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

February 25, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown#842871; ATT Site ID CTL05101
26 South Orange Center Road, Orange, CT 06477
Latitude: 41° 15′ 19.98" / Longitude: -72° 0' 39.20"

Dear Ms. Bachman:

ATT currently maintains twelve (12) antennas at the 180-foot mount on the existing 180-foot monopole tower located at 26 Orange Center Road, Orange, CT. The property is owned by the Town of Orange and the tower is owned by Crown Castle. ATT now intends to replace twelve (12) antennas and ancillary equipment at the 180ft 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 – QD4616-7 Antenna
- (6) Ericsson - AIR6449 N77D + AIR 6419 N77G Stacked Antennas
- (3) CCI-DMP65R -BU4DA Antennas
- (3) Ericsson – 4449 B5/B12 RRU
- (1) Raycap-DC9-48-60-24-8C-EV SQUID
- (1) Fiber Cable
- (7) Power Cables
- (3) Y Cables

Remove:
- (3) Powerwave-7770 Antennas
- (3) Andrew – SBNHH-1D65A Antennas
- (3) CCI – OPA65R-LCUU-H4 Antennas
- (3) Kathrien- 800 10964K Antennas
- (3) Ericsson 11-B12 RRU
- (6) Powerwave – LGP21401 TMAs
- (6) TPX-070821 Diplexers
- (1) Raycap-DC6-48-60-08F Pendant
- (6) DC Cables
- (6) Coax Cables

Ground:

Install New:

(1) 6673 FHG
(1.) 6630 (+IDLE)
(3-) Rectifies

Remove:

(1) 5216
(6.) 782 10250 Diplexers
(6) TPX-070821 Diplexers

The facility was approved through the Town of Orange by the signing of the License Agreement made December 6, 2002. A copy is included.

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 James M. Zeoli – First Selectman, Town of Orange, Jack Demirjian – ZEO, Town of Orange. Town of Orange is the Property Owner and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, ATT respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

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

Attachments
cc:

James M. Zeoli – First Selectman
Town of Orange
617 Orange Center Road
Orange, CT 06477
203.891.4737

Jack Demirjian – ZEO
Town of Orange
617 Orange Center Road
Orange, CT 06477
203.891.4746

Town of Orange, Property Owner

Crown Castle, Tower Owner

NHV2112/ORANGE 4/TOWN OF ORANGE -

TOWER LICENSE AGREEMENT

This License Agreement (this "Agreement"), made this 6th day of December, 2002 between the **TOWN OF ORANGE**, with offices located at the Orange Town Hall, Orange Center Road, Orange, Connecticut, Tax ID #[redacted], hereinafter designated LICENSOR, and **CELLCO PARTNERSHIP**, a Delaware general partnership, d/b/a Verizon Wireless, with offices located at 180 Washington Valley Road, Bedminster, New Jersey 07921 hereinafter designated LICENSEE. LICENSEE and LICENSOR are at times collectively referred to as the "Parties" or individually as the "Party".

In consideration of the mutual covenants contained herein and intending to be legally bound hereby, the parties hereto agree as follows:

1. **DEFINITIONS**

A. The "Ground Space" is collectively those portions of the Premises above the Ground and upper surface of the foundation, pad, footing and other structures constructed by the LICENSOR as part of LICENSOR's Work designated for the installation, operation and maintenance of a 12' x 30' equipment building and appurtenances, back-up power sources (including generators or fuel storage tanks), and ice bridge as shown on Exhibit A-1 attached hereto and made a part hereof.

B. The "License Area" consists of the Ground Space shown on Exhibit A-1 and the Tower Space shown on Exhibit B attached hereto and made a part hereof.

C. The "Land" is LICENSOR's property known as the Town Transfer Station. The Land is shown on Tax Map 13 of the Town of Orange as Block 7, Parcel 1A and is further described in Volume 232, Page 655 of the Orange Land Records.

D. The "Premises" is a parcel containing approximately 10,000 square feet that is located on the Land.

E. The "Property" is the Premises and the Right-of-Way and is as substantially shown on Exhibit A.

F. The "Right-of-Way" is a non-exclusive right for ingress and egress, seven (7) days a week, twenty-four (24) hours a day, on foot or motor vehicle, including trucks, and for the installation and maintenance of utility wires, cables, conduits, and pipes under that portion of the Land identified as the "Access Drive" on Exhibit A.

G. The "Tower" is the 180-foot high monopole type communications tower to be constructed on the Premises.

H. The "Tower Space" is that portion of the Tower designated for the installation, operation and maintenance of LICENSEE's antennas and related equipment as shown and designated on Exhibit B attached hereto and made a part hereof.

2. **GRANT OF LICENSE; USE**. LICENSOR hereby grants to LICENSEE the exclusive right to use the License Area for the purpose of constructing, maintaining and operating a communications facility consisting of an equipment building with back-up power sources (including generators or fuel storage tanks), ice bridge and other appurtenances to be situated within the Ground Space as approximately shown on Exhibit A-1 and a series of antennas to be located within the Tower Space as approximately shown on Exhibit B, all in accordance with the equipment list and specifications set forth in Exhibit C. The License Area is licensed to LICENSEE together with the non-exclusive right to use the Right-of-Way as described above and such other non-exclusive rights-of-way and easements over, under and upon the Premises and the Tower as are reasonably necessary for the operation of LICENSEE'S

communications facility, provided that such rights of way and/or easements do not interfere with the rights of any other licensee of space within the Premises. LICENSEE shall comply with all specifications with regard to construction, radio frequency and installation on the Tower as outlined in Exhibit C.

3. **DELIVERY OF GROUND SPACE.**

A. The Ground Space shall be delivered to LICENSEE ready for the installation of LICENSEE's equipment with LICENSOR's Work substantially completed. "LICENSOR's Work" shall consist of (i) the construction of concrete pads or foundations for LICENSEE's equipment building and emergency generator fuel tank, (ii) construction of footings to accommodate LICENSEE's ice bridge, (iii) trenching and installation of all underground conduits that LICENSEE shall reasonably require, (iv) removal, environmental testing, disposal and/or replacement of soils or fill and (v) such other necessary site work, all as shown on the plans and specifications identified on Exhibit D attached hereto and made a part hereof (the "Construction Drawings"). The Construction Drawings may be modified by the LICENSEE provided any and all cost associated with a change in LICENSOR's Work shall be included in the Site Development Fee.

B. LICENSOR's Work will be performed and completed by LICENSOR pursuant to the Construction Drawings by contractors recommended to LICENSOR by and approved by LICENSEE, which approval shall not be unreasonably withheld or delayed. LICENSOR will promptly contract for the construction of LICENSOR's Work upon notice from LICENSEE that it desires to commence the installation of its equipment within and upon the License Area, and will prosecute the same to completion, provided all contractors have been

approved by LICENSEE. LICENSOR shall have no liability for any delays in the completion of LICENSOR's Work, not caused by the acts of LICENSOR.

C. It is agreed to between the parties that in the completion of the Ground Space for use by LICENSEE, LICENSOR shall not be deemed or construed as an agent or contractor of LICENSEE. LICENSOR's Work shall at all times be deemed to be the property of LICENSOR, subject to LICENSEE's exclusive right to use the same during the entire term of this Agreement.

4. **UTILITIES.**

LICENSOR shall provide trunk electric utility service and telephone service to the Premises which shall be brought to an electric meter board and telephone box located within the Premises. LICENSEE may tie into such trunk electric service in which event LICENSEE shall install an electric meter at the meter board or at such other location reasonably acceptable to LICENSOR which shall measure LICENSEE'S electricity consumption, and in such event, LICENSEE shall directly contract with the applicable public utility company for its electricity. LICENSEE shall also contract directly with the applicable public utility company for its telephone service.

5. **TERM:**

A. This Agreement shall be deemed effective and binding upon the parties on the date first appearing above.

B. The initial term of this Agreement shall be for a period of five (5) years commencing on the date on which LICENSEE'S equipment is installed and operational. (the "Commencement Date").

C. This Agreement shall automatically be extended for up to four (4) additional five (5) year terms unless the LICENSEE terminates it at the end of the then current term by giving the LICENSOR written notice of the intent to terminate at least four (4) months prior to the end of the then current term. If at the end of the fourth (4^{th}) additional five (5) year term, this Agreement has not been terminated by either Party by giving to the other written notice of an intention to terminate it at least four (4) months prior to the end of the term, this Agreement shall continue in force upon the same covenants, terms and conditions year to year thereafter until terminated by either party by giving to the other written notice of its intention to so terminate at least four (4) months prior to the end of the current additional one (1) year term.

6. **LICENSE FEE.**

A. Commencing on the Commencement Date, LICENSEE shall pay LICENSOR an annual license fee. The annual license fee for the first year of the term of this Agreement shall be in the amount [redacted] Dollars, payable in equal month installments of [redacted] Dollars, each. The annual license fee for each subsequent year of the term of this Agreement (including extension terms) shall be in the amount of one hundred three (103%) percent of the annual license fee payable with respect to the immediately preceding year of the term and payable in equal monthly installments.

B. Installments of the annual license fee shall be first payable on the Commencement Date and thereafter in advance on the first (1^{st}) day of each month to LICENSOR at the address first appearing above, Attention: Accounts Receivable Department, or to such other person, firm, or place as the LICENSOR may, from time to time, designate in

writing at least (30) days in advance of any license fee payment date. The monthly license fee shall be pro-rated for any partial month during the term or renewal term hereof.

7. **ADDITIONAL FEES**. As additional license fees, LICENSEE shall pay LICENSOR the following:

A. A onetime Site Access Fee in the sum of Twenty-Five Thousand and 00/100 ($25,000.00) DOLLARS which if not heretofore paid, shall be due and payable within forty-five (45) days following the execution of this Agreement by both Parties, provided that, if LICENSEE shall fail to receive any Governmental Approval referred to in Section 10 required for the installation and use of a communications facility at the Premises, then such Site Access Fee shall be promptly returned to LICENSEE.

B. LICENSEE shall pay to LICENSOR a onetime Processing Fee of One Thousand Five Hundred and 00/100 ($1,500.00) Dollars to reimburse LICENSOR, in part, for attorney fees incurred by LICENSOR in connection with the negotiation, preparation and execution of this Agreement, which amount shall be due and payable on or before the Commencement Date.

C. A onetime Site Development Fee equal to the sum of (i) One Hundred Fifteen (115%) percent of the LICENSOR's out-of-pocket costs of constructing LICENSOR's Work, and (ii) the cost charged by the Building Department of the Town of Orange (whether or not paid by Licensor) for any and all building permits secured by LICENSOR in connection therewith. Together with LICENSEE'S notification to LICENSOR to proceed with LICENSOR's Work, LICENSEE shall pay to LICENSOR the sum of [redacted] and 00/100 Dollars ([redacted]) representing the estimated amount of the out-of-pocket costs of constructing LICENSOR's Work, or, if contracts have been approved for

the completion of LICENSOR'S Work, then the amount of such contract or contracts. Upon the completion of LICENSOR's Work, LICENSEE shall pay any balance remaining unpaid of the Site Development Fee.

D. Real and personal property taxes to LICENSOR as may be required pursuant to the provisions of Section 32.

8. **INSTALLATION OF EQUIPMENT.** Except for the construction of LICENSOR's Work, all improvements and equipment comprising LICENSEE's communications facility shall be at LICENSEE'S cost and expense and the installation of all such improvements and equipment shall be at the discretion and option of LICENSEE. LICENSEE shall have the right to replace, repair, add or otherwise modify its equipment or any portion thereof, whether the equipment is specified or not on any exhibit attached hereto, during the term of this Agreement.

9. **MAINTENANCE AND REPAIR OBLIGATIONS.**

A. LICENSEE will maintain (i) the License Area and LICENSOR's Work in good condition, reasonable wear and tear excepted, and (ii) its antennas, transmission lines and other appurtenances in proper operating condition and maintain same in satisfactory condition as to appearance and safety; provided, however, if any such repair or maintenance is required solely due to the acts of LICENSOR, its agents, or employees, LICENSOR shall reimburse LICENSEE for the reasonable costs incurred by LICENSEE to restore the damaged areas to the condition which existed immediately prior thereto, and provided further that at LICENSEE's request LICENSOR shall perform any maintenance or repair work to LICENSOR's Work required and LICENSEE shall pay to LICENSOR as additional rent 115% of the cost, over and above any

warranty obligations in Section 9B hereof, of any such maintenance or repair within 30 days of presentment of an invoice for same.

B. At its cost and expense, LICENSEE will repair any damage to the Tower or Property caused by the installation or operation of its communications facility at the Premises, provided the same does not result from a casualty, in which event such repairs, if made, will be made in accordance with the provisions of Section 30. In the event LICENSEE performs repairs resulting from the performance of LICENSOR's Work, then LICENSOR shall assign to LICENSEE all claims and causes of action which LICENSOR shall have against the contractor performing such work for the cost of such repairs.

C. No materials may be used in the installation of the antennas or transmission lines that will cause corrosion or rust or deterioration of the Tower structure or its appurtenances.

D. All antenna(s) on the Tower must be identified by a marking fastened securely to its bracket on the Tower and all transmission lines are to be tagged at the conduit opening where it enters any user's equipment space.

E. Notwithstanding LICENSEE's obligation to effect repairs to the Tower as set forth in Subsection B above, in the event that any damage to the Tower is caused by the sole negligence or willful misconduct of LICENSEE, and LICENSEE has failed to effect repairs within thirty (30) days following a written request from LICENSOR that it do so, or if LICENSOR shall reasonably determine that an emergency exists, LICENSOR may undertake such repairs to the Tower, in which event, LICENSEE will reimburse LICENSOR for the reasonable costs which it has incurred in connection with such repairs within thirty (30) days following its receipt of a reasonably detailed invoice therefor.

F. Throughout the term of this Agreement, LICENSOR, at its cost and expense, through the services of a managing agent or otherwise, will (i) maintain its improvements at the Property in good condition and repair, (ii) keep the Right-of-Way free of ice and snow; (iii) manage and supervise the installation of equipment and other facilities on the Tower and at the Premises; and (iv) subject to LICENSEE's repair obligations, maintain the Tower in good condition and repair and in compliance with the provisions of Section 12.

(a) LICENSEE acknowledges that LICENSOR has entered into an agreement with AT&T Wireless PCS, LLC ("AT&T") under the terms of which, during the term of this Agreement, AT&T shall be LICENSOR's managing agent with respect to the operation, maintenance and repair of the Tower and management of the Property (the "Management Agreement").

(b) Pursuant to the terms of the Management Agreement, "Operating Costs" of AT&T are defined as all reasonable costs and expenses incurred by AT&T in the operation, maintenance and repair of the Tower and management of the Property, including but not limited to, all costs and expenses incurred in performing obligations of LICENSOR of the kind and character as those enumerated above, provided, however, that any costs or expenses attributable to the maintenance and/or repairs that are required as a result of the negligent or intentional acts of AT&T or any other user on the Tower, or costs directly attributable to another user's installation and/or operation shall not be included within the definition of "Operating Costs". Both out-of-pocket costs and expenses and internal costs and expenses are included in Operating Costs. Operating Costs shall also include a 15 percent "markup" of Operating Costs to cover costs of administration.

(c) Subject to the provisions of Subsection 9F(f), LICENSEE shall be responsible for the payment of its "Proportionate Share" of Operating Costs. For the purposes of this Agreement LICENSOR and LICENSEE agree that throughout the entire term of this Agreement, (including any extension terms) LICENSEE's Proportionate Share of Operating Costs shall be a flat annual charge of Two Thousand Four Hundred and 00/100 Dollars ($2,400.00).

(d) LICENSEE shall pay LICENSEE's Proportionate Share of Operating Costs in advance on the first (1st) day of each month, in equal monthly installments of Two Hundred ($200.00) Dollars each, pro-rated for any partial month under this Agreement, but at the option of LICENSEE and upon notice to LICENSOR, LICENSEE may prepay it's Proportionate Share of Operating Costs on an annual or semi-annual basis.

(e) LICENSEE's payments of Operating Costs shall be made to AT&T Wireless Services (Tax Id #[redacted], Attn: Collocation A/R FSA 3, PO Box 97079, Redmond, WA 98073-9779 or to such other address as AT&T or a successor manager shall advise LICENSEE in writing. The failure of the LICENSEE to make any such payment to AT&T within ten (10) days after the date when due shall constitute a default under this Agreement. In the event of such a default, LICENSEE shall have fifteen (15) days following receipt of notice of nonpayment from AT&T in which to cure said default. In the event of any uncured default, AT&T shall have the right and power to bring an action against the LICENSEE based on said default under this Agreement and shall be entitled to all remedies against the LICENSEE available at law and equity, as well as the right to recover its reasonable attorney's fees.

(f) In the event that this Agreement, the Tower and/or the Property are sold, assigned, and/or transferred by LICENSOR, and/or AT&T ceases to be the managing agent of the Tower, at Licensor's option, LICENSEE may be released of its obligation to pay its Proportionate Share of the Operating Costs, and thereupon any subsequent purchaser, assignee and/or transferee shall have no rights against LICENSEE with respect to the payment of said Proportionate Share of the Operating Costs.

10. **GOVERNMENTAL APPROVALS.** It is understood and agreed that LICENSEE'S ability to use the Licensed Area is contingent upon its obtaining after the execution date of this Agreement all of the certificates, permits and other approvals that may be required by any Federal, State or local authorities which will permit LICENSEE use of the Property as set forth above, including without limitation, the Siting Council Approval and the Town Approval (collectively "Governmental Approval(s)"). LICENSOR shall cooperate with LICENSEE in its effort to obtain such approvals and shall take no action which would adversely affect the status of the Premises with respect to the proposed use thereof by LICENSEE. In the event that (i) LICENSEE reasonably determines that any necessary Governmental Approvals will not be forthcoming in a timely manner, (ii) any application for Governmental Approvals is finally rejected, (iii) any certificate, permit, license or other Governmental Approval issued to LICENSEE is canceled, expires, lapses, or is otherwise withdrawn or terminated by governmental authority, (iv) based upon technical considerations, LICENSEE will be unable to use the License Area for its intended purposes, or (v) LICENSEE determines that, based on other than economic or financial considerations, the Premises no longer fit its service needs, LICENSEE shall have the right to terminate this Agreement. Notice of the LICENSEE'S exercise of its right to terminate shall be given to LICENSOR in writing in accordance with the

notice provisions of Section 26. All license fees paid to said termination date shall be retained by the LICENSOR. Upon such termination, this Agreement shall become null and void and all parties shall have no further obligations, including the payment of money, to each other except as otherwise provided in Section 35 and Section 7A.

11. **ACCESS TO TOWER AND PREMISES**. LICENSOR agrees that subject to a reasonable schedule and requirements implemented by AT&T, the current manager of the Tower, LICENSEE shall have free access to the Premises and the License Area for the purpose of installing its communications facility; and thereafter LICENSEE shall have unrestricted access seven (7) days per week, twenty-four (24) hours per day to the Premises for the inspection, servicing, fueling, maintenance, repair and replacement of its communications facility. LICENSOR shall furnish LICENSEE with necessary means of access for the purpose of ingress and egress to the Premises. It is agreed, however, that only authorized engineers, employees or properly authorized contractors of LICENSEE or persons under their direct supervision will be permitted to enter said premises. LICENSEE shall also be entitled to emergency access to the premises.

12. **COMPLIANCE WITH LAWS.**

A. All installations and operations in connection with this Agreement by LICENSEE shall meet all applicable Rules and Regulations of the Federal Communications Commission, Federal Aviation Agency and all applicable codes and regulations of the township, county and state concerned. Under this Agreement, the LICENSOR assumes no responsibility for the licensing, operation and/or maintenance of LICENSEE's radio equipment.

B. LICENSOR covenants that it will cause the Property, Tower and related improvements of LICENSOR to be kept and maintained as required by Section 9F and in

compliance with any and all federal, state, county and local laws, including, but not limited to those with regard to the lighting, marking and painting of towers.

C. In the event that AT&T or a successor managing agent shall fail to fulfill such obligations pursuant to the terms of the Management Agreement or a successor agreement, LICENSEE shall have the right, but not the obligation, to enforce the same on behalf of LICENSOR, and in furtherance thereof, LICENSOR hereby grants to LICENSEE a power of attorney to effect such enforcement measures.

D. In the event LICENSOR and/or AT&T default in their maintenance, repair or compliance obligations as set forth in Subsection 12B above, and, if such failure adversely affects LICENSEE's ability to operate its communication facility at the Premises, then LICENSEE may, but shall not be obligated to, take all measures as are reasonably necessary to correct such default and may credit the cost of same against license fees and any other charges which become due and payable by LICENSEE hereunder, and/or LICENSEE may pursue such remedies against AT&T and/or LICENSOR as are available at law or in equity.

13. **INTERFERENCE.**

A. LICENSEE agrees to have installed radio equipment of the type and frequency which will not cause measurable interference to the equipment of LICENSOR, other lessees or licensees of the Premises or neighboring landowners existing as of the date of this Agreement. In the event LICENSEE's equipment causes such interference, and following receipt of notice from LICENSOR of such interference, LICENSEE will take all steps necessary to correct and eliminate the interference.

B. LICENSOR agrees that LICENSOR and any other tenants, licensees or other users of the Premises who currently have or in the future take possession of LICENSOR's

tower and/or property will be permitted to install only such radio equipment that is of the type and frequency which will not cause measurable interference with LICENSEE's then existing equipment. LICENSOR will see that the interfering party take all steps necessary to immediately correct and eliminate the interference. If LICENSOR fails to eliminate or cause to eliminate such interference within fifteen (15) days following receipt of written notice by LICENSEE, LICENSOR agrees to cease or cause the interfering party to cease operation of the equipment causing the interference to LICENSEE, provided, however, that the interfering party shall have an additional fifteen (15) days solely for the purpose of conducting intermittent tests of its equipment.

14. **INDEMNIFICATION.** Each party shall indemnify and hold the other harmless against any claim of liability or loss from personal injury or property damage resulting from or arising out of the use and occupancy of the Property or the Land of which the Property is a part, by the party, its servants or agents, excepting, however, such claims or damages as may be due to or caused by the negligent or intentional acts of the other party, its servants or agents.

15. **WAIVER OF ACTIONS**. The parties hereby waive any and all rights of action for negligence against the other which may hereafter arise on account of damage to the Property, resulting from any fire, or other casualty of the kind covered by standard fire insurance policies with extended coverage, regardless of whether or not, or in what amount, such insurance is now or hereafter carried by the parties, or either of them.

16. **INSURANCE.**

A. Throughout the term of this Agreement, LICENSEE shall, at its expense, maintain general liability insurance with a combined single limit of $1,000,000.00 for bodily injury and property damage. LICENSEE shall provide a certificate of insurance to the

LICENSOR as proof of said coverage which shall contain a provision for thirty (30) days notice of cancellation to the LICENSOR.

B. Throughout the term of this Agreement, LICENSOR shall at its expense, maintain (i) standard fire insurance with extended coverage insuring the Tower and appurtenant improvements for their full replacement value, and (ii) general liability insurance with a combined single limit of $1,000,000.00 for bodily injury and property damage. LICENSOR shall provide a certificate of insurance to LICENSEE as proof of said coverage which shall contain a provision for thirty (30) days' notice of cancellation to the LICENSEE.

C. Notwithstanding the foregoing, LICENSOR agrees that LICENSEE may self-insure against any loss or damage which could be covered by a comprehensive general public liability insurance policy, provided LICENSEE shall maintain adequate reserves for all self insured risks in accordance with the requirements of the Insurance Department of the State of Connecticut or any successor that shall authorize such self-insurance.

17. **ENVIRONMENTAL.**

A. Without limiting the liability of prior owners, operators, tenants and occupants, as the owner or operator of the Land, LICENSOR will be responsible for all obligations of compliance with any and all environmental laws, including any regulations, guidelines, standards, or policies of any governmental authorities regulating or imposing standards of liability or standards of conduct with regard to any environmental conditions or concerns as may now or at any time hereafter be in effect, that are or were in any way related to activity now or formerly conducted in, on, or in any way related to the Property or Land, unless such conditions or concerns are caused by the activities of the LICENSEE.

B. LICENSOR shall hold LICENSEE harmless and indemnify LICENSEE from and assume all duties, responsibility and liability at its sole cost and expense, for all duties, responsibilities, and liability (for payment of all penalties, sanctions, forfeitures, losses, costs or damages) and for responding to any action, notice, claim order, summons, citation, directive, litigation, investigation or proceeding which is in any way related to: a) a failure to comply with any environmental law, including without limitation any regulations, guidelines, standards, or policies of any governmental authorities regulating or imposing standards of liability or standards of conduct with regard to any environmental concerns or conditions as may now or any time hereafter be in effect, and b) any environmental conditions arising out of or any way related to the condition of the Property or the Land or activities conducted thereon, or the presence of any hazardous materials on or migrating from or to the Property or Land unless such environmental conditions are caused by LICENSEE.

C. Without limiting the liability of prior owners, operators, tenants and occupants, LICENSEE will be responsible for all obligations of compliance with any and all environmental laws, including any regulations, guidelines, standards, or policies of any governmental authorities regulating or imposing standards of liability or standards of conduct with regard to any environmental conditions or concerns as may now or at any time hereafter be in effect, that are or were in any way related to LICENSEE's use and operation of the Property unless such conditions or concerns are caused by the activities of the LICENSOR.

D. LICENSEE shall hold LICENSOR harmless and indemnify LICENSOR from and assume all duties, responsibility and liability at its sole cost and expense, for all duties, responsibilities, and liability (for payment of penalties, sanctions, forfeitures, losses, costs, or damages) and for responding to any action, notice, claim, order, summons, citation, directive,

litigation, investigation or proceeding which is in any way related to its: a) failure to comply with any environmental law, including without limitation any regulations, guidelines, standards, or policies of any governmental authorities regulating or imposing standards of liability or standards of conduct with regard to any environmental concerns or conditions arising out of LICENSEE's use and occupancy of the Property, unless such environmental conditions are caused by LICENSOR.

18. **INTENTIONALLY OMITTED**.

19. **REMOVAL OF EQUIPMENT**. Within ninety (90) days following the expiration or earlier termination of this Agreement, LICENSEE shall, (i) remove its equipment building, antenna(s), fixtures and all personal property, and (ii) otherwise restore the License Area to its original condition, reasonable wear and tear, and damage by fire or other casualty excepted. The parties acknowledge that all of LICENSOR's Work is and shall remain the property of LICENSOR and may remain at the Premises. If such time for removal causes LICENSEE to remain on the Premises after termination of this Agreement, LICENSEE shall pay license fees at the then existing monthly rate or on the existing monthly pro-rata basis if based upon a longer payment term, until such time as the removal of the equipment building, antennas, fixtures and all personal property is completed, as aforesaid.

20. **SALE OF PROPERTY.** Should the LICENSOR, at any time during this term of this Agreement, decide to sell all or any part of the Premises to a purchaser other than LICENSEE, such sale shall be under and subject to this Agreement and LICENSEE's rights hereunder, and any sale by the LICENSOR of the portion of Land underlying the Right-Of-Way herein granted shall be under and subject to the right of the LICENSEE in and to the Right-Of-Way.

21. **QUIET ENJOYMENT**. LICENSOR covenants that LICENSEE, on paying the license fees and performing the covenants herein contained, shall peaceably and quietly have, hold and enjoy the Licensed Area and the other rights with respect to the Land granted LICENSEE hereunder.

22. **COVENANT OF TITLE**. LICENSOR covenants that LICENSOR is seized of good and sufficient title and interest to the land and Property and has full authority to enter into and execute this Agreement. LICENSOR further covenants that there are no liens, judgments or impediments of title on the Property, or affecting LICENSOR's title to the same and that there are no covenants, easements or restrictions which prevent the use of the Property by the LICENSEE as set forth above. In the event that LICENSOR fails to have proper ownership of the Land and Property or the authority to enter into this Agreement, LICENSEE may terminate the Agreement without further liability.

23. **ENTIRE AGREEMENT.**

A. It is agreed and understood that this Agreement contains all agreements, promises and understandings between LICENSOR and LICENSEE and that no verbal or oral agreements, promises or understandings shall be binding upon either the LICENSOR or LICENSEE in any dispute, controversy or proceeding at law, and any addition, variation or modification to this Agreement shall be void and ineffective unless made in writing signed by all parties. In the event any provision of this Agreement is found to be invalid or unenforceable, such finding shall not affect the validity and enforceability of the remaining provisions of this Agreement.

B. The failure of either Party to insist upon the strict performance of any of the terms or conditions of this Agreement or to exercise any of its rights under this Agreement

shall not serve as a waiver of such rights and such Party shall have the right to enforce any such rights at any time and take such action as may be lawful and authorized under this Agreement, either in law or in equity.

24. **CHOICE OF LAW**. This Agreement and the performance thereof shall be governed, interpreted, construed and regulated by the laws of the State of Connecticut.

25. **ASSIGNMENT AND SUBLICENSING**.

A. This Agreement may be sold, assigned, sublicensed or transferred by the LICENSEE without any approval or consent of the LICENSOR to the LICENSEE's principal, subsidiaries, affiliates, or to any party controlling, controlled by, or under common control with LICENSEE, or to any entity which acquires all or substantially all of LICENSEE's assets in the market defined by the Federal Communications Commission in which the Property is located by reason of merger, acquisition or other business organization. As to other parties, any such sale, assignment, sublicensing, or transfer shall be subject to the written consent of LICENSOR, which consent will not be unreasonably withheld.

B. This Agreement may be sold, assigned, and/or transferred by LICENSOR at any time and LICENSEE agrees to attorn to any such purchaser, assignee or transferee and to remain bound by all the terms, covenants and conditions contained herein, provided that LICENSEE's duties and obligations shall not be in any way increased or its rights diminished by such sale, assignment or transfer. Upon such sale, assignment or transfer, LICENSOR shall be released and discharged of its obligations hereunder, provided that any subsequent purchaser, assignee or transferee shall assume LICENSOR's obligations under this Agreement.

26. **NOTICES**. All notices hereunder must be in writing and shall be deemed validly given if sent by certified mail, return receipt requested or by commercial courier, provided the

courier's regular business is delivery services and provided further that it guarantees delivery to the addressee by the end of the next business day following the courier's receipt from the sender, addressed as follows (or any other address that the party to be notified may have designated to the sender by like notice):

LICENSOR: Town of Orange
617 Orange Center Road
Orange, CT 06477
Attention: First Selectman

LICENSEE: Cellco Partnership
d/b/a Verizon Wireless
180 Washington Valley Road
Bedminster, NJ 07921
Attention: Network Real Estate

Notice shall be effective upon mailing or delivering the same to a commercial courier, as permitted above.

