NORTHEAST
SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
4 Angela's Way
Burlington CT 06013
860-209-4690
denise@northeastsitesolutions.com

May 9, 2019

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

RE: Notice of Exempt Modification
419 Broad Street, Windsor CT 06095
Latitude: 41.84588889
Longitude: 72.64611111
T-Mobile Site#: CTHA130A_L700 4x2

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 94-foot level of the existing 100-foot monopole tower located at 419 Broad Street, Windsor CT. The 100-foot tower is owned by Everest Infrastructure Partners and the property is owned by Frontier Communications. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 1900/2100 MHz antenna and add three (3) new 600/700 MHz antenna. The new antennas would be installed at the 94-foot level of the tower. Proposed mount reinforcement modifications are included.

Tower Planned Modifications:

Remove: NONE

Remove and Replace:
(3) AIR21 Antenna (**REMOVE)** - (3) RFS-APXVAARR24 Antenna 600/700 MHz **(REPLACE)**

Install New:
(3) AIR32 (OCTO) Antenna 1900/2100 MHz
(3) RRU 4449
(2) Hybrid Lines

Existing to Remain:
(16) 7/8" Coax
(3)AIR21 Antenna 1900/2100 MHz
(3) TMA
(1) Hybrid Line

This facility was approved by the CT Siting Council TS- T-MOBILE-164-051223–on January 6, 2006 T-Mobile tower share was approved to install nine (9) antennas on the existing tower. Please see attached.

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 Mayor Donald S. Trinks, Elected Official and Eric Barz, Town Planner for the Town of Windsor, as well as the property owner and the 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).

Sincerely,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastsitesolutions.com

Attachments
cc: Mayor Donald S. Trinks, Elected Official
Eric Barz,- Town Planner
Frontier Communications - as property owner
Everest Infrastructure Partners- as tower owner

Exhibit A

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@po.state.ct.us
www.ct.gov/csc

January 26, 2006

Karina Fournier
Zoning Department
T-Mobile
100 Filley Street
Bloomfield, CT 06002

RE: **TS-T-MOBILE-164-051223** - Omnipoint Communications, Inc. (T-Mobile) request for an order to approve tower sharing at an existing telecommunications facility located at 419 Broad Street, Windsor, Connecticut.

Dear Ms. Fournier:

At a public meeting held January 25, 2006, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated December 22, 2005 and additional information dated January 4, 2006, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: The Honorable Donald Trinks, Mayor, Town of Windsor
Mario Zavarella, Town Planner, Town of Windsor
Michele G. Briggs, New Cingular Wireless PCS, LLC
Christopher B. Fisher, Esq., Cuddy & Feder LLP
Christine Farrell, T-Mobile

CSC
CONNECTICUT SITING COUNCIL

T-Mobile

Omnipoint Holdings, Inc.
100 Filley Street, Bloomfield, CT. 06002
Telephone: (860) 692-7100 Fax: (860) 692-7159

RECEIVED
JAN - 4 2006
CONNECTICUT SITING COUNCIL

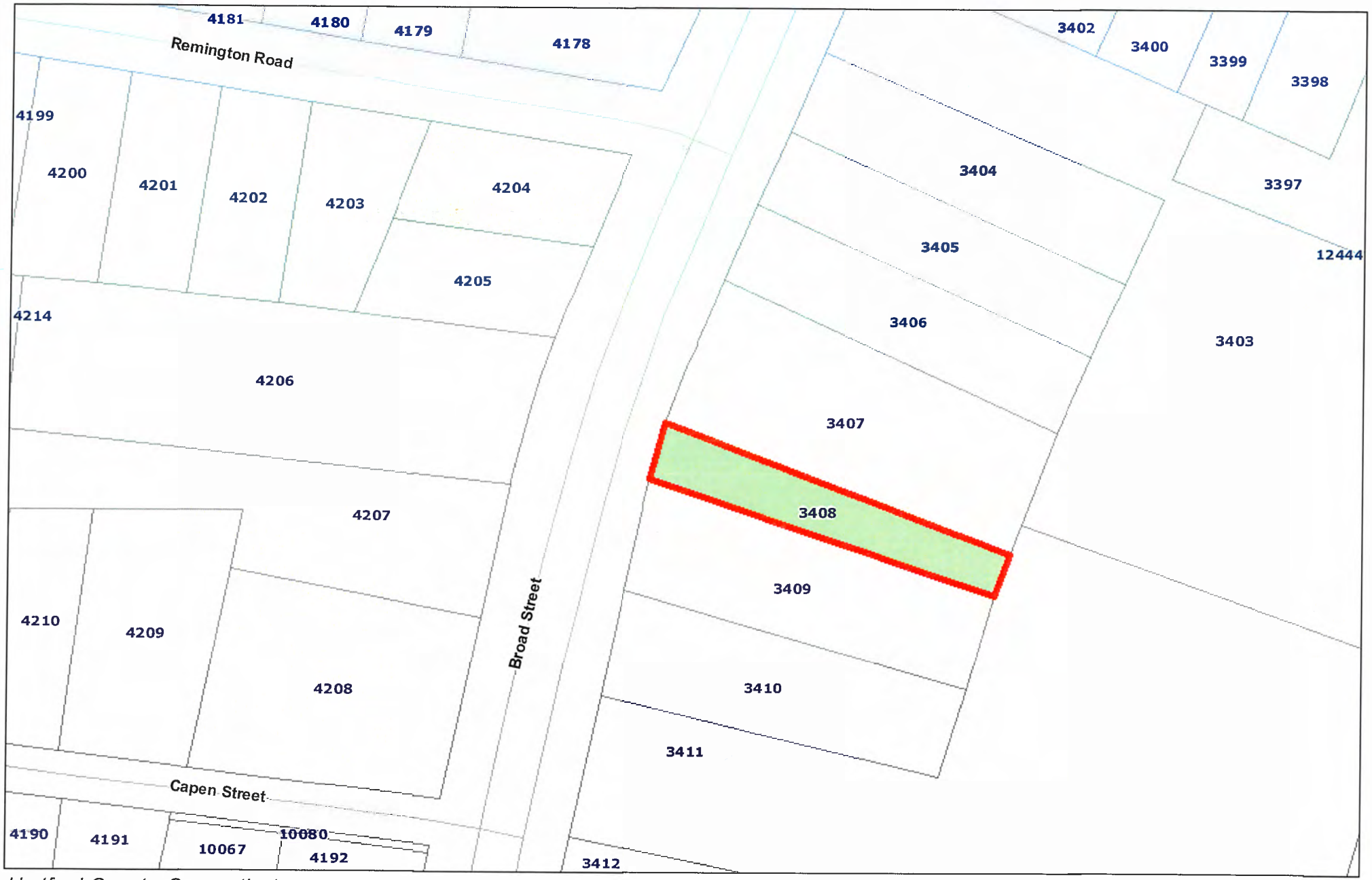
Recipient (s):	Phone Number (s):	Fax Number (s):
Mike Perrone		860-827-2950
Re: TS-T-Mobile-164-051223		

Date: 1/4/06 Pages: 2 (including cover sheet)

Please see attached revised page two of our application. Just to clarify T-Mobile is proposing to install nine antennas at the 419 Broad Street, Windsor tower.

Sender: Karina Fournier Sender's Direct Dial: _____

Exhibit B



Hartford County, Connecticut

Horizontal Datum is Connecticut State Plane Feet, NAD83

1 inch = 123 feet

N W E S

0 50 100 200 Feet

Property Boundaries not legally binding for title or zoning purposes.

The Town of Windsor makes no warranty as to th accuracy, reliability, or completeness of the information and is not responsible for any error or omissions for results obtained from the use of the information.

Property Cards

Address Search : 419 Broad St Submit Clear Search

419 Broad St

Property Owner:
Southern New England

Property Co-Owner
C/O Frontier Communications Tax Dept

Mailing Address:
406 Merritt 7
Norwalk, CT
06851

File Code
3407

Map:
77

Block:
65

Lot:
19

Census Tract:
4734.00

Property Type:
Tel X Station

Land Area (Acres):
0.47

Zone:
R11

Click to Enlarge

Construction Details

Year Built:
1955

Building Style:
Telephone Bldg

Stories:
1

Living Area:
0 Sq/Ft

Building ID
10739

Grade
Average

Exterior Wall
Brick Veneer

Total Rooms:

Bedrooms:

Bathrooms:

Half Baths:

Heating Type
Forced Air

Heating Fuel
Oil

AC Type
Central

Valuation

Assessed Land Value:
$100,450

Assessed Building Value:
$179,900

Total Assessed Value:
$280,350

Appraised Land Value:
$143,500

Appraised Building Value:
$257,000

Total Appraised Value:
$400,500

Last Sale

Last Sale Date:
Friday, June 30th, 1944

Last Sale Price:
$0

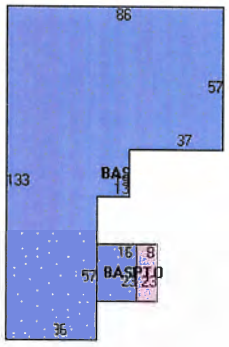
Qualified Sale:

Book/Page:
124/0030

Prior Owners

Sale Date	Owner Name	Sale Price	Book / Page

Parcel Sketch



Sub Area Detail

Code	Gross Area (Sq Ft)	Living Area (Sq Ft)
BAS	8253	8253
PTO	184	0
UBM	4598	0

Outbuildings & Extra Features

Code	Description	Appraised Value	Assessed Value
PAV1	PAVING-ASPHALT	$6900.00	$4830.00

AOF Office Area
APT Apartment
BAS First Floor
CAN Canopy
CDN Canopy (Det)
CLP Loading Platform (Finished)
EAF Attic (Expan)(Finished)
EAU Attic (Expan)(Unfinished)
FAT Attic (Finished)
FBM Basement (Finished)
FCB Cabana (Encl)(Finished)
FCP Carport (Framed)
FDC Carport (Det)(Framed)
FDS Porch (Scrn)(Det)(Finished)
FDU Utility (Det)(Finished)
FEP Porch (Encl)(Finished)
FGR Garage (Framed)
FHS Half-Story (Finished)

FLL Lower Level (Finished)	**FOP** Porch (Open)(Finished)	**FSP** Porch (Screen)(Finished)
FST Utility (Finished)	**FUS** Upper-Story (Finished)	**PTO** Patio
SDA Store Display Area	**SFB** Base (Semi-Finished)	**SPA** Service Prod Area
TQS Three-Qtr Story	**UAT** Attic (Unifinished)	**UBM** Basement (Unfinished)
UCB Cabana (Encl)(Unfinished)	**UDS** Porch (Scrn)(Dedt)(Unifinished)	**UDU** Utility (Det)(Unifinished)
UEP Porch (Encl)(Unfinished)	**UHS** Half-Story (Unfinished)	**ULP** Loading Platform (Unfinished)
UOP Porch (Open)(Unfinished)	**USP** Porch (Scrn)(Unfinished)	**UST** Utility (Strg)(Unfinished)
UUS Upper-Story (Unfinished)	**WDK** Wood Deck	

Exhibit C

ANTENNA UPGRADES BY

T-Mobile

T-MOBILE NORTHEAST LLC

PROJECT: L700 4X2

SITE NUMBER: CTHA130A
SITE NAME: CTHA130/SNET TOWER_MP
SITE ADDRESS: 419 BROAD STREET
WINDSOR, CT 06095
(RF CONFIGURATION 67D92DB_2XAIR+1OP)

PROJECT SCOPE:

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:
UPGADE EXISTING RBS 6131 CABINET INTERNALLY,
REPLACE (3) OF (6) EXISTING ANTENNAS,
ADD (3) NEW ANTENNAS FOR A TOTAL OF (9),
ADD (3) REMOTE RADIO UNITS,
ADD (3) HYBRID CABLES.

PROJECT NOTES:

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
   HANDICAPPED ACCESS IS NOT REQUIRED.
   POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   NO OUTDOOR STORAGE OR ANY
   SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.
4. REFER TO STRUCTURAL ANALYSIS REPORT TITLED "POST-MOD RIGOROUS STRUCTURAL ANALYSIS REPORT", DATED OCTOBER 04, 2018, PREPARED BY MALOUF ENGINEERING INTL., INC.

APPLICABLE STATE ADOPTION CODES:

2018 CONNECTICUT STATE BUILDING CODE (CSBC).

ANSI/TIA-222-G-2005 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

2017 NATIONAL ELECTRICAL CODE (NFPA 70) FOR POWER AND GROUNDING REQUIREMENTS.

APPROVALS:

FSA CM	DATE
RF ENGINEER	DATE
FOPS	DATE
T-MOBILE ENGINEERING AND DEVELOPMENT	DATE
	DATE
	DATE

SITE IMAGE:

VICINITY MAP:

PROJECT INFORMATION:

ADDRESS:	419 BROAD STREET WINDSOR, CT 06095
STRUCTURE TYPE:	MONOPOLE
COORDINATES:	41°50'45.14"N, 72°38'46.12"W

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
LANDLORD:	AT&T CORP 12 OMEGA DRIVE STAMFORD, CT 06907
PROJECT MANAGER:	NORTHEAST SITE SOLUTIONS 420 MAIN STREET, BLDG 4 STURBRIDGE, MA 01566 SHELDON FREINCLE SHELDON@NORTHEASTSITESOLUTIONS.COM 201-776-8521
CONSULTANTS:	FORESITE LLC 462 WALNUT ST NEWTON, MA 02460 SAEED MOSSAVAT SMOSSAVAT@FORESITELLC.COM 617-212-3123

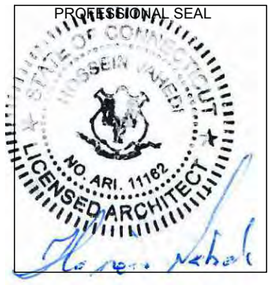
SHEET INDEX:

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	01/10/19
B	REVISED PER COMMENTS	02/18/19
C	REFERENCED TOWER MODS	04/12/19
0	SIGNED AND SEALED	04/24/19
1	REVISED ANTENNA SPECS	05/06/19

SITE NUMBER: CTHA130A
SITE NAME: CTHA130/SNET TOWER_MP
SITE ADDRESS: 419 BROAD STREET
WINDSOR, CT 06095

SHEET TITLE:
T-1: TITLE SHEET

GENERAL NOTES:

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CLIENT'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

7. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS DURING CONSTRUCTION.

8. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE BASIC STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJEC

9. THE CONTRACTOR SHALL NOTIFY THE CLIENT'S REPRESENTATIVE IN WRITING WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE CLIENT'S REPRESENTATIVE.

10. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:

A. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS BUILDING CODES" OR LATEST EDITION.

B. AWS: AMERICAN WELDING SOCIETY INC. AS PUBLISHED IN "STANDARD D1.1–08, STRUCTURAL WELDING CODE" OR LATEST EDITION.

C. AISC: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"; "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (LATEST EDITION).

11. BOLTING:

A. BOLTS SHALL BE CONFORMING TO ASTM A325 HIGH STRENGTH, HOT DIP GALVANIZED WITH ASTM A153 HEAVY HEX TYPE NUTS.

B. BOLTS SHALL BE 3/4"ø MINIMUM (UNLESS OTHERWISE NOTED)

C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.

12. FABRICATION:

A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES (LATEST EDITION).

B. ALL STRUCTURAL STEEL SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 (LATEST EDITION), UNLESS OTHERWISE NOTED.

13. ERECTION OF STEEL:

A. PROVIDE ALL ERECTION EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION BUT ARE NECESSARY FOR ITS PROPER ERECTION.

B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED LINES AND ELEVATIONS AND RIGIDLY FASTENED IN PLACE WITH SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING.

C. TEMPORARY BRACING, GUYING AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SAFE AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.

14. ANTENNA INSTALLATION:

A. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CLIENT'S REPRESENTATIVE SPECIFICATIONS.

B. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

C. INSTALL COAXIAL / FIBER CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

15. ANTENNA AND COAXIAL / FIBER CABLE GROUNDING:

A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE #221213 OR EQUAL.

B. ALL COAXIAL / FIBER CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL / FIBER CABLE (NOT WITHIN BENDS).

16. RELATED WORK, FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:

A. FLASHING OF OPENING INTO OUTSIDE WALLS

B. SEALING AND CAULKING ALL OPENINGS

C. PAINTING

D. CUTTING AND PATCHING

17. REQUIREMENTS OF REGULATORY AGENCIES:

A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, AND SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

C. TIA–EIA – 222 (LATEST EDITION). STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

D. FAA – FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460–IH, OBSTRUCTION MARKING AND LIGHTING.

E. FCC – FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES AND FORM 715A, HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.

F. AISC – AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS (LATEST EDITION).

G. NEC – NATIONAL ELECTRICAL CODE – ON TOWER LIGHTING KITS.

H. UL – UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

I. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

J. 2009 LIFE SAFETY CODE NFPA – 101.

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
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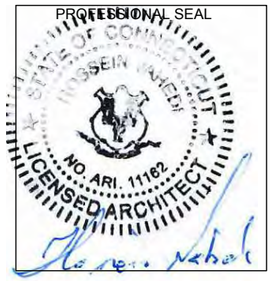

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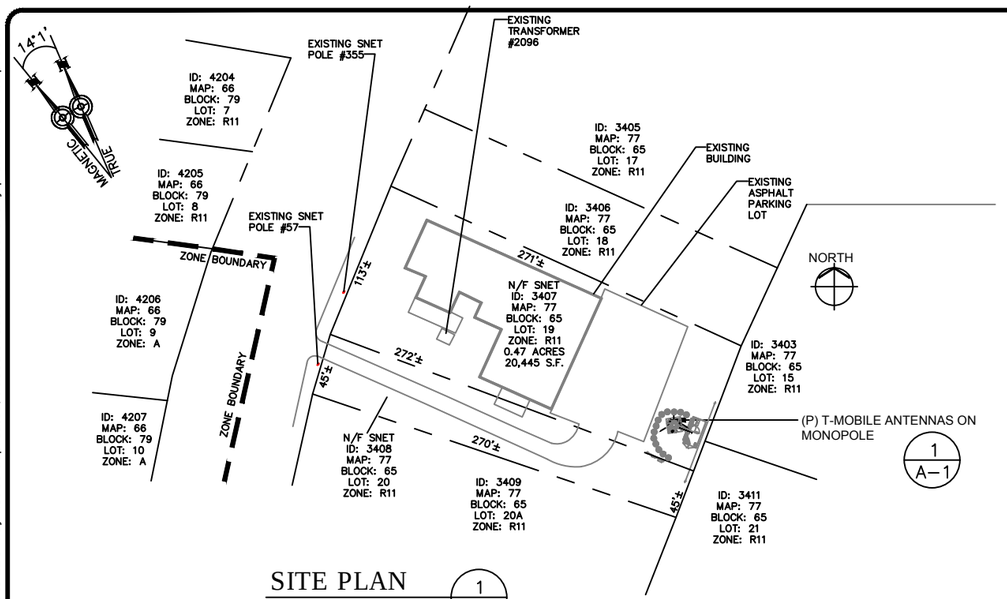
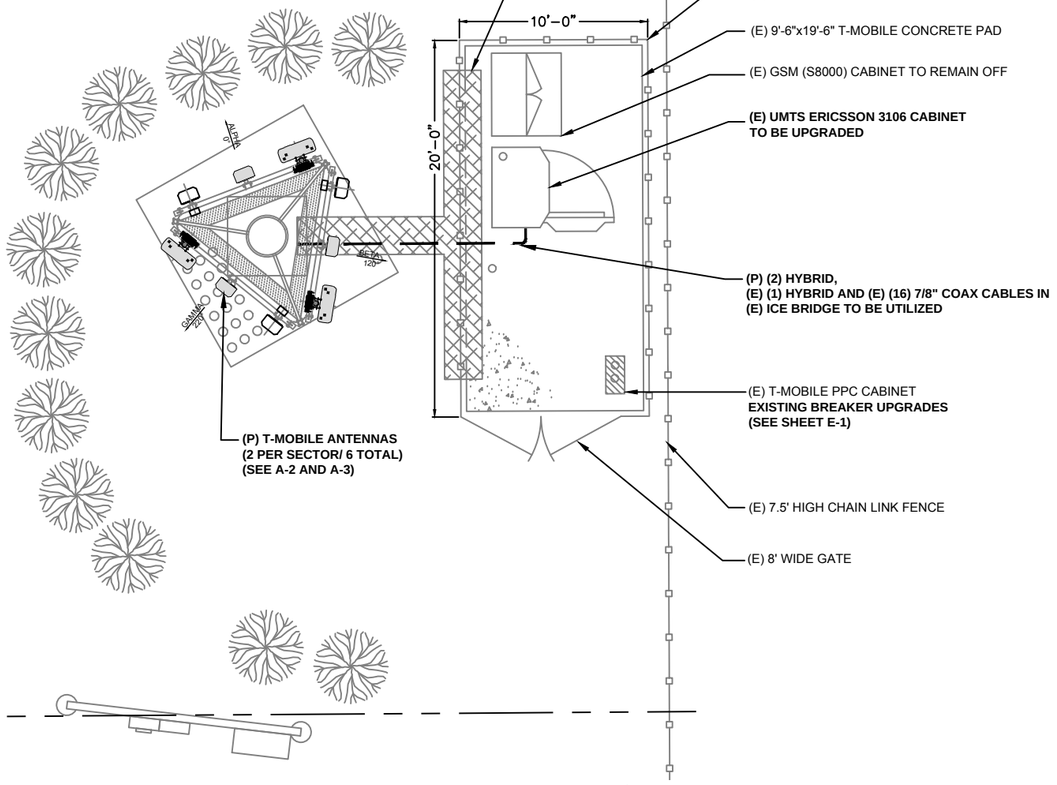
SHEET TITLE:
N-1: NOTES AND DISCLAIMERS



SITE PLAN
SCALE: N.T.S.
1
A–1

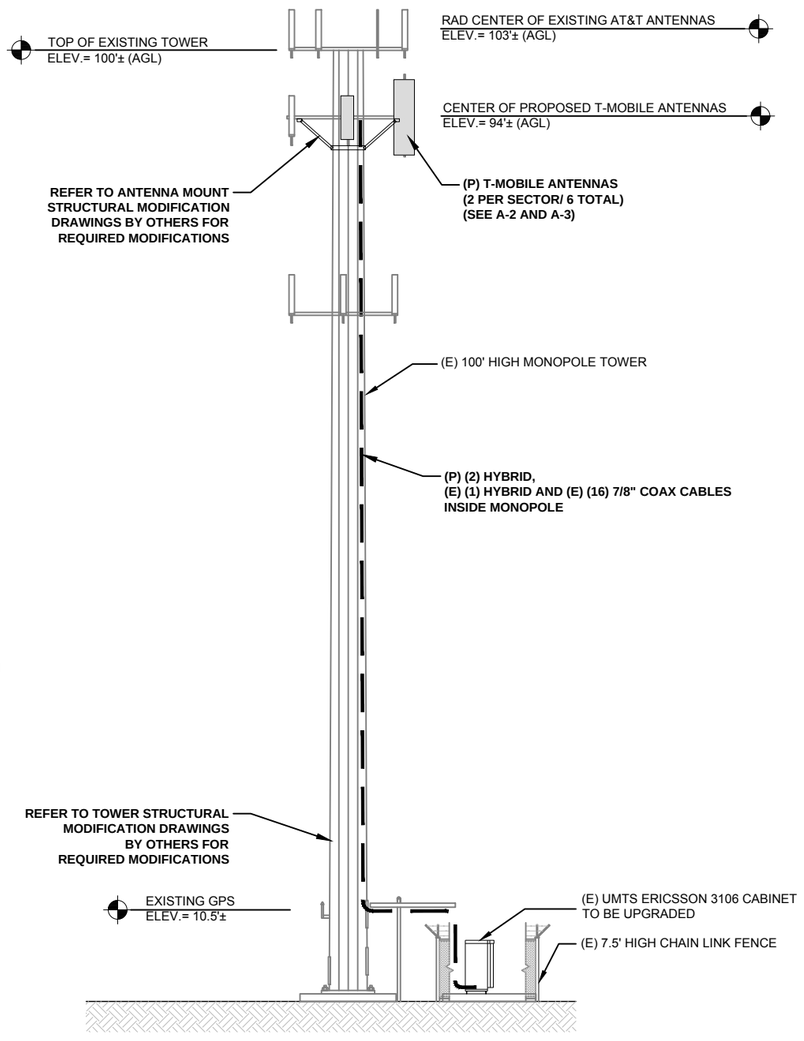


0 4 8 16 24

ENLARGED SITE PLAN
SCALE: 1/8" = 1'–0"
1
A–1
2
A–1

STRUCTURAL NOTES:

PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO "POST-MOD RIGOROUS STRUCTURAL ANALYSIS REPORT", DATED OCTOBER 04, 2018, PREPARED BY MALOUF ENGINEERING INTL., INC.
AND "ANTENNA MOUNT ANALYSIS" DATED OCTOBER 4, 2018 ALSO BY MALOUF ENGINEERING INTL., INC. TO DETERMINE IF THERE IS ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIRED FOR TOWER EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING, OR RELOCATION ARRANGEMENTS.



ELEVATION VIEW
SCALE: 1/16" = 1'–0"
2
A–1

0 8 16 32 48

APPLICANT:
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
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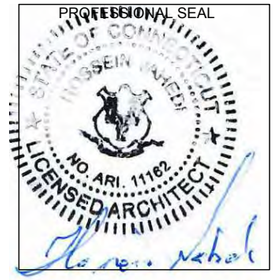
617-212-3123

PROFESSIONAL SEAL



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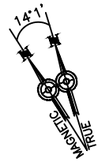
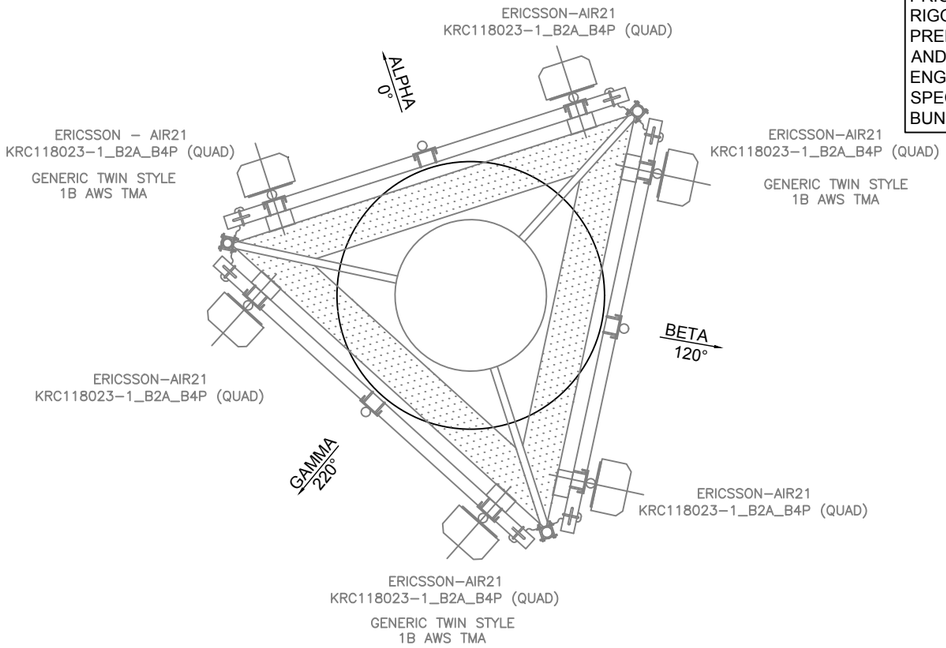
C	REFERENCED TOWER MODS	04/12/19
0	SIGNED AND SEALED	04/24/19
1	REVISED ANTENNA SPECS	05/06/19

SITE NUMBER: CTHA130A
SITE NAME: CTHA130/SNET TOWER_MP
SITE ADDRESS: 419 BROAD STREET
WINDSOR, CT 06095

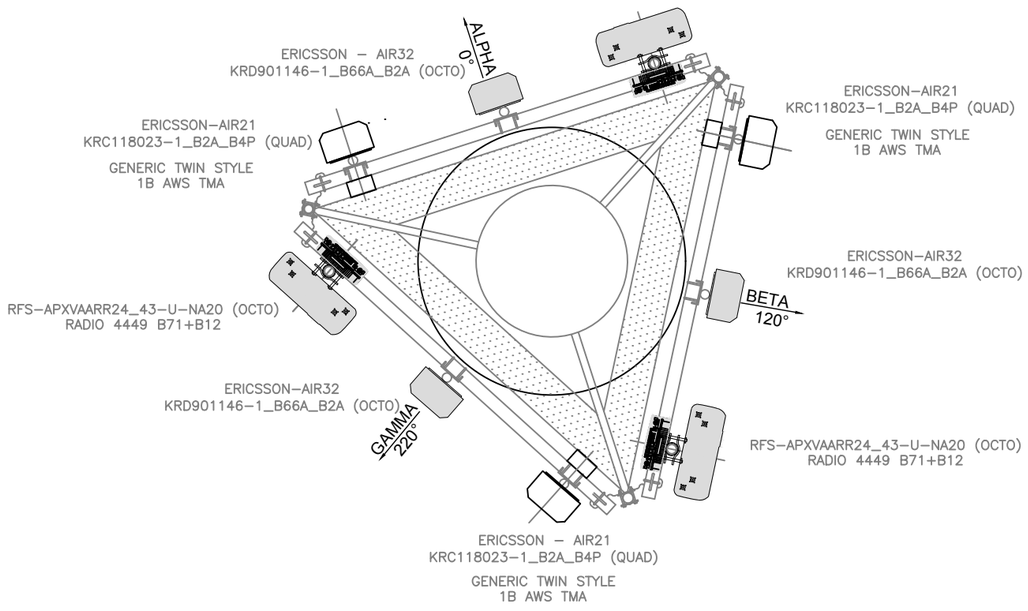
SHEET TITLE:
A-1: PLAN AND ELEVATION





EXISTING ANTENNA PLAN
SCALE: N.T.S.

