Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

August 15, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown #842862; ATT Site ID CTL05048
259 Commerce Street, East Haven, CT 06512
Latitude: 41° 15′ 22.88″ / Longitude: -72° 52′ 32.80″

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 55-foot level of the existing 58-foot monopole tower at 259 Commerce Street, East Haven, CT. The tower is owned by Crown Castle USA Inc. and the property is owned by Stephen J. Viglione. AT&T now intends to replace six (6) antennas, relocate three (3) existing antennas, install nine (9) new antennas and ancillary equipment at the 55-foot level. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:

(6) Ericsson-AIR6449 B77D + AIR6419 B77G Stacked Antennas x/integrated RRH
(3) CCI-TPA65R-BU6DA-K Antennas
(3) Ericsson-4478 B14 RRH
(3) Back to Back Mounts
(6) VALMONT-PM1 Standoff Mounts
(6) (SCH 4) Galv. Mount Pipe w/associated hardware
(6) Y CABLES

Remove:

(3) QUINTEL-QS66512-6 Antennas
(3) KATHREIN-800-10121 Antennas
(6) POWERWAVE TECH-LGP21401 TMA

Ground:

Install New:

(6) Rectifiers
(5) 170AH Battery Strings
(1) Battery Cabinet
(1) 6648 with XCEDE Cable

Remove:

(2) 150AH Battery Strings
(6) LGP 21901 Diplexers
(1) UMTS Cabinet
(1) 6601
(1) XMU

The facility was approved by the Siting Council in Petition Number 634 on July 8, 2003. No conditions were attached that would be impacted by this modification.

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 Honorable Joseph A. Carfora, Mayor of the Town of East Haven, Joseph Budrow, Zoning Enforcement Officer for the municipality, Stephen J. Viglione, the property owner and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification 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 Communication Commission safety standard.
5. The proposed modifications 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, ATT respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Domenica Tatasciore.

Sincerely,

Domenica Tatasciore
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(508) 621-9161/ Domenica.Tatasciore@crowncastle.com

Attachments
cc:

The Honorable Joseph A. Carfora, Mayor
Town of East Haven
250 Main Street
East Haven, CT 06512
(203) 468-3204

Joseph Budrow, Zoning Enforcement Officer
Town of East Haven
250 Main Street
East Haven, CT 06512
(203) 468-3349

Stephen J. Viglione
259 Commerce Street
East Haven, CT 06512
203-467-8388

Crown Castle, Tower Owner

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 777636130070: Your package has been delivered
Date: Tuesday, August 16, 2022 10:29:08 AM

Hi. Your package was delivered Tue, 08/16/2022 at 10:25am.

Delivered to 250 MAIN ST, EAST HAVEN, CT 06512
Received by R.RENEE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777636130070

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Town of East Haven Honorable Joseph A. Carfora, Mayor 250 Main Street EAST HAVEN, CT, US, 06512
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 8/15/2022 04:42 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	EAST HAVEN, CT, US, 06512
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 777636158072: Your package has been delivered
Date: Tuesday, August 16, 2022 10:29:05 AM

Hi. Your package was delivered Tue, 08/16/2022 at 10:25am.

Delivered to 250 MAIN ST, EAST HAVEN, CT 06512
Received by R.RENEE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777636158072

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Town of East Haven Joseph Budrow, Zoning Enforcement 250 Main Street EAST HAVEN, CT, US, 06512
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 8/15/2022 04:42 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	EAST HAVEN, CT, US, 06512
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 777636186164: Your package has been delivered
Date: Tuesday, August 16, 2022 10:23:58 AM

Hi. Your package was delivered Tue, 08/16/2022 at 10:22am.

Delivered to 259 COMMERCE ST, EAST HAVEN, CT 06512
Received by S.VIGLIONE

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777636186164

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Stephen Viglione 259 Commerce Street EAST HAVEN, CT, US, 06512
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 8/15/2022 04:42 PM
DELIVERED TO	Shipping/Receiving
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	EAST HAVEN, CT, US, 06512
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Petition No. 634
AT&T Wireless
East Haven, Connecticut
Staff Report
July 8, 2003

On June 10, 2003, Connecticut Siting Council (Council) member Philip T. Ashton and S. Derek Phelps of staff met with AT&T Wireless representatives at 259 Commerce Street in East Haven. Other persons in attendance were Lucia Chiocchio, Esq., of Cuddy & Feder LLP; Doug Frost, Engineering Technician, of NATCOMM, LLC; Kumar Rughoobur, RF Engineer, of WFI; Ray Vergati, Project Director, of Optasite, Inc.; and George Mingione, Planning and Zoning Administrator of the Town of East Haven. AT&T Wireless proposes to replace and expand an existing lattice tower and is petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the modification.

Specifically, AT&T Wireless proposes to replace and expand an existing 48' lattice tower (with a whip antenna extending to 61') with a 57' monopole to be relocated approximately 8' to 10' from the location of the existing tower. AT&T would attach six panel antennas on T-arms to the replacement tower. The property owner's whip antenna would not be reinstalled.

The existing lattice tower is located adjacent to the west side of the existing tower. The replacement monopole is 9' taller than the existing tower, but the overall height of the proposed facility will be approximately 1' lower in total height.

The proposed tower needs to be relocated approximately 8' to 10' from the location of the existing lattice tower for construction purposes. Associated equipment cabinets will be installed on a 7' x 13' concrete pad located at the base of the pole surrounded by an 8' vinyl stockade fence, which will be screened with 6' evergreen trees. The utilities will be installed underground.

At the request of the Council, AT&T Wireless wrote to six nearby residents on June 12, 2003, whose homes are within sight of the proposed tower location to advise them of the petition application. Those homeowners are: Antonio Rossano; Robert A. Esposito; Rita Compano; Phyllis Naqstri and Linda Lawson; Sebatiano and Maria DiBona; and Anne M. Fitzgerald. These persons were asked to forward comments to the Council by June 3, 2003. One resident, Rita Compano, sent a letter stating that she is not in favor of the petition primarily on the basis of concerns that it will adversely affect the property value of her home.

George Mingione, Planning and Zoning Administrator of the Town of East Haven, wrote to the Council in a letter dated June 11, 2003, stating that the town's preference is for vinyl fencing around the tower compound, not less than six feet tall, with evergreen plantings.

Town of East Haven, CT

Property Listing Report

Map Block Lot: 090 1013 005 | Building #: 1 | Unique Identifier: V0098600

Property Information

Property Location	259 COMMERCE ST
Mailing Address	259 COMMERCE ST EAST HAVEN CT 06512
Land Use	Light Industrial
Zoning Code	LI-2
Neighborhood	IS1

Owner	VIGLIONE STEPHEN J
Co-Owner	
Book / Page	0322/0838
Land Class	Industrial
Census Tract	1801000
Acreage	0.49

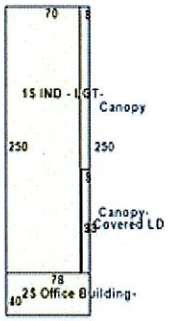
Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	806700	564690
Outbuildings	14200	9940
Land	114000	79800
Total	934900	654430

Utility Information

Electric	No
Gas	No
Sewer	Yes
Public Water	Yes
Well	No



Primary Construction Details

Year Built	1956
Building Desc.	Commercial
Building Style	
Stories	1
Exterior Walls	Concrete Block
Exterior Walls 2	B. V. Solid
Interior Walls	
Interior Walls 2	
Interior Floors 1	Tile
Interior Floors 2	

Heating Fuel	Gas
Heating Type	FHA
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	5
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Livable Area (ft)	23740
Building Use	Light Manu
Building Condition	Average
Frame Type	Average
Building Grade	0
Fireplaces	0
Wood Stoves	0
Attic Access	
Roof Style	
Roof Cover	

Bsmt Area	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Bsmt Access	
Bsmt Gar	0
Bsmt Sump Pump	No

Report Created On 8/10/2022

Town of East Haven, CT

Property Listing Report | Map Block Lot 090 1013 005 | Building # 1 | Unique Identifier V0098600

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Fencing	Fencing	400	Average	1956
Paving	Paving	12000	Average	1956

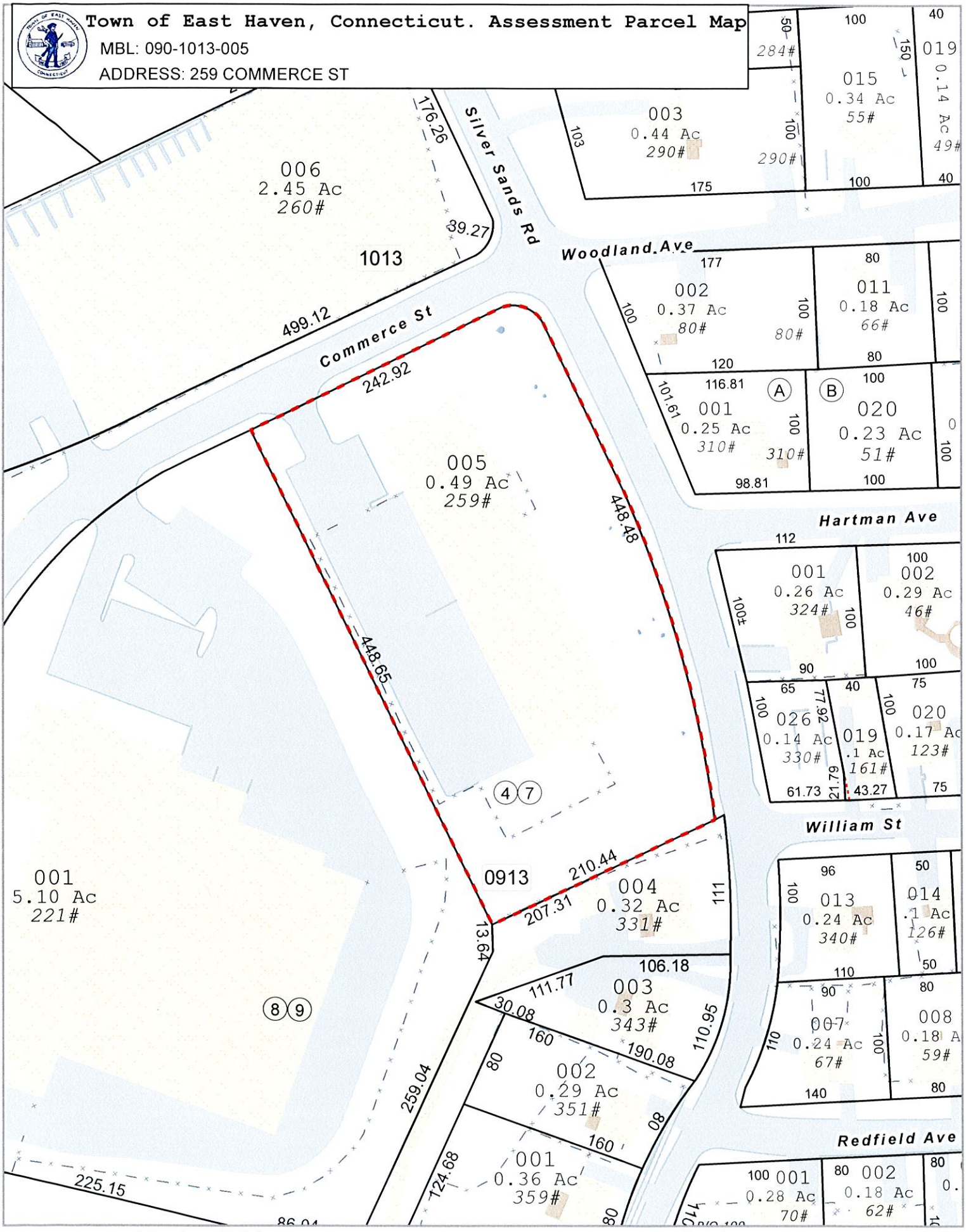
Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Loading Dock	Covered Loading Dock	783	Average	1984
Canopy	Canopy	2078	Average	1984

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
VIGLIONE STEPHEN J	322_ 838	3/19/1981	0

Report Created On 8/10/2022



1 inch = 100 feet

0 50 100 150 200 Feet

Map Produced: 07/2022

Radio Frequency Safety Survey Report Predictive (RFSSRP) Prepared For AT&T

Site Name:	EAST HAVEN SOUTH
FA#	10071016
USID:	24481
Site ID:	CTL05048
Address:	259 COMMERCE STREET, EAST HEAVEN, CT 06512
County:	NEW HEAVEN
Latitude:	41.2563919
Longitude:	-72.8757989
Structure Type:	MONOPOLE
Property Owner:	VIGLIONE STEPHEN J
Pace Job:	MRCTB055428
RFDS Technology:	5G NR 1SR CBAND

Report Information

Report Writer: Shekhar Kumar

Report Generated Date: 08-02-2022

Compliance Statement

AT&T Mobility Compliance Statement: Based on the information collected, AT&T Mobility will be Compliant when the remediation recommended in section 5 or appropriate remediation determined by AT&T is implemented

Table of Contents

1. Executive Summary

1.1 Site Summary

Max Predictive Spatial Average MPE% & Location on Site (General Public)	1473860.0% on Antennas Centerline Level & at AT&T Sec-A antenna no. #A3-2
Max Predictive Spatial Average MPE% at Ground Level (General Public)	16.34%
AT&T Mobility Site Compliance	AT&T Mobility will be Compliant by implementing remediation recommended as per section 5 in this report.

TABLE 1: Site Summary

1.2 Signage Summary (Proposed)

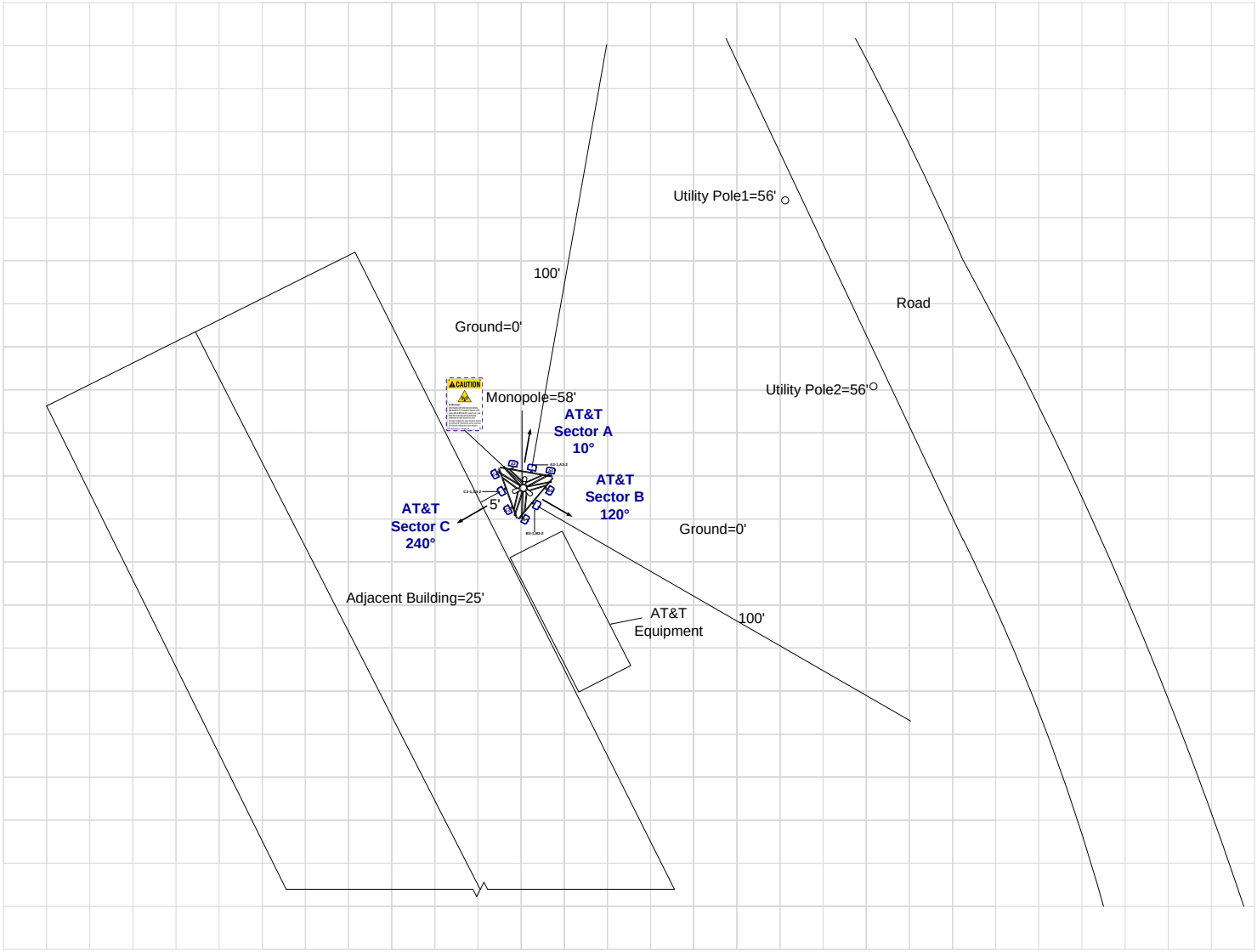
AT&T Signage Locations	Sign Type									
	Safety Instructions	Notice Sign 2	Caution Sign 2	Caution Sign 2B	Caution Sign 2C	Caution 7"x7"	Warning Sign 1B	RF Exposure Map	Lock	Barriers
Access Point(s)				1						
Alpha										
Beta										
Gamma										

TABLE 2: Signage Summary (Proposed)

1.3 List of Documents used to prepare this Report

- *CD*
- *RFDS*

2. Site Scale Map



AT&T Antenna	Proposed	Proposed Signage									
Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	***Map Scale = 10 ft***
OMNI	Posts										

3. Antenna Inventory

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (0)	HBW (0)	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
A2	AT&T	Kathrein	80010965	Panel	700	LTE(FN)	10	62	12.65	6.5	120.00	0.5	1968.71	3229.84
A2	AT&T	Kathrein	80010965	Panel	2100	LTE/5G	10	62	16.15	6.5	120.00	0.5	4407.39	7230.72
A3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	10	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	10	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A4	AT&T	CCI	TPA65R-BU6D	Panel	700	LTE(B12)	10	73	12.35	6	120.00	0.5	1837.30	3014.26
A4	AT&T	CCI	TPA65R-BU6D	Panel	850	5G	10	63	12.95	6	120.00	0.5	2109.51	3460.84
A4	AT&T	CCI	TPA65R-BU6D	Panel	1900	LTE/5G	10	66	15.95	6	120.00	0.5	4209.02	6905.28
A4	AT&T	CCI	TPA65R-BU6D	Panel	2300	LTE	10	60	15.85	6	75.00	0.5	2570.76	4217.56
B2	AT&T	Kathrein	80010965	Panel	700	LTE(FN)	120	62	12.65	6.5	120.00	0.5	1968.71	3229.84
B2	AT&T	Kathrein	80010965	Panel	2100	LTE/5G	120	62	16.15	6.5	120.00	0.5	4407.39	7230.72
B3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	120	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	120	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B4	AT&T	CCI	TPA65R-BU6D	Panel	700	LTE(B12)	120	73	12.35	6	120.00	0.5	1837.30	3014.26
B4	AT&T	CCI	TPA65R-BU6D	Panel	850	5G	120	63	12.95	6	120.00	0.5	2109.51	3460.84
B4	AT&T	CCI	TPA65R-BU6D	Panel	1900	LTE/5G	120	66	15.95	6	120.00	0.5	4209.02	6905.28
B4	AT&T	CCI	TPA65R-BU6D	Panel	2300	LTE	120	60	15.85	6	75.00	0.5	2570.76	4217.56
C2	AT&T	Kathrein	80010965	Panel	700	LTE(FN)	240	62	12.65	6.5	120.00	0.5	1968.71	3229.84
C2	AT&T	Kathrein	80010965	Panel	2100	LTE/5G	240	62	16.15	6.5	120.00	0.5	4407.39	7230.72
C3-1	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	240	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C3-2	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	240	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C4	AT&T	CCI	TPA65R-BU6D	Panel	700	LTE(B12)	240	73	12.35	6	120.00	0.5	1837.30	3014.26
C4	AT&T	CCI	TPA65R-BU6D	Panel	850	5G	240	63	12.95	6	120.00	0.5	2109.51	3460.84
C4	AT&T	CCI	TPA65R-BU6D	Panel	1900	LTE/5G	240	66	15.95	6	120.00	0.5	4209.02	6905.28
C4	AT&T	CCI	TPA65R-BU6D	Panel	2300	LTE	240	60	15.85	6	75.00	0.5	2570.76	4217.56

Table 3.1: Antenna Inventory Table

Note: ^ **Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**

* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP

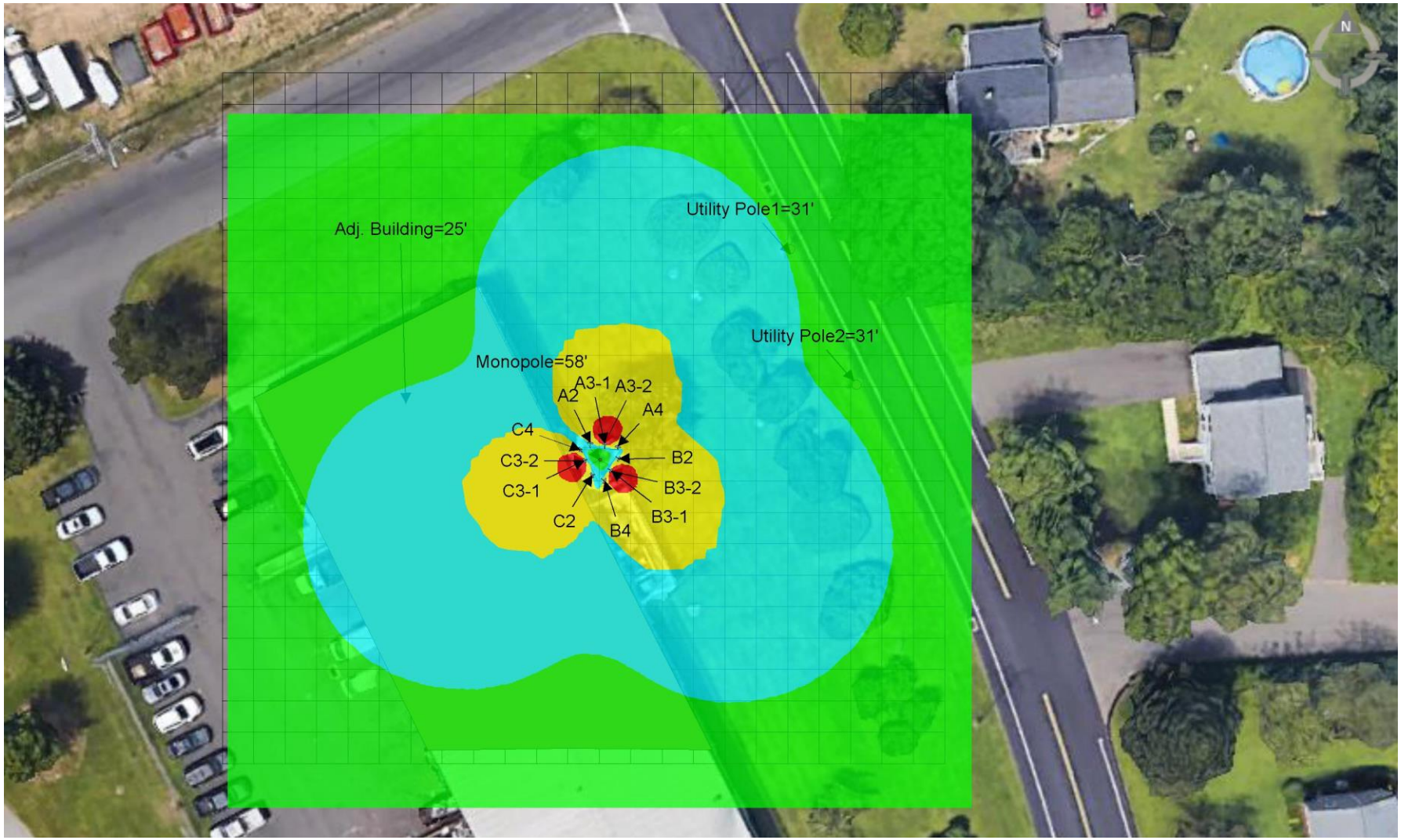
Antenna Heights (Z)

Ant ID	Operator	Antenna Radiation Centerline	Z-Height from Utility Pole1&2 Level	Z-Height from Adj. Building	Z-Height from Ground
A2	AT&T	55.00	20.75	26.75	51.75
A3-1	AT&T	56.66	24.39	30.39	55.39
A3-2	AT&T	53.16	20.89	26.89	51.89
A4	AT&T	55.00	21.00	27.00	52.00
B2	AT&T	55.00	20.75	26.75	51.75
B3-1	AT&T	56.66	24.39	30.39	55.39
B3-2	AT&T	53.16	20.89	26.89	51.89
B4	AT&T	55.00	21.00	27.00	52.00
C2	AT&T	55.00	20.75	26.75	51.75
C3-1	AT&T	56.66	24.39	30.39	55.39
C3-2	AT&T	53.16	20.89	26.89	51.89
C4	AT&T	55.00	21.00	27.00	52.00

Table 3.2: Antenna Height(s) Summary Table

4. Predicted Emission

4.1 Predictive Cumulative MPE Contribution from All Sources at Antennas Centerline Level (55 ft.)



Max. Predictive Spatial Average MPE% = **1473860.00%**

Proposed Barrier
Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.2 Predictive Cumulative MPE Contribution from All Sources at Utility Pole 1 & 2 Level (31 ft.)

Max. Predictive Spatial Average MPE% = **77.23%**

Proposed Barrier

Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.3 Predictive Cumulative MPE Contribution from All Sources at Adj. Building Level (25 ft.)

Max. Predictive Spatial Average MPE% = **61.14%**

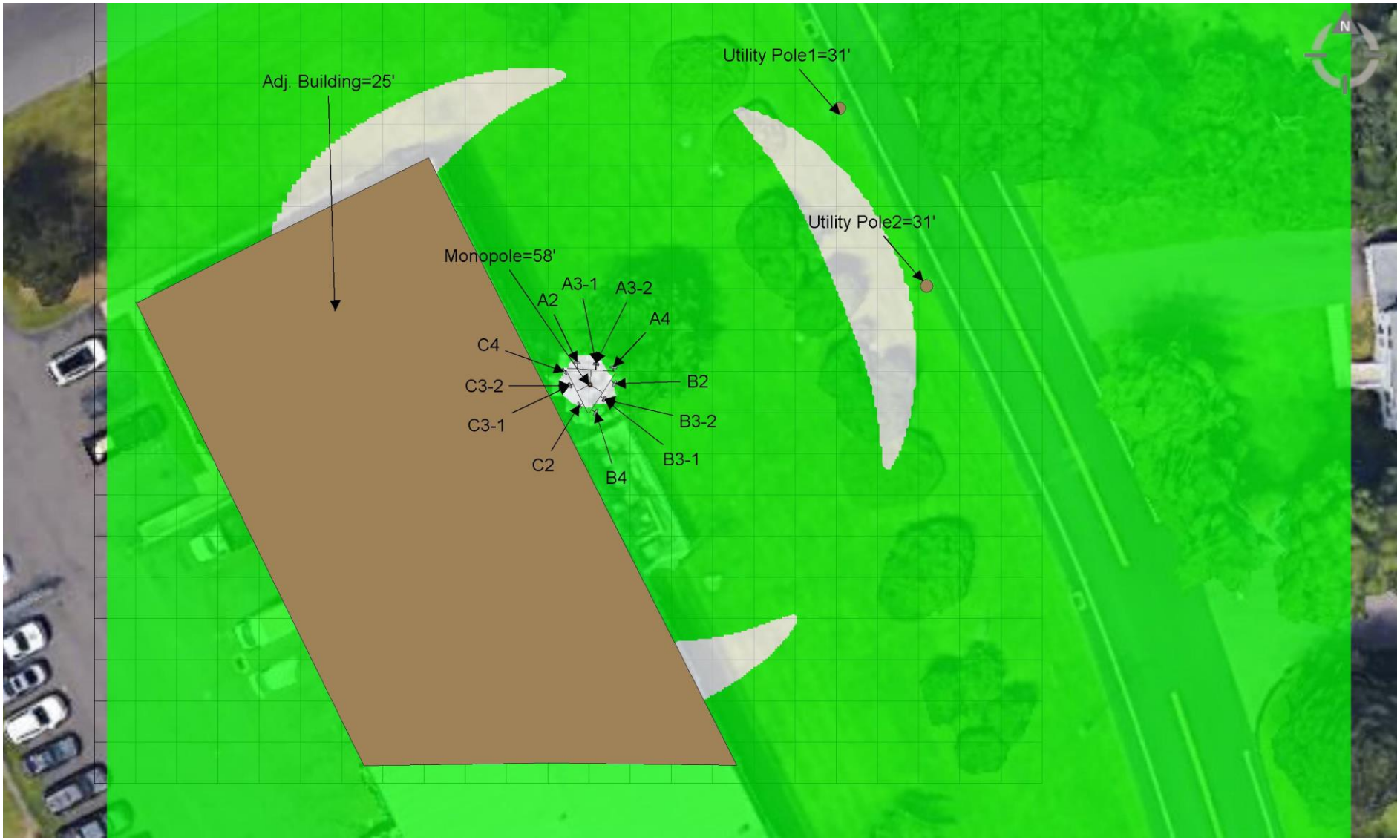
Proposed Barrier
Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

4.4 Predictive Cumulative MPE Contribution from All Sources at Ground Level (0 ft.)



Max. Predictive Spatial Average MPE% = **16.34%**

Proposed Barrier

Proposed Posts

% of FCC General Public Exposure Limit (Predictive Spatial Average)

Non-Simulated	0-1	1-100	100-500	500-5000	>5000

Map Scale = 10 ft

5. Statement of Compliance

5.1 Statement of AT&T Mobility Compliance

At the time of our Analysis, AT&T Mobility is required to take action to fulfill their Obligations to comply with the FCC's mandate as defined in OET-65

Recommendations

AT&T Alpha Sector:

- No Action Required

AT&T Beta Sector:

- No Actions Required

AT&T Gamma Sector:

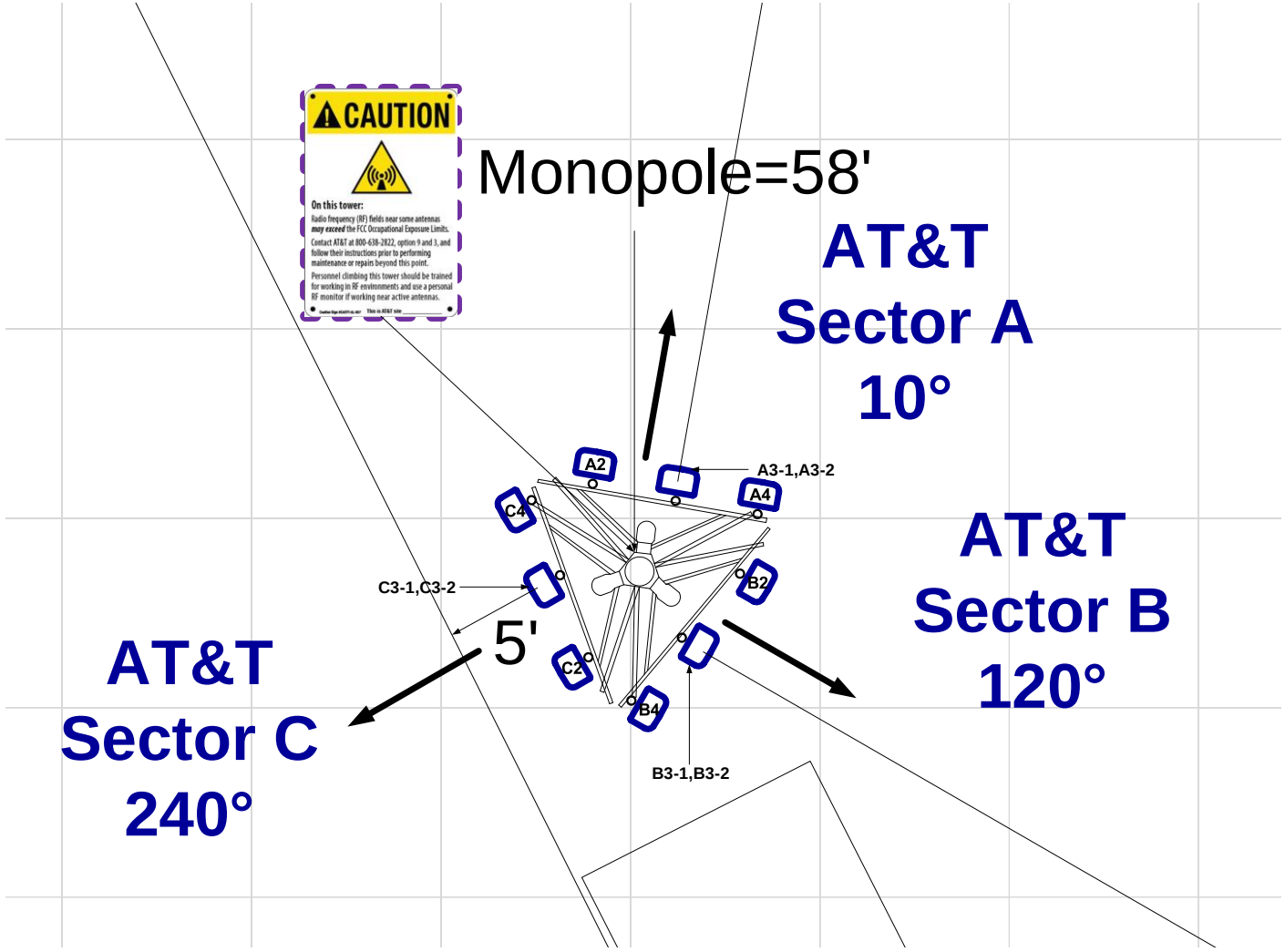
- No Actions Required

Monopole:

- One Caution 2B Sign to be posted on Monopole at climbing access, facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 12. (1 Total Sign)

Recommendations Map – Detailed View

AT&T Alpha, Beta & Gamma Sectors



AT&T Antenna	Proposed	Proposed Signage									
Panel	Barrier	Safety Instructions	Notice 2	Caution 2	Caution 2B	Caution 2C	Caution 7"x7"	Warning 1B	RF Exposure Map	Lock	*Map Scale = 10 ft*
OMNI	Posts										

Appendix A – Statement of Limiting Conditions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at full power at all times. AT&T has further recommended to assume a 75% duty cycle of maximum radiated power for all LTE & 5G carriers (& consider 100% duty cycle for all UMTS carriers).

In this site compliance report, it is assumed that Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS^ antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.

AT&T recommended to consider - For C-BAND and/or DoD AAS^ antenna(s) 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP.

AT&T recommended to use worst-case tilts for the simulations.

***Power Reduction Factor**: IEC Standard 62232: 2017 allows for a statistically conservative power density model to more realistically define the RF exposure area. AT&T recommends a "0.32" factor to calculate the "Actual Maximum" (time averaged) power value, which accounts for "Beam Scanning," "Scheduling," and "RBS Utilization" This recommended value is a conservative figure modelled and supported by other vendors and through measurements published in scientific articles and white papers by IEEE and others. Those publication are listed below:*

1. IEEE Access, Time-Averaged Realistic Maximum Power Levels for the Assessment of RF Exposure for 5G Radio Base Stations Using Massive MIMO (Published Sept. 18, 2017 / BJÖRN THORS, ANDERS FURUSKÄR, DAVIDE COLOMBI, AND CHRISTER TÖRNEVIK)
2. IEEE Explore, A Statistical Approach for RF Exposure Compliance Boundary Assessment in Massive MIMO Systems (Published Jan. 25, 2018 / Paolo Baracca, Andreas Weber, Thorsten Wild, Christophe Grangeat)
3. IEEE Access, In-situ Measurement Methodology for the Assessment of 5G NR Massive MIMO Base Station Exposure at Sub-6 GHz Frequencies (Published Dec. 20, 2019 / SAM AERTS, LEEN VERLOOCK, MATTHIAS VAN DEN BOSSCHE, DAVIDE COLOMBI, LUC MARTENS, CHRISTER TÖRNEVIK AND WOUT JOSEPH)
4. Applied Sciences, Analysis of the Actual Power and EMF Exposure from Base Stations in a Commercial 5G Network (Published July 30, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)
5. Ofcom Technical Report, Electromagnetic Field (EMF) measurements near 5G mobile phone base stations (Published Feb. 21, 2020 / Davide Colombi, Paramananda Joshi, Bo Xu, Fatemeh Ghasemifard, Vignesh Narasaraju and Christer Törnevik)

MobileComm believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor). Thus, at any time, if power density measurements were made, we believe the real time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modelling in this way, MobileComm has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Other Carrier" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, MobileComm uses the closest frequency in the antenna's range that corresponds to the highest Maximum Exposure Limit (MPE), resulting in a conservative analysis.

Appendix B – FCC Guidelines and Emissions Threshold Limits

All power density values used in this report were analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2).The number of µW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm2). The general population exposure limit for the 700 and 800 MHz Bands is approximately 467 µW/cm2 and 567 µW/cm2 respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is 1000 µW/cm2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure, have been properly trained in RF safety 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, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-I,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-I,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

FCC has set forth guidelines in OET Bulletin 65 for human exposure to radio frequency electromagnetic fields. Currently, there are two different levels of MPE - General Public MPE and Occupational MPE. An individual classified as Occupational can be defined as an individual who has received appropriate RF training and meets the conditions outlined below. General Public is defined as anyone who does not meet the conditions of being Occupational. FCC Rules and Regulations define compliance in terms of total exposure to total RF energy, regardless of location of or proximity to the sources of energy.

It is the responsibility of all licensees to ensure these guidelines are maintained at all times. It is the ongoing responsibility of all licensees composing the site to maintain ongoing compliance with FCC rules and regulations.

A building owner or site manager can use this report as part of an overall RF Health and Safety Policy. It is important for building owners/site managers to identify areas in excess of the General Population MPE and ensure that only persons qualified as Occupational are granted access to those areas.

Occupational Environment Explained

The FCC definition of Occupational exposure limits apply to persons who:

- *are exposed to RF energy as a consequence of their employment;*
- *have been made aware of the possibility of exposure; and*
- *can exercise control over their exposure.*

FCC guidelines go further to state that persons must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

In order to consider this site an Occupational Environment, the site must be controlled to prevent access by any individuals classified as the General Public. Compliance is also maintained when any non-occupational individuals (the General Public) are prevented from accessing areas indicated as Red or Yellow in the attached RF Emissions diagram. In addition, a person must be aware of the RF environment into which they are entering. This can be accomplished by an RF Safety Awareness class, and by appropriate written documentation such as this Site Compliance Report.

Appendix D – General Safety Recommendations

The following are general recommendations appropriate for any site with accessible areas in excess of 100% General Public MPE. These recommendations are not specific to this site. These are safety recommendations appropriate for typical site management, building management, and other tenant operations.

1. All individuals needing access to the main site should be instructed to read and obey all posted placards and signs.

2. The site should be routinely inspected and this or similar report updated with the addition of any antennas or upon any changes to the RF environment including:

- *adding new antennas that may have been located on the site*
- *removing of any existing antennas*
- *changes in the radiating power or number of RF emitters*

3. Post the appropriate SAFETY INSTRUCTIONS, NOTICE, CAUTION & WARNING sign at the main site access point(s) and other locations as required. Note: Please refer to RF Exposure Diagrams in the report section above, to inform everyone who has access to this site that beyond posted signs there may be levels in excess of the limits prescribed by the FCC. The signs below are examples of signs meeting FCC guidelines.

4. Ensure that the site door remains locked (or appropriately controlled) to deny access to the general public if deemed as policy by the building/site owner.

5. For a General Public environment the five color levels identified in measured RF emission diagram can be interpreted in the following manner:

- *White represents areas predicted to be greater than or equal to 0% and less than 1% of the MPE general public limits*
- *Green represents areas predicted to be greater than or equal to 1% and less than 100% of the MPE general public limits*
- *Blue represents areas predicted to be greater than or equal to 100% and lesser than 500% of the MPE general public limits.*
- *Yellow represents areas predicted to be greater than or equal to 500% and lesser than 5000% of the MPE general public limits.*
- *Red areas indicates predicted levels greater than or equal to 5000% of the MPE general public limits.*

Appendix E – References

1 - FCC Definition

FCC defines an Occupational or Controlled environment as one where persons are exposed to RF fields as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Typical criteria for an Occupational or Controlled environment is restricted access (i.e. locked doors, gates, etc.) to areas where antennas are located coupled with proper RF warning signage.

FCC defines a site as a General Public or Uncontrolled environment when human exposure to RF fields occurs to the general public or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over the exposure. Typical criteria for a General Public or Uncontrolled environment are unrestricted access (i.e. unlocked or no restrictions) to areas where antennas are located without proper RF warning signage being posted.

2 - Physical Testing measurement procedure and Tools

The Narda Broadband Field Meter NBM-550 can make rapid conformance measurements with evaluation in the time domain when used in conjunction EA5091 probe. This probe is a so-called Shaped Probe, i.e. it is frequency weighted so that it automatically takes account of the FCC Occupational limit values. To collect data, the probe is pointed towards the potential source(s) of EME radiation and moved slowly from ground level up to slightly above head height (approx. 6 ft).

Spatial Average Measurement A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.

3 - Site Safety Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: *Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.*

Training and Qualification Verification: *All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).*

Physical Access Control: *Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:*

- *Locked door or gate*
- *Alarmed door*
- *Locked ladder access*
- *Restrictive Barrier at antenna locations (e.g. Chain link with posted RF Sign)*

RF Signage: *Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.*

Assume all antennas are active: *Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.*

Maintain a 3 foot clearance from all antennas: *There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.*

Rooftop RF Emissions Diagram: *Section 4 of this report contains an RF Emissions Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas on the rooftop. This analysis is all theoretical and assumes a duty cycle of 75% for each transmitting antenna at full power. This analysis is a worst case scenario. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.*

4 - Definitions

Compliance- *The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.*

Decibel (dB) – *A unit for measuring power or strength of a signal.*

Duty Cycle – *The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 75% corresponds to continuous operation.*

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – *The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna, this product is divided by the cable losses*

Effective Radiated Power (ERP) – *In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.*

Gain (of an antenna in dbd) – *The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from a reference dipole. Gain is a measure of the relative efficiency of a directional antennas as compared to a reference dipole.*

General Population/Uncontrolled Environment – *Defined by the FCC, as an area where RFR exposure may occur to persons who are unaware of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.*

Generic Antenna – *For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, MobileComm will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.*

Isotropic Antenna – *An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.*

Maximum Measurement – *This measurement represents the single largest measurement recorded when performing a spatial average measurement.*

Maximum Exposure Limit (MPE) – *The RMS and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.*

Occupational/Controlled Environment – *Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are aware of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.*

Radio Frequency Radiation – *Electromagnetic waves that are propagated from antennas through space.*

Spatial Average Measurement – *A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.*

Transmitter Power Output (TPO) – *The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.*

Appendix F – Proprietary Statement

This report was prepared for the use of AT&T Mobility, LLC to meet requirements specified in AT&T's corporate RF safety guidelines. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by MobileComm are based solely on the information provided by AT&T Mobility and all observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to MobileComm so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

Date: **May 5, 2022**

Infinigy
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Fort Washington, PA 19034
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structural@infinigy.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	CTL05048
	Carrier Site Name:	EAST HAVEN SOUTH
	Carrier FA Number:	10071016
Crown Castle Designation:	**Crown Castle BU Number:**	842862
	Crown Castle Site Name:	EAST HAVEN SOUTH
	Crown Castle JDE Job Number:	686237
	Crown Castle Order Number:	586266 Rev.0
Engineering Firm Designation:	**Infinigy Report Designation:**	1039-Z0001-B
Site Data:	**259 Commerce Street, East Haven, New Haven County, CT, 06512** **Latitude 41°15'22.88" Longitude -72°52'32.80"**	
Structure Information:	**Tower Height & Type:**	**58.0 ft Monopole**
	Mount Elevation:	**54.0 ft**
	Mount Type:	**12.5 ft Sector Frame**

Infinigy is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of AT&T Mobility's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

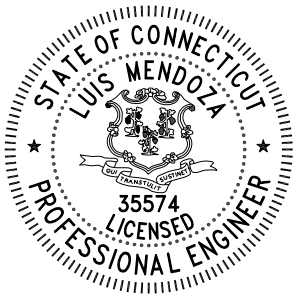
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Sector Frame **Sufficient**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 121 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Alex Mercado, E.I.T.

Respectfully Submitted by:
Luis Mendoza, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. PEN.0035574



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1) INTRODUCTION

This is an existing 3 sector 12.5 ft Sector Frame, designed by Sabre Industries.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	121 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.199
Seismic S_1:	0.053
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
54.0	57.0	3	ERICSSON	AIR 6419 B77G_CCIV3	12.5 ft Sector Frame / Addition of (2) Site Pro 1 PM1 Stand-Off Mounts per sector
	55.0	3	CCI ANTENNAS	TPA65R-BU6D_CCIV2	
		3	KATHREIN	80010965	
		3	ERICSSON	RRUS 4449 B5/B12	
		3	ERICSSON	RRUS 4478 B14_CCIV2	
		3	ERICSSON	RRUS 8843 B2/B66A	
		3	ERICSSON	RRUS-32 B30	
		2	RAYCAP	DC6-48-60-18-8C	
		1	RAYCAP	DC6-48-60-18-8F	
	53.0	3	ERICSSON	AIR 6449 B77D_CCVI2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	AT&T Mobility Application	586266 Rev.0	CCI Sites
Mount Manufacturer Drawings	Sabre Industries	C10857804	Infinigy
Loading Documents	AT&T Mobility	RFDS ID: 4392691	TSA

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.1.7, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B “Software Input Calculations”.

This analysis was performed in accordance with Crown Castle’s ENG-SOW-10208 *Mount Analysis* (Revision E).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A307

This analysis may be affected if any assumptions are not valid or have been made in error. Infinigy should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Sector Frame, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe(s)	MP1	54.0	37.3	Pass
	Horizontal(s)	H3		57.2	Pass
	Standoff(s)	S2		47.0	Pass
	Bracing(s)	B3		36.6	Pass
	Pivot Pipe(s)	PP3		26.5	Pass
	Mount Connection(s)	--		30.3	Pass

Structure Rating (max from all components) =	57.2%

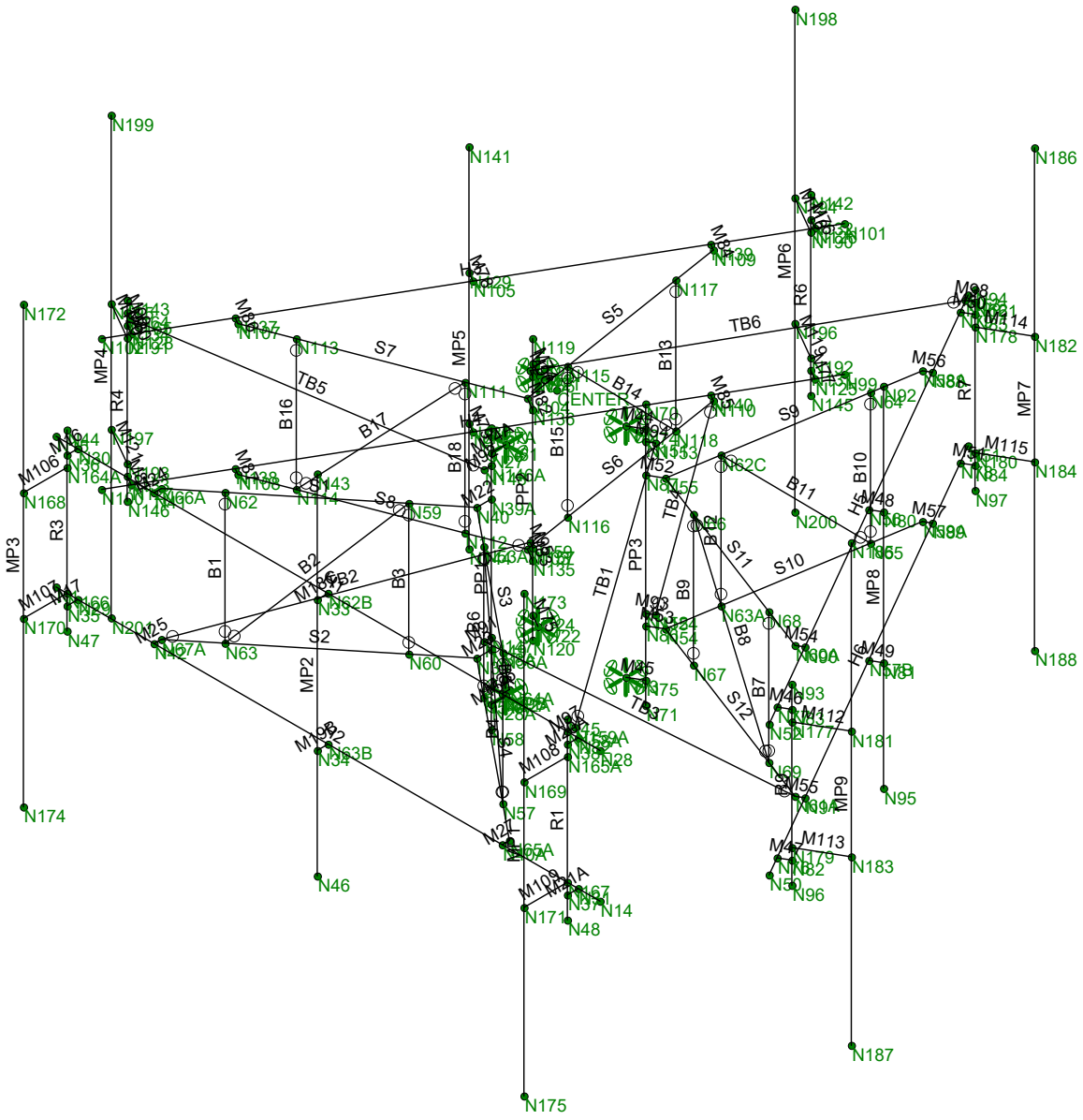
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D – Additional Calculations” for detailed mount connection calculations.

