60	0.00	964.60	2395.97	1197.98	3265.05	1634.95	77.23	-5.868	0.000	0.596
140.00	-14.17	-22.80	0.00	-964.60	0.00	964.60	1788.19	894.09	2445.99	1224.81	77.23	-5.868	0.000	0.796
145.00	-13.48	-22.34	0.00	-850.61	0.00	850.61	1746.83	873.41	2303.27	1153.35	83.52	-6.149	0.000	0.746
150.00	-12.80	-21.89	0.00	-738.92	0.00	738.92	1703.79	851.89	2162.49	1082.85	90.13	-6.490	0.000	0.691
155.00	-12.15	-21.45	0.00	-629.45	0.00	629.45	1659.07	829.53	2023.91	1013.46	97.09	-6.820	0.000	0.629
160.00	-11.52	-21.02	0.00	-522.19	0.00	522.19	1612.67	806.33	1887.77	945.29	104.39	-7.131	0.000	0.560
165.00	-10.93	-20.59	0.00	-417.10	0.00	417.10	1564.59	782.29	1754.32	878.47	111.99	-7.419	0.000	0.482
170.00	-10.38	-20.16	0.00	-314.18	0.00	314.18	1514.83	757.41	1623.82	813.12	119.88	-7.673	0.000	0.394
175.00	-7.45	-14.09	0.00	-213.38	0.00	213.38	1463.38	731.69	1496.51	749.37	128.01	-7.883	0.000	0.290
180.00	-7.06	-13.28	0.00	-142.92	0.00	142.92	1400.09	700.04	1362.73	682.38	136.34	-8.046	0.000	0.215
180.00	-7.06	-13.28	0.00	-142.92	0.00	142.92	678.42	339.21	662.23	396.30	136.34	-8.046	0.000	0.373
185.00	-4.47	-7.85	0.00	-76.49	0.00	76.49	678.42	339.21	662.23	396.30	144.80	-8.162	0.000	0.200
190.00	-4.06	-7.45	0.00	-37.26	0.00	37.26	678.42	339.21	662.23	396.30	153.35	-8.217	0.000	0.100
195.00	0.00	-6.79	0.00	0.00	0.00	0.00	678.42	339.21	662.23	396.30	161.94	-8.235	0.000	0.000

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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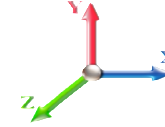
## Wind Loading - Shaft

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 0.9D + 1.6W 105 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	18.769	20.65	479.47	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	18.769	20.65	470.62	0.689 *	0.000	5.00	27.038	18.62	615.2	0.0	1349.5
10.00		1.00	0.70	18.769	20.65	461.77	0.693 *	0.000	5.00	26.534	18.39	607.6	0.0	1324.1
15.00		1.00	0.70	18.769	20.65	452.91	0.698 *	0.000	5.00	26.030	18.16	600.0	0.0	1298.8
20.00		1.00	0.70	18.769	20.65	444.06	0.703 *	0.000	5.00	25.526	17.94	592.5	0.0	1273.5
25.00		1.00	0.70	18.769	20.65	435.21	0.708 *	0.000	5.00	25.022	17.71	584.9	0.0	1248.2
30.00		1.00	0.70	18.785	20.66	426.53	0.713 *	0.000	5.00	24.518	17.48	577.8	0.0	1222.9
35.00		1.00	0.73	19.631	21.59	426.98	0.718 *	0.000	5.00	24.014	17.25	595.9	0.0	1197.5
40.00		1.00	0.76	20.394	22.43	425.97	0.724 *	0.000	5.00	23.510	17.02	610.9	0.0	1172.2
41.00	Bot - Section 2	1.00	0.77	20.538	22.59	425.62	0.727 *	0.000	1.00	4.642	3.38	122.0	0.0	231.4
45.00		1.00	0.79	21.092	23.20	423.81	0.730 *	0.000	4.00	18.661	13.63	505.9	0.0	1845.8
48.00	Top - Section 1	1.00	0.80	21.485	23.63	422.06	0.735 *	0.000	3.00	13.784	10.13	382.9	0.0	1363.1
50.00		1.00	0.81	21.737	23.91	427.71	0.733 *	0.000	2.00	9.089	6.66	254.9	0.0	453.0
55.00		1.00	0.83	22.337	24.57	423.92	0.738 *	0.000	5.00	22.369	16.50	648.6	0.0	1114.8
60.00		1.00	0.85	22.899	25.19	419.44	0.650	0.000	5.00	21.865	14.21	572.8	0.0	1089.5
65.00		1.00	0.87	23.429	25.77	414.37	0.650	0.000	5.00	21.361	13.88	572.5	0.0	1064.2
70.00		1.00	0.89	23.930	26.32	408.79	0.650	0.000	5.00	20.857	13.56	571.0	0.0	1038.9
75.00		1.00	0.91	24.406	26.85	402.74	0.650	0.000	5.00	20.353	13.23	568.3	0.0	1013.6
80.00		1.00	0.93	24.861	27.35	396.28	0.650	0.000	5.00	19.849	12.90	564.5	0.0	988.2
85.00	Bot - Section 3	1.00	0.94	25.295	27.82	389.45	0.650	0.000	5.00	19.346	12.57	559.8	0.0	962.9
90.00		1.00	0.96	25.711	28.28	382.28	0.650	0.000	5.00	19.212	12.49	565.1	0.0	1893.8
91.00	Top - Section 2	1.00	0.96	25.793	28.37	380.81	0.650	0.000	1.00	3.782	2.46	111.6	0.0	372.7
93.00	Top - Section 3	1.00	0.97	25.953	28.55	385.48	0.650	0.000	2.00	7.503	4.88	222.8	0.0	373.4
95.00		1.00	0.97	26.112	28.72	382.48	0.650	0.000	2.00	7.423	4.82	221.7	0.0	317.0
100.00		1.00	0.99	26.497	29.15	374.77	0.650	0.000	5.00	18.204	11.83	551.8	0.0	777.3
105.00		1.00	1.00	26.869	29.56	366.80	0.650	0.000	5.00	17.700	11.51	544.1	0.0	755.6
110.00		1.00	1.02	27.229	29.95	358.58	0.650	0.000	5.00	17.196	11.18	535.7	0.0	733.9
115.00		1.00	1.03	27.577	30.33	350.13	0.650	0.000	5.00	16.692	10.85	526.6	0.0	712.2
120.00		1.00	1.04	27.914	30.71	341.47	0.656 *	0.000	5.00	16.189	10.62	521.5	0.0	690.5
125.00	Top - Section 4	1.00	1.05	28.242	31.07	332.61	0.662 *	0.000	5.00	15.685	10.39	516.3	0.0	668.8
130.00	Bot - Section 6	1.00	1.07	28.560	31.42	323.56	0.669 *	0.000	5.00	15.181	10.16	510.6	0.0	540.2
135.00	Top - Section 5	1.00	1.08	28.869	31.76	314.33	0.676 *	0.000	5.00	14.941	10.11	513.5	0.0	1053.7
140.00	Top - Section 6	1.00	1.09	29.171	32.09	310.72	0.680 *	0.000	5.00	14.437	9.82	504.1	0.0	513.5
145.00		1.00	1.10	29.465	32.41	301.19	0.650	0.000	5.00	13.933	9.06	469.7	0.0	397.1
150.00		1.00	1.11	29.752	32.73	291.50	0.650	0.000	5.00	13.430	8.73	457.1	0.0	382.6
155.00		1.00	1.12	30.032	33.03	281.67	0.650	0.000	5.00	12.926	8.40	444.1	0.0	368.2
160.00		1.00	1.13	30.305	33.34	271.70	0.650	0.000	5.00	12.422	8.07	430.7	0.0	353.7
165.00		1.00	1.14	30.573	33.63	261.60	0.650	0.000	5.00	11.918	7.75	416.8	0.0	339.2
170.00		1.00	1.15	30.835	33.92	251.37	0.650	0.000	5.00	11.414	7.42	402.6	0.0	324.7
175.00	Appurtenance(s)	1.00	1.16	31.091	34.20	241.02	0.650	0.000	5.00	10.910	7.09	388.1	0.0	310.3
180.00	Top - Section 7	1.00	1.17	31.343	34.48	230.55	1.200 *	0.000	5.00	10.406	12.49	688.8	0.0	295.8
185.00	Appurtenance(s)	1.00	1.18	31.589	34.75	227.94	1.200 *	0.000	5.00	10.000	12.00	667.2	0.0	320.6
190.00		1.00	1.19	31.831	35.01	228.81	0.600	0.000	5.00	10.000	6.00	336.1	0.0	320.6
195.00	Appurtenance(s)	1.00	1.20	32.068	35.27	229.66	0.600	0.000	5.00	10.000	6.00	338.6	0.0	320.6
<b>Totals:</b>									<b>195.00</b>			<b>20,993.3</b>		<b>34,388.2</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

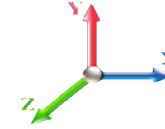


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**Load Case:** 0.9D + 1.6W 105 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	195.00	Low Profile	1	32.068	35.274	1.00	1.00	26.00	1620.00	0.000	0.000	1467.42	0.00	0.00	
2	195.00	1900MHz RRH (65MHz)	3	32.068	35.274	0.67	1.00	5.57	162.00	0.000	0.000	314.24	0.00	0.00	
3	195.00	800 MHz RRH	6	32.068	35.274	0.67	1.00	10.01	286.20	0.000	0.000	564.94	0.00	0.00	
4	195.00	TD-RRH8x20-25	3	32.068	35.274	0.67	1.00	8.14	189.00	0.000	0.000	459.44	0.00	0.00	
5	195.00	NNVV-65B-R4	3	32.068	35.274	0.73	1.00	26.87	208.98	0.000	0.000	1516.59	0.00	0.00	
6	195.00	PRK-1245 (kicker kit)	1	32.068	35.274	1.00	1.00	9.50	418.42	0.000	0.000	536.17	0.00	0.00	
7	195.00	(3) SFS-H-L (V-Braces)	1	32.068	35.274	1.00	1.00	6.70	207.00	0.000	0.000	378.14	0.00	0.00	
8	195.00	HRK12 (Handrail Kit)	1	32.068	35.274	1.00	1.00	6.75	235.55	0.000	0.000	380.96	0.00	0.00	
9	195.00	APXVTM14-C-I20	3	32.068	35.274	0.78	1.00	14.84	151.74	0.000	0.000	837.31	0.00	0.00	
10	185.00	DC6-48-60-18-8F	1	31.589	34.748	0.60	0.80	0.55	28.62	0.000	0.000	30.69	0.00	0.00	
11	185.00	RRUS-11	6	31.589	34.748	0.60	0.80	9.07	275.40	0.000	0.000	504.37	0.00	0.00	
12	185.00	LGP21903	6	31.589	34.748	0.54	0.80	0.87	29.70	0.000	0.000	48.28	0.00	0.00	
13	185.00	SBNH-1D6565C	1	31.589	34.748	0.64	0.80	7.34	59.49	0.000	0.000	408.12	0.00	0.00	
14	185.00	P65-17-XLH-RR	2	31.589	34.748	0.60	0.80	13.73	106.20	0.000	0.000	763.23	0.00	0.00	
15	185.00	7770.00	6	31.589	34.748	0.58	0.80	19.27	189.00	0.000	0.000	1071.46	0.00	0.00	
16	185.00	Low Profile	1	31.589	34.748	1.00	1.00	22.00	1350.00	0.000	0.000	1223.13	0.00	0.00	
17	185.00	LGP21401	6	31.589	34.748	0.54	0.80	4.15	76.14	0.000	0.000	230.65	0.00	0.00	
18	175.00	LNx-6515DS-A1M	3	31.091	34.201	0.64	0.80	22.02	135.81	0.000	0.000	1205.08	0.00	0.00	
19	175.00	Low Profile	1	31.091	34.201	1.00	1.00	22.00	1350.00	0.000	0.000	1203.86	0.00	0.00	
20	175.00	APX16DWV-16DWVS-E-A	3	31.091	34.201	0.50	0.80	9.61	109.89	0.000	0.000	526.00	0.00	0.00	
21	175.00	15" x 14" x 7.5" RRU	3	31.091	34.201	0.62	0.80	3.23	189.00	0.000	0.000	176.97	0.00	0.00	
22	175.00	RRUS11	9	31.091	34.201	0.57	0.80	12.88	409.86	0.000	0.000	704.93	0.00	0.00	
23	175.00	96"x15.6"x9" Panels	3	31.091	34.201	0.64	0.80	26.30	182.25	0.000	0.000	1439.38	0.00	0.00	
<b>Totals:</b>									<b>7,970.25</b>						<b>15,991.36</b>

## Total Applied Force Summary

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 105 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		615.19	1422.15	0.00	0.00
10.00		607.62	1396.82	0.00	0.00
15.00		600.05	1371.50	0.00	0.00
20.00		592.47	1346.18	0.00	0.00
25.00		584.90	1320.85	0.00	0.00
30.00		577.81	1295.53	0.00	0.00
35.00		595.91	1270.21	0.00	0.00
40.00		610.85	1244.88	0.00	0.00
41.00		122.04	245.94	0.00	0.00
45.00		505.95	1903.99	0.00	0.00
48.00		382.92	1406.72	0.00	0.00
50.00		254.93	482.10	0.00	0.00
55.00		648.62	1187.52	0.00	0.00
60.00		572.78	1162.20	0.00	0.00
65.00		572.53	1136.87	0.00	0.00
70.00		570.99	1111.55	0.00	0.00
75.00		568.28	1086.23	0.00	0.00
80.00		564.53	1060.90	0.00	0.00
85.00		559.81	1035.58	0.00	0.00
90.00		565.10	1966.45	0.00	0.00
91.00		111.59	387.21	0.00	0.00
93.00		222.78	402.43	0.00	0.00
95.00		221.73	346.07	0.00	0.00
100.00		551.82	849.99	0.00	0.00
105.00		544.07	828.29	0.00	0.00
110.00		535.66	806.58	0.00	0.00
115.00		526.61	784.88	0.00	0.00
120.00		521.54	763.17	0.00	0.00
125.00		516.26	741.46	0.00	0.00
130.00		510.56	612.86	0.00	0.00
135.00		513.53	1126.36	0.00	0.00
140.00		504.12	586.18	0.00	0.00
145.00		469.67	469.77	0.00	0.00
150.00		457.09	455.30	0.00	0.00
155.00		444.08	440.83	0.00	0.00
160.00		430.66	426.35	0.00	0.00
165.00		416.84	411.88	0.00	0.00
170.00		402.63	397.41	0.00	0.00
175.00	(22) attachments	5644.27	2759.75	0.00	0.00
180.00		767.04	354.28	0.00	0.00
185.00	(29) attachments	5025.89	2493.66	0.00	0.00
190.00		336.13	337.80	0.00	0.00
195.00	(22) attachments	6793.86	3816.68	0.00	0.00
<b>Totals:</b>		<b>37,141.71</b>	<b>45,053.36</b>	<b>0.00</b>	<b>0.00</b>

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 105 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.120	1.060	18.769	0.00	0.00
5.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.120	1.060	18.769	0.00	0.00
10.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.122	1.067	18.769	0.00	0.00
10.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.122	1.067	18.769	0.00	0.00
15.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.125	1.074	18.769	0.00	0.00
15.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.125	1.074	18.769	0.00	0.00
20.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.127	1.081	18.769	0.00	0.00
20.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.127	1.081	18.769	0.00	0.00
25.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.130	1.089	18.769	0.00	0.00
25.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.130	1.089	18.769	0.00	0.00
30.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.132	1.097	18.785	0.00	0.00
30.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.132	1.097	18.785	0.00	0.00
35.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.135	1.105	19.631	0.00	0.00
35.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.135	1.105	19.631	0.00	0.00
40.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.138	1.114	20.394	0.00	0.00
40.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.138	1.114	20.394	0.00	0.00
41.00	(4) C6x10.5	Yes	1.00	0.000	4.00	0.33	0.00	0.140	1.119	20.538	0.00	0.00
41.00	(4) C5x9	Yes	1.00	0.000	3.78	0.32	0.00	0.140	1.119	20.538	0.00	0.00
45.00	(4) C6x10.5	Yes	4.00	0.000	4.00	1.33	0.00	0.141	1.124	21.092	0.00	0.00
45.00	(4) C5x9	Yes	4.00	0.000	3.78	1.26	0.00	0.141	1.124	21.092	0.00	0.00
48.00	(4) C6x10.5	Yes	3.00	0.000	4.00	1.00	0.00	0.143	1.130	21.485	0.00	0.00
48.00	(4) C5x9	Yes	3.00	0.000	3.78	0.94	0.00	0.143	1.130	21.485	0.00	0.00
50.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.143	1.128	21.737	0.00	0.00
50.00	(4) C5x9	Yes	2.00	0.000	3.78	0.63	0.00	0.143	1.128	21.737	0.00	0.00
55.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.145	1.135	22.337	0.00	0.00
55.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.145	1.135	22.337	0.00	0.00
60.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.076	0.000	22.899	0.00	0.00
65.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.078	0.000	23.429	0.00	0.00
70.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.080	0.000	23.930	0.00	0.00
75.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.082	0.000	24.406	0.00	0.00
80.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.084	0.000	24.861	0.00	0.00
85.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.086	0.000	25.295	0.00	0.00
90.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.088	0.000	25.711	0.00	0.00
91.00	(4) C6x10.5	Yes	1.00	0.000	4.00	0.33	0.00	0.090	0.000	25.793	0.00	0.00
93.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.089	0.000	25.953	0.00	0.00
95.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.090	0.000	26.112	0.00	0.00
100.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.092	0.000	26.497	0.00	0.00
105.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.094	0.000	26.869	0.00	0.00
110.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.097	0.000	27.229	0.00	0.00
115.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.100	0.000	27.577	0.00	0.00
120.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.103	1.009	27.914	0.00	0.00
125.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.106	1.019	28.242	0.00	0.00
130.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.110	1.029	28.560	0.00	0.00
135.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.114	1.041	28.869	0.00	0.00
140.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.115	1.046	29.171	0.00	0.00
145.00	(4) C6x10.5	Yes	3.00	0.000	4.00	1.00	0.00	0.072	0.000	29.465	0.00	0.00
180.00	(3) Bypass Stiffeners	Yes	2.25	0.600	12.60	2.36	1.42	0.227	0.000	31.343	78.19	0.00

## Linear Appurtenance Segment Forces (Factored)

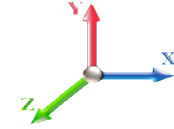
<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 105 mph Wind

**Dead Load Factor**    0.90  
**Wind Load Factor**    1.60



**Iterations**    25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
185.00	(3) Bypass Stiffeners	Yes	2.25	0.600	12.60	2.36	1.42	0.236	0.000	31.589	78.81	0.00
<b>Totals:</b>											<b>157.0</b>	<b>0.0</b>



## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

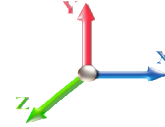


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**Load Case:** 0.9D + 1.6W 105 mph Wind

**Iterations** 25

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.00	-37.20	0.00	-5155.2	0.00	5155.20	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.681
5.00	-43.48	-36.71	0.00	-4969.1	0.00	4969.18	5739.58	2869.79	14840.9	7431.48	0.08	-0.156	0.000	0.676
10.00	-41.98	-36.21	0.00	-4785.6	0.00	4785.65	5674.37	2837.18	14392.4	7206.92	0.33	-0.315	0.000	0.672
15.00	-40.51	-35.72	0.00	-4604.6	0.00	4604.60	5607.48	2803.74	13946.2	6983.48	0.75	-0.477	0.000	0.667
20.00	-39.07	-35.23	0.00	-4426.0	0.00	4426.01	5538.91	2769.46	13502.5	6761.30	1.34	-0.643	0.000	0.662
25.00	-37.65	-34.74	0.00	-4249.8	0.00	4249.89	5468.67	2734.33	13061.5	6540.49	2.10	-0.812	0.000	0.657
30.00	-36.26	-34.25	0.00	-4076.2	0.00	4076.21	5396.74	2698.37	12623.6	6321.18	3.05	-0.984	0.000	0.652
35.00	-34.90	-33.74	0.00	-3904.9	0.00	3904.97	5323.13	2661.56	12188.8	6103.50	4.17	-1.159	0.000	0.647
40.00	-33.61	-33.16	0.00	-3736.2	0.00	3736.29	5247.84	2623.92	11757.6	5887.58	5.48	-1.338	0.000	0.641
41.00	-33.31	-33.09	0.00	-3703.1	0.00	3703.12	5232.58	2616.29	11671.8	5844.61	5.76	-1.375	0.000	0.640
45.00	-31.35	-32.61	0.00	-3570.7	0.00	3570.77	5170.87	2585.43	11330.2	5673.52	6.98	-1.523	0.000	0.636
48.00	-29.90	-32.23	0.00	-3472.9	0.00	3472.96	5181.33	2590.67	11387.5	5702.24	7.97	-1.636	0.000	0.615
50.00	-29.35	-32.03	0.00	-3408.4	0.00	3408.49	5150.16	2575.08	11217.4	5617.06	8.68	-1.712	0.000	0.613
55.00	-28.09	-31.43	0.00	-3248.3	0.00	3248.34	5071.07	2535.53	10795.0	5405.56	10.57	-1.893	0.000	0.607
60.00	-26.84	-30.91	0.00	-3091.1	0.00	3091.17	4990.29	2495.14	10377.0	5196.21	12.65	-2.078	0.000	0.600
65.00	-25.63	-30.38	0.00	-2936.6	0.00	2936.62	4907.83	2453.91	9963.49	4989.15	14.92	-2.266	0.000	0.594
70.00	-24.44	-29.85	0.00	-2784.7	0.00	2784.72	4823.69	2411.85	9554.79	4784.49	17.40	-2.458	0.000	0.587
75.00	-23.28	-29.31	0.00	-2635.5	0.00	2635.50	4737.87	2368.94	9151.13	4582.37	20.08	-2.653	0.000	0.580
80.00	-22.15	-28.77	0.00	-2488.9	0.00	2488.95	4650.37	2325.19	8752.78	4382.90	22.96	-2.852	0.000	0.573
85.00	-21.04	-28.24	0.00	-2345.0	0.00	2345.08	4561.19	2280.60	8359.98	4186.21	26.05	-3.055	0.000	0.565
90.00	-19.05	-27.60	0.00	-2203.9	0.00	2203.90	4470.33	2235.17	7972.99	3992.42	29.36	-3.262	0.000	0.556
91.00	-18.64	-27.49	0.00	-2176.3	0.00	2176.30	4519.12	2259.56	8179.18	4095.67	30.05	-3.305	0.000	0.536
93.00	-18.21	-27.27	0.00	-2121.3	0.00	2121.32	4482.67	2241.33	8024.77	4018.35	31.45	-3.391	0.000	0.532
93.00	-18.21	-27.27	0.00	-2121.3	0.00	2121.32	3684.61	1842.31	6615.01	3312.42	31.45	-3.391	0.000	0.646
95.00	-17.80	-27.08	0.00	-2066.7	0.00	2066.77	3656.67	1828.34	6492.71	3251.18	32.89	-3.473	0.000	0.641
100.00	-16.88	-26.55	0.00	-1931.3	0.00	1931.37	3585.64	1792.82	6189.75	3099.48	36.65	-3.706	0.000	0.628
105.00	-15.98	-26.01	0.00	-1798.6	0.00	1798.64	3512.93	1756.47	5890.99	2949.87	40.66	-3.944	0.000	0.615
110.00	-15.11	-25.49	0.00	-1668.5	0.00	1668.57	3438.54	1719.27	5596.65	2802.49	44.91	-4.184	0.000	0.600
115.00	-14.26	-24.96	0.00	-1541.1	0.00	1541.13	3362.47	1681.23	5307.01	2657.45	49.42	-4.427	0.000	0.584
120.00	-13.43	-24.44	0.00	-1416.3	0.00	1416.31	3284.72	1642.36	5022.30	2514.88	54.18	-4.672	0.000	0.567
125.00	-12.63	-23.92	0.00	-1294.1	0.00	1294.11	3192.26	1596.13	4723.49	2365.26	59.20	-4.920	0.000	0.551
125.00	-12.63	-23.92	0.00	-1294.1	0.00	1294.11	2545.46	1272.73	3779.50	1892.56	59.20	-4.920	0.000	0.689
130.00	-11.96	-23.42	0.00	-1174.5	0.00	1174.51	2486.30	1243.15	3569.04	1787.17	64.48	-5.168	0.000	0.662
135.00	-10.76	-22.86	0.00	-1057.4	0.00	1057.43	2457.60	1228.80	3470.24	1737.70	70.05	-5.464	0.000	0.613
140.00	-10.12	-22.35	0.00	-943.16	0.00	943.16	2395.97	1197.98	3265.05	1634.95	75.92	-5.759	0.000	0.581
140.00	-10.12	-22.35	0.00	-943.16	0.00	943.16	1788.19	894.09	2445.99	1224.81	75.92	-5.759	0.000	0.776
145.00	-9.58	-21.88	0.00	-831.43	0.00	831.43	1746.83	873.41	2303.27	1153.35	82.09	-6.033	0.000	0.727
150.00	-9.06	-21.43	0.00	-722.01	0.00	722.01	1703.79	851.89	2162.49	1082.85	88.58	-6.367	0.000	0.673
155.00	-8.56	-20.99	0.00	-614.86	0.00	614.86	1659.07	829.53	2023.91	1013.46	95.41	-6.689	0.000	0.612
160.00	-8.08	-20.55	0.00	-509.93	0.00	509.93	1612.67	806.33	1887.77	945.29	102.56	-6.993	0.000	0.545
165.00	-7.63	-20.12	0.00	-407.18	0.00	407.18	1564.59	782.29	1754.32	878.47	110.02	-7.274	0.000	0.469
170.00	-7.21	-19.70	0.00	-306.57	0.00	306.57	1514.83	757.41	1623.82	813.12	117.76	-7.522	0.000	0.382
175.00	-5.18	-13.75	0.00	-208.08	0.00	208.08	1463.38	731.69	1496.51	749.37	125.73	-7.727	0.000	0.282
180.00	-4.90	-12.96	0.00	-139.30	0.00	139.30	1400.09	700.04	1362.73	682.38	133.89	-7.885	0.000	0.208
180.00	-4.90	-12.96	0.00	-139.30	0.00	139.30	678.42	339.21	662.23	396.30	133.89	-7.885	0.000	0.360
185.00	-3.12	-7.64	0.00	-74.51	0.00	74.51	678.42	339.21	662.23	396.30	142.18	-7.999	0.000	0.193
190.00	-2.83	-7.26	0.00	-36.31	0.00	36.31	678.42	339.21	662.23	396.30	150.57	-8.052	0.000	0.096
195.00	0.00	-6.79	0.00	0.00	0.00	0.00	678.42	339.21	662.23	396.30	158.98	-8.070	0.000	0.000

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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## Wind Loading - Shaft

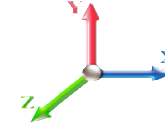
<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.272 *	1.242	5.00	28.073	35.70	167.1	497.2	2296.5
10.00		1.00	0.70	4.256	4.68	0.00	1.280 *	1.331	5.00	27.643	35.38	165.6	523.7	2289.3
15.00		1.00	0.70	4.256	4.68	0.00	1.288 *	1.386	5.00	27.185	35.02	164.0	535.6	2267.4
20.00		1.00	0.70	4.256	4.68	0.00	1.297 *	1.427	5.00	26.715	34.65	162.2	541.1	2239.1
25.00		1.00	0.70	4.256	4.68	0.00	1.306 *	1.459	5.00	26.238	34.28	160.5	542.8	2207.0
30.00		1.00	0.70	4.260	4.69	0.00	1.316 *	1.486	5.00	25.756	33.89	158.8	542.1	2172.5
35.00		1.00	0.73	4.451	4.90	0.00	1.326 *	1.509	5.00	25.272	33.51	164.1	539.6	2136.3
40.00		1.00	0.76	4.625	5.09	0.00	1.336 *	1.529	5.00	24.785	33.12	168.5	535.7	2098.6
41.00	Bot - Section 2	1.00	0.77	4.657	5.12	0.00	1.343 *	1.533	1.00	4.897	6.58	33.7	107.0	415.5
45.00		1.00	0.79	4.783	5.26	0.00	1.348 *	1.547	4.00	19.693	26.55	139.7	431.3	2892.5
48.00	Top - Section 1	1.00	0.80	4.872	5.36	0.00	1.356 *	1.557	3.00	14.563	19.75	105.8	321.5	2139.0
50.00		1.00	0.81	4.929	5.42	0.00	1.354 *	1.564	2.00	9.610	13.01	70.5	213.4	817.4
55.00		1.00	0.83	5.065	5.57	0.00	1.362 *	1.579	5.00	23.684	32.25	179.7	527.1	2013.6
60.00		1.00	0.85	5.193	5.71	0.00	1.200	1.592	5.00	23.192	27.83	159.0	520.1	1972.8
65.00		1.00	0.87	5.313	5.84	0.00	1.200	1.605	5.00	22.699	27.24	159.2	512.5	1931.4
70.00		1.00	0.89	5.426	5.97	0.00	1.200	1.617	5.00	22.205	26.65	159.0	504.5	1889.7
75.00		1.00	0.91	5.534	6.09	0.00	1.200	1.628	5.00	21.710	26.05	158.6	496.1	1847.5
80.00		1.00	0.93	5.637	6.20	0.00	1.200	1.639	5.00	21.215	25.46	157.9	487.3	1804.9
85.00	Bot - Section 3	1.00	0.94	5.736	6.31	0.00	1.200	1.649	5.00	20.720	24.86	156.9	478.2	1762.0
90.00		1.00	0.96	5.830	6.41	0.00	1.200	1.658	5.00	20.594	24.71	158.5	477.8	3002.8
91.00	Top - Section 2	1.00	0.96	5.849	6.43	0.00	1.200	1.660	1.00	4.059	4.87	31.3	95.2	592.1
93.00	Top - Section 3	1.00	0.97	5.885	6.47	0.00	1.200	1.664	2.00	8.058	9.67	62.6	188.8	686.6
95.00		1.00	0.97	5.921	6.51	0.00	1.200	1.667	2.00	7.978	9.57	62.4	187.2	609.9
100.00		1.00	0.99	6.008	6.61	0.00	1.200	1.676	5.00	19.601	23.52	155.5	458.2	1494.7
105.00		1.00	1.00	6.093	6.70	0.00	1.200	1.684	5.00	19.104	22.92	153.6	448.1	1455.6
110.00		1.00	1.02	6.174	6.79	0.00	1.200	1.692	5.00	18.606	22.33	151.6	437.8	1416.3
115.00		1.00	1.03	6.253	6.88	0.00	1.200	1.699	5.00	18.109	21.73	149.5	427.3	1376.9
120.00		1.00	1.04	6.330	6.96	0.00	1.211 *	1.707	5.00	17.611	21.32	148.4	416.6	1337.2
125.00	Top - Section 4	1.00	1.05	6.404	7.04	0.00	1.223 *	1.714	5.00	17.113	20.92	147.4	405.7	1297.4
130.00	Bot - Section 6	1.00	1.07	6.476	7.12	0.00	1.235 *	1.720	5.00	16.614	20.52	146.2	394.6	1114.9
135.00	Top - Section 5	1.00	1.08	6.546	7.20	0.00	1.249 *	1.727	5.00	16.380	20.46	147.3	390.1	1795.0
140.00	Top - Section 6	1.00	1.09	6.615	7.28	0.00	1.256 *	1.733	5.00	15.882	19.94	145.1	378.8	1063.5
145.00		1.00	1.10	6.681	7.35	0.00	1.200	1.739	5.00	15.383	18.46	135.7	367.4	896.8
150.00		1.00	1.11	6.746	7.42	0.00	1.200	1.745	5.00	14.884	17.86	132.5	355.8	865.9
155.00		1.00	1.12	6.810	7.49	0.00	1.200	1.751	5.00	14.385	17.26	129.3	344.1	834.9
160.00		1.00	1.13	6.872	7.56	0.00	1.200	1.757	5.00	13.886	16.66	126.0	332.2	803.8
165.00		1.00	1.14	6.933	7.63	0.00	1.200	1.762	5.00	13.386	16.06	122.5	320.3	772.6
170.00		1.00	1.15	6.992	7.69	0.00	1.200	1.767	5.00	12.887	15.46	118.9	308.3	741.3
175.00	Appurtenance(s)	1.00	1.16	7.050	7.76	0.00	1.200	1.772	5.00	12.387	14.86	115.3	296.1	709.8
180.00	Top - Section 7	1.00	1.17	7.107	7.82	0.00	1.200 *	1.777	5.00	11.887	14.26	111.5	283.9	678.3
185.00	Appurtenance(s)	1.00	1.18	7.163	7.88	0.00	1.200 *	1.782	5.00	11.485	13.78	108.6	280.7	708.2
190.00		1.00	1.19	7.218	7.94	0.00	1.200	1.787	5.00	11.489	13.79	109.5	281.5	709.0
195.00	Appurtenance(s)	1.00	1.20	7.272	8.00	0.00	1.200	1.792	5.00	11.493	13.79	110.3	282.3	709.8
<b>Totals:</b>									<b>195.00</b>			<b>5,770.3</b>		<b>62,866.2</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

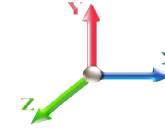
<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	195.00	Low Profile	1	7.272	7.999	1.00	1.00	47.43	3772.45	0.000	0.000	379.36	0.00	0.00	
2	195.00	1900MHz RRH (65MHz)	3	7.272	7.999	0.67	1.00	8.19	401.26	0.000	0.000	65.47	0.00	0.00	
3	195.00	800 MHz RRH	6	7.272	7.999	0.67	1.00	14.73	710.56	0.000	0.000	117.82	0.00	0.00	
4	195.00	TD-RRH8x20-25	3	7.272	7.999	0.67	1.00	9.82	594.09	0.000	0.000	78.56	0.00	0.00	
5	195.00	NNVV-65B-R4	3	7.272	7.999	0.76	1.00	31.38	960.69	0.000	0.000	251.03	0.00	0.00	
6	195.00	PRK-1245 (kicker kit)	1	7.272	7.999	1.00	1.00	19.71	795.98	0.000	0.000	157.67	0.00	0.00	
7	195.00	(3) SFS-H-L (V-Braces)	1	7.272	7.999	1.00	1.00	13.90	504.66	0.000	0.000	111.20	0.00	0.00	
8	195.00	HRK12 (Handrail Kit)	1	7.272	7.999	1.00	1.00	13.52	894.64	0.000	0.000	108.16	0.00	0.00	
9	195.00	APXVTM14-C-I20	3	7.272	7.999	0.81	1.00	18.19	699.01	0.000	0.000	145.48	0.00	0.00	
10	185.00	DC6-48-60-18-8F	1	7.163	7.879	0.60	0.80	0.82	83.59	0.000	0.000	6.46	0.00	0.00	
11	185.00	RRUS-11	6	7.163	7.879	0.60	0.80	11.40	714.03	0.000	0.000	89.83	0.00	0.00	
12	185.00	LGP21903	6	7.163	7.879	0.54	0.80	2.17	76.84	0.000	0.000	17.13	0.00	0.00	
13	185.00	SBNH-1D6565C	1	7.163	7.879	0.64	0.80	9.47	248.18	0.000	0.000	74.58	0.00	0.00	
14	185.00	P65-17-XLH-RR	2	7.163	7.879	0.60	0.80	17.69	459.99	0.000	0.000	139.40	0.00	0.00	
15	185.00	7770.00	6	7.163	7.879	0.58	0.80	23.09	1084.23	0.000	0.000	181.92	0.00	0.00	
16	185.00	Low Profile	1	7.163	7.879	1.00	1.00	40.04	2836.65	0.000	0.000	315.46	0.00	0.00	
17	185.00	LGP21401	6	7.163	7.879	0.54	0.80	6.89	212.11	0.000	0.000	54.31	0.00	0.00	
18	175.00	LNx-6515DS-A1M	3	7.050	7.755	0.64	0.80	28.39	691.55	0.000	0.000	220.19	0.00	0.00	
19	175.00	Low Profile	1	7.050	7.755	1.00	1.00	39.94	2829.24	0.000	0.000	309.71	0.00	0.00	
20	175.00	APX16DWV-16DWVS-E-A	3	7.050	7.755	0.50	0.80	11.30	565.34	0.000	0.000	87.62	0.00	0.00	
21	175.00	15" x 14" x 7.5" RRU	3	7.050	7.755	0.62	0.80	4.27	448.24	0.000	0.000	33.12	0.00	0.00	
22	175.00	RRUS11	9	7.050	7.755	0.58	0.80	18.01	1336.28	0.000	0.000	139.66	0.00	0.00	
23	175.00	96"x15.6"x9" Panels	3	7.050	7.755	0.64	0.80	29.62	1234.44	0.000	0.000	229.72	0.00	0.00	
<b>Totals:</b>									<b>22,154.03</b>						<b>3,313.88</b>

## Total Applied Force Summary

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		167.12	2438.97	0.00	0.00
10.00		165.63	2436.32	0.00	0.00
15.00		163.97	2417.35	0.00	0.00
20.00		162.24	2391.21	0.00	0.00
25.00		160.47	2360.93	0.00	0.00
30.00		158.82	2327.91	0.00	0.00
35.00		164.08	2292.92	0.00	0.00
40.00		168.49	2256.45	0.00	0.00
41.00		33.69	447.10	0.00	0.00
45.00		139.70	3019.55	0.00	0.00
48.00		105.85	2234.66	0.00	0.00
50.00		70.53	881.35	0.00	0.00
55.00		179.69	2174.20	0.00	0.00
60.00		158.96	2085.15	0.00	0.00
65.00		159.18	2044.09	0.00	0.00
70.00		159.05	2002.54	0.00	0.00
75.00		158.60	1960.57	0.00	0.00
80.00		157.87	1918.23	0.00	0.00
85.00		156.87	1875.55	0.00	0.00
90.00		158.49	3116.48	0.00	0.00
91.00		31.33	614.82	0.00	0.00
93.00		62.60	732.14	0.00	0.00
95.00		62.36	655.47	0.00	0.00
100.00		155.46	1608.71	0.00	0.00
105.00		153.64	1569.82	0.00	0.00
110.00		151.64	1530.72	0.00	0.00
115.00		149.47	1491.41	0.00	0.00
120.00		148.45	1451.90	0.00	0.00
125.00		147.38	1412.23	0.00	0.00
130.00		146.20	1229.85	0.00	0.00
135.00		147.30	1910.16	0.00	0.00
140.00		145.09	1178.73	0.00	0.00
145.00		135.67	1004.80	0.00	0.00
150.00		132.55	962.83	0.00	0.00
155.00		129.31	931.83	0.00	0.00
160.00		125.96	900.72	0.00	0.00
165.00		122.50	869.49	0.00	0.00
170.00		118.94	838.15	0.00	0.00
175.00	(22) attachments	1135.29	7911.82	0.00	0.00
180.00		139.94	764.94	0.00	0.00
185.00	(29) attachments	1016.35	6510.51	0.00	0.00
190.00		109.46	731.89	0.00	0.00
195.00	(22) attachments	1525.08	10065.98	0.00	0.00
<b>Totals:</b>		<b>9,141.22</b>	<b>89,560.45</b>	<b>0.00</b>	<b>0.00</b>

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.70	0.00	0.120	1.060	4.256	0.00	9.42
5.00	(4) C5x9	Yes	5.00	0.000	3.78	2.61	0.00	0.120	1.060	4.256	0.00	36.18
10.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.78	0.00	0.122	1.067	4.256	0.00	10.82
10.00	(4) C5x9	Yes	5.00	0.000	3.78	2.68	0.00	0.122	1.067	4.256	0.00	39.32
15.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.82	0.00	0.125	1.074	4.256	0.00	11.74
15.00	(4) C5x9	Yes	5.00	0.000	3.78	2.73	0.00	0.125	1.074	4.256	0.00	41.30
20.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.86	0.00	0.127	1.081	4.256	0.00	12.43
20.00	(4) C5x9	Yes	5.00	0.000	3.78	2.76	0.00	0.127	1.081	4.256	0.00	42.78
25.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.88	0.00	0.130	1.089	4.256	0.00	13.00
25.00	(4) C5x9	Yes	5.00	0.000	3.78	2.79	0.00	0.130	1.089	4.256	0.00	43.98
30.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.90	0.00	0.132	1.097	4.260	0.00	13.48
30.00	(4) C5x9	Yes	5.00	0.000	3.78	2.81	0.00	0.132	1.097	4.260	0.00	44.98
35.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.92	0.00	0.135	1.105	4.451	0.00	13.91
35.00	(4) C5x9	Yes	5.00	0.000	3.78	2.83	0.00	0.135	1.105	4.451	0.00	45.85
40.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.94	0.00	0.138	1.114	4.625	0.00	14.28
40.00	(4) C5x9	Yes	5.00	0.000	3.78	2.85	0.00	0.138	1.114	4.625	0.00	46.62
41.00	(4) C6x10.5	Yes	1.00	0.000	4.00	0.59	0.00	0.140	1.119	4.657	0.00	2.87
41.00	(4) C5x9	Yes	1.00	0.000	3.78	0.57	0.00	0.140	1.119	4.657	0.00	9.35
45.00	(4) C6x10.5	Yes	4.00	0.000	4.00	2.36	0.00	0.141	1.124	4.783	0.00	11.70
45.00	(4) C5x9	Yes	4.00	0.000	3.78	2.29	0.00	0.141	1.124	4.783	0.00	37.85
48.00	(4) C6x10.5	Yes	3.00	0.000	4.00	1.78	0.00	0.143	1.130	4.872	0.00	8.89
48.00	(4) C5x9	Yes	3.00	0.000	3.78	1.72	0.00	0.143	1.130	4.872	0.00	28.62
50.00	(4) C6x10.5	Yes	2.00	0.000	4.00	1.19	0.00	0.143	1.128	4.929	0.00	5.97
50.00	(4) C5x9	Yes	2.00	0.000	3.78	1.15	0.00	0.143	1.128	4.929	0.00	19.18
55.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.98	0.00	0.145	1.135	5.065	0.00	15.22
55.00	(4) C5x9	Yes	5.00	0.000	3.78	2.89	0.00	0.145	1.135	5.065	0.00	48.53
60.00	(4) C6x10.5	Yes	5.00	0.000	4.00	2.99	0.00	0.076	0.000	5.193	0.00	15.49
65.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.00	0.00	0.078	0.000	5.313	0.00	15.74
70.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.01	0.00	0.080	0.000	5.426	0.00	15.98
75.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.02	0.00	0.082	0.000	5.534	0.00	16.20
80.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.03	0.00	0.084	0.000	5.637	0.00	16.41
85.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.04	0.00	0.086	0.000	5.736	0.00	16.61
90.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.05	0.00	0.088	0.000	5.830	0.00	16.80
91.00	(4) C6x10.5	Yes	1.00	0.000	4.00	0.61	0.00	0.090	0.000	5.849	0.00	3.37
93.00	(4) C6x10.5	Yes	2.00	0.000	4.00	1.22	0.00	0.089	0.000	5.885	0.00	6.76
95.00	(4) C6x10.5	Yes	2.00	0.000	4.00	1.22	0.00	0.090	0.000	5.921	0.00	6.79
100.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.06	0.00	0.092	0.000	6.008	0.00	17.16
105.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.07	0.00	0.094	0.000	6.093	0.00	17.32
110.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.08	0.00	0.097	0.000	6.174	0.00	17.49
115.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.08	0.00	0.100	0.000	6.253	0.00	17.64
120.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.09	0.00	0.103	1.009	6.330	0.00	17.79
125.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.09	0.00	0.106	1.019	6.404	0.00	17.94
130.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.10	0.00	0.110	1.029	6.476	0.00	18.08
135.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.11	0.00	0.114	1.041	6.546	0.00	18.22
140.00	(4) C6x10.5	Yes	5.00	0.000	4.00	3.11	0.00	0.115	1.046	6.615	0.00	18.35
145.00	(4) C6x10.5	Yes	3.00	0.000	4.00	1.87	0.00	0.072	0.000	6.681	0.00	11.09
180.00	(3) Bypass Stiffeners	Yes	2.25	1.200	12.60	3.03	3.63	0.227	0.000	7.107	28.42	8.68

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor**    1.20  
**Wind Load Factor**    1.00



**Iterations**    24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
185.00	(3) Bypass Stiffeners	Yes	2.25	1.200	12.60	3.03	3.64	0.236	0.000	7.163	28.66	8.73
<b>Totals:</b>											<b>57.1</b>	<b>947.0</b>