1 / A-2



FINAL ANTENNA PLAN
SCALE: N.T.S.

2 / A-2

STRUCTURAL NOTES:

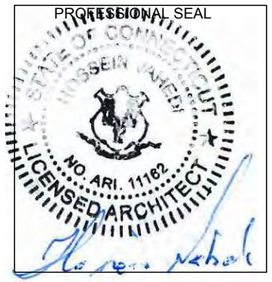
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO "POST-MOD RIGOROUS STRUCTURAL ANALYSIS REPORT", DATED OCTOBER 04, 2018, PREPARED BY MALOUF ENGINEERING INTL., INC.
AND "ANTENNA MOUNT ANALYSIS" DATED OCTOBER 4, 2018 ALSO BY MALOUF ENGINEERING INTL., INC. TO DETERMINE IF THERE IS ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIRED FOR TOWER EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING, OR RELOCATION ARRANGEMENTS.

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL



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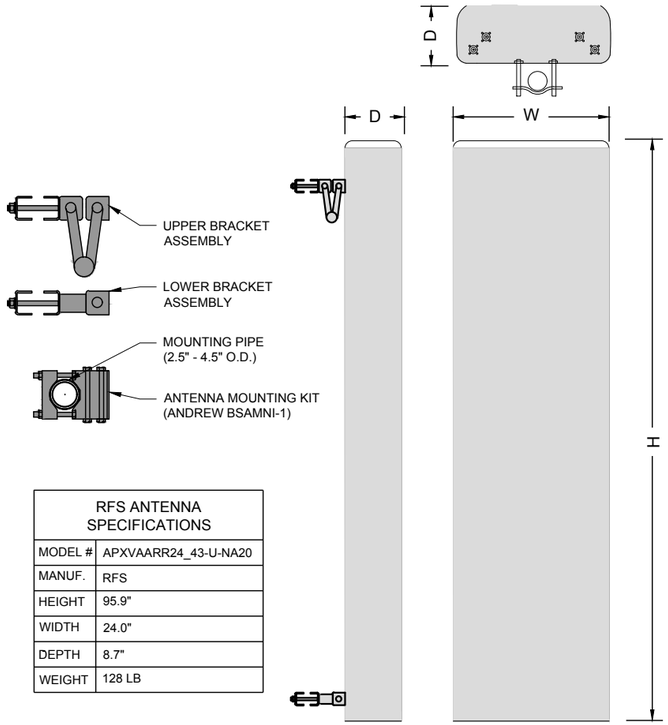
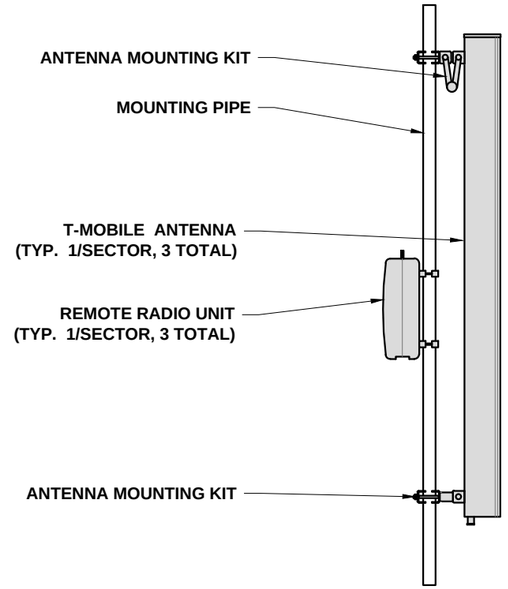
SITE NUMBER: CTHA130A
SITE NAME: CTHA130/SNET TOWER_MP
SITE ADDRESS: 419 BROAD STREET
WINDSOR, CT 06095

SHEET TITLE:
A-2: ANTENNA PLAN



RFS ANTENNA SPECIFICATIONS	
MODEL #	APXVAARR24_43-U-NA20
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.7"
WEIGHT	128 LB

RFS ANTENNA
N.T.S
1 A-3



ANTENNA MOUNTING DETAIL
N.T.S
4 A-3

STRUCTURAL NOTES:

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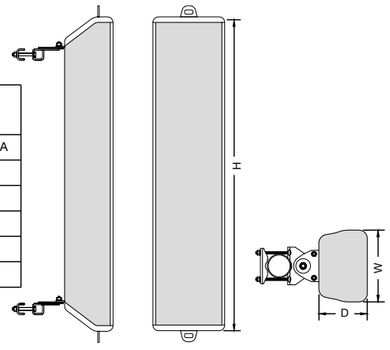
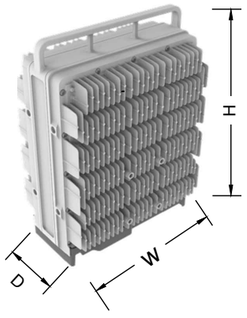
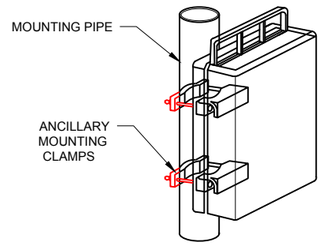


ERICSSON ANTENNA SPECIFICATIONS	
MODEL #	AIR32 KDR901146-1 B66A_B2A
MANUF.	ERICSSON
HEIGHT	56.6"
WIDTH	12.9"
DEPTH	8.7"
WEIGHT	132.2 LB

ERICSSON ANTENNA
N.T.S
2 A-3

REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4449 B71+B12
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	74 LB





REMOTE RADIO UNIT MOUNTING DETAIL

REMOTE RADIO UNIT
N.T.S
3 A-3

APPLICANT:
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
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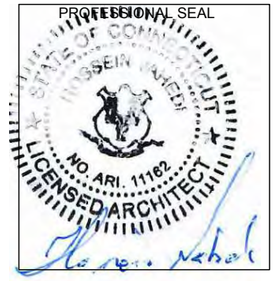
PROFESSIONAL SEAL



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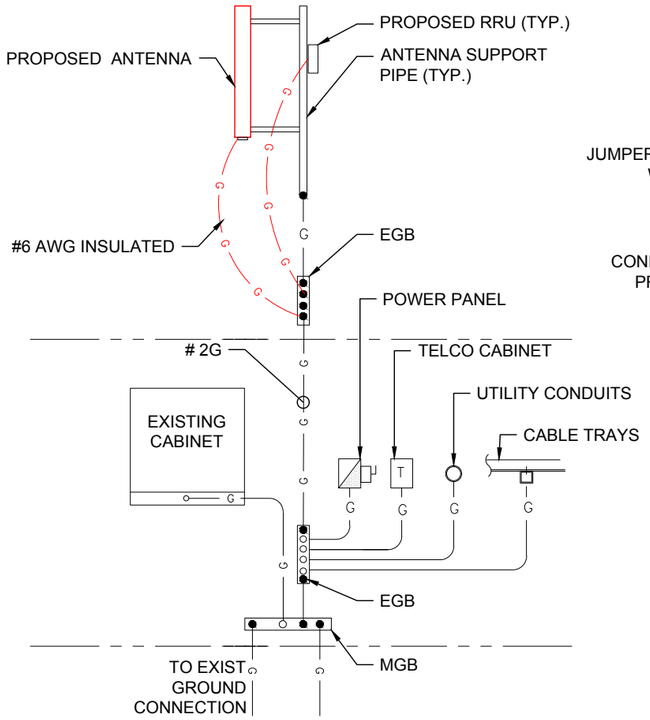
SITE NUMBER: CTHA130A
SITE NAME: CTHA130/SNET TOWER_MP
SITE ADDRESS: 419 BROAD STREET
WINDSOR, CT 06095

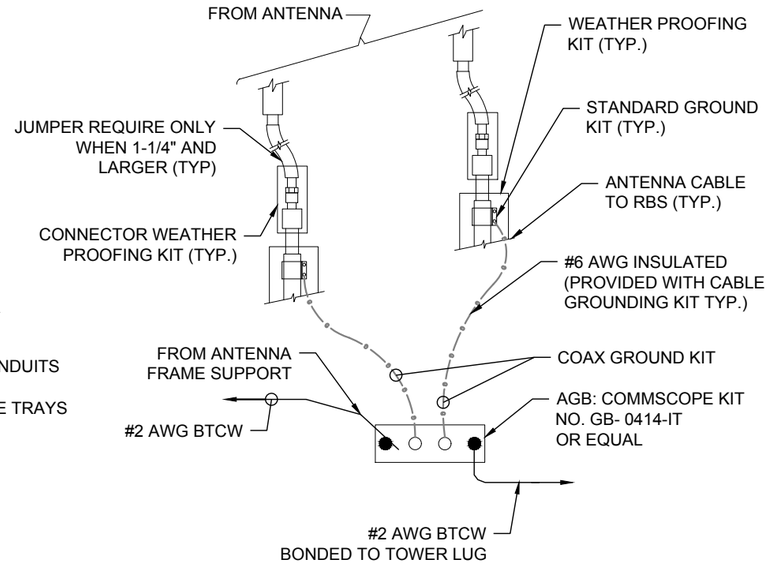
SHEET TITLE:
A-3: ANTENNA AND EQUIPMENT DETAILS

ELECTRICAL & GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PRODUCED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND 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) ND 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 THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLING BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE ARE 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 TELECOM CABINET AND RBS CABINET AS INDICATED ON DRAWING A -1. PROVIDE FULL LENGTH PULL ROPE INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NAME 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUNDING COAX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURES COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSTALLATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE GROUND.
14. ALL GROUND CONNECTION 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 AS RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY BOND ANY METER 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 PROCEDURES (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN RBS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTION.
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.
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.

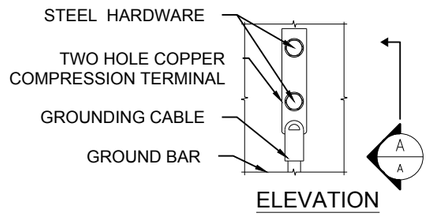


GROUNDING RISER DIAGRAM (1 / E-1)
SCALE: N.T.S

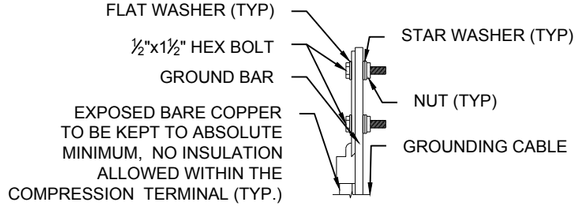


NOTES:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB

TOWER TOP CABLE GROUNDING DETAIL (2 / E-1)
SCALE: N.T.S



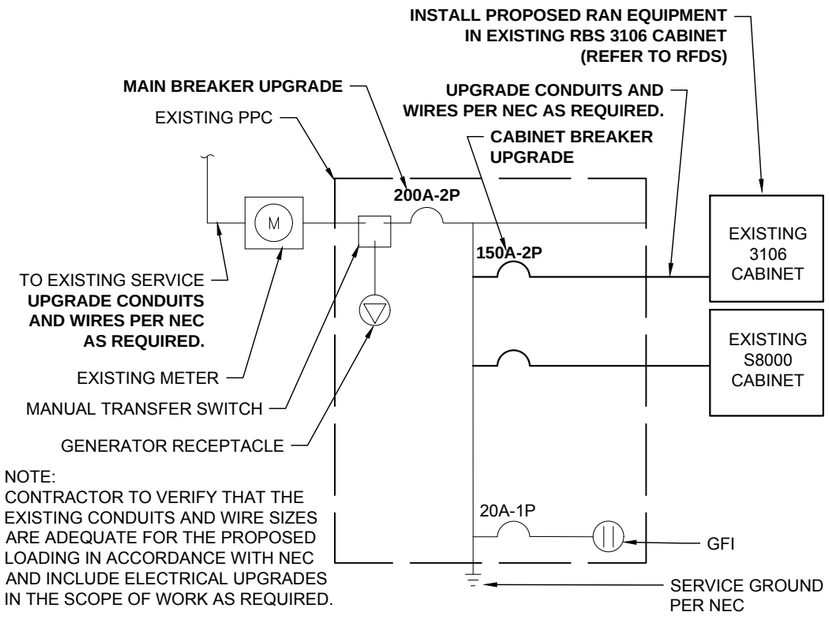
ELEVATION



SECTION A-A

NOTES:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYPICAL GROUND BAR CONNECTIONS DETAIL (3 / E-1)
SCALE: N.T.S



NOTE:
CONTRACTOR 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.

ONE LINE DIAGRAM (4 / E-1)
SCALE: N.T.S

APPLICANT:
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
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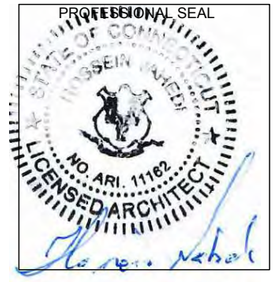
PROFESSIONAL SEAL



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SITE NAME: CTHA130/SNET TOWER_MP
SITE ADDRESS: 419 BROAD STREET
WINDSOR, CT 06095

SHEET TITLE:
E-1: GROUNDING AND ELECTRICAL DETAILS

Exhibit D

TOWER

Post-Mod Rigorous Structural Analysis Report

T-Mobile

T-Mobile - TMO Windsor Site #CTHA130A
Owner: Frontier Communications – Windsor CO Site
Windsor, Connecticut

October 04, 2018

MEI PROJECT ID: CT00873M-18V3

MALOUF ENGINEERING INTL., INC.
STRUCTURAL CONSULTANTS

17950 PRESTON ROAD, SUITE 720 ▪ DALLAS, TEXAS 75252 ▪ TEL. 972-783-2578 FAX 972-783-2583
www.maloufengineering.com

TIA PROFESSIONAL MEMBER ACEC MEMBER

MALOUF ENGINEERING INTL., INC.

STRUCTURAL CONSULTANTS

October 4, 2018

Mr. Sheldon Freincle
Northeast Site Solutions
Farmington, CT 06032

POST-MOD RIGOROUS STRUCTURAL ANALYSIS

Structure/Make/Model:	100 ft **Monopole**		Engineered Endeavors / 18-Sided	
Client/Site Name/#:	**Northeast Site Solutions / T-Mobile**		**TMO Windsor #CTHA130A**	
Owner/Site Name/#:	Frontier Communications		Windsor CO Site	
MEI Project ID:	**CT00873M-18V1**			
Location:	419 Broad Street Windsor, Connecticut 06095		Hartford County FCC #N/A	
	LAT	41-50-45.2 N	LON	72-38-46.1 W

EXECUTIVE SUMMARY:

Malouf Engineering Int'l (MEI), as requested, has performed a rigorous structural analysis and modification design of the above-mentioned structure to assess the impact of the changed condition as noted in Table 1.

Based on the stress analysis performed, the existing structure **is in conformance** with the Int'l Building Code (IBC) / ANSI/TIA-**222-G** Standard for the loading considered under the criteria listed and referenced in the report sections **after proper installation of the recommended structural strengthening modifications outlined** – tower rated at 88.2% - Base Plate / 91.1% - Foundation.

The addition of the proposed changed condition as noted in Table 1 is structurally acceptable after proper installation of the proposed strengthening modifications. Please refer to modification drawings for details.

MEI appreciates the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or other projects, please contact us.

Respectfully submitted,

MALOUF ENGINEERING INT'L, INC.

Analysis performed by:

Krishna Manda, PE
Sr. Project Engineer

Reviewed & Approved by:

STATE OF CONNECTICUT
E. MARK MALOUF
No. 17715
LICENSED
PROFESSIONAL ENGINEER

E. Mark Malouf, PE
Connecticut #17715
972-783-2578 ext. 106
mmalouf@maloufengineering.com

10/4/2018

TABLE OF CONTENTS

Separate Attachment:

Modification Design Drawings

1. INTRODUCTION & SCOPE

A rigorous structural analysis and modification design were performed by Malouf Engineering Int'l (MEI), as requested and authorized by Mr. Sheldon Freincle, Northeast Site Solutions, on behalf of T-Mobile, to determine the acceptance of the proposed changed conditions in conformance with the IBC / ANSI/TIA-222-G Standard, "*Structural Standard for Antenna Supporting Structures and Antennas*".

The scope of this independent analysis is to determine the overall stability and the adequacy of structural members, foundations, and member connections, as available and stated. This analysis considers the structure to have been properly installed and maintained with no structural defects. Installation procedures and related loading are not within the scope of this analysis and should be performed and evaluated by a competent person of the erection contractor.

The different report sections detail the applicable information used in this evaluation, relating to the tower data, the appurtenances configuration and the wind and ice loading considered.

2. SOURCE OF DATA

The following information has been used in this evaluation as source data that accurately represent the existing structure and the related appurtenances:

	Source	Information	Reference
STRUCTURE			
Tower	MEI Records	Previous Structural Analysis	ID CT00873M-18V1 Dated 09/04/2018
Foundation	MEI Records	Previous Structural Analysis	ID CT00873M-18V1 Dated 09/04/2018
Material Grade	Available from supplied documents noted above-refer to Appendix		
CURRENT APPURTENANCES			
	MEI Records	Previous Structural Analysis	ID CT00873M-18V1 Dated 09/04/2018
CHANGED CONDITION			
	Frontier Communications Ms. Elissa McOmber	T-Mobile PDQ Data Sheet	Dated 07/19/2018

Background Information:

Based on available information, the following is known regarding this structure:

DESIGNER / FABRICATOR	Engineered Endeavors Inc. / 18-Sided
ORIGINAL DESIGN CRITERIA	TIA/EIA 222-F – 70 Mph + 0.50" Ice
PRIOR STRUCTURAL MODIFICATIONS	*Mods as per GPD Association 2009-262.22 Dated 05/12/2009 considered properly installed & effective.*

3. ANALYSIS CRITERIA

The structural analysis performed used the following criteria:

CODE / STANDARD	2018 CT Building Code / 2015 IBC / NDS / ANSI/TIA-222-G-4 Standard	
LOADING CASES	*Full Wind:*	122 Mph Ult. Gust [equiv. 94.5 Mph (3-sec gust)] w/No Radial Ice**
	Iced Case:	50 Mph + 1" Radial Ice
	Service:	60 Mph
	Seismic:	S_s = 0.179 / S_1 = 0.064 / Site Class: D – Stiff Soil
STRUCTURE CRITERIA	*Risk Category (Structural Class):* Class II	
	Exposure Category: 'C' – *Topographic Category:* 1	

Appurtenances Configuration

The following appurtenances configuration is denoted by the *summation of Tables 1 & 2*:

Table 1: Tenant with Changed Condition Appurtenances Configuration

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
94	T-Mobile	3	AIR-32 Panel Antennas	[Existing Mount]	1	1-5/8" Hybrid Cable-(I)
		3	APXVAARR24_43-U-NA20 Panel Ants.			
		3	Radio 4449 Boxes			
Appurtenances to Remain						
94	T-Mobile	3	AIR21 Panel Antennas	LP Platform without Rails / With **New Reinforcement**	16	7/8"– (I)
		3	KRY 112 71/2 TMA's		1	Huber-Suhner Hybrid – (I)
Appurtenances to Removed						
94	T-Mobile	3	AIR21 Panel Antenna		1	Huber-Suhner Hybrid – (I)

Table 2: Remaining Tenants Current and Reserved/Future Appurtenances

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
100		1	Lightning Rod			
103	AT&T	3	QS66512-2 Panel Antennas	Platform without Rails with Ladder	12	1-1/4"
		3	7770.00 Panel Antennas		2	3/4" DC Power
		3	HPA-65R-BUU-H6 Panel Ants.		1	5/8" Fiber -(I)
100		3	RRUS-32 Boxes [Shielded behind Ant.]			
		1	Raycap OVP Box			
		6	DBC0061F1V51-2 Combiners			
		3	TT19-08BP111-001 Antennas			
		3	RRUS-11 Boxes [Shielded behind Ant.]			
		3	RRUS-32 B2 Boxes			
		1	Raycap OVP Box			
10.5	AT&T	1	GPS	Empty Pipe Mount	1	½"-(I)
9.5				2.25ft Standoff		

Notes:

1. **As per 2016 IBC for ultimate 3-sec gust wind speed converted to nominal 3-sec gust wind speed as per Sect. 1609.3.1 as required to be used in ANSI/TIA-222-G Standard per exception 5 of Sect. 1609.1.1.
2. All elevations are measured from tower base.
3. Please note appurtenances not listed above are to be removed/not present as per data supplied.
4. (I) = Internal; (E) = External; (FZ) = Within Face Zone; (OFZ) = Outside Face Zone - as per TIA-222-G.
5. The above appurtenances represent MEI's understanding of the appurtenances configuration. If different than above, the analysis is invalid. Please contact MEI if any discrepancies are found.

4. ANALYSIS PROCEDURE

The subject structure is analyzed for feasibility of the installation of the proposed changed condition previously noted. The data records furnished were reviewed and a computer stress analysis was performed in accordance with the TIA-222 Standard provisions and with the agreed scope of work terms and the results of this analysis are reported.

Analysis Program

The computer program used to model the structure is a rigorous Finite Element Analysis program, tnxTower (ver. 8.04), a commercially available program by Tower Numerics Inc. The latticed structures members are modeled using beam/truss and cable members and the pole members using tubular beam elements. The structural parameters and geometry of the members are included in the model. The dead and temperature loads and the wind loads are internally calculated by the program for the different wind directions and then applied as external loads on the structure. Any applicable exemptions, as per Section 15.6 of the TIA-222-G Standard for existing structures originally designed in accordance with a previous revision of the TIA-222 Standard, have been taken.

Assumptions

This engineering study is based on the theoretical capacity of the members and is not a condition assessment of the structure. This analysis is based on information supplied, and therefore, its results are based on and as accurate as that supplied data. MEI has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural stress analysis:

- This existing tower is assumed, for the purpose of this analysis, to have been properly maintained and to be in good condition with no structural defects and with no deterioration to its member capacities ('as-new' condition).
- The tower member sizes and configuration are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated.
- The appurtenances configuration is as supplied and/or as stated in the report. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
- Some assumptions are made regarding antennas and mounts sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type & industry practice.
- Mounts/Platforms are considered adequate to support the loading. No actual analysis of the platform/mount itself is performed, with the analysis being limited to analyzing the structure.
- The soil parameters are as per data supplied or as assumed and stated in the calculations. Refer to the Appendix. If no data is available, the foundation system is assumed to support the structure with its new reactions.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
- All prior structural modifications, if any, are assumed to be as per data supplied/available, and to have been properly installed and to be fully effective.

If any of the above assumptions are not valid or have been made in error, this analysis results may be invalided, MEI should be contacted to review any contradictory information to determine its effect.

5. ANALYSIS RESULTS

The structure will require structural strengthening as follows: (Refer to the attached drawings for details.)

Note: The Wind loading controls over the Seismic loading as per TIA Section 2.7.

STRUCTURAL STRENGTHENING REQUIRED	
1	Add (1) Reinforcing Channel (Aero Solutions #MP306-xxx) as shown, stitch bolted to tubular shaft and spliced to existing reinforcement on Flat #14 from Elev. 15'-5" to 25'-5" ± (Refer modification details).
2	Field verify location of existing channels, end bolt sizes and interferences, prior to fabrication.
3	Perform any Maintenance work as required to have the structure into good operational condition.

Prior to implementation of the changed conditions and modifications, the data designated on the design documents requiring field verification shall be validated. Rigging and temporary supports required for the erection/modification shall be determined, documented, furnished and installed by the erector/contractor accounting for the loads imposed on the structure due to the proposed construction method.

Table 3: Stress Analysis Results– AFTER PROPER INSTALLATION OF MODS

Component Type	Maximum Stress Ratio	Controlling Elev. (ft) / Component	Pass/Fail	Comment
POLE	71.0%	86.7292 - 45.3958	Pass	
REINFORCING	85.9%	6 – 0	Pass	
BASE PLATE	88.2%	Bending	Pass	
ANCHOR RODS	75.0%	Tension	Pass	
FOUNDATION	91.1%	Overturning Moment	Pass	Based on foundation reinforcement design calculations.

Table 4: Serviceability Requirements

	Maximum Value	TIA Requirement (10dB)	Pass/Fail	Comment
TWIST/SWAY	1.6814 Deg.	4 Deg. from Vert. or Horiz. Axis	Pass	
HORIZONTAL DISPLACEMENT	18.192 In./ 1.51% of Ht.	3.0% of Height	Pass	

Notes:
1. The Maximum Stress Ratio is the percentage that the maximum load in the member is relative to the allowable load as determined by Code requirements.
2. Refer to the Appendix 1 for more details on the member loads.
3. A maximum stress ratio between 100% and 105% may be considered as *Acceptable* according to industry standard practice.

6. FINDINGS & RECOMMENDATIONS

- Based on the rigorous stress analysis results, the subject structure is **rated at 88.2% / 91.1%** of its support capacity (controlling component: Base Plate / Foundation) with the proposed changed condition considered after strengthening. Please refer to Table 3 and to Appendix 1 for more details of the analysis results.
- Based on the stress analysis performed, the existing structure **is in conformance** with the IBC / ANSI/TIA **222-G** Standard for the loading considered under the criteria listed and referenced in the report sections **after proper installation of the recommended structural strengthening modifications outlined.**
- ***The addition of the proposed changed condition as noted in Table 1 is structurally acceptable after proper installation of the proposed strengthening modifications.*** Please refer to modification drawings for details.
- This structure is near its support capacity for the appurtenances and loading criteria considered, after its modification. Therefore, no changes to the configuration considered should be made without performing a new proper evaluation.

Rigging and temporary supports required for the erection/modification shall be determined, documented, furnished and installed by the erector/contractor accounting for the loads imposed on the structure due to the proposed construction method.

7. REPORT DISCLAIMER

The engineering services rendered by **M**alouf **E**ngineering **I**nternational, Inc. *('MEI') in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. MEI does not analyze the fabrication, including welding and connection capacities, except as included in this Report.*

The analysis performed, and the conclusions contained herein are based on the assumption that the tower has been properly installed and maintained, including, but not limited to the following:

1. Proper alignment and plumbness.
2. Correct guy tensions, as applicable.
3. Correct bolt tightness or slip jacking of sleeved connections.
4. No significant deterioration or damage to any structural component.

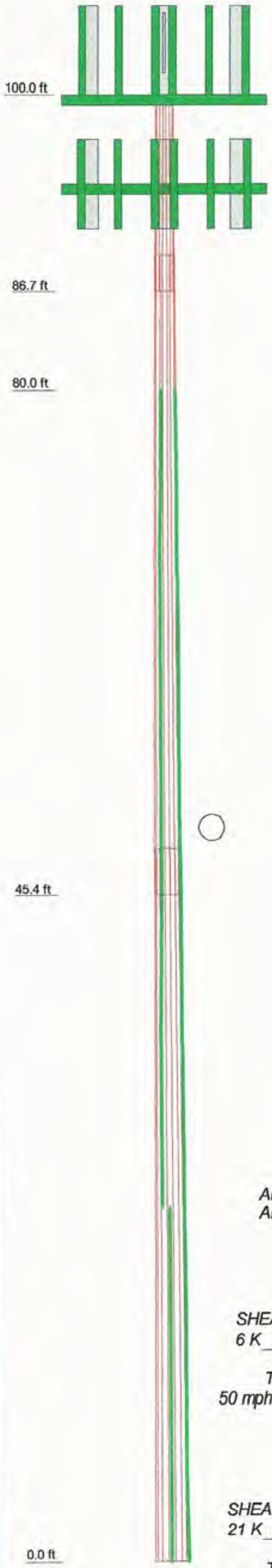
Furthermore, the information and conclusions contained in this Report were determined by application of the current "state-of-the-art" engineering and analysis procedures and formulae. MALOUF ENGINEERING INTERNATIONAL, INC. assumes no obligation to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised. In addition, under no circumstances will MALOUF ENGINEERING INTERNATIONAL, INC. have any obligation or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the Report, and the maximum liability of MALOUF ENGINEERING INTERNATIONAL, INC., if any, pursuant to this Report shall be limited to the total funds actually received by MALOUF ENGINEERING INTERNATIONAL, INC. for preparation of this Report.

Customer has requested MALOUF ENGINEERING INTERNATIONAL, INC. to prepare and submit to Customer an engineering analysis with respect to the Subject Tower and has further requested MALOUF ENGINEERING INTERNATIONAL, INC. to make appropriate recommendations regarding suggested structural modifications and changes to the Subject Tower. In making such request of MALOUF ENGINEERING INTERNATIONAL, INC., Customer has informed MALOUF ENGINEERING INTERNATIONAL, INC. that Customer will make a determination as to whether or not to implement any of the changes or modifications which may be suggested by MALOUF ENGINEERING INTERNATIONAL, INC. and that Customer will have any such changes or modifications made by riggers, erectors and other subcontractors of Customer's choice. MALOUF ENGINEERING INTERNATIONAL, INC. shall have the right to rely upon the accuracy of the information supplied by the customer and shall not be held responsible for the Customer's misrepresentation or omission of relevant fact whether intentional or otherwise.

Customer hereby agrees and acknowledges that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability whatsoever to Customer or to others for any work or services performed by any persons other than MALOUF ENGINEERING INTERNATIONAL, INC. in connection with the implementation of services including but not limited to any services rendered for Customer or for others by riggers, erectors or other subcontractors. Customer acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by Customer shall be solely responsible to Customer and to others for the quality of work performed by them and that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by any such rigger, erector or subcontractor and that Customer and rigger, erector, or subcontractor will provide MALOUF ENGINEERING INTERNATIONAL, INC. with a Certificate of Insurance naming MALOUF ENGINEERING INTERNATIONAL, INC. as additional insured.