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



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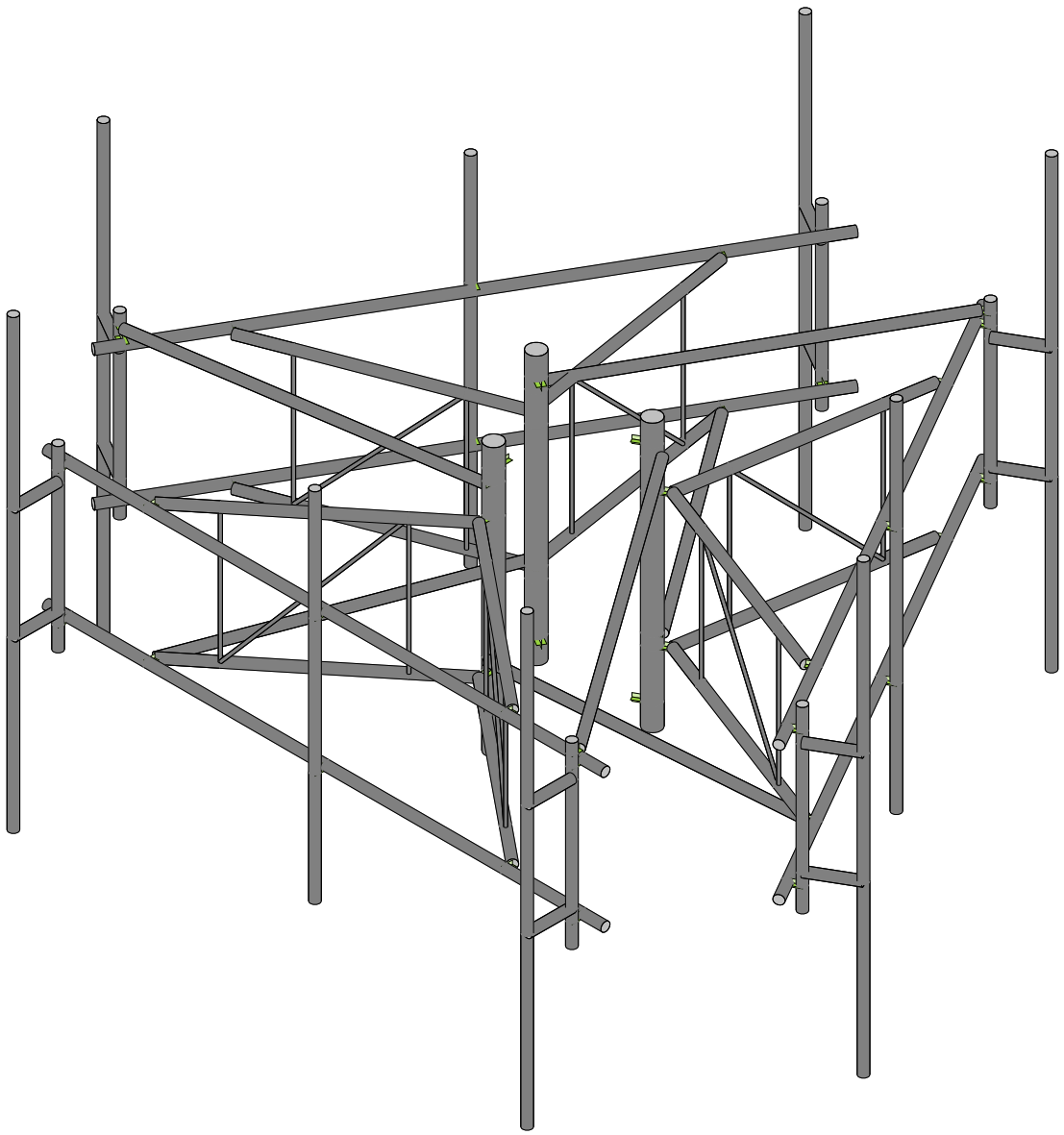

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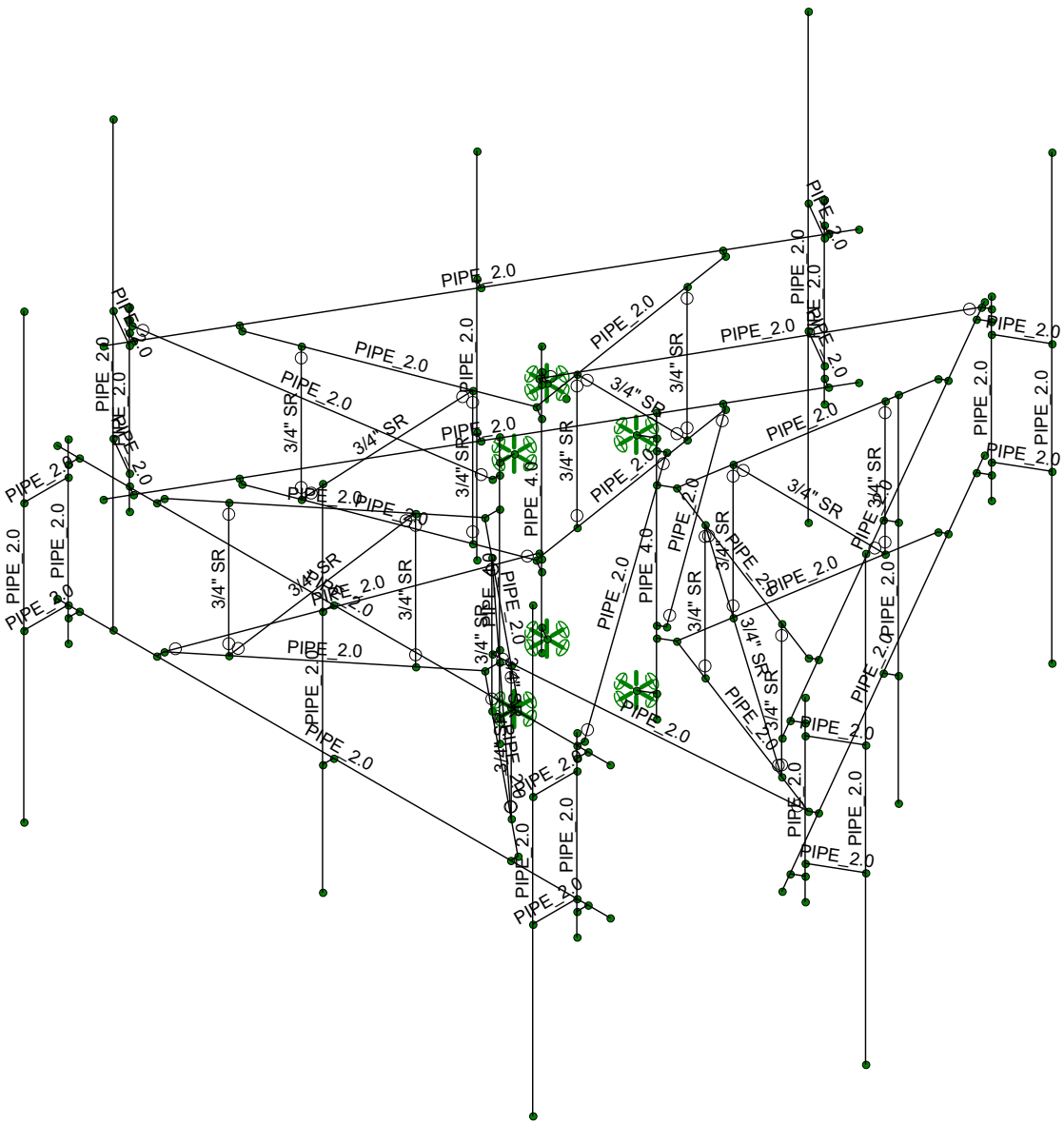

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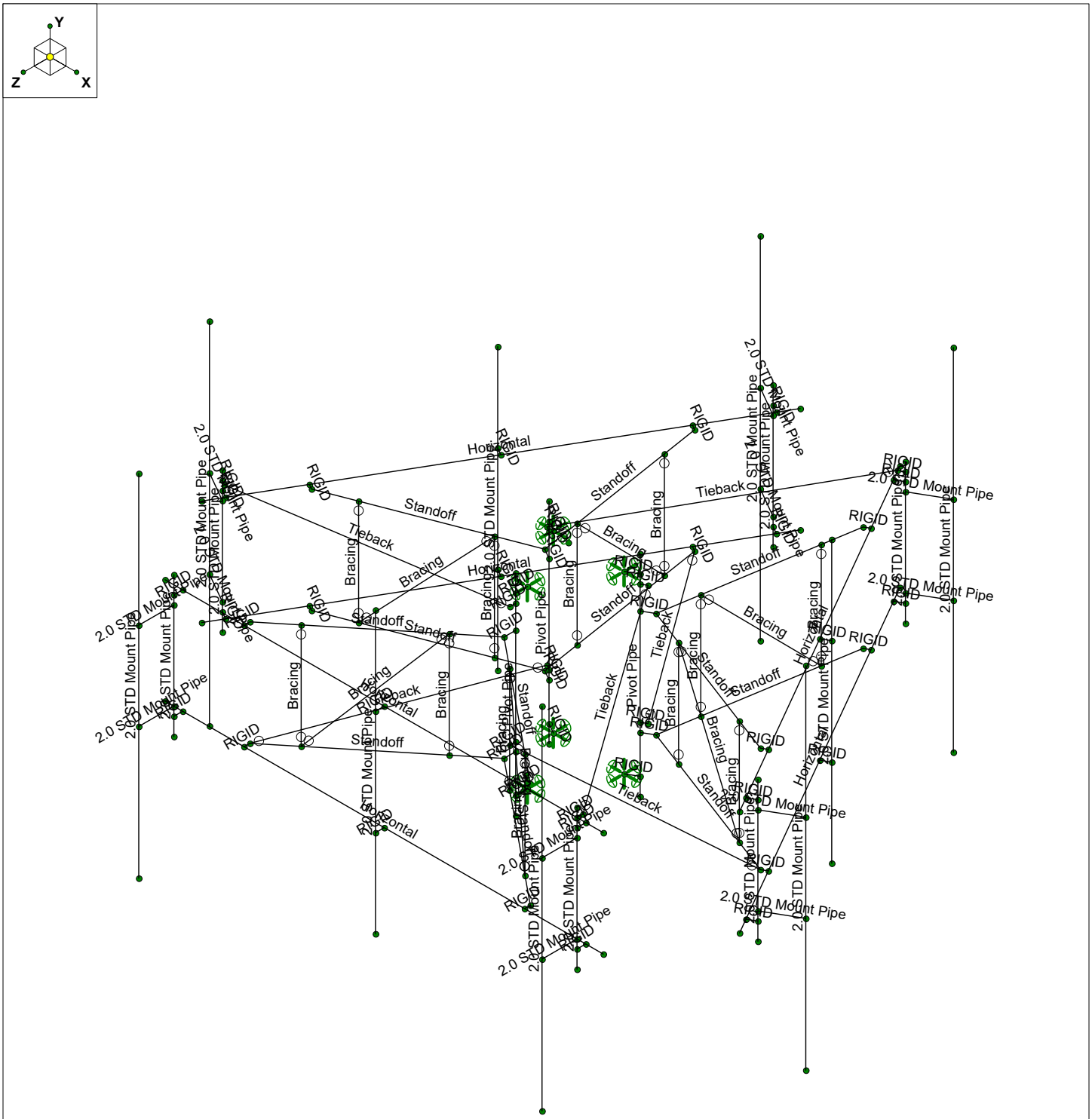

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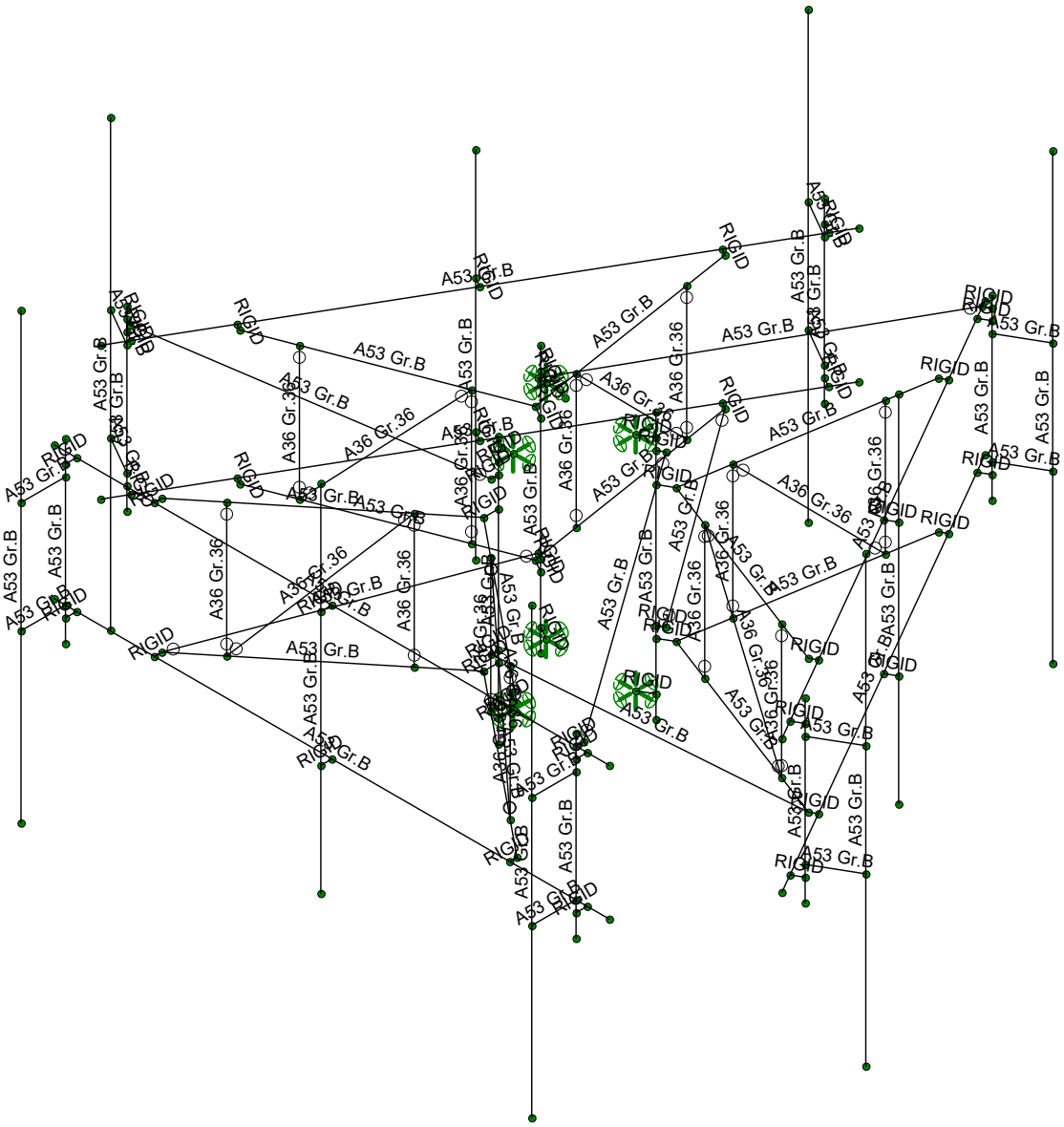

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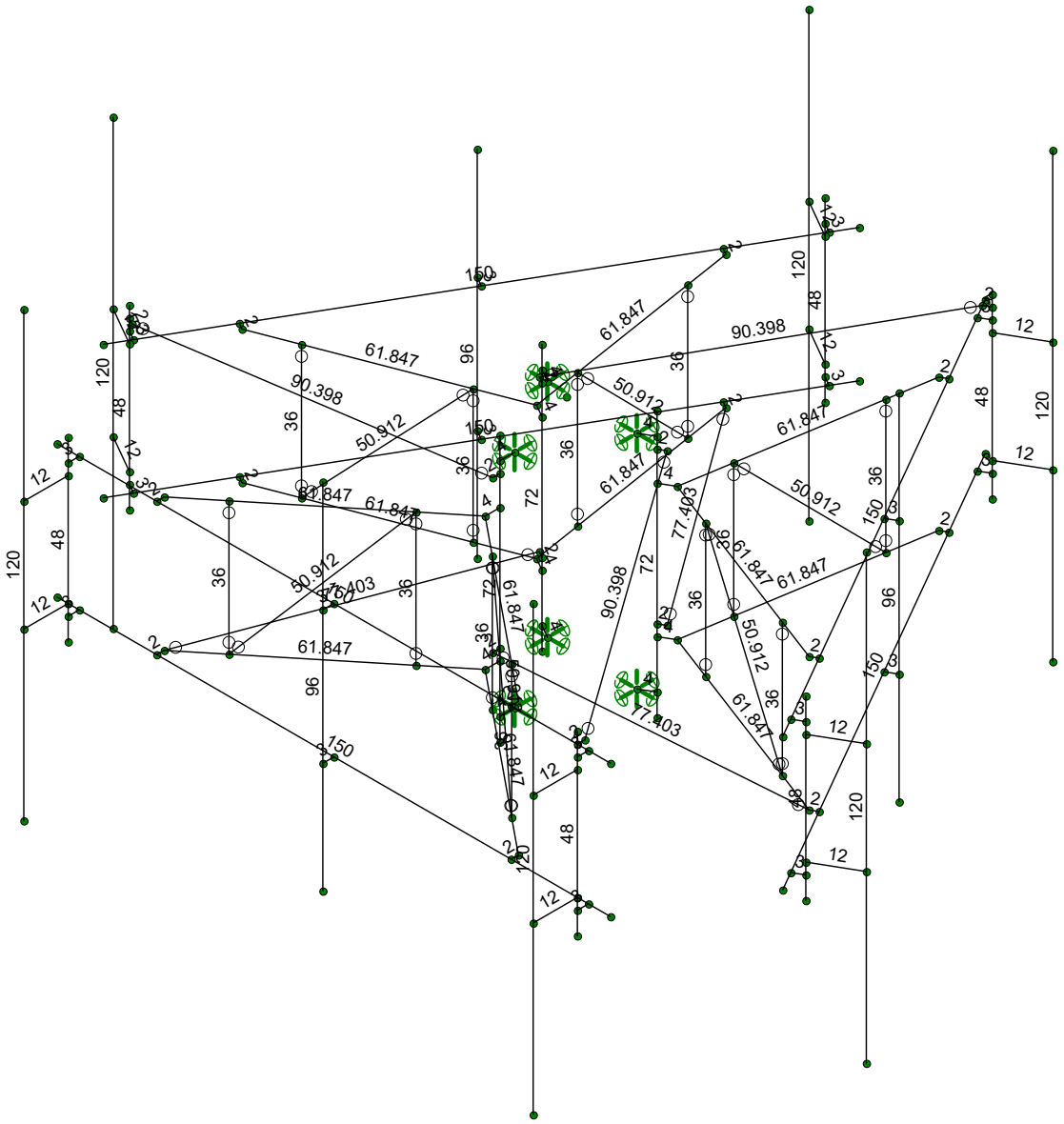

Member Length (in) Displayed

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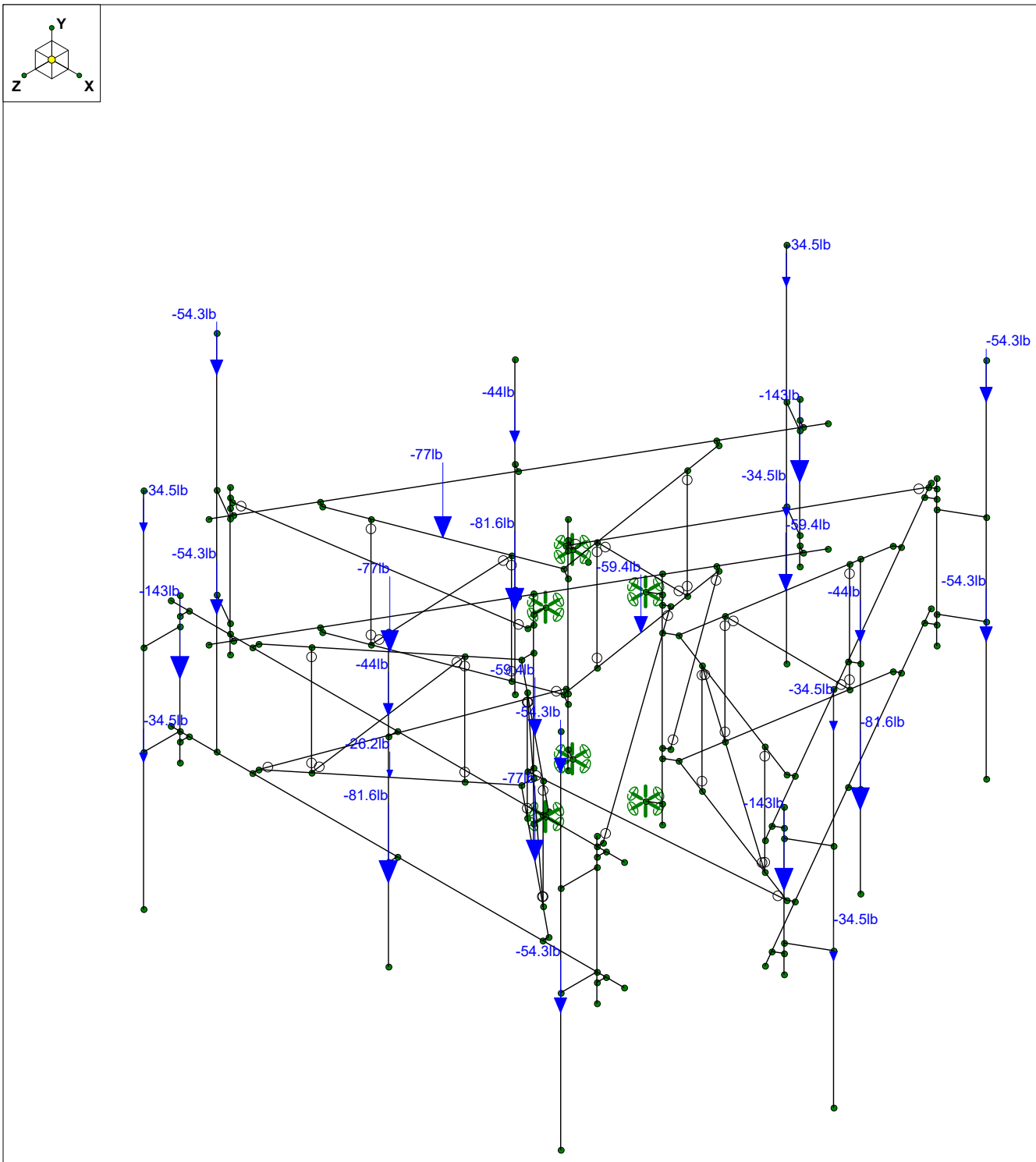

Loads: BLC 1, Self Weight

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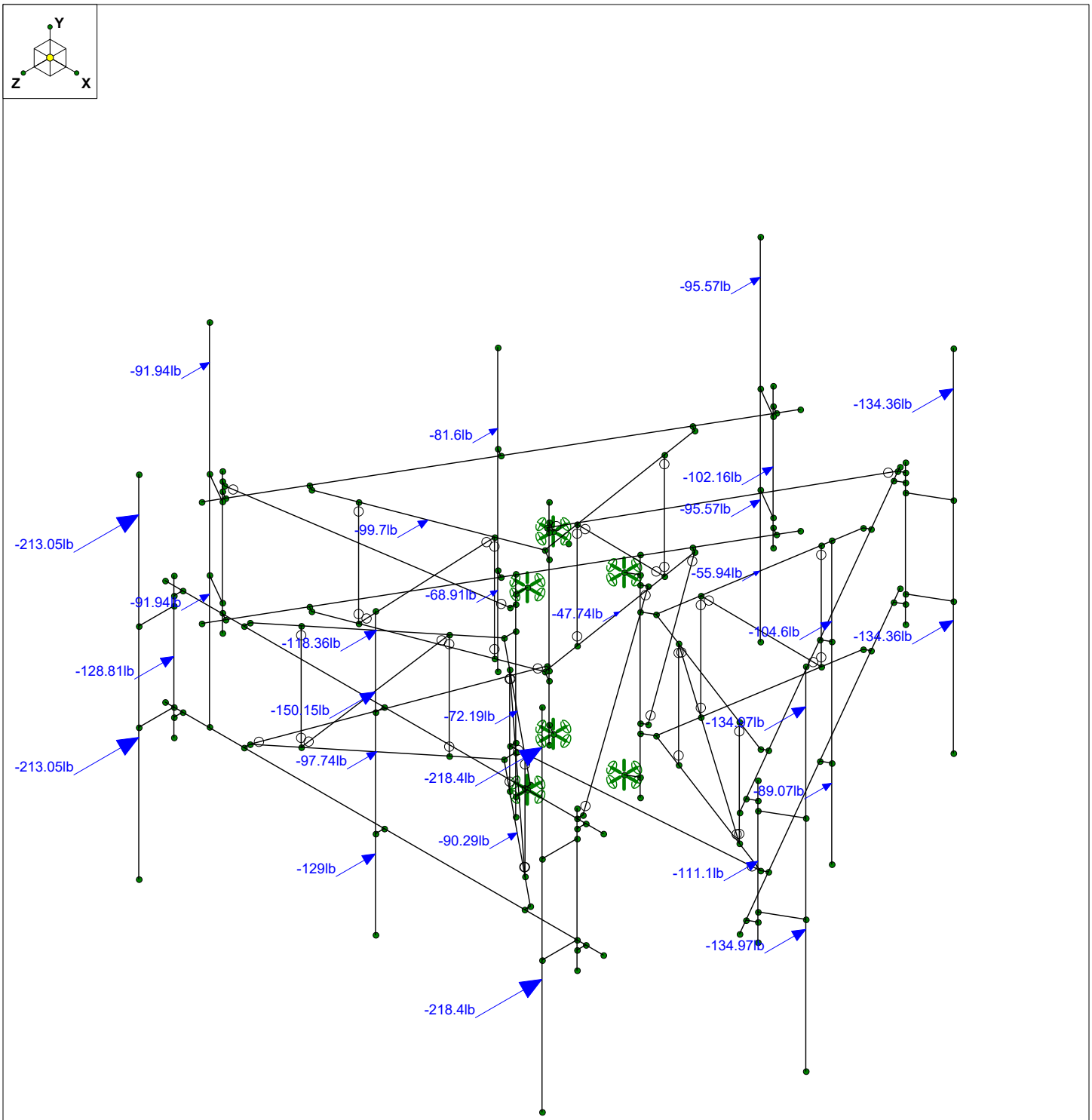

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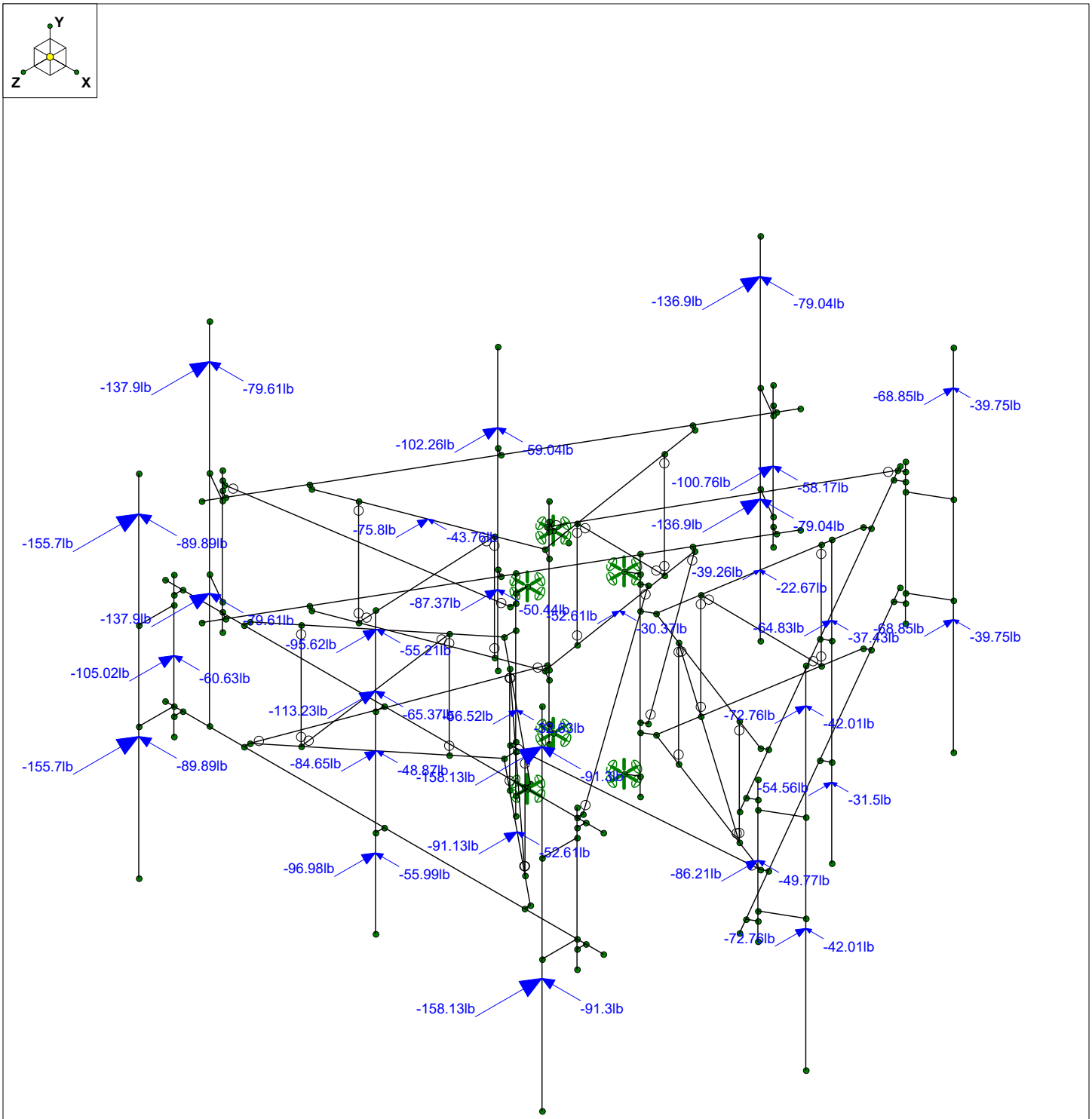

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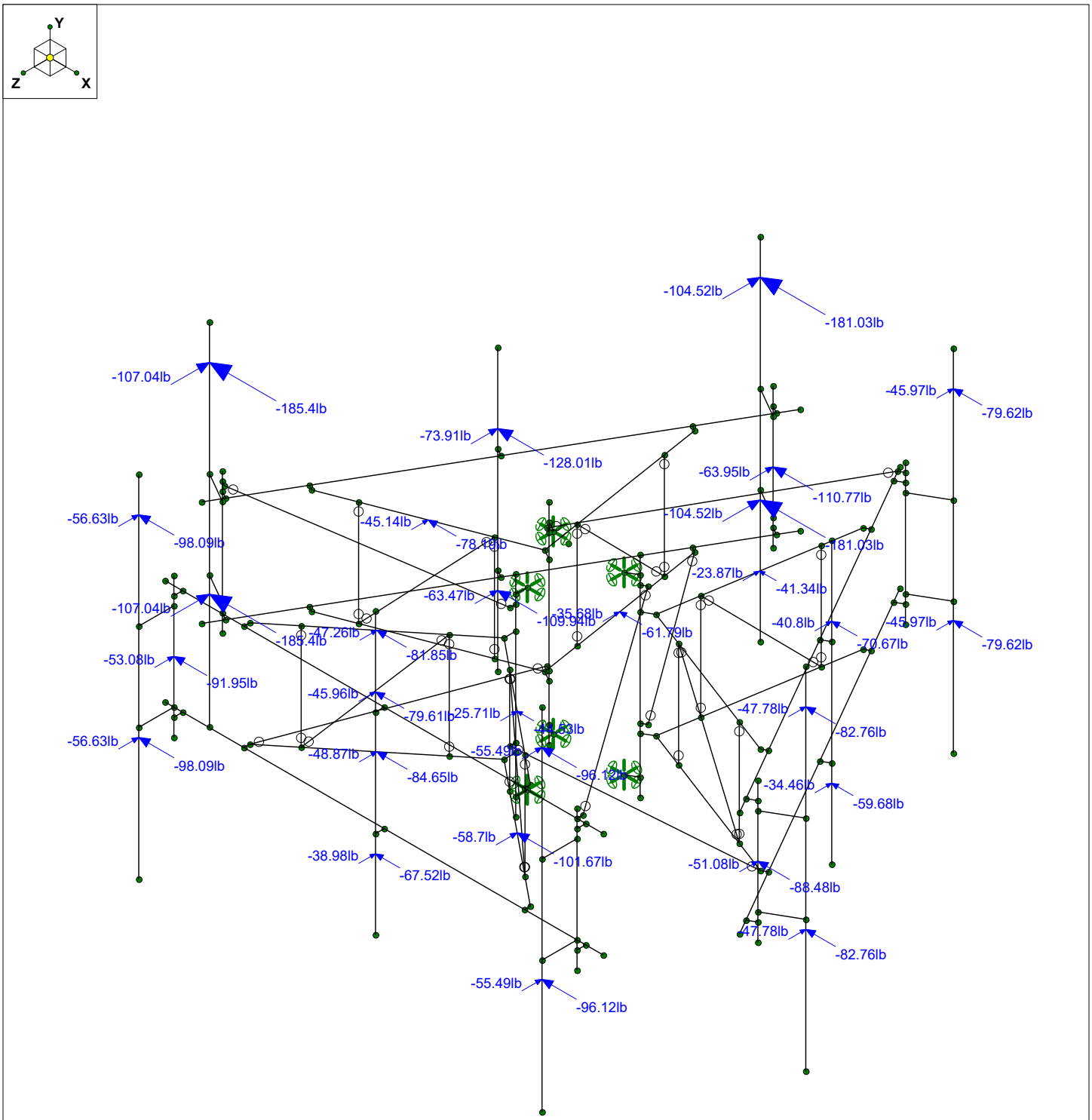

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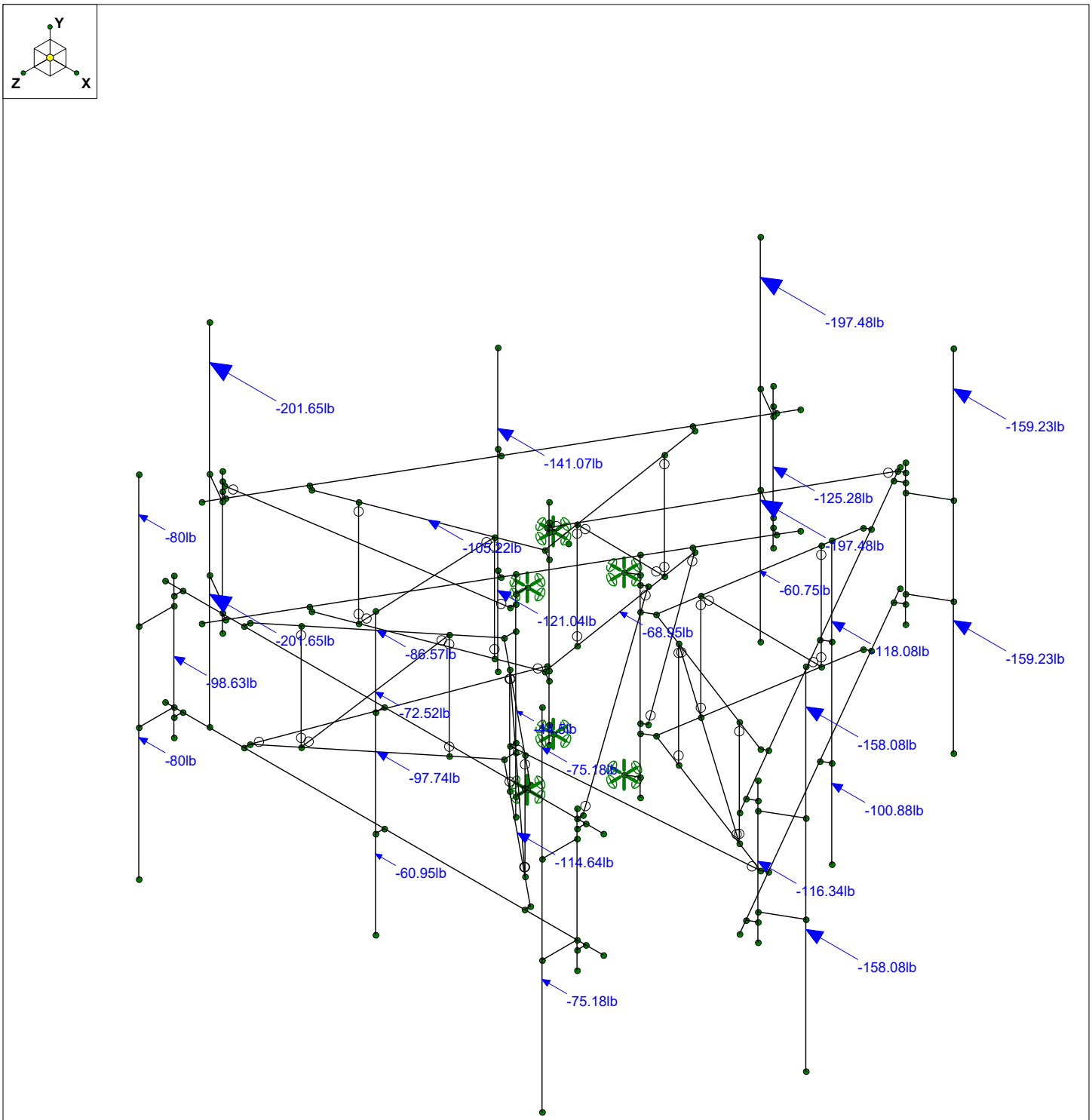
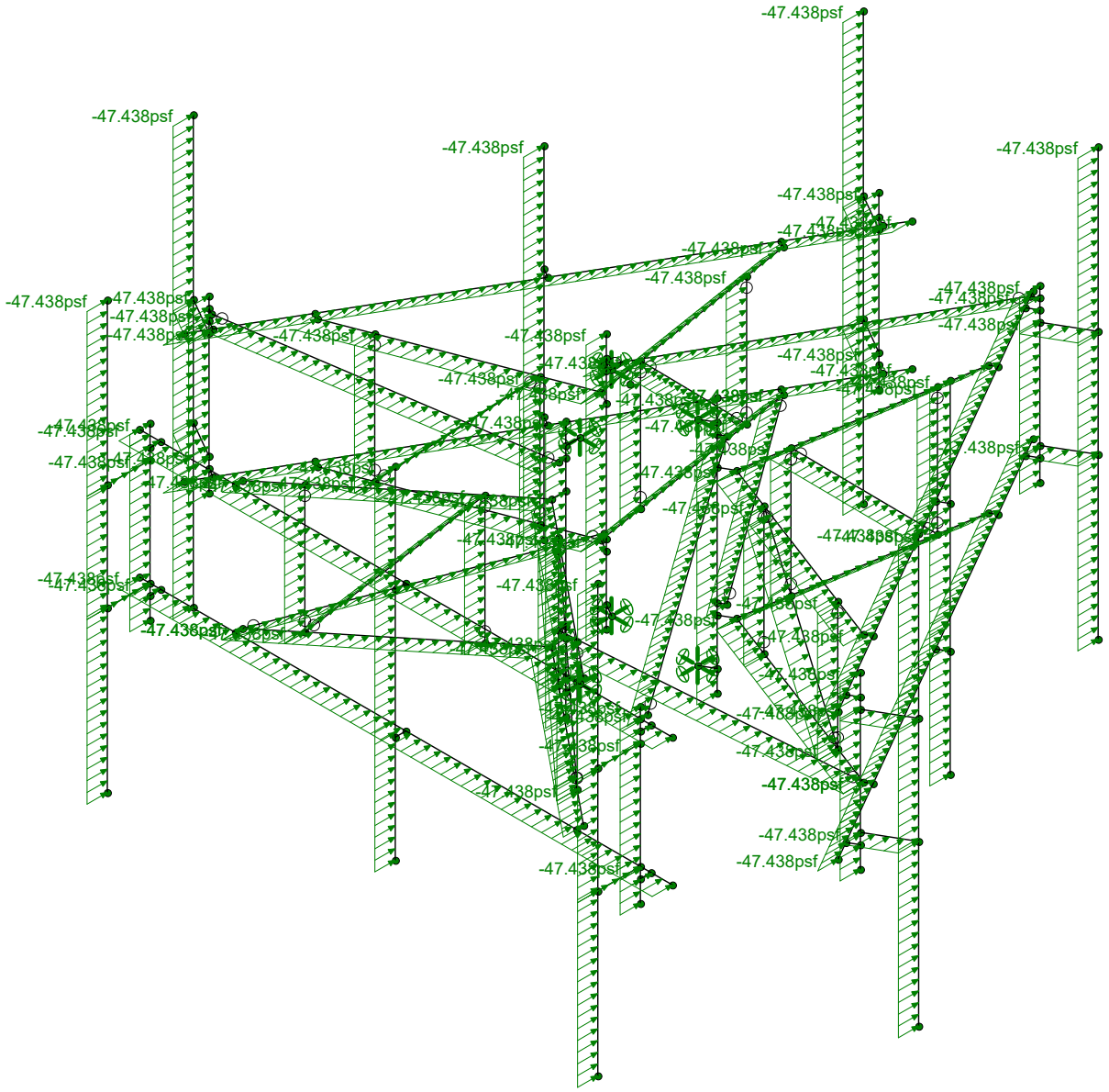


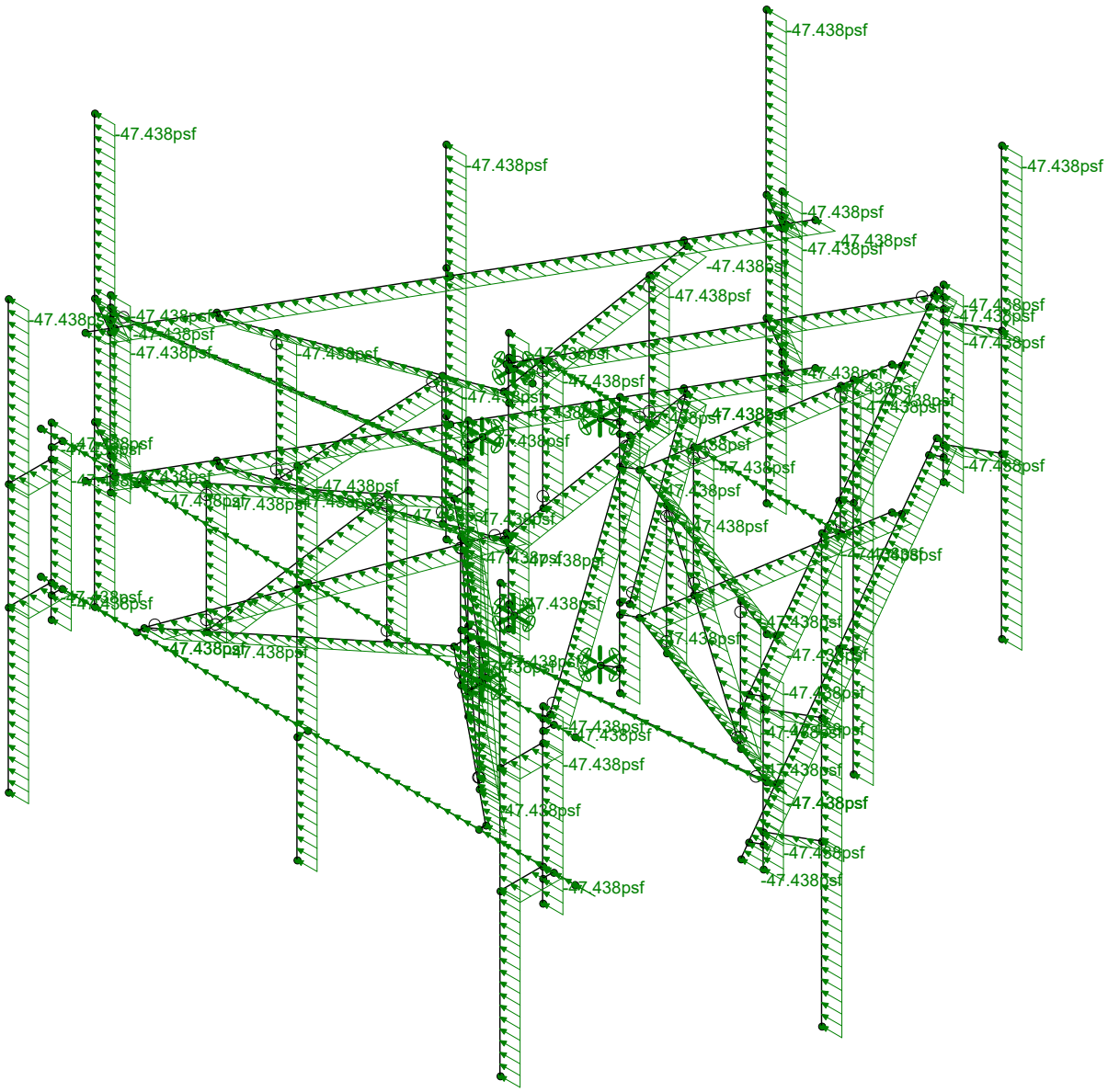
Loads: BLC 5, Wind Load AZI 90

Infinigy	842862	Wind Loading 90
AM		May 5, 2022 at 11:03 AM
1039-Z0001-B		842862_loaded.r3d