27. **DEFAULT**. In the event there is a default by either party with respect to any of the provisions of this Agreement or its obligations under it, including the payment of license fees, the non-defaulting party shall give the defaulting party written notice of such default. After receipt of such written notice, the defaulting party shall have fifteen (15) days in which to cure any monetary default and thirty (30) days in which to cure any non-monetary default, provided the defaulting party shall have such extended period as may be required beyond the thirty (30) days if the nature of the cure is such that it reasonably requires more than thirty (30) days and the defaulting party commences to cure within the thirty (30) day period and thereafter continuously and diligently pursues the cure to completion. The non-defaulting party may not maintain any action or effect any remedies for default against the defaulting party unless and until the defaulting party has failed to cure the same within the periods provided in this paragraph. In the

event of any uncured default, the non-defaulting party may pursue any remedies available to it against the defaulting party under applicable law, including the right to terminate this Agreement.

28. **SURVIVAL**. This Agreement shall extend to and bind the heirs, personal representatives, successors and assigns of the parties hereto.

29. **NON-DISTURBANCE**.

A. At LICENSOR'S option, this Agreement shall be subordinate to any mortgage or other security interest by LICENSOR which from time to time may encumber all or part of the Property; provided, however, every such mortgage or other security interest shall recognize the validity of this Agreement and any sublicense agreements in the event the holder of such mortgage or other security interest shall succeed to the LICENSOR'S interest in the Property by foreclosure, deed in lieu of foreclosure or otherwise, and also LICENSEE'S (and any sublicensee's) right to remain in occupancy of and have access to the Property as long as LICENSEE (and any sublicensee) is not in default of this Agreement beyond any applicable grace or cure periods. LICENSEE (and any sublicensee) shall execute whatever instruments may reasonably be required to evidence this subordination clause.

B. In the event the Property is now or hereafter encumbered by a mortgage or other security interest, immediately after this Agreement is executed by the Parties or immediately after a mortgage is hereafter placed against the Property, LICENSOR will obtain and furnish to LICENSEE a non-disturbance agreement in recordable form for each such mortgage or other security interest.

30. **CASUALTY.** In the event of damage by fire or other casualty to the Property that cannot reasonably be expected to be repaired within one hundred twenty (120) days

following same or, if the Property is damaged by fire or other casualty so that such damage may reasonably be expected to disrupt LICENSEE's operations at the Property for more than one hundred twenty (120) days, then LICENSEE may at any time following such fire or other casualty, provided LICENSOR has not completed the restoration required to permit LICENSEE to resume its operation at the Property, terminate this Agreement upon fifteen (15) days written notice to LICENSOR. Any such notice of termination shall cause this Agreement to expire with the same force and effect as though the date set forth in such notice were the date originally set as the expiration date of this Agreement and the parties shall make an appropriate adjustment, as of such termination date, with respect to payments due to the other under this Agreement. If this Agreement is not terminated, until repairs are completed, LICENSEE shall have the right to operate at the Premises a so called Cell on Wheels or other temporary equipment which will enable it to continue to operate. Notwithstanding the foregoing, all license fees and other payments shall abate during any period during which LICENSEE is unable to maintain operations at the Premises.

31. **CONDEMNATION.** In the event of any condemnation of the Property, LICENSEE may terminate this Agreement upon fifteen (15) days written notice to LICENSOR if such condemnation may reasonably be expected to disrupt LICENSEE's operations at the Property for more than one hundred twenty (120) days. LICENSEE may on its own behalf make a claim in any condemnation proceeding involving the Property for losses related to the antennas, equipment, its relocation costs and its damages and losses (but not for the loss of its leasehold interest). Any such notice of termination shall cause this Agreement to expire with the same force and effect as though the date set forth in such notice were the date originally set as

the expiration date of this Agreement and the parties shall make an appropriate adjustment, as of such termination date, with respect to payments due to the other under this Agreement.

32. **REAL AND PERSONAL PROPERTY TAXES**. LICENSEE shall directly pay to the taxing authority when due all (i) personal property taxes assessed against its equipment and other personal property (which shall be deemed not to include the Tower), and (ii) any real property taxes which are directly related to LICENSEE's use of the Premises for the operation of its communications facility and which are billed directly to LICENSEE (collectively, "Taxes"). Notwithstanding the foregoing, LICENSEE will reimburse LICENSOR for any such Taxes that are billed directly to LICENSOR within thirty (30) days next following LICENSEE's receipt of a bill therefor which shall include a copy of the applicable tax bills and a detailed explanation of the amount owed by LICENSEE.

33. **NOTICE OF LICENSE**. LICENSOR agrees, from time to time as requested, to execute a Notice of License Agreement in recordable form which LICENSEE may record in the Orange Land Records. Said Notice of License shall contain such information as LICENSEE shall reasonably request.

34. **HEADINGS.** The headings used in this Agreement are solely for the convenience of the parties and may not be used to construe this Agreement or any of its provisions.

35. **SURVIVAL.** The provisions of this Agreement relating to indemnification from one Party to the other Party shall survive any termination or expiration of this Agreement. Additionally, any provisions of this Agreement which require performance subsequent to the termination or expiration of this Agreement shall also survive such termination or expiration.

36. **SUBMISSION OF LICENSE.** The submission of this Agreement for examination does not constitute an offer to license a portion of the Property and this Agreement becomes effective only upon its full execution by both Parties.

37. **PARTIAL INVALIDITY.** If any provision of this Agreement or any application thereof to any person or circumstance shall to any extent be held void, unenforceable or invalid, then the remainder of this Agreement or the application of such provision to persons or circumstances other than those as to which it is held void, unenforceable or invalid shall not be affected thereby, and each provision of this Agreement shall be valid and enforced to the fullest extent permitted by law provided that LICENSEE shall have the benefit of the use of the Licensed Area and other rights conferred upon it hereunder for the purposes herein permitted.

38. **AUTHORITY.** Each of the Parties hereto warrants to the other that the person or persons executing this License on behalf of such Party has the full right, power and authority to enter into and execute this License on such Party's behalf and that no consent from any other person or entity is necessary as a condition precedent to the legal affect of this License.

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their respective seals the day and year first above written.

LICENSOR:
Town of Orange

Marlene H. Silverstein
WITNESS MARLENE H. SILVERSTEIN

By: _____
Name: Mitchell R. Goldblatt
Its: First Selectman
Address: 617 Orange Center Rd, Orange CT 06477

Karen S. Goldberg
WITNESS Karen S. Goldberg

Date: 4 September 2002

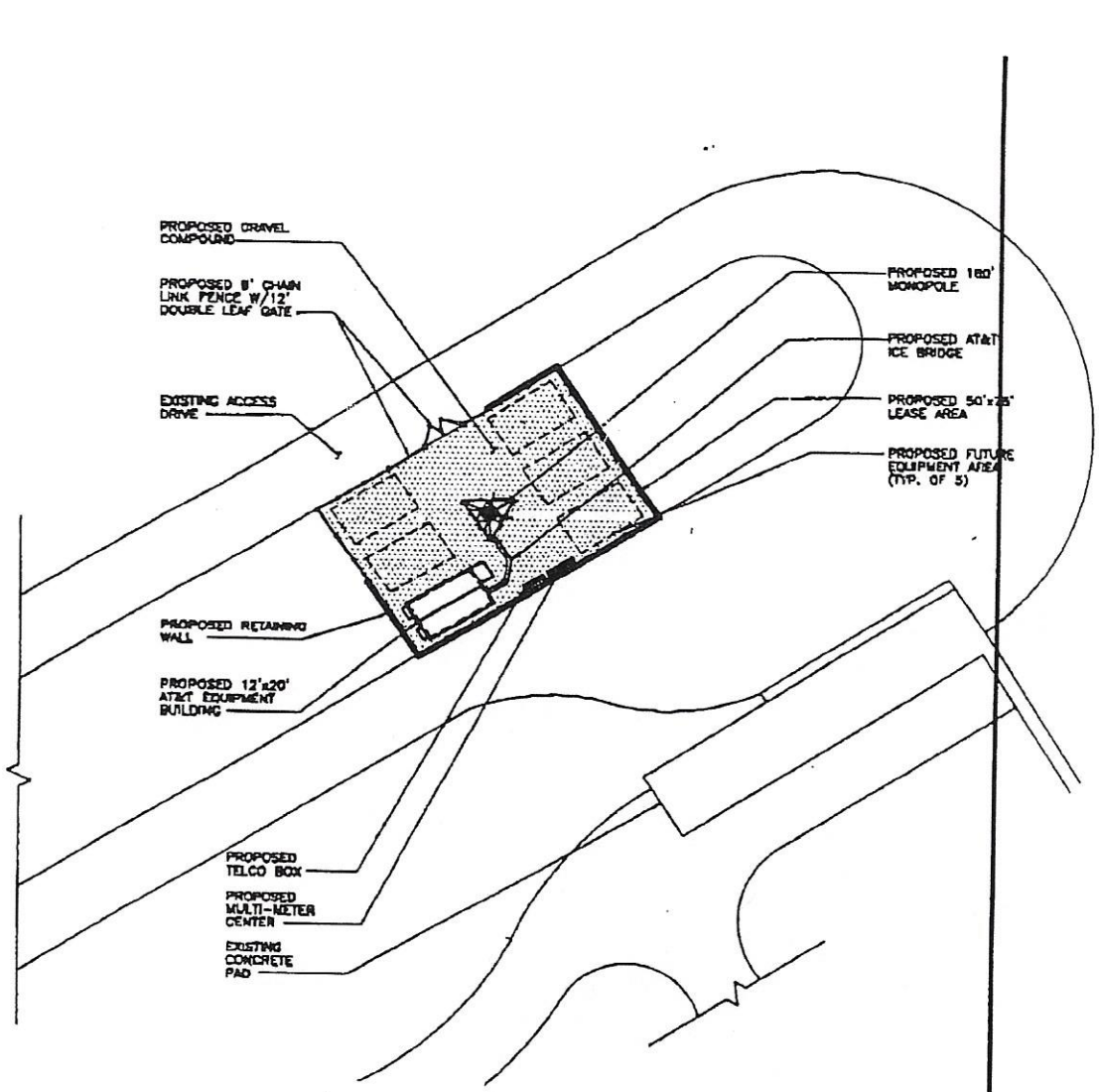
LICENSEE:
Cellco Partnership d/b/a Verizon Wireless

Dave Gaspilla
WITNESS

By: _____
Name: David R. Heverling
Its: Vice President, Network – Northeast Area
Address: Verizon Wireless
400 Friberg Parkway
Westborough, MA 01581-3596
Date: _____

Karen T. Paul
WITNESS

EXHIBIT A



1 / L-1 SITE PLAN
SCALE: 1"=50'

0 25 50 100

SITE ID No: CT-101
Designed by:
Drawn by: BMS
Checked by:

SBS Graham Woodward Clyde A-E-S
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(860)-529-8882

AT&T WIRELESS PCS, LLC.
UNMANNED WIRELESS COMMUNICATION EQUIPMENT SITE

SITE ADDRESS: ORANGE TRANSFER STATION
SOUTH ORANGE CENTER ROAD
ORANGE, CONNECTICUT

REV.	DATE	DESCRIPTION

Scale: AS SHOWN Date: 08-31-00
Job No: F301924.07 File No: L-1

Dwg. No. L-1
Dwg. 1 of 2

EXHIBIT A-1

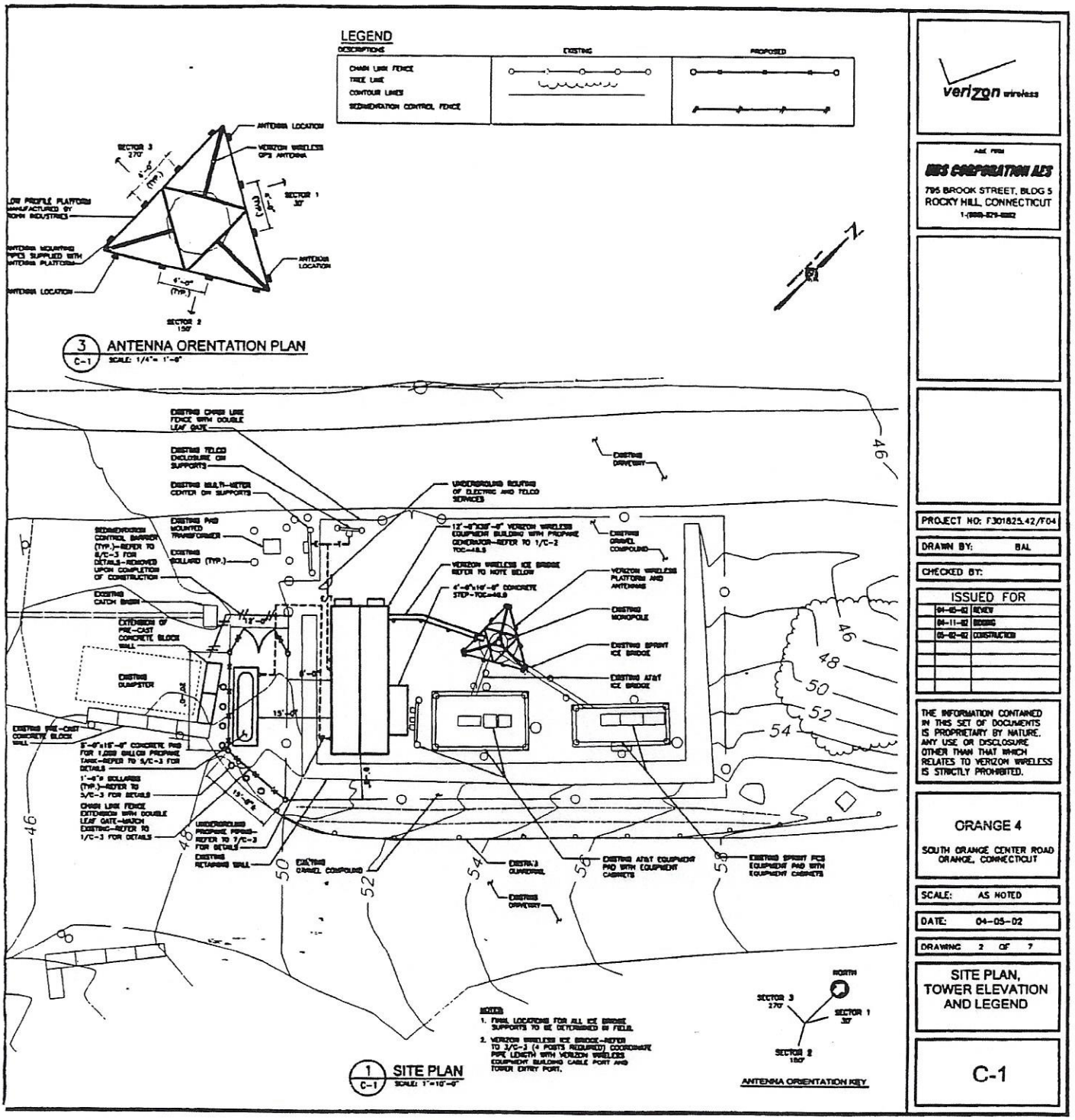

LEGEND
DESCRIPTIONS
EXISTING
PROPOSED
CHAIN LINK FENCE
TREE LINE
CONTOUR LINES
SEDIMENTATION CONTROL FENCE
ANTENNA LOCATION
VERIZON WIRELESS GPS ANTENNA
SECTOR 3 270°
SECTOR 1 30°
SECTOR 2 150°
LOW PROFILE PLATFORM MANUFACTURED BY ROHN INDUSTRIES
ANTENNA MOUNTING PIPES SUPPLIED WITH ANTENNA PLATFORM
3 C-1 ANTENNA ORIENTATION PLAN
SCALE: 1/4"= 1'-0"
EXISTING CHAIN LINK FENCE WITH DOUBLE LEAF GATE
EXISTING TELCO ENCLOSURE ON SUPPORTS
EXISTING MULTI-METER CENTER ON SUPPORTS
EXISTING PAD MOUNTED TRANSFORMER
EXISTING BOLLARD (TYP.)
SEDIMENTATION CONTROL BARRIER (TYP.)-REFER TO 6/C-3 FOR DETAILS-REMOVED UPON COMPLETION OF CONSTRUCTION
EXISTING CATCH BASIN
EXTENSION OF PRE-CAST CONCRETE BLOCK WALL
EXISTING DUMPSTER
EXISTING PRE-CAST CONCRETE BLOCK WALL
8'-0"x15'-0" CONCRETE PAD FOR 1,000 GALLON PROPANE TANK-REFER TO 5/C-3 FOR DETAILS
1'-6"ø BOLLARDS (TYP.)-REFER TO 5/C-3 FOR DETAILS
CHAIN LINK FENCE EXTENSION WITH DOUBLE LEAF GATE-MATCH EXISTING-REFER TO 1/C-3 FOR DETAILS
UNDERGROUND PROPANE PIPING-REFER TO 7/C-3 FOR DETAILS
EXISTING RETAINING WALL
UNDERGROUND ROUTING OF ELECTRIC AND TELCO SERVICES
12'-8"X28'-0" VERIZON WIRELESS EQUIPMENT BUILDING WITH PROPANE GENERATOR-REFER TO 1/C-2 TOC=48.5
VERIZON WIRELESS ICE BRIDGE REFER TO NOTE BELOW
4'-6"x16'-6" CONCRETE STEP-TOC=46.9
EXISTING GRAVEL COMPOUND
EXISTING DRIVEWAY
VERIZON WIRELESS PLATFORM AND ANTENNAS
EXISTING MONOPOLE
EXISTING SPRINT ICE BRIDGE
EXISTING AT&T ICE BRIDGE
EXISTING GRAVEL COMPOUND
EXISTING GUARDRAIL
EXISTING AT&T EQUIPMENT PAD WITH EQUIPMENT CABINETS
EXISTING SPRINT PCS EQUIPMENT PAD WITH EQUIPMENT CABINETS
EXISTING DRIVEWAY
1 C-1 SITE PLAN
SCALE: 1"=10'-0"
NOTES
1. FINAL LOCATIONS FOR ALL ICE BRIDGE SUPPORTS TO BE DETERMINED IN FIELD.
2. VERIZON WIRELESS ICE BRIDGE-REFER TO 3/C-3 (4 POSTS REQUIRED) COORDINATE PIPE LENGTH WITH VERIZON WIRELESS EQUIPMENT BUILDING CABLE PORT AND TOWER ENTRY PORT.
NORTH
SECTOR 3 270°
SECTOR 1 30°
SECTOR 2 150°
ANTENNA ORIENTATION KEY
verizon wireless
795 BROOK STREET, BLDG 5
ROCKY HILL, CONNECTICUT
PROJECT NO: F301825.42/F04
DRAWN BY: BAL
CHECKED BY:
ISSUED FOR
04-05-02 REVIEW
04-11-02 BIDDING
05-02-02 CONSTRUCTION
THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED.
ORANGE 4
SOUTH ORANGE CENTER ROAD
ORANGE, CONNECTICUT
SCALE: AS NOTED
DATE: 04-05-02
DRAWING 2 OF 7
SITE PLAN, TOWER ELEVATION AND LEGEND
C-1

EXHIBIT B

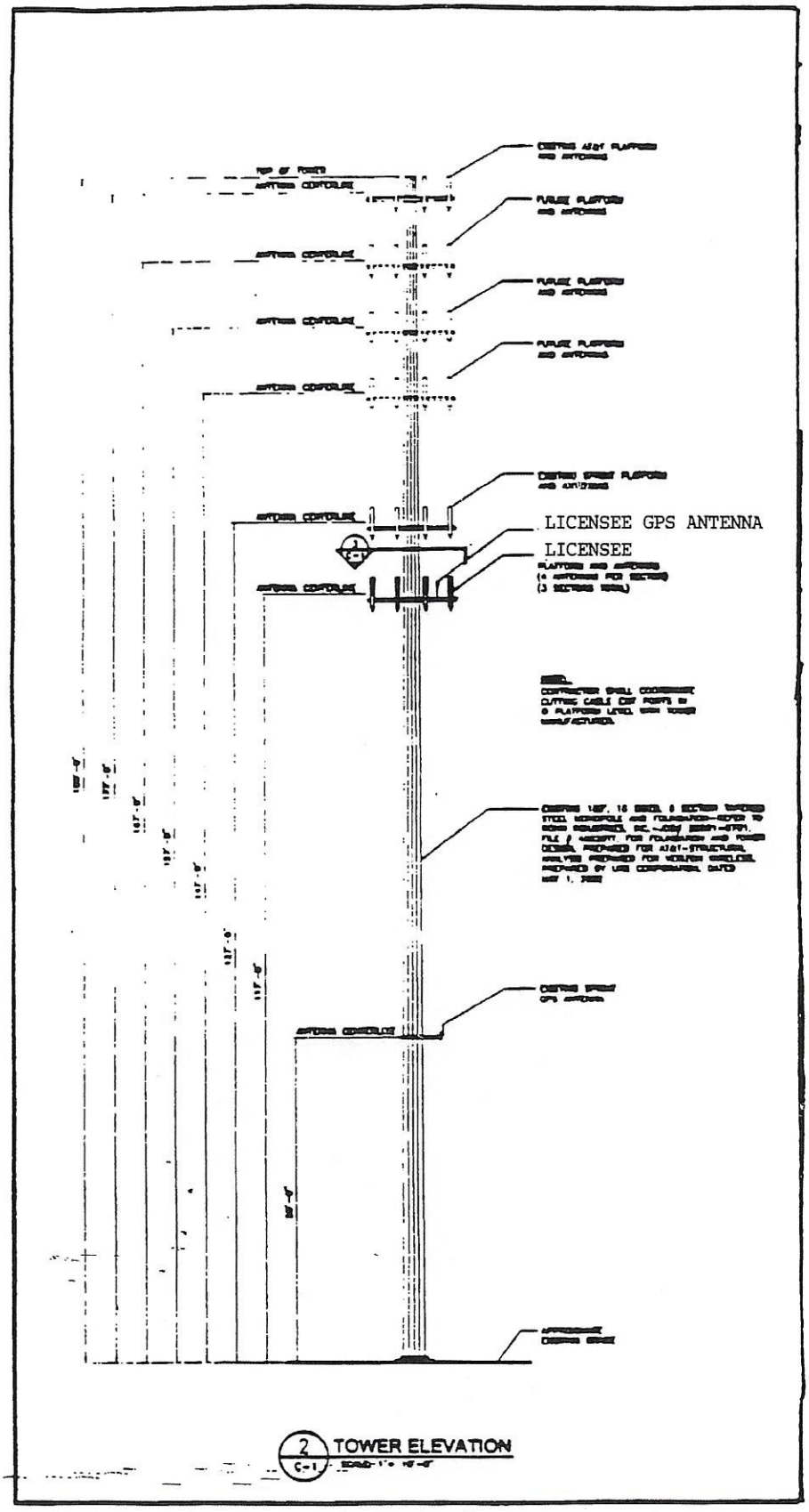


EXHIBIT C

AUTHORIZED EQUIPMENT

Licensee is authorized to install and maintain the following equipment:

ANTENNAS:	(12) Panel Antennas – not to exceed 60" in length (1) GPS Antenna
ANTENNA HEIGHT:	Panels @ 117' Centerline GPS @ 117' Centerline
ANTENNA ORIENTATION:	30 Degrees/150 Degrees/270 Degrees
COAXIAL CABLE:	(13) Cables Diameter of transmission line not to exceed 1 5/8" Length TBD by Licensee
EQUIPMENT SHELTER:	12' X 30' Equipment Shelter with 2 AC units
BACK UP GENERATOR:	Generator located within Equipment Shelter
GENERATOR FUEL SOURCE:	1,000 gallon propane tank

EXHIBIT D

CONSTRUCTION DRAWINGS

A certain set of plans and specifications entitled "ORANGE 4 SOUTH ORANGE CENTER ROAD ORANGE, CONNECTICUT" dated April 5, 2002, prepared by URS Corporation AES, 795 Brook Street, Bldg. 5, Rocky Hill, Connecticut, Issued for Construction on May 2, 2002, consisting of seven (7) sheets.

BOSTON POST RD

Location	BOSTON POST RD	**Mblu**	13/ 7/ 2A/ /
Acct#	34600	**Owner**	ORANGE TOWN OF
Assessment	$224,000	**Appraisal**	$320,000
PID	596	**Building Count**	1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	$0	$320,000	$320,000
Assessment			
Valuation Year	Improvements	Land	Total
2017	$0	$224,000	$224,000

Owner of Record

Owner ORANGE TOWN OF
Co-Owner
Address 617 ORANGE CENTER RD
ORANGE, CT 06477

Sale Price $0
Certificate
Book & Page 0270/0121
Sale Date 12/28/1978
Instrument 00

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
ORANGE TOWN OF	$0		0270/0121	00	12/28/1978

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost
Less Depreciation: $0

Building Attributes	
Field	Description

Style	Vacant Land
Model	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Floor 1	
Interior Floor 2	
Heat Fuel	
Heat Type	
AC Type	
Bedrooms	
Full Baths	
Half Baths	
Extra Fixtures	
Total Rooms	
Bathrm Style	
Kitchen Style	
Stacks	
Fireplace(S)	
Gas Fireplace(s)	
Attic	
Frame	
Traffic	
Bsmt Gar(s)	
Fireplaces	
SF FBM	
SF Rec Rm	
Basement_2	
Bsmt Floor	
Fndtn Cndtn	
Basement	

Building Photo

(http://images.vgsi.com/photos/OrangeCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos/OrangeCTPhotos//Sketches/596_596.jpg)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code	520E
Description	Exempt Comm Vac
Zone	C-2
Neighborhood	C30
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.06
Frontage	
Depth	
Assessed Value	$224,000
Appraised Value	$320,000

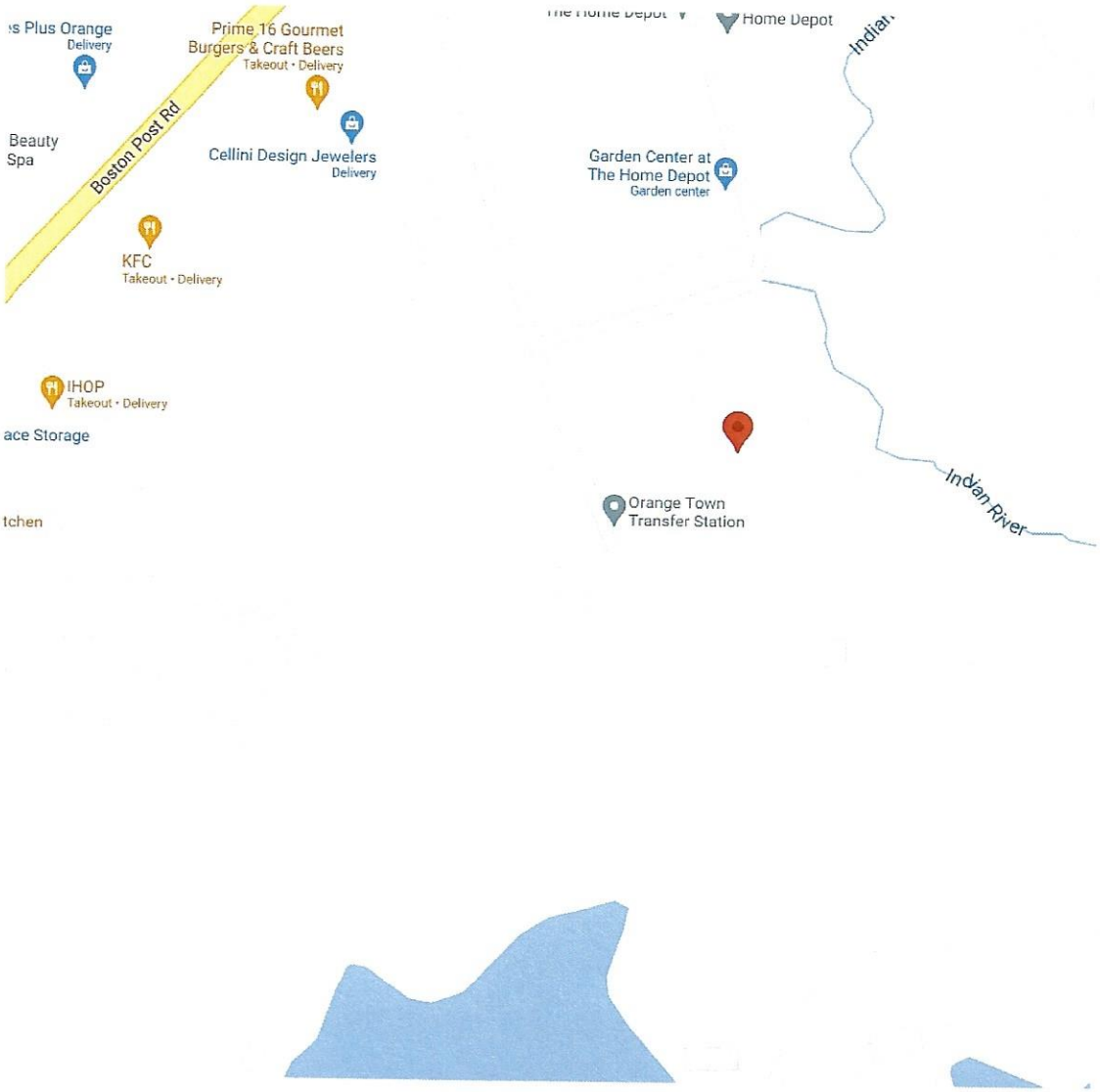
Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	$0	$320,000	$320,000
2019	$0	$320,000	$320,000
2018	$0	$320,000	$320,000

Assessment			
Valuation Year	Improvements	Land	Total
2020	$0	$224,000	$224,000
2019	$0	$224,000	$224,000
2018	$0	$224,000	$224,000


s Plus Orange
Delivery
Prime 16 Gourmet
Burgers & Craft Beers
Takeout · Delivery
Beauty
Spa
Boston Post Rd
Cellini Design Jewelers
Delivery
KFC
Takeout · Delivery
IHOP
Takeout · Delivery
ace Storage
tchen
Home Depot
Garden Center at
The Home Depot
Garden center
Orange Town
Transfer Station
Indian River

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Tuesday, March 1, 2022 10:32 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 776147842860: Your package has been delivered

Hi. Your package was delivered Tue, 03/01/2022 at 10:29am.

