Centerline Communications
Andres Lopez
750 West Center Street, Floor 3
West Bridgewater, MA 02379
908-358-5305
alopez@clinellc.com

July 23, 2019

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
577 Bell Street, Glastonbury, CT
Latitude: 41.7336000000
Longitude: -72.5496000000
T-Mobile Site#: CTHA536A_L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 65- foot level of the existing 104-foot tower at 577 Bell Street, Glastonbury, CT. The 104-foot tower is owned by Insite Wireless and the property is owned by 577 Bell Street LLC. T-Mobile now intends to replace six of its (6) existing antennas with three (3) new 600/700 MHz and (3) new 1900/2100 MHz antennas at the 65-foot level. The existing sector mounts will have adequate capacity for the proposed changes once each sector mount is modified. A new Reinforcement Kit will be installed and a new pipe mount, face, and new Crossover Plate Kits per the attached Mount Analysis.

Planned Modifications:

Remove:
(3) Smart Bias-Ts

Remove and Replace:
(3) AIR21 Antennas **(Remove)** - (3) AIR32 B66A_B2A 1900/2100 MHz **(Replace)**
(3) LNX 6515DS Antennas **(Remove)** – (3) RFS APXVAARR24 Antennas 600/700 MHz (**Replace)**

Install New:
(3) 4449 B71+12 Radios

Existing to Remain:
(3) Hybrid Coax
(6) Coax (to remain unconnected)
(3) Air 21 Antennas 2100 Mhz

Ground:
- Replacing 6201 cabinet with 6102
- Battery Cabinet to be removed
- Upgrade existing Breaker
- New Power and Telco conduits
- Upgrade RAN in proposed 6102 cabinet

This facility was approved by the Town of Glastonbury Zoning Board of Appeals in 1979. The zoning file is no longer available from the town. Please see attached email from the Town Planner assistant. Please see attached last Exempt Mod approval dated August 2, 2016.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Richard J. Johnson as Town Manager, Khara Dodds, Director of Land Use & Planning Services Town of Glastonbury, 577 Bell Street LLC as property owner, and Insite Wireless, as tower owner.

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

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed 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, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Respectfully submitted,

Andres Lopez

Andres Lopez
Mobile: 908-358-5305
Fax: 508-819-3017
Office: 750 West Center Street, Floor 3 West Bridgewater, MA 02379
Email: alopez@clinellc.com

Attachments

cc: Richard J. Johnson – as Town Manager
Khara Dodds –Director of Land Use & Planning Services
577 Bell Street LLC as property owner
Insite Wireless – as tower owner

Centerline Communications LLC

Connecticut Siting Council

CTHA536A

Check: 12097
Date: 6/14/2019
Vendor: 0

Invoice	P.O. Num.	Invoice Amt	Prior Balance	Retention	Discount	Amt. Paid
19503-007		625.00	625.00	0.00	0.00	625.00
		625.00	625.00	0.00	0.00	625.00

012097

Centerline Communications LLC
750 W. Center Street
Suite 301
W. Bridgewater, MA 02379
(781) 713-4725

ROCKLAND TRUST COMPANY
MEDFIELD, MA 02052

53-447/113

12097

DATE 6/14/2019

AMOUNT **********625.00

PAY THE SUM OF SIX HUNDRED TWENTY FIVE DOLLARS AND NO CENTS **********

TO THE ORDER OF Connecticut Siting Council

AUTHORIZED SIGNATURE

Security features. Details on back

⑈012097⑈ ⑆011304478⑆ 29220098 79⑈

Exhibit A

Original Facility Approval

Deborah Chase

From: Krystina Kramer
Sent: Wednesday, June 01, 2016 3:10 PM
To: denise@northeastsitesolutions.com
Subject: 577 Bell Street Glastonbury

Hi Denise,
I wanted to let you know that I searched through our records for the original approval of the tower located at 577 Bell Street, Glastonbury.
I do not see anything besides their Zoning Board of Appeals approval, which took place in 1979.
Unfortunately, due to our record retention statues, we do not have to keep particular documents after a certain period of time.
Our records for Zoning board of appeals, begin at 1988.

You may want to reach out to the planning department (Community Development) and ask them if they have a site approval, or if the property in question may have gone before the Town Plan & Zoning commission.
Their number is 860-652-7510.

Thank you,

Krystina Kramer

Krystina Kramer

Administrative Assistant
Office of Building Inspection - Zoning Enforcement - Fire Marshal
2155 Main Street, P.O. Box 6523
Glastonbury, CT 06033
Phone - 860-652-7521/Fax - 860-652-7523
krystina.kramer@glastonbury-ct.gov

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

August 2, 2016

Denise Sabo
Northeast Site Solutions
199 Brickyard Road
Farmington, CT 06032

RE: **EM-T-MOBILE-054-160713** – T-Mobile notice of intent to modify an existing telecommunications facility located at 577 Bell Street, Glastonbury, Connecticut.

Dear Ms. Sabo:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

1. The tower shall be modified in accordance with the recommendations and drawings noted in the structural analysis report prepared by Bennett & Pless dated April 29, 2016 and stamped by Michael T. De Boer;

2. Within 45 days following completion of the equipment installation, T-Mobile shall provide documentation certified by a Professional Engineer that its installation complied with the recommendations of the structural analysis;

3. Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;

4. Any material changes to this modification as proposed shall require the filing of a new notice with the Council;

5. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

6. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by T-Mobile shall be removed within 60 days of the date the antenna ceased to function;

7. The validity of this action shall expire one year from the date of this letter; and

8. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated July 12, 2016. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and

Environmental Protection pursuant to Connecticut General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below state and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/FOC/lm

c: The Honorable Stewart Beckett III, Chairman, Town of Glastonbury
Richard J. Johnson, Town Manager, Town of Glastonbury
Khara Dodds, Director of Planning and Land Use Services, Town of Glastonbury
Insite Towers LLC
577 Bell Street LLC

Exhibit B

Property Card

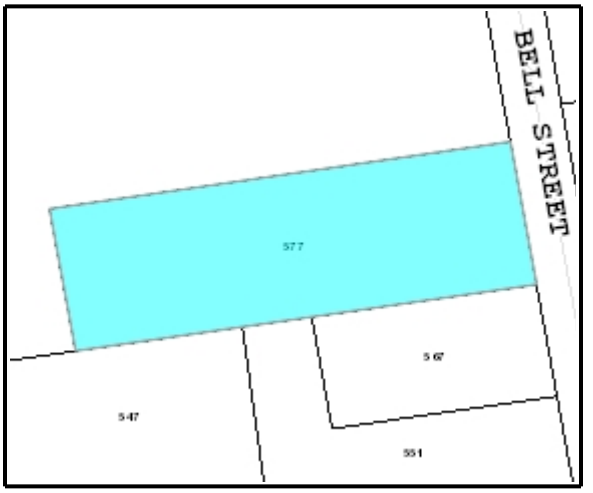
Town of Glastonbury GIS Parcel Report

Report Generated 7/16/2019 3:42:55 PM

Owner of Record

GIS ID: 03200577
Owner: 577 BELL STREET LLC
Co-Owner:
Address: 499 BELL ST
City, State ZIP: GLASTONBURY, CT 06033-1419

Account Number: 03200577
Property Address: 577 BELL ST



Property highlighted in blue

Parcel Information

Map/Street/Lot H3 / 0320 / W0011A **Property ID:** 12497
Developer Lot ID: 0001 **Water:** Well
Parcel Acreage: 1.20 **Sewer:** Septic
Zoning Code: RR **Census:** 5201

Valuation Summary

Item	Appraised Value	Assessed Value
Buildings	122000	85400
Land	271600	190100
Appurtenances	2100	1500
Total	**395700**	**277000**

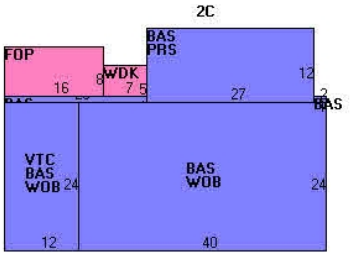
Owner of Record	Deed / Page	Sale Date	Sale Price
577 BELL STREET LLC	3312/0219	01/21/2016	0
SPENCER JOHN B IRREV TRUST	2938/0349	01/19/2012	0
SPENCER JOHN B REV TRUST	2400/0050	12/14/2006	0
SPENCER JOHN	0311/1146	12/19/1985	0

Building Information

Building ID 12497

Year Constructed : 1977
Building Type : Residential
Style : Ranch
Occupany : Single Family
Stories : 1
Building Zone : RR
Roof Type : Gable
Roof Material : Asphalt Shingl
Est. Gross S.F. : 3620
Est. Living S.F. : 1597

Number of Rooms : 4
Number of Bedrooms : 02
Number of Bathrooms : 1
Number of Half-Baths : 0
Exterior Wall : Vinyl
Interior Wall : Drywall
Interior Floor : Pine
Interior Floor #2 : No entry
Air Conditioning Type : None
Heat Type : Forced Air
Fuel Type : Oil



Subarea Type	Est. Gross S.F.	Est. Living S.F.
First Floor	1597	1597
Porch, Open	128	0
Piers	324	0
Vaulted Ceiling	288	0
Wood Deck	35	0
Walk out basement	1248	0

Outbuilding Type	Est. Gross S.F.	Comments
Shed-Wood/Comp	560.00	

Town of Glastonbury GIS

146 0 73 146 Feet

NAD_1983_StatePlane_Connecticut_FIPS_0600_Feet

Exhibit C

Construction Drawings

SITE NAME: INSITE GLASTONBURY LATTICE

577 BELL STREET
GLASTONBURY, CT 06033
HARTFORD COUNTY

SITE NUMBER: CTHA536A

PROJECT: T-MOBILE L600

CONFIGURATION: 67D95ADB V3

GENERAL NOTES

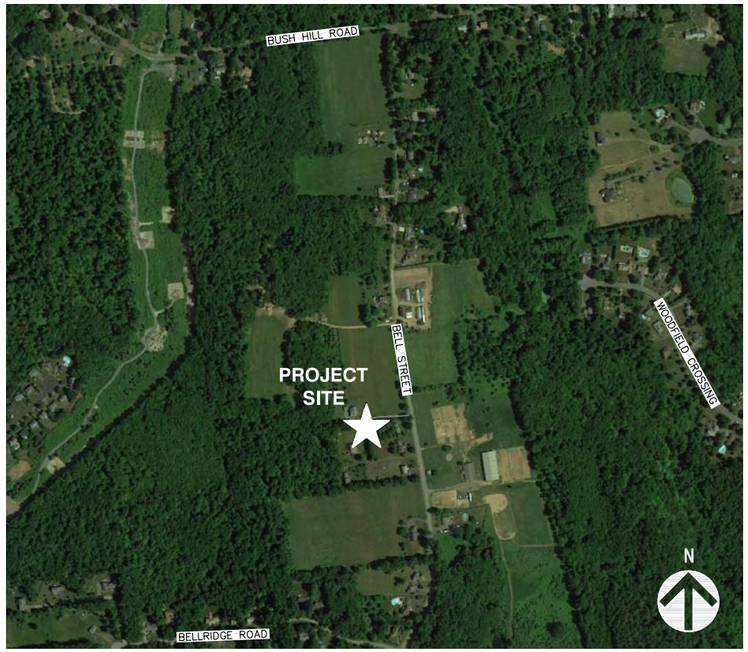
1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T–MOBILE NORTHEAST, LLC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T–MOBILE NORTHEAST. LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL CONSTRUCTION NOTES

1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE GLOBAL TOWER STRUCTURAL ANALYSIS PREPARED BY BENNETT & PLESS, INC. DATED 07/19/19.
2. PROTERRA DESIGN GROUP ASSUMES THAT THE SELF SUPPORT TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES.
3. ANY REQUIRED ANTENNA MOUNT WORK SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF ANY EQUIPMENT IN ACCORDANCE WITH THE ANTENNA MOUNT STRUCTURAL ANALYSIS (MSA) REPORT AND DRAWING PREPARED BY DESTEK ENGINEERING, LLC DATED 07/03/19.

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS NOT PERMITTED
SECTOR B:	ACCESS NOT PERMITTED
SECTOR C:	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED*
(*CAUTION: OSHA–APPROVED PORTABLE 8' STEP–LADDER REQUIRED)	
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE



DIG SAFE SYSTEM
(MA, ME, NH, RI, VT):
1–888–344–7233

CALL BEFORE YOU DIG
(CT): 1–800–922–4455

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T–MOBILE EQUIPMENT ALTERATION
ZONING JURISDICTION:	SPECIAL ZONING NOTE (ELIGIBLE FACILITY REQUEST): BASED ON INFORMATION PROVIDED BY T–MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW AND LIMITED/PARTIAL ZONING PRE–EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW OR ADMINISTRATIVE REVIEW).
SITE ADDRESS:	577 BELL STREET GLASTONBURY, CT 06033
LATITUDE:	41° 44' 00.96" N (FROM RFDS: 41.733600)
LONGITUDE:	72° 32' 58.56" W (FROM RFDS: –72.549600)
GROUND ELEVATION:	337'± (FROM GOOGLE EARTH)
JURISDICTION:	CONNECTICUT SITING COUNCIL / TOWN OF GLASTONBURY
BUILDING CODE:	2018 CONNECTICUT STATE BUILDING CODE WITH AMENDMENTS (IBC 2015 BASED)
ELECTRICAL CODE:	2017 NATIONAL ELECTRICAL CODE AND AMENDMENTS
CURRENT/ PROPOSED USE:	TELECOMMUNICATIONS FACILITY
TOWER OWNER:	INSITE TOWERS, LLC
TOWER OWNER SITE ID:	CT901
TOWER OWNER SITE NAME:	GLASTONBURY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	0
GN–1	GENERAL NOTES	0
A–1	COMPOUND & EQUIPMENT PLANS	0
A–2	ELEVATION & ANTENNA PLANS	0
A–3	DETAILS	0
S–1	ANTENNA MOUNTING DETAILS	0
E–1	ONE–LINE DIAGRAM & GROUNDING DETAILS	0

T-MOBILE NORTHEAST LLC
35 Griffin Road South
Bloomfield, CT 06002
Office: (860) 648–1116

CENTERLINE COMMUNICATIONS
750 West Center St. Suite 301
West Bridgewater, MA 02379

ProTerra DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph:(413) 320–4918

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER
7/19/19

APPROVALS

CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	19–023
DRAWN BY:	TBD/PN
CHECKED BY:	TEJ/JMM

0	07/19/19	ISSUED FOR CONSTRUCTION
A	07/15/19	ISSUED FOR REVIEW

SITE NUMBER: CTHA536A
SITE NAME:
INSITE GLASTONBURY LATTICE

577 BELL STREET
GLASTONBURY, CT 06033
HARTFORD COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T–1

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – CENTERLINE COMMUNICATIONS
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CUR\BS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR CONSTRUCTION SHALL BE AIR–ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 35 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH LTE OR 700 MHz SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T–MOBILE SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE, (IBC 2015) WITH AMENDMENTS

    ELECTRICAL CODE: NEC 2017 AND AMENDMENTS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, 14TH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222–G, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE–SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER SURCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	RAN	RADIO ACCESS NETWORK
AWG	AMERICAN WIRE GAUGE	G.C.	GENERAL CONTRACTOR	REF	REFERENCE
BTCW	BARE TINNED SOLID COPPER WIRE	GRC	GALVANIZED RIGID CONDUIT	REQ	REQUIRED
		MSA	MOUNT STRUCTURAL ANALYSIS	RF	RADIO FREQUENCY
BGR	BURIED GROUND RING	MGB	MASTER GROUND BAR	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	MIN	MINIMUM	TBR	TO BE REMOVED
EXISTING	EXISTING OR (E)	PROPOSED	NEW OR (P)	TBRR	TO BE REMOVED AND REPLACED
EGB	EQUIPMENT GROUND BAR	N.T.S.	NOT TO SCALE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	RAD	RADIATION CENTERLINE (ANTENNA)	VIF	VERIFY IN FIELD

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STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER
7/14/19

APPROVALS

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CHECKED BY:	TEJ/JMM

0	07/19/19	ISSUED FOR CONSTRUCTION
A	07/15/19	ISSUED FOR REVIEW

SITE NUMBER: CTHA536A
SITE NAME:
INSITE GLASTONBURY LATTICE

577 BELL STREET
GLASTONBURY, CT 06033
HARTFORD COUNTY

SHEET TITLE

GENERAL NOTES

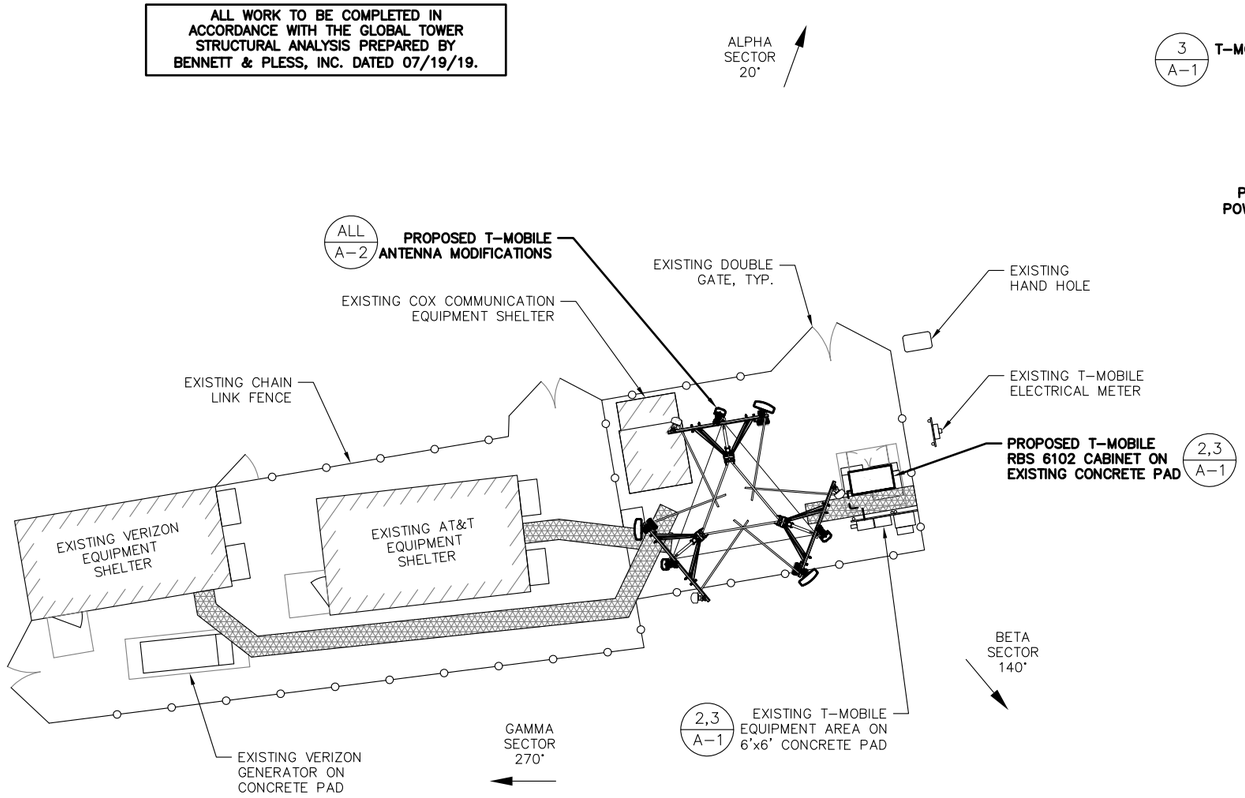
SHEET NUMBER

GN–1

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

MOUNT MODIFICATIONS TO BE COMPLETED PRIOR TO THE INSTALLATION OF ANY EQUIPMENT. REFER TO THE MOUNT STRUCTURAL ANALYSIS REPORT AND DRAWING BY DESTEK ENGINEERING, LLC DATED 07/03/19.

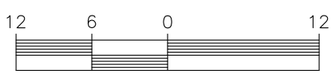
ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE GLOBAL TOWER STRUCTURAL ANALYSIS PREPARED BY BENNETT & PLESS, INC. DATED 07/19/19.

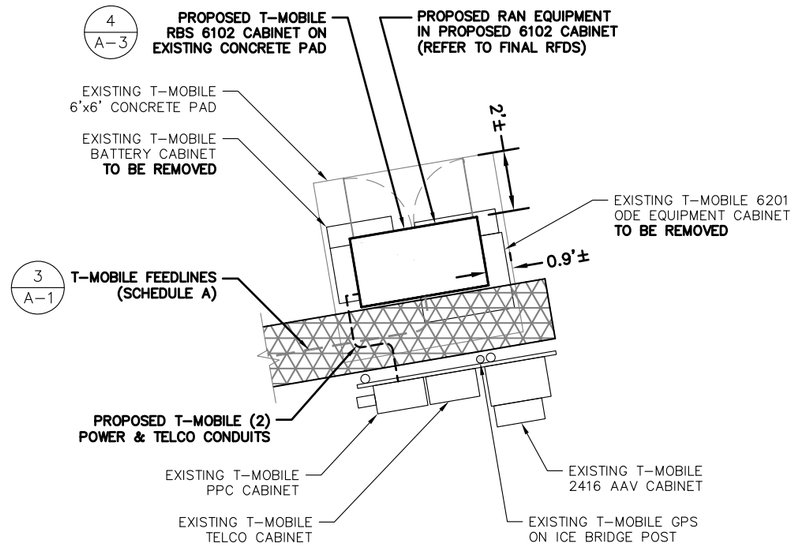


COMPOUND PLAN

1 / A-1

SCALE: 1"=15' (11"x17")
1"=7.5' (22"x34")





EQUIPMENT LAYOUT

2 / A-1

SCALE: 1"=5' (11"x17")
1"=2.5' (22"x34")

FEEDLINE SCHEDULE	FEEDLINE DESCRIPTION	LOCATION
A	EXISTING TO REMAIN: (6) 7/8" COAX (CAP & WRAP) (3) 6x12 HYBRID TO 65' RAD	UP SELF SUPPORT TOWER TO RAD

NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE LEASING ENTITLEMENTS BASED ON T-MOBILE RFDS. OBSERVED FIELD CONDITIONS MAY DIFFER.

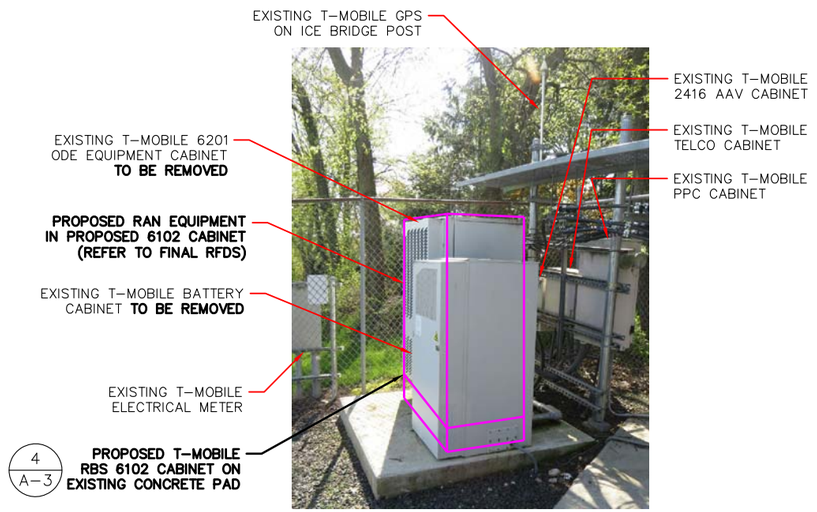


IMAGE SOURCE: PROTERRA 05/07/19

GROUND EQUIPMENT PHOTO DETAIL

3 / A-1

SCALE: N.T.S.

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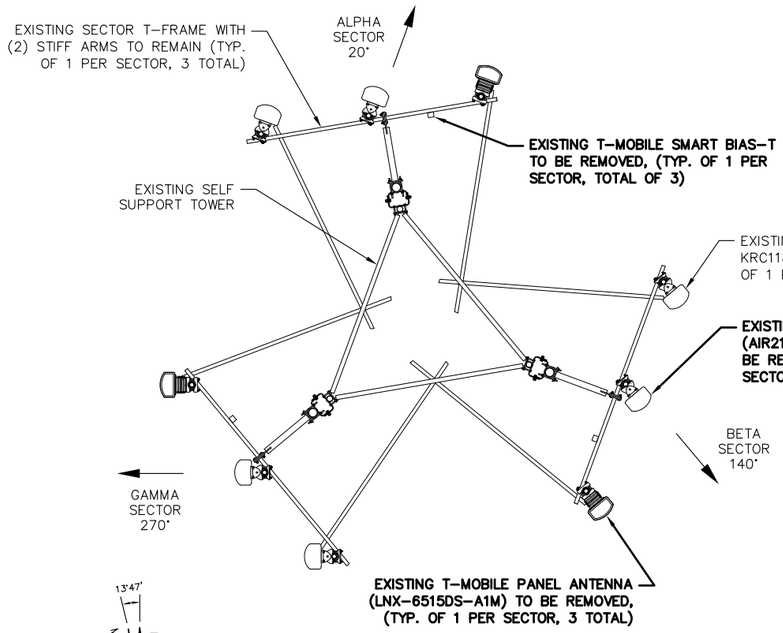
SHEET TITLE

COMPOUND & EQUIPMENT PLANS

SHEET NUMBER

A-1

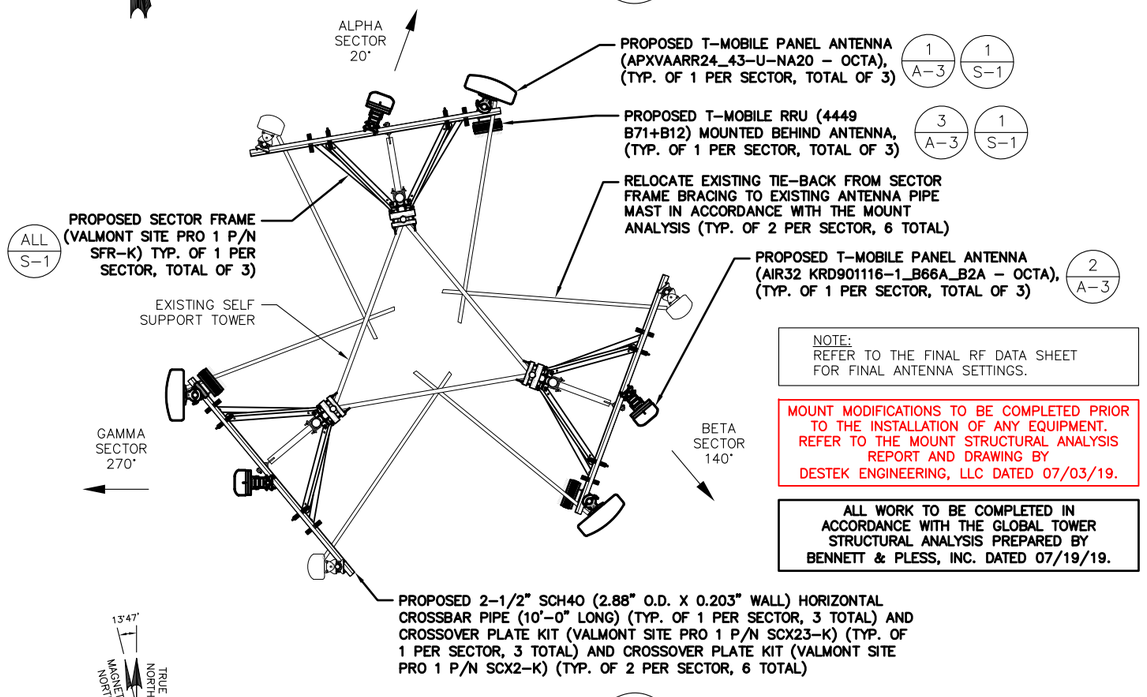


13°47'
TRUE NORTH
MAGNETIC NORTH

EXISTING ANTENNA PLAN

1 / A-2

SCALE: N.T.S.



NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

MOUNT MODIFICATIONS TO BE COMPLETED PRIOR TO THE INSTALLATION OF ANY EQUIPMENT. REFER TO THE MOUNT STRUCTURAL ANALYSIS REPORT AND DRAWING BY DESTEK ENGINEERING, LLC DATED 07/03/19.

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13°47'
TRUE NORTH
MAGNETIC NORTH

PROPOSED ANTENNA PLAN

2 / A-2

SCALE: N.T.S.

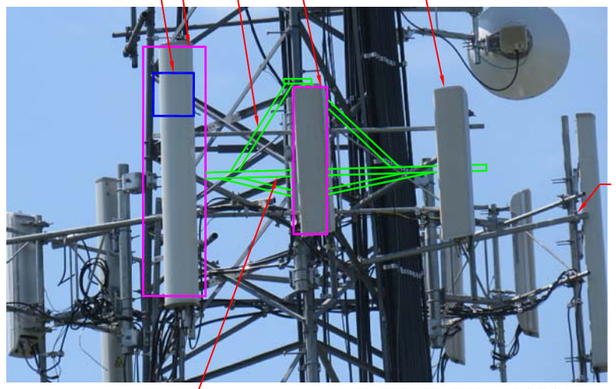
ALL / S-1 PROPOSED SECTOR FRAME (VALMONT SITE PRO 1 P/N SFR-K) TYP. OF 1 PER SECTOR, TOTAL OF 3)

1 / A-3 1 / S-1 PROPOSED T-MOBILE PANEL ANTENNA (APXVAARR24_43-U-NA20 - OCTA) TO REPLACE EXISTING, (TYP. OF 1 PER SECTOR, TOTAL OF 3)

3 / A-3 1 / S-1 PROPOSED T-MOBILE RRU (4449 B71+B12) MOUNTED BEHIND ANTENNA, (TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED T-MOBILE PANEL ANTENNA (AIR32 KRD901146-1_B66A_B2A - OCTA) TO REPLACE EXISTING, (TYP. OF 1 PER SECTOR, TOTAL OF 3) 2 / A-3

EXISTING T-MOBILE PANEL ANTENNA (AIR21 KRC118023-1_B2P_B4A) TO REMAIN, (TYP. OF 1 PER SECTOR, TOTAL OF 3)



RELOCATE EXISTING TIE-BACK FROM SECTOR FRAME BRACING TO EXISTING ANTENNA PIPE MAST IN ACCORDANCE WITH THE MOUNT ANALYSIS (TYP. OF 2 PER SECTOR, 6 TOTAL)

PROPOSED 2-1/2" SCH40 (2.88" O.D. X 0.203" WALL) HORIZONTAL CROSSOVER PIPE (10'-0" LONG) (TYP. OF 1 PER SECTOR, 3 TOTAL) AND CROSSOVER PLATE KIT (VALMONT SITE PRO 1 P/N SCX23-K) (TYP. OF 1 PER SECTOR, 3 TOTAL) AND CROSSOVER PLATE KIT (VALMONT SITE PRO 1 P/N SCX2-K) (TYP. OF 2 PER SECTOR, 6 TOTAL)

IMAGE SOURCE: PROTERRA 05/07/19
NOTE: ONLY ONE SECTOR SHOWN FOR CLARITY

ANTENNA PHOTO DETAIL

3 / A-2

SCALE: N.T.S.

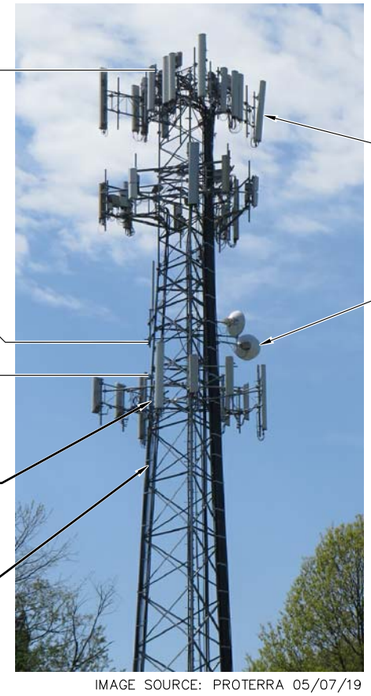
TOP OF EXISTING SELF SUPPORT TOWER
ELEV.= 104'± AGL
(RECORD STRUCTURAL)

TOP OF PROPOSED T-MOBILE ANTENNAS
ELEV.= 69'± AGL

℄ OF PROPOSED T-MOBILE ANTENNAS
ELEV.= 65'± AGL
(RECORD STRUCTURAL)
ALL / A-2

ALL / S-1 ALL / A-2 EXISTING AND PROPOSED T-MOBILE EQUIPMENT ON EXISTING SECTOR FRAME

3 / A-1 T-MOBILE FEEDLINES (SCHEDULE A)



EXISTING PANEL ANTENNA (BY OTHERS), TYP.

EXISTING DISH ANTENNA (BY OTHERS), TYP.

IMAGE SOURCE: PROTERRA 05/07/19

PARTIAL ELEVATION PHOTO DETAIL

4 / A-2

SCALE: N.T.S.

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HARTFORD COUNTY

SHEET TITLE

ELEVATION & ANTENNA PLANS

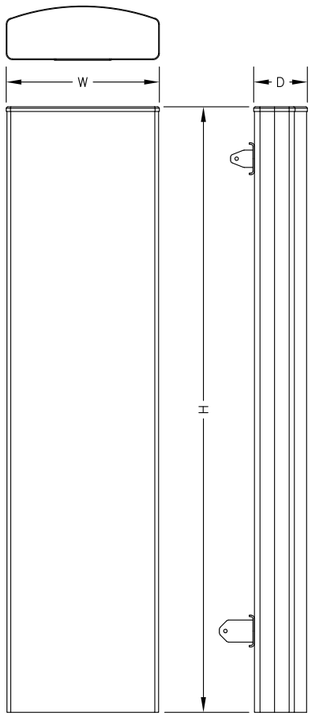
SHEET NUMBER

A-2

FINAL ANTENNA CONFIGURATION

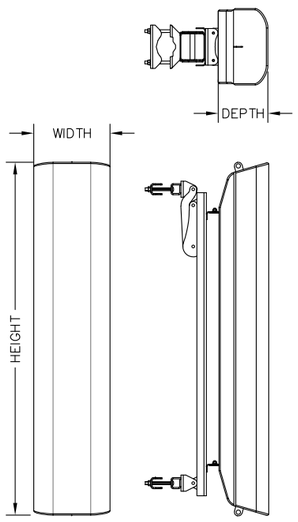
SECTOR	BAND	ANTENNA MODEL	ANTENNA RAD (FROM RFDS)	AZIMUTH	DOWNTILT MECH./ELEC.		RADIOS	CABLE FEED LINES (APPROX. CABLE LENGTH 100'±)
ALPHA	U2100	EXISTING (1) RFS ERICSSON – AIR21 KRC118023–1_B2A_B4P (QUAD)	65'±	20°	0°	2°	–	EXISTING (6) 7/8" COAX (CAP & WRAP) EXISTING (3) SHARED 6x12 HYBRID CABLE TRUNK
	L1900 L2100	PROPOSED (1) ERICSSON – AIR32 KRD901146–1_B66A_B2A (OCTO)	65'±	20°	0°	2°	–	
	N600 L600 L700	PROPOSED (1) RFS – APXVAARR24_43–U–NA20 (OCTO)	65'±	20°	0°	2°	PROPOSED (1) 4449 B71+B12 RRU	
BETA	U2100	EXISTING (1) RFS ERICSSON – AIR21 KRC118023–1_B2A_B4P (QUAD)	65'±	140°	0°	2°	–	HYBRID CABLES SHARED WITH ANOTHER SECTOR
	L1900 L2100	PROPOSED (1) ERICSSON – AIR32 KRD901146–1_B66A_B2A (OCTO)	65'±	140°	0°	2°	–	
	N600 L600 L700	PROPOSED (1) RFS – APXVAARR24_43–U–NA20 (OCTO)	65'±	140°	0°	2°	PROPOSED (1) 4449 B71+B12 RRU	
GAMMA	U2100	EXISTING (1) RFS ERICSSON – AIR21 KRC118023–1_B2A_B4P (QUAD)	65'±	270°	0°	2°	–	HYBRID CABLES SHARED WITH ANOTHER SECTOR
	L1900 L2100	PROPOSED (1) ERICSSON – AIR32 KRD901146–1_B66A_B2A (OCTO)	65'±	270°	0°	2°	–	
	N600 L600 L700	PROPOSED (1) RFS – APXVAARR24_43–U–NA20 (OCTO)	65'±	270°	0°	2°	PROPOSED (1) 4449 B71+B12 RRU	

BASED ON RFDS DATED 07/19/19. REFER TO FINAL RFDS FOR FINAL ANTENNA SETTINGS, CONFIGURATION, QUANTITIES AND RAN WIRING.



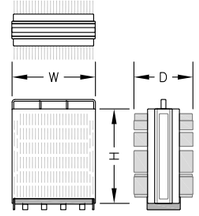
APXVAARR24_43-U-NA20 (OCTO) ANTENNA SPECIFICATIONS

MANUF.	RFS
MODEL #	APXVAARR24_43–U–NA20 (OCTO)
HEIGHT	95.9"
WIDTH	24"
DEPTH	8.7"
WEIGHT	128± LBS.



AIR ANTENNA SPECIFICATIONS

MANUF.	ERICSSON
MODEL #	AIR32 KRD901146–1_B66A _B2A (OCTO)
HEIGHT	56.6"
WIDTH	12.9"
DEPTH	8.7"
WEIGHT	132.2± LBS.

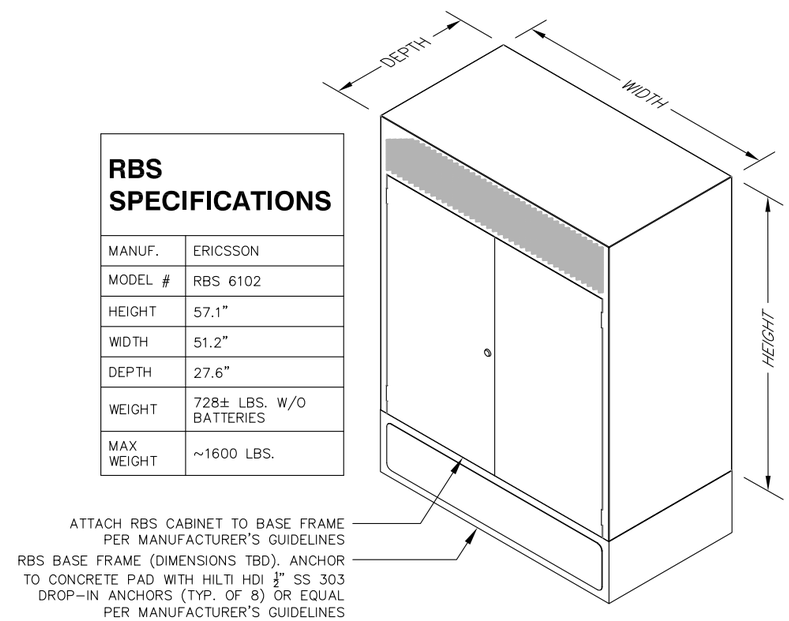


4449 B71+B12 SPECIFICATIONS

MANUF.	ERICSSON
MODEL #	4449 B71+B12
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	9.2"
WEIGHT	74± LBS.

RBS SPECIFICATIONS

MANUF.	ERICSSON
MODEL #	RBS 6102
HEIGHT	57.1"
WIDTH	51.2"
DEPTH	27.6"
WEIGHT	728± LBS. W/O BATTERIES
MAX WEIGHT	~1600 LBS.



L600 & L700 ANTENNA DETAIL — 1 / A–3
SCALE: N.T.S.

L1900 & L2100 ANTENNA DETAIL — 2 / A–3
SCALE: N.T.S.

REMOTE RADIO UNIT (RRU) DETAIL — 3 / A–3
SCALE: N.T.S.

RBS 6102 — 4 / A–3
SCALE: N.T.S.

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7/19/19

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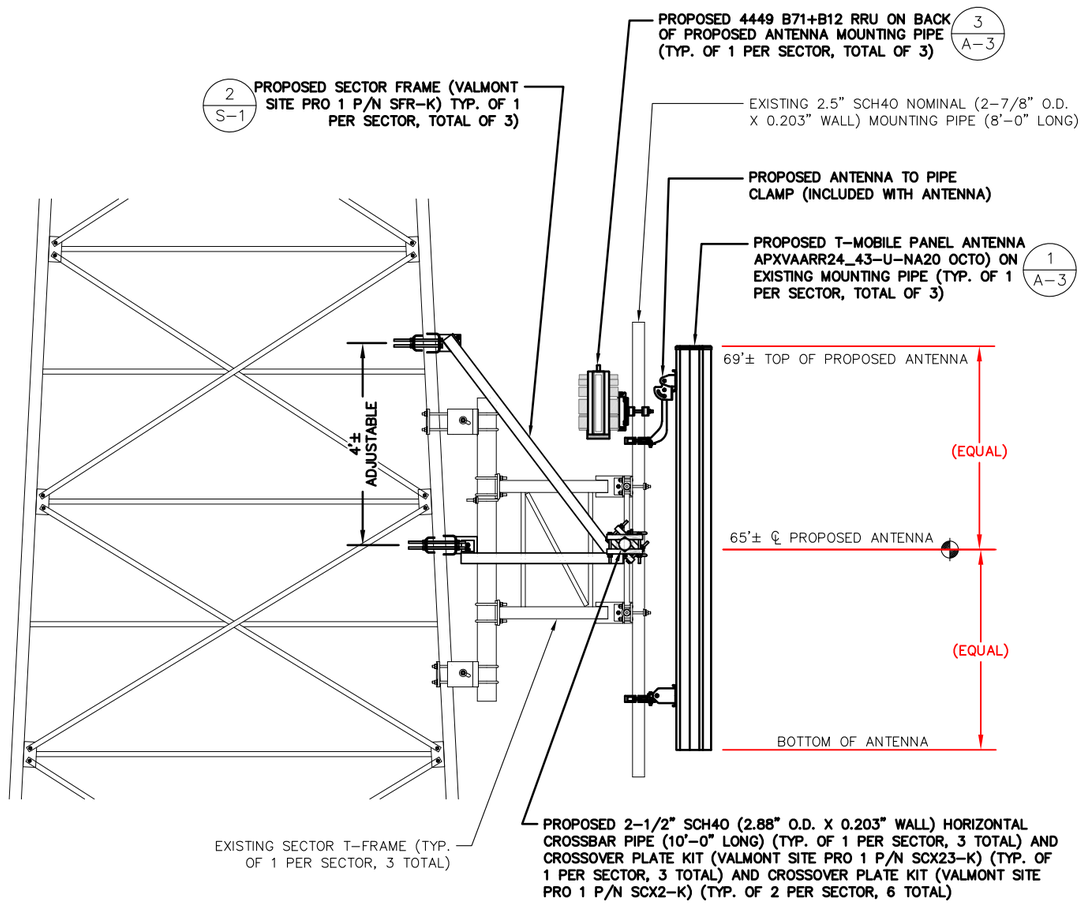
SHEET TITLE

DETAILS

SHEET NUMBER

A–3



TYPICAL ANTENNA AND PLATFORM MOUNTING DETAIL

1 / S-1

SCALE: N.T.S.

NOTE:
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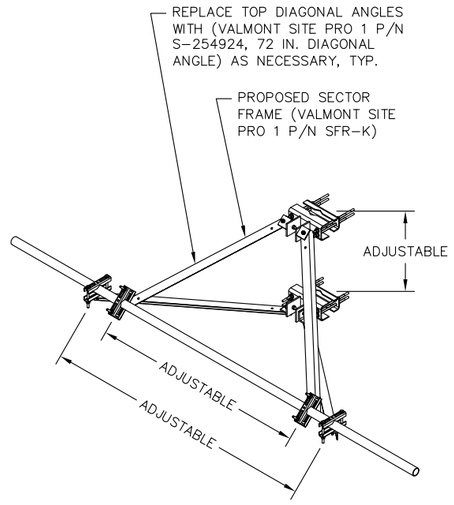

NOTE:
1. STRICTLY FOLLOW MANUFACTURER'S INSTRUCTION & SPECIFICATIONS AND MOUNT STRUCTURAL ANALYSIS PLAN SHEET S1 NOTES & UPGRADE DETAIL

SECTOR FRAME REINFORCEMENT SPECIFICATIONS

MANUF.	VALMONT SITE PRO 1
MODEL #	SFR-K
WEIGHT	132± LBS.

TYPICAL REINFORCEMENT KIT

2 / S-1

SCALE: N.T.S.

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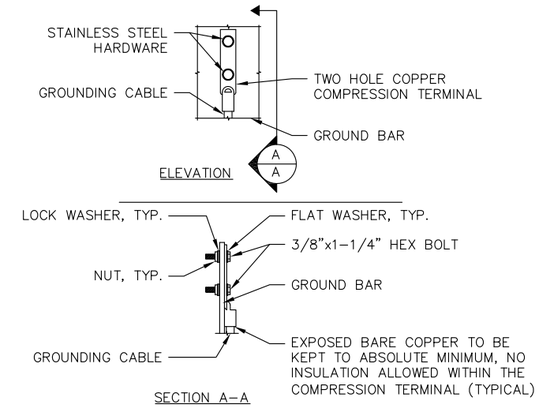
SHEET TITLE
ANTENNA MOUNTING DETAILS

SHEET NUMBER
S-1

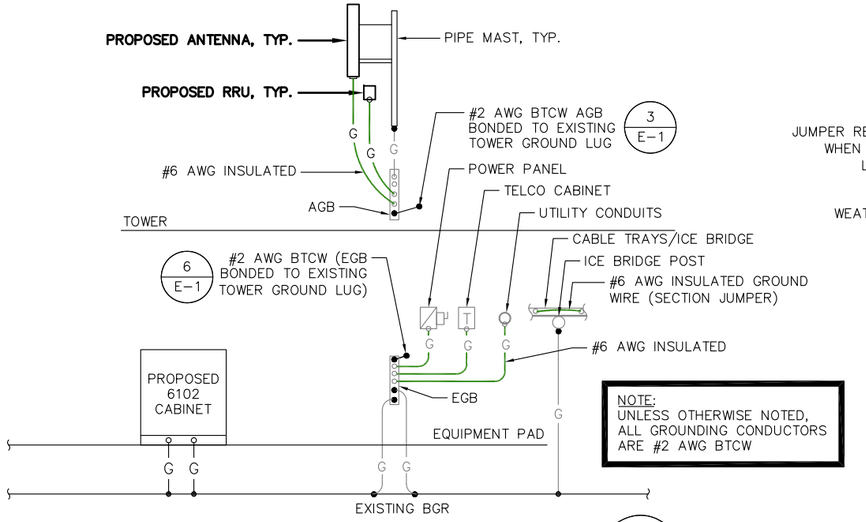


NOTES:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

1 / E-1

SCALE: N.T.S.

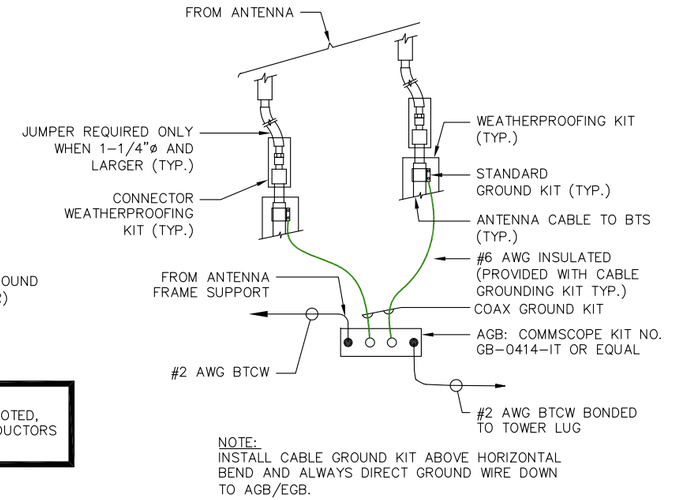


NOTE:
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW

TYPICAL GROUNDING RISER DIAGRAM

2 / E-1

SCALE: N.T.S.



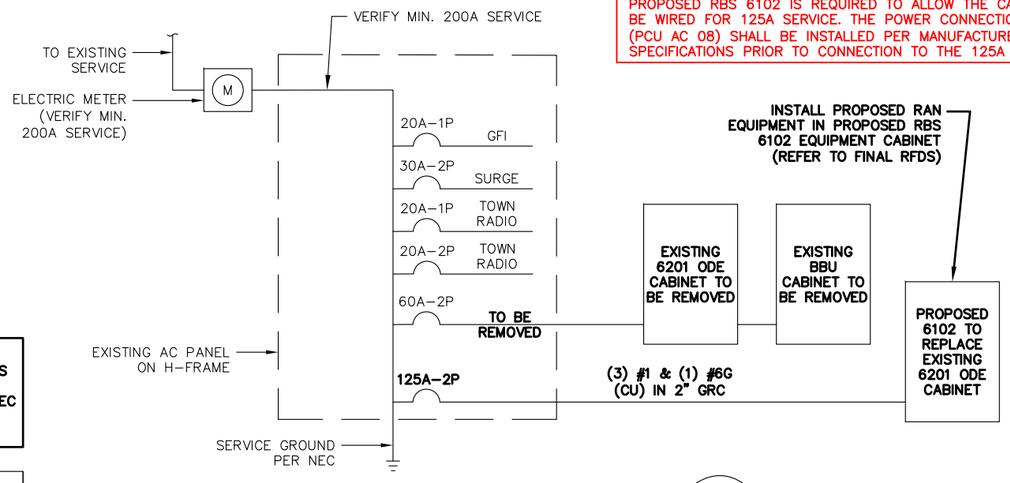
NOTE:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB.

TOWER TOP CABLE GROUNDING DETAIL

3 / E-1

SCALE: N.T.S.

***SPECIAL WORK NOTE:**
AN INTERNAL EQUIPMENT CABINET UPGRADE WITHIN THE PROPOSED RBS 6102 IS REQUIRED TO ALLOW THE CABINET TO BE WIRED FOR 125A SERVICE. THE POWER CONNECTION UNIT (PCU AC 08) SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS PRIOR TO CONNECTION TO THE 125A BREAKER.



ONE LINE POWER SCHEMATIC

4 / E-1

SCALE: N.T.S.

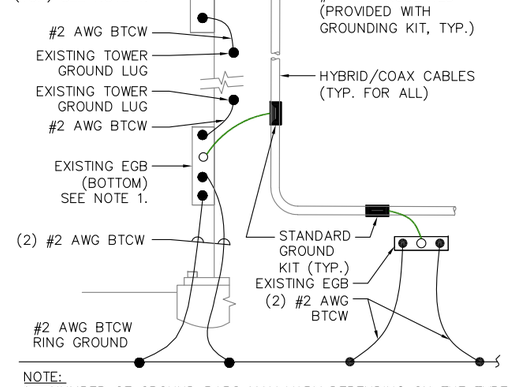
CONTRACTOR NOTE:
G.C. TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

ELECTRICAL LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTCW	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
⏚	GROUND
MGB	MASTER GROUND BAR — ○ MECHANICAL CONNECTION ● CADWELD CONNECTION
AGB/EGB	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
⊙	5/8"x10' COPPER CLAD STAINLESS STEEL GROUND ROD
—○—●	● EXOTHERMIC (CAD WELD) OR ○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊠	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

ELECTRICAL & GROUNDING NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) 2017 AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION AS REQUIRED BY NEC.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
14. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LYGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. BOND ANTENNA EGB'S AND MGB TO WATER MAIN/GROUND RING.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.



NOTE:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE ADDITIONAL AGB/EGB AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED

TOWER BOTTOM CABLE GROUNDING DETAIL

5 / E-1

SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
35 Griffin Road South
Bloomfield, CT 06002
Office: (860) 648-1116

CENTERLINE COMMUNICATIONS
750 West Center St. Suite 301
West Bridgewater, MA 02379

ProTerra DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph:(413) 320-4918

STATE OF CONNECTICUT · THOMAS E. JOHNSON · No. 28192 · LICENSED PROFESSIONAL ENGINEER
7/19/19

APPROVALS

CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	19-023
DRAWN BY:	TBD/PN
CHECKED BY:	TEJ/JMM

0	07/19/19	ISSUED FOR CONSTRUCTION
A	07/15/19	ISSUED FOR REVIEW

SITE NUMBER: CTHA536A
SITE NAME:
INSITE GLASTONBURY LATTICE

577 BELL STREET
GLASTONBURY, CT 06033
HARTFORD COUNTY

SHEET TITLE

ONE LINE DIAGRAM & GROUNDING DETAILS

SHEET NUMBER

E-1

Exhibit D

Structural Analysis Report

Structural Analysis Report

Structure	**:** 104 foot Self-support Tower
Insite Site Name	**:** Glastonbury
Insite Site Number	**:** CT901
Proposed Carrier	**:** T-Mobile
Carrier Site Name	**:** CTHA536A
Carrier Site Number	**:** CTHA536A
Site Location	**:** 577 Bell Street Glastonbury, CT (Hartford County) 41.7338, -72.5497
Date	**:** July 19, 2019
Max Member Stress Level	**:** 97.2%
Result	**: PASS**

Prepared by:
Bennett & Pless, Inc.
B&P Job No.: 19313.006 7/19/19

bennett&pless
Experience Structural Expertise

Atlanta | Boca Raton | Charlotte | Chattanooga
47 Perimeter Center East, Suite 500, Atlanta, GA 30346 | T: 678 990 8700 F: 678 990 8701
www.bennett-pless.com

Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by T-Mobile. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Member sizes and configuration were obtained from the previous structural analysis by the URS Corporation dated 9/7/2010
Foundation Information	Previous modification drawings and analysis by Centek dated 2/22/12
Geotechnical Information	Previous modification drawings and analysis by Centek dated 2/22/12
Existing Equipment Information	Post Modification Report by Bennett and Pless dated 7/19/17 Insite Customer Application dated 5/15/19
Tower Reinforcement Information	Previous modification drawings by Centek dated 2/22/12, post modification inspection report by ETS dated 3/31/16, and previous modification drawings by Bennett and Pless dated 4/29/16 and current modification drawings by Bennett and Pless dated 1/20/17 were also used.