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

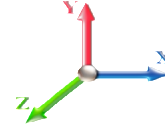


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 24

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-89.56	-9.17	0.00	-1277.8	0.00	1277.82	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.182
5.00	-87.11	-9.06	0.00	-1231.9	0.00	1231.96	5739.58	2869.79	14840.9	7431.48	0.02	-0.039	0.000	0.181
10.00	-84.67	-8.95	0.00	-1186.6	0.00	1186.65	5674.37	2837.18	14392.4	7206.92	0.08	-0.078	0.000	0.180
15.00	-82.25	-8.84	0.00	-1141.8	0.00	1141.88	5607.48	2803.74	13946.2	6983.48	0.19	-0.118	0.000	0.178
20.00	-79.85	-8.73	0.00	-1097.6	0.00	1097.66	5538.91	2769.46	13502.5	6761.30	0.33	-0.159	0.000	0.177
25.00	-77.48	-8.62	0.00	-1054.0	0.00	1054.00	5468.67	2734.33	13061.5	6540.49	0.52	-0.201	0.000	0.175
30.00	-75.15	-8.51	0.00	-1010.8	0.00	1010.89	5396.74	2698.37	12623.6	6321.18	0.76	-0.244	0.000	0.174
35.00	-72.85	-8.39	0.00	-968.33	0.00	968.33	5323.13	2661.56	12188.8	6103.50	1.03	-0.287	0.000	0.172
40.00	-70.59	-8.24	0.00	-926.37	0.00	926.37	5247.84	2623.92	11757.6	5887.58	1.36	-0.332	0.000	0.171
41.00	-70.14	-8.24	0.00	-918.12	0.00	918.12	5232.58	2616.29	11671.8	5844.61	1.43	-0.341	0.000	0.171
45.00	-67.12	-8.12	0.00	-885.18	0.00	885.18	5170.87	2585.43	11330.2	5673.52	1.73	-0.378	0.000	0.169
48.00	-64.88	-8.02	0.00	-860.83	0.00	860.83	5181.33	2590.67	11387.5	5702.24	1.98	-0.406	0.000	0.163
50.00	-64.00	-7.98	0.00	-844.79	0.00	844.79	5150.16	2575.08	11217.4	5617.06	2.15	-0.425	0.000	0.163
55.00	-61.82	-7.83	0.00	-804.89	0.00	804.89	5071.07	2535.53	10795.0	5405.56	2.62	-0.469	0.000	0.161
60.00	-59.73	-7.70	0.00	-765.73	0.00	765.73	4990.29	2495.14	10377.0	5196.21	3.14	-0.515	0.000	0.159
65.00	-57.68	-7.57	0.00	-727.22	0.00	727.22	4907.83	2453.91	9963.49	4989.15	3.70	-0.562	0.000	0.158
70.00	-55.67	-7.44	0.00	-689.36	0.00	689.36	4823.69	2411.85	9554.79	4784.49	4.31	-0.609	0.000	0.156
75.00	-53.71	-7.30	0.00	-652.16	0.00	652.16	4737.87	2368.94	9151.13	4582.37	4.98	-0.658	0.000	0.154
80.00	-51.78	-7.17	0.00	-615.64	0.00	615.64	4650.37	2325.19	8752.78	4382.90	5.69	-0.707	0.000	0.152
85.00	-49.90	-7.03	0.00	-579.79	0.00	579.79	4561.19	2280.60	8359.98	4186.21	6.46	-0.757	0.000	0.149
90.00	-46.79	-6.86	0.00	-544.63	0.00	544.63	4470.33	2235.17	7972.99	3992.42	7.28	-0.808	0.000	0.147
91.00	-46.17	-6.83	0.00	-537.78	0.00	537.78	4519.12	2259.56	8179.18	4095.67	7.45	-0.819	0.000	0.142
93.00	-45.44	-6.77	0.00	-524.12	0.00	524.12	4482.67	2241.33	8024.77	4018.35	7.80	-0.840	0.000	0.141
93.00	-45.44	-6.77	0.00	-524.12	0.00	524.12	3684.61	1842.31	6615.01	3312.42	7.80	-0.840	0.000	0.171
95.00	-44.78	-6.73	0.00	-510.57	0.00	510.57	3656.67	1828.34	6492.71	3251.18	8.15	-0.860	0.000	0.169
100.00	-43.16	-6.59	0.00	-476.92	0.00	476.92	3585.64	1792.82	6189.75	3099.48	9.09	-0.918	0.000	0.166
105.00	-41.59	-6.46	0.00	-443.95	0.00	443.95	3512.93	1756.47	5890.99	2949.87	10.08	-0.976	0.000	0.162
110.00	-40.06	-6.32	0.00	-411.66	0.00	411.66	3438.54	1719.27	5596.65	2802.49	11.13	-1.036	0.000	0.159
115.00	-38.56	-6.18	0.00	-380.05	0.00	380.05	3362.47	1681.23	5307.01	2657.45	12.25	-1.096	0.000	0.154
120.00	-37.11	-6.05	0.00	-349.13	0.00	349.13	3284.72	1642.36	5022.30	2514.88	13.43	-1.156	0.000	0.150
125.00	-35.69	-5.91	0.00	-318.90	0.00	318.90	3192.26	1596.13	4723.49	2365.26	14.67	-1.217	0.000	0.146
125.00	-35.69	-5.91	0.00	-318.90	0.00	318.90	2545.46	1272.73	3779.50	1892.56	14.67	-1.217	0.000	0.183
130.00	-34.46	-5.78	0.00	-289.36	0.00	289.36	2486.30	1243.15	3569.04	1787.17	15.98	-1.278	0.000	0.176
135.00	-32.54	-5.63	0.00	-260.48	0.00	260.48	2457.60	1228.80	3470.24	1737.70	17.36	-1.351	0.000	0.163
140.00	-31.36	-5.49	0.00	-232.35	0.00	232.35	2395.97	1197.98	3265.05	1634.95	18.81	-1.424	0.000	0.155
140.00	-31.36	-5.49	0.00	-232.35	0.00	232.35	1788.19	894.09	2445.99	1224.81	18.81	-1.424	0.000	0.207
145.00	-30.36	-5.37	0.00	-204.90	0.00	204.90	1746.83	873.41	2303.27	1153.35	20.34	-1.492	0.000	0.195
150.00	-29.39	-5.25	0.00	-178.05	0.00	178.05	1703.79	851.89	2162.49	1082.85	21.95	-1.574	0.000	0.182
155.00	-28.45	-5.14	0.00	-151.79	0.00	151.79	1659.07	829.53	2023.91	1013.46	23.64	-1.653	0.000	0.167
160.00	-27.55	-5.02	0.00	-126.11	0.00	126.11	1612.67	806.33	1887.77	945.29	25.41	-1.728	0.000	0.151
165.00	-26.68	-4.90	0.00	-101.02	0.00	101.02	1564.59	782.29	1754.32	878.47	27.26	-1.798	0.000	0.132
170.00	-25.84	-4.78	0.00	-76.52	0.00	76.52	1514.83	757.41	1623.82	813.12	29.18	-1.860	0.000	0.111
175.00	-17.97	-3.40	0.00	-52.63	0.00	52.63	1463.38	731.69	1496.51	749.37	31.15	-1.911	0.000	0.083
180.00	-17.21	-3.24	0.00	-35.63	0.00	35.63	1400.09	700.04	1362.73	682.38	33.18	-1.951	0.000	0.065
180.00	-17.21	-3.24	0.00	-35.63	0.00	35.63	678.42	339.21	662.23	396.30	33.18	-1.951	0.000	0.115
185.00	-10.73	-2.01	0.00	-19.42	0.00	19.42	678.42	339.21	662.23	396.30	35.24	-1.981	0.000	0.065
190.00	-10.01	-1.88	0.00	-9.37	0.00	9.37	678.42	339.21	662.23	396.30	37.32	-1.994	0.000	0.038
195.00	0.00	-1.53	0.00	0.00	0.00	0.00	678.42	339.21	662.23	396.30	39.41	-1.999	0.000	0.000



## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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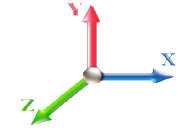
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E				<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.18	<b>Ss</b> 0.17
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.30	<b>SA</b> 0.03
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1499.4	0.00	0.03	0.01	24.20	
10.00		1471.2	0.00	0.04	0.03	35.59	
15.00		1443.1	0.01	0.06	0.03	41.37	
20.00		1415.0	0.02	0.06	0.04	44.21	
25.00		1386.8	0.03	0.07	0.04	45.46	
30.00		1358.7	0.04	0.07	0.04	45.87	
35.00		1330.5	0.06	0.07	0.04	45.90	
40.00		1302.4	0.08	0.07	0.04	45.78	
41.00	Bot - Section 2	257.11	0.08	0.07	0.04	9.07	
45.00		2050.9	0.10	0.07	0.04	73.43	
48.00	Top - Section 1	1514.5	0.11	0.07	0.04	54.84	
50.00		503.36	0.12	0.07	0.03	18.36	
55.00		1238.7	0.15	0.07	0.03	45.92	
60.00		1210.5	0.18	0.07	0.03	45.35	
65.00		1182.4	0.21	0.06	0.02	44.25	
70.00		1154.3	0.24	0.06	0.02	42.32	
75.00		1126.1	0.28	0.05	0.01	39.21	
80.00		1098.0	0.32	0.04	0.01	34.54	
85.00	Bot - Section 3	1069.9	0.36	0.03	0.01	28.01	
90.00		2104.1	0.40	0.02	0.01	39.43	
91.00	Top - Section 2	414.08	0.41	0.01	0.01	7.04	
93.00	Top - Section 3	414.84	0.43	0.01	0.01	5.50	
95.00		352.23	0.45	0.00	0.01	3.25	
100.00		863.69	0.50	-0.02	0.01	-1.49	
105.00		839.57	0.55	-0.03	0.01	-10.93	
110.00		815.45	0.60	-0.05	0.01	-19.03	
115.00		791.33	0.66	-0.07	0.02	-24.98	
120.00		767.22	0.72	-0.09	0.03	-28.44	
125.00	Top - Section 4	743.10	0.78	-0.11	0.05	-29.40	
130.00	Bot - Section 6	600.21	0.84	-0.12	0.07	-23.41	
135.00	Top - Section 5	1170.7	0.91	-0.12	0.09	-41.56	
140.00	Top - Section 6	570.56	0.97	-0.12	0.12	-16.61	
145.00		441.21	1.05	-0.10	0.15	-8.78	
150.00		425.13	1.12	-0.06	0.20	-3.37	
155.00		409.06	1.19	0.00	0.25	2.78	
160.00		392.98	1.27	0.08	0.31	9.55	
165.00		376.90	1.35	0.20	0.39	16.82	
170.00		360.82	1.44	0.36	0.47	24.47	
175.00	Appurtenance(s)	2985.6	1.52	0.56	0.57	280.37	
180.00	Top - Section 7	328.66	1.61	0.81	0.68	40.41	
185.00	Appurtenance(s)	2705.7	1.70	1.13	0.82	419.42	
190.00		356.25	1.79	1.51	0.97	67.74	
195.00	Appurtenance(s)	4221.6	1.89	1.98	1.14	964.28	
<b>Totals:</b>		<b>47,064.9</b>				<b>2,436.7</b>	<b>Total Wind: 37,141.7</b>

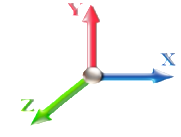
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.0E	<b>Iterations</b> 23
<b>Gust Response Factor</b> 1.10	<b>Sds</b> 0.18
<b>Dead Load Factor</b> 1.20	<b>Ss</b> 0.17
<b>Wind Load Factor</b> 0.00	<b>S1</b> 0.06
<b>Seismic Load Factor</b> 1.00	<b>Sd1</b> 0.10
<b>Structure Frequency</b> 0.30	<b>SA</b> 0.03
<b>Seismic Importance Factor</b> 1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-60.07	-2.65	0.00	-405.06	0.00	405.06	5803.10	2901.55	15291.3	7657.05	0.00	0.00	0.00	0.063
5.00	-58.17	-2.64	0.00	-391.81	0.00	391.81	5739.58	2869.79	14840.9	7431.48	0.01	-0.01	0.063	
10.00	-56.31	-2.62	0.00	-378.62	0.00	378.62	5674.37	2837.18	14392.4	7206.92	0.03	-0.02	0.062	
15.00	-54.48	-2.59	0.00	-365.54	0.00	365.54	5607.48	2803.74	13946.2	6983.48	0.06	-0.04	0.062	
20.00	-52.69	-2.55	0.00	-352.62	0.00	352.62	5538.91	2769.46	13502.5	6761.30	0.11	-0.05	0.062	
25.00	-50.92	-2.52	0.00	-339.86	0.00	339.86	5468.67	2734.33	13061.5	6540.49	0.17	-0.06	0.061	
30.00	-49.20	-2.48	0.00	-327.27	0.00	327.27	5396.74	2698.37	12623.6	6321.18	0.24	-0.08	0.061	
35.00	-47.50	-2.44	0.00	-314.87	0.00	314.87	5323.13	2661.56	12188.8	6103.50	0.33	-0.09	0.061	
40.00	-45.84	-2.40	0.00	-302.65	0.00	302.65	5247.84	2623.92	11757.6	5887.58	0.43	-0.11	0.060	
41.00	-45.51	-2.40	0.00	-300.25	0.00	300.25	5232.58	2616.29	11671.8	5844.61	0.46	-0.11	0.060	
45.00	-42.98	-2.33	0.00	-290.66	0.00	290.66	5170.87	2585.43	11330.2	5673.52	0.55	-0.12	0.060	
48.00	-41.10	-2.27	0.00	-283.67	0.00	283.67	5181.33	2590.67	11387.5	5702.24	0.63	-0.13	0.058	
50.00	-40.46	-2.26	0.00	-279.12	0.00	279.12	5150.16	2575.08	11217.4	5617.06	0.69	-0.14	0.058	
55.00	-38.87	-2.22	0.00	-267.81	0.00	267.81	5071.07	2535.53	10795.0	5405.56	0.84	-0.15	0.057	
60.00	-37.32	-2.18	0.00	-256.70	0.00	256.70	4990.29	2495.14	10377.0	5196.21	1.01	-0.17	0.057	
65.00	-35.81	-2.14	0.00	-245.79	0.00	245.79	4907.83	2453.91	9963.49	4989.15	1.19	-0.18	0.057	
70.00	-34.32	-2.11	0.00	-235.07	0.00	235.07	4823.69	2411.85	9554.79	4784.49	1.39	-0.20	0.056	
75.00	-32.87	-2.07	0.00	-224.53	0.00	224.53	4737.87	2368.94	9151.13	4582.37	1.61	-0.22	0.056	
80.00	-31.46	-2.04	0.00	-214.18	0.00	214.18	4650.37	2325.19	8752.78	4382.90	1.85	-0.23	0.056	
85.00	-30.08	-2.02	0.00	-203.97	0.00	203.97	4561.19	2280.60	8359.98	4186.21	2.10	-0.25	0.055	
90.00	-27.46	-1.97	0.00	-193.89	0.00	193.89	4470.33	2235.17	7972.99	3992.42	2.37	-0.27	0.055	
91.00	-26.94	-1.96	0.00	-191.92	0.00	191.92	4519.12	2259.56	8179.18	4095.67	2.43	-0.27	0.053	
93.00	-26.40	-1.96	0.00	-187.99	0.00	187.99	4482.67	2241.33	8024.77	4018.35	2.54	-0.28	0.053	
93.00	-26.40	-1.96	0.00	-187.99	0.00	187.99	3684.61	1842.31	6615.01	3312.42	2.54	-0.28	0.064	
95.00	-25.94	-1.96	0.00	-184.07	0.00	184.07	3656.67	1828.34	6492.71	3251.18	2.66	-0.29	0.064	
100.00	-24.81	-1.96	0.00	-174.27	0.00	174.27	3585.64	1792.82	6189.75	3099.48	2.97	-0.31	0.063	
105.00	-23.70	-1.97	0.00	-164.46	0.00	164.46	3512.93	1756.47	5890.99	2949.87	3.31	-0.33	0.062	
110.00	-22.63	-1.97	0.00	-154.62	0.00	154.62	3438.54	1719.27	5596.65	2802.49	3.66	-0.35	0.062	
115.00	-21.58	-1.97	0.00	-144.78	0.00	144.78	3362.47	1681.23	5307.01	2657.45	4.04	-0.37	0.061	
120.00	-20.56	-1.97	0.00	-134.93	0.00	134.93	3284.72	1642.36	5022.30	2514.88	4.45	-0.40	0.060	
125.00	-19.57	-1.97	0.00	-125.07	0.00	125.07	3192.26	1596.13	4723.49	2365.26	4.88	-0.42	0.059	
125.00	-19.57	-1.97	0.00	-125.07	0.00	125.07	2545.46	1272.73	3779.50	1892.56	4.88	-0.42	0.074	
130.00	-18.75	-1.98	0.00	-115.20	0.00	115.20	2486.30	1243.15	3569.04	1787.17	5.33	-0.45	0.072	
135.00	-17.25	-1.97	0.00	-105.32	0.00	105.32	2457.60	1228.80	3470.24	1737.70	5.81	-0.47	0.068	
140.00	-16.47	-1.97	0.00	-95.45	0.00	95.45	2395.97	1197.98	3265.05	1634.95	6.33	-0.50	0.065	
140.00	-16.47	-1.97	0.00	-95.45	0.00	95.45	1788.19	894.09	2445.99	1224.81	6.33	-0.50	0.087	
145.00	-15.84	-1.98	0.00	-85.58	0.00	85.58	1746.83	873.41	2303.27	1153.35	6.87	-0.53	0.083	
150.00	-15.23	-1.98	0.00	-75.69	0.00	75.69	1703.79	851.89	2162.49	1082.85	7.45	-0.57	0.079	
155.00	-14.64	-1.98	0.00	-65.79	0.00	65.79	1659.07	829.53	2023.91	1013.46	8.06	-0.60	0.074	
160.00	-14.07	-1.97	0.00	-55.88	0.00	55.88	1612.67	806.33	1887.77	945.29	8.71	-0.63	0.068	
165.00	-13.52	-1.96	0.00	-46.02	0.00	46.02	1564.59	782.29	1754.32	878.47	9.39	-0.67	0.061	
170.00	-12.99	-1.93	0.00	-36.23	0.00	36.23	1514.83	757.41	1623.82	813.12	10.10	-0.69	0.053	
175.00	-9.32	-1.61	0.00	-26.57	0.00	26.57	1463.38	731.69	1496.51	749.37	10.84	-0.72	0.042	
180.00	-8.84	-1.57	0.00	-18.52	0.00	18.52	1400.09	700.04	1362.73	682.38	11.60	-0.74	0.033	
180.00	-8.84	-1.57	0.00	-18.52	0.00	18.52	678.42	339.21	662.23	396.30	11.60	-0.74	0.060	
185.00	-5.53	-1.11	0.00	-10.69	0.00	10.69	678.42	339.21	662.23	396.30	12.39	-0.75	0.035	
190.00	-5.08	-1.03	0.00	-5.16	0.00	5.16	678.42	339.21	662.23	396.30	13.18	-0.76	0.021	

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
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195.00	0.00	-0.96	0.00	0.00	0.00	0.00	0.00	678.42	339.21	662.23	396.30	13.98	-0.76	0.000
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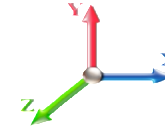
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E				<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.18	<b>Ss</b> 0.17
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.30	<b>SA</b> 0.03
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1499.4	0.00	0.03	0.01	24.20	
10.00		1471.2	0.00	0.04	0.03	35.59	
15.00		1443.1	0.01	0.06	0.03	41.37	
20.00		1415.0	0.02	0.06	0.04	44.21	
25.00		1386.8	0.03	0.07	0.04	45.46	
30.00		1358.7	0.04	0.07	0.04	45.87	
35.00		1330.5	0.06	0.07	0.04	45.90	
40.00		1302.4	0.08	0.07	0.04	45.78	
41.00	Bot - Section 2	257.11	0.08	0.07	0.04	9.07	
45.00		2050.9	0.10	0.07	0.04	73.43	
48.00	Top - Section 1	1514.5	0.11	0.07	0.04	54.84	
50.00		503.36	0.12	0.07	0.03	18.36	
55.00		1238.7	0.15	0.07	0.03	45.92	
60.00		1210.5	0.18	0.07	0.03	45.35	
65.00		1182.4	0.21	0.06	0.02	44.25	
70.00		1154.3	0.24	0.06	0.02	42.32	
75.00		1126.1	0.28	0.05	0.01	39.21	
80.00		1098.0	0.32	0.04	0.01	34.54	
85.00	Bot - Section 3	1069.9	0.36	0.03	0.01	28.01	
90.00		2104.1	0.40	0.02	0.01	39.43	
91.00	Top - Section 2	414.08	0.41	0.01	0.01	7.04	
93.00	Top - Section 3	414.84	0.43	0.01	0.01	5.50	
95.00		352.23	0.45	0.00	0.01	3.25	
100.00		863.69	0.50	-0.02	0.01	-1.49	
105.00		839.57	0.55	-0.03	0.01	-10.93	
110.00		815.45	0.60	-0.05	0.01	-19.03	
115.00		791.33	0.66	-0.07	0.02	-24.98	
120.00		767.22	0.72	-0.09	0.03	-28.44	
125.00	Top - Section 4	743.10	0.78	-0.11	0.05	-29.40	
130.00	Bot - Section 6	600.21	0.84	-0.12	0.07	-23.41	
135.00	Top - Section 5	1170.7	0.91	-0.12	0.09	-41.56	
140.00	Top - Section 6	570.56	0.97	-0.12	0.12	-16.61	
145.00		441.21	1.05	-0.10	0.15	-8.78	
150.00		425.13	1.12	-0.06	0.20	-3.37	
155.00		409.06	1.19	0.00	0.25	2.78	
160.00		392.98	1.27	0.08	0.31	9.55	
165.00		376.90	1.35	0.20	0.39	16.82	
170.00		360.82	1.44	0.36	0.47	24.47	
175.00	Appurtenance(s)	2985.6	1.52	0.56	0.57	280.37	
180.00	Top - Section 7	328.66	1.61	0.81	0.68	40.41	
185.00	Appurtenance(s)	2705.7	1.70	1.13	0.82	419.42	
190.00		356.25	1.79	1.51	0.97	67.74	
195.00	Appurtenance(s)	4221.6	1.89	1.98	1.14	964.28	
<b>Totals:</b>		<b>47,064.9</b>				<b>2,436.7</b>	<b>Total Wind: 37,141.7</b>

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

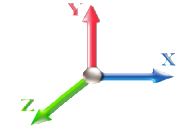


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**Load Case:** 0.9D + 1.0E

**Iterations** 23

<b>Gust Response Factor</b> 1.10	<b>Sds</b> 0.18	<b>Ss</b> 0.17
<b>Dead Load Factor</b> 0.90	<b>Seismic Load Factor</b> 1.00	<b>Sd1</b> 0.10
<b>Wind Load Factor</b> 0.00	<b>Structure Frequency</b> 0.30	<b>SA</b> 0.03
	<b>Seismic Importance Factor</b> 1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.05	-2.65	0.00	-399.25	0.00	399.25	5803.10	2901.55	15291.3	7657.05	0.00	0.00	0.00	0.060
5.00	-43.63	-2.63	0.00	-386.00	0.00	386.00	5739.58	2869.79	14840.9	7431.48	0.01	-0.01	0.060	
10.00	-42.23	-2.61	0.00	-372.83	0.00	372.83	5674.37	2837.18	14392.4	7206.92	0.03	-0.02	0.059	
15.00	-40.86	-2.57	0.00	-359.80	0.00	359.80	5607.48	2803.74	13946.2	6983.48	0.06	-0.04	0.059	
20.00	-39.51	-2.54	0.00	-346.93	0.00	346.93	5538.91	2769.46	13502.5	6761.30	0.10	-0.05	0.058	
25.00	-38.19	-2.50	0.00	-334.24	0.00	334.24	5468.67	2734.33	13061.5	6540.49	0.16	-0.06	0.058	
30.00	-36.90	-2.46	0.00	-321.74	0.00	321.74	5396.74	2698.37	12623.6	6321.18	0.24	-0.08	0.058	
35.00	-35.63	-2.42	0.00	-309.43	0.00	309.43	5323.13	2661.56	12188.8	6103.50	0.33	-0.09	0.057	
40.00	-34.38	-2.38	0.00	-297.32	0.00	297.32	5247.84	2623.92	11757.6	5887.58	0.43	-0.10	0.057	
41.00	-34.13	-2.37	0.00	-294.94	0.00	294.94	5232.58	2616.29	11671.8	5844.61	0.45	-0.11	0.057	
45.00	-32.23	-2.30	0.00	-285.44	0.00	285.44	5170.87	2585.43	11330.2	5673.52	0.55	-0.12	0.057	
48.00	-30.82	-2.25	0.00	-278.53	0.00	278.53	5181.33	2590.67	11387.5	5702.24	0.62	-0.13	0.055	
50.00	-30.34	-2.24	0.00	-274.03	0.00	274.03	5150.16	2575.08	11217.4	5617.06	0.68	-0.13	0.055	
55.00	-29.15	-2.19	0.00	-262.85	0.00	262.85	5071.07	2535.53	10795.0	5405.56	0.83	-0.15	0.054	
60.00	-27.99	-2.15	0.00	-251.88	0.00	251.88	4990.29	2495.14	10377.0	5196.21	0.99	-0.16	0.054	
65.00	-26.85	-2.11	0.00	-241.12	0.00	241.12	4907.83	2453.91	9963.49	4989.15	1.17	-0.18	0.054	
70.00	-25.74	-2.07	0.00	-230.56	0.00	230.56	4823.69	2411.85	9554.79	4784.49	1.37	-0.20	0.054	
75.00	-24.65	-2.04	0.00	-220.19	0.00	220.19	4737.87	2368.94	9151.13	4582.37	1.58	-0.21	0.053	
80.00	-23.59	-2.01	0.00	-210.00	0.00	210.00	4650.37	2325.19	8752.78	4382.90	1.81	-0.23	0.053	
85.00	-22.56	-1.98	0.00	-199.97	0.00	199.97	4561.19	2280.60	8359.98	4186.21	2.06	-0.25	0.053	
90.00	-20.59	-1.94	0.00	-190.06	0.00	190.06	4470.33	2235.17	7972.99	3992.42	2.33	-0.26	0.052	
91.00	-20.20	-1.93	0.00	-188.13	0.00	188.13	4519.12	2259.56	8179.18	4095.67	2.39	-0.27	0.050	
93.00	-19.80	-1.92	0.00	-184.27	0.00	184.27	4482.67	2241.33	8024.77	4018.35	2.50	-0.27	0.050	
93.00	-19.80	-1.92	0.00	-184.27	0.00	184.27	3684.61	1842.31	6615.01	3312.42	2.50	-0.27	0.061	
95.00	-19.45	-1.92	0.00	-180.42	0.00	180.42	3656.67	1828.34	6492.71	3251.18	2.62	-0.28	0.061	
100.00	-18.60	-1.93	0.00	-170.80	0.00	170.80	3585.64	1792.82	6189.75	3099.48	2.92	-0.30	0.060	
105.00	-17.77	-1.93	0.00	-161.16	0.00	161.16	3512.93	1756.47	5890.99	2949.87	3.25	-0.32	0.060	
110.00	-16.97	-1.93	0.00	-151.52	0.00	151.52	3438.54	1719.27	5596.65	2802.49	3.60	-0.35	0.059	
115.00	-16.18	-1.93	0.00	-141.86	0.00	141.86	3362.47	1681.23	5307.01	2657.45	3.97	-0.37	0.058	
120.00	-15.42	-1.93	0.00	-132.20	0.00	132.20	3284.72	1642.36	5022.30	2514.88	4.37	-0.39	0.057	
125.00	-14.68	-1.93	0.00	-122.53	0.00	122.53	3192.26	1596.13	4723.49	2365.26	4.79	-0.41	0.056	
125.00	-14.68	-1.93	0.00	-122.53	0.00	122.53	2545.46	1272.73	3779.50	1892.56	4.79	-0.41	0.071	
130.00	-14.06	-1.94	0.00	-112.86	0.00	112.86	2486.30	1243.15	3569.04	1787.17	5.24	-0.44	0.069	
135.00	-12.93	-1.93	0.00	-103.18	0.00	103.18	2457.60	1228.80	3470.24	1737.70	5.71	-0.47	0.065	
140.00	-12.35	-1.94	0.00	-93.51	0.00	93.51	2395.97	1197.98	3265.05	1634.95	6.21	-0.49	0.062	
140.00	-12.35	-1.94	0.00	-93.51	0.00	93.51	1788.19	894.09	2445.99	1224.81	6.21	-0.49	0.083	
145.00	-11.88	-1.94	0.00	-83.83	0.00	83.83	1746.83	873.41	2303.27	1153.35	6.75	-0.52	0.079	
150.00	-11.42	-1.94	0.00	-74.15	0.00	74.15	1703.79	851.89	2162.49	1082.85	7.31	-0.56	0.075	
155.00	-10.98	-1.94	0.00	-64.45	0.00	64.45	1659.07	829.53	2023.91	1013.46	7.91	-0.59	0.070	
160.00	-10.55	-1.93	0.00	-54.75	0.00	54.75	1612.67	806.33	1887.77	945.29	8.55	-0.62	0.064	
165.00	-10.14	-1.91	0.00	-45.10	0.00	45.10	1564.59	782.29	1754.32	878.47	9.22	-0.65	0.058	
170.00	-9.74	-1.89	0.00	-35.53	0.00	35.53	1514.83	757.41	1623.82	813.12	9.91	-0.68	0.050	
175.00	-6.98	-1.58	0.00	-26.08	0.00	26.08	1463.38	731.69	1496.51	749.37	10.64	-0.70	0.040	
180.00	-6.63	-1.54	0.00	-18.18	0.00	18.18	1400.09	700.04	1362.73	682.38	11.39	-0.72	0.031	
180.00	-6.63	-1.54	0.00	-18.18	0.00	18.18	678.42	339.21	662.23	396.30	11.39	-0.72	0.056	
185.00	-4.14	-1.09	0.00	-10.50	0.00	10.50	678.42	339.21	662.23	396.30	12.16	-0.74	0.033	
190.00	-3.80	-1.01	0.00	-5.07	0.00	5.07	678.42	339.21	662.23	396.30	12.94	-0.75	0.018	

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 34



195.00	0.00	-0.96	0.00	0.00	0.00	0.00	0.00	678.42	339.21	662.23	396.30	13.72	-0.75	0.000
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## Wind Loading - Shaft

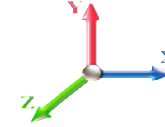
<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	<b>5/29/2018</b>
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	273.99	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	268.93	0.689 *	0.000	5.00	27.038	18.62	125.5	0.0	1499.4
10.00		1.00	0.70	6.129	6.74	263.87	0.693 *	0.000	5.00	26.534	18.39	124.0	0.0	1471.3
15.00		1.00	0.70	6.129	6.74	258.81	0.698 *	0.000	5.00	26.030	18.16	122.5	0.0	1443.1
20.00		1.00	0.70	6.129	6.74	253.75	0.703 *	0.000	5.00	25.526	17.94	120.9	0.0	1415.0
25.00		1.00	0.70	6.129	6.74	248.69	0.708 *	0.000	5.00	25.022	17.71	119.4	0.0	1386.9
30.00		1.00	0.70	6.134	6.75	243.73	0.713 *	0.000	5.00	24.518	17.48	117.9	0.0	1358.7
35.00		1.00	0.73	6.410	7.05	243.99	0.718 *	0.000	5.00	24.014	17.25	121.6	0.0	1330.6
40.00		1.00	0.76	6.659	7.33	243.41	0.724 *	0.000	5.00	23.510	17.02	124.7	0.0	1302.5
41.00	Bot - Section 2	1.00	0.77	6.706	7.38	243.21	0.727 *	0.000	1.00	4.642	3.38	24.9	0.0	257.1
45.00		1.00	0.79	6.887	7.58	242.18	0.730 *	0.000	4.00	18.661	13.63	103.3	0.0	2050.9
48.00	Top - Section 1	1.00	0.80	7.015	7.72	241.18	0.735 *	0.000	3.00	13.784	10.13	78.1	0.0	1514.6
50.00		1.00	0.81	7.098	7.81	244.41	0.733 *	0.000	2.00	9.089	6.66	52.0	0.0	503.4
55.00		1.00	0.83	7.294	8.02	242.24	0.738 *	0.000	5.00	22.369	16.50	132.4	0.0	1238.7
60.00		1.00	0.85	7.477	8.22	239.68	0.650	0.000	5.00	21.865	14.21	116.9	0.0	1210.6
65.00		1.00	0.87	7.650	8.42	236.79	0.650	0.000	5.00	21.361	13.88	116.8	0.0	1182.4
70.00		1.00	0.89	7.814	8.60	233.59	0.650	0.000	5.00	20.857	13.56	116.5	0.0	1154.3
75.00		1.00	0.91	7.969	8.77	230.14	0.650	0.000	5.00	20.353	13.23	116.0	0.0	1126.2
80.00		1.00	0.93	8.118	8.93	226.45	0.650	0.000	5.00	19.849	12.90	115.2	0.0	1098.0
85.00	Bot - Section 3	1.00	0.94	8.260	9.09	222.54	0.650	0.000	5.00	19.346	12.57	114.2	0.0	1069.9
90.00		1.00	0.96	8.396	9.24	218.45	0.650	0.000	5.00	19.212	12.49	115.3	0.0	2104.2
91.00	Top - Section 2	1.00	0.96	8.422	9.26	217.61	0.650	0.000	1.00	3.782	2.46	22.8	0.0	414.1
93.00	Top - Section 3	1.00	0.97	8.475	9.32	220.27	0.650	0.000	2.00	7.503	4.88	45.5	0.0	414.8
95.00		1.00	0.97	8.526	9.38	218.56	0.650	0.000	2.00	7.423	4.82	45.3	0.0	352.2
100.00		1.00	0.99	8.652	9.52	214.15	0.650	0.000	5.00	18.204	11.83	112.6	0.0	863.7
105.00		1.00	1.00	8.774	9.65	209.60	0.650	0.000	5.00	17.700	11.51	111.0	0.0	839.6
110.00		1.00	1.02	8.891	9.78	204.90	0.650	0.000	5.00	17.196	11.18	109.3	0.0	815.5
115.00		1.00	1.03	9.005	9.91	200.08	0.650	0.000	5.00	16.692	10.85	107.5	0.0	791.3
120.00		1.00	1.04	9.115	10.03	195.13	0.656 *	0.000	5.00	16.189	10.62	106.4	0.0	767.2
125.00	Top - Section 4	1.00	1.05	9.222	10.14	190.06	0.662 *	0.000	5.00	15.685	10.39	105.4	0.0	743.1
130.00	Bot - Section 6	1.00	1.07	9.326	10.26	184.89	0.669 *	0.000	5.00	15.181	10.16	104.2	0.0	600.2
135.00	Top - Section 5	1.00	1.08	9.427	10.37	179.61	0.676 *	0.000	5.00	14.941	10.11	104.8	0.0	1170.8
140.00	Top - Section 6	1.00	1.09	9.525	10.48	177.55	0.680 *	0.000	5.00	14.437	9.82	102.9	0.0	570.6
145.00		1.00	1.10	9.621	10.58	172.11	0.650	0.000	5.00	13.933	9.06	95.9	0.0	441.2
150.00		1.00	1.11	9.715	10.69	166.57	0.650	0.000	5.00	13.430	8.73	93.3	0.0	425.1
155.00		1.00	1.12	9.806	10.79	160.96	0.650	0.000	5.00	12.926	8.40	90.6	0.0	409.1
160.00		1.00	1.13	9.896	10.89	155.26	0.650	0.000	5.00	12.422	8.07	87.9	0.0	393.0
165.00		1.00	1.14	9.983	10.98	149.49	0.650	0.000	5.00	11.918	7.75	85.1	0.0	376.9
170.00		1.00	1.15	10.069	11.08	143.64	0.650	0.000	5.00	11.414	7.42	82.2	0.0	360.8
175.00	Appurtenance(s)	1.00	1.16	10.152	11.17	137.72	0.650	0.000	5.00	10.910	7.09	79.2	0.0	344.7
180.00	Top - Section 7	1.00	1.17	10.234	11.26	131.74	1.200 *	0.000	5.00	10.406	12.49	140.6	0.0	328.7
185.00	Appurtenance(s)	1.00	1.18	10.315	11.35	130.25	1.200 *	0.000	5.00	10.000	12.00	136.2	0.0	356.3
190.00		1.00	1.19	10.394	11.43	130.75	0.600	0.000	5.00	10.000	6.00	68.6	0.0	356.3
195.00	Appurtenance(s)	1.00	1.20	10.471	11.52	131.23	0.600	0.000	5.00	10.000	6.00	69.1	0.0	356.3
<b>Totals:</b>									<b>195.00</b>			<b>4,284.4</b>		<b>38,209.1</b>

\* Cf Adjusted by Linear Load Ra Effect



## Discrete Appurtenance Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	195.00	Low Profile	1	10.471	11.518	1.00	1.00	26.00	1800.00	0.000	0.000	299.47	0.00	0.00	
2	195.00	1900MHz RRH (65MHz)	3	10.471	11.518	0.67	1.00	5.57	180.00	0.000	0.000	64.13	0.00	0.00	
3	195.00	800 MHz RRH	6	10.471	11.518	0.67	1.00	10.01	318.00	0.000	0.000	115.29	0.00	0.00	
4	195.00	TD-RRH8x20-25	3	10.471	11.518	0.67	1.00	8.14	210.00	0.000	0.000	93.76	0.00	0.00	
5	195.00	NNVV-65B-R4	3	10.471	11.518	0.73	1.00	26.87	232.20	0.000	0.000	309.51	0.00	0.00	
6	195.00	PRK-1245 (kicker kit)	1	10.471	11.518	1.00	1.00	9.50	464.91	0.000	0.000	109.42	0.00	0.00	
7	195.00	(3) SFS-H-L (V-Braces)	1	10.471	11.518	1.00	1.00	6.70	230.00	0.000	0.000	77.17	0.00	0.00	
8	195.00	HRK12 (Handrail Kit)	1	10.471	11.518	1.00	1.00	6.75	261.72	0.000	0.000	77.75	0.00	0.00	
9	195.00	APXVTM14-C-I20	3	10.471	11.518	0.78	1.00	14.84	168.60	0.000	0.000	170.88	0.00	0.00	
10	185.00	DC6-48-60-18-8F	1	10.315	11.346	0.60	0.80	0.55	31.80	0.000	0.000	6.26	0.00	0.00	
11	185.00	RRUS-11	6	10.315	11.346	0.60	0.80	9.07	306.00	0.000	0.000	102.93	0.00	0.00	
12	185.00	LGP21903	6	10.315	11.346	0.54	0.80	0.87	33.00	0.000	0.000	9.85	0.00	0.00	
13	185.00	SBNH-1D6565C	1	10.315	11.346	0.64	0.80	7.34	66.10	0.000	0.000	83.29	0.00	0.00	
14	185.00	P65-17-XLH-RR	2	10.315	11.346	0.60	0.80	13.73	118.00	0.000	0.000	155.76	0.00	0.00	
15	185.00	7770.00	6	10.315	11.346	0.58	0.80	19.27	210.00	0.000	0.000	218.66	0.00	0.00	
16	185.00	Low Profile	1	10.315	11.346	1.00	1.00	22.00	1500.00	0.000	0.000	249.62	0.00	0.00	
17	185.00	LGP21401	6	10.315	11.346	0.54	0.80	4.15	84.60	0.000	0.000	47.07	0.00	0.00	
18	175.00	LNx-6515DS-A1M	3	10.152	11.168	0.64	0.80	22.02	150.90	0.000	0.000	245.94	0.00	0.00	
19	175.00	Low Profile	1	10.152	11.168	1.00	1.00	22.00	1500.00	0.000	0.000	245.69	0.00	0.00	
20	175.00	APX16DWV-16DWVS-E-A	3	10.152	11.168	0.50	0.80	9.61	122.10	0.000	0.000	107.35	0.00	0.00	
21	175.00	15" x 14" x 7.5" RRU	3	10.152	11.168	0.62	0.80	3.23	210.00	0.000	0.000	36.12	0.00	0.00	
22	175.00	RRUS11	9	10.152	11.168	0.57	0.80	12.88	455.40	0.000	0.000	143.86	0.00	0.00	
23	175.00	96"x15.6"x9" Panels	3	10.152	11.168	0.64	0.80	26.30	202.50	0.000	0.000	293.75	0.00	0.00	
<b>Totals:</b>									<b>8,855.83</b>						<b>3,263.54</b>

## Total Applied Force Summary

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		125.55	1580.16	0.00	0.00
10.00		124.00	1552.03	0.00	0.00
15.00		122.46	1523.89	0.00	0.00
20.00		120.91	1495.75	0.00	0.00
25.00		119.37	1467.61	0.00	0.00
30.00		117.92	1439.48	0.00	0.00
35.00		121.61	1411.34	0.00	0.00
40.00		124.66	1383.20	0.00	0.00
41.00		24.91	273.26	0.00	0.00
45.00		103.25	2115.54	0.00	0.00
48.00		78.15	1563.02	0.00	0.00
50.00		52.03	535.66	0.00	0.00
55.00		132.37	1319.47	0.00	0.00
60.00		116.89	1291.33	0.00	0.00
65.00		116.84	1263.19	0.00	0.00
70.00		116.53	1235.06	0.00	0.00
75.00		115.98	1206.92	0.00	0.00
80.00		115.21	1178.78	0.00	0.00
85.00		114.25	1150.65	0.00	0.00
90.00		115.33	2184.94	0.00	0.00
91.00		22.77	430.23	0.00	0.00
93.00		45.47	447.14	0.00	0.00
95.00		45.25	384.53	0.00	0.00
100.00		112.62	944.44	0.00	0.00
105.00		111.04	920.32	0.00	0.00
110.00		109.32	896.20	0.00	0.00
115.00		107.47	872.08	0.00	0.00
120.00		106.44	847.97	0.00	0.00
125.00		105.36	823.85	0.00	0.00
130.00		104.20	680.96	0.00	0.00
135.00		104.80	1251.51	0.00	0.00
140.00		102.88	651.31	0.00	0.00
145.00		95.85	521.96	0.00	0.00
150.00		93.28	505.88	0.00	0.00
155.00		90.63	489.81	0.00	0.00
160.00		87.89	473.73	0.00	0.00
165.00		85.07	457.65	0.00	0.00
170.00		82.17	441.57	0.00	0.00
175.00	(22) attachments	1151.89	3066.39	0.00	0.00
180.00		156.54	393.64	0.00	0.00
185.00	(29) attachments	1025.69	2770.73	0.00	0.00
190.00		68.60	375.33	0.00	0.00
195.00	(22) attachments	1386.50	4240.76	0.00	0.00
	<b>Totals:</b>	<b>7,579.94</b>	<b>50,059.29</b>	<b>0.00</b>	<b>0.00</b>

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.120	1.060	6.129	0.00	0.00
5.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.120	1.060	6.129	0.00	0.00
10.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.122	1.067	6.129	0.00	0.00
10.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.122	1.067	6.129	0.00	0.00
15.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.125	1.074	6.129	0.00	0.00
15.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.125	1.074	6.129	0.00	0.00
20.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.127	1.081	6.129	0.00	0.00
20.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.127	1.081	6.129	0.00	0.00
25.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.130	1.089	6.129	0.00	0.00
25.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.130	1.089	6.129	0.00	0.00
30.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.132	1.097	6.134	0.00	0.00
30.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.132	1.097	6.134	0.00	0.00
35.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.135	1.105	6.410	0.00	0.00
35.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.135	1.105	6.410	0.00	0.00
40.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.138	1.114	6.659	0.00	0.00
40.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.138	1.114	6.659	0.00	0.00
41.00	(4) C6x10.5	Yes	1.00	0.000	4.00	0.33	0.00	0.140	1.119	6.706	0.00	0.00
41.00	(4) C5x9	Yes	1.00	0.000	3.78	0.32	0.00	0.140	1.119	6.706	0.00	0.00
45.00	(4) C6x10.5	Yes	4.00	0.000	4.00	1.33	0.00	0.141	1.124	6.887	0.00	0.00
45.00	(4) C5x9	Yes	4.00	0.000	3.78	1.26	0.00	0.141	1.124	6.887	0.00	0.00
48.00	(4) C6x10.5	Yes	3.00	0.000	4.00	1.00	0.00	0.143	1.130	7.015	0.00	0.00
48.00	(4) C5x9	Yes	3.00	0.000	3.78	0.94	0.00	0.143	1.130	7.015	0.00	0.00
50.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.143	1.128	7.098	0.00	0.00
50.00	(4) C5x9	Yes	2.00	0.000	3.78	0.63	0.00	0.143	1.128	7.098	0.00	0.00
55.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.145	1.135	7.294	0.00	0.00
55.00	(4) C5x9	Yes	5.00	0.000	3.78	1.57	0.00	0.145	1.135	7.294	0.00	0.00
60.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.076	0.000	7.477	0.00	0.00
65.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.078	0.000	7.650	0.00	0.00
70.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.080	0.000	7.814	0.00	0.00
75.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.082	0.000	7.969	0.00	0.00
80.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.084	0.000	8.118	0.00	0.00
85.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.086	0.000	8.260	0.00	0.00
90.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.088	0.000	8.396	0.00	0.00
91.00	(4) C6x10.5	Yes	1.00	0.000	4.00	0.33	0.00	0.090	0.000	8.422	0.00	0.00
93.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.089	0.000	8.475	0.00	0.00
95.00	(4) C6x10.5	Yes	2.00	0.000	4.00	0.67	0.00	0.090	0.000	8.526	0.00	0.00
100.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.092	0.000	8.652	0.00	0.00
105.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.094	0.000	8.774	0.00	0.00
110.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.097	0.000	8.891	0.00	0.00
115.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.100	0.000	9.005	0.00	0.00
120.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.103	1.009	9.115	0.00	0.00
125.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.106	1.019	9.222	0.00	0.00
130.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.110	1.029	9.326	0.00	0.00
135.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.114	1.041	9.427	0.00	0.00
140.00	(4) C6x10.5	Yes	5.00	0.000	4.00	1.67	0.00	0.115	1.046	9.525	0.00	0.00
145.00	(4) C6x10.5	Yes	3.00	0.000	4.00	1.00	0.00	0.072	0.000	9.621	0.00	0.00
180.00	(3) Bypass Stiffeners	Yes	2.25	0.600	12.60	2.36	1.42	0.227	0.000	10.234	15.96	0.00

## Linear Appurtenance Segment Forces (Factored)

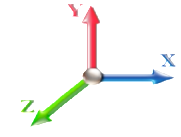
<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
185.00	(3) Bypass Stiffeners	Yes	2.25	0.600	12.60	2.36	1.42	0.236	0.000	10.315	16.08	0.00
<b>Totals:</b>											<b>32.0</b>	<b>0.0</b>