APPENDIX 1 - ANALYSIS PRINTOUT & GRAPHICS

AFTER NOTED MODIFICATIONS



Section	1	2	3
Length (ft)	13.27	43.88	48.61
Number of Sides	18	18	18
Thickness (in)	0.1875	0.2500	0.3125
Socket Length (ft)	2.54	3.21	
Top Dia (in)	14.5000	15.6153	20.7717
Bot Dia (in)	16.3438	21.7188	27.5000
Grade		A572-65	
Tube Length (ft)		4.67, 6.00, 6.00, 6.00, 6.00, 6.00	9.33, 6.00, 6.00, 6.00, 6.00, 6.00, 6.00
Reinf Size		AERO MP305	AERO MP306
Reinf Grade			A572-65
Weight (K)	0.4	2.2	3.9

Total Weight (K): 6.5

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
7770.00 Panels w/ Pipe Mount (ATT / E)	103	(2) DBC0061F1V51-2 Diplexer (ATT / New)	100
7770.00 Panels w/ Pipe Mount (ATT / E)	103	(2) DBC0061F1V51-2 Diplexer (ATT / New)	100
7770.00 Panels w/ Pipe Mount (ATT / E)	103	APXVAARR24_43-U-NA20 w/ Pipe Mount (T-Mobile / P)	94
HPA-65R-BUU-H6 w/ Pipe Mounts (ATT / E)	103	APXVAARR24_43-U-NA20 w/ Pipe Mount (T-Mobile / P)	94
HPA-65R-BUU-H6 w/ Pipe Mounts (ATT / E)	103	RADIO 4449 (T-Mobile / P)	94
HPA-65R-BUU-H6 w/ Pipe Mounts (ATT / E)	103	RADIO 4449 (T-Mobile / P)	94
QS66512-2 w/ Pipe Mount (ATT / New)	103	RADIO 4449 (T-Mobile / P)	94
QS66512-2 w/ Pipe Mount (ATT / New)	103	LP Platform w/o Rails w/ Reinforcement (T-Mobile / E)	94
QS66512-2 w/ Pipe Mount (ATT / New)	103	AIR21 Panel w/ Pipe Mount (T-Mobile / E)	94
Lightning Rod (E)	100.5	AIR21 Panel w/ Pipe Mount (T-Mobile / E)	94
RRUS-11 (ATT / E)	100	AIR21 Panel w/ Pipe Mount (T-Mobile / E)	94
RRUS-11 (ATT / E)	100	KRY 112 71/2 (T-Mobile / E)	94
RRUS-11 (ATT / E)	100	KRY 112 71/2 (T-Mobile / E)	94
TT19-08BP111-001 (ATT / E)	100	KRY 112 71/2 (T-Mobile / E)	94
TT19-08BP111-001 (ATT / E)	100	AIR-32 Panel w/ Pipe Mount (T-Mobile / P)	94
TT19-08BP111-001 (ATT / E)	100	AIR-32 Panel w/ Pipe Mount (T-Mobile / P)	94
Raycap OVP Box (ATT / E)	100	AIR-32 Panel w/ Pipe Mount (T-Mobile / P)	94
Platform w/o Rails with Ladder (ATT / E)	100	APXVAARR24_43-U-NA20 w/ Pipe Mount (T-Mobile / P)	94
RRUS-32 B2 (ATT / E)	100	GPS (ATT / E)	10.5
RRUS-32 B2 (ATT / E)	100	2.25ft Standoff (E)	9.5
RRUS-32 B2 (ATT / E)	100		
RRUS-32 (ATT / New)	100		
RRUS-32 (ATT / New)	100		
RRUS-32 (ATT / New)	100		
Raycap OVP Box (ATT / New)	100		
(2) DBC0061F1V51-2 Diplexer (ATT / New)	100		

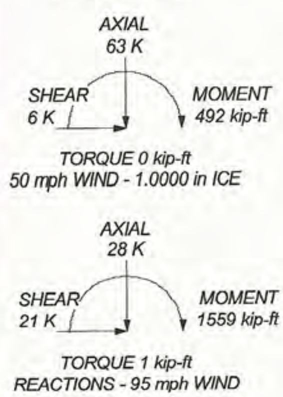
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 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 95 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. OWNER: FRONTIER COMMUNICATIONS - WINDSOR CO SITE
9. 2016 CT SBC / 2012 IBC / ULTIMATE WIND 122 MPH / RISK CAT. 2
10. TOWER RATING: 88.2%

ALL REACTIONS ARE FACTORED



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17950 Preston Road, STE 720
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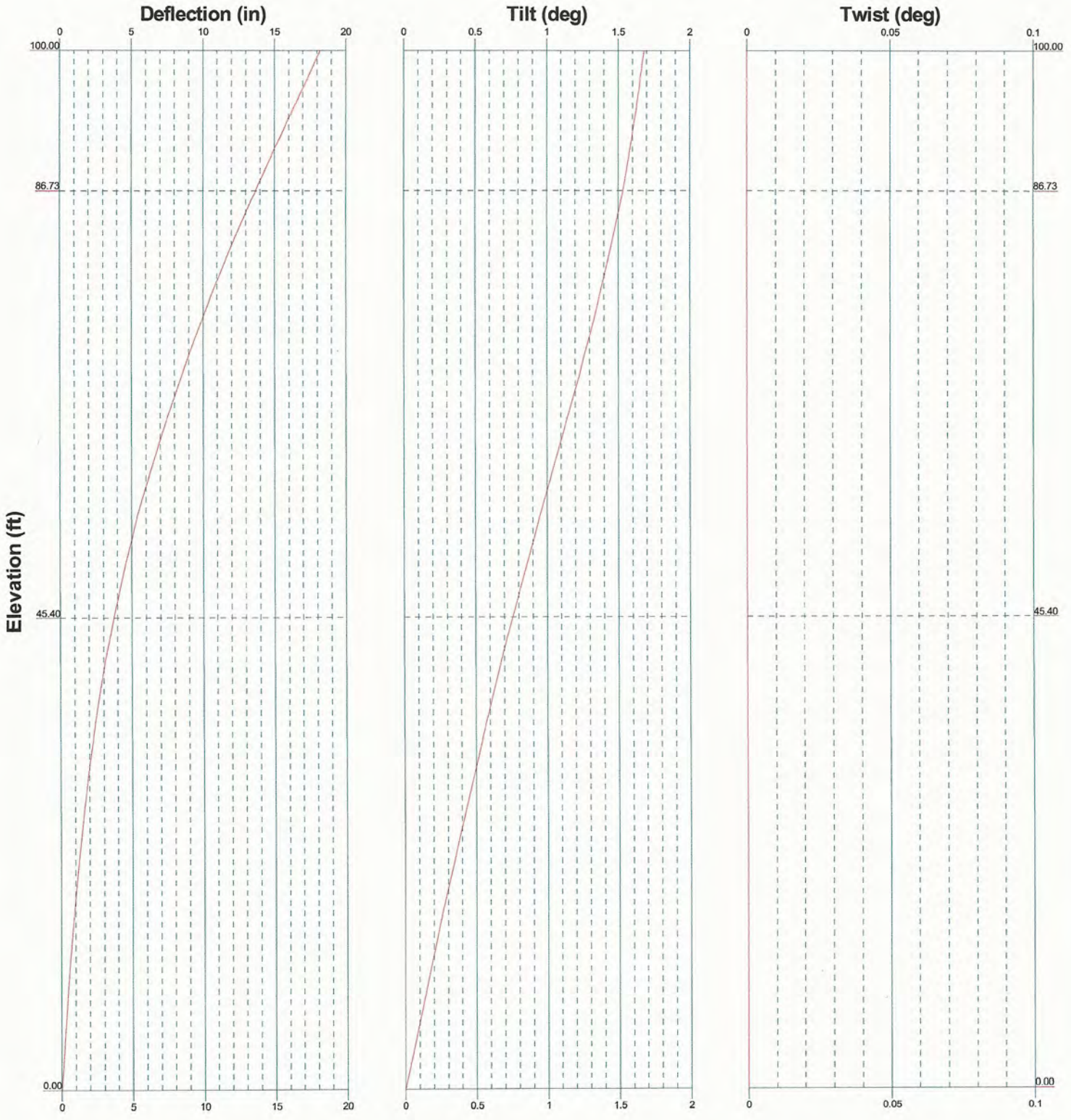
Phone: (972) 783 2578
FAX: (972) 783 2583

Job: **100ft MP - TMO WINDSOR Site CTHA130A**		
Project: **CT00873M-18V3 (Modification Analysis)**		
Client: NSSx / T-MOBILE	Drawn by: KM	App'd:
Code: TIA-222-G	Date: 10/04/18	Scale: NTS
Path:		Dwg No. E-1

TIA-222-G - Service - 60 mph

Maximum Values



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Client: NSSx / T-MOBILE	Drawn by: KM	App'd:	
Code: TIA-222-G	Date: 10/04/18	Scale: NTS	
Path: C:\MEIProjects\2018\Q3\CT00873M\CT00873M-18V3_NSSx_T-Mobile_TMO Window #CTHA130A\2-Working Data\Tower\18V3\CT00873M-18V3.eri		Dwg No. E-5	

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 95 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 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
OWNER: FRONTIER COMMUNICATIONS - WINDSOR CO SITE.
2016 CT SBC / 2012 IBC / ULTIMATE WIND 122 MPH / RISK CAT. 2.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Placement ft	Total Number	Weight plf
1/2 (ATT / E)	10.50 - 0.00	1	0.25
1 1/4" Huber Suhner Hybrid Cable (T-Mobile / E)	94.00 - 0.00	1	1.70
1-5/8" Hybrid Cable (T-Mobile / P)	94.00 - 0.00	1	1.78
MP306 Mod Channel (E)	25.50 - 0.00	1	4.50
MP306 Mod Channel (E)	45.40 - 0.00	1	4.50
MP306 Mod Channel (E)	45.40 - 0.00	1	4.50
MP306 Mod Channel (E)	45.40 - 0.00	1	4.50
MP305 Mod Channel (E)	80.00 - 45.40	1	3.50
MP305 Mod Channel (E)	80.00 - 45.40	1	3.50
MP305 Mod Channel (E)	80.00 - 45.40	1	3.50

Feed Line/Linear Appurtenances - Entered As Area

Description	Placement ft	Total Number	Weight plf
1 1/4 (ATT / E)	100.00 - 0.00	12	0.66 0.66 0.66
3/4" DC Power Cable (ATT / E)	100.00 - 0.00	2	1.00 1.00 1.00
5/8" Fiber Cable (ATT / E)	100.00 - 0.00	1	0.80 0.80 0.80
7/8 (T-Mobile / E / Reserved)	94.00 - 0.00	16	0.54 0.54 0.54

Discrete Tower Loads

Description	Placement	Weight
	ft	K
Lightning Rod (E)	100.50	0.01
		0.01
		0.02
7770.00 Panels w/ Pipe Mount (ATT / E)	103.00	0.04
		0.09
		0.15
7770.00 Panels w/ Pipe Mount (ATT / E)	103.00	0.04
		0.09
		0.15
7770.00 Panels w/ Pipe Mount (ATT / E)	103.00	0.04
		0.09
		0.15
HPA-65R-BUU-H6 w/ Pipe Mounts (ATT / E)	103.00	0.09
		0.17
		0.26
HPA-65R-BUU-H6 w/ Pipe Mounts (ATT / E)	103.00	0.09
		0.17
		0.26
HPA-65R-BUU-H6 w/ Pipe Mounts (ATT / E)	103.00	0.09
		0.17
		0.26
RRUS-32 B2 (ATT / E)	100.00	0.05
		0.07
		0.10
RRUS-32 B2 (ATT / E)	100.00	0.05
		0.07
		0.10
RRUS-32 B2 (ATT / E)	100.00	0.05
		0.07
		0.10
RRUS-11 (ATT / E)	100.00	0.05
		0.07
		0.10
RRUS-11 (ATT / E)	100.00	0.05
		0.07
		0.10
RRUS-11 (ATT / E)	100.00	0.05
		0.07
		0.10
TT19-08BP111-001 (ATT / E)	100.00	0.02
		0.03
		0.03
TT19-08BP111-001 (ATT / E)	100.00	0.02
		0.03
		0.03
TT19-08BP111-001 (ATT / E)	100.00	0.02
		0.03
		0.03
Raycap OVP Box (ATT / E)	100.00	0.03
		0.05
		0.08
Platform w/o Rails with Ladder (ATT / E)	100.00	1.80
		2.45
		3.10
AIR21 Panel w/ Pipe Mount (T-Mobile / E)	94.00	0.13
		0.18
		0.25
AIR21 Panel w/ Pipe Mount (T-Mobile / E)	94.00	0.13
		0.18
		0.25
KRY 112 71/2 (T-Mobile / E)	94.00	0.01
		0.02
		0.03
KRY 112 71/2 (T-Mobile / E)	94.00	0.01
		0.02
		0.03
KRY 112 71/2 (T-Mobile / E)	94.00	0.01
		0.02
		0.03
AIR-32 Panel w/ Pipe Mount (T-Mobile / P)	94.00	0.15
		0.22
		0.28
AIR-32 Panel w/ Pipe Mount (T-Mobile / P)	94.00	0.15
		0.22
		0.28
AIR-32 Panel w/ Pipe Mount (T-Mobile / P)	94.00	0.15
		0.22
		0.28
APXVAARR24_43-U-NA20 w/ Pipe Mount (T-Mobile / P)	94.00	0.18
		0.32
		0.46
APXVAARR24_43-U-NA20 w/ Pipe Mount (T-Mobile / P)	94.00	0.18
		0.32
		0.46
APXVAARR24_43-U-NA20 w/ Pipe Mount (T-Mobile / P)	94.00	0.18
		0.32
		0.46
RADIO 4449 (T-Mobile / P)	94.00	0.07
		0.09
		0.11
RADIO 4449 (T-Mobile / P)	94.00	0.07
		0.09
		0.11
RADIO 4449 (T-Mobile / P)	94.00	0.07
		0.09
		0.11
LP Platform w/o Rails w/ Reinforcement (T-Mobile / E)	94.00	2.15
		2.90
		3.65
GPS (ATT / E)	10.50	0.01
		0.01
		0.01
2.25ft Standoff (E)	9.50	0.07
		0.11
		0.14
QS66512-2 w/ Pipe Mount (ATT / New)	103.00	0.16
		0.23
		0.32
QS66512-2 w/ Pipe Mount	103.00	0.16

Description	Placement	Weight
	ft	K
(ATT / New)		0.23
		0.32
QS66512-2 w/ Pipe Mount	103.00	0.16
(ATT / New)		0.23
		0.32
RRUS-32	100.00	0.08
(ATT / New)		0.10
		0.14
RRUS-32	100.00	0.08
(ATT / New)		0.10
		0.14
RRUS-32	100.00	0.08
(ATT / New)		0.10
		0.14
Raycap OVP Box	100.00	0.03

Description	Placement	Weight
	ft	K
(ATT / New)		0.05
		0.08
(2) DBC0061F1V51-2	100.00	0.01
Diplexer		0.01
(ATT / New)		0.02
(2) DBC0061F1V51-2	100.00	0.01
Diplexer		0.01
(ATT / New)		0.02
(2) DBC0061F1V51-2	100.00	0.01
Diplexer		0.01
(ATT / New)		0.02

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 86.7292	18.192	42	1.6814	0.0022
L2	89.2734 - 45.3958	14.508	42	1.5655	0.0013
L3	48.6094 - 0	4.223	42	0.8190	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
103.00	7770.00 Panels w/ Pipe Mount	42	18.192	1.6814	0.0026	18659
100.50	Lightning Rod	42	18.192	1.6814	0.0026	18659
100.00	RRUS-32 B2	42	18.192	1.6814	0.0026	18659
94.00	AIR21 Panel w/ Pipe Mount	42	16.106	1.6203	0.0021	6219
10.50	GPS	42	0.522	0.1635	0.0002	11548
9.50	2.25ft Standoff	42	0.469	0.1478	0.0001	12763

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	100 - 86.7292	82.164	20	7.5980	0.0086
L2	89.2734 - 45.3958	65.558	20	7.0808	0.0065
L3	48.6094 - 0	19.095	20	3.7056	0.0030

tnxTower	Job	Page
	100ft MP - TMO WINDSOR Site CTHA130A	4 of 4
Malouf Engineering Int'l Inc. 17950 Preston Road, STE 720 Dallas, Texas 75252 Phone: (972) 783 2578 FAX: (972) 783 2583	**Project** CT00873M-18V3 (Modification Analysis)	**Date** 15:43:37 10/04/18
	Client NSSx / T-MOBILE	**Designed by** KM

Base Plate Design Data

Plate Thickness	Number of Anchor Bolts	Anchor Bolt Size	Actual Allowable Ratio Bolt Tension	Actual Allowable Ratio Bolt Compression	Actual Allowable Ratio Plate Stress	Actual Allowable Ratio Stiffener Stress	Controlling Condition	Ratio
in		in	K	K	ksi	ksi		
2.5000	8	2.2500	168.85	175.88	7.329	47.652	Stiff	0.88
			223.65	371.27	54.000	54.000		✓
			0.75	0.47	0.14	0.88		

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	100 - 86.7292	Pole	TP16.3438x14.5x0.1875	1	-7.83	698.72	44.6	Pass
L2	86.7292 - 45.3958	Pole	TP21.7188x15.6153x0.25	2	70.78	975.82	71.0	Pass
L3	45.3958 - 0	Pole	TP27.5x20.7717x0.3125	3	69.33	1213.46	66.0	Pass
L2	80 - 75.333	Reinforcing	AERO MP305	45	-120.52	303.94	46.6	Pass
	75.333 - 69.333	Reinforcing	AERO MP305	42	-145.09	303.94	55.6	Pass
	69.333 - 63.333	Reinforcing	AERO MP305	39	-170.16	303.94	64.0	Pass
	63.333 - 57.333	Reinforcing	AERO MP305	36	-192.79	303.94	71.5	Pass
	57.333 - 51.333	Reinforcing	AERO MP305	33	-213.24	303.94	78.1	Pass
L3	51.333 - 45.333	Reinforcing	AERO MP305	30	-191.77	303.94	75.1	Pass
	45.333 - 36	Reinforcing	AERO MP306	27	-283.16	449.10	73.0	Pass
	36 - 30	Reinforcing	AERO MP306	24	-305.97	449.10	77.5	Pass
	30 - 24	Reinforcing	AERO MP306	21	-323.00	449.10	81.1	Pass
	24 - 18	Reinforcing	AERO MP306	18	-327.73	449.10	73.0	Pass
	18 - 12	Reinforcing	AERO MP306	14	-344.71	449.10	76.8	Pass
	12 - 6	Reinforcing	AERO MP306	10	-360.94	449.10	80.4	Pass
	6 - 0	Reinforcing	AERO MP306	5	-326.18	449.10	85.9	Pass
							Summary	
						Pole (L2)	71.0	Pass
						Reinforcing (L3)	85.9	Pass
						Base Plate	88.2	Pass
						RATING =	**88.2**	**Pass**

APPENDIX 2 – SOURCE / CHANGED CONDITION

Preliminary Data Questionnaire (PDQ)

Application Date: 7/19/2018

Name and Mailing Address of Applicant:
(Street, City, State, Zip Code)

T-Mobile USA

Bellevue, WA 98015-2690

Telephone Number:

Requested Site:

Frontier Site Name: Windsor CO

419 Broad St., Windsor, CT 06095

Applicant Site Name: CTHA130A

Contact Information: (if different from applicant)

Name: Sheldon Freincle

Phone #: 570-606-4257

Email: sheldon@northeastsitesolutions.com

Project Description:

Replacing (3) antennas, adding (3) antennas, adding (3) RRUs, replacing (1) coax with (1) hybrid.

Are copies of all necessary permits attached?

USFS, BLM, Municipality Permits:

Yes

No X

FCC License:

Yes

No

If no, have they been applied for?

Yes ⇨ ⇨ Application Date:

No

Additional Notes on Permits:

Frontier Commercial Power Section

Existing Tenants

Are you using our commercial power? Using EMON/DMON — Yes: x / No: ⇨⇨ What is your contractual amount? AC or DC: AC; Volts: 240; Requested Amps: 200

Are you using emergency power for existing service? Yes: x / No: ⇨⇨ Amps: 200

Do you require additional commercial power? (Amps must be provided in increments of 20) Yes: / No: x ⇨⇨ What do you need in total? (existing + proposed) AC or DC: ; Volts: ; Requested Amps:

Do you require additional amps of emergency service? Yes: / No: x ⇨⇨ What do you need in total? (existing + proposed) Amps:

Proposed Tenants

Is power required for equipment use? (Amps must be provided in increments of 20) Yes: / No: ⇨⇨ AC or DC: ; Volts: ; Requested Amps:

Is emergency power required? Yes: / No: ⇨⇨ Requested Amps: These amps should be the same as the commercial power request. If not, please note in project description.

Building / Ground Space Section

Existing Tenants

Please document your actual footprint:

	Indoor Space Area 1	Indoor Space Area 2	Outdoor Space Area 1	Outdoor Space Area 2
Length:			10'	
Width:			20'	
Height:			10'	

	Indoor Space Area 3	Indoor Space Area 4	Outdoor Space Area 3	Outdoor Space Area 4
Length:				
Width:				
Height:				

Do you require additional space? Yes: / No: x ⇨⇨ What additional space do you need? proposed only

Indoor? / Outdoor? (check one)

	Area 1	Area 2
Length:		
Width:		
Height:		

Proposed Tenants

Please complete the below for the type of space you need. (Indoor / Outdoor)

	Indoor Space Area 1	Indoor Space Area 2	Outdoor Space Area 1	Outdoor Space Area 2
Length:				
Width:				
Height:				

Additional Notes on Power & Space:	No additional space is required.

Tower / Radio Information - Call Sign information needs to be tied to a specific antenna(s). Adjust letters as needed.

A	Call Sign	KNLF202
	Class of Station	CW - PCS
	Emission Designator	5 MHz
	Transmit Frequency	1930-1945 MHz
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1850-1865 MHz

A	Call Sign	WQGA731 - proposed
	Class of Station	AW - AWS
	Emission Designator	5 MHz
	Transmit Frequency	2135-2140
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1735-1740

A	Call Sign	WQGB373
	Class of Station	AW - AWS
	Emission Designator	5 MHz
	Transmit Frequency	2140-2145
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1740-1745

A	Call Sign	WQZL489 - proposed
	Class of Station	WT
	Emission Designator	5 MHz
	Transmit Frequency	668-673
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000W
	Receive Frequency	622-627

A	Call Sign	WQJQ696 - proposed
	Class of Station	WY - Block A
	Emission Designator	6 MHz
	Transmit Frequency	728-734
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	698-704

A	Call Sign	WQKF358 - proposed
	Class of Station	AW - AWS
	Emission Designator	5 MHz
	Transmit Frequency	2130-2135
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1730-1735

A	Call Sign	WQPZ969
	Class of Station	AW - AWS
	Emission Designator	10 MHz
	Transmit Frequency	2145-2155
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1745-1755

B	Call Sign	
	Class of Station	
	Emission Designator	
	Transmit Frequency	
	Output Power (watts)	
	Transmitter ERP (dBm)	
	Receive Frequency	

Coax / Waveguide / Cable Information

Type:	Coax
Size:	7/8"
Length:	100'
# of runs:	16 (E)
Type:	Hybrid / fiber
Size:	1-1/4"
Length:	100'
# of runs:	2 (E) - 1 to be removed
Type:	Hybrid / fiber
Size:	1-5/8"
Length:	100'
# of runs:	1 (P)
Type:	
Size:	
Length:	
# of runs:	

	Antenna & Ancillary Equipment Information		Check one					Heights - Above Ground Level (feet)			Notes: (including removals, ice shields, etc.)
@	Make	Model	Existing	Proposed	Size / Dimensions	Weight	Azimuth	RAD Center	Attachment	Tip	
A	Ericsson (panel)	AIR32		x	56.6" x 12.9" x 8.7"	132.2 lbs	0	94'	92', 96'	96.3'	
A	Ericsson (panel)	AIR32		x	56.6" x 12.9" x 8.7"	132.2 lbs	120	94'	92', 96'	96.3'	
A	Ericsson (panel)	AIR32		x	56.6" x 12.9" x 8.7"	132.2 lbs	220	94'	92', 96'	96.3'	
A	RFS	APXVAARR24_43-U-NA20		x	95.9 x 24 x 8.7	128 lbs	0	94'	90', 98'	98'	
A	RFS	APXVAARR24_43-U-NA20		x	95.9 x 24 x 8.7	128 lbs	120	94'	90', 98'	98'	
A	RFS	APXVAARR24_43-U-NA20		x	95.9 x 24 x 8.7	128 lbs	220	94'	90', 98'	98'	
A	Ericsson	RRUS 4449		x	13.19x14.95x9.25	74 lbs	0, 120, 220		94'		Three (3) RRU units
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	0	94'	92', 96'	96.3'	to be removed
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	120	94'	92', 96'	96.3'	to be removed
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	220	94'	92', 96'	96.3'	to be removed
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	0	94'	92', 96'	96.3'	
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	120	94'	92', 96'	96.3'	
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	220	94'	92', 96'	96.3'	
A	Ericsson	KRY 112 71	x		12.5" x 5.6" x 3.7"	13.2 lbs ea	0, 120, 220		94'		Three (3) TMA units

MALOUF ENGINEERING INTL., INC.

STRUCTURAL CONSULTANTS

November 6, 2018

Mr. Sheldon Freincle
Northeast Site Solutions
Farmington, CT 06032

SUBJECT:	REVISED APPURTENANCES APPROVAL			
Structure/Make/Model:	100 ft Monopole		Engineered Endeavors / 18-Sided	
Client/Site Name/#:	Northeast Site Solutions / T-Mobile		TMO Windsor #CTHA130A	
Owner/Site Name/#:	Frontier Communications		Windsor CO Site	
MEI Project ID:	CT00873M-18V1			
Location:	419 Broad Street Windsor, Connecticut 06095		Hartford County FCC #N/A	
	LAT	41-50-45.2 N	LON	72-38-46.1 W

Dear Mr. Freincle:

As requested in your email dated 10/17/2018, MEI has performed a review of the appurtenances changes of the proposed appurtenances versus the structural analysis performed, ref. report dated 10/04/2018, for the above referenced site.

As per the revised PDQ dated 09/05/18 that was not forwarded to us, the existing hybrid cable is to remain instead of being removed resulting in a total of (3) hybrid cables, all internal to the pole shaft, would result in about same member stress, therefore it would not be impacting the controlling member maximum stress and is not considered significant. All other appurtenances are as per that referenced report.

Therefore, these above noted change is structurally acceptable and does not significantly affect the structural analysis findings and results.

If you have any questions or need further clarification, please contact the undersigned.

With Regards,

Malouf Engineering Int'l, Inc.

E. Mark Malouf, PE
Connecticut #17715
972-783-2578 ext. 106
mmalouf@maloufengineering.com

11/6/2018

Exhibit E

PROJECT TEAM

CLIENT:
SHELDON FREINCLE
NORTHEAST SITE SOLUTIONS
SHELDON@NORTHEASTSITESOLUTIONS.COM
570-606-4257

CARRIER:
T-MOBILE
OWNER:
FRONTIER COMMUNICATIONS

STRUCTURAL ENGINEER:
MALOUF ENGINEERING INTERNATIONAL, INC.
17950 PRESTON RD, SUITE 720
DALLAS, TX 75252

MEI CONTACT:
KRISHNA MANDA, MS, PE
972-783-2578 X 105
KMANDA@MALOUFENGINEERING.COM

PROJECT INFORMATION

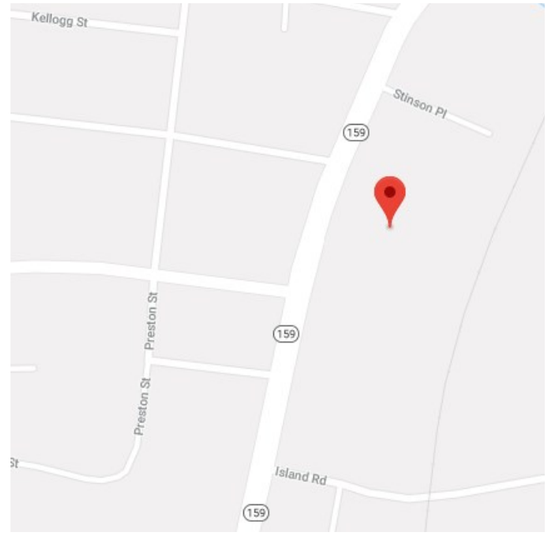
12.5 FT PLATFORM MOUNT
TMO WINDSOR
#CTHA130A

419 BROAD STREET, WINDSOR, CT 06095
LAT: 41-50-45.2 N - LON: 72-38-46.1 W

DRAWING INDEX

STRUCTURE ELEVATION PHOTO

VICINITY MAP



CODE COMPLIANCE

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

STRUCTURAL CODE: CTBC 2018 / IBC 2015
DESIGN STANDARD: ~~ANSI/TIA-222-G~~ 1

ANALYSIS CRITERIA:	122 ULT (94.5) / 50 MPH + 0.0"/1.0" ICE
SITE SPECIFICATIONS:	CLASS. II / EXP. C / TOPO. 1 / Ss < 1.0

SCOPE OF WORK

1. THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK, THE CONTRACTOR SHALL GET FAMILIARIZED WITH THE WORK NOTED AND SHALL PERFORM A FIELD SITE VISIT TO SURVEY THE STRUCTURE FOR FIELD VERIFICATION / DETERMINATION OF REQUIRED WORK AND THE JOB SITE THOROUGHLY TO MINIMIZE FUTURE FIELD PROBLEMS.
2. THE MODIFICATION WORK SCHEDULE IS AS SHOWN ON SHEET S01 WITH THE FOLLOWING MAIN ITEMS:
   - INSTALL NEW SITEPRO 1 PLATFORM REINFORCEMENT KIT AS SHOWN AND DETAIL IN THE DRAWINGS.
   - REPLACE EXISTING CENTER PIPE WITH NEW 8'-0' LONG 2" EHS PIPE (2.375" O.D. x 0.218" THK.) AT EACH SECTOR (TOTAL 3 PIPE MOUNTS REQ'D).
   - PERFORM MAINTENANCE WORK AS REQUIRED TO HAVE THE STRUCTURE IN GOOD OPERATIONAL CONDITION.
   - FIELD DETERMINATION / VERIFICATION PRIOR TO ANY FABRICATION AND INSTALLATION IS RECOMMENDED.

