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

February 18, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown#881534; ATT Site ID CTL01127
670 Captain Neville Drive Waterbury, CT 06705
Latitude: 42° 32′ 3.60" / Longitude: -72° 58 8.40″

Dear Ms. Bachman:

ATT currently maintains twelve (12) antennas at the 150-foot mount on the existing 150-foot monopole tower located at 670 Captain Neville Drive, Waterbury, CT. The property is owned by M B Realty LLC and the tower is owned by Crown Castle. ATT now intends to replace nine (9) antennas and ancillary equipment at the 150ft level. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:

(3) Quintel- QD8616-7 Antennas
(6) Ericsson- AIR6449 N&&D+AIR6419 N77G stacked Antennas
(3) Ericsson- RRU 4415 B25 RRU
(3) Ericsson- Radio 4449 B5/B12 RRU
(1) DC6-48-60-18-8F SQID
(1) FB-L98B-034 Fiber Trunk
(6) PWRT-608-S- DC Trunk
(2) PWRT-606-S-DC Trunk

Remove:

(3) Katherine-800-10121 Antennas
(3) CCI-OPA-65R-LCUU-H8 Antennas
(3) CCI -TPA-65R-LUUUU-H8 Antennas
(6) LBG 21401 TMAs
(3) Ericsson 11 B12 RRU
(3) Ericsson 4478 B5 RRU
(3) Ericsson 12 B2 + RRU A2 RRU
(3) DC Cables
(6) LPG 21903 Diplexers

(12) TPX-070821 Triplexers

Ground:

Install New:
(1) 6648 FHG (+Xcede)
(4) Emerson Rectifiers

Remove:
(1.) 5216

The facility was approved by the City of Waterbury on December 20, 1999. The Connecticut Siting Council approved the facility on April 17, 2000.

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 Neil M. O'Leary – Mayor City of Waterbury, Robert Nerney – City Planner City of Waterbury and M B Realty LLC – Property Owner. 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: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(781) 970-0053 Jeff.Barbadora@crowncastle.com

Attachments
cc:

Neil M. O'Leary - Mayor
City of Waterbury
235 Grand Street
Waterbury, CT 06702
(203) 574-6712

Robert Nerney – City Planner
City of Waterbury
235 Grand Street
Waterbury, CT 06702
(203) 574-6817

M B Realty LLC – Property Owner
670 Captain Neville Dr
Waterbury, CT 06705
203-597-0355

Crown Castle, Tower Owner

BUILDING PERMIT

City of Waterbury

No. 9779 C

Location: 620 CAPTAIN NEVILLE DR

Use: CELLULAR TOWER

Date: 12-20-99

BUILDING DEPT. BY: Gloria Ortiz

MINIMUM OF THREE CALL INSPECTIONS REQUIRED FOR ALL CONSTRUCTION WORK: 1. FOUNDATIONS OR FOOTINGS. 2. PRIOR TO COVERING STRUCTURAL MEMBERS (READY TO LATH). 3. FINAL INSPECTION BEFORE OCCUPANCY.	APPROVED PLANS MUST BE RETAINED ON JOB AND THIS CARD KEPT POSTED UNTIL FINAL INSPECTION HAS BEEN MADE. WHERE A CERTIFICATE OF OCCUPANCY IS REQUIRED, SUCH BUILDING SHALL NOT BE OCCUPIED UNTIL FINAL INSPECTION HAS BEEN MADE.	WHERE APPLICABLE, SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING AND MECHANICAL INSTALLATIONS.

POST THIS CARD SO IT IS VISIBLE FROM STREET

BUIDLING INSPECTION APPROVALS	PLUMBING INSPECTION APPROVALS	ELECTRICAL INSPECTION APPROVALS
1	1	1
2	2	2
3	HEATING INSPECTION APPROVALS	REFRIGERATION INSPECTION APPROVALS
	1	1
OTHER	2	2

WORK SHALL NOT PROCEED UNTIL THE INSPECTOR HAS APPROVED THE VARIOUS STAGES OF CONSTRUCTION.	**PERMIT WILL BECOME NULL AND VOID IF CONSTRUCTION IS NOT STARTED WITHIN SIX MONTHS OF DATE THE PERMIT IS ISSUED AS NOTED ABOVE.**	INSPECTIONS INDICATED ON THIS CARD CA BE ARRANGED FOR BY TELEPHONE C WRITTEN NOTIFICATION.

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

April 17, 2000

Peter W. van Wilgen
Director-Real Estate Operations
Springwich Cellular Limited Partnership
500 Enterprise Drive
Rocky Hill, CT 06067

RE: TS-SCLP-151-000330 - Springwich Cellular Limited Partnership request for an order to approve tower sharing at an existing telecommunications facility located at Captain Neville Drive in Waterbury, Connecticut.

Dear Mr. van Wilgen:

At a public meeting held April 12, 2000, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated March 29, 2000.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/grg

c: Honorable Philip A. Giordano, Mayor, City of Waterbury

I:\siting\cm\springwich\waterbury\dc041200.doc

500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7730
Fax: (860) 513-7614

Springwich Cellular Limited Partnership

Peter W. van Wilgen
Director - Real Estate Operations

March 29, 2000

Mr. Mortimer A. Gelston, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Springwich Cellular Limited Partnership Cellular Communications Site – Captain Neville Drive, Waterbury, Connecticut

Dear Chairman Gelston:

Springwich Cellular Limited Partnership (SCLP) plans to install cellular antennas and a related equipment building at the facility owned by Candid Communications of Waterbury, LLC (Candid Communications), of 110 Washington Avenue, 4th floor, North Haven, Connecticut 06473. Please accept this letter as our request to share the existing facility pursuant to C.G.S. Section 16-50aa. A copy of this letter is being sent to Philip A. Giordano, the Mayor of the City of Waterbury.

The tower proposed for use by SCLP is being constructed by Candid Communications. Candid Communications has received zoning approval from the City of Waterbury to construct a 150' monopole designed with four platforms for the purpose of tower sharing. SCLP is the first carrier to reach an agreement with the tower owner to use the tower and install radio equipment at the site. The tower will be located on Captain Neville Drive in the City of Waterbury and will be a 152' monopole with coordinates of Latitude 41° 32' 3" Longitude 72° 58' 8". The tower is presently under construction. Upon completion of the tower, SCLP plans to install up to twelve, four foot tall panel-type cellular antennas on the tower at the 150' foot level, as shown on the attached tower profile. SCLP will also install a single story, approximately 12' x 26' equipment building which will contain radio transmission equipment (See attached Site Plan).

Power Density Calculations.

The operation of SCLP's antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base, to a level at or above the ANSI standard. The following table shows the power density at the site from SCLP's proposed use in relation to the standard.

FREQUENCY	POWER DENSITY	HEIGHT	STANDARD LIMITS (mW/cm2)	% OF STANDARD
SNET Wireless 880 - 894	0.0332	150'	0.5867	5.66%
TOTAL	N/A		N/A	5.66%

As the table demonstrates, SCLP's proposed antennas would contribute 5.66% of the ANSI standard for the cellular frequency range as calculated for a single frequency site.

Statutory Considerations. C.G.S. §16-50aa provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the Council shall issue an order approving such shared use." (C.G.S. §16-50aa(c)(1).

The shared use of the tower satisfied the criteria stated in C.G.S. §16-50aa as follows:

A. **Technical Feasibility**. The existing tower will be structurally sound and capable of supporting four wireless carriers, including the proposed antennas. The proposed shared use of this tower therefore is technically feasible.

B. **Legal Feasibility**. Under C.G.S. §16-50aa, the Council has been authorized to issue an order approving the proposed shared use of an existing facility. (C.G.S. §16-50aa(c)(1).) This authority complements the Council's prior-existing authority under C.G.S. §16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. C.G.S. §16-50x(a) directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" on ruling of requests for the shared use of tower facilities. Candid Communications has received local zoning approval for the construction of this tower. (See copy of Building Permit attached.) Under the authority vested in the Council by C.G.S. §16-50aa, order by the Council approving the shared use would permit the applicant to obtain a building permit for the proposed installations.

C. **Environmental Feasibility**. The proposed shared use would have a minimal environmental effect, for the following reasons:

1. The proposed antenna installation would have an insignificant incremental visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics in or around the tower site. In particular, the proposed installation would not increase the height of the existing tower, and would not extend the boundaries of the tower site.

2. The proposed installation would not increase the noise levels at the existing facility by six decibels or more.

3. Operations of antennas at this site would not exceed the total radio frequency electromagnetic radiation power density levels adopted by the State of Connecticut and the FCC as shown above. The "worst-case" exposure levels have also been calculated for ground level, which is an uncontrolled environment since it is generally accessible. The power density at ground level is only 5.66 % of both the ANSI and FCC standards for an uncontrolled environment. As such, the facility would be operated in full and complete compliance with the Federal Telecommunications Act of 1996.

4. The proposed installation would not require any water or sanitary facilities, or general air emissions or discharges to water bodies. After construction is completed (approximately four weeks), the proposed installation would not generate any traffic other than periodic maintenance visits. The proposed use of the facility would therefore have a minimal environmental effect, and is environmentally feasible.

D. **Economic Feasibility**. As previously stated, SCLP has entered into an agreement with the facility owner to share use of the existing facility on mutually agreed to terms. The proposed facility sharing is therefore economically feasible.

E. **Public Safety Concerns**. As stated above, the tower is structurally capable of supporting the proposed antennas. The applicant is not aware of any other public safety issues relative to the proposed sharing of the tower. In fact, the provision of new or improved wireless coverage in the area is expected to enhance the safety and welfare of area residents. The public safety benefits of wireless service are further illustrated by the recent decision of local authorities elsewhere in Connecticut and in other parts of the country to provide mobile phones to residents to improve local public safety and enhance emergency communications. The proposed-shared use of this facility would likewise improve public safety in the City of Waterbury.

For the foregoing reasons, SCLP respectfully requests that the Council find the proposed shared use of this facility satisfies the criteria stated in C.G.S. Section 16-50aa and issue an order approving this proposed use.

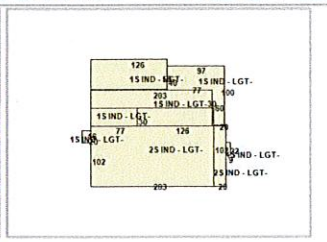
Sincerely,

cc: Philip A. Giordano, Mayor

City of Waterbury G.I.S.

Print Info **Location:** 670 CAPT NEVILLE DR **Owner:** M B REALTY LLC

Assessor Info
Building Info
Property Value
Sales History
Permit Info
Property Maps
eQuality Site

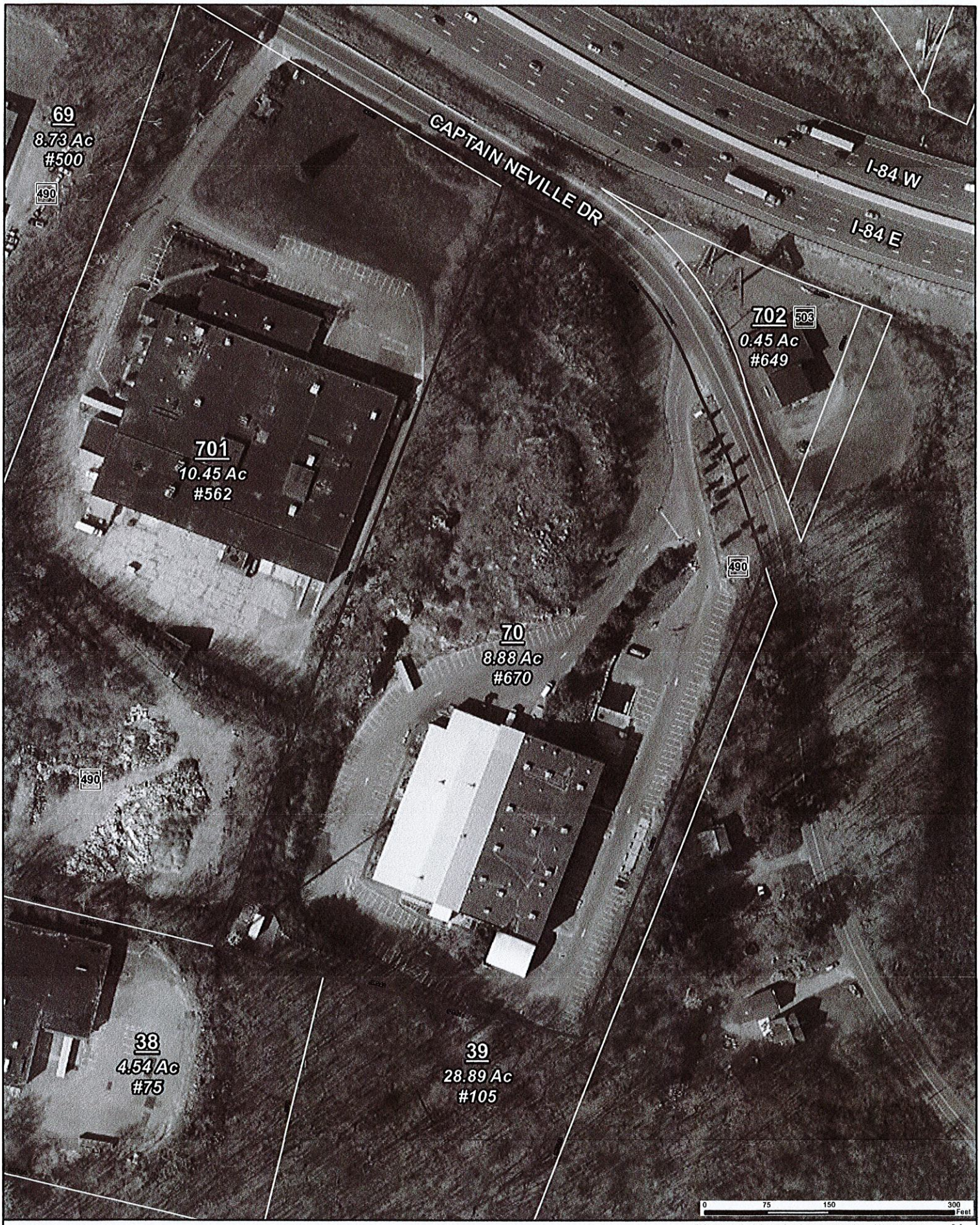


Map Block Lot:	0450-0490-0070	**Acres:**	8.88
Primary Use:	Light Industrial	**Zone:**	IP
Neighborhood:	85000-Industrial Park	**Vol/Page:**	3298 / 323

Mailing Address:
M B REALTY LLC
670 CAPTAIN NEVILLE DR
WATERBURY, CT 067050000

Eligible Programs:
Come Home to Downtown: No
New Market Tax Credit: Yes
Enterprise Zone: No
Opportunity Zone: No

Back



City of Waterbury
Public Works Department

MBL: **0450-0490-0070**

ADDRESS: 670 CAPT NEVILLE DR

This map is for informational purposes only and has not been prepared for, or suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to verify the usability of the information. The City of Waterbury makes no warranties, express or implied, as to the use of the information obtained herein.

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Wednesday, February 23, 2022 9:42 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 776085981480: Your package has been delivered

Hi. Your package was delivered Wed, 02/23/2022 at 9:41am.

Delivered to 235 GRAND ST, WATERBURY, CT 06702
Received by M.CHOZAK

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776085981480

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	City of Waterbury Robert Nerney - City Planner 235 Grand Street WATERBURY, CT, US, 06702
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Fri 2/18/2022 06:09 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WATERBURY, CT, US, 06702
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Wednesday, February 23, 2022 9:42 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 776085958974: Your package has been delivered

Hi. Your package was delivered Wed, 02/23/2022 at 9:41am.

Delivered to 235 GRAND ST, WATERBURY, CT 06702
Received by M.CHOZAK

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776085958974

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	City of Waterbury Neil M. O'Leary - Mayor 235 Grand Street WATERBURY, CT, US, 06702
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Fri 2/18/2022 06:09 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WATERBURY, CT, US, 06702
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Monday, February 21, 2022 10:02 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 776086019030: Your package has been delivered

Hi. Your package was delivered Mon, 02/21/2022 at 9:35am.

Delivered to 670 CAPTAIN NEVILLE DR, WATERBURY, CT 06705

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	776086019030
FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581

TO	Property Owner M B Realty LLC 670 Captain Neville Dr WATERBURY, CT, US, 06705
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Fri 2/18/2022 06:09 PM
DELIVERED TO	Residence
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WATERBURY, CT, US, 06705
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Date: **November 30, 2021**

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CTL01127
	Site Name:	Waterbury East
	FA Number:	10035324
Crown Castle Designation:	**BU Number:**	881534
	Site Name:	Waterbury Tower
	JDE Job Number:	686301
	Work Order Number:	2041137
	Order Number:	586249 Rev. 0
Engineering Firm Designation:	**TEP Project Number:**	218162.628569
Site Data:	**670 Captain Neville Drive, Waterbury, New Haven County, CT 06705** **Latitude *41° 32' 3.60"*, Longitude *-72° 58' 8.40"*** **150 Foot - Monopole Tower**	

Tower Engineering Professionals 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:

LC7: Proposed Equipment Configuration **Sufficient Capacity - 66.3%**

This analysis utilizes an ultimate 3-second gust wind speed of 118 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: Gautam Sopal, E.I. / RAL

Respectfully submitted by:

Aaron T. Rucker, P.E.

Electronic Copy

11/30/2021

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150-ft monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	1.0 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)
150.0	151.0	3	Raycap	DC6-48-60-18-8F	3 6 2 6	3/8 13/16 7/8 1-5/8
		3	Ericsson	RRUS 32 B30		
	150.0	3	Ericsson	AIR 6449 N77 w/ Mount Pipe		
		3	Kathrein	80010966 w/ Mount Pipe		
		3	Quintel Technology	QD8616-7 w/ Mount Pipe		
		3	Ericsson	RRUS 4415 B25		
		1	Raycap	DC6-48-60-18-8F		
		3	Ericsson	RRUS 4478 B5		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS 4478 B14		
		1	Tower Mounts	Platform Mount [LP 303-1_KCKR-HR-1]		
	149.0	3	Ericsson	AIR 6419 B77G 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)
140.0	142.0	2	Andrew	VHLP2-11	3 4	1/2 1-5/8
		1	Motorola	TIMING 2000		
	140.0	3	RFS Celwave	APX16DWV-16DWV-S-E-A20		
		3	RFS Celwave	APXVAALL24_43-U-NA20_TMO		
		3	Ericsson	AIR6449 B41_T-MOBILE		
		3	Ericsson	RADIO 4415 B66A_CCIV3		
		3	Ericsson	RADIO 4424 B25_TMO		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		2	Dragonwave	HORIZON COMPACT		
		1	Tower Mounts	Platform Mount [LP 301-1_KCKR]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	1405752	CCISites
Tower Foundation Drawings	1406237	CCISites
Tower Manufacturer Drawings	1405785	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) The 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. Tower Engineering Professionals 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)	ϕP_{allow} (k)	% Capacity	Pass / Fail
L1	150 - 123.29	Pole	TP23.17x17x0.1875	1	-9.46	772.63	60.8	Pass
L2	123.29 - 87.79	Pole	TP30.86x22.005x0.3125	2	-14.41	1714.16	58.4	Pass
L3	87.79 - 43.21	Pole	TP40.4x29.2294x0.375	3	-23.68	2698.35	58.0	Pass
L4	43.21 - 0	Pole	TP49.5x38.3779x0.4375	4	-38.65	3985.57	53.4	Pass
							Summary	
						Pole (L1)	60.8	Pass
						Rating =	**60.8**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	53.3	Pass
1	Base Plate	-	66.3	Pass
1	Base Foundation Structural	-	64.4	Pass
1	Base Foundation Soil Interaction	-	34.5	Pass

Structure Rating (max from all components) =	**66.3%**

Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.

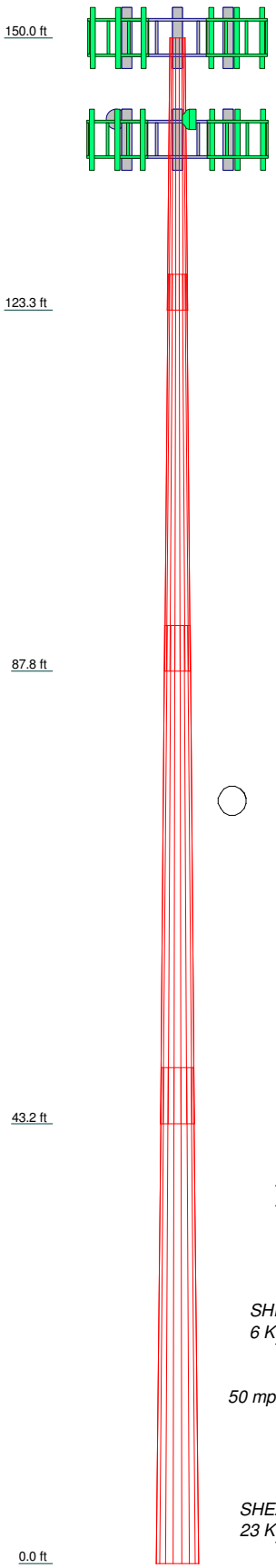
4.1) Recommendations

1) 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	26.71	18	0.1875	3.42	17.0000	23.1700	A572-65	1.1
2	38.92	18	0.3125	4.42	22.0050	30.8600		3.4
3	49.00	18	0.3750	5.58	29.2294	40.4000		6.8
4	48.79	18	0.4375		38.3779	49.5000		10.0
								21.4



ALL REACTIONS ARE FACTORED

AXIAL 52 K

SHEAR 6 K *MOMENT 683 kip-ft*

TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 39 K

SHEAR 23 K *MOMENT 2559 kip-ft*

TORQUE 1 kip-ft
REACTIONS - 118 mph WIND

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 118 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 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 0.00 ft
8. TOWER RATING: 60.8%

Tower Engineering Professionals

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job:	***Waterbury Tower (BU 881534)***		
Project:	***TEP No. 218162.628569***		
Client: Crown Castle	Drawn by: APJ	App'd:	
Code: TIA-222-H	Date: 11/30/21	Scale: NTS	
Path:		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: 613.00 ft.
Basic wind speed of 118 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
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.
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	150.00-123.29	26.71	3.4200	18	17.0000	23.1700	0.1875	0.7500	A572-65 (65 ksi)
L2	123.29-87.79	38.92	4.4200	18	22.0050	30.8600	0.3125	1.2500	A572-65 (65 ksi)
L3	87.79-43.21	49.00	5.5800	18	29.2294	40.4000	0.3750	1.5000	A572-65 (65 ksi)
L4	43.21-0.00	48.79		18	38.3779	49.5000	0.4375	1.7500	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	17.2333	10.0055	357.3078	5.9684	8.6360	41.3742	715.0858	5.0037	2.6620	14.197
	23.4985	13.6775	912.7198	8.1588	11.7704	77.5439	1826.6405	6.8400	3.7479	19.989
L2	23.0864	21.5162	1279.1518	7.7008	11.1785	114.4293	2559.9867	10.7602	3.3229	10.633
	31.2879	30.2993	3572.0820	10.8444	15.6769	227.8567	7148.8642	15.1525	4.8814	15.62
L3	30.6456	34.3439	3612.5207	10.2433	14.8485	243.2916	7229.7948	17.1752	4.4844	11.958
	40.9654	47.6398	9642.0563	14.2089	20.5232	469.8125	19296.7998	23.8244	6.4504	17.201
L4	40.1941	52.6850	9581.3939	13.4688	19.4960	491.4548	19175.3953	26.3475	5.9845	13.679
	50.1961	68.1294	20719.1270	17.4172	25.1460	823.9532	41465.5167	34.0712	7.9420	18.153

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 150.00-123.29				1	1	1			
L2 123.29-87.79				1	1	1			
L3 87.79-43.21				1	1	1			
L4 43.21-0.00				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
***										
Safety Line 3/8	B	No	Surface Ar (CaAa)	150.00 - 0.00	1	1	0.333 0.333	0.3750		0.22
HB158-21U6S24-xxM_T MO(1-5/8)	C	No	Surface Ar (CaAa)	140.00 - 0.00	1	1	0.500 0.500	1.9960		2.50
***										

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
***									
EC4-50(1/2)	C	No	No	Inside Pole	140.00 - 0.00	3	No Ice	0.00	0.16
							1/2" Ice	0.00	0.16
							1" Ice	0.00	0.16
HB158-21U6S24-xx M_TMO(1-5/8)	C	No	No	Inside Pole	140.00 - 0.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
CR 50 1873(1-5/8)	B	No	No	Inside Pole	150.00 - 0.00	6	No Ice	0.00	0.83
							1/2" Ice	0.00	0.83
							1" Ice	0.00	0.83
PWRT-606-S(7/8)	B	No	No	Inside Pole	150.00 - 0.00	2	No Ice	0.00	0.89
							1/2" Ice	0.00	0.89
							1" Ice	0.00	0.89
PWRT-608-S(13/16)	B	No	No	Inside Pole	150.00 - 0.00	6	No Ice	0.00	0.62
							1/2" Ice	0.00	0.62
							1" Ice	0.00	0.62
FB-L98B-034-XXX(3/8)	B	No	No	Inside Pole	150.00 - 0.00	3	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
***									

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	150.00-123.29	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.002	0.000	0.29
		C	0.000	0.000	3.335	0.000	0.18
L2	123.29-87.79	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.331	0.000	0.39
		C	0.000	0.000	7.086	0.000	0.37
L3	87.79-43.21	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.672	0.000	0.48
		C	0.000	0.000	8.898	0.000	0.47
L4	43.21-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.620	0.000	0.47
		C	0.000	0.000	8.625	0.000	0.45

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	150.00-123.29	A	0.979	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	6.233	0.000	0.33
		C		0.000	0.000	6.608	0.000	0.23
L2	123.29-87.79	A	0.954	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	8.284	0.000	0.44
		C		0.000	0.000	14.039	0.000	0.50
L3	87.79-43.21	A	0.909	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	10.179	0.000	0.55
		C		0.000	0.000	17.405	0.000	0.62
L4	43.21-0.00	A	0.815	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	9.479	0.000	0.53
		C		0.000	0.000	16.484	0.000	0.59

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.00-123.29	-0.6270	0.5650	-0.0508	0.6819
L2	123.29-87.79	-1.0515	0.8071	-0.5113	0.9603
L3	87.79-43.21	-1.0624	0.8189	-0.5238	0.9922
L4	43.21-0.00	-1.0698	0.8270	-0.5369	1.0021

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	2	Safety Line 3/8	123.29 - 150.00	1.0000	1.0000
L1	7	HB158-21U6S24-xxM_TMO (1-5/8)	123.29 - 140.00	1.0000	1.0000
L2	2	Safety Line 3/8	87.79 - 123.29	1.0000	1.0000
L2	7	HB158-21U6S24-xxM_TMO (1-5/8)	87.79 - 123.29	1.0000	1.0000
L3	2	Safety Line 3/8	43.21 - 87.79	1.0000	1.0000
L3	7	HB158-21U6S24-xxM_TMO (1-5/8)	43.21 - 87.79	1.0000	1.0000
L4	2	Safety Line 3/8	0.00 - 43.21	1.0000	1.0000
L4	7	HB158-21U6S24-xxM_TMO (1-5/8)	0.00 - 43.21	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
150									
AIR 6449 N77 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.65 3.99 4.35	2.72 3.03 3.36	0.11 0.15 0.20
AIR 6449 N77 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.65 3.99 4.35	2.72 3.03 3.36	0.11 0.15 0.20
AIR 6449 N77 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.65 3.99 4.35	2.72 3.03 3.36	0.11 0.15 0.20
AIR 6419 B77G w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.32 4.74 5.17	2.49 2.84 3.21	0.08 0.11 0.15
AIR 6419 B77G w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.32 4.74 5.17	2.49 2.84 3.21	0.08 0.11 0.15
AIR 6419 B77G w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 -1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	4.32 4.74 5.17	2.49 2.84 3.21	0.08 0.11 0.15
80010966 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	14.61 15.47 16.35	6.84 7.63 8.42	0.16 0.27 0.39
80010966 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	14.61 15.47 16.35	6.84 7.63 8.42	0.16 0.27 0.39
80010966 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	14.61 15.47 16.35	6.84 7.63 8.42	0.16 0.27 0.39
QD8616-7 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	16.93 17.87 18.83	9.31 10.17 11.05	0.18 0.31 0.45
QD8616-7 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	16.93 17.87 18.83	9.31 10.17 11.05	0.18 0.31 0.45
QD8616-7 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	16.93 17.87 18.83	9.31 10.17 11.05	0.18 0.31 0.45
RRUS 4415 B25	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.68 0.79 0.91	0.04 0.06 0.07
RRUS 4415 B25	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.68 0.79 0.91	0.04 0.06 0.07
RRUS 4415 B25	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.68 0.79 0.91	0.04 0.06 0.07
(3) DC6-48-60-18-8F	A	From Centroid-Le g	4.00 0.00 1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.21 1.89 2.11	1.21 1.89 2.11	0.03 0.05 0.08
DC6-48-60-18-8F	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.21 1.89 2.11	1.21 1.89 2.11	0.03 0.05 0.08
RRUS 32 B30	A	From Centroid-Le g	4.00 0.00 1.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B30	B	From Centroid-Le	4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.73 2.95	1.67 1.86	0.05 0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
		g	1.00			1" Ice	3.18	2.05	0.10
RRUS 32 B30	C	From	4.00	0.0000	150.00	No Ice	2.73	1.67	0.05
		Centroid-Le	0.00			1/2" Ice	2.95	1.86	0.07
		g	1.00			1" Ice	3.18	2.05	0.10
RRUS 4478 B5	A	From	4.00	0.0000	150.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	0.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B5	B	From	4.00	0.0000	150.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	0.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B5	C	From	4.00	0.0000	150.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	0.00			1" Ice	2.19	1.34	0.09
RRUS 4426 B66	A	From	4.00	0.0000	150.00	No Ice	1.64	0.73	0.05
		Centroid-Le	0.00			1/2" Ice	1.80	0.84	0.06
		g	0.00			1" Ice	1.97	0.97	0.08
RRUS 4426 B66	B	From	4.00	0.0000	150.00	No Ice	1.64	0.73	0.05
		Centroid-Le	0.00			1/2" Ice	1.80	0.84	0.06
		g	0.00			1" Ice	1.97	0.97	0.08
RRUS 4426 B66	C	From	4.00	0.0000	150.00	No Ice	1.64	0.73	0.05
		Centroid-Le	0.00			1/2" Ice	1.80	0.84	0.06
		g	0.00			1" Ice	1.97	0.97	0.08
RRUS 4478 B14	A	From	4.00	0.0000	150.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	0.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	B	From	4.00	0.0000	150.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	0.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	C	From	4.00	0.0000	150.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	0.00			1" Ice	2.19	1.34	0.09
Platform Mount [LP 303-1_KCKR-HR-1]	C	None		0.0000	150.00	No Ice	28.31	28.31	1.77
						1/2" Ice	35.69	35.69	2.30
						1" Ice	43.11	43.11	2.94
140									
TIMING 2000	C	From	4.00	0.0000	140.00	No Ice	0.13	0.11	0.00
		Centroid-Le	0.00			1/2" Ice	0.18	0.15	0.00
		g	2.00			1" Ice	0.24	0.20	0.01
APX16DWV-16DWV-S-E-A 20	A	From	4.00	0.0000	140.00	No Ice	6.26	1.50	0.04
		Centroid-Le	0.00			1/2" Ice	6.85	2.00	0.07
		g	0.00			1" Ice	7.46	2.52	0.11
APX16DWV-16DWV-S-E-A 20	B	From	4.00	0.0000	140.00	No Ice	6.26	1.50	0.04
		Centroid-Le	0.00			1/2" Ice	6.85	2.00	0.07
		g	0.00			1" Ice	7.46	2.52	0.11
APX16DWV-16DWV-S-E-A 20	C	From	4.00	0.0000	140.00	No Ice	6.26	1.50	0.04
		Centroid-Le	0.00			1/2" Ice	6.85	2.00	0.07
		g	0.00			1" Ice	7.46	2.52	0.11
APXVAALL24_43-U-NA20 _TMO	A	From	4.00	0.0000	140.00	No Ice	14.67	5.32	0.15
		Centroid-Le	0.00			1/2" Ice	15.43	5.99	0.26
		g	0.00			1" Ice	16.21	6.68	0.38
APXVAALL24_43-U-NA20 _TMO	B	From	4.00	0.0000	140.00	No Ice	14.67	5.32	0.15
		Centroid-Le	0.00			1/2" Ice	15.43	5.99	0.26
		g	0.00			1" Ice	16.21	6.68	0.38
APXVAALL24_43-U-NA20 _TMO	C	From	4.00	0.0000	140.00	No Ice	14.67	5.32	0.15
		Centroid-Le	0.00			1/2" Ice	15.43	5.99	0.26
		g	0.00			1" Ice	16.21	6.68	0.38
AIR6449 B41_T-MOBILE	A	From	4.00	0.0000	140.00	No Ice	5.27	2.03	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
		Centroid-Leg	0.00 0.00			1/2" Ice 1" Ice	5.70 6.14	2.36 2.70	0.15 0.20
AIR6449 B41_T-MOBILE	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	5.27 5.70 6.14	2.03 2.36 2.70	0.11 0.15 0.20
AIR6449 B41_T-MOBILE	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	5.27 5.70 6.14	2.03 2.36 2.70	0.11 0.15 0.20
RADIO 4415 B66A_CCIV3	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.68 0.79 0.91	0.05 0.06 0.07
RADIO 4415 B66A_CCIV3	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.68 0.79 0.91	0.05 0.06 0.07
RADIO 4415 B66A_CCIV3	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.64 1.80 1.97	0.68 0.79 0.91	0.05 0.06 0.07
RADIO 4424 B25_TMO	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	0.09 0.11 0.13
RADIO 4424 B25_TMO	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	0.09 0.11 0.13
RADIO 4424 B25_TMO	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	0.09 0.11 0.13
RADIO 4449 B71 B85A_T-MOBILE	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4449 B71 B85A_T-MOBILE	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4449 B71 B85A_T-MOBILE	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
HORIZON COMPACT	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
HORIZON COMPACT	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
Platform Mount [LP 301-1_KCKR]	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice	35.03 44.46 53.72	35.03 44.46 53.72	1.86 2.52 3.33
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP2-11	A	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 -6.00 2.00	12.0000		140.00	2.00	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.03 0.05 0.07
VHLP2-11	B	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00 6.00 2.00	83.0000		140.00	2.00	No Ice 1/2" Ice 1" Ice	3.72 4.01 4.30	0.03 0.05 0.07
***											

Load Combinations

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

Comb. No.	Description
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	150 - 123.29	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.38	0.01	0.60
			Max. Mx	8	-9.49	-246.62	2.39
			Max. My	2	-9.46	-1.11	249.43
			Max. Vy	8	13.36	-246.62	2.39
			Max. Vx	2	-13.53	-1.11	249.43
			Max. Torque	18			-1.06
L2	123.29 - 87.79	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.41	-0.05	0.37
			Max. Mx	8	-14.43	-748.83	7.14
			Max. My	2	-14.41	-3.56	757.24
			Max. Vy	8	15.79	-748.83	7.14
			Max. Vx	14	15.95	3.36	-756.99
			Max. Torque	18			-1.06
L3	87.79 - 43.21	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.32	-0.15	0.01
			Max. Mx	8	-23.70	-1508.40	12.97
			Max. My	14	-23.68	6.23	-1523.88
			Max. Vy	8	19.20	-1508.40	12.97
			Max. Vx	14	19.36	6.23	-1523.88
			Max. Torque	18			-1.05
L4	43.21 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.35	-0.28	-0.50
			Max. Mx	8	-38.65	-2535.74	19.24
			Max. My	14	-38.65	9.34	-2559.25
			Max. Vy	8	22.75	-2535.74	19.24
			Max. Vx	14	22.90	9.34	-2559.25
			Max. Torque	18			-1.05

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	52.35	0.01	-6.23
	Max. H_x	21	29.00	22.71	-0.10
	Max. H_z	3	29.00	-0.07	22.88
	Max. M_x	2	2558.58	-0.07	22.88
	Max. M_z	8	2535.74	-22.72	0.13
	Max. Torsion	6	0.69	-19.67	11.55
	Min. Vert	19	29.00	19.66	-11.55
	Min. H_x	8	38.66	-22.72	0.13
	Min. H_z	14	38.66	0.06	-22.88

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. M_x	14	-2559.25	0.06	-22.88
	Min. M_z	20	-2534.63	22.71	-0.10
	Min. Torsion	18	-1.05	19.66	-11.55

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	32.22	0.00	0.00	0.28	-0.01	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	38.66	0.07	-22.88	-2558.58	-9.95	-0.35
0.9 Dead+1.0 Wind 0 deg - No Ice	29.00	0.07	-22.88	-2524.27	-9.80	-0.36
1.2 Dead+1.0 Wind 30 deg - No Ice	38.66	11.39	-19.83	-2219.32	-1272.85	-0.55
0.9 Dead+1.0 Wind 30 deg - No Ice	29.00	11.39	-19.83	-2189.57	-1255.75	-0.55
1.2 Dead+1.0 Wind 60 deg - No Ice	38.66	19.67	-11.55	-1295.98	-2195.58	-0.69
0.9 Dead+1.0 Wind 60 deg - No Ice	29.00	19.67	-11.55	-1278.62	-2166.11	-0.68
1.2 Dead+1.0 Wind 90 deg - No Ice	38.66	22.72	-0.13	-19.24	-2535.74	-0.48
0.9 Dead+1.0 Wind 90 deg - No Ice	29.00	22.72	-0.13	-19.04	-2501.70	-0.47
1.2 Dead+1.0 Wind 120 deg - No Ice	38.66	19.62	11.45	1282.32	-2186.97	0.32
0.9 Dead+1.0 Wind 120 deg - No Ice	29.00	19.62	11.45	1265.01	-2157.62	0.34
1.2 Dead+1.0 Wind 150 deg - No Ice	38.66	11.25	19.84	2220.84	-1251.86	0.64
0.9 Dead+1.0 Wind 150 deg - No Ice	29.00	11.25	19.84	2190.92	-1235.07	0.65
1.2 Dead+1.0 Wind 180 deg - No Ice	38.66	-0.06	22.88	2559.25	9.34	0.82
0.9 Dead+1.0 Wind 180 deg - No Ice	29.00	-0.06	22.88	2524.79	9.21	0.83
1.2 Dead+1.0 Wind 210 deg - No Ice	38.66	-11.39	19.84	2220.67	1272.19	0.98
0.9 Dead+1.0 Wind 210 deg - No Ice	29.00	-11.39	19.84	2190.75	1255.12	0.98
1.2 Dead+1.0 Wind 240 deg - No Ice	38.66	-19.66	11.55	1297.40	2193.21	1.05
0.9 Dead+1.0 Wind 240 deg - No Ice	29.00	-19.66	11.55	1279.86	2163.78	1.04
1.2 Dead+1.0 Wind 270 deg - No Ice	38.66	-22.71	0.10	14.74	2534.63	0.41
0.9 Dead+1.0 Wind 270 deg - No Ice	29.00	-22.71	0.10	14.44	2500.60	0.40
1.2 Dead+1.0 Wind 300 deg - No Ice	38.66	-19.63	-11.42	-1276.62	2189.52	-0.20
0.9 Dead+1.0 Wind 300 deg - No Ice	29.00	-19.63	-11.42	-1259.54	2160.14	-0.22
1.2 Dead+1.0 Wind 330 deg - No Ice	38.66	-11.24	-19.84	-2219.49	1249.04	-0.15
0.9 Dead+1.0 Wind 330 deg -	29.00	-11.24	-19.84	-2189.74	1232.31	-0.17

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						
1.2 Dead+1.0 Ice+1.0 Temp	52.35	0.00	-0.00	0.50	-0.28	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	52.35	0.01	-6.23	-682.27	-2.45	-0.04
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	52.35	3.10	-5.40	-591.57	-340.25	-0.13
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	52.35	5.36	-3.14	-344.53	-587.16	-0.20
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	52.35	6.19	-0.03	-3.75	-678.04	-0.19
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	52.35	5.35	3.12	342.37	-585.29	-0.02
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	52.35	3.08	5.40	592.68	-335.73	0.07
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	52.35	-0.01	6.23	683.21	1.72	0.14
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	52.35	-3.10	5.40	592.65	339.51	0.22
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	52.35	-5.36	3.14	345.62	586.05	0.28
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	52.35	-6.19	0.02	3.57	677.20	0.17
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	52.35	-5.36	-3.11	-340.35	585.24	0.04
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	52.35	-3.07	-5.40	-591.60	334.52	0.04
Dead+Wind 0 deg - Service	32.22	0.02	-5.58	-619.27	-2.41	-0.08
Dead+Wind 30 deg - Service	32.22	2.78	-4.83	-537.13	-308.19	-0.14
Dead+Wind 60 deg - Service	32.22	4.80	-2.82	-313.57	-531.60	-0.18
Dead+Wind 90 deg - Service	32.22	5.54	-0.03	-4.45	-613.94	-0.13
Dead+Wind 120 deg - Service	32.22	4.78	2.79	310.66	-529.50	0.07
Dead+Wind 150 deg - Service	32.22	2.74	4.84	537.89	-303.11	0.15
Dead+Wind 180 deg - Service	32.22	-0.02	5.58	619.84	2.25	0.20
Dead+Wind 210 deg - Service	32.22	-2.78	4.84	537.86	308.02	0.25
Dead+Wind 240 deg - Service	32.22	-4.79	2.82	314.31	531.01	0.27
Dead+Wind 270 deg - Service	32.22	-5.54	0.02	3.76	613.65	0.11
Dead+Wind 300 deg - Service	32.22	-4.79	-2.78	-308.88	530.11	-0.04
Dead+Wind 330 deg - Service	32.22	-2.74	-4.83	-537.16	302.42	-0.03

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-32.22	0.00	0.00	32.22	0.00	0.000%
2	0.07	-38.66	-22.88	-0.07	38.66	22.88	0.000%
3	0.07	-29.00	-22.88	-0.07	29.00	22.88	0.000%
4	11.39	-38.66	-19.83	-11.39	38.66	19.83	0.000%
5	11.39	-29.00	-19.83	-11.39	29.00	19.83	0.000%
6	19.67	-38.66	-11.55	-19.67	38.66	11.55	0.000%
7	19.67	-29.00	-11.55	-19.67	29.00	11.55	0.000%
8	22.72	-38.66	-0.13	-22.72	38.66	0.13	0.000%
9	22.72	-29.00	-0.13	-22.72	29.00	0.13	0.000%
10	19.62	-38.66	11.45	-19.62	38.66	-11.45	0.000%
11	19.62	-29.00	11.45	-19.62	29.00	-11.45	0.000%
12	11.25	-38.66	19.84	-11.25	38.66	-19.84	0.000%
13	11.25	-29.00	19.84	-11.25	29.00	-19.84	0.000%
14	-0.06	-38.66	22.88	0.06	38.66	-22.88	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
15	-0.06	-29.00	22.88	0.06	29.00	-22.88	0.000%
16	-11.39	-38.66	19.84	11.39	38.66	-19.84	0.000%
17	-11.39	-29.00	19.84	11.39	29.00	-19.84	0.000%
18	-19.66	-38.66	11.55	19.66	38.66	-11.55	0.000%
19	-19.66	-29.00	11.55	19.66	29.00	-11.55	0.000%
20	-22.71	-38.66	0.10	22.71	38.66	-0.10	0.000%
21	-22.71	-29.00	0.10	22.71	29.00	-0.10	0.000%
22	-19.63	-38.66	-11.42	19.63	38.66	11.42	0.000%
23	-19.63	-29.00	-11.42	19.63	29.00	11.42	0.000%
24	-11.24	-38.66	-19.84	11.24	38.66	19.84	0.000%
25	-11.24	-29.00	-19.84	11.24	29.00	19.84	0.000%
26	0.00	-52.35	0.00	0.00	52.35	0.00	0.000%
27	0.01	-52.35	-6.23	-0.01	52.35	6.23	0.000%
28	3.10	-52.35	-5.40	-3.10	52.35	5.40	0.000%
29	5.36	-52.35	-3.14	-5.36	52.35	3.14	0.000%
30	6.19	-52.35	-0.03	-6.19	52.35	0.03	0.000%
31	5.35	-52.35	3.12	-5.35	52.35	-3.12	0.000%
32	3.08	-52.35	5.40	-3.08	52.35	-5.40	0.000%
33	-0.01	-52.35	6.23	0.01	52.35	-6.23	0.000%
34	-3.10	-52.35	5.40	3.10	52.35	-5.40	0.000%
35	-5.36	-52.35	3.14	5.36	52.35	-3.14	0.000%
36	-6.19	-52.35	0.02	6.19	52.35	-0.02	0.000%
37	-5.36	-52.35	-3.11	5.36	52.35	3.11	0.000%
38	-3.07	-52.35	-5.40	3.07	52.35	5.40	0.000%
39	0.02	-32.22	-5.58	-0.02	32.22	5.58	0.000%
40	2.78	-32.22	-4.83	-2.78	32.22	4.83	0.000%
41	4.80	-32.22	-2.82	-4.80	32.22	2.82	0.000%
42	5.54	-32.22	-0.03	-5.54	32.22	0.03	0.000%
43	4.78	-32.22	2.79	-4.78	32.22	-2.79	0.000%
44	2.74	-32.22	4.84	-2.74	32.22	-4.84	0.000%
45	-0.02	-32.22	5.58	0.02	32.22	-5.58	0.000%
46	-2.78	-32.22	4.84	2.78	32.22	-4.84	0.000%
47	-4.79	-32.22	2.82	4.79	32.22	-2.82	0.000%
48	-5.54	-32.22	0.02	5.54	32.22	-0.02	0.000%
49	-4.79	-32.22	-2.78	4.79	32.22	2.78	0.000%
50	-2.74	-32.22	-4.83	2.74	32.22	4.83	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00002358
3	Yes	4	0.00000001	0.00054129
4	Yes	6	0.00000001	0.00027080
5	Yes	6	0.00000001	0.00008344
6	Yes	6	0.00000001	0.00028078
7	Yes	6	0.00000001	0.00008695
8	Yes	5	0.00000001	0.00019101
9	Yes	5	0.00000001	0.00008655
10	Yes	6	0.00000001	0.00027421
11	Yes	6	0.00000001	0.00008514
12	Yes	6	0.00000001	0.00026644
13	Yes	6	0.00000001	0.00008234
14	Yes	5	0.00000001	0.00019924
15	Yes	5	0.00000001	0.00009304

16	Yes	6	0.00000001	0.00028209
17	Yes	6	0.00000001	0.00008759
18	Yes	6	0.00000001	0.00026801
19	Yes	6	0.00000001	0.00008237
20	Yes	5	0.00000001	0.00002743
21	Yes	4	0.00000001	0.00054190
22	Yes	6	0.00000001	0.00027023
23	Yes	6	0.00000001	0.00008366
24	Yes	6	0.00000001	0.00027181
25	Yes	6	0.00000001	0.00008442
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00047589
28	Yes	5	0.00000001	0.00077900
29	Yes	5	0.00000001	0.00079740
30	Yes	5	0.00000001	0.00047378
31	Yes	5	0.00000001	0.00077231
32	Yes	5	0.00000001	0.00076932
33	Yes	5	0.00000001	0.00047543
34	Yes	5	0.00000001	0.00079212
35	Yes	5	0.00000001	0.00077078
36	Yes	5	0.00000001	0.00047199
37	Yes	5	0.00000001	0.00077785
38	Yes	5	0.00000001	0.00077153
39	Yes	4	0.00000001	0.00011217
40	Yes	5	0.00000001	0.00007386
41	Yes	5	0.00000001	0.00008183
42	Yes	4	0.00000001	0.00016573
43	Yes	5	0.00000001	0.00007688
44	Yes	5	0.00000001	0.00007186
45	Yes	4	0.00000001	0.00019742
46	Yes	5	0.00000001	0.00008343
47	Yes	5	0.00000001	0.00007191
48	Yes	4	0.00000001	0.00012556
49	Yes	5	0.00000001	0.00007463
50	Yes	5	0.00000001	0.00007570

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 123.29	26.189	39	1.7828	0.0058
L2	126.71 - 87.79	17.963	45	1.5097	0.0026
L3	92.21 - 43.21	8.835	45	0.9878	0.0010
L4	48.79 - 0	2.291	45	0.4425	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	AIR 6449 N77 w/ Mount Pipe	39	26.189	1.7828	0.0058	14863
142.00	VHLP2-11	39	23.260	1.6948	0.0046	9289
140.00	TIMING 2000	39	22.537	1.6723	0.0043	7431

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 123.29	108.194	2	7.3665	0.0224
L2	126.71 - 87.79	74.252	14	6.2464	0.0105
L3	92.21 - 43.21	36.525	14	4.0873	0.0041
L4	48.79 - 0	9.468	14	1.8294	0.0013

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	AIR 6449 N77 w/ Mount Pipe	2	108.194	7.3665	0.0224	3708
142.00	VHLP2-11	2	96.112	7.0065	0.0178	2316
140.00	TIMING 2000	2	93.131	6.9142	0.0167	1852