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

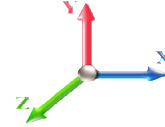


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-50.06	-7.59	0.00	-1059.2	0.00	1059.22	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.147
5.00	-48.47	-7.50	0.00	-1021.2	0.00	1021.25	5739.58	2869.79	14840.9	7431.48	0.02	-0.032	0.000	0.146
10.00	-46.92	-7.40	0.00	-983.78	0.00	983.78	5674.37	2837.18	14392.4	7206.92	0.07	-0.065	0.000	0.145
15.00	-45.39	-7.30	0.00	-946.79	0.00	946.79	5607.48	2803.74	13946.2	6983.48	0.15	-0.098	0.000	0.144
20.00	-43.89	-7.20	0.00	-910.30	0.00	910.30	5538.91	2769.46	13502.5	6761.30	0.28	-0.132	0.000	0.143
25.00	-42.42	-7.10	0.00	-874.29	0.00	874.29	5468.67	2734.33	13061.5	6540.49	0.43	-0.167	0.000	0.141
30.00	-40.97	-7.01	0.00	-838.77	0.00	838.77	5396.74	2698.37	12623.6	6321.18	0.63	-0.202	0.000	0.140
35.00	-39.56	-6.91	0.00	-803.74	0.00	803.74	5323.13	2661.56	12188.8	6103.50	0.86	-0.238	0.000	0.139
40.00	-38.17	-6.79	0.00	-769.21	0.00	769.21	5247.84	2623.92	11757.6	5887.58	1.13	-0.275	0.000	0.138
41.00	-37.90	-6.78	0.00	-762.42	0.00	762.42	5232.58	2616.29	11671.8	5844.61	1.19	-0.283	0.000	0.138
45.00	-35.78	-6.68	0.00	-735.32	0.00	735.32	5170.87	2585.43	11330.2	5673.52	1.44	-0.313	0.000	0.137
48.00	-34.21	-6.60	0.00	-715.29	0.00	715.29	5181.33	2590.67	11387.5	5702.24	1.64	-0.336	0.000	0.132
50.00	-33.68	-6.56	0.00	-702.08	0.00	702.08	5150.16	2575.08	11217.4	5617.06	1.78	-0.352	0.000	0.132
55.00	-32.35	-6.44	0.00	-669.27	0.00	669.27	5071.07	2535.53	10795.0	5405.56	2.17	-0.390	0.000	0.130
60.00	-31.06	-6.34	0.00	-637.05	0.00	637.05	4990.29	2495.14	10377.0	5196.21	2.60	-0.428	0.000	0.129
65.00	-29.79	-6.23	0.00	-605.36	0.00	605.36	4907.83	2453.91	9963.49	4989.15	3.07	-0.466	0.000	0.127
70.00	-28.55	-6.12	0.00	-574.20	0.00	574.20	4823.69	2411.85	9554.79	4784.49	3.58	-0.506	0.000	0.126
75.00	-27.34	-6.02	0.00	-543.58	0.00	543.58	4737.87	2368.94	9151.13	4582.37	4.13	-0.546	0.000	0.124
80.00	-26.16	-5.91	0.00	-513.49	0.00	513.49	4650.37	2325.19	8752.78	4382.90	4.72	-0.587	0.000	0.123
85.00	-25.01	-5.80	0.00	-483.95	0.00	483.95	4561.19	2280.60	8359.98	4186.21	5.36	-0.629	0.000	0.121
90.00	-22.82	-5.67	0.00	-454.94	0.00	454.94	4470.33	2235.17	7972.99	3992.42	6.04	-0.672	0.000	0.119
91.00	-22.39	-5.65	0.00	-449.27	0.00	449.27	4519.12	2259.56	8179.18	4095.67	6.19	-0.681	0.000	0.115
93.00	-21.94	-5.60	0.00	-437.98	0.00	437.98	4482.67	2241.33	8024.77	4018.35	6.47	-0.698	0.000	0.114
93.00	-21.94	-5.60	0.00	-437.98	0.00	437.98	3684.61	1842.31	6615.01	3312.42	6.47	-0.698	0.000	0.138
95.00	-21.56	-5.57	0.00	-426.77	0.00	426.77	3656.67	1828.34	6492.71	3251.18	6.77	-0.715	0.000	0.137
100.00	-20.61	-5.46	0.00	-398.93	0.00	398.93	3585.64	1792.82	6189.75	3099.48	7.55	-0.764	0.000	0.134
105.00	-19.69	-5.35	0.00	-371.64	0.00	371.64	3512.93	1756.47	5890.99	2949.87	8.37	-0.813	0.000	0.132
110.00	-18.79	-5.25	0.00	-344.87	0.00	344.87	3438.54	1719.27	5596.65	2802.49	9.25	-0.862	0.000	0.129
115.00	-17.91	-5.14	0.00	-318.64	0.00	318.64	3362.47	1681.23	5307.01	2657.45	10.18	-0.912	0.000	0.125
120.00	-17.06	-5.04	0.00	-292.93	0.00	292.93	3284.72	1642.36	5022.30	2514.88	11.16	-0.963	0.000	0.122
125.00	-16.23	-4.93	0.00	-267.75	0.00	267.75	3192.26	1596.13	4723.49	2365.26	12.20	-1.014	0.000	0.118
125.00	-16.23	-4.93	0.00	-267.75	0.00	267.75	2545.46	1272.73	3779.50	1892.56	12.20	-1.014	0.000	0.148
130.00	-15.55	-4.83	0.00	-243.10	0.00	243.10	2486.30	1243.15	3569.04	1787.17	13.29	-1.066	0.000	0.142
135.00	-14.30	-4.72	0.00	-218.95	0.00	218.95	2457.60	1228.80	3470.24	1737.70	14.44	-1.127	0.000	0.132
140.00	-13.64	-4.61	0.00	-195.36	0.00	195.36	2395.97	1197.98	3265.05	1634.95	15.65	-1.188	0.000	0.125
140.00	-13.64	-4.61	0.00	-195.36	0.00	195.36	1788.19	894.09	2445.99	1224.81	15.65	-1.188	0.000	0.167
145.00	-13.12	-4.52	0.00	-172.29	0.00	172.29	1746.83	873.41	2303.27	1153.35	16.93	-1.245	0.000	0.157
150.00	-12.61	-4.43	0.00	-149.68	0.00	149.68	1703.79	851.89	2162.49	1082.85	18.27	-1.314	0.000	0.146
155.00	-12.12	-4.34	0.00	-127.51	0.00	127.51	1659.07	829.53	2023.91	1013.46	19.68	-1.381	0.000	0.133
160.00	-11.64	-4.26	0.00	-105.79	0.00	105.79	1612.67	806.33	1887.77	945.29	21.16	-1.444	0.000	0.119
165.00	-11.18	-4.17	0.00	-84.51	0.00	84.51	1564.59	782.29	1754.32	878.47	22.71	-1.502	0.000	0.103
170.00	-10.74	-4.09	0.00	-63.65	0.00	63.65	1514.83	757.41	1623.82	813.12	24.31	-1.554	0.000	0.085
175.00	-7.70	-2.86	0.00	-43.22	0.00	43.22	1463.38	731.69	1496.51	749.37	25.96	-1.596	0.000	0.063
180.00	-7.31	-2.69	0.00	-28.94	0.00	28.94	1400.09	700.04	1362.73	682.38	27.65	-1.629	0.000	0.048
180.00	-7.31	-2.69	0.00	-28.94	0.00	28.94	678.42	339.21	662.23	396.30	27.65	-1.629	0.000	0.084
185.00	-4.57	-1.59	0.00	-15.49	0.00	15.49	678.42	339.21	662.23	396.30	29.37	-1.653	0.000	0.046
190.00	-4.20	-1.51	0.00	-7.55	0.00	7.55	678.42	339.21	662.23	396.30	31.11	-1.664	0.000	0.025
195.00	0.00	-1.39	0.00	0.00	0.00	0.00	678.42	339.21	662.23	396.30	32.85	-1.668	0.000	0.000

## Calculated Forces

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
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## Final Analysis Summary

<b>Structure:</b> CT01916-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/29/2018
<b>Site Name:</b> North Salem	<b>Exposure:</b> B	
<b>Height:</b> 195.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 105 mph Wind	37.2	0.00	60.02	0.00	0.00	5224.14
0.9D + 1.6W 105 mph Wind	37.2	0.00	45.00	0.00	0.00	5155.20
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.2	0.00	89.56	0.00	0.00	1277.82
1.2D + 1.0E	2.7	0.00	60.07	0.00	0.00	405.06
0.9D + 1.0E	2.6	0.00	45.05	0.00	0.00	399.25
1.0D + 1.0W 60 mph Wind	7.6	0.00	50.06	0.00	0.00	1059.22

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 105 mph Wind	-14.17	-22.80	0.00	-964.60	0.00	-964.60	2395.97	1197.9	3265.05	1634.95	140.00	0.796
0.9D + 1.6W 105 mph Wind	-10.12	-22.35	0.00	-943.16	0.00	-943.16	2395.97	1197.9	3265.05	1634.95	140.00	0.776
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-31.36	-5.49	0.00	-232.35	0.00	-232.35	2395.97	1197.9	3265.05	1634.95	140.00	0.207
1.2D + 1.0E	-16.47	-1.97	0.00	-95.45	0.00	-95.45	2395.97	1197.9	3265.05	1634.95	140.00	0.087
0.9D + 1.0E	-12.35	-1.94	0.00	-93.51	0.00	-93.51	2395.97	1197.9	3265.05	1634.95	140.00	0.083
1.0D + 1.0W 60 mph Wind	-13.64	-4.61	0.00	-195.36	0.00	-195.36	2395.97	1197.9	3265.05	1634.95	140.00	0.167



# Monopole Mat Foundation Design

Date  
5/29/2018

<b>Customer Name:</b>	Sprint Nextel	<b>EIA/TIA Standard:</b>	EIA-222-G
<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	195
<b>Site Number:</b>	CT01916-S-SBA	<b>Engineer Name:</b>	K. Wyant
<b>Engr. Number:</b>	53637	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations

**Structure Type:**

Monopole

**Analysis or Design?**

Analysis

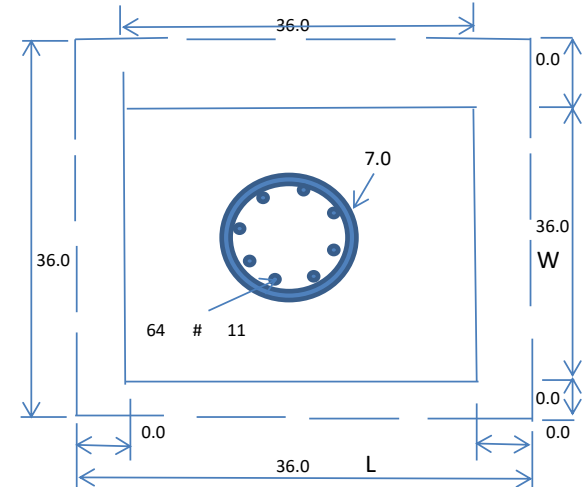
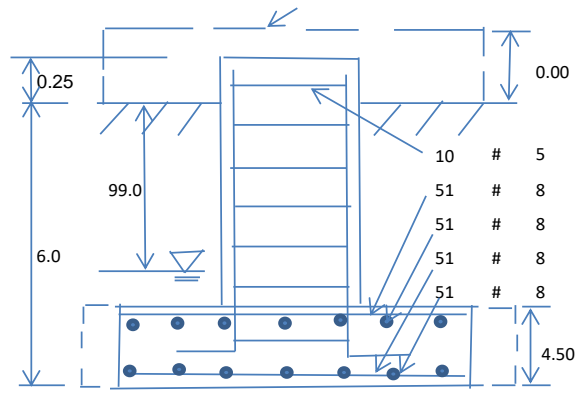
**Base Reactions (Factored):**

Axial Load (Kips):	60.0	Shear Force (Kips):	37.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	5224.1

Allowable overstress %: 5.0%

**Foundation Geometries:**

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.25	Thickness of Pad (ft):	4.50
Length of Pad (ft.):	36	Width of Pad (ft.):	36
Final Length of pad (ft)	36.0	Final width of pad (ft):	36.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



**Material Properties and Rebar Info:**

Concrete Strength (psi):	3500	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	64	Tie Spacing (in):	8.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	51	Qty. of Rebar in Pad (W):	51	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	51	Qty. of Rebar in Pad (W):	51	

Apply 1.35 factor for e/w Per G: 1.35

**Soil Design Parameters:**

Soil Unit Weight (pcf):	100.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	30000	Ultimate Skin Friction:	0	Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	Angle from Bottm of Pad:
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00	25

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1886.27	Total Dry Soil Weight (Kips):	188.63
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	188.63	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	5899.35	Total Dry Concrete Weight (Kips):	884.90
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	884.90	Total Vertical Load on Base (Kips):	1133.55

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	1573	<	Allowable Factored Soil Bearing (psf):	22500	0.07	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	18471.5	>	Design Factored Momont (kips-ft):	5457	0.30	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	3.39					OK!

Load/  
Capacity  
Ratio



**Check the capacities of Reinforceing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

Load/  
Capacity  
Ratio

**(1) Concrete Pier:**

Vertical Steel Rebar Area (sq. in./each):	1.56	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	15779.9	> Design Factored Moment (Mu, Kips-Ft)	5289.2	0.34	OK!
Calculated Shear Capacity (Kips):	804.3	> Design Factored Shear (Kips):	37.2	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	5391.4	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	8418.7	> Design Factored Axial Load (Pu Kips):	60.0	0.01	OK!
Moment & Axial Strength Combination:	0.34	OK! Check Tie Spacing (Design/Required):		0.6667	OK!
Pier Reinforcement Ratio:	0.018	Reinforcement Ratio is satisfied per ACI			

**(2).Concrete Pad:**

One-Way Design Shear Capacity (L-Direction, Kips):	1936.0	> One-Way Factored Shear (L-D. Kips):	360.5	0.19	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1936.0	> One-Way Factored Shear (W-D., Kips)	360.5	0.19	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	2361.4	> One-Way Factored Shear (C-C, Kips):	343.0	0.15	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0018	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0018		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	8985.4	> Moment at Bottom ( L-Direct. K-Ft):	1855.1	0.21	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	8985.4	> Moment at Bottom ( W-Direct. K-Ft):	1855.1	0.21	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	12668.8	> Moment at Bottom ( C-C Dir. K-Ft):	2623.5	0.21	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0018	OK! Upper Steel Reinf. Ratio (W-Direct. ):	0.0018		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	8985.4	> Moment at the top (L-Dir Kips-Ft):	218.2	0.02	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	8985.4	> Moment at the top (W-Dir Kips-Ft):	218.2	0.02	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	12668.8	> Moment at the top (C-C Direc. K-Ft):	859.8	0.07	OK!

## Antenna Mount Structural Analysis



Source: SBA Date: 11.14.2017

SBA Site: CT01916-S North Salem  
Sprint Site Number: CT33XC060  
Project: Sprint D0 Macro Upgrade

Prepared For: Sprint

Mount Description: (3) Nudd T-Arms

Site Location: 160 Witch Meadow Rd, Salem, CT  
New London County  
41.502828°, -72.297052°

Design Codes: ANSI/TIA-222-G  
IBC 2012 w/ 2016 CT Building Code

Analysis Load Case: Sprint Final Configuration

Analysis Result: Adequate @ 86% - **Once Augmented**  
**See Conclusion**



Revision 0  
March 19, 2018

CT33XC060-PASSING-MOUNT-STRUCTURAL-ANALYSIS-03-19-18

## **1.0 Introduction**

An antenna mount structural analysis has been performed on Sprint's existing mount assembly located at the CT01916-S North Salem communications site in New London County, CT considering the final equipment loading configuration listed in Section 3.0.

## **2.0 Analysis Criteria**

An elastic three-dimensional model of the mount structure has been analyzed pursuant to the following criteria:

- IBC 2012 - International Building Code.
- ANSI/TIA-222-G - Structural Standard for Antenna Supporting Structures and Antennas.
- AISC - Steel Construction Manual.
- ANSI/AWS D1.1 - Structural Welding Code.

Wind w/o ice = 135 mph (3-sec gust Ultimate Wind Speed)	
Wind w/o ice = 105 mph (3-sec gust Equivalent per TIA-222-G Tower Code)	
Wind with ice = 50 mph (3-sec gust, 3/4" Ice) Exposure Category B	Topographic Category 1 Structure Class II

The following documents were provided:

<ul style="list-style-type: none"> <li>• <u>Tower Structural Analysis</u> TES, 1/15/18.</li> <li>• <u>Mount and Tower Record Documents</u> SBA</li> <li>• <u>Mount Assessment</u> Westchester, 12/21/17.</li> <li>• <u>RF Design</u> Sprint DOMU Project</li> </ul>
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The results of the analysis are illustrated in Section 4.0. If any of the existing or proposed conditions reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

### **3.0 Appurtenance Information**

**Table 3.1 – Sprint Final Configuration<sup>1</sup>**

<b>COR</b>	<b>(Quantity) Appurtenance Make/Model</b>	<b>Mount Description</b>
195.0'±	(3) RFS APXVTM14-ALU-I20	(3) Nudd T-Arms
	(3) COMMSCOPE NNVV-65B-R4	
	(6) ALU 800MHz RRH	
	(3) ALU 1900MHz RRH	
	(3) ALU 2500MHz RRH	

1. Refer to antenna installation Construction Drawings (by others, when applicable) for additional information regarding final antenna and equipment orientations.
2. Panel antennas to be installed in Positions 2 and 3. RRH units to be installed on dual swivel brackets behind panel antennas in Positions 2 and 3.

### **4.0 Analysis Results**

**Table 4.1 – Existing Mount Capacity**

<b>Load Case</b>	<b>Governing Mount Component<sup>1</sup></b>	<b>% Capacity<sup>2</sup></b>	<b>Result</b>
Final Sprint Configuration	Standoff Member	102%	Inadequate <sup>3</sup>
	Connection Capacity	139%	

1. Refer to the Calculations & Software Output portion of this report for mount component and structural information.
2. Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.3. 105% is an acceptable allowable stress percentage for mount components.
3. Structural augments to the existing mount structure are required to obtain a mount structure capable of supporting the currently proposed final loading configuration in Table 3.1.

**Table 4.2 – Augmented Mount Capacity**

Load Case	Governing Mount Component <sup>1</sup>	% Capacity <sup>2</sup>	Result
Final Sprint Configuration	Mount Pipe	86%	<b>Adequate Once Augmented<sup>3</sup></b>

1. Refer to the Calculations & Software Output portion of this report for mount component and structural information.
2. Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.3. 105% is an acceptable allowable stress percentage for mount components.
3. Refer to GeoStructural Mount Augmentation Drawings and Section 5.0 for information regarding required mount augmentations.

**Table 4.3 – Structural Component Material Strengths**

Structural Component	Nominal Strength/Material <sup>4</sup>
Pipe	F <sub>y</sub> = 35 ksi (A53, Gr. B)
Tube	F <sub>y</sub> = 46 ksi (A500, Gr. B)
Structural Shapes (L, C, W, etc.), Plate / Bar	F <sub>y</sub> = 36 ksi (A36)
Uni-Strut	F <sub>y</sub> = 33 ksi (A570, Gr. 33)
Connection Bolts	A325
Stainless Steel Bolts	18-8 Stainless, Grade 316/304 F <sub>y</sub> = 74 ksi (Yield) & F <sub>u</sub> = 29 ksi (Tension)
U-Bolts / Threaded Rod	SAE J429 Grade 2 (Substitution: ASTM A449) F <sub>y</sub> = 57 ksi (Yield) & F <sub>u</sub> = 74 ksi (Tension)
Welds	E70XX Electrodes

1. Strengths listed were assumed for this analysis and are based upon ASTM, AISC, RCSC, AWS and ACI preferred specification values. Values and materials are consistent with industry standards. Material strengths were taken from original design documents when available.

## **5.0 Conclusion & Recommendations**

Based on Sprint's final equipment loading configuration, the existing mount assembly does not have sufficient capacity to support the loading considered in this analysis pursuant to the listed standards. Structural augments (reinforcements) will be required and are briefly summarized below:

- Install **Platform Reinforcement Kit**; located 3.0' below the existing standoff centerline and attaching to the existing standoff member end near the face rail.
  - Sitepro1 PRK-1245L, (1) total.
- Install **V-Brace Kit**; located 3.75' below the existing mount face rail centerline.
  - Sitepro1 PRK-SFS-H-L, (1) total. Attach kit ring mount in kit to monopole shaft.
    - If the PRK-SFS-H-L kit is not available, provide (6) total L2-1/2x2-1/2x3/16 x ~8' long replacement angles, field-cut and drill to suit.
  - Pipe2.0STD x 12.5' Horizontal Rail, (3) total. Attach SFS-H-L kit angles to new horizontal rail.
  - Pipe2.0STD x ~4' long corner braces, (3) total. Attach to new horizontal rail w/ Sitepro1 PUCK brackets, (6) total.
  - Sitepro1 SCX\_x-K, (24) total. Attach all mount pipes to new rail. (12) new Pipe2.0STD mount pipes will be required to span between existing rail and new rail.
- Panel antennas to be installed in Positions 2 and 3. RRH units to be installed on dual swivel brackets behind panel antennas in Positions 2 and 3.

Once the recommended augments are successfully implemented, the **augmented** mount assembly has sufficient capacity to support the loading considered in this analysis pursuant to the listed standards.

### **Augmentation Requirements:**

- **In order to obtain a mount structure capable of supporting the currently proposed final loading configuration, upgrade augments must be installed in accordance with GeoStructural's Mount Augmentation Drawings.**
- **Antennas and equipment shall be installed centered vertically on the mount front face rails. If this assumption is incorrect, the results of this analysis will be affected.**
- **In order for the specified modifications to perform as designed and to "fit-up" the existing Nudd T-Arm mounts must be appropriately rotated on standoff member such that they are perpendicular to the face of the tower (T-Arm standoff tube and collar standoff member to be colinear). Panel antenna azimuths will need to be adjusted to obtain desired azimuths.**

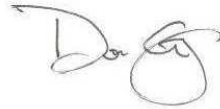
This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If any of the existing or proposed conditions (appurtenance loading, member sizes, etc.) reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

Prepared by:



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Reviewed and Approved by:



**Don George, PE, SE, MLSE**  
208.602.6569  
[don.george@geostructural.com](mailto:don.george@geostructural.com)

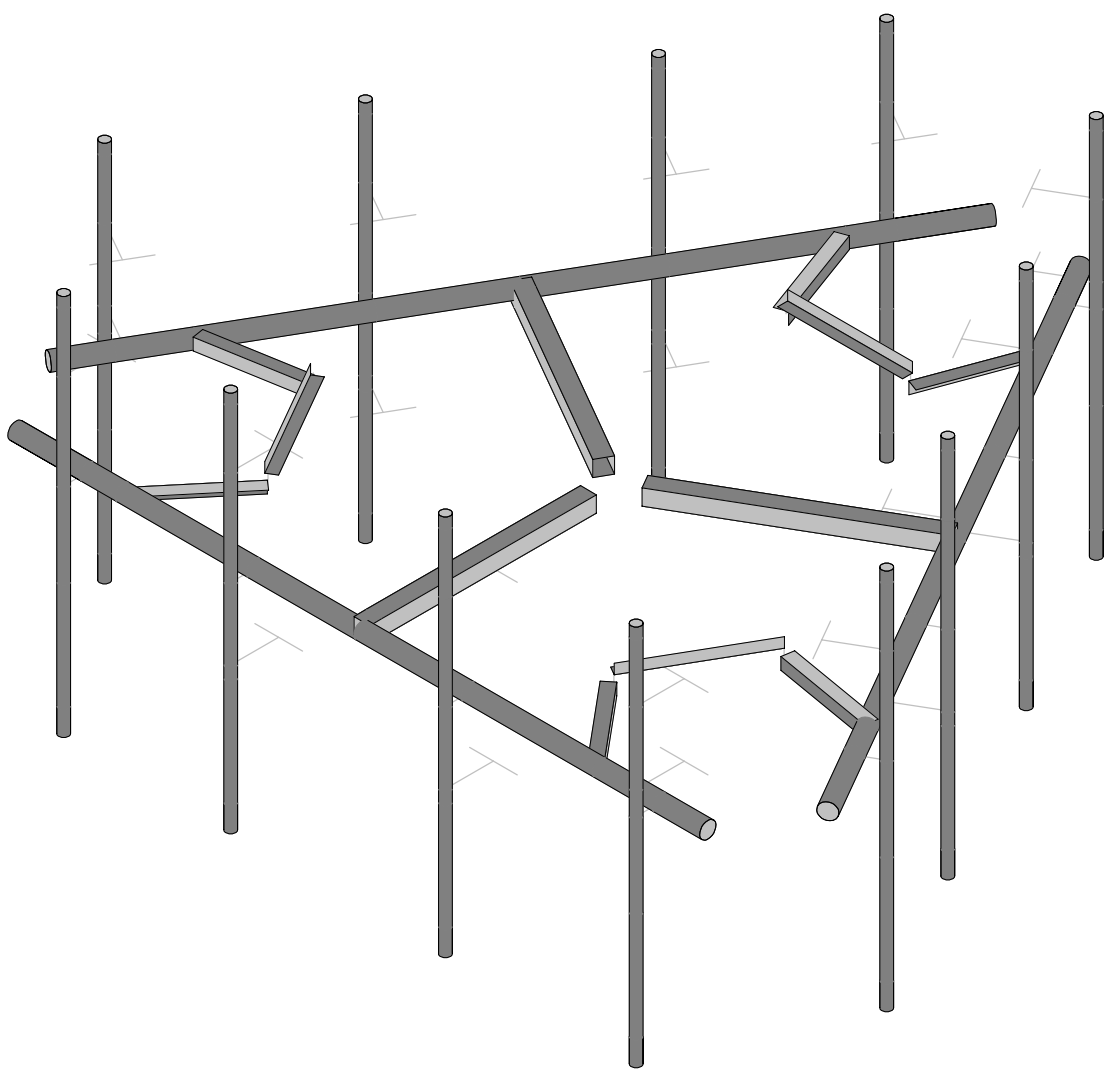
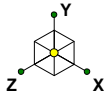
## **6.0 Standard Conditions**

- All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study to verify existing conditions and the results of this analysis are based solely on the information provided. It has been assumed that the tower, antenna support structure and foundation have been constructed according to the provided existing drawings, previous structural analysis reports, mapping documents, etc.
- The default Structure Classification is Class II in accordance with ANSI/TIA-222-G §A.2.2 & §A.15.3 and has been assumed for this analysis. The owner shall verify this classification conforms with original or desired reliability criteria.
- This analysis assumes that the structure has been properly installed and maintained in accordance with ANSI/TIA-222-G §15.5 and that no physical deterioration has occurred in any of the components of the structure. Damaged, missing, or rusted members were not considered.
- This analysis verifies the adequacy of the main components of the structure. Not all connections, welds, bolts, plates, etc. were individually detailed and analyzed. Where not specifically analyzed, the existing connection plates, welds, bolts, etc. were assumed adequate to develop the full capacity of the main structural members.
- No consideration has been made for unusual or extreme wind events, rime/in-cloud ice loadings, harmonic or nodal vibration, vortex shedding or other similar conditions.
- It is the owner's responsibility to determine the appropriate design wind speed and amount of ice accumulation beyond code minimum values that should be considered in the analysis.
- This analysis report does not constitute a maintenance and condition assessment. No certifications regarding maintenance and condition are expressed or implied. If desired, GeoStructural can provide these services under a subsequent contract.
- This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If desired, GeoStructural can provide these services under a subsequent contract.



## **7.0 Calculations & Software Output**

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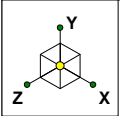
Jesse Drennen, PE

CT33XC060

SK - 1

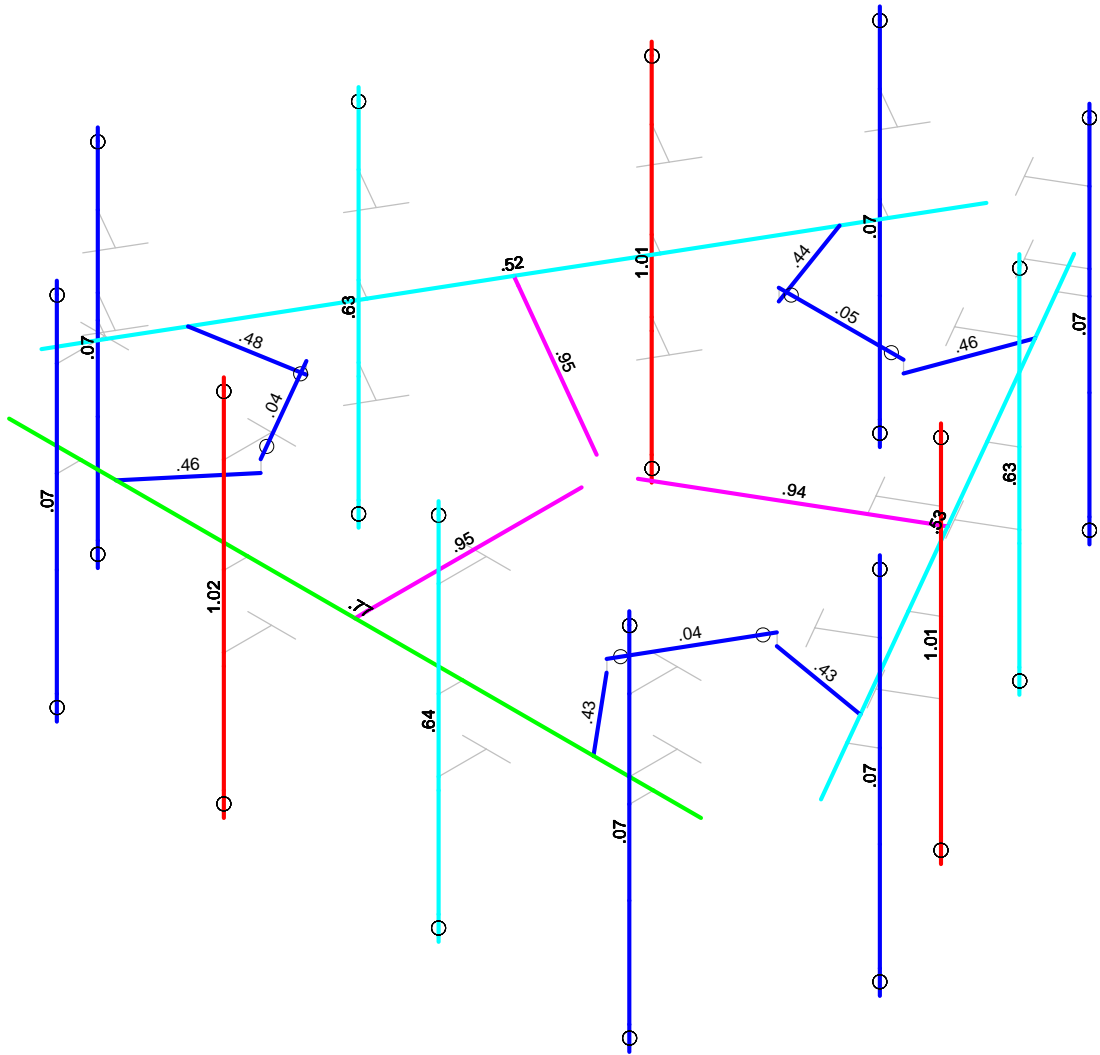
Mar 19, 2018 at 11:31 AM

CT33XC060\_Mount Analysis\_R0 1...



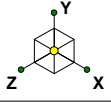
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- .75-.90
- .50-.75
- 0-.50



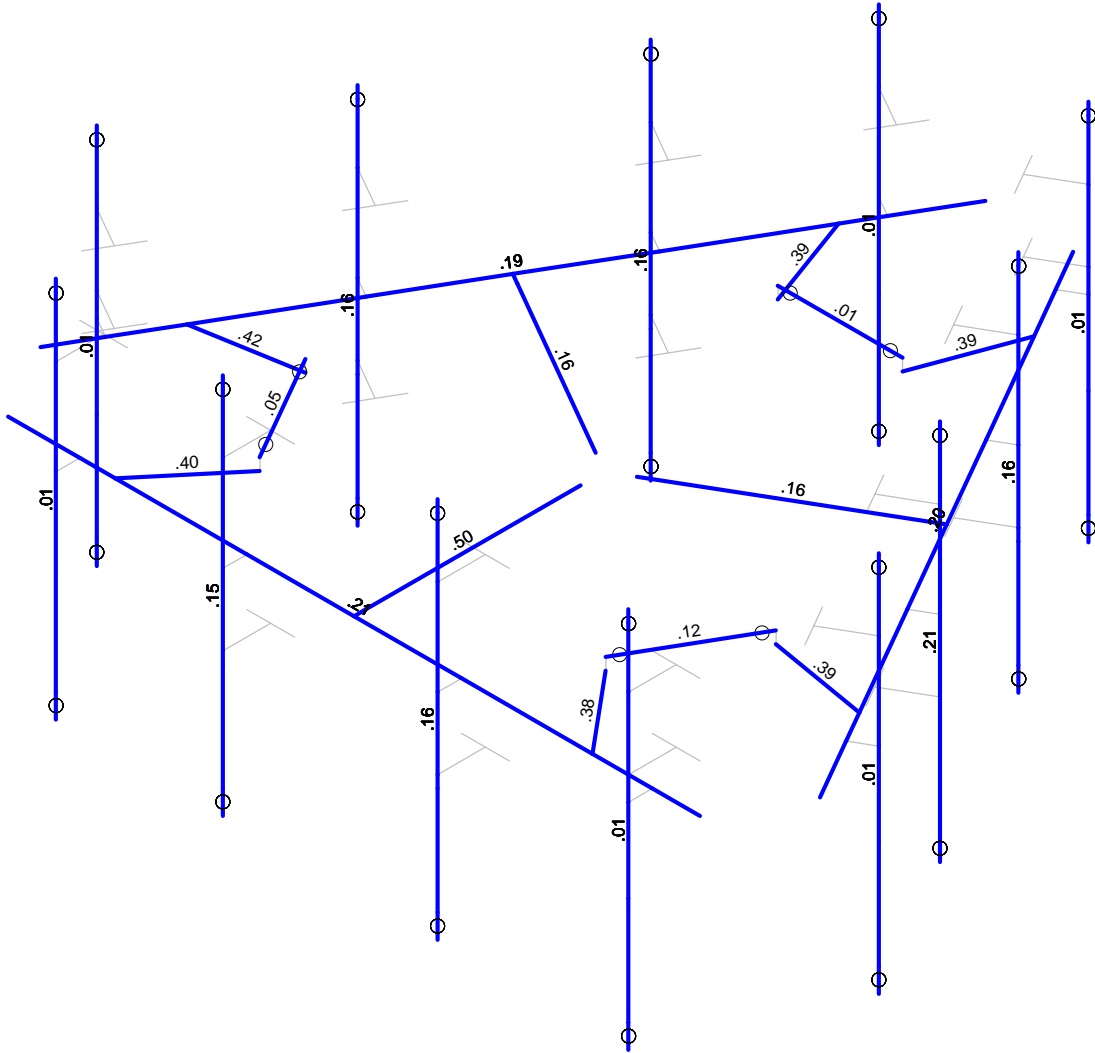
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- 0-.50



Member Shear Checks Displayed (Enveloped)  
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GeoStructural, LLC

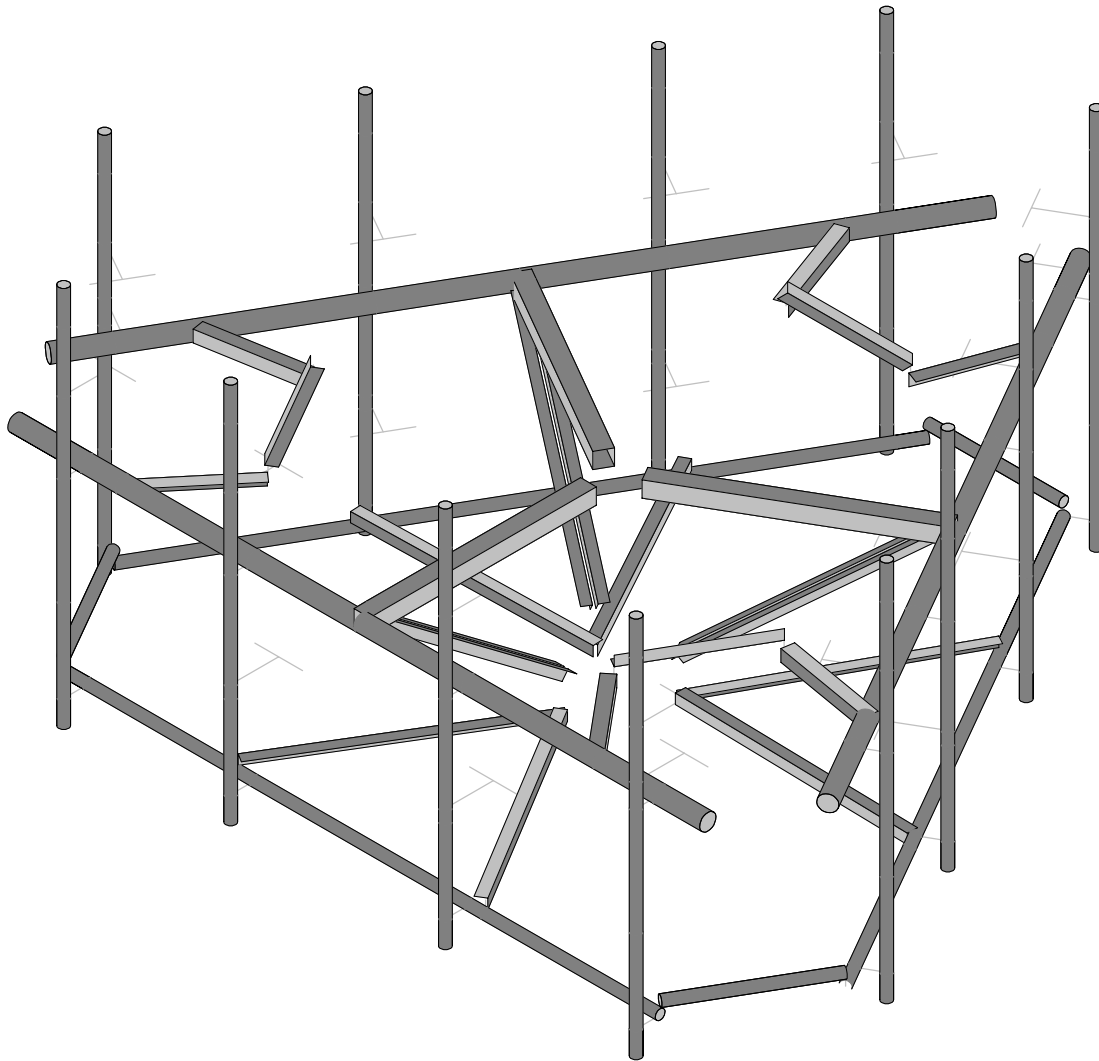
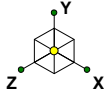
Jesse Drennen, PE

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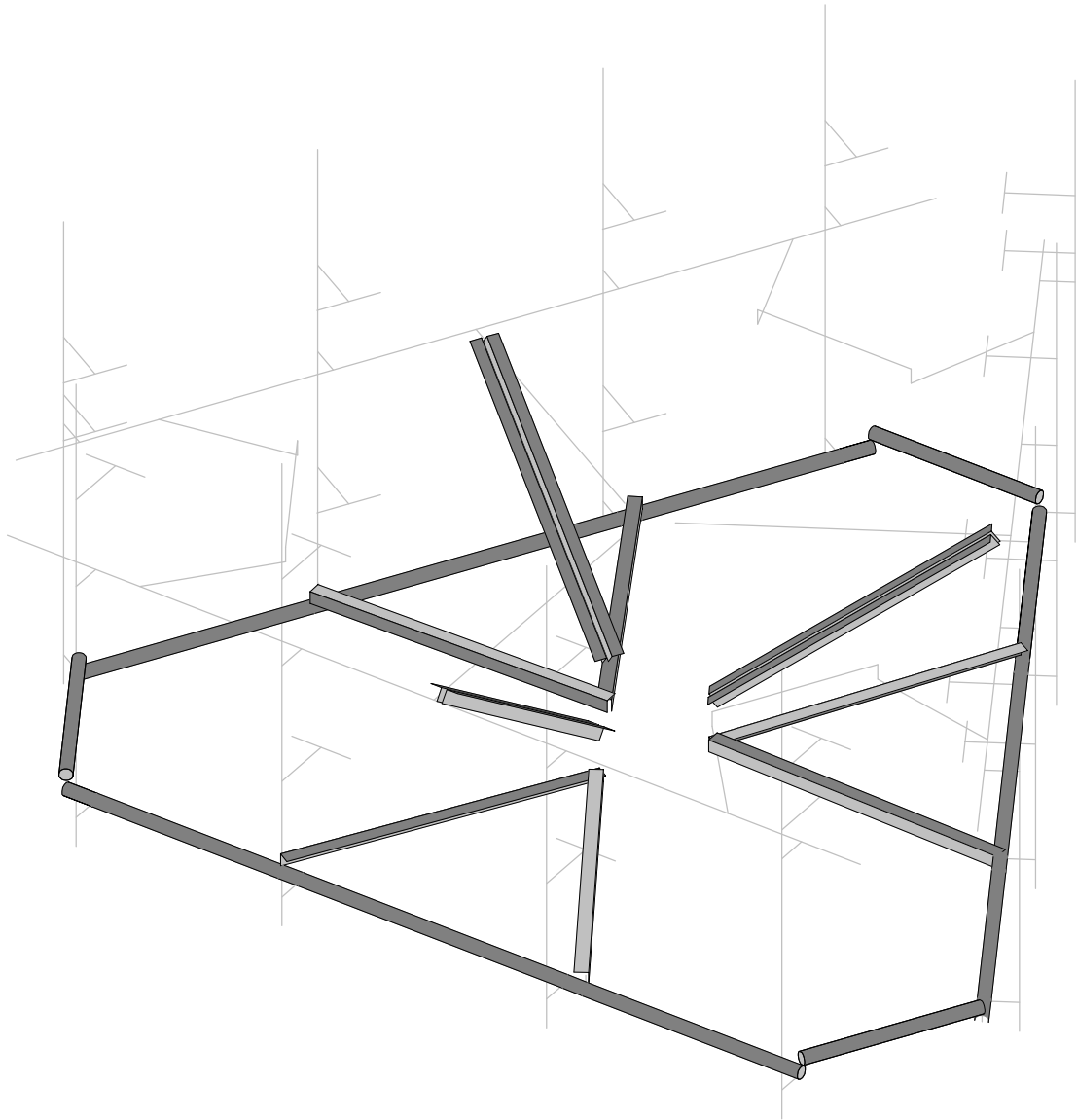
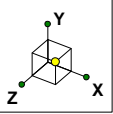
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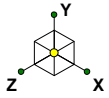
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SK - 7

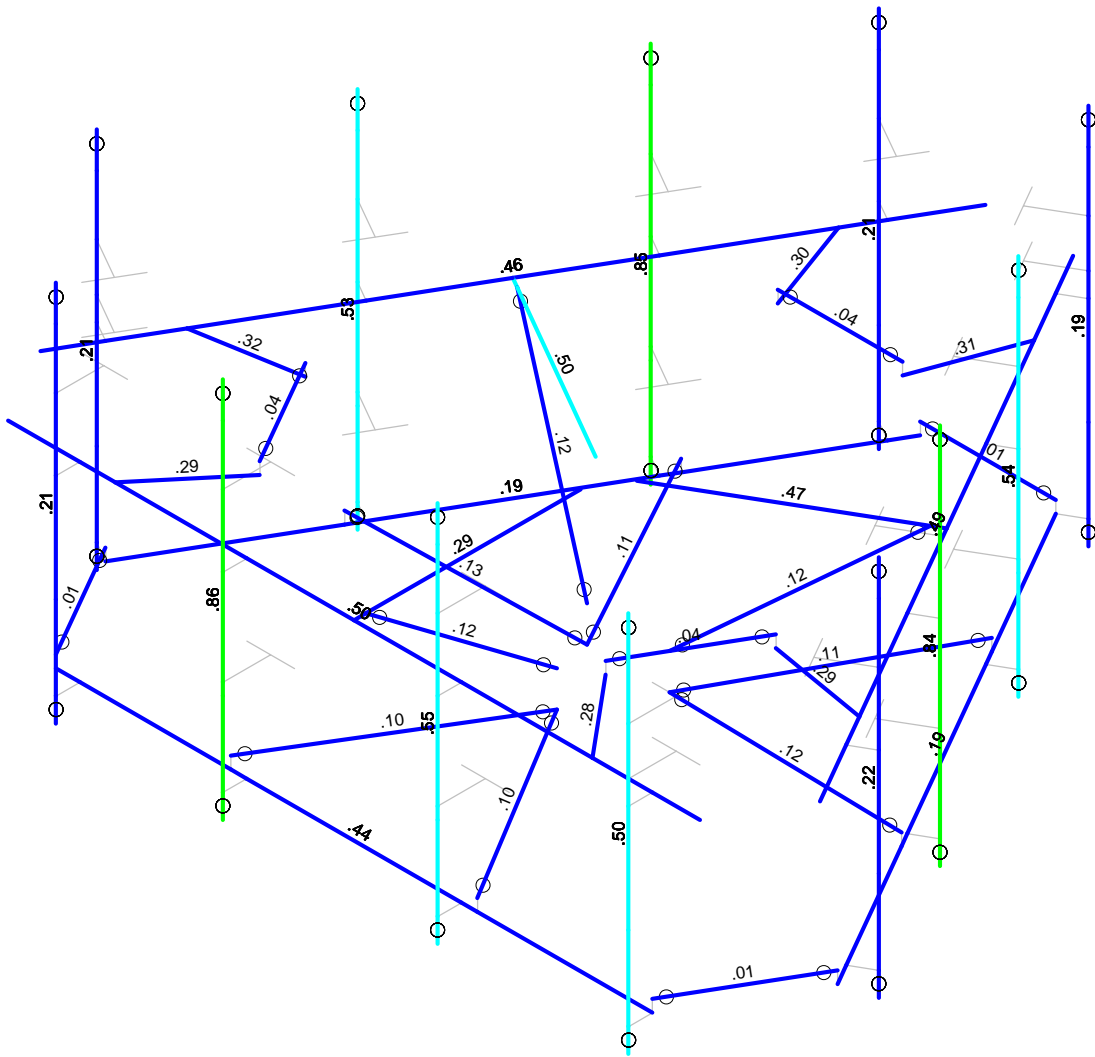
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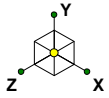
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- .75-.90
- .50-.75
- 0-.50



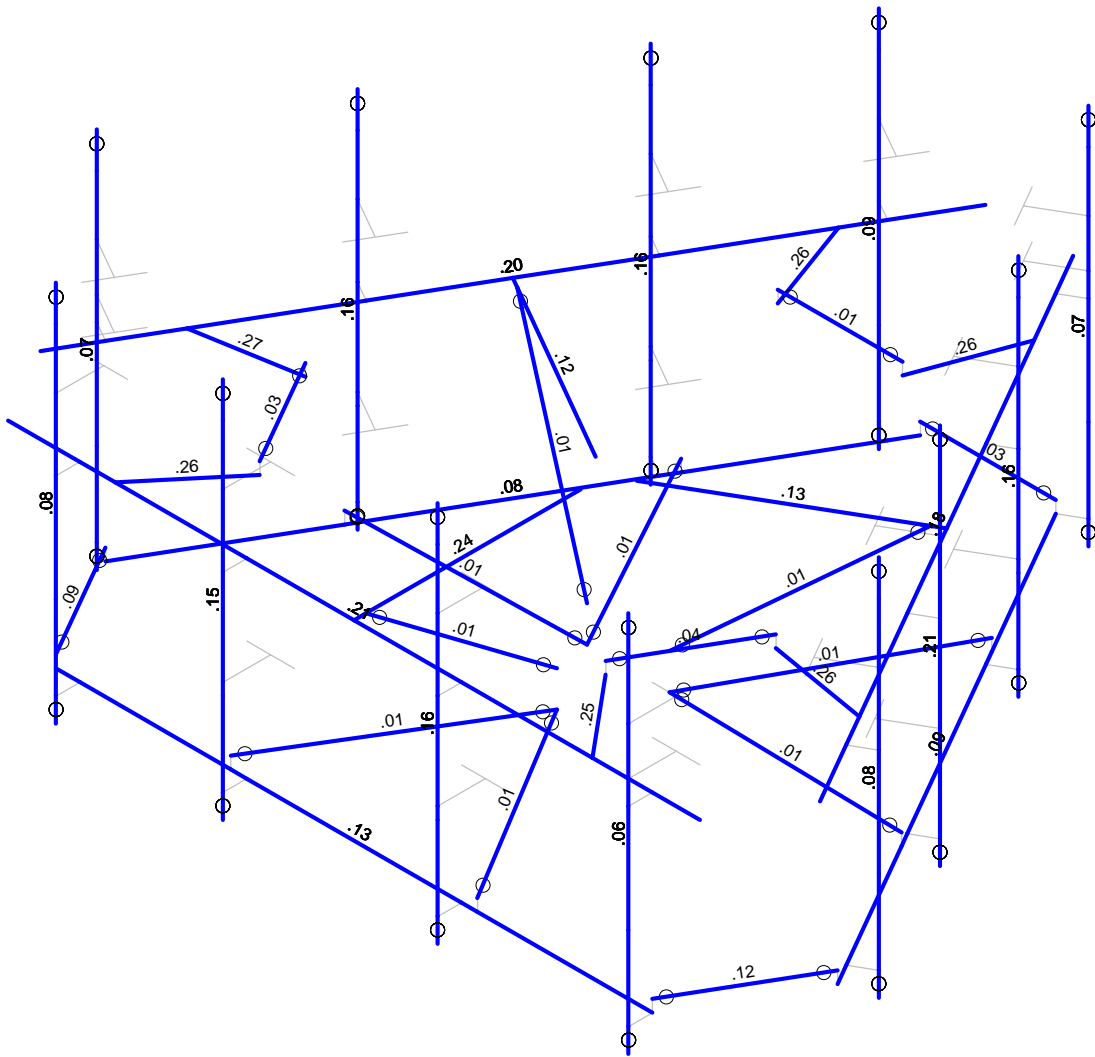
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Shear Check  
( Env )

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- .90-1.0
- .75-.90
- .50-.75
- 0-.50



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SK - 3

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CT33XC060\_Mount Analysis\_R0 1...