REQUIRED PHOTOS

BETWEEN THE GC AND THE PMI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE PMI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION.
  - PHOTOS OF ALL CRITICAL DETAILS
  - FIELD WELD PREPARATION WHEN NOTED
  - BOLT INSTALLATION AND TORQUE
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS SHOWING FINAL IN-FIELD CONDITION

NOTE:
ANTENNA AND LINE CONTRACTOR TO PROVIDE AND INSTALL ALL SECTOR FRAME MODIFICATION HARDWARE REQUIRED PRIOR TO ANTENNA INSTALLATION.

MALOUF ENGINEERING INTERNATIONAL, INC.
STRUCTURAL CONSULTANTS
17950 PRESTON ROAD SUITE 720
DALLAS, TEXAS 75252-5635
972-783-2578 (fax: 2583)
www.maloufengineering.com

12.5 FT PLATFORM MOUNT
TMO WINDSOR #CTHA130A
419 BROAD STREET, WINDSOR, CT 06095
LAT: 41-50-45.2 N - LON: 72-38-46.1 W

NO.	DATE	REVISIONS	DRAWN	ENG'D.	APP'D.
1	04/29/19	REVISED STRUCTURAL CODE AS SHOWN	BDB	KMM	MM
0	10/04/18	ISSUED FOR CONSTRUCTION	BDB	KMM	MM

STATE OF CONNECTICUT · ELMARK MALOUF · No. 17715 · LICENSED PROFESSIONAL ENGINEER
APRIL 29, 2019

NORTHEAST SITE SOLUTIONS / T-MOBILE

TITLE SHEET

MEI PROJECT ID	SHEET NUMBER	REV.
CT00873M-18V3A	**T01**	1

GENERAL NOTES

1. STRUCTURAL MODIFICATIONS HAVE BEEN DESIGNED IN CONFORMANCE WITH THE NOTED BUILDING CODE & STANDARD. MATERIALS, FABRICATION, INSTALLATION, AND ALL OTHER SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE NOTED CODES / STANDARDS AND THE CONTRACT SPECIFICATIONS.
2. SOURCE DATA REGARDING SUBJECT MOUNT HAVE BEEN OBTAINED FROM SUPPLIED / OBTAINED DOCUMENTS. ACTUAL SITE DIMENSIONS SHOULD BE DETERMINED / VERIFIED PRIOR TO FABRICATION OF ANY MATERIAL OR PROVISION FOR FIELD ADAPTATION SHOULD BE MADE. THIS DESIGN IS BEING PROVIDED WITHOUT A CONDITION ASSESSMENT BY THE ENGINEER. CONTRACTOR SHALL PERFORM A COMPLETE CONDITION ASSESSMENT PRIOR TO ORDERING ANY REINFORCING MATERIALS AND NOTIFY ENGINEER OF ANY CONDITION THAT WOULD AFFECT THE DESIGN OR THE WORK SPECIFIED. ANY CHANGES, DISCREPANCIES &/OR MODIFICATIONS THAT MAY BE REQUIRED DUE TO THE EXISTING CONDITIONS SHALL NEED TO BE RESOLVED BEFORE PROCEEDING WITH THE WORK.
3. ALL CONSTRUCTION WORK SHALL BE PERFORMED AND INSTALLED BY A CONTRACTOR WITH MIN. 5 YEARS EXPERIENCE IN SIMILAR WORK. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH ACCEPTED CONSTRUCTION AND INDUSTRY PRACTICE.
4. CONTRACTOR SHALL PERFORM A SITE VISIT TO CONFIRM RELEVANT EXISTING STRUCTURE DIMENSIONS, PROPOSED REINFORCING DIMENSIONS, CLEARANCES AND DETERMINE ANY INTERFERENCES, SITE CONSTRAINTS, UTILITIES AND ALL OTHER INFORMATION NECESSARY TO PERFORM THE WORK. THE CONTRACTOR SHALL NOT START FABRICATION OR CONSTRUCTION PRIOR TO PERFORMING THIS SITE VISIT AND VALIDATING THE INFORMATION ON THESE DRAWINGS AND ANY ADDITIONAL INFORMATION REQUIRED TO SUCCESSFULLY PERFORM THE WORK.
5. MATERIAL QUANTITIES AND LENGTH ARE FOR BIDDING PURPOSE - CONTRACTOR TO BE RESPONSIBLE FOR REQUIRED QUANTITIES AND PROPER FIT AND CLEARANCES OF NEW MATERIAL.
6. ALL MATERIAL SPECIFIED MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZES AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING PRIOR TO FABRICATION / ORDERING / INSTALLATION. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR DETERMINING IF SUBSTITUTE IS SUITABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. COSTS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING REVIEW & RE-DESIGN COSTS) SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. ALL PERMITS, LICENSES, APPROVALS, AND OTHER REQUIREMENTS FOR CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR OR AS DESIGNATED BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AMPLE NOTICE TO BUILDING INSPECTION DEPARTMENT TO SCHEDULE ANY REQUIRED INSPECTIONS.
8. CONTRACTOR, INCLUDING LOWER TIER CONTRACTORS, SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR MEANS AND METHODS OF CONSTRUCTION AND OF JOB SITE CONDITIONS DURING THE CONSTRUCTION WORK, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY AND INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
9. CONTRACTOR IS RESPONSIBLE FOR ENGAGING A MODIFICATION INSPECTOR AT THE TIME OF AWARD TO COORDINATE AN INSPECTION SCHEDULE AND ENSURE PROPER DOCUMENTATION IS RETAINED THROUGHOUT THE PROJECT.
10. EXISTING STRUCTURE IS ASSUMED TO BE ABLE TO SUPPORT THE MODIFIED MOUNT & TO BE IN GOOD CONDITION AND FREE FROM STRUCTURAL DEFECTS. AT MINIMUM ANSI/TIA-222 RECOMMENDED INSPECTIONS AND ALL MAINTENANCE TYPE & DEFICIENCY REPAIR WORK IS ASSUMED COMPLETED. INSPECTION & MAINTENANCE OF NEW REINFORCEMENTS SHALL BE IMPLEMENTED SUCH AS TO AVOID ANY DETERIORATION OR CORROSION OF REINFORCEMENT.
11. REFER TO OWNER REQUIREMENTS FOR NEW MEMBERS PAINT, OTHERWISE PAINT NEW MEMBERS WITH A FINISH COAT OF ACRYLIC PAINT TO MATCH EXISTING PAINT AT THAT ELEVATION.
12. ALL EXISTING PAINTED GALVANIZED SURFACES DAMAGED DURING REHAB WORK SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING BRUSH APPLIED PAINT (ZRC OR EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (AS APPLICABLE).

COMPONENTS SPECIFIED

1. NEW PREFAB PARTS AND RELATED HARDWARE TO BE AS CALLED FOR ON PLANS AND AS MANUFACTURED BY SITE PRO 1, HTTPS://WWW.SITEPRO1.COM, 888-438-7761. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS AND AS SHOWN.

INSTALLATION NOTES

1. ALL INSTALLATION PROCEDURES, SAFEGUARDS AND MEANS AND METHODS OF CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL FOLLOW SAFE WORK PRACTICES WITH APPROPRIATE FALL PROTECTION AND SHALL BE PERFORMED IN ACCORDANCE WITH ANSI/ASSE A10.48 AND ANSI/TIA-322 OR ANSI/TIA1019-A CONSTRUCTION STANDARDS, OSHA REQUIREMENTS, INDUSTRY PRACTICE AND NATE GUIDELINES. RIGGING PLANS SHALL BE PREPARED IN ACCORDANCE WITH NOTED STANDARDS. ALL ERECTION STRESSES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REVIEWED/PERFORMED BY A COMPETENT PROFESSIONAL EXPERIENCED IN SIMILAR WORK.
2. MINIMUM RECOMMENDED WEATHER CONDITION THAT INSURES A SAFE WORKING CONDITION SHOULD BE OBSERVED: WIND SPEED NOT TO EXCEED 10-15 MPH AT GROUND LEVEL, NO THUNDERSTORMS FORECASTED, AND WITH TOWER STEEL TEMPERATURE BETWEEN 20 F & 105 F. FOLLOW ALL APPLICABLE INDUSTRY AND OSHA SAFETY GUIDELINES.
3. CONTRACTOR SHALL WORK WITHIN THE LIMITS OF THE SITE COMPOUND/ OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION.
4. FAA / FCC FILING AND LIGHTING MAY BE REQUIRED. ALL GOVERNMENTAL REGULATORY DETERMINATIONS AND FILINGS ARE TO BE COMPLIED WITH AND SHALL BE BY OTHERS.
5. ALL PRECAUTIONS AND EFFORTS SHALL BE TAKEN TO INSURE THE STRUCTURE & MOUNT STABILITY DURING THE MODIFICATIONS WORK. BRACING MEMBERS / FRAMES WITH CAPACITY MATCHING MEMBERS BEING WORKED ON SHALL BE REQUIRED AND USED. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY LOCAL AND GLOBAL SHORING OF THE STRUCTURE AND MOUNT.
6. IN AREAS TO BE MODIFIED, CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY REMOVING ANY COAXES, T-BRACKETS, MOUNTS, OR ANY OTHER APPURTENANCES INTERFERING WITH THE WORK. ALL APPURTENANCES MUST BE REPLACED AND/OR RESTORED TO ORIGINAL LOCATION. AS APPLICABLE, RE-WORK ATTACHMENTS THAT REQUIRE MODIFICATIONS TO PROPERLY FIT MODIFIED MEMBERS. THESE CUSTOMIZATIONS ARE TO BE DESIGNED BY OTHERS AND MAINTAIN ORIGINAL CAPACITY. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE OWNER / CARRIER IN WRITING.
7. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL ASSOCIATED HARDWARE SHALL NOT BE IMPEDED OR MODIFIED WITHOUT THE WRITTEN CONSENT OF THE OWNER.
8. ALL SAFETY EQUIPMENT SHALL BE INSPECTED ACCORDING TO ALL OSHA AND INDUSTRY SCHEDULED INTERVALS AND ALL INSPECTIONS SHALL BE DOCUMENTED PER APPLICABLE CODES AND STANDARDS.
9. FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES. ALL BOLTS AT EVERY CONNECTION SHALL BE INSTALLED SNUG FIT UNTIL THE SECTION IS FULLY COMPACTED, AND THEN TIGHTENED ADDITIONALLY IN ACCORDANCE WITH THE AISC "TURN-OF-THE-NUT" METHOD. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
10. BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS SHALL BE TENSIONED 1/3 TURN BEYOND SNUG FIT. BOLT LENGTHS OVER 4 DIAMETERS SHALL BE 1/2 TURN BEYOND SNUG TIGHT.
11. NO WELDING, TORCH CUTTING, OR OPEN FLAME OF ANY TYPE IS PERMITTED ON THIS STRUCTURE AND ON THIS CONSTRUCTION SITE UNLESS DIRECTLY SPECIFIED WITHIN THESE DRAWINGS.
12. ALL MANUFACTURERS HARDWARE AND ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED. DEVIATION FROM THE INSTRUCTIONS IS UNACCEPTABLE AND REQUIRES WRITTEN APPROVAL FROM THE ENGINEER.
13. FOR ANY STEEL MEMBER DAMAGED DURING MODS WORK AND AFTER ANY FIELD HOLE PUNCHING/DRILLING OR CUTTING HAS BEEN COMPLETED, WIRE BRUSH CLEAN THESE SURFACES AND REPAIR USING COLD GALVANIZING BRUSH APPLIED PAINT (TWO COATS OF ZRC OR EQUAL), AND REPAINT TO MATCH THE EXISTING FINISH (AS APPLICABLE).
14. UPON COMPLETION OF ALL WORK, THE SITE SHALL BE CLEANED OF ALL DEBRIS AS REQUIRED. ANY SURPLUS MATERIALS NOT REMOVED FROM THE SITE SHALL BE NEATLY STORED IN AN AREA DESIGNATED BY THE OWNER REPRESENTATIVE.

STEEL / FABRICATION NOTES

1. ALL STEEL FABRICATION AND INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL AND SPECIFICATIONS "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
2. THESE DRAWINGS SHOW RELATED DETAILS BUT ARE NOT SHOP DRAWINGS. SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH AISC DETAILING REQUIREMENTS. DIMENSIONAL TOLERANCES SHALL BE IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE AND ASTM A7 REQUIREMENTS.
3. ALL NEW MEMBERS, UNLESS NOTED OTHERWISE, SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
4. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH THE AISC STEEL CONSTRUCTION MANUAL, AISC 360-10 LRFD.
5. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND BE IN ACCORDANCE WITH AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE-STEEL"(LATEST EDITION).
6. FOR ALL WELDING, UNLESS NOTED OTHERWISE, USE E70XX ELECTRODES FOR SMAW PROCESS AND E7XT-XX ELECTRODES FOR FCAW PROCESS.
7. COOLING EFFECTS OF THE WELDED MATERIAL SHALL BE TAKEN INTO CONSIDERATION (I.E. EXPANSION OF HOT MATERIAL AND CONTRACTION OF COOLED MATERIAL).
8. ALL NEW STEEL SHALL BE HOT-DIPPED GALVANIZED PER ASTM A123, ASTM A153/A153M, OR ASTM A653 G90, AS APPLICABLE FOR FULL WEATHER PROTECTION. FOR HIGH STRENGTH STEEL FASTENERS WHERE HOT-DIPPED GALVANIZING IS NOT PERMITTED, DACROMET F1136 GRADE 3 COATING (OR ENGINEER APPROVED EQUIVALENT) SHALL BE USED.
9. PRIOR TO GALVANIZING, ALL FABRICATED STEEL SHALL BE THOROUGHLY SHOP INSPECTED AND QUANTITIES COUNTED ACCORDING TO THE BEST QUALITY CONTROL AND INSPECTION METHODS.
10. MATERIAL MAY BE CUT BY SHEARING, SAWING, OR CUTTING WITH A ROUTER OR GAS CUT. MATERIAL GREATER THAN 1/2" THICKNESS SHALL NOT BE SHEARED.
11. CUT EDGES SHALL BE TRUE AND SMOOTH, AND FREE FROM EXCESSIVE BURRS AND RAGGED BREAKS. SHEARED EDGES OF THICK PLATES SHALL BE PLANED TO A DEPTH OF 1/4". RE-ENTRANT CUTS SHALL BE AVOIDED. IF USED, THEY SHALL BE FILLETED BY DRILLING PRIOR TO CUTTING.
12. ALL BOLTS SHALL HAVE WASHERS AND ANCO LOCKNUTS AND BE NEW HIGH STRENGTH GALVANIZED BOLTS AS NOTED BELOW.
13. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS WILL REQUIRE LOCKING DEVICES TO BE INSTALLED IN CONFORMANCE WITH NOTED STANDARDS/SPECIFICATIONS.
14. THE FINISHED DIAMETER OF BOLT HOLES SHALL NOT BE MORE THAN 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER AND SHALL NOT BE FLAME CUT THROUGH STEEL, UNLESS OTHERWISE NOTED.
15. ANY BOLT REMOVED FROM EXISTING TOWER STRUCTURE SHALL BE REPLACED WITH A NEW ASTM A325 HIGH STRENGTH BOLT OF EQUAL DIAMETER SIZE AND OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS, UNLESS NOTED OTHERWISE.
16. ALL BOLT HOLES EDGE DISTANCES SHALL BE 1 1/2" UNLESS OTHERWISE NOTED.
17. FIELD PUNCH / DRILL HOLES AS REQUIRED FOR ACCURATE FIT OF MODIFICATION MEMBER.
18. NEW STEEL MATERIAL SHALL BE MILL CERTIFIED AND SHALL CONFORM TO THE FOLLOWING STEEL SPECIFICATIONS UNLESS NOTED OTHERWISE:

MATERIAL	ASTM SPECS
U-BOLTS	A193 B7, A449 OR SAE J429 (GR. 5 - 1/2" DIA. & GR. 8 - 5/8" DIA.)
BOLTS - 1/2" DIA. & GREATER	A325 TYPE X
BOLTS - 1/2" DIA.	SAE J429 GRADE 5 TYPE X
BOLTS - 3/8" DIA.	A307 OR SAE J429 GRADE 5
ANGLES, GUSSET, & TAB PLATES	A36
PIPES	A53 GRADE B / 35 KSI

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www.maloufengineering.com

12.5 FT PLATFORM MOUNT
TMO WINDSOR #CTHA130A
419 BROAD STREET, WINDSOR, CT 06095
LAT: 41-50-45.2 N - LON: 72-38-46.1 W

T-Mobile

NO.	DATE	REVISIONS	DRAWN	ENG'D.	APP'D.
1	04/29/19	NO CHANGES TO THIS SHEET	BDB	KMM	MM
0	10/04/18	ISSUED FOR CONSTRUCTION	BDB	KMM	MM

STATE OF CONNECTICUT · MARK MALOUF · No. 17715 · LICENSED PROFESSIONAL ENGINEER
APRIL 29, 2019

NORTHEAST SITE SOLUTIONS / T-MOBILE

TECHNICAL SPECIFICATION NOTES

MEI PROJECT ID	SHEET NUMBER	REV.
CT00873M-18V3A	**T02**	1

BOLT TIGHTENING PROCEDURE

1. TIGHTEN BOLTS BY AISC "TURN OF THE NUT" METHOD USING THE CHART BELOW:

   BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS:
   + 1/3 TURN BEYOND SNUG TIGHT

   BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS:
   + 1/2 TURN BEYOND SNUG TIGHT

2. ALL ONE-SIDED BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS

3. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(D)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS:

   "FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(D)(1) THROUGH 8(D)(4).

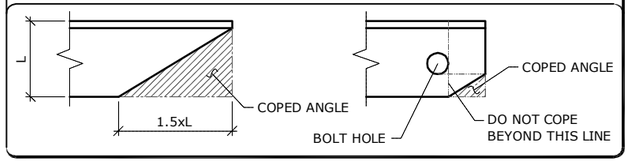
   8(D)(1) TURN-OF-THE-NUT TIGHTENING:

   BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PLIES OF A JOINT ARE IN FIRM CONTACT. THIS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY...UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION, THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

BEFORE 1/3 TURN

AFTER 1/3 TURN

ALLOWABLE ANGLE COPE

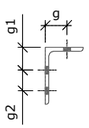


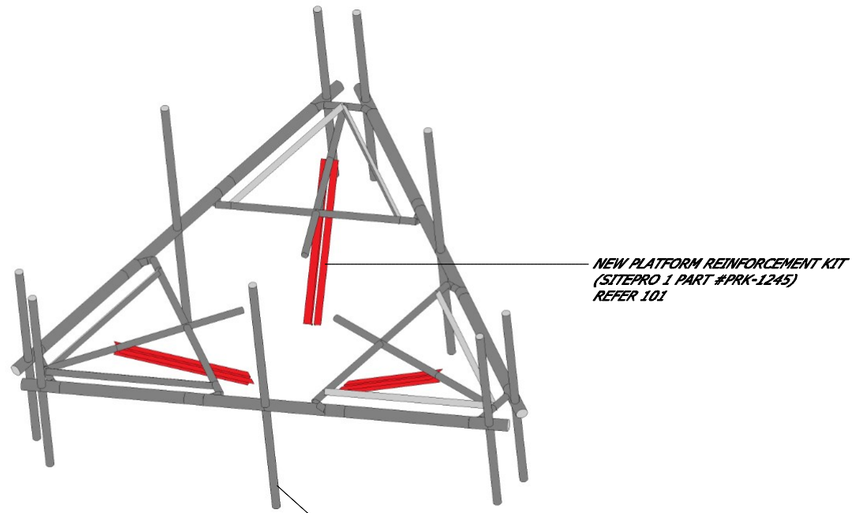
1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.

2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OR PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.

USUAL GAGES FOR ANGLES IN INCHES

LEG	8	7	6	5	4	3 1/2	3	2 1/2	2	1 3/4	1 1/2	1 3/8	1 1/4	1
g	4 1/2	4	3 1/2	3	2 1/2	2	1 3/4	1 3/8	1 1/8	1	7/8	7/8	3/4	5/8
g1	3	2 1/2	2 1/4	2										
g2	3	3	2 1/2	1 3/4										





ISOMETRIC VIEW
SCALE: NOT TO SCALE

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T-Mobile

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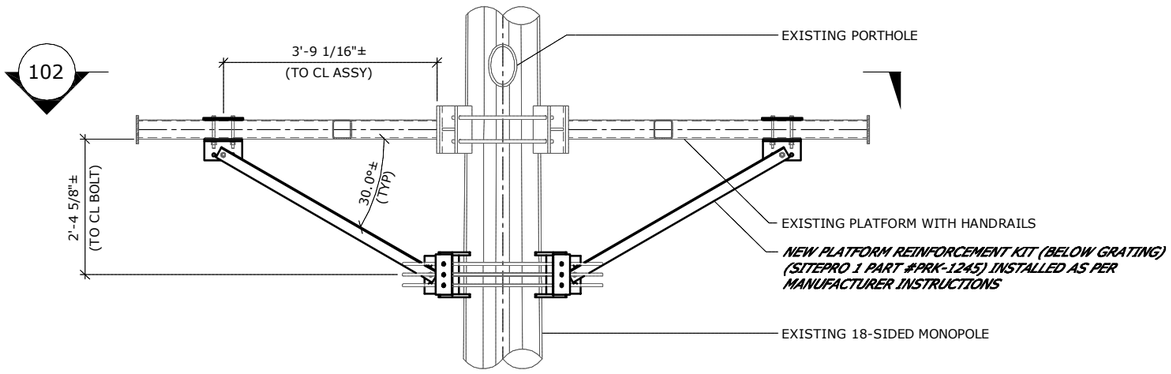
STATE OF CONNECTICUT
E. MARK MALOUF
No. 17715
LICENSED
PROFESSIONAL ENGINEER
APRIL 29, 2019

NORTHEAST SITE SOLUTIONS / T-MOBILE

TECHNICAL SPECIFICATION NOTES CONT.

MEI PROJECT ID	SHEET NUMBER	REV.
CT00873M-18V3A	**T03**	1

NOTE:
PIPE MOUNTS NOT SHOWN FOR CLARITY.



ELEVATION VIEW SHOWN UNFOLDED

101 ELEVATION: TYPICAL PLATFORM REINFORCEMENT

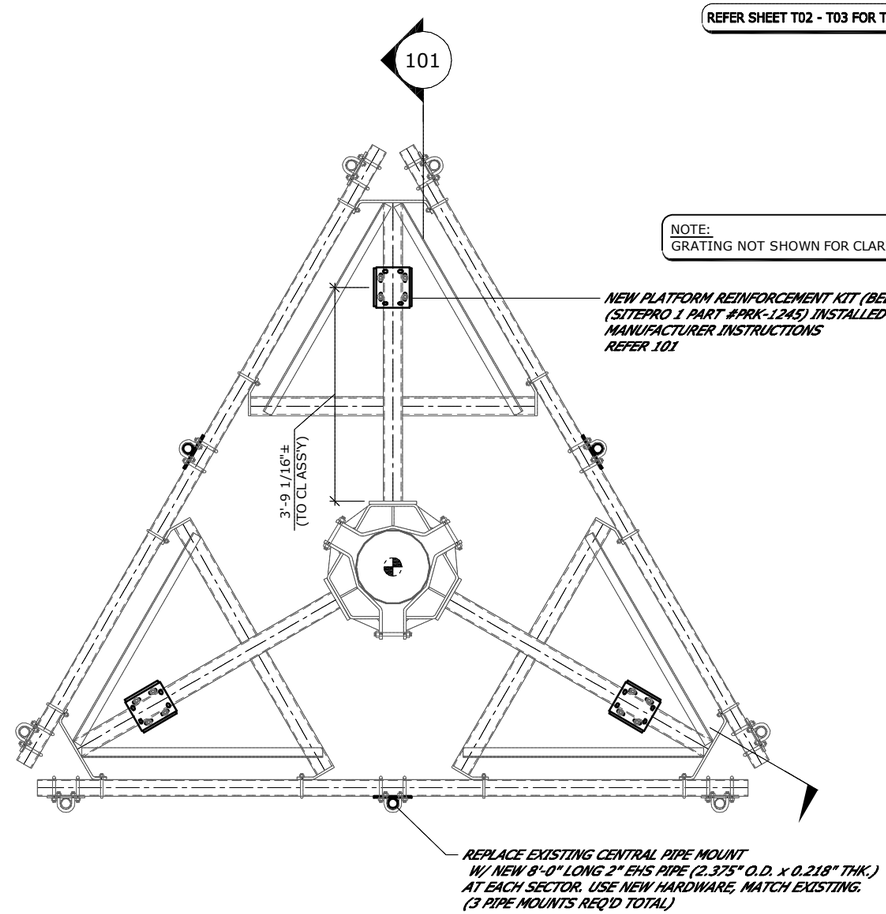
SCALE: 3/8" = 1'-0"

NOTE:
ANTENNA INSTALLATION CONTRACTOR TO PROVIDE AND INSTALL ALL REQUIRED PLATFORM STRUCTURAL MODIFICATION HARDWARE REQUIRED

NOTE:
REFER TO RF DATA SHEET/ANTENNA KEY & MEI REPORT FOR APPURTENANCES, MODEL AND LOCATION, CONSIDERED ATTACHED TO MOUNT SHOWN.

REFER SHEET T02 - T03 FOR TECH. SPEC. NOTES

NOTE:
GRATING NOT SHOWN FOR CLARITY



102 PLAN: TYPICAL LOWER PLATFORM REINFORCEMENT

SCALE: 1/4" = 1'-0"

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APRIL 29, 2019

NORTHEAST SITE SOLUTIONS / T-MOBILE

MONOPOLE PLATFORM REINFORCEMENT DETAILS

MEI PROJECT ID	SHEET NUMBER	REV.
CT00873M-18V3A	**S01**	1

MOUNT

Post-Mod Structural Mount Analysis Report

L.P. PLATFORM MOUNT W/O RAILS

T-Mobile - TMO Windsor Site #CTHA130A

Windsor, Connecticut

October 4, 2018

MEI PROJECT ID: CT00873M-18V3A

MALOUF ENGINEERING INTL., INC.
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MALOUF ENGINEERING INTL., INC.

STRUCTURAL CONSULTANTS

October 4, 2018

Mr. Sheldon Freincle
Northeast Site Solutions
Farmington, CT 06032

POST-MODIFICATIONS MOUNT STRUCTURAL ANALYSIS

Mount/Make/Model:	12.5 ft **Platform Mount w/o Rails**		Not Known	
Client/Site Name/#:	**Northeast Site Solutions /T-Mobile**		**TMO Windsor #CTHA130A**	
MEI Project ID:	**CT00873M-18V3A**			
Location:	419 Broad Street Windsor, Connecticut 6095		Hartford County FCC #N/A	
	LAT	41-50-45.2 N	LON	72-38-46.1 W

EXECUTIVE SUMMARY:

Malouf Engineering Int'l (MEI), as requested, has performed a structural analysis and modification design of the referenced mount to assess the impact of the appurtenances configuration as noted in Table 1.

Based on the stress analysis performed, the mount **is in conformance** with the Int'l Building Code (IBC) / ANSI/TIA-**222-G** Standard for the loading considered under the criteria listed and referenced in the report sections **after proper installation of the recommended structural strengthening modifications outlined.**

The subject mount is structurally acceptable to support the appurtenances configuration as noted in Table 1 after proper installation of the proposed strengthening modifications. Refer to the mount modification drawings for details.

MEI appreciates the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or other projects, please contact us.

Respectfully submitted,

MALOUF ENGINEERING INT'L, INC.

Analysis performed by:

Krishna Manda, PE
Sr. Project Engineer

Reviewed & Approved by:

STATE OF CONNECTICUT
E. MARK MALOUF
No. 17715
LICENSED
PROFESSIONAL ENGINEER

E. Mark Malouf, PE
Connecticut #17715
972-783-2578 ext. 106
mmalouf@maloufengineering.com

10/4/2018

TABLE OF CONTENTS

Separate Attachment:

Mount Modification Design Drawings

1. INTRODUCTION & SCOPE

A mount structural analysis and modification design were performed by Malouf Engineering Int'l (MEI), as requested and authorized by Mr. Sheldon Freincle, Northeast Site Solutions, on behalf of T-Mobile, to determine whether the subject support mount will be in compliance with the referenced code/standard(s) when supporting the proposed appurtenances configuration loading. The different report sections detail the applicable information used in this analysis, relating to the mount data, the appurtenances configuration and the loading considered.

The different report sections detail the applicable information used in this evaluation, relating to the mount data, the appurtenances configuration and the wind and ice loading considered.