Delivered to 617 ORANGE CENTER RD, ORANGE, CT 06477
Received by A.SHEA

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776147842860

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Orange James Zeoli - First Selectman 617 Orange Center Road ORANGE, CT, US, 06477
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 2/28/2022 07:25 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Pak
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	ORANGE, CT, US, 06477
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: Tuesday, March 1, 2022 10:32 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 776147865644: Your package has been delivered

FedEx®

Hi. Your package was delivered Tue, 03/01/2022 at 10:29am.

Delivered to 617 ORANGE CENTER RD, ORANGE, CT 06477
Received by A.SHEA

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 776147865644

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Orange Jack Demirjian - ZEO 617 Orange Center Road ORANGE, CT, US, 06477
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 2/28/2022 07:25 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Pak
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	ORANGE, CT, US, 06477
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Date: **September 21, 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:	CTL05101
	Site Name:	ORANGE TRANSFER STATION
	FA Number:	10071197
Crown Castle Designation:	**BU Number:**	842871
	Site Name:	ORANGE TRANSFER STATION
	JDE Job Number:	650056
	Work Order Number:	2017984
	Order Number:	556582 Rev. 0
Engineering Firm Designation:	**TEP Project Number:**	74782.601923
Site Data:	**26 South Orange Center Road, Orange, New Haven County, CT 06477** **Latitude *41° 15' 19.98"*, Longitude *-73° 0' 39.20"*** **180 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:

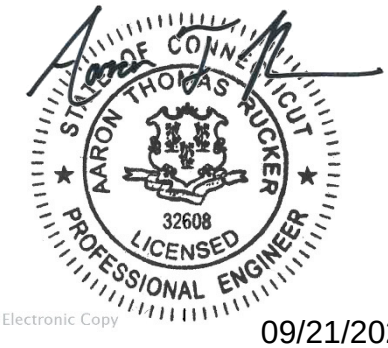
LC7: Proposed Equipment Configuration **Sufficient Capacity – 68.5%**

This analysis utilizes an ultimate 3-second gust wind speed of 120 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: Sarah Moen / DEN

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

09/21/2021

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 180-ft monopole tower designed by Rohn.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 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)
178.0	179.0	3	Ericsson	RRUS 32 B30	3 1 6 7	3/8 7/8 1-1/8 1-5/8
		3	Ericsson	RRUS 32 B66		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 4478 B14		
	178.0	2	Raycap	DC6-48-60-18-8F		
		1	Tower Mounts	Platform Mount [LP 303-1]		
	177.0	3	Ericsson	AIR 6419 B77G w/ Mount Pipe		
		3	Cci Antennas	DMP65R-BU4D w/ Mount Pipe		
		3	Quintel Technology	QD4616-7 w/ Mount Pipe		
		3	Ericsson	AIR 6449 N77 w/ Mount Pipe		
		3	Ericsson	RRUS 4449 B5/B12		
		1	Raycap	DC9-48-60-24-8C-EV		

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)
167.0	167.0	3	Jma Wireless	MX08FRO665-21 w/ Mount Pipe	1	1-3/4
		3	Fujitsu	TA08025-B604		
		3	Fujitsu	TA08025-B605		
		1	Raycap	RDIDC-9181-PF-48		
		1	Tower Mounts	Commscope MC-PK8-DSH		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	148.0	3	Ericsson	AIR 21 B2A/B4P w/ Mount Pipe	1 12	1-1/4 1-5/8
		3	Andrew	LNX-6515DS-A1M w/ Mount Pipe		
		3	Ericsson	AIR 21 B4A/B2P w/ Mount Pipe		
		3	Ericsson	RRUS 11 B12		
		3	Ericsson	KRY 112 144/1		
		1	Tower Mounts	Platform Mount [LP 303-1_HR-1]		
134.0	134.0	3	Alcatel Lucent	800 EXTERNAL NOTCH FILTER	-	-
		1	Tower Mounts	Pipe Mount [PM 601-3]		
	132.0	3	Alcatel Lucent	TME-800MHZ RRH		
	127.0	3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ		
131.0	131.0	1	Tower Mounts	Miscellaneous [NA 510-1]	1 3	5/8 1-1/4
		1	Tower Mounts	Platform Mount [LP 714-1]		
	130.0	3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	RFS Celwave	APXVTM14-C-120 w/ Mount Pipe		
		9	RFS Celwave	ACU-A20-N		
		3	Alcatel Lucent	TD-RRH8X20-25		
115.0	117.0	3	Antel	BXA-70063/4CF w/ Mount Pipe	6 2	1-5/8 1-1/4
		6	Commscope	JAHH-65B-R3B w/ Mount Pipe		
		3	Samsung Telecom.	MT6407-77A w/ Mount Pipe		
		1	Commscope	RC3DC-3315-PF-48		
		1	RFS Celwave	DB-T1-6Z-8AB-0Z		
		3	RFS Celwave	FDJ85020Q4-S1		
		3	Samsung Telecom.	RFV01U-D1A		
		3	Samsung Telecom.	RFV01U-D2A		
	115.0	1	Tower Mounts	Platform Mount [LP 1201-1_HR-1]		
44.0	45.0	1	Pctel	GPS-TMG-HR-26NCM	1	1/2
	44.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	4529423	CCISites
Tower Foundation Drawings	4529422	CCISites
Tower Manufacturer Drawings	4705360	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.
3) The following material grades were assumed:
   a) Concrete compressive strength: f'c = 3 ksi
   b) Foundation flexural reinforcement: fy = 60 ksi

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	180 - 170.583	Pole	TP26.25x24x0.1875	1	-3.99	922.89	4.3	Pass
L2	170.583 - 126	Pole	TP36.525x25.0586x0.25	2	-18.72	1712.76	40.4	Pass
L3	126 - 82.75	Pole	TP46.357x34.8903x0.3125	3	-33.12	2717.98	61.3	Pass
L4	82.75 - 40.75	Pole	TP55.765x44.2987x0.375	4	-46.38	3923.00	63.9	Pass
L5	40.75 - 0	Pole	TP64.75x53.2831x0.4375	5	-67.40	5485.62	62.0	Pass
							Summary	
						Pole (L4)	63.9	Pass
						RATING =	**63.9**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	-	62.1	Pass
1,2	Base Plate	-	35.2	Pass
1,2	Base Foundation Structural	-	68.5	Pass
1,2	Base Foundation Soil Interaction	-	14.4	Pass

Structure Rating (max from all components) =	**68.5%**

Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
2) Rating per TIA-222-H Section 15.5

4.1) Recommendations

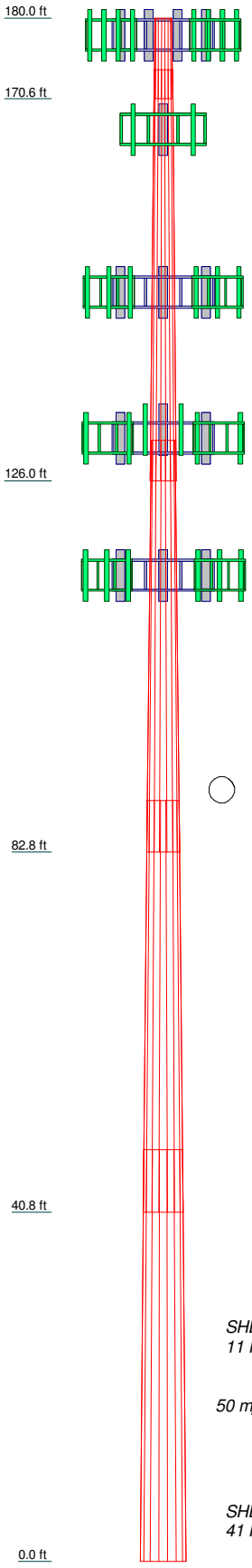
1) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5
Length (ft)	9.42	48.00	48.00	48.00	48.00
Number of Sides	18	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3125	0.3750	0.4375
Socket Length (ft)	3.42	4.75	6.00	7.25	
Top Dia (in)	24.0000	25.0586	34.8903	44.2987	53.2831
Bot Dia (in)	26.2500	36.5250	46.3570	55.7650	64.7500
Grade	A572-65				
Weight (K)	0.5	4.0	6.5	9.7	13.3

33.9



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 120 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: 63.9%

ALL REACTIONS ARE FACTORED

AXIAL 92 K

SHEAR 11 K *MOMENT 1333 kip-ft*

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

AXIAL 67 K

SHEAR 41 K *MOMENT 4870 kip-ft*

TORQUE 0 kip-ft
REACTIONS - 120 mph WIND

Tower Engineering Professionals

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

Job:	***Orange Transfer Station (BU 842871)***		
Project:	***TEP No. 74782.601923***		
Client: Crown Castle	Drawn by: PRS	App'd:	
Code: TIA-222-H	Date: 09/21/21	Scale: NTS	
Path: C:\Users\pdowen\Desktop\Structural TNX Files\842871\Issued Docs\Pre-Seal\842871_2017984_LC7.eri		Dwg No. E-1	

Tower Input Data

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

Tower is located in New Haven County, Connecticut.
Tower base elevation above sea level: 39.00 ft.
Basic wind speed of 120 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: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	180.00-170.58	9.42	3.42	18	24.0000	26.2500	0.1875	0.7500	A572-65 (65 ksi)
L2	170.58-126.00	48.00	4.75	18	25.0586	36.5250	0.2500	1.0000	A572-65 (65 ksi)
L3	126.00-82.75	48.00	6.00	18	34.8903	46.3570	0.3125	1.2500	A572-65 (65 ksi)
L4	82.75-40.75	48.00	7.25	18	44.2987	55.7650	0.3750	1.5000	A572-65 (65 ksi)
L5	40.75-0.00	48.00		18	53.2831	64.7500	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	24.3413	14.1714	1015.2211	8.4534	12.1920	83.2694	2031.7780	7.0871	3.8940	20.768
	26.6260	15.5104	1331.0484	9.2522	13.3350	99.8162	2663.8483	7.7567	4.2900	22.88
L2	26.2354	19.6856	1530.7090	8.8071	12.7298	120.2463	3063.4322	9.8447	3.9703	15.881
	37.0499	28.7842	4785.2722	12.8776	18.5547	257.9008	9576.8409	14.3948	5.9884	23.954
L3	36.5326	34.2969	5180.6796	12.2751	17.7243	292.2929	10368.1760	17.1517	5.5907	17.89
	47.0239	45.6704	12232.8508	16.3458	23.5494	519.4559	24481.7979	22.8395	7.6088	24.348
L4	46.3796	52.2801	12742.9889	15.5929	22.5037	566.2614	25502.7453	26.1450	7.1366	19.031
	56.5674	65.9279	25554.6382	19.6635	28.3286	902.0785	51142.9018	32.9702	9.1546	24.412
L5	55.7963	73.3827	25891.0142	18.7602	27.0678	956.5239	51816.0964	36.6983	8.6078	19.675
	65.6814	89.3059	46666.8628	22.8309	32.8930	1418.7475	93395.1311	44.6615	10.6260	24.288

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 180.00-170.58				1	1	1			
L2 170.58-126.00				1	1	1			
L3 126.00-82.75				1	1	1			
L4 82.75-40.75				1	1	1			
L5 40.75-0.00				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	A	No	Surface Ar (CaAa)	180.00 - 0.00	1	1	0.500 0.500	0.3750		0.22
HB114-1-05U5-S6J(1-1/	C	No	Surface Ar	115.00 -	1	1	0.000	1.5400		1.30

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
4) ********			(CaAa)	0.00			0.000			

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
***									
FB-L98B-034-XXXXXX(3/8)	C	No	No	Inside Pole	178.00 - 0.00	2	No Ice	0.00	0.05
							1/2" Ice	0.00	0.05
							1" Ice	0.00	0.05
FB-L98B-235-XXX(3/8)	C	No	No	Inside Pole	178.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
PWRT-606-S(7/8")	C	No	No	Inside Pole	178.00 - 0.00	1	No Ice	0.00	0.89
							1/2" Ice	0.00	0.89
							1" Ice	0.00	0.89
PWRT-604-S(1-1/8)	C	No	No	Inside Pole	178.00 - 0.00	6	No Ice	0.00	1.25
							1/2" Ice	0.00	1.25
							1" Ice	0.00	1.25
LDF7-50A(1-5/8)	C	No	No	Inside Pole	178.00 - 0.00	7	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
2" Flexible Conduit	C	No	No	Inside Pole	178.00 - 0.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
CU12PSM6P4XXX(1-3/4)	A	No	No	Inside Pole	167.00 - 0.00	1	No Ice	0.00	2.72
							1/2" Ice	0.00	2.72
							1" Ice	0.00	2.72
LDF6-50A(1-1/4)	B	No	No	Inside Pole	148.00 - 0.00	1	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
LDF7-50A(1-5/8)	B	No	No	Inside Pole	148.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
LDF4.5-50(5/8)	B	No	No	Inside Pole	131.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
HB114-1-05U3-S3J(1-1/4)	B	No	No	Inside Pole	131.00 - 0.00	3	No Ice	0.00	0.90
							1/2" Ice	0.00	0.90
							1" Ice	0.00	0.90
LDF7-50A(1-5/8)	C	No	No	Inside Pole	115.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
HB114-1-05U5-S6J(1-1/4)	C	No	No	Inside Pole	115.00 - 0.00	1	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
LDF4-50A(1/2)	B	No	No	Inside Pole	44.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
********									

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	180.00-170.58	A	0.000	0.000	0.353	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.11
L2	170.58-126.00	A	0.000	0.000	1.672	0.000	0.12
		B	0.000	0.000	0.000	0.000	0.24
		C	0.000	0.000	0.000	0.000	0.65
L3	126.00-82.75	A	0.000	0.000	1.622	0.000	0.13
		B	0.000	0.000	0.000	0.000	0.57
		C	0.000	0.000	4.966	0.000	0.88
L4	82.75-40.75	A	0.000	0.000	1.575	0.000	0.12
		B	0.000	0.000	0.000	0.000	0.56
		C	0.000	0.000	6.468	0.000	0.93
L5	40.75-0.00	A	0.000	0.000	1.528	0.000	0.12
		B	0.000	0.000	0.000	0.000	0.55
		C	0.000	0.000	6.276	0.000	0.90

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	180.00-170.58	A	1.004	0.000	0.000	2.245	0.000	0.02
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.11
L2	170.58-126.00	A	0.987	0.000	0.000	10.628	0.000	0.20
		B		0.000	0.000	0.000	0.000	0.24
		C		0.000	0.000	0.000	0.000	0.65
L3	126.00-82.75	A	0.953	0.000	0.000	10.160	0.000	0.20
		B		0.000	0.000	0.000	0.000	0.57
		C		0.000	0.000	11.333	0.000	0.97
L4	82.75-40.75	A	0.905	0.000	0.000	9.581	0.000	0.19
		B		0.000	0.000	0.000	0.000	0.56
		C		0.000	0.000	14.474	0.000	1.05
L5	40.75-0.00	A	0.811	0.000	0.000	8.900	0.000	0.18
		B		0.000	0.000	0.000	0.000	0.55
		C		0.000	0.000	13.647	0.000	1.01

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	180.00-170.58	0.0000	-0.3011	0.0000	-1.0173
L2	170.58-126.00	0.0000	-0.3017	0.0000	-1.0454
L3	126.00-82.75	0.0000	0.6495	0.0000	0.1826
L4	82.75-40.75	0.0000	0.9232	0.0000	0.5387
L5	40.75-0.00	0.0000	0.9262	0.0000	0.5457

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	1	Safety Line 3/8	170.58 - 180.00	1.0000	1.0000
L2	1	Safety Line 3/8	126.00 - 170.58	1.0000	1.0000
L3	1	Safety Line 3/8	82.75 - 126.00	1.0000	1.0000
L3	18	HB114-1-05U5-S6J(1-1/4)	82.75 - 115.00	1.0000	1.0000
L4	1	Safety Line 3/8	40.75 - 82.75	1.0000	1.0000
L4	18	HB114-1-05U5-S6J(1-1/4)	40.75 - 82.75	1.0000	1.0000
L5	1	Safety Line 3/8	0.00 - 40.75	1.0000	1.0000
L5	18	HB114-1-05U5-S6J(1-1/4)	0.00 - 40.75	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
***									
AIR 6419 B77G w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 -1.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	4.48 4.83 5.19	2.49 2.92 3.37	0.08 0.11 0.15
AIR 6419 B77G w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 -1.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	4.48 4.83 5.19	2.49 2.92 3.37	0.08 0.11 0.15
AIR 6419 B77G w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 -1.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	4.48 4.83 5.19	2.49 2.92 3.37	0.08 0.11 0.15
DMP65R-BU4D w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 -1.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	7.53 8.04 8.57	3.79 4.23 4.68	0.09 0.16 0.22
DMP65R-BU4D w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 -1.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	7.53 8.04 8.57	3.79 4.23 4.68	0.09 0.16 0.22
DMP65R-BU4D w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 -1.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	7.53 8.04 8.57	3.79 4.23 4.68	0.09 0.16 0.22
QD4616-7 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 -1.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	11.25 11.80 12.35	6.06 6.82 7.56	0.13 0.20 0.29
QD4616-7 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 -1.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	11.25 11.80 12.35	6.06 6.82 7.56	0.13 0.20 0.29
QD4616-7 w/ Mount Pipe	C	From	4.00	0.0000	178.00	No Ice	11.25	6.06	0.13

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-Le	0.00			1/2" Ice	11.80	6.82	0.20
		g	-1.00			1" Ice	12.35	7.56	0.29
AIR 6449 N77 w/ Mount Pipe	A	From	4.00	0.0000	178.00	No Ice	4.26	3.47	0.10
		Centroid-Le	0.00			1/2" Ice	4.58	3.91	0.14
		g	-1.00			1" Ice	4.91	4.37	0.19
AIR 6449 N77 w/ Mount Pipe	B	From	4.00	0.0000	178.00	No Ice	4.26	3.47	0.10
		Centroid-Le	0.00			1/2" Ice	4.58	3.91	0.14
		g	-1.00			1" Ice	4.91	4.37	0.19
AIR 6449 N77 w/ Mount Pipe	C	From	4.00	0.0000	178.00	No Ice	4.26	3.47	0.10
		Centroid-Le	0.00			1/2" Ice	4.58	3.91	0.14
		g	-1.00			1" Ice	4.91	4.37	0.19
RRUS 32 B30	A	From	4.00	0.0000	178.00	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 32 B30	B	From	4.00	0.0000	178.00	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 32 B30	C	From	4.00	0.0000	178.00	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 32 B66	A	From	4.00	0.0000	178.00	No Ice	2.74	1.67	0.05
		Centroid-Le	0.00			1/2" Ice	2.96	1.86	0.07
		g	1.00			1" Ice	3.19	2.05	0.10
RRUS 32 B66	B	From	4.00	0.0000	178.00	No Ice	2.74	1.67	0.05
		Centroid-Le	0.00			1/2" Ice	2.96	1.86	0.07
		g	1.00			1" Ice	3.19	2.05	0.10
RRUS 32 B66	C	From	4.00	0.0000	178.00	No Ice	2.74	1.67	0.05
		Centroid-Le	0.00			1/2" Ice	2.96	1.86	0.07
		g	1.00			1" Ice	3.19	2.05	0.10
RRUS 32 B2	A	From	4.00	0.0000	178.00	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 32 B2	B	From	4.00	0.0000	178.00	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 32 B2	C	From	4.00	0.0000	178.00	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 B14	A	From	4.00	0.0000	178.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	1.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	B	From	4.00	0.0000	178.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	1.00			1" Ice	2.19	1.34	0.09
RRUS 4478 B14	C	From	4.00	0.0000	178.00	No Ice	1.84	1.06	0.06
		Centroid-Le	0.00			1/2" Ice	2.01	1.20	0.08
		g	1.00			1" Ice	2.19	1.34	0.09
DC6-48-60-18-8F	B	From	4.00	0.0000	178.00	No Ice	1.21	1.21	0.03
		Centroid-Le	0.00			1/2" Ice	1.89	1.89	0.05
		g	0.00			1" Ice	2.11	2.11	0.08
DC6-48-60-18-8F	C	From	4.00	0.0000	178.00	No Ice	1.21	1.21	0.03
		Centroid-Le	0.00			1/2" Ice	1.89	1.89	0.05
		g	0.00			1" Ice	2.11	2.11	0.08
RRUS 4449 B5/B12	A	From	4.00	0.0000	178.00	No Ice	1.97	1.41	0.07
		Centroid-Le	0.00			1/2" Ice	2.14	1.56	0.09
		g	-1.00			1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	B	From	4.00	0.0000	178.00	No Ice	1.97	1.41	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
		Centroid-Le	0.00			1/2" Ice	2.14	1.56	0.09
		g	-1.00			1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	C	From	4.00	0.0000	178.00	No Ice	1.97	1.41	0.07
		Centroid-Le	0.00			1/2" Ice	2.14	1.56	0.09
		g	-1.00			1" Ice	2.33	1.73	0.11
DC9-48-60-24-8C-EV	A	From	4.00	0.0000	178.00	No Ice	1.14	1.14	0.03
		Centroid-Le	0.00			1/2" Ice	1.79	1.79	0.05
		g	-1.00			1" Ice	2.00	2.00	0.07
Platform Mount [LP 303-1]	C	None		0.0000	178.00	No Ice	14.69	14.69	1.25
						1/2" Ice	18.01	18.01	1.57
						1" Ice	21.34	21.34	1.94
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MX08FRO665-21 w/ Mount Pipe	A	From	4.00	0.0000	167.00	No Ice	8.01	4.23	0.11
		Centroid-Le	0.00			1/2" Ice	8.52	4.69	0.19
		g	0.00			1" Ice	9.04	5.16	0.29
MX08FRO665-21 w/ Mount Pipe	B	From	4.00	0.0000	167.00	No Ice	8.01	4.23	0.11
		Centroid-Le	0.00			1/2" Ice	8.52	4.69	0.19
		g	0.00			1" Ice	9.04	5.16	0.29
MX08FRO665-21 w/ Mount Pipe	C	From	4.00	0.0000	167.00	No Ice	8.01	4.23	0.11
		Centroid-Le	0.00			1/2" Ice	8.52	4.69	0.19
		g	0.00			1" Ice	9.04	5.16	0.29
TA08025-B604	A	From	4.00	0.0000	167.00	No Ice	1.96	0.98	0.06
		Centroid-Le	0.00			1/2" Ice	2.14	1.11	0.08
		g	0.00			1" Ice	2.32	1.25	0.10
TA08025-B604	B	From	4.00	0.0000	167.00	No Ice	1.96	0.98	0.06
		Centroid-Le	0.00			1/2" Ice	2.14	1.11	0.08
		g	0.00			1" Ice	2.32	1.25	0.10
TA08025-B604	C	From	4.00	0.0000	167.00	No Ice	1.96	0.98	0.06
		Centroid-Le	0.00			1/2" Ice	2.14	1.11	0.08
		g	0.00			1" Ice	2.32	1.25	0.10
TA08025-B605	A	From	4.00	0.0000	167.00	No Ice	1.96	1.13	0.08
		Centroid-Le	0.00			1/2" Ice	2.14	1.27	0.09
		g	0.00			1" Ice	2.32	1.41	0.11
TA08025-B605	B	From	4.00	0.0000	167.00	No Ice	1.96	1.13	0.08
		Centroid-Le	0.00			1/2" Ice	2.14	1.27	0.09
		g	0.00			1" Ice	2.32	1.41	0.11
TA08025-B605	C	From	4.00	0.0000	167.00	No Ice	1.96	1.13	0.08
		Centroid-Le	0.00			1/2" Ice	2.14	1.27	0.09
		g	0.00			1" Ice	2.32	1.41	0.11
RDIDC-9181-PF-48	A	From	4.00	0.0000	167.00	No Ice	2.01	1.17	0.02
		Centroid-Le	0.00			1/2" Ice	2.19	1.31	0.04
		g	0.00			1" Ice	2.37	1.46	0.06
(2) 2.4" Dia x 8-ft Mount Pipe	A	From	4.00	0.0000	167.00	No Ice	1.90	1.90	0.03
		Centroid-Le	0.00			1/2" Ice	2.73	2.73	0.04
		g	0.00			1" Ice	3.40	3.40	0.06
(2) 2.4" Dia x 8-ft Mount Pipe	B	From	4.00	0.0000	167.00	No Ice	1.90	1.90	0.03
		Centroid-Le	0.00			1/2" Ice	2.73	2.73	0.04
		g	0.00			1" Ice	3.40	3.40	0.06
(2) 2.4" Dia x 8-ft Mount Pipe	C	From	4.00	0.0000	167.00	No Ice	1.90	1.90	0.03
		Centroid-Le	0.00			1/2" Ice	2.73	2.73	0.04
		g	0.00			1" Ice	3.40	3.40	0.06
Commscope MC-PK8-DSH	C	None		0.0000	167.00	No Ice	34.24	34.24	1.75
						1/2" Ice	62.95	62.95	2.10
						1" Ice	91.66	91.66	2.45
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AIR 21 B2A/B4P w/ Mount Pipe	A	From	4.00	0.0000	148.00	No Ice	3.14	2.58	0.10
		Centroid-Le	0.00			1/2" Ice	3.45	2.88	0.15

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	0.00			1" Ice	3.76	3.18	0.21
AIR 21 B2A/B4P w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.76	2.58 2.88 3.18	0.10 0.15 0.21
AIR 21 B2A/B4P w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.76	2.58 2.88 3.18	0.10 0.15 0.21
LNX-6515DS-A1M w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	5.31 5.80 6.30	4.27 4.75 5.24	0.09 0.17 0.26
LNX-6515DS-A1M w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	5.31 5.80 6.30	4.27 4.75 5.24	0.09 0.17 0.26
LNX-6515DS-A1M w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	5.31 5.80 6.30	4.27 4.75 5.24	0.09 0.17 0.26
AIR 21 B4A/B2P w/ Mount Pipe	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.76	2.58 2.88 3.18	0.10 0.15 0.21
AIR 21 B4A/B2P w/ Mount Pipe	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.76	2.58 2.88 3.18	0.10 0.15 0.21
AIR 21 B4A/B2P w/ Mount Pipe	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.76	2.58 2.88 3.18	0.10 0.15 0.21
RRUS 11 B12	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	0.05 0.07 0.10
RRUS 11 B12	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	0.05 0.07 0.10
RRUS 11 B12	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	2.79 3.00 3.21	1.19 1.34 1.50	0.05 0.07 0.10
KRY 112 144/1	A	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144/1	B	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
KRY 112 144/1	C	From Centroid-Le g	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02
Platform Mount [LP 303-1_HR-1]	C	None		0.0000	148.00	No Ice 1/2" Ice 1" Ice	17.09 21.47 25.72	17.09 21.47 25.72	1.50 1.88 2.35
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TME-800MHZ RRH	A	From Leg	1.00 0.00 -2.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
TME-800MHZ RRH	B	From Leg	1.00 0.00 -2.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
TME-800MHZ RRH	C	From Leg	1.00 0.00 -2.00	0.0000	134.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
PCS 1900MHZ	A	From Leg	1.00	0.0000	134.00	No Ice	2.32	2.24	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
4X45W-65MHZ			0.00			1/2" Ice	2.53	2.44	0.08
			-7.00			1" Ice	2.74	2.65	0.11
PCS 1900MHZ	B	From Leg	1.00	0.0000	134.00	No Ice	2.32	2.24	0.06
4X45W-65MHZ			0.00			1/2" Ice	2.53	2.44	0.08
			-7.00			1" Ice	2.74	2.65	0.11
PCS 1900MHZ	C	From Leg	1.00	0.0000	134.00	No Ice	2.32	2.24	0.06
4X45W-65MHZ			0.00			1/2" Ice	2.53	2.44	0.08
			-7.00			1" Ice	2.74	2.65	0.11
800 EXTERNAL NOTCH	A	From Leg	1.00	0.0000	134.00	No Ice	0.66	0.32	0.01
FILTER			0.00			1/2" Ice	0.76	0.40	0.02
			0.00			1" Ice	0.87	0.48	0.02
800 EXTERNAL NOTCH	B	From Leg	1.00	0.0000	134.00	No Ice	0.66	0.32	0.01
FILTER			0.00			1/2" Ice	0.76	0.40	0.02
			0.00			1" Ice	0.87	0.48	0.02
800 EXTERNAL NOTCH	C	From Leg	1.00	0.0000	134.00	No Ice	0.66	0.32	0.01
FILTER			0.00			1/2" Ice	0.76	0.40	0.02
			0.00			1" Ice	0.87	0.48	0.02
Pipe Mount [PM 601-3]	C	None		0.0000	134.00	No Ice	3.17	3.17	0.20
						1/2" Ice	3.79	3.79	0.23
						1" Ice	4.42	4.42	0.28
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APXVSPP18-C-A20 w/	A	From	4.00	0.0000	131.00	No Ice	4.60	4.01	0.10
Mount Pipe		Centroid-Le	0.00			1/2" Ice	5.05	4.45	0.16
		g	-1.00			1" Ice	5.50	4.89	0.23
APXVSPP18-C-A20 w/	B	From	4.00	0.0000	131.00	No Ice	4.60	4.01	0.10
Mount Pipe		Centroid-Le	0.00			1/2" Ice	5.05	4.45	0.16
		g	-1.00			1" Ice	5.50	4.89	0.23
APXVSPP18-C-A20 w/	C	From	4.00	0.0000	131.00	No Ice	4.60	4.01	0.10
Mount Pipe		Centroid-Le	0.00			1/2" Ice	5.05	4.45	0.16
		g	-1.00			1" Ice	5.50	4.89	0.23
APXVTM14-C-120 w/	A	From	4.00	0.0000	131.00	No Ice	4.09	2.86	0.08
Mount Pipe		Centroid-Le	0.00			1/2" Ice	4.48	3.23	0.13
		g	-1.00			1" Ice	4.88	3.61	0.19
APXVTM14-C-120 w/	B	From	4.00	0.0000	131.00	No Ice	4.09	2.86	0.08
Mount Pipe		Centroid-Le	0.00			1/2" Ice	4.48	3.23	0.13
		g	-1.00			1" Ice	4.88	3.61	0.19
APXVTM14-C-120 w/	C	From	4.00	0.0000	131.00	No Ice	4.09	2.86	0.08
Mount Pipe		Centroid-Le	0.00			1/2" Ice	4.48	3.23	0.13
		g	-1.00			1" Ice	4.88	3.61	0.19
(3) ACU-A20-N	A	From	4.00	0.0000	131.00	No Ice	0.07	0.12	0.00
		Centroid-Le	0.00			1/2" Ice	0.10	0.16	0.00
		g	-1.00			1" Ice	0.15	0.21	0.00
(3) ACU-A20-N	B	From	4.00	0.0000	131.00	No Ice	0.07	0.12	0.00
		Centroid-Le	0.00			1/2" Ice	0.10	0.16	0.00
		g	-1.00			1" Ice	0.15	0.21	0.00
(3) ACU-A20-N	C	From	4.00	0.0000	131.00	No Ice	0.07	0.12	0.00
		Centroid-Le	0.00			1/2" Ice	0.10	0.16	0.00
		g	-1.00			1" Ice	0.15	0.21	0.00
TD-RRH8X20-25	A	From	4.00	0.0000	131.00	No Ice	3.70	1.29	0.07
		Centroid-Le	0.00			1/2" Ice	3.95	1.46	0.09
		g	-1.00			1" Ice	4.20	1.64	0.12
TD-RRH8X20-25	B	From	4.00	0.0000	131.00	No Ice	3.70	1.29	0.07
		Centroid-Le	0.00			1/2" Ice	3.95	1.46	0.09
		g	-1.00			1" Ice	4.20	1.64	0.12
TD-RRH8X20-25	C	From	4.00	0.0000	131.00	No Ice	3.70	1.29	0.07
		Centroid-Le	0.00			1/2" Ice	3.95	1.46	0.09
		g	-1.00			1" Ice	4.20	1.64	0.12