**Basic Load Cases**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	D	DL		-1		25		3	
2	Di	SL				25		45	
3	Lm [500]	LL				1			
4	Lv [250]	LL				2			
5	Woz	WL				25		42	
6	Wox	WL				25		42	
7	Wiz	WL				25		42	
8	Wix	WL				25		42	
9	Ez	EL				25			
10	Ex	EL				25			

**Load Combination Design**

	Description	ASIF	CD	ABIF	Service	Hot Rolled	Cold For...	Wood	Concrete	Masonry	Footings	Aluminum	Connecti...
1	1) 1.4D					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	2) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25	3) 0.9D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
32	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
33	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
34	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
35	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
36	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
37	4) 1.2D+1.0...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
38	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
39	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
40	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
41	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Load Combination Design (Continued)**

	Description	ASIF	CD	ABIF	Service	Hot Rolled	Cold For...	Wood	Concrete	Masonry	Footings	Aluminum	Connecti...
42	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
43	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
44	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
45	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
46	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
47	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
48	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
49	5) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
50	6) 1.2D+1.5...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
51	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
52	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
53	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
54	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
55	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
56	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
57	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
58	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
59	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
60	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
61	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
62	7) (1.2+0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
63	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
64	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
66	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
67	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
68	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
69	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
70	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
71	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
72	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
73	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
74	8) (0.9-0.2S...					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Envelope Joint Reactions**

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N36	max	3.303	36	2.955	36	-.288	17	0	23	0	23	0	5
2		min	.54	18	.418	18	-1.906	36	0	5	0	5	0	23
3	N37	max	.051	17	2.962	32	3.825	32	0	1	.002	48	.002	48
4		min	-.051	23	.372	14	.544	14	0	1	0	6	0	6
5	N47	max	.538	41	.088	32	.619	2	0	1	0	1	0	1
6		min	-.207	11	.011	48	-.596	20	0	1	0	1	0	1
7	N54	max	.497	6	.088	36	.354	13	0	1	0	1	0	1
8		min	-.47	24	.013	70	-.353	19	0	1	0	1	0	1
9	N80	max	-.539	22	2.955	28	-.288	23	0	6	0	24	0	6
10		min	-3.303	28	.418	22	-1.905	28	0	24	0	6	0	24
11	N84	max	.459	16	.088	28	.355	15	0	1	0	1	0	1
12		min	-.471	10	.013	74	-.377	9	0	1	0	1	0	1
13	N19	max	1.272	5	.474	14	1.909	14	.675	20	3.412	5	1.92	47
14		min	-1.257	23	-.515	8	-4.562	8	-.676	2	-3.405	23	-.9	5
15	N95	max	4.187	5	.427	22	2.502	2	.76	12	5.842	13	.57	3
16		min	-1.89	23	-.468	4	-1.158	20	-.671	18	-5.821	7	-.529	21
17	N96	max	1.961	17	.426	18	2.405	2	.678	16	5.397	10	.632	7
18		min	-4.27	11	-.468	12	-1.083	20	-.743	10	-5.443	4	-.582	25
19	Totals:	max	7.423	17	8.647	30	6.958	2						

**Envelope Joint Reactions (Continued)**

Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
20	min	-7.423	11	2.471	73	-6.958	20						

**Envelope Member Section Deflections**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...]	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
1	M4	1	max	.682	8	.689	47	.355	5	8.541e-03	5	NC	1	NC	1
2			min	-.673	14	-.554	5	-.309	23	-9.775e-03	47	NC	1	NC	1
3		2	max	.682	8	.681	47	.354	5	8.541e-03	5	NC	1	NC	1
4			min	-.673	14	-.55	5	-.308	23	-9.775e-03	47	NC	1	NC	1
5		3	max	.682	8	.673	47	.353	5	8.541e-03	5	NC	1	NC	1
6			min	-.673	14	-.545	5	-.307	23	-9.775e-03	47	NC	1	NC	1
7		4	max	.682	8	.665	47	.352	5	8.541e-03	5	NC	1	NC	1
8			min	-.673	14	-.54	5	-.306	23	-9.775e-03	47	NC	1	NC	1
9		5	max	.682	8	.657	47	.363	4	8.541e-03	5	NC	1	NC	1
10			min	-.673	14	-.535	5	-.314	22	-9.775e-03	47	NC	1	NC	1
11	M5	1	max	.657	47	.469	49	.44	7	1.183e-02	7	NC	1	NC	2
12			min	-.535	5	-.193	7	-.41	25	-1.121e-02	25	104.817	38	257.674	45
13		2	max	.657	47	.24	38	.46	8	1.073e-02	7	NC	2	NC	1
14			min	-.535	5	-.131	8	-.443	14	-1.032e-02	25	138.973	38	394.883	45
15		3	max	.657	47	.195	16	.548	8	1.02e-02	8	NC	2	NC	1
16			min	-.535	5	-.207	10	-.54	14	-1.011e-02	14	214.491	38	362.547	3
17		4	max	.657	47	.363	4	.682	8	1.008e-02	20	NC	9	NC	1
18			min	-.535	5	-.314	22	-.673	14	-1.006e-02	14	194.762	5	239.25	3
19		5	max	.657	47	.56	5	.832	8	1.008e-02	20	NC	7	NC	1
20			min	-.535	5	-.492	47	-.82	14	-1.006e-02	14	136.953	5	175.025	3
21	M6	1	max	.355	5	.63	47	.612	14	6.03e-03	15	NC	1	NC	1
22			min	-.309	23	-.503	5	-.622	8	-6.098e-03	8	NC	1	NC	1
23		2	max	.355	5	.66	47	.643	14	6.03e-03	15	NC	1	NC	1
24			min	-.309	23	-.529	5	-.652	8	-6.098e-03	8	NC	1	NC	1
25		3	max	.355	5	.689	47	.673	14	6.03e-03	15	NC	1	NC	1
26			min	-.309	23	-.554	5	-.682	8	-6.098e-03	8	NC	1	NC	1
27		4	max	.355	5	.718	47	.703	14	6.03e-03	15	NC	1	NC	1
28			min	-.309	23	-.58	5	-.712	8	-6.098e-03	8	NC	1	NC	1
29		5	max	.355	5	.748	47	.733	14	6.03e-03	15	NC	1	NC	1
30			min	-.309	23	-.606	5	-.743	8	-6.098e-03	8	NC	1	NC	1
31	M7	1	max	.208	20	.156	18	.405	17	1.131e-02	17	NC	1	NC	1
32			min	-.232	2	-.457	48	-.443	11	-1.781e-02	47	NC	1	NC	1
33		2	max	.208	20	.141	18	.396	17	1.131e-02	17	NC	1	NC	1
34			min	-.232	2	-.449	48	-.435	11	-1.781e-02	47	NC	1	NC	1
35		3	max	.208	20	.126	17	.388	17	1.131e-02	17	NC	1	NC	1
36			min	-.232	2	-.442	47	-.427	11	-1.781e-02	47	NC	1	NC	1
37		4	max	.208	20	.129	17	.379	17	1.131e-02	17	NC	1	NC	1
38			min	-.232	2	-.436	47	-.419	11	-1.781e-02	47	NC	1	NC	1
39		5	max	.208	20	.131	17	.37	17	1.131e-02	17	NC	1	NC	1
40			min	-.232	2	-.429	47	-.411	11	-1.781e-02	47	NC	1	NC	1
41	M8	1	max	.131	17	.548	48	.251	49	3.937e-03	3	NC	1	NC	1
42			min	-.43	47	-.121	6	-.085	7	-6.264e-03	45	2459.601	31	283.43	38
43		2	max	.131	17	.262	40	.116	39	4.24e-03	2	NC	1	NC	1
44			min	-.43	47	-.06	10	-.038	34	-4.376e-03	44	328.711	47	470.519	38
45		3	max	.131	17	.174	5	.045	19	4.662e-03	2	NC	35	NC	1
46			min	-.429	47	-.17	23	-.052	13	-4.442e-03	20	179.265	47	741.045	7
47		4	max	.131	17	.37	17	.208	20	5.322e-03	3	NC	26	NC	34
48			min	-.429	47	-.411	11	-.232	2	-5.104e-03	21	101.522	47	319.621	13
49		5	max	.131	17	.658	17	.495	20	5.322e-03	3	NC	2	NC	5
50			min	-.429	47	-.826	47	-.592	2	-5.104e-03	21	69.857	47	145.868	2
51	M9	1	max	.405	17	.215	18	.259	2	1.383e-02	2	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC (n)	L/y Ratio	LC (n)	L/z Ratio	LC	
52		min	-.443	11	-.563	48	-.234	20	-1.077e-02	20	NC	1	NC	1	
53	2	max	.405	17	.186	18	.246	2	1.383e-02	2	NC	1	NC	1	
54		min	-.443	11	-.51	48	-.221	20	-1.077e-02	20	NC	1	NC	1	
55	3	max	.405	17	.156	18	.232	2	1.383e-02	2	NC	1	NC	1	
56		min	-.443	11	-.457	48	-.208	20	-1.077e-02	20	NC	1	NC	1	
57	4	max	.405	17	.127	18	.219	13	1.383e-02	2	NC	1	NC	1	
58		min	-.443	11	-.404	48	-.195	20	-1.077e-02	20	NC	1	NC	1	
59	5	max	.405	17	.107	19	.211	13	1.383e-02	2	NC	1	NC	1	
60		min	-.443	11	-.351	49	-.188	19	-1.077e-02	20	NC	1	NC	1	
61	M10	1	max	.415	20	.403	17	.313	16	6.195e-03	17	NC	1	NC	1
62		min	-.423	2	-1.328	47	-.415	46	-1.814e-02	47	NC	1	NC	1	
63	2	max	.415	20	.398	17	.312	17	6.195e-03	17	NC	1	NC	1	
64		min	-.423	2	-1.327	47	-.413	47	-1.814e-02	47	NC	1	NC	1	
65	3	max	.415	20	.393	17	.311	17	6.195e-03	17	NC	1	NC	1	
66		min	-.423	2	-1.326	47	-.412	47	-1.814e-02	47	NC	1	NC	1	
67	4	max	.415	20	.388	17	.31	17	6.195e-03	17	NC	1	NC	1	
68		min	-.423	2	-1.325	47	-.411	47	-1.814e-02	47	NC	1	NC	1	
69	5	max	.415	20	.383	17	.309	17	6.195e-03	17	NC	1	NC	1	
70		min	-.423	2	-1.324	47	-.409	47	-1.814e-02	47	NC	1	NC	1	
71	M11	1	max	.383	17	.497	47	.307	21	8.232e-03	15	NC	1	NC	1
72		min	-1.323	47	-.118	5	-.334	3	-8.407e-03	9	1379.2	30	353.451	5	
73	2	max	.383	17	.253	40	.29	20	7.628e-03	2	NC	1	NC	1	
74		min	-1.323	47	-.048	60	-.31	2	-7.61e-03	20	385.604	47	559.53	5	
75	3	max	.383	17	.17	5	.325	20	6.968e-03	2	NC	4	NC	1	
76		min	-1.324	47	-.169	23	-.341	2	-6.696e-03	20	198.168	47	668.51	7	
77	4	max	.383	17	.309	17	.415	20	6.803e-03	2	NC	1	NC	1	
78		min	-1.324	47	-.409	47	-.423	2	-6.468e-03	20	105.883	47	395.354	7	
79	5	max	.383	17	.461	17	.521	20	6.803e-03	2	NC	3	NC	1	
80		min	-1.324	47	-.845	47	-.521	2	-6.468e-03	20	71.524	47	270.821	7	
81	M12	1	max	.313	16	.44	17	.464	2	4.215e-03	25	NC	1	NC	1
82		min	-.415	46	-1.437	47	-.454	20	-4.542e-03	7	NC	1	NC	1	
83	2	max	.313	16	.421	17	.444	2	4.215e-03	25	NC	1	NC	1	
84		min	-.415	46	-1.383	47	-.434	20	-4.542e-03	7	NC	1	NC	1	
85	3	max	.313	16	.403	17	.423	2	4.215e-03	25	NC	1	NC	1	
86		min	-.415	46	-1.328	47	-.415	20	-4.542e-03	7	NC	1	NC	1	
87	4	max	.313	16	.384	17	.403	2	4.215e-03	25	NC	1	NC	1	
88		min	-.415	46	-1.274	47	-.395	20	-4.542e-03	7	NC	1	NC	1	
89	5	max	.313	16	.366	17	.382	2	4.215e-03	25	NC	1	NC	1	
90		min	-.415	46	-1.219	47	-.376	20	-4.542e-03	7	NC	1	NC	1	
91	M37	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
92		min	0	1	0	1	0	1	0	1	NC	1	NC	1	
93	2	max	.001	8	.005	20	.026	5	1.379e-03	5	NC	1	NC	1	
94		min	0	14	-.005	2	-.026	11	-2.944e-03	47	5994.085	8	2198.216	5	
95	3	max	.002	8	.01	20	.085	17	2.758e-03	5	NC	1	NC	1	
96		min	0	14	-.011	2	-.085	11	-5.888e-03	47	2860.886	8	672.795	11	
97	4	max	.003	8	.006	20	.152	17	4.137e-03	5	NC	1	NC	1	
98		min	-.001	14	-.011	2	-.153	11	-8.832e-03	47	2778.018	8	373.46	11	
99	5	max	.004	8	.006	14	.205	17	5.517e-03	5	NC	2	NC	1	
100		min	-.002	14	-.022	32	-.207	11	-1.178e-02	47	2628.844	32	275.949	11	
101	M38	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
102		min	0	1	0	1	0	1	0	1	NC	1	NC	1	
103	2	max	.001	12	.004	24	.042	10	1.146e-03	9	NC	1	NC	1	
104		min	0	18	-.004	6	-.042	4	-1.02e-03	15	6833.357	24	1347.444	4	
105	3	max	.002	12	.009	24	.143	10	2.291e-03	9	NC	1	NC	1	
106		min	0	18	-.01	6	-.144	4	-2.039e-03	15	3242.394	24	395.137	4	
107	4	max	.003	12	.005	24	.271	22	3.437e-03	9	NC	1	NC	1	
108		min	-.001	18	-.01	6	-.274	4	-3.059e-03	15	3142.53	24	208.074	4	

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
109		5	max	.004	12	.005	18	.394	22	4.582e-03	9	NC	4	NC	1
110			min	-.002	18	-.022	36	-.4	4	-4.078e-03	15	2645.676	36	142.532	4
111	M48	1	max	.343	20	.393	17	.205	17	5.463e-03	17	NC	1	NC	1
112			min	-.358	2	-1.326	47	-.207	11	-1.808e-02	47	NC	1	NC	1
113		2	max	.343	20	.39	17	.204	17	5.463e-03	17	NC	1	NC	1
114			min	-.358	2	-1.326	47	-.207	11	-1.808e-02	47	NC	1	NC	1
115		3	max	.343	20	.388	17	.204	17	5.463e-03	17	NC	1	NC	1
116			min	-.358	2	-1.325	47	-.208	11	-1.808e-02	47	NC	1	NC	1
117		4	max	.343	20	.385	17	.204	17	5.463e-03	17	NC	1	NC	1
118			min	-.358	2	-1.324	47	-.208	11	-1.808e-02	47	NC	1	NC	1
119		5	max	.343	20	.383	17	.203	17	5.463e-03	17	NC	1	NC	1
120			min	-.358	2	-1.324	47	-.208	11	-1.808e-02	47	NC	1	NC	1
121	M49	1	max	.067	19	.136	17	.205	17	5.528e-03	17	NC	1	NC	1
122			min	-.07	13	-.429	47	-.207	11	-1.735e-02	47	NC	1	NC	1
123		2	max	.067	19	.135	17	.205	17	5.528e-03	17	NC	1	NC	1
124			min	-.07	13	-.429	47	-.208	11	-1.735e-02	47	NC	1	NC	1
125		3	max	.067	19	.134	17	.205	17	5.528e-03	17	NC	1	NC	1
126			min	-.07	13	-.429	47	-.209	11	-1.735e-02	47	NC	1	NC	1
127		4	max	.067	19	.132	17	.206	17	5.528e-03	17	NC	1	NC	1
128			min	-.07	13	-.429	47	-.209	11	-1.735e-02	47	NC	1	NC	1
129		5	max	.067	19	.131	17	.206	17	5.528e-03	17	NC	1	NC	1
130			min	-.07	13	-.429	47	-.21	11	-1.735e-02	47	NC	1	NC	1
131	M50	1	max	.578	8	.673	47	.205	17	7.808e-03	5	NC	1	NC	1
132			min	-.57	14	-.545	5	-.207	11	-9.723e-03	47	NC	1	NC	1
133		2	max	.578	8	.669	47	.21	16	7.808e-03	5	NC	1	NC	1
134			min	-.57	14	-.542	5	-.211	10	-9.723e-03	47	NC	1	NC	1
135		3	max	.578	8	.665	47	.218	16	7.808e-03	5	NC	1	NC	1
136			min	-.57	14	-.54	5	-.218	10	-9.723e-03	47	NC	1	NC	1
137		4	max	.578	8	.661	47	.225	16	7.808e-03	5	NC	1	NC	1
138			min	-.57	14	-.538	5	-.225	10	-9.723e-03	47	NC	1	NC	1
139		5	max	.578	8	.657	47	.232	16	7.808e-03	5	NC	1	NC	1
140			min	-.57	14	-.535	5	-.232	10	-9.723e-03	47	NC	1	NC	1
141	M61	1	max	.335	6	.362	3	.656	22	5.842e-03	4	NC	2	NC	3
142			min	-.33	24	-.241	21	-.67	4	-4.519e-03	22	125.984	5	106.495	11
143		2	max	.335	6	.348	3	.592	22	1.242e-02	7	NC	4	NC	27
144			min	-.33	24	-.235	21	-.603	4	-1.109e-02	25	169.09	5	144.971	11
145		3	max	.335	6	.337	3	.525	22	2.494e-02	7	NC	4	NC	26
146			min	-.33	24	-.233	21	-.533	4	-2.346e-02	25	254.745	5	220.353	11
147		4	max	.335	6	.33	3	.457	22	3.746e-02	7	NC	3	NC	1
148			min	-.33	24	-.234	21	-.461	4	-3.583e-02	25	510.785	5	443.752	11
149		5	max	.335	6	.323	3	.388	10	4.998e-02	7	NC	1	NC	1
150			min	-.33	24	-.235	21	-.388	16	-4.821e-02	25	3271.532	44	1145.488	29
151	M62	1	max	.201	18	.467	3	.41	9	4.259e-03	14	NC	2	NC	2
152			min	-.206	12	-.461	21	-.23	15	-6.394e-03	8	270.655	7	186.787	13
153		2	max	.201	18	.438	3	.387	9	1.095e-02	23	NC	2	NC	7
154			min	-.206	12	-.431	21	-.219	15	-1.31e-02	5	362.785	7	252.137	13
155		3	max	.201	18	.401	3	.369	9	2.29e-02	22	NC	2	NC	7
156			min	-.206	12	-.393	21	-.212	15	-2.524e-02	4	545.799	7	380.474	13
157		4	max	.201	18	.358	3	.354	9	3.574e-02	22	NC	2	NC	7
158			min	-.206	12	-.35	21	-.207	15	-3.825e-02	4	1093.278	7	352.129	20
159		5	max	.201	18	.314	3	.34	8	4.858e-02	22	NC	1	NC	1
160			min	-.206	12	-.304	21	-.203	15	-5.125e-02	4	NC	1	250.116	20
161	M63	1	max	.4	4	.334	15	.458	2	4.493e-03	12	NC	2	NC	1
162			min	-.395	22	-.585	9	-.454	20	-4.397e-03	18	190.983	9	348.715	46
163		2	max	.4	4	.167	15	.223	2	4.912e-03	12	NC	36	NC	1
164			min	-.395	22	-.297	9	-.218	20	-4.54e-03	18	276.921	21	502.196	47
165		3	max	.4	4	.005	18	.004	12	2.534e-03	12	NC	42	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
166		min	-.394	22	-.022	36	-.002	18	-1.79e-03	18	486.527	21	416.845	13
167	4	max	.4	4	.175	21	.435	23	4.161e-03	11	NC	18	NC	1
168		min	-.395	22	-.261	3	-.443	5	-3.63e-03	17	298.745	15	276.653	3
169	5	max	.4	4	.35	21	.963	23	4.039e-03	11	NC	1	NC	2
170		min	-.395	22	-.519	3	-.984	5	-3.7e-03	17	209.958	15	167.663	4
171	M67	1	max	.252	3	1.046	.212	18	1.481e-02	48	NC	3	NC	2
172		min	-.244	21	-.312	17	-.224	12	-5.456e-03	18	256.393	13	123.285	44
173	2	max	.252	3	.97	47	.191	18	1.19e-02	3	NC	6	NC	11
174		min	-.244	21	-.299	17	-.2	12	-1.054e-02	21	345.588	13	169.688	44
175	3	max	.252	3	.897	47	.167	18	2.368e-02	3	NC	6	NC	13
176		min	-.244	21	-.289	17	-.173	12	-2.214e-02	21	522.146	13	260.381	44
177	4	max	.252	3	.825	47	.147	17	3.545e-02	3	NC	3	NC	1
178		min	-.244	21	-.282	17	-.149	11	-3.373e-02	21	1048.714	13	527.744	44
179	5	max	.252	3	.754	47	.131	5	4.763e-02	4	NC	1	NC	1
180		min	-.244	21	-.275	17	-.129	23	-4.56e-02	22	NC	1	399.287	6
181	M68	1	max	.349	25	.389	.474	5	9.109e-03	46	NC	3	NC	3
182		min	-.354	7	-.386	15	-.586	47	-7.86e-03	4	225.205	2	105.529	8
183	2	max	.349	25	.334	9	.451	5	9.533e-03	19	NC	3	NC	9
184		min	-.354	7	-.33	15	-.56	47	-1.17e-02	13	306.139	2	145.073	8
185	3	max	.349	25	.278	9	.433	5	2.189e-02	18	NC	3	NC	9
186		min	-.354	7	-.274	15	-.535	47	-2.433e-02	12	465.687	2	222.169	8
187	4	max	.349	25	.222	9	.419	5	3.49e-02	18	NC	3	NC	9
188		min	-.354	7	-.217	15	-.511	47	-3.751e-02	12	939.674	2	188.488	3
189	5	max	.349	25	.166	9	.406	5	4.792e-02	18	NC	1	NC	1
190		min	-.354	7	-.159	15	-.488	46	-5.07e-02	12	NC	1	140.103	3
191	M69	1	max	.207	11	.848	.759	8	5.451e-03	9	NC	9	NC	1
192		min	-.205	17	-.686	5	-.751	14	-5.396e-03	15	155.31	5	508.507	8
193	2	max	.207	11	.427	47	.323	8	5.69e-03	8	NC	8	NC	1
194		min	-.205	17	-.341	5	-.317	14	-5.321e-03	14	222.998	17	1224.873	13
195	3	max	.207	11	.006	14	.004	8	2.749e-03	8	NC	58	NC	1
196		min	-.205	17	-.022	32	-.002	14	-2.006e-03	14	201.748	47	397.478	2
197	4	max	.207	11	.225	17	.145	20	4.136e-03	8	NC	52	NC	1
198		min	-.205	17	-.73	47	-.151	2	-3.594e-03	14	110.243	47	604.255	2
199	5	max	.207	11	.458	17	.421	20	3.908e-03	7	NC	1	NC	2
200		min	-.205	17	-1.543	47	-.439	2	-3.581e-03	25	72.771	47	836.358	60
201	M64A	1	max	0	1	0	1	0	0	1	NC	1	NC	1
202		min	0	1	0	1	0	1	0	1	NC	1	NC	1
203	2	max	0	14	.005	14	.053	17	6.525e-04	6	NC	1	NC	1
204		min	-.002	32	-.016	32	-.053	11	-2.116e-03	48	4893.142	32	3664.552	43
205	3	max	0	14	.007	14	.103	17	1.305e-03	6	NC	1	NC	1
206		min	-.003	32	-.025	32	-.104	11	-4.232e-03	48	3486.364	32	1827.887	43
207	4	max	0	14	.006	14	.151	17	1.957e-03	6	NC	1	NC	1
208		min	-.005	32	-.024	32	-.152	11	-6.348e-03	48	4893.142	32	1214.996	43
209	5	max	0	14	.002	14	.196	17	2.61e-03	6	NC	1	NC	1
210		min	-.007	32	-.016	32	-.198	11	-8.464e-03	48	NC	1	908.821	43
211	M66A	1	max	0	1	0	1	0	0	1	NC	1	NC	1
212		min	0	1	0	1	0	1	0	1	NC	1	NC	1
213	2	max	0	18	.011	18	.099	22	6.98e-04	5	NC	1	NC	1
214		min	-.002	36	-.018	12	-.101	4	-5.809e-04	23	4088.506	12	4385.201	49
215	3	max	0	18	.015	18	.195	22	1.396e-03	5	NC	1	NC	1
216		min	-.003	36	-.026	12	-.197	4	-1.162e-03	23	2913.061	12	2186.858	49
217	4	max	0	18	.012	18	.284	22	2.094e-03	5	NC	1	NC	1
218		min	-.005	36	-.025	36	-.288	4	-1.743e-03	23	4088.506	12	1453.204	49
219	5	max	0	18	.001	18	.37	22	2.792e-03	5	NC	1	NC	1
220		min	-.007	36	-.016	36	-.375	4	-2.324e-03	23	NC	1	1086.732	49
221	M68B	1	max	.303	21	.406	.424	48	5.611e-03	17	NC	1	NC	1
222		min	-.328	3	-1.355	47	-.095	7	-1.273e-02	47	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
223	2	max	.303	21	.4	17	.423	48	5.611e-03	17	NC	1	NC	1
224		min	-.328	3	-1.347	47	-.091	6	-1.273e-02	47	NC	1	NC	1
225	3	max	.303	21	.394	17	.422	48	5.611e-03	17	NC	1	NC	1
226		min	-.328	3	-1.339	47	-.088	6	-1.273e-02	47	NC	1	NC	1
227	4	max	.303	21	.388	17	.421	47	5.611e-03	17	NC	1	NC	1
228		min	-.328	3	-1.331	47	-.084	6	-1.273e-02	47	NC	1	NC	1
229	5	max	.303	21	.383	17	.421	47	5.611e-03	17	NC	1	NC	1
230		min	-.328	3	-1.323	47	-.085	5	-1.273e-02	47	NC	1	NC	1
231	M69B	1	max	.219	49	.139	.423	48	6.08e-03	17	NC	1	NC	1
232		min	-.071	7	-.462	47	-.096	7	-1.494e-02	47	NC	1	NC	1
233	2	max	.219	49	.137	17	.432	48	6.08e-03	17	NC	1	NC	1
234		min	-.071	7	-.454	47	-.092	6	-1.494e-02	47	NC	1	NC	1
235	3	max	.219	49	.135	17	.441	48	6.08e-03	17	NC	1	NC	1
236		min	-.071	7	-.446	47	-.091	6	-1.494e-02	47	NC	1	NC	1
237	4	max	.219	49	.133	17	.45	48	6.08e-03	17	NC	1	NC	1
238		min	-.071	7	-.438	47	-.09	6	-1.494e-02	47	NC	1	NC	1
239	5	max	.219	49	.131	17	.459	48	6.08e-03	17	NC	1	NC	1
240		min	-.071	7	-.43	47	-.088	6	-1.494e-02	47	NC	1	NC	1
241	M70B	1	max	.443	7	.691	.422	48	7.002e-03	5	NC	1	NC	1
242		min	-.415	25	-.562	5	-.097	7	-9.206e-03	47	NC	1	NC	1
243	2	max	.443	7	.683	47	.42	49	7.002e-03	5	NC	1	NC	1
244		min	-.415	25	-.555	5	-.114	7	-9.206e-03	47	NC	1	NC	1
245	3	max	.443	7	.674	47	.418	49	7.002e-03	5	NC	1	NC	1
246		min	-.415	25	-.549	5	-.132	7	-9.206e-03	47	NC	1	NC	1
247	4	max	.443	7	.666	47	.416	49	7.002e-03	5	NC	1	NC	1
248		min	-.415	25	-.542	5	-.15	7	-9.206e-03	47	NC	1	NC	1
249	5	max	.443	7	.657	47	.415	49	7.002e-03	5	NC	1	NC	1
250		min	-.415	25	-.535	5	-.168	7	-9.206e-03	47	NC	1	NC	1
251	M71A	1	max	.097	7	.745	.514	7	6.179e-03	46	NC	9	NC	1
252		min	-.422	48	-.603	5	-.483	25	-5.588e-03	4	151.707	5	307.265	48
253	2	max	.096	7	.389	47	.102	7	3.598e-03	45	NC	8	NC	1
254		min	-.422	48	-.3	5	-.266	49	-4.435e-03	3	217.455	17	300.838	48
255	3	max	.096	7	0	14	.092	14	2.411e-03	20	NC	28	NC	1
256		min	-.423	48	-.097	32	-.097	8	-3.219e-03	2	183.402	47	387.015	2
257	4	max	.096	7	.201	17	.261	47	2.629e-03	18	NC	52	NC	1
258		min	-.423	48	-.646	47	-.05	5	-5.02e-03	48	107.9	47	309.642	46
259	5	max	.095	7	.406	17	.303	21	4.033e-03	6	NC	1	NC	1
260		min	-.424	48	-1.355	47	-.328	3	-5.243e-03	47	71.456	47	314.259	46
261	M73	1	max	.247	5	.389	.235	49	6.917e-03	25	NC	1	NC	1
262		min	-.318	47	-.084	7	-.052	7	-7.492e-03	7	NC	1	NC	1
263	2	max	.247	5	.397	49	.237	49	6.917e-03	25	NC	1	NC	1
264		min	-.318	47	-.087	7	-.051	7	-7.492e-03	7	NC	1	NC	1
265	3	max	.247	5	.406	49	.239	49	6.917e-03	25	NC	1	NC	1
266		min	-.318	47	-.09	7	-.05	7	-7.492e-03	7	NC	1	NC	1
267	4	max	.247	5	.414	49	.241	49	6.917e-03	25	NC	1	NC	1
268		min	-.318	47	-.093	7	-.049	7	-7.492e-03	7	NC	1	NC	1
269	5	max	.247	5	.422	48	.243	48	6.917e-03	25	NC	1	NC	1
270		min	-.318	47	-.096	7	-.049	7	-7.492e-03	7	NC	1	NC	1
271	M74	1	max	.526	47	.372	.052	7	4.893e-03	45	NC	1	NC	1
272		min	-.163	17	-.087	7	-.225	49	-4.875e-03	3	NC	1	NC	1
273	2	max	.526	47	.385	49	.054	7	4.893e-03	45	NC	1	NC	1
274		min	-.163	17	-.089	7	-.228	49	-4.875e-03	3	NC	1	NC	1
275	3	max	.526	47	.398	49	.055	7	4.893e-03	45	NC	1	NC	1
276		min	-.163	17	-.091	7	-.232	49	-4.875e-03	3	NC	1	NC	1
277	4	max	.526	47	.41	49	.057	7	4.893e-03	45	NC	1	NC	1
278		min	-.163	17	-.093	7	-.236	49	-4.875e-03	3	NC	1	NC	1
279	5	max	.526	47	.423	48	.059	7	4.893e-03	45	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
280		min	-.163	17	-.096	7	-.24	49	-4.875e-03	3	NC	1	NC	1
281	M75	max	0	1	0	1	0	1	8.014e-03	4	NC	1	NC	1
282		min	0	1	0	1	0	1	-1.129e-02	46	NC	1	NC	1
283		max	0	43	.068	30	.04	9	8.014e-03	4	NC	1	NC	3
284		min	0	13	-.074	48	-.112	39	-1.129e-02	46	6200.292	72	458.985	49
285		max	0	43	.123	29	.065	9	8.014e-03	4	NC	1	NC	3
286		min	0	13	-.151	48	-.224	39	-1.129e-02	46	3014.656	72	226.556	49
287		max	.001	43	.172	5	.078	8	8.014e-03	4	NC	1	NC	10
288		min	0	13	-.233	47	-.338	38	-1.129e-02	46	1943.563	72	148.372	48
289		max	.001	43	.247	5	.098	7	8.014e-03	4	NC	1	NC	1
290		min	-.001	13	-.318	47	-.454	49	-1.129e-02	46	1415.484	72	109.438	48
291	M76	max	0	1	0	1	0	1	5.916e-03	17	NC	1	NC	1
292		min	0	1	0	1	0	1	-1.717e-02	47	NC	1	NC	1
293		max	0	21	.111	40	.135	46	5.916e-03	17	NC	1	NC	2
294		min	0	39	-.021	10	-.021	16	-1.717e-02	47	2614.298	8	2004.754	30
295		max	0	21	.22	40	.268	46	5.916e-03	17	NC	1	NC	3
296		min	0	39	-.032	9	-.052	17	-1.717e-02	47	1279.585	8	1206.557	11
297		max	0	21	.328	38	.398	47	5.916e-03	17	NC	1	NC	8
298		min	-.001	39	-.053	8	-.102	17	-1.717e-02	47	831.399	8	571.727	11
299		max	0	21	.435	49	.526	47	5.916e-03	17	NC	1	NC	1
300		min	-.002	39	-.101	7	-.163	17	-1.717e-02	47	609.548	8	339.86	11
301	M88	max	.271	4	.302	15	.201	2	4.274e-03	49	NC	2	NC	1
302		min	-.246	22	-.518	9	-.378	44	-4.233e-03	8	185.447	9	253.558	47
303		max	.271	4	.151	15	.177	4	2.834e-03	25	NC	36	NC	1
304		min	-.246	22	-.263	9	-.16	22	-3.696e-03	7	268.395	21	414.106	47
305		max	.271	4	-.001	18	.092	18	2.205e-03	24	NC	18	NC	1
306		min	-.247	22	-.097	36	-.098	12	-3.001e-03	6	435.838	21	580.577	13
307		max	.271	4	.154	21	.211	23	2.575e-03	22	NC	18	NC	1
308		min	-.247	22	-.224	3	-.228	5	-2.994e-03	4	290.895	15	454.891	4
309		max	.271	4	.312	21	.668	23	4.076e-03	9	NC	1	NC	1
310		min	-.247	22	-.461	3	-.694	5	-3.789e-03	15	202.126	15	209.637	5
311	M90	max	.219	9	.006	22	.328	4	4.901e-03	44	NC	1	NC	1
312		min	-.124	15	-.007	4	-.306	22	-3.672e-03	2	NC	1	NC	1
313		max	.219	9	.008	22	.326	4	4.901e-03	44	NC	1	NC	1
314		min	-.124	15	-.008	4	-.302	22	-3.672e-03	2	NC	1	NC	1
315		max	.219	9	.01	22	.324	4	4.901e-03	44	NC	1	NC	1
316		min	-.124	15	-.01	4	-.299	22	-3.672e-03	2	NC	1	NC	1
317		max	.219	9	.011	11	.322	4	4.901e-03	44	NC	1	NC	1
318		min	-.124	15	-.011	17	-.295	22	-3.672e-03	2	NC	1	NC	1
319		max	.219	9	.013	11	.321	4	4.901e-03	44	NC	1	NC	1
320		min	-.124	15	-.013	17	-.292	22	-3.672e-03	2	NC	1	NC	1
321	M91	max	.185	3	.293	4	.16	4	9.908e-03	23	NC	1	NC	1
322		min	-.125	21	-.265	22	-.145	22	-1.011e-02	5	NC	1	NC	1
323		max	.185	3	.29	4	.158	4	9.908e-03	23	NC	1	NC	1
324		min	-.125	21	-.262	22	-.143	22	-1.011e-02	5	NC	1	NC	1
325		max	.185	3	.286	4	.156	4	9.908e-03	23	NC	1	NC	1
326		min	-.125	21	-.26	22	-.142	22	-1.011e-02	5	NC	1	NC	1
327		max	.185	3	.282	4	.154	4	9.908e-03	23	NC	1	NC	1
328		min	-.125	21	-.257	22	-.14	22	-1.011e-02	5	NC	1	NC	1
329		max	.185	3	.279	4	.152	4	9.908e-03	23	NC	1	NC	1
330		min	-.125	21	-.254	22	-.139	22	-1.011e-02	5	NC	1	NC	1
331	M92	max	0	1	0	1	0	1	6.839e-03	8	NC	1	NC	1
332		min	0	1	0	1	0	1	-4.513e-03	14	NC	1	NC	1
333		max	0	23	.067	34	.104	4	6.839e-03	8	NC	1	NC	5
334		min	0	5	-.012	16	-.094	22	-4.513e-03	14	938.513	17	1197.545	2
335		max	0	23	.121	34	.195	4	6.839e-03	8	NC	1	NC	12
336		min	0	5	-.033	16	-.177	22	-4.513e-03	14	467.145	17	853.251	2



**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
337	4	max	0	23	.159	33	.268	4	6.839e-03	8	NC	1	NC	5	
338		min	0	5	-.069	15	-.247	22	-4.513e-03	14	309.708	17	500.722	6	
339	5	max	0	23	.219	9	.328	4	6.839e-03	8	NC	1	NC	1	
340		min	0	5	-.124	15	-.306	22	-4.513e-03	14	231.125	17	328.529	6	
341	M93	1	max	0	1	0	1	0	1	4.805e-03	21	NC	1	NC	1
342		min	0	1	0	1	0	1	1	-5.91e-03	3	NC	1	NC	1
343		2	max	0	12	.108	22	.046	26	4.805e-03	21	NC	1	NC	2
344		min	0	6	-.111	4	-.021	20	-5.91e-03	3	3182.782	46	1487.73	10	
345		3	max	0	12	.197	22	.088	2	4.805e-03	21	NC	1	NC	7
346		min	0	6	-.206	4	-.048	20	-5.91e-03	3	1573.856	46	1060.007	10	
347		4	max	0	12	.26	22	.133	2	4.805e-03	21	NC	1	NC	7
348		min	0	6	-.279	4	-.081	20	-5.91e-03	3	1035.147	46	1487.73	10	
349		5	max	0	12	.302	22	.185	3	4.805e-03	21	NC	1	NC	1
350		min	0	6	-.334	4	-.125	21	-5.91e-03	3	767.041	46	1065.532	70	
351	M103	1	max	.603	5	.397	49	.486	25	1.136e-02	25	NC	1	NC	1
352		min	-.745	47	-.085	7	-.516	7	-1.197e-02	7	NC	1	NC	1	
353		2	max	.603	5	.403	49	.485	25	1.136e-02	25	NC	1	NC	1
354		min	-.745	47	-.088	7	-.516	7	-1.197e-02	7	NC	1	NC	1	
355		3	max	.603	5	.409	49	.484	25	1.136e-02	25	NC	1	NC	1
356		min	-.745	47	-.091	7	-.515	7	-1.197e-02	7	NC	1	NC	1	
357		4	max	.603	5	.416	49	.484	25	1.136e-02	25	NC	1	NC	1
358		min	-.745	47	-.094	7	-.515	7	-1.197e-02	7	NC	1	NC	1	
359		5	max	.603	5	.422	48	.483	25	1.136e-02	25	NC	1	NC	1
360		min	-.745	47	-.097	7	-.514	7	-1.197e-02	7	NC	1	NC	1	
361	M108	1	max	.518	9	.242	43	.301	4	6.836e-03	42	NC	1	NC	1
362		min	-.302	15	-.183	12	-.327	46	-6.075e-03	12	NC	1	NC	1	
363		2	max	.518	9	.245	43	.298	4	6.836e-03	42	NC	1	NC	1
364		min	-.302	15	-.181	12	-.328	46	-6.075e-03	12	NC	1	NC	1	
365		3	max	.518	9	.248	43	.296	4	6.836e-03	42	NC	1	NC	1
366		min	-.302	15	-.179	12	-.329	46	-6.075e-03	12	NC	1	NC	1	
367		4	max	.518	9	.25	43	.294	4	6.836e-03	42	NC	1	NC	1
368		min	-.302	15	-.177	12	-.33	46	-6.075e-03	12	NC	1	NC	1	
369		5	max	.518	9	.253	43	.291	4	6.836e-03	42	NC	1	NC	1
370		min	-.302	15	-.175	12	-.331	46	-6.075e-03	12	NC	1	NC	1	
371	M109	1	max	1.355	47	.386	49	.324	3	8.407e-03	9	NC	1	NC	1
372		min	-.406	17	-.088	7	-.301	21	-8.232e-03	15	NC	1	NC	1	
373		2	max	1.355	47	.396	49	.325	3	8.407e-03	9	NC	1	NC	1
374		min	-.406	17	-.09	7	-.301	21	-8.232e-03	15	NC	1	NC	1	
375		3	max	1.355	47	.405	49	.326	3	8.407e-03	9	NC	1	NC	1
376		min	-.406	17	-.092	7	-.302	21	-8.232e-03	15	NC	1	NC	1	
377		4	max	1.355	47	.414	49	.327	3	8.407e-03	9	NC	1	NC	1
378		min	-.406	17	-.094	7	-.302	21	-8.232e-03	15	NC	1	NC	1	
379		5	max	1.355	47	.424	48	.328	3	8.407e-03	9	NC	1	NC	1
380		min	-.406	17	-.095	7	-.303	21	-8.232e-03	15	NC	1	NC	1	
381	M111	1	max	.461	3	.743	5	.196	13	1.362e-02	12	NC	1	NC	1
382		min	-.312	21	-.708	23	-.185	19	-1.34e-02	18	NC	1	NC	1	
383		2	max	.461	3	.74	5	.195	13	1.362e-02	12	NC	1	NC	1
384		min	-.312	21	-.706	23	-.184	19	-1.34e-02	18	NC	1	NC	1	
385		3	max	.461	3	.738	5	.193	13	1.362e-02	12	NC	1	NC	1
386		min	-.312	21	-.703	23	-.182	19	-1.34e-02	18	NC	1	NC	1	
387		4	max	.461	3	.736	5	.191	13	1.362e-02	12	NC	1	NC	1
388		min	-.312	21	-.701	23	-.181	19	-1.34e-02	18	NC	1	NC	1	
389		5	max	.461	3	.734	5	.189	13	1.362e-02	12	NC	1	NC	1
390		min	-.312	21	-.699	23	-.18	19	-1.34e-02	18	NC	1	NC	1	
391	M75B	1	max	.406	5	.104	7	.386	14	8.976e-03	3	NC	1	NC	1
392		min	-.488	46	-.096	25	-.394	8	-8.769e-03	21	NC	1	NC	1	
393		2	max	.406	5	.125	7	.373	14	8.976e-03	3	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
394		min	-.488	46	-.12	24	-.381	8	-8.769e-03	21	NC	1	NC	1	
395	3	max	.406	5	.15	6	.36	14	8.976e-03	3	NC	1	NC	1	
396		min	-.488	46	-.148	24	-.368	8	-8.769e-03	21	NC	1	NC	1	
397	4	max	.406	5	.176	18	.347	14	8.976e-03	3	NC	1	NC	1	
398		min	-.488	46	-.176	12	-.355	8	-8.769e-03	21	NC	1	NC	1	
399	5	max	.406	5	.202	18	.334	14	8.976e-03	3	NC	1	NC	1	
400		min	-.488	46	-.205	12	-.342	8	-8.769e-03	21	NC	1	NC	1	
401	M76B	1	max	.754	47	.112	4	.247	3	4.509e-03	19	NC	1	NC	1
402		min	-.275	17	-.111	22	-.242	21	-4.994e-03	13	NC	1	NC	1	
403	2	max	.754	47	.139	4	.229	2	4.509e-03	19	NC	1	NC	1	
404		min	-.275	17	-.137	22	-.224	20	-4.994e-03	13	NC	1	NC	1	
405	3	max	.754	47	.166	4	.212	2	4.509e-03	19	NC	1	NC	1	
406		min	-.275	17	-.162	22	-.207	20	-4.994e-03	13	NC	1	NC	1	
407	4	max	.754	47	.193	4	.195	2	4.509e-03	19	NC	1	NC	1	
408		min	-.275	17	-.187	22	-.191	20	-4.994e-03	13	NC	1	NC	1	
409	5	max	.754	47	.22	4	.178	2	4.509e-03	19	NC	1	NC	1	
410		min	-.275	17	-.212	22	-.174	20	-4.994e-03	13	NC	1	NC	1	
411	M77	1	max	.34	8	.203	18	.19	3	7.279e-03	8	NC	1	NC	1
412		min	-.203	15	-.214	12	-.189	9	-7.054e-03	14	NC	1	NC	1	
413	2	max	.34	8	.198	18	.221	3	7.279e-03	8	NC	1	NC	1	
414		min	-.203	15	-.208	12	-.219	21	-7.054e-03	14	NC	1	NC	1	
415	3	max	.34	8	.194	18	.255	4	7.279e-03	8	NC	1	NC	1	
416		min	-.203	15	-.202	12	-.25	22	-7.054e-03	14	NC	1	NC	1	
417	4	max	.34	8	.189	18	.293	4	7.279e-03	8	NC	1	NC	1	
418		min	-.203	15	-.196	12	-.286	22	-7.054e-03	14	NC	1	NC	1	
419	5	max	.34	8	.184	18	.331	4	7.279e-03	8	NC	1	NC	1	
420		min	-.203	15	-.19	12	-.321	22	-7.054e-03	14	NC	1	NC	1	
421	M78	1	max	.323	3	.472	5	.208	25	1.096e-02	23	NC	1	NC	1
422		min	-.235	21	-.467	23	-.209	7	-1.142e-02	5	NC	1	NC	1	
423	2	max	.323	3	.461	5	.219	25	1.096e-02	23	NC	1	NC	1	
424		min	-.235	21	-.457	23	-.222	7	-1.142e-02	5	NC	1	NC	1	
425	3	max	.323	3	.451	5	.23	25	1.096e-02	23	NC	1	NC	1	
426		min	-.235	21	-.447	23	-.234	7	-1.142e-02	5	NC	1	NC	1	
427	4	max	.323	3	.441	5	.241	25	1.096e-02	23	NC	1	NC	1	
428		min	-.235	21	-.438	23	-.247	7	-1.142e-02	5	NC	1	NC	1	
429	5	max	.323	3	.431	5	.252	25	1.096e-02	23	NC	1	NC	1	
430		min	-.235	21	-.428	23	-.259	7	-1.142e-02	5	NC	1	NC	1	
431	M89A	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
432		min	0	1	0	1	0	1	0	1	NC	1	NC	1	
433	2	max	.001	4	.004	16	.046	12	1.07e-03	13	NC	1	NC	1	
434		min	0	22	-.004	10	-.045	7	-9.315e-04	19	6830.34	16	1247.317	12	
435	3	max	.002	4	.009	16	.158	12	2.141e-03	13	NC	1	NC	1	
436		min	0	22	-.01	10	-.157	6	-1.863e-03	19	3240.365	16	360.356	12	
437	4	max	.003	4	.005	16	.306	24	3.211e-03	13	NC	1	NC	1	
438		min	-.001	22	-.01	10	-.304	6	-2.795e-03	19	3140.304	16	186.268	24	
439	5	max	.004	4	.005	22	.458	24	4.281e-03	13	NC	8	NC	1	
440		min	-.002	22	-.022	28	-.456	6	-3.726e-03	19	2645.853	28	124.381	24	
441	M92A	1	max	.185	10	.338	7	.607	25	5.055e-03	8	NC	2	NC	2
442		min	-.177	16	-.22	25	-.616	7	-3.765e-03	14	232.322	9	211.06	3	
443	2	max	.185	10	.321	7	.563	25	1.388e-02	11	NC	2	NC	2	
444		min	-.177	16	-.213	25	-.569	7	-1.256e-02	17	315.013	9	296.837	3	
445	3	max	.185	10	.309	7	.512	25	2.74e-02	11	NC	2	NC	2	
446		min	-.177	16	-.208	25	-.516	7	-2.589e-02	17	478.073	9	461.317	3	
447	4	max	.185	10	.299	7	.457	25	4.092e-02	11	NC	2	NC	1	
448		min	-.177	16	-.206	25	-.457	7	-3.921e-02	17	605.002	49	939.909	3	
449	5	max	.185	10	.29	7	.4	13	5.443e-02	11	NC	1	NC	1	
450		min	-.177	16	-.205	25	-.396	19	-5.254e-02	17	443.353	49	1271.352	74	