2. SOURCE OF DATA

The following information has been used in this evaluation as source data that accurately represent the mount and the related appurtenances:

	Source	Information	Reference
STRUCTURE			
Mount Information	MEI Records	Previous Structural Analysis	ID CT00873M-18V2 Dated 09/04/2018
Tower Information	MEI Records	Previous Structural Analysis	ID CT00873M-18V1 Dated 09/04/2018
Material Grade	Assumed based on typical mount materials used for this type/manufacturer – Refer to Appendix.		
APPURTENANCES CONFIGURATION			
	Frontier Communications Ms. Elissa McOmber	T-Mobile PDQ Data Sheet	Dated 07/19/2018
PRIOR MOUNT STRUCTURAL MODIFICATIONS		Not Known	

3. ANALYSIS CRITERIA

The structural analysis performed used the following criteria:

CODE / STANDARD	2018 CT Building Code / 2015 IBC / NDS / ANSI/TIA-222-G-4 Standard	
LOADING CASES	*Full Wind*:	122 Mph Ult. Gust [equiv. 94.5 Mph (3-sec gust)] w/No Radial Ice**
	Iced Case:	50 Mph + 1" Radial Ice
	Service:	60 Mph
	Seismic:	S_s = 0.179 / S_1 = 0.064 / Site Class: D – Stiff Soil
STRUCTURE CRITERIA	*Risk Category (Structural Class)*: Class II	
	Exposure Category: 'C' – *Topographic Category:* 1	

Appurtenances Configuration

The following appurtenances configuration is denoted by Table 1:

Table 1: Appurtenances Configuration Considered

Elev. (ft) C.L.	Sector	Position	Ant Qty.	Appurtenance Model	Behind Panel / Location
94.00				12.5 ft. L.P. Platform w/o Rails	
94.00		1	1	AIR21 Panel Antenna	
94.00		1	1	KRY 112 71/2	Yes
94.00	"X"	2	1	APXVAARR24_43-U-NA20 Panel Antenna	New Pipe Mnt.
94.00		3	1	AIR32 Panel Antenna	
94.00		3	1	RRUS 4449	Yes
94.00		1	1	AIR21 Panel Antenna	
94.00		1	1	KRY 112 71/2	Yes
94.00	"Y"	2	1	APXVAARR24_43-U-NA20 Panel Antenna	New Pipe Mnt.
94.00		3	1	AIR32 Panel Antenna	
94.00		3	1	RRUS 4449	Yes
94.00		1	1	AIR21 Panel Antenna	
94.00		1	1	KRY 112 71/2	Yes
94.00	"Z"	2	1	APXVAARR24_43-U-NA20 Panel Antenna	New Pipe Mnt.
94.00		3	1	AIR32 Panel Antenna	
94.00		3	1	RRUS 4449	Yes

Notes:
1. Pipe Mount Positions above are labeled from right to left when looking from the front of the antennas.
2. Please refer to Appendix 2 for layout details provided.
3. *Replace existing center pipe mount with 2in. EHS Pipe 8ft Long.
4. **As per 2012 IBC for ultimate 3-sec gust wind speed converted to nominal 3-sec gust wind speed as per Sect. 1609.3.1 as required to be used in ANSI/TIA-222-G Standard per exception 5 of Sect. 1609.1.1.
5. All elevations are measured from tower base.
6. The above appurtenances represent MEI's understanding of the appurtenances configuration. If different than above, the analysis is invalid. Please contact MEI if any discrepancies are found.

4. ANALYSIS PROCEDURE

The subject mount is analyzed for feasibility of the installation of the appurtenances configuration previously noted. The data records furnished were reviewed and a computer stress analysis was performed in accordance with the TIA-222 Standard provisions and with the agreed scope of work terms and the results of this analysis are reported.

Analysis Program

The computer program used to model the structure is STAADPro FEA Program (ver. V8i), a commercially available general purpose structural finite element program by Bentley Systems, Carlsbad, CA.

Assumptions

This engineering study is based on the theoretical capacity of the structural members and the available connections data and is not a condition assessment. This analysis is based on information available or obtained, and therefore, its results are based on and as accurate as that data.

- This mount is assumed to have been properly maintained and to be in good condition with no structural defects and with no deterioration to its member capacities.
- The member sizes and configuration are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated.
- The appurtenances configuration is as supplied and/or as stated in the report.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
- Ring clamps and localized pole shaft or tower legs, as applicable, are not included in this scope.

If any of the above assumptions are not valid or have been made in error, this analysis results may be invalided, MEI should be contacted to review any contradictory information to determine its effect.

5. ANALYSIS RESULTS

The results of the structural stress analysis based on data available and with the previous listed criteria, indicated the following:

Note: The Wind loading controls over the Seismic loading as per TIA Section 2.7.

Table 2: Stress Analysis Results– AFTER PROPER INSTALLATION OF MODS

Support Description	Member Type	Max. Stress Ratio	Pass/Fail	Comments
SUPPORTING OUTRIGGERS	MAIN	27.8%	Pass	
	BRACING	21.9%	Pass	
	CONNECTION	36.7%	Pass	Weld to end plate
PLATFORM FRAME (FACE)	BASE PERIMETER	18.5%	Pass	
	PIPE SUPPORTS	69.1%	Pass	

Table 3: Mount Service Wind Deflection

	Maximum Value (in)	Comment
MAX. DEFLECTION	2.062	

Notes:
1. The Maximum Stress Ratio is the percentage that the maximum load in the member is relative to the allowable load as determined by Code requirements.
2. Refer to the Appendix 1 for more details on the member loads.
3. A maximum stress ratio between 100% and 105% may be considered as *Acceptable* according to industry standard practice.

6. FINDINGS & RECOMMENDATIONS

- Based on the stress analysis performed, the mount is in conformance with the Int'l Building Code / ANSI/TIA 222-G Standard for the loading considered under the criteria listed and referenced in the report sections after proper installation of the recommended structural strengthening modifications outlined.
- *The subject mount is structurally acceptable to support the appurtenances configuration as noted in Table 1 after proper installation of the proposed strengthening modifications*.
- Replace existing center pipe with new 8ft long 2in. EHS Pipe (total of 3 required).
- Refer to separate attachment of mount modification drawings for details. The mount is to be properly supported to insure its stability during the construction work.
- *We recommend that all existing pipe mounts, brackets and all connections be inspected for any structural deficiencies, (i.e. any loose, bent and damaged members) and any damaged members should be replaced with equal member and/or part or better and any loose bolted connections should be tightened as required.*

Rigging and temporary supports required for the erection/modification shall be determined, documented, furnished and installed by the erector/contractor accounting for the loads imposed on the structure due to the proposed construction method.

7. REPORT DISCLAIMER

The engineering services rendered by Malouf Engineering International, Inc. *('MEI') in connection with this Structural Analysis are limited to a computer analysis of the structural component. MEI does not analyze the fabrication, including welding and connection capacities, except as included in this Report.*
The analysis performed, and the conclusions contained herein are based on the assumption listed.

Furthermore, the information and conclusions contained in this Report were determined by application of the current "state-of-the-art" engineering and analysis procedures and formulae. MALOUF ENGINEERING INTERNATIONAL, INC. assumes no obligation to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised. In addition, under no circumstances will MALOUF ENGINEERING INTERNATIONAL, INC. have any obligation or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the Report, and the maximum liability of MALOUF ENGINEERING INTERNATIONAL, INC., if any, pursuant to this Report shall be limited to the total funds actually received by MALOUF ENGINEERING INTERNATIONAL, INC. for preparation of this Report.

Customer has requested MALOUF ENGINEERING INTERNATIONAL, INC. to prepare and submit to Customer an engineering analysis with respect to the subject structural component and has further requested MALOUF ENGINEERING INTERNATIONAL, INC. to make appropriate recommendations regarding suggested structural modifications and changes. In making such request of MALOUF ENGINEERING INTERNATIONAL, INC., Customer has informed MALOUF ENGINEERING INTERNATIONAL, INC. that Customer will make a determination as to whether or not to implement any of the changes or modifications which may be suggested by MALOUF ENGINEERING INTERNATIONAL, INC. and that Customer will have any such changes or modifications made by riggers, erectors and other subcontractors of Customer's choice. MALOUF ENGINEERING INTERNATIONAL, INC. shall have the right to rely upon the accuracy of the information supplied by the customer and shall not be held responsible for the Customer's misrepresentation or omission of relevant fact whether intentional or otherwise.

Customer hereby agrees and acknowledges that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability whatsoever to Customer or to others for any work or services performed by any persons other than MALOUF ENGINEERING INTERNATIONAL, INC. in connection with the implementation of services including but not limited to any services rendered for Customer or for others by riggers, erectors or other subcontractors. Customer acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by Customer shall be solely responsible to Customer and to others for the quality of work performed by them and that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by any such rigger, erector or subcontractor and that Customer and rigger, erector, or subcontractor will provide MALOUF ENGINEERING INTERNATIONAL, INC. with a Certificate of Insurance naming MALOUF ENGINEERING INTERNATIONAL, INC. as additional insured.

APPENDIX 1 – FEM ANALYSIS PRINTOUT

AFTER NOTED MODIFICATIONS

MEI project ID # CT00873M-18V3A Engineer KM Check HML App. MM Date 10/4/2018

Site Details

Structure classification (T2-1,T2-3)	2	
Exposure type (T2-4)	C	
Topographic Category (T2-5)	1	
County Design Ice thickness	1.00	***in.***
Design wind speed w/o Ice	94.50	***Mph*** *122 Mph Ult.*
Wind speed w/ Ice	50.00	***Mph***
Height of Crest above terrain	0.00	***ft.***

Windsor Site #CTHA130A

Structure Details

Tower type (1=MNP, 2=SST , 3=GT)		1	
Tower shape (0=Other,3=Tri,4=Rect)		0	
Tower overall height		100.00	***ft.***
Wind direction Factor (T2-2)	**Kd**	0.95	*per TIA-222-G*
Gust Effect Factor	**Gh**	1.00	*per TIA-222-G*
Topographic Factor	**Kzt**	1.00	

Mount / Platform

Centerline +/-		94.00	***ft.***
Ice Thickness @ Mount height	**tiz**	2.221	***in.***

Note: Wind Forces have NOT been factored. (i.e. 1.6 factor is applied in FEA)

No.	Elev. ft. (C.L.)	Position	Appurtenance Model	Appurtenance Mechanical Properties					Ca (No Ice)		No Ice	*Wind Force (No Ice)*		Iced	Ca (Iced)		*Wind Force (Iced)*	
	94.00		12.5 ft. L.P. Platform w/o Rails	Ht (in.)	Wd. (in.)	Depth (in.)	Wt. (lb.)	Iced Wt. (lb)	Front	Side	qz*Gh(psf)	F_N	F_T	qz*Gh(psf)	Front	Side	F_{Ni}	F_{Ti}
1	94.00	1	AIR21	56	12	8	105	326.3	1.30	1.40	27.13	164.1	118.2	7.60	1.25	1.30	65.6	51.8
2	94.00	1	KRY 112 71/2	12.5	5.6	3.7	13.2	47.3	1.20	1.24	27.13	15.8	10.8	7.60	1.20	1.20	10.8	8.7
3	94.00	2	APXVAARR24_43-U-NA20	95.9	24	8.7	154	714.9	1.27	1.53	27.13	549.2	241.2	7.60	1.25	1.42	187.5	98.8
4	94.00	3	AIR32	56.65	12.87	8.66	152	390.9	1.28	1.38	27.13	176.5	127.5	7.60	1.25	1.30	69.5	54.7
5	94.00	3	RRUS 4449	18	13.2	9.4	70	169.2	1.20	1.20	27.13	53.7	38.3	7.60	1.20	1.20	25.1	19.7
6	94.00	1	AIR21	56	12	8	105	326.3	1.30	1.40	27.13	129.7	152.6	7.60	1.25	1.30	55.2	62.2
7	94.00	1	KRY 112 71/2	12.5	5.6	3.7	13.2	47.3	1.20	1.24	27.13	12.1	14.6	7.60	1.20	1.20	9.2	10.3
8	94.00	2	APXVAARR24_43-U-NA20	95.9	24	8.7	154	714.9	1.27	1.53	27.13	318.2	472.2	7.60	1.25	1.42	121.0	165.3
9	94.00	3	AIR32	56.65	12.87	8.66	152	390.9	1.28	1.38	27.13	139.8	164.2	7.60	1.25	1.30	58.4	65.8
10	94.00	3	RRUS 4449	18	13.2	9.4	70	169.2	1.20	1.20	27.13	42.1	49.9	7.60	1.20	1.20	21.0	23.7
11	94.00	1	AIR21	56	12	8	105	326.3	1.30	1.40	27.13	129.7	152.6	7.60	1.25	1.30	55.2	62.2
12	94.00	1	KRY 112 71/2	12.5	5.6	3.7	13.2	47.3	1.20	1.24	27.13	12.1	14.6	7.60	1.20	1.20	9.2	10.3
13	94.00	2	APXVAARR24_43-U-NA20	95.9	24	8.7	154	714.9	1.27	1.53	27.13	318.2	472.2	7.60	1.25	1.42	121.0	165.3
14	94.00	3	AIR32	56.65	12.87	8.66	152	390.9	1.28	1.38	27.13	139.8	164.2	7.60	1.25	1.30	58.4	65.8
15	94.00	3	RRUS 4449	18	13.2	9.4	70	169.2	1.20	1.20	27.13	42.1	49.9	7.60	1.20	1.20	21.0	23.7
16																		
17																		
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27																		
28																		
29																		
30	94.00		12.5 ft. L.P. Platform w/o Rails								27.13			7.60				

Job Information

	Engineer	Checked	Approved
Name:	KM	LKN	MM
Date:	1-Oct-18	3-Oct-18	4-Oct-18

Project ID	
Project Name	

Comments

Windsor Site #CTHA130A - 12.5ft Platform w/o Rails Modification
Checked per 2016 CT SBC / 2012 IBC / TIA-222-G
122 Mph Ult. / Exp "C" / Risk 2 / 50 Mph + 1" Ice
(60 Mph Service Wind)

Structure Type	SPACE FRAME

Number of Nodes	90	Highest Node	140
Number of Elements	102	Highest Beam	3417

Number of Basic Load Cases	-2
Number of Combination Load Cases	50

Included in this printout are data for:

All	The Whole Structure

Included in this printout are results for load cases:

Type	L/C	Name
Primary	1	MOUNT DEAD WT.
Primary	2	MOUNT ICED WT.
Primary	3	ANTENNA DEAD LOADS
Primary	4	ANTENNA ICE WEIGHT LOADS
Primary	5	FRONT WIND LOADS
Primary	6	BACK WIND LOADS
Primary	7	SIDE WIND LOADS 1
Primary	8	SIDE WIND LOADS 2
Primary	9	FRONT ICED WIND LOADS
Primary	10	BACK ICED WIND LOADS
Primary	11	SIDE ICED WIND LOADS 1
Primary	12	SIDE ICED WIND LOADS 2
Primary	13	MAN LOAD 1
Primary	14	MAN LOAD 2
Combination	15	GENERATED COMBO 1) 0 DEG(1.2D + 1
Combination	16	GENERATED COMBO 1) 30 DEG(1.2D +
Combination	17	GENERATED COMBO 1) 60 DEG(1.2D +
Combination	18	GENERATED COMBO 1) 90 DEG(1.2D +
Combination	19	GENERATED COMBO 1) 120 DEG(1.2D ·

Job Information Cont...

Type	L/C	Name
Combination	23	GENERATED COMBO 1) 240 DEG(1.2D ·
Combination	24	GENERATED COMBO 1) 270 DEG(1.2D ·
Combination	25	GENERATED COMBO 1) 300 DEG(1.2D ·
Combination	26	GENERATED COMBO 1) 330 DEG(1.2D ·
Combination	27	GENERATED COMBO 2) 0 DEG(0.9D + 1
Combination	28	GENERATED COMBO 2) 30 DEG(0.9D +
Combination	29	GENERATED COMBO 2) 60 DEG(0.9D +
Combination	30	GENERATED COMBO 2) 90 DEG(0.9D +
Combination	31	GENERATED COMBO 2) 120 DEG(0.9D ·
Combination	32	GENERATED COMBO 2) 150 DEG(0.9D ·
Combination	33	GENERATED COMBO 2) 180 DEG(0.9D ·
Combination	34	GENERATED COMBO 2) 210 DEG(0.9D ·
Combination	35	GENERATED COMBO 2) 240 DEG(0.9D ·
Combination	36	GENERATED COMBO 2) 270 DEG(0.9D ·
Combination	37	GENERATED COMBO 2) 300 DEG(0.9D ·
Combination	38	GENERATED COMBO 2) 330 DEG(0.9D ·
Combination	39	GENERATED COMBO 3) 0 DEG(1.2D + 1
Combination	40	GENERATED COMBO 3) 30 DEG(1.2D +
Combination	41	GENERATED COMBO 3) 60 DEG(1.2D +
Combination	42	GENERATED COMBO 3) 90 DEG(1.2D +
Combination	43	GENERATED COMBO 3) 120 DEG(1.2D ·
Combination	44	GENERATED COMBO 3) 150 DEG(1.2D ·
Combination	45	GENERATED COMBO 3) 180 DEG(1.2D ·
Combination	46	GENERATED COMBO 3) 210 DEG(1.2D ·
Combination	47	GENERATED COMBO 3) 240 DEG(1.2D ·
Combination	48	GENERATED COMBO 3) 270 DEG(1.2D ·
Combination	49	GENERATED COMBO 3) 300 DEG(1.2D ·
Combination	50	GENERATED COMBO 3) 330 DEG(1.2D ·
Combination	51	GENERATED COMBO 6) 1.0 MAN 1
Combination	52	GENERATED COMBO 6) 1.0 MAN 2
Combination	53	SERVICE COMBO 7) 0 DEG(1.0D + 1.0 W
Combination	54	SERVICE COMBO 7) 30 DEG(1.0D + 1.0
Combination	55	SERVICE COMBO 7) 60 DEG(1.0D + 1.0
Combination	56	SERVICE COMBO 7) 90 DEG(1.0D + 1.0
Combination	57	SERVICE COMBO 7) 120 DEG(1.0D + 1.(
Combination	58	SERVICE COMBO 7) 150 DEG(1.0D + 1.(
Combination	59	SERVICE COMBO 7) 180 DEG(1.0D + 1.(
Combination	60	SERVICE COMBO 7) 210 DEG(1.0D + 1.(
Combination	61	SERVICE COMBO 7) 240 DEG(1.0D + 1.(
Combination	62	SERVICE COMBO 7) 270 DEG(1.0D + 1.(
Combination	63	SERVICE COMBO 7) 300 DEG(1.0D + 1.(
Combination	64	SERVICE COMBO 7) 330 DEG(1.0D + 1.(

Section Properties

Prop	Section	Area (in^2)	I_{yy} (in^4)	I_{zz} (in^4)	J (in^4)	Material
1	HSST4X4X0.25	3.370	7.800	7.800	12.455	STEEL
2	HSST4X4X0.25	3.370	7.800	7.800	12.455	STEEL
3	L20203	0.722	0.433	0.113	0.009	STEEL
4	FB-6X0.500	3.000	0.063	9.000	0.250	STEEL
5	FB-6X0.375	2.250	0.026	6.750	0.105	STEEL
6	PIPS30	2.070	2.850	2.850	5.689	STEEL
7	PIPS20	1.020	0.627	0.627	1.262	STEEL
8	PIPX20	1.400	0.827	0.827	1.665	STEEL
9	L25253 LD	1.802	2.498	1.096	0.021	STEEL

Materials

Mat	Name	E (kip/in^2)	ν	Density (kip/in^3)	α (/℉)
1	STEEL	29E+3	0.300	0.000	6E -6
2	STAINLESSSTEEL	28E+3	0.300	0.000	10E -6
3	ALUMINUM	10E+3	0.330	0.000	13E -6
4	CONCRETE	3.15E+3	0.170	0.000	5E -6

Node Displacement Summary

	Node	L/C	X (in)	Y (in)	Z (in)	Resultant (in)	rX (rad)	rY (rad)	rZ (rad)
Max X	118	18:GENERATE	**1.589**	0.033	-0.516	1.671	-0.010	-0.000	-0.035
Min X	111	24:GENERATE	**-1.592**	0.031	-0.524	1.676	-0.011	0.000	0.035
Max Y	8	27:GENERATE	0.003	**0.063**	0.397	0.402	-0.007	0.000	0.000
Min Y	75	45:GENERATE	-0.011	**-0.093**	0.014	0.095	-0.004	-0.001	-0.011
Max Z	117	21:GENERATE	-0.003	0.050	**2.062**	2.062	0.045	-0.000	0.000
Min Z	117	27:GENERATE	-0.003	-0.068	**-1.522**	1.524	-0.035	0.000	0.000
Max rX	117	21:GENERATE	-0.003	0.050	2.062	2.062	**0.045**	-0.000	0.000
Min rX	117	27:GENERATE	-0.003	-0.068	-1.522	1.524	**-0.035**	0.000	0.000
Max rY	71	24:GENERATE	-0.011	-0.008	-0.019	0.024	-0.003	**0.005**	0.005
Min rY	71	30:GENERATE	0.011	-0.049	0.019	0.054	0.005	**-0.005**	-0.010
Max rZ	111	24:GENERATE	-1.592	0.031	-0.524	1.676	-0.011	0.000	**0.035**
Min rZ	118	18:GENERATE	1.589	0.033	-0.516	1.671	-0.010	-0.000	**-0.035**
Max Rst	117	21:GENERATE	-0.003	0.050	2.062	**2.062**	0.045	-0.000	0.000

Reaction Summary

	Node	L/C	Horizontal FX (kip)	Vertical FY (kip)	Horizontal FZ (kip)	Moment MX (kip-in)	Moment MY (kip-in)	Moment MZ (kip-in)
Max FX	36	48:GENERATE	**4.134**	-0.202	-2.215	0.207	1.343	0.223
Min FX	50	43:GENERATE	**-3.999**	-0.199	-2.276	0.996	0.390	0.302
Max FY	136	39:GENERATE	-0.000	**3.488**	-4.601	0.000	0.000	0.000
Min FY	43	52:GENERATE	0.003	**-0.271**	1.400	-2.473	-0.096	0.439
Max FZ	43	39:GENERATE	0.003	-0.200	**4.806**	-0.296	-0.034	-0.724
Min FZ	136	39:GENERATE	-0.000	3.488	**-4.601**	0.000	0.000	0.000
Max MX	50	15:GENERATE	-0.202	-0.077	1.197	**4.467**	-16.387	2.838
Min MX	36	52:GENERATE	1.833	0.014	-1.055	**-8.370**	0.010	3.203
Max MY	43	30:GENERATE	-1.375	-0.116	1.061	-0.819	**24.144**	4.981
Min MY	43	24:GENERATE	1.517	-0.115	1.420	-0.596	**-25.954**	-5.816
Max MZ	43	30:GENERATE	-1.375	-0.116	1.061	-0.819	24.144	**4.981**
Min MZ	43	24:GENERATE	1.517	-0.115	1.420	-0.596	-25.954	**-5.816**

Utilization Ratio

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (in^2)	Iz (in^4)	Iy (in^4)	Ix (in^4)
13	PIPS30	PIPS30	0.064	1.000	0.064	LRFD-H1-1B-	21	2.070	2.850	2.850	5.700
14	FB-6X0.500	FB-6X0.500	0.074	1.000	0.074	LRFD-H1-1B-	24	3.000	9.000	0.063	0.250
15	FB-6X0.500	FB-6X0.500	0.183	1.000	0.183	LRFD-H1-1B-	24	3.000	9.000	0.063	0.250
16	PIPS30	PIPS30	0.068	1.000	0.068	LRFD-H1-1B-	21	2.070	2.850	2.850	5.700
17	FB-6X0.500	FB-6X0.500	0.138	1.000	0.138	LRFD-H1-1B-	21	3.000	9.000	0.063	0.250
18	FB-6X0.500	FB-6X0.500	0.085	1.000	0.085	LRFD-H1-1B-	21	3.000	9.000	0.063	0.250
20	PIPS30	PIPS30	0.077	1.000	0.077	LRFD-H1-1B-	15	2.070	2.850	2.850	5.700
21	L20203	L20203	0.220	1.000	0.220	LRFD-H1-1B-	45	0.722	0.109	0.437	0.009
22	PIPS30	PIPS30	0.064	1.000	0.064	LRFD-H1-1B-	18	2.070	2.850	2.850	5.700
23	HSST4X4X0	HSST4X4X0	0.247	1.000	0.247	HSS T+SH+F	48	3.370	7.800	7.800	12.800
24	FB-6X0.375	FB-6X0.375	0.177	1.000	0.177	LRFD-H1-1B-	18	2.250	6.750	0.026	0.105
25	FB-6X0.375	FB-6X0.375	0.258	1.000	0.258	LRFD-H1-1B-	18	2.250	6.750	0.026	0.105
26	HSST4X4X0	HSST4X4X0	0.064	1.000	0.064	HSS FLEX+A	24	3.370	7.800	7.800	12.800
27	L20203	L20203	0.195	1.000	0.195	LRFD-H1-1B-	33	0.722	0.109	0.437	0.009
28	PIPS30	PIPS30	0.078	1.000	0.078	LRFD-H1-1B-	41	2.070	2.850	2.850	5.700
30	HSST4X4X0	HSST4X4X0	0.176	1.000	0.176	HSS FLEX+A	48	3.370	7.800	7.800	12.800
31	FB-6X0.375	FB-6X0.375	0.162	1.000	0.162	LRFD-H1-1B-	21	2.250	6.750	0.026	0.105
32	FB-6X0.375	FB-6X0.375	0.240	1.000	0.240	LRFD-H1-1B-	21	2.250	6.750	0.026	0.105
33	PIPS30	PIPS30	0.067	1.000	0.067	LRFD-H1-1B-	18	2.070	2.850	2.850	5.700
34	HSST4X4X0	HSST4X4X0	0.049	1.000	0.049	HSS T+SH+F	21	3.370	7.800	7.800	12.800
35	HSST4X4X0	HSST4X4X0	0.165	1.000	0.165	HSS FLEX+A	45	3.370	7.800	7.800	12.800
36	HSST4X4X0	HSST4X4X0	0.150	1.000	0.150	HSS T+SH+F	21	3.370	7.800	7.800	12.800
37	PIPS30	PIPS30	0.083	1.000	0.083	LRFD-H1-1B-	15	2.070	2.850	2.850	5.700
38	PIPS30	PIPS30	0.087	1.000	0.087	LRFD-H1-1B-	18	2.070	2.850	2.850	5.700
39	FB-6X0.375	FB-6X0.375	0.128	1.000	0.128	LRFD-H1-1B-	15	2.250	6.750	0.026	0.105
40	HSST4X4X0	HSST4X4X0	0.066	1.000	0.066	HSS FLEX+A	21	3.370	7.800	7.800	12.800

Utilization Ratio Cont...