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
(2) 2.4" Dia. x 6-ft	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(2) 2.4" Dia. x 6-ft	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(2) 2.4" Dia. x 6-ft	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Miscellaneous [NA 510-1]	C	None		0.0000	131.00	No Ice 1/2" Ice 1" Ice	6.36 8.52 10.62	6.36 8.52 10.62	0.26 0.34 0.46
Platform Mount [LP 714-1]	C	None		0.0000	131.00	No Ice 1/2" Ice 1" Ice	37.51 41.70 45.89	37.51 41.70 45.89	1.60 2.50 3.46
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BXA-70063/4CF w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	4.84 5.35 5.88	3.54 4.03 4.53	0.04 0.08 0.12
BXA-70063/4CF w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	4.84 5.35 5.88	3.54 4.03 4.53	0.04 0.08 0.12
BXA-70063/4CF w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	4.84 5.35 5.88	3.54 4.03 4.53	0.04 0.08 0.12
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45	4.38 4.84 5.30	0.10 0.17 0.25
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45	4.38 4.84 5.30	0.10 0.17 0.25
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45	4.38 4.84 5.30	0.10 0.17 0.25
MT6407-77A w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	4.91 5.26 5.61	2.68 3.14 3.62	0.10 0.14 0.18
MT6407-77A w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	4.91 5.26 5.61	2.68 3.14 3.62	0.10 0.14 0.18
MT6407-77A w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	4.91 5.26 5.61	2.68 3.14 3.62	0.10 0.14 0.18
RC3DC-3315-PF-48	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	3.79 4.04 4.30	2.51 2.72 2.94	0.03 0.06 0.10
DB-T1-6Z-8AB-0Z	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	4.80 5.07 5.35	2.00 2.19 2.39	0.04 0.08 0.12
FDJ85020Q4-S1	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.24	0.36 0.43 0.52	0.02 0.03 0.04
FDJ85020Q4-S1	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	0.96 1.09 1.24	0.36 0.43 0.52	0.02 0.03 0.04
FDJ85020Q4-S1	C	From Centroid-Leg	4.00 0.00	0.0000	115.00	No Ice 1/2" Ice	0.96 1.09	0.36 0.43	0.02 0.03

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	2.00			1" Ice	1.24	0.52	0.04
RFV01U-D1A	A	From	4.00	0.0000	115.00	No Ice	1.88	1.25	0.08
		Centroid-Le	0.00			1/2" Ice	2.05	1.39	0.10
		g	2.00			1" Ice	2.22	1.54	0.12
RFV01U-D1A	B	From	4.00	0.0000	115.00	No Ice	1.88	1.25	0.08
		Centroid-Le	0.00			1/2" Ice	2.05	1.39	0.10
		g	2.00			1" Ice	2.22	1.54	0.12
RFV01U-D1A	C	From	4.00	0.0000	115.00	No Ice	1.88	1.25	0.08
		Centroid-Le	0.00			1/2" Ice	2.05	1.39	0.10
		g	2.00			1" Ice	2.22	1.54	0.12
RFV01U-D2A	A	From	4.00	0.0000	115.00	No Ice	1.88	1.01	0.07
		Centroid-Le	0.00			1/2" Ice	2.05	1.14	0.09
		g	2.00			1" Ice	2.22	1.28	0.11
RFV01U-D2A	B	From	4.00	0.0000	115.00	No Ice	1.88	1.01	0.07
		Centroid-Le	0.00			1/2" Ice	2.05	1.14	0.09
		g	2.00			1" Ice	2.22	1.28	0.11
RFV01U-D2A	C	From	4.00	0.0000	115.00	No Ice	1.88	1.01	0.07
		Centroid-Le	0.00			1/2" Ice	2.05	1.14	0.09
		g	2.00			1" Ice	2.22	1.28	0.11
(2) 2.4" Dia. x 6-ft	A	From	4.00	0.0000	115.00	No Ice	1.43	1.43	0.02
		Centroid-Le	0.00			1/2" Ice	1.92	1.92	0.03
		g	0.00			1" Ice	2.29	2.29	0.05
(2) 2.4" Dia. x 6-ft	B	From	4.00	0.0000	115.00	No Ice	1.43	1.43	0.02
		Centroid-Le	0.00			1/2" Ice	1.92	1.92	0.03
		g	0.00			1" Ice	2.29	2.29	0.05
(2) 2.4" Dia. x 6-ft	C	From	4.00	0.0000	115.00	No Ice	1.43	1.43	0.02
		Centroid-Le	0.00			1/2" Ice	1.92	1.92	0.03
		g	0.00			1" Ice	2.29	2.29	0.05
Commscope VSR-TS-B	A	From	2.00	0.0000	115.00	No Ice	3.33	2.00	0.13
		Centroid-Le	0.00			1/2" Ice	4.24	2.57	0.17
		g	0.00			1" Ice	5.15	3.14	0.21
Commscope VSR-TS-B	B	From	2.00	0.0000	115.00	No Ice	3.33	2.00	0.13
		Centroid-Le	0.00			1/2" Ice	4.24	2.57	0.17
		g	0.00			1" Ice	5.15	3.14	0.21
Commscope VSR-TS-B	C	From	2.00	0.0000	115.00	No Ice	3.33	2.00	0.13
		Centroid-Le	0.00			1/2" Ice	4.24	2.57	0.17
		g	0.00			1" Ice	5.15	3.14	0.21
Platform Mount [LP 1201-1_HR-1]	C	None		0.0000	115.00	No Ice	26.39	26.39	2.36
						1/2" Ice	31.40	31.40	3.06
						1" Ice	36.20	36.20	3.86
***									
GPS-TMG-HR-26NCM	C	From Face	4.00	0.0000	44.00	No Ice	0.13	0.13	0.00
			0.00			1/2" Ice	0.18	0.18	0.00
			1.00			1" Ice	0.24	0.24	0.01
Side Arm Mount [SO 701-1]	C	From Face	2.00	0.0000	44.00	No Ice	0.85	1.67	0.07
			0.00			1/2" Ice	1.14	2.34	0.08
			0.00			1" Ice	1.43	3.01	0.09
***									

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
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	180 - 170.583	Pole	Max Tension	14	0.00	-0.00	0.00
			Max. Compression	26	-7.58	0.01	-0.03
			Max. Mx	20	-4.00	20.91	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-3.99	0.00	20.91
			Max. Vy	20	-5.82	20.91	0.00
			Max. Vx	2	-5.82	0.00	20.91
			Max. Torque	21			0.01
L2	170.583 - 126	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.59	0.11	0.28
			Max. Mx	20	-18.72	543.46	0.08
			Max. My	2	-18.72	0.01	544.92
			Max. Vy	20	-21.20	543.46	0.08
			Max. Vx	2	-21.24	0.01	544.92
			Max. Torque	9			0.18
L3	126 - 82.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.03	0.58	0.41
			Max. Mx	20	-33.13	1667.22	-0.50
			Max. My	2	-33.12	-0.49	1672.60
			Max. Vy	20	-30.82	1667.22	-0.50
			Max. Vx	14	30.94	0.80	-1672.29
			Max. Torque	17			-0.43
L4	82.75 - 40.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.49	0.71	0.11
			Max. Mx	20	-46.39	3021.20	-1.52
			Max. My	2	-46.38	-1.36	3031.41
			Max. Vy	20	-35.55	3021.20	-1.52
			Max. Vx	14	35.67	1.73	-3031.34
			Max. Torque	17			-0.43
L5	40.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.21	0.88	-0.77
			Max. Mx	20	-67.40	4854.99	-3.06
			Max. My	14	-67.40	2.79	-4869.95
			Max. Vy	20	-40.50	4854.99	-3.06
			Max. Vx	14	40.59	2.79	-4869.95
			Max. Torque	3			0.33

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	92.21	0.00	-11.01
	Max. H_x	20	67.42	40.46	-0.02
	Max. H_z	2	67.42	-0.02	40.55
	Max. M_x	2	4868.99	-0.02	40.55
	Max. M_z	8	4854.56	-40.46	0.02
	Max. Torsion	3	0.33	-0.02	40.55
	Min. Vert	23	50.57	35.03	20.26
	Min. H_x	8	67.42	-40.46	0.02
	Min. H_z	14	67.42	0.02	-40.55
	Min. M_x	14	-4869.95	0.02	-40.55
	Min. M_z	20	-4854.99	40.46	-0.02
	Min. Torsion	15	-0.33	0.02	-40.55

Tower Mast Reaction Summary

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
Dead Only	56.19	0.00	0.00	0.40	0.17	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	67.42	0.02	-40.55	-4868.99	-2.37	-0.33
0.9 Dead+1.0 Wind 0 deg - No Ice	50.57	0.02	-40.55	-4813.60	-2.40	-0.33
1.2 Dead+1.0 Wind 30 deg - No Ice	67.42	20.25	-35.13	-4217.93	-2429.41	-0.27
0.9 Dead+1.0 Wind 30 deg - No Ice	50.57	20.25	-35.13	-4169.94	-2401.77	-0.27
1.2 Dead+1.0 Wind 60 deg - No Ice	67.42	35.05	-20.29	-2436.51	-4205.45	-0.14
0.9 Dead+1.0 Wind 60 deg - No Ice	50.57	35.05	-20.29	-2408.85	-4157.56	-0.15
1.2 Dead+1.0 Wind 90 deg - No Ice	67.42	40.46	-0.02	-2.09	-4854.56	0.02
0.9 Dead+1.0 Wind 90 deg - No Ice	50.57	40.46	-0.02	-2.19	-4799.28	0.02
1.2 Dead+1.0 Wind 120 deg - No Ice	67.42	35.03	20.26	2433.02	-4202.88	0.18
0.9 Dead+1.0 Wind 120 deg - No Ice	50.57	35.03	20.26	2405.15	-4155.01	0.18
1.2 Dead+1.0 Wind 150 deg - No Ice	67.42	20.21	35.11	4216.32	-2424.95	0.29
0.9 Dead+1.0 Wind 150 deg - No Ice	50.57	20.21	35.11	4168.12	-2397.35	0.29
1.2 Dead+1.0 Wind 180 deg - No Ice	67.42	-0.02	40.55	4869.95	2.79	0.33
0.9 Dead+1.0 Wind 180 deg - No Ice	50.57	-0.02	40.55	4814.32	2.71	0.33
1.2 Dead+1.0 Wind 210 deg - No Ice	67.42	-20.25	35.13	4218.89	2429.83	0.27
0.9 Dead+1.0 Wind 210 deg - No Ice	50.57	-20.25	35.13	4170.66	2402.08	0.28
1.2 Dead+1.0 Wind 240 deg - No Ice	67.42	-35.05	20.29	2437.48	4205.88	0.15
0.9 Dead+1.0 Wind 240 deg - No Ice	50.57	-35.05	20.29	2409.57	4157.87	0.15
1.2 Dead+1.0 Wind 270 deg - No Ice	67.42	-40.46	0.02	3.06	4854.99	-0.02
0.9 Dead+1.0 Wind 270 deg - No Ice	50.57	-40.46	0.02	2.91	4799.60	-0.02
1.2 Dead+1.0 Wind 300 deg - No Ice	67.42	-35.03	-20.26	-2432.06	4203.31	-0.18
0.9 Dead+1.0 Wind 300 deg - No Ice	50.57	-35.03	-20.26	-2404.43	4155.33	-0.18
1.2 Dead+1.0 Wind 330 deg - No Ice	67.42	-20.21	-35.11	-4215.36	2425.38	-0.30
0.9 Dead+1.0 Wind 330 deg - No Ice	50.57	-20.21	-35.11	-4167.40	2397.66	-0.30
1.2 Dead+1.0 Ice+1.0 Temp	92.21	0.00	0.00	0.77	0.88	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	92.21	0.00	-11.01	-1331.21	0.49	-0.07
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	92.21	5.50	-9.54	-1153.00	-664.13	-0.04
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	92.21	9.53	-5.51	-665.64	-1150.53	-0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	92.21	11.00	-0.00	0.28	-1328.39	0.03
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	92.21	9.52	5.50	666.33	-1150.05	0.06
1.2 Dead+1.0 Wind 150	92.21	5.50	9.53	1154.04	-663.29	0.07

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
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180	92.21	-0.00	11.01	1332.74	1.46	0.07
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 210	92.21	-5.50	9.54	1154.53	666.07	0.04
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 240	92.21	-9.53	5.51	667.17	1152.48	0.00
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270	92.21	-11.00	0.00	1.25	1330.34	-0.03
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	92.21	-9.52	-5.50	-664.80	1151.99	-0.06
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	92.21	-5.50	-9.53	-1152.51	665.23	-0.07
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	56.19	0.00	-9.55	-1139.24	-0.43	-0.08
Dead+Wind 30 deg - Service	56.19	4.77	-8.27	-986.86	-568.44	-0.07
Dead+Wind 60 deg - Service	56.19	8.26	-4.78	-569.94	-984.10	-0.04
Dead+Wind 90 deg - Service	56.19	9.53	-0.00	-0.20	-1136.02	0.00
Dead+Wind 120 deg - Service	56.19	8.25	4.77	569.70	-983.49	0.04
Dead+Wind 150 deg - Service	56.19	4.76	8.27	987.05	-567.40	0.07
Dead+Wind 180 deg - Service	56.19	-0.00	9.55	1140.04	0.78	0.08
Dead+Wind 210 deg - Service	56.19	-4.77	8.27	987.66	568.80	0.07
Dead+Wind 240 deg - Service	56.19	-8.26	4.78	570.74	984.45	0.04
Dead+Wind 270 deg - Service	56.19	-9.53	0.00	1.00	1136.37	-0.00
Dead+Wind 300 deg - Service	56.19	-8.25	-4.77	-568.90	983.85	-0.04
Dead+Wind 330 deg - Service	56.19	-4.76	-8.27	-986.26	567.75	-0.07

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-56.19	0.00	0.00	56.19	0.00	0.000%
2	0.02	-67.42	-40.55	-0.02	67.42	40.55	0.000%
3	0.02	-50.57	-40.55	-0.02	50.57	40.55	0.000%
4	20.25	-67.42	-35.13	-20.25	67.42	35.13	0.000%
5	20.25	-50.57	-35.13	-20.25	50.57	35.13	0.000%
6	35.05	-67.42	-20.29	-35.05	67.42	20.29	0.000%
7	35.05	-50.57	-20.29	-35.05	50.57	20.29	0.000%
8	40.46	-67.42	-0.02	-40.46	67.42	0.02	0.000%
9	40.46	-50.57	-0.02	-40.46	50.57	0.02	0.000%
10	35.03	-67.42	20.26	-35.03	67.42	-20.26	0.000%
11	35.03	-50.57	20.26	-35.03	50.57	-20.26	0.000%
12	20.21	-67.42	35.11	-20.21	67.42	-35.11	0.000%
13	20.21	-50.57	35.11	-20.21	50.57	-35.11	0.000%
14	-0.02	-67.42	40.55	0.02	67.42	-40.55	0.000%
15	-0.02	-50.57	40.55	0.02	50.57	-40.55	0.000%
16	-20.25	-67.42	35.13	20.25	67.42	-35.13	0.000%
17	-20.25	-50.57	35.13	20.25	50.57	-35.13	0.000%
18	-35.05	-67.42	20.29	35.05	67.42	-20.29	0.000%
19	-35.05	-50.57	20.29	35.05	50.57	-20.29	0.000%
20	-40.46	-67.42	0.02	40.46	67.42	-0.02	0.000%
21	-40.46	-50.57	0.02	40.46	50.57	-0.02	0.000%
22	-35.03	-67.42	-20.26	35.03	67.42	20.26	0.000%
23	-35.03	-50.57	-20.26	35.03	50.57	20.26	0.000%
24	-20.21	-67.42	-35.11	20.21	67.42	35.11	0.000%
25	-20.21	-50.57	-35.11	20.21	50.57	35.11	0.000%
26	0.00	-92.21	0.00	0.00	92.21	0.00	0.000%
27	0.00	-92.21	-11.01	-0.00	92.21	11.01	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
28	5.50	-92.21	-9.54	-5.50	92.21	9.54	0.000%
29	9.53	-92.21	-5.51	-9.53	92.21	5.51	0.000%
30	11.00	-92.21	-0.00	-11.00	92.21	0.00	0.000%
31	9.52	-92.21	5.50	-9.52	92.21	-5.50	0.000%
32	5.50	-92.21	9.53	-5.50	92.21	-9.53	0.000%
33	-0.00	-92.21	11.01	0.00	92.21	-11.01	0.000%
34	-5.50	-92.21	9.54	5.50	92.21	-9.54	0.000%
35	-9.53	-92.21	5.51	9.53	92.21	-5.51	0.000%
36	-11.00	-92.21	0.00	11.00	92.21	-0.00	0.000%
37	-9.52	-92.21	-5.50	9.52	92.21	5.50	0.000%
38	-5.50	-92.21	-9.53	5.50	92.21	9.53	0.000%
39	0.00	-56.19	-9.55	-0.00	56.19	9.55	0.000%
40	4.77	-56.19	-8.27	-4.77	56.19	8.27	0.000%
41	8.26	-56.19	-4.78	-8.26	56.19	4.78	0.000%
42	9.53	-56.19	-0.00	-9.53	56.19	0.00	0.000%
43	8.25	-56.19	4.77	-8.25	56.19	-4.77	0.000%
44	4.76	-56.19	8.27	-4.76	56.19	-8.27	0.000%
45	-0.00	-56.19	9.55	0.00	56.19	-9.55	0.000%
46	-4.77	-56.19	8.27	4.77	56.19	-8.27	0.000%
47	-8.26	-56.19	4.78	8.26	56.19	-4.78	0.000%
48	-9.53	-56.19	0.00	9.53	56.19	-0.00	0.000%
49	-8.25	-56.19	-4.77	8.25	56.19	4.77	0.000%
50	-4.76	-56.19	-8.27	4.76	56.19	8.27	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00050628
3	Yes	4	0.00000001	0.00020633
4	Yes	6	0.00000001	0.00008109
5	Yes	5	0.00000001	0.00066517
6	Yes	6	0.00000001	0.00008176
7	Yes	5	0.00000001	0.00067100
8	Yes	4	0.00000001	0.00052638
9	Yes	4	0.00000001	0.00022855
10	Yes	6	0.00000001	0.00008112
11	Yes	5	0.00000001	0.00066565
12	Yes	6	0.00000001	0.00008122
13	Yes	5	0.00000001	0.00066642
14	Yes	4	0.00000001	0.00052210
15	Yes	4	0.00000001	0.00022232
16	Yes	6	0.00000001	0.00008182
17	Yes	5	0.00000001	0.00067132
18	Yes	6	0.00000001	0.00008104
19	Yes	5	0.00000001	0.00066484
20	Yes	4	0.00000001	0.00050933
21	Yes	4	0.00000001	0.00021135
22	Yes	6	0.00000001	0.00008139
23	Yes	5	0.00000001	0.00066790
24	Yes	6	0.00000001	0.00008139
25	Yes	5	0.00000001	0.00066778
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00029877
28	Yes	5	0.00000001	0.00037850

29	Yes	5	0.00000001	0.00037882
30	Yes	5	0.00000001	0.00029773
31	Yes	5	0.00000001	0.00037780
32	Yes	5	0.00000001	0.00037808
33	Yes	5	0.00000001	0.00029857
34	Yes	5	0.00000001	0.00037962
35	Yes	5	0.00000001	0.00037875
36	Yes	5	0.00000001	0.00029835
37	Yes	5	0.00000001	0.00037912
38	Yes	5	0.00000001	0.00037940
39	Yes	4	0.00000001	0.00006810
40	Yes	4	0.00000001	0.00041251
41	Yes	4	0.00000001	0.00042330
42	Yes	4	0.00000001	0.00006819
43	Yes	4	0.00000001	0.00041419
44	Yes	4	0.00000001	0.00041568
45	Yes	4	0.00000001	0.00006820
46	Yes	4	0.00000001	0.00042376
47	Yes	4	0.00000001	0.00041199
48	Yes	4	0.00000001	0.00006811
49	Yes	4	0.00000001	0.00041887
50	Yes	4	0.00000001	0.00041835

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	180 - 170.583 (1)	TP26.25x24x0.1875	9.42	0.00	0.0	15.0246	-3.99	878.94	0.005
L2	170.583 - 126 (2)	TP36.525x25.0586x0.25	48.00	0.00	0.0	27.8838	-18.72	1631.20	0.011
L3	126 - 82.75 (3)	TP46.357x34.8903x0.3125	48.00	0.00	0.0	44.2487	-33.12	2588.55	0.013
L4	82.75 - 40.75 (4)	TP55.765x44.2987x0.375	48.00	0.00	0.0	63.8666	-46.38	3736.19	0.012
L5	40.75 - 0 (5)	TP64.75x53.2831x0.4375	48.00	0.00	0.0	89.3059	-67.40	5224.40	0.013

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	180 - 170.583 (1)	TP26.25x24x0.1875	20.91	522.20	0.040	0.00	522.20	0.000
L2	170.583 - 126 (2)	TP36.525x25.0586x0.25	544.92	1327.15	0.411	0.00	1327.15	0.000
L3	126 - 82.75 (3)	TP46.357x34.8903x0.3125	1672.60	2657.33	0.629	0.00	2657.33	0.000
L4	82.75 - 40.75 (4)	TP55.765x44.2987x0.375	3031.41	4609.00	0.658	0.00	4609.00	0.000
L5	40.75 - 0 (5)	TP64.75x53.2831x0.4375	4869.95	7639.82	0.637	0.00	7639.82	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	180 - 170.583 (1)	TP26.25x24x0.1875	5.82	261.19	0.022	0.00	582.98	0.000
L2	170.583 - 126 (2)	TP36.525x25.0586x0.25	21.24	482.00	0.044	0.00	1505.97	0.000
L3	126 - 82.75 (3)	TP46.357x34.8903x0.3125	30.94	776.57	0.040	0.33	3033.90	0.000
L4	82.75 - 40.75 (4)	TP55.765x44.2987x0.375	35.67	1120.86	0.032	0.33	5267.03	0.000
L5	40.75 - 0 (5)	TP64.75x53.2831x0.4375	40.59	1567.32	0.026	0.33	8827.42	0.000

Pole Interaction Design Data

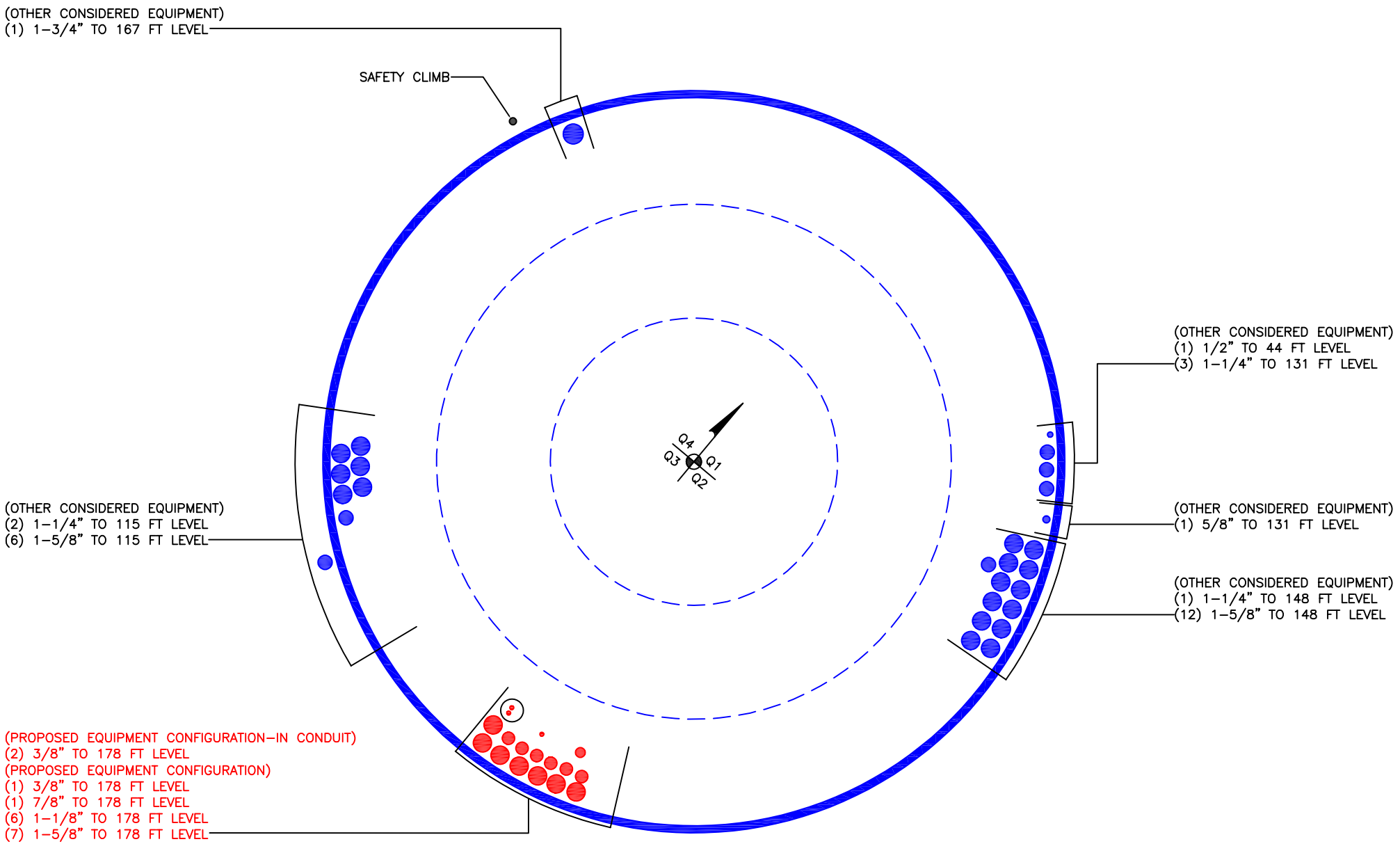
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	180 - 170.583 (1)	0.005	0.040	0.000	0.022	0.000	0.045	1.050	4.8.2
L2	170.583 - 126 (2)	0.011	0.411	0.000	0.044	0.000	0.424	1.050	4.8.2
L3	126 - 82.75 (3)	0.013	0.629	0.000	0.040	0.000	0.644	1.050	4.8.2
L4	82.75 - 40.75 (4)	0.012	0.658	0.000	0.032	0.000	0.671	1.050	4.8.2
L5	40.75 - 0 (5)	0.013	0.637	0.000	0.026	0.000	0.651	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	180 - 170.583	Pole	TP26.25x24x0.1875	1	-3.99	922.89	4.3	Pass
L2	170.583 - 126	Pole	TP36.525x25.0586x0.25	2	-18.72	1712.76	40.4	Pass
L3	126 - 82.75	Pole	TP46.357x34.8903x0.3125	3	-33.12	2717.98	61.3	Pass
L4	82.75 - 40.75	Pole	TP55.765x44.2987x0.375	4	-46.38	3923.00	63.9	Pass
L5	40.75 - 0	Pole	TP64.75x53.2831x0.4375	5	-67.40	5485.62	62.0	Pass
							Summary	
							Pole (L4) 63.9	Pass
							RATING = **63.9**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/4" TO 167 FT LEVEL
SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 44 FT LEVEL
(3) 1-1/4" TO 131 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 5/8" TO 131 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/4" TO 148 FT LEVEL
(12) 1-5/8" TO 148 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 1-1/4" TO 115 FT LEVEL
(6) 1-5/8" TO 115 FT LEVEL
Q4
Q1
Q3
Q2
(PROPOSED EQUIPMENT CONFIGURATION-IN CONDUIT)
(2) 3/8" TO 178 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 3/8" TO 178 FT LEVEL
(1) 7/8" TO 178 FT LEVEL
(6) 1-1/8" TO 178 FT LEVEL
(7) 1-5/8" TO 178 FT LEVEL

APPENDIX C

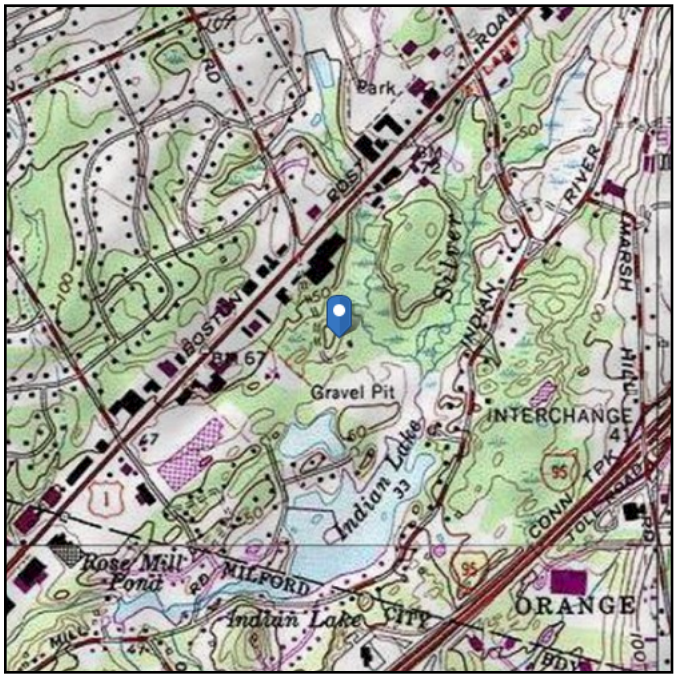
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 39.34 ft (NAVD 88)
Latitude: 41.25555
Longitude: -73.010889



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Tue Sep 21 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.