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	150 - 123.29 (1)	TP23.17x17x0.1875	26.71	0.00	0.0	13.2073	-9.46	772.63	0.012
L2	123.29 - 87.79 (2)	TP30.86x22.005x0.3125	38.92	0.00	0.0	29.3018	-14.41	1714.16	0.008
L3	87.79 - 43.21 (3)	TP40.4x29.2294x0.375	49.00	0.00	0.0	46.1257	-23.68	2698.35	0.009
L4	43.21 - 0 (4)	TP49.5x38.3779x0.4375	48.79	0.00	0.0	68.1294	-38.65	3985.57	0.010

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	150 - 123.29 (1)	TP23.17x17x0.1875	249.43	421.38	0.592	0.00	421.38	0.000
L2	123.29 - 87.79 (2)	TP30.86x22.005x0.3125	757.25	1318.91	0.574	0.00	1318.91	0.000
L3	87.79 - 43.21 (3)	TP40.4x29.2294x0.375	1523.93	2669.35	0.571	0.00	2669.35	0.000

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 $\frac{M_{uy}}{\phi M_{ny}}$
L4	43.21 - 0 (4)	TP49.5x38.3779x0.4375	2559.27	4882.80	0.524	0.00	4882.80	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	150 - 123.29 (1)	TP23.17x17x0.1875	13.53	231.79	0.058	0.36	450.48	0.001
L2	123.29 - 87.79 (2)	TP30.86x22.005x0.3125	15.95	514.25	0.031	0.35	1330.43	0.000
L3	87.79 - 43.21 (3)	TP40.4x29.2294x0.375	19.36	809.51	0.024	0.98	2747.28	0.000
L4	43.21 - 0 (4)	TP49.5x38.3779x0.4375	22.90	1195.67	0.019	0.98	5137.38	0.000

Pole Interaction Design Data

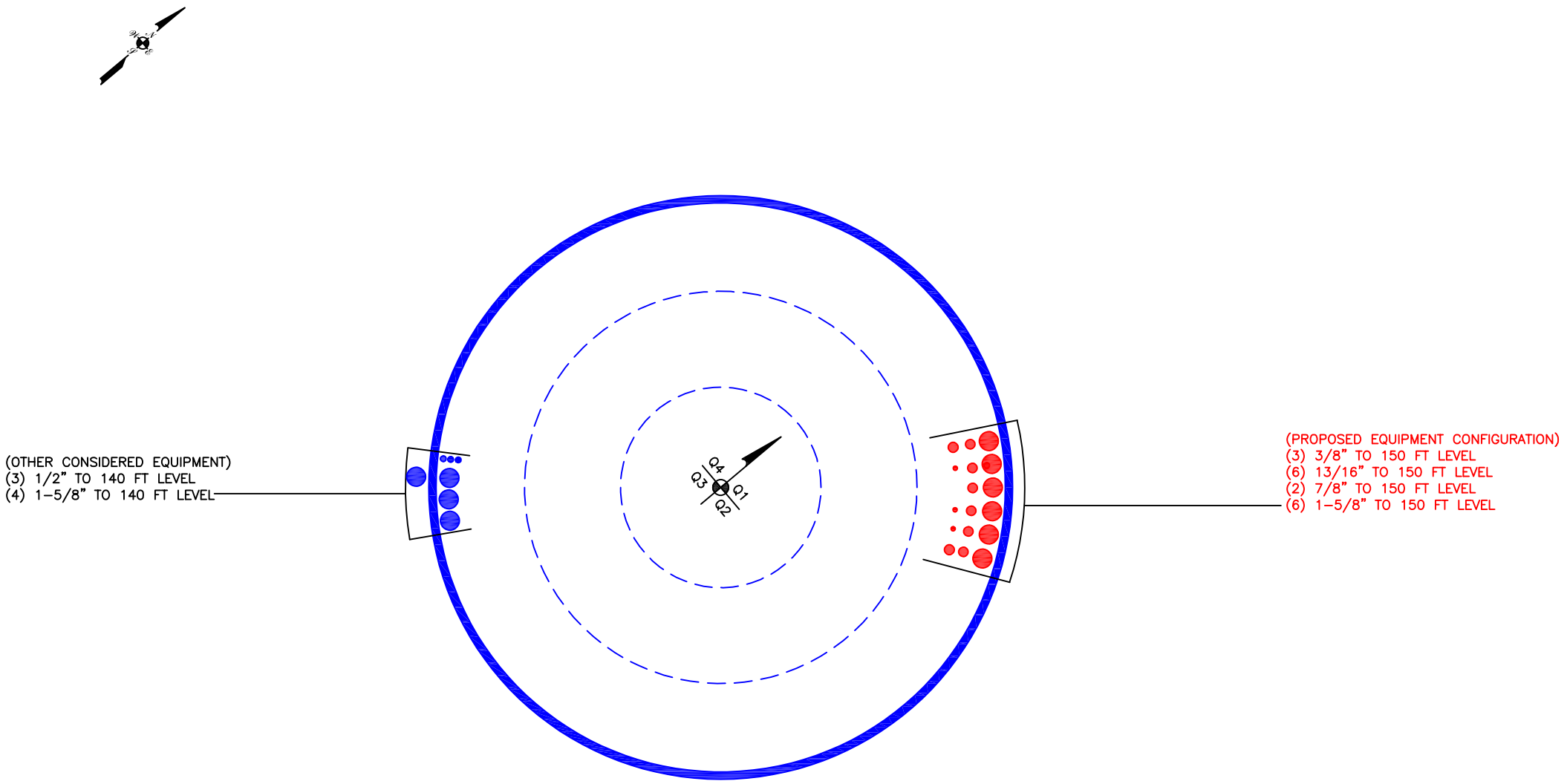
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 123.29 (1)	0.012	0.592	0.000	0.058	0.001	0.608	1.000	4.8.2
L2	123.29 - 87.79 (2)	0.008	0.574	0.000	0.031	0.000	0.584	1.000	4.8.2
L3	87.79 - 43.21 (3)	0.009	0.571	0.000	0.024	0.000	0.580	1.000	4.8.2
L4	43.21 - 0 (4)	0.010	0.524	0.000	0.019	0.000	0.534	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150 - 123.29	Pole	TP23.17x17x0.1875	1	-9.46	772.63	60.8	Pass
L2	123.29 - 87.79	Pole	TP30.86x22.005x0.3125	2	-14.41	1714.16	58.4	Pass
L3	87.79 - 43.21	Pole	TP40.4x29.2294x0.375	3	-23.68	2698.35	58.0	Pass
L4	43.21 - 0	Pole	TP49.5x38.3779x0.4375	4	-38.65	3985.57	53.4	Pass
							Summary	
						Pole (L1)	60.8	Pass
						RATING =	**60.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(3) 1/2" TO 140 FT LEVEL
(4) 1-5/8" TO 140 FT LEVEL
Q4
Q1
Q3
Q2
(PROPOSED EQUIPMENT CONFIGURATION)
(3) 3/8" TO 150 FT LEVEL
(6) 13/16" TO 150 FT LEVEL
(2) 7/8" TO 150 FT LEVEL
(6) 1-5/8" TO 150 FT LEVEL

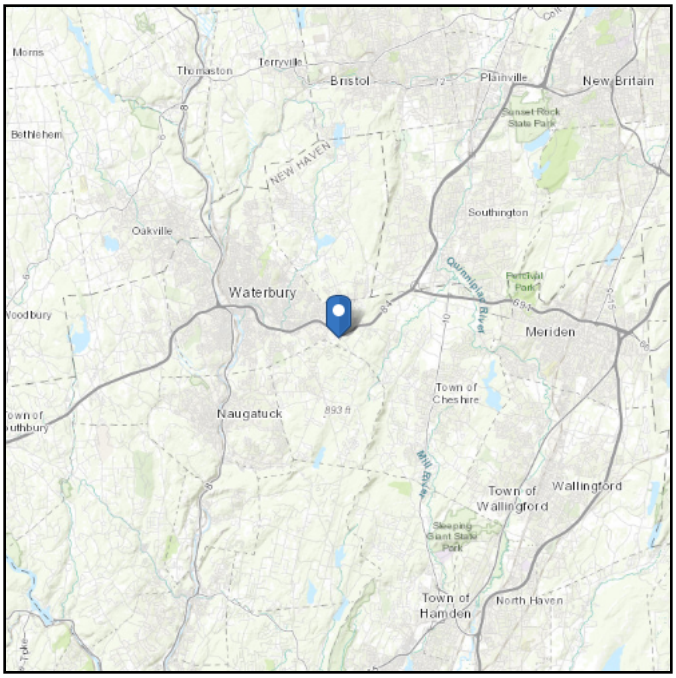
APPENDIX C

ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	0 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.534333
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-72.969



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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:	Mon Nov 29 2021

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.

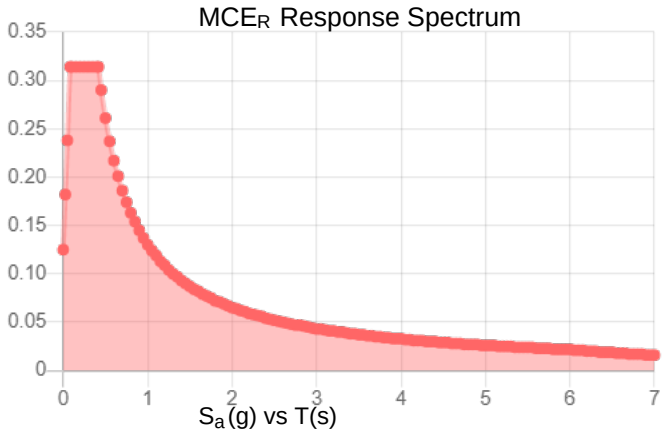
Seismic

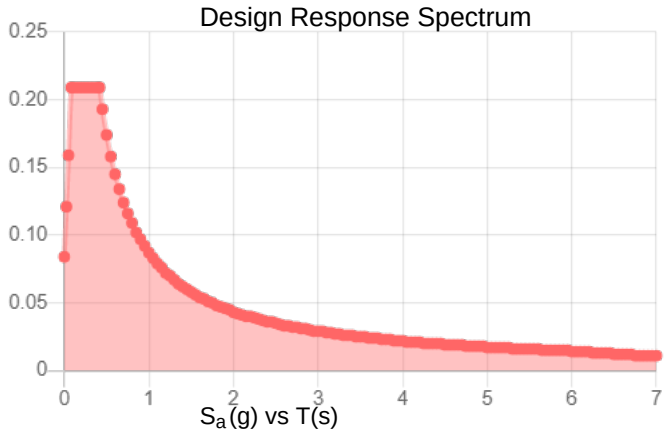
Site Soil Class: D - Default (see Section 11.4.3)

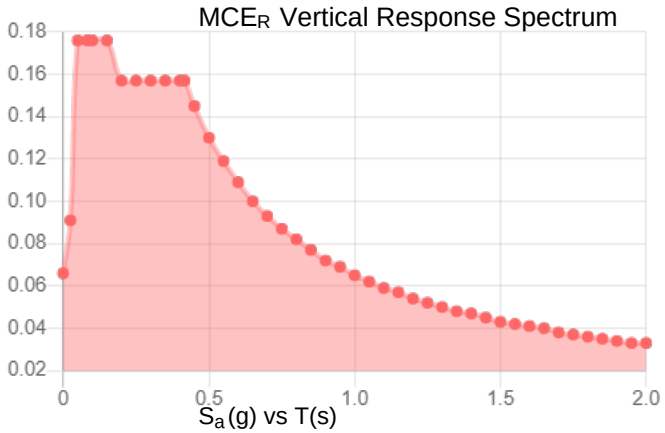
Results:

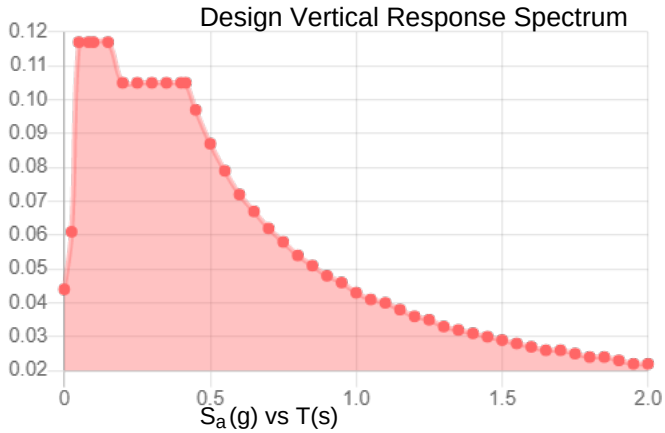
S_S :	0.196	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.108
F_v :	2.4	PGA_M :	0.171
S_{MS} :	0.314	F_{PGA} :	1.584
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.209	C_v :	0.7

Seismic Design Category B









Data Accessed: Mon Nov 29 2021

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:	Mon Nov 29 2021

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

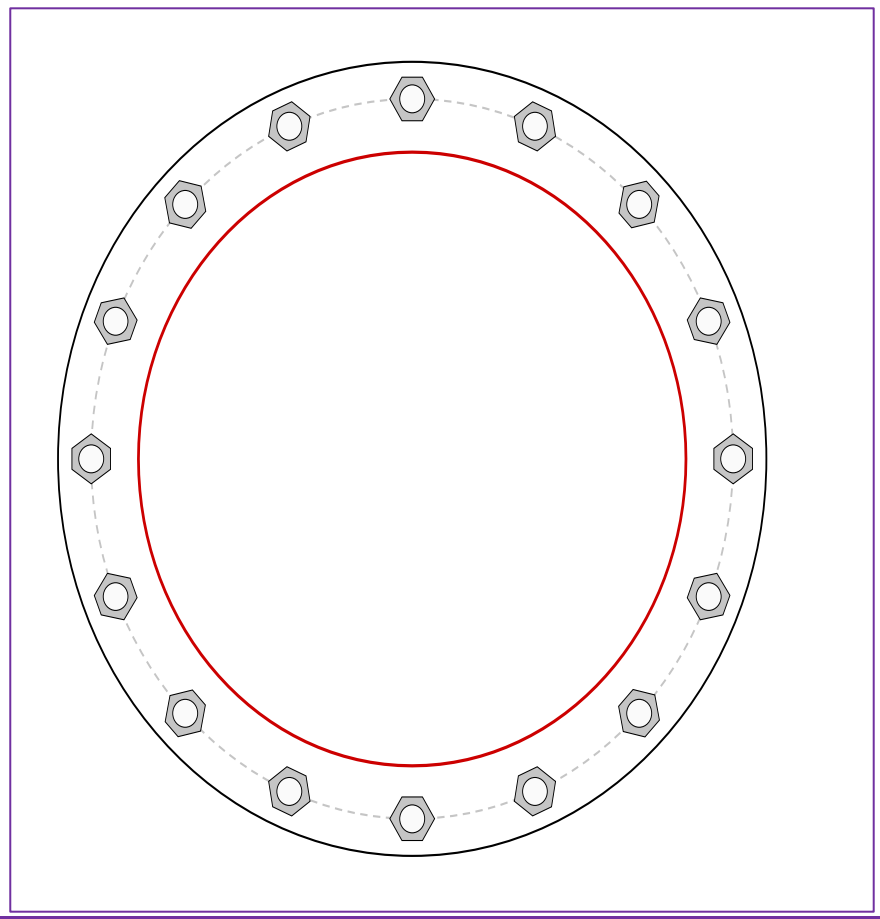
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from 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.

Monopole Base Plate Connection

Site Info	
BU #	881534
Site Name	Waterbury Tower
Order #	586249 Rev.0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	3

Applied Loads	
Moment (kip-ft)	2559.00
Axial Force (kips)	39.00
Shear Force (kips)	23.00



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 58" BC

Base Plate Data

64" OD x 2" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

49.5" x 0.4375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 129.84	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.44	ϕVn = 149.1	**53.3%**
Mu = 2.8	ϕMn = 128.14	**Pass**

Base Plate Summary

Max Stress (ksi):	35.79	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**66.3%**	**Pass**

Pier and Pad Foundation

BU # :	881534
Site Name:	Waterbury Tower
App. Number:	586249 Rev.0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	39	kips
Base Shear, Vu_comp:	23	kips
Moment, M_u:	2559	ft-kips
Tower Height, **H**:	150	ft
BP Dist. Above Fdn, bp_{dist}:	5.25	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	6.5	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	36	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	4	in

Pad Properties		
Depth, **D**:	8	ft
Pad Width, W_1:	26	ft
Pad Thickness, **T**:	4.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	7	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	50	
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:	125	pcf
Ultimate Gross Bearing, Qult:	8.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	34	degrees
SPT Blow Count, N_{blows}:	126	
Base Friction, μ:	0.6	
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	544.89	23.00	**4.2%**	**Pass**
Bearing Pressure (ksf)	6.00	2.07	**34.5%**	**Pass**
*Overturning (kip*ft)*	8055.61	2776.06	**34.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	4135.04	2662.50	**64.4%**	**Pass**
Pier Compression (kip)	20168.46	73.22	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	6555.10	971.67	**14.8%**	**Pass**
Pad Shear - 1-way (kips)	1273.66	119.41	**9.4%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.014	**8.6%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	10105.26	1597.50	**15.8%**	**Pass**

Structural Rating:	**64.4%**
Soil Rating:	**34.5%**

Date: **November 19, 2021**

Michael McWilliams
Crown Castle
8000 Avalon Blvd, Suite 700,
Alpharetta, GA 30009
770-375-4936

Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change Out**	
	Carrier Site Number:	CTL01127
	Carrier Site Name:	WATERBURY EAST
	Carrier FA Number:	10035324
Crown Castle Designation:	**Crown Castle BU Number:**	881534
	Crown Castle Site Name:	WATERBURY TOWER
	Crown Castle JDE Job Number:	686301
	Crown Castle Order Number:	586249 Rev. 0
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:** 1039-Z0001-B	
Site Data:	**670 Captain Neville Drive, Waterbury, New Haven County, CT, 06705** **Latitude 41°32'3.60" Longitude -72°58'8.40"**	
Structure Information:	**Tower Height & Type:**	**150.0 ft Monopole**
	Mount Elevation:	**150.0 ft**
	Mount Type:	**12.5 ft Platform**

Dear Michael McWilliams,

Infinigy Engineering, PLLC 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.

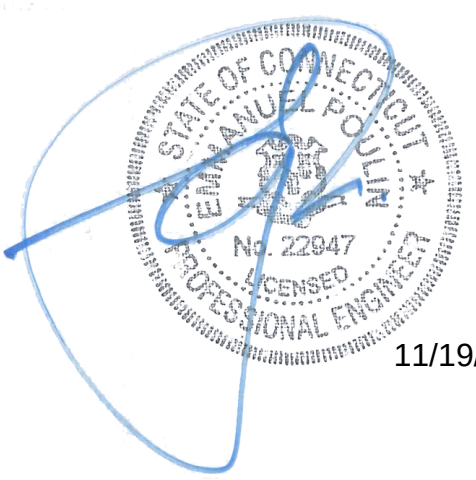
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform **Sufficient**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 118 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Farhad Ahmadyar

Respectfully Submitted by:
Emmanuel Poulin, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. 22947



11/19/21

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3-sector 12.5 ft Platform, mapped by Infinigy Engineering.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	118 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:	0.196
Seismic S_1:	0.054
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
150.0	151.0	3	ERICSSON	RRUS 32 B30	12.5 ft Platform
		3	RAYCAP	DC6-48-60-18-8F	
	150.0	3	ERICSSON	AIR 6449 N77	
		3	KATHREIN	80010966	
		3	QUINTEL TECHNOLOGY	QD8616-7	
		3	ERICSSON	RRUS 4415 B25	
		3	ERICSSON	RRUS 4426 B66	
		3	ERICSSON	RRUS 4478 B14	
		3	ERICSSON	RRUS 4478 B5	
		1	RAYCAP	DC6-48-60-18-8F	
	149.0	3	ERICSSON	AIR 6419 B77G	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	AT&T Mobility Application	586249 Rev. 0	CCI Sites
Mount Mapping Report	Infinigy Engineering, PLLC	8274143	CCI Sites

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 *Tower Mount Analysis* (Revision B).

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 A325

This analysis may be affected if any assumptions are not valid or have been made in error. Infinigy Engineering, PLLC 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 (Platform, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe(s)	MP11	150.0	86.7	Pass
	Horizontal(s)	HOR3		27.1	Pass
	Handrail(s)	HR1		83.5	Pass
	Standoff(s)	SA1		66.5	Pass
	Mount Connection(s)	--		23.6	Pass

Structure Rating (max from all components) =	86.7%

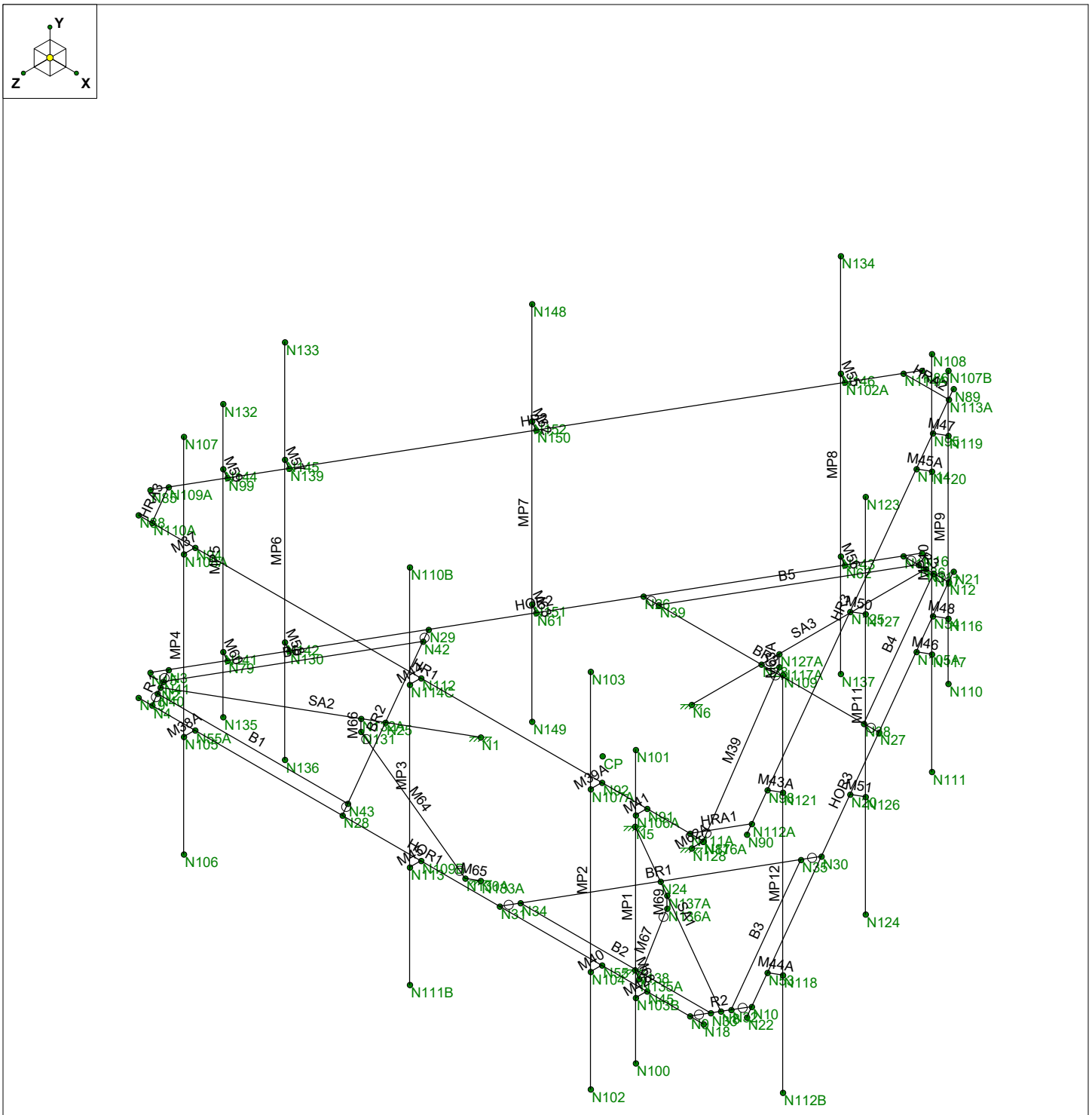
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D – Additional Calculations” for detailed mount connection calculations.

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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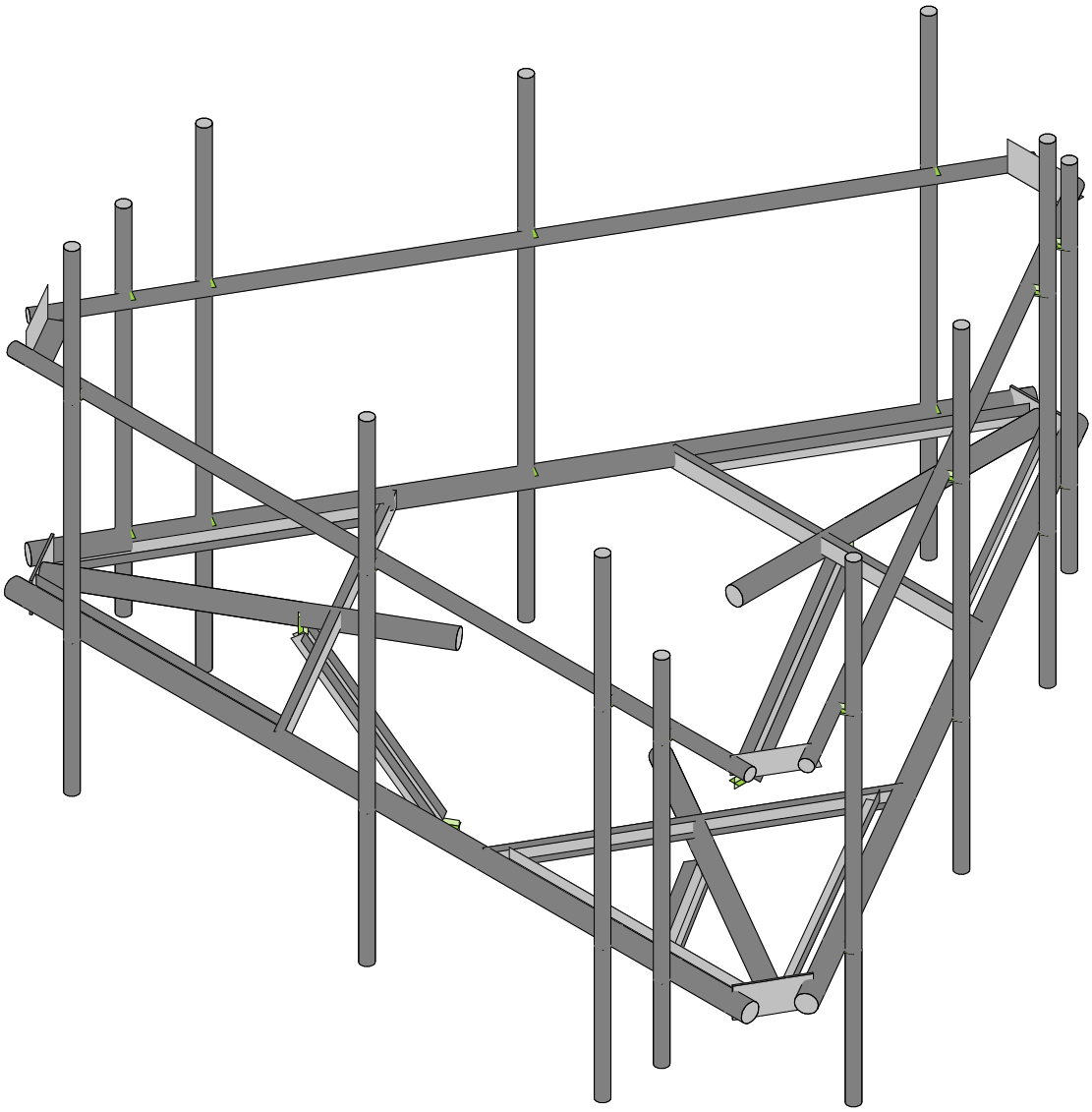

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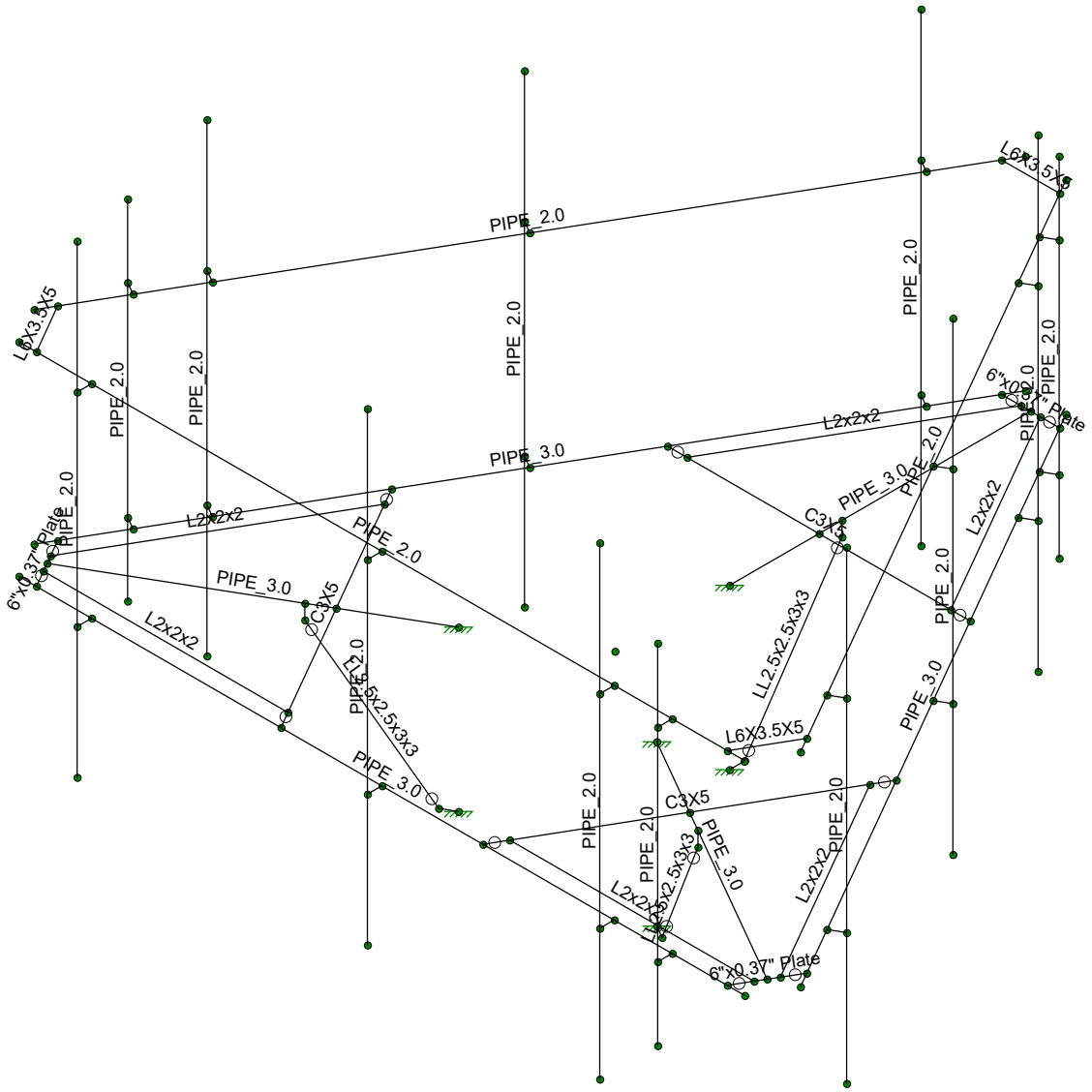

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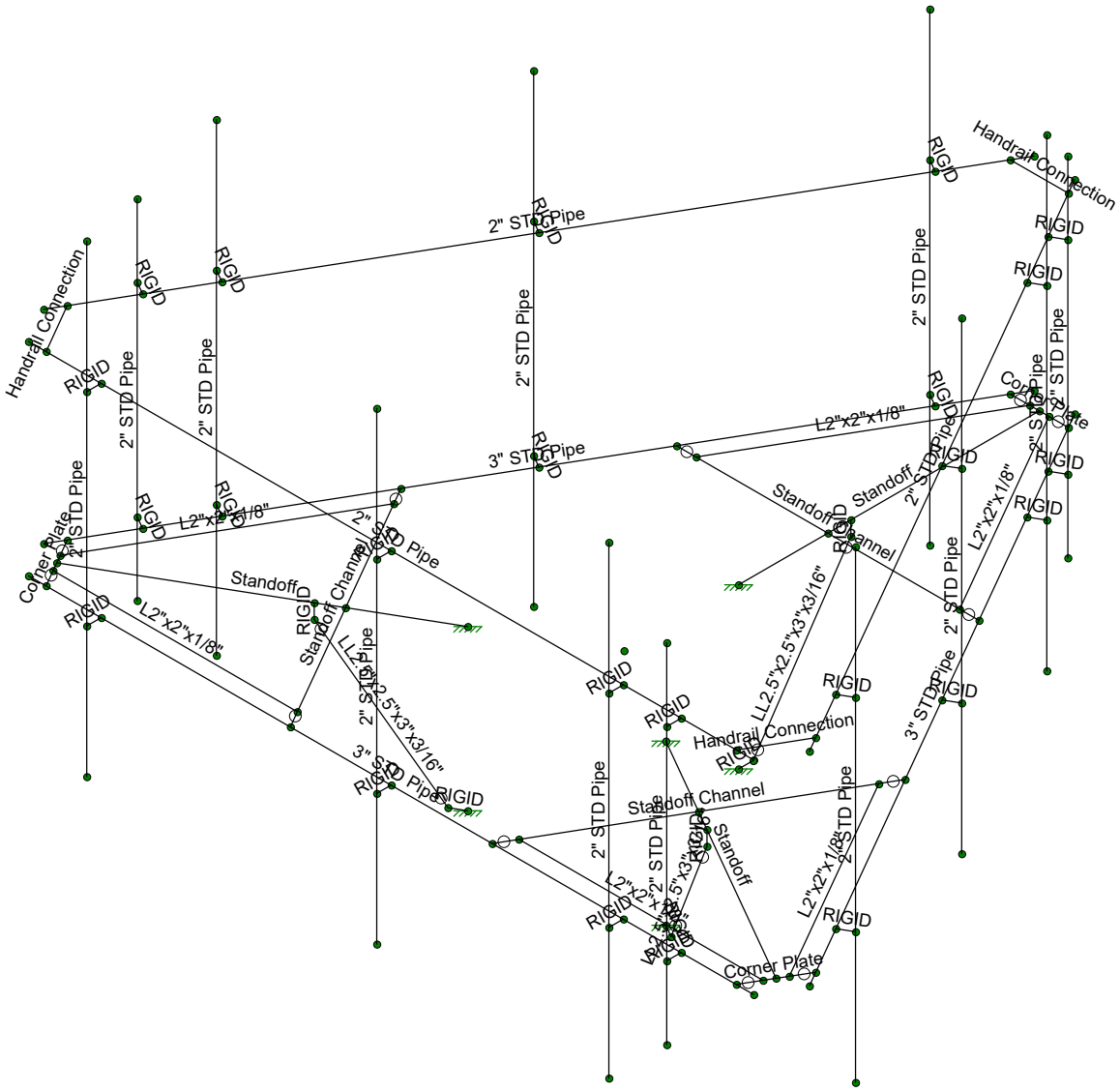

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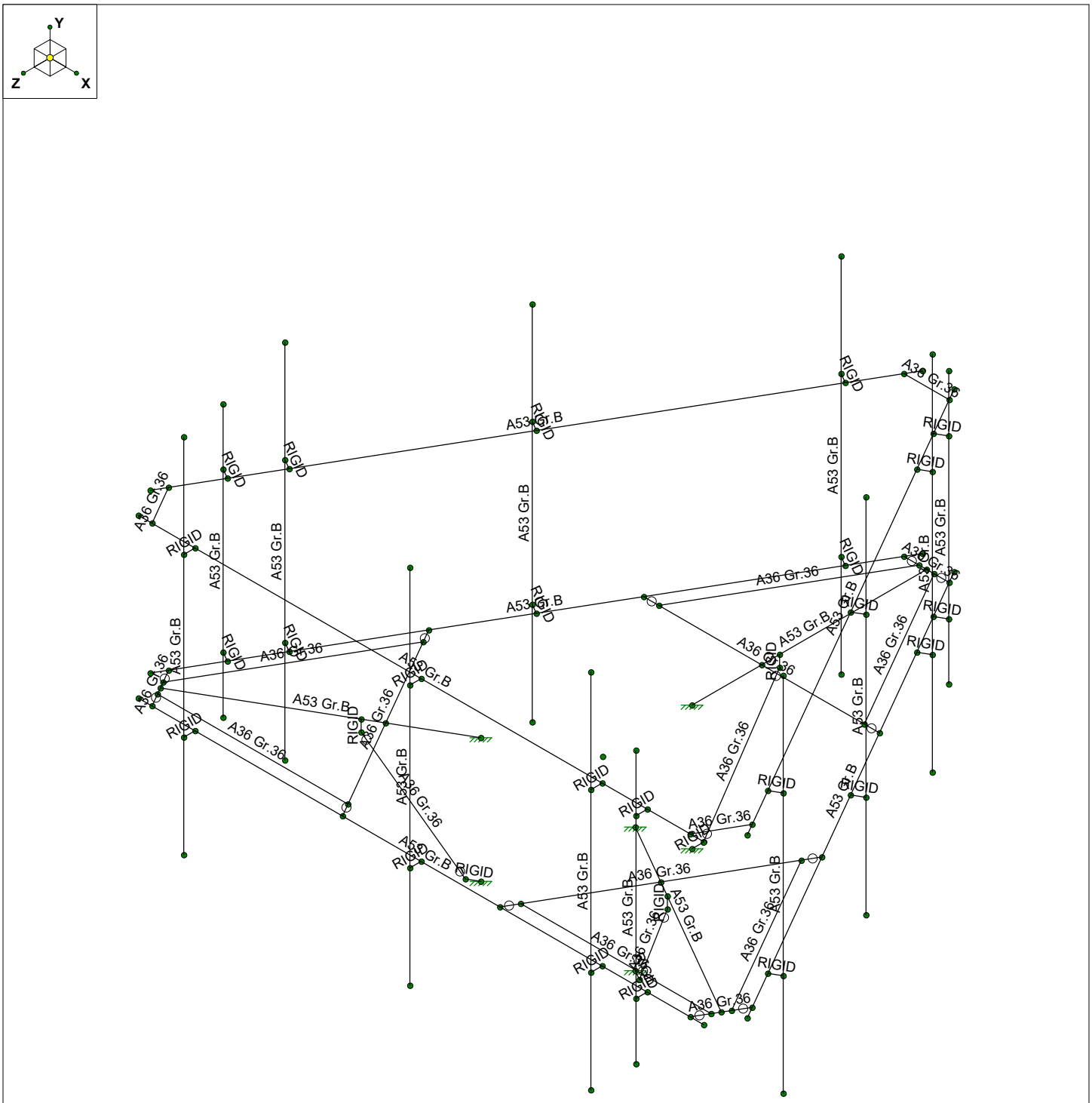

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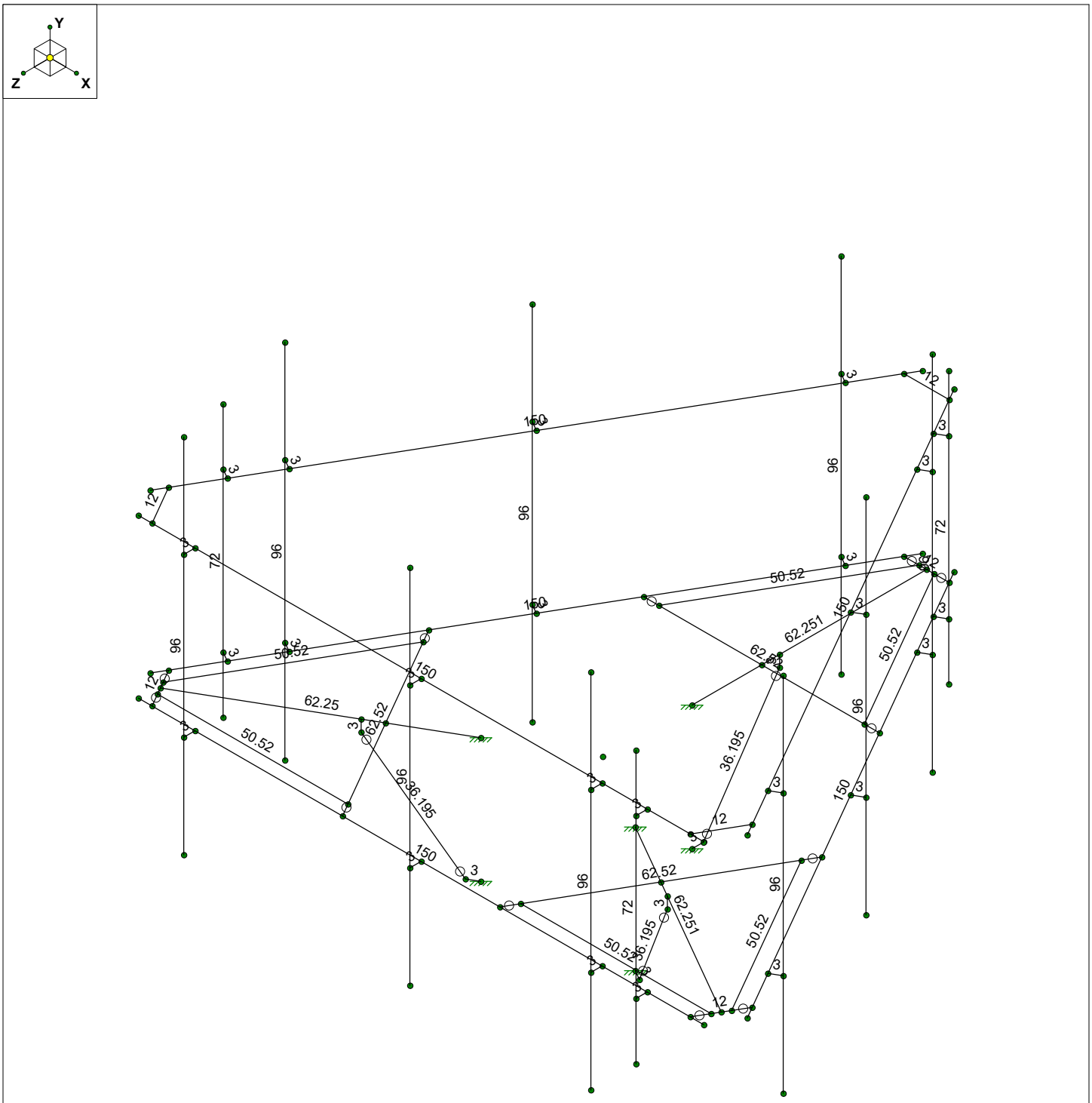

Member Length (in) Displayed

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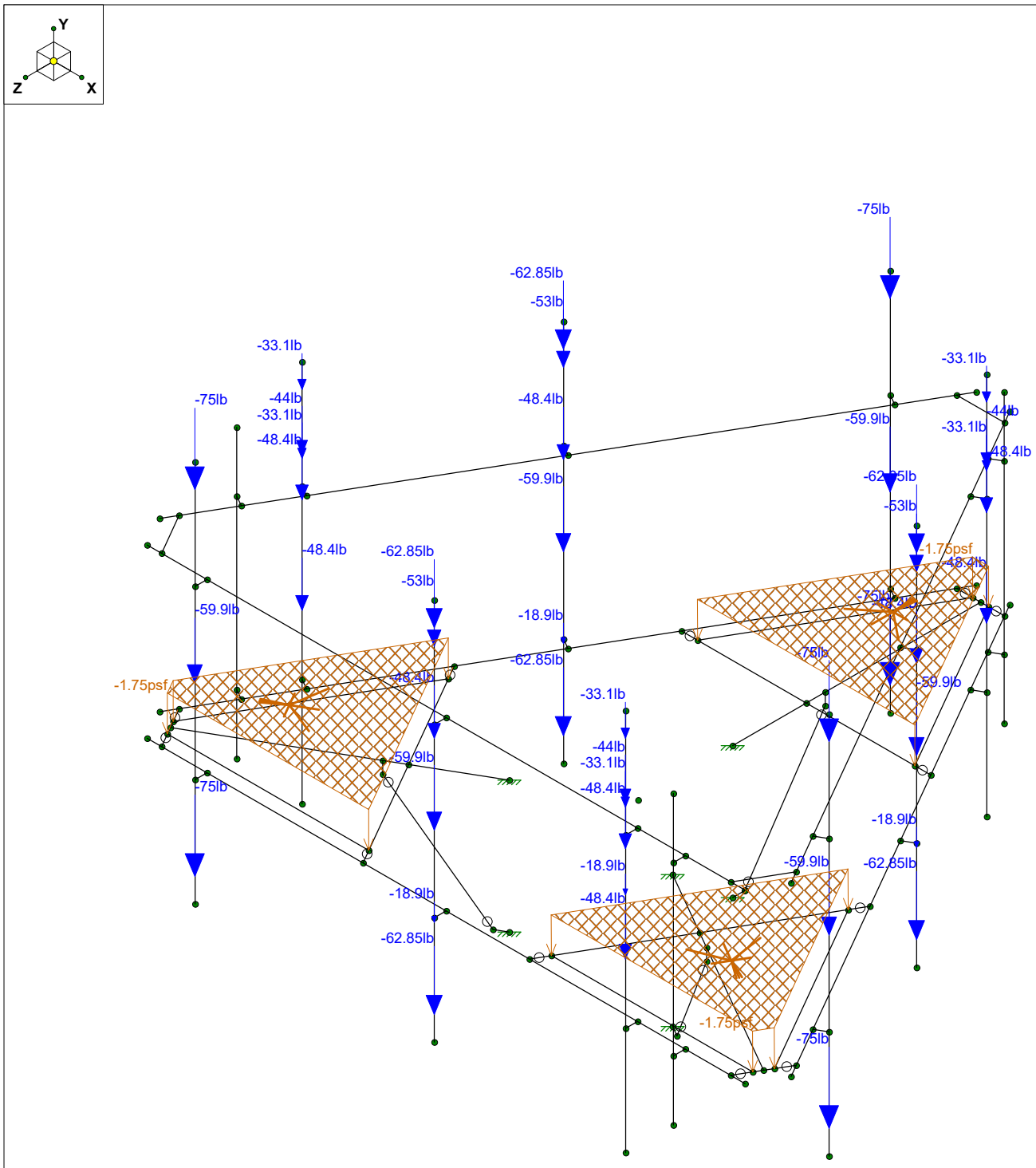