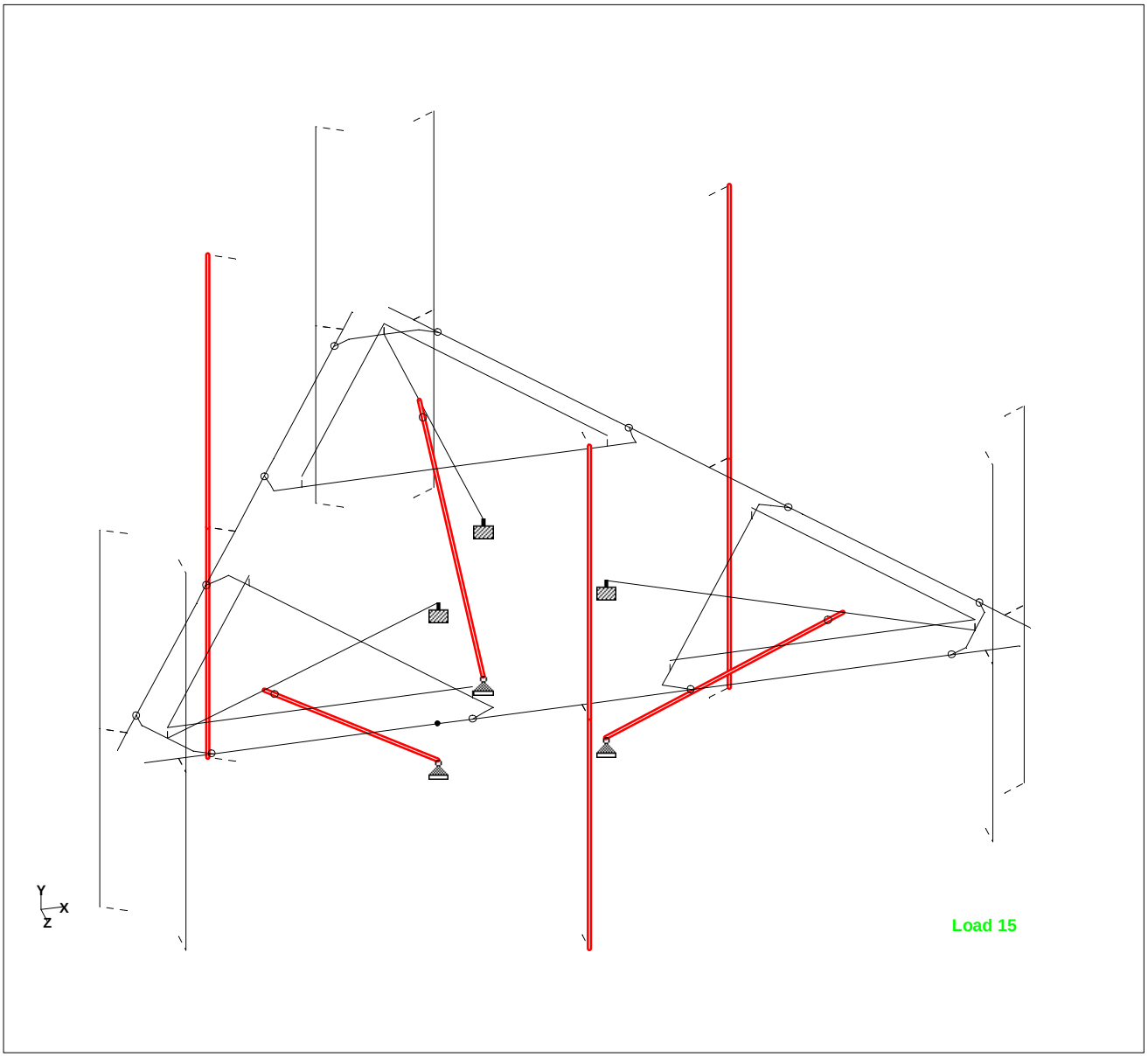
Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (in^2)	Iz (in^4)	Iy (in^4)	Ix (in^4)
41	FB-6X0.375	FB-6X0.375	0.193	1.000	0.193	LRFD-H1-1B-	39	2.250	6.750	0.026	0.105
42	L20203	L20203	0.169	1.000	0.169	LRFD-H1-1B-	43	0.722	0.109	0.437	0.009
43	HSST4X4X0	HSST4X4X0	0.165	1.000	0.165	HSS FLEX+A	39	3.370	7.800	7.800	12.800
45	FB-6X0.500	FB-6X0.500	0.057	1.000	0.057	LRFD-H1-1B-	18	3.000	9.000	0.063	0.250
46	FB-6X0.500	FB-6X0.500	0.176	1.000	0.176	LRFD-H1-1B-	15	3.000	9.000	0.063	0.250
47	PIPS30	PIPS30	0.082	1.000	0.082	LRFD-H1-1B-	15	2.070	2.850	2.850	5.700
48	HSST4X4X0	HSST4X4X0	0.248	1.000	0.248	HSS T+SH+F	39	3.370	7.800	7.800	12.800
49	HSST4X4X0	HSST4X4X0	0.192	1.000	0.192	HSS T+SH+F	24	3.370	7.800	7.800	12.800
50	FB-6X0.500	FB-6X0.500	0.171	1.000	0.171	LRFD-H1-1B-	15	3.000	9.000	0.063	0.250
51	PIPS30	PIPS30	0.057	1.000	0.057	LRFD-H1-1B-	15	2.070	2.850	2.850	5.700
52	FB-6X0.500	FB-6X0.500	0.051	1.000	0.051	LRFD-H1-1B-	15	3.000	9.000	0.063	0.250
53	PIPS30	PIPS30	0.066	1.000	0.066	LRFD-H1-1B-	24	2.070	2.850	2.850	5.700
54	L20203	L20203	0.218	1.000	0.218	LRFD-H1-1B-	48	0.722	0.109	0.437	0.009
55	HSST4X4X0	HSST4X4X0	0.173	1.000	0.173	HSS FLEX+A	39	3.370	7.800	7.800	12.800
56	FB-6X0.375	FB-6X0.375	0.202	1.000	0.202	LRFD-H1-1B-	39	2.250	6.750	0.026	0.105
57	HSST4X4X0	HSST4X4X0	0.063	1.000	0.063	HSS FLEX+A	21	3.370	7.800	7.800	12.800
58	FB-6X0.375	FB-6X0.375	0.134	1.000	0.134	LRFD-H1-1B-	39	2.250	6.750	0.026	0.105
60	PIPS30	PIPS30	0.079	1.000	0.079	LRFD-H1-1B-	15	2.070	2.850	2.850	5.700
61	HSST4X4X0	HSST4X4X0	0.144	1.000	0.144	HSS T+SH+F	21	3.370	7.800	7.800	12.800
62	HSST4X4X0	HSST4X4X0	0.171	1.000	0.171	HSS FLEX+A	45	3.370	7.800	7.800	12.800
63	HSST4X4X0	HSST4X4X0	0.050	1.000	0.050	HSS FLEX+A	45	3.370	7.800	7.800	12.800
64	PIPS30	PIPS30	0.068	1.000	0.068	LRFD-H1-1B-	24	2.070	2.850	2.850	5.700
65	FB-6X0.375	FB-6X0.375	0.231	1.000	0.231	LRFD-H1-1B-	21	2.250	6.750	0.026	0.105
66	FB-6X0.375	FB-6X0.375	0.156	1.000	0.156	LRFD-H1-1B-	21	2.250	6.750	0.026	0.105
67	HSST4X4X0	HSST4X4X0	0.165	1.000	0.165	HSS FLEX+A	43	3.370	7.800	7.800	12.800
68	PIPS30	PIPS30	0.072	1.000	0.072	LRFD-H1-1B-	15	2.070	2.850	2.850	5.700
69	PIPS30	PIPS30	0.079	1.000	0.079	LRFD-H1-1B-	45	2.070	2.850	2.850	5.700
70	L20203	L20203	0.216	1.000	0.216	LRFD-H1-1B-	41	0.722	0.109	0.437	0.009
71	HSST4X4X0	HSST4X4X0	0.066	1.000	0.066	HSS FLEX+A	18	3.370	7.800	7.800	12.800
72	FB-6X0.375	FB-6X0.375	0.274	1.000	0.274	LRFD-H1-1B-	24	2.250	6.750	0.026	0.105
73	FB-6X0.375	FB-6X0.375	0.188	1.000	0.188	LRFD-H1-1B-	24	2.250	6.750	0.026	0.105
74	HSST4X4X0	HSST4X4X0	0.246	1.000	0.246	HSS T+SH+F	43	3.370	7.800	7.800	12.800
75	PIPS30	PIPS30	0.068	1.000	0.068	LRFD-H1-1B-	24	2.070	2.850	2.850	5.700
76	L20203	L20203	0.189	1.000	0.189	LRFD-H1-1B-	30	0.722	0.109	0.437	0.009
78	PIPS30	PIPS30	0.092	1.000	0.092	LRFD-H1-1B-	21	2.070	2.850	2.850	5.700
79	FB-6X0.500	FB-6X0.500	0.073	1.000	0.073	LRFD-H1-1B-	21	3.000	9.000	0.063	0.250
80	FB-6X0.500	FB-6X0.500	0.135	1.000	0.135	LRFD-H1-1B-	21	3.000	9.000	0.063	0.250
81	PIPS30	PIPS30	0.062	1.000	0.062	LRFD-H1-1B-	18	2.070	2.850	2.850	5.700
83	FB-6X0.500	FB-6X0.500	0.186	1.000	0.186	LRFD-H1-1B-	18	3.000	9.000	0.063	0.250
84	FB-6X0.500	FB-6X0.500	0.084	1.000	0.084	LRFD-H1-1B-	18	3.000	9.000	0.063	0.250
85	PIPS30	PIPS30	0.000	1.000	0.000	SHEAR-Y	39	2.070	2.850	2.850	5.700
86	PIPS30	PIPS30	0.000	1.000	0.000	SHEAR-Y	39	2.070	2.850	2.850	5.700
87	PIPS30	PIPS30	0.000	1.000	0.000	SHEAR-Y	39	2.070	2.850	2.850	5.700
1100	PIPS20	PIPS20	0.064	1.000	0.064	LRFD-H1-1B-	15	1.020	0.627	0.627	1.254
1101	PIPS20	PIPS20	0.243	1.000	0.243	LRFD-H1-1B-	21	1.020	0.627	0.627	1.254

Utilization Ratio Cont...

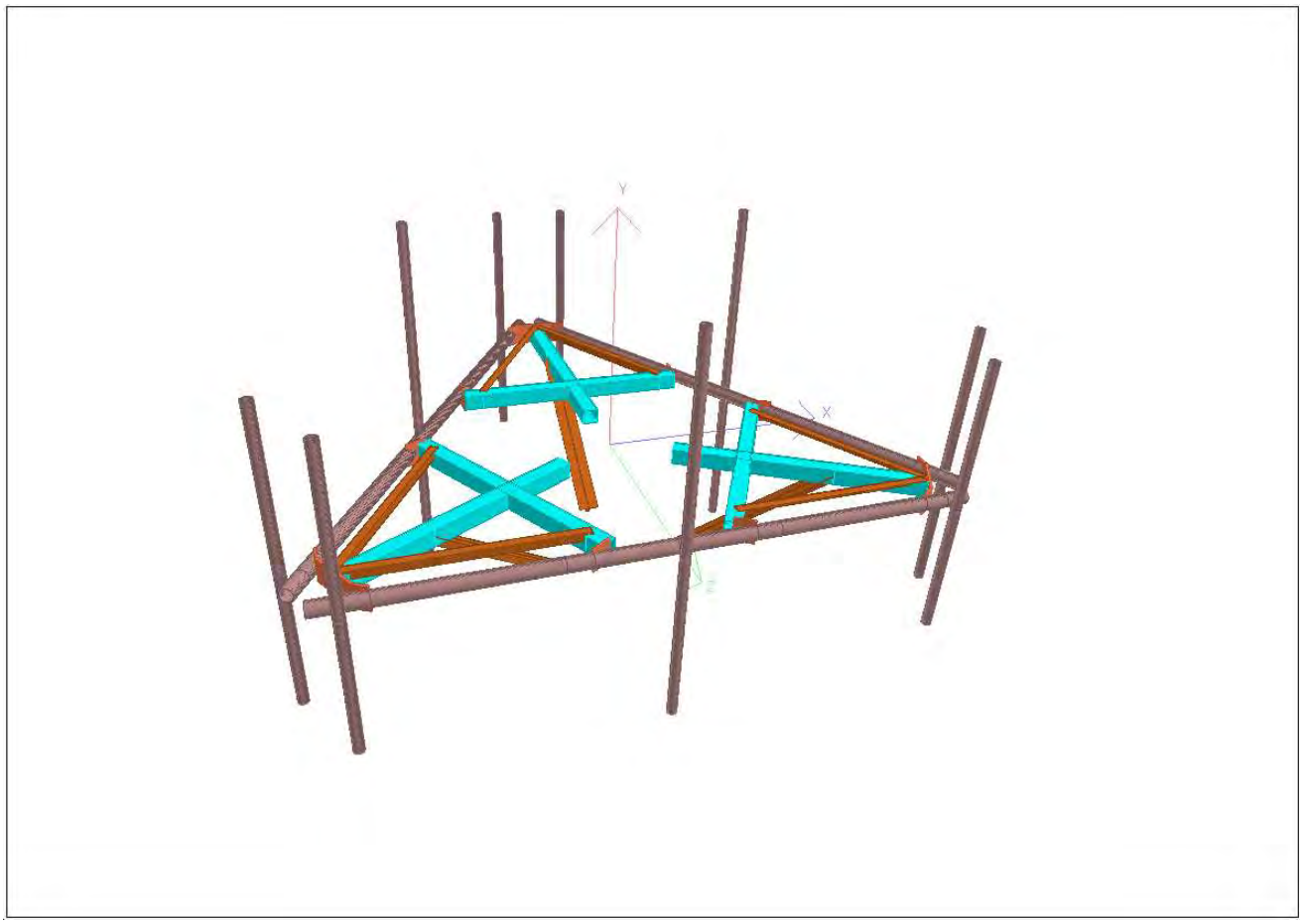
Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (in^2)	Iz (in^4)	Iy (in^4)	Ix (in^4)
1200	PIPX20	PIPX20	0.492	1.000	0.492	LRFD-H1-1B-	21	1.400	0.827	0.827	1.654
1201	PIPX20	PIPX20	0.691	1.000	0.691	LRFD-H1-1B-	21	1.400	0.827	0.827	1.654
1300	PIPS20	PIPS20	0.068	1.000	0.068	LRFD-H1-1B-	15	1.020	0.627	0.627	1.254
1301	PIPS20	PIPS20	0.307	1.000	0.307	LRFD-H1-1B-	21	1.020	0.627	0.627	1.254
2100	PIPS20	PIPS20	0.061	1.000	0.061	LRFD-H1-1B-	18	1.020	0.627	0.627	1.254
2101	PIPS20	PIPS20	0.227	1.000	0.227	LRFD-H1-1B-	24	1.020	0.627	0.627	1.254
2200	PIPX20	PIPX20	0.427	1.000	0.427	LRFD-H1-1B-	24	1.400	0.827	0.827	1.654
2201	PIPX20	PIPX20	0.600	1.000	0.600	LRFD-H1-1B-	24	1.400	0.827	0.827	1.654
2300	PIPS20	PIPS20	0.065	1.000	0.065	LRFD-H1-1B-	18	1.020	0.627	0.627	1.254
2301	PIPS20	PIPS20	0.288	1.000	0.288	LRFD-H1-1B-	24	1.020	0.627	0.627	1.254
3100	PIPS20	PIPS20	0.061	1.000	0.061	LRFD-H1-1B-	18	1.020	0.627	0.627	1.254
3101	PIPS20	PIPS20	0.227	1.000	0.227	LRFD-H1-1B-	18	1.020	0.627	0.627	1.254
3200	PIPX20	PIPX20	0.427	1.000	0.427	LRFD-H1-1B-	18	1.400	0.827	0.827	1.654
3201	PIPX20	PIPX20	0.600	1.000	0.600	LRFD-H1-1B-	18	1.400	0.827	0.827	1.654
3300	PIPS20	PIPS20	0.065	1.000	0.065	LRFD-H1-1B-	18	1.020	0.627	0.627	1.254
3301	PIPS20	PIPS20	0.288	1.000	0.288	LRFD-H1-1B-	18	1.020	0.627	0.627	1.254
3403	PIPS30	PIPS30	0.000	1.000	0.000	SHEAR-Y	39	2.070	2.850	2.850	5.700
3404	PIPS30	PIPS30	0.000	1.000	0.000	SHEAR-Y	39	2.070	2.850	2.850	5.700
3405	PIPS30	PIPS30	0.082	1.000	0.082	LRFD-H1-1B-	15	2.070	2.850	2.850	5.700
3406	PIPS30	PIPS30	0.089	1.000	0.089	LRFD-H1-1B-	21	2.070	2.850	2.850	5.700
3407	PIPS30	PIPS30	0.087	1.000	0.087	LRFD-H1-1B-	24	2.070	2.850	2.850	5.700
3408	PIPS30	PIPS30	0.000	1.000	0.000	SHEAR-Y	39	2.070	2.850	2.850	5.700
3409	PIPS30	PIPS30	0.079	1.000	0.079	LRFD-H1-1B-	45	2.070	2.850	2.850	5.700
3410	PIPS30	PIPS30	0.078	1.000	0.078	LRFD-H1-1B-	15	2.070	2.850	2.850	5.700
3411	PIPS30	PIPS30	0.078	1.000	0.078	LRFD-H1-1B-	48	2.070	2.850	2.850	5.700
3412	HSST4X4X0	HSST4X4X0	0.274	1.000	0.274	HSS T+SH+F	48	3.370	7.800	7.800	12.800
3413	HSST4X4X0	HSST4X4X0	0.278	1.000	0.278	HSS T+SH+F	39	3.370	7.800	7.800	12.800
3414	HSST4X4X0	HSST4X4X0	0.273	1.000	0.273	HSS T+SH+F	43	3.370	7.800	7.800	12.800
3415	L25253 LD	L25253 LD	0.105	1.000	0.105	LRFD-H1-1B-	45	1.802	1.096	2.507	0.021
3416	L25253 LD	L25253 LD	0.103	1.000	0.103	LRFD-H1-1B-	41	1.802	1.096	2.507	0.021
3417	L25253 LD	L25253 LD	0.105	1.000	0.105	LRFD-H1-1B-	45	1.802	1.096	2.507	0.021

Failed Members

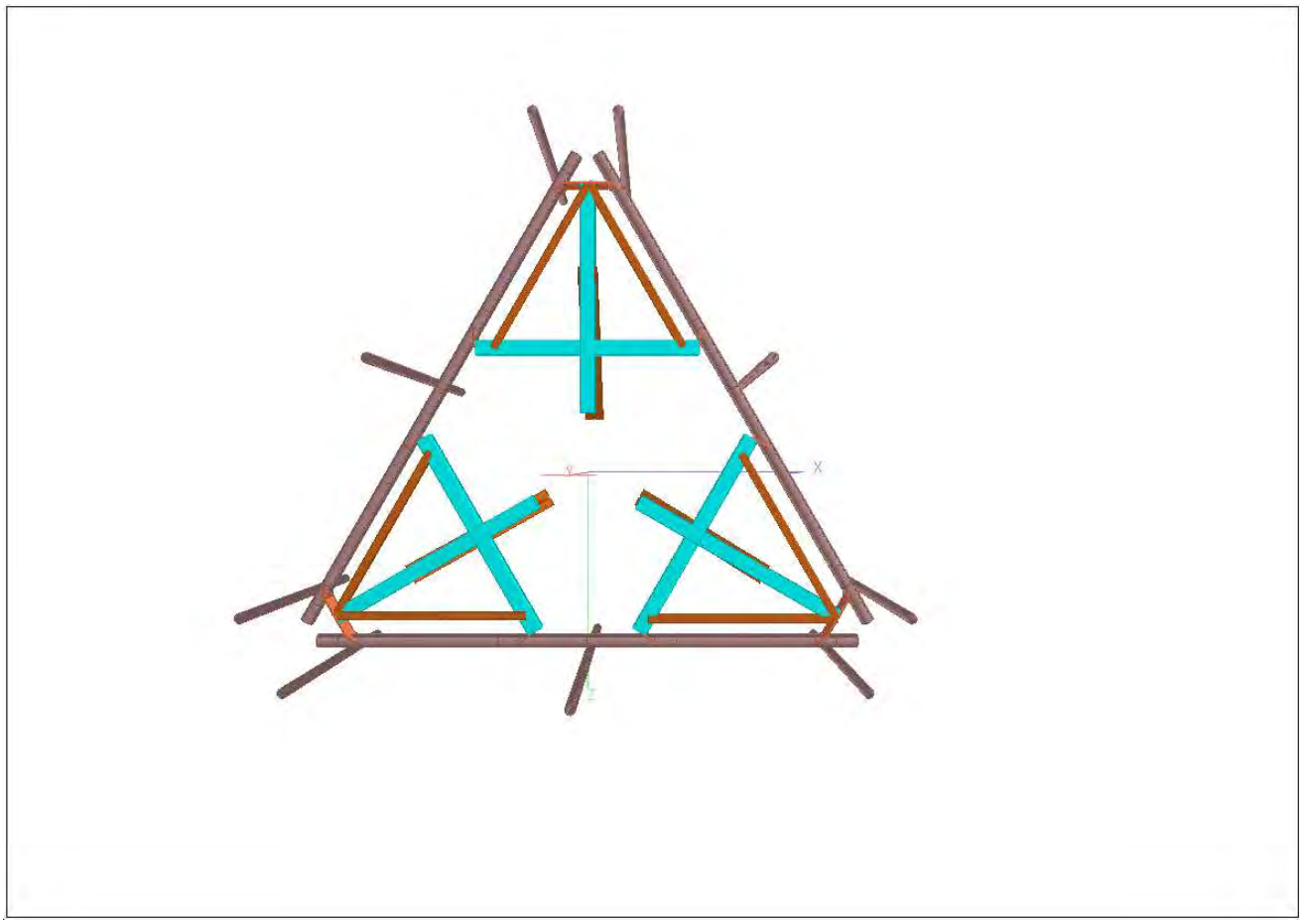
There is no data of this type.



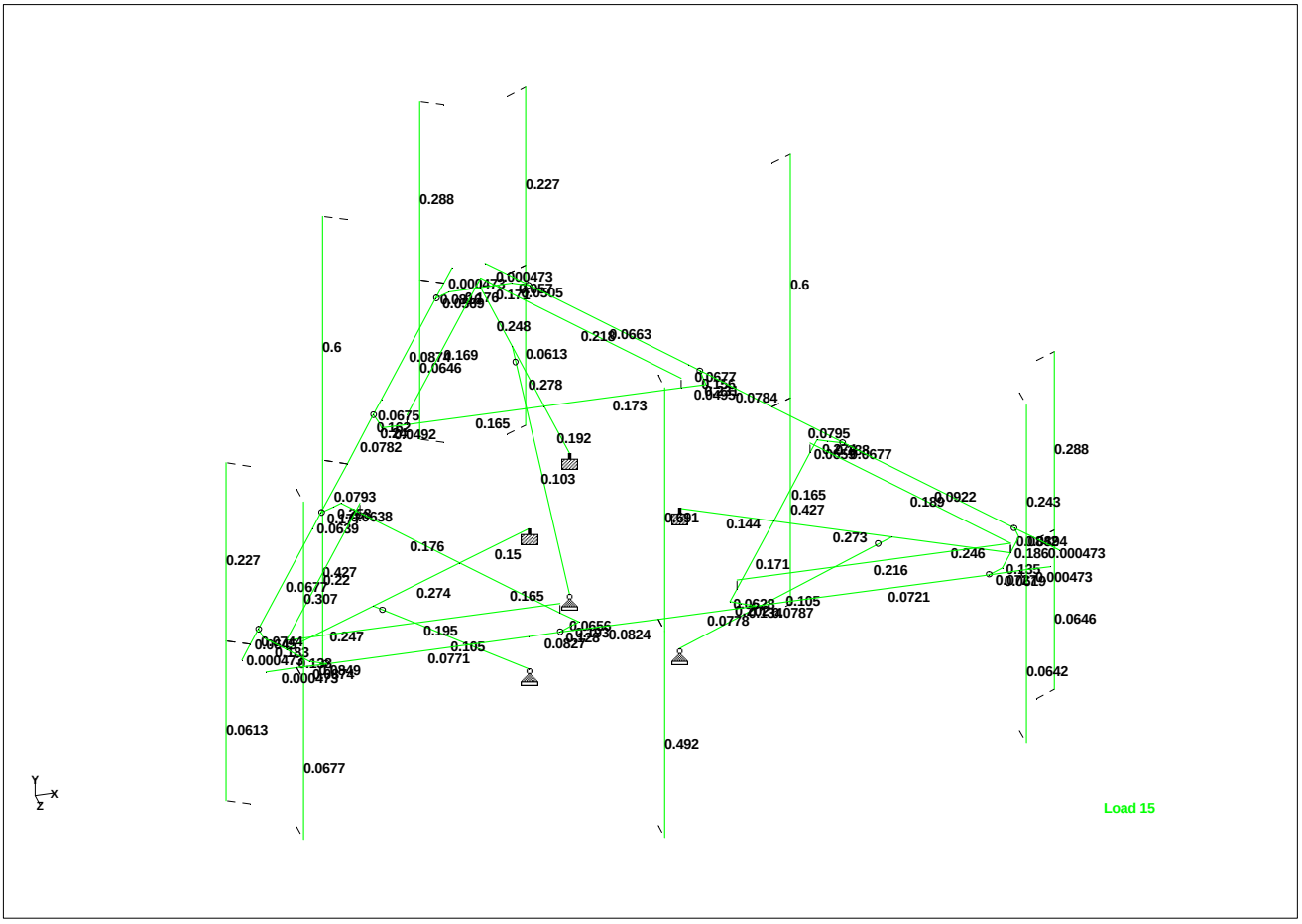
Whole Structure w/ Reinforcement Highlighted



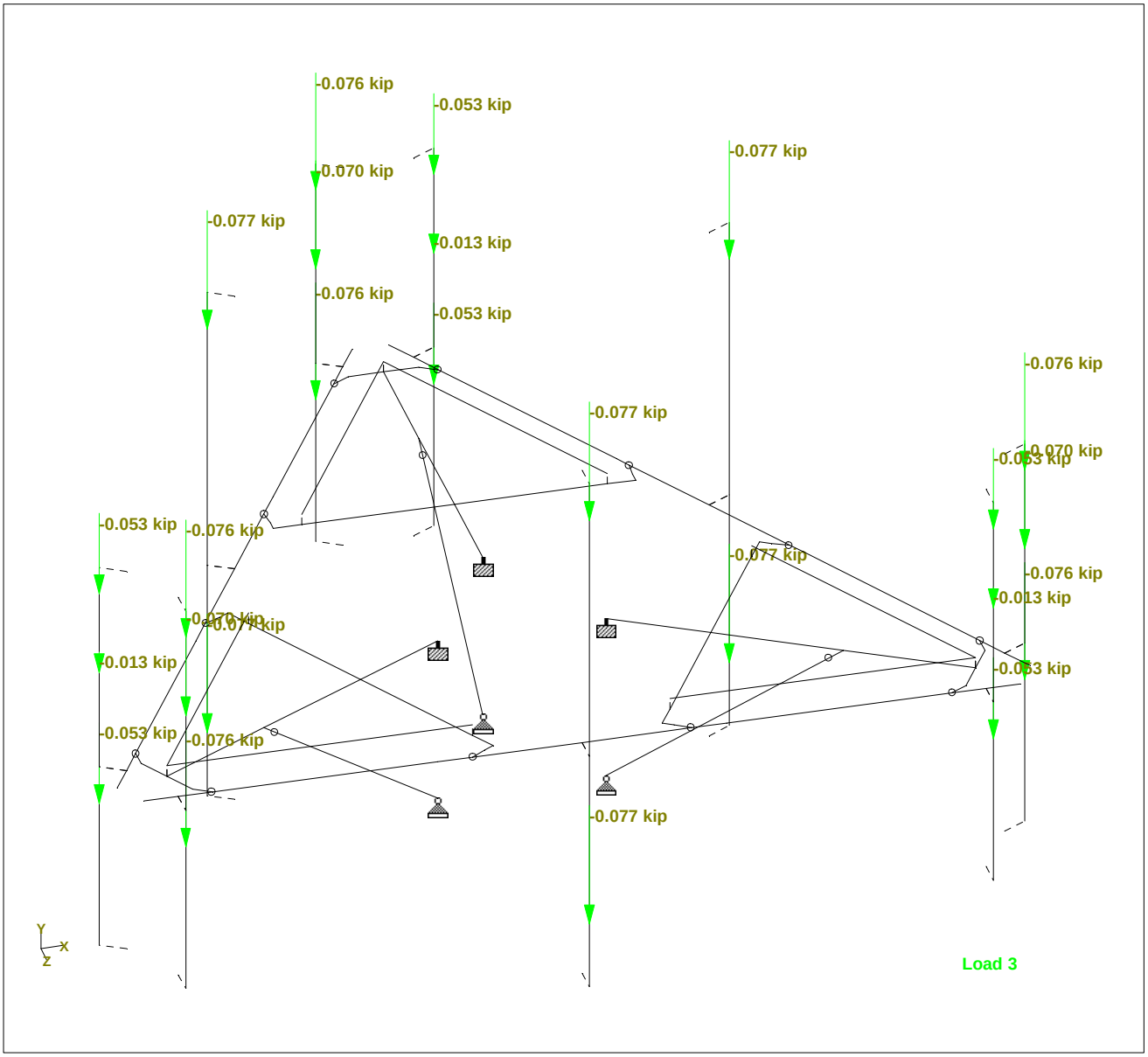
3D Rendered View



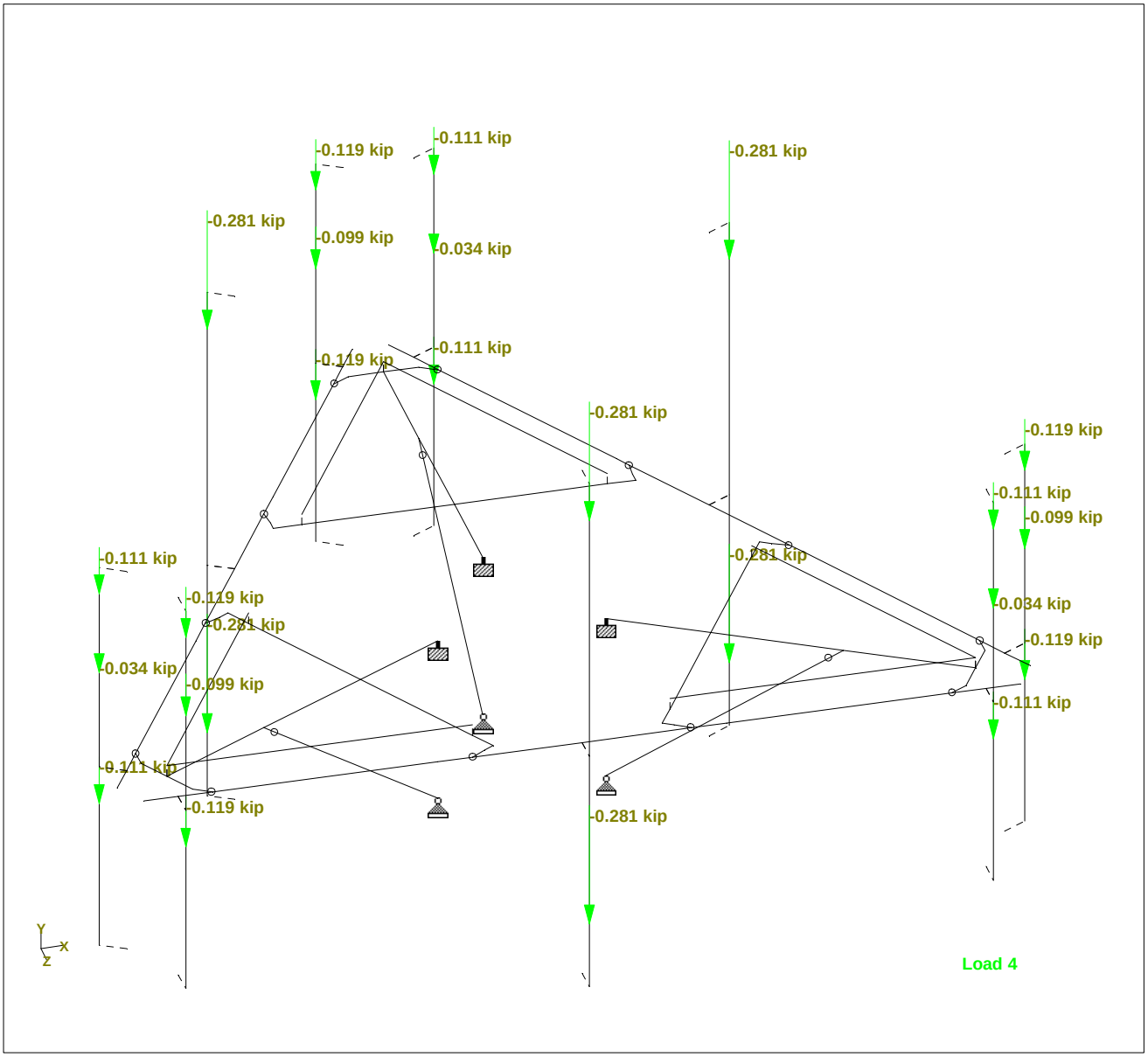
3D Rendered Plan View



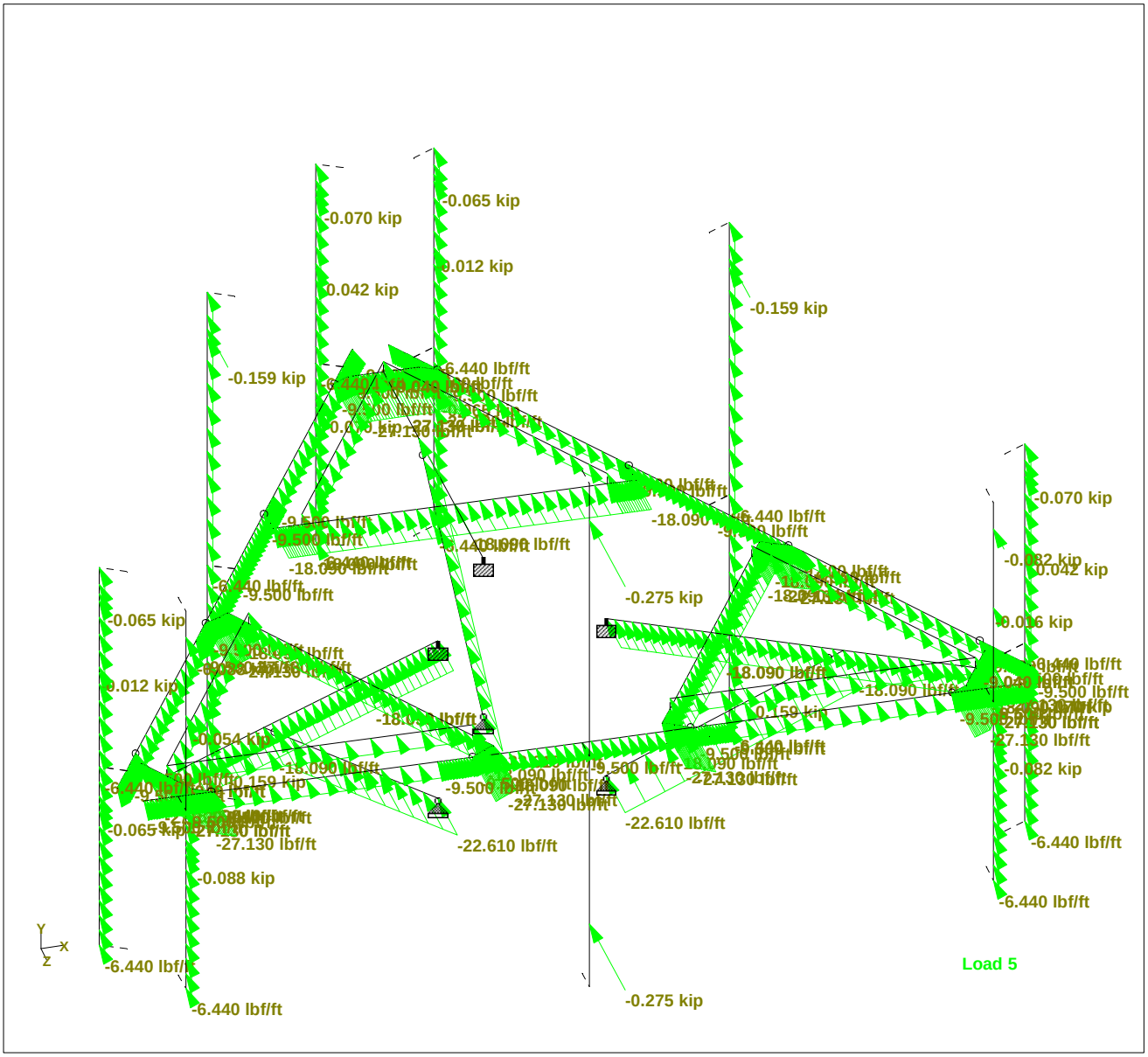
Combined Stress Ratio (Unity Check < 1.05 OK!)