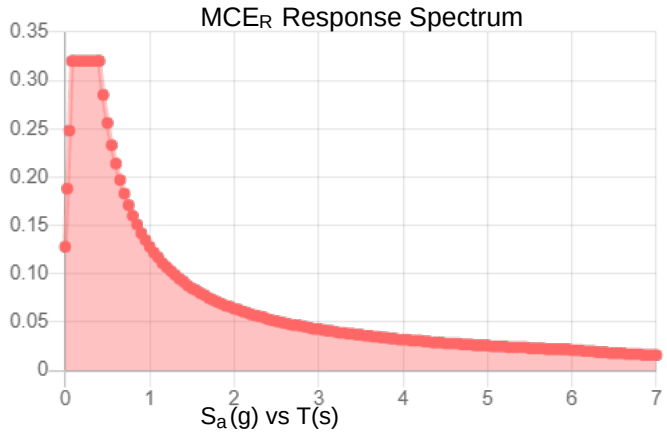
Seismic

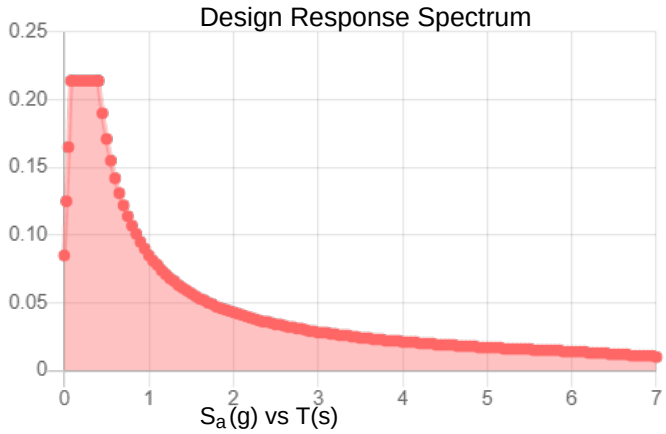
Site Soil Class: D - Default (see Section 11.4.3)

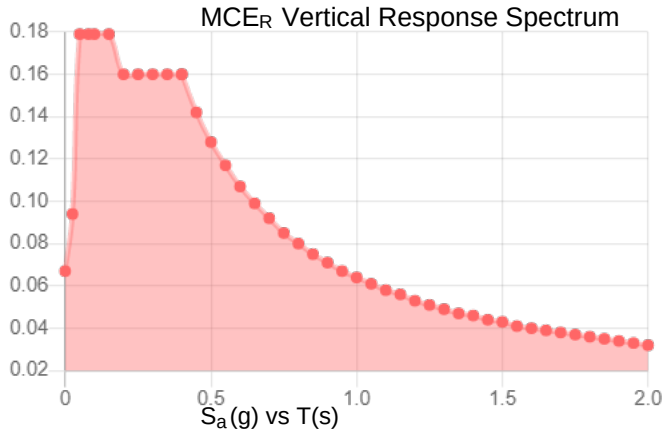
Results:

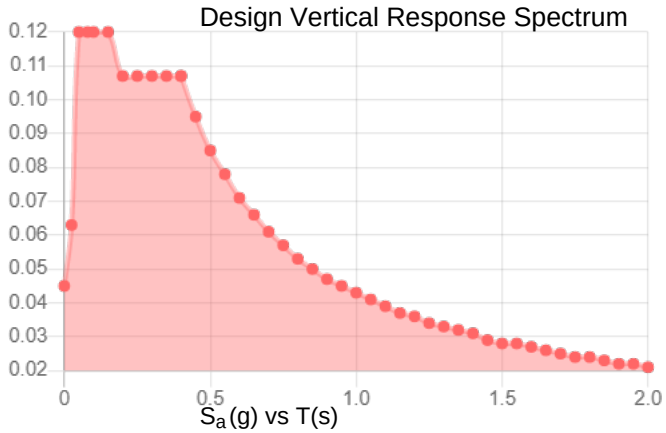
S_S :	0.2	S_{D1} :	0.085
S_1 :	0.053	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA_M :	0.177
S_{MS} :	0.32	F_{PGA} :	1.575
S_{M1} :	0.128	I_e :	1
S_{DS} :	0.214	C_v :	0.7

Seismic Design Category B









Data Accessed: Tue Sep 21 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:	Tue Sep 21 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.

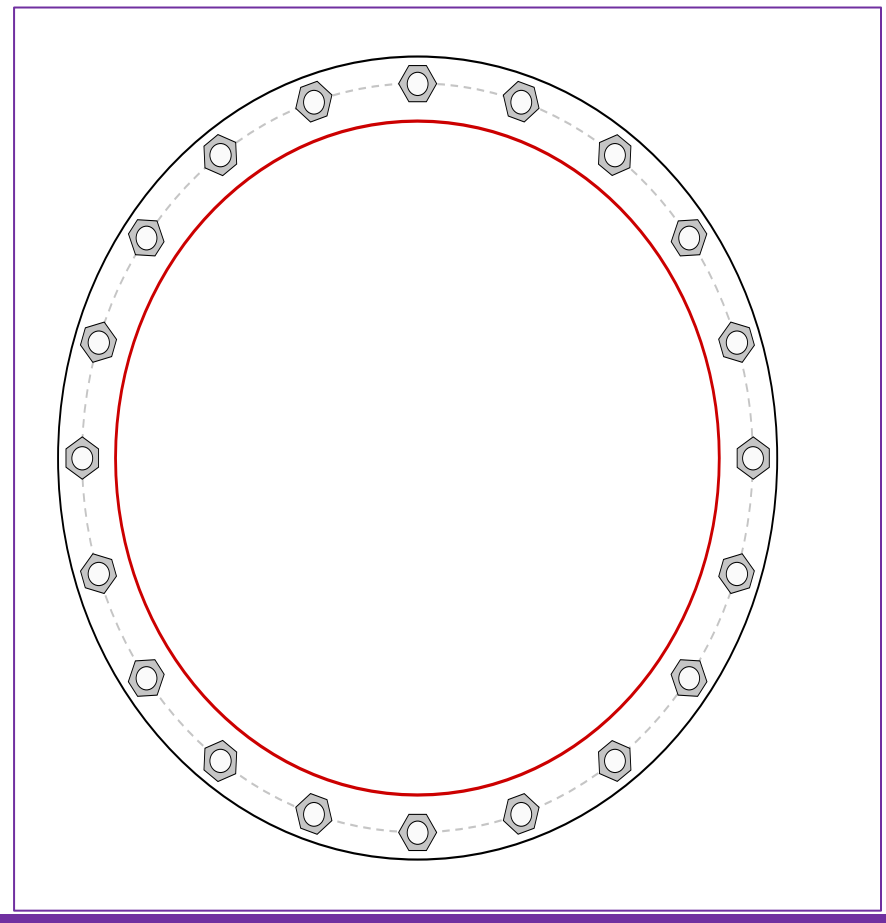
Monopole Base Plate Connection

Site Info	
BU #	842871
Site Name	Orange Transfer Statio
Order #	556582 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1

Applied Loads	
Moment (kip-ft)	4870.00
Axial Force (kips)	67.00
Shear Force (kips)	41.00

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(20) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 72" BC

Base Plate Data

77.25" OD x 2.75" Plate (A633 Gr. E; Fy=60 ksi, Fu=70 ksi)

Stiffener Data

N/A

Pole Data

64.75" 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 = 158.92	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.05	ϕVn = 149.1	**62.1%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	19.95	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**35.2%**	**Pass**

Pier and Pad Foundation

BU # :	842871
Site Name:	Orange Transfer St
App. Number:	556582 Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, **P_{comp}**:	67	kips
Base Shear, Vu_comp:	41	kips
Moment, **M_u**:	4870	ft-kips
Tower Height, **H**:	180	ft
BP Dist. Above Fdn, **bp_{dist}**:	3.25	in

Pier Properties

Pier Shape:	Circular	
Pier Diameter, **dpier**:	8	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	10	
Pier Rebar Quantity, **mc**:	29	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, **cc_{pier}**:	3	in

Pad Properties

Depth, **D**:	7	ft
Pad Width, **W_1**:	48	ft
Pad Thickness, **T**:	6	ft
Pad Rebar Size (Bottom dir. 2), **Sp_2**:	10	
Pad Rebar Quantity (Bottom dir. 2), **mp_2**:	59	
Pad Clear Cover, **cc_{pad}**:	3	in

Material Properties

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

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Net Bearing, Qnet:	12.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	32	degrees
SPT Blow Count, **N_{blows}**:	50	
Base Friction, μ:	0.35	
Neglected Depth, **N**:	3.00	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)	851.73	41.00	**4.6%**	**Pass**
Bearing Pressure (ksf)	9.63	1.46	**14.4%**	**Pass**
*Overturning (kip*ft)*	47106.61	5209.10	**11.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6882.01	4952.00	**68.5%**	**Pass**
Pier Compression (kip)	23994.73	85.10	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	22107.39	2283.85	**9.8%**	**Pass**
Pad Shear - 1-way (kips)	3175.15	160.16	**4.8%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.012	**6.9%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	23847.14	2971.20	**11.9%**	**Pass**

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

Structural Rating*:	**68.5%**
Soil Rating*:	**14.4%**

Date: **September 13, 2021**

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589

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:	CTL05101
	Carrier Site Name:	ORANGE TRANSFER STATION
	Carrier FA Number:	10071197
Crown Castle Designation:	**Crown Castle BU Number:**	842871
	Crown Castle Site Name:	ORANGE TRANSFER STATION
	Crown Castle JDE Job Number:	650056
	Crown Castle Order Number:	556582 Rev. 0
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:** 1039-Z0001-B	
Site Data:	**26 South Orange Center Road, Orange, New Haven County, CT, 06477** **Latitude 41°15'19.98", Longitude -73°0'39.20"**	
Structure Information:	**Tower Height & Type:**	**180.0 ft Monopole**
	Mount Elevation:	**178.0 ft**
	Mount Type:	**12.5 ft Platform**

Dear Darcy Tarr,

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 120 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Andrew Gloriani, E.I.T.

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

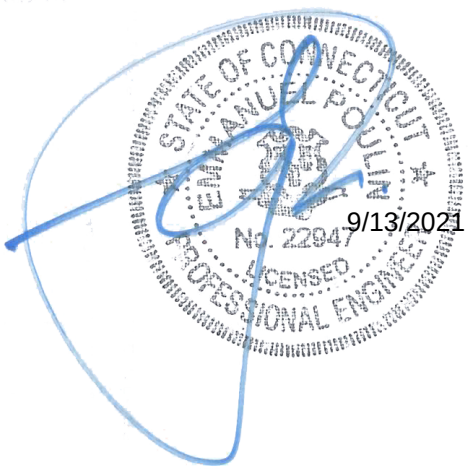


TABLE OF CONTENTS

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:	120 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:	0.200
Seismic S_1:	0.053
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
178.0	179.0	3	Ericsson	RRUS 32 B2	12.5 ft Platform
		3	Ericsson	RRUS 32 B30	
		3	Ericsson	RRUS 32 B66	
		3	Ericsson	RRUS 4478 B14	
	178.0	2	Raycap	DC6-48-60-18-8F	
	177.0	3	CCI Antennas	DMP65R-BU4D	
		3	Ericsson	AIR 6419 B77G	
		3	Ericsson	AIR 6449 N77	
		3	Quintel Technology	QD4616-7	
		3	Ericsson	RRUS 4449 B5/B12	
		1	Raycap	DC9-48-60-24-8C-EV	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	AT&T Mobility Application	556582 Rev. 0	CCI Sites
Loading Document	AT&T Mobility	RFDS ID: 4392765	TSA
Mount Mapping Documents	Infinigy Engineering	9724162	CCI Sites

3.1) Analysis Method

RISA-3D (Version 19.0.4), 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 V2.1.6, 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)	MP5	178.0	56.6	Pass
	Horizontal(s)	MH1		31.0	Pass
	Standoff(s)	MS1		42.5	Pass
	Mount Connection(s)	-		21.5	Pass

Structure Rating (max from all components) =	56.6%

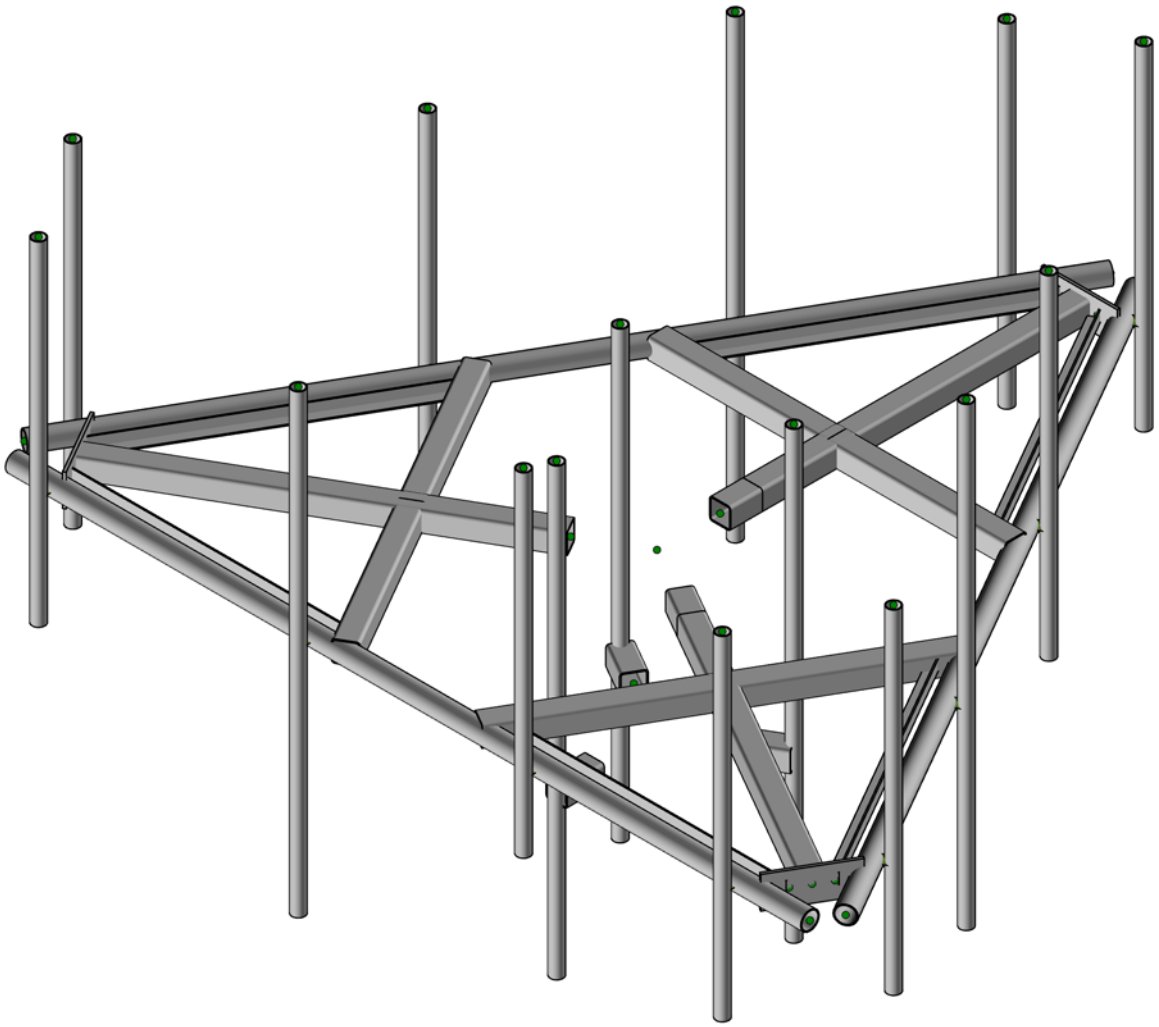
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D - Additional Calculations” for detailed mount connection calculations.

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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AG		Sep 13, 2021
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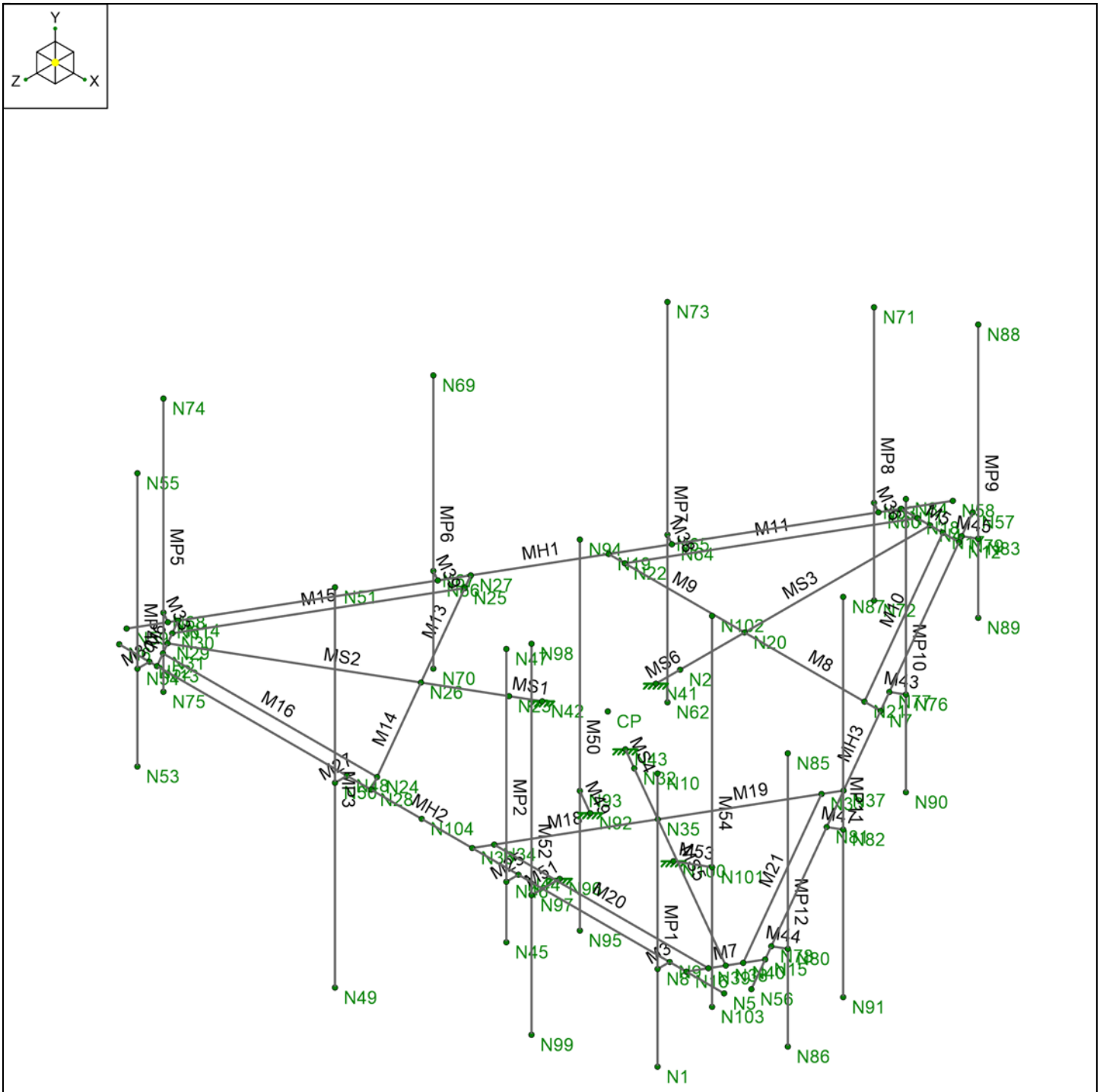

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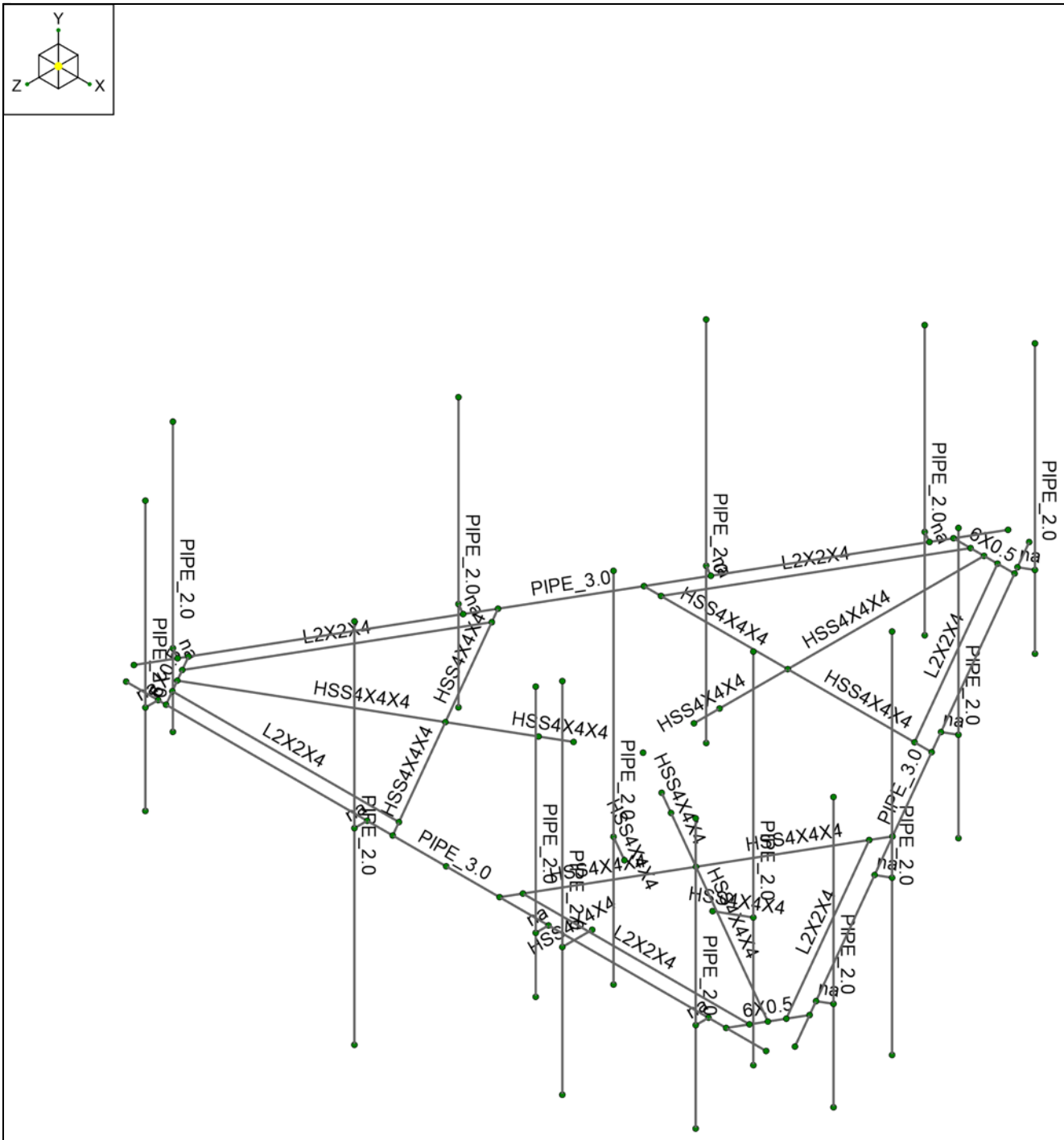
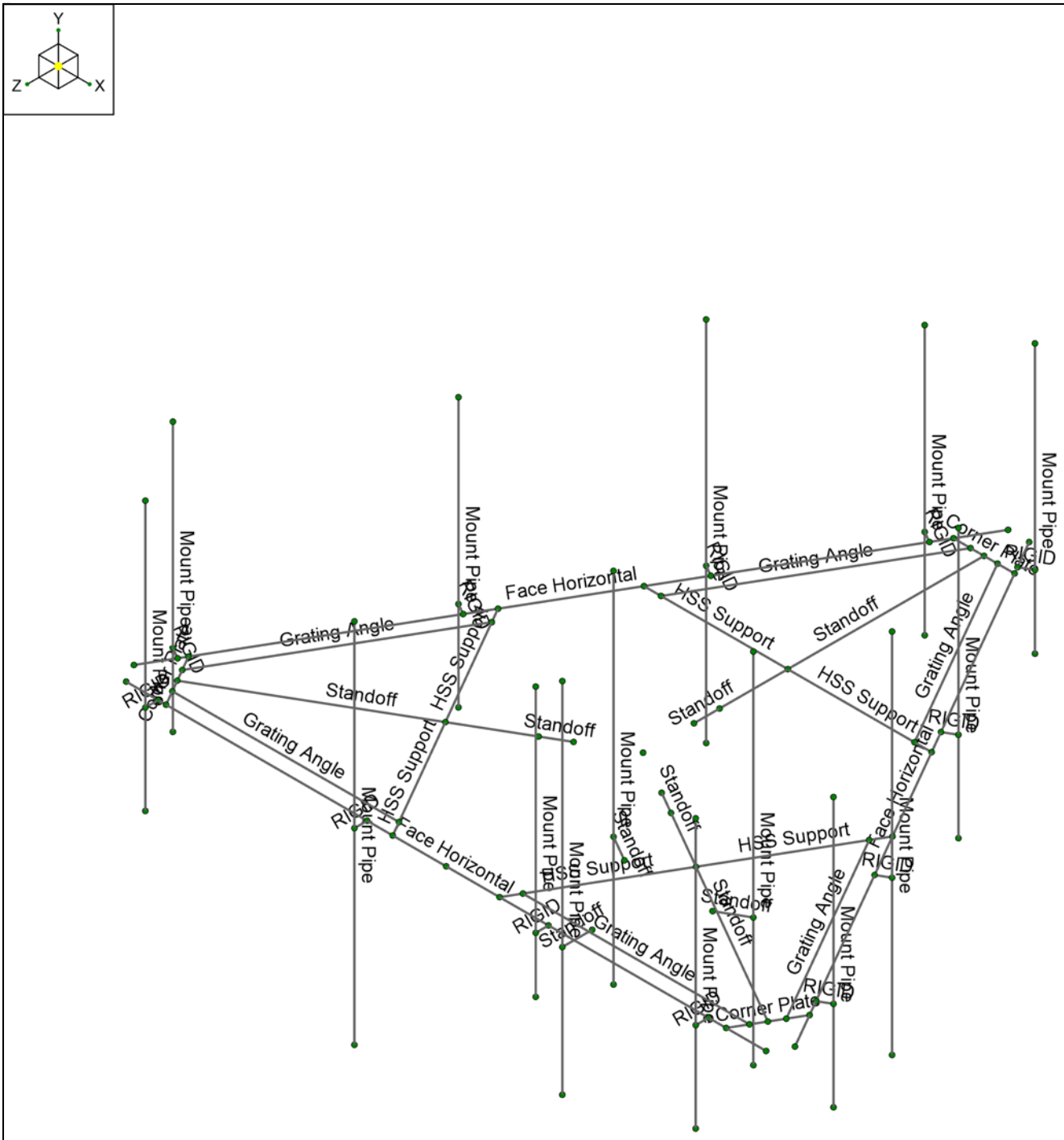


Infinigy Engineering, PLLC	842871	Shape
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Infinigy Engineering, PLLC	842871	Section Sets
AG		Sep 13, 2021
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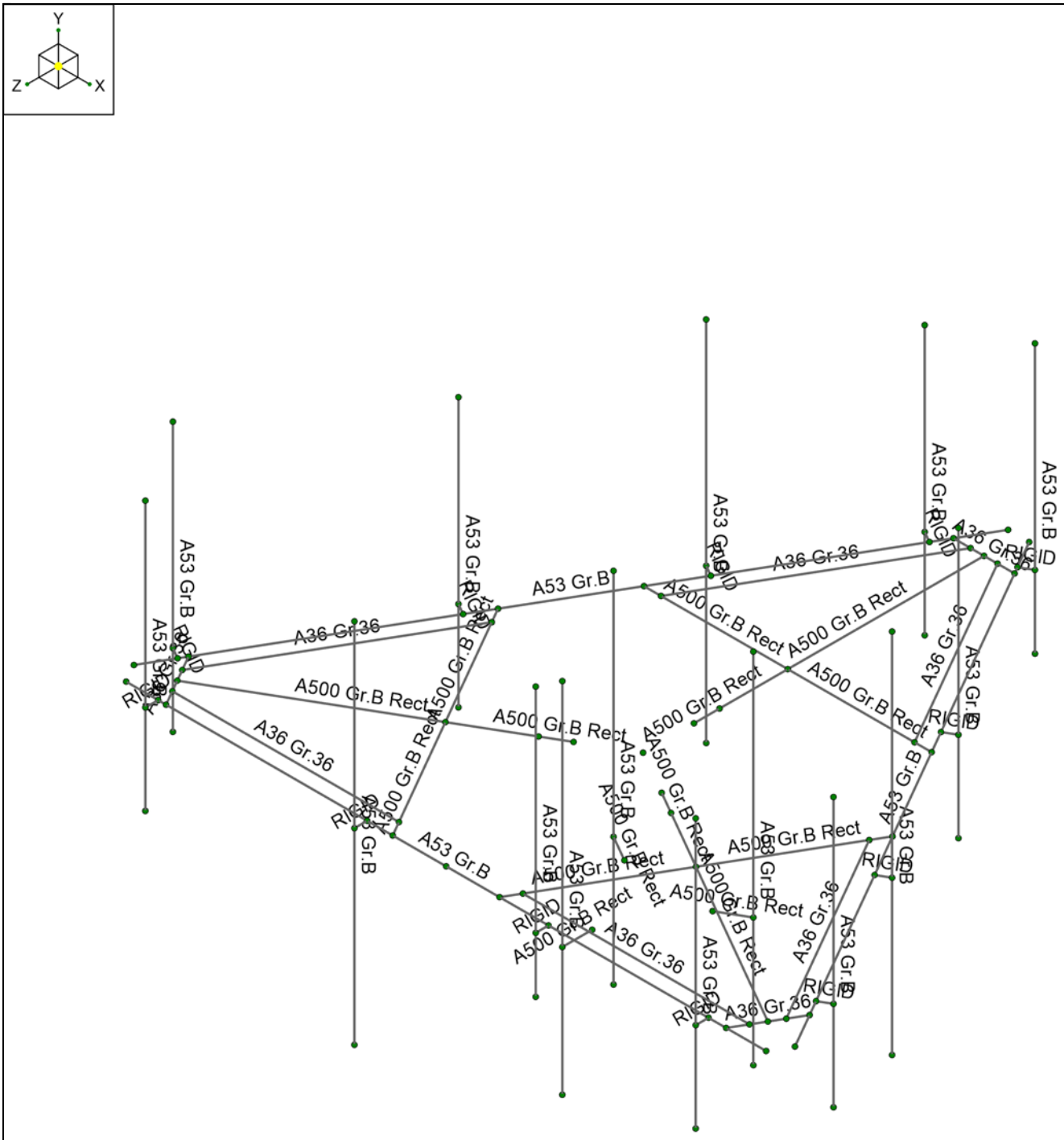