Final Proposed Equipment Loading for T-Mobile

The following proposed loading was obtained from the Insite Collocation Application:

Antenna/Equipment					Coax	
Mount	RAD	Qty.	Antenna	Type	Qty.	Size/Type
65.0	-	**3**	**Sector Mount with Modifications[1]**	**Mount**	3 6	1-5/8" Hybrid 7/8" Coax
	65.0	3	Ericsson AIR21	Panel		
		3	**Ericsson AIR32**	**Panel**		
		3	**RFS APXVAARR24_43-U-NA20**	**Panel**		
		3	**Ericsson 4449 B71+B12**	**RRH**		

Note: Proposed equipment is shown in bold above.
***Note: T-Mobile reserved loading.**
[1]Note: New mounts and modifications per Destek Engineering report and drawings dated July 3, 2019.
Note: Other existing loading can be found on the tower profile attached.

Design Criteria

The tower was analyzed using tnxTower (Version 8.0.5.0) tower analysis software using the following design criteria.

State/County	Connecticut/Hartford County
State Building Code	Connecticut State Building Code (IBC 2015)
TIA/EIA Standard Code	TIA-222-G
Basic Wind Speed	125 MPH (V_{ult})/97 MPH (V_{asd})
Basic Wind Speed w/ Ice	40 MPH/ 1" Ice
Steel Grade	See attached tower profile for details
Exposure Category	B
Topographic Category (height)	1
Structure Class	II

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is structurally capable of supporting the proposed equipment loads without further modifications.** The existing foundation has also been evaluated. The foundations were previously reinforced and the current overturning reactions at the base are 102% of the previous foundation modifications capacity which are within acceptable limits per IBC 2015.

Assumptions

The below assumptions are true, complete and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%.
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower described above **does have sufficient capacity** to support the proposed loading based on the governing Building Code. The existing tower foundation also has sufficient capacity.

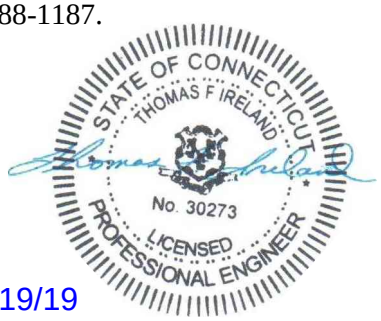
We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance, please call us anytime at 561-288-1187.

Sincerely,

Analysis by:

Chunhui Song, P.E.
Design Engineer

Reviewed by:



7/19/19

Thomas F. Ireland, PE
Principal, SFL Office

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Bennett & Pless Inc., or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Bennett & Pless Inc. and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222 requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Bennett & Pless Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

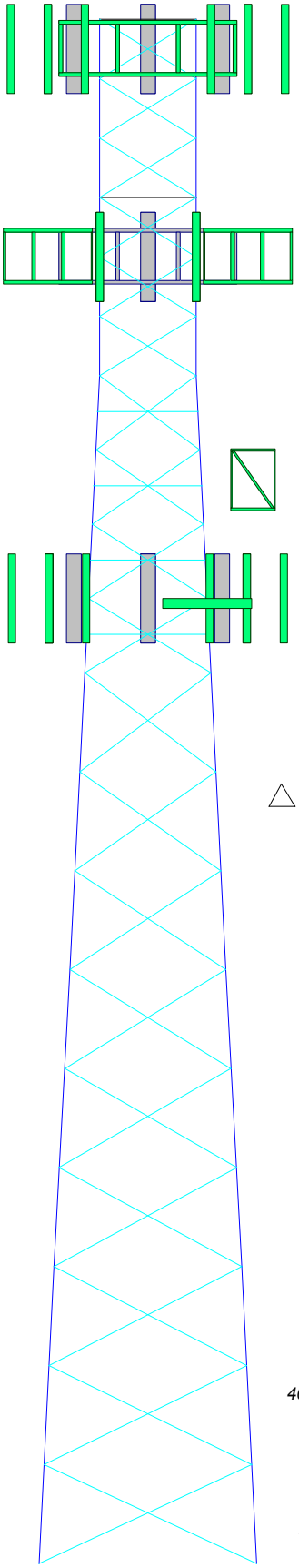
Disclaimer of Warranties

Bennett & Pless Inc. makes no warranties, expressed or implied, in connection with this report, and disclaims any liability arising from the ability of the existing structure to support the design loads for which it was originally designed. Bennett & Pless Inc. will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Bennett & Pless Inc. pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1:
Calculations

Section	T1	T2	T3	T4	T5	T6						
Legs	P2x.154		P2.5x.203	P2.875x0.203w3/8HP+FF		P3.5x0.3w3/8HP+FF						
Leg Grade	A618-50											
Diagonals	L1 1/2x1 1/2x3/16		L2x2x3/16	L2x2x3/8		L2 1/2x2 1/2x3/8						
Diagonal Grade	A36											
Top Girts	L2x2x3/16		N.A.									
Sec. Horizontals	N.A.		L2x2x3/16		N.A.							
Face Width (ft)	14.65	6.52	6.56	8.56	10.56	12.6						
# Panels @ (ft)	6 @ 4		4 @ 5		9 @ 6.66667							
Weight (K)	10.1	0.4	0.4	1.1	2.2	2.6	3.3					

104.0 ft
92.0 ft
80.0 ft
60.0 ft
40.0 ft
20.0 ft
0.0 ft



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A618-50	50 ksi	70 ksi	A36	36 ksi	58 ksi

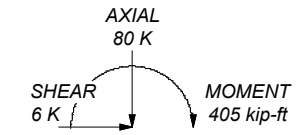
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40 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 Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Weld together tower sections have flange connections.
9. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
10. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
11. Welds are fabricated with ER-70S-6 electrodes.
12. TOWER RATING: 97.2%

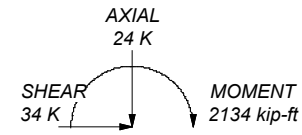
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 176 K
SHEAR: 20 K

UPLIFT: -157 K
SHEAR: 19 K



TORQUE 3 kip-ft
40 mph WIND - 1.0000 in ICE



TORQUE 17 kip-ft
REACTIONS - 97 mph WIND

Bennett and Pless	Job: CT901 Glastonbury		
	Project: SST Analysis		
	Client: Insite Towers, LLC	Drawn by: Cory Blake	App'd:
Phone:	Code: TIA-222-G	Date: 07/23/19	Scale: NTS
FAX:	Path:		Dwg No. E-1

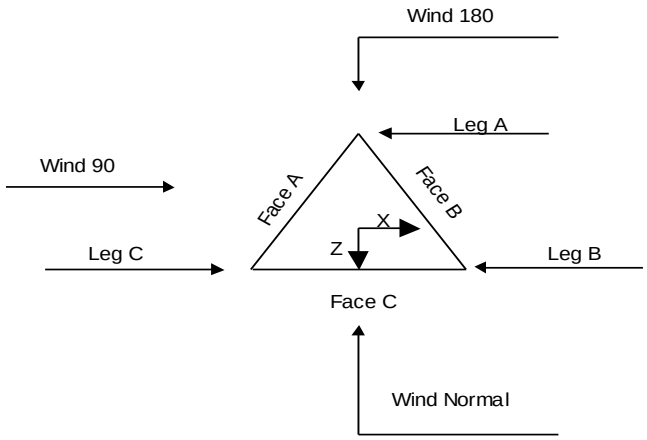
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 104.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.52 ft at the top and 14.65 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
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 40 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice		Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G 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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	104.00-92.00			6.52	1	12.00
T2	92.00-80.00			6.52	1	12.00
T3	80.00-60.00			6.56	1	20.00
T4	60.00-40.00			8.56	1	20.00
T5	40.00-20.00			10.56	1	20.00
T6	20.00-0.00			12.60	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	104.00-92.00	4.00	X Brace	No	No	0.0000	0.0000
T2	92.00-80.00	4.00	X Brace	No	No	0.0000	0.0000
T3	80.00-60.00	5.00	X Brace	No	Yes	0.0000	0.0000
T4	60.00-40.00	6.67	X Brace	No	No	0.0000	0.0000
T5	40.00-20.00	6.67	X Brace	No	No	0.0000	0.0000
T6	20.00-0.00	6.67	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 104.00-92.00	Pipe	P2x.154	A618-50 (50 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 92.00-80.00	Pipe	P2x.154	A618-50 (50 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T3 80.00-60.00	Pipe	P2.5x.203	A618-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T4 60.00-40.00	Arbitrary Shape	P2.875x0.203w3/8HP+FF	A618-50 (50 ksi)	Single Angle	L2x2x3/8	A36 (36 ksi)
T5 40.00-20.00	Arbitrary Shape	P2.875x0.203w3/8HP+FF	A618-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T6 20.00-0.00	Arbitrary Shape	P3.5x0.3w3/8HP+FF	A618-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 104.00-92.00	Single Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 92.00-80.00	Single Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T3 80.00-60.00	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

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
T1 104.00-92.00	0.00	0.2500	A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000

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
T2 92.00-80.00	0.00	0.2500	A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000
T3 80.00-60.00	0.00	0.2500	A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000
T4 60.00-40.00	0.00	0.2500	A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000
T5 40.00-20.00	0.00	0.2500	A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000
T6 20.00-0.00	0.00	0.2500	A36 (36 ksi)	1.02	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
104.00-92.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
92.00-80.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T4	Yes	Yes	1.2	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T5	Yes	Yes	1.18	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T6 20.00-0.00	Yes	Yes	1.28	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
104.00-92.00														
T2 92.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 104.00-92.00	Flange	0.6250 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 92.00-80.00	Flange	0.6250 A325N	4	0.5000 A325N	1	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 80.00-60.00	Flange	0.6250 A325N	4	0.5000 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 60.00-40.00	Flange	0.6250 A490N	4	0.5000 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 40.00-20.00	Flange	0.7500 A490N	4	0.5000 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 20.00-0.00	Flange	0.8750 A354-BC	4	0.5000 A325N	1	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1/2 (Town of Glastonbury)	A	No	No	Ar (CaAa)	73.00 - 6.00	-8.0000	0.27	1	1	0.5000	0.5800		0.25
1/2 (Town of Glastonbury)	A	No	No	Ar (CaAa)	79.00 - 6.00	-8.0000	0.26	1	1	0.5000	0.5800		0.25
Feedline Ladder (Tower)	B	No	No	Ar (CaAa)	65.00 - 6.00	0.0000	0.4	1	1	0.5000	1.5000		3.66
LDF7-50A (1 5/8 FOAM) (Verizon)	A	No	No	Ar (CaAa)	100.00 - 6.00	-2.0000	0.2	18	9	0.5000	1.9800		0.82
Feedline Ladder (Tower)	A	No	No	Ar (CaAa)	100.00 - 6.00	0.0000	0.2	1	1	0.5000	1.5000		3.66
LDF7-50A (1 5/8 FOAM) (AT&T)	A	No	No	Ar (CaAa)	88.00 - 6.00	-8.0000	0.2	3	3	0.5000	1.9800		0.82
LDF7-50A (1 5/8 FOAM) (AT&T)	A	No	No	Ar (CaAa)	88.00 - 6.00	-4.0000	0.43	3	1	0.5000	1.9800		0.82
LDF7-50A (1 5/8 FOAM) (AT&T)	B	No	No	Ar (CaAa)	88.00 - 6.00	-4.0000	0.43	3	3	0.5000	1.9800		0.82
LDF7-50A (1 5/8 FOAM) (AT&T)	C	No	No	Ar (CaAa)	88.00 - 6.00	-4.0000	0.43	3	3	0.5000	1.9800		0.82
Hybrid Flex (1 5/8 Fiber) (T-Mobile)	B	No	No	Ar (CaAa)	65.00 - 6.00	0.0000	0.43	3	3	0.5000	1.9800		0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
AVA5-50(7/8") (T-Mobile)	B	No	No	Ar (CaAa)	65.00 - 6.00	0.0000	0.4	6	3	0.5000	1.1020		0.30

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
T1	104.00-92.00	A	0.000	0.000	29.712	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	92.00-80.00	A	0.000	0.000	54.072	0.000	0.26
		B	0.000	0.000	4.752	0.000	0.02
		C	0.000	0.000	4.752	0.000	0.02
T3	80.00-60.00	A	0.000	0.000	99.896	0.000	0.47
		B	0.000	0.000	18.906	0.000	0.09
		C	0.000	0.000	11.880	0.000	0.05
T4	60.00-40.00	A	0.000	0.000	100.360	0.000	0.48
		B	0.000	0.000	39.984	0.000	0.21
		C	0.000	0.000	11.880	0.000	0.05
T5	40.00-20.00	A	0.000	0.000	100.360	0.000	0.48
		B	0.000	0.000	39.984	0.000	0.21
		C	0.000	0.000	11.880	0.000	0.05
T6	20.00-0.00	A	0.000	0.000	70.252	0.000	0.33
		B	0.000	0.000	27.989	0.000	0.15
		C	0.000	0.000	8.316	0.000	0.03

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
T1	104.00-92.00	A	2.230	0.000	0.000	32.520	0.000	0.76
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	92.00-80.00	A	2.201	0.000	0.000	74.630	0.000	1.60
		B		0.000	0.000	13.014	0.000	0.19
		C		0.000	0.000	13.014	0.000	0.19
T3	80.00-60.00	A	2.156	0.000	0.000	160.656	0.000	3.25
		B		0.000	0.000	50.140	0.000	0.75
		C		0.000	0.000	32.231	0.000	0.46
T4	60.00-40.00	A	2.085	0.000	0.000	162.292	0.000	3.20
		B		0.000	0.000	102.112	0.000	1.55
		C		0.000	0.000	31.746	0.000	0.45
T5	40.00-20.00	A	1.981	0.000	0.000	158.980	0.000	3.04
		B		0.000	0.000	99.557	0.000	1.46
		C		0.000	0.000	31.041	0.000	0.42
T6	20.00-0.00	A	1.775	0.000	0.000	106.694	0.000	1.92
		B		0.000	0.000	66.145	0.000	0.92
		C		0.000	0.000	20.752	0.000	0.26

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	104.00-92.00	-2.8773	-10.6280	-2.6457	-8.0519
T2	92.00-80.00	-4.0090	-11.5721	-3.9158	-9.0787
T3	80.00-60.00	-2.3862	-10.4226	-2.0901	-9.0643
T4	60.00-40.00	2.1337	-9.5303	3.5007	-7.7426
T5	40.00-20.00	2.1759	-10.8239	3.6709	-9.0846
T6	20.00-0.00	1.8683	-10.2441	3.1112	-8.8242

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	4	LDF7-50A (1 5/8 FOAM)	92.00 - 100.00	1.0000	1.0000
T1	5	Feedline Ladder	92.00 - 100.00	1.0000	1.0000
T2	4	LDF7-50A (1 5/8 FOAM)	80.00 - 92.00	1.0000	1.0000
T2	5	Feedline Ladder	80.00 - 92.00	1.0000	1.0000
T2	7	LDF7-50A (1 5/8 FOAM)	80.00 - 88.00	1.0000	1.0000
T2	8	LDF7-50A (1 5/8 FOAM)	80.00 - 88.00	1.0000	1.0000
T2	9	LDF7-50A (1 5/8 FOAM)	80.00 - 88.00	1.0000	1.0000
T2	10	LDF7-50A (1 5/8 FOAM)	80.00 - 88.00	1.0000	1.0000
T3	1	1/2	60.00 - 73.00	1.0000	1.0000
T3	2	1/2	60.00 - 79.00	1.0000	1.0000
T3	3	Feedline Ladder	60.00 - 65.00	1.0000	1.0000
T3	4	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	5	Feedline Ladder	60.00 - 80.00	1.0000	1.0000
T3	7	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	8	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	9	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	10	LDF7-50A (1 5/8 FOAM)	60.00 - 80.00	1.0000	1.0000
T3	11	Hybrid Flex (1 5/8 Fiber)	60.00 - 65.00	1.0000	1.0000
T3	13	AVA5-50(7/8")	60.00 - 65.00	1.0000	1.0000
T4	1	1/2	40.00 - 60.00	1.0000	1.0000
T4	2	1/2	40.00 - 60.00	1.0000	1.0000
T4	3	Feedline Ladder	40.00 - 60.00	1.0000	1.0000
T4	4	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	5	Feedline Ladder	40.00 - 60.00	1.0000	1.0000
T4	7	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	8	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	9	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	10	LDF7-50A (1 5/8 FOAM)	40.00 - 60.00	1.0000	1.0000
T4	11	Hybrid Flex (1 5/8 Fiber)	40.00 - 60.00	1.0000	1.0000
T4	13	AVA5-50(7/8")	40.00 - 60.00	1.0000	1.0000
T5	1	1/2	20.00 - 40.00	1.0000	1.0000
T5	2	1/2	20.00 - 40.00	1.0000	1.0000
T5	3	Feedline Ladder	20.00 - 40.00	1.0000	1.0000
T5	4	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	5	Feedline Ladder	20.00 - 40.00	1.0000	1.0000
T5	7	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	8	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	9	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000
T5	10	LDF7-50A (1 5/8 FOAM)	20.00 - 40.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	11	Hybrid Flex (1 5/8 Fiber)	20.00 - 40.00	1.0000	1.0000
T5	13	AVA5-50(7/8")	20.00 - 40.00	1.0000	1.0000
T6	1	1/2	6.00 - 20.00	1.0000	1.0000
T6	2	1/2	6.00 - 20.00	1.0000	1.0000
T6	3	Feedline Ladder	6.00 - 20.00	1.0000	1.0000
T6	4	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	5	Feedline Ladder	6.00 - 20.00	1.0000	1.0000
T6	7	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	8	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	9	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	10	LDF7-50A (1 5/8 FOAM)	6.00 - 20.00	1.0000	1.0000
T6	11	Hybrid Flex (1 5/8 Fiber)	6.00 - 20.00	1.0000	1.0000
T6	13	AVA5-50(7/8")	6.00 - 20.00	1.0000	1.0000

Discrete Tower Loads

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
***									
BXA-70063-6CF-EDIN-0	A	From Leg	4.00	0.0000	102.00	No Ice	7.57	4.16	0.02
(Verizon)			0.00			1/2" Ice	8.02	4.60	0.06
			0.00			1" Ice	8.47	5.04	0.11
BXA-70063-6CF-EDIN-0	B	From Leg	4.00	0.0000	102.00	No Ice	7.57	4.16	0.02
(Verizon)			0.00			1/2" Ice	8.02	4.60	0.06
			0.00			1" Ice	8.47	5.04	0.11
BXA-70063-6CF-EDIN-0	C	From Leg	4.00	0.0000	102.00	No Ice	7.57	4.16	0.02
(Verizon)			0.00			1/2" Ice	8.02	4.60	0.06
			0.00			1" Ice	8.47	5.04	0.11
(2) Andrew SBNHH-1D65B	A	From Leg	4.00	0.0000	102.00	No Ice	8.08	5.34	0.05
(Verizon)			0.00			1/2" Ice	8.53	5.79	0.10
			0.00			1" Ice	9.00	6.26	0.16
(2) Andrew SBNHH-1D65B	B	From Leg	4.00	0.0000	102.00	No Ice	8.08	5.34	0.05
(Verizon)			0.00			1/2" Ice	8.53	5.79	0.10
			0.00			1" Ice	9.00	6.26	0.16
(2) Andrew SBNHH-1D65B	C	From Leg	4.00	0.0000	102.00	No Ice	8.08	5.34	0.05
(Verizon)			0.00			1/2" Ice	8.53	5.79	0.10
			0.00			1" Ice	9.00	6.26	0.16
LNX-8514DS	A	From Leg	4.00	0.0000	102.00	No Ice	11.45	7.70	0.05
(Verizon)			0.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
LNX-8514DS	B	From Leg	4.00	0.0000	102.00	No Ice	11.45	7.70	0.05
(Verizon)			0.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
LNX-8514DS	C	From Leg	4.00	0.0000	102.00	No Ice	11.45	7.70	0.05
(Verizon)			0.00			1/2" Ice	12.06	8.29	0.12
			0.00			1" Ice	12.69	8.89	0.19
Alcatel Lucent RRH 4x45	A	From Leg	3.00	0.0000	102.00	No Ice	2.16	1.42	0.04
AWS			0.00			1/2" Ice	2.36	1.59	0.06
(Verizon)			0.00			1" Ice	2.57	1.77	0.08
Alcatel Lucent RRH 4x45	B	From Leg	3.00	0.0000	102.00	No Ice	2.16	1.42	0.04

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
AWS			0.00			1/2" Ice	2.36	1.59	0.06
(Verizon)			0.00			1" Ice	2.57	1.77	0.08
Alcatel Lucent RRH 4x45	C	From Leg	3.00	0.0000	102.00	No Ice	2.16	1.42	0.04
AWS			0.00			1/2" Ice	2.36	1.59	0.06
(Verizon)			0.00			1" Ice	2.57	1.77	0.08
Alcatel Lucent RRH 4x30	A	From Leg	3.00	0.0000	102.00	No Ice	2.12	1.29	0.05
B25			0.00			1/2" Ice	2.31	1.45	0.07
(Verizon)			0.00			1" Ice	2.50	1.61	0.09
Alcatel Lucent RRH 4x30	B	From Leg	3.00	0.0000	102.00	No Ice	2.12	1.29	0.05
B25			0.00			1/2" Ice	2.31	1.45	0.07
(Verizon)			0.00			1" Ice	2.50	1.61	0.09
Alcatel Lucent RRH 4x30	C	From Leg	3.00	0.0000	102.00	No Ice	2.12	1.29	0.05
B25			0.00			1/2" Ice	2.31	1.45	0.07
(Verizon)			0.00			1" Ice	2.50	1.61	0.09
Alcatel Lucent RRH 4x30	A	From Leg	3.00	0.0000	102.00	No Ice	3.36	1.99	0.06
B13			0.00			1/2" Ice	3.61	2.22	0.08
(Verizon)			0.00			1" Ice	3.88	2.46	0.10
Alcatel Lucent RRH 4x30	B	From Leg	3.00	0.0000	102.00	No Ice	3.36	1.99	0.06
B13			0.00			1/2" Ice	3.61	2.22	0.08
(Verizon)			0.00			1" Ice	3.88	2.46	0.10
Alcatel Lucent RRH 4x30	C	From Leg	3.00	0.0000	102.00	No Ice	3.36	1.99	0.06
B13			0.00			1/2" Ice	3.61	2.22	0.08
(Verizon)			0.00			1" Ice	3.88	2.46	0.10
Raycap DB-T1-6Z-8AB-0Z	A	None		0.0000	102.00	No Ice	4.80	2.00	0.04
(Verizon)						1/2" Ice	5.07	2.19	0.08
						1" Ice	5.35	2.39	0.12
Raycap DB-T1-6Z-8AB-0Z	B	None		0.0000	102.00	No Ice	4.80	2.00	0.04
(Verizon)						1/2" Ice	5.07	2.19	0.08
						1" Ice	5.35	2.39	0.12
Pirod T-Frame Sector Mount	C	None		0.0000	102.00	No Ice	38.60	38.60	1.00
(3)						1/2" Ice	57.40	57.40	1.65
(Verizon)						1" Ice	76.20	76.20	2.24
***									
T-Frame Sector	A	From Leg	4.00	0.0000	88.00	No Ice	9.00	9.00	0.47
(AT&T)			0.00			1/2" Ice	9.30	9.30	0.61
			0.00			1" Ice	8.60	8.60	0.75
T-Frame Sector	B	From Leg	4.00	0.0000	88.00	No Ice	9.00	9.00	0.47
(AT&T)			0.00			1/2" Ice	9.30	9.30	0.61
			0.00			1" Ice	8.60	8.60	0.75
T-Frame Sector	C	From Leg	4.00	0.0000	88.00	No Ice	9.00	9.00	0.47
(AT&T)			0.00			1/2" Ice	9.30	9.30	0.61
			0.00			1" Ice	8.60	8.60	0.75
DB806-XT	B	From Leg	4.00	0.0000	79.00	No Ice	1.14	1.14	0.02
(Town of Glastonbury)			0.00			1/2" Ice	1.68	1.68	0.03
			0.00			1" Ice	2.22	2.22	0.04
PR-950	B	From Leg	4.00	0.0000	73.00	No Ice	6.35	6.35	0.04
(Town of Glastonbury)			0.00			1/2" Ice	11.43	11.43	0.05
			0.00			1" Ice	16.51	16.51	0.06
PiROD 6' Side Mount	B	From Leg	4.00	0.0000	73.00	No Ice	4.97	4.97	0.07
Standoff			0.00			1/2" Ice	6.12	6.12	0.13
(Town of Glastonbury)			0.00			1" Ice	7.27	7.27	0.19
***									
AIR 21	A	From Leg	3.00	0.0000	65.00	No Ice	6.05	4.36	0.09
(T-Mobile)			0.00			1/2" Ice	6.42	4.70	0.13
			0.00			1" Ice	6.80	5.06	0.18
AIR 21	B	From Leg	3.00	0.0000	65.00	No Ice	6.05	4.36	0.09
(T-Mobile)			0.00			1/2" Ice	6.42	4.70	0.13