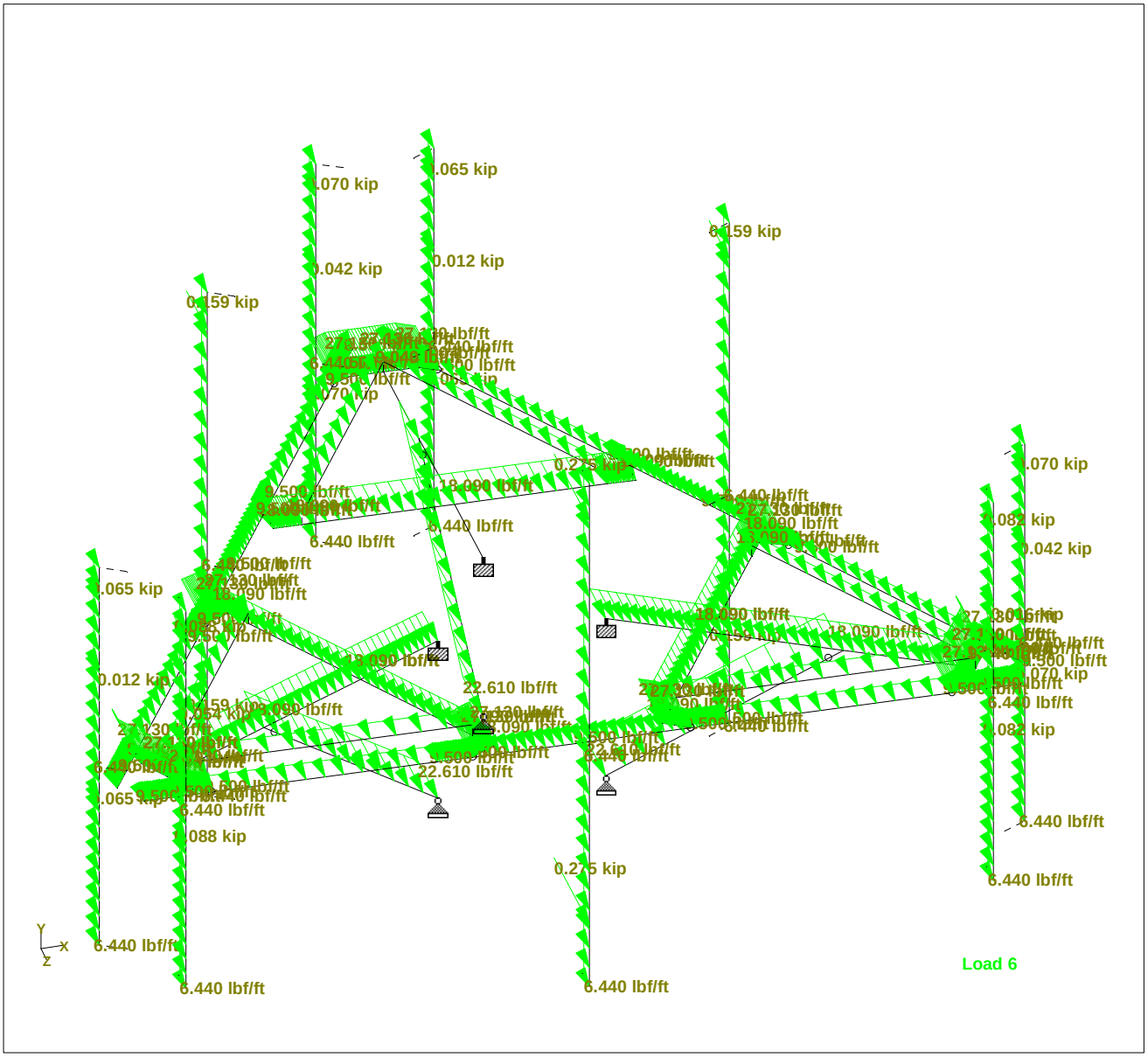
Whole Structure Loads 0.00340214kip:1in 3 ANTENNA DEAD LOADS



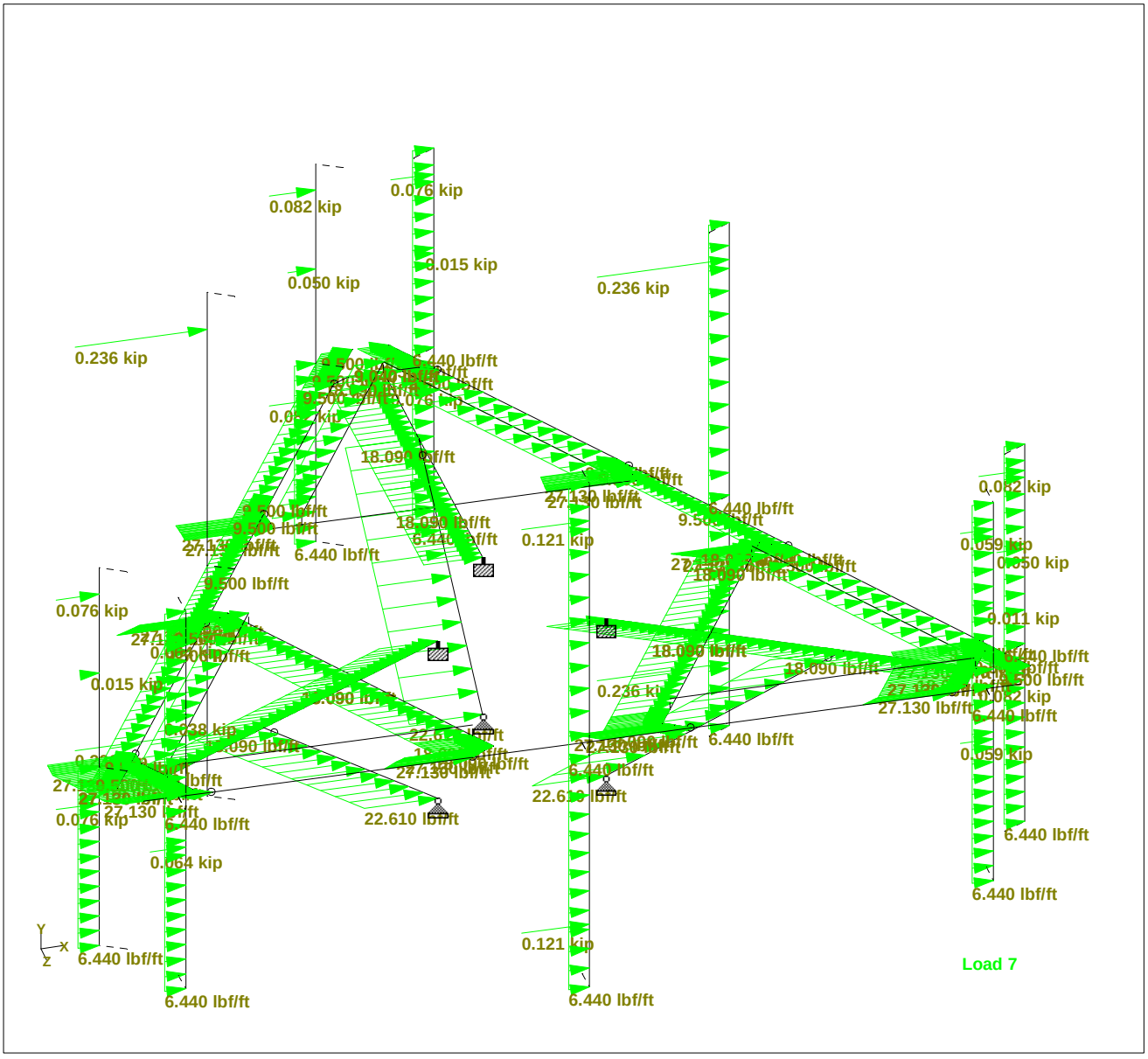
Whole Structure Loads 0.0123935kip:1in 4 ANTENNA ICE WEIGHT LOADS



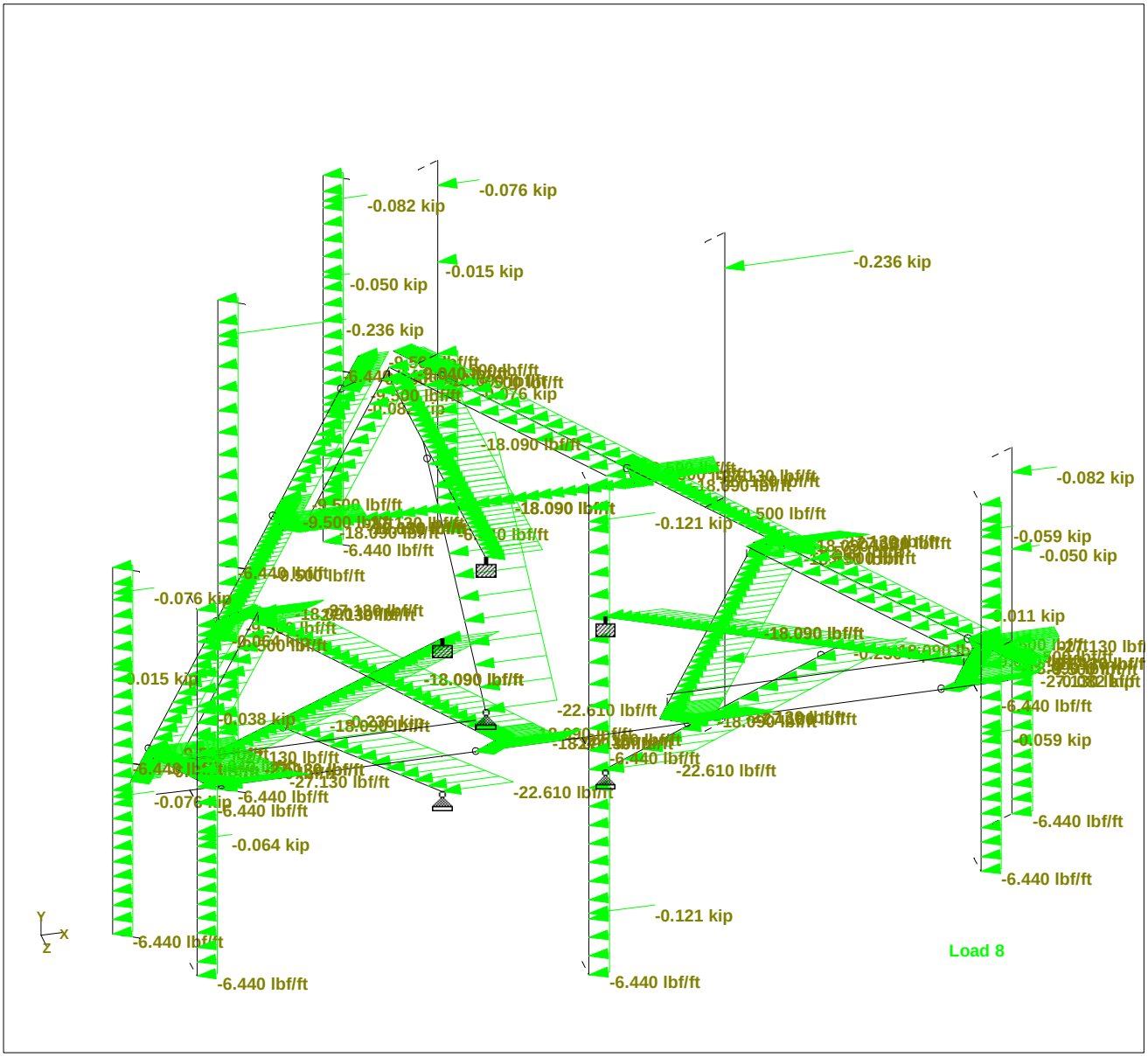
Whole Structure Loads 0.0121328kip:1in 5 FRONT WIND LOADS



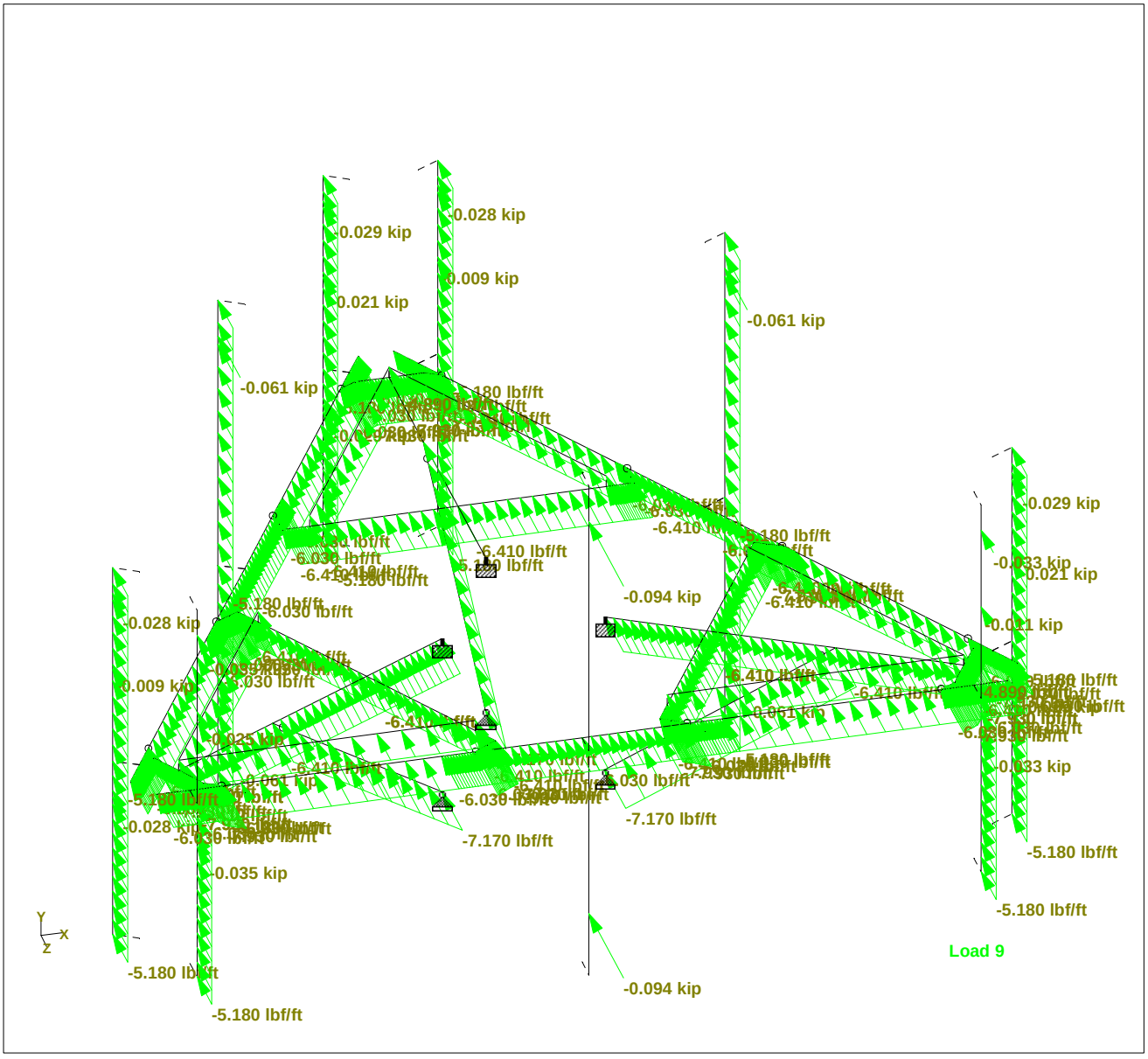
Whole Structure Loads 0.0121328kip:1in 6 BACK WIND LOADS



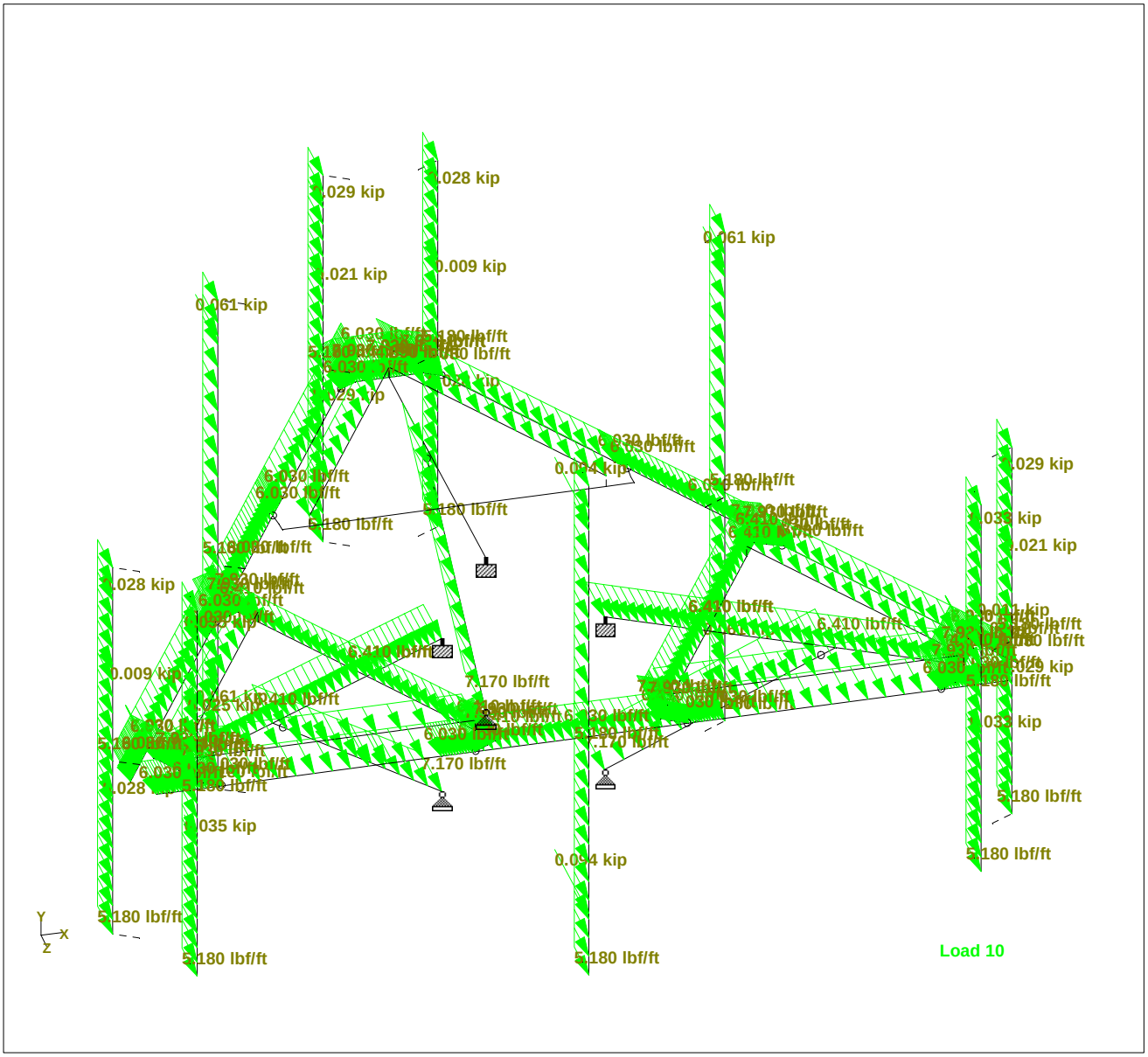
Whole Structure Loads 0.0104317kip:1in 7 SIDE WIND LOADS 1



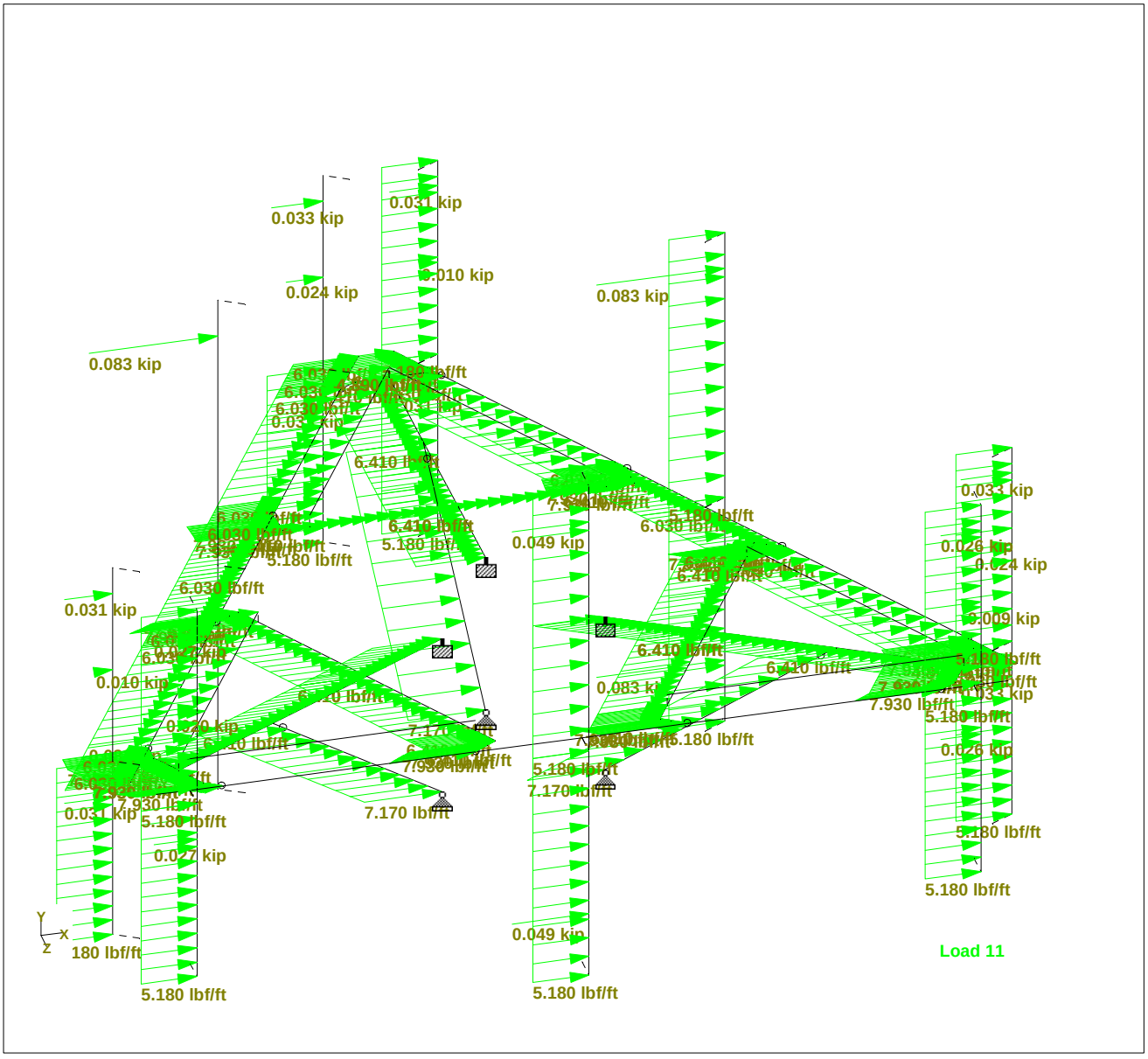
Whole Structure Loads 0.0104317kip:1in 8 SIDE WIND LOADS 2



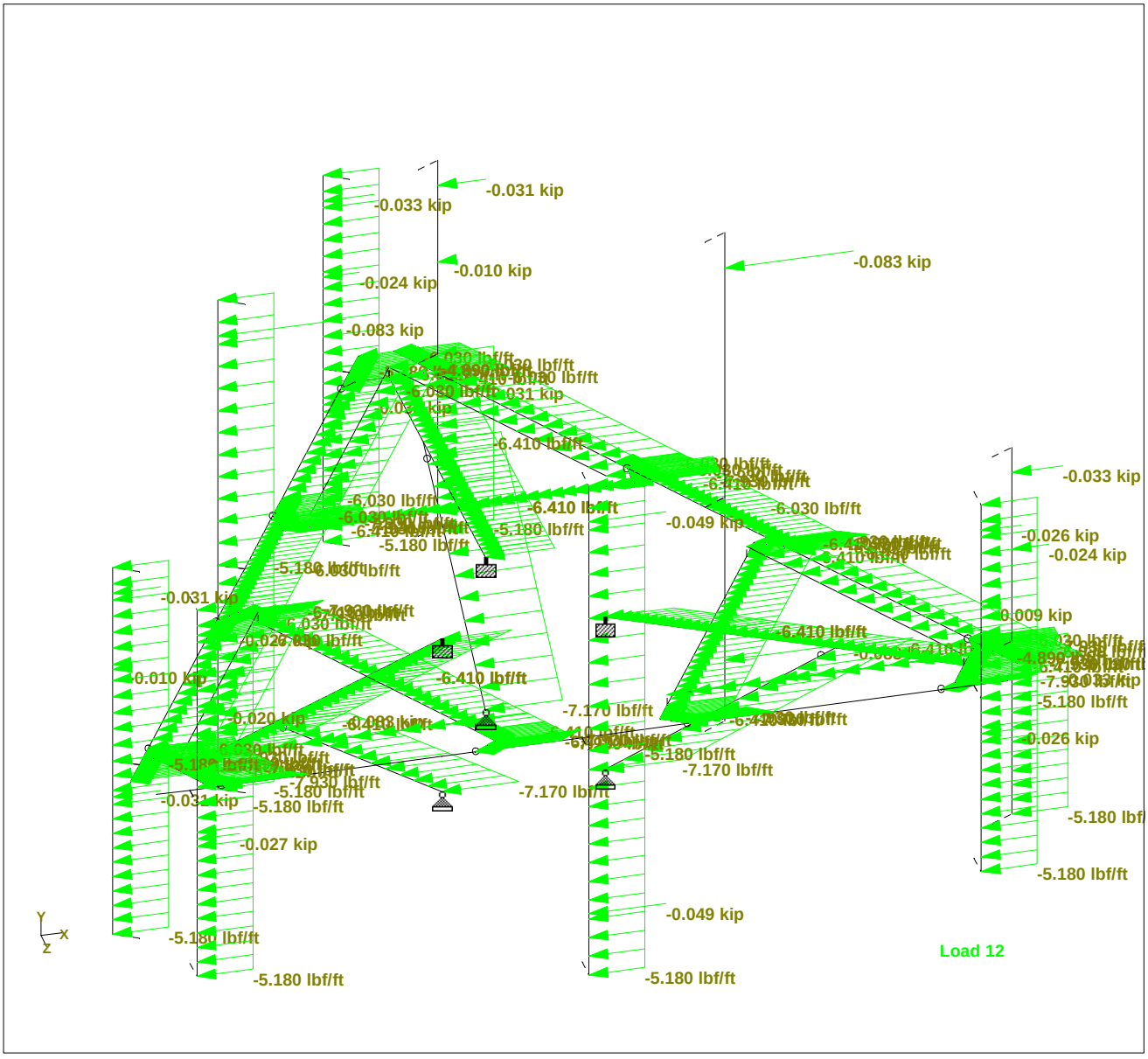
Whole Structure Loads 0.00414442kip:1in 9 FRONT ICED WIND LOADS