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
451	M93A	1	max	.35	22	.798	6	.386	13	5.267e-03	18	NC	2	NC	2
452			min	-.357	4	-.796	24	-.203	19	-7.448e-03	12	168.327	10	98.41	4
453		2	max	.35	22	.717	6	.375	13	9.628e-03	15	NC	5	NC	5
454			min	-.357	4	-.715	24	-.204	19	-1.173e-02	9	227.59	10	134.843	4
455		3	max	.35	22	.63	6	.37	13	2.228e-02	14	NC	5	NC	5
456			min	-.357	4	-.627	24	-.21	19	-2.453e-02	8	344.784	10	205.928	4
457		4	max	.35	22	.54	6	.373	12	3.52e-02	14	NC	3	NC	5
458			min	-.357	4	-.535	24	-.219	18	-3.754e-02	8	693.872	10	415.684	4
459		5	max	.35	22	.448	6	.38	12	4.811e-02	14	NC	1	NC	1
460			min	-.357	4	-.441	24	-.237	18	-5.056e-02	8	NC	1	1030.977	14
461	M94	1	max	.457	6	.295	19	1.111	5	5.722e-03	5	NC	4	NC	1
462			min	-.459	24	-.551	13	-1.103	23	-5.654e-03	23	206.377	13	121.069	6
463		2	max	.457	6	.147	19	.518	5	5.612e-03	5	NC	9	NC	1
464			min	-.459	24	-.279	13	-.512	23	-5.263e-03	23	301.792	25	181.706	7
465		3	max	.456	6	.005	22	.004	4	2.535e-03	4	NC	38	NC	1
466			min	-.458	24	-.022	28	-.002	22	-1.792e-03	22	543.348	25	286.562	7
467		4	max	.457	6	.162	25	.315	25	3.675e-03	4	NC	52	NC	1
468			min	-.458	24	-.245	7	-.322	7	-3.125e-03	22	329.472	19	398.199	8
469		5	max	.457	6	.316	25	.616	14	3.25e-03	3	NC	1	NC	4
470			min	-.459	24	-.48	7	-.639	8	-2.917e-03	21	231.724	19	225.507	8
471	M98	1	max	0	1	0	1	0	1	0	1	NC	1	NC	1
472			min	0	1	0	1	0	1	0	1	NC	1	NC	1
473		2	max	0	22	.011	22	.114	24	9.379e-04	6	NC	1	NC	1
474			min	-.002	28	-.018	4	-.113	6	-8.145e-04	24	4088.506	4	4653.501	45
475		3	max	0	22	.015	22	.223	24	1.876e-03	6	NC	1	NC	1
476			min	-.003	28	-.026	4	-.222	6	-1.629e-03	24	2913.061	4	2320.284	45
477		4	max	0	22	.012	22	.327	24	2.814e-03	6	NC	1	NC	1
478			min	-.005	28	-.025	28	-.326	6	-2.444e-03	24	4088.506	4	1541.565	45
479		5	max	0	22	.001	22	.427	24	3.752e-03	6	NC	1	NC	1
480			min	-.007	28	-.016	28	-.425	6	-3.258e-03	24	NC	1	1152.606	45
481	M110	1	max	.338	6	.267	19	.674	5	5.381e-03	18	NC	4	NC	1
482			min	-.313	24	-.487	13	-.644	23	-5.84e-03	12	199.633	13	182.842	6
483		2	max	.338	6	.128	19	.258	6	3.752e-03	17	NC	28	NC	1
484			min	-.313	24	-.241	13	-.241	24	-4.613e-03	11	293.94	25	295.137	6
485		3	max	.338	6	-.004	22	.091	22	2.243e-03	16	NC	22	NC	1
486			min	-.313	24	-.096	28	-.097	4	-3.042e-03	10	487.628	25	369.835	9
487		4	max	.338	6	.146	25	.21	24	2.119e-03	14	NC	52	NC	1
488			min	-.313	24	-.213	7	-.227	6	-2.528e-03	8	318.742	19	279.241	7
489		5	max	.337	6	.285	25	.387	38	3.451e-03	13	NC	1	NC	1
490			min	-.313	24	-.43	7	-.402	8	-3.939e-03	43	221.951	19	216.38	7
491	M112	1	max	.199	13	.358	6	.185	24	9.599e-03	23	NC	1	NC	1
492			min	-.102	19	-.339	24	-.196	6	-1.016e-02	5	NC	1	NC	1
493		2	max	.199	13	.355	6	.183	24	9.599e-03	23	NC	1	NC	1
494			min	-.102	19	-.334	24	-.195	6	-1.016e-02	5	NC	1	NC	1
495		3	max	.199	13	.351	6	.181	24	9.599e-03	23	NC	1	NC	1
496			min	-.102	19	-.33	24	-.194	6	-1.016e-02	5	NC	1	NC	1
497		4	max	.199	13	.348	6	.179	24	9.599e-03	23	NC	1	NC	1
498			min	-.102	19	-.325	24	-.193	6	-1.016e-02	5	NC	1	NC	1
499		5	max	.199	13	.345	6	.177	24	9.599e-03	23	NC	1	NC	1
500			min	-.102	19	-.32	24	-.191	6	-1.016e-02	5	NC	1	NC	1
501	M113	1	max	.178	7	.008	24	.378	24	5.824e-03	14	NC	1	NC	1
502			min	-.12	25	-.009	6	-.41	6	-6.037e-03	8	NC	1	NC	1
503		2	max	.178	7	.009	24	.376	24	5.824e-03	14	NC	1	NC	1
504			min	-.12	25	-.01	6	-.407	6	-6.037e-03	8	NC	1	NC	1
505		3	max	.178	7	.01	24	.373	24	5.824e-03	14	NC	1	NC	1
506			min	-.12	25	-.011	6	-.404	6	-6.037e-03	8	NC	1	NC	1
507		4	max	.178	7	.011	24	.371	24	5.824e-03	14	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
508		min	-.12	25	-.012	6	-.4	6	-6.037e-03	8	NC	1	NC	1	
509	5	max	.178	7	.012	24	.369	24	5.824e-03	14	NC	1	NC	1	
510		min	-.12	25	-.013	6	-.397	6	-6.037e-03	8	NC	1	NC	1	
511	M114	1	max	0	1	0	1	1	7.242e-03	12	NC	1	NC	1	
512		min	0	1	0	1	0	1	-4.859e-03	18	NC	1	NC	1	
513		2	max	0	16	.066	26	.135	6	7.242e-03	12	NC	1	NC	2
514		min	0	10	-.013	20	-.125	24	-4.859e-03	18	2501.369	3	1487.734	6	
515		3	max	0	16	.12	37	.251	6	7.242e-03	12	NC	1	NC	9
516		min	0	10	-.03	20	-.233	24	-4.859e-03	18	1239.418	3	904.443	48	
517		4	max	0	16	.158	37	.339	6	7.242e-03	12	NC	1	NC	2
518		min	0	10	-.059	19	-.318	24	-4.859e-03	18	817.185	3	584.174	48	
519		5	max	0	16	.199	13	.408	6	7.242e-03	12	NC	1	NC	1
520		min	-.001	10	-.102	19	-.386	24	-4.859e-03	18	606.846	3	426.117	48	
521	M115	1	max	0	1	0	1	0	4.208e-03	25	NC	1	NC	1	
522		min	0	1	0	1	0	1	-5.243e-03	7	NC	1	NC	1	
523		2	max	0	16	.121	25	.045	30	4.208e-03	25	NC	1	NC	4
524		min	0	22	-.123	7	-.015	23	-5.243e-03	7	879.485	23	1197.541	2	
525		3	max	0	16	.22	24	.078	30	4.208e-03	25	NC	1	NC	23
526		min	0	22	-.229	6	-.037	24	-5.243e-03	7	437.888	23	832.495	17	
527		4	max	0	16	.306	24	.122	6	4.208e-03	25	NC	1	NC	11
528		min	0	22	-.324	6	-.072	24	-5.243e-03	7	290.412	23	533.269	17	
529		5	max	0	16	.378	24	.178	7	4.208e-03	25	NC	1	NC	1
530		min	0	22	-.41	6	-.12	25	-5.243e-03	7	216.792	23	386.27	17	
531	M116	1	max	.487	13	.743	5	.194	15	1.212e-02	22	NC	1	NC	1
532		min	-.267	19	-.708	23	-.196	9	-1.272e-02	4	NC	1	NC	1	
533		2	max	.487	13	.739	5	.192	15	1.212e-02	22	NC	1	NC	1
534		min	-.267	19	-.703	23	-.195	9	-1.272e-02	4	NC	1	NC	1	
535		3	max	.487	13	.736	5	.19	15	1.212e-02	22	NC	1	NC	1
536		min	-.267	19	-.699	23	-.194	9	-1.272e-02	4	NC	1	NC	1	
537		4	max	.487	13	.732	5	.188	15	1.212e-02	22	NC	1	NC	1
538		min	-.267	19	-.694	23	-.193	9	-1.272e-02	4	NC	1	NC	1	
539		5	max	.487	13	.728	5	.186	15	1.212e-02	22	NC	1	NC	1
540		min	-.267	19	-.69	23	-.192	9	-1.272e-02	4	NC	1	NC	1	
541	M117	1	max	.43	7	.262	15	.428	25	7.653e-03	3	NC	1	NC	1
542		min	-.285	25	-.27	9	-.464	7	-7.514e-03	21	NC	1	NC	1	
543		2	max	.43	7	.261	15	.424	25	7.653e-03	3	NC	1	NC	1
544		min	-.285	25	-.27	9	-.46	7	-7.514e-03	21	NC	1	NC	1	
545		3	max	.43	7	.26	15	.421	25	7.653e-03	3	NC	1	NC	1
546		min	-.285	25	-.269	9	-.456	7	-7.514e-03	21	NC	1	NC	1	
547		4	max	.43	7	.26	15	.417	25	7.653e-03	3	NC	1	NC	1
548		min	-.285	25	-.269	9	-.452	7	-7.514e-03	21	NC	1	NC	1	
549		5	max	.43	7	.259	15	.413	25	7.653e-03	3	NC	1	NC	1
550		min	-.285	25	-.269	9	-.448	7	-7.514e-03	21	NC	1	NC	1	
551	M118	1	max	.38	12	.472	5	.249	4	1.461e-02	12	NC	1	NC	1
552		min	-.237	18	-.467	23	-.238	22	-1.431e-02	18	NC	1	NC	1	
553		2	max	.38	12	.474	5	.252	4	1.461e-02	12	NC	1	NC	1
554		min	-.237	18	-.468	23	-.242	22	-1.431e-02	18	NC	1	NC	1	
555		3	max	.38	12	.476	5	.254	4	1.461e-02	12	NC	1	NC	1
556		min	-.237	18	-.47	23	-.246	22	-1.431e-02	18	NC	1	NC	1	
557		4	max	.38	12	.485	6	.257	4	1.461e-02	12	NC	1	NC	1
558		min	-.237	18	-.477	24	-.25	22	-1.431e-02	18	NC	1	NC	1	
559		5	max	.38	12	.505	6	.259	4	1.461e-02	12	NC	1	NC	1
560		min	-.237	18	-.496	24	-.255	22	-1.431e-02	18	NC	1	NC	1	
561	M119	1	max	.29	7	.203	15	.281	25	8.901e-03	25	NC	1	NC	1
562		min	-.205	25	-.207	9	-.28	7	-9.459e-03	7	NC	1	NC	1	
563		2	max	.29	7	.2	15	.308	25	8.901e-03	25	NC	1	NC	1
564		min	-.205	25	-.205	9	-.306	7	-9.459e-03	7	NC	1	NC	1	

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
565	3	max	.29	7	.198	15	.335	13	8.901e-03	25	NC	1	NC	1	
566		min	-.205	25	-.203	9	-.332	19	-9.459e-03	7	NC	1	NC	1	
567	4	max	.29	7	.195	15	.362	13	8.901e-03	25	NC	1	NC	1	
568		min	-.205	25	-.201	9	-.357	19	-9.459e-03	7	NC	1	NC	1	
569	5	max	.29	7	.192	15	.394	12	8.901e-03	25	NC	1	NC	1	
570		min	-.205	25	-.199	9	-.387	18	-9.459e-03	7	NC	1	NC	1	
571	M86	1	max	.415	2	.268	15	.494	10	7.184e-03	9	NC	1	NC	1
572		min	-.409	20	-.472	9	-.453	16	-4.586e-03	15	NC	1	NC	1	
573	2	max	.415	2	.266	15	.497	10	7.184e-03	9	NC	1	NC	1	
574		min	-.409	20	-.47	9	-.457	16	-4.586e-03	15	NC	1	NC	1	
575	3	max	.415	2	.264	15	.502	9	7.184e-03	9	NC	1	NC	1	
576		min	-.409	20	-.468	9	-.46	16	-4.586e-03	15	NC	1	NC	1	
577	4	max	.415	2	.262	15	.514	9	7.184e-03	9	NC	1	NC	1	
578		min	-.409	20	-.467	9	-.469	15	-4.586e-03	15	NC	1	NC	1	
579	5	max	.415	2	.26	15	.525	9	7.184e-03	9	NC	1	NC	1	
580		min	-.409	20	-.465	9	-.481	15	-4.586e-03	15	NC	1	NC	1	
581	M87	1	max	.26	15	.215	43	.356	46	5.992e-03	12	NC	1	NC	1
582		min	-.464	9	-.115	13	-.268	4	-6.699e-03	42	658.155	48	391.522	38	
583	2	max	.26	15	.162	43	.339	21	5.462e-03	13	NC	1	NC	2	
584		min	-.465	9	-.163	13	-.365	3	-5.676e-03	43	1095.45	47	588.429	38	
585	3	max	.26	15	.209	7	.465	21	5.614e-03	13	NC	1	NC	11	
586		min	-.465	9	-.208	25	-.481	3	-5.567e-03	19	995.449	6	337.939	8	
587	4	max	.26	15	.277	18	.61	9	5.652e-03	25	NC	2	NC	2	
588		min	-.465	9	-.309	12	-.576	15	-5.672e-03	19	484.562	12	213.667	8	
589	5	max	.26	15	.367	18	.769	9	5.652e-03	25	NC	2	NC	2	
590		min	-.465	9	-.433	12	-.682	15	-5.672e-03	19	298.603	12	152.614	8	
591	M88A	1	max	.494	10	.241	15	.376	20	5.128e-03	18	NC	1	NC	1
592		min	-.453	16	-.429	9	-.382	2	-5.225e-03	12	NC	1	NC	1	
593	2	max	.494	10	.255	15	.393	20	5.128e-03	18	NC	1	NC	1	
594		min	-.453	16	-.451	9	-.398	2	-5.225e-03	12	NC	1	NC	1	
595	3	max	.494	10	.268	15	.409	20	5.128e-03	18	NC	1	NC	1	
596		min	-.453	16	-.472	9	-.415	2	-5.225e-03	12	NC	1	NC	1	
597	4	max	.494	10	.282	15	.426	20	5.128e-03	18	NC	1	NC	1	
598		min	-.453	16	-.494	9	-.431	2	-5.225e-03	12	NC	1	NC	1	
599	5	max	.494	10	.296	15	.442	20	5.128e-03	18	NC	1	NC	1	
600		min	-.453	16	-.515	9	-.447	2	-5.225e-03	12	NC	1	NC	1	
601	M89B	1	max	.894	23	.314	21	.431	21	4.819e-03	21	NC	1	NC	1
602		min	-.905	5	-.461	3	-.461	3	-6.448e-03	3	NC	1	NC	1	
603	2	max	.894	23	.308	21	.445	21	4.819e-03	21	NC	1	NC	1	
604		min	-.905	5	-.456	3	-.476	3	-6.448e-03	3	NC	1	NC	1	
605	3	max	.894	23	.301	21	.46	21	4.819e-03	21	NC	1	NC	1	
606		min	-.905	5	-.45	3	-.494	4	-6.448e-03	3	NC	1	NC	1	
607	4	max	.894	23	.294	21	.487	22	4.819e-03	21	NC	1	NC	1	
608		min	-.905	5	-.445	3	-.524	4	-6.448e-03	3	NC	1	NC	1	
609	5	max	.894	23	.288	21	.517	22	4.819e-03	21	NC	1	NC	1	
610		min	-.905	5	-.439	3	-.555	4	-6.448e-03	3	NC	1	NC	1	
611	M90A	1	max	.288	21	.753	5	.115	19	1.34e-02	18	NC	1	NC	1
612		min	-.439	3	-.719	23	-.119	13	-1.362e-02	12	554.843	39	5397.463	72	
613	2	max	.288	21	.82	5	.161	19	1.273e-02	6	NC	1	NC	1	
614		min	-.439	3	-.792	23	-.163	13	-1.275e-02	24	771.134	39	1942.053	8	
615	3	max	.288	21	.89	5	.219	7	1.261e-02	5	NC	6	NC	1	
616		min	-.439	3	-.873	23	-.209	25	-1.232e-02	23	406.806	16	889.346	8	
617	4	max	.288	21	1.005	5	.29	19	1.26e-02	5	NC	1	NC	6	
618		min	-.439	3	-.977	23	-.313	13	-1.225e-02	23	262.835	16	466.005	2	
619	5	max	.288	21	1.135	5	.384	20	1.26e-02	5	NC	1	NC	5	
620		min	-.439	3	-1.095	23	-.442	2	-1.225e-02	23	189.373	4	284.161	2	
621	M91A	1	max	.431	21	.343	21	.981	5	4.333e-03	17	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
622		min	-.461	3	-.5	3	-.968	23	-4.673e-03	11	NC	1	NC	1	
623	2	max	.431	21	.329	21	.943	5	4.333e-03	17	NC	1	NC	1	
624		min	-.461	3	-.481	3	-.931	23	-4.673e-03	11	NC	1	NC	1	
625	3	max	.431	21	.314	21	.905	5	4.333e-03	17	NC	1	NC	1	
626		min	-.461	3	-.461	3	-.894	23	-4.673e-03	11	NC	1	NC	1	
627	4	max	.431	21	.3	21	.867	5	4.333e-03	17	NC	1	NC	1	
628		min	-.461	3	-.442	3	-.857	23	-4.673e-03	11	NC	1	NC	1	
629	5	max	.431	21	.285	21	.829	5	4.333e-03	17	NC	1	NC	1	
630		min	-.461	3	-.423	3	-.821	23	-4.673e-03	11	NC	1	NC	1	
631	M92B	1	max	.816	23	.301	21	.395	22	4.087e-03	21	NC	1	NC	1
632		min	-.832	5	-.45	3	-.4	4	-5.716e-03	3	NC	1	NC	1	
633	2	max	.816	23	.298	21	.409	22	4.087e-03	21	NC	1	NC	1	
634		min	-.832	5	-.447	3	-.416	4	-5.716e-03	3	NC	1	NC	1	
635	3	max	.816	23	.294	21	.424	22	4.087e-03	21	NC	1	NC	1	
636		min	-.832	5	-.444	3	-.431	4	-5.716e-03	3	NC	1	NC	1	
637	4	max	.816	23	.291	21	.439	22	4.087e-03	21	NC	1	NC	1	
638		min	-.832	5	-.442	3	-.447	4	-5.716e-03	3	NC	1	NC	1	
639	5	max	.816	23	.288	21	.454	22	4.087e-03	21	NC	1	NC	1	
640		min	-.832	5	-.439	3	-.462	4	-5.716e-03	3	NC	1	NC	1	
641	M93B	1	max	.36	2	.264	15	.395	22	6.452e-03	9	NC	1	NC	1
642		min	-.355	20	-.468	9	-.4	4	-3.855e-03	15	NC	1	NC	1	
643	2	max	.36	2	.263	15	.396	22	6.452e-03	9	NC	1	NC	1	
644		min	-.355	20	-.467	9	-.402	4	-3.855e-03	15	NC	1	NC	1	
645	3	max	.36	2	.262	15	.398	22	6.452e-03	9	NC	1	NC	1	
646		min	-.355	20	-.467	9	-.404	4	-3.855e-03	15	NC	1	NC	1	
647	4	max	.36	2	.261	15	.4	22	6.452e-03	9	NC	1	NC	1	
648		min	-.355	20	-.466	9	-.405	4	-3.855e-03	15	NC	1	NC	1	
649	5	max	.36	2	.26	15	.401	22	6.452e-03	9	NC	1	NC	1	
650		min	-.355	20	-.465	9	-.407	4	-3.855e-03	15	NC	1	NC	1	
651	M94A	1	max	.974	5	.25	19	.517	13	6.804e-03	13	NC	1	NC	1
652		min	-.966	23	-.458	13	-.47	19	-4.155e-03	19	NC	1	NC	1	
653	2	max	.974	5	.242	19	.539	13	6.804e-03	13	NC	1	NC	1	
654		min	-.966	23	-.449	13	-.492	19	-4.155e-03	19	NC	1	NC	1	
655	3	max	.974	5	.234	19	.567	12	6.804e-03	13	NC	1	NC	1	
656		min	-.966	23	-.441	13	-.516	18	-4.155e-03	19	NC	1	NC	1	
657	4	max	.974	5	.225	19	.604	12	6.804e-03	13	NC	1	NC	1	
658		min	-.966	23	-.433	13	-.552	18	-4.155e-03	19	NC	1	NC	1	
659	5	max	.974	5	.217	19	.64	12	6.804e-03	13	NC	1	NC	1	
660		min	-.966	23	-.425	13	-.589	18	-4.155e-03	19	NC	1	NC	1	
661	M95	1	max	.217	19	.672	5	.129	8	1.266e-02	4	NC	1	NC	1
662		min	-.425	13	-.627	23	-.111	14	-1.205e-02	22	677.571	27	1066.965	46	
663	2	max	.217	19	.797	5	.163	8	1.274e-02	5	NC	1	NC	1	
664		min	-.425	13	-.773	23	-.155	14	-1.239e-02	23	524.136	12	1504.394	46	
665	3	max	.217	19	.93	5	.201	8	1.348e-02	5	NC	1	NC	1	
666		min	-.425	13	-.919	24	-.193	15	-1.341e-02	23	267.077	12	929.208	3	
667	4	max	.217	19	1.073	18	.263	20	1.367e-02	17	NC	1	NC	6	
668		min	-.425	13	-1.093	12	-.305	2	-1.366e-02	23	179.292	12	448.3	3	
669	5	max	.217	19	1.228	17	.34	20	1.367e-02	17	NC	1	NC	6	
670		min	-.425	13	-1.28	12	-.436	2	-1.366e-02	23	132.913	12	282.633	3	
671	M96	1	max	.517	13	.225	19	.884	23	6.288e-03	23	NC	1	NC	1
672		min	-.47	19	-.417	13	-.892	5	-6.355e-03	5	NC	1	NC	1	
673	2	max	.517	13	.238	19	.925	23	6.288e-03	23	NC	1	NC	1	
674		min	-.47	19	-.437	13	-.933	5	-6.355e-03	5	NC	1	NC	1	
675	3	max	.517	13	.25	19	.966	23	6.288e-03	23	NC	1	NC	1	
676		min	-.47	19	-.458	13	-.974	5	-6.355e-03	5	NC	1	NC	1	
677	4	max	.517	13	.263	19	1.007	23	6.288e-03	23	NC	1	NC	1	
678		min	-.47	19	-.478	13	-1.015	5	-6.355e-03	5	NC	1	NC	1	

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
679	5	max	.517	13	.275	19	1.048	23	6.288e-03	23	NC	1	NC	1
680		min	-.47	19	-.499	13	-1.056	5	-6.355e-03	5	NC	1	NC	1
681	M97	1	max	.578	14	.281	.502	24	4.314e-03	25	NC	1	NC	1
682			min	-.591	8	-.424	.7	6	-5.882e-03	7	NC	1	NC	1
683		2	max	.578	14	.277	.512	24	4.314e-03	25	NC	1	NC	1
684			min	-.591	8	-.421	.7	6	-5.882e-03	7	NC	1	NC	1
685		3	max	.578	14	.273	.521	24	4.314e-03	25	NC	1	NC	1
686			min	-.591	8	-.418	.7	6	-5.882e-03	7	NC	1	NC	1
687		4	max	.578	14	.269	.535	25	4.314e-03	25	NC	1	NC	1
688			min	-.591	8	-.415	.7	6	-5.882e-03	7	NC	1	NC	1
689		5	max	.578	14	.265	.553	25	4.314e-03	25	NC	1	NC	1
690			min	-.591	8	-.411	.7	6	-5.882e-03	7	NC	1	NC	1
691	M98A	1	max	.265	25	.246	.436	7	7.514e-03	21	NC	1	NC	1
692			min	-.411	7	-.244	.9	25	-7.653e-03	3	1177.426	46	268.89	43
693		2	max	.265	25	.249	.554	7	7.315e-03	9	NC	1	NC	1
694			min	-.411	7	-.26	.9	25	-7.266e-03	15	1962.113	6	366.694	43
695		3	max	.265	25	.273	.655	7	7.66e-03	8	NC	2	NC	2
696			min	-.411	7	-.291	.8	25	-7.322e-03	14	979.366	6	432.874	19
697		4	max	.265	25	.324	.3	7	7.802e-03	8	NC	1	NC	1
698			min	-.411	7	-.316	.21	25	-7.401e-03	14	996.845	3	279.379	7
699		5	max	.265	25	.388	.3	7	7.802e-03	8	NC	1	NC	2
700			min	-.411	7	-.354	.21	25	-7.401e-03	14	526.16	4	199.455	7
701	M99A	1	max	.502	24	.307	.638	8	3.55e-03	21	NC	1	NC	1
702			min	-.525	6	-.459	.7	14	-3.884e-03	3	NC	1	NC	1
703		2	max	.502	24	.294	.614	8	3.55e-03	21	NC	1	NC	1
704			min	-.525	6	-.442	.7	14	-3.884e-03	3	NC	1	NC	1
705		3	max	.502	24	.281	.591	8	3.55e-03	21	NC	1	NC	1
706			min	-.525	6	-.424	.7	14	-3.884e-03	3	NC	1	NC	1
707		4	max	.502	24	.268	.567	8	3.55e-03	21	NC	1	NC	1
708			min	-.525	6	-.406	.7	14	-3.884e-03	3	NC	1	NC	1
709		5	max	.502	24	.256	.544	8	3.55e-03	21	NC	1	NC	1
710			min	-.525	6	-.389	.7	14	-3.884e-03	3	NC	1	NC	1
711	M100A	1	max	.527	14	.273	.459	24	3.583e-03	25	NC	1	NC	1
712			min	-.545	8	-.418	.7	6	-5.15e-03	7	NC	1	NC	1
713		2	max	.527	14	.271	.463	24	3.583e-03	25	NC	1	NC	1
714			min	-.545	8	-.416	.7	6	-5.15e-03	7	NC	1	NC	1
715		3	max	.527	14	.269	.468	24	3.583e-03	25	NC	1	NC	1
716			min	-.545	8	-.415	.7	6	-5.15e-03	7	NC	1	NC	1
717		4	max	.527	14	.267	.473	24	3.583e-03	25	NC	1	NC	1
718			min	-.545	8	-.413	.7	6	-5.15e-03	7	NC	1	NC	1
719		5	max	.527	14	.265	.481	25	3.583e-03	25	NC	1	NC	1
720			min	-.545	8	-.411	.7	6	-5.15e-03	7	NC	1	NC	1
721	M101A	1	max	.864	5	.234	.459	24	6.072e-03	13	NC	1	NC	1
722			min	-.857	23	-.441	.13	6	-3.423e-03	19	NC	1	NC	1
723		2	max	.864	5	.229	.477	24	6.072e-03	13	NC	1	NC	1
724			min	-.857	23	-.437	.13	6	-3.423e-03	19	NC	1	NC	1
725		3	max	.864	5	.225	.495	24	6.072e-03	13	NC	1	NC	1
726			min	-.857	23	-.433	.13	6	-3.423e-03	19	NC	1	NC	1
727		4	max	.864	5	.221	.513	24	6.072e-03	13	NC	1	NC	1
728			min	-.857	23	-.429	.13	6	-3.423e-03	19	NC	1	NC	1
729		5	max	.864	5	.217	.531	24	6.072e-03	13	NC	1	NC	1
730			min	-.857	23	-.425	.13	6	-3.423e-03	19	NC	1	NC	1
731	M102A	1	max	.365	20	.403	.252	16	5.796e-03	17	NC	1	NC	1
732			min	-.378	2	-1.328	.47	10	-1.811e-02	47	NC	1	NC	1
733		2	max	.365	20	.398	.242	16	5.796e-03	17	NC	1	NC	1
734			min	-.378	2	-1.327	.47	10	-1.811e-02	47	NC	1	NC	1
735		3	max	.365	20	.393	.239	17	5.796e-03	17	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
736		min	-.378	2	-1.326	47	-.25	11	-1.811e-02	47	NC	1	NC	1	
737	4	max	.365	20	.388	17	.238	17	5.796e-03	17	NC	1	NC	1	
738		min	-.378	2	-1.325	47	-.251	11	-1.811e-02	47	NC	1	NC	1	
739	5	max	.365	20	.383	17	.237	17	5.796e-03	17	NC	1	NC	1	
740		min	-.378	2	-1.324	47	-.252	11	-1.811e-02	47	NC	1	NC	1	
741	M103B	1	max	.252	16	.438	17	.419	2	3.87e-03	25	NC	1	NC	1
742		min	-.26	10	-1.437	47	-.404	20	-4.196e-03	7	NC	1	NC	1	
743		2	max	.252	16	.42	17	.398	2	3.87e-03	25	NC	1	NC	1
744		min	-.26	10	-1.383	47	-.385	20	-4.196e-03	7	NC	1	NC	1	
745		3	max	.252	16	.403	17	.378	2	3.87e-03	25	NC	1	NC	1
746		min	-.26	10	-1.328	47	-.365	20	-4.196e-03	7	NC	1	NC	1	
747		4	max	.252	16	.385	17	.357	2	3.87e-03	25	NC	1	NC	1
748		min	-.26	10	-1.274	47	-.346	20	-4.196e-03	7	NC	1	NC	1	
749		5	max	.252	16	.368	17	.337	2	3.87e-03	25	NC	1	NC	1
750		min	-.26	10	-1.22	47	-.327	20	-4.196e-03	7	NC	1	NC	1	
751	M104A	1	max	.84	23	.314	21	.375	21	4.42e-03	21	NC	1	NC	1
752		min	-.855	5	-.461	3	-.385	3	-6.049e-03	3	NC	1	NC	1	
753		2	max	.84	23	.308	21	.389	21	4.42e-03	21	NC	1	NC	1
754		min	-.855	5	-.456	3	-.401	3	-6.049e-03	3	NC	1	NC	1	
755		3	max	.84	23	.301	21	.414	22	4.42e-03	21	NC	1	NC	1
756		min	-.855	5	-.45	3	-.43	4	-6.049e-03	3	NC	1	NC	1	
757		4	max	.84	23	.294	21	.444	22	4.42e-03	21	NC	1	NC	1
758		min	-.855	5	-.444	3	-.461	4	-6.049e-03	3	NC	1	NC	1	
759		5	max	.84	23	.288	21	.473	22	4.42e-03	21	NC	1	NC	1
760		min	-.855	5	-.439	3	-.492	4	-6.049e-03	3	NC	1	NC	1	
761	M105A	1	max	.375	21	.341	21	.931	5	3.988e-03	17	NC	1	NC	1
762		min	-.385	3	-.498	3	-.914	23	-4.327e-03	11	NC	1	NC	1	
763		2	max	.375	21	.327	21	.893	5	3.988e-03	17	NC	1	NC	1
764		min	-.385	3	-.48	3	-.877	23	-4.327e-03	11	NC	1	NC	1	
765		3	max	.375	21	.314	21	.855	5	3.988e-03	17	NC	1	NC	1
766		min	-.385	3	-.461	3	-.84	23	-4.327e-03	11	NC	1	NC	1	
767		4	max	.375	21	.301	21	.817	5	3.988e-03	17	NC	1	NC	1
768		min	-.385	3	-.443	3	-.804	23	-4.327e-03	11	NC	1	NC	1	
769		5	max	.375	21	.288	21	.78	5	3.988e-03	17	NC	1	NC	1
770		min	-.385	3	-.425	3	-.767	23	-4.327e-03	11	NC	1	NC	1	
771	M106A	1	max	.543	14	.281	25	.459	24	3.916e-03	25	NC	1	NC	1
772		min	-.56	8	-.424	7	-.464	6	-5.484e-03	7	NC	1	NC	1	
773		2	max	.543	14	.277	25	.468	24	3.916e-03	25	NC	1	NC	1
774		min	-.56	8	-.421	7	-.475	6	-5.484e-03	7	NC	1	NC	1	
775		3	max	.543	14	.273	25	.478	24	3.916e-03	25	NC	1	NC	1
776		min	-.56	8	-.418	7	-.485	6	-5.484e-03	7	NC	1	NC	1	
777		4	max	.543	14	.269	25	.488	24	3.916e-03	25	NC	1	NC	1
778		min	-.56	8	-.415	7	-.497	7	-5.484e-03	7	NC	1	NC	1	
779		5	max	.543	14	.265	25	.503	25	3.916e-03	25	NC	1	NC	1
780		min	-.56	8	-.411	7	-.516	7	-5.484e-03	7	NC	1	NC	1	
781	M107	1	max	.459	24	.305	25	.607	8	3.205e-03	21	NC	1	NC	1
782		min	-.464	6	-.457	7	-.588	14	-3.539e-03	3	NC	1	NC	1	
783		2	max	.459	24	.293	25	.583	8	3.205e-03	21	NC	1	NC	1
784		min	-.464	6	-.441	7	-.565	14	-3.539e-03	3	NC	1	NC	1	
785		3	max	.459	24	.281	25	.56	8	3.205e-03	21	NC	1	NC	1
786		min	-.464	6	-.424	7	-.543	14	-3.539e-03	3	NC	1	NC	1	
787		4	max	.459	24	.27	25	.536	8	3.205e-03	21	NC	1	NC	1
788		min	-.464	6	-.408	7	-.521	14	-3.539e-03	3	NC	1	NC	1	
789		5	max	.459	24	.258	25	.513	8	3.205e-03	21	NC	1	NC	1
790		min	-.464	6	-.391	7	-.499	14	-3.539e-03	3	NC	1	NC	1	
791	M108B	1	max	.085	41	.148	17	.174	40	5.977e-03	5	NC	1	NC	1
792		min	-.036	35	-.49	47	-.11	9	-8.849e-03	47	NC	1	NC	1	



**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
793	2	max	.085	41	.144	17	.184	40	5.977e-03	5	NC	1	NC	1
794		min	-.036	35	-.475	47	-.103	10	-8.849e-03	47	NC	1	NC	1
795	3	max	.085	41	.14	17	.194	40	5.977e-03	5	NC	1	NC	1
796		min	-.036	35	-.46	47	-.096	10	-8.849e-03	47	NC	1	NC	1
797	4	max	.085	41	.135	17	.204	40	5.977e-03	5	NC	1	NC	1
798		min	-.036	35	-.445	47	-.089	10	-8.849e-03	47	NC	1	NC	1
799	5	max	.085	41	.131	17	.213	40	5.977e-03	5	NC	1	NC	1
800		min	-.036	35	-.43	47	-.082	10	-8.849e-03	47	NC	1	NC	1
801	M109A	1	max	.174	40	.183	.041	36	5.082e-03	49	NC	1	NC	1
802		min	-.11	9	-.543	47	-.106	43	-2.602e-03	7	NC	1	NC	1
803	2	max	.174	40	.166	17	.038	36	5.082e-03	49	NC	1	NC	1
804		min	-.11	9	-.516	47	-.095	42	-2.602e-03	7	NC	1	NC	1
805	3	max	.174	40	.148	17	.036	35	5.082e-03	49	NC	1	NC	1
806		min	-.11	9	-.49	47	-.085	41	-2.602e-03	7	NC	1	NC	1
807	4	max	.174	40	.131	17	.035	34	5.082e-03	49	NC	1	NC	1
808		min	-.11	9	-.463	47	-.075	39	-2.602e-03	7	NC	1	NC	1
809	5	max	.174	40	.113	17	.041	9	5.082e-03	49	NC	1	NC	1
810		min	-.11	9	-.437	47	-.065	39	-2.602e-03	7	NC	1	NC	1
811	M114A	1	max	.489	7	.285	.223	5	2.361e-03	7	NC	1	NC	1
812		min	-.454	25	-.43	7	-.213	23	-1.638e-03	24	118.459	2	NC	1
813	2	max	.489	7	.281	24	.183	5	2.76e-03	6	NC	1	NC	1
814		min	-.453	25	-.44	6	-.176	23	-1.951e-03	24	140.37	45	660.911	45
815	3	max	.489	7	.299	24	.159	6	3.183e-03	6	NC	1	NC	1
816		min	-.453	25	-.478	6	-.155	24	-2.343e-03	48	70.159	45	330.437	45
817	4	max	.489	7	.503	47	.198	43	3.606e-03	6	NC	1	NC	1
818		min	-.453	25	-.525	5	-.158	25	-3.405e-03	48	46.752	45	220.276	45
819	5	max	.489	7	.745	47	.247	43	4.03e-03	6	NC	1	NC	1
820		min	-.453	25	-.603	5	-.187	13	-4.467e-03	48	35.049	45	165.196	45
821	M115A	1	max	.271	3	.406	.203	8	8.4e-03	47	NC	1	NC	1
822		min	-.399	45	-1.355	47	-.234	38	-2.895e-03	17	77.733	6	117.109	7
823	2	max	.271	3	.331	17	.167	9	6.954e-03	46	NC	1	NC	1
824		min	-.399	45	-1.017	47	-.188	39	-2.67e-03	16	103.739	6	156.249	7
825	3	max	.271	3	.301	16	.157	10	5.512e-03	46	NC	1	NC	1
826		min	-.399	45	-.683	46	-.153	16	-2.544e-03	16	155.765	6	234.546	7
827	4	max	.271	3	.276	16	.175	11	4.069e-03	46	NC	1	NC	1
828		min	-.399	45	-.471	10	-.175	17	-2.417e-03	16	153.565	14	469.37	7
829	5	max	.271	3	.302	15	.221	23	3.409e-03	10	NC	1	NC	1
830		min	-.399	45	-.518	9	-.224	5	-2.291e-03	16	115.057	14	NC	1
831	M116A	1	max	.743	5	.312	.196	13	2.74e-03	2	NC	1	NC	1
832		min	-.708	23	-.461	3	-.185	19	-2.019e-03	20	96.983	10	NC	1
833	2	max	.743	5	.272	20	.173	13	2.741e-03	2	NC	1	NC	1
834		min	-.708	23	-.434	2	-.165	19	-1.917e-03	20	129.458	10	2007.815	46
835	3	max	.743	5	.252	20	.163	2	2.742e-03	2	NC	1	NC	1
836		min	-.708	23	-.433	2	-.16	20	-1.815e-03	20	194.432	10	1003.36	46
837	4	max	.743	5	.244	19	.167	2	2.743e-03	2	NC	1	NC	1
838		min	-.708	23	-.445	13	-.166	8	-1.713e-03	20	197.923	18	668.457	46
839	5	max	.743	5	.267	19	.194	15	2.744e-03	2	NC	1	NC	1
840		min	-.708	23	-.487	13	-.196	9	-1.612e-03	20	148.248	18	501.037	46
841	M117A	1	max	.668	23	.312	.247	22	4.289e-03	21	NC	1	NC	1
842		min	-.694	5	-.461	3	-.271	4	-4.993e-03	3	NC	1	NC	1
843	2	max	.668	23	.306	21	.26	22	4.289e-03	21	NC	1	NC	1
844		min	-.694	5	-.456	3	-.284	5	-4.993e-03	3	NC	1	NC	1
845	3	max	.668	23	.3	21	.279	23	4.289e-03	21	NC	1	NC	1
846		min	-.694	5	-.45	3	-.303	5	-4.993e-03	3	NC	1	NC	1
847	4	max	.668	23	.294	21	.298	23	4.289e-03	21	NC	1	NC	1
848		min	-.694	5	-.444	3	-.322	5	-4.993e-03	3	NC	1	NC	1
849	5	max	.668	23	.288	21	.317	23	4.289e-03	21	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
850		min	-.694	5	-.439	3	-.341	5	-4.993e-03	3	NC	1	NC	1	
851	M118A	1	max	.181	2	.278	15	.246	22	5.608e-03	9	NC	1	NC	1
852		min	-.339	44	-.484	9	-.271	4	-4.012e-03	15	NC	1	NC	1	
853		2	max	.181	2	.274	15	.242	22	5.608e-03	9	NC	1	NC	1
854		min	-.339	44	-.479	9	-.268	4	-4.012e-03	15	NC	1	NC	1	
855		3	max	.181	2	.269	15	.238	22	5.608e-03	9	NC	1	NC	1
856		min	-.339	44	-.474	9	-.264	4	-4.012e-03	15	NC	1	NC	1	
857		4	max	.181	2	.265	15	.233	22	5.608e-03	9	NC	1	NC	1
858		min	-.339	44	-.469	9	-.261	4	-4.012e-03	15	NC	1	NC	1	
859		5	max	.181	2	.26	15	.229	22	5.608e-03	9	NC	1	NC	1
860		min	-.339	44	-.464	9	-.258	4	-4.012e-03	15	NC	1	NC	1	
861	M119A	1	max	.387	38	.285	25	.313	24	3.842e-03	25	NC	1	NC	1
862		min	-.402	8	-.43	7	-.337	6	-4.493e-03	7	NC	1	NC	1	
863		2	max	.387	38	.28	25	.314	24	3.842e-03	25	NC	1	NC	1
864		min	-.402	8	-.425	7	-.338	6	-4.493e-03	7	NC	1	NC	1	
865		3	max	.387	38	.275	25	.314	24	3.842e-03	25	NC	1	NC	1
866		min	-.402	8	-.42	7	-.338	6	-4.493e-03	7	NC	1	NC	1	
867		4	max	.387	38	.27	25	.315	24	3.842e-03	25	NC	1	NC	1
868		min	-.402	8	-.416	7	-.339	6	-4.493e-03	7	NC	1	NC	1	
869		5	max	.387	38	.265	25	.315	24	3.842e-03	25	NC	1	NC	1
870		min	-.402	8	-.411	7	-.339	6	-4.493e-03	7	NC	1	NC	1	
871	M120	1	max	.601	5	.245	19	.313	24	5.393e-03	13	NC	1	NC	1
872		min	-.575	23	-.455	13	-.338	6	-3.747e-03	19	NC	1	NC	1	
873		2	max	.601	5	.238	19	.325	24	5.393e-03	13	NC	1	NC	1
874		min	-.575	23	-.447	13	-.351	6	-3.747e-03	19	NC	1	NC	1	
875		3	max	.601	5	.231	19	.337	24	5.393e-03	13	NC	1	NC	1
876		min	-.575	23	-.44	13	-.364	6	-3.747e-03	19	NC	1	NC	1	
877		4	max	.601	5	.224	19	.349	24	5.393e-03	13	NC	1	NC	1
878		min	-.575	23	-.432	13	-.377	6	-3.747e-03	19	NC	1	NC	1	
879		5	max	.601	5	.217	19	.361	24	5.393e-03	13	NC	1	NC	1
880		min	-.575	23	-.425	13	-.389	6	-3.747e-03	19	NC	1	NC	1	
881	M104	1	max	.406	20	.259	45	.462	5	1.548e-02	5	NC	1	NC	1
882		min	-.427	2	-.312	3	-.405	23	-1.216e-02	23	NC	1	NC	1	
883		2	max	.406	20	.256	46	.455	5	1.548e-02	5	NC	1	NC	1
884		min	-.427	2	-.268	4	-.398	23	-1.216e-02	23	NC	1	NC	1	
885		3	max	.406	20	.255	46	.447	5	1.548e-02	5	NC	1	NC	1
886		min	-.427	2	-.232	4	-.391	23	-1.216e-02	23	NC	1	NC	1	
887		4	max	.406	20	.254	47	.44	5	1.548e-02	5	NC	1	NC	1
888		min	-.427	2	-.211	5	-.383	23	-1.216e-02	23	NC	1	NC	1	
889		5	max	.406	20	.254	48	.433	5	1.548e-02	5	NC	1	NC	1
890		min	-.427	2	-.205	6	-.376	23	-1.216e-02	23	NC	1	NC	1	
891	M105	1	max	.254	48	.524	48	.046	4	6.659e-03	7	NC	1	NC	1
892		min	-.205	6	-.162	6	-.244	46	-5.952e-03	25	95.949	49	307.096	44	
893		2	max	.254	48	.252	39	.068	20	7.414e-03	8	NC	1	NC	6
894		min	-.205	6	-.124	9	-.148	38	-6.949e-03	14	132.155	49	458.036	44	
895		3	max	.254	48	.192	16	.139	8	8.43e-03	8	7953.818	14	NC	30
896		min	-.205	6	-.207	10	-.137	14	-8.285e-03	14	204.506	49	556.183	3	
897		4	max	.254	48	.433	5	.406	20	9.688e-03	8	9765.209	47	NC	41
898		min	-.205	6	-.376	23	-.427	2	-9.532e-03	14	171.619	5	212.356	2	
899		5	max	.254	48	.83	5	.886	20	9.688e-03	8	NC	8	NC	11
900		min	-.205	6	-.693	23	-.988	2	-9.532e-03	14	100.395	5	94.675	2	
901	M106	1	max	.405	23	.319	46	.464	20	1.789e-02	20	NC	1	NC	1
902		min	-.462	5	-.387	4	-.484	2	-2.127e-02	2	NC	1	NC	1	
903		2	max	.405	23	.288	46	.435	20	1.789e-02	20	NC	1	NC	1
904		min	-.462	5	-.346	4	-.455	2	-2.127e-02	2	NC	1	NC	1	
905		3	max	.405	23	.259	45	.406	20	1.789e-02	20	NC	1	NC	1
906		min	-.462	5	-.312	3	-.427	2	-2.127e-02	2	NC	1	NC	1	