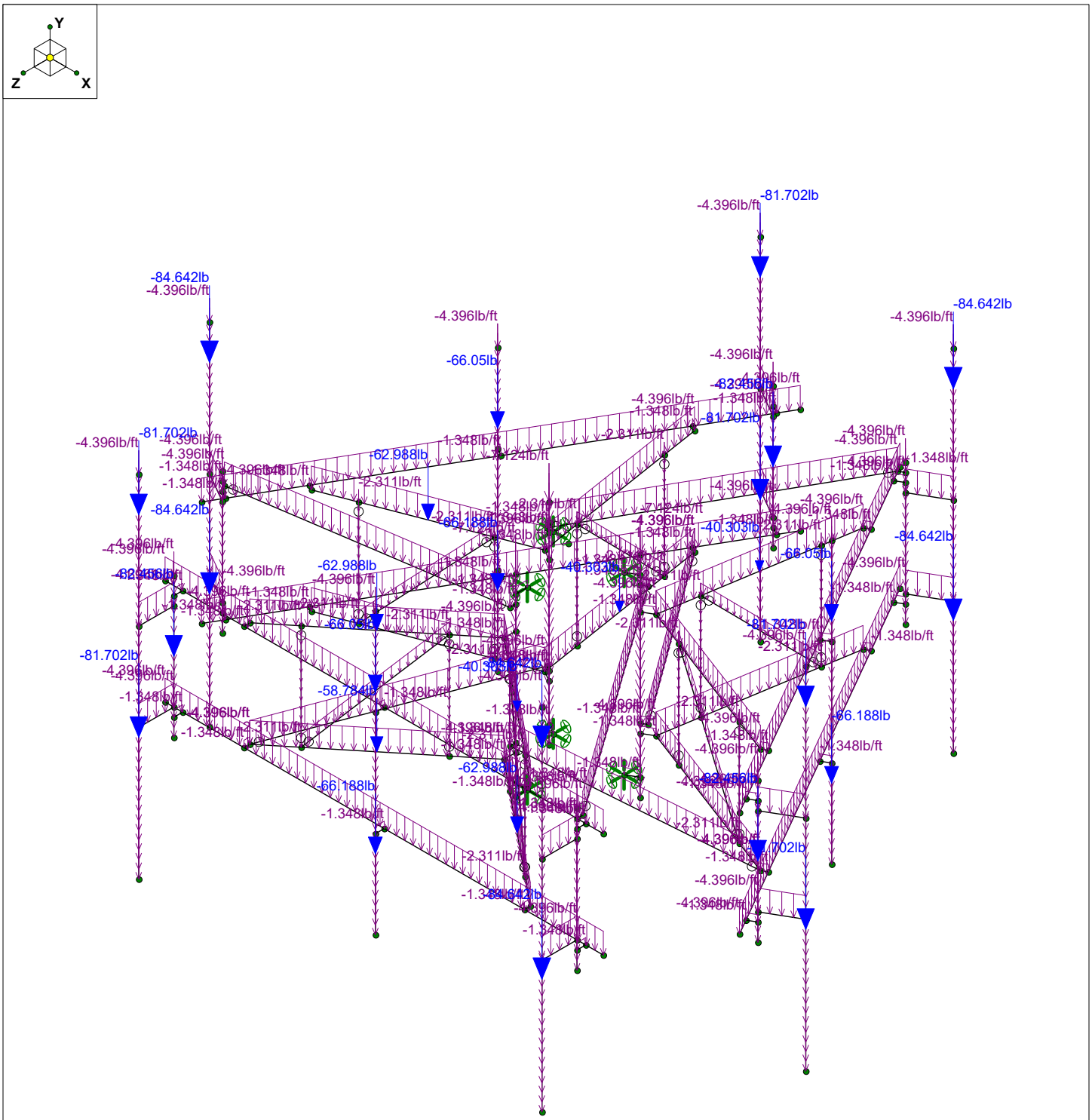
Loads: BLC 14, Distr. Wind Load Z

Infinigy	842862	Dist. Wind Loading 0
AM		May 5, 2022 at 11:03 AM
1039-Z0001-B		842862_loaded.r3d



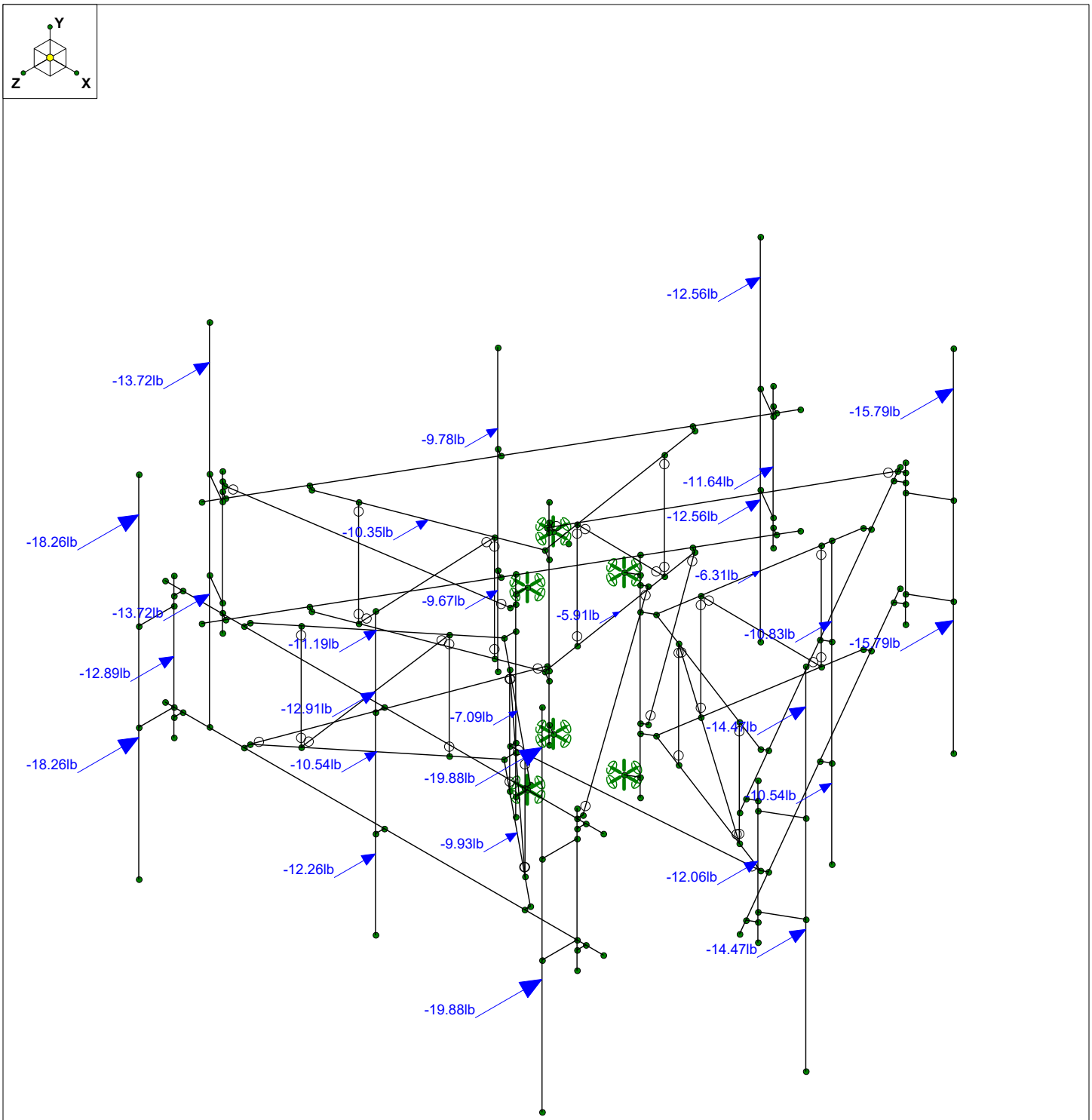
Loads: BLC 15, Distr. Wind Load X

Infinigy	842862	Dist. Wind Loading 90
AM		May 5, 2022 at 11:03 AM
1039-Z0001-B		842862_loaded.r3d



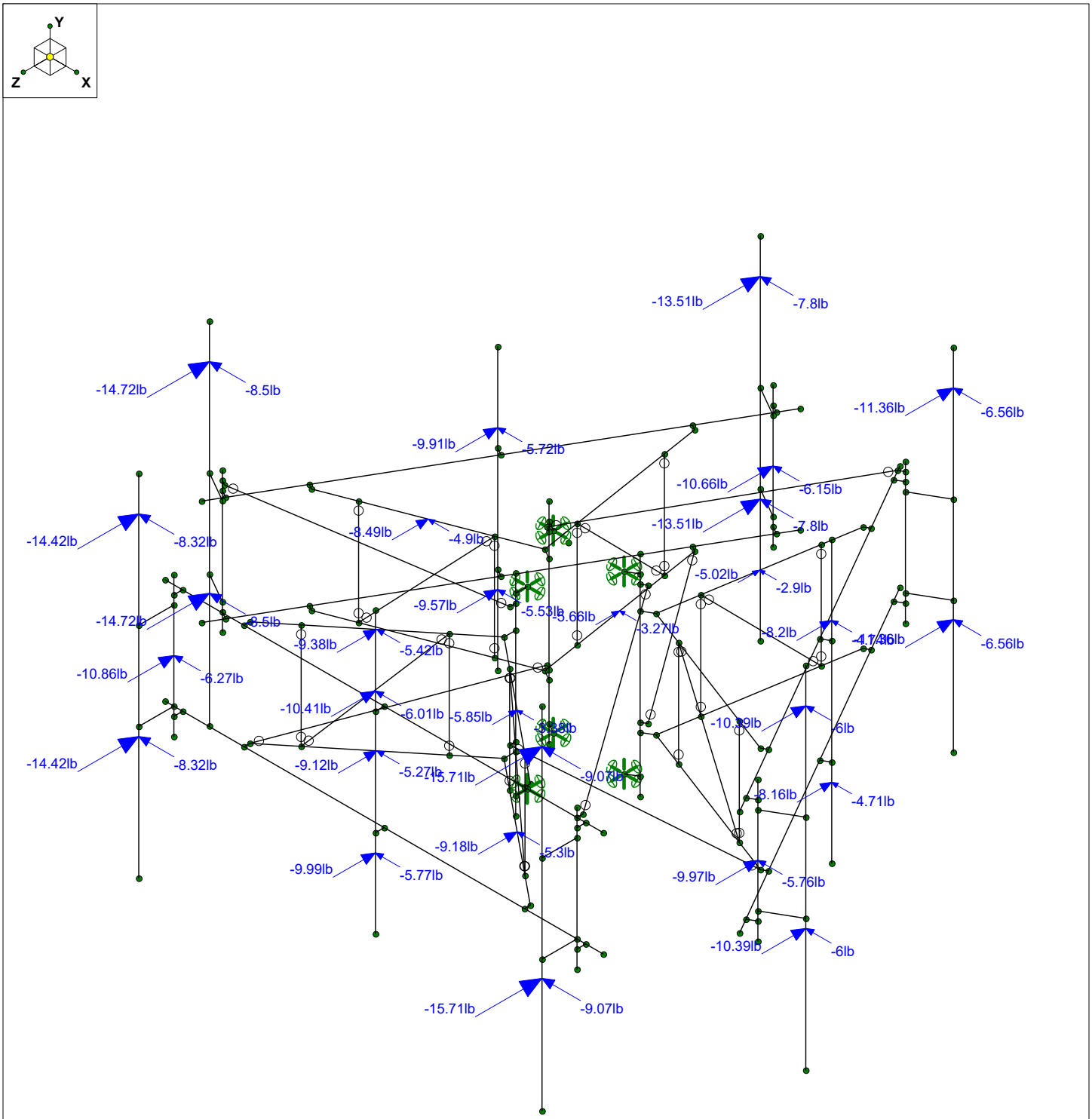
Loads: BLC 16, Ice Weight

Infinigy	842862	Ice Weight
AM		May 5, 2022 at 11:03 AM
1039-Z0001-B		842862_loaded.r3d



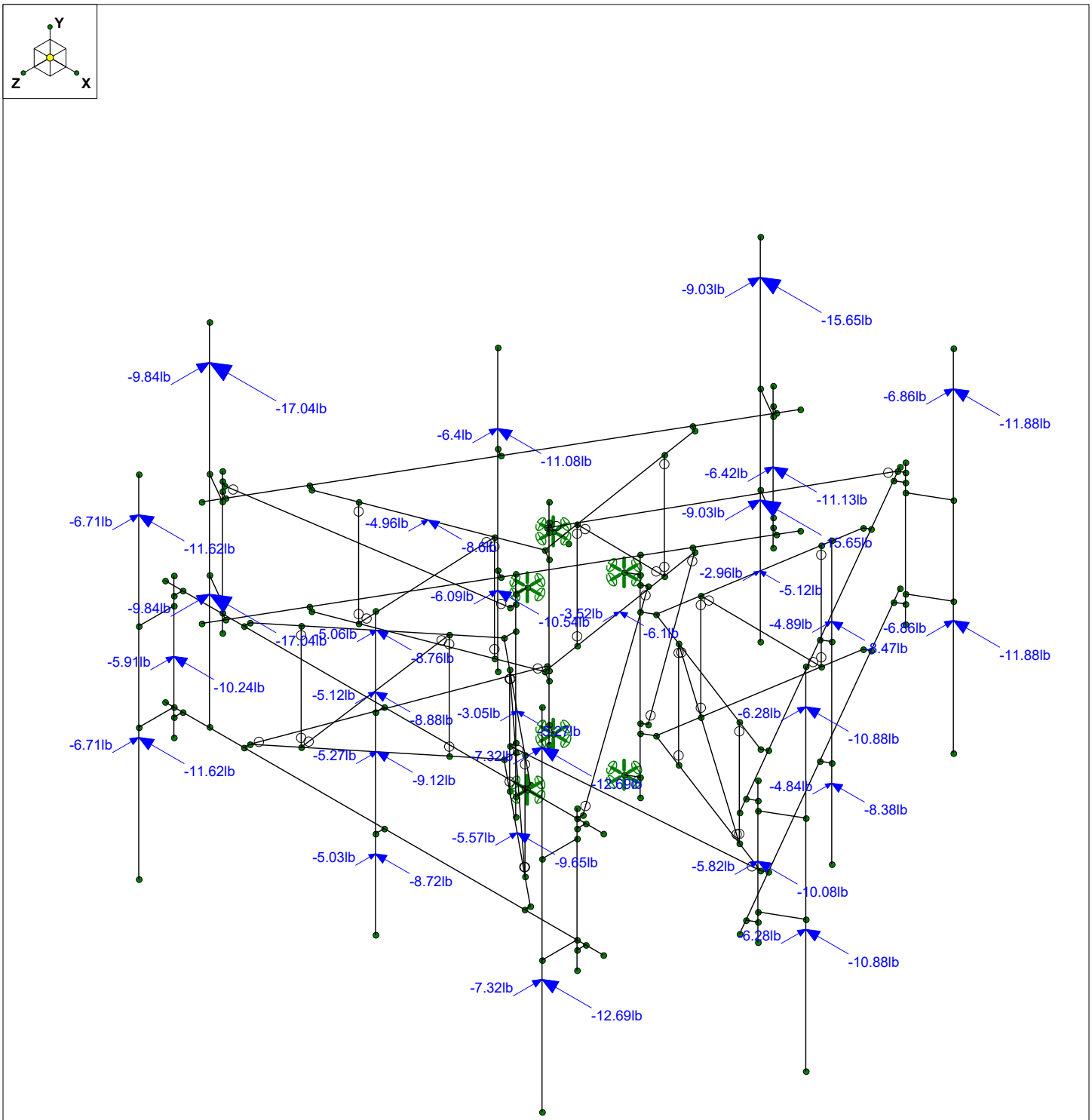
Loads: BLC 17, Ice Wind Load AZI 0

Infinigy	842862	Ice Wind Loading 0
AM		May 5, 2022 at 11:04 AM
1039-Z0001-B		842862_loaded.r3d



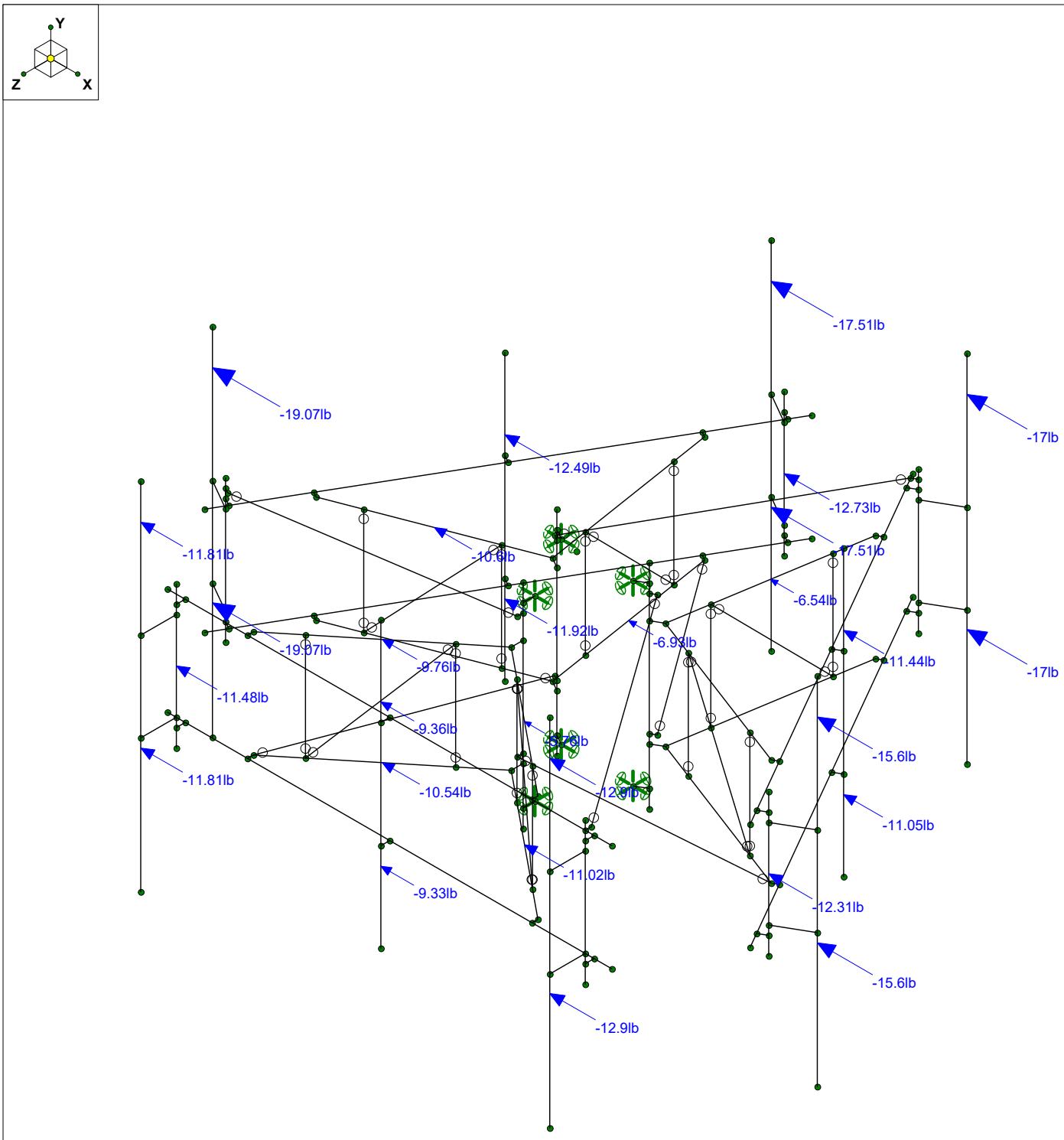
Loads: BLC 18, Ice Wind Load AZI 30

Infinigy	842862	Ice Wind Loading 30
AM		May 5, 2022 at 11:04 AM
1039-Z0001-B		842862_loaded.r3d



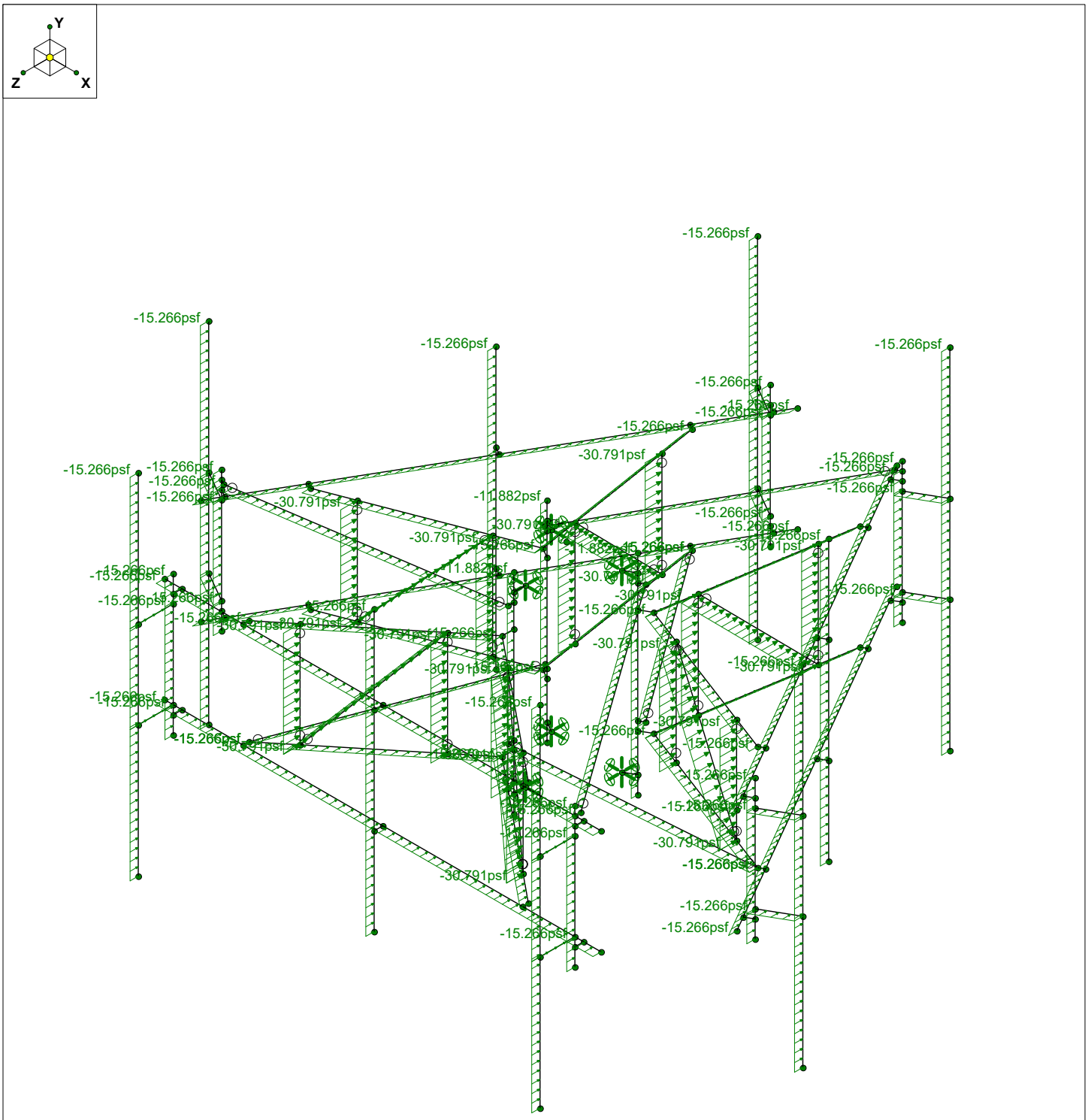
Loads: BLC 19, Ice Wind Load AZI 60

Infinigy	842862	Ice Wind Loading 60
AM		May 5, 2022 at 11:04 AM
1039-Z0001-B		842862_loaded.r3d



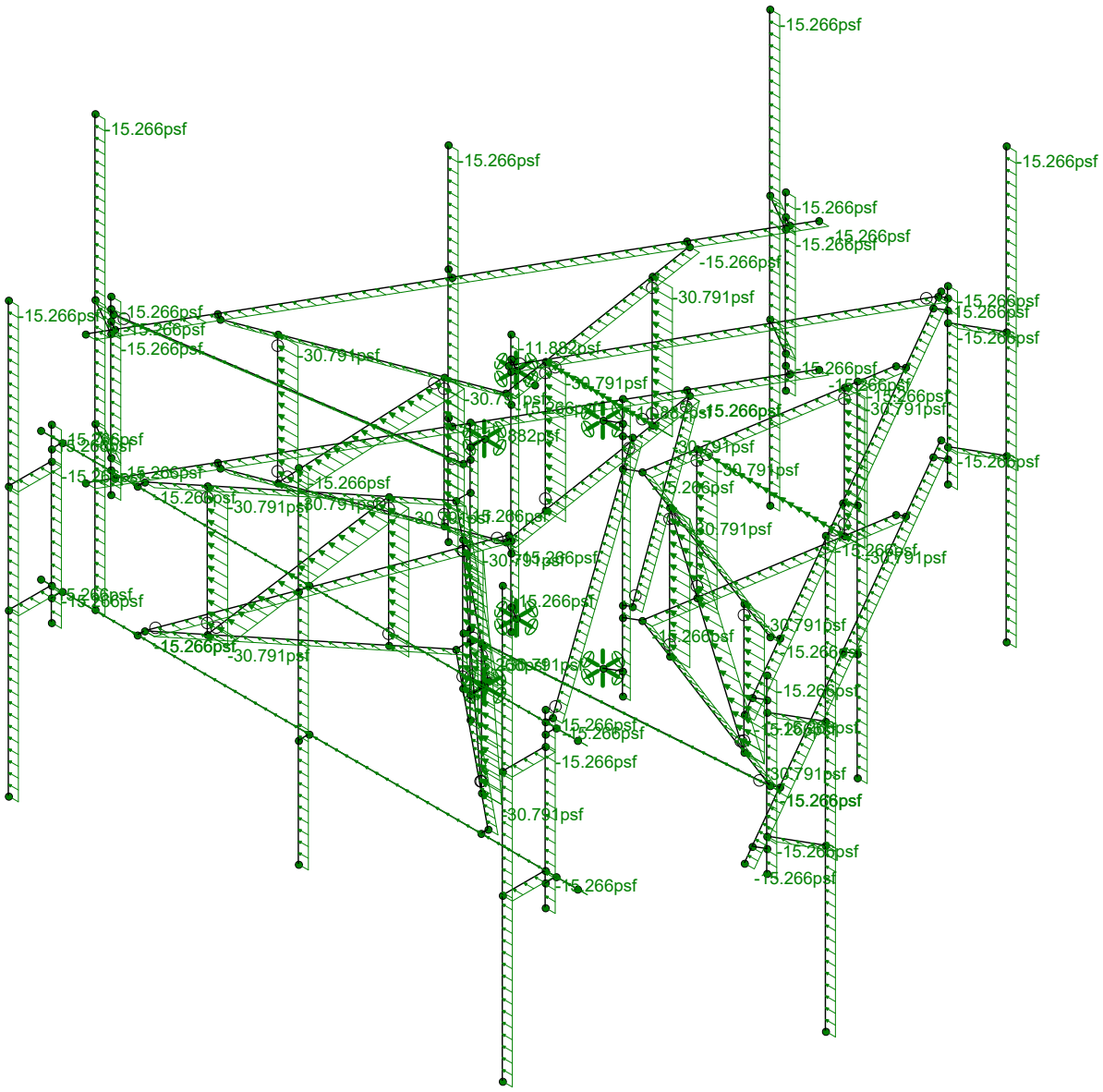
Loads: BLC 20, Ice Wind Load AZI 90

Infinigy	842862	Ice Wind Loading 90
AM		May 5, 2022 at 11:04 AM
1039-Z0001-B		842862_loaded.r3d



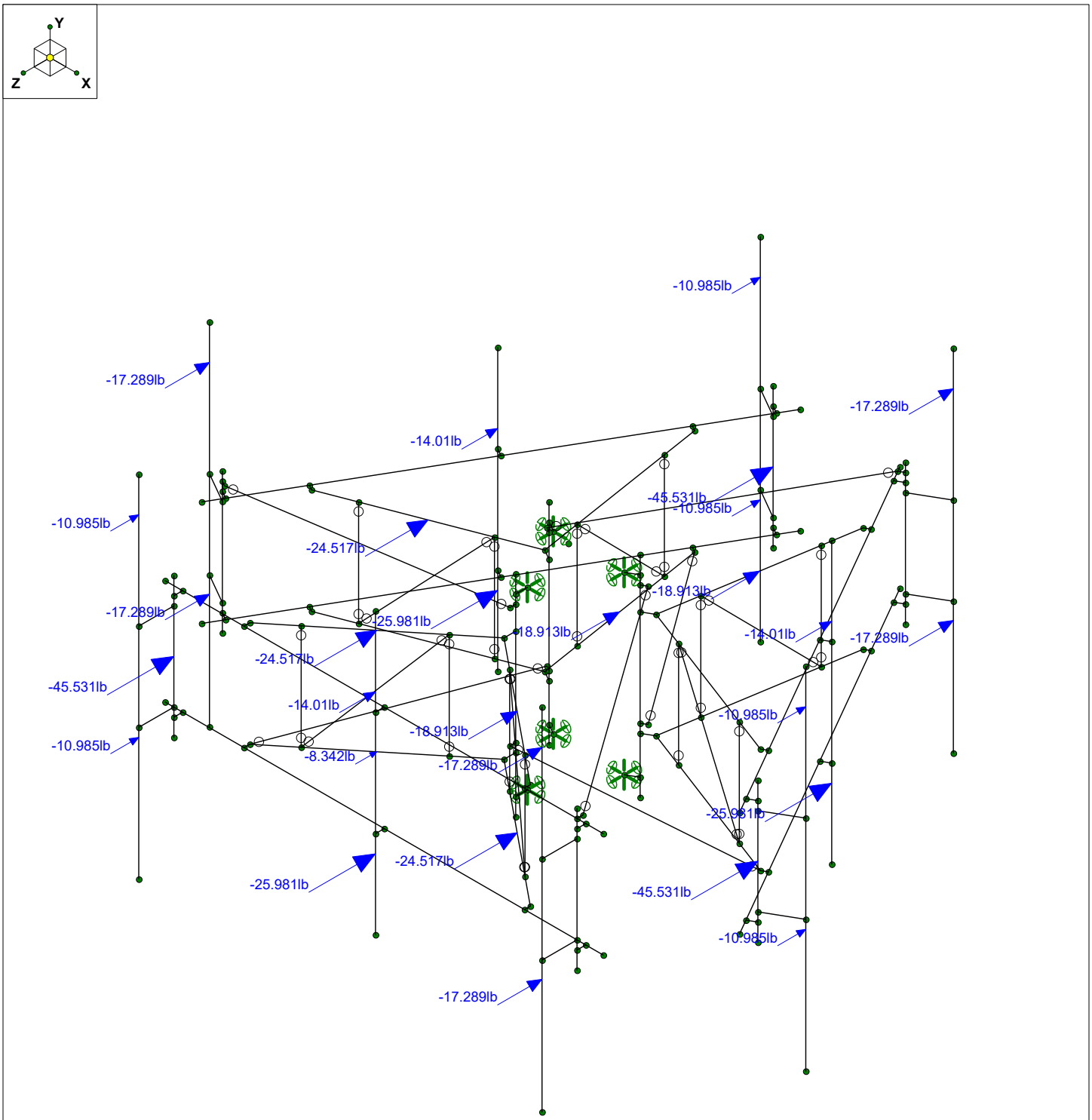
Loads: BLC 29, Distr. Ice Wind Load Z

Infinigy	842862	Dist. Ice Wind Loading 0
AM		May 5, 2022 at 11:04 AM
1039-Z0001-B		842862_loaded.r3d



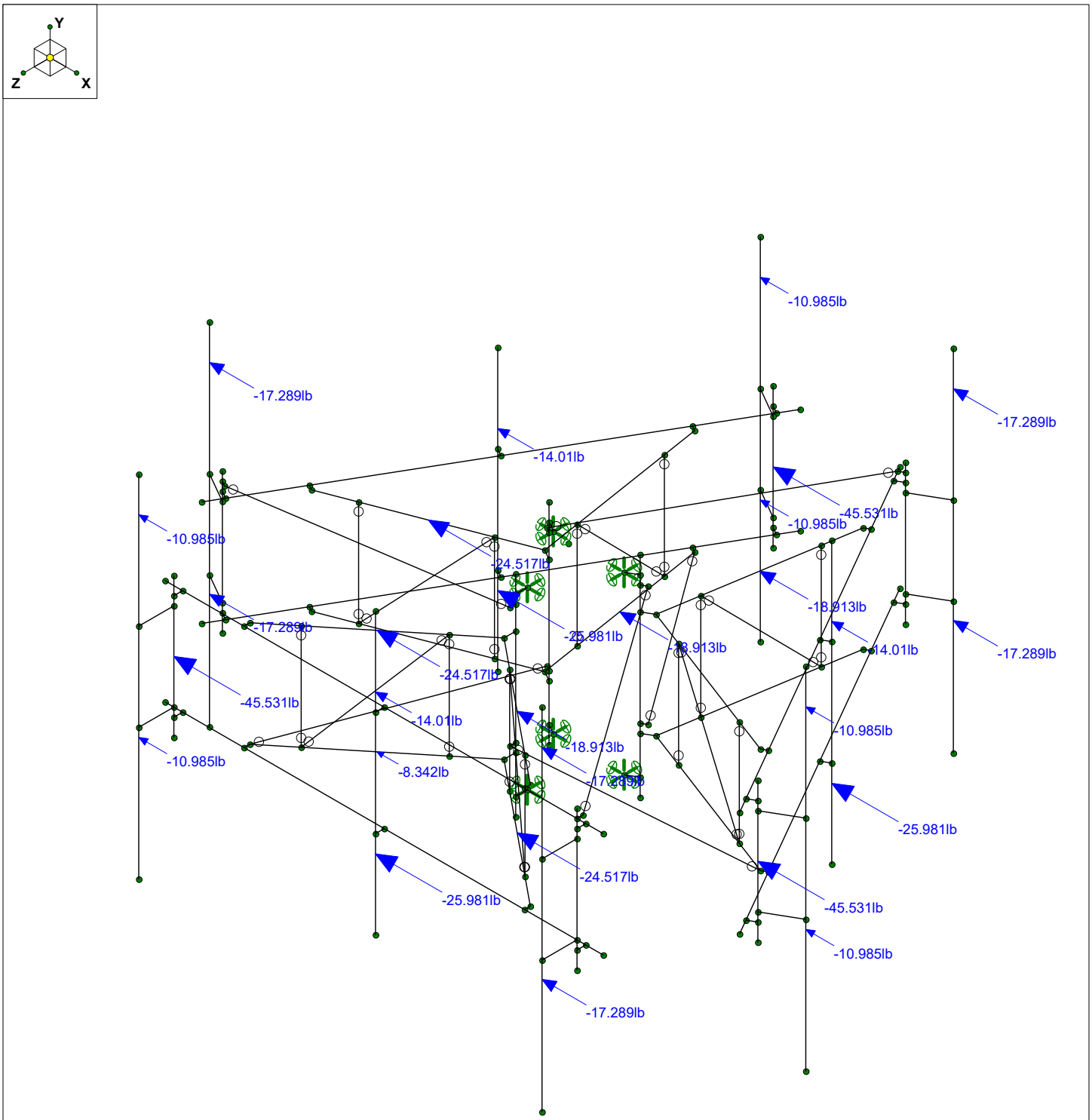
Loads: BLC 30, Distr. Ice Wind Load X

Infinigy	842862	Dist. Ice Wind Loading 90
AM		May 5, 2022 at 11:04 AM
1039-Z0001-B		842862_loaded.r3d



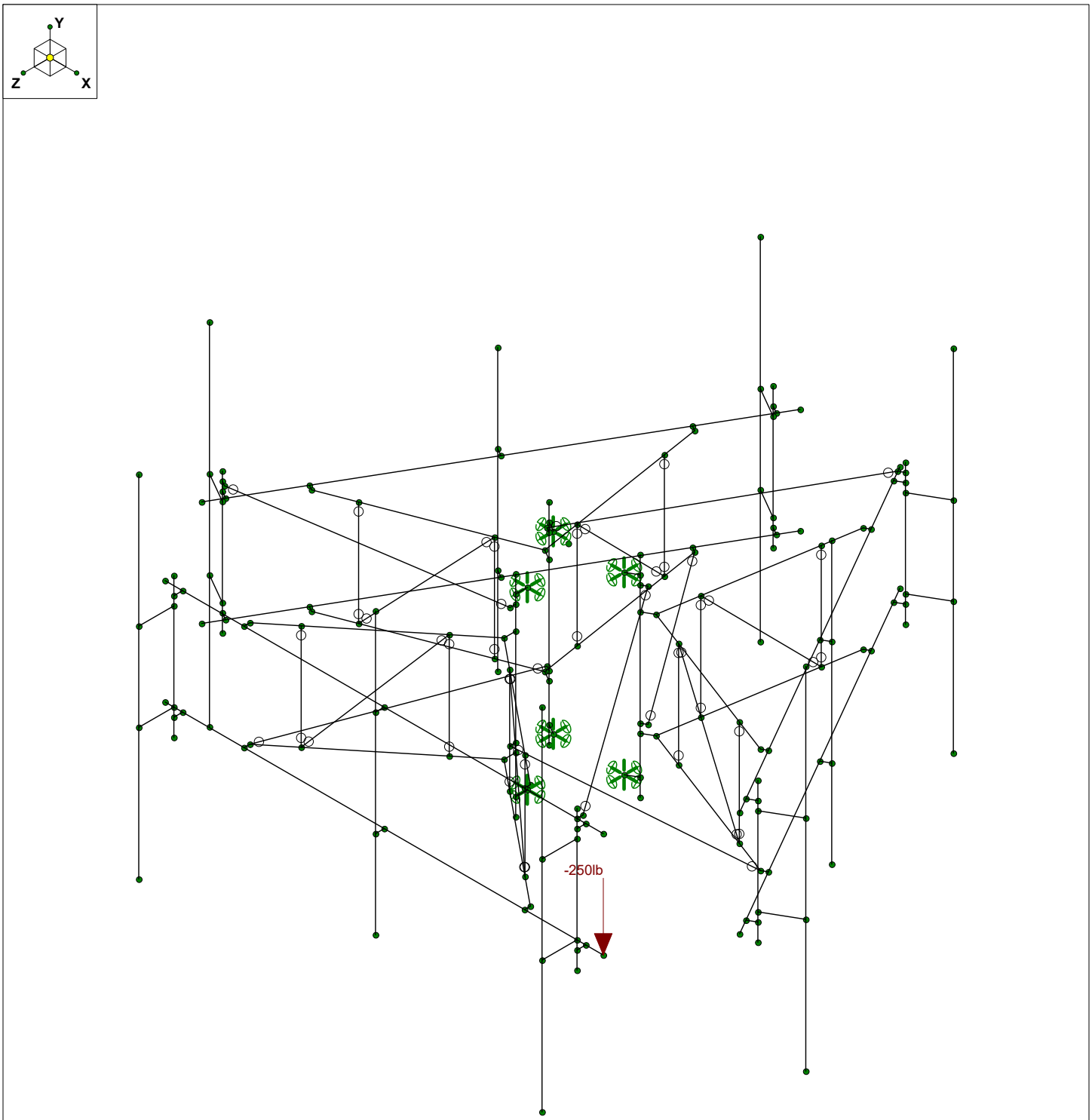
Loads: BLC 31, Seismic Load Z

Infinigy	842862	Seismic Loading 0
AM		May 5, 2022 at 11:05 AM
1039-Z0001-B		842862_loaded.r3d



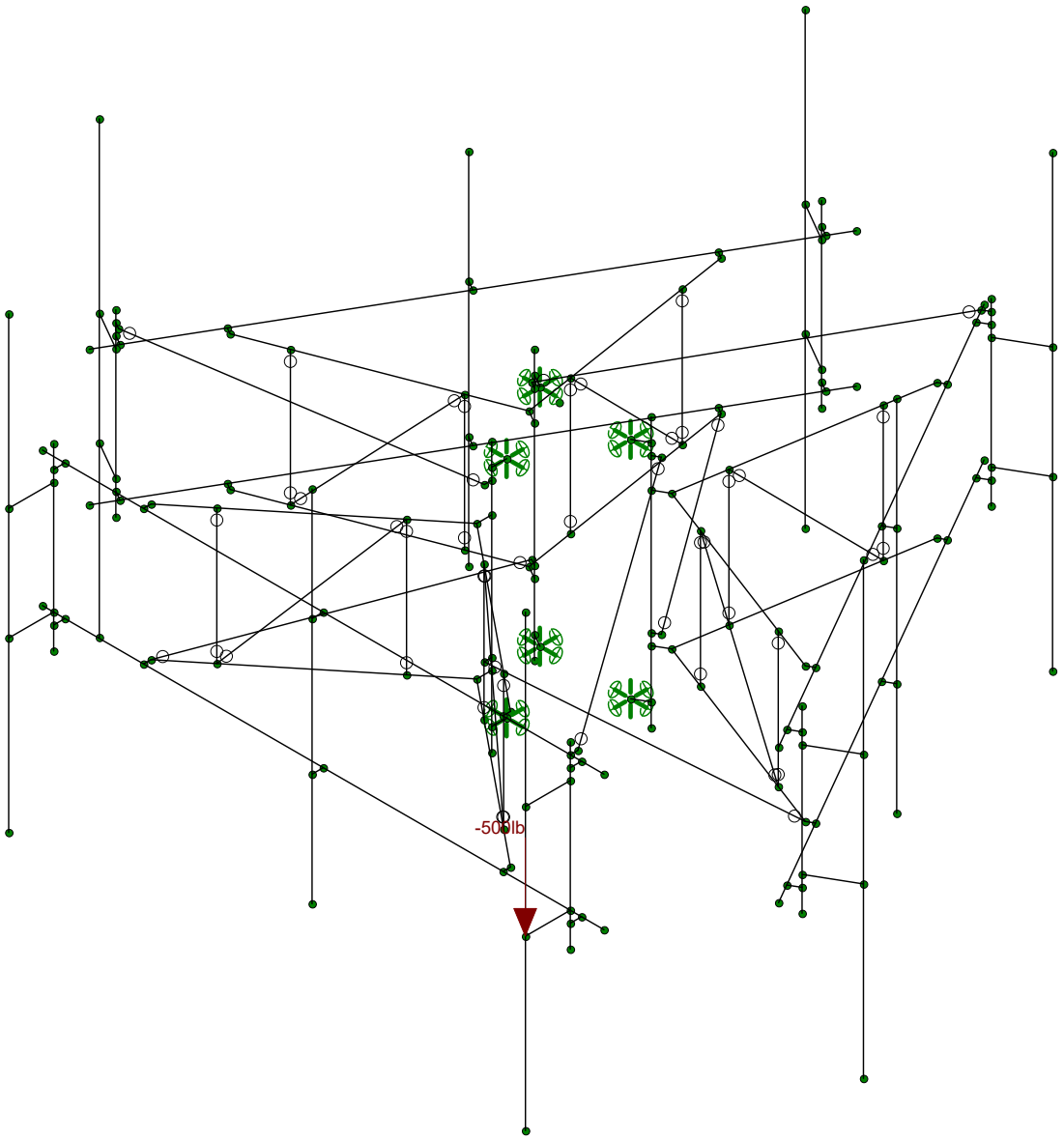
Loads: BLC 32, Seismic Load X

Infinigy	842862	Seismic Loading 90
AM		May 5, 2022 at 11:05 AM
1039-Z0001-B		842862_loaded.r3d



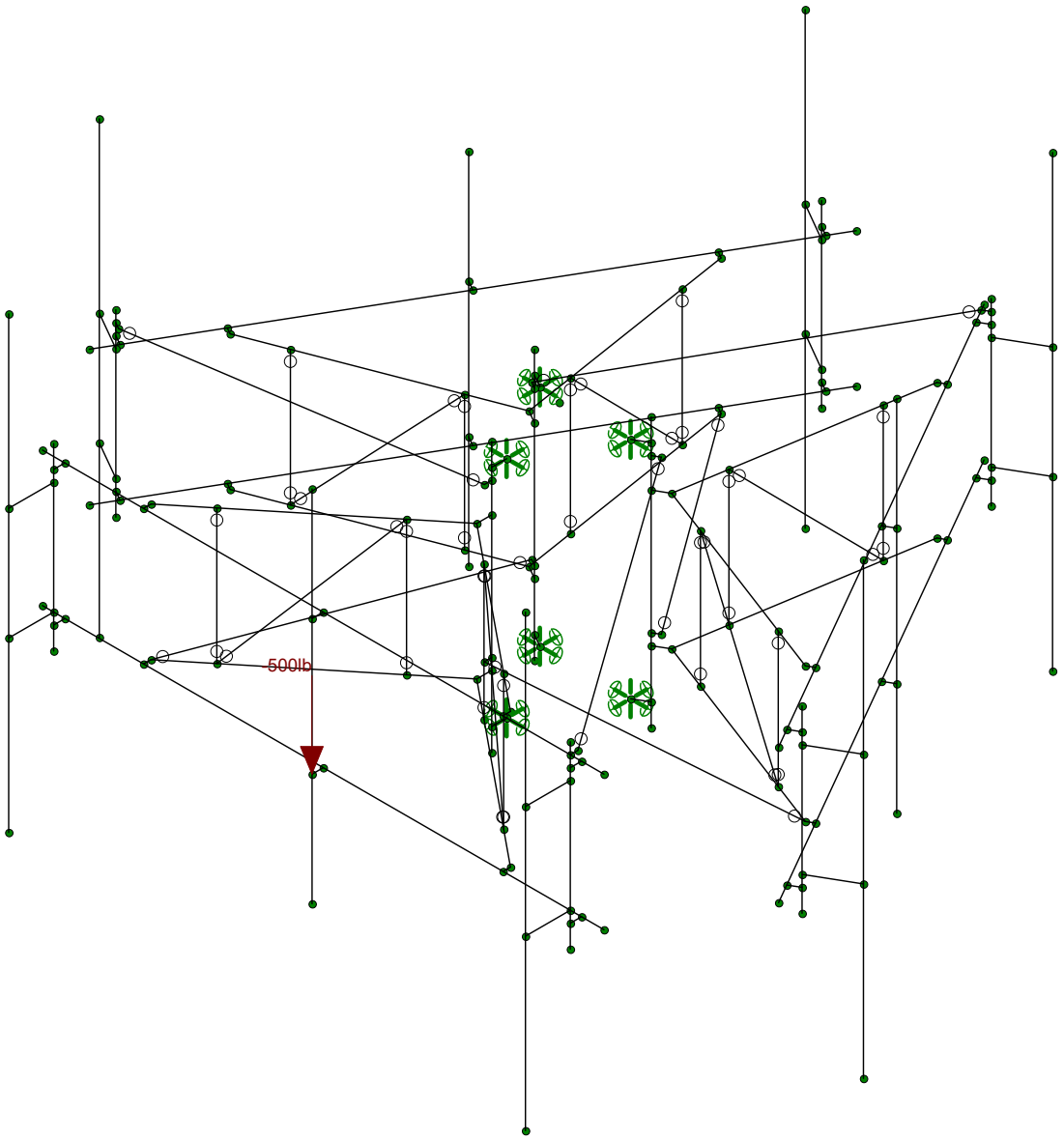
Loads: BLC 33, Service Live Loads

Infinigy	842862	Service
AM		May 5, 2022 at 11:05 AM
1039-Z0001-B		842862_loaded.r3d



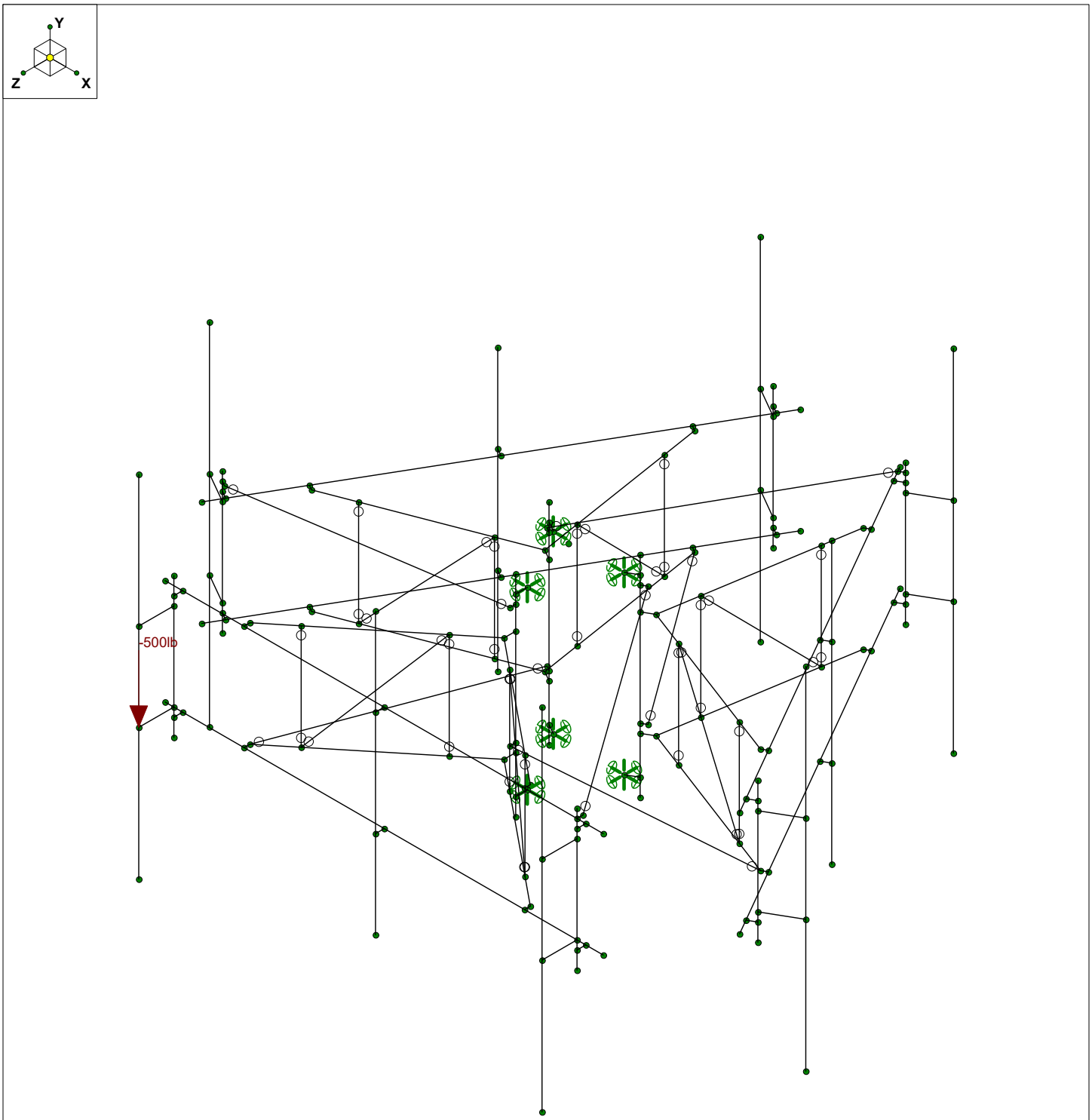
Loads: BLC 38, Maintenance Load 5

Infinigy	842862	Maintenance Load 5
AM		May 5, 2022 at 11:06 AM
1039-Z0001-B		842862_loaded.r3d