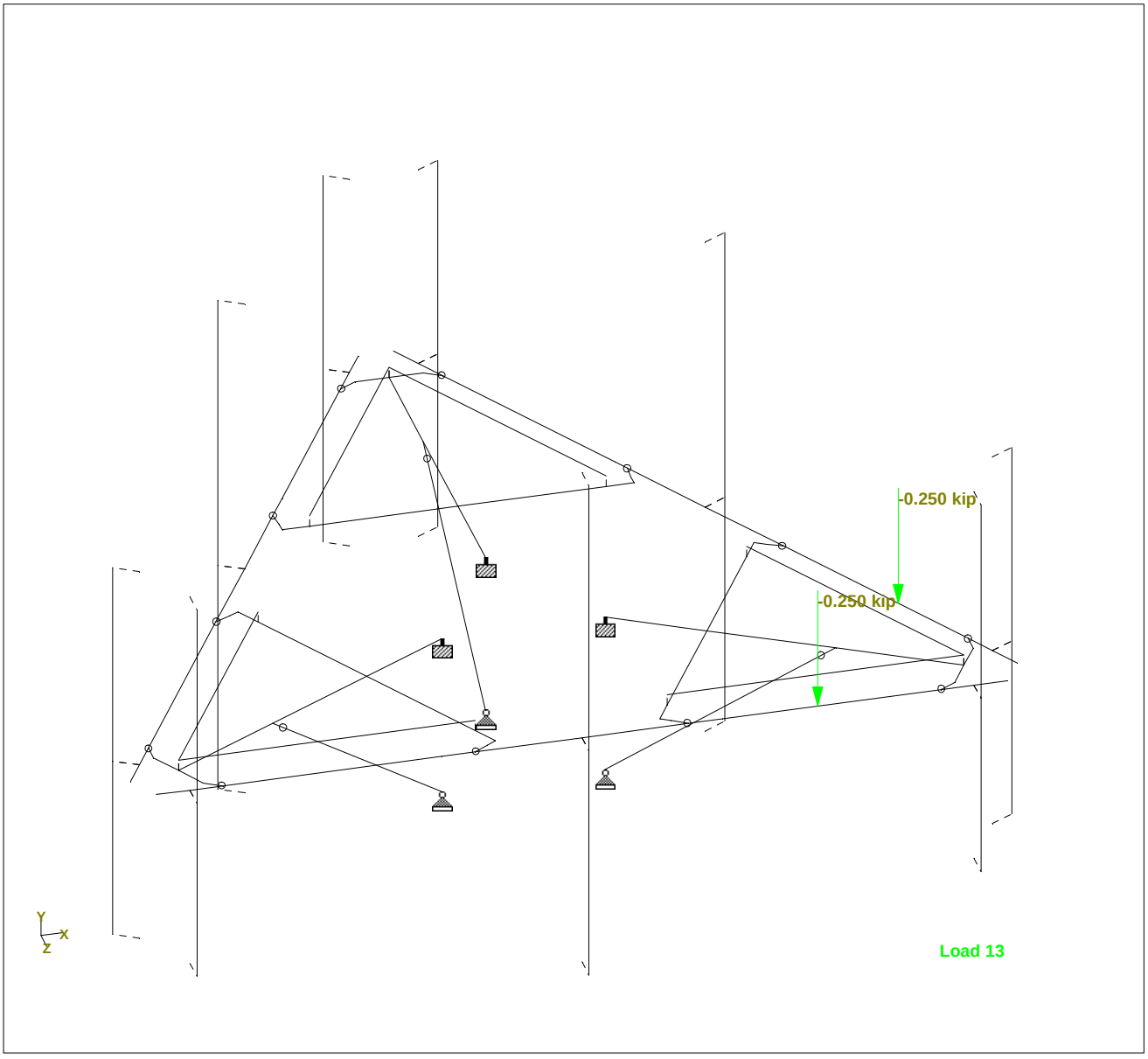
Whole Structure Loads 0.00414442kip:1in 10 BACK ICED WIND LOADS



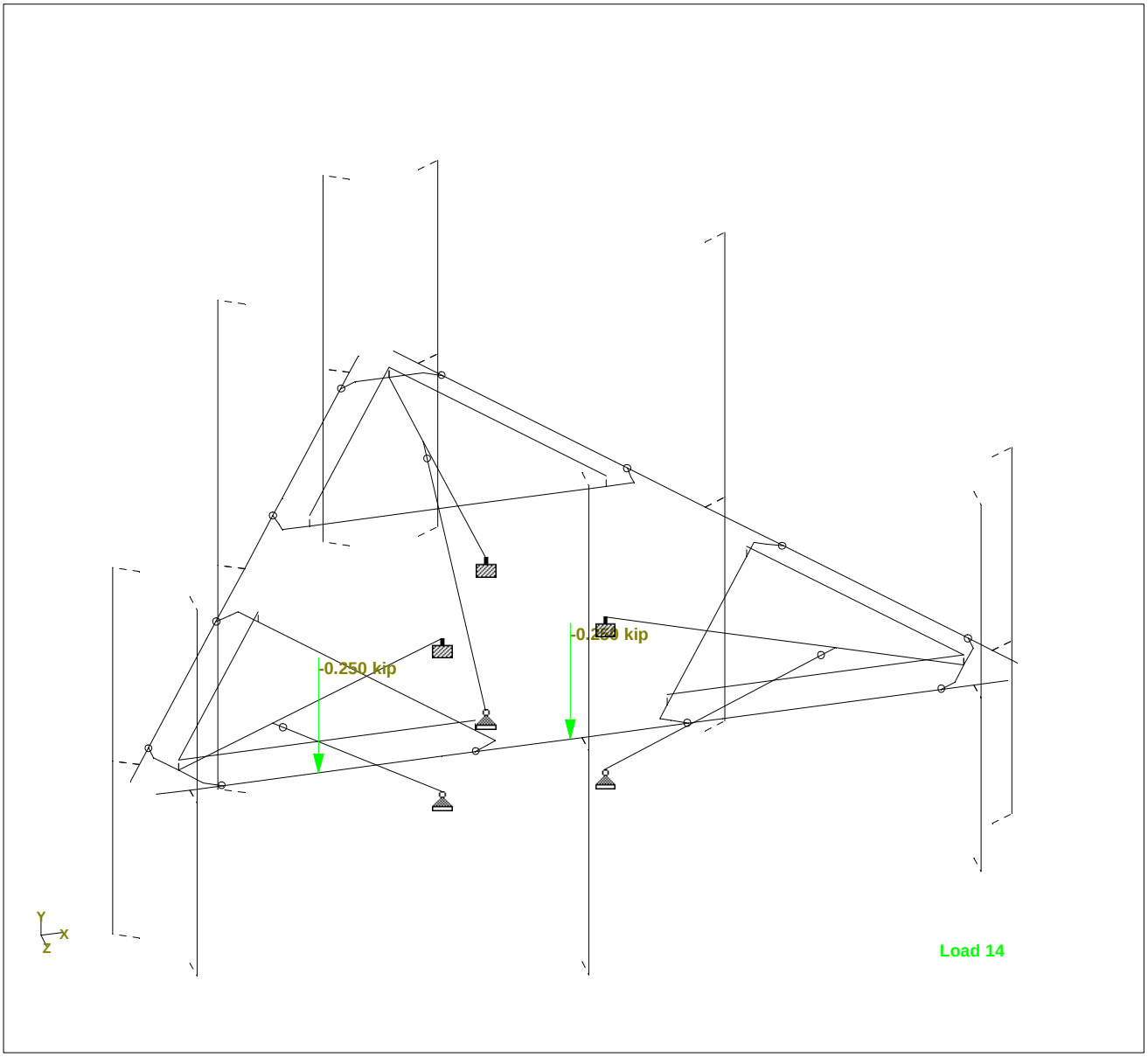
Whole Structure Loads 0.00365398kip:1in 11 SIDE ICED WIND LOADS 1



Whole Structure Loads 0.00365398kip:1in 12 SIDE ICED WIND LOADS 2



Whole Structure Loads 0.0110459kip:1in 13 MAN LOAD 1



Whole Structure Loads 0.0110459kip:1in 14 MAN LOAD 2

APPENDIX 2 – SOURCE / REFERENCE DOCUMENTS

Preliminary Data Questionnaire (PDQ)

Application Date: 7/19/2018

Name and Mailing Address of Applicant:
(Street, City, State, Zip Code)
T-Mobile USA

Bellevue, WA 98015-2690
Telephone Number:

Requested Site:
Frontier Site Name: Windsor CO
419 Broad St., Windsor, CT 06095

Applicant Site Name: CTHA130A

Contact Information: (if different from applicant)
Name: Sheldon Freincle
Phone #: 570-606-4257
Email: sheldon@northeastsitesolutions.com

Project Description:

Replacing (3) antennas, adding (3) antennas, adding (3) RRUs, replacing (1) coax with (1) hybrid.

Are copies of all necessary permits attached?

USFS, BLM, Municipality Permits:
Yes
No X

FCC License:
Yes
No

If no, have they been applied for?
Yes ⇨ ⇨ Application Date:
No

Additional Notes on Permits:

Frontier Commercial Power Section

Existing Tenants

Are you using our commercial power? Using EMON/DMON — Yes: x; No:

What is your contractual amount?
AC or DC? AC
Volts 240 Requested Amps: 200

Are you using emergency power for existing service? Yes: x; No:

Amps: 200

Do you require additional commercial power? (Amps must be provided in increments of 20) Yes: ; No: x

What do you need in total? (existing + proposed)
AC or DC:
Volts: Requested Amps:

Do you require additional amps of emergency service? Yes: ; No: x

What do you need in total? (existing + proposed)
Amps:

Proposed Tenants

Is power required for equipment use? (Amps must be provided in increments of 20) Yes: ; No:

AC or DC:
Volts: Requested Amps:

Is emergency power required? Yes: ; No:

Requested Amps:
These amps should be the same as the commercial power request. If not, please note in project description.

Building / Ground Space Section

Existing Tenants

Please document your actual footprint:

	Indoor Space Area 1	Indoor Space Area 2	Outdoor Space Area 1	Outdoor Space Area 2
Length:			10'	
Width:			20'	
Height:			10'	

	Indoor Space Area 3	Indoor Space Area 4	Outdoor Space Area 3	Outdoor Space Area 4
Length:				
Width:				
Height:				

Do you require additional space? Yes: ; No: x

Indoor?
Outdoor?
(check one)

What additional space do you need? proposed only

	Area 1	Area 2
Length:		
Width:		
Height:		

Proposed Tenants

Please complete the below for the type of space you need. (Indoor / Outdoor)

	Indoor Space Area 1	Indoor Space Area 2	Outdoor Space Area 1	Outdoor Space Area 2
Length:				
Width:				
Height:				

Additional Notes on Power & Space:	No additional space is required.

Tower / Radio Information - Call Sign information needs to be tied to a specific antenna(s). Adjust letters as needed.

A	Call Sign	KNLF202
	Class of Station	CW - PCS
	Emission Designator	5 MHz
	Transmit Frequency	1930-1945 MHz
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1850-1865 MHz

A	Call Sign	WQJQ696 - proposed
	Class of Station	WY - Block A
	Emission Designator	6 MHz
	Transmit Frequency	728-734
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	698-704

A	Call Sign	WQGA731 - proposed
	Class of Station	AW - AWS
	Emission Designator	5 MHz
	Transmit Frequency	2135-2140
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1735-1740

A	Call Sign	WQKF358 - proposed
	Class of Station	AW - AWS
	Emission Designator	5 MHz
	Transmit Frequency	2130-2135
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1730-1735

A	Call Sign	WQGB373
	Class of Station	AW - AWS
	Emission Designator	5 MHz
	Transmit Frequency	2140-2145
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1740-1745

A	Call Sign	WQPZ969
	Class of Station	AW - AWS
	Emission Designator	10 MHz
	Transmit Frequency	2145-2155
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000w
	Receive Frequency	1745-1755

A	Call Sign	WQZL489 - proposed
	Class of Station	WT
	Emission Designator	5 MHz
	Transmit Frequency	668-673
	Output Power (watts)	40W
	Transmitter ERP (dBm)	1000W
	Receive Frequency	622-627

B	Call Sign	
	Class of Station	
	Emission Designator	
	Transmit Frequency	
	Output Power (watts)	
	Transmitter ERP (dBm)	
	Receive Frequency	

Coax / Waveguide / Cable Information

Type:	Coax
Size:	7/8"
Length:	100'
# of runs:	16 (E)
Type:	Hybrid / fiber
Size:	1-1/4"
Length:	100'
# of runs:	2 (E) - 1 to be removed
Type:	Hybrid / fiber
Size:	1-5/8"
Length:	100'
# of runs:	1 (P)
Type:	
Size:	
Length:	
# of runs:	

	Antenna & Ancillary Equipment Information		**Check one**					**Heights** - Above Ground Level (feet)			**Notes:** (including removals, ice shields, etc.)
@	Make	Model	Existing	Proposed	Size / Dimensions	Weight	Azimuth	RAD Center	Attachment	Tip	
A	Ericsson (panel)	AIR32		x	56.6" x 12.9" x 8.7"	132.2 lbs	0	94'	92', 96'	96.3'	
A	Ericsson (panel)	AIR32		x	56.6" x 12.9" x 8.7"	132.2 lbs	120	94'	92', 96'	96.3'	
A	Ericsson (panel)	AIR32		x	56.6" x 12.9" x 8.7"	132.2 lbs	220	94'	92', 96'	96.3'	
A	RFS	APXVAARR24_43-U-NA20		x	95.9 x 24 x 8.7	128 lbs	0	94'	90', 98'	98'	
A	RFS	APXVAARR24_43-U-NA20		x	95.9 x 24 x 8.7	128 lbs	120	94'	90', 98'	98'	
A	RFS	APXVAARR24_43-U-NA20		x	95.9 x 24 x 8.7	128 lbs	220	94'	90', 98'	98'	
A	Ericsson	RRUS 4449		x	13.19x14.95x9.25	74 lbs	0, 120, 220		94'		Three (3) RRU units
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	0	94'	92', 96'	96.3'	to be removed
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	120	94'	92', 96'	96.3'	to be removed
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	220	94'	92', 96'	96.3'	to be removed
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	0	94'	92', 96'	96.3'	
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	120	94'	92', 96'	96.3'	
A	Ericsson (panel)	AIR21	x		56" x 12" x 8"	91 lbs	220	94'	92', 96'	96.3'	
A	Ericsson	KRY 112 71	x		12.5" x 5.6" x 3.7"	13.2 lbs ea	0, 120, 220		94'		Three (3) TMA units

Exhibit F

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: CTHA130A

CTHA130/SNET Tower_MP
419 Broad Street
Windsor, CT 06095

December 7, 2018

EBI Project Number: 6218007452

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	14.71 %

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

December 7, 2018

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

Emissions Analysis for Site: **CTHA130A – CTHA130/SNET Tower_MP**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **419 Broad Street, Windsor, CT**, 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 (μW/cm2). 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) and 2100 MHz (AWS) 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 **419 Broad Street, Windsor, CT**, 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.

2) 1 UMTS channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 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 40 Watts per Channel.

4) 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.

5) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

6) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

7) 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.

8) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

9) The antennas used in this modeling are the **Ericsson AIR32 B66A/B2A** & **Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz and 700 MHz channels. 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

10) The antenna mounting height centerline of the proposed antennas is **94 feet** above ground level (AGL).

11) 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.

12) 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 AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	94 feet	Height (AGL):	94 feet	Height (AGL):	94 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A1 MPE%	**3.61**	Antenna B1 MPE%	**3.61**	Antenna C1 MPE%	**3.61**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	94 feet	Height (AGL):	94 feet	Height (AGL):	94 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	55	Total TX Power(W):	55	Total TX Power(W):	55
ERP (W):	2,139.75	ERP (W):	2,139.75	ERP (W):	2,139.75
Antenna A2 MPE%	**0.99**	Antenna B2 MPE%	**0.99**	Antenna C2 MPE%	**0.99**
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
Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd
Height (AGL):	94 feet	Height (AGL):	94 feet	Height (AGL):	94 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03
Antenna A3 MPE%	**2.70**	Antenna B3 MPE%	**2.70**	Antenna C3 MPE%	**2.70**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**7.30 %**
AT&T	**4.23** %
Clearwire	**0.55** %
MetroPCS	**2.63** %
Site Total MPE %:	**14.71 %**

T-Mobile Sector A Total:	7.30 %
T-Mobile Sector B Total:	7.30 %
T-Mobile Sector C Total:	7.30 %
Site Total:	14.71 %

T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	94	14.45	PCS - 1900 MHz	1000.00	1.44%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	94	21.67	AWS - 2100 MHz	1000.00	2.17%
T-Mobile PCS - 1900 MHz GSM	1	583.57	94	2.71	PCS - 1900 MHz	1000.00	0.27%
T-Mobile AWS - 2100 MHz UMTS	1	1,556.18	94	7.22	AWS - 2100 MHz	1000.00	0.72%
T-Mobile 600 MHz LTE	2	788.97	94	7.35	600 MHz	400.00	1.84%
T-Mobile 700 MHz LTE	2	432.54	94	4.02	700 MHz	467.00	0.86%
						Total:	**7.30%**

Summary

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

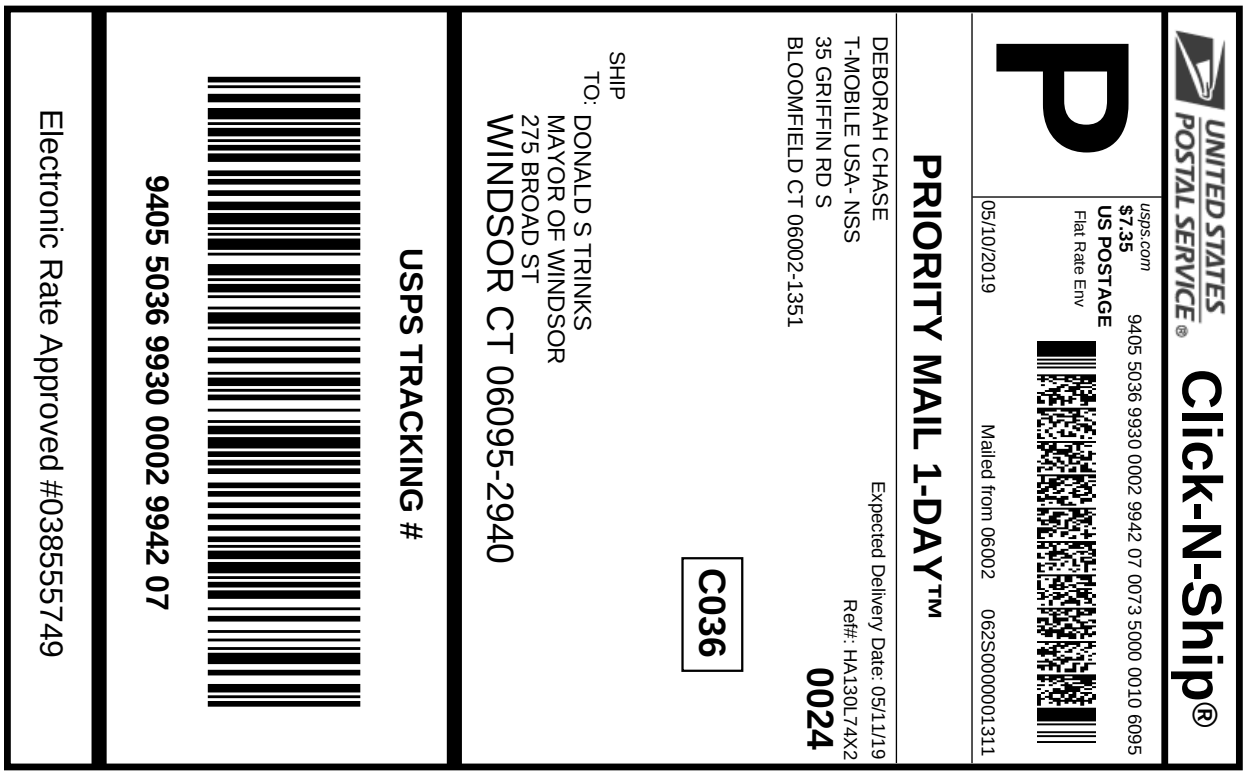
The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	7.30 %
Sector B:	7.30 %
Sector C:	7.30 %
T-Mobile Maximum MPE % (Per Sector):	7.30 %
Site Total:	14.71 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.71%** 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



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0002 9942 07

Trans. #:	463684742
Print Date:	05/10/2019
Ship Date:	05/10/2019
Expected Delivery Date:	05/11/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

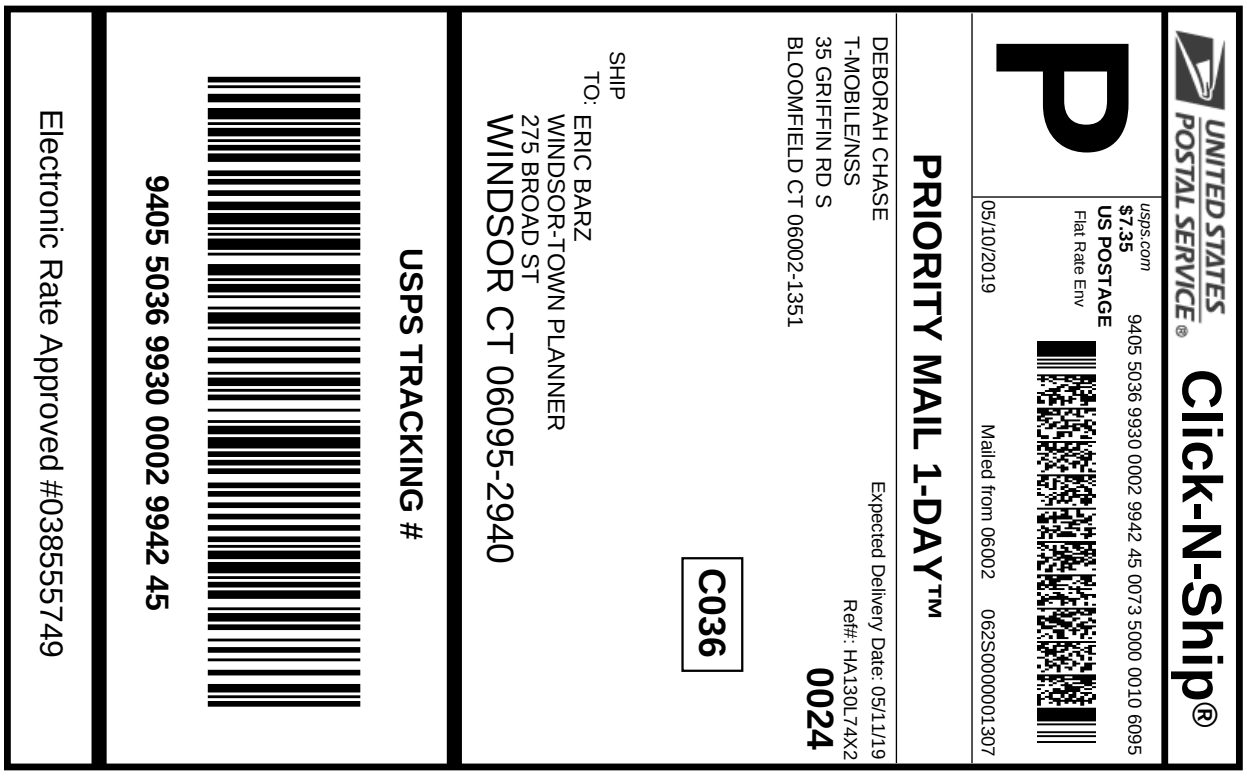
From: DEBORAH CHASE
T-MOBILE USA- NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Ref#: HA130L74X2

To: DONALD S TRINKS
MAYOR OF WINDSOR
275 BROAD ST
WINDSOR CT 06095-2940

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0002 9942 45

Trans. #:	463684742
Print Date:	05/10/2019
Ship Date:	05/10/2019
Expected Delivery Date:	05/11/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: DEBORAH CHASE
T-MOBILE/NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Ref#: HA130L74X2

To: ERIC BARZ
WINDSOR-TOWN PLANNER
275 BROAD ST
WINDSOR CT 06095-2940

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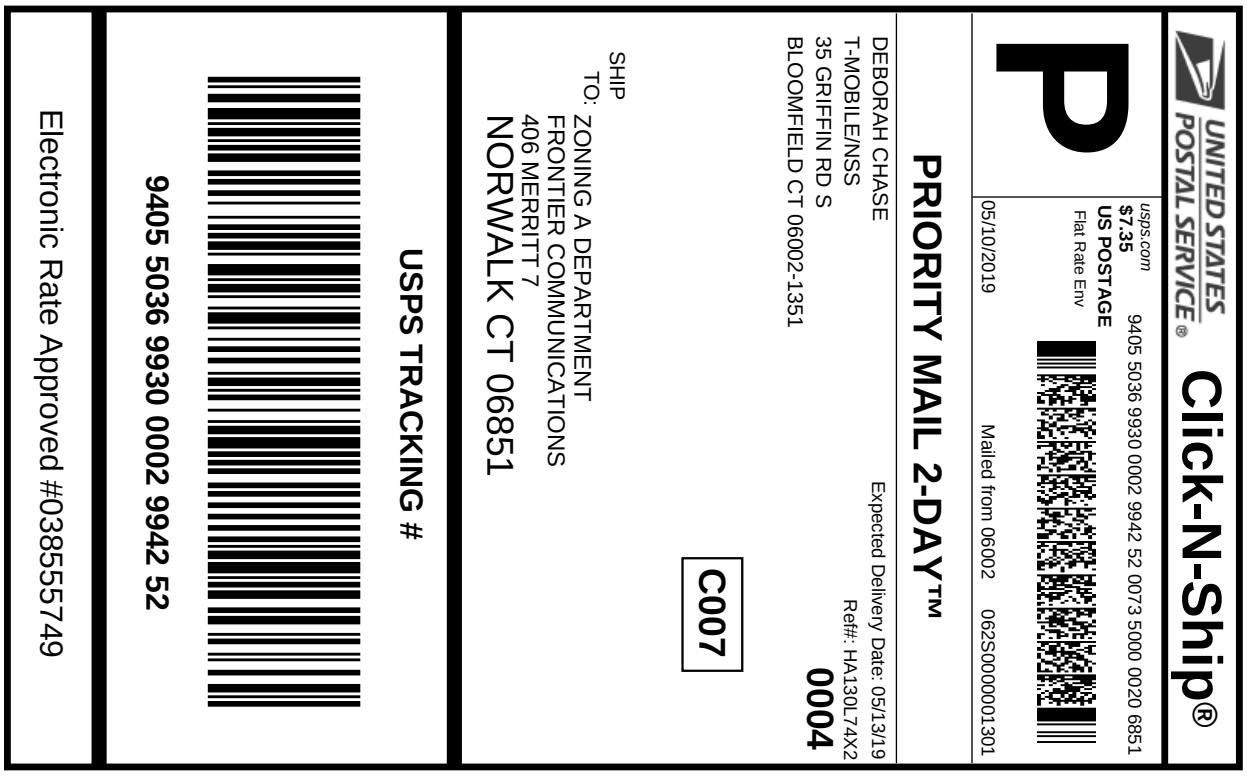

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USPS TRACKING # :
9405 5036 9930 0002 9942 52

Trans. #:	463684742
Print Date:	05/10/2019
Ship Date:	05/10/2019
Expected Delivery Date:	05/13/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: DEBORAH CHASE
T-MOBILE/NSS
35 GRIFFIN RD S
BLOOMFIELD CT 06002-1351

Ref#: HA130L74X2

To: ZONING A DEPARTMENT
FRONTIER COMMUNICATIONS
406 MERRITT 7
NORWALK CT 06851

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UNITED STATES POSTAL SERVICE®

Click-N-Ship®

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usps.com
$7.35
US POSTAGE
Flat Rate Env

05/10/2019 Mailed from 01566 062S0000001308

P

PRIORITY MAIL 1-DAY™

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

Expected Delivery Date: 05/11/19
Ref#: HA130L74X2

0006

Carrier -- Leave if No Response

C085

SHIP TO: MARIANNA BROWN
EVEREST INFRASTRUCTURE PARTNERS
290 CONGRESS ST
FL 7
BOSTON MA 02210-1005

USPS TRACKING #

9405 5036 9930 0002 9942 69

Electronic Rate Approved #038555749

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9405 5036 9930 0002 9942 69

Trans. #:	463684742
Print Date:	05/10/2019
Ship Date:	05/10/2019
Expected Delivery Date:	05/11/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: DEBORAH CHASE Ref#: HA130L74X2
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: MARIANNA BROWN
EVEREST INFRASTRUCTURE PARTNERS
290 CONGRESS ST
FL 7
BOSTON MA 02210-1005

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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