Loads: BLC 1, Self Weight

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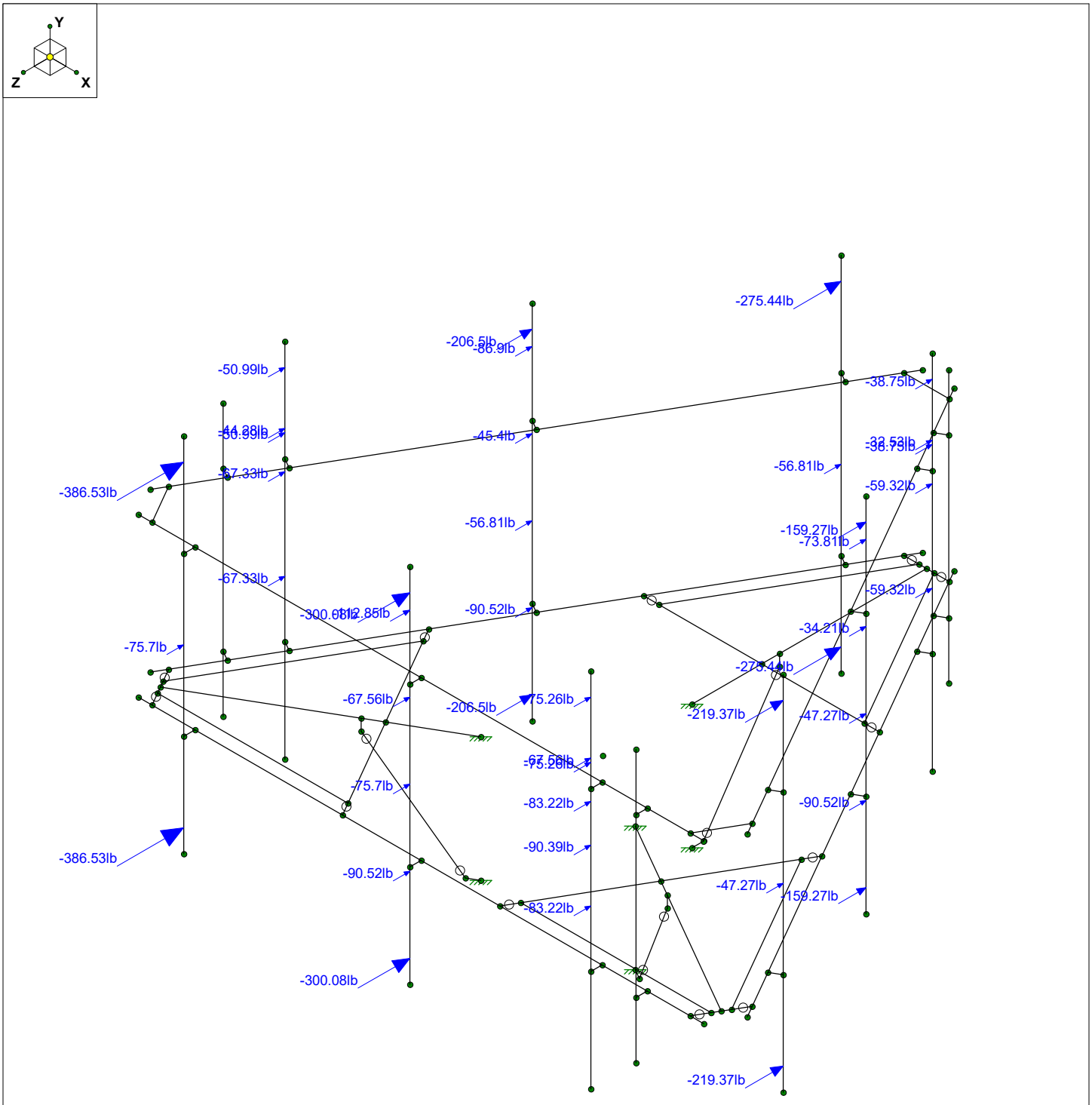
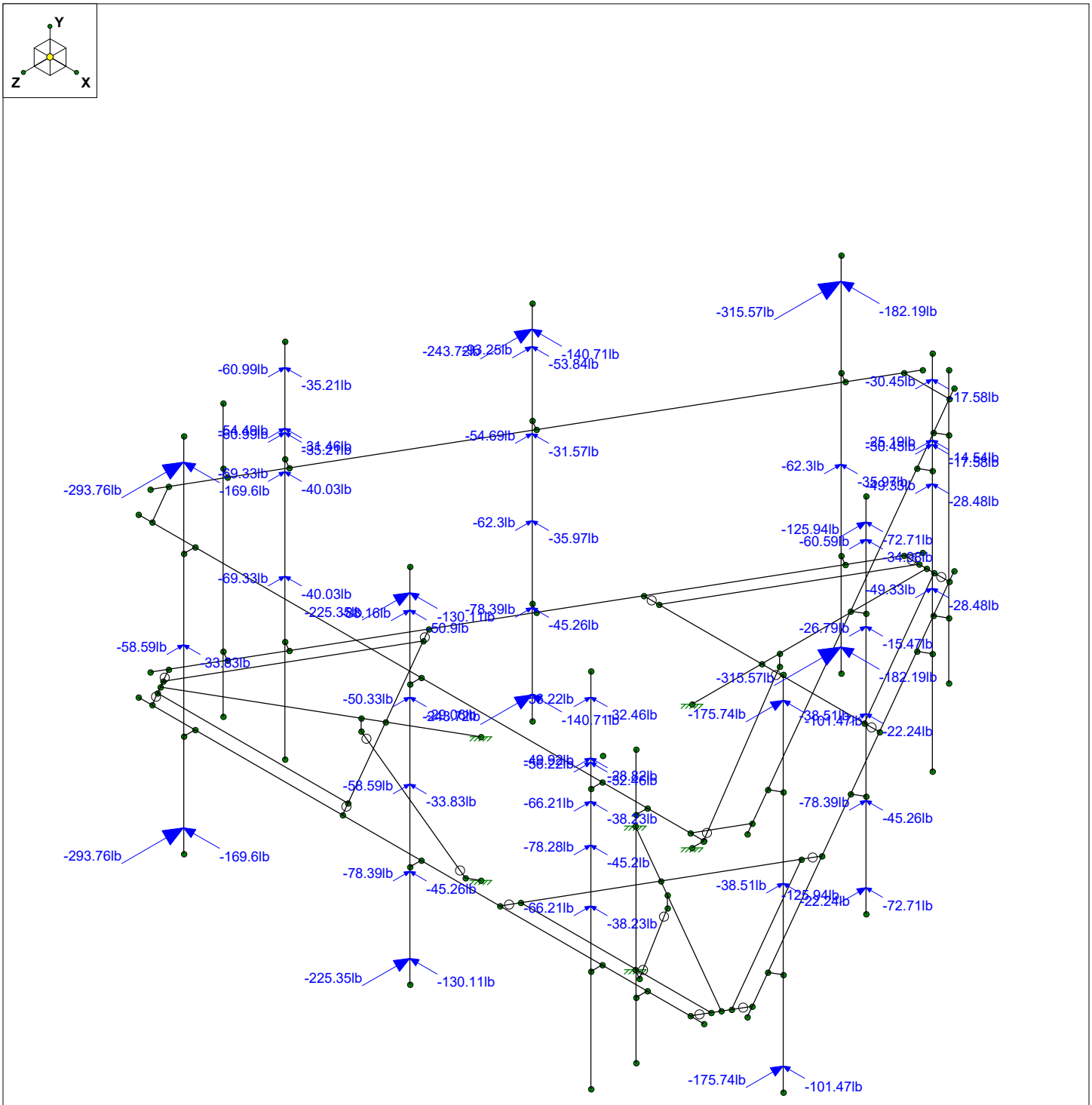


Loads: BLC 2, Wind Load AZI 0

Infinigy Engineering, PLLC.	881534	Wind Loading 0
FA		Nov 19, 2021 at 11:09 AM
1039-Z0001-B		881534_loaded.r3d



Loads: BLC 3, Wind Load AZI 30

Infinigy Engineering, PLLC.	881534	Wind Loading 30
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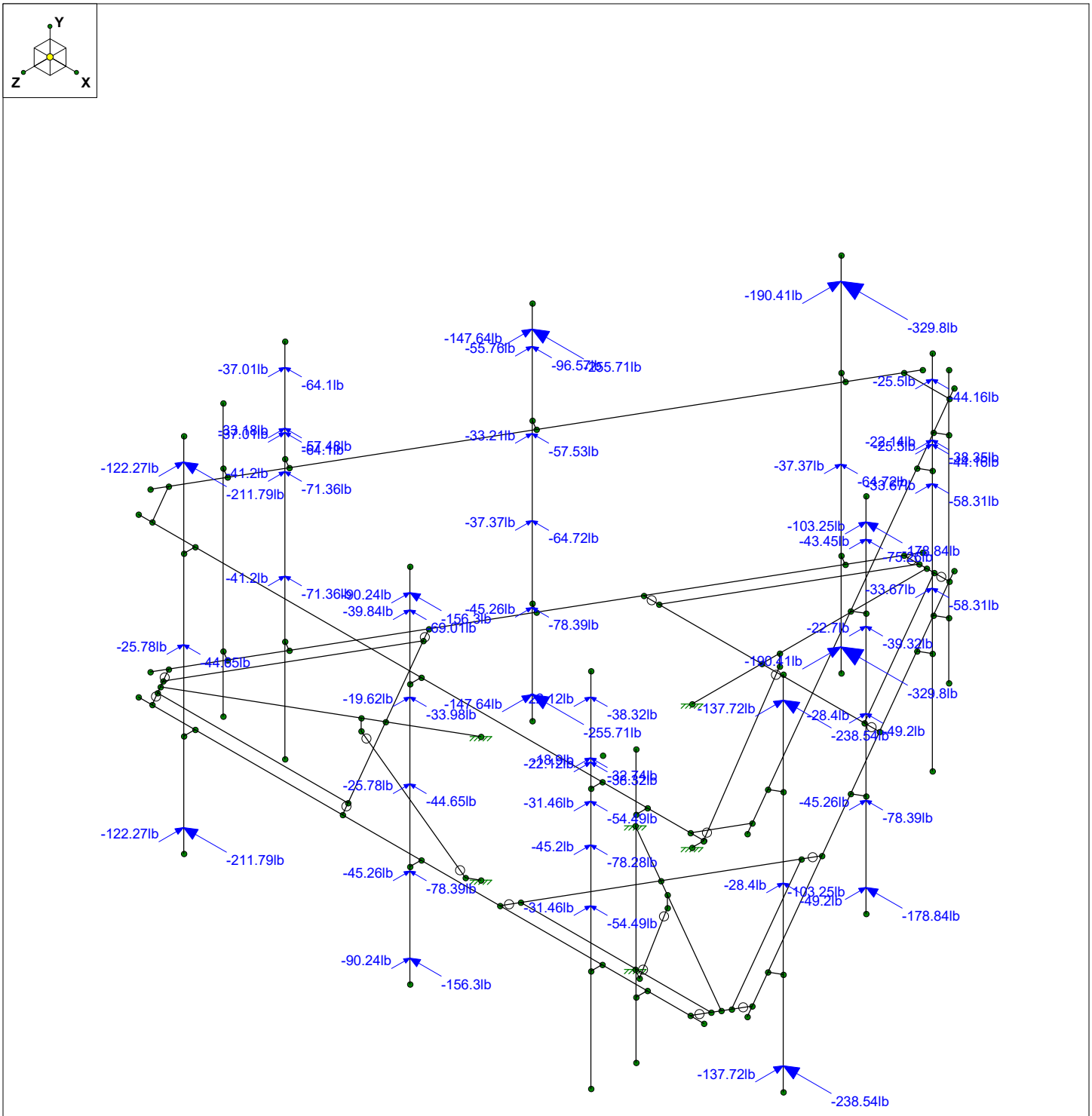

Loads: BLC 4, Wind Load AZI 60

Infinigy Engineering, PLLC.	881534	Wind Loading 60
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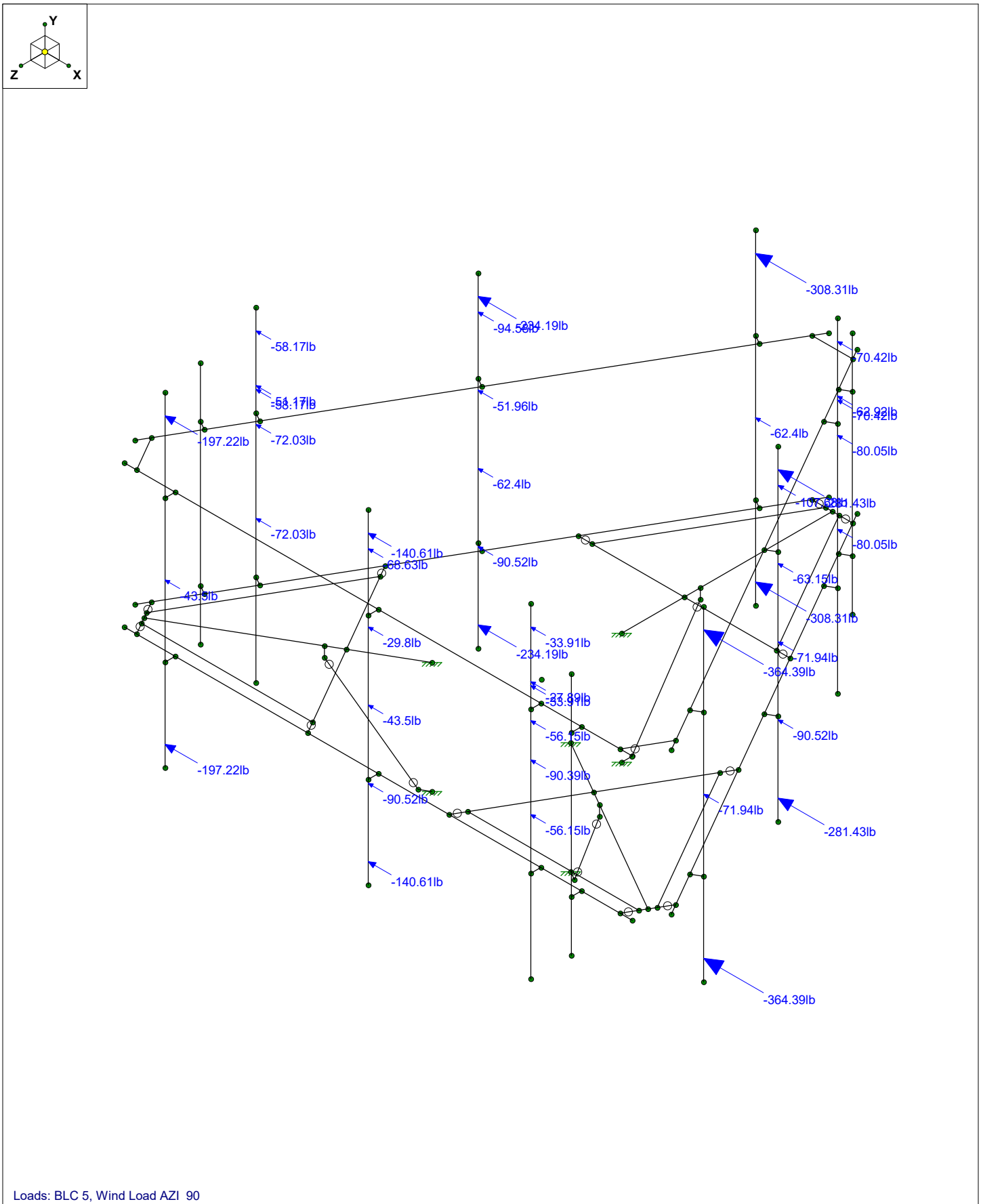

Loads: BLC 5, Wind Load AZI 90

Infinigy Engineering, PLLC.	881534	Wind Loading 90
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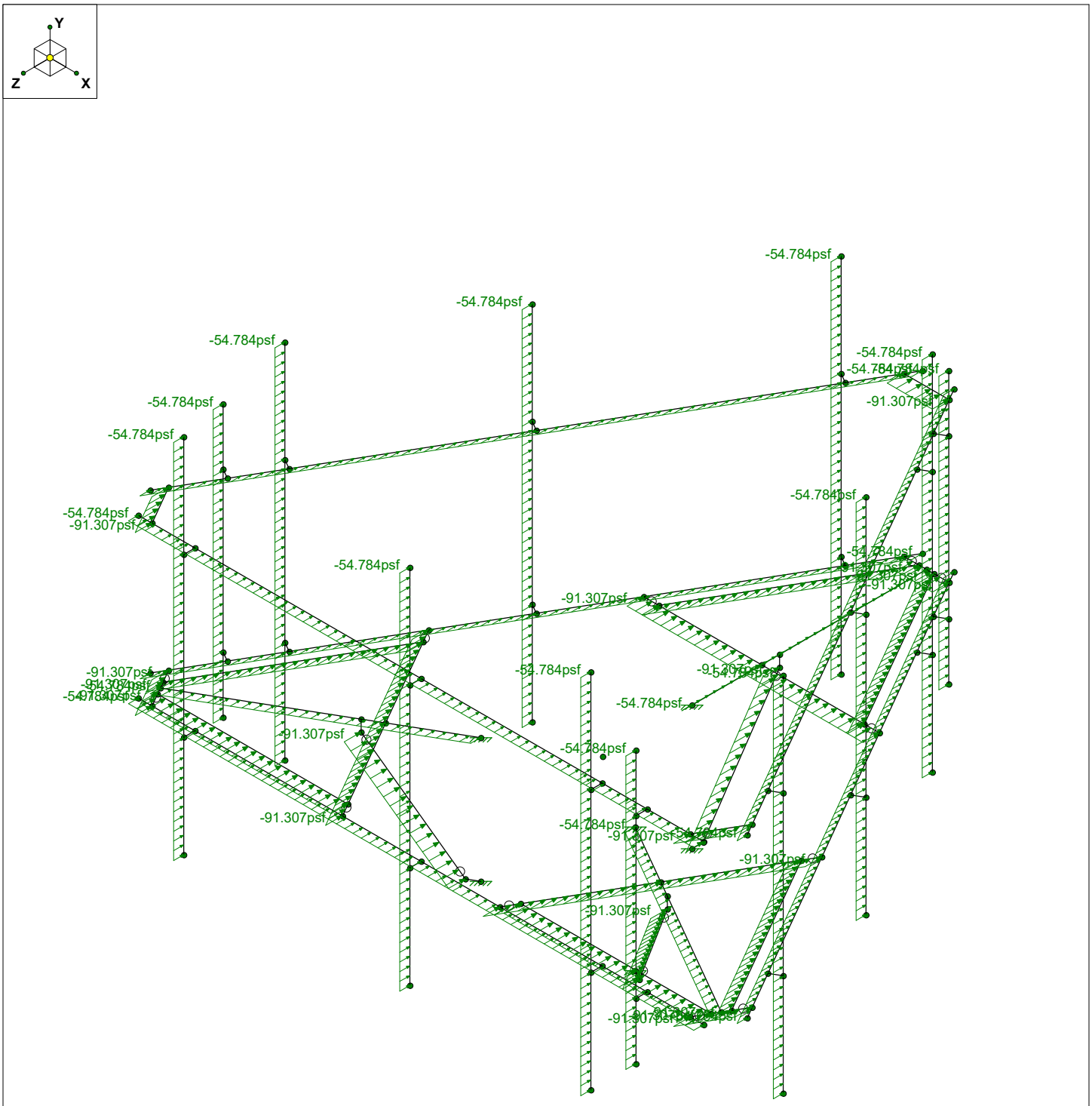

Loads: BLC 14, Distr. Wind Load Z

Infinigy Engineering, PLLC.	881534	Dist. Wind Loading 0
FA		Nov 19, 2021 at 11:09 AM
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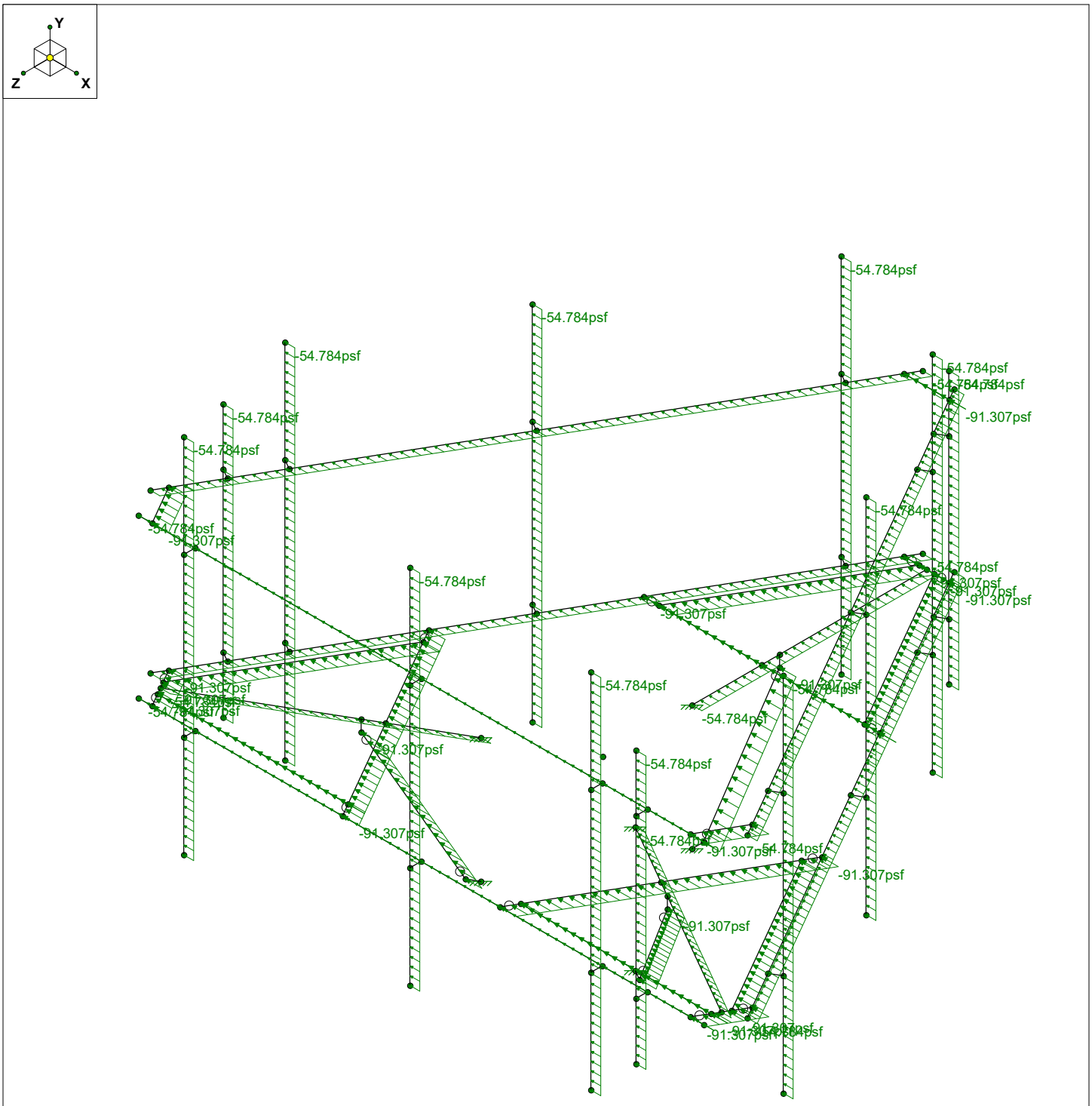

Loads: BLC 15, Distr. Wind Load X

Infinigy Engineering, PLLC.	881534	Dist. Wind Loading 90
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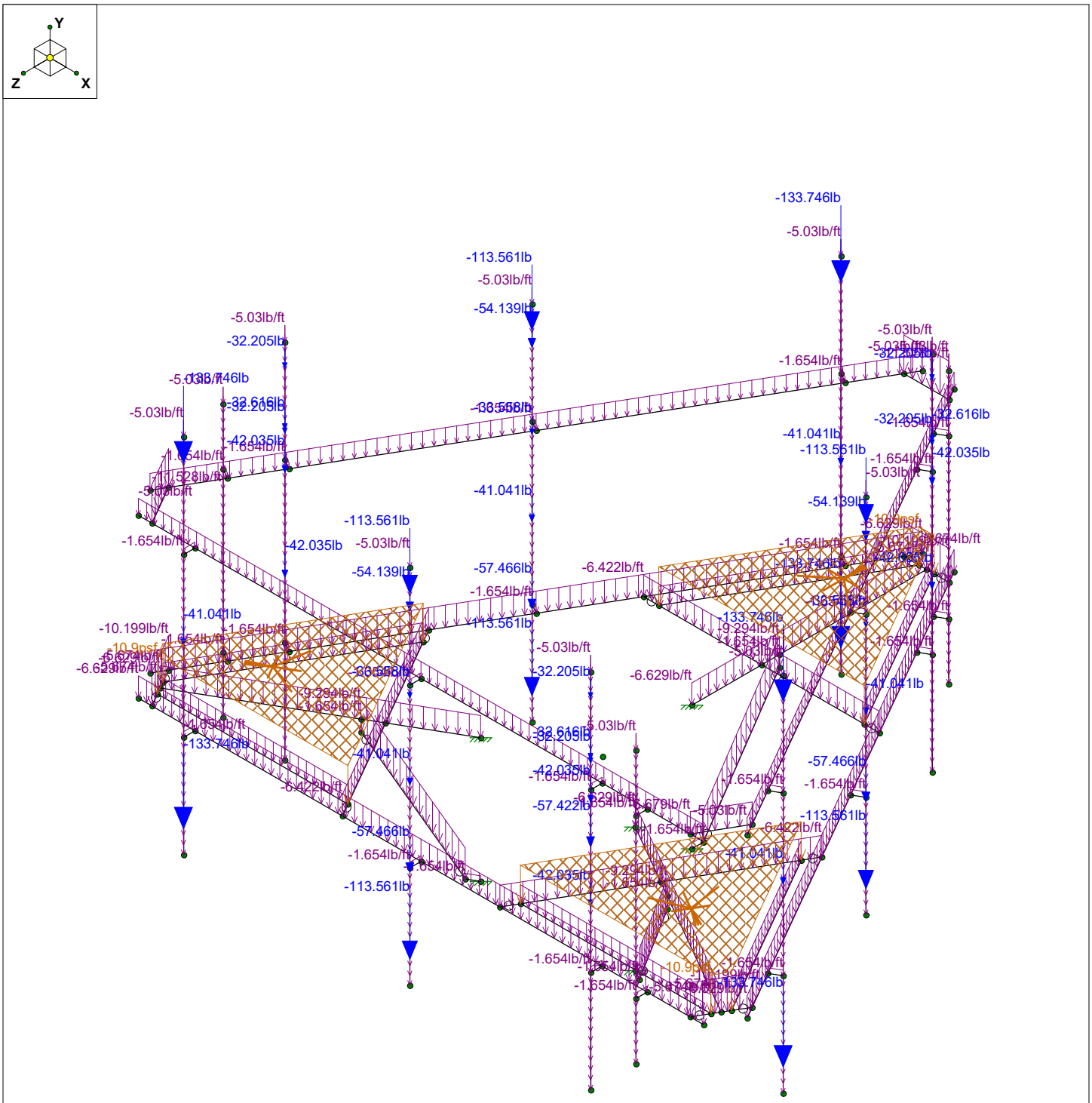

Loads: BLC 16, Ice Weight

Infinigy Engineering, PLLC.	881534	Ice Weight
FA		Nov 19, 2021 at 11:10 AM
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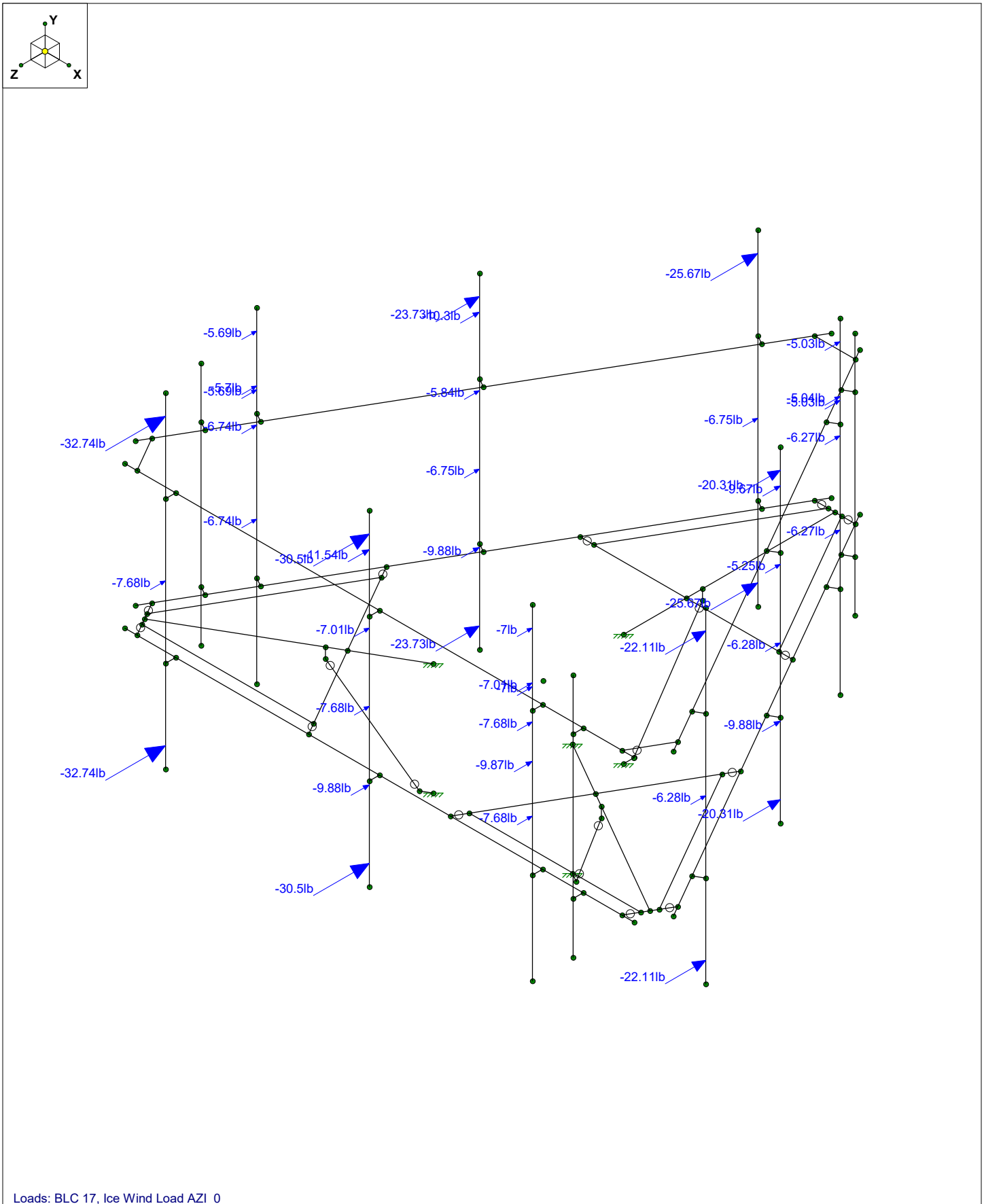

Loads: BLC 17, Ice Wind Load AZI 0

Infinigy Engineering, PLLC.	881534	Ice Wind Loading 0
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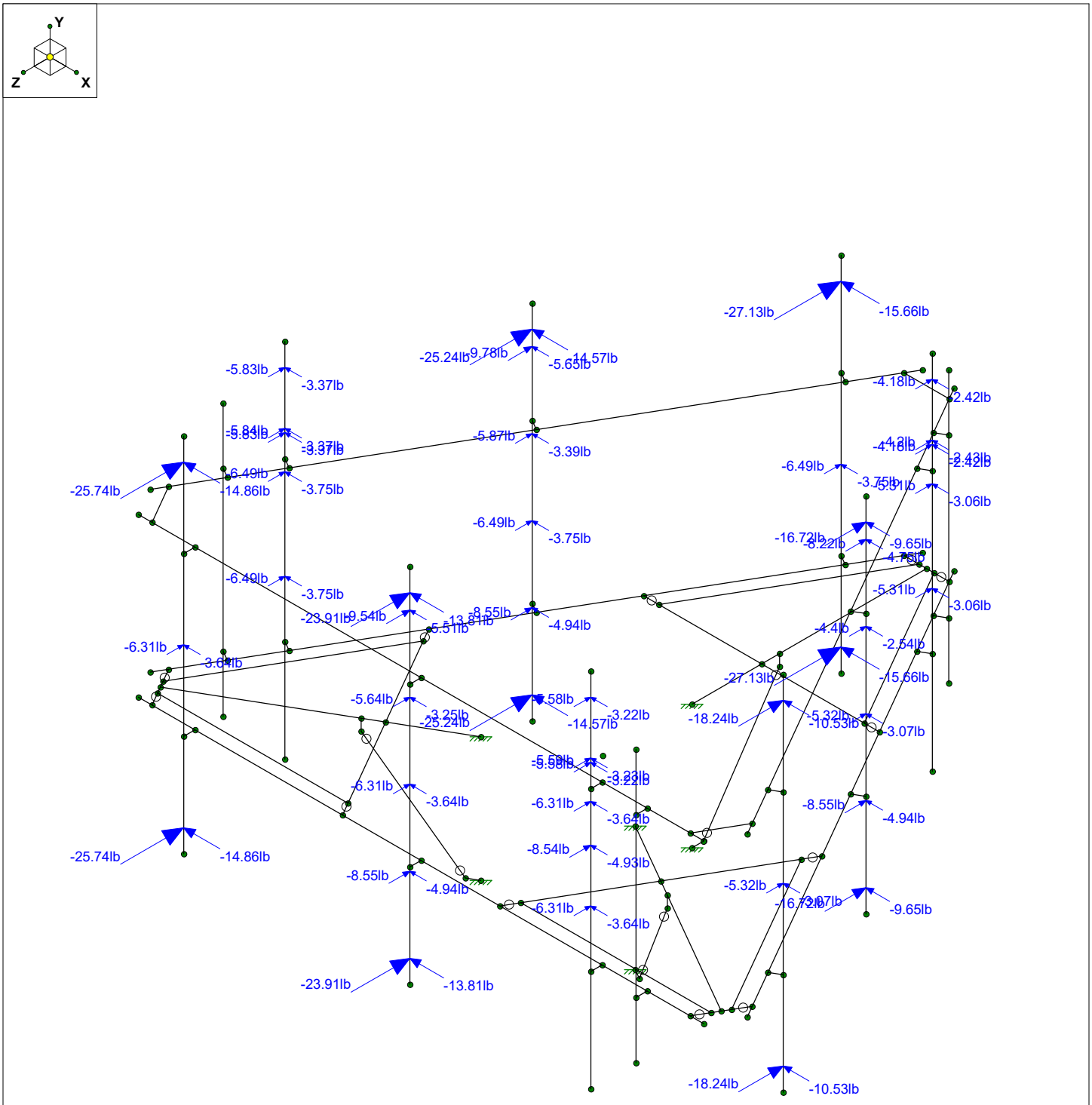
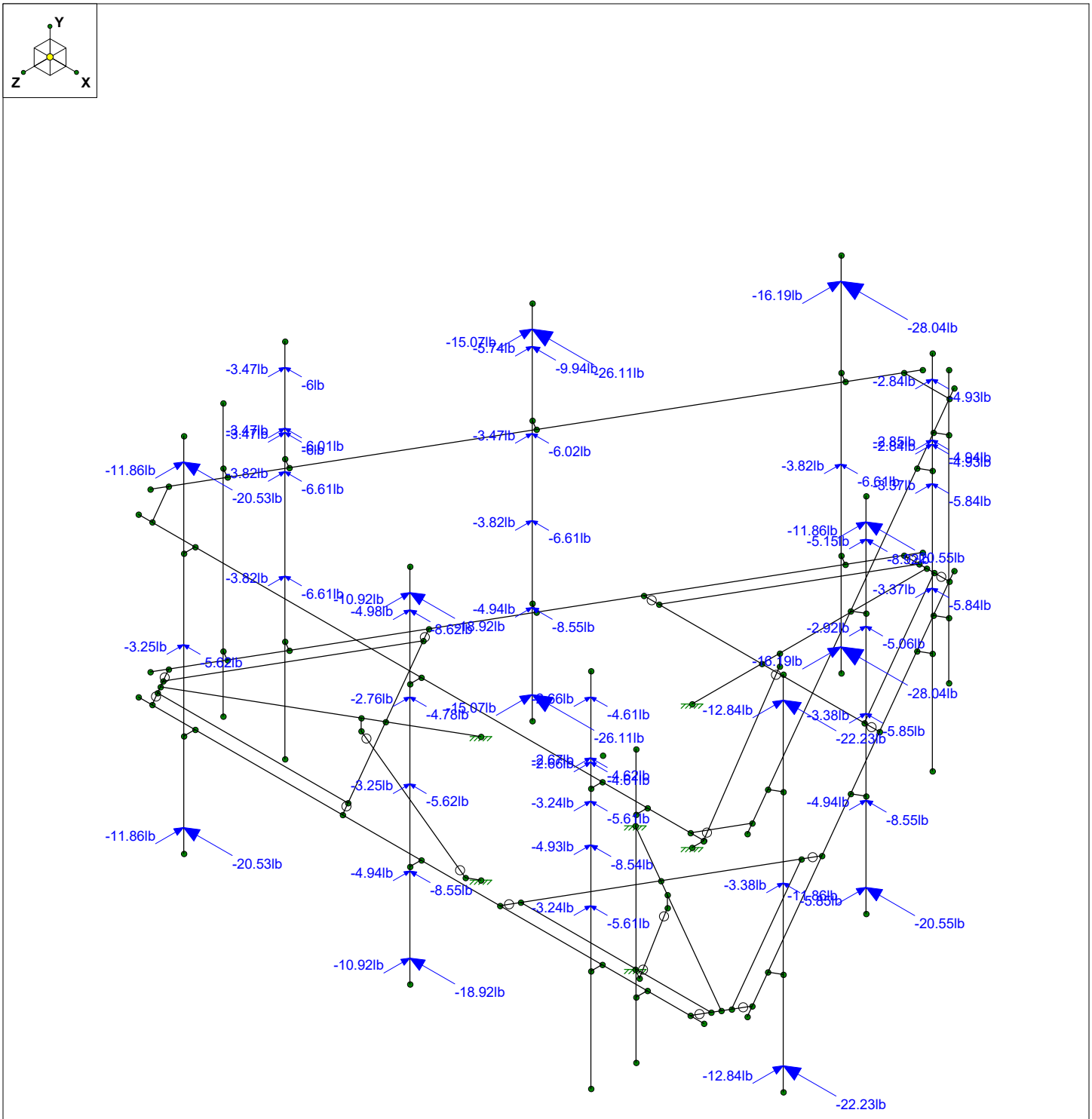


Loads: BLC 18, Ice Wind Load AZI 30

Infinigy Engineering, PLLC.	881534	Ice Wind Loading 30
FA		Nov 19, 2021 at 11:10 AM
1039-Z0001-B		881534_loaded.r3d



Loads: BLC 19, Ice Wind Load AZI 60

Infinigy Engineering, PLLC.	881534	Ice Wind Loading 60
FA		Nov 19, 2021 at 11:10 AM
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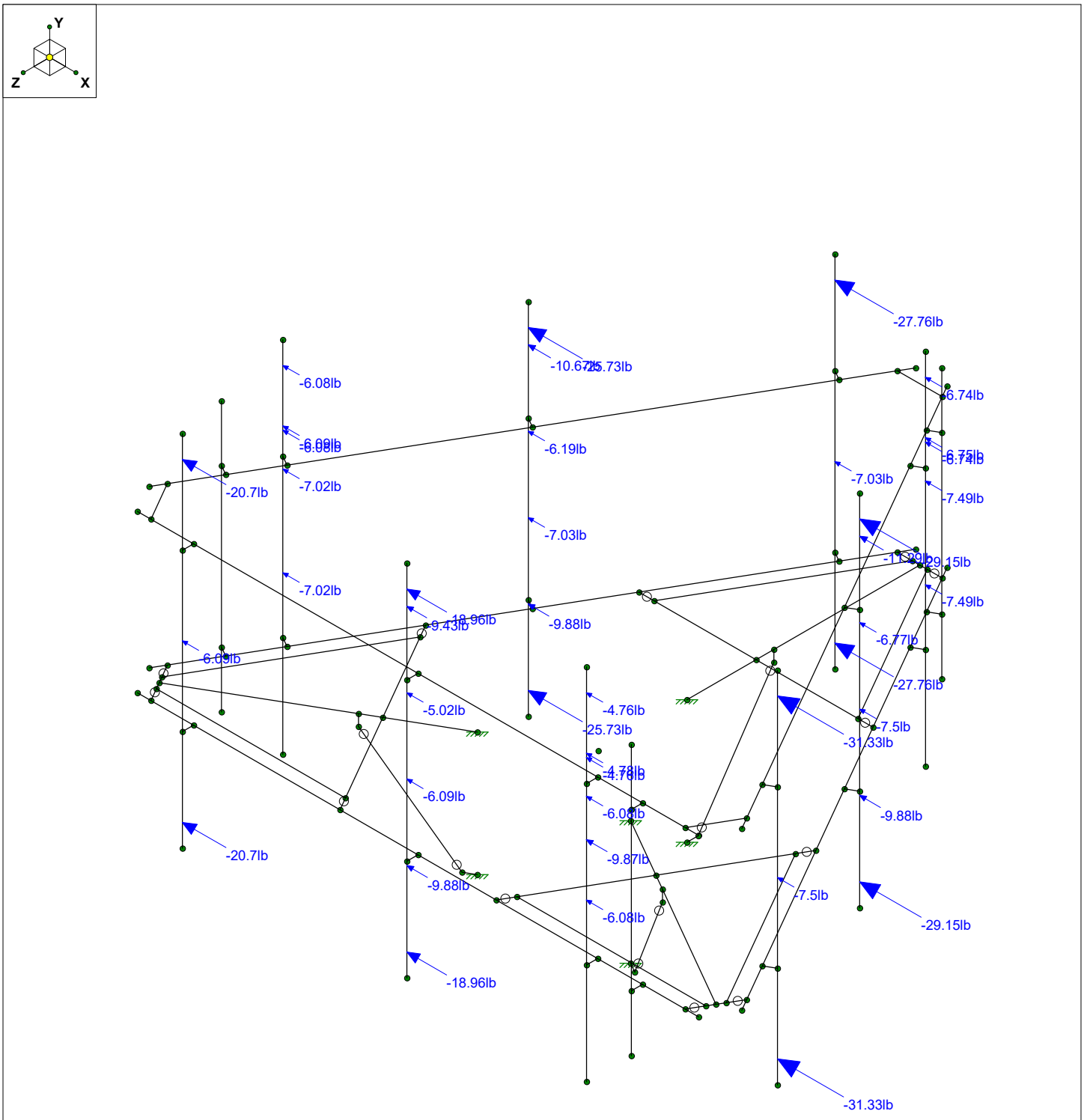

Loads: BLC 20, Ice Wind Load AZI 90

Infinigy Engineering, PLLC.	881534	Ice Wind Loading 90
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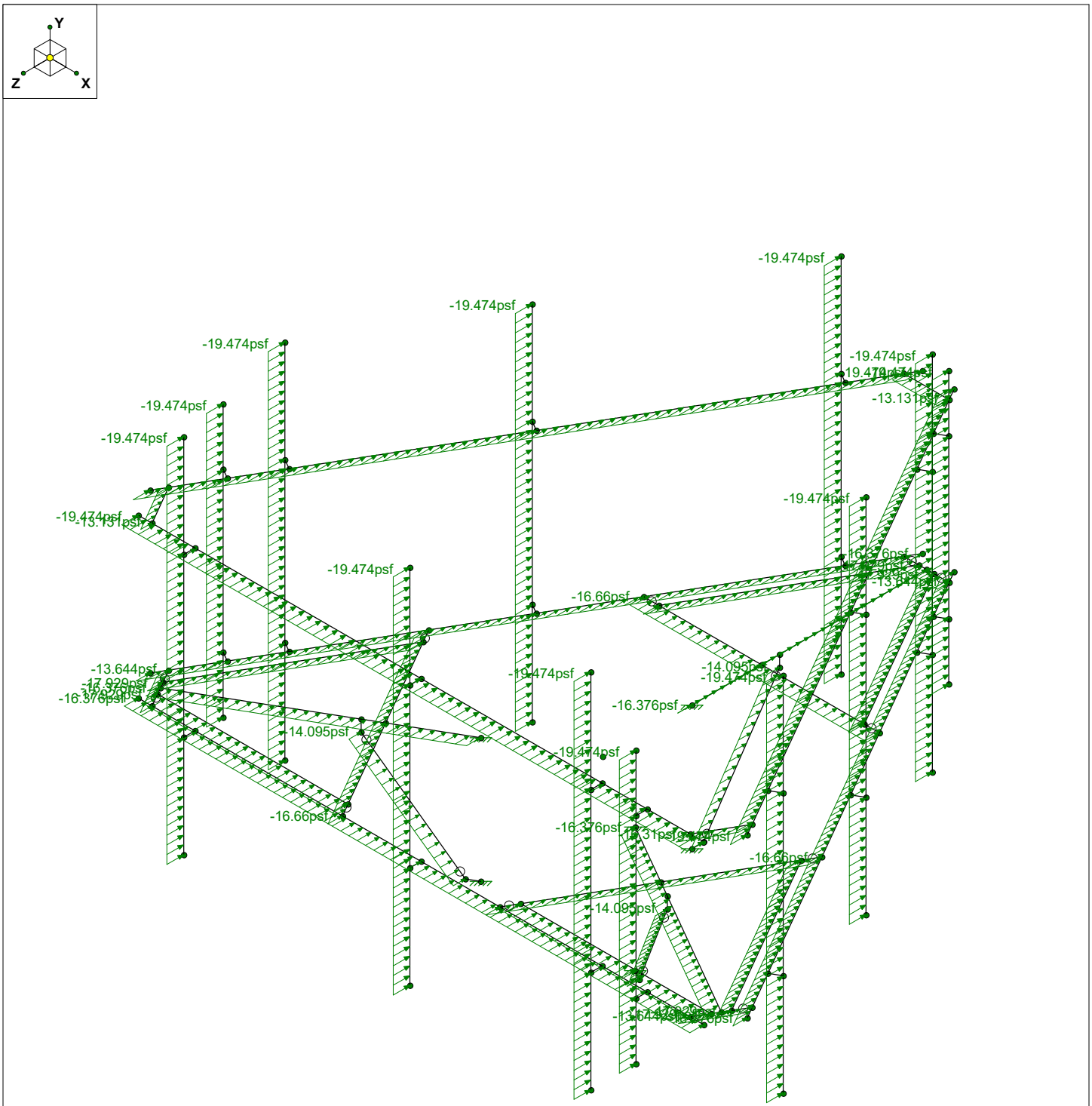

Loads: BLC 29, Distr. Ice Wind Load Z

Infinigy Engineering, PLLC.	881534	Dist. Ice Wind Loading 0
FA		Nov 19, 2021 at 11:10 AM
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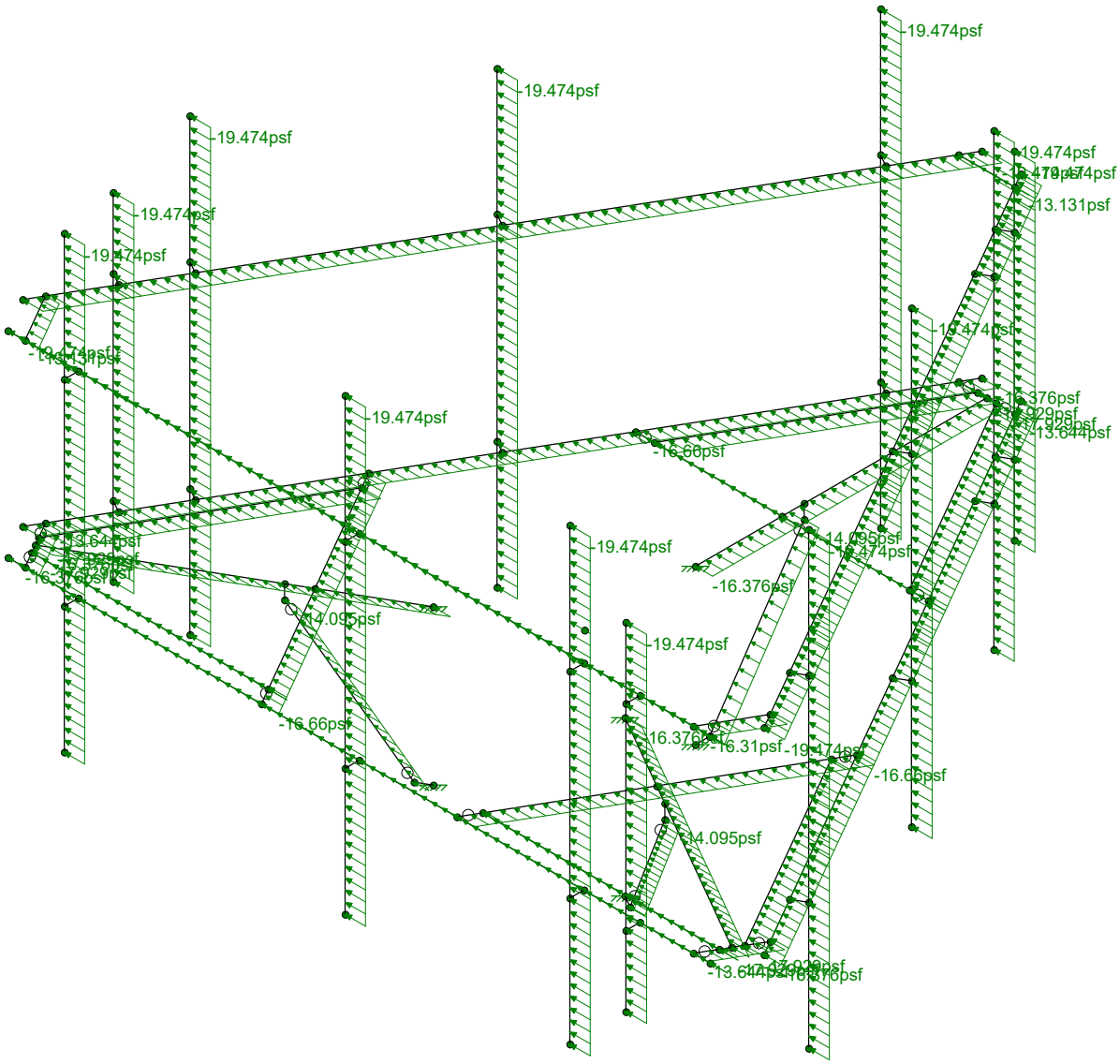