Loads: BLC 34, Maintenance Load 1

Infinigy	842862	Maintenance Load 1
AM		May 5, 2022 at 11:05 AM
1039-Z0001-B		842862_loaded.r3d



Loads: BLC 37, Maintenance Load 4

Infinigy	842862	Maintenance Load 4
AM		May 5, 2022 at 11:05 AM
1039-Z0001-B		842862_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	AT&T Mobility
Engineer:	Alex Mercado

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	35.45	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Sector Frame	
Num Sectors:	3	
Centerline AGL:	54.00	ft
Tower Height AGL:	58.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.999	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

CODE STANDARDS		
Building Code:	2018 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-16	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	121	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1	in
Flat Pressure:	79.063	psf
Round Pressure:	47.438	psf
Ice Wind Pressure:	8.100	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.199	g
1-Second Accel. (S_1):	0.053	g
Short-Period Design (S_{DS}):	0.212	
1-Second Design (S_{D1}):	0.085	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY

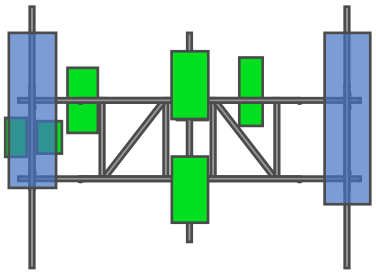
FROM ZERO TO INFINIGY

the solutions are endless

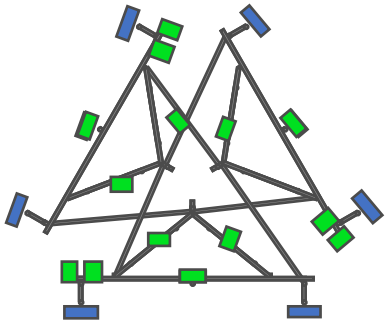
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

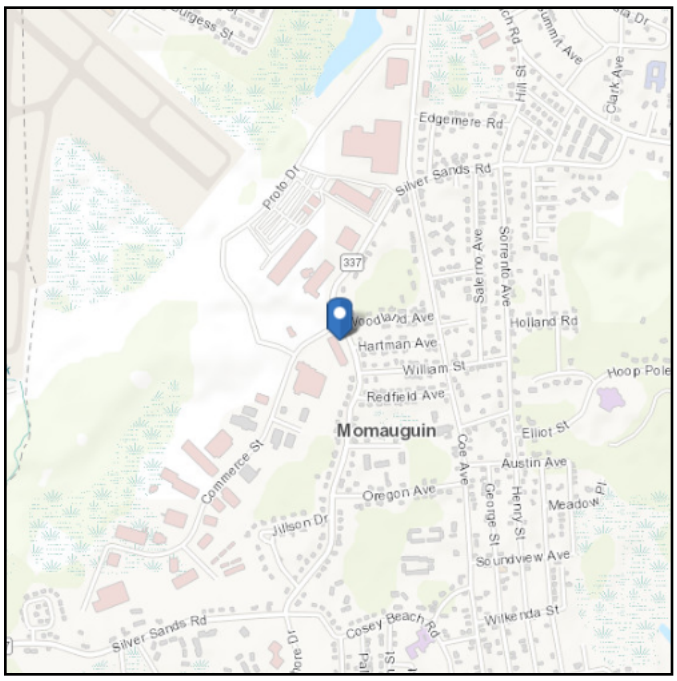
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
CCI ANTENNAS TPA65R-BU6D_CCIV2	55.0	3	0.90	39.68	11.93	4.48	426.09	160.01	69.00	21.97	MP3
KATHREIN 80010965	55.0	3	0.90	39.68	12.23	4.21	436.81	150.36	108.60	34.58	MP1
ERICSSON AIR 6419 B77G_CCIV3	57.0	3	0.90	39.98	4.17	2.02	150.15	72.52	44.00	14.01	MP2
ERICSSON AIR 6449 B77D_CCVI2	53.0	3	0.90	39.38	3.64	1.72	129.00	60.95	81.60	25.98	MP2
ERICSSON RRUS 4449 B5/B12	55.0	3	0.90	39.68	1.97	1.41	70.27	50.29	71.00	22.61	R3
ERICSSON RRUS 4478 B14_CCIV2	55.0	3	0.90	39.68	2.02	1.25	72.19	44.50	59.40	18.91	S3
ERICSSON RRUS 8843 B2/B66A	55.0	3	0.90	39.68	1.64	1.35	58.54	48.34	72.00	22.92	R3
ERICSSON RRUS-32 B30	55.0	3	0.90	39.68	3.31	2.42	118.36	86.57	77.00	24.52	S1
RAYCAP DC6-48-60-18-8C	55.0	1	0.90	39.68	2.74	2.74	97.74	97.74	26.20	8.34	S2
RAYCAP DC6-48-60-18-8F	55.0	2	0.90	39.68	2.04	2.04	72.85	72.85	18.90	6.02	Leg/Flush

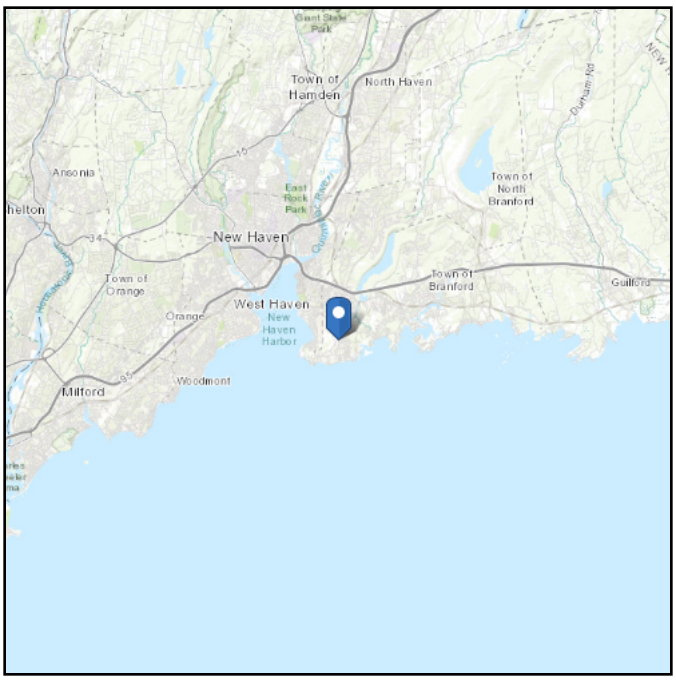
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 35.45 ft (NAVD 88)
Latitude: 41.256356
Longitude: -72.875778





Wind

Results:

Wind Speed	121 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Apr 12 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

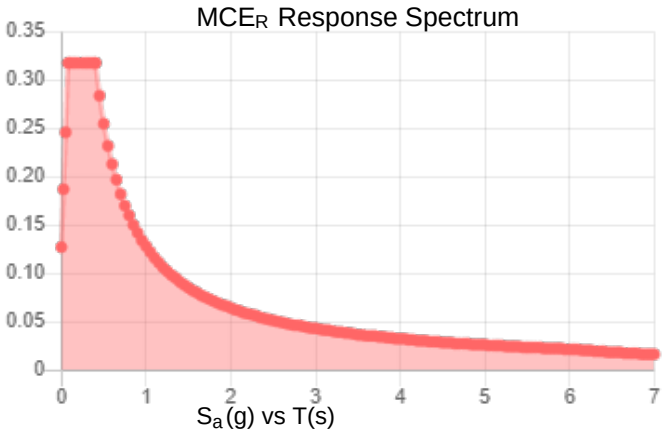
Seismic

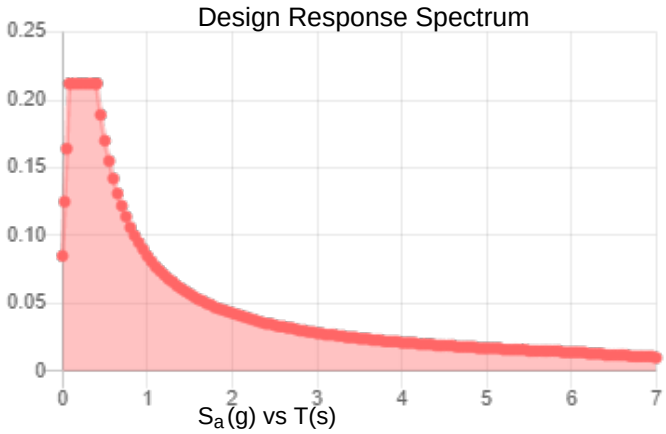
Site Soil Class: D - Default (see Section 11.4.3)

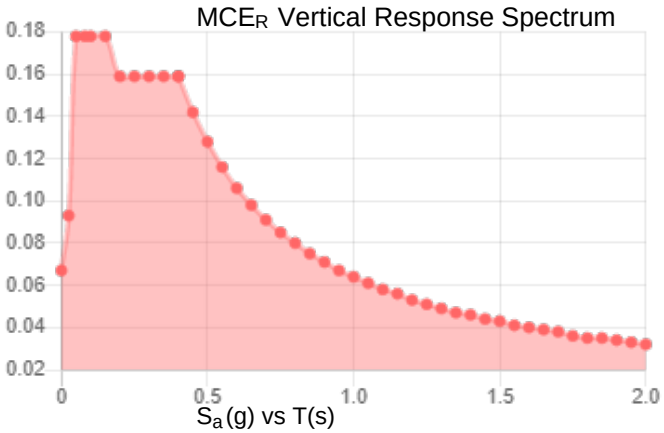
Results:

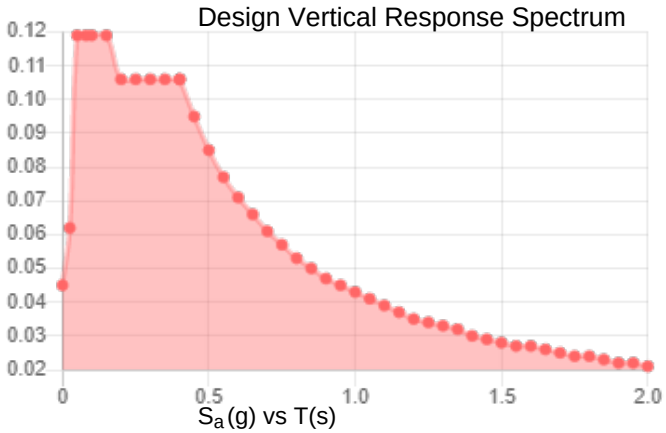
S_S :	0.199	S_{D1} :	0.085
S_1 :	0.053	T_L :	6
F_a :	1.6	PGA :	0.111
F_v :	2.4	PGA_M :	0.175
S_{MS} :	0.318	F_{PGA} :	1.578
S_{M1} :	0.128	I_e :	1
S_{DS} :	0.212	C_v :	0.7

Seismic Design Category B









Data Accessed: **Tue Apr 12 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Apr 12 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
1	H1	N15	N28		270	Horizontal	Beam	Pipe	A53 Gr.B	Typical
2	H2	N1	N14		180	Horizontal	Beam	Pipe	A53 Gr.B	Typical
3	S1	N66A	N40		180	Standoff	Beam	Pipe	A53 Gr.B	Typical
4	S2	N67A	N39		270	Standoff	Beam	Pipe	A53 Gr.B	Typical
5	S3	N40	N64A		180	Standoff	Beam	Pipe	A53 Gr.B	Typical
6	S4	N39	N65A		270	Standoff	Beam	Pipe	A53 Gr.B	Typical
7	B1	N62	N63			Bracing	Beam	BAR	A36 Gr.36	Typical
8	B2	N63	N59			Bracing	Beam	BAR	A36 Gr.36	Typical
9	B3	N59	N60			Bracing	Beam	BAR	A36 Gr.36	Typical
10	B4	N56A	N57			Bracing	Beam	BAR	A36 Gr.36	Typical
11	B5	N57	N53A			Bracing	Beam	BAR	A36 Gr.36	Typical
12	B6	N53A	N54A			Bracing	Beam	BAR	A36 Gr.36	Typical
13	PP1	N57A	N58			Pivot Pipe	Beam	Pipe	A53 Gr.B	Typical
14	M14A	N27	N61			RIGID	None	None	RIGID	Typical
15	M15A	N28A	N62A			RIGID	None	None	RIGID	Typical
16	M16	N30	N36			RIGID	None	None	RIGID	Typical
17	M17	N29	N35			RIGID	None	None	RIGID	Typical
18	M18C	N62B	N33			RIGID	None	None	RIGID	Typical
19	M19B	N63B	N34			RIGID	None	None	RIGID	Typical
20	M20A	N32	N38			RIGID	None	None	RIGID	Typical
21	M21A	N31	N37			RIGID	None	None	RIGID	Typical
22	M22	N40	N39A			RIGID	None	None	RIGID	Typical
23	M23	N39	N38A			RIGID	None	None	RIGID	Typical
24	M24	N41	N66A			RIGID	None	None	RIGID	Typical
25	M25	N42	N67A			RIGID	None	None	RIGID	Typical
26	M26	N39B	N64A			RIGID	None	None	RIGID	Typical
27	M27	N40A	N65A			RIGID	None	None	RIGID	Typical
28	R1	N45	N48			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
29	MP2	N43	N46			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
30	R3	N44	N47			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
31	H5	N52	N53		270	Horizontal	Beam	Pipe	A53 Gr.B	Typical
32	H6	N50	N51		180	Horizontal	Beam	Pipe	A53 Gr.B	Typical
33	S11	N60A	N55		180	Standoff	Beam	Pipe	A53 Gr.B	Typical
34	S12	N61A	N54		270	Standoff	Beam	Pipe	A53 Gr.B	Typical
35	S9	N55	N58A		180	Standoff	Beam	Pipe	A53 Gr.B	Typical
36	S10	N54	N59A		270	Standoff	Beam	Pipe	A53 Gr.B	Typical
37	B7	N68	N69			Bracing	Beam	BAR	A36 Gr.36	Typical
38	B8	N69	N66			Bracing	Beam	BAR	A36 Gr.36	Typical
39	B9	N66	N67			Bracing	Beam	BAR	A36 Gr.36	Typical
40	B10	N64	N65			Bracing	Beam	BAR	A36 Gr.36	Typical
41	B11	N65	N62C			Bracing	Beam	BAR	A36 Gr.36	Typical
42	B12	N62C	N63A			Bracing	Beam	BAR	A36 Gr.36	Typical
43	PP3	N70	N71			Pivot Pipe	Beam	Pipe	A53 Gr.B	Typical
44	M44	N74	N72			RIGID	None	None	RIGID	Typical
45	M45	N75	N73			RIGID	None	None	RIGID	Typical
46	M46	N77	N83			RIGID	None	None	RIGID	Typical
47	M47	N76	N82			RIGID	None	None	RIGID	Typical
48	M48	N56	N80			RIGID	None	None	RIGID	Typical
49	M49	N57B	N81			RIGID	None	None	RIGID	Typical
50	M50	N79	N85			RIGID	None	None	RIGID	Typical
51	M51	N78	N84			RIGID	None	None	RIGID	Typical
52	M52	N55	N87			RIGID	None	None	RIGID	Typical
53	M53	N54	N86			RIGID	None	None	RIGID	Typical
54	M54	N90	N60A			RIGID	None	None	RIGID	Typical
55	M55	N91	N61A			RIGID	None	None	RIGID	Typical
56	M56	N88	N58A			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
57	M57	N89	N59A			RIGID	None	None	RIGID	Typical
58	R7	N94	N97			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
59	MP8	N92	N95			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
60	R9	N93	N96			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
61	H3	N101	N102		270	Horizontal	Beam	Pipe	A53 Gr.B	Typical
62	H4	N99	N100		180	Horizontal	Beam	Pipe	A53 Gr.B	Typical
63	S5	N109	N104		180	Standoff	Beam	Pipe	A53 Gr.B	Typical
64	S6	N110	N103		270	Standoff	Beam	Pipe	A53 Gr.B	Typical
65	S7	N104	N107		180	Standoff	Beam	Pipe	A53 Gr.B	Typical
66	S8	N103	N108		270	Standoff	Beam	Pipe	A53 Gr.B	Typical
67	B13	N117	N118			Bracing	Beam	BAR	A36 Gr.36	Typical
68	B14	N118	N115			Bracing	Beam	BAR	A36 Gr.36	Typical
69	B15	N115	N116			Bracing	Beam	BAR	A36 Gr.36	Typical
70	B16	N113	N114			Bracing	Beam	BAR	A36 Gr.36	Typical
71	B17	N114	N111			Bracing	Beam	BAR	A36 Gr.36	Typical
72	B18	N111	N112			Bracing	Beam	BAR	A36 Gr.36	Typical
73	PP2	N119	N120			Pivot Pipe	Beam	Pipe	A53 Gr.B	Typical
74	M74	N123	N121			RIGID	None	None	RIGID	Typical
75	M75	N124	N122			RIGID	None	None	RIGID	Typical
76	M76	N126	N132			RIGID	None	None	RIGID	Typical
77	M77	N125	N131			RIGID	None	None	RIGID	Typical
78	M78	N105	N129			RIGID	None	None	RIGID	Typical
79	M79	N106	N130			RIGID	None	None	RIGID	Typical
80	M80	N128	N134			RIGID	None	None	RIGID	Typical
81	M81	N127	N133			RIGID	None	None	RIGID	Typical
82	M82	N104	N136			RIGID	None	None	RIGID	Typical
83	M83	N103	N135			RIGID	None	None	RIGID	Typical
84	M84	N139	N109			RIGID	None	None	RIGID	Typical
85	M85	N140	N110			RIGID	None	None	RIGID	Typical
86	M86	N137	N107			RIGID	None	None	RIGID	Typical
87	M87	N138	N108			RIGID	None	None	RIGID	Typical
88	R4	N143	N146			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
89	MP5	N141	N144			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
90	R6	N142	N145			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
91	M91	N147	N149			RIGID	None	None	RIGID	Typical
92	M92	N146A	N148			RIGID	None	None	RIGID	Typical
93	M93	N152	N154			RIGID	None	None	RIGID	Typical
94	M94	N151	N153			RIGID	None	None	RIGID	Typical
95	M95	N157	N159			RIGID	None	None	RIGID	Typical
96	M96	N156	N158			RIGID	None	None	RIGID	Typical
97	M97	N158A	N159A			RIGID	None	None	RIGID	Typical
98	M98	N161	N162			RIGID	None	None	RIGID	Typical
99	M99	N164	N165			RIGID	None	None	RIGID	Typical
100	TB1	N159A	N153			Tieback	Beam	Pipe	A53 Gr.B	Typical
101	TB2	N67A	N159			Tieback	Beam	Pipe	A53 Gr.B	Typical
102	TB3	N61A	N149			Tieback	Beam	Pipe	A53 Gr.B	Typical
103	TB4	N110	N154			Tieback	Beam	Pipe	A53 Gr.B	Typical
104	TB5	N165	N148			Tieback	Beam	Pipe	A53 Gr.B	Typical
105	TB6	N162	N158			Tieback	Beam	Pipe	A53 Gr.B	Typical
106	M106	N164A	N168			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
107	M107	N166	N170			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
108	M108	N165A	N169			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
109	M109	N167	N171			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
110	MP3	N172	N174			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
111	MP1	N173	N175			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
112	M112	N177	N181			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
113	M113	N179	N183			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
114	M114	N178	N182			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
115	M115	N180	N184			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
116	MP9	N185	N187			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
117	MP7	N186	N188			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
118	M118	N190	N194			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
119	M119	N192	N196			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
120	M120	N191	N195			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
121	M121	N193	N197			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
122	MP6	N198	N200			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical
123	MP4	N199	N201			2.0 STD Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		51	144	0
3	Total General		51	144	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	3/4" SR	18	737.5	.092
7	A53 Gr.B	PIPE_2.0	51	3585.6	1.037
8	A53 Gr.B	PIPE_4.0	3	216	.181
9	Total HR Steel		72	4539	1.311

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(M...	Surface(Plate/Wall)
1	Self Weight	DL		-1			31			
2	Wind Load AZI 0	WLZ					62			
3	Wind Load AZI 30	None					62			
4	Wind Load AZI 60	None					62			
5	Wind Load AZI 90	WLX					62			
6	Wind Load AZI 120	None					62			
7	Wind Load AZI 150	None					62			
8	Wind Load AZI 180	None					62			
9	Wind Load AZI 210	None					62			
10	Wind Load AZI 240	None					62			
11	Wind Load AZI 270	None					62			
12	Wind Load AZI 300	None					62			
13	Wind Load AZI 330	None					62			
14	Distr. Wind Load Z	WLZ						123		
15	Distr. Wind Load X	WLX						123		
16	Ice Weight	OL1					31	123		
17	Ice Wind Load AZI 0	OL2					62			
18	Ice Wind Load AZI ...	None					62			
19	Ice Wind Load AZI ...	None					62			
20	Ice Wind Load AZI ...	OL3					62			
21	Ice Wind Load AZI ...	None					62			
22	Ice Wind Load AZI ...	None					62			
23	Ice Wind Load AZI ...	None					62			
24	Ice Wind Load AZI ...	None					62			
25	Ice Wind Load AZI ...	None					62			
26	Ice Wind Load AZI ...	None					62			
27	Ice Wind Load AZI ...	None					62			
28	Ice Wind Load AZI ...	None					62			
29	Distr. Ice Wind Loa...	OL2						123		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(M...	Surface(Plate/Wall)
30	Distr. Ice Wind Loa...	OL3						123		
31	Seismic Load Z	ELZ			-.318		31			
32	Seismic Load X	ELX	-.318				31			
33	Service Live Loads	LL				1				
34	Maintenance Load 1	LL				1				
35	Maintenance Load 2	LL				1				
36	Maintenance Load 3	LL				1				
37	Maintenance Load 4	LL				1				
38	Maintenance Load 5	LL				1				
39	Maintenance Load 6	LL				1				
40	Maintenance Load 7	LL				1				
41	Maintenance Load 8	LL				1				
42	Maintenance Load 9	LL				1				

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		1	1.4																		
2	1.2DL + 1WL AZI 0	Yes	Y		1	1.2	2	1	14	1	15													
3	1.2DL + 1WL AZI 30	Yes	Y		1	1.2	3	1	14	.866	15	.5												
4	1.2DL + 1WL AZI 60	Yes	Y		1	1.2	4	1	14	.5	15	.866												
5	1.2DL + 1WL AZI 90	Yes	Y		1	1.2	5	1	14		15	1												
6	1.2DL + 1WL AZI 120	Yes	Y		1	1.2	6	1	14	-.5	15	.866												
7	1.2DL + 1WL AZI 150	Yes	Y		1	1.2	7	1	14	-.8...	15	.5												
8	1.2DL + 1WL AZI 180	Yes	Y		1	1.2	8	1	14	-1	15													
9	1.2DL + 1WL AZI 210	Yes	Y		1	1.2	9	1	14	-.8...	15	-.5												
10	1.2DL + 1WL AZI 240	Yes	Y		1	1.2	10	1	14	-.5	15	-.8...												
11	1.2DL + 1WL AZI 270	Yes	Y		1	1.2	11	1	14		15	-1												
12	1.2DL + 1WL AZI 300	Yes	Y		1	1.2	12	1	14	.5	15	-.8...												
13	1.2DL + 1WL AZI 330	Yes	Y		1	1.2	13	1	14	.866	15	-.5												
14	0.9DL + 1WL AZI 0	Yes	Y		1	.9	2	1	14	1	15													
15	0.9DL + 1WL AZI 30	Yes	Y		1	.9	3	1	14	.866	15	.5												
16	0.9DL + 1WL AZI 60	Yes	Y		1	.9	4	1	14	.5	15	.866												
17	0.9DL + 1WL AZI 90	Yes	Y		1	.9	5	1	14		15	1												
18	0.9DL + 1WL AZI 120	Yes	Y		1	.9	6	1	14	-.5	15	.866												
19	0.9DL + 1WL AZI 150	Yes	Y		1	.9	7	1	14	-.8...	15	.5												
20	0.9DL + 1WL AZI 180	Yes	Y		1	.9	8	1	14	-1	15													
21	0.9DL + 1WL AZI 210	Yes	Y		1	.9	9	1	14	-.8...	15	-.5												
22	0.9DL + 1WL AZI 240	Yes	Y		1	.9	10	1	14	-.5	15	-.8...												
23	0.9DL + 1WL AZI 270	Yes	Y		1	.9	11	1	14		15	-1												
24	0.9DL + 1WL AZI 300	Yes	Y		1	.9	12	1	14	.5	15	-.8...												
25	0.9DL + 1WL AZI 330	Yes	Y		1	.9	13	1	14	.866	15	-.5												
26	1.2D + 1.0Di	Yes	Y		1	1.2	16	1																
27	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	17	1	29	1	30											
28	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5										
29	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866										
30	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	20	1	29		30	1										
31	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866										
32	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	22	1	29	-.8...	30	.5										
33	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	23	1	29	-1	30											
34	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5										
35	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...										
36	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	26	1	29		30	-1										
37	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.8...										
38	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5										
39	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	1	32															

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
40	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	.866	32	.5																
41	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	.5	32	.866																
42	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31		32	1																
43	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	-.5	32	.866																
44	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	-.8...	32	.5																
45	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	-1	32																	
46	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	-.8...	32	-.5																
47	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	-.5	32	-.8...																
48	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31		32	-1																
49	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	.5	32	-.8...																
50	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.242	31	.866	32	-.5																
51	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	1	32																	
52	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	.866	32	.5																
53	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	.5	32	.866																
54	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31		32	1																
55	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	-.5	32	.866																
56	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	-.8...	32	.5																
57	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	-1	32																	
58	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	-.8...	32	-.5																
59	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	-.5	32	-.8...																
60	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31		32	-1																
61	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	.5	32	-.8...																
62	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.858	31	.866	32	-.5																
63	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	2	.246	14	.246	15		33	1.5												
64	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	3	.246	14	.213	15	.123	33	1.5												
65	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	4	.246	14	.123	15	.213	33	1.5												
66	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	5	.246	14		15	.246	33	1.5												
67	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	6	.246	14	-.1...	15	.213	33	1.5												
68	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	7	.246	14	-.2...	15	.123	33	1.5												
69	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	8	.246	14	-.2...	15		33	1.5												
70	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	9	.246	14	-.2...	15	-.1...	33	1.5												
71	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	10	.246	14	-.1...	15	-.2...	33	1.5												
72	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	11	.246	14		15	-.2...	33	1.5												
73	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	12	.246	14	.123	15	-.2...	33	1.5												
74	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	13	.246	14	.213	15	-.1...	33	1.5												
75	1.2DL + 1.5LL	Yes	Y		1	1.2	33	1.5																		
76	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	2	.061	14	.061	15													
77	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	3	.061	14	.053	15	.031												
78	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	4	.061	14	.031	15	.053												
79	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	5	.061	14		15	.061												
80	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	6	.061	14	-.0...	15	.053												
81	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	7	.061	14	-.0...	15	.031												
82	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	8	.061	14	-.0...	15													
83	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	9	.061	14	-.0...	15	-.0...												
84	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	10	.061	14	-.0...	15	-.0...												
85	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	11	.061	14		15	-.0...												
86	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	12	.061	14	.031	15	-.0...												
87	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	13	.061	14	.053	15	-.0...												
88	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	2	.061	14	.061	15													
89	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	3	.061	14	.053	15	.031												
90	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	4	.061	14	.031	15	.053												
91	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	5	.061	14		15	.061												
92	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	6	.061	14	-.0...	15	.053												
93	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	7	.061	14	-.0...	15	.031												
94	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	8	.061	14	-.0...	15													
95	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	9	.061	14	-.0...	15	-.0...												
96	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	10	.061	14	-.0...	15	-.0...												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
97	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	11	.061	14		15	-.0...												
98	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	12	.061	14	.031	15	-.0...												
99	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	13	.061	14	.053	15	-.0...												
100	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	2	.061	14	.061	15													
101	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	3	.061	14	.053	15	.031												
102	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	4	.061	14	.031	15	.053												
103	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	5	.061	14		15	.061												
104	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	6	.061	14	-.0...	15	.053												
105	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	7	.061	14	-.0...	15	.031												
106	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	8	.061	14	-.0...	15													
107	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	9	.061	14	-.0...	15	-.0...												
108	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	10	.061	14	-.0...	15	-.0...												
109	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	11	.061	14		15	-.0...												
110	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	12	.061	14	.031	15	-.0...												
111	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	13	.061	14	.053	15	-.0...												
112	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	2	.061	14	.061	15													
113	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	3	.061	14	.053	15	.031												
114	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	4	.061	14	.031	15	.053												
115	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	5	.061	14		15	.061												
116	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	6	.061	14	-.0...	15	.053												
117	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	7	.061	14	-.0...	15	.031												
118	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	8	.061	14	-.0...	15													
119	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	9	.061	14	-.0...	15	-.0...												
120	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	10	.061	14	-.0...	15	-.0...												
121	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	11	.061	14		15	-.0...												
122	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	12	.061	14	.031	15	-.0...												
123	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	13	.061	14	.053	15	-.0...												
124	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	2	.061	14	.061	15													
125	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	3	.061	14	.053	15	.031												
126	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	4	.061	14	.031	15	.053												
127	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	5	.061	14		15	.061												
128	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	6	.061	14	-.0...	15	.053												
129	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	7	.061	14	-.0...	15	.031												
130	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	8	.061	14	-.0...	15													
131	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	9	.061	14	-.0...	15	-.0...												
132	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	10	.061	14	-.0...	15	-.0...												
133	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	11	.061	14		15	-.0...												
134	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	12	.061	14	.031	15	-.0...												
135	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	13	.061	14	.053	15	-.0...												
136	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	2	.061	14	.061	15													
137	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	3	.061	14	.053	15	.031												
138	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	4	.061	14	.031	15	.053												
139	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	5	.061	14		15	.061												
140	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	6	.061	14	-.0...	15	.053												
141	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	7	.061	14	-.0...	15	.031												
142	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	8	.061	14	-.0...	15													
143	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	9	.061	14	-.0...	15	-.0...												
144	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	10	.061	14	-.0...	15	-.0...												
145	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	11	.061	14		15	-.0...												
146	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	12	.061	14	.031	15	-.0...												
147	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	13	.061	14	.053	15	-.0...												
148	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	2	.061	14	.061	15													
149	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	3	.061	14	.053	15	.031												
150	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	4	.061	14	.031	15	.053												
151	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	5	.061	14		15	.061												
152	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	6	.061	14	-.0...	15	.053												
153	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	7	.061	14	-.0...	15	.031												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
154	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	8	.061	14	-.0...	15											
155	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	9	.061	14	-.0...	15	-.0...										
156	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	10	.061	14	-.0...	15	-.0...										
157	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	11	.061	14		15	-.0...										
158	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	12	.061	14	.031	15	-.0...										
159	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	13	.061	14	.053	15	-.0...										
160	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	2	.061	14	.061	15											
161	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	3	.061	14	.053	15	.031										
162	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	4	.061	14	.031	15	.053										
163	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	5	.061	14		15	.061										
164	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	6	.061	14	-.0...	15	.053										
165	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	7	.061	14	-.0...	15	.031										
166	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	8	.061	14	-.0...	15											
167	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	9	.061	14	-.0...	15	-.0...										
168	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	10	.061	14	-.0...	15	-.0...										
169	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	11	.061	14		15	-.0...										
170	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	12	.061	14	.031	15	-.0...										
171	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	13	.061	14	.053	15	-.0...										
172	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	2	.061	14	.061	15											
173	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	3	.061	14	.053	15	.031										
174	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	4	.061	14	.031	15	.053										
175	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	5	.061	14		15	.061										
176	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	6	.061	14	-.0...	15	.053										
177	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	7	.061	14	-.0...	15	.031										
178	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	8	.061	14	-.0...	15											
179	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	9	.061	14	-.0...	15	-.0...										
180	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	10	.061	14	-.0...	15	-.0...										
181	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	11	.061	14		15	-.0...										
182	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	12	.061	14	.031	15	-.0...										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N61	max	1247.571	3	1409.605	32	851.896	14	1198.387	8	0	182	1032.754	7
2		min	-919.051	21	428.993	25	-2659.1...	8	-962.099	14	0	1	-956.022	25
3	N62A	max	1870.21	19	1292.538	27	3252.477	13	1903.345	13	0	182	1671.353	13
4		min	-2181.02	13	321.486	20	-1278.7...	19	-1238.1...	19	0	1	-1529.4...	19
5	N72	max	589.084	18	1191.707	35	1934.184	13	527.783	20	0	182	1033.047	17
6		min	-2326.783	146	344.806	17	-1372.6...	19	-619.389	2	0	1	-1307.4...	11
7	N73	max	3860.459	5	1111.116	31	677.341	18	699.168	17	0	182	1876.065	23
8		min	-2152.716	23	252.305	24	-1772.9...	158	-912.27	11	0	1	-2520.2...	5
9	N121	max	2569.558	5	1278.784	27	2057.265	161	1089.6	21	0	182	969.791	5
10		min	-1254.489	23	394.754	21	-599.055	21	-1276.22	3	0	1	-774.26	23
11	N122	max	511.159	25	1173.002	35	2163.223	15	1863.72	15	0	182	1023.926	7
12		min	-2328.997	177	292.861	16	-3378.7...	9	-2328.2...	9	0	1	-536.006	25
13	Totals:	max	5775.874	17	7312.539	29	5980.624	14						
14		min	-5775.882	11	2645.334	58	-5980.6...	8						

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Bracing	3/4" SR	Beam	BAR	A36 Gr.36	Typical	.442	.016	.016	.031
2	Horizontal	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Standoff	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Tieback	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
5	2.0 STD Mount Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
6	2.5 STD Mount Pipe	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
7	Pivot Pipe	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N40						
2	N39						
3	N57A						
4	N58						
5	N64A						
6	N53A						
7	N54A						
8	N56A						
9	N61	Reaction	Reaction	Reaction	Reaction		Reaction
10	N62A	Reaction	Reaction	Reaction	Reaction		Reaction
11	N27						
12	N28A						
13	N38A						
14	N39A						
15	N39B						
16	CENTER						
17	N54						
18	N55						
19	N58A						
20	N62C						
21	N63A						
22	N64						
23	N70						
24	N71						
25	N72	Reaction	Reaction	Reaction	Reaction		Reaction
26	N73	Reaction	Reaction	Reaction	Reaction		Reaction
27	N74						
28	N75						
29	N86						
30	N87						
31	N88						
32	N103						
33	N104						
34	N107						
35	N111						
36	N112						
37	N113						
38	N119						
39	N120						
40	N121	Reaction	Reaction	Reaction	Reaction		Reaction
41	N122	Reaction	Reaction	Reaction	Reaction		Reaction
42	N123						
43	N124						
44	N135						
45	N136						
46	N137						
47	N146A						
48	N147						
49	N148						
50	N149						

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
51	N151						
52	N152						
53	N153						
54	N154						
55	N156						
56	N157						
57	N158						
58	N159						

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	H1						Yes				None
2	H2						Yes				None
3	S1						Yes				None
4	S2						Yes				None
5	S3						Yes				None
6	S4						Yes				None
7	B1	BenPIN	BenPIN				Yes				None
8	B2	BenPIN	BenPIN				Yes				None
9	B3	BenPIN	BenPIN				Yes				None
10	B4	BenPIN	BenPIN				Yes				None
11	B5	BenPIN	BenPIN				Yes				None
12	B6	BenPIN	BenPIN				Yes				None
13	PP1						Yes				None
14	M14A						Yes	** NA **			None
15	M15A						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18C						Yes	** NA **			None
19	M19B						Yes	** NA **			None
20	M20A						Yes	** NA **			None
21	M21A						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	R1						Yes	** NA **			None
29	MP2						Yes	** NA **			None
30	R3						Yes	** NA **			None
31	H5						Yes				None
32	H6						Yes				None
33	S11						Yes				None
34	S12						Yes				None
35	S9						Yes				None
36	S10						Yes				None
37	B7	BenPIN	BenPIN				Yes				None
38	B8	BenPIN	BenPIN				Yes				None
39	B9	BenPIN	BenPIN				Yes				None
40	B10	BenPIN	BenPIN				Yes				None
41	B11	BenPIN	BenPIN				Yes				None
42	B12	BenPIN	BenPIN				Yes				None
43	PP3						Yes				None
44	M44						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
45	M45						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49						Yes	** NA **			None
50	M50						Yes	** NA **			None
51	M51						Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53						Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55						Yes	** NA **			None
56	M56						Yes	** NA **			None
57	M57						Yes	** NA **			None
58	R7						Yes	** NA **			None
59	MP8						Yes	** NA **			None
60	R9						Yes	** NA **			None
61	H3						Yes				None
62	H4						Yes				None
63	S5						Yes				None
64	S6						Yes				None
65	S7						Yes				None
66	S8						Yes				None
67	B13	BenPIN	BenPIN				Yes				None
68	B14	BenPIN	BenPIN				Yes				None
69	B15	BenPIN	BenPIN				Yes				None
70	B16	BenPIN	BenPIN				Yes				None
71	B17	BenPIN	BenPIN				Yes				None
72	B18	BenPIN	BenPIN				Yes				None
73	PP2						Yes				None
74	M74						Yes	** NA **			None
75	M75						Yes	** NA **			None
76	M76						Yes	** NA **			None
77	M77						Yes	** NA **			None
78	M78						Yes	** NA **			None
79	M79						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	M85						Yes	** NA **			None
86	M86						Yes	** NA **			None
87	M87						Yes	** NA **			None
88	R4						Yes	** NA **			None
89	MP5						Yes	** NA **			None
90	R6						Yes	** NA **			None
91	M91						Yes	** NA **			None
92	M92						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	M94						Yes	** NA **			None
95	M95						Yes	** NA **			None
96	M96						Yes	** NA **			None
97	M97						Yes	** NA **			None
98	M98						Yes	** NA **			None
99	M99						Yes	** NA **			None
100	TB1	BenPIN	BenPIN				Yes				None
101	TB2	BenPIN	BenPIN				Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
102	TB3	BenPIN	BenPIN				Yes				None
103	TB4	BenPIN	BenPIN				Yes				None
104	TB5	BenPIN	BenPIN				Yes				None
105	TB6	BenPIN	BenPIN				Yes				None
106	M106						Yes	** NA **			None
107	M107						Yes	** NA **			None
108	M108						Yes	** NA **			None
109	M109						Yes	** NA **			None
110	MP3						Yes	** NA **			None
111	MP1						Yes	** NA **			None
112	M112						Yes	** NA **			None
113	M113						Yes	** NA **			None
114	M114						Yes	** NA **			None
115	M115						Yes	** NA **			None
116	MP9						Yes	** NA **			None
117	MP7						Yes	** NA **			None
118	M118						Yes	** NA **			None
119	M119						Yes	** NA **			None
120	M120						Yes	** NA **			None
121	M121						Yes	** NA **			None
122	MP6						Yes	** NA **			None
123	MP4						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	H1	Horizontal	150	78	78	78	78	78				Lateral
2	H2	Horizontal	150	82	82	82	82	82	.8	.8		Lateral
3	S1	Standoff	61.847		33	Lbyy						Lateral
4	S2	Standoff	61.847		33	Lbyy						Lateral
5	S3	Standoff	61.847		33	Lbyy						Lateral
6	S4	Standoff	61.847		33	Lbyy						Lateral
7	B1	Bracing	36			Lbyy						Lateral
8	B2	Bracing	50.912			Lbyy						Lateral
9	B3	Bracing	36			Lbyy						Lateral
10	B4	Bracing	36			Lbyy						Lateral
11	B5	Bracing	50.912			Lbyy						Lateral
12	B6	Bracing	36			Lbyy						Lateral
13	PP1	Pivot Pipe	72			Lbyy						Lateral
14	R1	2.0 STD Mo...	48									Lateral
15	MP2	2.0 STD Mo...	96									Lateral
16	R3	2.0 STD Mo...	48									Lateral
17	H5	Horizontal	150	78	78	78	78	78				Lateral
18	H6	Horizontal	150	82	82	82	82	82	.8	.8		Lateral
19	S11	Standoff	61.847		33	Lbyy						Lateral
20	S12	Standoff	61.847		33	Lbyy						Lateral
21	S9	Standoff	61.847		33	Lbyy						Lateral
22	S10	Standoff	61.847		33	Lbyy						Lateral
23	B7	Bracing	36			Lbyy						Lateral
24	B8	Bracing	50.912			Lbyy						Lateral
25	B9	Bracing	36			Lbyy						Lateral
26	B10	Bracing	36			Lbyy						Lateral
27	B11	Bracing	50.912			Lbyy						Lateral
28	B12	Bracing	36			Lbyy						Lateral
29	PP3	Pivot Pipe	72			Lbyy						Lateral
30	R7	2.0 STD Mo...	48									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
31	MP8	2.0 STD Mo...	96									Lateral
32	R9	2.0 STD Mo...	48									Lateral
33	H3	Horizontal	150	78	78	78	78	78				Lateral
34	H4	Horizontal	150	82	82	82	82	82	.8	.8		Lateral
35	S5	Standoff	61.847		33	Lbyy						Lateral
36	S6	Standoff	61.847		33	Lbyy						Lateral
37	S7	Standoff	61.847		33	Lbyy						Lateral
38	S8	Standoff	61.847		33	Lbyy						Lateral
39	B13	Bracing	36			Lbyy						Lateral
40	B14	Bracing	50.912			Lbyy						Lateral
41	B15	Bracing	36			Lbyy						Lateral
42	B16	Bracing	36			Lbyy						Lateral
43	B17	Bracing	50.912			Lbyy						Lateral
44	B18	Bracing	36			Lbyy						Lateral
45	PP2	Pivot Pipe	72			Lbyy						Lateral
46	R4	2.0 STD Mo...	48									Lateral
47	MP5	2.0 STD Mo...	96									Lateral
48	R6	2.0 STD Mo...	48									Lateral
49	TB1	Tieback	90.398			Lbyy						Lateral
50	TB2	Tieback	77.403			Lbyy						Lateral
51	TB3	Tieback	77.403			Lbyy						Lateral
52	TB4	Tieback	77.403			Lbyy						Lateral
53	TB5	Tieback	90.398			Lbyy						Lateral
54	TB6	Tieback	90.398			Lbyy						Lateral
55	M106	2.0 STD Mo...	12									Lateral
56	M107	2.0 STD Mo...	12									Lateral
57	M108	2.0 STD Mo...	12									Lateral
58	M109	2.0 STD Mo...	12									Lateral
59	MP3	2.0 STD Mo...	120									Lateral
60	MP1	2.0 STD Mo...	120									Lateral
61	M112	2.0 STD Mo...	12									Lateral
62	M113	2.0 STD Mo...	12									Lateral
63	M114	2.0 STD Mo...	12									Lateral
64	M115	2.0 STD Mo...	12									Lateral
65	MP9	2.0 STD Mo...	120									Lateral
66	MP7	2.0 STD Mo...	120									Lateral
67	M118	2.0 STD Mo...	12									Lateral
68	M119	2.0 STD Mo...	12									Lateral
69	M120	2.0 STD Mo...	12									Lateral
70	M121	2.0 STD Mo...	12									Lateral
71	MP6	2.0 STD Mo...	120									Lateral
72	MP4	2.0 STD Mo...	120									Lateral

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Ther...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Joint Loads and Enforced Displacements (BLC 33 : Service Live Loads)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N14	L	Y	-250

Joint Loads and Enforced Displacements (BLC 34 : Maintenance Load 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N34	L	Y	-500

Joint Loads and Enforced Displacements (BLC 35 : Maintenance Load 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N81	L	Y	-500

Joint Loads and Enforced Displacements (BLC 36 : Maintenance Load 3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N130	L	Y	-500

Joint Loads and Enforced Displacements (BLC 37 : Maintenance Load 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N170	L	Y	-500

Joint Loads and Enforced Displacements (BLC 38 : Maintenance Load 5)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N171	L	Y	-500

Joint Loads and Enforced Displacements (BLC 39 : Maintenance Load 6)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N183	L	Y	-500

Joint Loads and Enforced Displacements (BLC 40 : Maintenance Load 7)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N184	L	Y	-500

Joint Loads and Enforced Displacements (BLC 41 : Maintenance Load 8)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N196	L	Y	-500

Joint Loads and Enforced Displacements (BLC 42 : Maintenance Load 9)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (l...
1	N197	L	Y	-500

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Y	-34.5	12
2	MP3	Y	-34.5	78
3	MP1	Y	-54.3	12
4	MP1	Y	-54.3	80.7
5	MP2	Y	-44	24
6	MP2	Y	-81.6	72
7	R3	Y	-71	%50
8	S3	Y	-59.4	%50
9	R3	Y	-72	%50
10	S1	Y	-77	%50

Member Point Loads (BLC 1 : Self Weight) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
11	S2	Y	-26.2	%50
12	MP6	Y	-34.5	12
13	MP6	Y	-34.5	78
14	MP4	Y	-54.3	12
15	MP4	Y	-54.3	80.7
16	MP5	Y	-44	24
17	MP5	Y	-81.6	72
18	R6	Y	-71	%50
19	S6	Y	-59.4	%50
20	R6	Y	-72	%50
21	S4	Y	-77	%50
22	MP9	Y	-34.5	12
23	MP9	Y	-34.5	78
24	MP7	Y	-54.3	12
25	MP7	Y	-54.3	80.7
26	MP8	Y	-44	24
27	MP8	Y	-81.6	72
28	R9	Y	-71	%50
29	S9	Y	-59.4	%50
30	R9	Y	-72	%50
31	S7	Y	-77	%50

Member Point Loads (BLC 2 : Wind Load AZI 0)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	0	12
2	MP3	Z	-213.05	12
3	MP3	X	0	78
4	MP3	Z	-213.05	78
5	MP1	X	0	12
6	MP1	Z	-218.4	12
7	MP1	X	0	80.7
8	MP1	Z	-218.4	80.7
9	MP2	X	0	24
10	MP2	Z	-150.15	24
11	MP2	X	0	72
12	MP2	Z	-129	72
13	R3	X	0	%50
14	R3	Z	-70.27	%50
15	S3	X	0	%50
16	S3	Z	-72.19	%50
17	R3	X	0	%50
18	R3	Z	-58.54	%50
19	S1	X	0	%50
20	S1	Z	-118.36	%50
21	S2	X	0	%50
22	S2	Z	-97.74	%50
23	MP6	X	0	12
24	MP6	Z	-95.57	12
25	MP6	X	0	78
26	MP6	Z	-95.57	78
27	MP4	X	0	12
28	MP4	Z	-91.94	12
29	MP4	X	0	80.7
30	MP4	Z	-91.94	80.7
31	MP5	X	0	24
32	MP5	Z	-81.6	24