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert*	*Azimuth Adjustment*	*Placement*		*C_AA_A Front*	*C_AA_A Side*	*Weight*
			ft ft ft	*°*	*ft*		*ft²*	*ft²*	*K*
			0.00			1" Ice	6.80	5.06	0.18
AIR 21	C	From Leg	3.00	0.0000	65.00	No Ice	6.05	4.36	0.09
(T-Mobile)			0.00			1/2" Ice	6.42	4.70	0.13
			0.00			1" Ice	6.80	5.06	0.18
AIR32	A	From Leg	3.00	0.0000	65.00	No Ice	6.51	4.71	0.13
(T-Mobile)			0.00			1/2" Ice	6.89	5.07	0.18
			0.00			1" Ice	7.27	5.43	0.23
AIR32	B	From Leg	3.00	0.0000	65.00	No Ice	6.51	4.71	0.13
(T-Mobile)			0.00			1/2" Ice	6.89	5.07	0.18
			0.00			1" Ice	7.27	5.43	0.23
AIR32	C	From Leg	3.00	0.0000	65.00	No Ice	6.51	4.71	0.13
(T-Mobile)			0.00			1/2" Ice	6.89	5.07	0.18
			0.00			1" Ice	7.27	5.43	0.23
APXVAARR24-43-U-NA20	A	From Leg	3.00	0.0000	65.00	No Ice	20.24	8.89	0.13
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	0.24
			0.00			1" Ice	21.54	10.09	0.36
APXVAARR24-43-U-NA20	B	From Leg	3.00	0.0000	65.00	No Ice	20.24	8.89	0.13
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	0.24
			0.00			1" Ice	21.54	10.09	0.36
APXVAARR24-43-U-NA20	C	From Leg	3.00	0.0000	65.00	No Ice	20.24	8.89	0.13
(T-Mobile)			0.00			1/2" Ice	20.89	9.49	0.24
			0.00			1" Ice	21.54	10.09	0.36
4449 B71-B12	C	From Leg	3.00	0.0000	65.00	No Ice	1.63	1.00	0.08
(T-Mobile)			0.00			1/2" Ice	1.79	1.13	0.09
			0.00			1" Ice	1.95	1.27	0.11
4449 B71-B12	C	From Leg	3.00	0.0000	65.00	No Ice	1.63	1.00	0.08
(T-Mobile)			0.00			1/2" Ice	1.79	1.13	0.09
			0.00			1" Ice	1.95	1.27	0.11
4449 B71-B12	C	From Leg	3.00	0.0000	65.00	No Ice	1.63	1.00	0.08
(T-Mobile)			0.00			1/2" Ice	1.79	1.13	0.09
			0.00			1" Ice	1.95	1.27	0.11
Sector Mount [SM 403-3] w	B	From Leg	0.00	0.0000	65.00	No Ice	23.00	23.00	0.87
Mod			0.00			1/2" Ice	30.00	30.00	1.27
(T-Mobile)			0.00			1" Ice	40.00	40.00	1.66
***									
Powerwave P65-17-XLH-RR	A	From Leg	0.00	0.0000	88.00	No Ice	11.47	6.80	0.06
(AT&T)			0.00			1/2" Ice	12.08	7.38	0.12
			0.00			1" Ice	12.71	7.98	0.19
Powerwave P65-17-XLH-RR	B	From Leg	0.00	0.0000	88.00	No Ice	11.47	6.80	0.06
(AT&T)			0.00			1/2" Ice	12.08	7.38	0.12
			0.00			1" Ice	12.71	7.98	0.19
Powerwave P65-17-XLH-RR	C	From Leg	0.00	0.0000	88.00	No Ice	11.47	6.80	0.06
(AT&T)			0.00			1/2" Ice	12.08	7.38	0.12
			0.00			1" Ice	12.71	7.98	0.19
KMW AX-X-CD-1665-OOT	A	From Leg	0.00	0.0000	88.00	No Ice	8.50	6.30	0.07
(AT&T)			0.00			1/2" Ice	9.15	7.48	0.09
			0.00			1" Ice	9.80	8.66	0.11
KMW AX-X-CD-1665-OOT	B	From Leg	0.00	0.0000	88.00	No Ice	8.50	6.30	0.07
(AT&T)			0.00			1/2" Ice	9.15	7.48	0.09
			0.00			1" Ice	9.80	8.66	0.11
KMW AX-X-CD-1665-OOT	C	From Leg	0.00	0.0000	88.00	No Ice	8.50	6.30	0.07
(AT&T)			0.00			1/2" Ice	9.15	7.48	0.09
			0.00			1" Ice	9.80	8.66	0.11
Andrew SBNH-1D6565C	A	From Leg	0.00	0.0000	88.00	No Ice	11.64	9.84	0.09
(AT&T)			0.00			1/2" Ice	12.37	11.37	0.18
			0.00			1" Ice	13.09	12.89	0.27
Andrew SBNH-1D6565C	B	From Leg	0.00	0.0000	88.00	No Ice	11.64	9.84	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Offsets: ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(AT&T)			0.00					1/2" Ice	12.37	11.37	0.18
			0.00					1" Ice	13.09	12.89	0.27
Andrew SBNH-1D6565C	C	From Leg	0.00			0.0000	88.00	No Ice	11.64	9.84	0.09
(AT&T)			0.00					1/2" Ice	12.37	11.37	0.18
			0.00					1" Ice	13.09	12.89	0.27
(2) TMA	A	From Leg	0.00			0.0000	88.00	No Ice	1.95	0.52	0.03
(AT&T)			0.00					1/2" Ice	2.13	0.64	0.04
			0.00					1" Ice	2.31	0.76	0.05
(2) TMA	B	From Leg	0.00			0.0000	88.00	No Ice	1.95	0.52	0.03
(AT&T)			0.00					1/2" Ice	2.13	0.64	0.04
			0.00					1" Ice	2.31	0.76	0.05
(2) TMA	C	From Leg	0.00			0.0000	88.00	No Ice	1.95	0.52	0.03
(AT&T)			0.00					1/2" Ice	2.13	0.64	0.04
			0.00					1" Ice	2.31	0.76	0.05
(2) RRU-11	A	From Leg	0.00			0.0000	88.00	No Ice	2.87	1.22	0.05
(AT&T)			0.00					1/2" Ice	3.08	1.37	0.07
			0.00					1" Ice	3.30	1.53	0.10
(2) RRU-11	B	From Leg	0.00			0.0000	88.00	No Ice	2.87	1.22	0.05
(AT&T)			0.00					1/2" Ice	3.08	1.37	0.07
			0.00					1" Ice	3.30	1.53	0.10
(2) RRU-11	C	From Leg	0.00			0.0000	88.00	No Ice	2.87	1.22	0.05
(AT&T)			0.00					1/2" Ice	3.08	1.37	0.07
			0.00					1" Ice	3.30	1.53	0.10
Demarcation Box	C	From Leg	0.00			0.0000	88.00	No Ice	4.45	0.89	0.02
DC6-4860-188F			0.00					1/2" Ice	4.76	1.04	0.05
(AT&T)			0.00					1" Ice	5.07	1.19	0.08

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	104	Leg	A325N	0.6250	4	1.69	20.71	0.082 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	2.21	6.20	0.357 ✔	1	Member Bearing
		Top Girt	A325N	0.5000	1	0.12	6.20	0.019 ✔	1	Member Bearing
T2	92	Leg	A325N	0.6250	4	5.90	20.71	0.285 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	4.33	6.20	0.699 ✔	1	Member Bearing
		Top Girt	A325N	0.5000	1	0.44	6.20	0.072 ✔	1	Member Bearing
T3	80	Leg	A325N	0.6250	4	13.73	20.71	0.663 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	5.47	6.20	0.882 ✔	1	Member Bearing
T4	60	Leg	A490N	0.6250	4	22.47	26.00	0.864 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	6.34	7.95	0.797 ✔	1	Bolt Shear
T5	40	Leg	A490N	0.7500	4	30.63	37.44	0.818 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	6.76	7.95	0.851 ✔	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T6	20	Leg	A354-BC	0.8750	4	38.02	42.28	0.899 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	7.27	7.95	0.914 ✔	1	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	P2x.154	12.00	4.00	61.0 K=1.00	1.0745	-8.47	36.84	0.230 [1] ✔
T2	92 - 80	P2x.154	12.00	4.00	61.0 K=1.00	1.0745	-27.74	36.84	0.753 [1] ✔
T3	80 - 60	P2.5x.203	20.03	2.58	32.7 K=1.00	1.7040	-63.87	70.92	0.901 [1] ✔
T4	60 - 40	P2.875x0.203w3/8HP+FF	20.03	6.68	95.5 K=1.20	5.9892	-101.62	138.42	0.734 [1] ✔
T5	40 - 20	P2.875x0.203w3/8HP+FF	20.03	6.68	93.9 K=1.18	5.9892	-137.59	141.49	0.972 [1] ✔
T6	20 - 0	P3.5x0.3w3/8HP+FF	20.03	6.68	84.6 K=1.28	8.1008	-170.89	216.06	0.791 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	L1 1/2x1 1/2x3/16	7.65	3.60	147.4 K=1.00	0.5273	-2.18	5.48	0.398 [1] ✔
T2	92 - 80	L1 1/2x1 1/2x3/16	7.68	3.62	148.2 K=1.00	0.5273	-4.45	5.42	0.820 [1] ✔
T3	80 - 60	L2x2x3/16	9.70	4.75	144.7 K=1.00	0.7150	-5.65	7.71	0.732 [1] ✔
T4	60 - 40	L2x2x3/8	12.21	5.99	184.7 K=1.00	1.3600	-6.34	9.00	0.704 [1] ✔
T5	40 - 20	L2 1/2x2 1/2x3/8	13.96	6.87	169.2 K=1.00	1.7300	-6.76	13.65	0.495 [1] ✔
T6	20 - 0	L2 1/2x2 1/2x3/8	15.79	7.76	191.2 K=1.00	1.7300	-7.27	10.69	0.680 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	80 - 60	L2x2x3/16	8.30	8.06	142.6 K=0.91	0.7150	-1.11	7.94	0.140 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	L2x2x3/16	6.52	6.11	186.2 K=1.00	0.7150	-0.11	4.66	0.024 [1] ✔
T2	92 - 80	L2x2x3/16	6.52	6.11	186.2 K=1.00	0.7150	-0.34	4.66	0.074 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	P2x.154	12.00	4.00	61.0	1.0745	6.75	48.35	0.140 [1] ✔
T2	92 - 80	P2x.154	12.00	4.00	61.0	1.0745	23.59	48.35	0.488 [1] ✔
T3	80 - 60	P2.5x.203	20.03	2.43	30.8	1.7040	54.94	76.68	0.716 [1] ✔
T4	60 - 40	P2.875x0.203w3/8HP+FF	20.03	6.68	79.6	5.9892	89.89	269.51	0.334 [1] ✔
T5	40 - 20	P2.875x0.203w3/8HP+FF	20.03	6.68	79.6	5.9892	122.54	269.51	0.455 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	20 - 0	P3.5x0.3w3/8HP+FF	20.03	6.68	66.1	8.1008	152.07	364.54	0.417 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	L1 1/2x1 1/2x3/16	7.65	3.60	97.4	0.3076	2.21	13.38	0.165 [1] ✔
T2	92 - 80	L1 1/2x1 1/2x3/16	7.68	3.62	97.9	0.3076	4.33	13.38	0.324 [1] ✔
T3	80 - 60	L2x2x3/16	9.70	4.75	94.4	0.4484	5.47	19.50	0.280 [1] ✔
T4	60 - 40	L2x2x3/8	12.21	5.99	123.1	0.8442	6.25	36.72	0.170 [1] ✔
T5	40 - 20	L2 1/2x2 1/2x3/8	13.96	6.87	111.1	1.1217	6.53	48.79	0.134 [1] ✔
T6	20 - 0	L2 1/2x2 1/2x3/8	15.79	7.76	125.3	1.1217	6.86	48.79	0.141 [1] ✔

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	80 - 60	L2x2x3/16	8.30	8.06	156.8	0.7150	1.11	23.17	0.048 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	104 - 92	L2x2x3/16	6.52	6.11	123.0	0.4484	0.12	19.50	0.006 [1] ✔
T2	92 - 80	L2x2x3/16	6.52	6.11	123.0	0.4484	0.44	19.50	0.023 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
									✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	104 - 92	Leg	P2x.154	2	-8.47	36.84	23.0	Pass
T2	92 - 80	Leg	P2x.154	26	-27.74	36.84	75.3	Pass
T3	80 - 60	Leg	P2.5x.203	50	-63.87	70.92	90.1	Pass
T4	60 - 40	Leg	P2.875x0.203w3/8HP+FF	89	-101.62	138.42	73.4	Pass
							86.4 (b)	
T5	40 - 20	Leg	P2.875x0.203w3/8HP+FF	110	-137.59	141.49	97.2	Pass
T6	20 - 0	Leg	P3.5x0.3w3/8HP+FF	131	-170.89	216.06	79.1	Pass
							89.9 (b)	
T1	104 - 92	Diagonal	L1 1/2x1 1/2x3/16	15	-2.18	5.48	39.8	Pass
T2	92 - 80	Diagonal	L1 1/2x1 1/2x3/16	33	-4.45	5.42	82.0	Pass
T3	80 - 60	Diagonal	L2x2x3/16	54	-5.65	7.71	73.2	Pass
							88.2 (b)	
T4	60 - 40	Diagonal	L2x2x3/8	94	-6.34	9.00	70.4	Pass
							79.7 (b)	
T5	40 - 20	Diagonal	L2 1/2x2 1/2x3/8	114	-6.76	13.65	49.5	Pass
							85.1 (b)	
T6	20 - 0	Diagonal	L2 1/2x2 1/2x3/8	135	-7.27	10.69	68.0	Pass
							91.4 (b)	
T3	80 - 60	Secondary Horizontal	L2x2x3/16	58	-1.11	7.94	14.0	Pass
T1	104 - 92	Top Girt	L2x2x3/16	4	-0.11	4.66	2.4	Pass
T2	92 - 80	Top Girt	L2x2x3/16	30	-0.34	4.66	7.4	Pass
							Summary	
						Leg (T5)	97.2	Pass
						Diagonal (T6)	91.4	Pass
						Secondary Horizontal (T3)	14.0	Pass
						Top Girt (T2)	7.4	Pass
						Bolt Checks	91.4	Pass
						RATING =	**97.2**	**Pass**

Attachment 2:
Collocation Application

WORKSHEET 1 OF 2 (COMPLETE BOTH WORKSHEET TABS)

InSite Towers, LLC

CUSTOMER APPLICATION

DATE SUBMITTED: 05/15/19

A Site Application Fee to be paid upon submission of this Customer Application.

CUSTOMER INFORMATION

COMPANY NAME:	T-Mobile Northeast	PHONE:	
ENTITY Type: i.e. Inc., LLP	LLC	FAX:	
STATE of Inc.	DE	SERVICE (PCS, SMR):	PCS

CUSTOMER ADDRESSES

COMPANY Address:	12920 SE 38th Street	CITY/STATE:	Bellevue, WA	ZIP :	98006
BILLING Address:	12920 SE 38th Street	CITY/STATE:	Bellevue, WA	ZIP :	98006
NOTICE Address 1:	12920 SE 38th Street	CITY/STATE:	Bellevue, WA	ZIP :	98006
NOTICE Address 2:	12920 SE 38th Street	CITY/STATE:	Bellevue, WA	ZIP :	98006

CUSTOMER CONTACTS

PRIMARY CONTACT:	Andres Lopez	PHONE:	908-358-5305
TITLE:	Site Acquisition Consultant	E-MAIL Address:	alopez@clinellc.com
SIGNATORY NAME:	Mark Richard	PHONE:	860-648-1116
TITLE:	Site Development Manager	E-MAIL Address:	Mark.Richard64@T-Mobile.com
EMERGENCY CONTACT:	24 Hour Emergency Contact	PHONE:	877-373-0093
TITLE:		E-MAIL Address:	
TECHNICAL/OPS:		PHONE:	
TITLE:		E-MAIL Address:	
RF ENGINEER:		PHONE:	
TITLE:		E-MAIL Address:	
BILLING CONTACT:		PHONE:	
TITLE:		E-MAIL Address:	
LEGAL CONTACT:		PHONE:	
TITLE:		E-MAIL Address:	

SITE INFORMATION

CUSTOMER Site # / Name:	CTHA536A			INSITE Site # and Name:	CT901 Glastonbury
SITE LATITUDE:	41.7336			SITE LONGITUDE:	-72.5496
SITE ADDRESS:	577 Bell Street			CITY:	Glastonbury
STATE:	CT	ZIP:	6033	STRUCTURE TYPE:	Lattice tower

USE THIS SECTION TO PROVIDE A DESCRIPTION OF COLOCATION OR MODIFICATION REQUEST

Ground: Replace the cabinet with (1) RBS 6102 MU AC.
Move DUW30 to new cabinet. Remove (3) RUS01 B12 (L700) cabinet radios and (1) DUS41 and (1) XMU.
Install (2) BB 6630 (1 for LTE, 1 for future 5G N600 Dark).
Tower:
Replace (3) AIR21 B4A (used for L2100) with (3) AIR32 DB antennas.
Replace (3) LB Dual Port LNX antennas with (3) LB+MB Octa Port antennas, Add (3) Radio 4449.
Remove (6) Coax Lines but keep on tower as unnconnected and (3) Smart Bias-T. Modifying 3' T-Arm mount per CD's Mount Mod Drawings, Existing mount will become a 10' Sector Frame.

USE THIS SECTION TO LIST EQUIPMENT TO BE REMOVED

(3) AIR 21 antennas (3) LNX-6515DS-VTM antennas, Remove (6) Coax Lines and (3) Smart Bias-Ts. Remove (3) RUS01 B12 (L700) cabinet radios and (1) DUS41 and (1) XMU.

APPLICATION PREPARED BY

NAME:	Andres Lopez	PHONE:	908-358-5305
COMPANY:	Centerline Communications	ADDRESS:	750 West Center Street, Floor 3 West Bridgewater, MA 02379
TITLE:	Site Acquisition Consultant	E-MAIL Address:	alopez@clinellc.com

EXHIBIT
Equipment

Site Name and #: **CT901 Glastonbury** **Licensee Name:** **T-Mobile Northeast**

The mounting method and exact location of the space and equipment listed herein shall be subject to InSite's approval.

SYSTEM REQUIREMENTS										
POWER provided by:	Utility company direct					TELCO provided by:	Fiber			
Power Requirements:	Amps:	100	Volts:	120/240		No. of Outlets:				
Generator Provided by:	N/A	Make:	N/A	Model:	N/A		Fuel Type:	N/A	Capacity:	N/A
Batteries:	Quantity:	None	Make:	N/A		Model:	N/A			
Note: audible alarms related to generator and other equipment shall be permanently disabled at unmanned sites										
SPACE REQUIREMENTS & RADIO INVENTORY										
Type of Space Required:	Ground:	Yes	Floor:	No		Total Square Feet:	36 sq. ft.			
Dimensions of Equipment Floor/Ground Space:	6' x 6'					Equipment Height:	N/A			
Dimensions of Generator Ground Space:	N/A					Dimensions of Fuel Tank Ground Space:	N/A			
No. of Transmitters (Tx):	One (1)	Transmitter Make/Model:	6201			Transmitter Power Output	500 Watts			
No. of Receivers (Rx):	None	Receiver Make/Model:	N/A			Transmitter ERP:	N/A			

EQUIPMENT LOADING DESCRIPTION (FINAL CONFIGURATION)					
	Sector 1	**Sector 2**	**Sector 3**	**DISH(ES)**	**OTHER**
Antenna Type (1):	Panel	Panel	Panel	N/A	N/A
# of Antennas (1)/ Sector:	One (1)	One (1)	One (1)	None	None
Tx, Rx or Both:	Both	Both	Both	N/A	N/A
Antenna Manufacturer (1):	Ericsson	Ericsson	Ericsson	N/A	N/A
Antenna Model (1):	AIR21 (KRC118023)	AIR21 (KRC118023)	AIR21 (KRC118023)	N/A	N/A
Antenna Dimensions (1):	56.3" x 12.1" x 7.9"	56.3" x 12.1" x 7.9"	56.3" x 12.1" x 7.9"	N/A	N/A
Antenna Weight (1):	83 lbs	83 lbs	83 lbs	N/A	N/A
Antenna RAD Ctr (1):	65 ft	65 ft	65 ft	N/A	N/A
Antenna Type (2):	Panel	Panel	Panel	N/A	N/A
# of Antennas (2)/ Sector:	One (1)	One (1)	One (1)	None	None
Tx, Rx or Both:	Both	Both	Both	N/A	N/A
Antenna Manufacturer (2):	Ericsson	Ericsson	Ericsson	N/A	N/A
Antenna Model (2):	AIR32 (KRD901146)	AIR32 (KRD901146)	AIR32 (KRD901146)	N/A	N/A
Antenna Dimensions (2):	56.6" x 12.9" x 8.7"	56.6" x 12.9" x 8.7"	56.6" x 12.9" x 8.7"	N/A	N/A
Antenna Weight (2):	132 lbs	132 lbs	132 lbs	N/A	N/A
Antenna RAD Ctr (2):	65 ft	65 ft	65 ft	N/A	N/A
Antenna Type (3):	Panel	Panel	Panel	N/A	N/A
# of Antennas (3)/ Sector:	One (1)	One (1)	One (1)	None	None
Tx, Rx or Both:	Both	Both	Both	N/A	N/A
Antenna Manufacturer (3):	RFS	RFS	RFS	N/A	N/A
Antenna Model (3):	APXVAARR24_43-U-NA20	APXVAARR24_43-U-NA20	APXVAARR24_43-U-NA20	N/A	N/A
Antenna Dimensions (3):	95.9" x 24" x 8.7"	95.9" x 24" x 8.7"	95.9" x 24" x 8.7"	N/A	N/A
Antenna Weight (3):	128 lbs	128 lbs	128 lbs	N/A	N/A
Antenna RAD Ctr (3):	65 ft	65 ft	65 ft	N/A	N/A
# of RRU/RRHs/ Sector (1):	One (1)	One (1)	One (1)		
RRU/RRH Manufacturer (1):	Ericsson	Ericsson	Ericsson		
RRU/RRH Model (1):	4449 B71+B12	4449 B71+B12	4449 B71+B12		
RRU/RRH Dimensions (1):	13.1" x 14.9" x 9.2"	13.1" x 14.9" x 9.2"	13.1" x 14.9" x 9.2"		
RRU/RRH Weight (1):	75 lbs	75 lbs	75 lbs		
RRU/RRH RAD Ctr (1):	65 ft	65 ft	65 ft		
# of TMAs/ Sector:	None	None	None		
# of Diplexers/ Sector:	None	None	None		
# of Surge Suppressors/Sctr:	None	None	None	**Please include microwave dish frequencies below:**	**Please include microwave dish frequencies below:**
OTHER:	None	None	None		
Transmit Frequencies:	1935-1945, 2140-2155, 728-734, 622-632 MHz			N/A	N/A
Receive Frequencies:	1855-1865, 1740-1755, 698-704, 668-678 MHz			N/A	N/A
# of Lines:	One (1)	One (1)	One (1)	None	None
Line Size:	1-5/8" Hybrid	1-5/8" Hybrid	1-5/8" Hybrid	N/A	N/A
# of Lines:	Two (2)	Two (2)	Two (2)	None	None
Line Size:	7/8"	7/8"	7/8"	N/A	N/A
Mount Type:	Sector Frame	Sector Frame	Sector Frame	N/A	N/A
Mount Size:	Ten Feet (10')	Ten Feet (10')	Ten Feet (10')	N/A	N/A

Exhibit E

Mount Analysis

ProTerra DESIGN GROUP, LLC

DESTEK ENGINEERING

Date: 7/3/2019

To: Mr. Peter Nute
ProTerra Design Group, LLC
4 Bay Road, Building A, Suite 200
Hadley, MA 01035

Subject: **Mount Structural Analysis Report – Upgrade**

T-Mobile Designation: **Site ID:** CTHA536A
Site Name: Insite Glastonbury Lattice

Destek Designation: **Project Number:** 1978004

Site Data: **577 Bell Street, Glastonbury, CT 06033**
Latitude 41.7336, Longitude -72.5496

Dear Mr. Nute,

Destek Engineering, LLC is pleased to submit this **"Mount Structural Analysis Report"** to determine the structural capacity of the antenna mount utilized by T-Mobile at the above referenced site.

The purpose of the analysis is to determine acceptability of the mount stress level for the changes proposed by T-Mobile. Under the following load case we have determined the mount to have:

Existing + Proposed Equipment **Adequate Capacity with Mods (84.9%)**
Note: See Analysis Criteria for loading configuration

The analysis has been performed in accordance with TIA-222-G Standard and the 2018 Connecticut State Building Code (2015 IBC).

We at *Destek Engineering, LLC* appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

Sincerely,
Destek Engineering, LLC
License No: PEC 0001429

7/3/2019

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: PEN 27057

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

1) ANALYSIS CRITERIA

The analysis was performed for the existing and proposed appurtenances as specified in the loading information referenced below, and per the following loading criteria of Table 1.

Table 1 – Loading and Analysis Criteria

Rad Center	65’
Structure Type	Self-Support Tower
Exposure Category	C
Wind Speed	125 mph* √0.6 = 97 mph (ASD)
Ice Loading	1.00” with 50 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.0

Table 1.1 – Existing Appurtenance Configuration

Qty	Model
6	AIR21 KRC118023-1-B2P-B4A – Antennas
3	LNX-6515DS-A1M – Antennas
3	Andrew Smart Bias T – TMAs

Table 1.2 – Proposed and Final Appurtenance Configuration

Qty	Model
3	AIR21 KRC118023-1-B2P-B4A – Antennas
3	AIR32 KRD901146-1_B66A_B2A – Antennas
3	APXVAARR24_43-U-NA20 – Antennas
3	Radio 4449 B71+B12 – RRUs*

***To be mounted behind antennas.**

Table 1.3 – Assumed Material Properties

Member Type	ASTM Material Designation	Fy (ksi)	Fu (ksi)
Pipes	A53 Gr. B	35	60
Angles/Channels	A36	36	58
Rectangular HSS	A500 Gr. B - 46	46	58
Round HSS	A500 Gr. B - 42	42	58
Others (UNO)	A572 Gr. 50	50	65

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
Construction Drawings	ProTerra	05/22/2019
Site Photographs	ProTerra	04/16/2019
RFDS	T-Mobile	04/25/2019

2.1) Analysis Method

Risa-3D, a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in the Appendix.

2.2) Analysis Conditions and Assumptions

1) The mount was built and installed in accordance with the manufacturer's specifications.
2) The mount has been maintained and will be maintained in accordance with the manufacturer's specifications. All structural members and connections of the mount are in good condition and can achieve theoretical strength.
3) The configuration of antennas is as specified in "1) Analysis Criteria".
4) The analysis was performed for the subject mount only. It does not include an evaluation of the other mounts or the tower, which should be analyzed by others.
5) The evaluation does not include any antenna rigging loads. The equipment should not be rigged using the subject antenna mount as the support.
6) The analysis includes a minimum 250 lbf maintenance point load at the worst-case location on the mount, as well as a minimum 250 lbf maintenance point load at each antenna location in conjunction with a 30 mph wind load.
7) Any steel grating represented in this model is for loading purposes only and it is not considered to provide any structural restraint or support.
8) Member sizes per the available site photographs and assumed based on our experience with similar structures. Please refer to calculation output in the appendix of this report for sizes and lengths assumed.
9) 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.

Destek Engineering, LLC must be notified immediately if any of these assumptions are discovered to be incorrect. The results of this analysis may be affected if any of the assumptions are not valid or have been made in error.