Loads: BLC 30, Distr. Ice Wind Load X

Infinigy Engineering, PLLC.	881534	Dist. Ice Wind Loading 90
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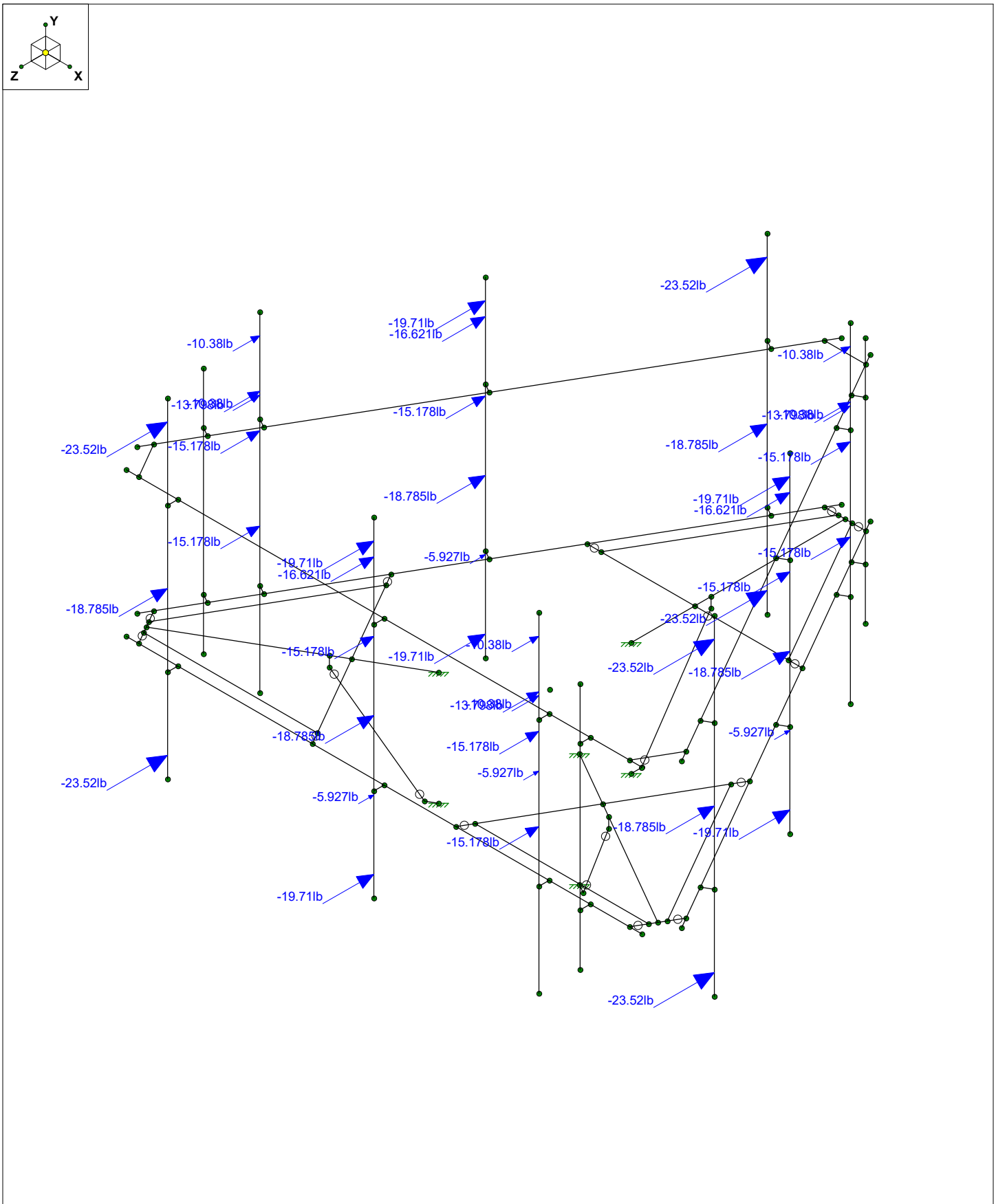
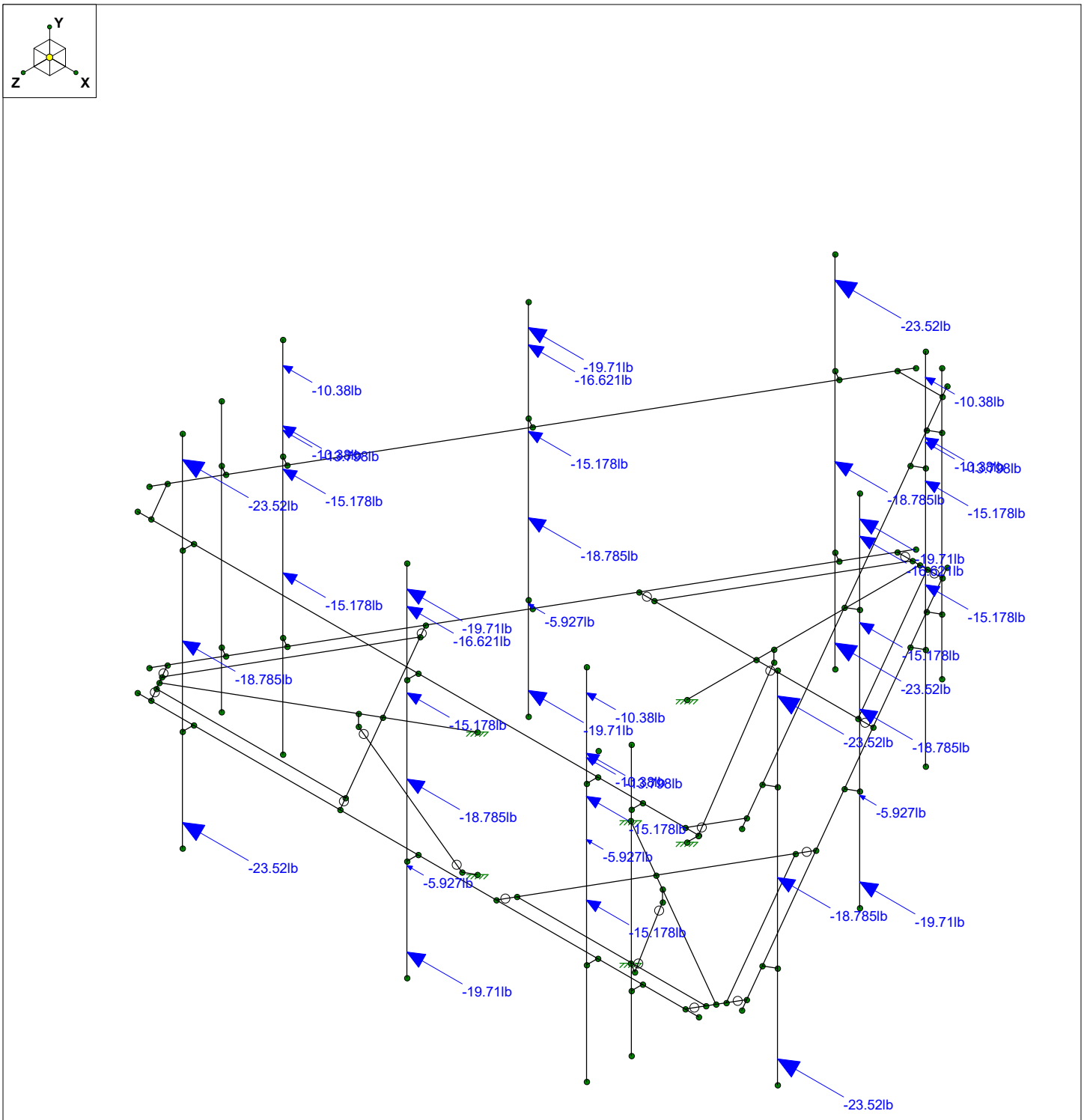


Loads: BLC 31, Seismic Load Z

Infinigy Engineering, PLLC.	881534	Seismic Loading 0
FA		Nov 19, 2021 at 11:10 AM
1039-Z0001-B		881534_loaded.r3d



Loads: BLC 32, Seismic Load X

Infinigy Engineering, PLLC.	881534	Seismic Loading 90
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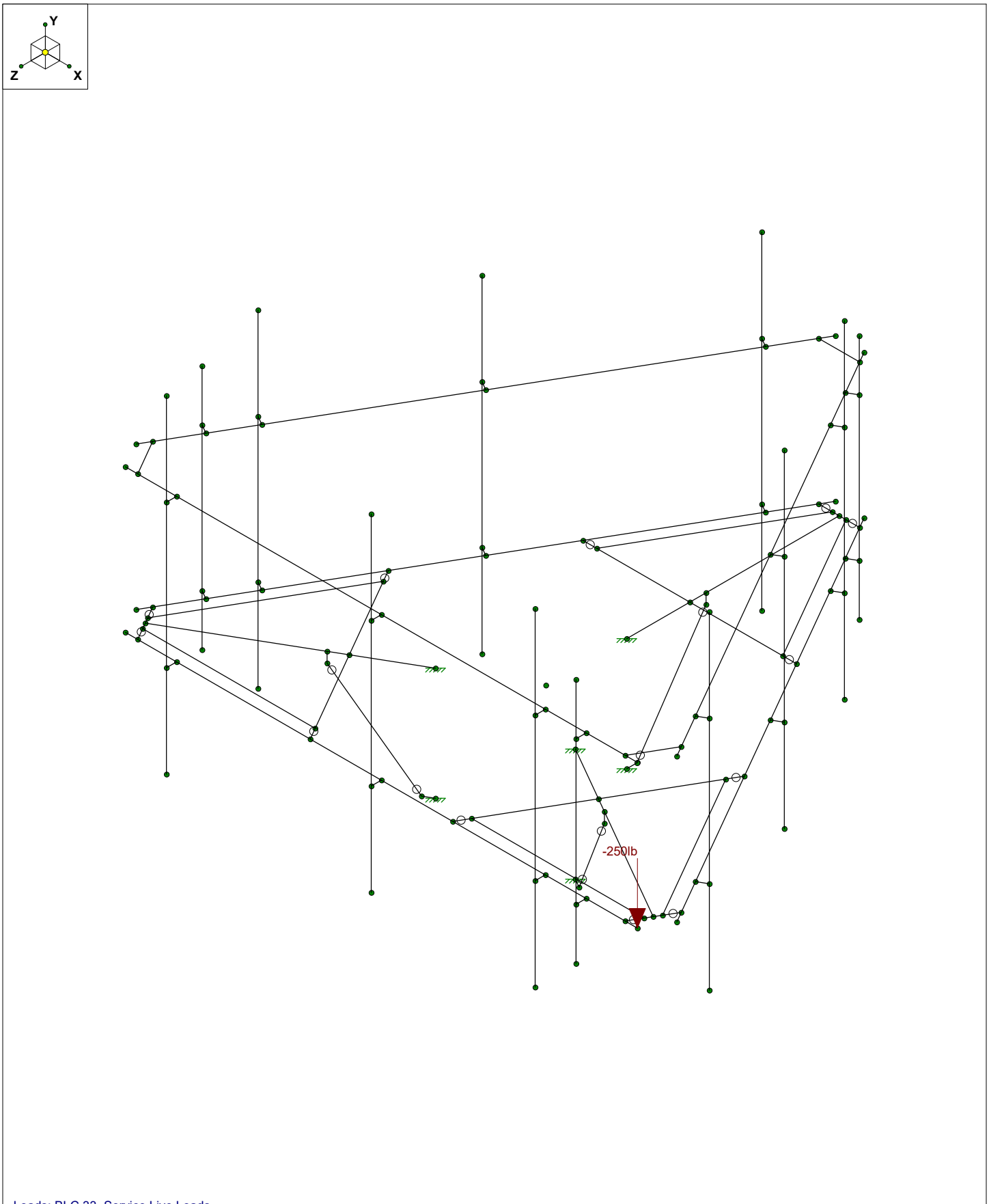
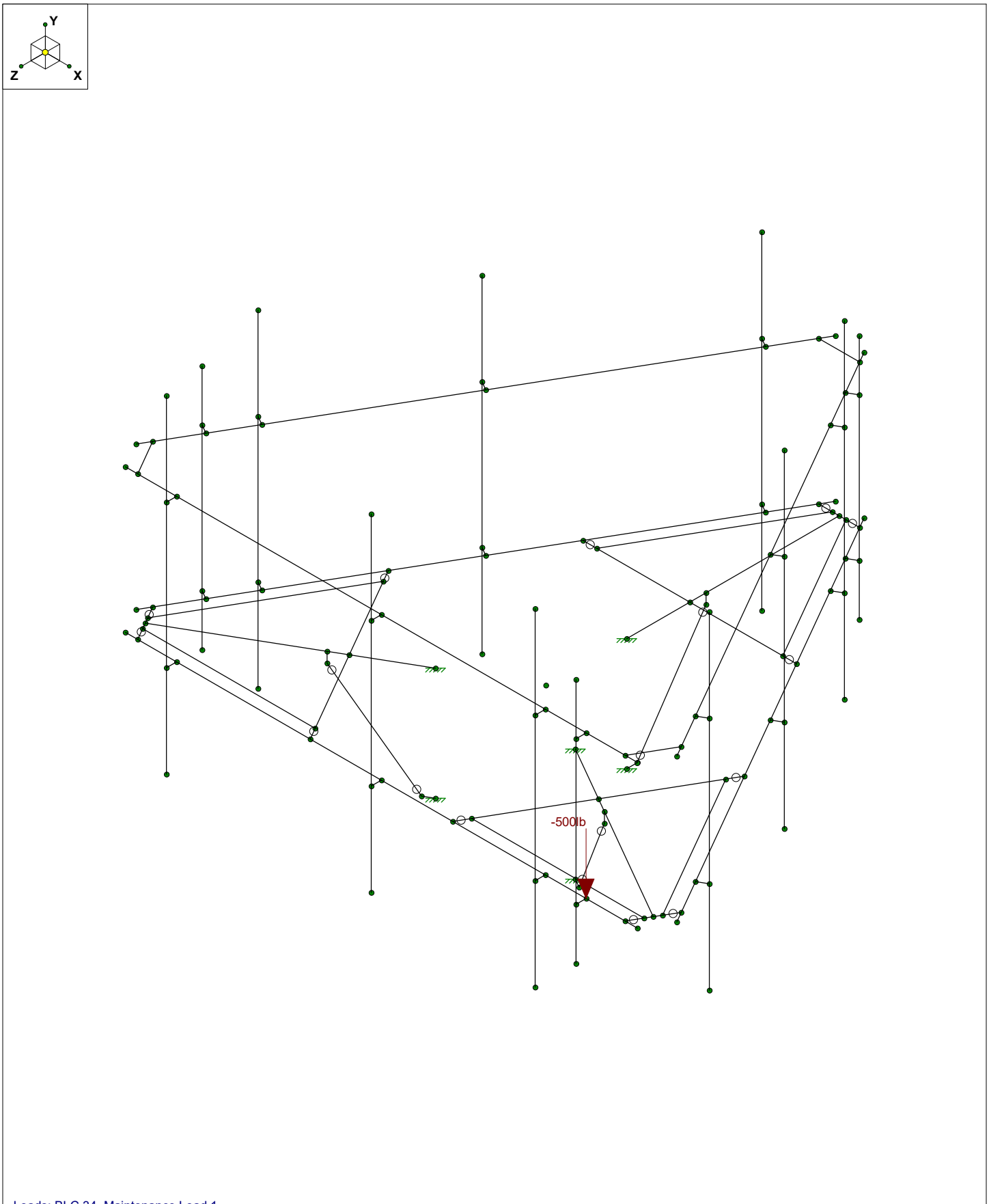
1039-Z0001-B		881534_loaded.r3d



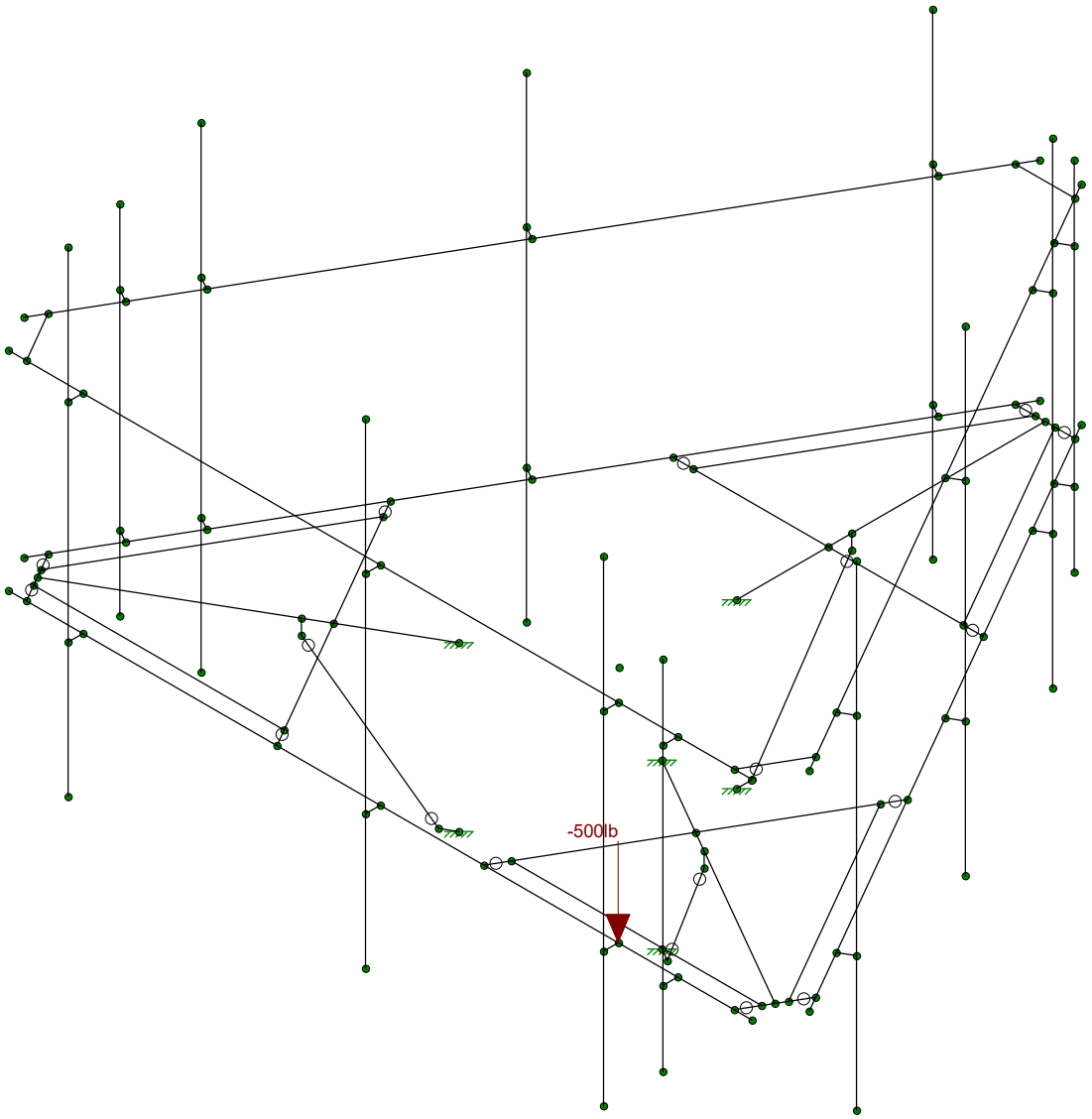
Loads: BLC 33, Service Live Loads

Infinigy Engineering, PLLC.	881534	Service
FA		Nov 19, 2021 at 11:11 AM
1039-Z0001-B		881534_loaded.r3d



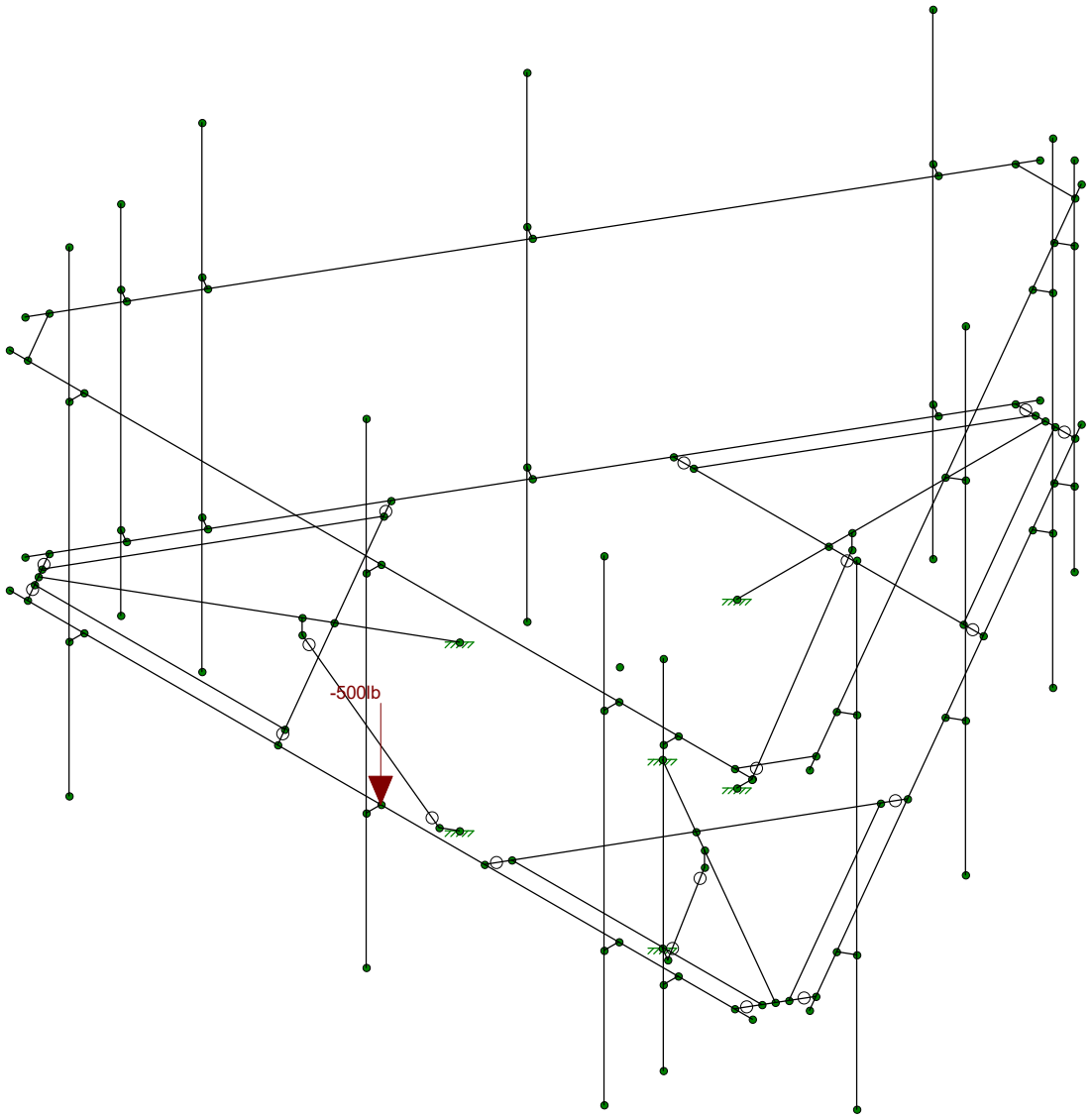
Loads: BLC 34, Maintenance Load 1

Infinigy Engineering, PLLC.	881534	Maintenance Load 1
FA		Nov 19, 2021 at 11:11 AM
1039-Z0001-B		881534_loaded.r3d



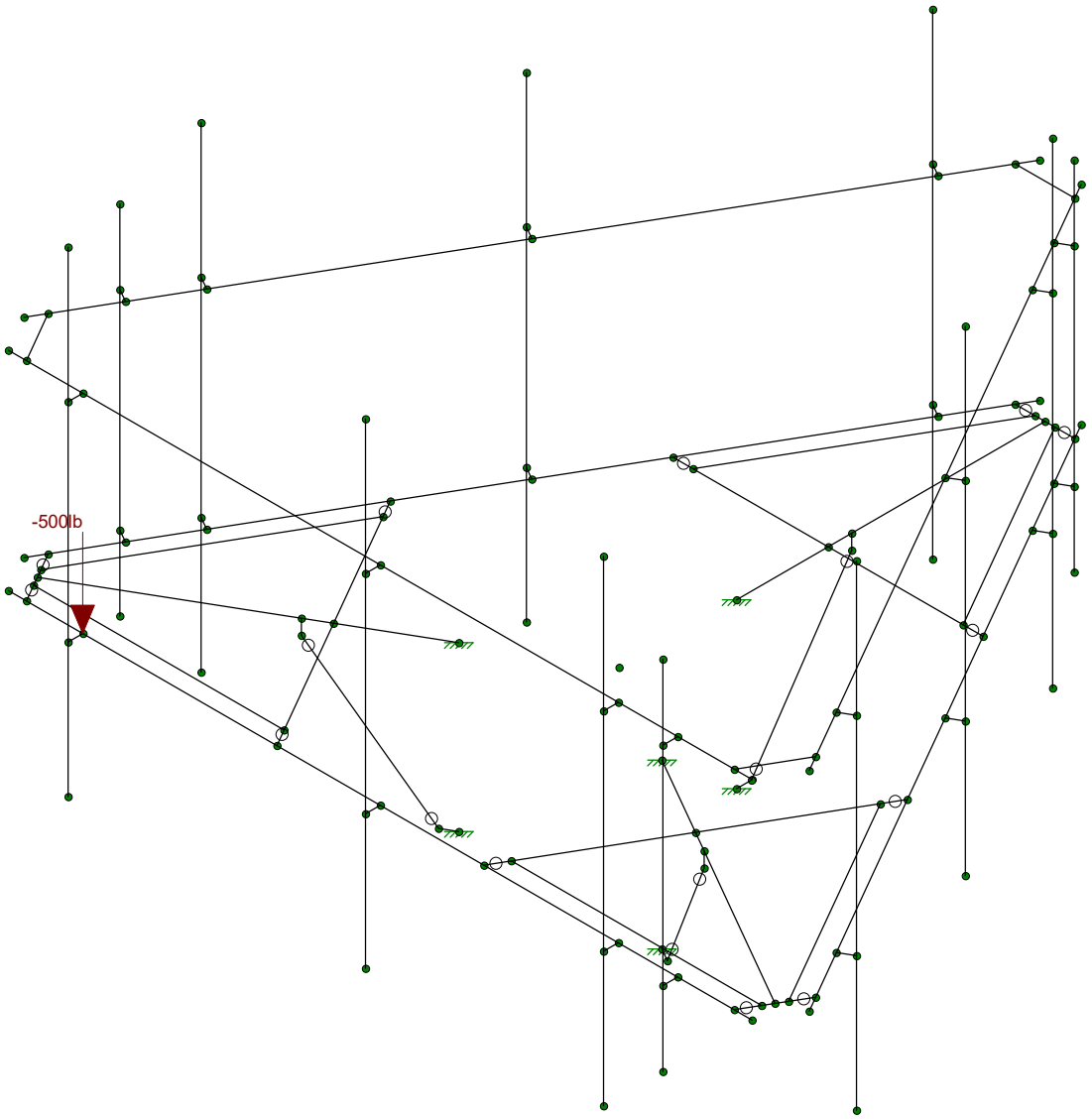
Loads: BLC 35, Maintenance Load 2

Infinigy Engineering, PLLC.	881534	Maintenance Load 2
FA		Nov 19, 2021 at 11:11 AM
1039-Z0001-B		881534_loaded.r3d



Loads: BLC 36, Maintenance Load 3

Infinigy Engineering, PLLC.	881534	Maintenance Load 3
FA		Nov 19, 2021 at 11:11 AM
1039-Z0001-B		881534_loaded.r3d



Loads: BLC 37, Maintenance Load 4

Infinigy Engineering, PLLC.	881534	Maintenance Load 4
FA		Nov 19, 2021 at 11:11 AM
1039-Z0001-B		881534_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	AT&T Mobility
Engineer:	Farhad Ahmadyar

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	612.55	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	150.00	ft
Tower Height AGL:	150.00	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):	0.978	*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}):	118	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1	in
Flat Pressure:	91.307	psf
Round Pressure:	54.784	psf
Ice Wind Pressure:	9.836	psf

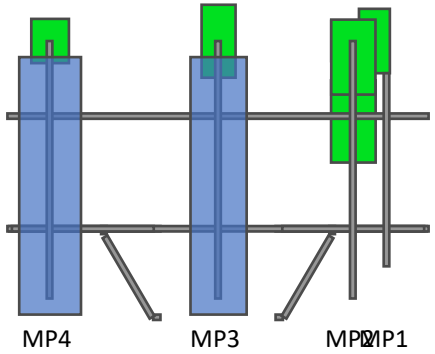
SEISMIC DATA		
Short-Period Accel. (S_s):	0.196	g
1-Second Accel. (S_1):	0.054	g
Short-Period Design (S_{DS}):	0.209	
1-Second Design (S_{D1}):	0.086	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

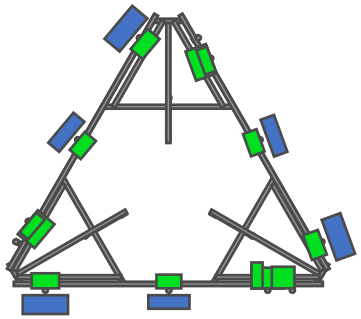
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



Infinigy Load Calculator V2.1.7

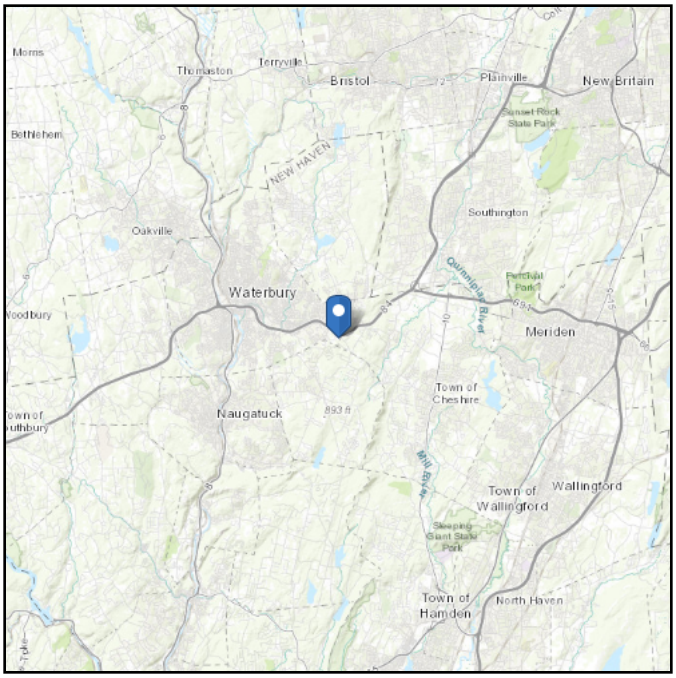
APPURTENANCE INFORMATION

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)
ERICSSON AIR 6419 B77G	149.0	3	0.90	45.59	3.67	1.65	150.52	67.82	66.20	20.76	MP2
ERICSSON AIR 6449 N77	150.0	3	0.90	45.65	4.05	2.73	166.44	112.30	96.80	30.36	MP2
KATHREIN 80010966	150.0	3	0.90	45.65	14.61	6.84	600.16	281.23	125.70	39.42	MP3
QUINTEL TECHNOLOGY QD8616-7	150.0	3	0.90	45.65	18.81	9.60	773.06	394.44	150.00	47.04	MP4
ERICSSON TME-RRUS 32 B30	151.0	3	0.90	45.72	2.74	1.67	112.85	68.63	53.00	16.62	MP3
ERICSSON RRUS 4415 B25	150.0	3	0.90	45.65	1.64	0.68	67.56	27.89	44.00	13.80	MP2
ERICSSON RRUS 4426 B66	150.0	3	0.90	45.65	1.64	0.73	67.56	29.80	48.40	15.18	MP3
ERICSSON RRUS 4478 B14	150.0	3	0.90	45.65	1.84	1.06	75.70	43.50	59.90	18.78	MP4
ERICSSON RRUS 4478 B5	150.0	3	0.90	45.65	1.84	1.06	75.70	43.50	59.90	18.78	MP3
RAYCAP DC6-48-60-18-8F	150.0	1	0.90	45.65	2.20	2.20	90.39	90.39	18.90	5.93	MP2
RAYCAP DC6-48-60-18-8F	151.0	3	0.90	45.72	2.20	2.20	90.52	90.52	18.90	5.93	MP3

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	612.55 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.534333
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-72.969



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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:	Thu Nov 18 2021

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.

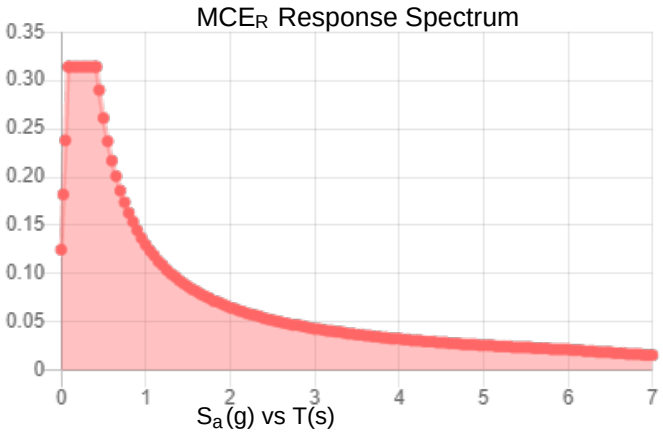
Seismic

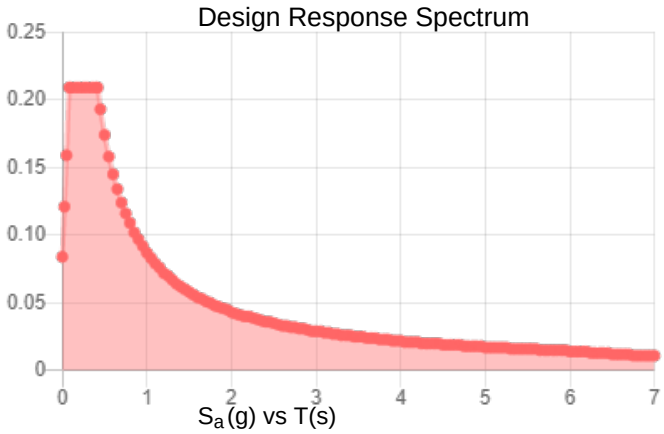
Site Soil Class: D - Default (see Section 11.4.3)

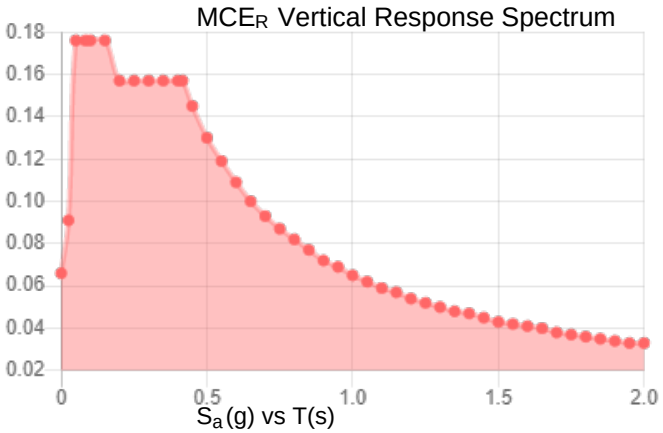
Results:

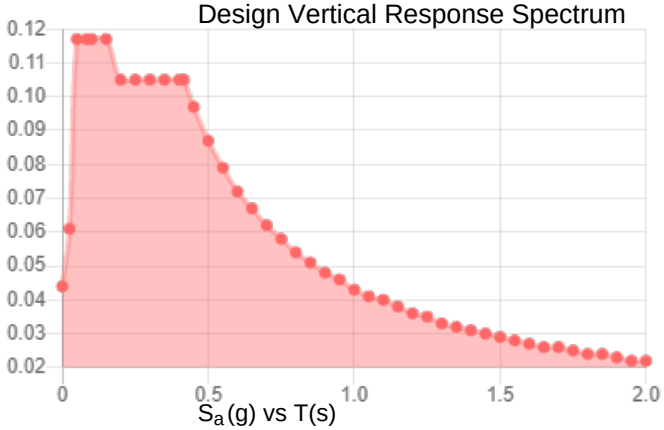
S_S :	0.196	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.108
F_v :	2.4	PGA_M :	0.171
S_{MS} :	0.314	F_{PGA} :	1.584
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.209	C_v :	0.7

Seismic Design Category B









Data Accessed: Thu Nov 18 2021

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:	Thu Nov 18 2021

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(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	B1	N40	N43		270	L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
2	B2	N33	N34			L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
3	B3	N32	N35		270	L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
4	B4	N37	N38			L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
5	B5	N36	N39		270	L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
6	B6	N41	N42			L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
7	HOR1	N19	N18			3" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
8	HOR3	N22	N21			3" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
9	HOR2	N16	N15			3" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
10	HR1	N88	N87			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
11	HR3	N90	N89			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
12	HR2	N86	N85			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
13	HRA1	N111A	N112A		90	Handrail Conn...	Beam	Single Angle	A36 Gr.36	Typical
14	HRA2	N113A	N114A			Handrail Conn...	Beam	Single Angle	A36 Gr.36	Typical
15	HRA3	N110A	N109A			Handrail Conn...	Beam	Single Angle	A36 Gr.36	Typical
16	MP1	N101	N100			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
17	MP2	N103	N102			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
18	MP4	N107	N106			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
19	R1	N3	N4			Corner Plate	Beam	RECT	A36 Gr.36	Typical
20	R2	N9	N10			Corner Plate	Beam	RECT	A36 Gr.36	Typical
21	R3	N12	N13			Corner Plate	Beam	RECT	A36 Gr.36	Typical
22	SA1	N5	N8			Standoff	Beam	Pipe	A53 Gr.B	Typical
23	BR1	N30	N31		180	Standoff Chan...	Beam	Channel	A36 Gr.36	Typical
24	SA3	N6	N11			Standoff	Beam	Pipe	A53 Gr.B	Typical
25	BR3	N26	N27		180	Standoff Chan...	Beam	Channel	A36 Gr.36	Typical
26	SA2	N2	N1			Standoff	Beam	Pipe	A53 Gr.B	Typical
27	BR2	N28	N29		180	Standoff Chan...	Beam	Channel	A36 Gr.36	Typical
28	M39	N117A	N116A			LL2.5"x2.5"x3"...	Beam	Double Angle (...	A36 Gr.36	Typical
29	M37	N108A	N94			RIGID	None	None	RIGID	Typical
30	M38A	N105	N55A			RIGID	None	None	RIGID	Typical
31	M39A	N107A	N92			RIGID	None	None	RIGID	Typical
32	M40	N104	N55			RIGID	None	None	RIGID	Typical
33	M41	N106A	N91			RIGID	None	None	RIGID	Typical
34	M42	N103B	N45			RIGID	None	None	RIGID	Typical
35	MP3	N110B	N111B			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
36	M44	N114C	N112			RIGID	None	None	RIGID	Typical
37	M45	N113	N109B			RIGID	None	None	RIGID	Typical
38	MP9	N107B	N110			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
39	MP10	N108	N111			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
40	MP12	N109	N112B			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
41	M43A	N121	N98			RIGID	None	None	RIGID	Typical
42	M44A	N118	N53			RIGID	None	None	RIGID	Typical
43	M45A	N120	N114			RIGID	None	None	RIGID	Typical
44	M46	N117	N105A			RIGID	None	None	RIGID	Typical
45	M47	N119	N95			RIGID	None	None	RIGID	Typical
46	M48	N116	N54			RIGID	None	None	RIGID	Typical
47	MP11	N123	N124			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
48	M50	N127	N125			RIGID	None	None	RIGID	Typical
49	M51	N126	N20			RIGID	None	None	RIGID	Typical
50	MP5	N132	N135			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
51	MP6	N133	N136			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
52	MP8	N134	N137			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
53	M55	N146	N102A			RIGID	None	None	RIGID	Typical
54	M56	N143	N62			RIGID	None	None	RIGID	Typical
55	M57	N145	N139			RIGID	None	None	RIGID	Typical
56	M58	N142	N130			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
57	M59	N144	N99			RIGID	None	None	RIGID	Typical
58	M60	N141	N79			RIGID	None	None	RIGID	Typical
59	MP7	N148	N149			2" STD Pipe	Column	Pipe	A53 Gr.B	Typical
60	M62	N152	N150			RIGID	None	None	RIGID	Typical
61	M63	N151	N61			RIGID	None	None	RIGID	Typical
62	M62A	N116A	N128			RIGID	None	None	RIGID	Typical
63	M63A	N127A	N117A			RIGID	None	None	RIGID	Typical
64	M64	N131	N130A			LL2.5"x2.5"x3"...	Beam	Double Angle (...	A36 Gr.36	Typical
65	M65	N130A	N133A			RIGID	None	None	RIGID	Typical
66	M66	N132A	N131			RIGID	None	None	RIGID	Typical
67	M67	N136A	N135A			LL2.5"x2.5"x3"...	Beam	Double Angle (...	A36 Gr.36	Typical
68	M68	N135A	N138			RIGID	None	None	RIGID	Typical
69	M69	N137A	N136A			RIGID	None	None	RIGID	Typical

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm (/1...	Density[k/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	2.9e+7	1.115e+7	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	2.9e+7	1.115e+7	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	2.9e+7	1.115e+7	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	2.9e+7	1.115e+7	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	2.9e+7	1.115e+7	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	2.9e+7	1.115e+7	.3	.65	.49	35	1.6	60	1.2
7	A1085	2.9e+7	1.115e+7	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Handrail Con...	L6X3.5X5	Beam	Single Angle	A36 Gr.36	Typical	2.89	2.84	10.9	.099
2	Standoff Cha...	C3X5	Beam	Channel	A36 Gr.36	Typical	1.47	.241	1.85	.043
3	Standoff	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	3" STD Pipe	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	L2"x2"x1/8"	L2x2x2	Beam	Single Angle	A36 Gr.36	Typical	.491	.189	.189	.003
6	2" STD Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	LL2.5"x2.5"x...	LL2.5x2.5...	Beam	Double Angle (3/8 Gap)	A36 Gr.36	Typical	1.8	2.46	1.07	.023
8	L2.5"2.5"x3/16"	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011
9	Corner Plate	6"x0.37" ...	Beam	RECT	A36 Gr.36	Typical	2.22	.025	6.66	.097

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	-20.501708	0	-11.836667	0	
2	N2	-74.411789	0	19.288333	0	
3	N3	-77.411789	0	14.092181	0	
4	N4	-71.411789	0	24.484486	0	
5	N5	20.500854	0	-11.838146	0	
6	N6	0.000854	0	-47.345187	0	
7	CP	0	0	-23.673333	0	
8	N8	74.411789	0	19.288333	0	
9	N9	71.411789	0	24.484486	0	
10	N10	77.411789	0	14.092181	0	
11	N11	0.000854	0	-109.596667	0	
12	N12	6	0	-109.596667	0	
13	N13	-6	0	-109.596667	0	
14	N15	-79.206	0	17.199845	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
15	N16	-4.206	0	-112.703966	0	
16	N18	75.000211	0	24.484486	0	
17	N19	-74.999789	0	24.484486	0	
18	N20	41.705789	0	-47.752425	0	
19	N21	4.205789	0	-112.704331	0	
20	N22	79.205789	0	17.19948	0	
21	N23	0.0006	0	-65.845187	0	
22	N24	36.522197	0	-2.587926	0	
23	N25	-36.523178	0	-2.586667	0	
24	N26	-31.259928	0	-65.845187	0	
25	N27	31.259928	0	-65.845187	0	
26	N28	-20.891933	0	24.484486	0	
27	N29	-52.151861	0	-29.659298	0	
28	N30	52.151861	0	-29.659298	0	
29	N31	20.891933	0	24.484486	0	
30	N32	75.411789	0	17.556283	0	
31	N33	73.411789	0	21.020384	0	
32	N34	22.891933	0	21.020384	0	
33	N35	50.151861	0	-26.195197	0	
34	N36	-2	0	-109.596667	0	
35	N37	2	0	-109.596667	0	
36	N38	27.259928	0	-65.845187	0	
37	N39	-27.259928	0	-65.845187	0	
38	N40	-73.411789	0	21.020384	0	
39	N41	-75.411789	0	17.556283	0	
40	N42	-50.151861	0	-26.195197	0	
41	N43	-22.891933	0	21.020384	0	
42	N45	60.000211	0	24.484486	0	
43	N53	71.705789	0	4.209099	0	
44	N54	11.705789	0	-99.713949	0	
45	N61	-41.706	0	-47.752061	0	
46	N62	-11.706	0	-99.713585	0	
47	N55	48.000211	0	24.484486	0	
48	N55A	-59.999789	0	24.484486	0	
49	N101	60.000211	57	27.484486	0	
50	N103	48.000211	69	27.484486	0	
51	N107	-59.999789	69	27.484486	0	
52	N100	60.000211	-15	27.484486	0	
53	N102	48.000211	-27	27.484486	0	
54	N106	-59.999789	-27	27.484486	0	
55	N79	-71.706	0	4.209464	0	
56	N85	-79.206	42	17.199845	0	
57	N86	-4.206	42	-112.703966	0	
58	N87	75.000211	42	24.484486	0	
59	N88	-74.999789	42	24.484486	0	
60	N89	4.205789	42	-112.704331	0	
61	N90	79.205789	42	17.19948	0	
62	N91	60.000211	42	24.484486	0	
63	N92	48.000211	42	24.484486	0	
64	N94	-59.999789	42	24.484486	0	
65	N95	11.705789	42	-99.71395	0	
66	N98	71.705789	42	4.209098	0	
67	N99	-71.706	42	4.209464	0	
68	N102A	-11.706	42	-99.713584	0	
69	N109A	-77.411789	42	14.092181	0	
70	N110A	-71.411789	42	24.484486	0	
71	N111A	71.411789	42	24.484486	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
72	N112A	77.411789	42	14.092181	0	
73	N113A	6	42	-109.596667	0	
74	N114A	-6	42	-109.596667	0	
75	N116A	0.	-33	-50.346666	0	
76	N117A	0.	-3	-70.596666	0	
77	N103B	60.000211	0	27.484486	0	
78	N104	48.000211	0	27.484486	0	
79	N105	-59.999789	0	27.484486	0	
80	N106A	60.000211	42	27.484486	0	
81	N107A	48.000211	42	27.484486	0	
82	N108A	-59.999789	42	27.484486	0	
83	N109B	0.000211	0	24.484486	0	
84	N110B	0.000211	69	27.484486	0	
85	N111B	0.000211	-27	27.484486	0	
86	N112	0.000211	42	24.484486	0	
87	N113	0.000211	0	27.484486	0	
88	N114C	0.000211	42	27.484486	0	
89	N105A	17.705789	0	-89.321644	0	
90	N107B	14.303865	57	-101.213949	0	
91	N108	20.303865	69	-90.821645	0	
92	N109	74.303865	69	2.709099	0	
93	N110	14.303865	-15	-101.213949	0	
94	N111	20.303865	-27	-90.821645	0	
95	N112B	74.303865	-27	2.709099	0	
96	N114	17.705789	42	-89.321645	0	
97	N116	14.303865	0	-101.213949	0	
98	N117	20.303865	0	-90.821644	0	
99	N118	74.303865	0	2.7091	0	
100	N119	14.303865	42	-101.213949	0	
101	N120	20.303865	42	-90.821645	0	
102	N121	74.303865	42	2.709099	0	
103	N123	44.303865	69	-49.252425	0	
104	N124	44.303865	-27	-49.252425	0	
105	N125	41.705789	42	-47.752425	0	
106	N126	44.303865	0	-49.252425	0	
107	N127	44.303865	42	-49.252425	0	
108	N130	-65.706	0	-6.182841	0	
109	N132	-74.304076	57	2.709464	0	
110	N133	-68.304076	69	-7.68284	0	
111	N134	-14.304076	69	-101.213584	0	
112	N135	-74.304076	-15	2.709464	0	
113	N136	-68.304076	-27	-7.68284	0	
114	N137	-14.304076	-27	-101.213584	0	
115	N139	-65.706	42	-6.18284	0	
116	N141	-74.304076	0	2.709464	0	
117	N142	-68.304076	0	-7.682841	0	
118	N143	-14.304076	0	-101.213584	0	
119	N144	-74.304076	42	2.709464	0	
120	N145	-68.304076	42	-7.68284	0	
121	N146	-14.304076	42	-101.213584	0	
122	N148	-44.304076	69	-49.25206	0	
123	N149	-44.304076	-27	-49.25206	0	
124	N150	-41.706	42	-47.75206	0	
125	N151	-44.304076	0	-49.25206	0	
126	N152	-44.304076	42	-49.25206	0	
127	N127A	0.	0	-70.596666	0	
128	N128	0.	-33	-47.346666	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
129	N130A	-23.099784	-33	-10.336666	0	
130	N131	-40.636799	-3	-0.211666	0	
131	N132A	-40.636799	0	-0.211666	0	
132	N133A	-20.501708	-33	-11.836666	0	
133	N135A	23.099784	-33	-10.336666	0	
134	N136A	40.636799	-3	-0.211666	0	
135	N137A	40.636799	0	-0.211666	0	
136	N138	20.501708	-33	-11.836666	0	

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	B1	L2"x2"x1/8"	50.52			Lbyy			.65	.65		Lateral
2	B2	L2"x2"x1/8"	50.52			Lbyy			.65	.65		Lateral
3	B3	L2"x2"x1/8"	50.52			Lbyy			.65	.65		Lateral
4	B4	L2"x2"x1/8"	50.52			Lbyy			.65	.65		Lateral
5	B5	L2"x2"x1/8"	50.52			Lbyy			.65	.65		Lateral
6	B6	L2"x2"x1/8"	50.52			Lbyy			.65	.65		Lateral
7	HOR1	3" STD Pipe	150	50.52	50.52	50.52	50.52	50.52				Lateral
8	HOR3	3" STD Pipe	150	50.52	50.52	50.52	50.52	50.52				Lateral
9	HOR2	3" STD Pipe	150	50.52	50.52	50.52	50.52	50.52				Lateral
10	HR1	2" STD Pipe	150			Lbyy						Lateral
11	HR3	2" STD Pipe	150			Lbyy						Lateral
12	HR2	2" STD Pipe	150			Lbyy						Lateral
13	HRA1	Handrail Co...	12			Lbyy						Lateral
14	HRA2	Handrail Co...	12			Lbyy						Lateral
15	HRA3	Handrail Co...	12			Lbyy						Lateral
16	MP1	2" STD Pipe	72			Lbyy						Lateral
17	MP2	2" STD Pipe	96			Lbyy						Lateral
18	MP4	2" STD Pipe	96			Lbyy						Lateral
19	R1	Corner Plate	12									Lateral
20	R2	Corner Plate	12									Lateral
21	R3	Corner Plate	12									Lateral
22	SA1	Standoff	62.251	31.75	31.75	31.75	31.75	31.75				Lateral
23	BR1	Standoff Ch...	62.52	27.26	27.26	27.26	27.26	27.26				Lateral
24	SA3	Standoff	62.251	31.75	31.75	31.75	31.75	31.75				Lateral
25	BR3	Standoff Ch...	62.52	27.26	27.26	27.26	27.26	27.26				Lateral
26	SA2	Standoff	62.25	31.75	31.75	31.75	31.75	31.75				Lateral
27	BR2	Standoff Ch...	62.52	27.26	27.26	27.26	27.26	27.26				Lateral
28	M39	LL2.5"x2.5"...	36.195			Lbyy						Lateral
29	MP3	2" STD Pipe	96			Lbyy						Lateral
30	MP9	2" STD Pipe	72			Lbyy						Lateral
31	MP10	2" STD Pipe	96			Lbyy						Lateral
32	MP12	2" STD Pipe	96			Lbyy						Lateral
33	MP11	2" STD Pipe	96			Lbyy						Lateral
34	MP5	2" STD Pipe	72			Lbyy						Lateral
35	MP6	2" STD Pipe	96			Lbyy						Lateral
36	MP8	2" STD Pipe	96			Lbyy						Lateral
37	MP7	2" STD Pipe	96			Lbyy						Lateral
38	M64	LL2.5"x2.5"...	36.195			Lbyy						Lateral
39	M67	LL2.5"x2.5"...	36.195			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			43		3	
2	Wind Load AZI 0	WLZ					86			
3	Wind Load AZI 30	None					86			
4	Wind Load AZI 60	None					86			
5	Wind Load AZI 90	WLX					86			
6	Wind Load AZI 120	None					86			
7	Wind Load AZI 150	None					86			
8	Wind Load AZI 180	None					86			
9	Wind Load AZI 210	None					86			
10	Wind Load AZI 240	None					86			
11	Wind Load AZI 270	None					86			
12	Wind Load AZI 300	None					86			
13	Wind Load AZI 330	None					86			
14	Distr. Wind Load Z	WLZ						69		
15	Distr. Wind Load X	WLX						69		
16	Ice Weight	OL1					43	69	3	
17	Ice Wind Load AZI 0	OL2					86			
18	Ice Wind Load AZI 30	None					86			
19	Ice Wind Load AZI 60	None					86			
20	Ice Wind Load AZI 90	OL3					86			
21	Ice Wind Load AZI 120	None					86			
22	Ice Wind Load AZI 150	None					86			
23	Ice Wind Load AZI 180	None					86			
24	Ice Wind Load AZI 210	None					86			
25	Ice Wind Load AZI 240	None					86			
26	Ice Wind Load AZI 270	None					86			
27	Ice Wind Load AZI 300	None					86			
28	Ice Wind Load AZI 330	None					86			
29	Distr. Ice Wind Load Z	OL2						69		
30	Distr. Ice Wind Load X	OL3						69		
31	Seismic Load Z	ELZ			-.314		43			
32	Seismic Load X	ELX	-.314				43			
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				
43	Maintenance Load 10	LL				1				
44	Maintenance Load 11	LL				1				
45	Maintenance Load 12	LL				1				
46	BLC 1 Transient Area...	None						60		
47	BLC 16 Transient Are...	None						60		

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N18	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), (lb*s^2...