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
907	4	max	.405	23	.229	45	.377	20	1.789e-02	20	NC	1	NC	1
908		min	-.462	5	-.286	3	-.398	2	-2.127e-02	2	NC	1	NC	1
909	5	max	.405	23	.2	45	.348	20	1.789e-02	20	NC	1	NC	1
910		min	-.462	5	-.261	3	-.369	2	-2.127e-02	2	NC	1	NC	1
911	M107A	1	max	.169	.268	47	.205	17	8.351e-03	5	NC	1	NC	1
912		min	-.164	14	-.204	5	-.207	11	-9.815e-03	47	NC	1	NC	1
913	2	max	.169	8	.264	47	.21	16	8.351e-03	5	NC	1	NC	1
914		min	-.164	14	-.204	5	-.21	10	-9.815e-03	47	NC	1	NC	1
915	3	max	.169	8	.261	47	.217	16	8.351e-03	5	NC	1	NC	1
916		min	-.164	14	-.203	5	-.217	10	-9.815e-03	47	NC	1	NC	1
917	4	max	.169	8	.257	47	.223	16	8.351e-03	5	NC	1	NC	1
918		min	-.164	14	-.203	5	-.224	10	-9.815e-03	47	NC	1	NC	1
919	5	max	.169	8	.254	48	.23	16	8.351e-03	5	NC	1	NC	1
920		min	-.164	14	-.205	6	-.23	10	-9.815e-03	47	NC	1	NC	1
921	M108A	1	max	.03	.272	47	.422	48	7.194e-03	5	NC	1	NC	1
922		min	-.224	47	-.217	5	-.096	7	-1.17e-02	47	NC	1	NC	1
923	2	max	.03	.29	.268	47	.43	49	7.194e-03	5	NC	1	NC	1
924		min	-.224	47	-.214	5	-.106	7	-1.17e-02	47	NC	1	NC	1
925	3	max	.03	.29	.263	47	.438	49	7.194e-03	5	NC	1	NC	1
926		min	-.224	47	-.21	5	-.116	7	-1.17e-02	47	NC	1	NC	1
927	4	max	.03	.29	.258	47	.446	49	7.194e-03	5	NC	1	NC	1
928		min	-.224	47	-.206	5	-.126	7	-1.17e-02	47	NC	1	NC	1
929	5	max	.03	.29	.254	48	.454	49	7.194e-03	5	NC	1	NC	1
930		min	-.224	47	-.205	6	-.136	7	-1.17e-02	47	NC	1	NC	1
931	M109B	1	max	.085	.318	47	.15	41	5.141e-03	17	NC	1	NC	1
932		min	-.117	38	-.216	5	-.098	11	-1.121e-02	47	NC	1	NC	1
933	2	max	.085	.20	.302	47	.159	40	5.141e-03	17	NC	1	NC	1
934		min	-.117	38	-.213	5	-.102	10	-1.121e-02	47	NC	1	NC	1
935	3	max	.085	.20	.286	47	.168	40	5.141e-03	17	NC	1	NC	1
936		min	-.117	38	-.209	5	-.112	10	-1.121e-02	47	NC	1	NC	1
937	4	max	.085	.20	.27	47	.177	40	5.141e-03	17	NC	1	NC	1
938		min	-.117	38	-.206	5	-.122	9	-1.121e-02	47	NC	1	NC	1
939	5	max	.085	.20	.254	48	.187	39	5.141e-03	17	NC	1	NC	1
940		min	-.117	38	-.205	6	-.141	9	-1.121e-02	47	NC	1	NC	1
941	M110A	1	max	.098	.386	47	.131	8	5.516e-03	45	NC	1	NC	1
942		min	-.15	41	-.247	5	-.138	38	-2.943e-03	3	NC	1	NC	1
943	2	max	.098	.11	.352	47	.108	20	5.516e-03	45	NC	1	NC	1
944		min	-.15	41	-.232	5	-.128	38	-2.943e-03	3	NC	1	NC	1
945	3	max	.098	.11	.318	47	.085	20	5.516e-03	45	NC	1	NC	1
946		min	-.15	41	-.216	5	-.117	38	-2.943e-03	3	NC	1	NC	1
947	4	max	.098	.11	.285	47	.062	20	5.516e-03	45	NC	1	NC	1
948		min	-.15	41	-.201	5	-.107	38	-2.943e-03	3	NC	1	NC	1
949	5	max	.098	.11	.251	47	.042	21	5.516e-03	45	NC	1	NC	1
950		min	-.15	41	-.186	5	-.097	39	-2.943e-03	3	NC	1	NC	1
951	M111A	1	max	.384	.133	22	.534	21	1.071e-02	21	NC	1	NC	1
952		min	-.409	5	-.226	4	-.573	3	-1.285e-02	3	NC	1	NC	1
953	2	max	.384	.23	.115	22	.54	21	1.071e-02	21	NC	1	NC	1
954		min	-.409	5	-.198	4	-.58	3	-1.285e-02	3	NC	1	NC	1
955	3	max	.384	.23	.102	21	.546	21	1.071e-02	21	NC	1	NC	1
956		min	-.409	5	-.175	3	-.587	3	-1.285e-02	3	NC	1	NC	1
957	4	max	.384	.23	.1	21	.559	22	1.071e-02	21	NC	1	NC	1
958		min	-.409	5	-.163	3	-.605	4	-1.285e-02	3	NC	1	NC	1
959	5	max	.384	.23	.103	20	.578	22	1.071e-02	21	NC	1	NC	1
960		min	-.409	5	-.155	2	-.625	4	-1.285e-02	3	NC	1	NC	1
961	M112A	1	max	.103	.247	4	.201	23	9.468e-03	5	NC	1	NC	1
962		min	-.156	2	-.226	22	-.216	5	-9.36e-03	23	NC	1	1751.793	30
963	2	max	.103	.20	.344	4	.23	10	1.008e-02	5	NC	1	NC	5

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
964		min	-.155	2	-.322	22	-.231	4	-9.91e-03	23	992.041	16	1025.867	8
965	3	max	.103	20	.412	4	.264	10	1.089e-02	5	NC	25	NC	23
966		min	-.155	2	-.406	22	-.259	16	-1.064e-02	23	527.707	10	539.974	8
967	4	max	.103	20	.62	4	.392	21	9.351e-03	6	NC	31	NC	1
968		min	-.155	2	-.573	22	-.416	3	-9.179e-03	24	257.751	4	282.189	2
969	5	max	.103	20	.978	5	.621	21	9.351e-03	6	NC	8	NC	1
970		min	-.155	2	-.844	23	-.651	3	-9.179e-03	24	130.353	5	157.43	2
971	M113A	1	max	.534	21	.19	.464	5	1.309e-02	6	NC	1	NC	1
972		min	-.573	3	-.295	4	-.438	23	-1.003e-02	24	NC	1	NC	1
973	2	max	.534	21	.161	22	.437	5	1.309e-02	6	NC	1	NC	1
974		min	-.573	3	-.26	4	-.411	23	-1.003e-02	24	NC	1	NC	1
975	3	max	.534	21	.133	22	.409	5	1.309e-02	6	NC	1	NC	1
976		min	-.573	3	-.226	4	-.384	23	-1.003e-02	24	NC	1	NC	1
977	4	max	.534	21	.105	22	.381	5	1.309e-02	6	NC	1	NC	1
978		min	-.573	3	-.191	4	-.357	23	-1.003e-02	24	NC	1	NC	1
979	5	max	.534	21	.082	23	.354	5	1.309e-02	6	NC	1	NC	1
980		min	-.573	3	-.161	5	-.33	23	-1.003e-02	24	NC	1	NC	1
981	M114B	1	max	.248	23	.106	.395	22	4.36e-03	21	NC	1	NC	1
982		min	-.251	5	-.155	3	-.4	4	-6.456e-03	3	NC	1	NC	1
983	2	max	.248	23	.104	21	.408	22	4.36e-03	21	NC	1	NC	1
984		min	-.251	5	-.154	3	-.415	4	-6.456e-03	3	NC	1	NC	1
985	3	max	.248	23	.102	21	.422	22	4.36e-03	21	NC	1	NC	1
986		min	-.251	5	-.153	3	-.429	4	-6.456e-03	3	NC	1	NC	1
987	4	max	.248	23	.102	20	.436	22	4.36e-03	21	NC	1	NC	1
988		min	-.251	5	-.153	2	-.443	4	-6.456e-03	3	NC	1	NC	1
989	5	max	.248	23	.103	20	.45	22	4.36e-03	21	NC	1	NC	1
990		min	-.251	5	-.155	2	-.458	4	-6.456e-03	3	NC	1	NC	1
991	M115B	1	max	.12	22	.106	.247	22	4.774e-03	21	NC	1	NC	1
992		min	-.134	4	-.164	3	-.271	4	-5.019e-03	3	NC	1	NC	1
993	2	max	.12	22	.104	21	.258	22	4.774e-03	21	NC	1	NC	1
994		min	-.134	4	-.161	3	-.283	4	-5.019e-03	3	NC	1	NC	1
995	3	max	.12	22	.104	20	.269	22	4.774e-03	21	NC	1	NC	1
996		min	-.134	4	-.158	3	-.294	4	-5.019e-03	3	NC	1	NC	1
997	4	max	.12	22	.103	20	.282	23	4.774e-03	21	NC	1	NC	1
998		min	-.134	4	-.157	2	-.308	5	-5.019e-03	3	NC	1	NC	1
999	5	max	.12	22	.103	20	.296	23	4.774e-03	21	NC	1	NC	1
1000		min	-.134	4	-.156	2	-.322	5	-5.019e-03	3	NC	1	NC	1
1001	M116B	1	max	.178	22	.113	.279	22	4.215e-03	8	NC	1	NC	1
1002		min	-.195	4	-.163	3	-.281	4	-3.017e-03	15	NC	1	NC	1
1003	2	max	.178	22	.109	21	.304	22	4.215e-03	8	NC	1	NC	1
1004		min	-.195	4	-.16	3	-.307	4	-3.017e-03	15	NC	1	NC	1
1005	3	max	.178	22	.105	21	.329	22	4.215e-03	8	NC	1	NC	1
1006		min	-.195	4	-.157	3	-.333	4	-3.017e-03	15	NC	1	NC	1
1007	4	max	.178	22	.103	20	.354	22	4.215e-03	8	NC	1	NC	1
1008		min	-.195	4	-.154	3	-.359	4	-3.017e-03	15	NC	1	NC	1
1009	5	max	.178	22	.103	20	.379	22	4.215e-03	8	NC	1	NC	1
1010		min	-.195	4	-.155	2	-.384	4	-3.017e-03	15	NC	1	NC	1
1011	M117B	1	max	.279	22	.137	.251	5	2.461e-03	17	NC	1	NC	1
1012		min	-.281	4	-.18	3	-.233	23	-2.796e-03	11	NC	1	NC	1
1013	2	max	.279	22	.125	21	.221	4	2.461e-03	17	NC	1	NC	1
1014		min	-.281	4	-.171	3	-.203	22	-2.796e-03	11	NC	1	NC	1
1015	3	max	.279	22	.113	21	.195	4	2.461e-03	17	NC	1	NC	1
1016		min	-.281	4	-.163	3	-.178	22	-2.796e-03	11	NC	1	NC	1
1017	4	max	.279	22	.101	21	.169	4	2.461e-03	17	NC	1	NC	1
1018		min	-.281	4	-.154	3	-.153	22	-2.796e-03	11	NC	1	NC	1
1019	5	max	.279	22	.089	21	.143	4	2.461e-03	17	NC	1	NC	1
1020		min	-.281	4	-.145	3	-.128	22	-2.796e-03	11	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC
1021	M118B	1	max	.249	25	.14	25	.643	10	1.61e-02	9	NC	1	NC	1
1022			min	-.271	7	-.266	7	-.592	16	-1.286e-02	15	NC	1	NC	1
1023		2	max	.249	25	.105	25	.638	10	1.61e-02	9	NC	1	NC	1
1024			min	-.271	7	-.221	7	-.587	16	-1.286e-02	15	NC	1	NC	1
1025		3	max	.249	25	.089	14	.632	10	1.61e-02	9	NC	1	NC	1
1026			min	-.271	7	-.194	8	-.581	16	-1.286e-02	15	NC	1	NC	1
1027		4	max	.249	25	.087	15	.628	9	1.61e-02	9	NC	1	NC	1
1028			min	-.271	7	-.179	9	-.576	16	-1.286e-02	15	NC	1	NC	1
1029		5	max	.249	25	.101	15	.629	9	1.61e-02	9	NC	1	NC	1
1030			min	-.271	7	-.183	9	-.575	15	-1.286e-02	15	NC	1	NC	1
1031	M119B	1	max	.101	15	.036	12	.276	23	3.866e-03	2	NC	1	NC	1
1032			min	-.183	9	-.032	18	-.318	5	-4.341e-03	44	5389.058	48	832.444	38
1033		2	max	.101	15	.048	4	.349	22	4.362e-03	2	NC	1	NC	42
1034			min	-.183	9	-.035	22	-.371	4	-3.931e-03	20	1409.071	5	722.341	8
1035		3	max	.102	15	.087	4	.391	21	5.023e-03	2	NC	1	NC	23
1036			min	-.183	9	-.08	22	-.409	4	-4.916e-03	20	863.252	5	413.332	8
1037		4	max	.101	15	.342	17	.604	9	4.759e-03	12	NC	1	NC	38
1038			min	-.183	9	-.351	11	-.547	15	-4.625e-03	18	251.833	11	202.202	8
1039		5	max	.101	15	.864	5	.946	9	4.759e-03	12	NC	26	NC	5
1040			min	-.183	9	-.84	23	-.778	15	-4.625e-03	18	107.767	5	111.774	8
1041	M120A	1	max	.592	16	.171	14	.276	25	1.546e-02	24	NC	1	NC	1
1042			min	-.643	10	-.317	8	-.297	7	-1.888e-02	6	NC	1	NC	1
1043		2	max	.592	16	.15	25	.262	25	1.546e-02	24	NC	1	NC	1
1044			min	-.643	10	-.285	7	-.284	7	-1.888e-02	6	NC	1	NC	1
1045		3	max	.592	16	.14	25	.249	25	1.546e-02	24	NC	1	NC	1
1046			min	-.643	10	-.266	7	-.271	7	-1.888e-02	6	NC	1	NC	1
1047		4	max	.592	16	.13	25	.236	25	1.546e-02	24	NC	1	NC	1
1048			min	-.643	10	-.246	7	-.258	7	-1.888e-02	6	NC	1	NC	1
1049		5	max	.592	16	.14	24	.223	25	1.546e-02	24	NC	1	NC	1
1050			min	-.643	10	-.244	6	-.245	7	-1.888e-02	6	NC	1	NC	1
1051	M121A	1	max	.147	3	.101	15	.395	22	7.302e-03	9	NC	1	NC	1
1052			min	-.142	21	-.179	9	-.4	4	-4.204e-03	15	NC	1	NC	1
1053		2	max	.147	3	.101	15	.398	22	7.302e-03	9	NC	1	NC	1
1054			min	-.142	21	-.18	9	-.403	4	-4.204e-03	15	NC	1	NC	1
1055		3	max	.147	3	.101	15	.401	22	7.302e-03	9	NC	1	NC	1
1056			min	-.142	21	-.181	9	-.407	4	-4.204e-03	15	NC	1	NC	1
1057		4	max	.147	3	.101	15	.404	22	7.302e-03	9	NC	1	NC	1
1058			min	-.142	21	-.182	9	-.41	4	-4.204e-03	15	NC	1	NC	1
1059		5	max	.147	3	.102	15	.407	22	7.302e-03	9	NC	1	NC	1
1060			min	-.142	21	-.183	9	-.413	4	-4.204e-03	15	NC	1	NC	1
1061	M122	1	max	.167	5	.106	15	.246	22	5.842e-03	9	NC	1	NC	1
1062			min	-.155	23	-.194	9	-.271	4	-4.516e-03	15	NC	1	NC	1
1063		2	max	.167	5	.105	15	.249	22	5.842e-03	9	NC	1	NC	1
1064			min	-.155	23	-.191	9	-.275	4	-4.516e-03	15	NC	1	NC	1
1065		3	max	.167	5	.104	15	.252	22	5.842e-03	9	NC	1	NC	1
1066			min	-.155	23	-.189	9	-.279	4	-4.516e-03	15	NC	1	NC	1
1067		4	max	.167	5	.103	15	.254	22	5.842e-03	9	NC	1	NC	1
1068			min	-.155	23	-.186	9	-.282	4	-4.516e-03	15	NC	1	NC	1
1069		5	max	.167	5	.101	15	.257	22	5.842e-03	9	NC	1	NC	1
1070			min	-.155	23	-.183	9	-.286	4	-4.516e-03	15	NC	1	NC	1
1071	M123	1	max	.141	16	.111	15	.31	22	3.405e-03	20	NC	1	NC	1
1072			min	-.141	10	-.194	9	-.333	4	-3.639e-03	2	NC	1	NC	1
1073		2	max	.141	16	.109	15	.316	22	3.405e-03	20	NC	1	NC	1
1074			min	-.141	10	-.191	9	-.34	4	-3.639e-03	2	NC	1	NC	1
1075		3	max	.141	16	.106	15	.321	22	3.405e-03	20	NC	1	NC	1
1076			min	-.141	10	-.189	9	-.347	4	-3.639e-03	2	NC	1	NC	1
1077		4	max	.141	16	.104	15	.327	22	3.405e-03	20	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC (n)	L/y Ratio	LC (n)	L/z Ratio	LC	
1078		min	-.141	10	-.186	9	-.354	4	-3.639e-03	2	NC	1	NC	1	
1079	5	max	.141	16	.101	15	.333	22	3.405e-03	20	NC	1	NC	1	
1080		min	-.141	10	-.183	9	-.361	4	-3.639e-03	2	NC	1	NC	1	
1081	M124	1	max	.333	4	.132	15	.157	3	2.404e-03	25	NC	1	NC	1
1082		min	-.31	22	-.212	9	-.156	21	-2.509e-03	7	NC	1	NC	1	
1083	2	max	.333	4	.121	15	.148	4	2.404e-03	25	NC	1	NC	1	
1084		min	-.31	22	-.203	9	-.147	10	-2.509e-03	7	NC	1	NC	1	
1085	3	max	.333	4	.111	15	.141	16	2.404e-03	25	NC	1	NC	1	
1086		min	-.31	22	-.194	9	-.141	10	-2.509e-03	7	NC	1	NC	1	
1087	4	max	.333	4	.101	15	.134	16	2.404e-03	25	NC	1	NC	1	
1088		min	-.31	22	-.185	9	-.136	10	-2.509e-03	7	NC	1	NC	1	
1089	5	max	.333	4	.091	15	.127	16	2.404e-03	25	NC	1	NC	1	
1090		min	-.31	22	-.175	9	-.13	10	-2.509e-03	7	NC	1	NC	1	
1091	M125	1	max	.238	14	.101	14	.591	24	1.03e-02	25	NC	1	NC	1
1092		min	-.264	8	-.193	8	-.624	6	-1.238e-02	7	NC	1	NC	1	
1093	2	max	.238	14	.091	14	.597	24	1.03e-02	25	NC	1	NC	1	
1094		min	-.264	8	-.173	8	-.631	7	-1.238e-02	7	NC	1	NC	1	
1095	3	max	.238	14	.084	25	.604	25	1.03e-02	25	NC	1	NC	1	
1096		min	-.264	8	-.155	7	-.642	7	-1.238e-02	7	NC	1	NC	1	
1097	4	max	.238	14	.09	25	.615	25	1.03e-02	25	NC	1	NC	1	
1098		min	-.264	8	-.152	7	-.654	7	-1.238e-02	7	NC	1	NC	1	
1099	5	max	.238	14	.102	24	.625	25	1.03e-02	25	NC	1	NC	1	
1100		min	-.264	8	-.153	6	-.665	7	-1.238e-02	7	NC	1	NC	1	
1101	M126	1	max	.102	24	.039	9	.388	6	5.874e-03	8	NC	1	NC	1
1102		min	-.153	6	-.036	15	-.362	24	-5.761e-03	14	2695.855	38	3664.902	27	
1103	2	max	.102	24	.032	19	.454	6	6.379e-03	8	NC	1	NC	1	
1104		min	-.153	6	-.042	13	-.438	24	-6.203e-03	14	1887.019	11	942.724	13	
1105	3	max	.103	24	.062	18	.502	7	7.053e-03	8	NC	1	NC	53	
1106		min	-.153	6	-.071	12	-.503	13	-6.792e-03	14	1065.099	11	502.575	2	
1107	4	max	.102	24	.242	17	.685	7	4.345e-03	8	NC	1	NC	29	
1108		min	-.153	6	-.246	11	-.638	25	-4.074e-03	14	361.978	11	266.025	8	
1109	5	max	.102	24	.541	17	.969	7	4.345e-03	8	NC	8	NC	4	
1110		min	-.153	6	-.585	11	-.841	25	-4.074e-03	14	158.789	11	142.983	8	
1111	M127	1	max	.591	24	.15	14	.29	8	1.286e-02	10	NC	1	NC	1
1112		min	-.624	6	-.255	8	-.263	14	-9.792e-03	16	NC	1	NC	1	
1113	2	max	.591	24	.126	14	.277	8	1.286e-02	10	NC	1	NC	1	
1114		min	-.624	6	-.224	8	-.25	14	-9.792e-03	16	NC	1	NC	1	
1115	3	max	.591	24	.101	14	.264	8	1.286e-02	10	NC	1	NC	1	
1116		min	-.624	6	-.193	8	-.238	14	-9.792e-03	16	NC	1	NC	1	
1117	4	max	.591	24	.085	15	.251	8	1.286e-02	10	NC	1	NC	1	
1118		min	-.624	6	-.169	9	-.226	14	-9.792e-03	16	NC	1	NC	1	
1119	5	max	.591	24	.074	15	.238	8	1.286e-02	10	NC	1	NC	1	
1120		min	-.624	6	-.152	9	-.214	14	-9.792e-03	16	NC	1	NC	1	
1121	M128	1	max	.21	25	.1	25	.458	24	3.951e-03	25	NC	1	NC	1
1122		min	-.213	7	-.148	7	-.457	6	-5.987e-03	7	NC	1	NC	1	
1123	2	max	.21	25	.099	25	.465	24	3.951e-03	25	NC	1	NC	1	
1124		min	-.213	7	-.148	7	-.464	6	-5.987e-03	7	NC	1	NC	1	
1125	3	max	.21	25	.098	24	.472	24	3.951e-03	25	NC	1	NC	1	
1126		min	-.213	7	-.148	7	-.471	6	-5.987e-03	7	NC	1	NC	1	
1127	4	max	.21	25	.101	24	.479	24	3.951e-03	25	NC	1	NC	1	
1128		min	-.213	7	-.15	6	-.479	6	-5.987e-03	7	NC	1	NC	1	
1129	5	max	.21	25	.103	24	.486	24	3.951e-03	25	NC	1	NC	1	
1130		min	-.213	7	-.153	6	-.487	7	-5.987e-03	7	NC	1	NC	1	
1131	M129	1	max	.182	24	.104	25	.313	24	4.231e-03	25	NC	1	NC	1
1132		min	-.196	6	-.16	7	-.338	6	-4.415e-03	7	NC	1	NC	1	
1133	2	max	.182	24	.103	24	.319	24	4.231e-03	25	NC	1	NC	1	
1134		min	-.196	6	-.157	7	-.343	6	-4.415e-03	7	NC	1	NC	1	

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
1135	3	max	.182	24	.103	24	.324	24	4.231e-03	25	NC	1	NC	1	
1136		min	-.196	6	-.155	6	-.349	6	-4.415e-03	7	NC	1	NC	1	
1137	4	max	.182	24	.103	24	.33	24	4.231e-03	25	NC	1	NC	1	
1138		min	-.196	6	-.154	6	-.355	6	-4.415e-03	7	NC	1	NC	1	
1139	5	max	.182	24	.102	24	.335	24	4.231e-03	25	NC	1	NC	1	
1140		min	-.196	6	-.153	6	-.36	6	-4.415e-03	7	NC	1	NC	1	
1141	M130	1	max	.187	24	.114	25	.368	12	3.537e-03	13	NC	1	NC	1
1142		min	-.202	6	-.163	7	-.367	6	-2.323e-03	19	NC	1	NC	1	
1143	2	max	.187	24	.11	25	.38	24	3.537e-03	13	NC	1	NC	1	
1144		min	-.202	6	-.159	7	-.38	6	-2.323e-03	19	NC	1	NC	1	
1145	3	max	.187	24	.106	25	.392	24	3.537e-03	13	NC	1	NC	1	
1146		min	-.202	6	-.156	7	-.393	6	-2.323e-03	19	NC	1	NC	1	
1147	4	max	.187	24	.104	24	.405	24	3.537e-03	13	NC	1	NC	1	
1148		min	-.202	6	-.153	6	-.406	6	-2.323e-03	19	NC	1	NC	1	
1149	5	max	.187	24	.102	24	.417	24	3.537e-03	13	NC	1	NC	1	
1150		min	-.202	6	-.153	6	-.419	6	-2.323e-03	19	NC	1	NC	1	
1151	M131	1	max	.368	12	.135	25	.236	7	2.067e-03	21	NC	1	NC	1
1152		min	-.367	6	-.176	7	-.219	25	-2.394e-03	3	NC	1	NC	1	
1153	2	max	.368	12	.125	25	.218	7	2.067e-03	21	NC	1	NC	1	
1154		min	-.367	6	-.169	7	-.201	25	-2.394e-03	3	NC	1	NC	1	
1155	3	max	.368	12	.114	25	.202	6	2.067e-03	21	NC	1	NC	1	
1156		min	-.367	6	-.163	7	-.187	24	-2.394e-03	3	NC	1	NC	1	
1157	4	max	.368	12	.104	25	.189	6	2.067e-03	21	NC	1	NC	1	
1158		min	-.367	6	-.156	7	-.174	24	-2.394e-03	3	NC	1	NC	1	
1159	5	max	.368	12	.094	25	.176	6	2.067e-03	21	NC	1	NC	1	
1160		min	-.367	6	-.15	7	-.162	24	-2.394e-03	3	NC	1	NC	1	
1161	M132	1	max	.513	17	.183	17	.65	13	1.576e-02	13	NC	1	NC	1
1162		min	-.535	11	-.31	11	-.592	19	-1.246e-02	19	NC	1	NC	1	
1163	2	max	.513	17	.146	18	.665	13	1.576e-02	13	NC	1	NC	1	
1164		min	-.535	11	-.262	12	-.608	19	-1.246e-02	19	NC	1	NC	1	
1165	3	max	.513	17	.112	18	.691	12	1.576e-02	13	NC	1	NC	1	
1166		min	-.535	11	-.218	12	-.629	18	-1.246e-02	19	NC	1	NC	1	
1167	4	max	.513	17	.085	19	.719	12	1.576e-02	13	NC	1	NC	1	
1168		min	-.535	11	-.179	13	-.657	18	-1.246e-02	19	NC	1	NC	1	
1169	5	max	.513	17	.076	19	.747	12	1.576e-02	13	NC	1	NC	1	
1170		min	-.535	11	-.159	13	-.685	18	-1.246e-02	19	NC	1	NC	1	
1171	M133	1	max	.076	19	.315	6	.244	6	9.881e-03	5	NC	1	NC	1
1172		min	-.159	13	-.281	24	-.221	24	-9.177e-03	23	1007.668	41	708.901	44	
1173	2	max	.076	19	.42	6	.283	6	1.096e-02	5	NC	28	NC	1	
1174		min	-.159	13	-.409	24	-.263	24	-1.05e-02	23	731.578	12	983.581	44	
1175	3	max	.076	19	.502	6	.301	6	1.24e-02	5	NC	40	NC	1	
1176		min	-.159	13	-.495	24	-.29	24	-1.225e-02	23	442.353	12	694.379	2	
1177	4	max	.076	19	.74	18	.426	19	1.128e-02	5	NC	40	NC	5	
1178		min	-.159	13	-.79	12	-.464	13	-1.111e-02	23	179.455	11	283.554	2	
1179	5	max	.076	19	1.19	17	.67	19	1.128e-02	5	NC	8	NC	4	
1180		min	-.159	13	-1.351	11	-.734	13	-1.111e-02	23	85.135	11	148.654	2	
1181	M134	1	max	.592	19	.253	18	.581	17	1.571e-02	16	NC	1	NC	1
1182		min	-.65	13	-.4	12	-.601	11	-1.913e-02	11	NC	1	NC	1	
1183	2	max	.592	19	.216	18	.547	17	1.571e-02	16	NC	1	NC	1	
1184		min	-.65	13	-.353	12	-.568	11	-1.913e-02	11	NC	1	NC	1	
1185	3	max	.592	19	.183	17	.513	17	1.571e-02	16	NC	1	NC	1	
1186		min	-.65	13	-.31	11	-.535	11	-1.913e-02	11	NC	1	NC	1	
1187	4	max	.592	19	.158	17	.479	17	1.571e-02	16	NC	1	NC	1	
1188		min	-.65	13	-.274	11	-.501	11	-1.913e-02	11	NC	1	NC	1	
1189	5	max	.592	19	.132	17	.445	17	1.571e-02	16	NC	1	NC	1	
1190		min	-.65	13	-.238	11	-.468	11	-1.913e-02	11	NC	1	NC	1	
1191	M135	1	max	.307	6	.087	19	.459	24	6.963e-03	13	NC	1	NC	1

**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
1192		min	-.303	24	-.167	13	-.457	6	-3.81e-03	19	NC	1	NC	1	
1193	2	max	.307	6	.084	19	.476	24	6.963e-03	13	NC	1	NC	1	
1194		min	-.303	24	-.165	13	-.474	6	-3.81e-03	19	NC	1	NC	1	
1195	3	max	.307	6	.082	19	.494	24	6.963e-03	13	NC	1	NC	1	
1196		min	-.303	24	-.163	13	-.492	6	-3.81e-03	19	NC	1	NC	1	
1197	4	max	.307	6	.079	19	.512	24	6.963e-03	13	NC	1	NC	1	
1198		min	-.303	24	-.161	13	-.51	6	-3.81e-03	19	NC	1	NC	1	
1199	5	max	.307	6	.076	19	.529	24	6.963e-03	13	NC	1	NC	1	
1200		min	-.303	24	-.159	13	-.528	6	-3.81e-03	19	NC	1	NC	1	
1201	M136	1	max	.168	6	.086	19	.313	24	5.533e-03	13	NC	1	NC	1
1202		min	-.156	24	-.175	13	-.338	6	-4.153e-03	19	NC	1	NC	1	
1203	2	max	.168	6	.083	19	.325	24	5.533e-03	13	NC	1	NC	1	
1204		min	-.156	24	-.171	13	-.351	6	-4.153e-03	19	NC	1	NC	1	
1205	3	max	.168	6	.081	19	.337	24	5.533e-03	13	NC	1	NC	1	
1206		min	-.156	24	-.167	13	-.365	6	-4.153e-03	19	NC	1	NC	1	
1207	4	max	.168	6	.078	19	.35	24	5.533e-03	13	NC	1	NC	1	
1208		min	-.156	24	-.163	13	-.378	6	-4.153e-03	19	NC	1	NC	1	
1209	5	max	.168	6	.076	19	.362	24	5.533e-03	13	NC	1	NC	1	
1210		min	-.156	24	-.159	13	-.391	6	-4.153e-03	19	NC	1	NC	1	
1211	M137	1	max	.238	18	.09	19	.328	24	2.758e-03	25	NC	1	NC	1
1212		min	-.24	12	-.174	13	-.348	6	-2.998e-03	7	NC	1	NC	1	
1213	2	max	.238	18	.087	19	.358	24	2.758e-03	25	NC	1	NC	1	
1214		min	-.24	12	-.171	13	-.379	6	-2.998e-03	7	NC	1	NC	1	
1215	3	max	.238	18	.083	19	.388	24	2.758e-03	25	NC	1	NC	1	
1216		min	-.24	12	-.167	13	-.41	6	-2.998e-03	7	NC	1	NC	1	
1217	4	max	.238	18	.079	19	.418	24	2.758e-03	25	NC	1	NC	1	
1218		min	-.24	12	-.163	13	-.441	6	-2.998e-03	7	NC	1	NC	1	
1219	5	max	.238	18	.076	19	.448	24	2.758e-03	25	NC	1	NC	1	
1220		min	-.24	12	-.159	13	-.472	6	-2.998e-03	7	NC	1	NC	1	
1221	M138	1	max	.348	6	.108	19	.3	6	3.066e-03	17	NC	1	NC	1
1222		min	-.328	24	-.191	13	-.299	24	-3.161e-03	11	NC	1	NC	1	
1223	2	max	.348	6	.099	19	.269	6	3.066e-03	17	NC	1	NC	1	
1224		min	-.328	24	-.183	13	-.269	12	-3.161e-03	11	NC	1	NC	1	
1225	3	max	.348	6	.09	19	.238	18	3.066e-03	17	NC	1	NC	1	
1226		min	-.328	24	-.174	13	-.24	12	-3.161e-03	11	NC	1	NC	1	
1227	4	max	.348	6	.081	19	.207	18	3.066e-03	17	NC	1	NC	1	
1228		min	-.328	24	-.166	13	-.21	12	-3.161e-03	11	NC	1	NC	1	
1229	5	max	.348	6	.073	19	.176	18	3.066e-03	17	NC	1	NC	1	
1230		min	-.328	24	-.158	13	-.18	12	-3.161e-03	11	NC	1	NC	1	
1231	M124A	1	max	.297	14	.488	46	.275	25	1.34e-02	18	NC	1	NC	1
1232		min	-.3	8	-.406	5	-.286	7	-1.594e-02	12	67.33	3	57.124	47	
1233	2	max	.297	14	.334	47	.225	25	1.405e-02	18	NC	1	NC	1	
1234		min	-.3	8	-.346	5	-.232	7	-1.641e-02	12	89.782	3	76.208	47	
1235	3	max	.297	14	.181	24	.182	24	1.478e-02	17	NC	1	NC	1	
1236		min	-.3	8	-.289	6	-.184	6	-1.693e-02	11	134.688	3	114.381	47	
1237	4	max	.297	14	.177	24	.161	12	1.57e-02	17	NC	1	NC	1	
1238		min	-.3	8	-.271	6	-.159	18	-1.772e-02	11	107.216	8	228.875	47	
1239	5	max	.297	14	.205	25	.172	11	1.663e-02	17	NC	1	NC	1	
1240		min	-.3	8	-.29	7	-.167	17	-1.851e-02	11	80.382	8	248.788	51	
1241	M125A	1	max	.467	23	.237	18	.238	22	1.533e-02	14	NC	1	NC	1
1242		min	-.472	5	-.38	12	-.249	4	-1.771e-02	8	62.772	17	379.213	67	
1243	2	max	.467	23	.194	19	.18	21	1.526e-02	14	NC	1	NC	1	
1244		min	-.472	5	-.32	13	-.186	3	-1.75e-02	8	83.712	17	507.959	67	
1245	3	max	.467	23	.17	20	.15	20	1.52e-02	14	NC	1	NC	1	
1246		min	-.472	5	-.28	2	-.152	2	-1.73e-02	8	125.594	17	502.212	59	
1247	4	max	.467	23	.182	20	.162	7	1.514e-02	14	NC	1	NC	1	
1248		min	-.472	5	-.278	2	-.163	25	-1.71e-02	8	95.941	16	333.185	59	



**Envelope Member Section Deflections (Continued)**

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [r...	LC	(n) L/y Ratio	LC	(n) L/z Ratio	LC	
1249	5	max	.467	23	.235	21	.209	7	1.508e-02	14	NC	1	NC	1	
1250		min	-.472	5	-.323	3	-.208	25	-1.689e-02	8	71.881	16	248.797	59	
1251	M126A	1	max	.176	20	.203	15	.216	17	1.409e-02	22	NC	1	NC	1
1252			min	-.18	2	-.34	8	-.225	11	-1.657e-02	4	85.433	8	218.682	7
1253		2	max	.176	20	.174	15	.193	17	1.391e-02	22	NC	1	NC	1
1254			min	-.18	2	-.297	9	-.199	11	-1.624e-02	4	113.956	8	291.95	7
1255		3	max	.176	20	.177	16	.188	16	1.373e-02	22	NC	1	NC	1
1256			min	-.18	2	-.381	46	-.191	10	-1.591e-02	4	152.967	25	438.548	7
1257		4	max	.176	20	.212	17	.189	4	1.355e-02	22	NC	1	NC	1
1258			min	-.179	2	-.567	47	-.188	22	-1.558e-02	4	101.957	25	333.18	55
1259		5	max	.176	20	.275	17	.213	3	1.337e-02	22	NC	1	NC	1
1260			min	-.179	2	-.754	47	-.21	21	-1.525e-02	4	76.453	25	248.793	55

**Envelope AISI S100-10: ASD Cold Formed Steel Code Checks**

Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pn/Om[k]	Tn/Om[k]	Mnyy/O...	Mnzz/O...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

**Envelope AISC 14th(360-10): LRFD Steel Code Checks**

Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn	
1	M105	PIPE 2.0	.856	4.5	2	.153	4.5	6	14.916	32.13	1.872	1.872	2...	H1-1b	
2	M133	PIPE 2.0	.851	4.5	11	.159	4.5	12	14.916	32.13	1.872	1.872	2...	H1-1b	
3	M119B	PIPE 2.0	.841	4.5	5	.214	4.5	10	14.916	32.13	1.872	1.872	2...	H1-1b	
4	M8	PIPE 2.0	.547	4.5	2	.158	4.5	11	14.916	32.13	1.872	1.872	2...	H1-1b	
5	M112A	PIPE 2.0	.544	4.5	5	.162	4.5	3	14.916	32.13	1.872	1.872	2...	H1-1b	
6	M126	PIPE 2.0	.534	4.5	11	.162	4.5	13	14.916	32.13	1.872	1.872	2...	H1-1b	
7	M89A	HSS4x4x3	.503	0	6	.122	0	z	13	97.541	106.812	12.662	12.662	2...	H1-1b
8	M11	PIPE 2.0	.502	4.5	46	.061	4.5	10	14.916	32.13	1.872	1.872	2...	H1-1b	
9	M69	PIPE 3.5	.498	7.25	7	.206	7.25	2	33.422	78.75	7.954	7.954	1...	H1-1b	
10	M63	PIPE 3.5	.490	7.25	11	.180	7.25	6	33.422	78.75	7.954	7.954	1...	H1-1b	
11	M38	HSS4x4x3	.473	0	10	.126	0	z	9	97.541	106.812	12.662	12.662	2...	H1-1b
12	M94	PIPE 3.5	.460	7.25	11	.195	7.25	11	33.422	78.75	7.954	7.954	1...	H1-1b	
13	M71A	PIPE 2.0	.442	12.5	47	.125	4.036	46	6.295	32.13	1.872	1.872	2...	H1-1b	
14	M92A	L3x3x4	.318	0	5	.268	2.148	z	12	42.124	46.656	1.688	3.756	1...	H2-1
15	M61	L3x3x4	.305	0	13	.259	2.148	z	8	42.124	46.656	1.688	3.756	1...	H2-1
16	M93A	L3x3x4	.302	0	2	.258	2.148	y	8	42.124	46.656	1.688	3.756	1...	H2-1
17	M68	L3x3x4	.295	0	6	.261	2.148	y	12	42.124	46.656	1.688	3.756	1...	H2-1
18	M62	L3x3x4	.287	0	10	.258	2.148	y	4	42.124	46.656	1.688	3.756	1...	H2-1
19	M37	HSS4x4x3	.286	0	10	.242	4.503	y	47	97.541	106.812	12.662	12.662	2...	H1-1b
20	M67	L3x3x4	.282	0	10	.250	2.148	z	4	42.124	46.656	1.688	3.756	1...	H2-1
21	M87	PIPE 2.0	.217	4.5	10	.077	4.5	10	14.916	32.13	1.872	1.872	2...	H1-1b	
22	M98A	PIPE 2.0	.213	4.5	6	.067	4.5	6	14.916	32.13	1.872	1.872	2...	H1-1b	
23	M95	PIPE 2.0	.212	4.5	37	.093	4.5	13	14.916	32.13	1.872	1.872	2...	H1-1b	
24	M5	PIPE 2.0	.208	4.5	29	.078	4.5	5	14.916	32.13	1.872	1.872	2...	H1-1b	
25	M110	PIPE 2.0	.194	3.906	36	.084	3.776	8	6.295	32.13	1.872	1.872	2...	H1-1b	
26	M88	PIPE 2.0	.193	3.906	33	.089	8.724	7	6.295	32.13	1.872	1.872	2...	H1-1b	
27	M90A	PIPE 2.0	.191	4.5	27	.071	4.5	2	14.916	32.13	1.872	1.872	2...	H1-1b	
28	M115	L2.5x2.5x3	.126	2.487	2	.009	4.974	y	2	12.979	29.192	.873	1.662	1...	H2-1
29	M92	L2.5x2.5x3	.124	2.487	2	.009	4.974	z	8	12.979	29.192	.873	1.662	1...	H2-1
30	M64A	LL2.5x2.5x...	.115	0	32	.013	5	y	47	41.904	58.32	3.954	2.55	1	H1-1b*
31	M98	LL2.5x2.5x...	.115	0	28	.011	5	z	6	41.904	58.32	3.954	2.55	1...	H1-1b*
32	M66A	LL2.5x2.5x...	.115	0	36	.009	5	z	4	41.904	58.32	3.954	2.55	1...	H1-1b*
33	M114	L2.5x2.5x3	.110	2.435	23	.007	0	z	18	12.979	29.192	.873	1.662	1...	H2-1
34	M93	L2.5x2.5x3	.108	2.435	17	.007	0	y	4	12.979	29.192	.873	1.662	1...	H2-1
35	M75	L2.5x2.5x3	.102	2.435	11	.007	0	z	4	12.979	29.192	.873	1.662	1...	H2-1

**Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)**

Member	Shape	Code Check	Loc[ft]	LC	Shear ..	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
36	M76	L2.5x2.5x3	.098	2.487	6	.007	0	y	6	12.979	29.192	.873	1.662	1... H2-1
37	M125A	L2.5x2.5x3	.044	1.305	2	.007	2.611	y	49	23.061	29.192	.873	1.899	1... H2-1
38	M124A	L2.5x2.5x3	.037	1.305	6	.025	2.611	y	46	23.061	29.192	.873	1.899	1... H2-1
39	M126A	L2.5x2.5x3	.037	1.305	10	.042	2.611	y	48	23.061	29.192	.873	1.899	1... H2-1
40	M116A	PIPE 2.0	.010	1.422	2	.030	0		48	29.162	32.13	1.872	1.872	1... H1-1b
41	M114A	PIPE 2.0	.009	1.422	6	.087	0		47	29.162	32.13	1.872	1.872	1... H1-1b
42	M115A	PIPE 2.0	.008	1.422	10	.119	2.843		48	29.162	32.13	1.872	1.872	1... H1-1b

**SPECIAL CONSTRUCTION NOTE:**  
 SPRINT WORK IS CONTINGENT ON THE FOLLOWING:  
 \* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS.  
 \* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT.  
 \* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

**SPECIAL CONSTRUCTION NOTE:**  
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE SPRINT'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

# Sprint



PROJECT: DO MACRO UPGRADE  
EQUIPMENT DEPLOYMENT

SITE NUMBER: CT33XC060

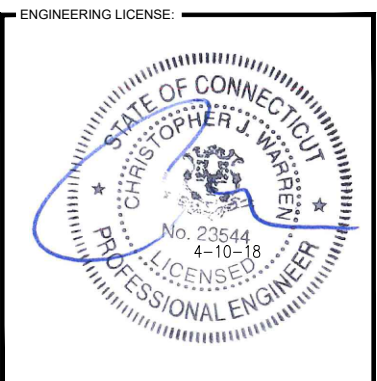
SITE ADDRESS: 160 WITCH MEADOW ROAD  
SALEM, CT 06420

SITE TYPE: MONOPOLE

PLANS PREPARED FOR:  
**Sprint**  
 1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (800) 357-7641

PROJECT MANAGER:  
**SBA**   
 SBA COMMUNICATIONS CORP.  
 134 FLANDERS ROAD, SUITE 125  
 WESTBOROUGH, MA 01581  
 TEL: (508) 251-0720

PLANS PREPARED BY:  
**INFINIGY**  
 FROM ZERO TO INFINIGY  
 the solutions are endless  
 1033 Watervliet Shaker Rd | Albany, NY 12205  
 Phone: 518-690-0790 | Fax: 518-690-0793  
 www.infinigy.com  
 JOB NUMBER 526-104



CHECKED BY:

APPROVED BY:

REVISIONS:	DESCRIPTION	DATE	BY	REV.
	ISSUED FOR CONSTRUCTION	04/10/18	SL	0
	ISSUED FOR REVIEW	01/18/18	RCD	A

SITE NUMBER:  
**CT33XC060**

SITE ADDRESS:  
 160 WITCH MEADOW ROAD  
 SALEM, CT 06420

SHEET DESCRIPTION:  
**TITLE SHEET  
 & PROJECT DATA**

SHEET NUMBER:  
**T-1**

**PROJECT INFORMATION**

**SITE INFORMATION:**  
 LATITUDE: 41° 30' 10.2" N  
 (PER SBA RECORDS) 41.50283°  
 LONGITUDE: -72° 17' 49.4" W  
 (PER SBA RECORDS) -72.29706°  
 STRUCTURE HEIGHT: 199'±  
 STRUCTURE TYPE: MONOPOLE  
**APPLICANT:**  
 SPRINT  
 1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07495  
**TOWER OWNER:**  
 SBA PROPERTIES LLC,  
 8051 CONGRESS AVENUE  
 BOCA RATON, FL 33487  
 SBA SITE ID: CT01916-S  
 SBA SITE NAME: NORTH SALEM  
 SBA CONTACT: STEPHEN ROTH  
 (860) 539-4920  
 sroth@sbase.com

**AREA MAP**



**LOCATION MAP**



**PROJECT DESCRIPTION**

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (6) PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS
- INSTALL (3) 2.5 GHz RRH'S ON PROPOSED PIPE MOUNT
- RELOCATE (3) 1900 MHz RRH'S ON PROPOSED PIPE MOUNT
- INSTALL (6) 800 MHz RRH'S ON PROPOSED PIPE MOUNT
- REMOVE (6) COAX CABLES
- INSTALL (4) HYBRID CABLES
- INSTALL RAN EQUIPMENT INSIDE EXISTING MMBTS CABINET
- INSTALL STRUCTURAL AUGMENTS

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

**APPLICABLE CODES**

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- INTERNATIONAL BUILDING CODE (2012 IBC)
- TIA-222-G OR LATEST EDITION
- NFPA 780 - LIGHTNING PROTECTION CODE
- 2014 NATIONAL ELECTRIC CODE OR LATEST EDITION
- ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
- CT BUILDING CODE
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

**GENERAL NOTES**

- THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
  - ADA COMPLIANCE NOT REQUIRED.
  - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
  - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.