3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Horizontal Face Pipe	84.9	Pass
Vertical Face Solid Rod	<20.0	Pass
Diagonal Face Solid Rod	<20.0	Pass
Horizontal Standoff Pipe	<20.0	Pass
Vertical Standoff Pipe	<20.0	Pass
Diagonal Standoff Solid Rod	<20.0	Pass
Vertical Standoff Solid Rod	<20.0	Pass
Antenna Mount Pipe	78.0	Pass
Pipe Kicker	<20	Pass
Middle Face Pipe-Stabilizer	31.2	Pass
SFR Stabilizer Arm Angle	<20.0	Pass

Sector Mounts: The existing sector mounts **will have adequate** capacity for the proposed changes by T-Mobile, **once the mounts are modified per the attached Destek Upgrade Drawings, dated 07/03/2019**. For the code specified load combinations and as a maximum, the mount members are stressed to **84.9%** of their structural capacity.

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

APPENDIX

INPUT LOADS
ANALYSIS OUTPUT
CONSTRUCTION DRAWINGS
UPGRADE DRAWINGS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 - Tel: (770) 693-0835

CLIENT: ProTerra

PROJECT: 1978004 - CTHA536A-Upgarde

SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

Tower Height	80.00	ft	Type of Mount: Sector
Basic Wind Speed, V	97	mph (=Ultimate Speed*Sqrt(0.6))	
Basic Wind Speed with Ice, V_i	50	mph	
Maintanence Load Factor, L_{FM}	0.0957	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)	
Design Ice Thickness, t_i	1	inches	

Table 2-3 Importance Factors

Structure Classification	Wind Load Without Ice	Wind Load With Ice	Ice Thickness	Earthquake
II	1	1	1	1

1

Table 2-4 Exposure Category Coefficients

Exposure Category	Zg	α	Kzmin	Ke	m
C	900	9.5	0.85	1	0.6

Table 2-5 Topographic Categories

Kzt 1.000

Table 2-2 Wind Directionality Factor, Kd

Structure Type	Kd	
Lattice Tower	0.95	DOES NOT CHANGE

Gust Effect Factor Gh

Structure Type	Gh	
Lattice Tower	1.00	DOES NOT CHANGE

Shielding Factor, Ka

Structure Type	Ka	
Lattice Tower	0.90	DOES NOT CHANGE

Seismic Factors

Ss	0.179	
S1	0.063	
Fa	1.6	
Fv	2.4	
R	3	Truss or Pole

CLIENT: ProTerra

PROJECT: 1978004 - CTHA536A-Upgarde

SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

Rad Center 65.00 ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A_N (ft2)	***A_T (ft2)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K_z	q_z (psf)	Pounds: Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	Lateral Load (Seismic)	Vertical Load (Seismic)
Pos. 1	**65.00**	Air 21 B2P B4A	1	91.5	55.9	12.1	7.9	0.90	4.70	3.06	4.62	7.10	1.29	1.40	1.156	26.4	144.7	102.1	91.5	145	102	92	6	3
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				73	**52**	**46**	**3**	**2**
Pos.2	**65.00**	Air 32 B66AA B2A	1	107.8	59.3	12.9	8.7	0.90	5.30	3.56	4.60	6.84	1.29	1.39	1.156	26.4	163.0	118.1	107.8	163	146	183	11	7
	65.00	Radio 4449 B71+B12	1	75.0	15.0	N/A	9.3	0.90	-	0.96	-	1.62	-	1.20	1.156	26.4	0.0	27.4	75					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				82	**73**	**92**	**6**	**3**
Pos.3	**65.00**	RFS APXVAARR24_43-U-NA20	1	128.0	95.9	24.0	8.7	0.90	15.98	5.79	4.00	11.02	1.27	1.53	1.156	26.4	481.8	211.6	128	482	212	128	8	5
		Empty		0.0	-	N/A	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				241	**106**	**64**	**4**	**2**
Pos.4		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	0	0	0	0	0
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
																				0	**0**	**0**	**0**	**0**

* Enter N/A in the W column for front sheilded apurtanances.

** A_N is the product of H and W

*** A_T is the product of H and D

DL 402

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	Weight (lb/ft)	*** Ca	K_z	q_z (psf)	Wind Load (PLF)	Lateral Load (Seismic)	Vertical Load (Seismic)
	65.00	1.25 STD Pipe	12.00	1.66	0.00		1.20	1.156	23.8	4	-	-
	65.00	2 STD Pipe	12.00	2.38	0.00		1.20	1.156	23.8	6	-	-
	65.00	2.5 STD Pipe	12.00	3.00	0.00		1.20	1.156	23.8	7	-	-
	65.00	3 STD Pipe	12.00	3.50	0.00		1.20	1.156	23.8	8	-	-
	65.00	1.0 SR	12.00	1.00	0.00		1.20	1.156	23.8	2	-	-
	65.00	5/8 SR	12.00	0.63	0.00		1.20	1.156	23.8	1	-	-
	65.00	(L3x3)	0.00	3.00	3.00		-	-	-	-	-	-
	65.00	(L2.5x2.5)	12.00	2.50	2.50		2.00	1.156	23.8	10	-	-
	65.00	Plate Horizontal (PL4x3/8)	0.00	0.38	4.00		-	-	-	-	-	-
	65.00	Plate Horizontal (PL7x0.4)	0.00	0.40	7.00		-	-	-	-	-	-
	65.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00		-	-	-	-	-	-
	65.00	Tapered Section	0.00	2.00	4.00		-	-	-	-	-	-
	65.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38		-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** Ca will equal 1.2 for round members and 2.0 for flat members

CLIENT: ProTerra

PROJECT: 1978004 - CTHA536A-Upgarde

SUBJECT: Antenna Loads -TIA 222 G Stanadard (chapter 16 revisions)

ti (in) 2.140277 Kiz 1.0701384 reduction 0.2657

Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A_N (ft2)	*A_T (ft2)	*Volume Ice (ft3)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q_z (psf)	Pounds: Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos. 1	**65.00**	Air 21 B2P B4A	1	55.9	12.1	7.9	0.90	2.15	2.02	3.85	215.66	0.73	0.75	1.156	7.0	9.9	9.7	48.3	36.8	216	48	37	216
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					25	**19**	**108**
Pos.2	**65.00**	Air 32 B66AA B2A	1	59.3	12.9	8.7	0.90	2.27	2.15	4.34	242.93	0.73	0.75	1.156	7.0	10.4	10.2	53.8	41.6	243	54	53	331
	65.00	Radio 4449 B71+B12	1	15.0	13.2	9.3	0.90	-	0.85	1.58	88.21	0.70	0.70	1.156	7.0	0.0	3.7	0.0	11.0	88			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					27	**27**	**166**
Pos.3	**65.00**	RFS APXVAARR24_43-U-NA20	1	95.9	24.0	8.7	0.90	3.69	3.24	9.69	542.89	0.72	0.82	1.156	7.0	16.9	16.7	144.9	72.9	543	145	73	543
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					73	**37**	**272**
Pos.4		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	0	0	0
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
																					0	**0**	**0**

* A_N ,A_T, Volume Ice and Weight Ice are calculated per unit

** Ca will equal 1.2 for all ice load calculations

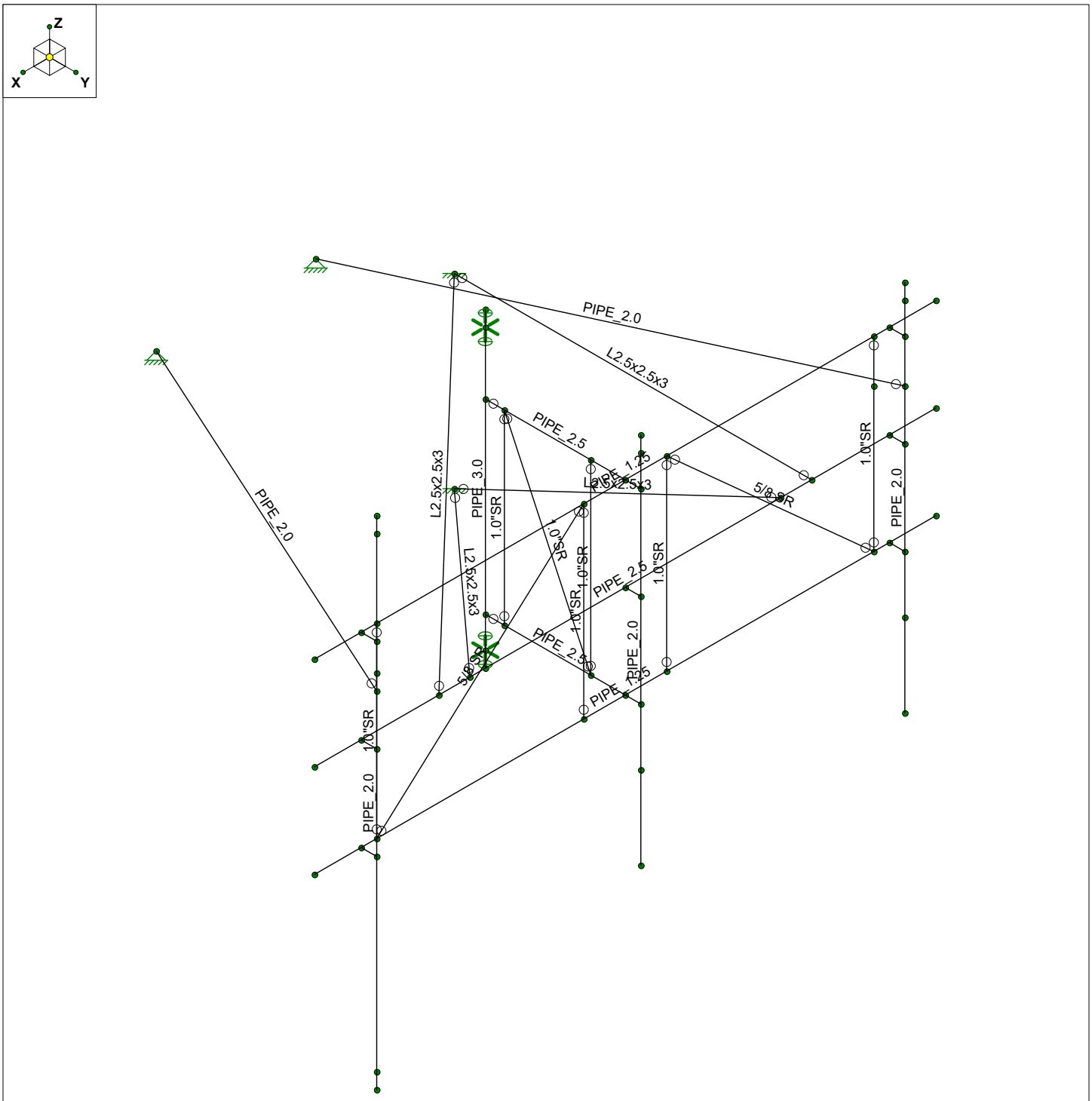
Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A_N (ft2)	Volume Ice (ft3)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q_z (psf)	PLF: Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	65.00	1.25 STD Pipe	12.00	1.66	0.00	0.53	0.18	9.94	1.20	1.156	6.3	4.0	5.1	10
	65.00	2 STD Pipe	12.00	2.38	0.00	0.55	0.21	11.82	1.20	1.156	6.3	4.2	5.7	12
	65.00	2.5 STD Pipe	12.00	3.00	0.00	0.57	0.24	13.44	1.20	1.156	6.3	4.4	6.2	13
	65.00	3 STD Pipe	12.00	3.50	0.00	0.59	0.26	14.75	1.20	1.156	6.3	4.5	6.7	15
	65.00	1.0 SR	12.00	1.00	0.00	0.51	0.15	8.21	1.20	1.156	6.3	3.9	4.5	8
	65.00	5/8 SR	12.00	0.63	0.00	0.50	0.13	7.23	1.20	1.156	6.3	3.8	4.2	7
	65.00	(L3x3)	0.00	3.00	3.00	-	-	-	-	-	-	-	-	-
	65.00	(L2.5x2.5)	12.00	2.50	2.50	0.56	0.15	8.32	1.20	1.156	6.3	4.2	6.9	8
	65.00	Plate Horizontal (PL4x3/8)	0.00	0.38	4.00	-	-	-	-	-	-	-	-	-
	65.00	Plate Horizontal (PL7x0.4)	0.00	0.40	7.00	-	-	-	-	-	-	-	-	-
	65.00	Double Angle (LL2x2x3x0)	0.00	2.00	2.00	-	-	-	-	-	-	-	-	-
	65.00	Tapered Section	0.00	2.00	4.00	-	-	-	-	-	-	-	-	-
	65.00	Invert U 5.375x3.625x.375	0.00	3.63	5.38	-	-	-	-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

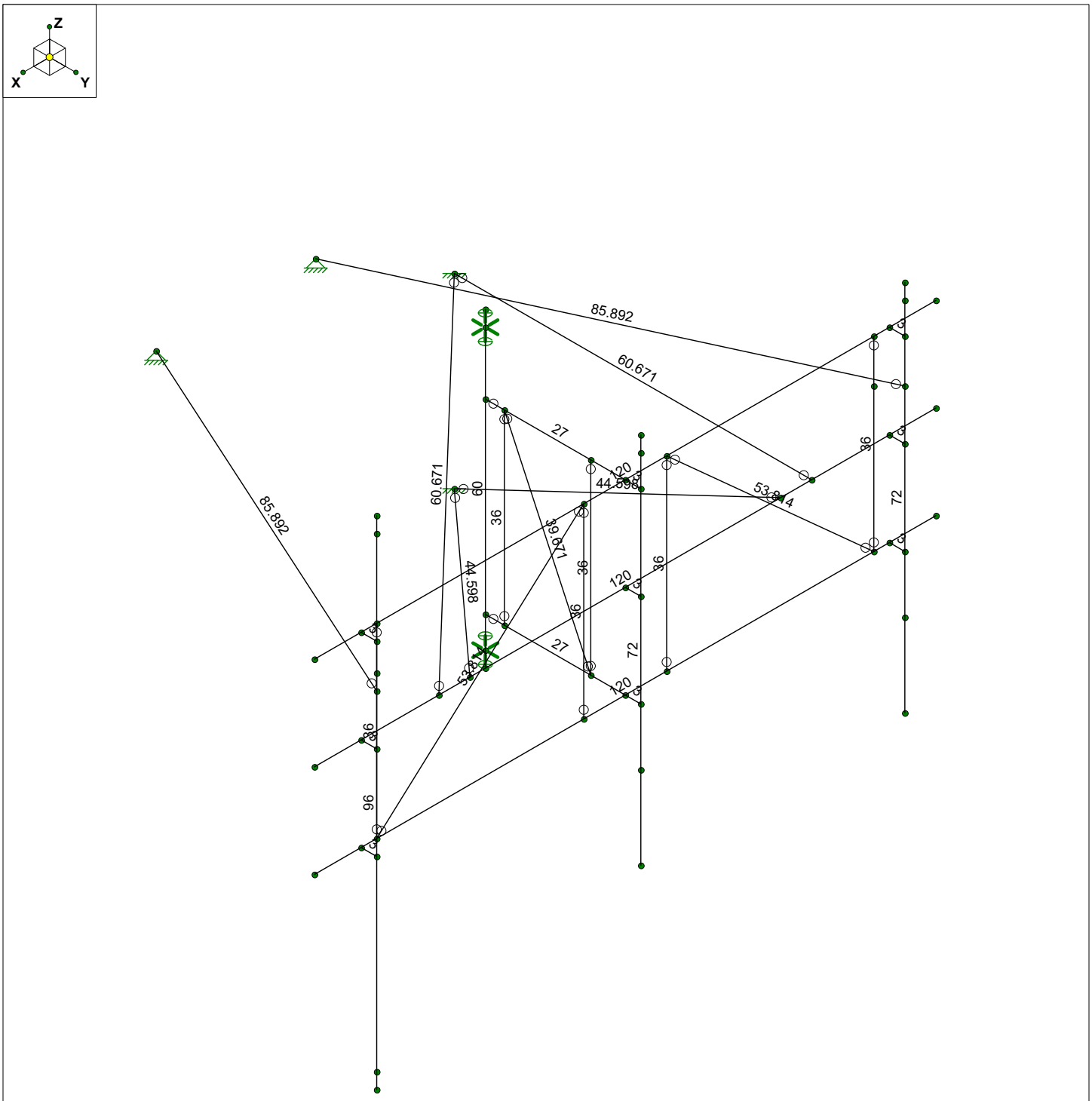
*** A_N is the area of ice built up on the LW plane

**** Ca will equal 1.2 for all ice load calculations



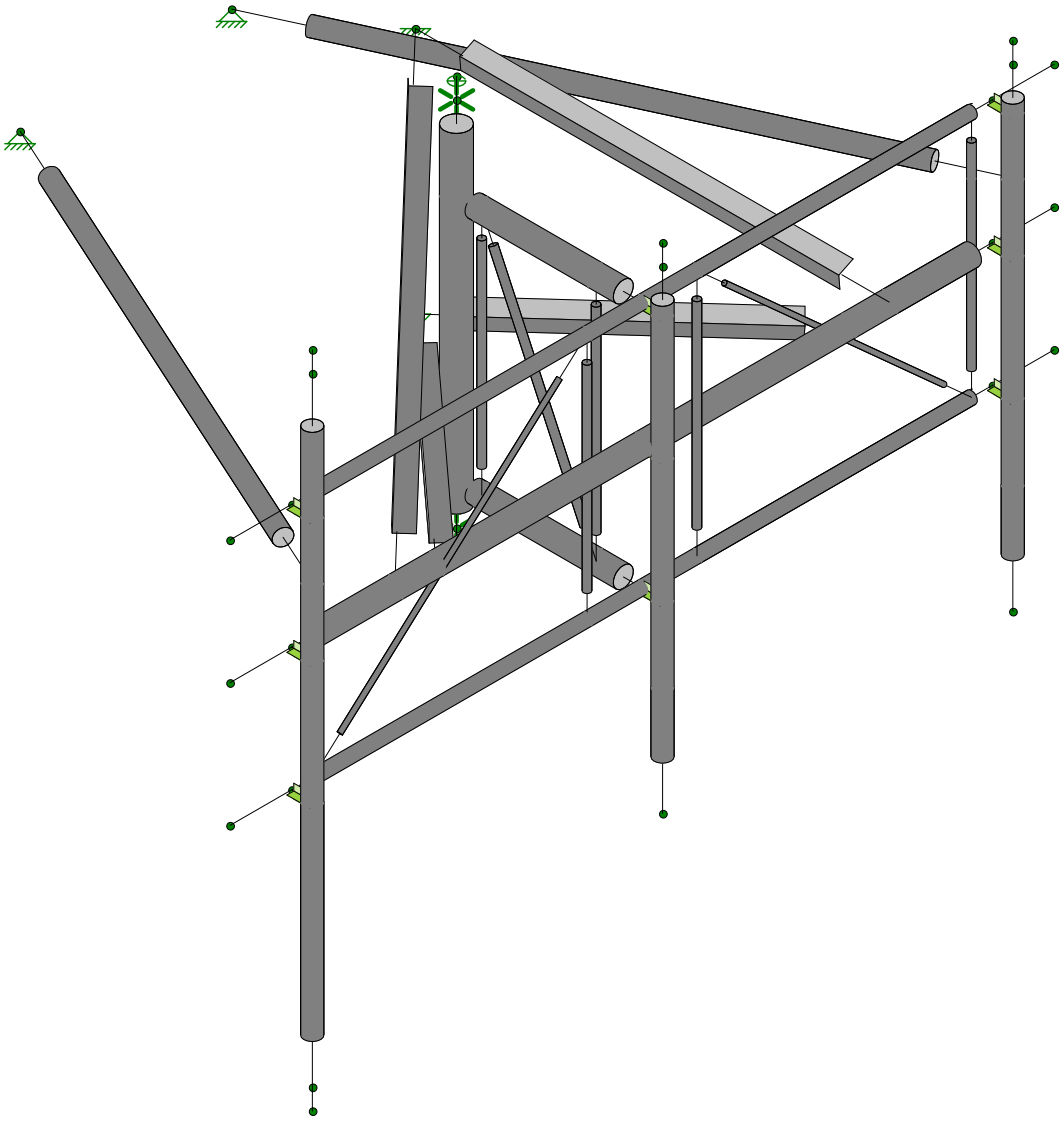
Envelope Only Solution

ProTerra/Destek	CTHA536A-Upgrade	SK - 1
AG		July 3, 2019 at 4:52 PM
1978004		CTHA536A - Insite Glastonbury La...



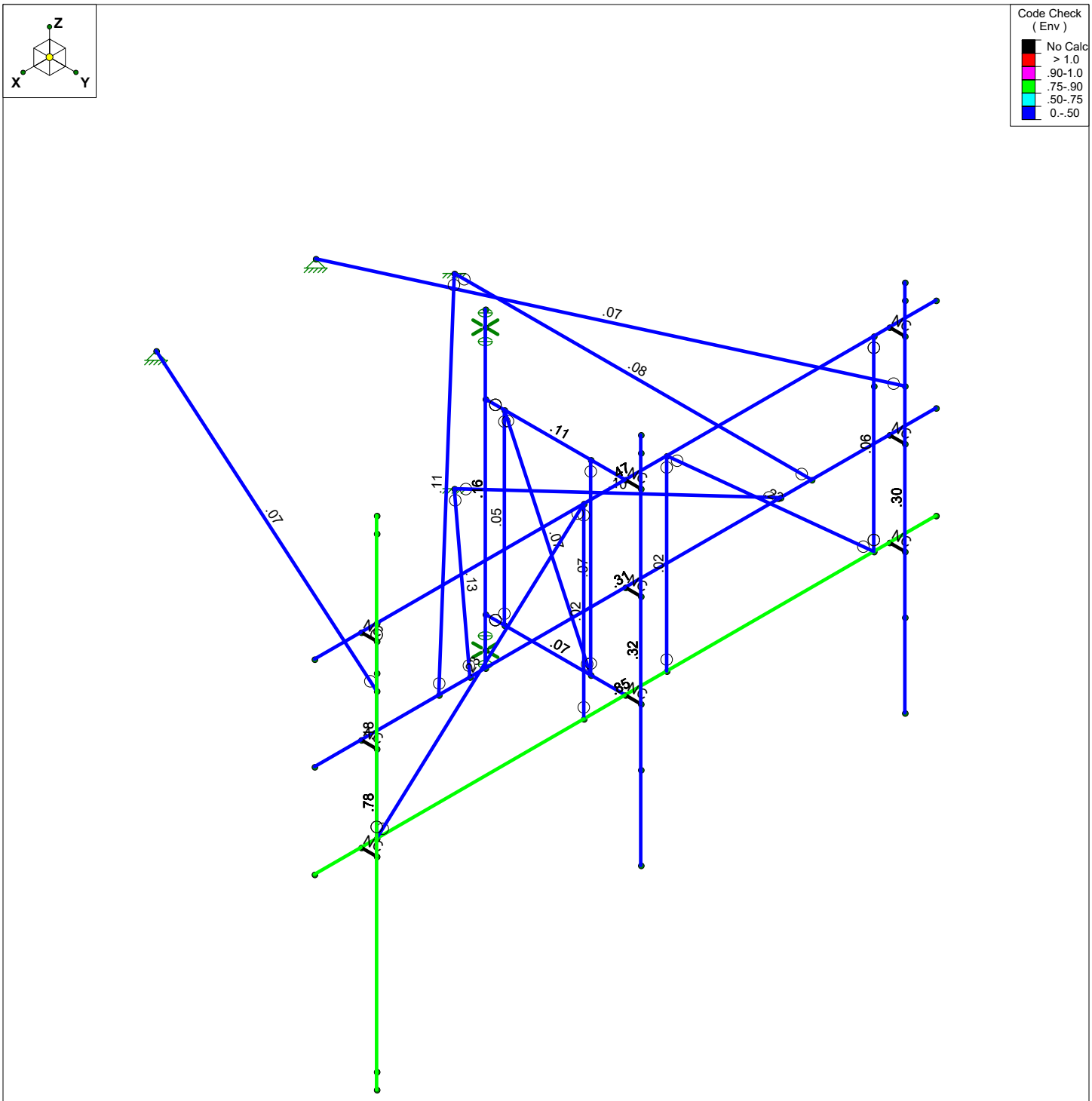
Member Length (in) Displayed
Envelope Only Solution

ProTerra/Destek	CTHA536A-Upgrade	SK - 2
AG		July 3, 2019 at 4:52 PM
1978004		CTHA536A - Insite Glastonbury La...



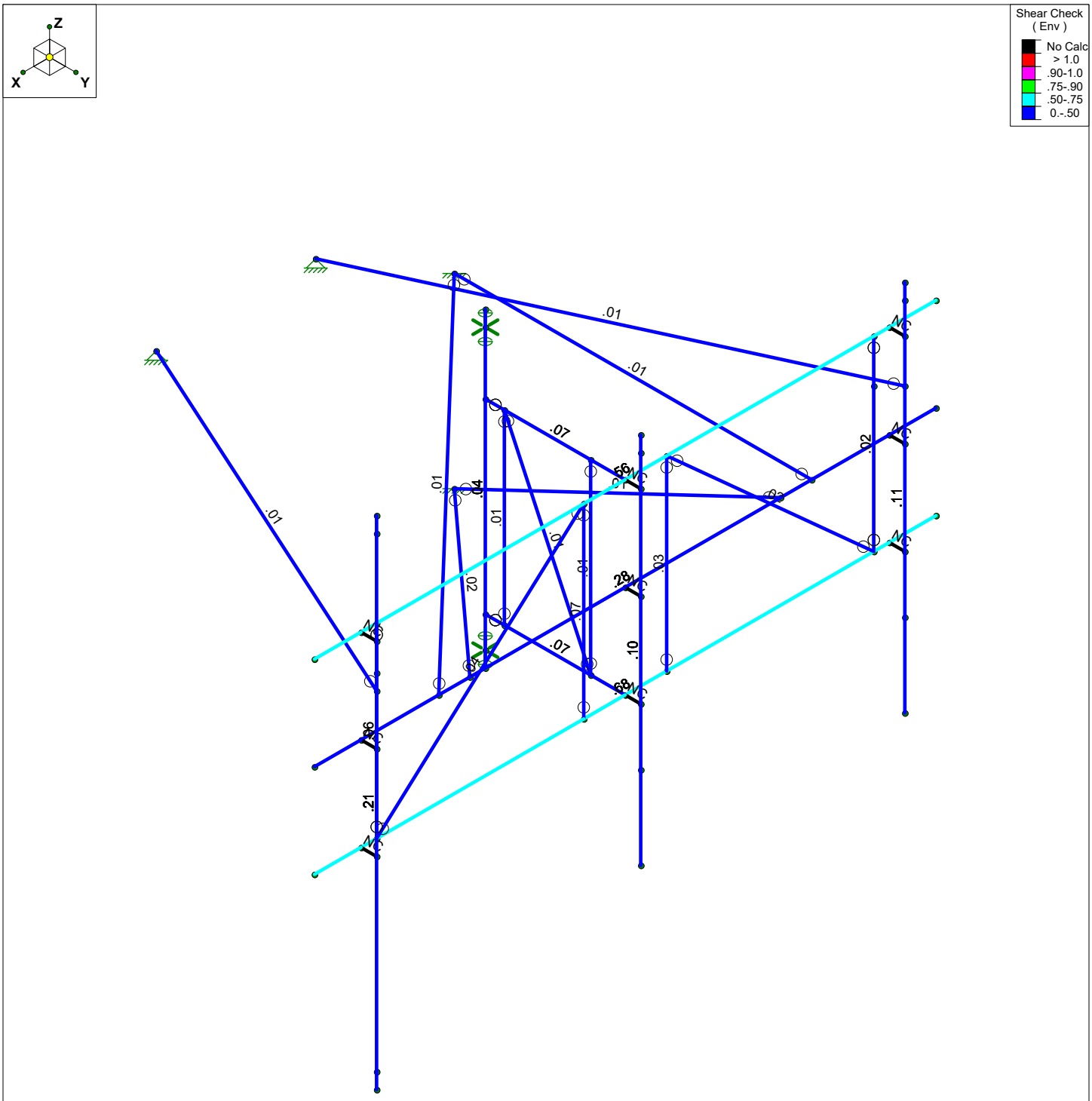
Envelope Only Solution

ProTerra/Destek	CTHA536A-Upgrade	SK - 3
AG		July 3, 2019 at 4:53 PM
1978004		CTHA536A - Insite Glastonbury La...