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N45	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), (lb*s^2...
1	N55	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), (lb*s^2...
1	N109B	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), (lb*s^2...
1	N55A	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), (lb*s^2...
1	N54	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), (lb*s^2...
1	N105A	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), (lb*s^2...
1	N53	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), (lb*s^2...
1	N20	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), (lb*s^2...
1	N79	L	Y	-500

Joint Loads and Enforced Displacements (BLC 43 : Maintenance Load 10)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N130	L	Y	-500

Joint Loads and Enforced Displacements (BLC 44 : Maintenance Load 11)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N62	L	Y	-500

Joint Loads and Enforced Displacements (BLC 45 : Maintenance Load 12)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N61	L	Y	-500

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-33.1	6
2	MP2	Y	-33.1	21

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP2	Y	-48.4	30
4	MP2	Y	-48.4	54
5	MP3	Y	-62.85	6
6	MP3	Y	-62.85	90
7	MP4	Y	-75	6
8	MP4	Y	-75	90
9	MP3	Y	-53	10
10	MP2	Y	-44	20
11	MP3	Y	-48.4	30
12	MP4	Y	-59.9	48
13	MP3	Y	-59.9	50
14	MP2	Y	-18.9	40
15	MP3	Y	-18.9	70
16	MP6	Y	-33.1	6
17	MP6	Y	-33.1	21
18	MP6	Y	-48.4	30
19	MP6	Y	-48.4	54
20	MP7	Y	-62.85	6
21	MP7	Y	-62.85	90
22	MP8	Y	-75	6
23	MP8	Y	-75	90
24	MP7	Y	-53	10
25	MP6	Y	-44	20
26	MP7	Y	-48.4	30
27	MP8	Y	-59.9	48
28	MP7	Y	-59.9	50
29	MP7	Y	-18.9	70
30	MP10	Y	-33.1	6
31	MP10	Y	-33.1	21
32	MP10	Y	-48.4	30
33	MP10	Y	-48.4	54
34	MP11	Y	-62.85	6
35	MP11	Y	-62.85	90
36	MP12	Y	-75	6
37	MP12	Y	-75	90
38	MP11	Y	-53	10
39	MP10	Y	-44	20
40	MP11	Y	-48.4	30
41	MP12	Y	-59.9	48
42	MP11	Y	-59.9	50
43	MP11	Y	-18.9	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	0	6
2	MP2	Z	-75.26	6
3	MP2	X	0	21
4	MP2	Z	-75.26	21
5	MP2	X	0	30
6	MP2	Z	-83.22	30
7	MP2	X	0	54
8	MP2	Z	-83.22	54
9	MP3	X	0	6
10	MP3	Z	-300.08	6
11	MP3	X	0	90
12	MP3	Z	-300.08	90

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
13	MP4	X	0	6
14	MP4	Z	-386.53	6
15	MP4	X	0	90
16	MP4	Z	-386.53	90
17	MP3	X	0	10
18	MP3	Z	-112.85	10
19	MP2	X	0	20
20	MP2	Z	-67.56	20
21	MP3	X	0	30
22	MP3	Z	-67.56	30
23	MP4	X	0	48
24	MP4	Z	-75.7	48
25	MP3	X	0	50
26	MP3	Z	-75.7	50
27	MP2	X	0	40
28	MP2	Z	-90.39	40
29	MP3	X	0	70
30	MP3	Z	-90.52	70
31	MP6	X	0	6
32	MP6	Z	-50.99	6
33	MP6	X	0	21
34	MP6	Z	-50.99	21
35	MP6	X	0	30
36	MP6	Z	-67.33	30
37	MP6	X	0	54
38	MP6	Z	-67.33	54
39	MP7	X	0	6
40	MP7	Z	-206.5	6
41	MP7	X	0	90
42	MP7	Z	-206.5	90
43	MP8	X	0	6
44	MP8	Z	-275.44	6
45	MP8	X	0	90
46	MP8	Z	-275.44	90
47	MP7	X	0	10
48	MP7	Z	-86.9	10
49	MP6	X	0	20
50	MP6	Z	-44.28	20
51	MP7	X	0	30
52	MP7	Z	-45.4	30
53	MP8	X	0	48
54	MP8	Z	-56.81	48
55	MP7	X	0	50
56	MP7	Z	-56.81	50
57	MP7	X	0	70
58	MP7	Z	-90.52	70
59	MP10	X	0	6
60	MP10	Z	-38.75	6
61	MP10	X	0	21
62	MP10	Z	-38.75	21
63	MP10	X	0	30
64	MP10	Z	-59.32	30
65	MP10	X	0	54
66	MP10	Z	-59.32	54
67	MP11	X	0	6
68	MP11	Z	-159.27	6
69	MP11	X	0	90

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
70	MP11	Z	-159.27	90
71	MP12	X	0	6
72	MP12	Z	-219.37	6
73	MP12	X	0	90
74	MP12	Z	-219.37	90
75	MP11	X	0	10
76	MP11	Z	-73.81	10
77	MP10	X	0	20
78	MP10	Z	-32.53	20
79	MP11	X	0	30
80	MP11	Z	-34.21	30
81	MP12	X	0	48
82	MP12	Z	-47.27	48
83	MP11	X	0	50
84	MP11	Z	-47.27	50
85	MP11	X	0	70
86	MP11	Z	-90.52	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-32.46	6
2	MP2	Z	-56.22	6
3	MP2	X	-32.46	21
4	MP2	Z	-56.22	21
5	MP2	X	-38.23	30
6	MP2	Z	-66.21	30
7	MP2	X	-38.23	54
8	MP2	Z	-66.21	54
9	MP3	X	-130.11	6
10	MP3	Z	-225.35	6
11	MP3	X	-130.11	90
12	MP3	Z	-225.35	90
13	MP4	X	-169.6	6
14	MP4	Z	-293.76	6
15	MP4	X	-169.6	90
16	MP4	Z	-293.76	90
17	MP3	X	-50.9	10
18	MP3	Z	-88.16	10
19	MP2	X	-28.82	20
20	MP2	Z	-49.92	20
21	MP3	X	-29.06	30
22	MP3	Z	-50.33	30
23	MP4	X	-33.83	48
24	MP4	Z	-58.59	48
25	MP3	X	-33.83	50
26	MP3	Z	-58.59	50
27	MP2	X	-45.2	40
28	MP2	Z	-78.28	40
29	MP3	X	-45.26	70
30	MP3	Z	-78.39	70
31	MP6	X	-35.21	6
32	MP6	Z	-60.99	6
33	MP6	X	-35.21	21
34	MP6	Z	-60.99	21
35	MP6	X	-40.03	30
36	MP6	Z	-69.33	30

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
37	MP6	X	-40.03	54
38	MP6	Z	-69.33	54
39	MP7	X	-140.71	6
40	MP7	Z	-243.72	6
41	MP7	X	-140.71	90
42	MP7	Z	-243.72	90
43	MP8	X	-182.19	6
44	MP8	Z	-315.57	6
45	MP8	X	-182.19	90
46	MP8	Z	-315.57	90
47	MP7	X	-53.84	10
48	MP7	Z	-93.25	10
49	MP6	X	-31.46	20
50	MP6	Z	-54.49	20
51	MP7	X	-31.57	30
52	MP7	Z	-54.69	30
53	MP8	X	-35.97	48
54	MP8	Z	-62.3	48
55	MP7	X	-35.97	50
56	MP7	Z	-62.3	50
57	MP7	X	-45.26	70
58	MP7	Z	-78.39	70
59	MP10	X	-17.58	6
60	MP10	Z	-30.45	6
61	MP10	X	-17.58	21
62	MP10	Z	-30.45	21
63	MP10	X	-28.48	30
64	MP10	Z	-49.33	30
65	MP10	X	-28.48	54
66	MP10	Z	-49.33	54
67	MP11	X	-72.71	6
68	MP11	Z	-125.94	6
69	MP11	X	-72.71	90
70	MP11	Z	-125.94	90
71	MP12	X	-101.47	6
72	MP12	Z	-175.74	6
73	MP12	X	-101.47	90
74	MP12	Z	-175.74	90
75	MP11	X	-34.98	10
76	MP11	Z	-60.59	10
77	MP10	X	-14.54	20
78	MP10	Z	-25.19	20
79	MP11	X	-15.47	30
80	MP11	Z	-26.79	30
81	MP12	X	-22.24	48
82	MP12	Z	-38.51	48
83	MP11	X	-22.24	50
84	MP11	Z	-38.51	50
85	MP11	X	-45.26	70
86	MP11	Z	-78.39	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-38.32	6
2	MP2	Z	-22.12	6
3	MP2	X	-38.32	21

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP2	Z	-22.12	21
5	MP2	X	-54.49	30
6	MP2	Z	-31.46	30
7	MP2	X	-54.49	54
8	MP2	Z	-31.46	54
9	MP3	X	-156.3	6
10	MP3	Z	-90.24	6
11	MP3	X	-156.3	90
12	MP3	Z	-90.24	90
13	MP4	X	-211.79	6
14	MP4	Z	-122.27	6
15	MP4	X	-211.79	90
16	MP4	Z	-122.27	90
17	MP3	X	-69.01	10
18	MP3	Z	-39.84	10
19	MP2	X	-32.74	20
20	MP2	Z	-18.9	20
21	MP3	X	-33.98	30
22	MP3	Z	-19.62	30
23	MP4	X	-44.65	48
24	MP4	Z	-25.78	48
25	MP3	X	-44.65	50
26	MP3	Z	-25.78	50
27	MP2	X	-78.28	40
28	MP2	Z	-45.2	40
29	MP3	X	-78.39	70
30	MP3	Z	-45.26	70
31	MP6	X	-64.1	6
32	MP6	Z	-37.01	6
33	MP6	X	-64.1	21
34	MP6	Z	-37.01	21
35	MP6	X	-71.36	30
36	MP6	Z	-41.2	30
37	MP6	X	-71.36	54
38	MP6	Z	-41.2	54
39	MP7	X	-255.71	6
40	MP7	Z	-147.64	6
41	MP7	X	-255.71	90
42	MP7	Z	-147.64	90
43	MP8	X	-329.8	6
44	MP8	Z	-190.41	6
45	MP8	X	-329.8	90
46	MP8	Z	-190.41	90
47	MP7	X	-96.57	10
48	MP7	Z	-55.76	10
49	MP6	X	-57.48	20
50	MP6	Z	-33.18	20
51	MP7	X	-57.53	30
52	MP7	Z	-33.21	30
53	MP8	X	-64.72	48
54	MP8	Z	-37.37	48
55	MP7	X	-64.72	50
56	MP7	Z	-37.37	50
57	MP7	X	-78.39	70
58	MP7	Z	-45.26	70
59	MP10	X	-44.16	6
60	MP10	Z	-25.5	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
61	MP10	X	-44.16	21
62	MP10	Z	-25.5	21
63	MP10	X	-58.31	30
64	MP10	Z	-33.67	30
65	MP10	X	-58.31	54
66	MP10	Z	-33.67	54
67	MP11	X	-178.84	6
68	MP11	Z	-103.25	6
69	MP11	X	-178.84	90
70	MP11	Z	-103.25	90
71	MP12	X	-238.54	6
72	MP12	Z	-137.72	6
73	MP12	X	-238.54	90
74	MP12	Z	-137.72	90
75	MP11	X	-75.26	10
76	MP11	Z	-43.45	10
77	MP10	X	-38.35	20
78	MP10	Z	-22.14	20
79	MP11	X	-39.32	30
80	MP11	Z	-22.7	30
81	MP12	X	-49.2	48
82	MP12	Z	-28.4	48
83	MP11	X	-49.2	50
84	MP11	Z	-28.4	50
85	MP11	X	-78.39	70
86	MP11	Z	-45.26	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-33.91	6
2	MP2	Z	0	6
3	MP2	X	-33.91	21
4	MP2	Z	0	21
5	MP2	X	-56.15	30
6	MP2	Z	0	30
7	MP2	X	-56.15	54
8	MP2	Z	0	54
9	MP3	X	-140.61	6
10	MP3	Z	0	6
11	MP3	X	-140.61	90
12	MP3	Z	0	90
13	MP4	X	-197.22	6
14	MP4	Z	0	6
15	MP4	X	-197.22	90
16	MP4	Z	0	90
17	MP3	X	-68.63	10
18	MP3	Z	0	10
19	MP2	X	-27.89	20
20	MP2	Z	0	20
21	MP3	X	-29.8	30
22	MP3	Z	0	30
23	MP4	X	-43.5	48
24	MP4	Z	0	48
25	MP3	X	-43.5	50
26	MP3	Z	0	50
27	MP2	X	-90.39	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
28	MP2	Z	0	40
29	MP3	X	-90.52	70
30	MP3	Z	0	70
31	MP6	X	-58.17	6
32	MP6	Z	0	6
33	MP6	X	-58.17	21
34	MP6	Z	0	21
35	MP6	X	-72.03	30
36	MP6	Z	0	30
37	MP6	X	-72.03	54
38	MP6	Z	0	54
39	MP7	X	-234.19	6
40	MP7	Z	0	6
41	MP7	X	-234.19	90
42	MP7	Z	0	90
43	MP8	X	-308.31	6
44	MP8	Z	0	6
45	MP8	X	-308.31	90
46	MP8	Z	0	90
47	MP7	X	-94.58	10
48	MP7	Z	0	10
49	MP6	X	-51.17	20
50	MP6	Z	0	20
51	MP7	X	-51.96	30
52	MP7	Z	0	30
53	MP8	X	-62.4	48
54	MP8	Z	0	48
55	MP7	X	-62.4	50
56	MP7	Z	0	50
57	MP7	X	-90.52	70
58	MP7	Z	0	70
59	MP10	X	-70.42	6
60	MP10	Z	0	6
61	MP10	X	-70.42	21
62	MP10	Z	0	21
63	MP10	X	-80.05	30
64	MP10	Z	0	30
65	MP10	X	-80.05	54
66	MP10	Z	0	54
67	MP11	X	-281.43	6
68	MP11	Z	0	6
69	MP11	X	-281.43	90
70	MP11	Z	0	90
71	MP12	X	-364.39	6
72	MP12	Z	0	6
73	MP12	X	-364.39	90
74	MP12	Z	0	90
75	MP11	X	-107.68	10
76	MP11	Z	0	10
77	MP10	X	-62.92	20
78	MP10	Z	0	20
79	MP11	X	-63.15	30
80	MP11	Z	0	30
81	MP12	X	-71.94	48
82	MP12	Z	0	48
83	MP11	X	-71.94	50
84	MP11	Z	0	50

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
85	MP11	X	-90.52	70
86	MP11	Z	0	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-38.32	6
2	MP2	Z	22.12	6
3	MP2	X	-38.32	21
4	MP2	Z	22.12	21
5	MP2	X	-54.49	30
6	MP2	Z	31.46	30
7	MP2	X	-54.49	54
8	MP2	Z	31.46	54
9	MP3	X	-156.3	6
10	MP3	Z	90.24	6
11	MP3	X	-156.3	90
12	MP3	Z	90.24	90
13	MP4	X	-211.79	6
14	MP4	Z	122.27	6
15	MP4	X	-211.79	90
16	MP4	Z	122.27	90
17	MP3	X	-69.01	10
18	MP3	Z	39.84	10
19	MP2	X	-32.74	20
20	MP2	Z	18.9	20
21	MP3	X	-33.98	30
22	MP3	Z	19.62	30
23	MP4	X	-44.65	48
24	MP4	Z	25.78	48
25	MP3	X	-44.65	50
26	MP3	Z	25.78	50
27	MP2	X	-78.28	40
28	MP2	Z	45.2	40
29	MP3	X	-78.39	70
30	MP3	Z	45.26	70
31	MP6	X	-33.56	6
32	MP6	Z	19.37	6
33	MP6	X	-33.56	21
34	MP6	Z	19.37	21
35	MP6	X	-51.37	30
36	MP6	Z	29.66	30
37	MP6	X	-51.37	54
38	MP6	Z	29.66	54
39	MP7	X	-137.93	6
40	MP7	Z	79.63	6
41	MP7	X	-137.93	90
42	MP7	Z	79.63	90
43	MP8	X	-189.98	6
44	MP8	Z	109.68	6
45	MP8	X	-189.98	90
46	MP8	Z	109.68	90
47	MP7	X	-63.92	10
48	MP7	Z	36.9	10
49	MP6	X	-28.17	20
50	MP6	Z	16.27	20
51	MP7	X	-29.63	30

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
52	MP7	Z	17.11	30
53	MP8	X	-40.94	48
54	MP8	Z	23.63	48
55	MP7	X	-40.94	50
56	MP7	Z	23.63	50
57	MP7	X	-78.39	70
58	MP7	Z	45.26	70
59	MP10	X	-64.1	6
60	MP10	Z	37.01	6
61	MP10	X	-64.1	21
62	MP10	Z	37.01	21
63	MP10	X	-71.36	30
64	MP10	Z	41.2	30
65	MP10	X	-71.36	54
66	MP10	Z	41.2	54
67	MP11	X	-255.71	6
68	MP11	Z	147.64	6
69	MP11	X	-255.71	90
70	MP11	Z	147.64	90
71	MP12	X	-329.8	6
72	MP12	Z	190.41	6
73	MP12	X	-329.8	90
74	MP12	Z	190.41	90
75	MP11	X	-96.57	10
76	MP11	Z	55.76	10
77	MP10	X	-57.48	20
78	MP10	Z	33.18	20
79	MP11	X	-57.53	30
80	MP11	Z	33.21	30
81	MP12	X	-64.72	48
82	MP12	Z	37.37	48
83	MP11	X	-64.72	50
84	MP11	Z	37.37	50
85	MP11	X	-78.39	70
86	MP11	Z	45.26	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-32.46	6
2	MP2	Z	56.22	6
3	MP2	X	-32.46	21
4	MP2	Z	56.22	21
5	MP2	X	-38.23	30
6	MP2	Z	66.21	30
7	MP2	X	-38.23	54
8	MP2	Z	66.21	54
9	MP3	X	-130.11	6
10	MP3	Z	225.35	6
11	MP3	X	-130.11	90
12	MP3	Z	225.35	90
13	MP4	X	-169.6	6
14	MP4	Z	293.76	6
15	MP4	X	-169.6	90
16	MP4	Z	293.76	90
17	MP3	X	-50.9	10
18	MP3	Z	88.16	10

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
19	MP2	X	-28.82	20
20	MP2	Z	49.92	20
21	MP3	X	-29.06	30
22	MP3	Z	50.33	30
23	MP4	X	-33.83	48
24	MP4	Z	58.59	48
25	MP3	X	-33.83	50
26	MP3	Z	58.59	50
27	MP2	X	-45.2	40
28	MP2	Z	78.28	40
29	MP3	X	-45.26	70
30	MP3	Z	78.39	70
31	MP6	X	-17.58	6
32	MP6	Z	30.45	6
33	MP6	X	-17.58	21
34	MP6	Z	30.45	21
35	MP6	X	-28.48	30
36	MP6	Z	49.33	30
37	MP6	X	-28.48	54
38	MP6	Z	49.33	54
39	MP7	X	-72.71	6
40	MP7	Z	125.94	6
41	MP7	X	-72.71	90
42	MP7	Z	125.94	90
43	MP8	X	-101.47	6
44	MP8	Z	175.74	6
45	MP8	X	-101.47	90
46	MP8	Z	175.74	90
47	MP7	X	-34.98	10
48	MP7	Z	60.59	10
49	MP6	X	-14.54	20
50	MP6	Z	25.19	20
51	MP7	X	-15.47	30
52	MP7	Z	26.79	30
53	MP8	X	-22.24	48
54	MP8	Z	38.51	48
55	MP7	X	-22.24	50
56	MP7	Z	38.51	50
57	MP7	X	-45.26	70
58	MP7	Z	78.39	70
59	MP10	X	-29.09	6
60	MP10	Z	50.38	6
61	MP10	X	-29.09	21
62	MP10	Z	50.38	21
63	MP10	X	-36.02	30
64	MP10	Z	62.38	30
65	MP10	X	-36.02	54
66	MP10	Z	62.38	54
67	MP11	X	-117.1	6
68	MP11	Z	202.82	6
69	MP11	X	-117.1	90
70	MP11	Z	202.82	90
71	MP12	X	-154.16	6
72	MP12	Z	267.01	6
73	MP12	X	-154.16	90
74	MP12	Z	267.01	90
75	MP11	X	-47.29	10

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
76	MP11	Z	81.91	10
77	MP10	X	-25.59	20
78	MP10	Z	44.32	20
79	MP11	X	-25.98	30
80	MP11	Z	45	30
81	MP12	X	-31.2	48
82	MP12	Z	54.04	48
83	MP11	X	-31.2	50
84	MP11	Z	54.04	50
85	MP11	X	-45.26	70
86	MP11	Z	78.39	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	0	6
2	MP2	Z	75.26	6
3	MP2	X	0	21
4	MP2	Z	75.26	21
5	MP2	X	0	30
6	MP2	Z	83.22	30
7	MP2	X	0	54
8	MP2	Z	83.22	54
9	MP3	X	0	6
10	MP3	Z	300.08	6
11	MP3	X	0	90
12	MP3	Z	300.08	90
13	MP4	X	0	6
14	MP4	Z	386.53	6
15	MP4	X	0	90
16	MP4	Z	386.53	90
17	MP3	X	0	10
18	MP3	Z	112.85	10
19	MP2	X	0	20
20	MP2	Z	67.56	20
21	MP3	X	0	30
22	MP3	Z	67.56	30
23	MP4	X	0	48
24	MP4	Z	75.7	48
25	MP3	X	0	50
26	MP3	Z	75.7	50
27	MP2	X	0	40
28	MP2	Z	90.39	40
29	MP3	X	0	70
30	MP3	Z	90.52	70
31	MP6	X	0	6
32	MP6	Z	50.99	6
33	MP6	X	0	21
34	MP6	Z	50.99	21
35	MP6	X	0	30
36	MP6	Z	67.33	30
37	MP6	X	0	54
38	MP6	Z	67.33	54
39	MP7	X	0	6
40	MP7	Z	206.5	6
41	MP7	X	0	90
42	MP7	Z	206.5	90

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
43	MP8	X	0	6
44	MP8	Z	275.44	6
45	MP8	X	0	90
46	MP8	Z	275.44	90
47	MP7	X	0	10
48	MP7	Z	86.9	10
49	MP6	X	0	20
50	MP6	Z	44.28	20
51	MP7	X	0	30
52	MP7	Z	45.4	30
53	MP8	X	0	48
54	MP8	Z	56.81	48
55	MP7	X	0	50
56	MP7	Z	56.81	50
57	MP7	X	0	70
58	MP7	Z	90.52	70
59	MP10	X	0	6
60	MP10	Z	38.75	6
61	MP10	X	0	21
62	MP10	Z	38.75	21
63	MP10	X	0	30
64	MP10	Z	59.32	30
65	MP10	X	0	54
66	MP10	Z	59.32	54
67	MP11	X	0	6
68	MP11	Z	159.27	6
69	MP11	X	0	90
70	MP11	Z	159.27	90
71	MP12	X	0	6
72	MP12	Z	219.37	6
73	MP12	X	0	90
74	MP12	Z	219.37	90
75	MP11	X	0	10
76	MP11	Z	73.81	10
77	MP10	X	0	20
78	MP10	Z	32.53	20
79	MP11	X	0	30
80	MP11	Z	34.21	30
81	MP12	X	0	48
82	MP12	Z	47.27	48
83	MP11	X	0	50
84	MP11	Z	47.27	50
85	MP11	X	0	70
86	MP11	Z	90.52	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	32.46	6
2	MP2	Z	56.22	6
3	MP2	X	32.46	21
4	MP2	Z	56.22	21
5	MP2	X	38.23	30
6	MP2	Z	66.21	30
7	MP2	X	38.23	54
8	MP2	Z	66.21	54
9	MP3	X	130.11	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
10	MP3	Z	225.35	6
11	MP3	X	130.11	90
12	MP3	Z	225.35	90
13	MP4	X	169.6	6
14	MP4	Z	293.76	6
15	MP4	X	169.6	90
16	MP4	Z	293.76	90
17	MP3	X	50.9	10
18	MP3	Z	88.16	10
19	MP2	X	28.82	20
20	MP2	Z	49.92	20
21	MP3	X	29.06	30
22	MP3	Z	50.33	30
23	MP4	X	33.83	48
24	MP4	Z	58.59	48
25	MP3	X	33.83	50
26	MP3	Z	58.59	50
27	MP2	X	45.2	40
28	MP2	Z	78.28	40
29	MP3	X	45.26	70
30	MP3	Z	78.39	70
31	MP6	X	35.21	6
32	MP6	Z	60.99	6
33	MP6	X	35.21	21
34	MP6	Z	60.99	21
35	MP6	X	40.03	30
36	MP6	Z	69.33	30
37	MP6	X	40.03	54
38	MP6	Z	69.33	54
39	MP7	X	140.71	6
40	MP7	Z	243.72	6
41	MP7	X	140.71	90
42	MP7	Z	243.72	90
43	MP8	X	182.19	6
44	MP8	Z	315.57	6
45	MP8	X	182.19	90
46	MP8	Z	315.57	90
47	MP7	X	53.84	10
48	MP7	Z	93.25	10
49	MP6	X	31.46	20
50	MP6	Z	54.49	20
51	MP7	X	31.57	30
52	MP7	Z	54.69	30
53	MP8	X	35.97	48
54	MP8	Z	62.3	48
55	MP7	X	35.97	50
56	MP7	Z	62.3	50
57	MP7	X	45.26	70
58	MP7	Z	78.39	70
59	MP10	X	17.58	6
60	MP10	Z	30.45	6
61	MP10	X	17.58	21
62	MP10	Z	30.45	21
63	MP10	X	28.48	30
64	MP10	Z	49.33	30
65	MP10	X	28.48	54
66	MP10	Z	49.33	54

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
67	MP11	X	72.71	6
68	MP11	Z	125.94	6
69	MP11	X	72.71	90
70	MP11	Z	125.94	90
71	MP12	X	101.47	6
72	MP12	Z	175.74	6
73	MP12	X	101.47	90
74	MP12	Z	175.74	90
75	MP11	X	34.98	10
76	MP11	Z	60.59	10
77	MP10	X	14.54	20
78	MP10	Z	25.19	20
79	MP11	X	15.47	30
80	MP11	Z	26.79	30
81	MP12	X	22.24	48
82	MP12	Z	38.51	48
83	MP11	X	22.24	50
84	MP11	Z	38.51	50
85	MP11	X	45.26	70
86	MP11	Z	78.39	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	38.32	6
2	MP2	Z	22.12	6
3	MP2	X	38.32	21
4	MP2	Z	22.12	21
5	MP2	X	54.49	30
6	MP2	Z	31.46	30
7	MP2	X	54.49	54
8	MP2	Z	31.46	54
9	MP3	X	156.3	6
10	MP3	Z	90.24	6
11	MP3	X	156.3	90
12	MP3	Z	90.24	90
13	MP4	X	211.79	6
14	MP4	Z	122.27	6
15	MP4	X	211.79	90
16	MP4	Z	122.27	90
17	MP3	X	69.01	10
18	MP3	Z	39.84	10
19	MP2	X	32.74	20
20	MP2	Z	18.9	20
21	MP3	X	33.98	30
22	MP3	Z	19.62	30
23	MP4	X	44.65	48
24	MP4	Z	25.78	48
25	MP3	X	44.65	50
26	MP3	Z	25.78	50
27	MP2	X	78.28	40
28	MP2	Z	45.2	40
29	MP3	X	78.39	70
30	MP3	Z	45.26	70
31	MP6	X	64.1	6
32	MP6	Z	37.01	6
33	MP6	X	64.1	21

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
34	MP6	Z	37.01	21
35	MP6	X	71.36	30
36	MP6	Z	41.2	30
37	MP6	X	71.36	54
38	MP6	Z	41.2	54
39	MP7	X	255.71	6
40	MP7	Z	147.64	6
41	MP7	X	255.71	90
42	MP7	Z	147.64	90
43	MP8	X	329.8	6
44	MP8	Z	190.41	6
45	MP8	X	329.8	90
46	MP8	Z	190.41	90
47	MP7	X	96.57	10
48	MP7	Z	55.76	10
49	MP6	X	57.48	20
50	MP6	Z	33.18	20
51	MP7	X	57.53	30
52	MP7	Z	33.21	30
53	MP8	X	64.72	48
54	MP8	Z	37.37	48
55	MP7	X	64.72	50
56	MP7	Z	37.37	50
57	MP7	X	78.39	70
58	MP7	Z	45.26	70
59	MP10	X	44.16	6
60	MP10	Z	25.5	6
61	MP10	X	44.16	21
62	MP10	Z	25.5	21
63	MP10	X	58.31	30
64	MP10	Z	33.67	30
65	MP10	X	58.31	54
66	MP10	Z	33.67	54
67	MP11	X	178.84	6
68	MP11	Z	103.25	6
69	MP11	X	178.84	90
70	MP11	Z	103.25	90
71	MP12	X	238.54	6
72	MP12	Z	137.72	6
73	MP12	X	238.54	90
74	MP12	Z	137.72	90
75	MP11	X	75.26	10
76	MP11	Z	43.45	10
77	MP10	X	38.35	20
78	MP10	Z	22.14	20
79	MP11	X	39.32	30
80	MP11	Z	22.7	30
81	MP12	X	49.2	48
82	MP12	Z	28.4	48
83	MP11	X	49.2	50
84	MP11	Z	28.4	50
85	MP11	X	78.39	70
86	MP11	Z	45.26	70

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

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

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	33.91	6
2	MP2	Z	0	6
3	MP2	X	33.91	21
4	MP2	Z	0	21
5	MP2	X	56.15	30
6	MP2	Z	0	30
7	MP2	X	56.15	54
8	MP2	Z	0	54
9	MP3	X	140.61	6
10	MP3	Z	0	6
11	MP3	X	140.61	90
12	MP3	Z	0	90
13	MP4	X	197.22	6
14	MP4	Z	0	6
15	MP4	X	197.22	90
16	MP4	Z	0	90
17	MP3	X	68.63	10
18	MP3	Z	0	10
19	MP2	X	27.89	20
20	MP2	Z	0	20
21	MP3	X	29.8	30
22	MP3	Z	0	30
23	MP4	X	43.5	48
24	MP4	Z	0	48
25	MP3	X	43.5	50
26	MP3	Z	0	50
27	MP2	X	90.39	40
28	MP2	Z	0	40
29	MP3	X	90.52	70
30	MP3	Z	0	70
31	MP6	X	58.17	6
32	MP6	Z	0	6
33	MP6	X	58.17	21
34	MP6	Z	0	21
35	MP6	X	72.03	30
36	MP6	Z	0	30
37	MP6	X	72.03	54
38	MP6	Z	0	54
39	MP7	X	234.19	6
40	MP7	Z	0	6
41	MP7	X	234.19	90
42	MP7	Z	0	90
43	MP8	X	308.31	6
44	MP8	Z	0	6
45	MP8	X	308.31	90
46	MP8	Z	0	90
47	MP7	X	94.58	10
48	MP7	Z	0	10
49	MP6	X	51.17	20
50	MP6	Z	0	20
51	MP7	X	51.96	30
52	MP7	Z	0	30
53	MP8	X	62.4	48
54	MP8	Z	0	48
55	MP7	X	62.4	50
56	MP7	Z	0	50
57	MP7	X	90.52	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
58	MP7	Z	0	70
59	MP10	X	70.42	6
60	MP10	Z	0	6
61	MP10	X	70.42	21
62	MP10	Z	0	21
63	MP10	X	80.05	30
64	MP10	Z	0	30
65	MP10	X	80.05	54
66	MP10	Z	0	54
67	MP11	X	281.43	6
68	MP11	Z	0	6
69	MP11	X	281.43	90
70	MP11	Z	0	90
71	MP12	X	364.39	6
72	MP12	Z	0	6
73	MP12	X	364.39	90
74	MP12	Z	0	90
75	MP11	X	107.68	10
76	MP11	Z	0	10
77	MP10	X	62.92	20
78	MP10	Z	0	20
79	MP11	X	63.15	30
80	MP11	Z	0	30
81	MP12	X	71.94	48
82	MP12	Z	0	48
83	MP11	X	71.94	50
84	MP11	Z	0	50
85	MP11	X	90.52	70
86	MP11	Z	0	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	38.32	6
2	MP2	Z	-22.12	6
3	MP2	X	38.32	21
4	MP2	Z	-22.12	21
5	MP2	X	54.49	30
6	MP2	Z	-31.46	30
7	MP2	X	54.49	54
8	MP2	Z	-31.46	54
9	MP3	X	156.3	6
10	MP3	Z	-90.24	6
11	MP3	X	156.3	90
12	MP3	Z	-90.24	90
13	MP4	X	211.79	6
14	MP4	Z	-122.27	6
15	MP4	X	211.79	90
16	MP4	Z	-122.27	90
17	MP3	X	69.01	10
18	MP3	Z	-39.84	10
19	MP2	X	32.74	20
20	MP2	Z	-18.9	20
21	MP3	X	33.98	30
22	MP3	Z	-19.62	30
23	MP4	X	44.65	48
24	MP4	Z	-25.78	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
25	MP3	X	44.65	50
26	MP3	Z	-25.78	50
27	MP2	X	78.28	40
28	MP2	Z	-45.2	40
29	MP3	X	78.39	70
30	MP3	Z	-45.26	70
31	MP6	X	33.56	6
32	MP6	Z	-19.37	6
33	MP6	X	33.56	21
34	MP6	Z	-19.37	21
35	MP6	X	51.37	30
36	MP6	Z	-29.66	30
37	MP6	X	51.37	54
38	MP6	Z	-29.66	54
39	MP7	X	137.93	6
40	MP7	Z	-79.63	6
41	MP7	X	137.93	90
42	MP7	Z	-79.63	90
43	MP8	X	189.98	6
44	MP8	Z	-109.68	6
45	MP8	X	189.98	90
46	MP8	Z	-109.68	90
47	MP7	X	63.92	10
48	MP7	Z	-36.9	10
49	MP6	X	28.17	20
50	MP6	Z	-16.27	20
51	MP7	X	29.63	30
52	MP7	Z	-17.11	30
53	MP8	X	40.94	48
54	MP8	Z	-23.63	48
55	MP7	X	40.94	50
56	MP7	Z	-23.63	50
57	MP7	X	78.39	70
58	MP7	Z	-45.26	70
59	MP10	X	64.1	6
60	MP10	Z	-37.01	6
61	MP10	X	64.1	21
62	MP10	Z	-37.01	21
63	MP10	X	71.36	30
64	MP10	Z	-41.2	30
65	MP10	X	71.36	54
66	MP10	Z	-41.2	54
67	MP11	X	255.71	6
68	MP11	Z	-147.64	6
69	MP11	X	255.71	90
70	MP11	Z	-147.64	90
71	MP12	X	329.8	6
72	MP12	Z	-190.41	6
73	MP12	X	329.8	90
74	MP12	Z	-190.41	90
75	MP11	X	96.57	10
76	MP11	Z	-55.76	10
77	MP10	X	57.48	20
78	MP10	Z	-33.18	20
79	MP11	X	57.53	30
80	MP11	Z	-33.21	30
81	MP12	X	64.72	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
82	MP12	Z	-37.37	48
83	MP11	X	64.72	50
84	MP11	Z	-37.37	50
85	MP11	X	78.39	70
86	MP11	Z	-45.26	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	32.46	6
2	MP2	Z	-56.22	6
3	MP2	X	32.46	21
4	MP2	Z	-56.22	21
5	MP2	X	38.23	30
6	MP2	Z	-66.21	30
7	MP2	X	38.23	54
8	MP2	Z	-66.21	54
9	MP3	X	130.11	6
10	MP3	Z	-225.35	6
11	MP3	X	130.11	90
12	MP3	Z	-225.35	90
13	MP4	X	169.6	6
14	MP4	Z	-293.76	6
15	MP4	X	169.6	90
16	MP4	Z	-293.76	90
17	MP3	X	50.9	10
18	MP3	Z	-88.16	10
19	MP2	X	28.82	20
20	MP2	Z	-49.92	20
21	MP3	X	29.06	30
22	MP3	Z	-50.33	30
23	MP4	X	33.83	48
24	MP4	Z	-58.59	48
25	MP3	X	33.83	50
26	MP3	Z	-58.59	50
27	MP2	X	45.2	40
28	MP2	Z	-78.28	40
29	MP3	X	45.26	70
30	MP3	Z	-78.39	70
31	MP6	X	17.58	6
32	MP6	Z	-30.45	6
33	MP6	X	17.58	21
34	MP6	Z	-30.45	21
35	MP6	X	28.48	30
36	MP6	Z	-49.33	30
37	MP6	X	28.48	54
38	MP6	Z	-49.33	54
39	MP7	X	72.71	6
40	MP7	Z	-125.94	6
41	MP7	X	72.71	90
42	MP7	Z	-125.94	90
43	MP8	X	101.47	6
44	MP8	Z	-175.74	6
45	MP8	X	101.47	90
46	MP8	Z	-175.74	90
47	MP7	X	34.98	10
48	MP7	Z	-60.59	10

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
49	MP6	X	14.54	20
50	MP6	Z	-25.19	20
51	MP7	X	15.47	30
52	MP7	Z	-26.79	30
53	MP8	X	22.24	48
54	MP8	Z	-38.51	48
55	MP7	X	22.24	50
56	MP7	Z	-38.51	50
57	MP7	X	45.26	70
58	MP7	Z	-78.39	70
59	MP10	X	29.09	6
60	MP10	Z	-50.38	6
61	MP10	X	29.09	21
62	MP10	Z	-50.38	21
63	MP10	X	36.02	30
64	MP10	Z	-62.38	30
65	MP10	X	36.02	54
66	MP10	Z	-62.38	54
67	MP11	X	117.1	6
68	MP11	Z	-202.82	6
69	MP11	X	117.1	90
70	MP11	Z	-202.82	90
71	MP12	X	154.16	6
72	MP12	Z	-267.01	6
73	MP12	X	154.16	90
74	MP12	Z	-267.01	90
75	MP11	X	47.29	10
76	MP11	Z	-81.91	10
77	MP10	X	25.59	20
78	MP10	Z	-44.32	20
79	MP11	X	25.98	30
80	MP11	Z	-45	30
81	MP12	X	31.2	48
82	MP12	Z	-54.04	48
83	MP11	X	31.2	50
84	MP11	Z	-54.04	50
85	MP11	X	45.26	70
86	MP11	Z	-78.39	70

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-32.205	6
2	MP2	Y	-32.205	21
3	MP2	Y	-42.035	30
4	MP2	Y	-42.035	54
5	MP3	Y	-113.561	6
6	MP3	Y	-113.561	90
7	MP4	Y	-133.746	6
8	MP4	Y	-133.746	90
9	MP3	Y	-54.139	10
10	MP2	Y	-32.616	20
11	MP3	Y	-33.558	30
12	MP4	Y	-41.041	48
13	MP3	Y	-41.041	50
14	MP2	Y	-57.422	40
15	MP3	Y	-57.466	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP6	Y	-32.205	6
17	MP6	Y	-32.205	21
18	MP6	Y	-42.035	30
19	MP6	Y	-42.035	54
20	MP7	Y	-113.561	6
21	MP7	Y	-113.561	90
22	MP8	Y	-133.746	6
23	MP8	Y	-133.746	90
24	MP7	Y	-54.139	10
25	MP6	Y	-32.616	20
26	MP7	Y	-33.558	30
27	MP8	Y	-41.041	48
28	MP7	Y	-41.041	50
29	MP7	Y	-57.466	70
30	MP10	Y	-32.205	6
31	MP10	Y	-32.205	21
32	MP10	Y	-42.035	30
33	MP10	Y	-42.035	54
34	MP11	Y	-113.561	6
35	MP11	Y	-113.561	90
36	MP12	Y	-133.746	6
37	MP12	Y	-133.746	90
38	MP11	Y	-54.139	10
39	MP10	Y	-32.616	20
40	MP11	Y	-33.558	30
41	MP12	Y	-41.041	48
42	MP11	Y	-41.041	50
43	MP11	Y	-57.466	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	0	6
2	MP2	Z	-7	6
3	MP2	X	0	21
4	MP2	Z	-7	21
5	MP2	X	0	30
6	MP2	Z	-7.68	30
7	MP2	X	0	54
8	MP2	Z	-7.68	54
9	MP3	X	0	6
10	MP3	Z	-30.5	6
11	MP3	X	0	90
12	MP3	Z	-30.5	90
13	MP4	X	0	6
14	MP4	Z	-32.74	6
15	MP4	X	0	90
16	MP4	Z	-32.74	90
17	MP3	X	0	10
18	MP3	Z	-11.54	10
19	MP2	X	0	20
20	MP2	Z	-7.01	20
21	MP3	X	0	30
22	MP3	Z	-7.01	30
23	MP4	X	0	48
24	MP4	Z	-7.68	48
25	MP3	X	0	50

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
26	MP3	Z	-7.68	50
27	MP2	X	0	40
28	MP2	Z	-9.87	40
29	MP3	X	0	70
30	MP3	Z	-9.88	70
31	MP6	X	0	6
32	MP6	Z	-5.69	6
33	MP6	X	0	21
34	MP6	Z	-5.69	21
35	MP6	X	0	30
36	MP6	Z	-6.74	30
37	MP6	X	0	54
38	MP6	Z	-6.74	54
39	MP7	X	0	6
40	MP7	Z	-23.73	6
41	MP7	X	0	90
42	MP7	Z	-23.73	90
43	MP8	X	0	6
44	MP8	Z	-25.67	6
45	MP8	X	0	90
46	MP8	Z	-25.67	90
47	MP7	X	0	10
48	MP7	Z	-10.3	10
49	MP6	X	0	20
50	MP6	Z	-5.7	20
51	MP7	X	0	30
52	MP7	Z	-5.84	30
53	MP8	X	0	48
54	MP8	Z	-6.75	48
55	MP7	X	0	50
56	MP7	Z	-6.75	50
57	MP7	X	0	70
58	MP7	Z	-9.88	70
59	MP10	X	0	6
60	MP10	Z	-5.03	6
61	MP10	X	0	21
62	MP10	Z	-5.03	21
63	MP10	X	0	30
64	MP10	Z	-6.27	30
65	MP10	X	0	54
66	MP10	Z	-6.27	54
67	MP11	X	0	6
68	MP11	Z	-20.31	6
69	MP11	X	0	90
70	MP11	Z	-20.31	90
71	MP12	X	0	6
72	MP12	Z	-22.11	6
73	MP12	X	0	90
74	MP12	Z	-22.11	90
75	MP11	X	0	10
76	MP11	Z	-9.67	10
77	MP10	X	0	20
78	MP10	Z	-5.04	20
79	MP11	X	0	30
80	MP11	Z	-5.25	30
81	MP12	X	0	48
82	MP12	Z	-6.28	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
83	MP11	X	0	50
84	MP11	Z	-6.28	50
85	MP11	X	0	70
86	MP11	Z	-9.88	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-3.22	6
2	MP2	Z	-5.58	6
3	MP2	X	-3.22	21
4	MP2	Z	-5.58	21
5	MP2	X	-3.64	30
6	MP2	Z	-6.31	30
7	MP2	X	-3.64	54
8	MP2	Z	-6.31	54
9	MP3	X	-13.81	6
10	MP3	Z	-23.91	6
11	MP3	X	-13.81	90
12	MP3	Z	-23.91	90
13	MP4	X	-14.86	6
14	MP4	Z	-25.74	6
15	MP4	X	-14.86	90
16	MP4	Z	-25.74	90
17	MP3	X	-5.51	10
18	MP3	Z	-9.54	10
19	MP2	X	-3.23	20
20	MP2	Z	-5.59	20
21	MP3	X	-3.25	30
22	MP3	Z	-5.64	30
23	MP4	X	-3.64	48
24	MP4	Z	-6.31	48
25	MP3	X	-3.64	50
26	MP3	Z	-6.31	50
27	MP2	X	-4.93	40
28	MP2	Z	-8.54	40
29	MP3	X	-4.94	70
30	MP3	Z	-8.55	70
31	MP6	X	-3.37	6
32	MP6	Z	-5.83	6
33	MP6	X	-3.37	21
34	MP6	Z	-5.83	21
35	MP6	X	-3.75	30
36	MP6	Z	-6.49	30
37	MP6	X	-3.75	54
38	MP6	Z	-6.49	54
39	MP7	X	-14.57	6
40	MP7	Z	-25.24	6
41	MP7	X	-14.57	90
42	MP7	Z	-25.24	90
43	MP8	X	-15.66	6
44	MP8	Z	-27.13	6
45	MP8	X	-15.66	90
46	MP8	Z	-27.13	90
47	MP7	X	-5.65	10
48	MP7	Z	-9.78	10
49	MP6	X	-3.37	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
50	MP6	Z	-5.84	20
51	MP7	X	-3.39	30
52	MP7	Z	-5.87	30
53	MP8	X	-3.75	48
54	MP8	Z	-6.49	48
55	MP7	X	-3.75	50
56	MP7	Z	-6.49	50
57	MP7	X	-4.94	70
58	MP7	Z	-8.55	70
59	MP10	X	-2.42	6
60	MP10	Z	-4.18	6
61	MP10	X	-2.42	21
62	MP10	Z	-4.18	21
63	MP10	X	-3.06	30
64	MP10	Z	-5.31	30
65	MP10	X	-3.06	54
66	MP10	Z	-5.31	54
67	MP11	X	-9.65	6
68	MP11	Z	-16.72	6
69	MP11	X	-9.65	90
70	MP11	Z	-16.72	90
71	MP12	X	-10.53	6
72	MP12	Z	-18.24	6
73	MP12	X	-10.53	90
74	MP12	Z	-18.24	90
75	MP11	X	-4.75	10
76	MP11	Z	-8.22	10
77	MP10	X	-2.43	20
78	MP10	Z	-4.2	20
79	MP11	X	-2.54	30
80	MP11	Z	-4.4	30
81	MP12	X	-3.07	48
82	MP12	Z	-5.32	48
83	MP11	X	-3.07	50
84	MP11	Z	-5.32	50
85	MP11	X	-4.94	70
86	MP11	Z	-8.55	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-4.61	6
2	MP2	Z	-2.66	6
3	MP2	X	-4.61	21
4	MP2	Z	-2.66	21
5	MP2	X	-5.61	30
6	MP2	Z	-3.24	30
7	MP2	X	-5.61	54
8	MP2	Z	-3.24	54
9	MP3	X	-18.92	6
10	MP3	Z	-10.92	6
11	MP3	X	-18.92	90
12	MP3	Z	-10.92	90
13	MP4	X	-20.53	6
14	MP4	Z	-11.86	6
15	MP4	X	-20.53	90
16	MP4	Z	-11.86	90