Member Point Loads (BLC 2 : Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
33	MP5	X	0	72
34	MP5	Z	-68.91	72
35	R6	X	0	%50
36	R6	Z	-52.63	%50
37	S6	X	0	%50
38	S6	Z	-47.74	%50
39	R6	X	0	%50
40	R6	Z	-49.53	%50
41	S4	X	0	%50
42	S4	Z	-90.29	%50
43	MP9	X	0	12
44	MP9	Z	-134.97	12
45	MP9	X	0	78
46	MP9	Z	-134.97	78
47	MP7	X	0	12
48	MP7	Z	-134.36	12
49	MP7	X	0	80.7
50	MP7	Z	-134.36	80.7
51	MP8	X	0	24
52	MP8	Z	-104.6	24
53	MP8	X	0	72
54	MP8	Z	-89.07	72
55	R9	X	0	%50
56	R9	Z	-58.55	%50
57	S9	X	0	%50
58	S9	Z	-55.94	%50
59	R9	X	0	%50
60	R9	Z	-52.55	%50
61	S7	X	0	%50
62	S7	Z	-99.7	%50

Member Point Loads (BLC 3 : Wind Load AZI 30)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-89.89	12
2	MP3	Z	-155.7	12
3	MP3	X	-89.89	78
4	MP3	Z	-155.7	78
5	MP1	X	-91.3	12
6	MP1	Z	-158.13	12
7	MP1	X	-91.3	80.7
8	MP1	Z	-158.13	80.7
9	MP2	X	-65.37	24
10	MP2	Z	-113.23	24
11	MP2	X	-55.99	72
12	MP2	Z	-96.98	72
13	R3	X	-32.64	%50
14	R3	Z	-56.53	%50
15	S3	X	-32.63	%50
16	S3	Z	-56.52	%50
17	R3	X	-27.99	%50
18	R3	Z	-48.49	%50
19	S1	X	-55.21	%50
20	S1	Z	-95.62	%50
21	S2	X	-48.87	%50
22	S2	Z	-84.65	%50
23	MP6	X	-79.04	12

Member Point Loads (BLC 3 : Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
24	MP6	Z	-136.9	12
25	MP6	X	-79.04	78
26	MP6	Z	-136.9	78
27	MP4	X	-79.61	12
28	MP4	Z	-137.9	12
29	MP4	X	-79.61	80.7
30	MP4	Z	-137.9	80.7
31	MP5	X	-59.04	24
32	MP5	Z	-102.26	24
33	MP5	X	-50.44	72
34	MP5	Z	-87.37	72
35	R6	X	-31.01	%50
36	R6	Z	-53.71	%50
37	S6	X	-30.37	%50
38	S6	Z	-52.61	%50
39	R6	X	-27.16	%50
40	R6	Z	-47.05	%50
41	S4	X	-52.61	%50
42	S4	Z	-91.13	%50
43	MP9	X	-42.01	12
44	MP9	Z	-72.76	12
45	MP9	X	-42.01	78
46	MP9	Z	-72.76	78
47	MP7	X	-39.75	12
48	MP7	Z	-68.85	12
49	MP7	X	-39.75	80.7
50	MP7	Z	-68.85	80.7
51	MP8	X	-37.43	24
52	MP8	Z	-64.83	24
53	MP8	X	-31.5	72
54	MP8	Z	-54.56	72
55	R9	X	-25.45	%50
56	R9	Z	-44.08	%50
57	S9	X	-22.67	%50
58	S9	Z	-39.26	%50
59	R9	X	-24.32	%50
60	R9	Z	-42.13	%50
61	S7	X	-43.76	%50
62	S7	Z	-75.8	%50

Member Point Loads (BLC 4 : Wind Load AZI 60)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-98.09	12
2	MP3	Z	-56.63	12
3	MP3	X	-98.09	78
4	MP3	Z	-56.63	78
5	MP1	X	-96.12	12
6	MP1	Z	-55.49	12
7	MP1	X	-96.12	80.7
8	MP1	Z	-55.49	80.7
9	MP2	X	-79.61	24
10	MP2	Z	-45.96	24
11	MP2	X	-67.52	72
12	MP2	Z	-38.98	72
13	R3	X	-47.88	%50
14	R3	Z	-27.64	%50

Member Point Loads (BLC 4 : Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
15	S3	X	-44.53	%50
16	S3	Z	-25.71	%50
17	R3	X	-44.07	%50
18	R3	Z	-25.44	%50
19	S1	X	-81.85	%50
20	S1	Z	-47.26	%50
21	S2	X	-84.65	%50
22	S2	Z	-48.87	%50
23	MP6	X	-181.03	12
24	MP6	Z	-104.52	12
25	MP6	X	-181.03	78
26	MP6	Z	-104.52	78
27	MP4	X	-185.4	12
28	MP4	Z	-107.04	12
29	MP4	X	-185.4	80.7
30	MP4	Z	-107.04	80.7
31	MP5	X	-128.01	24
32	MP5	Z	-73.91	24
33	MP5	X	-109.94	72
34	MP5	Z	-63.47	72
35	R6	X	-60.34	%50
36	R6	Z	-34.83	%50
37	S6	X	-61.79	%50
38	S6	Z	-35.68	%50
39	R6	X	-50.43	%50
40	R6	Z	-29.12	%50
41	S4	X	-101.67	%50
42	S4	Z	-58.7	%50
43	MP9	X	-82.76	12
44	MP9	Z	-47.78	12
45	MP9	X	-82.76	78
46	MP9	Z	-47.78	78
47	MP7	X	-79.62	12
48	MP7	Z	-45.97	12
49	MP7	X	-79.62	80.7
50	MP7	Z	-45.97	80.7
51	MP8	X	-70.67	24
52	MP8	Z	-40.8	24
53	MP8	X	-59.68	72
54	MP8	Z	-34.46	72
55	R9	X	-45.58	%50
56	R9	Z	-26.31	%50
57	S9	X	-41.34	%50
58	S9	Z	-23.87	%50
59	R9	X	-42.9	%50
60	R9	Z	-24.77	%50
61	S7	X	-78.19	%50
62	S7	Z	-45.14	%50

Member Point Loads (BLC 5 : Wind Load AZI 90)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-80	12
2	MP3	Z	0	12
3	MP3	X	-80	78
4	MP3	Z	0	78
5	MP1	X	-75.18	12

Member Point Loads (BLC 5 : Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
6	MP1	Z	0	12
7	MP1	X	-75.18	80.7
8	MP1	Z	0	80.7
9	MP2	X	-72.52	24
10	MP2	Z	0	24
11	MP2	X	-60.95	72
12	MP2	Z	0	72
13	R3	X	-50.29	%50
14	R3	Z	0	%50
15	S3	X	-44.5	%50
16	S3	Z	0	%50
17	R3	X	-48.34	%50
18	R3	Z	0	%50
19	S1	X	-86.57	%50
20	S1	Z	0	%50
21	S2	X	-97.74	%50
22	S2	Z	0	%50
23	MP6	X	-197.48	12
24	MP6	Z	0	12
25	MP6	X	-197.48	78
26	MP6	Z	0	78
27	MP4	X	-201.65	12
28	MP4	Z	0	12
29	MP4	X	-201.65	80.7
30	MP4	Z	0	80.7
31	MP5	X	-141.07	24
32	MP5	Z	0	24
33	MP5	X	-121.04	72
34	MP5	Z	0	72
35	R6	X	-67.93	%50
36	R6	Z	0	%50
37	S6	X	-68.95	%50
38	S6	Z	0	%50
39	R6	X	-57.35	%50
40	R6	Z	0	%50
41	S4	X	-114.64	%50
42	S4	Z	0	%50
43	MP9	X	-158.08	12
44	MP9	Z	0	12
45	MP9	X	-158.08	78
46	MP9	Z	0	78
47	MP7	X	-159.23	12
48	MP7	Z	0	12
49	MP7	X	-159.23	80.7
50	MP7	Z	0	80.7
51	MP8	X	-118.08	24
52	MP8	Z	0	24
53	MP8	X	-100.88	72
54	MP8	Z	0	72
55	R9	X	-62.02	%50
56	R9	Z	0	%50
57	S9	X	-60.75	%50
58	S9	Z	0	%50
59	R9	X	-54.32	%50
60	R9	Z	0	%50
61	S7	X	-105.22	%50
62	S7	Z	0	%50

Member Point Loads (BLC 6 : Wind Load AZI 120)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-98.09	12
2	MP3	Z	56.63	12
3	MP3	X	-98.09	78
4	MP3	Z	56.63	78
5	MP1	X	-96.12	12
6	MP1	Z	55.49	12
7	MP1	X	-96.12	80.7
8	MP1	Z	55.49	80.7
9	MP2	X	-79.61	24
10	MP2	Z	45.96	24
11	MP2	X	-67.52	72
12	MP2	Z	38.98	72
13	R3	X	-47.88	%50
14	R3	Z	27.64	%50
15	S3	X	-44.53	%50
16	S3	Z	25.71	%50
17	R3	X	-44.07	%50
18	R3	Z	25.44	%50
19	S1	X	-81.85	%50
20	S1	Z	47.26	%50
21	S2	X	-84.65	%50
22	S2	Z	48.87	%50
23	MP6	X	-116.89	12
24	MP6	Z	67.49	12
25	MP6	X	-116.89	78
26	MP6	Z	67.49	78
27	MP4	X	-116.36	12
28	MP4	Z	67.18	12
29	MP4	X	-116.36	80.7
30	MP4	Z	67.18	80.7
31	MP5	X	-90.58	24
32	MP5	Z	52.3	24
33	MP5	X	-77.13	72
34	MP5	Z	44.53	72
35	R6	X	-50.7	%50
36	R6	Z	29.27	%50
37	S6	X	-48.44	%50
38	S6	Z	27.97	%50
39	R6	X	-45.51	%50
40	R6	Z	26.28	%50
41	S4	X	-86.35	%50
42	S4	Z	49.85	%50
43	MP9	X	-181.03	12
44	MP9	Z	104.52	12
45	MP9	X	-181.03	78
46	MP9	Z	104.52	78
47	MP7	X	-185.4	12
48	MP7	Z	107.04	12
49	MP7	X	-185.4	80.7
50	MP7	Z	107.04	80.7
51	MP8	X	-128.01	24
52	MP8	Z	73.91	24
53	MP8	X	-109.94	72
54	MP8	Z	63.47	72
55	R9	X	-60.34	%50
56	R9	Z	34.83	%50
57	S9	X	-61.79	%50

Member Point Loads (BLC 6 : Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
58	S9	Z	35.68	%50
59	R9	X	-50.43	%50
60	R9	Z	29.12	%50
61	S7	X	-101.67	%50
62	S7	Z	58.7	%50

Member Point Loads (BLC 7 : Wind Load AZI 150)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-89.89	12
2	MP3	Z	155.7	12
3	MP3	X	-89.89	78
4	MP3	Z	155.7	78
5	MP1	X	-91.3	12
6	MP1	Z	158.13	12
7	MP1	X	-91.3	80.7
8	MP1	Z	158.13	80.7
9	MP2	X	-65.37	24
10	MP2	Z	113.23	24
11	MP2	X	-55.99	72
12	MP2	Z	96.98	72
13	R3	X	-32.64	%50
14	R3	Z	56.53	%50
15	S3	X	-32.63	%50
16	S3	Z	56.52	%50
17	R3	X	-27.99	%50
18	R3	Z	48.49	%50
19	S1	X	-55.21	%50
20	S1	Z	95.62	%50
21	S2	X	-48.87	%50
22	S2	Z	84.65	%50
23	MP6	X	-42.01	12
24	MP6	Z	72.76	12
25	MP6	X	-42.01	78
26	MP6	Z	72.76	78
27	MP4	X	-39.75	12
28	MP4	Z	68.85	12
29	MP4	X	-39.75	80.7
30	MP4	Z	68.85	80.7
31	MP5	X	-37.43	24
32	MP5	Z	64.83	24
33	MP5	X	-31.5	72
34	MP5	Z	54.56	72
35	R6	X	-25.45	%50
36	R6	Z	44.08	%50
37	S6	X	-22.67	%50
38	S6	Z	39.26	%50
39	R6	X	-24.32	%50
40	R6	Z	42.13	%50
41	S4	X	-43.76	%50
42	S4	Z	75.8	%50
43	MP9	X	-98.74	12
44	MP9	Z	171.02	12
45	MP9	X	-98.74	78
46	MP9	Z	171.02	78
47	MP7	X	-100.82	12
48	MP7	Z	174.63	12

Member Point Loads (BLC 7 : Wind Load AZI 150) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
49	MP7	X	-100.82	80.7
50	MP7	Z	174.63	80.7
51	MP8	X	-70.54	24
52	MP8	Z	122.17	24
53	MP8	X	-60.52	72
54	MP8	Z	104.82	72
55	R9	X	-33.97	%50
56	R9	Z	58.83	%50
57	S9	X	-34.47	%50
58	S9	Z	59.71	%50
59	R9	X	-28.67	%50
60	R9	Z	49.66	%50
61	S7	X	-57.32	%50
62	S7	Z	99.28	%50

Member Point Loads (BLC 8 : Wind Load AZI 180)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	0	12
2	MP3	Z	213.05	12
3	MP3	X	0	78
4	MP3	Z	213.05	78
5	MP1	X	0	12
6	MP1	Z	218.4	12
7	MP1	X	0	80.7
8	MP1	Z	218.4	80.7
9	MP2	X	0	24
10	MP2	Z	150.15	24
11	MP2	X	0	72
12	MP2	Z	129	72
13	R3	X	0	%50
14	R3	Z	70.27	%50
15	S3	X	0	%50
16	S3	Z	72.19	%50
17	R3	X	0	%50
18	R3	Z	58.54	%50
19	S1	X	0	%50
20	S1	Z	118.36	%50
21	S2	X	0	%50
22	S2	Z	97.74	%50
23	MP6	X	0	12
24	MP6	Z	95.57	12
25	MP6	X	0	78
26	MP6	Z	95.57	78
27	MP4	X	0	12
28	MP4	Z	91.94	12
29	MP4	X	0	80.7
30	MP4	Z	91.94	80.7
31	MP5	X	0	24
32	MP5	Z	81.6	24
33	MP5	X	0	72
34	MP5	Z	68.91	72
35	R6	X	0	%50
36	R6	Z	52.63	%50
37	S6	X	0	%50
38	S6	Z	47.74	%50
39	R6	X	0	%50

Member Point Loads (BLC 8 : Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
40	R6	Z	49.53	%50
41	S4	X	0	%50
42	S4	Z	90.29	%50
43	MP9	X	0	12
44	MP9	Z	134.97	12
45	MP9	X	0	78
46	MP9	Z	134.97	78
47	MP7	X	0	12
48	MP7	Z	134.36	12
49	MP7	X	0	80.7
50	MP7	Z	134.36	80.7
51	MP8	X	0	24
52	MP8	Z	104.6	24
53	MP8	X	0	72
54	MP8	Z	89.07	72
55	R9	X	0	%50
56	R9	Z	58.55	%50
57	S9	X	0	%50
58	S9	Z	55.94	%50
59	R9	X	0	%50
60	R9	Z	52.55	%50
61	S7	X	0	%50
62	S7	Z	99.7	%50

Member Point Loads (BLC 9 : Wind Load AZI 210)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	89.89	12
2	MP3	Z	155.7	12
3	MP3	X	89.89	78
4	MP3	Z	155.7	78
5	MP1	X	91.3	12
6	MP1	Z	158.13	12
7	MP1	X	91.3	80.7
8	MP1	Z	158.13	80.7
9	MP2	X	65.37	24
10	MP2	Z	113.23	24
11	MP2	X	55.99	72
12	MP2	Z	96.98	72
13	R3	X	32.64	%50
14	R3	Z	56.53	%50
15	S3	X	32.63	%50
16	S3	Z	56.52	%50
17	R3	X	27.99	%50
18	R3	Z	48.49	%50
19	S1	X	55.21	%50
20	S1	Z	95.62	%50
21	S2	X	48.87	%50
22	S2	Z	84.65	%50
23	MP6	X	79.04	12
24	MP6	Z	136.9	12
25	MP6	X	79.04	78
26	MP6	Z	136.9	78
27	MP4	X	79.61	12
28	MP4	Z	137.9	12
29	MP4	X	79.61	80.7
30	MP4	Z	137.9	80.7

Member Point Loads (BLC 9 : Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
31	MP5	X	59.04	24
32	MP5	Z	102.26	24
33	MP5	X	50.44	72
34	MP5	Z	87.37	72
35	R6	X	31.01	%50
36	R6	Z	53.71	%50
37	S6	X	30.37	%50
38	S6	Z	52.61	%50
39	R6	X	27.16	%50
40	R6	Z	47.05	%50
41	S4	X	52.61	%50
42	S4	Z	91.13	%50
43	MP9	X	42.01	12
44	MP9	Z	72.76	12
45	MP9	X	42.01	78
46	MP9	Z	72.76	78
47	MP7	X	39.75	12
48	MP7	Z	68.85	12
49	MP7	X	39.75	80.7
50	MP7	Z	68.85	80.7
51	MP8	X	37.43	24
52	MP8	Z	64.83	24
53	MP8	X	31.5	72
54	MP8	Z	54.56	72
55	R9	X	25.45	%50
56	R9	Z	44.08	%50
57	S9	X	22.67	%50
58	S9	Z	39.26	%50
59	R9	X	24.32	%50
60	R9	Z	42.13	%50
61	S7	X	43.76	%50
62	S7	Z	75.8	%50

Member Point Loads (BLC 10 : Wind Load AZI 240)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	98.09	12
2	MP3	Z	56.63	12
3	MP3	X	98.09	78
4	MP3	Z	56.63	78
5	MP1	X	96.12	12
6	MP1	Z	55.49	12
7	MP1	X	96.12	80.7
8	MP1	Z	55.49	80.7
9	MP2	X	79.61	24
10	MP2	Z	45.96	24
11	MP2	X	67.52	72
12	MP2	Z	38.98	72
13	R3	X	47.88	%50
14	R3	Z	27.64	%50
15	S3	X	44.53	%50
16	S3	Z	25.71	%50
17	R3	X	44.07	%50
18	R3	Z	25.44	%50
19	S1	X	81.85	%50
20	S1	Z	47.26	%50
21	S2	X	84.65	%50

Member Point Loads (BLC 10 : Wind Load AZI 240) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
22	S2	Z	48.87	%50
23	MP6	X	181.03	12
24	MP6	Z	104.52	12
25	MP6	X	181.03	78
26	MP6	Z	104.52	78
27	MP4	X	185.4	12
28	MP4	Z	107.04	12
29	MP4	X	185.4	80.7
30	MP4	Z	107.04	80.7
31	MP5	X	128.01	24
32	MP5	Z	73.91	24
33	MP5	X	109.94	72
34	MP5	Z	63.47	72
35	R6	X	60.34	%50
36	R6	Z	34.83	%50
37	S6	X	61.79	%50
38	S6	Z	35.68	%50
39	R6	X	50.43	%50
40	R6	Z	29.12	%50
41	S4	X	101.67	%50
42	S4	Z	58.7	%50
43	MP9	X	82.76	12
44	MP9	Z	47.78	12
45	MP9	X	82.76	78
46	MP9	Z	47.78	78
47	MP7	X	79.62	12
48	MP7	Z	45.97	12
49	MP7	X	79.62	80.7
50	MP7	Z	45.97	80.7
51	MP8	X	70.67	24
52	MP8	Z	40.8	24
53	MP8	X	59.68	72
54	MP8	Z	34.46	72
55	R9	X	45.58	%50
56	R9	Z	26.31	%50
57	S9	X	41.34	%50
58	S9	Z	23.87	%50
59	R9	X	42.9	%50
60	R9	Z	24.77	%50
61	S7	X	78.19	%50
62	S7	Z	45.14	%50

Member Point Loads (BLC 11 : Wind Load AZI 270)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	80	12
2	MP3	Z	0	12
3	MP3	X	80	78
4	MP3	Z	0	78
5	MP1	X	75.18	12
6	MP1	Z	0	12
7	MP1	X	75.18	80.7
8	MP1	Z	0	80.7
9	MP2	X	72.52	24
10	MP2	Z	0	24
11	MP2	X	60.95	72
12	MP2	Z	0	72

Member Point Loads (BLC 11 : Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
13	R3	X	50.29	%50
14	R3	Z	0	%50
15	S3	X	44.5	%50
16	S3	Z	0	%50
17	R3	X	48.34	%50
18	R3	Z	0	%50
19	S1	X	86.57	%50
20	S1	Z	0	%50
21	S2	X	97.74	%50
22	S2	Z	0	%50
23	MP6	X	197.48	12
24	MP6	Z	0	12
25	MP6	X	197.48	78
26	MP6	Z	0	78
27	MP4	X	201.65	12
28	MP4	Z	0	12
29	MP4	X	201.65	80.7
30	MP4	Z	0	80.7
31	MP5	X	141.07	24
32	MP5	Z	0	24
33	MP5	X	121.04	72
34	MP5	Z	0	72
35	R6	X	67.93	%50
36	R6	Z	0	%50
37	S6	X	68.95	%50
38	S6	Z	0	%50
39	R6	X	57.35	%50
40	R6	Z	0	%50
41	S4	X	114.64	%50
42	S4	Z	0	%50
43	MP9	X	158.08	12
44	MP9	Z	0	12
45	MP9	X	158.08	78
46	MP9	Z	0	78
47	MP7	X	159.23	12
48	MP7	Z	0	12
49	MP7	X	159.23	80.7
50	MP7	Z	0	80.7
51	MP8	X	118.08	24
52	MP8	Z	0	24
53	MP8	X	100.88	72
54	MP8	Z	0	72
55	R9	X	62.02	%50
56	R9	Z	0	%50
57	S9	X	60.75	%50
58	S9	Z	0	%50
59	R9	X	54.32	%50
60	R9	Z	0	%50
61	S7	X	105.22	%50
62	S7	Z	0	%50

Member Point Loads (BLC 12 : Wind Load AZI 300)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	98.09	12
2	MP3	Z	-56.63	12
3	MP3	X	98.09	78

Member Point Loads (BLC 12 : Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP3	Z	-56.63	78
5	MP1	X	96.12	12
6	MP1	Z	-55.49	12
7	MP1	X	96.12	80.7
8	MP1	Z	-55.49	80.7
9	MP2	X	79.61	24
10	MP2	Z	-45.96	24
11	MP2	X	67.52	72
12	MP2	Z	-38.98	72
13	R3	X	47.88	%50
14	R3	Z	-27.64	%50
15	S3	X	44.53	%50
16	S3	Z	-25.71	%50
17	R3	X	44.07	%50
18	R3	Z	-25.44	%50
19	S1	X	81.85	%50
20	S1	Z	-47.26	%50
21	S2	X	84.65	%50
22	S2	Z	-48.87	%50
23	MP6	X	116.89	12
24	MP6	Z	-67.49	12
25	MP6	X	116.89	78
26	MP6	Z	-67.49	78
27	MP4	X	116.36	12
28	MP4	Z	-67.18	12
29	MP4	X	116.36	80.7
30	MP4	Z	-67.18	80.7
31	MP5	X	90.58	24
32	MP5	Z	-52.3	24
33	MP5	X	77.13	72
34	MP5	Z	-44.53	72
35	R6	X	50.7	%50
36	R6	Z	-29.27	%50
37	S6	X	48.44	%50
38	S6	Z	-27.97	%50
39	R6	X	45.51	%50
40	R6	Z	-26.28	%50
41	S4	X	86.35	%50
42	S4	Z	-49.85	%50
43	MP9	X	181.03	12
44	MP9	Z	-104.52	12
45	MP9	X	181.03	78
46	MP9	Z	-104.52	78
47	MP7	X	185.4	12
48	MP7	Z	-107.04	12
49	MP7	X	185.4	80.7
50	MP7	Z	-107.04	80.7
51	MP8	X	128.01	24
52	MP8	Z	-73.91	24
53	MP8	X	109.94	72
54	MP8	Z	-63.47	72
55	R9	X	60.34	%50
56	R9	Z	-34.83	%50
57	S9	X	61.79	%50
58	S9	Z	-35.68	%50
59	R9	X	50.43	%50
60	R9	Z	-29.12	%50

Member Point Loads (BLC 12 : Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
61	S7	X	101.67	%50
62	S7	Z	-58.7	%50

Member Point Loads (BLC 13 : Wind Load AZI 330)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	89.89	12
2	MP3	Z	-155.7	12
3	MP3	X	89.89	78
4	MP3	Z	-155.7	78
5	MP1	X	91.3	12
6	MP1	Z	-158.13	12
7	MP1	X	91.3	80.7
8	MP1	Z	-158.13	80.7
9	MP2	X	65.37	24
10	MP2	Z	-113.23	24
11	MP2	X	55.99	72
12	MP2	Z	-96.98	72
13	R3	X	32.64	%50
14	R3	Z	-56.53	%50
15	S3	X	32.63	%50
16	S3	Z	-56.52	%50
17	R3	X	27.99	%50
18	R3	Z	-48.49	%50
19	S1	X	55.21	%50
20	S1	Z	-95.62	%50
21	S2	X	48.87	%50
22	S2	Z	-84.65	%50
23	MP6	X	42.01	12
24	MP6	Z	-72.76	12
25	MP6	X	42.01	78
26	MP6	Z	-72.76	78
27	MP4	X	39.75	12
28	MP4	Z	-68.85	12
29	MP4	X	39.75	80.7
30	MP4	Z	-68.85	80.7
31	MP5	X	37.43	24
32	MP5	Z	-64.83	24
33	MP5	X	31.5	72
34	MP5	Z	-54.56	72
35	R6	X	25.45	%50
36	R6	Z	-44.08	%50
37	S6	X	22.67	%50
38	S6	Z	-39.26	%50
39	R6	X	24.32	%50
40	R6	Z	-42.13	%50
41	S4	X	43.76	%50
42	S4	Z	-75.8	%50
43	MP9	X	98.74	12
44	MP9	Z	-171.02	12
45	MP9	X	98.74	78
46	MP9	Z	-171.02	78
47	MP7	X	100.82	12
48	MP7	Z	-174.63	12
49	MP7	X	100.82	80.7
50	MP7	Z	-174.63	80.7
51	MP8	X	70.54	24

Member Point Loads (BLC 13 : Wind Load AZI 330) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
52	MP8	Z	-122.17	24
53	MP8	X	60.52	72
54	MP8	Z	-104.82	72
55	R9	X	33.97	%50
56	R9	Z	-58.83	%50
57	S9	X	34.47	%50
58	S9	Z	-59.71	%50
59	R9	X	28.67	%50
60	R9	Z	-49.66	%50
61	S7	X	57.32	%50
62	S7	Z	-99.28	%50

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Y	-81.702	12
2	MP3	Y	-81.702	78
3	MP1	Y	-84.642	12
4	MP1	Y	-84.642	80.7
5	MP2	Y	-66.05	24
6	MP2	Y	-66.188	72
7	R3	Y	-42.246	%50
8	S3	Y	-40.303	%50
9	R3	Y	-40.21	%50
10	S1	Y	-62.988	%50
11	S2	Y	-58.784	%50
12	MP6	Y	-81.702	12
13	MP6	Y	-81.702	78
14	MP4	Y	-84.642	12
15	MP4	Y	-84.642	80.7
16	MP5	Y	-66.05	24
17	MP5	Y	-66.188	72
18	R6	Y	-42.246	%50
19	S6	Y	-40.303	%50
20	R6	Y	-40.21	%50
21	S4	Y	-62.988	%50
22	MP9	Y	-81.702	12
23	MP9	Y	-81.702	78
24	MP7	Y	-84.642	12
25	MP7	Y	-84.642	80.7
26	MP8	Y	-66.05	24
27	MP8	Y	-66.188	72
28	R9	Y	-42.246	%50
29	S9	Y	-40.303	%50
30	R9	Y	-40.21	%50
31	S7	Y	-62.988	%50

Member Point Loads (BLC 17 : Ice Wind Load AZI 0)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	0	12
2	MP3	Z	-18.26	12
3	MP3	X	0	78
4	MP3	Z	-18.26	78
5	MP1	X	0	12
6	MP1	Z	-19.88	12
7	MP1	X	0	80.7
8	MP1	Z	-19.88	80.7

Member Point Loads (BLC 17 : Ice Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
9	MP2	X	0	24
10	MP2	Z	-12.91	24
11	MP2	X	0	72
12	MP2	Z	-12.26	72
13	R3	X	0	%50
14	R3	Z	-6.97	%50
15	S3	X	0	%50
16	S3	Z	-7.09	%50
17	R3	X	0	%50
18	R3	Z	-5.92	%50
19	S1	X	0	%50
20	S1	Z	-11.19	%50
21	S2	X	0	%50
22	S2	Z	-10.54	%50
23	MP6	X	0	12
24	MP6	Z	-12.56	12
25	MP6	X	0	78
26	MP6	Z	-12.56	78
27	MP4	X	0	12
28	MP4	Z	-13.72	12
29	MP4	X	0	80.7
30	MP4	Z	-13.72	80.7
31	MP5	X	0	24
32	MP5	Z	-9.78	24
33	MP5	X	0	72
34	MP5	Z	-9.67	72
35	R6	X	0	%50
36	R6	Z	-6.14	%50
37	S6	X	0	%50
38	S6	Z	-5.91	%50
39	R6	X	0	%50
40	R6	Z	-5.5	%50
41	S4	X	0	%50
42	S4	Z	-9.93	%50
43	MP9	X	0	12
44	MP9	Z	-14.47	12
45	MP9	X	0	78
46	MP9	Z	-14.47	78
47	MP7	X	0	12
48	MP7	Z	-15.79	12
49	MP7	X	0	80.7
50	MP7	Z	-15.79	80.7
51	MP8	X	0	24
52	MP8	Z	-10.83	24
53	MP8	X	0	72
54	MP8	Z	-10.54	72
55	R9	X	0	%50
56	R9	Z	-6.42	%50
57	S9	X	0	%50
58	S9	Z	-6.31	%50
59	R9	X	0	%50
60	R9	Z	-5.64	%50
61	S7	X	0	%50
62	S7	Z	-10.35	%50

Member Point Loads (BLC 18 : Ice Wind Load AZI 30)

Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 18 : Ice Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-8.32	12
2	MP3	Z	-14.42	12
3	MP3	X	-8.32	78
4	MP3	Z	-14.42	78
5	MP1	X	-9.07	12
6	MP1	Z	-15.71	12
7	MP1	X	-9.07	80.7
8	MP1	Z	-15.71	80.7
9	MP2	X	-6.01	24
10	MP2	Z	-10.41	24
11	MP2	X	-5.77	72
12	MP2	Z	-9.99	72
13	R3	X	-3.37	%50
14	R3	Z	-5.83	%50
15	S3	X	-3.38	%50
16	S3	Z	-5.85	%50
17	R3	X	-2.9	%50
18	R3	Z	-5.03	%50
19	S1	X	-5.42	%50
20	S1	Z	-9.38	%50
21	S2	X	-5.27	%50
22	S2	Z	-9.12	%50
23	MP6	X	-7.8	12
24	MP6	Z	-13.51	12
25	MP6	X	-7.8	78
26	MP6	Z	-13.51	78
27	MP4	X	-8.5	12
28	MP4	Z	-14.72	12
29	MP4	X	-8.5	80.7
30	MP4	Z	-14.72	80.7
31	MP5	X	-5.72	24
32	MP5	Z	-9.91	24
33	MP5	X	-5.53	72
34	MP5	Z	-9.57	72
35	R6	X	-3.29	%50
36	R6	Z	-5.7	%50
37	S6	X	-3.27	%50
38	S6	Z	-5.66	%50
39	R6	X	-2.86	%50
40	R6	Z	-4.96	%50
41	S4	X	-5.3	%50
42	S4	Z	-9.18	%50
43	MP9	X	-6	12
44	MP9	Z	-10.39	12
45	MP9	X	-6	78
46	MP9	Z	-10.39	78
47	MP7	X	-6.56	12
48	MP7	Z	-11.36	12
49	MP7	X	-6.56	80.7
50	MP7	Z	-11.36	80.7
51	MP8	X	-4.74	24
52	MP8	Z	-8.2	24
53	MP8	X	-4.71	72
54	MP8	Z	-8.16	72
55	R9	X	-3.03	%50
56	R9	Z	-5.24	%50
57	S9	X	-2.9	%50

Member Point Loads (BLC 18 : Ice Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
58	S9	Z	-5.02	%50
59	R9	X	-2.73	%50
60	R9	Z	-4.73	%50
61	S7	X	-4.9	%50
62	S7	Z	-8.49	%50

Member Point Loads (BLC 19 : Ice Wind Load AZI 60)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-11.62	12
2	MP3	Z	-6.71	12
3	MP3	X	-11.62	78
4	MP3	Z	-6.71	78
5	MP1	X	-12.69	12
6	MP1	Z	-7.32	12
7	MP1	X	-12.69	80.7
8	MP1	Z	-7.32	80.7
9	MP2	X	-8.88	24
10	MP2	Z	-5.12	24
11	MP2	X	-8.72	72
12	MP2	Z	-5.03	72
13	R3	X	-5.42	%50
14	R3	Z	-3.13	%50
15	S3	X	-5.27	%50
16	S3	Z	-3.05	%50
17	R3	X	-4.82	%50
18	R3	Z	-2.78	%50
19	S1	X	-8.76	%50
20	S1	Z	-5.06	%50
21	S2	X	-9.12	%50
22	S2	Z	-5.27	%50
23	MP6	X	-15.65	12
24	MP6	Z	-9.03	12
25	MP6	X	-15.65	78
26	MP6	Z	-9.03	78
27	MP4	X	-17.04	12
28	MP4	Z	-9.84	12
29	MP4	X	-17.04	80.7
30	MP4	Z	-9.84	80.7
31	MP5	X	-11.08	24
32	MP5	Z	-6.4	24
33	MP5	X	-10.54	72
34	MP5	Z	-6.09	72
35	R6	X	-6.01	%50
36	R6	Z	-3.47	%50
37	S6	X	-6.1	%50
38	S6	Z	-3.52	%50
39	R6	X	-5.12	%50
40	R6	Z	-2.95	%50
41	S4	X	-9.65	%50
42	S4	Z	-5.57	%50
43	MP9	X	-10.88	12
44	MP9	Z	-6.28	12
45	MP9	X	-10.88	78
46	MP9	Z	-6.28	78
47	MP7	X	-11.88	12
48	MP7	Z	-6.86	12

Member Point Loads (BLC 19 : Ice Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
49	MP7	X	-11.88	80.7
50	MP7	Z	-6.86	80.7
51	MP8	X	-8.47	24
52	MP8	Z	-4.89	24
53	MP8	X	-8.38	72
54	MP8	Z	-4.84	72
55	R9	X	-5.31	%50
56	R9	Z	-3.07	%50
57	S9	X	-5.12	%50
58	S9	Z	-2.96	%50
59	R9	X	-4.77	%50
60	R9	Z	-2.75	%50
61	S7	X	-8.6	%50
62	S7	Z	-4.96	%50

Member Point Loads (BLC 20 : Ice Wind Load AZI 90)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-11.81	12
2	MP3	Z	0	12
3	MP3	X	-11.81	78
4	MP3	Z	0	78
5	MP1	X	-12.9	12
6	MP1	Z	0	12
7	MP1	X	-12.9	80.7
8	MP1	Z	0	80.7
9	MP2	X	-9.36	24
10	MP2	Z	0	24
11	MP2	X	-9.33	72
12	MP2	Z	0	72
13	R3	X	-6.03	%50
14	R3	Z	0	%50
15	S3	X	-5.76	%50
16	S3	Z	0	%50
17	R3	X	-5.45	%50
18	R3	Z	0	%50
19	S1	X	-9.76	%50
20	S1	Z	0	%50
21	S2	X	-10.54	%50
22	S2	Z	0	%50
23	MP6	X	-17.51	12
24	MP6	Z	0	12
25	MP6	X	-17.51	78
26	MP6	Z	0	78
27	MP4	X	-19.07	12
28	MP4	Z	0	12
29	MP4	X	-19.07	80.7
30	MP4	Z	0	80.7
31	MP5	X	-12.49	24
32	MP5	Z	0	24
33	MP5	X	-11.92	72
34	MP5	Z	0	72
35	R6	X	-6.86	%50
36	R6	Z	0	%50
37	S6	X	-6.93	%50
38	S6	Z	0	%50
39	R6	X	-5.87	%50

Member Point Loads (BLC 20 : Ice Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
40	R6	Z	0	%50
41	S4	X	-11.02	%50
42	S4	Z	0	%50
43	MP9	X	-15.6	12
44	MP9	Z	0	12
45	MP9	X	-15.6	78
46	MP9	Z	0	78
47	MP7	X	-17	12
48	MP7	Z	0	12
49	MP7	X	-17	80.7
50	MP7	Z	0	80.7
51	MP8	X	-11.44	24
52	MP8	Z	0	24
53	MP8	X	-11.05	72
54	MP8	Z	0	72
55	R9	X	-6.58	%50
56	R9	Z	0	%50
57	S9	X	-6.54	%50
58	S9	Z	0	%50
59	R9	X	-5.73	%50
60	R9	Z	0	%50
61	S7	X	-10.6	%50
62	S7	Z	0	%50

Member Point Loads (BLC 21 : Ice Wind Load AZI 120)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-11.62	12
2	MP3	Z	6.71	12
3	MP3	X	-11.62	78
4	MP3	Z	6.71	78
5	MP1	X	-12.69	12
6	MP1	Z	7.32	12
7	MP1	X	-12.69	80.7
8	MP1	Z	7.32	80.7
9	MP2	X	-8.88	24
10	MP2	Z	5.12	24
11	MP2	X	-8.72	72
12	MP2	Z	5.03	72
13	R3	X	-5.42	%50
14	R3	Z	3.13	%50
15	S3	X	-5.27	%50
16	S3	Z	3.05	%50
17	R3	X	-4.82	%50
18	R3	Z	2.78	%50
19	S1	X	-8.76	%50
20	S1	Z	5.06	%50
21	S2	X	-9.12	%50
22	S2	Z	5.27	%50
23	MP6	X	-12.54	12
24	MP6	Z	7.24	12
25	MP6	X	-12.54	78
26	MP6	Z	7.24	78
27	MP4	X	-13.67	12
28	MP4	Z	7.89	12
29	MP4	X	-13.67	80.7
30	MP4	Z	7.89	80.7

Member Point Loads (BLC 21 : Ice Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
31	MP5	X	-9.38	24
32	MP5	Z	5.41	24
33	MP5	X	-9.13	72
34	MP5	Z	5.27	72
35	R6	X	-5.56	%50
36	R6	Z	3.21	%50
37	S6	X	-5.46	%50
38	S6	Z	3.15	%50
39	R6	X	-4.89	%50
40	R6	Z	2.82	%50
41	S4	X	-8.96	%50
42	S4	Z	5.17	%50
43	MP9	X	-15.65	12
44	MP9	Z	9.03	12
45	MP9	X	-15.65	78
46	MP9	Z	9.03	78
47	MP7	X	-17.04	12
48	MP7	Z	9.84	12
49	MP7	X	-17.04	80.7
50	MP7	Z	9.84	80.7
51	MP8	X	-11.08	24
52	MP8	Z	6.4	24
53	MP8	X	-10.54	72
54	MP8	Z	6.09	72
55	R9	X	-6.01	%50
56	R9	Z	3.47	%50
57	S9	X	-6.1	%50
58	S9	Z	3.52	%50
59	R9	X	-5.12	%50
60	R9	Z	2.95	%50
61	S7	X	-9.65	%50
62	S7	Z	5.57	%50

Member Point Loads (BLC 22 : Ice Wind Load AZI 150)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-8.32	12
2	MP3	Z	14.42	12
3	MP3	X	-8.32	78
4	MP3	Z	14.42	78
5	MP1	X	-9.07	12
6	MP1	Z	15.71	12
7	MP1	X	-9.07	80.7
8	MP1	Z	15.71	80.7
9	MP2	X	-6.01	24
10	MP2	Z	10.41	24
11	MP2	X	-5.77	72
12	MP2	Z	9.99	72
13	R3	X	-3.37	%50
14	R3	Z	5.83	%50
15	S3	X	-3.38	%50
16	S3	Z	5.85	%50
17	R3	X	-2.9	%50
18	R3	Z	5.03	%50
19	S1	X	-5.42	%50
20	S1	Z	9.38	%50
21	S2	X	-5.27	%50

Member Point Loads (BLC 22 : Ice Wind Load AZI 150) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
22	S2	Z	9.12	%50
23	MP6	X	-6	12
24	MP6	Z	10.39	12
25	MP6	X	-6	78
26	MP6	Z	10.39	78
27	MP4	X	-6.56	12
28	MP4	Z	11.36	12
29	MP4	X	-6.56	80.7
30	MP4	Z	11.36	80.7
31	MP5	X	-4.74	24
32	MP5	Z	8.2	24
33	MP5	X	-4.71	72
34	MP5	Z	8.16	72
35	R6	X	-3.03	%50
36	R6	Z	5.24	%50
37	S6	X	-2.9	%50
38	S6	Z	5.02	%50
39	R6	X	-2.73	%50
40	R6	Z	4.73	%50
41	S4	X	-4.9	%50
42	S4	Z	8.49	%50
43	MP9	X	-8.75	12
44	MP9	Z	15.16	12
45	MP9	X	-8.75	78
46	MP9	Z	15.16	78
47	MP7	X	-9.53	12
48	MP7	Z	16.51	12
49	MP7	X	-9.53	80.7
50	MP7	Z	16.51	80.7
51	MP8	X	-6.25	24
52	MP8	Z	10.82	24
53	MP8	X	-5.96	72
54	MP8	Z	10.32	72
55	R9	X	-3.43	%50
56	R9	Z	5.94	%50
57	S9	X	-3.47	%50
58	S9	Z	6	%50
59	R9	X	-2.93	%50
60	R9	Z	5.08	%50
61	S7	X	-5.51	%50
62	S7	Z	9.54	%50

Member Point Loads (BLC 23 : Ice Wind Load AZI 180)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	0	12
2	MP3	Z	18.26	12
3	MP3	X	0	78
4	MP3	Z	18.26	78
5	MP1	X	0	12
6	MP1	Z	19.88	12
7	MP1	X	0	80.7
8	MP1	Z	19.88	80.7
9	MP2	X	0	24
10	MP2	Z	12.91	24
11	MP2	X	0	72
12	MP2	Z	12.26	72

Member Point Loads (BLC 23 : Ice Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
13	R3	X	0	%50
14	R3	Z	6.97	%50
15	S3	X	0	%50
16	S3	Z	7.09	%50
17	R3	X	0	%50
18	R3	Z	5.92	%50
19	S1	X	0	%50
20	S1	Z	11.19	%50
21	S2	X	0	%50
22	S2	Z	10.54	%50
23	MP6	X	0	12
24	MP6	Z	12.56	12
25	MP6	X	0	78
26	MP6	Z	12.56	78
27	MP4	X	0	12
28	MP4	Z	13.72	12
29	MP4	X	0	80.7
30	MP4	Z	13.72	80.7
31	MP5	X	0	24
32	MP5	Z	9.78	24
33	MP5	X	0	72
34	MP5	Z	9.67	72
35	R6	X	0	%50
36	R6	Z	6.14	%50
37	S6	X	0	%50
38	S6	Z	5.91	%50
39	R6	X	0	%50
40	R6	Z	5.5	%50
41	S4	X	0	%50
42	S4	Z	9.93	%50
43	MP9	X	0	12
44	MP9	Z	14.47	12
45	MP9	X	0	78
46	MP9	Z	14.47	78
47	MP7	X	0	12
48	MP7	Z	15.79	12
49	MP7	X	0	80.7
50	MP7	Z	15.79	80.7
51	MP8	X	0	24
52	MP8	Z	10.83	24
53	MP8	X	0	72
54	MP8	Z	10.54	72
55	R9	X	0	%50
56	R9	Z	6.42	%50
57	S9	X	0	%50
58	S9	Z	6.31	%50
59	R9	X	0	%50
60	R9	Z	5.64	%50
61	S7	X	0	%50
62	S7	Z	10.35	%50

Member Point Loads (BLC 24 : Ice Wind Load AZI 210)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	8.32	12
2	MP3	Z	14.42	12
3	MP3	X	8.32	78

Member Point Loads (BLC 24 : Ice Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP3	Z	14.42	78
5	MP1	X	9.07	12
6	MP1	Z	15.71	12
7	MP1	X	9.07	80.7
8	MP1	Z	15.71	80.7
9	MP2	X	6.01	24
10	MP2	Z	10.41	24
11	MP2	X	5.77	72
12	MP2	Z	9.99	72
13	R3	X	3.37	%50
14	R3	Z	5.83	%50
15	S3	X	3.38	%50
16	S3	Z	5.85	%50
17	R3	X	2.9	%50
18	R3	Z	5.03	%50
19	S1	X	5.42	%50
20	S1	Z	9.38	%50
21	S2	X	5.27	%50
22	S2	Z	9.12	%50
23	MP6	X	7.8	12
24	MP6	Z	13.51	12
25	MP6	X	7.8	78
26	MP6	Z	13.51	78
27	MP4	X	8.5	12
28	MP4	Z	14.72	12
29	MP4	X	8.5	80.7
30	MP4	Z	14.72	80.7
31	MP5	X	5.72	24
32	MP5	Z	9.91	24
33	MP5	X	5.53	72
34	MP5	Z	9.57	72
35	R6	X	3.29	%50
36	R6	Z	5.7	%50
37	S6	X	3.27	%50
38	S6	Z	5.66	%50
39	R6	X	2.86	%50
40	R6	Z	4.96	%50
41	S4	X	5.3	%50
42	S4	Z	9.18	%50
43	MP9	X	6	12
44	MP9	Z	10.39	12
45	MP9	X	6	78
46	MP9	Z	10.39	78
47	MP7	X	6.56	12
48	MP7	Z	11.36	12
49	MP7	X	6.56	80.7
50	MP7	Z	11.36	80.7
51	MP8	X	4.74	24
52	MP8	Z	8.2	24
53	MP8	X	4.71	72
54	MP8	Z	8.16	72
55	R9	X	3.03	%50
56	R9	Z	5.24	%50
57	S9	X	2.9	%50
58	S9	Z	5.02	%50
59	R9	X	2.73	%50
60	R9	Z	4.73	%50

Member Point Loads (BLC 24 : Ice Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
61	S7	X	4.9	%50
62	S7	Z	8.49	%50

Member Point Loads (BLC 25 : Ice Wind Load AZI 240)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	11.62	12
2	MP3	Z	6.71	12
3	MP3	X	11.62	78
4	MP3	Z	6.71	78
5	MP1	X	12.69	12
6	MP1	Z	7.32	12
7	MP1	X	12.69	80.7
8	MP1	Z	7.32	80.7
9	MP2	X	8.88	24
10	MP2	Z	5.12	24
11	MP2	X	8.72	72
12	MP2	Z	5.03	72
13	R3	X	5.42	%50
14	R3	Z	3.13	%50
15	S3	X	5.27	%50
16	S3	Z	3.05	%50
17	R3	X	4.82	%50
18	R3	Z	2.78	%50
19	S1	X	8.76	%50
20	S1	Z	5.06	%50
21	S2	X	9.12	%50
22	S2	Z	5.27	%50
23	MP6	X	15.65	12
24	MP6	Z	9.03	12
25	MP6	X	15.65	78
26	MP6	Z	9.03	78
27	MP4	X	17.04	12
28	MP4	Z	9.84	12
29	MP4	X	17.04	80.7
30	MP4	Z	9.84	80.7
31	MP5	X	11.08	24
32	MP5	Z	6.4	24
33	MP5	X	10.54	72
34	MP5	Z	6.09	72
35	R6	X	6.01	%50
36	R6	Z	3.47	%50
37	S6	X	6.1	%50
38	S6	Z	3.52	%50
39	R6	X	5.12	%50
40	R6	Z	2.95	%50
41	S4	X	9.65	%50
42	S4	Z	5.57	%50
43	MP9	X	10.88	12
44	MP9	Z	6.28	12
45	MP9	X	10.88	78
46	MP9	Z	6.28	78
47	MP7	X	11.88	12
48	MP7	Z	6.86	12
49	MP7	X	11.88	80.7
50	MP7	Z	6.86	80.7
51	MP8	X	8.47	24

Member Point Loads (BLC 25 : Ice Wind Load AZI 240) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
52	MP8	Z	4.89	24
53	MP8	X	8.38	72
54	MP8	Z	4.84	72
55	R9	X	5.31	%50
56	R9	Z	3.07	%50
57	S9	X	5.12	%50
58	S9	Z	2.96	%50
59	R9	X	4.77	%50
60	R9	Z	2.75	%50
61	S7	X	8.6	%50
62	S7	Z	4.96	%50