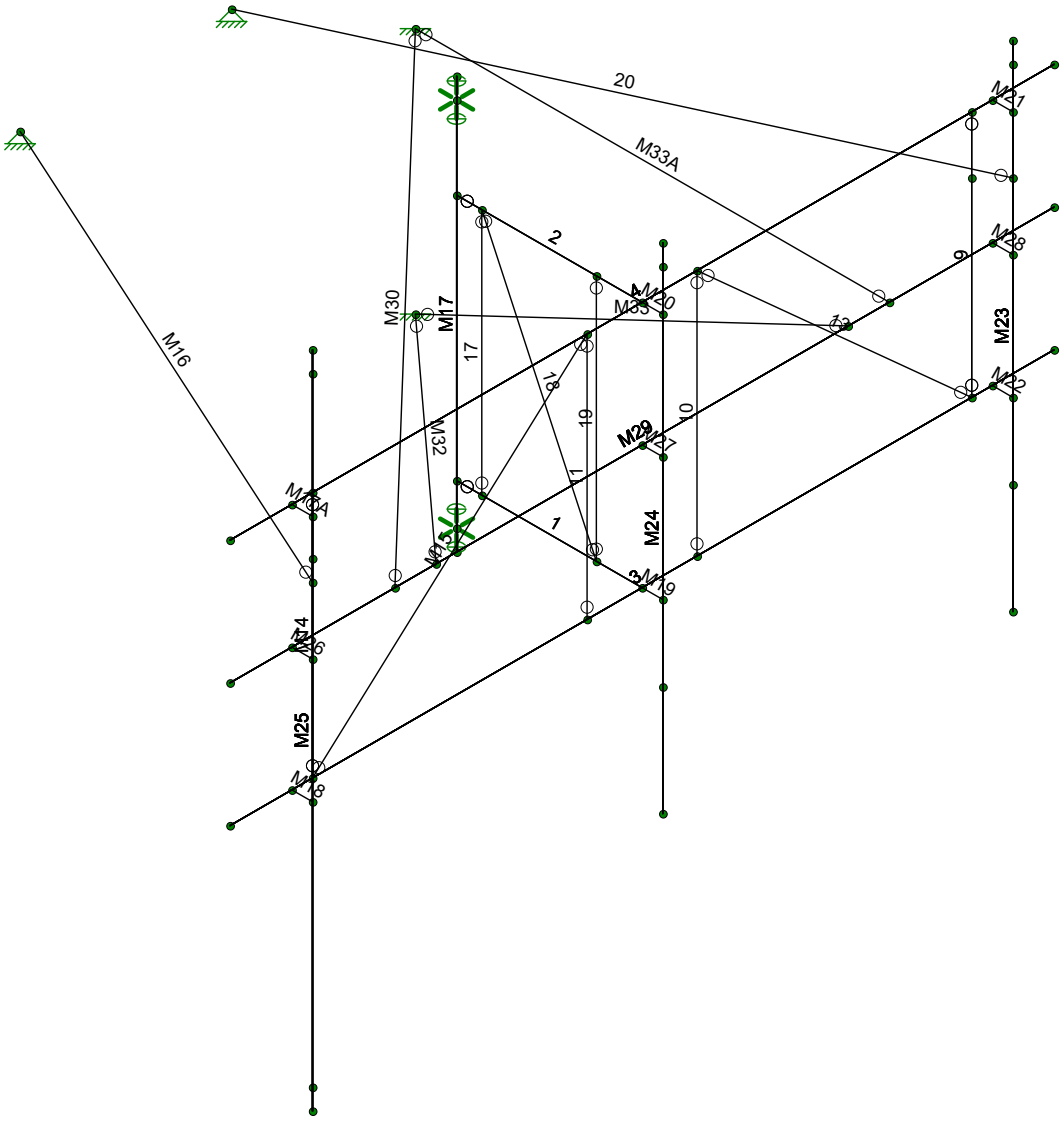
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

ProTerra/Destek	CTHA536A-Upgrade	SK - 4
AG		July 3, 2019 at 4:53 PM
1978004		CTHA536A - Insite Glastonbury La...



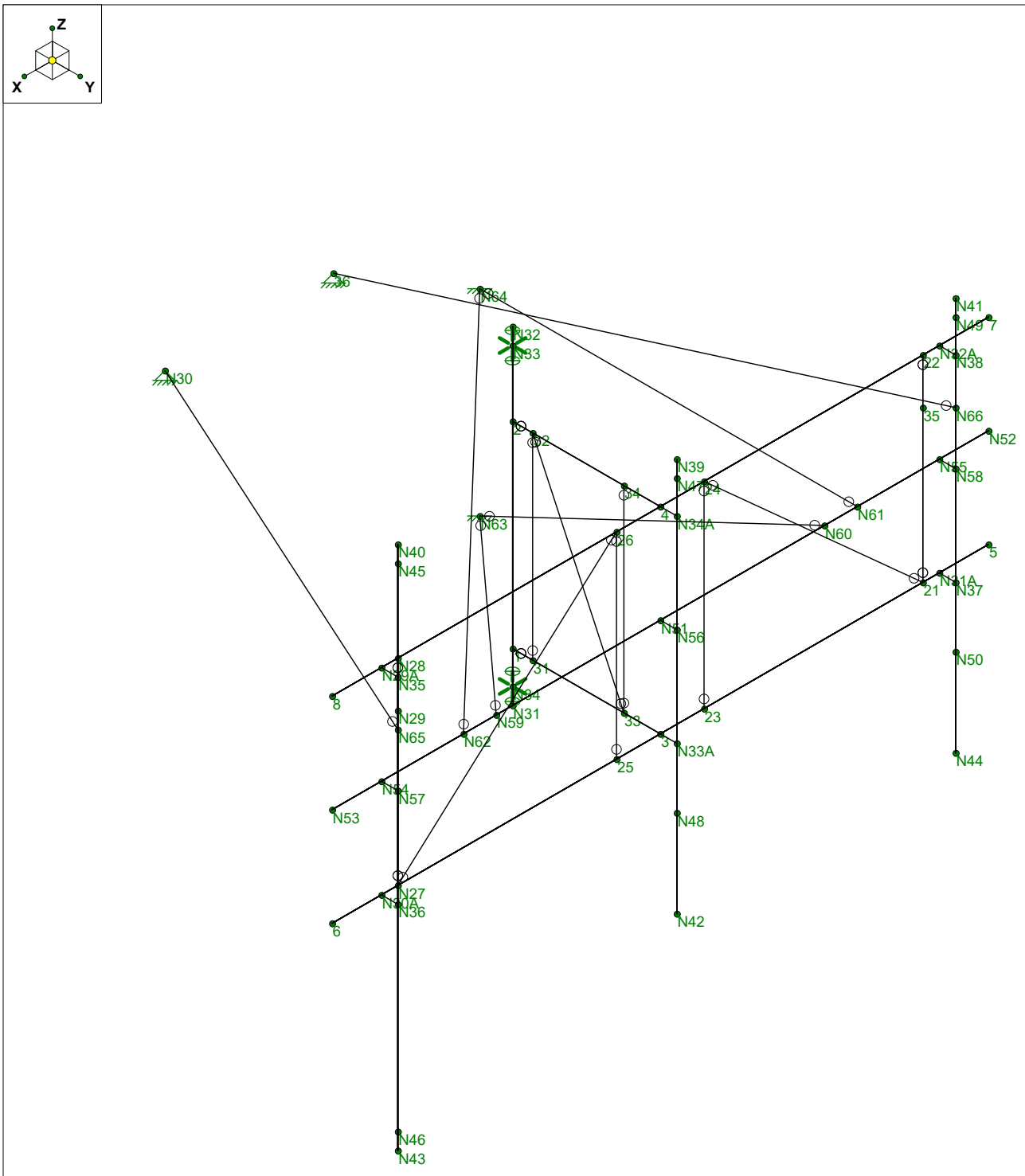
Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

ProTerra/Destek	CTHA536A-Upgrade	SK - 5
AG		July 3, 2019 at 4:54 PM
1978004		CTHA536A - Insite Glastonbury La...



Envelope Only Solution

ProTerra/Destek	CTHA536A-Upgrade	SK - 6
AG		July 3, 2019 at 4:54 PM
1978004		CTHA536A - Insite Glastonbury La...



Envelope Only Solution

ProTerra/Destek	CTHA536A-Upgrade	SK - 7
AG		July 3, 2019 at 4:54 PM
1978004		CTHA536A - Insite Glastonbury La...

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Z
Global Member Orientation Plane	XY
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI NAS-01: LRFD
Wood Code	AF&PA NDS-05/08: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building
	AISC 14th(360-10): ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-05
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	Not Entered
Occupancy Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Project Grid Lines

	Label	Start X [in]	End X [in]	Start Y [in]	End Y [in]	Start Bubble	End Bubble
No Data to Print ...							

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	2.5" STD Pipe	PIPE_2.5	Beam	Wide Flange	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	2" STD Pipe	PIPE_2.0	Beam	Wide Flange	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	1.25" STD Pi...	PIPE_1.25	Beam	Wide Flange	A53 Gr.B	Typical	.625	.184	.184	.368
4	1" STD Pipe	PIPE_1.0	Beam	Wide Flange	A53 Gr.B	Typical	.469	.083	.083	.166
5	1" Solid Rod	1.0"SR	Beam	Wide Flange	A36 Gr.36	Typical	.785	.049	.049	.098
6	0.75" Solid ...	0.75" SR	Beam	Wide Flange	A36 Gr.36	Typical	.442	.016	.016	.031
7	1 5/8 Unistrut	L1.75x1.75x...	Beam	Wide Flange	A36 Gr.36	Typical	.422	.126	.126	.002

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M17A	N29A	N35			RIGID	None	None	LINK	Typical
2	M18	N30A	N36			RIGID	None	None	LINK	Typical
3	M19	3	N33A			RIGID	None	None	LINK	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
4	M20	4	N34A			RIGID	None	None	LINK	Typical
5	M21	N32A	N38			RIGID	None	None	LINK	Typical
6	M22	N31A	N37			RIGID	None	None	LINK	Typical
7	M17	N31	N32			PIPE 3.0	Beam	Wide Flange	A53 Gr.B	Typical
8	13	21	24			5/8 SR	Beam	Wide Flange	A36 Gr.36	Typical
9	M15	26	N27			5/8 SR	Beam	Wide Flange	A36 Gr.36	Typical
10	1	1	3			2.5" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
11	2	2	4			2.5" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
12	M23	N41	N44			2" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
13	M24	N39	N42			2" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
14	M25	N40	N43			2" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
15	20	N66	36			2" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
16	M16	N65	N30			2" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
17	3	5	6			1.25" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
18	4	7	8			1.25" STD Pipe	Beam	Wide Flange	A53 Gr.B	Typical
19	9	21	22			1" Solid Rod	Beam	Wide Flange	A36 Gr.36	Typical
20	10	23	24			1" Solid Rod	Beam	Wide Flange	A36 Gr.36	Typical
21	11	25	26			1" Solid Rod	Beam	Wide Flange	A36 Gr.36	Typical
22	17	32	31			1" Solid Rod	Beam	Wide Flange	A36 Gr.36	Typical
23	18	32	33			1" Solid Rod	Beam	Wide Flange	A36 Gr.36	Typical
24	19	34	33			1" Solid Rod	Beam	Wide Flange	A36 Gr.36	Typical
25	M14	N27	N28			1" Solid Rod	Beam	Wide Flange	A36 Gr.36	Typical
26	M26	N54	N57			RIGID	None	None	LINK	Typical
27	M27	N51	N56			RIGID	None	None	LINK	Typical
28	M28	N55	N58			RIGID	None	None	LINK	Typical
29	M29	N52	N53			PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical
30	M30	N62	N64			L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical
31	M32	N59	N63			L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical
32	M33	N63	N60			L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical
33	M33A	N64	N61			L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M17A						Yes			None
2	M18						Yes			None
3	M19						Yes			None
4	M20						Yes			None
5	M21						Yes			None
6	M22						Yes			None
7	M17						Yes			None
8	13	BenPIN	BenPIN				Yes			None
9	M15	BenPIN	BenPIN				Yes			None
10	1	BenPIN					Yes			None
11	2	BenPIN					Yes			None
12	M23						Yes			None
13	M24						Yes			None
14	M25						Yes			None
15	20	BenPIN					Yes			None
16	M16	BenPIN					Yes			None
17	3						Yes			None
18	4						Yes			None
19	9	BenPIN	BenPIN				Yes			None
20	10	BenPIN	BenPIN				Yes			None
21	11	BenPIN	BenPIN				Yes			None
22	17	BenPIN	BenPIN				Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
23	18	BenPIN	BenPIN				Yes			None
24	19	BenPIN	BenPIN				Yes			None
25	M14	BenPIN	BenPIN				Yes			None
26	M26						Yes			None
27	M27						Yes			None
28	M28						Yes			None
29	M29						Yes			None
30	M30	BenPIN	BenPIN				Yes			None
31	M32	BenPIN	BenPIN				Yes			None
32	M33	BenPIN	BenPIN				Yes			None
33	M33A	BenPIN	BenPIN				Yes			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M17	PIPE_3.0	60			Lbyy						Lateral
2	13	5/8 SR	53.814						.7	.7		Lateral
3	M15	5/8 SR	53.814						.7	.7		Lateral
4	1	2.5" STD Pi...	27	Segment	Segment	Lbyy		Segm...				Lateral
5	2	2.5" STD Pi...	27	Segment	Segment	Lbyy		Segm...				Lateral
6	M23	2" STD Pipe	72			Lbyy						Lateral
7	M24	2" STD Pipe	72			Lbyy						Lateral
8	M25	2" STD Pipe	96			Lbyy						Lateral
9	20	2" STD Pipe	85.892			Lbyy						Lateral
10	M16	2" STD Pipe	85.892			Lbyy						Lateral
11	3	1.25" STD ...	120	60	40							Lateral
12	4	1.25" STD ...	120	60	40							Lateral
13	9	1" Solid Rod	36						.7	.7		Lateral
14	10	1" Solid Rod	36						.7	.7		Lateral
15	11	1" Solid Rod	36						.7	.7		Lateral
16	17	1" Solid Rod	36						.7	.7		Lateral
17	18	1" Solid Rod	39.671						.7	.7		Lateral
18	19	1" Solid Rod	36						.7	.7		Lateral
19	M14	1" Solid Rod	36						.7	.7		Lateral
20	M29	PIPE_2.5	120	60	40							Lateral
21	M30	L2.5x2.5x3	60.671			Lbyy						Lateral
22	M32	L2.5x2.5x3	44.598			Lbyy						Lateral
23	M33	L2.5x2.5x3	44.598			Lbyy						Lateral
24	M33A	L2.5x2.5x3	60.671			Lbyy						Lateral

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	1	0	0	0	0	
2	2	0	0	36.	0	
3	3	0	27.	0	0	
4	4	0	27.	36.	0	
5	5	-60	27.	0	0	
6	6	60	27	0	0	
7	7	-60	27.	36.	0	
8	8	60	27	36	0	
9	21	-48	27.	0	0	
10	22	-48	27.	36.	0	
11	23	-8	27.	0	0	
12	24	-8	27.	36.	0	
13	25	8	27	0	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
14	26	8	27	36	0	
15	31	0	3.666667	0	0	
16	32	0	3.666667	36.	0	
17	33	0	20.333333	0	0	
18	34	0	20.333333	36.	0	
19	35	-48	27.	27.666667	0	
20	36	-15.4	-48.166667	27.666667	0	
21	N27	48	27	0	0	
22	N28	48	27	36	0	
23	N29	48	27.	27.666667	0	
24	N30	15.4	-48.166667	27.666667	0	
25	N31	0	0	-9	0	
26	N32	0	0	51.	0	
27	N33	0	0	48	0	
28	N34	0	0	-6	0	
29	N29A	51	27	36	0	
30	N30A	51	27	0	0	
31	N31A	-51	27.	0	0	
32	N32A	-51	27.	36.	0	
33	N33A	0	30.	0	0	
34	N34A	0	30.	36.	0	
35	N35	51	30	36	0	
36	N36	51	30	0	0	
37	N37	-51	30.	0	0	
38	N38	-51	30.	36.	0	
39	N39	0	30.	45.	0	
40	N40	51	30	57	0	
41	N41	-51	30.	45.	0	
42	N42	0	30.	-27.	0	
43	N43	51	30	-39	0	
44	N44	-51	30.	-27.	0	
45	N45	51	30	54	0	
46	N46	51	30	-36	0	
47	N47	0	30.	42.	0	
48	N48	0	30	-11	0	
49	N49	-51	30.	42.	0	
50	N50	-51	30	-11	0	
51	N51	0	27.	18.	0	
52	N52	-60	27.	18.	0	
53	N53	60	27	18	0	
54	N54	51	27	18	0	
55	N55	-51	27.	18.	0	
56	N56	0	30.	18.	0	
57	N57	51	30	18	0	
58	N58	-51	30.	18.	0	
59	N59	30	27.	18.	0	
60	N60	-30	27.	18.	0	
61	N61	-36	27.	18.	0	
62	N62	36	27.	18.	0	
63	N63	0	-6	18.	0	
64	N64	0	-6	54.	0	
65	N65	51	30	27.67	0	
66	N66	-51	30.	27.67	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	1						
2	2						
3	36	Reaction	Reaction	Reaction			
4	N30	Reaction	Reaction	Reaction			
5	N31						
6	N32						
7	N33	Reaction	Reaction	Reaction			Reaction
8	N34	Reaction	Reaction	Reaction			Reaction
9	N63	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	N64	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DEAD LOAD	None			-1	6				
2	DEAD LOAD ICE	None				6		24		
3	WIND LOAD (NO ICE) FRONT	None				6		24		
4	WIND LOAD (NO ICE) SIDE	None				6		24		
5	WIND LOAD (ICE) FRONT	None				6		24		
6	WIND LOAD (ICE) SIDE	None				6		25		
7	LIVE LOAD1	None				1				
8	LIVE LOAD2	None				1				
9	LIVE LOAD3	None								
10	MAINTENANCE LOAD1	None				1				
11	MAINTENANCE LOAD2	None				1				
12	MAINTENANCE LOAD3	None				1				
13	MAINTENANCE LOAD4	None								

Joint Loads and Enforced Displacements (BLC 1 : DEAD LOAD)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N49	L	Z	-46
2	N50	L	Z	-46
3	N47	L	Z	-92
4	N48	L	Z	-92
5	N45	L	Z	-64
6	N46	L	Z	-64

Joint Loads and Enforced Displacements (BLC 2 : DEAD LOAD ICE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N49	L	Z	-108
2	N50	L	Z	-108
3	N47	L	Z	-166
4	N48	L	Z	-166
5	N45	L	Z	-272
6	N46	L	Z	-272

Joint Loads and Enforced Displacements (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N49	L	Y	73
2	N50	L	Y	73
3	N47	L	Y	82
4	N48	L	Y	82
5	N45	L	Y	241

Joint Loads and Enforced Displacements (BLC 3 : WIND LOAD (NO ICE) FRONT) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
6	N46	L	Y	241

Joint Loads and Enforced Displacements (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N49	L	X	52
2	N50	L	X	52
3	N47	L	X	73
4	N48	L	X	73
5	N45	L	X	106
6	N46	L	X	106

Joint Loads and Enforced Displacements (BLC 5 : WIND LOAD (ICE) FRONT)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N49	L	Y	25
2	N50	L	Y	25
3	N47	L	Y	27
4	N48	L	Y	27
5	N45	L	Y	73
6	N46	L	Y	73

Joint Loads and Enforced Displacements (BLC 6 : WIND LOAD (ICE) SIDE)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N49	L	X	19
2	N50	L	X	19
3	N47	L	X	27
4	N48	L	X	27
5	N45	L	X	37
6	N46	L	X	37

Joint Loads and Enforced Displacements (BLC 7 : LIVE LOAD1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	5	L	Z	-250

Joint Loads and Enforced Displacements (BLC 8 : LIVE LOAD2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	6	L	Z	-250

Joint Loads and Enforced Displacements (BLC 10 : MAINTENANCE LOAD1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N44	L	Z	-500

Joint Loads and Enforced Displacements (BLC 11 : MAINTENANCE LOAD2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N42	L	Z	-500

Joint Loads and Enforced Displacements (BLC 12 : MAINTENANCE LOAD3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
1	N43	L	Z	-500

Member Point Loads

Member Label	Direction	Magnitude[lb,k-ft]	Location[in,%]
No Data to Print ...			

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M17	Z	-15	-15	0	0
2	13	Z	-7	-7	0	0
3	M15	Z	-7	-7	0	0
4	1	Z	-13	-13	0	0
5	2	Z	-13	-13	0	0
6	M23	Z	-12	-12	0	0
7	M24	Z	-12	-12	0	0
8	M25	Z	-12	-12	0	0
9	20	Z	-12	-12	0	0
10	M16	Z	-12	-12	0	0
11	3	Z	-10	-10	0	0
12	4	Z	-10	-10	0	0
13	9	Z	-8	-8	0	0
14	10	Z	-8	-8	0	0
15	11	Z	-8	-8	0	0
16	17	Z	-8	-8	0	0
17	18	Z	-8	-8	0	0
18	19	Z	-8	-8	0	0
19	M14	Z	-8	-8	0	0
20	M30	Z	-8	-8	0	0
21	M32	Z	-8	-8	0	0
22	M33	Z	-8	-8	0	0
23	M33A	Z	-8	-8	0	0
24	M29	Z	-13	-13	0	0

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M17	PY	8	8	0	0
2	13	PY	1	1	0	0
3	M15	PY	1	1	0	0
4	1	PY	7	7	0	0
5	2	PY	7	7	0	0
6	M23	PY	6	6	0	0
7	M24	PY	6	6	0	0
8	M25	PY	6	6	0	0
9	20	PY	6	6	0	0
10	M16	PY	6	6	0	0
11	3	PY	4	4	0	0
12	4	PY	4	4	0	0
13	9	PY	2	2	0	0
14	10	PY	2	2	0	0
15	11	PY	2	2	0	0
16	17	PY	2	2	0	0
17	18	PY	2	2	0	0
18	19	PY	2	2	0	0
19	M14	PY	2	2	0	0
20	M30	PY	10	10	0	0
21	M32	PY	10	10	0	0
22	M33	PY	10	10	0	0
23	M33A	PY	10	10	0	0

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
24	M29	PY	7	7	0	0

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M17	PX	8	8	0	0
2	13	PX	1	1	0	0
3	M15	PX	1	1	0	0
4	1	PX	7	7	0	0
5	2	PX	7	7	0	0
6	M23	PX	6	6	0	0
7	M24	PX	6	6	0	0
8	M25	PX	6	6	0	0
9	20	PX	6	6	0	0
10	M16	PX	6	6	0	0
11	3	PX	4	4	0	0
12	4	PX	4	4	0	0
13	9	PX	2	2	0	0
14	10	PX	2	2	0	0
15	11	PX	2	2	0	0
16	17	PX	2	2	0	0
17	18	PX	2	2	0	0
18	19	PX	2	2	0	0
19	M14	PX	2	2	0	0
20	M30	PX	10	10	0	0
21	M32	PX	10	10	0	0
22	M33	PX	10	10	0	0
23	M33A	PX	10	10	0	0
24	M29	PX	7	7	0	0

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M17	PY	6.7	6.7	0	0
2	13	PY	4.2	4.2	0	0
3	M15	PY	4.2	4.2	0	0
4	1	PY	6.2	6.2	0	0
5	2	PY	6.2	6.2	0	0
6	M23	PY	5.7	5.7	0	0
7	M24	PY	5.7	5.7	0	0
8	M25	PY	5.7	5.7	0	0
9	20	PY	5.7	5.7	0	0
10	M16	PY	5.7	5.7	0	0
11	3	PY	5.1	5.1	0	0
12	4	PY	5.1	5.1	0	0
13	9	PY	4.5	4.5	0	0
14	10	PY	4.5	4.5	0	0
15	11	PY	4.5	4.5	0	0
16	17	PY	4.5	4.5	0	0
17	18	PY	4.5	4.5	0	0
18	19	PY	4.5	4.5	0	0
19	M14	PY	4.5	4.5	0	0
20	M30	PY	6.9	6.9	0	0
21	M32	PY	6.9	6.9	0	0
22	M33	PY	6.9	6.9	0	0
23	M33A	PY	6.9	6.9	0	0
24	M29	PY	6.2	6.2	0	0

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	M17	PX	6.7	6.7	0	0
2	13	PX	4.2	4.2	0	0
3	M15	PX	4.2	4.2	0	0
4	1	PX	6.2	6.2	0	0
5	2	PX	6.2	6.2	0	0
6	M23	PX	5.7	5.7	0	0
7	M24	PX	5.7	5.7	0	0
8	M25	PX	5.7	5.7	0	0
9	20	PX	5.7	5.7	0	0
10	M16	PX	5.7	5.7	0	0
11	3	PX	5.1	5.1	0	0
12	4	PX	5.1	5.1	0	0
13	9	PX	4.5	4.5	0	0
14	10	PX	4.5	4.5	0	0
15	11	PX	4.5	4.5	0	0
16	17	PX	4.5	4.5	0	0
17	18	PX	4.5	4.5	0	0
18	19	PX	4.5	4.5	0	0
19	M14	PX	4.5	4.5	0	0
20	M29	PX	5.1	5.1	0	0
21	M30	PX	6.9	6.9	0	0
22	M32	PX	6.9	6.9	0	0
23	M33	PX	6.9	6.9	0	0
24	M33A	PX	6.9	6.9	0	0
25	M29	PX	6.2	6.2	0	0