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
17	MP3	X	-8.62	10
18	MP3	Z	-4.98	10
19	MP2	X	-4.62	20
20	MP2	Z	-2.67	20
21	MP3	X	-4.78	30
22	MP3	Z	-2.76	30
23	MP4	X	-5.62	48
24	MP4	Z	-3.25	48
25	MP3	X	-5.62	50
26	MP3	Z	-3.25	50
27	MP2	X	-8.54	40
28	MP2	Z	-4.93	40
29	MP3	X	-8.55	70
30	MP3	Z	-4.94	70
31	MP6	X	-6	6
32	MP6	Z	-3.47	6
33	MP6	X	-6	21
34	MP6	Z	-3.47	21
35	MP6	X	-6.61	30
36	MP6	Z	-3.82	30
37	MP6	X	-6.61	54
38	MP6	Z	-3.82	54
39	MP7	X	-26.11	6
40	MP7	Z	-15.07	6
41	MP7	X	-26.11	90
42	MP7	Z	-15.07	90
43	MP8	X	-28.04	6
44	MP8	Z	-16.19	6
45	MP8	X	-28.04	90
46	MP8	Z	-16.19	90
47	MP7	X	-9.94	10
48	MP7	Z	-5.74	10
49	MP6	X	-6.01	20
50	MP6	Z	-3.47	20
51	MP7	X	-6.02	30
52	MP7	Z	-3.47	30
53	MP8	X	-6.61	48
54	MP8	Z	-3.82	48
55	MP7	X	-6.61	50
56	MP7	Z	-3.82	50
57	MP7	X	-8.55	70
58	MP7	Z	-4.94	70
59	MP10	X	-4.93	6
60	MP10	Z	-2.84	6
61	MP10	X	-4.93	21
62	MP10	Z	-2.84	21
63	MP10	X	-5.84	30
64	MP10	Z	-3.37	30
65	MP10	X	-5.84	54
66	MP10	Z	-3.37	54
67	MP11	X	-20.55	6
68	MP11	Z	-11.86	6
69	MP11	X	-20.55	90
70	MP11	Z	-11.86	90
71	MP12	X	-22.23	6
72	MP12	Z	-12.84	6
73	MP12	X	-22.23	90

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
74	MP12	Z	-12.84	90
75	MP11	X	-8.92	10
76	MP11	Z	-5.15	10
77	MP10	X	-4.94	20
78	MP10	Z	-2.85	20
79	MP11	X	-5.06	30
80	MP11	Z	-2.92	30
81	MP12	X	-5.85	48
82	MP12	Z	-3.38	48
83	MP11	X	-5.85	50
84	MP11	Z	-3.38	50
85	MP11	X	-8.55	70
86	MP11	Z	-4.94	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-4.76	6
2	MP2	Z	0	6
3	MP2	X	-4.76	21
4	MP2	Z	0	21
5	MP2	X	-6.08	30
6	MP2	Z	0	30
7	MP2	X	-6.08	54
8	MP2	Z	0	54
9	MP3	X	-18.96	6
10	MP3	Z	0	6
11	MP3	X	-18.96	90
12	MP3	Z	0	90
13	MP4	X	-20.7	6
14	MP4	Z	0	6
15	MP4	X	-20.7	90
16	MP4	Z	0	90
17	MP3	X	-9.43	10
18	MP3	Z	0	10
19	MP2	X	-4.78	20
20	MP2	Z	0	20
21	MP3	X	-5.02	30
22	MP3	Z	0	30
23	MP4	X	-6.09	48
24	MP4	Z	0	48
25	MP3	X	-6.09	50
26	MP3	Z	0	50
27	MP2	X	-9.87	40
28	MP2	Z	0	40
29	MP3	X	-9.88	70
30	MP3	Z	0	70
31	MP6	X	-6.08	6
32	MP6	Z	0	6
33	MP6	X	-6.08	21
34	MP6	Z	0	21
35	MP6	X	-7.02	30
36	MP6	Z	0	30
37	MP6	X	-7.02	54
38	MP6	Z	0	54
39	MP7	X	-25.73	6
40	MP7	Z	0	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
41	MP7	X	-25.73	90
42	MP7	Z	0	90
43	MP8	X	-27.76	6
44	MP8	Z	0	6
45	MP8	X	-27.76	90
46	MP8	Z	0	90
47	MP7	X	-10.67	10
48	MP7	Z	0	10
49	MP6	X	-6.09	20
50	MP6	Z	0	20
51	MP7	X	-6.19	30
52	MP7	Z	0	30
53	MP8	X	-7.03	48
54	MP8	Z	0	48
55	MP7	X	-7.03	50
56	MP7	Z	0	50
57	MP7	X	-9.88	70
58	MP7	Z	0	70
59	MP10	X	-6.74	6
60	MP10	Z	0	6
61	MP10	X	-6.74	21
62	MP10	Z	0	21
63	MP10	X	-7.49	30
64	MP10	Z	0	30
65	MP10	X	-7.49	54
66	MP10	Z	0	54
67	MP11	X	-29.15	6
68	MP11	Z	0	6
69	MP11	X	-29.15	90
70	MP11	Z	0	90
71	MP12	X	-31.33	6
72	MP12	Z	0	6
73	MP12	X	-31.33	90
74	MP12	Z	0	90
75	MP11	X	-11.29	10
76	MP11	Z	0	10
77	MP10	X	-6.75	20
78	MP10	Z	0	20
79	MP11	X	-6.77	30
80	MP11	Z	0	30
81	MP12	X	-7.5	48
82	MP12	Z	0	48
83	MP11	X	-7.5	50
84	MP11	Z	0	50
85	MP11	X	-9.88	70
86	MP11	Z	0	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-4.61	6
2	MP2	Z	2.66	6
3	MP2	X	-4.61	21
4	MP2	Z	2.66	21
5	MP2	X	-5.61	30
6	MP2	Z	3.24	30
7	MP2	X	-5.61	54

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
8	MP2	Z	3.24	54
9	MP3	X	-18.92	6
10	MP3	Z	10.92	6
11	MP3	X	-18.92	90
12	MP3	Z	10.92	90
13	MP4	X	-20.53	6
14	MP4	Z	11.86	6
15	MP4	X	-20.53	90
16	MP4	Z	11.86	90
17	MP3	X	-8.62	10
18	MP3	Z	4.98	10
19	MP2	X	-4.62	20
20	MP2	Z	2.67	20
21	MP3	X	-4.78	30
22	MP3	Z	2.76	30
23	MP4	X	-5.62	48
24	MP4	Z	3.25	48
25	MP3	X	-5.62	50
26	MP3	Z	3.25	50
27	MP2	X	-8.54	40
28	MP2	Z	4.93	40
29	MP3	X	-8.55	70
30	MP3	Z	4.94	70
31	MP6	X	-4.35	6
32	MP6	Z	2.51	6
33	MP6	X	-4.35	21
34	MP6	Z	2.51	21
35	MP6	X	-5.43	30
36	MP6	Z	3.13	30
37	MP6	X	-5.43	54
38	MP6	Z	3.13	54
39	MP7	X	-17.59	6
40	MP7	Z	10.15	6
41	MP7	X	-17.59	90
42	MP7	Z	10.15	90
43	MP8	X	-19.15	6
44	MP8	Z	11.06	6
45	MP8	X	-19.15	90
46	MP8	Z	11.06	90
47	MP7	X	-8.38	10
48	MP7	Z	4.84	10
49	MP6	X	-4.37	20
50	MP6	Z	2.52	20
51	MP7	X	-4.55	30
52	MP7	Z	2.63	30
53	MP8	X	-5.44	48
54	MP8	Z	3.14	48
55	MP7	X	-5.44	50
56	MP7	Z	3.14	50
57	MP7	X	-8.55	70
58	MP7	Z	4.94	70
59	MP10	X	-6	6
60	MP10	Z	3.47	6
61	MP10	X	-6	21
62	MP10	Z	3.47	21
63	MP10	X	-6.61	30
64	MP10	Z	3.82	30

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
65	MP10	X	-6.61	54
66	MP10	Z	3.82	54
67	MP11	X	-26.11	6
68	MP11	Z	15.07	6
69	MP11	X	-26.11	90
70	MP11	Z	15.07	90
71	MP12	X	-28.04	6
72	MP12	Z	16.19	6
73	MP12	X	-28.04	90
74	MP12	Z	16.19	90
75	MP11	X	-9.94	10
76	MP11	Z	5.74	10
77	MP10	X	-6.01	20
78	MP10	Z	3.47	20
79	MP11	X	-6.02	30
80	MP11	Z	3.47	30
81	MP12	X	-6.61	48
82	MP12	Z	3.82	48
83	MP11	X	-6.61	50
84	MP11	Z	3.82	50
85	MP11	X	-8.55	70
86	MP11	Z	4.94	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-3.22	6
2	MP2	Z	5.58	6
3	MP2	X	-3.22	21
4	MP2	Z	5.58	21
5	MP2	X	-3.64	30
6	MP2	Z	6.31	30
7	MP2	X	-3.64	54
8	MP2	Z	6.31	54
9	MP3	X	-13.81	6
10	MP3	Z	23.91	6
11	MP3	X	-13.81	90
12	MP3	Z	23.91	90
13	MP4	X	-14.86	6
14	MP4	Z	25.74	6
15	MP4	X	-14.86	90
16	MP4	Z	25.74	90
17	MP3	X	-5.51	10
18	MP3	Z	9.54	10
19	MP2	X	-3.23	20
20	MP2	Z	5.59	20
21	MP3	X	-3.25	30
22	MP3	Z	5.64	30
23	MP4	X	-3.64	48
24	MP4	Z	6.31	48
25	MP3	X	-3.64	50
26	MP3	Z	6.31	50
27	MP2	X	-4.93	40
28	MP2	Z	8.54	40
29	MP3	X	-4.94	70
30	MP3	Z	8.55	70
31	MP6	X	-2.42	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
32	MP6	Z	4.18	6
33	MP6	X	-2.42	21
34	MP6	Z	4.18	21
35	MP6	X	-3.06	30
36	MP6	Z	5.31	30
37	MP6	X	-3.06	54
38	MP6	Z	5.31	54
39	MP7	X	-9.65	6
40	MP7	Z	16.72	6
41	MP7	X	-9.65	90
42	MP7	Z	16.72	90
43	MP8	X	-10.53	6
44	MP8	Z	18.24	6
45	MP8	X	-10.53	90
46	MP8	Z	18.24	90
47	MP7	X	-4.75	10
48	MP7	Z	8.22	10
49	MP6	X	-2.43	20
50	MP6	Z	4.2	20
51	MP7	X	-2.54	30
52	MP7	Z	4.4	30
53	MP8	X	-3.07	48
54	MP8	Z	5.32	48
55	MP7	X	-3.07	50
56	MP7	Z	5.32	50
57	MP7	X	-4.94	70
58	MP7	Z	8.55	70
59	MP10	X	-3.04	6
60	MP10	Z	5.26	6
61	MP10	X	-3.04	21
62	MP10	Z	5.26	21
63	MP10	X	-3.51	30
64	MP10	Z	6.08	30
65	MP10	X	-3.51	54
66	MP10	Z	6.08	54
67	MP11	X	-12.86	6
68	MP11	Z	22.28	6
69	MP11	X	-12.86	90
70	MP11	Z	22.28	90
71	MP12	X	-13.88	6
72	MP12	Z	24.04	6
73	MP12	X	-13.88	90
74	MP12	Z	24.04	90
75	MP11	X	-5.33	10
76	MP11	Z	9.24	10
77	MP10	X	-3.04	20
78	MP10	Z	5.27	20
79	MP11	X	-3.09	30
80	MP11	Z	5.36	30
81	MP12	X	-3.51	48
82	MP12	Z	6.08	48
83	MP11	X	-3.51	50
84	MP11	Z	6.08	50
85	MP11	X	-4.94	70
86	MP11	Z	8.55	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	0	6
2	MP2	Z	7	6
3	MP2	X	0	21
4	MP2	Z	7	21
5	MP2	X	0	30
6	MP2	Z	7.68	30
7	MP2	X	0	54
8	MP2	Z	7.68	54
9	MP3	X	0	6
10	MP3	Z	30.5	6
11	MP3	X	0	90
12	MP3	Z	30.5	90
13	MP4	X	0	6
14	MP4	Z	32.74	6
15	MP4	X	0	90
16	MP4	Z	32.74	90
17	MP3	X	0	10
18	MP3	Z	11.54	10
19	MP2	X	0	20
20	MP2	Z	7.01	20
21	MP3	X	0	30
22	MP3	Z	7.01	30
23	MP4	X	0	48
24	MP4	Z	7.68	48
25	MP3	X	0	50
26	MP3	Z	7.68	50
27	MP2	X	0	40
28	MP2	Z	9.87	40
29	MP3	X	0	70
30	MP3	Z	9.88	70
31	MP6	X	0	6
32	MP6	Z	5.69	6
33	MP6	X	0	21
34	MP6	Z	5.69	21
35	MP6	X	0	30
36	MP6	Z	6.74	30
37	MP6	X	0	54
38	MP6	Z	6.74	54
39	MP7	X	0	6
40	MP7	Z	23.73	6
41	MP7	X	0	90
42	MP7	Z	23.73	90
43	MP8	X	0	6
44	MP8	Z	25.67	6
45	MP8	X	0	90
46	MP8	Z	25.67	90
47	MP7	X	0	10
48	MP7	Z	10.3	10
49	MP6	X	0	20
50	MP6	Z	5.7	20
51	MP7	X	0	30
52	MP7	Z	5.84	30
53	MP8	X	0	48
54	MP8	Z	6.75	48
55	MP7	X	0	50
56	MP7	Z	6.75	50
57	MP7	X	0	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
58	MP7	Z	9.88	70
59	MP10	X	0	6
60	MP10	Z	5.03	6
61	MP10	X	0	21
62	MP10	Z	5.03	21
63	MP10	X	0	30
64	MP10	Z	6.27	30
65	MP10	X	0	54
66	MP10	Z	6.27	54
67	MP11	X	0	6
68	MP11	Z	20.31	6
69	MP11	X	0	90
70	MP11	Z	20.31	90
71	MP12	X	0	6
72	MP12	Z	22.11	6
73	MP12	X	0	90
74	MP12	Z	22.11	90
75	MP11	X	0	10
76	MP11	Z	9.67	10
77	MP10	X	0	20
78	MP10	Z	5.04	20
79	MP11	X	0	30
80	MP11	Z	5.25	30
81	MP12	X	0	48
82	MP12	Z	6.28	48
83	MP11	X	0	50
84	MP11	Z	6.28	50
85	MP11	X	0	70
86	MP11	Z	9.88	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	3.22	6
2	MP2	Z	5.58	6
3	MP2	X	3.22	21
4	MP2	Z	5.58	21
5	MP2	X	3.64	30
6	MP2	Z	6.31	30
7	MP2	X	3.64	54
8	MP2	Z	6.31	54
9	MP3	X	13.81	6
10	MP3	Z	23.91	6
11	MP3	X	13.81	90
12	MP3	Z	23.91	90
13	MP4	X	14.86	6
14	MP4	Z	25.74	6
15	MP4	X	14.86	90
16	MP4	Z	25.74	90
17	MP3	X	5.51	10
18	MP3	Z	9.54	10
19	MP2	X	3.23	20
20	MP2	Z	5.59	20
21	MP3	X	3.25	30
22	MP3	Z	5.64	30
23	MP4	X	3.64	48
24	MP4	Z	6.31	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
25	MP3	X	3.64	50
26	MP3	Z	6.31	50
27	MP2	X	4.93	40
28	MP2	Z	8.54	40
29	MP3	X	4.94	70
30	MP3	Z	8.55	70
31	MP6	X	3.37	6
32	MP6	Z	5.83	6
33	MP6	X	3.37	21
34	MP6	Z	5.83	21
35	MP6	X	3.75	30
36	MP6	Z	6.49	30
37	MP6	X	3.75	54
38	MP6	Z	6.49	54
39	MP7	X	14.57	6
40	MP7	Z	25.24	6
41	MP7	X	14.57	90
42	MP7	Z	25.24	90
43	MP8	X	15.66	6
44	MP8	Z	27.13	6
45	MP8	X	15.66	90
46	MP8	Z	27.13	90
47	MP7	X	5.65	10
48	MP7	Z	9.78	10
49	MP6	X	3.37	20
50	MP6	Z	5.84	20
51	MP7	X	3.39	30
52	MP7	Z	5.87	30
53	MP8	X	3.75	48
54	MP8	Z	6.49	48
55	MP7	X	3.75	50
56	MP7	Z	6.49	50
57	MP7	X	4.94	70
58	MP7	Z	8.55	70
59	MP10	X	2.42	6
60	MP10	Z	4.18	6
61	MP10	X	2.42	21
62	MP10	Z	4.18	21
63	MP10	X	3.06	30
64	MP10	Z	5.31	30
65	MP10	X	3.06	54
66	MP10	Z	5.31	54
67	MP11	X	9.65	6
68	MP11	Z	16.72	6
69	MP11	X	9.65	90
70	MP11	Z	16.72	90
71	MP12	X	10.53	6
72	MP12	Z	18.24	6
73	MP12	X	10.53	90
74	MP12	Z	18.24	90
75	MP11	X	4.75	10
76	MP11	Z	8.22	10
77	MP10	X	2.43	20
78	MP10	Z	4.2	20
79	MP11	X	2.54	30
80	MP11	Z	4.4	30
81	MP12	X	3.07	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
82	MP12	Z	5.32	48
83	MP11	X	3.07	50
84	MP11	Z	5.32	50
85	MP11	X	4.94	70
86	MP11	Z	8.55	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	4.61	6
2	MP2	Z	2.66	6
3	MP2	X	4.61	21
4	MP2	Z	2.66	21
5	MP2	X	5.61	30
6	MP2	Z	3.24	30
7	MP2	X	5.61	54
8	MP2	Z	3.24	54
9	MP3	X	18.92	6
10	MP3	Z	10.92	6
11	MP3	X	18.92	90
12	MP3	Z	10.92	90
13	MP4	X	20.53	6
14	MP4	Z	11.86	6
15	MP4	X	20.53	90
16	MP4	Z	11.86	90
17	MP3	X	8.62	10
18	MP3	Z	4.98	10
19	MP2	X	4.62	20
20	MP2	Z	2.67	20
21	MP3	X	4.78	30
22	MP3	Z	2.76	30
23	MP4	X	5.62	48
24	MP4	Z	3.25	48
25	MP3	X	5.62	50
26	MP3	Z	3.25	50
27	MP2	X	8.54	40
28	MP2	Z	4.93	40
29	MP3	X	8.55	70
30	MP3	Z	4.94	70
31	MP6	X	6	6
32	MP6	Z	3.47	6
33	MP6	X	6	21
34	MP6	Z	3.47	21
35	MP6	X	6.61	30
36	MP6	Z	3.82	30
37	MP6	X	6.61	54
38	MP6	Z	3.82	54
39	MP7	X	26.11	6
40	MP7	Z	15.07	6
41	MP7	X	26.11	90
42	MP7	Z	15.07	90
43	MP8	X	28.04	6
44	MP8	Z	16.19	6
45	MP8	X	28.04	90
46	MP8	Z	16.19	90
47	MP7	X	9.94	10
48	MP7	Z	5.74	10

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
49	MP6	X	6.01	20
50	MP6	Z	3.47	20
51	MP7	X	6.02	30
52	MP7	Z	3.47	30
53	MP8	X	6.61	48
54	MP8	Z	3.82	48
55	MP7	X	6.61	50
56	MP7	Z	3.82	50
57	MP7	X	8.55	70
58	MP7	Z	4.94	70
59	MP10	X	4.93	6
60	MP10	Z	2.84	6
61	MP10	X	4.93	21
62	MP10	Z	2.84	21
63	MP10	X	5.84	30
64	MP10	Z	3.37	30
65	MP10	X	5.84	54
66	MP10	Z	3.37	54
67	MP11	X	20.55	6
68	MP11	Z	11.86	6
69	MP11	X	20.55	90
70	MP11	Z	11.86	90
71	MP12	X	22.23	6
72	MP12	Z	12.84	6
73	MP12	X	22.23	90
74	MP12	Z	12.84	90
75	MP11	X	8.92	10
76	MP11	Z	5.15	10
77	MP10	X	4.94	20
78	MP10	Z	2.85	20
79	MP11	X	5.06	30
80	MP11	Z	2.92	30
81	MP12	X	5.85	48
82	MP12	Z	3.38	48
83	MP11	X	5.85	50
84	MP11	Z	3.38	50
85	MP11	X	8.55	70
86	MP11	Z	4.94	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	4.76	6
2	MP2	Z	0	6
3	MP2	X	4.76	21
4	MP2	Z	0	21
5	MP2	X	6.08	30
6	MP2	Z	0	30
7	MP2	X	6.08	54
8	MP2	Z	0	54
9	MP3	X	18.96	6
10	MP3	Z	0	6
11	MP3	X	18.96	90
12	MP3	Z	0	90
13	MP4	X	20.7	6
14	MP4	Z	0	6
15	MP4	X	20.7	90

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP4	Z	0	90
17	MP3	X	9.43	10
18	MP3	Z	0	10
19	MP2	X	4.78	20
20	MP2	Z	0	20
21	MP3	X	5.02	30
22	MP3	Z	0	30
23	MP4	X	6.09	48
24	MP4	Z	0	48
25	MP3	X	6.09	50
26	MP3	Z	0	50
27	MP2	X	9.87	40
28	MP2	Z	0	40
29	MP3	X	9.88	70
30	MP3	Z	0	70
31	MP6	X	6.08	6
32	MP6	Z	0	6
33	MP6	X	6.08	21
34	MP6	Z	0	21
35	MP6	X	7.02	30
36	MP6	Z	0	30
37	MP6	X	7.02	54
38	MP6	Z	0	54
39	MP7	X	25.73	6
40	MP7	Z	0	6
41	MP7	X	25.73	90
42	MP7	Z	0	90
43	MP8	X	27.76	6
44	MP8	Z	0	6
45	MP8	X	27.76	90
46	MP8	Z	0	90
47	MP7	X	10.67	10
48	MP7	Z	0	10
49	MP6	X	6.09	20
50	MP6	Z	0	20
51	MP7	X	6.19	30
52	MP7	Z	0	30
53	MP8	X	7.03	48
54	MP8	Z	0	48
55	MP7	X	7.03	50
56	MP7	Z	0	50
57	MP7	X	9.88	70
58	MP7	Z	0	70
59	MP10	X	6.74	6
60	MP10	Z	0	6
61	MP10	X	6.74	21
62	MP10	Z	0	21
63	MP10	X	7.49	30
64	MP10	Z	0	30
65	MP10	X	7.49	54
66	MP10	Z	0	54
67	MP11	X	29.15	6
68	MP11	Z	0	6
69	MP11	X	29.15	90
70	MP11	Z	0	90
71	MP12	X	31.33	6
72	MP12	Z	0	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
73	MP12	X	31.33	90
74	MP12	Z	0	90
75	MP11	X	11.29	10
76	MP11	Z	0	10
77	MP10	X	6.75	20
78	MP10	Z	0	20
79	MP11	X	6.77	30
80	MP11	Z	0	30
81	MP12	X	7.5	48
82	MP12	Z	0	48
83	MP11	X	7.5	50
84	MP11	Z	0	50
85	MP11	X	9.88	70
86	MP11	Z	0	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	4.61	6
2	MP2	Z	-2.66	6
3	MP2	X	4.61	21
4	MP2	Z	-2.66	21
5	MP2	X	5.61	30
6	MP2	Z	-3.24	30
7	MP2	X	5.61	54
8	MP2	Z	-3.24	54
9	MP3	X	18.92	6
10	MP3	Z	-10.92	6
11	MP3	X	18.92	90
12	MP3	Z	-10.92	90
13	MP4	X	20.53	6
14	MP4	Z	-11.86	6
15	MP4	X	20.53	90
16	MP4	Z	-11.86	90
17	MP3	X	8.62	10
18	MP3	Z	-4.98	10
19	MP2	X	4.62	20
20	MP2	Z	-2.67	20
21	MP3	X	4.78	30
22	MP3	Z	-2.76	30
23	MP4	X	5.62	48
24	MP4	Z	-3.25	48
25	MP3	X	5.62	50
26	MP3	Z	-3.25	50
27	MP2	X	8.54	40
28	MP2	Z	-4.93	40
29	MP3	X	8.55	70
30	MP3	Z	-4.94	70
31	MP6	X	4.35	6
32	MP6	Z	-2.51	6
33	MP6	X	4.35	21
34	MP6	Z	-2.51	21
35	MP6	X	5.43	30
36	MP6	Z	-3.13	30
37	MP6	X	5.43	54
38	MP6	Z	-3.13	54
39	MP7	X	17.59	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
40	MP7	Z	-10.15	6
41	MP7	X	17.59	90
42	MP7	Z	-10.15	90
43	MP8	X	19.15	6
44	MP8	Z	-11.06	6
45	MP8	X	19.15	90
46	MP8	Z	-11.06	90
47	MP7	X	8.38	10
48	MP7	Z	-4.84	10
49	MP6	X	4.37	20
50	MP6	Z	-2.52	20
51	MP7	X	4.55	30
52	MP7	Z	-2.63	30
53	MP8	X	5.44	48
54	MP8	Z	-3.14	48
55	MP7	X	5.44	50
56	MP7	Z	-3.14	50
57	MP7	X	8.55	70
58	MP7	Z	-4.94	70
59	MP10	X	6	6
60	MP10	Z	-3.47	6
61	MP10	X	6	21
62	MP10	Z	-3.47	21
63	MP10	X	6.61	30
64	MP10	Z	-3.82	30
65	MP10	X	6.61	54
66	MP10	Z	-3.82	54
67	MP11	X	26.11	6
68	MP11	Z	-15.07	6
69	MP11	X	26.11	90
70	MP11	Z	-15.07	90
71	MP12	X	28.04	6
72	MP12	Z	-16.19	6
73	MP12	X	28.04	90
74	MP12	Z	-16.19	90
75	MP11	X	9.94	10
76	MP11	Z	-5.74	10
77	MP10	X	6.01	20
78	MP10	Z	-3.47	20
79	MP11	X	6.02	30
80	MP11	Z	-3.47	30
81	MP12	X	6.61	48
82	MP12	Z	-3.82	48
83	MP11	X	6.61	50
84	MP11	Z	-3.82	50
85	MP11	X	8.55	70
86	MP11	Z	-4.94	70

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	3.22	6
2	MP2	Z	-5.58	6
3	MP2	X	3.22	21
4	MP2	Z	-5.58	21
5	MP2	X	3.64	30
6	MP2	Z	-6.31	30

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
7	MP2	X	3.64	54
8	MP2	Z	-6.31	54
9	MP3	X	13.81	6
10	MP3	Z	-23.91	6
11	MP3	X	13.81	90
12	MP3	Z	-23.91	90
13	MP4	X	14.86	6
14	MP4	Z	-25.74	6
15	MP4	X	14.86	90
16	MP4	Z	-25.74	90
17	MP3	X	5.51	10
18	MP3	Z	-9.54	10
19	MP2	X	3.23	20
20	MP2	Z	-5.59	20
21	MP3	X	3.25	30
22	MP3	Z	-5.64	30
23	MP4	X	3.64	48
24	MP4	Z	-6.31	48
25	MP3	X	3.64	50
26	MP3	Z	-6.31	50
27	MP2	X	4.93	40
28	MP2	Z	-8.54	40
29	MP3	X	4.94	70
30	MP3	Z	-8.55	70
31	MP6	X	2.42	6
32	MP6	Z	-4.18	6
33	MP6	X	2.42	21
34	MP6	Z	-4.18	21
35	MP6	X	3.06	30
36	MP6	Z	-5.31	30
37	MP6	X	3.06	54
38	MP6	Z	-5.31	54
39	MP7	X	9.65	6
40	MP7	Z	-16.72	6
41	MP7	X	9.65	90
42	MP7	Z	-16.72	90
43	MP8	X	10.53	6
44	MP8	Z	-18.24	6
45	MP8	X	10.53	90
46	MP8	Z	-18.24	90
47	MP7	X	4.75	10
48	MP7	Z	-8.22	10
49	MP6	X	2.43	20
50	MP6	Z	-4.2	20
51	MP7	X	2.54	30
52	MP7	Z	-4.4	30
53	MP8	X	3.07	48
54	MP8	Z	-5.32	48
55	MP7	X	3.07	50
56	MP7	Z	-5.32	50
57	MP7	X	4.94	70
58	MP7	Z	-8.55	70
59	MP10	X	3.04	6
60	MP10	Z	-5.26	6
61	MP10	X	3.04	21
62	MP10	Z	-5.26	21
63	MP10	X	3.51	30

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
64	MP10	Z	-6.08	30
65	MP10	X	3.51	54
66	MP10	Z	-6.08	54
67	MP11	X	12.86	6
68	MP11	Z	-22.28	6
69	MP11	X	12.86	90
70	MP11	Z	-22.28	90
71	MP12	X	13.88	6
72	MP12	Z	-24.04	6
73	MP12	X	13.88	90
74	MP12	Z	-24.04	90
75	MP11	X	5.33	10
76	MP11	Z	-9.24	10
77	MP10	X	3.04	20
78	MP10	Z	-5.27	20
79	MP11	X	3.09	30
80	MP11	Z	-5.36	30
81	MP12	X	3.51	48
82	MP12	Z	-6.08	48
83	MP11	X	3.51	50
84	MP11	Z	-6.08	50
85	MP11	X	4.94	70
86	MP11	Z	-8.55	70

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-10.38	6
2	MP2	Z	-10.38	21
3	MP2	Z	-15.178	30
4	MP2	Z	-15.178	54
5	MP3	Z	-19.71	6
6	MP3	Z	-19.71	90
7	MP4	Z	-23.52	6
8	MP4	Z	-23.52	90
9	MP3	Z	-16.621	10
10	MP2	Z	-13.798	20
11	MP3	Z	-15.178	30
12	MP4	Z	-18.785	48
13	MP3	Z	-18.785	50
14	MP2	Z	-5.927	40
15	MP3	Z	-5.927	70
16	MP6	Z	-10.38	6
17	MP6	Z	-10.38	21
18	MP6	Z	-15.178	30
19	MP6	Z	-15.178	54
20	MP7	Z	-19.71	6
21	MP7	Z	-19.71	90
22	MP8	Z	-23.52	6
23	MP8	Z	-23.52	90
24	MP7	Z	-16.621	10
25	MP6	Z	-13.798	20
26	MP7	Z	-15.178	30
27	MP8	Z	-18.785	48
28	MP7	Z	-18.785	50
29	MP7	Z	-5.927	70
30	MP10	Z	-10.38	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
31	MP10	Z	-10.38	21
32	MP10	Z	-15.178	30
33	MP10	Z	-15.178	54
34	MP11	Z	-19.71	6
35	MP11	Z	-19.71	90
36	MP12	Z	-23.52	6
37	MP12	Z	-23.52	90
38	MP11	Z	-16.621	10
39	MP10	Z	-13.798	20
40	MP11	Z	-15.178	30
41	MP12	Z	-18.785	48
42	MP11	Z	-18.785	50
43	MP11	Z	-5.927	70

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-10.38	6
2	MP2	X	-10.38	21
3	MP2	X	-15.178	30
4	MP2	X	-15.178	54
5	MP3	X	-19.71	6
6	MP3	X	-19.71	90
7	MP4	X	-23.52	6
8	MP4	X	-23.52	90
9	MP3	X	-16.621	10
10	MP2	X	-13.798	20
11	MP3	X	-15.178	30
12	MP4	X	-18.785	48
13	MP3	X	-18.785	50
14	MP2	X	-5.927	40
15	MP3	X	-5.927	70
16	MP6	X	-10.38	6
17	MP6	X	-10.38	21
18	MP6	X	-15.178	30
19	MP6	X	-15.178	54
20	MP7	X	-19.71	6
21	MP7	X	-19.71	90
22	MP8	X	-23.52	6
23	MP8	X	-23.52	90
24	MP7	X	-16.621	10
25	MP6	X	-13.798	20
26	MP7	X	-15.178	30
27	MP8	X	-18.785	48
28	MP7	X	-18.785	50
29	MP7	X	-5.927	70
30	MP10	X	-10.38	6
31	MP10	X	-10.38	21
32	MP10	X	-15.178	30
33	MP10	X	-15.178	54
34	MP11	X	-19.71	6
35	MP11	X	-19.71	90
36	MP12	X	-23.52	6
37	MP12	X	-23.52	90
38	MP11	X	-16.621	10
39	MP10	X	-13.798	20
40	MP11	X	-15.178	30

Member Point Loads (BLC 32 : Seismic Load X) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
41	MP12	X	-18.785	48
42	MP11	X	-18.785	50
43	MP11	X	-5.927	70

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	B1	SZ	-91.307	-91.307	0	%100
2	B2	SZ	-91.307	-91.307	0	%100
3	B3	SZ	-91.307	-91.307	0	%100
4	B4	SZ	-91.307	-91.307	0	%100
5	B5	SZ	-91.307	-91.307	0	%100
6	B6	SZ	-91.307	-91.307	0	%100
7	HOR1	SZ	-54.784	-54.784	0	%100
8	HOR3	SZ	-54.784	-54.784	0	%100
9	HOR2	SZ	-54.784	-54.784	0	%100
10	HR1	SZ	-54.784	-54.784	0	%100
11	HR3	SZ	-54.784	-54.784	0	%100
12	HR2	SZ	-54.784	-54.784	0	%100
13	HRA1	SZ	-91.307	-91.307	0	%100
14	HRA2	SZ	-91.307	-91.307	0	%100
15	HRA3	SZ	-91.307	-91.307	0	%100
16	MP1	SZ	-54.784	-54.784	0	%100
17	MP2	SZ	-54.784	-54.784	0	%100
18	MP4	SZ	-54.784	-54.784	0	%100
19	R1	SZ	-91.307	-91.307	0	%100
20	R2	SZ	-91.307	-91.307	0	%100
21	R3	SZ	-91.307	-91.307	0	%100
22	SA1	SZ	-54.784	-54.784	0	%100
23	BR1	SZ	-91.307	-91.307	0	%100
24	SA3	SZ	-54.784	-54.784	0	%100
25	BR3	SZ	-91.307	-91.307	0	%100
26	SA2	SZ	-54.784	-54.784	0	%100
27	BR2	SZ	-91.307	-91.307	0	%100
28	M39	SZ	-91.307	-91.307	0	%100
29	M37	SZ	0	0	0	%100
30	M38A	SZ	0	0	0	%100
31	M39A	SZ	0	0	0	%100
32	M40	SZ	0	0	0	%100
33	M41	SZ	0	0	0	%100
34	M42	SZ	0	0	0	%100
35	MP3	SZ	-54.784	-54.784	0	%100
36	M44	SZ	0	0	0	%100
37	M45	SZ	0	0	0	%100
38	MP9	SZ	-54.784	-54.784	0	%100
39	MP10	SZ	-54.784	-54.784	0	%100
40	MP12	SZ	-54.784	-54.784	0	%100
41	M43A	SZ	0	0	0	%100
42	M44A	SZ	0	0	0	%100
43	M45A	SZ	0	0	0	%100
44	M46	SZ	0	0	0	%100
45	M47	SZ	0	0	0	%100
46	M48	SZ	0	0	0	%100
47	MP11	SZ	-54.784	-54.784	0	%100
48	M50	SZ	0	0	0	%100
49	M51	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
50	MP5	SZ	-54.784	-54.784	0	%100
51	MP6	SZ	-54.784	-54.784	0	%100
52	MP8	SZ	-54.784	-54.784	0	%100
53	M55	SZ	0	0	0	%100
54	M56	SZ	0	0	0	%100
55	M57	SZ	0	0	0	%100
56	M58	SZ	0	0	0	%100
57	M59	SZ	0	0	0	%100
58	M60	SZ	0	0	0	%100
59	MP7	SZ	-54.784	-54.784	0	%100
60	M62	SZ	0	0	0	%100
61	M63	SZ	0	0	0	%100
62	M62A	SZ	0	0	0	%100
63	M63A	SZ	0	0	0	%100
64	M64	SZ	-91.307	-91.307	0	%100
65	M65	SZ	0	0	0	%100
66	M66	SZ	0	0	0	%100
67	M67	SZ	-91.307	-91.307	0	%100
68	M68	SZ	0	0	0	%100
69	M69	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	B1	SX	-91.307	-91.307	0	%100
2	B2	SX	-91.307	-91.307	0	%100
3	B3	SX	-91.307	-91.307	0	%100
4	B4	SX	-91.307	-91.307	0	%100
5	B5	SX	-91.307	-91.307	0	%100
6	B6	SX	-91.307	-91.307	0	%100
7	HOR1	SX	-54.784	-54.784	0	%100
8	HOR3	SX	-54.784	-54.784	0	%100
9	HOR2	SX	-54.784	-54.784	0	%100
10	HR1	SX	-54.784	-54.784	0	%100
11	HR3	SX	-54.784	-54.784	0	%100
12	HR2	SX	-54.784	-54.784	0	%100
13	HRA1	SX	-91.307	-91.307	0	%100
14	HRA2	SX	-91.307	-91.307	0	%100
15	HRA3	SX	-91.307	-91.307	0	%100
16	MP1	SX	-54.784	-54.784	0	%100
17	MP2	SX	-54.784	-54.784	0	%100
18	MP4	SX	-54.784	-54.784	0	%100
19	R1	SX	-91.307	-91.307	0	%100
20	R2	SX	-91.307	-91.307	0	%100
21	R3	SX	-91.307	-91.307	0	%100
22	SA1	SX	-54.784	-54.784	0	%100
23	BR1	SX	-91.307	-91.307	0	%100
24	SA3	SX	-54.784	-54.784	0	%100
25	BR3	SX	-91.307	-91.307	0	%100
26	SA2	SX	-54.784	-54.784	0	%100
27	BR2	SX	-91.307	-91.307	0	%100
28	M39	SX	-91.307	-91.307	0	%100
29	M37	SX	0	0	0	%100
30	M38A	SX	0	0	0	%100
31	M39A	SX	0	0	0	%100
32	M40	SX	0	0	0	%100
33	M41	SX	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
34	M42	SX	0	0	0	%100
35	MP3	SX	-54.784	-54.784	0	%100
36	M44	SX	0	0	0	%100
37	M45	SX	0	0	0	%100
38	MP9	SX	-54.784	-54.784	0	%100
39	MP10	SX	-54.784	-54.784	0	%100
40	MP12	SX	-54.784	-54.784	0	%100
41	M43A	SX	0	0	0	%100
42	M44A	SX	0	0	0	%100
43	M45A	SX	0	0	0	%100
44	M46	SX	0	0	0	%100
45	M47	SX	0	0	0	%100
46	M48	SX	0	0	0	%100
47	MP11	SX	-54.784	-54.784	0	%100
48	M50	SX	0	0	0	%100
49	M51	SX	0	0	0	%100
50	MP5	SX	-54.784	-54.784	0	%100
51	MP6	SX	-54.784	-54.784	0	%100
52	MP8	SX	-54.784	-54.784	0	%100
53	M55	SX	0	0	0	%100
54	M56	SX	0	0	0	%100
55	M57	SX	0	0	0	%100
56	M58	SX	0	0	0	%100
57	M59	SX	0	0	0	%100
58	M60	SX	0	0	0	%100
59	MP7	SX	-54.784	-54.784	0	%100
60	M62	SX	0	0	0	%100
61	M63	SX	0	0	0	%100
62	M62A	SX	0	0	0	%100
63	M63A	SX	0	0	0	%100
64	M64	SX	-91.307	-91.307	0	%100
65	M65	SX	0	0	0	%100
66	M66	SX	0	0	0	%100
67	M67	SX	-91.307	-91.307	0	%100
68	M68	SX	0	0	0	%100
69	M69	SX	0	0	0	%100

Member Distributed Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	B1	Y	-5.674	-5.674	0	%100
2	B2	Y	-5.674	-5.674	0	%100
3	B3	Y	-5.674	-5.674	0	%100
4	B4	Y	-5.674	-5.674	0	%100
5	B5	Y	-5.674	-5.674	0	%100
6	B6	Y	-5.674	-5.674	0	%100
7	HOR1	Y	-6.629	-6.629	0	%100
8	HOR3	Y	-6.629	-6.629	0	%100
9	HOR2	Y	-6.629	-6.629	0	%100
10	HR1	Y	-5.03	-5.03	0	%100
11	HR3	Y	-5.03	-5.03	0	%100
12	HR2	Y	-5.03	-5.03	0	%100
13	HRA1	Y	-6.679	-6.679	0	%100
14	HRA2	Y	-11.528	-11.528	0	%100
15	HRA3	Y	-11.528	-11.528	0	%100
16	MP1	Y	-5.03	-5.03	0	%100
17	MP2	Y	-5.03	-5.03	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
18	MP4	Y	-5.03	-5.03	0	%100
19	R1	Y	-10.199	-10.199	0	%100
20	R2	Y	-10.199	-10.199	0	%100
21	R3	Y	-10.199	-10.199	0	%100
22	SA1	Y	-6.629	-6.629	0	%100
23	BR1	Y	-6.422	-6.422	0	%100
24	SA3	Y	-6.629	-6.629	0	%100
25	BR3	Y	-6.422	-6.422	0	%100
26	SA2	Y	-6.629	-6.629	0	%100
27	BR2	Y	-6.422	-6.422	0	%100
28	M39	Y	-9.294	-9.294	0	%100
29	M37	Y	-1.654	-1.654	0	%100
30	M38A	Y	-1.654	-1.654	0	%100
31	M39A	Y	-1.654	-1.654	0	%100
32	M40	Y	-1.654	-1.654	0	%100
33	M41	Y	-1.654	-1.654	0	%100
34	M42	Y	-1.654	-1.654	0	%100
35	MP3	Y	-5.03	-5.03	0	%100
36	M44	Y	-1.654	-1.654	0	%100
37	M45	Y	-1.654	-1.654	0	%100
38	MP9	Y	-5.03	-5.03	0	%100
39	MP10	Y	-5.03	-5.03	0	%100
40	MP12	Y	-5.03	-5.03	0	%100
41	M43A	Y	-1.654	-1.654	0	%100
42	M44A	Y	-1.654	-1.654	0	%100
43	M45A	Y	-1.654	-1.654	0	%100
44	M46	Y	-1.654	-1.654	0	%100
45	M47	Y	-1.654	-1.654	0	%100
46	M48	Y	-1.654	-1.654	0	%100
47	MP11	Y	-5.03	-5.03	0	%100
48	M50	Y	-1.654	-1.654	0	%100
49	M51	Y	-1.654	-1.654	0	%100
50	MP5	Y	-5.03	-5.03	0	%100
51	MP6	Y	-5.03	-5.03	0	%100
52	MP8	Y	-5.03	-5.03	0	%100
53	M55	Y	-1.654	-1.654	0	%100
54	M56	Y	-1.654	-1.654	0	%100
55	M57	Y	-1.654	-1.654	0	%100
56	M58	Y	-1.654	-1.654	0	%100
57	M59	Y	-1.654	-1.654	0	%100
58	M60	Y	-1.654	-1.654	0	%100
59	MP7	Y	-5.03	-5.03	0	%100
60	M62	Y	-1.654	-1.654	0	%100
61	M63	Y	-1.654	-1.654	0	%100
62	M62A	Y	-1.654	-1.654	0	%100
63	M63A	Y	-1.654	-1.654	0	%100
64	M64	Y	-9.294	-9.294	0	%100
65	M65	Y	-1.654	-1.654	0	%100
66	M66	Y	-1.654	-1.654	0	%100
67	M67	Y	-9.294	-9.294	0	%100
68	M68	Y	-1.654	-1.654	0	%100
69	M69	Y	-1.654	-1.654	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	B1	SZ	-17.929	-17.929	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
2	B2	SZ	-17.929	-17.929	0	%100
3	B3	SZ	-17.929	-17.929	0	%100
4	B4	SZ	-17.929	-17.929	0	%100
5	B5	SZ	-17.929	-17.929	0	%100
6	B6	SZ	-17.929	-17.929	0	%100
7	HOR1	SZ	-16.376	-16.376	0	%100
8	HOR3	SZ	-16.376	-16.376	0	%100
9	HOR2	SZ	-16.376	-16.376	0	%100
10	HR1	SZ	-19.474	-19.474	0	%100
11	HR3	SZ	-19.474	-19.474	0	%100
12	HR2	SZ	-19.474	-19.474	0	%100
13	HRA1	SZ	-16.31	-16.31	0	%100
14	HRA2	SZ	-13.131	-13.131	0	%100
15	HRA3	SZ	-13.131	-13.131	0	%100
16	MP1	SZ	-19.474	-19.474	0	%100
17	MP2	SZ	-19.474	-19.474	0	%100
18	MP4	SZ	-19.474	-19.474	0	%100
19	R1	SZ	-13.644	-13.644	0	%100
20	R2	SZ	-13.644	-13.644	0	%100
21	R3	SZ	-13.644	-13.644	0	%100
22	SA1	SZ	-16.376	-16.376	0	%100
23	BR1	SZ	-16.66	-16.66	0	%100
24	SA3	SZ	-16.376	-16.376	0	%100
25	BR3	SZ	-16.66	-16.66	0	%100
26	SA2	SZ	-16.376	-16.376	0	%100
27	BR2	SZ	-16.66	-16.66	0	%100
28	M39	SZ	-14.095	-14.095	0	%100
29	M37	SZ	0	0	0	%100
30	M38A	SZ	0	0	0	%100
31	M39A	SZ	0	0	0	%100
32	M40	SZ	0	0	0	%100
33	M41	SZ	0	0	0	%100
34	M42	SZ	0	0	0	%100
35	MP3	SZ	-19.474	-19.474	0	%100
36	M44	SZ	0	0	0	%100
37	M45	SZ	0	0	0	%100
38	MP9	SZ	-19.474	-19.474	0	%100
39	MP10	SZ	-19.474	-19.474	0	%100
40	MP12	SZ	-19.474	-19.474	0	%100
41	M43A	SZ	0	0	0	%100
42	M44A	SZ	0	0	0	%100
43	M45A	SZ	0	0	0	%100
44	M46	SZ	0	0	0	%100
45	M47	SZ	0	0	0	%100
46	M48	SZ	0	0	0	%100
47	MP11	SZ	-19.474	-19.474	0	%100
48	M50	SZ	0	0	0	%100
49	M51	SZ	0	0	0	%100
50	MP5	SZ	-19.474	-19.474	0	%100
51	MP6	SZ	-19.474	-19.474	0	%100
52	MP8	SZ	-19.474	-19.474	0	%100
53	M55	SZ	0	0	0	%100
54	M56	SZ	0	0	0	%100
55	M57	SZ	0	0	0	%100
56	M58	SZ	0	0	0	%100
57	M59	SZ	0	0	0	%100
58	M60	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
59	MP7	SZ	-19.474	-19.474	0	%100
60	M62	SZ	0	0	0	%100
61	M63	SZ	0	0	0	%100
62	M62A	SZ	0	0	0	%100
63	M63A	SZ	0	0	0	%100
64	M64	SZ	-14.095	-14.095	0	%100
65	M65	SZ	0	0	0	%100
66	M66	SZ	0	0	0	%100
67	M67	SZ	-14.095	-14.095	0	%100
68	M68	SZ	0	0	0	%100
69	M69	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	B1	SX	-17.929	-17.929	0	%100
2	B2	SX	-17.929	-17.929	0	%100
3	B3	SX	-17.929	-17.929	0	%100
4	B4	SX	-17.929	-17.929	0	%100
5	B5	SX	-17.929	-17.929	0	%100
6	B6	SX	-17.929	-17.929	0	%100
7	HOR1	SX	-16.376	-16.376	0	%100
8	HOR3	SX	-16.376	-16.376	0	%100
9	HOR2	SX	-16.376	-16.376	0	%100
10	HR1	SX	-19.474	-19.474	0	%100
11	HR3	SX	-19.474	-19.474	0	%100
12	HR2	SX	-19.474	-19.474	0	%100
13	HRA1	SX	-16.31	-16.31	0	%100
14	HRA2	SX	-13.131	-13.131	0	%100
15	HRA3	SX	-13.131	-13.131	0	%100
16	MP1	SX	-19.474	-19.474	0	%100
17	MP2	SX	-19.474	-19.474	0	%100
18	MP4	SX	-19.474	-19.474	0	%100
19	R1	SX	-13.644	-13.644	0	%100
20	R2	SX	-13.644	-13.644	0	%100
21	R3	SX	-13.644	-13.644	0	%100
22	SA1	SX	-16.376	-16.376	0	%100
23	BR1	SX	-16.66	-16.66	0	%100
24	SA3	SX	-16.376	-16.376	0	%100
25	BR3	SX	-16.66	-16.66	0	%100
26	SA2	SX	-16.376	-16.376	0	%100
27	BR2	SX	-16.66	-16.66	0	%100
28	M39	SX	-14.095	-14.095	0	%100
29	M37	SX	0	0	0	%100
30	M38A	SX	0	0	0	%100
31	M39A	SX	0	0	0	%100
32	M40	SX	0	0	0	%100
33	M41	SX	0	0	0	%100
34	M42	SX	0	0	0	%100
35	MP3	SX	-19.474	-19.474	0	%100
36	M44	SX	0	0	0	%100
37	M45	SX	0	0	0	%100
38	MP9	SX	-19.474	-19.474	0	%100
39	MP10	SX	-19.474	-19.474	0	%100
40	MP12	SX	-19.474	-19.474	0	%100
41	M43A	SX	0	0	0	%100
42	M44A	SX	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
43	M45A	SX	0	0	0	%100
44	M46	SX	0	0	0	%100
45	M47	SX	0	0	0	%100
46	M48	SX	0	0	0	%100
47	MP11	SX	-19.474	-19.474	0	%100
48	M50	SX	0	0	0	%100
49	M51	SX	0	0	0	%100
50	MP5	SX	-19.474	-19.474	0	%100
51	MP6	SX	-19.474	-19.474	0	%100
52	MP8	SX	-19.474	-19.474	0	%100
53	M55	SX	0	0	0	%100
54	M56	SX	0	0	0	%100
55	M57	SX	0	0	0	%100
56	M58	SX	0	0	0	%100
57	M59	SX	0	0	0	%100
58	M60	SX	0	0	0	%100
59	MP7	SX	-19.474	-19.474	0	%100
60	M62	SX	0	0	0	%100
61	M63	SX	0	0	0	%100
62	M62A	SX	0	0	0	%100
63	M63A	SX	0	0	0	%100
64	M64	SX	-14.095	-14.095	0	%100
65	M65	SX	0	0	0	%100
66	M66	SX	0	0	0	%100
67	M67	SX	-14.095	-14.095	0	%100
68	M68	SX	0	0	0	%100
69	M69	SX	0	0	0	%100