Member Point Loads (BLC 26 : Ice Wind Load AZI 270)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	11.81	12
2	MP3	Z	0	12
3	MP3	X	11.81	78
4	MP3	Z	0	78
5	MP1	X	12.9	12
6	MP1	Z	0	12
7	MP1	X	12.9	80.7
8	MP1	Z	0	80.7
9	MP2	X	9.36	24
10	MP2	Z	0	24
11	MP2	X	9.33	72
12	MP2	Z	0	72
13	R3	X	6.03	%50
14	R3	Z	0	%50
15	S3	X	5.76	%50
16	S3	Z	0	%50
17	R3	X	5.45	%50
18	R3	Z	0	%50
19	S1	X	9.76	%50
20	S1	Z	0	%50
21	S2	X	10.54	%50
22	S2	Z	0	%50
23	MP6	X	17.51	12
24	MP6	Z	0	12
25	MP6	X	17.51	78
26	MP6	Z	0	78
27	MP4	X	19.07	12
28	MP4	Z	0	12
29	MP4	X	19.07	80.7
30	MP4	Z	0	80.7
31	MP5	X	12.49	24
32	MP5	Z	0	24
33	MP5	X	11.92	72
34	MP5	Z	0	72
35	R6	X	6.86	%50
36	R6	Z	0	%50
37	S6	X	6.93	%50
38	S6	Z	0	%50
39	R6	X	5.87	%50
40	R6	Z	0	%50
41	S4	X	11.02	%50
42	S4	Z	0	%50

Member Point Loads (BLC 26 : Ice Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
43	MP9	X	15.6	12
44	MP9	Z	0	12
45	MP9	X	15.6	78
46	MP9	Z	0	78
47	MP7	X	17	12
48	MP7	Z	0	12
49	MP7	X	17	80.7
50	MP7	Z	0	80.7
51	MP8	X	11.44	24
52	MP8	Z	0	24
53	MP8	X	11.05	72
54	MP8	Z	0	72
55	R9	X	6.58	%50
56	R9	Z	0	%50
57	S9	X	6.54	%50
58	S9	Z	0	%50
59	R9	X	5.73	%50
60	R9	Z	0	%50
61	S7	X	10.6	%50
62	S7	Z	0	%50

Member Point Loads (BLC 27 : Ice Wind Load AZI 300)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	11.62	12
2	MP3	Z	-6.71	12
3	MP3	X	11.62	78
4	MP3	Z	-6.71	78
5	MP1	X	12.69	12
6	MP1	Z	-7.32	12
7	MP1	X	12.69	80.7
8	MP1	Z	-7.32	80.7
9	MP2	X	8.88	24
10	MP2	Z	-5.12	24
11	MP2	X	8.72	72
12	MP2	Z	-5.03	72
13	R3	X	5.42	%50
14	R3	Z	-3.13	%50
15	S3	X	5.27	%50
16	S3	Z	-3.05	%50
17	R3	X	4.82	%50
18	R3	Z	-2.78	%50
19	S1	X	8.76	%50
20	S1	Z	-5.06	%50
21	S2	X	9.12	%50
22	S2	Z	-5.27	%50
23	MP6	X	12.54	12
24	MP6	Z	-7.24	12
25	MP6	X	12.54	78
26	MP6	Z	-7.24	78
27	MP4	X	13.67	12
28	MP4	Z	-7.89	12
29	MP4	X	13.67	80.7
30	MP4	Z	-7.89	80.7
31	MP5	X	9.38	24
32	MP5	Z	-5.41	24
33	MP5	X	9.13	72

Member Point Loads (BLC 27 : Ice Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
34	MP5	Z	-5.27	72
35	R6	X	5.56	%50
36	R6	Z	-3.21	%50
37	S6	X	5.46	%50
38	S6	Z	-3.15	%50
39	R6	X	4.89	%50
40	R6	Z	-2.82	%50
41	S4	X	8.96	%50
42	S4	Z	-5.17	%50
43	MP9	X	15.65	12
44	MP9	Z	-9.03	12
45	MP9	X	15.65	78
46	MP9	Z	-9.03	78
47	MP7	X	17.04	12
48	MP7	Z	-9.84	12
49	MP7	X	17.04	80.7
50	MP7	Z	-9.84	80.7
51	MP8	X	11.08	24
52	MP8	Z	-6.4	24
53	MP8	X	10.54	72
54	MP8	Z	-6.09	72
55	R9	X	6.01	%50
56	R9	Z	-3.47	%50
57	S9	X	6.1	%50
58	S9	Z	-3.52	%50
59	R9	X	5.12	%50
60	R9	Z	-2.95	%50
61	S7	X	9.65	%50
62	S7	Z	-5.57	%50

Member Point Loads (BLC 28 : Ice Wind Load AZI 330)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	8.32	12
2	MP3	Z	-14.42	12
3	MP3	X	8.32	78
4	MP3	Z	-14.42	78
5	MP1	X	9.07	12
6	MP1	Z	-15.71	12
7	MP1	X	9.07	80.7
8	MP1	Z	-15.71	80.7
9	MP2	X	6.01	24
10	MP2	Z	-10.41	24
11	MP2	X	5.77	72
12	MP2	Z	-9.99	72
13	R3	X	3.37	%50
14	R3	Z	-5.83	%50
15	S3	X	3.38	%50
16	S3	Z	-5.85	%50
17	R3	X	2.9	%50
18	R3	Z	-5.03	%50
19	S1	X	5.42	%50
20	S1	Z	-9.38	%50
21	S2	X	5.27	%50
22	S2	Z	-9.12	%50
23	MP6	X	6	12
24	MP6	Z	-10.39	12

Member Point Loads (BLC 28 : Ice Wind Load AZI 330) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
25	MP6	X	6	78
26	MP6	Z	-10.39	78
27	MP4	X	6.56	12
28	MP4	Z	-11.36	12
29	MP4	X	6.56	80.7
30	MP4	Z	-11.36	80.7
31	MP5	X	4.74	24
32	MP5	Z	-8.2	24
33	MP5	X	4.71	72
34	MP5	Z	-8.16	72
35	R6	X	3.03	%50
36	R6	Z	-5.24	%50
37	S6	X	2.9	%50
38	S6	Z	-5.02	%50
39	R6	X	2.73	%50
40	R6	Z	-4.73	%50
41	S4	X	4.9	%50
42	S4	Z	-8.49	%50
43	MP9	X	8.75	12
44	MP9	Z	-15.16	12
45	MP9	X	8.75	78
46	MP9	Z	-15.16	78
47	MP7	X	9.53	12
48	MP7	Z	-16.51	12
49	MP7	X	9.53	80.7
50	MP7	Z	-16.51	80.7
51	MP8	X	6.25	24
52	MP8	Z	-10.82	24
53	MP8	X	5.96	72
54	MP8	Z	-10.32	72
55	R9	X	3.43	%50
56	R9	Z	-5.94	%50
57	S9	X	3.47	%50
58	S9	Z	-6	%50
59	R9	X	2.93	%50
60	R9	Z	-5.08	%50
61	S7	X	5.51	%50
62	S7	Z	-9.54	%50

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-10.985	12
2	MP3	Z	-10.985	78
3	MP1	Z	-17.289	12
4	MP1	Z	-17.289	80.7
5	MP2	Z	-14.01	24
6	MP2	Z	-25.981	72
7	R3	Z	-22.606	%50
8	S3	Z	-18.913	%50
9	R3	Z	-22.925	%50
10	S1	Z	-24.517	%50
11	S2	Z	-8.342	%50
12	MP6	Z	-10.985	12
13	MP6	Z	-10.985	78
14	MP4	Z	-17.289	12
15	MP4	Z	-17.289	80.7

Member Point Loads (BLC 31 : Seismic Load Z) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP5	Z	-14.01	24
17	MP5	Z	-25.981	72
18	R6	Z	-22.606	%50
19	S6	Z	-18.913	%50
20	R6	Z	-22.925	%50
21	S4	Z	-24.517	%50
22	MP9	Z	-10.985	12
23	MP9	Z	-10.985	78
24	MP7	Z	-17.289	12
25	MP7	Z	-17.289	80.7
26	MP8	Z	-14.01	24
27	MP8	Z	-25.981	72
28	R9	Z	-22.606	%50
29	S9	Z	-18.913	%50
30	R9	Z	-22.925	%50
31	S7	Z	-24.517	%50

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-10.985	12
2	MP3	X	-10.985	78
3	MP1	X	-17.289	12
4	MP1	X	-17.289	80.7
5	MP2	X	-14.01	24
6	MP2	X	-25.981	72
7	R3	X	-22.606	%50
8	S3	X	-18.913	%50
9	R3	X	-22.925	%50
10	S1	X	-24.517	%50
11	S2	X	-8.342	%50
12	MP6	X	-10.985	12
13	MP6	X	-10.985	78
14	MP4	X	-17.289	12
15	MP4	X	-17.289	80.7
16	MP5	X	-14.01	24
17	MP5	X	-25.981	72
18	R6	X	-22.606	%50
19	S6	X	-18.913	%50
20	R6	X	-22.925	%50
21	S4	X	-24.517	%50
22	MP9	X	-10.985	12
23	MP9	X	-10.985	78
24	MP7	X	-17.289	12
25	MP7	X	-17.289	80.7
26	MP8	X	-14.01	24
27	MP8	X	-25.981	72
28	R9	X	-22.606	%50
29	S9	X	-18.913	%50
30	R9	X	-22.925	%50
31	S7	X	-24.517	%50

Member Distributed Loads (BLC 14 : Distr. Wind Load Z)

	Member Label	Direction	Start Magnitude...	End Magnitude[...	Start Location[i...	End Location[in...
1	H1	SZ	-47.438	-47.438	0	%100
2	H2	SZ	-47.438	-47.438	0	%100

Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
3	S1	SZ	-47.438	-47.438	0	%100
4	S2	SZ	-47.438	-47.438	0	%100
5	S3	SZ	-47.438	-47.438	0	%100
6	S4	SZ	-47.438	-47.438	0	%100
7	B1	SZ	-47.438	-47.438	0	%100
8	B2	SZ	-47.438	-47.438	0	%100
9	B3	SZ	-47.438	-47.438	0	%100
10	B4	SZ	-47.438	-47.438	0	%100
11	B5	SZ	-47.438	-47.438	0	%100
12	B6	SZ	-47.438	-47.438	0	%100
13	PP1	SZ	-47.438	-47.438	0	%100
14	M14A	SZ	0	0	0	%100
15	M15A	SZ	0	0	0	%100
16	M16	SZ	0	0	0	%100
17	M17	SZ	0	0	0	%100
18	M18C	SZ	0	0	0	%100
19	M19B	SZ	0	0	0	%100
20	M20A	SZ	0	0	0	%100
21	M21A	SZ	0	0	0	%100
22	M22	SZ	0	0	0	%100
23	M23	SZ	0	0	0	%100
24	M24	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	M27	SZ	0	0	0	%100
28	R1	SZ	-47.438	-47.438	0	%100
29	MP2	SZ	-47.438	-47.438	0	%100
30	R3	SZ	-47.438	-47.438	0	%100
31	H5	SZ	-47.438	-47.438	0	%100
32	H6	SZ	-47.438	-47.438	0	%100
33	S11	SZ	-47.438	-47.438	0	%100
34	S12	SZ	-47.438	-47.438	0	%100
35	S9	SZ	-47.438	-47.438	0	%100
36	S10	SZ	-47.438	-47.438	0	%100
37	B7	SZ	-47.438	-47.438	0	%100
38	B8	SZ	-47.438	-47.438	0	%100
39	B9	SZ	-47.438	-47.438	0	%100
40	B10	SZ	-47.438	-47.438	0	%100
41	B11	SZ	-47.438	-47.438	0	%100
42	B12	SZ	-47.438	-47.438	0	%100
43	PP3	SZ	-47.438	-47.438	0	%100
44	M44	SZ	0	0	0	%100
45	M45	SZ	0	0	0	%100
46	M46	SZ	0	0	0	%100
47	M47	SZ	0	0	0	%100
48	M48	SZ	0	0	0	%100
49	M49	SZ	0	0	0	%100
50	M50	SZ	0	0	0	%100
51	M51	SZ	0	0	0	%100
52	M52	SZ	0	0	0	%100
53	M53	SZ	0	0	0	%100
54	M54	SZ	0	0	0	%100
55	M55	SZ	0	0	0	%100
56	M56	SZ	0	0	0	%100
57	M57	SZ	0	0	0	%100
58	R7	SZ	-47.438	-47.438	0	%100
59	MP8	SZ	-47.438	-47.438	0	%100

Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
60	R9	SZ	-47.438	-47.438	0	%100
61	H3	SZ	-47.438	-47.438	0	%100
62	H4	SZ	-47.438	-47.438	0	%100
63	S5	SZ	-47.438	-47.438	0	%100
64	S6	SZ	-47.438	-47.438	0	%100
65	S7	SZ	-47.438	-47.438	0	%100
66	S8	SZ	-47.438	-47.438	0	%100
67	B13	SZ	-47.438	-47.438	0	%100
68	B14	SZ	-47.438	-47.438	0	%100
69	B15	SZ	-47.438	-47.438	0	%100
70	B16	SZ	-47.438	-47.438	0	%100
71	B17	SZ	-47.438	-47.438	0	%100
72	B18	SZ	-47.438	-47.438	0	%100
73	PP2	SZ	-47.438	-47.438	0	%100
74	M74	SZ	0	0	0	%100
75	M75	SZ	0	0	0	%100
76	M76	SZ	0	0	0	%100
77	M77	SZ	0	0	0	%100
78	M78	SZ	0	0	0	%100
79	M79	SZ	0	0	0	%100
80	M80	SZ	0	0	0	%100
81	M81	SZ	0	0	0	%100
82	M82	SZ	0	0	0	%100
83	M83	SZ	0	0	0	%100
84	M84	SZ	0	0	0	%100
85	M85	SZ	0	0	0	%100
86	M86	SZ	0	0	0	%100
87	M87	SZ	0	0	0	%100
88	R4	SZ	-47.438	-47.438	0	%100
89	MP5	SZ	-47.438	-47.438	0	%100
90	R6	SZ	-47.438	-47.438	0	%100
91	M91	SZ	0	0	0	%100
92	M92	SZ	0	0	0	%100
93	M93	SZ	0	0	0	%100
94	M94	SZ	0	0	0	%100
95	M95	SZ	0	0	0	%100
96	M96	SZ	0	0	0	%100
97	M97	SZ	0	0	0	%100
98	M98	SZ	0	0	0	%100
99	M99	SZ	0	0	0	%100
100	TB1	SZ	-47.438	-47.438	0	%100
101	TB2	SZ	-47.438	-47.438	0	%100
102	TB3	SZ	-47.438	-47.438	0	%100
103	TB4	SZ	-47.438	-47.438	0	%100
104	TB5	SZ	-47.438	-47.438	0	%100
105	TB6	SZ	-47.438	-47.438	0	%100
106	M106	SZ	-47.438	-47.438	0	%100
107	M107	SZ	-47.438	-47.438	0	%100
108	M108	SZ	-47.438	-47.438	0	%100
109	M109	SZ	-47.438	-47.438	0	%100
110	MP3	SZ	-47.438	-47.438	0	%100
111	MP1	SZ	-47.438	-47.438	0	%100
112	M112	SZ	-47.438	-47.438	0	%100
113	M113	SZ	-47.438	-47.438	0	%100
114	M114	SZ	-47.438	-47.438	0	%100
115	M115	SZ	-47.438	-47.438	0	%100
116	MP9	SZ	-47.438	-47.438	0	%100

Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
117	MP7	SZ	-47.438	-47.438	0	%100
118	M118	SZ	-47.438	-47.438	0	%100
119	M119	SZ	-47.438	-47.438	0	%100
120	M120	SZ	-47.438	-47.438	0	%100
121	M121	SZ	-47.438	-47.438	0	%100
122	MP6	SZ	-47.438	-47.438	0	%100
123	MP4	SZ	-47.438	-47.438	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
1	H1	SX	-47.438	-47.438	0	%100
2	H2	SX	-47.438	-47.438	0	%100
3	S1	SX	-47.438	-47.438	0	%100
4	S2	SX	-47.438	-47.438	0	%100
5	S3	SX	-47.438	-47.438	0	%100
6	S4	SX	-47.438	-47.438	0	%100
7	B1	SX	-47.438	-47.438	0	%100
8	B2	SX	-47.438	-47.438	0	%100
9	B3	SX	-47.438	-47.438	0	%100
10	B4	SX	-47.438	-47.438	0	%100
11	B5	SX	-47.438	-47.438	0	%100
12	B6	SX	-47.438	-47.438	0	%100
13	PP1	SX	-47.438	-47.438	0	%100
14	M14A	SX	0	0	0	%100
15	M15A	SX	0	0	0	%100
16	M16	SX	0	0	0	%100
17	M17	SX	0	0	0	%100
18	M18C	SX	0	0	0	%100
19	M19B	SX	0	0	0	%100
20	M20A	SX	0	0	0	%100
21	M21A	SX	0	0	0	%100
22	M22	SX	0	0	0	%100
23	M23	SX	0	0	0	%100
24	M24	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	M27	SX	0	0	0	%100
28	R1	SX	-47.438	-47.438	0	%100
29	MP2	SX	-47.438	-47.438	0	%100
30	R3	SX	-47.438	-47.438	0	%100
31	H5	SX	-47.438	-47.438	0	%100
32	H6	SX	-47.438	-47.438	0	%100
33	S11	SX	-47.438	-47.438	0	%100
34	S12	SX	-47.438	-47.438	0	%100
35	S9	SX	-47.438	-47.438	0	%100
36	S10	SX	-47.438	-47.438	0	%100
37	B7	SX	-47.438	-47.438	0	%100
38	B8	SX	-47.438	-47.438	0	%100
39	B9	SX	-47.438	-47.438	0	%100
40	B10	SX	-47.438	-47.438	0	%100
41	B11	SX	-47.438	-47.438	0	%100
42	B12	SX	-47.438	-47.438	0	%100
43	PP3	SX	-47.438	-47.438	0	%100
44	M44	SX	0	0	0	%100
45	M45	SX	0	0	0	%100
46	M46	SX	0	0	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
47	M47	SX	0	0	0	%100
48	M48	SX	0	0	0	%100
49	M49	SX	0	0	0	%100
50	M50	SX	0	0	0	%100
51	M51	SX	0	0	0	%100
52	M52	SX	0	0	0	%100
53	M53	SX	0	0	0	%100
54	M54	SX	0	0	0	%100
55	M55	SX	0	0	0	%100
56	M56	SX	0	0	0	%100
57	M57	SX	0	0	0	%100
58	R7	SX	-47.438	-47.438	0	%100
59	MP8	SX	-47.438	-47.438	0	%100
60	R9	SX	-47.438	-47.438	0	%100
61	H3	SX	-47.438	-47.438	0	%100
62	H4	SX	-47.438	-47.438	0	%100
63	S5	SX	-47.438	-47.438	0	%100
64	S6	SX	-47.438	-47.438	0	%100
65	S7	SX	-47.438	-47.438	0	%100
66	S8	SX	-47.438	-47.438	0	%100
67	B13	SX	-47.438	-47.438	0	%100
68	B14	SX	-47.438	-47.438	0	%100
69	B15	SX	-47.438	-47.438	0	%100
70	B16	SX	-47.438	-47.438	0	%100
71	B17	SX	-47.438	-47.438	0	%100
72	B18	SX	-47.438	-47.438	0	%100
73	PP2	SX	-47.438	-47.438	0	%100
74	M74	SX	0	0	0	%100
75	M75	SX	0	0	0	%100
76	M76	SX	0	0	0	%100
77	M77	SX	0	0	0	%100
78	M78	SX	0	0	0	%100
79	M79	SX	0	0	0	%100
80	M80	SX	0	0	0	%100
81	M81	SX	0	0	0	%100
82	M82	SX	0	0	0	%100
83	M83	SX	0	0	0	%100
84	M84	SX	0	0	0	%100
85	M85	SX	0	0	0	%100
86	M86	SX	0	0	0	%100
87	M87	SX	0	0	0	%100
88	R4	SX	-47.438	-47.438	0	%100
89	MP5	SX	-47.438	-47.438	0	%100
90	R6	SX	-47.438	-47.438	0	%100
91	M91	SX	0	0	0	%100
92	M92	SX	0	0	0	%100
93	M93	SX	0	0	0	%100
94	M94	SX	0	0	0	%100
95	M95	SX	0	0	0	%100
96	M96	SX	0	0	0	%100
97	M97	SX	0	0	0	%100
98	M98	SX	0	0	0	%100
99	M99	SX	0	0	0	%100
100	TB1	SX	-47.438	-47.438	0	%100
101	TB2	SX	-47.438	-47.438	0	%100
102	TB3	SX	-47.438	-47.438	0	%100
103	TB4	SX	-47.438	-47.438	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
104	TB5	SX	-47.438	-47.438	0	%100
105	TB6	SX	-47.438	-47.438	0	%100
106	M106	SX	-47.438	-47.438	0	%100
107	M107	SX	-47.438	-47.438	0	%100
108	M108	SX	-47.438	-47.438	0	%100
109	M109	SX	-47.438	-47.438	0	%100
110	MP3	SX	-47.438	-47.438	0	%100
111	MP1	SX	-47.438	-47.438	0	%100
112	M112	SX	-47.438	-47.438	0	%100
113	M113	SX	-47.438	-47.438	0	%100
114	M114	SX	-47.438	-47.438	0	%100
115	M115	SX	-47.438	-47.438	0	%100
116	MP9	SX	-47.438	-47.438	0	%100
117	MP7	SX	-47.438	-47.438	0	%100
118	M118	SX	-47.438	-47.438	0	%100
119	M119	SX	-47.438	-47.438	0	%100
120	M120	SX	-47.438	-47.438	0	%100
121	M121	SX	-47.438	-47.438	0	%100
122	MP6	SX	-47.438	-47.438	0	%100
123	MP4	SX	-47.438	-47.438	0	%100

Member Distributed Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
1	H1	Y	-4.396	-4.396	0	%100
2	H2	Y	-4.396	-4.396	0	%100
3	S1	Y	-4.396	-4.396	0	%100
4	S2	Y	-4.396	-4.396	0	%100
5	S3	Y	-4.396	-4.396	0	%100
6	S4	Y	-4.396	-4.396	0	%100
7	B1	Y	-2.311	-2.311	0	%100
8	B2	Y	-2.311	-2.311	0	%100
9	B3	Y	-2.311	-2.311	0	%100
10	B4	Y	-2.311	-2.311	0	%100
11	B5	Y	-2.311	-2.311	0	%100
12	B6	Y	-2.311	-2.311	0	%100
13	PP1	Y	-7.124	-7.124	0	%100
14	M14A	Y	-1.348	-1.348	0	%100
15	M15A	Y	-1.348	-1.348	0	%100
16	M16	Y	-1.348	-1.348	0	%100
17	M17	Y	-1.348	-1.348	0	%100
18	M18C	Y	-1.348	-1.348	0	%100
19	M19B	Y	-1.348	-1.348	0	%100
20	M20A	Y	-1.348	-1.348	0	%100
21	M21A	Y	-1.348	-1.348	0	%100
22	M22	Y	-1.348	-1.348	0	%100
23	M23	Y	-1.348	-1.348	0	%100
24	M24	Y	-1.348	-1.348	0	%100
25	M25	Y	-1.348	-1.348	0	%100
26	M26	Y	-1.348	-1.348	0	%100
27	M27	Y	-1.348	-1.348	0	%100
28	R1	Y	-4.396	-4.396	0	%100
29	MP2	Y	-4.396	-4.396	0	%100
30	R3	Y	-4.396	-4.396	0	%100
31	H5	Y	-4.396	-4.396	0	%100
32	H6	Y	-4.396	-4.396	0	%100
33	S11	Y	-4.396	-4.396	0	%100

Member Distributed Loads (BLC 16 : Ice Weight) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
34	S12	Y	-4.396	-4.396	0	%100
35	S9	Y	-4.396	-4.396	0	%100
36	S10	Y	-4.396	-4.396	0	%100
37	B7	Y	-2.311	-2.311	0	%100
38	B8	Y	-2.311	-2.311	0	%100
39	B9	Y	-2.311	-2.311	0	%100
40	B10	Y	-2.311	-2.311	0	%100
41	B11	Y	-2.311	-2.311	0	%100
42	B12	Y	-2.311	-2.311	0	%100
43	PP3	Y	-7.124	-7.124	0	%100
44	M44	Y	-1.348	-1.348	0	%100
45	M45	Y	-1.348	-1.348	0	%100
46	M46	Y	-1.348	-1.348	0	%100
47	M47	Y	-1.348	-1.348	0	%100
48	M48	Y	-1.348	-1.348	0	%100
49	M49	Y	-1.348	-1.348	0	%100
50	M50	Y	-1.348	-1.348	0	%100
51	M51	Y	-1.348	-1.348	0	%100
52	M52	Y	-1.348	-1.348	0	%100
53	M53	Y	-1.348	-1.348	0	%100
54	M54	Y	-1.348	-1.348	0	%100
55	M55	Y	-1.348	-1.348	0	%100
56	M56	Y	-1.348	-1.348	0	%100
57	M57	Y	-1.348	-1.348	0	%100
58	R7	Y	-4.396	-4.396	0	%100
59	MP8	Y	-4.396	-4.396	0	%100
60	R9	Y	-4.396	-4.396	0	%100
61	H3	Y	-4.396	-4.396	0	%100
62	H4	Y	-4.396	-4.396	0	%100
63	S5	Y	-4.396	-4.396	0	%100
64	S6	Y	-4.396	-4.396	0	%100
65	S7	Y	-4.396	-4.396	0	%100
66	S8	Y	-4.396	-4.396	0	%100
67	B13	Y	-2.311	-2.311	0	%100
68	B14	Y	-2.311	-2.311	0	%100
69	B15	Y	-2.311	-2.311	0	%100
70	B16	Y	-2.311	-2.311	0	%100
71	B17	Y	-2.311	-2.311	0	%100
72	B18	Y	-2.311	-2.311	0	%100
73	PP2	Y	-7.124	-7.124	0	%100
74	M74	Y	-1.348	-1.348	0	%100
75	M75	Y	-1.348	-1.348	0	%100
76	M76	Y	-1.348	-1.348	0	%100
77	M77	Y	-1.348	-1.348	0	%100
78	M78	Y	-1.348	-1.348	0	%100
79	M79	Y	-1.348	-1.348	0	%100
80	M80	Y	-1.348	-1.348	0	%100
81	M81	Y	-1.348	-1.348	0	%100
82	M82	Y	-1.348	-1.348	0	%100
83	M83	Y	-1.348	-1.348	0	%100
84	M84	Y	-1.348	-1.348	0	%100
85	M85	Y	-1.348	-1.348	0	%100
86	M86	Y	-1.348	-1.348	0	%100
87	M87	Y	-1.348	-1.348	0	%100
88	R4	Y	-4.396	-4.396	0	%100
89	MP5	Y	-4.396	-4.396	0	%100
90	R6	Y	-4.396	-4.396	0	%100

Member Distributed Loads (BLC 16 : Ice Weight) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
91	M91	Y	-1.348	-1.348	0	%100
92	M92	Y	-1.348	-1.348	0	%100
93	M93	Y	-1.348	-1.348	0	%100
94	M94	Y	-1.348	-1.348	0	%100
95	M95	Y	-1.348	-1.348	0	%100
96	M96	Y	-1.348	-1.348	0	%100
97	M97	Y	-1.348	-1.348	0	%100
98	M98	Y	-1.348	-1.348	0	%100
99	M99	Y	-1.348	-1.348	0	%100
100	TB1	Y	-4.396	-4.396	0	%100
101	TB2	Y	-4.396	-4.396	0	%100
102	TB3	Y	-4.396	-4.396	0	%100
103	TB4	Y	-4.396	-4.396	0	%100
104	TB5	Y	-4.396	-4.396	0	%100
105	TB6	Y	-4.396	-4.396	0	%100
106	M106	Y	-4.396	-4.396	0	%100
107	M107	Y	-4.396	-4.396	0	%100
108	M108	Y	-4.396	-4.396	0	%100
109	M109	Y	-4.396	-4.396	0	%100
110	MP3	Y	-4.396	-4.396	0	%100
111	MP1	Y	-4.396	-4.396	0	%100
112	M112	Y	-4.396	-4.396	0	%100
113	M113	Y	-4.396	-4.396	0	%100
114	M114	Y	-4.396	-4.396	0	%100
115	M115	Y	-4.396	-4.396	0	%100
116	MP9	Y	-4.396	-4.396	0	%100
117	MP7	Y	-4.396	-4.396	0	%100
118	M118	Y	-4.396	-4.396	0	%100
119	M119	Y	-4.396	-4.396	0	%100
120	M120	Y	-4.396	-4.396	0	%100
121	M121	Y	-4.396	-4.396	0	%100
122	MP6	Y	-4.396	-4.396	0	%100
123	MP4	Y	-4.396	-4.396	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
1	H1	SZ	-15.266	-15.266	0	%100
2	H2	SZ	-15.266	-15.266	0	%100
3	S1	SZ	-15.266	-15.266	0	%100
4	S2	SZ	-15.266	-15.266	0	%100
5	S3	SZ	-15.266	-15.266	0	%100
6	S4	SZ	-15.266	-15.266	0	%100
7	B1	SZ	-30.791	-30.791	0	%100
8	B2	SZ	-30.791	-30.791	0	%100
9	B3	SZ	-30.791	-30.791	0	%100
10	B4	SZ	-30.791	-30.791	0	%100
11	B5	SZ	-30.791	-30.791	0	%100
12	B6	SZ	-30.791	-30.791	0	%100
13	PP1	SZ	-11.882	-11.882	0	%100
14	M14A	SZ	0	0	0	%100
15	M15A	SZ	0	0	0	%100
16	M16	SZ	0	0	0	%100
17	M17	SZ	0	0	0	%100
18	M18C	SZ	0	0	0	%100
19	M19B	SZ	0	0	0	%100
20	M20A	SZ	0	0	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
21	M21A	SZ	0	0	0	%100
22	M22	SZ	0	0	0	%100
23	M23	SZ	0	0	0	%100
24	M24	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	M27	SZ	0	0	0	%100
28	R1	SZ	-15.266	-15.266	0	%100
29	MP2	SZ	-15.266	-15.266	0	%100
30	R3	SZ	-15.266	-15.266	0	%100
31	H5	SZ	-15.266	-15.266	0	%100
32	H6	SZ	-15.266	-15.266	0	%100
33	S11	SZ	-15.266	-15.266	0	%100
34	S12	SZ	-15.266	-15.266	0	%100
35	S9	SZ	-15.266	-15.266	0	%100
36	S10	SZ	-15.266	-15.266	0	%100
37	B7	SZ	-30.791	-30.791	0	%100
38	B8	SZ	-30.791	-30.791	0	%100
39	B9	SZ	-30.791	-30.791	0	%100
40	B10	SZ	-30.791	-30.791	0	%100
41	B11	SZ	-30.791	-30.791	0	%100
42	B12	SZ	-30.791	-30.791	0	%100
43	PP3	SZ	-11.882	-11.882	0	%100
44	M44	SZ	0	0	0	%100
45	M45	SZ	0	0	0	%100
46	M46	SZ	0	0	0	%100
47	M47	SZ	0	0	0	%100
48	M48	SZ	0	0	0	%100
49	M49	SZ	0	0	0	%100
50	M50	SZ	0	0	0	%100
51	M51	SZ	0	0	0	%100
52	M52	SZ	0	0	0	%100
53	M53	SZ	0	0	0	%100
54	M54	SZ	0	0	0	%100
55	M55	SZ	0	0	0	%100
56	M56	SZ	0	0	0	%100
57	M57	SZ	0	0	0	%100
58	R7	SZ	-15.266	-15.266	0	%100
59	MP8	SZ	-15.266	-15.266	0	%100
60	R9	SZ	-15.266	-15.266	0	%100
61	H3	SZ	-15.266	-15.266	0	%100
62	H4	SZ	-15.266	-15.266	0	%100
63	S5	SZ	-15.266	-15.266	0	%100
64	S6	SZ	-15.266	-15.266	0	%100
65	S7	SZ	-15.266	-15.266	0	%100
66	S8	SZ	-15.266	-15.266	0	%100
67	B13	SZ	-30.791	-30.791	0	%100
68	B14	SZ	-30.791	-30.791	0	%100
69	B15	SZ	-30.791	-30.791	0	%100
70	B16	SZ	-30.791	-30.791	0	%100
71	B17	SZ	-30.791	-30.791	0	%100
72	B18	SZ	-30.791	-30.791	0	%100
73	PP2	SZ	-11.882	-11.882	0	%100
74	M74	SZ	0	0	0	%100
75	M75	SZ	0	0	0	%100
76	M76	SZ	0	0	0	%100
77	M77	SZ	0	0	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
78	M78	SZ	0	0	0	%100
79	M79	SZ	0	0	0	%100
80	M80	SZ	0	0	0	%100
81	M81	SZ	0	0	0	%100
82	M82	SZ	0	0	0	%100
83	M83	SZ	0	0	0	%100
84	M84	SZ	0	0	0	%100
85	M85	SZ	0	0	0	%100
86	M86	SZ	0	0	0	%100
87	M87	SZ	0	0	0	%100
88	R4	SZ	-15.266	-15.266	0	%100
89	MP5	SZ	-15.266	-15.266	0	%100
90	R6	SZ	-15.266	-15.266	0	%100
91	M91	SZ	0	0	0	%100
92	M92	SZ	0	0	0	%100
93	M93	SZ	0	0	0	%100
94	M94	SZ	0	0	0	%100
95	M95	SZ	0	0	0	%100
96	M96	SZ	0	0	0	%100
97	M97	SZ	0	0	0	%100
98	M98	SZ	0	0	0	%100
99	M99	SZ	0	0	0	%100
100	TB1	SZ	-15.266	-15.266	0	%100
101	TB2	SZ	-15.266	-15.266	0	%100
102	TB3	SZ	-15.266	-15.266	0	%100
103	TB4	SZ	-15.266	-15.266	0	%100
104	TB5	SZ	-15.266	-15.266	0	%100
105	TB6	SZ	-15.266	-15.266	0	%100
106	M106	SZ	-15.266	-15.266	0	%100
107	M107	SZ	-15.266	-15.266	0	%100
108	M108	SZ	-15.266	-15.266	0	%100
109	M109	SZ	-15.266	-15.266	0	%100
110	MP3	SZ	-15.266	-15.266	0	%100
111	MP1	SZ	-15.266	-15.266	0	%100
112	M112	SZ	-15.266	-15.266	0	%100
113	M113	SZ	-15.266	-15.266	0	%100
114	M114	SZ	-15.266	-15.266	0	%100
115	M115	SZ	-15.266	-15.266	0	%100
116	MP9	SZ	-15.266	-15.266	0	%100
117	MP7	SZ	-15.266	-15.266	0	%100
118	M118	SZ	-15.266	-15.266	0	%100
119	M119	SZ	-15.266	-15.266	0	%100
120	M120	SZ	-15.266	-15.266	0	%100
121	M121	SZ	-15.266	-15.266	0	%100
122	MP6	SZ	-15.266	-15.266	0	%100
123	MP4	SZ	-15.266	-15.266	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
1	H1	SX	-15.266	-15.266	0	%100
2	H2	SX	-15.266	-15.266	0	%100
3	S1	SX	-15.266	-15.266	0	%100
4	S2	SX	-15.266	-15.266	0	%100
5	S3	SX	-15.266	-15.266	0	%100
6	S4	SX	-15.266	-15.266	0	%100
7	B1	SX	-30.791	-30.791	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
8	B2	SX	-30.791	-30.791	0	%100
9	B3	SX	-30.791	-30.791	0	%100
10	B4	SX	-30.791	-30.791	0	%100
11	B5	SX	-30.791	-30.791	0	%100
12	B6	SX	-30.791	-30.791	0	%100
13	PP1	SX	-11.882	-11.882	0	%100
14	M14A	SX	0	0	0	%100
15	M15A	SX	0	0	0	%100
16	M16	SX	0	0	0	%100
17	M17	SX	0	0	0	%100
18	M18C	SX	0	0	0	%100
19	M19B	SX	0	0	0	%100
20	M20A	SX	0	0	0	%100
21	M21A	SX	0	0	0	%100
22	M22	SX	0	0	0	%100
23	M23	SX	0	0	0	%100
24	M24	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	M27	SX	0	0	0	%100
28	R1	SX	-15.266	-15.266	0	%100
29	MP2	SX	-15.266	-15.266	0	%100
30	R3	SX	-15.266	-15.266	0	%100
31	H5	SX	-15.266	-15.266	0	%100
32	H6	SX	-15.266	-15.266	0	%100
33	S11	SX	-15.266	-15.266	0	%100
34	S12	SX	-15.266	-15.266	0	%100
35	S9	SX	-15.266	-15.266	0	%100
36	S10	SX	-15.266	-15.266	0	%100
37	B7	SX	-30.791	-30.791	0	%100
38	B8	SX	-30.791	-30.791	0	%100
39	B9	SX	-30.791	-30.791	0	%100
40	B10	SX	-30.791	-30.791	0	%100
41	B11	SX	-30.791	-30.791	0	%100
42	B12	SX	-30.791	-30.791	0	%100
43	PP3	SX	-11.882	-11.882	0	%100
44	M44	SX	0	0	0	%100
45	M45	SX	0	0	0	%100
46	M46	SX	0	0	0	%100
47	M47	SX	0	0	0	%100
48	M48	SX	0	0	0	%100
49	M49	SX	0	0	0	%100
50	M50	SX	0	0	0	%100
51	M51	SX	0	0	0	%100
52	M52	SX	0	0	0	%100
53	M53	SX	0	0	0	%100
54	M54	SX	0	0	0	%100
55	M55	SX	0	0	0	%100
56	M56	SX	0	0	0	%100
57	M57	SX	0	0	0	%100
58	R7	SX	-15.266	-15.266	0	%100
59	MP8	SX	-15.266	-15.266	0	%100
60	R9	SX	-15.266	-15.266	0	%100
61	H3	SX	-15.266	-15.266	0	%100
62	H4	SX	-15.266	-15.266	0	%100
63	S5	SX	-15.266	-15.266	0	%100
64	S6	SX	-15.266	-15.266	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
65	S7	SX	-15.266	-15.266	0	%100
66	S8	SX	-15.266	-15.266	0	%100
67	B13	SX	-30.791	-30.791	0	%100
68	B14	SX	-30.791	-30.791	0	%100
69	B15	SX	-30.791	-30.791	0	%100
70	B16	SX	-30.791	-30.791	0	%100
71	B17	SX	-30.791	-30.791	0	%100
72	B18	SX	-30.791	-30.791	0	%100
73	PP2	SX	-11.882	-11.882	0	%100
74	M74	SX	0	0	0	%100
75	M75	SX	0	0	0	%100
76	M76	SX	0	0	0	%100
77	M77	SX	0	0	0	%100
78	M78	SX	0	0	0	%100
79	M79	SX	0	0	0	%100
80	M80	SX	0	0	0	%100
81	M81	SX	0	0	0	%100
82	M82	SX	0	0	0	%100
83	M83	SX	0	0	0	%100
84	M84	SX	0	0	0	%100
85	M85	SX	0	0	0	%100
86	M86	SX	0	0	0	%100
87	M87	SX	0	0	0	%100
88	R4	SX	-15.266	-15.266	0	%100
89	MP5	SX	-15.266	-15.266	0	%100
90	R6	SX	-15.266	-15.266	0	%100
91	M91	SX	0	0	0	%100
92	M92	SX	0	0	0	%100
93	M93	SX	0	0	0	%100
94	M94	SX	0	0	0	%100
95	M95	SX	0	0	0	%100
96	M96	SX	0	0	0	%100
97	M97	SX	0	0	0	%100
98	M98	SX	0	0	0	%100
99	M99	SX	0	0	0	%100
100	TB1	SX	-15.266	-15.266	0	%100
101	TB2	SX	-15.266	-15.266	0	%100
102	TB3	SX	-15.266	-15.266	0	%100
103	TB4	SX	-15.266	-15.266	0	%100
104	TB5	SX	-15.266	-15.266	0	%100
105	TB6	SX	-15.266	-15.266	0	%100
106	M106	SX	-15.266	-15.266	0	%100
107	M107	SX	-15.266	-15.266	0	%100
108	M108	SX	-15.266	-15.266	0	%100
109	M109	SX	-15.266	-15.266	0	%100
110	MP3	SX	-15.266	-15.266	0	%100
111	MP1	SX	-15.266	-15.266	0	%100
112	M112	SX	-15.266	-15.266	0	%100
113	M113	SX	-15.266	-15.266	0	%100
114	M114	SX	-15.266	-15.266	0	%100
115	M115	SX	-15.266	-15.266	0	%100
116	MP9	SX	-15.266	-15.266	0	%100
117	MP7	SX	-15.266	-15.266	0	%100
118	M118	SX	-15.266	-15.266	0	%100
119	M119	SX	-15.266	-15.266	0	%100
120	M120	SX	-15.266	-15.266	0	%100
121	M121	SX	-15.266	-15.266	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude..	End Magnitude[...	Start Location[i...	End Location[in...
122	MP6	SX	-15.266	-15.266	0	%100
123	MP4	SX	-15.266	-15.266	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
No Data to Print ...						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
1	H3	PIPE_2.0	.572	123.437	5	.133	26.562		3	1936..	32130	1871..	1871..	1	H1-...
2	H5	PIPE_2.0	.553	123.437	13	.139	26.562		11	1936..	32130	1871..	1871..	1	H1-...
3	H1	PIPE_2.0	.537	123.438	9	.131	26.563		7	1936..	32130	1871..	1871..	1	H1-...
4	S2	PIPE_2.0	.470	61.847	13	.100	61.847		87	2336..	32130	1871..	1871..		H1-...
5	S12	PIPE_2.0	.450	61.847	5	.092	61.847		91	2336..	32130	1871..	1871..		H1-...
6	S6	PIPE_2.0	.436	61.847	9	.094	61.847		107	2336..	32130	1871..	1871..		H1-...
7	H6	PIPE_2.0	.416	6.25	136	.160	26.562		7	2245..	32130	1871..	1871..	1	H1-...
8	H4	PIPE_2.0	.416	6.25	164	.167	26.562		11	2245..	32130	1871..	1871..	1	H1-...
9	H2	PIPE_2.0	.412	6.25	120	.157	26.563		3	2245..	32130	1871..	1871..	1	H1-...
10	R9	PIPE_2.0	.387	42	138	.217	6		145	2652..	32130	1871..	1871..		H1-...
11	R6	PIPE_2.0	.387	42	166	.217	6		161	2652..	32130	1871..	1871..		H1-...
12	R3	PIPE_2.0	.383	42	122	.223	6		7	2652..	32130	1871..	1871..		H1-...
13	MP1	PIPE_2.0	.373	45	8	.048	45		9	9836..	32130	1871..	1871..		H1-...
14	S1	PIPE_2.0	.370	61.847	7	.101	61.847		82	2336..	32130	1871..	1871..		H1-...
15	B3	3/4" SR	.366	27	112	.017	0		4	2707..	1431..	178....	178....	1	H1-...
16	B1	3/4" SR	.366	35.625	116	.018	0		12	2707..	1431..	178....	178....	1	H1-...
17	MP4	PIPE_2.0	.365	45	4	.050	45		5	9836..	32130	1871..	1871..		H1-...
18	MP7	PIPE_2.0	.365	45	12	.049	45		13	9836..	32130	1871..	1871..		H1-...
19	S10	PIPE_2.0	.363	0	5	.095	0		88	2336..	32130	1871..	1871..		H1-...
20	MP3	PIPE_2.0	.362	45	8	.045	45		9	9836..	32130	1871..	1871..		H1-...
21	MP6	PIPE_2.0	.355	45	4	.050	45		5	9836..	32130	1871..	1871..		H1-...
22	MP9	PIPE_2.0	.355	45	12	.050	45		13	9836..	32130	1871..	1871..		H1-...
23	S4	PIPE_2.0	.349	48.962	134	.097	0		85	2336..	32130	1871..	1871..		H1-...
24	B13	3/4" SR	.347	27	160	.020	0		6	2707..	1431..	178....	178....	1	H1-...
25	B7	3/4" SR	.347	35.625	144	.019	0		4	2707..	1431..	178....	178....	1	H1-...
26	B9	3/4" SR	.343	28.125	141	.019	0		8	2707..	1431..	178....	178....	1	H1-...
27	S8	PIPE_2.0	.340	48.962	179	.097	0		104	2336..	32130	1871..	1871..		H1-...
28	S5	PIPE_2.0	.338	61.847	3	.102	61.847		102	2336..	32130	1871..	1871..		H1-...
29	S11	PIPE_2.0	.338	61.847	11	.097	61.847		98	2336..	32130	1871..	1871..		H1-...
30	B15	3/4" SR	.338	36	169	.018	0		12	2707..	1431..	178....	178....	1	H1-...
31	B18	3/4" SR	.336	28.125	177	.023	0		12	2707..	1431..	178....	178....	1	H1-...
32	B16	3/4" SR	.334	27	178	.014	0		2	2707..	1431..	178....	178....	1	H1-...
33	R7	PIPE_2.0	.333	42	152	.325	6		2	2652..	32130	1871..	1871..		H1-...
34	R1	PIPE_2.0	.332	42	124	.294	6		10	2652..	32130	1871..	1871..		H1-...
35	R4	PIPE_2.0	.332	42	180	.336	6		6	2652..	32130	1871..	1871..		H1-...
36	B10	3/4" SR	.330	27	148	.015	0		11	2707..	1431..	178....	178....	1	H1-...
37	B4	3/4" SR	.330	35.625	132	.017	0		6	2707..	1431..	178....	178....	1	H1-...
38	B12	3/4" SR	.330	27	148	.022	0		8	2707..	1431..	178....	178....	1	H1-...
39	B6	3/4" SR	.323	35.625	134	.019	0		3	2707..	1431..	178....	178....	1	H1-...
40	S3	PIPE_2.0	.309	0	131	.099	0		83	2336..	32130	1871..	1871..		H1-...
41	S7	PIPE_2.0	.295	48.962	176	.093	0		103	2336..	32130	1871..	1871..		H1-...
42	S9	PIPE_2.0	.293	48.962	148	.092	0		99	2336..	32130	1871..	1871..		H1-...
43	PP3	PIPE_4.0	.265	66	5	.223	66		5	8309..	93240	1063..	1063..		H1-...
44	PP1	PIPE_4.0	.262	66	13	.217	66		13	8309..	93240	1063..	1063..		H1-...
45	PP2	PIPE_4.0	.250	66	9	.209	66		9	8309..	93240	1063..	1063..		H1-...

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
46	M108	PIPE_2.0	.243	12	2	.125	0		125	3174..	32130	1871..	1871..		H1-..
47	M114	PIPE_2.0	.241	12	6	.127	0		154	3174..	32130	1871..	1871..		H1-..
48	M120	PIPE_2.0	.240	12	10	.127	0		182	3174..	32130	1871..	1871..		H1-..
49	M106	PIPE_2.0	.229	12	2	.146	0		122	3174..	32130	1871..	1871..		H1-..
50	M118	PIPE_2.0	.226	12	10	.157	0		6	3174..	32130	1871..	1871..		H1-..
51	M112	PIPE_2.0	.225	12	6	.158	0		2	3174..	32130	1871..	1871..		H1-..
52	MP5	PIPE_2.0	.205	66	12	.080	66		12	1491..	32130	1871..	1871..		H1-..
53	MP8	PIPE_2.0	.193	66	8	.075	66		8	1491..	32130	1871..	1871..		H1-..
54	MP2	PIPE_2.0	.181	66	12	.070	66		4	1491..	32130	1871..	1871..		H1-..
55	M109	PIPE_2.0	.160	12	8	.127	0		131	3174..	32130	1871..	1871..		H1-..
56	M121	PIPE_2.0	.157	12	4	.127	0		175	3174..	32130	1871..	1871..		H1-..
57	M115	PIPE_2.0	.156	12	12	.128	0		159	3174..	32130	1871..	1871..		H1-..
58	M113	PIPE_2.0	.139	12	12	.142	0		145	3174..	32130	1871..	1871..		H1-..
59	M107	PIPE_2.0	.139	12	8	.141	0		117	3174..	32130	1871..	1871..		H1-..
60	M119	PIPE_2.0	.138	0	163	.142	0		161	3174..	32130	1871..	1871..		H1-..
61	B2	3/4" SR	.123	25.456	38	.019	0		7	1353..	1431..	178....	178....		H1-..
62	B14	3/4" SR	.120	25.456	36	.020	0		3	1353..	1431..	178....	178....		H1-..
63	B8	3/4" SR	.115	25.456	27	.022	0		11	1353..	1431..	178....	178....		H1-..
64	B5	3/4" SR	.110	25.456	28	.020	0		12	1353..	1431..	178....	178....		H1-..
65	TB4	PIPE_2.0	.108	77.403	24	.035	0		170	1951..	32130	1871..	1871..		H1-..
66	B11	3/4" SR	.105	25.456	30	.021	50.912		5	1353..	1431..	178....	178....		H1-..
67	B17	3/4" SR	.104	25.456	27	.022	50.912		6	1353..	1431..	178....	178....		H1-..
68	TB3	PIPE_2.0	.099	77.403	20	.035	0		142	1951..	32130	1871..	1871..		H1-..
69	TB2	PIPE_2.0	.095	0	18	.034	0		114	1951..	32130	1871..	1871..		H1-..
70	TB5	PIPE_2.0	.052	45.199	8	.030	0		2	1627..	32130	1871..	1871..		H1-..
71	TB6	PIPE_2.0	.046	45.199	4	.028	90.398		10	1627..	32130	1871..	1871..		H1-..
72	TB1	PIPE_2.0	.045	45.199	12	.029	90.398		6	1627..	32130	1871..	1871..		H1-..