Infinigy Engineering, PLLC	842871	Grade
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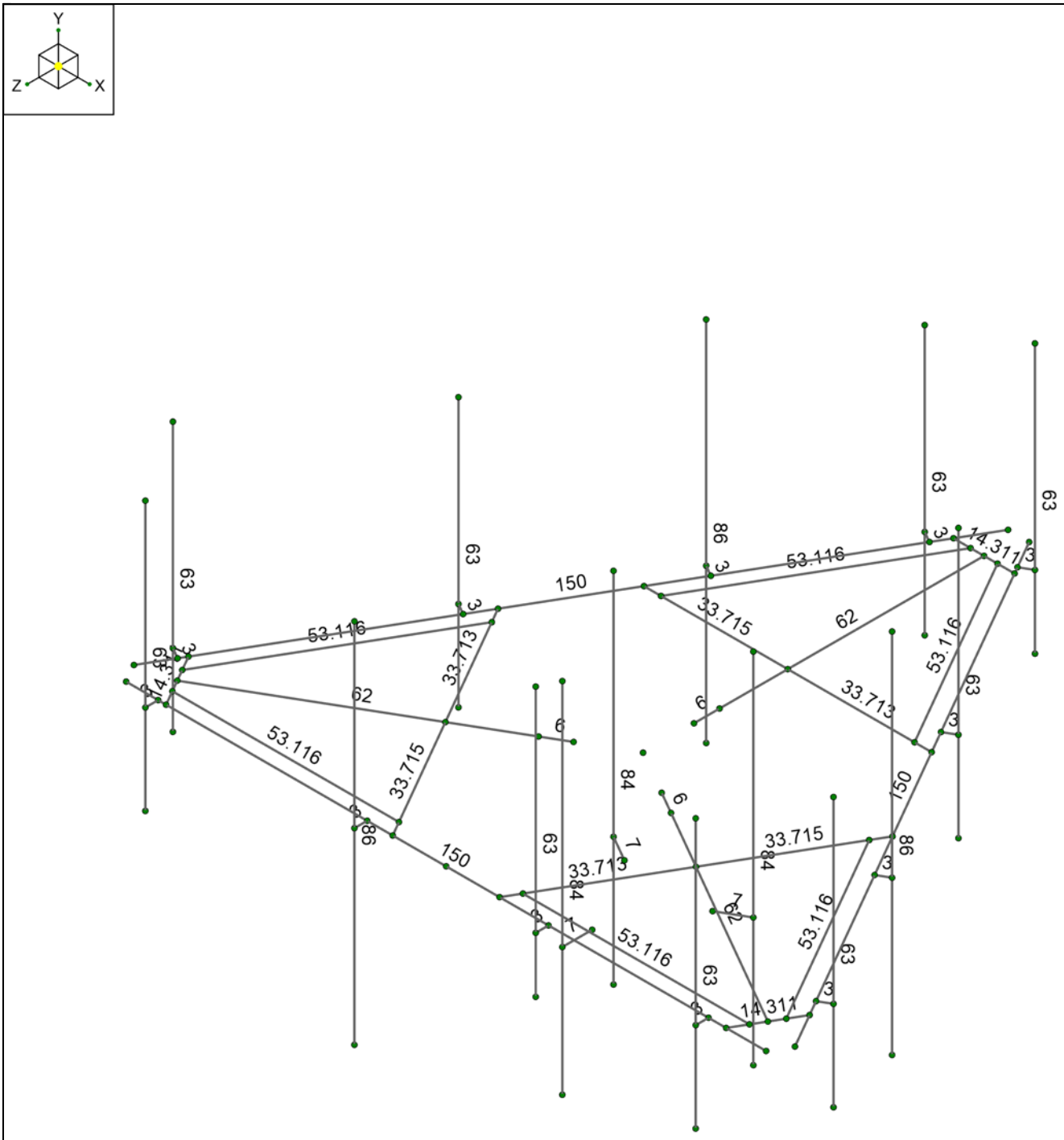

Member Length (in) Displayed

Infinigy Engineering, PLLC	842871	Length
AG		Sep 13, 2021
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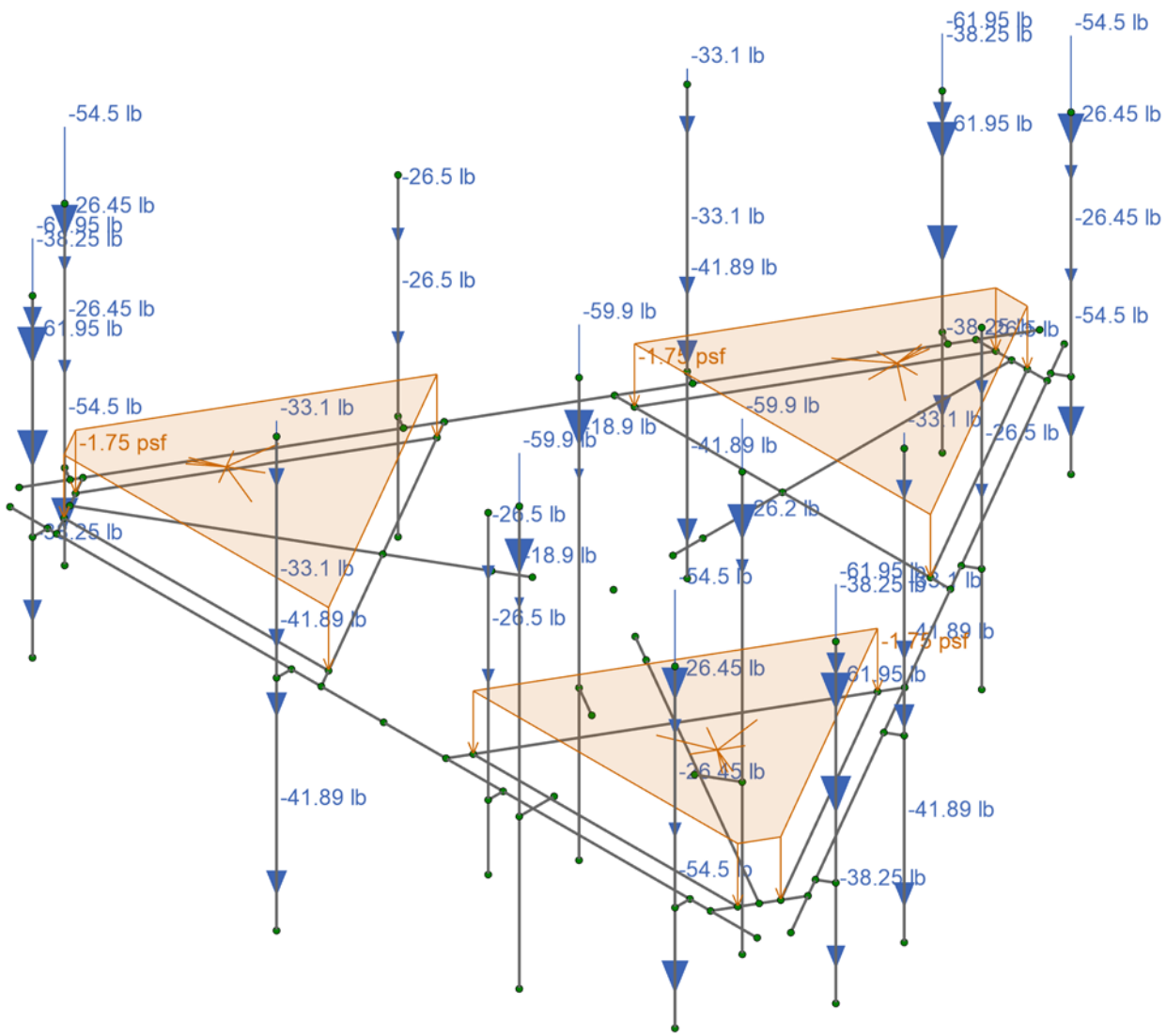
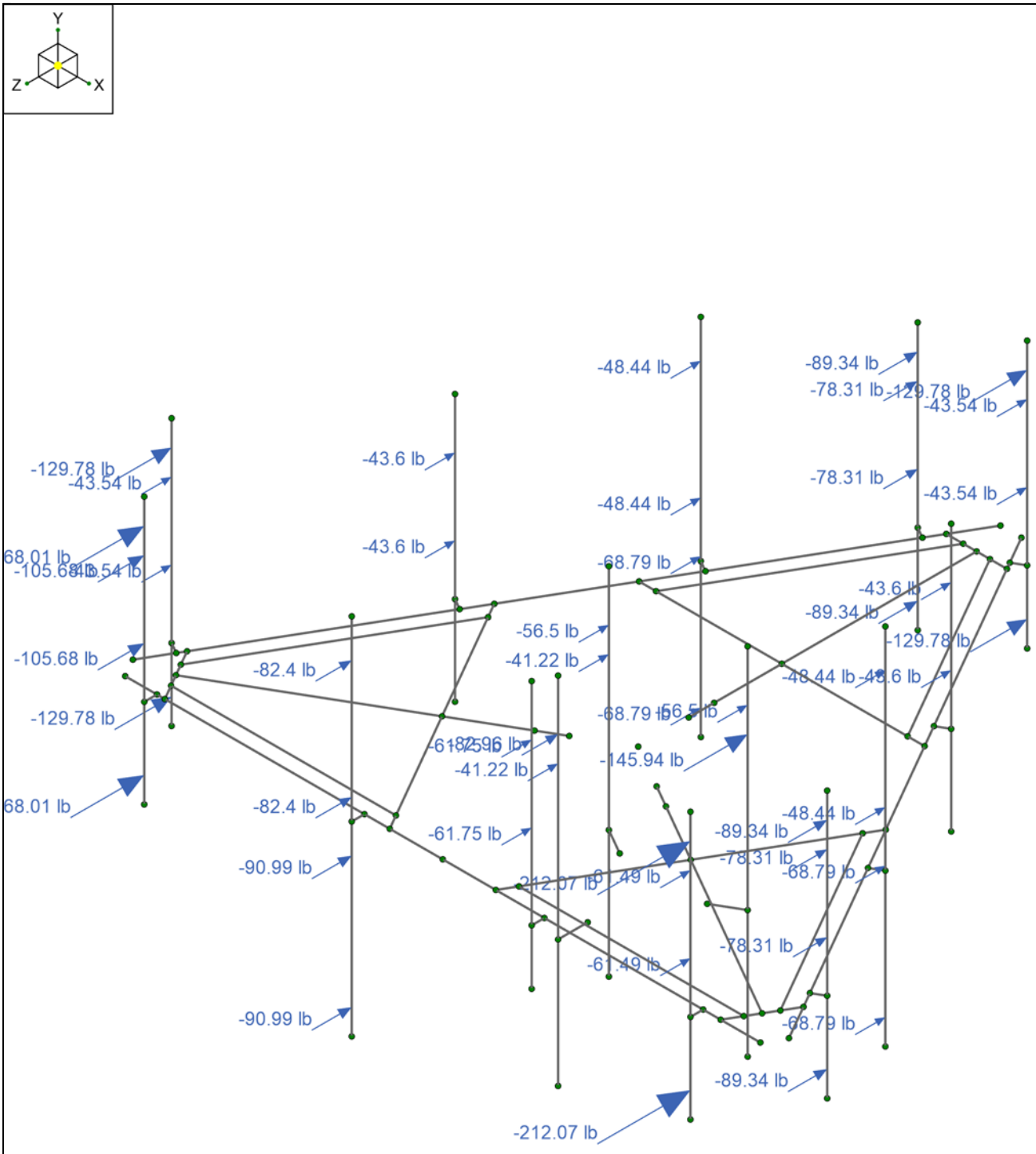


Loads: BLC 1, Self Weight

Infinigy Engineering, PLLC	842871	Self Weight
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 2, Wind Load AZI 0

Infinigy Engineering, PLLC	842871	Wind Loading 0
AG		Sep 13, 2021
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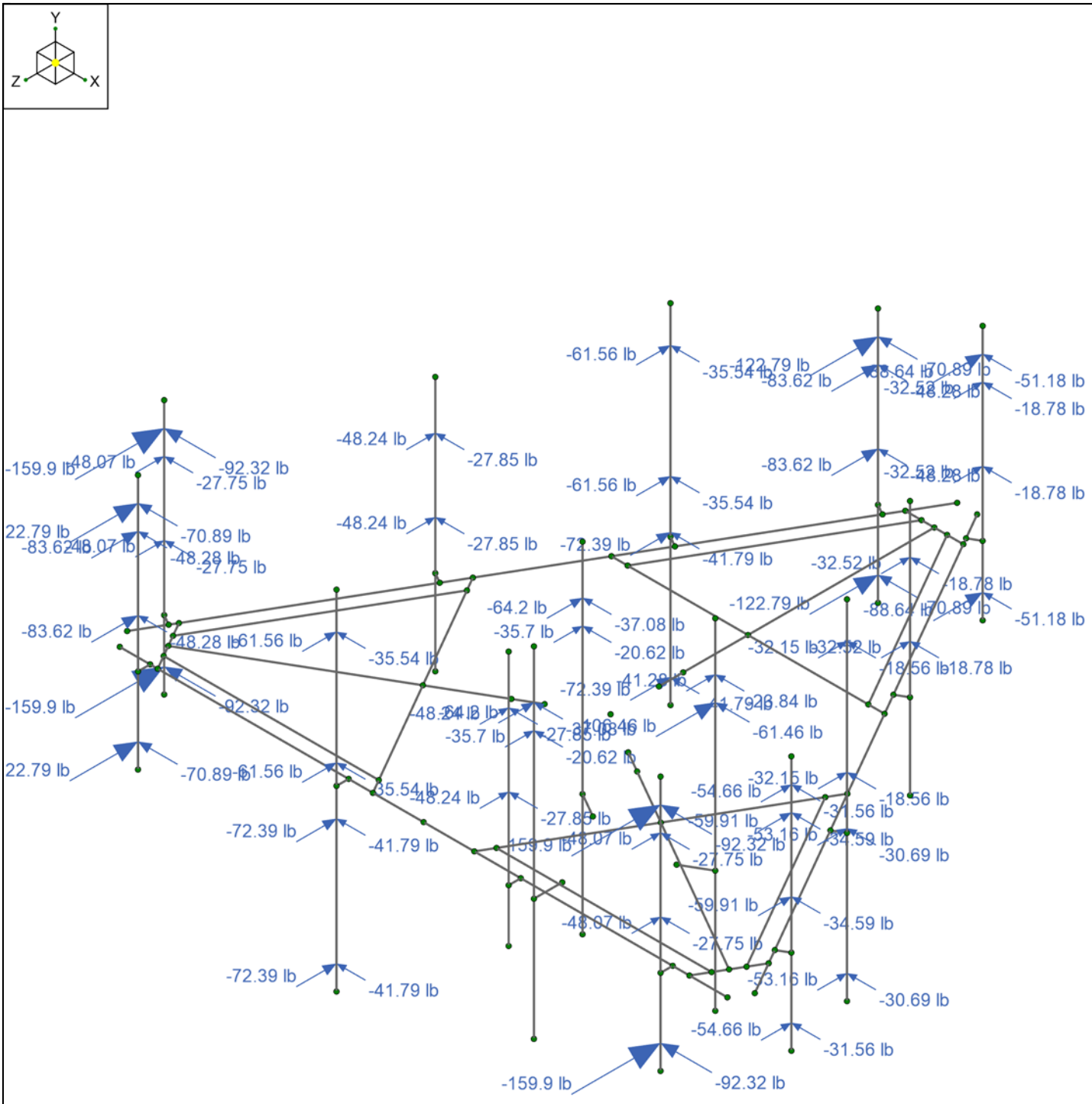

Loads: BLC 3, Wind Load AZI 30

Infinigy Engineering, PLLC	842871	Wind Loading 30
AG		Sep 13, 2021
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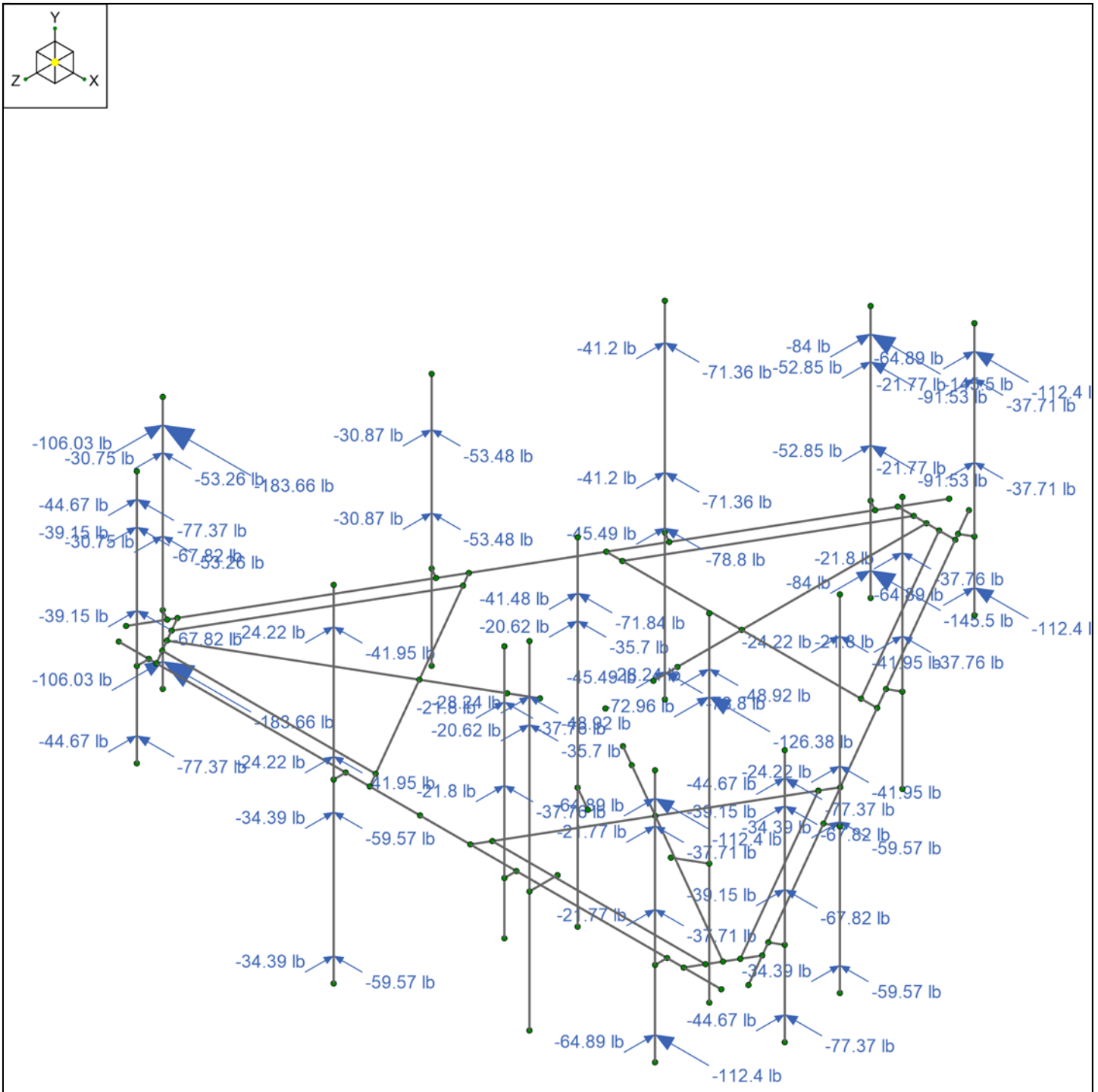
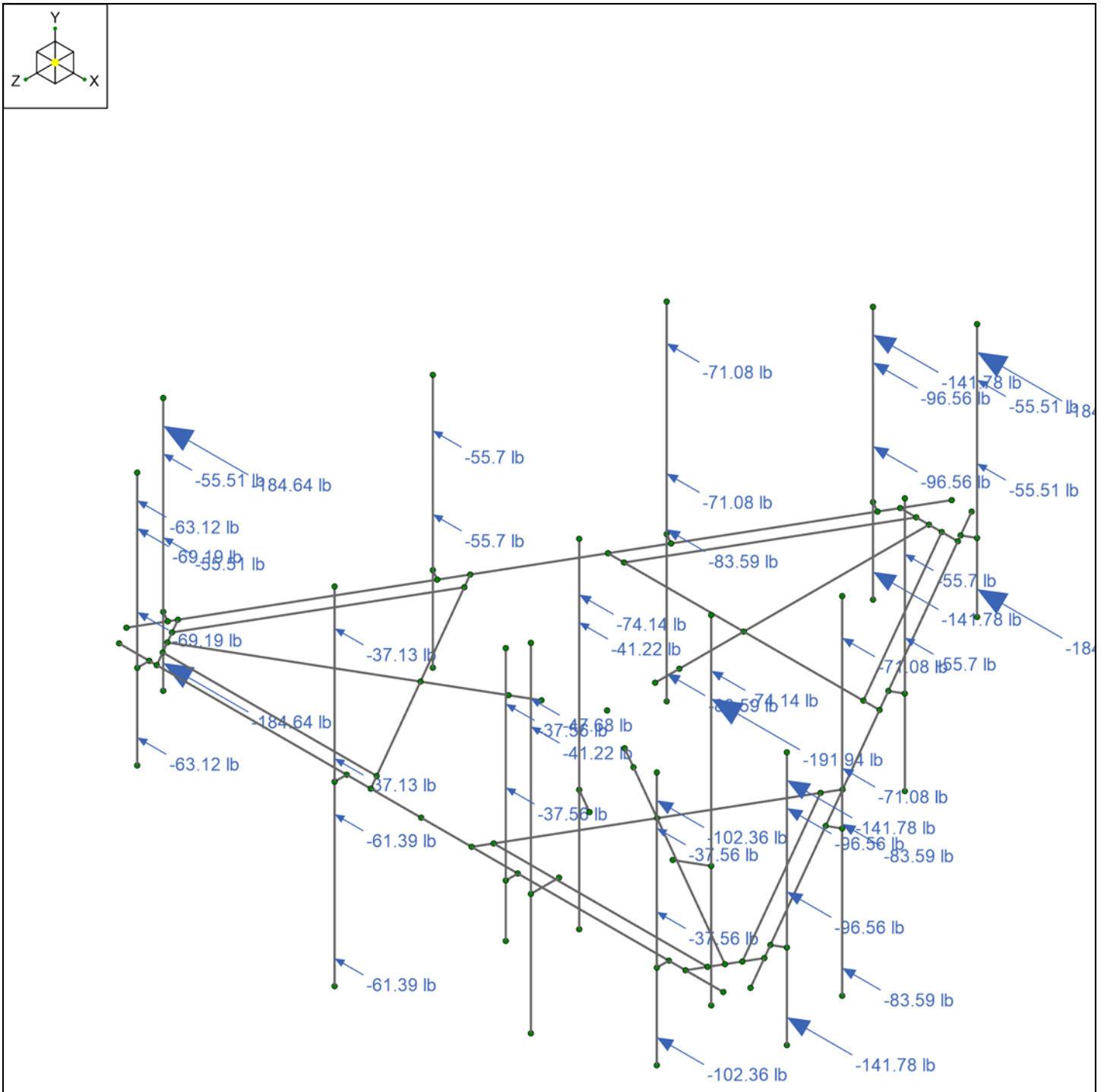


Loads: BLC 4, Wind Load AZI 60

Infinigy Engineering, PLLC	842871	Wind Loading 60
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 5, Wind Load AZI 90

Infinigy Engineering, PLLC	842871	Wind Loading 90
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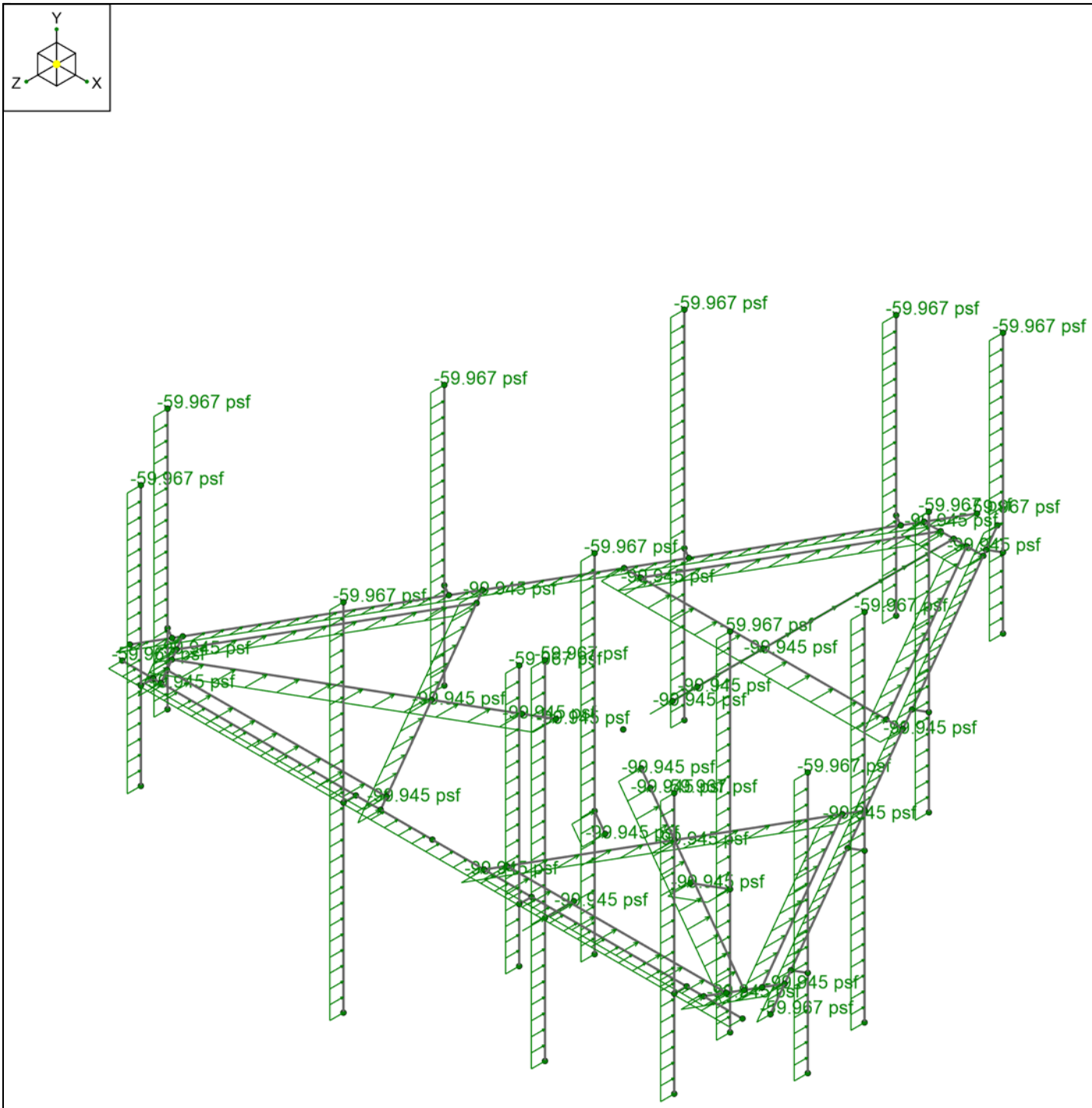