Member Distributed Loads (BLC 46 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	B1	Y	-.28	-.441	0	9.094
2	B1	Y	-.441	-.841	9.094	18.187
3	B1	Y	-.841	-1.484	18.187	27.281
4	B1	Y	-1.484	-.908	27.281	36.374
5	B1	Y	-.908	-.008	36.374	45.468
6	B6	Y	-.28	-.441	0	9.094
7	B6	Y	-.441	-.841	9.094	18.187
8	B6	Y	-.841	-1.486	18.187	27.281
9	B6	Y	-1.486	-.909	27.281	36.374
10	B6	Y	-.909	-.008	36.374	45.468
11	R1	Y	-.145	-.161	3.734	4.867
12	R1	Y	-.161	-.169	4.867	6
13	R1	Y	-.169	-.161	6	7.133
14	R1	Y	-.161	-.145	7.133	8.266
15	SA2	Y	-.064	-1.023	0	8.715
16	SA2	Y	-1.023	-1.953	8.715	17.43
17	SA2	Y	-1.953	-2.243	17.43	26.145
18	SA2	Y	-2.243	-1.066	26.145	34.86
19	SA2	Y	-1.066	-.048	34.86	43.575
20	BR2	Y	-1.241	-1.241	6.589	55.932
21	B4	Y	-.28	-.441	0	9.094
22	B4	Y	-.441	-.841	9.094	18.187
23	B4	Y	-.841	-1.486	18.187	27.281
24	B4	Y	-1.486	-.909	27.281	36.374
25	B4	Y	-.909	-.008	36.374	45.468
26	B5	Y	-.28	-.441	0	9.094

Member Distributed Loads (BLC 46 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
27	B5	Y	-.441	-.841	9.094	18.187
28	B5	Y	-.841	-1.484	18.187	27.281
29	B5	Y	-1.484	-.908	27.281	36.374
30	B5	Y	-.908	-.008	36.374	45.468
31	R3	Y	-.145	-.161	3.734	4.867
32	R3	Y	-.161	-.169	4.867	6
33	R3	Y	-.169	-.161	6	7.133
34	R3	Y	-.161	-.145	7.133	8.265
35	SA3	Y	-.048	-1.066	18.675	27.391
36	SA3	Y	-1.066	-2.243	27.391	36.106
37	SA3	Y	-2.243	-1.952	36.106	44.821
38	SA3	Y	-1.952	-1.023	44.821	53.536
39	SA3	Y	-1.023	-.064	53.536	62.251
40	BR3	Y	-1.241	-1.241	6.589	55.932
41	B2	Y	-.28	-.441	0	9.094
42	B2	Y	-.441	-.841	9.094	18.187
43	B2	Y	-.841	-1.484	18.187	27.281
44	B2	Y	-1.484	-.908	27.281	36.374
45	B2	Y	-.908	-.008	36.374	45.468
46	B3	Y	-.28	-.441	0	9.094
47	B3	Y	-.441	-.841	9.094	18.187
48	B3	Y	-.841	-1.486	18.187	27.281
49	B3	Y	-1.486	-.909	27.281	36.374
50	B3	Y	-.909	-.008	36.374	45.468
51	R2	Y	-.145	-.161	3.734	4.867
52	R2	Y	-.161	-.169	4.867	6
53	R2	Y	-.169	-.161	6	7.133
54	R2	Y	-.161	-.145	7.133	8.266
55	SA1	Y	-.048	-1.066	18.675	27.391
56	SA1	Y	-1.066	-2.243	27.391	36.106
57	SA1	Y	-2.243	-1.952	36.106	44.821
58	SA1	Y	-1.952	-1.023	44.821	53.536
59	SA1	Y	-1.023	-.064	53.536	62.251
60	BR1	Y	-1.241	-1.241	6.588	55.931

Member Distributed Loads (BLC 47 : BLC 16 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	B1	Y	-1.744	-2.744	0	9.094
2	B1	Y	-2.744	-5.236	9.094	18.187
3	B1	Y	-5.236	-9.246	18.187	27.281
4	B1	Y	-9.246	-5.658	27.281	36.374
5	B1	Y	-5.658	-.05	36.374	45.468
6	B6	Y	-1.744	-2.745	0	9.094
7	B6	Y	-2.745	-5.238	9.094	18.187
8	B6	Y	-5.238	-9.254	18.187	27.281
9	B6	Y	-9.254	-5.663	27.281	36.374
10	B6	Y	-5.663	-.05	36.374	45.468
11	R1	Y	-.902	-1.003	3.734	4.867
12	R1	Y	-1.003	-1.053	4.867	6
13	R1	Y	-1.053	-1.003	6	7.133
14	R1	Y	-1.003	-.902	7.133	8.266
15	SA2	Y	-.396	-6.374	0	8.715
16	SA2	Y	-6.374	-12.162	8.715	17.43
17	SA2	Y	-12.162	-13.971	17.43	26.145
18	SA2	Y	-13.971	-6.64	26.145	34.86
19	SA2	Y	-6.64	-.299	34.86	43.575

Member Distributed Loads (BLC 47 : BLC 16 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
20	BR2	Y	-7.731	-7.731	6.589	55.932
21	B4	Y	-1.743	-2.744	0	9.094
22	B4	Y	-2.744	-5.238	9.094	18.187
23	B4	Y	-5.238	-9.254	18.187	27.281
24	B4	Y	-9.254	-5.663	27.281	36.374
25	B4	Y	-5.663	-.05	36.374	45.468
26	B5	Y	-1.745	-2.745	0	9.094
27	B5	Y	-2.745	-5.236	9.094	18.187
28	B5	Y	-5.236	-9.246	18.187	27.281
29	B5	Y	-9.246	-5.658	27.281	36.374
30	B5	Y	-5.658	-.05	36.374	45.468
31	R3	Y	-.902	-1.003	3.734	4.867
32	R3	Y	-1.003	-1.053	4.867	6
33	R3	Y	-1.053	-1.004	6	7.133
34	R3	Y	-1.004	-.903	7.133	8.265
35	SA3	Y	-.299	-6.64	18.675	27.391
36	SA3	Y	-6.64	-13.971	27.391	36.106
37	SA3	Y	-13.971	-12.161	36.106	44.821
38	SA3	Y	-12.161	-6.373	44.821	53.536
39	SA3	Y	-6.373	-.396	53.536	62.251
40	BR3	Y	-7.732	-7.732	6.589	55.932
41	B2	Y	-1.744	-2.744	0	9.094
42	B2	Y	-2.744	-5.236	9.094	18.187
43	B2	Y	-5.236	-9.246	18.187	27.281
44	B2	Y	-9.246	-5.658	27.281	36.374
45	B2	Y	-5.658	-.05	36.374	45.468
46	B3	Y	-1.744	-2.745	0	9.094
47	B3	Y	-2.745	-5.238	9.094	18.187
48	B3	Y	-5.238	-9.254	18.187	27.281
49	B3	Y	-9.254	-5.663	27.281	36.374
50	B3	Y	-5.663	-.05	36.374	45.468
51	R2	Y	-.902	-1.003	3.734	4.867
52	R2	Y	-1.003	-1.053	4.867	6
53	R2	Y	-1.053	-1.003	6	7.133
54	R2	Y	-1.003	-.902	7.133	8.266
55	SA1	Y	-.299	-6.64	18.675	27.391
56	SA1	Y	-6.64	-13.971	27.391	36.106
57	SA1	Y	-13.971	-12.161	36.106	44.821
58	SA1	Y	-12.161	-6.373	44.821	53.536
59	SA1	Y	-6.373	-.396	53.536	62.251
60	BR1	Y	-7.731	-7.731	6.588	55.931

Load Combinations

	Description	S...	P...	SRSS	B...	Fa...	B...	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												

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
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 AZI 0	Yes	Y		1	1.2	16	1	17	1	29	1	30											
28	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5										
29	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866										
30	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	20	1	29		30	1										
31	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866										
32	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	22	1	29	-.8...	30	.5										
33	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	23	1	29	-1	30											
34	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5										
35	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...										
36	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	26	1	29		30	-1										
37	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.8...										
38	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5										
39	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	1	32															
40	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	.866	32	.5														
41	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	.5	32	.866														
42	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31		32	1														
43	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-.5	32	.866														
44	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-.8...	32	.5														
45	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-1	32															
46	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-.8...	32	-.5														
47	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-.5	32	-.8...														
48	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31		32	-1														
49	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	.5	32	-.8...														
50	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	.866	32	-.5														
51	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	1	32															
52	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	.866	32	.5														
53	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	.5	32	.866														
54	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31		32	1														
55	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	-.5	32	.866														
56	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	-.8...	32	.5														
57	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	-1	32															
58	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	-.8...	32	-.5														
59	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	-.5	32	-.8...														
60	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31		32	-1														
61	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	.5	32	-.8...														
62	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.858	31	.866	32	-.5														
63	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	2	.259	14	.259	15		33	1.5										
64	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	3	.259	14	.224	15	.129	33	1.5										
65	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	4	.259	14	.129	15	.224	33	1.5										
66	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	5	.259	14		15	.259	33	1.5										
67	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	6	.259	14	-.1...	15	.224	33	1.5										
68	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	7	.259	14	-.2...	15	.129	33	1.5										

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
69	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	8	.259	14	-.2...	15		33	1.5										
70	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	9	.259	14	-.2...	15	-.1...	33	1.5										
71	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	10	.259	14	-.1...	15	-.2...	33	1.5										
72	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	11	.259	14		15	-.2...	33	1.5										
73	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	12	.259	14	.129	15	-.2...	33	1.5										
74	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	13	.259	14	.224	15	-.1...	33	1.5										
75	1.2DL + 1.5LL	Yes	Y		1	1.2	33	1.5																
76	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	2	.065	14	.065	15											
77	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	3	.065	14	.056	15	.032										
78	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	4	.065	14	.032	15	.056										
79	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	5	.065	14		15	.065										
80	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	6	.065	14	-.0...	15	.056										
81	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	7	.065	14	-.0...	15	.032										
82	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	8	.065	14	-.0...	15											
83	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	9	.065	14	-.0...	15	-.0...										
84	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	10	.065	14	-.0...	15	-.0...										
85	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	11	.065	14		15	-.0...										
86	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	12	.065	14	.032	15	-.0...										
87	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	13	.065	14	.056	15	-.0...										
88	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	2	.065	14	.065	15											
89	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	3	.065	14	.056	15	.032										
90	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	4	.065	14	.032	15	.056										
91	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	5	.065	14		15	.065										
92	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	6	.065	14	-.0...	15	.056										
93	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	7	.065	14	-.0...	15	.032										
94	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	8	.065	14	-.0...	15											
95	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	9	.065	14	-.0...	15	-.0...										
96	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	10	.065	14	-.0...	15	-.0...										
97	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	11	.065	14		15	-.0...										
98	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	12	.065	14	.032	15	-.0...										
99	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	13	.065	14	.056	15	-.0...										
100	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	2	.065	14	.065	15											
101	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	3	.065	14	.056	15	.032										
102	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	4	.065	14	.032	15	.056										
103	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	5	.065	14		15	.065										
104	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	6	.065	14	-.0...	15	.056										
105	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	7	.065	14	-.0...	15	.032										
106	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	8	.065	14	-.0...	15											
107	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	9	.065	14	-.0...	15	-.0...										
108	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	10	.065	14	-.0...	15	-.0...										
109	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	11	.065	14		15	-.0...										
110	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	12	.065	14	.032	15	-.0...										
111	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	13	.065	14	.056	15	-.0...										
112	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	2	.065	14	.065	15											
113	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	3	.065	14	.056	15	.032										
114	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	4	.065	14	.032	15	.056										
115	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	5	.065	14		15	.065										
116	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	6	.065	14	-.0...	15	.056										
117	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	7	.065	14	-.0...	15	.032										
118	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	8	.065	14	-.0...	15											
119	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	9	.065	14	-.0...	15	-.0...										
120	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	10	.065	14	-.0...	15	-.0...										
121	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	11	.065	14		15	-.0...										
122	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	12	.065	14	.032	15	-.0...										
123	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	13	.065	14	.056	15	-.0...										
124	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	2	.065	14	.065	15											
125	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	3	.065	14	.056	15	.032										

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
126	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	4	.065	14	.032	15	.056										
127	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	5	.065	14		15	.065										
128	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	6	.065	14	-.0...	15	.056										
129	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	7	.065	14	-.0...	15	.032										
130	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	8	.065	14	-.0...	15											
131	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	9	.065	14	-.0...	15	-.0...										
132	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	10	.065	14	-.0...	15	-.0...										
133	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	11	.065	14		15	-.0...										
134	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	12	.065	14	.032	15	-.0...										
135	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	13	.065	14	.056	15	-.0...										
136	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	2	.065	14	.065	15											
137	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	3	.065	14	.056	15	.032										
138	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	4	.065	14	.032	15	.056										
139	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	5	.065	14		15	.065										
140	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	6	.065	14	-.0...	15	.056										
141	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	7	.065	14	-.0...	15	.032										
142	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	8	.065	14	-.0...	15											
143	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	9	.065	14	-.0...	15	-.0...										
144	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	10	.065	14	-.0...	15	-.0...										
145	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	11	.065	14		15	-.0...										
146	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	12	.065	14	.032	15	-.0...										
147	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	13	.065	14	.056	15	-.0...										
148	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	2	.065	14	.065	15											
149	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	3	.065	14	.056	15	.032										
150	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	4	.065	14	.032	15	.056										
151	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	5	.065	14		15	.065										
152	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	6	.065	14	-.0...	15	.056										
153	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	7	.065	14	-.0...	15	.032										
154	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	8	.065	14	-.0...	15											
155	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	9	.065	14	-.0...	15	-.0...										
156	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	10	.065	14	-.0...	15	-.0...										
157	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	11	.065	14		15	-.0...										
158	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	12	.065	14	.032	15	-.0...										
159	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	13	.065	14	.056	15	-.0...										
160	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	2	.065	14	.065	15											
161	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	3	.065	14	.056	15	.032										
162	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	4	.065	14	.032	15	.056										
163	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	5	.065	14		15	.065										
164	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	6	.065	14	-.0...	15	.056										
165	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	7	.065	14	-.0...	15	.032										
166	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	8	.065	14	-.0...	15											
167	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	9	.065	14	-.0...	15	-.0...										
168	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	10	.065	14	-.0...	15	-.0...										
169	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	11	.065	14		15	-.0...										
170	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	12	.065	14	.032	15	-.0...										
171	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	13	.065	14	.056	15	-.0...										
172	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	2	.065	14	.065	15											
173	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	3	.065	14	.056	15	.032										
174	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	4	.065	14	.032	15	.056										
175	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	5	.065	14		15	.065										
176	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	6	.065	14	-.0...	15	.056										
177	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	7	.065	14	-.0...	15	.032										
178	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	8	.065	14	-.0...	15											
179	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	9	.065	14	-.0...	15	-.0...										
180	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	10	.065	14	-.0...	15	-.0...										
181	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	11	.065	14		15	-.0...										
182	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	12	.065	14	.032	15	-.0...										

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
183	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	13	.065	14	.056	15	-.0...										
184	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	2	.065	14	.065	15											
185	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	3	.065	14	.056	15	.032										
186	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	4	.065	14	.032	15	.056										
187	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	5	.065	14		15	.065										
188	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	6	.065	14	-.0...	15	.056										
189	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	7	.065	14	-.0...	15	.032										
190	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	8	.065	14	-.0...	15											
191	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	9	.065	14	-.0...	15	-.0...										
192	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	10	.065	14	-.0...	15	-.0...										
193	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	11	.065	14		15	-.0...										
194	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	12	.065	14	.032	15	-.0...										
195	1.2DL + 1.5LM-MP10 + 1..	Yes	Y		1	1.2	43	1.5	13	.065	14	.056	15	-.0...										
196	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	2	.065	14	.065	15											
197	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	3	.065	14	.056	15	.032										
198	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	4	.065	14	.032	15	.056										
199	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	5	.065	14		15	.065										
200	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	6	.065	14	-.0...	15	.056										
201	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	7	.065	14	-.0...	15	.032										
202	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	8	.065	14	-.0...	15											
203	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	9	.065	14	-.0...	15	-.0...										
204	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	10	.065	14	-.0...	15	-.0...										
205	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	11	.065	14		15	-.0...										
206	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	12	.065	14	.032	15	-.0...										
207	1.2DL + 1.5LM-MP11 + 1..	Yes	Y		1	1.2	44	1.5	13	.065	14	.056	15	-.0...										
208	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	2	.065	14	.065	15											
209	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	3	.065	14	.056	15	.032										
210	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	4	.065	14	.032	15	.056										
211	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	5	.065	14		15	.065										
212	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	6	.065	14	-.0...	15	.056										
213	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	7	.065	14	-.0...	15	.032										
214	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	8	.065	14	-.0...	15											
215	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	9	.065	14	-.0...	15	-.0...										
216	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	10	.065	14	-.0...	15	-.0...										
217	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	11	.065	14		15	-.0...										
218	1.2DL + 1.5LM-MP12 + 1..	Yes	Y		1	1.2	45	1.5	12	.065	14	.032	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	N6	max	2082.121	17	1109.367	20	6357.302	2	666.924	20	2381.449	23	770.347	10
2		min	-2078.908	23	-1616.711	2	-4551.51	20	-939.658	2	-2384.47	17	-738.025	16
3	N5	max	3876.11	16	1108.937	16	2468.587	15	952.314	11	2304.07	19	433.278	15
4		min	-5484.781	10	-1642.352	10	-3397.136	9	-844.068	17	-2308	25	-708.758	9
5	N1	max	5368.64	6	1055.26	24	2584.471	14	584.238	3	2412.987	15	1060.953	7
6		min	-3793.887	24	-1567.753	6	-3503.922	8	-419.327	21	-2415.779	21	-829.53	25
7	N128	max	26.329	17	4568.116	2	1160.407	20	1142.029	2	6.978	23	.35	9
8		min	-27.221	23	-1781.015	20	-3027.773	2	-445.254	20	-6.771	17	-.338	15
9	N133A	max	921.648	24	4455.462	6	1474.586	6	206.53	24	12.354	15	357.263	24
10		min	-2549.841	6	-1650.656	24	-535.96	24	-557.124	6	-12.12	21	-964.525	6
11	N138	max	2652.051	10	4632.452	10	1536.378	10	221.122	16	12.333	19	1003.095	10
12		min	-992.54	16	-1771.079	16	-575.778	16	-578.815	10	-12.169	25	-383.602	16
13	Totals:	max	7640.78	5	8384.419	31	7877.52	2						
14		min	-7640.773	23	2813.325	61	-7877.519	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc...	...	LC	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	MP11	PIPE_2.0	.867	69	9	.176	69		9	14916...	32130	1871.6...	1871.6...	3...	H1-1b
2	HR1	PIPE_2.0	.835	14.063	21	.470	134...		8	6295.4...	32130	1871.6...	1871.6...	2...	H3-6
3	MP3	PIPE_2.0	.832	69	5	.164	69		5	14916...	32130	1871.6...	1871.6...	3...	H1-1b
4	MP7	PIPE_2.0	.824	69	13	.163	69		13	14916...	32130	1871.6...	1871.6...	3...	H1-1b
5	HR3	PIPE_2.0	.791	14.063	25	.463	134...		12	6295.4...	32130	1871.6...	1871.6...	1...	H3-6
6	HR2	PIPE_2.0	.781	14.062	17	.464	134...		4	6295.4...	32130	1871.6...	1871.6...	2	H3-6
7	MP4	PIPE_2.0	.731	27	9	.357	27		8	14916...	32130	1871.6...	1871.6...	2...	H3-6
8	MP8	PIPE_2.0	.670	27	5	.346	27		4	14916...	32130	1871.6...	1871.6...	1...	H3-6
9	BR3	C3X5	.670	31.26	3	.470	3.907	z	10	37517...	47628	981.263	4028.2...	1	H1-1b
10	SA1	PIPE_3.0	.665	23.344	10	.240	0		12	62806...	65205	5748.75	5748.75	1	H1-1b
11	MP12	PIPE_2.0	.661	69	3	.342	27		12	14916...	32130	1871.6...	1871.6...	2...	H1-1b
12	BR1	C3X5	.657	30.609	10	.487	58....	z	2	37517...	47628	981.263	4028.2...	1	H1-1b
13	SA3	PIPE_3.0	.655	23.344	2	.252	0		4	62806...	65205	5748.75	5748.75	1	H1-1b
14	BR2	C3X5	.654	31.26	7	.479	58....	z	10	37517...	47628	981.263	4028.2...	1	H1-1b
15	SA2	PIPE_3.0	.638	38.906	6	.254	62.25		8	62806...	65205	5748.75	5748.75	1	H1-1b
16	MP10	PIPE_2.0	.569	69	9	.287	27		12	14916...	32130	1871.6...	1871.6...	4...	H1-1b
17	MP2	PIPE_2.0	.561	69	5	.301	27		8	14916...	32130	1871.6...	1871.6...	4...	H1-1b
18	B1	L2x2x2	.555	50.52	19	.033	50.52	y	7	10626...	15908.4	402.563	777.855	2...	H2-1
19	B5	L2x2x2	.555	50.52	15	.031	50.52	y	3	10626...	15908.4	402.563	781.951	2...	H2-1
20	B3	L2x2x2	.554	50.52	23	.032	50.52	y	11	10626...	15908.4	402.563	779.552	2...	H2-1
21	MP6	PIPE_2.0	.543	69	13	.289	27		4	14916...	32130	1871.6...	1871.6...	4...	H1-1b
22	B2	L2x2x2	.521	50.52	21	.030	50.52	z	3	10626...	15908.4	402.563	777.587	2...	H2-1
23	R2	6"x0.37" ...	.518	6	10	.527	4	y	13	37008...	71928	554.445	8991	1...	H1-1b
24	MP5	PIPE_2.0	.500	15	3	.334	57		3	20866...	32130	1871.6...	1871.6...	1...	H3-6
25	R3	6"x0.37" ...	.496	6	2	.518	4	y	5	37008...	71928	554.445	8991	1...	H1-1b
26	B6	L2x2x2	.492	50.52	17	.028	50.52	z	11	10626...	15908.4	402.563	778.765	2...	H2-1
27	MP9	PIPE_2.0	.480	15	11	.326	57		11	20866...	32130	1871.6...	1871.6...	1...	H3-6
28	R1	6"x0.37" ...	.480	6	6	.535	4	y	9	37008...	71928	554.445	8991	1...	H1-1b
29	B4	L2x2x2	.479	0	14	.027	50.52	z	7	10626...	15908.4	402.563	784.173	2...	H2-1
30	MP1	PIPE_2.0	.469	15	7	.329	15		8	20866...	32130	1871.6...	1871.6...	1...	H3-6
31	HRA2	L6X3.5X5	.292	0	3	.346	0	z	11	79090...	93636	3396.0...	12117...	1...	H2-1
32	HRA3	L6X3.5X5	.288	12	7	.364	0	z	3	79090...	93636	3396.0...	10246...	2...	H2-1
33	HOR3	PIPE_3.0	.271	121.875	9	.159	75		5	59302...	65205	5748.75	5748.75	1	H1-1b
34	HOR1	PIPE_3.0	.265	121.875	5	.154	75		13	59302...	65205	5748.75	5748.75	1	H1-1b
35	HOR2	PIPE_3.0	.264	121.875	2	.160	75		9	59302...	65205	5748.75	5748.75	1	H1-1b
36	HRA1	L6X3.5X5	.207	0	10	.346	0	z	7	79090...	93636	2871.5...	9657.4...	1...	H2-1
37	M67	LL2.5x2.5...	.124	0	10	.006	36....	y	10	45164...	58320	3954.3...	2549.5...	1...	H1-1b*
38	M39	LL2.5x2.5...	.122	0	2	.005	36....	y	3	45164...	58320	3954.3...	2549.5...	1	H1-1b*
39	M64	LL2.5x2.5...	.120	0	6	.006	0	y	6	45164...	58320	3954.3...	2549.5...	1...	H1-1b*

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		30	90	0
3	Total General		30	90	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	6"x0.37" Plate	3	36	.023
7	A36 Gr.36	C3X5	3	187.6	.078
8	A36 Gr.36	L2x2x2	6	303.1	.042
9	A36 Gr.36	LL2.5x2.5x3x3	3	108.6	.055
10	A36 Gr.36	L6X3.5X5	3	36	.03
11	A53 Gr.B	PIPE_2.0	15	1530	.443
12	A53 Gr.B	PIPE_3.0	6	636.8	.374

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[K]
13	Total HR Steel		39	2838	1.044

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	WATERBURY TOWER
Site Number:	881534
Connection Description:	Mount to Tower

MAXIMUM BOLT LOADS		
Bolt Tension:	3010.37	lbs
Bolt Shear:	918.59	lbs

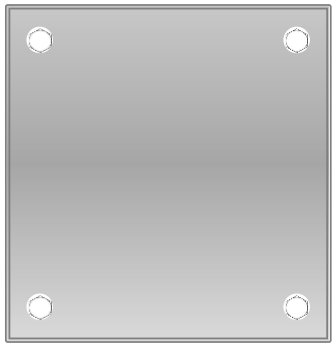
WORST CASE BOLT LOADS[1]		
Bolt Tension:	3010.37	lbs
Bolt Shear:	602.98	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.5	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #4 on member SA3 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of SA1, SA3, SA2

BOLT CHECK		
Tensile Strength	12770.86	
Shear Strength	8835.73	
Max Tensile Usage	23.6%	
Max Shear Usage	10.4%	
Interaction Check (Worst Case)	0.06	***≤1.05***
Result	Pass	



INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	WATERBURY TOWER
Site Number:	881534
Connection Description:	Kicker to Tower

MAXIMUM BOLT LOADS		
Bolt Tension:	735.91	lbs
Bolt Shear:	1158.25	lbs

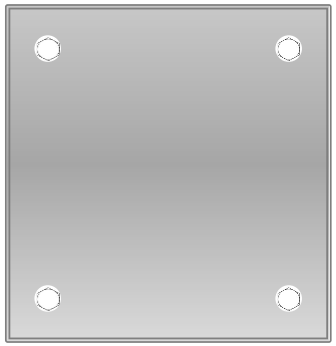
WORST CASE BOLT LOADS[1]		
Bolt Tension:	0.00	lbs
Bolt Shear:	1158.25	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.5	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #10 on member M68 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
J nodes of M62A, M65, M68

BOLT CHECK		
Tensile Strength	12770.86	
Shear Strength	8835.73	
Max Tensile Usage	5.8%	
Max Shear Usage	13.1%	
Interaction Check (Worst Case)	0.02	***≤1.05***
Result	Pass	



EBI Consulting

environmental | engineering | due diligence

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

AT&T Existing Facility

Site ID: CTL01127 - 881534

Waterbury East
670 Captain Neville Drive
Waterbury, Connecticut 06705

January 27, 2022

EBI Project Number: 6222000347

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**25.55%**

January 27, 2022

AT&T

Emissions Analysis for Site: CTL01127 - 881534 - Waterbury East

EBI Consulting was directed to analyze the proposed AT&T facility located at **670 Captain Neville Drive** in **Waterbury, Connecticut** for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at 670 Captain Neville Drive in Waterbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 4 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

2) 2 LTE DE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 LTE FN channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 4 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 4 LTE / 5G channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

6) 4 LTE / 5G channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.

8) 2 C-Band Channels (3700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 144.58 Watts per Channel.

9) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antennas used in this modeling are the Quintel QD8616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Kathrein 800-10966 for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector A, the Quintel QD8616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Kathrein 800-10966 for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector B, the Quintel QD8616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Kathrein 800-10966 for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antenna mounting height centerlines of the proposed antennas 149 and 150 feet above ground level (AGL).

13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Quintel QD8616-7	Make / Model:	Quintel QD8616-7	Make / Model:	Quintel QD8616-7
Frequency Bands:	700 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	700 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	700 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	12.85 dBd / 12.85 dBd / 14.75 dBd / 14.95 dBd	Gain:	12.85 dBd / 12.85 dBd / 14.75 dBd / 14.95 dBd	Gain:	12.85 dBd / 12.85 dBd / 14.75 dBd / 14.95 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	14	Channel Count:	14	Channel Count:	14
Total TX Power (W):	640 Watts	Total TX Power (W):	640 Watts	Total TX Power (W):	640 Watts
ERP (W):	16,905.26	ERP (W):	16,905.26	ERP (W):	16,905.26
Antenna A1 MPE %:	**3.85%**	Antenna B1 MPE %:	**3.85%**	Antenna C1 MPE %:	**3.85%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz
Gain:	23.45 dBd	Gain:	23.45 dBd	Gain:	23.45 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	1	Channel Count:	1	Channel Count:	1
Total TX Power (W):	144.58000000000001 Watts	Total TX Power (W):	144.58000000000001 Watts	Total TX Power (W):	144.58000000000001 Watts
ERP (W):	31,996.92	ERP (W):	31,996.92	ERP (W):	31,996.92
Antenna A2 MPE %:	**5.55%**	Antenna B2 MPE %:	**5.55%**	Antenna C2 MPE %:	**5.55%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz
Gain:	23.45 dBd	Gain:	23.45 dBd	Gain:	23.45 dBd
Height (AGL):	149 feet	Height (AGL):	149 feet	Height (AGL):	149 feet
Channel Count:	1	Channel Count:	1	Channel Count:	1
Total TX Power (W):	144.58000000000001 Watts	Total TX Power (W):	144.58000000000001 Watts	Total TX Power (W):	144.58000000000001 Watts
ERP (W):	31,996.92	ERP (W):	31,996.92	ERP (W):	31,996.92
Antenna A3 MPE %:	**5.63%**	Antenna B3 MPE %:	**5.63%**	Antenna C3 MPE %:	**5.63%**
Antenna #:	**4**	Antenna #:	**4**	Antenna #:	**4**
Make / Model:	Kathrein 800-10966	Make / Model:	Kathrein 800-10966	Make / Model:	Kathrein 800-10966
Frequency Bands:	700 MHz / 850 MHz / 2300 MHz	Frequency Bands:	700 MHz / 850 MHz / 2300 MHz	Frequency Bands:	700 MHz / 850 MHz / 2300 MHz
Gain:	13.45 dBd / 14.15 dBd / 15.85 dBd	Gain:	13.45 dBd / 14.15 dBd / 15.85 dBd	Gain:	13.45 dBd / 14.15 dBd / 15.85 dBd
Height (AGL):	150 feet	Height (AGL):	150 feet	Height (AGL):	150 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	420 Watts	Total TX Power (W):	420 Watts	Total TX Power (W):	420 Watts
ERP (W):	11,547.12	ERP (W):	11,547.12	ERP (W):	11,547.12
Antenna A4 MPE %:	**3.25%**	Antenna B4 MPE %:	**3.25%**	Antenna C4 MPE %:	**3.25%**

• An adjusted power reduction factor of 0.32 was applied to the AIR 6449 antennas per guidance from AT&T.

• Specifications were not available for the Ericsson AIR 6419 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.

Site Composite MPE %	
Carrier	**MPE %**
AT&T (Max at Sector A):	18.27%
T-Mobile	7.18%
XM Sat Radio	0.1%
Site Total MPE % :	25.55%

AT&T MPE % Per Sector	
AT&T Sector A Total:	18.27%
AT&T Sector B Total:	18.27%
AT&T Sector C Total:	18.27%
Site Total MPE % :	25.55%

AT&T Maximum MPE Power Values (Sector A)

AT&T Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
AT&T 700 MHz LTE FN	4	771.01	150.0	5.35	700 MHz LTE FN	467	1.14%
AT&T 700 MHz LTE DE	2	771.01	150.0	2.67	700 MHz LTE DE	467	0.57%
AT&T 1900 MHz LTE/5G	4	1194.15	150.0	8.28	1900 MHz LTE/5G	1000	0.83%
AT&T 2100 MHz LTE/5G	4	1875.65	150.0	13.01	2100 MHz LTE/5G	1000	1.30%
AT&T 3700 MHz C-Band	1	31996.92	150.0	55.48	3700 MHz C-Band	1000	5.55%
AT&T 3700 MHz C-Band	1	31996.92	149.0	56.25	3700 MHz C-Band	1000	5.63%
AT&T 700 MHz LTE	4	885.24	150.0	6.14	700 MHz LTE	467	1.31%
AT&T 850 MHz 5G	4	1040.06	150.0	7.21	850 MHz 5G	567	1.27%
AT&T 2300 MHz LTE	4	961.48	150.0	6.67	2300 MHz LTE	1000	0.67%
						Total:	**18.27%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	18.27%
Sector B:	18.27%
Sector C:	18.27%
AT&T Maximum MPE % (Sector A):	18.27%
Site Total:	25.55%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **25.55%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

AT&T

AT&T SITE NUMBER:	**CTL01127**
AT&T SITE NAME:	**WATERBURY EAST**
AT&T FA CODE:	**10035324**
AT&T PACE NUMBER:	**MRCTB054934, MRCTB054566, MRCTB055049, MRCTB060997, MRCTB060388, MRCTB060386**
AT&T PROJECT:	**CELL SITE RF MODIFICATIONS/5G NR UPGRADE/5G NR 1SR CBAND/4TXRX ANTENNA RETROFIT/5G NR SOFTWARE ACTIVATION**
BUSINESS UNIT #:	**881534**
SITE ADDRESS:	**670 CAPTAIN NEVILLE DRIVE WATERBURY, CT 06705**
COUNTY:	**NEW HAVEN**
SITE TYPE:	**MONOPOLE**
TOWER HEIGHT:	**150'-0"**

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WATERBURY TOWER
SITE ADDRESS:	670 CAPTAIN NEVILLE DRIVE WATERBURY, CT 06705
COUNTY:	NEW HAVEN
MAP/PARCEL #:	0450-0490-0070
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 32' 3.57"
LONGITUDE:	-72° 58' 8.39"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	629'
CURRENT ZONING:	IP
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:	M B REALTY LLC 670 CAPTAIN NEVILLE DR WATERBURY, CT 06705
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:	CONNECTICUT LIGHT & POWER CO. (860) 947-2000
TELCO PROVIDER:	AT&T (866) 620-6900

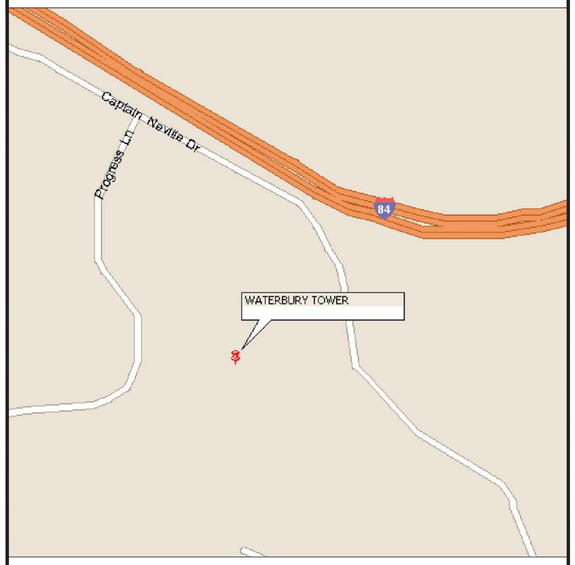
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	FINAL EQUIPMENT SCHEDULE
C-4	EQUIPMENT MOUNTING DETAILS
C-5	EQUIPMENT SPECS
G-1	GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22X34. 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

SITE PHOTO

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:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277 PAUL PEDICONE - PROJECT MANAGER PAUL.PEDICONE@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM

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

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) KATHREIN - 800-10121 ANTENNAS
- REMOVE (3) CCI - OPA-65R-LCUU-H8 ANTENNAS
- REMOVE (3) CCI ANTENNA - TPA-65R-LCUUUU-H8 ANTENNAS
- REMOVE (6) LGP 21401 TMA
- REMOVE (3) ERICSSON - RRUS-11 B12 RADIOS
- REMOVE (3) ERICSSON - RRUS 4478 B5 RADIOS
- REMOVE (3) ERICSSON - RRUS-12 B2 + RRUS-A2 B25 RADIOS
- REMOVE (3) DC CABLES
- REMOVE (6) DBCT108F1V92-1 DIPLEXER
- REMOVE (6) LGP 21903 DIPLEXER
- REMOVE (12) TPX-070821 TRIPLEXER
- RELOCATE (3) ERICSSON - RRUS-32 B30 RADIOS
- RELOCATE (3) ERICSSON - RRUS 4478 B14 RADIOS
- RELOCATE (3) ERICSSON - RRUS 4426 B66 RADIOS
- INSTALL (3) QUINTEL - QD8616-7 ANTENNAS
- INSTALL (6) ERICSSON - AIR6449 N77D+AIR6419 N77G STACKED ANTENNAS (3+3)
- INSTALL (3) ERICSSON - RRUS 4415 B25 RADIOS
- INSTALL (3) ERICSSON - 4449 B5/B12 RADIOS
- INSTALL (1) DC6-48-60-18-8F SQUID
- INSTALL (1) FB-L98B-034 FIBER TRUNK
- INSTALL (6) PWRT-608-S DC TRUNK
- INSTALL (2) PWRT-606-S DC TRUNK

GROUND SCOPE OF WORK:
- REMOVE (1) 5216
- INSTALL (1) 6648 FHG(+Xcede)
- INSTALL (4) EMERSON RECTIFIERS IN EXISTING POWER PLANT.

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:	TEP
DATED:	11/30/21
MOUNT ANALYSIS:	INFINIGY
DATED:	11/19/21
RFDS REVISION:	1
DATED:	10/6/21
ORDER ID:	586249
REVISION:	0

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

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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

AT&T SITE NUMBER:
CTL01127

BU #: **881534**
WATERBURY TOWER

670 CAPTAIN NEVILLE DRIVE
WATERBURY, CT 06705

EXISTING
150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/6/21	BMK	PRELIMINARY REVIEW	VP
B	1/28/22	FWP	PRELIMINARY REVIEW	JTS
C	2/7/22	JTS	PRELIMINARY REVIEW	LR
0	2/14/22	JTS	CONSTRCUTION	LR

STATE OF CONNECTICUT
No. 23824
LICENSED
PROFESSIONAL ENGINEER
2/14/22

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

SHEET NUMBER: T-1

REVISION: 0

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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AT&T SITE NUMBER:
CTL01127

BU #: **881534**
WATERBURY TOWER

670 CAPTAIN NEVILLE
DRIVE
WATERBURY, CT 06705

EXISTING
150'-0" MONOPOLE

ISSUED FOR:

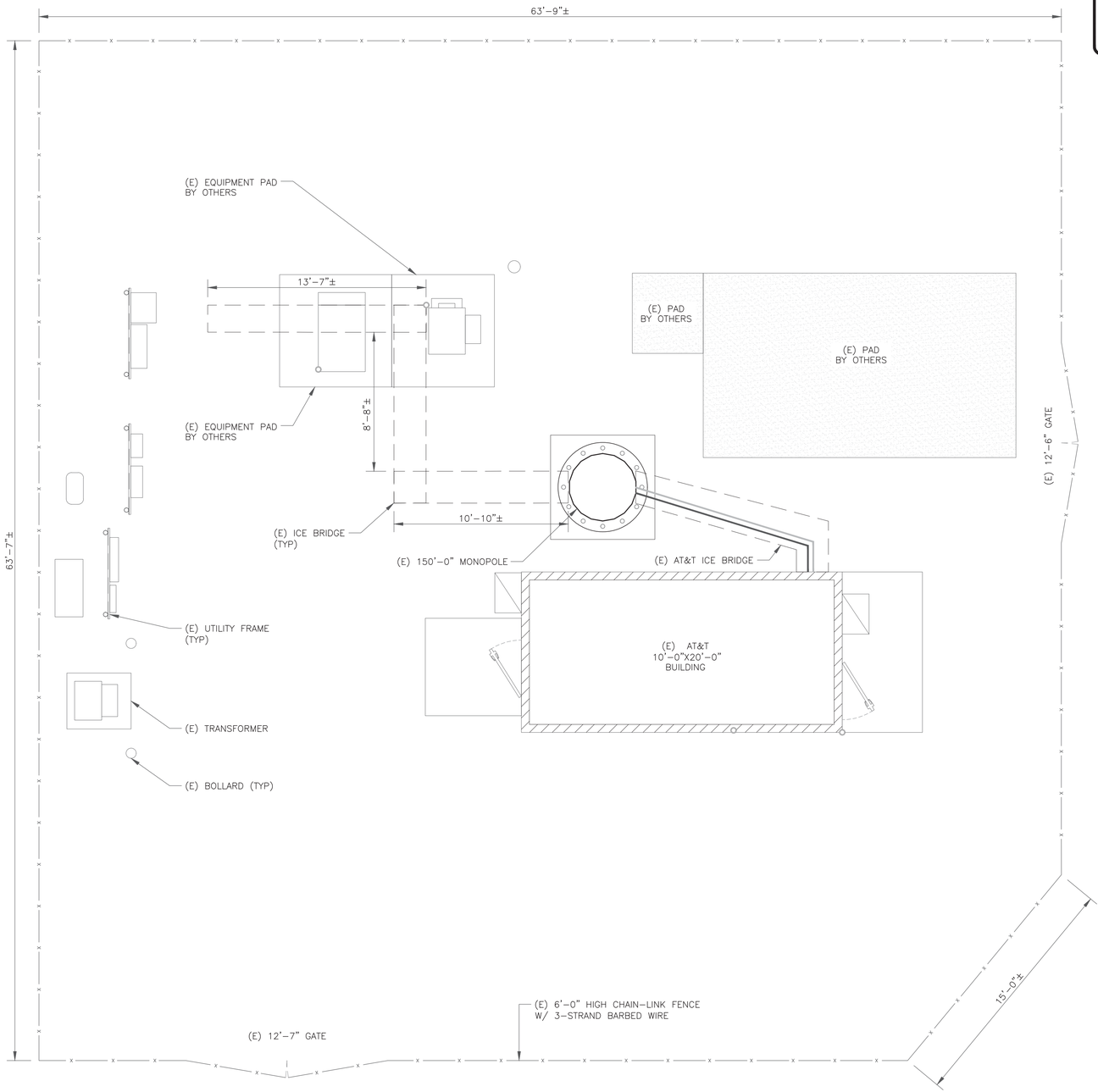
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/6/21	BMK	PRELIMINARY REVIEW	VP
B	1/28/22	FWP	PRELIMINARY REVIEW	JTS
C	2/7/22	JTS	PRELIMINARY REVIEW	LR
0	2/14/22	JTS	CONSTRCUTION	LR

CHAD TUTTLE
No. 23924
LICENSED
2/14/22

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

SHEET NUMBER: T-2

REVISION: 0



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

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CTL01127

BU #: **881534**
WATERBURY TOWER

670 CAPTAIN NEVILLE
DRIVE
WATERBURY, CT 06705

EXISTING
150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/6/21	BMK	PRELIMINARY REVIEW	VP
B	1/28/22	FWP	PRELIMINARY REVIEW	JTS
C	2/7/22	JTS	PRELIMINARY REVIEW	LR
0	2/14/22	JTS	CONSTRCUTION	LR

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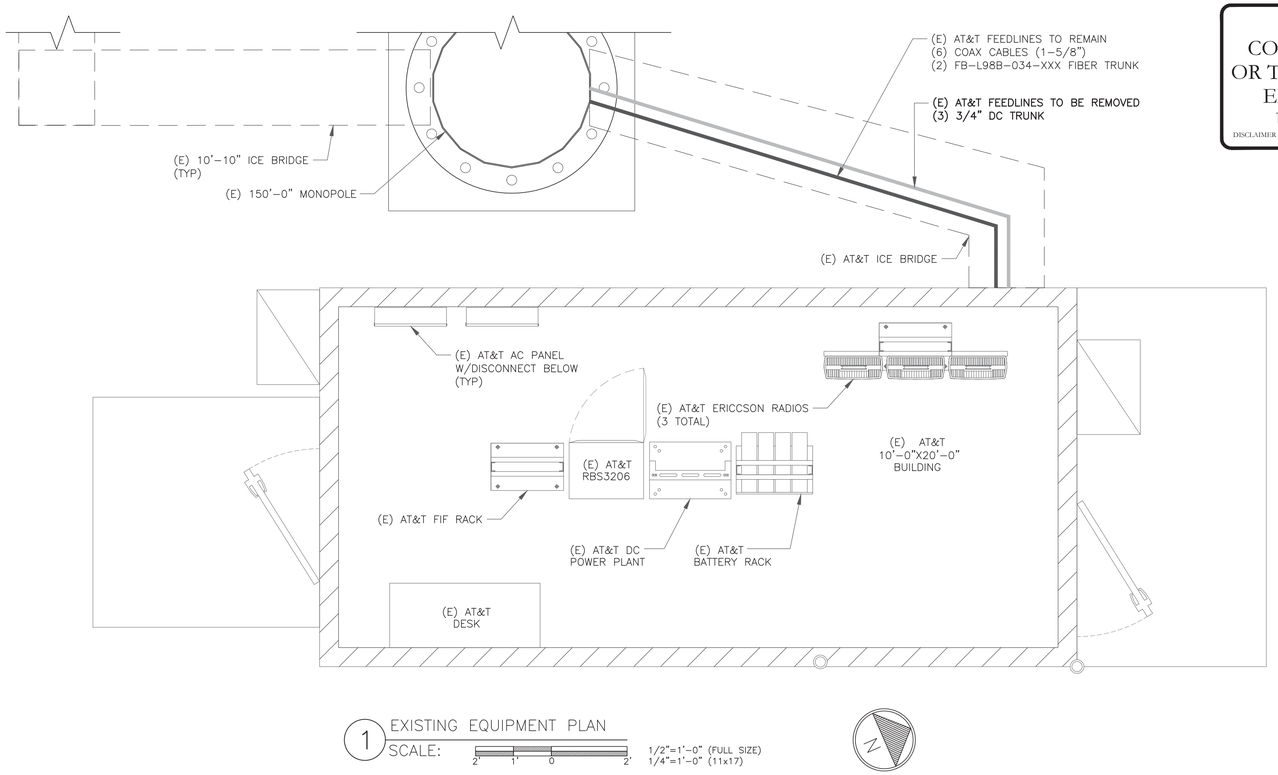
PEC.0001564
Expires 2/10/23