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY

Bolt Calculation Tool, V1.6.1

PROJECT DATA	
Site Name:	EAST HAVEN SOUTH
Site Number:	842862
Connection Description:	Sector Frame to Tower

MAXIMUM BOLT LOADS		
Bolt Tension:	2102.86	lbs
Bolt Shear:	2088.51	lbs

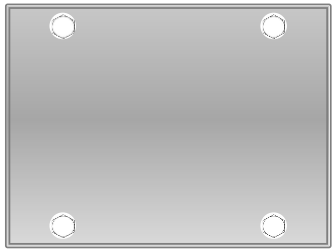
WORST CASE BOLT LOADS[1]		
Bolt Tension:	1444.24	lbs
Bolt Shear:	2088.51	lbs

BOLT PROPERTIES		
Bolt Type:	U-Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A307	-
# of U-Bolts:	2	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #5 on member M45 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
J nodes of M14A, M15A, M44, M45, M74, M75,

BOLT CHECK		
Tensile Strength	10170.07	
Shear Strength	6902.91	
Max Tensile Usage	20.7%	
Max Shear Usage	30.3%	
Interaction Check (Worst Case)	0.11	***≤1.05***
Result	Pass	



AT&T

AT&T SITE NUMBER:	**CTL05048**	**BUSINESS UNIT #:**	**842862**
AT&T SITE NAME:	**EAST HAVEN SOUTH**	**SITE ADDRESS:**	**259 COMMERCE STREET**
AT&T FA CODE:	**10071016**		**EAST HAVEN, CT 06512**
AT&T PACE NUMBER:	**MRCTB055428, MRCTB053612, MRCTB054215, MRCTB054789, MRCTB054142, MRCTB053749**	**COUNTY:**	**NEW HAVEN**
		SITE TYPE:	**MONOPOLE**
AT&T PROJECT:	**BBU RECONFIGURATION WITH NEW IDS, 5G NR ACTIVATION, LTE 6C, 5G NR 1SR CBAND**	**TOWER HEIGHT:**	**58'-0"**

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	EAST HAVEN SOUTH
SITE ADDRESS:	259 COMMERCE STREET EAST HAVEN, CT 06512
COUNTY:	NEW HAVEN
MAP/PARCEL #:	090-1013-005
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 15' 22.88"
LONGITUDE:	-72° 52' 32.80"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	36'
CURRENT ZONING:	LI-2 LIGHT INDUSTRIAL
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	VIGLIONE STEPHEN J 259 COMMERCE ST EAST HAVEN, CT 06512
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	UNITED ILLUMINATING CO (800) 722-5584
TELCO PROVIDER:	ATT (866) 852-2721

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1505 WESTLAKE AVENUE NORTH, SUITE 800 SEATTLE, WA 98109 VERONICA CHAPMAN - PROJECT MANAGER VERONICA.CHAPMAN@BTGRP.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.D'AMICO@CROWNCASTEL.COM

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

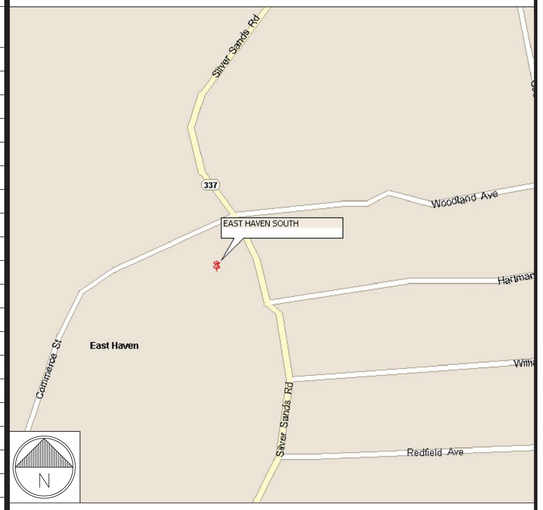
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EQUIPMENT PLANS
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	ANTENNA SCHEDULE
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT SPECS.
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM
ATTACHED	STAND OFF DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!

LOCATION MAP



NO SCALE

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (3) QUNITEL - QS66512-6 ANTENNAS
- REMOVE (3) KATHREIN - 800-10121 ANTENNAS
- REMOVE (6) POWERWAVE TECH - LGP21401 TMA
- RELOCATE (3) KATHREIN - 800-10965 ANTENNAS
- RELOCATE (3) ERICSSON - 4449 B5/B12 RRH
- RELOCATE (3) ERICSSON - 8843 B2/B66A RRH
- RELOCATE (3) ERICSSON - RRUS-32 B30 RRH
- INSTALL (6) ERICSSON - AIR6449 B77D(BELOW)+AIR6419 B77G(BELOW) STACKED ANTENNAS W/ INTEGRATED RRH
- INSTALL (3) CCI -TPA65R-BU6DA-K ANTENNAS
- INSTALL (3) ERICSSON - 4478 B14 RRH
- INSTALL (3) BACK TO BACK MOUNTS
- INSTALL (6) VALMONT - PM1 STANDOFF MOUNTS
- INSTALL (6) (SCH 40) GALV. MOUNT PIPE W/ASSOCIATED HARDWARE
- INSTALL (6) Y CABLES

GROUND SCOPE OF WORK:
- REMOVE (2) 150AH BATTERY STRINGS
- REMOVE (6) LGP21901 DIPLEXERS
- REMOVE (1) UMTS CABINET
- REMOVE (1) 6601
- REMOVE (1) XMU
- INSTALL (6) RECTIFIERS
- INSTALL (5) 170AH BATTERY STRINGS
- INSTALL (1) BATTERY CABINET
- INSTALL (1) 6648 WITH XCEDE CABLE

SITE PHOTO

APPLICABLE CODES & REFERENCE DOCUMENTS

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. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	4/19/22
MOUNT ANALYSIS:	INFINIGY
DATED:	5/5/22
RFDS REVISION:	PRELIMINARY
DATED:	3/14/22
ORDER ID:	586266
REVISION:	0

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTL05048

BU #: **842862**
EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

EXISTING
58'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/22	JTS	CONSTRUCTION	MTJ
1	7/19/22	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
7/19/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: T-1

REVISION: 1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: AT&T
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER........40 ksi
   #5 BARS AND LARGER........60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH........3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER........2"
   #5 BARS AND SMALLER........1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS........3/4"
   BEAMS AND COLUMNS........1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

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1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTL05048

BU #: **842862**
EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

EXISTING
58'-0" MONOPOLE

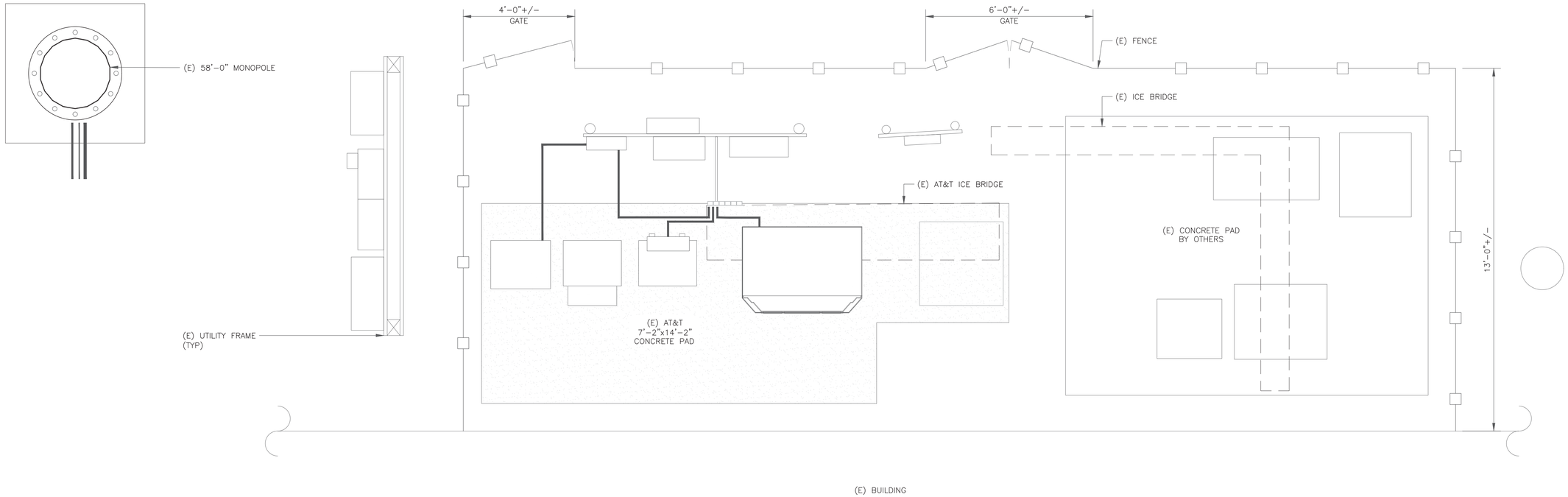
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/22	JTS	CONSTRUCTION	MTJ
1	7/19/22	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED PROFESSIONAL ENGINEER
7/19/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER:	REVISION:
T-2	1



1 SITE PLAN

SCALE: 2' 1' 0 2'

1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (11x17)

N

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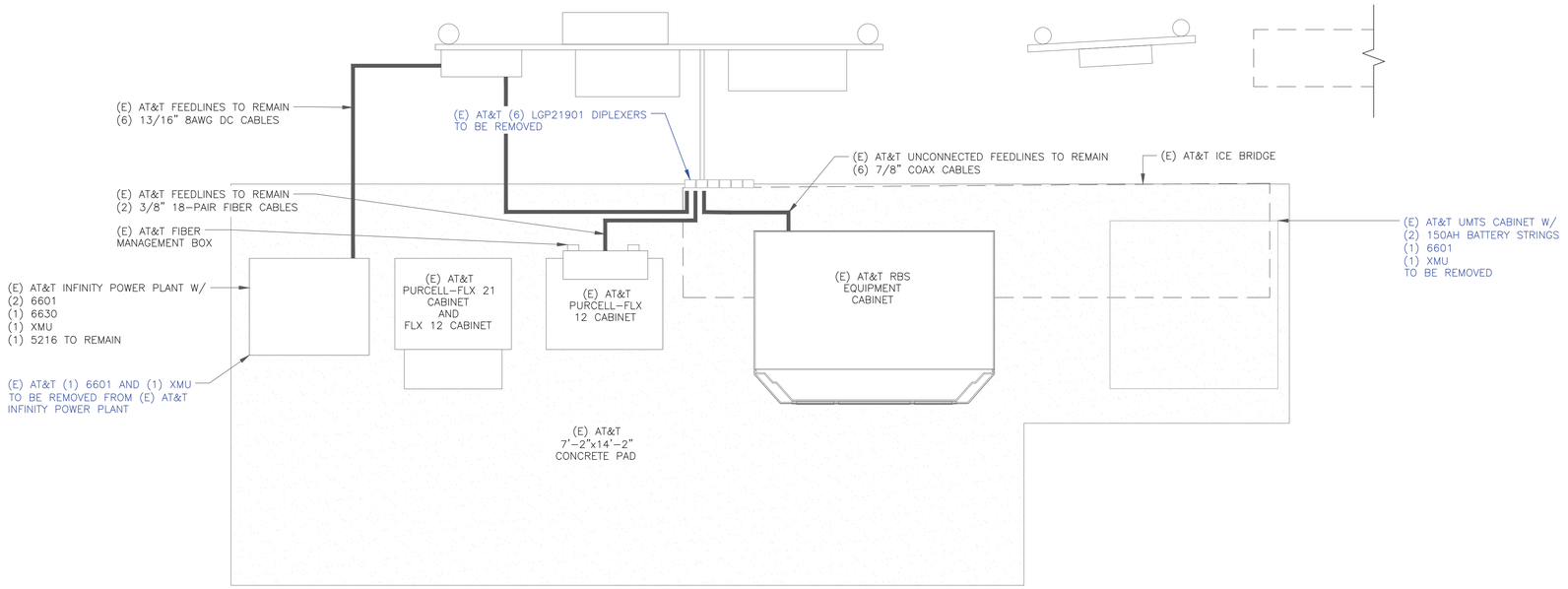
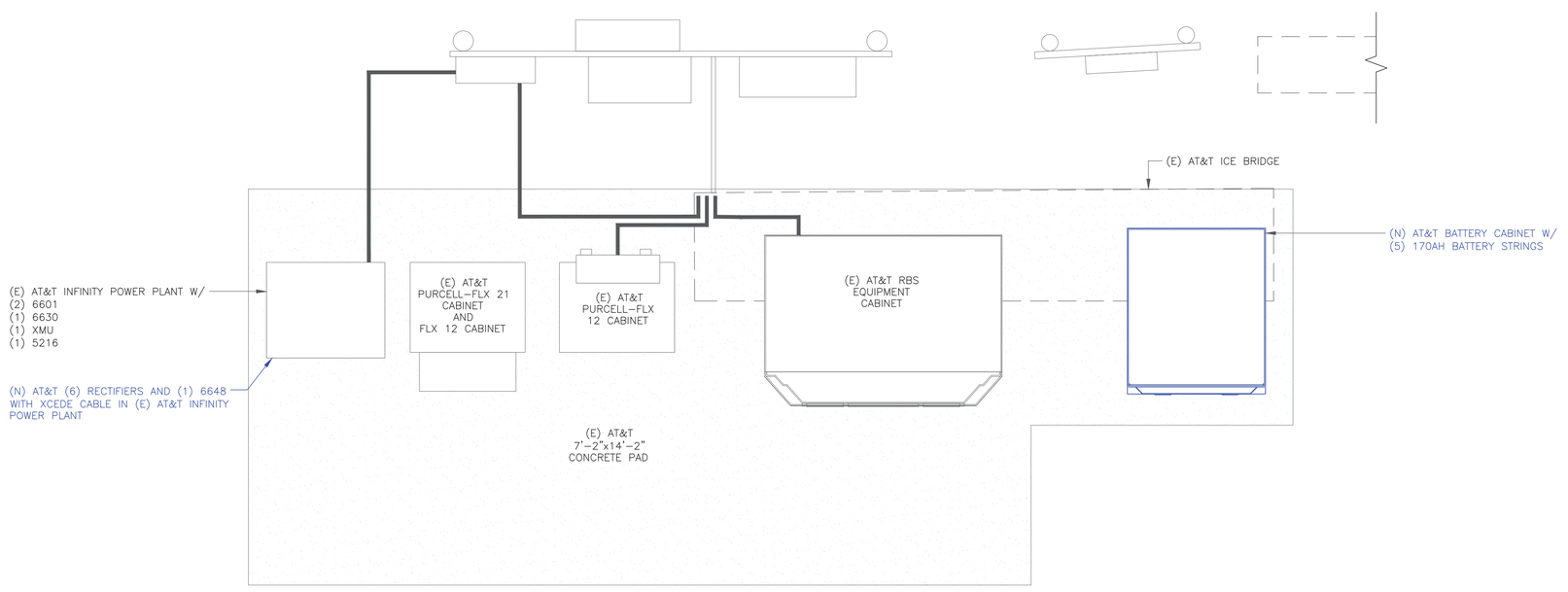
Expires 2/10/23

SHEET NUMBER: C-1.1

REVISION: 1



1 EXISTING EQUIPMENT PLAN
SCALE: 1" 6" 0 1" 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)



2 FINAL EQUIPMENT PLAN
SCALE: 1" 6" 0 1" 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

GROUND SCOPE OF WORK:
- REMOVE (2) 150AH BATTERY STRINGS
- REMOVE (6) LGP21901 DIPLEXERS
- REMOVE (1) UMTS CABINET
- REMOVE (1) 6601
- REMOVE (1) XMU
- INSTALL (6) RECTIFIERS
- INSTALL (5) 170AH BATTERY STRINGS
- INSTALL (1) BATTERY CABINET
- INSTALL (1) 6648 WITH XCEDE CABLE

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STATE OF CONNECTICUT
MICHAEL T. JOHNSON
No. 23024
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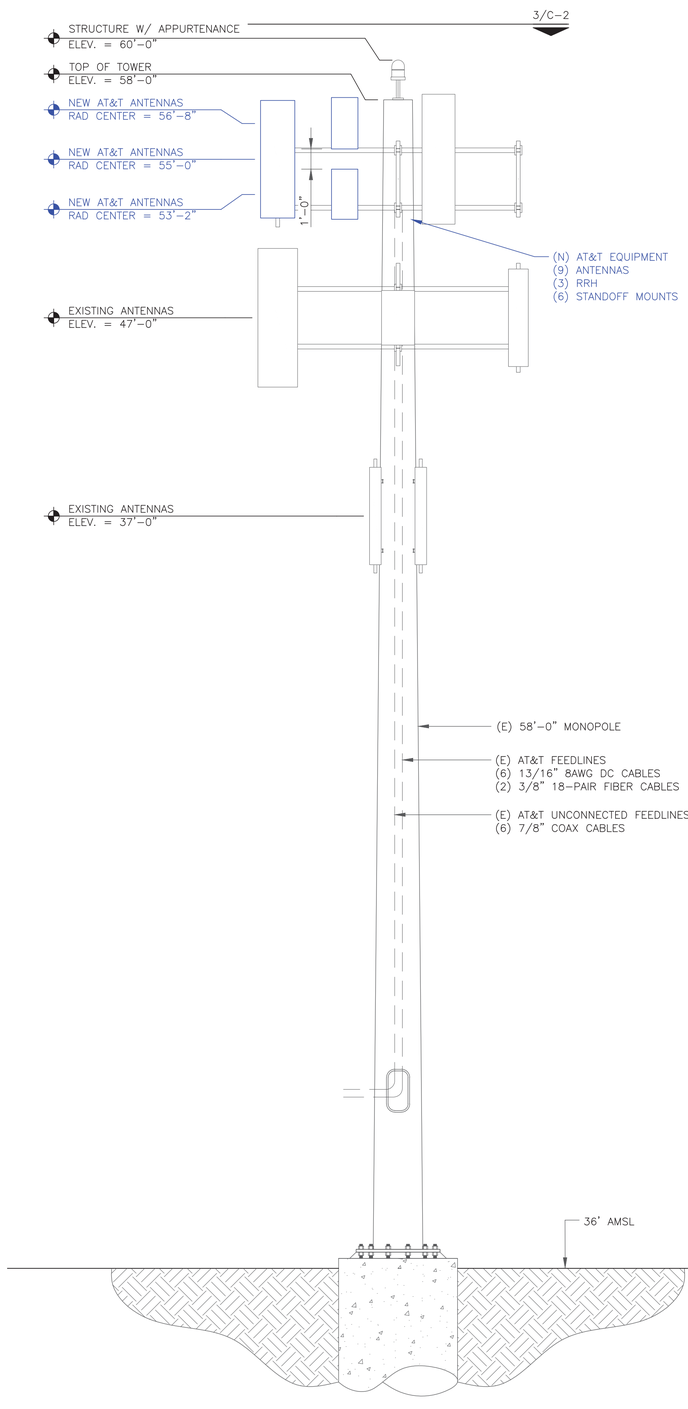
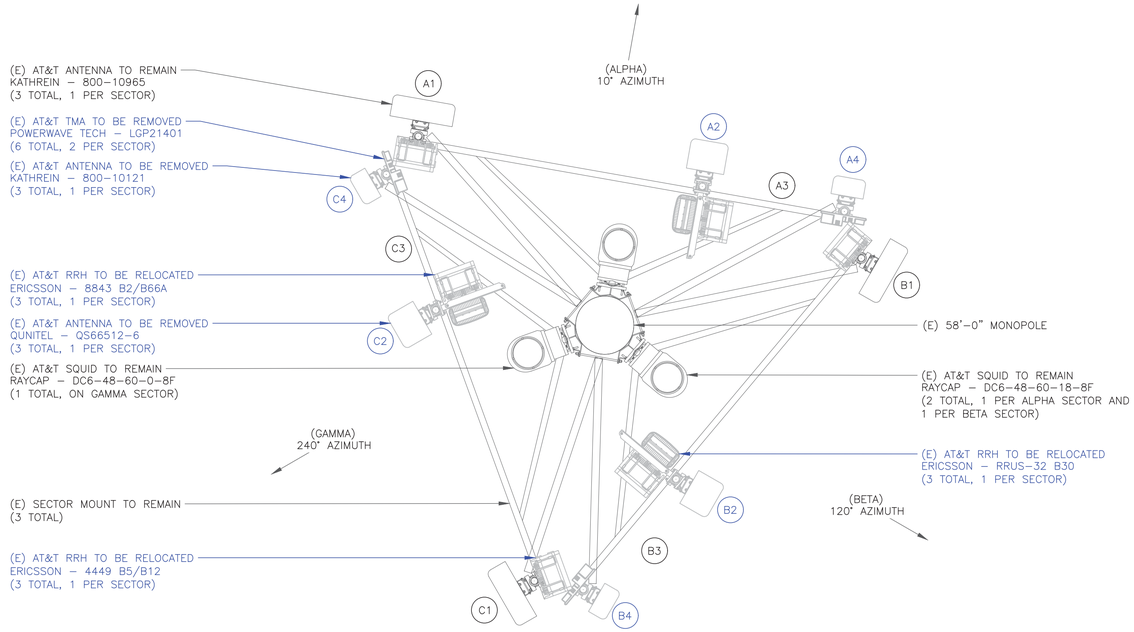
PROFESSIONAL ENGINEER
7/19/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

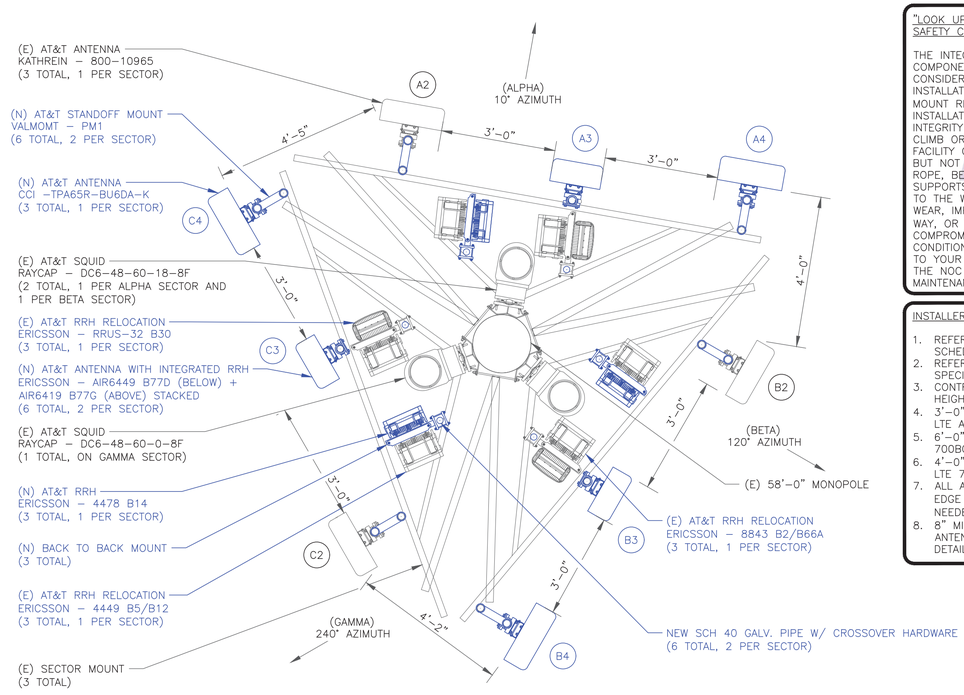
SHEET NUMBER: C-1.2
REVISION: 1



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)



3 FINAL ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

"LOOK UP" - CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
5. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
6. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
7. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
8. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.

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CTL05048

BU #: **842862**
EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

EXISTING
58'-0" MONOPOLE

ISSUED FOR:

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1	7/19/22	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: C-2

REVISION: 1

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

ALPHA

POSITION	ANTENNA				RADIO			DIPLEXER			TMA			SURGE PROTECTION	CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MANUFACTURER MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
A1	–	EMPTY SPACE	–	–	–	–	–	–	–	–	–	–	1	(E) DC6-48-60-18-8F	2 1	(E) DC (E) FIBER	13/16" 3/8"	105'-0"
A2	LTE/5G	(E) KATHREIN 800-10965	10°	55'-0"	1	(N) 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
A3	5G CBAND	(N) ERICSSON AIR6449 B77D+AIR6419 B77G STACKED	10°	56'-8" 53'-2"	–	INTERGRATED WITHIN	TOWER	–	–	–	–	–	–	–	–	–	–	–
A4	LTE/5G	(N) CCI TPA65R-BU6DA-K	10°	55'-0"	1 1 1 **2**	(E) 4449 B5/B12 (E) 8843 B2/B66A (E) RRUS-32 B30 **(N) Y CABLE**	TOWER	–	–	–	–	–	–	–	–	–	–	–
BETA																		
B1	–	EMPTY SPACE	–	–	–	–	–	–	–	–	–	–	1	(E) DC6-48-60-18-8F	2 1	(E) DC (E) FIBER	13/16" 3/8"	105'-0"
B2	LTE/5G	(E) KATHREIN 800-10965	120°	55'-0"	1	(N) 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
B3	5G CBAND	(N) ERICSSON AIR6449 B77D+AIR6419 B77G STACKED	120°	56'-8" 53'-2"	–	INTERGRATED WITHIN	TOWER	–	–	–	–	–	–	–	–	–	–	–
B4	LTE/5G	(N) CCI TPA65R-BU6DA-K	120°	55'-0"	1 1 1 **2**	(E) 4449 B5/B12 (E) 8843 B2/B66A (E) RRUS-32 B30 **(N) Y CABLE**	TOWER	–	–	–	–	–	–	–	–	–	–	–
GAMMA																		
C1	–	EMPTY SPACE	–	–	–	–	–	–	–	–	–	–	1	(E) DC6-48-60-0-8F	2	(E) DC	13/16"	105'-0"
C2	LTE/5G	(E) KATHREIN 800-10965	240°	55'-0"	1	(N) 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
C3	5G CBAND	(N) ERICSSON AIR6449 B77D+AIR6419 B77G STACKED	240°	56'-8" 53'-2"	–	INTERGRATED WITHIN	TOWER	–	–	–	–	–	–	–	–	–	–	–
C4	LTE/5G	(N) CCI TPA65R-BU6DA-K	240°	55'-0"	1 1 1 **2**	(E) 4449 B5/B12 (E) 8843 B2/B66A (E) RRUS-32 B30 **(N) Y CABLE**	TOWER	–	–	–	–	–	–	–	–	–	–	–
														UNUSED FEEDLINES:	6	COAX	7/8"	105'-0"

NOTE:
(E) – EXISTING
(N) – NEW

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

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BU #: **842862**
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259 COMMERCE STREET
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EXISTING
58'-0" MONOPOLE

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STATE OF CONNECTICUT
MICHAEL T. JANSEN
No. 23924
LICENSED PROFESSIONAL ENGINEER
7/19/22

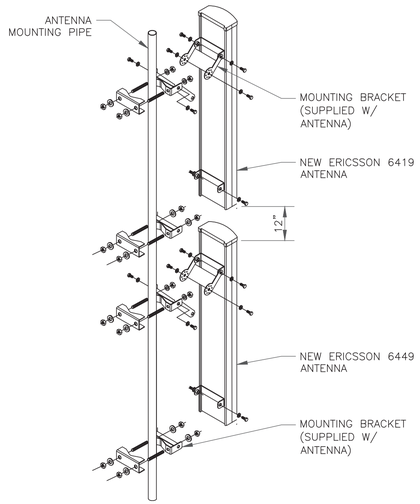
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: C-3

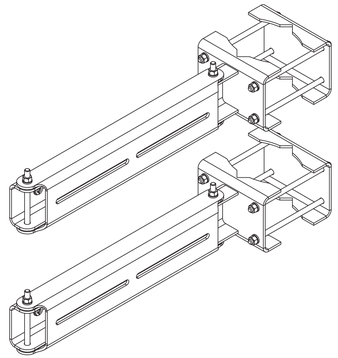
REVISION: 1

INSTALLER NOTES:

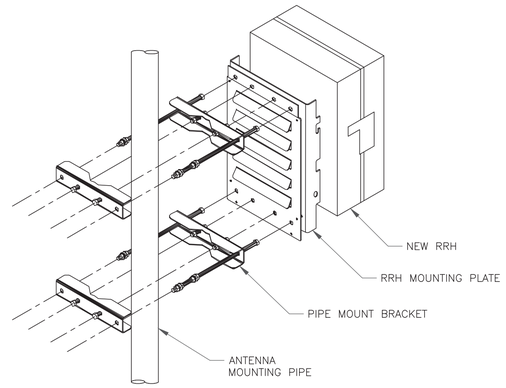
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



4 STACKED ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE



2 DUAL RADIO MOUNT
SCALE: NOT TO SCALE

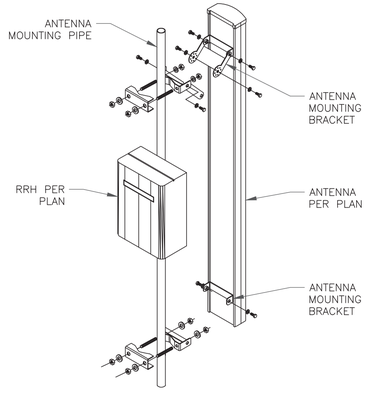


NOTE:
ANTENNA NOT SHOWN FOR CLARITY

3 SINGLE RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.
4. RRHs SHALL NOT BE INSTALLED CLOSER THAN 8" TO ANTENNAS.



4 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
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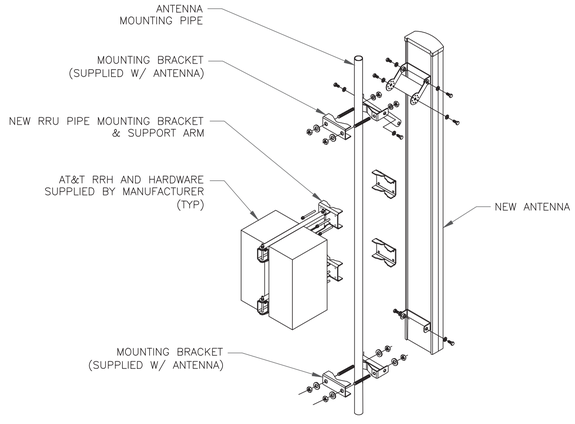
4. RRHs SHALL NOT BE INSTALLED CLOSER THAN 8" TO ANTENNAS.



5 ANTENNA WITH DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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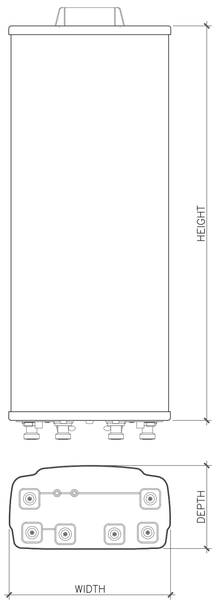
PEC.0001564
Expires 2/10/23

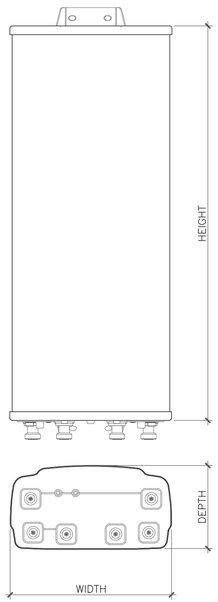
SHEET NUMBER: C-4

REVISION: 1



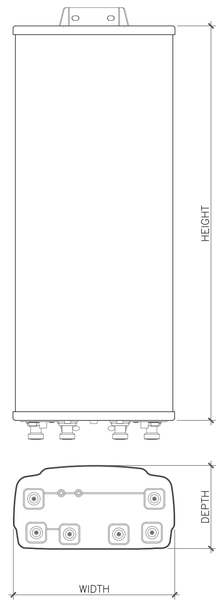
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
AIR 6419 B77G	31.10"	16.10"	7.30"	44 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



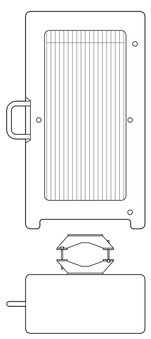
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
AIR 6449 B77D	30.39"	15.87"	8.07"	81.60 lbs

2 ANTENNA DETAIL
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
TPA65R-BU6DA-K	71.20"	20.70"	7.70"	69 lbs

3 ANTENNA DETAIL
SCALE: NOT TO SCALE



ERICSSON - 4478 B14
WEIGHT (FULLY EQUIPPED): 59.40 LBS
SIZE (HxWxD): 18.10x13.40x8.26 IN.
CONNECTOR TYPE: 4.3-10 FEMALE (4 TOTAL PORTS)

4 ERICSSON - 4478 B14
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTL05048

BU #: **842862**
EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

EXISTING
58'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/22	JTS	CONSTRUCTION	MTJ
1	7/19/22	JTS	CONSTRUCTION	MTJ

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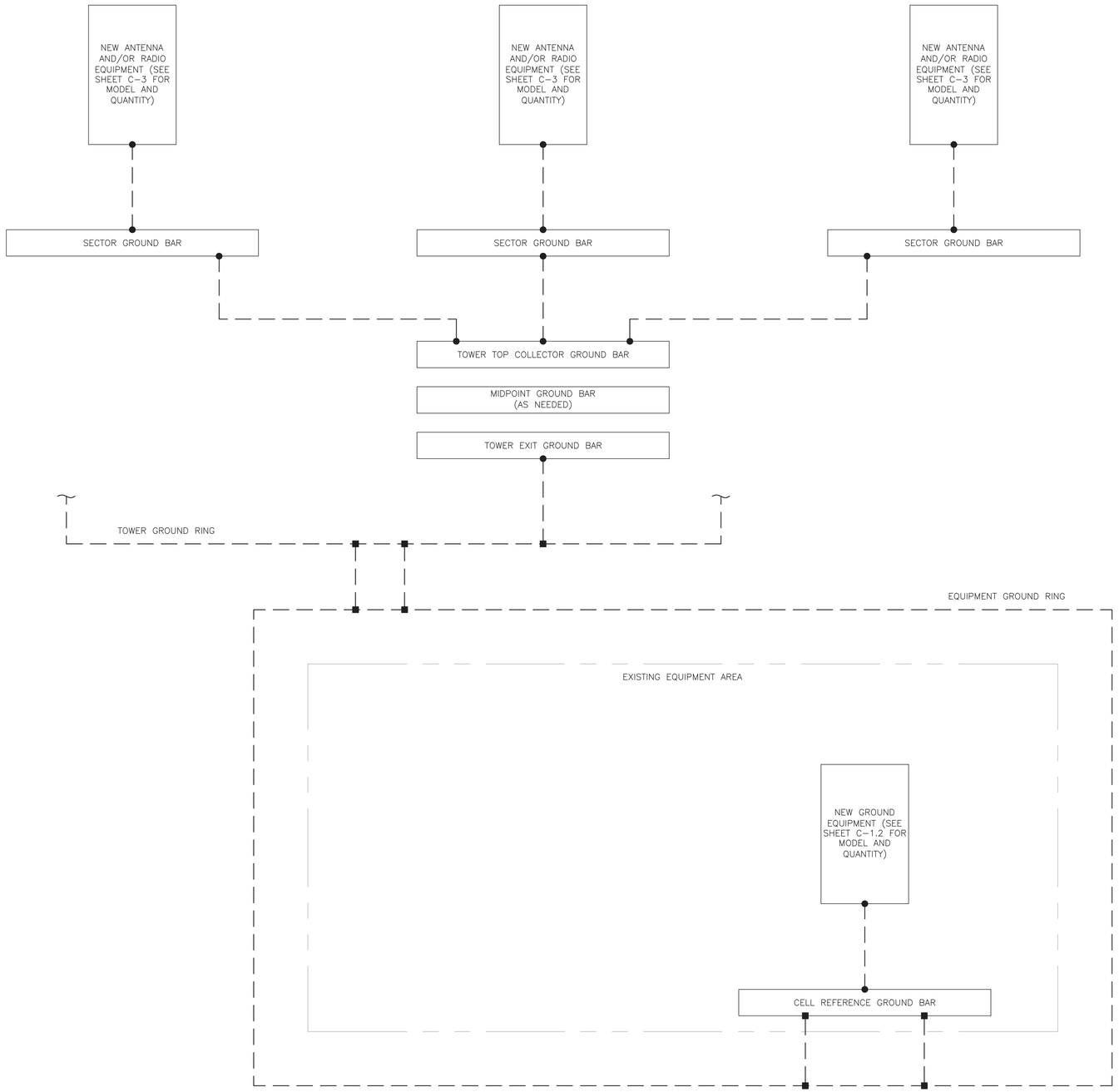
PEC.0001564
Expires 2/10/23

SHEET NUMBER: C-5

REVISION: 1



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

--- GROUND WIRE
■ EXOTHERMIC WELD
● MECHANICAL CONNECTION
COPPER GROUND ROD
GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
1505 WESTLAKE AVENUE NORTH, SUITE 800
SEATTLE, WA 98109

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AT&T SITE NUMBER:
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BU #: **842862**
EAST HAVEN SOUTH

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EXISTING
58'-0" MONOPOLE

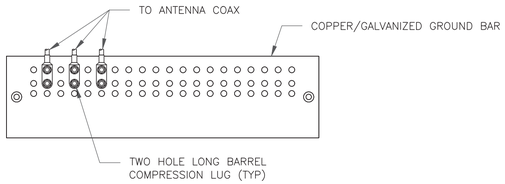
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/22	JTS	CONSTRUCTION	MTJ
1	7/19/22	JTS	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
GRANT M. TIKE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
7/19/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

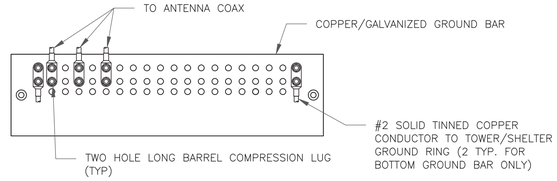
SHEET NUMBER: G-1
REVISION: 1



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

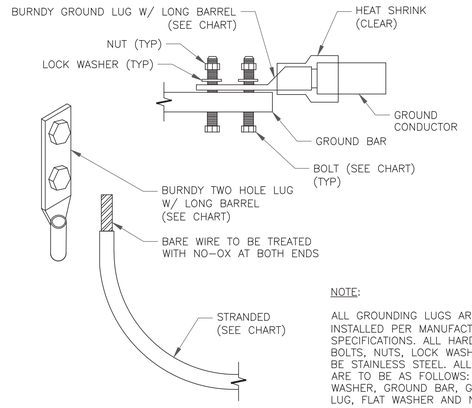


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

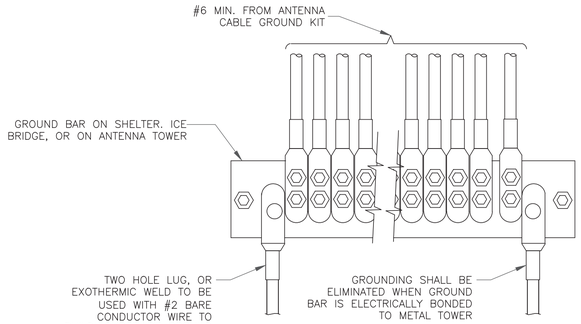
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



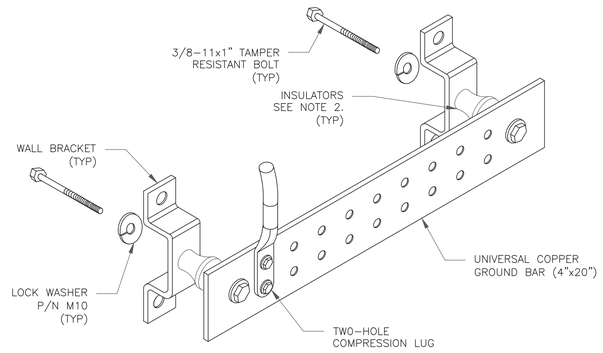
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

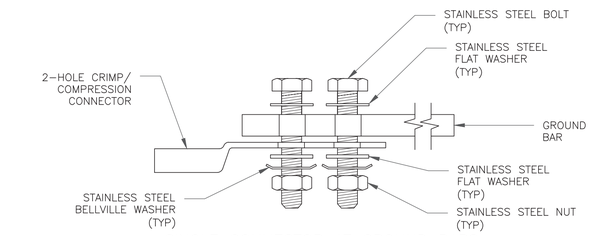


NOTES:

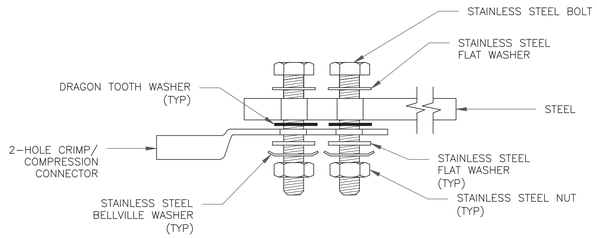
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

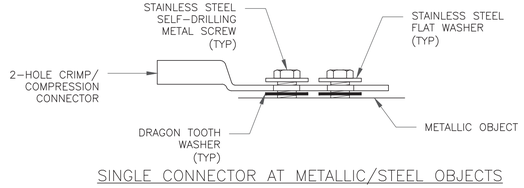
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

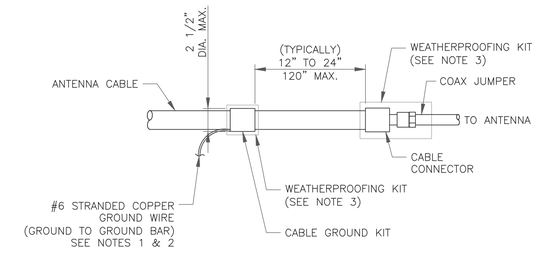


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

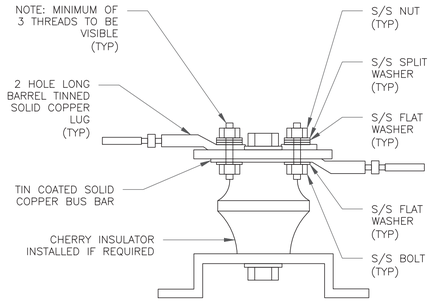
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

AT&T
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ATLANTA, GA 30324-3300

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AT&T SITE NUMBER:
CTL05048

BU #: **842862**
EAST HAVEN SOUTH

259 COMMERCE STREET
EAST HAVEN, CT 06512

EXISTING
58'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/22	JTS	CONSTRUCTION	MTJ
1	7/19/22	JTS	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

SHEET NUMBER: G-2

REVISION: 1

Diagram - Sector	A	Diagram File Name - Cband_3Ant_B14_8Port_8843_2xDC6_1xDCSquid_1x5216+1xXMU+1x6630+6648_Rev.1.vsd					
Atoll Site Name -	CTL05048	Location Name -	EAST HAVEN SOUTH	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"

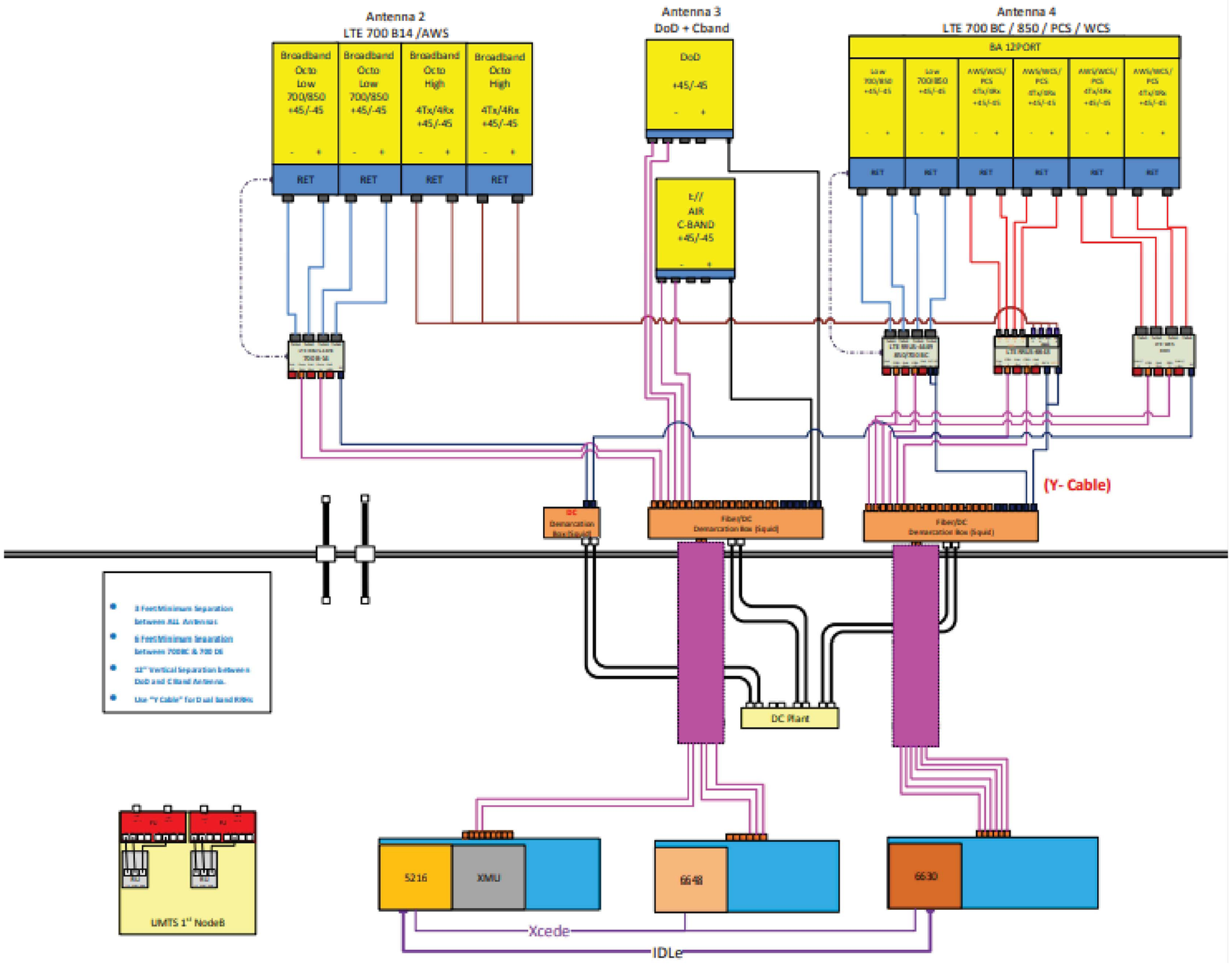


Diagram - Sector	B	Diagram File Name - Cband_3Ant_B14_8Port_8843_2xDC6_1xDCSquid_1x5216+1xXMU+1x6630+6648_Rev.1.vsd					
Atoll Site Name -	CTL05048	Location Name -	EAST HAVEN SOUTH	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"