**DRAWING INDEX**

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	OUTLINE SPECIFICATIONS	0
SP-2	OUTLINE SPECIFICATIONS	0
SP-3	OUTLINE SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	EQUIPMENT & MOUNTING DETAILS	0
A-5	DETAILS	0
E-1	ELECTRICAL & GROUNDING DETAILS	0
RF-1	RF DATA SHEET	0
RF-2	PLUMBING DIAGRAM	0

**APPROVALS**

TITLE	SIGNATURE	DATE
PROJECT MANAGER:		
CONSTRUCTION:		
RF ENGINEER:		
ZONING/SITE ACQ:		
OPERATIONS:		
TOWER OWNER:		

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

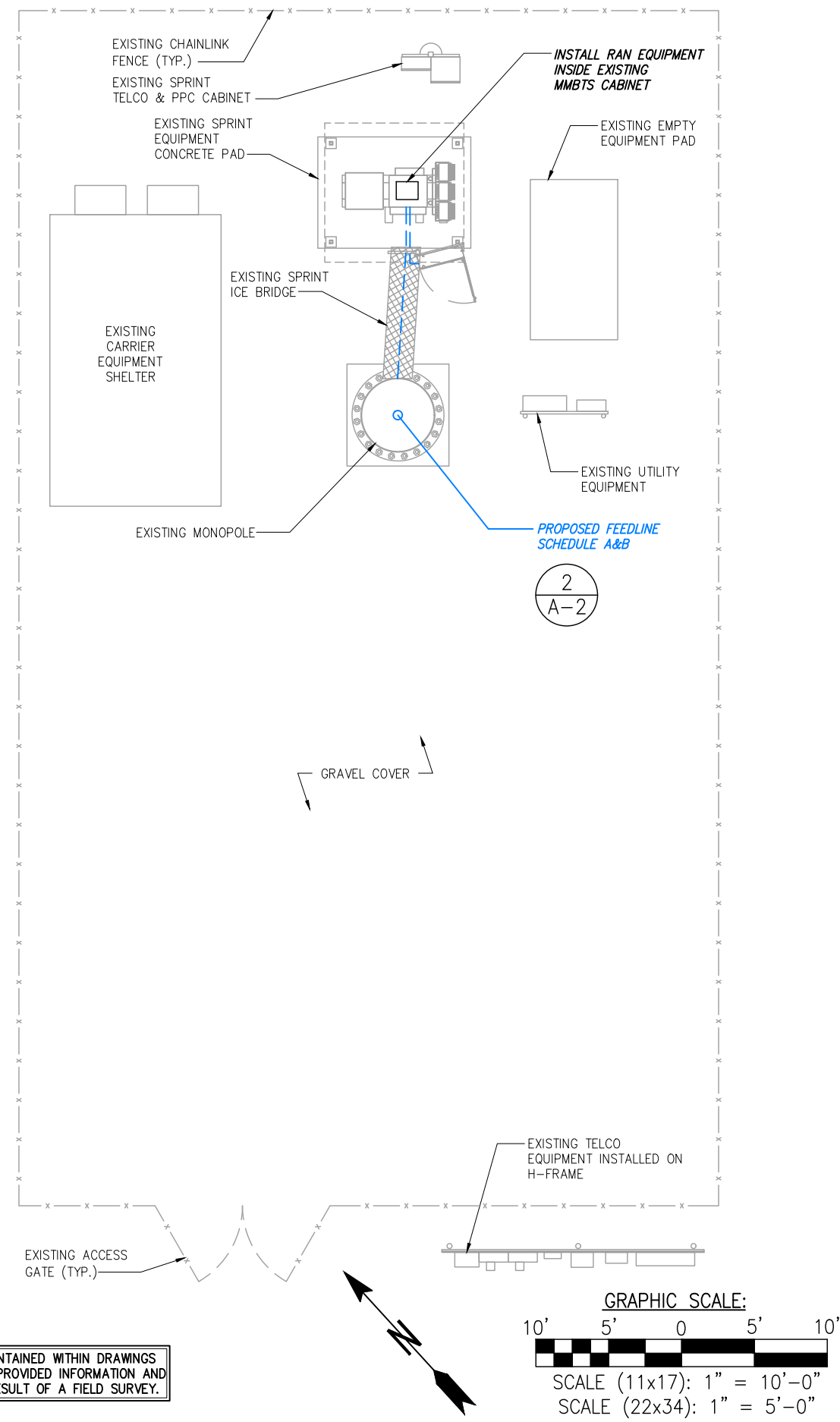
CALL CONNECTICUT ONE CALL  
 (800) 922-4455  
 CALL 3 WORKING DAYS  
 BEFORE YOU DIG!







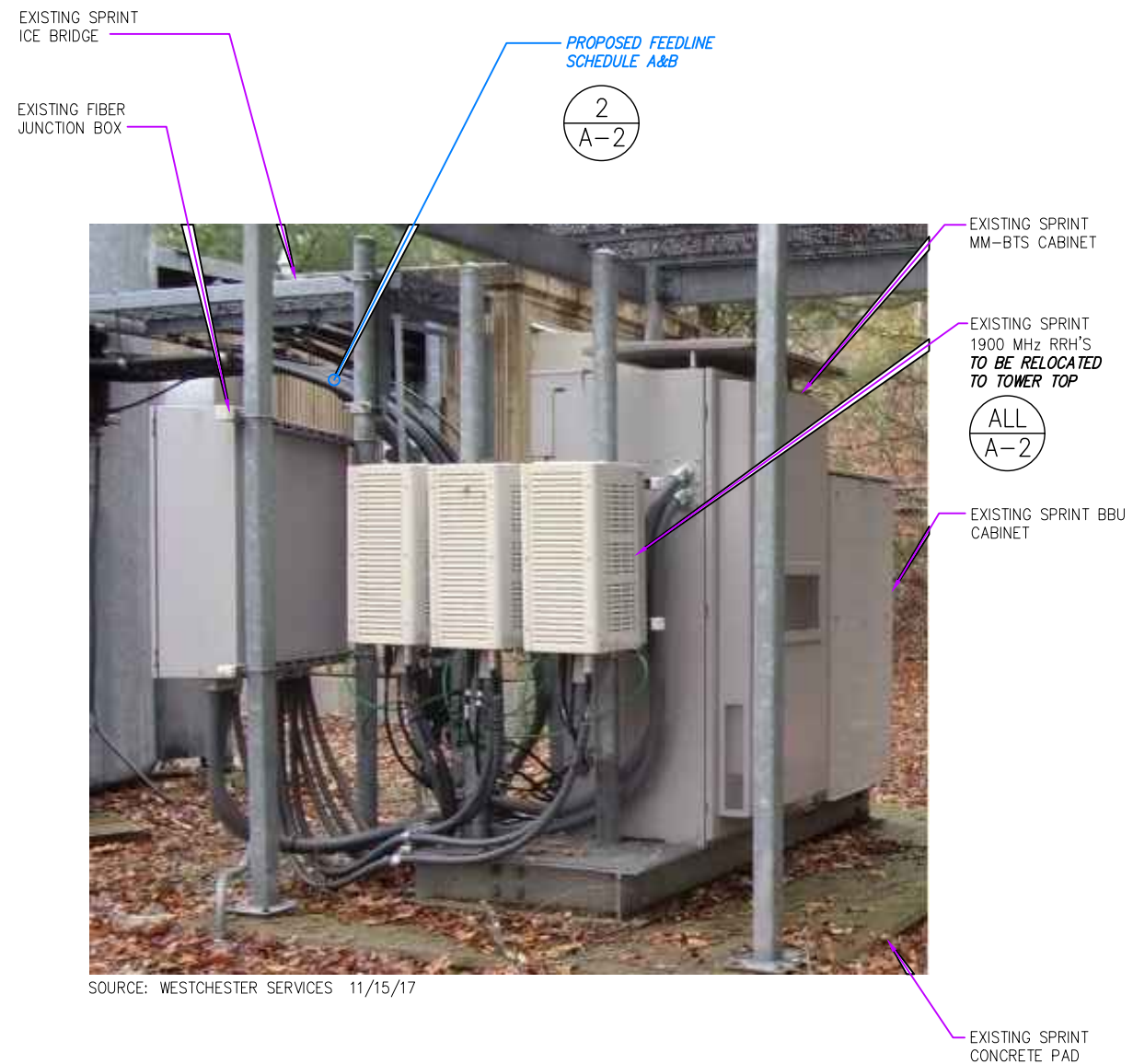




OVERALL SITE PLAN

SCALE: AS NOTED

1



SPRINT EQUIPMENT PHOTO DETAIL

SCALE: AS NOTED

2

PLANS PREPARED FOR:

# Sprint

1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (800) 357-7641

PROJECT MANAGER:

SBA COMMUNICATIONS CORP.  
 134 FLANDERS ROAD, SUITE 125  
 WESTBOROUGH, MA 01581  
 TEL: (508) 251-0720

PLANS PREPARED BY:

# INFINIGY

FROM ZERO TO INFINIGY  
 the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205  
 Phone: 518-690-0790 | Fax: 518-690-0793  
 www.infinigy.com  
 JOB NUMBER 526-104

ENGINEERING LICENSE:

STATE OF CONNECTICUT  
 CHRISTOPHER J. WARREN  
 No. 23544  
 4-10-18  
 PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS	DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION		04/10/18	SL	0
ISSUED FOR REVIEW		01/18/18	RCD	A

SITE NUMBER:  
**CT33XC060**

SITE ADDRESS:  
 160 WITCH MEADOW ROAD  
 SALEM, CT 06420

SHEET DESCRIPTION:  
**SITE PLAN**

SHEET NUMBER:  
**A-1**

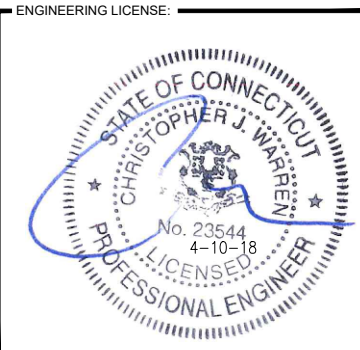
**NOTE:**  
FOR DETAILS OF MOUNT AUGMENT REFER TO  
MOUNT AUGMENT CD'S DONE BY OTHERS

**SPECIAL CONSTRUCTION NOTE:**  
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS  
(STRUCTURAL MODIFICATIONS) AT THE SPRINT'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS  
FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION  
DRAWINGS (PROVIDED BY OTHERS).

PLANS PREPARED FOR:  
**Sprint**  
1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07495  
TEL: (800) 357-7641

PROJECT MANAGER:  
**SBA**  
SBA COMMUNICATIONS CORP.  
134 FLANDERS ROAD, SUITE 125  
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CHECKED BY:

APPROVED BY:

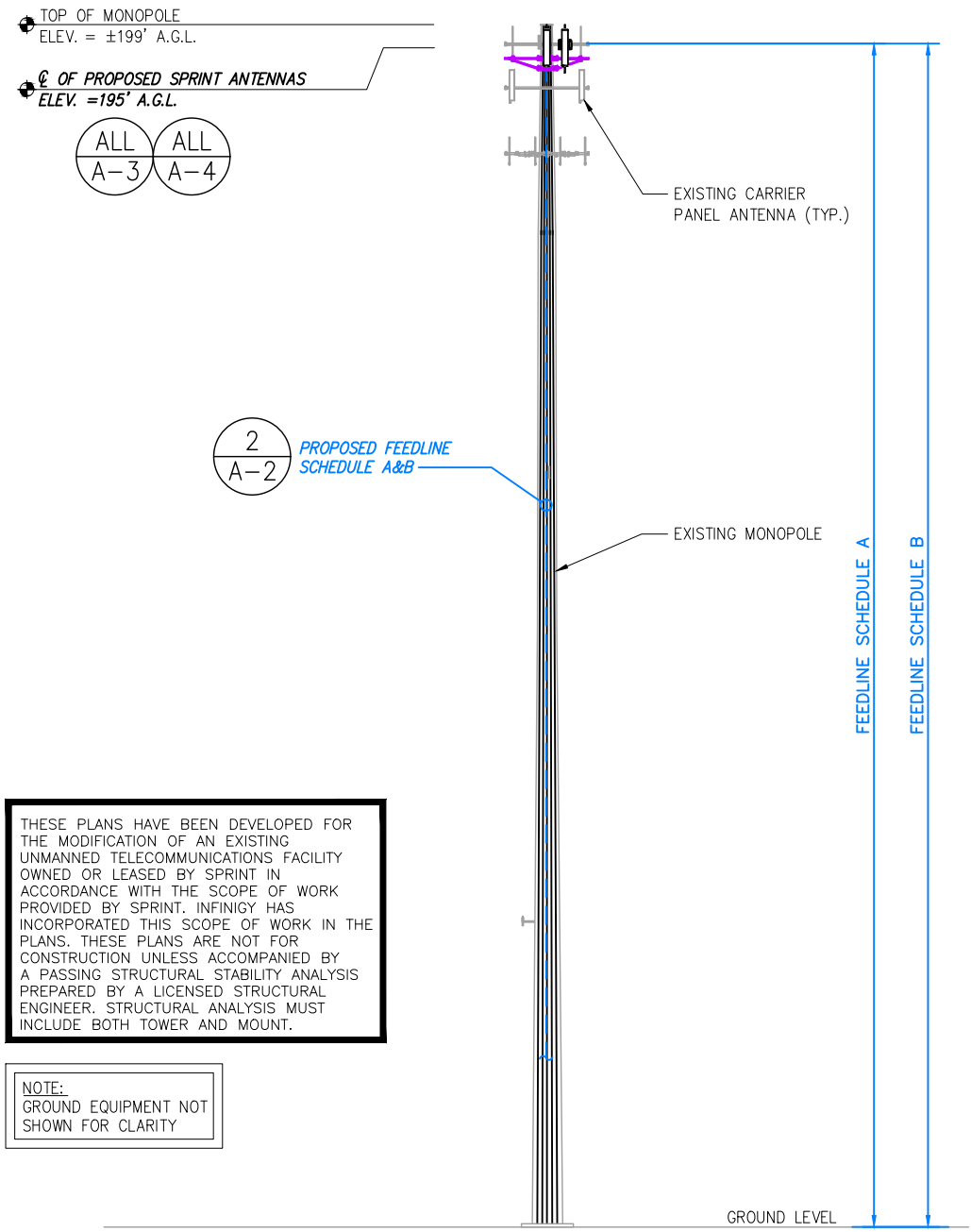
REVISIONS	DESCRIPTION	DATE	BY	REV.
	ISSUED FOR CONSTRUCTION	04/10/18	SL	0
	ISSUED FOR REVIEW	01/18/18	RCD	A

SITE NUMBER:  
**CT33XC060**

SITE ADDRESS:  
160 WITCH MEADOW ROAD  
SALEM, CT 06420

SHEET DESCRIPTION:  
**TOWER ELEVATION**

SHEET NUMBER:  
**A-2**



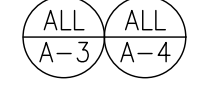
THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

**NOTE:**  
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

**SPECIAL INSTALLATION NOTE:**  
JUMPERS FROM RRHs TO ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY DISCREPANCY

**NOTE:**  
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

CL OF PROPOSED SPRINT ANTENNAS  
ELEV. = 195' A.G.L.



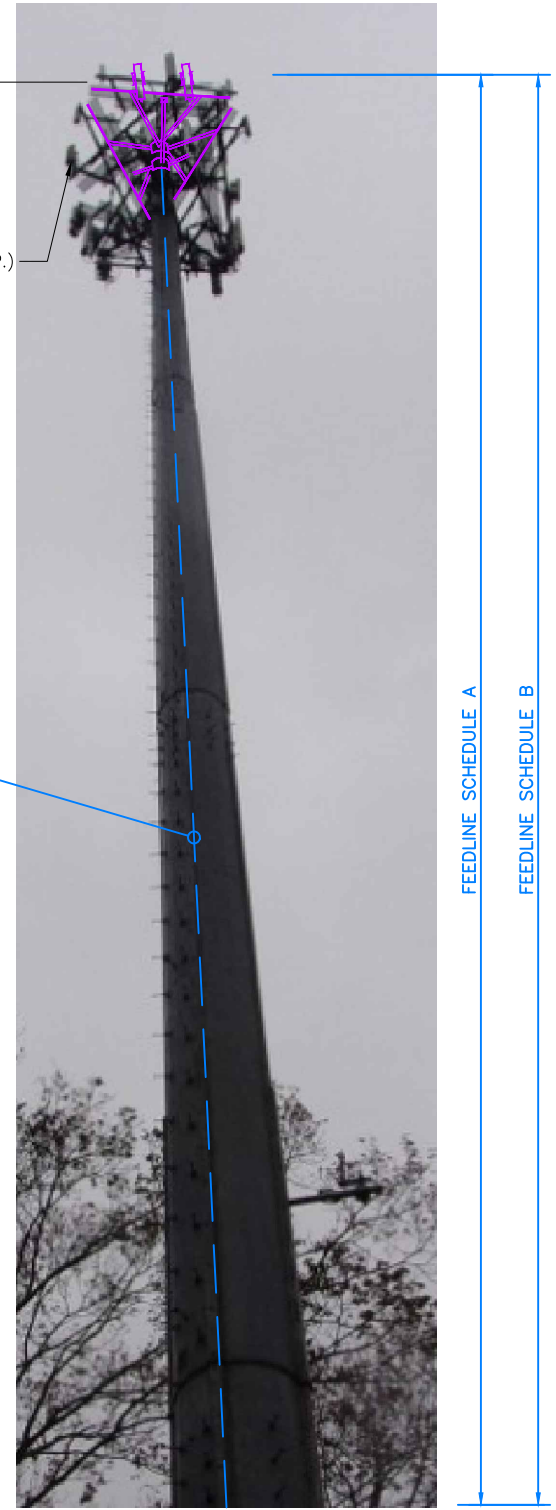
EXISTING CARRIER PANEL ANTENNA (TYP.)



**SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):**  
GENERAL CONTRACTOR SHALL ORIENT PROPOSED PLATFORM REINFORCEMENT KIT RING-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED RING-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING TO BE REMOVED: (6) 1 5/8" COAX	UP INSIDE MONOPOLE TO RAD
B	PROPOSED: (4) HYBRID TO 195' RAD	UP INSIDE MONOPOLE TO RAD

**NOTE:**  
EXISTING SPRINT EQUIPMENT FEEDLINE INVENTORY BASED ON COLOCATION APPLICATION AND SBA RECORD, NOT FIELD OBSERVATIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.



SOURCE: WESTCHESTER SERVICES 11/15/17

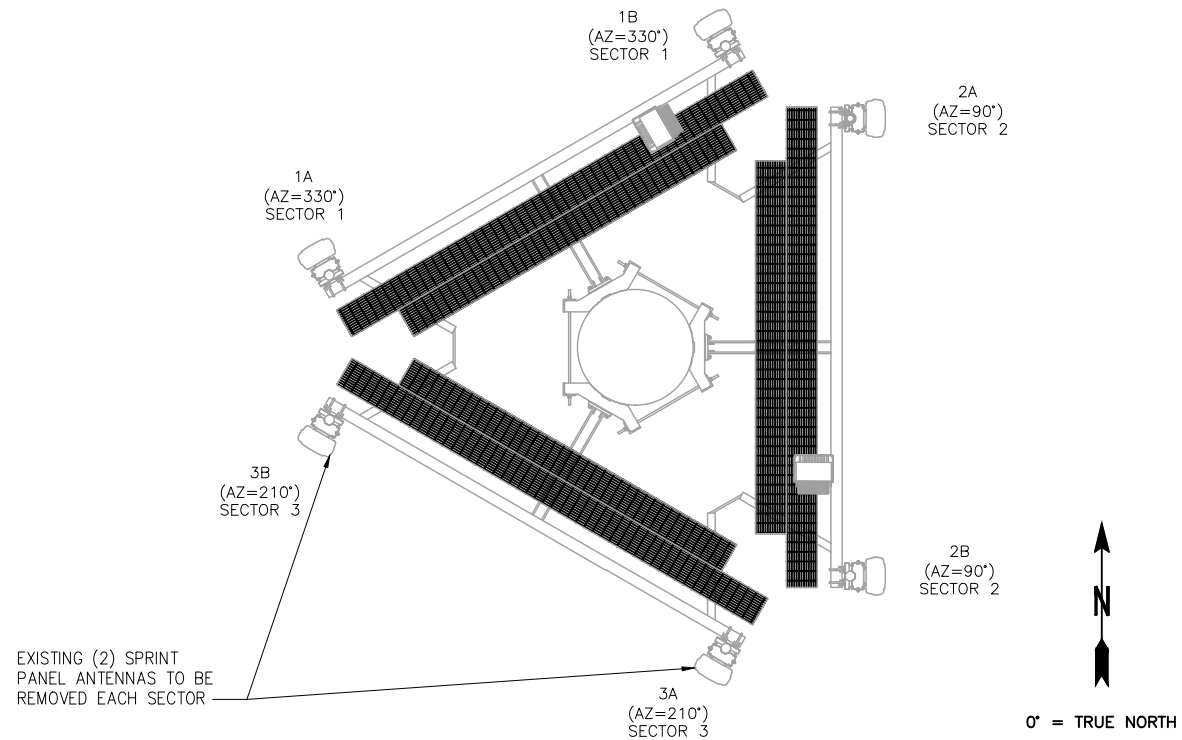


**SPECIAL CONSTRUCTION NOTE:**  
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE SPRINT'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

**SPECIAL INSTALLATION NOTE:**  
JUMPERS FROM RRHs TO ANTENNA SHALL NOT EXCEED 15'. NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY DISCREPANCY

**NOTE:**  
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

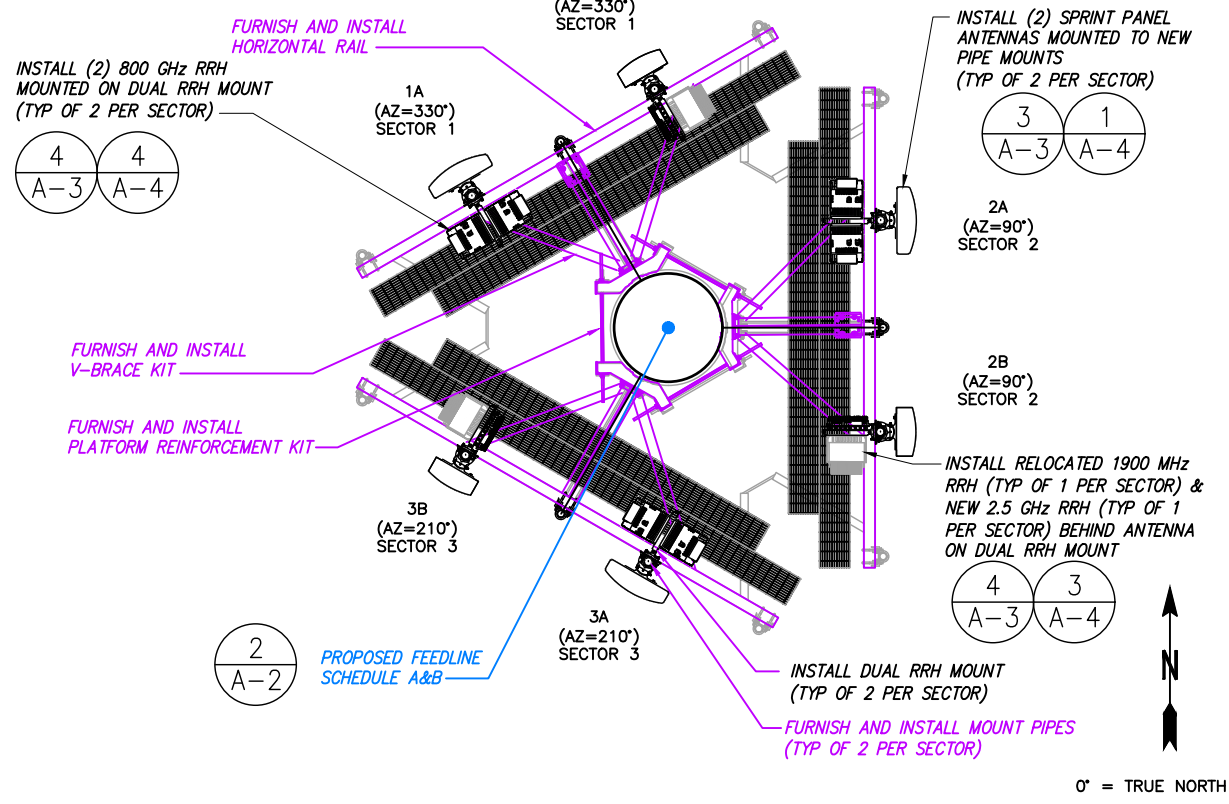
**NOTE:**  
FOR DETAILS OF MOUNT AUGMENT REFER TO MOUNT AUGMENT CD'S DONE BY OTHERS



EXISTING ANTENNA & RRH LAYOUT

NO SCALE

1

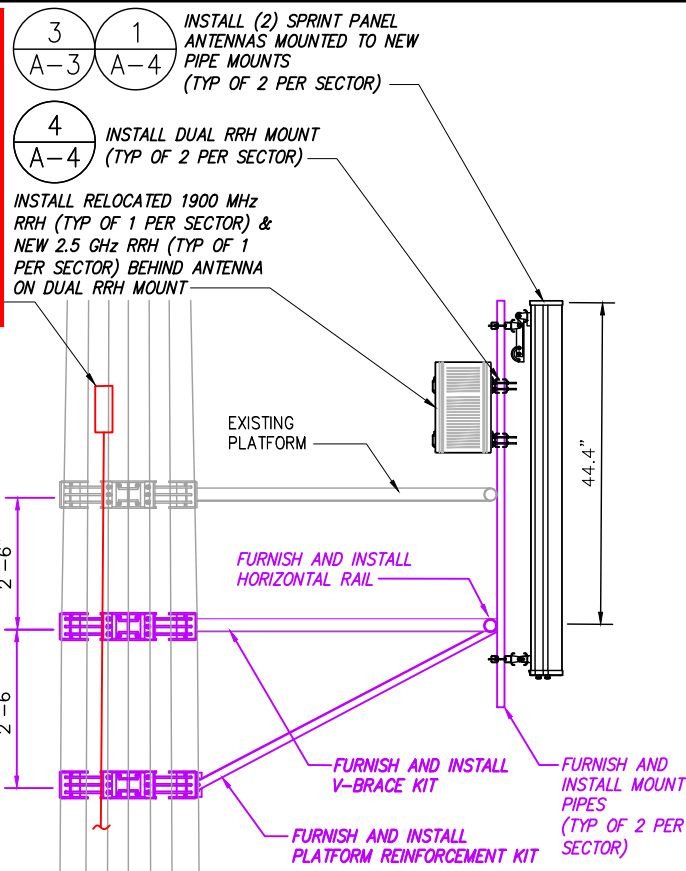


FINAL ANTENNA & RRH LAYOUT

NO SCALE

2

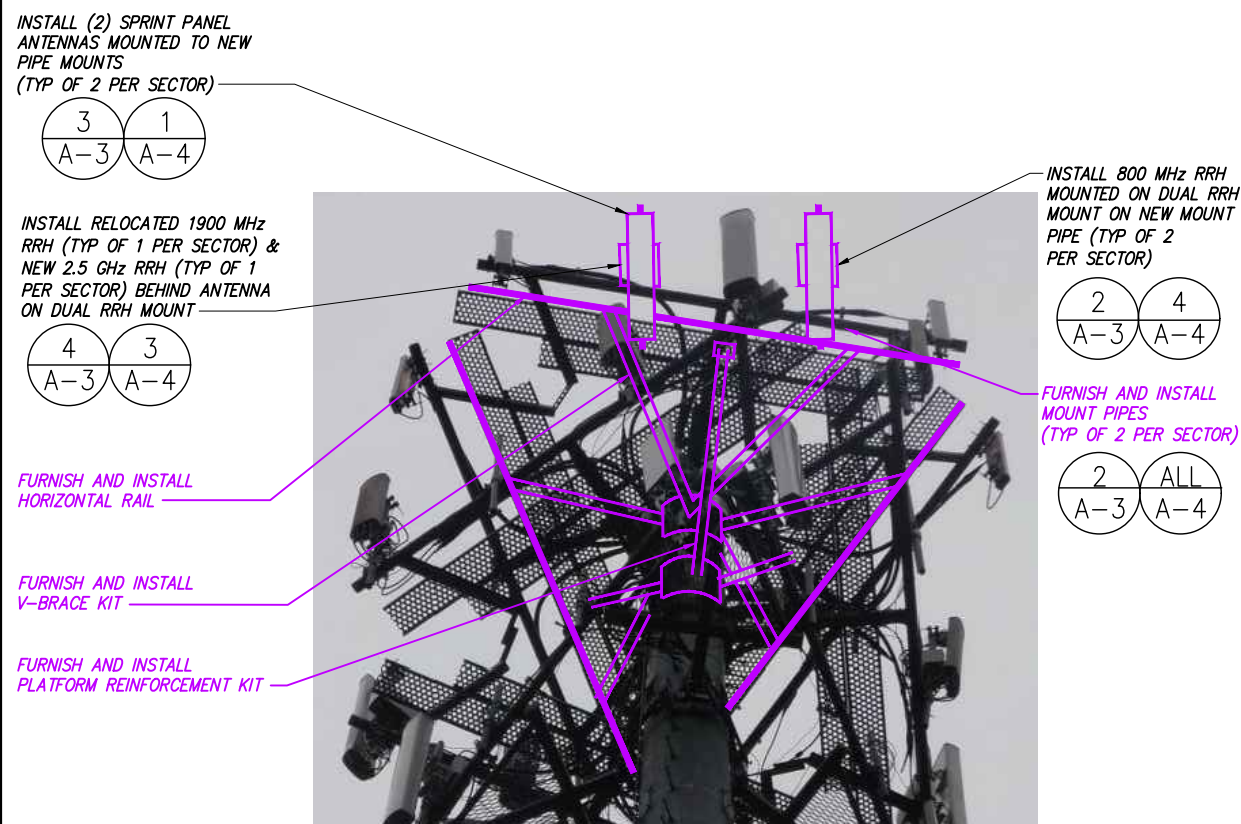
**SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):**  
GENERAL CONTRACTOR SHALL ORIENT PROPOSED SPRINT COLLAR-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED COLLAR-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.



TYPICAL MOUNTING DETAIL

NO SCALE

3



ANTENNA & RRH MOUNT PHOTO DETAIL

NO SCALE

4

PLANS PREPARED FOR:

1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07495  
TEL: (800) 357-7641

PROJECT MANAGER:

SBA COMMUNICATIONS CORP.  
134 FLANDERS ROAD, SUITE 125  
WESTBOROUGH, MA 01581  
TEL: (508) 251-0720

PLANS PREPARED BY:

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1033 Watervliet Shaker Rd | Albany, NY 12205  
Phone: 518-690-0790 | Fax: 518-690-0793  
www.infinigy.com  
JOB NUMBER: 526-104

ENGINEERING LICENSE:

CHRISTOPHER J. WARREN  
No. 23544  
4-10-18  
PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS	DESCRIPTION	DATE	BY	REV
ISSUED FOR CONSTRUCTION		04/10/18	SL	0
ISSUED FOR REVIEW		01/18/18	RCD	A

SITE NUMBER:  
**CT33XC060**

SITE ADDRESS:  
160 WITCH MEADOW ROAD  
SALEM, CT 06420

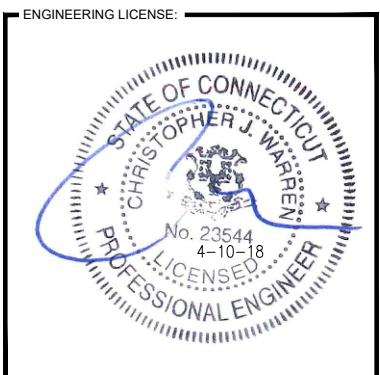
SHEET DESCRIPTION:  
**ANTENNA LAYOUT & MOUNTING DETAILS**

SHEET NUMBER:  
**A-3**

PLANS PREPARED FOR:  
**Sprint**  
 1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (800) 357-7641

PROJECT MANAGER:  
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 SBA COMMUNICATIONS CORP.  
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CHECKED BY:

APPROVED BY:

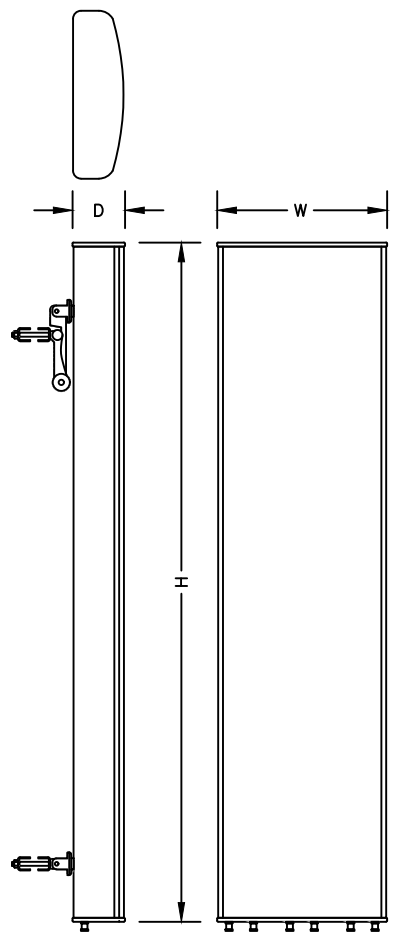
REVISIONS	DESCRIPTION	DATE	BY	REV.
	ISSUED FOR CONSTRUCTION	04/10/18	SL	0
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SITE NUMBER:  
**CT33XC060**

SITE ADDRESS:  
 160 WITCH MEADOW ROAD  
 SALEM, CT 06420

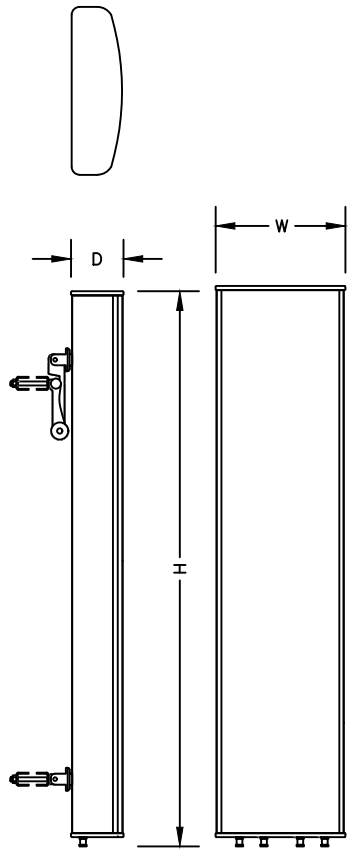
SHEET DESCRIPTION:  
**EQUIPMENT & MOUNTING DETAILS**

SHEET NUMBER:  
**A-4**



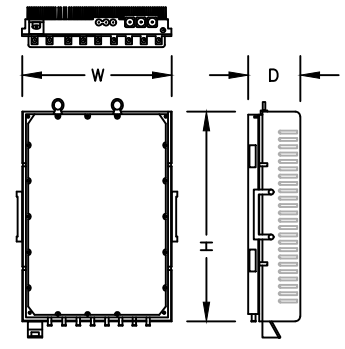
ANTENNA SPECIFICATIONS	
MANUF.	COMMSCOPE
MODEL #	NNVV-65B-R4
HEIGHT	72"
WIDTH	19.6"
DEPTH	7.8"
WEIGHT	84.7± LBS.

ANTENNA DETAIL NO SCALE 1



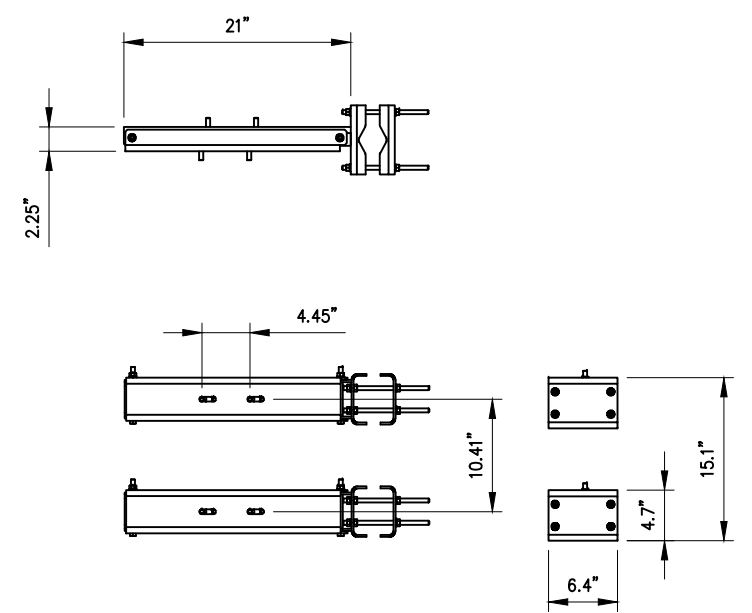
ANTENNA SPECIFICATIONS	
MANUF.	RFS
MODEL #	APXVTM14-ALU-120
HEIGHT	56.3"
WIDTH	12.6"
DEPTH	6.3"
WEIGHT	56.2± LBS.

ANTENNA DETAIL NO SCALE 2

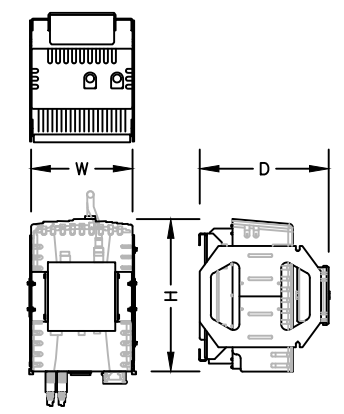


2.5 GHZ RRH SPECIFICATIONS	
MANUF.	NOKIA (ALU)
MODEL #	TD-RRH8X20-25
HEIGHT	26.1"
WIDTH	18.6"
DEPTH	6.7"
WEIGHT	70± LBS

2.5 RRH NO SCALE 3

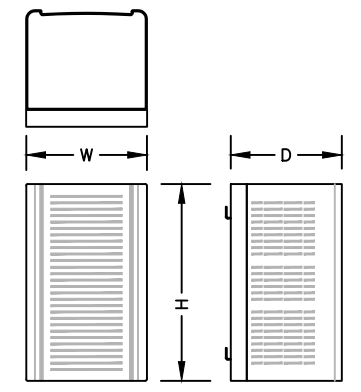


DUAL RRH MOUNT DETAIL NO SCALE 4



800 MHZ RRH SPECIFICATIONS	
MANUF.	NOKIA (ALU)
MODEL #	800MHZ 2X50W
HEIGHT	19.7"
WIDTH	13"
DEPTH	10.8"
WEIGHT	53± LBS

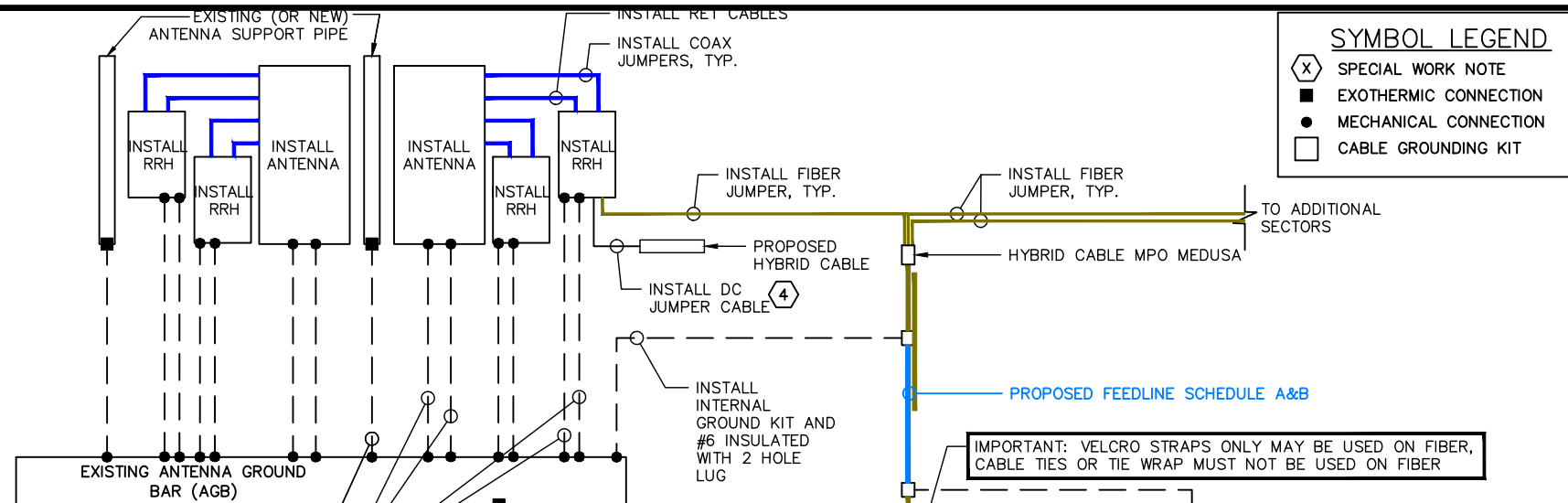
800 MHz RRH NO SCALE 5



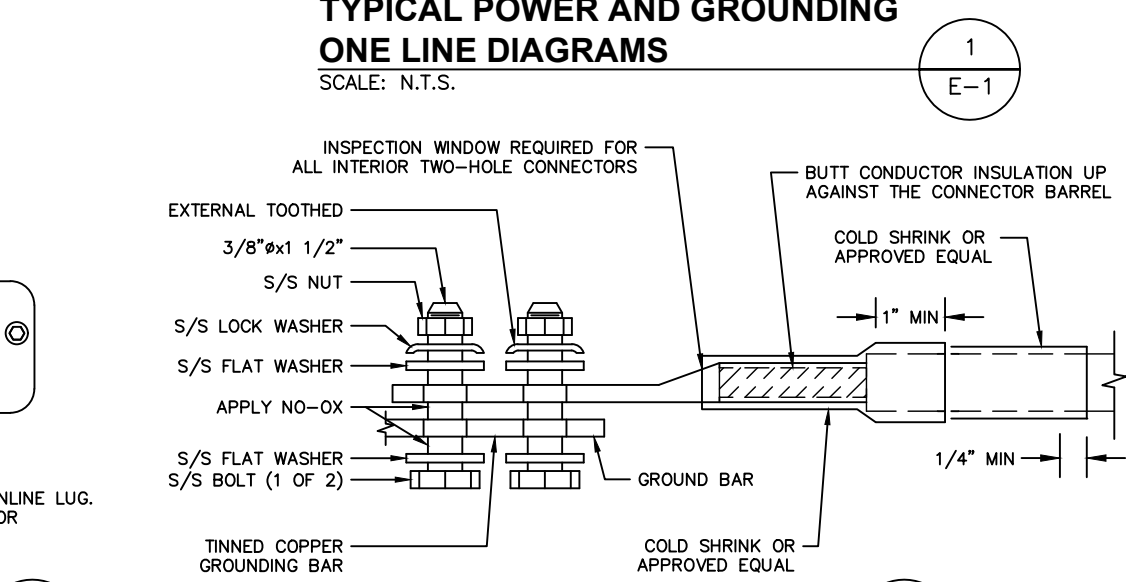
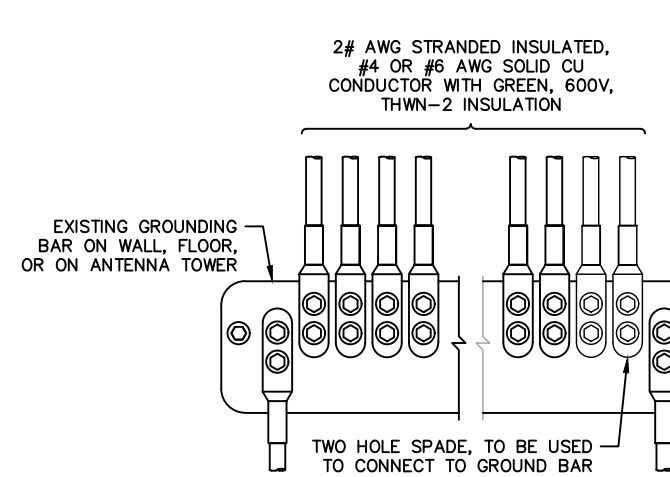
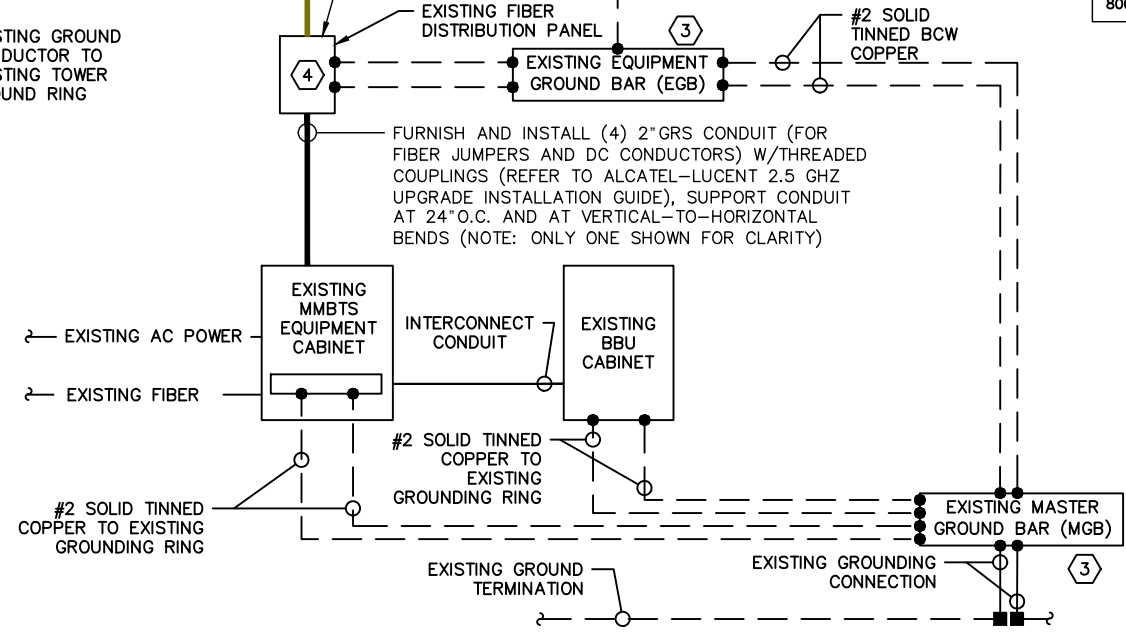
1900 MHZ RRH SPECIFICATIONS	
MANUF.	NOKIA (ALU)
MODEL #	1900 4X45 65MHZ
HEIGHT	25"
WIDTH	11.1"
DEPTH	11.4"
WEIGHT	60± LBS

1900 MHz RRH (EXISTING TO BE RELOCATED) NO SCALE 6





- SPECIAL WORK NOTE:**
1. G.C. TO FURNISH AND INSTALL ALL COMPONENTS TO UPGRADE EXISTING ELECTRICAL SERVICE, CONDUIT, CONDUCTOR, PPC AND MCB IN ACCORDANCE WITH SPRINT CONSTRUCTION STANDARDS NV 2.5 ADDENDUM "ENGINEERING NOTICE 2013-002 (POWER UPGRADES) REV.0" (OR CURRENT VERSION)
  2. G.C. TO FURNISH AND INSTALL UPGRADE THE EXISTING MMBTS BREAKER, CONDUCTOR, AND CONDUIT TO A MINIMUM NEC RATING.
  3. FOR NEW OR REPAIRED GROUNDING EQUIPMENT, REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):  
 -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)  
 -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)
  4. USE SPARE DC CABLES COILED UP AT TOWER TOP NV ARRAY TO POWER UP 2.5 RRH. INSIDE EXISTING FIBER DISTRIBUTION BOX, TIE SPARE DC CONDUCTORS INTO EXISTING DC BREAKER PANEL PER APPROVED DC WIRING CONNECTIVITY OPTION (BASED ON NV HYBRIFLEX CABLE LENGTH). CONSULT WITH SPRINT CM TO DETERMINE APPROPRIATE DC CONNECTIVITY OPTION, PLUMBING DIAGRAM AND DC BREAKER SIZE.