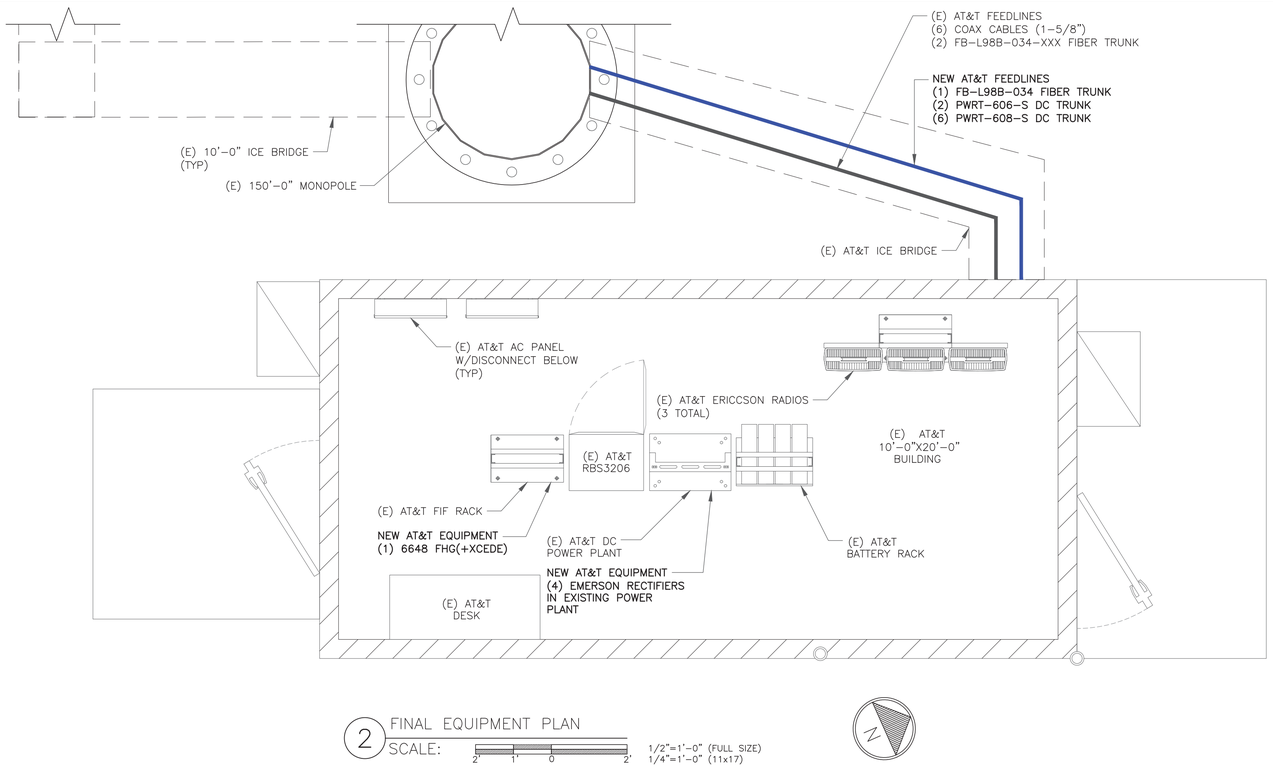
SHEET NUMBER: C-1.1

REVISION: 0



1 EXISTING EQUIPMENT PLAN

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



2 FINAL EQUIPMENT PLAN

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

GROUND SCOPE OF WORK:

- INSTALL (1) 6648 FHG(+XCEDE)
- INSTALL (4) EMERSON RECTIFIERS IN EXISTING POWER PLANT

NOTE:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. AT&T IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

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ATLANTA, GA 30324-3300

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EXISTING
150'-0" MONOPOLE

ISSUED FOR:

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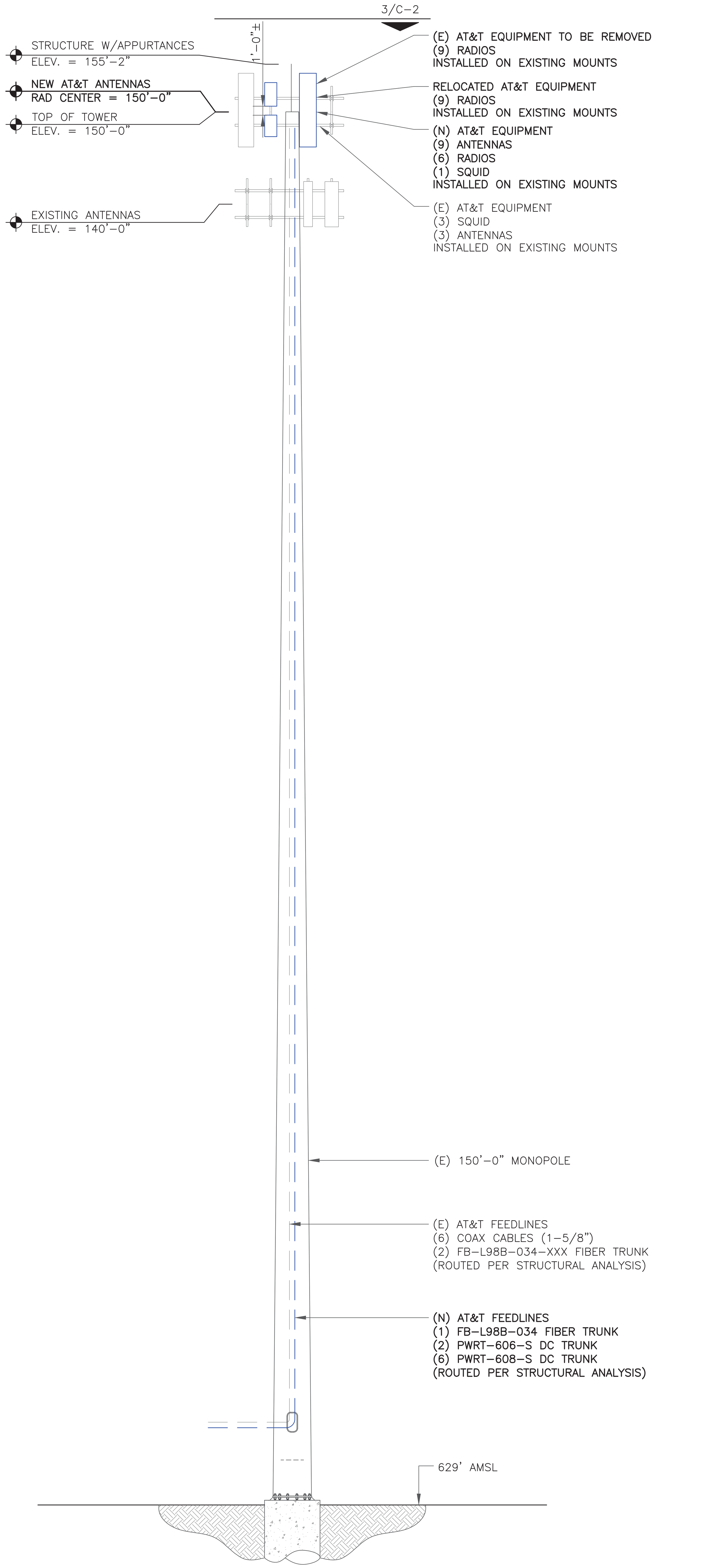
0	2/14/22	JTS	CONSTRCUTION	LR

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

SHEET NUMBER: C-1.2

REVISION: 0



1 FINAL ELEVATION
SCALE: NOT TO SCALE

THIS PAGE CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW.

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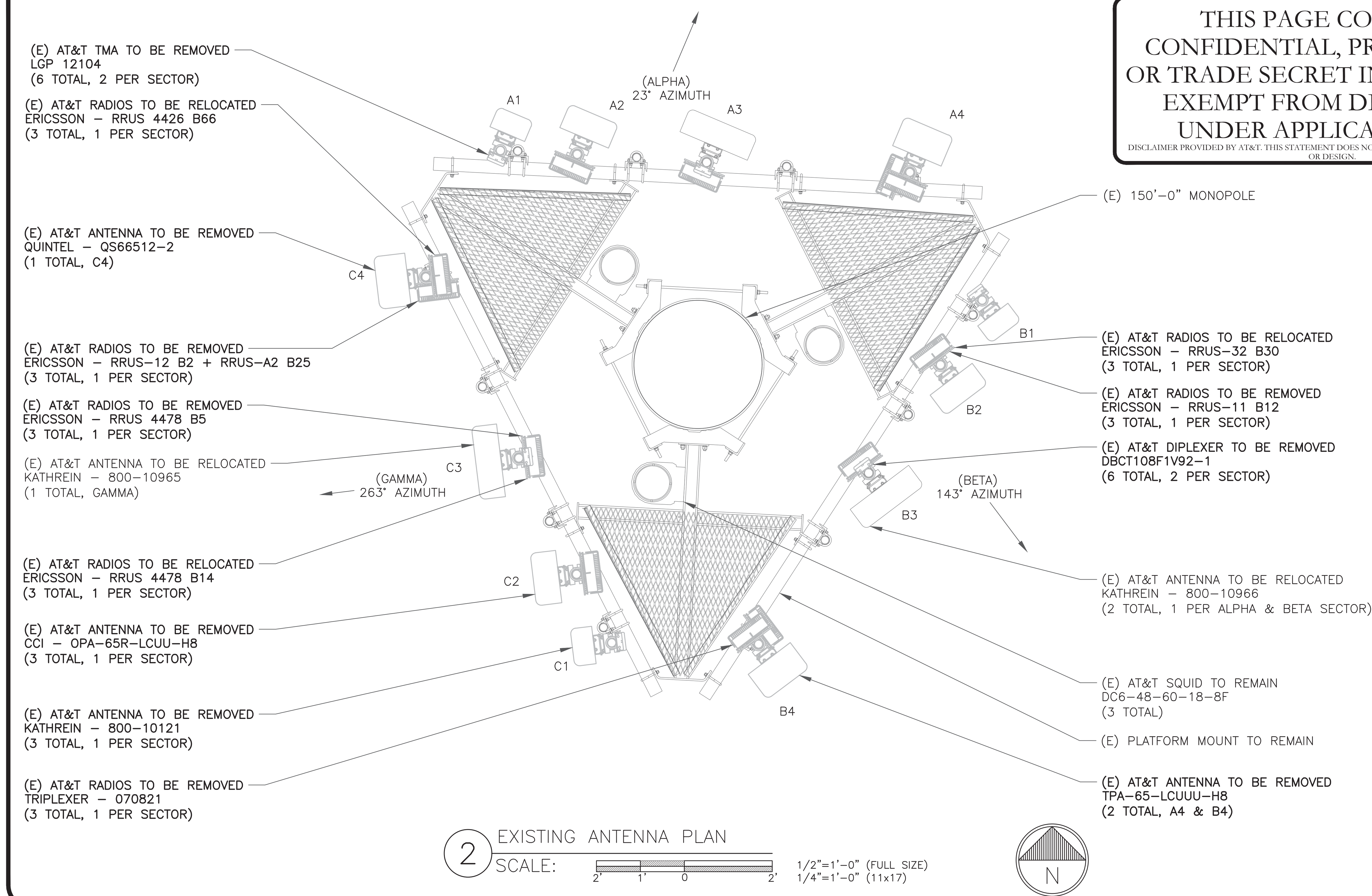
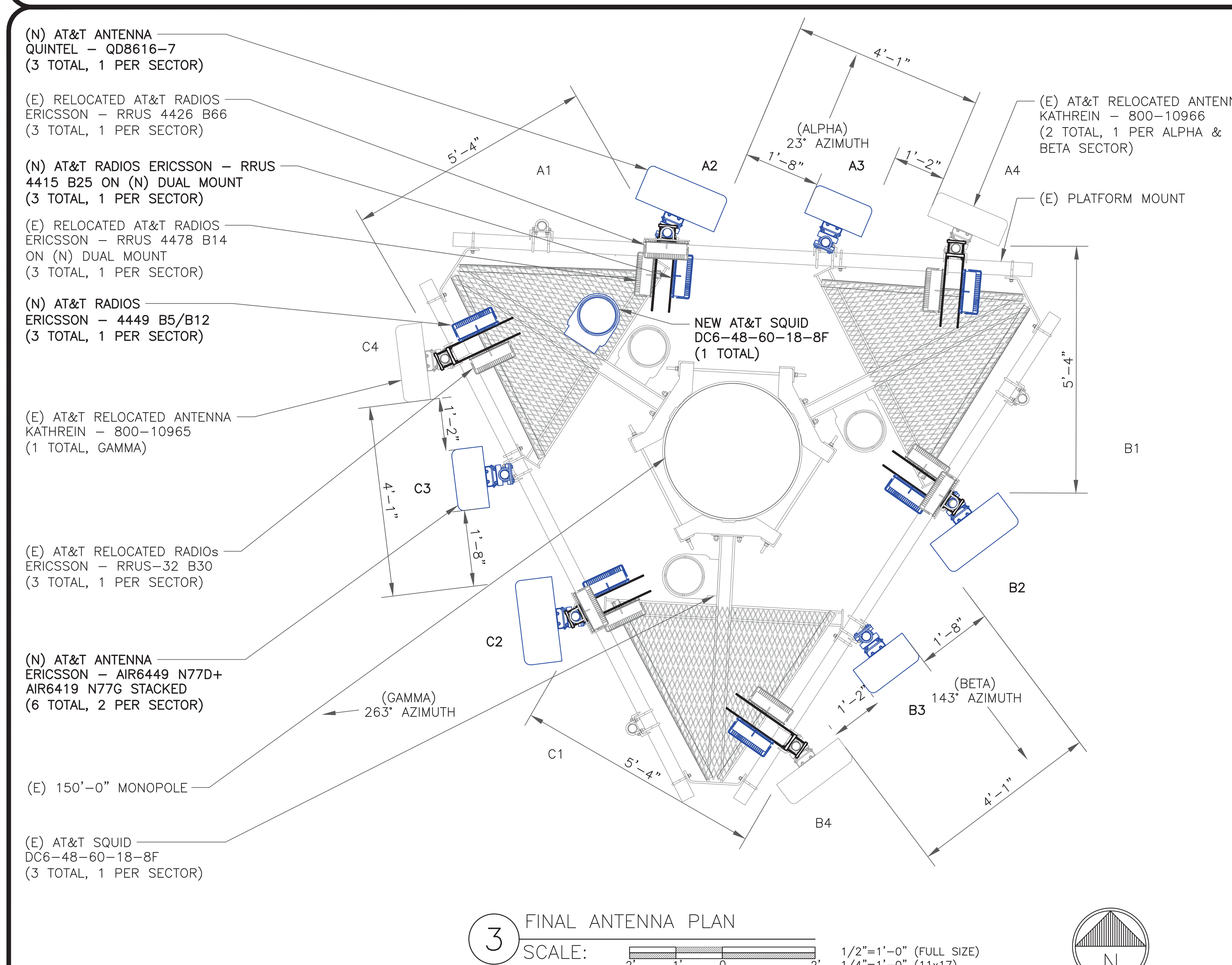


2 EXISTING ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)



3 FINAL ANTENNA PLAN
SCALE: 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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EXISTING
150'-0" MONOPOLE

ISSUED FOR:

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0	2/14/22	JTS	CONSTRCUTION	LR

STATE OF CONNECTICUT
No. 23924
LICENSED PROFESSIONAL ENGINEER
2/14/22

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

NOTE: RFDS BEING USED
DATED 10/6/21 V 1

FINAL ANTENNA AND FEEDLINE SCHEDULE

POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	SURGE PROTECTION	DC/FIBER CABLES	RRHs QTY & MODEL ON TOWER	LOCATION	DIPLEXER ON TOWER	DIPLEXER ON GROUND	RET CABLE
ALPHA SECTOR																		
A1	–	–	–	–	–	–	–	–	–	–	–	(1) DC6-48-60-18-8F (1) DC6-48-60-18-8F	(1) FB-L98B-034-XXX FIBER TRUNK (2) PWRT-606-S DC TRUNK (2) FB-L98B-034 FIBER TRUNK (2) PWRT-608-S DC TRUNK	–	–	–	–	–	–
A2	–	NEW	23°	QUINTEL – QD8616-7	150'-0"	0°	3°/3°/3°/3°/ 5°/5°/5°	1-5/8"	201'-0"	2	–			(1) ERICSSON – RRUS 4478 B14 (1) ERICSSON – RRUS 4415 B25 (1) ERICSSON – RRUS 4426 B66	TOWER	N	N	N
A3	–	NEW	23°	ERICSSON – AIR6449 N77D+AIR6419 N77G STACKED	150'-0"	0°	0°/0°	–	–	–	–			–	TOWER	N	N	N
A4	–	EXISTING	23°	KATHREIN – 800-10966	150'-0"	0°	8°/3°/4°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30	TOWER	N	N	N
BETA SECTOR																		
B1	–	–	–	–	–	–	–	–	–	–	–	(1) DC6-48-60-18-8F	(2) PWRT-608-S DC TRUNK	–	–	–	–	–
B2	–	NEW	23°	QUINTEL – QD8616-7	150'-0"	0°	3°/3°/3°/3°/ 5°/5°/5°	1-5/8"	201'-0"	2	–			(1) ERICSSON – RRUS 4478 B14 (1) ERICSSON – RRUS 4415 B25 (1) ERICSSON – RRUS 4426 B66	TOWER	N	N	N
B3	–	EXISTING	143°	ERICSSON – AIR6449 N77D+AIR6419 N77G STACKED	150'-0"	0°	0°/0°	–	–	–	–			–	TOWER	N	N	N
B4	–	EXISTING	143°	KATHREIN – 800-10966	150'-0"	0°	8°/3°/4°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30	TOWER	N	N	N
GAMMA SECTOR																		
C1	–	–	–	–	–	–	–	–	–	–	–	(1) DC6-48-60-18-8F	(2) PWRT-608-S DC TRUNK	–	–	–	–	–
C2	–	NEW	23°	QUINTEL – QD8616-7	150'-0"	0°	3°/3°/3°/3°/ 5°/5°/5°	1-5/8"	201'-0"	2	–			(1) ERICSSON – RRUS 4478 B14 (1) ERICSSON – RRUS 4415 B25 (1) ERICSSON – RRUS 4426 B66	TOWER	N	N	N
C3	–	EXISTING	263°	ERICSSON – AIR6449 N77D+AIR6419 N77G STACKED	150'-0"	0°	0°/0°	–	–	–	–			–	TOWER	N	N	N
C4	–	EXISTING	263°	KATHREIN – 800-10965	150'-0"	0°	8°/3°/4°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30	TOWER	N	N	N

NOTE: BOLD DENOTES NEW EQUIPMENT

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

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

AT&T SITE NUMBER:
CTL01127

BU #: **881534**
WATERBURY TOWER

670 CAPTAIN NEVILLE DRIVE
WATERBURY, CT 06705

EXISTING
150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/6/21	BMK	PRELIMINARY REVIEW	VP
B	1/28/22	FWP	PRELIMINARY REVIEW	JTS
C	2/7/22	JTS	PRELIMINARY REVIEW	LR
0	2/14/22	JTS	CONSTRCUTION	LR

STATE OF CONNECTICUT
JOHN T. STRATTON
No. 23924
LICENSED
PROFESSIONAL ENGINEER
2/14/22

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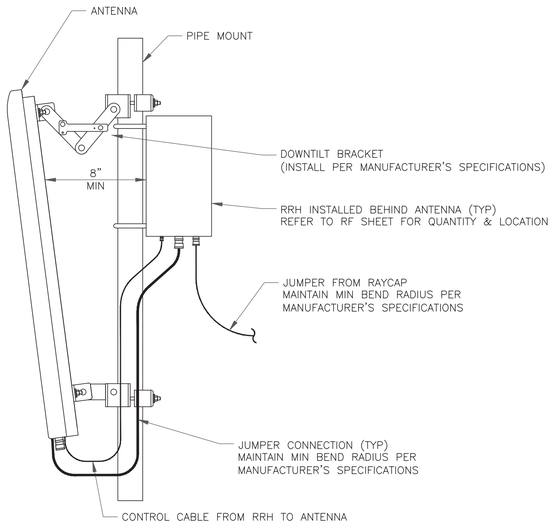
PEC.0001564
Expires 2/10/23

SHEET NUMBER: C-3

REVISION: 0



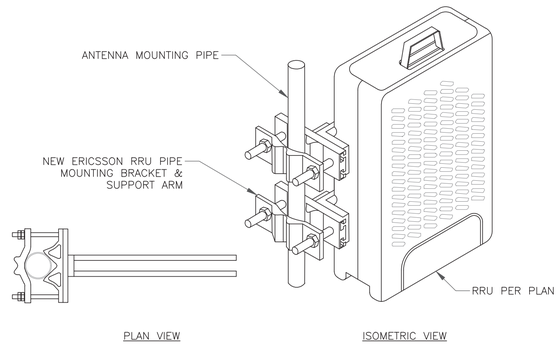
1 GENERIC ANTENNA MOUNTING ELEVATION
SCALE: NOT TO SCALE

ERICSSON RRU MOUNTING KIT:

SXK 107 2839/1: SINGLE RRU SUPPORT KIT (PART # 5335) (OR ENGINEER APPROVED EQUIVALENT)
SXK 107 2839/2: EXPANSION KIT (PART # 5336) (OR ENGINEER APPROVED EQUIVALENT)

MOUNTING NOTES:

REFER TO PRODUCT SPECS FOR BOLT SIZE & PIPE
DIAMETER TOLERANCES. THE PART NO. SXK107-2839/2 IS REQUIRED FOR (2) RRUS.



2 ERICSSON – SXK 107 2839
SCALE: NOT TO SCALE

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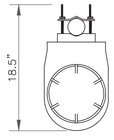
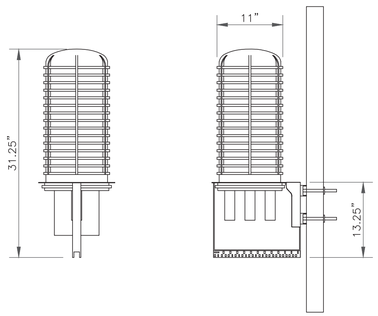
3 NOT USED
SCALE: NOT TO SCALE

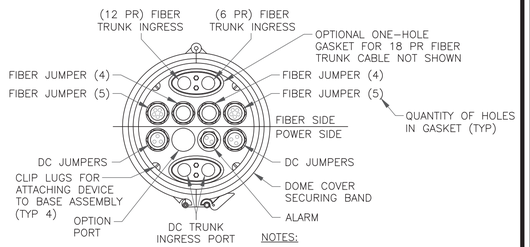
RAYCAP
DC6-48-60-18-8F

RAYCAP – DC6-48-60-18-8F
SIZE: 11x31.25 IN.
WEIGHT: 32.8 LBS
NOMINAL OPERATING VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING: 400 V
WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)
WIND LOADING: 195 MPH GUST (213.6 LBS)

CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION







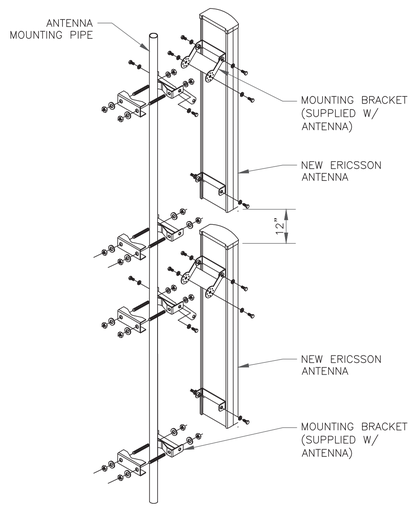
NOTES:

1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

6 SQUID MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

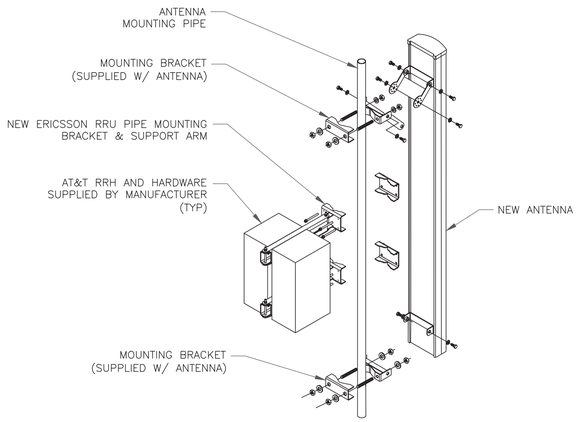
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



4 STACKED ANTENNA 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.



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

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CTL01127

BU #: **881534**
WATERBURY TOWER

670 CAPTAIN NEVILLE DRIVE
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EXISTING
150'-0" MONOPOLE

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0	2/14/22	JTS	CONSTRCUTION	LR

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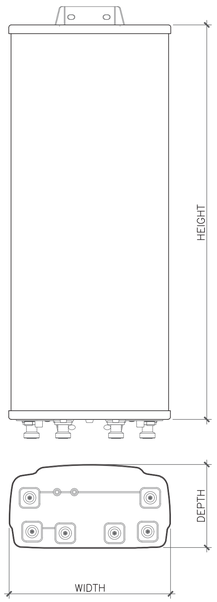
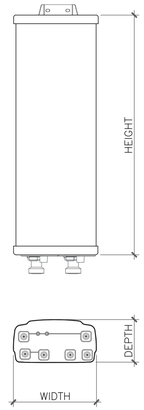
SHEET NUMBER: C-4

REVISION: 0



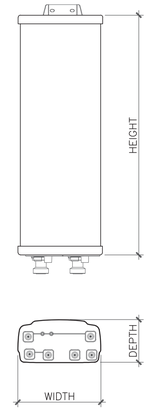
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
QD8616-7	96.00"	22.00"	9.60"	150.00lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



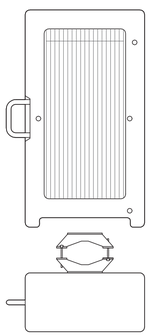
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
AIR6449 N77D	30.63"	15.87"	10.55"	96.80 lbs

2 ANTENNA DETAIL
SCALE: NOT TO SCALE



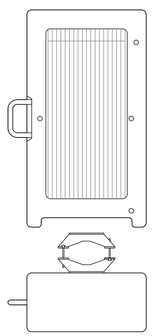
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
AIR6419 N77G	27.95"	15.75"	6.68"	66.20 lbs

3 ANTENNA DETAIL
SCALE: NOT TO SCALE



ERICSSON - 4449 B5/B12
WEIGHT (FULLY EQUIPPED): 59.90 LBS
SIZE (HxWxD): 16.50x13.40x7.70 IN.
CONNECTOR TYPE: 4.3-10 FEMALE (4 TOTAL PORTS)

4 ERICSSON - 4449 B5/B12
SCALE: NOT TO SCALE



ERICSSON - RRUS 4415 B25
WEIGHT (FULLY EQUIPPED): 44.00 LBS
SIZE (HxWxD): 14.96x13.19x5.39 IN.
CONNECTOR TYPE: 4.3-10 FEMALE (4 TOTAL PORTS)

5 ERICSSON - RRUS 4415 B25
SCALE: NOT TO SCALE

6 NOT-USED
SCALE: NOT TO SCALE

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AT&T SITE NUMBER:
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BU #: **881534**
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670 CAPTAIN NEVILLE DRIVE
WATERBURY, CT 06705

EXISTING
150'-0" MONOPOLE

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0	2/14/22	JTS	CONSTRCUTION	LR

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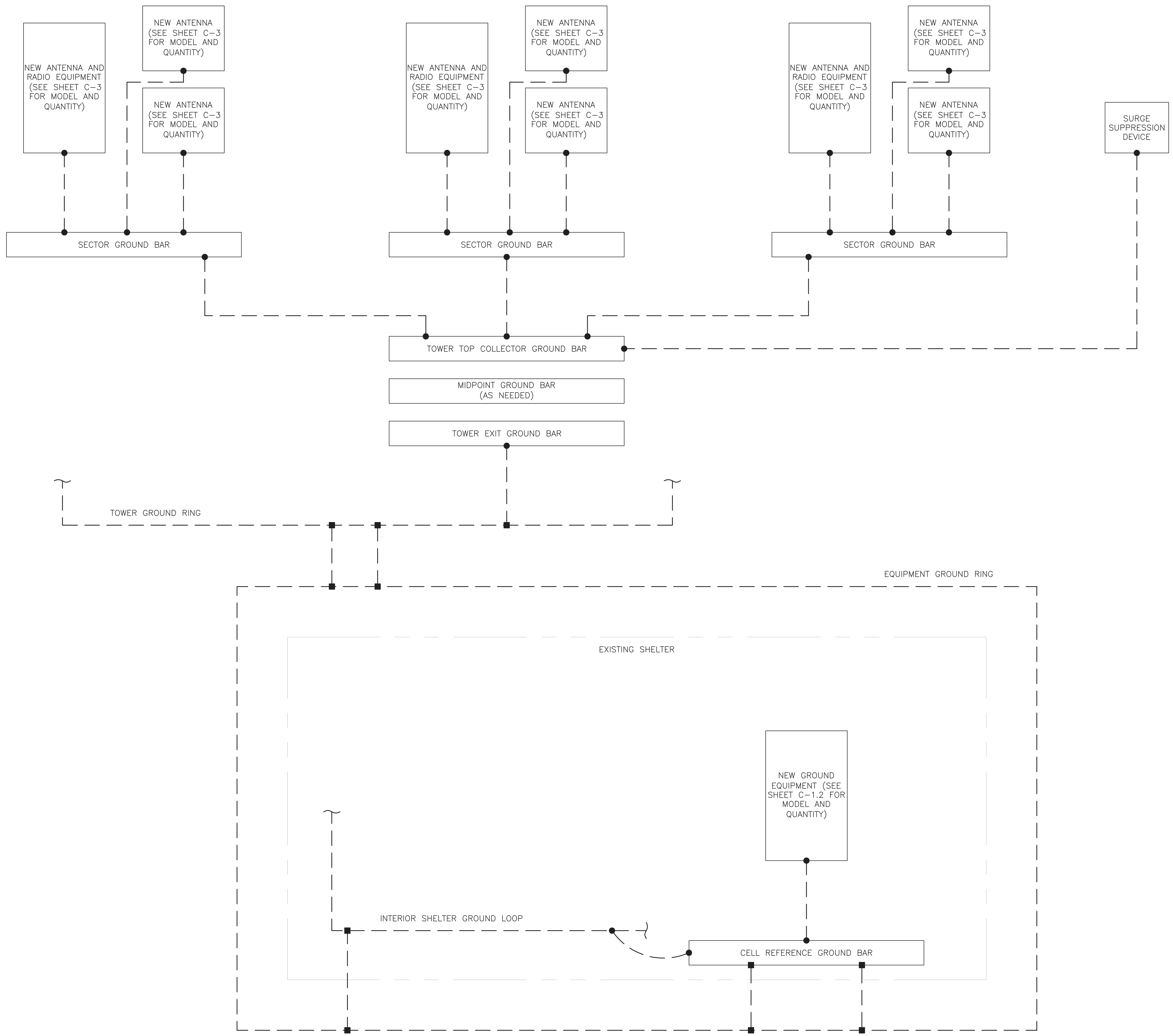
SHEET NUMBER: C-5

REVISION: 0



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.

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0	2/14/22	JTS	CONSTRCUTION	LR

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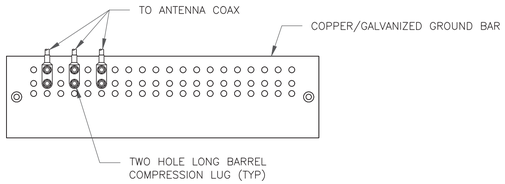
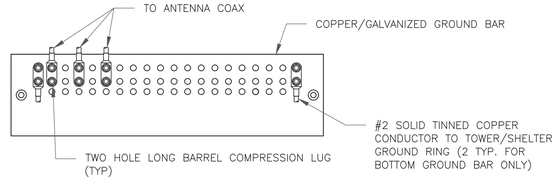
SHEET NUMBER: G-1
REVISION: 0



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

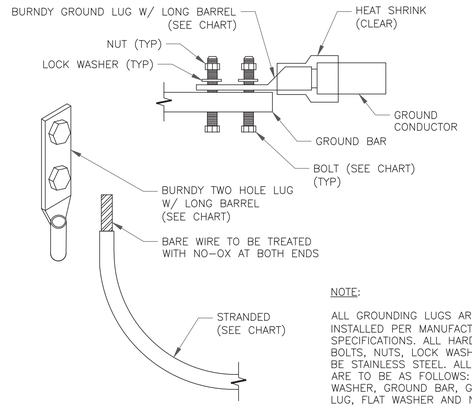


NOTES:

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

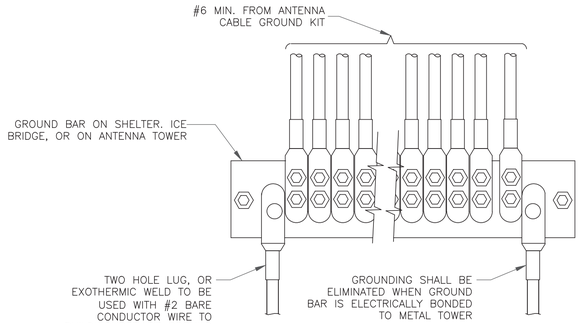
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



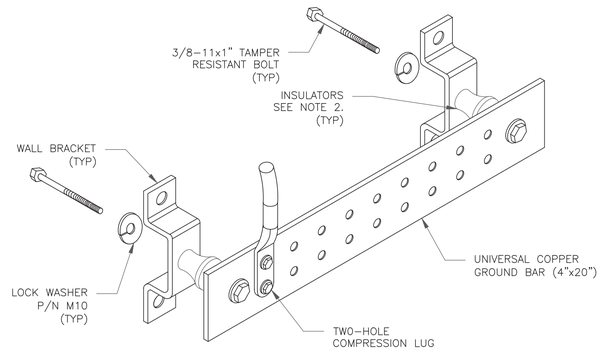
NOTE:

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

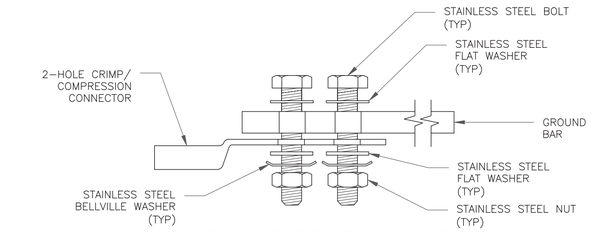


NOTES:

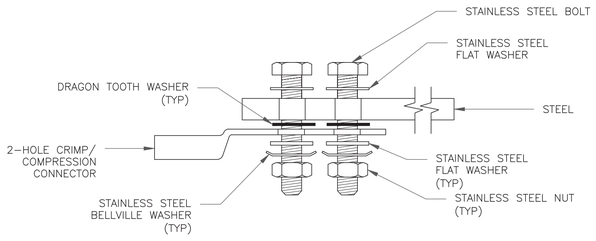
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

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

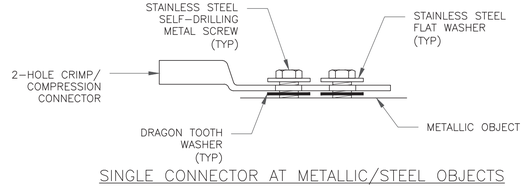
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

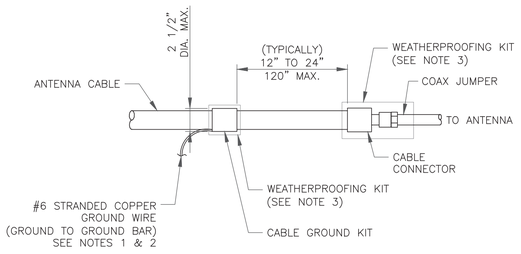


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

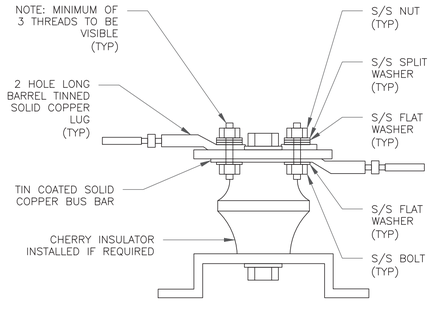
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



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

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REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/6/21	BMK	PRELIMINARY REVIEW	VP
B	1/28/22	FWP	PRELIMINARY REVIEW	JTS
C	2/7/22	JTS	PRELIMINARY REVIEW	LR
0	2/14/22	JTS	CONSTRCUTION	LR

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

SHEET NUMBER: G-2

REVISION: 0

Diagram - Sector	A	Diagram File Name - Cband_3Ant_Q7DEBOT_DoD_CB_DMP__AWS_PCS_1DC_3DCFIB_1x5216_1x6630_2xXMU_6648.vsd					
Atoll Site Name -	CTL01127	Location Name -	WATERBURY EAST	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ Radio Port connections Field Notice (RF-HW-2016-265).							

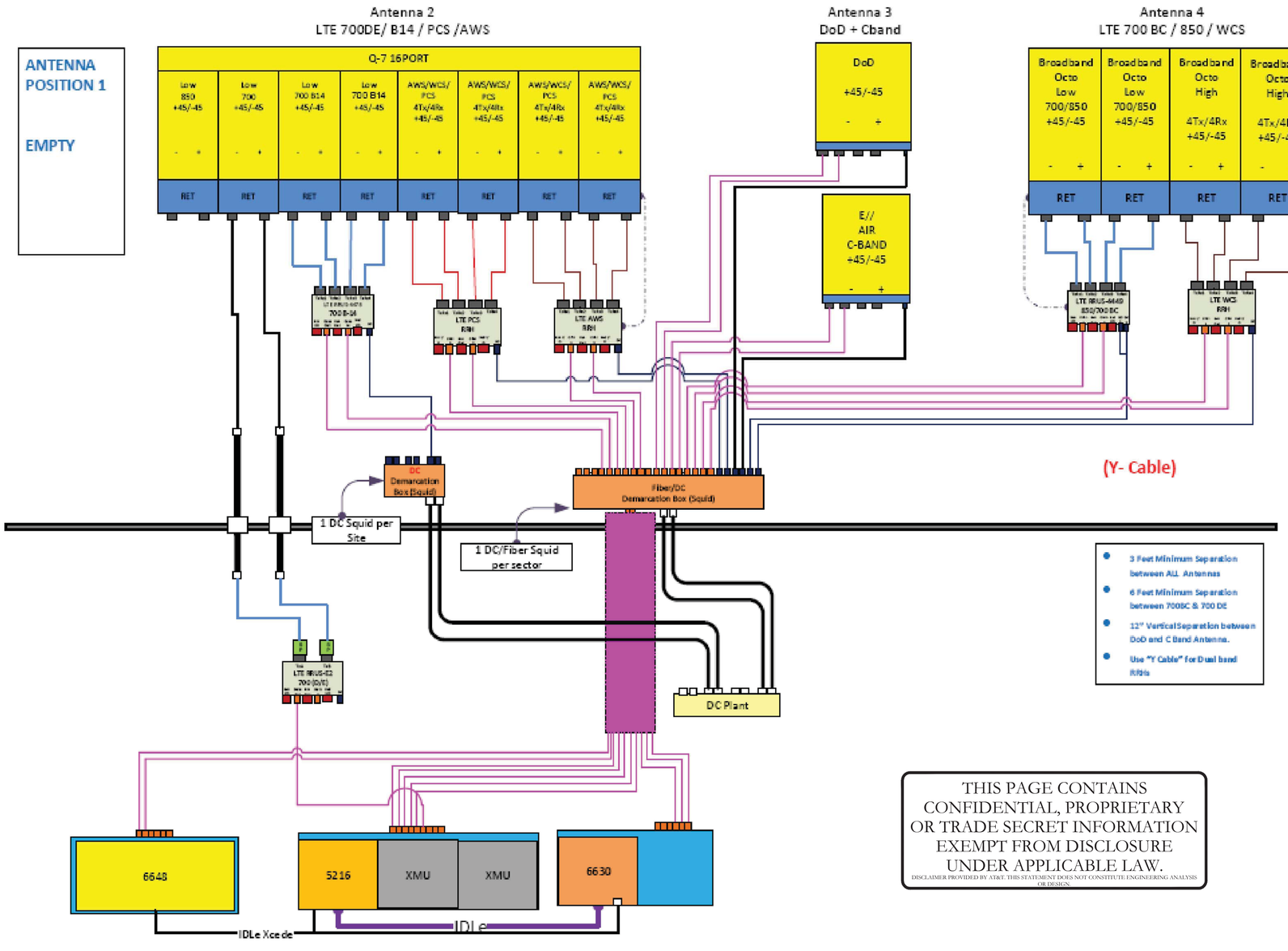


Diagram - Sector	B	Diagram File Name - Cband_3Ant_Q7DEBOT_DoD_CB_DMP__AWS_PCS_1DC_3DCFIB_1x5216_1x6630_2xXMU_6648.vsd					
Atoll Site Name -	CTL01127	Location Name -	WATERBURY EAST	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ Radio Port connections Field Notice (RF-HW-2016-265).

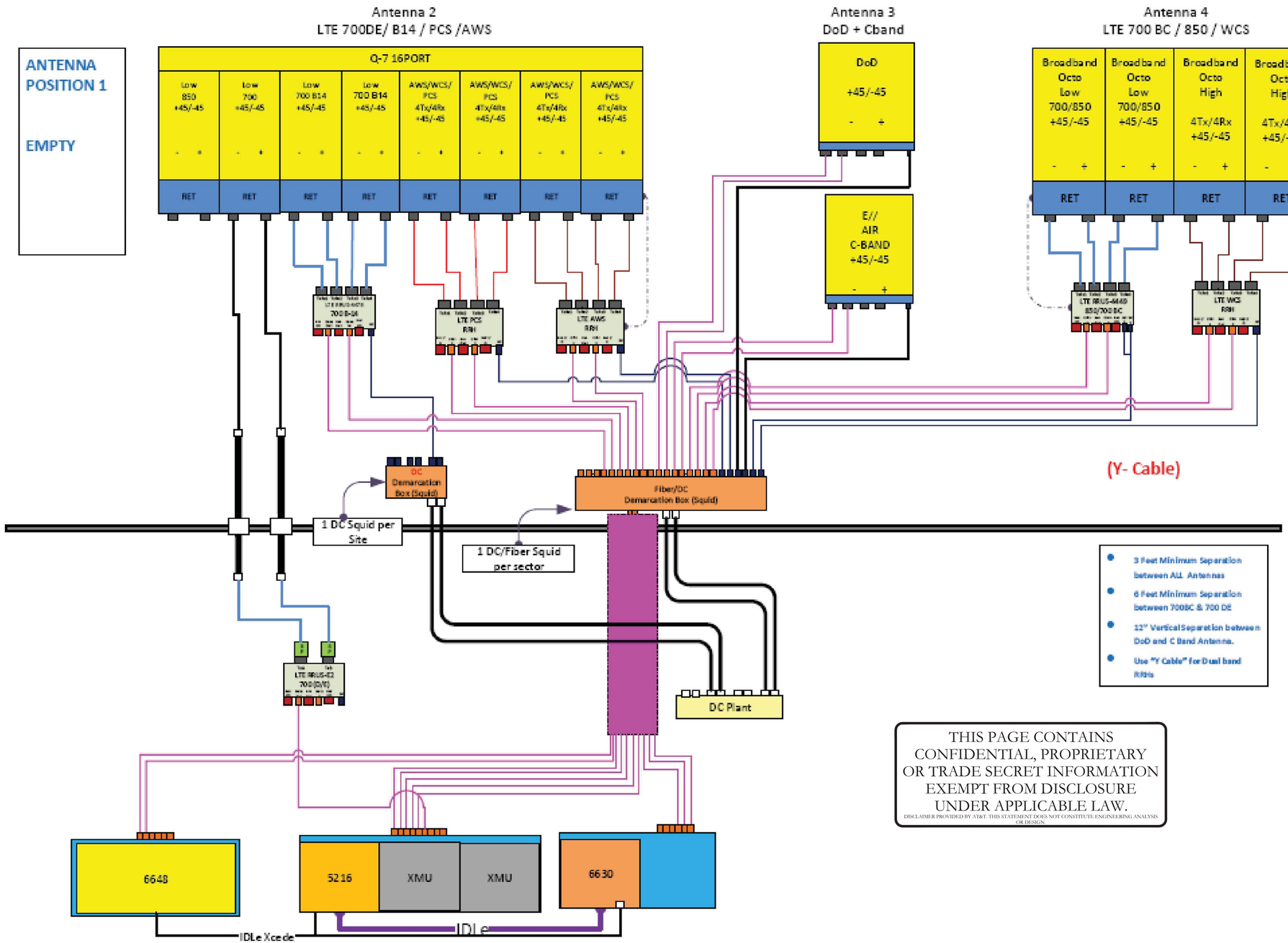
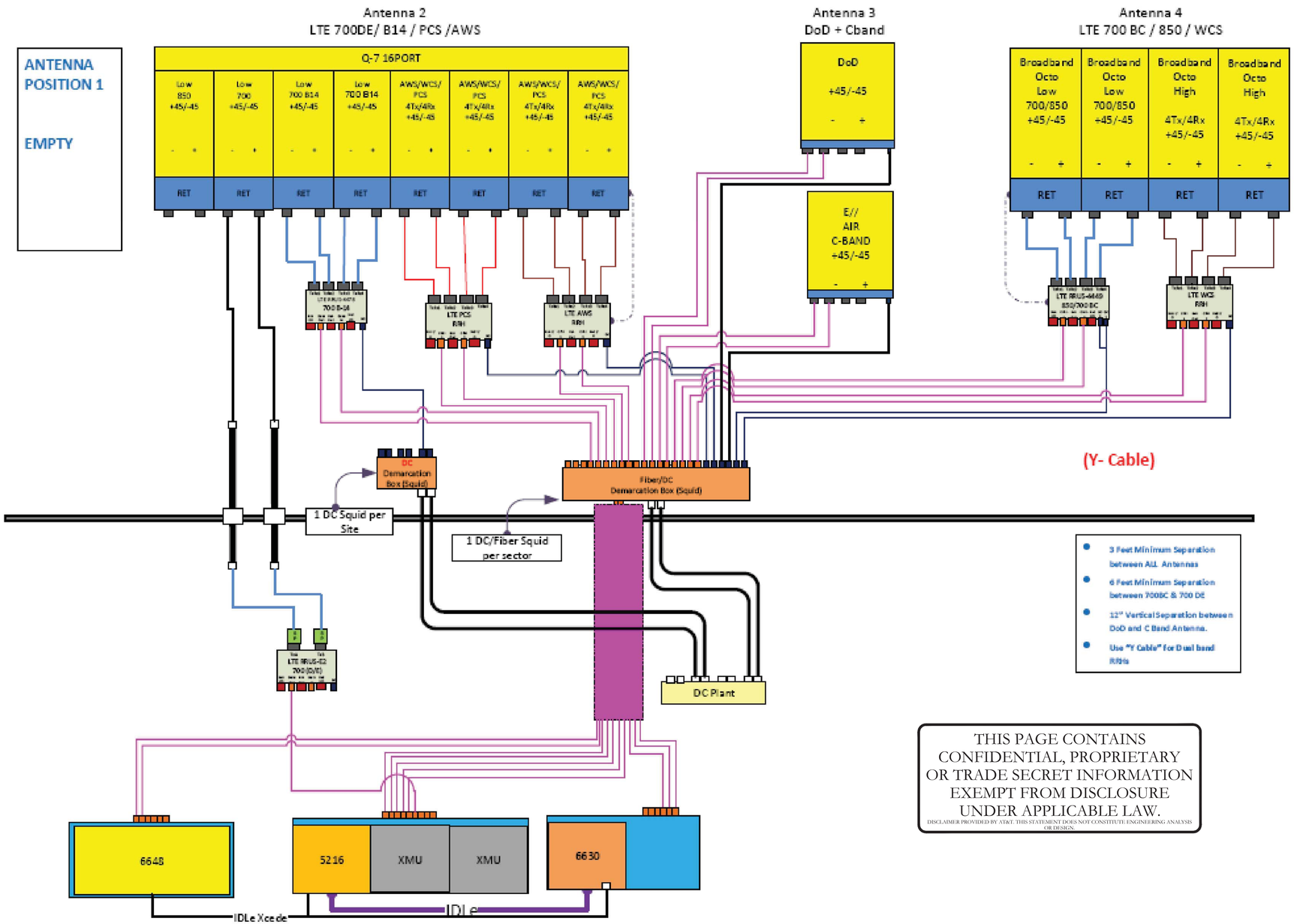


Diagram - Sector	C	Diagram File Name - Cband_3Ant_Q7DEBOT_DoD_CB_DMP__AWS_PCS_1DC_3DCFIB_1x5216_1x6630_2xXMU_6648.vsd					
Atoll Site Name -	CTL01127	Location Name -	WATERBURY EAST	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ Radio Port connections Field Notice (RF-HW-2016-265).							



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