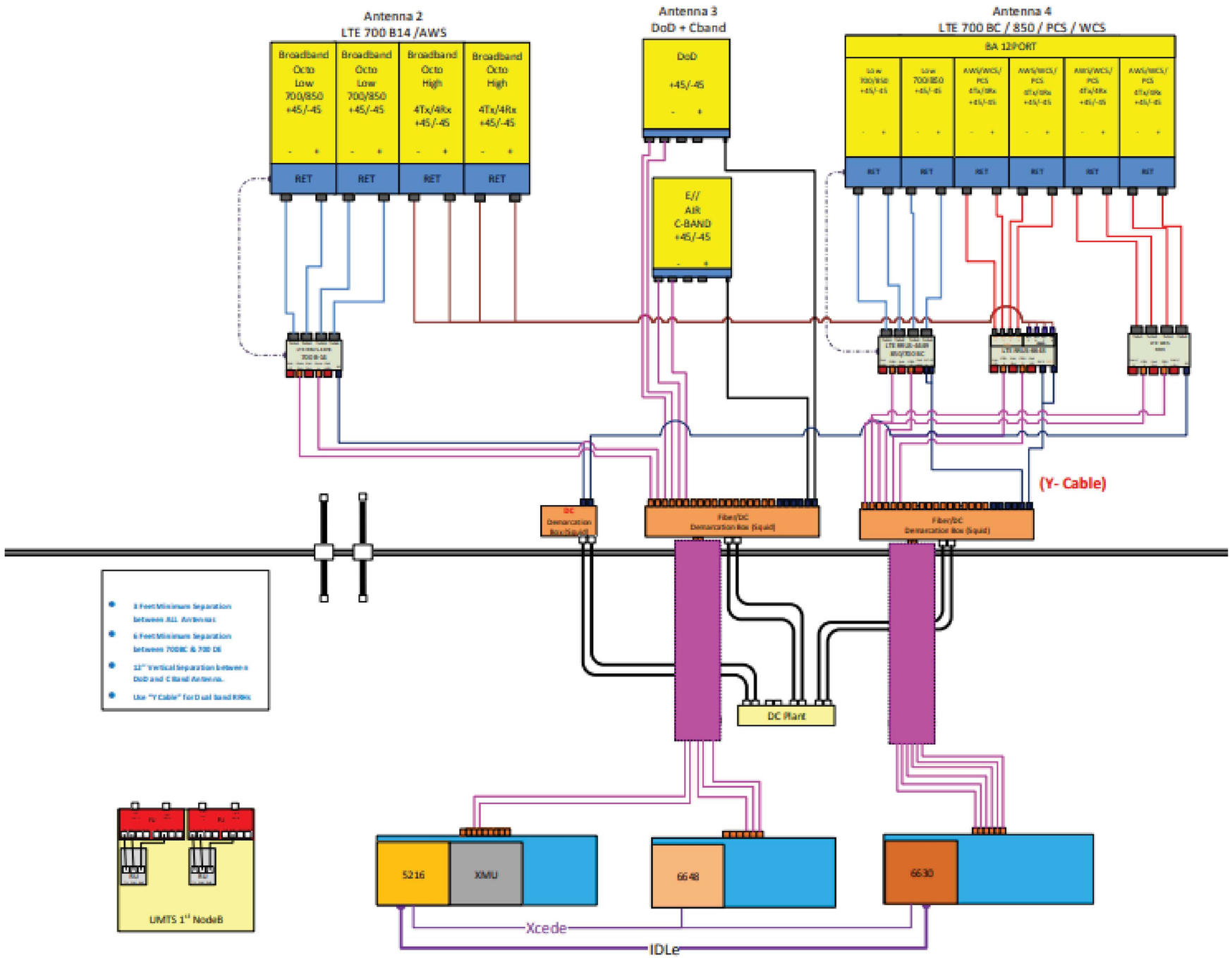
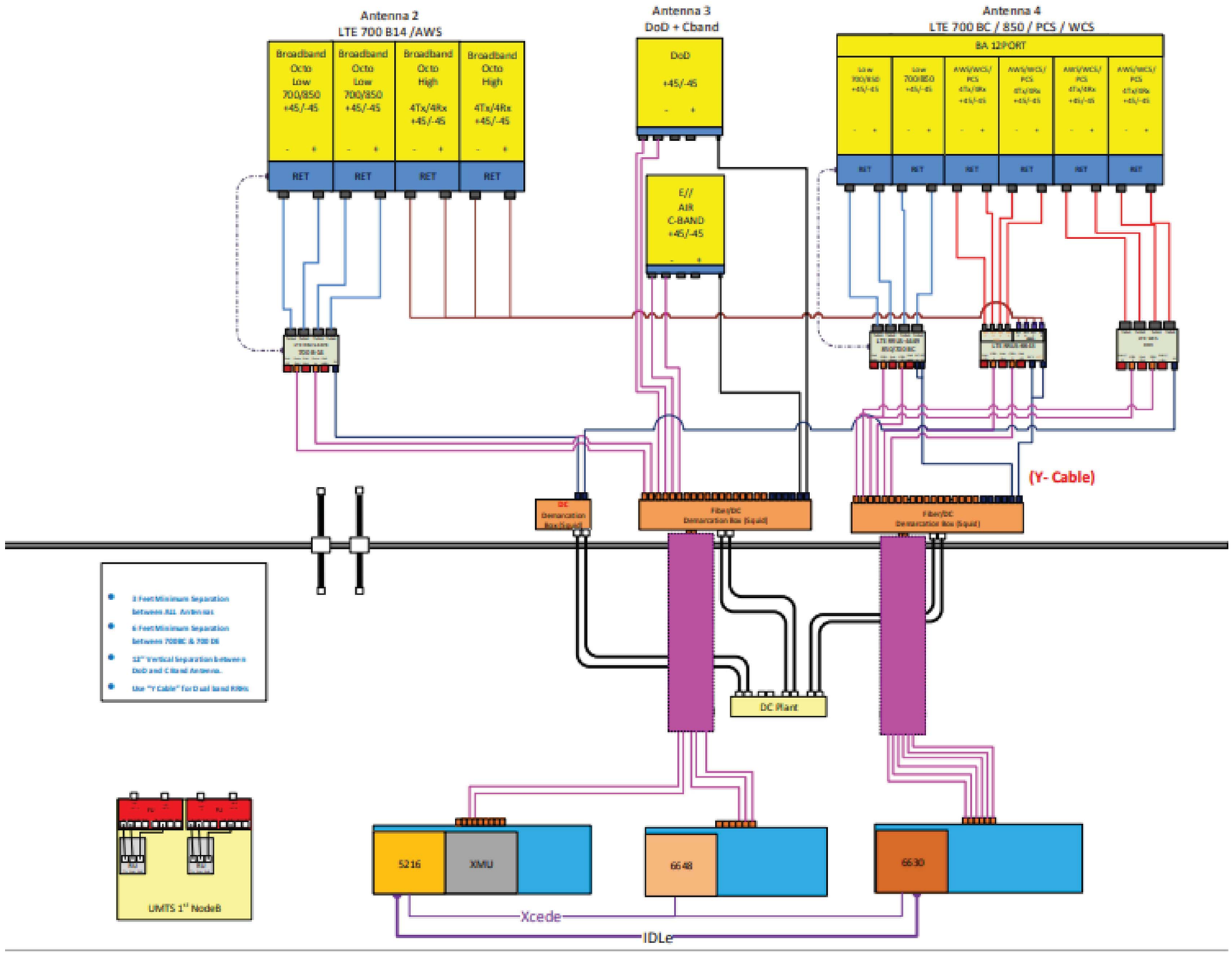
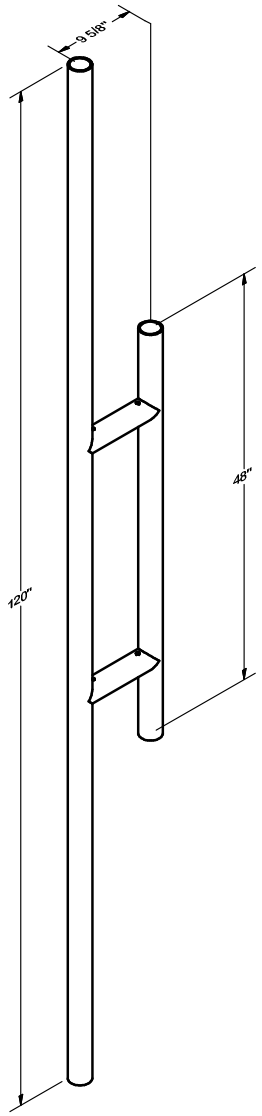


Diagram - Sector	C	Diagram File Name - Cband_3Ant_B14_8Port_8843_2xDC6_1xDCSquid_1x5216+1xXMU+1x6630+6648_Rev.1.vsd					
Atoll Site Name -	CTL05048	Location Name -	EAST HAVEN SOUTH	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"							





PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-PM1	PM1 STANDOFF MOUNT WELDMENT		59.45	59.45

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	120" LONG PIPE WAS 70" LONG		KC8	4-28-21

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS AND ANGLES ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION: 1' PANEL STAND-OFF MOUNT

SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX; Tampa, FL

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 8/9/2019		PM1

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 8/21/2019	PM1

Date: **April 19, 2022**

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CTL05048
	Site Name:	EAST HAVEN SOUTH
	FA Number:	10071016
Crown Castle Designation:	**BU Number:**	842862
	Site Name:	EAST HAVEN SOUTH
	JDE Job Number:	686237
	Work Order Number:	2100889
	Order Number:	586266 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	2100889
Site Data:	**259 COMMERCE STREET, EAST HAVEN, NEW HAVEN County, CT** **Latitude *41° 15' 22.88"*, Longitude *-72° 52' 32.8"*** **58 Foot - Monopole Tower**	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

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

LC5: Proposed Equipment Configuration **Sufficient Capacity- 88.7%**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Michael Lopienski

Respectfully submitted by:

Maribel Dentinger

Maribel Dentinger, P.E.
Senior Project Engineer

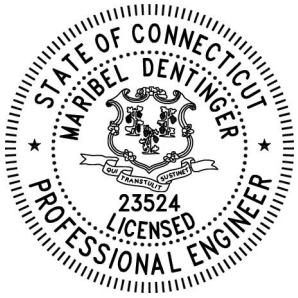


TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 58 ft Monopole tower designed by FWT INC..

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
54.0	57.0	3	ericsson	AIR 6419 B77G_CCIV3 w/ Mount Pipe	2 6 6	3/8 13/16 7/8
	55.0	3	cci antennas	TPA65R-BU6D_CCIV2 w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS 8843 B2/B66A		
		3	ericsson	RRUS-32 B30		
		3	kathrein	80010965 w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8C		
		2	raycap	DC6-48-60-18-8F		
	54.0	1	tower mounts	Pipe Mount [PM 602-3]		
		1	tower mounts	Sector Mount [SM 502-3]		
	53.0	3	ericsson	AIR 6449 B77D_CCVI2 w/ Mount Pipe		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
47.0	47.0	3	ericsson	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	3	1-5/8
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	ericsson	RRUS 4415 B25		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 303-1_HR-1]		
37.0	37.0	3	rfs celwave	APXV18-206517S-C w/ Mount Pipe	6	1-5/8

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4291659	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4529325	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4291655	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	58 - 50.5	Pole	TP19.078x17.393x0.188	1	-2.697	690.552	4.9	Pass
L2	50.5 - 0	Pole	TP30.05x18.141x0.188	2	-14.467	1091.643	88.7	Pass
							Summary	
						Rating =	88.7	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	77.5	Pass
1	Base Plate	0	75.8	Pass
1	Base Foundation (Structure)	0	38.7	Pass
1	Base Foundation (Soil Interaction)	0	59.2	Pass
Structure Rating (max from all components) =				**88.7%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

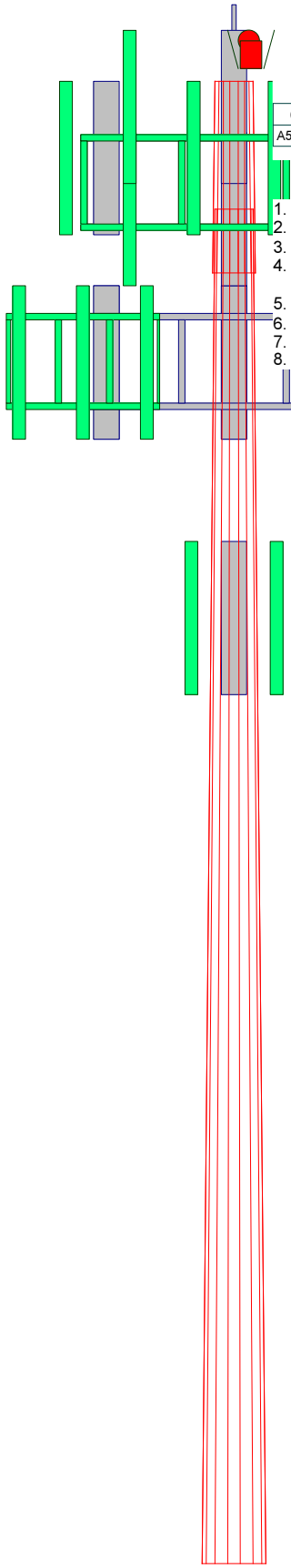
TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	7.500	18	0.188	2.500	17.393	19.078		0.3
2	53.000	18	0.188		18.141	30.050	A572-65	2.6
								2.8

58.0 ft

50.5 ft

0.0 ft



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 88.7%

ALL REACTIONS ARE FACTORED

AXIAL
27 K

SHEAR
3 K

MOMENT
147 kip-ft

TORQUE 0 kip-ft
50 mph WIND - 1.500 in ICE

AXIAL
14 K

SHEAR
13 K

MOMENT
624 kip-ft

TORQUE 0 kip-ft
REACTIONS - 130 mph WIND

CROWN CASTLE
The Pathway to Possible

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX:

Job: ***BU# 842862***			
Project:			
Client: Crown Castle	Drawn by: MLopienski		App'd:
Code: TIA-222-H	Date: 04/19/22		Scale: NTS
Path: C:\Work Area\842862\WO 2100889 - SA\Prod\842862.eri			Dwg No. E-1

Tower Input Data

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

- Tower is located in New Haven County, Connecticut.
- Tower base elevation above sea level: 35.000 ft.
- Basic wind speed of 130 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	58.000-50.500	7.500	2.500	18	17.393	19.078	0.188	0.750	A572-65 (65 ksi)
L2	50.500-0.000	53.000		18	18.141	30.050	0.188	0.750	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	17.632	10.239	382.955	6.108	8.836	43.342	766.414	5.121	2.731	14.566
	19.343	11.242	506.846	6.706	9.692	52.297	1014.359	5.622	3.028	16.148
L2	18.963	10.685	435.128	6.374	9.216	47.215	870.829	5.343	2.863	15.269
	30.485	17.772	2002.277	10.601	15.265	131.164	4007.188	8.888	4.959	26.447

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 58.000-50.500				1	1	1			
L2 50.500-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
FB-L98B-034-XXX(3/8)	C	No	Surface Ar (CaAa)	54.000 - 0.000	2	2	-0.400 -0.350	0.000		0.057
WR-VG86ST-BRD(3/4)	C	No	Surface Ar (CaAa)	54.000 - 0.000	6	4	-0.500 -0.350	0.000		0.584
2" Rigid Conduit	C	No	Surface Ar (CaAa)	54.000 - 0.000	2	2	-0.500 -0.350	2.000		2.800
D										
***										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
54									
LDF5-50A(7/8)	C	No	No	Inside Pole	54.000 - 0.000	6	No Ice	0.000	0.330
							1/2" Ice	0.000	0.330
							1" Ice	0.000	0.330
							2" Ice	0.000	0.330
D									
D									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	37.000 - 0.000	6	No Ice	0.000	0.820
							1/2" Ice	0.000	0.820
							1" Ice	0.000	0.820
							2" Ice	0.000	0.820
D									

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF4P-50A(1/2")	B	No	No	Inside Pole	58.000 - 0.000	1	No Ice	0.000	0.150
							1/2" Ice	0.000	0.150
							1" Ice	0.000	0.150
							2" Ice	0.000	0.150
S									
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	47.000 - 0.000	3	No Ice	0.000	2.400
							1/2" Ice	0.000	2.400
							1" Ice	0.000	2.400
							2" Ice	0.000	2.400
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	58.000-50.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.001
		C	0.000	0.000	1.400	0.000	0.039
L2	50.500-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.008
		C	0.000	0.000	20.200	0.000	1.086

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	58.000-50.500	A	1.340	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.001
		C		0.000	0.000	5.267	0.000	0.082
L2	50.500-0.000	A	1.237	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.008
		C		0.000	0.000	75.996	0.000	1.706

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	58.000-50.500	1.144	0.926	1.557	1.318
L2	50.500-0.000	2.153	1.744	2.668	2.260

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	6	FB-L98B-034-XXX(3/8)	50.50 - 54.00	1.0000	1.0000
L1	7	WR-VG86ST-BRD(3/4)	50.50 - 54.00	1.0000	1.0000
L1	8	2" Rigid Conduit	50.50 - 54.00	1.0000	1.0000
L2	6	FB-L98B-034-XXX(3/8)	0.00 - 50.50	1.0000	1.0000
L2	7	WR-VG86ST-BRD(3/4)	0.00 - 50.50	1.0000	1.0000
L2	8	2" Rigid Conduit	0.00 - 50.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
(2) Side Lighting	B	From Leg	0.000 0.000 0.500	0.000	58.000
Lightning Rod 1/2" x 2'	A	From Leg	4.000 0.000 1.000	0.000	58.000
54 TPA65R-BU6D_CCIV2 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	54.000
TPA65R-BU6D_CCIV2 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	54.000
TPA65R-BU6D_CCIV2 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	54.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From Leg	4.000 0.000 3.000	0.000	54.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	B	From Leg	4.000 0.000 3.000	0.000	54.000
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From Leg	4.000 0.000 3.000	0.000	54.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	A	From Leg	4.000 0.000 -1.000	0.000	54.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	B	From Leg	4.000 0.000 -1.000	0.000	54.000
AIR 6449 B77D_CCVI2 w/ Mount Pipe	C	From Leg	4.000 0.000 -1.000	0.000	54.000
RRUS 4478 B14_CCIV2	A	From Leg	4.000 0.000 1.000	0.000	54.000
RRUS 4478 B14_CCIV2	B	From Leg	4.000 0.000 1.000	0.000	54.000
RRUS 4478 B14_CCIV2	C	From Leg	4.000 0.000 1.000	0.000	54.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
RRUS-32 B30	A	From Leg	4.000 0.000 1.000	0.000	54.000
RRUS-32 B30	B	From Leg	4.000 0.000 1.000	0.000	54.000
RRUS-32 B30	C	From Leg	4.000 0.000 1.000	0.000	54.000
80010965 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	54.000
80010965 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	54.000
80010965 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	54.000
RRUS 4449 B5/B12	B	From Leg	4.000 0.000 1.000	0.000	54.000
(2) RRUS 4449 B5/B12	C	From Leg	4.000 0.000 1.000	0.000	54.000
RRUS 8843 B2/B66A	A	From Leg	4.000 0.000 1.000	0.000	54.000
RRUS 8843 B2/B66A	B	From Leg	4.000 0.000 1.000	0.000	54.000
RRUS 8843 B2/B66A	C	From Leg	4.000 0.000 1.000	0.000	54.000
DC6-48-60-18-8C	B	From Leg	4.000 0.000 1.000	0.000	54.000
(2) DC6-48-60-18-8F	A	From Leg	4.000 0.000 1.000	0.000	54.000
12.5' horizontal x 2.375" Pipe Mount	A	From Leg	6.000 0.000 0.000	0.000	54.000
12.5' horizontal x 2.375" Pipe Mount	B	From Leg	6.000 0.000 0.000	0.000	54.000
12.5' horizontal x 2.375" Pipe Mount	C	From Leg	6.000 0.000 0.000	0.000	54.000
Pipe Mount [PM 602-3]	C	None		0.000	54.000
Sector Mount [SM 502-3] ***D*** *47*	C	None		0.000	54.000
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	47.000
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	47.000
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	47.000
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	47.000
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000	0.000	47.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
			0.000 0.000		
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	47.000
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	47.000
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	47.000
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	47.000
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.000 0.000 0.000	0.000	47.000
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.000 0.000 0.000	0.000	47.000
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.000 0.000 0.000	0.000	47.000
RRUS 4415 B25	A	From Leg	4.000 0.000 0.000	0.000	47.000
RRUS 4415 B25	B	From Leg	4.000 0.000 0.000	0.000	47.000
RRUS 4415 B25	C	From Leg	4.000 0.000 0.000	0.000	47.000
8' x 2.375" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	47.000
8' x 2.375" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	47.000
8' x 2.375" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	47.000
Platform Mount [LP 303-1_HR-1] ***D*** *37*	C	None		0.000	47.000
APXV18-206517S-C w/ Mount Pipe	A	From Leg	1.000 0.000 0.000	0.000	37.000
APXV18-206517S-C w/ Mount Pipe	B	From Leg	1.000 0.000 0.000	0.000	37.000
APXV18-206517S-C w/ Mount Pipe	C	From Leg	1.000 0.000 0.000	0.000	37.000
D					

Load Combinations

Comb. No.	Description

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	58 - 50.5	Pole	Max Tension	33	0.000	0.000	0.002
			Max. Compression	26	-11.554	0.185	-0.287
			Max. Mx	20	-2.697	14.818	-0.217
			Max. My	14	-2.699	0.132	-14.826
			Max. Vy	20	-6.727	11.725	-0.384
			Max. Vx	14	6.695	0.232	-11.812
			Max. Torque	22			0.068
L2	50.5 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-27.479	0.204	-1.673
			Max. Mx	20	-14.467	623.309	-1.547
			Max. My	14	-14.467	0.758	-622.266

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-13.305	623.309	-1.547
			Max. Vx	14	13.272	0.758	-622.266
			Max. Torque	22			0.068

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	27.479	0.002	-3.054
	Max. H_x	20	14.494	13.275	-0.009
	Max. H_z	2	14.494	-0.009	13.242
	Max. M_x	2	620.236	-0.009	13.242
	Max. M_z	8	622.853	-13.275	0.009
	Max. Torsion	22	0.068	11.491	6.613
	Min. Vert	25	10.871	6.629	11.464
	Min. H_x	8	14.494	-13.275	0.009
	Min. H_z	14	14.494	0.009	-13.242
	Min. M_x	14	-622.266	0.009	-13.242
	Min. M_z	20	-623.309	13.275	-0.009
	Min. Torsion	10	-0.066	-11.491	-6.613

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	12.079	0.000	0.000	0.825	0.184	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	14.494	0.009	-13.242	-620.236	-0.301	-0.048
0.9 Dead+1.0 Wind 0 deg - No Ice	10.871	0.009	-13.242	-615.015	-0.356	-0.044
1.2 Dead+1.0 Wind 30 deg - No Ice	14.494	6.645	-11.473	-537.268	-311.773	-0.016
0.9 Dead+1.0 Wind 30 deg - No Ice	10.871	6.645	-11.473	-532.779	-309.077	-0.016
1.2 Dead+1.0 Wind 60 deg - No Ice	14.494	11.501	-6.629	-310.066	-539.643	0.019
0.9 Dead+1.0 Wind 60 deg - No Ice	10.871	11.501	-6.629	-307.583	-534.935	0.016
1.2 Dead+1.0 Wind 90 deg - No Ice	14.494	13.275	-0.009	0.488	-622.853	0.049
0.9 Dead+1.0 Wind 90 deg - No Ice	10.871	13.275	-0.009	0.230	-617.412	0.044
1.2 Dead+1.0 Wind 120 deg - No Ice	14.494	11.491	6.613	311.184	-539.113	0.066
0.9 Dead+1.0 Wind 120 deg - No Ice	10.871	11.491	6.613	308.183	-534.411	0.060
1.2 Dead+1.0 Wind 150 deg - No Ice	14.494	6.629	11.464	538.772	-310.855	0.066
0.9 Dead+1.0 Wind 150 deg - No Ice	10.871	6.629	11.464	533.762	-308.169	0.060
1.2 Dead+1.0 Wind 180 deg - No Ice	14.494	-0.009	13.242	622.266	0.758	0.048
0.9 Dead+1.0 Wind 180 deg - No Ice	10.871	-0.009	13.242	616.521	0.693	0.045
1.2 Dead+1.0 Wind 210 deg - No Ice	14.494	-6.645	11.473	539.299	312.228	0.018
0.9 Dead+1.0 Wind 210 deg - No Ice	10.871	-6.645	11.473	534.285	309.413	0.017
1.2 Dead+1.0 Wind 240 deg	14.494	-11.501	6.629	312.099	540.097	-0.018

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice 0.9 Dead+1.0 Wind 240 deg	10.871	-11.501	6.629	309.090	535.271	-0.015
- No Ice 1.2 Dead+1.0 Wind 270 deg	14.494	-13.275	0.009	1.547	623.309	-0.050
- No Ice 0.9 Dead+1.0 Wind 270 deg	10.871	-13.275	0.009	1.279	617.749	-0.044
- No Ice 1.2 Dead+1.0 Wind 300 deg	14.494	-11.491	-6.613	-309.150	539.571	-0.068
- No Ice 0.9 Dead+1.0 Wind 300 deg	10.871	-11.491	-6.613	-306.675	534.749	-0.061
- No Ice 1.2 Dead+1.0 Wind 330 deg	14.494	-6.629	-11.464	-536.740	311.314	-0.067
- No Ice 0.9 Dead+1.0 Wind 330 deg	10.871	-6.629	-11.464	-532.255	308.507	-0.061
- No Ice 1.2 Dead+1.0 Ice+1.0 Temp	27.479	-0.000	0.000	1.673	0.204	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	27.479	0.002	-3.054	-143.987	0.118	0.007
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	27.479	1.531	-2.646	-124.513	-72.868	-0.009
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	27.479	2.650	-1.528	-71.221	-126.274	-0.023
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	27.479	3.060	-0.002	1.610	-145.788	-0.030
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	27.479	2.649	1.526	74.464	-126.184	-0.030
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	27.479	1.528	2.644	127.822	-72.713	-0.021
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	27.479	-0.002	3.054	147.385	0.298	-0.007
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	27.479	-1.531	2.646	127.911	73.284	0.009
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	27.479	-2.650	1.528	74.620	126.689	0.023
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	27.479	-3.060	0.002	1.789	146.204	0.030
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	27.479	-2.649	-1.526	-71.066	126.600	0.030
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	27.479	-1.528	-2.644	-124.424	73.129	0.021
Dead+Wind 0 deg - Service	12.079	0.002	-2.661	-123.426	0.083	-0.002
Dead+Wind 30 deg - Service	12.079	1.336	-2.306	-106.830	-62.220	-0.002
Dead+Wind 60 deg - Service	12.079	2.311	-1.332	-61.383	-107.800	-0.001
Dead+Wind 90 deg - Service	12.079	2.668	-0.002	0.736	-124.445	-0.000
Dead+Wind 120 deg - Service	12.079	2.310	1.329	62.884	-107.694	0.001
Dead+Wind 150 deg - Service	12.079	1.332	2.304	108.408	-62.037	0.002
Dead+Wind 180 deg - Service	12.079	-0.002	2.661	125.109	0.294	0.002
Dead+Wind 210 deg - Service	12.079	-1.336	2.306	108.514	62.597	0.002
Dead+Wind 240 deg - Service	12.079	-2.311	1.332	63.067	108.177	0.001
Dead+Wind 270 deg - Service	12.079	-2.668	0.002	0.948	124.822	0.000
Dead+Wind 300 deg - Service	12.079	-2.310	-1.329	-61.200	108.071	-0.001
Dead+Wind 330 deg - Service	12.079	-1.332	-2.304	-106.724	62.414	-0.002

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.000	-12.079	0.000	0.000	12.079	0.000	0.000%
2	0.009	-14.494	-13.242	-0.009	14.494	13.242	0.000%
3	0.009	-10.871	-13.242	-0.009	10.871	13.242	0.000%
4	6.645	-14.494	-11.473	-6.645	14.494	11.473	0.000%
5	6.645	-10.871	-11.473	-6.645	10.871	11.473	0.000%
6	11.501	-14.494	-6.629	-11.501	14.494	6.629	0.000%
7	11.501	-10.871	-6.629	-11.501	10.871	6.629	0.000%
8	13.275	-14.494	-0.009	-13.275	14.494	0.009	0.000%
9	13.275	-10.871	-0.009	-13.275	10.871	0.009	0.000%
10	11.491	-14.494	6.613	-11.491	14.494	-6.613	0.000%
11	11.491	-10.871	6.613	-11.491	10.871	-6.613	0.000%
12	6.629	-14.494	11.464	-6.629	14.494	-11.464	0.000%
13	6.629	-10.871	11.464	-6.629	10.871	-11.464	0.000%
14	-0.009	-14.494	13.242	0.009	14.494	-13.242	0.000%
15	-0.009	-10.871	13.242	0.009	10.871	-13.242	0.000%
16	-6.645	-14.494	11.473	6.645	14.494	-11.473	0.000%
17	-6.645	-10.871	11.473	6.645	10.871	-11.473	0.000%
18	-11.501	-14.494	6.629	11.501	14.494	-6.629	0.000%
19	-11.501	-10.871	6.629	11.501	10.871	-6.629	0.000%
20	-13.275	-14.494	0.009	13.275	14.494	-0.009	0.000%
21	-13.275	-10.871	0.009	13.275	10.871	-0.009	0.000%
22	-11.491	-14.494	-6.613	11.491	14.494	6.613	0.000%
23	-11.491	-10.871	-6.613	11.491	10.871	6.613	0.000%
24	-6.629	-14.494	-11.464	6.629	14.494	11.464	0.000%
25	-6.629	-10.871	-11.464	6.629	10.871	11.464	0.000%
26	0.000	-27.479	0.000	0.000	27.479	-0.000	0.000%
27	0.002	-27.479	-3.054	-0.002	27.479	3.054	0.000%
28	1.531	-27.479	-2.646	-1.531	27.479	2.646	0.000%
29	2.650	-27.479	-1.528	-2.650	27.479	1.528	0.000%
30	3.060	-27.479	-0.002	-3.060	27.479	0.002	0.000%
31	2.649	-27.479	1.526	-2.649	27.479	-1.526	0.000%
32	1.528	-27.479	2.644	-1.528	27.479	-2.644	0.000%
33	-0.002	-27.479	3.054	0.002	27.479	-3.054	0.000%
34	-1.531	-27.479	2.646	1.531	27.479	-2.646	0.000%
35	-2.650	-27.479	1.528	2.650	27.479	-1.528	0.000%
36	-3.060	-27.479	0.002	3.060	27.479	-0.002	0.000%
37	-2.649	-27.479	-1.526	2.649	27.479	1.526	0.000%
38	-1.528	-27.479	-2.644	1.528	27.479	2.644	0.000%
39	0.002	-12.079	-2.661	-0.002	12.079	2.661	0.000%
40	1.336	-12.079	-2.306	-1.336	12.079	2.306	0.000%
41	2.311	-12.079	-1.332	-2.311	12.079	1.332	0.000%
42	2.668	-12.079	-0.002	-2.668	12.079	0.002	0.000%
43	2.310	-12.079	1.329	-2.310	12.079	-1.329	0.000%
44	1.332	-12.079	2.304	-1.332	12.079	-2.304	0.000%
45	-0.002	-12.079	2.661	0.002	12.079	-2.661	0.000%
46	-1.336	-12.079	2.306	1.336	12.079	-2.306	0.000%
47	-2.311	-12.079	1.332	2.311	12.079	-1.332	0.000%
48	-2.668	-12.079	0.002	2.668	12.079	-0.002	0.000%
49	-2.310	-12.079	-1.329	2.310	12.079	1.329	0.000%
50	-1.332	-12.079	-2.304	1.332	12.079	2.304	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00009750
3	Yes	4	0.00000001	0.00004163
4	Yes	5	0.00000001	0.00024123
5	Yes	5	0.00000001	0.00010802
6	Yes	5	0.00000001	0.00024135
7	Yes	5	0.00000001	0.00010811
8	Yes	4	0.00000001	0.00011158
9	Yes	4	0.00000001	0.00004838
10	Yes	5	0.00000001	0.00024517

11	Yes	5	0.00000001	0.00010949
12	Yes	5	0.00000001	0.00024114
13	Yes	5	0.00000001	0.00010778
14	Yes	4	0.00000001	0.00011597
15	Yes	4	0.00000001	0.00005573
16	Yes	5	0.00000001	0.00024551
17	Yes	5	0.00000001	0.00010957
18	Yes	5	0.00000001	0.00024580
19	Yes	5	0.00000001	0.00010962
20	Yes	4	0.00000001	0.00013210
21	Yes	4	0.00000001	0.00006310
22	Yes	5	0.00000001	0.00023974
23	Yes	5	0.00000001	0.00010733
24	Yes	5	0.00000001	0.00024334
25	Yes	5	0.00000001	0.00010891
26	Yes	4	0.00000001	0.00001275
27	Yes	4	0.00000001	0.00075846
28	Yes	4	0.00000001	0.00094143
29	Yes	4	0.00000001	0.00094494
30	Yes	4	0.00000001	0.00076949
31	Yes	4	0.00000001	0.00096748
32	Yes	4	0.00000001	0.00097051
33	Yes	4	0.00000001	0.00078002
34	Yes	4	0.00000001	0.00097711
35	Yes	4	0.00000001	0.00097558
36	Yes	4	0.00000001	0.00077360
37	Yes	4	0.00000001	0.00094963
38	Yes	4	0.00000001	0.00094461
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00005840
41	Yes	4	0.00000001	0.00005893
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00006129
44	Yes	4	0.00000001	0.00006078
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00006267
47	Yes	4	0.00000001	0.00006232
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00005921
50	Yes	4	0.00000001	0.00005951

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	58 - 50.5	5.553	46	0.729	0.000
L2	53 - 0	4.790	46	0.728	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
58.000	(2) Side Lighting	46	5.553	0.729	0.000	4560
54.000	TPA65R-BU6D_CCIV2 w/ Mount Pipe	46	4.939	0.729	0.000	4560
47.000	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	46	3.962	0.707	0.000	4204
37.000	APXV18-206517S-C w/ Mount Pipe	46	2.805	0.625	0.000	5340

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	58 - 50.5	27.602	18	3.619	0.001
L2	53 - 0	23.817	18	3.614	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
58.000	(2) Side Lighting	18	27.602	3.619	0.001	927
54.000	TPA65R-BU6D_CCIV2 w/ Mount Pipe	18	24.555	3.619	0.001	927
47.000	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	18	19.710	3.512	0.001	854
37.000	APXV18-206517S-C w/ Mount Pipe	18	13.961	3.104	0.001	1083

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	7.500	0.000	0.0	11.242	-2.697	657.669	0.004
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	53.000	0.000	0.0	17.772	-14.467	1039.660	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	14.901	319.168	0.047	0.000	319.168	0.000
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	623.788	681.328	0.916	0.000	681.328	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	3.578	197.301	0.018	0.009	326.402	0.000
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	13.305	311.897	0.043	0.018	815.676	0.000

Pole Interaction Design Data

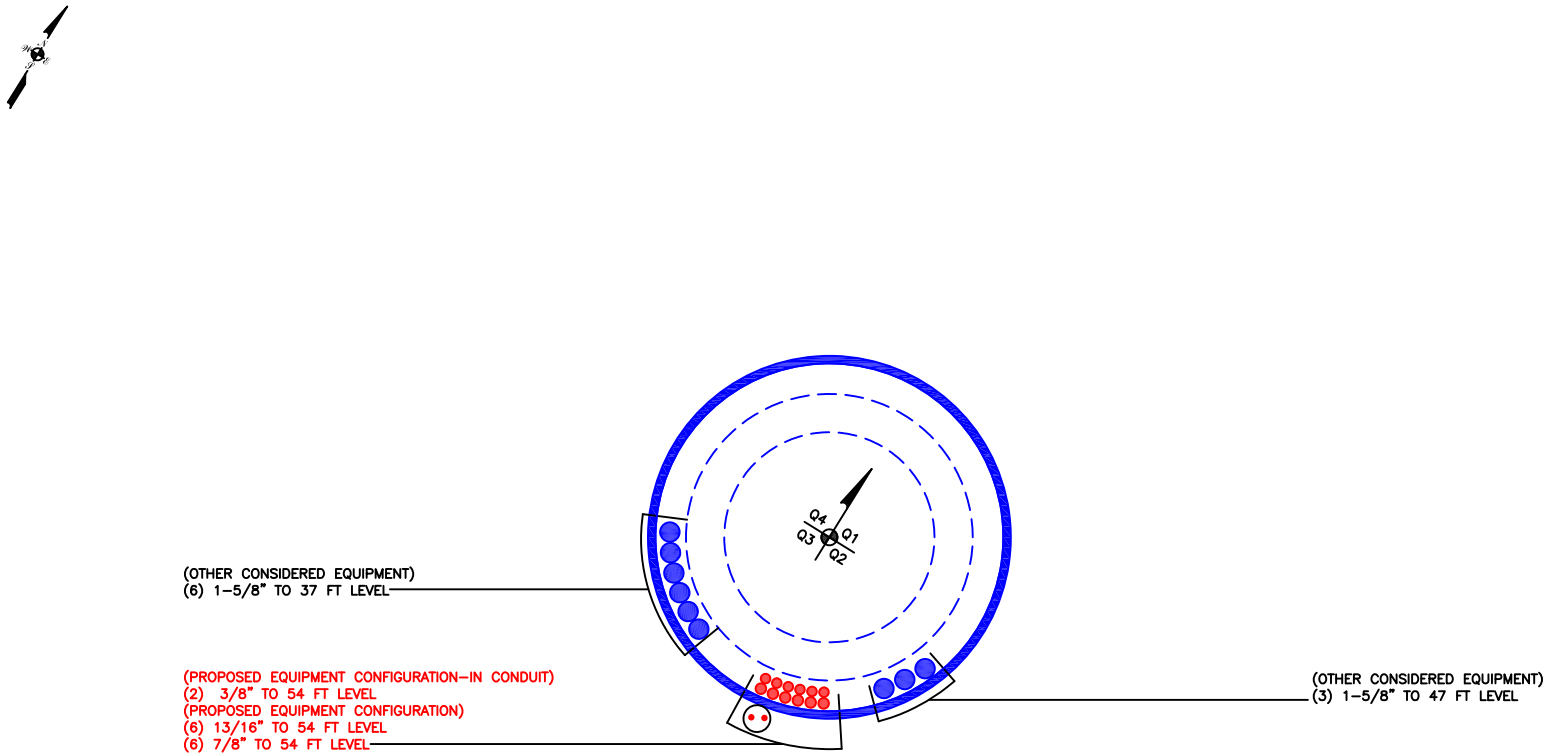
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	58 - 50.5 (1)	0.004	0.047	0.000	0.018	0.000	0.051	1.050	4.8.2
L2	50.5 - 0 (2)	0.014	0.916	0.000	0.043	0.000	0.931	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	58 - 50.5	Pole	TP19.078x17.393x0.188	1	-2.697	690.552	4.9	Pass
L2	50.5 - 0	Pole	TP30.05x18.141x0.188	2	-14.467	1091.643	88.7	Pass
							Summary	
						Pole (L2)	88.7	Pass
						RATING =	**88.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


Q4
Q3
Q1
Q2
(OTHER CONSIDERED EQUIPMENT)
(6) 1-5/8" TO 37 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION-IN CONDUIT)
(2) 3/8" TO 54 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(6) 13/16" TO 54 FT LEVEL
(6) 7/8" TO 54 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 1-5/8" TO 47 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

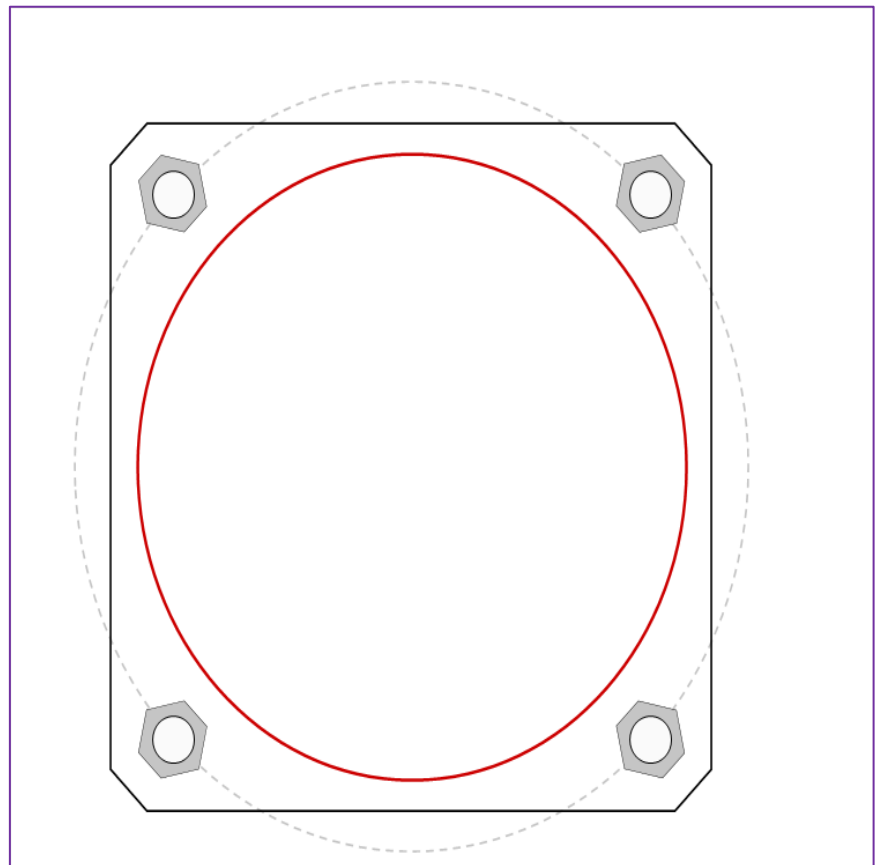
Monopole Base Plate Connection

Site Info	
BU #	842862
Site Name	EAST HAVEN SOUTH
Order #	586266 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.5

Applied Loads	
Moment (kip-ft)	623.79
Axial Force (kips)	14.47
Shear Force (kips)	13.30

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(4) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 37" BC

Base Plate Data

33" W x 2" Plate (A 633 Gr. E; Fy=60 ksi, Fu=70 ksi); Clip: 2 in

Stiffener Data

N/A

Pole Data

30.05" x 0.1875" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 198.39	ϕPn_t = 243.75	**Stress Rating**
Vu = 3.33	ϕVn = 149.1	**77.5%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	42.99	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**75.8%**	**Pass**

Pier and Pad Foundation

BU # :	842862
Site Name:	EAST HAVEN SOU
App. Number:	586266 Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions

Compression, P_{comp}:	14.49	kips
Base Shear, Vu_comp:	13.27	kips
Moment, M_u:	623.79	ft-kips
Tower Height, **H**:	58	ft
BP Dist. Above Fdn, bp_{dist}:	2.75	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	5	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	15	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	14	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6.5	ft
Pad Width, W_1:	14	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	13	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Net Bearing, Qnet:	10.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	21	
Base Friction, μ:	0.4	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	8	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	102.75	13.27	**12.3%**	**Pass**
Bearing Pressure (ksf)	8.09	2.28	**28.2%**	**Pass**
*Overturning (kip*ft)*	1216.04	719.72	**59.2%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	1680.06	683.51	**38.7%**	**Pass**
Pier Compression (kip)	11934.00	34.74	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	1145.25	232.52	**19.3%**	**Pass**
Pad Shear - 1-way (kips)	351.97	58.39	**15.8%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.016	**9.5%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	1971.95	410.10	**19.8%**	**Pass**

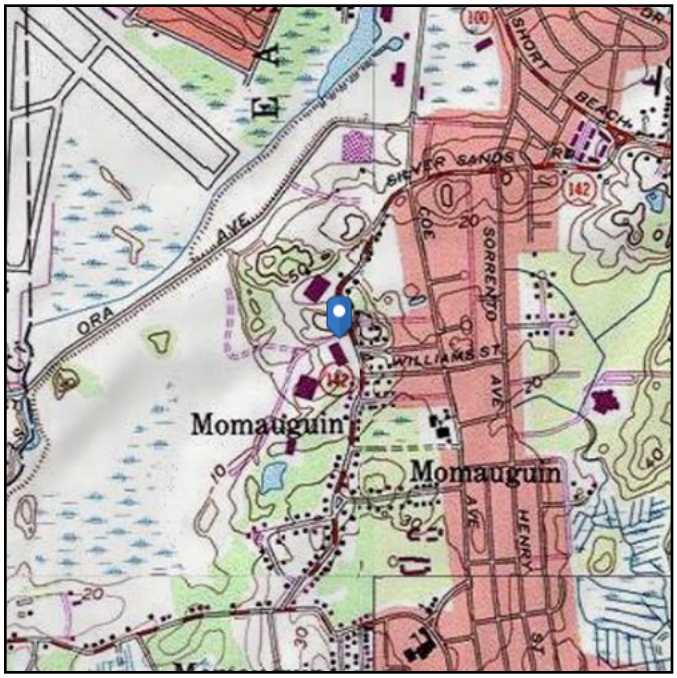
**Rating per TIA-222-H Section 15.5*

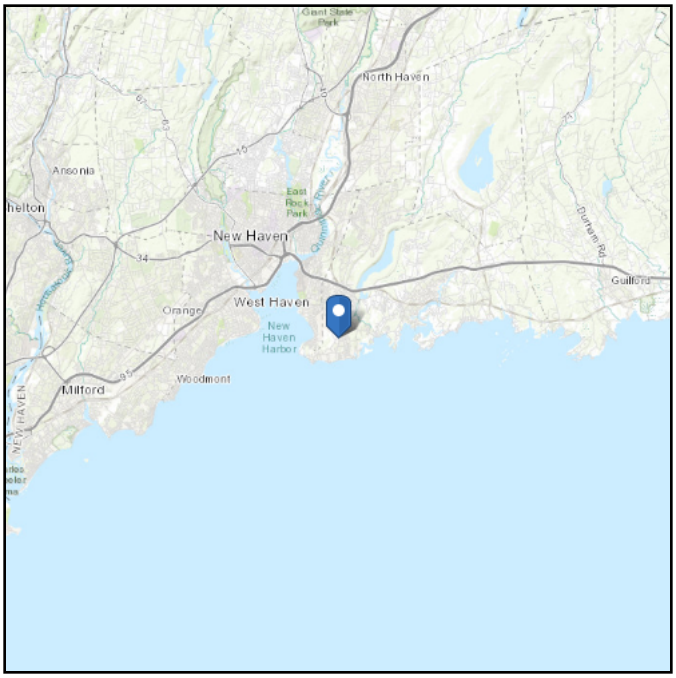
Structural Rating*:	**38.7%**
Soil Rating*:	**59.2%**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	35.45 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.256356
Soil Class:	D - Stiff Soil	**Longitude:**	-72.875778





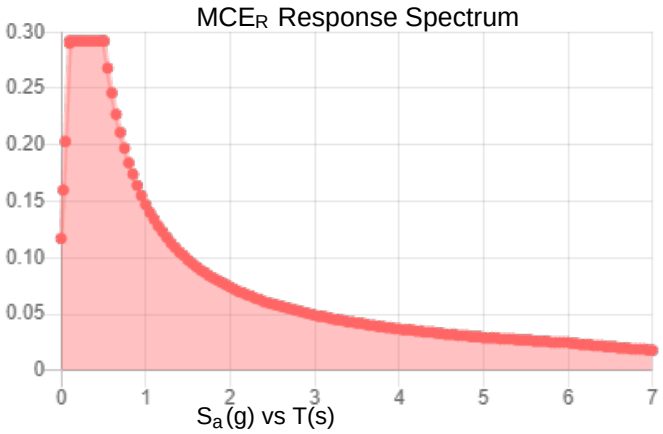
Seismic

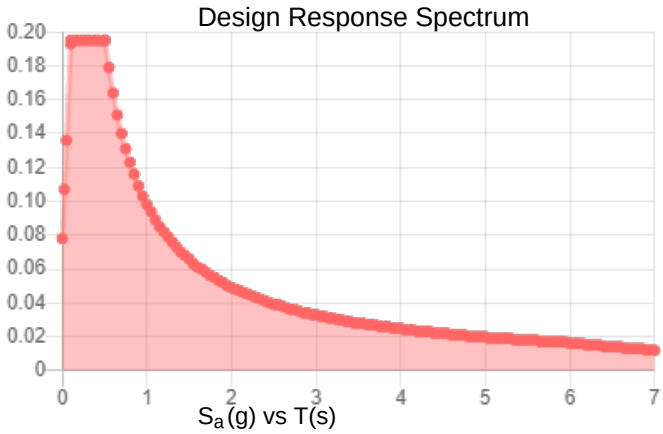
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.195
S_1 :	0.062	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.095
S_{MS} :	0.292	PGA_M :	0.152
S_{M1} :	0.147	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Oct 20 2020

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Oct 20 2020

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.