Member Area Loads

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

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	DL + WL (NO ICE) 0 ...	Yes	Y		1	1.2			3	1.6														
2	DL + WL (NO ICE) 30 ...	Yes	Y		1	1.2			3	1.3...	4	.8												
3	DL + WL (NO ICE) 60 ...	Yes	Y		1	1.2			3	.8	4	1.3...												
4	DL + WL (NO ICE) 90 ...	Yes	Y		1	1.2					4	1.6												
5	DL + WL (NO ICE) 12...	Yes	Y		1	1.2			3	-.8	4	1.3...												
6	DL + WL (NO ICE) 15...	Yes	Y		1	1.2			3	-1.3...	4	.8												
7	DL + WL (NO ICE) 18...	Yes	Y		1	1.2			3	-1.6														
8	DL + WL (NO ICE) 21...	Yes	Y		1	1.2			3	-1.3...	4	-.8												
9	DL + WL (NO ICE) 24...	Yes	Y		1	1.2			3	-.8	4	-1.3...												
10	DL + WL (NO ICE) 27...	Yes	Y		1	1.2					4	-1.6												
11	DL + WL (NO ICE) 30...	Yes	Y		1	1.2			3	.8	4	-1.3...												
12	DL + WL (NO ICE) 33...	Yes	Y		1	1.2			3	1.3...	4	-.8												
13	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1	5	1														
14	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1	5	.866	6	.5												
15	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1	5	.5	6	.866												
16	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1			6	1												
17	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1	5	-.5	6	.866												
18	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1	5	-.866	6	.5												
19	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1	5	-1														
20	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1	5	-.866	6	-.5												
21	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1	5	-.5	6	-.866												
22	DL + DL ICE + WL (IC...	Yes	Y		1	1.2	2	1			6	-1												

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..
23	DL + DL ICE + WL (IC..	Yes	Y		1	1.2	2	1	5	.5	6	-.866														
24	DL + DL ICE + WL (IC..	Yes	Y		1	1.2	2	1	5	.866	6	-.5														
25	DEAD LOAD + LIVE L...	Yes	Y		1	1.2					7	1.5														
26	DEAD LOAD + LIVE L...	Yes	Y		1	1.2					8	1.5														
27	DEAD LOAD + LIVE L...	Yes	Y		1	1.2					9	1.5														
28	DL + MAIN L1+30MP...	Yes	Y		1	1.2	10	1.5	3	.096																
29	DL + MAIN L2+30MP...	Yes	Y		1	1.2	11	1.5	3	.096																
30	DL + MAIN L3+30MP...	Yes	Y		1	1.2	12	1.5	3	.096																
31	DL + MAIN L4+30MP...	Yes	Y		1	1.2	13	1.5	3	.096																
32	DL + MAIN L1+30MP...	Yes	Y		1	1.2	10	1.5	4	.096																
33	DL + MAIN L2+30MP...	Yes	Y		1	1.2	11	1.5	4	.096																
34	DL + MAIN L3+30MP...	Yes	Y		1	1.2	12	1.5	4	.096																
35	DL + MAIN L4+30MP...	Yes	Y		1	1.2	13	1.5	4	.096																
36	DL + MAIN L1+30MP...	Yes	Y		1	1.2	10	1.5	3	-.096																
37	DL + MAIN L2+30MP...	Yes	Y		1	1.2	11	1.5	3	-.096																
38	DL + MAIN L3+30MP...	Yes	Y		1	1.2	12	1.5	3	-.096																
39	DL + MAIN L4+30MP...	Yes	Y		1	1.2	13	1.5	3	-.096																
40	DL + MAIN L1+30MP...	Yes	Y		1	1.2	10	1.5	4	-.096																
41	DL + MAIN L2+30MP...	Yes	Y		1	1.2	11	1.5	4	-.096																
42	DL + MAIN L3+30MP...	Yes	Y		1	1.2	12	1.5	4	-.096																
43	DL + MAIN L4+30MP...	Yes	Y		1	1.2	13	1.5	4	-.096																

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	36	max	226.749	4	614.954	10	57.926	16	0	1	0	1	0	1
2		min	-250.373	10	-569.623	4	14.826	8	0	1	0	1	0	1
3	N30	max	424.81	6	973.917	6	58.046	23	0	1	0	1	0	1
4		min	-397.406	12	-924.292	12	14.232	6	0	1	0	1	0	1
5	N33	max	117.339	11	130.194	1	774.764	19	0	1	0	1	0	1
6		min	-127.389	5	-859.259	19	127.46	1	0	1	0	1	0	1
7	N34	max	132.683	10	814.044	19	695.431	19	0	1	0	1	0	1
8		min	-125.552	4	-221.837	1	100.031	1	0	1	0	1	0	1
9	N63	max	1706.544	10	1952.523	19	42.9	14	.001	7	.001	5	0	1
10		min	-1570.085	4	-705.736	1	12.345	5	0	1	-.001	11	0	1
11	N64	max	920.223	40	-193.125	7	1824.065	13	0	7	0	5	0	11
12		min	-1055.579	34	-1646.244	13	304.004	7	0	1	0	11	0	5
13	Totals:	max	1466.682	10	2117.478	7	3301.352	20						
14		min	-1466.682	4	-2117.476	1	960.474	2						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
1	1	max	0	16	.003	13	0	1	-3.834e-05	1	6.971e-05	16	0	1
2		min	0	36	0	12	0	19	-6.878e-04	13	-6.069e-05	36	0	1
3	2	max	.002	5	.02	19	0	1	9.583e-04	17	6.074e-05	22	0	1
4		min	-.002	11	-.002	1	0	19	-8.293e-05	1	-5.874e-05	16	0	1
5	3	max	.212	5	.003	13	.001	1	2.672e-04	1	1.582e-03	11	7.748e-03	11
6		min	-.214	11	0	7	-.029	19	-1.386e-03	19	-1.488e-03	5	-7.69e-03	5
7	4	max	.191	5	.02	19	.002	1	-1.203e-04	1	7.291e-04	34	6.058e-03	11
8		min	-.191	11	-.003	1	-.029	19	-1.003e-03	19	-6.372e-04	40	-6.041e-03	5
9	5	max	.212	5	.222	4	.052	11	5.832e-03	3	2.479e-03	10	3.173e-03	7
10		min	-.213	11	-.28	10	-.074	25	-7.547e-03	9	-5.213e-03	25	-2.4e-03	1
11	6	max	.213	5	.65	12	.079	5	2.41e-02	12	5.569e-03	11	8.448e-03	1
12		min	-.216	11	-.705	6	-.104	11	-2.568e-02	6	-5.616e-03	5	-9.079e-03	7
13	7	max	.191	5	.03	5	.028	11	4.297e-03	4	6.361e-04	34	2.809e-03	6

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
14		min	-.191	11	-.023	11	-.059	32	-6.069e-03	10	-2.419e-04	40	-2.143e-03	12
15	8	max	.193	5	.033	10	.033	2	1.105e-02	12	2.625e-03	6	4.075e-03	1
16		min	-.192	11	-.026	4	-.069	21	-1.289e-02	6	-2.799e-03	12	-5.054e-03	7
17	21	max	.212	5	.22	4	.026	11	5.479e-03	3	1.775e-03	10	3.191e-03	8
18		min	-.213	11	-.269	10	-.056	32	-7.137e-03	9	-1.561e-03	4	-2.283e-03	2
19	22	max	.191	5	.062	6	.028	11	4.027e-03	4	8.905e-04	24	2.362e-03	6
20		min	-.191	11	-.048	12	-.056	32	-5.731e-03	10	-5.286e-04	6	-1.859e-03	12
21	23	max	.212	5	.057	5	.004	12	8.454e-04	3	1.981e-04	12	7.133e-03	11
22		min	-.214	11	-.059	11	-.034	18	-1.988e-03	21	-1.365e-03	36	-6.525e-03	5
23	24	max	.191	5	.049	5	.004	12	4.387e-04	3	7.845e-04	11	3.715e-03	11
24		min	-.191	11	-.038	11	-.034	18	-1.647e-03	21	-1.398e-03	32	-3.867e-03	5
25	25	max	.212	5	.07	11	0	2	3.944e-03	12	1.652e-03	20	9.864e-03	12
26		min	-.214	11	-.071	5	-.039	20	-4.82e-03	6	-2.901e-04	1	-1.048e-02	6
27	26	max	.192	5	.04	10	-.001	2	1.659e-03	12	1.774e-03	23	3.213e-03	10
28		min	-.191	11	-.027	4	-.039	20	-2.453e-03	6	-7.93e-04	5	-2.973e-03	4
29	31	max	.029	5	.003	13	0	1	2.479e-05	1	2.579e-04	11	8.036e-03	11
30		min	-.029	11	0	12	-.004	19	-1.035e-03	19	-2.354e-04	5	-7.926e-03	5
31	32	max	.029	5	.02	19	0	1	7.206e-06	1	9.935e-05	38	7.453e-03	11
32		min	-.029	11	-.002	1	-.006	19	-1.319e-03	19	-8.653e-05	28	-7.483e-03	5
33	33	max	.16	5	.003	13	0	1	1.491e-05	1	1.203e-03	11	7.858e-03	11
34		min	-.162	11	0	7	-.019	19	-1.18e-03	19	-1.13e-03	5	-7.777e-03	5
35	34	max	.149	5	.02	19	.001	1	1.125e-04	1	5.486e-04	34	6.66e-03	11
36		min	-.148	11	-.003	1	-.021	19	-1.065e-03	19	-4.794e-04	40	-6.664e-03	5
37	35	max	.199	5	.086	5	.028	11	5.031e-03	4	1.006e-03	22	2.284e-03	6
38		min	-.199	11	-.086	11	-.056	32	-6.775e-03	10	-9.044e-04	4	-1.68e-03	12
39	36	max	0	10	0	4	0	8	-3.859e-05	3	1.973e-03	10	3.312e-03	10
40		min	0	4	0	10	0	16	-3.614e-03	21	-1.799e-03	4	-3.259e-03	4
41	N27	max	.213	5	.551	12	.015	4	2.268e-02	12	5.997e-03	12	9.401e-03	1
42		min	-.216	11	-.599	6	-.068	22	-2.421e-02	6	-5.974e-03	6	-1.017e-02	7
43	N28	max	.193	5	.077	8	.016	4	1.039e-02	12	3.991e-03	7	2.587e-03	1
44		min	-.192	11	-.06	2	-.069	22	-1.216e-02	6	-4.189e-03	1	-3.396e-03	7
45	N29	max	.201	5	.112	11	.016	4	1.633e-02	12	1.133e-03	22	4.165e-03	1
46		min	-.201	11	-.111	5	-.069	22	-1.816e-02	6	-8.683e-04	4	-4.963e-03	7
47	N30	max	0	12	0	12	0	6	1.737e-03	1	4.547e-03	12	3.563e-03	11
48		min	0	6	0	6	0	23	-4.293e-03	18	-4.575e-03	6	-3.622e-03	5
49	N31	max	0	36	0	12	0	1	-8.963e-05	12	7.736e-05	16	0	1
50		min	0	16	-.002	13	0	19	-5.62e-04	13	-4.685e-05	36	0	1
51	N32	max	0	11	0	1	0	1	1.895e-03	19	1.684e-04	11	0	1
52		min	0	5	-.006	19	0	19	-2.337e-04	1	-1.836e-04	5	0	1
53	N33	max	0	5	0	19	0	1	1.895e-03	19	1.685e-04	11	0	1
54		min	0	11	0	1	0	19	-2.337e-04	1	-1.837e-04	5	0	1
55	N34	max	0	4	0	1	0	1	-8.969e-05	12	7.74e-05	16	0	1
56		min	0	10	0	19	0	19	-5.62e-04	13	-4.685e-05	36	0	1
57	N29A	max	.193	5	.066	8	.021	3	1.105e-02	12	2.619e-03	6	4.06e-03	1
58		min	-.192	11	-.051	2	-.07	21	-1.289e-02	6	-2.805e-03	12	-5.039e-03	7
59	N30A	max	.213	5	.577	12	.028	5	2.41e-02	12	5.563e-03	11	8.433e-03	1
60		min	-.216	11	-.627	6	-.072	22	-2.568e-02	6	-5.622e-03	5	-9.064e-03	7
61	N31A	max	.212	5	.222	4	.031	11	5.832e-03	3	2.485e-03	10	3.158e-03	7
62		min	-.213	11	-.272	10	-.058	32	-7.547e-03	9	-2.261e-03	4	-2.385e-03	1
63	N32A	max	.191	5	.055	6	.03	11	4.297e-03	4	6.429e-04	14	2.796e-03	6
64		min	-.191	11	-.042	12	-.057	32	-6.069e-03	10	-2.358e-04	40	-2.13e-03	12
65	N33A	max	.235	5	.003	13	.002	1	2.672e-04	1	1.582e-03	11	7.748e-03	11
66		min	-.237	11	0	7	-.033	19	-1.386e-03	19	-1.488e-03	5	-7.69e-03	5
67	N34A	max	.21	5	.02	19	.001	1	-1.203e-04	1	7.291e-04	34	6.058e-03	11
68		min	-.209	11	-.003	1	-.032	19	-1.003e-03	19	-6.372e-04	40	-6.041e-03	5
69	N35	max	.201	5	.066	8	.037	1	1.105e-02	12	2.619e-03	6	4.06e-03	1
70		min	-.197	11	-.051	2	-.083	20	-1.289e-02	6	-2.805e-03	12	-5.039e-03	7

Envelope Joint Displacements (Continued)

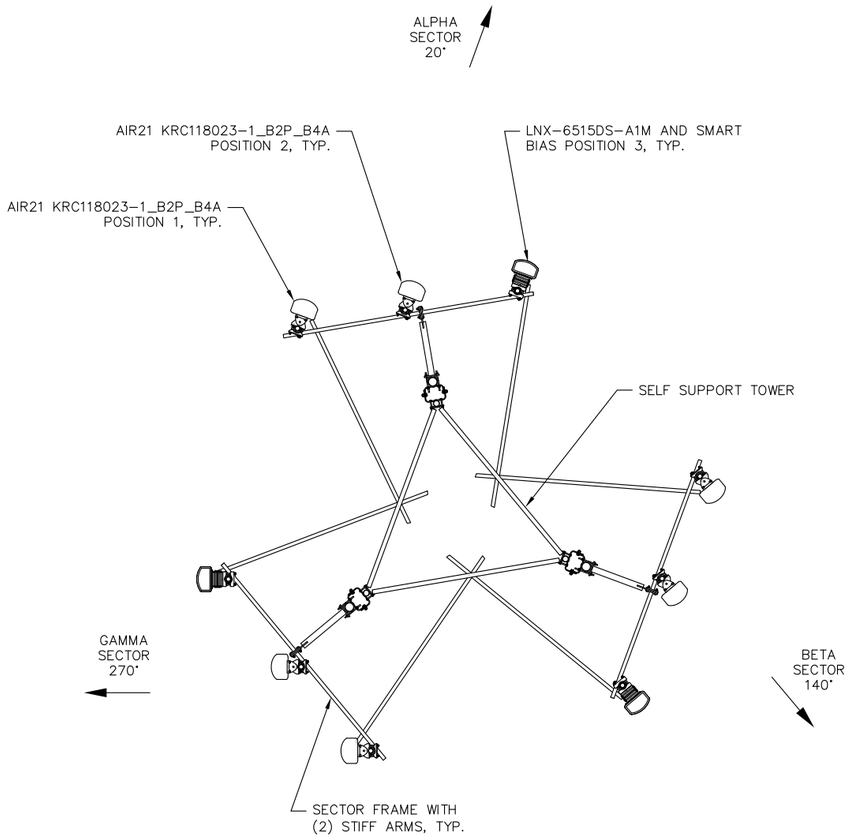
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
71	N36	max	.231	5	.577	12	.041	1	2.41e-02	12	5.563e-03	11	8.433e-03	1
72		min	-.232	11	-.627	6	-.084	20	-2.568e-02	6	-5.622e-03	5	-9.064e-03	7
73	N37	max	.207	5	.222	4	.019	12	5.832e-03	3	2.485e-03	10	3.158e-03	7
74		min	-.212	11	-.272	10	-.067	36	-7.547e-03	9	-2.261e-03	4	-2.385e-03	1
75	N38	max	.184	5	.055	6	.018	12	4.297e-03	4	6.429e-04	14	2.796e-03	6
76		min	-.186	11	-.042	12	-.066	36	-6.069e-03	10	-2.358e-04	40	-2.13e-03	12
77	N39	max	.214	5	.029	19	.001	1	-2.803e-04	11	7.382e-04	34	6.058e-03	11
78		min	-.213	11	0	1	-.033	19	-9.662e-04	18	-6.464e-04	40	-6.041e-03	5
79	N40	max	.272	5	.246	6	.037	1	7.263e-03	12	3.87e-03	5	4.06e-03	1
80		min	-.272	11	-.194	12	-.084	20	-9.103e-03	6	-4.038e-03	11	-5.039e-03	7
81	N41	max	.188	5	.069	20	.018	12	4.297e-03	4	6.66e-04	15	2.796e-03	6
82		min	-.188	11	-.032	2	-.066	36	-6.07e-03	10	-3.212e-04	10	-2.13e-03	12
83	N42	max	.288	5	.025	1	.002	1	9.929e-04	1	2.158e-03	11	7.748e-03	11
84		min	-.293	11	-.044	7	-.033	19	-1.738e-03	7	-2.064e-03	5	-7.69e-03	5
85	N43	max	.641	5	1.931	12	.041	1	4.118e-02	1	1.254e-02	11	8.433e-03	1
86		min	-.639	11	-2.043	6	-.085	20	-4.278e-02	7	-1.26e-02	5	-9.064e-03	7
87	N44	max	.275	5	.371	4	.019	12	6.164e-03	3	3.01e-03	10	3.158e-03	7
88		min	-.285	11	-.468	10	-.068	36	-7.878e-03	9	-2.786e-03	4	-2.385e-03	1
89	N45	max	.261	5	.22	7	.037	1	7.263e-03	12	3.87e-03	5	4.06e-03	1
90		min	-.26	11	-.172	12	-.084	20	-9.103e-03	6	-4.038e-03	11	-5.039e-03	7
91	N46	max	.603	5	1.813	12	.041	1	4.118e-02	1	1.254e-02	11	8.433e-03	1
92		min	-.602	11	-1.92	6	-.085	20	-4.278e-02	7	-1.26e-02	5	-9.064e-03	7
93	N47	max	.212	5	.026	19	.001	1	-2.802e-04	11	7.382e-04	34	6.058e-03	11
94		min	-.211	11	-.001	1	-.033	19	-9.663e-04	18	-6.464e-04	40	-6.041e-03	5
95	N48	max	.255	5	.009	1	.002	1	9.553e-04	1	2.125e-03	11	7.748e-03	11
96		min	-.259	11	-.016	7	-.033	19	-1.701e-03	7	-2.031e-03	5	-7.69e-03	5
97	N49	max	.187	5	.056	19	.018	12	4.297e-03	4	6.658e-04	15	2.796e-03	6
98		min	-.187	11	-.03	1	-.066	36	-6.07e-03	10	-3.209e-04	10	-2.13e-03	12
99	N50	max	.234	5	.282	4	.019	12	6.145e-03	3	2.973e-03	10	3.158e-03	7
100		min	-.24	11	-.352	10	-.067	36	-7.859e-03	9	-2.749e-03	4	-2.385e-03	1
101	N51	max	.179	5	.018	7	-.002	1	1.212e-03	1	7.849e-04	10	7.024e-03	11
102		min	-.18	11	-.01	1	-.029	19	-1.678e-03	7	-7.514e-04	5	-6.977e-03	5
103	N52	max	.179	5	.119	4	.034	11	4.9e-03	4	7.772e-04	42	2.827e-03	7
104		min	-.18	11	-.146	10	-.073	32	-6.676e-03	10	-1.738e-03	32	-2.093e-03	1
105	N53	max	.179	5	.251	12	.021	4	1.488e-02	12	1.903e-03	42	5.004e-03	1
106		min	-.18	11	-.279	6	-.085	22	-1.669e-02	6	-6.037e-04	32	-5.867e-03	7
107	N54	max	.179	5	.215	12	.021	3	1.488e-02	12	1.901e-03	42	5.001e-03	1
108		min	-.18	11	-.235	6	-.069	21	-1.669e-02	6	-6.057e-04	32	-5.864e-03	7
109	N55	max	.179	5	.128	4	.031	11	4.9e-03	4	7.792e-04	42	2.824e-03	7
110		min	-.18	11	-.148	10	-.057	32	-6.676e-03	10	-1.736e-03	32	-2.089e-03	1
111	N56	max	.2	5	.018	7	.002	1	1.212e-03	1	7.849e-04	10	7.024e-03	11
112		min	-.201	11	-.01	1	-.032	19	-1.678e-03	7	-7.514e-04	5	-6.977e-03	5
113	N57	max	.187	5	.215	12	.039	1	1.488e-02	12	1.901e-03	42	5.001e-03	1
114		min	-.185	11	-.235	6	-.084	20	-1.669e-02	6	-6.057e-04	32	-5.864e-03	7
115	N58	max	.173	5	.128	4	.019	12	4.9e-03	4	7.792e-04	42	2.824e-03	7
116		min	-.176	11	-.148	10	-.066	36	-6.676e-03	10	-1.736e-03	32	-2.089e-03	1
117	N59	max	.179	5	.16	11	.018	3	9.174e-03	12	9.894e-04	42	3.839e-03	12
118		min	-.18	11	-.161	5	-.029	21	-1.043e-02	6	-6.028e-04	3	-4.755e-03	6
119	N60	max	.179	5	.158	5	.023	11	2.928e-03	3	7.347e-04	11	2.08e-03	10
120		min	-.18	11	-.16	11	-.033	5	-4.167e-03	9	-8.923e-04	32	-1.262e-03	4
121	N61	max	.179	5	.156	5	.027	11	3.423e-03	3	6.666e-04	42	1.941e-03	7
122		min	-.18	11	-.164	11	-.037	5	-4.813e-03	9	-1.711e-03	32	-1.076e-03	1
123	N62	max	.179	5	.174	11	.021	3	1.08e-02	12	1.871e-03	42	4.147e-03	1
124		min	-.18	11	-.182	5	-.037	21	-1.222e-02	6	-5.105e-04	32	-5.179e-03	7
125	N63	max	0	4	0	1	0	5	0	1	0	11	0	1
126		min	0	10	0	19	0	14	0	7	0	5	0	1
127	N64	max	0	34	0	13	0	7	0	1	0	11	0	5

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation ...	LC	Y Rotation ...	LC	Z Rotation [...	LC
128		min	0	40	0	7	0	13	0	7	0	5	0	11
129	N65	max	.19	5	.088	11	.038	1	1.285e-02	12	7.834e-04	4	4.495e-03	1
130		min	-.186	11	-.091	5	-.084	20	-1.475e-02	6	-7.623e-04	10	-5.42e-03	7
131	N66	max	.178	5	.083	5	.018	12	5.337e-03	4	9.069e-04	5	2.807e-03	6
132		min	-.181	11	-.085	11	-.066	36	-7.158e-03	10	-7.816e-04	11	-2.101e-03	12

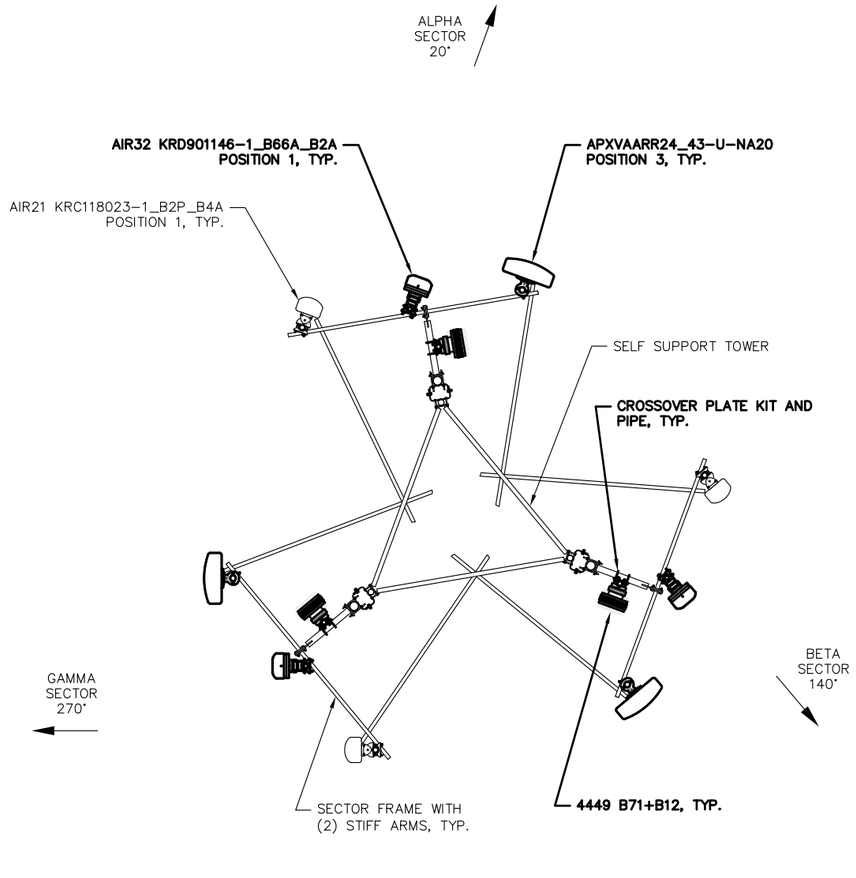
Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M17	PIPE_3.0	.156	45	19	.044	45		19	57037.472	65205	5.749	5.749	1....	H1-1b
2	13	5/8 SR	.231	26.907	17	.019	53.814		5	1114.406	9946.8	.097	.097	1....	H1-1b
3	M15	5/8 SR	.230	26.907	21	.036	0		12	1114.406	9946.8	.097	.097	1....	H1-1b
4	1	PIPE_2.5	.071	20.25	19	.068	20.531		11	49920.697	50715	3.596	3.596	1....	H1-1b
5	2	PIPE_2.5	.111	27	6	.069	0		18	50587.067	50715	3.596	3.596	2....	H1-1b
6	M23	PIPE_2.0	.302	27	11	.113	27		10	20866.733	32130	1.872	1.872	3....	H1-1b
7	M24	PIPE_2.0	.323	27	7	.101	27		6	20866.733	32130	1.872	1.872	3....	H1-1b
8	M25	PIPE_2.0	.780	57	1	.207	39		12	14916.096	32130	1.872	1.872	1....	H1-1b
9	20	PIPE_2.0	.067	42.946	22	.006	85.892		16	17383.626	32130	1.872	1.872	1....	H1-1b
10	M16	PIPE_2.0	.069	42.946	17	.006	0		22	17383.626	32130	1.872	1.872	1....	H1-1b
11	3	PIPE_1.25	.849	110	1	.678	108.75		1	10528.817	19687.5	.801	.801	3....	H3-6
12	4	PIPE_1.25	.468	110	8	.555	108.75		7	10528.817	19687.5	.801	.801	3....	H1-1b
13	9	1.0"SR	.057	0	6	.021	0		9	14904.877	25446.895	.424	.424	1....	H1-1b*
14	10	1.0"SR	.018	17.625	22	.031	0		10	14904.877	25446.895	.424	.424	1	H1-1b
15	11	1.0"SR	.018	17.625	15	.074	0		6	14904.877	25446.895	.424	.424	1....	H1-1b
16	17	1.0"SR	.050	36	19	.010	0		42	14904.877	25446.895	.424	.424	1....	H1-1b*
17	18	1.0"SR	.067	19.835	19	.005	0		38	13290.371	25446.895	.424	.424	1....	H1-1b
18	19	1.0"SR	.074	36	19	.010	36		11	14904.877	25446.895	.424	.424	1....	H1-1b*
19	M14	1.0"SR	.181	0	7	.058	36		6	14904.877	25446.895	.424	.424	1....	H1-1b*
20	M29	PIPE_2.5	.312	30	5	.277	60		6	41331.898	50715	3.596	3.596	2....	H1-1b
21	M30	L2.5x2.5x3	.114	30.336	20	.010	60.671	z	12	12639.477	29192.4	.873	1.655	1....	H2-1
22	M32	L2.5x2.5x3	.130	22.299	21	.016	0	z	6	18424.872	29192.4	.873	1.779	1....	H2-1
23	M33	L2.5x2.5x3	.099	19.976	5	.008	0	z	9	18424.872	29192.4	.873	1.779	1....	H2-1
24	M33A	L2.5x2.5x3	.083	30.336	18	.007	0	z	9	12639.477	29192.4	.873	1.655	1....	H2-1



EXISTING ANTENNA PLAN 1 / SK-1

SCALE: N.T.S.