Loads: BLC 14, Distr. Wind Load Z

Infinigy Engineering, PLLC	842871	Dist. Wind Loading 0
AG		Sep 13, 2021
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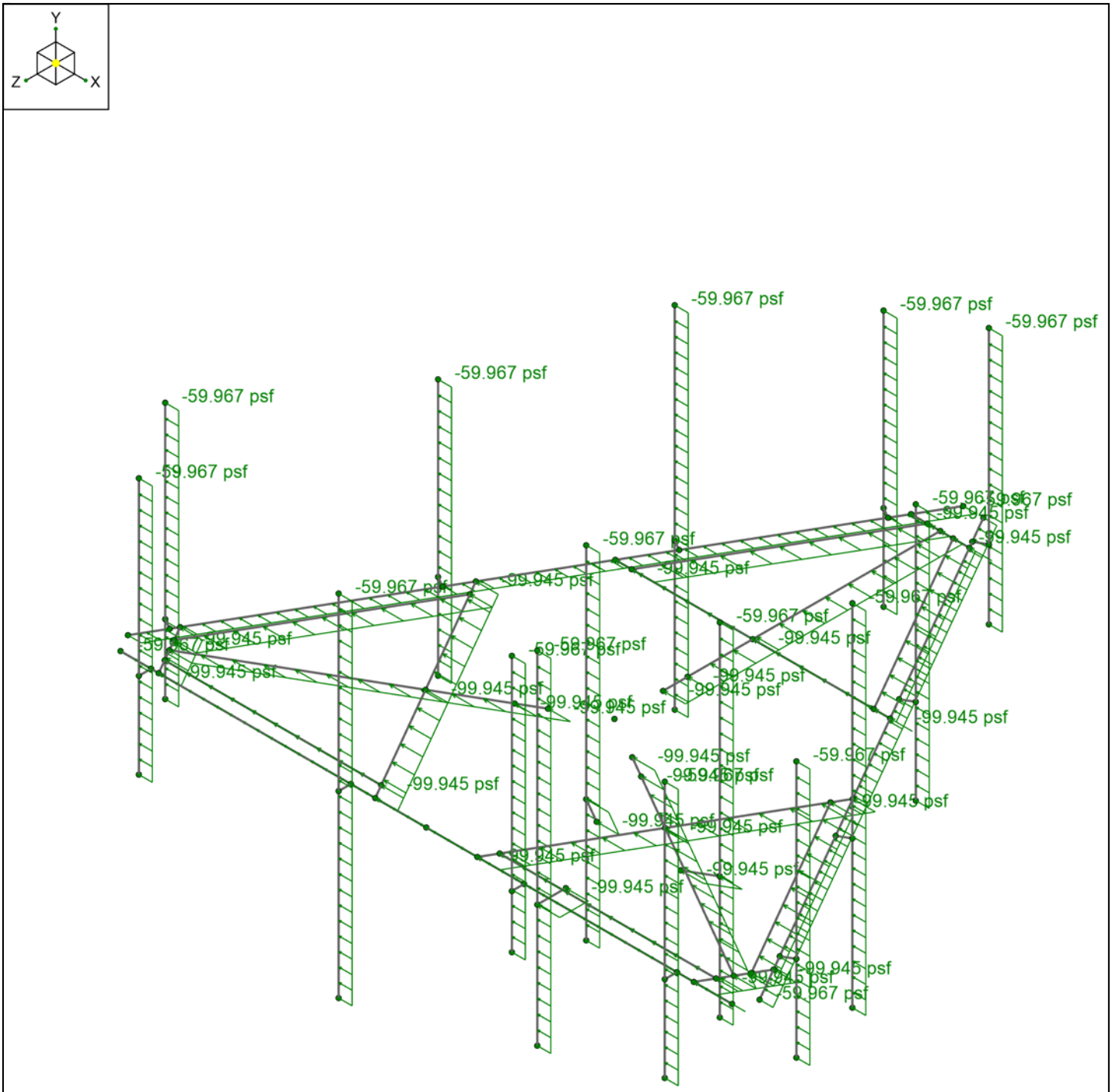
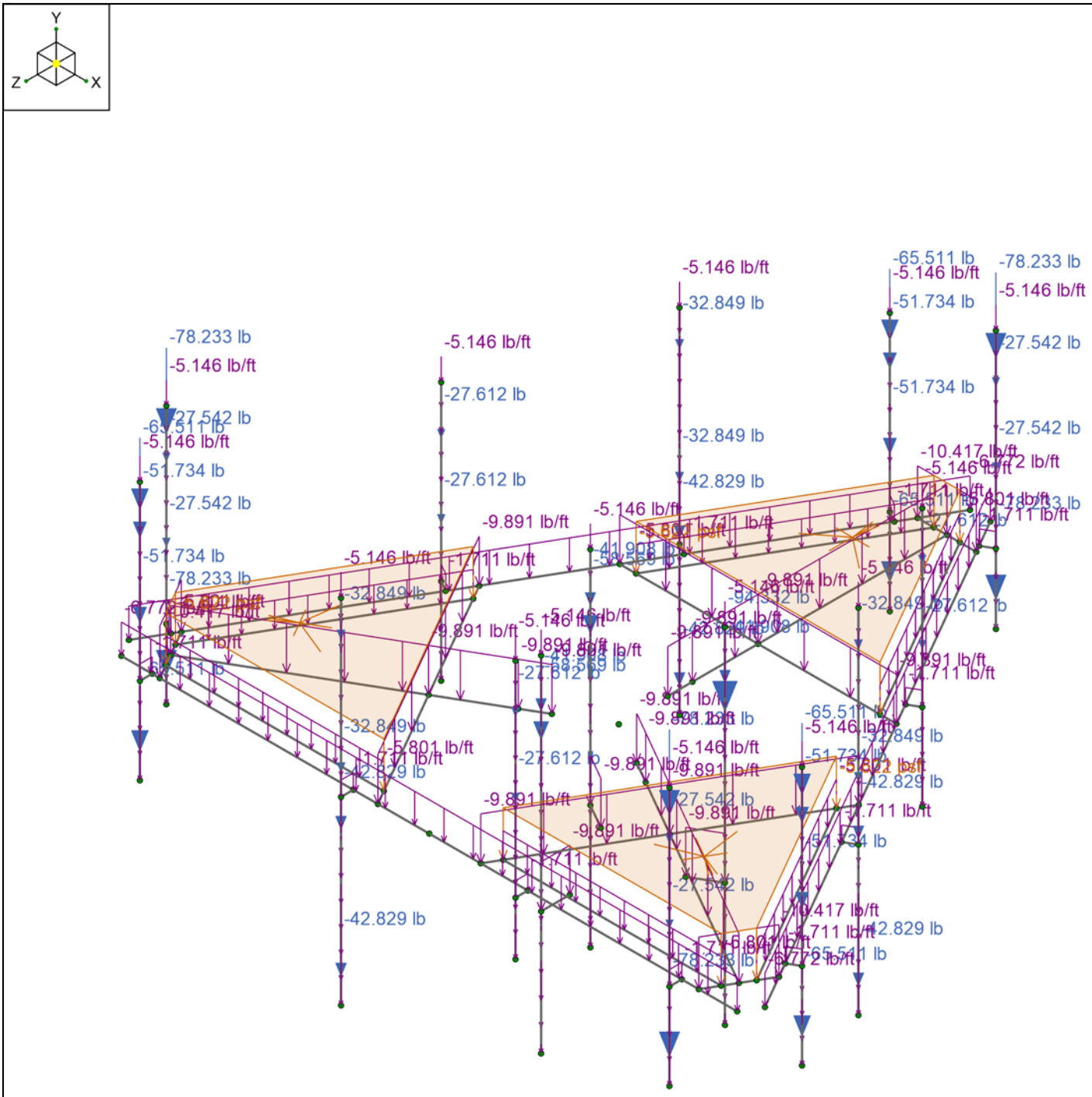


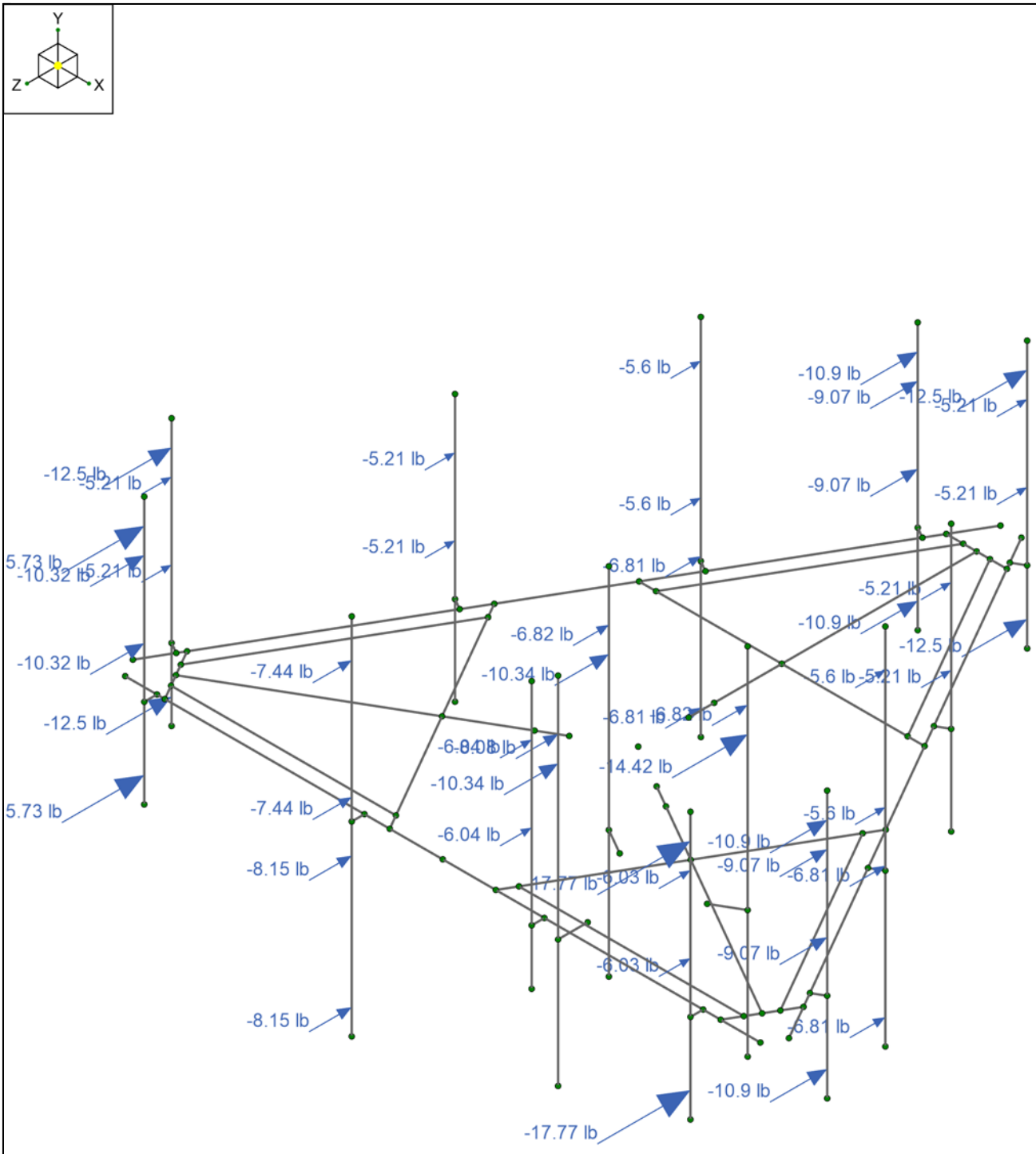
Loads: BLC 15, Distr. Wind Load X

Infinigy Engineering, PLLC	842871	Dist. Wind Loading 90
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



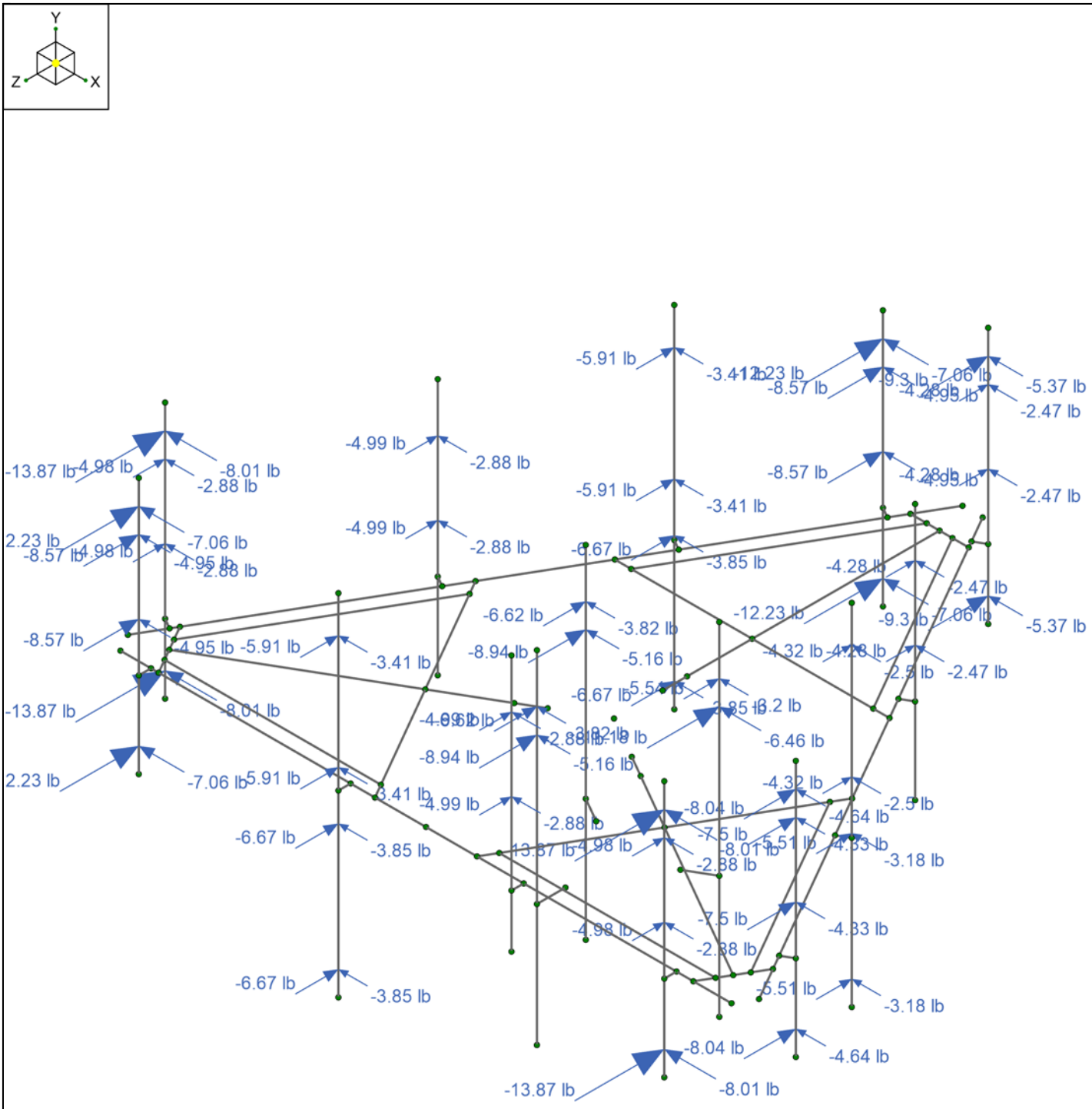
Loads: BLC 16, Ice Weight

Infinigy Engineering, PLLC	842871	Ice Weight
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



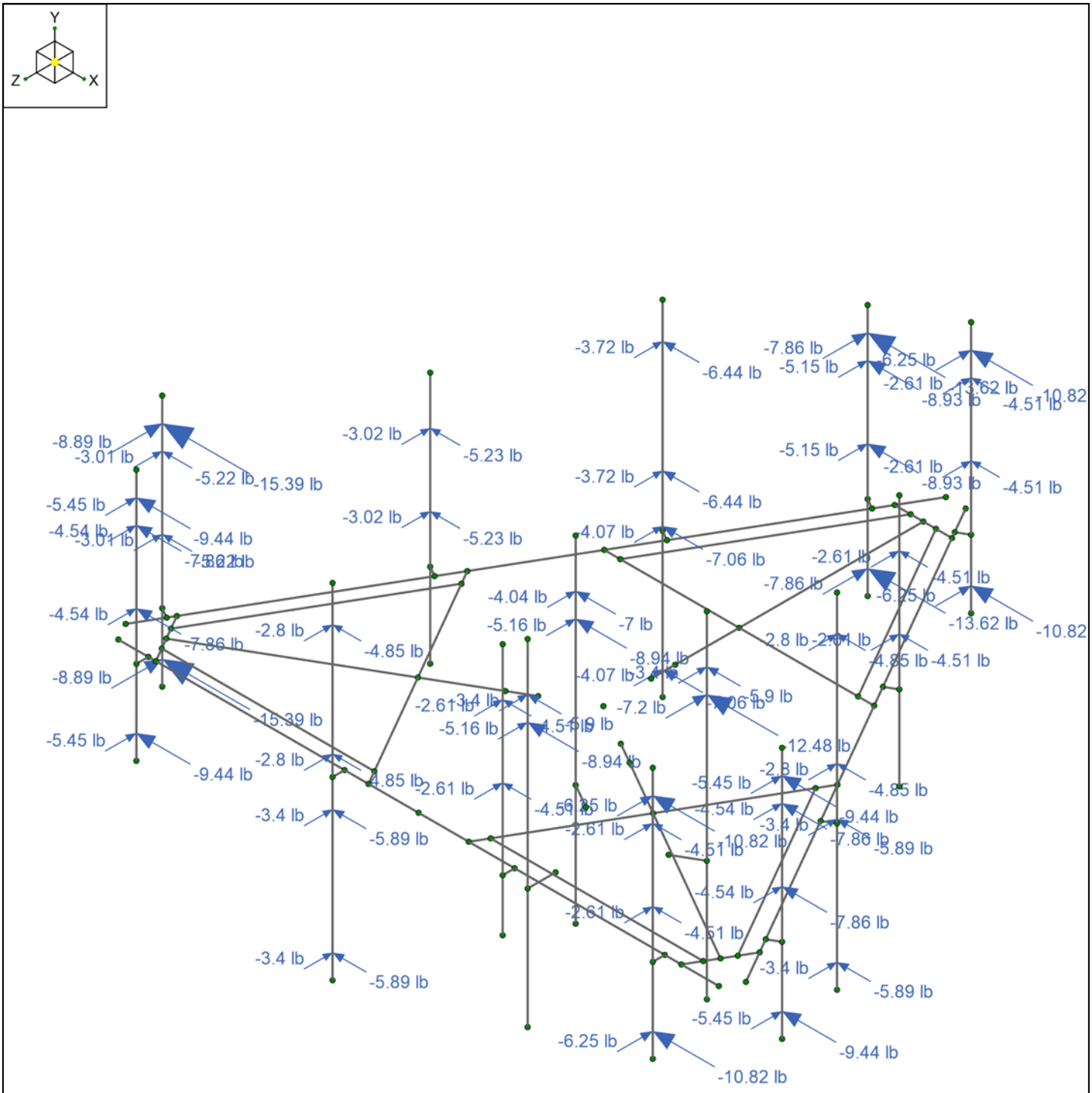
Loads: BLC 17, Ice Wind Load AZI 0

Infinigy Engineering, PLLC	842871	Ice Wind Loading 0
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 18, Ice Wind Load AZI 30

Infinigy Engineering, PLLC	842871	Ice Wind Loading 30
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 19, Ice Wind Load AZI 60

Infinigy Engineering, PLLC	842871	Ice Wind Loading 60
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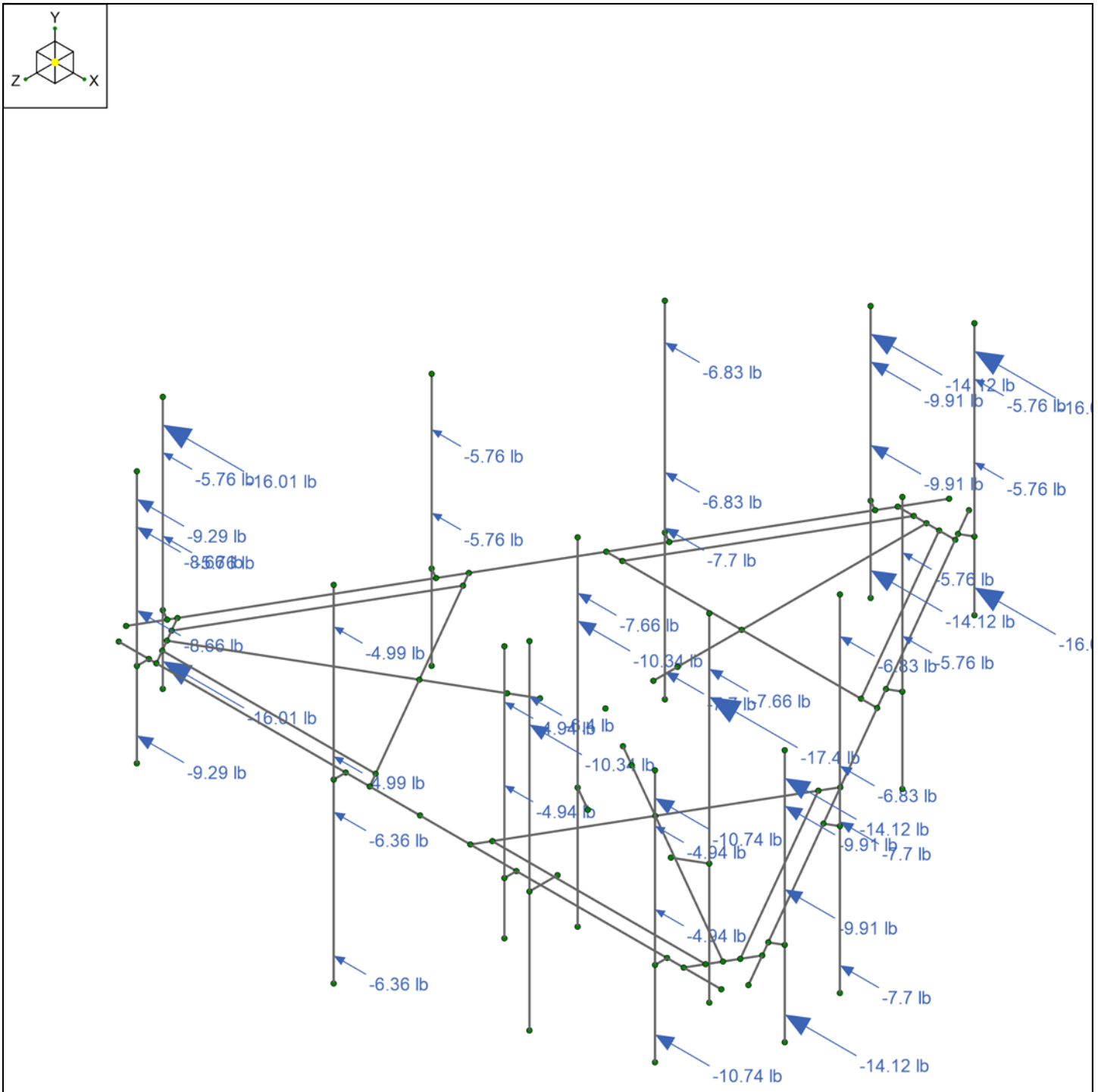
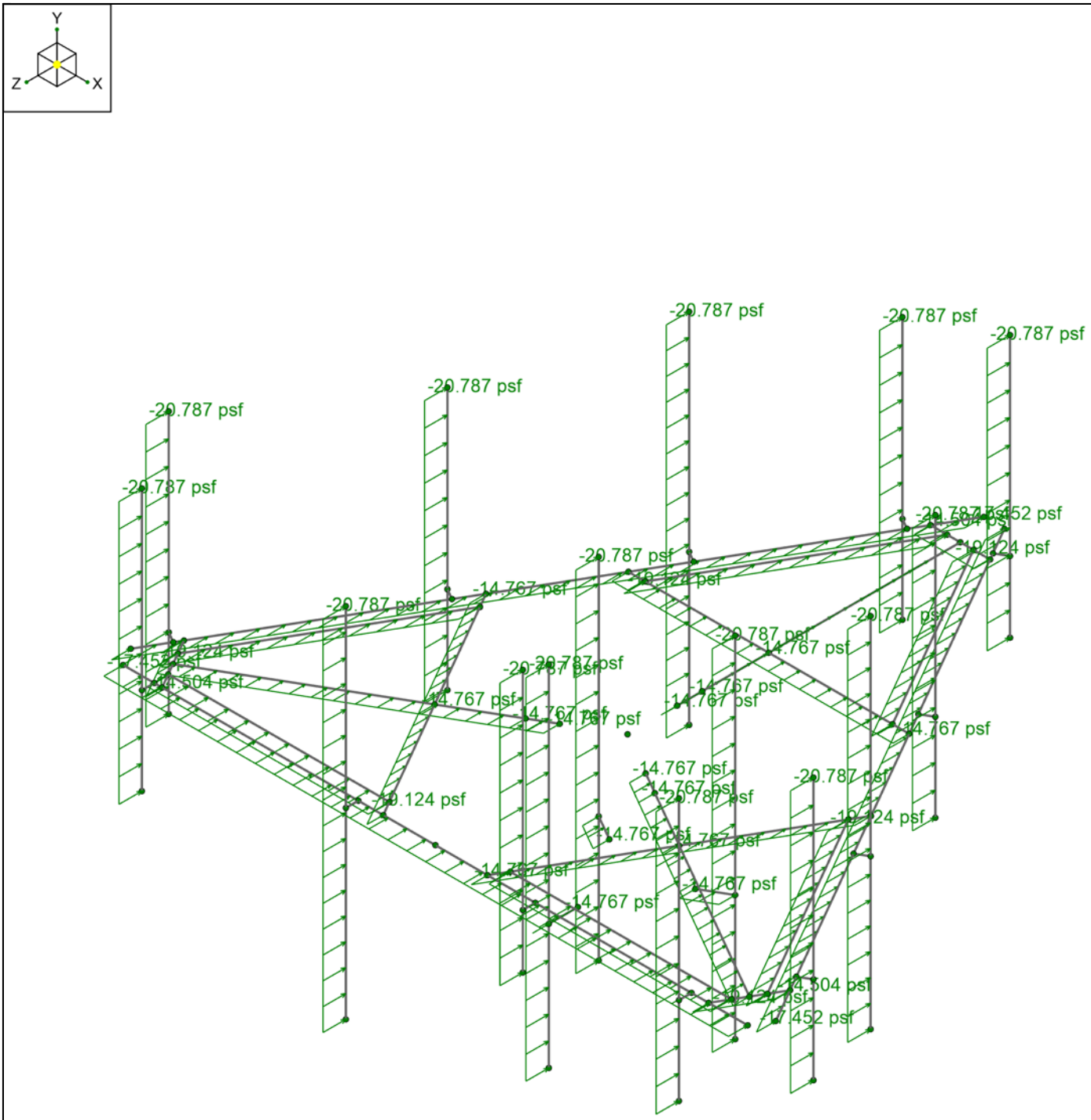
1039-Z0001-B		842871_loaded.r3d



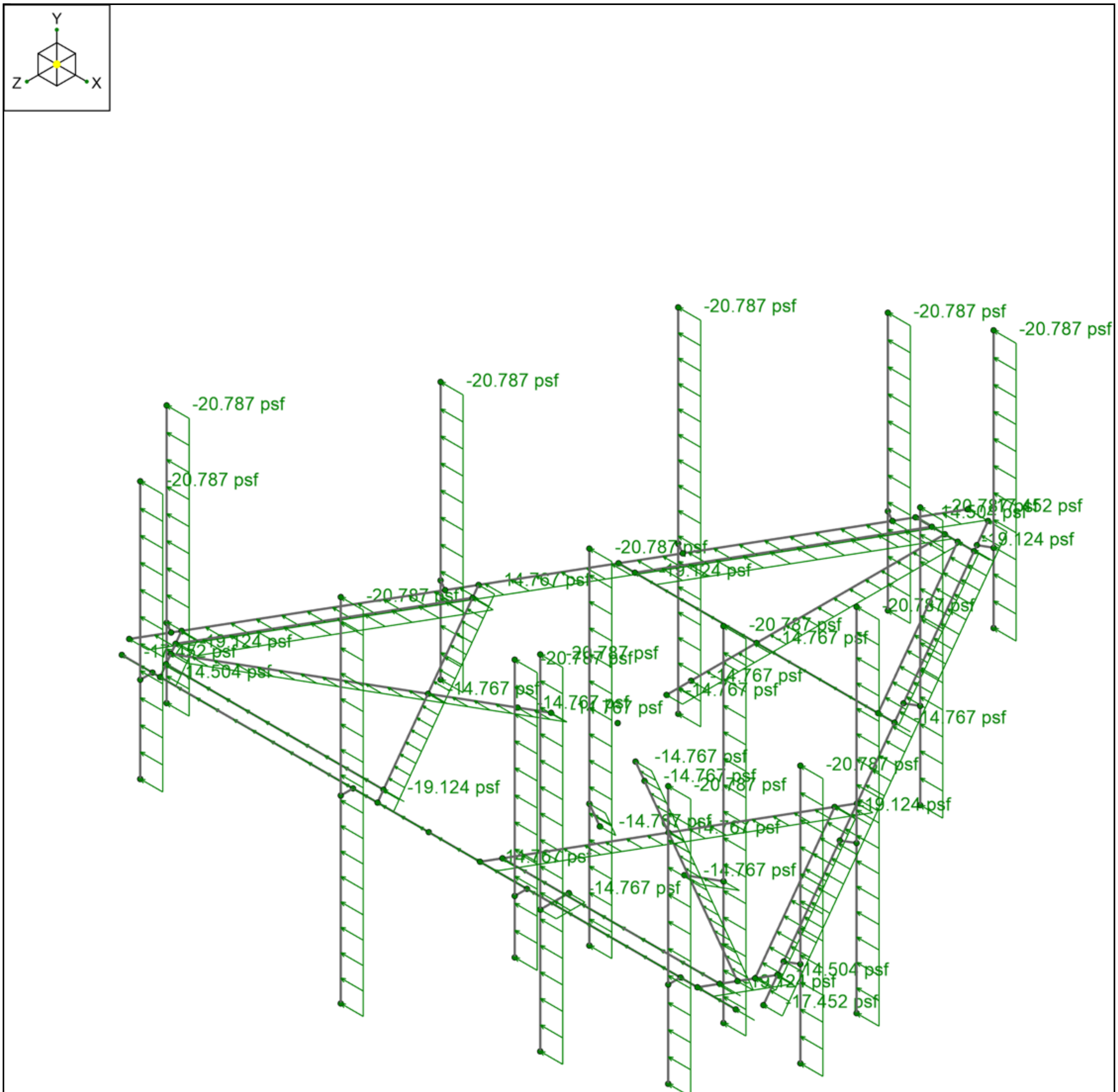
Loads: BLC 20, Ice Wind Load AZI 90

Infinigy Engineering, PLLC	842871	Ice Wind Loading 90
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 29, Distr. Ice Wind Load Z

Infinigy Engineering, PLLC	842871	Dist. Ice Wind Loading 0
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 30, Distr. Ice Wind Load X