1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.  
 2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSPECTION WINDOW REQUIRED FOR ALL INTERIOR TWO-HOLE CONNECTORS

EXTERNAL TOOTHED

3/8"Øx1 1/2"

S/S NUT

S/S LOCK WASHER

S/S FLAT WASHER

APPLY NO-OX

S/S FLAT WASHER

S/S BOLT (1 OF 2)

TINNED COPPER GROUNDING BAR

COLD SHRINK OR APPROVED EQUAL

BUTT CONDUCTOR INSULATION UP AGAINST THE CONNECTOR BARREL

COLD SHRINK OR APPROVED EQUAL

1" MIN

1/4" MIN

- PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES:**
1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250—GROUNDING AND BONDING.
  2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
  3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
  4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
  5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
  6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
  7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
  8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
  9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
  10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
  11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
  12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
  13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
  14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING, CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
  15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
  16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
  17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
  18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):  
 -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)  
 -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)

PLANS PREPARED FOR:

1 INTERNATIONAL BLVD, SUITE 800  
 MAHWAH, NJ 07495  
 TEL: (800) 357-7641

PROJECT MANAGER:

SBA COMMUNICATIONS CORP.  
 134 FLANDERS ROAD, SUITE 125  
 WESTBOROUGH, MA 01581  
 TEL: (508) 251-0720

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 Phone: 518-690-0790 | Fax: 518-690-0793  
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 JOB NUMBER 526-104

ENGINEERING LICENSE:

STATE OF CONNECTICUT  
 CHRISTOPHER J. WARREN  
 No. 23544  
 4-10-18  
 PROFESSIONAL ENGINEER

CHECKED BY:

APPROVED BY:

REVISIONS	DESCRIPTION	DATE	BY	REV.
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ISSUED FOR REVIEW		01/18/18	RCD	A

SITE NUMBER:

**CT33XC060**

SITE ADDRESS:

160 WITCH MEADOW ROAD  
 SALEM, CT 06420

SHEET DESCRIPTION:

**ELECTRICAL & GROUNDING DETAILS**

SHEET NUMBER:

**E-1**

Site Identification	
Cascade	CT33XC060
SMS Schedule ID	12323214
SMS Schedule Name	DO Macro Upgrade
PID	
RRU OEM	ALU
Switch OEM	Alcatel Lucent
RFDS Issue Date	2017-08-15 00:00:00.0
RFDS Revision Date	2017-10-20 10:03:52.0
RFDS Revision	3

Filter Analysis Complete	YES
RFDS - Issue Date	08/15/2017
Design Status	Complete

Project Description	DO Macro Upgrade - Add 800MHz (3G + 4G) and 2500 MHz
---------------------	--

Contact Information	
Engineer Email	Bill.M.Hastings@sprint.com
Sprint Badged RF Engineer	Bill Hastings
RF Engineer Email	Bill.M.Hastings@sprint.com
RF Engineer Phone	978-590-9700
RF Manager	Jonathan Hull
RF Manager Email	Jonathan.B.Hull@sprint.com
RF Manager Phone	617-233-2920

Carrier Count	
2500 LTE	3
1900 LTE	1
1900 EVDO	
1900 Voice	1
800 LTE	1
800 Voice	1

Location Details	
Latitude	41.50283
Longitude	-72.29706
Market	Northern Connecticut
Region	Northeast
City	Salem
State	CT
Zip Code	CT/06420
County	New London

2500MHz	3
1900MHz	3
800MHz	3

Band:	2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
<b>Radio Model</b>							
Model Number	TD-RRH8x20-25	TD-RRH8x20-25	TD-RRH8x20-25	N/A	N/A	N/A	N/A
Weight (lbs)	76.2	76.2	76.2	N/A	N/A	N/A	N/A
Dimensions	26 x 18.6 x 6.7	26 x 18.6 x 6.7	26 x 18.6 x 6.7	N/A	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A	N/A
Number of RRUs needed	1	1	1	0	0	0	0

<b>Trunk Cable 1</b>							
Model Number	Hybriflex	N/A	N/A	N/A	N/A	N/A	N/A
Weight (Lbs.)	1	N/A	N/A	N/A	N/A	N/A	N/A
Dimensions (In.)	1.54	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturer	ALU	N/A	N/A	N/A	N/A	N/A	N/A

Band:	800	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
<b>Radio Model</b>							
Model Number	RRH-2x50-800	RRH-2x50-800	RRH-2x50-800	N/A	N/A	N/A	N/A
Weight (lbs)	69.1	69.1	69.1	N/A	N/A	N/A	N/A
Dimensions	16 x 13 x 10	16 x 13 x 10	16 x 13 x 10	N/A	N/A	N/A	N/A
Manufacturer	ALU	ALU	ALU	N/A	N/A	N/A	N/A
Number of RRUs needed	2	2	2	0	0	0	0

Band:	2500	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
<b>Antenna1</b>							
Model Number	APXVTM14-ALU-I20	APXVTM14-ALU-I20	APXVTM14-ALU-I20				
Weight (lbs)	56.2	56.2	56.2	N/A	N/A	N/A	N/A
Dimensions	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	56.3 x 12.6 x 6.3	N/A	N/A	N/A	N/A
Manufacturer	RFS	RFS	RFS	N/A	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	2.5 Jumper   8	2.5 Jumper   8	2.5 Jumper   8	N/A   0	N/A   0	N/A   0	N/A   0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A	N/A
Antenna 1 Azimuth	330	90	210	N/A	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	194.9475128	194.9475128	194.9475128	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT	2	2	2	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Band:	1900	Alpha	Beta	Gamma	Delta	Epsilon	Zeta
<b>Antenna1</b>							
Model Number	NNVV-65B-R4	NNVV-65B-R4	NNVV-65B-R4				
Weight (lbs)	84.7	84.7	84.7	N/A	N/A	N/A	N/A
Dimensions	72 x 19.6 x 7.8	72 x 19.6 x 7.8	72 x 19.6 x 7.8	N/A	N/A	N/A	N/A
Manufacturer	CommScope	CommScope	CommScope	N/A	N/A	N/A	N/A
Ant1 Top Jumper Make/Mode/Qty	800/1900 Jumper   4	800/1900 Jumper   4	800/1900 Jumper   4	N/A   0	N/A   0	N/A   0	N/A   0
Ant 1 RF requested Diameter	1/2"	1/2"	1/2"	N/A	N/A	N/A	N/A
Ant 1 RF requested Top Jumper Length(ft)	8	8	8	N/A	N/A	N/A	N/A
Antenna 1 Azimuth	330	90	210	N/A	N/A	N/A	N/A
Antenna 1 Mechanical DT	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Center Line (ft)	194.9475128	194.9475128	194.9475128	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT	3	3	3	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Electrical DT 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antenna 1 Twist	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Additional RF Notes Special Construction Requirements  
 10/10/2017 (WR): RFDS revised to modify RRU location to "GM to Standard".

PLANS PREPARED FOR:

1 INTERNATIONAL BLVD, SUITE 800  
 MAHAH, NJ 07495  
 TEL: (800) 357-7641

PROJECT MANAGER:

SBA COMMUNICATIONS CORP.  
 134 FLANDERS ROAD, SUITE 125  
 WESTBOROUGH, MA 01581  
 TEL: (508) 251-0720

PLANS PREPARED BY:

FROM ZERO TO INFINIGY  
 the solutions are endless

1033 Watervliet Shaker Rd | Albany, NY 12205  
 Phone: 518-690-0790 | Fax: 518-690-0793  
 www.infinigy.com  
 JOB NUMBER: 526-104

ENGINEERING LICENSE:

CHECKED BY:

APPROVED BY:

REVISIONS	DESCRIPTION	DATE	BY	REV.
	ISSUED FOR CONSTRUCTION	04/10/18	SL	0
	ISSUED FOR REVIEW	01/18/18	RCD	A

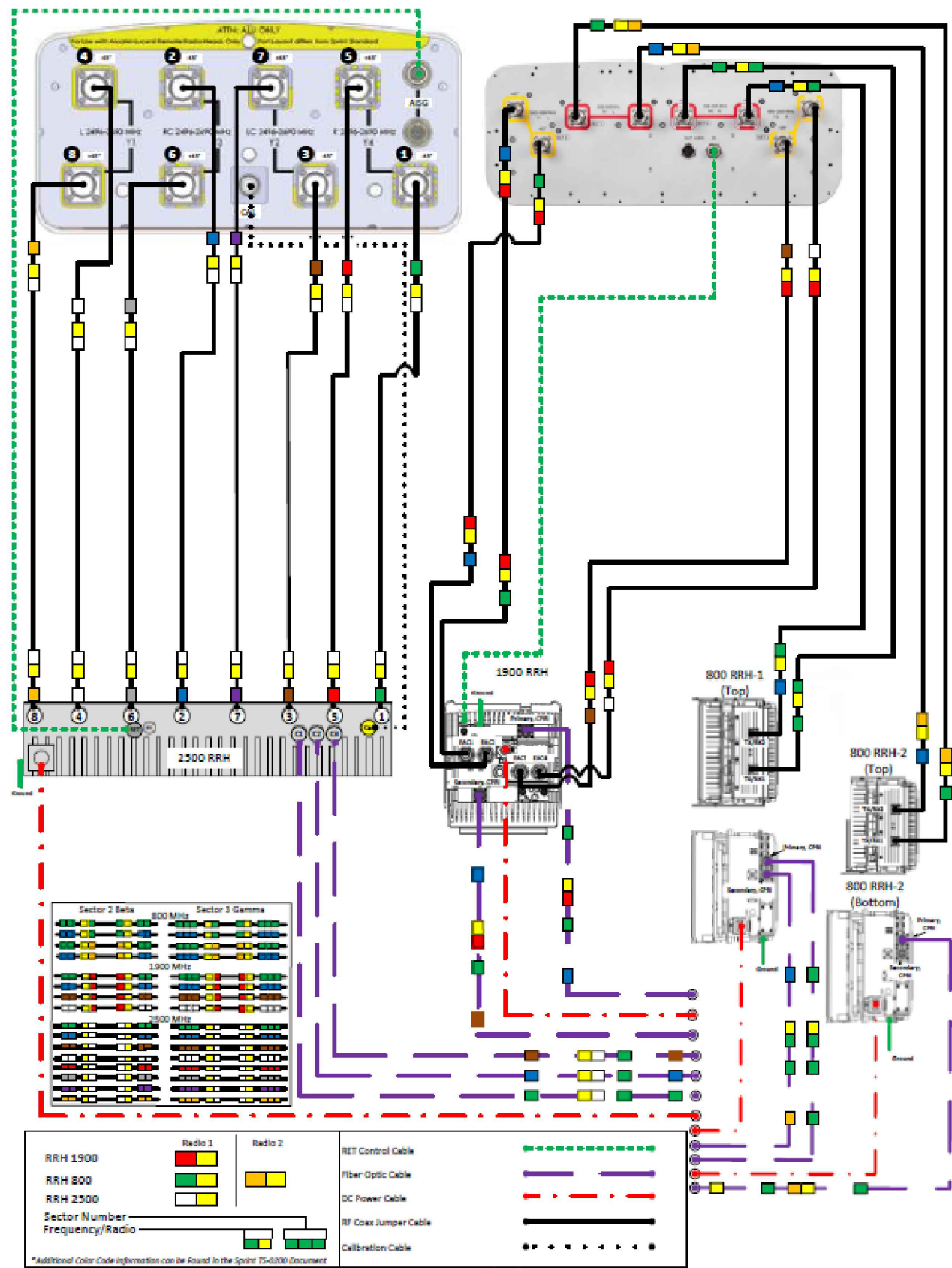
SITE NUMBER:  
**CT33XC060**

SITE ADDRESS:  
 160 WITCH MEADOW ROAD  
 SALEM, CT 06420

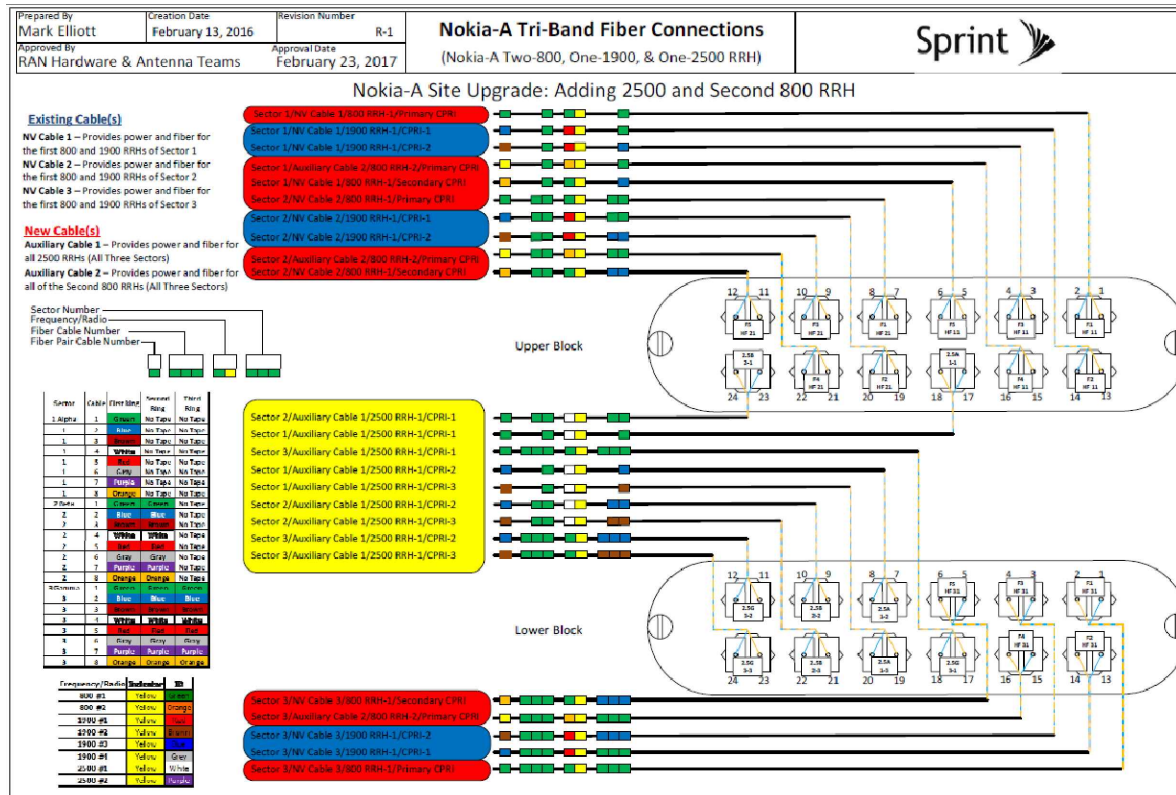
SHEET DESCRIPTION:  
**RF DATA SHEET**

SHEET NUMBER:  
**RF-1**

# ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



Not to Scale



PLANS PREPARED FOR:

1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07495  
TEL: (800) 357-7641

PROJECT MANAGER:

SBA COMMUNICATIONS CORP.  
134 FLANDERS ROAD, SUITE 125  
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CHECKED BY:

APPROVED BY:

REVISIONS:	DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION		04/10/18	SL	0
ISSUED FOR REVIEW		01/18/18	RCD	A

SITE NUMBER:  
**CT33XC060**

SITE ADDRESS:  
160 WITCH MEADOW ROAD  
SALEM, CT 06420

SHEET DESCRIPTION:  
**PLUMBING DIAGRAM**

SHEET NUMBER:

**RF-2**

# CT33XC060 DO MACRO EQUIPMENT DEPLOYMENT

## MOUNT AUGMENTATION @ 195'

MONOPOLE TOWER

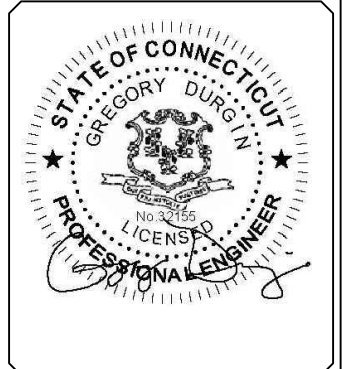
SALEM, CT  
NEW LONDON COUNTY



REVISIONS:			
0	04/15/18	ISSUE FOR CONSTRUCTION	JAD

CHECKED BY: DWG

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SITE INFORMATION:  
MOUNT AUGMENTATION  
  
CT33XC060  
  
SALEM, CT  
LATITUDE: 41.502828  
LONGITUDE: -72.297052

SHEET TITLE:  
  
TITLE SHEET

SHEET NUMBER:  
**S1**

### SITE INFORMATION

STRUCTURE TYPE: MONOPOLE  
MOUNT TYPE: T-ARMS  
LATITUDE: 41.502828 (NAD 83)  
LONGITUDE: -72.297052 (NAD 83)  
CITY, STATE: SALEM, CT  
COUNTY: NEW LONDON  
SBA SITE: CT01916-S North Salem  
COORDINATES ARE FOR NAVIGATIONAL PURPOSES ONLY, NOT TO 1A ACCURACY.

### 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 THE LABOR & MATERIALS FOR THE DISCREPANCIES.

### CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

BUILDING CODE AND DESIGN STANDARD: 2012 IBC / TIA-222-G / 2016 CT

### RIGGING PLAN REQUIRED

THIS SET OF PLANS DOES "NOT" CONSTITUTE A RIGGING PLAN.  
  
A PROPER RIGGING PLAN SHALL BE PERFORMED BY A LICENSED PROFESSIONAL ENGINEER PRIOR TO PROCEEDING ON ANY AUGMENTATIONS SHOWN HEREIN.

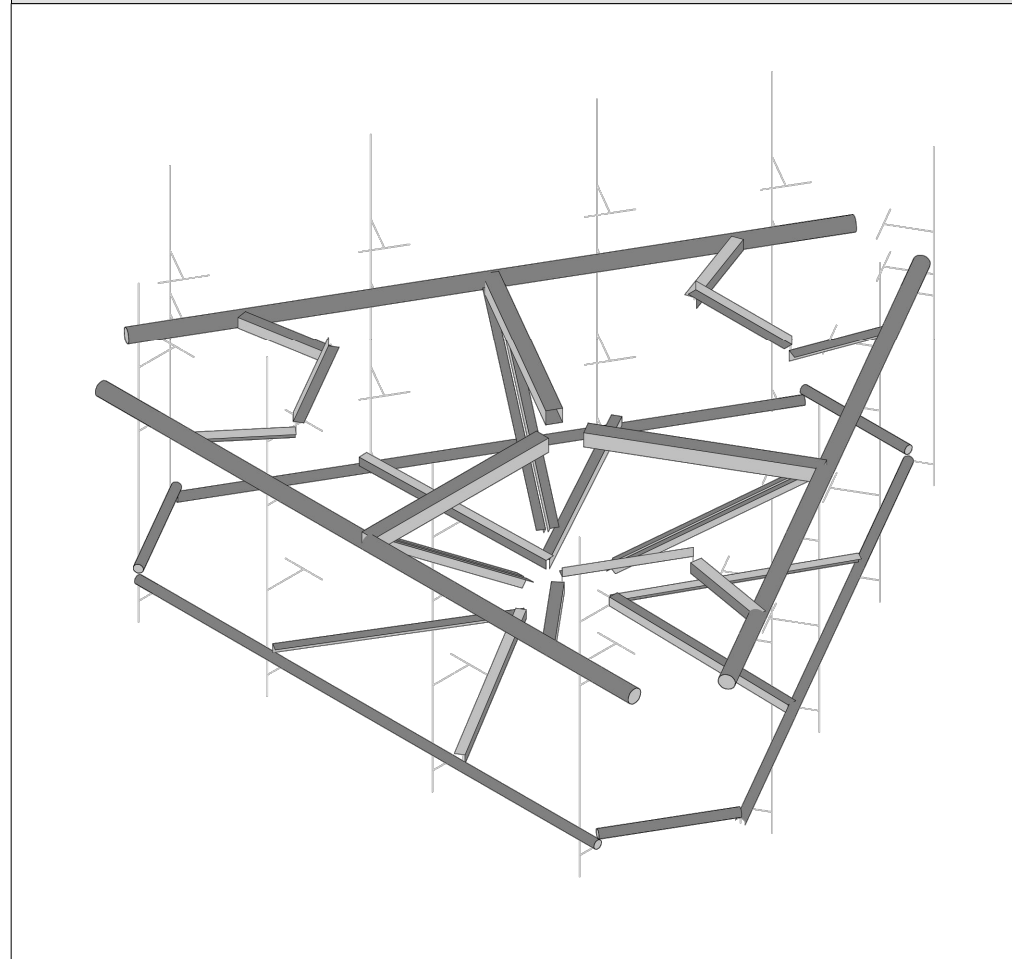
### GENERAL DESIGN NOTES

- THIS PLAN HAS BEEN DESIGNED UTILIZING THE CORRESPONDING MOUNT STRUCTURAL ANALYSIS.
- THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222, ASCE 7, AWS, ACI, AND AISC. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE-MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
- ALL STRUCTURE INFORMATION OBTAINED IN THE FORM OF FROM INFORMATION PROVIDED BY THE CLIENT. CONTRACTOR SHALL OBTAIN AND BECOME FAMILIAR WITH THE REFERENCED DOCUMENTS. CONTRACTOR SHALL ISSUE A REQUEST FOR INFORMATION (RFI) IN THE EVENT ANY DISCREPANCIES ARE DISCOVERED BETWEEN THESE DOCUMENTS AND THE AS-BUILT CONDITIONS IN THE FIELD IN A SITE VISIT THAT SHALL BE PERFORMED PRIOR TO STARTING FABRICATION OR CONSTRUCTION.
- ALL MATERIALS UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS.
- ALL PRODUCT OR MATERIAL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER SUITABLE TO DETERMINE IF SUBSTITUTE IS ACCEPTABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- PROVIDE STRUCTURAL STEEL SHOP DRAWING(S) TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION (ONLY IF SPECIFICALLY REQUESTED BY ENGINEER).
- UNLESS NOTED OTHERWISE, ALL NEW MEMBERS AND REINFORCING SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
- ANY CONTRACTOR-CAUSED DAMAGE TO PROPERTY OF THE LAND OWNER, PROPERTY OF THE STRUCTURE OWNER, PROPERTY OF THE CUSTOMER, SITE FENCING OR GATES, ANY AND ALL UTILITY AND/OR SERVICE LINES, SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT THE SOLE COST OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED BY THE CONTRACTOR OR SUBCONTRACTOR AS APPROVED BY THE ENGINEER OF RECORD AND LAND OWNER. DAMAGE TO EQUIPMENT OR PROPERTY OF ANY KIND BELONGING TO OTHER COMPANIES (BESIDES THE INDICATED CUSTOMER) SHALL BE ADDRESSED BY THE CONTRACTOR WITH THE COMPANIES THAT OWN THE DAMAGED ITEMS.

### SHEET INDEX

SHEET	DESCRIPTION
S-1	TITLE SHEET
S-2	NOTES AND SPECIFICATIONS
S-3	AUGMENTATIONS, SECTIONS & DETAILS

### MOUNT AUGMENTATION CONFIGURATION



### AUGMENTATION SCOPE

AUGMENT ALL SECTORS OF CARRIER'S EXISTING MOUNT INSTALLATION AS REQUIRED (UNLESS NOTED OTHERWISE)

### CONTRACTOR NOTES

- PRIOR TO BEGINNING CONSTRUCTION, ALL CONTRACTORS AND SUBCONTRACTORS MUST ACKNOWLEDGE IN WRITING TO TOWER OWNER THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW STRUCTURE OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND STRUCTURE/TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED AUGMENTATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGEMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR STRUCTURE OWNER ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM ANY SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO THE STRUCTURE OWNER.
- IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE AUGMENTATIONS, THE ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
- THE CONTRACTOR SHALL SOLICIT AND HIRE THE SERVICES OF A QUALIFIED AUGMENTATION INSPECTOR PRIOR TO BEGINNING CONSTRUCTION. THE AUGMENTATION INSPECTOR MAY BE AN EMPLOYEE OF THE CONTRACTOR'S FIRM, HOWEVER THE INSPECTOR'S ONLY DUTIES SHALL BE INSPECTION, TESTING, AND REPORT CREATION AS REQUIRED ON THE "AUGMENTATION INSPECTION NOTES" SHEET.
- THE CONTRACTOR SHALL NOTIFY THE TOWER OWNER OF THE PLANNED CONSTRUCTION & INSPECTION SCHEDULE, AS WELL AS ANY CHANGES TO THE SCHEDULE, WITHIN TWO BUSINESS DAYS OF THE COMPLETION OF THE SCHEDULE OR SCHEDULE REVISION BOTH PRIOR TO BEGINNING CONSTRUCTION AND DURING CONSTRUCTION AS THE SCHEDULE CHANGES. THE STRUCTURE OWNER WHEN THE WORK HAS BEEN COMPLETED WITHIN 2 BUSINESS DAYS OF THE COMPLETION OF THE WORK AND ASSOCIATED AUGMENTATION INSPECTIONS & TESTING (WHEN APPLICABLE).
- IT IS ASSUMED THAT ANY STRUCTURAL AUGMENTATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE STRUCTURE OWNER AND ENGINEER INCLUDING BUT NOT LIMITED TO TOWER CLIMBER AND RESCUE CLIMBER CERTIFICATIONS, ET CETERA.
- 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.
- CONTRACTOR SHALL WORK WITHIN THE LIMITS OF THE STRUCTURE OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.

### STRUCTURAL ERECTION AND BRACING REQUIREMENTS

- THE STRUCTURAL DRAWINGS ILLUSTRATE THE COMPLETED STRUCTURE WITH ALL ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED.
- THE CONTRACTOR SHALL PROVIDE SHORING AND BRACING AS REQUIRED DURING CONSTRUCTION TO ENSURE STABILITY. DESIGN AND SEQUENCING OF CONSTRUCTION SHORING AND BRACING IS OUTSIDE THE SCOPE OF THIS WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, GUYING, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.

### BOLTS

- ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED GALVANIZED HIGH STRENGTH ASTM A325 OR A490 BOLTS WITH THREADS EXCLUDED FROM SHEAR PLANE.
- FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES, WITH BOLT HEADS FACING DOWN WHERE APPLICABLE.
- ALL BOLTS AT EVERY CONNECTION SHALL BE INSTALLED SNUG-TIGHT UNTIL THE SECTION IS FULLY COMPACTED AND ALL PLIES ARE JOINED, AND THEN TIGHTENED FURTHER BY AISC - "TURN OF THE NUT" METHOD. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
- BOLT LENGTHS UP TO AND INCLUDING 4 DIAMETERS SHALL BE TENSIONED 1/3 TURN BEYOND SNUG-TIGHT. BOLT LENGTHS OVER 4 DIAMETERS SHALL BE 1 1/2 TURNS BEYOND SNUG-TIGHT.
- ALL BOLTED CONNECTIONS SHALL USE LOCK WASHERS.

### STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC STEEL CONSTRUCTION MANUAL AND SECTION 4 OF THE TIA CODE.
- PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING MINIMUM GRADES UNLESS OTHERWISE NOTED:
  - CHANNELS & ANGLES ..... ASTM A36, (Fy = 36 KSI)
  - PLATES ..... ASTM A36, (Fy = 36 KSI)
  - PIPES ..... ASTM A53 GR.B, (Fy = 35 KSI)
  - HSS ROUND ..... ASTM A500 GR.B, (Fy = 42 KSI)
  - HSS RECTANGULAR ..... ASTM A500 GR.B, (Fy = 46 KSI)
  - STRUCTURAL BOLTS ..... ASTM A325
  - U-BOLTS ..... ASTM A307 GR.A
  - NUTS FOR BOLTS ..... ASTM A563 (THREADING TO MATCH BOLT)
  - WASHERS FOR BOLTS ..... ASTM F436
  - SEE TABLE 5-1 OF THE TIA CODE FOR ADDITIONAL SHAPES AND STANDARDS THAT ARE NOT LISTED ABOVE.
- NON PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS PER THE TIA CODE:
  - THE CARBON EQUIVALENT OF STEEL SHALL NOT EXCEED 0.65 PER SECTION 5.4.2 OF THE TIA CODE
  - ELONGATION OF STEEL SHALL NOT BE LESS THAN 18%
  - TEST REPORTS SHALL BE IN ACCORDANCE WITH ASTM A6 OR A568
  - TOLERANCES SHALL BE IN ACCORDANCE WITH ASTM A6
- FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH AND COLD GALVANIZED.
- ALL WELDING WORK SHALL CONFORM TO THE AWS D1.1 STRUCTURAL WELDING CODE. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS ONLY. WELDING ELECTRODES SHALL BE E70XX.
- ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO AISC SPECS AND CODES, LATEST EDITION.
- UPON REQUEST, THE CONTRACTOR SHALL SUBMIT DETAILED, ENGINEERED, COORDINATED AND CHECKED SHOP DRAWINGS FOR ALL STRUCTURAL STEEL TO THE ENGINEER OF RECORD TO REVIEW FOR COMPLIANCE WITH DESIGN INTENT PRIOR TO THE START OF FABRICATION AND/OR ERECTION.
- TORCH-CUTTING OF ANY KIND SHALL NOT BE PERMITTED.
- ALL BOLT HOLES SHALL BE STANDARD SIZE BOLT HOLES PER AISC 360, UNLESS OTHERWISE NOTED. ALL HOLES SHALL BE SHOP DRILLED OR SUB-PUNCHED AND REAMED. BURNING OF HOLES IS NOT PERMITTED. WHERE SLOTTED OR OVERSIZE HOLES ARE SPECIFIED ON THE DRAWINGS, EXTRA-THICK ASTM F436 PLATE WASHERS SHALL BE USED (3/16" MINIMUM THICKNESS) WITH A DIAMETER SUITABLE TO COVER THE EXTENTS OF THE SLOT OR HOLE. BOLTS SHALL BE HEAVY-HEX WHERE AVAILABLE IN THE SIZE AND GRADE SPECIFIED, OTHERWISE BOLTS SHALL BE HEX HEAD CAP SCREWS.
- ALL STEEL HARDWARE, INCLUDING ADHESIVE OR EMBEDDED ANCHOR BOLTS AND THEIR ACCESSORIES, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 (EXCEPT BOLTS SMALLER THAN 1/2" SHALL CONFORM TO FE/ZN 3 AT PER ASTM F1941 WHERE HOT-DIP GALVANIZED BOLTS ARE NOT AVAILABLE). ALL STEEL MEMBERS, INCLUDING WELDMENTS, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 PROCEDURES WITH A ZINC RICH PAINT (SUCH AS ZINC GALVILITE) FOR GALVANIZING DAMAGED BY HANDLING, TRANSPORTING, CUTTING, WELDING, OR BOLTING. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED. CALL OUT HOLES REQUIRED FOR HOT-DIP GALVANIZING ON SHOP DRAWINGS.
- MEMBERS SHALL BE SHOP-FABRICATED AND WELDED TO THE EXTENT PRACTICABLE IN ORDER TO REDUCE FIELD INSTALLATION COSTS.

### CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	CONSTRUCTION INSPECTIONS
	THIRD-PARTY CERTIFIED WELD INSPECTION (INCLUDING IBC SPECIAL INSPECTIONS)
√	GALVANIZING REPAIR MATERIAL PREPARATION, INSPECTION, & PAINT APPLICATION
√	PRIME CONTRACTOR'S AS-BUILT DOCUMENTS (SIGNED & DATED)
√	FABRICATION INSPECTION
√	MATERIAL TEST REPORT(S) / MILL CERTIFICATE(S)
√	PACKING SLIPS FOR STRUCTURAL MATERIALS

### NOMINAL HOLE DIMENSIONS

BOLT Ø	STANDARD HOLE Ø
1/2"Ø	9/16"Ø
5/8"Ø	11/16"Ø
3/4"Ø	13/16"Ø
7/8"Ø	15/16"Ø
1"Ø	1 1/8"Ø

**Sprint**

1 INTERNATIONAL BLVD., SUITE 800  
MAHWAH, NJ 07495  
P: 800.357.7641

**SBA**

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E: CONTACT@GEOSTRUCTURAL.COM  
WWW.GEOSTRUCTURAL.COM

### REVISIONS:

NO.	DATE	DESCRIPTION	BY
0	04/15/18	ISSUE FOR CONSTRUCTION	JAD

### CHECKED BY:

DWG

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### SITE INFORMATION:

MOUNT AUGMENTATION

CT33XC060

SALEM, CT

LATITUDE: 41.502828  
LONGITUDE: -72.297052

### SHEET TITLE:

NOTES AND SPECIFICATIONS

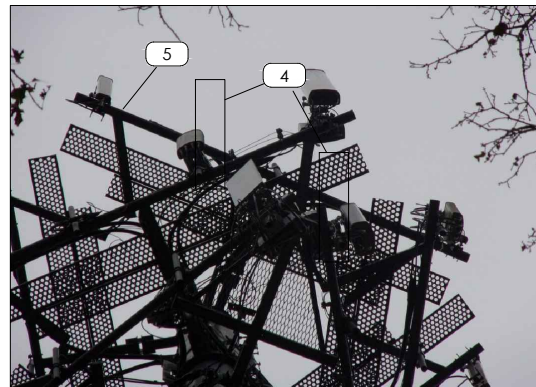
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S2

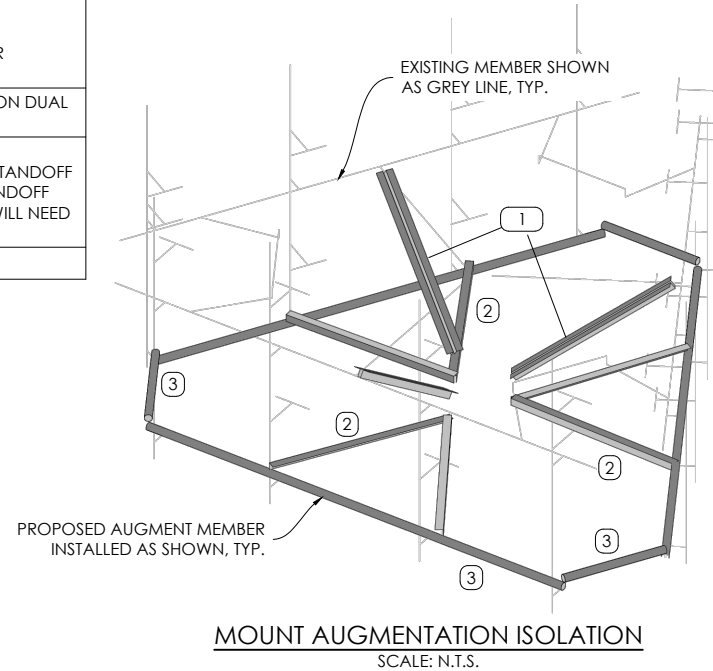


### NEW MOUNT AUGMENTATIONS

1. PLATFORM REINFORCEMENT KIT  
SITEPRO1 PART# PRK-1245L. ATTACH PRK COLLAR TO MONOPOLE SHAFT ~3.0' BELOW EXISTING STANDOFF CENTERLINE AND DOUBLE ANGLE KICKER BRACKET TO STANDOFF MEMBER END NEAR THE FACE RAIL OF THE MOUNT AS SHOWN PER MANUF. SPECS. [(1) KIT TOTAL]
  2. HANDRAIL COMPONENTS - V-BRACE KIT  
SITEPRO1 PART# PRK-SFS-H-L. ATTACH COLLAR MOUNT TO MONOPOLE SHAFT ~4.0' BELOW EXISTING STANDOFF CENTERLINE. NOTE: IF THE PRK-SFS-H-L KIT IS NOT AVAILABLE, PROVIDE (6) TOTAL L2½x2½x¼ x ~8' LONG REPLACEMENT ANGLES, FIELD-CUT AND DRILL TO SUIT. [(1) KIT TOTAL]
  3. HANDRAIL COMPONENTS  
• PIPE2.0STD X 12.5' HORIZ. RAIL, [(3) TOTAL]. ATTACH SFS-H-L KIT ANGLES TO NEW HORIZ. RAIL.  
• PIPE2.0STD X ~4' LONG CORNER BRACES, [(3) TOTAL]. ATTACH TO NEW HORIZ. RAIL W/ (6) SITEPRO1 PART# PUCK BRACKETS.  
• PIPE2.0STD MOUNT PIPES, [(12) TOTAL] W/ SITEPRO1 SCX-x-K, [(24) TOTAL] CROSS-OVER PLATES. ATTACH ALL MOUNT PIPES TO EXISTING AND NEW HORIZ. RAILS.
  4. PANEL ANTENNAS TO BE INSTALLED IN POSITIONS 2 AND 3. RRH UNITS TO BE INSTALLED ON DUAL SWIVEL BRACKETS BEHIND PANEL ANTENNAS IN POSITIONS 2 AND 3.
  5. NOTE: IN ORDER FOR THE SPECIFIED MODIFICATIONS TO PERFORM AS DESIGNED AND TO "FIT-UP" THE EXISTING NUDD T-ARM MOUNTS MUST BE APPROPRIATELY ROTATED ON STANDOFF MEMBER SUCH THAT THEY ARE PERPENDICULAR TO THE FACE OF THE TOWER (T-ARM STANDOFF TUBE AND COLLAR STANDOFF MEMBER TO BE COLINEAR). PANEL ANTENNA AZIMUTHS WILL NEED TO BE ADJUSTED TO OBTAIN DESIRED AZIMUTHS.
- AUGMENTATIONS SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF ANY NEW EQUIPMENT.

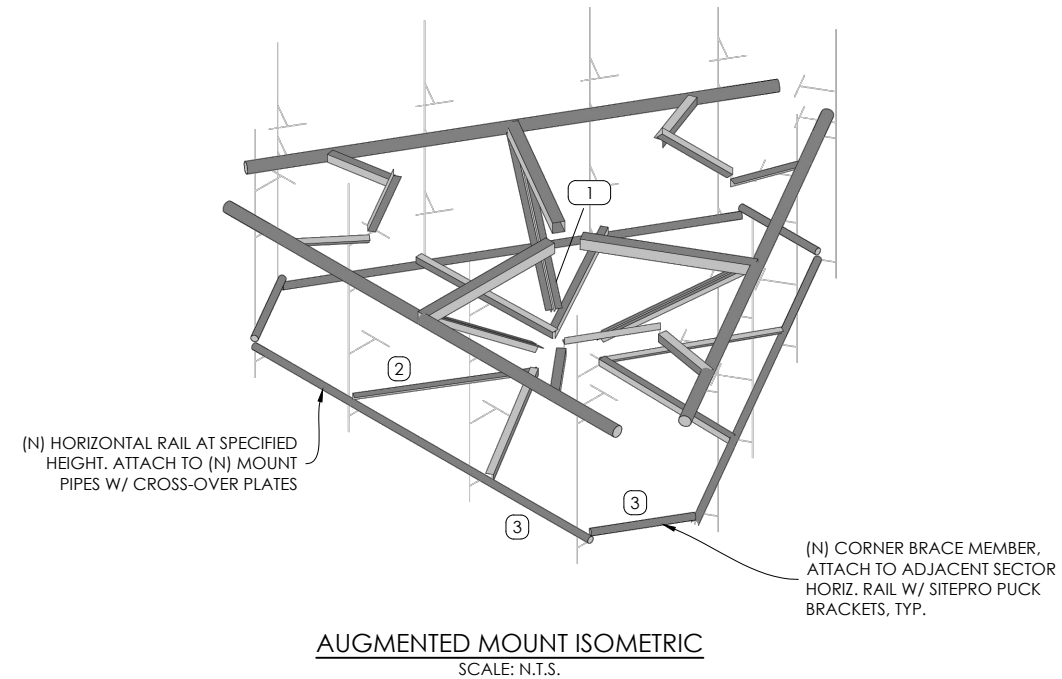


### T-ARMS @ 195' AUGMENTATION



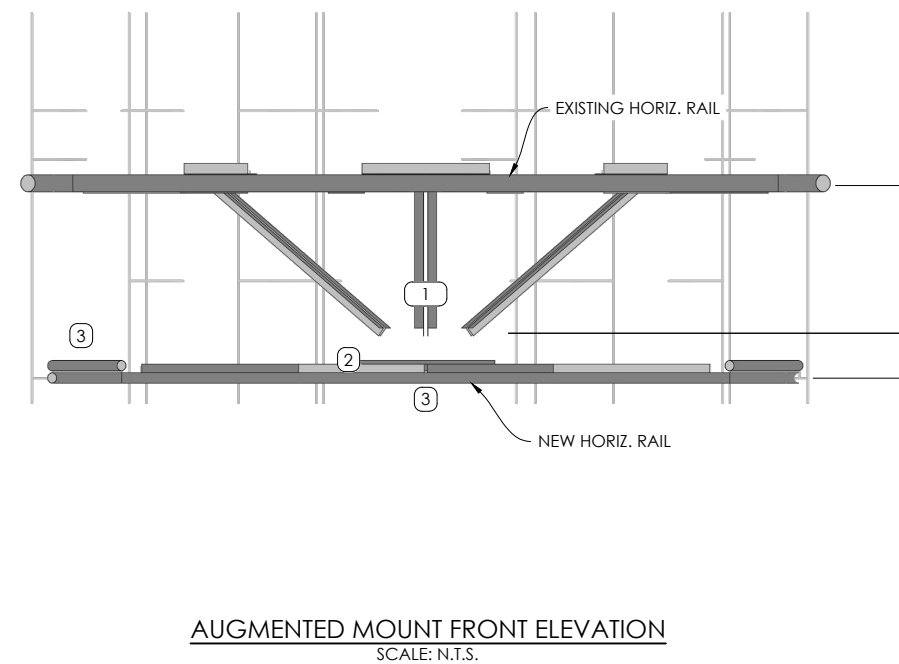
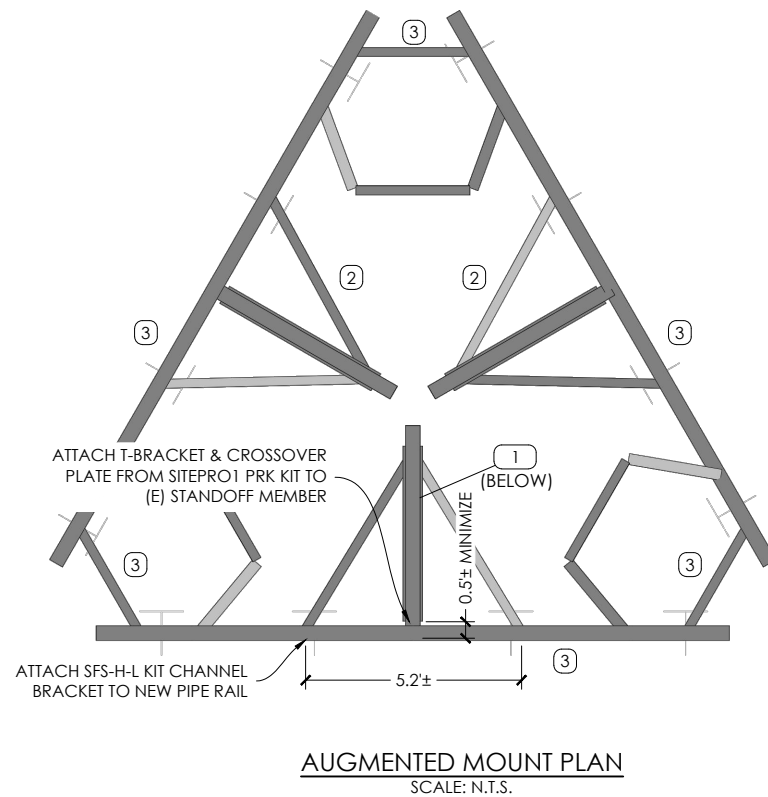
### CONSTRUCTION NOTES

1. SCOPE OF WORK MUST BE COMPLETED AT WIND SPEEDS < 20 MPH.
2. ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHOULD FIELD-VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK. FIELD CUT MEMBERS AS REQUIRED.
3. CONTRACTOR TO COORDINATE THE TEMPORARY REMOVAL/RELOCATION/REPLACEMENT OF ELEMENTS (E.G. COAX, CLIPS, TMAs, ETC.) CONNECTED TO, OR IN THE DIRECT PATH, OF NEW AUGMENTATION MEMBERS.



### INSTALLATION NOTES

1. AUGMENT MEMBER(S) MAY NEED TO BE FIELD-CUT TO LENGTH TO ACCOMMODATE THIS INSTALLATION. CONTRACTOR TO CUT AND DRILL TO SUIT AS REQUIRED AND APPLY (2) COATS OF COLD-GALV. COMPOUND TO CUT MEMBER ENDS.
2. CONTRACTOR TO CHECK ALL EXISTING MEMBER CONNECTION BOLTS, PARTICULARLY STANDOFF TO TOWER BOLTS, FOR PROPER INSTALLATION AND TIGHTNESS.
3. COORDINATE PLACEMENT OF NEW AUGMENT MEMBERS WITH EXISTING TOWER AND CLIMBING FACILITY ELEMENTS (E.G. STEP PEGS, COAX PORTS, ETC.)
4. REFER TO CONSTRUCTION DRAWINGS (BY OTHERS) AND MOUNT STRUCTURAL ANALYSIS FOR APPROVED INSTALLATION LOCATIONS AND QUANTITIES OF APPURTENANCES.

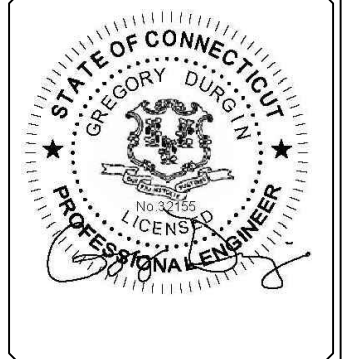


REVISIONS:

NO.	DATE	DESCRIPTION	BY
0	04/15/18	ISSUE FOR CONSTRUCTION	JAD

CHECKED BY: DWG

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SITE INFORMATION:  
**MOUNT AUGMENTATION**  
CT33XC060  
SALEM, CT  
LATITUDE: 41.502828  
LONGITUDE: -72.297052

SHEET TITLE:  
**AUGMENTATIONS, SECTIONS & DETAILS**

SHEET NUMBER:  
**S3**