PROPOSED ANTENNA PLAN 2 / SK-1

SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
35 Griffin Road South
Bloomfield, CT 06002
Office: (860) 648-1116

CENTERLINE COMMUNICATIONS
750 West Center St. Suite 301
West Bridgewater, MA 02379

ProTerra DESIGN GROUP, LLC
4 Bay Road, Building A
Suite 200
Hadley, MA 01035 Ph: (413) 320-4918

SKETCH

APPROVALS

CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	19-023
DRAWN BY:	TBD/PN
CHECKED BY:	TEJ/JMM

A	05/22/19	ISSUED FOR REVIEW

SITE NUMBER: CTHA536A
SITE NAME:
INSITE GLASTONBURY LATTICE

577 BELL STREET
GLASTONBURY, CT 06033
HARTFORD COUNTY

SHEET TITLE

ANTENNA PLAN

SHEET NUMBER

SK-1

1.0 DESIGN INFORMATION AND GENERAL REQUIREMENTS

1.0 GENERAL
ALL DIMENSIONS ARE APPROXIMATE, CONTRACTOR SHOULD VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK.

1.1 CODES
a. 2018 CONNECTICUT STATE BUILDING CODE (2015 IBC)
b. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE/SEI 7-10, AMERICAN SOCIETY OF CIVIL ENGINEERS
c. STEEL CONSTRUCTION MANUAL, 14TH EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION
d. STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, ANSI/TIA-222-G, TELECOMMUNICATIONS INDUSTRY ASSOCIATION

.2 LOADS AND DESIGN CRITERIA
a. WIND LOADING: ULTIMATE WIND SPEED V: 125 MPH (CONVERTED ASD 97 MPH), EXPOSURE C, RISK CATEGORY II
b. EQUIPMENT AS LISTED IN MOUNT STRUCTURAL ANALYSIS REPORT - UPGRADE PREPARED BY DESTEK ENGINEERING, LLC, DATED 07/03/2019

1.3 NOTES
a. PRIOR TO PURCHASE OR FABRICATION OF MATERIAL, THE CONTRACTOR SHALL PERFORM AN INSPECTION VERIFYING MEMBER AND BOLT SIZES. SHOULD THE CONTRACTOR DISCOVER ANY DAMAGED OR MISSING MEMBERS OR THE MEMBER OR BOLT SIZES DO NOT MATCH THOSE LISTED, DESTEK SHALL BE NOTIFIED IMMEDIATELY.
b. CONTRACTOR TO REPLACE ALL BOLTS REMOVED WITH NEW BOLTS OF SAME TYPE, UNLESS NOTED OTHERWISE.

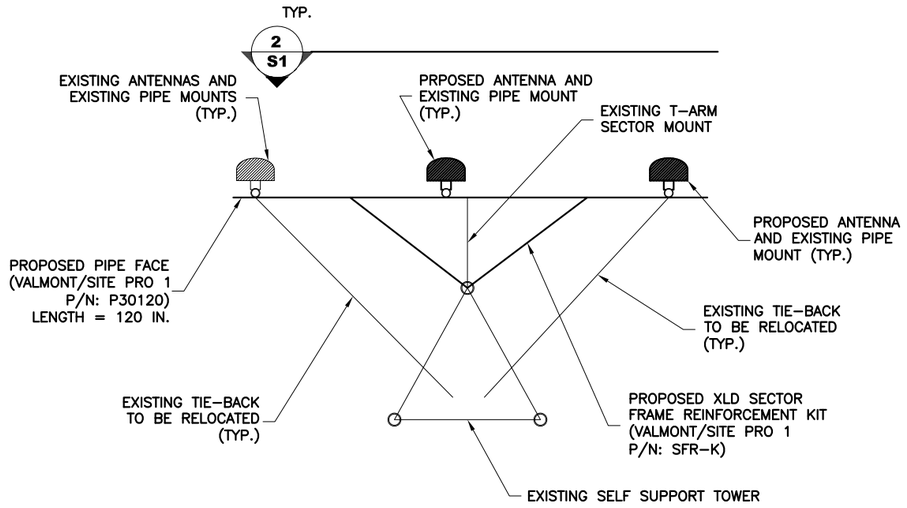
2.0 STRUCTURAL STEEL

2.1 MATERIALS
a. STRUCTURAL STEEL . . . . . ASTM A992
MISC ANGLE & PLATE . . . . ASTM A36
PIPE . . . . . ASTM A53 GR. B
RODS . . . . . ASTM A572-50 (MINIMUM)
HSS. . . . . ASTM A500, GR. B, Fy=46 KSI
b. BOLTS . . . . . ASTM A325 U.N.O.
c. WELDING ELECTRODES . . . . . AWS A5.1 (E70XX)
d. STEEL CONSTRUCTION SHALL CONFORM TO "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ANSI/AISC 360-10"
e. WELDING SHALL CONFORM TO AWS D1.1/D1.3/D1.7 AS APPLICABLE.
f. THE FABRICATOR SHALL FURNISH CHECKED SHOP AND ERECTION DRAWINGS TO THE ENGINEER, AND OBTAIN APPROVAL PRIOR TO FABRICATING ANY STRUCTURAL STEEL. SHOP DRAWINGS SHALL CONFORM TO "DETAILING FOR STEEL CONSTRUCTION, 2ND EDITION"
g. POOR MATCHING OF HOLES SHALL BE CORRECTED BY DRILLING TO THE NEXT LARGER SIZE. WELDING FOR REDRILLING WILL NOT BE PERMITTED.

2.2 CONNECTIONS
a. SHOP CONNECTIONS MAY BE BOLTED OR WELDED
b. CONNECTIONS WHERE THE BEAM SHEAR (V) IS NOT NOTED ON THE DRAWINGS, SIMPLE SHEAR CONNECTIONS SHALL BE DESIGNED TO DEVELOP 1/2 OF THE MAXIMUM TOTAL UNIFORM LOAD CAPACITY OF THE BEAM.
c. FIELD CONNECTIONS SHALL BE MADE WITH A325 BOLTS AND HARDENED WASHERS EXCEPT AS INDICATED ON THE DESIGN DRAWINGS
d. CONNECTIONS NOT SHOWN ON DRAWINGS SHALL BE DESIGNED BY THE STEEL FABRICATOR. CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" AND "AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
e. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL OF ENGINEER.
f. BOLT HOLES SHALL BE CUT, DRILLED OR PUNCHED AT RIGHT ANGLES TO THE SURFACE OF THE METAL AND SHALL NOT BE MADE OR ENLARGED BY BURNING. HOLES SHALL BE CLEAN CUT WITHOUT TORN OR RAGGED EDGES. OUTSIDE BURRS RESULTING FROM DRILLING OR REAMING OPERATION SHALL BE REMOVED WITH A TOOL MAKING A 1/16 INCH BEVEL. BOLT HOLES SHALL BE 1/16 INCH OVERSIZE.

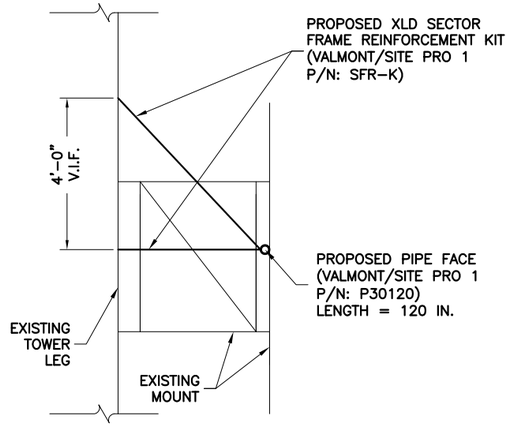
2.3 FINISHES
a. STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION PER ASTM A123
b. BOLTS AND NUTS SHALL BE HOT DIP GALVANIZED PER ASTM A153.
c. ALL SURFACES DAMAGED BY FIELD WELDING OR CUTTING SHALL BE PAINTED WITH COLD GALVANIZING COMPOUND TWICE. THE PAINT SHOULD BE AT LEAST 93% PURE ZINC. RUST-OLEUM PROFESSIONAL, (MODEL# 7585838) OR SIMILAR.

2.4 WELDING
a. CONTRACTOR TO TAKE ALL NECESSARY PRECAUTIONS FOR FIRE PREVENTION DURING WELDING, SUCH AS; INSTALLING 3000 (NFPA 701) FIRE BLANKET AROUND COAX. MORE SPLATTER AND SPARKS SHOULD BE ANTICIPATED WHILE WELDING ON GALVANIZED SURFACE. COAX IS FLAMMABLE AND SHALL CATCH FIRE IF NOT PROTECTED. WATER SHALL BE ON SITE OF ADEQUATE AMOUNT AND AVAILABLE AT SHORT NOTICE AT ALL TIMES DURING WELDING ACTIVITY. CONTRACTOR SHOULD BE ABLE TO TRANSPORT THE WATER TO THE HEIGHT WELDING BEING PERFORMED.
b. WELDING ON GALVANIZED SURFACE SHOULD BE DONE WITH EXTREME CAUTION. IF THE WELD MATERIAL IS CONTAMINATED WITH ZINC, IT DOES NOT PROVIDE A STRUCTURAL WELD. GROUND GALVANIZING BEFORE WELDING.
c. WELDING CERTIFICATE MUST BE PROVIDED PRIOR TO WELDING. ALL WELDING SHALL BE PERFORMED BY AWS QUALIFIED WELDER WHO HAS EXPERIENCE WITH GALVANIZED SURFACES.



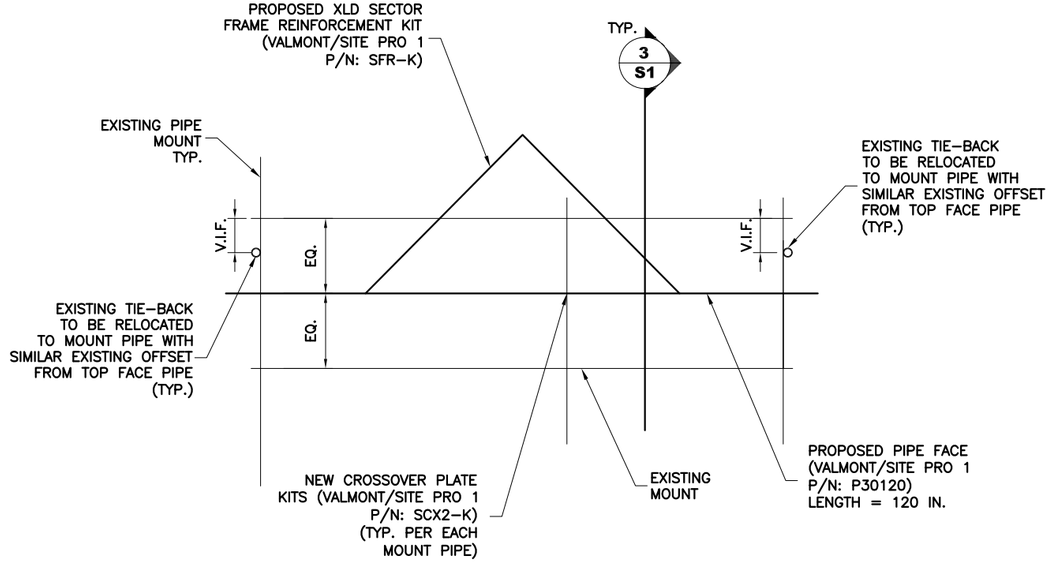
1 S1 TYPICAL SECTOR MOUNT @ 65'-0" PLAN
1/4" = 1'-0"

NOTE:
- ADDITIONAL EQUIPMENT AND MOUNTING HARDWARE NOT SHOWN FOR CLARITY
- MODIFICATIONS TO BE DONE ON ALL THREE SECTORS



3 S1 SECTOR MOUNT ELEVATION
1/4" = 1'-0"

NOTE:
- ADDITIONAL EQUIPMENT AND MOUNTING HARDWARE NOT SHOWN FOR CLARITY
- MODIFICATIONS TO BE DONE ON ALL THREE SECTORS



2 S1 SECTOR MOUNT ELEVATION
1/4" = 1'-0"

NOTE:
- ADDITIONAL EQUIPMENT AND MOUNTING HARDWARE NOT SHOWN FOR CLARITY
- MODIFICATIONS TO BE DONE ON ALL THREE SECTORS

PREPARED BY:
DESTEK ENGINEERING
DESTEK ENGINEERING, LLC
1281 KENNESTONE CIRCLE
SUITE 100
MARIETTA, GA 30066
TEL NO: 770-693-0835
ADMIN@DESTEKENGINEERING.COM
LICENSE NO: PEC 0001429

PREPARED FOR:
PROTERRA DESIGN GROUP, LLC
4 BAY ROAD, BUILDING A, SUITE 200
HADLEY, MA 01035

NUM	DATE	DESCRIPTION:
A	07/03/19	ISSUED FOR CONSTRUCTION

SITE ID: CTHA536A
ADDRESS: 577 BELL STREET, GLASTONBURY, CT 06033

7/3/2019 PEN 27057 STATE OF CONNECTICUT AHMET COLAKOGLU LICENSED PROFESSIONAL ENGINEER

Ahmet Colakoglu, PE
CT License No: PEN 27057

DESIGNED: RH
DRAWN: RH
CHECKED: AC

JOB #: 1978004

S1 NOTES & UPGRADE DETAIL

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA536A

Insite Glastonbury Lattice
577 Bell Street
Glastonbury, Connecticut 06033

May 16, 2019

EBI Project Number: 6219001643

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**34.76%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

May 16, 2019

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTHA536A - Insite Glastonbury Lattice

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **577 Bell Street** in **Glastonbury, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 577 Bell Street in Glastonbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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

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

8) The antennas used in this modeling are the Ericsson AIR 21 B2P_B4A for the 2100 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 2100 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s) in Sector A, the Ericsson AIR 21 B2P_B4A for the 2100 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 2100 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s) in Sector B, the Ericsson AIR 21 B2P_B4A for the 2100 MHz channel(s), the Ericsson AIR32 B66A_B2A for the 2100 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is 65 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 21 B2P_B4A	Make / Model:	Ericsson AIR 21 B2P_B4A	Make / Model:	Ericsson AIR 21 B2P_B4A
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	65 feet	Height (AGL):	65 feet	Height (AGL):	65 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	60 Watts	Total TX Power (W):	60 Watts	Total TX Power (W):	60 Watts
ERP (W):	2,056.61	ERP (W):	2,056.61	ERP (W):	2,056.61
Antenna A1 MPE %:	**1.75%**	Antenna B1 MPE %:	**1.75%**	Antenna C1 MPE %:	**1.75%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR32 B66A_B2A	Make / Model:	Ericsson AIR32 B66A_B2A	Make / Model:	Ericsson AIR32 B66A_B2A
Frequency Bands:	2100 MHz / 1900 MHz	Frequency Bands:	2100 MHz / 1900 MHz	Frequency Bands:	2100 MHz / 1900 MHz
Gain:	15.85 dBd / 15.35 dBd	Gain:	15.85 dBd / 15.35 dBd	Gain:	15.85 dBd / 15.35 dBd
Height (AGL):	65 feet	Height (AGL):	65 feet	Height (AGL):	65 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A2 MPE %:	**7.43%**	Antenna B2 MPE %:	**7.43%**	Antenna C2 MPE %:	**7.43%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	65 feet	Height (AGL):	65 feet	Height (AGL):	65 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A3 MPE %:	**4.88%**	Antenna B3 MPE %:	**4.88%**	Antenna C3 MPE %:	**4.88%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	14.06%
Town	0.02%
Clearwire	0.77%
AT&T	8.94%
Cox	1.9%
Verizon	9.07%
Site Total MPE % :	34.76%

T-Mobile Sector A Total:	14.06%
T-Mobile Sector B Total:	14.06%
T-Mobile Sector C Total:	14.06%
Site Total:	34.76%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2100 MHz UMTS	2	1028.30	65.0	17.50	2100 MHz UMTS	1000	1.75%
T-Mobile 2100 MHz LTE AWS	2	2307.55	65.0	39.27	2100 MHz LTE AWS	1000	3.93%
T-Mobile 1900 MHz LTE PCS	2	2056.61	65.0	35.00	1900 MHz LTE PCS	1000	3.50%
T-Mobile 600 MHz LTE	2	591.73	65.0	10.07	600 MHz LTE	400	2.52%
T-Mobile 700 MHz LTE	2	648.82	65.0	11.04	700 MHz LTE	467	2.36%
						Total:	**14.06%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	14.06%
Sector B:	14.06%
Sector C:	14.06%
T-Mobile Maximum MPE % (Sector A):	14.06%
Site Total:	34.76%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **34.76%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Mailing Receipts/Proof of Notice

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

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200 BLOOMFIELD AVE
WEST HARTFORD ,CT 06117

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THE UPS STORE
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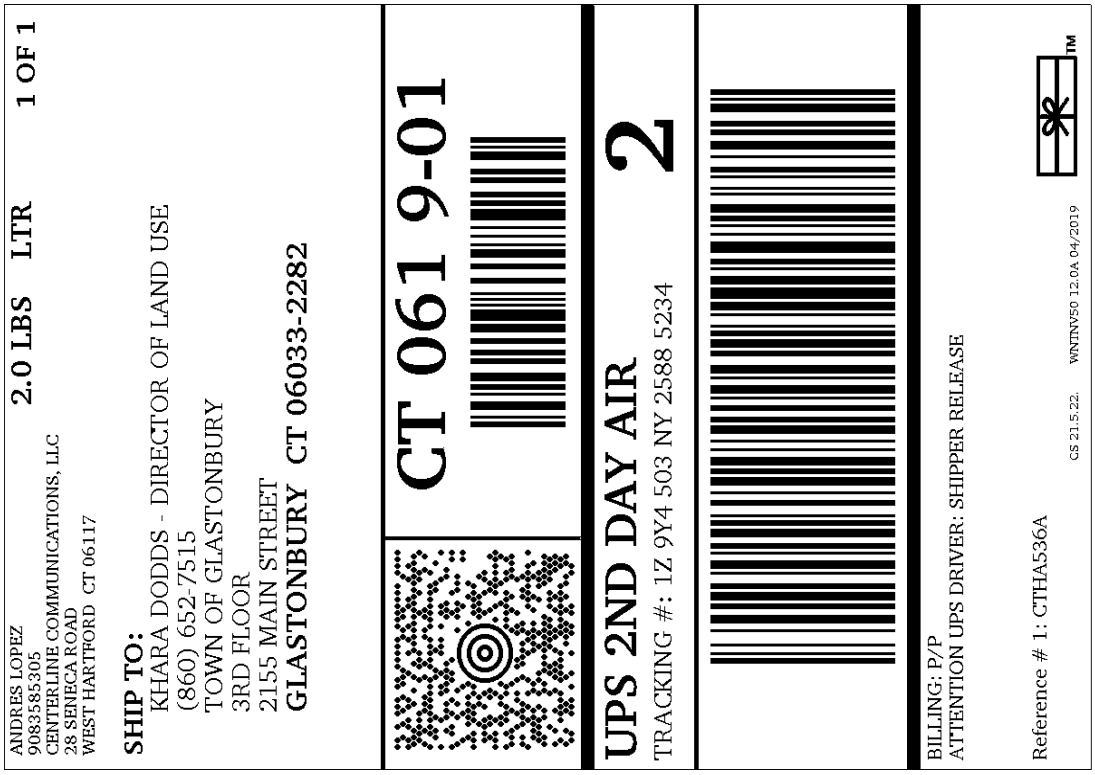

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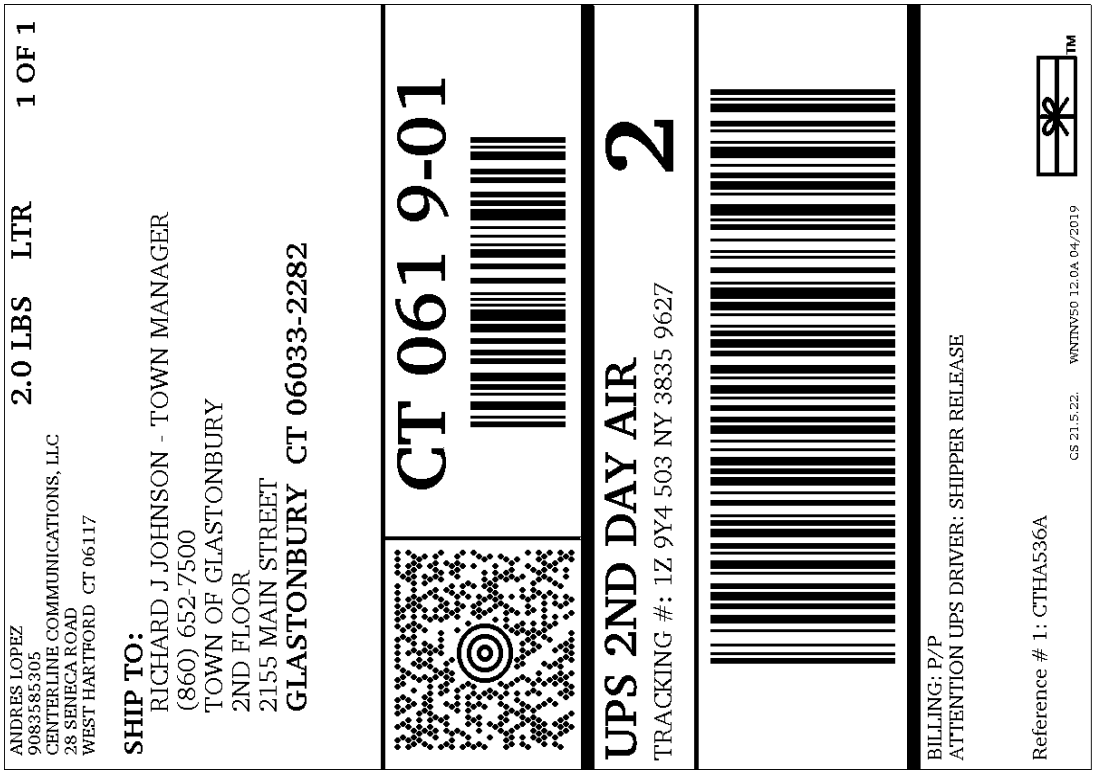

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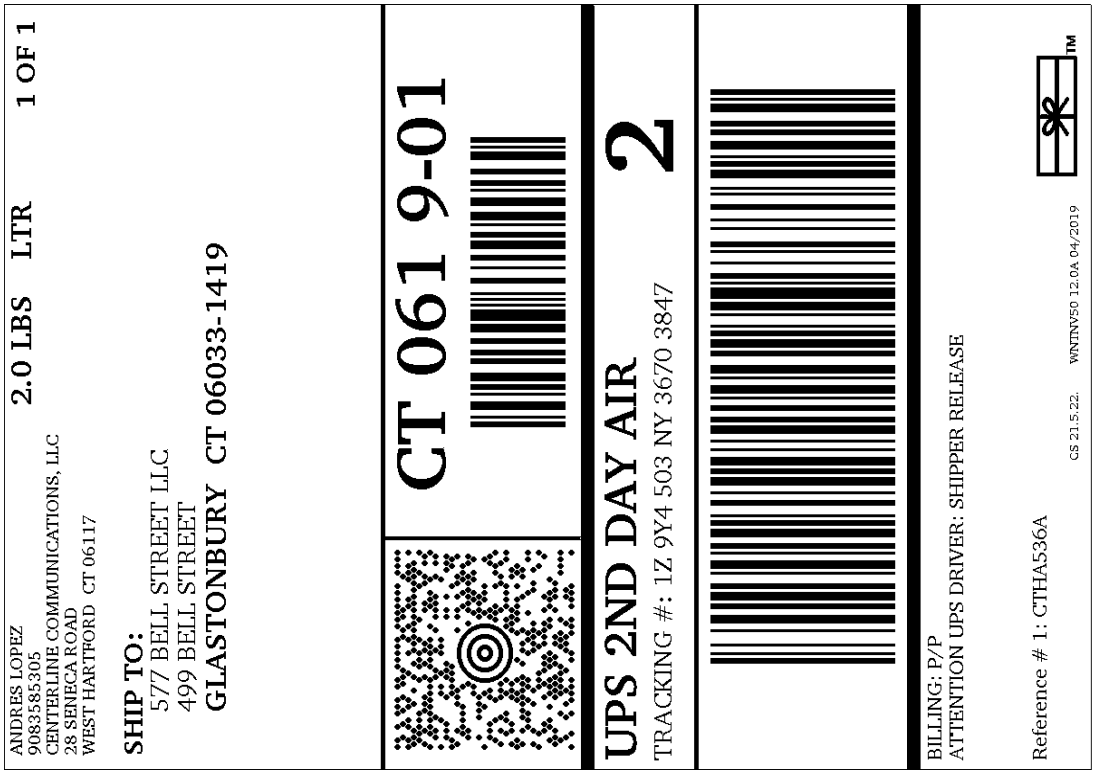

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