Infinigy Engineering, PLLC	842871	Dist. Ice Wind Loading 90
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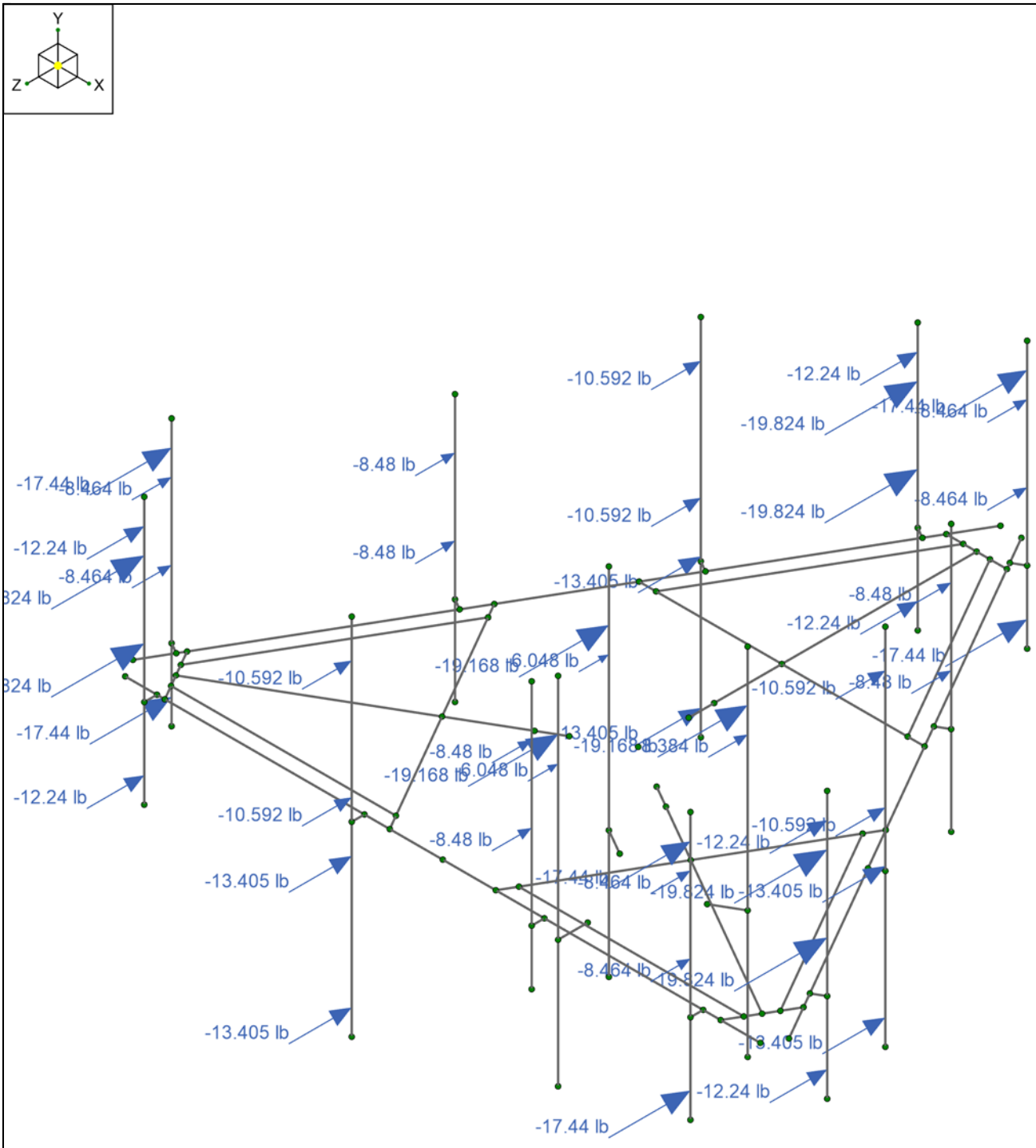
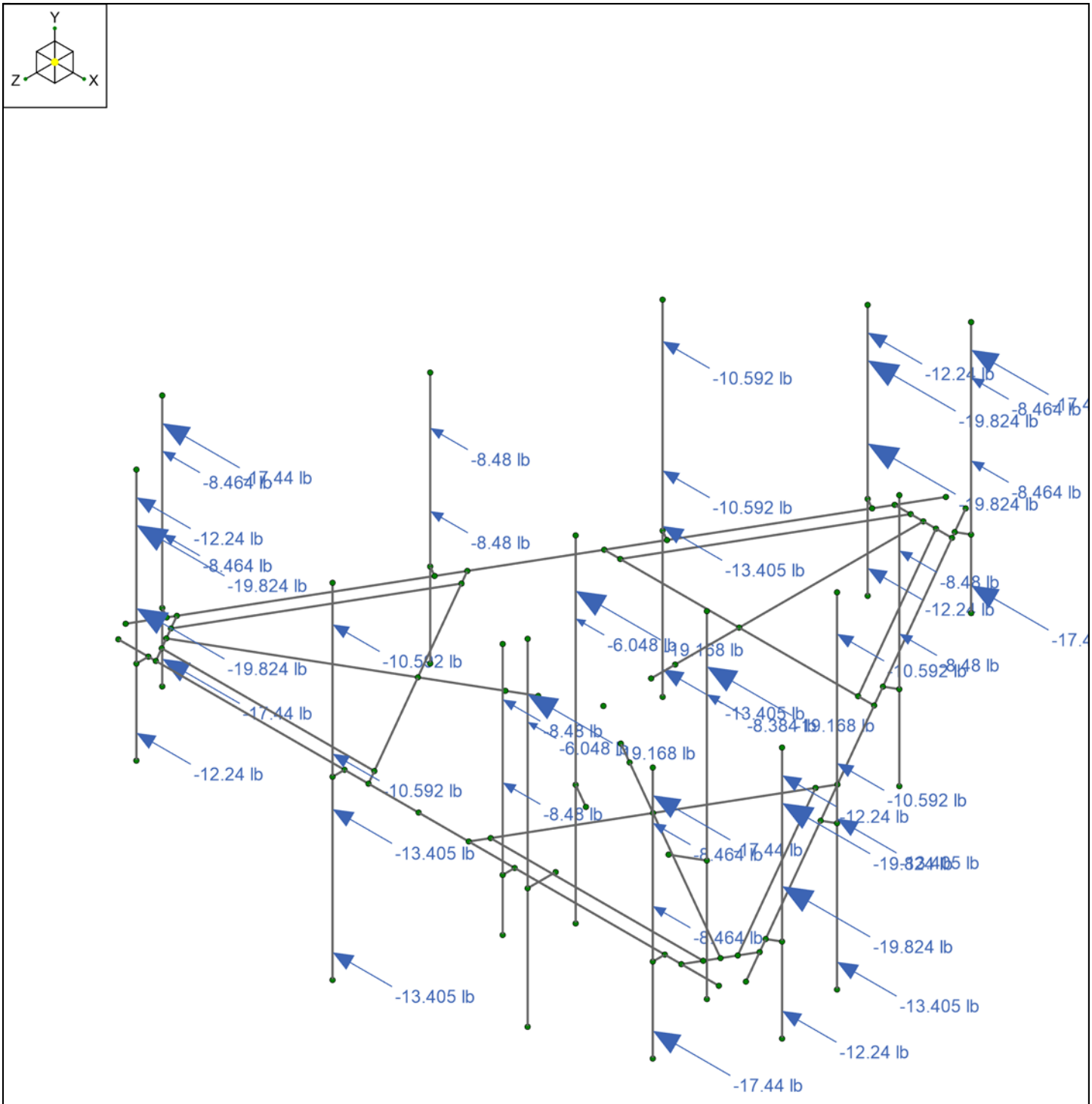


Loads: BLC 31, Seismic Load Z

Infinigy Engineering, PLLC	842871	Seismic Loading 0
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 32, Seismic Load X

Infinigy Engineering, PLLC	842871	Seismic Loading 90
AG		Sep 13, 2021
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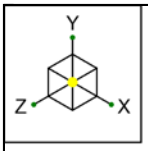
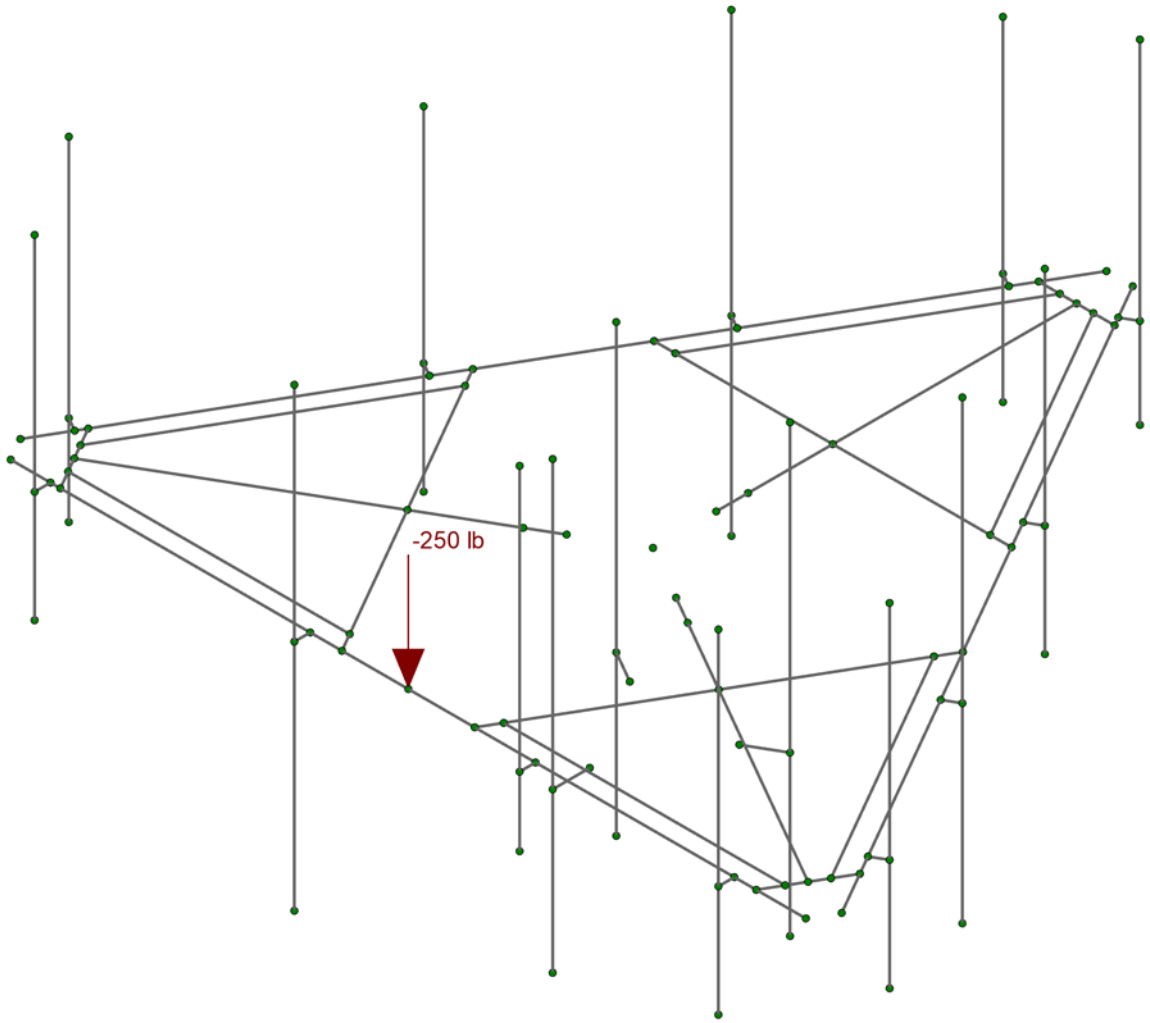
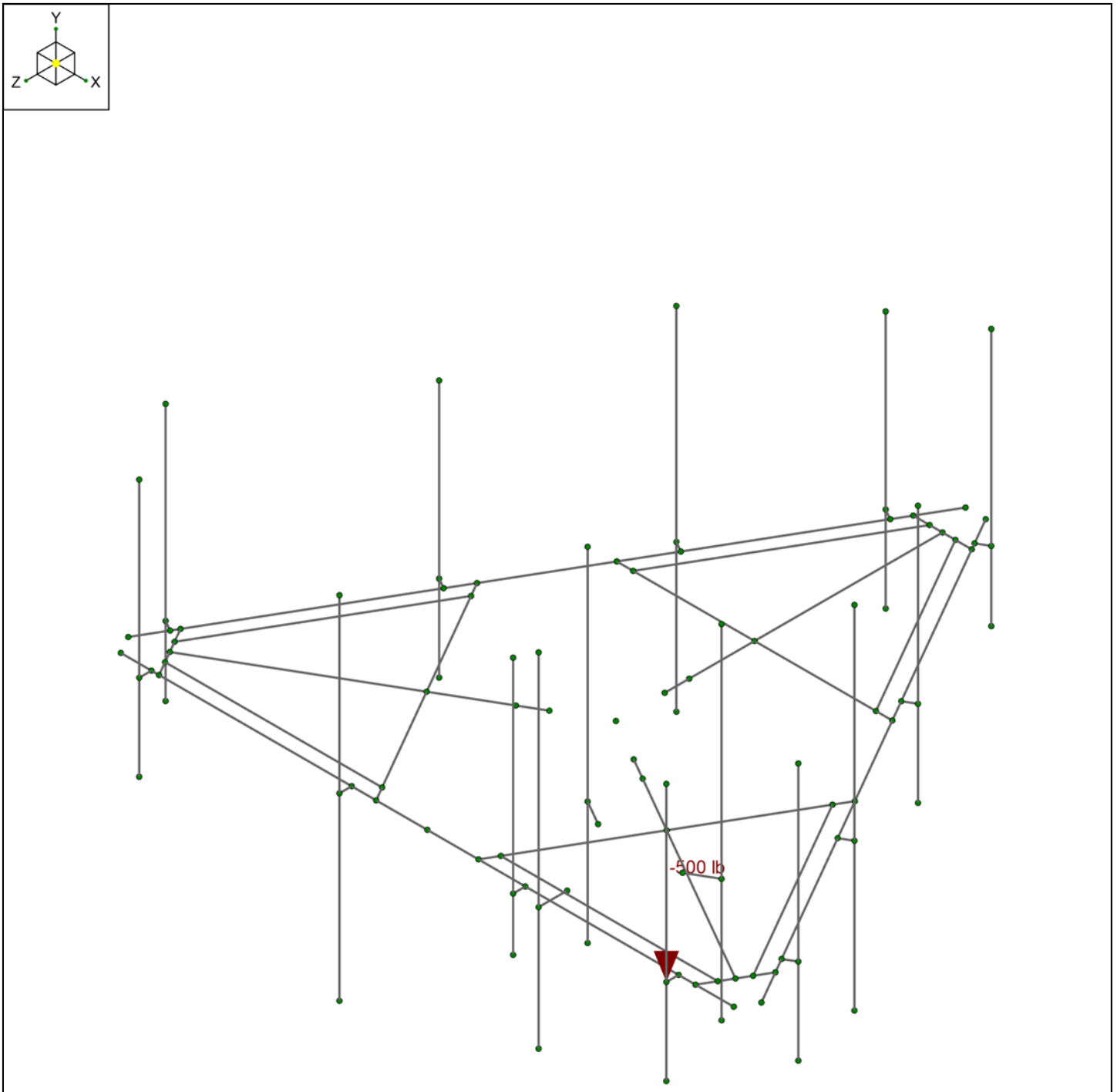




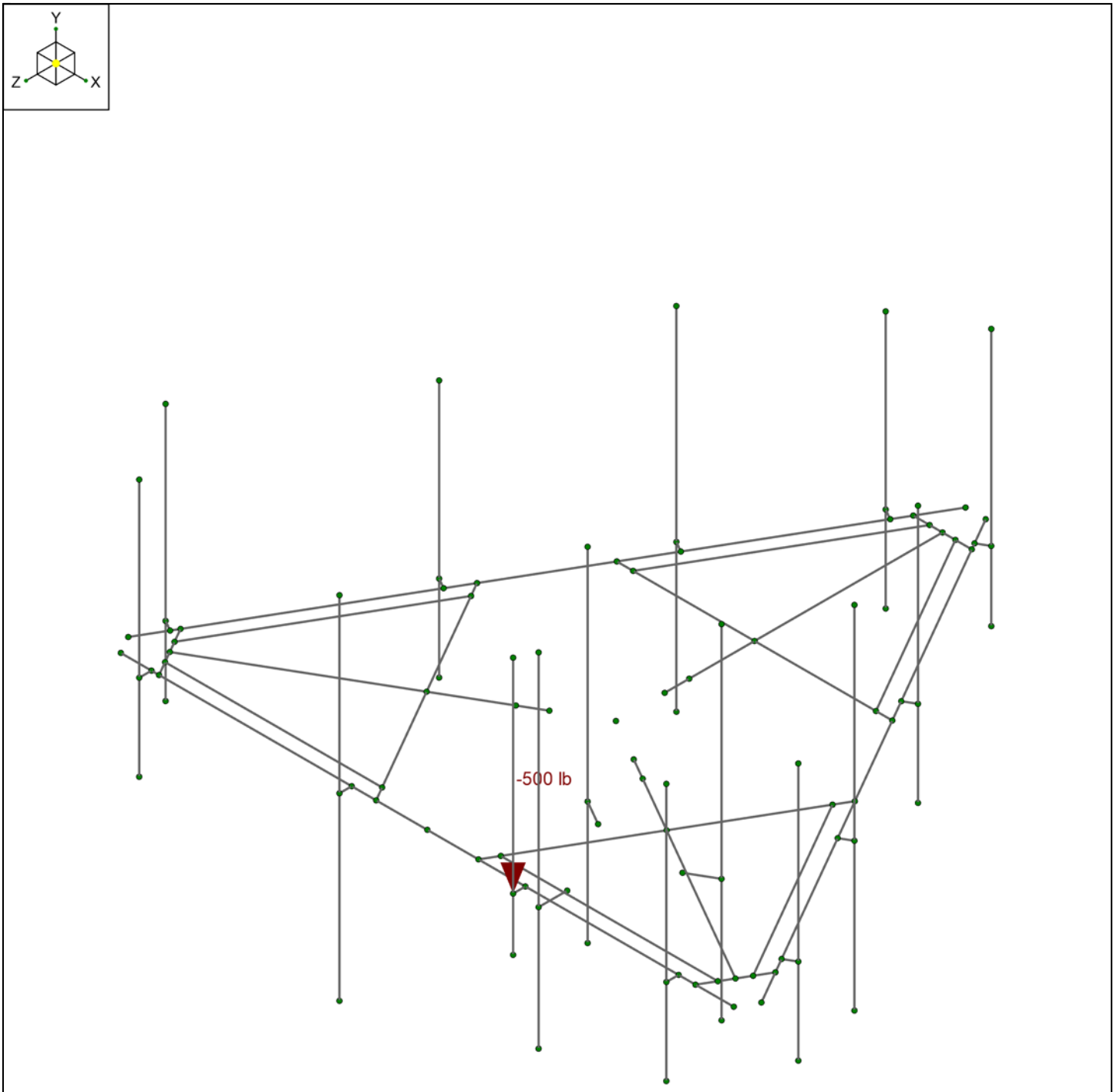
Loads: BLC 33, Service Live Loads

Infinigy Engineering, PLLC	842871	Service Load
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



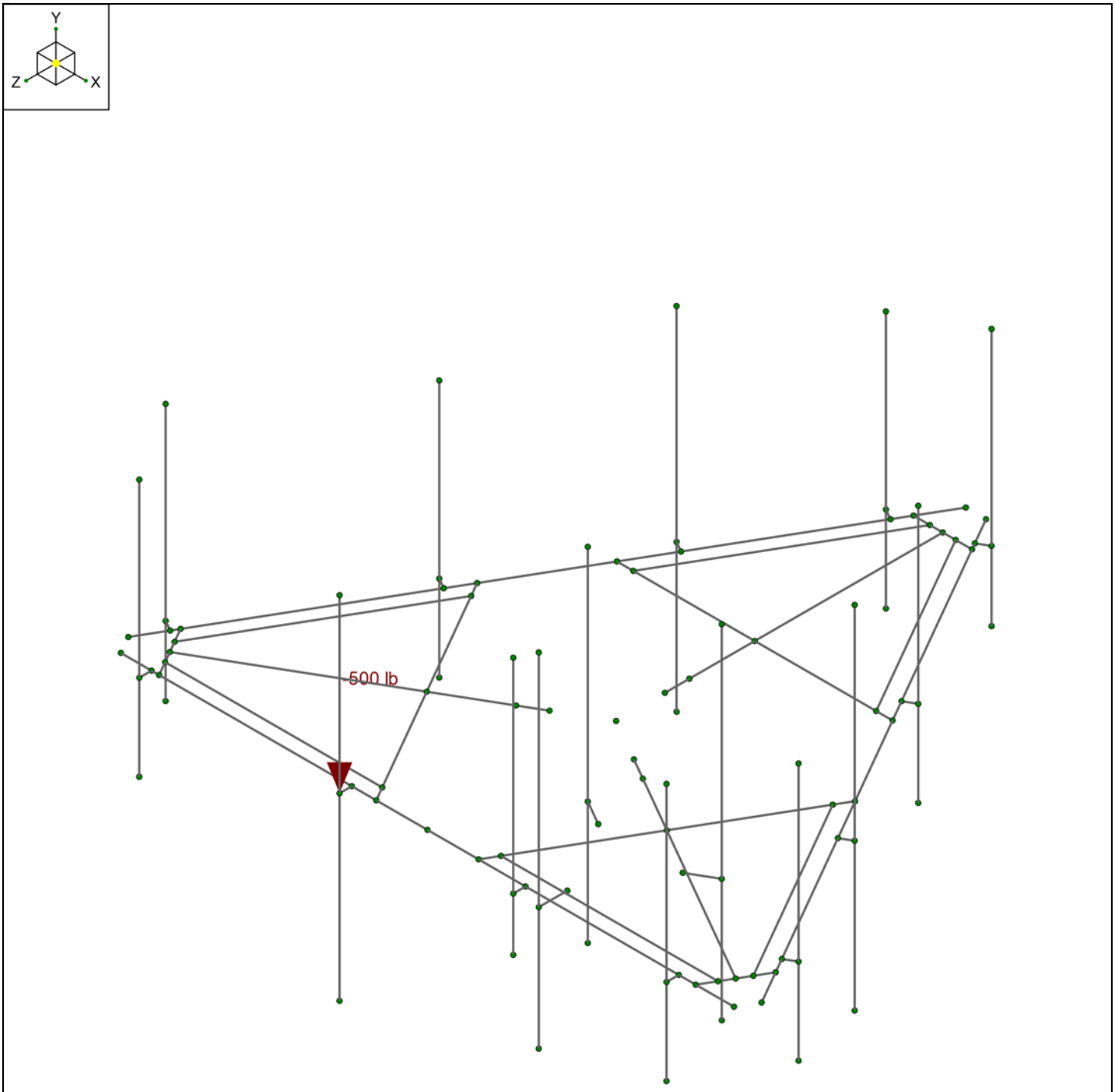
Loads: BLC 34, Maintenance Load 1

Infinigy Engineering, PLLC	842871	Maintenance Load 1
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



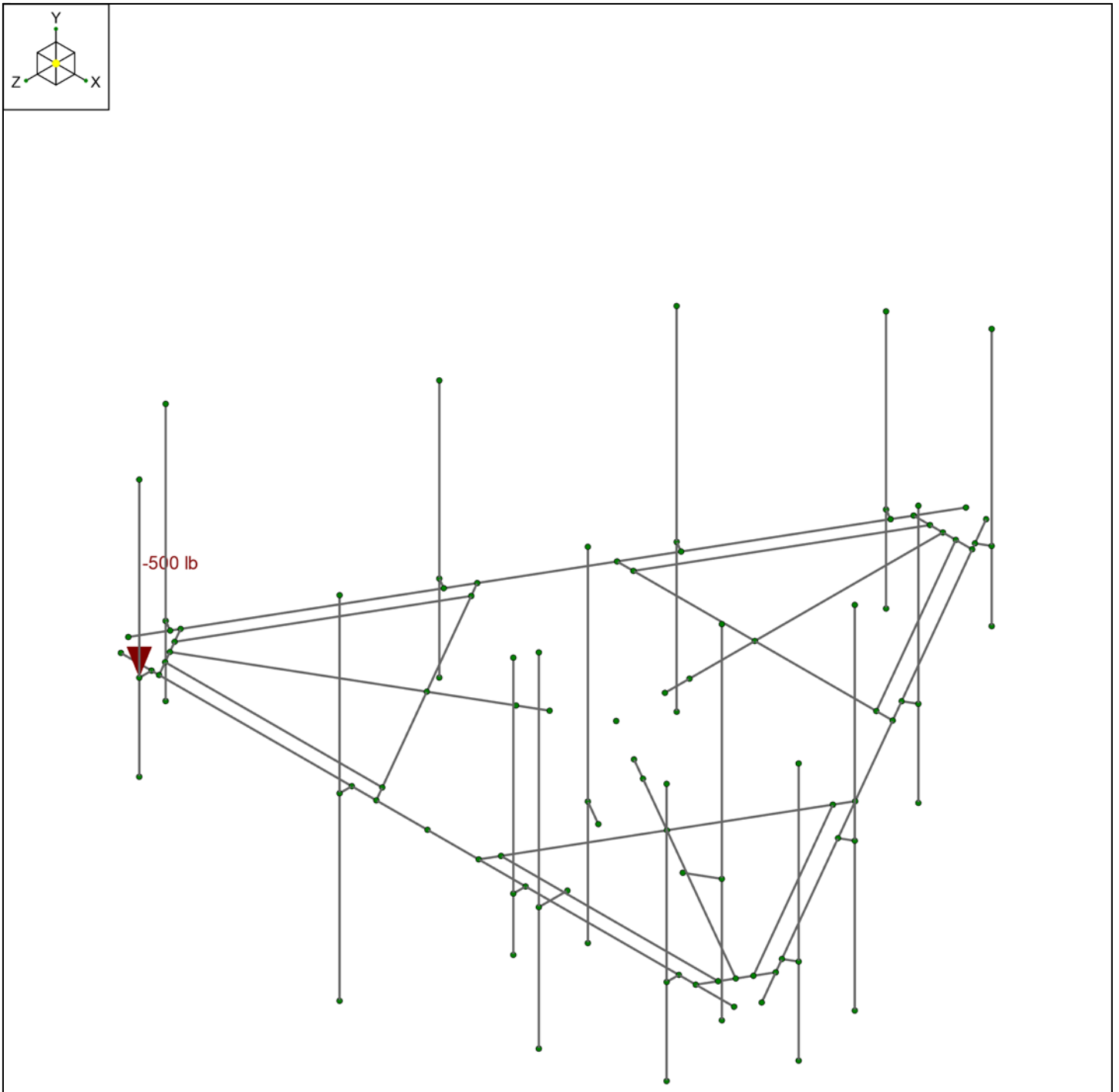
Loads: BLC 35, Maintenance Load 2

Infinigy Engineering, PLLC	842871	Maintenance Load 2
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 36, Maintenance Load 3

Infinigy Engineering, PLLC	842871	Maintenance Load 3
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d



Loads: BLC 37, Maintenance Load 4

Infinigy Engineering, PLLC	842871	Maintenance Load 4
AG		Sep 13, 2021
1039-Z0001-B		842871_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	AT&T Mobility
Engineer:	Andrew Gloriani

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	39.34	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	178.00	ft
Tower Height AGL:	180.00	ft

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

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

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

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	120	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.0	in
Flat Pressure:	99.945	psf
Round Pressure:	59.967	psf
Ice Wind Pressure:	10.411	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.200	g
1-Second Accel. (S_1):	0.053	g
Short-Period Design (S_{DS}):	0.213	
1-Second Design (S_{D1}):	0.085	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY

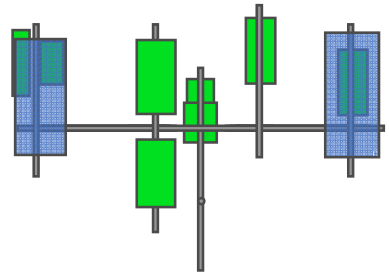
FROM ZERO TO INFINIGY

the solutions are endless

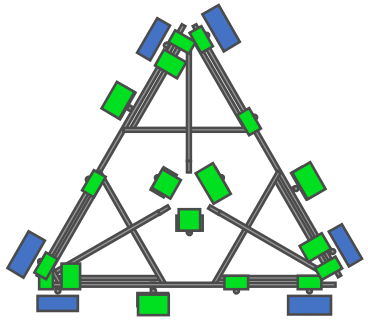
Infinigy Load Calculator V2.1.6

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.6

APPURTENANCE INFORMATION

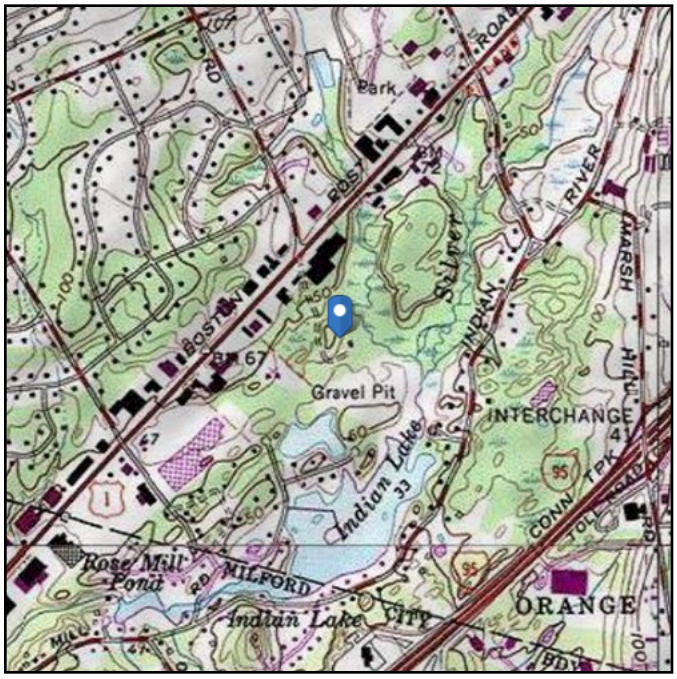
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
CCI ANTENNAS DMP65R-BU4D	177.0	3	0.90	49.91	7.48	2.81	336.02	126.23	76.50	24.48	MP4
ERICSSON AIR 6419 B77G	177.0	3	0.90	49.91	3.67	1.65	164.79	74.25	66.20	21.18	MP3
ERICSSON AIR 6449 N77	177.0	3	0.90	49.91	4.05	2.73	181.97	122.78	83.78	26.81	MP3
QUINTEL TECHNOLOGY QD4616-7	177.0	3	0.90	49.91	9.44	4.56	424.14	204.71	109.00	34.88	MP1
ERICSSON TME-RRUS 32 B2	179.0	3	0.90	50.03	2.73	1.67	122.99	75.11	52.90	16.93	MP1
ERICSSON TME-RRUS 32 B30	179.0	3	0.90	50.03	2.73	1.67	122.99	75.11	52.90	16.93	MP4
ERICSSON TME-RRUS 32 B66	179.0	3	0.90	50.03	2.74	1.67	123.50	75.11	53.00	16.96	MP2
ERICSSON RRUS 4449 B5/B12	177.0	3	0.90	49.91	1.97	1.41	88.38	63.26	71.00	22.72	MP4
ERICSSON TME-RRUS 4478 B14	179.0	3	0.90	50.03	1.84	1.06	82.96	47.67	59.90	19.17	M52
RAYCAP DC6-48-60-18-8F	178.0	2	0.90	49.97	0.92	0.92	41.23	41.23	18.90	6.05	M52
RAYCAP TME-DC9-48-60-24-8C-EV	177.0	1	0.90	49.91	4.78	2.74	214.94	122.94	26.20	8.38	Leg/Flush

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 39.34 ft (NAVD 88)
Latitude: 41.25555
Longitude: -73.010889



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	98 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 Sep 13 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.